

OPERATOR

Company: BLACK DIAMOND OIL, INC.
 Address: P.O. BOX 641
 HAYS, KS 67601

Contact Geologist: KENNETH VEHIGE
 Contact Phone Nbr: (785) 625-5891
 Well Name: SAMMONS #5
 Location: NE NW NW NE Sec. 32 - 6S - 20W API: 15-163-24148-00-00
 Pool: Field: TODD SOUTHWEST
 State: KANSAS Country: USA

Scale 1:240 Imperial

Well Name: SAMMONS #5
 Surface Location: NE NW NW NE Sec. 32 - 6S - 20W
 Bottom Location: API: 15-163-24148-00-00
 License Number: 7076
 Spud Date: 10/21/2013 Time: 3:15 AM
 Region: ROOKS COUNTY, KS
 Drilling Completed: 10/30/2013 Time: 5:25 AM
 Surface Coordinates: 100' FNL & 2000' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 2230.00ft
 K.B. Elevation: 2235.00ft
 Logged Interval: 0.00ft To: 0.00ft
 Total Depth: 3760.00ft
 Formation: LANSING - KANSAS CITY
 Drilling Fluid Type: FRESH WATER / CHEMICAL GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.5722765 Latitude: 39.4952017
 N/S Co-ord: 100' FNL
 E/W Co-ord: 2000' FEL

LOGGED BY

Company: SOLUTIONS CONSULTING, INC.
 Address: 108 W 35TH
 HAYS, KS 67601

Phone Nbr: (785)259-3737
 Logged By: Geologist Name: JEFF LAWLER

CONTRACTOR

Contractor: WW DRILLING, LLC
 Rig #: 6
 Rig Type: MUD ROTARY
 Spud Date: 10/21/2013 Time: 3:15 AM
 TD Date: 10/30/2013 Time: 5:25 AM
 Rig Release: Time:

ELEVATIONS

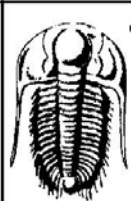
K.B. Elevation: 2235.00ft Ground Elevation: 2230.00ft
 K.B. to Ground: 5.00ft

NOTES

WELL COMPARISON SHEET

FORMATION	SAMMONS #5				SAMMONS #1				SAMMONS #2				SAMMONS #4				MCCLURG #2			
	W2 NW NE 32-6-20				S2 S2 SE 29-6-20				SW SW SE 29-6-20				NW SENW 32-6-20							
	KB	2235	GL	2230	KB	2238	LOG	SAMPL.	KB	2247	LOG	SAMPL.	KB	2266	LOG	SAMPL.	KB	2222	LOG	SAMPL.
	LOG TOPS	SAMPLE TOPS	COMP. CARD	LOG	SAMPL.	COMP. CARD	LOG	SAMPL.	COMP. CARD	LOG	SAMPL.	COMP. CARD	LOG	SAMPL.	COMP. CARD	LOG	SAMPL.			
ANHYDRITE TOP			1832	403	1836	402		+ 1	1847	400		+ 3	1868	398		+ 5	1822	400		+ 3
BASE			1865	370	1868	370		+ 0	1880	367		+ 3					1855	367		+ 3
TOPEKA			3219	-984	3222	-984		+ 0	3227	-980		- 4	3259	-993		+ 9	3214	-992		+ 8
HEEBNER SHALE			3423	-1188	3433	-1195		+ 7	3434	-1187		- 1	3464	-1198		+ 10	3426	-1204		+ 16
TORONTO			3446	-1211	3456	-1218		+ 7	3456	-1209		- 2	3486	-1220		+ 9	3449	-1227		+ 16
LKC			3463	-1228	3470	-1232		+ 4	3471	-1224		- 4	3500	-1234		+ 6	3463	-1241		+ 13
BKC			3654	-1419	3666	-1428		+ 9	3664	-1417		- 2	3695	-1429		+ 10	3658	-1436		+ 17
MARMATON			3673	-1438	3690	-1452		+ 14	3685	-1438		+ 0					3681	-1459		+ 21
CONGLOMERATE									3703	-1456							3700	-1478		
ARBUCKLE			3684	-1449	3705	-1467		+ 18	3714	-1467		+ 18	3739	-1473		+ 24	3713	-1491		+ 42
TOTAL DEPTH			3760	-1525	3757	-1519		- 6	3726	-1479		- 46	3776	-1510		- 15	3740	-1518		- 7

