

Confidentiality Requested:

Yes No

KANSAS CORPORATION COMMISSION
OIL & GAS CONSERVATION DIVISION

Form ACO-1

January 2018

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

Gas DH EOR

OG GSW

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 EOR Conv. to SWD
 Plug Back Liner Conv. to GSW Conv. to Producer

Commingled Permit #: _____

Dual Completion Permit #: _____

SWD Permit #: _____

EOR Permit #: _____

GSW Permit #: _____

Spud Date or Date Reached TD Completion Date or Recompletion Date

API No.: _____

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 Drill Stem Tests Received

Geologist Report / Mud Logs Received

UIC Distribution

ALT I II III Approved by: _____ Date: _____

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

| 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 | | | | |
| | | | | |

1. Did you perform a hydraulic fracturing treatment on this well? Yes No *(If No, skip questions 2 and 3)*
2. Does the volume of the total base fluid of the hydraulic fracturing treatment exceed 350,000 gallons? Yes No *(If No, skip question 3)*
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)*

| | | | | | |
|---|--|---------|-------------|---------------|---------|
| Date of first Production/Injection or Resumed Production/Injection: | Producing Method: <input type="checkbox"/> Flowing <input type="checkbox"/> Pumping <input type="checkbox"/> Gas Lift <input type="checkbox"/> Other <i>(Explain)</i> _____ | | | | |
| 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) (Submit ACO-4)</i> | PRODUCTION INTERVAL: Top Bottom |
|---|--|------------------------------------|

| Shots Per Foot | Perforation Top | Perforation Bottom | Bridge Plug Type | Bridge Plug Set At | Acid, Fracture, Shot, Cementing Squeeze Record <i>(Amount and Kind of Material Used)</i> |
|----------------|-----------------|--------------------|------------------|--------------------|---|
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

| | | | | |
|----------------|-------|---------|------------|--|
| TUBING RECORD: | Size: | Set At: | Packer At: | |
|----------------|-------|---------|------------|--|



DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc.**

8100 E 22ND St N St. #700
Wichita, KS 67278

ATTN: Kent Matson

MJW 10C #1

10-16S-38W Wichita,KS

Start Date: 2019.07.05 @ 05:10:00

End Date: 2019.07.05 @ 11:50:15

Job Ticket #: 47655 DST #: 1

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.07.11 @ 08:55:33



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration, Inc.
 8100 E 22ND St N St. #700
 Wichita, KS 67278
 ATTN: Kent Matson

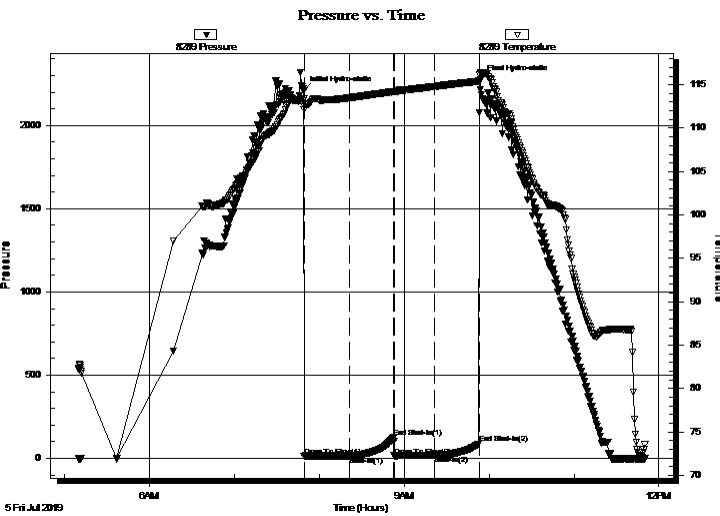
10-16S-38W Wichita, KS
MJW 10C #1
 Job Ticket: 47655 **DST#: 1**
 Test Start: 2019.07.05 @ 05:10:00

GENERAL INFORMATION:

Formation: **Altamont A**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 07:49:25
 Time Test Ended: 11:50:15
 Interval: **4536.00 ft (KB) To 4570.00 ft (KB) (TVD)**
 Total Depth: 4570.00 ft (KB) (TVD)
 Hole Diameter: 7.80 inches Hole Condition: Good
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Chris Hagman
 Unit No: 75
 Reference Elevations: 3457.00 ft (KB)
 3449.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 8289 Inside
 Press@RunDepth: 17.39 psig @ 4538.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.07.05 End Date: 2019.07.05 Last Calib.: 2019.07.05
 Start Time: 05:10:02 End Time: 11:50:15 Time On Btm: 2019.07.05 @ 07:49:05
 Time Off Btm: 2019.07.05 @ 09:53:45

TEST COMMENT: IF: Weak surface blow , died 9 min.
 IS: No bow back
 FF: No blow , Flushed, no change
 FS: No blow back



PRESSURE SUMMARY

| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2208.09 | 113.35 | Initial Hydro-static |
| 1 | 13.37 | 112.46 | Open To Flow (1) |
| 33 | 14.80 | 113.50 | Shut-In(1) |
| 64 | 123.83 | 114.22 | End Shut-In(1) |
| 64 | 14.74 | 114.19 | Open To Flow (2) |
| 93 | 17.39 | 114.82 | Shut-In(2) |
| 124 | 88.03 | 115.43 | End Shut-In(2) |
| 125 | 2273.43 | 116.43 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------------|--------------|
| 5.00 | Mud w / oil spots | 0.02 |
| | | |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration, Inc.

10-16S-38W Wichita, KS

8100 E 22ND St N St. #700
Wichita, KS 67278

MJW 10C #1

Job Ticket: 47655

DST#: 1

ATTN: Kent Matson

Test Start: 2019.07.05 @ 05:10:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4329.00 ft | Diameter: 3.80 inches | Volume: 60.72 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: 20000.00 lb |
| Drill Collar: | Length: 187.00 ft | Diameter: 2.25 inches | Volume: 0.92 bbl | Weight to Pull Loose: 80000.00 lb |
| | | | <u>Total Volume: 61.64 bbl</u> | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 7.00 ft | | | String Weight: Initial 60000.00 lb |
| Depth to Top Packer: | 4536.00 ft | | | Final 60000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 34.00 ft | | | |
| Tool Length: | 61.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | |

Tool Comments:

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

| | | | | | |
|----------------|-------|------|---------|---------|-------------------------------|
| Shut In Tool | 5.00 | | | 4514.00 | |
| Hydraulic tool | 5.00 | | | 4519.00 | |
| Jars | 5.00 | | | 4524.00 | |
| Safety Joint | 3.00 | | | 4527.00 | |
| Packer | 5.00 | | | 4532.00 | 27.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4536.00 | |
| Stubb | 1.00 | | | 4537.00 | |
| Perforations | 1.00 | | | 4538.00 | |
| Recorder | 0.00 | 8289 | Inside | 4538.00 | |
| Recorder | 0.00 | 6672 | Outside | 4538.00 | |
| Perforations | 29.00 | | | 4567.00 | |
| Bullnose | 3.00 | | | 4570.00 | 34.00 Bottom Packers & Anchor |

Total Tool Length: 61.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc.

10-16S-38W Wichita,KS

8100 E 22ND St N St. #700
Wichita, KS 67278

MJW 10C #1

Job Ticket: 47655

DST#: 1

ATTN: Kent Matson

Test Start: 2019.07.05 @ 05:10:00

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: 50.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5400.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbf |
|--------------|-------------------|---------------|
| 5.00 | Mud w / oil spots | 0.025 |

