

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

BRUCE OIL COMPANY, L.L.C

**ANNE MARIE #1
5-9-12W
1320' FNL & 300' FEL
OSBORNE COUNTY, KANSAS
API: 15-141-20486-00-00**

**DRILLING CONTR.: MURFIN RIG #8
SPUD: 7-2-2019 COMP: 7-8-2019
MUD UP: 2200' TYPE MUD: CHEM.
DRILL TIME: 2200' to RTD
RTD: 2970' LTD: 2970'
SAMPLES SAVED: 2300' to RTD
GEOLOGIST: ROBERT J. PETERSEN**

ELEVATION

KB: 1693' (1692.5')
GL: 1688' (1687.5)
LOG MEASURED
FROM: KB
GL 1698 RAISED 1.5'

SURFACE CASING

24# 8 5/8" SET @219'
Cem. W/150SX
60/40 4%cc 2% gel

PRODUCTION CASING

D&A

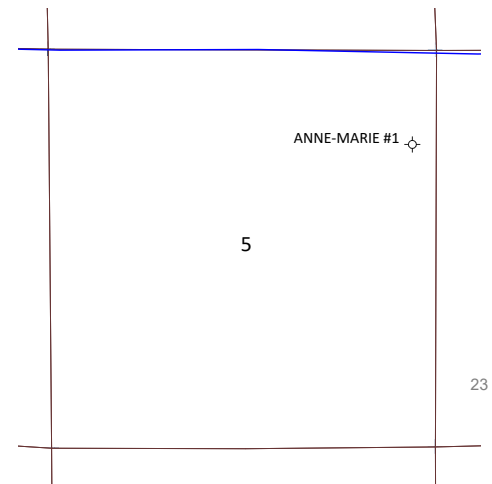
WELL LOG SURVEYS

RAG

ELECTRIC LOG TOPS

FORMATION	DEPTH	DATUM	POS A	POS B
ANHYDRITE	837	+856	-24	-14
BASE ANHYDRITE	869	+824	-23	-11
STOTLER	2406	-713	-23	-1
TARKIO SD	2431	-738	-23	2
TOPEKA	2620	-927	-22	-1
QUEEN HILL	2810	-1117	-21	-2
HEEBNER	2883	-1190	-20	-1
TORONTO	2906	-1213	-17	FLAT
LANSING	2931	-1238	-12	+3
LTD	2970	-1277	--	--

LOCATION MAP



REFERENCE WELL

REF. WELL A
DREILING OIL, INC
CORPSTIEN #1-4
1000' FNL & 2310' FEL
4-9-12W

REF. WELL B
DREILING OIL, INC
DIXON #1-32
880' FSL & 330' FWL
32-8-12W

DAILY REPORT @7:00 A.M.

7-2-19 MIRU/SPUD
7-3-19 440' DRILLING
7-4-19 1615' DRILLING
7-5-19 2270' DRILLING

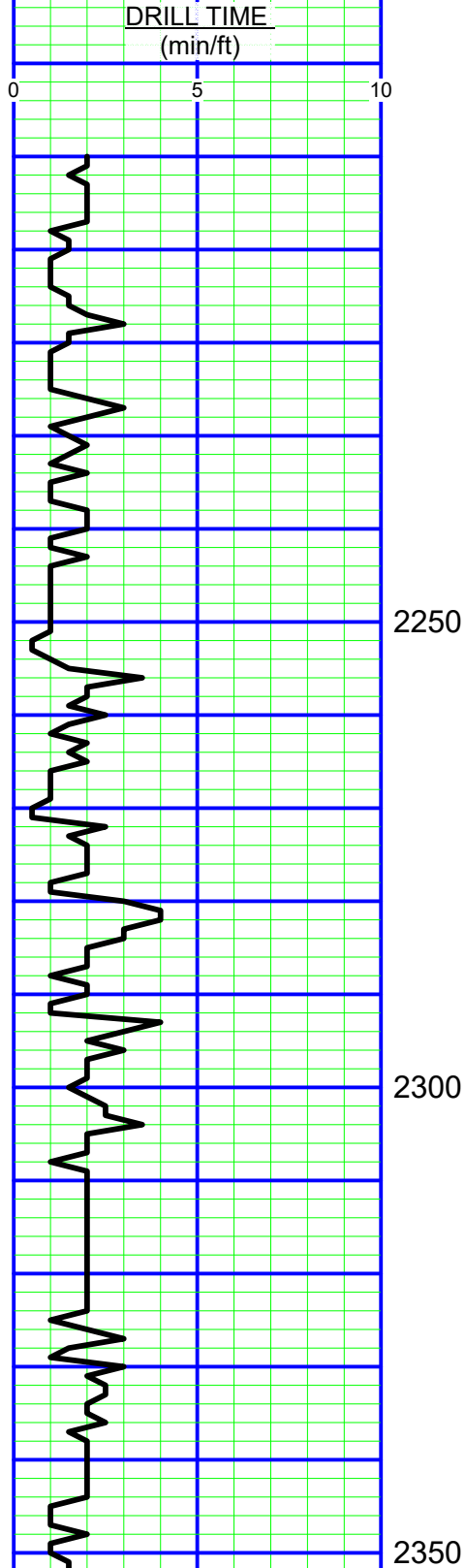
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7-2-19 MIRU/SPUD
7-3-19 440' DRILLING
7-4-19 1615' DRILLING
7-5-19 2370' DRILLING
7-6-19 2694' TIH (AFTER DST #1)
7-7-19 2960' DRILLING
7-8-19 2970' WELL PLUGGED

