



DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Ron Nelson

LW #1-18

18-13s-21w Trego,KS

Start Date: 2012.10.22 @ 12:00:00

End Date: 2012.10.22 @ 20:05:00

Job Ticket #: 50781 DST #: 1

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

Printed: 2012.10.24 @ 13:39:58



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co.

18-13s-21w Trego,KS

PO Box 1019
Hays KS 67601

LW #1-18

Job Ticket: 50781

DST#: 1

ATTN: Ron Nelson

Test Start: 2012.10.22 @ 12:00:00

GENERAL INFORMATION:

Formation: **Marmaton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:36:00

Time Test Ended: 20:05:00

Test Type: Conventional Bottom Hole (Initial)

Tester: Brett Dickinson

Unit No: 59

Interval: 3907.00 ft (KB) To 3945.00 ft (KB) (TVD)

Reference Elevations: 2239.00 ft (KB)

Total Depth: 3945.00 ft (KB) (TVD)

2231.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8166 Outside

Press @ RunDepth: 150.39 psig @ 3911.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.10.22 End Date: 2012.10.22

Last Calib.: 2012.10.22

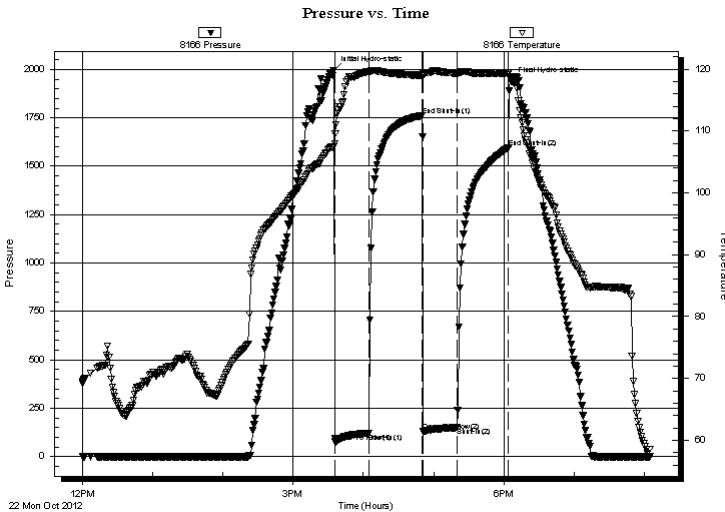
Start Time: 12:00:05 End Time: 20:04:59

Time On Btm: 2012.10.22 @ 15:34:30

Time Off Btm: 2012.10.22 @ 18:06:00

TEST COMMENT: IF-BOB in 3 min
ISI-No Blow
FF-4 1/2" blow
FSI-No blow

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1995.26 | 107.43 | Initial Hydro-static |
| 2 | 76.02 | 109.61 | Open To Flow (1) |
| 30 | 121.95 | 119.56 | Shut-In(1) |
| 76 | 1761.34 | 118.97 | End Shut-In(1) |
| 77 | 129.01 | 119.05 | Open To Flow (2) |
| 106 | 150.39 | 119.33 | Shut-In(2) |
| 150 | 1595.08 | 119.36 | End Shut-In(2) |
| 152 | 1939.56 | 118.65 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-----------------|--------------|
| 250.00 | VSOCM 2%O 98%M | 3.23 |
| 30.00 | Oil spotted mud | 0.42 |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning-Nelson Oil Co.

18-13s-21w Trego,KS

PO Box 1019
Hays KS 67601

LW #1-18

Job Ticket: 50781

DST#: 1

ATTN: Ron Nelson

Test Start: 2012.10.22 @ 12:00:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|----------------------|------------------------|-------------|
| Drill Pipe: | Length: 3868.00 ft | Diameter: 3.80 inches | Volume: 54.26 bbl | Tool Weight: | 2000.00 lb |
| Heavy Wt. Pipe: | Length: ft | Diameter: 2.70 inches | Volume: - 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: | 60000.00 lb |
| | | | <u>Total Volume:</u> | Tool Chased | 0.00 ft |
| Drill Pipe Above KB: | 11.00 ft | | | String Weight: Initial | 55000.00 lb |
| Depth to Top Packer: | 3907.00 ft | | | Final | 57000.00 lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 38.00 ft | | | | |
| Tool Length: | 58.00 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 | | | 3888.00 | |
| Shut In Tool | 5.00 | | | 3893.00 | |
| Hydraulic tool | 5.00 | | | 3898.00 | |
| Packer | 4.00 | | | 3902.00 | 20.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3907.00 | |
| Stubb | 1.00 | | | 3908.00 | |
| Perforations | 3.00 | | | 3911.00 | |
| Recorder | 0.00 | 8319 | Inside | 3911.00 | |
| Recorder | 0.00 | 8166 | Outside | 3911.00 | |
| Perforations | 31.00 | | | 3942.00 | |
| Bullnose | 3.00 | | | 3945.00 | 38.00 Bottom Packers & Anchor |

Total Tool Length: 58.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co.

