

M. Bradford Rine

Consulting Geologist, Licensed and Certified

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

Well Name: Burk Trust "B" #1-14 - Murfin Drilling Co., Inc.
Location: W2-NE-NW-NE, 14-T01S-R36W
License Number: API: 15-153-20959-00-00
Spud Date: November 12, 2013
Surface Coordinates: 330' FNL & 1920' FEL'
of Section
Bottom Hole Vertical Wellbore
Coordinates: Wildcat
Ground Elevation (ft): 3275 Ft. K.B. Elevation (ft): 3280 Ft.
Logged Interval (ft): 3550 Ft. To: 4800 Ft. Total Depth (ft): RTD 4800 Ft. LTD 4810 Ft.
Formation: (Cherokee) Near basal Pennsylvanian
Type of Drilling Fluid: Chemical

Region: Rawlins Co, Kansas
Drilling Completed: November 23, 2013
5-1/2" Casing Set

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

Operator

Company: Murfin Drilling Company, Inc.
Address: 250 North Water, Suite #300
Wichita, Kansas 67202

Geologist

Name: M. Bradford Rine
Company: Consulting Geologist, Kansas Lic. #204, Wyo #189, AAPG Cert. #2647
Address: 100 South Main, Suite #415
Wichita, Kansas 67202

Remarks

Based on sample observations, drill stem test results, and electric log evaluation, it was the decision of the Operator, to set production casing for further testing, on the "Burk Trust B #1-14", on November 23, 2013.

Respectfully submitted,
M. Bradford Rine, Geologist

Burk Trust "B" #1-14
Section 14-01S-36W, Rawlins County, Kansas



	Murfin Drilling Co., Inc.			Murfin	(Well A)	
	Burk Trust "B" 1-14			Burk Trust "A" 1-23		
	330' FNL & 1920' FEL			2225' FNL & 330' FWL		
	Sec. 14-01S-36W			Sec. 23-01S-36W		
	3280 Ft. KB			3225 Ft. KB		Well A
Formations	Sample	E-Log	Datum	E-Log	Datum	Comp.
Anhydrite	3196	3206	74	3125	100	-26
B/Anhydrite	3233	3242	38	3158	67	-29
Neva	3682	3694	-414	3607	-382	-32
Red Eagle	3748	3756	-476	3667	-442	-34
Foraker	3794	3754	-474	3716	-491	17
Topeka	4006	4013	-733	3934	-709	-24
Oread	4119	4129	-849	4042	-817	-32
Lansing	4220	4230	-950	4144	-919	-31
Stark Sh	4438	4446	-1166	4365	-1140	-26
B/Kansas City	4486	4496	-1216	4415	-1190	-26
Marmaton	4522	4534	-1254	4450	-1225	-29
Pawnee	4608	4620	-1340	DNP		
Lwr Pawnee	4630	4690	-1410	DNP		
Ft. Scott	4672	4686	-1406	DNP		
Cherokee Sh	4688	4698	-1418	DNP		
Total Depth	4800	4810	-1530	4520	-1295	-235

Drilling Information

Rig: Murifn Drilling, Rig #8
Pump: National K-380 6 x 14
Drawworks: Ideco H-35
Collars: 497' 2-1/4 x 6-1/4
Drillpipe: 4-1/2" 16.6#
Toolpusher: Rodney Farr

Mud: Morgan Mud (Dave Lines)
Gas Detector: None
Drill Stem Tests: Trilobite (Shane McBride, Kevin Mack)
Logs: Pioneer (D. Schmidt)
Water: Trucked In Frisbie lease (Murfin Tank)
Company Representatives:
Office: Scott Robinson
Field: Glenn Wahrman

Daily Drilling Status

Date: Operations/Depth/Comments
11-12-13 MIRT, RU, Spud @ 0'
11-13-13 WOC, Drill out @ 6:45 am @ 260'
11-14-13 Drilling @ 2233'
11-15-13 Drilling @ 3300'
11-16-13 Trip Out of Hole For DST 1 @ 3815'
11-17-13 Drilling @ 4090'
11-18-13 Drilling @ 4180'
11-19-13 Trip Back in Hole after DST #3 @ 4250'
11-20-13 Drilling @ 4340'
11-21-13 Drilling @ 4410'
11-22-13 Drilling @ 4500'
11-23-13 Logging @ 4800'
11-24-13 Plug Down on Cement job at 5:00 AM

Casing Record, Bit Record, Deviation Surveys

CASING:

Conductor: None

Surface: Spud 3:00 pm 11/12/13. Ran 6 jts, 8-5/8" 23#, set @ 260'. (Allied) Sement with 230 sx Common, 03% CC. PD @ 8:30 PM. Cement did circulate.

Production:

Ran 114jts of 15.5# 5½" surf csg, set @ 4793'. (Consolidated) C.O.W.S cmt w/250sxs CMS, 200sxs OWC. PD @ 5:00AM, 30sxs RH, 20sxs MH. Circ. 20BBLs.

