

# Saman Sharifaie

## Petroleum Geologist

### GEOLOGIST'S REPORT

#### DRILLING TIME AND SAMPLE LOG

COMPANY **Martin Drilling Co., Inc.**  
LEASE **Hammerichmidl #1-24**

FIELD **Wildcat**  
LOCATION **660' FSL & 330' FWL**  
SEC **24** TWP **4S** RGE **31W**  
COUNTY **Raviluis** STATE **Kansas**  
CONTRACTOR **Martin Drilling #2**  
SPUD **03/04/14** COMP **03/12/14**  
RTD **4:58P** LTD **4:53A**  
MUD UP **3:76'** TYPE MUD **Chemical**

SAMPLES SAVED FROM **3640'** TO RTD  
DRILLING TIME KEPT FROM **3640'** TO RTD  
SAMPLES EXAMINED FROM **3640'** TO RTD  
GEOLOGICAL SUPERVISION FROM **3340'**  
REFERENCE WELL **Gilbert Unit #1-26**

ELEVATIONS  
KB **291.6'**  
DF \_\_\_\_\_  
GL **290.5'**  
Measurements Are All From Kelly Bushing  
CASING  
CONDUCTOR \_\_\_\_\_  
SURFACE **8-5/8"** at **22.6'**  
PRODUCTION **5-1/2"** at **15.5'**

ELECTRICAL SURVEYS  
CND: DIL. MEL. SANC  
Pioneer Pipeline

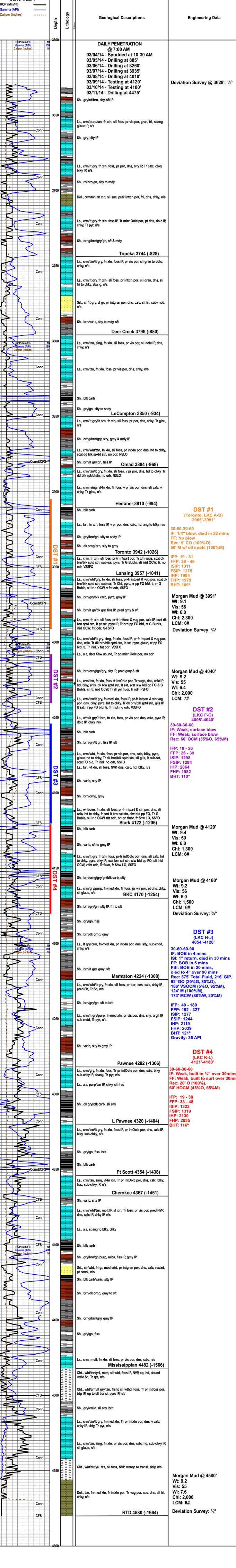
Formation	Sample Tops	E-log Tops	Strat Pos.
Anhydrite	2673 (+243)	2673 (+243)	-4
Base Anhydrite	2706 (+210)	2706 (+210)	-2
Tuscarora	3744 (-828)	3744 (-828)	-2
Hedberg	3009 (-993)	3010 (-994)	-2
Leaning	3056 (-1040)	3057 (-1041)	-1
Stark	4124 (-1208)	4122 (-1206)	1
Pawnee	4283 (-1369)	4282 (-1368)	-2
Cherokee	4366 (-1450)	4367 (-1451)	-2
Mississippian	4480 (-1564)	4482 (-1566)	-5



REMARKS Due to fair shows of oil in multiple 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,  
Saman Sharifaie  
Petroleum Geologist

