



DRILL STEM TEST REPORT

Prepared For: **Herman L. Loeb, LLC**

PO Box 838
Lawrenceville Il.62439

ATTN: Jon Christensen

Randel #1-20

20-27s-18w Kiowa,KS

Start Date: 2013.10.31 @ 23:21:59

End Date: 2013.11.01 @ 07:25:59

Job Ticket #: 52369 DST #: 1

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.11.06 @ 15:15:42



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52369

DST#: 1

ATTN: Jon Christensen

Test Start: 2013.10.31 @ 23:21:59

GENERAL INFORMATION:

Formation: **Lans. A**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:39:59

Time Test Ended: 07:25:59

Test Type: Conventional Bottom Hole (Initial)

Tester: Gary Pevoteaux

Unit No: 56

Interval: 4206.00 ft (KB) To 4225.00 ft (KB) (TVD)

Reference Elevations: 2215.00 ft (KB)

Total Depth: 4225.00 ft (KB) (TVD)

2204.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8352 Inside

Press @ Run Depth: 30.39 psig @ 4207.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.10.31

End Date: 2013.11.01

Last Calib.: 2013.11.01

Start Time: 23:22:04

End Time: 07:25:58

Time On Btm: 2013.11.01 @ 01:37:59

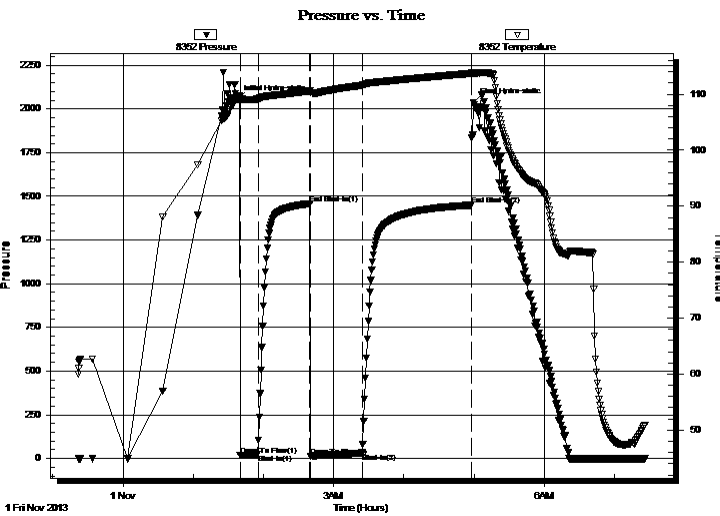
Time Off Btm: 2013.11.01 @ 04:59:29

TEST COMMENT: IF: Strong blow . B.O.B. in 4 1/2 mins.

IS: No blow .

FF: Strong blow . B.O.B. in 2 secs. GTS in 30 mins. TSTM

FS: No blow .



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2055.42 | 109.67 | Initial Hydro-static |
| 2 | 17.00 | 109.22 | Open To Flow (1) |
| 18 | 22.79 | 109.12 | Shut-In(1) |
| 62 | 1457.41 | 110.60 | End Shut-In(1) |
| 63 | 13.08 | 110.28 | Open To Flow (2) |
| 107 | 30.39 | 111.55 | Shut-In(2) |
| 200 | 1449.78 | 113.71 | End Shut-In(2) |
| 202 | 2037.84 | 113.67 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|--------------|--------------|
| 35.00 | WM 34%w 66%m | 0.17 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52369

DST#: 1

ATTN: Jon Christensen

Test Start: 2013.10.31 @ 23:21:59

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 3919.00 ft | Diameter: 3.80 inches | Volume: 54.97 bbl | Tool Weight: 2400.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 24000.00 lb |
| Drill Collar: | Length: 274.00 ft | Diameter: 2.25 inches | Volume: 1.35 bbl | Weight to Pull Loose: 88000.00 lb |
| | | | <u>Total Volume: 56.32 bbl</u> | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 10.00 ft | | | String Weight: Initial 74000.00 lb |
| Depth to Top Packer: | 4206.00 ft | | | Final 75000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 19.00 ft | | | |
| Tool Length: | 42.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.70 inches | | |

Tool Comments:

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

| | | | | | |
|--------------|-------|------|---------|---------|-------------------------------|
| C.O. Sub | 1.00 | | | 4184.00 | |
| Shut in tool | 5.00 | | | 4189.00 | |
| HMV | 5.00 | | | 4194.00 | |
| Safety Joint | 3.00 | | | 4197.00 | |
| Packer | 4.00 | | | 4201.00 | 23.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 4206.00 | |
| Stubb | 1.00 | | | 4207.00 | |
| Recorder | 0.00 | 8352 | Inside | 4207.00 | |
| Recorder | 0.00 | 8370 | Outside | 4207.00 | |
| Perforations | 13.00 | | | 4220.00 | |
| Bullnose | 5.00 | | | 4225.00 | 19.00 Bottom Packers & Anchor |

Total Tool Length: 42.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52369

DST#: 1

ATTN: Jon Christensen

Test Start: 2013.10.31 @ 23:21:59

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:

68000 ppm

Viscosity: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 0.20 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|--------------|---------------|
| 35.00 | WM 34%w 66%m | 0.172 |

