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**GEOLOGIST'S REPORT**  
 DRILLING TIME AND SAMPLE LOG

OPERATOR Cobalt Energy L.L.C.  
 LEASE LMB "A" WELL NO. J-1  
 FIELD \_\_\_\_\_  
 LOCATION 1650' ESL & 660' FEL  
 SEC. 1 TWP. 2S RGE. 28 W  
 COUNTY Decatur STATE Kansas

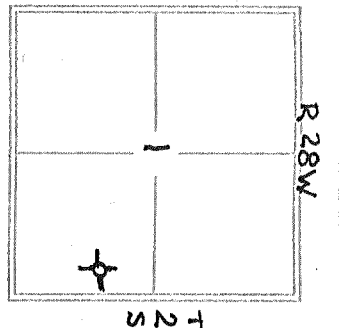
CONTRACTOR Murfin drlgy. Co. Rig 8  
 COMM. 4-12-2013 COMP. 4-18-2013  
 RTD 3650' LOS TO 3647'  
 SAMPLES SAVED FROM 3100' TO RTD  
 DRILLING TIME KEPT FROM 3100' TO RTD  
 SAMPLES EXAMINED FROM 3100' TO RTD  
 GEOLOGICAL SUPERVISION FROM 2900' TO RTD  
 MUD UP 2900' TYPE MUD CHEMICAL

FORMATION	TOP	LCB	DATA	TYP	SAMPLE	RTD	STRUCT.
Anhydrite	2092	+464	2094	+462	+11		
Base Anhydrite	2124	+432	2125	+431	+10		
Topoka	3246	-690	3248	-692	+2		
Heebner	3369	-813	3373	-817	+3		
Lansing	3409	-853	3414	-858	+3		
Stark	3570	-1014	3575	-1019	+4		
Base Kans. Crv	3616	-1060	3619	-1063	+6		

ELEVATION  
 KB 2556'  
 DF \_\_\_\_\_  
 GL 2551'  
 Measurements Are All  
 From K.B.

CASING RECORD  
 SURFACE 8 5/8" @ 220'  
 w/ 175 SX  
 PRODUCTION NONE

ELECTRICAL SURVEYS  
 Pioneer Logging  
 Radiation - Guard



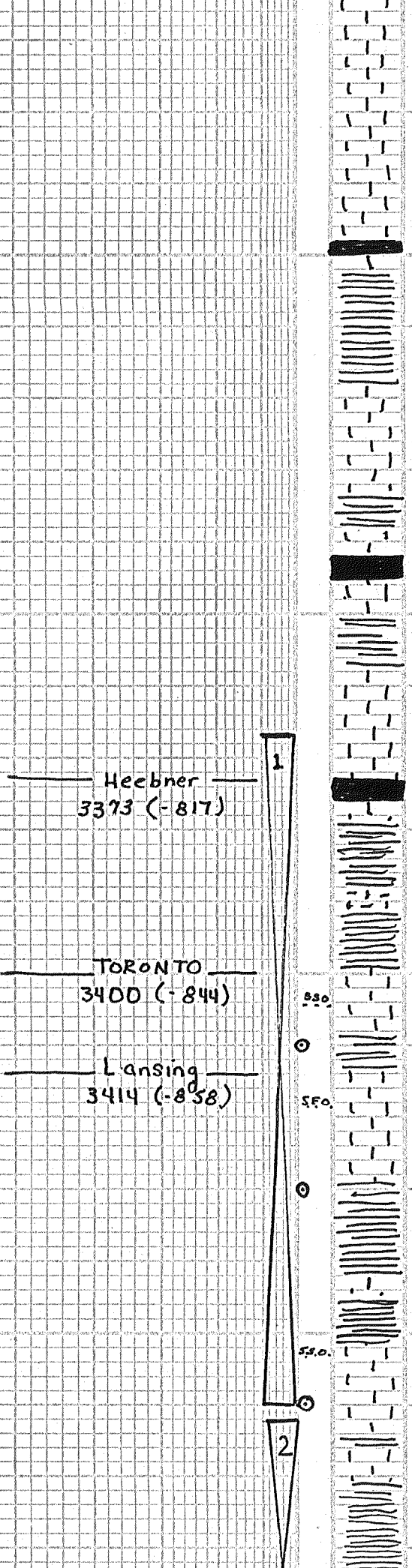
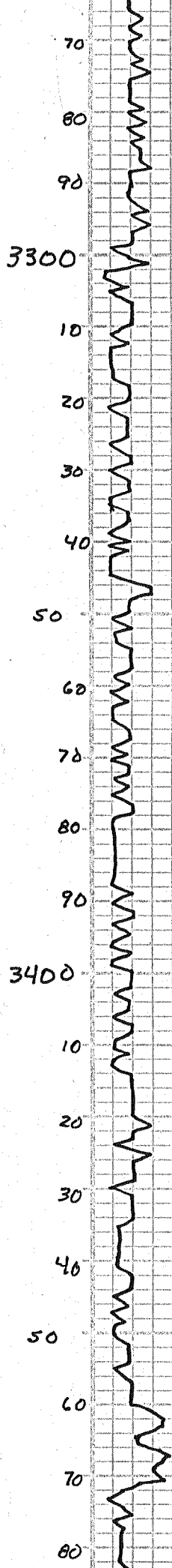
DATE	DEPTH	NO	SIZE	TYPE	DEPTH COR
4-12-13	meter surf Grav	A	12 1/4	5m	FDS RE 220
4-13-13	660' drlg				
4-14-13	2290' drlg	1	7 7/8	HTC	6X 70C 3650
4-15-13	3300' dst-1	2			
4-16-13	3507' dst-2	3			
4-17-13	3575' dst-3+4	4			
4-18-13	3650' E-log	5			

