

**GRAND  
MESA****OPERATING COMPANY**

(316) 265-3000  
FAX: (316) 265-3455

1700 N. WATERFRONT PARKWAY  
BLDG. 600  
WICHITA, KANSAS 67208-5514

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

Well Name: Brooks #1-18  
Location: 2219' FNL, 1761' FWL, Section 18-11S-26W Gove County, KS  
License Number: API: 15-063-22099 Region: Wildcat  
Spud Date: 10-9-12 Drilling Completed: 3/27/13  
Surface Coordinates: Lat: 39.0976539  
Long: -100.2524658  
Bottom Hole Coordinates: Vertical hole  
Ground Elevation (ft): 2664' K.B. Elevation (ft): 2669'  
Logged Interval (ft): 3600' To: RTD Total Depth (ft): 4568'  
Formation: Mississippian at RTD  
Type of Drilling Fluid: Chemical

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

**GEOLOGIST**

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Company: Independent  
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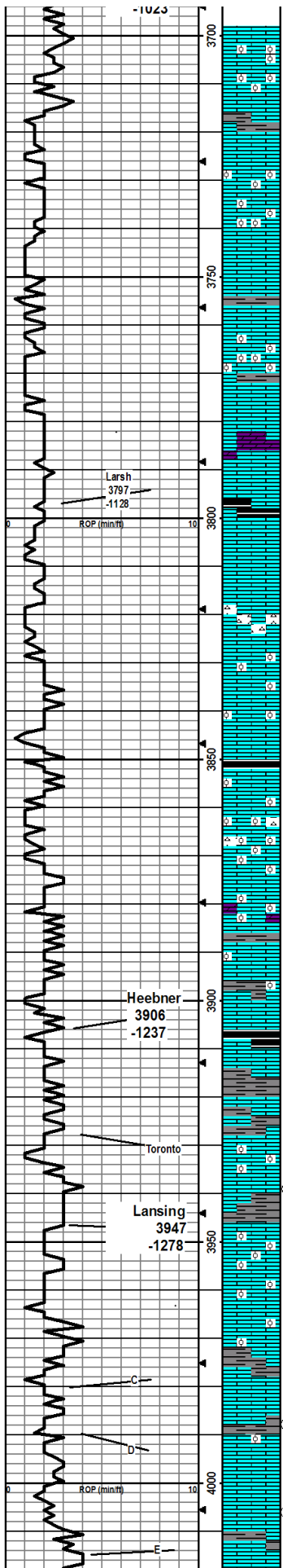
**COMMENTS**

Contractor: Murfin Drilling Company Rig #24  
Pusher: Tony Martin  
Surface Casing: 8 5/8" set at 269' w/190sx  
Production Casing: 5 1/2"  
Mud by: MudCo  
DST's by: Diamond Testing  
Logs by: Weatherford (DIL, CN-CD, ML)  
RTD=4568'  
LTD=4572'  
Cobalt Energy took over well at TD and ran pipe.

**FORMATION TOPS**

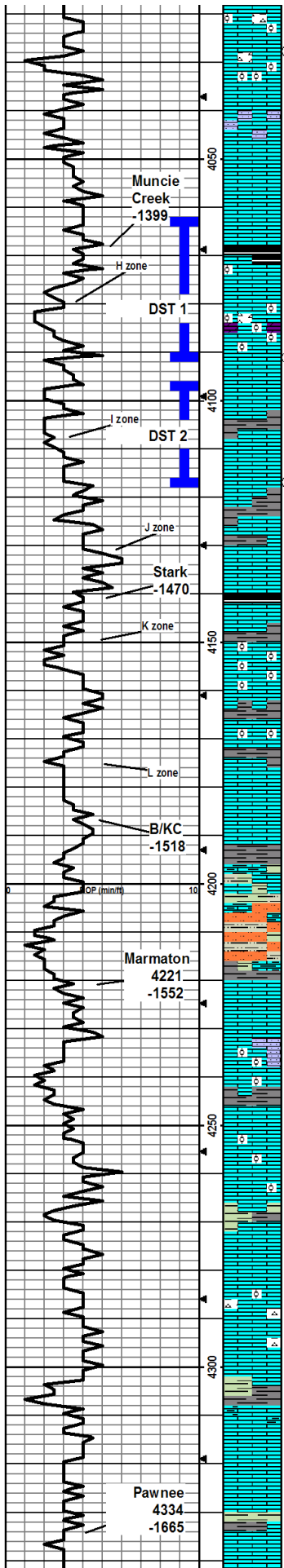
FORMATION	SAMPLE TOPS		LOG TOPS	
	Depth	Datum	Depth	Datum
Stone Corral	2248'	+421	2262'	+407
B/Stone Corral	2300'	+369	2302'	+367
Topeka	3692'	-1023	3664	-1012
Heebner Shale	3906'	-1237	3908'	-1239
Lansing	3947'	-1278	3949'	-1280
Muncie Creek Shale	4068'	-1399	4070'	-1401
Stark Shale	4139'	-1470	4144'	-1475
BKC	4187'	-1518	4190'	-1521
Marmaton	4221'	-1552	4225'	-1556
Pawnee	4334'	-1665	4338'	-1669
Little Osage Shale	4401'	-1732	4402'	-1733
Excello Shale	4433'	-1764	4435'	-1766
Mississippian	4504'	-1835	4506'	-1837
TD	4568'	-1899	4572	-1903

