LITHOLOGY STRIP LOG

WellSight Systems

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

Well Name:	RMCCS State #1		
Location:	Section 34, T 6 N, R 91 W, Moffat County, Colorado		
License Number:	API No. 05-081-07694	**Region:**	Sand Wash Basin
Spud Date:	1/15/12	**Drilling Completed:**	3/1/12
Surface Coordinates:	210' FSL, 2416 FEL (SWSE)		
Bottom Hole Coordinates:	Same		
Ground Elevation (ft):	6837.6'	**K.B. Elevation (ft):**	6857.6'
Logged Interval (ft):	1390' **To:** 9745'	**Total Depth (ft):**	9736' LTD
Formation:	Maroon Fm		
Type of Drilling Fluid:	Fresh gel mud		

OPERATOR

Company: Schlumberger Carbon Services, Inc.
Address: Wayne Rowe, Proj. Mgr,1875 Lawrence Street, Ste. 500, Denver, CO 80202
Paul Hughes, Drlg Supv, 16676 Northcase Drive, Ste. 150, Houston, TX 77060

GEOLOGIST

Name: Louise M. Kiteley PG-1715
Company: Professional Geologist (WY)
Address: 5221 WCR 16 3/4, Longmont, CO 80504
Email: l.kiteley@gmail.com
Ph: 303-263-5122

Comments

1) Mud data in Geologic Descriptions Track, Format mw-vis-pH-alk/f-chlor-hd-%sol.
2) Open hole logs by SWS (GR, HCAL, AF10, AF30, AF90, DPHZ, NPOR, PEFZ)
3) Straight drilled hole. From casing pt @ 5403' to DTD @ 9,745 (LTD 9,736') ROP shifted up 9', on depth with open hole log, which is on depth with this striplog.
4) Contractor: Patterson-UTI Rig #166.

ROCK TYPES

ACCESSORIES

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

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

STRINGER
- Anhy
- Arg
- Bent
- Coal
- Dol
- Gyp
- Ls
- Mrst
- Sltstrg
- Ssstrg

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

OTHER SYMBOLS

POROSITY TYPE
- Earthy
- Fenest
- Fracture
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

