15-167-23580 14-13s-15w

TRILOBITE TESTING, INC.

# DRILL STEM TEST REPORT

Prepared For: **JAG Operations,Inc.**

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**14-13s15w Russell KS**

**Brungardt #1**

Start Date: 2009.07.25 @ 09:48:26
End Date: 2009.07.25 @ 16:19:26
Job Ticket #: 35226 DST #: 1

Trilobite Testing, Inc
PO Box 1733 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620



JAG Operations,Inc. Brungardt #1 14-13s15w Russell KS DST # 1 "C" 2009.07.25

# DRILL STEM TEST REPORT

TRILOBITE TESTING, INC

JAG Operations,Inc.

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**Brungardt #1**

**14-13s15w Russell KS**

Job Ticket: 35226 **DST#:** 1

Test Start: 2009.07.25 @ 09:48:26

## GENERAL INFORMATION:

Formation: "C"
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 11:37:56
Time Test Ended: 16:19:26

Test Type: Conventional Bottom Hole
Tester: Jason McLemore
Unit No: 32

**Interval:** **3004.00 ft (KB) To 3060.00 ft (KB) (TVD)**
Total Depth: 3060.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good

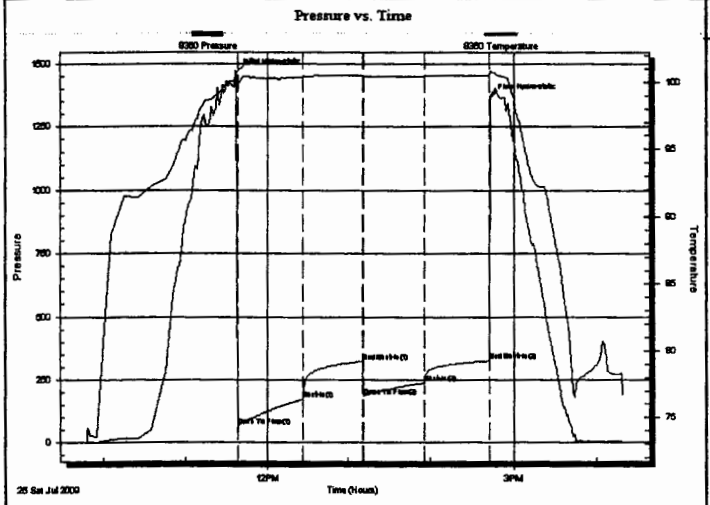
Reference Elevations: 1829.00 ft (KB)
1819.00 ft (CF)
KB to GR/CF: 10.00 ft

**Serial #: 8360** **Inside**

Press@RunDepth: 237.63 psig @ 3006.00 ft (KB)
Start Date: 2009.07.25 End Date: 2009.07.25
Start Time: 09:48:28 End Time: 16:19:26

Capacity: 7000.00 psig
Last Calib.: 2009.07.25
Time On Btm: 2009.07.25 @ 11:36:56
Time Off Btm: 2009.07.25 @ 14:43:56

TEST COMMENT: IFP-Strong Blow ,BOB ion 4 Min.
ISI-Dead
FFP-Fair Blow ,BOB in 19 Min.
FSI-Dead




## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|---|---|---|---|
| 0 | 1464.08 | 100.33 | Initial Hydro-static |
| 1 | 64.63 | 99.93 | Open To Flow (1) |
| 49 | 173.34 | 100.39 | Shut-In(1) |
| 95 | 323.05 | 100.47 | End Shut-In(1) |
| 95 | 185.52 | 100.40 | Open To Flow (2) |
| 139 | 237.63 | 100.45 | Shut-In(2) |
| 186 | 324.80 | 100.48 | End Shut-In(2) |
| 187 | 1366.79 | 100.87 | Final Hydro-static |

## Recovery

| Length (ft) | Description | Volume (bbl) |
|---|---|---|
| 425.00 | Muddy Water-85%W-15%M | 5.68 |
| 0.00 | 145' Gas In Pipe | 0.00 |
| | | |
| | | |
| | | |
| | | |

## Gas Rates

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

TRILOBITE TESTING, INC

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

JAG Operations,Inc.

