

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Richie Exploration Inc.
 8100 E. 22nd St. N #700
 P.O. Box 783188
 Wichita KS 67278
 ATTN: John Goldmith

26-15s-36w Logan Co KS

Wing-Dvorachek #1

Job Ticket: 63742

DST#: 1

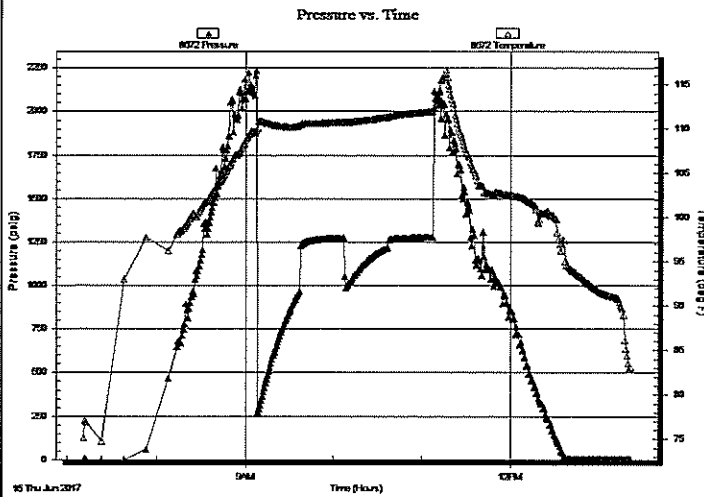
Test Start: 2017.06.15 @ 07:11:23

GENERAL INFORMATION:

Formation: K
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:07:08
 Time Test Ended: 13:20:23
 Interval: 4296.00 ft (KB) To 4344.00 ft (KB) (TVD)
 Total Depth: 4344.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 3293.00 ft (KB)
 3288.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 8672 Inside
 Press@RunDepth: psig @ 4339.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.06.15 End Date: 2017.06.15 Last Calib.: 2017.06.15
 Start Time: 07:11:15 End Time: 13:21:00 Time On Btm:
 Time Off Btm:

TEST COMMENT: IF: BOB in 1 min.
 IS: No return blow
 FF: BOB in 1 min.
 FS: No return blow



PRESSURE SUMMARY

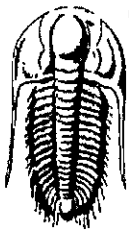
Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation

Recovery

Length (ft)	Description	Volume (bbl)
310.00	w cm 40%w 60% m	3.26
2046.00	sw 100% sw	28.70

Gas Rates

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



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FLUID SUMMARY

Ritchie Exploration Inc.
8100 E. 22nd St. N #700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63742 DST#: 1
Test Start: 2017.06.15 @ 07:11:23

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:	17000 ppm
Viscosity:	55.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.19 in ³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	3800.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
310.00	w cm 40%w 60%m	3.264
2046.00	sw 100% sw	28.700

Total Length: 2356.00 ft Total Volume: 31.964 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: RW= .336 @ 97.1= 17,000 ppm

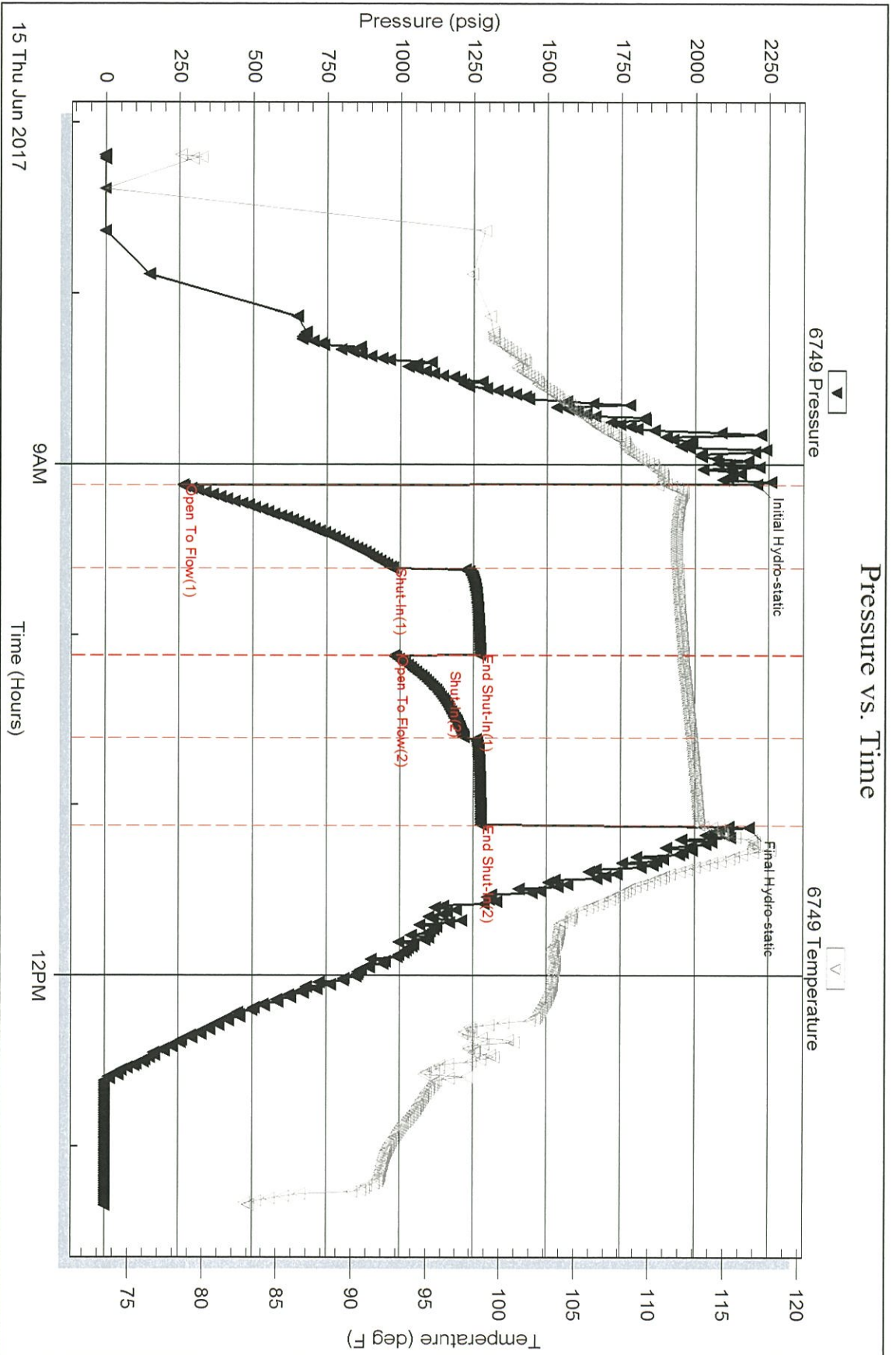
Serial #: 6749

Outside

Richie Exploration Inc.

Wing-Dvorachek #1

DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63742

Printed: 2017.06.15 @ 14:47:56

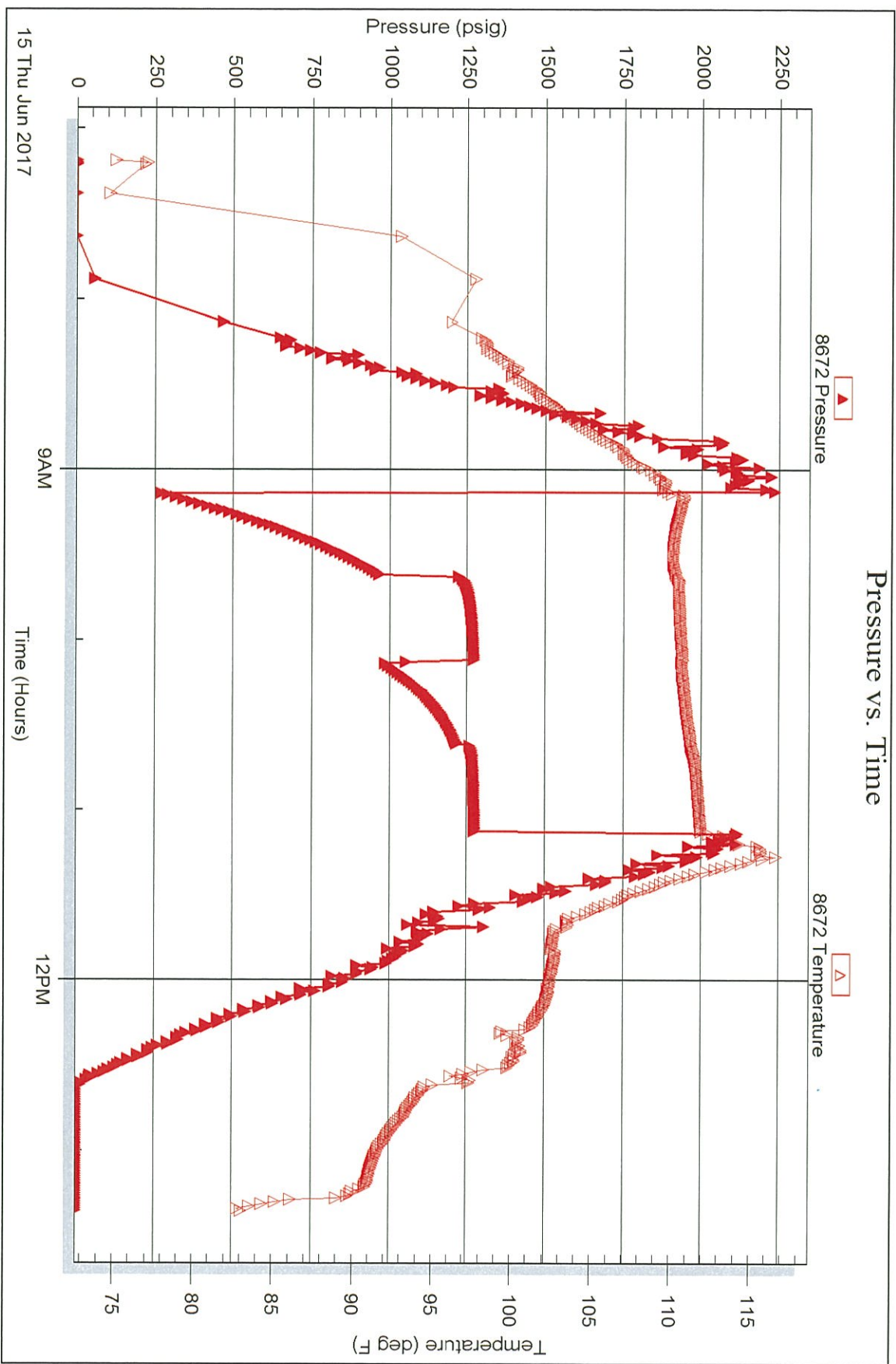
Serial #: 8672

Inside

Ritche Exploration Inc.

