ELEVATIONS
KB 3414'
GL 3407'

COMPANY & WELL Cobalt # 1-11 Dawson Trust A
LOCATION 2256' FSL, 884' FWL SW/4
SEC 11 TWSP 14s RGE 37w
COUNTY Logan STATE Kansas

Tim J. Lauer

Petroleum Geologist

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GEOLOGIST'S REPORT

DRILLING TIME AND SAMPLE LOG

COMPANY Cobalt Energy, LLC
LEASE # 1-11 Dawson Trust 'A'
FIELD
LOCATION 2256' FSL, 884' FWL, SW/4
SEC 11 TWSP 14s RGE 37w
COUNTY Logan STATE Kansas

CONTRACTOR Pickrell Drilling Rig #10
SPUD 7-5-2017 COMP 7-16-2017
RTD 5100' LTD 5100'
MUD UP 3530' TYPE MUD Chemical

SAMPLES SAVED FROM 3600' TO RTD
DRILLING TIME KEPT FROM 3600' TO RTD
SAMPLES EXAMINED FROM 3600' TO RTD
GEOLOGICAL SUPERVISION FROM 3535' to RTD
GEOLOGIST ON WELL Tim J. Lauer

ELEVATIONS
KB 3414'
DF
GL 3407'
Measurements Are All From Kelly Bushing

CASING
CONDUCTOR
SURFACE 8-5/8" @ 215'
PRODUCTION

ELECTRICAL SURVEYS
Pioneer OH Stacked Tools
DCPL, DIL, ML, Sonic

FORMATION TOPS	ELECTRIC LOG	SAMPLE LOG
Anhydrite	2697 (+717)	2698 (+716)
Heebner	4073 (-659)	4074 (-660)
Lansing	4129 (-715)	4118 (-704)
Stark	4391 (-977)	4391 (-977)
Marmaton	4520 (-1106)	4530 (-1116)
Fort Scott	4657 (-1243)	4656 (-1242)
Morrow Shale	4829 (-1429)	4829 (-1415)
Mississippian	4920 (-1506)	4922 (-1508)
Total Depth	5030 (-1616)	5030 (-1616)

11

REMARKS
Due to drill stem test results, and log evaluation, operator elected to plug and abandon the well without any further testing.

Respectfully submitted,

Tim J. Lauer
7/17/2017

LEGEND
Anhydrite, Sandstone, Limestone, Shale, Carb Sh, Cherty LS, Chert, Dolomite

LITHOLOGY | DRILL STEM TESTS | DRILLING TIME IN MINUTES PER FOOT (Rate of Penetration Decreases →; 5, 10, 15) | SHOWS | DEPTH | SAMPLE DESCRIPTION | REMARKS

SAMPLE DESCRIPTION

3600

Ls; med.gry, some brn, mott IP, micro-fnxln, most dns, scattd mealy-gran txt, pr por, NS, n. flor, n. stn, n. odor. carrying 30% redbeds (fair spl quality)

Ls; most md-dk.gry, micro-fnxln, dns, scat mealy txt, pr por, NS, n. odor, some drk.gry gritty shale, dirty, still some redbeds.

Sh; drk. vcol, some red-brn, blk, dk.gry, decr redbeds scat Ls; lt-md.gry, micro-fnxln, dns, scat mealy txt, pr por, NS, n. odor.

Ls; lt-md.gry, some tan, micro-fnxln, most dns, scat mealy txt, pr por, NS, n. odor.

Ls; lt-md.gry, some tan, micro-fnxln, most dns, scat mealy txt, pr por, NS, n. odor, shaly IP. drk. (spl quality improving)

Ls; lt-md.gry, micro-fnxln, dns, scat pr por, NS, n. odor.

Sh; drk. vcol, some red-brn, gritty, argill, blk, dk.gry, scat Ls; AA, NS

Ls; crm-gry, micro-fnxln, softer IP, 1/10 mealy, scat IXLN por, NS, n. flor, n. stn, n. odor, some drk vcol Sh; AA.

Sh; drk. vcol, some red-brn, gritty, argill, blk, dk.gry, scat pale grn-gry, scat Ls; AA, NS (spls gd quality, trc redbeds)

Sh; most md-dk gry, incr red-brn, scat blk.

3700

Sh; most md-dk gry, abund red-brn, scat Ls; crm-lt.gry, microxln, dns, NS, n. odor.

Ls; med.gry, crm-gry, scat brn, slite mott IP, micro-fnxln, most dns, scattd mealy-gran txt, pr por, NS, n. flor, n. stn, n. odor.

Ls; bf-tan-gry/brn, sli. mott, micro-mdxln, s. foss, most dns, some softer IP, scat mealy txt, scat IXLN por, NS, n. flor, n. stn, n. odor.

Ls; lt-md.gry, s. mott dk.gry, micro-mdxln, dns, some crm-lt.gry, micro-fnxln, mealy-gran txt IP, scat pr por, NS, n. flor, n. stn, n. odor, some shale, drk.gry, grn-gry, gritty.

Ls; most crm-lt.gry, sli.pyritic, micro-fngrdxln, mealy-gran txt, scat fr IG por, NS, n. flor, n. stn, n. odor.

Ls; gry-md.gry-bf/tan, mott-spkl'd., micro-fngrdxln, scat gran txt, scat pr-occ fr IXLN por, NS, n. flor, n. stn, n. odor.

