Scale 1:240 Imperial

Well Name:	THOMPSON UNIT #19-1		
Surface Location:	SE NE SE SW Sec. 19-11-15		
Bottom Location:			
API:	15-167-23976-00-00		
License Number:	33335		
Spud Date:	5/27/2014	Time:	5:15 PM
Region:	RUSSELL COUNTY KS		
Drilling Completed:	6/4/2014	Time:	1:59 AM
Surface Coordinates:	775' FSL & 2465' FWL		
Bottom Hole Coordinates:			
Ground Elevation:	1784.00ft		
K.B. Elevation:	1792.00ft		
Logged Interval:	2550.00ft	To:	3610.00ft
Total Depth:	3610.00ft		
Formation:	TOPEKA, LASING- KANSAS CITY, CONGLOMERATE		
Drilling Fluid Type:	FRESH WATER / CHEMICAL GEL		

OPERATOR

Company:	IA OPERATING, INC.		
Address:	9915 W 21st ST SUITE B WICHITA, KS 67205		
Contact Geologist:	JEFF MOWRY / JULIE BURROWS		
Contact Phone Nbr:	(316) 721-0036		
Well Name:	THOMPSON UNIT #19-1		
Location:	SE NE SE SW Sec. 19-11-15	API:	15-167-23976-00-00
Pool:		Field:	FAIRPORT
State:	KANSAS	Country:	USA

SURFACE CO-ORDINATES

Well Type:	Vertical		
Longitude:	-99.0254570	Latitude:	39.0784832
N/S Co-ord:	775' FSL		
E/W Co-ord:	2465' FWL		

LOGGED BY

Company:	BIG CREEK CONSULTING, INC.		
Address:	1909 MAPLE ELLIS, KS 67637		
Phone Nbr:	(785) 259-3737		
Logged By:	Geologist	Name:	JEFF LAWLER

CONTRACTOR

Contractor:	DISCOVERY DRILLING		
Rig #:	2		
Rig Type:	MUD ROTARY		
Spud Date:	5/27/2014	Time:	5:15 PM
TD Date:	6/4/2014	Time:	1:59 AM
Rig Release:		Time:	

ELEVATIONS

K.B. Elevation:	1792.00ft	Ground Elevation:	1784.00ft
K.B. to Ground:	8.00ft		

NOTES

THE THOMPSON UNIT #1-19 WAS DRILLED OFF OF A SIESMIC PROSPECT. THE WELL RAN STRUCTURALLY LOW THROUGH THE LANSING-KANSAS CITY ZONES THEN BEGAN TO THIN UP. REFERENCE WELL WAS AMERICAN LARIAT'S POWELL #1 THAT WAS PLUGGED IN 1989. THE THOMPSON UNIT #1-19 HAS STRUCTURAL CLOSURE TO THE NORTH FROM THE POWELL #1 INCIDCATED BY DST #1 RESULTS. THERE WAS ECONOMICAL RECOVERY ON 3 OF THE 4 DST'S AND THEREFORE IT IS MY SUGGESTION TO RUN 5 1/2" PRODUCTION CASING AND FURTHER EVALUATE ZONES OF INTEREST WITH PERFORATION.

RESPECTFULLY SUBMITTED

RESPECTFULLY SUBMITTED,
JEFF LAWLER

WELL COMPARISON SHEET

	THOMPSON UNIT #1-19				P&A 5-89 AMERICAN LARIAT INC POWELL #1 E2 E2 SW 19-11-15				¤ H&H PRODUCTION, INC. VONFELDT A #1 W2 SW SE 19-11-15				SWDW P&A 6-91 H&H PRODUCTION, INC. VONFELDT #1 SW SW SE 19-11-15				¤ AMERICAN LARIAT INC VONFELDT #1 SW SE NW SE 19-11-15			
	KB	1792	GL	1784	KB	1822			KB	1779			KB	1759			KB	1816		
	LOG TOPS		SAMPLE TOPS		COMP. CARD		LOG	SMPL.	COMP. CARD		LOG	SMPL.	COMP. CARD		LOG	SMPL.	COMP. CARD		LOG	SMPL.
FORMATION	DEPTH	DATUM	DEPTH	DATUM	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.	DEPTH	DATUM	CORR.	CORR.
ANHYDRITE TOP	941	851	964	828	990	832	+ 19	- 4	934	845	+ 6	- 17	923	836	+ 15	- 8	983	833	+ 18	- 5
BASE	1000	792	1003	789	1026	796	- 4	- 7												
TARKIO LIME	2577	-785			2605	-783	- 2										2605	-789	+ 4	
HOWARD	2713	-921	2713	-921	2741	-919	- 2	- 2	2691	-912	- 9	- 9								
TOPEKA	2736	-944	2736	-944	2764	-942	- 2	- 2	2712	-933	- 11	- 11	2701	-942	- 2	- 2	2794	-978	+ 34	+ 34
HEEBNER SHALE	2981	-1189	2985	-1193	3011	-1189	+ 0	- 4	2969	-1190	+ 1	- 3	2950	-1191	+ 2	- 2	3013	-1197	+ 8	+ 4
TORONTO	3003	-1211	3006	-1214	3031	-1209	- 2	- 5	2984	-1205	- 6	- 9					3033	-1217	+ 6	+ 3
LKC	3029	-1237	3032	-1240	3057	-1235	- 2	- 5	3009	-1230	- 7	- 10	2997	-1238	+ 1	- 2	3062	-1246	+ 9	+ 6
BKC	3287	-1495	3288	-1496	3312	-1490	- 5	- 6	3262	-1483	- 12	- 13					3316	-1500	+ 5	+ 4
MARMATON					3359	-1537			3308	-1529							3362	-1546		
CONGLOMERATE	3383	-1591	3383	-1591	3413	-1591	+ 0	+ 0	3356	-1577	- 14	- 14	3322	-1563	- 28	- 28	3394	-1578	- 13	- 13
ARBUCKLE	3543	-1751	3545	-1753	3582	-1760	+ 9	+ 7	3528	-1749	- 2	- 4	3509	-1750	- 1	- 3	3602	-1786	+ 35	+ 33
TOTAL DEPTH	3610	-1818	3610	-1818	3653	-1831	+ 13	+ 13	3545	-1766	- 52	- 52	3755	-1996	+ 178	+ 178	3680	-1864	+ 46	+ 46