Wing-Dvorachek #1

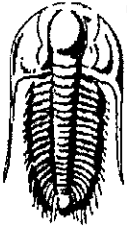
DST Test Number: 1



Trilobite Testing, Inc

Ref. No: 63742

Printed: 2017.06.15 @ 14:47:56



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.
 8100 E. 22nd St. N#700
 P.O. Box 783188
 Wichita KS 67278
 ATTN: John Goldmith

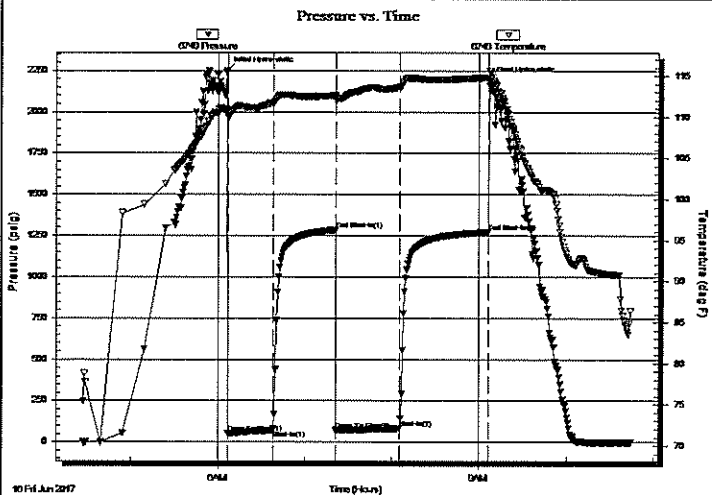
26-15s-36w Logan Co KS
Wing-Dvorachek #1
 Job Ticket: 63743 DST#: 2
 Test Start: 2017.06.16 @ 04:27:15

GENERAL INFORMATION:

Formation: **Altamont A**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:06:15
 Time Test Ended: 10:44:45
 Interval: **4430.00 ft (KB) To 4455.00 ft (KB) (TVD)**
 Total Depth: 4455.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Reset)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 3293.00 ft (KB)
 3288.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6749 Outside
 Press@RunDepth: 81.23 psig @ 4430.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2017.06.16 End Date: 2017.06.16 Last Calib.: 2017.06.16
 Start Time: 04:27:15 End Time: 10:44:45 Time On Btm: 2017.06.16 @ 06:06:00
 Time Off Btm: 2017.06.16 @ 09:07:15

TEST COMMENT: IF: Built to 1 1/2" blow
 IS: No return blow
 FF: Built to 2" blow
 FS: No return blow

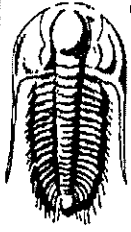


Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2249.10	110.77	Initial Hydro-static
1	53.57	110.03	Open To Flow (1)
32	70.87	111.72	Shut-In(1)
75	1284.55	112.61	End Shut-In(1)
76	71.85	111.98	Open To Flow (2)
119	81.23	113.59	Shut-In(2)
181	1273.51	114.77	End Shut-In(2)
182	2187.37	115.58	Final Hydro-static

Length (ft)	Description	Volume (bbl)
119.00	ocm 10%o 90%m (collars)	0.59
15.00	mco 20%m 80%o	0.21
30.00	free oil	0.42

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

* Recovery from multiple tests



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Wichita KS 67278
ATTN: John Goldmith

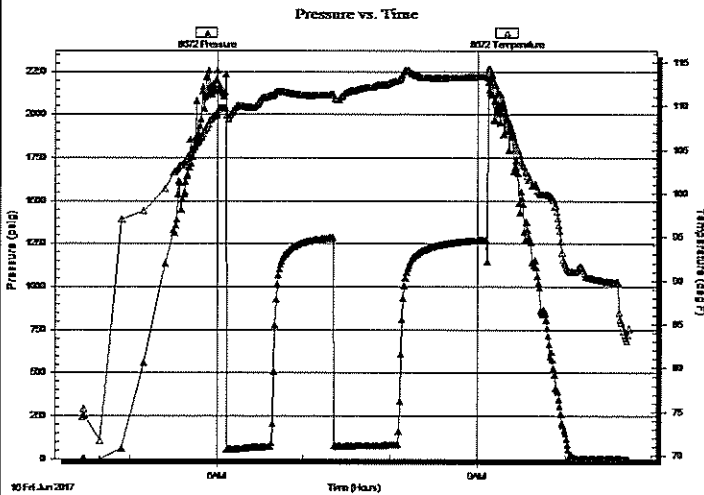
26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63743 DST#: 2
Test Start: 2017.06.16 @ 04:27:15

GENERAL INFORMATION:

Formation: Altamont A			
Deviated: No Whipstock:		ft (KB)	Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 06:06:15			Tester: Mike Roberts
Time Test Ended: 10:44:45			Unit No: 81
Interval: 4430.00 ft (KB) To 4455.00 ft (KB) (TVD)			Reference Elevations: 3293.00 ft (KB)
Total Depth: 4455.00 ft (KB) (TVD)			3288.00 ft (CF)
Hole Diameter: 7.88 inches	Hole Condition: Fair		KB to GR/CF: 5.00 ft

Serial #: 8672	Inside				
Press@RunDepth:	psig @	4430.00 ft (KB)	Capacity:	8000.00 psig	
Start Date:	2017.06.16	End Date:	2017.06.16	Last Calib.:	2017.06.16
Start Time:	04:27:15	End Time:	10:44:45	Time On Btm:	
				Time Off Btm:	

TEST COMMENT: IF:Built to 1 1/2" blow
IS:No return blow
FF:Built to 2" blow
FS:No return blow



PRESSURE SUMMARY

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

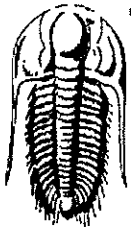
Recovery

Length (ft)	Description	Volume (bbl)
119.00	ocm 10%o 90%m (collars)	0.59
15.00	mco 20%m 80%o	0.21
30.00	free oil	0.42

* Recovery from multiple tests

Gas Rates

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



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DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc.

26-15s-36w Logan Co KS

8100 E. 22nd St. N #700

Wing-Dvorachek #1

P.O. Box 783188

Job Ticket: 63743

DST#: 2

Wichita KS 67278

Test Start: 2017.06.16 @ 04:27:15

ATTN: John Goldmith

Mud and Cushion Information

Mud Type: Gel Chem

Cushion Type:

Oil API:

31 deg API

Mud Weight: 9.00 lb/gal

Cushion Length:

ft

Water Salinity:

0 ppm

Viscosity: 54.00 sec/qt

Cushion Volume:

bbf

Water Loss: 7.18 in³

Gas Cushion Type:

Resistivity: 0.00 ohm.m

Gas Cushion Pressure:

psig

Salinity: 5000.00 ppm

Filter Cake: 1.00 inches

Recovery Information

Recovery Table

Length ft	Description	Volume bbf
119.00	ocm 10%o 90%m (collars)	0.585
15.00	mco 20%m 80%o	0.210
30.00	free oil	0.421

Total Length: 164.00 ft Total Volume: 1.216 bbl

Num Fluid Samples: 0

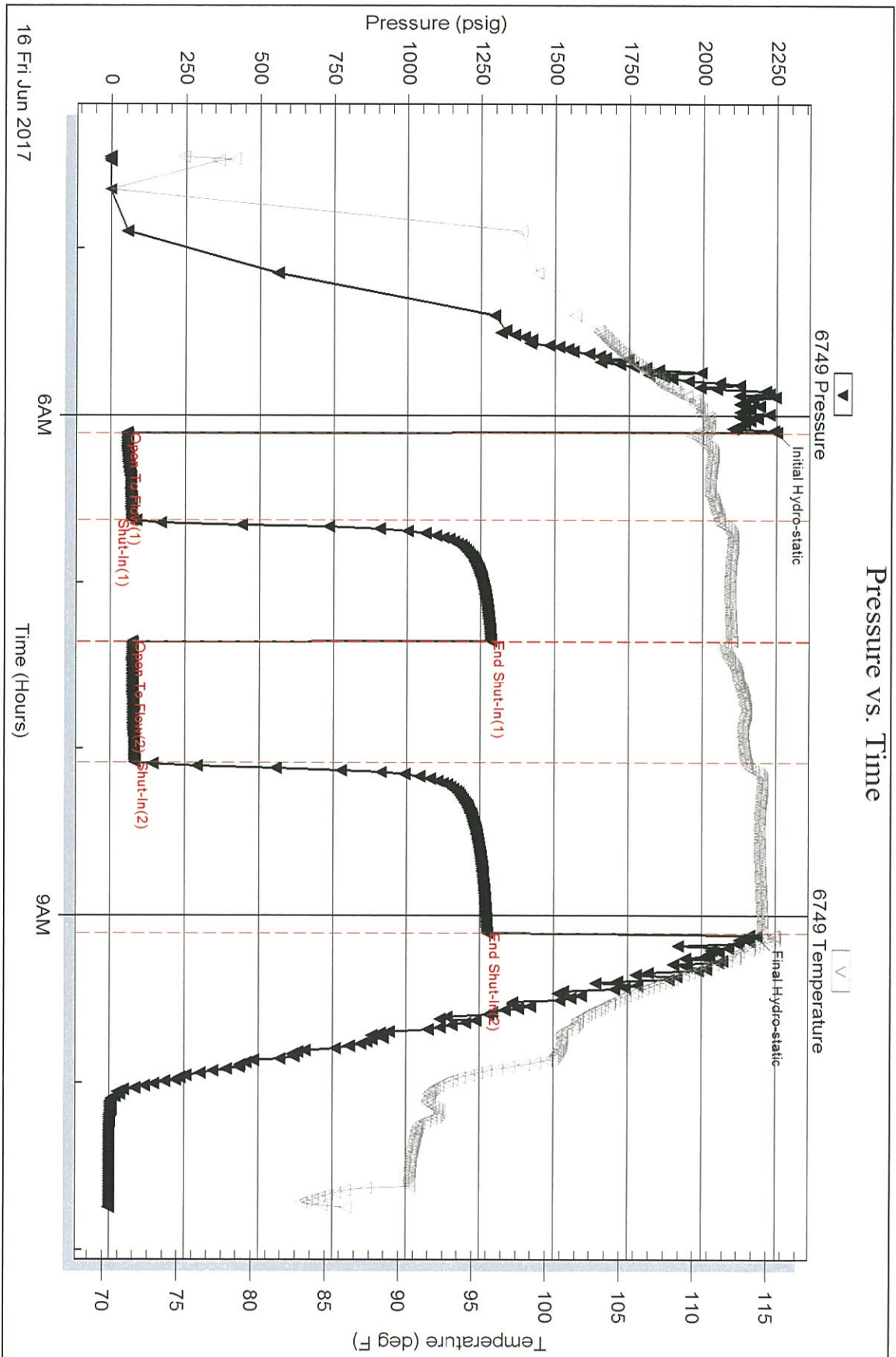
Num Gas Bombs: 0

Serial #:

Laboratory Name:

Laboratory Location:

Recovery Comments: AP= 31 @ 60



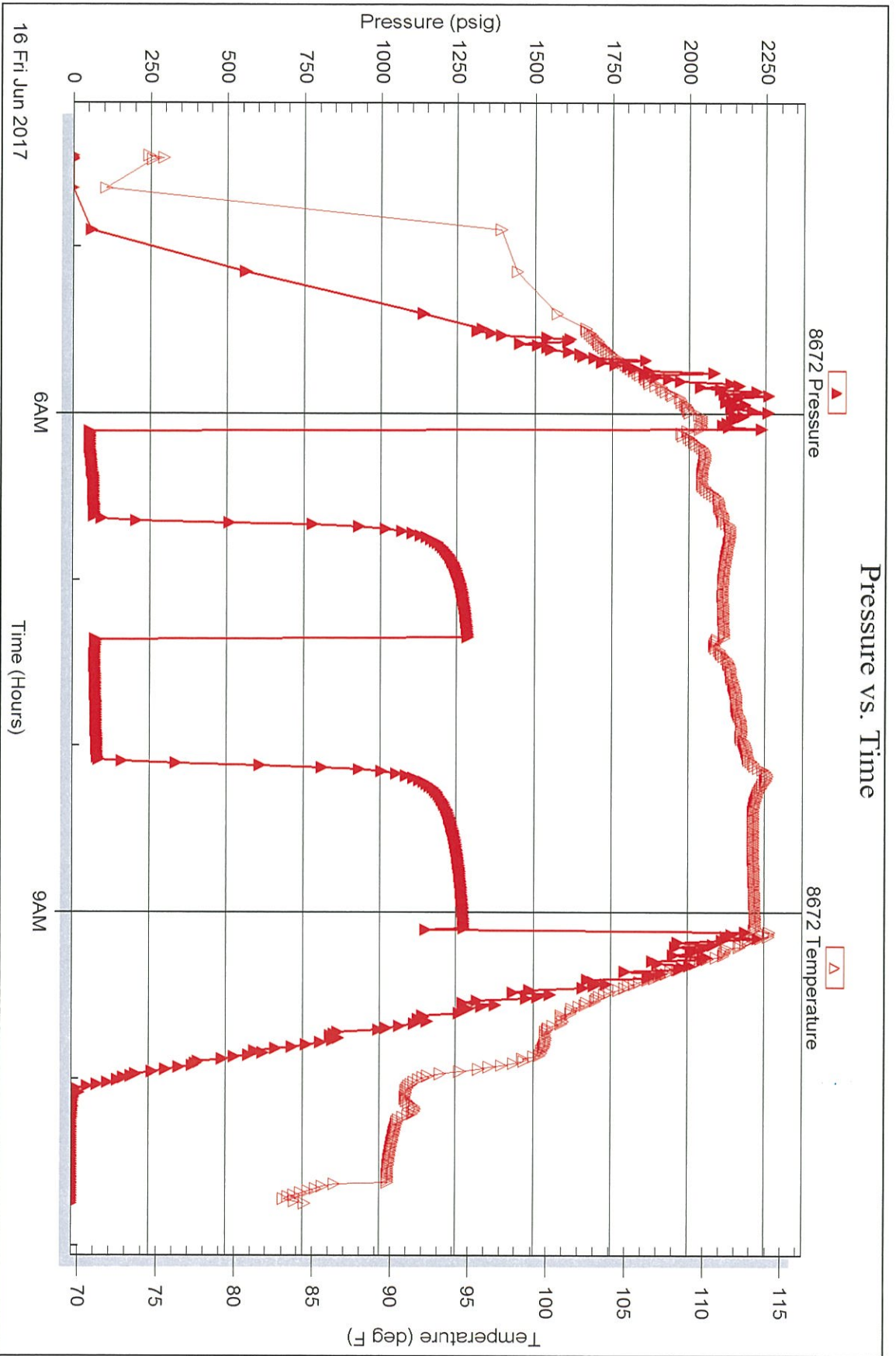
Serial #: 8672

Inside

Richie Exploration Inc.

Wing-Dvorachek #1

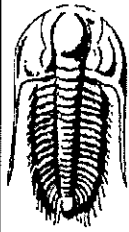
DST Test Number: 2



Trilobite Testing, Inc

Ref. No: 63743

Printed: 2017.06.16 @ 13:12:21



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Ritchie Exploration Inc.
8100 E. 22nd St. N #700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63744 DST#: 3
Test Start: 2017.06.16 @ 17:44:15

GENERAL INFORMATION:

Formation: **Altqmont "B"**
Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
Time Tool Opened: 19:23:15 Tester: Mike Roberts
Time Test Ended: 00:10:30 Unit No: 81

Interval: **4454.00 ft (KB) To 4478.00 ft (KB) (TVD)** Reference Elevations: 3293.00 ft (KB)
Total Depth: **4454.00 ft (KB) (TVD)** 3288.00 ft (CF)
Hole Diameter: **7.88 inches** Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 6749 Outside
Press@RunDepth: 71.34 psig @ 4455.00 ft (KB) Capacity: 8000.00 psig
Start Date: 2017.06.16 End Date: 2017.06.17 Last Calib.: 2017.06.17
Start Time: 17:44:15 End Time: 00:10:30 Time On Btm: 2017.06.16 @ 19:23:00
Time Off Btm: 2017.06.16 @ 22:24:30

TEST COMMENT: IF: Built to 1/4" blow
IS: No return blow
FF: Built to weak surface blow and died in 7 min.
FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2267.83	110.32	Initial Hydro-static
1	50.74	109.57	Open To Flow (1)
31	62.24	110.42	Shut-In(1)
76	1314.32	112.19	End Shut-In(1)
76	68.08	111.59	Open To Flow (2)
121	71.34	113.23	Shut-In(2)
181	1309.34	114.86	End Shut-In(2)
182	2191.51	115.32	Final Hydro-static

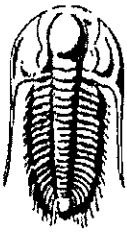
Recovery

Length (ft)	Description	Volume (bbl)
119.00	ocm 5%o 95%m (collars)	0.59
5.00	free oil 100 %o	0.07

* Recovery from multiple tests

Gas Rates

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



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ATTN: John Goldmith

26-15s-36w Logan Co KS

Wing-Dvorachek #1

Job Ticket: 63744

DST#: 3

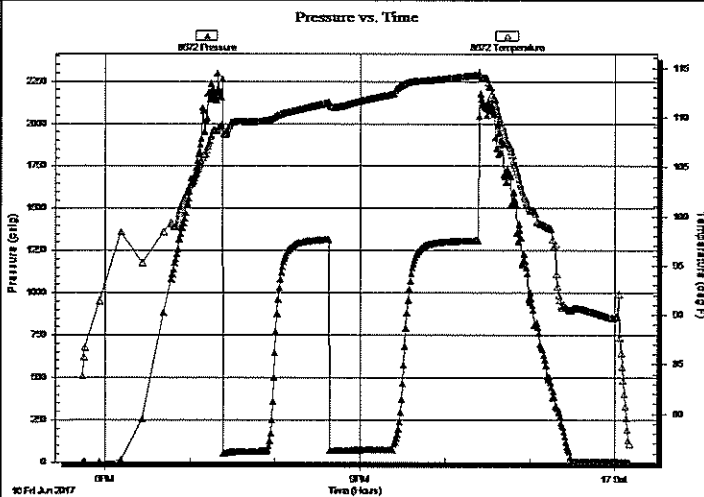
Test Start: 2017.06.16 @ 17:44:15

GENERAL INFORMATION:

Formation:	Altqm ont "B"	Test Type:	Conventional Bottom Hole (Reset)
Deviated:	No Whipstock:	ft (KB)	
Time Tool Opened:	19:23:15	Tester:	Mike Roberts
Time Test Ended:	00:10:30	Unit No:	81
Interval:	4454.00 ft (KB) To 4478.00 ft (KB) (TVD)	Reference Elevations:	3293.00 ft (KB)
Total Depth:	4454.00 ft (KB) (TVD)		3288.00 ft (CF)
Hole Diameter:	7.88 inches	Hole Condition:	Fair
		KB to GR/CF:	5.00 ft

Serial #: 8672	Inside		
Press@RunDepth:	psig @	4455.00 ft (KB)	Capacity:
Start Date:	2017.06.16	End Date:	2017.06.17
Start Time:	17:44:15	End Time:	00:10:30
		Time On Btm:	
		Time Off Btm:	
		Capacity:	8000.00 psig
		Last Calib.:	2017.06.17

TEST COMMENT: IF:Built to 1/4" blow
IS:No return blow
FF:Built to weak surface blow and died in 7 min.
FS:No return blow



PRESSURE SUMMARY

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

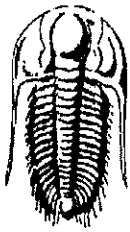
Recovery

Length (ft)	Description	Volume (bbl)
119.00	ocm 5%o 95%m (collars)	0.59
5.00	free oil 100 %o	0.07

* Recovery from multiple tests

Gas Rates

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



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FLUID SUMMARY

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8100 E. 22nd St. N#700
P.O. Box 783188
Wichita KS 67278
ATTN: John Goldmith

26-15s-36w Logan Co KS
Wing-Dvorachek #1
Job Ticket: 63744 **DST#: 3**
Test Start: 2017.06.16 @ 17:44:15