Curve Track 1 ROP (min/ft)	Depth	Lithology	CFS Point	Oil Shows	Geological Descriptions	Remarks
	<p>3500</p> <p>3550</p> <p>3600</p> <p>3650</p> <p>4000</p>				<p>ROP Data begins @ 3500ft</p> <p>3/17/13: Moved equipment to location</p> <p>3/18/13: MIRU Rig #24, spud 5:00 pm, set 8 5/8" @269', cm nt w/190 sxs</p> <p>3/19/13: Drig @ 269'</p> <p>3/20/13: Drig @ 2220'</p> <p>3/21/13: Drig @ 3035'</p> <p>3/22/13: Drig @ 3600'</p> <p>3/23/13: Drig @ 4060'</p> <p>3/24/13: DST 1) @ 4063-4091' 'H' &amp; DST 2) 4096-4117', 'I'</p> <p>3/25/13: Drig @ 4180'</p> <p>3/26/13: DST 3) @ 4090-4132', Fort Scott</p> <p>3/27/13: Drig @ 4568', RTD, Logging, Farmed out well to Cobalt Energy LLC</p>	<p>MUD @ 3642'</p> <p>WT: 8.8</p> <p>VIS: 63</p> <p>WL: 6.8</p> <p>PH: 11.0</p> <p>Chl:900</p> <p>Lcm: 3</p>