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**Brungardt #1**

**14-13s15w Russell KS**

Job Ticket: 35226 **DST#: 1**

Test Start: 2009.07.25 @ 09:48:26

## Tool Information

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Drill Pipe: | Length: | 2957.00 ft | Diameter: | 3.80 inches | Volume: | 41.48 bbl | |
| Heavy Wt. Pipe: | Length: | 0.00 ft | Diameter: | 2.70 inches | Volume: | 0.00 bbl | |
| Drill Collar: | Length: | 31.00 ft | Diameter: | 2.25 inches | Volume: | 0.15 bbl | |
| | | | | | Total Volume: | 41.63 bbl | |

| | |
|---|---|
| Drill Pipe Above KB: | 5.00 ft |
| Depth to Top Packer: | 3004.00 ft |
| Depth to Bottom Packer: | ft |
| Interval betw een Packers: | 56.00 ft |
| Tool Length: | 77.00 ft |
| Number of Packers: | 2 Diameter: 6.75 inches |

| | | |
|---|---|---|
| Tool Weight: | | 2000.00 lb |
| Weight set on Packer: | | 25000.00 lb |
| Weight to Pull Loose: | | 45000.00 lb |
| Tool Chased | | 0.00 ft |
| String Weight: | Initial | 40000.00 lb |
| | Final | 42000.00 lb |

Tool Comments:

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths | |
|---|---|---|---|---|---|---|
| Change Over Sub | 1.00 | | | 2984.00 | | |
| Shut In Tool | 5.00 | | | 2989.00 | | |
| Hydraulic tool | 5.00 | | | 2994.00 | | |
| Packer | 5.00 | | | 2999.00 | 21.00 | Bottom Of Top Packer |
| Packer | 5.00 | | | 3004.00 | | |
| Stubb | 1.00 | | | 3005.00 | | |
| Perforations | 1.00 | | | 3006.00 | | |
| Recorder | 0.00 | 8360 | Inside | 3006.00 | | |
| Change Over Sub | 1.00 | | | 3007.00 | | |
| Recorder | 0.00 | 6755 | Inside | 3007.00 | | |
| Blank Spacing | 31.00 | | | 3038.00 | | |
| Change Over Sub | 1.00 | | | 3039.00 | | |
| Perforations | 18.00 | | | 3057.00 | | |
| Bullnose | 3.00 | | | 3060.00 | 56.00 | Bottom Packers & Anchor |
| **Total Tool Length:** | **77.00** | | | | | |

TRILOBITE TESTING, INC

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

JAG Operations,Inc.

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**Brungardt #1**

**14-13s15w Russell KS**

Job Ticket: 35226 **DST#: 1**

Test Start: 2009.07.25 @ 09:48:26

## 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: | 44000 ppm |
| Viscosity: | 50.00 sec/qt | Cushion Volume: | bbl | | |
| Water Loss: | 9.58 in³ | Gas Cushion Type: | | | |
| Resistivity: | ohm.m | Gas Cushion Pressure: | psig | | |
| Salinity: | 5000.00 ppm | | | | |
| Filter Cake: | inches | | | | |