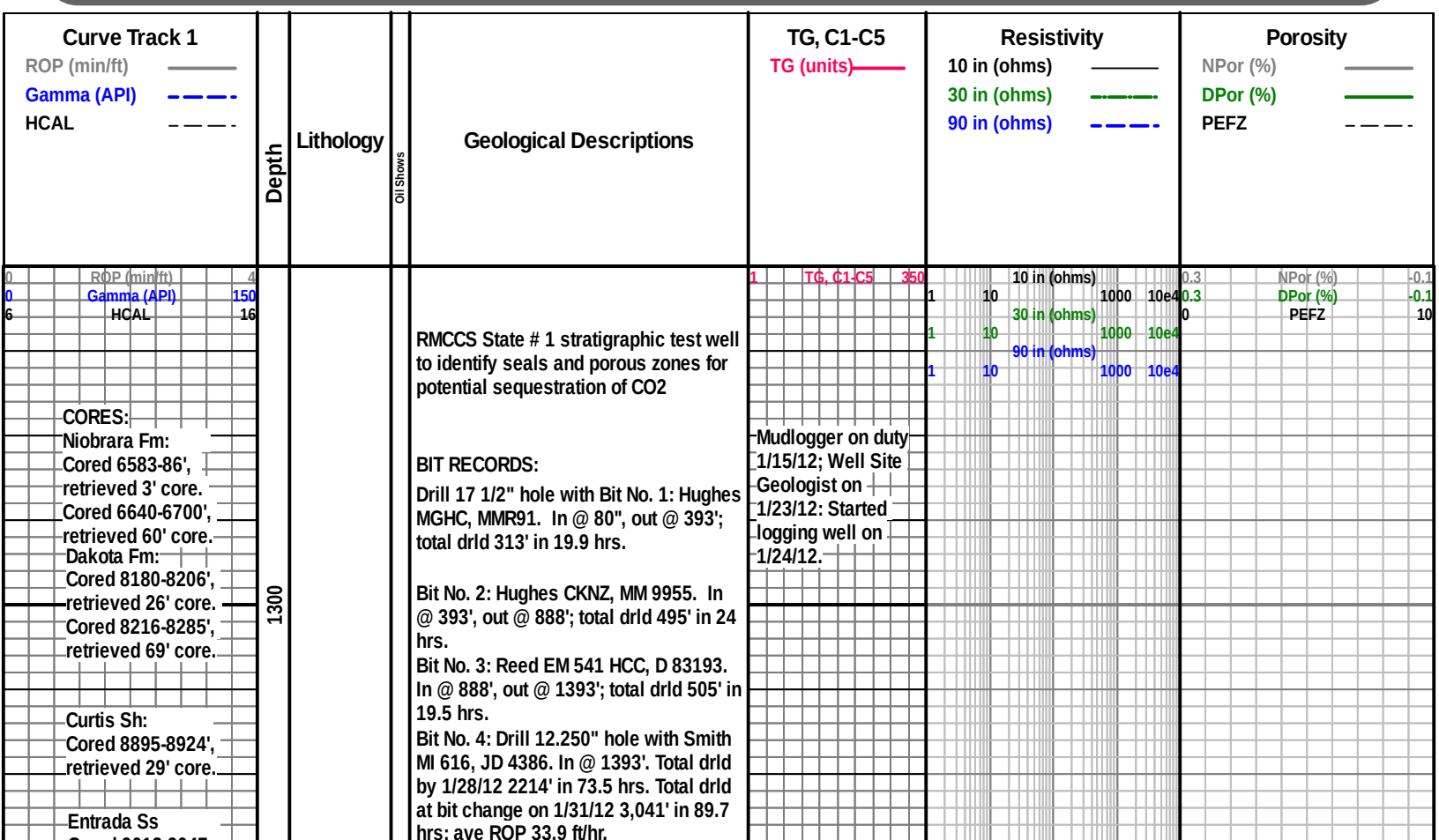
SORTING
- Well
- Moderate
- Poor

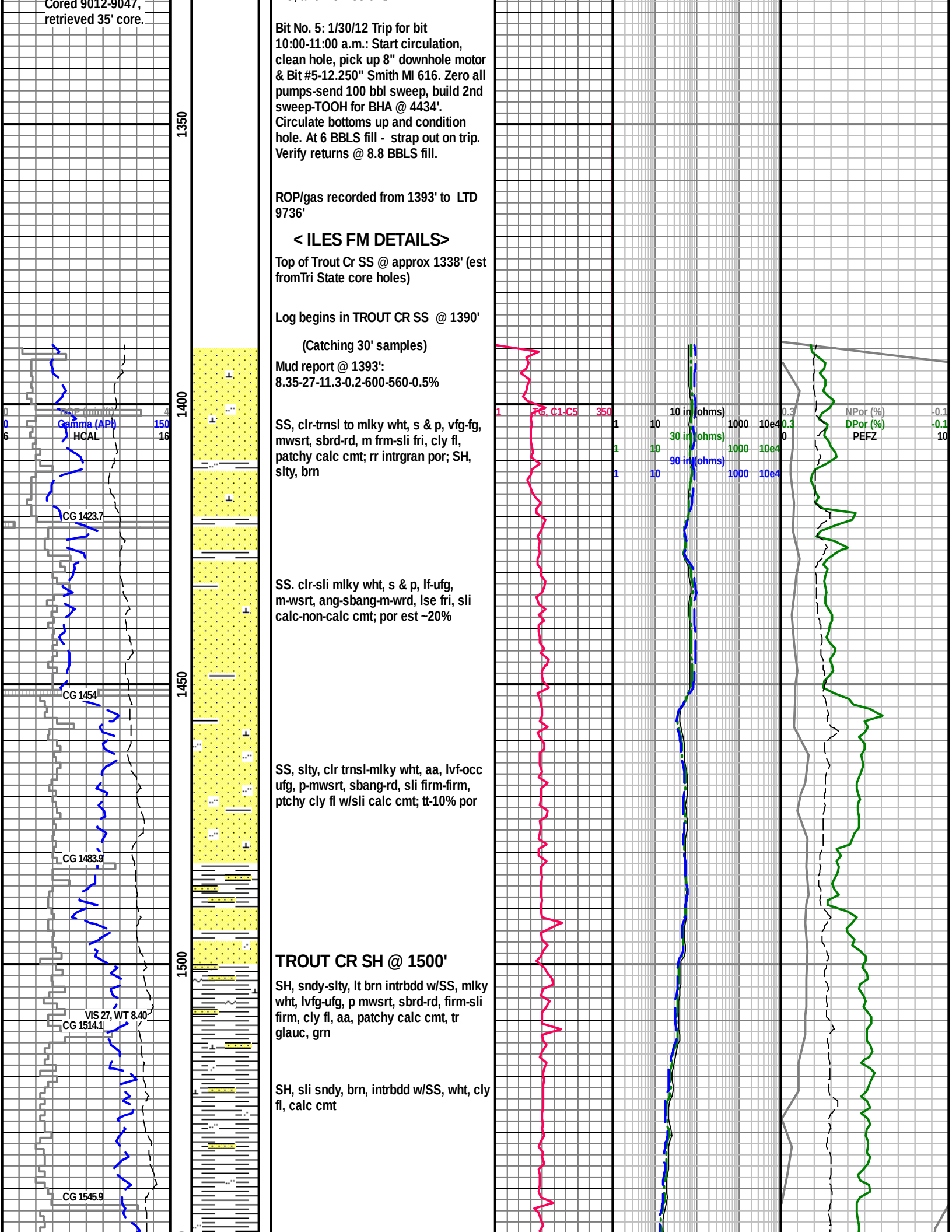
ROUNDING
- Rounded
- Subrnd
- Subang
- Angular

