

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
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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
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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:	
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**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

Ritchie Exploration Inc
8100 E 22nd St N 700
Wichita, Ks 67278
ATTN: John Goldsmith

17-16s-31w Scott, Ks
Scheuerman 17D #1
Job Ticket: 65174 **DST#: 1**
Test Start: 2019.04.29 @ 21:24:09

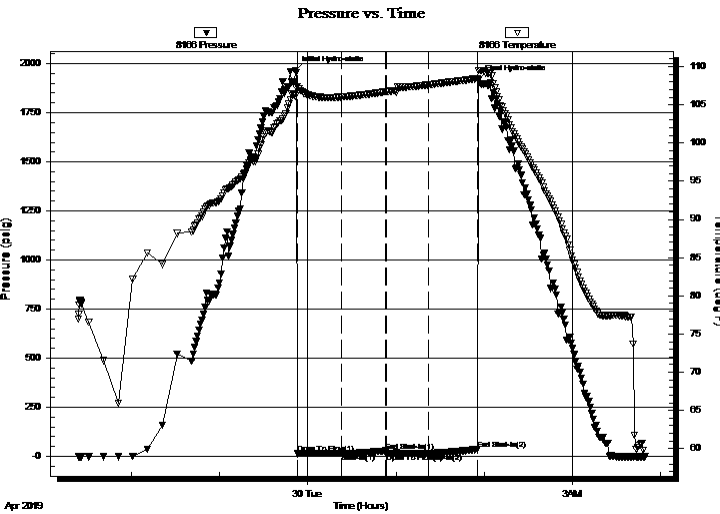
GENERAL INFORMATION:

Formation: **LKC -C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 23:53:09
Time Test Ended: 03:49:09
Interval: **3997.00 ft (KB) To 4018.00 ft (KB) (TVD)**
Total Depth: 4018.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good
Reference Elevations: 2951.00 ft (KB)
2944.00 ft (CF)
KB to GR/CF: 7.00 ft
Test Type: Bottom Hole (Initial)
Tester: Brandon Turley
Unit No: 79

Serial #: 8166 Outside

Press@RunDepth: 16.21 psig @ 3998.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2019.04.29 End Date: 2019.04.30 Last Calib.: 2019.04.30
Start Time: 21:24:14 End Time: 03:49:08 Time On Btm: 2019.04.29 @ 23:51:39
Time Off Btm: 2019.04.30 @ 01:56:09

TEST COMMENT: IF: 1/4 blow built to 1/2.
IS: No return.
FF: No blow flushed tool no blow.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1965.41	106.14	Initial Hydro-static
2	13.25	107.40	Open To Flow (1)
32	15.41	106.03	Shut-In(1)
62	27.18	106.71	End Shut-In(1)
62	14.91	106.72	Open To Flow (2)
91	16.21	107.62	Shut-In(2)
124	35.03	108.43	End Shut-In(2)
125	1916.07	109.49	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
1.00	mud oil spots 100%m	0.00

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc
8100 E 22nd St N 700
Wichita, Ks 67278
ATTN: John Goldsmith

17-16s-31w Scott, Ks
Scheuerman 17D #1
Job Ticket: 65174 **DST#: 1**
Test Start: 2019.04.29 @ 21:24:09

Mud and Cushion Information

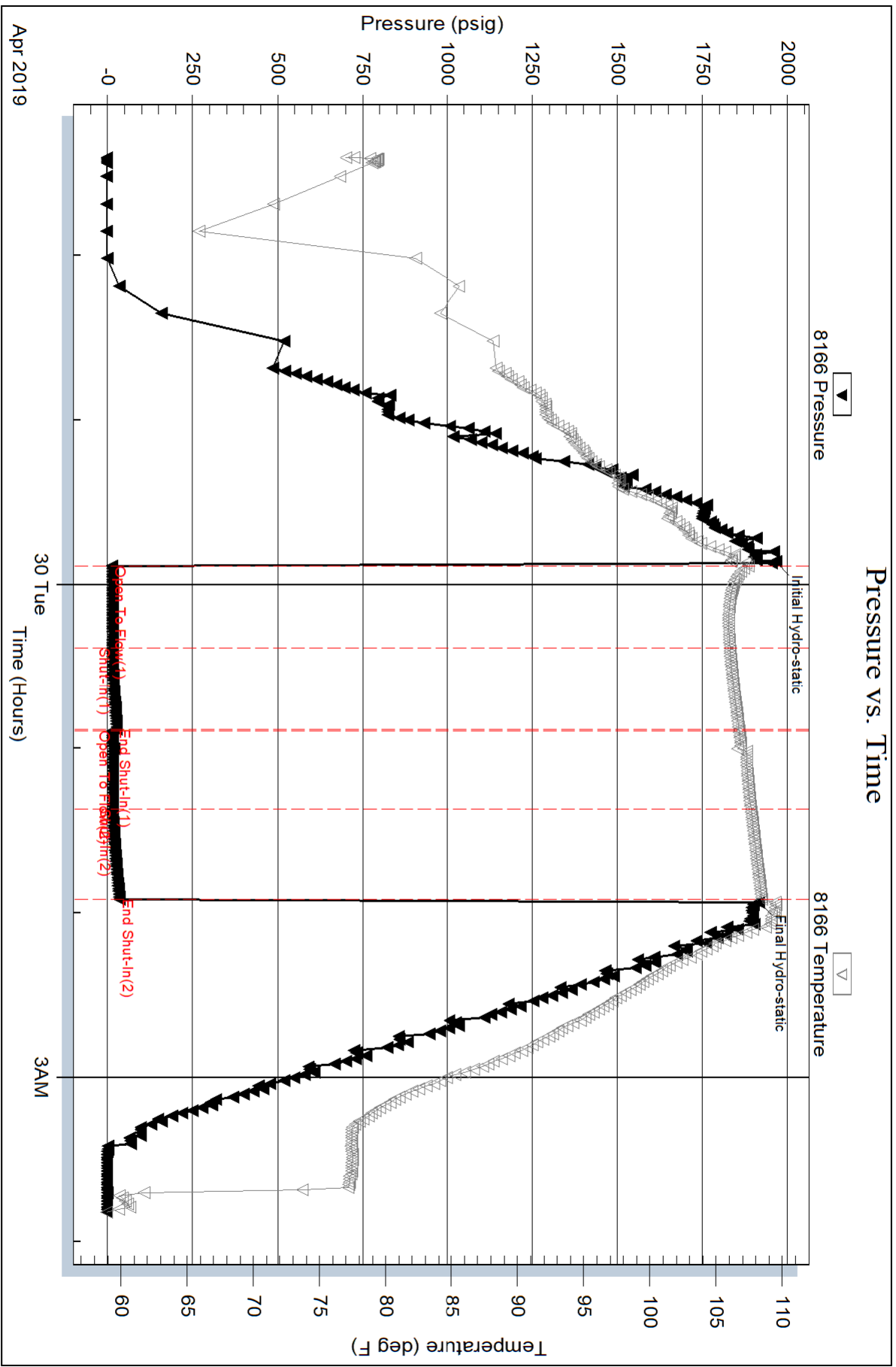
Mud Type: Gel Chem	Cushion Type:	Oil API:	0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 54.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.40 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 1900.00 ppm			
Filter Cake: 1.00 inches			

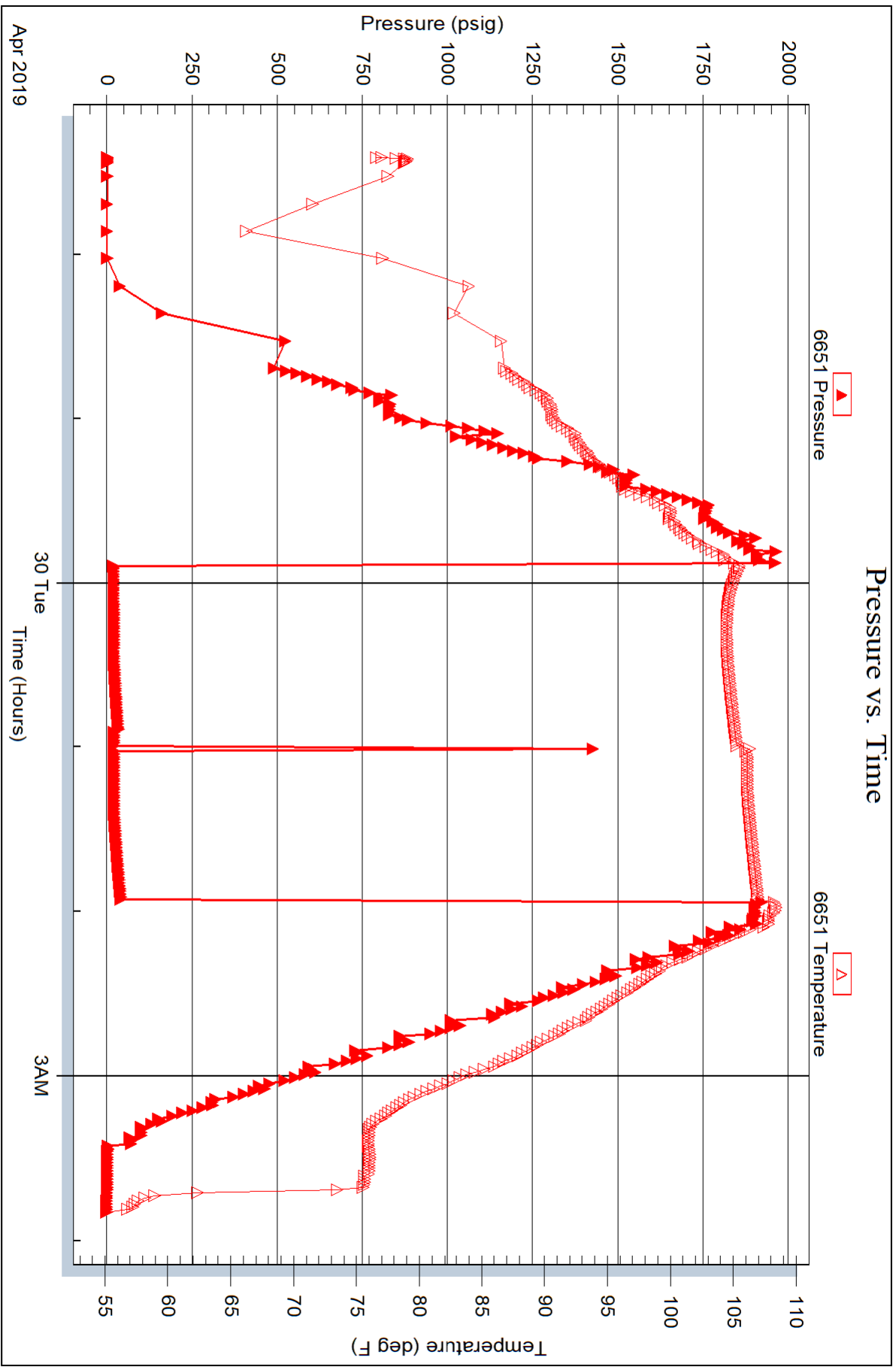
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
1.00	mud oil spots 100%m	0.005

Total Length: 1.00 ft Total Volume: 0.005 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:







TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc
 8100 E 22nd St N 700
 Wichita, Ks 67278
 ATTN: John Goldsmith

