SNR Kansas Operating, LLC

Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name: Henderson Bolander 33-3
API: 15-035-24703-00-00
Location: 884' FSL, 2265' FEL 33-32-5E
License Number: 35586
Region: Cowley
Spud Date: 05/31/2019
Drilling Completed: 6-4-19
Surface Coordinates: 37.217695
-96.886824
Bottom Hole Coordinates:
Ground Elevation (ft): 1248
K.B. Elevation (ft): 1253
Logged Interval (ft): 1500 **To:** 3480
Total Depth (ft): 3480
Formation: Mississippian
Type of Drilling Fluid: Water Bas Mud

Printed by MudLog from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

Company: SNR Kansas Operating, LLC
Address: 301 NW 63rd Street
Oklahoma City, OK 73116

GEOLOGIST

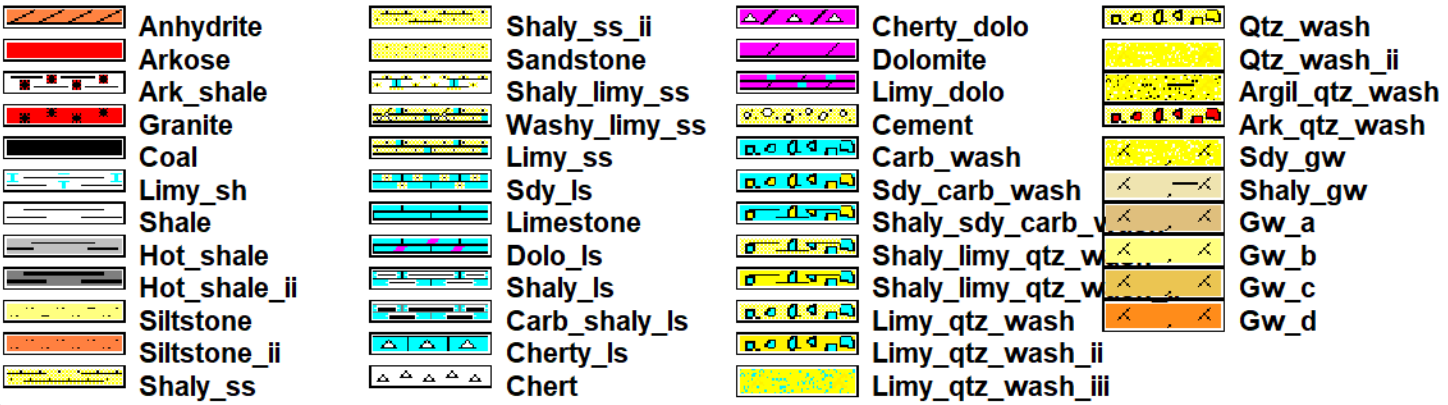
Name: Troy Phillips
Company: TAP IT, LLC
Address: 733 N Baltimore
Derby, KS 67037

FORMATION	HB 33-3 1253 KB			HB 33-1 1303 KB		HB 33-2 1266 kb
Iatan	1889 (-636)			1894 (-630)		1891 (-625)
Stalnaker Sd	1917 (-664)			1924 (-660)		1918 (-652)
Iola	2324 (-1071)			2322 (-1058)		2321 (-1055)
Layton Sd	2320 (-1067)			2367 (-1103)		2361 (-1095)
Kansas City	2519 (-1266)			2516 (-1252)		2512 (-1246)
B. Kansas City	2641 (-1388)			2656 (-1392)		2638 (-1372)
Marmaton	2737 (-1484)			2738 (-1474)		2737 (-1471)
Pawnee	2791 (-1538)			2789 (-1525)		2786 (-1520)
Ft. Scott	2821 (-1568)			2820 (-1556)		2816 (-1550)
Cherokee	2858 (-1605)			2854 (-1590)		2850 (-1584)
Mississippian	3099 (-1846)			3105 (-1841)		3098 (-1832)
Miss Reeds Springs	3439 (-2186)			3434 (-2170)		3431 (-2165)
Kinderhook	NP			NP		3496 (-2230)
Arbuckle	NP			NP		3588 (-2322)

COMMENTS

It was decided to set 5-1/2" Casing at 3480 with 200 Sx cement to further test the Missippian by perforation and frac.

