



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**



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

Well Name: Murfin Drilling Co., Inc. #2-12 Racette
Location: 1320' FNL, 990' FEL of Section 12-13S-33W
License Number: API: 15-109-21274 **Region:** Logan County, KS
Spud Date: 4-8-2014 **Drilling Completed:** 4-20-2014
Surface Coordinates: 1320' FNL, 990' FEL of Section 12-13S-33W

Bottom Hole Vertical hole
Coordinates:
Ground Elevation (ft): 3033' **K.B. Elevation (ft):** 3044'
Logged Interval (ft): 3650' **To:** RTD **Total Depth (ft):** 4770'
Formation: Mississippian at RTD
Type of Drilling Fluid: Chemical - Displaced at 3212'

Printed by MUD.LOG 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: Sammy Fabela

Surface Casing: 8 5/8" set at 225' w/180sx
Production Casing: 5 1/2" set at 4761' w/175sx

Mud by: Morgan Mud - Cade Lines was the engineer.

DST's by: Trilobite - Will MacLean was the tester.

Logs by: Pioneer Wireline (DIL, CN-CD, MEL, BHCS)

Deviation Surveys: 0.25 deg. @ 225'; 0.5 deg. @ 1831'; 0.5 deg. @ 2710'; 1 deg. @ 3900'; 1/2 deg. @ 4010'; 3/4 deg. @ 4118'; 1 1/2 deg. @ 4286'; 1 1/2 deg. @ 4507'; 1 3/4 deg. @ 4685'; 1 1/2 deg. @ 4770'

BIT RECORD

Bit #	Size	MFG	Type	Depth Out	Footage Cut	Hours on bit
1	12 1/4"		GT-C1	225'	225'	2 3/4
2	7 7/8"	HTC	DP506F	3900'	3675'	35 1/2
3	7 7/8"	HTC	GX20C	4685'	785'	69
4	7 7/8"	HTC	DP506F	4770'	85'	3 1/2

FORMATION TOPS AND STRUCTURAL COMPARISON

FORMATION	SAMPLE TOPS		LOG TOPS		COMPARISON WELL	
	Depth	Datum	Depth	Datum	MDCI Racette #1-12 335' FNL, 1100' FEL 12-13S-33W 3052' KB	
Anhydrite	2518'	+526	2517'	+527	+530	-3
B/Anhydrite	2539'	+505	2539'	+505	+506	-1
Topeka	3746'	-702	3747'	-703	-705	+2
Heebner	3969'	-925	3970'	-926	-927	+1
Lansing	4018'	-974	4017'	-973	-976	+3
Muncie Creek Shale	4168'	-1124	4169'	-1125	-1121	-4
Stark Shale	4254'	-1210	4255'	-1211	-1207	-4
BKC	4323'	-1279	4320'	-1276	-1275	-1
Pawnee	4453'	-1409	4454'	-1410	-1405	-5
Cherokee Shale	4536'	-1489	4538'	-1491	-1489	-2
Johnson Zone	4579'	-1535	4580'	-1536	-1532	-4
Mississippian	4672'	-1628	4674'	-1630	-1612	-18
RTD	4770'	-1726				
LTD			4773'	-1729		

DRILL STEM TESTS

DST No. 1 Toronto
Interval: 3968'-4010'
Times: 30-60-30-60
Recovery: 171' WCM w/few oil spots (42w, 58m);
248' MCW (37m, 63w); 434' MCW (8m, 92w);
1354' MCW (3m, 97w), total fluid 2207'
FP: 214-799/816-1041 SIP: 1153-1156
HP: 1969-1866 BHT: 117 deg. F

IFP: strong blow, B.O.B. in 1 1/4 minutes
ISIP: no return blow
FFP: strong blow, B.O.B. in 2 1/2 minutes
FSIP: no return blow

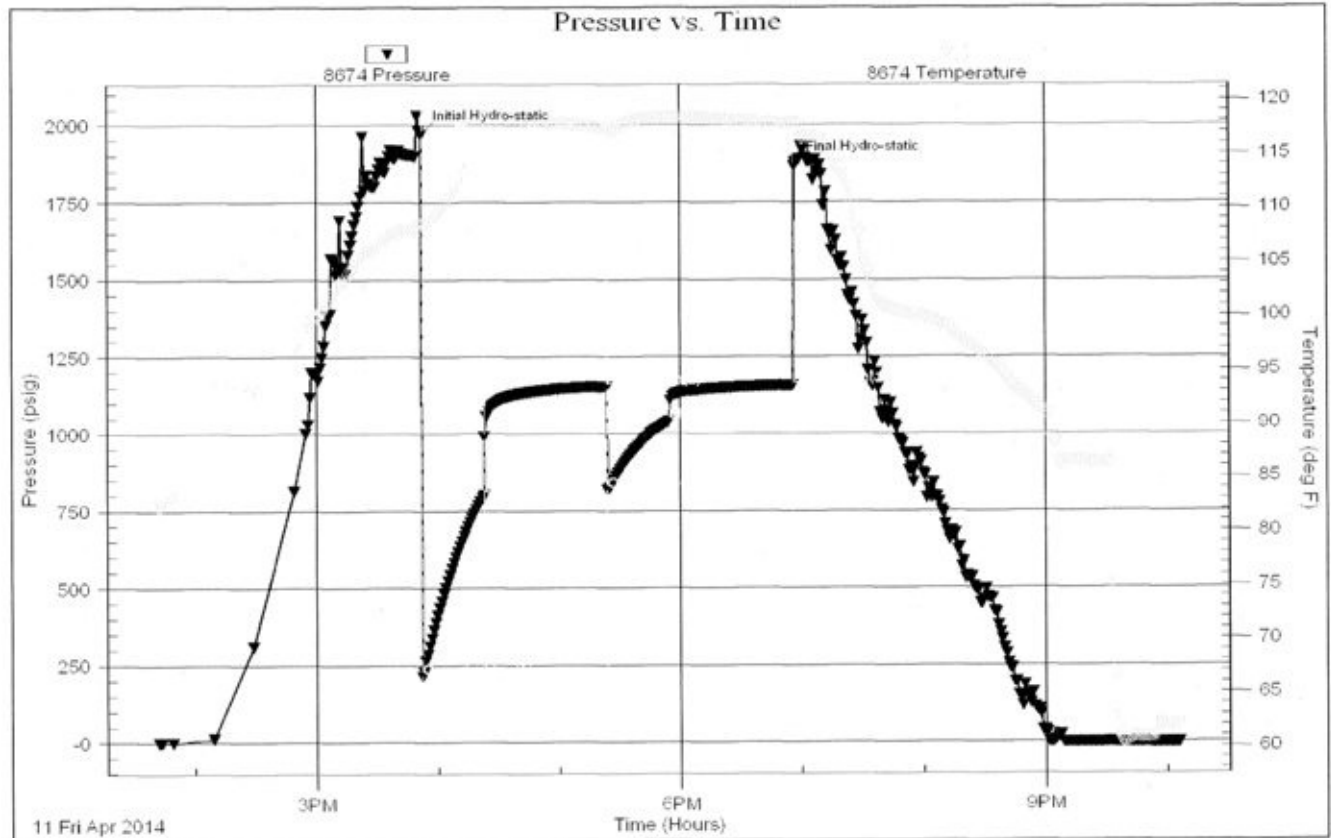
Serial #: 8674

Inside

Murfin Drilling Co. Inc

Racette # 2-12

DST Test Number: 1



Tillobite Testing, Inc

Ref. No: 57239

Printed: 2014.04.11 @ 22:21:58

DRILL STEM TESTS

DST No. 2 Lansing "B" and "D"
Interval: 4041'-4100'
Times: 30-60-60-90
Recovery: 122' WCM (41w, 59m); 186' MCW (34m, 66w); 300' MCW (21m, 79w), total fluid 608'; chl. 43,500
FP: 20-166/168-299 SIP: 1156-1146
HP: 2069-1882 BHT: 116 deg. F

