

Saman Sharifaie

Petroleum Geologist

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY: Martin Drilling Co., Inc.
LEASE: Cheryl #1-33
FIELD: Wildcat
LOCATION: 900 FSL & 1650 FEL
SEC: 33 TWP: 1S RGE: 36W
COUNTY: Randolph STATE: Kansas
CONTRACTOR: Martin Drilling #2
RUD: 02/11/15 COMP: 02/19/15
RTD UP: 4950' TYPE MUD: Chemical
MUD: 3.252' LIME MUD: 4952'

SAMPLES SAVED FROM: 3600' TO RTD
DRILLING TIME KEPT FROM: 3601' TO RTD
SAMPLES EXAMINED FROM: 3600' TO RTD
GEOLOGICAL SUPERVISION FROM: 3600'
REFERENCE WELL: MDC1-Wilkinson "A" #1-34
CND: D.L.J., M.E.L., S.M.C.
Foraker, Hylleberg

ELEVATIONS
KB: 3280'
DF: _____
GL: 3269'
Measurments Are All From Kelly Bushing
CASING
CONDUCTOR: _____
SURFACE: 8-5/8" at 240'
PRODUCTION: 5-1/2" at 4943'

Formation	Sample Tops	E-log Tops	Strat Pos.
Anhydrite	3306 (+74)	3170 (+110)	-1
Base Anhydrite	3266 (-386)	3662 (-382)	-3
Nevada	3093 (-718)	3093 (-713)	-1
Leaning	4214 (-934)	4213 (-933)	-2
Leaning	4479 (-1199)	4478 (-1198)	-1
B.K.C.	4604 (-1324)	4600 (-1320)	-1
Prick	4682 (-1402)	4680 (-1400)	-2
Cherokee	4878 (-1598)	4891 (-1611)	-12
Mississippian			



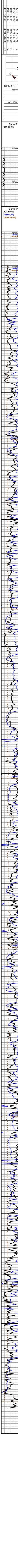
REMARKS Due to fair shows of oil in the Lansing "D" & "J" pay zones and positive DST results, it is recommended and agreed upon by all parties that production casing be set to further evaluate this well.

Respectfully Submitted,

API #15-153-21107

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*Tops have been adjusted to electric logs



