WESLEY D. HANSEN Consulting Petroleum Geologist

212 N. Market, Suite 257, Wichita, KS 67202
Office: 316-267-7313 Cellular ; 316-772-6188

KGS
AAPG
Kansas License #418

MURFIN DRILLING COMPANY, INC.
WICHITA, KANSAS

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

Well Name:	Murfin Drilling Co., Inc. #1-7 Minnix		
Location:	900' FNL, 335' FWL of Section 7-20S-34W		
License Number:	API: 15-171-20824	Region:	Scott County, KS
Spud Date:	8-10-2011	Drilling Completed:	8-17-2011
Surface Coordinates:	900' FNL, 335' FWL of 7-20S-34W		
Bottom Hole Coordinates:	Vertical hole		
Ground Elevation (ft):	3129'	K.B. Elevation (ft):	3140'
Logged Interval (ft):	3500' To: RTD	Total Depth (ft):	5080'
Formation:	Mississippian at RTD		
Type of Drilling Fluid:	Chemical - Displaced at 3400'		

Printed by WellSight Log Viewer from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: Murfin Drilling Co., Inc.
Address: 250 N. Water
Suite 300
Wichita, KS 67202

GEOLOGIST

Name: Wesley D. Hansen
Company: Wesley D. Hansen - Consulting Petroleum Geologist
Address: 212 N. Market, Suite 257
Wichita, KS 67202
Office: 316-263-7313 Cellular: 316-772-6188

COMMENTS

Contractor: Murfin Drilling Co., Inc. Rig #22
Pusher: Kelly Wilson

Surface Casing: 8 5/8" set at 223' w/175sx
Production Casing: 4 1/2" set at +or- 4750'

Mud by: MudCo - Tony Maestas was the engineer

DST's by: Trilobite - Jace McKinney was the tester

Logs by: Log-Tech (DIL, CN-CD)

Deviation Surveys: 1 deg. @ 224'; 3/4 deg. @ 856'; 1/2 deg. @ 1482'; 1 deg. @ 1953'; 3/4 deg. @ 2453'; 3/4 deg. @ 2954'; 3/4 deg. @ 3500'; 3/4 deg. @ 4647'; 1 deg. @ 5080'

Bit #	Size	MFG	Type	Depth Out	Footage Cut	Hours on bit
1	12 1/4"		116C	224'	224'	2
2	7 7/8"	HTC	DP506F	3500'	3276'	38
3	7 7/8"	HTC	GX22S	5080'	1580'	77 1/2

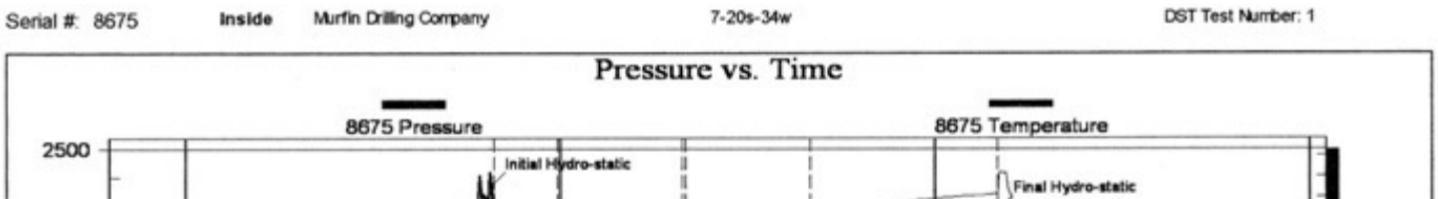
FORMATION TOPS AND STRUCTURAL COMPARISON

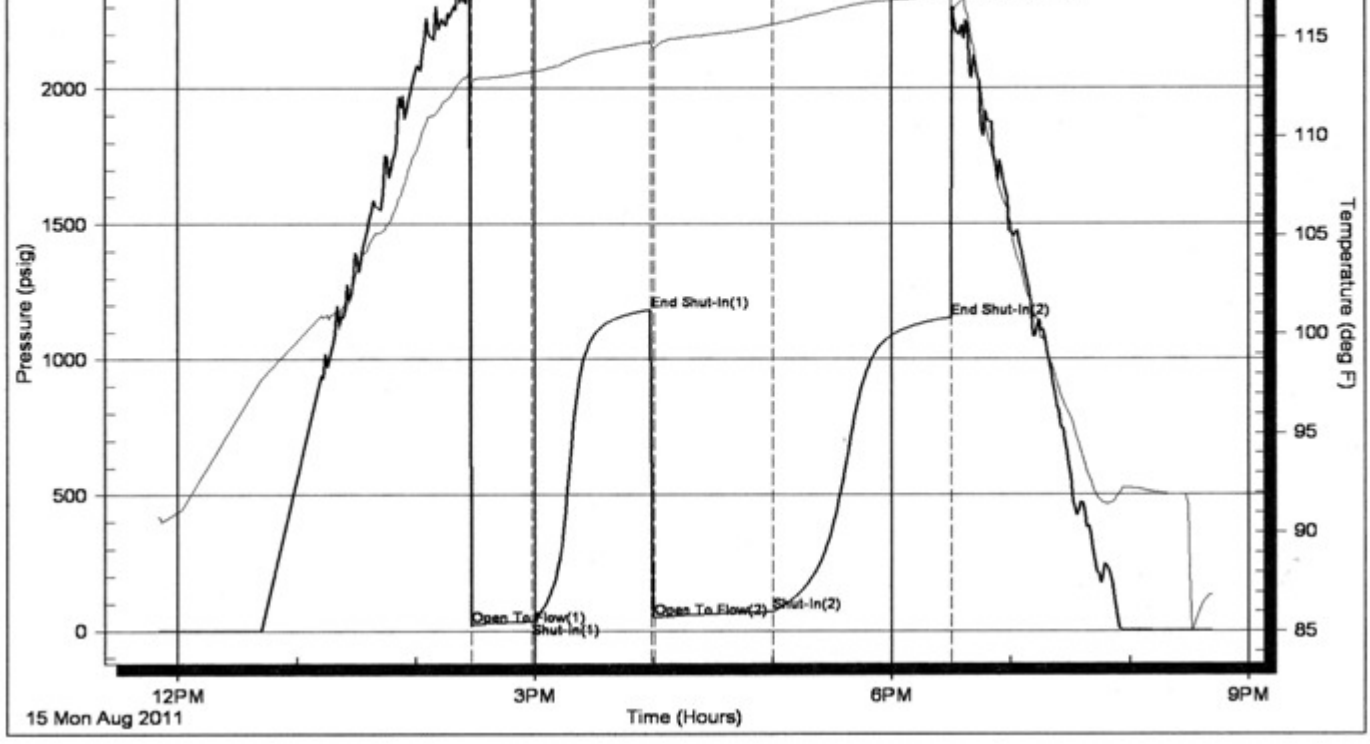
FORMATION	SAMPLE TOPS Depth	SAMPLE TOPS Datum	LOG TOPS Depth	LOG TOPS Datum	COMPARISON WELLS Thunderbird Lehman C #1 C NE NE 31-19S-34W	Comanche Resources Eder #6-1 2340' FSL, 1200' FEL 6-20S-34W
					3093' KB Lehman	3068' KB Eder
Anhydrite	2310'	+830	2310'	+830	+18'	+8'
B/Anhydrite	2328'	+812	2328'	+812	+19'	+2'
Heebner Shale	3999'	-859	4000'	-860	-6'	-11'
Lansing	4046'	-906	4049'	-909	-10'	-11'
Stark Shale	4363'	-1223	4360'	-1220	-8'	-14'
Hushpuckney Shale	4410'	-1270	4412'	-1272	-1'	-14'
Marmaton	4529'	-1389	4526'	-1386	-3'	-17'
Pawnee	NC		4614'	-1474	-5'	-12'
Fort Scott	4652'	-1512	4654'	-1514	-9'	-10'
Cherokee Shale	4683'	-1543	4682'	-1542	nc	-11'
Morrow	4841'	-1701	4843'	-1703	flat	-13'
Mississippian	4930'	-1790	4926'	-1786	+19'	+6'?
RTD	5080'	-1940				
LTD			5082'	-1942		