FORMATION	DEPTH	DESCRIPTION OF MUD
TORONTO	3400-3408	Limestone, tan, micro-coalitic, w/ 4-5 pieces w/ med drk brown stn + SFO in fair-poor ool of. No odor.
Lansing 'A'	3418-3421	Limestone, light tan & cream, fn-xln - fass w/ 7-8 pct's w/ med drk brn sat stn + SFO in fr-poor fass of faint odor
Lansing 'd'	3451-3456	Limestone, Cream, fine-xln v-stl-fass w/ 2-3 pct's w/ drk brn stain in poor fass-ppt. No free oil, v-faint odor
Lansing 'e'	3498-3503	Limestone, tan, fn-xln, fass, w/ 5-6 pct's w/ med. brown spt'd sat stn + SFO in fr. pinpoint fass of v-faint odor
Lansing 'H'	3525-3532	Limestone, Cream to Gray, fine-xln - v-stl fass, 2-3 pct's w/ trace poor brn stn in poor fass of, NEO - No odor
Lansing 'J'	3563-3566	Limestone fine-xln, fass, w 3-4-5 pct's w/ drk brn w/ spt'd stn + SFO in poor fass of v-faint odor (cupper-parasitic ls, tan, fn-xln. Sll fass w/ 2-3 pct's w/ spt'd greasy stain in poor fass of
Lansing 'K'	3591-3598	No free oil + No odor

REFERENCE WELL FOR STRUCTURAL COMPARISON Resources Investment No. 1  
 Bryan t se se 1-2S-28W, 2S12 KB







Ls. wh. Crm. fn-xln. SLI  
 foss. pr. p. N.S. V. CHKY

Ls. wh. Crm. fn-xln. SLI  
 foss. CHKY - N.S.

Ls. wh. Crm. SLI foss  
 CHKY - N.S.

sh. black carb

sh. gry-mar

Ls. Crm. fn-xln. v. SLI  
 foss. tight rx. N.S.

Ls. q/a shly - N.S.

Ls. Crm. fn-xln. SLI foss, N.S.

sh. blk carb

Ls. tan-gry - fn-xln. SLI  
 foss. N.S.

SH-GRY-MAR

Ls. Crm. H. tan. fn-xln. - ool  
 w/ scab ool p. N.S.

SH-BLK Carb.  
 fr tan ls. N.S.

sh. GRN-GRY-MAR

sh. Gry-GRY. MAR fr ls

Ls. H. tan. micro. ool, w/ 4-5  
 pc's w/ drk. med brn stn +  
 SFO in fr. pr. ool p. No odor

SH-GRYs

Ls. H. tan - Crm. fn-xln. foss  
 w/ 7-8 pc's w/ drk brn sp'd  
 stn + sat, SFO, + faint odor  
 fr-pr. foss. p.