Depth (ft)	Lithology	Geological Descriptions	Engineering Data
3170 (+110)	Anhydrite	Anhydrite 3170 (+110)	
3266 (-386)	Base Anhydrite	Base 3206 (+74)	
3600	DAILY PENETRATION @ 7:00 AM	02/11/15 - Spudded at 3:15 PM 02/12/15 - Drilling at 482' 02/13/15 - Drilling at 3252' 02/14/15 - Drilling at 3880' 02/15/15 - Drilling at 4240' 02/16/15 - Drilling at 4330' 02/17/15 - Drilling at 4468' 02/18/15 - Drilling at 4790'	Morgan Mud @ 3409' Wt: 8.7 Vis: 5.2 WI: 56 Chl: 600 LCM: 14#
3662 (-382)	Nebraska	Sh., brn/om/gry, sly to sndy IP, fri to sli sft, scat crm Sd, Tr pyr	Pipe Strap @ 3588: 1.44 Long to Board Deviation Survey: 1/2"
3700	Leaning	Sh., rd, pred sly to gmy IP, 20-30% gry fess Sh	
3713	Leaning	Slst., brn/omg, v-fn gr, srtf, fri to sft/gmy IP, pr intgran por, rdd, calc IP, scat gry/gn Sh, n/s	
3718	Leaning	Sh. & Slst., a.a, sli dns/bly; fri, Tr dr/wht Sd	
3719	Leaning	Neva 3662 (-382)	
3720	Leaning	LS., crm, fn xin, foss, pr-f pr infoss por, pt dns, sli calc, chly IP, sli fri, Tr Dol, rr dd blk spdt stn, no odr, NSLO	
3721	Leaning	LS., a.a, tan IP, incr sly	
3722	Leaning	Sh., gry/gn, fess, brit, abund brn/omg slts	
3723	Leaning	Slst., brn, fn gr, srtf, fri, fr intgran por, sndy IP, sub-rdd, sli calc IP, scat gry Sh, Tr pyr, n/s	
3724	Leaning	Slst. & Sh., a.a, sft to sli gmy IP	
3725	Leaning	Sat., lt gry/cmlt/gn, v-fn gr, srtf, pr-f intgran por, consl, sli fri to brit, sbang, pred Sh a.a, n/s	
3726	Leaning	Sh., gry, fess, sli carb	Red Eagle 3726 (-446)
3727	Leaning	Dol., crm/tan/gry, v-fn xin, Tr foss, no-pr vis por, Lmy IP, dns to chly, calc IP, sbang, chly, n/s	
3728	Leaning	LS., crm/tan, fn xin, foss, pr vis por, dolc IP, dns to chly, calc IP, sbang to blyk, scat orgg Chl, n/s	
3729	Leaning	Sh., rd/gry/gn, fess IP, sly IP, scat fn gr Sst	
3730	Leaning	Slst., brn, fn gr, srtf, pr-f intgran por, sndy IP, fri to gmy, sub-rdd, sli calc, shly, n/s	
3731	Leaning	Sh., lt brn/gry/gn, gmy to brit, Tr Chk	
3732	Leaning	LS., crm, fn xin, foss, pr pp infoss por, ti, dolc IP, pt dns, fri IP, v chly, sbang, scat dk brn/blyk spkld stn, sub-sat, gils IP, gn min fluor, rr ind pp FO, no odr, VSSFO	
3733	Leaning	LS., a.a, gry IP, sli calc, incr dns/n/s, deer Shw abund, NSFO	
3734	Leaning	LS., tan, sing, fn xin, foss IP, no-pr vis por, ti, dns, sli calc, dolc IP, hd to chly, no odr, n/s	
3735	Leaning	LS., gry/cmlt/gn, fn xin, foss IP, no-pr por, ti, dns, Tr calc, dolc IP, v chly, Tr Sh, n/s	
3736	Leaning	LS., crm/gry, v-fn xin, rr foss, NVP, dolc IP, dns, hd, blyk, chly IP, incr shly, n/s	
3737	Leaning	Sh., gry/varic, sly IP, Tr pyr	
3738	Leaning	Sh., tan/brn/dk org, sly to sft/gmy, incr gry w/ dpth	
3739	Leaning	Sh., gry, fess IP, pyrc, sft to brit	
3740	Leaning	LS., crm, fn xin, Tr, srtf, vis por, dns, sli fri to chly, calc IP, sbang to blyk, shly, scat Chl, n/s	
3741	Leaning	Sh., gry/gn/varic, fess IP, brit	
3742	Leaning	Sh., dk org/gry, sly IP, gmy, sft	
3743	Leaning	LS., crm/tan/gry, fn xin, foss IP, Tr pr micr Oolc por, dns, calc IP, sli fri to chly, intbdd rd Sh, Tr Chk, n/s	
3744	Leaning	Slst., brn/dk org, fn gr, srtf, fri, pr intgran por, sub-rdd, gmy IP, abund gry Sh, n/s	
3745	Leaning	LS., crm/gry/tan, sli mott, fn xin, foss IP, no-pr vis por, sli dolc, calc cmt, ang to blyk, scat gry Sh, Tr Chk, n/s	
3746	Leaning	Sh., dk gry/blyk carb, sli sft, fess IP, Tr pyr, Tr brn/omg gmy Sh	
3747	Leaning	LS., crm/tan/gry, fn xin, foss IP, pr vis por, pt dns, calc, dolc IP, shly, n/s	Stotler 3925 (-645)
3748	Leaning	LS., tan, fn xin, foss, Tr pr infoss por, pred NVP, dns, calc cmt, ang to blyk, scat Chl, shly, n/s	
3749	Leaning	Sh., rd/gry/varic, blyk, sli fri to brit, Tr sft/gmy	
3750	Leaning	LS., a.a, crm IP, hd to sub-chly, intbdd rd Sh	
3751	Leaning	Sh., varic, sft to fri	
3752	Leaning	LS., crm/tan, sli mott, fn xin, foss, no-pr infoss por, dns, calc cmt, hd to chly, pyrc IP, sli blyk, n/s	
3753	Leaning	Sh., rd/gry, brit to gmy	
