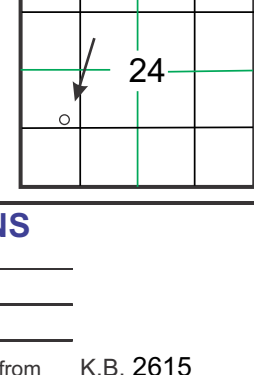


# GEOLOGICAL REPORT

## Larry A. Nicholson

NAD 83  
39.51348636  
-100.17729072

COMPANY Cobalt Energy, LLC  
API # 15-179-21453 FIELD Vahling  
LEASE Slipke Trust "A" WELL # #1-24  
LOCATION SW SE NW SW  
SURVEY 1570' FSL 995' FWL  
SECTION 24 TWP 6S RGE 26W  
COUNTY Sheridan STATE Kansas



CONTRACTOR Murfin Rig # 8  
SPUD 08-24-18 7:00 pm COMP \_\_\_\_\_  
RTD 3930' 11:01pm 08-30-18 LTD 3930  
MUD UP AT 3105  
MUD TYPE Chemical\_MudCo Gary Schmidtberger

**ELEVATIONS**  
K.B. 2615  
D.F. \_\_\_\_\_  
G.L. 2610  
All measurements from K.B. 2615

SAMPLES SAVED FROM 3400 TO RTD  
DRILLING TIME FROM 3400 TO RTD  
SAMPLES EXAMINED FROM 3400 TO RTD  
GEOLOGICAL SUPERVISION FROM 3400 TO RTD  
WELLSITE GEOLOGIST LARRY A. NICHOLSON

**CASING RECORD**  
Conductor \_\_\_\_\_ of \_\_\_\_\_ w/ \_\_\_\_\_ ss  
Surface 345 of 8 5/8 w/ 250 ss  
Production \_\_\_\_\_ of \_\_\_\_\_ w/ \_\_\_\_\_ ss  
8 5/8 8 its 23#

### ELECTRICAL SURVEYS Pioneer Neu, Den, Dual, Micro

FORMATION	SAMPLE TOPS	SUBSEA DATUM	ELEC LOG TOPS	SUBSEA DATUM	REFERENCE WELL			
					A	B		
Anhydrite	2186	+429	2186	+429	2183	+432 -4	2183	+432 -3
Base Anhydrite	2218	+397	2216	+399	2215	+401 -2	2216	+399 +
Topeka	3442	-827	3444	-829	3449	-833 +4	3449	-834 +5
Heabner	3648	-1033	3648	-1033	3655	-1039 +6	3654	-1039 +6
Toronto	3670	-1055	3670	-1055	3677	-1061 +6	3676	-1061 +6
Lansing	3688	-1073	3686	-1071	3695	-1079 +8	3693	-1078 +7
C' zone	3712	-1097	3710	-1095	3717	-1101 +6	3718	-1103 +8
Muncie Creek	3784	-1169	3786	-1171	3791	-1175 +4	3794	-1179 +8
H' zone	3799	-1184	3800	-1185	3807	-1191 +6	3810	-1195 +10
K' zone	3850	-1235	3848	-1233	3860	-1244 +11	3855	-1240 +7
BKC	3878	-1263	3876	-1261	3883	-1267 +6	3887	-1272 +11
RTD	3930		3930	-1315	4267		4114	
LTD	3930		3930	-1315	4270		4082	

REFERENCE WELLS  
A: **Abercrombie Drilling Vahling #1 Sec 24-6S-26W SW NE SW KB 2616**  
B: **Abercrombie Drilling Vahling #2 Sec 24-6S-26W SW NW SW KB 2615**

### DRILLSTEM TEST SUMMARY :

Dst #1 3658-3705 (TOR LKC A) 30 30 30 30 IF:22-24 FF:24-25 SI:39-35  
Rec 2' M, trc Oil IF weak surf dead 17 min, nb  
FF nb, nb