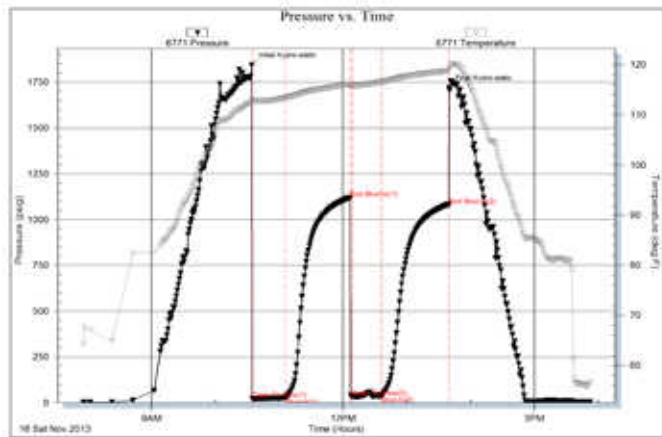
BITS:

No.	Size	Make	Model	Depth In	Depth Out	Hours
1	12-1/4	HTC	MXC	0	260	2.75
2	7-7/8	HTC	GX20C	260	3815	59.75
3	7-7/8	HTC	GX20C	3815	4800	48.75

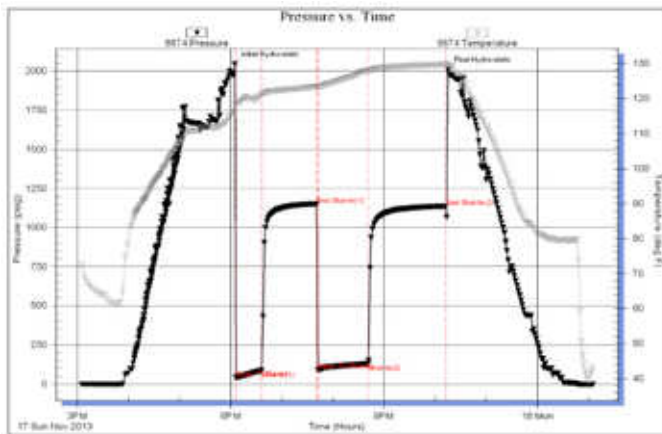
DEVIATION SURVEYS:

Deviation:	Depth:	Deviation:	Depth:
1.25*	260'	.75*	4293'
1.00*	3815'	1.25*	4800'

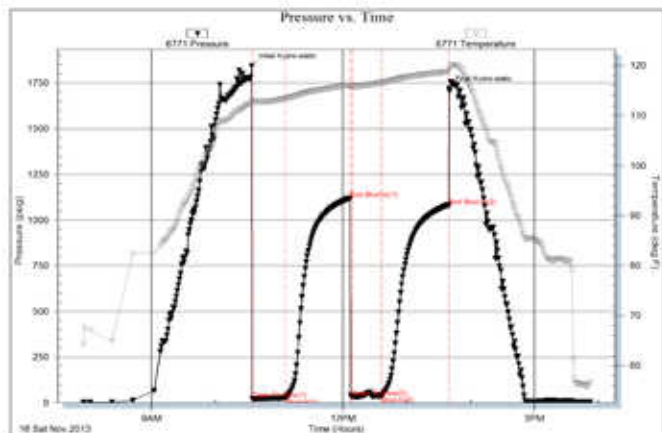
DST #1: 3757-3815 (Foraker)
Times: 30-60-30-60
Initial Open: Wk, surf blow died 24-min.
Final Open: None
Rec: 5' HMCO: 50%o 50%m
IHP: 1842 FHP: 1718
IFP: 23-27 FFP: 32-38
ISIP: 1119 FSIP: 1080
BHT: 119°F



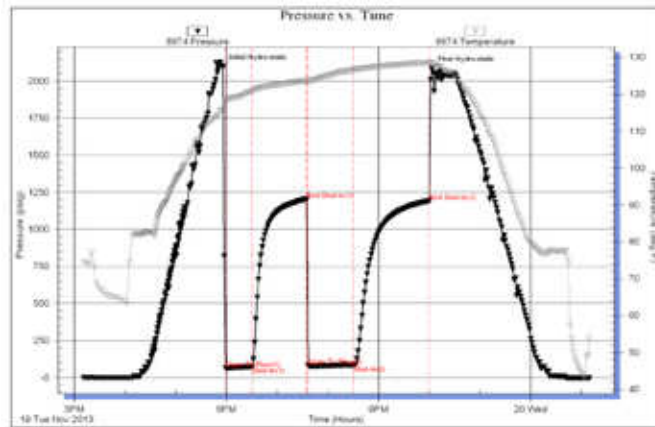
DST #2: 4078-4127 (Oread)
Times: 30-60-60-90
Initial Open: Wk, built to 3" i.bb.
Final Open: Fr, built to 5.25" i.b.
Rec: 240' Total Fluid
60' OSWM: 10%w 90%m
60' OSWM: 30%w 70%m
60' OSWM: 50%w 50%m
60' OSWM: 60%w 40%m
IHP: 2043 FHP: 2007
IFP: 40-86 FFP: 91-130
ISIP: 1151 FSIP: 1137
BHT: 130°F



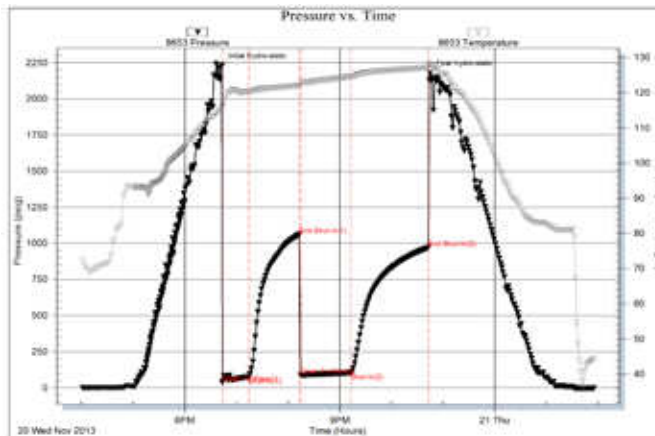
DST #3: 4158-4250 (Lsg A)
Times: 30-60-30-60
Initial Open: Wk, built to 1.25" i.b.
Final Open: None
Rec: 10' mud
IHP: 2058 FHP: 2036
IFP: 17-22 FFP: 24-25
ISIP: 1038 FSIP: 975
BHT: 128°F