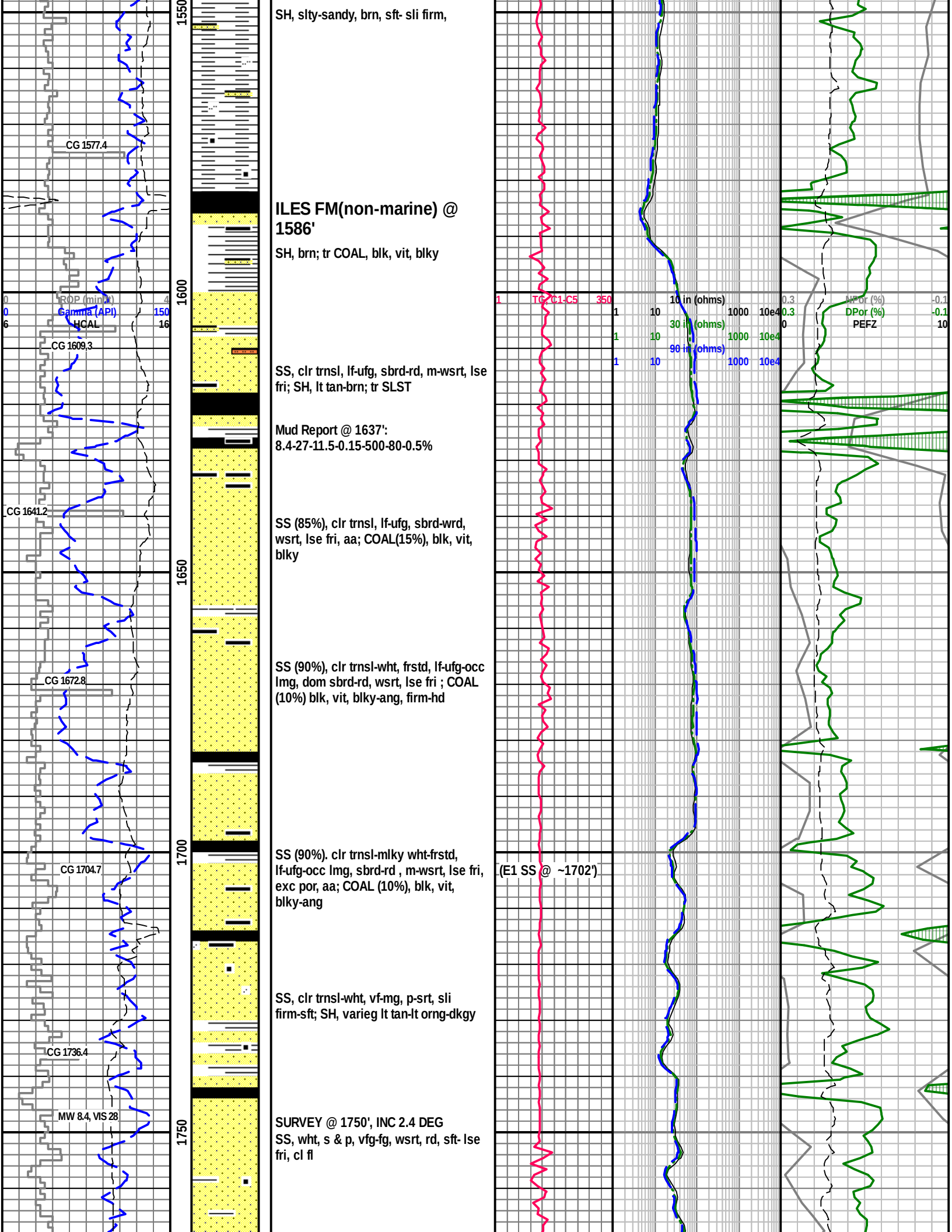
OIL SHOWS
- Even
- Spotted
- Ques
- Dead

