

## DRILL STEM TEST REPORT

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

P.O. Box 1019  
Hays KS 67601

ATTN: Al Downing

**Ward #1-31**

**31-18s-17w Rush,KS**

Start Date: 2012.09.21 @ 07:30:00

End Date: 2012.09.21 @ 13:52:30

Job Ticket #: 51001                      DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2012.09.25 @ 11:25:37



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

## DRILL STEM TEST REPORT

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**31-18s-17w Rush,KS**

P.O. Box 1019  
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**Ward #1-31**

Job Ticket: 51001

**DST#: 1**

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Test Start: 2012.09.21 @ 07:30:00

### GENERAL INFORMATION:

Formation: **Arbuckle**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 09:10:30

Time Test Ended: 13:52:30

Test Type: Conventional Bottom Hole (Initial)

Tester: Cody Bloedorn

Unit No: 59

**Interval: 3702.00 ft (KB) To 3771.00 ft (KB) (TVD)**

Reference Elevations: 2002.00 ft (KB)

Total Depth: 3771.00 ft (KB) (TVD)

1997.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 5.00 ft

**Serial #: 8319 Inside**

Press@RunDepth: 478.12 psig @ 3768.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2012.09.21

End Date:

2012.09.21

Last Calib.: 2012.09.21

Start Time: 07:30:05

End Time:

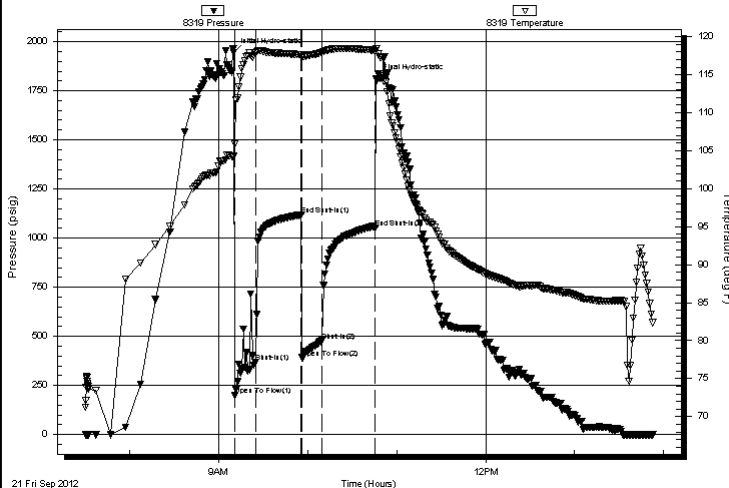
13:52:29

Time On Btm: 2012.09.21 @ 09:10:00

Time Off Btm: 2012.09.21 @ 10:46:00

TEST COMMENT: 15 - IF- B.O.B. in 1 Min.  
30 - IS- No blow back.  
15 - FF- B.O.B. in 1 Minute.  
30 - FS- No blow back.

Pressure vs. Time



### PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation           |
|-------------|-----------------|--------------|----------------------|
| 0           | 1942.89         | 104.23       | Initial Hydro-static |
| 1           | 198.47          | 105.82       | Open To Flow (1)     |
| 15          | 367.80          | 117.90       | Shut-In(1)           |
| 46          | 1119.17         | 117.62       | End Shut-In(1)       |
| 46          | 391.18          | 117.42       | Open To Flow (2)     |
| 60          | 478.12          | 117.93       | Shut-In(2)           |
| 96          | 1051.81         | 118.20       | End Shut-In(2)       |
| 96          | 1809.86         | 118.39       | Final Hydro-static   |

### Recovery

| Length (ft) | Description                   | Volume (bbl) |
|-------------|-------------------------------|--------------|
| 62.00       | VSOCMW, 10%O, 10%M, 80%W      | 0.59         |
| 248.00      | GMCOW, 10%G, 10%M, 20%W, 60%O | 3.48         |
| 372.00      | GO, 40%G, 60%O                | 5.22         |
| 310.00      | GVSOCM, 10%G, 10%O, 80%M      | 4.35         |
| 372.00      | HOCM30%O, 70%M,               | 5.22         |
|             |                               |              |