DRILL STEM TESTS

DST No. 1 Upper Pawnee
Interval: 4600'-4647'
Times: 30-60-60-90
Recovery: 372' GIP; 20' oil; 120' OCM (50o, 50m)
FP: 21-34/47-70 SIP: 1181-1151
HP: 2371-2288 BHT: 117 deg. F

IFP: weak blow bldg. to 5 inches
ISIP: no return blow
FFP: slowly bldg. to B.O.B. in 48 minutes
FSIP: no return blow





ROCK TYPES

- Anhy
- Cht
- Coal
- Congl
- Dol
- Gyp
- Lmst
- Salt
- Shale
- Shcol
- Shgy
- Sltst
- Ss
- Carb sh
- Dol
- Dtd
- Gry sh
- Sandylms
- Shale
- Sltstn
- Shlyslts
- Sltysh
- Sdy dolo
- Silty dolo
- Shy dolo
- Shaly ls

ACCESSORIES

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom
- Fuss
- Oomold

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff
- Chlorite
- Dol
- Sand
- Slty

STRINGER

- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg
- Carbsh
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

OTHER SYMBOLS

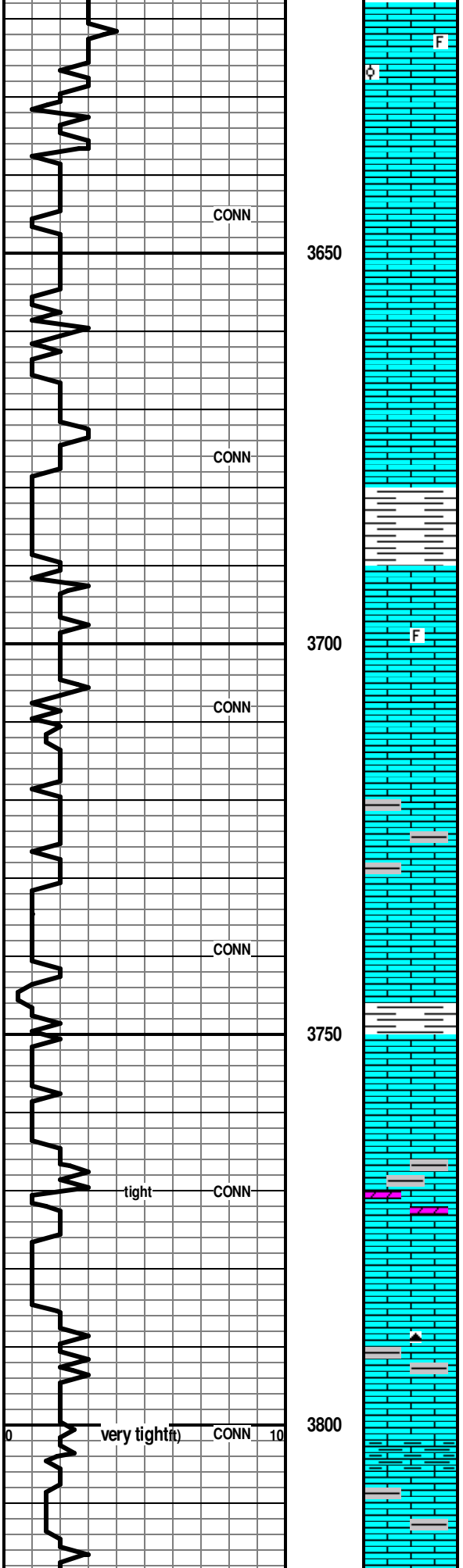
INTERVALS
- Core
- Dst
- Dst

EVENTS
- Rft
- Dst top/base

OIL SHOWS
- Even
- Spotted
- Quest.

