



Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION 1211625
OIL & GAS CONSERVATION DIVISION

Form ACO-1
August 2013

Form must be Typed
Form must be Signed
All blanks must be Filled

WELL COMPLETION FORM
WELL HISTORY - DESCRIPTION OF WELL & LEASE

OPERATOR: License # _____

Name: _____

Address 1: _____

Address 2: _____

City: _____ State: _____ Zip: _____ + _____

Contact Person: _____

Phone: (_____) _____

CONTRACTOR: License # _____

Name: _____

Wellsite Geologist: _____

Purchaser: _____

Designate Type of Completion:

- New Well Re-Entry Workover
- Oil WSW SWD SIOW
- Gas D&A ENHR SIGW
- OG GSW Temp. Abd.
- CM (Coal Bed Methane)
- Cathodic Other (Core, Expl., etc.): _____

If Workover/Re-entry: Old Well Info as follows:

Operator: _____

Well Name: _____

Original Comp. Date: _____ Original Total Depth: _____

- Deepening Re-perf. Conv. to ENHR Conv. to SWD
- Plug Back Conv. to GSW Conv. to Producer
- Commingled Permit #: _____
- Dual Completion Permit #: _____
- SWD Permit #: _____
- ENHR Permit #: _____
- GSW Permit #: _____

| | | |
|-----------------------------------|-----------------|---|
| Spud Date or Recompletion Date | Date Reached TD | Completion Date or Recompletion Date |
|-----------------------------------|-----------------|---|

API No. 15 - _____

Spot Description: _____

_____ - _____ - _____ Sec. _____ Twp. _____ S. R. _____ East West

_____ Feet from North / South Line of Section

_____ Feet from East / West Line of Section

Footages Calculated from Nearest Outside Section Corner:

- NE NW SE SW

GPS Location: Lat: _____, Long: _____
(e.g. xx.xxxxx) (e.g. -xxx.xxxxx)

Datum: NAD27 NAD83 WGS84

County: _____

Lease Name: _____ Well #: _____

Field Name: _____

Producing Formation: _____

Elevation: Ground: _____ Kelly Bushing: _____

Total Vertical Depth: _____ Plug Back Total Depth: _____

Amount of Surface Pipe Set and Cemented at: _____ Feet

Multiple Stage Cementing Collar Used? Yes No

If yes, show depth set: _____ Feet

If Alternate II completion, cement circulated from: _____

feet depth to: _____ w/ _____ sx cmt.

Drilling Fluid Management Plan

(Data must be collected from the Reserve Pit)

Chloride content: _____ ppm Fluid volume: _____ bbls

Dewatering method used: _____

Location of fluid disposal if hauled offsite:

Operator Name: _____

Lease Name: _____ License #: _____

Quarter _____ Sec. _____ Twp. _____ S. R. _____ East West

County: _____ Permit #: _____

AFFIDAVIT

I am the affiant and I hereby certify that all requirements of the statutes, rules and regulations promulgated to regulate the oil and gas industry have been fully complied with and the statements herein are complete and correct to the best of my knowledge.

Submitted Electronically

KCC Office Use ONLY

- Confidentiality Requested
Date: _____
- Confidential Release Date: _____
- Wireline Log Received
- Geologist Report Received
- UIC Distribution
- ALT I II III Approved by: _____ Date: _____

1211625

Operator Name: _____ Lease Name: _____ Well #: _____

Sec. _____ Twp. _____ S. R. _____ East West County: _____

INSTRUCTIONS: Show important tops of formations penetrated. Detail all cores. Report all final copies of drill stems tests giving interval tested, time tool open and closed, flowing and shut-in pressures, whether shut-in pressure reached static level, hydrostatic pressures, bottom hole temperature, fluid recovery, and flow rates if gas to surface test, along with final chart(s). Attach extra sheet if more space is needed.

Final Radioactivity Log, Final Logs run to obtain Geophysical Data and Final Electric Logs must be emailed to kcc-well-logs@kcc.ks.gov. Digital electronic log files must be submitted in LAS version 2.0 or newer AND an image file (TIFF or PDF).

| | | | | |
|---|--|------------------------------|----------------------------------|---------------------------------|
| Drill Stem Tests Taken <i>(Attach Additional Sheets)</i> | <input type="checkbox"/> Yes <input type="checkbox"/> No | <input type="checkbox"/> Log | Formation (Top), Depth and Datum | <input type="checkbox"/> Sample |
| Samples Sent to Geological Survey | <input type="checkbox"/> Yes <input type="checkbox"/> No | Name | Top | Datum |
| Cores Taken | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| Electric Log Run | <input type="checkbox"/> Yes <input type="checkbox"/> No | | | |
| List All E. Logs Run: | | | | |

| CASING RECORD <input type="checkbox"/> New <input type="checkbox"/> Used | | | | | | | |
|---|-------------------|---------------------------|-------------------|---------------|----------------|--------------|----------------------------|
| Report all strings set-conductor, surface, intermediate, production, etc. | | | | | | | |
| Purpose of String | Size Hole Drilled | Size Casing Set (In O.D.) | Weight Lbs. / Ft. | Setting Depth | Type of Cement | # Sacks Used | Type and Percent Additives |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

| ADDITIONAL CEMENTING / SQUEEZE RECORD | | | | |
|---|------------------|----------------|--------------|----------------------------|
| Purpose: | Depth Top Bottom | Type of Cement | # Sacks Used | Type and Percent Additives |
| <input type="checkbox"/> Perforate | | | | |
| <input type="checkbox"/> Protect Casing | | | | |
| <input type="checkbox"/> Plug Back TD | | | | |
| <input type="checkbox"/> Plug Off Zone | | | | |

Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*

Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*

Was the hydraulic fracturing treatment information submitted to the chemical disclosure registry? Yes No *(If No, fill out Page Three of the ACO-1)*

| Shots Per Foot | PERFORATION RECORD - Bridge Plugs Set/Type Specify Footage of Each Interval Perforated | Acid, Fracture, Shot, Cement Squeeze Record <i>(Amount and Kind of Material Used)</i> | Depth |
|----------------|---|--|-------|
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

TUBING RECORD: Size: _____ Set At: _____ Packer At: _____ Liner Run: Yes No

Date of First, Resumed Production, SWD or ENHR: _____ Producing Method: Flowing Pumping Gas Lift Other *(Explain)* _____

| Estimated Production Per 24 Hours | Oil Bbls. | Gas Mcf | Water Bbls. | Gas-Oil Ratio | Gravity |
|-----------------------------------|-----------|---------|-------------|---------------|---------|
| | | | | | |

| | | |
|--|--|---|
| DISPOSITION OF GAS: <input type="checkbox"/> Vented <input type="checkbox"/> Sold <input type="checkbox"/> Used on Lease <i>(If vented, Submit ACO-18.)</i> | METHOD OF COMPLETION: <input type="checkbox"/> Open Hole <input type="checkbox"/> Perf. <input type="checkbox"/> Dually Comp. <input type="checkbox"/> Commingled <i>(Submit ACO-5)</i> <input type="checkbox"/> Other <i>(Specify)</i> _____ | PRODUCTION INTERVAL: _____ _____ |
|--|--|---|

| | |
|-----------|---|
| Form | ACO1 - Well Completion |
| Operator | Larson Engineering, Inc. dba Larson Operating Company |
| Well Name | Hineman Ranch 1-31 |
| Doc ID | 1211625 |

Tops

| Name | Top | Datum |
|-------------|------|-------|
| Anhydrite | 2121 | +625 |
| B/Anhydrite | 0020 | +595 |
| Heebner Sh | 3941 | -1199 |
| Lansing | 3984 | -1242 |
| Stark Sh | 4269 | -1523 |
| Marmaton | 4393 | -1647 |
| Ft. Scott | 4519 | -1777 |
| Cherokee Sh | 4544 | -1802 |

QUALITY WELL SERVICE, INC.

6150

Federal Tax I.D. # 481187368

Home Office 324 Simpson St., Pratt, KS 67124

Office 620-727-3410
Fax 620-672-3663

Rich's Cell 620-727-3409
Brady's Cell 620-727-6964

| | | | | | | | | | | | | | | | |
|---------------------|---------------|------|----|------------|-------------------|-------|-----|---|------------------------------|-------|----|-------------|---------|--------|--------|
| Date | 05-20-14 | Sec. | 31 | Twp. | 18s | Range | 28w | County | Lane | State | KS | On Location | 11:30PM | Finish | 1:30AM |
| Lease | Hineman Ranch | | | Well No. | 1-31 | | | Location | Dighton KS, 3s 1/2 E, N/into | | | | | | |
| Contractor | H-D | | | | | | | Owner | Larson | | | | | | |
| Type Job | Surface | | | | | | | To Quality Well Service, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed. | | | | | | | |
| Hole Size | 12" A | | | T.D. | 264 | | | Charge To | Larson | | | | | | |
| Csg. | 8 5/8 | | | Depth | 264 | | | Street | | | | | | | |
| Tbg. Size | | | | Depth | | | | City | State | | | | | | |
| Tool | | | | Depth | | | | The above was done to satisfaction and supervision of owner agent or contractor. | | | | | | | |
| Cement Left in Csg. | 20' | | | Shoe Joint | N/A | | | Cement Amount Ordered | 175sx class A + 3%cc + 2%gel | | | | | | |
| Meas Line | | | | Displace | 15 1/2 Bbls Fresh | | | | | | | | | | |

EQUIPMENT

| | | | | | |
|---------|---|-----|---------|----------|-----|
| Pumptrk | 8 | No. | David B | Common | 175 |
| Bulktrk | 5 | No. | Mike B | Poz. Mix | |
| Bulktrk | | No. | | Gel. | 3 |
| Pickup | | No. | David F | Calcium | 6 |

JOB SERVICES & REMARKS

| | |
|--|-------------------------|
| Rat Hole | Hulls |
| Mouse Hole | Salt |
| Centralizers | Flowseal |
| Baskets | Kol-Seal |
| D/V or Port Collar | Mud CLR 48 |
| Pipe on Btm, Break Circ. | CFL-117 or CD110 CAF 38 |
| mix 175sx class A + 3%cc + 2%gel | Sand |
| = 41.76 Bbls, Start Disp. w/ Fresh H ₂ O | Handling 184 |
| Wash up + ruck, See steady increase in PSI, Slow Rate, Stop Pump at 15 1/2 Bbls total Disp., Shut in w/ 150 PSI, Cement Did Circ | Mileage 35 |

FLOAT EQUIPMENT

| | |
|--------------------|------------|
| Guide Shoe | |
| Centralizer | |
| Baskets | |
| AFU Inserts | |
| Float Shoe | |
| Latch Down | 40 # Sugar |
| LMU | 35 |
| Service Supervisor | |
| Pumptrk Charge | Surface |
| Mileage | 35 x 2 |

| | | | |
|-----------|----------------------|--------------|--|
| Signature | <i>Robert Turner</i> | Tax | |
| | | Discount | |
| | | Total Charge | |

QUALITY WELL SERVICE, INC.