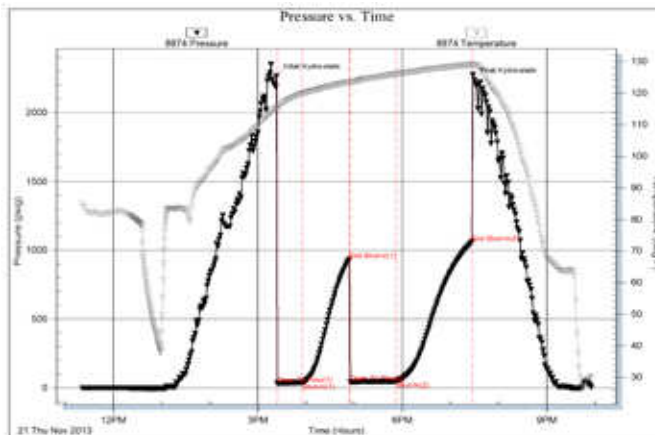
DST #4: 4236-4293 (Lsg D)
Times: 30-60-60-90
Initial Open: Wk, built to 1" i.b.
Final Open: Wk, built to 1" i.b.
Rec: 122' mud/sso in tool
*** Slid tool 10' to bottom!**
IHP: 2094 FHP: 2082
IFP: 64-74 FFP: 83-84
ISIP: 1204 FSIP: 1192
BHT: 129°F



DST #5: 4287-4402 (LKC G,G',H,I)
Times: 30-60-60-90
Initial Open: Stg, b.o.b. 22 min
Final Open: Stg, b.o.b. 15 min
Rec: 226' Total Fluid
40' Oil
62' MCO: 60%o 40%m
62' HMCO: 50%o 50%m
62' OCM: 30%o 70%m
(Gr Oil 34 API)
IHP: 2226 FHP: 2175
IFP: 36-75 FFP: 88-103
ISIP: 1059 FSIP: 968
BHT: 127°F



DST #6: 4391-4440 (LKC J)
Times: 30-60-60-90
Initial Open: Wk, built to 2" i.b.
Final Open: Wk, Built to 3/4", then
died in 40 min
Rec: 60' Oil Spotted Mud
IHP: 2262 FHP: 2233
IFP: 32-37 FFP: 43-49
ISIP: 930 FSIP: 1056
BHT: 129°F



Rock Types

Anhy	Carb shale/Coal	Lmst	Shcol	Siltysh
Bent	Congl	Meta	Shgy	Shlysiltst
Brec	Dol	Mrlst	Sltst	Sandyls
Cht	Gyp	Salt	Ss	
Clyst	Igne	Shale	No descriptions	

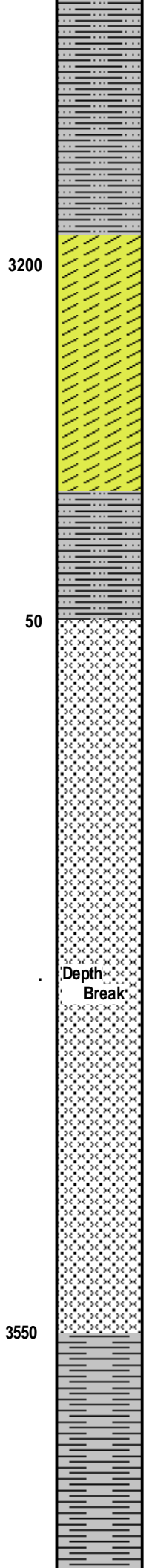
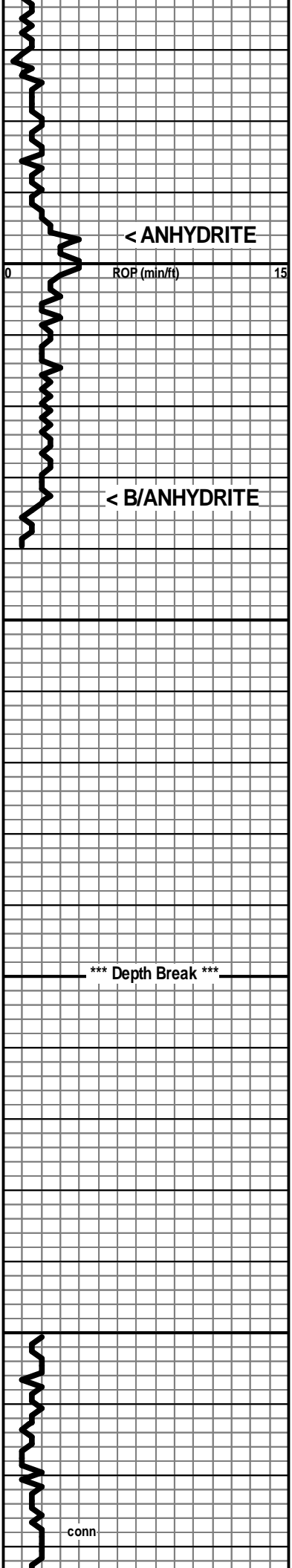
Accessories

