KITT NOAH

PETROLEUM GEOLOGIST

Kansas License #229

RUSSELL OIL, INCORPORATED

Exploration & Production

GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

OPERATOR:	Russell Oil Co., Inc.
LEASE:	Steinle WELL NO. #3-32
LOCATION:	330'FN & 1160'FE
SEC: 32 TWP: 15S RNG: 14W	
COUNTY: Russell STATE: Kansas	

FORMATION	LOG TOP	SUB SEA
Anhydrite	924 (+1003)	
B/Anhydrite	960 (+967)	
Topeka	2849 (-922)	
Heebner	3079 (-1152)	
Toronto	3098 (-1171)	
Lansing	3142 (-1215)	
Muncie Crk	3278 (-1351)	
B/KC	3372 (-1445)	
Arbuckle	3382 (-1455)	
LTD	3460 (-1533)	

CONTRACTOR:	Southwind Rig #170
COMM:	10-14-2013 COMP: 10-23-2013
TOTAL DEPTH:	3460 ft. TD
DAMPS TAKEN FROM:	2800 ft. TD
SAMPLES TAKEN FROM:	2800 ft. TD
SAMPLES SAVED FROM:	2800 ft. TD
GEOLOGICAL SUPERVISION FROM:	2800 ft. TD
GEOLOGICAL SUPERVISION TO:	TD
DRILLING TIME FROM:	2800 ft. TD
DRILLING TIME TO:	TD
DRILL STEM TESTS RAN:	6
DRILLERS:	Mullen, Gary, Schlumberger
SURVEYS:	Pioneer Energy Services
	Dual Induction
	Dual Compensated Porosity
	Microlog

CASING RECORD:	
SURFACE:	8 5/8" set at 230' w/ 150 sx.
PRODUCTION:	DRY & ABANDONED
DST'S:	6

ELEVATIONS:
KB: 1927
GL: 1915
MEASURED FROM: KB

API # 15-167-23,905

32 — 15S — 14W

LEGEND

Limestone, Oil Lime, Dolomite, Sandstone, Shale, Carb Shale, Chert, Anhydrite

LITHOLOGY | DEPTH | DRILLING TIME IN MINUTES PER FOOT (Rate of penetration increases; 5" 10" 15" 20") | SAMPLE DESCRIPTIONS | REMARKS

950 — Anhydrite — EL 924 (+1003)

B/Anhydrite — EL 960 (+967)

2800 — Sh. lt. gry & green

LS,mmy-wht fn xln v. fossil pr interpart poro dense NSNO

Sh. dk. gry & green

Sh. gry, green, maroon

Topeka — EL 2849 (-922)

Sh. dk. gry & maroon

LS,mm-wht fn xln v. ool pr interpart poro NSNO, overall dense & chalky NSNO

LS,mm-wht fn xln sl. fossil pr interpart poro blocky NSNO

Sh. lt. gry, dk. gry, green

LS,mm-tan fn xln sl. fossil pr visible poro blocky NSNO

LS,AA

2900 — LS,mm fn xln fossil & ool pr interpart poro NSNO, sc. pieces wht frosty chalk

LS,mm fn xln sl. fossil pr interpart poro, chalky NSNO

LS,mm-wht fn xln sl. fossil pr,sc. NSNO interpart poro chalky mealy NSNO

LS,mm-wht fn xln AA, samples washing wht

Sh. blk. carbonaceous

Sh. lt. gry

LS,mm-gry fn xln pr visible poro dense NSNO

Sh. lt. gry & green

LS,mm-gry fn xln sl. fossil pr,fn interpart poro NSNO

3000 — Bit Trip at 3017'

LS,mm-wht fn xln fossil & ool pr, sc. NSNO interpart poro, chalky NSNO, samples washing wht

LS,AA, subchalky, barren

Pipe Strap at 3017' 3.55 Board Short

Plattsmouth — Sh. dkun. dk. gry, green, maroon

LS,wht fn xln fossil & ool pr, sc. vuggy, poro, pr. oil stain, interpart poro, sl. pieces dense, brwn spty, slight stn, S-F-SIFFO on brk, slight odor

LS,mm fn xln pr. interpart poro v. chalky NSNO

LS,mm fn xln fossil & ool subchalky mealy, fn interpart poro, sc. pieces, dense, spty stn, NSFO, v. sl. odor

LS,mm-gry fn xln sl. fossil pr visible poro dense NSNO

Heebner — EL 3079 (-1152)

Sh. blk. carbonaceous

Sh. gry, green, maroon

Toronto — EL 3098 (-1171)

LS, wht-crm fn xln subpoc. pr, interpart poro, subchalky, bnp, pieces in dry, sample w/ golden brown spty stn, NSFO, v. sl. odor

Sh. dk. gry, green, maroon

Sh. dk. gry & green

Lansing — EL 3142 (-1215)

LS,wht-gry fn xln fossil & ool, sc. vuggy, poro, sl. oolcastic pr, sl. interpart poro, sl. chalky, sl. growth, lt golden brown, ssl stn, SOFO — ant gas on brk, slight gassy odor

DST #1: 1st Op: Weak Bldg 4" No Blowback 2nd Op: Weak Bldg 4" No Blowback Rec: 180' GIP 60' OMGCM (15%G,8%O,77%M) IFP: 23-35#/45" ISIP: 382#/45" FFP: 35-46#/45" FSIP: 341#/45"