## Recovery Information

Recovery Table

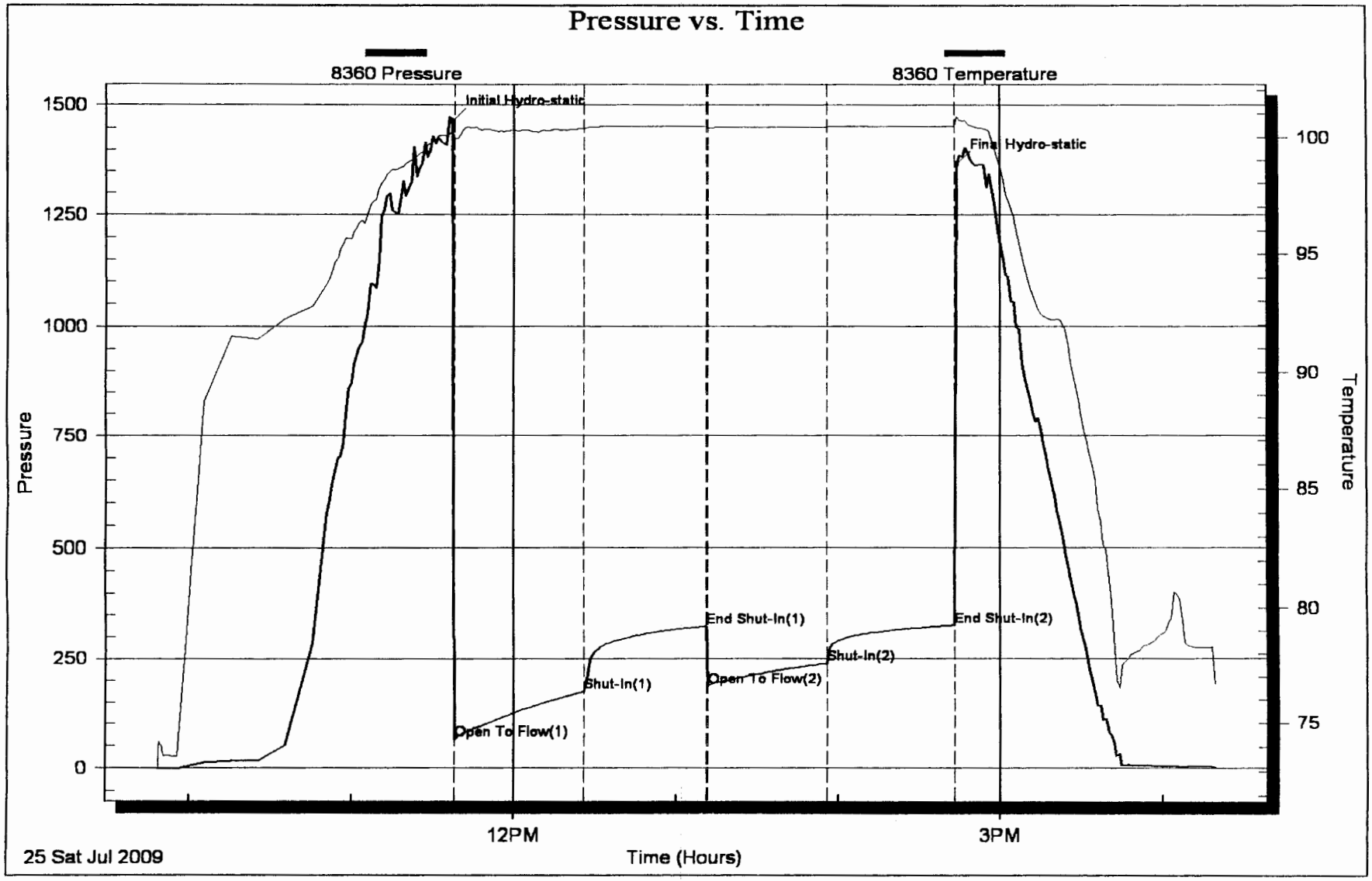
| Length ft | Description | Volume bbl |
|---|---|---|
| 425.00 | Muddy Water-85%W-15%M | 5.679 |
| 0.00 | 145' Gas In Pipe | 0.000 |

Total Length: 425.00 ft Total Volume: 5.679 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW .124 @ 91F = 44,000 ppm chlorides


Pressure vs. Time
8360 Pressure
8360 Temperature
Initial Hydro-static
Final Hydro-static
End Shut-In(1)
End Shut-In(2)
Shut-In(2)
Shut-In(1)
Open To Flow(2)
Open To Flow(1)
Pressure
Temperature
1500
1250
1000
750
500
250
0
100
95
90
85
80
75
12PM
3PM
25 Sat Jul 2009
Time (Hours)



TRILOBITE TESTING, INC.