DST #1 TORONTO - LKC D 2982' - 3100'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

IA Operating Inc

9915 W 21st ST STE B
Wichita KS, 67205

ATTN: Jeff Lawler

19-11s-15w Russell KS

Thomas Unit # 1-19

Job Ticket: 54049 **DST#: 1**

Test Start: 2014.05.31 @ 22:08:00

GENERAL INFORMATION:

Formation: **Tor - LKC "D"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 01:20:15
Time Test Ended: 06:09:45

Test Type: Conventional Bottom Hole (Initial)
Tester: Cody Bloedorn
Unit No: 73

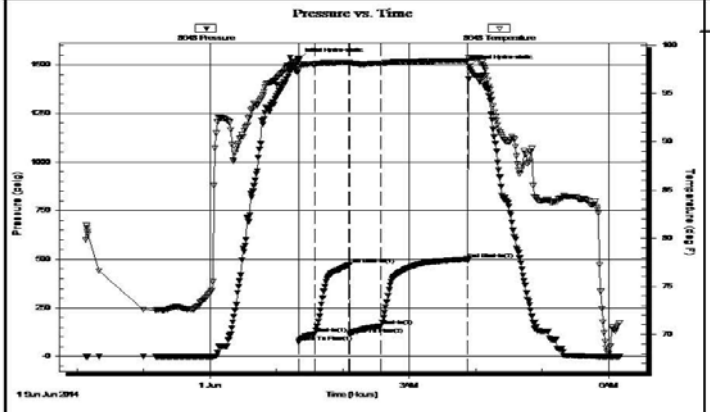
Interval: 2982.00 ft (KB) To 3100.00 ft (KB) (TVD)
Total Depth: 3100.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1792.00 ft (KB)
1784.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8648 **Inside**
Press@RunDepth: 156.33 psig @ 3083.00 ft (KB)
Start Date: 2014.05.31 End Date: 2014.06.01
Start Time: 22:08:05 End Time: 06:09:44

Capacity: 8000.00 psig
Last Calib.: 2014.06.01
Time On Btm: 2014.06.01 @ 01:20:00
Time Off Btm: 2014.06.01 @ 03:54:00

TEST COMMENT: 15 - IF- B.O.B. in 8 minutes
30 - ISI- No return
30 - FF- B.O.B. in 1.5 minutes
60 - FSI- 1 1/4" return @ 15 Minutes, died back to surface blow



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1527.97	98.43	Initial Hydro-static
1	72.99	97.52	Open To Flow (1)
15	117.96	98.10	Shut-In(1)
46	471.11	98.24	End Shut-In(1)
47	113.90	98.18	Open To Flow (2)
75	156.33	98.17	Shut-In(2)
153	501.75	98.43	End Shut-In(2)
154	1493.16	98.71	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
186.00	GOCM, 20%O, 20%M, 60%G	2.34
45.00	Mud - show of oil, 100%M	0.63
0.00	496' of G.I.P.	0.00

Gas Rates

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

DST #2 LKC E - F 3094' - 3127'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

IA Operating Inc
9915 W 21st ST STE B
Wichita KS, 67205

ATTN: Jeff Lawler

19-11s-15w Russell KS

Thomas Unit # 1-19

Job Ticket: 54050 **DST#: 2**

Test Start: 2014.06.01 @ 13:52:00

GENERAL INFORMATION:

Formation: **LKC "E&F"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:53:00
Time Test Ended: 20:50:15

Test Type: Conventional Bottom Hole (Reset)
Tester: Cody Bloedorn
Unit No: 73

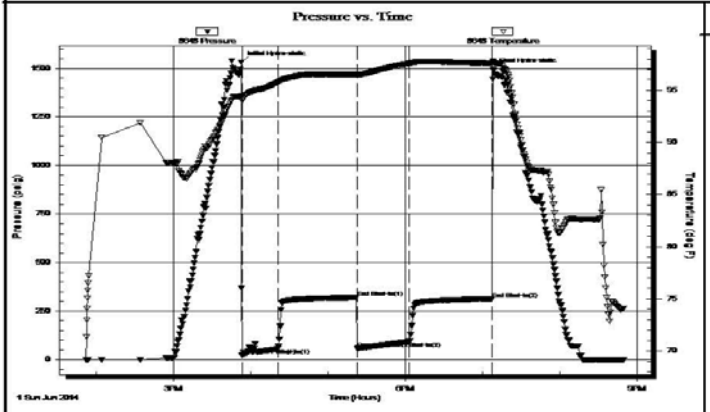
Interval: 3094.00 ft (KB) To 3127.00 ft (KB) (TVD)
Total Depth: 3127.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1792.00 ft (KB)
1784.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8648 **Inside**
Press@RunDepth: 91.21 psig @ 3100.00 ft (KB)
Start Date: 2014.06.01 End Date: 2014.06.01
Start Time: 13:52:05 End Time: 20:50:14

Capacity: 8000.00 psig
Last Calib.: 2014.06.01
Time On Btm: 2014.06.01 @ 15:52:30
Time Off Btm: 2014.06.01 @ 19:08:00

TEST COMMENT: 30 - IF- 9" blow
60 - ISI- Surface return
45 - FF- 4" blow
60 - FSI- Surface return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1530.79	94.43	Initial Hydro-static
1	19.82	93.99	Open To Flow (1)
29	54.99	95.73	Shut-In(1)
90	319.43	96.51	End Shut-In(1)
91	58.22	96.42	Open To Flow (2)
131	91.21	97.56	Shut-In(2)
195	313.00	97.60	End Shut-In(2)
196	1494.52	97.70	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	MW - Show of oil, 20%M, 80%W	1.47
20.00	GO, 5%G, 95%O	0.28

* Recovery from multiple tests

Gas Rates

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

DST #3 LKC I - K 3182' - 3265'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

