



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. #3-23 Burk Trust "A"
Location: 1650' FNL, 330' FWL of Section 23-1S-36W
License Number: API: 15-153-20978 **Region:** Rawlins County, KS
Spud Date: 1-18-2014 **Drilling Completed:** 1-22-2014
Surface Coordinates: 1650' FNL, 330' FWL of Section 23-1S-36W
NW SW NW
Bottom Hole Vertical hole
Coordinates:
Ground Elevation (ft): 3243' **K.B. Elevation (ft):** 3254'
Logged Interval (ft): 3536' **To:** RTD **Total Depth (ft):** 4550'
Formation: Marmaton at RTD
Type of Drilling Fluid: Chemical - Displaced at 3411'

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 #2
 Pusher: Arturo Cabezas

Surface Casing: 8 5/8" set at 265' w/225 sx
 Production Casing: 5 1/2" set at 4544' w/450 sx

Mud by: Morgan Mud - Dave Lines was the engineer

DST's by: No DST's

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


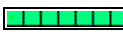


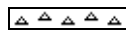
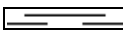



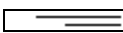



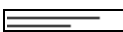
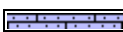





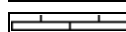





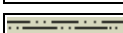
Deviation Surveys: 1/4 deg. @ 265'; 3/4 deg. @ 4550'

Bit #	Size	MFG	Type	Depth Out	Footage Cut	Hours on bit
1	12 1/4"	HTC	FDS	265'	265'	2 1/4
2	7 7/8"	HTC	Q506	4550'	4285'	37 1/4

FORMATION TOPS AND STRUCTURAL COMPARISON

FORMATION	SAMPLE TOPS		LOG TOPS		COMPARISON WELL MDC #1-23 Burk Trust "A" 2225' FNL, 330' FWL Section 23-1S-36W 3225' KB
	Depth	Datum	Depth	Datum	
Anhydrite	3157'	+97	3156'	+98	-2
B/Anhydrite	3190'	+64	3188'	+66	-1
Neva			3638'	-384	-2
Red Eagle			3700'	-446	-4
Foraker			3748'	-494	-3
Topeka			3962'	-708	+1
Oread			4072'	-818	+1
Lansing			4174'	-920	-2
Stark Shale			4394'	-1140	flat
BKC			4444'	-1190	flat
RTD	4550'	-1296			
LTD			4552'	-1298	

ROCK TYPES

 Anhy	 Salt	 Dol	 Shlyls
 Cht	 Shale	 Dtd	 Sltsh
 Coal	 Shcol	 Gry sh	 Sdy dolo
 Congl	 Shgy	 Sandylms	 Silty dolo
 Gyp	 Sltst	 redshale	 Shy dolo
 Ls colorless	 Ss	 Shale	 Shaly ls
 Lmst	 Carb sh	 Sltstn	

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
- Carbstn
- Clystn
- Dol
- Grysh
- Gryslt
- Lms
- Sandylms
- Sh
- Sltstn

