

OPERATOR

Company: DANE G. HANSEN TRUST
 Address: P.O. BOX 187
 LOGAN, KS 67646

Contact Geologist: RICHARD WALLGREN, Sr.
 Contact Phone Nbr: (785) 689-8400
 Well Name: EICHMAN #17
 Location: NW NW NW 13 - 9S - 21W
 Pool:
 State: KANSAS

API: 15-065-23837-0000
 Field: MOREL
 Country: USA

Scale 1:240 Imperial

Well Name: EICHMAN #17
 Surface Location: NW NW NW 13 - 9S - 21W
 Bottom Location:
 API: 15-065-23837-0000
 License Number: 5285
 Spud Date: 8/27/2012 Time: 7:30 AM
 Region: GRAHAM
 Drilling Completed: 9/2/2012 Time: 1:54 PM
 Surface Coordinates: 330' FNL & 330' FWL
 Bottom Hole Coordinates:
 Ground Elevation: 2165.00ft
 K.B. Elevation: 2173.00ft
 Logged Interval: 0.00ft To: 3790.00ft
 Total Depth: 3790.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: Chemical/Fresh Water Gel

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.6225970 Latitude: 39.2772889
 N/S Co-ord: 330' FNL
 E/W Co-ord: 330' FWL

LOGGED BY

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

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

CONTRACTOR

Contractor: DISCOVERY DRILLING
 Rig #: 1
 Rig Type: MUD ROTARY
 Spud Date: 8/27/2012 Time: 7:30 AM
 TD Date: 9/2/2012 Time: 1:54 PM
 Rig Release: Time:

ELEVATIONS

K.B. Elevation: 2173.00ft Ground Elevation: 2165.00ft
 K.B. to Ground: 8.00ft


NOTES

DUE TO STRUCTURAL POSITION, DRILLSTEM RECOVERY, & FAVORABLE LOG ANALYSIS 5 1/2" x 15.5#
 PRODUCTION CASING WAS RUN TO FURTHER EXAMINE ZONES OF INTEREST.

WELL COMPARISON SHEET

FORMATION	EICHMAN #17				E2 SW NW 13-9-21				EICHMAN #14				NW NE NW 13-9-21				DANE G. HANSEN TRUST				DANE G. HANSEN TRUST				DANE G. HANSEN TRUST				DANE G. HANSEN TRUST			
	2173				2164				2151				2207				2173				2160											
	LOG TOPS		SAMPLE TOPS		COMP. CARD		LOG CORR.		SMPL. CORR.		COMP. CARD		LOG CORR.		SMPL. CORR.		COMP. CARD		LOG CORR.		SMPL. CORR.		COMP. CARD		LOG CORR.		SMPL. CORR.					
	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM				
ANHYDRITE TOP	1669	504	1670	503	1642	522	-	18	-	19	1652	499	+ 5	+ 4	1710	497	+ 7	+ 6	1675	498	+ 6	+ 5	1678	498	+ 6	+ 5						
BASE	1709	464	1712	461								1689	462	+ 2	- 1	1746	461	+ 3	+ 0					1709	451	+ 13	+ 10					
TOPEKA	3163	-990	3164	-991								3143	-992	+ 2	+ 1	3198	-991	+ 1	+ 0					3150	-990	+ 0	- 1					
HEEBNER SHALE	3369	-1196	3372	-1199	3343	-1179	- 17	- 20	3352	-1201	+ 5	+ 2	3406	-1199	+ 3	+ 0	3409	-1236	+ 40	+ 37	3355	-1195	- 1	- 4								
TORONTO	3391	-1218	3397	-1224	3365	-1201	- 17	- 23	3374	-1223	+ 5	- 1	3427	-1220	+ 2	- 4	3428	-1255	+ 37	+ 31	3376	-1216	- 2	- 8								
LKC	3407	-1234	3414	-1241	3393	-1229	- 5	- 12	3392	-1241	+ 7	+ 0	3443	-1236	+ 2	- 5	3450	-1277	+ 43	+ 36	3393	-1233	- 1	- 8								
BKC	3624	-1451	3626	-1453	3596	-1432	- 19	- 21	3610	-1459	+ 8	+ 6	3660	-1453	+ 2	+ 0	3661	-1488	+ 37	+ 35	3611	-1451	+ 0	- 2								
CONGLOMERATE																																
SIMPSON SHALE	3685	-1512	3686	-1513	3640	-1476	- 36	- 37																								
ARBuckle	3703	-1530	3704	-1531	3662	-1498	- 32	- 33	3706	-1555	+ 25	+ 24	3737	-1530	+ 0	- 1																
RTD																																
LTD	3790	-1617			3668	-1504		- 113	3710	-1559		- 58	3744	-1537		- 80	3791	-1618		+ 1												

