

OPERATOR

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

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: LANG # 7
 Location: SE NW NW SE Sec.21-14s-16w API: 15-051-26,631-00-00
 Pool: INFIELD Field: DREILING
 State: KANSAS Country: USA



Scale 1:240 Imperial

Well Name: LANG # 7
 Surface Location: SE NW NW SE Sec.21-14s-16w
 Bottom Location:
 API: 15-051-26,631-00-00
 License Number: 4787
 Spud Date: 11/23/2013 Time: 5:00 PM
 Region: ELLIS COUNTY
 Drilling Completed: 11/28/2013 Time: 2:17 AM
 Surface Coordinates: 2225' FSL & 1990' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 1863.00ft
 K.B. Elevation: 1873.00ft
 Logged Interval: 2200.00ft To: 3567.00ft
 Total Depth: 3567.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.1022993 Latitude: 38.8190366
 N/S Co-ord: 2225' FSL
 E/W Co-ord: 1990' FEL

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: 11/23/2013 Time: 5:00 PM
 TD Date: 11/28/2013 Time: 2:17 AM
 Rig Release: 11/29/2013 Time: 2:00 AM

ELEVATIONS

K.B. Elevation: 1873.00ft Ground Elevation: 1863.00ft
 K.B. to Ground: 10.00ft

NOTES

RECOMMENDATION TO PLUG AND ABANDON WELL BASED ON LOW STRUCTURE OF ARBUCKLE AND NEGATIVE RESULTS OF DST # 1 OVER THE UPPER ARBUCKLE

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) STRADDLE TEST

FORMATION TOPS SUMMARY AND CHRONOLOGY OF DAILY ACTIVITY

LANG # 7
SE NW NW SE
SEC.21-14S-16W
1863'GL 1873'KB

LANG # 4
N2 N2 SE
SEC.21-14S-16W

<u>FORMATION</u>	<u>SAMPLE TOPS</u>	<u>LOG TOPS</u>	<u>COMPARISON</u>
Anhydrite	971 +902	970 +903	+ 904
B-Anhydrite	1008 +865	1008 +865	+ 867
Stotler/Tarkio	2604 -731	2604 -731	- 728