DST #1 LKC E - G 3520' - 3556'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Black Diamond Inc Inc **32-6s-20wRooks**
 PO Box 641 **Sammons #5**
 Hays Ks 67601-0641 Job Ticket: 54363 **DST#: 1**
 ATTN: Ken Vehige, Jeff Law Test Start: 2013.10.29 @ 08:55:57

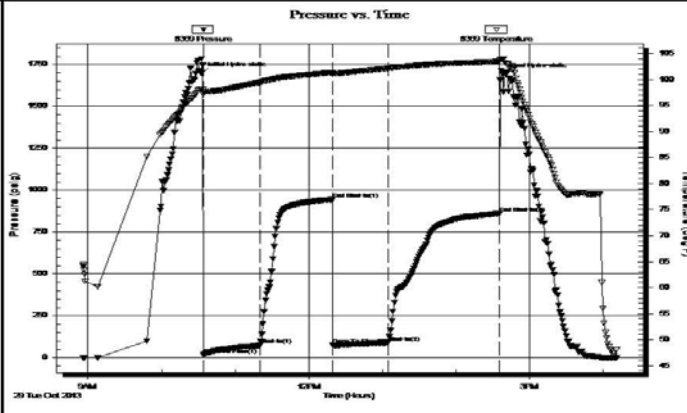
GENERAL INFORMATION:

Formation: **LKC E-G**
 Deviated: No Whipstock: ft (KB) Test Type: Conventional Bottom Hole (Reset)
 Time Tool Opened: 10:34:07 Tester: Ray Schwager
 Time Test Ended: 16:11:21 Unit No: 70
 Interval: **3520.00 ft (KB) To 3556.00 ft (KB) (TVD)** Reference Elevations: 2235.00 ft (KB)
 Total Depth: 3556.00 ft (KB) (TVD) 2230.00 ft (CF)
 Hole Diameter: 7.85 inches Hole Condition: Fair KB to GR/CF: 5.00 ft

Serial #: 8369 Inside

Press@RunDepth: 89.04 psig @ 3528.00 ft (KB) Capacity: 8000.00 psig
 Start Date: 2013.10.29 End Date: 2013.10.29 Last Calib.: 2013.10.29
 Start Time: 08:55:57 End Time: 16:11:21 Time On Btm: 2013.10.29 @ 10:32:22
 Time Off Btm: 2013.10.29 @ 14:38:06

TEST COMMENT: 45-IFP-w k to a gd bl 1/2"to 6 1/2"bl
 60-ISIP-no bl
 45-FFP-w k to a fr bl 1/4"to 5"bl
 90-FSP-no bl



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1698.42	98.17	Initial Hydro-static
2	17.02	97.12	Open To Flow (1)
48	74.26	99.45	Shut-In(1)
107	944.39	101.32	End Shut-In(1)
107	77.11	101.01	Open To Flow (2)
152	89.04	102.12	Shut-In(2)
243	861.61	103.45	End Shut-In(2)
246	1692.14	104.00	Final Hydro-static

Length (ft)	Description	Volume (bbl)
0.00	125'GIP	0.00
60.00	O&GCM 10%G20%O70%M	0.30
65.00	HO&GCM 10%G30%O60%M	0.37
50.00	OO	0.70

Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)