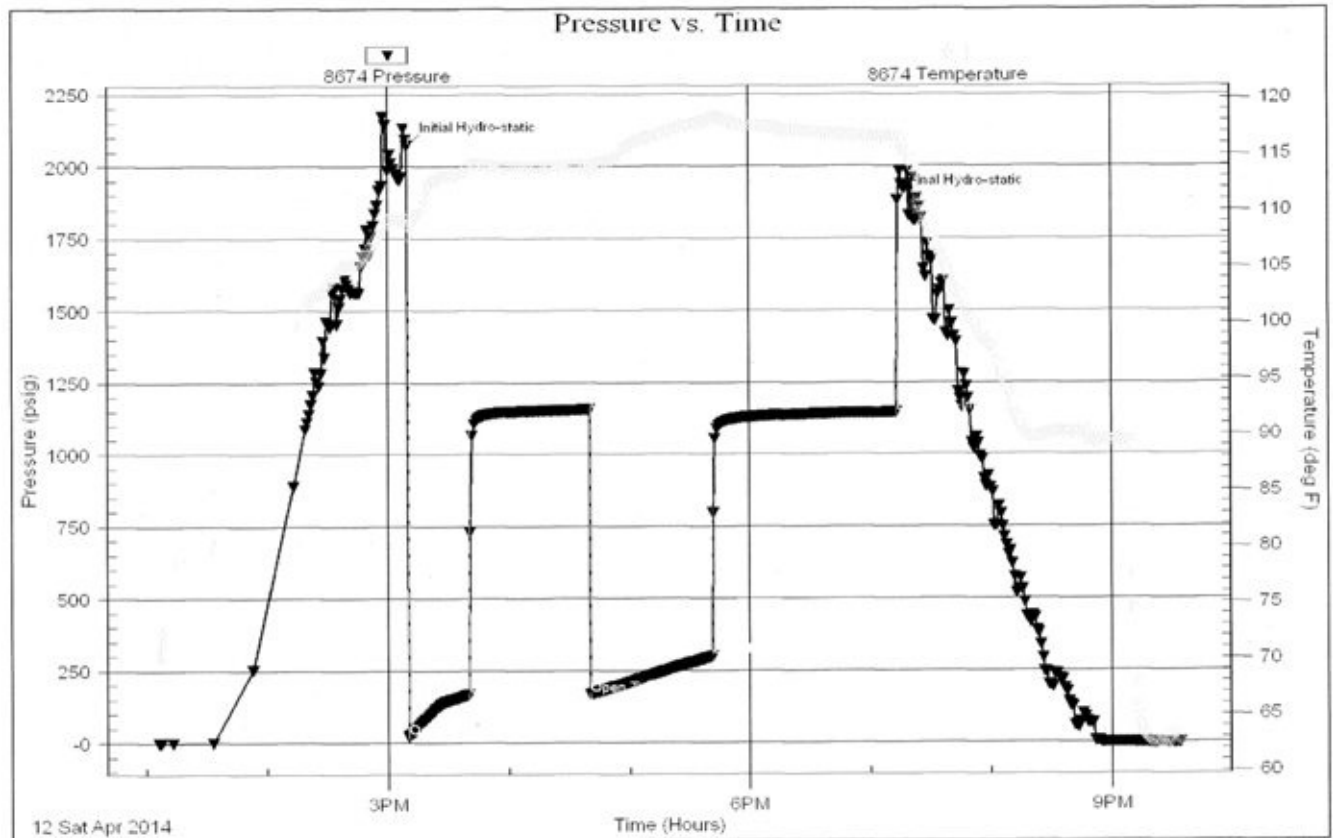
IFP: weak blow built to 11 inches
ISIP: no return blow
FFP: weak blow built to B.O.B. in 52 minutes
FSIP: no return blow

Serial #: 8674

Inside Murfin Drilling Co. Inc.

Racette #2-12

DST Test Number: 2



Tribolite Testing, Inc.

Ref. No: 57240

Printed: 2014.04.12 @ 21:50:17

DRILL STEM TESTS

DST No. 3 Lansing "E"
Interval: 4100'-4118'
Times: 30-60-60-90
Recovery: 30' WCM (46w, 54m); 120' MCW (39m,
61w) chl. 22,500
FP: 19-41/43-91 SIP: 1155-1151
HP: 2089-1845 BHT: 113 deg. F

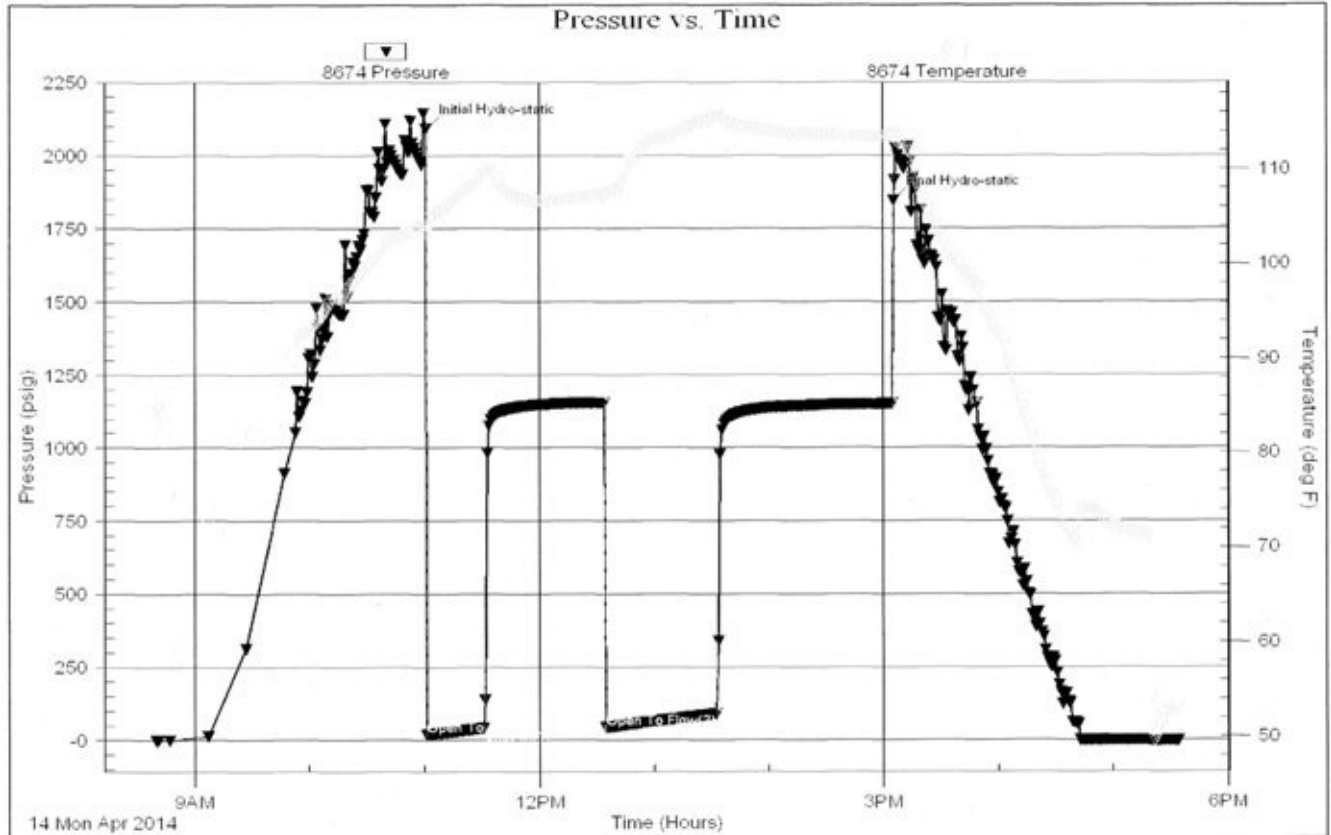
IFP: weak blow built to 1 3/4 inches
ISIP: no return blow
FFP: weak blow built to 3 inches
FSIP: no return blow

Serial #: 8674

Inside Martin Drilling Co, Inc

Recette # 2-12

DST Test Number: 3



Tribble Testing, Inc

Ref. No: 57241

Printed: 2014.04.14 @ 17:53:55

DRILL STEM TESTS

DST No. 4 Lansing "H" and "I"
Interval: 4168'-4230'
Times: 30-60-60-60
Recovery: 61' WCM w/skim of oil (4w, 96m); 60'
WCM w/skim of oil (23w, 77m) chl. 25,200
FP: 19-40/43-78 SIP: 895-866
HP: 2149-2019 BHT: 114 deg. F

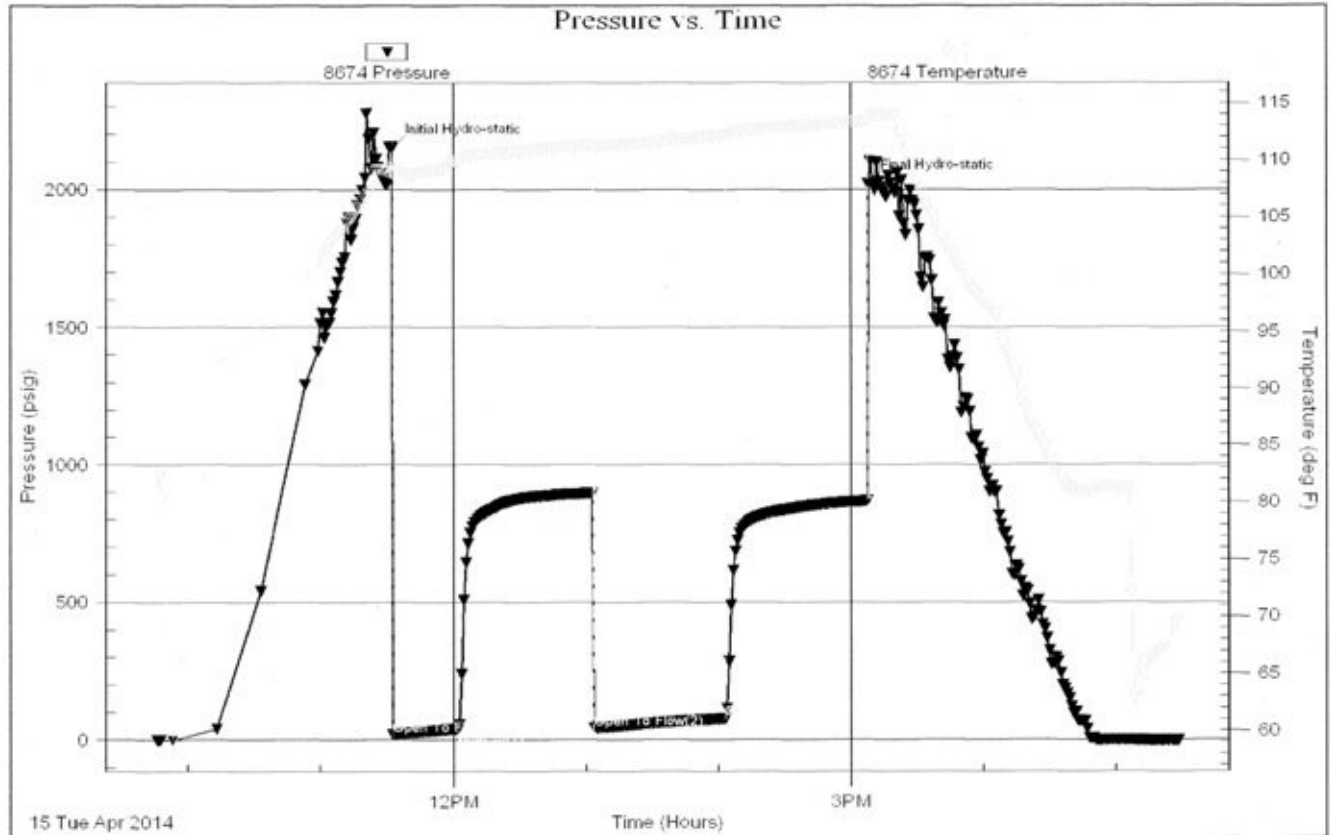
IFP: weak surface blow built to 3/4 inch
ISIP: no return blow
FFP: weak surface blow built to 1 inch
FSIP: no return blow