17-16s-31w Scott, Ks
Scheuerman 17D #1
 Job Ticket: 65175 **DST#: 2**
 Test Start: 2019.04.30 @ 11:00:06

GENERAL INFORMATION:

Formation: **LKC-D**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 13:05:06
 Time Test Ended: 18:00:36
 Interval: **4019.00 ft (KB) To 4040.00 ft (KB) (TVD)**
 Total Depth: 4040.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Bottom Hole (Reset)
 Tester: Brandon Turley
 Unit No: 79
 Reference Elevations: 2951.00 ft (KB)
 2944.00 ft (CF)
 KB to GR/CF: 7.00 ft

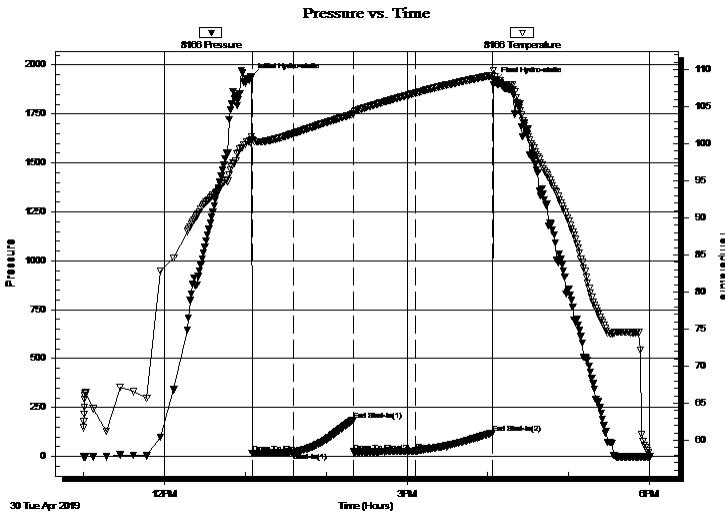
Serial #: 8166

Outside

Press@RunDepth: 27.79 psig @ 4020.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.04.30 End Date: 2019.04.30 Last Calib.: 2019.04.30
 Start Time: 11:00:11 End Time: 18:00:35 Time On Btm: 2019.04.30 @ 13:04:36
 Time Off Btm: 2019.04.30 @ 16:05:06

TEST COMMENT: IF: 1/4 blow built to 2.
 IS: No return.
 FF: Surface blow built to 1/2.
 FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1938.50	100.92	Initial Hydro-static
1	14.35	100.58	Open To Flow (1)
31	20.02	101.36	Shut-In(1)
76	186.43	104.00	End Shut-In(1)
76	23.09	104.10	Open To Flow (2)
122	27.79	106.84	Shut-In(2)
179	119.48	109.21	End Shut-In(2)
181	1914.38	109.01	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	ocm 20%o 80%m	0.02
2.00	free oil 100%o	0.01

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc

17-16s-31w Scott, Ks

8100 E 22nd St N 700
Wichita, Ks 67278

Scheuerman 17D #1

Job Ticket: 65175

DST#: 2

ATTN: John Goldsmith

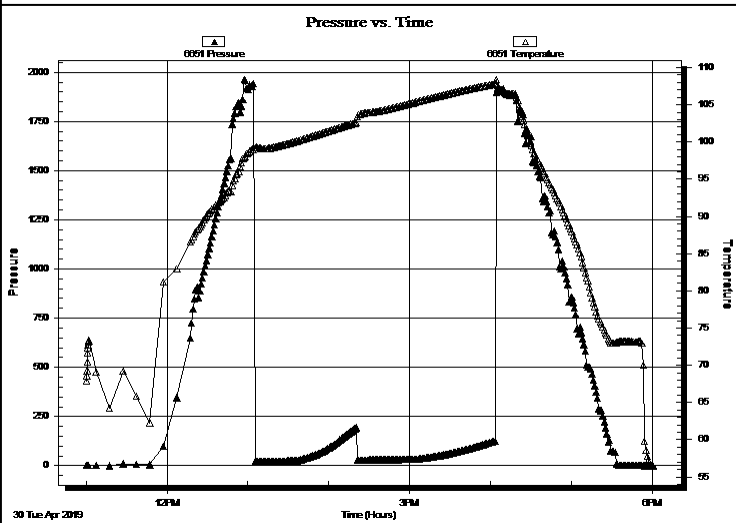
Test Start: 2019.04.30 @ 11:00:06

GENERAL INFORMATION:

Formation:	LKC-D		
Deviated:	No Whipstock:	ft (KB)	Test Type: Bottom Hole (Reset)
Time Tool Opened:	13:05:06		Tester: Brandon Turley
Time Test Ended:	18:00:36		Unit No: 79
Interval:	4019.00 ft (KB) To 4040.00 ft (KB) (TVD)		Reference Elevations: 2951.00 ft (KB)
Total Depth:	4040.00 ft (KB) (TVD)		2944.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition: Good	KB to GR/CF: 7.00 ft

Serial #: 6651	Inside		
Press@RunDepth:	psig @	4020.00 ft (KB)	Capacity: 8000.00 psig
Start Date:	2019.04.30	End Date: 2019.04.30	Last Calib.: 2019.04.30
Start Time:	11:00:19	End Time: 18:00:43	Time On Btm:
			Time Off Btm:

TEST COMMENT: IF: 1/4 blow built to 2.
IS: No return.
FF: Surface blow built to 1/2.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
5.00	ocm 20%o 80%m	0.02
2.00	free oil 100%o	0.01

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

17-16s-31w Scott, Ks

8100 E 22nd St N 700
Wichita, Ks 67278

Scheuerman 17D #1

Job Ticket: 65175

DST#: 2

ATTN: John Goldsmith

Test Start: 2019.04.30 @ 11:00:06

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

0 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 51.00 sec/qt

Cushion Volume:

bbbl

Water Loss: 6.40 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 2800.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
5.00	ocm 20%o 80%m	0.025
2.00	free oil 100%o	0.010