- Trace
- Dead
- Gas show

Curve Track 1 ROP (min/ft)	Depth	Lithology	Oil Shows	Geological Descriptions	Remarks
0 ROP (min/ft) 10					**Morning Depth and Activity** 8-8-2011 Start MIRT 8-9 MIRT, rig up 8-10 Spud at 10:00 AM 8-11 Drlg. @ 580' 8-12 Drlg. @ 2800' 8-13 Drlg. @ 3801' 8-14 Drlg. @ 4330' 8-15 Short trip for DST No. 1 @ 4647' 8-16 Drlg. @ 4755' 8-17 Drlg. @ 5065' 8-18 RTD @ 5080' 4 1/2" set
NB	3500				Bit trip at 3500' Strap at 3500' was 1.06' short to board
				Ls: lt-med brn, lt to dark gray cryptoxln	Board 3519.79' Strap 3518.73' ---------- 1.06' short
CONN				Sh: med to dark gray; Ls: flood mottled gray/tan/brn fn-med granular, poor to NVP	
				Ls: mixed and mottled AA, some lt-med gray vf-cryptoxln; interbedded med to dark gray shales, some red-brn	
		F		Ls: mix lt-med gray vf-cryptoxlm; med brn cryptoxln, sl influx sl mottled tan/lt brn fn granular and fossilif. with inter and intra-particle por.; Sh: lt-med gray, some gray-green	
		F			
CONN	3550			Sh: influx med to dark gray in 80' spl	
				Ls: gray, lt brn cryptoxln	Geologist on location at 3556'
				Sh: vc gray with common red-brn, some brick red	sample quality fair at best - plagued by sloughing gray and red-brown shales
CONN				Ls: mottled tan/brn/gray granular, NVP; tan, offwhite, lt gray mic-vfxln dense; very shaly spls - lt-med gray, some lt gray, offwhite micac. siltst; trace gray/brn chert	
				Ls: various mottled granular, occ fossilif. and oolitic, NVP; shales and scatt. siltst AA	
0 ROP (min/ft) 10	3600	F			
		F			
CONN				Ls: more tan, lt brn fn granular and vf-cryptoxln; trace crinoid fragments; shaly spls AA	



Ls: various tan, brn, gray mottled granular, sl oolitic and fossilif., NVP; vc gray and red-brn shales

50' spl - Ls: flood tan, lt brn, lt gray predom. vfxln, dense; scatt. tan, offwhite subchalky to occ chalky; decr. shale %

Ls: predom. tan, lt brn, lt gray mic-vfxln dense; some mic-fnxln with poor pp por., occ subchalky; lesser gray, gray-brn vf-cryptoxln; shaly spls AA, some dark gray to black

Ls: mix AA, more lt-med brn xln dense

shaly samples AA

Ls: influx tan, lt brn cryptoxln and tan, offwhite micxln subchalky to chalky

Ls: common offwhite, tan subchalky to chalky IP; tan, lt-med brn, some lt gray vf-cryptoxln

Ls: flood lt-med brn, gray-brn vf-cryptoxln, mottled granular IP, NVP

Sh: med to dark gray

Ls: tan, offwhite mic-fnxln and lt brn mic-vfxln dense

Ls: mix AA with influx lt-med gray cryptoxln, sl fossilif. IP; mottled brn/gray granular NVP; vc gray shales

Ls: various tan, brn, gray vf-cryptoxln and mottled dense AA; vc gray shales

Ls: tan, lt brn mic-vfxln; lt-med gray vfxln to occ cryptoxln; some tan mic-fnxln with poor interxln por., N.S.; shaly AA, sl influx dark gray to black

Ls: offwhite, tan mic-fnxln, some poor pp por., subchalky IP and tan, lt brn fnxln with poor interxln por., N.S.

Sh: med to dark gray, some black

shaly samples AA

Ls: mix AA with more lt-med brn sl mottled, granular

Ls: various tan, lt brn, lt gray vfxln dense; very shaly spls, influx red-brn

very shaly spls AA; Ls: various dense AA; one chip tan cryptoxln with good vug. por., N.S.; some tan, lt brn vfxln dolomite, NVP, N.S.

tight connection

Ls: scatt. lt brn cryptoxln with good vug. por. and offwhite, tan mic-vfxln, subchalky to chalky; some tan, lt brn mic-vfxln, gen. dense, some poor pp por., N.S.

MudCo Mud Check at 3800'
6:30 AM on 8-13-2011

wt	vis	wl	pH	chl
9.4	61	10.4	10.0	9000
PV	YP	GelS	lcm	solids
18	22	15/45	2#	7.3%

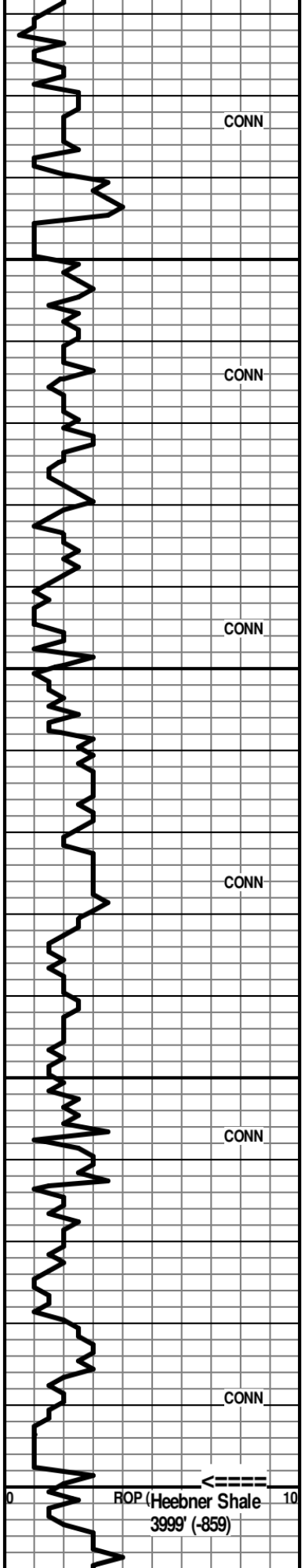
Ls: influx med brn, gray mottled and granular, NVP; Sh: vc gray, red-brn; trace dark gray mottled chert

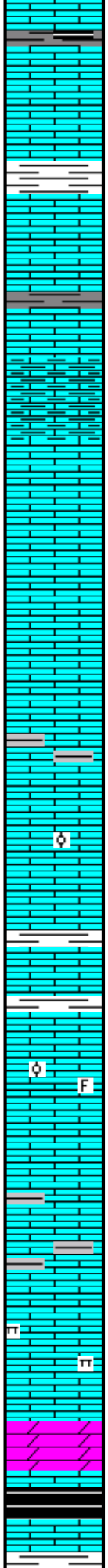
Ls: tan, lt brn vf-cryptoxln, gen. NVP, some scatt. good vug por. AA; mottled med to dark gray, brn dense AA; tan, offwhite mic-vfxln dense, subchalky to chalky IP; Sh: med to dark gray