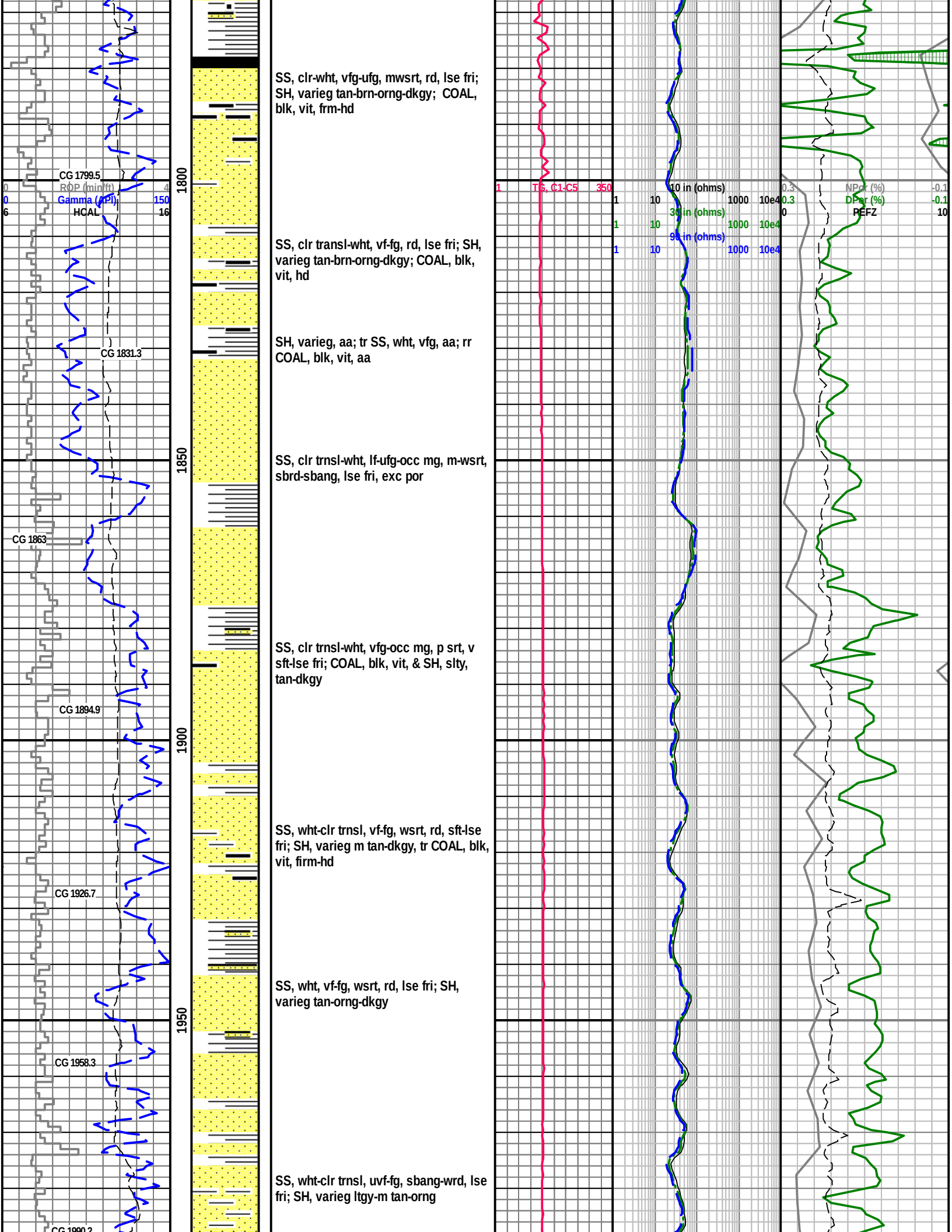
INTERVALS
- Core
- Dst

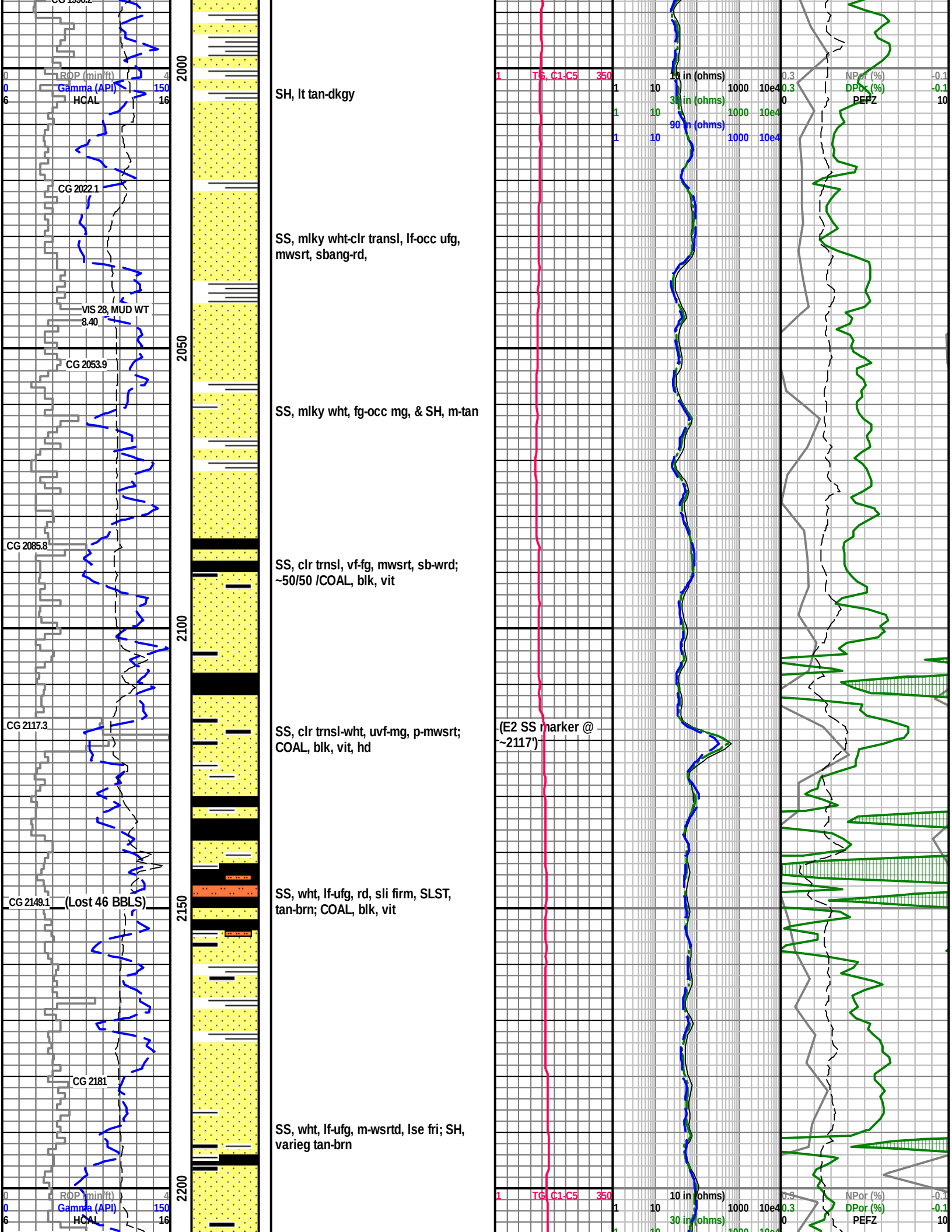
EVENTS
- Rft
- Sidewall

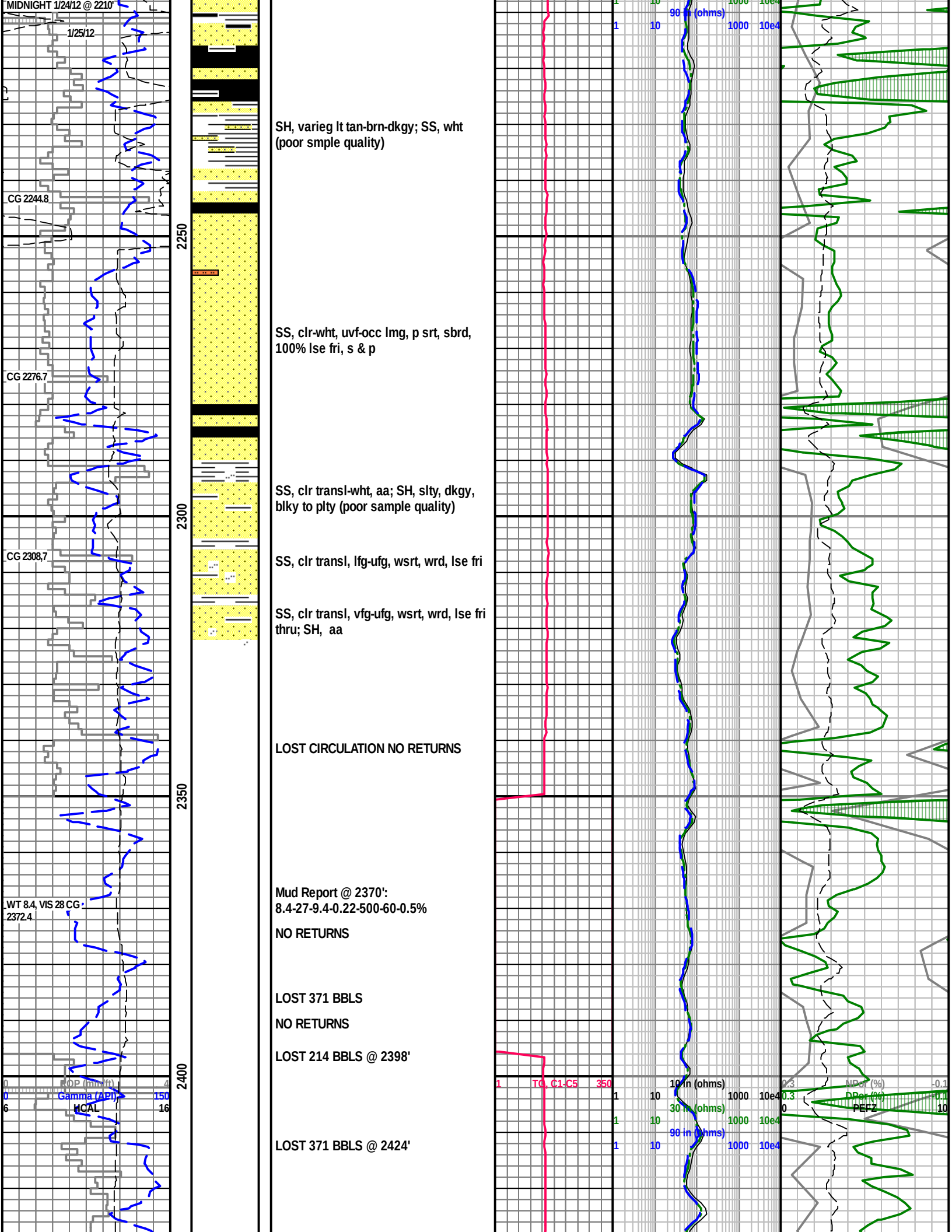


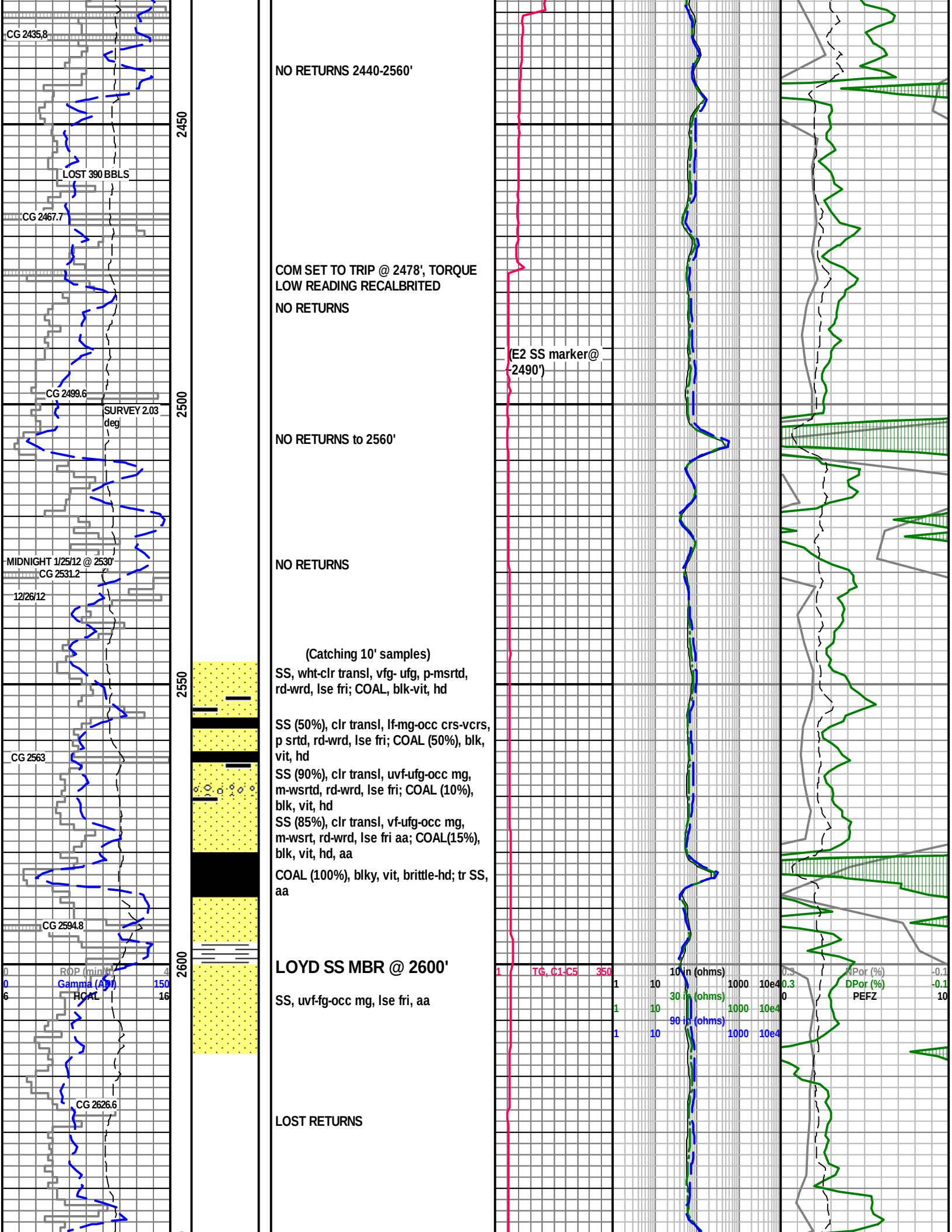

Cored 9012-9047, retrieved 35' core.
Bit No. 5: 1/30/12 Trip for bit 10:00-11:00 a.m.: Start circulation, clean hole, pick up 8" downhole motor & Bit #5-12.250" Smith MI 616. Zero all pumps-send 100 bbl sweep, build 2nd sweep-TOOH for BHA @ 4434'. Circulate bottoms up and condition hole. At 6 BBLS fill - strap out on trip. Verify returns @ 8.8 BBLS fill.