MINERAL	Gyp	FOSSIL	Ostra	Sltstrg
Anhy	Hvymin	Algae	Pelec	Ssstrg
Arggrn	Kaol	Amph	Pellet	TEXTURE
Arg	Marl	Belm	Pisolite	Boundst
Bent	Minxl	Bioclst	Plant	Chalky
Bit	Nodule	Brach	Strom	Cryxln
Brecfrag	Phos	Bryozoa	STRINGER	Earthy
Calc	Pyr	Cephal	Anhy	Finexln
Carb	Salt	Coral	Shale	Grainst
Chtdk	Sandy	Crin	Bent	Lithogr
Chtlt	Silt	Echin	Coal	Microxln
Dol	Sil	Fish	Dol	Mudst
Feldspar	Sulphur	Foram	Gyp	Packst
Ferrpel	Tuff	Fossil	Ls	Wackest
Ferr		Gastro	Mrst	
Glau		Oolite		

Other Symbols

OIL SHOW	Spotted/patchy	Gas	INTERVAL
Gas show	Trace/questionable		Core
Even	Dead		Dst

ROP (min/ft) ROP (min/ft)	Depth	Lithology	Geological Descriptions	Remarks
0	3100			Lost Circulation: 40 bbl @ 1800', 20 bbl @ 1920', 20 bbl @ 1980'!
15	50			



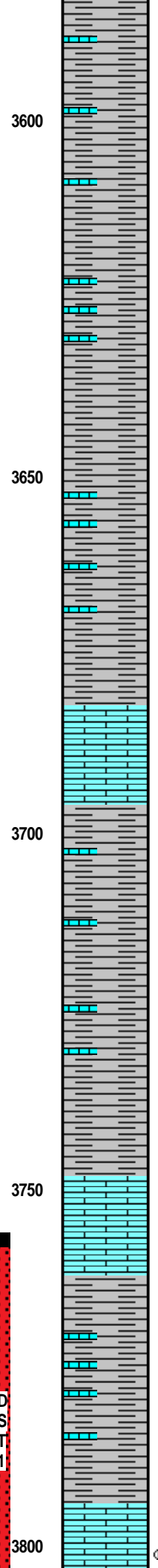
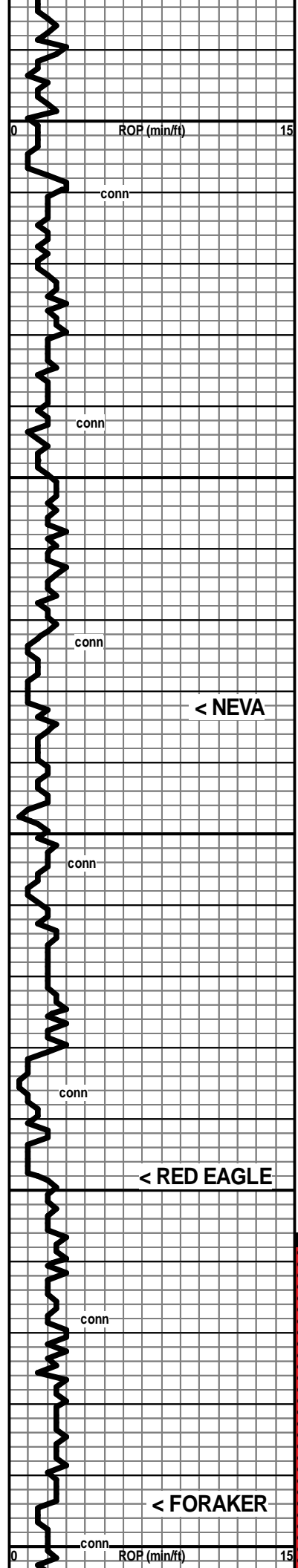
←----- 3196 (+84)

Anhydrite Interval based on drill time only!

←----- 3233 (+47)

Displace & Mudup @
3380 ft.

90% Red shales, msuhy-soft (washes red), 10% Ls wh, fn xln
(mostly masked by the shale)



90% Red shales, msuhy-soft (washes red), 10% Ls wh, fn xln (mostly masked by the shale)

90% Red shales, msuhy-soft (washes red), 10% Ls wh, fn xln (mostly masked by the shale)

----- 3682 (-402)
 Ls wh, fn xln, pr-fr xln por? Abund foss, Ls is mostly masked by the red passty-mushy shale
 (3720' spl 30% Ls)
 [No Show]

Sh red, mushy-pastey, Rr dk gy pcs, trace of Ls

----- 3748 (-468)
 Ls pl gy-grnish, fn xln, silty text in pt, scatt pr-fr xln por, foss-abund foss
 [No Show]