# DRILL STEM TEST REPORT

Prepared For: **JAG Operations,Inc.**

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**14-13s15w Russell KS**

**Brungardt #1**

Start Date: 2009.07.26 @ 19:35:30
End Date: 2009.07.27 @ 02:20:30
Job Ticket #: 35227 DST #: 2

Trilobite Testing, Inc
PO Box 1733 Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

# DRILL STEM TEST REPORT

JAG Operations,Inc.

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**Brungardt #1**

**14-13s15w Russell KS**

Job Ticket: 35227 **DST#: 2**

Test Start: 2009.07.26 @ 19:35:30

## GENERAL INFORMATION:

Formation: **Arbuckle**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 21:01:30
Time Test Ended: 02:20:30

Test Type: Conventional Straddle
Tester: Jason McLemore
Unit No: 32

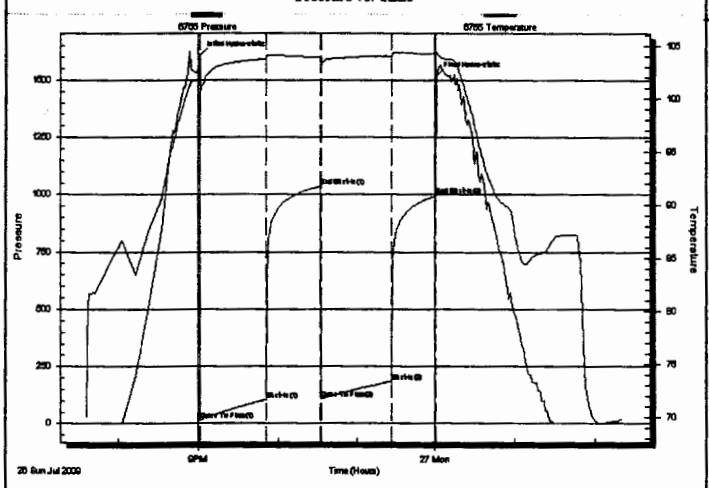
**Interval: 3272.00 ft (KB) To 3282.00 ft (KB) (TVD)**
Total Depth: 3346.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good

Reference Elevations: 1829.00 ft (KB)
1819.00 ft (CF)
KB to GR/CF: 10.00 ft

**Serial #: 6755** **Inside**
Press@RunDepth: 185.41 psig @ 3273.00 ft (KB)
Start Date: 2009.07.26 End Date: 2009.07.27
Start Time: 19:35:32 End Time: 02:20:30

Capacity: 7000.00 psig
Last Calib.: 2009.07.27
Time On Btm: 2009.07.26 @ 21:01:00
Time Off Btm: 2009.07.27 @ 00:01:00

TEST COMMENT: IFP-Good Blow ,BOB in 19 Min.
ISI-Dead
FFP-Fair Blow ,BOB in 28 Min.
FSI-Dead




## PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|---|---|---|---|
| 0 | 1607.51 | 101.59 | Initial Hydro-static |
| 1 | 13.74 | 100.43 | Open To Flow (1) |
| 50 | 103.63 | 103.69 | Shut-In(1) |
| 90 | 1034.20 | 103.84 | End Shut-In(1) |
| 91 | 107.89 | 103.24 | Open To Flow (2) |
| 146 | 185.41 | 103.99 | Shut-In(2) |
| 180 | 995.96 | 104.19 | End Shut-In(2) |
| 180 | 1521.08 | 104.43 | Final Hydro-static |

## Recovery

| Length (ft) | Description | Volume (bbl) |
|---|---|---|
| 370.00 | Muddy Water | 4.91 |
| 10.00 | Muddy Water W/Oil Spots | 0.14 |
| | | |
| | | |
| | | |
| | | |

## Gas Rates

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

# DRILL STEM TEST REPORT

**TOOL DIAGRAM**

JAG Operations,Inc.