Total Length: 5.00 ft Total Volume: 0.025 bbf

Num Fluid Samples: 0

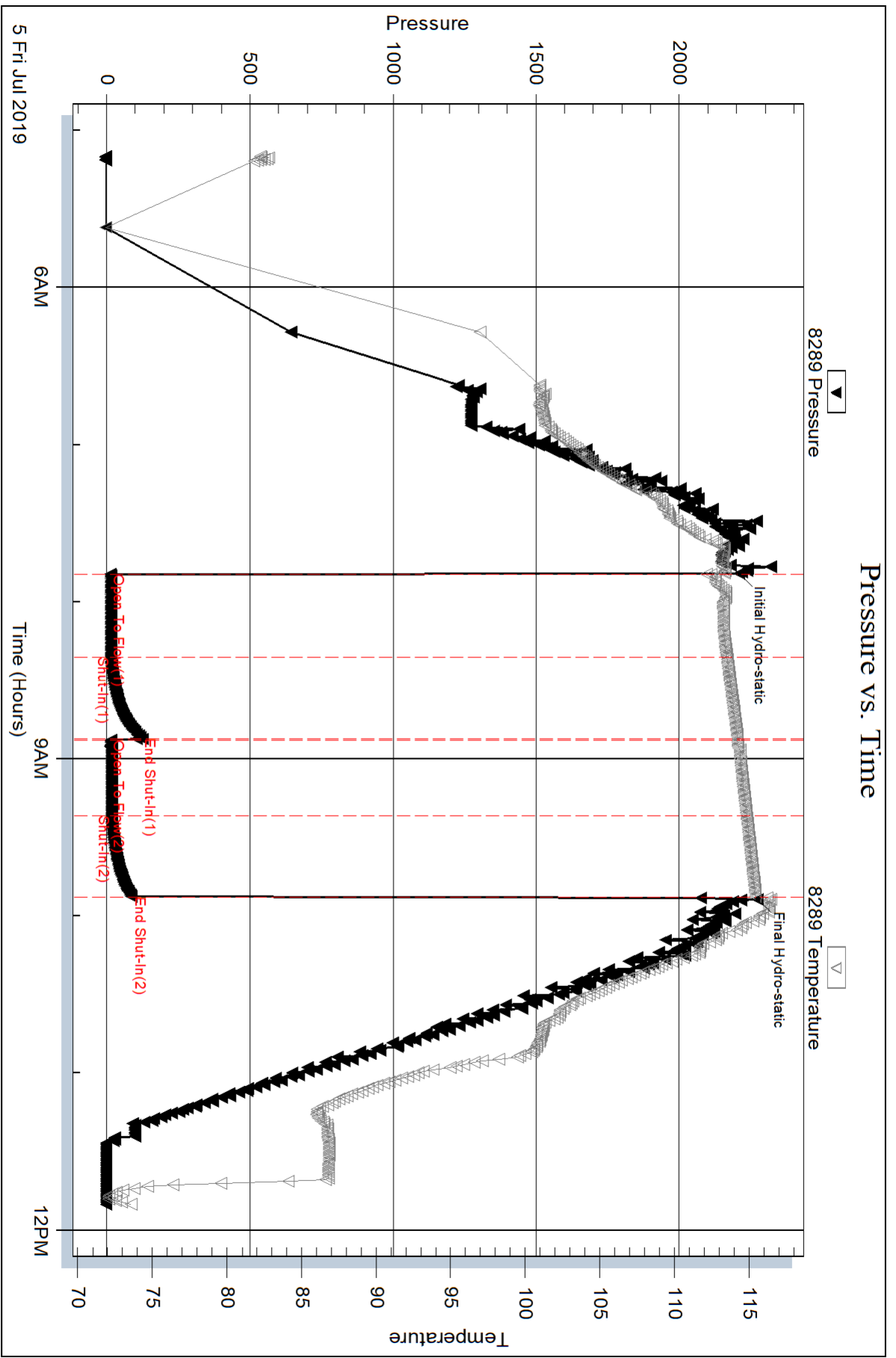
Num Gas Bombs: 0

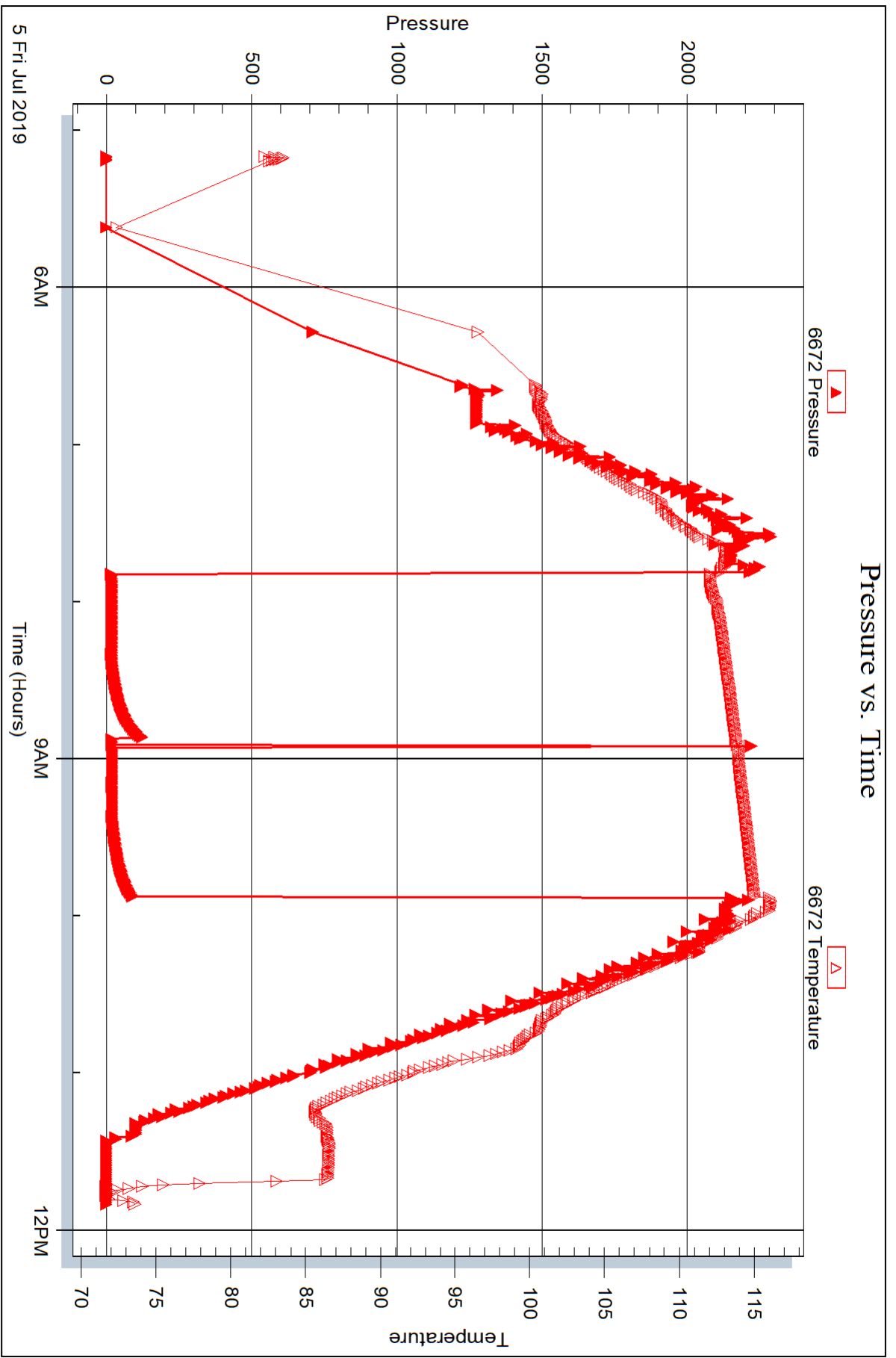
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







DRILL STEM TEST REPORT

Prepared For: **Ritchie Exploration, Inc.**

8100 E 22ND St N St. #700
Wichita, KS 67278

ATTN: Kent Matson

MJW 10C #1

10-16S-38W Wichita,KS

Start Date: 2019.07.06 @ 00:17:00

End Date: 2019.07.06 @ 08:02:30

Job Ticket #: 47656 DST #: 2

Trilobite Testing, Inc
1515 Commerce Parkway Hays, KS 67601
ph: 785-625-4778 fax: 785-625-5620

Printed: 2019.07.11 @ 08:55:07



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration, Inc.
8100 E 22ND St N St. #700
Wichita, KS 67278
ATTN: Kent Matson

10-16S-38W Wichita, KS
MJW 10C #1
Job Ticket: 47656 **DST#: 2**
Test Start: 2019.07.06 @ 00:17:00

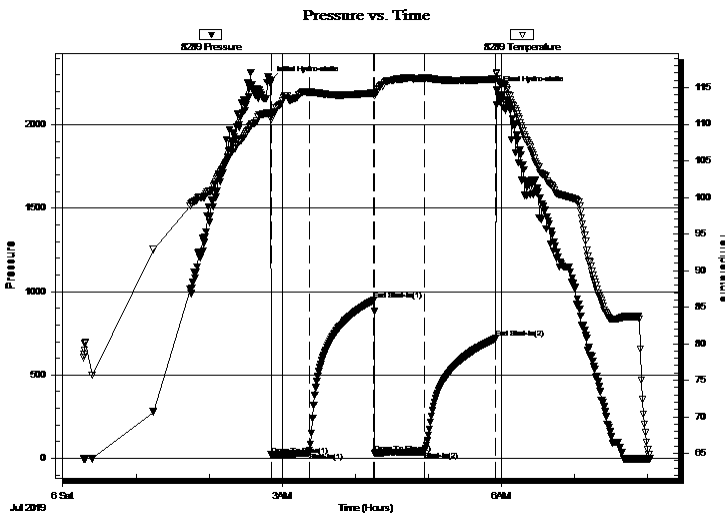
GENERAL INFORMATION:

Formation: **Altamont B - C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:50:55
Time Test Ended: 08:02:30
Interval: **4566.00 ft (KB) To 4600.00 ft (KB) (TVD)**
Total Depth: 4600.00 ft (KB) (TVD)
Hole Diameter: 7.80 inches Hole Condition: Good
Test Type: Conventional Bottom Hole (Initial)
Tester: Chris Hagman
Unit No: 75
Reference Elevations: 3457.00 ft (KB)
3449.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8289 **Inside**
Press@RunDepth: 44.75 psig @ 4568.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.07.06 End Date: 2019.07.06 Last Calib.: 2019.07.06
Start Time: 00:17:02 End Time: 08:02:30 Time On Btm: 2019.07.06 @ 02:50:40
Time Off Btm: 2019.07.06 @ 05:56:05

TEST COMMENT: IF: Weak surface blow , 1.2"
IS: No blow back
FF: Weak surface blow , 0.75"
FS: No blow back

PRESSURE SUMMARY



| Time (Min.) | Pressure (psig) | Temp (deg F) | Annotation |
|-------------|-----------------|--------------|----------------------|
| 0 | 2263.71 | 111.60 | Initial Hydro-static |
| 1 | 21.03 | 110.69 | Open To Flow (1) |
| 32 | 35.99 | 114.40 | Shut-In(1) |
| 85 | 948.42 | 114.27 | End Shut-In(1) |
| 86 | 31.97 | 113.91 | Open To Flow (2) |
| 126 | 44.75 | 116.22 | Shut-In(2) |
| 185 | 719.03 | 116.18 | End Shut-In(2) |
| 186 | 2207.71 | 116.92 | Final Hydro-static |

Recovery

| Length (ft) | Description | Volume (bbl) |
|-------------|-------------------|--------------|
| 10.00 | Mud w / oil spots | 0.05 |
| | | |
| | | |
| | | |

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

TOOL DIAGRAM

Ritchie Exploration, Inc.

10-16S-38W Wichita, KS

8100 E 22ND St N St. #700
Wichita, KS 67278

MJW 10C #1

Job Ticket: 47656

DST#: 2

ATTN: Kent Matson

Test Start: 2019.07.06 @ 00:17:00

Tool Information

| | | | | |
|---------------------------|--------------------|-----------------------|--------------------------------|------------------------------------|
| Drill Pipe: | Length: 4360.00 ft | Diameter: 3.80 inches | Volume: 61.16 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: 20000.00 lb |
| Drill Collar: | Length: 187.00 ft | Diameter: 2.25 inches | Volume: 0.92 bbl | Weight to Pull Loose: 80000.00 lb |
| | | | <u>Total Volume: 62.08 bbl</u> | Tool Chased 0.00 ft |
| Drill Pipe Above KB: | 8.00 ft | | | String Weight: Initial 60000.00 lb |
| Depth to Top Packer: | 4566.00 ft | | | Final 60000.00 lb |
| Depth to Bottom Packer: | ft | | | |
| Interval between Packers: | 34.00 ft | | | |
| Tool Length: | 61.00 ft | | | |
| Number of Packers: | 2 | Diameter: 6.75 inches | | |

Tool Comments:

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

| | | | | | |
|----------------|-------|------|---------|---------|-------------------------------|
| Shut In Tool | 5.00 | | | 4544.00 | |
| Hydraulic tool | 5.00 | | | 4549.00 | |
| Jars | 5.00 | | | 4554.00 | |
| Safety Joint | 3.00 | | | 4557.00 | |
| Packer | 5.00 | | | 4562.00 | 27.00 Bottom Of Top Packer |
| Packer | 4.00 | | | 4566.00 | |
| Stubb | 1.00 | | | 4567.00 | |
| Perforations | 1.00 | | | 4568.00 | |
| Recorder | 0.00 | 8289 | Inside | 4568.00 | |
| Recorder | 0.00 | 6672 | Outside | 4568.00 | |
| Perforations | 29.00 | | | 4597.00 | |
| Bullnose | 3.00 | | | 4600.00 | 34.00 Bottom Packers & Anchor |

Total Tool Length: 61.00



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration, Inc.