Serial #: 8674

Inside Murfin Drilling Co. Inc

Racette # 2-12

DST Test Number: 4



Tilcoite Testing, Inc

Ref. No: 57242

Printed: 2014.04.15 @ 17:40:13

DRILL STEM TESTS

DST No. 5 Lansing "J" and "K"
Interval: 4230'-4286'
Times: 30-60-60-90
Recovery: 5' W&OCM (2w, 5o, 93m); 60'
WG&OCM (2w, 3g, 6o, 89m)
FP: 22-34/38-56 SIP: 1098-1075
HP: 2124-1973 BHT: 116 deg. F

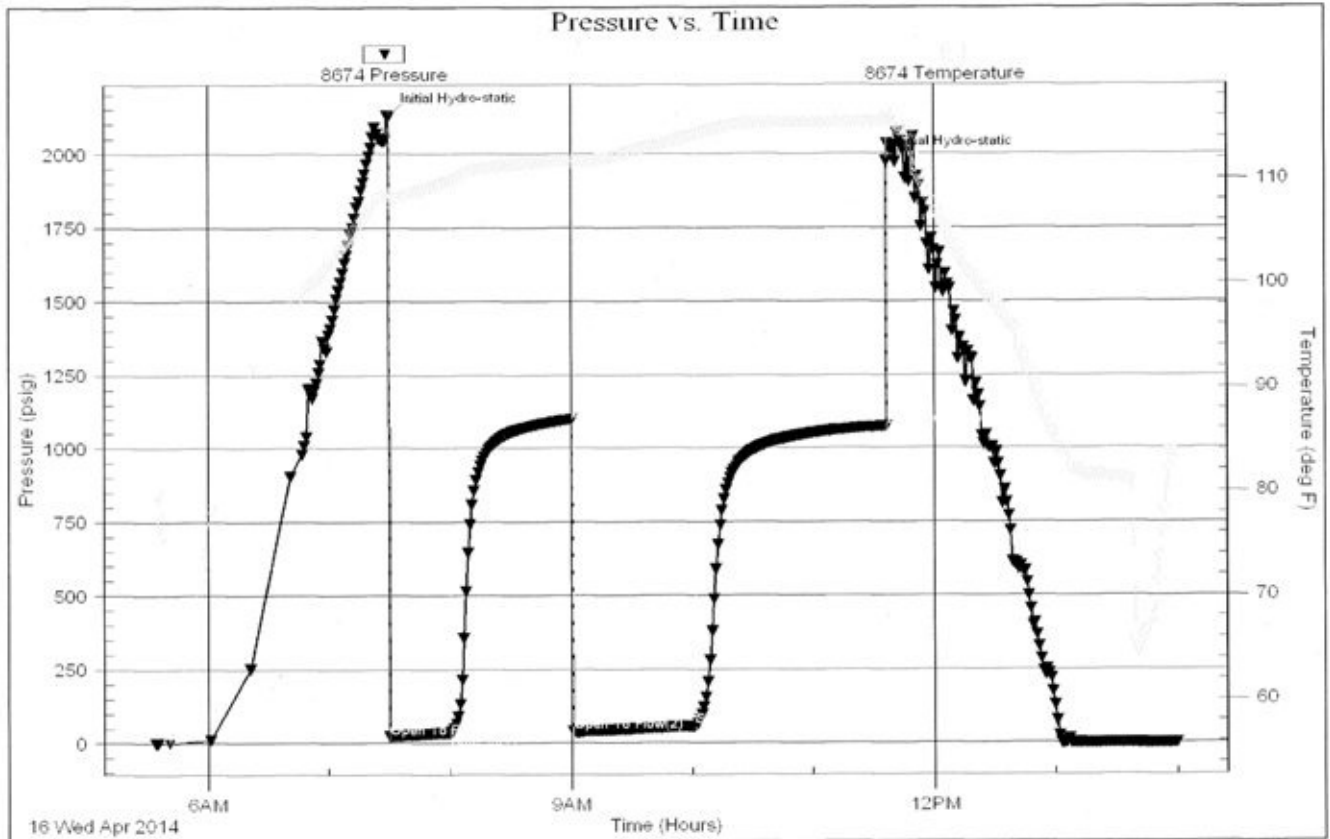
IFP: weak surface blow built to 1 inch
ISIP: no return blow
FFP: very weak surface blow
FSIP: no return blow

Serial #: 8674

Inside Murfin Drilling Co. Inc

Racette # 2-12

DST Test Number: 5



Tribble Testing, Inc

Ref. No: 57243

Printed: 2014.04.16 @ 14:12:56

DRILL STEM TESTS

DST No. 6 Marmaton/Pawnee
Interval: 4345'-4507'
Times: 30-60-30-60
Recovery: 62' G&OCM (2g, 2o, 96m)
FP: 24-41/44-57 SIP: 676-608
HP: 2200-2110 BHT: 117 deg. F

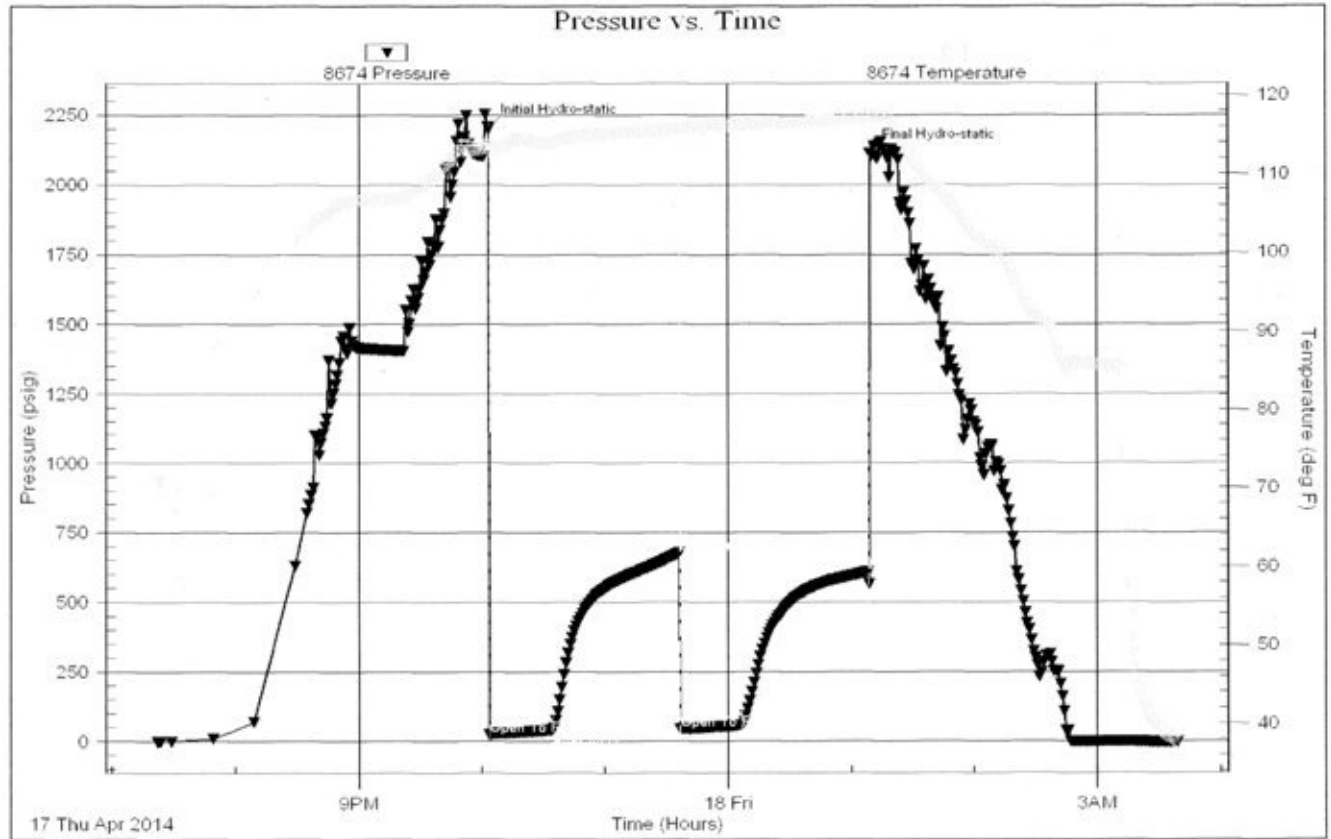
IFP: weak surface blow built to 1/2 inch
ISIP: no return blow
FFP: no blow
FSIP: no return blow