DST #1 LKC H-I 3541' - 3573'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hansen, Dane G - Trust **13-9-21 Graham, Ks**

PO Box 187 **Eichman #17**
Logan, Ks 67646 Job Ticket: 49428 **DST#: 1**

ATTN: Jeff Lawler Test Start: 2012.09.01 @ 04:38:59

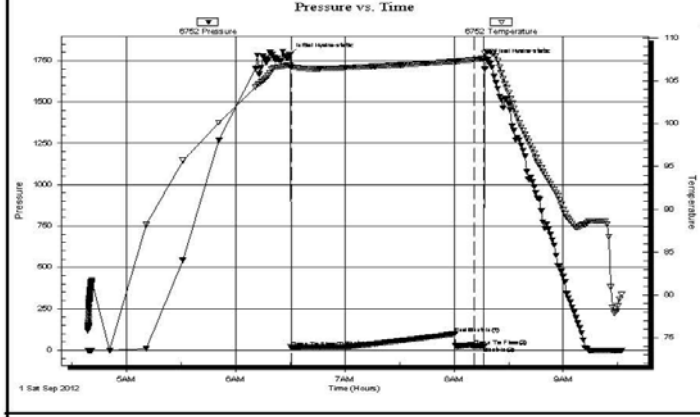
GENERAL INFORMATION:

Formation: **LKC "H-I"**
 Deviated: No Whipstock: ft (KB)
 Time Tool Opened: 06:30:29
 Time Test Ended: 09:32:29
 Interval: **3541.00 ft (KB) To 3573.00 ft (KB) (TVD)**
 Total Depth: 3573.00 ft (KB) (TVD)
 Hole Diameter: 7.88 inches Hole Condition: Good
 Reference Elevations: 2173.00 ft (KB)
 2165.00 ft (CF)
 KB to GR/CF: 8.00 ft

Serial #: 6752 Inside

Press@RunDepth: 18.80 psig @ 3545.00 ft (KB)
 Start Date: 2012.09.01 End Date: 2012.09.01 Capacity: 8000.00 psig
 Start Time: 04:39:00 End Time: 09:32:29 Last Calib.: 2012.09.01
 Time On Btm: 2012.09.01 @ 06:29:29
 Time Off Btm: 2012.09.01 @ 08:18:29

TEST COMMENT: IFP - sur blow - died 11 min
 ISI - no blow back
 FFP - no blow - flush - no blow
 TIME - 30-60-10-flush-pull



Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1787.55	106.83	Initial Hydro-static
1	16.12	106.62	Open To Flow (1)
31	18.80	106.50	Shut-In(1)
91	98.93	107.24	End Shut-In(1)
102	21.79	107.45	Open To Flow (2)
107	22.60	107.60	Shut-In(2)
109	1752.44	108.46	Final Hydro-static

Length (ft)	Description	Volume (bbl)
5.00	drl mud 100%	0.02

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

DST #2 ARBUCKLE 3666' - 3708'



TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

Hansen, Dane G - Trust

13-9-21 Graham, Ks

PO Box 187
Logan, Ks 67646

Eichman #17

ATTN: Jeff Lawler

Job Ticket: 49429

DST#: 2

Test Start: 2012.09.02 @ 00:11:03

GENERAL INFORMATION:

Formation: **Simpson Sand - Arbuc**

Deviated: No Whipstock: ft (KB)

Time Tool Opened: 01:44:33

Time Test Ended: 06:27:03

Test Type: Conventional Bottom Hole (Reset)

Tester: Brian Fairbank

Unit No: 41

Interval: 3666.00 ft (KB) To 3708.00 ft (KB) (TVD)