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**Brungardt #1**

**14-13s15w Russell KS**

Job Ticket: 35227 **DST#: 2**

Test Start: 2009.07.26 @ 19:35:30

## Tool Information

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Drill Pipe: | Length: | 3246.00 ft | Diameter: | 3.80 inches | Volume: | 45.53 bbl | Tool Weight: | 2000.00 lb |
| Heavy Wt. Pipe: | Length: | 0.00 ft | Diameter: | 2.70 inches | Volume: | 0.00 bbl | Weight set on Packer: | 25000.00 lb |
| Drill Collar: | Length: | 31.00 ft | Diameter: | 2.25 inches | Volume: | 0.15 bbl | Weight to Pull Loose: | 50000.00 lb |
| | | | | | Total Volume: | 45.68 bbl | Tool Chased | 0.00 ft |
| Drill Pipe Above KB: | | 26.00 ft | | | | | String Weight: Initial | 42000.00 lb |
| Depth to Top Packer: | | 3272.00 ft | | | | | Final | 45000.00 lb |
| Depth to Bottom Packer: | | 3282.00 ft | | | | | | |
| Interval betw een Packers: | | 10.00 ft | | | | | | |
| Tool Length: | | 95.00 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 | | | 3252.00 | | |
| Shut In Tool | 5.00 | | | 3257.00 | | |
| Hydraulic tool | 5.00 | | | 3262.00 | | |
| Packer | 5.00 | | | 3267.00 | 21.00 | Bottom Of Top Packer |
| Packer | 5.00 | | | 3272.00 | | |
| Stubb | 1.00 | | | 3273.00 | | |
| Recorder | 0.00 | 6755 | Inside | 3273.00 | | |
| Perforations | 5.00 | | | 3278.00 | | |
| Blank Off Sub | 1.00 | | | 3279.00 | | |
| Blank Spacing | 3.00 | | | 3282.00 | 10.00 | Tool Interval |
| Packer | 1.00 | | | 3283.00 | | |
| Stubb | 1.00 | | | 3284.00 | | |
| Perforations | 25.00 | | | 3309.00 | | |
| Recorder | 0.00 | 8360 | Below | 3309.00 | | |
| Change Over Sub | 1.00 | | | 3310.00 | | |
| Blank Spacing | 31.00 | | | 3341.00 | | |
| Change Over Sub | 1.00 | | | 3342.00 | | |
| Recorder | 0.00 | 13252 | Below | 3342.00 | | |
| Perforations | 1.00 | | | 3343.00 | | |
| Bullnose | 3.00 | | | 3346.00 | 64.00 | Bottom Packers & Anchor |
| **Total Tool Length:** | **95.00** | | | | | |

TRILOBITE TESTING, INC

# DRILL STEM TEST REPORT

**FLUID SUMMARY**

JAG Operations,Inc.

PO Box 628
Hays, KS 67601

ATTN: Mike Bair

**Brungardt #1**

**14-13s15w Russell KS**

Job Ticket: 35227 **DST#: 2**

Test Start: 2009.07.26 @ 19:35:30

## 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: | 16500 ppm |
| Viscosity: | 59.00 sec/qt | Cushion Volume: | bbl | | |
| Water Loss: | 9.18 in³ | Gas Cushion Type: | | | |
| Resistivity: | ohm.m | Gas Cushion Pressure: | psig | | |
| Salinity: | 5000.00 ppm | | | | |
| Filter Cake: | inches | | | | |