Sh; most md-dk gry, s. vcol red, blk.

Ls; crm-tan-brn, spkl'd-mott, micro-fngrdxln, argill IP, foss. scat mealy-gran txt, occ pcs w/fr IXLN por, NS, n. flor, n. stn, n. odor.

Sh; most md-dk gry, s. vcol red, blk, grn-gry.

Ls; most crm-tan-lt.brn, sm mott dk.gry, foss, micro-mdxln, 1/4 mealy-gran txt, trc chalk, pr IXLN por, NS, n. flor, n. stn, n. odor, shaly, argill IP.

3800

Ls; crm-tan-lt.brn, mott gry, foss, micro-mdxln, most dns, mealy txt IP, most pr IXLN por, NS, n. flor, n. stn, n. odor, shaly IP. drk. vcol, abund red-brn.

Sh; md-dk gry, vcol red, blk, grn-gry, abund Ls; AA, dns, pr por, NS, n. odor.

Sh; md-dk gry, vcol red, s. pyritic, blk, grn-gry, scat Ls; AA, dns, pr por, NS

Sh; md-dk gry, blk, grn-gry, s.limy IP, dns.

Ls; crm-gry, buff, micro-fnxln, s. foss, most dns, pr por, 1/10 mealy txt, scat ppt & IXLN por, NSFO, abund minrl flor, n. vis stn, n. cut, n. det odor.

Ls; most bf-tan,decr med.gry, vfn-fngrdxln, soft IP, 1/5 sli. gran txt, scat pr IG & IXLN por, occ fr ppt and irreg vug por, NSFO, fr minrl flor, n. oil flor, n. vis stn, n. cut, n. odor.

Ls; bf-tan, md.gry, AA, 1/10 pr-scat fr IXLN, ppt, and trc vug por, NSFO, fr minrl flor, n. oil flor, n. cut, n. stn, n. od.

Ls; bf-tan, med.gry, AA, NS, n. odor.

Sh; md-dk gry, blk, grn-gry, red, brn.

Ls; incr crm-buff, some tan, most micro-fnxln, chalky, soft, incr mealy-gran txt, w/fr IXLN & IG por, NS, n. flor, n. stn.

Ls; tan-buff, some md.gry/brn, vfn-fngrdxln, pr por, few pcs mdgrdxln, gran txt, fr IXLN & IG por, NS, n. flor, n. stn, n. od.

3900

Ls; tan-buff, md.gry/brn, AA, decr fn-mdgrdxln, decr gran txt, decr por, NS, n. flor, n. stn, n. odor

Sh; md-dk gry, blk, grn-gry, red, brn.

Ls; most crm-tan, some buff, micro-fngrdxln, scat chalk, soft, 1/4 mly-gran txt, scat pr IXLN por, NS, n. flor, n. stn.

Ls; most bf-lt.gry, tan-drk.mott gry-brn, micro-mdxln, foss, softer, 1/4 mealy txt, fr IXLN por, scat ppt and irreg vugs, NS, n. flor, n. stn, n. det odor.

Ls; tan-drk.mott gry-brn, incr micro-fnxln, most sharp, dns, pr por, NS, n. flor, n. stn, n. odor.

Ls; most crm-gry, wht, s. mott dk.gry, micro-fngrdxln, 1/4 mealy-gran txt, 1/4 pr IXLN por, NS, scat chlk, crm, micro-fnxln, soft, pr por, NS, n. flor, n. stn, n. odor.

Ls; most crm-lt.gry, scat md.gry, micro-fngrdxln, AA, scatt'd gran txt, few pcs fr-scat gd IXLN por, scat ppt por, trc wht chalk, soft NS, n. flor, n. stn, n. odor.

Sh; lt-md.gry, some dk.gry, vcol, red, blk, grn-gry, some gritty, silty IP.

Sh; lt-md.gry, vcol, red, grn-gry, some gritty, silty IP, few pcs blk.

Sh; lt-md.gry, vcol, AA.

Ls; crm-bf-lt.gry, micro-fngrdxln, 1/4 mealy-gran txt, most pr IXLN por, NS, n. flor, n. stn, n. odor.

4000

Ls; crm-gry, scat buff, micro-fngrdxln, 1/3 mealy-gran txt, sli. softer scat fr IXLN & IG por, NS, n. flor, n. stn, n. odor, scat pcs chalk.

Ls; AA, micro-fngrdxln, 1/3 mealy-gran txt, por AA, NS, n. flor, n. stn, n. odor, trc chalk.

Sh; md-dk.gry, vcol, abund red, few pcs blk, carb.

Ls; bf-tan-gry, scat brn, s. mott, micro-fngrdxln, dns, pr vis por, NS, n. flor, n. stn, n. odor.

Ls; crm-gry-tan, mott lt.brn, micro-fngrdxln, s. foss, mealy-gran txt, 1/2 fr IXLN por, NSFO, n. flor, n. stn, scat wht chalk, soft, NS, trc cht; fresh, NS, (4047 and 20" cfs has n. odor.)

Ls; crm-gry-tan, AA, becom micro-fnxln, decr mealy and gran text, decr por, most dns, NS, n. flor, n. stn, n. odor.