IA Operating Inc

9915 W 21st ST STE B
Wichita KS, 67205

ATTN: Jeff Lawler

19-11s-15w Russell KS

Thomas Unit # 1-19

Job Ticket: 54051 **DST#: 3**

Test Start: 2014.06.02 @ 13:36:00

GENERAL INFORMATION:

Formation: **LKC "I,J,K"**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 15:39:30
Time Test Ended: 20:40:30

Test Type: Conventional Bottom Hole (Reset)
Tester: Cody Bloedorn
Unit No: 73

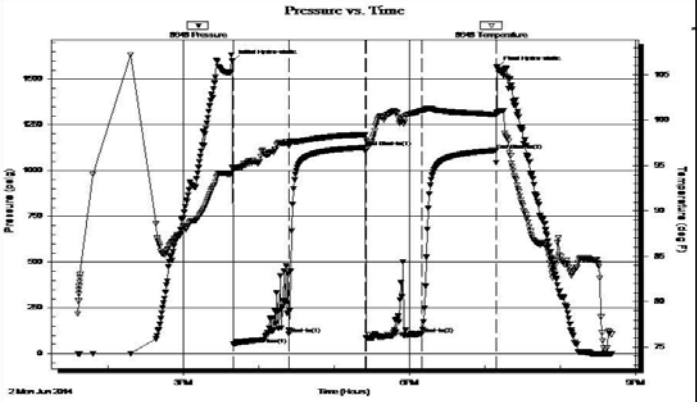
Interval: 3182.00 ft (KB) To 3265.00 ft (KB) (TVD)
Total Depth: 3265.00 ft (KB) (TVD)
Hole Diameter: 7.88 inches Hole Condition: Fair

Reference Elevations: 1792.00 ft (KB)
1784.00 ft (CF)
KB to GR/CF: 8.00 ft

Serial #: 8648 **Inside**
Press@RunDepth: 107.77 psig @ 3252.00 ft (KB)
Start Date: 2014.06.02 End Date: 2014.06.02
Start Time: 13:36:05 End Time: 20:40:29

Capacity: 8000.00 psig
Last Calib.: 2014.06.02
Time On Btm: 2014.06.02 @ 15:39:00
Time Off Btm: 2014.06.02 @ 19:09:15

TEST COMMENT: 45 - IF- 3" blow
60 - ISI- No return
45 - FF- 31/2" blow
60 - FSI- No return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1598.68	94.83	Initial Hydro-static
1	49.46	94.56	Open To Flow (1)
45	107.75	97.16	Shut-In(1)
106	1126.87	98.42	End Shut-In(1)
107	85.72	97.92	Open To Flow (2)
151	107.77	101.05	Shut-In(2)
210	1110.53	100.61	End Shut-In(2)
211	1565.47	100.82	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
124.00	Mud - oil spots, 100%M	1.47

* Recovery from multiple tests

Gas Rates

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

DST #4 CONGLOMERATE SAND 3354' -3408'

TRILOBITE TESTING, INC.

DRILL STEM TEST REPORT

IA Operating Inc

9915 W 21st ST STE B
Wichita KS, 67205

ATTN: Jeff Lawler

19-11s-15w Russell KS

Thomas Unit # 1-19

Job Ticket: 54052 **DST#: 4**

Test Start: 2014.06.03 @ 07:39:00

GENERAL INFORMATION:

Formation: **Cong. Sand**
Deviated: No Whipstock: ft (KB)
Time Tool Opened: 09:43:45

Test Type: Conventional Bottom Hole (Reset)
Tester: Cody Bloedorn

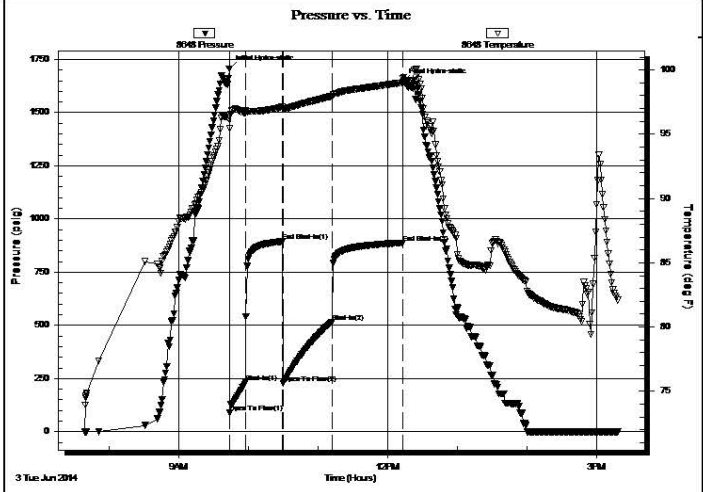
Time Test Ended: 15:18:15 Unit No: 73

Interval: **3354.00 ft (KB) To 3408.00 ft (KB) (TVD)** Reference Elevations: 1792.00 ft (KB)
Total Depth: 3408.00 ft (KB) (TVD) 1784.00 ft (CF)
Hole Diameter: 7.88 inches Hole Condition: Fair KB to GR/CF: 8.00 ft

Serial #: 8648 **Inside**

Press@RunDepth:	516.43 psig @	3393.00 ft (KB)		Capacity:	8000.00 psig
Start Date:	2014.06.03	End Date:	2014.06.03	Last Calib.:	2014.06.03
Start Time:	07:39:05	End Time:	15:18:14	Time On Btm:	2014.06.03 @ 09:43:30
				Time Off Btm:	2014.06.03 @ 12:13:00

TEST COMMENT: 15 - IF- B.O.B. in 3 minutes
30 - ISI- 1/2" return
45 - FF- B.O.B. in 2 Minutes
60 - FSI- 2" return



PRESSURE SUMMARY

Time (Min.)	Pressure (psig)	Temp (deg F)	Annotation
0	1706.12	96.37	Initial Hydro-static
1	88.17	95.43	Open To Flow (1)
14	230.64	96.64	Shut-In(1)
46	893.84	97.13	End Shut-In(1)
47	226.85	96.94	Open To Flow (2)
89	516.43	97.96	Shut-In(2)
150	887.59	99.03	End Shut-In(2)
150	1643.86	99.36	Final Hydro-static