Total Length: 35.00 ft Total Volume: 0.172 bbl

Num Fluid Samples: 0

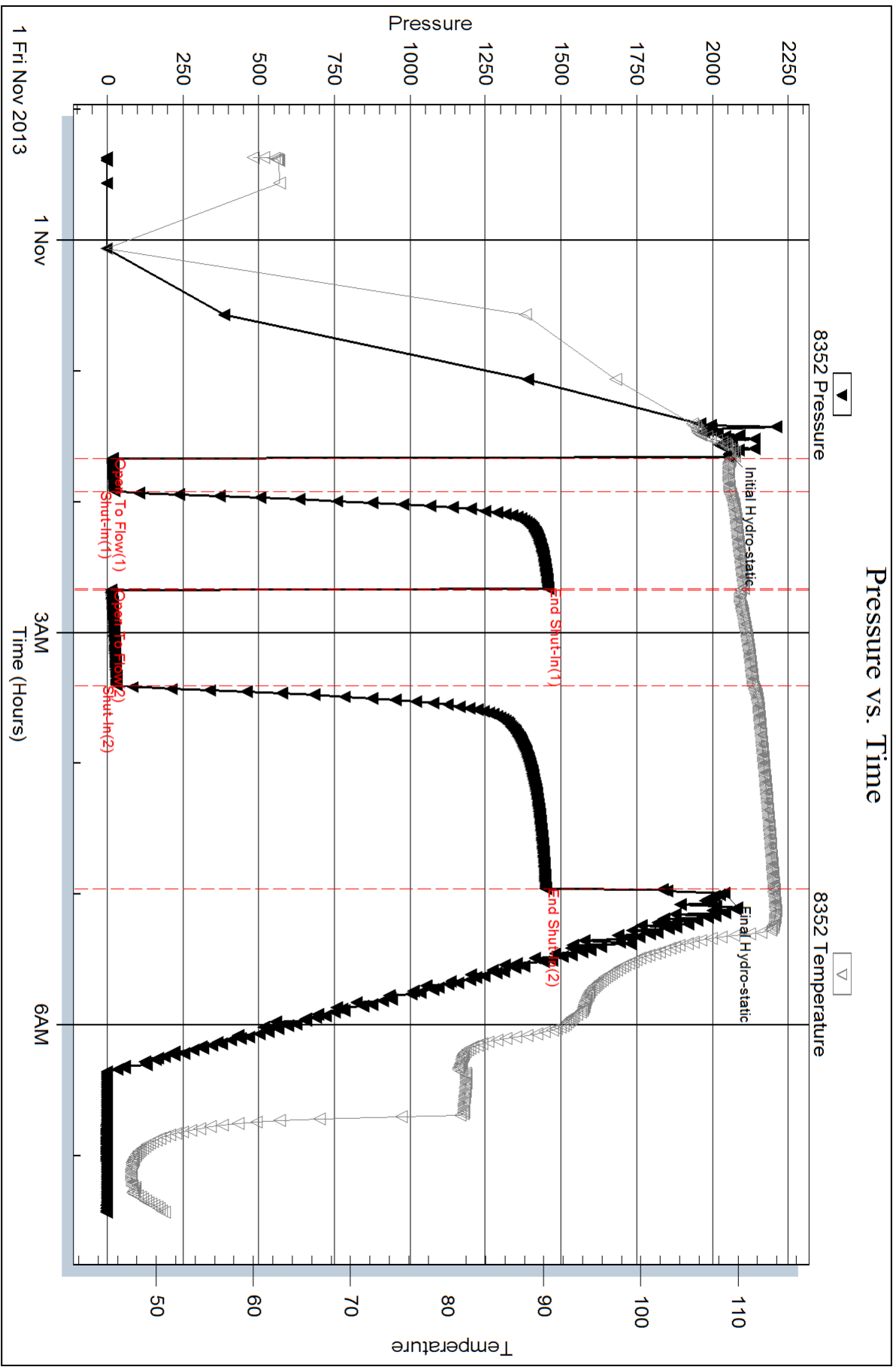
Num Gas Bombs: 0

Serial #: none

Laboratory Name:

Laboratory Location:

Recovery Comments: Rw .16ohms @49deg

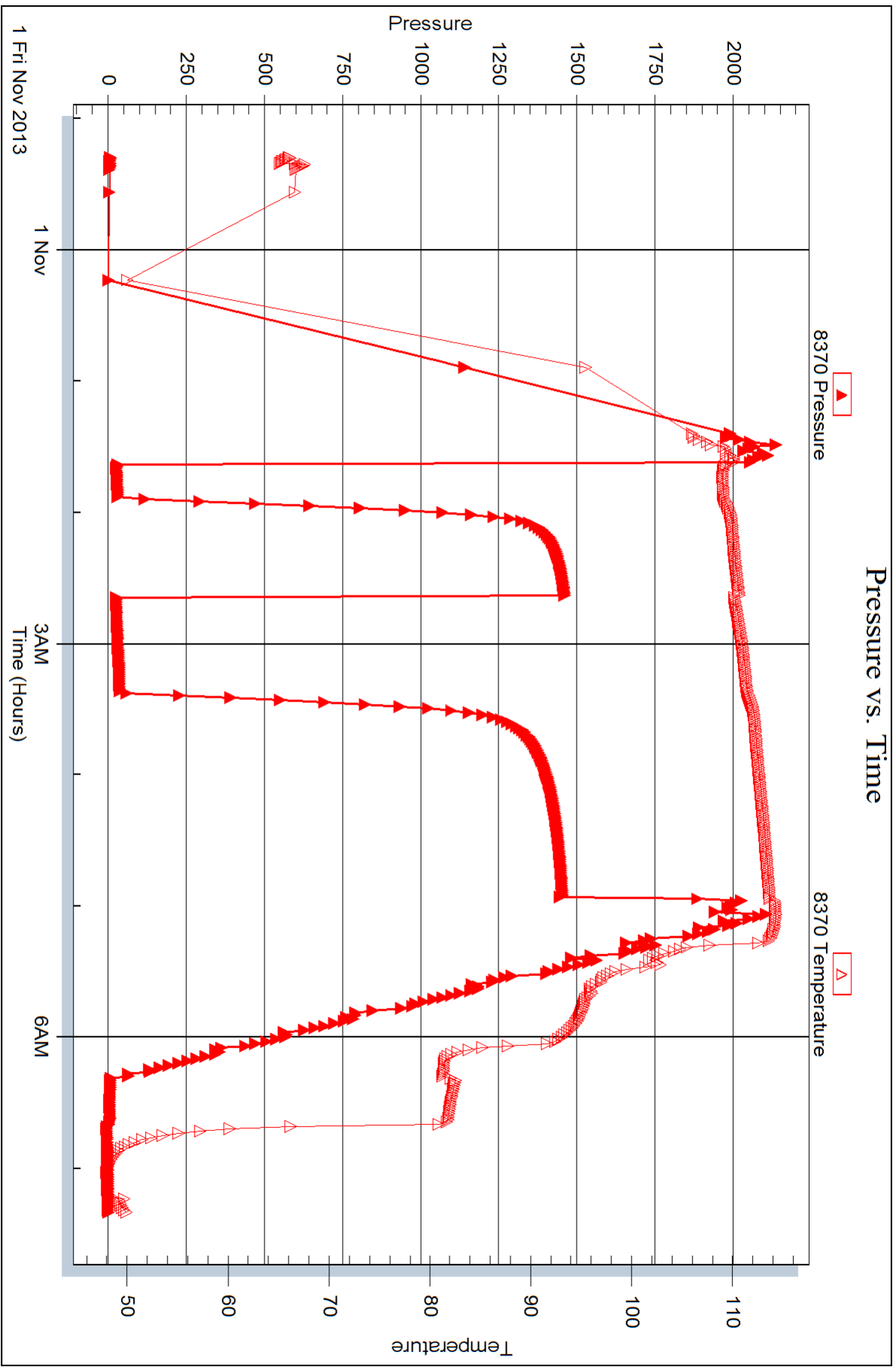


Serial #: 8370

Outside Herran L. Loeb, LLC

Randel #1-20

DST Test Number: 1



Triobite Testing, Inc

Ref. No: 52369

Printed: 2013.11.06 @ 15:15:43



DRILL STEM TEST REPORT

Prepared For: **Herman L. Loeb, LLC**

PO Box 838
Lawrenceville Il.62439

ATTN: Jon Christensen

Randel #1-20

20-27s-18w Kiowa,KS

Start Date: 2013.11.02 @ 05:13:06

End Date: 2013.11.02 @ 11:53:36

Job Ticket #: 52370 DST #: 2

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

Printed: 2013.11.06 @ 15:15:11



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52370

DST#: 2

ATTN: Jon Christensen

Test Start: 2013.11.02 @ 05:13:06

GENERAL INFORMATION:

Formation: **KC. I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:00:06

Time Test Ended: 11:53:36

Test Type: Conventional Bottom Hole (Reset)

Tester: Gary Pevoteaux

Unit No: 56

Interval: 4424.00 ft (KB) To 4444.00 ft (KB) (TVD)

Reference Elevations: 2215.00 ft (KB)

Total Depth: 4444.00 ft (KB) (TVD)

2204.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Fair

KB to GR/CF: 11.00 ft

Serial #: 8352

Inside

Press @ Run Depth: 166.96 psig @ 4425.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.02

End Date:

2013.11.02

Last Calib.:

2013.11.02

Start Time: 05:13:11

End Time:

11:53:35

Time On Btm:

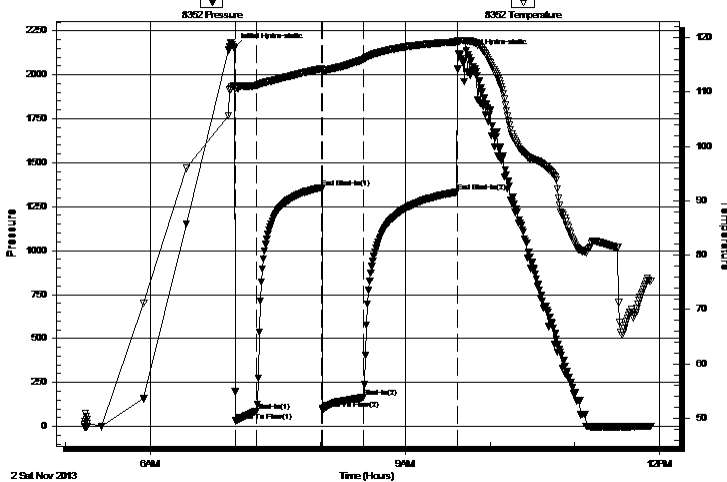
2013.11.02 @ 06:58:51

Time Off Btm:

2013.11.02 @ 09:38:21

TEST COMMENT: IF: Strong blow . B.O.B. in 6 mins.
IS: Weak blow . 1/2 - 3/4".
FF: Fair to strong blow . B.O.B. in 27 mins.
FS: Weak blow . 1/2 - 1".