Mud and Cushion Information

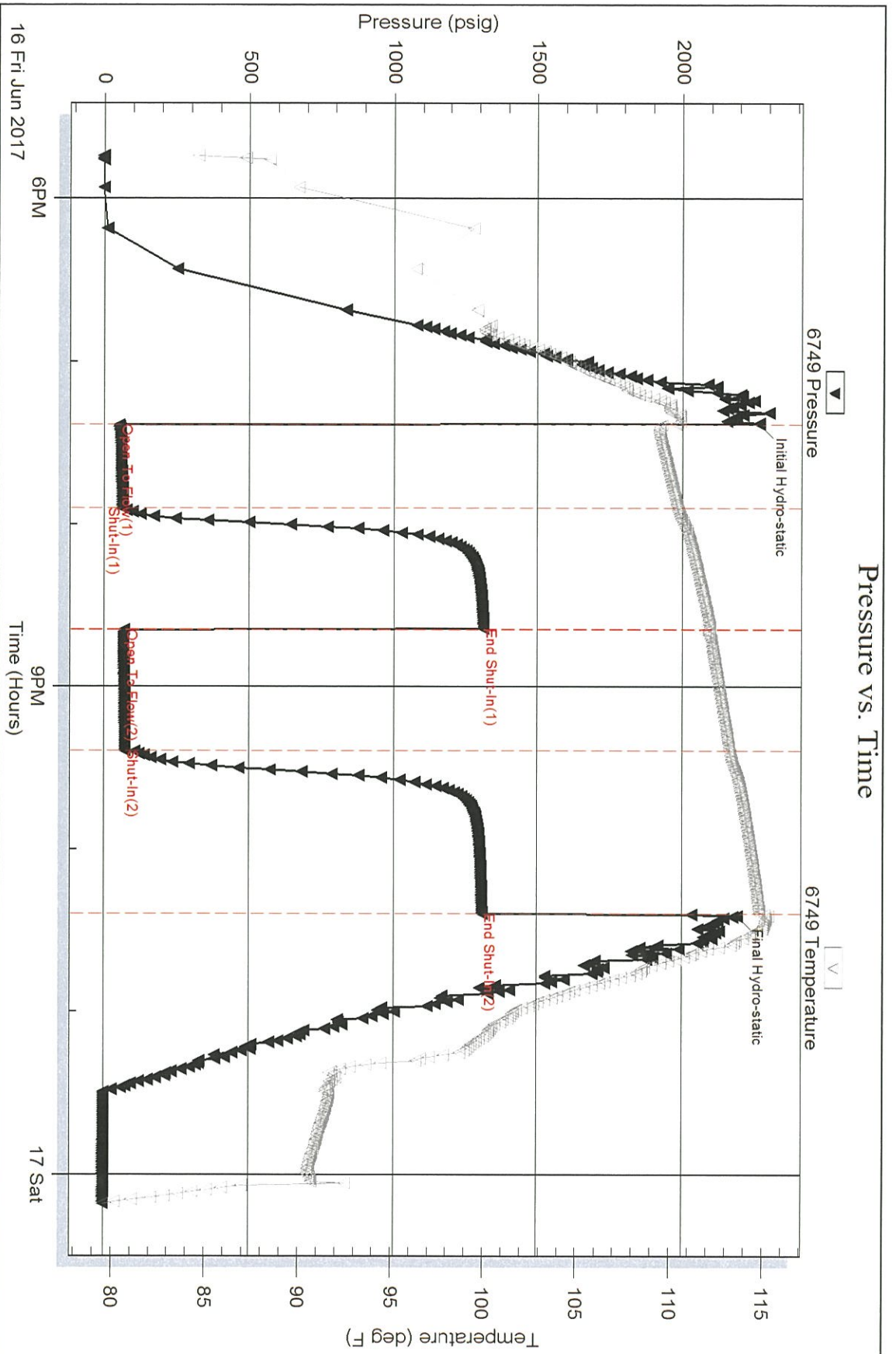
Mud Type: Gel Chem	Cushion Type:	Oil API:	29 deg API
Mud Weight: 9.00 lb/gal	Cushion Length: ft	Water Salinity:	0 ppm
Viscosity: 53.00 sec/qt	Cushion Volume: bbl		
Water Loss: 7.97 in ³	Gas Cushion Type:		
Resistivity: 0.00 ohm.m	Gas Cushion Pressure: psig		
Salinity: 6000.00 ppm			
Filter Cake: 1.00 inches			

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
119.00	ocm 5%o 95%m (collars)	0.585
5.00	free oil 100 %o	0.070

Total Length: 124.00 ft Total Volume: 0.655 bbl
 Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
 Laboratory Name: Laboratory Location:
 Recovery Comments: API= 29@60



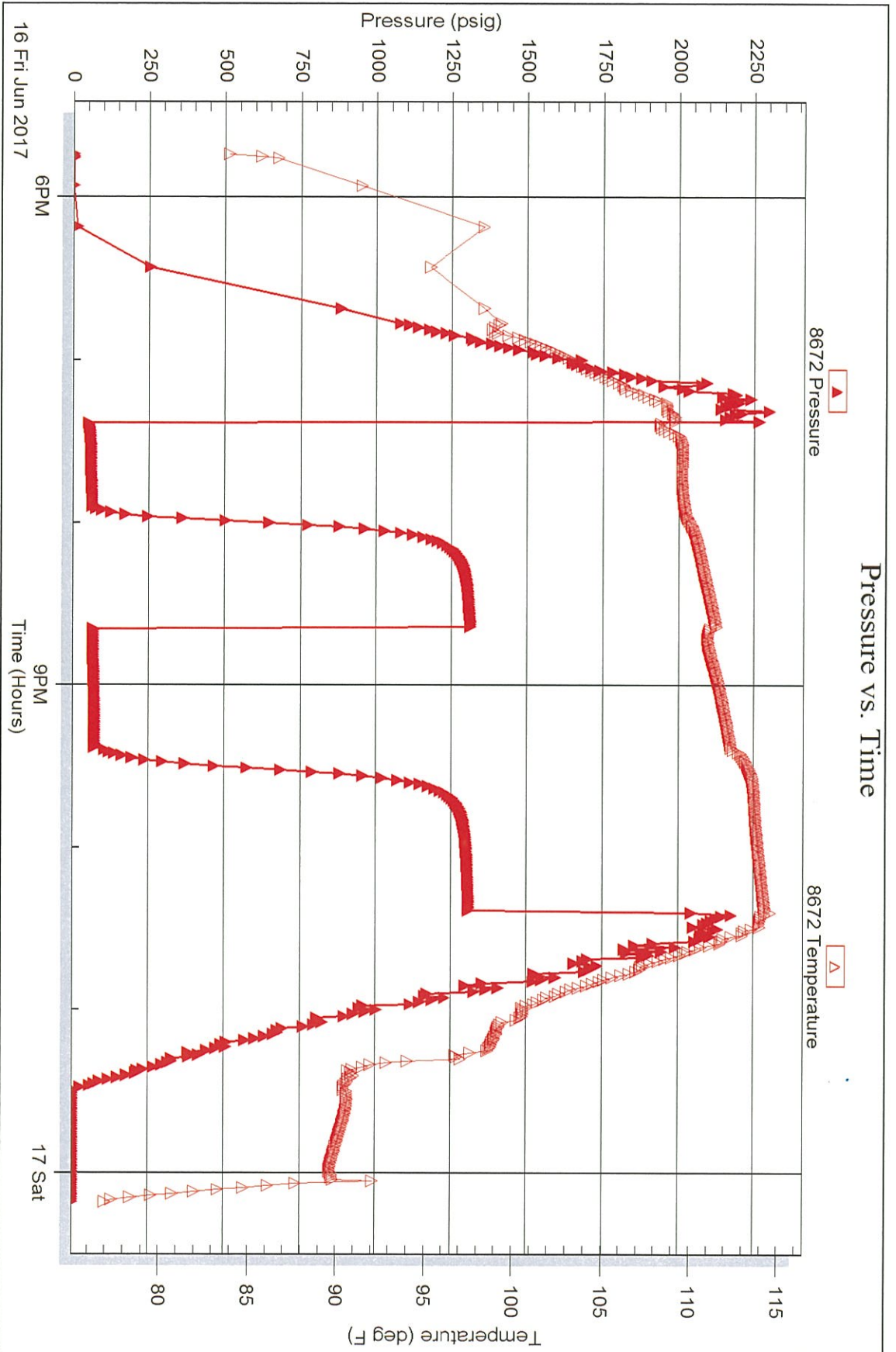
Serial #: 8672

Inside

Ritchie Exploration Inc.

Wing-Dvorachek #1

DST Test Number: 3



Triobite Testing, Inc

Ref. No: 63744

Printed: 2017.06.17 @ 06:44:27

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 Wing-Dvorachek
API: 15-109-21507
Location: 1595' FNL, 122' FWL, SECTION 26-15S-36W
License Number: #4767
Spud Date: 06/10/2017
Surface Coordinates: LAT: 38.7257853
LONG: -101.2981045
Bottom Hole Vertical hole
Coordinates: 1/4 Degree Deviation
Ground Elevation (ft): 3288'
Logged Interval (ft): 3700' To: RTD
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical

Region: Logan County
Drilling Completed: 6/18/17
K.B. Elevation (ft): 3293'
Total Depth (ft): 4900'

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. Bldg. #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 #10
Tool Pusher: Ricky Hilgers

Collar Tally: 480'

Pump: National K-380
Liner & Stroke: 6 x 14

BIT RECORDS

Size:	Type:	Footage:	Condition:	Hours:	Serial #:
12 1/4"	Sm-tooth	0-231'	RR	2.5'	RH 6605
7 7/8"	Sm-F27	231'-4900'	New	110.5	RJ 2927

COMMENTS

Surface Casing: 5 joints of 8 5/8" set at 231'
Production Casing: 4.5" production casing installed.
Mud by: MudCo
DST's by: Trilobite Testing
Logs by: Pioneer Energy Services (DIL, CN-CD, ML)
RTD=4900' LTD=4900'

FORMATION TOPS

FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Stotler	3632'	-339	3631'	-338
Heebner Shale	3992'	-699	3991'	-698
Toronto	4013'	-720	4011'	-718
Lansing	4042'	-749	4042'	-749
Muncie Creek Shale	4212'	-919	4211'	-918
Stark Shale	4298'	-1005	4297'	-1004
Hushpuckney Shale	4342'	-1049	4341'	-1048
Base of KC	4380'	-1087	4380'	-1087
Marmaton	4427'	-1134	4429'	-1136
Altamont	4436'	-1143	4436'	-1143
Pawnee	4512'	-1219	4511'	-1218
Myrick Station	4556'	-1263	4556'	-1263
Ft Scott	4569'	-1276	4569'	-1276
Cherokee Shale	4598'	-1305	4598'	-1305
Johnson Zone	4688'	-1395	4687'	-1394
Morrow	4740'	-1447	4740'	-1447
Mississippian	4823'	-1530	4823'	-1530
RTD	4900'	-1607		
LTD			4900'	-1607

DSTs

DST #1 "LKC K" 4296'-4344' 6-15-17 30-30-30-30
 1st Blw: Blw blt to BOB in 1 min (No BB)
 2nd Blw: Blw blt to BOB in 1 min (No BB)
 IFP: 262-974# ISIP: 1271# FFP: 979-1218# FSIP: 1275#
 Hyd: 2210-2183#
 Rec: 300' WCM (60% WTR), 2046' Wtr.