Ls; crm-gry-tan, spkld gry/brn, micro-fngrdxln, foss, subool, mealy-gran txt, 1/2 fr IXLN por, NS, n. flor, n. stn, n. cut, scat chalk, soft, NS, trc cht; crm, fresh, NS, n. odor.

Ls; most tan-lt.brn, mott, micro-fngrdxln, crinkl'd-scat mealy txt, 1/2 fr-gd IXLN por, NS, incr chalk, soft, NS, occ cht; crm, AA, NS, n. flor, n. stn, n. odor.

Sh; md-dk.gry, some blk, carb.
Ls; md.gry-tan, mott dk gry, vfn-fngrdxln, s argill, dns, NS

Sh; md-dk.gry, vcol rd-brn, blk.

Ls; crm-lt.gry, micro-fngrdxln, most dns, pr por, NS, 1/5 mealy-gran txt, pr-fr IXLN, IG por, scat ppt & irreg vugs, 5% S-FSFO NSG, 5% dull-md flor, spkld blk-patchy brn stn, strong flash brn oil cut, incr chalk; wht, soft, few pcs (4 tot) patchy brn oil stn, md flor, gd cut, spls wash wht, n. det odor? (4120 spl)

4100

Ls; crm-lt.gry, micro-fngrdxln, AA, becom dns, decr por, decr IXLN and IG por, sharp IP, scat pcs SSFO, with flor & blk-brn stn AA, gd flash cut, n. detect odor (4130 spl)

Sh; md-dk.gry, incr blk, carb, grn-gry, scat rd-brn.

Ls; buff-crm-lt.gry, micro-occ fngrdxln, s.foss, dns, NS, scat mealy-gran txt, most pr vis por, NS, scat minrl flor, n. cut, n. oil flor, n. stn, occ chert; gry-crm, opaque-transluc, NS. scat chalk, wht, fr IXLN por, NS, n. odor, (4140 spl)

Ls; buff-crm-lt.gry, most micro-vfnxln, dns, sharp IP, decr por NS, scat minrl flor, n. oil flor, n. stn, n. odor, still scat Cht; AA, fresh, n. vis por, few pcs free pyrite. (20" and 40" cfs spls)

Ls; crm-bf, scat tan, micro-mdxln, 1/5 mealy-s gran txt, soft IP, scat fr IXLN por, trc irreg vugs, NSFO, abund minrl flor, n. oil flor, n. stn, n. odor, scat cht; crm-gry, opaq, fresh, NS.

Sh; md-dk.gry, abund blk , red-brn, scat grn.(4180 spl)

(4168-81) Ls; crm-bf, scat tan, spkl'd blk (stn) micro-fngrdxln 1/5 mly-s gran txt, soft IP, scat fr IXLN, ppt and vug por, 5% S-FSFO, (ppt glob) wk flor, spkl'd blk, patchy-sat brn/blk stn, gd ribbon cut, n. odor?, scat cht; crm-gry, opaq, fresh, NS.

(4184-95) Ls; crm-buff-tan, scat brn/blk (stn),micro-fngrdxln, sli. foss, subool, 1/5 mly-gran txt, pr-scat fr IXLN, ppt & vug por, scat pcs S-FSFO (glob-filmy), wk. patchy flor, gd ribbon-flash cut, spkl'd-sat brn stn, dk brn oil in dimple dish, n. odor, chalky IP, NS, scat cht; crm-gry sharp, NS. (15" and 30" cfs)

Ls; crm-buff, w/spkl'd brn/blk (stn), micro-fngrdxln, AA, decr chalk, scat pcs fr IXLN & vug por S-FSFO, trc SGB, flor and stn AA, strong ribbon cut, n. det odor, decr cht, fresh.

4200

Ls; crm-bf, micro-fnxln, scat mealy txt, sli chalky IP, scat vugs and pr IXLN por, NSFO, n. flor, n. stn, n. odor

Ls; crm-bf, micro-fnxln, scat mealy txt, dns, pr por, NSFO, n. flor, n. stn, n. odor, incr Sh; md-dk.gry, blk , rd-brn, scat grn

Sh; md-dk gry, vcol blk, grn-gry, rd-brn.

Ls; crm-gry, some dk.gry, micro-fnxln, s.foss, scat mly-gran txt, softer, scat pcs fr IXLN & vug por, NSFO, n. flor, n. stn, n. det odor (4240 spls)

Ls; crm-gry, some dk.gry, micro-fnxln, AA, foss, scat fr IXLN & isol vug por, trc (3 pcs tot) SSFO (blk, heavy), abund minrl flor, n. oil flor, trc spkld blk stn, n. det odor (4250 spls)

(4241-49) Ls; crm-bf-gry, s. mott dk.gry, scat brn (stn) micro-mdgrdxln, foss, ool, 2/3 dns, 1/3 mly-gran txt, scat pr IXLN & isol vugs, pr ool por, scat pcs (7 tot) SSFO on brk (blk, hvy) abund minrl flor, n. oil flor, few pcs wk cut crush'd only, spkl'd-patchy brn. stn, n. odor, some fresh cht; gry transluc, NS.

(4249-58) Ls; crm-bf-gry, AA, decr ool, decr gran txt, becom dns, most pr vis por, NSFO, n. oil flor, trc pcs w/stn?, n. odor

Ls; crm-md.gry, AA, mealy-gran txt, pr por, trc (3 pcs tot) vug por, SSFO (dk brn, globular, hvy) n. flor? patchy drk stn, gd flash cut w/o brk, n. det odor (4270 and 4278 spls)

Ls; most crm-bf-gry, mott IP, micro-fngrdxln, most dns. 1/3 mly-gran txt, soft IP, scat gd IG, IXLN and vug por, NS, some white chalk, NS, n. flor, n. odor, scat drk.vcol shale.