7:00 AM at 3801' on 8-13-2011

tight connection, worked pipe

Ls: influx med to dark gray, mottled IP, dense, shaly; lt-med brn vfxln dense; shales AA





Ls: mottled dense shaly AA; mottled gray, brn granular NVP; lt-med brn, tan vf-cryptoxln; Sh: med to dark gray, sl influx black

Ls: various lt-med gray, lt-med brn, tan predom. vfxln dense; Sh: vc gray, caving red-brn

Ls: various dense AA; lesser mottled brn fn granular and tan, offwhite micxln dense

Ls: various dense AA; mottled brn/gray granular, NVP; Sh: med to dark gray, occ black

very shaly mix AA with more dark gray to black shale; Ls: sl influx med to dark brn, med gray cryptoxln

Ls: influx lt-med brn, tan cryptoxln; shaly spls AA

Ls: tan, lt brn fn granular with some poor pp and interxln por.; offwhite, lt gray, tan mic-vfxln dense, subchalky IP with some pp por., N.S.

Ls: lt gray, lt-med brn cryptoxln; incr. med to dark gray shale and dense gray shaly Ls

Ls: common gray, brn vf-cryptoxln; some sl mottled tan, granular, sl oolitic wih poor to NVP

Ls: offwhite, lt gray mic-vfxln dense; various gray, brn cryptoxln; Sh: common med to dark gray, some black, common red-brn slough

very shaly mix AA; more med brn cryptoxln Ls

Ls: offwhite, tan mic-vfxln; scatt. tan fossilif./oolitic with fair-good vug. and moldic por., N.S.; lt-med brn vf-cryptoxln, sl mottled IP; very shaly spls AA

Ls: lt-med brn, lt gray cryptoxln; tan, lt brn, offwhite vfxln dense; shaly AA

Ls: various dense AA with influx med to dark gray dense shaly

Ls: tan, offwhite mic-fnxln with pp por. IP; some mottled offwhite/brn marl

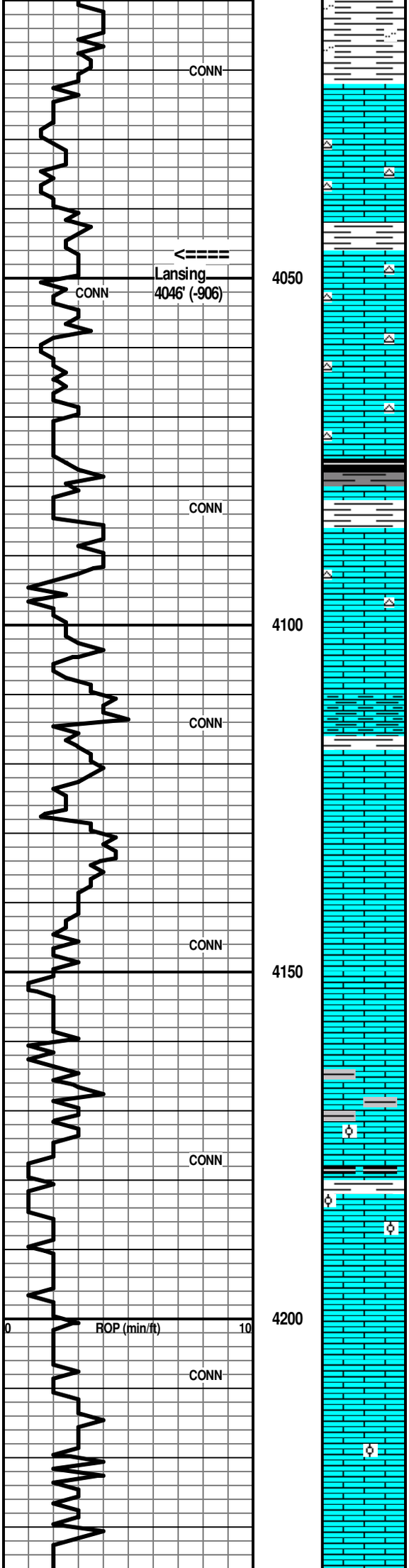
Dolo: influx tan, lt brn vfxln, finely sucrosic, N.S.

Sh: sl influx black carbon.; Ls: some med brn, gray cryptoxln

shaly samples AA

shaly samples AA

Heebner Shale 3999' (-859)



4050

4100

4150

4200

Sh: lt gray, gray-green, soft, silty IP

Ls: lt-med brn, gray vf-cryptoxln

Ls: flood offwhite, tan vf-cryptoxln; good influx offwhite micxln, subchalky to chalky; sl influx gray, tan, offwhite chert

Sh: gray

Ls: tan, offwhite vf-cryptoxln and offwhite subchalky; influx offwhite opq chert

Ls: mix AA with common offwhite subchalky to chalky; occ lt gray with fair pp por., N.S.; cherty AA

Ls: cherty AA

Ls: mix AA with influx lt-med brn cryptoxln; very shaly spls AA with incr. dark gray to black

Ls: tan, lt brn cryptoxln and offwhite mic-vfxln dense, subchalky IP; scatt. offwhite, tan opq chert

Ls: more med brn, gray-brn cryptoxln

Ls: sl influx of sl mottled tan, lt brn granular and lt gray cryptoxln; Sh: vc gray

Ls: offwhite mic-fnxln with some pp por., N.S.

Ls: tan, lt brn cryptoxln to sl mottled granular, NVP

Ls: various lt brn, lt gray mic-vfxln dense; some mottled lt brn mic-fnxln; offwhite dense subchalky

Ls: sl influx mottled lt brn/gray with micxln matrix; predom. tan, lt-med brn cryptoxln and offwhite subchalky to chalky

Ls: tan, lt brn cryptoxln and tan mic-fnxln with some pp por., N.S.; common offwhite subchalky to chalky

Ls: sl influx in 90' spl of gray granular/oolitic with offwhite micxln matrix, NVP, N.S.

