

**OPERATOR**

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

Contact Geologist: TOM DENNING  
 Contact Phone Nbr: 785-628-2593  
 Well Name: PFANNENSTIEL # 1  
 Location: NW SE NW SE SEC.23-15S-18W  
 API: 15-051-26,728-00-00  
 Pool: INFIELD  
 State: KANSAS

Field: BIELMAN  
 Country: USA



Scale 1:240 Imperial

Well Name: PFANNENSTIEL # 1  
 Surface Location: NW SE NW SE SEC.23-15S-18W  
 Bottom Location:  
 API: 15-051-26,728-00-00  
 License Number: 4787  
 Spud Date: 9/2/2014 Time: 5:30 AM  
 Region: ELLIS COUNTY  
 Drilling Completed: 9/7/2014 Time: 6:45 AM  
 Surface Coordinates: 1745' FSL & 1865' FEL  
 Bottom Hole Coordinates:  
 Ground Elevation: 1980.00ft  
 K.B. Elevation: 1990.00ft  
 Logged Interval: 2850.00ft To: 3675.00ft  
 Total Depth: 3675.00ft  
 Formation: ARBUCKLE  
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

**SURFACE CO-ORDINATES**

Well Type: Vertical  
 Longitude: -99.2889753  
 Latitude: 38.730694  
 N/S Co-ord: 1745' FSL  
 E/W Co-ord: 1865' FEL

**LOGGED BY**

Company: SOLUTIONS CONSULTING, INC.  
 Address: 108 WEST 35TH STREET  
 HAYS, KANSAS 67601

Phone Nbr: 785-625-3380  
 Logged By: GEOLOGIST Name: HERB DEINES

**CONTRACTOR**

Contractor: SOUTHWIND DRILLING, INC.  
 Rig #: 1  
 Rig Type: MUD ROTARY  
 Spud Date: 9/2/2014 Time: 5:30 AM  
 TD Date: 9/7/2014 Time: 6:45 AM

**ELEVATIONS**

K.B. Elevation: 1990.00ft  
 K.B. to Ground: 10.00ft

Ground Elevation: 1980.00ft

**NOTES**

RECOMMENDATION TO PLUG AND ABANDON WELL BASED ON LOG ANALYSIS, LOW STRUCTURE OF LKC AND ARBUCKLE AND SHALING OUT OF UPPER ARBUCKLE PRODUCTIIVE INTERVAL

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

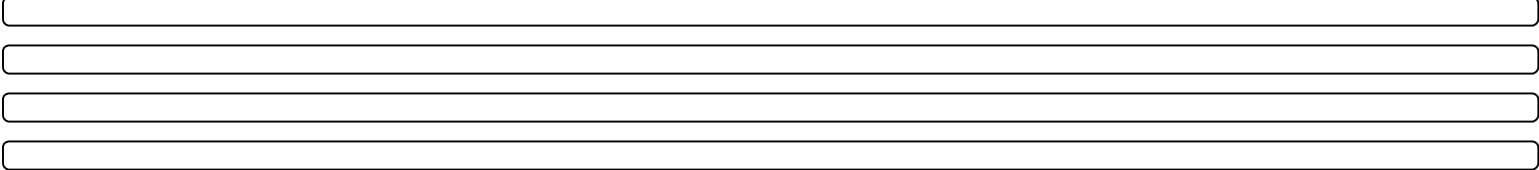
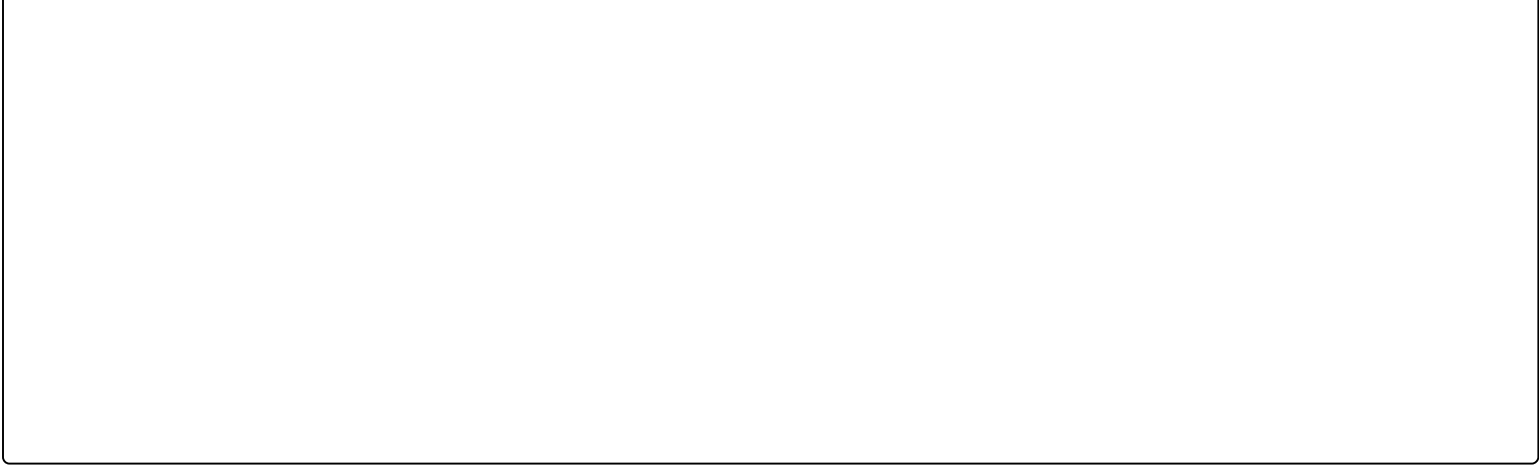
NO DRILL STEM TESTS WERE RAN ON THIS WELL