Total Depth: 3708.00 ft (KB) (TVD)

Hole Diameter: 7.88 inches Hole Condition: Good

Reference Elevations: 2173.00 ft (KB)

2165.00 ft (CF)

KB to GR/CF: 8.00 ft

Serial #: 6752 Inside

Press@RunDepth: 274.25 psig @ 3669.00 ft (KB)

Start Date: 2012.09.02

End Date:

2012.09.02

Start Time: 00:11:04

End Time:

06:27:03

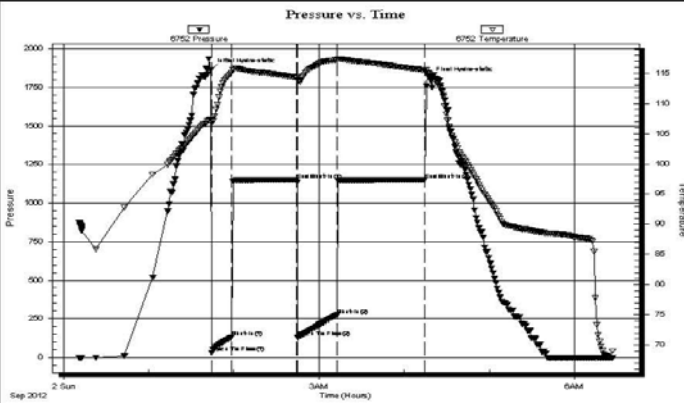
Capacity: 8000.00 psig

Last Calib.: 2012.09.02

Time On Btm: 2012.09.02 @ 01:43:33

Time Off Btm: 2012.09.02 @ 04:17:33

TEST COMMENT: IFP - BOB 4 min
ISI - 2 1/4" blow back
FFP - BOB 5 1/2 min
FSI - 1/2" blow back



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1862.04	107.39	Initial Hydro-static
1	29.42	106.70	Open To Flow (1)
15	132.46	115.04	Shut-In(1)
61	1149.79	114.28	End Shut-In(1)
62	128.54	113.93	Open To Flow (2)
89	274.25	117.19	Shut-In(2)
151	1149.82	115.51	End Shut-In(2)
154	1811.66	114.87	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
60.00	GMCO 10%G, 60%O, 30%M	0.57
630.00	G FREE OIL 10%G, 85%O, 5%M	8.84
0.00	185' GIP	0.00

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc

Ref. No: 49429

Printed: 2012.09.04 @ 16:33:16

ROCK TYPES

Cht	shale, grn	shale, red	Lscong1
Dolprim	shale, gry	Shcol	
Lmst fw7>	Carbon Sh	Ss	