OTHER SYMBOLS

INTERVALS

- Core
- Dst
- Dst

EVENTS

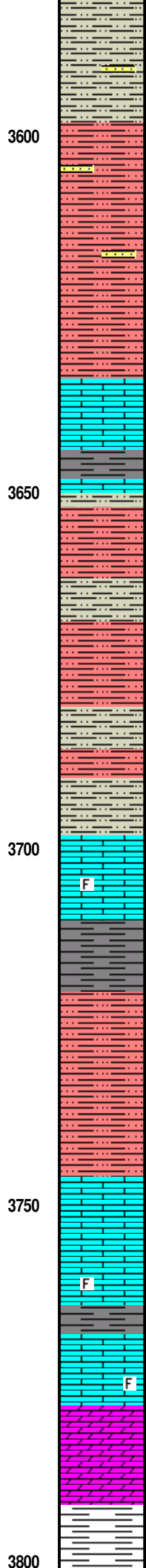
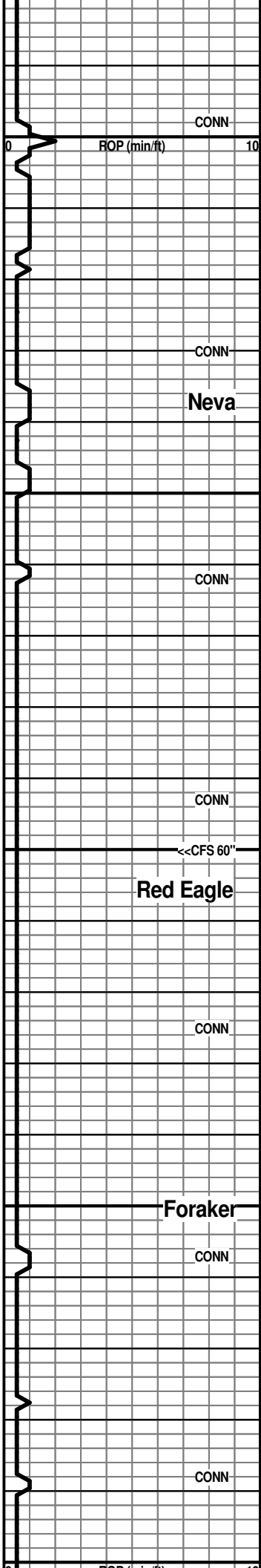
- Rft
- Dst top/base

OIL SHOWS

- Even
- Spotted
- Quest.

- Trace
- Dead
- Gas show

Curve Track 1 ROP (min/ft)	Depth	Lithology	Geological Descriptions	Remarks
0	10			
3500				<p>Report Depth & Activity</p> <p>1-18-2014 MIRT, Spud at 4:15 PM 1-19 Drlg. @ 362' 1-20 Drlg. @ 3411' 1-21 CFS @ 4300' 1-22 RTD 4550', logs complete, circulating to run pipe</p>
CONN		[Lithology Pattern]	<p>Siltst: red, vf sandy IP; lesser ofwhite, lt gray siltst; some offwhite, lt gray vfg Sst, N.S.</p>	<p>Lithology and tops correlated to E Log because of PDC bit's rapid penetration.</p>
3550				<p>Sample quality poor to fair throughout</p>
CONN				<p>Lithology correlated as 2' high to E-logs</p>



mix lt to med red Siltst and med to dark red shale, silty IP; scatt. to trace offwhite vf-fg Sst

Ls: scatt. offwhite mic-vfxln dense and lt brn cryptoxln

predom. red siltst and red silty shale with sl influx med to dark gray shale

Siltst: good influx offwhite, lt gray

Ls: offwhite, lt gray mic-vfxln, dense, some pp por.; lt gray, tan vf-cryptoxln, occ foss., N.S.

Sh: lt to med gray, some dark red

Sh: flood med red silty

Ls: offwhite micxln with spotty pp dead stain, nfo, no odor

Ls: lt to med gray, lt brn vf-cryptoxln; gray fn gran. and foss., N.S.; Sh: lt to med gray

Ls: various gray, brn dense AA; some gray dense, shaly and foss.

Dolo: tan, lt brn vfxln with interxln and some vug. por., N.S.

Sh: red-brn, gray, some black

sample quality poor to fair

ROP (min/ft)

CONN

3850

CONN

CONN

3900

CONN

Topeka

CONN

3950

CONN

CONN

4000

ROP (min/ft)

Sh: influx red, brn silty

Ls: offwhite, lt gray, tan mic-vfxln dense

Sh: red, brn silty; some med gray

mix various dense Ls's AA with Sh: med to dark red-brn silty and gray

Sh: predom. various red, brn, gray, some maroon, silty IP

Ls: lt gray granular and lt gray cryptoxln, NVP

Sh: lt to med gray, gray-green

Sh: med to dark gray silty with new soft, gummy red

Ls: mix tan, lt gray granular, lt gray, tan cryptoxln and offwhite mic-vfxln dense, N.S.; trace mottled gray/offwhite chert

