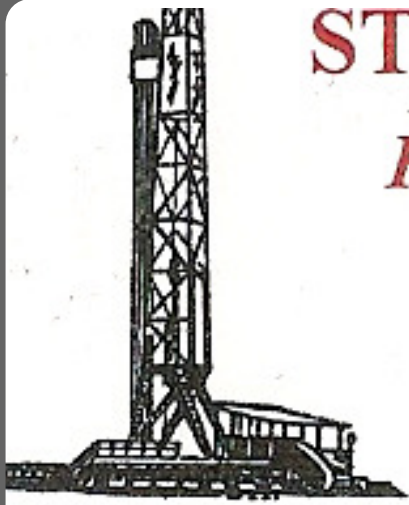


# STEVEN P. MURPHY, P.G.

*Petroleum Geologist (KS #228)*



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RR#1, Box 69

Otis, Kansas 67565

geomurphy@gbta.net

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

Well Name: Schonthaler #5  
API: 15-051-26753-00-00

Location: Ellis County

License Number: 34099

Spud Date: 11/14/2014

Region: Kansas

Drilling Completed: 11/24/2014

Surface Coordinates: 895' FNL & 665' FWL (Approx. NW-SE-NW-NW)  
Section 30-T11S-R19W

Bottom Hole Coordinates: Same as above (Vertical well w/min deviation)

Ground Elevation (ft): 2100'

K.B. Elevation (ft): 2107'

Logged Interval (ft): 3000' To: TD

Total Depth (ft): LTD - 3767'

Formation: Topeka through Arbuckle

Type of Drilling Fluid: Mud-Co/Service Mud. Inc.(Gary Schmidtberger, Eng)

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

## OPERATOR

Company: Richland Oil Investments, LLC  
Address: 608 E. 1st St  
P.O. BOX 166  
Palco, KS 67657

## GEOLOGIST

Name: Steven P. Murphy, PG (KS License #228) & Anthony Luna  
Company: Consulting Petroleum Geologist  
Address: 3365 CR 390  
Otis, KS 67565

## LogTops (Datum)

Open-hole logging was performed by Pioneer Log-Tech. The following are formation tops w/associated datums:

Anhydrite Top -1472 (+635)  
Anhydrite Base - 1514 (+593)  
Topeka - 3130 (-1023)  
Heebner - 3347 (-1240)  
Toronto -3374 (-1267)  
Lansing - 3390 (-1283)  
Muncie Creek - 3509 (-1402)  
Stark - 3574 (-1467)  
Base KC - 3627 (-1520)  
Arbuckle - 3702 (-1595)

## DSTs

Drillstem testing was performed by Trilobite Testing (Hays shop):

### DST #1 3416-3460 LKC ("C & D")

30:45:30:60

IF: BOB 9min, NR

FF: Strong blow, NR

Recovery: 1405' GIP, 20' SOCM (5%O, 95%M), 60' HO&GCM (10%G, 40%O, 50%M)

IHP: 1640      FHP: 1635

IFP: 28-47      ISIP: 119

FFP: 43-61      FSIP: 118

BHT - 103 F

### DST #2 3556-3579 (LKC "J")

45:45:45:60

IF: Built to 8in, no return

FF: Built to 8in, no return

Recovery: 175' GIP, 70' CO (100%O), 60' MGO (15%G, 60%O, 25%M)

IHP: 1701      FHP: 1682

IFP: 22-53      ISIP: 305

FFP: 47-71      FSIP: 308

BHT - 105 F

Oil Gravity - 28

### DST #3 3576-3606 (LKC "K")

30:30:30:30

IF: Built to 1/2in, no return

FF: no blow, no return

Recovery: 5' SOCM (2%O, 98%M)

IHP: 1716      FHP: 1647

IFP: 20-24      ISIP: 349

FFP: 22-23      FSIP: 118

BHT - 101 F

### DST #4 3698-3708 Arbuckle

30:30:30:45

IF: BOB 15sec, surface blow

FF: BOB 1min, 1/8in return

Recovery: 180' GIP, 1550' CO (100%O), 185' OGCMW (15%G, 20%O, 60%W, 5%M), 620' Water (100%)

IHP: 1796      FHP: 1700

IFP: 400-782      ISIP: 1109

FFP: 774-1011      FSIP: 1110

BHT - 117 F

Chlorides - 26,000

Oil Gravity - 22

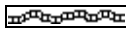
## COMMENTS

Based on the results of DSTs and log & sample analysis, 5-1/2" casing was set for production.