DST #2 "Altamont A" 4429'-4455' 6-16-17 30-45-45-60
 1st Blw: Blw blt to 1.5" in 30min (No BB)
 2nd Blw: Blw blt to 2" in 45min (No BB)
 IFP: 53-70# ISIP: 1284# FFP: 71-81# FSIP: 1273#
 Hyd: 2249-2187#
 Rec: 30' FO, 15' MCO (80% Oil), 119' OCM (10% Oil).

DST #3 "Altamont B" 4454'-4478' 6-16-17 30-45-45-60
 1st Blw: Blw blt to 1/4" in 30min (No BB)
 2nd Blw: Wk surf blow died in 7min (No BB)
 IFP: 50-62# ISIP: 1314# FFP: 68-71# FSIP: 1309#
 Hyd: 2267-2191#
 Rec: 5' FO, 119' OCM (5% Oil).

ROCK TYPES

 Anhy	 Dol	 Slst	 Gry sh
 Cht	 Lmst	 Ss	 Sandylms
 Congl	 Shale	 Carb sh	 Shaly ls

ACCESSORIES

EVENTS

- Circ
- Conn

FOSSIL

- Brach
- Crin
- Foram

- Fossil
- Gastro
- Oolite
- Plant
- Fuss
- Oolicast

MINERAL

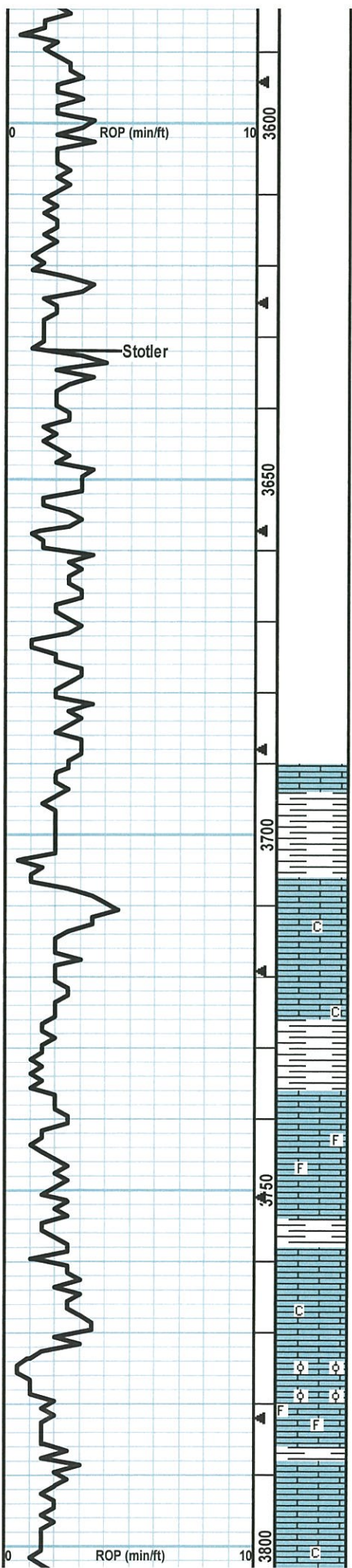
- Calc
- Chtdk
- Chltt
- Glau
- Hvymin
- Nodule
- Pyr

- Sil
- Sulphur

TEXTURE

- Chalky
- Crsxn
- Finexln
- Microxln

ROP ROP (min/ft)	Depth	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks
0	10					Survey @ 231' = 1 Degree
	<p>2550</p> <p>3500</p> <p>3550</p>				<p>Morning Activity/Report</p> <p>June 10, 2017: Spud @ 2:30 p.m.</p> <p>6/11/17: Drlg @ 740'</p> <p>6/12/17: Drlg @ 2830'</p> <p>6/13/17: Drlg @ 3650'</p> <p>6/14/17: CFS @ 4094'</p> <p>6/15/17: Running DST #1 @ 4344'</p> <p>6/16/17: Running DST #2 @ 4455' (DST #3 Later)</p> <p>6/17/17: Drlg @ 4530'</p> <p>6/18/17: Drlg @ 4795' (TD @ 4900')</p>	<p>Anhydride @ 2554' (+738)</p> <p>B/Anydride @ 2574' (+718)</p> <p>MudCo Check #2 @ 2974' 06/12/17 @ 10:20am Wt: 9.4 Vis: 32 pH: 7.0 Filt: n/c Chr: 71K LCM: 3#</p> <p>Displace the mud system @ 3453' (720bbbls)</p>
					<p>1' Drilling Time Recordred @ 3500'</p>	



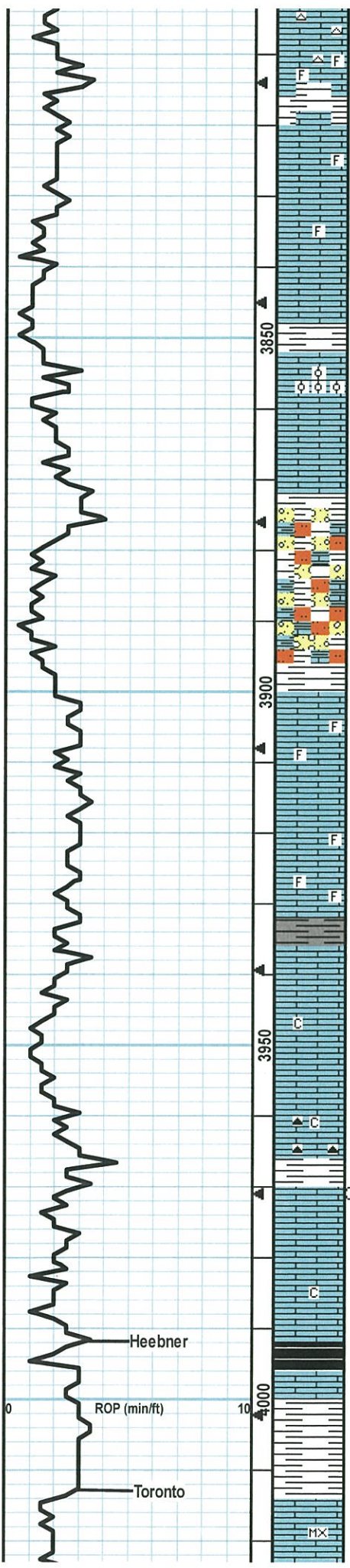
Starting catching 10' Samples beginning @ 3700' on 6/13/2017

- LS: gry/tan, slight mott, fn xln, fw foss frags, dense, firm, tr-nvp, no odr, ns.
- LS: gry/lt tan, slight mott, fn xln, sm dense, tr-nvp, no odr, ns.
- LS: lt tan/lt gry, mostly sing, fn xln, dense, tr-nvp, no odr, ns.
- LS: lt tan/lt gry, mostly sing, fn xln, sm dense, many brittle, tr-nvp, no odr, ns.
- LS: drk gry/lt gry, mott, fn xln, many foss, tr-nvp, sm SH: drk gry, silty, no odr, ns.
- LS: lt gry/lt tan, many sing, fn xln, sm brittle, fw SH: gry, silty, soft, no odr, ns.
- LS: lt tan, sing, fn xln, fw ool in prt, tr-nvp, sm dense, many brittle, no cup odr, ns.
- LS: lt tan, slight mott in prt, fn xln, fw foss frags, brittle, sm pr infoss por, no cup odr, ns.

Stotler @ 3632' (-339)

MudCo Check #3 @ 3712'
 06/13/17 @ 9:50am
 Wt: 8.8 Vis: 62
 pH: 11.5 Filt: 6.4
 Chlr: 3.3K LCM: 1#

LS: lt tan/lt tan, sing, fn xln, sm dense, brittle



sub-chlky, tr-nvp, fw SH: gry, silty, no odr, ns.

LS: lt tan, fw lt gry, sing, fn xln, fw foss frags, brittle, chlky, tr-nvp, fw Chert: wht, foss, sharp, no odr, ns.

LS: gry, mott, fn xln, fw flakey, fw foss, tr-nvp, fw pcs w/ drk gils dead stns, no movmnt, no fluor, no odr.

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

LS: lt tan, sing, fn xln, sm v ool, brittle, v chlky, tr-pr intool por in fw, abund pur chl, no odr, ns.

LS: lt tan, sing, fn xln, mostly dense, sm chlky, tr-nvp, fw pcs pur chl, no odr, ns.

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

LS: lt gry/lt tan, sm foss, many brittle, sub-chlky, tr-nvp, fw SH: gry, silty, soft, no odr, ns.

LS: gry/tan, slight mott, fn xln, foss in prt, fw brittle, tr-nvp, sm SH: gry/brn, silty, no odr, ns.

LS: lt tan, mostly sing, fn xln, sub-chlky, brittle, tr-nvp, no cup odr, ns.

LS: lt tan/lt gry, mostly sing, fn xln, fw foss frags, brittle, sub-chlky, tr-pr ppt por, no odr, ns.

LS: gry/lt tan, mostly sing, fn xln, fw foss frags, sm brittle, tr-nvp, no odr, ns.

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

LS: lt tan, sing, fn xln, many dense, many brittle, sub-chlky, fw pcs pr ppt intxn por, fw Chert: lt tan, foss, sharp, no odr, ns.

LS: gry/tan, fn xln, many dense, sm brittle, sub-chlky in prt, tr-nvp, sm SH: gry/brn, silty, no odr, ns.