Serial #: 8674

Inside Murfin Drilling Co. Inc

Racette #2-12

DST Test Number: 6



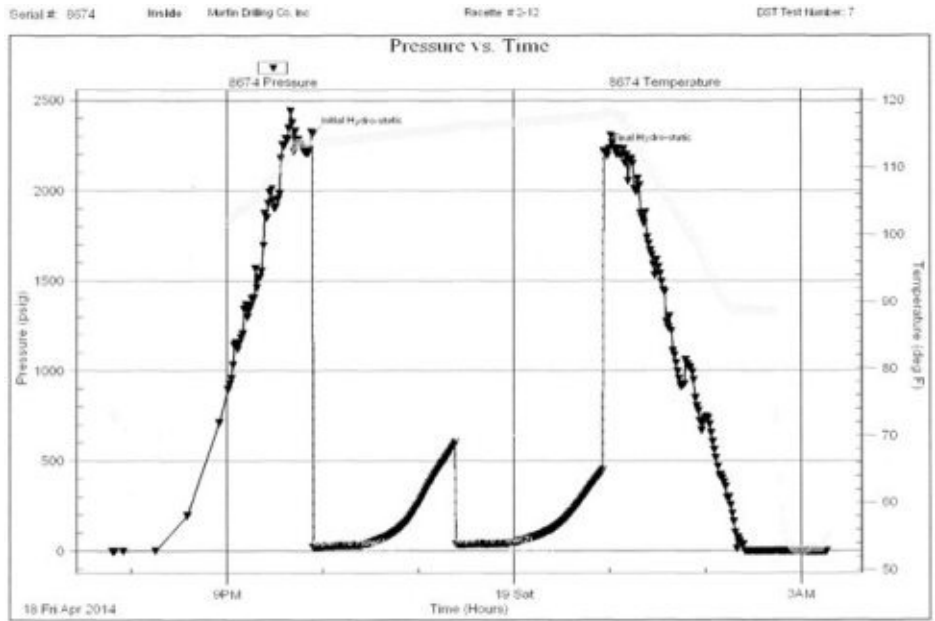
Triobite Testing, Inc

Ref. No: 57244

Printed: 2014.04.18 @ 03:51:19

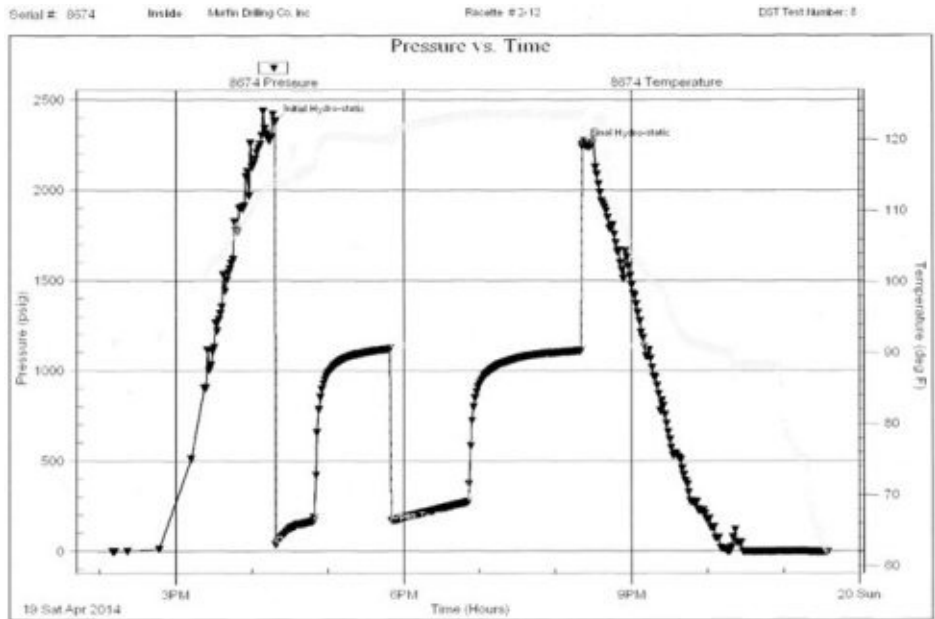
DRILL STEM TESTS

DST No. 7 Fort Scott - Johnson Zone
 Interval: 4504'-4610'
 Times: 30-60-30-60
 IFP: weak surface blow built to 3/4"
 ISIP: no return blow
 FFP: no blow
 FSIP: no return blow
 Recovery: 40' G&OCM (2g, 3o, 95m)
 FP: 21-30/36-41 SIP: 598-449
 HP: 2311-2217 BHT: 118 deg. F



Tribble Testing, Inc. Ref. No.: 57245 Rpted: 2014.04.19 @ 03:27:24

DST No. 8 Basal Penn. Sand
 Interval: 4610'-4685'
 Times: 30-60-60-90
 IFP: weak blow built to B.O.B. in 20 minutes
 ISIP: very weak surface return in 26 minutes, died in 45 minutes
 FFP: weak blow built to B.O.B. in 10 1/4 minutes
 FSIP: weak surface return in 2 minutes, built to 7 inches
 Recovery: 759' weak GIP; 47' G&MCO (6g, 8m, 86o); 124' G&OCM (15g, 24o, 61m); 186' O&GCM (18o, 35g, 47m); 60' G&OCM (19g, 22o, 59m); 60' WO&GCM (16w, 24o, 27g, 33m); 120' GO&WCM (4g, 7o, 30w, 59m)



Tribble Testing, Inc. Ref. No.: 57246 Rpted: 2014.04.19 @ 23:53:49

Total fluid 597'

FP: 35-167/169-271
 SIP: 1118-1108
 HP: 2374-2238
 BHT: 123 deg. F

ROCK TYPES

Anhy
 Cht
 Coal
 Congl
 Dol
 Gyp
 Lmst

Salt
 green shale
 Shale
 Shcol
 Sltst
 Ss
 Carb sh

Dol
 Dtd
 Gry sh
 Sandylms
 redshale
 Shale
 Sltstn

Shlyslts
 Sltysch
 Sdy dolo
 Shy dolo
 Shaly ls
 light dolomite

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
- Breclrag
- 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
- Sltly

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	Geological Descriptions	Remarks
<p style="text-align: center;">ROP (min/ft) 10</p>	2550		<p style="text-align: center;">Oil Shows</p>	<p>Anhydrite 2518' (+526)</p> <p>Base/Anhydrite 2539' (+505)</p> <p>Report Depth and Activity 4-8-2014 MIRT, Spud at 3:00 PM 4-9 Drlg. @ 320' 4-10 Drlg. @ 3210' 4-11 Drlg. @ 3970' 4-12 CFS @ 4070' - post DST No. 1 DST No. 2 ran at 4100' 4-13 Trip in with test tool @ 4118' - shut down due to high winds 4-14 TOH to put on test tool for DST No. 3 - made wiper trip and reset recorder clocks - depth 4118' 4-15 CFS @ 4230' for DST No. 4 4-16 tripping @ 4286' for DST No. 5 4-17 Drlg. @ 4425' 4-18 Drlg. @ 4510' post DST No. 6 4-19 Drlg. @ 4620' post DST No. 7 4-20 RTD @ 4770'</p>

Ls: mix tan fnxln, foss with gd pp and foss moldic por., most barren. 3-4 chips with patchy to sat brn stain. no

odor, vs! sfo; other offwhite, lt gray mic-vfxln dense; Sh: red-brn and vc gray

Morgan Mud Check at 3554'
12:25 PM on 4-10-2014
wt vis wl pH chl
8.8 51 6.4 12.0 3800
PV YP GelS lcm solids
16 15 7/24 5# 3.6%

3700

CONN

Siltst: lt gray, lt red, some yellow-tan, micac.; Sh mix AA; minor Ls: offwhite, gray dense and mottled lt gray granular, N.S.

Ls: mix offwhite mic-vfxln dense; scatt dark gray cryptoxln and lt brn granular, N.S.