ROCK TYPES



ACCESSORIES

FOSSIL

- Algae
- Amph
- Belm
- Bioclst
- Brach
- Bryozoa
- Cephal
- Coral
- Crin
- Echin
- Fish
- Foram
- Fossil
- Gastro
- Oolite
- Ostra
- Pelec
- Pellet
- Pisolite
- Plant
- Strom

MINERAL

- Anhy
- Arggrn
- Arg
- Bent
- Bit
- Brecfrag
- Calc
- Carb
- Chtdk
- Chtlt
- Dol
- Feldspar
- Ferrpel
- Ferr
- Glau
- Gyp
- Hvymin
- Kaol
- Marl
- Minxl
- Nodule
- Phos
- Pyr
- Salt
- Sandy
- Silt
- Sil
- Sulphur
- Tuff

STRINGER

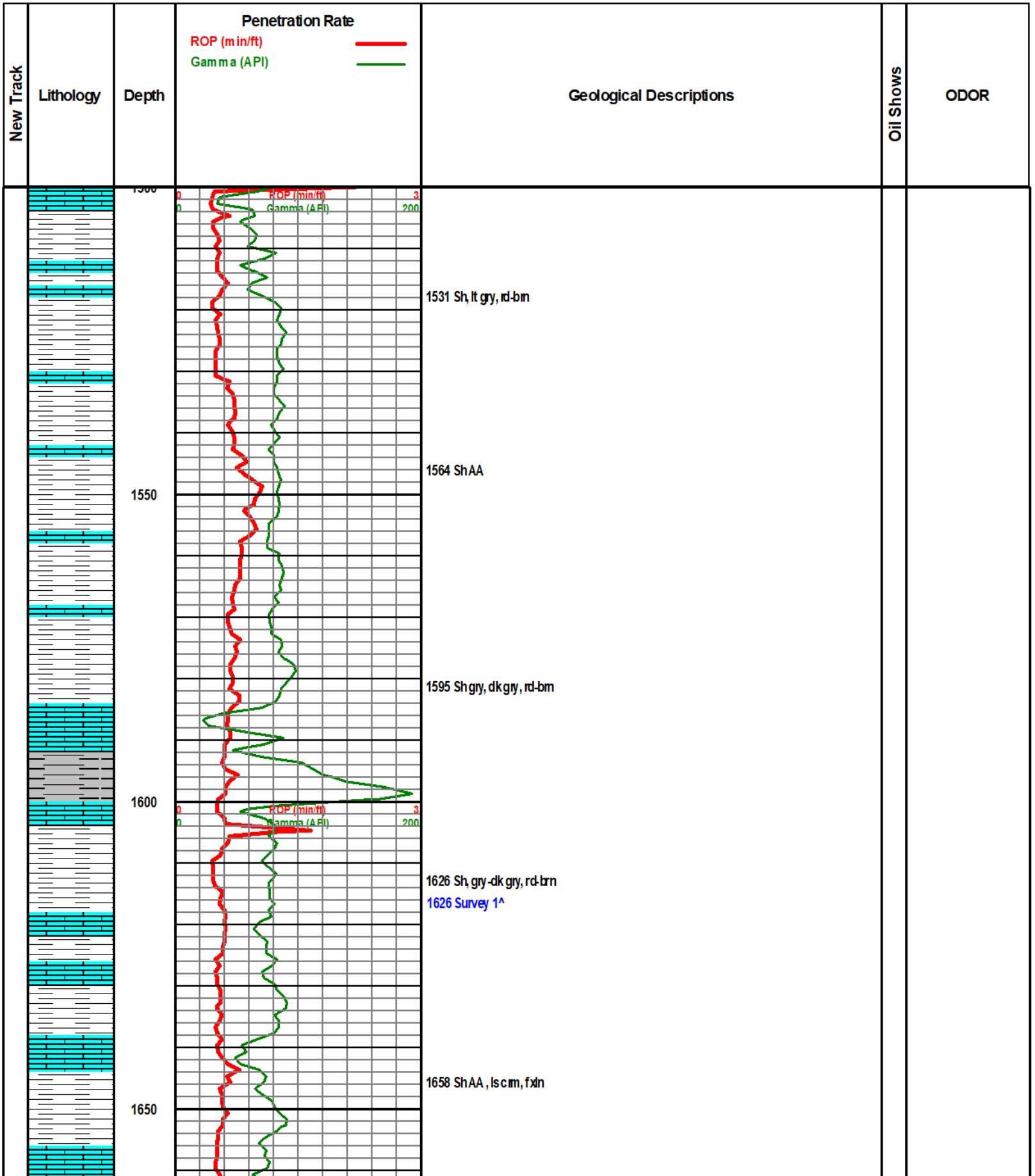
- Arkosic inclusion
- Chert inclusion
- Anhydrite
- Arkosic qtz str
- Arkosic qtz str ii
- Arkosic str
- Arkosic str ii
- Carb wash str
- Sandy carb wash str
- Coal/carb sh
- Dolomite
- Granite str
- Limestone
- Limy ss str
- Qtz wash str
- Limy qtz wash str
- Sandy ls str
- Shale
- Siltstone
- Sandstone