18-13s-21w Trego,KS

PO Box 1019
Hays KS 67601

LW #1-18

Job Ticket: 50781

DST#: 1

ATTN: Ron Nelson

Test Start: 2012.10.22 @ 12:00:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 68.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.98 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-----------------|---------------|
| 250.00 | VSOCM 2%O 98%M | 3.234 |
| 30.00 | Oil spotted mud | 0.421 |

Total Length: 280.00 ft Total Volume: 3.655 bbl

Num Fluid Samples: 0

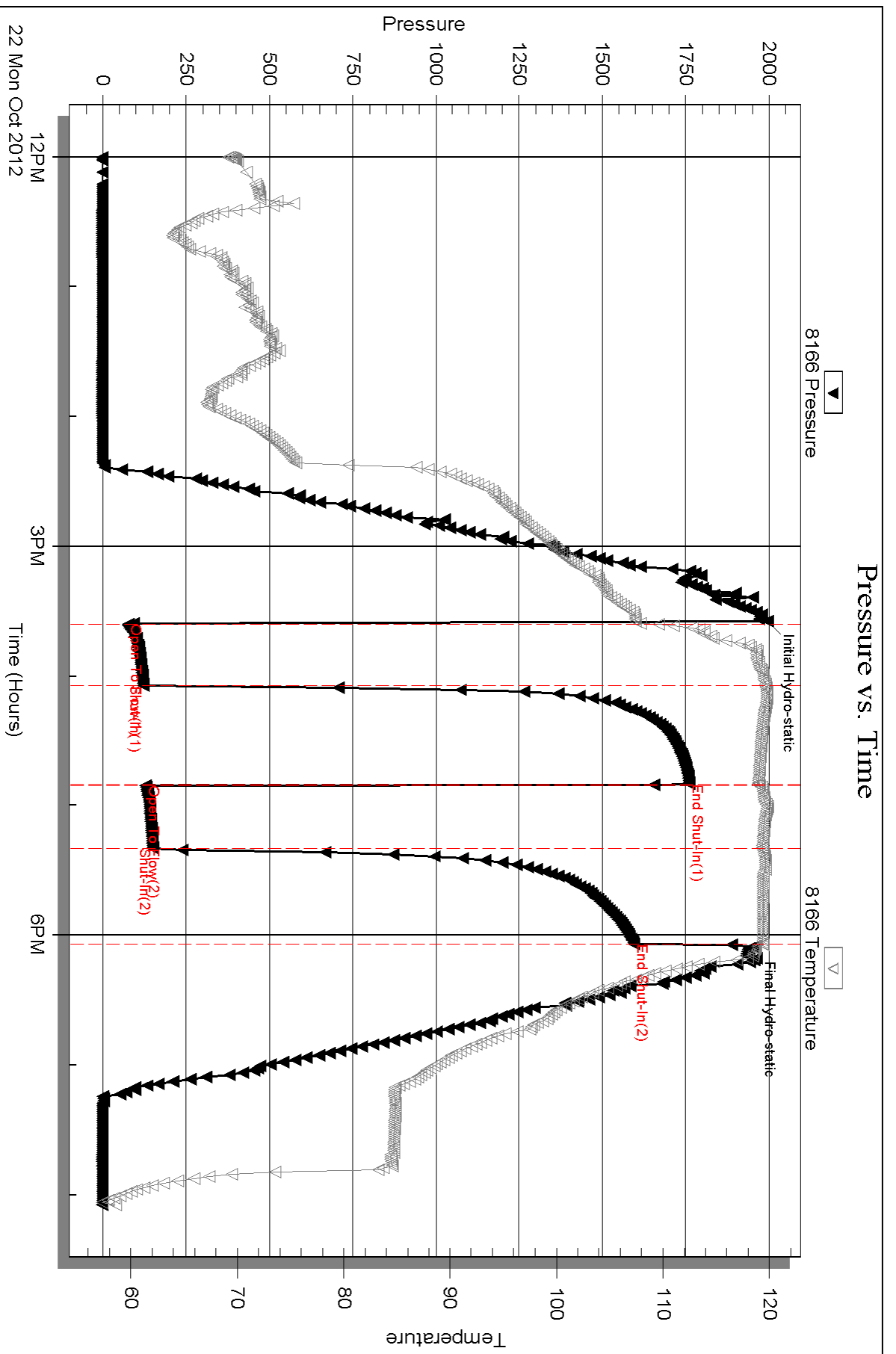
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