ROCK TYPES

▲▲▲▲▲ Cht ■■■■■ Carbon Sh ■■■■■ shale, red

ACCESSORIES

MINERAL

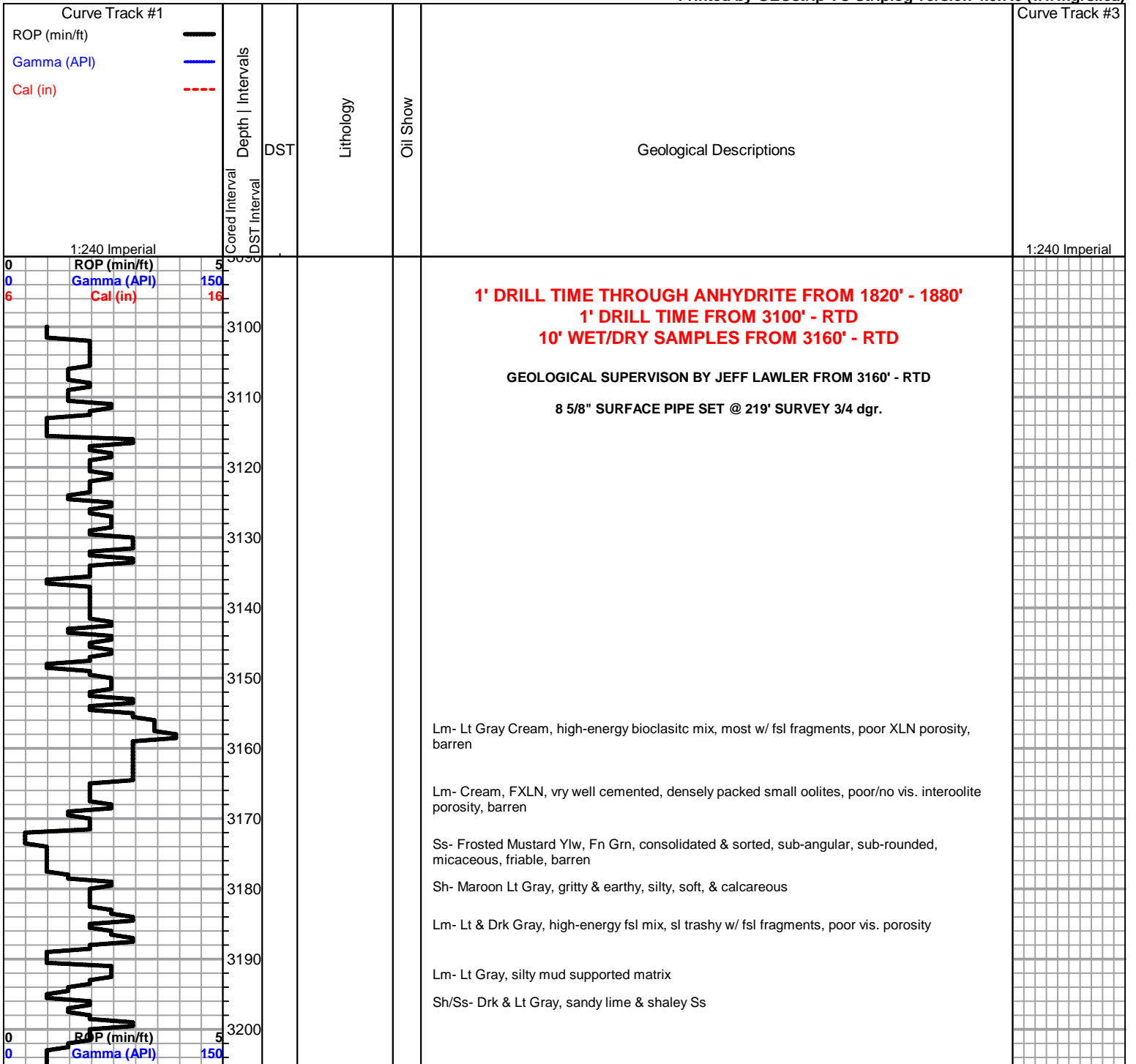
• Sandy

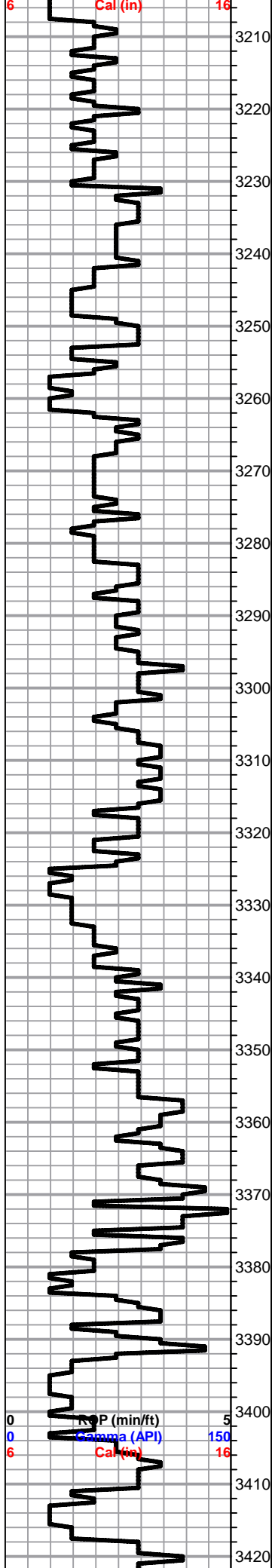
OTHER SYMBOLS

DST

■ DST Int
■ DST alt

Printed by GEOstrip VC Striplog version 4.0.7.0 (www.grsi.ca)





Sh/Ss- Lt Gray, gritty, calcareous, heavily speckled

TOPEKA 3219' (-984) E-LOG Lm- Cream, VFXLN Vf Grn, dense, well cemented, tight w/ no vis./micro XLN porosity, lithographic, vry clean, barren

Lm- Lt Gray, FXLN, fsl high-energy bioclastic, mix, few large loose crinoids, poor to sctrd XLN porosity, barren

Lm- Cream White, mix of VFXLN, dense, vry well cemented, sub-sucrosic dolomitic ls, poor vis. porosity, mostly all barren, 1 PCS W/ WK SPOTTY STN, NO SFO, ODR, & soft mud supported matrix, sl fsl, much soft white chalk

Lm- Lt Gray Cream, fsl mix of oolitic FXLN, dense, loosely cemented, sl chalky in part w/ dense micro XLN & XLN porosity, some heavily mottled bio-clastic w/ fsl fragments, 2-3 PCS OF DOLOMITIC LS A/A W/ HVY DRK STN, TR FO, NO ODR

Lm- Cream Lt Gray, mix of densely packed oolitic biomicrite, poorly dev. w/ micro XLN & XLN porosity, some sctrd crse XLN secondary porosity, barren, & trashy high-energy bioclastic VF-FXLN lt gray ls

Sh- Lt Gray Lm Green Black, dense, sl sandy shale, some calcareous lime, few pcs of black fissile carbonaceous

Lm- Cream Off White, VF-FXLN, dense, vry well cemented, sl fsl & poorly dev., few small interbedded fusulinids, mostly tight w/ poor vis. porosity, vry clean, barren

Chert- Smokey White Smokey Gray Tan, CryptoXLN, vitreous chert & fsl chert, all sharp angular & fresh bedded

Lm- Cream Off White, VF-FXLN Vf Grn, dense, mostly all well cemented, few sl fsl, tight w/ minimal vis. porosity, clean, barren

Lm- Cream Tan, FXLN, dense, loosely-well cemented, dense fenestral XLN porosity, barren

Sh-Black Maroon, well compacted, fissile, carbonaceous, sl gritty & earthy

Sh- Lt Gray Lm Green, sl waxy & dense, some sl sandy lime, calcerous, lm green wash