ACCESSORIES

MINERAL

- Sandy
- ▧ Euhed rhombs of dol or c

FOSSIL

- ⊕ Oomoldic

STRINGER

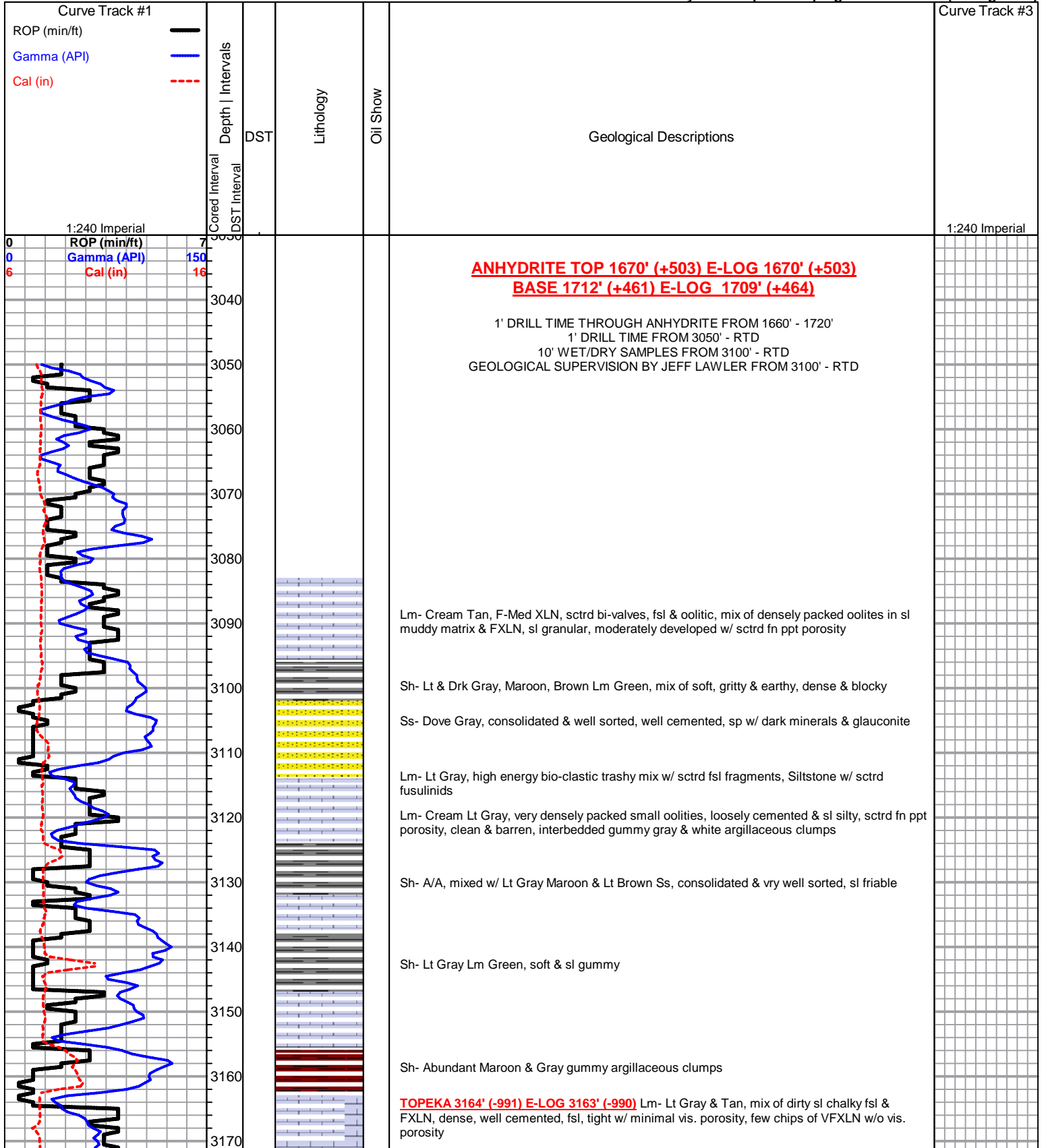
- ⋯ Chert
- green shale
- red shale

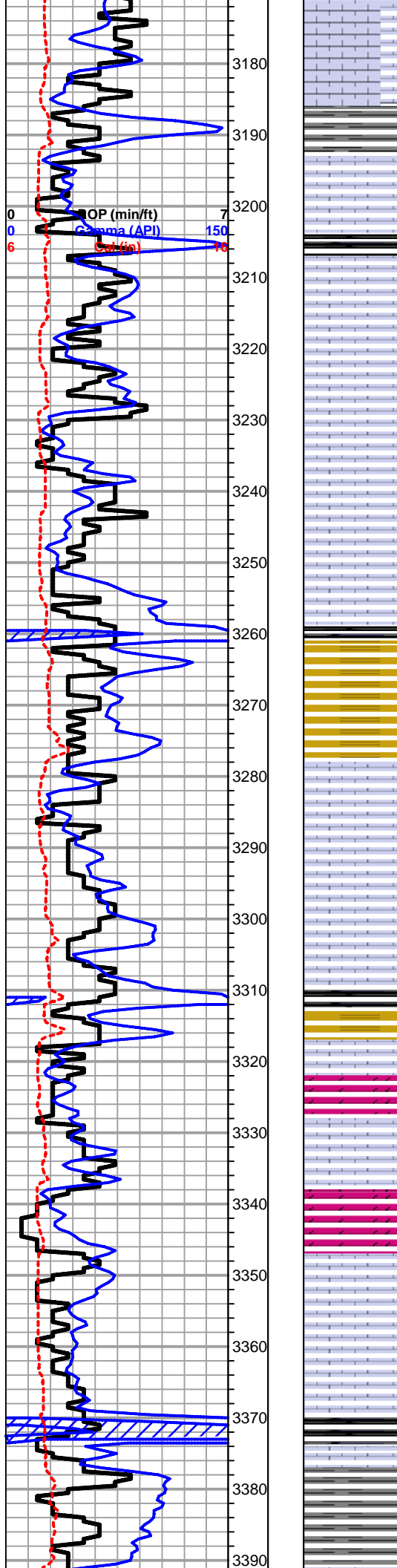
OTHER SYMBOLS

DST

- DST Int
- DST alt

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





Lm- Lt Gray Tan Cream, VF-FXLN, mix of tan crypto XLN w/o vis. grains, FXLN, sl fsl, poorly developed w/ minimal vis. porosity, & FXLN, sl cherty Ls, tight w/ minimal vis. porosity

Lm- Tan, VFXLN, gritty, sl dolomitic Ls, vry minimal vis. porosity, tight & clean, interbedded gummy gray & lm green clumps

Sh- Drk Gray Black, dense, smooth, long thin fissile carbonaceous slivers

Lm- Lt Gray, high energy fsl mix, gritty sl dolomitic chert & fsl chert, trashy w/ sctrd fsl fragments

Lm- Cream, FXLN, dense, well cemented, mix of sl granular oolitic dolomitic Ls & lime mud matrix, sl granular w/ few sctrd crystal inclusions, all clean & barren, tight w/ sctrd vry fn ppt porosity to no vis. porosity, interbedded gummy shale

Lm- Cream, FXLN, dense, loosely cemented, sl chalky matrix, fsl w/ few sctrd fusulinids