**FORMATION TOPS SUMMARY**

	<b>PFANNENSTIEL #1</b>	<b>CHARLOTTE TR #1</b>	<b>RUDER #1-23</b>
	<b>NW SE NW SE</b>	<b>E2 SW SE NE</b>	<b>E2 E2 SW</b>
	<b>SEC.23-15S-18W</b>	<b>SEC.23-15-18W</b>	<b>SEC.23-15-18W</b>
	<b>1980'GL 1990'KB</b>	<b>KB 1965'</b>	<b>KB 2000'</b>
<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
<b>Anhydrite</b>	<b>1150 +840</b>	<b>+ 837</b>	<b>+ 855</b>
<b>B-Anhydrite</b>	<b>1186 +804</b>	<b>+ 803</b>	<b>+ 818</b>
<b>Topeka</b>	<b>2971 - 981</b>	<b>- 979</b>	<b>- 964</b>
<b>Heebner Sh.</b>	<b>3237-1247</b>	<b>-1243</b>	<b>-1230</b>
<b>Toronto</b>	<b>3260-1270</b>	<b>-1265</b>	<b>-1252</b>
<b>LKC</b>	<b>3289-1299</b>	<b>-1294</b>	<b>-1281</b>
<b>BKC</b>	<b>3514-1524</b>	<b>-1515</b>	<b>-1506</b>
<b>Arbuckle</b>	<b>3590-1600</b>	<b>-1557</b>	<b>-1576</b>
<b>RTD</b>	<b>3675-1685</b>	<b>-1685</b>	<b>-1955</b>

**SUMMARY OF DAILY ACTIVITY**

9-02-14 RU, spud 5:00 PM  
 9-03-14 1018', set 8 5/8" surface casing to 1166' w/ 375 sxs SMD, slope 1/2 degree, plug down 4:30PM, WOC 12 hrs  
 9-04-14 1240', drill plug 4:30 AM  
 9-05-14 2385', drilling, displaced 2879'-2898'  
 9-06-14 3163', drilling, CFS 3325'  
 9-07-14 3675', drilling, RTD 3675' @ 6:45AM, short trip, TOWB, logs, P&A



**ROCK TYPES**

Cht vari	Dolprim	shale, grn	shale, red	Lscongl
Clystgy	Lmst fw<7	shale, gry	Shcol	
Chtcongl	Lmst fw7>	Carbon Sh	Karst Topo	