Lm- Cream Tan, Crypto-FXLN, dense, some sl fsl, all tight w/ minimal vis. porosity, vry clean

Lm- Cream Buff, FXLN, dense, well cemented, poorly dev. fsl w/ interbedded fusulinids, poor vis. porosity, barren

Sh- Black Lt Gray, fissile, carbonaceous, sl sandy, silty & calcareous

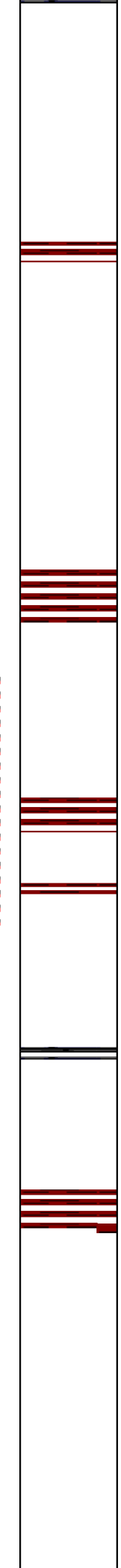
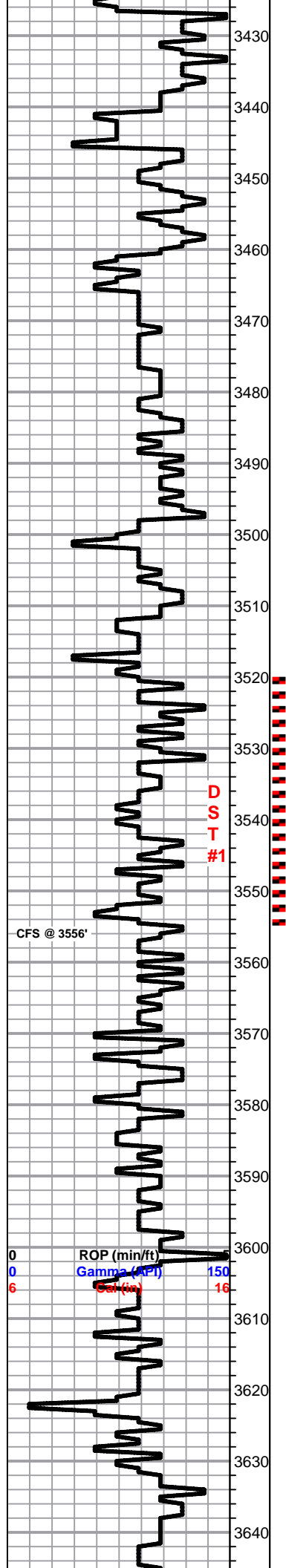
Dol/Lm-Cream Tan, FXLN, sucrosic & mod well dev. w/ consistant XLN porosity, well cemented, SCTRD TO SUB-SAT STN, TR TO SHOW OF GSY FR OIL, FR ODR, mixed w/ loosely cemented sl fsl w/ sctrd to mostly consistant vry fn ppt porosity, some sl chalky in part, TR WK SPOTTY OIL, NSFO, ODR A/A

Lm- Cream Off White, sub-sucrosic dolomitic ls w/ mostly consistant XLN porosity, DRK SCTRD STN, NSFO, TR ODR

Lm- Cream, VFXLN, dense, vry well cemented, massive, heavily fsl, mod dev. appearant porosity, poorly dev. effective porosity w/ sctrd crse XLN secondary recrystallization porosity & inclusions, barren, few pcs of sl fsl fresh bedded chert

Lm- Lt Gray Buff, VF-FXLN, dense, sl cherty ls, mostly tight w/ poor vis. porosity, sl fsl

HEEBNER 3423' (-1188) E-LOG Sh- Black Maroon, fissile, carbonaceous, gritty & earthy



Sh- Lt Gray Lm Green Maroon, silty & calcareous, gray & maroon wash, sl sandy lm green, gritty & earthy