Sh red, pastey-mushy-soft, subsilty-silty-earthy text, small % Ls in spls

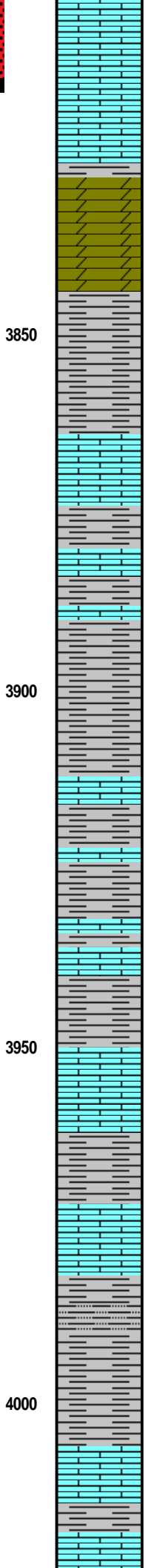
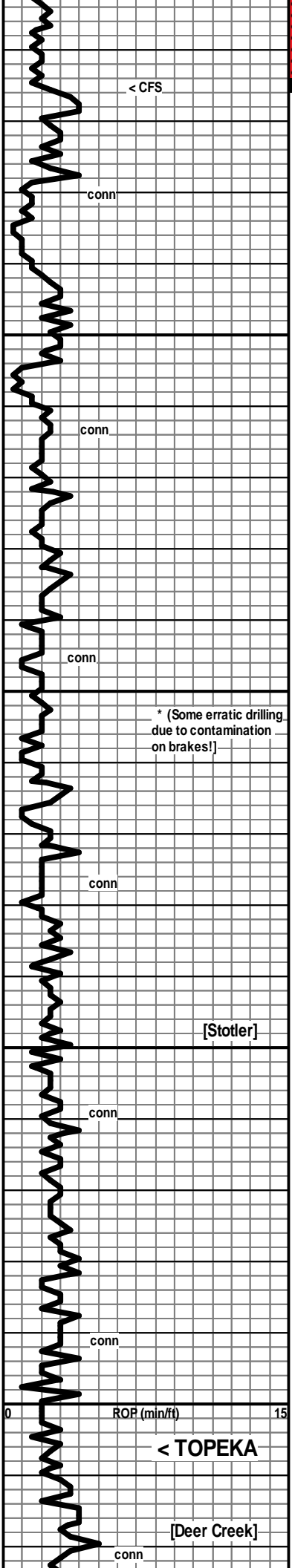
----- 3794 (-514)
 Ls wh-cr, fn xln, abund pr xln por, mealy text in pt, scatt fr xln por, scatt pp pores, scatt sm vugs, foss-abund foss

Short Trip 45 Stds @
 3815 ft, before DST 1.

Pipe Strap: 1.60 ft long
 to board!

DST #1: 3757-3815 (Foraker)
 Times: 30-60-30-60
 Initial Open: Wk, surf blow died 24-min.
 Final Open: None
 Rec: 5' HMCO: 50%o 50%
 IHP: 1842 FHP: 1718
 IFP: 23-27 FFP: 32-38
 ISIP: 1119 FSIP: 1080
 BHT: 119°F

DST 1



[V Fnt Odor, scatt v dull fluor, abund even-spotty lt tan spotty-dk brn sat. stn, mix sli-fr-gd shows of oily film-tan FO-brn FO]

Ls tan-gy, vfn-fn xln, dns, grainy text in pt, foss in pt

Dol cr-tan-brn-gy, fn xln, subsucrosic-sucrosic text, pr-fr xln por, scatt pp pores, micro foss-foss in pt
[No Show]

Sh red-gy-dk gy

Ls wh-cr, fn xln, pr-fr xln por, foss-abund foss

Sh gy-red

Ls cr-pl gy, fn xln, dns, foss

Sh gy-red

Ls cr-gy, fn xln, dns, some subchalky, foss

Sh red-gy

Ls wh-cr-gy, fn xln, dns in pt, soft & chalky in pt, foss-abund foss
[No Show]

Sh gy-grnish, some red

Ls wh-cr. some stn'd red with red shale, fn xln, dns, foss

Sh red, pasty-mushy (washes deep red)

Ls wh, fn xln, dns

Sh red-grn, mostly pasty-mushy, some silty text and more firm

Sh red, pasty-mushy (washes red)

←----- 4006 (-726)
Ls wh, fn xln, abund red shale filled pores and fractures, foss

Sh red, mushy (washes red)

Ls wh, fn xln, pr vis xln por, some red shale filled pores and vugs, foss in pt

7:00 AM, November 16, 2013

Mud Check, OB/DST 1 @ 3815:

Vis	Wt	WL	LCM	PV	YP
57	8.9	6.0	6	18	18
Chl	Hd	pH	Solids		
900	10	11.0	4.3		

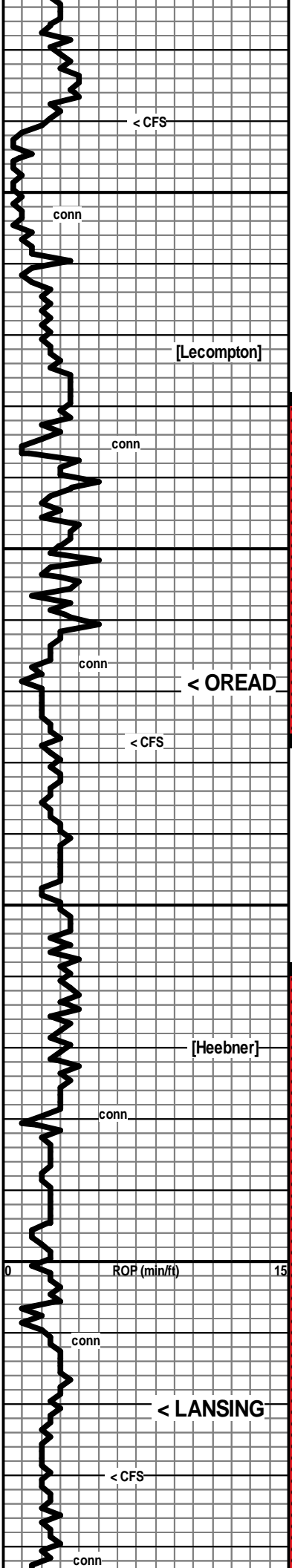
* (Some erratic drilling due to contamination on brakes!)