Sh: lt to med gray, silty and occ pyritic; much decr. Siltst AA

Topeka 3746' (-702)

3750

Topeka 3746' (-702)

Ls: offwhite, tan, some lt brn mic-fnxln with pp por., N.S.; lesser lt brn, gray more granular, NVP, N.S.; some offwhite mic-vfxln subchalky

Ls: mix AA with fair influx mottled gray/brn granular, poor-NVP, N.S.; Sh: med to dark gray, occ red-brn, brick red

3800

ROP (min/ft)

Ls: mix tan, lt gray, offwhite mic-vfxln dense and mottled gray/ lt brn more granular, N.S.; incr. Sh: vc gray, occ black

Ls: influx offwhite, tan mic-fnxln with pp por. and mic-vfxln dense, subchalky; decr. shale % AA; some Siltst: lt gray, offwhite, red-brn

3850

CONN

Ls: influx white chalky and offwhite, tan mic-fnxln with pp and inter-particle por.; lesser lt brn and gray dense; Sh: incr. med to dark gray

Ls: offwhite, tan, lt gray mic-vfxln dense; Sh: lt to med gray, silty IP; some black carbon.

Geologist on location at 6:45 PM on 4-10-2014 at 3868'

3900

CONN

flood Siltst: predom. lt red-brn, lesser lt gray; very scatt. lt gray vf-fg Sst, N.S.

CFS 3900' 15" spl - decr. Siltst AA with influx Sh: med to dark gray; Ls: influx offwhite mic-vfxln and offwhite, lt gray vfxln, NVP, N.S.

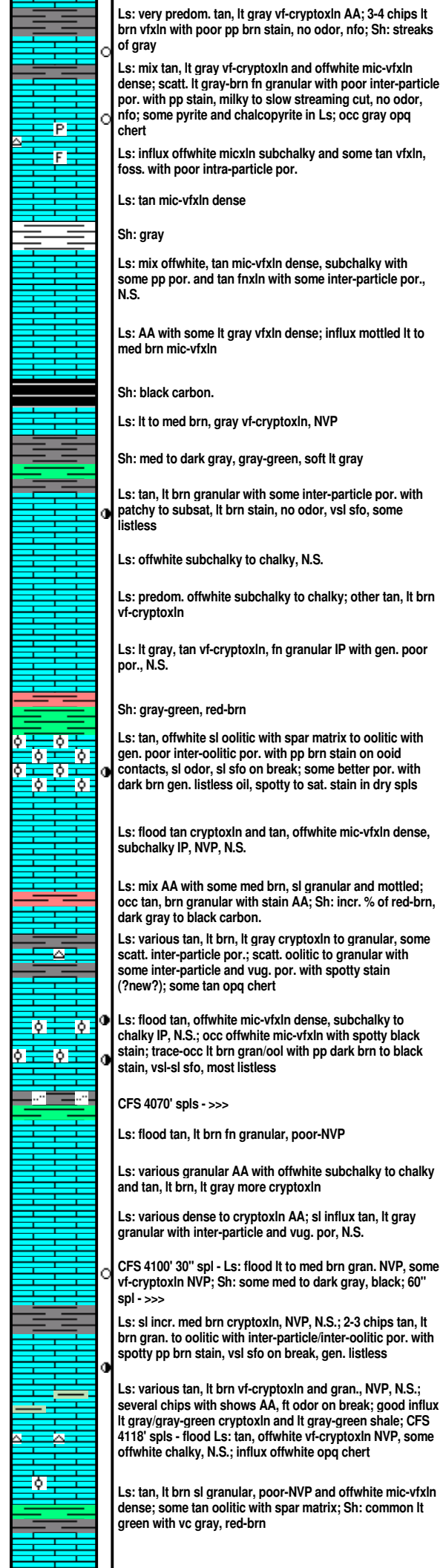
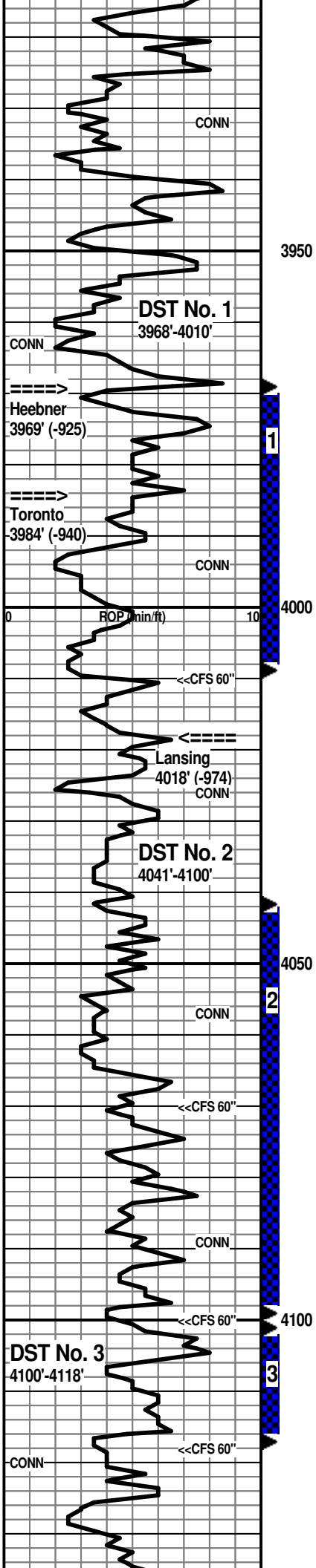
CFS 3900' 30" spl - Ls: mix AA with influx lt gray, lt brn vf-cryptoxln, NVP; spls still carry shales and siltst's AA

Tripped PDC bit at 3900'

<<CFS 30"

Sh: vc gray, red-brn; scatt. lt gray fg pyritic Sst

Ls: tan, lt gray cryptoxln, NVP and tan, lt brn, lt gray granular, trace pyritic, NVP, N.S.



Ls: very predom. tan, lt gray vf-cryptoxln AA; 3-4 chips lt brn vfxln with poor pp brn stain, no odor, nfo; Sh: streaks of gray

Ls: mix tan, lt gray vf-cryptoxln and offwhite mic-vfxln dense; scatt. lt gray-brn fn granular with poor inter-particle por. with pp stain, milky to slow streaming cut, no odor, nfo; some pyrite and chalcocopyrite in Ls; occ gray opq chert

Ls: influx offwhite micxln subchalky and some tan vfxln, foss. with poor intra-particle por.

Ls: tan mic-vfxln dense

Sh: gray

Ls: mix offwhite, tan mic-vfxln dense, subchalky with some pp por. and tan fnxln with some inter-particle por., N.S.

Ls: AA with some lt gray vfxln dense; influx mottled lt to med brn mic-vfxln

Sh: black carbon.

Ls: lt to med brn, gray vf-cryptoxln, NVP

Sh: med to dark gray, gray-green, soft lt gray

Ls: tan, lt brn granular with some inter-particle por. with patchy to subsat, lt brn stain, no odor, vsf sfo, some listless

Ls: offwhite subchalky to chalky, N.S.

Ls: predom. offwhite subchalky to chalky; other tan, lt brn vf-cryptoxln

Ls: lt gray, tan vf-cryptoxln, fn granular IP with gen. poor por., N.S.

Sh: gray-green, red-brn

Ls: tan, offwhite sl oolitic with spar matrix to oolitic with gen. poor inter-oolitic por. with pp brn stain on ooid contacts, sl odor, sl sfo on break; some better por. with dark brn gen. listless oil, spotty to sat. stain in dry spls

Ls: flood tan cryptoxln and tan, offwhite mic-vfxln dense, subchalky IP, NVP, N.S.

Ls: mix AA with some med brn, sl granular and mottled; occ tan, brn granular with stain AA; Sh: incr. % of red-brn, dark gray to black carbon.

Ls: various tan, lt brn, lt gray cryptoxln to granular, some scatt. inter-particle por.; scatt. oolitic to granular with some inter-particle and vug. por. with spotty stain (?new?); some tan opq chert

Ls: flood tan, offwhite mic-vfxln dense, subchalky to chalky IP, N.S.; occ offwhite mic-vfxln with spotty black stain; trace-occ lt brn gran/ool with pp dark brn to black stain, vsf-sl sfo, most listless

CFS 4070' spls - >>>

Ls: flood tan, lt brn fn granular, poor-NVP

Ls: various granular AA with offwhite subchalky to chalky and tan, lt brn, lt gray more cryptoxln

Ls: various dense to cryptoxln AA; sl influx tan, lt gray granular with inter-particle and vug. por, N.S.