Sh: med to dark red, silty IP

Sh: influx soft red

Ls: tan, lt gray, lt brn cryptoxln; offwhite micxln to fn granular

Sh: lt to med red, silty IP

Ls: tan, offwhite granular, foss.; occ offwhite granular to subchalky with dead gilsonite flecks

Ls: mix AA with tan, lt gray cryptoxln

Sh: various red, brn silty IP; some maroon, purple, med to dark gray; occ lt green

Morgan Mud Check at 3815'
3:25 PM on 1-20-2014
wt vis wl pH chl
8.9 53 5.6 12.0 700
PV YP GelS lcm solids
16 18 9/23 6# 4.3%

sample quality poor to fair

Ls: lt gray, offwhite, lt brn cryptoxln and offwhite mic-vfxln dense

CONN

4050

Sh: predom. maroon and red-maroon

<<CFS 60"

CONN

Oread

Ls: mix offwhite, tan mic-vfxln with spotty black, dead stain; tan, offwhite med granular with good interxln and vug. por. with sat. stain, exc. sfo, no odor, sucrosic and druzi IP, occ pyritic

P

Sh: med to dark gray, black

4100

Ls: predom. offwhite, lt gray mic-vfxln dense; scatt. chips with shows from above

<<CFS 60"

CONN

60' spl - Ls: mix AA with influx Dolo: tan, lt gray vf-cryptoxln; occ lt brn fnxln with scatt. patchy stain; trace gray med grnd, pyritic Sst with stain, sfo, no odor; spls carry common med to dark gray shale

Ls: various offwhite, tan, lt gray mic-vfxln dense

CONN

Ls: flood lt to med gray very shaly; with calcar. gray shales

4150

Sh: med to dark gray

CONN

Lansing

Ls: offwhite, lt gray mic-vfxln dense; spls very shaly and poor

Sh: vc gray with gray dense shaly Ls

4200

CONN

ROP (min/ft)

<<CFS 60"

10

Sh: influx red, red-brn, soft red; common grays AA

CONN

"D" Zone

Ls: tan, offwhite foss. IP with spotty vug. and intra-particle por. with pp to subsat. brn stain, sl sfo, no odor; some offwhite, cream mic-vfxln with black spotty dead stain

F

Wiper trip of 40 stands at 4072' CTCH 30" prior to drilling ahead

with black spotty dead stain

4250
4300
4350
4400
4450

CONN <<CFS 60"

CONN "G" Zone <<CFS 60"

CONN

CONN "J" Zone <<CFS 60"

ROP (min/ft) 0 10

CONN

CONN

Sh: lt to med gray, red, brn, maroon

Ls: lt gray, lt brn vf-cryptoxln, NVP, N.S.

Sh: vc gray and red

Sh: strong influx in CFS 4300' 30" spl of dark red and red-maroon

Ls: mix tan, lt gray, lt brn vf-cryptoxln, NVP, N.S.; offwhite, tan sl granular with scatt. vug. and inter-particle por. with stain, trace fo; some Dolo: tan med xln with sat. stain, sfo, good interxln por.

Ls: mix AA with several chips lt to med brn cryptoxln with vug. and edge interxln por. with black stain, shows dark brn oil

abund. med to dark gray shales; Ls: chips with shows AA, many chips lt to med brn foss. to granular with vug. and inter-particle por. with sat. stain, sfo, no odor, new??

F

Sh: lt to med gray with influx dark red-brn

Ls: influx offwhite, lt gray mic-vfxln dense, some pp por., N.S.