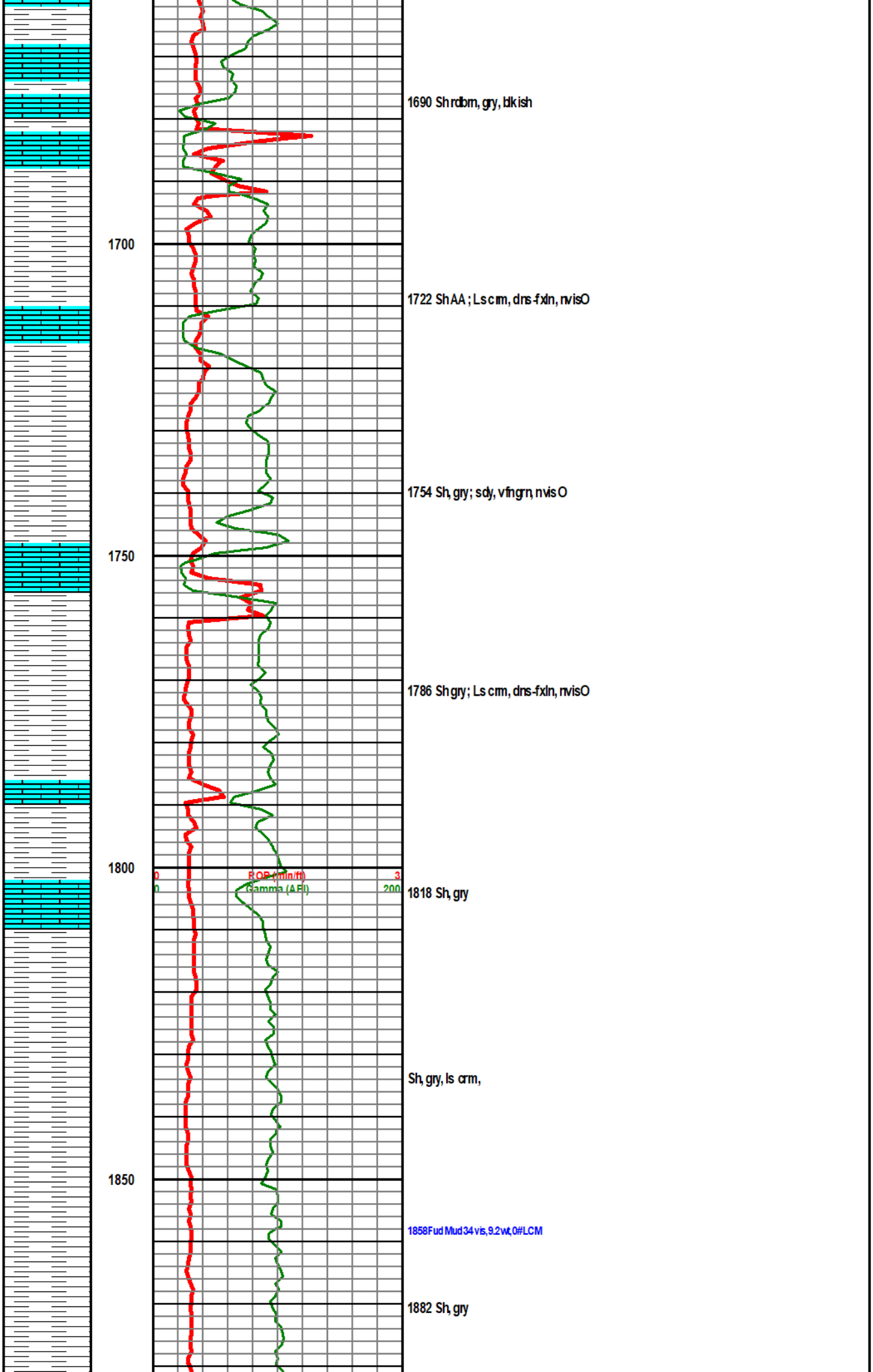
TEXTURE

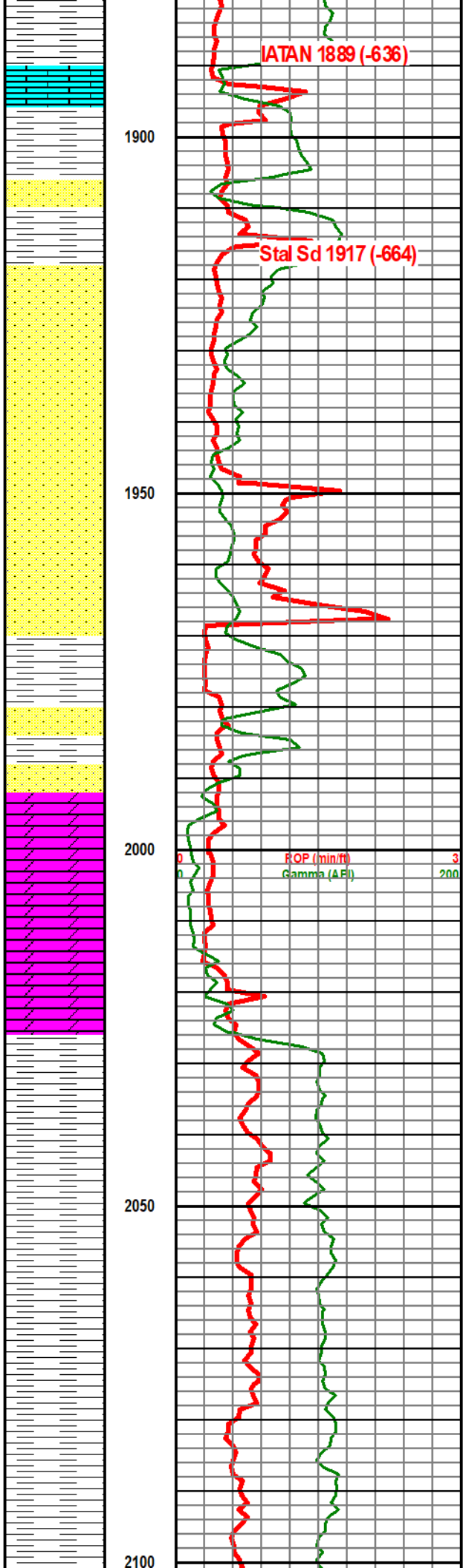
- Boundst
- Chalky
- Cryxln
- Earthy
- Finexln
- Grainst
- Lithogr
- Microxln
- Mudst
- Packst
- Wackest