Sh: sl influx dark gray to black; Ls: sl influx tan, offwhite mic-fnxln with pp and small vug. por.; some tan oolitic with poor to NVP

Ls: mix offwhite mic-vfxln dense, subchalky IP, some poor pp por. and tan, lt brn cryptoxln to occ sl granular, poor to NVP

Ls: various tan, lt brn cryptoxln to granular NVP; lesser offwhite, tan mic-vfxln dense

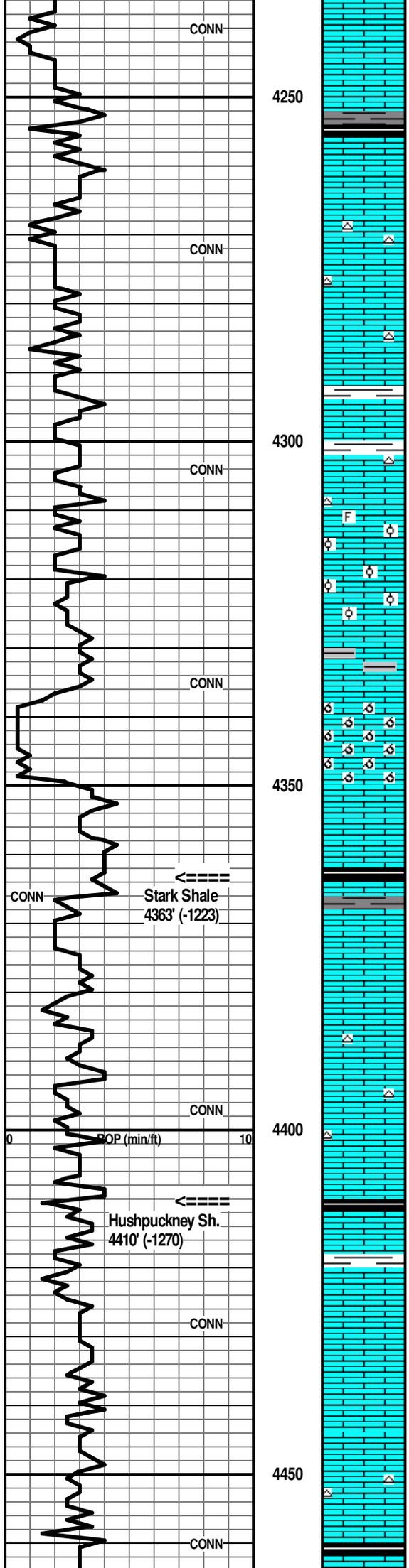
Ls: various dense AA; trace med brn sl oolitic with spar matrix

Ls: mix AA; some tan, lt gray fn-med xln, sl sucrosic with interxln por., N.S. (low spl volume)

Lansing 4046' (-906)

shaly samples AA

shaly samples AA



low spl volume; Ls: some tan, lt gray fn-med xln with fair to good interxln and vug. por., N.S.

shaly samples AA

low spl volume; very poor spl - very predom. vc gray and red-brn shales, sl incr. black carbon. shale; trace dark brn granular Ls

very poor spls AA; Ls: some mottled med brn, med gray cryptoxln to granular, NVP

90' spl - Ls: influx tan, offwhite vf-cryptoxln; lesser offwhite mic-vfxln dense; some offwhite opq chert; spls still very shaly

Ls: various dense, sl cherty AA; very shaly AA

Ls: tan, lt brn cryptoxln and offwhite mic-vfxln dense; Sh: abund. med to dark gray, silty IP; very shaly and poor spls

Ls: lt-med brn, tan vf-cryptoxln; offwhite dense; very shaly spls AA

AA; some sl mottled tan, lt brn oolitic and granular to sl fossilif. IP, NVP; sl cherty AA; poor shaly spls AA

40' spl - Ls: good incr. mottled tan/brn oolitic to granular, NVP, N.S.; shaly AA

Ls: more med brn, lt gray cryptoxln

7:00 AM at 4330' on 8-14-2011

Ls: tan, brn oolitic with good oomoldic por., N.S.

70' spl - Ls: flood offwhite micxln mottled with gray and brn granules and mottled gray/brn granular, spls sl better

shaly samples AA

80' spl - Ls: various mottled AA, some with micxln matrix; vsl influx black carbon. shale

Stark Shale 4363' (-1223)

Ls: various mottled AA with sl incr. med brn cryptoxln and tan, offwhite mic-vfxln dense; spls shaly

Ls: mix tan, lt brn vf-cryptoxln and offwhite, tan mic-vfxln, subchalky IP; very shaly spls

MudCo Mud Check at 4362'
8:30 AM on 8-14-2011

wt	vis	wl	pH	chl
9.5	52	8.8	9.5	5100
PV	YP	GelS	lcm	solids
16	20	13/37	4#	8.2%

Ls: various dense AA with influx lt gray cryptoxln; scatt. lt gray opq chert; spls very shaly

Ls: lt-med brn, some lt gray cryptoxln; some tan fn-med xln with scatt. vug. por., N.S.; lt gray, tan opq chert; very shaly spls - abund. red-brn

30' spl - Ls: mix lt-med brn, lt gray, tan cryptoxln; lesser tan, offwhite mic-vfxln dense; occ tan fn granular; Sh: very shaly spls AA, occ black carbon.