CFS 4100' 30" spl - Ls: flood lt to med brn gran. NVP, some vf-cryptoxln NVP; Sh: some med to dark gray, black; 60" spl - >>>

Ls: sl incr. med brn cryptoxln, NVP, N.S.; 2-3 chips tan, lt brn gran. to oolitic with inter-particle/inter-oolitic por. with spotty pp brn stain, vsf sfo on break, gen. listless

Ls: various tan, lt brn vf-cryptoxln and gran., NVP, N.S.; several chips with shows AA, ft odor on break; good influx lt gray/gray-green cryptoxln and lt gray-green shale; CFS 4118' spls - flood Ls: tan, offwhite vf-cryptoxln NVP, some offwhite chalky, N.S.; influx offwhite opq chert

Ls: tan, lt brn sl granular, poor-NVP and offwhite mic-vfxln dense; some tan oolitic with spar matrix; Sh: common lt green with vc gray, red-brn

DST No. 1 Toronto
Interval: 3968'-4010'
Times: 30-60-30-60
IFP: strong blow, B.O.B. in 1 1/4 minutes
ISIP: no return blow
FFP: strong blow, B.O.B. in 2 1/2 minutes
FSIP: no return blow
Recovery: 171' WCM w/few oil spots (42w, 58m); 248' MCW (37m, 63w); 434' MCW (8m, 92w); 1354' MCW (3m, 97w), total fluid 2207'
FP: 214-799/816-1041 SIP: 1153-1156
HP: 1969-1866 BHT: 117 deg. F

Heebner Shale 3969' (-925)
7:00 AM at 3970' on 4-11-2014

Toronto 3984' (-940)

Morgan Mud Check at 4010'
11:40 AM on 4-11-2014
wt vis wl pH chl
9.0 61 6.4 12.0 5900
PV YP GeIS lcm solids
19 21 10/34 4# 5.0%

Lansing 4018' (-974)

DST No. 2 Lansing "B" and "D"
Interval: 4041'-4100'
Times: 30-60-60-90
IFP: weak blow built to 11 inches
ISIP: no return blow
FFP: weak blow built to B.O.B. in 52 minutes
FSIP: no return blow
Recovery: 122' WCM (41w, 59m); 186' MCW (34m, 66w); 300' MCW (21m, 79w), total fluid 608'; chl. 43,500
FP: 20-166/168-299 SIP: 1156-1146
HP: 2069-1882 BHT: 116 deg. F

CFS 4070' 30" spl - Ls: influx tan, lt gray more granular, NVP, N.S.; scatt. shows AA; Sh: lt to med gray, gray-green calcar.; 60" spl - Ls: tan, offwhite mic-vfxln dense; Sh: gray-green, lt gray silty

7:00 AM at 4070' on 4-12-2014

Morgan Mud Check at 4100'
2:55 PM on 4-12-2014
wt vis wl pH chl
9.3 94 7.2 11.5 8200
PV YP GeIS lcm solids
25 31 15/48 6# 7.1%

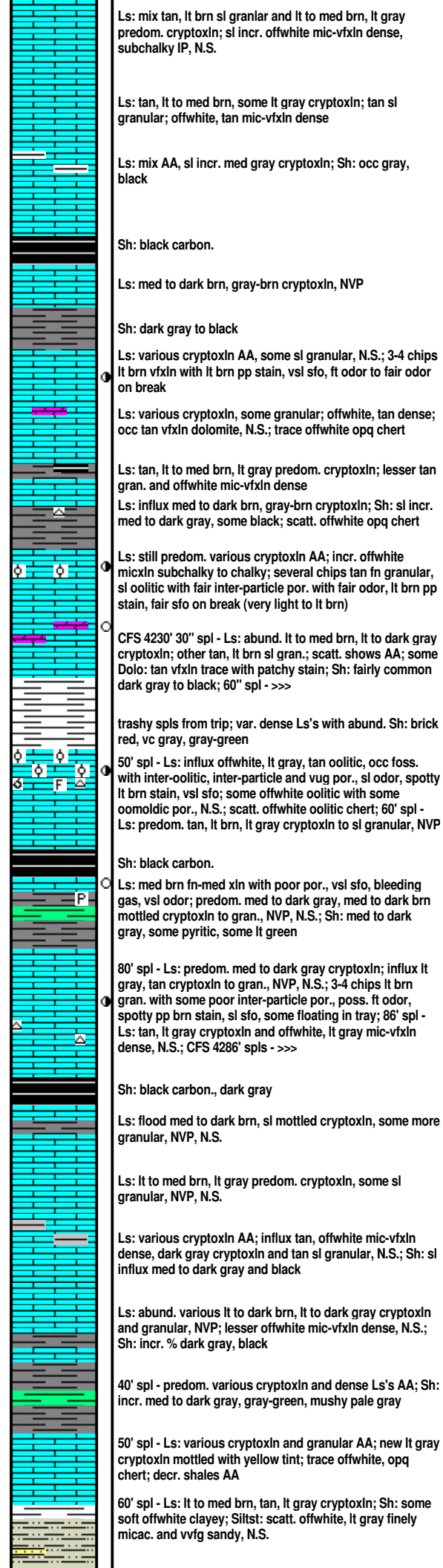
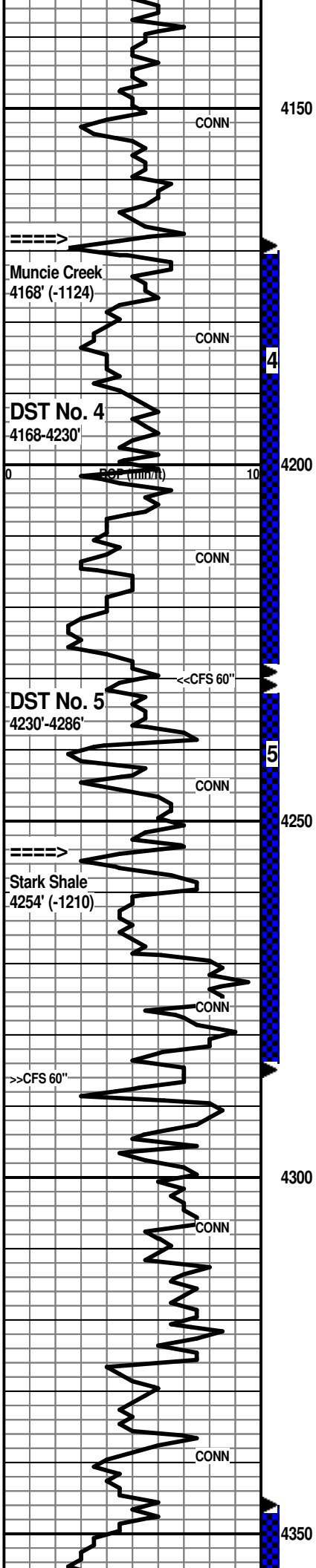
CFS 4100 60" spl - Ls: tan, lt brn predom. gran. with poor inter-particle por., one chip with spotty lt brn stain

Morgan Mud Check at 4118'
2:35 PM on 4-13-2014
wt vis wl pH chl
9.3 151 8.0 11.0 7700
PV YP GeIS lcm solids
29 43 27/66 5# 7.1%

7:00 AM at 4118' on 4-13/14-2014

High winds shut down tripping operations for DST No. 3. No progress as of 10:00 PM 4-13-2014 - Will do wiper trip before attempting DST

Morgan Mud Check at 4118'



Ls: mix tan, lt brn sl granular and lt to med brn, lt gray predom. cryptoxln; sl incr. offwhite mic-vfxln dense, subchalky IP, N.S.

Ls: tan, lt to med brn, some lt gray cryptoxln; tan sl granular; offwhite, tan mic-vfxln dense

Ls: mix AA, sl incr. med gray cryptoxln; Sh: occ gray, black

Sh: black carbon.

Ls: med to dark brn, gray-brn cryptoxln, NVP

Sh: dark gray to black

Ls: various cryptoxln AA, some sl granular, N.S.; 3-4 chips lt brn vfxln with lt brn pp stain, vsl sfo, ft odor to fair odor on break

Ls: various cryptoxln, some granular; offwhite, tan dense; occ tan vfxln dolomite, N.S.; trace offwhite opq chert

Ls: tan, lt to med brn, lt gray predom. cryptoxln; lesser tan gran. and offwhite mic-vfxln dense

Ls: influx med to dark brn, gray-brn cryptoxln; Sh: sl incr. med to dark gray, some black; scatt. offwhite opq chert

Ls: still predom. various cryptoxln AA; incr. offwhite micxln subchalky to chalky; several chips tan fn granular, sl oolitic with fair inter-particle por. with fair odor, lt brn pp stain, fair sfo on break (very light to lt brn)

CFS 4230' 30" spl - Ls: abund. lt to med brn, lt to dark gray cryptoxln; other tan, lt brn sl gran.; scatt. shows AA; some Dolo: tan vfxln trace with patchy stain; Sh: fairly common dark gray to black; 60" spl - >>>

trashy spls from trip; var. dense Ls's with abund. Sh: brick red, vc gray, gray-green

50' spl - Ls: influx offwhite, lt gray, tan oolitic, occ foss. with inter-oolitic, inter-particle and vug por., sl odor, spotty lt brn stain, vsl sfo; some offwhite oolitic with some oomoldic por., N.S.; scatt. offwhite oolitic chert; 60' spl - Ls: predom. tan, lt brn, lt gray cryptoxln to sl granular, NVP

Sh: black carbon.

Ls: med brn fn-med xln with poor por., vsl sfo, bleeding gas, vsl odor; predom. med to dark gray, med to dark brn mottled cryptoxln to gran., NVP, N.S.; Sh: med to dark gray, some pyritic, some lt green

80' spl - Ls: predom. med to dark gray cryptoxln; influx lt gray, tan cryptoxln to gran., NVP, N.S.; 3-4 chips lt brn gran. with some poor inter-particle por., poss. ft odor, spotty pp brn stain, sl sfo, some floating in tray; 86' spl - Ls: tan, lt gray cryptoxln and offwhite, lt gray mic-vfxln dense, N.S.; CFS 4286' spls - >>>

Sh: black carbon., dark gray

Ls: flood med to dark brn, sl mottled cryptoxln, some more granular, NVP, N.S.