10-16S-38W Wichita,KS

8100 E 22ND St N St. #700
Wichita, KS 67278

MJW 10C #1

Job Ticket: 47656

DST#: 2

ATTN: Kent Matson

Test Start: 2019.07.06 @ 00:17:00

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: 48.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 7.99 in³

Gas Cushion Type:

Resistivity: ohm.m

Gas Cushion Pressure:

psig

Salinity: 5600.00 ppm

Filter Cake: inches

Recovery Information

Recovery Table

| Length ft | Description | Volume bbl |
|--------------|-------------------|---------------|
| 10.00 | Mud w / oil spots | 0.049 |

Total Length: 10.00 ft Total Volume: 0.049 bbl

Num Fluid Samples: 0

Num Gas Bombs: 0

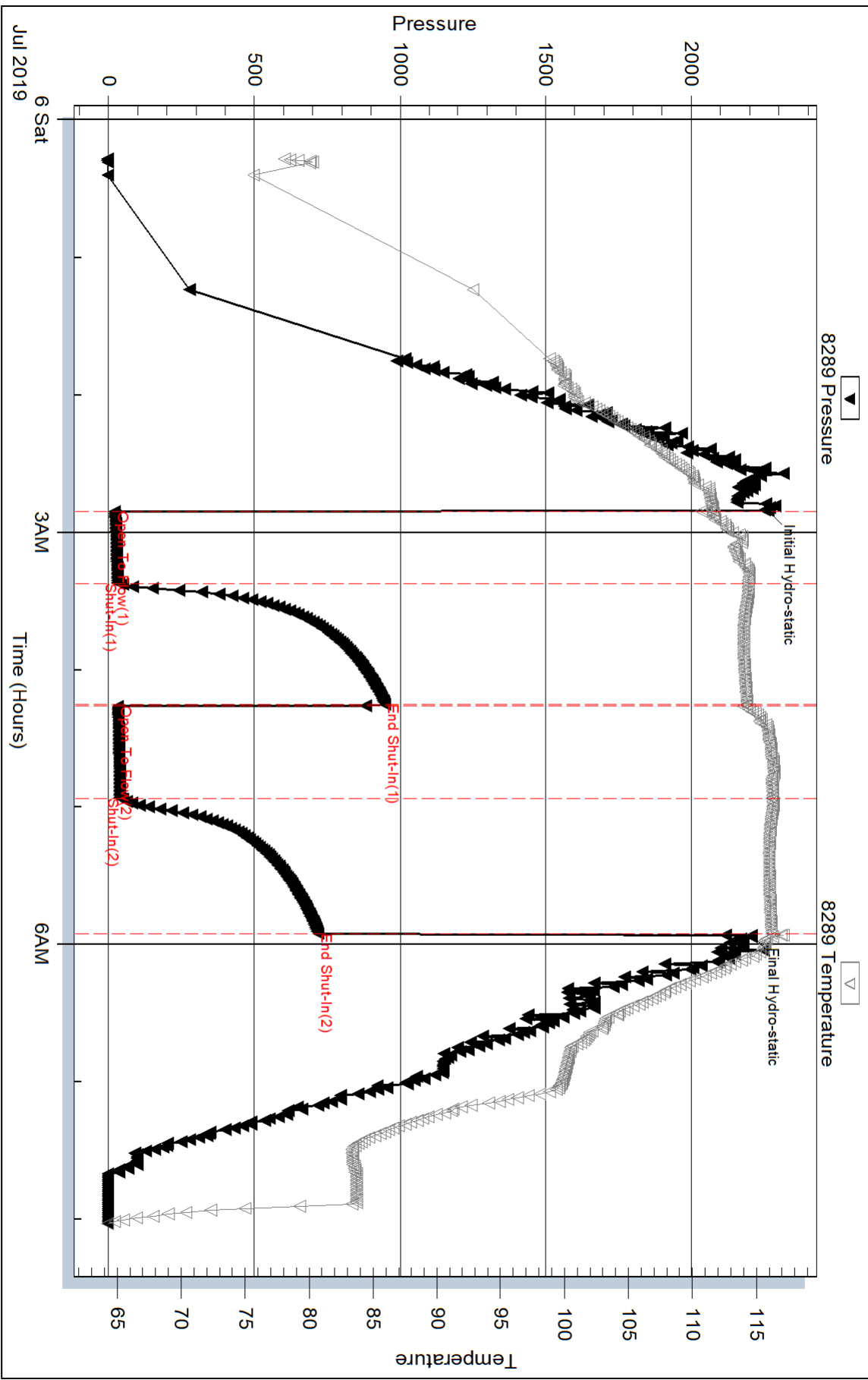
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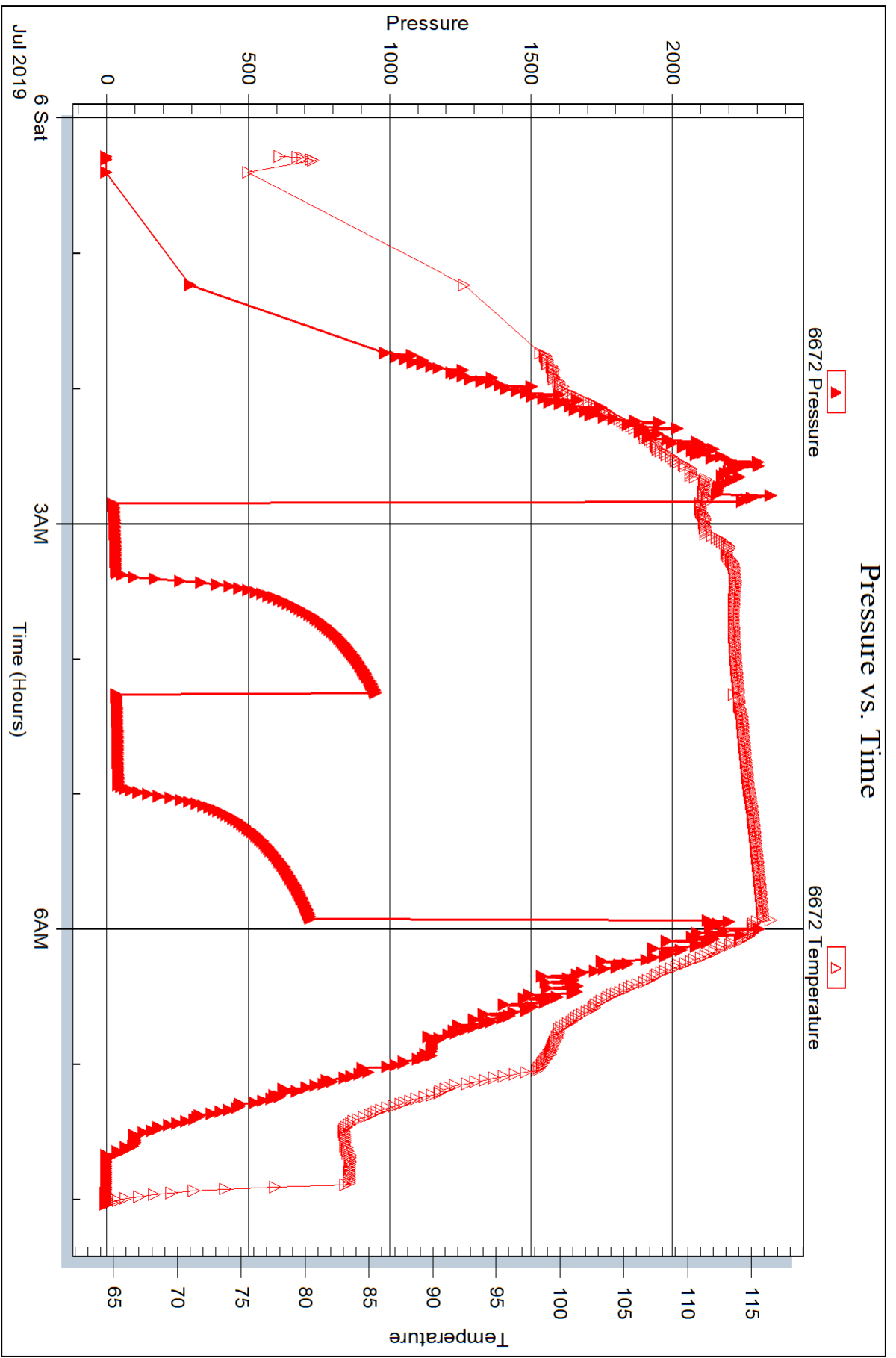
Laboratory Name:

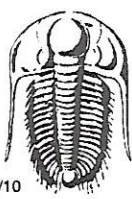
Laboratory Location:

Recovery Comments:

Pressure vs. Time







TRILOBITE TESTING INC.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 47655

Well Name & No. MSW 10C-1 Test No. 1 Date 7-5-19
 Company Ritchie Exploration, Inc. Elevation 3457 KB 3449 GL
 Address 8100 E 22ND ST N #1700 Wichita, KS 67278
 Co. Rep / Geo. Ken Matson Rig WW12
 Location: Sec. 10 Twp. 16S Rge. 38W Co. Wichita State KS

Interval Tested 4536-4570 Zone Tested Atamont A
 Anchor Length 34' Drill Pipe Run 4329 Mud Wt. 9.2
 Top Packer Depth 4531 Drill Collars Run 187 Vis 50
 Bottom Packer Depth 4536 Wt. Pipe Run N.A. WL 8.0
 Total Depth 4570 Chlorides 5400 ppm System LCM 1"

Blow Description IF: Weak surface blow, died 9 min.
IST: No blow back
FF: No blow, flushed, no change
FST: No blow back

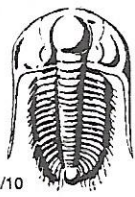
| Rec | Feet of | %gas | %oil | %water | %mud |
|----------|------------------------|-------------|------|--------|------------|
| <u>5</u> | <u>oil spotted mud</u> | <u>Spot</u> | | | <u>100</u> |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |
| Rec | Feet of | %gas | %oil | %water | %mud |

Rec Total 5 BHT 115 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2208 Test CONV. 1300 T-On Location 0400
 (B) First Initial Flow 13 Jars 250 T-Started 0515
 (C) First Final Flow 15 Safety Joint 75 T-Open 0750
 (D) Initial Shut-In 124 Circ Sub _____ T-Pulled 0950
 (E) Second Initial Flow 15 Hourly Standby _____ T-Out 1200
 (F) Second Final Flow 17 Mileage 90 90 Comments bats on @
 (G) Final Shut-In 88 Sampler _____ 0510
 (H) Final Hydrostatic 2273 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder _____ Sub Total 0
 Initial Shut-In 30 Day Standby _____ Total 1715
 Final Flow 30 Accessibility _____ MP/DST Disc't _____
 Final Shut-In 30 Sub Total 1715

Approved By [Signature] Our Representative [Signature] Chris Hugman

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.