Pressure vs. Time



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2152.66 | 111.10 | Initial Hydro-static |
| 2 | 32.37 | 110.72 | Open To Flow (1) |
| 16 | 88.05 | 111.21 | Shut-In(1) |
| 62 | 1359.15 | 114.27 | End Shut-In(1) |
| 63 | 98.74 | 113.88 | Open To Flow (2) |
| 92 | 166.96 | 116.03 | Shut-In(2) |
| 158 | 1333.62 | 119.23 | End Shut-In(2) |
| 160 | 2121.65 | 119.38 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|--------------------|--------------|
| 213.00 | SW | 1.05 |
| 95.00 | OCMW 3%o 34%m 63%w | 0.78 |
| 2.00 | Clean oil | 0.03 |
| 0.00 | 415 ft.of GIP | 0.00 |
| | | |
| | | |

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52370

DST#: 2

ATTN: Jon Christensen

Test Start: 2013.11.02 @ 05:13:06

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4142.00 ft | Diameter: 3.80 inches | Volume: 58.10 bbl | Tool Weight: 2400.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 24000.00 lb |
| Drill Collar: | Length: 274.00 ft | Diameter: 2.25 inches | Volume: 1.35 bbl | Weight to Pull Loose: 89000.00 lb |
| | | | <u>Total Volume: 59.45 bbl</u> | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 15.00 ft | | | String Weight: Initial 80000.00 lb |
| Depth to Top Packer: | 4424.00 ft | | | Final 79000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 20.00 ft | | | |
| Tool Length: | 43.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.70 inches | | |

Tool Comments:

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

| | | | | | |
|--------------|-------|------|---------|---------|-------------------------------|
| C.O. Sub | 1.00 | | | 4402.00 | |
| Shut in tool | 5.00 | | | 4407.00 | |
| HMV | 5.00 | | | 4412.00 | |
| Safety Joint | 3.00 | | | 4415.00 | |
| Packer | 4.00 | | | 4419.00 | 23.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 4424.00 | |
| Stubb | 1.00 | | | 4425.00 | |
| Recorder | 0.00 | 8352 | Inside | 4425.00 | |
| Recorder | 0.00 | 8370 | Outside | 4425.00 | |
| Perforations | 14.00 | | | 4439.00 | |
| Bullnose | 5.00 | | | 4444.00 | 20.00 Bottom Packers & Anchor |

Total Tool Length: 43.00



**TRILOBITE
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DRILL STEM TEST REPORT

FLUID SUMMARY

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52370

DST#: 2

ATTN: Jon Christensen

Test Start: 2013.11.02 @ 05:13:06

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:

92000 ppm

Viscosity: 59.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.98 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 6000.00 ppm

Filter Cake: 0.20 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|--------------------|----------------|
| 213.00 | SW | 1.047 |
| 95.00 | OCMW 3%o 34%m 63%w | 0.777 |
| 2.00 | Clean oil | 0.028 |
| 0.00 | 415 ft.of GIP | 0.000 |