(4271-78) Ls; crm-bf-gry, mott md.gry/brn, most microxln, dns, NS, 1/4 fn-mdgrdxln, foss, ool, gran txt, dns, scat pcs w/pr IG por, no oolitic por, NS, n. flor, n. stn, scat cht, gry-wht, fresh, opaq, NS, n. odor. (30" and 45" cfs)

(4278-83) Ls; bf-gry-crm, s.mott, micro-fngrdxln, dns, scat mealy txt, pr vis por, NS, n. flor, n. stn, scat cht, gry-wht, foss, fresh, opaq, NS, n. odor.

Ls; crm-md.gry, micro-fnxln, dns, scat mealy txt, pr vis por, NS, abund chalk; crm, soft, fr IXLN por, NS, n. flor, n. stn, scat cht, gry-wht, foss, fresh, opaq, NS, n. odor.

Ls; crm-md.gry-bf, micro-fnxln, AA, becom dns, s. argill IP, OA pr por, NS, n. flor, n. stn, n. odor.

4300

Sh; med-drk gry, blk, carb, red-brn

Sh; md-drk gry, blk, rd-brn, grn-gry, some Ls; gry-brn; micro-fnxln, dns, pr por, NS, n. flor, n. stn, n. odor. (abund Ls slough AA, NS)

Ls; crm-gry, some bf-md.gry, micro-fnxln, most dns, comp, pr vis por, NS, some Cht; gry-crm, opaq-trasluc, fresh, n. por, NS, n. flor, n. stn, n. odor (15" cfs)

(4326-35) Ls; crm-gry, micro-vfnxln, dns, pr vis por, NS, 20% cht; gry-smoky, transluc, sharp, n. por, NS, some chalk; crm,-wht, soft, fr IXLN por, NS, n. flor, n. stn, n. odor. (45" cfs)

Ls; crm-bf, micro-vfnxln, comp, dns, pr por, NS, n. flor, n. stn, n. odor.

Sh; flood blk, carb, red-brn, grn-gry, some Ls; drk.gry-brn, microxln, dns, pr por, NS, trc smokey fresh cht; NS, n. od.

Sh; vcol, AA, blk, rd-brn, grn, dk.gry, pyritic. (4370 spl)

Ls; most bf-gry-dk.gry, 2/3 crm-wht, microxln, comp, dns, n. por, NS, 1/3 gry-tan, mott lt.brn, micro-occ mdxln, sli. foss, scat pr IXLN por, NSFO, n. flor, trc (1 pc) spkl'd stn?, wk cut with crush, n. odor, scat cht; wht, foss, NS. (4370 spl)

Ls; most crm-bf, scat tan, micro-mdgrdxln, s. foss, subool, dns, scat pcs gran-rgh txt, pr vis por, NSFO, n. flor, n. stn, n. odor, trc cht AA, NS (4375 spl)

Ls; tan-lt.gry, s.mott, micro-mdgrdxln, foss ool, dns, pr por, n. oom por, NSFO, scat minrl flor, 2 pcs w/spkl'd blk gilson stn, n. cut, n. odor, scat cht; foss, ool, fresh, NS (15" & 30" cfs)

Ls; tan-lt.gry-brn, AA, foss ool, dns, pr por, NS, n. od (45" cfs)

(4378-88) Ls; crm-tan-brn, micro-crsgrdxln, s.foss, subool, dns at top, 2/3 gran-rgh txt, soft, s. chalky, fr-gd IXLN, ppt & occ vugs, all barren, NS, scat minrl flor, n. cut, n. oil flor, n. stn, n. odor, occ Cht; brn/crm, ool, shrp, NS (15" & 30"cfs)

Ls; crm-tan-brn, micro-fnxln, AA, sharp decr por, NS, n. od.

Sh; blk, carb., trc. red and grn (45" cfs)

Ls; crm-tan, some gry brn, micro-fnxln, dns, pr por, NS, incr Sh, drk, blk, carb, s.vcol red-brn, grn-gry.

4400

(4402-10) Ls; bf-tan-lt.gry, micro-mdgrdxln, foss, subool, 1/4 mly-gran txt, softer, 10% fr-gd IXLN por, some irreg vugs & foss mold por, n. oom por, NS, n. flor, n. stn, n. od. (15" cfs)

(4410-23) Ls; bf-tan-lt.gry, micro-crsgrdxln, foss, subool, 1/5 mealy-gran still10% fr-scat gd IXLN por, scat vugs & foss mold por, NS, n. flor, n. stn, n. odor. (30" cfs) decr mealy-gran txt and por in 45" cfs, NS, n. odor.

Sh, drk, blk, carb, s.vcol red-brn, grn-gry, abund Ls slough AA, NS.

Ls; crm-buff, micro-fnxln, most dns, s. foss, 1/10 fn-occ mdxln, scat pr IXLN por, NS, n. flor, n. stn, n. odor, scat cht; wht, fresh, n. por.