6151

Federal Tax I.D. # 481187368

Home Office 324 Simpson St., Pratt, KS 67124

Office 620-727-3410
Fax 620-672-3663

Rich's Cell 620-727-3409
Brady's Cell 620-727-6964

| | | | | | | | |
|-----------------------------------|----------------|-----------------------|-----------------|---|-----------------|----------------------------|------------------------|
| Date <u>05-29-14</u> | Sec. <u>31</u> | Twp. <u>18</u> | Range <u>28</u> | County <u>Lone</u> | State <u>KS</u> | On Location <u>8:30 PM</u> | Finish <u>11:30 PM</u> |
| Lease <u>Hineman Ranch</u> | | Well No. <u>1-31</u> | | Location <u>Dighton KS, 3s, 1/4e, n/4 to</u> | | | |
| Contractor <u>H-D</u> | | | | Owner <u>Larson</u> | | | |
| Type Job <u>Rotary Plug</u> | | | | To Quality Well Service, Inc. You are hereby requested to rent cementing equipment and furnish cementer and helper to assist owner or contractor to do work as listed. | | | |
| Hole Size <u>7 7/8</u> | | T.D. <u>4648'</u> | | Charge To <u>Larson</u> | | | |
| Csg. <u>8 5/8 surf.</u> | | Depth <u>262'</u> | | Street | | | |
| Tbg. Size <u>4 1/2 Drill Pipe</u> | | Depth <u>2160'</u> | | City | | | |
| Tool | | Depth | | State | | | |
| Cement Left in Csg. | | Shoe Joint <u>n/a</u> | | The above was done to satisfaction and supervision of owner agent or contractor. | | | |
| Meas Line | | Displace | | Cement Amount Ordered <u>280sx60:40:4 1/2 gal + 1/4 Flo.</u> | | | |

EQUIPMENT

| | | |
|-------------------|--------------------|---------------------|
| Pumptrk <u>8</u> | No. <u>David B</u> | Common <u>170</u> |
| Bulktrk <u>10</u> | No. <u>Mike B</u> | Poz. Mix <u>110</u> |
| Bulktrk | No. | Gel. <u>10</u> |
| Pickup | No. <u>David F</u> | Calcium |

JOB SERVICES & REMARKS

| | |
|--|------------------------------------|
| Rat Hole <u>30sx = 7.98 BBls Slurry</u> | Hulls |
| Mouse Hole <u>n/a</u> | Salt |
| Centralizers | Flowseal <u>70</u> |
| Baskets | Kol-Seal |
| D/V or Port Collar | Mud CLR 48 |
| <u>Drill Pipe at 2160' load hole; Pump 8 1/2 BBls</u> | CFL-117 or CD110 CAF 38 |
| <u>Fresh H₂O spacer, Mix 50sx = 12.47 BBls Slurry,</u> | Sand |
| <u>Disp. w/ 3 BBls Fresh & 24 1/2 BBls Mud, Drill Pipe</u> | Handling <u>290</u> |
| <u>at 1350' load hole, Pump 10 BBls Spacer, mix</u> | Mileage <u>35</u> |
| <u>80sx = 19.95 BBls Slurry, Disp. w/ 14 BBls Fresh,</u> | FLOAT EQUIPMENT |
| <u>Drill Pipe at 660' load hole, Pump 9 1/2 BBls Spacer,</u> | Guide Shoe |
| <u>Mix 50sx = 12.47 BBls Slurry, Disp. w/ 6 BBls water</u> | Centralizer |
| <u>Dr. at 300' load hole, Pump 4 BBls Spacer, Mix</u> | Baskets |
| <u>50sx = 12.47 BBls Slurry, Disp. w/ 1 BBls water, Dr. at 60'</u> | AFU Inserts |
| <u>load hole, Mix 20sx = 4.99 BBls Slurry cement did</u> | Float Shoe |
| <u>circ.</u> | Latch Down |
| | Service Supervisor |
| | LMV <u>35</u> |
| | Pumptrk Charge <u>Rotary Plug.</u> |
| | Mileage <u>35 x 2</u> |

| | |
|------------------------------|--------------|
| Signature <u>[Signature]</u> | Tax |
| | Discount |
| | Total Charge |



DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W State Rd
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Ranch #1-31

31-18s-28w Lane,KS

Start Date: 2014.05.25 @ 16:54:00

End Date: 2014.05.25 @ 22:53:39

Job Ticket #: 57213 DST #: 1

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

Printed: 2014.05.30 @ 11:28:01



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

ATTN: Vern Schrag

Job Ticket: 57213

DST#: 1

Test Start: 2014.05.25 @ 16:54:00

GENERAL INFORMATION:

Formation: **LKC " K "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 18:59:55

Time Test Ended: 22:53:39

Test Type: Conventional Bottom Hole (Initial)

Tester: Will MacLean

Unit No: 72

Interval: 4264.00 ft (KB) To 4284.00 ft (KB) (TVD)

Reference Elevations: 2764.00 ft (KB)

Total Depth: 4284.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 126.12 psig @ 4265.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.25

End Date:

2014.05.25

Last Calib.:

2014.05.25

Start Time: 16:54:00

End Time:

22:53:39

Time On Btm:

2014.05.25 @ 18:59:40

Time Off Btm:

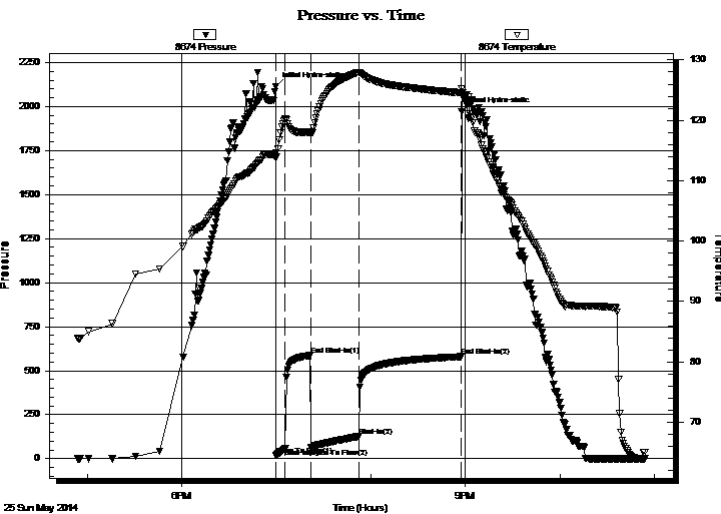
2014.05.25 @ 20:57:40

TEST COMMENT: IF- Weak Surface Blow Built to 2 1/2"

IS- No Blow

FF- Weak Surface Blow Built to 8 1/2"

FS- No Blow



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2113.31 | 114.55 | Initial Hydro-static |
| 1 | 20.23 | 113.77 | Open To Flow (1) |
| 6 | 58.65 | 120.17 | Shut-In(1) |
| 22 | 586.25 | 118.04 | End Shut-In(1) |
| 23 | 60.91 | 117.78 | Open To Flow (2) |
| 53 | 126.12 | 127.93 | Shut-In(2) |
| 118 | 579.74 | 124.54 | End Shut-In(2) |
| 118 | 1969.77 | 125.23 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------|--------------|
| 124.00 | MCW 7%m 93%w | 0.61 |
| 62.00 | MCW 12%m 88%w | 0.87 |
| 57.00 | MCW 44%m 56%w | 0.80 |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57213

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.05.25 @ 16:54:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4139.00 ft | Diameter: 3.80 inches | Volume: 58.06 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: 124.00 ft | Diameter: 2.25 inches | Volume: 0.61 bbl | Weight to Pull Loose: 8000.00 lb |
| | | | <u>Total Volume: 58.67 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 26.00 ft | | | String Weight: Initial 58000.00 lb |
| Depth to Top Packer: | 4264.00 ft | | | Final 58000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 20.00 ft | | | |
| Tool Length: | 47.00 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 | | | 4238.00 | |
| Shut In Tool | 5.00 | | | 4243.00 | |
| Hydraulic tool | 5.00 | | | 4248.00 | |
| Jars | 5.00 | | | 4253.00 | |
| Safety Joint | 2.00 | | | 4255.00 | |
| Packer | 5.00 | | | 4260.00 | 27.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4264.00 | |
| Stubb | 1.00 | | | 4265.00 | |
| Recorder | 0.00 | 8355 | Outside | 4265.00 | |
| Recorder | 0.00 | 8674 | Inside | 4265.00 | |
| Perforations | 14.00 | | | 4279.00 | |
| Bullnose | 5.00 | | | 4284.00 | 20.00 Bottom Packers & Anchor |

Total Tool Length: 47.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57213

DST#: 1

ATTN: Vern Schrag

Test Start: 2014.05.25 @ 16:54:00

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:

42000 ppm

Viscosity: 61.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.55 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2400.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|---------------|----------------|
| 124.00 | MCW 7%m 93%w | 0.610 |
| 62.00 | MCW 12%m 88%w | 0.870 |
| 57.00 | MCW 44%m 56%w | 0.800 |

