

MURFIN DRILLING CO.
HOBBS # 2-2

FIELD: SALINE VALLEY
LOCATION: 231D' FNL, 1648' FNL

SECTION: 2
TWP: 11S
RANGE: 24W
COUNTY: Trego
STATE: KANSAS

LOG OWNER: MORGAN MUD INC.
MURFIN DRILLING CO. Rite # 714
CORNER: 31 MAR 14
DATE: 7 APRIL 14
COURTESY: OIL FIELD TESTING
PIONEER ENERGY SER.
DIL.

4029
4027
4027

FORMATION TOPS & STRUCTURAL POSITIONS
ANHYDRITE - TOP 1945
ANHYDRITE - BASE 1986
TOPEKA 3441
DEER CREEK 3500
LECOMPTON 3567
DREAD 3608
HEEBNER TORONTO 3680
LANSING 3698
STARK 3925
MARMATON 3973

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DRILL STEM TESTS

No.	Interval	Depth	Pressure	Temperature	Remarks
1	3718 - 3785	25'-71"	1027#	80°-94°	1150' GIP, 110' 60', 60' GCM, 115' 64' GCM
2	3817 - 3925	25'-13"	1195#	60°-90°	675' GIP, 45' 60', 60' MCB, 115' 64' GCM

FORMATION TOPS & STRUCTURAL POSITIONS

FORMATION	SAMPLE LOG TOP	ELECTRIC LOG TOP	STRUCTURAL POSITION
ANHYDRITE - TOP	1945	1942	+393
ANHYDRITE - BASE	1986	1982	+363
TOPEKA	3441	3439	-104
DEER CREEK	3500	3500	-1229
LECOMPTON	3567	3564	-1271
DREAD	3608	3606	-1321
HEEBNER	3680	3678	-1343
TORONTO	3680	3678	-1343
LANSING	3698	3694	-1359
STARK	3925	3894	-1549
MARMATON	3973	3972	-1635
TOTAL DEPTH	4029	4027	-1692

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PIPE STRAP - @ 2025' - 2071' SHORT DEVIATION SURVEYS: @ 3165' - 140° @ 4029' - 112°

NO. SIZE W/VE TYPE LENGTH CUT FEET HOURS

1	1 1/2"	REED	GAUC	219	219	3
2	7/8"	HTC	GAUC	4029	3810	8 1/2

LEGEND

	Anhydrite
	Salt
	Sandstone
	Shale
	Carb sh
	Limestone
	Ool. Lims
	Chert
	Dolomite

DRILLING TIME IN MINUTES PER FOOT

Rate of Penetration Decreases

5" 10" 15" 20" 25"

DEPTH

1900 1950 3000 3050 3100 3150 3200 3250 3300 3350 3400 3450 3500 3550 3600 3650 3700 3750 3800 3850 3900 3950 4000 4050

LITHOLOGY

SAMPLE DESCRIPTIONS

OIL SHOWS

REMARKS

ANHYDRITE - TOP 1945 (+390)

ANHYDRITE - BASE 1986 (+349)

TOPEKA 3441 (-1106)

DEER CREEK 3500 (-1165)

LECOMPTON 3567 (-1232)

DREAD 3608 (-1273)

HEEBNER SH. 3660 (-1325)

TORONTO 3680 (-1345)

LANSING 3698 (-1363)

DST #1 (3718 - 3785) 30' - 60' - 60' - 90' 1FP: BOB IN 8" 1SIP: BLOW BUILT TO 3" 1FFP: BOB IN 7" 1FSP: BLOW BUILT TO 6" DEZ TO 3"

RECOVERED: 115' 61P 110' 60 (OR 46) (50% G, 50% O) 60' 64GCM (20% G, 20% O, 50% M) 115' 64GCM (10% G, 20% O, 70% M) HSP: 1822 - 1802 FP: 25-71/80-134 SIP: 1027 - 1010 BHT: 113 F

DST #2 3817 - 3925 30' - 60' - 60' - 90' 1FP: BOB IN 25" 1SIP: BLOW BUILT TO 1/2" 1FFP: BOB IN 4" 1FSP: BLOW BUILT TO 5"

