KOLAR Document ID: 1315204

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 # 4767
Name: Ritchie Exploration, Inc.
Address 1: 8100 E 22ND ST N # 700
Address 2: BOX 783188
City: WICHITA State: KS Zip: 67278 + 3188
Contact Person: Peter Fiorini
Phone: (316) 691-9500
CONTRACTOR: License # 33575
Name: WW Drilling, LLC
Wellsite Geologist: John Goldsmith
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 #:

05/20/2016 Spud Date or Recompletion Date
05/30/2016 Date Reached TD
05/30/2016 Completion Date or Recompletion Date

API No.: 15-203-20307-00-00
Spot Description: 100'N & 50'E of
__ - W2 - SE - NW Sec. 5 Twp. 16 S. R. 36 ☐ East ☑ West
1880 Feet from ☑ North / ☐ South Line of Section
1700 Feet from ☐ East / ☑ West Line of Section
Footages Calculated from Nearest Outside Section Corner:
☐ NE ☑ NW ☐ SE ☐ SW
GPS Location: Lat: *(e.g. xx.xxxxx)* , Long: *(e.g. -xxx.xxxxx)*
Datum: ☐ NAD27 ☐ NAD83 ☐ WGS84
County: Wichita
Lease Name: MILLER TRUST Well #: 1
Field Name:
Producing Formation: None
Elevation: Ground: 3306 Kelly Bushing: 3311
Total Vertical Depth: 4950 Plug Back Total Depth:
Amount of Surface Pipe Set and Cemented at: 211 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: 27000 ppm Fluid volume: 850 bbls
Dewatering method used: Evaporated
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: 08/25/2016
☑ **Confidential Release Date:** 08/25/2018
☑ **Wireline Log Received** ☐ **Drill Stem Tests Received**
☑ **Geologist Report / Mud Logs Received**
☐ **UIC Distribution**
ALT ☐ I ☑ II ☐ III **Approved by:** Karen Ritter **Date:** 08/26/2016

Operator Name: Ritchie Exploration, Inc. Lease Name: MILLER TRUST Well #: 1

Sec. 5 Twp. 16 S. R. 36 ☐ East ☑ West County: Wichita

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 *(Attach Additional Sheets)*	☑ Yes	☐ No	
Samples Sent to Geological Survey	☑ Yes	☐ No	
Cores Taken	☐ Yes	☑ No	
Electric Log Run	☑ Yes	☐ No	
Geologist Report / Mud Logs	☐ Yes	☐ No	

List All E. Logs Run:

Dual Comp Porosity Log
Dual Induction Log

☐ Log Formation (Top), Depth and Datum ☑ Sample

Name	Top	Datum
See Attached		

CASING RECORD ☑ New ☐ 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
Surface	12.25	8.63	24	211	Common	165	3% cc, 2% gel

ADDITIONAL CEMENTING / SQUEEZE RECORD

Purpose:	Depth Top Bottom	Type of Cement	# Sacks Used	Type and Percent Additives
☐ Perforate ☐ Protect Casing ☐ Plug Back TD ☐ 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: ☐ Flowing ☐ Pumping ☐ Gas Lift ☐ Other *(Explain)*

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

DISPOSITION OF GAS:	METHOD OF COMPLETION:	PRODUCTION INTERVAL:
☐ Vented ☐ Sold ☐ Used on Lease *(If vented, Submit ACO-18.)*	☐ Open Hole ☐ Perf. ☐ Dually Comp. *(Submit ACO-5)* ☐ Commingled *(Submit ACO-4)*	Top / Bottom

Shots Per Foot	Perforation Top	Perforation Bottom	Bridge Plug Type	Bridge Plug Set At	Acid, Fracture, Shot, Cementing Squeeze Record *(Amount and Kind of Material Used)*

TUBING RECORD: Size: Set At: Packer At:

Mail to: KCC - Conservation Division, 266 N. Main, Suite 220, Wichita, Kansas 67202

Form	ACO1 - Well Completion
Operator	Ritchie Exploration, Inc.
Well Name	MILLER TRUST 1
Doc ID	1315204

Casing

Purpose Of String	Size Hole Drilled	Size Casing Set	Weight	Setting Depth	Type Of Cement	Number of Sacks Used	Type and Percent Additives
Surface	12.25	8.63	24	211	Common	165	3% cc, 2% gel

RITCHIE
EXPLORATION, INC.
Wichita, Kansas

#1 Miller Trust
1880' FNL & 1700' FWL
100' N & 50' E of W/2 SE/4 NW/4 Section 5-16S-36W
Wichita County, Kansas
Dirks South Prospect
API# 15-203-20307-0000
Elevation: GL: 3306', KB: 3311'

Sample Tops			Ref. Well
Anhydrite	2558'	+753	Flat
B/Anhydrite	2576'	+735	+7
Heebner	3995'	-684	+12
Toronto	4020'	-709	+12
Lansing	4052'	-741	+12
Muncie Shale	4220'	-909	+11
Stark Shale	4308'	-997	+12
Hush	4357'	-1046	+6
BKC	4406'	-1095	+2
Marmaton	4446'	-1135	Flat
Altamont	4457'	-1146	+6
Pawnee	4532'	-1221	+3
Myrick	4574'	-1263	+7
Fort Scott	4588'	-1277	+7
Cherokee Shale	4620'	-1309	+6
Johnson	4706'	-1395	+7
Mississippian	4871'	-1560	-3
RTD	4950'	-1639	

P.O. Box 783188
Wichita, Kansas 67278-3188

(316) 691-9500
Fax (316) 691-9550
rei@ritchie-exp.com

8100 E. 22nd St. N., Bldg. 700
Wichita, Kansas 67226-2328

ALLIED OFS, LLC

066884

REMIT TO: P.O. Box 205803
Dallas, Texas 75320-5803

SERVICE POINT: Oakley

DATE 5-20-14	SEC. 5	TWP. 16	RANGE 36	CALLED OUT	ON LOCATION 7:00 pm	JOB START 8:00 pm	JOB FINISH 8:30 pm
LEASE Miller Trust	WELL # 1		LOCATION Leoti 14N 2E 1/2N			COUNTY Wichita	STATE KS
OLD OR NEW (Circle one)			Into				

CONTRACTOR WTW 2
TYPE OF JOB Surface
HOLE SIZE 12¼ T.D. 211'
CASING SIZE 8 5/8 DEPTH 209'
TUBING SIZE DEPTH
DRILL PIPE DEPTH
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG. 15'
PERFS.
DISPLACEMENT 12.35

OWNER Same

CEMENT

AMOUNT ORDERED 165 sks com 3%cc 2%gel

EQUIPMENT

PUMP TRUCK # 431 CEMENTER Andrew Forslund
HELPER Wayne McGaghy
BULK TRUCK # 410 DRIVER Cory Brown
BULK TRUCK # DRIVER

COMMON	165 sks	@ 17.90	2953.50
POZMIX		@	
GEL	3 lb	@ 1.50	155.00
CHLORIDE	4 lb	@ 1.10	511.50
ASC		@	
		@	
		@	
		@	
		@	
		@	
		@	
		@	
		TOTAL	3,620.00
		DISCOUNT 48%	1,737.60

REMARKS:

Cement Did Circulate
approx 1 BBL to pit

Thank You

SERVICE

HANDLING	172.42 cu/ft	@ 2.48	427.48
MILEAGE	2.25 Ton/mile	8.14 mi	123.17
DEPTH OF JOB	209'		
PUMP TRUCK CHARGE			1572.25
EXTRA FOOTAGE		@	
HV MILEAGE	55 miles	@ 7.70	423.50
LV MILEAGE	55 miles	@ 4.40	242.00
		@	
		@	
		TOTAL	3,851.40
		DISCOUNT 48%	1848.67

CHARGE TO: Ritchie Exploration
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

	@	
	@	
	@	
	@	
	@	
	TOTAL	
	DISCOUNT %	

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME
SIGNATURE

SALES TAX (If Any)
TOTAL CHARGES 7,471.40
DISCOUNT 3,586.27 (48%) IF PAID IN 30 DAYS
NET TOTAL 3,885.12 IF PAID IN 30 DAYS

ALLIED OFS, LLC

066976

P.O. BOX 205803
Dallas. TX 75320-5803

SERVICE POINT: OAKLEY

DATE	SEC.	TWP.	RANGE	CALLED OUT	ON LOCATION	JOB START	JOB FINISH
5-30-2016	5	16S	36W		9:15 PM	1:00 PM	1:00 AM
LEASE MILLER TRUST	WELL # 1		LOCATION Leoti 14N 2E-½S-E ZNTO			COUNTY Wichita	STATE KS
OLD OR (NEW) (Circle one)							

CONTRACTOR WW DRLG Rig #2
TYPE OF JOB PTA
HOLE SIZE 7⅞ T.D. 4950'
CASING SIZE DEPTH
TUBING SIZE DEPTH
DRILL PIPE 4½ DEPTH 2600'
TOOL DEPTH
PRES. MAX MINIMUM
MEAS. LINE SHOE JOINT
CEMENT LEFT IN CSG.
PERFS.
DISPLACEMENT

OWNER SAME

EQUIPMENT

PUMP TRUCK # 431 CEMENTER TERRY HEINRICH
HELPER WAYNE McGLOTHY
BULK TRUCK # 891-287 DRIVER CORY BROWN
BULK TRUCK # DRIVER

CEMENT

AMOUNT ORDERED 270 SKS 60/40 POZ 4% GEL ¼# FLO-SEAL

COMMON	@		
POZMIX	@		
GEL	@		
CHLORIDE	@		
ASC	@		
270 SK 60/40 4% GEL	@	18.92	5108.40
Flo-Seal 68#	@	2.97	201.96
	@		
	@		
	@		
	@		
TOTAL			5,310.36
DISCOUNT 48%			2,548.97

REMARKS:

50 SKS AT 2600'
80 SKS AT 1650'
50 SKS AT 825'
40 SKS AT 250'
20 SKS AT 60'
30 SKS RAT HOLE

THANK YOU

SERVICE

HANDLING 290 cu FT	@	2.48	719.20
MILEAGE 25 X 55 X 12.11 TONS			1831.64
DEPTH OF JOB 2600'			2483.52
PUMP TRUCK CHARGE			
EXTRA FOOTAGE	@		
HV MILEAGE 55 mi	@	7.70	423.50
LV MILEAGE 55 mi.	@	4.40	242.00
	@		
	@		
TOTAL			5,699.93
DISCOUNT 48%			2,735.96

CHARGE TO: Ritchie Exploration, Inc.
STREET
CITY STATE ZIP

PLUG & FLOAT EQUIPMENT

	@		
	@		
	@		
	@		
	@		
TOTAL			
DISCOUNT ___%			

To: Allied Oil & Gas Services, LLC.
You are hereby requested to rent cementing equipment and furnish cementer and helper(s) to assist owner or contractor to do work as is listed. The above work was done to satisfaction and supervision of owner agent or contractor. I have read and understand the "GENERAL TERMS AND CONDITIONS" listed on the reverse side.

PRINTED NAME
SIGNATURE

SALES TAX (If Any)
TOTAL CHARGES 11,010.29
DISCOUNT 5,284.93 (48%) IF PAID IN 30 DAYS
NET TOTAL 5,725.35 IF PAID IN 30 DAYS

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 Miller Trust
Location:	1880' FNL, 1700' FWL, SECTION 5-16S-36W, W/2 SE NW
License Number:	API: 15-203-20307
Region:	Wichita County
Spud Date:	05/20/2016
Drilling Completed:	05/30/2016
Surface Coordinates:	LAT 38.6960196 LONG -101.3250673
Bottom Hole Coordinates:	Vertical hole 1/2 Degree Deviation
Ground Elevation (ft):	3306'
K.B. Elevation (ft):	3311'
Logged Interval (ft):	3700' To: RTD
Total Depth (ft):	4950'
Formation:	Mississippian at RTD
Type of Drilling Fluid:	Chemical

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

COMMENTS

Contractor: WW Drilling Rig #2
Pusher: Lonnie Lang
Surface Casing: 5 joints of 8 5/8" set at 211'
Production Casing: No production casing installed, well was plugged.
Mud by: MudCo
DST's by: Trilobite Testing
Logs by: Pioneer Energy Services (DIL, CN-CD)
RTD=4950'
LTD=4949'

FORMATION TOPS

FORMATION	SAMPLE TOPS Depth	Datum	LOG TOPS Depth	Datum
Heebner Shale	3898'	-687	3898'	-687
Toronto	4020'	-709	4018'	-707
Lansing	4052'	-741	4052'	-741
Muncie Creek Shale	4229'	-918	4228'	-917
Stark Shale	4323'	-1012	4322'	-1011
Hushpuckney Shale	4367'	-1056	4367'	-1056
Base of KC	4410'	-1099	4408'	-1097
Marmaton	4448'	-1137	4447'	-1136
Altamont	4457'	-1146	4456'	-1145
Pawnee	4548'	-1237	4546'	-1235
Myrick Station	4592'	-1281	4592'	-1281
Ft Scott	4607'	-1296	4607'	-1296
Cherokee Shale	4636'	-1325	4635'	-1324
Johnson	4722'	-1411	4722'	-1411
Morrow	4778'	-1467	4779'	-1468
Mississippian	4871'	-1560	4871'	-1560
RTD	4950'	-1639		
LTD			4949'	-1638

DSTs

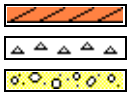
DST #1 4044'-4072' "Lansing A" 5/24/16 30-45-45-60
1st Blw: 1/4" blw blt to BOB in 29min (No BB)
2nd Blw: Surf blw blt to BOB in 35min (No BB)
IFP: 19-93# ISIP: 1108# FFP: 98-166# FSIP: 1074# HYD: 1970-1935#
Rec: 155' WCMw/OS (20%WTR), 186' MCW (90%WTR).