3754	Leaning	LS., crm/whit, fn xin, foss, Tr pr micr Oolc por, dns to sub-chly, calc, sli fri to chly, intbdd rd Sh, Tr Chk, n/s	
3755	Leaning	Sh., dk gry/gry/omg, fess, sly IP, Tr pyr	
3756	Leaning	Sh., gry/blyk carb	Topeka 3993 (-713)
3757	Leaning	LS., crm/whit, mott IP, fn xin, sli foss, no-pr vis por, pt dns to chly, sli hd, calc, sbang, intbdd rd Sh, Tr Chk, shly, n/s	
3758	Leaning	Sh., gry/dk gry/gn, sly IP, fess, pyrc IP, brit, abund brn/omg shly Slst	
3759	Leaning	LS., wht/orm, v-fn xin, Tr foss, no-pr vis por, dns, calc IP, blyk, sub-chly IP, Tr Chk, n/s	
3760	Leaning	LS., a.a, incr calc, chly IP, NVP	
3761	Leaning	Sh., gry/omg, fess IP, sly IP	
3762	Leaning	Slst., brn/dk org, fn gr, srtf, fri to mdy IP, fr intgran por, sub-rdd, consl, shly, n/s	
3763	Leaning	Sh., gry/blyk carb, fess	
3764	Leaning	Sh., gry/gn, Tr pyr	LeCompton 4060 (-780)
3765	Leaning	LS., crm/whit, fn xin, sli foss, Tr pr im/Oolc por, pt dns to sub-chly, calc, sli blyk, Tr yel Chl, no odr, n/s	
3766	Leaning	LS., crm/gry/tan, fn xin, pr intbdn por, dns, hd, ang, frac, sub-chly IP, scat rd/purp Sh, n/s	
3767	Leaning	Sh., purp, sli sly, sub-rdd to sli blyk, pyrc	
3768	Leaning	Sh., gry, sly, pyrc, fess IP	
3769	Leaning	Sh., blyk carb	
3770	Leaning	Sh., dk org/brn, sly to gmy	Oread 4127 (-847)
3771	Leaning	LS., tan/orm, fn xin, Tr foss, Tr pr micr Oolc por, pred NVP, dns, sub-chly to chly IP, sli calc, blyk, no odr, n/s	
3772	Leaning	LS., crm/tan/whit, sing, v-fn xin, no-pr vis por, dns to sub-chly, hd, blyk, v, calc, Tr Chk, n/s	
3773	Leaning	LS., tan/gry, sing, v-fn xin, NVP, dns, calc IP, hd to chly, sbang to blyk, incr shly, n/s	
3774	Leaning	Sh., dk gry/blyk carb, pyrc IP, sli fess	
3775	Leaning	LS., gry/crm, sing, v-fn xin, NVP, dns, blyk, sub-chly to chly IP, scat pyr, n/s	
3776	Leaning	Sat., lt gry/gn, fn gr, srtf, pr intgran por, dns, fri to brit, sli calc, reatd, sli pyrc, n/s	
3777	Leaning	Sh., dk gry/gry/brn, Tr carb, sly IP	
3778	Leaning	Sh., brn/dk org/gry, sly IP, pred sft/gmy, pyrc IP	Lansing 4213 (-933)
3779	Leaning	LS., tan/orm, sing, v-fn xin, rr pp intbdn por, pred v dns w/ NVP, ti, sub-chly IP, Tr blk spdt stn, pred try/gils, sub-sat, no fluor, no odr, NSFO	
3780	Leaning	LS., tan/gry, sing, v-fn xin, NVP, dns, calc IP, hd to chly, sbang to blyk, n/s	
3781	Leaning	Sh., brn/omg/gry, sly to sli mdy/sft, fess IP, pyrc IP	
3782	Leaning	LS., wht/orm, fn xin, foss IP, pr-f pr infoss por, sli fri to sub-chly, calc IP, fr amt blk spdt stn, lt-mod sat, sli try, Tr ind & shw bld FO, dl yel/gld fluor, fr cut, no odr, SSFO	
3783	Leaning	LS., crm/whit, fn xin, foss, fr int/Oolc por, Tr infoss inclcs/vugs, pt dns, sli fri to chly, sli pyrc, fr amt dk brn spdt stn, lt-mod sat, abund pp FO bld, Tr dl yel fluor, fr odr, irid OCW, FSFO	
3784	Leaning	Sh., gry/blyk carb/rd, sli sly, fess IP, pyrc	
3785	Leaning	LS., crm/tan/lt gry, fn xin, pr infoss por, dns, sli calc, fri to sub-chly, blyk, scat tan/orm Chl, shly, n/s	
3786	Leaning	Sh., dk gry/blyk carb, fess, abund gmy rd Sh	
3787	Leaning	Sh., dk gry, carb, pyrc, mica, brit	
3788	Leaning	Sh., brn/dk org, sly to gmy	
3789	Leaning	LS., crm/lt gry, fn xin, Tr pr intbdn por, pred NVP, dns, calc IP, hd to sub-chly, blyk, rr (3-4 pcs) spkld stn, lt-mod, no odr, NSFO	
3790	Leaning	LS., crm/gry/tan, sing, v-fn xin, Tr foss, no-pr vis por, dns, hd to sub-chly, blyk, n/s	
3791	Leaning	Sh., dk gry/blyk, sli carb	
3792	Leaning	Sh., brn/dk org, gmy	
3793	Leaning	Sh., gry, fess, brit to sli sft, pyrc IP	
3794	Leaning	LS., crm/lt gry, sli mott IP, fn xin, sli foss, no-pr vis por, dns, calc IP, sbang to blyk, chly IP, shly, n/s	
3795	Leaning	Sh., dk gry/blyk carb, fess, brit, pyrc IP	
3796	Leaning	Sh., gry, sli sly, pyrc, sli sft	
3797	Leaning	Sh., rd, gmy	
3798	Leaning	LS., wht/orm, fn xin, foss IP, pr pp infoss & xin por, Tr Oolc por, dns to sub-chly, calc IP, blyk, pyrc IP, scat med brn spkld stn, sub-t sat, rr irid pp FO & G Bubs, Tr dl fluor, no odr, VSSFO	Stark 4428 (-1148)