REMARKS

THIS WELL WAS PLUGGED AND ABANDONED



SAMPLE DESCRIPTION

SH; Gray, calcareous, sandy, micaceous + LS; Cream, dense (2310-2320)

LS; Cream/white, very fine crystalline, oolitic, tr dead stain + SH; Gray (2330)

SH; Gray, silty-sandy (2340)

SH; Gray, sandy + LS; Gray, dense, fossiliferous, tr dead stain (2350)

LS; Gray, fine crystalline to dense, argillaceous + SH; Gray (2360)

SH; Gray, sandy + LS; Tan, fine crystalline, fossiliferous, tr dead stain + SD; Gray, very fine
argillaceous (2370)

2350

SH; Gray, sandy + LS; Tan, fine crystalline, fossiliferous, tr dead stain + SD; Gray, very fine grained, mic (2370)

Root

LS; Gray/brown, dense (2380)

SD; Clear/gray, fine grained, angular + SH; Blue gray (2380)

SH; Gray + SD; Clear, fine grained, angular + LS; Cream/tan, dense (2390)

SH; Gray + SD; Clear, fine grained, angular + LS; Cream, dense, sandy (2400)

2400

Stotler

SH; Gray (2410)

LS; Cream/lt gray, dense, tr poor moldic por, tr dead stain (2420)

SH; Dark gray (2430)

MORGAN MUD CHECK 2434'
VIS 62/WL 8.7/WL 7.2/LCM 2#
CHLORIDES: 3,500 PPM

Tarkio SD

LS; Cream/gray, mottled in part, dense, fossiliferous + SD; Gray, very fine grained, ang, calc (2430)

LS; Cream, dense, chalky + LS; Gray, fine crystalline, fossiliferous, tr spotted dead stain (2440-2450)

SH; Gray soft (2450)

2450

SD; Blue-gray, fine grained, angular w/tr dead stain (2450/15") + LS; Gray, dense, sl cherty (2450/30")

SH; Gray (2460)

LS; Cream/tan, fine crystalline, fossiliferous, sl dolomitic, chalky + SH; Gray (2470)

LS; Cream/gray, very fine crystalline to dense, fossiliferous, chalky + SH; Gray, sandy (2480)

LS; Cream/tan/gray, dense, fossiliferous, chalky + SH; Gray, pyritic (2490)

SH; Black (2500)

LS; Cream, fine crystalline, fossiliferous, chalky + LS; Gray, dense, fossiliferous, argillaceous + SH; Gray (2510)

2500

LS; Tan/gray, very fine crystalline to dense, fossiliferous, mottled, argillaceous in part, chalky + SH; Gray (2520)

LS; Cream/tan, fine crystalline, fossiliferous, clastic w/shale clast (2530)

SH; Gray, mottled +SD; Cream, fine to med, angular (2540)

