

OPERATOR

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

Contact Geologist: TOM DENNING
 Contact Phone Nbr: 785-628-2593
 Well Name: CHARLOTTE TRUST # 1
 Location: E2 SW SE NE SEC.23-15S-18W
 API: 15-051-26,723-00-00
 Pool: IN FIELD
 State: KANSAS

Field: LEIKER SOUTHEAST
 Country: USA



Scale 1:240 Imperial

Well Name: CHARLOTTE TRUST # 1
 Surface Location: E2 SW SE NE SEC.23-15S-18W
 Bottom Location:
 API: 15-051-26,723-00-00
 License Number: 4787
 Spud Date: 8/23/2014 Time: 5:00 PM
 Region: ELLIS COUNTY
 Drilling Completed: 8/28/2014 Time: 7:08 PM
 Surface Coordinates: 2310' FNL & 750' FEL
 Bottom Hole Coordinates:
 Ground Elevation: 1955.00ft
 K.B. Elevation: 1965.00ft
 Logged Interval: 2850.00ft To: 3650.00ft
 Total Depth: 3650.00ft
 Formation: ARBUCKLE
 Drilling Fluid Type: CHEMICAL/FRESH WATER GEL

SURFACE CO-ORDINATES

Well Type: Vertical
 Longitude: -99.2850196
 Latitude: 38.7341293
 N/S Co-ord: 2310' FNL
 E/W Co-ord: 750' 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: 8/23/2014 Time: 5:00 PM
 TD Date: 8/28/2014 Time: 7:08 PM

ELEVATIONS

K.B. Elevation: 1965.00ft
 K.B. to Ground: 10.00ft

Ground Elevation: 1955.00ft

NOTES

RECOMMENDATION TO RUN PRODUCTION CASING BASED ON LOG ANALYSIS AND STRUCTURALLY HIGH ARBUCKLE SECTION

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

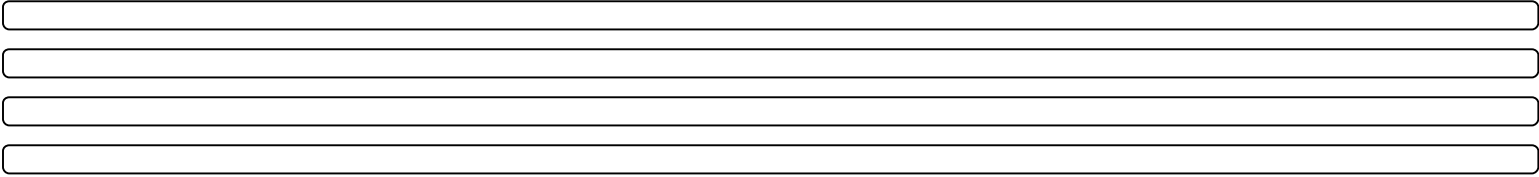
NO DRILL STEM TESTS WERE RAN ON THIS WELL

FORMATION TOPS SUMMARY

	CHARLOTTE TR #1	GROSS # A-3	GROSS # A-2
	E2 SW SE NE	NE SE NE	SW SE NE
	SEC.23-15S-18W	SEC.23-15-18W	SEC.23-15-18W
	1955'GL 1965'KB	KB 1977'	KB 1947'
<u>FORMATION</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>	<u>LOG TOPS</u>
Anhydrite	1128 +837		
B-Anhydrite	1162 +803		
Topeka	2944 - 979		
Heebner Sh.	3208-1243	-1243	-1247
Toronto	3230-1265	-1264	
LKC	3259-1294	-1290	-1297
BKC	3480-1515	-1514	-1509
Arbuckle	3522-1557	-1571	-1593
RTD	3650-1685	-1576	-1608

SUMMARY OF DAILY ACTIVITY

8-23-14 RU, spud 5:00 PM
 8-24-14 955', set 8 5/8" surface casing to 1137' w/ 375 sxs SMD, slope 1 1/4 degree, plug down 7:00PM, WOC 12 hrs
 8-25-14 1137', WOC, drill plug 7:00 AM
 8-26-14 2216', drilling
 8-27-14 2923', drilling, displaced 2850' to 2865'
 8-28-14 3400', CFS 3300', drilling, RTD 3650' @ 7:08PM, CFS 3650', short trip
 8-29-14 3650', TOWB, logs, TIWB, LDDP, run production casing, RD