ROP/gas recorded from 1393' to LTD 9736'
< ILES FM DETAILS>
Top of Trout Cr SS @ approx 1338' (est fromTri State core holes)
Log begins in TROUT CR SS @ 1390'
(Catching 30' samples)
Mud report @ 1393':
8.35-27-11.3-0.2-600-560-0.5%
1350
1400
1450
1500
ROP (min/ft)
Gamma (API)
HCAL
CG 1423.7
CG 1454
CG 1483.9
VIS 27, WT 8.40
CG 1514.1
CG 1545.9
SS, clr-trnsl to mlky wht, s & p, vfg-fg, mwsrt, sbrd-rd, m frm-sli fri, cly fl, patchy calc cmt; rr intrgran por; SH, slty, brn
SS. clr-sli mlky wht, s & p, lf-ufg, m-wsrt, ang-sbang-m-wrd, lse fri, sli calc-non-calc cmt; por est ~20%
SS, slty, clr trnsl-mlky wht, aa, lvf-occ ufg, p-mwsrt, sbang-rd, sli firm-firm, ptchy cly fl w/sli calc cmt; tt-10% por
TROUT CR SH @ 1500'
SH, sndy-slty, lt brn intrbdd w/SS, mlky wht, lvfg-ufg, p mwsrt, sbrd-rd, firm-sli firm, cly fl, aa, patchy calc cmt, tr glauc, grn
SH, sli sndy, brn, intrbdd w/SS, wht, cly fl, calc cmt
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