Total Length: 243.00 ft Total Volume: 2.280 bbl

Num Fluid Samples: 0

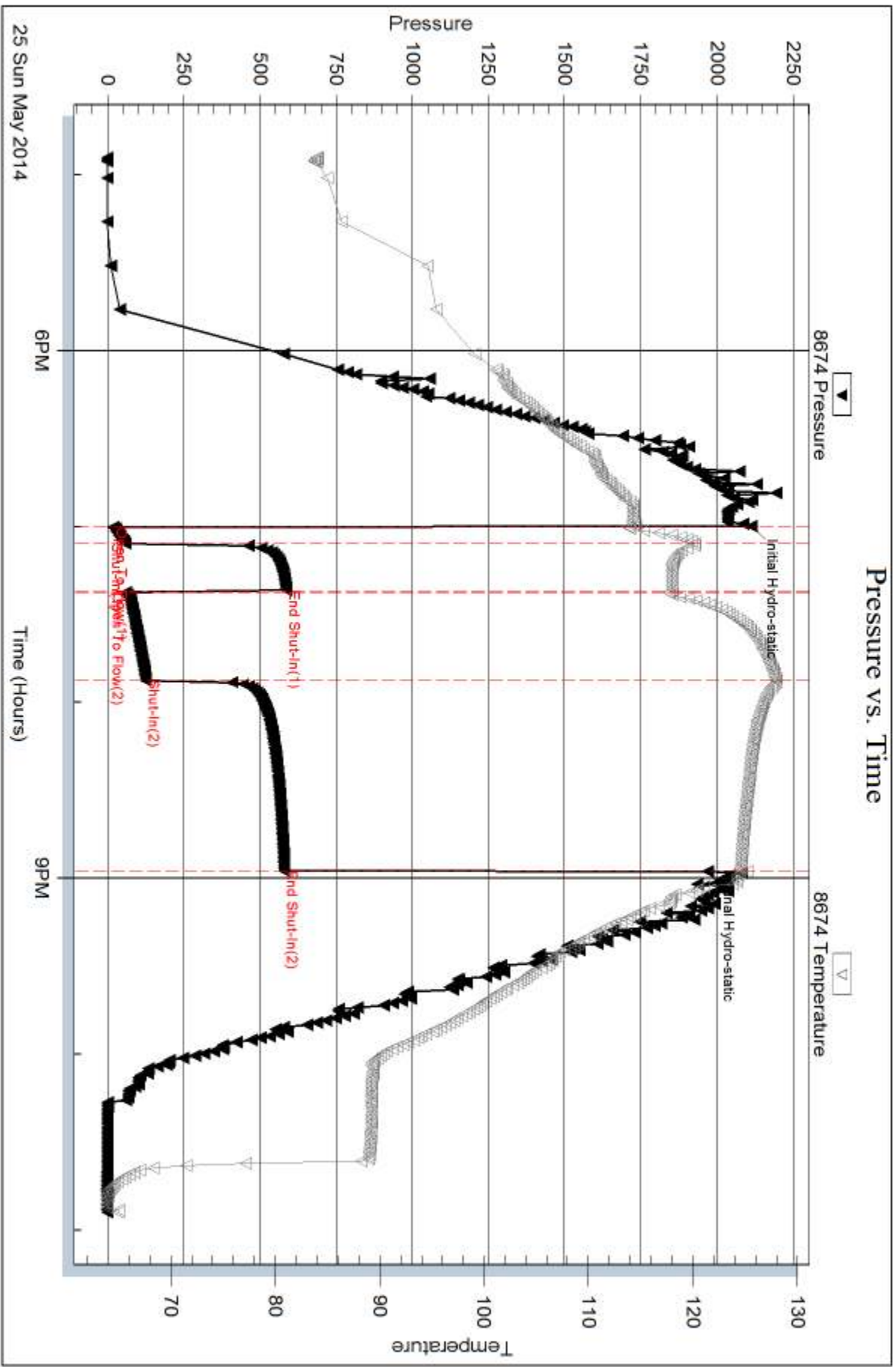
Num Gas Bombs: 0

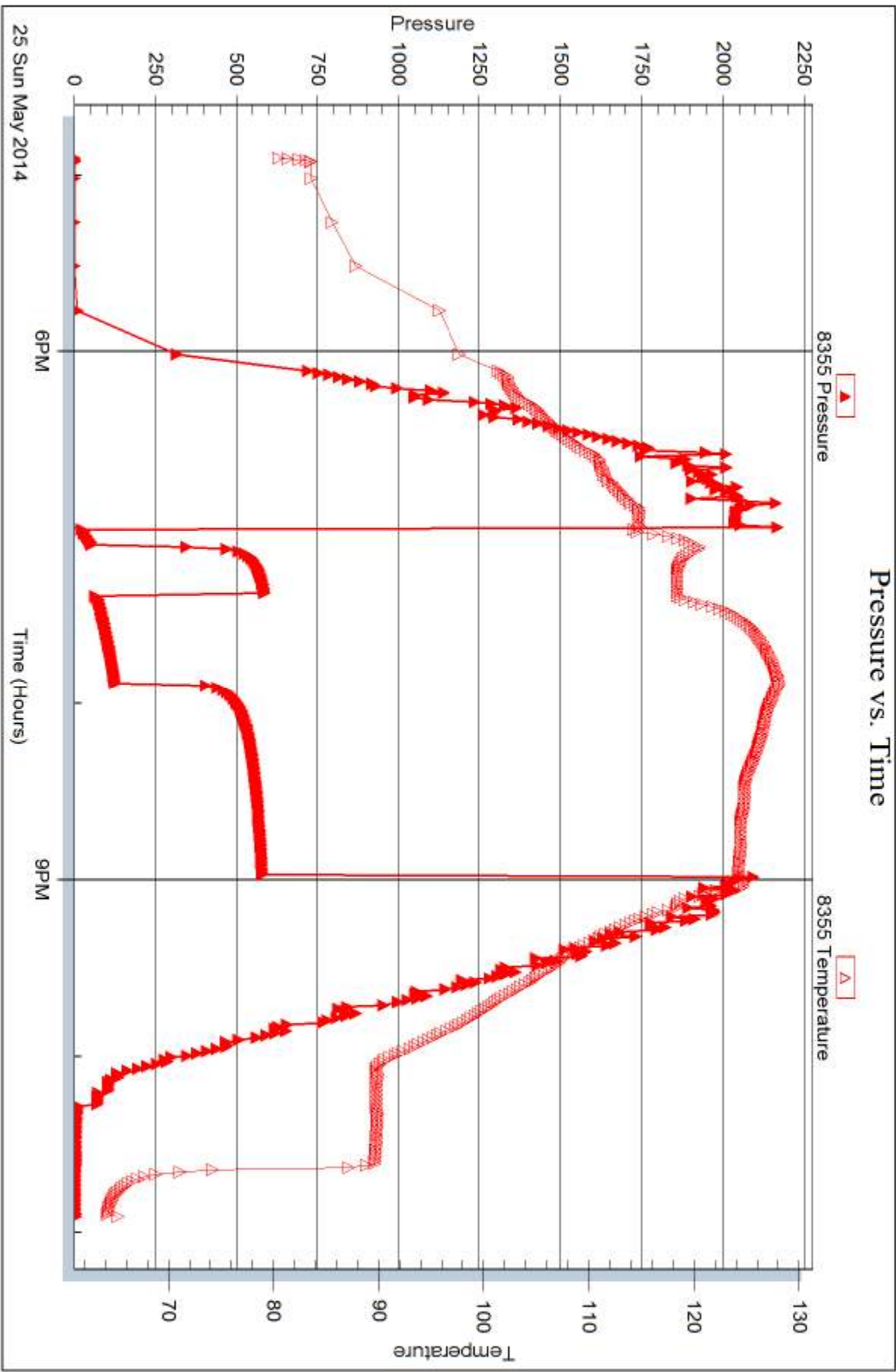
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .175 @ 68f = 42000







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W State Rd
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Ranch #1-31

31-18s-28w Lane,KS

Start Date: 2014.05.26 @ 10:00:00

End Date: 2014.05.26 @ 16:05:39

Job Ticket #: 57214 DST #: 2

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

Printed: 2014.05.30 @ 11:27:34



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57214

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.05.26 @ 10:00:00

GENERAL INFORMATION:

Formation: **LKC " L "**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 12:31:25

Time Test Ended: 16:05:39

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4296.00 ft (KB) To 4315.00 ft (KB) (TVD)

Reference Elevations: 2764.00 ft (KB)

Total Depth: 4315.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 89.55 psig @ 4297.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.26

End Date:

2014.05.26

Last Calib.:

2014.05.26

Start Time: 10:00:00

End Time:

16:05:39

Time On Btm:

2014.05.26 @ 12:31:10

Time Off Btm:

2014.05.26 @ 14:24:24

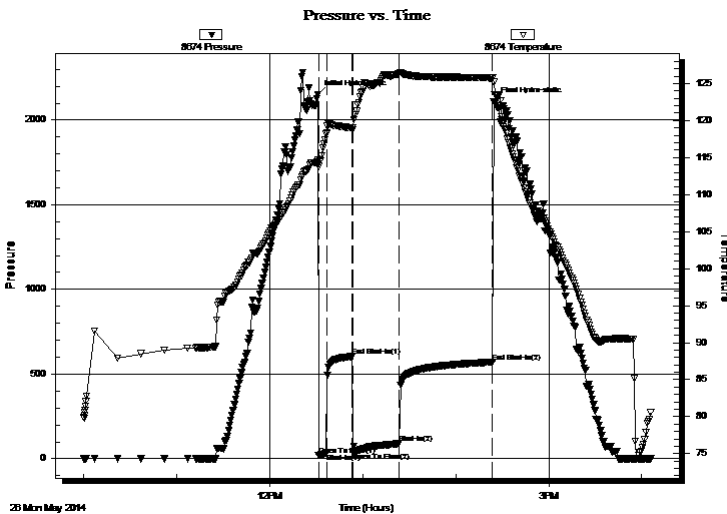
TEST COMMENT: IF- Weak Surface Blow Built to 3/4"

IS- No Blow

FF- Weak Surface Blow Built to 1 1/2"

FS- No Blow

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2149.25 | 114.68 | Initial Hydro-static |
| 1 | 18.17 | 113.81 | Open To Flow (1) |
| 6 | 33.20 | 118.32 | Shut-In(1) |
| 22 | 603.41 | 118.99 | End Shut-In(1) |
| 23 | 38.97 | 118.72 | Open To Flow (2) |
| 53 | 89.55 | 126.39 | Shut-In(2) |
| 113 | 570.82 | 125.74 | End Shut-In(2) |
| 114 | 2108.85 | 125.19 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|---------------|--------------|
| 124.00 | MCW 14%m 86%w | 0.61 |
| 20.00 | MCW 44%m 56%w | 0.28 |
| | | |
| | | |
| | | |

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57214

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.05.26 @ 10:00:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4169.00 ft | Diameter: 3.80 inches | Volume: 58.48 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: 28000.00 lb |
| Drill Collar: | Length: 124.00 ft | Diameter: 2.25 inches | Volume: 0.61 bbl | Weight to Pull Loose: 6000.00 lb |
| | | | <u>Total Volume: 59.09 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 24.00 ft | | | String Weight: Initial 58000.00 lb |
| Depth to Top Packer: | 4296.00 ft | | | Final 58000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 19.00 ft | | | |
| Tool Length: | 46.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 4270.00 | |
| Shut In Tool | 5.00 | | | 4275.00 | |
| Hydraulic tool | 5.00 | | | 4280.00 | |
| Jars | 5.00 | | | 4285.00 | |
| Safety Joint | 2.00 | | | 4287.00 | |
| Packer | 5.00 | | | 4292.00 | 27.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4296.00 | |
| Stubb | 1.00 | | | 4297.00 | |
| Recorder | 0.00 | 8355 | Outside | 4297.00 | |
| Recorder | 0.00 | 8674 | Inside | 4297.00 | |
| Perforations | 13.00 | | | 4310.00 | |
| Bullnose | 5.00 | | | 4315.00 | 19.00 Bottom Packers & Anchor |

Total Tool Length: 46.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57214

DST#: 2

ATTN: Vern Schrag

Test Start: 2014.05.26 @ 10:00:00

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:

32000 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|---------------|----------------|
| 124.00 | MCW 14%m 86%w | 0.610 |
| 20.00 | MCW 44%m 56%w | 0.281 |