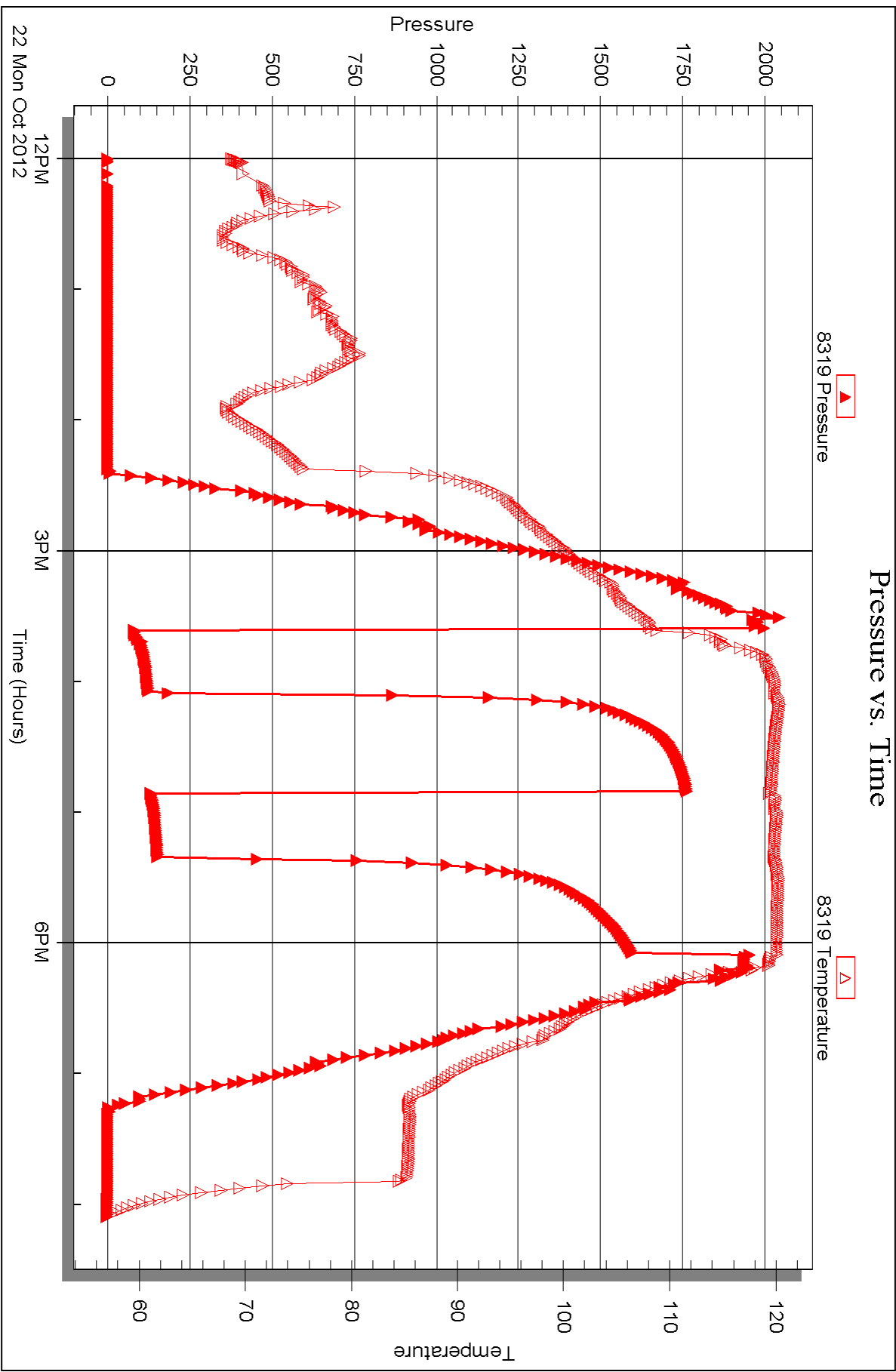
Serial #: 8319

Inside

Dow nung-Nelson Oil Co.

LW #1-18

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 50781

Printed: 2012.10.24 @ 13:40:03



DRILL STEM TEST REPORT

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

PO Box 1019
Hays KS 67601

ATTN: Ron Nelson

LW #1-18

18-13s-21w Trego,KS

Start Date: 2012.10.23 @ 13:30:00

End Date: 2012.10.23 @ 19:02:00

Job Ticket #: 50782 DST #: 2

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

Printed: 2012.10.24 @ 13:38:17



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Dow ning-Nelson Oil Co.