TORONTO 3446' (-1211) E-LOG Lm- Cream Off White, VF-FXLN, sl-mod oolitic dev. sctrd micro XLN, XLN, & fn ppt interoolite porosity, SCTRD LT BRWN STN, SL GSY SHEEN, NSFO, FNT ODR, several pcs of chert & cherty ls w/ poor vis. porosity

Lm- oolitic ls A/A w/ increasing dev & porosity F-Med XLN, STN A/A, ODR SL INCREASING

LKC 3463' (-1228) E-LOG Lm- Cream Off White, few pcs of sl oolitic, mod dev. w/ sctrd ppt porosity, WK SPOTTY STN, NSFO, WK ODR, most VFXLN dense & tight chert & cherty ls w/ poor vis. porosity, barren

Lm- Cream Off White, VF-FXLN, dense, well cemented, tight w/ micro XLN & XLN porosity, vry clean, barren

Sh- Brown Maroon, gritty & earthy

Lm- Cream Off White, Med-Crse XLN, oolitic & mod. well dev. w/ sctrd ppt porosity, SCTRD LT BRWN STN, GSY SHEEN, TR FO, WK ODR

Sh- Maroon Brown, gritty & earthy, some maroon wash

Lm- Off White Cream, FXLN, dense, mostly well cemented, sl fsl w/ few loosel fusulinids, poorly dev. w/ sctrd micro XLN porosity, vry clean, barren

Lm- Cream Tan Buff, VF-FXLN, dense, loosely to well cemented mix, some poorly dev. w/ sctrd ppt porosity along secondary recrystallization veins w/ WK SPOTTY STN, NSFO, TR ODR, some loosely cemented w/ poor intergranular porosity & barren

Lm-Cream Tan, F-Med XLN, oolitic, mod.-well dev. w/ sctrd ppt interoolite porosity, SCTRD LT STN, TR SFO, WK ODR

Lm- Cream Tan, FXLN, dense, sl fsl, mod. dev. w/ sctrd XLN & vry fn ppt porosity, WK SPOTTY STN, SL GSY SHEEN, WEK ODR

Lm- Tan, FXLN, oolitic, sctrd to mod dev., loosely cemented, some chalky in part, sctrd fn ppt to ppt interoolitic porosity, SCTRD LT STN, TR FO, FEW PCS W/ BETTER STN, WK ODR

Lm- White Cream, FXLN Vf Grn, tight clean mix, all well cemented w/ minimal vis. porosity, barren

Sh- Black Maroon, fissile & vry well compacted, carbonaceous, gritty & earthy

Dol- Cream Tan, Med XLN, dense vry well cemented, mod dev. sucrosic w/ consistant innerXLN porosity, barren

Lm- Cream Tan, VF-FXLN, sl fsl, dense, well cemented, some sl cherty ls, all w/ micro XLN & sctrd XLN porosity, barren, several pcs of fsl fresh bedded chert, various color

Lm- White Off White, FXLN, dense & well cemented, sl fsl, XLN & sctrd fn ppt porosity, LT BRWN STN, NSFO, FR ODR, FR-GD GSY SHEEN ON FEW PCS

Lm- Off White Tan, VFXLN, dense, vry well cemented sl cherty ls, massive, sctrd dev. & fn ppt & ppt porosity w/ secondary recrystallization w/in porosity, LT SPOTTY STN, NSFO, GSY SHEEN, FR ODR

Sh- Lt Gray Lm Green, sl waxy, dense, some silty & calcareous

Lm- Cream Tan, FXLN, oolitic & fsl, well dev. w/ consistant ppt & vuggy porosity, DRK SAT STN, HVY GSY SHEEN, TR FO, GD ODR, FREE FLOATING OIL GLOBULES ON TOP OF WET CUP