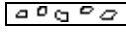
## ROCK TYPES



Anhy



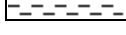
Bent



Brec



Cht



Clyst



Coal



Congl



Dol



Gyp



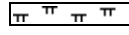
Igne



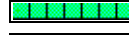
Lmst



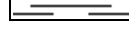
Meta



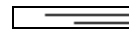
Mrlst



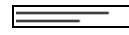
Salt



Shale



Shcol



Shgy



Slstst



Ss



Till

## OTHER SYMBOLS

### OIL SHOW

- Even
- Spotted
- Ques



Dead



Gas

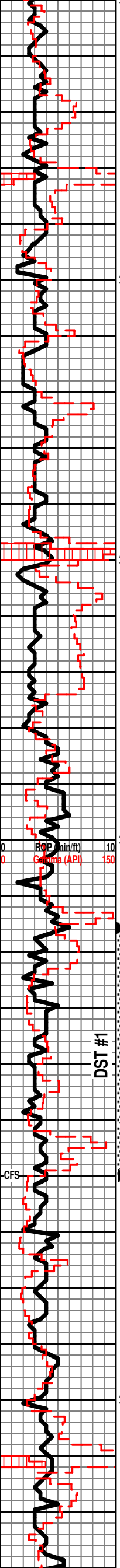
### INTERVAL

- Core
- Dst

### EVENT

- Conn
- Rft
- Sidewall

Curve Track 1		Depth	Lithology	Oil Shows	Geological Descriptions	REMARKS
ROP (min/ft)	Gamma (API)					
						<p><b>Skytop Drilling Rig #1</b>  <b>Toolpusher Tom Engle</b></p> <p>8 5/8" @ 255' w/175 sx  Survey @ 267' - 1/2 degree</p> <p>The following formation tops (datums) are derived from ROP &amp; sample examination. Please refer to the header above for open-hole log tops (datums)</p>
		3100			SH: gry-brn LS: wht-tan-gry, vfxln, dense, NS	
		3110			SH: gry-grn LS: wht-crm-gry, vfxln, foss, dense, sl chalky, NS	TOPEKA 3130 (-1025)
		3120			LS: as above	
		3150			SH: gry-grn LS: crm-tan-gry, vfxln, sl chalky, NS	
		3160			SH: gry LS: wht-tan-gry, vfxln, minor chert, dense, NS	
		3170			LS: as above, sl foss	
		3200			LS: wht-tan-gry, vfxln, minor chert, dense, NS	
		3210			LS: as above	
		3220			SH: blk, carb LS: as above	
		3250			LS: wht-tan-gry, vfxln, sl foss, minor chert, NS	



LS: wht-tan-gry, vfxln, sl foss, minor chert, NS

LS: as above

SH: blk, carb

LS: crm-tan-gry, vfxln, dense, sl foss, minor chert, NS

LS: as above

LS: crm-tan-gry, vfxln, dense, sl foss/chalky, NS

LS: as above

SH: blk, carb

SH: blk-brn-gry

SH: as above

LS: crm-tan, fxln, pr por, tr stn, nsfo, no odor

SH: gry-grn

LS: wht-crm-gry, vfxln, dense, NVP, tr fo on brk, tr stn, no odor

LS: wht-tan-gry, vfxln, dense, sl ool, dense, sl chalky, minor chert, NS

LS: as above w/sl odor?

SH: gry-blk-grn-red

LS: wht-tan-gry, fxln, ool in pt, mostly dense, some pr ppt por, vssfo on brk, v. spotty lite stn, sl odor

LS: as above w/str odor

LS: wht-crm-gry, fxln, ool in pt, much dense, some w/ fr vug por, ssfo (gsy), spotty lite stn, str odor

SH: gry-brn-grn-blk

LS: wht-tan-gry, fxln, ool, fr inxln & vug por, ssfo, fr lite stn, str odor

LS: as above w/ssf, str odor

LS: wht-tan-gry, ool, ssfo, fr-gd vug por, fr lite stn, fr odor

LS: as above w/ssf, mostly barren, sl odor

LS: wht-tan-gry, vfxln, sl cherty, NS

SH: blk, carb

SH: gry-grn

LS: wht-tan-gry, vfxln, sl cherty, sl ool, NS

HEEBNER 3351 (-1244)

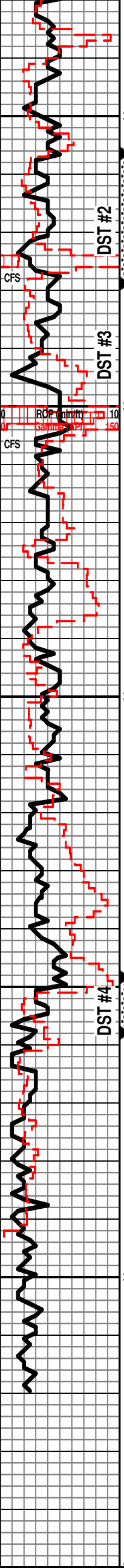
TORONTO 3376 (-1269)