Hushpuckney Sh 4410' (-1270)

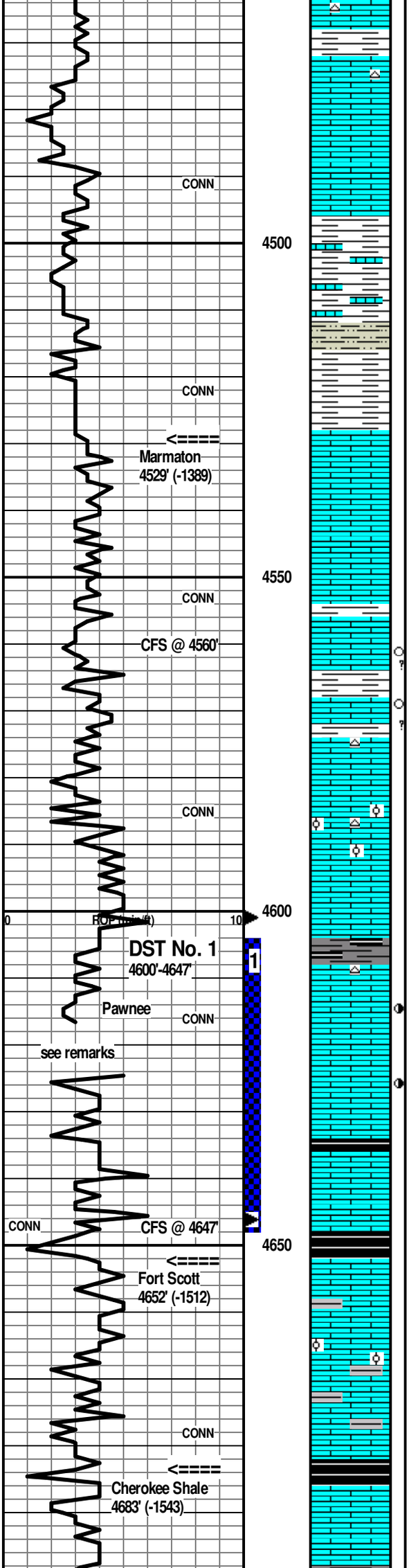
Ls: various lt gray, tan, lt brn vf-cryptoxln; occ mottled brn/gray granular, NVP; very shaly spls AA

Ls: influx offwhite, tan mic-vfxln dense, subchalky IP; various cryptoxln AA; sl decr. in shale %

Ls: lt gray, tan, lt brn cryptoxln; some sl mottled granular; offwhite AA; very shaly spls AA, some silty gray

Ls: various cryptoxln and offwhite, tan dense subchalky AA; scatt. offwhite, lt brn chert; sl less shaly

80' spl - Ls: mix AA becoming very shaly again, incr. black carbon.



Ls: various lt-med brn, tan, lt gray cryptoxln AA; very shaly spls with more gray-green; scatt. chert

shaly samples AA

Ls: some tan fn granular with poor interxln por., N.S.; various dense AA, scatt. chert; very shaly spls

10' spl - Ls: mix brn, gray, tan cryptoxln and tan, offwhite dense; spls becoming even more shale dominated

20' spl - very predom. shales - vc gray, red-brn; Ls: various dense with more med brn and gray cryptoxln

30' spl - shales AA, more silty gray and some dark gray siltst; Ls: various dense AA; some mottled brn and gray granular

40' spl - still very predom. shales; Ls: sl influx dark brn cryptoxln and incr. mottled granular

50' spl - Ls: incr. % med to dark brn, dark gray cryptoxln to mottled granular, NVP, N.S.

Marmaton 4529' (-1389)

60' spl - Ls: med to dark brn, dark gray cryptoxln, granular IP; very shaly spls - med to dark gray, gray-green, black, red-brn, brn, trace yellow

CFS 4560' 30" spl - very shaly AA; Ls: various dense AA; some lt gray vfxln dense; 60" spl - very shaly AA; Ls: various brn, gray cryptoxln; lesser offwhite, tan mic-vfxln dense

shaly samples AA

70' spl - very shaly mix AA; Ls: lt-med brn vf-cryptoxln and offwhite mic-vfxln dense, some dess. pyrite

70' spl cont. - one chip lt brn cryptoxln with isolated patchy interxln por. with quest. stain, very weak cloudy cut; stopped at 4572' to raise viscosity

80' spl - some improvement in quality; Ls: lt-med brn, gray cryptoxln; some mottled med to dark gray, brn granular, NVO; one chip tan vfxln with very spotty quest. stain. very weak ring cut; other offwhite, tan mic-vfxln dense; scatt. offwhite, lt gray opq chert

stopped at 4572' to raise viscosity to 65+ samples showed some improvement with higher viscosity, but carry common gray shales and red-brn shale

90' spl - Ls: various cryptoxln and dense AA; incr. offwhite, tan, lt gray mic-vfxln dense; sl influx offwhite micxln, mottled with gray granules; 4600' spl - Ls: sl influx mottled lt brn oolitic with mic-vfxln matrix; scatt. lt gray chert

10' spl - Ls: mottled tan, lt brn, offwhite oolitic to granular IP, NVP, N.S.; lesser med brn, gray cryptoxln and offwhite, tan mic-vfxln dense; common med to dark gray and red-brn shales

DST No. 1 Upper Pawnee
Interval: 4600'-4647'
Times: 30-60-60-90
IFP: weak blow bldg. to 5 inches
ISIP: no return blow
FFP: slowly bldg. to B.O.B. in 48 minutes
FSIP: no return blow
Recovery: 372' GIP; 20' oil; 120' OCM (50o, 50m)
FP: 21-34/47-70 SIP: 1181-1151
HP: 2371-2288 BHT: 117 deg. F

20' spl - Ls: predom. mottled lt-med brn and gray granular with offwhite micxln matrix; shales AA, more black

30' spl - shaly mix AA, def. incr. black carbon.; Ls: mottled granular AA; lesser gray, lt brn cryptoxln and dense offwhite AA; 2 chips tan fnxln with interxln and small vug. por. with lt brn pp stain, trace lt brn oil on break, no odor, trace gas

NOTE: geolograph line off - foot marker not working - got it working again and drilled kelly down - figured drill time from 4647' upwards

40' spl - Ls: various gray, tan, lt brn vf-cryptoxln, NVP, N.S.; occ tan fn granular with inter-particle por, pp brn to black stain, vsl show dark brn oil on break; several chips tan vfxln with pp por. with pp brn stain, trace oil on break, no odor

sample quality is good

47' spl - Ls: several chips with shows AA, patchy to sat. stain in dry spls; some brn cryptoxln and mottled brn granular, N.S.; Sh: black carbon.

CFS 4647' spls - Ls: influx med to dark brn, gray cryptoxln; some mottled gray granular, N.S.; very shaly mix

7:00 AM at 4647' on 8-15-2011

60' spl - Sh: abund. dark gray to black carbon.