**ACCESSORIES**

**MINERAL**

- ▲ Chert, dark
- △ Chert White

**OTHER SYMBOLS**

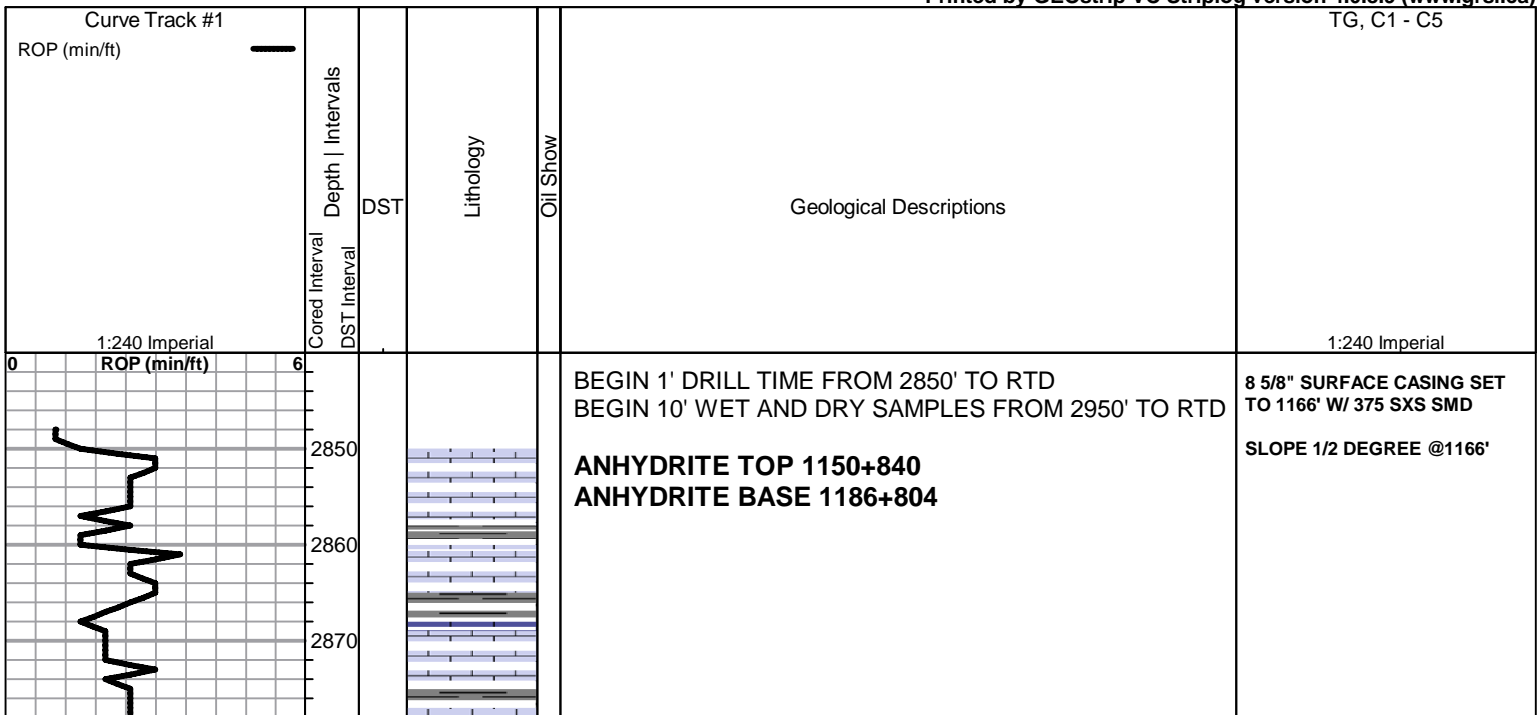
**Oil Show**

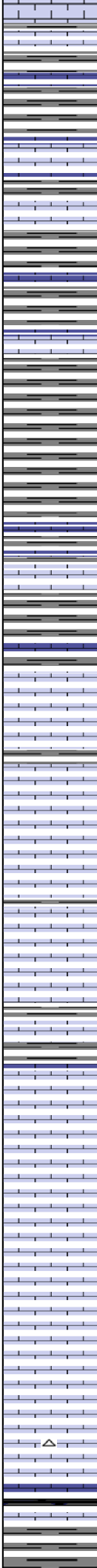
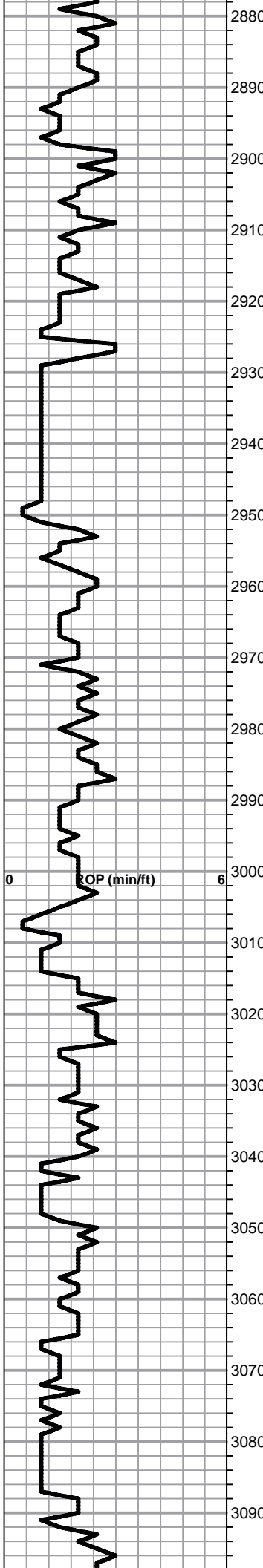
- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- Dead Oil Stn
- Fluorescence
- \* Gas