Total Length: 144.00 ft Total Volume: 0.891 bbl

Num Fluid Samples: 0

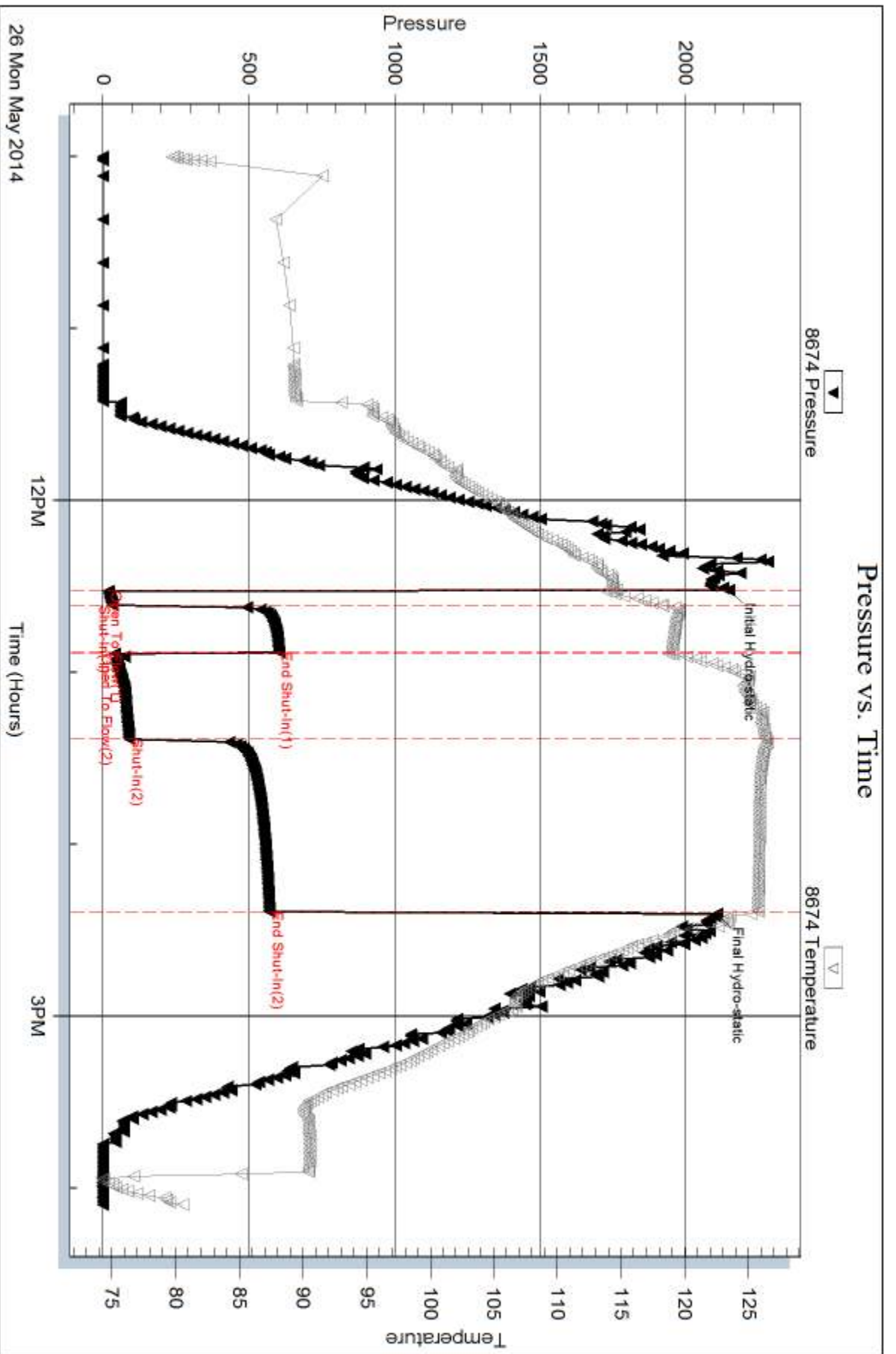
Num Gas Bombs: 0

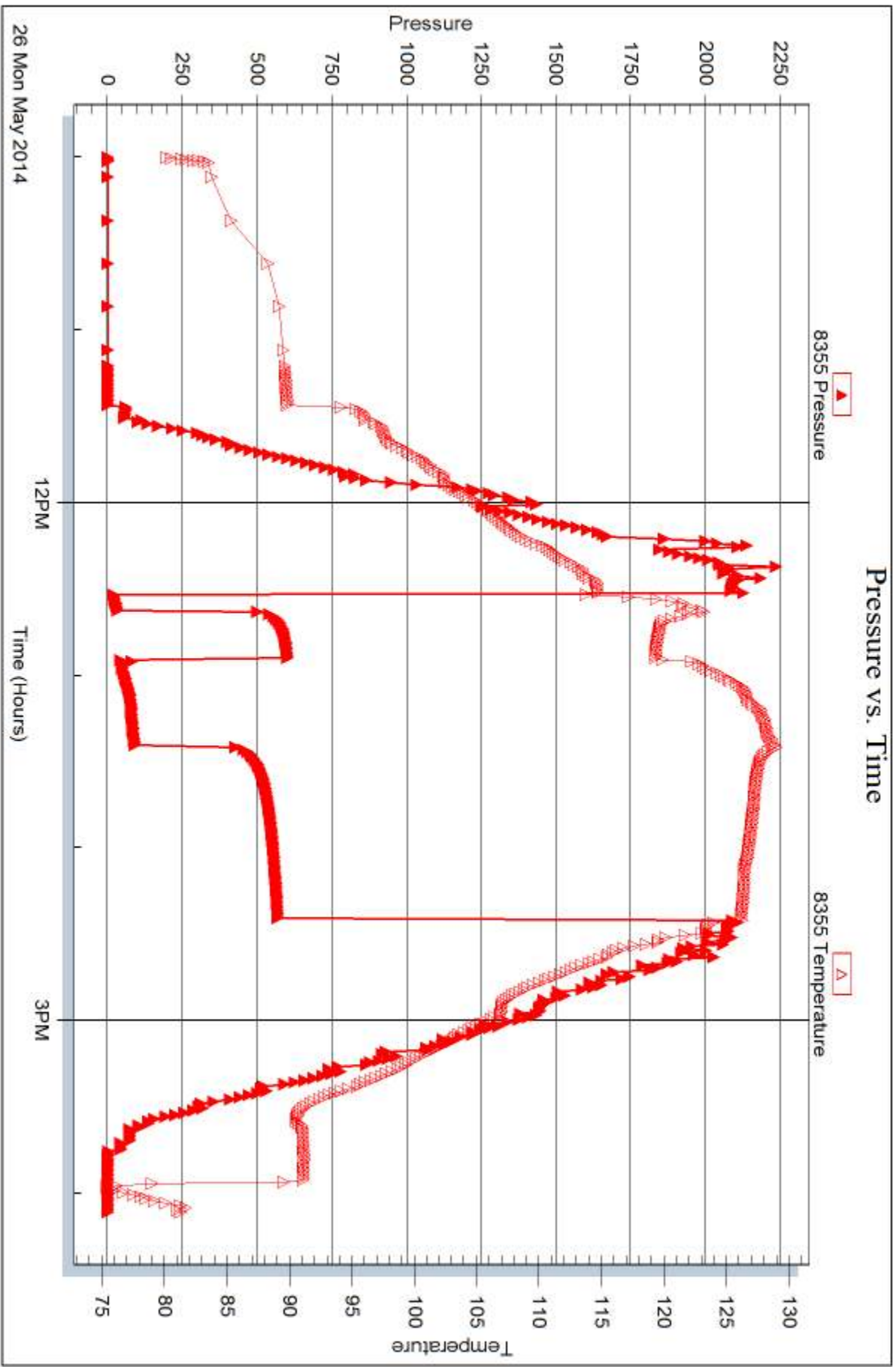
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .198 @ 74f = 32000







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W State Rd
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Ranch #1-31

31-18s-28w Lane,KS

Start Date: 2014.05.27 @ 02:34:00

End Date: 2014.05.27 @ 08:59:24

Job Ticket #: 57215 DST #: 3

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

Printed: 2014.05.30 @ 11:26:32



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

ATTN: Vern Schrag

Job Ticket: 57215

DST#: 3

Test Start: 2014.05.27 @ 02:34:00

GENERAL INFORMATION:

Formation: **Pleasanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 04:45:25

Time Test Ended: 08:59:24

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4339.00 ft (KB) To 4385.00 ft (KB) (TVD)

Reference Elevations: 2764.00 ft (KB)

Total Depth: 4385.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674

Inside

Press@RunDepth: 109.79 psig @ 4352.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.27

End Date:

2014.05.27

Last Calib.:

2014.05.27

Start Time:

02:34:00

End Time:

08:59:24

Time On Btm:

2014.05.27 @ 04:45:10

Time Off Btm:

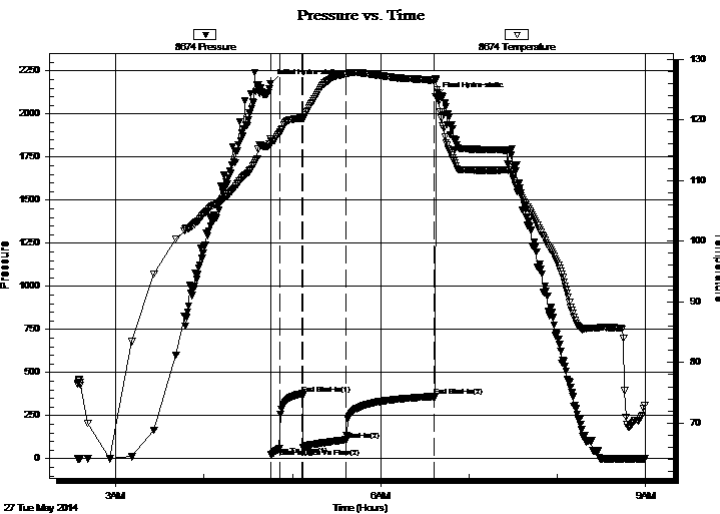
2014.05.27 @ 06:37:10

TEST COMMENT: IF- Weak Surface Blow Built to 2 1/2"

IS- No Blow

FF- Weak Surface Blow Built to 6"

FS- No Blow



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2178.70 | 116.88 | Initial Hydro-static |
| 1 | 22.09 | 116.08 | Open To Flow (1) |
| 6 | 58.70 | 117.82 | Shut-In(1) |
| 22 | 377.02 | 120.28 | End Shut-In(1) |
| 22 | 63.12 | 120.13 | Open To Flow (2) |
| 52 | 109.79 | 127.52 | Shut-In(2) |
| 112 | 361.35 | 126.50 | End Shut-In(2) |
| 112 | 2103.35 | 126.83 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|------------------------------|--------------|
| 124.00 | MCW 18%w 82%w | 0.61 |
| 62.00 | WCM 39%w 61%w with Oil Spots | 0.87 |
| 25.00 | WCM 16%w 84%w with Oil Spots | 0.35 |
| | | |
| | | |

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57215

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.05.27 @ 02:34:00

Tool Information

| | | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------|-------------|
| Drill Pipe: | Length: 4204.00 ft | Diameter: 3.80 inches | Volume: 58.97 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: | 32000.00 lb |
| Drill Collar: | Length: 124.00 ft | Diameter: 2.25 inches | Volume: 0.61 bbl | Weight to Pull Loose: | 8000.00 lb |
| | | | <u>Total Volume: 59.58 bbl</u> | Tool Chased | ft |
| Drill Pipe Above KB: | 6.00 ft | | | String Weight: Initial | 56000.00 lb |
| Depth to Top Packer: | 4349.00 ft | | | Final | 56000.00 lb |
| Depth to Bottom Packer: | ft | | | | |
| Interval between Packers: | 36.00 ft | | | | |
| Tool Length: | 63.00 ft | | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 4323.00 | |
| Shut In Tool | 5.00 | | | 4328.00 | |
| Hydraulic tool | 5.00 | | | 4333.00 | |
| Jars | 5.00 | | | 4338.00 | |
| Safety Joint | 2.00 | | | 4340.00 | |
| Packer | 5.00 | | | 4345.00 | 27.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4349.00 | |
| Stubb | 1.00 | | | 4350.00 | |
| Perforations | 2.00 | | | 4352.00 | |
| Recorder | 0.00 | 8355 | Outside | 4352.00 | |
| Recorder | 0.00 | 8674 | Inside | 4352.00 | |
| Perforations | 28.00 | | | 4380.00 | |
| Bullnose | 5.00 | | | 4385.00 | 36.00 Bottom Packers & Anchor |

Total Tool Length: 63.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

31-18s-28w Lane,KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57215

DST#: 3

ATTN: Vern Schrag

Test Start: 2014.05.27 @ 02:34:00

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:

26100 ppm

Viscosity: 55.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.16 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2600.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|------------------------------|----------------|
| 124.00 | MCW 18%m 82%w | 0.610 |
| 62.00 | WCM 39%w 61%m with Oil Spots | 0.870 |
| 25.00 | WCM 16%w 84%m with Oil Spots | 0.351 |

