

OPERATOR

Company: TDI, INC.
 Address: 1310 BISON ROAD
 HAYS, KANSAS 67601

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: STACKHOUSE RANCH # 1
 Location: SW SE NE NE Sec.13-12s-19w
 Pool: WILDCAT
 State: KANSAS
 API: 15-051-26,676-00-00
 Field: UNNAMED
 Country: USA



Scale 1:240 Imperial

Well Name: STACKHOUSE RANCH # 1
 Surface Location: SW SE NE NE Sec.13-12s-19w
 Bottom Location:
 API: 15-051-26,676-00-00
 License Number: 4787
 Spud Date: 5/16/2014
 Region: ELLIS COUNTY
 Drilling Completed: 5/22/2014
 Surface Coordinates: 1060' FNL & 360' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 2198.00ft
 K.B. Elevation: 2208.00ft
 Logged Interval: 2500.00ft
 Total Depth: 3899.00ft
 Formation: LANSING-KANSAS CITY
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL
 Time: 1:30 PM
 Time: 6:48 AM
 To: 3899.00ft

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.3723553
 N/S Co-ord: 1060' FNL
 E/W Co-ord: 360' FEL
 Latitude: 39.0129995

LOGGED BY

Company: SOLUTIONS CONSULTING, INC.
 Address: 108 W 35TH
 HAYS, KS 67601
 Phone Nbr: (785) 639-1337
 Logged By: GEOLOGIST
 Name: HERB DEINES

CONTRACTOR

Contractor: SOUTHWIND DRILLING, INC.
 Rig #: 1
 Rig Type: MUD ROTARY
 Spud Date: 5/16/2014
 TD Date: 5/22/2014
 Rig Release: 5/23/2014
 Time: 1:30 PM
 Time: 6:48 AM
 Time: 4:00 AM

ELEVATIONS

K.B. Elevation: 2208.00ft
 K.B. to Ground: 10.00ft
 Ground Elevation: 2198.00ft

NOTES

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON FAVORABLE STRUCTURE AND RESULTS OF DST # 1

OPEN HOLE LOGGING BY PIONEER ENERGY SERVICES: DUAL INDUCTION LOG, DUAL COMPENSATED POROSITY LOG, MICRORESISTIVITY LOG

DRILL STEM TESTING BY TRILOBITE TESTING INC: ONE (1) CONVENTIONAL TEST

FORMATION TOPS COMPARISON CHART AND CHRONOLOGY OF DAILY ACTIVITY


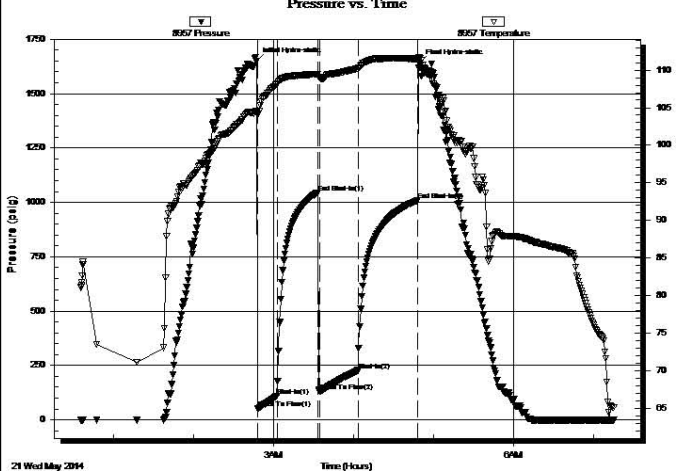
	STACKHOUSE RANCH # 1	JOY # 1	GEORGE # 1
	SW SE NE NE	SE SE NW NE	NW SW SE NW
	SEC.13-12S-19W	SEC.13-12-19W	SEC.18-12-18W
	2198'GL 2208'KB	KB 2218'	KB 2217'
	<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
	Anhydrite	1535 +673	+ 669
	B-Anhydrite	1564 +644	+ 634
	Topeka	3220-1012	-1022
			+684
			+650
			-1011

Heebner Sh.	3450-1242	-1251	-1242
Toronto	3468-1260	-1270	-1262
LKC	3494-1286	-1295	-1286
BKC	3726-1518	-1528	-1532
Arbuckle	3818-1610	-1656	NR
RTD	3899-1691	-1682	-1683

SUMMARY OF DAILY ACTIVITY

- 5-16-14 RU, Spud 1:30 PM, set 8 5/8" surface casing to 223.51' w/ 150 sxs Common 2%Gel 3%CC, slope 1/2 degree, plug down 6:30 PM
- 5-17-14 495', drill plug 2:30 AM
- 5-18-14 2240', drilling
- 5-19-14 2910', drilling, displaced 3015' to 3039'
- 5-20-14 3350', CFS 3560', short trip, TOWB, DST #1 3446'-3560'
- 5-21-14 3560', drilling
- 5-22-14 3890', RTD 3899' @6:48AM, mini trip, TOWB, logs, TIWB, LDDP
- 5-23-14 3899', finish running production casing and cementing, RD