Excello Shale

70' spl - Ls: various lt-med gray, brn vf-cryptoxln, NVP; incr. mottled brn/gray granular with offwhite micxln matrix; common interbedded med to dark gray to black shales

Fort Scott 4652' (-1512)

80' spl - Ls: flood mottled tan/brn granular with offwhite micxln matrix; influx tan, lt brn oolitic with vfxln to spar matrix, NVP, N.S.; lesser dark gray, med to dark brn cryptoxln

MudCo Mud Check at 4657'
9:00 AM on 8-15-2011

wt	vis	wl	pH	chl
9.4	65	8.8	10.0	4900
PV	YP	GelS	lcm	solids
18	22	15/46	4#	7.4%

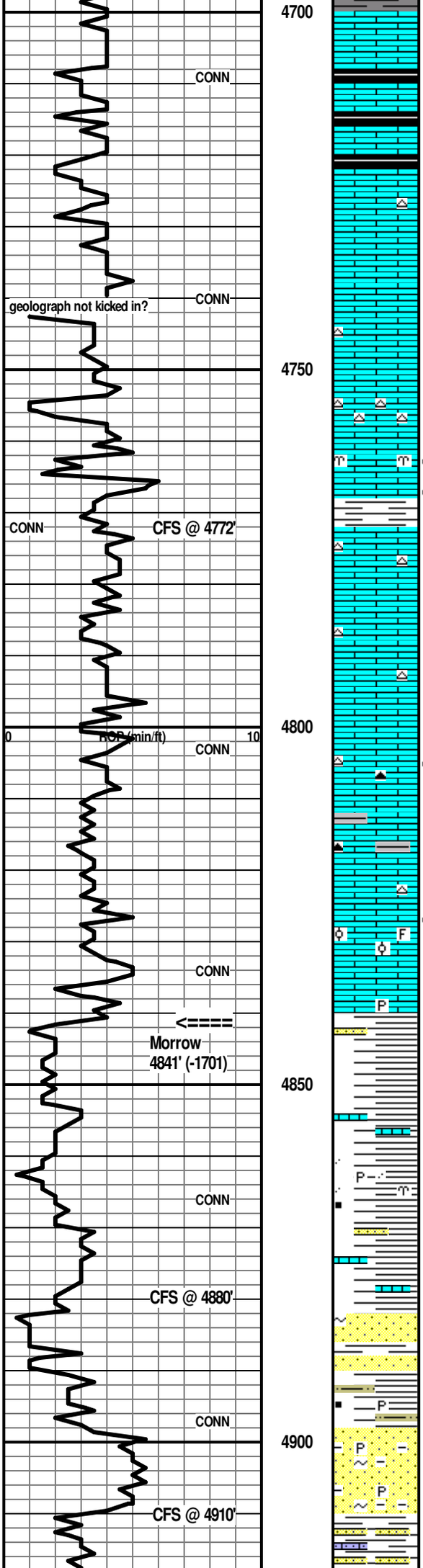
90' spl - Ls: strong influx med gray dense, shaly and med to dark gray vf-cryptoxln; common med to dark gray calcar. shale

4700' spl - Ls: mottled brn oolitic to granular and dark brn, dark gray cryptoxln, NVP, N.S.; Sh: influx dark gray to black carbon.

Cherokee Shale 4683' (-1543)

Ls: flood dark gray to black vf-cryptoxln, NVP, N.S.; Sh: abund. dark gray to black

sample quality is good



Ls: lt-med brn, tan cryptoxln; offwhite, tan mic-vfxln dense; much decr. shale %

Ls: various lt-med brn and gray vf-cryptoxln; some mottled granular, poor to NVP; Sh: influx black carbon.

Ls: various cryptoxln AA; Sh: dark gray to black carbon.; occ brn chert

Ls: med brn cryptoxln; common offwhite, tan mic-vfxln dense; lt gray vfxln dense; shales AA

60' spl - Ls: lt-med brn, lt gray predom. cryptoxln; offwhite, tan dense AA; scatt. brn chert; shales AA

70' spl - Ls: mix lt-med brn, gray, some dark brn cryptoxln; some offwhite, tan dense AA; Chert: good influx lt-med brn opq to subtransl.; Sh: vc gray, gray-green, some black

CFS 4772' 30" spl - Ls: various cryptoxln AA, sl mottled and granular IP; fairly minor med to dark gray, gray-green shales; common brn chert AA; 2-3 chips tan fenestrate bryozoan fragments with some fenestral por., one chip with stain, fair cut; 2 chips lt brn vf-cryptoxln with NVO with very spotty stain, weak cut, no odor, no fluor. nfo

80'/90' spls - Ls: lt-med brn, lt gray cryptoxln, some sl mottled, granular; lesser mottled lt brn fn granular with offwhite micxln matrix; sl incr. brn chert; shale streaks AA

4800' and 4810' spls - Ls: various brn, gray cryptoxln to granular, NVP; cherty AA; Sh: med to dark gray, some gray-green, incr. black carbon.

20' spl - Ls: various brn, gray cryptoxln to granular, NVP; incr. offwhite, tan mic-vfxln dense; trace lt brn vf-cryptoxln with poor spotty stain along microfractures, no odor, no fluor., nfo; scatt. brn to dark brn chert

30' spl - Ls: various brn and gray cryptoxln to granular AA; trace dark gray chert; shale streaks AA

40' spl - Ls: influx lt-med brn, gray cryptoxln; scatt. brn chert; shales AA

50' spl - Ls: various AA; influx lt brn oolitic to granular with offwhite mic-vfxln matrix, poor to NVP, N.S.; one chip offwhite mic-vfxln dense, NVP, with spotty stain, no odor, nfo, no fluor.; occ mottled gray/brn fossil hash, N.S.

70' spl - Sh: flood multi-colored (vc gray, brick red, red-brn, lt green, gray-green, trace mottled brn/green and yellow/green); trace dark gray shaly, tight finely pyritic Sst, N.S.