"B" — Sh. dk. gry & green, v. mushy n. gummy

"C" — LS,mm-gry fn xln v. oolcastic pr, interpart poro, sl. chalky, golden brown, ssl stn/-stn in niche, non above, sn. odor, sl. oil odor

LS,mm-wht fn xln ool sm pelletal pr, interpart poro, sl. mealy, brown spty stn, NSFO, trace fn xln brn. dkun pieces chalky, v. sl. oil odor

LS,mm fn xln fossil pr interpart poro, barren NSNO

Sh. blk. carbonaceous

"E" — LS,mm-tan fn xln sl. fossil pr visible poro, dense NSNO

DST #2: 1st Op: Surface Blow Throughout No Blowback 2nd Op: Dead Blow No Blowback Rec: 35' SOCM (1%O,99%M) IFP: 20-35#/30" ISIP: 228#/30" FFP: 37-39#/30" FSIP: 217#/30"

"F" — Sh. gry, green, maroon

LS,mm-tan fn xln ool pr interpart poro 1/2 pieces lt. brwn edge stn, VSFFO, v. sl. odor

"G" — LS,mm-tan fn xln pr visible poro, sc. pieces, sl. fossil, sl. fn xln, in dry sample, sugary odor, dkun with angular chert

LS,tan fn xln v. ool pr visible poro, sc. pieces, sl. chalky wht chert, sl. odor

DST #3: 1st Op: Weak; Died 12" No Blowback 2nd Op: Weak; Died 12" No Blowback Tool: No Help No Blowback

LS,mm-tan fn xln pr visible poro v. dense NSNO, dkun wht chert

Muncie Crk — EL 3278 (-1351)

Sh. blk. carbonaceous

"H" — LS,tan fn xln v. ool pelletal, pr, visible poro, sc. pieces, sl. red brown ssl stn, VSOFO — sm gas on brk, v. sl. odor

"I" — LS,mm fn xln v. ool pr, pinpoint poro, dkun pieces lt brown ssl stn, sl. gas on brk, sugary odor, sm. pieces to 1/2", dkun chert, sl. chalky towards brwn stn

Rec: 15' Mud TFP: 22-27#/30" ISIP: 228#/30" FFP: 20-21#/30" FSIP: 228#/30"

DST #4: 1st Op: Weak; Died 16" No Blowback 2nd Op: Dead; Flush Tool: No Help No Blowback Rec: 5' Mud TFP: 20-21#/30" ISIP: 228#/30" FFP: 20-21#/30" FSIP: 228#/30"

"J" — LS,mm fn xln sl. oolites, pelletal pr,ssl stn, pin-point poro, sc. pieces w/ 2nd xln at rim, between, sugary, mealy, pieces brwn spty stn, NSFO, trace VSSFO — sm gas on brk, v. sl. odor

"K" — LS,mm-tan fn xln sl. oolcastic pr, sc. pieces lt. brwn, sugary, sl. chalky, sl. fossil, sl. fn xln, sm. pieces, sl. chalky, sl. brwn spty stn, SSFO

DST #5: 1st Op: Weak Died 14" No Blowback 2nd Op: Dead; Flush Tool: No Help No Blowback

"L" — LS,mm-tan fn xln sl. fossil pr visible poro v. dense NSNO

B/KC — EL 3372 (-1445)

Arbuckle — EL 3382 (-1455)

Sh. gry, green, maroon, purple, brown, chert

Dolo,cmy fn xln pr intxln poro, lt lt brwn subspl stn, trc. SSFO, lt. pungent odor

Rec: 10' SOCM (2%O,98%M) clean oil on top of mud TFP: 18-19#/30" ISIP: 305#/30" FFP: 19-19#/30" FSIP: 176#/30"

Dolo,cmy fn xln pr intxln poro, dkun brwn subspl stn, SSFO, sl. pungent odor

Dolo,cmy fn-med xln sc. vuggy, poro chunks, mshy pieces v. v. dense, sl. chalky, sl. fossil, sl. chert, sl. pr intxln poro, dull brwn subspl-ssl stn,spty gas on brk, lt-sl pungent odor

DST #6: 1st Op: Weak Bldg 1 1/2" No Blowback 2nd Op: Weak Bldg 1/2" No Blowback Rec: 20' MW w/show of oil (95%W,5%M) 120' Water 140' Total Fluid TFP: 11-45#/60" ISIP: 1074#/45" FFP: 47-81#/60" FSIP: 1067#/45" Chlor: 23,000 ppm

Dolo,cmy fn xln pr intxln poro, lt lt brwn subspl stn, trc. SSFO, lt. pungent odor

Dolo,cmy fn-med xln chunks, pr-fr intxln poro, sl. fossil, barren, NSFO, dkun wht chalk

3400

LITHOLOGY | DRILLING TIME IN MINUTES PER FOOT (Rate of penetration increases; 5" 10" 15" 20") | SAMPLE DESCRIPTIONS

NITT E. NOAH LICENSED 229 KANSAS GEOLOGIST

ELEVATION: KB 1927

OPERATOR: Russell Oil, Inc. LOCATION: 330'FN & 1160'FE

LEASE: Steinle WELL NO.: #3-32 SEC: 32 TWP.: 15S RNG: 14W

API: 15-167-23,905 FIELD: Nuss COUNTY: Russell STATE: Kansas