ROCK TYPES

Clystcol	Lmst fw<7	shale, gry	Shcol
Congl	Lmst fw7>	Carbon Sh	Karst Topo
Dolprim	shale, grn	shale, red	Lscongl

ACCESSORIES

MINERAL

- ▲ Chert, dark
- P Pyrite
- Sandy
- △ Chert White

FOSSIL

- Oolite
- ⬢ Oomoldic

OTHER SYMBOLS

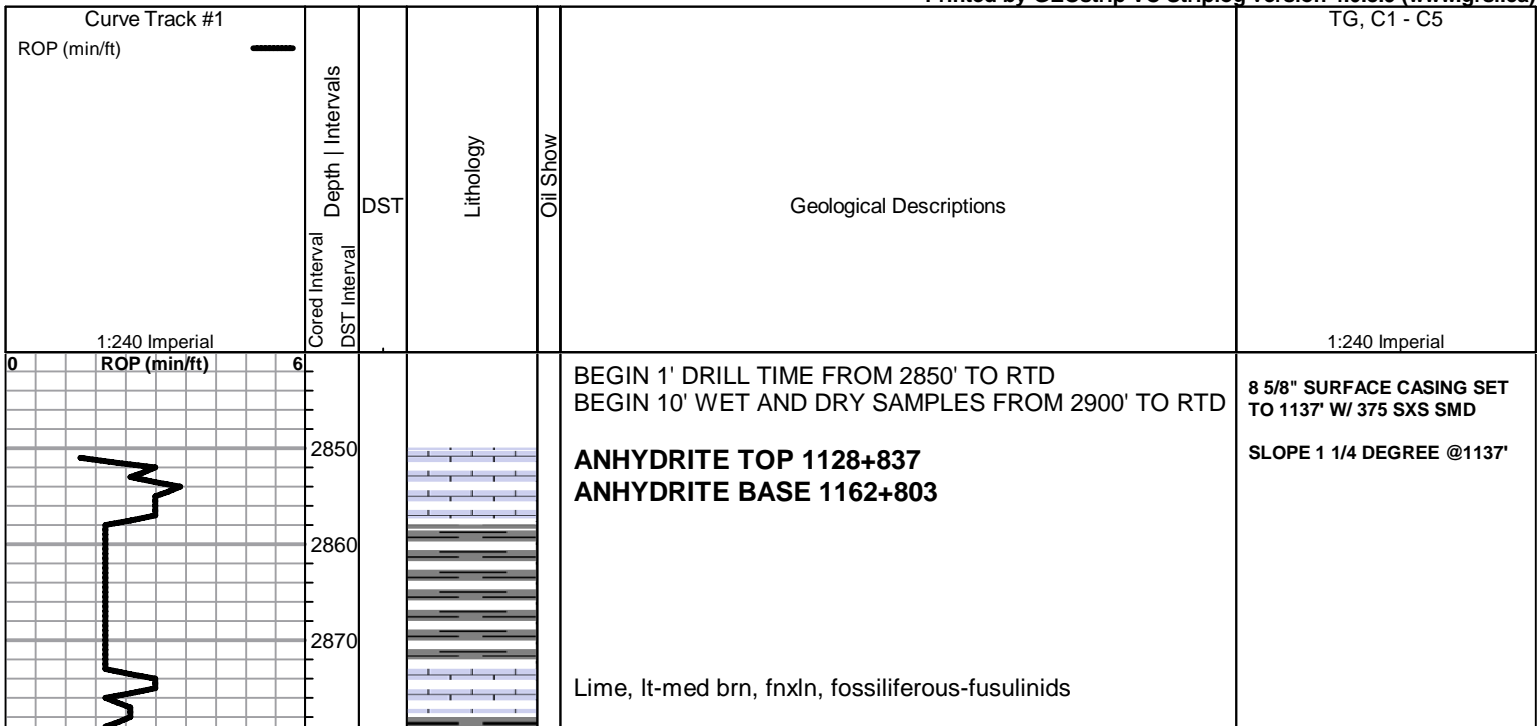
Oil Show

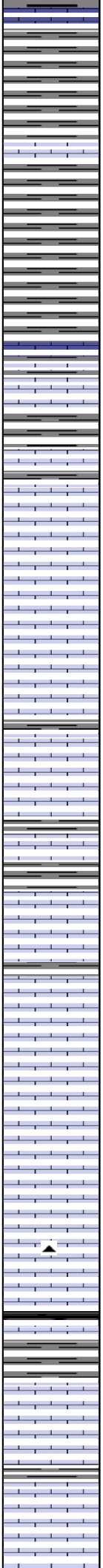
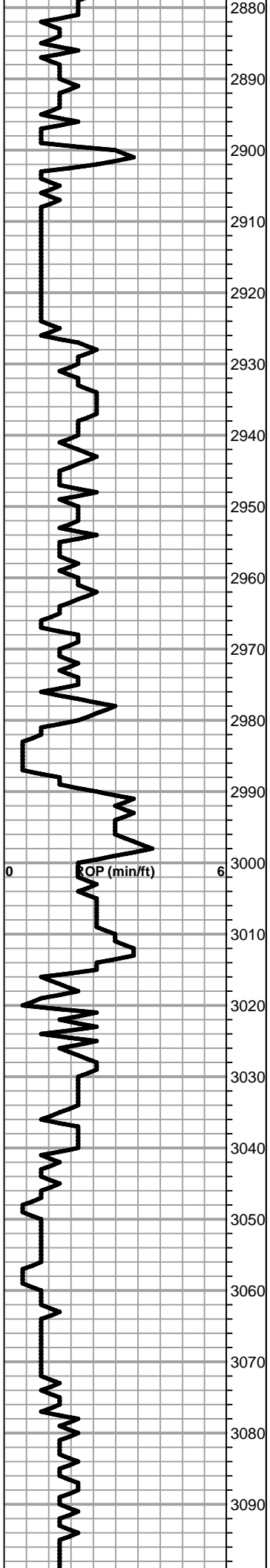
- Good Show
- Fair Show
- Poor Show
- Spotted or Trace
- Questionable Stn
- D Dead Oil Stn
- Fluorescence
- * Gas