Recovery

Length (ft)	Description	Volume (bbl)
403.00	GW - show of oil on top, 5%G, 95%W	5.38
372.00	SOCWM, 10%O, 40%W, 50%M	5.22
310.00	GOCM, 20%G, 20%O, 60%M	4.35

* Recovery from multiple tests

Gas Rates

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

Trilobite Testing, Inc Ref. No: 54052 Printed: 2014.06.03 @ 16:00:02

ROCK TYPES

Cht, Congl, Chtcongl, Dolprim, Lmst fw<7, Lmst fw7>, shale, grn, shale, gry, Carbon Sh, shale, red, Shcol, Ss, Lscongl

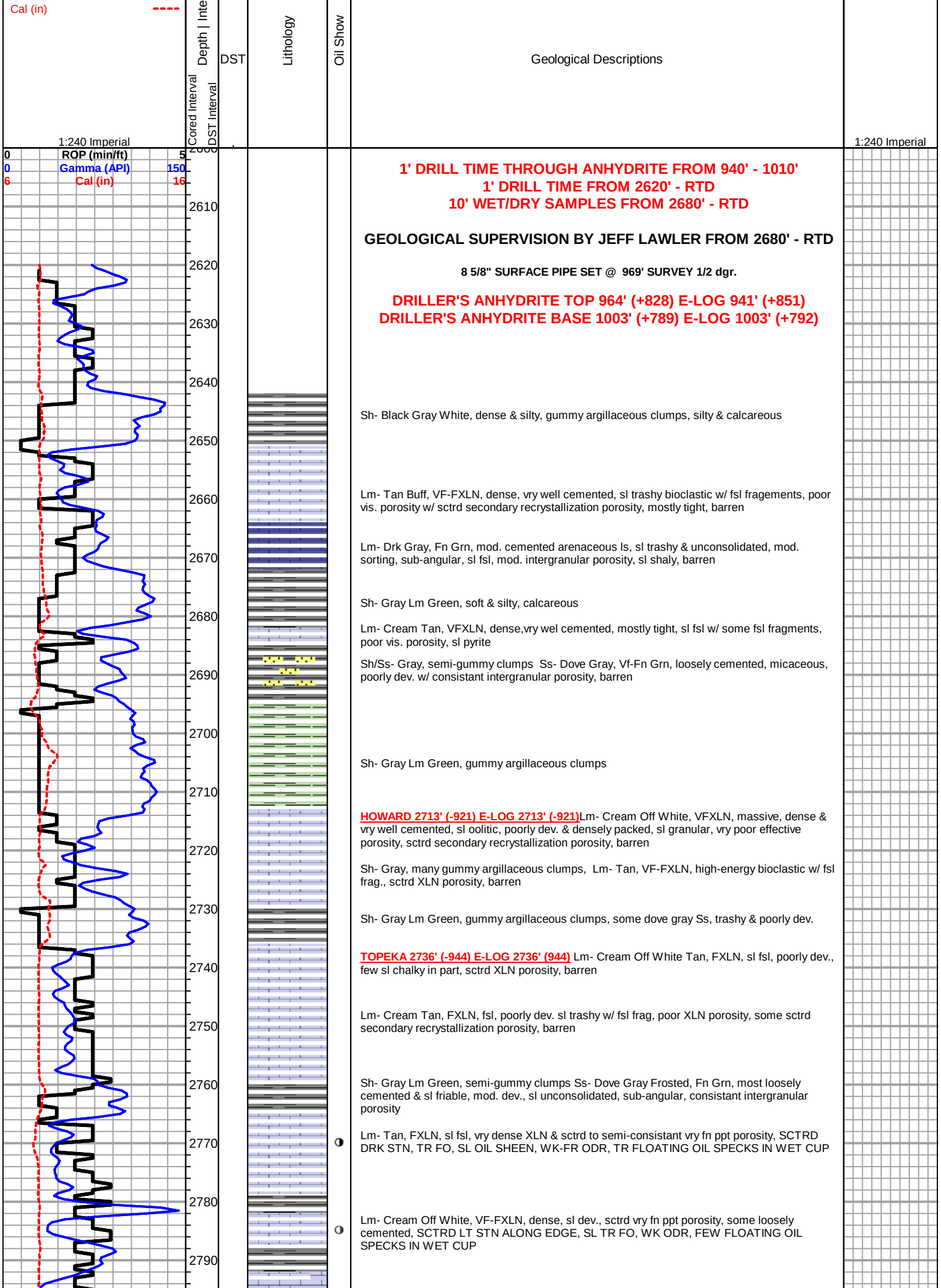
ACCESSORIES

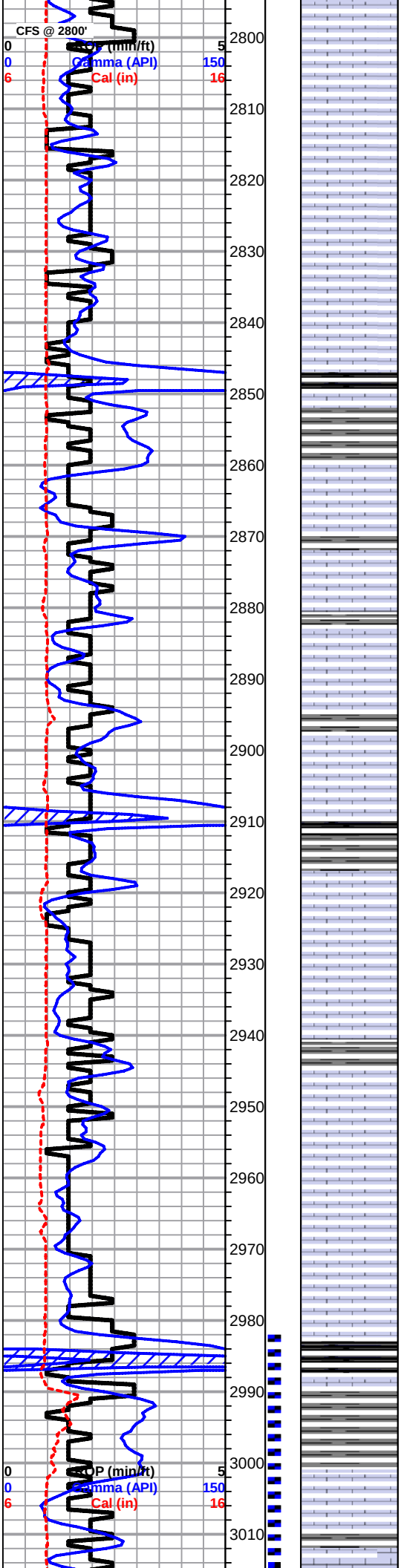
MINERAL Sandy
FOSSIL Oolite
STRINGER Sandstone