OIL SHOW

- Even
- Spotted
- Ques
- Dead


New Track
Lithology
Depth
Penetration Rate
ROP (min/ft)
Gamma (API)
Geological Descriptions
Oil Shows
ODOR
0
ROP (min/ft)
3
0
Gamma (API)
200
1531 Sh, lt gry, rd-brn
1564 Sh AA
1550
1595 Sh gry, dk gry, rd-brn
1600
0
ROP (min/ft)
3
0
Gamma (API)
200
1626 Sh, gry-dk gry, rd-brn
1626 Survey 1^
1658 Sh AA , lsc mn, fxln
1650


1690 Sh rdbrn, gry, blk ish
1700
1722 Sh AA ; Ls crm, dns-fxln, nvis O
1754 Sh, gry; sdy, vfngrn, nvis O
1750
1786 Sh gry; Ls crm, dns-fxln, nvis O
1800
0
ROP (min/ft)
3
0
Gamma (API)
200
1818 Sh, gry
Sh, gry, ls crm,
1850
1858 Fud Mud 34 vis, 9.2 wt, 0# LCM
1882 Sh, gry



1914 Sh AA ; Lscrm, fxln, Nvis0

1946 Sh, gry; Sd, wh-lt gry, vfgrn, subang, w srtd, pvis0

1978 Sh gry; Sd, lt gry, fgrn, sub ang, well srtd, fvisO

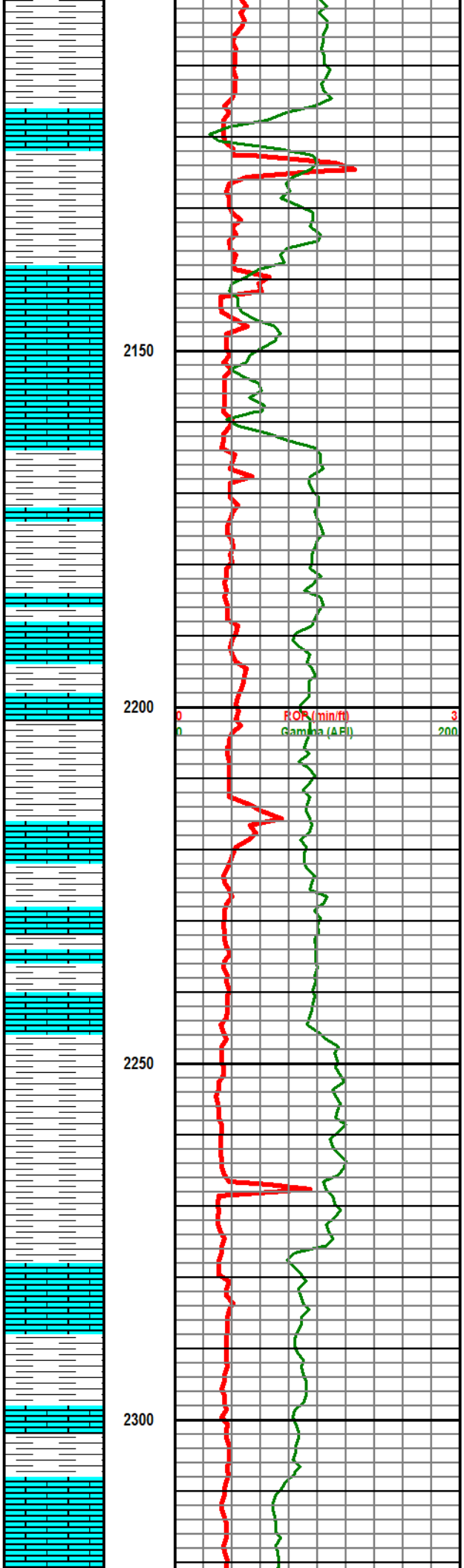
1965 Bladder on mud pit to Mud Pump Leaking