### Gas Rates

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



Test Start: 2012.09.21 @ 07:30:00

## KB to GR/CF: 5.00 ft

Time Off Btm:

Printed: 2012.09.25 @ 11:25:38



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**TESTING, INC.**

## DRILL STEM TEST REPORT

**TOOL DIAGRAM**

Downing Nelson Oil Co. Inc

**31-18s-17w Rush,KS**

P.O. Box 1019  
Hays KS 67601

**Ward #1-31**

Job Ticket: 51001

**DST#: 1**

ATTN: Al Downing

Test Start: 2012.09.21 @ 07:30:00

### Tool Information

|                           |         |            |           |             |               |           |                        |             |
|---------------------------|---------|------------|-----------|-------------|---------------|-----------|------------------------|-------------|
| Drill Pipe:               | Length: | 3672.00 ft | Diameter: | 3.80 inches | Volume:       | 51.51 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:  | 30000.00 lb |
| Drill Collar:             | Length: | 31.00 ft   | Diameter: | 2.25 inches | Volume:       | 0.15 bbl  | Weight to Pull Loose:  | 55000.00 lb |
|                           |         |            |           |             | Total Volume: | 51.66 bbl | Tool Chased            | 0.00 ft     |
| Drill Pipe Above KB:      |         | 22.00 ft   |           |             |               |           | String Weight: Initial | 48000.00 lb |
| Depth to Top Packer:      |         | 3702.00 ft |           |             |               |           | Final                  | 51000.00 lb |
| Depth to Bottom Packer:   |         | ft         |           |             |               |           |                        |             |
| Interval between Packers: |         | 69.00 ft   |           |             |               |           |                        |             |
| Tool Length:              |         | 90.00 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  |      |         | 3682.00 |       |                         |
| Shut In Tool    | 5.00  |      |         | 3687.00 |       |                         |
| Hydraulic tool  | 5.00  |      |         | 3692.00 |       |                         |
| Packer          | 5.00  |      |         | 3697.00 | 21.00 | Bottom Of Top Packer    |
| Packer          | 5.00  |      |         | 3702.00 |       |                         |
| Stubb           | 1.00  |      |         | 3703.00 |       |                         |
| Perforations    | 1.00  |      |         | 3704.00 |       |                         |
| Change Over Sub | 1.00  |      |         | 3705.00 |       |                         |
| Drill Pipe      | 62.00 |      |         | 3767.00 |       |                         |
| Change Over Sub | 1.00  |      |         | 3768.00 |       |                         |
| Recorder        | 0.00  | 8319 | Inside  | 3768.00 |       |                         |
| Recorder        | 0.00  | 8166 | Outside | 3768.00 |       |                         |
| Bullnose        | 3.00  |      |         | 3771.00 | 69.00 | Bottom Packers & Anchor |

**Total Tool Length: 90.00**



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## DRILL STEM TEST REPORT

### FLUID SUMMARY

Downing Nelson Oil Co. Inc

**31-18s-17w Rush,KS**

P.O. Box 1019  
Hays KS 67601

**Ward #1-31**

Job Ticket: 51001

**DST#: 1**

ATTN: Al Downing

Test Start: 2012.09.21 @ 07:30:00

### Mud and Cushion Information

Mud Type: Gel Chem

Mud Weight: 9.00 lb/gal

Viscosity: 51.00 sec/qt

Water Loss: 8.79 in<sup>3</sup>

Resistivity: ohm.m

Salinity: 3000.00 ppm

Filter Cake: inches

Cushion Type:

Cushion Length:

Cushion Volume:

Gas Cushion Type:

Gas Cushion Pressure:

ft

bbl

psig

Oil API:

Water Salinity:

deg API

ppm

### Recovery Information

Recovery Table

| Length<br>ft | Description                   | Volume<br>bbl |
|--------------|-------------------------------|---------------|
| 62.00        | VSOCMW, 10%O, 10%M, 80%W      | 0.587         |
| 248.00       | GMCOW, 10%G, 10%M, 20%W, 60%O | 3.479         |
| 372.00       | GO, 40%G, 60%O                | 5.218         |
| 310.00       | GVSOCM, 10%G, 10%O, 80%M      | 4.348         |
| 372.00       | HOCM30%O, 70%M,               | 5.218         |

Total Length: 1364.00 ft

Total Volume: 18.850 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Serial #: 8319

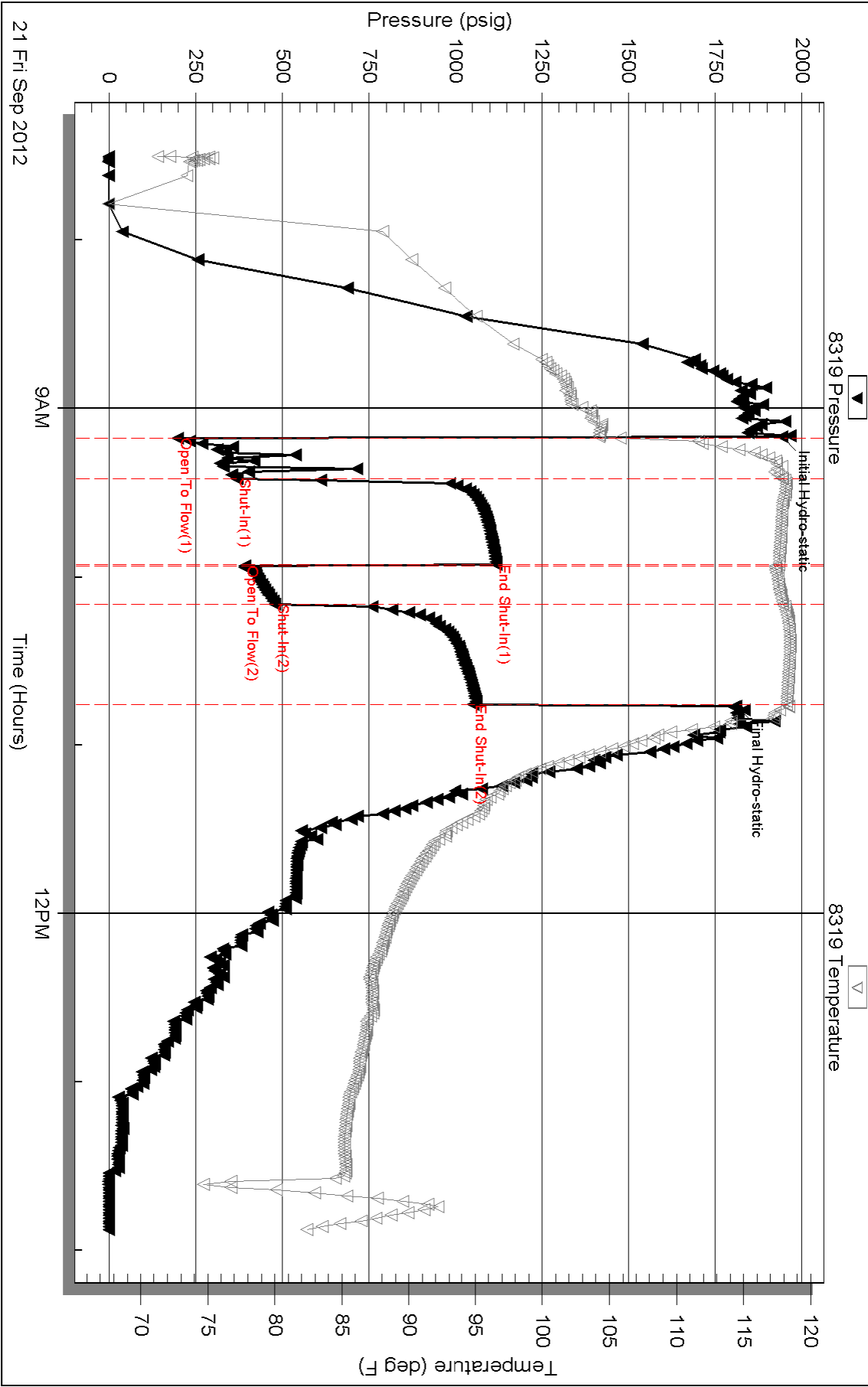
Inside

Downing Nelson Oil Co. Inc

Ward #1-31

DST Test Number: 1

Pressure vs. Time



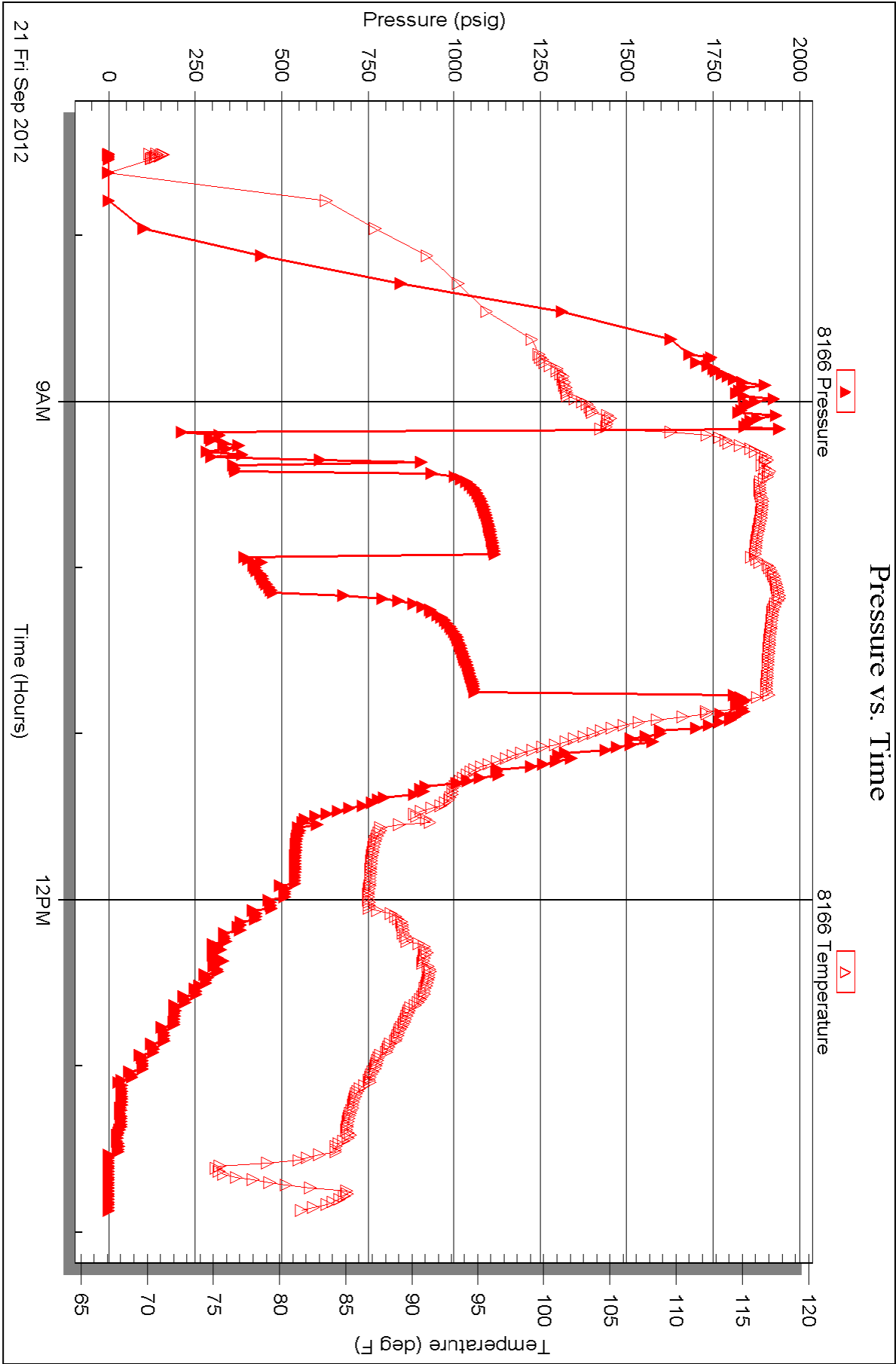
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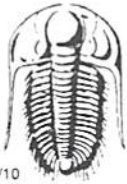
Outside