Total Length: 211.00 ft Total Volume: 1.831 bbl

Num Fluid Samples: 0

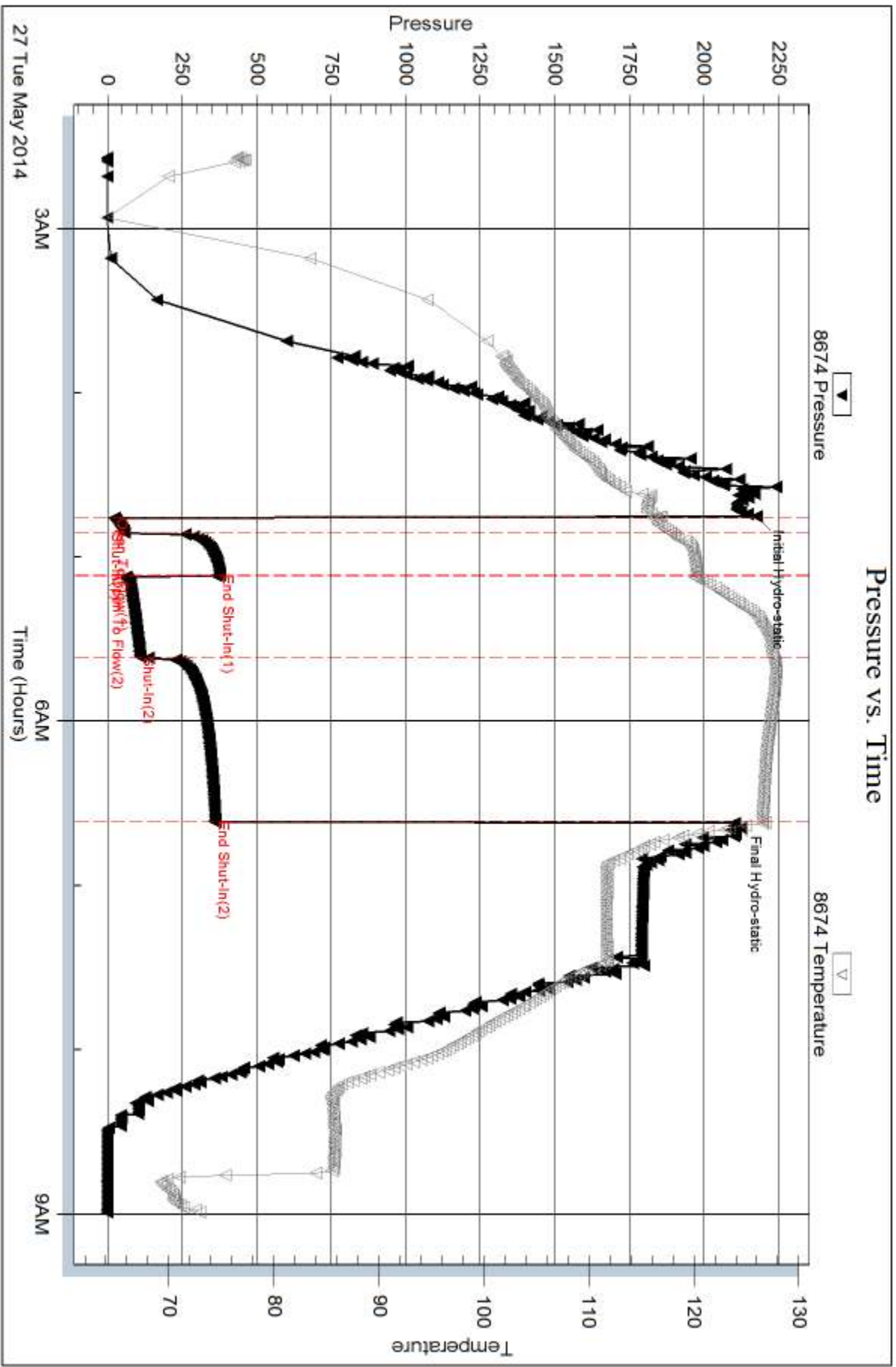
Num Gas Bombs: 0

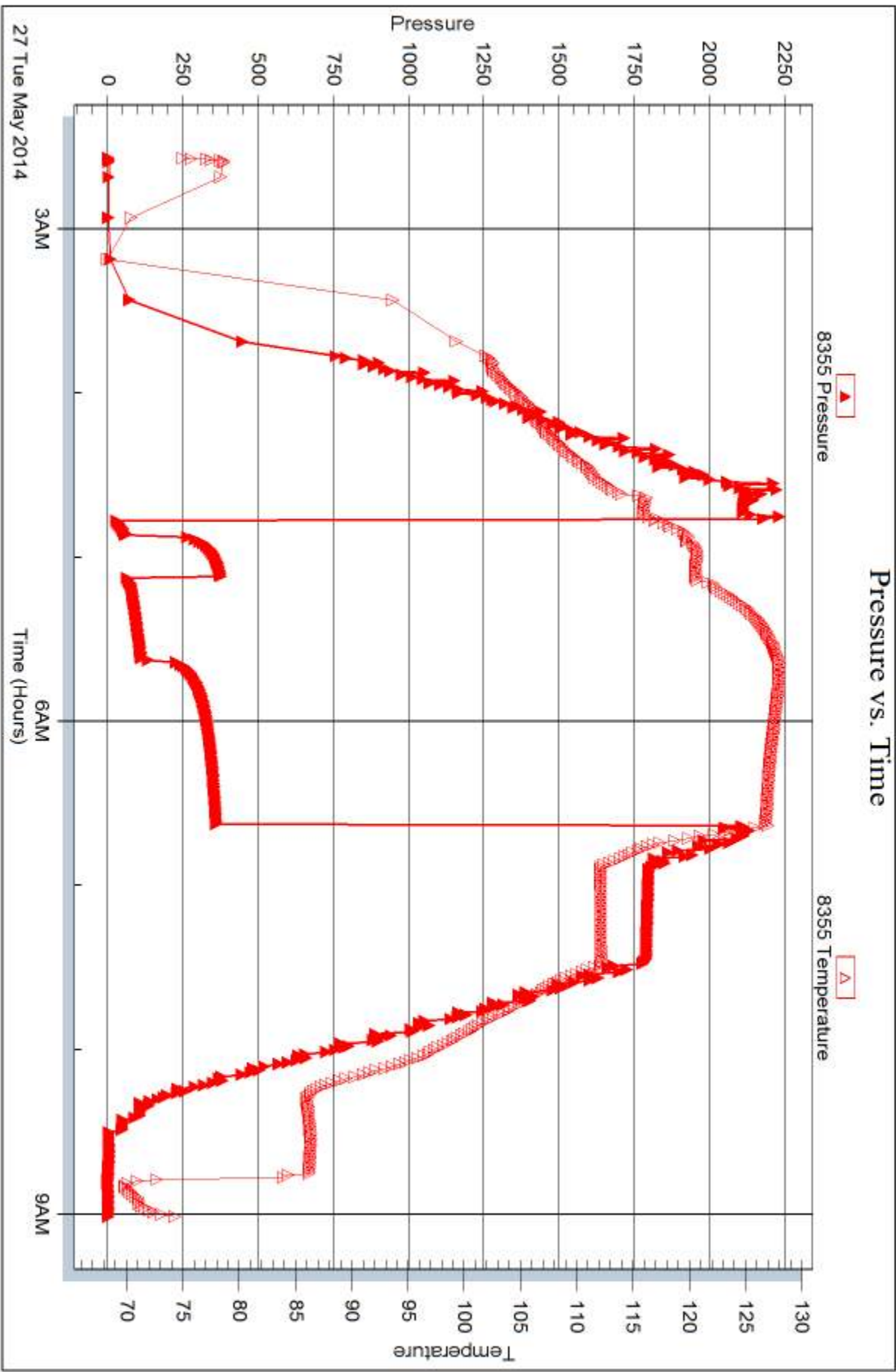
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: RW is .271 @ 65f = 26100







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W State Rd
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Ranch #1-31

31-18s-28w Lane,KS

Start Date: 2014.05.28 @ 05:28:00

End Date: 2014.05.28 @ 10:49:54

Job Ticket #: 57216 DST #: 4

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

Printed: 2014.05.30 @ 11:26:06



TRILOBITE TESTING, INC

DRILL STEM TEST REPORT

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

ATTN: Vern Schrag

Job Ticket: 57216

DST#: 4

Test Start: 2014.05.28 @ 05:28:00

GENERAL INFORMATION:

Formation: **Marmanton**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 07:41:40

Time Test Ended: 10:49:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4383.00 ft (KB) To 4544.00 ft (KB) (TVD)

Reference Elevations: 2764.00 ft (KB)

Total Depth: 4544.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674 Inside

Press@RunDepth: 63.38 psig @ 4384.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.28 End Date: 2014.05.28

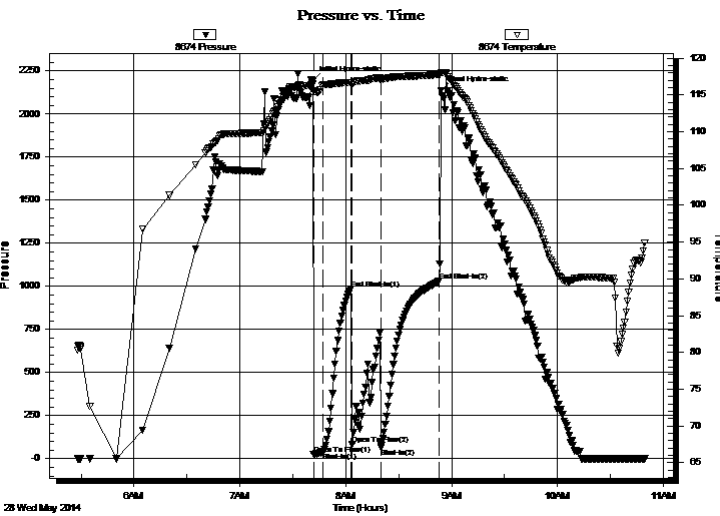
Last Calib.: 2014.05.28

Start Time: 05:28:00 End Time: 10:49:54

Time On Btm: 2014.05.28 @ 07:41:25

Time Off Btm: 2014.05.28 @ 08:53:55

TEST COMMENT: IF- Weak Surface Blow Built to 1 1/4"
IS- No Blow
FF- Weak Surface Blow Built to 1/4"
FS- No Blow



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2194.66 | 116.47 | Initial Hydro-static |
| 1 | 24.07 | 115.51 | Open To Flow (1) |
| 6 | 37.31 | 116.34 | Shut-In(1) |
| 22 | 986.53 | 116.71 | End Shut-In(1) |
| 23 | 85.10 | 116.46 | Open To Flow (2) |
| 39 | 63.38 | 116.98 | Shut-In(2) |
| 72 | 1032.89 | 117.78 | End Shut-In(2) |
| 73 | 2137.53 | 118.08 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|------------------------------------|--------------|
| 62.00 | WCM 2%w 98%m with a Skim of Oil on | 0.30 |
| 5.00 | 100%m with a Few Oil Spots | 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

Larson Engineering Inc

31-18s-28w Lane,KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57216

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.05.28 @ 05:28:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4238.00 ft | Diameter: 3.80 inches | Volume: 59.45 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: 28000.00 lb |
| Drill Collar: | Length: 124.00 ft | Diameter: 2.25 inches | Volume: 0.61 bbl | Weight to Pull Loose: 4000.00 lb |
| | | | <u>Total Volume: 60.06 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 6.00 ft | | | String Weight: Initial 62000.00 lb |
| Depth to Top Packer: | 4383.00 ft | | | Final 62000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 161.00 ft | | | |
| Tool Length: | 188.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|--------------------------------|
| Change Over Sub | 1.00 | | | 4357.00 | |
| Shut In Tool | 5.00 | | | 4362.00 | |
| Hydraulic tool | 5.00 | | | 4367.00 | |
| Jars | 5.00 | | | 4372.00 | |
| Safety Joint | 2.00 | | | 4374.00 | |
| Packer | 5.00 | | | 4379.00 | 27.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4383.00 | |
| Stubb | 1.00 | | | 4384.00 | |
| Recorder | 0.00 | 8355 | Outside | 4384.00 | |
| Recorder | 0.00 | 8674 | Inside | 4384.00 | |
| Perforations | 28.00 | | | 4412.00 | |
| Change Over Sub | 1.00 | | | 4413.00 | |
| Drill Pipe | 125.00 | | | 4538.00 | |
| Change Over Sub | 1.00 | | | 4539.00 | |
| Bullnose | 5.00 | | | 4544.00 | 161.00 Bottom Packers & Anchor |

Total Tool Length: 188.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57216

DST#: 4

ATTN: Vern Schrag

Test Start: 2014.05.28 @ 05:28:00

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: 52.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.58 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 3100.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbbl |
|--------------|--|----------------|
| 62.00 | WCM 2%w 98%m with a Skim of Oil on Top | 0.305 |
| 5.00 | 100%m with a Few Oil Spots | 0.025 |