3700	LS- crm -tnt tn, mott sli gy ip, md hd, fn xln, mod ool ip, sli foss, grd sfr, sli -tr mod chiky ip, deers ool NS w/sme sh-gy, mod ind, sli blk, dull ip
	LS- crm -tn, md hd- hd, vfn-fn xln, sli grny ip, ool ip, grd sli gy, sli arg, NS
	LS- br- lt gy, hd- tr sfr, vfn -fn xln, sli ool ip, v/sli arg ip
	LS- off wh, md hd, fn xln, ool, grd sfr, mod chiky, NS, w/sme sh-gy, mod ind
	LS- off wh, sft chiky, NS w/sme sh-gy, mod ind, sli wxy ip
3750	SH- dkr gy- sli blk, sli ind, sli fss, sli carb ip
	LS- off wh, sft-md hd ip, fn xln, grny ip, mod ool ip, mod v/chiky ip, NS
	LS- lt br, hd, vfn xln, sli foss, NS
	Dol- lt br, md hd- hd ip, fn xln, sli sucro ip, sli calc, NS
	LS- v/lt gy- crm, hd-md hd, vfn xln, tr li foss, frct, w/secxn, NS
3800	SH- blk, sli ind, fss, carb
	SH- gy- lt gr, mod ind, grd sli calc ip
	LS- lt br- crm, md hd- hd -tr sfr, vfn xln, sli foss tr ool, NS
	Chrt- mky wh- mott tn, foss, frsh, NS
	LS- lr- tnt gy- crm ip, md hd- hd ip, vfn -fn xln, sli grny, tr foss, NS, w/ sme off wh, sfr, chiky, LS, NS
	LS- crm - off wh ip, md hd- tr sfr, fn xln, ool ip, chiky ip, grny ip, tr sli foss, tr gs bbl, NSO
3850	SH- dk gy- blk, sli ind, sli carb
	LS- lt br- crm ip, hd -md hd, vfn xln, foss, tr ool, NS w/sme ls- lt gy, md hd, fn xln, sli grny, tr blk stn, ? v/nt odr, NSO
	LS- lt br- crm, md hd- sfr ip, fn xln, secxn, secxn mtrx ip, mod ool, sli foss, w/sme off wh, sfr, mod chiky ip, tr oocst por, NS w/ chrt- off wh, sli foss, NS
	LS- crm - tnt gy, md hd- tr hd, vfn-fn xln, ool ip, v/sli chiky, tr grd mod chiky, grd md hd, fn xln, dol, LS, NS
3900	LS- crm - tnt gy ip- lt tn, md hd- hd ip- sfr ip, vfn- fn xln, sli grny ip, sli ool, tr foss, v/sli- sli chiky ip, tr imbd pyr, NS
	SH- blk, sli- mod ind, sli fss ip, carb
	LS- crm - tnt gy ip, vfn xln, sli foss, secxn ip, NS
3950	LS- crm - off wh, md hd- sfr ip, fn- tr med xln, sli secxn, ool ip, sli foss, sli chiky, tr mod chiky ip, tr pp vug por, NS
	SH- gy- tnt gr- tr pale rst, sli- mod ind
	LS- crm, md hd- tr hd- sfr ip, vfn- fn xln, mod ool, sli foss ip, sme fr introol- sli vug por, NS
	LS- crm, md hd- hd ip, vfn-fn xln, sli secxn ip, ool ip, tr grd sfr, off wh, chiky, NS
	LS- crm - off wh ip, md hd, vfn- fn xln, ool ip, sli chiky, NS
	SH- gy- tnt gr, mod ind, sli blk
	LS- crm - tnt br, md hd, vfn- fn xln, foss ip, tr vug- intrprtcl por, fw pcs blk pastey res oil, no odr, NSFO
4000	LS- crm - tnt br, md hd- hd ip, vfn-fn xln, tr ool, md secxn ip, sli foss ip, tr vug por, NS
	LS- off wh- crm, md hd- sfr ip, fn xln, chiky NS
	LS- crm - tnt br, md hd- hd, vfn xln, fn- md xln, fn- md secxn, sli foss, NS, w/ sme ls- lt br, hd, vfn xln, secxn, sli foss, NS

MUD @ 4091'  
 WT: 9.1  
 V/C: 62



LS- crm - off wh, md hd- sfr ip, fn lxn, ool ip, sli frct ip, grd sli-tr mod chiky, tr res stn frct, sli flky, NSO, w/ tr /chrt- lt br- opq, frsh, tr flky res stn, NSO

LS- crm - off wh, md hd- sfr ip, vfn xln, sli-tr mod ool, tr oocst por NS, w/sme ls- off wh, sfr, mod chiky, NS

LS- crm - off wh, md hd, fn xln, visli chiky ip, vfn grn sndy ip, NS

LS- crm - tr off wh, md hd- hd, vfn xln, tr secxn, tr foss, NS

SH- blk, sfr, sli carb, sli fiss

LS- lt br- br- crm ip, hd, vfn xln, sli foss, tr ool, tr secxn, grd sli sfr, subchiky, NS

SH- gy- dkr gy ip- tnt gr, sli- mod ind, sli blk, sli dull

LS- crm- tnt br ip, md hd- hd ip- tr sfr, tr frct, fn xln, grny- sli rgh- wthrd ip, sli- mod dol ip, sme fn ool ip, tr foss, sme pr- fr- tr gd vug- sli intrprct por, tr- sme fr vug/edg stn- sat, fw pcs sat (prt dol, wthrd vug por), sli frsfo, md- dkr br oil lvr grv, 1pc ltr oil, fr shw sli dd- dd oil, no flow, vfmt odr

LS- crm - off wh, md hd- hd ip, tr sfr, fn- md ip xln, tr frct, sme stn, tr prt sat- sat, fw pcs wk flo, edg ip, tr wk cut- tr mg cut, ,, sli odr at box w/no cup odr, vsli- sli sto, md- dkr br oil, lvr grv ip,

LS- crm - lt gy, md hd- hd, fn- vfn xln, sli grny, tr res stn, NSO

SH- gy- rsty/br/mrn, sli- mod ind,

LS- lt br- crm,, md hd - hd, vfn- fn xln, tr sli foss, frct ip, tr spty pr vug por, tr res spty stn, NSFO

LS- crm - off wh, md hd- hd- sfr ip, vfn- fn xln, mod ool ip, tr foss, tr sli- mod chiky, NS