Sh; blk, carb, drk red-brn, dk. gry, some grn-gry, scat Ls; dk.gry-brn, micro-fnxln, dns, dirty, pr por, NS, n. odor.

Ls; bf-gry-tan, micro-fnxln, most dns, 1/4 fn-mdgrdxln, s. foss, mealy-gran txt, scat pr-fr IXLN por, isol vugs, NSFO, n. flor, n. stn, n. odor, scat cht; wht-crm-brn, foss, fresh, opaq-transluc, n.por, NS

Ls; crm-lt.gry, some buff, micro-fnxln, most dns, comp, scat fn-mdxln, pr vis por, NS, n. flor, n. stn, n. odor, incr red-brn and grn-gry shale, dirty, argill, gritty txt IP. (4480 spl)

Ls; crm-gry, some tan, micro-mdxln, ost dns, scat gran-rgh txt, scat pr IXLN por, NS, n. flor, n. stn, n. odor, incr red-brn shale. trc cht; AA, fresh, NS.

Ls; crm-gry, some tan, AA, text and pr AA, NS, n. flor, stn, or odor, incr rd-brn shale (slough) trc cht; AA (30" and 45" cfs)

Ls; crm-gry-tan, micro-occ mdgrdxln, AA, dns, NS, n. odor.

Sh; drk.gry, vcol abund rd-brn, scat grn, gry-grn, blk, scat silty sd; md-dk gry, vfngrd, pr por, NS

Ls; tan-md.gy-brn, micro-fngrdxln, 1/10 mealy-gran txt, dns, pr vis por, NS, n. flor, n. stn, n. odor (no cln sand)

4500

Sh; gry-pl.grn-gry, silstone, gritty, 10% sd; clr-gry, vfngrd, qtz, brittle-friab, pr por, NS, n. flor, stn, or odor, abund Ls slough.

Sh; gry-pl.grn-gry, silstone, gritty, scat sd; clr-gry, vfngrd, qtz, brittle-friab, pr por, NS, n. flor, stn, or odor, abund Ls crm-tan, brn, micro-fngrdxln, dns, pr por, NS.

Sh; drk.gry, vcol abund grn, gry-grn, scat red,brn, gritty IP, decr silty sd; md-dk gry, vfngrd, pr por, NS

Ls crm-bf-tan, micro-fnxln, dns, scat mealy txt, pr por, NS, n. flor, n. stn, n. odor, abund Sh; drk.gry, vcol AA (slough?)

Ls; bf-tan, some gry-brn, s.mott, cryto-fnxln, 1/2 comp, sharp, n. por, NS, 1/2 mealy-occ gran txt, s. foss, most dns, OA pr IXLN por, NS, n. flor, n. stn, n. odor, trc smoky cht (4550 and 4560 spls)

Sh; drk.gry, blk, carb dk.grn-gry, rd-brn, gritty. (4568 spl)

(4553-62) Ls; crm-gry-brn, mott IP, micro-crsgrdxln, s. foss, subool, most dns, pr por, scat pcs fr IXLN por, scat fr ppt and vug por NSFO, n. flor, trc pcs (4 tot) poss stn?, n. cut, incr chalk; wht, soft, fr IXLN por, NS, n. odor (15" and 30" cfs)

Sh; dk.gry, blk, carb, grn-gry, rd-brn, AA (30" & 45" cfs)

Ls; crm-gry, scat brn, micro-crsgrdxln, s.foss, subool, most dns, 1/5 mly-gran txt, scat pcs fr IXLN por, pr ppt & trc vug por, NSFO, scat minrl. flor, trc pcs poss stn?, n. cut, n. odor (4588 spl)

Sh; dk.gry, blk, carb, grn-gry, rd-brn (15" cfs)

Sh; drk.gry, rd, grn-gry, blk, abund Ls; crm-gry-bf, micro-fnxln, argill IP, dns, pr por, NS, n. flor, n. stn, n. odor (30" & 45" cfs)

Ls; tan-gry-md.gry, micro-mdgrdxln, s. foss, pelloids, most comp, pr vis por, NS, 1/4 gran-rgh txt, scat fr IXLN and IG por, NSFO, n. flor, n. odor, trc pcs. sptd stn?, n. cut (4609 spl)

4600

Ls; bf, tan, gry, most micro-fnxln, crinkl'd-s. mealy txt, dns, pr vis por, NS, n. oil flor, n. stn, n. odor in any circ spls

Ls; bf-gry-tan, incr dk.gry, fn-mdgrdxln, pr por, NS, some crm, micro-fnxln, dns, pr por, NS, n. flor, n. stn, n. odor. (45' cfs)

Sh; md-drk.gry, flood blk, carb., scat red, scat Cht; blk-smokey, transluc, fresh, n. por, NS. (4630 spl)

Sh; drk, AA, flood blk, carb (4640 spl)

Ls; md-dk.gry, vfn-fnxln, dns, comp, pr por, mly txt, NS, some crm-gry, micro-fnxln, pr por, NS, n. stn, n. odor, (4640 spl)

Ls; most md-dk.gry AA, dns, pr vis por, NS, incr buff-tan, micro-fngrdxln, s. foss, subool, mly-sli gran txt, scat pcs pr IXLN por, NSFO, n. flor, n. stn, n. odor. (4650 spl)