DST #2 4076'-4100' "Lansing C" 5/25/16 30-45-45-60
1st Blw: 1/4" blw blt to 4" in 30min (No BB)
2nd Blw: Surf blw blt to 5" in 45min (No BB)
IFP: 15-60# ISIP: 1158# FFP: 62-89# FSIP: 1141# HYD: 1940-1983#
Rec: 1' FO, 50' WCMw/OS (10%WTR), 118' MCWw/OS (70%WTR).

DST #3 4133'-4178' "Lansing E/F" 5/26/16 30-45-45-60
1st Blw: 1/4" blw blt to 5" in 30min (No BB)
2nd Blw: Surf blw blt to 7" in 45min (No BB)
IFP: 19-57# ISIP: 1190# FFP: 62-87# FSIP: 1186# HYD: 2027-2004#
Rec: 50' GO(90%O), 60' GOCM(40%O), 60' OCM(20%O), 30'GIP.

DST #4 4415'-4524' "Altamont" 5/28/16 30-45-45-60
1st Blw: 1/4" blw blt to BOB in 6.5min (Surf BB dead in 10min)
2nd Blw: 1/4" blw blt to BOB in 7min (No BB)
IFP: 40-228# ISIP: 1297# FFP: 239-452# FSIP: 1293# HYD: 2339-2231#
Rec: 282' WM(50%WTR), 693' MCW(95%WTR).

ROCK TYPES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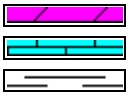
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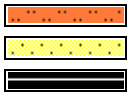
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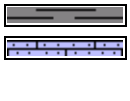
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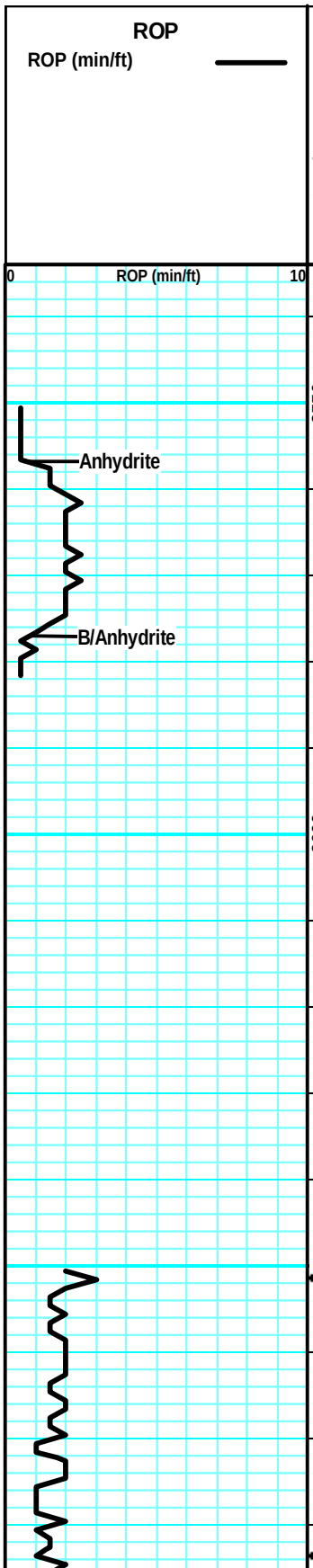
ACCESSORIES

EVENTS
- Circ
- Conn

FOSSIL
- Brach
- Bryozoa
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Plant
- Fuss
- Oomold

MINERAL
- Calc
- Chtdk
- Chtlt
- Glau
- Pyr
- Sil

TEXTURE
- Chalky
- Crsxln
- Finexln
- Microxln



Depth | Lithology | CFS Point | Oil Shows

Geological Descriptions

Morning Report Depth/Activity

5/20/2016: Spud 4:00 p.m.
5/21/16: Drlg, 211'
5/22/16: drlg, 2136'
5/23/16: drlg, 3264'
5/24/16: drlg, 3870' (DST #1)
5/25/16: testing, 4072' (DST #2)
5/26/16: testing, 4178' (DST #3)
5/27/16: circ, 4340'
5/28/16: testing, 4524' (DST #4)
5/29/16: drlg, 4680'
5/30/16: drlg, 4930' (TD @ 4950')

Remarks

Survey @ 211' = 1/4 Degree

Anhydrite @ 2557' (+754)

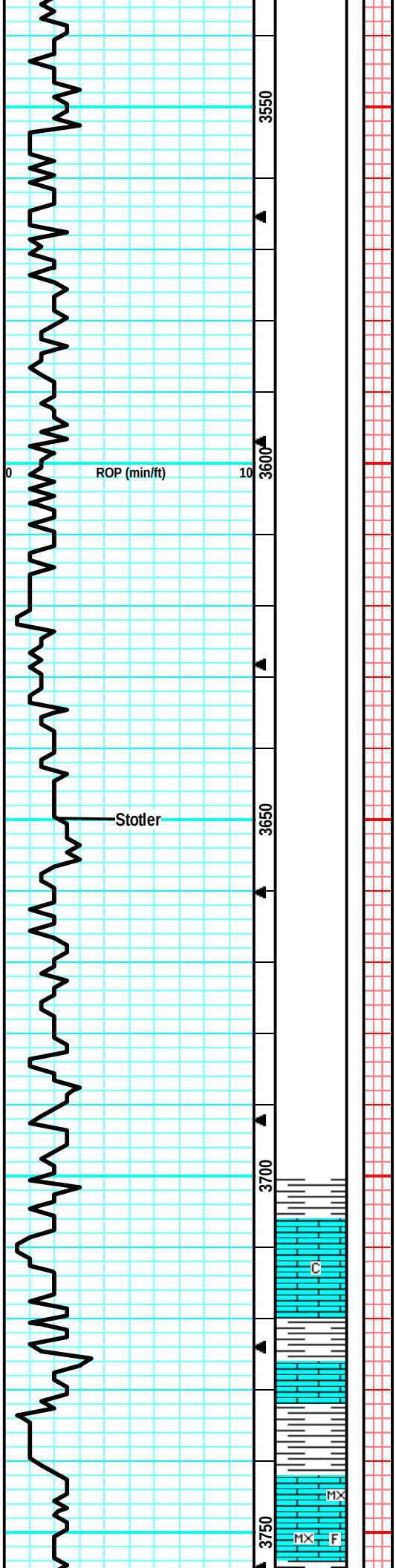
B/Anhydrite @ 2577' (+734)

Mud-Co Check #2
@ 2417' 5/22/16

wt	vis	pH
9.5	32	7.0
Filt	chlr	LCM
n/c	62K	1#

Mud-Co Check #3
@ 3433' 5/23/16

wt	vis	pH
8.5	63	11.5
Filt	chlr	LCM
8.8	4.0K	2#



Stotler @ 3646' (-335)

LS: gry/lt tan, mott in prt, fn xln, sm foss, many grny/sandy, tr-nvp, fw SH: gry, silty, no cup odr, ns.

LS: lt gry/lt tan, slght mott, fn xln, fw sandy/grny, fw brittle, tr-nvp, sm SH: gry, silty, fissile, no cup odr, ns.

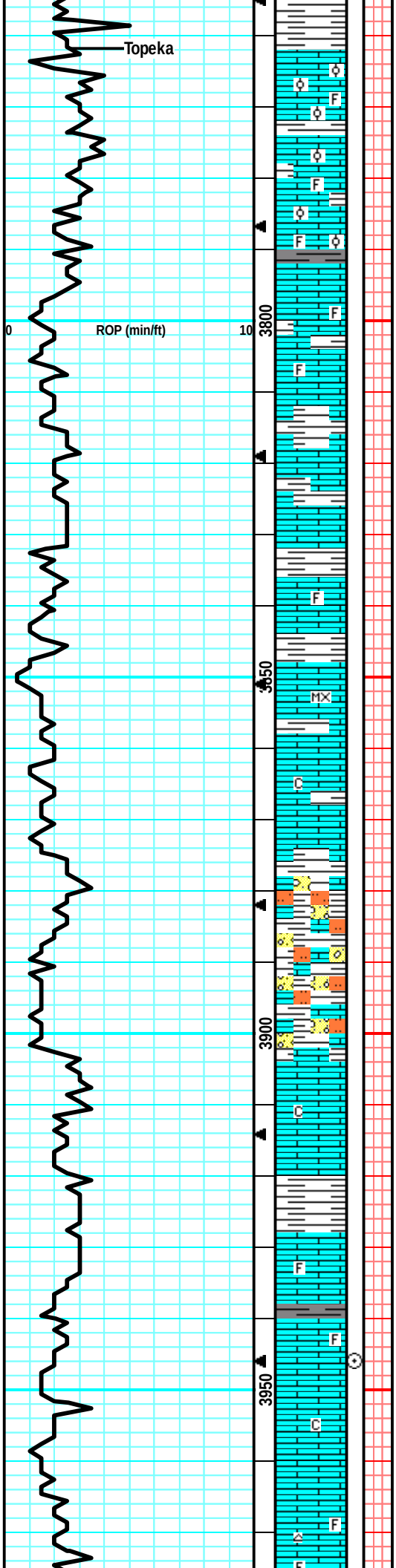
LS: lt tan/lt gry, slght mott in prt, fn xln, sm dense, sm brittle, fw sub-chlky, tr-nvp, fw SH: gry, fissile, no cup odr, ns.

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

LS: lt gry/crm, mostly sing, micro-fn xln, mostly dense, sm brittle, fw sub-chlky in prt, tr-nvp, no cup odr, ns.

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

LS: gry/lt tan, mott in prt, fn xln, sm foss in prt, sm



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

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

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

LS: lt gry/crm, slght mott in prt, fn xln, sm foss, fw ool, many brittle, fw sub-chlky in prt, tr-nvp, no cup odr, ns.

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

LS: gry/tan, slght mott in prt, fn xln, fw foss in prt, mostly brittle, sm sandy/gritty, tr-nvp, sm SH: drk gry/brn, silty, fissile, no cup odr, ns.

No Samples: Mud pump broke down, limited returns.

LS: tan/lt gry, slght mott, fn xln, v fw foss frags, sm brittle, sm dense, sub-chlky in fw, tr-nvp, svrl SH: gry/grn, silty, sm waxy, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, sm brittle, fw dense, sub-chlky in prt, tr-nvp, svrl SH: gry/blu, silty, sm soft, no cup odr, ns.

LS: tan, mostly sing, micro-fn xln, mostly brittle, sm dense, tr-pr ppt intxln por in fw, fw SH: gry, silty, fissile, no cup odr, ns.

LS: tan, mostly sing, fn xln, mostly brittle, sm dense, sub-chlky in prt, tr-pr ppt intxln por in sm, fw SH: gry, silty, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, many brittle, sm dense, chlky, tr-pr ppt intxln por, abund pur chlk, fw SH: drk gry, silty, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, sandy/gritty, brittle, tr-nvp, abund chlky, fw SltStn: gry, friable, brittle, svrl SH: gry/brn, silty, sm soft, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, brittle, sandy/gritty, tr-nvp, fw SltStn: gry, friable, brittle, svrl SH: gry/brn, silty, soft, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, sm brittle, svrl flakey/mealy, tr-nvp, svrl SH: gry/brn, silty, fw pcs pur chlk, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, sm brittle, sm flakey, tr-nvp, fw drk mins stns, no fluor/cut, abund SH: gry/brn, silty, soft, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, sm brittle, sm flakey/mealy, tr-nvp, abund SH: gry/brn, silty, no cup odr, ns.

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

LS: gry/lt tan, slght mott, fn xln, fw foss frags, mostly brittle, fw dense, tr-nvp, v fw SH: gry, silty, no clup odr, ns.

LS: gry/tan, mostly sing, fn xln, many dense, sm brittle, sub-chlky in fw, tr-nvp, abund pur chlk, svrl pcs SH: gry/brn, silty, soft, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, sm gritty like, sm brittle, fw sub-chlky, tr-pr ppt intxln por in sm, v fw SH: gry, silty, soft, no cup odr, ns.

LS: lt gry/lt tan, mostly sing, fn xln, v fw foss frags, mostly dense, sm brittle, tr-nvp, fw Chert: wht/opq, foss, sharp, no cup odr, ns.