SH- gy- dkr gy, mod ind, tr blk sh

LS- lt br- tnt gy, hd, vfn xln, ool ip, frct, tr secxn, NS w/tr ool, crm chrt, NS, w/sme lt gy sh

LS- crm - tnt br & gy ip, hd- md hd ip, vfn- fn xln, sli frct w/ rsty arg/frct, NS w/ intrbd sh

SH- lt gy- gy, mod ind, sli stly ip, tr foss, grd lmy ip, tr rsty sh

SLST- rsty- pale ip- tr crm, mod ind grd mod arg, w/intrbd rsty sh, w/dk gy- blk, splntry

SLST- rsty- lt gr& crm ip, mod ind, sli calc, w/lt gr, sli wxy sh

LS- crm- tnt gy, md hd- tr hd, vfn- fn xln, sli wthrd ip, tr sli foss, frct, grd off wh, sfr, chiky, NS

LS- crm- tr tnt gy - tr tnt yel & rd, md hd, vfn xln, tr foss, sli chiky ip, tr frct, tr stly, NS

LS- crm - off wh ip, hs- md hd, fn - vfn xln, mod ool ip, sli foss, sli mod fn grm sndy, tr frct, grd sfr, chiky, decrs snd, sli ool, NS

LS- lt br- tn, hd- tr sfr, vfn xln, ool ip, tr frct, NS w/sme lmy rsty, sli foss, stly sh

SH- pale gy & mrm- tnt rsty, sli ind, stly ip, cly ip

LS- crm, hd, vfn xln, secxn ip, frct ip, NS, w/sme sh- dk rsty/br, mod hd, sli frct

LS- crm - tnt br- lt gy ip, md hd- hd, fn xln, sli foss ip, tr ool, tr stly ip, w/tr pale orgn chrt, NS w/ sme sh- gy, mod ind, stly ip, tr lmy

LS- lt gy- tr gy, md hd, fn xln, sli arg, grd lmy ip, stly, sh, w/tr orgn - crm, sli foss, chrt, NS

SH- ltr gy - pale rst- rsty, sli- mod ind, sme clay, sli blk, tr sndy

LS- crm, md hd- hd, vfn xln, frct, sli arg/frct, foss, tr ool, ?tr spty res stn, NSO

LS- crm - tnt gy, md hd- hd, fn xln, sli arg ip, sli frct, sli erthy ip, NS

LS- lt br- crm, md hd- hd, vfn xln, visli chiky ip, tr frct, sli wthrd ip, NS

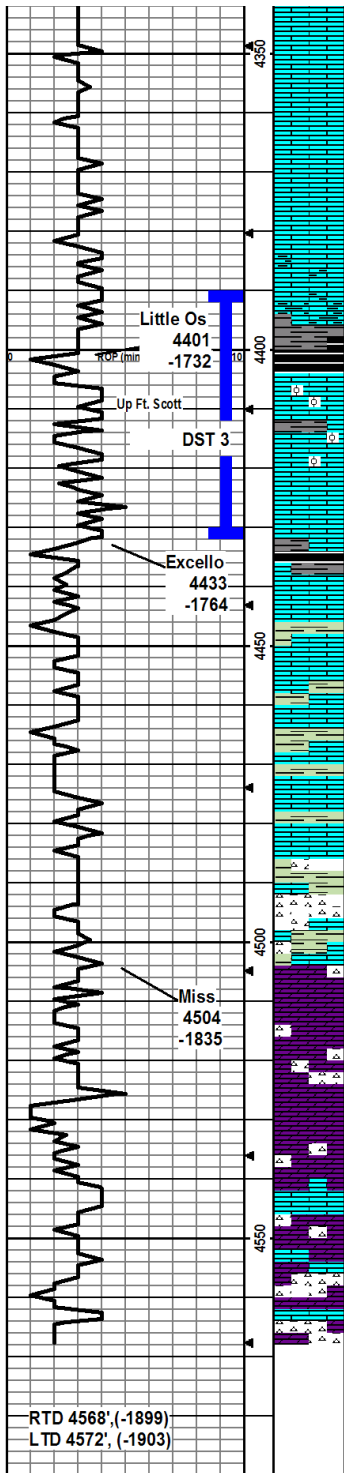
WT: 6.2  
 PH: 11.0  
 Chl: 900

**DST 1) 'H'**  
 4063-4091'  
 30-45-60-90  
 1st)SB bld 4"  
 2nd)SB bld 5"  
 no BB's  
 Rec: 10' MCO  
 110' SOCM  
 IFF: 12-37#  
 FFP: 41-68#  
 SIP: 1278-1285#  
 HP:1942-1937#