LS: tan/lt gry, sing, fn xln, mostly dense, sm brittle, sub-chlky, tr-nvp, svrl SH: blk/drk gry, silty, soft, carb, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, fw foss frags, firm, tr-nvp, 2-3 pcs w/ lght brn spttd stns, no fluor/cut, nsfo, no cup odr, svrl SH: gry/brn.

LS: gry/tan, slight mott, fn xln, dense, sub-chlky in prt, tr-nvp, svrl SH: gry/brn, silty, no odr, ns.

LS: crm/lt tan, micro-fn xln, mostly dense, brittle, sm chlky, tr-nvp, fw pcs pur chl, no cup odr, ns.

**Short Trip 35
Stands @ 3971'**

CFS @ 3971'
(20"/45")

Heeber @ 3992' (-699)

Toronto @ 4013' (-720)

CFS @ 4033'
(30"/60")

Lansing @ 4042' (-752)

CFS @ 4060'
(30"/60")

MudCo Check #4 @ 4094'
06/14/17 @ 8:00am
Wt: 9.0 Vis: 55
pH: 11.0 Filt: 7.2
Chlr: 3.8K LCM: 1#

CFS @ 4094'
(30"/60")

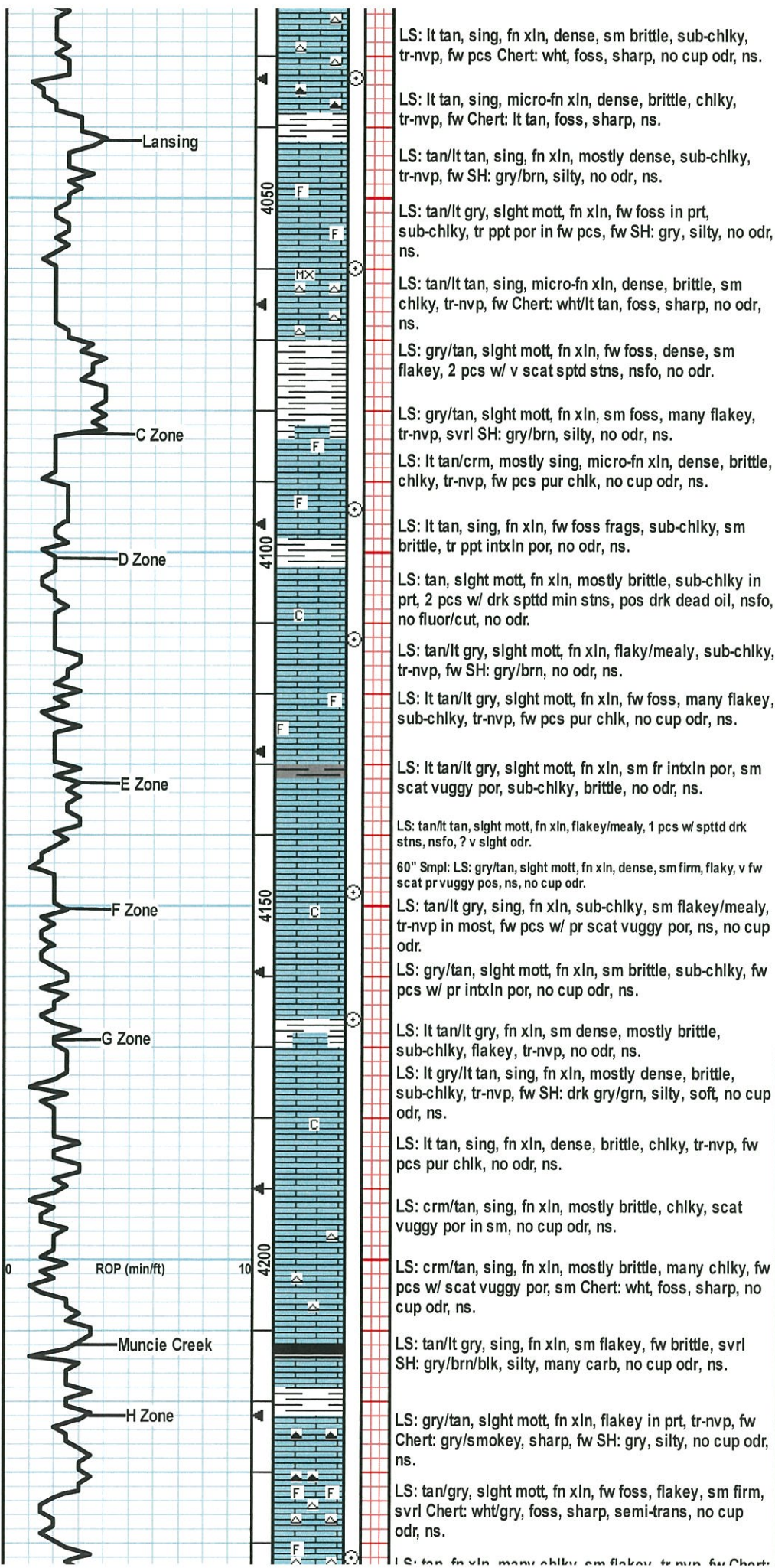
CFS @ 4112'
(30"/60")

CFS @ 4148'
(30"/60")

CFS @ 4166'
(30"/60")

Muncie Creek @ 4212' (-920)

CFS @ 4242'
(30"/60")



LS: It tan, sing, fn xln, dense, sm brittle, sub-chlky, tr-nvp, fw pcs Chert: wht, foss, sharp, no cup odr, ns.

LS: It tan, sing, micro-fn xln, dense, brittle, chlky, tr-nvp, fw Chert: It tan, foss, sharp, ns.

LS: tan/lt tan, sing, fn xln, mostly dense, sub-chlky, tr-nvp, fw SH: gry/brn, silty, no odr, ns.

LS: tan/lt gry, slight mott, fn xln, fw foss in prt, sub-chlky, tr ppt por in fw pcs, fw SH: gry, silty, no odr, ns.

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

LS: gry/tan, slight mott, fn xln, fw foss, dense, sm flakey, 2 pcs w/ v scat sptd stns, nsfo, no odr.

LS: gry/tan, slight mott, fn xln, sm foss, many flakey, tr-nvp, svrl SH: gry/brn, silty, no odr, ns.

LS: It tan/crm, mostly sing, micro-fn xln, dense, brittle, chlky, tr-nvp, fw pcs pur chl, no cup odr, ns.

LS: It tan, sing, fn xln, fw foss frags, sub-chlky, sm brittle, tr ppt intxn por, no odr, ns.

LS: tan, slight mott, fn xln, mostly brittle, sub-chlky in prt, 2 pcs w/ drk spttd min stns, pos drk dead oil, nsfo, no fluor/cut, no odr.

LS: tan/lt gry, slight mott, fn xln, flakey/mealy, sub-chlky, tr-nvp, fw SH: gry/brn, no odr, ns.

LS: It tan/lt gry, slight mott, fn xln, fw foss, many flakey, sub-chlky, tr-nvp, fw pcs pur chl, no cup odr, ns.

LS: It tan/lt gry, slight mott, fn xln, sm fr intxn por, sm scat vuggy por, sub-chlky, brittle, no odr, ns.

LS: tan/lt tan, slight mott, fn xln, flakey/mealy, 1 pcs w/ spttd drk stns, nsfo, ? v slight odr.

60" Smpl: LS: gry/tan, slight mott, fn xln, dense, sm firm, flakey, v fw scat pr vuggy pos, ns, no cup odr.

LS: tan/lt gry, sing, fn xln, sub-chlky, sm flakey/mealy, tr-nvp in most, fw pcs w/ pr scat vuggy por, ns, no cup odr.

LS: gry/tan, slight mott, fn xln, sm brittle, sub-chlky, fw pcs w/ pr intxn por, no cup odr, ns.

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

LS: It gry/lt tan, sing, fn xln, mostly dense, brittle, sub-chlky, tr-nvp, fw SH: drk gry/grn, silty, soft, no cup odr, ns.

LS: It tan, sing, fn xln, dense, brittle, chlky, tr-nvp, fw pcs pur chl, no odr, ns.

LS: crm/tan, sing, fn xln, mostly brittle, chlky, scat vuggy por in sm, no cup odr, ns.

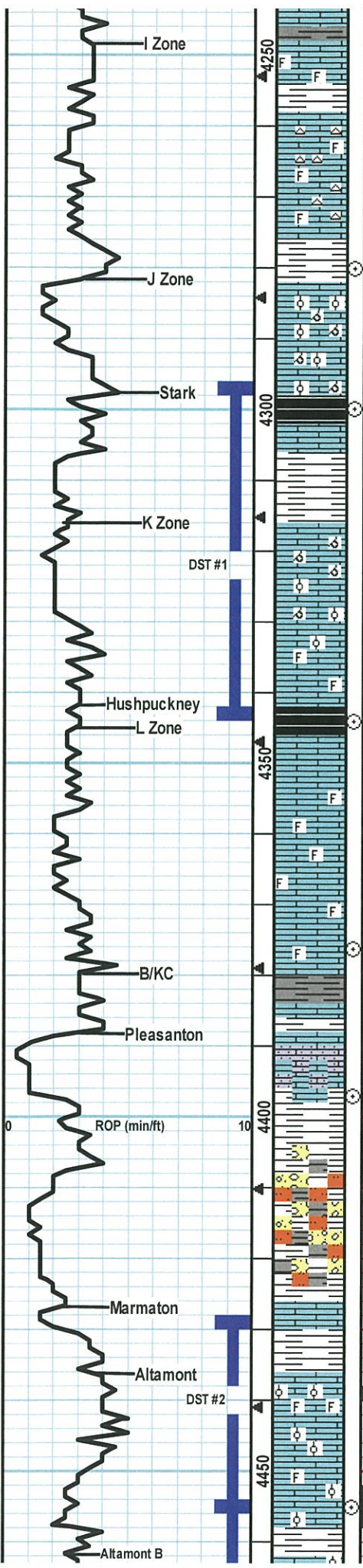
LS: crm/tan, sing, fn xln, mostly brittle, many chlky, fw pcs w/ scat vuggy por, sm Chert: wht, foss, sharp, no cup odr, ns.

LS: tan/lt gry, sing, fn xln, sm flakey, fw brittle, svrl SH: gry/brn/blk, silty, many carb, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, flakey in prt, tr-nvp, fw Chert: gry/smokey, sharp, fw SH: gry, silty, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, fw foss, flakey, sm firm, svrl Chert: wht/gry, foss, sharp, semi-trans, no cup odr, ns.