18-13s-21w Trego,KS

PO Box 1019
Hays KS 67601

LW #1-18

Job Ticket: 50782

DST#: 2

ATTN: Ron Nelson

Test Start: 2012.10.23 @ 13:30:00

GENERAL INFORMATION:

Formation: **KC H-J**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:14:00

Time Test Ended: 19:02:00

Test Type: Conventional Straddle (Reset)

Tester: Brett Dickinson

Unit No: 59

Interval: 3686.00 ft (KB) To 3753.00 ft (KB) (TVD)

Reference Elevations: 2239.00 ft (KB)

Total Depth: 4080.00 ft (KB) (TVD)

2231.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 8.00 ft

Serial #: 8319

Inside

Press @ Run Depth: 24.87 psig @ 3749.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.10.23

End Date: 2012.10.23

Last Calib.: 2012.10.23

Start Time: 13:30:05

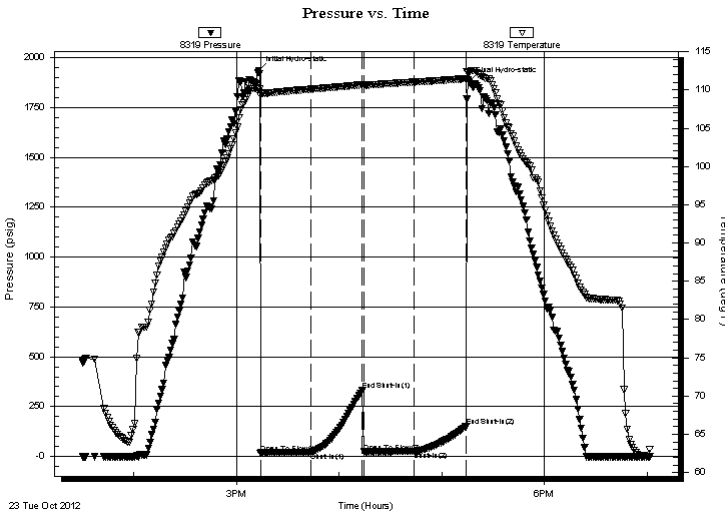
End Time: 19:01:59

Time On Btm: 2012.10.23 @ 15:13:00

Time Off Btm: 2012.10.23 @ 17:16:00

TEST COMMENT: IF-3/4" blow
IS- No blow
FF- No blow
FS- No blow

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 1936.54 | 110.20 | Initial Hydro-static |
| 1 | 16.63 | 109.26 | Open To Flow (1) |
| 31 | 21.67 | 110.09 | Shut-In(1) |
| 61 | 332.05 | 110.68 | End Shut-In(1) |
| 62 | 22.91 | 110.62 | Open To Flow (2) |
| 91 | 24.87 | 111.03 | Shut-In(2) |
| 121 | 149.93 | 111.47 | End Shut-In(2) |
| 123 | 1878.40 | 112.36 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------|--------------|
| 10.00 | mud | 0.05 |
| | | |
| | | |
| | | |
| | | |

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Dow ning-Nelson Oil Co.

18-13s-21w Trego,KS

PO Box 1019
Hays KS 67601

LW #1-18

Job Ticket: 50782

DST#: 2

ATTN: Ron Nelson

Test Start: 2012.10.23 @ 13:30:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|----------------------|------------------------|-------------|
| Drill Pipe: | Length: 3645.00 ft | Diameter: 3.80 inches | Volume: 51.13 bbl | Tool Weight: | 2000.00 lb |
| Heavy Wt. Pipe: | Length: ft | Diameter: 2.70 inches | Volume: - 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: | 60000.00 lb |
| | | | <u>Total Volume:</u> | Tool Chased | 0.00 ft |
| | | | | String Weight: Initial | 60000.00 lb |
| Drill Pipe Above KB: | 9.00 ft | | | Final | 60000.00 lb |
| Depth to Top Packer: | 3686.00 ft | | | | |
| Depth to Bottom Packer: | 3753.00 ft | | | | |
| Interval between Packers: | 67.00 ft | | | | |
| Tool Length: | 417.00 ft | | | | |
| Number of Packers: | 3 | Diameter: | 6.75 inches | | |
| Tool Comments: | | | | | |