Ls; crm-bf-sm lt.gry, micro-mdgrdxln, v. foss, ool, dns, sharp IP, 1/5 mealy-gran txt, scat IG and ppt por, NSFO, n. flor, n. stn, n. odor (4660 spl)

Sh; drk, flood rd-brn, grn, dk.grn-gry, blk, carb IP (20" cfs)

Ls; bf-tan, mott md-dk.gry, micro-mdgrdxln, foss, subool, dns, scat mealy-gran txt, scat pr-fr IXLN por, n. oom por, NSFO, n. flor, n. stn?, n. odor (40" and 60" cfs)

Ls; bf-tan-brn, micro-mdgrdxln, foss, ool, dns, scat mly-gran txt, scat pr-fr IXLN por, n. oom por, NS, n. flor, n. stn, n. odor

Sh; md-drk.gry, abund blk, vcol. grn-gry, red-brn

Ls; bf-tan, mott dk.gry, micro-fngrdxln, foss, ool, OA gran-rgh txt, scat pcs pr IXLN por, n. ool por, NS, n. flor, n. stn, n. odor

Ls; crm-bf-brn, mott dk.gry, crypto-mdgrdxln, foss, ool, mly-grn txt, NSFO, n. flor, n. stn, n. odor, scat cht; tan-gry-smoky, fresh, transluc, pr por, NS, some vcol sh, trc pyrite (4700 & 4710 spls)

Sh; md-dk.gry, blk, grn-gry, rd-brn

4700

Ls; most crm-gry-dk.gry, mott, micro-mdgrdxln, dns, foss, ool, some brn, vfnxln, dns, scat pr IXLN por, NS, n. flor, n. stn, n. odor, scat cht, gry, smokey, transluc-opaq, foss, fresh, NS, shaly IP, blk, carb (4720 spl)

Ls; crm-gry-dk.gry, mott, micro-mdgrdxln, dns, foss, incr ool, scat pr IXLN por, n. ool por, NS, n. flor, n. stn, n. odor, scat cht, gry, AA, NS.

Sh; md-dk.gry, flood blk, vcol. grn-gry, rd-brn

Sh; drk, vcol AA, scat Ls; md-dk.gry, micro-fnxln, s. foss, dns, pr por, NS, n. flor, n. stn, n. odor.

Ls; md-dk.gry, some brn, micro-fnxln, foss, dns, s. mly txt, pr por, NS, n. flor, n. stn, abund shale; dk.vcol, blk, carb, AA.

Ls; most crm-lt.gry, some tan, s. mott, micro-fnxln, dns, mly txt IP, pr vis por, trc (1pc) SSFO, (blk,microdrops) fr ribbon cut w/o brk, n. flor?, n. stn in dry, n. odor (4760 spl) abund drk shale vcol, rd, blk, scat grn

Ls; most crm-lt.gry, tan, micro-mdxln, foss, ool, most dns, mealy-rgh txt, pr vis por, NS, n. flor, n. stn, n. odor, abund dk shale vcol, AA.

Sh; dk, strong vcol, rd, blk, grn-gry, some Ls; bf-gry-md gry, micro-fnxln, pr por, NS, n. flor, n. stn, n. odor, few pcs cht; tan-gry-smoky, transluc, fresh, NS (4780 spl)

Ls; most bf-tan-lt.gry, micro-fnxln, dns, foss, ool, most dns, scat mly txt, pr vis por, NS, n. flor, n. stn, n. odor. scat cht; AA, fresh, foss, NS, abund drk vcol shales AA.

Sh; drk.gry, incr blk, carb, red, grn., some Ls; bf-tan, AA, microxln, dns, NS, n. odor.

Ls; 1/2 gry-tan, mott brn, micro-mdxln, AA, scat mly-gran txt, pr por, NS 1/2 crm-gry, micro-fnxln, pr IXLN por, NS, n. flor, n. stn, n. od, abund dk vcol Sh, AA, scat smoky cht; fresh, NS.

4800

Ls; 2/3 crm-md.gry, micro-fnxln, dns, pr por, NS, 1/3 lt.gry, occ dk minrl inclusions, vfn-occ mdgrdxln, s. foss, subool, dns, scat mly txt w/pr IXLN por, NS, in. flor, n. stn, n. odor. (4820 spl)

Ls; most gry-tan-brn, mott, micro-mdxln, AA, mealy-gran txt IP, pr por, NSFO, n. flor, n. vis stn, n. det odor, scat cht; gry, ftransluc, fresh, NS

Ls; crm-gry-md.gry, spkl'd dk.gry (minrl inclusions), micro-fnxln, mostly dns, comp, NS, scat mealy txt, s. foss, ool, OA pr IXLN por, NS, n. flor, n. stn, n. odor.

Sh; drk, AA, blk, red-brn, grn, drk. gry. (4850 spl)

Ls; crm-md.gry, micro-fnxln, dns, comp, pr por, NS, some gry-brn, vfn-mdxln, s. foss, dns, scat mealy txt, pr vis por, NS, n. flor, n. stn, n. odor, scat cht; AA, fresh, NS.