Dst #2 3700-3725 (LKC C) 30 30 30 30 IF:23-109 FF:111-150 SI:834-825  
Rec Total Fluid 290' 50' MW w/Opts (30 52W 45M) 240' MCW w/Opts (trcO 80W 20M)  
IF blow built 10', nb FF blow built 9', nb

Dst #3 3736-3756 (LKC E-F) 30 30 30 30 IF:21-25 FF:24-29 SI:602-294  
Rec 10M w/OptsO IF 1/8" built 1/4", nb FF nb, nb

Dst #4 3783-3840 (LKC H-J) 30 45 30 30 IF:22-85 FF:91-117 SI:1057-1011  
Rec Total Fluid 210' 33' WCM w/trcO (trcO 24W 76M) 177' MW w/trcO (trcO 52W 48M)  
IF blow built 6 1/4", nb FF blow built to 4 3/4", nb

Dst #5 3848-3881 (LKC K-L) 30 30 45 90 IF:25-44 FF:47-61 SI:268-239  
Rec Total Fluid 120' 65' GIP 105' CGO (8G 89O 3M) 15' GOCM (15G 24O 61M)  
IF blow built to 8", nb FF blow built to 6", nb

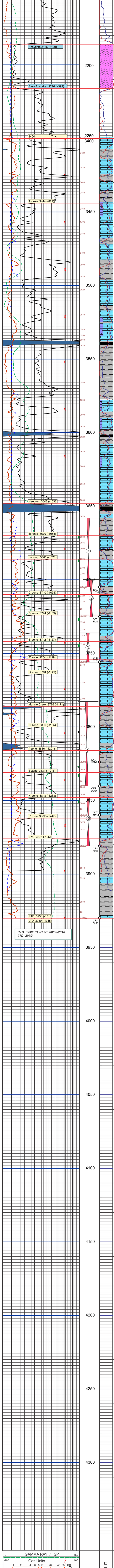
### REMARKS & RECOMMENDATIONS:

The well was structurally high with shows.  
Samples in general were tight with low porosity and  
very secondary cementation. The K zone tested Oil  
with some pressure depletion.

\* Note RTD and LTD were the same. The ROP  
lines up with the log curves & tops.