DST

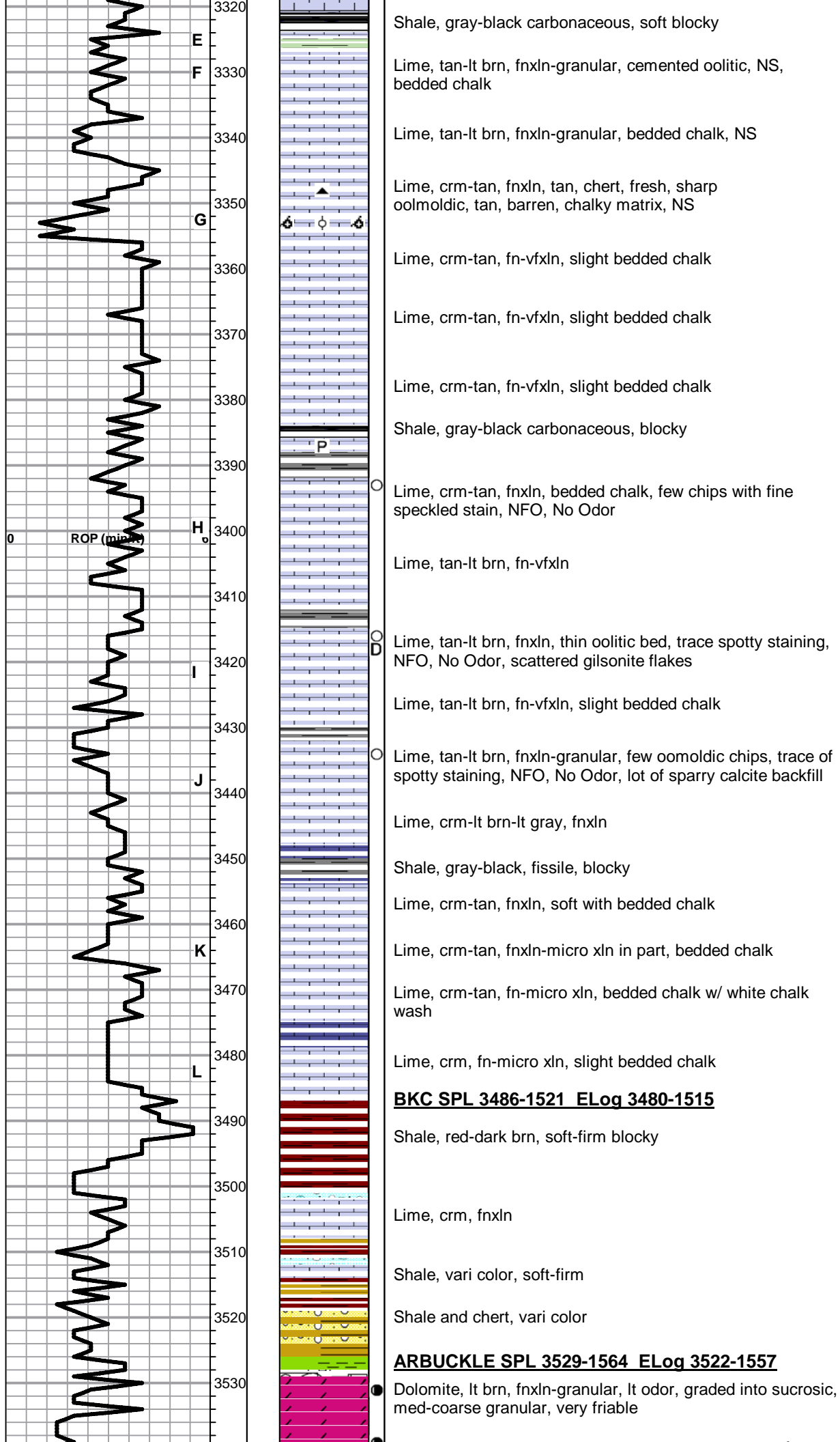
- DST Int
- DST alt
- Core
- tail pipe

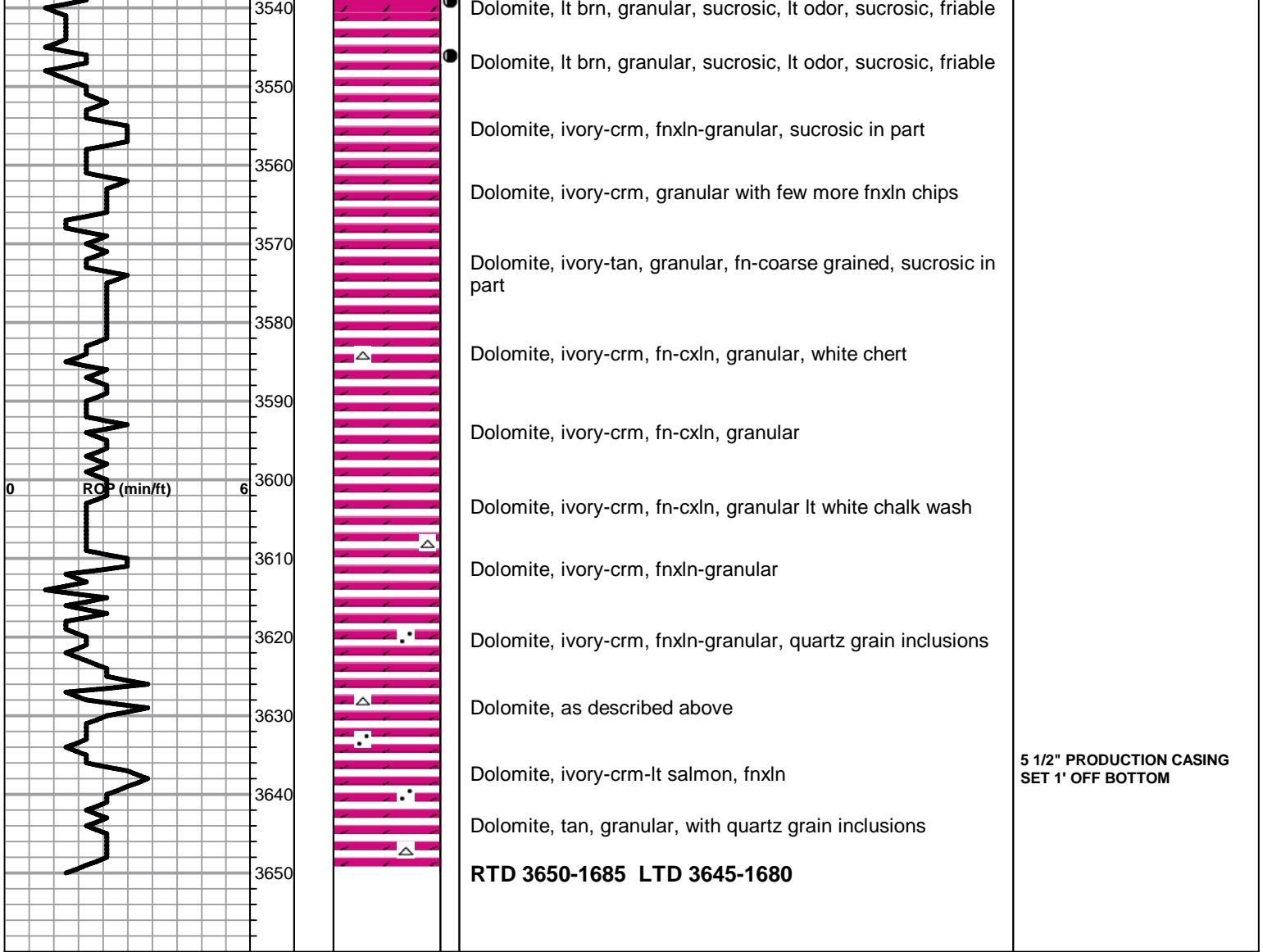
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- Shale, med gray, soft blocky
- Lime, dark brn-dark gray, fnxln
- Shale, lt-med gray, soft blocky
- Lime, med-dark brn-grayish brn, fnxln-granular, fossiliferous
- TOPEKA SPL 2942-977 ELog 2944-979**
- Lime, lt-med brn-med grayish brn, fnxln, slightly fossiliferous
- Lime, lt brn-lt grayish brn, fnxln
- Lime, lt-dark brn-grayish brn, fnxln, slightly fossiliferous
- Lime, lt-med brn, fn-vfxln with scattered micro xln
- Lime, lt brn, granular, slight bedded chalk, NS
- Lime, lt grayish brn-lt gray, fnxln