OTHER SYMBOLS

DST
DST Int
DST alt

Curve Track #1
ROP (min/ft)
Gamma (API)
rvals
Curve Track #3


Cal (in)
Depth | Inte
DST
Lithology
Oil Show
Geological Descriptions
Cored Interval
DST Interval
1:240 Imperial
1:240 Imperial
0
ROP (min/ft)
5
0
Gamma (API)
150
6
Cal (in)
16
2610
2620
2630
2640
2650
2660
2670
2680
2690
2700
2710
2720
2730
2740
2750
2760
2770
2780
2790
1' DRILL TIME THROUGH ANHYDRITE FROM 940' - 1010'
1' DRILL TIME FROM 2620' - RTD
10' WET/DRY SAMPLES FROM 2680' - RTD
GEOLOGICAL SUPERVISION BY JEFF LAWLER FROM 2680' - RTD
8 5/8" SURFACE PIPE SET @ 969' SURVEY 1/2 dgr.
DRILLER'S ANHYDRITE TOP 964' (+828) E-LOG 941' (+851)
DRILLER'S ANHYDRITE BASE 1003' (+789) E-LOG 1003' (+792)
Sh- Black Gray White, dense & silty, gummy argillaceous clumps, silty & calcareous
Lm- Tan Buff, VF-FXLN, dense, vry well cemented, sl trashy bioclastic w/ fsl fragements, poor vis. porosity w/ sctrd secondary recrystallization porosity, mostly tight, barren
Lm- Drk Gray, Fn Grn, mod. cemented arenaceous ls, sl trashy & unconsolidated, mod. sorting, sub-angular, sl fsl, mod. intergranular porosity, sl shaly, barren
Sh- Gray Lm Green, soft & silty, calcareous
Lm- Cream Tan, VFXLN, dense,vry wel cemented, mostly tight, sl fsl w/ some fsl fragments, poor vis. porosity, sl pyrite
Sh/Ss- Gray, semi-gummy clumps Ss- Dove Gray, Vf-Fn Grn, loosely cemented, micaceous, poorly dev. w/ consistant intergranular porosity, barren
Sh- Gray Lm Green, gummy argillaceous clumps
HOWARD 2713' (-921) E-LOG 2713' (-921)Lm- Cream Off White, VFXLN, massive, dense & vry well cemented, sl oolitic, poorly dev. & densely packed, sl granular, vry poor effective porosity, sctrd secondary recrystallization porosity, barren
Sh- Gray, many gummy argillaceous clumps, Lm- Tan, VF-FXLN, high-energy bioclastic w/ fsl frag., sctrd XLN porosity, barren
Sh- Gray Lm Green, gummy argillaceous clumps, some dove gray Ss, trashy & poorly dev.
TOPEKA 2736' (-944) E-LOG 2736' (944) Lm- Cream Off White Tan, FXLN, sl fsl, poorly dev., few sl chalky in part, sctrd XLN porosity, barren
Lm- Cream Tan, FXLN, fsl, poorly dev. sl trashy w/ fsl frag, poor XLN porosity, some sctrd secondary recrystallization porosity, barren
Sh- Gray Lm Green, semi-gummy clumps Ss- Dove Gray Frosted, Fn Grn, most loosely cemented & sl friable, mod. dev., sl unconsolidated, sub-angular, consistant intergranular porosity
Lm- Tan, FXLN, sl fsl, vry dense XLN & sctrd to semi-consistant vry fn ppt porosity, SCTRD DRK STN, TR FO, SL OIL SHEEN, WK-FR ODR, TR FLOATING OIL SPECKS IN WET CUP
Lm- Cream Off White, VF-FXLN, dense, sl dev., sctrd vry fn ppt porosity, some loosely cemented, SCTRD LT STN ALONG EDGE, SL TR FO, WK ODR, FEW FLOATING OIL SPECKS IN WET CUP



Lm- Cream Tan, VF-FXLN, dense, well cemented, mostly tight & poorly dev. w/ poor vis. porosity, barren

Lm- Cream Buff, VFXLN, dense, vry well cemented, some sl chalky in part, mostly tight w/ poor vis. porosity, barren, 2-3 pcs of oolitic fresh bedded chert w/o vis. porosity

Lm- Cream Off White, VFXLN, dense, vry well cemented, drk gray oolites, poor vis. porosity, barren

Lm- Cream Off White, FXLN, sl fsl, some w/ fsl frag., poorly dev., some sl chalky in part, poor vis. porosity, barren

Sh- Black Gray, fissile & carbonaceous, soft, gritty & calcareous

Lm- Cream Off White, VF-FXLN, dense, mostly well cemented, sl fsl, poorly dev. w/ sctrd XLN porosity, barren

Lm- White Off White, VFXLN, dense, lithographic, vry tight, mostly w/o vis. porosity, vry clean & barren

Lm- White Off White, VFXLN, dense, well cemented, sl arenaceous w/ rounded med grn qtz inclusions, poorly dev. w/ no-poor vis. porosity, vry clean, barren

Lm- Cream Gray, FXLN, sl oolitic, poorly dev., sl chalky in part w/ poor vis. porosity, vry clean, sl trashy w/ fsl frag., poor XLN porosity, all barren

Lm- A/A w/ VF-FXLN gray bioclasitc mix, poorly dev. w/ fsl fragments, barren

Lm- Cream Off White Gray, VF-FXLN, dense, vry well cemented, some sl trashy & fsl, poor XLN porosity