3799	Leaning	Sh., gry/blyk carb, sli sly, pyrc, fess IP, brit	
3800	Leaning	Sh., brn/dk org, sly to sft	
3801	Leaning	Sh., gry/gn, pyrc, sli fess, brit	
3802	Leaning	LS., wht/lt gry, sing, v-fn xin, sli foss, no-pr vis por, gran IP, pt dns, calc, fri to sub-chly, abund brn Slst, shly, n/s	
3803	Leaning	Sh., varic, pred sly to sli sndy, gmy IP	
3804	Leaning	LS., crm/tan, fn xin, Tr foss, frac, NVP, dns, calc, sbang to blyk, chly IP, n/s	BKC 4478 (-1198)
3805	Leaning	Sh., brn/gry/gn, sly, pyrc IP	
3806	Leaning	LS., crm/lt purp, mott IP, fn xin, foss IP, no-pr vis por, dns to sub-chly, sli sndy/gran IP, calc, shly, n/s	
3807	Leaning	Sh., brn/dk org, sly to gmy IP	
3808	Leaning	LS., crm/gry/lt purp, mott, fn xin, pr vis por, pt dns, calc IP, sli fri to sub-chly, sub-rdd, intbdd rd Sh, n/s	Mamaton 4516 (-1236)
3809	Leaning	Sh., gry/purp, sli sly, Tr pyr, fri to sft	
3810	Leaning	Sh., gry/brn/purp/dk org, gmy IP	
3811	Leaning	Sh., rd/brn, sli sly, mica IP, brit to gmy	
3812	Leaning	Sh., gry/purp, sndy, pyrc, Tr crm/tan LS	
3813	Leaning	LS., crm/tan, mott, fn xin, foss, Tr pr intpart por, calc, fri to chly, blyk IP, intbdd Sh, n/s	
3814	Leaning	LS., gry/crm, fn-med xin, sli gran, pr vis por, dns to sub-chly, sndy IP, n/s	
3815	Leaning	Sh., purp/gry/blyk carb, sli sly to sndy IP	
3816	Leaning	LS., crm/tan/lt gry, v-fn xin, foss IP, Tr pr infoss por, pt dns, Tr calc cmt, sub-chly IP, sub-rdd to blyk, n/s	Pawnee 4600 (-1320)
3817	Leaning	LS., tan/orm/gry, sing, v-fn xin, NVP, dns, calc IP, hd to sub-chly, blyk, pyrc IP, n/s	
3818	Leaning	Sh., gry/blyk carb, brit to sli sft, pyrc IP	
3819	Leaning	LS., crm/tan, sing, v-fn xin, sli foss IP, no-pr vis por, dns to sub-chly, blyk, n/s	
3820	Leaning	LS., tan/gry, sing, fn xin, Tr foss, pr vis por, sli sly, pt dns to sub-chly, sli fri, blyk to sub-rdd, Tr Chl, n/s	
3821	Leaning	LS., lt brn/orm, fn-med xin, sli foss IP, no-pr por, dns, blyk to sbang, calc IP, n/s	
3822	Leaning	Sh., blk carb, pyrc	
3823	Leaning	Sh., blk carb, pyrc	Ft Scott 4670 (-1390)
3824	Leaning	LS., tan/orm, mott, fn xin, foss, pr vis por, dns, calc, sbang, scat Chk, Tr Chk, n/s	Cherokee 4680 (-1400)
3825	Leaning	Sh., gry, mica, brit	
3826	Leaning	LS., crm/tan, v-fn xin, mott IP, foss IP, no-pr vis por, dns, hd to sub-chly, calc, blyk, n/s	
3827	Leaning	LS., a.a, dns calc cmt, incr shly, chly IP, n/s	
3828	Leaning	LS., crm/tan, v-fn xin, foss, pr vis por, dns to chly, calc, blyk, pred hd, n/s	
3829	Leaning	Sh., gry/gn/brn, sli sly, fess IP, fri to brit	
3830	Leaning	LS., wht/orm/lt gry, sli mott IP, fn xin, foss IP, no-pr por, calc, sub-chly IP, sbang, n/s	
3831	Leaning	Sat., crd/whit/gn, fn-med gr, pr intgran por, consl, dns calc cmt, crtd, reatd, sli fri, pyrc IP, n/s	
3832	Leaning	Sh., varic, sly IP, fri to sft	
3833	Leaning	Sh., purp/gry, sly IP, gmy to brit	
3834	Leaning	Sh., brn/gry, sly, fri	
3835	Leaning	Sh., brn/varic, sly IP, pred fess, fri to brit	
3836	Leaning	Sat., wht/cr/lt gry, fn-med gr, pr intgran por, consl, sub-rdd, reatd, calc, n/s	
3837	Leaning	Sh., brn/varic, sli sly, mica IP, fri to brit	
3838	Leaning	Sat., wht/cr/lt gry, fn-med gr, pr por, dns calc cmt, consl, reatd, pred brn/gry fess Sh, n/s	
3839	Leaning	Sh., gry/blyk carb, fess, sft to brit, pyrc IP	
3840	Leaning	Sh., brn/gry, fess, brit, Tr Sst a.a	
3841	Leaning	Sh., gry/brn, fess, brit	
3842	Leaning	Sh., rd, sly	
3843	Leaning	Mississippian 4891 (-1611)	
3844	Leaning	Chl., wht/cr/lt gry, sli wht, foss/brn IP, no-pr infoss por, trans to trans IP, dns, sli brit, n/s	
3845	Leaning	LS., tan/lt brn, sing, v-fn xin, NVP, dns, hd, calc IP, blyk, chly IP, Tr Sh, n/s	
3846	Leaning	Dol., crm, sing, fn xin, pr vis por, sli dns, Lmy IP, fri, sub-rdd, sli calc, suc, n/s	
3847	Leaning	LS., lt brn/orm, sing, v-fn xin, no-pr vis por, dns to chly, calc IP, blyk, n/s	
3848	Leaning	LS. & Dol., a.a	
3849	Leaning	RTD 4950 (-1670)	Deviation Survey @ 4950: 1/2"