[Stotler]

< TOPEKA

[Deer Creek]

ROP (min/ft)



4050

< CFS

conn

[Lecompton]

4100

DST 2

conn

< OREAD

< CFS

4150

[Heebner]

conn

4200

DST 3

conn

< LANSING

< CFS

conn

4050

Ls wh-cr, fn xln, pr xln por, chalky in pt, foss

Silty Shale to shaley siltstone to fnly sdy, red-grn-gy, vfn-fn grn, soft-mod

Sh red, pastey-mushy, silty in pt (washes red)

Ls wh-cr-pl gy, fn xln, abund silty-sdy pcs, some red shale filled pores

[No Show]

80% shales red-gy-grn, soft-mushy (washes red)
20% Ls wh, fn xln, chalky & soft to dns & firm

Sh red-pl red, mushy-pasty-soft, (washes pinkish), some pl purple-grn silty shale

----- 4119 (-839)

Ls wh-cr, fn xln, scatt pr-fr xln por, scatt pp pores, abund chalky & mushy pcs, foss-abund foss, Ls becomes more dns with depth

[No Odor, Scatt dull spotty fluor, low% pcs with spotty tan-spotty dk stn; stn'd pcs on brk have moderate show of lt tan-tan oily film, and trace-sli shows of brn NVL oil and FO on brk, moderate amt of barren appearing porosity]

Ls wh-cr, fn xln, pr xln por in pt, scatt pp por, foss

[No Odor, Rr dull spots fluor, Rr pcs with dk brn-blk spotty stn, NSFO]

Ls cr-tan-gy, vfn-fn xln, dns, subsucrosic/dol text in pt

Ls gy-tan, vfn xln, v hard, subsucr text in pt, tr of hard gy shale in spls

60% Sh gy-pl gy-grnsh-red
40% Ls pl gy-cr, vfn xln, dns

Silty-sdy wh-gy, vfn-fn grn, well-cem with mushy-soft calc cement

Sh pl gy-gy, trace of brick red shale, silty in pt

Sh red, soft-mushy (Washes deep red)

----- 4220 (-940)

Ls cr-pl gy, fn xln, mostly dns, low% pcs with patches of pp por & pr xln por, foss

[No Odor, Rr spotty dull fluor, Low % pcs with patches of hvy dk brn stn to blk tarry asph-resid stn, On brk: mostly blk tarry DO, mod amt of lt oily/wtry film, sli show brn DO, trace-v sli show brn FO in Rr pcs]

Ls cr, vfn xln, dns, vitreous text in pt

Sd pl gy-pl grn with patches of pink-reddish shale stn, fn grn, gd

7:00 AM, November 17, 2013

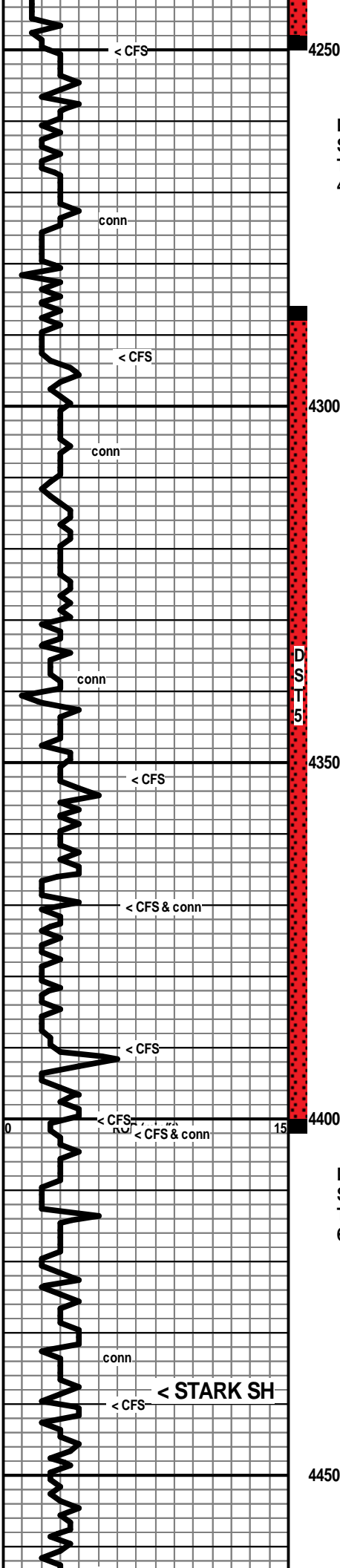
DST #2: 4078-4127 (Oread)
Times: 30-60-60-90
Initial Open: Wk, built to 3" i.bb.
Final Open: Fr, built to 5.25" i.b.
Rec: 240' Total Fluid
60' OSWM: 10%w 90%
60' OSWM: 30%w 70%
60' OSWM: 50%w 50%
60' OSMW: 60%w 40%
IHP: 2043 FHP: 2007
IFP: 40-86 FFP: 91-130
ISIP: 1151 FSIP: 1137
BHT: 130°F
(Mud man checked Chl @ 27,000)

Mud Check, CTCH/DST2 @ 4127':
Vis Wt WL LCM PV YP
62 9.1 5.6 5 19 21
Chl Hd pH Solids
1100 10 11.5 5.7

7:00 AM, November 18, 2013

DST #3: 4158-4250 (Lsg A)
Times: 30-60-30-60
Initial Open: Wk, built to 1.25" i.b.
Final Open: None
Rec: 10' mud
IHP: 2058 FHP: 2036
IFP: 17-22 FFP: 24-25
ISIP: 1038 FSIP: 975
BHT: 128°F