Sh- Black Gray, dense, fissile & carbonaceous, soft, silty & calcareous

Lm- Cream Tan, VF-FXLN, sl fsl w/ fusulinids, poorly dev. & mostly tight, poor XLN porosity, barren

Lm- Buff Tan, VF-FXLN, sl fsl high-energy mix, bioclastic, poor XLN porosity, barren

Lm- Buff, VFXLN, dense, well cemented, tight w/ poor vis. porosity, barren, some soft white chalk

Lm- A/A w/ incr. amount of soft white chalk & loosely cemented mud supported matrix

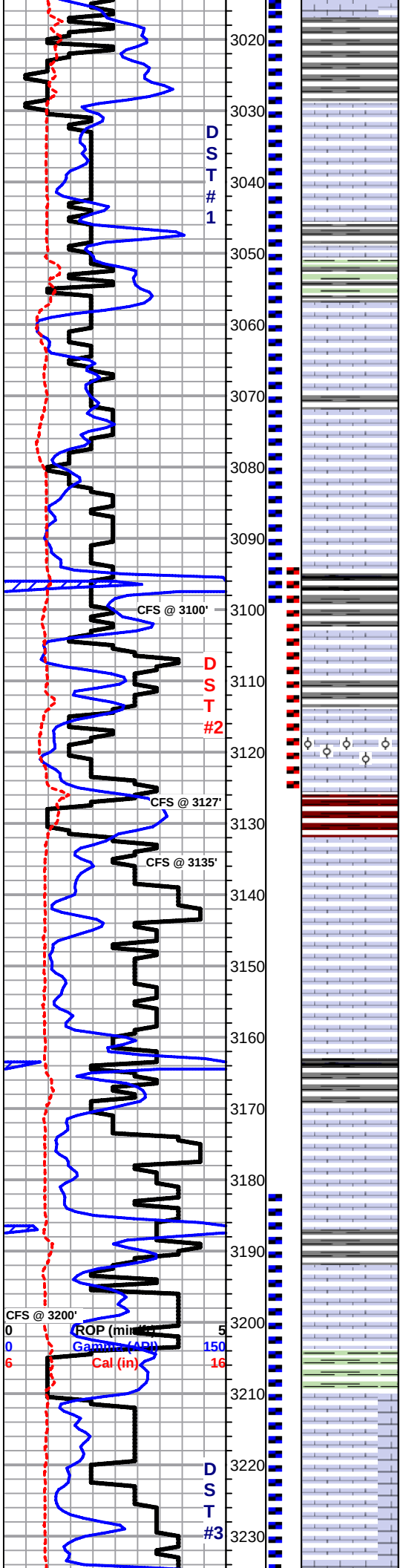
Lm- Cream Off White, FXLN, sl fsl, poorly dev. w/ poor XLN porosity, barren

HEEBNER 2985' (-1193) E-LOG 2981' (-1189) Sh- Black Gray, fissile, dense, carbonaceous, soft & silty

Sh- Gray Lm Green, soft, dense, gummy argillaceous clumps

TORONTO 3006' (-1214) E-LOG 3003' (-1211) Lm- Cream Off White, VF-FXLN, dense, well cemented, mostly tight w/ sctrd XLN porosity, few pcs w/ sctrd patches of vry fn ppt porosity, WK SCTRD STN, NSFO, NO ODR

Lm- Cream Off White, VFXLN, dense, mostly tight w/ minimal vis. porosity, sctrd secondary



Lm- Cream Off White, VF-FXLN, dense, mostly tight w/ minimal vis. porosity, sctrd secondary recrystallization porosity, vry clean, barren

Sh- Maroon Gran, gritty & earthy, some soft wash, silty & calcareous

LKC 3032' (-1240) E-LOG 3029' (-1237 Lm- Cream Off White, VF-FXLN, dense, sl chalky in part, poorly dev., sl unconsolidated, poor vis. porosity, barren

Lm- Cream Off White, FXLN, sl fsl, poorly dev. w/ sctrd XLN porosity, LT SCTRD STN, SL TR FO, WK ODR

Lm- Buff, VFXLN, dense, well cemented, minimal vis. porosity, barren

Sh- Gray Lm Green, silty, some sl sandy

Lm- Cream Off White, FXLN, oolitic, few pcs of vry well dev. w/ sctrd XLN & ppt interoolite porosity, LT SCTRD STN, TR FO, WK ODR

Lm- Cream Off White, FXLN, fsl w/ fusulinids, poorly dev. w/ some sparry replacement cementation, sctrd XLN porosity, WK SCTRD STN, NSFO, NO ODR, some recrystallization w/in porosity

Sh- Maroon, gritty & earthy

Lm- Off White Cream, FXLN, fsl w/ fusulinids & few small crinoids, mod. dev. w/ XLN & ppt porosity, LT SCTRD STN, TR FO, WK-FR ODR

Lm- Off White, A/A w/ diminishing dev., mostly clean & barren w/ less XLN porosity

Sh- Gray, dense & blocky, soft & silty, some calcareous

Lm- Cream Off White, VF-FXLN, dense, poorly dev. w/ minimal vis. porosity, barren,

Sh- Gray Lm Green, soft & silty, some calcareous, dense & soft, some gummy wash

Lm- Cream Off White, mod. well dev. oolitic ls w/ sctrd to consistant fn ppt inter oolite porosity, SCTRD DRK STN, TR FO, MOD. SHEEN, WK ODR

Lm- Tan Cream, VF-FXLN, densely packed poorly dev. oolitic ls w/ sparry replacement cementation, tight w/ minimal vis. porosity, barren

Sh- Gray Maroon, soft & silty, argillaceous clumps

Lm- Cream Off White, VF-FXLN, sl oolitic, poorly dev. w/ sctrd to dense XLN porosity, few pcs w/ sl oomolidic porosity, no connnectivity, vry clean & barren, few pcs of dense soft white chalk