**MUD @ 4091'**  
 WT: 9.2  
 VIS: 60  
 WL: 6.8  
 PH: 11.0  
 Chl:1100  
 Lcm:2#

**DST 2) 'I'**  
 4096-4117'  
 30-30-30-30  
 1st)SB bld 1"  
 2nd) no blow  
 Rec: 2' Mud  
 IFF: 8-10#  
 FFP: 10-10#  
 SIP: 32-22#  
 HP: 1971-1976#

**MUD @ 4242'**  
 WT: 9.4  
 VIS: 41  
 WL: 8.0  
 PH: 10.0  
 Chl:1200  
 Lcm: 2#



LS- crm - lt br ip, md hd-hd, fn xln, sli wthrd ip, NS

LS- crm - tnt br & gy, hd, fn xln, sli wthrd, tr frct, sli stly ip, NS

LS- lt gy- tnt br, hd, fn xln, wthrd ip, stly ip, NS

LS- lt br, hd, fn xln, wthrd ip, stly ip, tr pyr clstrs, NS w/sme sh- lt gy-rsty, mod ind, blk

LS- gy, md hd, vfn xln, arg, grd lmy ip, gy - rsty /br sh, blk,

SH- dkr gy, md hd, blk, sli calc, grd blk, sli ind, sli carb

SH- blk, sli ind, carb, ali fiss ip

LS- crm - off wh, hd, vfn xln, ool ip, NS

LS- crm - off wh, hd -md hd, vfn- fn ip xln, ool ip, tr fn vug por, tr stn- prt sat, fw pcs fr- gd flo, fr cut, vss- sso, lt br oil, fnt odr

SH- blk- dk gy, mod - sli ind, dli blk

LS- lt br, md hd -hd , vfn xln, frct ip, rgh, wthrd ip, sli rewrk, NS

SH- lt gr- gy, sli ind, sli wxy ip

LS- crm - off wh, md hd- hd, vfn- fn xln, tr frct, grd chiky ip, NS

SH- lt gr/gy, sli- mod ind, sli foss ip, sli wxy ip, rsty/br, dull, blk

LS- crm - tn, md hd- hd, vfn xln, tr foss, NS

LS- crm - tn, w/veins rsty /mrm, hd, vfn xln, sli frct, NS, w/ 1 pc ss- fn grn clean, tr gs bbl nso

CHRT- crm- tn- tnt org, frsh, tr foss, NS, w/sh- gr- gy- yel/ gld- rsty, mod- sli ind, blk, dull- wxy ip, w/tr fn grn clean ss NS

LS- tn- crm- mott, md hd, wthrd ip, NS

DOL- crm - off wh, md hd, fn xln, sli stly ip, calc ip, sli wthrd, NS

DOL- crm - off wh, md hd, fn xln, sli sucro, tr spicules, w/sme off wh chrt, sli wthrd, sme sli arg calc dol, NS

DOL- crm - tnt tn, md hd- tr hd, fn xln, sli sucro, str spty glauc, w/tr chrt, NS w/tr LS- lt br, md hd, sli litho, md xln, sli foss, NS

SH- gy- pale olv gr- sli mott ip, sli- mod ind, sli wxy, tr foss w/sme chrt- opq- mky- cloudy, frsh, shrp, sli foss, NS

CHRT- opq- mky sh- cldy/ tnt bl, foss ip, frsh, shrp

LS- tn, hd dns, microxln, w/ qtz incls, secxln, NS

**MUD @ 4432'**

WT: 9.3  
VIS: 63  
WL: 7.6  
PH: 10.5  
Chl: 1200  
Lcm: 2#

**DST 3) Up FS  
4390-4432'  
30-45-60-90  
1st) sb BOB 18"  
SB BB on SI  
2nd) sb BOB 13"  
Rec: 435' GIP  
90' FO, 38Grv  
140' GHOCM  
IFP: 13-62#  
FFP: 60-92#  
SIP: 1324-1309#  
HP: 2110-2114#**

**MUD @ 4568'**

WT: 9.2  
VIS: 55  
WL: 7.6  
PH: 10.5  
Chl: 1300  
Lcm: 2#

RTD 4568', (-1899)  
LTD 4572', (-1903)