Sh- Black Lm Green Gray, fissile, vry well compacted, silty & calcareous, pebbly

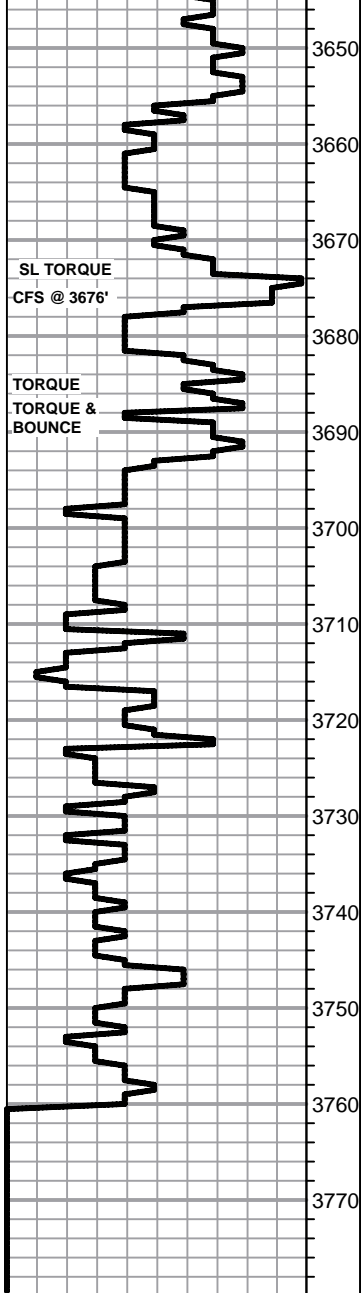
Lm- White Off White, Vf Grn VFXLN, dense tight mix, some mud supported matrix, all poorly dev w/ sctrd XLN porosity at best, barren

Lm- Cream Tan, FXLN, mod. dev. w/ dense XLN porosity, loosely cemented, STCRD DRK BRWN STN, SL GSY SHEEN, WK ODR, FR OILY SCUM ON TOP OF WET CUP

SHORT TRIP SURVEY 3/4 dgr. STRAP +1.08'

DST #1 LKC E - G 3520' - 3556'

BRWN STN, SFO, SST SHLEN, WKFR ODR, FR OILY SCUM ON TOP OF WET CUP



BKC 2654' (-1419) E-LOG Sh- Maroon, soft sandy lime & shale

Lm- White Off White, FXLN, dense, loosely-well cemented, some sl chalky in part, sl unconsolidated & spkld w/ sediment, fsl, dense XLN porosity, barren

Sh- Maroon Lm Green, waxy, dense, gritty & earthy

ARBUCKLE 3684' (-1449) E-LOG Dol-Cream Off White, VF-FXLN, mod. dev. w/ XLN & sctrd to dense ppt porosity, vry well cemented, DRK SCTRD TO SAT STN, FR-GD SFO, FREE OIL ON TOP OF WET CUP, FR-GD SUPHURIC ODR

Dol- A/A w/ increasing amount of cream VFXLN, vry well cemented, mostly tight w/ barren porosity

Dol- Cream, F-Med XLN, mod. well dev. w/ consistant ppt porosity throughout, sub-sucrosic, SUB-SAT DRK STN, SFO, STRNG SULPHURIC ODR

Dol-White Off White, Med-Crs XLN, well dev. euohedral rhombs, consistant porosity throughout, LT SCTRD STN, TR FO, ODR A/A

Dol- Cream Off White, VF-FXLN, dense, most poorly dev. w/ micro XLN porosity, WK SPOTTY STN, NSFO, much barren porosity

Dol- Off White, FXLN, dense & mod. dev w/ sctrd micro XLN & XLN porosity, most loosely cemented, WK SPOTTY STN, NSFO, much barren porosity, some completely w/o stn

D Dol- Off White, VF-FXLN, dense, mostly tight w/ micro XLN porosity, vry well cemented, mostly barren w/ SCTRD BLK STN, NSFO

RTD 3760' (-1525) LTD @ 05:25 10/30/2013