LANSING 3392 (-1285)

Strap @ 3460' - 1.62' short to board  
Survey - 3/4 degree

**DST #1 3416-3460 (LKC "C & D")**  
**30:45:30:60**  
**IF: BOB 9 min, NR**  
**FF: Strong blow, NR**  
**Recovery: 1405' GIP,**  
**20' SOCM (5%O 95%M),**  
**60' HO&GCM (10%G 40%O 50%M)**  
**IHP: 1640 FHP: 1635**  
**IFP: 28-47 ISIP: 119**  
**FFP: 43-61 FSIP: 118**  
**BHT - 103 F**

Muncie Creek 3513 (-1406)



LS: wht-tan-gry, vfxln, sl cherty, sl ool, dense, pr inxln por, few vugs, tr fo on brk, sl odor  
 LS: wht-crm-gry, vfxln, sl cherty, sl ool, sl fos, NS  
 LS: wht-tan-gry, fxl, pr-fr inxln por, few vugs, tr fo on brk, sl odor  
 SH: gry-grn-brn  
 LS: wht-crm-gry, fxl, fr pn-pt inxln por, pr-fr intr-ool por, sl oolastic, gsy, sl vug, fsfo, str odor  
 SH: blk, carb  
 LS: wht-crm-gry, vfxln, ool, fr-gd por, sl vug, ssfo, fr odor  
 LS: wht-crm-gry, vfxln, fr intr-ool por, few vugs, vssfo, sl odor  
 SH: blk  
 LS: wht-tan-gry, vfxln, sl ool, sl fos, NS  
 LS: same as above  
 Sst: red, sub rd, fr w-std, friable, NS  
 Sst: same as above w/abundant shale  
 LS: wht-crm-gry, vfxln, sl ool, sl fos, NS  
 LS: wht-crm-gry, vfxln, sl cherty, sl ool, NS  
 LS: wht-crm-gry, vfxln, abund chert, sl ool, NS  
 LS: wht-crm-gry, vfxln, abund chert, NS  
 SH: gry-grn-brn  
 SH: turq  
 Sst: clr, med grn, tite, gils stn, ns fo, sl odor  
 Dol: wht, rhombic, fr-gd inxln por, sl vug, fsfo, fr odor  
 Dol: wht-tan, sl cherty, rhombic & sucrosic, fr-gd inxln por, sl vug fsfo, fr odor  
 Dol: same as above w/abund shale  
 Dol: wht-tan, sl cherty, sl ool, rhombic & sucrosic, pr-fr inxln por, ssfo, fr odor  
 Dol: same as above  
 Dol: wht-tan, sl ool, rhombic & sucrosic, pr-fr inxln por, vssfo, fr odor  
 Dol: same as above

**DST #2 3556-3579 (LKC "J")**  
 45:45:45:60  
 IF: Built to 8in, no return  
 FF: Built to 8in, no return  
 Recovery: 175' GIP, 70' CO (100%O), 60' MGO (15%G, 60%O, 25%M)  
 IHP: 1701      FHP: 1682  
 IFP: 22-53      ISIP: 305  
 FFP: 47-71      FSIP: 308  
 BHT - 105 F  
 Oil Gravity - 28

**Stark 3578 (-1471)**

**DST #3 3576-3606 (LKC "K")**  
 30:30:30:30  
 IF: Built to 1/2in, no return  
 FF: no blow, no return  
 Recovery: 5' SOCM (2%O, 98%M)  
 IHP: 1716      FHP: 1647  
 IFP: 20-24      ISIP: 349  
 FFP: 22-23      FSIP: 118  
 BHT - 101 F

**BKC 3638 (-1531)**

**Arbuckle 3706 (-1599)**

**DST #4 3698-3708 Arbuckle**  
 30:30:30:45  
 IF: BOB 15sec, surface blow  
 FF: BOB 1min, 1/8in return  
 Recovery: 180' GIP, 1550' CO (100%O), 185' OGCMW (15%G, 20%O, 60%W, 5%M), 620' Water (100%W)  
 IHP: 1796      FHP: 1700  
 IFP: 400-782      ISIP: 1109  
 FFP: 774-1011      FSIP: 1110  
 BHT - 117 F  
 Chlorides - 26,000  
 Oil Gravity - 22

Survey @ TD - 1 1/4 degree

LTD - 3767'  
 RTD - 3770'