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|--------------------------------|
| Change Over Sub | 1.00 | | | 3667.00 | |
| Shut In Tool | 5.00 | | | 3672.00 | |
| Hydraulic tool | 5.00 | | | 3677.00 | |
| Packer | 4.00 | | | 3681.00 | 20.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 3686.00 | |
| Stubb | 1.00 | | | 3687.00 | |
| Perforations | 3.00 | | | 3690.00 | |
| change Over Sub | 1.00 | | | 3691.00 | |
| Blank Spacing | 31.00 | | | 3722.00 | |
| change Over Sub | 1.00 | | | 3723.00 | |
| Perforations | 26.00 | | | 3749.00 | |
| Recorder | 0.00 | 8319 | Inside | 3749.00 | |
| Recorder | 0.00 | 8166 | Outside | 3749.00 | |
| Blank Off Sub | 4.00 | | | 3753.00 | 67.00 Tool Interval |
| Packer | 4.00 | | | 3757.00 | |
| Stubb | 1.00 | | | 3758.00 | |
| Recorder | 0.00 | 6753 | Below | 3758.00 | |
| perforations | 3.00 | | | 3761.00 | |
| Change Over Sub | 1.00 | | | 3762.00 | |
| Blank Spacing | 317.00 | | | 4079.00 | |
| Change Over Sub | 1.00 | | | 4080.00 | |
| Bullnose | 3.00 | | | 4083.00 | 330.00 Bottom Packers & Anchor |

Total Tool Length: 417.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Dow ning-Nelson Oil Co.

18-13s-21w Trego,KS

PO Box 1019
Hays KS 67601

LW #1-18

Job Ticket: 50782

DST#: 2

ATTN: Ron Nelson

Test Start: 2012.10.23 @ 13:30:00

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: 68.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.97 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2000.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-------------|---------------|
| 10.00 | mud | 0.049 |

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

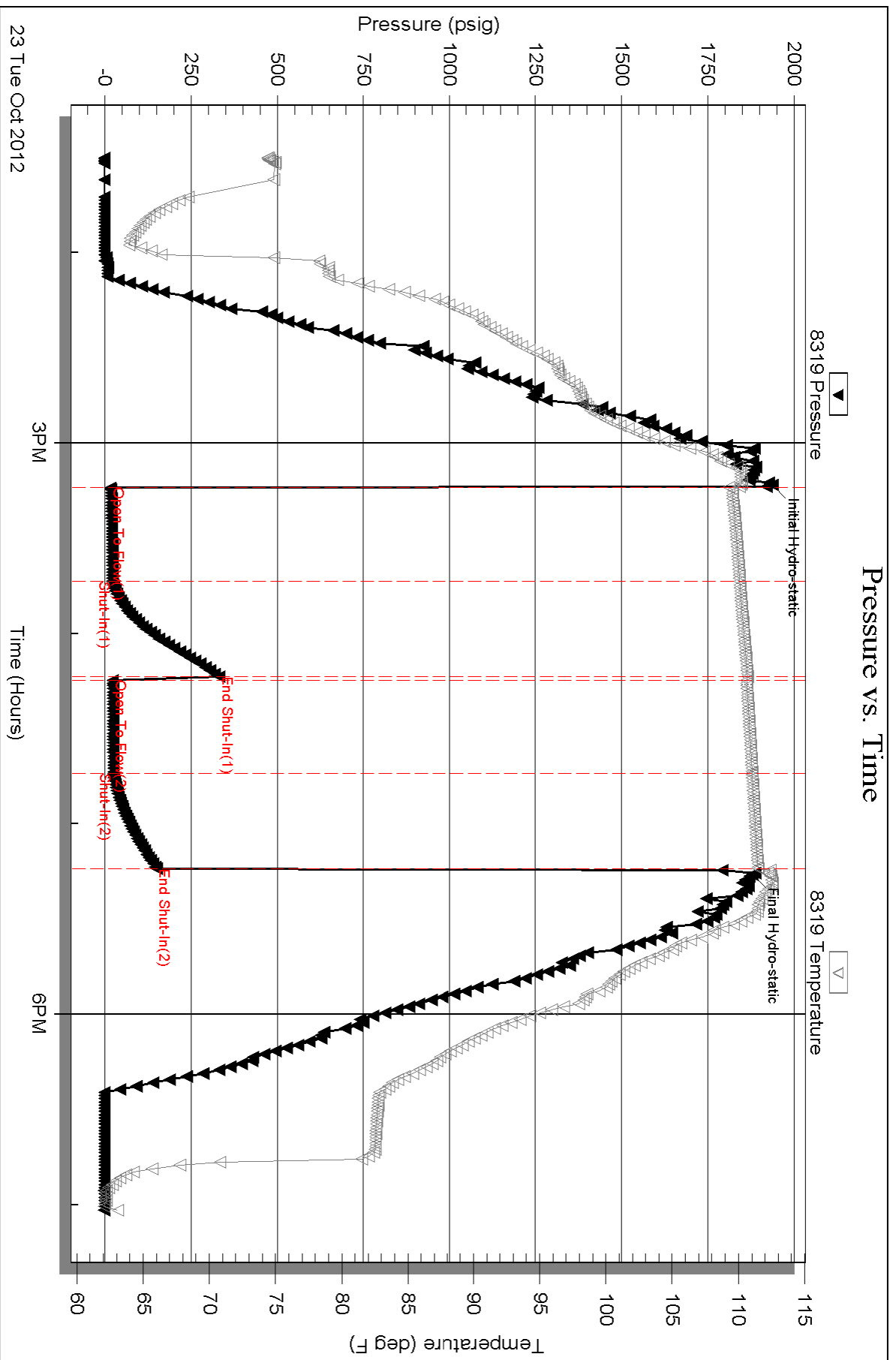
Serial #:

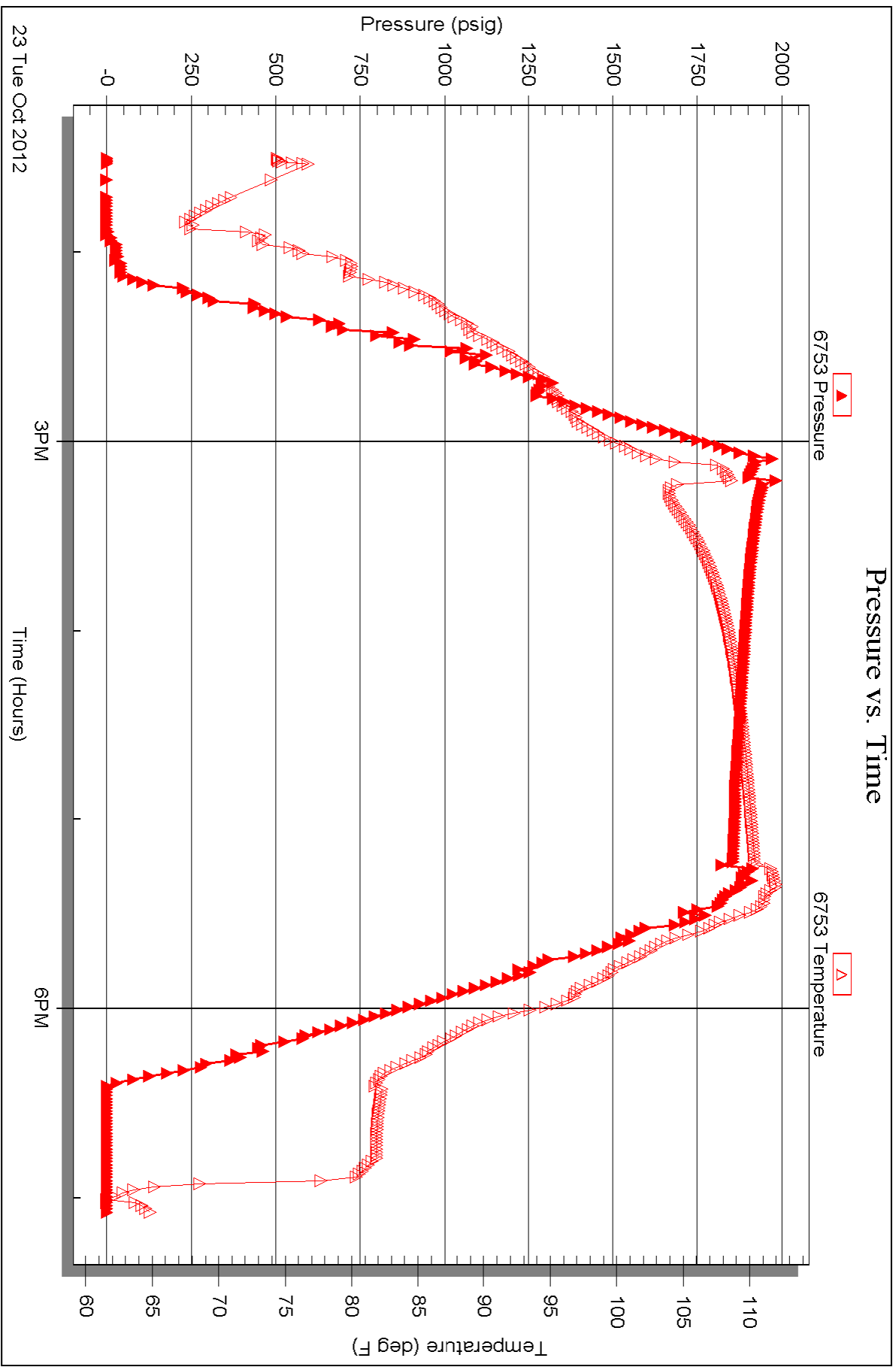
Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time