ROCK TYPES

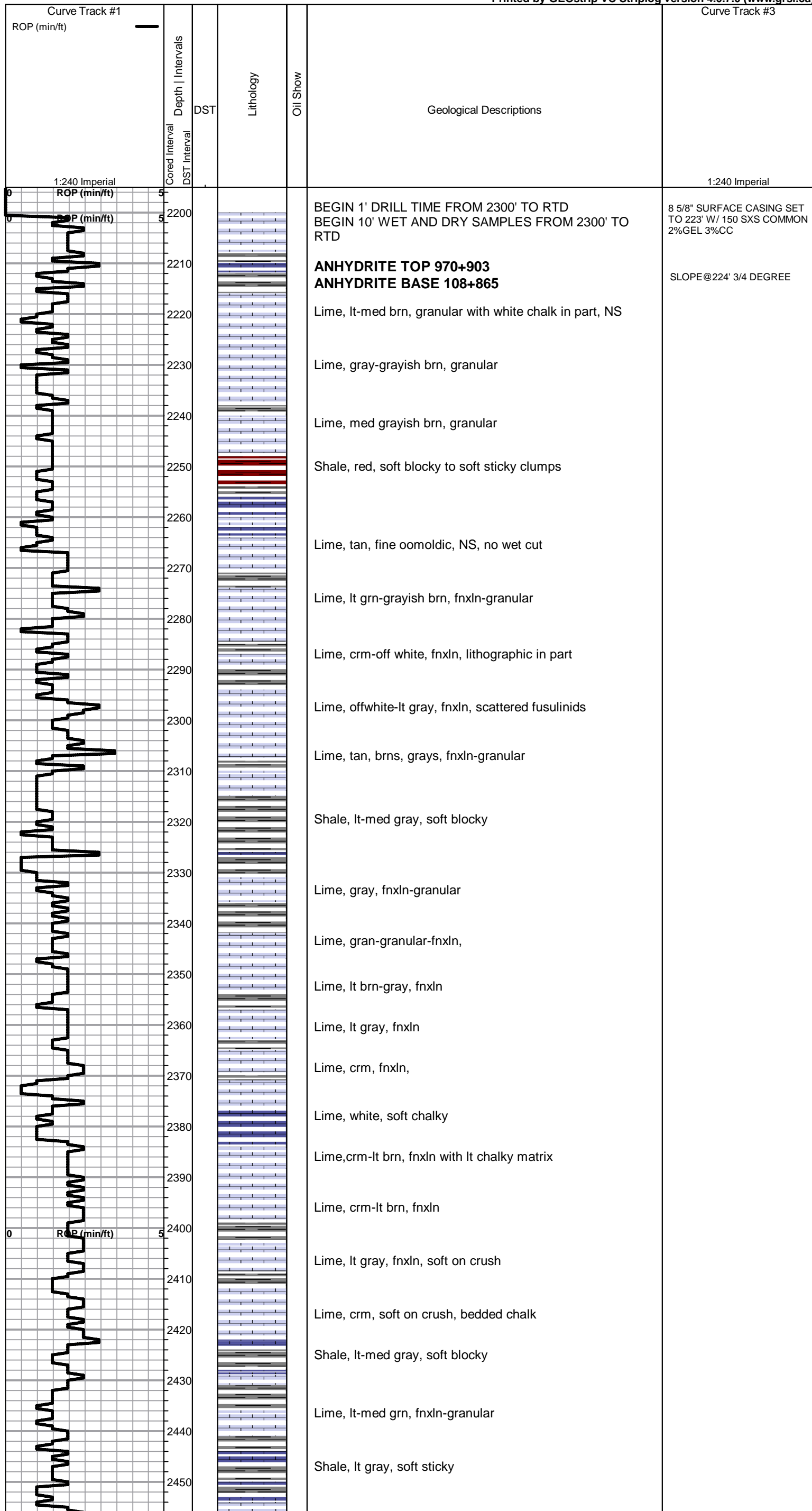
	Cht vari		Dolprim		Lscongl		Carbon Sh		Ss
	Clystgy		Lmst fw<7		shale, grn		shale, red		CglSandy
	Congl		Lmst fw>7		shale, gry		Shcol		

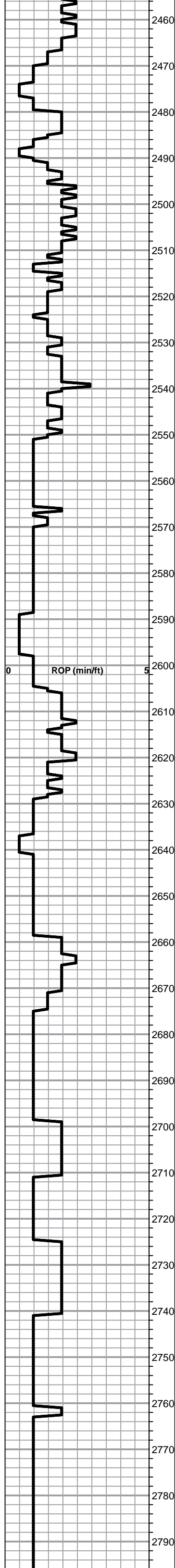
ACCESSORIES

FOSSIL

- Oolite
- Oomoldic

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2460 Lime, tan, fxlIn, hard on crush

2470 Shale, lt-med gray, soft blocky to soft sticky clumps in part

2480 Lime, lt gray, fxlIn

2490 Shale, lt gray, soft mud

2500 Lime, crm-lt gray, fxlIn, chalky, soft on crush

2510 Lime, crm-lt brn-lt gray, soft granular, slightly fossiliferous

2520 Shale, lime green-lt gray, soft mud with sticky mix of clay and chalk

2530 Lime, crm-lt brn, soft chalky

2540 Lime, lt-med brn, fxlIn, chalk in part

2550 Lime, lt brn-lt grayish brn, fxlIn with gray mottling near shale boundary

2555 SS, lt gray, fine gritty, micaceous, glauconitic, appears to be thin and poorly developed, NS

2560 Shale, lt gray, soft sticky clumps

2570 Lime, lt-med brn, fxlIn

2580 Shale, lt gray sticky clumps grading into lt gray, fine gritty sandstone. Appears poorly developed and poorly sorted.