DST #1
(LKC B-D)
4232'-4280'

30-60-60-90
IF: BOB in 2 1/2 mins
ISI: No return
FF: Built to 3"
FSI: No return
Rec: 480' WM (15%W, 95%M),
900' MW (10%G, 90%W),
240' GMCO (10%G, 40%M, 50%O)

IFP: 77 - 575
FFP: 576 - 995
ISIP: 1114
FSIP: 1113
IHP: 2186
BHT: 1415"
RW: 432 @ 55' F
Chl: 20,000 ppm

Morgan Mud @ 4277'
Wt: 9.3
Vis: 5.3
WI: 6.8
Chl: 700
LCM: 8#
Deviation Survey @ 4280: 1/2"

DST #2
(LKC H-J)
4345'-4430'

30-60-60-90
IF: BOB in 14 mins
ISI: Return built to 1"
FF: Return built to 1 1/2"
FSI: Return built to 1 1/2"
Rec: 360' GIP,
180' GO (10%G, 90%O),
240' GMCO (10%G, 40%M, 50%O)

IFP: 25 - 115
FFP: 131 - 199
ISIP: 1307
FSIP: 1286
IHP: 2182
BHT: 2114
BHT: 140"
Gravty: 31 API

Morgan Mud @ 4481'
Wt: 9.3
Vis: 6.9
WI: 6.0
Chl: 600
LCM: 10#

Morgan Mud @ 4808'
Wt: 9.1
Vis: 6.7
WI: 5.6
Chl: 600
LCM: 9#