Topeka @ 3762' (-451)

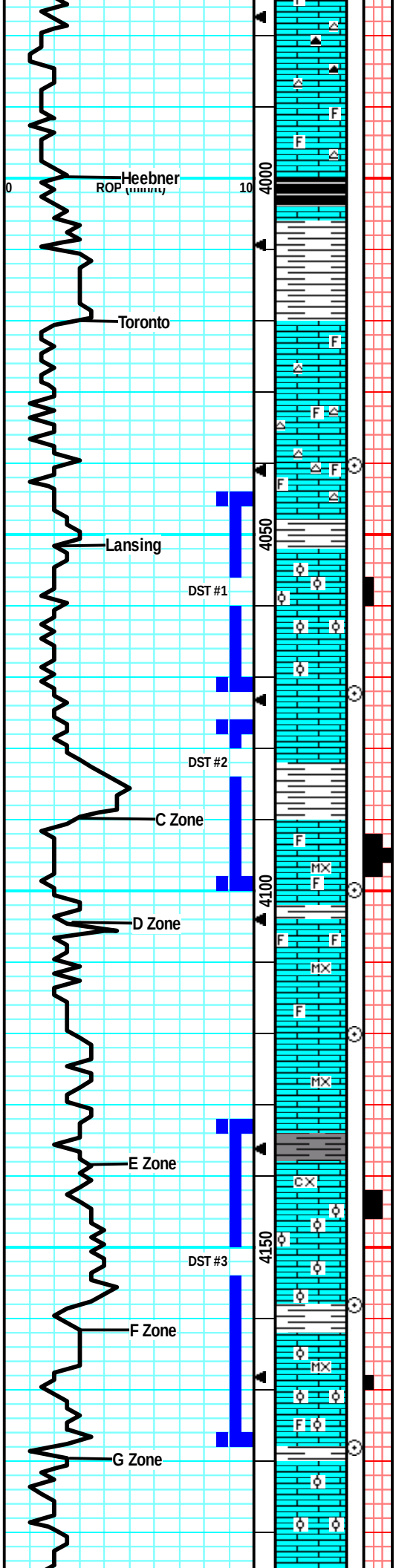
3826' Mud Pump broke down. 3hrs of down time.

Short Trip 25 Stands @ 3946'

CFS @ 3946'
(30"/60")

Mud-Co Check #4
@ 3946' 5/24/16

wt	vis	pH
8.9	58	11.0
Filt	chlr	LCM
7.2	4.4K	2#



LS: tan/lt gry, slght mott in prt, fn xln, mostly brittle, sub-chlky in prt, tr-nvp, fw pcs pur chlk, fw Chert: tan, foss, sharp, no cup odr, ns.

LS: tan/lt gry, mott in prt, fn xln, foss in prt, many brittle, chlky, tr-nvp, 1-2 pcs w/ drk hvy stns on edg, no fluor/cut, pos drk dead oil, abund pur chlk, no cup odr, ns.

LS: gry/tan, slght mott in prt, fn xln, gritty/sandy, sub-chlky in prt, tr-nvp, svrl SH: drk gry/blk, silty, soft, carb, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, fw foss in prt, sm brittle, tr-nvp, svrl SH: gry, silty, soft, fw Chert: lt tan, sharp, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, v fw foss frags, many brittle, tr-nvp, fw Chert: wht/opaq, sharp, abund SH: brn/grn, silty, soft, no cup odr, ns.

LS: tan/crm/lt gry, mostly sing, fn xln, fw foss frags, mostly brittle, sub-chlky in prt, tr-pr intxln por in sm, abund pur chlk, no cup odr, ns.

LS: tan/crm, mostly sing, fn xln, fw foss frags, many brittle, sub-chlky in prt, tr-pr intxln por, svrl pcs Chert: wht/opq, sharp, abund pur chlk, no cup odr, ns.

LS: tan/lt tan, mostly sing, fn xln, v fw foss in prt, gritty like, pr intxln por, sm Chert: wht/opaq, sharp, sm SH: drk gry, silty, no cup odr, ns.

LS: tan/lt tan, slght mott, fn xln, fw v ool, mostly brittle, sm gd intool por in fw, hvy drk stns, gd fluor, strm cut, fw gas bubs on brk, ssfo in 2 pcs, faint cup odr.

LS: lt tan/crm, mostly sing, fn xln, mostly dense, sm brittle, tr-pr ppt intxln por in fw, 3-4 pcs w/ drk hvy tarry stns, wk fluor, slw cut, gils viscus tar, faint-? cup odr, vssfo.

LS: lt tan/crm, mostly sing, fn xln, mostly dense, sm pr intxln por in fw pcs, 2-3 pcs w/ drk brn stns, gd fluor, strm cut, no cup odr, vssfo.

LS: lt tan/lt gry, mostly sing, fn xln, many dense, many brittle, mostly sub-chlky, tr-nvp, svrl pcs pur chlk, sm SH: gry/grn, silty, soft, no odr, ns.

LS: lt tan/lt gry, slght mott in prt, fn xln, many dense, sm brittle, sub-chlky in prt, fw flakey, tr-nvp, svrl SH: gry/brn/grn, silty, no odr, ns.

LS: tan/lt tan, mott in prt, micro-fn xln, sm foss, brach/frags, brittle, fw sub-chlky, fr-gd intxln por, many pcs hvy stnd in drk hvy vis oil, gd fluor, strm cut, strg cup odr, v gd sfo in many pcs.

LS: tan/lt tan, mostly sing, fn xln, mostly dense, many brittle, sub-chlky in prt, tr-nvp, 4-5 pcs w/ sho, same as above, abund SH: gry/grn, silty, faint cup odr.

LS: lt tan/crm, mostly sing, micro-fn xln, mostly dense, fw firm, sub-chlky in prt, tr-nvp, fw SH: gry/grn, silty, no cup odr, ns.

LS: crm/lt tan, sing, fn xln, fw foss frags, mostly dense, fw brittle, sub-chlky in prt, tr-nvp, slght inflx SH: brn, soft, no cup odr, ns.

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

LS: lt tan/lt gry, slght mott in prt, fn xln, many dense, fw brittle, sm flakey/mealy, tr-nvp, fw SH: drk gry/brn, silty, soft, ? cup odr, nsfo.

LS: tan/lt tan, mott in prt, fn-crs xln, sm brittle, fw pcs w/ lrg xls & gd intxln por, sat brn stns, fw pcs vug, stns in por, gd fluor, strm cut, gd cup odr, gd strng cup odr, gd sfo in 8-10 pcs.

LS: tan/lt gry, slght mott in prt, fn xln, fw ool, many brittle, sub-chlky in prt, 2-3 pcs w/ pr intxln por, sptd lght brn stns, gd fluor/cut, ssfo, gd cup odr, most of the show out of the 4158' Smpl.

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

LS: lt tan/crm, mostly sing, micro-fn xln, mostly dense, brittle, chlky in prt, tr-nvp, svrl pcs pur chlk, no cup odr, ns.

LS: tan/lt tan, mott in prt, fn xln, many foss, many ool, sm dense, many brittle, tr-pr intfoss por, 1-2 pcs w/ lght brn stns in por, gd fluor/cut, vssfo, faint cup odr.

LS: lt tan/lt gry, slght mott, fn xln, fw ool, sm brittle, sub-chlky in prt, fw oolcast por, svrl SH: gry/brn, silty, no cup odr, ns.

LS: lt gry/lt tan, slght mott, fn xln, sm dense, fw brittle, sub-chlky in prt, tr-nvp, svrl pcs pur chlk, no cup odr,

Heebner @ 4000' (-689)

Toronto @ 4020' (-709)

Mud-Co Check #5
@ 4072' 5/25/16
wt vis pH
9.0 56 11.0
Filt chlr LCM
8.0 6.0K 2#

CFS @ 4040'
(30"/60")

Lansing @ 4052' (-741)

DST #1 4044'-4072' "Lansing A"
5/24/16 30-45-45-60
1st Blw: 1/4" blw blt to BOB in 29min (No BB)
2nd Blw: Surf blw blt to BOB in 35min (No BB)
IFP: 19-93# ISIP: 1108# FFP: 98-166#
FSIP: 1074# HYD: 1970-1935#
Rec: 155' WCMw/OS (20%WTR), 186' MCW (90%WTR).

CFS @ 4072'
(30"/60")

Strap .51 short to the board

Survey @ 4072' = 3/4 Degree

CFS @ 4100'
(30"/60")

DST #2 4076'-4100' "Lansing C" 5/25/16
30-45-45-60
1st Blw: 1/4" blw blt to 4" in 30min (No BB)
2nd Blw: Surf blw blt to 5" in 45min (No BB)
IFP: 15-60# ISIP: 1158# FFP: 62-89#
FSIP: 1141# HYD: 1940-1983#
Rec: 1' FO, 50' WCMw/OS (10%WTR), 118' MCWw/OS (70%WTR).

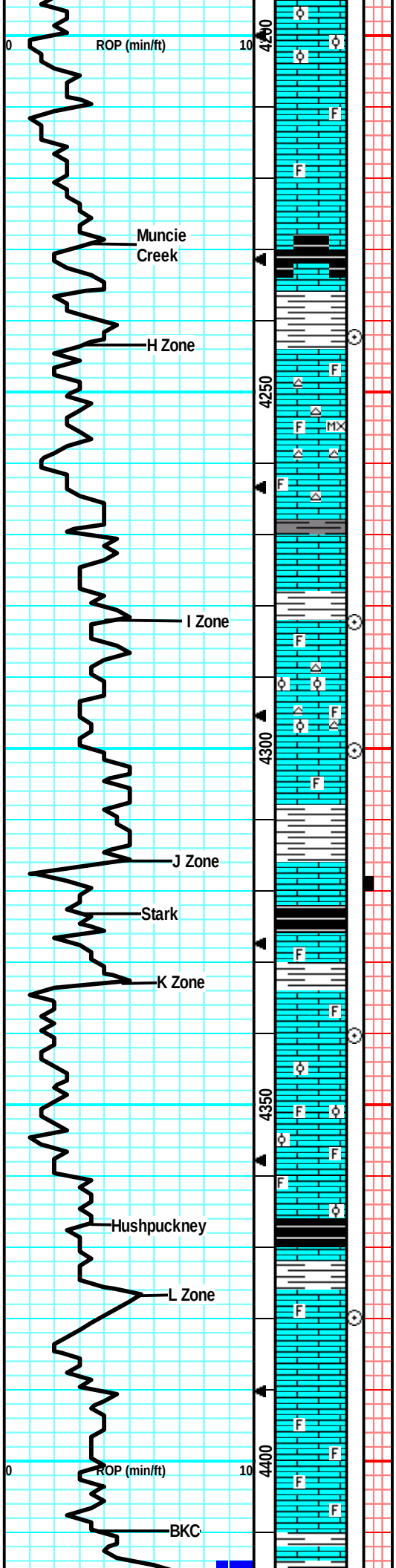
CFS @ 4120'
(30"/60")

DST #3 4133'-4178' "Lansing E/F"
5/26/16 30-45-45-60
1st Blw: 1/4" blw blt to 5" in 30min (No BB)
2nd Blw: Surf blw blt to 7" in 45min (No BB)
IFP: 19-57# ISIP: 1190# FFP: 62-87#
FSIP: 1186# HYD: 2027-2004#
Rec: 50' GO(90%O), 60' GOCM(40%O), 60' OCM(20%O), 30'GIP.

CFS @ 4158'
(30"/60")

CFS @ 4178'
(30"/60")

Mud-Co Check #6
@ 4178' 5/26/16
wt vis pH
9.1 54 11.0
Filt chlr LCM
8.8 7.2K 2#



ns.

LS: lt gry/lt tan, slght mott, fn xln, fw ool, mostly brittle, sub-chlky, fw oolcast por, sm SH: brn, silty, no cup odr, ns.

LS: lt gry/crm, slght mott, fn xln, frags, sm brittle, sub-chlkiy, fw flakey/mealy, tr-nvp, fw pcs pur chlk, no cup odr, ns.

LS: gry/lt tan, slght mott, fn xln, sm brittle, sub-chlky, flakey/mealy in prt, tr-nvp, fw SH: drk gry/blk, silty, carb, no cup odr, ns.

LS: gry/tan, slght mott, fn xln, many dens, svrl brit, sub-chlky in prt, tr-nvp, 2 pcs w/ drk stn on edge, wk fluor, pos cut resid, nsfo, no cup odr.

LS: gry/lt tan, slght mott, fn xln, fw foss in prt, svrl brittle, fw dense, sub-chlky, tr-nvp, sm SH: gry/brn, silty, no cup odr, ns.

LS tan/lt tan, mostl sing, fn xln, fw foss, mostly dense, svrl brittle, sub-chlky in prt, tr-nvp, fw Chert: wht/opaq, foss, sharp , no cup odr, ns.

LS: lt tan/crm, mostly sing, micro-fn xln, dense, brittle, sub-chlky in prt, tr-nvp, svrl Chert: wht/opaq, sharp, no cup odr, ns.

LS: lt tan/lt gry, slght mott in prt, fn xln, fw foss, many dense, sm brittle, sub-chlky, tr-nvp, svrl Chert: wht/lt gry, foss, sharp, sm SH: drk gry, silty, soft, no cup odr, ns.