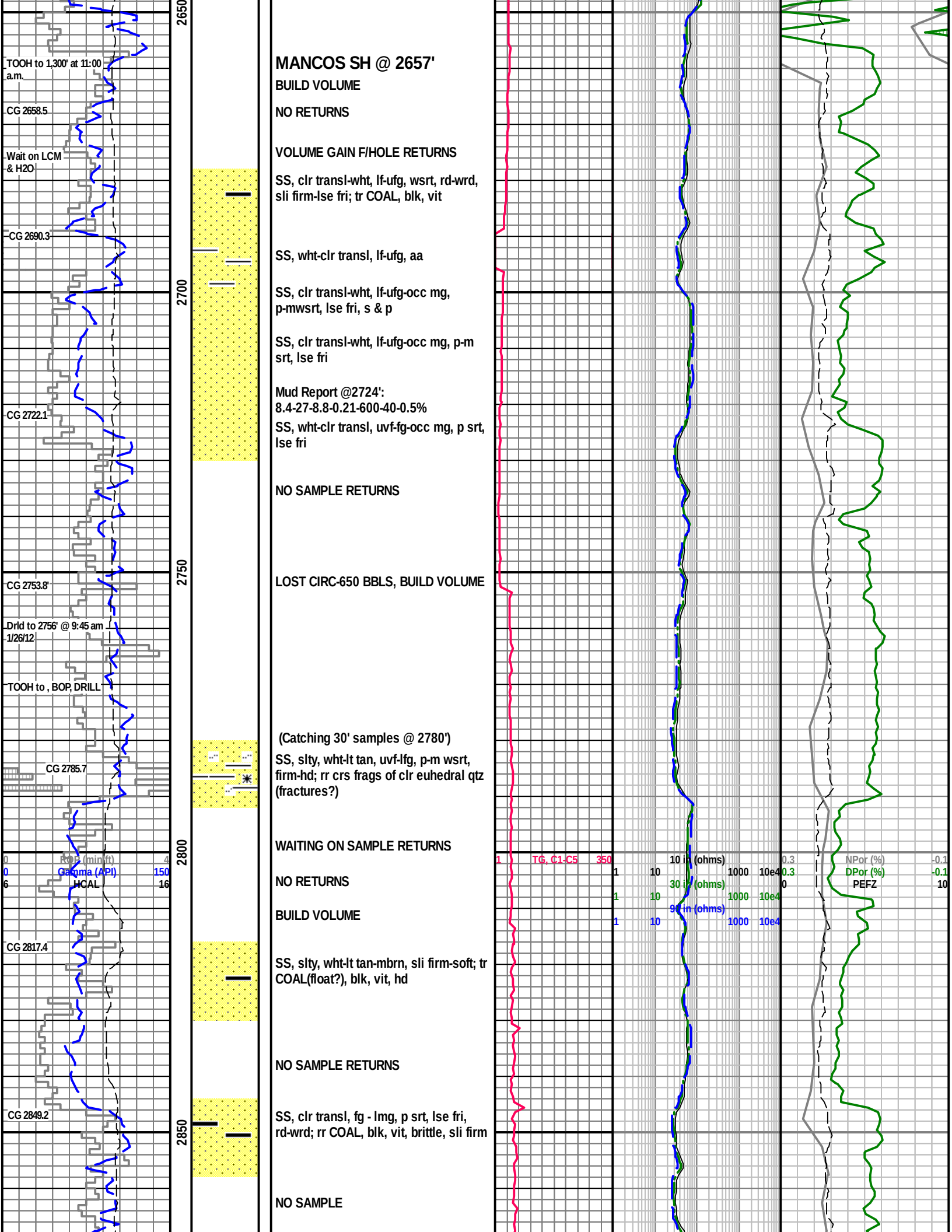

SH, slty-sandy, brn, sft- sli firm,
CG 1577.4
ILES FM(non-marine) @ 1586'
SH, brn; tr COAL, blk, vit, blky
ROP (min/ft)
Gamma (API)
HCAL
CG 1609.3
SS, clr trnsl, lf-ufg, sbrd-rd, m-wsrt, lse fri; SH, lt tan-brn; tr SLST
Mud Report @ 1637':
8.4-27-11.5-0.15-500-80-0.5%
CG 1641.2
SS (85%), clr trnsl, lf-ufg, sbrd-wrd, wsrt, lse fri, aa; COAL(15%), blk, vit, blky
CG 1672.8
SS (90%), clr trnsl-wht, frstd, lf-ufg-occ lmg, dom sbrd-rd, wsrt, lse fri ; COAL (10%) blk, vit, blky-ang, firm-hd
CG 1704.7
SS (90%). clr trnsl-mlky wht-frstd, lf-ufg-occ lmg, sbrd-rd , m-wsrt, lse fri, exc por, aa; COAL (10%), blk, vit, blky-ang
(E1 SS @ ~1702')
SS, clr trnsl-wht, vf-mg, p-srt, sli firm-sft; SH, varieg lt tan-lt orng-dkgy
CG 1736.4
MW 8.4, VIS 28
SURVEY @ 1750', INC 2.4 DEG
SS, wht, s & p, vfg-fg, wsrt, rd, sft- lse fri, cl fl
TG C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
1550
1600
1650
1700
1750