Lm- Cream Off White, VF-FXLN, dense, vry well cemented, tight & poorly dev. w/ minimal vis. porosity, few psc of sl oolitic fresh bedded chert w/o vos, porosity

Sh- Black Gray Maroon Lm Green Gray, fissile & carbonaceous, gritty & earthy, gummy argillaceous clumps

Lm- Cream Off White, VF-FXLN, dense, loosely to well cemented, mostly tight w/ poor vis. porosity, some chalky in part, vry clean

Sh- Gray Lm Green, soft & silty, dense & blocky, gummy argillaceous clumps

Lm- Cream Buff, VF-FXLN, mix of vry clean VFXLN, dense, vry well cemented, tight, 1-2 pcs w/ rare fn ppt porosity, mostly tight, DRK EGDE STN, TR SL GSY FO, NO ODR, & buff FXLN, dense, well cemented, tight w/ sctrd XLN porosity

Sh- Lm Green Gray, silty, soft, some calcareous

Lm- Off White Cream, FXLN, oolitic, mod. dev. w/ sctrd fn ppt interoolite porosity, LT SCTRD STN, NSFO, FNT ODR, few pcs w/ wk oomoldic sctrd dev., no inter vugular connnectivity

Lm- Cream Buff, mix of soft chalky ls w/ poor vis. porosity & dense buff FXLN, well cemented, mostly tight w/ sctrd XLN porosity & some sctrd recrystallization secondary porosity

SHORT TRIP
SURVEY 3/4 dgr
STRAP -0.67

DST #1
TORONTO - LKC D
2982' - 3100'

15-30-30-60

496' GIP
186' GOCM
(20%G, 20%O, 20% M)
45' MUD w/ OIL SPOTS

IFP: 72-117#
FFP: 113-156#
SIP: 471-156#
HYD: 1527-1493#
BHT: 98 dgr.

DST #2
LKC E-F
3094' - 3127'

30-60-45-60

82' GIP
20' GSY OIL (5%G, 95%O)
124' MW w/ OIL SPTS (80%W, 20%M)

Gr: 28
CHLOR: 33,000
Rw: .25 @ 60 dgr

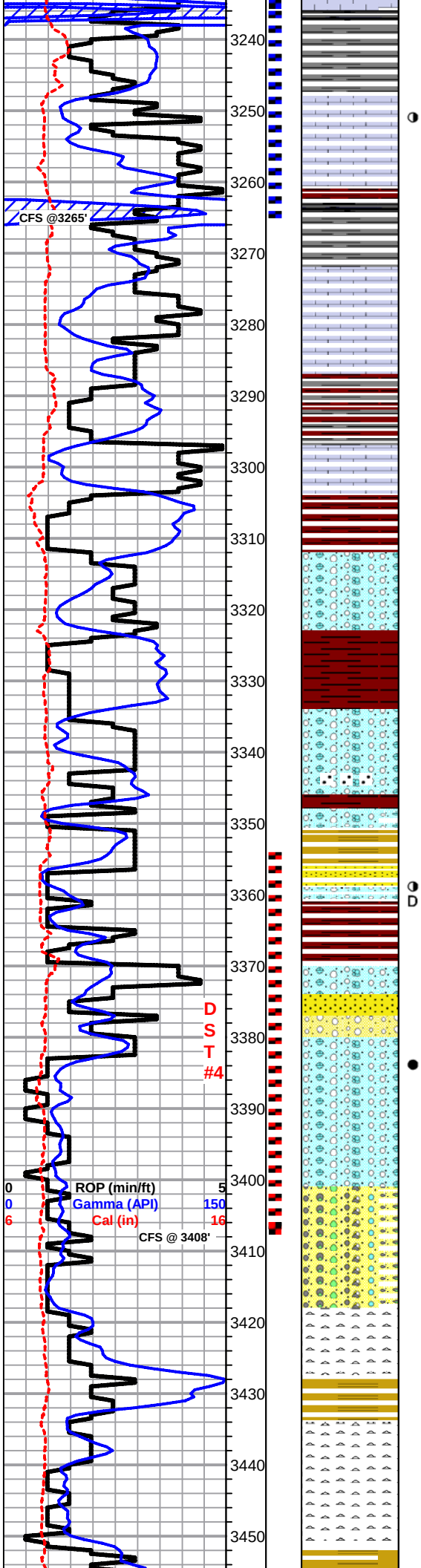
IFP: 19-55#
FFP: 58-91#
SIP: 319-313#
HYD: 1530-1494#
BHT: 97 dgr.

DST #3
LKC I - K
3182' - 3265'

45-60-45-60

124' MUD w/ OIL SPOTS

IFP: 49-107#
FFP: 85-107#
SIP: 1126-1110#
HYD: 1598-1565#
BHT: 100 dgr.



Sh- Black Gray Maroon, fissile, carbonaceous, gritty & earthy, soft & silty

Lm- Cream Off White, F-MEDXLN, oolitic w/ fusulinids, mod. well dev., few pcs w/ conssistant ppt inter fsl porosity, LT SCTRD STN, TR GSY FO, WK-FR ODR

Lm- Cream Tan Buff, FXLN, dense, poorly dev & well cemented, mostly tight w/ sctrd micro XLN & XLN porosity, barren, some soft white chalk

Sh- Black Maroon Gray Lm Green, fissile, carbonaceous, silty, soft, & calcareous

Lm- Tan Cream, VF-FXLN, dense, well cemented, tight w/ minimal vis. porosity, some chalky in part, barren

BKC 3288' (-1496) E-LOG 3287' (-1495) Sh- Gray Maroon, silty soft & calcareous, some gummy wash, gritty & earthy

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

Sh- Maroon Gray, gritty & earthy, silty & calcareous

Conglomerate Lm- Cream/Maroon, VF-FXLN, dense, well cemented, detritial w/ no vis to XLN porosity, some soft & crumbly

Sh- Maroon Gray, soft & crumbly, some gritty & earthy, some w/ linear variations

Conglomerate Lm- Cream Maroon Cream/Yellow, VF-FXLN Fn Grn, dense, some massive, all unsonsolidated, few pcs of granular arenaceous like ls w/ vry poor cementation, all barren