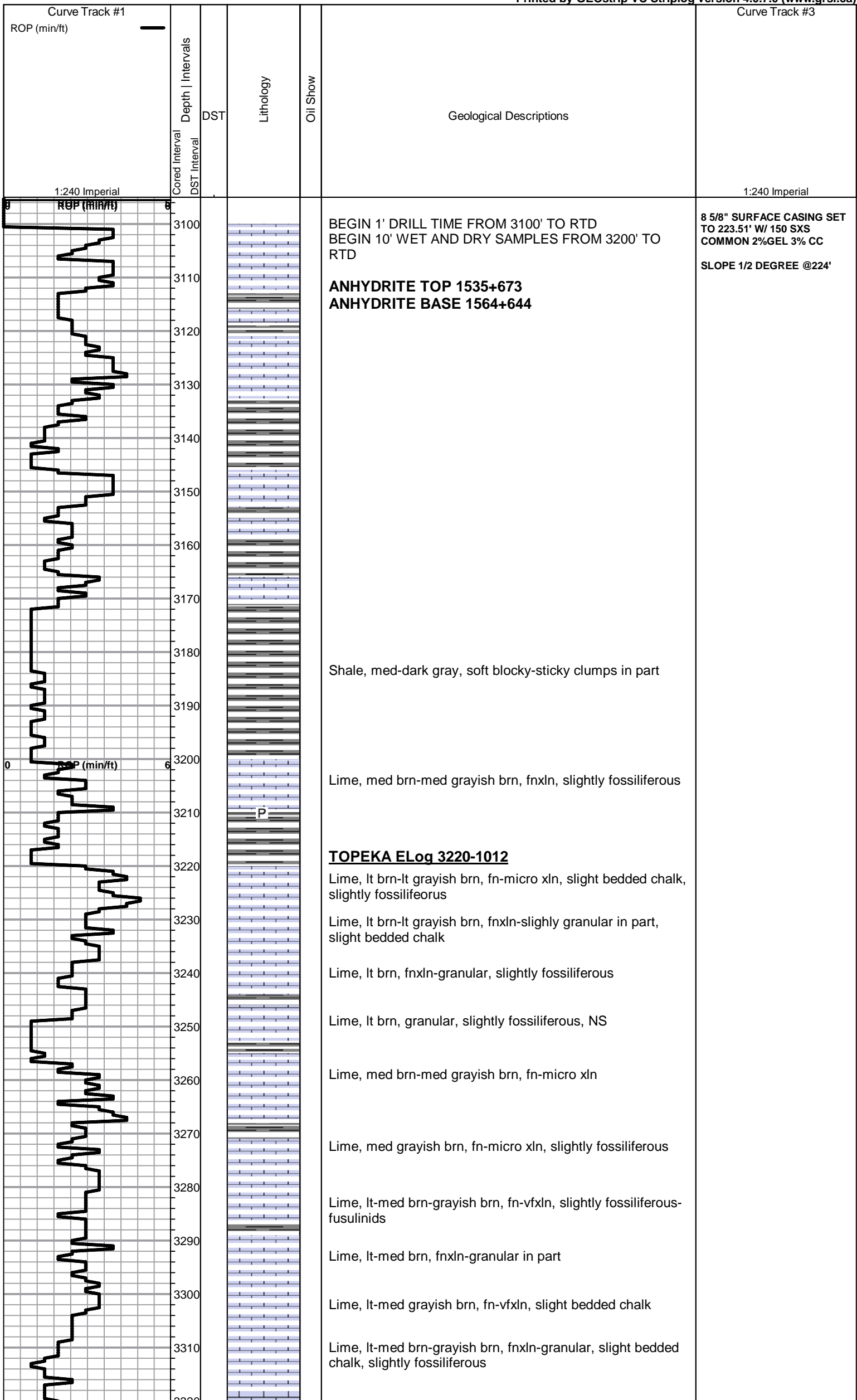
DST # 1 3446' TO 3560' TORONTO TO "D" LKC