2590 Shale, lt gray, soft sticky clumps

2600 ROP (min/ft) 5

2610 Lime, lt brn, fxlIn-granular in part, slightly fossiliferous, some bedded chalk in part

2620 Lime, lt-med brn, fxlIn-granular in part, bed chalk in part

2630 Lime, tan-lt brn, fn-vfxIn

2640 Shale, lt gray, soft - soft sticky clumps grading into fine grained, micaceous, glauconitic sandstone. Poor to fair sorting with very lt show free oil on crush.

2650 Shale, lt gray, soft-soft sticky clumps

2660 Lime, lt brn, fxlIn

2670 Lime, lt brn fxlIn

2680

2690 Lime, lt-med brn-grayish brn, granular with specks of glauconite in part

2700 Lime, lt-med brn, fxlIn

2710 Lime, lt-med brn, fxlIn-granular, soft on crush

2720

2730 Lime, lt-med brn, fxlIn

2740 Lime, med brn, fxlIn

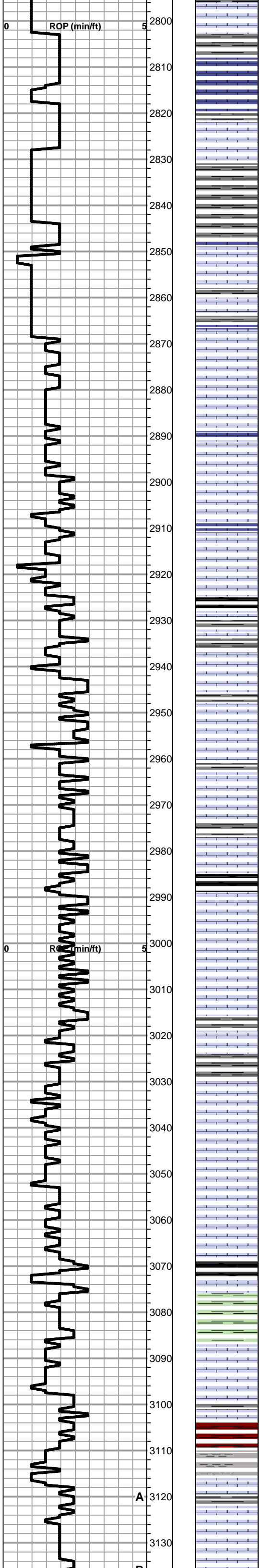
2750

2760 Lime, lt -med brn, fxlIn, slightly fossiliferous

2770

2780 Shale, lt-med gray, soft-soft blocky

2790



Lime, lt-med brn, granular

Lime, lt-med brn-grayish brn, fxlIn

Lime, lt-med brn, fxlIn-granular in part

Shale, lt-med gray, soft blocky

TOPEKA ELog 2848-975

Lime, lt-med brn-grayish brn, fxlIn-granular

Lime, crm-tan, fxlIn, soft on crush, chalky

Lime, white, fxlIn, slight chalk

Lime, lt-med brn, fxlIn

Lime, white-tan, fxlIn, slight chalk

Lime, white, fxlIn

Lime, tan, fxlIn, slight bedded chalk

Lime, crm-tan, fxlIn-granular, bedded chalk

Shale, black carbonaceous

Lime, lt-med brn, fxlIn

Lime, crm-tan, fxlIn, slight bedded chalk

Lime, crm to tan, fxlIn

Lime, crm-tan, fxlIn, bedded chalk

Lime, crm-tan, fxlIn, bedded chalk

Lime, lt-med gran, fxlIn,

Shale, black carbonaceous

Lime, white-crm, fxlIn

Lime, white-crm, fxlIn-slightly granular, bedded chalk

Lime, crm-lt brn, fxlIn-slightly granular, bedded chalk

Lime, crm-lt-med brn, fxlIn, bedded chalk in part

Lime,lt-med brn, fxlIn-granular

Lime, lt-med brn, fxlIn-granular, slight bedded chalk

Lime, lt-med brn, fxlIn-granular, slight bedded chalk

HEEBNER SHALE, ELog 3068-1195

Shale, black carbonaceous, fissile, blocky

Lime, med brn, microxlIn