Total Length: 67.00 ft Total Volume: 0.330 bbl

Num Fluid Samples: 0

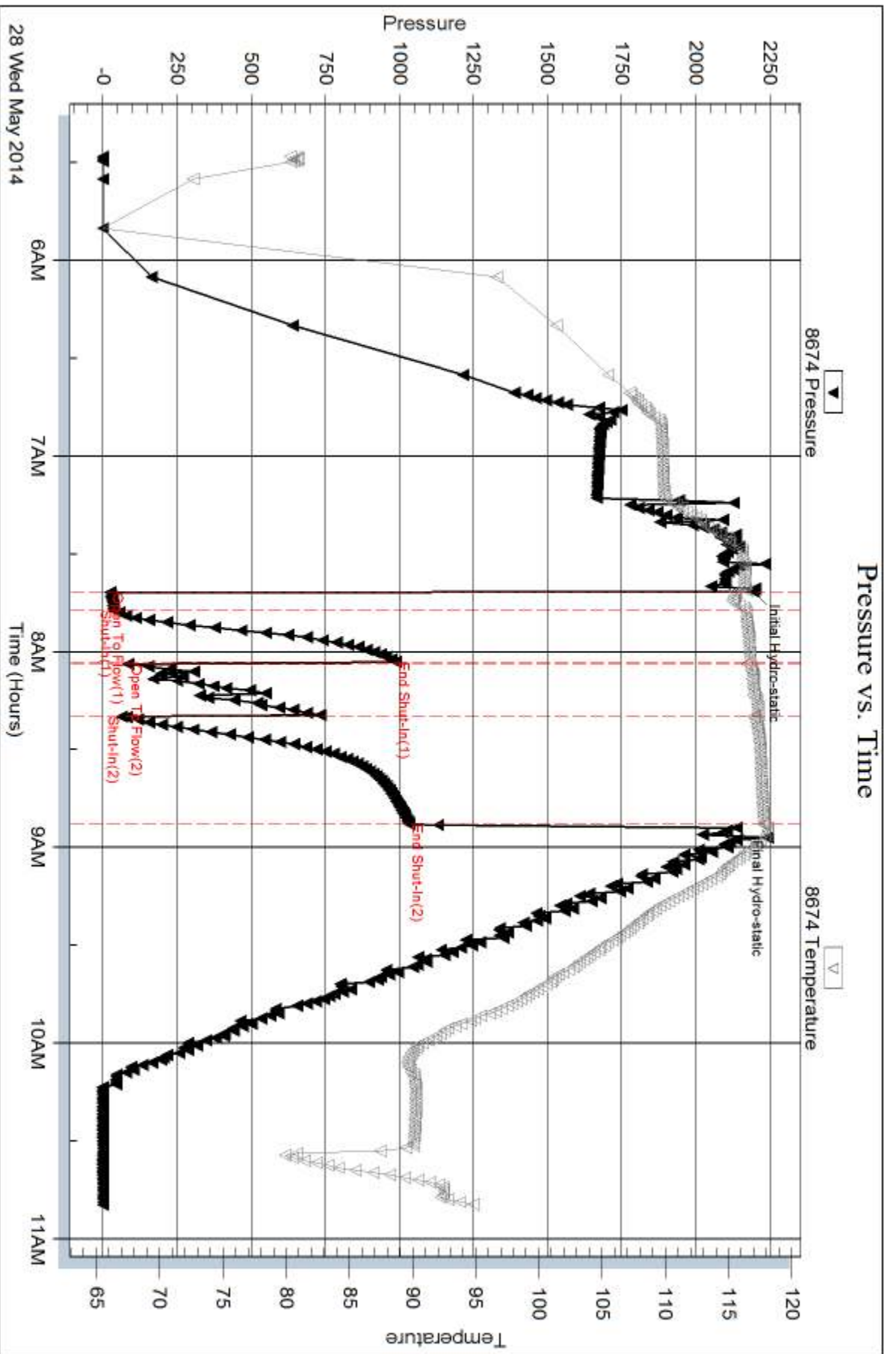
Num Gas Bombs: 0

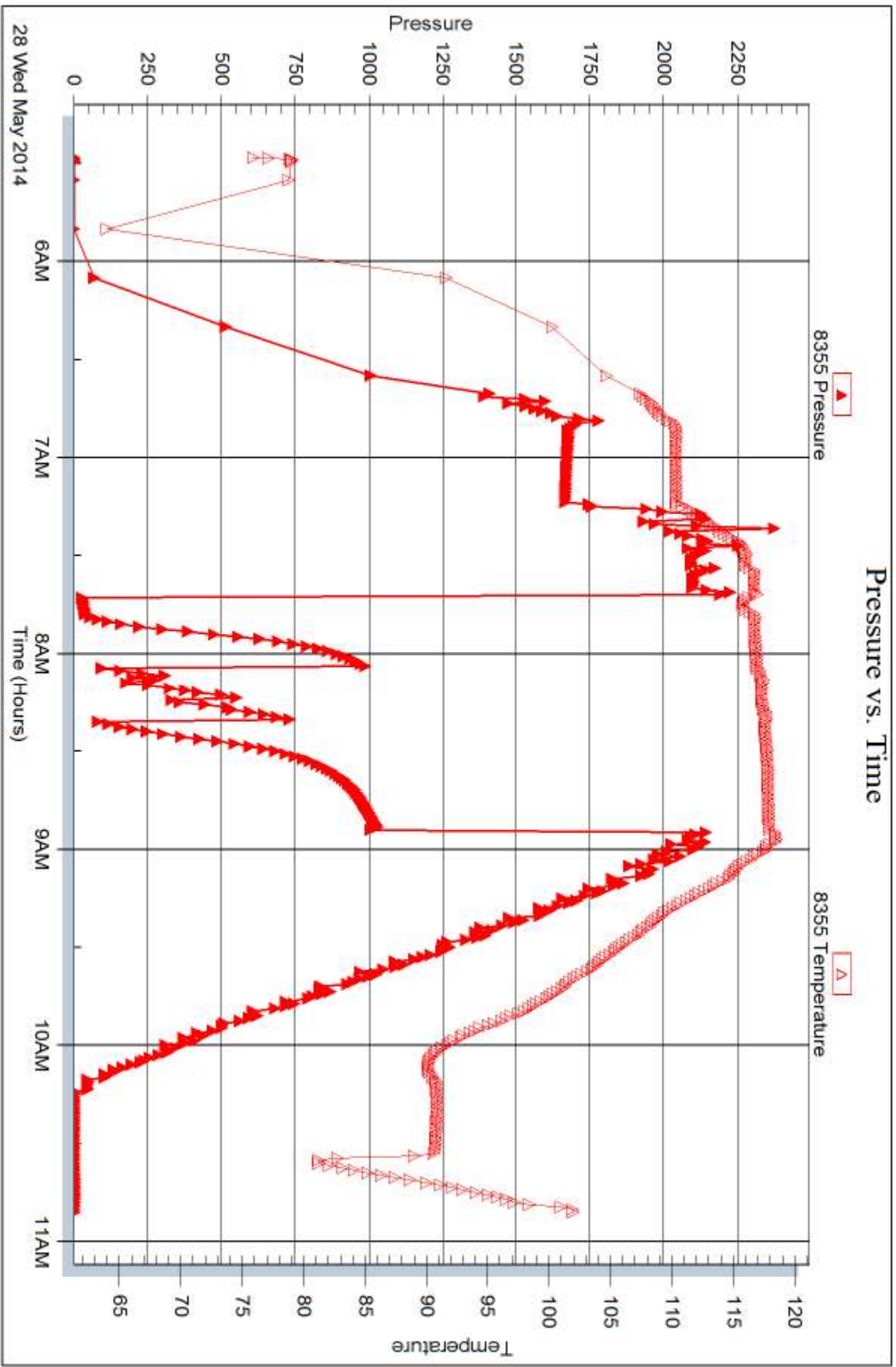
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Larson Engineering Inc**

562 W State Rd
Olmitz KS 67564

ATTN: Vern Schrag

Hineman Ranch #1-31

31-18s-28w Lane,KS

Start Date: 2014.05.28 @ 21:54:00

End Date: 2014.05.29 @ 03:14:54

Job Ticket #: 57217 DST #: 5

Trilobite Testing, Inc

PO Box 362 Hays, KS 67601

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

Printed: 2014.05.30 @ 11:25:15



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

ATTN: Vern Schrag

Job Ticket: 57217

DST#: 5

Test Start: 2014.05.28 @ 21:54:00

GENERAL INFORMATION:

Formation: **Cherokee**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 23:58:10

Time Test Ended: 03:14:54

Test Type: Conventional Bottom Hole (Reset)

Tester: Will MacLean

Unit No: 72

Interval: 4542.00 ft (KB) To 4602.00 ft (KB) (TVD)

Reference Elevations: 2764.00 ft (KB)

Total Depth: 4602.00 ft (KB) (TVD)

2757.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: 8674 Inside

Press@RunDepth: 24.02 psig @ 4543.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2014.05.28

End Date:

2014.05.29

Last Calib.:

2014.05.29

Start Time: 21:54:00

End Time:

03:14:54

Time On Btm:

2014.05.28 @ 23:57:55

Time Off Btm:

2014.05.29 @ 01:06:25

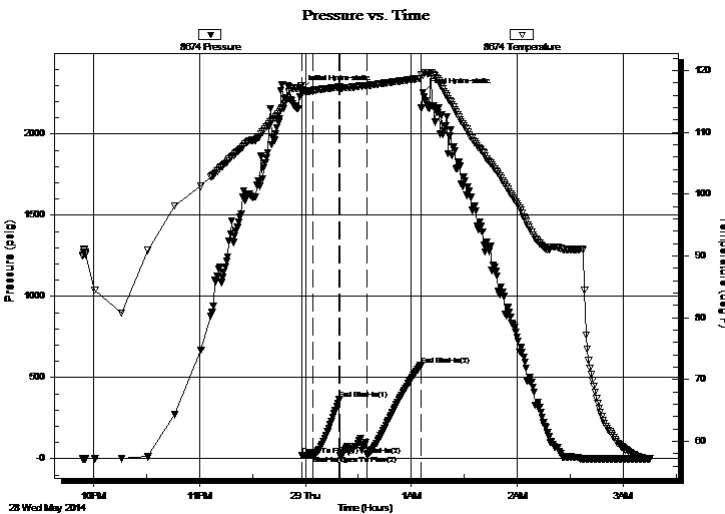
TEST COMMENT: IF- Weak Surface Blow 1/4"

IS- No Blow

FF- No Blow

FS- No Blow

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2273.20 | 117.57 | Initial Hydro-static |
| 1 | 19.33 | 116.35 | Open To Flow (1) |
| 6 | 20.85 | 116.75 | Shut-In(1) |
| 22 | 366.07 | 117.33 | End Shut-In(1) |
| 22 | 21.72 | 117.08 | Open To Flow (2) |
| 37 | 24.02 | 117.56 | Shut-In(2) |
| 68 | 573.99 | 118.73 | End Shut-In(2) |
| 69 | 2255.23 | 119.25 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|----------------------------|--------------|
| 5.00 | 100% Few Oil Spots in Tool | 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

Larson Engineering Inc

31-18s-28w Lane,KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57217

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.05.28 @ 21:54:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4395.00 ft | Diameter: 3.80 inches | Volume: 61.65 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: 28000.00 lb |
| Drill Collar: | Length: 124.00 ft | Diameter: 2.25 inches | Volume: 0.61 bbl | Weight to Pull Loose: 22000.00 lb |
| | | | <u>Total Volume: 62.26 bbl</u> | Tool Chased ft |
| Drill Pipe Above KB: | 4.00 ft | | | String Weight: Initial 60000.00 lb |
| Depth to Top Packer: | 4542.00 ft | | | Final 60000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 60.00 ft | | | |
| Tool Length: | 87.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | |

Tool Comments:

Tool Description

| Tool Description | Length (ft) | Serial No. | Position | Depth (ft) | Accum. Lengths |
|------------------|-------------|------------|----------|------------|-------------------------------|
| Change Over Sub | 1.00 | | | 4516.00 | |
| Shut In Tool | 5.00 | | | 4521.00 | |
| Hydraulic tool | 5.00 | | | 4526.00 | |
| Jars | 5.00 | | | 4531.00 | |
| Safety Joint | 2.00 | | | 4533.00 | |
| Packer | 5.00 | | | 4538.00 | 27.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4542.00 | |
| Stubb | 1.00 | | | 4543.00 | |
| Recorder | 0.00 | 8355 | Outside | 4543.00 | |
| Recorder | 0.00 | 8674 | Inside | 4543.00 | |
| Perforations | 21.00 | | | 4564.00 | |
| Change Over Sub | 1.00 | | | 4565.00 | |
| Drill Pipe | 31.00 | | | 4596.00 | |
| Change Over Sub | 1.00 | | | 4597.00 | |
| Bullnose | 5.00 | | | 4602.00 | 60.00 Bottom Packers & Anchor |

Total Tool Length: 87.00



**TRILOBITE
TESTING, INC**

DRILL STEM TEST REPORT

FLUID SUMMARY

Larson Engineering Inc

31-18s-28w Lane, KS

562 W State Rd
Olmitz KS 67564

Hineman Ranch #1-31

Job Ticket: 57217

DST#: 5

ATTN: Vern Schrag

Test Start: 2014.05.28 @ 21:54:00

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

deg API

Mud Weight: 10.00 lb/gal

Cushion Length:

ft

Water Salinity:

ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.19 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 2400.00 ppm

Filter Cake: 2.00 inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbf |
|--------------|------------------------------|---------------|
| 5.00 | 100% m Few Oil Spots in Tool | 0.025 |