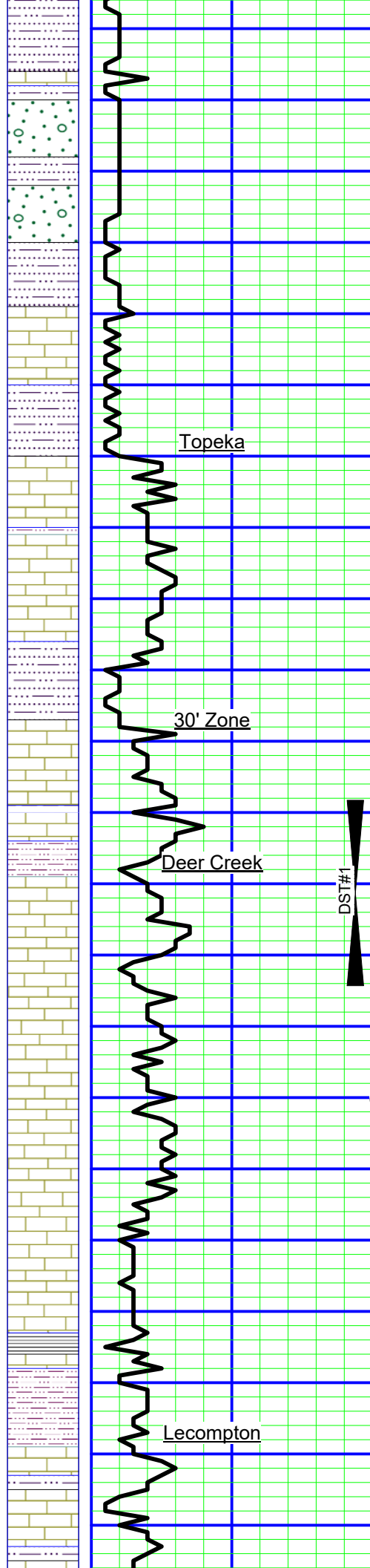
LS; Cream/gray, dense, fossiliferous, chalky (2550)

2550

LS; Cream/gray, mottled, very fine crystalline, fossiliferous, sl dolomitic, chalky w/shale clast + SH; Gray (2560)

SH; Gray, sandy + LS; Gray, dense, argillaceous (2570)

SD; Gray, fine grained, ang, mic + LS; Gray, dense, argillaceous (2580) + LS; Cream/gray, dense, fossiliferous, mottled, clastic (2590)



SD; Gray, fine grained, ang, mic + LS; Gray, dense, argillaceous (2580) + LS; Cream/gray, dense, fossiliferous, mottled, sl cherty (2590)

LS; Cream, very fine crystalline to dense, chalky LS; Gray, dense, sandy (2600)

LS; Cream/gray, oolitic/fossiliferous, chalky, sl cherty + SH; Gray, silty-sandy (2610)

2600 LS; Cream, fine crystalline, oomoldic por (barren) (2620)

SH; Red/gray (2620)

Topeka

LS; Cream/gray/brown, dense, fossiliferous, cherty, tr dead stain (2630)

LS; Tan/gray, dense, chalky (2640)

LS; Cream/gray, very fine crystalline, sl fossiliferous, sl dolomitic, chalky (2650)

LS; Gray, dense, fossiliferous, mottled chalky (2650/15")

LS; Cream/gray, fine crystalline, oolitic/fossiliferous, chalky + SH; Gray (2650/30")

2650

30' Zone

SH; Gray, sandy (2660-2670)

LS; Cream/gray, fine crystalline, fossiliferous, tr poor ppt por, tr stain (2670)

LS; Cream/gray, fine crystalline, fossiliferous, sl dolomitic, chalky (2670-2670/15")

LS; Gray, fine crystalline, fossiliferous, dolomitic, faint odor (2670/30")

SH; Gray, sandy (2670/30-45")

LS; Cream, fine crystalline, fossiliferous, fossiliferous, sl dolomitic, w/fair ppt por, sfo, faint odor, med sat dry (2680)

Deer Creek

LS; Tan/gray, fine crystalline, fossiliferous-granular, w/good moldic por, sfo, odor, dark sat dry (2690)

LS; Tan, very fine crystalline to dense, fossiliferous, chert + SH; Gray (2694/15")

LS; Cream, very fine crystalline, sl dolomitic, chalky, ppt por, tr stain (2694/30")

LS; Cream/gray, very fine crystalline to dense, mottled in part, sl dolomitic w/tr poor ppt por, tr stain, nsfo (2710)

LS; Cream/tan, fine crystalline, fossiliferous, sl dolomitic, cherty w/tr poor ppt por, tr stain, nsfo (2710/15")

SH; Dark gray (2710/15")

LS; Gray, fine crystalline, fossiliferous, sl dolomitic, chalky-mealy, tr dead oil flake (2710/30")