LS: lt tan/lt gry, slght mott, fn xln, fw dense, many brittle, sub-chlky, sm flakey/mealy, tr-nvp, sm Chert: wht/lt gry, sharp, sm SH: gry, silty, soft, no cup odr, ns.

Muncie Creek @ 4229' (-918)

CFS @ 4242'
(30"/60")

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

LS: gry/tan, slght mott, fn xln, fw ool, many brit, fw flakey/mealy, tr-nvp, 1-2 pcs w/ drk blk stns, wk-? fluor, no cut, pos, drk dead oil, no cup odr.

CFS @ 4282'
(30"/60")

CFS @ 4300'
(30"/60")

LS: lt gry/lt tan, mott in prt, fn xln, foss in prt, brittle, many flakey/mealy, tr-nvp, svrl SH: gry/grn silty, soft, waxy, no cup odr, ns.

LS: tan/lt gry, mott in prt, fn xln, many foss, brit, many flakey/mealy, sub-chlky, tr-nvp, fw SH: brn/blk, silty, carb, no cup odr, ns.

LS: tan/lt tan, slght mott, fn xln, mostly brittle, 1 pcs w/ gd intxln por, lght brn stns, gd fluor/cut, faint cup odr, gry, silty, vssfo.

tan/lt gry, mott in prt, fn xln, fw foss, brittle, fw dense, chlky, tr-pr intxln por on fw edges, spttd lght brn stns, faint-? cup odr, vssfo.

Stark @ 4323' (-1012)

CFS @ 4340'
(30"/60")

LS: lt gry/tan, slght mott, fn xln, fw foss, britt, sub-chlky, fw flaky, tr-nvp, sm SH: gry/brn, silty, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, mostly brittle, flakey/mealy, sub-chlky, tr-nvp, fw SH: gry/brn/blk, silty, sm carb, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, many foss/ool, many brittle, fw flakey/mealy, sm chlky, tr-nvp, svrl pcs pur chlk, no cup odr, ns.

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

LS: tan/gry, mott in prt, fn xln, fw foss frags, many brittle, sm flakey/mealy, sub-chlky in prt, tr-nvp, fw pcs pur chlk, no cup odr, ns.

60" Smpl: gry/lt gry, mott, fn xln, foss, brittle, tr-nvp, no cup odr, ns.

Hushpuckney @ 4367' (-1056)

CFS @ 4380'
(30"/60")

Mud-Co Check #7
@ 4380' 5/27/16

wt	vis	pH
9.2	58	10.0
Filt	chlr	LCM
7.2	6.5K	1#

LS: gry/tan, slght mott in prt, fn xln, sm flakey/mealy, sm brittle, sub-chlky, fw fr intxln por, sm SH: brn/gry, silty, no cup odr, ns.

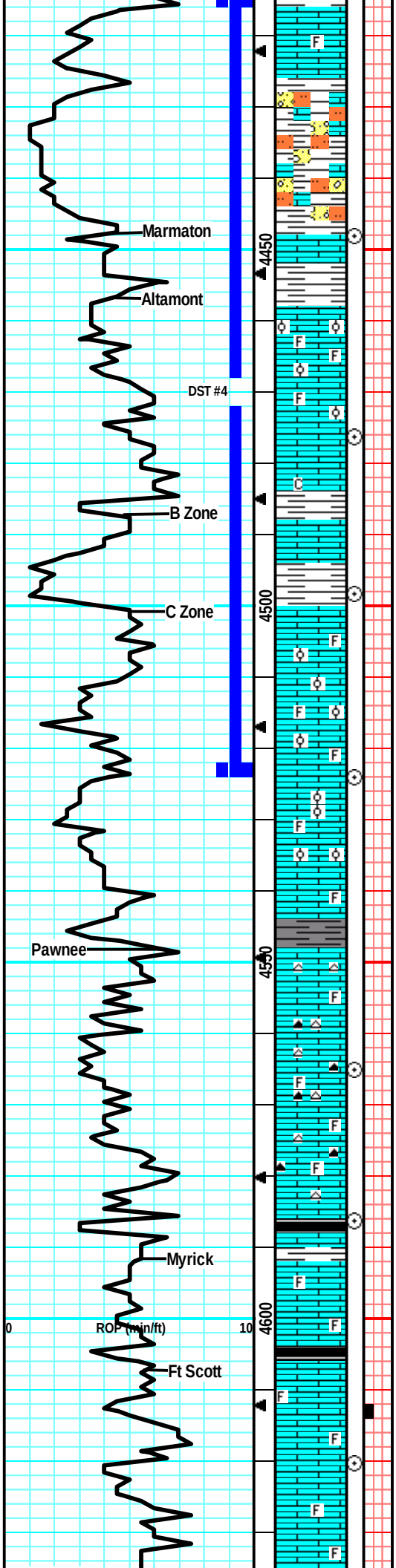
LS: lt gry/lt tan, slght mott, fn xln, many dense, many flakey/mealy, sub-chlky, tr-nvp, fw SH: drk gry, silty, soft, no cup odr, ns.

LS: lt tan/lt gry, slght mott, fn xln, many foss, brittle, sub-chlky, fw flakey, tr-nvp, fw pcs pur chlk, fw SH: gry/brn, silty, no cup odr, ns.

BKC @ 4410' (-1099)

DST #4 4415'-4524' "Altamont"
5/28/16 30-45-45-60

LS: lt gry/tan, slght mott, fn xln, foss in prt, sm dense, fw brittle, sub-chlky, fw flakey/mealy, tr-nvp, svrl SH:



fw brittle, sub-chlky, fw flakey/mealy, tr-nvp, svrl SH: gry/brn, silty, no cup odr, ns.

SH: gry/brn/grn, silty, soft, fw SltStn: lt gry/lt brn, gritty, friable, v soft, fw LS: gry/tan, mott in prt, fn xln, dense, sub-chlky, tr-nvp, no odr, ns.

LS: tan/gry, slght mott, fn xln, dense, sub-chlky, tr-nvp, abund SH: drk gry/grn/brn, silty, fw SltStn: lt gry, gritty, v soft, no cup odr, ns.

LS: gry/lt tan, slght mott, fn xln, mostly dense, sm firm, flakey/mealy, sm sub-chlky, tr-nvp, abund SH: drk gry/brn, silty, no cup odr, ns.

SH: gry/drk gry/brn/grn, silty, sm soft, fw gritty, sm LS: tan/lt gry, slght mott, fn xln, dense, sm brittle, sub-chlky, tr-nvp, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, sm foss/ool, many britt, fw sub-chlky in prt, tr-pr intxln por in fw, no cup odr, ns.

LS: tan/lt tan, slght mott, fn xln, sm foss/ool, mostly brittle, flakey/mealy in prt, fr intxln por in sm, sm SH: drkgry/brn, silty, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, mostly brittle, sub-chlky in most, fr intxln por in sm, sm SH: brn/drkgry, silty, soft, no cup odr, ns.

SH: gry/brn/drkgry, silty, soft, fw LS: gry/tan, slght mott, fn xln, mostly dense, sm flakey, tr-nvp, no cup odr, ns.

LS: tan/gry, mott in prt, fn xln, fw foss/ool, mostly dense, sm brittle, sub-chlky, many flakey/mealy, sm firm, tr-nvp, cpl pcs w/ pos lght brn stns, ? fluor, no cut, abund SH: gry/brn/drkgry, silty, soft, no cup odr, nsfo.

LS: tan/lt gry, mostly sing, fn xln, sm foss, mostly brittle, sm fr intxln por, sub-chlky, fw pcs pur chlk, no cup odr, ns.

LS: lt gry/lt tan, slght mott, fn xln, fw foss, sub-chlky, fw britt, svrl flakey/mealy, tr-nvp, fw pcs pur chlk, fw SH: gry/blu, silt, soft, no odr, ns.

LS: gry/lt tan, mott in prt, fn xln, many foss/ool, britt, fw flakey/mealy, tr-pr intfoss por in fw, sm SH: drk gry/grn, silty, soft, no cup odr, ns.

LS: lt tan/tan, mostly mott, fn xln, sm v foss/ool, mostly brittle, sub-chlky, almst grny like, tr-nvp, svrl SH: drkgry/grn, silty, soft, no cup odr, ns.

SH: drkgry/brn, silty, soft, sm LS: lt tan/crm, mott, foss/ool, brittle, chlky, tr-nvp, no cup odr, ns.

LS: tan/lt tan, mott, fn xln, mostly foss/ool, fw flakey/mealy, chlky, brittle, sandy/grny like, tr-nvp, fw SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, slght mott, fn xln, fw foss, sub-chlky in prt, fw flakey/mealy, sm dense/firm, tr-nvp, fw Chert: gry, foss, sharp, svrl SH: drkgry/gry, silty, no cup odr, ns.

LS: gry/lt tan, mostly sing, fn xln, sub-chlky, sm flakey/mealy, fw firm, tr-nvp, fw Chert: gry, foss, sharp, sm SH: gry/brn, silty, no cup odr, ns.

LS: gry/tan, mostly sing, fn xln, dense, fw sub-chlky, sm firm, tr-nvp, sm SH: gry, silty, soft, no cup odr, ns.

LS: lt gry/lt tan, sing, fn xln, v fw foss, mostly dense, sm firm, sub-chlky, tr-nvp, sm Chert: gry/drkgry, foss, sharp, v fw SH: gry, silty, no cup odr, ns.

LS: drkgry/lt gry, mott, fn xln, many foss, flakey/mealy, brittle, sub-chlky, tr-nvp, svrl Chert: gry, foss, sharp, fw SH: gry/blk, silty, fw carb, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, many foss, sub-chlky, brittle, tr-nvp, svrl pcs pur chlk, abund SH: gry/brn, silty, no cup odr, ns.

LS: gry/lt gry, mott in prt, fn xln, fw foss frags, sm firm, svrl flakey/mealy, sub-chlky in prt, tr-nvp, svrl SH: drk gry/blk, silty, soft, sm carb, no cup odr, ns.

LS: gry/tan, mott in prt, fn xln, foss, sm firm, sub-chlky, tr-nvp, 1 pcs w/ sml drk brn stns, no fluor/cut, pos drk dead oil, nsfo, fw Chert: gry, foss, sharp, no cup odr.

LS: lt gry/lt tan, mott in prt, fn xln, fw foss, sub-chlky in prt, tr-? ppt por in fw pcs, 2 pcs w/ sptd brn stns, ? fluor, pos v sml spr of oil on brk undr hgh mag in scp, ? vssfo on brk, no cup odr.

LS: lt gry/lt tan, mott in prt, fn xln, sm foss, many flakey/mealy, sub-chlky, tr-nvp, abund SH: drk gry/gry/blk, silty, fw carb, no cup odr, ns.

LS: tan/lt gry, slght mott, fn xln, sm foss in prt, many dense, sm firm, tr-nvp, svrl SH: brn/gry/blk, silty, fw soft, fw carb, no cup odr, ns.

SH: brn/gry, silty, soft, fw fissile, fw LS: tan/lt gry, slght mott, fn xln, fw foss, mostly dense, many firm, tr-nvp,

1st Blw: 1/4" blw blt to BOB in 6.5min
(Surf BB dead in 10min)
2nd Blw: 1/4" blw blt to BOB in 7min
(No BB)
IFP: 40-228# ISIP: 1297# FFP: 239-452# FSIP: 1293# HYD: 2339-2231#
Rec: 282' WM(50%WTR), 693' MCW(95%WTR).

Marmaton @ 4448' (-1137)

CFS @ 4448'
(30"/60")

Altamont @ 4457' (-1146)

CFS @ 4476'
(30"/60")

CFS @ 4498'
(30"/60")

CFS @ 4524'
(30"/60")

Mud-Co Check #8
@ 4524' 5/28/16

wt	vis	pH
9.4	59	11.0
Filt	chlr	LCM
8.8	8.0K	2#

Pawnee @ 4548' (-1237)

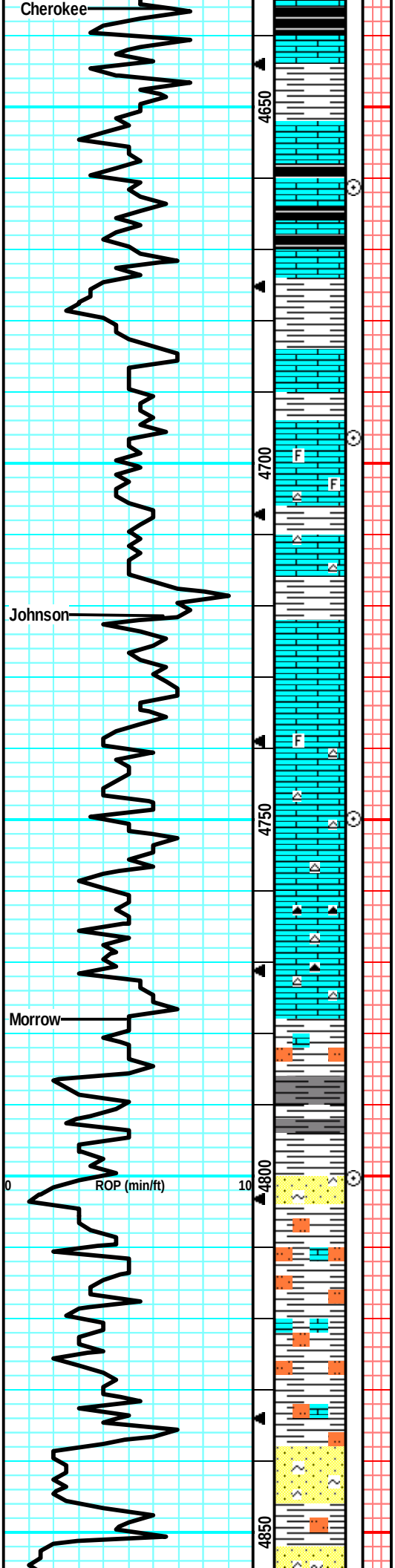
CFS @ 4565'
(30"/60")

CFS @ 4586'
(30"/60")

Myrick Station @ 4592' (-1281)

Ft Scott @ 4607' (-1296)

CFS @ 4620'
(30"/60")



no cup odr, ns.