Lm- Cream Tan, Med XLN, gritty & granular, moderately developed, mostly w/ lime mud matrix, loosely cemented, sctrd crystal inclusions, sl fsl. sctr fn ppt porosity, clean & barren, few chips of FXLN sl sucrosic dolomite, very well cemented w/ consistant micro porosity, abundant soft white chalk

Lm- A/A, sl mottled, sctrd fusulinids & crinoids, off white fsl sharp angular bedded chert

Lm- Lt Gray Buff, Med XLN, trashy bio-clastic, high energy w/ fsl fragments embedded in siliceous cementation

Sh- Black Gray, soft, fissile carbonaceous, smooth gray chips

Sh/Ss- Abundant white gray & tan wash, gummy, sctrd soft white chalk, lm green sandy lime & Ss

Lm- Cream, VFXLN, dense, brittle & tight, cherty Ls & cherty dolomite w/ micro porosity, some sub-crypto XLN w/ vry few vis. grains

Lm/Chert- Cream Lt Gray, mix of VFXLN brittle Ls, tight w/ minimal vis. porosity & fsl bedded chert, golden brown & off white

Sh/Ss- Black Gray Brown Lm Green, fissile, soft & carbonaceous, abundant clumps of various colors of gummy & argillaceous, Lm Grn soft sandy lime & Ss

Lm- Cream Buff, VFXLN, dense, very well cemented, consistant micro porosity, gritty sl dolomitic Ls, clean & barren, chalky in part

Dolomite- Cream, VFXLN, sl sucrosic, very well cemented, consistant vry fn ppt porosity, clean & barren