Total Length: 7.00 ft Total Volume: 0.035 bbl

Num Fluid Samples: 0

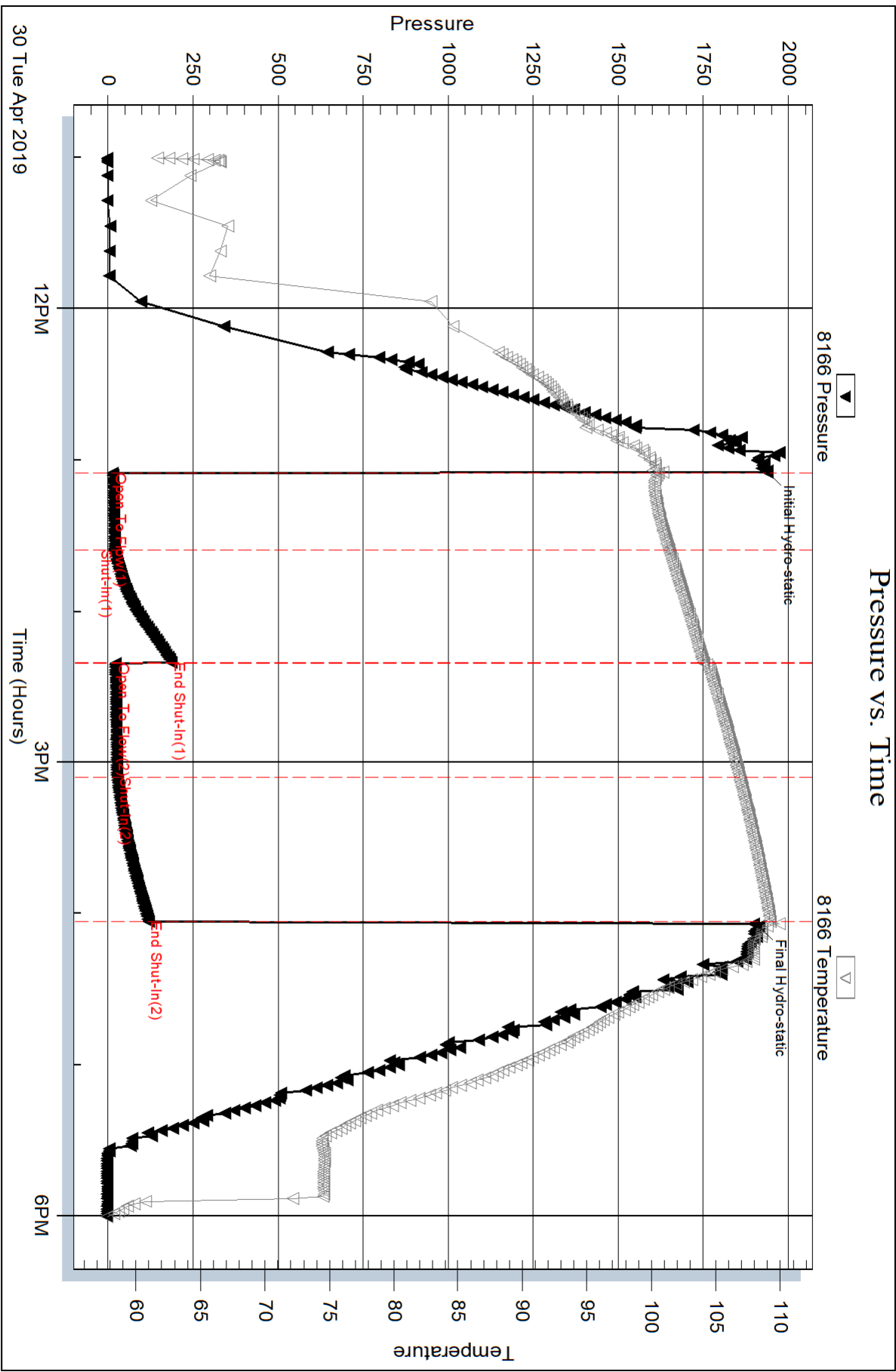
Num Gas Bombs: 0

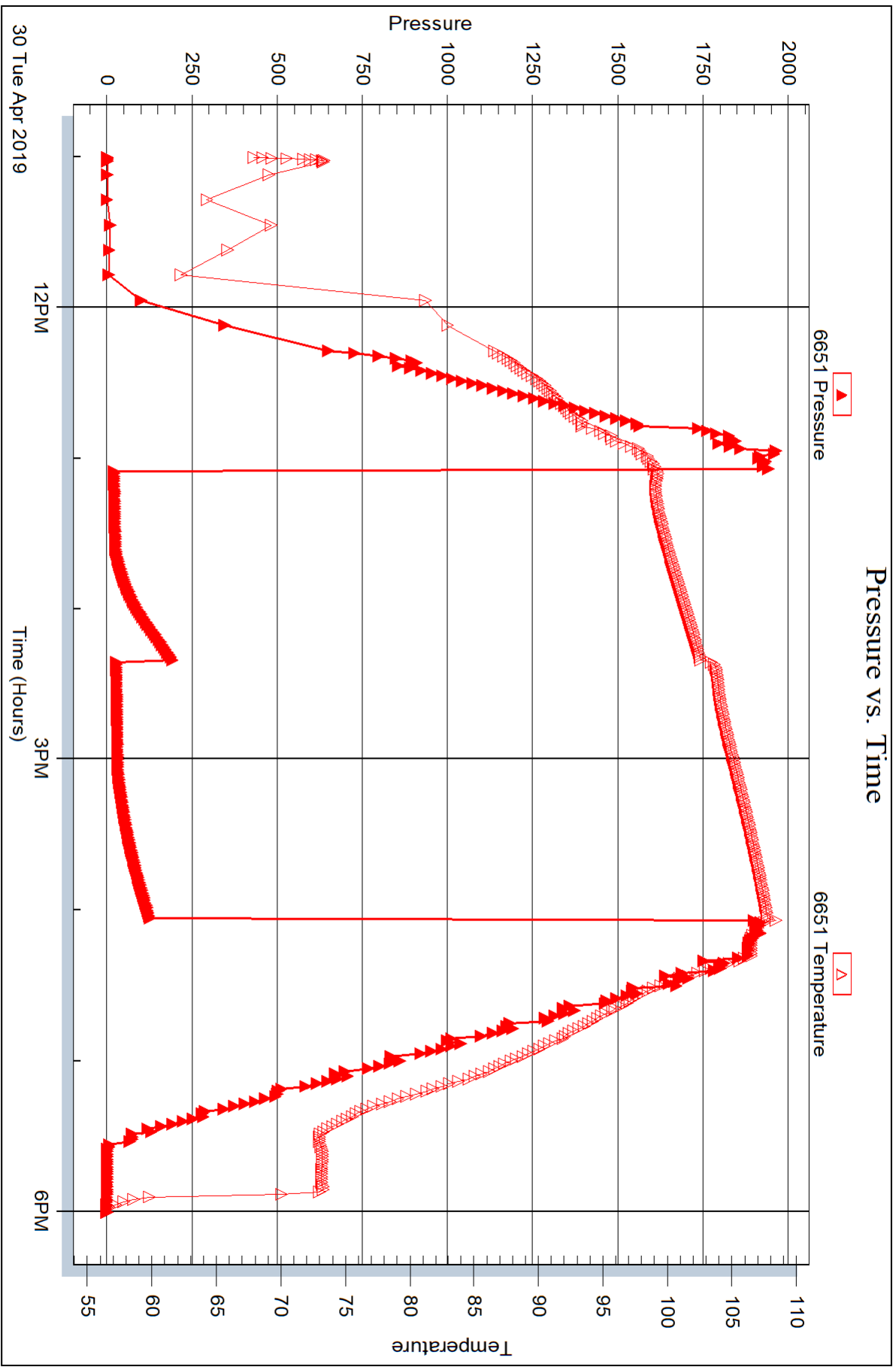
Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments:







TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc
 8100 E 22nd St N 700
 Wichita, Ks 67278
 ATTN: John Goldsmith

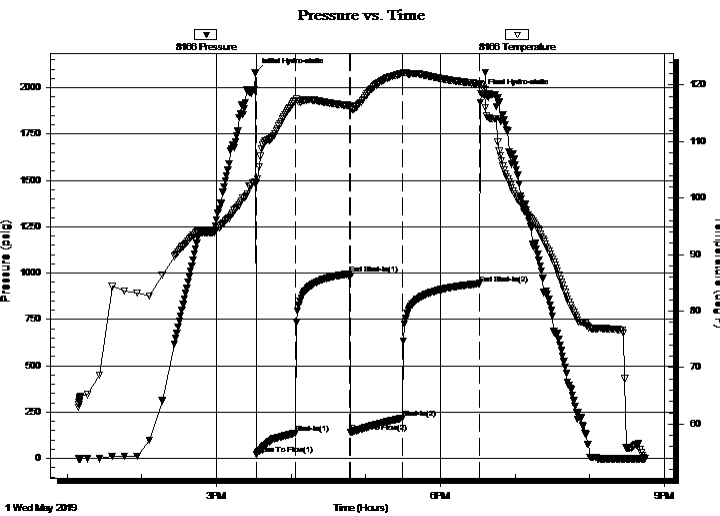
17-16s-31w Scott, Ks
Scheuerman 17D #1
 Job Ticket: 65226 **DST#: 3**
 Test Start: 2019.05.01 @ 13:09:12

GENERAL INFORMATION:

Formation: **LKC H-I**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 15:32:12
 Time Test Ended: 20:44:42
Interval: 4140.00 ft (KB) To 4208.00 ft (KB) (TVD)
 Total Depth: 4208.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Bottom Hole (Reset)
 Tester: Brandon Turley
 Unit No: 79
 Reference Elevations: 2951.00 ft (KB)
 2944.00 ft (CF)
 KB to GR/CF: 7.00 ft

Serial #: 8166 Outside
 Press@RunDepth: 219.10 psig @ 4141.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.05.01 End Date: 2019.05.01 Last Calib.: 2019.05.01
 Start Time: 13:09:17 End Time: 20:44:41 Time On Btm: 2019.05.01 @ 15:31:12
 Time Off Btm: 2019.05.01 @ 18:32:42

TEST COMMENT: IF: BOB in 19 min. 15"
 IS: No return.
 FF: BOB in 25 min. 17"
 FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2079.94	102.83	Initial Hydro-static
1	22.21	102.67	Open To Flow (1)
32	137.38	117.20	Shut-In(1)
76	995.59	116.33	End Shut-In(1)
77	140.06	115.93	Open To Flow (2)
119	219.10	122.08	Shut-In(2)
180	943.59	120.22	End Shut-In(2)
182	1967.26	119.97	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
248.00	mcw 90%w 10%m	1.78
206.00	w cm 15%w 85%m	2.89

* Recovery from multiple tests

Gas Rates

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



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc

17-16s-31w Scott, Ks

8100 E 22nd St N 700
Wichita, Ks 67278

Scheuerman 17D #1

Job Ticket: 65226

DST#: 3

ATTN: John Goldsmith

Test Start: 2019.05.01 @ 13:09:12

GENERAL INFORMATION:

Formation: **LKC H-I**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 15:32:12

Time Test Ended: 20:44:42

Test Type: Bottom Hole (Reset)

Tester: Brandon Turley

Unit No: 79

Interval: **4140.00 ft (KB) To 4208.00 ft (KB) (TVD)**

Reference Elevations: 2951.00 ft (KB)

Total Depth: 4208.00 ft (KB) (TVD)

2944.00 ft (CF)

Hole Diameter: 7.88 inches Hole Condition: Good

KB to GR/CF: 7.00 ft

Serial #: **6651** Inside

Press@RunDepth: psig @ 4141.00 ft (KB)

Capacity: 8000.00 psig

Start Date: 2019.05.01

End Date:

2019.05.01

Last Calib.:

2019.05.01

Start Time: 13:09:25

End Time:

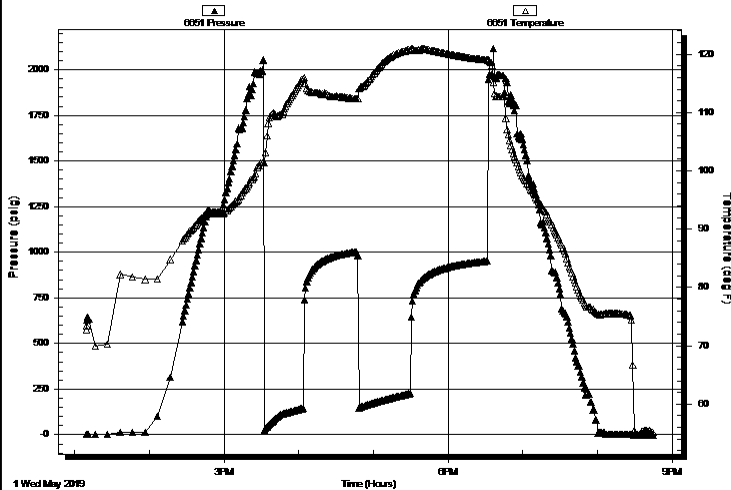
20:44:49

Time On Btm:

Time Off Btm:

TEST COMMENT: IF: BOB in 19 min. 15"
IS: No return.
FF: BOB in 25 min. 17"
FS: No return.

Pressure vs. Time



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
248.00	mcw 90%w 10%m	1.78
206.00	w cm 15%w 85%m	2.89

Gas Rates

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

* Recovery from multiple tests



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc
8100 E 22nd St N 700
Wichita, Ks 67278
ATTN: John Goldsmith

17-16s-31w Scott, Ks
Scheuerman 17D #1
Job Ticket: 65226 **DST#: 3**
Test Start: 2019.05.01 @ 13:09:12

Mud and Cushion Information

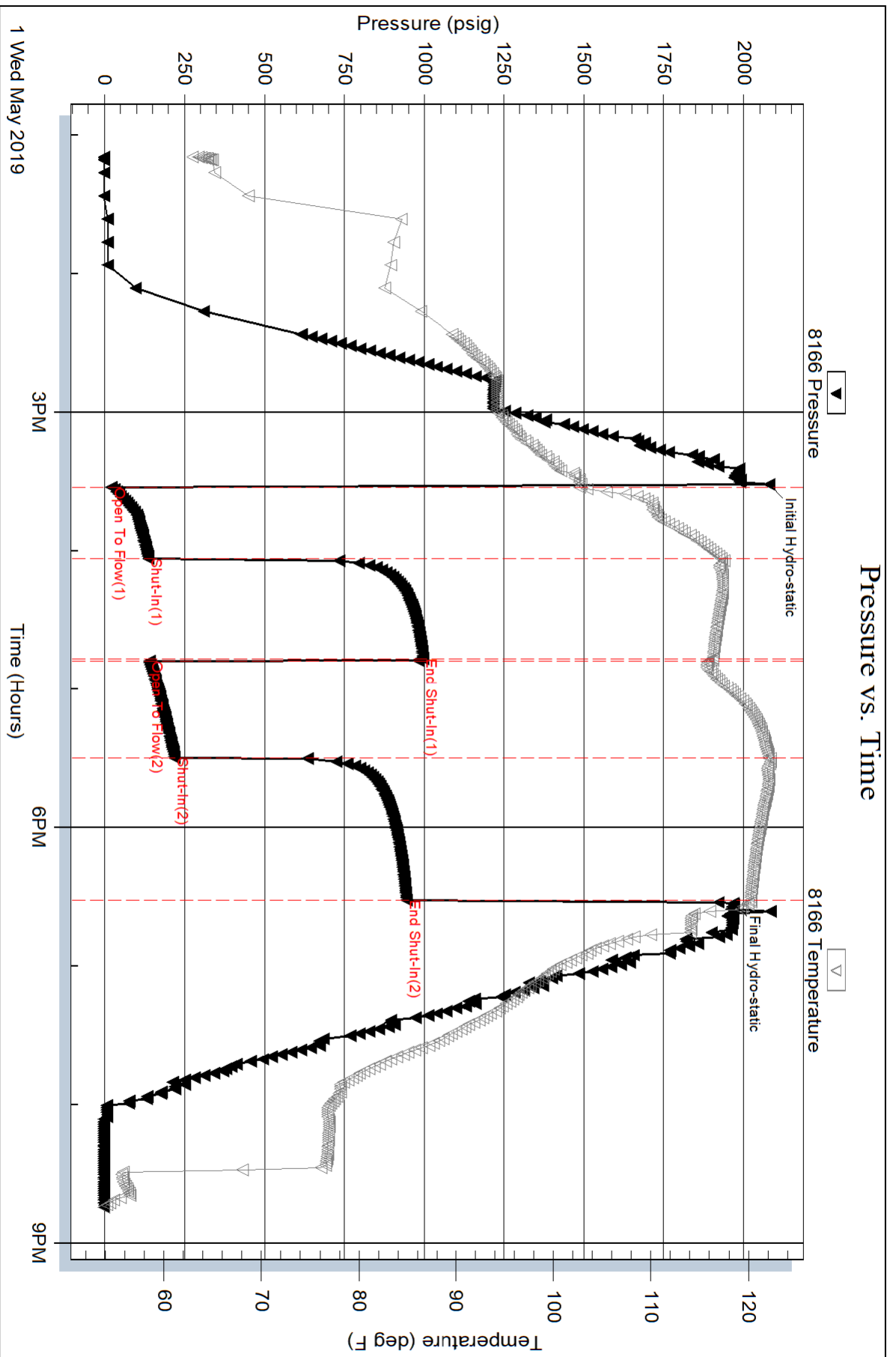
Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 54000 ppm
Viscosity: 48.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.40 in ³	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2500.00 ppm		
Filter Cake: 1.00 inches		