P.O. Box 1733 • Hays, Kansas 67601

Test Ticket

NO. 47656

Well Name & No. MJW 10C-1 Test No. 2 Date 7-6-19
 Company Ritchie Exploration, Inc. Elevation 3457 KB 3449 GL
 Address 8100 E 22ND ST W #700 Wichita, KS 67278
 Co. Rep / Geo. Kent Matson Rig WW 12
 Location: Sec. 10 Twp. 16S Rge. 38W Co. Wichita State KS

Interval Tested 4566-4600 Zone Tested Altamont B,C
 Anchor Length 34' Drill Pipe Run 4360 Mud Wt. 9.1
 Top Packer Depth 4561 Drill Collars Run 187 Vis 48
 Bottom Packer Depth 4566 Wt. Pipe Run N.A. WL 8.0
 Total Depth 4600 Chlorides 5600 ppm System LCM 3#

Blow Description IF: Weak surface blow, 1.2 inches
ISB: No blow back
FP: ~~Weak~~ weak surface blow, .75 inches
FSB: No blow back

| Rec | Feet of | %gas | Spot %oil | %water | %mud |
|-----|-----------------|------|-----------|--------|------|
| 10 | oil spotted mud | | | 100% | |
| | | | | | |
| | | | | | |
| | | | | | |
| | | | | | |

Rec Total 10 BHT 116 Gravity _____ API RW _____ @ _____ °F Chlorides _____ ppm

(A) Initial Hydrostatic 2264 Test com. 1300 T-On Location 1200 AM
 (B) First Initial Flow 21 Jars 250 T-Started 1230 A.M.
 (C) First Final Flow 36 Safety Joint 75 T-Open 0250
 (D) Initial Shut-In 948 Circ Sub _____ T-Pulled 0550
 (E) Second Initial Flow 32 Hourly Standby _____ T-Out 0800
 (F) Second Final Flow 45 Mileage 90 90 +90 Comments bats on @ 1217
 (G) Final Shut-In 719 Sampler _____
 (H) Final Hydrostatic 2208 Straddle _____ Ruined Shale Packer _____
 Shale Packer _____ Ruined Packer _____
 Extra Packer _____ Extra Copies _____
 Initial Open 30 Extra Recorder 2.5d 4.5h Sub Total 1600
 Initial Shut-In 45 Day Standby Released 7-9-19 Total 3405
 Final Flow 45 Accessibility 12:30 A.M. MP/DST Disc't _____
 Final Shut-In 60 Sub Total 1805

Approved By [Signature] Our Representative [Signature] Chris Hegman

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.



**Scale 1:240 (5"=100') Imperial
Measured Depth Log**

Well Name: MJW 10C
Well Id: #1
Location: 856' FSL, 1938' FWL, Sec 10-T16S-R38W, Wichita County, Kansas
License Number: API: 15-203-20360 **Region:** Wichita County
Spud Date: 06/27/2019 **Drilling Completed:** 07/08/2019
Surface Coordinates: Lat: 38.6721429
Long: -101.5069009
Bottom Hole Coordinates: Vertical hole
Ground Elevation (ft): 3449' **K.B. Elevation (ft):** 3457'
Logged Interval (ft): 3800' **To:** RTD **Total Depth (ft):** 5100'
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

Printed by MUD.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Ritchie Exploration, Inc.
Address: 8100 E. 22nd Street N., Bldg 700
Wichita, KS 67226
316-691-9500

GEOLOGIST

Name: Kent R. Matson
Company: Matson Geological Services, LLC
Address: 33300 W. 15th Street S.
Garden Plain, Kansas 67050
316-644-1975; kent4m@hotmail.com



COMMENTS

Ritchie Exploration Company Geologist: John Goldsmith, 316-640-0236 (cell).

Contractor: WW Drilling Company, Rig #12.

Tool Pusher: Calvin Pfannenstiel, 785-743-8120 (cell).

Surface Casing: 8 5/8" set at 268' (KB) w/220sx cement.

Production Casing: Based on field observations of drill cuttings, DST results and electric log evaluation, production casing was not installed.

Mud by: Mud-Co/Service Mud, Inc., Tony Maestas, 316-772-6679 (cell).

DST's by: Trilobite Testing, Chris Hagman, 785-656-3947 (cell).

Logs by: Pioneer (DI w/GR, CND, Micro, and Sonic), Justin Herrickson, 785-625-3858 (office).

RTD= 5100'

LTD= 5096'

FORMATION TOPS

| FORMATION | SAMPLE TOPS | | LOG TOPS | |
|--------------------|-------------|-------|----------|-------|
| | Depth | Datum | Depth | Datum |
| Stotler | 3692' | -235 | 3692' | -235 |
| Heebner Shale | 4068' | -611 | 4064' | -607 |
| Lansing | 4120' | -663 | 4116' | -659 |
| Muncie Creek Shale | 4306' | -849 | 4302' | -845 |
| Stark Shale | 4396' | -939 | 4394' | -937 |
| Hushpuckney Shale | 4452' | -995 | 4450' | -993 |
| Base of KC | 4496' | -1039 | 4493' | -1036 |
| Marmaton | 4536' | -1079 | 4534' | -1077 |
| Altamont | 4550' | -1093 | 4547' | -1090 |
| Pawnee | 4636' | -1179 | 4634' | -1177 |
| Myrick Station | 4680' | -1223 | 4678' | -1221 |
| Fort Scott | 4696' | -1239 | 4694' | -1237 |
| Cherokee Shale | 4726' | -1269 | 4722' | -1265 |
| Johnson | 4818' | -1361 | 4814' | -1357 |
| Morrow | 4891' | -1434 | 4887' | -1430 |
| Mississippian | 5014' | -1557 | 5010' | -1553 |
| RTD | 5100' | -1643 | | |
| LTD | | | 5096' | -1639 |

ROCK TYPES

LITHOLOGY

| | |
|--|-----------|
| | Anhy |
| | Cht |
| | Coal |
| | Congl |
| | Dol |
| | Gyp |
| | Lmst |
| | Salt |
| | Shale |
| | Shcol |
| | Shgy |
| | Sltst |
| | Ss |
| | Carb sh |
| | Dol |
| | Dtd |
| | Gry sh |
| | Sandy lms |
| | Shale |
| | Sltstn |
| | Shlyslts |

| | |
|--|------------|
| | Silty sh |
| | Sdy dolo |
| | Silty dolo |
| | Shy dolo |
| | Shaly ls |

FOSSIL

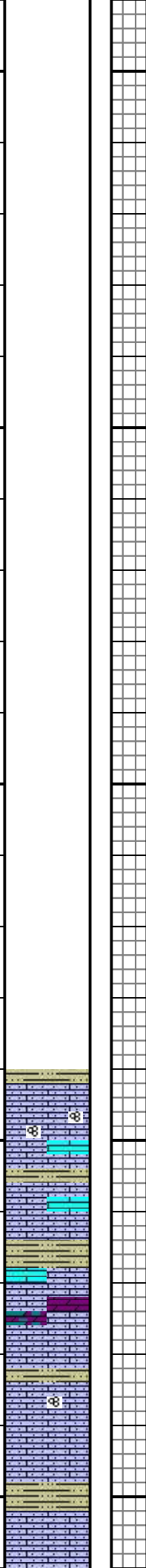
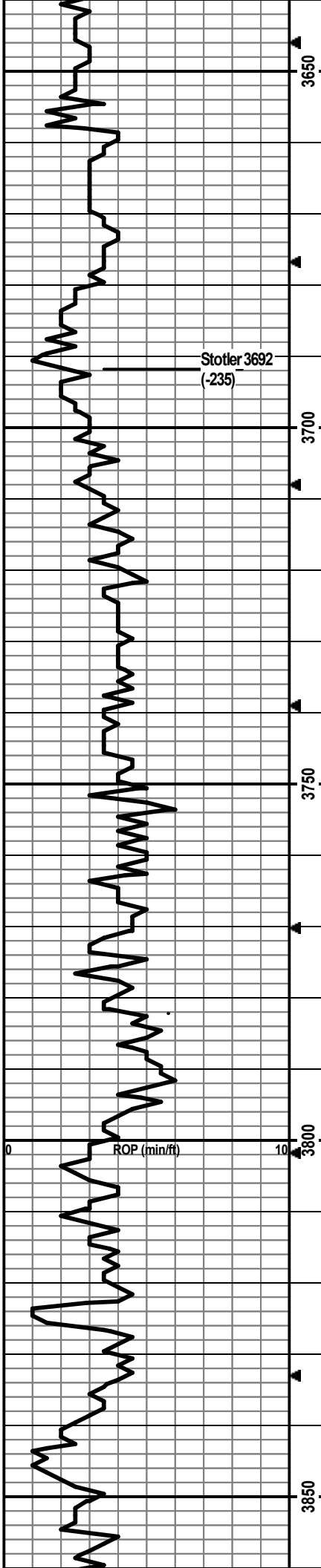
| | |
|--|---------|
| | Algae |
| | Amph |
| | Belm |
| | Bioclst |
| | Brach |
| | Bryozoa |
| | Cephal |
| | Coral |
| | Crin |
| | Echin |
| | Fish |
| | Foram |
| | Fossil |
| | Gastro |
| | Oolite |

MINERAL

| | |
|--|----------|
| | Ostra |
| | Pelec |
| | Pellet |
| | Pisolite |
| | Plant |
| | Strom |
| | Fuss |
| | Oomold |
| | Anhy |
| | Arggrn |
| | Arg |
| | Bent |
| | Bit |
| | Brecfrag |
| | Calc |
| | Carb |
| | Chtdk |
| | Chtlt |
| | Dol |
| | Feldspar |

| | |
|--|----------|
| | Ferrpel |
| | Ferr |
| | Glau |
| | Gyp |
| | Hvymin |
| | Kaol |
| | Marl |
| | Minxl |
| | Nodule |
| | Phos |
| | Pyr |
| | Salt |
| | Sandy |
| | Silt |
| | Sil |
| | Sulphur |
| | Tuff |
| | Chlorite |
| | Dol |
| | Sand |
| | Silty |

Survey Record
Deg @ Ft
0.5 @ 268'
0.75 @ 4570'
0.5 @ 5100'



Drill cutting samples at 10' intervals start at 3810'.

SH: lt-m gry/dk gry-bm, vry silty, carb, soft-firm, no odor, ns.

LS: cm/lt gry/lt-m bm, micro-med xtal, some vry silty/sndy, some chalky, foss frags/fusln, no vis por, no odor, ns

LS: cm/lt-m bm/med gry, micro-med xtal, some silty/sndy, some chalky, foss frags, no vis por, no odor, ns.

LS: cm/lt bm/lt-m gry, micro-m xtal, chalky, foss frags, no vis por, no odor, ns.

LS: cm/lt bm/lt gry, micro-m xtal, vry silty, some chalky, foss frags/fn ool, no vis por, no odor, ns. Some lt bm Dolo.