Total Length: 310.00 ft Total Volume: 1.852 bbl

Num Fluid Samples: 0

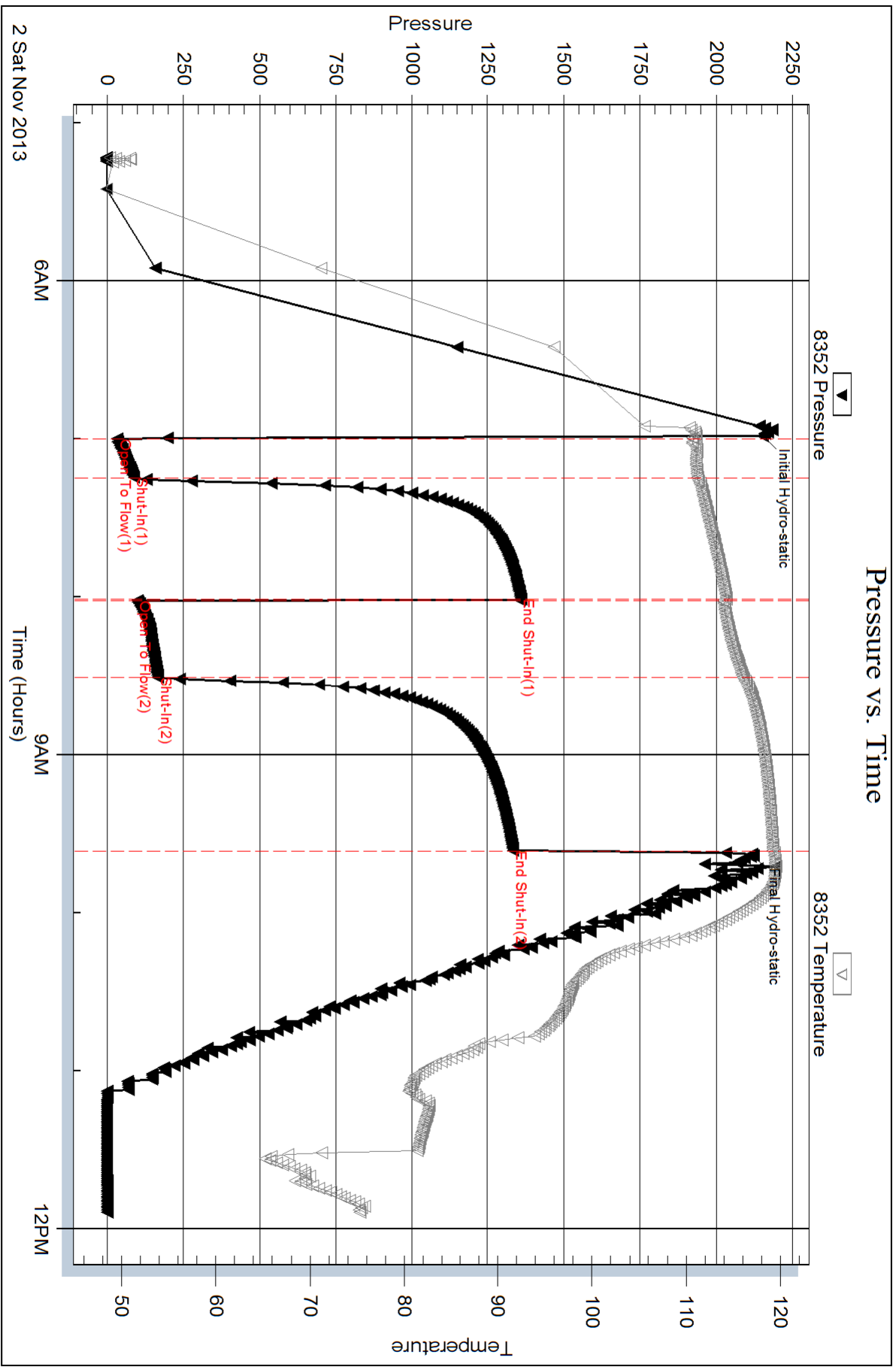
Num Gas Bombs: 0

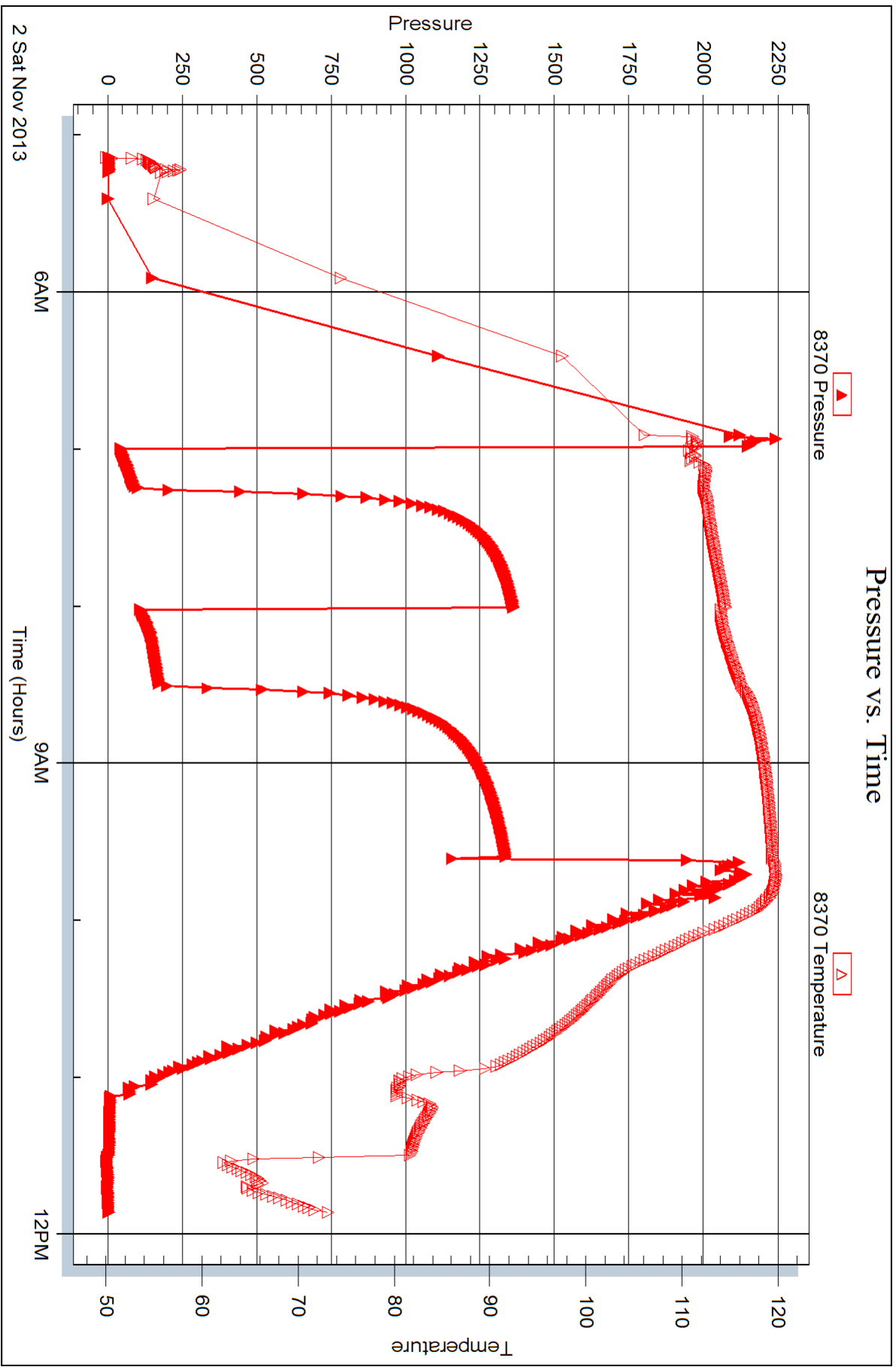
Serial #: none

Laboratory Name:

Laboratory Location:

Recovery Comments: Rw .12ohms @51deg







DRILL STEM TEST REPORT

Prepared For: **Herman L. Loeb, LLC**

PO Box 838
Lawrenceville Il.62439

ATTN: Jon Christensen

Randel #1-20

20-27s-18w Kiowa,KS

Start Date: 2013.11.03 @ 20:57:48

End Date: 2013.11.04 @ 05:31:18

Job Ticket #: 52371 DST #: 3

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.11.06 @ 15:14:36



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52371

DST#: 3

ATTN: Jon Christensen

Test Start: 2013.11.03 @ 20:57:48

GENERAL INFORMATION:

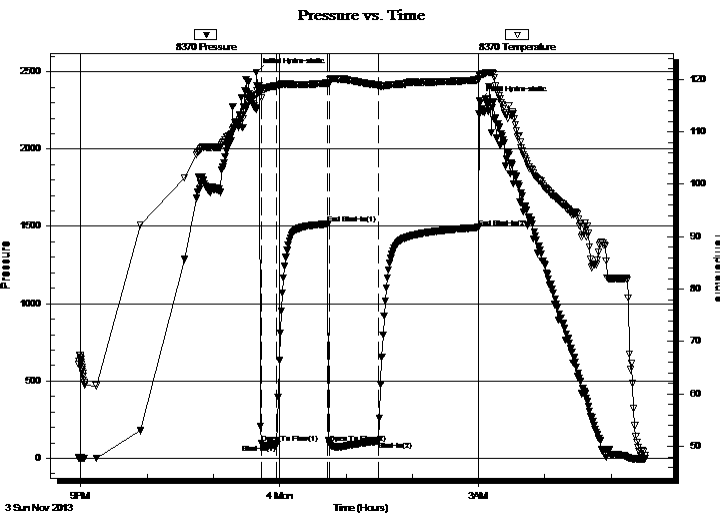
Formation: **Mississippi**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 23:43:33
 Time Test Ended: 05:31:18
 Interval: **4742.00 ft (KB) To 4792.00 ft (KB) (TVD)**
 Total Depth: 4792.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Leal Cason
 Unit No: 56
 Reference Elevations: 2215.00 ft (KB)
 2204.00 ft (CF)
 KB to GR/CF: 11.00 ft

Serial #: 8370

Outside

Press @ Run Depth: 110.14 psig @ 4743.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.11.03 End Date: 2013.11.04 Last Calib.: 2013.11.04
 Start Time: 20:57:53 End Time: 05:31:18 Time On Btm: 2013.11.03 @ 23:39:03
 Time Off Btm: 2013.11.04 @ 03:01:03

TEST COMMENT: IF: Strong Blow , BOB in 30 seconds, GTS in 14 minutes
 IS: Weak Surface Blow Back
 FF: Strong Blow , BOB & GTS Immediate, Gauged & Caught Sample
 FS: Weak Surface Blow Back



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2496.24 | 116.97 | Initial Hydro-static |
| 5 | 95.23 | 116.39 | Open To Flow (1) |
| 19 | 90.93 | 118.65 | Shut-In(1) |
| 64 | 1515.72 | 119.27 | End Shut-In(1) |
| 66 | 94.56 | 119.29 | Open To Flow (2) |
| 111 | 110.14 | 118.89 | Shut-In(2) |
| 201 | 1492.83 | 119.87 | End Shut-In(2) |
| 202 | 2311.96 | 120.57 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------|--------------|
| 0.00 | 4674 GIP | 0.00 |
| 65.00 | SGCM 2%G 98%M | 0.32 |
| | | |
| | | |
| | | |

* Recovery from multiple tests

Gas Rates

| | Choke (inches) | Pressure (psig) | Gas Rate (Mcf/d) |
|----------------|----------------|-----------------|------------------|
| First Gas Rate | 0.50 | 11.00 | 169.99 |
| Last Gas Rate | 0.25 | 55.00 | 109.78 |
| Max. Gas Rate | 0.25 | 55.00 | 109.78 |