- Lime, lt gray-lt grayish brn, fnxln, slightly fossiliferous
- Lime, lt brn, fnxln-slightly granular in part, slight chalky matrix
- Lime, lt brn-lt gray, fnxln, soft chalk
- Lime, med brn-med grayish brn, fnxln, slightly fossiliferous
- Lime, lt-med grayish brn-gray, fnxln
- Lime, lt-med brn, fnxln
- Lime, lt-med brn, fnxln-increasing granular with slight chalk
- Lime, lt brn-lt grayish brn, granular, slight bedded chalk
- Lime, lt brn, granular, bedded chalk with sticky clumps
Shale, black carbonaceous, blocky
- Shale, med gray, firm blocky, calcareous
- Lime, lt brn, fn-micro xln, sub-lithographic
- Lime, lt brn-lt grayish brn, fnxln-granular in part
- Lime, lt brn-lt grayish brn, fnxln granular, slight bed chalk





● Dolomite, lt brn, granular, sucrosic, lt odor, sucrosic, friable

Dolomite, ivory-crm, fnxln-granular, sucrosic in part

Dolomite, ivory-crm, granular with few more fnxln chips

Dolomite, ivory-tan, granular, fn-coarse grained, sucrosic in part

△ Dolomite, ivory-crm, fn-cxln, granular, white chert

Dolomite, ivory-crm, fn-cxln, granular

Dolomite, ivory-crm, fn-cxln, granular lt white chalk wash

▽ Dolomite, ivory-crm, fnxln-granular

◼ Dolomite, ivory-crm, fnxln-granular, quartz grain inclusions

△ Dolomite, as described above

◼ Dolomite, ivory-crm-lt salmon, fnxln

◼ Dolomite, tan, granular, with quartz grain inclusions

RTD 3650-1685 LTD 3645-1680

**5 1/2" PRODUCTION CASING
SET 1' OFF BOTTOM**