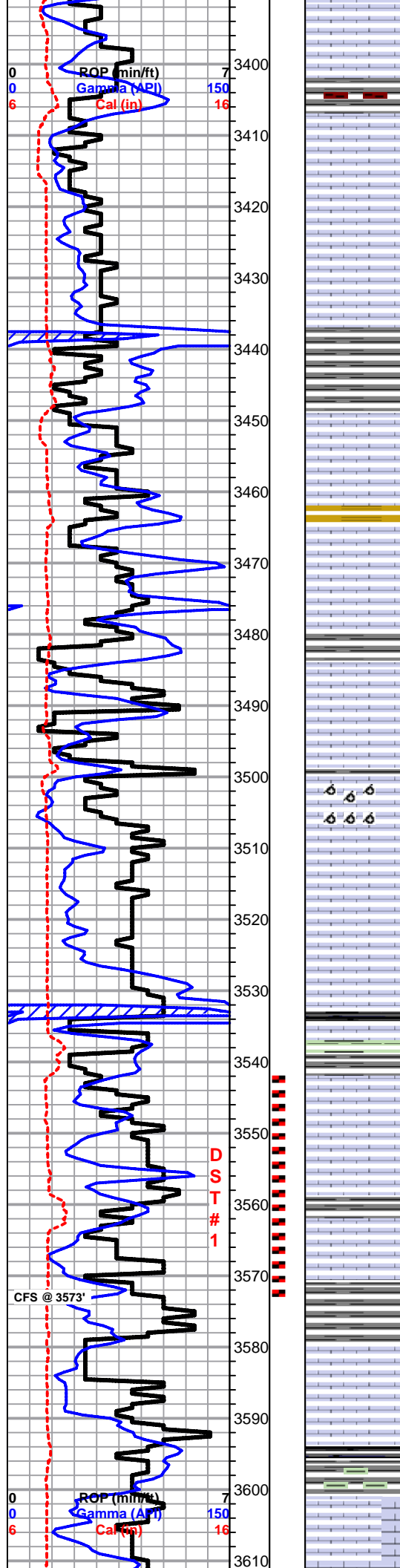
Dolomite- Cream, FXLN, massive, granular, tight & very well cemented, sl fsl, sctrd crystal inclusions, sctrd ppt porosity, moderately developed, clean & barren, interbedded argillaceous gray & white stick clumps

Lm- Cream Tan, FXLN, dense & very well cemented, massive, sl granular, mostly w/ lithofied mud matrix, sl fsl, poorly developed w/ minimal effective porosity, some sctrd vry fn ppt porosity

HEEBNER 3372' (-1199) E-LOG 3369' (-1196) Sh- Black Gray Lm Green Maroon, abundant fissile, slaty carbonaceous chips, soft gritty & earthy

Sh- Gray Lm Green Brown Maroon, sticky argillaceous clumps, gritty & earthy

TORONTO 3397' (-1224) E-LOG 3391' (-1218) Lm- Cream Tan, Med-Coarse XLN, mix of fsl &



sl oolitic dolomitic Ls, dense & well cemented, poorly developed w/ sctrd XLN & vry fn ppt porosity & fsl and oolitic bedded chert

Sh- Gray Lm Green Maroon, soft, some sticky argillaceous clumps

LKC 3414' (-1241) E-LOG 3407' (-1234) Lm- Cream Off White, VF-FXLN, dense, semi-brittle, well cemented, tight w/ minimal vis. porosity, some sub-crypto XLN, few sctrd fusulinids, very clean

Lm- Cream Off White, F-Med XLN, sl fsl, poorly developed w/ sctrd XLN porosity, tight & clean

Sh- Gray Maroon, soft, sl unconsolidated & pebbly

Lm- Cream Off White, Med XLN, oolitic, moderately well developed w/ sctrd FR intraoolite porosity, loosely cemented, fn ppt w/ few sctrd porosity w/ few small vugs, FR SCTRD GSY STN, SL SGSYFO, GD ODR, INSTANT DULL FLOR. & VRY SLW STRM WET CUT

Sh- Brown Gray, dense & blocky, well compacted, soft, gritty & earthy

Lm- Cream Off White Buff, poorly developed sl fsl Ls, minimal vis. to fn ppt porosity, SCTRD FLAKEY DO STN, NO SFO, FNT GSY ODR, mixed w/ buff VFXLN dense & vry well cemented dolomitic Ls, 1 CHIP W/ VERY SCTRD PPT POROSITY, RARE GSY STN, SL SGSY FO, chalky CARRYING STN A/A, some sl fsl bedded chert

Sh- Gray Lm Green Purple, sl unconsolidated & pebbly, sl waxy, dense & well compacted, some gummy purple clumps

Lm- Cream Off White, sl fsl, sctrd development w/ fn ppt porosity, loosely cemented, FEW CHIPS W/ WK SCTD STN, NSFO, FNT ODR

Lm- Cream Lt Tan, F-Med XLN, oolitic & sl oolitic, some sctrd skeletal dissolution, poor intercastic connectivity, densely packed oolitic biomicrite, tight w/ no vis. porosity, clean & barren