Sh: red-brn, red-maroon

Ls: tan, lt gray, offwhite granular to cryptoxln with pp and edge porosity with pp to sat. stain, sfo, no odor

Sh: med to dark gray

Sh: red-brn, silty, var. gray AA

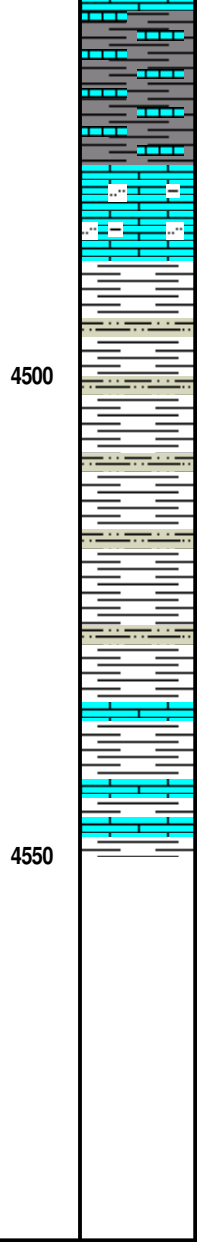
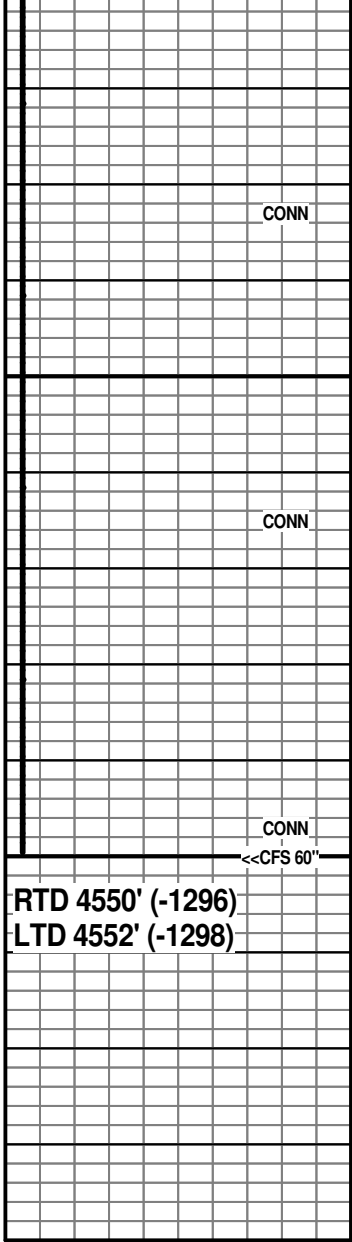
Ls: mix tan, lt gray cryptoxln and offwhite, lt gray mic-vfxln dense, occ subchalky, some pp por., N.S.

Ls: mix AA with some tan, offwhite sl granular with some inter-particle por. and offwhite micxln with some pp por., N.S.; Sh: sl influx red-brn, dark gray

Sh: med to dark red-brn, dark gray with Ls: offwhite, lt gray mic-vfxln dense; lesser tan, lt gray cryptoxln and some lt brn, lt gray granular, N.S.

7:00 AM at 4300' on 1-21-2014

generally good samples from here to RTD



flood lt to med gray mic-vfxln shaly Ls and calcar. shale

Ls: lt to med gray, offwhite mic-vfxln dense, silty to shaly; occ lt gray, med brn cryptoxln, N.S.

Sh: med to dark red-brn, med gray, trace maroon; some lt gray siltst

mix various shales AA with some lt gray and offwhite siltst

mix of shales and siltst AA with incr. Ls: tan, lt gray vf-cryptoxln and offwhite, tan mic-vfxln dense

After review of the open hole logs the decision was made to run 5 1/2" casing for production testing.

Respectfully submitted,

Wesley D. Hansen
 Petroleum Geologist
 Kansas License No. 418

Morgan Mud Check at 4550'
 3:00 PM on 1-21-2014
 wt vis wl pH chl
 9.2 58 5.8 10.5 500
 PV YP GelS lcm solids
 21 23 14/32 4# 6.3%

RTD reached at 11:30 AM on 1-21-2014
 CFS 60" - short trip - CTCH 1 1/2 hours
 Drop survey - strap out for loggers - hit bridge at 1300' - TOOH/TIH and condition hole - TOFL - logs went OK