RECOVERED: 675' 61P 45' 62D (OR 39) (30% G, 20% O) 60' 64GCM (20% G, 30% M, 50% O) 115' 64GCM (25% G, 25% O, 50% M) HSP: 1880 - 1843 FP: 25-73/68-106 SIP: 1195 - 1185 BHT: 113 F

STARK 3925 (-1552)

BK 3925 (-1590)

MARMATON 3973 (-1638)

RTD 4029 (-1694)

LTD 4027 (-1692)

DRILLING TIME Minutes/Foot

Rate of Penetration Decreases

5" 10" 15" 20" 25"

DEPTH

LITHOLOGY

SAMPLE DESCRIPTIONS

OIL SHOWS

REMARKS

Is: tan, lt brown, fn-medxtln, sli-foss, granular in part, pr-fr ppt & small vugs; no show

Is: tan, lt brown, fn-medxtln, scat pr ppt; no show; ls: brown, fn-medxtln, mottled, no vis; no show

Is: mostly grey, mottled, fn-medxtln, no vis; ls: lt brown, fn-xln, sli-foss, soft, sh: chalky, no vis; no show

Is: as above; w/ grey, vfn-fnxtn, dense; sh: grey, calc in part; sh: grey, calc in part, few pcs brown, orange; dolo: grey, dk grey, vfn-xln, shaley in part, sli-foss.

Is: brown, grey, fn-medxtln, sli-foss, no vis; no show; ls: grey medxtln, fragmental, foss (fusil), interbedded & laminated shale.

Is: fragments & fossils, recemented, interbedded & laminated sh: dolo: grey, vfn-fnxtn, shaley, sh: grey, calc in part

Is: brown, dk grey, vfn-medxtln, foss & mottled in part, no vis; ls: as above; sh: grey, calc & included ls fragments

sh: grey, dolomitic, in part, included ls fragments, dolo: grey, dk grey, fn-xtn, dirty / shaley no vis; NS

sh: grey; vfn-fnxtn, shaley; ls: brown, medxtln, fragmental, foss, mottled in part, no vis; no show

Is: tan, lt brown, fn-medxtln, foss, (fusilinds), scat pr interxtln & foss; no show.

Is: few pcs as above, mostly tan, greyish-tan, micro-fnxtn dense

Is: tan, grey, fn-medxtln, sli-foss mottled in part, no vis; no show

Is: as above w/ sh: grey, dk grey, dolomitic, included foss, frags-fusil, cmr, shells

Is: beige, tan, fn-xtn, sucrose in appearance, v sli-foss scat pr interxtln & ppt & small vuggy; no fluvor, st, cut, NSD

Is: tan, brown, grey, fn-medxtln, foss, mottled, dense, no vis; sh: grey, dk grey, green-grey, calc in part, few alifers; sh: grey vfn-grained, yma, shaley, no vis

Is: brown, grey, tan, vfn-fnxtn, dense w/ ls: tan, fn-medxtln, sli-foss, sh: trace pr interxtln; no show few pcs w/ grey sh contact

Is: as above w/ sh: grey, few pcs dk grey, blk, dk brown; trace Δ brown fresh, semi-trans; sh: grey, Δ

Is: tan, brown, fn-medxtln, sli-foss, scat vpr interxtln; NS, considerable wh, fn-xtn, chalky ls

Is: as above

few pcs black carb sh

sh: grey, dk grey, w/ dolo: grey, vfn-fnxtn, shaley in part, scat pr interxtln; no show; few clasts ss: grey, vfn-grained, friable, no vis; no show

Is: brown, fn-medxtln, sli-foss, dense

Is: tan, lt brown, fn-med, foss, sli calcitic, granular in part, scat pr interxtln; no show

sh: grey, dolomitic, foss frags included; ls: grey, brown, fn-medxtln, foss, mottled, no vis; no show few pcs grey, fn-xtn, shaley dolomitic

sh: grey, dk grey, calc w/ ls: tan, brown, fn-medxtln, granular, no vis; no show; w/ few pcs black shale

Is: brown, grey, fn-medxtln, sli-foss, mottled, no vis; NS

Is: tan, lt brown, fn-medxtln, foss & calcitic, scat pr interxtln & vuggy; no st; fluvor, odor NSD