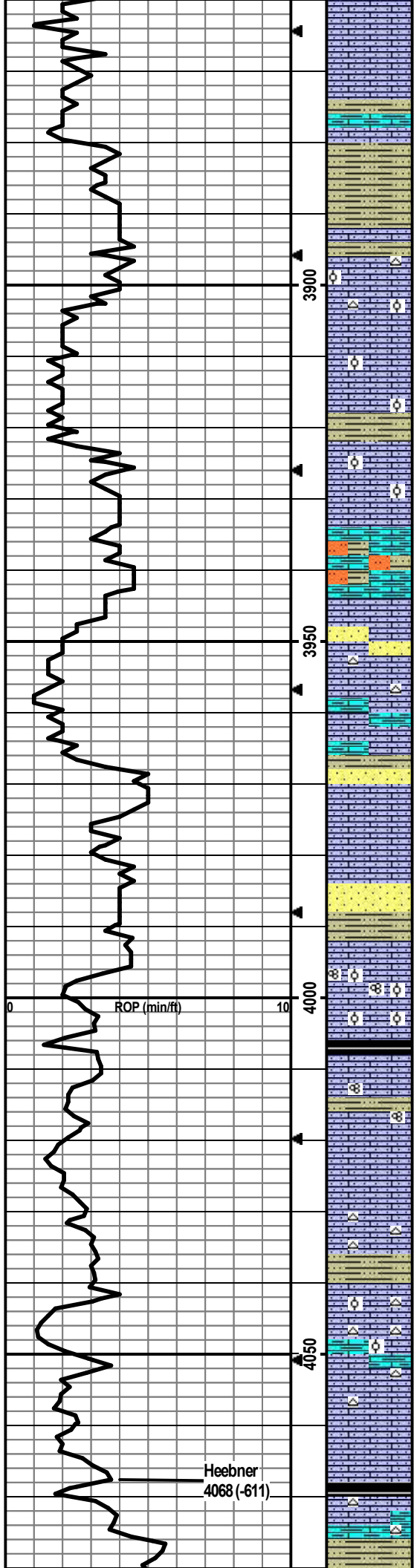
SH: lt-dk gry, vry silty, carb, soft-firm, no odor, ns.

LS: cm/lt bm/dk gry, micro-m xtal, silty/sndy, chalky, foss frags/fusln/grainy, no vis por, no odor, ns.

LS: cm/lt bm, micro-m xtal, vry silty/sndy, foss frags/grainy, min ppt-f in-xtal por, no odor, ns.

SH: lt-dk gry/red-bm, some vry silty, slt carb, soft-firm.

LS: cm/lt bm, micro-m xtal, silty/sndy, chalky, some foss frags, no vis por, no odor, ns.



LS: cm, micro-f xtal, silty/sndy, chalky, min foss frags, no vis por, no odor, ns.

LS: cm/lt bm, micro-m xtal, vry silty/sndy, vry chalky, some arg, foss frags, no vis por, no odor, ns.

SH: lt-dk gry, some vry silty/sndy, carb, firm.

LS: cm/lt bm/lt gry, micro-m xtal, silty/sndy, chalky, min wht chert, foss frags/grainy/min dense ool, no vis por, no odor, ns.

LS: wht/cm/lt bm/lt gry, micro-m xtal, vry silty/sndy, vry chalky, foss frags/grainy/dense ool, some ppt-f in-xtal por, no odor, ns.

SH: lt-dk gry, vry silty/sndy, carb, firm-hard.

LS: cm, micro-m xtal, vry silty/sndy, vry chalky, foss frags/dense ool, min ppt-f in-xtal por, no odor, ns.

LS: wht/cm/lt-m gry, micro-m xtal, vry silty/sndy, chalky, arg, min foss frags, no vis por, no odor, ns.

LS: cm/lt-m bm, micro-m xtal, vry silty/sndy, some chalky, some arg, foss frags, no por, no odor, ns.

LS: cm/lt bm, micro-f xtal, vry silty/sndy, chalky, min wht chert, min foss frags, no por, no odor, ns. Min SS: lt gry, pred qtz, arg, friable, no odor, ns.

LS: lt bm/lt-m gry, micro-m xtal, vry silty/sndy, vry chalky, arg, foss frags, no por, no odor, ns.

SH: lt-dk gry, vry silty/sndy, carb. SS: lt gry, vf-f, arg, friable, no odor, ns.

LS: cm/lt bm, micro-m xtal, vry silty/sndy, chalky, foss frags, no por, no odor, ns.

SH: lt-m gry, vry silty/sndy, carb, firm. SS: lt gry, vf-f, friable, no odor, ns.

LS: cm/lt-m gry/lt-m bm, micro-med xtal, silty/sndy, foss frags/fusln/dense ool, no vis por, no odor, ns.

LS: cm/lt bm/lt gry, micro-med xtal, some silty/sndy, some chalky, foss frags/ool, 13 pcs w/show blk tar oil, ppt-vf in-xtal por, dul yel flor, stream cut, slit crush odor, sfo.

SH: m-dk gry/blk/dk bm, some vry silty, slit carb, firm, ns.

LS: cm/lt bm/lt gry, micro-f xtal, some silty/sndy, some chalky, foss frags/fusln, 7 pcs w/blk tar oil, ppt-vf in-xtal por, slit crush odor, dul yel flor/cut, sfo.

LS: cm/lt bm, micro-med xtal, some silty/sndy, some chalky, foss frags, no vis por, no odor, ns.

LS: cm/lt bm, micro-f xtal, silty/sndy, some chalky, foss frags, abund wht/cm chert, no vis por, no odor, ns.

LS: cm/lt gry/lt bm, micro-med xtal, some vry sndy, some chalky, abund wht/cm chert, foss frags/min ool, no vis por, no odor, ns.

LS: cm/lt bm/lt gry, micro-med xtal, silty/sndy, some chalky, some arg, wht/cm chert, foss frags, no vis por, no odor, ns.

LS: cm/lt bm/lt gry, micro-med xtal, silty/sndy, some chalky, foss frags, few pcs w/m-crs in-xtal por, no odor, ns.

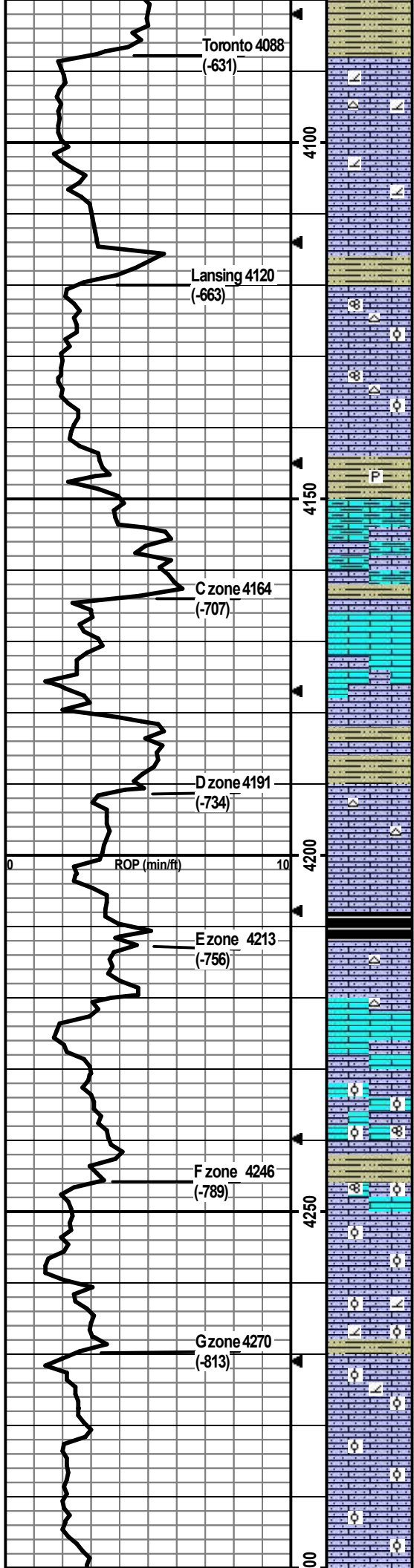
SH: dk gry/blk some silty, slit carb, firm, fissile, no odor, ns.

LS: cm/lt bm/lt gry, micro-med xtal, silty/sndy, some chalky, some arg, lt gry chert, foss frags, no vis por, no odor, ns.

Made wiper/short trip at the 3988' connection; 33 stds.

CFS @ 3988'
Stop/30"/60"

Heebner
4068 (-611)



SH: lt-m gry/min blk, some vry silty, silt carb, firm, fissile.

LS: cm/lt bm/min lt gry, micro-med xtal, some vry sndy, some dolomitic, some chalky, min gry chert, foss frags, min ppt-vf in-xtal por, no odor, ns.

LS: cm/lt bm, vf-f xtal, silty/sndy, vry chalky, dolomitic, min ppt-vf in-xtal por, 1 pce in 30min 1 pce in 60min w/sfo w/ppt-f in-xtal por, thk dk bm fluid oil w/blk tar, dul yel flor/cut, no odor, ssfo.

CFS @ 4110'
Stop/30"/60"

LS: cm/min lt gry, vf-med xtal, silty/sndy, some vry chalky, foss frags, no vis por, no odor, ns.

SH: lt-m gry, vry silty, carb, firm, no odor, ns.

LS: wht/cm/lt bm, vf-med xtal, silty/sndy, some chalky, some wht/crm chert, foss frags/fusln/dense ool, ppt-f in-xtal por, no odor, ns.

LS: cm/lt bm, micro-f xtal, some sndy, chalky, wht chert, foss frags/fusln/ool, some f-m in-xtal por, no odor, ns.

CFS @ 4140'
Stop/30"/60"

LS: cm/lt bm, micro-m xtal w/some 2ndry xtals, some chalky, some silty, foss frags, no vis por, no odor, ns.

SH: lt-dk gry, silty, silt carb, min pyritic, firm, fissile, no odor, ns.

LS: lt-m gry, vf-f xtal, vry silty almost siltstn, friable, vry arg, foss frags, no vis por, no odor: 1 pcs w/blk tar oil, sticky, yel cut.

SH: lt-m gry/lt gry-green, silty, silt carb, firm.

LS: cm/lt bm, micro-f xtal, some silty/sndy, some chalky, min foss frags, no vis por, no odor, ns.

LS: cm/lt bm, micro-f xtal, some silty, some chalky, foss frags/grainy, no vis por, no odor, ns.

CFS @ 4177'
Stop/30"/60"

LS: wht/crm, micro-f xtal, silty/sndy, some chalky, foss frags, no vis, no odor, ns.

SH: lt-dk gry, some silty, silt carb, soft-firm, fissile.

LS: wht/crm, micro-m xtal, silty/sndy, some wht/crm chert, foss frags, no vis por, no odor. 30min smpl: 1 pce w/blk tar oil on rx chip edge, sticky, yel cut. 60min: 1 pce w/ppt in-xtal por w/blk tar oil, yel cut on break.

CFS @ 4200'
Stop/30"/60"

LS: cm/lt bm, micro-med xtal, some chalky, some silty/sndy, foss frags/some dense ool, min f-m xtal por, no odor, ns.

SH: lt-dk gry/min green-gry, some silty, silt carb, soft-firm, no odor, ns.