\*Tops have been adjusted to electric logs



Depth (ft)	Geological Descriptions	Engineering Data
2650 - 2706	<b>Anhydrite 2673 (+243)</b>  <b>Base 2706 (+210)</b>	
2706 - 3950	<b>DAILY PENETRATION @ 7:00 AM</b> 03/04/14 - Spudded at 10:30 AM 03/05/14 - Drilling at 885' 03/06/14 - Drilling at 3260' 03/07/14 - Drilling at 3935' 03/08/14 - Drilling at 4010' 03/09/14 - Testing at 4120' 03/10/14 - Testing at 4120' 03/11/14 - Drilling at 4475' Sh, gry/rd/brn, sty, sft IP Ls, crm/purp/tan, fn xln, sli foss, pr vis por, gran, fr, sbang, glauc IP, n/s Sh, gry, sly IP Ls, crm/lt gry, fn xln, foss, pr por, dns, sly IP, Tr calc, chky, bily IP, n/s Sh, rd/brn/gn, sly to mdy Dol., crm/tan, fn xln, sli suc, pr-fr intbn por, fri, dns, chky, n/s Ls, crm/lt gry, fn xln, foss IP, Tr micr Oolc por, pt dns, dolc IP, chky, Tr pyr, n/s Sh, orgn/brn/gry, sft & mdy <b>Topeka 3744 (-828)</b> Ls, crm/tan/lt gry, fn xln, foss IP, pr vis por, sli gran to dolc, chky, n/s Ls, crm/lt gry, fn xln, sli foss, pr imbn por, sli gran, dns, sli fri to chky, sbang, n/s Set., clrt/lt gry, vf gr, pr intgran por, dns, calc, sli fri, sub-rndd, n/s Sh, brn/varic, sly to mdy, sft <b>Deer Creek 3796 (-880)</b> Ls, crm/tan, sing, fn xln, sli foss, pr vis por, sli dolc IP, dns, chky, n/s Ls, crm/tan, fn xln, foss, pr vis por, dns, chky, n/s Sh, blk carb Sh, gry/gn, sly to sndy <b>LeCompton 3850 (-934)</b> Ls, crm/lt gry/lt brn, fn xln, sli foss, pr por, dns, chky, Tr glauc, n/s Sh, orgn/brn/gry, sly, gmy & mdy IP Ls, crm/wh/lt gry, fn xln, sli foss, pr imbn por, dns, hd to chky, scat dd blk spkld stn, no odr, NSLO Sh, brn/lt gry/gn, fess IP <b>Oread 3884 (-968)</b> Ls, crm/tan/lt gry, fn xln, sli foss, v pr por, dns, hd to chky, Tr dd blk spkld stn, no odr, NSLO <b>Heebner 3910 (-994)</b> Sh, blk carb Ls, tan, fn xln, foss IP, v pr por, dns, calc, hd, ang to bily, n/s Sh, gry/brn/gn, sly to sndy IP Sh, dk orgn/brn, sly to gmy <b>Toronto 3942 (-1026)</b> Ls, crm, fn xln, sli foss, pr-fr intpart por, Tr xln vugs, scat dk brn/blk spkld stn, sub-sat, Tr Chl, pyrc, rr pp FO bid, ti, rr G Bubbis, sli irid OCV, v fnt odr, SFSFO <b>Lansing 3957 (-1041)</b> Ls, crm/wh/lt gry, fn xln, sli foss, pr-fr intpart & vug por, scat dk brn/blk spkld stn, sub-sat, Tr Chl, pyrc, rr pp FO bid, ti, rr G Bubbis, sli irid OCV, v fnt odr, SFSFO Sh, brn/gry/blk carb, pyrc, gmy IP Sh, brn/lt gn/dk gry, fess IP, pred gmy & sft Ls, crm, fn xln, sli foss, pr-fr intfoss & vug por, calc IP, scat dk brn/blk spkld