Lm- Off White, sl oolitic, loosely cemented, sctrd ppt porosity, clean & barren

Lm- Off White, VF-FXLN, mix of crypto XLN to FXLN, dense, brittle & tight, well cemented, very clean, barren

Lm/Chert- Lt Gray Brown Black, mix of dense, sl chalky algal Ls & sharp angular bedded chert

Sh- Black Lm Green Gray, fissile, slaty, carbonaceous, sl unconsolidated & pebbly

Lm- Cream Tan, Fn Grn & FXLN, mix of well developed w/ good consistant interparticle porosity, SAT LT BRWN GSY STN, SL SGSYFO, FNT ODR, & FXLN, dense, sctrd ppt to sub-vugular porosity, SCTRD LT GSY STN, SL SGSYFO UPON CRUSH, FNT ODR, SL GSY SHEEN, DULL FLOR. W/ SL STRM WET CUT

Sh- Gray Maroon Lm Green, soft, gummy argillaceous clumps & maroon wash

Lm- Cream Off White, FXLN, sl fsl, sctrd development, XLN w/ sctrd ppt porosity, SCTRD LT GSY STN, SL SGSYFO, FR ODR

Sh- Gray Maroon Brown, soft, gritty & earthy

Lm- Cream Off White, Med XLN, oolitic, sctrd development w/ XLN to GD ppt intraoolitic porosity, LT GSY STN, GSY SHEEN, SFO, FR ODR

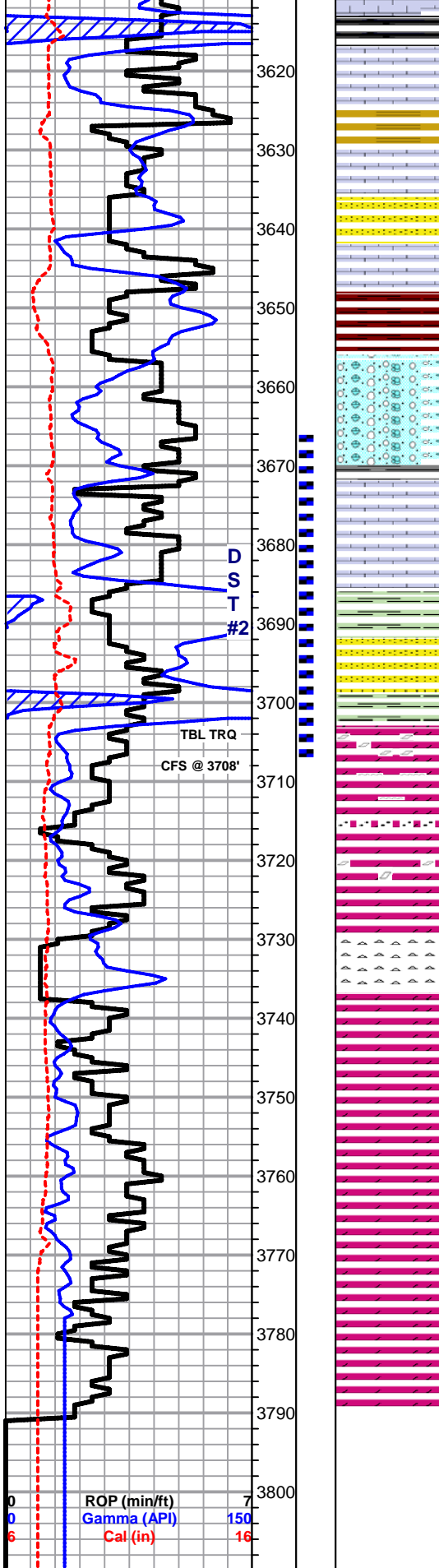
Sh- Black Gray Maroon Lm Green, soft, smooth, carbonaceous, massive, rounded & soft

Lm- White Off White, VF grn & FXLN, mix of sl chalky matrix, soft, consistant vry fn ppt porosity, SAT DRK STN, SL SFO, BRIGHT FLOR., mixed w/ FXLN, poorly developed w/ sctrd

**SHORT TRIP
SLOPE 1 1/4
dgr.
STRAP +1.70'**

**DST #1
LKC H-I
3541 - 3573**

ppt porosity, SCTRDR WK FLAKEY STN, NSFO, DULL TO NO FLOR.