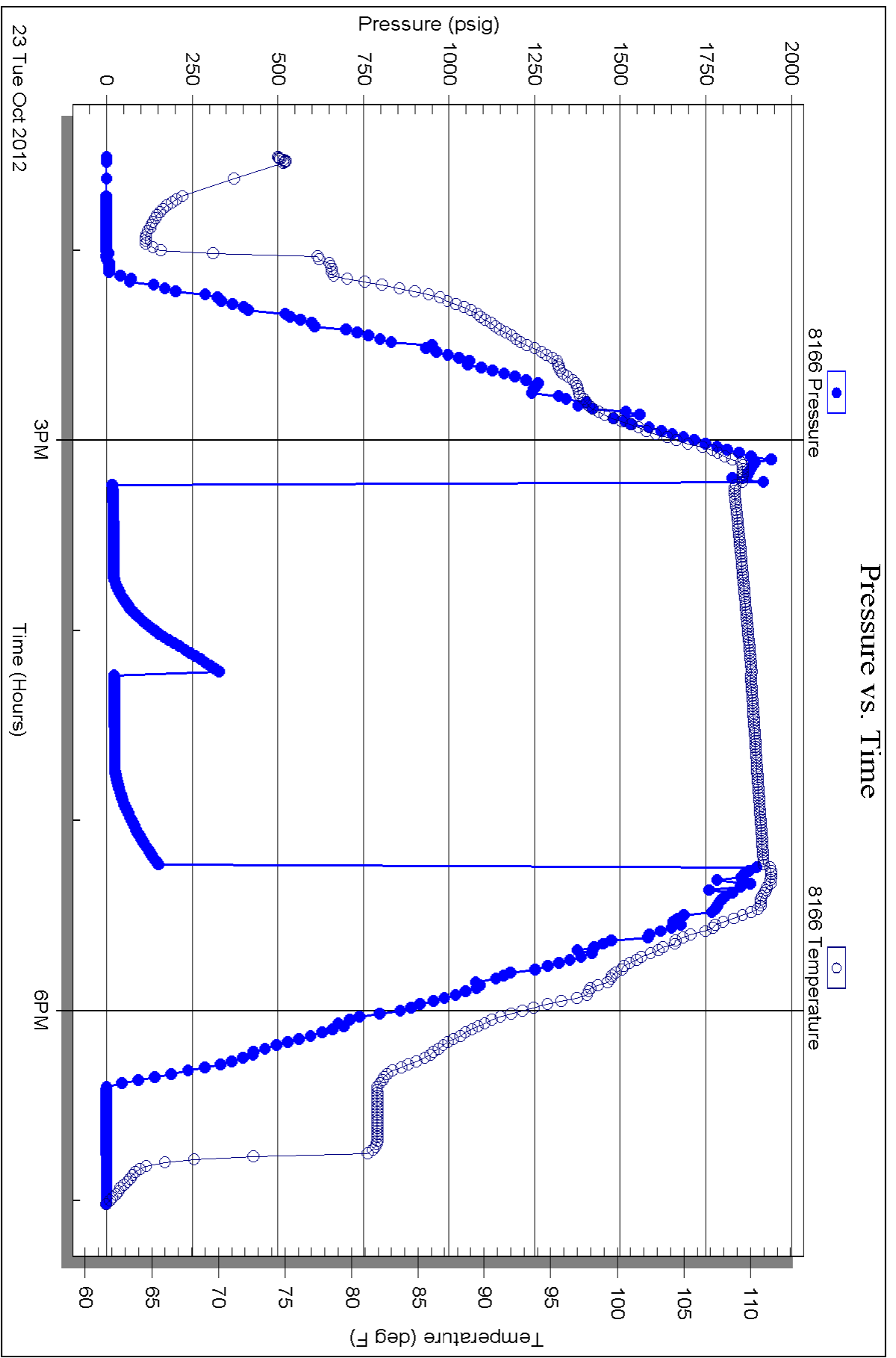


Serial #: 8166

Outside Dow nging-Nelson Oil Co.

LW #1-18

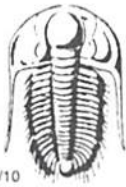
DST Test Number: 2



Triobite Testing, Inc

Ref. No: 50782

Printed: 2012.10.24 @ 13:38:23



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50781

4/10

Well Name & No. LW #1-18 Test No. 1 Date 10-22-12
 Company Downing-Nelson Oil Co Inc. Elevation 2239 KB 2231 GL
 Address PO Box 1019 Hays KS 67601
 Co. Rep / Geo. _____ Rig Discovery #3
 Location: Sec. 18 Twp. 13 Rge. 21 Co. Trego State KS

Interval Tested 3907 - 3945' Zone Tested Marmaton
 Anchor Length 38 Drill Pipe Run _____ Mud Wt. 9.4
 Top Packer Depth 3902 Drill Collars Run 30 Vis 68
 Bottom Packer Depth 3907 Wt. Pipe Run - WL 8.0
 Total Depth 3945 Chlorides 2,000 ppm System LCM _____
 Blow Description IF - BOB in 3min
ISF - No blow
FF - 4 1/2 in blow
FSI - NO blow