stn, It pt sat, pyrc IP, Tr brn pp FO bid, rr G Bubbis, sli irid OCV, fnt odr, SFSFO Ls, a.a, deer Shw abund, Tr pp micr Oolc por, no odr Sh, brn/orgn/gry, sly IP, pred gmy & sft Ls, crm/tan, fn xln, foss, fr intOolc por, Tr vugs, dns, calc IP, hd, bily, shly, dk brn spkld stn, It sat, scat slw bid pp FO & G Bubbis, sli irid OCV, fnt odr, bri gn floor, fr Shw LO, SSFO Ls, crm/tan/lt gry, fn-med xln, foss IP, pr-fr intpart & xln vug por, dns, bily, pyrc, hd to chky, Tr dk brn/blk spkld stn, gils IP, It sat, rr pp FO bid, ti, Tr irid, no odr, VSSFO Ls, wh/lt gry/lt brn, fn xln, foss, pr vis por, dns, calc, pyrc IP, dolc IP, chky, n/s Sh, blk carb Sh, brn/gry/lt gn, fess IP, sft Ls, crm/wh/lt, fn xln, sli foss, pr vis por, dns, calc, bily, pyrc, glauc, hd to chky, fr amt lt brn sat stn, slw bid pp FO, Tr G Bubbis, sli irid OCV, fnt odr, bri gn floor, fr Shw LO, SSFO <b>Stark 4122 (-1206)</b> Sh, blk carb Sh, varic, sft to gmy IP Sh, brn/gry/gn, gmy Ls, wh/lt gry, fn xln, sli foss, pr-fr intpart & xln por, dns, sli calc, hd to chky, fr amt lt brn sat stn, slw bid pp FO, Tr G Bubbis, sli irid OCV, fnt odr, bri gn floor, fr Shw LO, SSFO <b>4150</b> Sh, blk carb Sh, varic, sft to gmy IP Ls, crm/lt gry, fn xln, foss, pr-fr intOolc por, dns, sli calc, hd to chky, pyrc, bily IP, scat brn sat stn, slw bid pp FO, sli irid OCV, v fnt odr, Tr floor, fr Shw LO, SSFO Sh, brn/orgn/gry/blk carb, sly Ls, crm/gry/purp, fn-med xln, Tr foss, pr vis por, pt dns, chky, sli glauc, n/s <b>BKC 4170 (-1254)</b> Sh, brn/gry/gn, sly IP, fri to sft Sh, gry/gn, fess Sh, brn/dk orgn, gmy Ls, lt gry/crm, fn-med xln, pr intbn por, dns, sly, sub-mdd, chky, n/s Sh, brn/lt gry, gmy, sft <b>Mamaton 4224 (-1308)</b> Ls, crm/wh/lt gry, fn xln, sli foss, pr por, dns, calc, chky IP, pred Sh, Tr Sd, n/s Sh, brn/gry/gn, sft to brit Ls, crm/lt gry/purp, fn-med xln, pr vis por, dns, sly, argil IP, sub-mdd, Tr pyr, n/s Sh, varic, sly to gmy IP <b>Pawnee 4282 (-1366)</b> Ls, crm/gry, fn xln, foss, Tr pr intOolc por, dns, calc, bily, sub-chky IP, sbang, Tr pyr, n/s Ls, a.a, purp/tan IP, chky, sli frac Sh, dk gry/blk carb, sli sly <b>L Pawnee 4320 (-1404)</b> Ls, crm/tan/lt gry, fn xln, foss IP, pr intOolc por, dns, calc IP, bily, sub-chky, n/s Sh, gry/gn, fess, brit Sh, blk carb <b>Ft Stark 4354 (-1438)</b> Ls, crm/tan, sing, vf-fn xln, Tr pr intOolc por, dns, calc, bily, frac, sub-chky IP, n/s Sh, varic, sly IP Ls, crm/wh/lt, mott IP, vf xln, Tr foss, pr vis por, pred NVP, dns, calc