Is: as above w/ ls: grey, microxtln, dense; sh: grey dk grey

Is: tan, brown, fn-medxtln, sli-foss, calc in part, scat pr interxtln; sh: grey, dk grey, vfn-xln, granular in part, pr-fr vuggy; no vis; ls: wh, fn-xtn, ool, scat vpr interool por (most calcite filled); NS

sh: grey, green, grey-green

Is: tan, fn-medxtln, sli-foss, granular in part, pr-fr vuggy por, NS; ls: wh, fn-xtn, ool, scat vpr interool por (most calcite filled); NS

sh: grey, green, grey-green

Is: tan, fn-medxtln, sli-foss, few scat pcs w/ vpr-pr ppt vuggy; no calcite (isolated); NS

Is: tan, greyish-tan, micro-fnxtn, dense, no vis; sh: grey, tan, fresh, sharp, opaque; NS

sh: grey, brown, some 'gummy'

Is: off-wh, tan, fn-medxtln, calcitic, granular, in part, 2-3 pcs/tray w/ fr-gd vuggy & interool por 115-550p, scat pr spotty lt brown st w/ lt sat; few gas frags in situ; fluvor; cut; no st; NSD considerable tan fresh semi-trans

Is: off-wh, tan, fn-medxtln, sucrose app pr - fr interxtln; fr-scat gd vuggy; RS 14 brown FO, 65 gas bubbles w/ ring FO on break, pr-fr spotty to gd lt brown, brown st, w/ patchy to full sat, lt odor

sh: grey, some brown, green w/ ls: brown, grey, med-green xtn, mottled, no vis; no show; sh: grey, green

Is: wh, tan, fn-medxtln, sli-foss, & granular in part, scat pr-fr vuggy & intergranular; S-FS ppts FO & gas bubbles on brk, ss hvly dk oil some 'summy', pr-fr spotty; dk sat & hvly blk sh; scat pr scat, no odor

sh: brown, grey

Is: off-wh, tan, micro-medxtln, sli calcitic, dense, no vis; no show

Is: as above; w/ ls: lt grey, fn-medxtln, calcitic, no vis; no show

Is: as above; dense, no show

few pcs black carb shale w/ ls: grey, micro-fnxtn, dense

sh: grey, some w/ ls: frag inclusions; sh: brown

Is: tan, few pcs brown, fn-medxtln sli calcitic, sli-foss, cpl pcs trace isolated vuggy; no show

Is: as above, w/ sli line in brown, medxtln, sli ool, dense ls

sh: mostly grey, some brown

Is: tan, lt grey, fn-medxtln, calcitic w/ calcite cement, scat vpr-pr interxtln; pr-scat fr vuggy; vss ppts FO on break, pr spotty-cpl pcs gd lt-med brown st w/ fr sat; no sh: lt grey, grey, brown, some rust 'gummy'

Is: off-wh, tan, brown, fn-medxtln, sli-foss sli ool, pr-fr vuggy; ss ppts FO w/ gas bubbles w/ oil ring, gd oil sheen on wh; after brk, fr: patchy - full med brown st with sat; cpl pcs w/ spots blk st; no few pcs blk carb, sh & grey, grey-green sh

Is: tan, lt brown, fn-medxtln, grey-green, med-wh, calcite cement, scat streaks pr fr interool, S-FS on brk pr-fr med-dk brown st w/ fr steady sat, no odor

sh: blk carb

Is: brown, fn-medxtln, granular w/ scat single calcites, no vis; no show ls: tan, vfn-fnxtn, dense, few pcs w/ cpl isolated vugs; w/ live oil st, few spots brown st, no odor, NSD

sh: grey, brown, rust; sh: green, few pcs w/ included ls frag; sh: grey brown, rust, some silty as above

Is: tan, lt grey, vfn-medxtln, sli calcitic, no vis; no show

sh: mostly brown, rust; some grey, green

sh: as above; some 'gummy' rust-red sh

Is: tan, grey, vfn-fnxtn, sli ool, sli-foss; scat interbedded green

sh: off-wh, lt grey, fn-xtn, sli sandy; ls: grey-tan, tan, detrital, sli-foss, interbedded rust-red sh;

sh: rust, rust-brown, some grey, green

Is: off-wh, lt grey, fn-xtn, sandy; w/ ls: tan, grey, granular, sli ool, no vis; no show

sh: brown, rust, some grey

sh: as above