**DST**

- DST Int
- DST alt
- Core
- tail pipe

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Shale, lt-med gray, soft blocky

Lime, med-dark brn, fnxln, fossiliferous

Shale, lt-med gray, soft-firm blocky, calcareous in part

Lime, dark brn, fnxln, slightly fossiliferous

Lime, lt-med brn, fnxln  
Shale, med gray, soft blocky

**TOPEKA ELog 2971-981**

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

Lime, lt-med brn-lt grayish brn, fnxln

Lime, lt chocolate brn, slightly granular-fnxln

Lime, lt brn-lt grayish brn, fnxln

Lime, lt brn, granular, NS, bedded chalk in chalky matrix

Lime, lt brn-lt grayish brn, fnxln

Lime, lt brn, fnxln-granular in part, slight bedded chalk

Lime, lt brn-lt grayish brn, fnxln-granular, slight bedded chalk

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

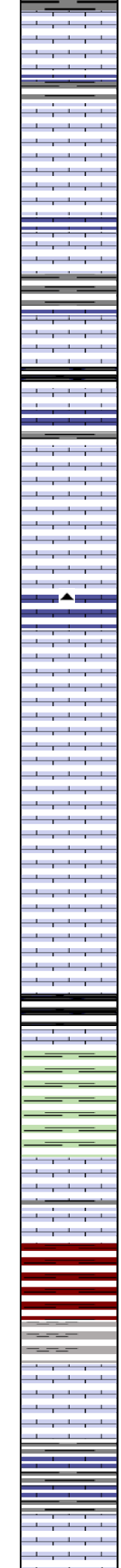
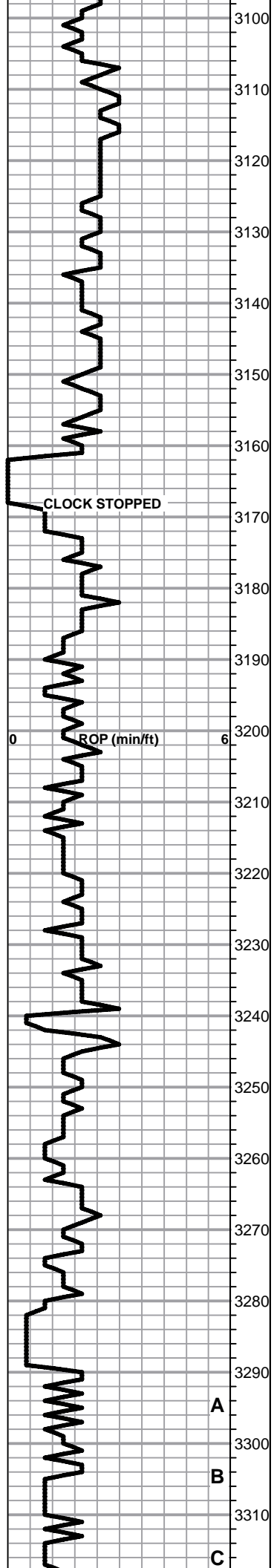
Lime, lt brn, fnxln-granular, slight bedded chalk

Lime, tan-lt brn, fnxln-granular, slight bedded chalk

Lime, lt brn, granular, slightly fossiliferous-fusulinds  
Chert, white, sharp, fossiliferous in part

Shale, black carbonaceous

ROP (min/ft)