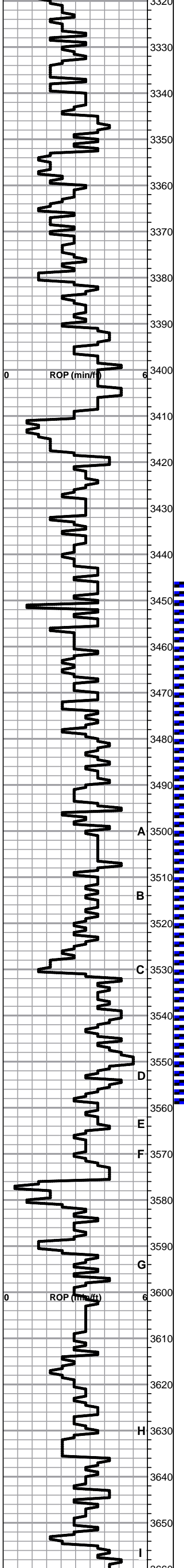
	DRILL STEM TEST REPORT			
	TDI Inc. 1310 Bison Rd Hays KS 67601 ATTN: Herb D	13-12-19, Ellis, KS Stackhouse #1 Job Ticket: 58961 DST#: 1 Test Start: 2014.05.21 @ 00:35:00		
GENERAL INFORMATION:				
Formation: Toronto-KC "D" Deviated: No Whipstock: ft (KB) Time Tool Opened: 02:48:00 Time Test Ended: 07:14:45		Test Type: Conventional Bottom Hole (Initial) Tester: Brett Dickinson Unit No: 59		
Interval: 3446.00 ft (KB) To 3560.00 ft (KB) (TVD) Total Depth: 3560.00 ft (KB) (TVD) Hole Diameter: 7.88 inches Hole Condition: Fair		Reference Elevations: 2208.00 ft (KB) 2200.00 ft (CF) KB to GR/CF: 8.00 ft		
Serial #: 8957 Inside				
Press@RunDepth: 227.40 psig @ 3447.00 ft (KB) Start Date: 2014.05.21 End Date: 2014.05.21 Start Time: 00:35:05 End Time: 07:14:44		Capacity: 8000.00 psig Last Calib.: 2014.05.21 Time On Btm: 2014.05.21 @ 02:46:45 Time Off Btm: 2014.05.21 @ 04:49:00		
TEST COMMENT: IF-BOB in 2min ISI-BOB in 19 1/2min FF-BOB in 3min FSI-BOB in				
	PRESSURE SUMMARY			
	Time (Mn.)	Pressure (psig)	Temp (deg F)	Annotation
	0	1650.90	104.56	Initial Hydro-static
	2	52.61	104.17	Open To Flow (1)
	16	110.94	108.11	Shut-In(1)
	47	1045.14	109.43	End Shut-In(1)
	48	129.94	109.07	Open To Flow (2)
	77	227.40	110.21	Shut-In(2)
	121	1009.23	111.49	End Shut-In(2)
	123	1642.66	111.72	Final Hydro-static
Recovery		Gas Rates		
Length (ft)	Description	Choke (inches)	Pressure (psig)	Gas Rate (Mcf/d)
60.00	VGO 40%G 60%O			0.84
500.00	GO 20%G 80%O			7.01
0.00	620ft GIP			0.00

ROCK TYPES					
	Cht vari		Lmst fw<7		Lscongl
	Dolprim		Lmst fw7>		shale, grn
					shale, gry
					Carbon Sh
					shale, red

ACCESSORIES	
MINERAL	FOSSIL
▲ Chert, dark	○ Oolite
P Pyrite	⊕ Oomoldic
△ Chert White	

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Shale, black carbonaceous-gray, blocky

Lime, med brn, fnxln, slightly fossiliferous

Lime, crm-tan, fn-vfxln, lithographic

Lime, crm-tan-lt brn, fnxln, bedded chalk, slightly fossiliferous

Lime, lt-med brn, fnxln, slightly fossiliferous

Lime, lt-med brn, fnxln, slight bedded chalk, slightly fossiliferous

Lime, lt-med brn, fn-micro xln

Shale, black carbonaceous, fissile, blocky

Lime, crm-tan, fnxln, few chips with oil stained fossil casts, NFO, No Odor

Lime, crm-tan, fn-vfxln, white fresh chert

Lime, med brn-med grayish brn, fn-vfxln

Lime, med brn-grayish brn, granular with bedded chalk, NS

Lime, lt-med brn, fnxln

Lime, med brn, fn-micro xln, slightly fossiliferous

Lime, lt-med brn, fn-vfxln, bedded chalk in part

HEEBNER SHALE ELog 3450-1242

Shale, black carbonaceous, fissile, blocky
Lime, lt-med brn, vf-micro xln

Shale, lime green, soft blocky-soft mud

TORONTO ELog 3468-1260

Lime, crm-tan, fnxln, zone of oolitic with scattered vugs with calcite recrystallization, scattered-saturated stain, NSO, No Odor

Lime, lt brn, fn-vfxln

Shale, red wash, soft mud

LKC ELog 3494-1286

Lime, tan, fn-vfxln-micro xln

Shale, med gray, calcareous with crinoid segments

Lime, med gray, fnxln, shaley in part, slight fossiliferous with specks of glauconite in part