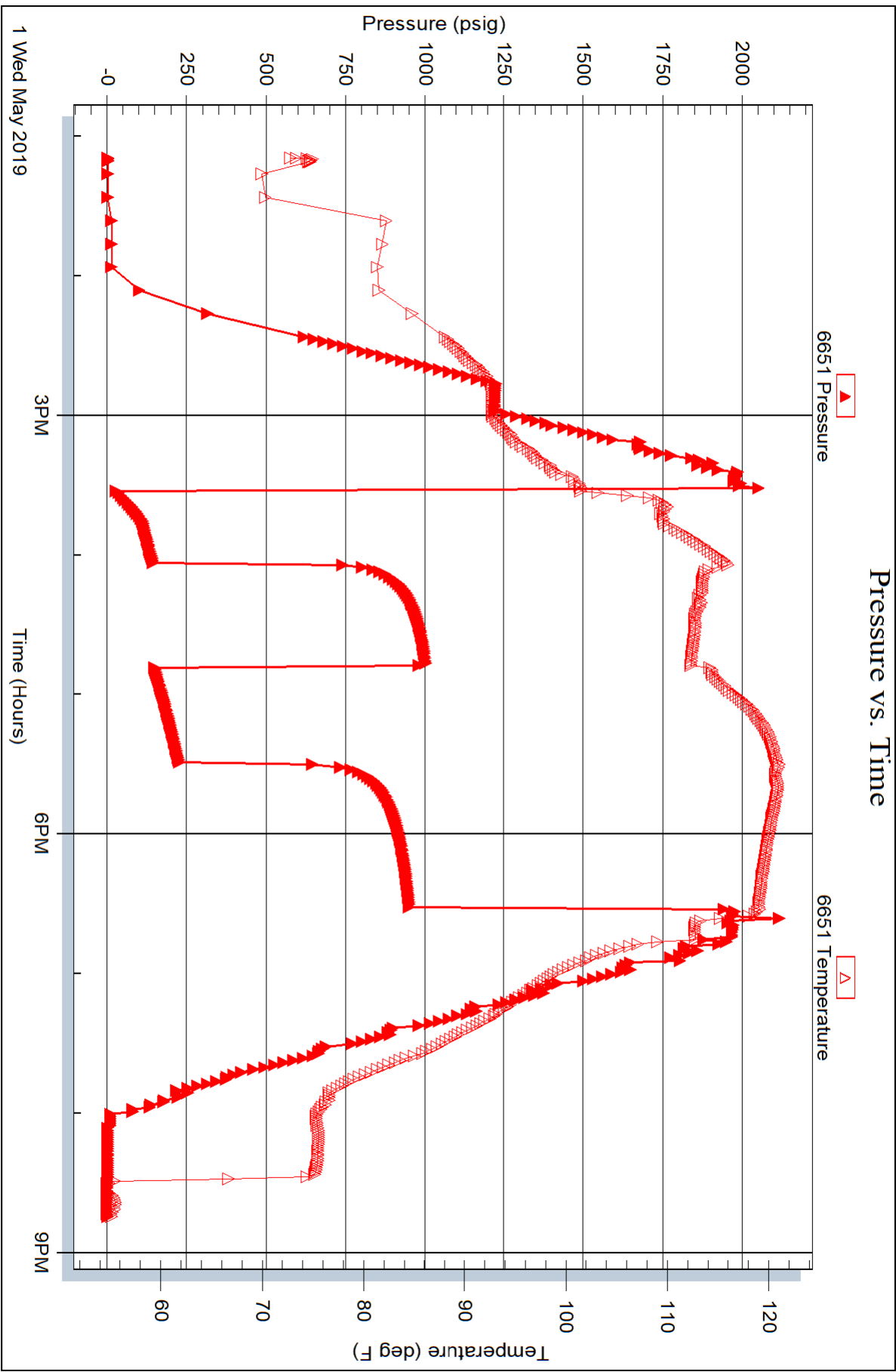
Recovery Information

Recovery Table

Length ft	Description	Volume bbl
248.00	mcw 90%w 10%m	1.784
206.00	w cm 15%w 85%m	2.890

Total Length: 454.00 ft Total Volume: 4.674 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: .20@50=54000







TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc
 8100 E 22nd St N 700
 Wichita, Ks 67278
 ATTN: John Goldsmith

17-16s-31w Scott, Ks
Scheuerman 17D #1
 Job Ticket: 65227 **DST#: 4**
 Test Start: 2019.05.03 @ 23:30:24

GENERAL INFORMATION:

Formation: **Johnson**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 02:33:54
 Time Test Ended: 06:54:24
Interval: 4543.00 ft (KB) To 4607.00 ft (KB) (TVD)
 Total Depth: 4607.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Test Type: Bottom Hole (Reset)
 Tester: Brandon Turley
 Unit No: 79
 Reference Elevations: 2951.00 ft (KB)
 2944.00 ft (CF)
 KB to GR/CF: 7.00 ft

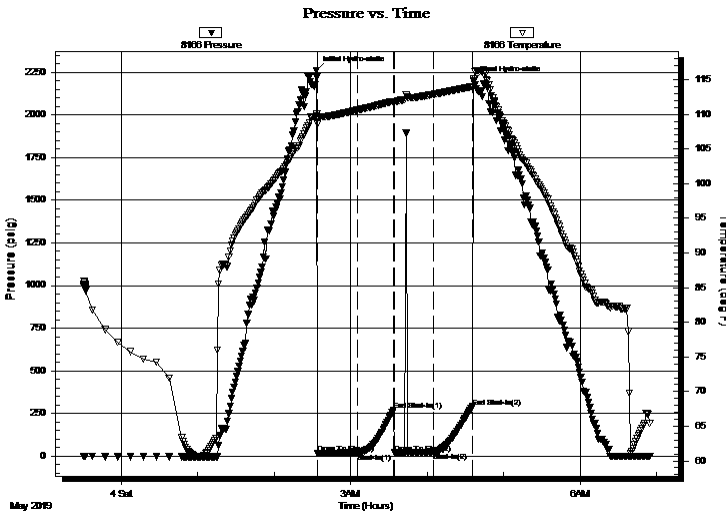
Serial #: 8166

Outside

Press@RunDepth: 22.42 psig @ 4544.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2019.05.03 End Date: 2019.05.04 Last Calib.: 2019.05.04
 Start Time: 23:30:29 End Time: 06:54:23 Time On Btm: 2019.05.04 @ 02:32:54
 Time Off Btm: 2019.05.04 @ 04:36:24

TEST COMMENT: IF: 1/4 blow built to 3/4.
 IS: No return.
 FF: No blow flushed tool no blow.
 FS: No return.

PRESSURE SUMMARY



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2260.78	109.83	Initial Hydro-static
1	17.21	108.57	Open To Flow (1)
32	17.79	110.59	Shut-In(1)
61	267.87	111.87	End Shut-In(1)
62	18.73	111.83	Open To Flow (2)
92	22.42	112.88	Shut-In(2)
123	288.78	113.99	End Shut-In(2)
124	2200.27	115.17	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
5.00	mud 100%m	0.02

* Recovery from multiple tests

Gas Rates

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



**TRILOBITE
TESTING, INC.**

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc
8100 E 22nd St N 700
Wichita, Ks 67278
ATTN: John Goldsmith

17-16s-31w Scott, Ks
Scheuerman 17D #1
Job Ticket: 65227 **DST#: 4**
Test Start: 2019.05.03 @ 23:30:24

Mud and Cushion Information

Mud Type: Gel Chem	Cushion Type:	Oil API: 0 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity: 0 ppm
Viscosity: 45.00 sec/qt	Cushion Volume: bbl	
Water Loss: 7.20 in ³	Gas Cushion Type:	
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig	
Salinity: 2900.00 ppm		
Filter Cake: 1.00 inches		