## Recovery Information

Recovery Table

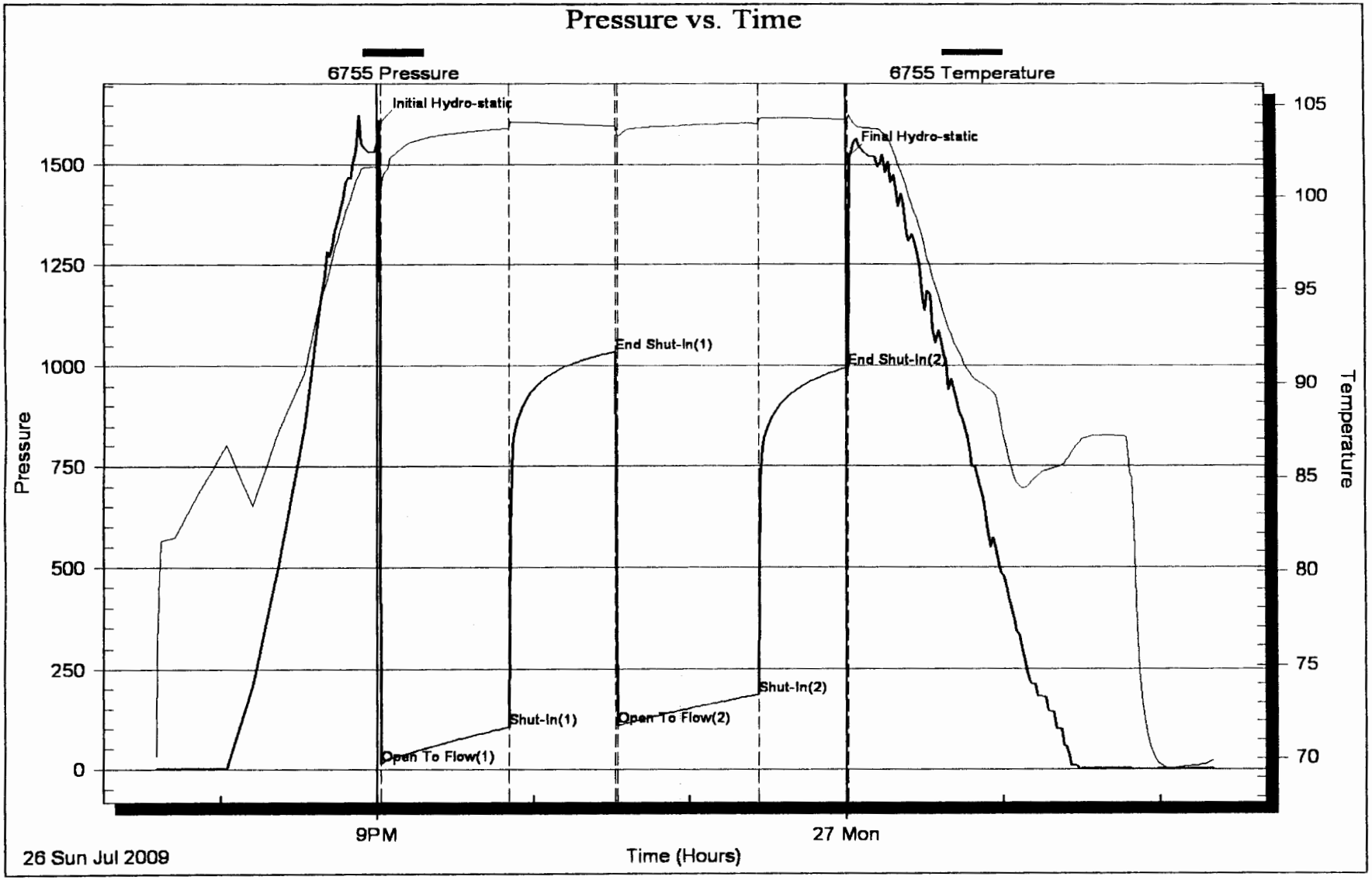
| Length ft | Description | Volume bbl |
|---|---|---|
| 370.00 | Muddy Water | 4.908 |
| 10.00 | Muddy Water W/Oil Spots | 0.140 |

Total Length: 380.00 ft Total Volume: 5.048 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:

Laboratory Name: Laboratory Location:

Recovery Comments: RW .395 @ 71 = 165000 ppm chlorides


Pressure vs. Time
6755 Pressure
6755 Temperature
Initial Hydro-static
Final Hydro-static
End Shut-In(1)
End Shut-In(2)
Shut-In(1)
Shut-In(2)
Open To Flow(1)
Open To Flow(2)
Pressure
Temperature
1500
1250
1000
750
500
250
0
105
100
95
90
85
80
75
70
9PM
27 Mon
26 Sun Jul 2009
Time (Hours)