Shale, dove gray-lime green, soft-soft mud clumps

TORONTO ELog 3088-1215

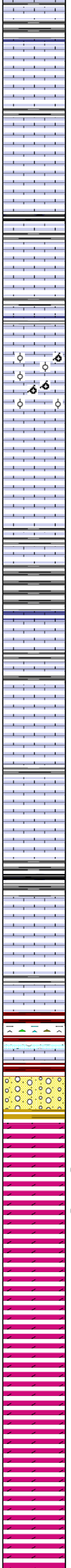
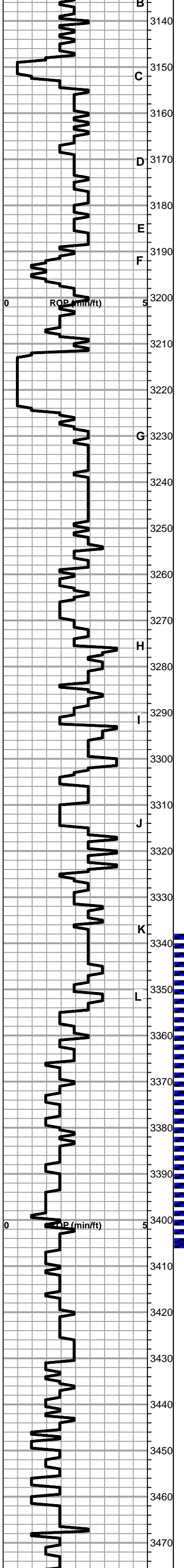
Lime, white, fxlIn-granular, slight bedded chalk

Lime, white-lt brn, fn-vfxIn

LKC ELog 3116-1243

Lime, lt-med brn, fxlIn

Lime, crm, fxlIn



Lime, lt-med brn, fnxln

Lime, lt-med brn, fnxln grading into granular lime,

Lime, lt-med brn, fnxln

Lime, lt brn, fnxln-granular in part

Lime, lt brn, fnxln

Shale, gray-black carbonaceous
Lime, pale gray, fine-vf xln

Lime, crm-lt brn, fnxln-granular,

Lime, crm, fnxln,

Lime, crm, fnxln-oolitic/oomoldic, NS

Lime, crm, fnxln

Lime, crm-tan, fnxln, slight bedded chalk

Lime, tan-lt brn, fnxln

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

Lime, crm-tan, fnxln, NS

Lime, lt-med brn, fn-vfxln

Lime, lt brn, fnxln-granular in part

Lime, crm-tan, fn-vfxln

Lime, crm, fnxln-granular, lt bedded chalk, porosity appears thinly developed and tite on the microlog

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

Shale, gray-black carbonaceous in part

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

Lime, crm-tan-lt brn, fn-micro xln

Lime, crm, fn-micro xln

BKC ELog 3355-1482

Shale, reddish brn, firm blocky, mixed vari color chert nodules

Lime, crm-tan, fn-vfxln, slight chalk, few clastic chips

Vari color shales and cherts

ARBUCKLE ELog 3379-1506

Dolomite, tan-lt brn, granular, microlog indicates poor porosity and permeability development

Dolomite, tan-lt brn, fn-cxln, brittle but friable on crush, lt odor and lt staining

Dolomite, tan-lt brn, fn-cxln, granular in part , decreasing odor and staining

Dolomite, crm-tan, fn-cxln, granular in part

Dolomite, as above

Dolomite, crm-tan, fn-cxln, granular in part

Dolomite, crm-tan, fn-cxln, granular

Dolomite, crm-tan, fn-cxln, granular

Dolomite, as above

DST # 1 3338' TO 3405' SEE
HEADER FOR TEST
SUMMARY

1ST PLUG @3350' W/ 50 SXS
2ND PLUG @1025' W/25 SXS
3RD PLUG @425' W/ 80 SXS
4TH PLUG @40' W/ 10 SXS
RATHOLE W/ 30 SXS
MOUSEHOLE W/ 25 SXS