Lime, crm-lt brn, fnxln, slightly fossiliferous

Lime, crm, fnxln, sub-lithographic, slight bedded chalk

Lime, crm-lt brn, fn-vfxln, sub-lithographic

Lime, tan-lt brn, fnxln-granular in part

Lime, tan-lt gray, fnxln

Shale, black carbonaceous  
Lime, lt-med brn, fn-vfxln

Lime, tan-lt brn, fnxln-granular, slight bedded chalk, NS

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

Lime, lt brn, fn-vfxln

Lime, crm-lt brn, fnxln-granular , NS

Lime, tan-lt brn, fnxln-granular in part, NS

Lime, tan-lt brn, fnxln-granular, slight bedded chalk

Lime, tan-lt brn, fnxln-granular

Lime, tan-lt brn, fnxln, slight bedded chalk

**HEEBNER SHALE ELog 3237-1247**  
Shale, black carbonaceous, fissile, blocky

Shale, lime green soft mud

**TORONTO ELog 3260-1270**  
Lime, tan-lt brn, fnxln, bedded chalk, NS  
Lime, lt brn, fnxln, NS

Shale, red-brn, soft blocky with lt red wash

**LKC ELog 3289-1299**  
Lime, tan, fnxln, NS

Lime, lt-med brn, fnxln

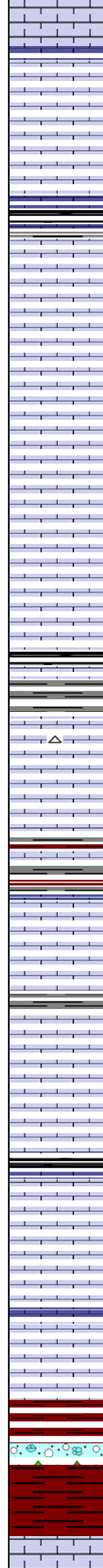
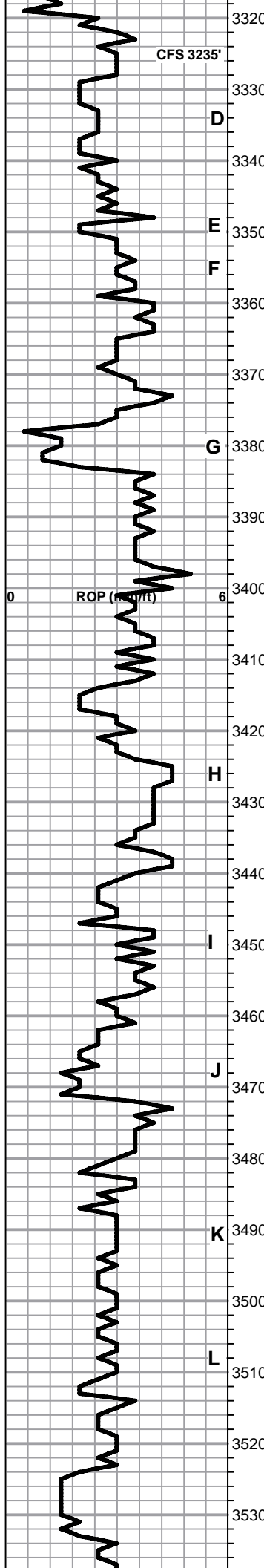
Lime, lt brn, fnxln, soft on crush, NS

Lime, tan-lt brn, fnxln, chalk matrix with bedded chalk, NS

A

B

C



Lime, lt-med brn, fn-vf xln

Lime, lt brn, fn-vfxln

Lime, lt brn-lt grayish brn, fnxln, lt chalky matrix, NS

Lime, lt brn-lt grayish brn, fnxln

Shale, black carbonaceous, blocky

Lime, tan-lt brn, fnxln-granular, bedded chalk, NS

Lime, lt-med brn, fnxln, slight bedded chalk, NS

Lime, crm-lt brn, granular, chalky matrix with bedded chalk, NS

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

Lime, lt brn-lt grayish brn, fn-micro xln, slight bedded chalk

Lime, lt brn-lt grayish brn, fn-micro xln

Shale, gray-black carbonaceous, blocky

Shale, grayish green, med firm, blocky

Lime, crm-tan, fnxln, slight bedded chalk, NS chert, white

Lime, crm-lt brn, fn-micro xln, thin well cemented fossil beds, no visible porosity