Lime, tan-lt brn, fnxln grading into oolitic-oomoldic with fossil fragments, scattered to saturated stain, NFO, very lt odor, interparticle porosity

Lime, tan-lt brn, fnxln, slightly fossiliferous

Lime, tan-lt gray, thin bed oolitic with fossil fragments, scattered-saturated staining, NOF, No Odor, interparticle porosity

Shale, black carbonaceous
Lime, lt gray with green tint, fn-vfxln

Lime, crm-tan, fnxln

Lime, crm-tan, fnxln-granular, vuggy, lt scattered staining, NFO, very lt odor, dolomitic in part with vuggy porosity

Lime, crm-tan, fn-vfxln, bedded chalk

Lime, crm-tan, fn-vfxln, slight bedded chalk

Lime, crm-tan, fn-vfxln, slight bedded chalk

Shale, lt gray-black, blocky

Shale, lt gray-lime green, firm blocky to soft mud

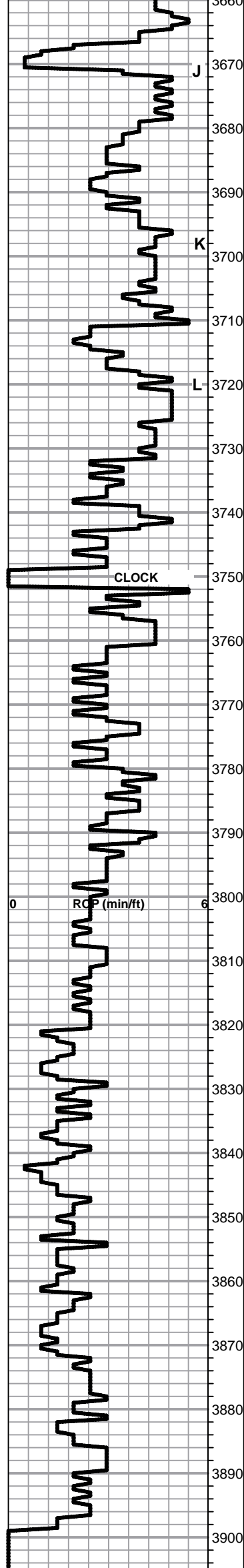
Lime, tan-lt brn, fnxln with zone of oolitic-fossil fragments with interfossil porosity with scattered vugs, scattered to saturated staining, NFO, lt odor

Lime, tan-lt brn, fn-vfxln, tan chert

Lime, med brn, vfxln
Shale, lt gray, calcareous

Lime, crm-tan, fn-vfxln with zone of oolitic with fossil fragments, scattered dark stain, NFO, No Odor, fine inter xln porosity with scattered pinpoint vuggy porosity

DST #1 3446' TO 3560' SEE
HEADER FOR TEST
SUMMARY



Lime, crm, fn-micro xln, slight bedded chalk

Lime, tan-crm, oolitic-oomoldic, scattered to saturated staining, lt odor with specks of free oil.

Lime, tan-crm, fn-vfxln, slight bedded chalk

Shale, gray-black carbonaceous

Lime, crm, fn-micro xln, slight bedded chalk

Lime, crm-tan, fn-micro xln, slight bedded chalk

Lime, crm-lt gray near shale boundary, fn-micro xln

Shale, black carbonaceous, fissile, blocky

Lime, tan-lt brn, fnxln with thin bed oolitic, spotty stain, NFO, no odor, not well developed

BKC ELog 3726-1518

Shale, red, blocky

Lime, tan, oolitic and well cemented

Shale, red wash

Lime, crm-tan, partial clastic mix with red shale staining

Shale, red wash

Lime, crm-tan, fnxln-granular, bedded chalk, NS, clastics in part

Shale, red -vari colored, no red wash

Lime, tan-lt brn, fnxln, clastic mix in part

Lime, vari color mix with yellow tint, granular

Shale, red-dark brn, soft-firm blocky

Shale, red wash with red cherts

Shale, red with increasing chert content

ARBUCKLE ELog 3818-1610

Dolomite, crm, fnxln-fine granular, scattered gilsonite and heavy dark oil specks in fine interxln with scattered vugs and micro fractures, No Odor. Oil appears to be very low gravity

Dolomite, crm-tan, fnxln with increasing granular with interxln porosity, few chips of white chert, fresh, sharp

Dolomite, crm-lt brn, fnxln, scattered oolitic chert

Dolomite, crm-lt brn, fnxln-granular

Dolomite, crm-tan-lt brn with scattered salmon, fnxln

Dolomite, crm-med brn, increasing grain size to cxln, few quartz grain recrystallizations in voids

RTD 3899-1691 LTD 3902-1694