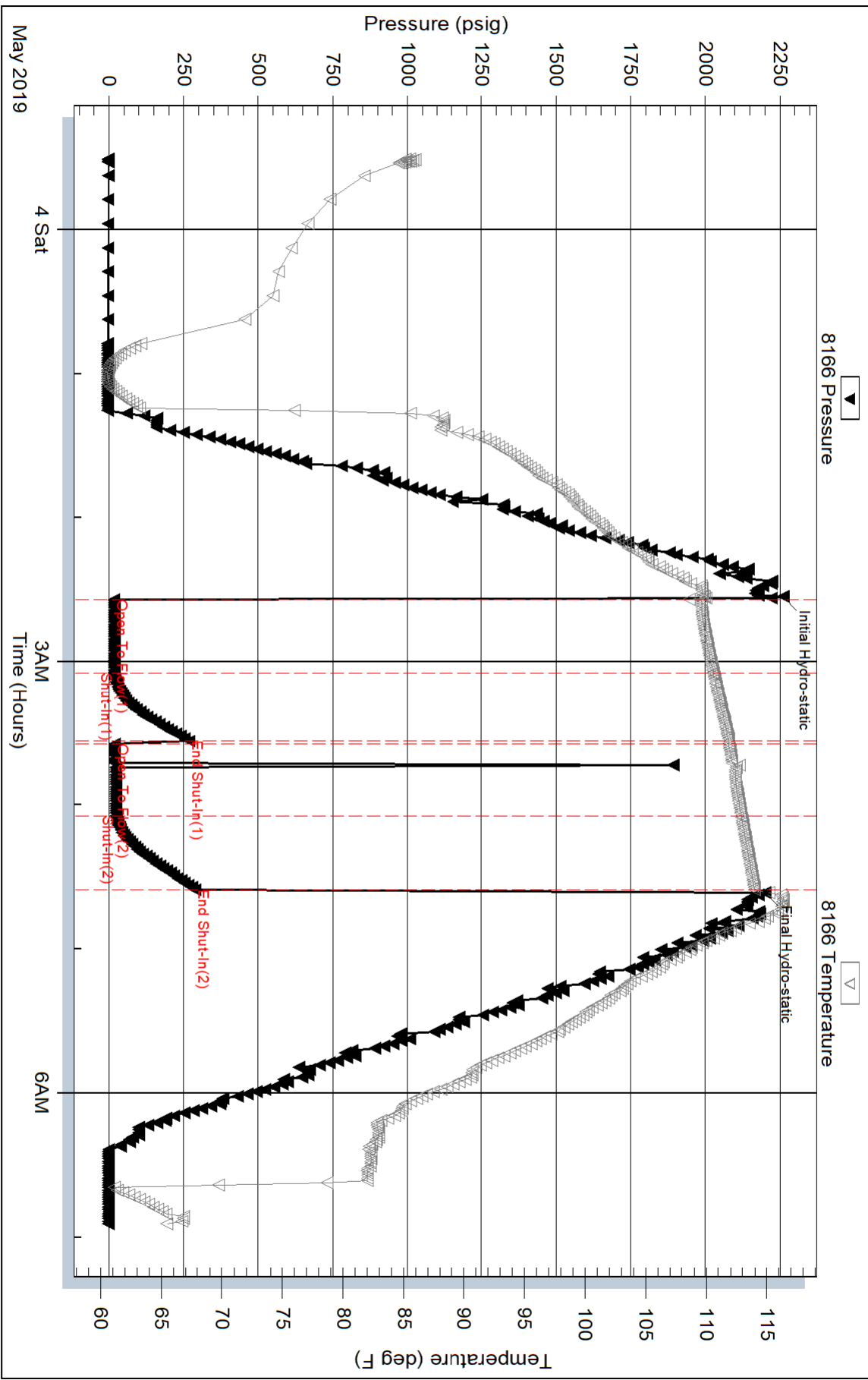
Recovery Information

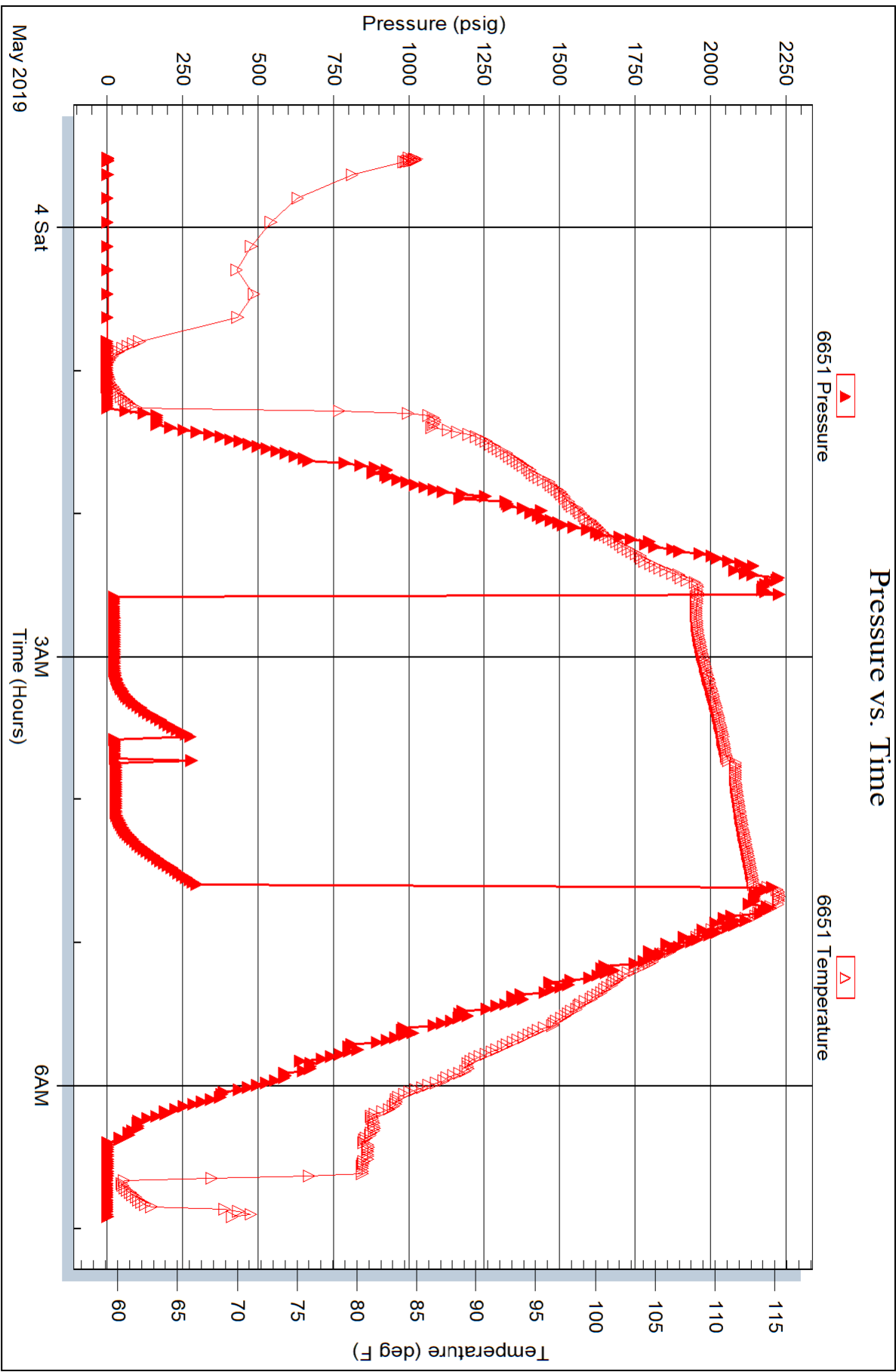
Recovery Table

Length ft	Description	Volume bbl
5.00	mud 100%m	0.025

Total Length: 5.00 ft Total Volume: 0.025 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments:

Pressure vs. Time







#1 Scheuerman 17D

1,904' FSL & 2,162' FEL

76' S & 148' E of W/2 NW/4 SE/4 Section 17-16S-31W

Scott County, Kansas

API# 15-171-21248-0000

Elevation: GL: 2,943', KB: 2,951'

Sample Tops			Ref. Well
Anhydrite	2347	+604	+4
B/Anhydrite	2371	+580	+1
Stotler	3555	-604	+4
Heebner	3936	-985	+2
Toronto	3956	-1005	+2
Lansing	3974	-1023	+5
Muncie	4145	-1194	+5
Stark	4244	-1293	Flat
Hush	4285	-1334	+1
BKC	4324	-1373	+4
Marmaton	4361	-1410	+3
Altamont	4376	-1425	+8
Pawnee	4452	-1501	+7
Myrick	4488	-1537	+6
Ft. Scott	4504	-1553	+7
Cherokee	4529	-1578	+7
Johnson	4568	-1617	+10
Morrow	4595	-1644	+17
Mississippian	4623	-1672	+15
RTD	4700	-1749	



100450
40850

TICKET NUMBER 56111

LOCATION Oakley, KS

FOREMAN Walt Fink

PRESSURE PUMPING LLC
PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

FIELD TICKET & TREATMENT REPORT
CEMENT

Invoice # 900790

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
4-24-09	7173	Scheverman 17D #1	17	16 ^s	31 ^o	Scott
CUSTOMER		Ritchie Explorations				
MAILING ADDRESS		P.O. Box 783188				
CITY		STATE	ZIP CODE			
Wichita		KS	67278-3188			
JOB TYPE		HOLE SIZE	HOLE DEPTH	CASING SIZE & WEIGHT		
Surface		12 1/4"	252'	8 5/8" - 23#		
CASING DEPTH		DRILL PIPE	TUBING	OTHER		
251						
SLURRY WEIGHT		SLURRY VOL	WATER gal/sk	CEMENT LEFT in CASING		
15.2				15-20'		
DISPLACEMENT		DISPLACEMENT PSI	MIX PSI	RATE		
14 3/4				4 BPM		

REMARKS: Safety Meeting, rig up on WW #12, circ casing on bottom, mix 175 sks com, 3% cc, 2% cal, Displace 14 3/4 BBL H₂O, Shut in Cement Did Cure.

Thank You
Walt & crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
Cap 471	1	PUMP CHARGE	1,150 ⁰⁰	1,150 ⁰⁰
Cap 002	30	MILEAGE	7 ¹⁵	214 ⁵⁰
Cap 711	8.23	Ten Wheelers Delivery	175	660 ⁰⁰
225871	175 SKS	Surface Blend II	24 ⁰⁰	4,200 ⁰⁰
				6,224 ⁵⁰
		25% Less Disc		4,668 ³⁸
		SALES TAX		207.75
		ESTIMATED TOTAL		4936.13

AVIN 3737 AUTHORIZATION [Signature] TITLE Toolpusher DATE _____

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



PRESSURE PUMPING LLC
PO Box 884, Chanute, KS 66720
620-431-9210 or 800-467-8676

10049S
4069A

TICKET NUMBER 56119
LOCATION Collay, KS
FOREMAN Walt Dunkel

FIELD TICKET & TREATMENT REPORT
CEMENT

INVOICE # 900831

DATE	CUSTOMER #	WELL NAME & NUMBER	SECTION	TOWNSHIP	RANGE	COUNTY
5-5-19	773	Scheerer man 170 #1	17	16	36W	Scott
CUSTOMER			TRUCK # DRIVER TRUCK # DRIVER			
MAILING ADDRESS			TRUCK # DRIVER TRUCK # DRIVER			
CITY			TRUCK # DRIVER TRUCK # DRIVER			
STATE			TRUCK # DRIVER TRUCK # DRIVER			
ZIP CODE			TRUCK # DRIVER TRUCK # DRIVER			
JOB TYPE			HOLE SIZE HOLE DEPTH CASING SIZE & WEIGHT			
CASING DEPTH			DRILL PIPE TUBING OTHER			
SLURRY WEIGHT			SLURRY VOL WATER gal/sk CEMENT LEFT in CASING			
DISPLACEMENT			DISPLACEMENT PSI MIX PSI RATE			
REMARKS: Safety Meeting, Rig up on WW #2, Plug as ordered						

50 SKS @ 2370
80 SKS @ 1650' 280 SKS @ 4% @ 1/4 # Fk Seal
50 SKS @ 810'
50 SKS @ 300'
20 SKS @ 60'
30 SKS in RH,

Thank You
Walt + crew

ACCOUNT CODE	QUANTITY or UNITS	DESCRIPTION of SERVICES or PRODUCT	UNIT PRICE	TOTAL
CC0450	1	PUMP CHARGE	1,500.00	1,500.00
CC0002	40	MILEAGE	7.15	286.00
CC0710	12.04	Ton Mileage Delivery	1.75	842.80
CC5829	280	Lite-Weight Blend V	16.00	4480.00
CC6075	70	Fk Seal	3.00	210.00
EP8228	1	8 5/8 Woodruff Plug	165.00	165.00
				7,493.80
			Less 25% Disc	1,820.95
				5,612.85
			SALES TAX	309.51
			ESTIMATED TOTAL	5,922.36

AVIN 3737
AUTHORIZATION [Signature] TITLE Tool Pusher DATE 5-5-19

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

SCANNED

Wellsite Services, LLC

John Goldsmith
(316) 640-0236

427 Roosevelt St.
Cheney, KS 67025

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

Well Name: #1 Scheuerman 17D
API: 15-171-21248
Location: 1,904' FSL & 2,162' FEL, Sec 17-16S-31W, W/2 NW SE
License Number: REI #4767
Spud Date: 4/24/2019
Surface Coordinates: LAT: 38.662319251
LONG: -100.769141012
Bottom Hole Vertical Hole
Coordinates: 3/4 Degree Deviation
Ground Elevation (ft): 2943'
Logged Interval (ft): 3750' To: RTD
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