2010 Dol, gry, chs; Sdvfgrn, friable,

2042 Sh lt gry, gry, rust; Sdwh-lt gry, fgrn, pvisO

2074 Sh gry, rust, dk gry Sd, wh, vfgrn, w srtd, pvisO

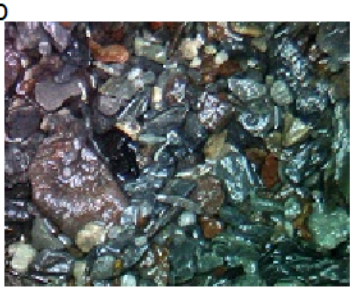
2106 Sh, lt gry-gry, rust-lt grn, sm mott, few pcs lt prpl



2138 Sh, gry, rust sm mott

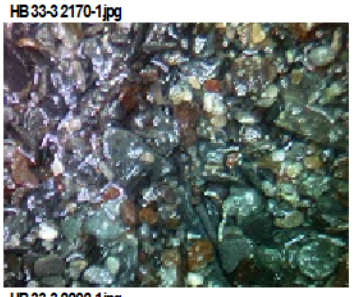
HB 33-3 2138-1.jpg

2170 Sh gry, rust; LS lt gry, dns-fxln, nvisO



HB 33-3 2170-1.jpg

2202 Sh, gry, rust



HB 33-3 2202-1.jpg

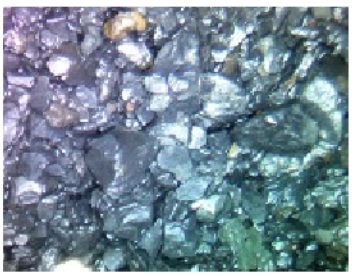
2209 Survey 1.25^

2234 Sh gry, rust; Ls ltgry dns

HB 33-3 2234-1.jpg

2266 Sh, gry, sm ltgrn, rust

2298 Sh, gry; Ls, gry fxln



HB 33-3 2298-1.jpg

2329 Sh, gry; Ls, gry, fxln

Iola 2324 (-1071)

2350

2360 Sh AA ; Ls crm, gry, brn, dns-fxln, fslf, pvis0

2362 Go to 15' Smpls

Layton Sd 2320 (-1067)

2394 Sh, gry, sdy ; Sd, gry, vyfngm, subrd, w srtd, nvs0

HB 33-3 2394-1.jpg

2400

ROP (min/ft)

Gamma (API)

2404 Sd, wh, lt gry, fgm, subrd, w srtd, pvis0, NS

HB 33-3 2404-1.jpg

HB 33-3 2425-1.jpg

2425 Sd, wh-lt gry, vfgm, subrd, w srtd, pvis0, NS

HB 33-3 2440-1.jpg

2440 Sd, lt gry, fgm, subrd, w srtd, mic, pvis0, N S

2433 Rotary table chain broke

2457 Sd AA ; Sh lt gry-gry, sm rust

2450

HB 33-3 2490-1.jpg

GOTO 30 FT SMPLS

2490 Sd, wh-lt gry, vfgm, mic, sli friable, p-f vis0, N S; Sh gry

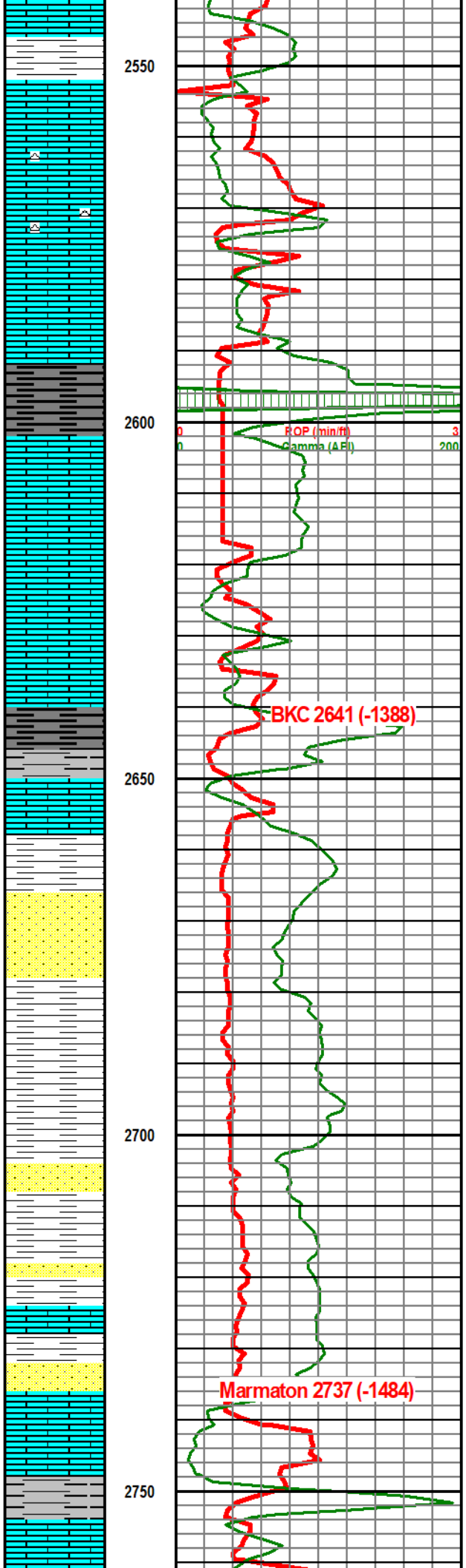
2500

HB 33-3 2521-1.jpg

2521 Sh gry, dk gry

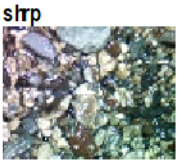
Kansas City 2519 (-1266)