Mud Check, CTCH @ 4250':
Vis Wt WL LCM PV YP
60 9.1 5.6 6 18 20



sort, subrd, well-cem with calc cem

[No Show]
Sh gy-red, foss in pt

Sh red-gy-grnsh-dk gy, silty in pt, earthy text in pt (washes red)

Ls wh-cr, fn xln, mostly dns with patches of pr xln por & pp por, Rr sm vugs, scatt closed fracturing, foss (spl remained 75% shales)

[No Odor, Scatt spotty-sm patches fluor, patchy brn-dk brn-blk stn with sli shows of Dk Hvy DO & Brn FO on brk, some blk resid stn]

Ls wh-cr, some re-worked and re-cem frags and foss

Sh pinkish-red, some grn-gy, mushy-soft, scatt calc chalky mix

Sh red, pastey-mushy (washes deep red)

Sh red in pt (50%) & gy-grn in pt (50%), some plgy-pl grn shaley silt to silty shale

Ls wh-cr, fn xln, Abund dns, some chalky, moderate am't of patches and pcs with pr xln por & fr pp por with sm vugs, foss-abund foss-packed micro foss debris

[No Odor, Scatt dull-mod fluor, mod am't of pcs & patches with tan-brn stn, mix of sli-fr shows of: oily film-NVL dk brn oil-brn gassy FO on brk]

Sh gy-grn-red

Ls cr, fn xln, mostly dns, scatt patches & pcs with pr xln por and pp pores, foss

[No Odor, V Rr spotty fluor, Rr pcs with patches of spotty stn-with sli shows of oily film & tan FO on brk]

Sh gy-blk

Sh red-gy

Ls cr-tan-pl gy, fn xln, dns, foss-abund foss, Scatt red shale filled fractured and pores

[No Odor, V Rr spots of dull fluor, few pcs with patches of Lt brn spotty stn & trace show of lt brn FO on brk]

Ls wh-cr, fn xln, pr xln por-dns, chalky in pt, foss-abund foss

Sh red-gy-grnsh gy, earthy text in pt, silty-subsilty in pt, subwaxy in pt

Ls wh-cr, fn xln, mostly dns to subchalky with scatt patches & pcs with pr xln por & pp pores, foss-abund foss, scatt calcite inclusions

[No Odor, Scatt dull-mod fluor, Moderate am't of pcs with patchy brn stn with sli shows of oily scum & brn FO on brk]

Sh red-gy-dk gy, mushy-soft, (washes red)

Chl Hd pH Solids
1100 10 10.5 5.7

7:00 AM, November 19, 2013

DST #4: 4236-4293 (Lsg D)
Times: 30-60-60-90
Initial Open: Wk, built to 1" i.b.
Final Open: Wk, built to 1" i.b.
Rec: 122' mud/sso in tool
* Slid tool 10' to bottom!
IHP: 2094 FHP: 2082
IFP: 64-74 FFP: 83-84
ISIP: 1204 FSIP: 1192
BHT: 129°F

Mud Check, CTCH @ 4293':
Vis Wt WL LCM PV YP
53 9.3 6.0 6 17 17
Chl Hd pH Solids
1100 20 10.0 7.1

7:00 AM, November 20, 2013

DST #5: 4287-4402 (LKC G,G',H,I)
Times: 30-60-60-90
Initial Open: Stg, b.o.b. 22 min
Final Open: Stg, b.o.b. 15 min
Rec: 226' Total Fluid
40' Oil
62' MCO: 60%o 40%
62' HMCO: 50%o 50%
62' OCM: 30%o 70%
(Gr Oil 34 API)
IHP: 2226 FHP: 2175
IFP: 36-75 FFP: 88-103
ISIP: 1059 FSIP: 968
BHT: 127°F