Region: Scott County
Drilling Completed: 5/5/2019

K.B. Elevation (ft): 2951'
Total Depth (ft): 4700'

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

OPERATOR

Company: Ritchie Exploration Inc.
Address: 8100 E. 22nd St. N. #700
Wichita, KS 67226
(316) 691-9500

GEOLOGIST

Name: John Goldsmith
Company: Wellsite Services LLC
Address: 427 Roosevelt St.
Cheney, KS 67025
(316) 640-0236

RIG RECORDS

Contractor: WW Drilling Rig #12
Pusher: Calvin Phannensteil

Collar Tally: 496'

Pump: Emsco DB 550
Liner & Stroke: 6 x 15

BIT RECORDS

Size:	Type:	Footage:	Condition:	Hours:	Serial #:
12 1/4"	STC Tooth	0-252'	RR	2.5	RJ7490
7 7/8"	STC F-27	252'-4700'	New	124.75	RL0802

COMMENTS

Surface Casing: 6 joints of 8 5/8" set @ 251'
Production Casing: No production casing was set.
Mud by: MudCo
DST's by: Trilobite Testing
Logs by: ELI Wireline Services (DIL, CN-CD, ML, CS)
RTD=4700' LTD=4700'

FORMATION TOPS

FORMATION	SAMPLE TOPS		E-LOG TOPS	
	Depth	Datum	Depth	Datum
Base of Anhydrite	2369'	+582	2365'	+586
Stotler	3555'	-604	3552'	-601
Heebner Shale	3936'	-985	3932'	-981
Toronto	3956'	-1005	3951'	-1000
Lansing	3974'	-1023	3970'	-1019
Muncie Creek Shale	4145'	-1194	4142'	-1191
Stark Shale	4244'	-1293	4241'	-1290
Hushpuckney Shale	4285'	-1334	4281'	-1330
Base of KC	4324'	-1373	4320'	-1369
Marmaton	4361'	-1410	4357'	-1406
Altamont	4376'	-1425	4374'	-1423
Pawnee	4452'	-1501	4449'	-1498
Myrick Station	4488'	-1537	4485'	-1534
Fort Scott	4504'	-1553	4502'	-1551
CherokeeShale	4528'	-1577	4525'	-1574
Johnson Zone	4568'	-1617	4567'	-1616
Morrow	4597'	-1646	4596'	-1645
Mississippian	4624'	-1673	4627'	-1676
RTD	4700'	-1749		
LTD			4700'	-1749

DST's




DST #1 "LKC C" 3997'-4018' 4-29-19 30-30-30-30
 1st Blw: 1/4" blw blt to 1/2" (No BB)
 2nd Blw: No blw, flushed, No blw (No BB)
 IFP: 13-15# ISIP: 27# FFP: 14-16# FSIP: 35#
 Hyd: 1965-1916#
 Rec: 1' Mud w/OS.

DST #2 "LKC D" 4019'-4040' 4-30-19 30-45-45-60
 1st Blw: 1/4" blw blt to 2" (No BB)
 2nd Blw: Wk surf blw blt to 1/2" (No BB)
 IFP: 14-20# ISIP: 186# FFP: 23-27# FSIP: 119#
 Hyd: 1938-1914#
 Rec: 2'Oil, 5'OCM.




DST #3 "LKC H&I" 4140'-4208' 5-1-19 30-45-45-60
 1st Blw: Blt to BOB in 19min (No BB)
 2nd Blw: Blt to BOB in 25min (No BB)
 IFP: 22-137# ISIP: 995# FFP: 140-219# FSIP: 943#
 Hyd: 2079-1967#
 Rec: 206'WCM, 248'MCW.

DST #4 "Johnson" 4543'-4607' 5-3-19 30-30-30-30
 1st Blw: 1/4" blw blt to 3/4" (No BB)
 2nd Blw: No blw, flushed, no blw (No BB)
 IFP: 17-17# ISIP: 267# FFP: 18-22# FSIP: 288#
 Hyd: 2260-2200#
 Rec: 5'Mud.

ROCK TYPES

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

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



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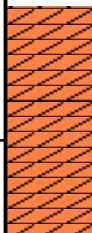
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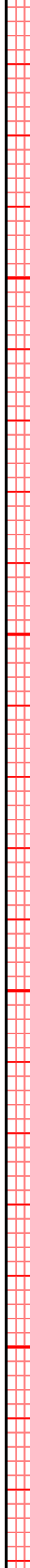
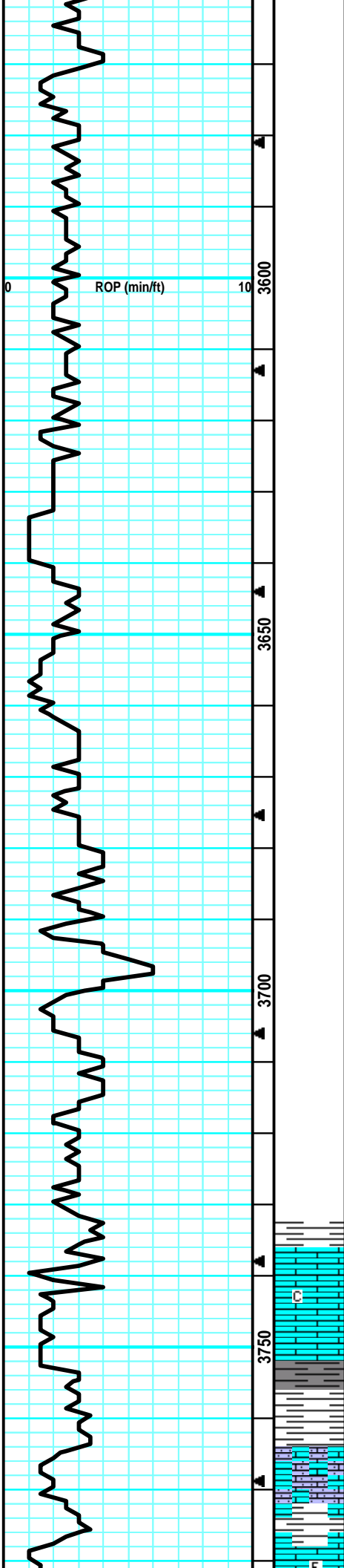
FOSSIL
 Brach
 Bryozoa
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 Foram
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 Gastro
 Oolite
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 Fuss
 Oolcast

MINERAL
 Calc
 Chtdk
 Chtlt
 Glau
 Pyr
 Sil

TEXTURE
 Chalky
 Crslxn
 Finexln
 Microxln

Drilling Time ROP (min/ft)	Depth	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks						
0	10					Survey @ 252' = 1/2 Degree						
ROP (min/ft)					Morning Depth/Activity Report	Anhydrite @ 2346' (+605)						
Anhydrite	2350				April 24, 2019: Move in and Spud at 2:30pm 4/25/19: Fixing clutch on mud pump @ 446' 4/26/19: Drlg @ 1,930' 4/27/19: Drlg @ 2,860' 4/28/19: Drlg @ 3,394' 4/29/19: Drlg @ 3,905' (DST #1 LKC "C") 4/30/19: Drlg @ 4,020' (DST #2 LKC "D") 5/1/19: Drlg @ 4,177' (DST #3 LKC "H&I") 5/2/19: Drlg @ 4,271' 5/3/19: Drlg @ 4,498' (DST #4 Johnson) 5/4/19: Drlg @ 4,607' (RTD 4700', Ran E-Log) 5/5/19: Plug and Abandon	B/Anhydrite @ 2369' (+582)						
B/Anhydrite	3500				Drill Time Begins @ 3500' on 4/28/19	MudCo Check #2 2069' on 4/26/19 Wt Vis pH 9.1 30 7.0 Filt Chlr LCM n/c 4.2K Tr <table style="margin-left: 20px;"> <tr> <td>MudCo Check #3</td> <td>2836' on 4/27/19</td> </tr> <tr> <td>Wt Vis pH</td> <td>9.1 30 7.0</td> </tr> <tr> <td>Filt Chlr LCM</td> <td>n/c 18K 3#</td> </tr> </table>	MudCo Check #3	2836' on 4/27/19	Wt Vis pH	9.1 30 7.0	Filt Chlr LCM	n/c 18K 3#
MudCo Check #3	2836' on 4/27/19											
Wt Vis pH	9.1 30 7.0											
Filt Chlr LCM	n/c 18K 3#											
Stotler	3550					MudCo Check #4 3461' on 4/28/19 Wt Vis pH 8.8 61 11.5 Filt Chlr LCM 7.6 1.0K 3#						
						Stotler @ 3555' (-604)						



10' Samples Begin @ 3750' on 4/28/19

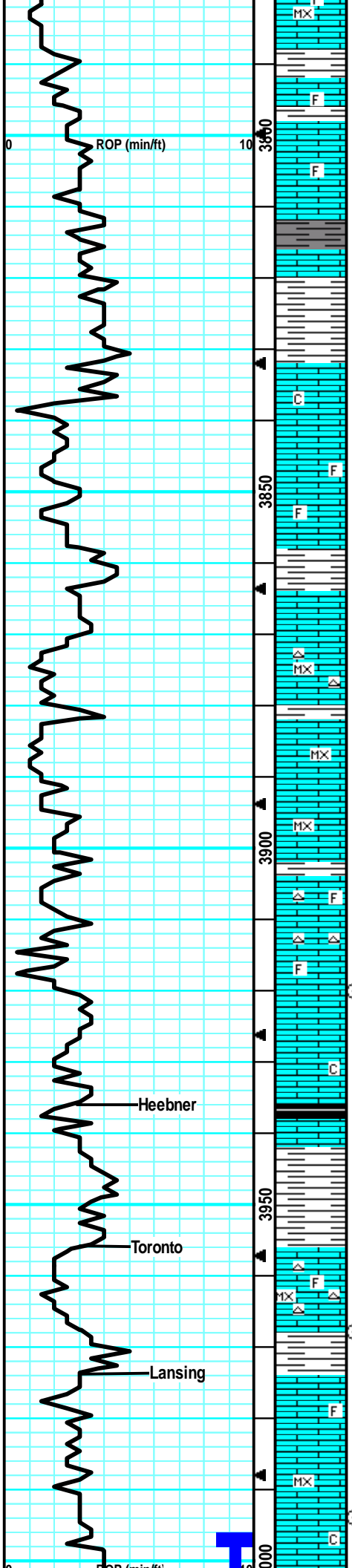
LS: gry/tan, fn xl, brit, tr-nvp, fw pcs drk brn spttd stns, no fluor, no cut, pos drk dead oil, ns, no odr, fw SH: drk gry/gry.

LS: gry/tan, fn xln, sing, dense, brit, tr-nvp, no odr, ns.

SH: blk/drk gry/grn/brn, silty, soft, fw waxy, fw carb, no odr, ns.

LS: gry/tan, fn xln, fw gritty/sandy, brit, tr-nvp, o odr, ns.

LS: tan/lt tan, slight mott, micro-fn xln, fw foss, brit, chky, tr-nvp, svl pcs pur chlk, no odr, ns.