2553 Sh gry, dk gry ; Ls, crm, gry, fmxln, fslf, pf ixln0, few pcs dull flr, NS



HB33-32553-1.jpg

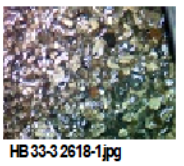
2585 Ls, crm, fxln, fslf, few pcs dull flr, NS; Sh blkish; Clt, wht, shrp



HB33-3 2585-1.jpg

2597 LOST POWER, PASON DOWN; ENTERED DRILL TIME FROM GEOGRAPH 5 MIN FT FROM 2597 TO 2618

2618 Ls, crm, very ground up, fxln, fw pcs dull flr, NS; Sh, gry

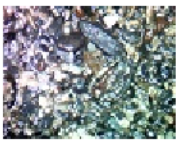


HB33-3 2618-1.jpg

2650 Sh, gry, blk; Ls gry,crm, fxln, pvis0, NS

HB33-3 2650-1.jpg

2682 Ls, crm, fxln, pvis0, NS; Sh, gry, dk gry



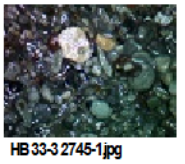
HB33-32682-1.jpg

2717 Sh lt gry, sdy; Sd gry, vfgrn, nvis0, NS

HB33-3 2717-1.jpg

2714 9.3 W T33 VIS 2714 Survey 3/4^

2745 Sd AA; sev pcs Ls, crm dns, nvis0, dull flr

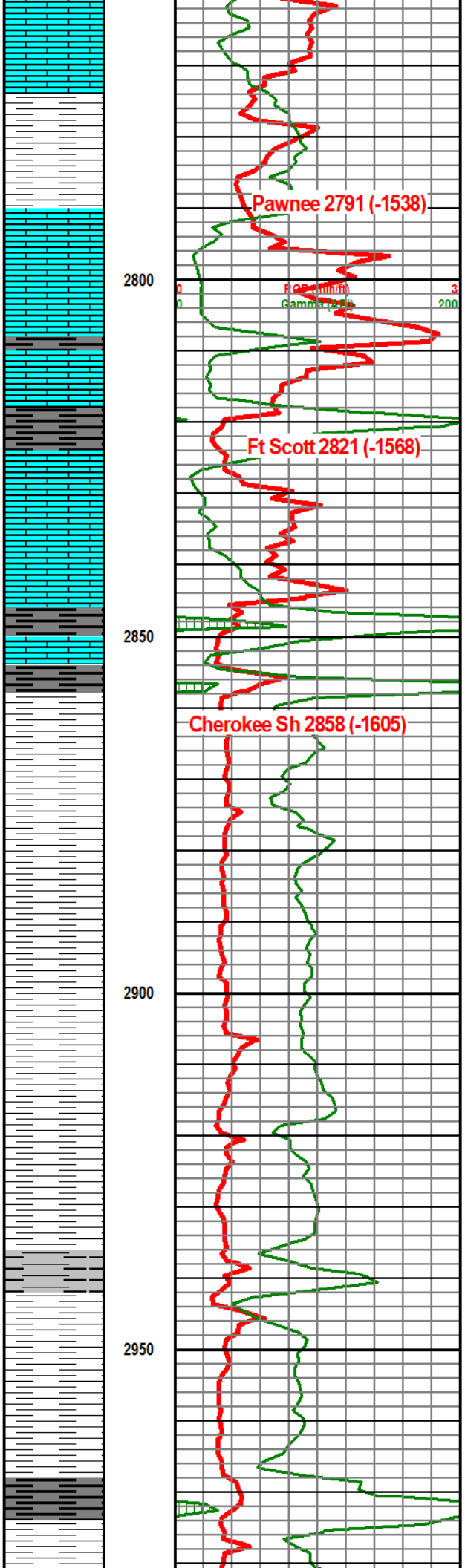


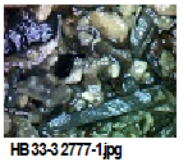
HB33-3 2745-1.jpg

Dull Flour

Dull Flour

2777 Ls, crm-tan, fxln, fslf, pvis0, few pcs dull flour; Sh blk




HB33-3 2777-1.jpg

2810 Sh, gry, dk gry, rust; Ls , crm, fxln, fslf, pvis0, NS


HB33-3 2810-1.jpg

2842 Ls, crm, fxln, sm mxln, pfvis0, fslf, scattered dull flour, vy fnt odor; Sh, blk,


HB33-3 2842-1.jpg

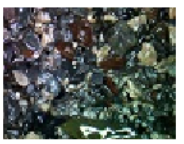
2834 VIS 36 WT9.4 LCM1.5

2873 NO SAMPLES

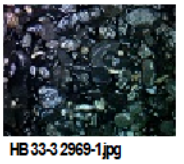
2905 Ls, crm, fxln, nvis0, scat dull flr, NS; Sd, gry, vfgrn, sub rd, w srtd, p-f vis0, NS; Sh, gry