80' spl - Sh: multi-colored AA, but predom. vc gray; sl influx tan mic-fnxln, silty Ls

CFS 4880' 30" spl - flood Sh: lt-med gray, carbon. IP; abund gray-green; some multi-colored AA; influx mottled yellow/green and ochre; some sandy and pyritic gray; occ dark brn granular, glauc. Ls; trace bryozoan fossil fragments

CFS 4880' 75" spl - Sh: various AA; occ tan fg shaly Sst, N.S.; some Ls: gray, lt brn cryptoxln to granular and tan sl mottled fn granular

4900' spl - AA with trace dark gray, dirty, sl glauc. fg Sst, N.S.

4910' spl - Sst: good influx vf-fg multi-colored (yellow, dark red, green), tight, hard, N.S.; some gray micac. siltst and carbon. and pyritic siltst; common multicolored shales

CFS 4910' 20" spl - Sst: flood vfg multi-colored, tight, hard, predom. dolomitic to silica cement, some pale green clay filled interstices; occ white fn-med grnd, more friable with some inter-gran. por., N.S.; common multi-colored shales AA

30' spl - shales and Sst AA; trace lt brn fn sandy Ls with offwhite micxln matrix

sample quality is good

7:00 AM at 4755' on 8-16-2011

CFS 4772' 60" spl - Ls: various cryptoxln and dense AA; incr. med to dark gray shales; no additional shows

vis 64 wt 9.4 lcm 2#
PSI 1000# SPM 52 WOB 38K RPM 75

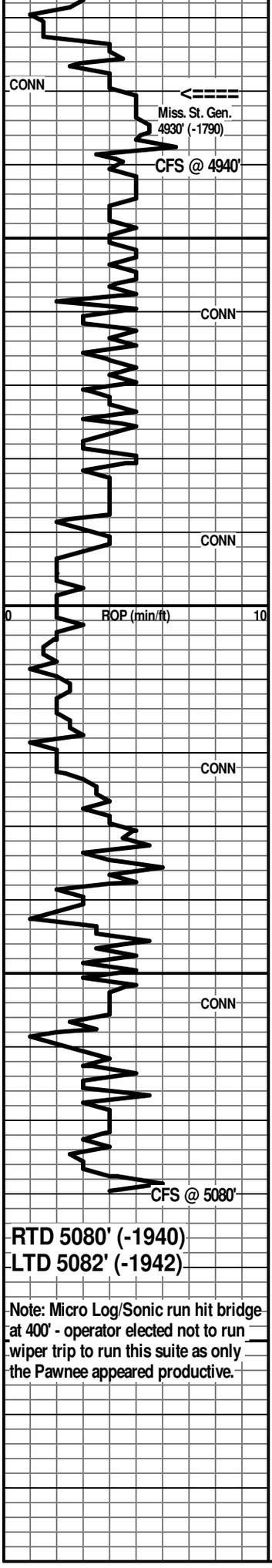
MudCo Mud Check at 4778'
10:00 AM on 8-16-2011

wt	vis	wl	pH	chl
9.5	73	8.8	9.5	5500
PV	YP	GelS	lcm	solids
19	24	16/53	3#	8.2%

60' spl - Ls: some oolitic AA; predom. various gray, brn cryptoxln and mottled granular, NVP, occ pyritic; lesser med gray vfxln dense; shale streaks AA

Morrow 4841' (-1701)

CFS 4910' 45" spl - Sst: various vf-fg AA; some pale green glauc. Sst, N.S.; some sandy pyrite; 75" spl - various Sst and vc gray, gray-green and black shales



RTD 5080' (-1940)
LTD 5082' (-1942)

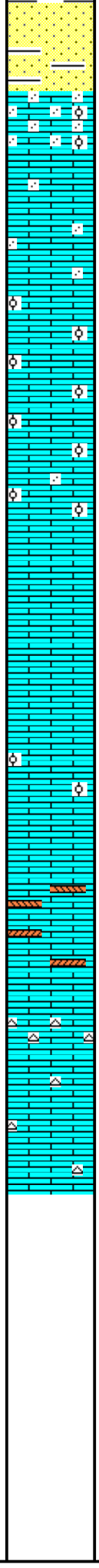
Note: Micro Log/Sonic run hit bridge at 400' - operator elected not to run wiper trip to run this suite as only the Pawnee appeared productive.

4950

5000

5050

5100



40' spl - shale and Sst mix AA; Ls: sl influx tan, offwhite finely sandy with micxln to subchalky matrix, N.S.

CFS 4940' 30" spl - Ls: offwhite, tan finely sandy, oolitic IP; 60" spl - Ls: tan, offwhite finely sandy, sl oolitic with micxln matrix; tan, lt brn fn granular, N.S.

Ls: offwhite, tan fn granular, sandy IP, with offwhite micxln matrix, N.S.

80' spl - Ls: good influx tan oolitic with offwhite micxln matrix, N.S.

Ls: oolitic AA

Ls: tan, lt brn oolitic, sandy IP; new lt-med brn oolitic to granular, NVP; some med brn cryptoxln

Ls: lt brn granular with influx offwhite subchalky, sl granular IP

AA

Ls: tan, lt-med brn granular to sl oolitic, some cryptoxln

Ls: incr. med brn cryptoxln and tan, lt brn vf-cryptoxln

60' spl - Ls: various vf-cryptoxln and granular AA; spls now carry common gyp and some anhydrite

70' spl - Ls: tan, offwhite mic-vfxln dense; sl influx offwhite, lt gray opq chert

Ls: lt gray, tan, brn cryptoxln; cherty AA

Ls: lt-med brn, gray cryptoxln, some brn granular; occ chert

AA

After review of samples, DST results and open hole logs, the decision was made to run 4 1/2" casing for further testing.

Respectfully submitted,

Wesley D. Hansen
Petroleum Geologist
Kansas License No. 418

Miss. St. Gen. 4930' (-1790)

sample quality generally poor from here to TD - abundant slouging shales and some sst from Morrow section

7:00 AM at 5065' on 8-17-2011

RTD reached at 7:45 AM on 8-17-2011
CFS 60" - Short trip 10 stands - CTCH 2 hours - TOFL

MudCo Mud Check at 5080'
12:30 PM on 8-17-2011

wt	vis	wl	pH	chl
9.5	67	8.0	9.5	5400
PV	YP	GelS	lcm	solids
19	23	16/49	3#	8.0%

Reserve Pit
1000 bbl
15,000 chlorides