IP, chky IP, n/s Ls, a.a, sbang to bily, chky Sh, blk carb Sh, gry/brn/gn/purp, mica, fess IP, gmy IP Set., clrt/wh/lt, fn gr, mod strd, pr intgran por, dns, calc, rdcd, pt consl, n/s Sh, blk carb/varic, sly IP Sh, brn/dk orgn, gmy to sft Sh, orgn/brn/gry, gmy IP Sh, gry/gn, fess Ls, crm, mott, fn xln, sli foss, pr vis por, dns, calc, n/s <b>Mississippian 4482 (-1566)</b> Chl., wh/lt/yl, mott, sli wtd, foss IP, NVP, op, hd, abund varic Sh, Tr qtz, n/s Chl., wh/lt/yl gry/tan, frs to sli whd, foss, Tr pr intfoss por, trip IP, op to sli transl, pyrc IP, n/s Sh, gry/varic, sli sly, brit Ls, crm/tan/lt gry, fn-med xln, Tr pr intbn por, dns, v calc, chky IP, chly, Tr pyr, n/s Ls, crm/tan, sing, fn xln, pr vis por, dns, calc, hd, sub-chky IP, sli glauc, n/s Chl., wh/lt/yl, frs, sli foss, NVP, transp to transl, shly, n/s Dol., tan, fn-med xln, fr imbn por, Tr vug por, suc, dns, sli fri, chky, n/s <b>RTD 4580 (-1664)</b>	<p><b>DST #1</b> (Toronto, LKC A-B) 3905'-3991'</p> <p>30-60-30-60 IF: 114" blow, died in 28 mins FF: No blow Rec: 5' CO (100%), 60' M w/ oil spots (100%M)</p> <p>IFP: 19 - 31 FFP: 38 - 49 ISI: 1311 FSIP: 1275 IHP: 1984 FHP: 1979 BHT: 109°</p> <p><b>Morgan Mud @ 3991'</b> Wt: 9.1 Vis: 58 Wt: 6.0 Chl: 2,300 LCM: 6# Deviation Survey: ¼°</p> <p><b>Morgan Mud @ 4040'</b> Wt: 9.2 Vis: 55 Wt: 6.4 Chl: 2,000 LCM: 7#</p> <p><b>DST #2</b> (LKC F-G) 4008'-4040'</p> <p>30-60-30-60 IF: Weak, surface blow FF: Weak, surface blow Rec: 60' OCM (35%O, 65%M)</p> <p>IFP: 18 - 26 FFP: 26 - 39 ISIP: 1298 FSIP: 1294 IHP: 2064 FHP: 1982 BHT: 110°</p> <p><b>Morgan Mud @ 4120'</b> Wt: 9.4 Vis: 59 Wt: 6.0 Chl: 1,300 LCM: 6#</p> <p><b>Morgan Mud @ 4180'</b> Wt: 9.2 Vis: 56 Wt: 6.0 Chl: 1,500 LCM: 6# Deviation Survey: ¾°</p> <p><b>DST #3</b> (LKC H-J) 4054'-4120'</p> <p>30-60-60-90 IF: BOB in 4 mins ISI: 1" return, died in 30 mins FF: BOB in 5 mins FSI: BOB in 20 mins, died to 4" over 90 mins Rec: 575' Total Fluid, 216' GIP, 92' GO (20%G, 80%O), 186' VSOCM (5%O, 95%M), 124' M (100%M), 173' MCW (80%W, 20%M)</p> <p>IFP: 40 - 180 FFP: 192 - 327 ISIP: 1277 FSIP: 1244 IHP: 2119 FHP: 2039 BHT: 121° Gravity: 36 API</p> <p><b>DST #4</b> (LKC K-L) 4121'-4180'</p> <p>30-60-30-60 IF: Weak, built to ½" over 30mins FF: Weak, built to surf over 30mins Rec: 20' O (100%), 60' HOCM (45%O, 65%M)</p> <p>IFP: 19 - 38 FFP: 33 - 48 ISIP: 1322 FSIP: 1319 IHP: 2130 FHP: 2035 BHT: 116°</p> <p><b>Morgan Mud @ 4580'</b> Wt: 9.5 Vis: 52 Wt: 7.6 Chl: 2,000 LCM: 6# Deviation Survey: ¾°</p>