Chky, tr-nvp, svrl pcs pur chlk, no odr, ns.

LS: lt gry, slight mott, fn xln, dense, brit, tr-nvp, no odr, ns. Fw red beds from above.

LS: tan/crm, sing, fn xln, fw foss, frags, mostly dense, tr-nvp, no odr, ns.

LS: lt tan/lt gry, fn xln, fw foss frags, brit, sub-chlky, tr-nvp, no odr, ns.

SH: drk gry, silty, no odr, ns.

SH: gry/brn/grn, silty, soft, no odr, ns.

LS: tan/lt gry, fn xln, many foss, sub-chlky in prt, tr-nvp, no odr, ns.

LS: lt tan/lt gry, slight mott, fn xln, foss, sub-chlky, fw pcs w/ drk brn patchy stns, no fluor/cut, nsfo, infix SH; gry/brn, silty, no odr.

SH: gry/brn, silty, fw gritty, no odr, ns.

LS: tan/lt gry, fn xln, fw sandy/gritty, mostly brit, fw sub-chlky, tr-nvp, fw slit stn: gry, v fn grn, arg, brit, friabl, tr-nvp, no odr, ns.

LS: tan/gry/crm, fn micro-fn xln, many dense, tr-nvp, fw pcs w/ patchy brn stns, no fluor/cut, fw Chert: wht, sharp, tr-nvp, no odr, nsfo.

LS: crm/lt tan/lt gry, micro-fn xln, brit, chlky, tr-nvp, svrl pcs pur chlk, no odr, ns.

LS: lt tan/crm, micro-fn xln, v brit, chlky, tr-nvp, svrl pcs pur chlk, no odr, ns.

LS: tan/lt tan, fn xln, fw foss, brit, sub-chlky, tr-nvp, sm Chert: wht/opaq, foss, sharp, no odr, ns.

LS: gry/crm, fn xln, fw foss, tr-pr intxln por in fw, abund pur chlk, tr-nvp, no odr, ns.

LS: gry, fn xln, tr-nvp, slit/peppr like stns, no cut, no sfo, no odr.

SH: blk/drk gry, silty, fissile, fw carb, no odr, ns.

SH: drk gry, silty, fw LS: tan/lt gry, fn xln, dense, sm firm, tr-nvp, no odr, ns.

Svrl SH: gry/blu, silty, soft.

LS: tan/lt tan, micro-fn xln, brit, tr spptd stn, no odr, nsfo, svrl Chert: wht/opaq, foss, sharp.

SH: drk gry/brn, silty, fissile, no odr, ns.

LS: lt tan, sing, fn xln, fw foss frags, scat pr ppt intxln por, sub-chlky, no cup odr, ns.

LS: lt tan, sing, micro-fn xln, dense, sub-chlky, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: tan/lt gry, fn xln, dense, firm, sm brit, tr-nvp, no odr, ns.

CFS @ 3920'
(20"/45")

MudCo Check #5			
3930' on 4/29/19			
Wt	Vis	pH	
9.1	54	11.0	
Filt	Chlr	LCM	
7.4	1.9K	2.5#	

Heebner @ 3936' (-985)

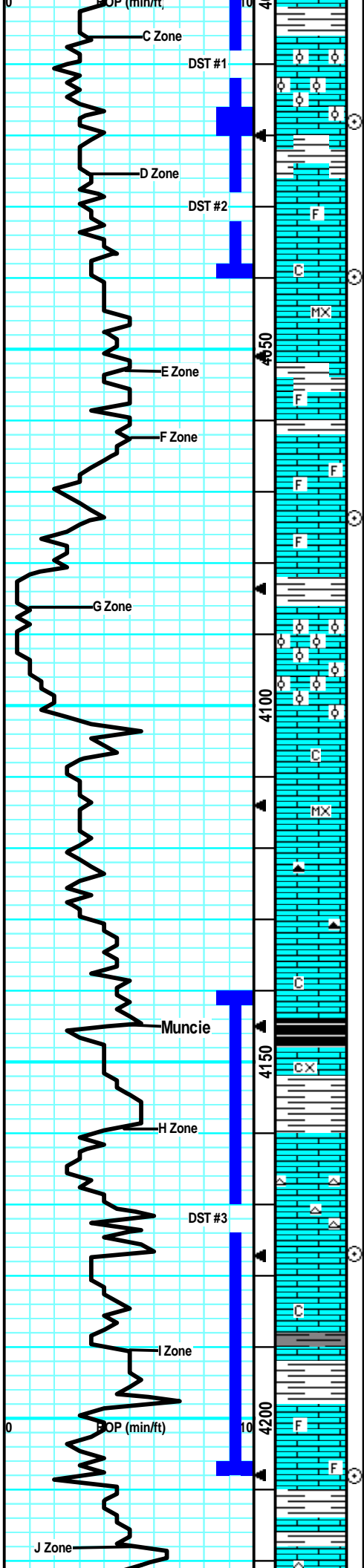
Toronto @ 3956' (-1005)

CFS @ 3968'
(20"/45")

Lansing @ 3974' (-1023)

DST #1 "LKC C"
3997'-4018' 4-29-19
30-30-30-30
1st Blw: 1/4" blw blt to 1/2"
(No BB)
2nd Blw: No blw, flushed, No
blw (No BB)
IFP: 13-15# ISIP: 27# FFP:

CFS @ 3994'
(20"/45")



SH: drk gry/gry, silty.
 LS: tan/lt gry, fn xln, sm v ool, fr intool por in fw pcs, slt/pep like stns in por, fr-gd sho med brn oil on brk in 10+ pcs, gd fluo/strm cut, gd cup odr incrs to strg undr lght.

SH: drk gry/drkn brn, silty, sm soft.
 LS: lt gry/lt tan, fn xln, sm foss. fr intxn/slight scat vuggy intfoss por, fr stn in por, gd sfo on brk w/ gas bubs in 4-5 pcs, gd fluor/strm cut, fr/gd cup odr.

LS: crm/lt tan, sing, micro-fn xln, dense, chlky, tr-nvp, svrl pcs pur chlky, fw SH: gry/grn/brn, silty, no odr, ns.

LS: lt gry/lt tan, fn xln, fw foss, sm flakey/mealy, sub-chlky in prt, tr-nvp, no odr, ns.
 Much of the same as above, fw pur chlky, no odr, ns.

LS: tan/lt tan, fn xln, sm v foss in prt, fw sub-chlky, sm britl, tr-nvp, no cup odr, ns.

LS: tan/lt gry, fn xln, fw foss, many firm, sub-chlky in prt, tr-nvp, no odr, ns.

SH: drk gry/grn, silty, soft, fw fissile.
 LS: tan/lt brn, mott, fn xln, profus ool, sm v gd vuggy intool por, chlky in prt, no cup odr, ns.

Much of the same, more gry in color, lrg inflix pur chlky, no odr, ns,
 LS: lt tan/lt gry, micro-fn xln, dense, brit, sub-chlky, tr-nvp, no cup odr, ns.

Much of the same, inflix Chert: lt tan, sing, sharp, no odr, ns.
 LS: gry/lt tan, slight mott, fn xln, dense, sm firm, fw lrg calc incls, tr-nvp, no cup odr, ns.

SH: blk, silty, cab, soft-med crush, no odr, ns.
 LS: gry/lt brn, mott, fn-crs xln, dense, hard, fw SH: gry/brn, silty, no odr, ns.

LS: tan, fn xln, brit, chlky, pr intxn por in sm, 2 pcs w/ v sml spstd oil stns, wk fluor/strm cut, svrl sml sphr oil on brk, wk cup odr.
 LS: lt tan/lt gry, fn xln, dense, birt, sub-chlky, tr-nvp, inflix Chert: wht/opaq/tan, sharp, no cup odr, ns.

LS: lt gry/lt brn, fn xln, dense, firm, sum hard, sub-chlky, tr-nvp, fw SH: drk gry, silty, no odr, ns.
 SH: gry/grn/drkn gry, silty, soft, fw waxy, no odr, ns.

LS: tan/gry, fn xln, fw foss frags, sm firm, tr-pr intxn por in v fw pcs, 2 pcs w/ pos patchy stns, no fluor/cut, nsfo, no cup odr.
 LS: tan/gry, slight mtt, fn xln, sm foss, mostly dense, sub-chlky, tr-nvp, fw SH: gry/grn, silty, soft, o odr, ns.

14-16# FSIP: 35#
 Hyd: 1965-1916#
 Rec: 1' Mud w/OS.

CFS @ 4018'
 (30"/60") Survey @ 4018' = 1/4 Degree

MudCo Check #6
 4040' on 4/30/19
 Wt Vis pH
 9.2 51 11.0
 Filt Chlr LCM
 6.4 2.8K 2#

CFS @ 4040'
 (30"/60")

DST #2 "LKC D"
 4019'-4040' 4-30-19
 30-45-45-60
 1st Blw: 1/4" blw blt to 2"
 (No BB)
 2nd Blw: Wk surf blw blt to
 1/2" (No BB)
 IFP: 14-20# ISIP: 186#
 FFP: 23-27# FSIP: 119#
 Hyd: 1938-1914#
 Rec: 2'Oil, 5'OCM.

CFS @ 4074'
 (30"/60")

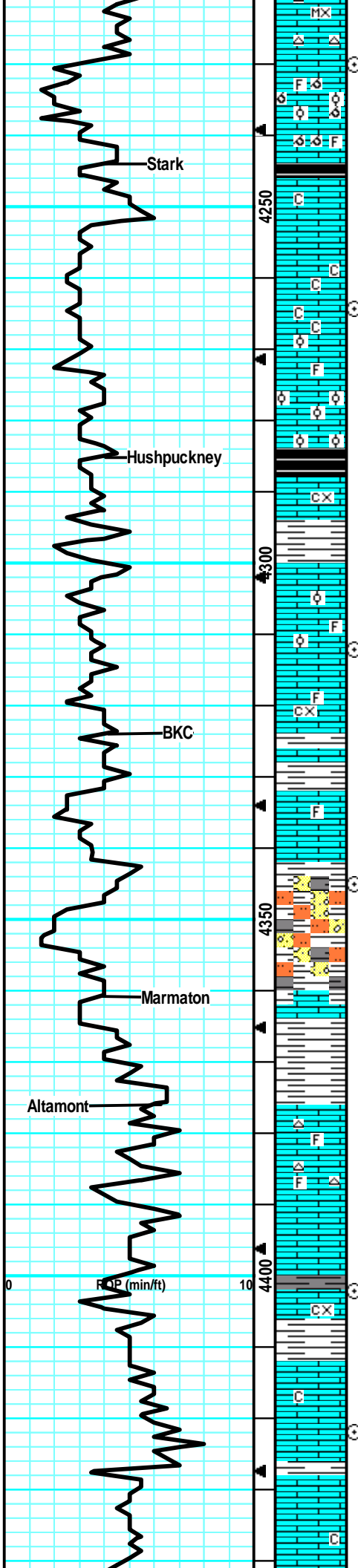
Muncie @ 4145' (-1194)

DST #3 "LKC H&I"
 4140'-4208' 5-1-19
 30-45-45-60
 1st Blw: Blt to BOB in 19min (No BB)
 2nd Blw: Blt to BOB in 25min
 (No BB)
 IFP: 22-137# ISIP: 995# FFP:
 140-219# FSIP: 943#
 Hyd: 2079-1967#
 Rec: 206'WCM, 248'MCW.