Ls. Crm. fn-xln + SLI foss.  
 2 pc's w/ stn. NFO, No odor

sh. gry-mar

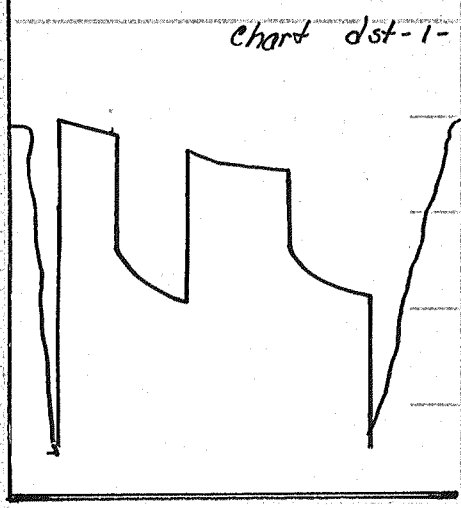
sh. gry-mar

Ls. Crm. fn-xln. v. SLI foss  
 2-3 pc's w/ drk sp'd stn in  
 poor pp. foss. NFO, V. PAINT  
 odor

Ls. Crm. Gry. fn-xln. dse  
 tight rx. N.S.

sh. Gry-mar

**DST NO 1 3367' - 3460'**  
 wk inc. blow 4" - 1st open  
 wk blow 1" 2nd open (No BB)  
 30" 60" 60" 90"  
 Rec: 226' mud w/ oil spots  
 SIP: 1114# → 1078#  
 FP: 48#-102# + 108#-151#  
 HP: 1652# → 1676#  
 T = 96°



**DST-2 3462' - 3507'**  
 wk blow 2" 1st open +  
 v wk blow 1/4" 2nd open  
 30" 60" 60" 90"  
 Rec: 4' Free Oil  
 60' Hocm 40% oil  
 SIP: 81# 77#

Heebner  
3373 (-817)

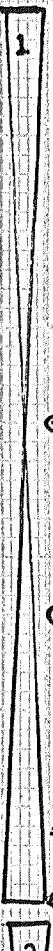
TORONTO  
3400 (-844)

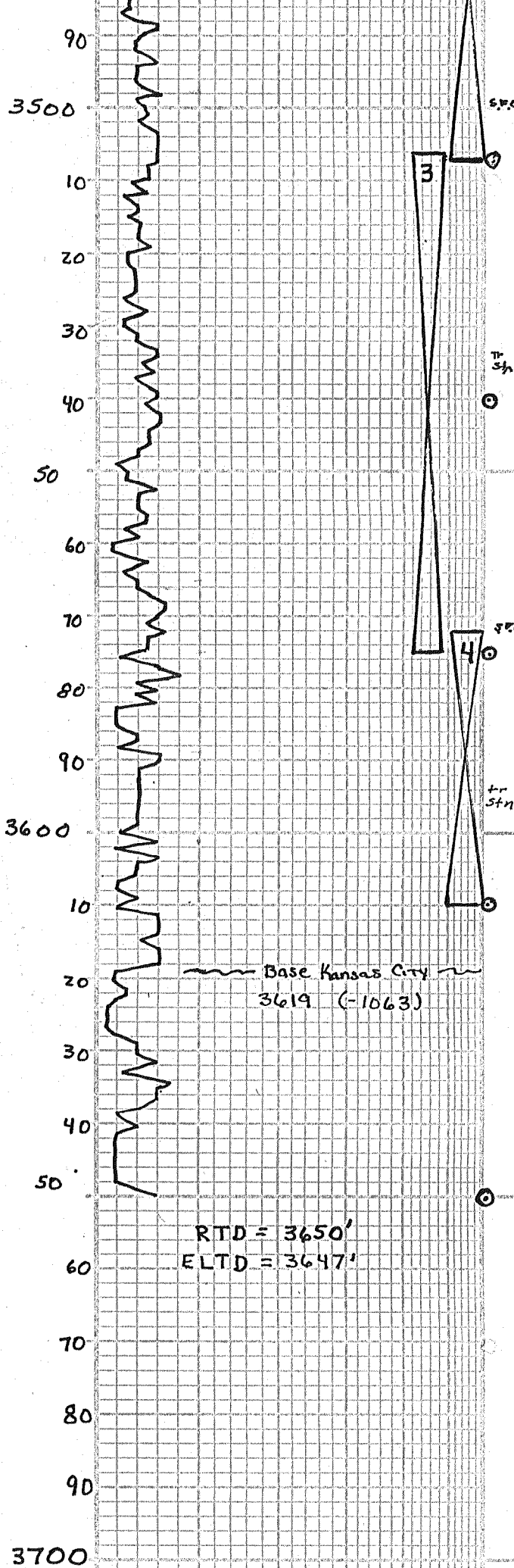
Lansing  
3414 (-858)