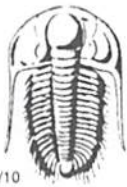
| Rec | Feet of | %gas | %oil | %water | %mud |
|------------|------------------------|------|----------|--------|----------------|
| <u>30</u> | <u>oil spotted mud</u> | | | | |
| <u>250</u> | <u>vso cm</u> | | <u>2</u> | | <u>98</u> %mud |
| ____ | ____ | %gas | %oil | %water | %mud |
| ____ | ____ | %gas | %oil | %water | %mud |
| ____ | ____ | %gas | %oil | %water | %mud |

Rec Total 280 BHT 119 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

| | | |
|--------------------------------------|---|--|
| (A) Initial Hydrostatic <u>1,995</u> | <input checked="" type="checkbox"/> Test <u>1150</u> | T-On Location <u>11:00</u> |
| (B) First Initial Flow <u>76</u> | <input type="checkbox"/> Jars _____ | T-Started <u>12:00</u> |
| (C) First Final Flow <u>122</u> | <input type="checkbox"/> Safety Joint _____ | T-Open <u>15:35</u> |
| (D) Initial Shut-In <u>1,761</u> | <input type="checkbox"/> Circ Sub _____ | T-Pulled <u>18:05</u> |
| (E) Second Initial Flow <u>129</u> | <input type="checkbox"/> Hourly Standby _____ | T-Out <u>20:05</u> |
| (F) Second Final Flow <u>150</u> | <input checked="" type="checkbox"/> Mileage <u>57.5</u> 88.35 | Comments _____ |
| (G) Final Shut-In <u>1,595</u> | <input type="checkbox"/> Sampler _____ | _____ |
| (H) Final Hydrostatic <u>1,940</u> | <input type="checkbox"/> Straddle _____ | <input type="checkbox"/> Ruined Shale Packer _____ |
| Initial Open <u>30</u> | <input type="checkbox"/> Shale Packer _____ | <input type="checkbox"/> Ruined Packer _____ |
| Initial Shut-In <u>45</u> | <input type="checkbox"/> Extra Packer _____ | <input type="checkbox"/> Extra Copies _____ |
| Final Flow <u>30</u> | <input type="checkbox"/> Extra Recorder _____ | Sub Total <u>0</u> |
| Final Shut-In <u>45</u> | <input type="checkbox"/> Day Standby _____ | Total <u>1238.35</u> |
| | <input type="checkbox"/> Accessibility _____ | MP/DST Disc't _____ |
| | Sub Total <u>1238.35</u> | |

Approved By _____ Our Representative Ben Duh...

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



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 50782

Well Name & No. LW #1-18 Test No. 2 Date 10-23-12
 Company Downing-Nelson Oil Co Inc. Elevation 2239 KB 2231 GL
 Address PO Box 1019 Hays KS 67601
 Co. Rep / Geo. _____ Rig Discovery #3
 Location: Sec. 18 Twp. 13 Rge. 21 Co. Trego State KS

Interval Tested 3686-3753 Zone Tested Ac
 Anchor Length 67 Drill Pipe Run _____ Mud Wt. _____
 Top Packer Depth 3681, 3686 Drill Collars Run 30 Vis _____
 Bottom Packer Depth 3753 Wt. Pipe Run _____ WL _____
 Total Depth 4080 Chlorides _____ ppm System LCM _____

Blow Description IF - 3/4 in blow
ISI - No blow
FF - No blow
FSI - No blow

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----------|-------------|------|------|--------|------|
| <u>10</u> | <u>Ma d</u> | | | | |
| ____ | ____ | | | | |
| ____ | ____ | | | | |
| ____ | ____ | | | | |
| ____ | ____ | | | | |

Rec Total 10 BHT _____ Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 4937 Test 1150 T-On Location 12:00
 (B) First Initial Flow 17 Jars _____ T-Started 13:30
 (C) First Final Flow 22 Safety Joint _____ T-Open 15:25
 (D) Initial Shut-In 332 Circ Sub _____ T-Pulled 17:25
 (E) Second Initial Flow 23 Hourly Standby _____ T-Out 19:10
 (F) Second Final Flow 25 Mileage 57.1 88.35 Comments _____
 (G) Final Shut-In 150 Sampler _____
 (H) Final Hydrostatic 1878 Straddle 600 Ruined Shale Packer _____

Initial Open 30 Shale Packer _____ Ruined Packer _____
 Initial Shut-In 30 Extra Packer _____ Extra Copies _____
 Final Flow 30 Extra Recorder _____ Sub Total 0
 Final Shut-In 30 Day Standby _____ Total 1838.35
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1838.35

Approved By _____ Our Representative Burdin

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