Sh- Maroon Yellow Gray, gummy argillacecous clumps, few sandy pcs

Ss- Clear, Fn Grn, most all consolidated & well sorted, few pcs mod. sorting, all sub-rounded, matture, loosely cemented & friable, SCTRD DRK STN, SOME DO FLAKES, FR SFO, NO ODR

Sh- Maroon, gummy argillaceous clumps

Sh- Maroon Yellow Purple, many gummy argillaceous clumps, gritty & earthy, soft sandy lime
Chert- Yellow Maroon, cryptoXLN w/o vis. porosity

CONGLOMERATE 3383' (-1591) E-LOG 3383' (-1591) Conglomerate Lm- White/Maroon, unconsolidated, well cemented, VFXLN, dense, barren,
Ss- A/A w/ incr. quality/quantity of STN, VRY GD SFO, FEW PCS SUB-BLEEDING W/ FO, NO ODR

Conglomerate- gummy argillaceous clumps, Maroon Yellow & White fresh bedded clean chert w/o vis. porosity

Conglomerate Chert- Maroon Yellow Milky White, mix of fresh bedded & detritial various colored chert, all w/ no vis to cryptoXLN porosity

Chert- Bone White mix of fresh bedded & massive dolomitic chert w/ sctrd XLN porosity

Sh- Maroon Mustard Yellow, dense & blocky, some VFXLN detritial maroon conglomerate ls w/ vis. porosity & mustard yellow fresh bedded chert w/o vis. porosity

Chert- Golden Tan Milky White Bone White Mustard, fresh bedded angular chert

****PLUGGING NOTED DURING BOTH FLOW CYCLES ON CHARTS****

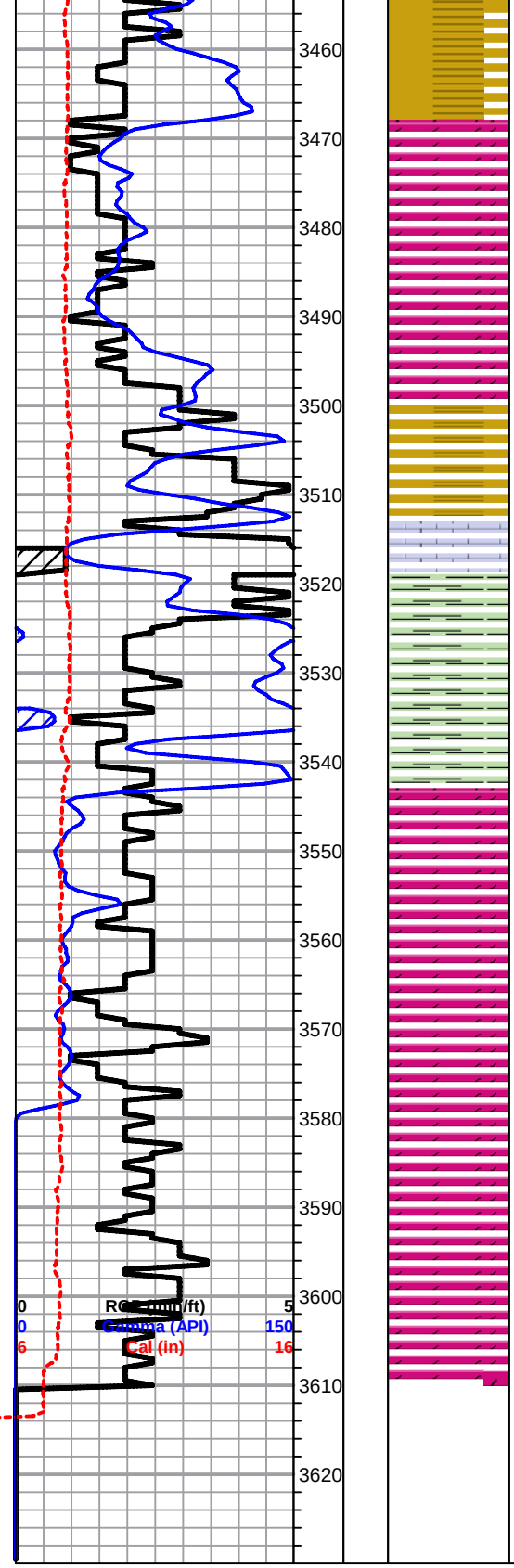
**DST #4
CONGLOMERATE SAND
3354' - 3408'

15-30-45-60

310' GOCM (20%O, 20%O, 60% M)
372' SOCWM (10%O, 40%W, 50% M)
403' GW (5%G, 95%W)

IFP: 88-230#
FFP: 226-515#
SIP: 893-887#
HYD: 1706-1643#
BHT: 99 dgr.

CHLOR: 56,000
Rw: .10 @ 97 dgr.**



Dolomite- A/A w/ incr. bone white massive VFXLN dolomite & dolomitic chert w/ minimal vis. porosity, barren

Dolomite- A/A w/ detritial maroon massive VF-FXLN w/ poor vis. porosity

Lm- White Off White, loosely cemented, sl unconsolidated arenaceous ls, friable, w/ consistant intergranular porosity, barren Sh- soft & crumbly gray shale

Sh- Mint Green, dense & waxy, soft gummy clumps

Sh- A/A

ARBUCKLE 3545' (-1743) E-LOG 3543' (-1751) Dolomite- Cream, VF-FXLN, loosely cemented & crumbly, consistant XLN porosity, barren

Dolomite- Cream, F-Med XLN, mod. dev. w/ consistant XLN porosity, massive, barren

Dolomite- A/A w/ sl incr. in med XLN

Dolomite- Cream, VF-FXLN, dense, well cemented, poorly dev., w/ consistant XLN porosity, barren

Dolomite- Cream, A/A w/ incr. VFXLN w/ poor vis. porosity, barren

Dolomite- Tan, F-Med XLN, consistant inner XLN porosity, few pcs of sl oomoldic w/ sl vuggy porosity, barren

RTD 3610' (-1818) LTD 3610' (-1818) @ 01:59 6/4/2014

10 STAND SHORT TRIP SURVEY TOH FOR LOG