Ls: lt to med brn, lt gray predom. cryptoxln, some sl granular, NVP, N.S.

Ls: various cryptoxln AA; influx tan, offwhite mic-vfxln dense, dark gray cryptoxln and tan sl granular, N.S.; Sh: sl influx med to dark gray and black

Ls: abund. various lt to dark brn, lt to dark gray cryptoxln and granular, NVP; lesser offwhite mic-vfxln dense, N.S.; Sh: incr. % dark gray, black

40' spl - predom. various cryptoxln and dense Ls's AA; Sh: incr. med to dark gray, gray-green, mushy pale gray

50' spl - Ls: various cryptoxln and granular AA; new lt gray cryptoxln mottled with yellow tint; trace offwhite, opq chert; decr. shales AA

60' spl - Ls: lt to med brn, tan, lt gray cryptoxln; Sh: some soft offwhite clayey; Siltst: scatt. offwhite, lt gray finely micac. and vvtg sandy, N.S.

Morgan Mud Check at 4118
10:55 AM on 4-14-2014
wt vis wl pH chl
9.2 62 7.2 11.0 7400
PV YP GeIS lcm solids
21 27 12/34 5# 6.4%

DST No. 3 Lansing "E"
Interval: 4100'-4118'
Times: 30-60-60-90
IFP: weak blow built to 1 3/4 inches
ISIP: no return blow
FFP: weak blow built to 3 inches
FSIP: no return blow
Recovery: 30' WCM (46w, 54m); 120' MCW (39m, 61w) chl. 22,500
FP: 19-41/43-91 SIP: 1155-1151
HP: 2089-1845 BHT: 113 deg. F

DST No. 4 Lansing "H" and "I"
Interval: 4168'-4230'
Times: 30-60-60-60
IFP: weak surface blow built to 3/4 inch
ISIP: no return blow
FFP: weak surface blow built to 1 inch
FSIP: no return blow
Recovery: 61' WCM w/skim of oil (4w, 96m); 60' WCM w/skim of oil (23w, 77m) chl. 25,200
FP: 19-40/43-78 SIP: 895-866
HP: 2149-2019 BHT: 114 deg. F

CFS 4230' 60" spl - Ls: more tan, lt gray, lt brn cryptoxln and offwhite, tan mic-vfxln dense, subchalky to occ chalky, N.S.

7:00 AM at 4230' on 4-15-2014

Morgan Mud Check at 4230'
10:15 AM on 4-15-2014
wt vis wl pH chl
9.4 62 8.8 11.0 8400
PV YP GeIS lcm solids
20 30 26/44 6# 7.8%

Stark Shale 4254' (-1210)

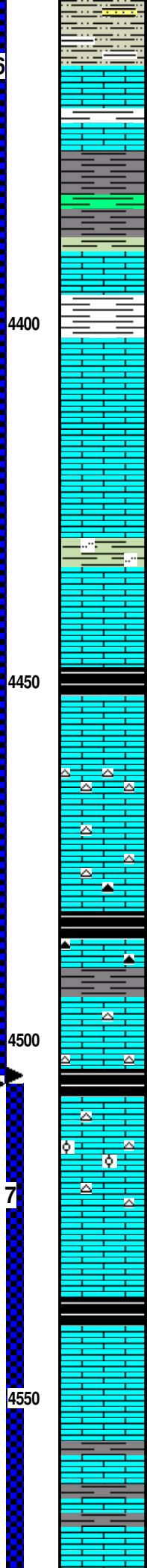
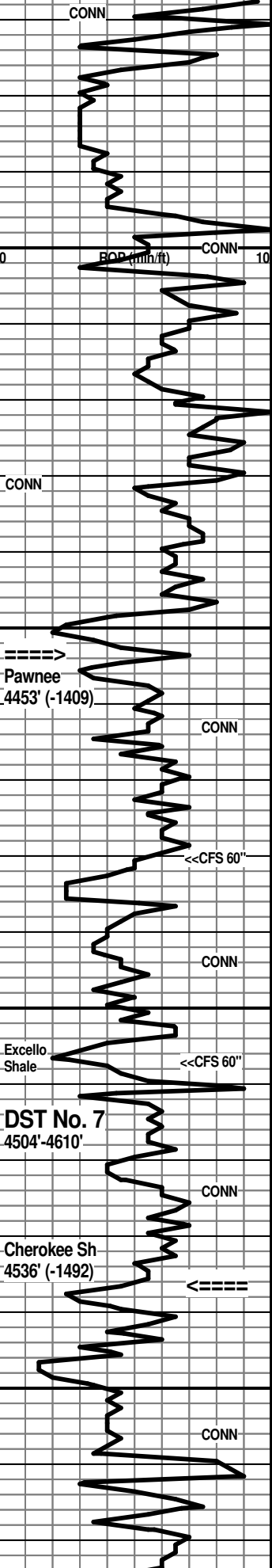
CFS 4286' 30" spl - Ls: tan, lt brn, lt gray cryptoxln; much decr. offwhite mic-vfxln subchalky; sl influx offwhite opq chert; 60" spl - Ls: mix AA with influx med brn, med gray cryptoxln, decr. chert

7:00 AM at 4286' on 4-16-2014

Morgan Mud Check at 4286'
11:00 AM on 4-16-2014
wt vis wl pH chl
9.3 67 8.0 10.5 8300
PV YP GeIS lcm solids
21 27 14/36 6# 7.1%

DST No. 5 Lansing "J" and "K"
Interval: 4230'-4286'
Times: 30-60-60-90
IFP: weak surface blow built to 1 inch
ISIP: no return blow
FFP: very weak surface blow
FSIP: no return blow
Recovery: 5' W&OCM (2w, 5o, 93m); 60' WG&OCM (2w, 3g, 6o, 89m)
FP: 22-34/38-56 SIP: 1098-1075
HP: 2124-1973 BHT: 116 deg. F

DST No. 6
4345'-4507'



Siltst: light gray, offwhite, lt med, micac. and vavg sandy IP; Sh: vc gray, red-brn, soft lt red

Ls: abund. various cryptoxln and granular, NVP, N.S.; 2 chips lt brn granular with patchy stain

Ls: tan, lt to med brn, lt gray cryptoxln; some tan, offwhite sl granular, NVP, N.S.; 3 chips lt brn sl granular with poor pp por., no odor, pp dark stain, trace fo, some listless, hard

90' spl - Ls: mix AA, several chips with shows, sl odor; Sh: influx med to dark gray, gray-green, some black carbon.

4400' spl - Sh: good influx lt to med gray, gray-green, soft red-brn, purplish-gray

10' spl - Ls: mottled tan, brn, gray predom. granular, poor-NVP, N.S.; flood Sh: med to dark gray, dull red-gray, red-brn, gray-green

20' spl - flood Ls: predom. tan, lt brn cryptoxln and lesser offwhite mic-vfxln dense; some tan cryptoxln with spotty stain; several chips tan granular with poor inter-particle por, with pp dark stain, no odor, sfo

Ls: lt to med brn, gray-brn, tan cryptoxln to sl granular; occ dark brn cryptoxln, scatt. shows AA; Sh: influx lt to med gray, silty IP

Ls: flood lt to med brn and gray, predom. sl granular, NVP; other lt to med brn cryptoxln, NVP, N.S.; trace tan fn granular with fair-good inter-particle por. with pp brn stain, sfo, no odor

Ls: lt to med brn, some gray and gray-brn cryptoxln to sl granular; lesser offwhite mic-vfxln dense, N.S.

Sh: good influx black carbon., dark gray

Ls: new dark brn cryptoxln

Ls: 4-5 chips tan fn-vfxln with poor visible interxln por. with pp brn stain, no odor, bleeds gas and oil; flood tan, offwhite mic-vfxln dense; strong influx of Chert: lt gray, offwhite oopq

Ls: flood lt to med brn and gray mottled granular, NVP, most with micxln matrix; Chert: AA, decr. %, some mottled gray/offwhite

CFS 4480' spls - Ls: flood med to dark brn, gray-brn granular to cryptoxln, NVP, N.S.; Chert: scatt. mottled gray/offwhite, dark brn to black, lt brn

Sh: black carbon.; Ls: dark brn, dark gray-brn cryptoxln; more dark brn to black chert; Sh: dark gray

Ls: flood tan, offwhite mic-vfxln dense, subchalky IP; lesser tan, lt brn cryptoxln; several chips tan fnxln with scatt. vug. por. with no odor, spotty pp brn stain, vsf sfo on break; sl influx offwhite opq chert

CFS 4507' spls - Ls: predom. tan, lt brn granular to cryptoxln; Chert: offwhite, gray; Sh: influx black carbon.

Ls: various lt to med brn, gray cryptoxln to granular, NVP; sl cherty AA

Ls: flood mottled brn/gray granular to oolitic, NVP, N.S.; lesser brn, gray cryptoxln and tan, offwhite mic-vfxln dense; scatt. tan vf-cryptoxln with vug. por. and stain, no odor, nfo, (new?); sl cherty AA;

Ls: lt to med brn, lt to med gray vf-cryptoxln, NVP, N.S.; lesser tan, lt gray mic-vfxln dense

Sh: black carbon.