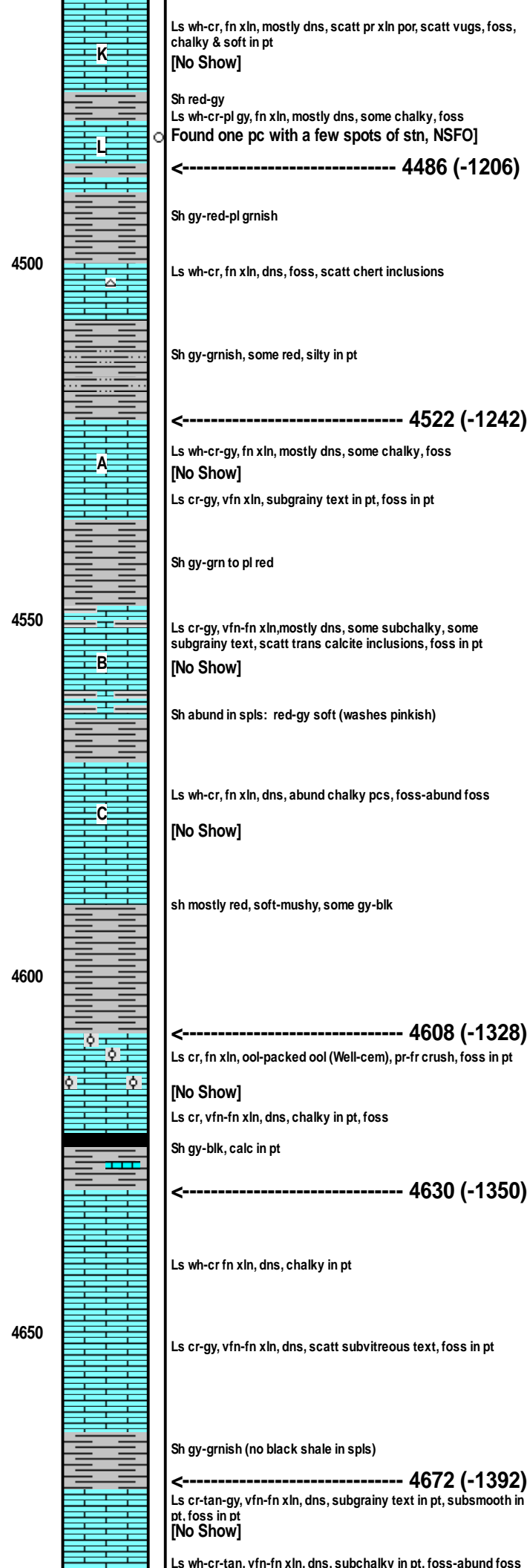
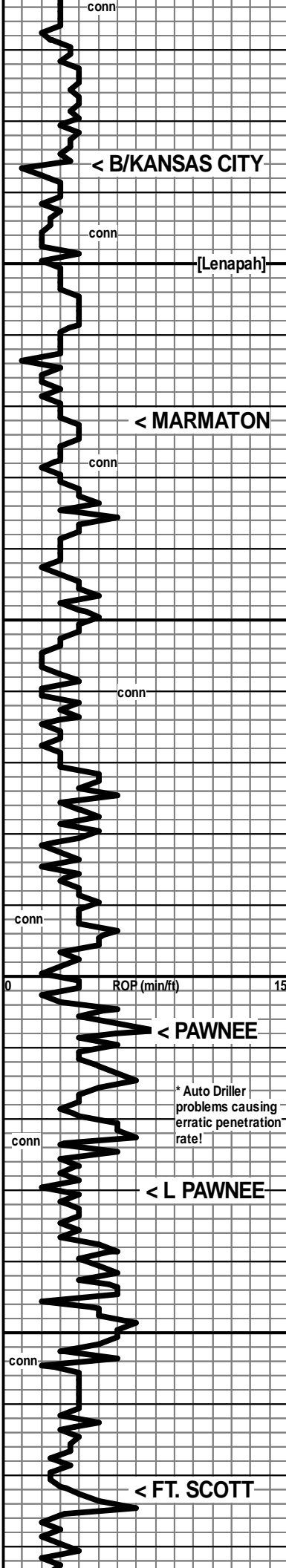
Mud Check, Drlg @ 4398':
Vis Wt WL LCM PV YP
67 9.2 6.4 6 21 21
Chl Hd pH Solids
1000 10 11.5 6.4

7:00 AM, November 21, 2013

DST #6: 4391-4440 (LKC J)
Times: 30-60-60-90
Initial Open: Wk, built to 2" i.b.
Final Open: Wk, Built to 3/4", then died in 40 min
Rec: 60' Oil Spotted Mud
IHP: 2262 FHP: 2233
IFP: 32-37 FFP: 43-49
ISIP: 930 FSIP: 1056
BHT: 129°F

Mud Check, Trip for DST @ 4440':
Vis Wt WL LCM PV YP
64 9.4 6.4 6 19 22
Chl Hd pH Solids
1000 10 11.5 7.8

----- 4438 (-1158)



7:00 AM, November 22, 2013

Mud Check, Drlg @ 4588':

Vis	Wt	WL	LCM	PV	YP
84	9.4	6.4	6	23	26
Chl	Hd	pH	Solids		
1000	10	11.5	7.8		

* Auto Driller problems causing erratic penetration rate!

conn
< CHEROKEE

[Verdigris]

4700

conn

conn

4750

conn

4800

< CFS- *** RTD 4800 Ft. ***
LTD 4810 Ft.

[No Show]

<----- 4688 (-1408)

Ls wh-cr, fn xln, dns-pr xln por, chalky & soft in pt, foss, Rr sli sdy pcs

Sh red-gy-grnsh

4720' spl: Sd & Sdy Ls & Limey Sd, wh-gy-cr-grnsh, cem in pt to well-cem with calc cement, gd sort, fn grn, subrd, fr-gd fri, scatt pyrite, glauc, and shale specks throughout

[No Show]

Ls wh-cr, fn xln, dns, chalky in pt, sdy in pt, foss in pt

4740' spl: 60% Shales: red-gy-grn-lav-yell-tan, silty in pt, pyritic in pt, subearthy-subfiss

40% Ls: wh-cr, fn xln, dns, foss

4750' spl: 70% Ls wh-cr, fn xln, sdy in pt with fn grn sd, chalky matrix in pt, foss in pt

30% VC Shales

4760' spl: 70% Ls wh-cr-gy, fn xln, chalky in pt, foss, sdy in Rr pt

30% red-gy shales

4770' spl: 85% VC Shales; red-gy-dk gy-grn-yell-purple, sdy in pt

15% Ls wh-cr, fn xln, dns, sdy in pt

4780' spl: 90% VC Shales as above; 10% Ls and a few clusters of Sd, fn grn, subrd-subang, fr-gd sort, shaley in pt, calc cem in pt, "dirty" looking

[No Show]

Shales as above, moderate am't of crs loose quartz or chert frags with mix of sharp to subrd'd edges, transl, glassy

99% Shale, mostly red, mushy to soft, with gy-grn-yell, silty in pt, (washes red) few sd clusters per tray, fn-md-crs, subrd-subang

[No Show]

RTD 4800 Ft. @ 12:04 AM,
November 23, 2013