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52371

DST#: 3

ATTN: Jon Christensen

Test Start: 2013.11.03 @ 20:57:48

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4524.00 ft | Diameter: 3.80 inches | Volume: 63.46 bbl | Tool Weight: 2400.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 25000.00 lb |
| Drill Collar: | Length: 215.00 ft | Diameter: 2.25 inches | Volume: 1.06 bbl | Weight to Pull Loose: 90000.00 lb |
| | | | <u>Total Volume: 64.52 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 20.00 ft | | | String Weight: Initial 75000.00 lb |
| Depth to Top Packer: | 4742.00 ft | | | Final 75000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 50.00 ft | | | |
| Tool Length: | 73.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.70 inches | | |

Tool Comments:

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

| | | | | | |
|-----------------|-------|------|---------|---------|-------------------------------|
| C.O. Sub | 1.00 | | | 4720.00 | |
| Shut in tool | 5.00 | | | 4725.00 | |
| HMV | 5.00 | | | 4730.00 | |
| Safety Joint | 3.00 | | | 4733.00 | |
| Packer | 4.00 | | | 4737.00 | 23.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 4742.00 | |
| Stubb | 1.00 | | | 4743.00 | |
| Recorder | 0.00 | 8352 | Inside | 4743.00 | |
| Recorder | 0.00 | 8370 | Outside | 4743.00 | |
| Perforations | 6.00 | | | 4749.00 | |
| Change Over Sub | 0.50 | | | 4749.50 | |
| Drill Pipe | 32.00 | | | 4781.50 | |
| Change Over Sub | 0.50 | | | 4782.00 | |
| Perforations | 5.00 | | | 4787.00 | |
| Bullnose | 5.00 | | | 4792.00 | 50.00 Bottom Packers & Anchor |

Total Tool Length: 73.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52371

DST#: 3

ATTN: Jon Christensen

Test Start: 2013.11.03 @ 20:57:48

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: 60.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 8.77 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 0.20 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|---------------|----------------|
| 0.00 | 4674 GIP | 0.000 |
| 65.00 | SGCM 2%G 98%M | 0.320 |

Total Length: 65.00 ft Total Volume: 0.320 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

GAS RATES

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52371

DST#: 3

ATTN: Jon Christensen

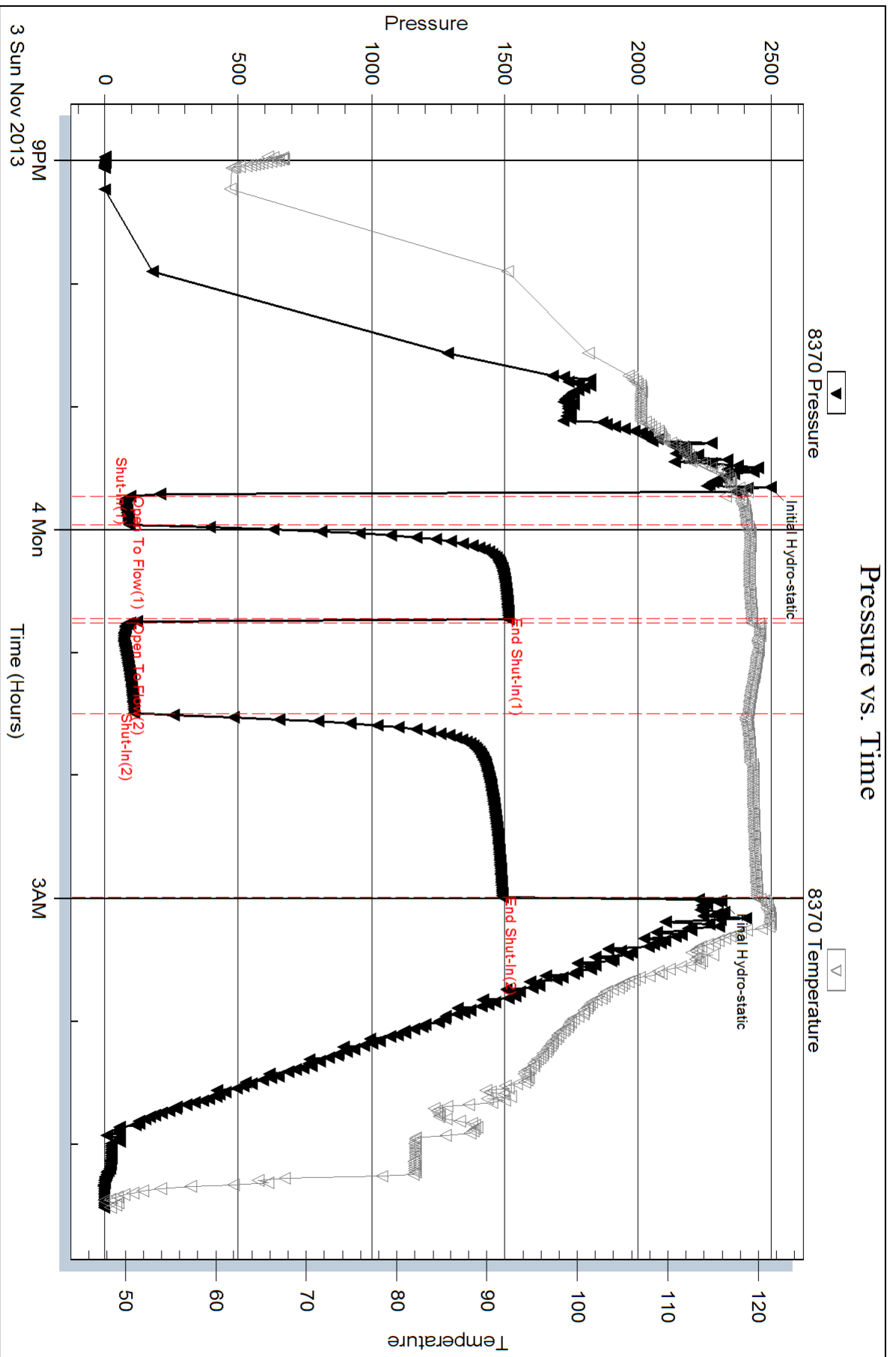
Test Start: 2013.11.03 @ 20:57:48

Gas Rates Information

Temperature: 59 (deg F)
Relative Density: 0.65
Z Factor: 0.8

Gas Rates Table

| Flow Period | Elapsed Time | Choke (inches) | Pressure (psig) | Gas Rate (Mcf/d) |
|-------------|--------------|----------------|-----------------|------------------|
| 2 | 10 | 0.50 | 11.00 | 169.99 |
| 2 | 20 | 0.25 | 30.00 | 70.12 |
| 2 | 30 | 0.25 | 45.00 | 93.92 |
| 2 | 40 | 0.25 | 50.00 | 101.85 |
| 2 | 45 | 0.25 | 55.00 | 109.78 |