Ls: influx dark brn, dark gray cryptoxln and mottled dark brn/gray granular with micxln matrix

Ls: influx tan, offwhite mic-vfxln subchalky; various tan, lt to med brn granular; occ tan, lt brn mic-vfxln with pp por. with lt brn stain, no odor, vsf sfo, slow bleeding gas

Ls: various tan, lt to med brn, gray cryptoxln, granular IP, NVP, N.S.; Sh: influx black and dark gray

Ls: various AA with more gray-brn vf-cryptoxln, NVP; Sh: beds of dark gray to black

7:00 AM at 4425' on 4-17-2014

Pawnee 4453' (-1409)

Morgan Mud Check at 4455'
10:50 AM on 4-17-2014
wt vis wl pH chl
9.3 54 6.8 10.5 7000
PV YP GeIS lcm solids
17 22 9/31 5# 7.1%

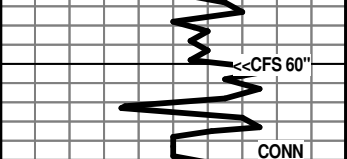
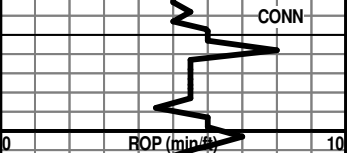
DST No. 6 Marmaton/Pawnee
Interval: 4345'-4507'
Times: 30-60-30-60
IFP: weak surface blow built to 1/2 inch
ISIP: no return blow
FFP: no blow
FSIP: no return blow
Recovery: 62' G&OCM (2g, 2o, 96m)
FP: 24-41/44-57 SIP: 676-608
HP: 2200-2110 BHT: 117 deg. F

7:00 AM at 4510' on 4-18-2014

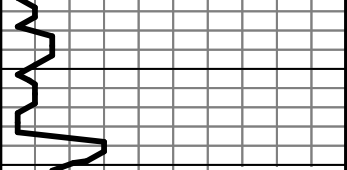
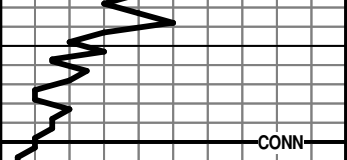
Cherokee Shale 4536' (-1492)

Morgan Mud Check at 4569'
12:35 PM on 4-18-2014
wt vis wl pH chl
9.2 51 8.4 10.5 8000
PV YP GeIS lcm solids
15 22 10/39 5# 5.7%

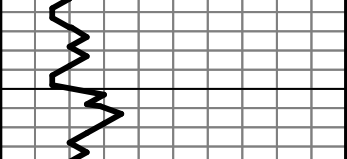
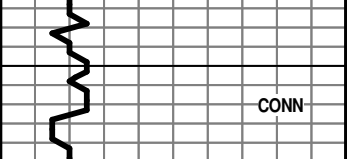
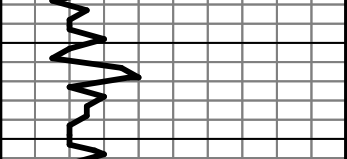
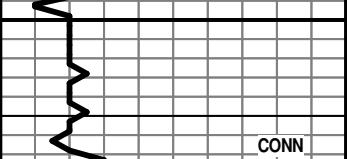
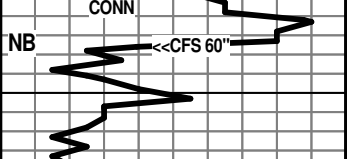
**Johnson Zone
4579' (-1535)**



**DST No. 8
4610'-4685'**



**Mississippian
4672' (-1628)**



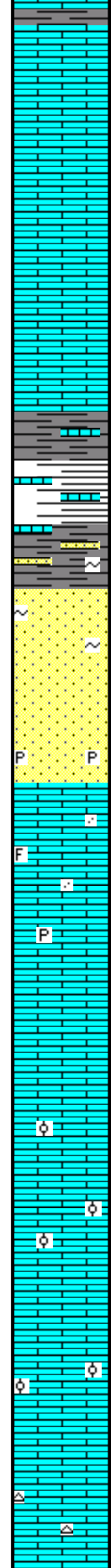
**RTD 4770' (-1726)
LTD 4773' (-1729)**

4600

4650

4700

4750



90' spl - Sh: AA; Ls: predom. med to dark brn, gray cryptoxln, NVP, N.S.; sl influx med brn granular with patchy to sat. stain, fair to good odor, good sfo, sg in some vug. and inter-particle por.

4600' spl - Ls: scatt. chips with shows AA, good more pungent odor; influx various brn, gray cryptoxln to granular, NVP and lesser offwhite, lt gray mic-vfxln dense, N.S.

Ls: various brn and gray cryptoxln to sl mottled granular, NVP; occ chips with shows AA, some less por. with edge stain

CFS 4610' spls - Ls: various cryptoxln AA; offwhite, lt gray mic-vfxln dense; occ shows new?; minor shale

Ls: various brn, gray cryptoxln to mottled granular; occ chips with spotty stain; sl trashy with various shales

Ls: lt to med brn, med to dark gray predom. cryptoxln, some granular; lesser offwhite mic-vfxln dense; scatt. lt gray and dark brn-black chert; Sh: med to dark gray, black, some greenish-gray

Sh: good influx vari-colored, med to dark gray, black, lt green, dark yellow, ochre, red-maroon; spls carry abund. various dense Ls's

Sh: good influx dark gray to black; abund dense Ls's in spls

60' spl - adund shales and Ls's AA; Sst: sl influx lt gray fg, sl glauc. tight, shaly IP, N.S.

70'/80' spls - Sst: good influx lt gray fg tight, N.S. and clear vfg-fg subang-subrnd, well sorted, sl glauc., well cmt'd IP with pp brn stain to sat. stain, good shows fo, sl odor, some gassy oil on break, common listless oil, some clusters of fg with good inter-granular por.; occ sandy pyrite

85' spl - flood Ls: tan, lt brn cryptoxln to sl granular; offwhite, tan mic-vfxln dense, subchalky; occ finely arenaceous, NVP, N.S.

CFS 4685' spls - Ls: mix AA some sl foss, sl incr. in finely arenaceous; 60" spl - AA with sl influx tan, lt brn fn granular with micxln matrix, N.S.

sl trashy spls; Ls: mix tan, lt brn cryptoxln and lesser offwhite, tan mic-vfxln dense, subchalky; occ tan granular, pyritic

Ls: lt to med brn, lt gray cryptoxln; incr. tan, offwhite granular with micxln matrix, N.S.

Ls: various cryptoxln to granular AA; some lt brn granular, sl oolitic with inter-particle por., N.S.

Ls: mix AA with sl incr. brn granular to sl oolitic

Ls: predom. tan, lt brn, lt gray granular, sl oolitic IP with micxln matrix

Ls: predom. mix AA; sl influx med brn oolitic with offwhite micxln matrix; common ofwhite dense, subchalky

Ls: mix AA with sl incr. lt gray, lt brn cryptoxln

Ls: various tan, lt brn granular with micxln matrix and offwhite, tan micxln dense, subchalky; fair influx offwhite opq chert

Because of the positive results of DST No. 8, 5 1/2" casing was set for testing of the Basal Penn. Sand.

Respectfully submitted,

Johnson Zone 4579' (-1535)

DST No. 7 Fort Scott - Johnson Zone
Interval: 4504'-4610'
Times: 30-60-30-60
IFP: weak surface blow built to 3/4"
ISIP: no return blow
FFP: no blow
FSIP: no return blow
Recovery: 40' G&OCM (2g, 3o, 95m)
FP: 21-30/36-41 SIP: 598-449
HP: 2311-2217 BHT: 118 deg. F

7:00 AM at 4620' on 4-19-2014

DST No. 8 Basal Penn. Sand
Interval: 4610'-4685'
Times: 30-60-60-90
IFP: weak blow built to B.O.B. in 20 minutes
ISIP: very weak surface return in 26 minutes, died in 45 minutes
FFP: weak blow built to B.O.B. in 10 1/4 minutes
FSIP: weak surface return in 2 minutes, built to 7 inches
Recovery: 759' weak GIP; 47' G&MCO (6g, 8m, 86o); 124' G&OCM (15g, 24o, 61m); 186' O&GCM (18o, 35g, 47m); 60' G&OCM (19g, 22o, 59m); 60' WO&GCM (16w, 24o, 27g, 33m); 120' GO&WCM (4g, 7o, 30w, 59m)

Total fluid 597'
FP: 35-167/169-271
SIP: 1118-1108
HP: 2374-2238
BHT: 123 deg. F

Mississippian 4672' (-1628)

Ran PDC bit back in to finish well.

**Morgan Mud Check at 4685'
2:00 PM on 4-19-2014**

wt	vis	wl	pH	chl
9.4	57	9.2	10.0	9000
PV	YP	GelS	Icm	solids
15	27	14/42	5#	7.8%

7:00 AM at 4770' on 4-20-2014

RTD reached at 5:45 AM
CFS/CTCH 1 1/2 hours - Survey
TOFL