Lm- Cream Tan, VF-FXLN, dense, brittle, minimal vis. porosity, tight

BKC 3626' (-1453) E-LOG 3624'(-1451) Sh- Brown Gray, gritty & earthy, gummy argillaceous gray clumps

Lm- Cream Yellow tint, densely packed med oolites in sparry cemented, loosely cemented & chalky in part, dense secondary porosity

Ss- Red, soft sandy lime & shaley sand & red wash shale

Lm- Cream, VFXLN, dense, brittle, tight, sl oolitic, minimal vis. porosity, some cherty & oolitic chert

Sh- Red Brown, abundant gummy argillaceous clumps & soft white chalk

Conglomerate- various mottled Ls w/ dark shale, dense, well cemented, tight, chalky & shaley matrix

Lm- A/A, purple mottled Ls, Med XLN, loosely cemented, interbedded sandy shales & white chalk

Lm- Cream Off White, FXLN, tight, dense, well cemented, sl fsl, sctrd XLN porosity, clean & barren

SIMPSON SHALE 3686' (-1513) E-LOG 3686' (-1513) Sh- Lm Green Mustard Yellow Maroon, soft, sl waxy

Sand- Clear to Semi-Frosted, F-Med Grn, consolidated & moderately sorted, rounded to sub-rounded, most very friable, some well cemented & sl cherty, most w/ SAT DRK BLK STN, FR SFO, GD ODR, INSTANT BRIGHT FLOR. & STRM WET CUT, sl. Ca cementation

Sh- Abundant gummy argillaceous green clumps, waxy chips, & sandy green shale

ARBUCKLE 3704' (-1531) E-LOG 3703' (-1530) Dolomite- Cream Tan Buff Peach, VF-Coarse XLN, mix of tight VFXLN, some sl. sucrosic, vry fn ppt porosity, Med XLN w/ sctrd vis. euhedral rhombs, some sl cherty cementation, w/ ppt - vuggy porosity, & Coarse XLN w/ GD vis. euhedral rhombs, vuggy to sub-cavernous porosity, sl recrystallization w/in vugs, all w/ GD DRK SCTRDR TO SAT STN, SCTRDR SGSYFO, VRY STRNG SULPHURIC ODR IN 40" smpl.

3716' - Dolomite- Clear Sl. Frosted sandy dolomite, very friable, angular, consolidated & well sorted, DRK SATURATION, SAT & BLDNG FO, STRNG ODR, few w/ sctrd sl white siliceous cementation

3720' - Dolomite- Tan Buff, Med-Crs XLN, vry well cemented, vry well developed, vuggy to cavernous porosity, sctrd large anhedral rhombs, DRK SAT, MUCH FLOATING FO IN TRAY

3735' - Chert/Sh- White Translucent Golden Brown Smokey Gray, abundant fresh bedded chert, some gritty dolomitic chert, Sh- Lm Green, waxy, dense & well compacted, sp. w/ glauconite

Dolomite- Cream Tan Buff, F-Crs XLN, mix of tight FXLN w/ sl glazed texture w/ barren porosity, Med XLN, sl sucrosic w/ ppt porosity, & Crs XLN, sucrosic w/ sub-vuggy porosity, GD STN, SFO, GD ODR

Dolomite- Cream Tan, Med XLN, moderately developed, consistant ppt porosity, well cemented, SCTRDR LT STN, SL SFO, GD ODR

Dolomite- Med XLN, massive, consistant fn ppt porosity, SCTRDR STN, SL SFO, GD ODR

Dolomite- Cream Tan Salmon Off White, Med - Crs XLN, sctrd oolitic chert & cherty Dol., Crs XLN, sucrosic w/ large euhedral rhombs, vuggy porosity, Med XLN, consistant ppt porosity, all w/ SCTRDR DRK STN, SFO, GD ODR

RTD 3790' (-1617) LTD 3790' (-1617) @ 13:54 9/2/2012

**DST #2
SIMPSON
SAND
& ARBUCKLE
3666 - 3708**