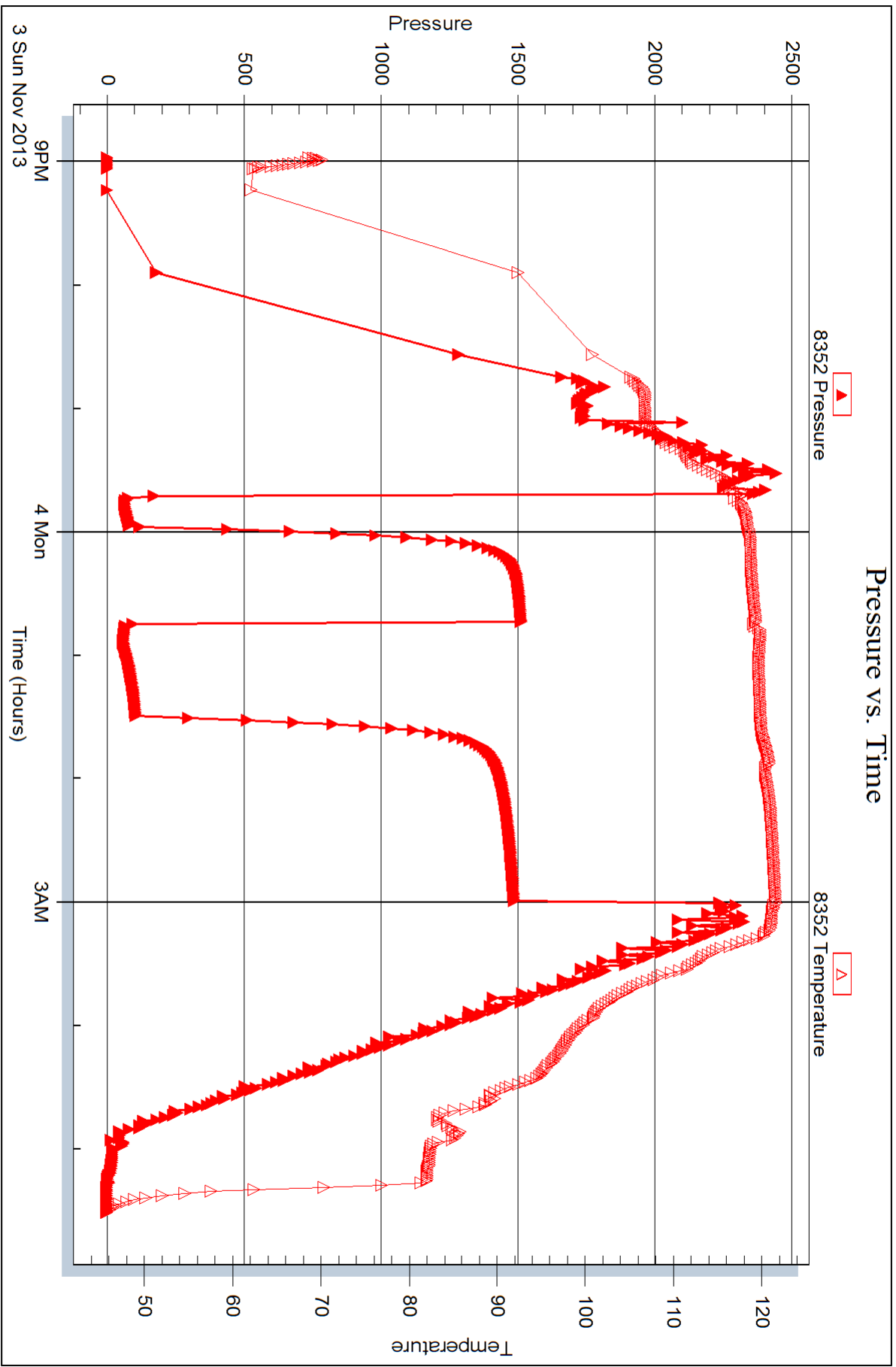
Serial #: 8352

Inside

Herrman L. Loeb, LLC

Randel #1-20

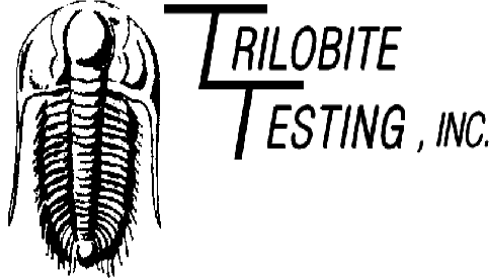
DST Test Number: 3



Trilobite Testing, Inc

Ref. No: 52371

Printed: 2013.11.06 @ 15:14:38



DRILL STEM TEST REPORT

Prepared For: **Herman L. Loeb, LLC**

PO Box 838
Lawrenceville Il.62439

ATTN: Jon Christensen

Randel #1-20

20-27s-18w Kiowa,KS

Start Date: 2013.11.04 @ 14:03:20

End Date: 2013.11.04 @ 22:00:05

Job Ticket #: 52372 DST #: 4

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2013.11.06 @ 15:12:32



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52372

DST#: 4

ATTN: Jon Christensen

Test Start: 2013.11.04 @ 14:03:20

GENERAL INFORMATION:

Formation: **Mississippi**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 16:23:05

Time Test Ended: 22:00:05

Test Type: Conventional Bottom Hole (Reset)

Tester: Leal Cason

Unit No: 56

Interval: 4792.00 ft (KB) To 4807.00 ft (KB) (TVD)

Reference Elevations: 2215.00 ft (KB)

Total Depth: 4807.00 ft (KB) (TVD)

2204.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 11.00 ft

Serial #: 8352 Inside

Press @ Run Depth: 24.96 psig @ 4793.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2013.11.04

End Date:

2013.11.04

Last Calib.: 2013.11.04

Start Time: 14:03:25

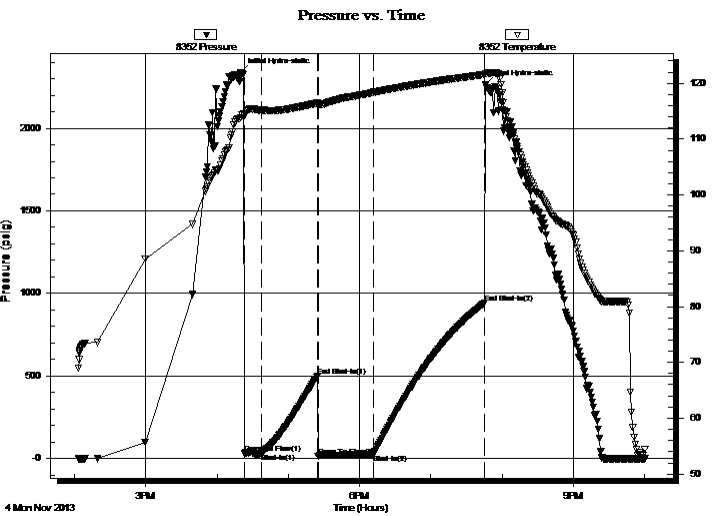
End Time:

22:00:04

Time On Btm: 2013.11.04 @ 16:20:05

Time Off Btm: 2013.11.04 @ 19:46:05

TEST COMMENT: IF: Weak Blow , Built to 4 inches
IS: No Blow Back
FF: Strong Blow , BOB in 15 seconds
FS: Weak Surface Blow Back



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2338.43 | 113.79 | Initial Hydro-static |
| 3 | 29.16 | 114.15 | Open To Flow (1) |
| 18 | 34.20 | 115.17 | Shut-In(1) |
| 65 | 498.77 | 116.45 | End Shut-In(1) |
| 65 | 13.16 | 116.27 | Open To Flow (2) |
| 112 | 24.96 | 118.39 | Shut-In(2) |
| 205 | 940.59 | 121.55 | End Shut-In(2) |
| 206 | 2262.40 | 121.79 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------|--------------|
| 0.00 | 739 GIP | 0.00 |
| 5.00 | SGCM 2%G 98%M | 0.02 |
| | | |
| | | |
| | | |

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52372

DST#: 4

ATTN: Jon Christensen

Test Start: 2013.11.04 @ 14:03:20

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4587.00 ft | Diameter: 3.80 inches | Volume: 64.34 bbl | Tool Weight: 2400.00 lb |
| Heavy Wt. Pipe: | Length: 0.00 ft | Diameter: 0.00 inches | Volume: 0.00 bbl | Weight set on Packer: 25000.00 lb |
| Drill Collar: | Length: 215.00 ft | Diameter: 2.25 inches | Volume: 1.06 bbl | Weight to Pull Loose: 95000.00 lb |
| | | | <u>Total Volume: 65.40 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 33.00 ft | | | String Weight: Initial 80000.00 lb |
| Depth to Top Packer: | 4792.00 ft | | | Final 80000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 15.00 ft | | | |
| Tool Length: | 38.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.70 inches | | |

Tool Comments:

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

| | | | | | |
|--------------|------|------|---------|---------|-------------------------------|
| C.O. Sub | 1.00 | | | 4770.00 | |
| Shut in tool | 5.00 | | | 4775.00 | |
| HMV | 5.00 | | | 4780.00 | |
| Safety Joint | 3.00 | | | 4783.00 | |
| Packer | 4.00 | | | 4787.00 | 23.00 Bottom Of Top Packer |
| Packer | 5.00 | | | 4792.00 | |
| Stubb | 1.00 | | | 4793.00 | |
| Recorder | 0.00 | 8352 | Inside | 4793.00 | |
| Recorder | 0.00 | 8370 | Outside | 4793.00 | |
| Perforations | 9.00 | | | 4802.00 | |
| Bullnose | 5.00 | | | 4807.00 | 15.00 Bottom Packers & Anchor |

Total Tool Length: 38.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Herman L. Loeb, LLC

20-27s-18w Kiowa,KS

PO Box 838
Lawrenceville IL 62439

Randel #1-20

Job Ticket: 52372

DST#: 4

ATTN: Jon Christensen

Test Start: 2013.11.04 @ 14:03:20

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: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 9.19 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 3000.00 ppm

Filter Cake: 0.20 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|---------------|----------------|
| 0.00 | 739 GIP | 0.000 |
| 5.00 | SGCM 2%G 98%M | 0.025 |

Total Length: 5.00 ft Total Volume: 0.025 bbl

Num Fluid Samples: 0

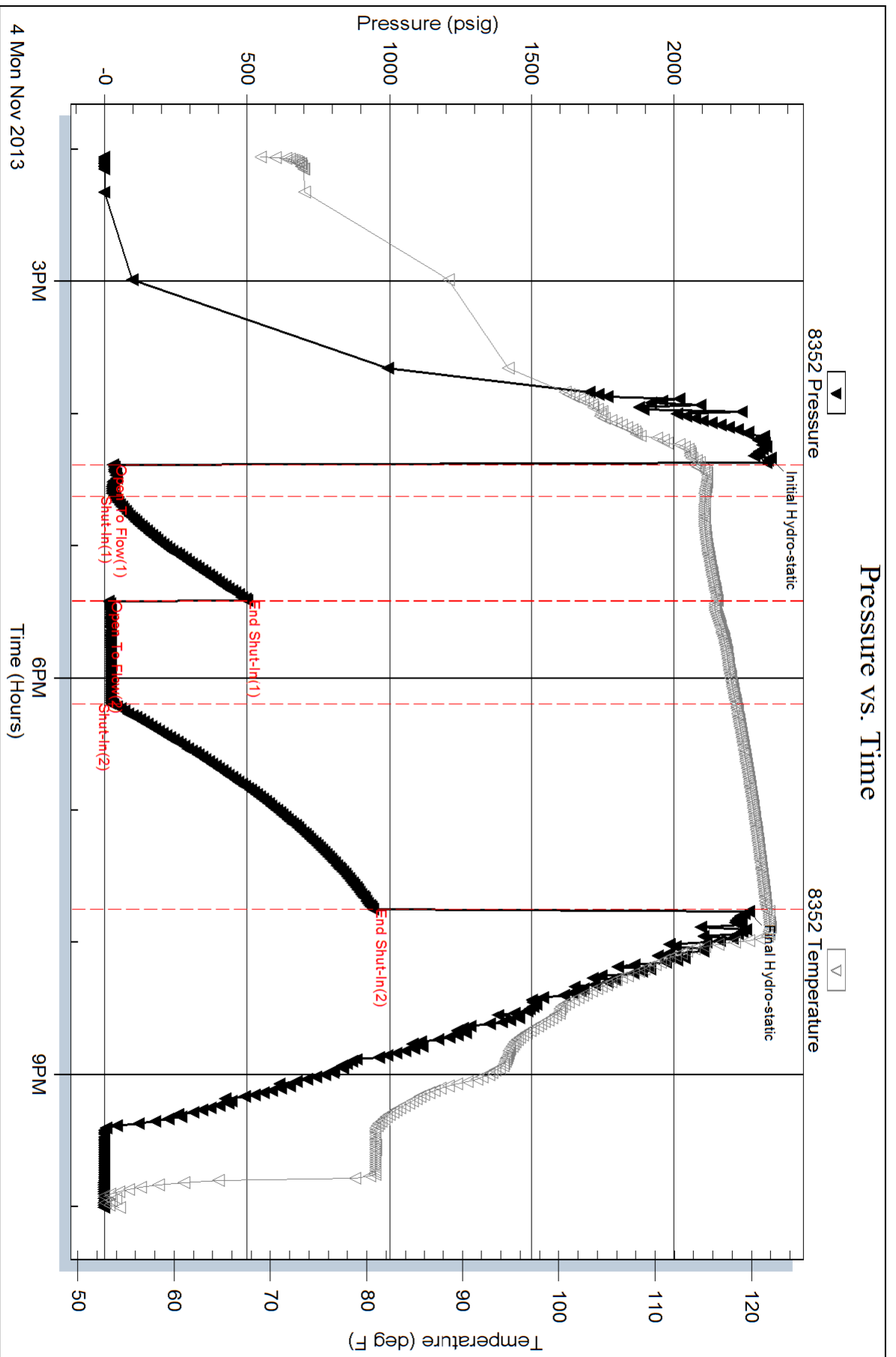
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52369

Well Name & No. RANDEL # 1-20 Test No. 1 Date 10-31-13
 Company HERMAN L. LOEB, LLC Elevation 2215 KB 2204 GL
 Address P.O. Box 838, LAWRENCEVILLE IL 62439
 Co. Rep / Geo. SON CHRISTENSEN Rig STERLING DRILL # 2
 Location: Sec. 20 Twp. 27^S Rge. 18^W Co. KANSAS State KS

Interval Tested 4206 ~ 4225' Zone Tested LANS. A.
 Anchor Length 19' Drill Pipe Run 3919 Mud Wt. 9.2
 Top Packer Depth 4201' Drill Collars Run 274' Vis 60
 Bottom Packer Depth 4206' Wt. Pipe Run 0 WL 8.8cc
 Total Depth 4225' Chlorides 3,000 ppm System LCM 2#

Blow Description IF: Strong blow. B.O.B. in 4 1/2 mins. ISI: No blow.

FF: Strong blow. B.O.B. in 2 secs. GTS in 30 mins. TSTM FSI, Wets below. 1/4".

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----------|-----------|------|-----------|-----------|------|
| <u>35</u> | <u>WM</u> | | <u>34</u> | <u>66</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 35 fluid BHT 114° Gravity N/A API RW 31.6 @ 319 Chlorides 68,000 ppm

(A) Initial Hydrostatic 2055 Test 1250 T-On Location 2140
 (B) First Initial Flow 17 Jars _____ T-Started 2321
 (C) First Final Flow 23 Safety Joint 75 T-Open 0139
 (D) Initial Shut-In 1457 Circ Sub _____ T-Pulled 0456
 (E) Second Initial Flow 13 Hourly Standby _____ T-Out 0725
 (F) Second Final Flow 30 Mileage 81.2 133.30 Comments _____
 (G) Final Shut-In 1450 Sampler _____
 (H) Final Hydrostatic 2038 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 15 Extra Packer _____ Extra Copies _____
 Initial Shut-In 45 Extra Recorder _____ Sub Total 0
 Final Flow 45 Day Standby _____ Total 1458.30
 Final Shut-In 90 Accessibility _____ MP/DST Disc't _____
 Sub Total 1458.30

Approved By _____ Our Representative Cory Pivato

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. **52370**

Well Name & No. RANDEL # 1-20 Test No. 2 Date 11-2-13
 Company HERMAN L. LOEB, LLC Elevation 2215 KB 2204 GL
 Address P.O. Box 838, LAWRENCEVILLE IL. 62439
 Operator / Geo. Jon CHRISTENSEN Rig STERLING DRUG. #2
 Sec. 20 Twp. 27^s Rge. 18^w Co. KIOWA State Ks.