2700

cfs

cfs

LS; Cream/gray/tan, fine crystalline, fossiliferous, chalky, sl cherty + SH; Gray, silty (2720-2730)

LS; Cream/gray/tan, fine crystalline, fossiliferous, chalky, sl cherty(orange/blocky) + SH; Black/gray, fossiliferous (2740)

LS; Cream/tan/gray, very fine crystalline to dense, fossiliferous, mottled + SH; Dark gray/black (2750)

LS; Cream, fine crystalline, dolomitic, chalky, ppt por, lt stain (2760)

SH; Black (2760)

2750

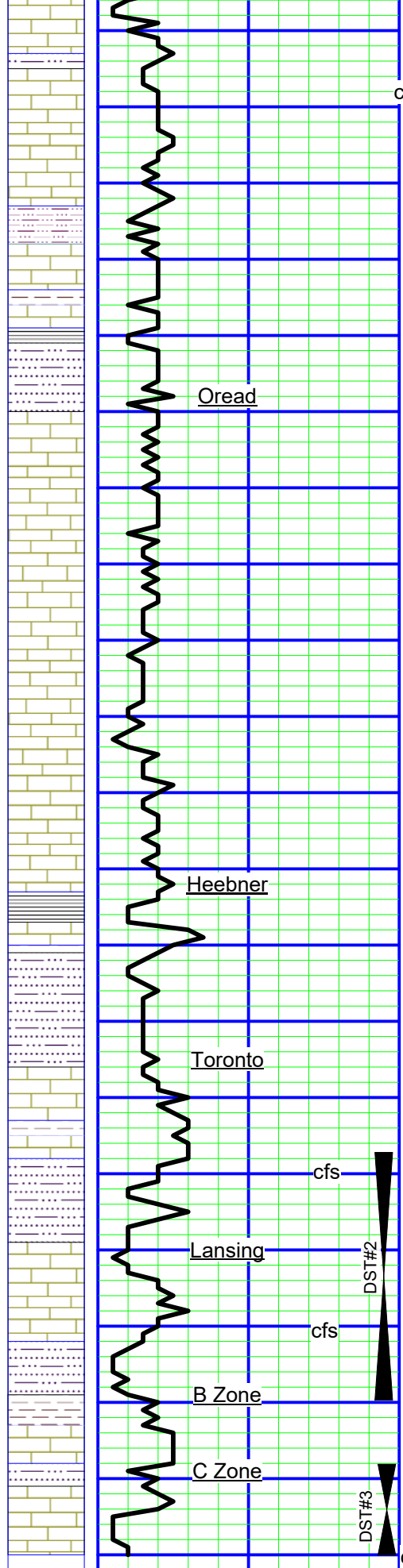
Lecompton

LS; Cream/tan, fine to med crystalline, fossiliferous, sl cherty, poor to fair moldic por, fair odor, ssfo (2770) incr chert (white/ang) (2777)

LS; Cream/gray/tan, fine crystalline to dense, fossiliferous-mottled, chalky (soft) cherty, spot stain, ssfo, faint odor, tr fair moldic por (2777/15-30")

DST #1
2668-2894'
30-45-30-45 MIN
TOOL SLID 12'
IF: NONE
FF: FEW BUBBLES THEN DEAD
RECOVERED:
195' MUD
SIP: 972-966#
FP: 133-122/129-124#
HP: 1304-1276#
BHT: 95F

MORGAN MUD CHECK 2710'
VIS 52/WL 9.0/WL 7.6/LCM 2#
CHLORIDES: 6,200 PPM



LS; Cream/gray/tan, fine crystalline to dense, fossiliferous-mottled, chalky (soft) cherty, spot stain, ssfo, faint odor, tr fair moldic por (2777/15-30")

LS; Cream/gray, fine crystalline, very fossiliferous, chalky, tr dead stain + SH; Gray (2790)

LS; Cream/lt gray, very fine crystalline to dense, fossiliferous, chalky, tr poor moldic por, faint odor, vssfo, lt stain on dry (2800)

LS; Cream/gray, dense, chalky + SH; Gray (2810)

LS; Tan, fine to med crystalline, fossiliferous, fair moldic por, stain, vssfo, odor (2810-2820)

SH; Black, carb (2820)

Oread

LS; Cream/gray, fine crystalline to dense, fossiliferous, chalky, sl cherty, tr poor moldic por, patchy stain, ssfo (2830)