CFS @ 4176'
 (30"/60")

MudCo Check #7
 4198' on 5/1/19
 Wt Vis pH
 9.2 48 11.0
 Filt Chlr LCM
 7.4 2.5K 2#

CFS @ 4208'
 (30"/60")



LS: crm/lt tan, sing, micro-fn xln, dense, sub-chlky, tr-nvp, fw Chert: lt gry/wht, foss, sharp, no odr, ns.

CFS @ 4230'
(30"/60")

LS: gry/tan, mott, fn xln, fw foss, mostly v ool, sm brit, chalky, sm gd vuggy oolcast por, svrl pcs pur chlk, no cup odr, ns.

Stark @ 4244' (-1293)

SH: blk, carb, silty, soft, friable.
LS: tan/lt gry, mott in prt, fn xln, sm foss, mostly dense, fw flaky/mealy, tr-nvp, strng cup odr, could not find sfo in 3 trys, ? fluor, no stns.

CFS @ 4264'
(30"/60")

LS: tan/lt tan, slight mott, fn xln, mostly britl, v chlky, tr-pr intxln por, abund pur chlk, no cup odr, ns.

Much of the same, 60% chlk, no odr, ns.

LS: gry/tan, mott, fn xln, sm foss, many profus ool, firm, tr-pt intool por in v fw pcs, no cup odr, ns.

Hushpuckney @ 4285' (-1334)

SH: blk, silty, carb, no cup odr, ns.

LS: tan/gry, slight mott, fn-crs xln, fw flaky/mealy, sm firm, tr-nvp, 2-3 pcs w/ pos lght brn stns, no fluor/cut, nsfo, no cup odr, SH: gry.

MudCo Check #8		
4312' on 5/2/19		
Wt	Vis	pH
9.3	52	11.5
Filt	Chlr	LCM
7.0	2.3K	3#

CFS @ 4312'
(30"/60")

LS: tan/gry, fn xln, fw foss/ool, sub-chlky, sm firm, tr-nvp, no cup odr, ns.

LS: gry/tan, fn xln, foss in prt, sub-chlky, sm firm, tr-nvp, no odr, ns.

BKC @ 4324' (-1373)

LS: gry/lt brn, mott, fn-crs xln, dense, hard, fw foss frags, tr-nvp, svrl SH: gry/drck gry, soft, no odr, ns.

LS: tan/lt gry, fn xln, fw foss, sub-chlky, fw flaky/mealy, tr-nvp, no cup odr, ns.

CFS @ 4345'
(30"/60")

LS: tan/lt tan, fn xln, fw foss frags, mostly firm, tr-nvp, fw SH: drk gry/brn, no cup odr, ns.

SH: drk gry/drck brn/grn, silty, soft, fw waxy, fw SltStn: gry/grn, gritty, med crush, no odr, ns.

Marmaton @ 4361' (-1410)

LS: tan/lt gry, slight mott, fn-crx xln, dense, firm, flakey/mealy, tr-nvp, no odr, ns.

SH: gry/drck gry/brn, soft, gritty, no odr, ns.

Altamont @ 4376' (-1425)

LS: gry/tan, fn xln, fw foss, sub-chlky, flakey/mealy, tr-nvp, fw Chert: wht/org, ool/foss, sharp, no odr, ns.

LS: gry/tan, slight mott, fn xln, sm flaky/mealy, tr-nvp, abund SH: gry/grn/brn, soft, svrl pcs chlky, no odr, ns.

CFS @ 4402'
(30"/60")

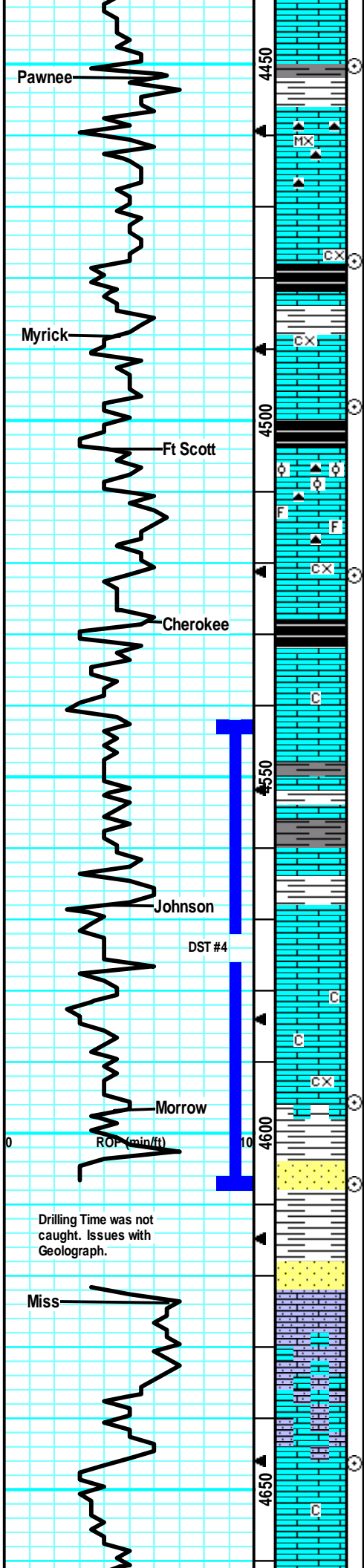
LS: tan/lt gry, slight mott, fn-crs xln, firm, flaky/mealy, tr-nvp, fw SH: drk gry/gry, no odr, ns.

LS: tan/lt tan, fn xln, mostly dense, sub-chlky in prt, firm, tr-nvp, no odr, ns.

CFS @ 4422'
(30"/60")

SH: gry/blu/brn, fissile, sm waxy, fw LS: tan/lt tan, fn xln, sub-chlky, tr-nvp, no odr, ns.

LS: tan/lt gry, fn xln, flakey/mealy, sub-chlky, fw brit, tr-nvp, no cup odr, ns.



LS: lt tan/lt gry, fn xln, mostly dense, sub-chlky, tr-nvp, no cup odr, ns.

SH: drk gry/gry, silty, soft, no cup odr, ns.
 LS: lt tan, sing, micro-fn xln, dense, brit. Tr-pr intxpor in fw, 8-9 pcs w/ patchy drk brn tarry like stns, wk fluor/slw cut resid, on 2-3 v sml sphr of oil on brk ? cup odr, svrl pcs Chert, gry, sharp.

LS: 2-3 pcs w/ sho rx, most tan, fn-crs xln, dense, firm, tr-nvp, fw Chert: gry/tan, sharp, no odr.

LS: tan/lt brn, fn-crs xln, dense, hard, fw flakey, tr-nvp, no cup odr, ns.

SH: blk/drk gry, silty, soft, friabl, mostly carb, no cup odr, ns.
 LS: lt brn/gry, mott, fn-crs xln, dense, hard, flakey, tr-nvp, 2-3 pcs w/ pos drk brn stns, no fluor/cut, nsfo, no cup odr.

LS: lt gry/lt tan, fn xln, dense, sm brit, sub-chlky, in prt, tr-nvp, no odr, ns.

LS: gry/lt brn, mott, fn xln, sm v ool, brity, tr-nvp in ool mtrx, sm flakey/mealy, sub-chlky in prt, abund SH: blk, carb, friabl, fw Chert: gry, foss, sharp, no odr, ns.

LS: gry/lt brn, mott, fn-crs xln, fw foss, hard, sm flakey/mealy, tr-nvp, fw Chert: gry, foss, sharp, no odr, ns.

60" Smpl: mostly the same LS: gry, fn-crs xln, flakey, firm, tr-nvp, no odr, ns.

LS: lt brn/gry, fn xln, dense, hard, fw flakey, tr-nvp, no odr, ns.

SH: blk, carb, soft, friable, no odr, ns.
 LS: gry/lt tan, fn xln, sub-chlky, fw flakey, tr-nvp, no cup odr, ns.

SH: blk, drk gry, sm fissile, sm LS: gry/lt brn, fn xln, dense, firm, fw sandy/gritty, tr-nvp, no odr, ns.

SH: drk gry/brn/grn, soft, fw waxy, intrbd LS: tan/gry, fn xln, dense, sub-chlky, fw flakey, tr-nvp, no cup odr, ns.

Much of the Same, abund of SH: drk gry/brn.

LS: lt gry/tan, fn xln, tr-pr ppt intxln por in fw, sub-chlky, 4 pcs w/ spttd brn stns, dul yel fluor/strm cut. ssfo on brk, pos fnt cup odr.

LS: mostly drk tan/gry, fn xln, dense, firm, tr-nvp, 2 pcs like desc abv, no cup odr, vssfo.

LS: tan/lt gry, fn xln, fw foss, sm sub-chlky, flakey/mealy & brit, othrs dense, hard, no cup odr, ns.

LS: tan/lt brn, fn-crs xln, dense, hard, tr-nvp, fw SS: crm/whit, fn grn, sub-rnd, arg, friable yet firm, tr-pr ppt intgr por, fw pcs w/ drk min spts, no fluor/cut, nsfo, no cup odr.

SH: drk gry/brn/gry, silty, sm fissile, soft, no cup odr, ns.

SS: gry, fn grn, arg, drity, sub-ang, tr-pr intgr por, pos drk min stns, no fluor/cut, nsfo, no odr.

SS/LS: crm/lt gry, fn grn, arg, limey, chlky, friable, brit, tr-pr intgrn por in v fw, abund of SH: drk gry/brn, silty, no odr, ns.

LS: lt gry/lt tan, fn xn, dense, sm firm, flakey/mealy, tr-nvp, fw LS: crm/lt tan, sandy/gritty, chlky, tr-nvp, no cup odr, ns.

60" Smpl: LS much of the same, dense, firm, tr-nvp, no odr, ns.

LS: lt gry/lt tan, fn xln, fw foss frags, sub-chlky in prt, sm firm, tr-nvp, no odr, ns.

CFS @ 4450' (30"/60")

Pawnee @ 4452' (-1501)

CFS @ 4478' (30"/60")

Myrick @ 4488' (-1537)

CFS @ 4498' (30"/60")

Ft Scott @ 4504' (-1553)

MudCo Check #9		
4508' on 5/3/19		
Wt	Vis	pH
9.3	45	11.0
Filt	Chlr	LCM
7.2	2.9K	3#

CFS @ 4522' (30"/60")

Cherokee @ 4528' (-1577)

Johnson @ 4568' (-1617)

DST #4 "Johnson"
 4543'-4607' 5-3-19
 30-30-30-30
 1st Blw: 1/4" blw bit to 3/4" (No BB)
 2nd Blw: No blw, flushed, no blw (No BB)
 IFP: 17-17# ISIP: 267# FFP:
 18-22# FSIP: 288#
 Hyd: 2260-2200#
 Rec: 5'Mud.

CFS @ 4596' (30"/60")

Morrow @ 4597' (-1646)

CFS @ 4607' (30"/60")

MudCo Check #10		
4607' on 5/4/19		
Wt	Vis	pH
9.3	59	11.0
Filt	Chlr	LCM
8.0	2.5K	2#

Miss @ 4624' (-1673)

CFS @ 4646' (30"/60")