SSO

SFO

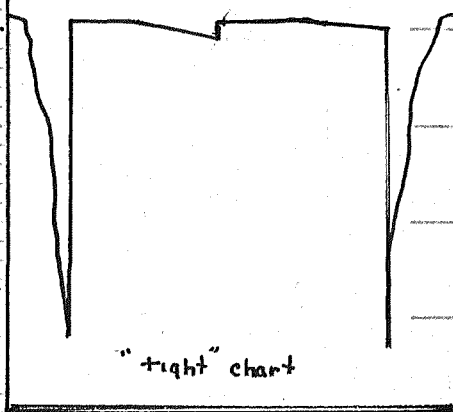
SSO





sh. mar. Gry

SIP: 806 - 77  
 FP: 42-54# + 57-61#  
 HP: 1700# - 1679#  
 DST-2



ls. tan, fn. xln, foss w/  
 5-6 pcs w/ med-drk brn  
 sptd sat in fr pp. foss p  
 SFO faint odor

ls. Crm. fn. xln, foss, less so.  
 inc in xln-dse rx w/ N.S.

sh. mar - GRN.

ls. Crm. fn. xln, sli. foss, 2-3  
 pcs w/ drk oil stn in poor foss  
 p. NFO, No odor.

ls. Crm. Gry, fn. xln. v. sli foss  
 2 pcs w/ pr. stn in poor foss p.  
 mostly tight w/ N.V.P. N.S.

sh. MAR + GRy

sh - MAR + GRy.

**DST NO. 3 3506-3575'**  
 Tool slid 5' + opened early  
 NK blow 1/4" died in 8", surge  
 2nd open. flushed tool surge  
 7 no blow  
 30" 60" 30" 30"  
 Rec: 15' mud w/oil spots  
 SIP: 300# - 129#  
 FP: 64# - 68# + 70# - 73#  
 HP: 1775# - 1731# T = 99°  
 DST No. 3

ls. tan, fn. xln. sli. foss w/ 3-4  
 pcs w/ med brn sptd stn +  
 SFO in sctd foss p. v. faint  
 odor  
 SH - BIK Carb

sh. mar - GRy

sh. mar - GRy

ls. tan, fn. xln, sli foss w/  
 2-3 pcs w/ med brn grsy  
 stn in poor foss p. - NFO -  
 NO odor.

ls. tan - Crm. fn. xln - tight  
 rx., N.V.P. N.S. sli CHKY

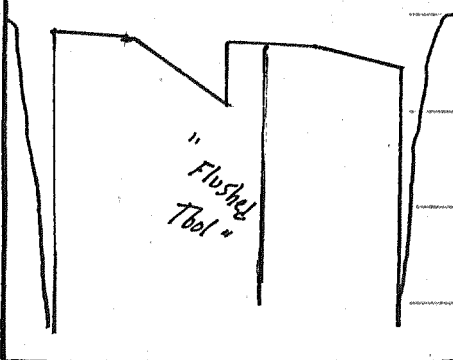
sh. GRy - MAR.

ls. tan - GRy, fn. xln, + tight  
 rx, PR - N.V.P. N.S. sli CHKY

sh. gry - grn. mar. - org a -

ls. lt-tan + Gry, fn. xln-dse  
 tight rx, CHKY. N.S.

sh. - Gry's + mar.



**DST NO. 4 3572-3610'**  
 Tool slid 8' - opened  
 1st open 4 1/2" - 3", 2nd  
 open. surge - NO blow  
 30" 60" 30" 30"  
 Rec: 120 mud w/oil spots  
 SIP: 837# - 521#  
 FP: 88# - 92# + 92# - 95#  
 HP: 1772# - 1756#  
 T = 98°

Base Kansas City  
 3619 (-1063)

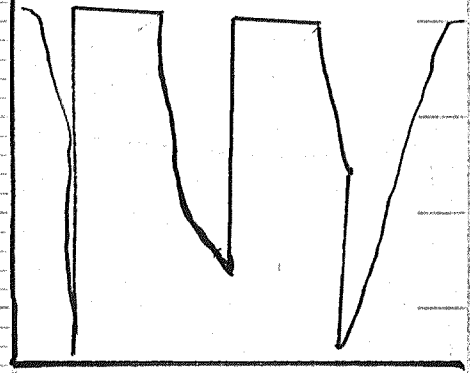
RTD = 3650'  
 ELTD = 3647'

DEPTH 5" 10" 15" 20" 25"  
 DRILLING TIME Minutes/Foot  
 Rate of Penetration Increases

LITHOLOGY

SAMPLE DESCRIPTIONS

REMARKS



COMPANY Cobalt Energy LLC.  
 LEASE LMB "A" 1-1  
 LOCATION 1650' FSL & 660' FEL SEC 1 TWP 2S RNG 28W.  
 COUNTY Decatur STATE Kansas

ELEVATION: 2556 K.B.