Sh; dk.gry, blk, vcol grn-gry, incr lt.grn-md.grn, silty-occ gritty txt, 10% Sd; clr, crm, lt.gry, vfn-mdgrd, s.glauc, pr sort, subrdd-rdd qtzose, soft, friab, fr IG por, NS, n. flor, n. vis stn, n. odor

Sh; drk, blk, vcol, most grn-gry, lt.grn-md.grn, silty-gritty text, scat dirty Sd; gry, silty-fngrd, argill, pr por, NS, some cln Sd; AA, fr IG por, n. flor, n. stn, n. odor (4870 spl)

Shly Sd; crm-clr-lt.gry, vfn-fngrd, subang-subrdd, mod sorted, sli. glauc qtz, brittle to most friab, fr-gd IG por, NSFO, n. flor, n. vis stn, n. cut, n. odor (4880 spl) abund vcol shales.

Sd; most clear, some crm-lt.gry, vfn-mdgrd, ang-subang, mod sort, s. glauc qtz, brittle-friab, fr-gd IG por, NSFO, n. flor, n. vis stn, n. cut, n. odor, decr shale, incr sand (4890 spl)

Ls; tan-gry, microxln, dns, comp, pr vis por, NS, sharp decr sand, OA n. flor, n. stn, n. odor (4900 spl)

Sh; drk, blk, carb, vcol rd, abund grn, scat Ls; crm, gry-md. gry, micro-mdgrdxln, dns, NS, n. flor, n. stn, no odor, scat reworked limy Sd; crm-gry-blk-grn, glauc, dns, pr IG por, NS, some pyrite (4910 spl)

4900

Sh; most md-dk.gry, AA, scat brite grn, some blk, carb, no clean sd, n. odor, some Ls; tan-brn microxln, dns, NS. (4920 spl not caught, intervl covered in 4930 spl)

(4909-15) Sd; wht-clear, vfn-mdgrd qtz, sucr-gran txt, most subang-subrdd, fair sort, cln, friab, gd IG por, NSFO, n. flor, n. stn, no det. odor, some crs free qtz grns , (4930 spl)

(4915-20) Sd; wht-clr, spkld grn (glauc), fn-crsgrd, gran txt ang-subrdd, pr sort, glassy IP, trc (1 pcs) SSFO (hvy, blk, tarry) fr slow ribbon cut, n. stn in dry, n. odor, scat vcrsgrd free qtz, NS? (4930 and 15" cfs)

(4922-30) Sdy Ls, crm-lt.gry-tan, sdy, fn-mdgrd, most dns, occ spks glauc, sucr txt, most pr IG por, NS, n. flor, n. stn, n. odor in any circ spls. (30", 45" and 60" cfs)

(4930-42) Sdy Ls; crm-gry-lt.tan, vfn-fngrdxln, most dns, sli. foss, pr por, NS, n. flor, n. stn, n. odor. (incr Mrw Sh slough)

Sdy Ls; crm-gry-lt.tan, vfn-fngrdxln,most dns, s. foss, pr por, NS, scat Cht, gry, transluc, fresh, n. por, NS, OA n. flor, n. stn, n. odor. (abund Mrw Shale slough)

Sdy Ls; crm-gry-lt.tan, vfn-fngrdxln, AA, s. foss, pr por, NS, n. flor, n. stn, n. odor. trc Cht, gry, AA, NS

Sdy Ls; crm-gry-lt.tan, fn-mdgrdxln, AA, foss, pr por, NS, n. flor, n. stn, n. odor.

Sdy Ls; crm-gry-lt.tan, fn-mdgrdxln, AA, NS, n. odor (decr Mrw Sh slough)

Sdy Ls; crm-gry-tan, AA, becom micro-fngrdxln, s. foss, pr por, NS, n. flor, n. stn, n. odor.

Sdy Ls; crm-gry-tan, micro-fngrdxln, AA, s. foss, pr por, NS, n. flor, n. stn, n. odor.

5000

Ls; crm-buff-tan, micro-fngrdxln, less Sdy, becom comp IP, pr vis por, NS, n. flor, n. stn, n. odor.

Sdy Ls; crm-buff-tan, micro-mdgrdxln, AA, s. foss, pr por, NS, n. flor, n. stn, n. odor.

Sdy Ls; crm-buff-tan, micro-mdgrdxln, AA, pr por, NS, n. flor, n. stn, n. odor.

5100

REMARKS

SPUD 7:30 PM 7-5-2017
RTD 8:00 PM 7-15-2017

"BIT RECORD"
1.) JZ HA21Q (New)
Under Surface to 5030'

"VERTICAL SURVEYS"

3/4°	@	222'
3/4°	@	735'
1/2°	@	1265'
1/4°	@	1765'
3/4°	@	2265'
1°	@	2921'
1 1/2°	@	4141'
1 1/4°	@	5030'

7-5-2017 - MIRT, RURT
7-6-2017 - 7:00 AM PTD @ 222' WOC set 8-5/8"@ 215'
7-7-2017 - 7:00 AM Drlg @ 1421'
7-8-2017 - 7:00 AM Drlg @ 2430'
7-9-2017 - 7:00 AM Drlg @ 3190'
7-10-2017 - 7:00 AM Drlg @ 3720'
7-11-2017 - 7:00 AM CFS @ 4141' Prep to COOH for DST(1)
7-12-2017 - 7:00 AM Drlg @ 4210'
7-13-2017 - 7:00 AM CFS @ 4335'
7-14-2017 - 7:00 AM Drlg @ 4602'
7-15-2017 - 7:00 AM Drlg @ 4866'
7-16-2017 - 7:00 AM RTD @ 5030' Ran Pioneer OH Logs
7-16-2017 - 2:00 PM RTD @ 5030' Plugged and Abandon well