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

Num Gas Bombs: 0

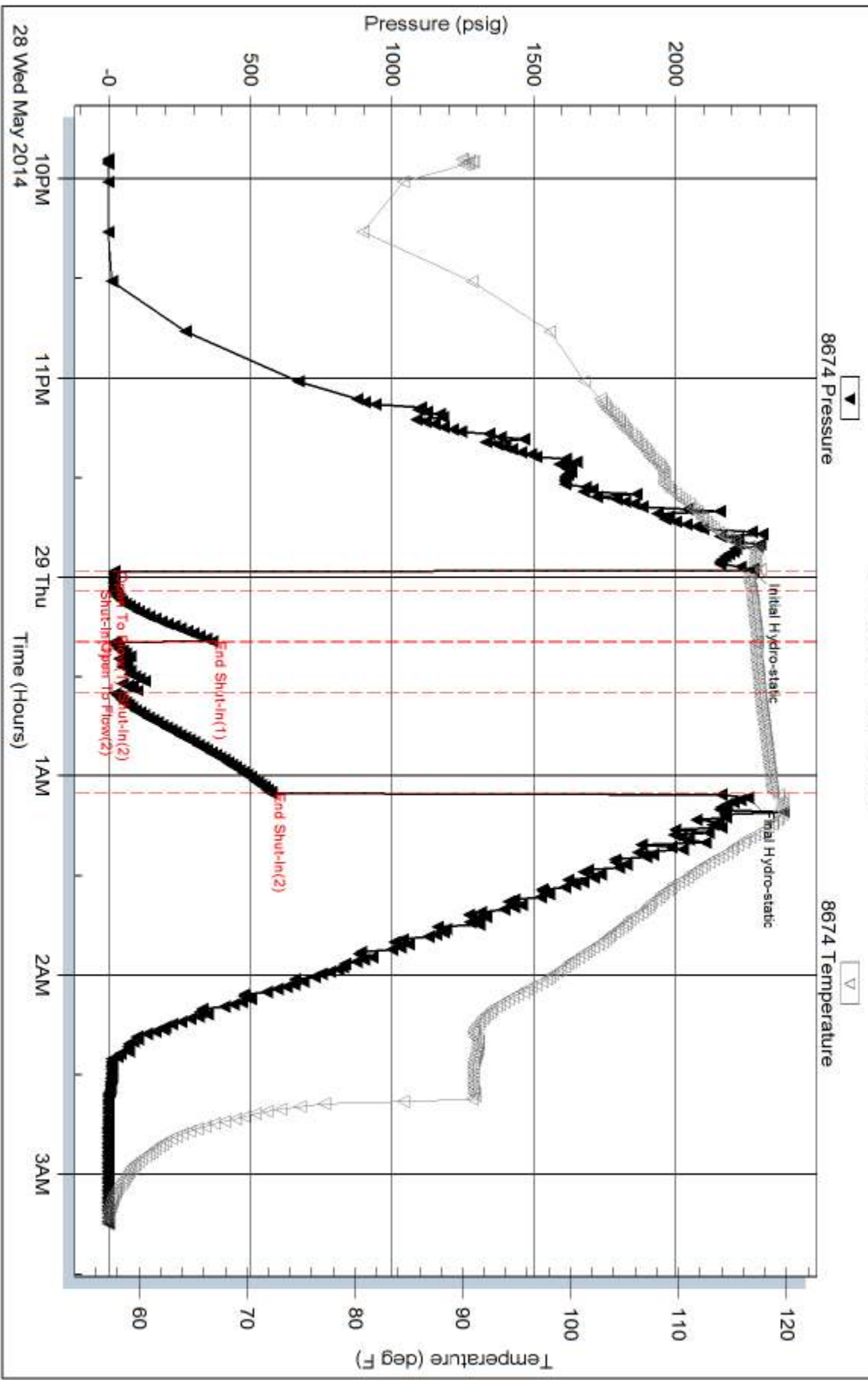
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:

Pressure vs. Time

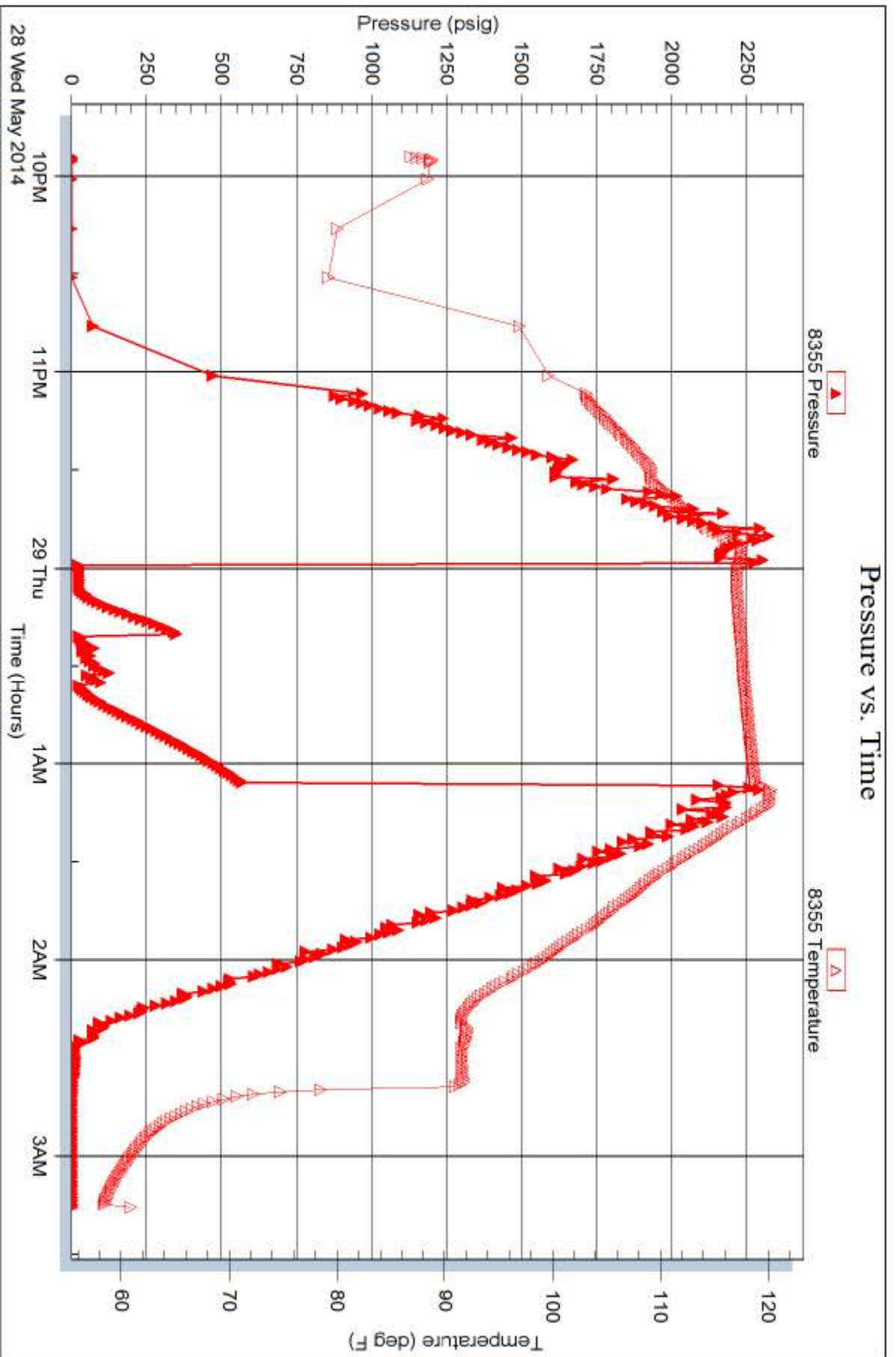


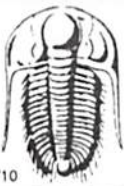
Serial #: 8355

Outside Larson Engineering Inc

Hineman Ranch #1-31

DST Test Number: 5





TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57213

Well Name & No. Hineman Ranch #1-31 Test No. DST#1 Date 5-25-14
 Company Larson Engineering Inc Elevation 2764 KB 2757 GL
 Address 562 W. State Rd Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D R's #3
 Location: Sec. 31 Twp. 18S Rge. 28W Co. Lane State KS

Interval Tested 4264 - 4284 Zone Tested LRC "K"
 Anchor Length 20 Drill Pipe Run 4139 Mud Wt. 9.0
 Top Packer Depth 4260 Drill Collars Run 124 Vis 61
 Bottom Packer Depth 4264 Wt. Pipe Run 0 WL 7.6
 Total Depth 4284 Chlorides 2400 ppm System LCM 216
 Blow Description IF- Weak Surface Blow Built to 2 1/2"
ISI- No Blow
FF- Weak Surface Blow Built to 8 1/2"
FST- No Blow

| Rec | Feet of | %gas | %oil | %water | %mud |
|------------|------------|------|-----------|-----------|-----------|
| <u>57</u> | <u>MCW</u> | | | <u>44</u> | |
| <u>62</u> | <u>MCW</u> | | <u>88</u> | <u>88</u> | <u>12</u> |
| <u>124</u> | <u>MCW</u> | | <u>93</u> | <u>93</u> | <u>7</u> |
| | | | | | |
| | | | | | |

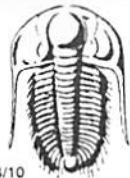
Rec Total 243 BHT 125 Gravity _____ API RW 175 @ 68 ° F Chlorides 42000 ppm

(A) Initial Hydrostatic 2113 Test 1250 T-On Location 15:50
 (B) First Initial Flow 20 Jars 250 T-Started 16:54
 (C) First Final Flow 58 Safety Joint 75 T-Open 18:59
 (D) Initial Shut-In 586 Circ Sub NIC T-Pulled 20:57
 (E) Second Initial Flow 60 Hourly Standby _____ T-Out 22:53
 (F) Second Final Flow 126 Mileage 58 RTT 89.90 Comments _____
 (G) Final Shut-In 579 Sampler _____
 (H) Final Hydrostatic 1969 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Extra Recorder _____ Sub Total 0
 Day Standby _____ Total 1664.90
 Accessibility _____ MP/DST Disc't _____
 Sub Total 1664.90

Initial Open 5
 Initial Shut-In 15
 Final Flow 30
 Final Shut-In 60

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57214

Well Name & No. Hineman Ranch #1-31 Test No. DST #2 Date 5-26-14
 Company Larson Engineering Inc Elevation 2764 KB 2757 GL
 Address 562 W State Rd Olmitz KS 67564
 Co. Rep / Geo. Vera Schrag Rig H-D Rig #3
 Location: Sec. 31 Twp. 18s Rge. 28W Co. Lane State KS

Interval Tested 4296-4315 Zone Tested LKC "L"
 Anchor Length 19 Drill Pipe Run 4169 Mud Wt. 9.0
 Top Packer Depth 4292 Drill Collars Run 124 Vis 55
 Bottom Packer Depth 4296 Wt. Pipe Run 0 WL 7.2
 Total Depth 4315 Chlorides 2600 ppm System LCM 216

Blow Description IF- Weak Surface Blow Built to 3/4"
ISJ- No Blow
FF- Weak Surface Blow Built to 1 1/2"
FST- No Blow

| Rec | Feet of | %gas | %oil | %water | %mud |
|------------|------------|------|-----------|-----------|------|
| <u>20</u> | <u>MCW</u> | | <u>56</u> | <u>44</u> | |
| <u>124</u> | <u>MCW</u> | | <u>86</u> | <u>14</u> | |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |

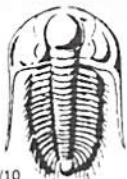
Rec Total 144 BHT 125 Gravity API RW, 198 @ 174 °F Chlorides 32000 ppm

(A) Initial Hydrostatic 2149 Test 1250 T-On Location 9:38
 (B) First Initial Flow 18 Jars 250 T-Started 10:00
 (C) First Final Flow 33 Safety Joint 75 T-Open 12:31
 (D) Initial Shut-In 603 Circ Sub N/C T-Pulled _____
 (E) Second Initial Flow 38 Hourly Standby _____ T-Out 16:05
 (F) Second Final Flow 89 Mileage 58 RIT 89.90 Comments Work on Shut in Tool 1/2 hr
 (G) Final Shut-In 570 Sampler _____
 (H) Final Hydrostatic 2108 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____

Initial Open 5 Extra Packer _____ Extra Copies _____
 Initial Shut-In 15 Extra Recorder _____ Sub Total 0
 Final Flow 30 Day Standby _____ Total 1664.90
 Final Shut-In 60 Accessibility _____ MP/DST Disc't _____
 Sub Total 1664.90

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57215

4/10

Well Name & No. Higeman Ranch #1-31 Test No. DST #3 Date 5-27-14
 Company Larson Engineering Inc Elevation 2764 KB 2757 GL
 Address 562 W. State Rd Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rig #3
 Location: Sec. 31 Twp. 18s Rge. 28W Co. Lane State KS

Interval Tested 4349-4385 Zone Tested Pleasanton
 Anchor Length 36 Drill Pipe Run 4204 Mud Wt. 9.0
 Top Packer Depth 4345 Drill Collars Run 124 Vis 55
 Bottom Packer Depth 4349 Wt. Pipe Run 0 WL 7.2
 Total Depth 4385 Chlorides 2600 ppm System LCM 216
 Blow Description IF- Weak Surface Blow Built to 2 1/2"
ISI- No Blow
FF- Weak Surface Blow Built to 6"
FST-

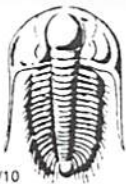
| Rec | Feet of | %gas | %oil | %water | %mud |
|------------|---------------------------|------|-----------|-----------|------|
| <u>25</u> | <u>WCM with Oil Spots</u> | | <u>16</u> | <u>84</u> | |
| <u>62</u> | <u>WCM with Oil Spots</u> | | <u>39</u> | <u>61</u> | |
| <u>124</u> | <u>MCW</u> | | <u>82</u> | <u>18</u> | |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |

Rec Total 211 BHT 126 Gravity _____ API RW 271 @ 65 °F Chlorides 26100 ppm

| | | |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>2178</u> | <input checked="" type="checkbox"/> Test <u>1250</u> | T-On Location <u>1:50</u> |
| (B) First Initial Flow <u>22</u> | <input checked="" type="checkbox"/> Jars <u>250</u> | T-Started <u>2:34</u> |
| (C) First Final Flow <u>58</u> | <input checked="" type="checkbox"/> Safety Joint <u>75</u> | T-Open <u>4:45</u> |
| (D) Initial Shut-In <u>377</u> | <input checked="" type="checkbox"/> Circ Sub <u>N/C</u> | T-Pulled <u>6:37</u> |
| (E) Second Initial Flow <u>63</u> | <input type="checkbox"/> Hourly Standby _____ | T-Out <u>8:59</u> |
| (F) Second Final Flow <u>109</u> | <input checked="" type="checkbox"/> Mileage <u>58 RIT</u> 89.90 | Comments _____ |
| (G) Final Shut-In <u>361</u> | <input type="checkbox"/> Sampler _____ | |
| (H) Final Hydrostatic <u>2103</u> | <input type="checkbox"/> Straddle _____ | <input type="checkbox"/> Ruined Shale Packer _____ |
| Initial Open <u>5</u> | <input checked="" type="checkbox"/> Shale Packer <u>250</u> | <input type="checkbox"/> Ruined Packer _____ |
| Initial Shut-In <u>15</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>60</u> | <input type="checkbox"/> Day Standby _____ | Total <u>1914.90</u> |
| | <input type="checkbox"/> Accessibility _____ | MP/DST Disc't _____ |
| | Sub Total <u>1914.90</u> | |

Approved By [Signature] Our Representative _____

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57216

4/10

Well Name & No. Hineman Ranch #1-31 Test No. DST #4 Date 5-28-14
 Company Larson Engineering Inc Elevation 2764 KB 2757 GL
 Address 562 W. State Rd Olin, KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rig #3
 Location: Sec. 31 Twp. 18S Rge. 28W Co. Lane State KS

Interval Tested 4383 - 4544 Zone Tested Marmanton
 Anchor Length 161 Drill Pipe Run 4238 Mud Wt. 9.4
 Top Packer Depth 4379 Drill Collars Run 124 Vis 52
 Bottom Packer Depth 4383 Wt. Pipe Run 0 WL 7.6
 Total Depth 4544 Chlorides 3100 ppm System LCM 110

Blow Description IF- Weak Surface Blow Built to 1 1/4"
ISI- No Blow
FF- Weak Surface Blow Built to 1/4"
FSI- No Blow

| Rec | Feet of | %gas | %oil | %water | %mud |
|-----------|--------------------------------------|------|----------|------------|------|
| <u>5</u> | <u>Mud with a few Oil spots</u> | | | <u>100</u> | |
| <u>62</u> | <u>UCM with a skin of Oil on Top</u> | | <u>2</u> | <u>98</u> | |
| | | | | | |
| | | | | | |
| | | | | | |

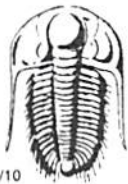
Rec Total 67 BHT 118 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

| | | |
|-------------------------------------|---|--|
| (A) Initial Hydrostatic <u>2194</u> | <input checked="" type="checkbox"/> Test <u>1250</u> | T-On Location <u>4:58</u> |
| (B) First Initial Flow <u>24</u> | <input checked="" type="checkbox"/> Jars <u>250</u> | T-Started <u>5:28</u> |
| (C) First Final Flow <u>37</u> | <input checked="" type="checkbox"/> Safety Joint <u>75</u> | T-Open <u>7:41</u> |
| (D) Initial Shut-In <u>986</u> | <input checked="" type="checkbox"/> Circ Sub <u>N/C</u> | T-Pulled <u>8:53</u> |
| (E) Second Initial Flow <u>85</u> | <input type="checkbox"/> Hourly Standby _____ | T-Out <u>10:49</u> |
| (F) Second Final Flow <u>63</u> | <input checked="" type="checkbox"/> Mileage <u>58 RIT</u> 89.90 | Comments _____ |
| (G) Final Shut-In <u>1032</u> | <input type="checkbox"/> Sampler _____ | |
| (H) Final Hydrostatic <u>2137</u> | <input type="checkbox"/> Straddle _____ | <input type="checkbox"/> Ruined Shale Packer _____ |

| | | |
|---------------------------|---|---|
| Initial Open <u>5</u> | <input type="checkbox"/> Extra Packer _____ | <input type="checkbox"/> Extra Copies _____ |
| Initial Shut-In <u>15</u> | <input type="checkbox"/> Extra Recorder _____ | Sub Total <u>0</u> |
| Final Flow <u>15</u> | <input type="checkbox"/> Day Standby _____ | Total <u>1914.90</u> |
| Final Shut-In <u>30</u> | <input type="checkbox"/> Accessibility _____ | MP/DST Disc't _____ |
| | Sub Total <u>1914.90</u> | |

Approved By [Signature] Our Representative [Signature]

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TRILOBITE TESTING INC.

1515 Commerce Parkway • Hays, Kansas 67601

Test Ticket

NO. 57217

4/10

Well Name & No. Hineman Ranch #1-31 Test No. DST #5 Date 5-28-14
 Company Larson Engineering Inc Elevation 2764 KB 2757 GL
 Address 562 W. State Rd Olmitz KS 67564
 Co. Rep / Geo. Vern Schrag Rig H-D Rig #3
 Location: Sec. 31 Twp. 18S Rge. 28W Co. Lane State KS

Interval Tested 4542-4602 Zone Tested Cherokee
 Anchor Length 60 Drill Pipe Run 4395 Mud Wt. 9.5
 Top Packer Depth 4538 Drill Collars Run 124 Vis 51
 Bottom Packer Depth 4542 Wt. Pipe Run 0 WL 7.2
 Total Depth 4602 Chlorides 2400 ppm System LCM 116

Blow Description IF- Weak Surface Blow 1/4"
ISI- No Blow
FF- No Blow
FSI- No Blow

| Rec | Feet of | %gas | %oil | %water | %mud |
|----------|----------------------------------|------|------|------------|------|
| <u>5</u> | <u>Mud Few Oil Spots in Tool</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 |

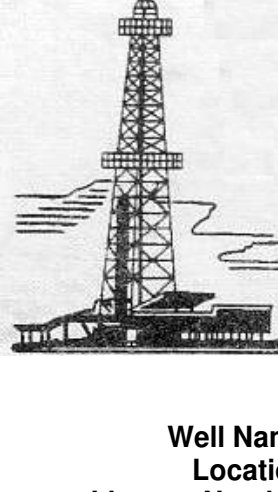
Rec Total 5 BHT 116 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2273 Test 1250 T-On Location 21:18
 (B) First Initial Flow 19 Jars 250 T-Started 21:54
 (C) First Final Flow 20 Safety Joint 75 T-Open 23:58
 (D) Initial Shut-In 366 Circ Sub NIC T-Pulled 1:06
 (E) Second Initial Flow 21 Hourly Standby _____ T-Out 3:14
 (F) Second Final Flow 24 Mileage 58 R/T 89.90 Comments _____
 (G) Final Shut-In 573 Sampler _____
 (H) Final Hydrostatic 2255 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____

Initial Open 5
 Initial Shut-In 15
 Final Flow 15
 Final Shut-In 30
 Extra Recorder _____
 Day Standby _____
 Accessibility _____
 Sub Total 1664.90
 Sub Total 0
 Total 1664.90
 MP/DST Disc't _____

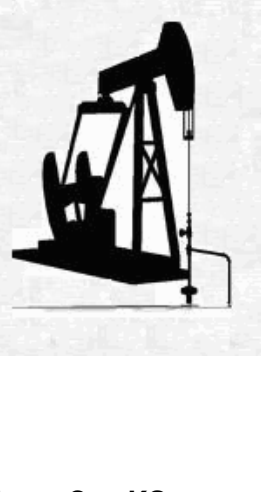
Approved By Vern Schrag Our Representative Hineman

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WELLSITE GEOLOGIST'S REPORT

VERNON C. SCHRAG
CONSULTANT GEOLOGIST



Scale 1:240 (5"=100') Imperial

Well Name: **Hineman Ranch #1-31**
Location: **SW SW SE of Sec. 31-18s-28w**
Licence Number: **API: 15-101-22512**
Spud Date: **May 19, 2014**
Surface Coordinates: **330' FSL & 2310' FEL**

Region: **Lane Co., KS**
Drilling Completed: **May 29, 2014**

Bottom Hole Coordinates:
Ground Elevation (ft): **2739'** K.B. Elevation (ft): **2746'**
Logged Interval (ft): **3800'** To: **RTD** Total Depth (ft): **4648'**
Formation: **D&A Mississippi**
Type of Drilling Fluid: **Chemical Premix (Displaced)**
Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR:

Company: **Larson Engineering Inc.**
Address: **562 West State Road 4
Olmits, KS 67564-8561**

DRILLING CONTRACTOR:

H. D. Drilling, LLC, Rig #3 (Co. Tools)

DP 4.5" XH (16.6#); DC (brand new) 6.25" x 2.25" x 556'; Kelly 40.30'; Tool Joint 5.5" ; Bit: JZ-HA20-Q, 7-7/8", standard jets 15-15-15; rpm 80, WOB 35k; Kelly Bushing 7' above ground level; LeWayne "Lew" Tresner (tool pusher).

CASING:

Set 8-5/8" casing at 262'

CIRCULATION SYSTEM:

Continental EMSCO D-300, duplex, 6 x 14, 60 spm, Chemical, premix, steel pits, Morgan Mud, Inc., Cade Lines.

OPEN HOLE LOGS:

DN, DI (SP) (Run-1); ML (Run-2); No Sonic; 5" detail LTD-3600; 2" DI to surface casing; LogTech-Pioneer Wireline, Hays, KS, Jerrod Long, Log total depth (4646') was two feet short to rotary total depth (4648').

DRILL STEM TEST #1:

LKC (K-zone): Interval: 4264-4284 (20'); Blow: weak incr 2.5" IFP, no RB, weak incr 8.5" FFP, no RB; Times: 5-15-30-60; Recovery: 243' TF, no GIP; Grindouts: 57' MW (56%W, 44%M), 62' MW (88%W, 12%M), 124' MW (93%W, 7%M, Rw 0.175 at 68 F, 42k Cl-); Pressures: HP: 2113-1969, SIP: 586-579, FP: 20-58, 60-126; BHT: 125 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

DRILL STEM TEST #2:

LKC (L-zone): Interval: 4296-4315 (19'); Blow: weak incr 3/4" IFP, no RB, weak incr 1.5" FFP, no RB; Times: 5-15-30-60; Recovery: 144' TF, no GIP; Grindouts: 20' MW (56%W, 44%M), 124' MW (86%W, 14%M, Rw 0.198 at 74F, 32k Cl-); Pressures: HP: 2149-2108; SIP: 603-570; FP: 18-33, 38-89; BHT: 125 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

DRILL STEM TEST #3:

Pleasanton: Interval: 4349-4385 (36'); Blow: weak inc 2.5" IFP, no RB, weak inc 6" FFP, no RB; Times: 5-15-30-60; Recovery: 211 TF, no GIP; Grindouts: 25' WM w/oil spots (16%W, 84%M), 62' WM w/oil spots (39%W, 61%M), 124' MW (82%W, 18%M, Rw 0.271 at 65 F, 26k Cl-); Pressures: HP: 2178-2103, SIP: 377-361, FP: 22-58, 109-361; BHT: 126 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

DRILL STEM TEST #4:

Marmaton thru Ft. Scott: Interval 4383-4544 (161'); Blow: weak incr 1" IFP, no RB, weak incr to 1/4" FFP, no RB; Times: 5-15-30-60; Recovery: 67' TF, no GIP; Grindouts: 5' mud w/oil spots (100%M), 62' SWM (2%W, 98%M); Pressures: HP: 2194-2137; SIP: 986-1032; FP: 24-37, 85-63; much plugging action on FFP chart; BHT: 118 F; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

DRILL STEM TEST #5:

Cherokee: Interval: 4542-4602 (60'); Blow: weak incr 1/4" IFP, no RB, no blow FFP, no RB; Times: 5-15-15-30; Recovery: 5' mud w/few oil spots in tool; Pressures: HP: 2273-2255; SIP: 366-573; FP: 19-20, 21-24; plugging action on FF chart; BHT: 116; Trilobite Testing, Inc., Scott City, KS, Will MacLeon.