Shale, tan-med gray, soft, sticky clumps in part

Lime, crm, fnxln

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

Lime, crm-tan, fn-vfxln

Lime, crm-tan, fnxln-granular in part, mostly granular with chalky matrix with bedded chalk, few chips of fossiliferous lime with trace of lt spotty stain

Lime, crm-tan, fn-micro xln

Shale, gray-black, firm, blocky

Lime, crm-tan, fnxln, slight bedded chalk, NS

Lime, crm-tan, fnxln

Lime, crm-tan, fnxln

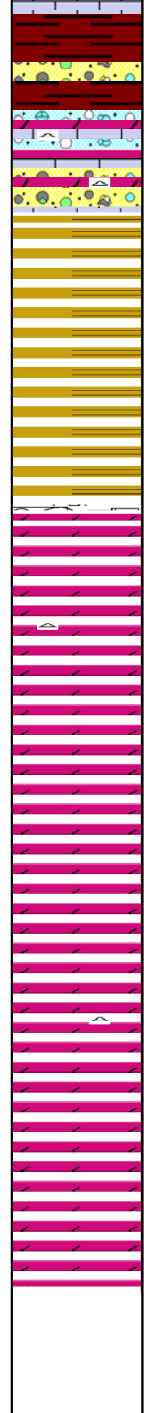
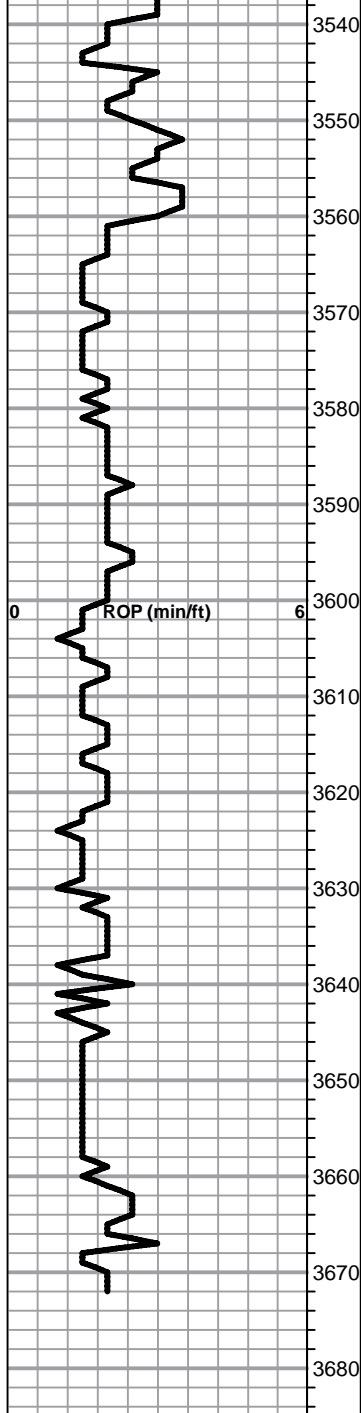
Lime, crm-tan, fnxln, bedded chalk

**BKC ELog 3514-1524**

Shale, red-brn, lt red wash, mix of clastic material in part

Shale, red-brn, soft, red wash

Lime, crm-tan fn-vfxln



Shale, moderate red wash with mix of vari color shales

Clastic mix of loose quartz sand grains, white oolitic chert fragments, and reworked limes and dolomite, NS

Shale, vari colored, soft-firm, earthy, blocky

Shale, vari colored, soft-firm, earthy, blocky

Shale, vari colored with white sticky clumps in part

**ARBUCKLE ELog 3590-1600**

Dolomite, ivory, granular, sucrosic, NS, No Odor

Dolomite, ivory, granular, sucrosic, NS

Dolomite, ivory, granular, sucrosic

Dolomite, ivory, granular, sucrosic

Dolomite, ivory, granular, sucrosic

Dolomite, ivory, granular-fnxln

Dolomite, ivory-crm, fnxln-granular

Dolomite, ivroy-crm, fnxln-granular

**RTD 3675-1685    LTD 3672-1682**

1ST PLUG @3570' W/ 50 SXS  
 2ND PLUG @1200' W/ 50 SXS  
 3RD PLUG @650' W/100 SXS  
 4TH PLUG @40' W/10 SXS  
 RATHOLE W/ 30 SXS  
 MOUSEHOLE W/ 15SXS  
 255 SXS 60/40 POS 4%GEL