LS: cm/lt bm, micro-med xtal, some silty/sndy, some chalky, foss frags, min wht/crm chert, no vis por, no odor, ns.

LS: cm/lt bm, micro-med xtal, some silty/sndy, some chalky, min crm chert, foss frags, no vis por, no odor, ns.

CFS @ 4225'
Stop/30"/60"

LS: cm/lt bm/lt gry, micro-med xtal, some silty/sndy, some chalky, foss frags/grainy, no vis por, no odor, ns.

LS: cm/lt bm, micro-med, some silty/sndy, some chalky, foss frags/dense ool, no vis por, no odor, ns.

SH: m-dk gry, vry silty, silt carb, soft-firm.

LS: cm/lt-m bm, micro-med xtal, some silty/sndy, some chalky, foss frags/fusln/dense ool, min ppt-f in-xtal por, no odor, ns.

CFS @ 4250'
Stop/30"/60"

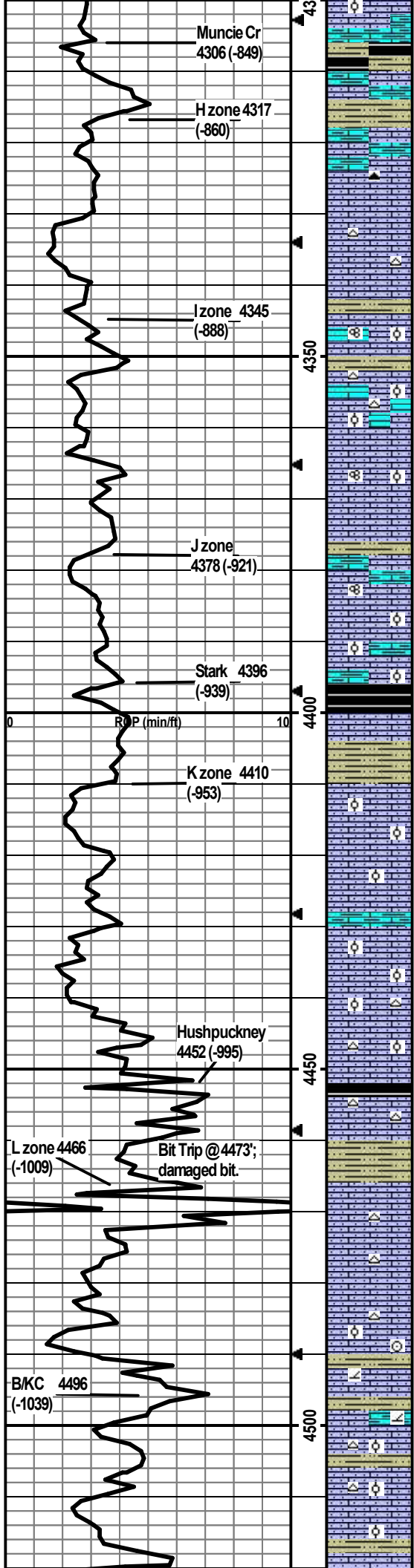
LS: cm/lt-bm, micro-f xtal, silty/sndy, chalky, foss frags/dense ool, 6 pcs w/bm staining, yel cut, 1 oil sat chalky ball, silt odor, ppt in-xtal por, sfo.

LS: wht/cm/lt bm, micro-med xtal, some silty/sndy, vry chalky, dolomitic, foss frags/dense ool, 2 pcs w/sfo thk dk bm oil w/f-m in-xtal por, 2 soft oil sat chalk balls, crush odor, sfo.

LS: cm/lt bm/lt gry, micro-med xtal, some chalky, some silty/sndy, min dolo, foss frags/ool, 2 pcs w/thk dk brn oil w/f-cr in-xtal por, mostly dense w/2 pcs w/f-cr oo-castic por, silt crush odor, ssfo.

LS: wht/crm/min lt bm, micro-med xtal, silty/sndy, some chalky, foss frag/ool, min f-cr oo-castic por, no odor, ns.

LS: wht/crm/min lt bm, micro-f xtal, some silty/sndy, chalky, foss frags/few ool pcs, mostly dense w/few f-m oo-castic por, no odor, ns.



LS: wht/crm/lt-m brn/lt-m gry, micro-med xtal, some chalky, some silty/sndy, some arg, foss frags/ool, min fm oo-castic por, no odor, ns.

SH: med-dk gry/blk, some vry silty, slt carb, firm, fissile.

LS: crm/lt-m brn/lt gry, micro-med xtal, chalky, some silty/sndy, some arg, foss frags, no vis por, no odor, ns.

SH: med-dk gry/blk/lt green-gry, silty, slt carb, soft-firm, fissile.

LS: wht/crm/lt brn/lt gry, micro-m xtal, some silty, some chalky, some arg, min dk gry chert, foss frags, min ppt-f in-xtal por, no odor, ns.

LS: crm/lt brn/lt-m gry, micro-med w/min crs xtal, some silty/sndy, some chalky, some crm/lt gry chert, min foss frags, some f-m in-xtal por, no odor, ns.

SH: m-dk gry/lt gry-brn/maroon-brn, some vry silty, slt carb, soft-firm, no odor, ns.

LS: crm/lt-m brn/lt gry, micro-med xtal, silty/sndy, some chalky, foss frags/fusln/dense ool, no vis por, no odor, ns.

LS: crm/lt brn/lt gry, micro-med xtal, some silty/sndy, some chalky, wht/crm chert, foss frags/min ool, min oo-castic por, no odor, ns.

LS: crm/lt-m brn/min lt gry, micro-m xtal, vry silty/sndy, some chalky, foss frags/fusln/min dense ool, no vis por, no odor, ns.

SH: lt-dk gry/bm/mustard yel, some vry silty, slt carb, firm, no odor, ns.

LS: crm/lt brn, micro-m xtal, vry silty/sndy, arg, chalky, foss frags/fusln/dense ool, no vis por, no odor, ns.

LS: crm/lt brn/min lt gry, micro-med xtal, some vry silty/sndy, some arg, chalky, foss frags/dense ool, no vis por, no odor, ns.

SH: m-dk gry/blk, some silty, slt carb, firm.

LS: crm/lt gry mottling, micro-m xtal, some vry silty/sndy, chalky, foss frags, no vis por, no odor, ns.

SH: lt-dk gry/brn, vry silty, carb, soft-firm, fissile.

LS: crm/lt-m gry-brn, micro-m w/some crs xtal, some vry silty/sndy, smpl vry chalky, foss frags/dense ool, no vis por, no odor, ns.

LS: crm/m gry-brn, micro-m xtal, some vry silty/sndy, some arg, vry chalky, foss frags/dense ool (gry) less than above, no vis por, no odor, ns.

LS: crm/lt gry/min brn/gry mottling, micro-med xtal, smpl vry chalky, silty/sndy, min arg, foss frags/some oval ool, min vf-m in-xtal por, no odor, ns.

LS: crm/lt gry/min brn/gry mottling, micro-f w/min med xtal, smpl vry chalky, silty/sndy, wht/crm chert, foss frags/some oval ool, no vis por, no odor, ns.

SH: dk gry/blk, carb, firm, fissile.

LS: crm/lt brn/lt gry-brn, micro-med xtal, silty/sndy, some chalky, wht/lt gry chert, foss frags, no odor, ns.

SH: lt-dk gry/lt green-gry/dk brn, some vry silty, carb, firm, fissile, no odor, ns.

LS: crm/lt brn/lt gry-brn, micro-med xtal, some vry silty/sndy, slt pyritic, min wht chert, min foss frags, no vis por, no odor, ns.

LS: crm/lt-m brn/lt-m gry, micro-m xtal, min wht chert, foss frags, min ppt-f in-xtal por, no odor, ns.

LS: 60min smpl has crin/ool foss.

LS: crm/lt-m brn/lt-m gry, micro-m xtal, some vry silty/sndy, some arg, dolomitic, chalky, foss frags/dense ool, no vis por, no odor, ns.

SH: lt-dk gry/lt green-gry, some vry silty, slt carb, firm.

LS: lt-m brn/lt-m gry, micro-f xtal, vry silty/sndy, some chalky, some wht chert, foss frags/min dense ool, no vis por, no odor, ns.

SH: lt-dk gry/blk, silty, slt carb, soft-firm, no odor, ns.

LS: crm/lt brn/lt gry, micro-m xtal, vry silty/sndy, some chalky, foss frags/min dense ool, min ppt-f in-xtal por, no odor, ns.

SH: lt-dk gry/brn, some vry silty, soft-firm, fissile.

CFS @ 4342'
Stop/30"/60"

CFS @ 4370'
Stop/30"/60"

CFS @ 4400'
Stop/30"/60"

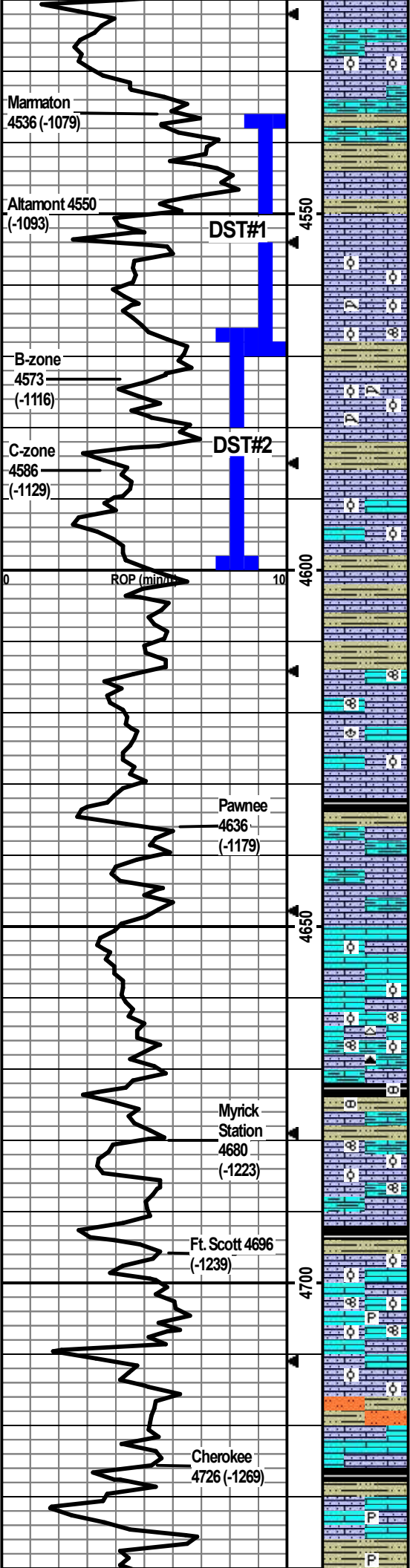
CFS @ 4450'
Stop/30"/60"

**Bit Trip @ 4473';
damaged bit.**

CFS @ 4473'
Stop/30"/60"

CFS @ 4490'
Stop/30"/60"

CFS @ 4510'
Stop/30"/60"



LS: lt-m bm/lt-m gry, vf-m xtal, vry silty/sndy, some chalky, some arg, foss frags, no vis por, no odor, ns. Dense ool in 60min smpl.