SH: brn/gry/blu, silty, sm v soft, fw waxy, sm redbeds from up hole, v fw LS: lt tan, sing, micro-fn xln, dense, brittle, tr-nvp, no cup odr, ns.

Cherokee @ 4636' (-1325)

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

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

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

LS: gry/lt tan, mott in prt, fn xln, mostly dense, sub-chlky, flakey/mealy, tr-nvp, fw SH: gry/brn, silty, soft, no cup odr, ns.

LS: tan/gry, slght mott, fn xln, mostly dense, many firm, sub-chlky, flakey/mealy, tr-nvp, v fw SH: gry, silty, soft, no cup odr, ns.

Mud-Co Check #9
@ 4695' 5/29/16

wt	vis	pH
9.2	63	11.0
Filt	chlr	LCM
7.2	9.7K	3#

CFS @ 4696'
(30"/60")

LS: gry/tan, slght mott, fn xln, many dense, sub-chlky in prt, sm firm, flakey/mealy, tr-nvp, v fw SH: gry/grn, silty, no cup odr, ns.

LS: gry/tan, slght mott, fn xln, fw foss in prt, mostly dense, many firm, fw sub-chlky, fw flakey, tr-nvp, no cup odr, ns.

LS: gry/tan, slght mott, fn xln, mostly dense, many firm, flakey/mealy, tr-nvp, fw Chert: wht/gry, foss, sharp, no cup odr, ns.

LS: gry/lt brn, slght mott, fn xln, mostly dense, many firm, flakey, tr-nvp, fw pcs w/ drk min spts, no cup odr, ns.

Johnson @ 4722' (-1411)

LS: gry/tan, slght mott, fn xln, many dense, mostly flakey/mealy, sub-chlky in sm, tr-nvp, fw SH: gry, silty, no cup odr, ns.

gry/lt brn, slght mott, fn xln, fw foss, mostly dense, flakey, sm firm, tr-nvp, fw Chert: gry, smokey, sharp, no cup odr, ns.

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

CFS @ 4750'
(30"/60")

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

LS: gry/lt gry, mott, fn xln, flakey, fw dense, mostly firm, tr-nvp, svrl SH: gry/grn, silty, soft, fw fissile, no cup odr, ns.

LS: gry/tan, mott, fn xln, fw foss frags, many flakey/mealy, grainy like, tr-nvp, fw Chert: gry, smokey, sharp, abund SH: gry/brn/grn, silty, soft, fw waxy, no cup odr, ns.

Morrow @ 4778' (-1467)

LS: drk gry/lt gry, mott, fn xln, flakey/mealy, firm, grainy, tr-nvp, abund SH: drkgry/brn/grn, silty, soft, fw waxy, no cup odr, ns.

LS: gry, mott, fn xln, sm dense, firm, flakey, tr-nvp, abund SH: gry/grn/brn, silty, soft, fissile, fw SS: gry, glauc, silc cem, fn grn, arg, firm, tr-? intgrn, no cup odr, ns..

CFS @ 4800'
(30"/60")

LS: drk gry, mott, fn xln, fw foss frags, sm sandy/grainy, fw almost flakey, tr-nvp, abund SH: gry/drkgry, silty, soft, no cup odr, ns.

SH: gry/drkgry/brn/oliv, silty soft, sm wthrd, fw LS: tan/gry, slght mott, dense, tr-nvp, fw SS: gry/wht, fn-med grn, arg, chlky, friable, brittl, tr-nvp intgrn por, no odr, ns.

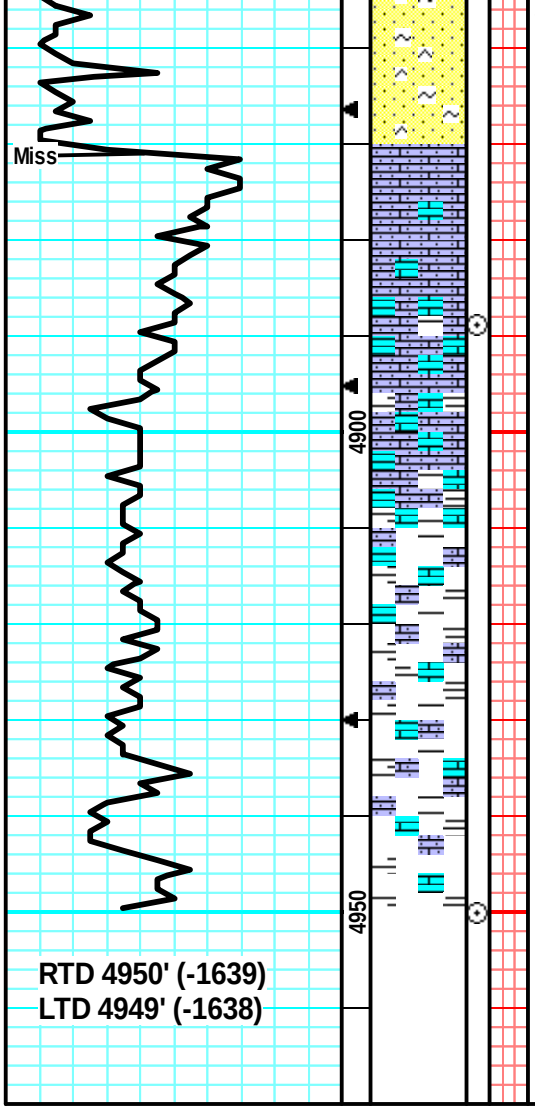
SH: gry/brn/drkgry, silty, soft, fw wthrd, fw LS: drkgry/brn, mott, fn xln, dense, firm, tr-nvp, fw SS: crm/wht, fn grn, silc, arg, chlky, brittl, friable, tr-nvp, no cup odr, ns.

SH: gry/brn/grn, silty, soft, fw fissile, fw LS: gry/brn, mott in prt, fn xln, dense, firm, tr-nvp, fw SS: wht/crm/grn, silc, fn-crs grn, arg, brittl, friable, glauc, tr-? tr-nvp, no cup odr, ns.

SH: gry/grn/brn/blu, silty, soft, fissile, fw waxy, no cup odr, ns.

SS: blu-grn/gry, clean, fn grn, silc cem, sub-rnd, sm firm, brittle, friable, glauc, tr ppt, intgrn por, fw SH: gry/drk gry, silty, fissile, no odr, ns.

SS: blu-grn/gry/wht, fn grn, silc cem, sub-rnd friable, brittle, sm firm, glauc in prt, tr intgrn por, svrl gry pcs



w/ drk min stns, no fluor/cut, sm SH: gry, silty, soft, fissile, no cup odr, ns.

SS: blu-grn/gry/wht, fn grn, silc cem, sub-rnd, fw glauc, brittle, fw firm, fw arg, sm gry pcs w/ drk mins stns, no fluor/cut, fw SH: gry, silty, fissile, no cup odr, ns.

LS: crm/wht/lt tan, slght mott, fn xln, sandy, gritty, chlky, brittle, sm firm, tr-nvp, fw SH: gry/brn, silty, sm soft, fissile, no cup odr, ns.

LS: crm/wht/lt tan, sing, fn xln, sandy/gritty, brittle, firable, sub-chlky, tr-nvp, fw SS: blu-grn/gry, firm, fri, silc, sub-rnd, tr intgrn por, fw SH: gry, silty, no cup odr, ns.

LS: crm/wht/lt tan, sing, fn xln, svrl sandy, friable, sub-chlky, sm brittle, tr-nvp, abund SH: gry/drkgry, silty, fissile, no cup odr, ns.

LS: crm/lt tan, sing, fn xln, sm sandy/gritty, sm friable, sub-chlky, fw dense, fw flakey, tr-nvp, abund almst all SH: silty, soft, fw fissile, no cup odr, ns.

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

Mississippi @ 4871' (-1560)

CFS @ 4889'
(30"/60")

Samples quality was good until 11:00 tour change. Driller increased wait on bit and increased RPM to improve ROP. Samples became straight shale.

Mud-Co Check #10
@ 4950' 5/30/16

wt	vis	pH
9.3	57	9.5
Filt	chlr	LCM
8.8	10K	2#

CFS @ 4950'
(30"/60")

Survey @ 4950' = 1/2 Degree

DRILL STEM TEST REPORT

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64545 **DST#: 1**

Test Start: 2016.05.25 @ 00:54:26

GENERAL INFORMATION:

Formation: **Lansing A**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 02:43:26
Time Test Ended: 07:19:26

Test Type: Conventional Bottom Hole (Initial)
Tester: Brandon Turley
Unit No: 79

Interval: 4044.00 ft (KB) To 4072.00 ft (KB) (TVD)
Total Depth: 4072.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

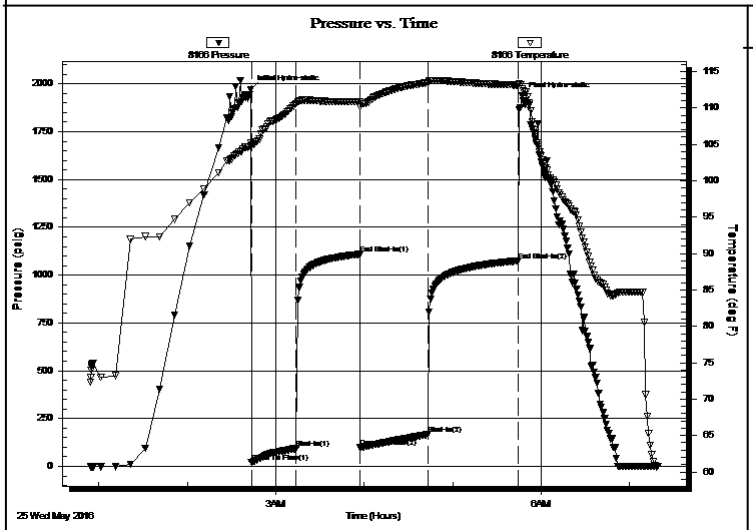
Reference Elevations: 3311.00 ft (KB)
3306.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8166 **Outside**

Press@RunDepth: 166.68 psig @ 4045.00 ft (KB)
Start Date: 2016.05.25 End Date: 2016.05.25
Start Time: 00:54:31 End Time: 07:19:25

Capacity: 8000.00 psig
Last Calib.: 2016.05.25
Time On Btm: 2016.05.25 @ 02:42:56
Time Off Btm: 2016.05.25 @ 05:46:56

TEST COMMENT: IF: 1/4 blow BOB in 29 min.
IS: No return.
FF: Surface blow BOB in 35 min.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1970.62	105.19	Initial Hydro-static
1	19.63	104.81	Open To Flow (1)
31	93.94	110.61	Shut-In(1)
74	1108.57	110.85	End Shut-In(1)
75	98.67	110.25	Open To Flow (2)
120	166.68	113.50	Shut-In(2)
182	1074.61	113.16	End Shut-In(2)
184	1935.84	112.64	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
186.00	mcw 90%w 10%m	1.53
155.00	w cm oil spots 20%w 80%m	2.17

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64545 **DST#: 1**

Test Start: 2016.05.25 @ 00:54:26

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:	24000 ppm
Viscosity:	58.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.20 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	4400.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
186.00	mcw 90%w 10%m	1.534
155.00	w cm oil spots 20%w 80%m	2.174