LS: tan, sing, fn xln, mostly brittle, sub-chlky, tr-nvp, fw Chert: wht, foss, sharp, no cup odr, ns.



wh, sharp, frac por on edg, v sml min stns, vssfo, no cup odr.

LS: gry/tan, slight mott, fn xln, many flakey, tr-pr intxn por in fw, svrl Chert: wht, foss, sharp, svrl SH: gry, silty, soft, no cup odr, ns.

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

LS: tan/gry, slight mott, fn xln, sm dense, many flakey, sub-chlky, tr-nvp, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, many dense, sm flakey, tr-nvp, fw pcs Chert: wht, foss, sharp, no odr, ns.

LS: crm/lt tan, sing, fn xln, sm v ool, many brittle, tr-pr intool por in v fw, no cup odr, ns.

LS: crm/lt tan, slight mott, fn xln, sm v ool, mostly brittle, sm gd oolcast por, fw intool por, no cup odr, ns.

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

SH: gry/brn, silty, soft, sm blk and carb, no cup odr, ns.

LS: gry/tan, fn xln, dense, hard, tr-nvp, 1 pcs w/ lght brn patchy stn, wk-? fluor, nsfo, no cup odr.

LS: tan/lt brn, slight mott, fn xln, mostly dense, sm scat vuggy por, oolcast, drk hvy stns in por in 4 pcs, dul yel fluor, strm cut, no cup odr.

LS: tan/gry, mott in prt, fn xln, sm foss, many ool, brittle, chlky in prt, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, foss in prt, sm ool, chlky, tr-nvp, fw SH: gry, silty, soft, no cup odr, ns.

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

LS: gry/lt tan, slight mott, fn xln, fw foss frags, sub-chlky, many flakey/mealy, tr-nvp, svrl SH: gry/brn, silty, soft, no cup odr, ns.

LS: gry, slight mott, fn xln, many foss, many brittle, sub-chlky, tr-nvp, fw SH: gry, silty, soft, no odr, ns.

LS: gry/tan, slight mott, fn xln, foss, many firm, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: gry, mott, fn xln, mostly foss, flakey, sub-chlky, sm brittle, tr-nvp, sm SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, many foss, sm brittle, sub-chlky, tr-nvp, no cup odr, ns.

LS: tan/lt gry, mott, fn xln, grainy, sandy, lrg sub-ang xls, slw acid react, gd intxn por no cup odr, no show.

LS: gry/tan, mott, fn xln, foss in prt, many flakey, sm grainy/sandy nod, fr-gd intxn por, svrl SH: gry/brn, silty, soft, no odr, ns.

LS: gry/tan, slight mott, fn xln, firm, tr-nvp, abund SH: gry/brn/grn, silty, soft, fw StStn: drk gry, v soft, gritty, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, foss w/ crin/brach, sub-chlky, sm brittle, tr-nvp, fw pcs pur chlk, no odr, ns.

LS: tan/gry, slight mott, fn xln, sm firm, tr-nvp, fw SH: gry, silty, soft, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, foss in prt, fw ool, sm brittle, sm fr intxn/intfoss por, 7 pcs w/ spttd brn stns, min gas bubs on break, wk cup odr.

LS: tan/lt gry, mott, fn xln, sm foss, fw v ool, fr intool/intfoss, fr cup odr, fr sfo in svrl pcs/try, dul yel fluor, strm cut.

LS: tan, fn xln, sm v ool, fr-gd intool por, svrl pcs w/ drk hvy stns in por, sml sphr oil clng to rx chp, fr sfo on brk, wk cup odr, gd fluor/cut.

CFS @ 4280'
(30"/60")

MudCo Check #5 @ 4314'
06/15/17 @ 8:00am
Wt: 9.2 Vis: 54
pH: 10.5 Filt: 7.2
Chlr: 5.0K LCM: 1#

Stark @ 4298' (-1005)

CFS @ 4300'
(30"/60")

DST #1 "LKC K" 4296'-4344'
6-15-17 30-30-30-30
1st Blw: Blw blt to BOB in 1 min (No BB)
2nd Blw: Blw blt to BOB in 1 min (No BB)
IFP: 262-974# ISIP: 1271# FFP:
979-1218# FSIP: 1275#
Hyd: 2210-2183#
Rec: 300' WCM (60% WTR), 2046' Wtr.

CFS @ 4344'
(30"/60")

Hushpuckney @ 4342' (-1049)

Survey @ 4344' = 1 Degree

CFS @ 4376'
(30"/60")

Base of KC @ 4380' (-1087)

CFS @ 4397'
(30"/60")

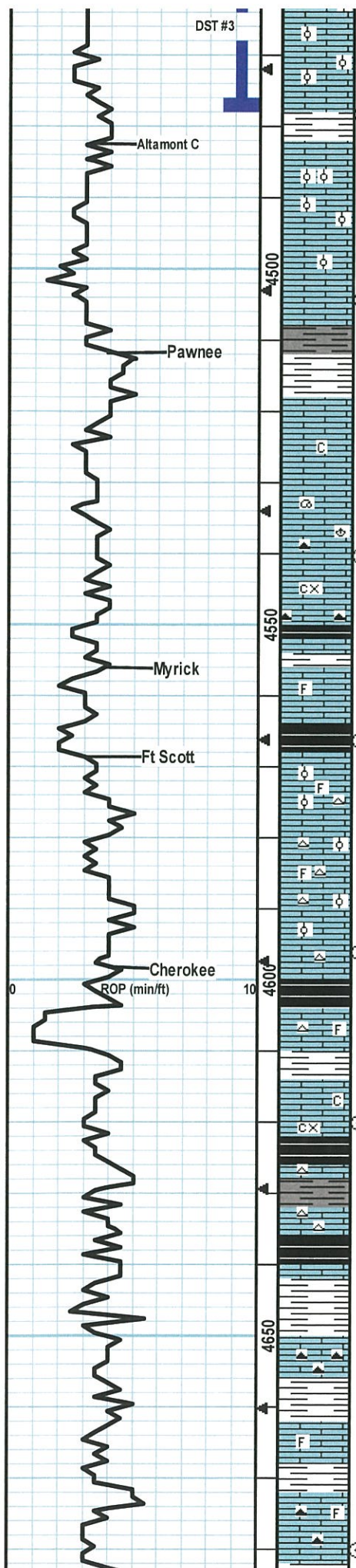
DST #2 "Altamont A"
4429'-4455' 6-16-17
30-45-45-60
1st Blw: Blw blt to 1.5" in 30min (No BB)
2nd Blw: Blw blt to 2" in 45min (No BB)
IFP: 53-70# ISIP: 1284# FFP:
71-81# FSIP: 1273#
Hyd: 2249-2187#
Rec: 30' FO, 15' MCO (80% Oil), 119' OCM (10% Oil).

Marmaton @ 4427' (-1134)

Altamont @ 4436' (-1143)

CFS @ 4455'
(30"/60")

MudCo Check #6 @ 4455'
06/16/17 @ 9:15am
Wt: 9.2 Vis: 53
pH: 10.0 Filt: 8.0
Chlr: 6.0K LCM: 1#



flakey, no cup odr, ns.

LS: lt tan, slight mott, fn xln, sm ool, many dense, sm brittle, sub-chlky in prt, 1 pcs w/ pos lght bm stns, ? fluor, no cut, nsfo, no cup odr.

LS: gry/tan, slight mott, fn xln, many dense, sm brittle, v fw pcs w/ patchy bm stns, nsfo, no cup odr, svrl SH: drk gry/blu, silty.

LS: lt tan/lt gry, slight mott, fn xln, many foss/ool, mostly dense, many firm-hrd, tr-nvp, svrl SH: gry/brn, silty, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, sm ool, dense, sm firm, fw brittle, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: tan/lt tan, slight mott, fn xln, sm ool, mostly dense, sm firm, fw brittle, sub-chlky in v fw, tr-nvp, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, fw ool, dense, sm flakey/mealy, sub-chlky, tr-nvp, svrl SH: drk gry/grn/brn, silty, no cup odr, ns.

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

LS: gry/tan, sing, fn xln, mostly dense, many firm, sub-chlky, fw flakey, tr-nvp, no cup odr, no sho.

LS: gry, mott, fn xln, foss w/ gast/brach, flakey, sub-chlky, sm firm, tr-nvp, no cup odr, ns.

LS: gry/drk tan, mott, fn-crs xln, foss, dense, flakey, hard, tr-nvp, fw Chert: gry, foss, sharp, no cup odr, ns.

SH: blk/drk gry, silty, soft, many carb, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, fw foss, sm dense, many brittle, sub-chlky, tr-nvp, fw pcs SH: gry, silty, no odr, ns.

SH: blk/drk gry, silty, soft, mostly carb, no odr, ns.

LS: gry/lt brn, mott, fn xln, foss/ool, many dense/firm, tr-nvp, fw Chert: wht/gry, foss/ool, sharp, no cup odr, ns.

LS: gry/tan, mott, fn xln, sm foss/ool, mostly dense, sm firm, fw sub-chlky, tr-nvp, sm Chert: gry/smokey, foss, sharp, no cup odr, ns.

LS: drk tan/gry, mott, fn xln, sm ool, tr-nvp, fw pcs w/ drk mins stns, no fluor/cut, nsfo, fw Chert: gry/wht, foss, sharp, no odr, ns.

SH: blk/drk gry, silty, soft, many carb, fw LS: lght brn/gry, mott, fn xln, foss, dense, hard, tr-nvp, fw Chert: gry, foss, sharp, no cup odr, ns.

LS: lt tan/gry, slight mott, fn xln, sm ool, fw flakey, many v chlky, dense, and v brittle, gritty like, tr-nvp, no cup odr, ns.

LS: gry/tan, mostly sing, fn xln, sub-chlky, sm brittle, prntxln por in sm, sm SH: drk gry, silty, no cup odr, ns.

LS: gry/lt brn, mott, fn-crs xln, dense, firm, flakey, tr-pr intxln por, abund SH: blk/gry, silty, sm soft, sm carb, no cup odr, ns.

LS: gry/lt brn, slight mott, fn xln, many dense, fw flakey, mostly hard, tr-nvp, fw Chert: wht/gry, foss, sharp, sm SH: gry/blk, silty, no odr, ns.

LS: gry/lt brn, slight mott, fn xln, many dense, mostly hard, fw grainy, tr-nvp, fw SH: gry/brn, silty, no odr, ns.