CFS @ 4530'
Stop/30"/60"

LS: lt bm/lt gry, micro-m xtal, silty/sndy, some chalky, some arg, foss frags, no vis por, no odor, ns.

**DST1) 4536-4570
Altamont A-zone**

30/30/30/30
1st) WSB died in 9min; no BB.
2nd) no blow, flushed tool, no blow; no BB.
IFP 13-15#
ISIP 124#
FFP 15-17#
FSIP 88#
HP 2208-2273#
Recvd: 5' oil spotted mud.

SH: lt-m gry/lt green-gry, some vry silty, firm, no odor, ns.

LS: crm/lt bm/lt-m gry, micro-med xtal, some silty/sndy, some chalky, foss frags, no vis por, no odor, ns.

SH: m-dk gry, some vry silty, carb, soft-firm.

LS: crm/lt-m brn, micro-m xtal, some silty/sndy, some chalky, foss frags/min ool, 19 pcs w/ppt-m in-xtal por w/sfo, dul yel flor/cut, gd odor, gsfo.

LS: wht/crm/lt gry, micro-med w/some crs xtal, some silty/sndy, some chalky, foss frags/fusln/ool/coral, approx 10% of tray w/sfo, fcrs in-xtal por, dul yel flor/cut, gd odor, gsfo.

SH: lt-dk gry/lt green-gry/dk gry-brn, some vry silty, slt carb, soft-firm, no odor, ns.

LS: crm/lt-m brn/lt gry, micro-m xtal, silty/sndy, some dolomitic, foss frags/min ool/min lattice coral, 4 pcs w/ppt-m in-xtal/in-ool por w/sfo, dul yel flor/cut, no odor, sfo. 2 pcs w/show in 60min smpl.

SH: lt-dk gry/lt green-gry/maroon, slt carb, some silty, firm, fissile, no odor, ns.

LS: crm/lt-m bm/lt gry/gry mottling, micro-med w/some crs, some silty/sndy, some chalky, foss frags/ool, min ppt-m in-xtal/in-ool por, no odor, ns.

CFS @ 4570'
Stop/30"/60"

Pipe strap TOH for DST #1 at 4570' was 0.27' long to the board.

CFS @ 4585'
Stop/30"/60"

LS: crm/lt bm/lt gry, micro-med, some silty/sndy, some chalky, foss frags, no vis por, no odor, ns. Flood of SH: lt-dk gry/blk, some silty, slt carb, firm.

CFS @ 4600'
Stop/30"/60"

LS: crm/m-dk gry, micro-m xtal, some silty, foss frags/fusln, no vis por, no odor, ns. Flood of SH: lt-dk gry/lt green-gry/dk brn, silty, slt carb, firm.

**DST2) 4566-4600
Altamont B and C-zones**

30/45/45/60
1st) WSB built to 1.2"; no BB.
2nd) WSB built to 0.75"; no BB.
IFP 21-36#
ISIP 948#
FFP 32-45#
FSIP 719#
HP 2264-2208#
Recvd: 10' oil spotted mud.

LS: crm/lt gry-brn, micro-med xtal, some vry silty/sndy, foss frags/brac/dense ool, no vis por, no odor, ns.

SH: lt-dk gry/lt green-gry/brn/blk, some vry silty/sndy, slt carb, soft-firm, no odor, ns.

LS: lt-m brn/m-dk gry/gry-brn, micro-med xtal, silty/sndy, arg, foss frags, no vis por, no odor, ns.

LS: lt-m bm/lt-m gry, micro-med xtal, some vry silty/sndy, chalky, some arg, foss frags, no vis por, no odor, ns. Smpl is flood of SH.

CFS @ 4648'
Stop/30"/60"

LS: crm/lt-m gry/lt-m brn, micro-m xtal, some silty, some chalky, foss frags/dense ool, no vis por, no odor, ns.

LS: crm/lt-m bm/lt-m gry, micro-m xtal, some silty/sndy, some chalky, some arg, min lt gry/dk brn chert, foss frags/fusln/dense ool, no vis por, no odor, ns.

SH: m-dk gry/lt green-gry/dk brn/min blk, some silty, slt carb, some LS nodules, soft-firm, fissile, no odor, ns.

LS: crm/lt-med brn/min gry, micro-m xtal, some vry silty/sndy, some chalky, some arg, foss frags/some abund foss/grainy, no vis por, no odor, ns.

LS: crm/lt-m brn/gry-brn, micro-med xtal, some vry silty, some arg, some chalky, some foss frags/some grainy/ool/fusln, no vis por, no odor, ns.

CFS @ 4690'
Stop/30"/60"

SH: lt-dk gry/lt green-gry/blk, some silty, carb, firm, no odor, ns.

LS: crm/lt-med brn, micro-m xtal, some silty/sndy, some chalky, foss frags/ool, no vis por, 1 pce w/sfo w/ppt-m in-xtal por, dul yel flor, no odor, sfo.

LS: crm/lt-m brn, micro-m xtal, some silty, some chalky, some pyritic, foss frags/fusln/dense ool/grainy, no vis por, no odor, ns.

LS: crm/lt-m brn, micro-m xtal, some silty/sndy, some chalky, some arg, foss frags/ool, no vis por, no odor, ns. Flood of SH: lt-dk gry/blk/lt-green-gry/brn/mustard yel/maroon, some vry silty, slt carb, firm. Min Sitstn, lt gry, arg, friable, soft-firm, no odor, ns.

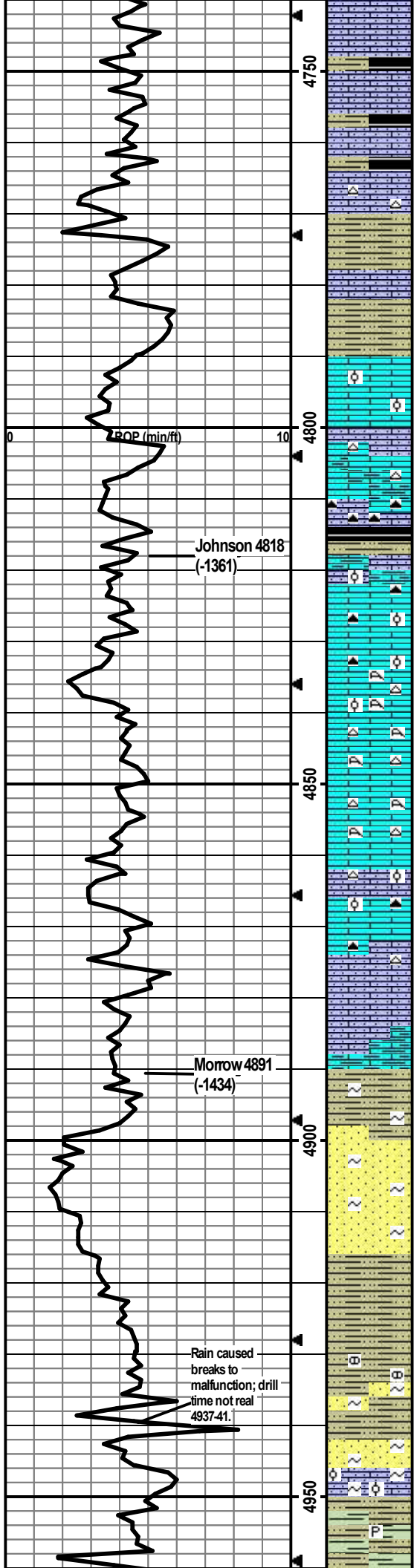
CFS @ 4720'
Stop/30"/60"

LS: crm/lt-m brn/lt gry, micro-m xtal, some silty, some chalky, foss frags, no vis por, no odor, ns.

SH: lt-dk gry/lt green-gry/blk/brn, some vry silty, slt carb, firm, no odor, ns.

LS: wht/crm/lt-m brn, micro-f w/min med xtal, some vry silty, min pyritic, foss frags, no vis por, no odor, ns.

SH: lt-dk gry/lt green-gry/blk w/brn mottling, some silty, some pyritic, firm-hard, no odor, ns.



LS: wht/cmlt bm/lt-m gry, micro-f xtal, some vry silty, some chalky, foss frags, no vis por, no odor, ns.
 SH: lt-dk gry/blk/maroon-brn, some silty, slt carb, soft-firm, no odor, ns.

LS: crm/lt brn/lt gry-brn, micro-f, some vry silty, some chalky, foss frags, no vis por, no odor, ns.
 SH: m-dk gry/blk/brn, some vry silty, carb, firm, no odor, ns.

SH: m-dk gry, slt carb, firm, no odor, ns.
 LS: crm/lt-m brn, micro-m xtal, some vry silty/sndy, some chalky, some lt brn chert, foss frags/some grainy, no vis por, no odor, ns.

SH: m-dk gry/maroon-brn, silty, slt carb, firm, no odor, ns.

LS: lt-m brn/lt-m gry, micro-m xtal, some vry silty/sndy, some chalky, foss frags, no vis por, no odor, ns.
 SH: m-dk gry/lt green-gry/dk maroon-brn, some silty, firm, fissile, no odor, ns.

LS: crm/lt-m brn/lt-dk gry, micro-m xtal, some silty, some chalky, foss frags/dense ool, no vis por, no odor, ns.

LS: lt-m brn/lt-m gry/lt gry-brn, micro-m xtal, some vry silty, some chalky, some arg, lt brn chert, foss frags, 1 pce in 30min and 1 pce in 60min w/staining and oil on break, dul yel cut, no odor, ssfo.

LS: lt-dk brn/lt-dk gry, micro-m xtal, some silty, some chalky, lt brn/dk gry chert, foss frags, no vis por, no odor, ns.
 SH: lt-dk gry/blk, some silty, firm, fissile, no odor, ns.

LS: crm/lt-m brn/lt-dk gry, micro-m xtal, some chalky/arg/silty, some dk gry/dk brn chert, min foss frags/min dense ool, no vis por, no odor, ns.

LS: lt-dk gry/lt-m brn, micro-m xtal, wht/lt-dk brn chert, foss frags/dense ool/coral/grainy, no vis por, no odor, ns.

LS: crm/lt-m brn/lt gry, micro-m xtal, some chalky, wht/lt brn chert, foss frags/coral, no vis por, no odor, ns.

LS: same as above, no odor, ns.

LS: crm/lt brn/lt-m gry, micro-f xtal, some vry silty/sndy, some wht/dk brn/dk gry chert, foss frags/some dense ool, no vis por, no odor, ns.

LS: crm/lt-dk gry/lt-m brn, micro-m xtal, some silty/sndy, some wht/dk gry/dk brn chert, min foss frags, no vis por, no odor, ns.

LS: crm/lt-m gry/lt-m brn, micro-m, some silty/sndy/arg/chalky, foss frags, no vis por, no odor, ns.