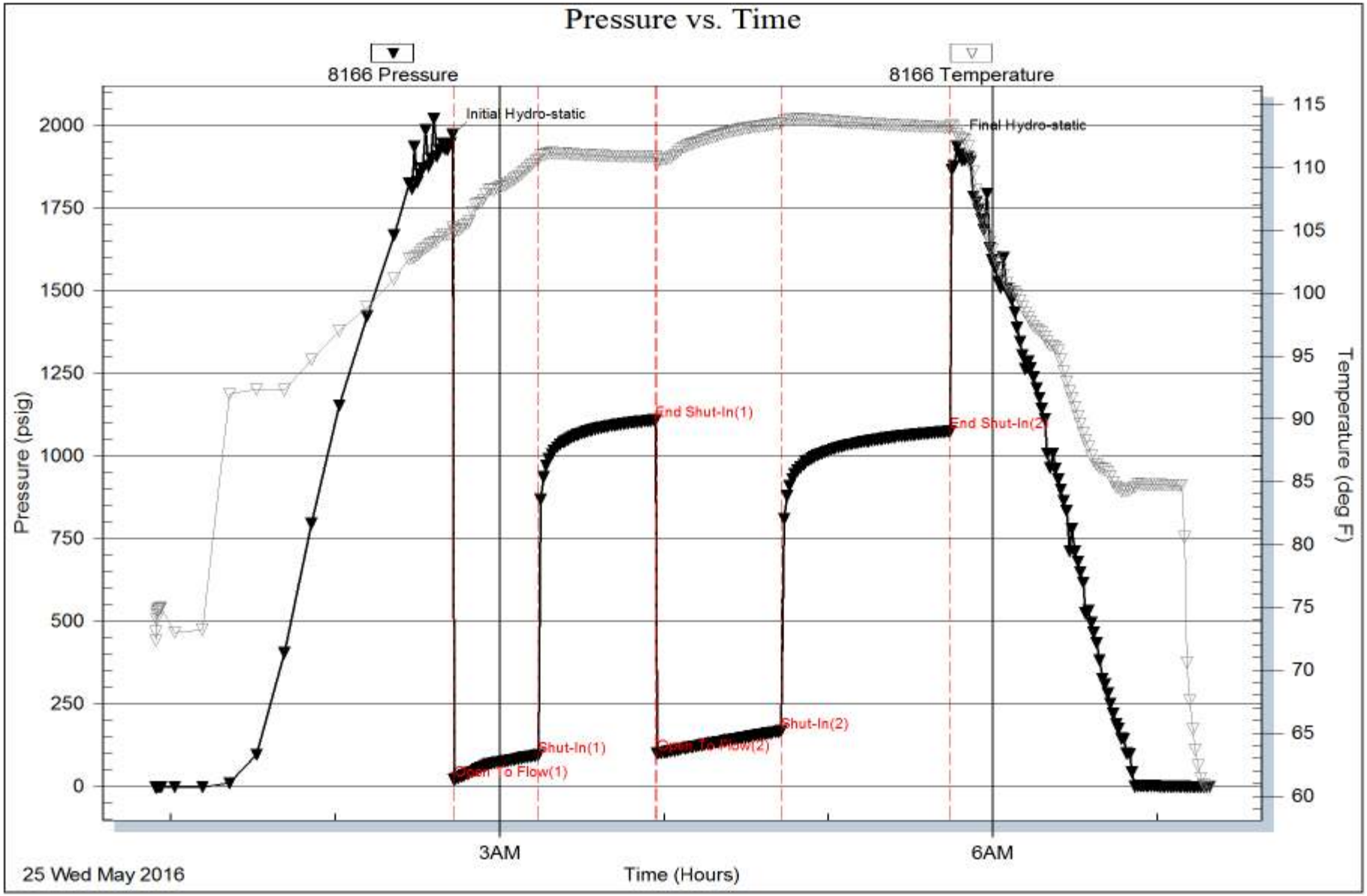
Total Length: 341.00 ft Total Volume: 3.708 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: .35@57=24000

Serial #: 8166 **Outside** Ritchie Exploration Inc Miller Trust #1 DST Test Number: 1



Trilobite Testing, Inc Ref. No: 64545 Printed: 2016.05.25 @ 07:51:27

DRILL STEM TEST REPORT

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64546 **DST#: 2**

Test Start: 2016.05.25 @ 13:55:02

GENERAL INFORMATION:

Formation: **Lansing C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:17:02
Time Test Ended: 19:58:02

Test Type: Conventional Bottom Hole (Reset)
Tester: Brandon Turley
Unit No: 79

Interval: 4076.00 ft (KB) To 4100.00 ft (KB) (TVD)
Total Depth: 4100.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

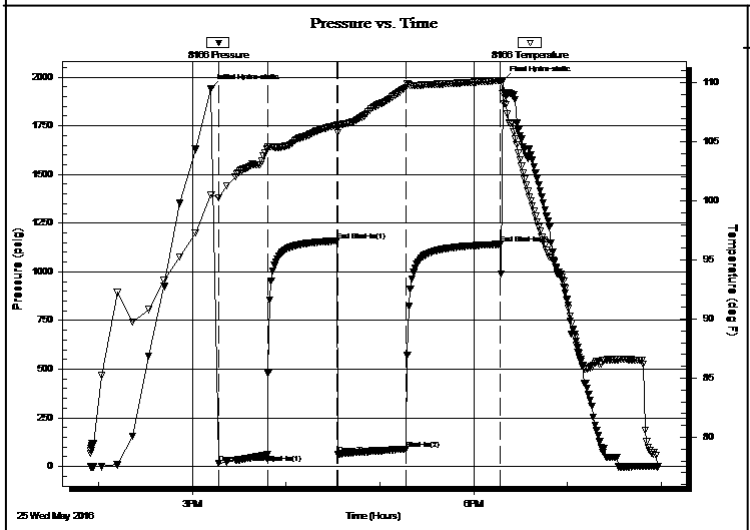
Reference Elevations: 3311.00 ft (KB)
3306.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8166 **Outside**

Press@RunDepth: 89.85 psig @ 4077.00 ft (KB)
Start Date: 2016.05.25 End Date: 2016.05.25
Start Time: 13:55:07 End Time: 19:58:01

Capacity: 8000.00 psig
Last Calib.: 2016.05.25
Time On Btm: 2016.05.25 @ 15:12:02
Time Off Btm: 2016.05.25 @ 18:18:32

TEST COMMENT: IF: 1/4 blow built to 4 in 30 min.
IS: No return.
FF: Surface blow built to 5 in 45 min.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1940.21	100.49	Initial Hydro-static
5	15.98	100.25	Open To Flow (1)
36	60.71	104.41	Shut-In(1)
81	1158.93	106.39	End Shut-In(1)
81	62.33	105.76	Open To Flow (2)
125	89.85	109.61	Shut-In(2)
185	1141.40	110.20	End Shut-In(2)
187	1983.34	109.06	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
118.00	mcw oil spots 70%w 30%m	0.58
50.00	w cm oil spots 10%w 90%m	0.70
1.00	free oil 100%o	0.01

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64546 **DST#: 2**

Test Start: 2016.05.25 @ 13:55:02

GENERAL INFORMATION:

Formation: **Lansing C**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:17:02
Time Test Ended: 19:58:02

Test Type: Conventional Bottom Hole (Reset)
Tester: Brandon Turley
Unit No: 79

Interval: 4076.00 ft (KB) To 4100.00 ft (KB) (TVD)
Total Depth: 4100.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

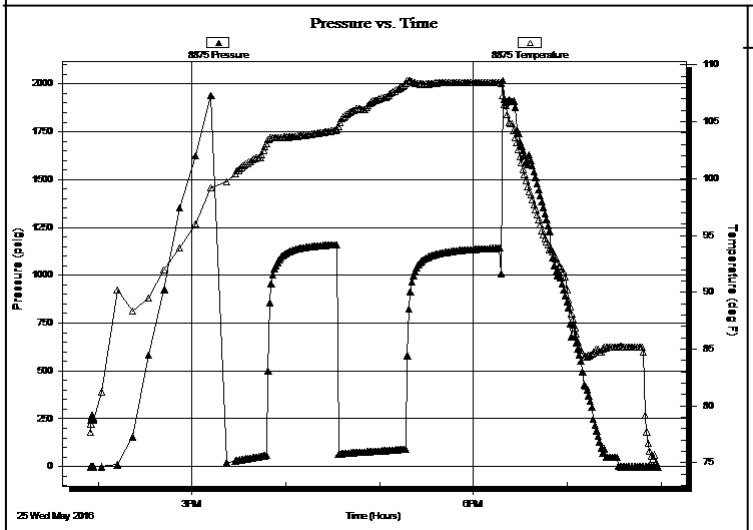
Reference Elevations: 3311.00 ft (KB)
3306.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: psig @ 4077.00 ft (KB)
Start Date: 2016.05.25 End Date: 2016.05.25
Start Time: 13:55:16 End Time: 19:58:10

Capacity: 8000.00 psig
Last Calib.: 2016.05.25
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: 1/4 blow built to 4 in 30 min.
IS: No return.
FF: Surface blow built to 5 in 45 min.
FS: No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
118.00	mcw oil spots 70%w 30%m	0.58
50.00	w cm oil spots 10%w 90%m	0.70
1.00	free oil 100%o	0.01

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64546 **DST#: 2**

Test Start: 2016.05.25 @ 13:55:02

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:	18000 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.99 in³	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
118.00	mcw oil spots 70%w 30%m	0.580
50.00	w cm oil spots 10%w 90%m	0.701
1.00	free oil 100%o	0.014

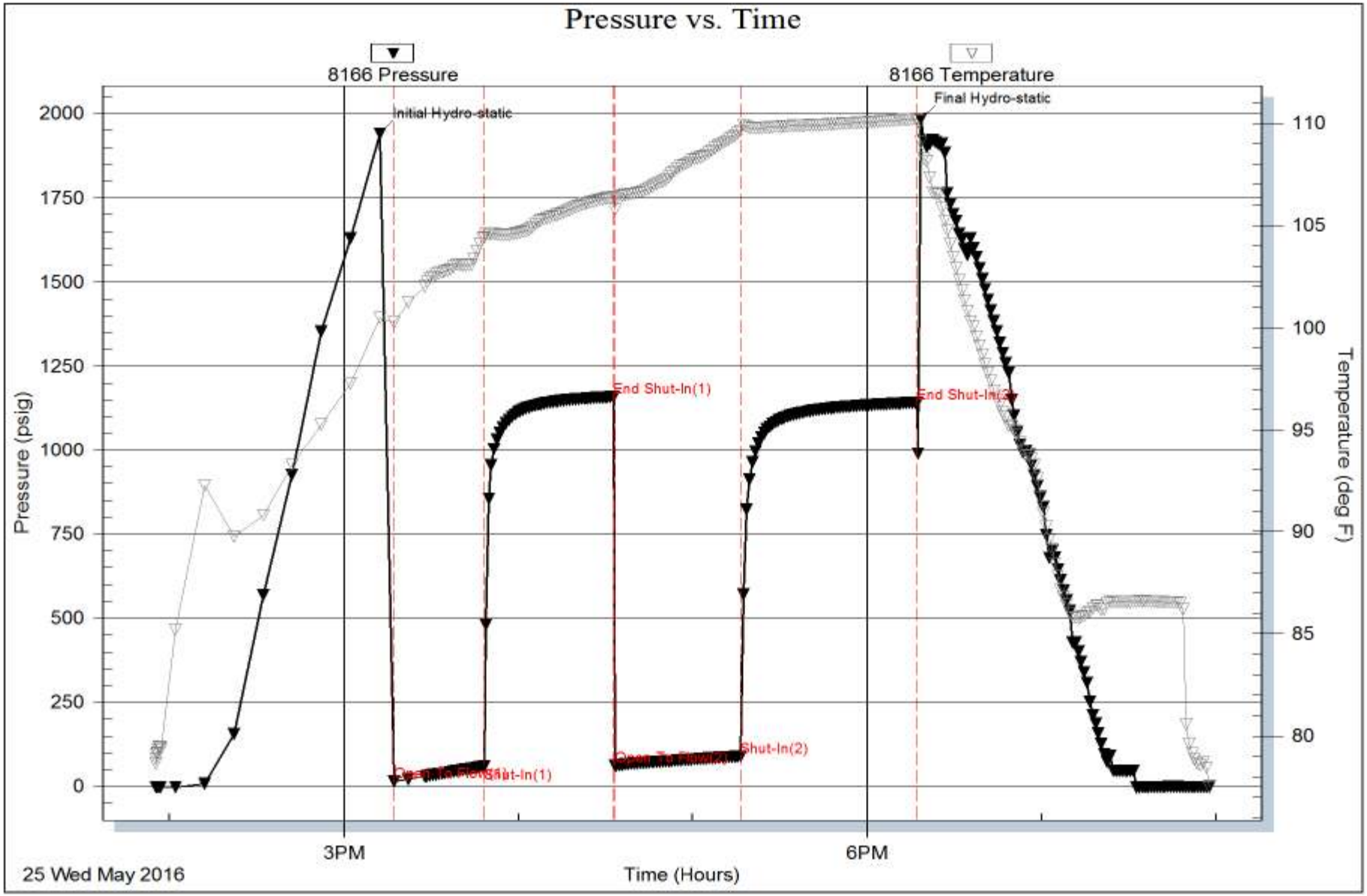
Total Length: 169.00 ft Total Volume: 1.295 bbl

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

Laboratory Name: Laboratory Location:

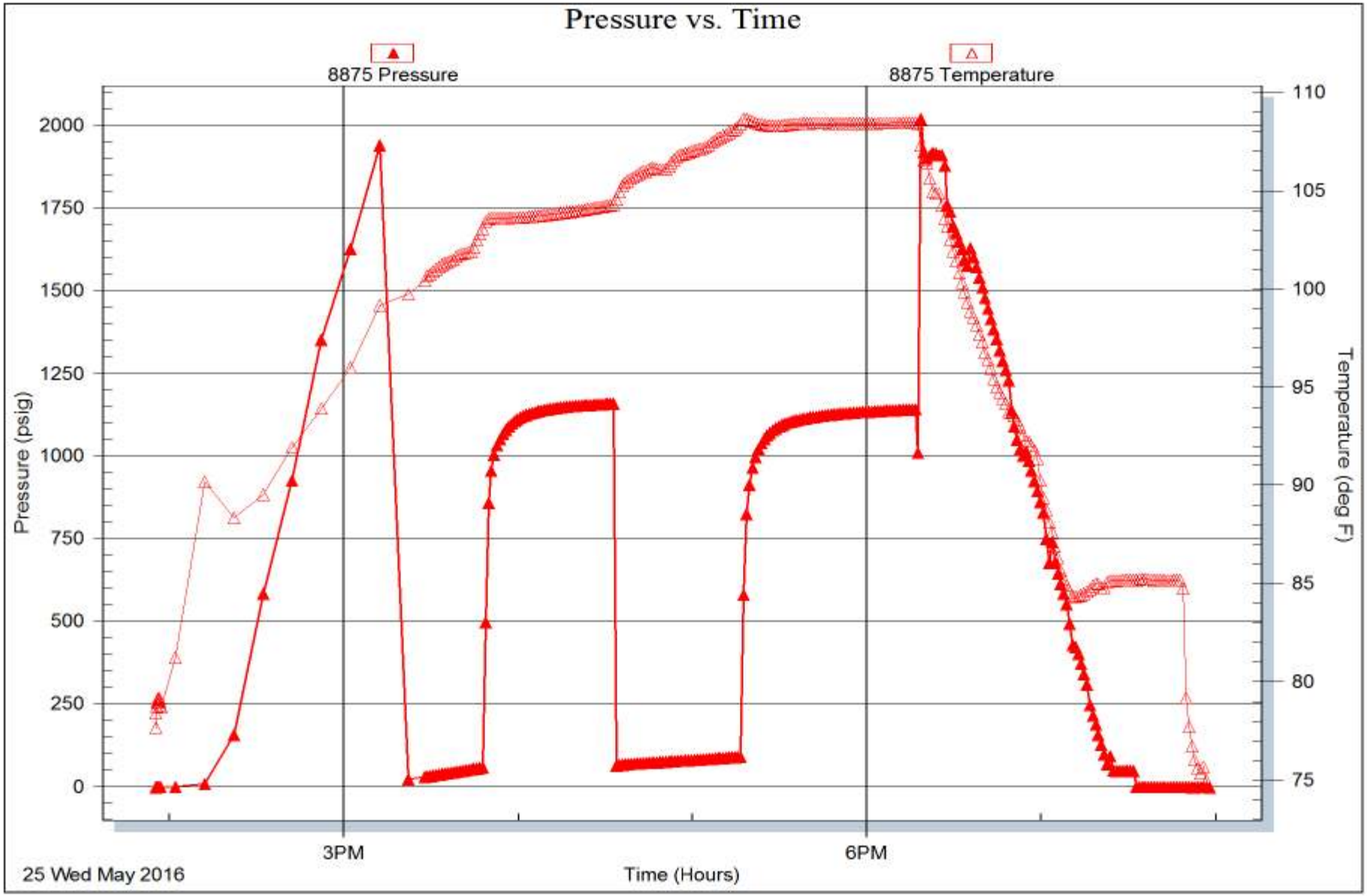
Recovery Comments: .33@82=18000

Serial #: 8166 **Outside** Ritchie Exploration Inc Miller Trust #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 64546 Printed: 2016.05.25 @ 22:52:36

Serial #: 8875 **Inside** Ritchie Exploration Inc Miller Trust #1 DST Test Number: 2



Trilobite Testing, Inc Ref. No: 64546 Printed: 2016.05.25 @ 22:52:36

DRILL STEM TEST REPORT

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64547 **DST#: 3**

Test Start: 2016.05.26 @ 08:58:08

GENERAL INFORMATION:

Formation: **LKC E-F**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 10:32:38
Time Test Ended: 15:08:08

Test Type: Conventional Bottom Hole (Reset)
Tester: Brandon Turley
Unit No: 79

Interval: 4133.00 ft (KB) To 4178.00 ft (KB) (TVD)
Total Depth: 4178.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

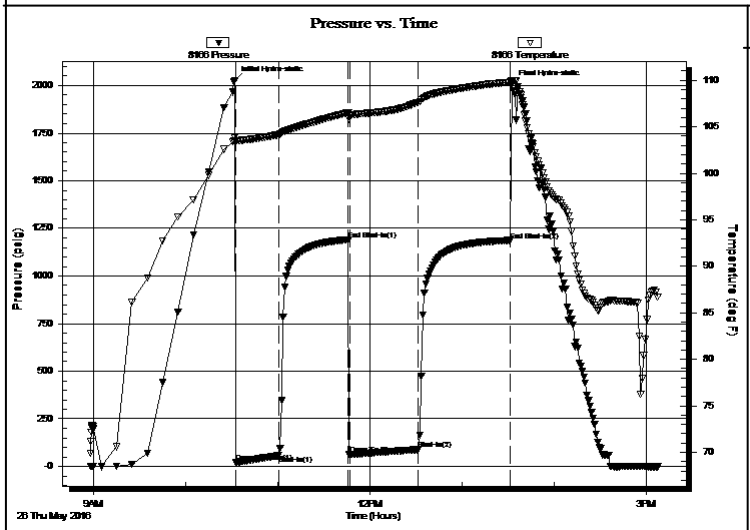
Reference Elevations: 3311.00 ft (KB)
3306.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8166 **Outside**

Press@RunDepth: 87.56 psig @ 4134.00 ft (KB)
Start Date: 2016.05.26 End Date: 2016.05.26
Start Time: 08:58:13 End Time: 15:08:07

Capacity: 8000.00 psig
Last Calib.: 2016.05.26
Time On Btm: 2016.05.26 @ 10:32:08
Time Off Btm: 2016.05.26 @ 13:32:38

TEST COMMENT: IF: 1/4 blow built to 5 in 30 min.
IS: No return.
FF: Surface blow built to 7 in 45 min.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2027.01	103.81	Initial Hydro-static
1	19.23	103.44	Open To Flow (1)
29	57.19	104.15	Shut-In(1)
74	1190.97	106.53	End Shut-In(1)
75	62.10	106.29	Open To Flow (2)
120	87.56	107.62	Shut-In(2)
180	1186.82	109.81	End Shut-In(2)
181	2004.69	109.98	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	ocm 20%o 80%m	0.30
60.00	ogcm 10%g 40%o 50%m	0.31
50.00	go 10%g 90%o	0.70
0.00	30 GIP	0.00

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64547 **DST#: 3**

Test Start: 2016.05.26 @ 08:58:08

Mud and Cushion Information

Mud Type:	Gel Chem	Cushion Type:		Oil API:	27 deg API
Mud Weight:	9.00 lb/gal	Cushion Length:	ft	Water Salinity:	0 ppm
Viscosity:	56.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.98 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	6000.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

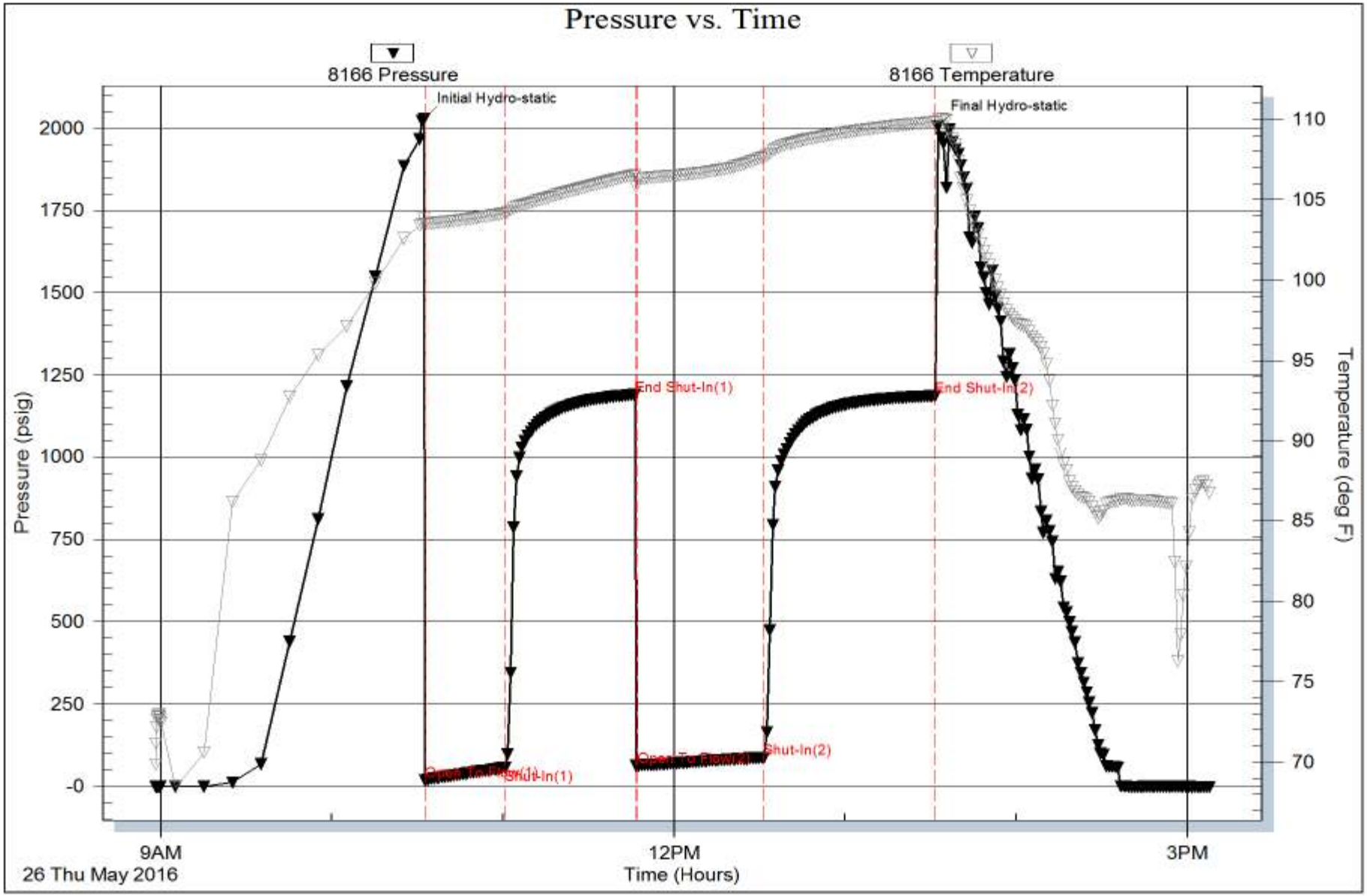
Recovery Table

Length ft	Description	Volume bbl
60.00	ocm 20%o 80%m	0.295
60.00	ogcm 10%g 40%o 50%m	0.313
50.00	go 10%g 90%o	0.701
0.00	30 GIP	0.000

Total Length: 170.00 ft Total Volume: 1.309 bbl

Num Fluid Samples: 0 Num Gas Bombs: 0 Serial #:
Laboratory Name: Laboratory Location:
Recovery Comments: 29@80=27

Serial #: 8166 **Outside** Ritchie Exploration Inc Miller Trust #1 DST Test Number: 3



Trilobite Testing, Inc Ref. No: 64547 Printed: 2016.05.26 @ 16:04:48

DRILL STEM TEST REPORT

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64548 **DST#: 4**

Test Start: 2016.05.28 @ 04:46:54

GENERAL INFORMATION:

Formation: **Altamont**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:40:54
Time Test Ended: 11:29:24

Test Type: Conventional Bottom Hole (Reset)
Tester: Brandon Turley
Unit No: 79

Interval: 4415.00 ft (KB) To 4524.00 ft (KB) (TVD)
Total Depth: 4524.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

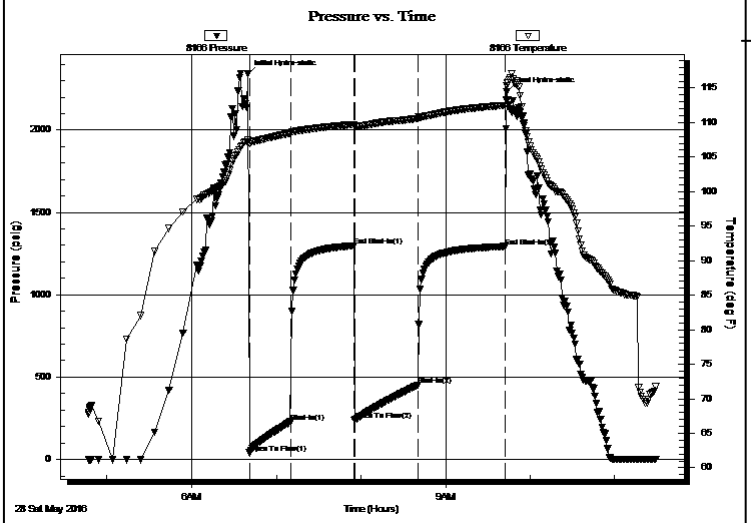
Reference Elevations: 3311.00 ft (KB)
3306.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8166 **Outside**

Press@RunDepth: 452.28 psig @ 4416.00 ft (KB)
Start Date: 2016.05.28 End Date: 2016.05.28
Start Time: 04:46:59 End Time: 11:29:23

Capacity: 8000.00 psig
Last Calib.: 2016.05.28
Time On Btm: 2016.05.28 @ 06:39:54
Time Off Btm: 2016.05.28 @ 09:43:24

TEST COMMENT: IF: 1/4 blow BOB in 6 1/2 min.
IS: Surface blow died in 10 min.
FF: 1/4 blow BOB in 7 min.
FS: No return.