HB33-3 2905-1.jpg

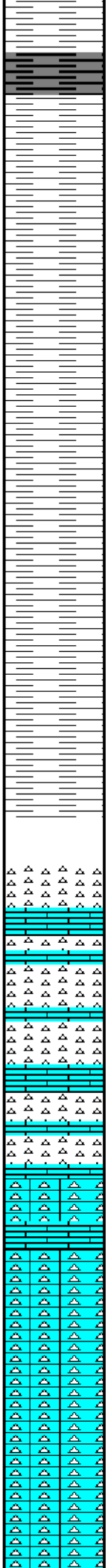
2937 Sh, gry, dk gry, rust

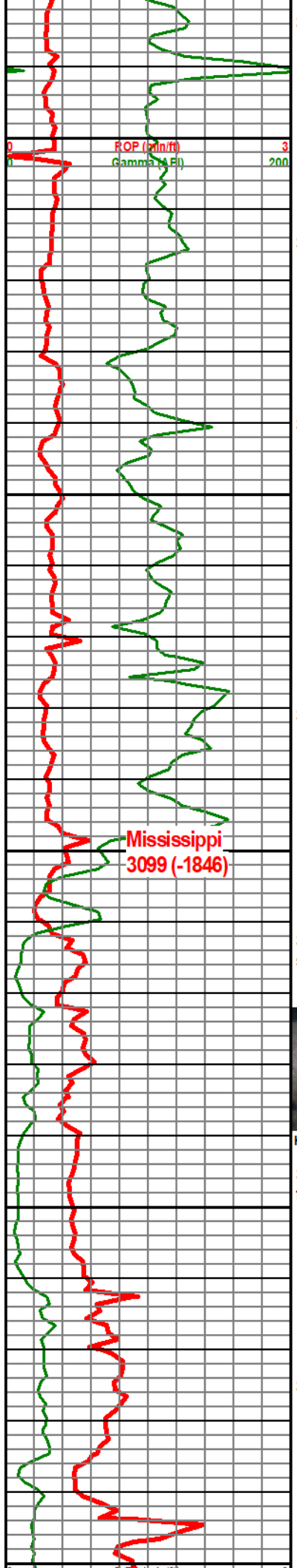

HB33-3 2937-1.jpg

2969 Sh, gry, dk gry


HB33-3 2969-1.jpg

Dull, flour, vy fnt odor





3001 Sh, dk gry

HB33-33001-1.jpg

3033 Sh,lt gry, gry

HB33-33033-1.jpg

3065 Sh gry, rust, sm blk; Dol, tn, fxln, chs, nvis0, dull flr

HB33-33097-1.jpg

HB33-33097dol-1.jpg

3097 Sh gry, rust, lt prpl, waxy; Dol, tan, od, nvis0, dull flr

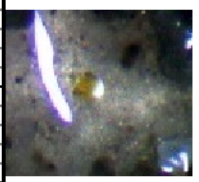
HB33-33129-1.jpg

HB33-33129cht-1.jpg

HB33-33129 cht cut-1.jpg

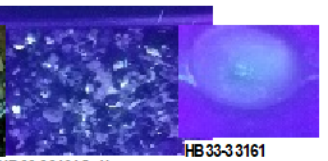
3129 Sh gry, lt prple, sev pcs blk; cht, trip, wht, chky, fvis0, chky, sev pcs brt flour, blk edge stn