Well ID 4424-4444 Zone Tested K.C. I
 Length 20' Drill Pipe Run 4142' Mud Wt. 9.1
 True Depth 4419' Drill Collars Run 274' Vis 59
 Casing Depth 4424' Wt. Pipe Run 0 WL 9.0 cc
 Chlorides 4444 6,000 ppm System LCM 2#

Description IF; strong blow. B.O.B. in 6 mins. Weak blow. 1/2 - 3/4".
air to strong blow. B.O.B. in 27 mins. FSI. Weak blow. 1/2 - 1".

| Feet of | %gas | %oil | %water | %mud |
|---------------------------------------|------|----------|-----------|-----------|
| <u>415</u> Feet of <u>Gas in pipe</u> | | | | |
| <u>2</u> Feet of <u>clean oil</u> | | | | |
| <u>95</u> Feet of <u>OCM w</u> | | <u>3</u> | <u>63</u> | <u>34</u> |
| <u>103</u> Feet of <u>sw</u> | | | | |

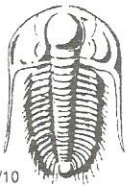
310 Fluid BHT 119° Gravity N/A API RW 12 @ 51 °F Chlorides 92,000 ppm

Hydrostatic 2153 Test 1250 T-On Location 0452
 Initial Flow 32 Jars _____ T-Started 0513
 Final Flow 88 Safety Joint 75 T-Open 0700
 Shut-In 1359 Circ Sub _____ T-Pulled 0932
 Initial Flow 99 Hourly Standby _____ T-Out 1153
 Final Flow 167 Mileage 86 133.30 Comments _____
 Shut-In 1334 Sampler _____
 Hydrostatic 2122 Straddle _____
 Shale Packer _____
 Extra Packer _____
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1458.30

Open 15
 Shut-In 43
 Flow 30
 Shut-In 490

Our Representative Cary P. [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52371

Well Name & No. Randel 1-20 Test No. 3 Date 11/03/13
 Company Herman L Loeb LLC Elevation 2215 KB 2204 GL
 Address PO Box 838 Lawrenceville IL 62439
 Co. Rep / Geo. Jon Christensen Rig Sterling 2
 Location: Sec. 20 Twp. 27S Rge. 18W Co. Kiowa State KS

Interval Tested 4742 - 4792 Zone Tested Mississippi
 Anchor Length 50 Drill Pipe Run 4524 Mud Wt. 9.2
 Top Packer Depth 4737 Drill Collars Run 215 Vis 53
 Bottom Packer Depth 4742 Wt. Pipe Run 0 WL 9.2
 Total Depth 4792 Chlorides 3000 ppm System LCM 2

Blow Description IF: Strong Blow, BOB in 30 seconds, GTS in 14 minutes
ISI: Weak surface Blow Back
FF: Strong Blow, BOB + GTS immediate, Gauged + caught sample
FSI: Weak surface Blow Back

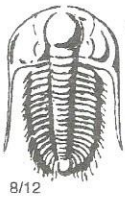
| Rec | Feet of | %gas | %oil | %water | %mud |
|-------------|---------------------|----------|------|--------|-----------|
| <u>4674</u> | <u>Feet of GIP</u> | | | | |
| <u>65</u> | <u>Feet of 56CM</u> | <u>2</u> | | | <u>98</u> |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |

Rec Total 65 BHT 120 Gravity N/C API RW N/C @ N/C °F Chlorides N/C ppm

(A) Initial Hydrostatic 2496 Test 1250 T-On Location 19:30
 (B) First Initial Flow 95 Jars _____ T-Started 20:57
 (C) First Final Flow 91 Safety Joint 75 T-Open 23:43
 (D) Initial Shut-In 1516 Circ Sub _____ T-Pulled 02:59
 (E) Second Initial Flow 94 Hourly Standby _____ T-Out 05:31
 (F) Second Final Flow 110 Mileage 847 133.30 Comments _____
 (G) Final Shut-In 1493 Sampler _____
 (H) Final Hydrostatic 2312 Straddle _____

Initial Open 15 Shale Packer _____ Ruined Shale Packer _____
 Initial Shut-In 45 Extra Packer _____ Ruined Packer _____
 Final Flow 45 Extra Recorder _____ Extra Copies _____
 Final Shut-In 90 Day Standby _____ Sub Total 0
 Accessibility _____ Total 1458.30
 Sub Total 1458.30 MP/DST Disc't _____

Approved By [Signature] Our Representative [Signature]
 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

Gas Volume Report

8/12

Herman L Loeb

Randel 1-20

3

Operator

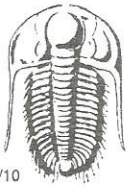
Well Name and No.

DST No.

GTS - 14 minutes

| Min. | Ins. of Water PSIG | Orifice Size | CF/D | Min. | Ins. of Water PSIG | Orifice Size | CF/D |
|------|-----------------------|--------------|------|------|----------------------------------|--------------|---------|
| | | | | 10 | 11 | 1/2 | 169.991 |
| | | | | 20 | 30 | 1/4 | 70.119 |
| | | | | 30 | 45 | 1/4 | 93.915 |
| | | | | 40 | 50 | 1/4 | 101.847 |
| | | | | 45 | 55 | 1/4 | 109.779 |
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Remarks:



TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 52372

Well Name & No. Randel 1-20 Test No. 4 Date 11/04/13
 Company Herman L LOEB LLC Elevation 2215 KB 2204 GL
 Address PO Box 838 Lawrenceville, IL 62439
 Co. Rep / Geo. Jon Christensen Rig sterling 2
 Location: Sec. 20 Twp. 27S Rge. 18W Co. Kiowa State KS

Interval Tested 4792 - 4807 Zone Tested Mississippi
 Anchor Length 15 Drill Pipe Run 4587 Mud Wt. 9.1
 Top Packer Depth 4787 Drill Collars Run 215 Vis 55
 Bottom Packer Depth 4792 Wt. Pipe Run 0 WL 9.2
 Total Depth 4807 Chlorides 3000 ppm System LCM 2

Blow Description IF: weak blow, Built to 4 inches
ISI: No Blow Back
FI: Strong Blow, BOB in 15 seconds
FSI: weak surface Blow Back

| Rec | Feet of | %gas | %oil | %water | %mud |
|------------|-------------|----------|------|--------|-----------|
| <u>739</u> | <u>GI P</u> | | | | |
| <u>5</u> | <u>SGCM</u> | <u>2</u> | | | <u>98</u> |
| | | | | | |
| | | | | | |
| | | | | | |

Rec Total 5 @ BHT 121 Gravity NIC API RW NIC @ NIC° F Chlorides NIC ppm

(A) Initial Hydrostatic 2338 Test 1250 T-On Location 13:15
 (B) First Initial Flow 29 Jars _____ T-Started 14:03
 (C) First Final Flow 34 Safety Joint 75 T-Open 16:23
 (D) Initial Shut-In 499 Circ Sub _____ T-Pulled 19:45
 (E) Second Initial Flow 13 Hourly Standby _____ T-Out 22:00
 (F) Second Final Flow 25 Mileage 842 133.30
 (G) Final Shut-In 940 Sampler _____
 (H) Final Hydrostatic 2262 Straddle _____

Ruined Shale Packer _____
 Ruined Packer _____
 Extra Copies _____
 Sub Total 0
 Total 1458.30
 MP/DST Disc't _____

Initial Open 15
 Initial Shut-In 45
 Final Flow 45
 Final Shut-In 90

Sub Total 1458.30

Approved By [Signature] Our Representative [Signature]
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