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	2339.70	107.47	Initial Hydro-static
1	40.26	106.91	Open To Flow (1)
30	228.43	108.45	Shut-In(1)
75	1297.30	109.75	End Shut-In(1)
76	239.59	109.41	Open To Flow (2)
121	452.28	110.61	Shut-In(2)
182	1293.08	112.50	End Shut-In(2)
184	2231.88	115.31	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
441.00	mcw 95%w 5%m	5.11
252.00	mcw 90%w 10%m	3.53
282.00	w m 50%w 50%m	3.96

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64548 **DST#: 4**

Test Start: 2016.05.28 @ 04:46:54

GENERAL INFORMATION:

Formation: **Altamont**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 06:40:54
Time Test Ended: 11:29:24

Test Type: Conventional Bottom Hole (Reset)
Tester: Brandon Turley
Unit No: 79

Interval: 4415.00 ft (KB) To 4524.00 ft (KB) (TVD)
Total Depth: 4524.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Good

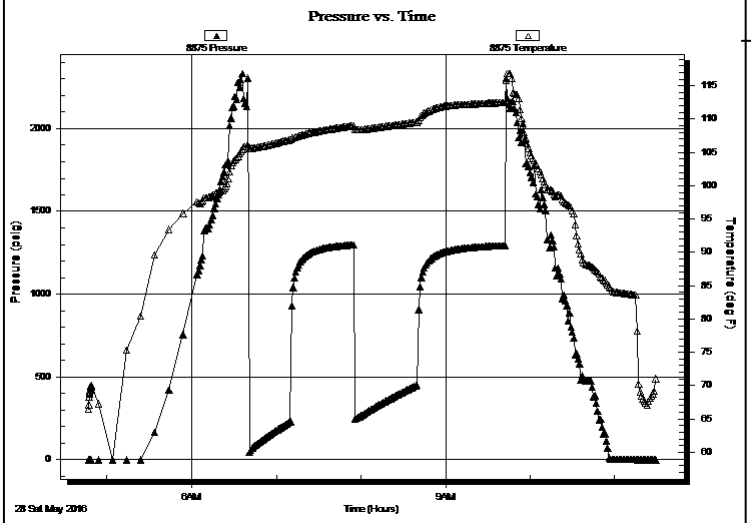
Reference Elevations: 3311.00 ft (KB)
3306.00 ft (CF)
KB to GR/CF: 5.00 ft

Serial #: 8875 **Inside**

Press@RunDepth: psig @ 4416.00 ft (KB)
Start Date: 2016.05.28 End Date: 2016.05.28
Start Time: 04:46:59 End Time: 11:28:53

Capacity: 8000.00 psig
Last Calib.: 2016.05.28
Time On Btm:
Time Off Btm:

TEST COMMENT: IF: 1/4 blow BOB in 6 1/2 min.
IS: Surface blow died in 10 min.
FF: 1/4 blow BOB in 7 min.
FS: No return.



PRESSURE SUMMARY

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

Recovery

Length (ft)	Description	Volume (bbl)
441.00	mcw 95%w 5%m	5.11
252.00	mcw 90%w 10%m	3.53
282.00	w m 50%w 50%m	3.96

* Recovery from multiple tests

Gas Rates

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

DRILL STEM TEST REPORT

FLUID SUMMARY

Ritchie Exploration Inc

8100 E 22nd St. N 700
Wichita, Ks 67278

ATTN: John Goldsmith

5-16s-36w Wichita, ks

Miller Trust #1

Job Ticket: 64548 **DST#: 4**

Test Start: 2016.05.28 @ 04:46:54

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:	20000 ppm
Viscosity:	58.00 sec/qt	Cushion Volume:	bbl		
Water Loss:	7.20 in³	Gas Cushion Type:			
Resistivity:	0.00 ohm.m	Gas Cushion Pressure:	psig		
Salinity:	6500.00 ppm				
Filter Cake:	1.00 inches				

Recovery Information

Recovery Table

Length ft	Description	Volume bbl
441.00	mcw 95%w 5%m	5.111
252.00	mcw 90%w 10%m	3.535
282.00	w m 50%w 50%m	3.956

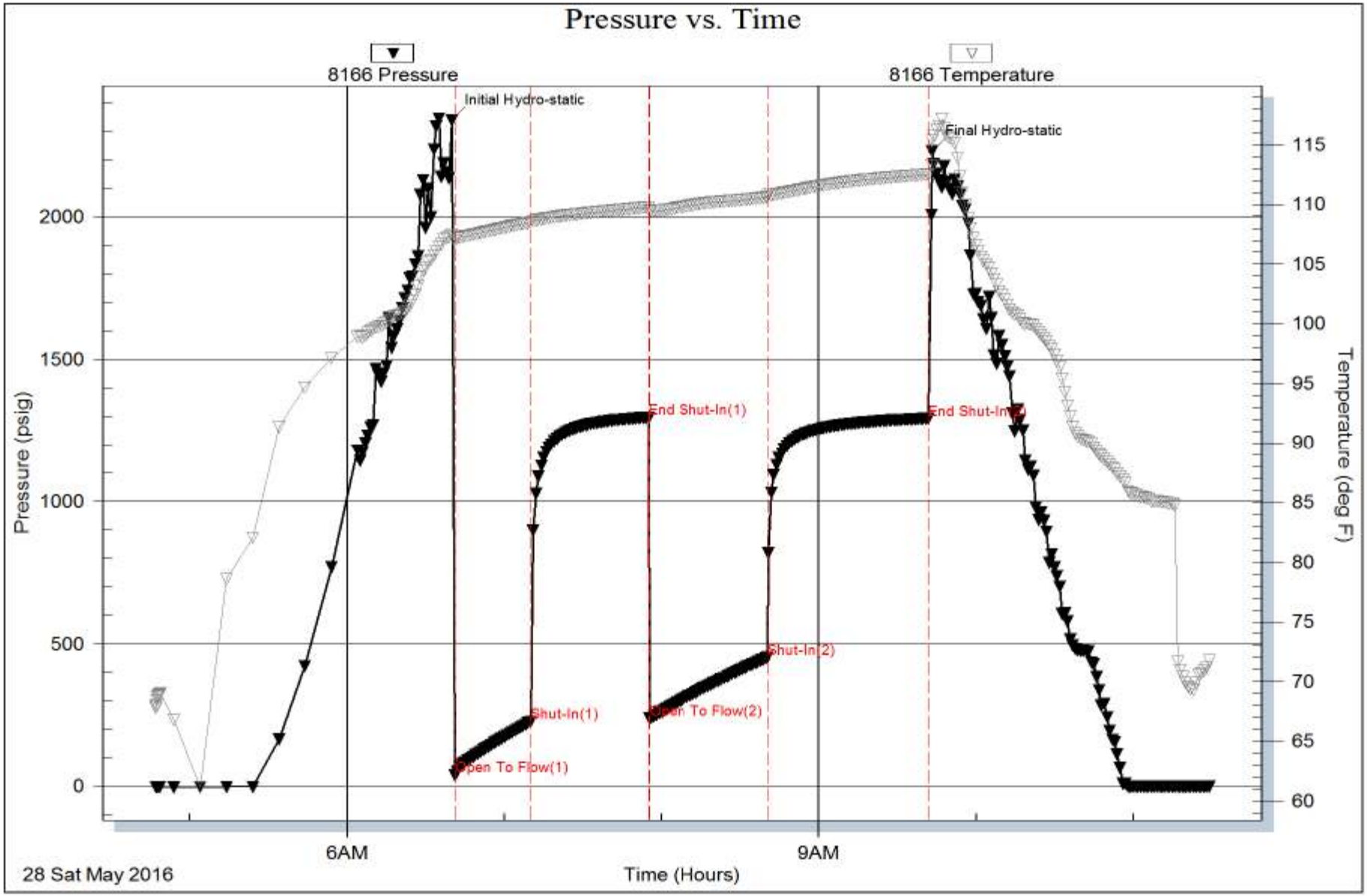
Total Length: 975.00 ft Total Volume: 12.602 bbl

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

Laboratory Name: Laboratory Location:

Recovery Comments: .34@69=20000

Serial #: 8166 **Outside** Ritchie Exploration Inc Miller Trust #1 DST Test Number: 4



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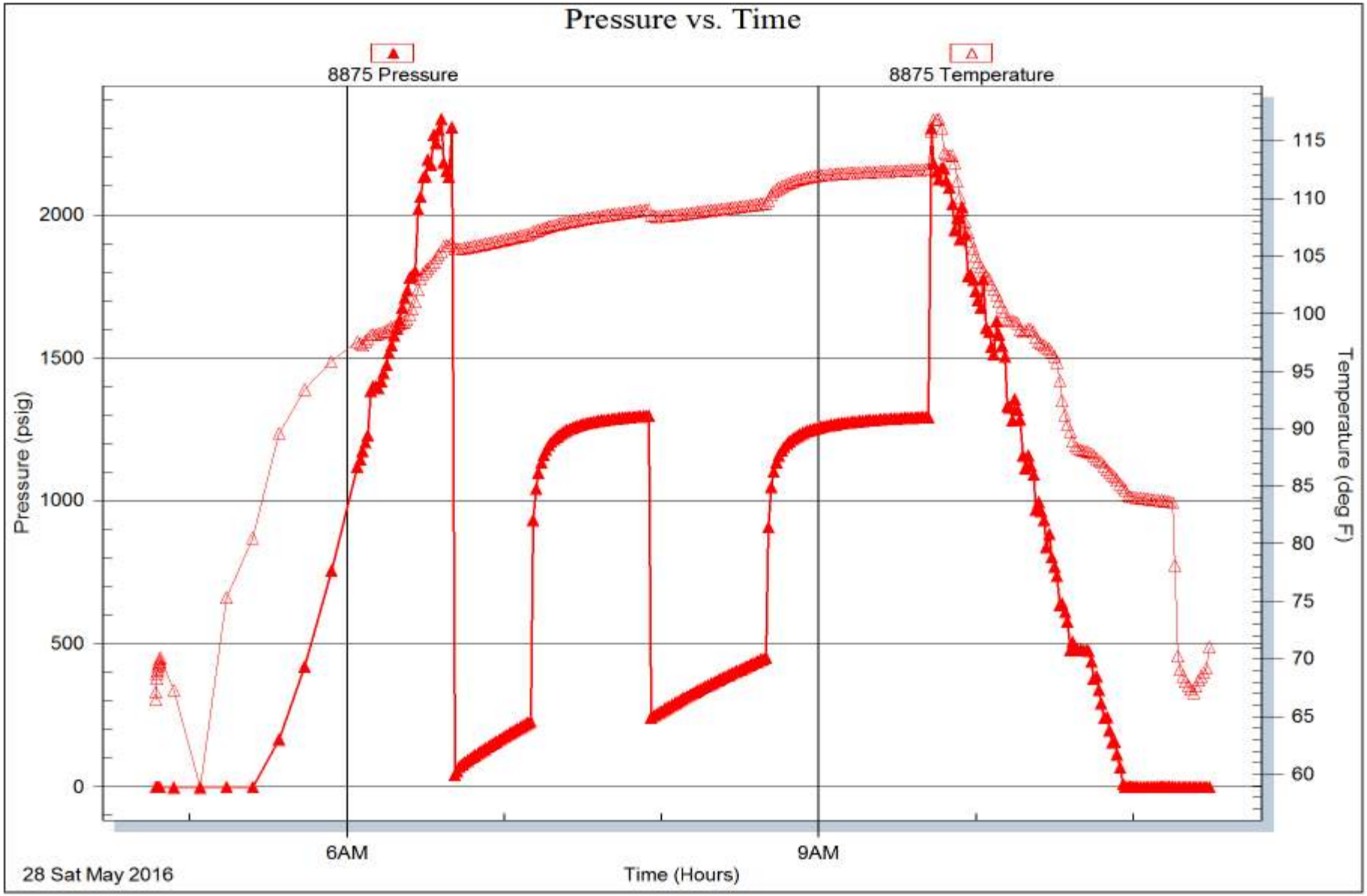
Serial #: 8875 **Inside** Ritchie Exploration Inc Miller Trust #1 DST Test Number: 4



Trilobite Testing, Inc Ref. No: 64548 Printed: 2016.05.28 @ 19:30:27