brt flour, gd cut



HB33-33161 SO-1.jpg

HB33-33161-1.jpg



HB33-33161 fr-1.jpg

HB33-33161 cut-1.jpg

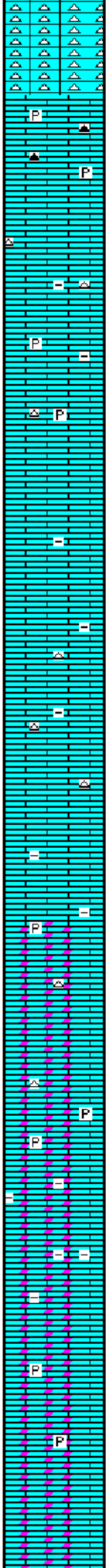
Flour, frt odor, SFO, SGBOB

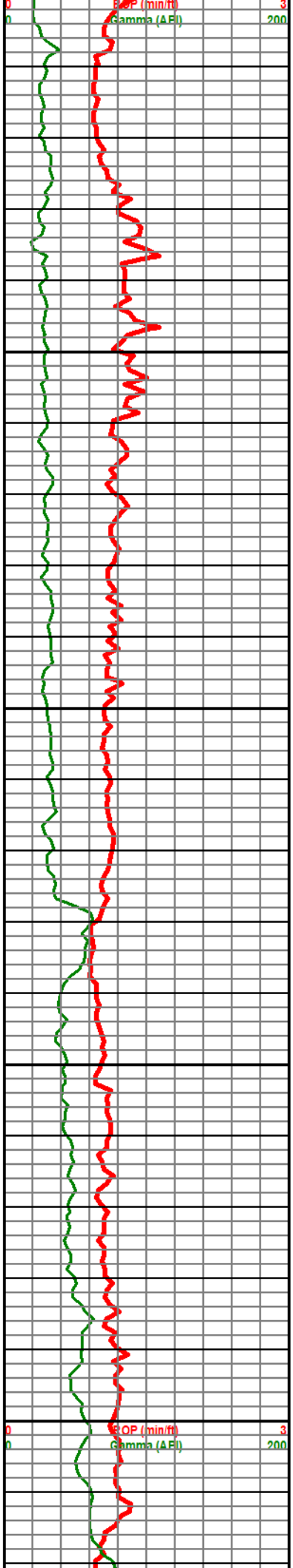
3161 cht, crm, trip, fr-gd weath0, frt odor, blk edges tn, 20% flr, SFO, SGBOB; cht, wht, blue, frsh, shrp

HB33-33161-1.jpg

3193 cht AA <5% flour, frt odor, SSFO; Ls gry, f-mxln, finxln0,

Frt Odor, SSFO





HB33-33193-1.jpg

3213 FUD MUD 43 Vis, 9.6 wt, 2 LCM

3225 Ls, brn,f-m xln, p intxln0, xl incl, sli chty, brn, shrp, pyr; sev pcs Ls, crm, f-xln, p intxln0, soft, brt flr, NSFO; few pcs cht, wht, fresh

HB33-33225-1.jpg

HB33-33275-1.jpg

3275 Ls, brn, arg, fxln, p intxln0, xl incl, pyr

HB33-33290-1.jpg

3290 Ls, brn, arg, fxln, xl inl, pyr, p intxln0, spic, NSO

3305 Ls brn, arg, fxln, p intxln0, spic, xl incl; cht wht shrp; Sh gry

HB33-33305-1.jpg

3320 Ls, brn, fxln, xl incl, spic, p-f intxln0, cht, sli wthrd, cht flouresces

HB33-33320-2-1.jpg

HB33-33320-1.jpg

3335 Ls, brn, fxln, xl incl, fr intxln0,

HB33-33335-1.jpg

3350 Ls, brn, fxln, xl incl, dolm, fslf; Sh gry

HB33-33350-1.jpg

HB33-33380-1.jpg

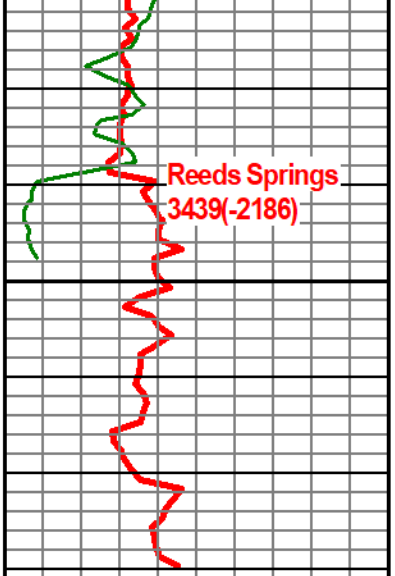
3380 Ls, brn, arg, fxln, dolm, AA , pyr

3410 Ls, brn, arg, fxln, dolm, f intxln0, pyr; sh, rd

HB33-33410-1.jpg

3425 A A

Flour



3440 Ls, brn, arg, dolm, pyr

HB 33-3 3440-1.jpg

3455 Ls, gry, m-fxln, glauc, fintxln0, NS; cht, wht, fresh, xl incl, dull flr

3470 LS, wht, fxln, hrd, chty,

HB 33-3 34701.jpg

3480 Ls, Wht, mxln, frintxln0, NS; Ls, brn, fxln, pvis0

3480 CFS 15-30-45-60

3480 15 CFSA A

3480 30 CFS Ls, lt gry, mxln, p-f vis0, chty, friable, NS; Sh lt grn, rd

HB 33-3 3480 30CFS-1.jpg

3480 45 and 60 CFS Same as above

3480 Survey 34^

6-4-19 2:50 PM
DTD 3480 (-2227)
LTD 3481 (-2228)

3450

3500

3550

SNR KANSAS OPERATING, LLC
HENDERSON BOLANDER 33-3
SEC T 33, TWP 33s, RGE 5E
COWLEY CO, KS