LS; Cream/gray, fine crystalline to dense, fossiliferous, chalky-mealy, w/tr dead stain + SH; Gray (2840)

LS; Cream/tan./gray, fine crystalline, fossiliferous, chalky, tr poor moldic por, vssfo (2850)

LS; Cream/gray, very fine crystalline to dense, fossiliferous, chalky cherty (blocky) (2860)

LS; Cream/gray, argillaceous (2870)

LS; Cream/tan/gray, very fine crystalline to dense, fossiliferous, chalky, cherty, tr stain, nsfo (2880)

LS; Gray/tan, fine crystalline, fossiliferous, chalky-mealy, brown stain, ssfo, faint odor (2890)

Heebner

SH; Black, carb (tr 2890/incr 2900)

LS; Tan, dense, fossiliferous (2900)

SH; Gray/red, silty-sandy (2910)

Toronto

LS; Cream/gray, fine crystalline, fossiliferous, pyritic, chalky, tr dead stain (2920)

LS; Cream/tan, fine crystalline, fossiliferous, cherty, chalky (2920/15")

LS; Cream/white, fine crystalline, oolitic, chalky (2920/30")

SH; Red/gray/green + LS; Gray, dense, chalky, tr ppt por, tr stain (2930)

Lansing

SH; Gray, silty (2940)

LS; Tan, fine crystalline, sl dolomitic, fossiliferous, poor moldic por, sfo, odor, light med stain on dry (2950) tr chert inclusion, ppt moldic por, sfo, med stain dry (2950/15")

LS; Cream/gray mottled, fine crystalline, chalky + SH; Gray/black (2950/30")

B Zone

LS; Cream, fine crystalline, fossiliferous+ SH; Gray (2960)

C Zone

LS; Cream/gray, fine crystalline to dense, fossiliferous, cherty + SH; Gray/dark gray (2970)

SH; Red/gray (2970/15")

LS; Cream, fine crystalline, fossiliferous, cherty, tr coarse crystalline regrowth, fair moldic por, ssfo, odor, med patchy stain on dry (2970/15") increase sfo/stain on dry (2970/30-45")

DST #2
2917-2950'
5-45-30-60 MIN
IF: B.O.B. IN 75 SEC/TOTAL BUILD 28"
ISIP: LIGHT SURFACE BLOWBACK
FF: BOB IN 75 SEC/TOTAL BUILD 84"
RECOVERED:
93' GIP
30' GO
62' SOCMMW
992' VSOCMMW
SIP: 1094-891#
FP: 81-175/257-383#
HP: 1467-1385#
BHT: 95F

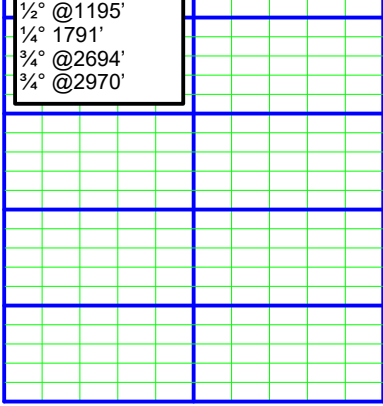
DRIFT SURVEY
1/2° @220'
1/2° @1195'
1/4° 1791'
3/4° @2694'

MORGAN MUD CHECK 2970'
VIS 60/WT 9.2/WL 8.0/LCM 1#
CHLORIDES: 6,900 PPM

DST #3
2958-2970'
5-30-5-45"
IF: BOB IN 30 SEC. TOTAL BUILD 155"
ISI: LIGHT SURFACE BLOWBACK
FF: BOB IN 30 SEC TOTAL BUILD 127"
FSI: LIGHT SURFACE BLOWBACK
RECOVERED:
341' MW 70%W/30% M

1/2° @220'
1/2° @1195'
1/4° 1791'
3/4° @2694'
3/4° @2970'

DESCRIBED: 3,000' W



3000

IF: BOB IN 30 SEC. TOTAL BUILD 155
ISI: LIGHT SURFACE BLOW BACK
FF: BOB IN 30 SEC TOTAL BUILD 127"
FSI: LIGHT SURFACE BLOW BACK
RECOVERED:
341' MW 70%W/30% M
1054' MCW 95% W/5%M
SIP: 1180-1181#
FP: 424-606/757-812#
HP: 1447-1372#
BHT: 90F