Dow n ing Nelson Oil Co. Inc

Ward #1-31

DST Test Number: 1





# TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

## Test Ticket

NO. 51001

Well Name & No. Ward 1-31 Test No. 1 Date 9-21-12  
 Company Downing Nelson oil Co. Inc Elevation 2002 KB 1997 GL  
 Address Po Box 1019, Hays KS, 67601  
 Co. Rep / Geo. Allen Downing Rig Discovery 4  
 Location: Sec. 31 Twp. 18s Rge. 17w Co. Rush State KS

Interval Tested 3702-3771 Zone Tested Arbuckle  
 Anchor Length 69' Drill Pipe Run 3672 Mud Wt. 8.8  
 Top Packer Depth 3697 Drill Collars Run — Vis 51  
 Bottom Packer Depth 3702 Wt. Pipe Run — WL 8.8  
 Total Depth 3771 Chlorides 3,000 ppm System LCM —

Blow Description IF-B.O.B. in 1 Minute  
ISI-No blow back  
FF-B.O.B. in 1 Minute  
FSI-No blow back

|                |                       |                |                |                  |                |
|----------------|-----------------------|----------------|----------------|------------------|----------------|
| Rec <u>62'</u> | Feet of <u>V50CMW</u> | %gas <u>10</u> | %oil <u>80</u> | %water <u>10</u> | %mud           |
| Rec <u>248</u> | Feet of <u>6MCOW</u>  | <u>10</u> %gas | <u>60</u> %oil | <u>20</u> %water | <u>10</u> %mud |
| Rec <u>372</u> | Feet of <u>60</u>     | <u>40</u> %gas | <u>60</u> %oil | %water           | %mud           |
| Rec <u>310</u> | Feet of <u>6V50CM</u> | <u>10</u> %gas | <u>10</u> %oil | %water           | <u>80</u> %mud |
| Rec <u>372</u> | Feet of <u>HOCM</u>   | %gas <u>30</u> | %oil           | %water <u>70</u> | %mud           |

Rec Total 1364' BHT \_\_\_\_\_ Gravity \_\_\_\_\_ API RW \_\_\_\_\_ @ \_\_\_\_\_ °F Chlorides \_\_\_\_\_ ppm  
 (A) Initial Hydrostatic 1942 ☒ Test 1150 T-On Location 6:35pm am  
 (B) First Initial Flow 198 ☐ Jars \_\_\_\_\_ T-Started 7:30am  
 (C) First Final Flow 367 ☐ Safety Joint \_\_\_\_\_ T-Open 9:05am  
 (D) Initial Shut-In 1119 ☐ Circ Sub \_\_\_\_\_ T-Pulled 10:35am  
 (E) Second Initial Flow 391 ☐ Hourly Standby \_\_\_\_\_ T-Out 1:47pm  
 (F) Second Final Flow 478 ☒ Mileage 70 RT 108.50 Comments \_\_\_\_\_  
 (G) Final Shut-In 1051 ☐ Sampler \_\_\_\_\_  
 (H) Final Hydrostatic 1809 ☐ Straddle \_\_\_\_\_  
☐ Shale Packer \_\_\_\_\_  
☐ Extra Packer \_\_\_\_\_  
☐ Extra Recorder \_\_\_\_\_  
☐ Day Standby \_\_\_\_\_  
☐ Accessibility \_\_\_\_\_

Initial Open 15  
 Initial Shut-In 30  
 Final Flow 15  
 Final Shut-In 30

Approved By \_\_\_\_\_

Our Representative Cody B...

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