LS: gry/lt brn, slight mott, fn xln, fw foss, dense, firm, tr-nvp, fw Chert: lt brn, foss, sharp, svrl SH: gry/brn, silty, soft, no cup odr, ns.

LS: gry/lt brn, slight mott, fn xln, v fw foss frags, dense, sm flakey, mostly hard, tr-nvp, fw SH: gry/brn, silty, no odr, ns.

LS: gry/tan, slight mott, fn xln, fw foss, dense, firm, sm flakey/mealy, tr-nvp, fw Chert: gry, smokey, foss, sharp, no odr, ns.

DST #3 "Altamont B"
4454'-4478' 6-16-17
30-45-45-60
1st Blw: Blw bit to 1/4" in 30min (No BB)
2nd Blw: Wk surf blow died in 7min (No BB)
IFP: 50-62# ISIP: 1314# FFP: 68-71# FSIP: 1309#
Hyd: 2267-2191#
Rec: 5' FO, 119' OCM (5% Oil).

CFS @ 4478' (30"/60")

CFS @ 4504' (30"/60")

Pawnee @ 4512' (-1219)

MudCo Check #7 @ 4535'
06/17/17 @ 7:30am
Wt: 9.2 Vis: 58
pH: 9.0 Filt: 11.2
Chlr: 9.0K LCM: 2#

CFS @ 4540' (30"/60")

Myrick @ 4556' (-1263)

CFS @ 4566' (30"/60")

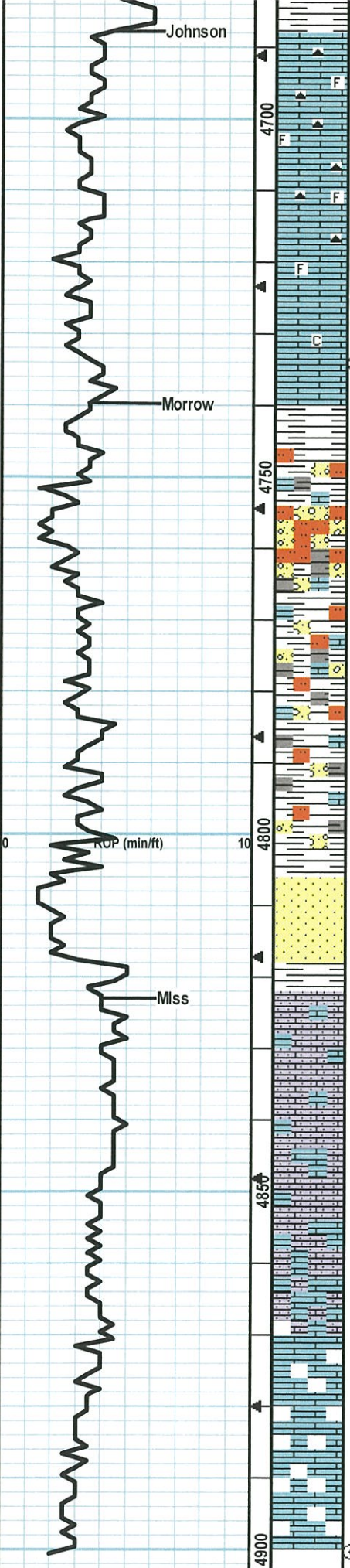
Ft Scott @ 4569' (-1276)

CFS @ 4596' (30"/60")

Cherokee @ 4598' (-1305)

CFS @ 4620' (30"/60")

CFS @ 4680' (30"/60")



SH: gry/brn, silty, soft, fw LS: lt brn, micro-fn xln, dense, sm v hard, tr-nvp, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, fw foss, sm dense, many brittle, fw flakey, tr-nvp, no cup odr, ns.

LS: tan/gry, slight mott, fn xln, sm foss, mostly firm, many flakey/mealy, tr-nvp, fw Chert: lt brn/gry, smokey, foss, sharp, no cup odr, ns.

LS: tan/lt gry, slight mott, fn xln, fw foss, mostly dense, sm flakey, sub-chlky in prt, tr-nvp, fw Chert: brn, foss, sharp, no cup odr, ns.

LS: gry/lt tan, slight mott, fn xln, fw foss frags, many dense, sm flakey, sub-chlky, tr-nvp, fw Chert: gry, foss, sharp, no odr, ns.

LS: gry/lt tan, slight mott, fn xln, dense, sm flakey, sub-chlky, tr-nvp, fw SH: gry/drk gry, silty, soft, no cup odr, ns.

LS: gry/tan, slight mott, fn xln, dense, mostly firm, tr-nvp, svrl SH: gry/brn, silty, sm v soft, no cup odr, ns.

SH: gry/drk brn, silty, med crush, fw SltStn: lght gry, gritty, soft, fw LS: gry, fn xln, dense, tr-nvp, no cup odr, ns.

SH: gry/blu/grn/brn, sm withrd, med crush, fw Slt/SndStn: fn grn, dirty, friable tr-nvp, no odr, ns.

SH: gry/blu/brn, silty, soft, fw friable, sm SltStn: gry/brn, gritty, v soft, no cup odr, ns.

Much of the Same as above, sm LS: gry/tan, fn xln, dense, sm flakey, sub-chlky, tr-nvp, no cup odr, ns.

SH: gry/brn/blu/grn, silty, soft, fw SltStn: gry/brn, gritty, v soft, fw LS: gry/tan, slight mott, fn xln, sm dense, sub-chlky, fw flakey/mealy, tr-nvp, no cup odr, ns.

Abund SH: gry/brn, silty, fw LS: gry/lt brn, flakey, tr-nvp, fw SS: crm/wht, slight arg, sub-ang, sm firm, fw glauc, tr-pr intgrn por, no cup odr, ns.

SS: gry/blu, sub rnd in prt, sil cem, soft, v arg, tr-pr intgrn por, abund SH: gry/brn, silty, no cup odr, ns.

LS: crm/lt tan, fn xln, sandy/gritty, firm, tr-nvp, still larg infx of SH in smple, Most likely slough from Morrow.

LS: crm/lt tan, sandy/gritty, sm chlky, tr-nvp, sm firm, tr-nvp, no cup odr, ns.

LS: crm/lt tan, sandy/gritty, chlky, mostly brittle, tr-nvp, abund SH: gry/brn, silty, sm withrd, no cup odr, ns.

LS: crm/lt tan, sm sandy/gritty, chlky, brittle, fw dense, firm, tr-nvp, abund SH: gry/brn, silty, no odr, ns.

LS: crm/lt tan, sm sandy/gritty, chlky, brittle, fw dense, firm, flakey, no por, nsfo, no cup odr.

Lrg infx of SH: gry/brn, silty, soft, mostly likely slough from above, fw LS: tan/gry, fn xln, dense, fw flakey, tr-nvp, no cup odr, ns.

Almost straight Shale, 1-2 pcs of LS per smple tray.

Johnson @ 4688' (-1395)

CFS @ 4734'
(30"/60")

Morrow @ 4740 (-1447)

MudCo Check #8 @ 4786'
06/18/17 @ 6:40am
Wt: 9.3 Vis: 57
pH: 10.0 Filt: 8.8
Chlr: 8.8K LCM: 2#

Mississippi @ 4823' (-1530)

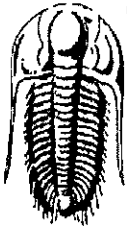
Large influx of Shale. Most likely uphole slough.

CFS @ 4900'

RTD: 4900' (-1607)
LTD: 4900' (-1607)

(30"/60")

Survey @ 4900' = 1/4 Degree



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Ritchie Exploration Inc.
 8100 E 22nd St. N#700
 P.O. Box 783188
 Wichita KS 67278
 ATTN: John Goldmith

26-15s-36w Logan Co KS

Wing-Dvorachek #1

Job Ticket: 63742 DST#: 1

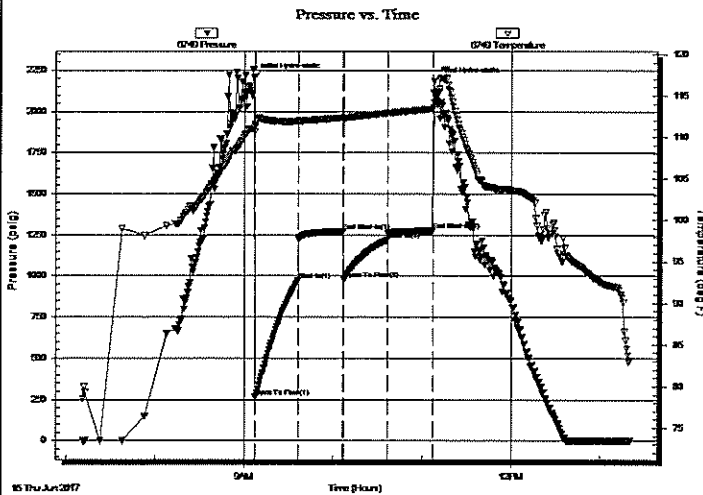
Test Start: 2017.06.15 @ 07:11:23

GENERAL INFORMATION:

Formation: K
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 09:07:08
 Time Test Ended: 13:20:23
 Interval: 4296.00 ft (KB) To 4344.00 ft (KB) (TVD)
 Total Depth: 4344.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Fair
 Test Type: Conventional Bottom Hole (Initial)
 Tester: Mike Roberts
 Unit No: 81
 Reference Elevations: 3293.00 ft (KB)
 3288.00 ft (CF)
 KB to GR/CF: 5.00 ft

Serial #: 6749 Outside
 Press@RunDepth: 1218.21 psig @ 4339.00 ft (KB)
 Start Date: 2017.06.15 End Date: 2017.06.15 Capacity: 8000.00 psig
 Start Time: 07:11:23 End Time: 13:20:23 Last Calib.: 2017.06.15
 Time On Btm: 2017.06.15 @ 09:06:53
 Time Off Btm: 2017.06.15 @ 11:07:53

TEST COMMENT: IF: BOB in 1 min.
 IS: No return blow
 FF: BOB in 1 min.
 FS: No return blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2210.52	111.15	Initial Hydro-static
1	262.82	110.61	Open To Flow (1)
30	974.93	111.87	Shut-In(1)
60	1271.80	112.34	End Shut-In(1)
61	979.13	112.26	Open To Flow (2)
90	1218.21	112.87	Shut-In(2)
121	1275.30	113.39	End Shut-In(2)
121	2183.57	114.24	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
310.00	w cm 40%w 60%m	3.26
2046.00	sw 100% sw	28.70

Gas Rates

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