SH: lt-dk gry/brn, some vry silty/sndy, some vry carb, glauc, no odor, ns.

SS: wht/lt gry/lt green/maroon-red/min mustard yel, f-m, sr-wr, pred qtz, glauc, some arg, opaque, friable, no odor, ns.

SS: as above, no odor, ns.

SH: m-dk gry/lt gry-green/dk brn, some silty/sndy, some vry carb, firm-hard.

SH: lt-dk gry/lt gry-green, some silty, carb, some LS nodules, firm, no odor, ns. Min SS: crm/lt green-gry, f-m, sr-wr, pred qtz, some glauc, some arg, firm, friable, no vis por, no odor, ns.

SH: lt-dk gry/green-gry, some silty, carb, firm, no odor, ns. SS: as above, no odor, ns. Some LS: wht-crm: f-m xtal, sandy, chalky, glauc, ool, no vis por, no odor, ns.

SH: lt-dk gry/blk/lt-m green-gry/brn, some silty/sndy, slt carb, min pyritic, no odor, ns.

CFS @ 4750'
 Stop/30"/60"

CFS @ 4790'
 Stop/30"/60"

CFS @ 4810'
 Stop/30"/60"

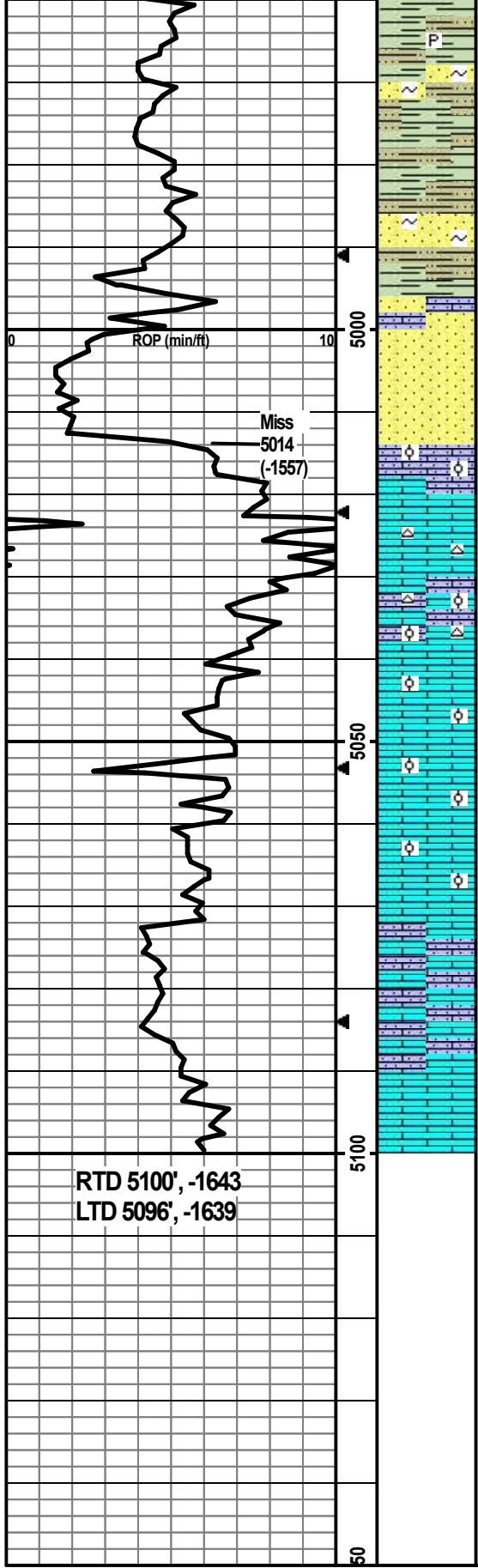
CFS @ 4880'
 30"/60"

CFS @ 4920'
 30"/60"

Johnson 4818
 (-1361)

Morrow 4891
 (-1434)

Rain caused
 breaks to
 malfunction; drill
 time not real
 4937-41.



SH: lt-dk gry/lt green-gry, min silty, slt carb, min pyritic, greasy, no odor, ns.

SH: as above, no odor, ns. Min SS: lt green-gry, vf-f, sr-wr, pred qtz, arg, glauc, firm friable, no vis por, no odor, ns.

SH: lt-dk gry/lt green-gry, some vry silty/sndy, carb. SS: lt bm/lt-m green-gry, f-m, glauc, carb, tight/no vis por, no odor, ns.

SH: lt-dk gry/lt green-gry, some vry silty/sndy, some glauc, firm. Some SS: lt-m gry-green, f-m, pred qtz, glauc, vry carb, hard, no vis por, no odor, ns.

SS: wht/lt gry-wht/lt bm-wht, f-m, sr-wr, pred qtz, slt glauc, opaque, some hard, some friable, no vis por, no odor, ns.

LS: lt bm, micro-m xtal, some vry sndy, some chalky, foss frags/few dense ool pcs, no vis por, no odor, ns. (Flood of SS from above.)

LS: cm/lt-m bm, micro-m xtal, lt bm chert, min foss frags, no vis por, no odor, ns. (Flood of SH and SS.)

LS: cm/lt-m bm, micro-m xtal, some silty/sndy, min chalky, lt bm chert, foss frags/min dense ool, no vis por, no odor, ns. (Cont flood of SH/SS from above.)

LS: cm/lt-m bm/lt gry, micro-med xtal, foss frags/dense ool, no vis por, no odor, ns. (Cont flood of SH/SS from above.)

LS: cm/lt-m bm/min lt gry-bm, micro-med xtal, some silty, foss frags/dense ool, no vis por, no odor, ns. (Cont flood of SH/SS from above.)

LS: cm/lt bm, micro-med xtal, foss frags/dense fn ool/grainy, no vis por, no odor, ns. (Cont flood of SH/SS from above.)

LS: cm/lt-m bm, micro-med xtal, some silty, min chalky, min foss frags, no vis por, no odor, ns. (Cont SH/SS flood.)

LS: cm/lt-m bm, micro-med xtal, some silty/sndy, foss frags, no vis por, no odor, ns. (Cont SH/SS flood.)

LS: cm/lt-m bm/gry, micro-m xtal, foss frags, no vis por, no odor, ns. (Cont SH/SS flood.)

TD @5100'

CFS @5022'
30"60"

CFS @5100'
Stop/30"60"
Did 12 std short trip, cir 1.5 hr,
TOH for logging.



RITCHIE

EXPLORATION, INC.
Wichita, Kansas

#1 MJW 10C

856' FSL & 1,938' FWL

134' S & 42' W of N/2 SE SW Section 10-16S-38W

Wichita County, Kansas

Ladder Creek NW Cats Prospect

2016 Special Drilling Program

API# 15-203-20360-0000

Elevation: GL: 3,449', KB: 3,457'

| Sample Tops | | | Ref. Well |
|----------------|------|-------|--------------|
| Anhydrite | 2652 | +805 | -9 |
| B/Anhydrite | 2674 | +783 | -14 |
| Stotler | 3692 | -235 | +8 |
| Heebner | 4068 | -611 | +9 |
| Toronto | 4088 | -631 | +8 |
| Lansing | 4120 | -663 | +9 |
| Muncie | 4306 | -849 | +8 |
| Stark | 4396 | -939 | +15 |
| Hushpuckney | 4452 | -995 | +16 |
| BKC | 4500 | -1043 | +16 |
| Marmaton | 4543 | -1086 | +18 |
| Altamont | 4556 | -1099 | +18 |
| Pawnee | 4636 | -1179 | +10 |
| Myrick Station | 4680 | -1223 | +9 |
| Ft Scott | 4696 | -1239 | +10 |
| Cherokee | 4726 | -1269 | +6 |
| Johnson | 4818 | -1361 | +10 |
| Morrow | 4891 | -1434 | +8 |
| Mississippian | 5014 | -1557 | +4 |
| RTD | 5100 | -1643 | |

INV901026



PRESSURE PUMPING LLC
PO Box 884, Chanute, KS 68720
620-431-9210 or 800-467-8676

100086
40882

TICKET NUMBER 56046
LOCATION Oakley Ks
FOREMAN Jerry

FIELD TICKET & TREATMENT REPORT
CEMENT

KS

| | | | | | | | |
|---------------|------------------|--------------------|------------------------|-----------------|-----------------|---------|--------|
| DATE | CUSTOMER # | WELL NAME & NUMBER | SECTION | TOWNSHIP | RANGE | COUNTY | |
| 6-27-19 | 7173 | M-JW 10c #1 | 10 | 16 ^S | 38 ^W | Wichita | |
| CUSTOMER | | Mailing Address | | TRUCK # | DRIVER | TRUCK # | DRIVER |
| Ritchie Exp | | PO BOX 783188 | | 760 | Kaleb C | | |
| CITY | STATE | ZIP CODE | TRUCK # | DRIVER | TRUCK # | DRIVER | |
| Wichita | KS | 67278-3188 | 566 | Alex H | | | |
| JOB TYPE | HOLE SIZE | HOLE DEPTH | CASING SIZE & WEIGHT | | | | |
| Surface | 12 1/4 | 268 | 8 7/8 23 ^{lb} | | | | |
| CASING DEPTH | DRILL PIPE | TUBING | OTHER | | | | |
| 268 | | | | | | | |
| SLURRY WEIGHT | SLURRY VOL | WATER gal/sk | CEMENT LEFT in CASING | | | | |
| 14.8 | 1.24 | | 20' | | | | |
| DISPLACEMENT | DISPLACEMENT PSI | MIX PSI | RATE | | | | |
| 15 3/4 | | | | | | | |

REMARKS: Safety meeting on upon well 12 circulate casing mix 220 sks com 3% cc 2% gel wash up at place with 15 3/4 bbl P&S water & shut cement come to collar (big collar) 2 bbl to pit

Cement did circulate
Thank you
Jerry & crew

| ACCOUNT CODE | QUANTITY or UNITS | DESCRIPTION of SERVICES or PRODUCT | UNIT PRICE | TOTAL |
|---------------|-------------------|------------------------------------|-----------------|---------|
| ✓ CE0471 | 1 | PUMP CHARGE | 1150.00 | 1150.00 |
| ✓ CE0002 | 55 | MILEAGE | 7.15 | 393.25 |
| ✓ CE0710 | 10.54 | van mileage delivery | 1.75 | 995.25 |
| SMSI ✓ CE5871 | 220 sks | surface blend II | 24.00 | 5280.00 |
| | | | Subtotal | 7818.48 |
| | | | -258 | 1959.62 |
| | | | Subtotal | 5863.86 |
| | | | SALES TAX | 336.60 |
| | | | ESTIMATED TOTAL | 6200.46 |

AUTHORIZATION [Signature] TITLE Toolpusher DATE 6-27-19

I acknowledge that the payment terms, unless specifically amended in writing on the front of the form or in the customer's account records, at our office, and conditions of service on the back of this form are in effect for services identified on this form