Call Point 3400'
1:00 PM 7-9-2017
Geologist on location 3535'
8:15 PM 7-9-2017

Displace & begin mud-up 3520

Mud Check at 3749: vis: 67 wt: 8.7 Chlor: 3,500 LCM: 2# Ph:11.5 WL: 8.0

Rig Check: vis: 65 wt: 9.0 LCM: 1#

35 Stand Short Trip at 4047' drug 10-30K over on first 3 stands

Mud Check at 4141 before DST: vis: 68 wt: 9.0 Chlor: 5,000 LCM: 2# Ph: 10.5 WL: 8.8

15 Stand Short Trip at 4141' drug 20-50K over on first 4 stands

Pipe Strap on DST (1)
Board: 4141.18'
Strap: 4141.81'
Diff: 0.63' long

DST (1) 4072'- 4141'
30-45-45-60
Blow: strong, BoB in 2" on IFP, no blowback on ISIP; strong, BoB in 3" on FFP, no blowback on FSIP

325' MCW (0% gas, 0% oil, 40% mud, 60% wtr)
310' SMCW (0% gas, 0% oil, 10% mud, 90% wtr)
1,302' SW (0% gas, 0% oil, 0% mud, 100% wtr)
1,937' Total Fluid

IHP: 2060 FFP: 536-849
IFP: 249-525 FSIP: 1101
ISIP: 1096 FHP: 1962
Temp: 123°F

Chlorides MUD: 5,000 PPM
DST: 28,000 PPM

Rw = 0.16 Ohms @ 105°F

Both Shut-in curves broken over

Rig Check: vis: 64 wt: 8.9 LCM: 1#

DST (2) 4141'- 4278'
30-45-45-60
Blow: strong, BoB in 1" on IFP, no blowback on ISIP; strong, BoB in 2" on FFP, no blowback on FSIP

434' WCM (0% gas, 0% oil, 60% mud, 40% wtr)
310' MCW (0% gas, 0% oil, 50% mud, 50% wtr)
310' MCW (0% gas, 0% oil, 10% mud, 90% wtr)
1,488' SW (0% gas, 0% oil, 0% mud, 100% wtr)
2,542' Total Fluid

IHP: 2066 FFP: 912-1183
IFP: 295-900 FSIP: 1206
ISIP: 1202 FHP: 1983
Temp: 123°F

Chlorides MUD: 5,000 PPM
DST: 27,000 PPM

Rw = 0.22 Ohms @ 85°F

Both Shut-in curves broken over

Mud Check at 4234: vis: 66 wt: 9.0 Chlor: 6,000 LCM: 2# Ph: 11.0 WL: 8.0

Rig Check: vis: 70 wt: 8.9 LCM: 1#

Rig Check: vis: 55 wt: 9.0 LCM: 1#

Mud Check at 4395: vis: 54 wt: 9.1 Chlor: 5,000 LCM: 2# Ph: 11.0 WL: 7.2

Rig Check: vis: 50 wt: 9.0 LCM: 1#

Rig Check: vis: 61 wt: 9.2 LCM: 1#

Rig Check: vis: 62 wt: 9.3 LCM: 1#

Rig Check: vis: 63 wt: 9.1 LCM: 2#

Reduce Pump pressure to 700-750#

Rig Check: vis: 70 wt: 9.3 LCM: 1#

Rig Check: vis: 56 wt: 9.4 LCM: 1#

pump pressure 700-750#
good spl quality

Rig Check: vis: 56 wt: 9.3 LCM: 1#

pump pressure 700-750#
good spl quality

Mud Check at 4893: vis: 67 wt: 9.3 Chlor: 6,400 LCM: 2# Ph: 10.0 WL: 8.8

Rig Check: vis: 68 wt: 9.3 LCM: 2#

At 4940 added 2 points
Drilling with 38K bit weight.

pump pressure 700# - fair spl quality
Mrw slough greater than 60% shale (red, grn, drk platy gry, blk)

Mrw slough appx 50% shale

Rig Check: vis: 60 wt: 9.4 LCM: 1#

Mrw slough appx 50% shale

5030' RTD reached
8:00 P.M. 7-15-2017

COMPANY & WELL Cobalt #1-11 Dawson Trust 'A'
LOCATION 2256' FSL, 884' FWL, SW/4
SEC 11 TWSP 14s RGE 37w
COUNTY Logan STATE Kansas
ELEVATIONS
KB 3414'
GL 3407'

Chart for DST (1) Toronto - Lansing A zones

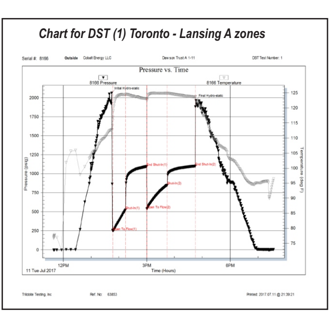
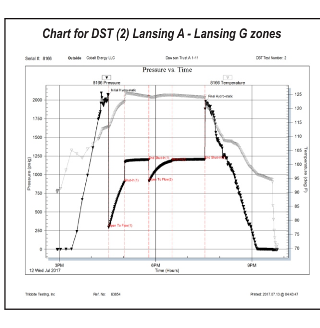
Chart for DST (2) Lansing A - Lansing G zones