LAN 7/92, Modified 5/05, 11/11, 4/12, 4/18, 8/18 1inch = 25.4mm 8.5 x 97.5

### LEGEND



DEPTH	LITHOLOGY	SAMPLE DESCRIPTIONS	REMARKS
2150	Anhydrite	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	Spud 7:00 PM 08-24-2018 RTD 11:01 PM 08-30-2018
2218	Base Anhydrite	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	"BIT RECORD" Surface Bit: CH-20, 12-1/4" # cut at 346' Bit No: 1 RR, HTCO DP506 7-7/8" PDC Serial #7161900 in at 346'-out at 3400' Bit No: 2 RR, HTCO GX20C 7-7/8" Serial #5287467 in at 3400'-out at 3940'
3400	Topeka	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	"VERTICAL SURVEYS" 3/4" @ 346' T @ 3881" 3/4" @ 1658" 1/2" @ 3400' 3/4" @ 3705'
3648	Heabner	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	"PUMP DATA" National K-380 Stroke 14", Liner 6" 60 strokes/365 gpm
3670	Toronto	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	"DAILY REPORT" 08-24-2018 - 7:00 PM Drg to 12 1/4" to 346' Set 8-5/8" 23# 8 js set @ 345' 250 sxs 3%CC 2%gel cnc 100 bbl Global Plug down 2:15 AM 08-25-18 Drg plug 11:15 PM 08-25-18
3688	Lansing	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	08-26-2018 - 7:00 AM Drg @ 2,255' 08-27-2018 - 7:00 AM Drg @ 3,440' 08-28-2018 - 7:00 AM C7CH @ 3,258' 08-29-2018 - 7:00 AM TIH @ 3,756' 08-30-2018 - 7:00 AM CFS @ 3,860' 08-31-2018 - 2:30 AM Pioneer LTD @ 3,943 finished -04:45 AM
3712	C' zone	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	Pipe Strap 3425.70 Board 3423.97 Board long 0.27
3784	Muncie Creek	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	Mud Check 4 08/27/18 at 3.483' vis: 57 wt: 8.9 Chlor: 900 LCM: 2# Ph: 11.5 WL: 6.0
3799	H' zone	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	DST (1) 3658-3705 Toronto LKC A 30-30-30-30 IF: weak surf blow, dead 17" IS: no blow FF: no blow FS: no blow Total Rec: 2'M w/trc Oil (trcO, 100M) FP: 22-24 FFP: 24-25 SIP: 39 FSIP: 35 HP: 1778 FHP: 1782 Temp 108 F BHT
3850	K' zone	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	DST (2) 3700-3725 LKC C 30-30-30-30 IF: blow built to 10" IS: no blow back FF: blow built to 9" FS: no blow back Total Rec: 290 ft Fluid, 50' MW w/Opts (30 52W 45M) 240' MCW w/Opts (trcO 80W 20M) FP: 23-109 FFP: 111-150 SIP: 834 FSIP: 825 HP: 1799 FHP: 1769 Temp 110 F BHT Rw: 147 @ 71.2' Chloride 50,000 ppm
3878	BKC	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	Mud Check 5 08/28/18 at 3.720' vis: 43 wt: 9.0 Chlor: 900 LCM: 2# Ph: 11.0 WL: 6.0
3930	RTD	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	DST (3) 3736-3756 LKC E-F 30 30 30 30 IF: 1/8" blow built 1/4" IS: no blow FF: no blow FS: no blow Total Rec: 10 ft Mud w/Oil spks, M (10 99M) FP: 21-25 FFP: 24-29 SIP: 602 FSIP: 294 HP: 1803 FHP: 1801 Temp 103 F BHT
3930	LTD	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	Mud Check 6 08/28/18 at 3.756' vis: 52 wt: 9.0 Chlor: 1000 LCM: 2# Ph: 11.0 WL: 6.0
3930	RTD	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	DST (4) 3783-3840 LKC H-J 30 45 30 60 IF: blow built to 6 1/4" IS: no blow back FF: blow built to 4 3/4" FS: no blow back Total Rec: 210 ft 33' MW w/Opts (trcO 24W 76M) 177' MW w/Opts (trcO 52W 48M) FP: 22-85 FFP: 91-117 SIP: 1057 FSIP: 1011 HP: 1848 FHP: 1842 Temp 106 F BHT Rw: 269 @ 64.4' Clonides 30,000
3930	LTD	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	Mud Check 7 08/30/18 at 3.881' vis: 54 wt: 9.1 Chlor: 1,300 LCM: 2# Ph: 10.5 WL: 6.4
3930	RTD	Sh, md gry, vfn xln, sli dol, bioclast, trc brn chert, n stn, n odor, n sho	DST (5) 3848-3881 LKC K-L 30 45 30 90 IF: blow built to 8" IS: no blow FF: blow built to 6" FS: no blow back Total Rec: 120 ft 65' GIP 105' CGO (8G 89O 3M) 15' GOCM (15G 24O 61M) FP: 25-44 FFP: 47-61 SIP: 268 FSIP: 239 HP: 1907 FHP: 1834 Temp 106 F BHT Grav 34.4'

COMPANY Cobalt Energy, LLC LEASE Slipke Trust "A" #1-24 SW SE NW SW LOCATION 1570' FSL 995' FWL SEC. 24 TWP 6S RGE 26W COUNTY Sheridan STATE Ks

**ELEVATIONS**  
K.B. 2615  
D.F. \_\_\_\_\_  
G.L. 2610  
All measurements from K.B. 2615