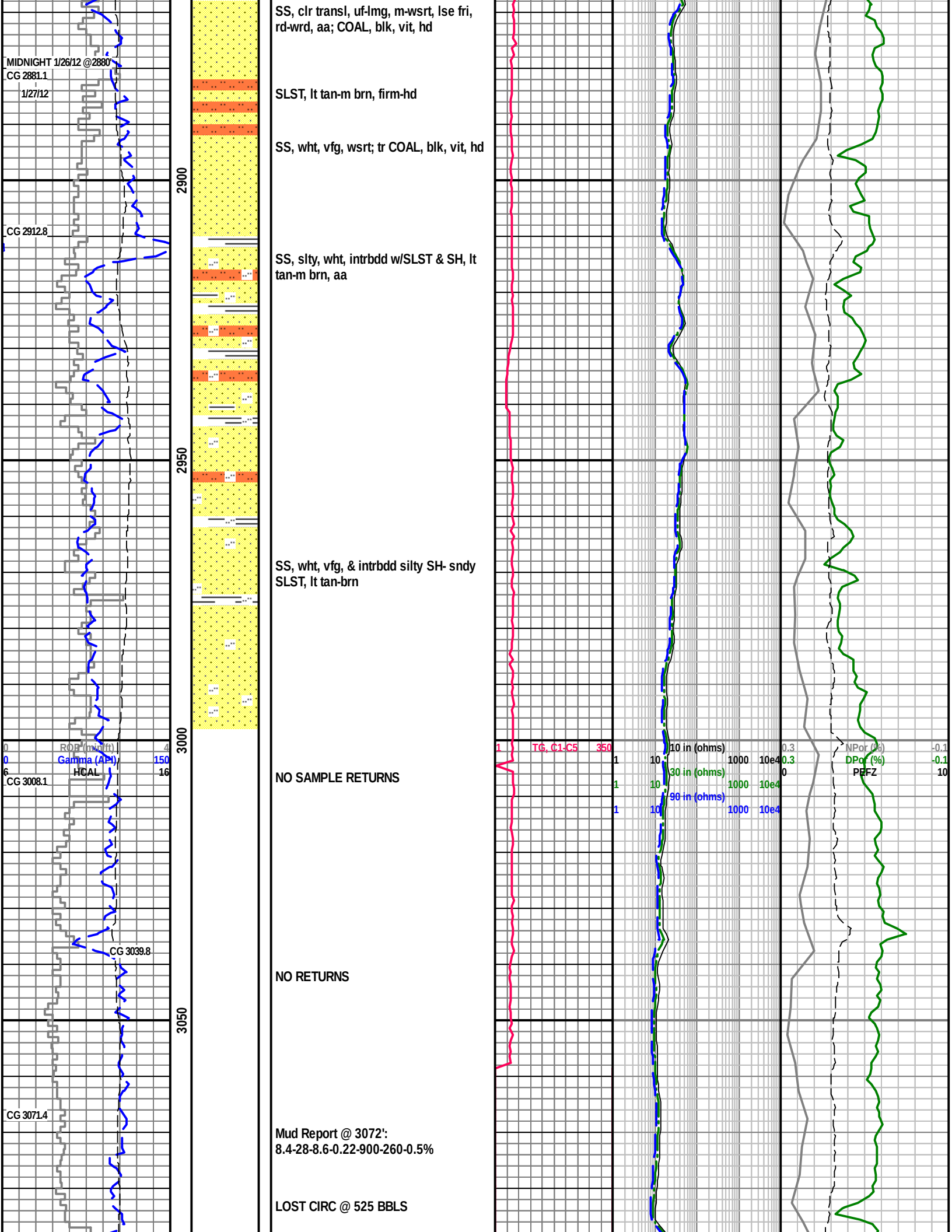

CG 1799.5
ROP (min/ft)
0
4
Gamma (API)
0
150
HCAL
6
16
1800
SS, clr-wht, vfg-ufg, mwsrt, rd, lse fri; SH, varieg tan-brn-orng-dkgy; COAL, blk, vit, frm-hd
TG, C1-C5
1
350
10 in (ohms)
30 in (ohms)
90 in (ohms)
1
10
1000
10e4
NPor (%)
0.3
-0.1
DPor (%)
0.3
-0.1
PEFZ
0
10
CG 1831.3
SS, clr transl-wht, vf-fg, rd, lse fri; SH, varieg tan-brn-orng-dkgy; COAL, blk, vit, hd
SH, varieg, aa; tr SS, wht, vfg, aa; rr COAL, blk, vit, aa
1850
SS, clr trnsl-wht, lf-ufg-occ mg, m-wsrt, sbrd-sbang, lse fri, exc por
CG 1863
SS, clr trnsl-wht, vfg-occ mg, p srt, v sft-lse fri; COAL, blk, vit, & SH, slty, tan-dkgy
CG 1894.9
1900
SS, wht-clr trnsl, vf-fg, wsrt, rd, sft-lse fri; SH, varieg m tan-dkgy, tr COAL, blk, vit, firm-hd
CG 1926.7
SS, wht, vf-fg, wsrt, rd, lse fri; SH, varieg tan-orng-dkgy
1950
CG 1958.3
SS, wht-clr trnsl, uvf-fg, sbang-wrd, lse fri; SH, varieg ltgy-m tan-orng
CG 1990.2

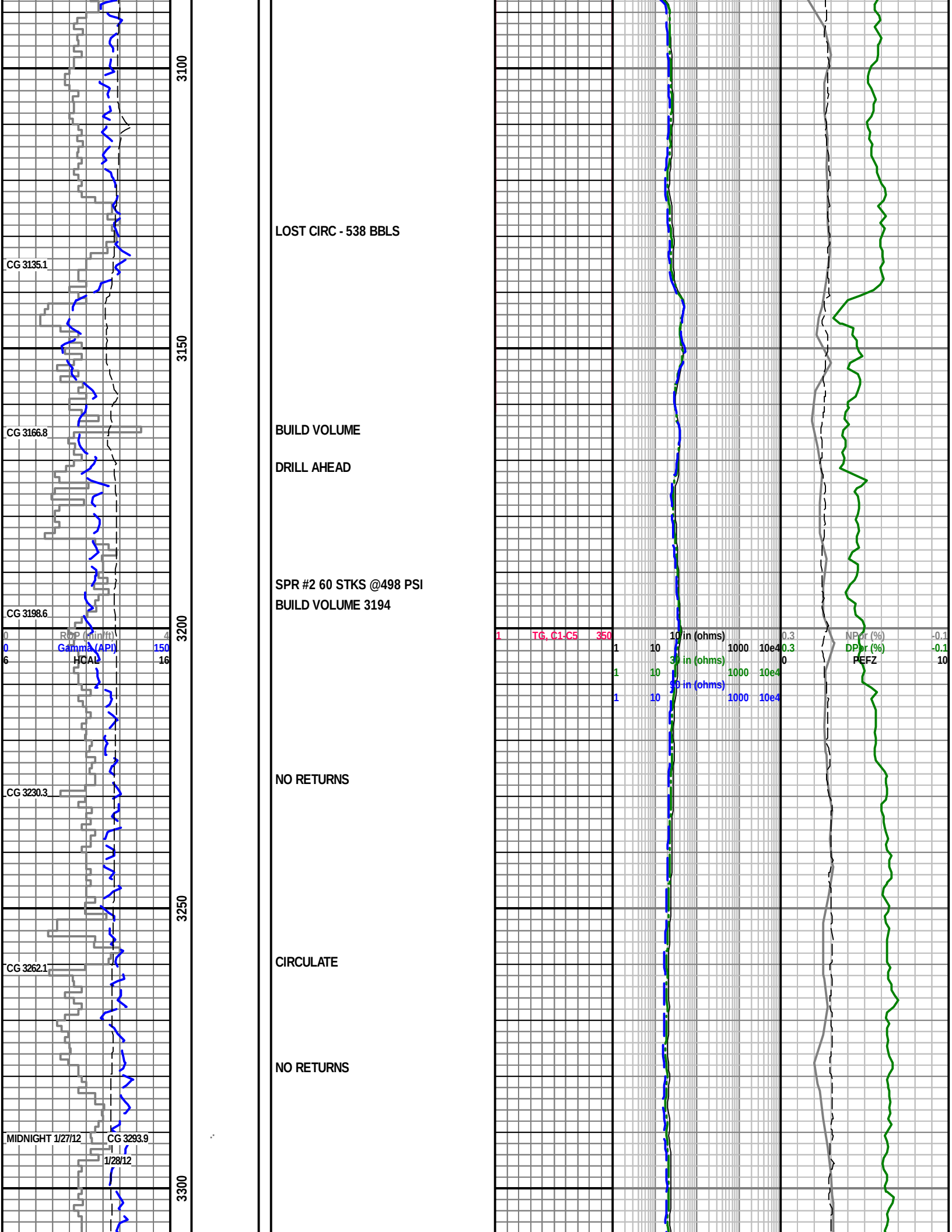

ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
2000
2050
2100
2150
2200
CG 2022.1
CG 2053.9
CG 2085.8
CG 2117.3
CG 2149.1
(Lost 46 BBLS)
CG 2181
VIS 28, MUD WT 8.40
SH, lt tan-dkgy
SS, mlky wht-clr transl, lf-occ ufg, mwsrt, sbang-rd,
SS, mlky wht, fg-occ mg, & SH, m-tan
SS, clr trnsl, vf-fg, mwsrt, sb-wrd; ~50/50 /COAL, blk, vit
SS, clr trnsl-wht, uvf-mg, p-mwsrt; COAL, blk, vit, hd
(E2 SS marker @ ~2117')
SS, wht, lf-ufg, rd, sli firm, SLST, tan-brn; COAL, blk, vit
SS, wht, lf-ufg, m-wsrtd, lse fri; SH, varieg tan-brn

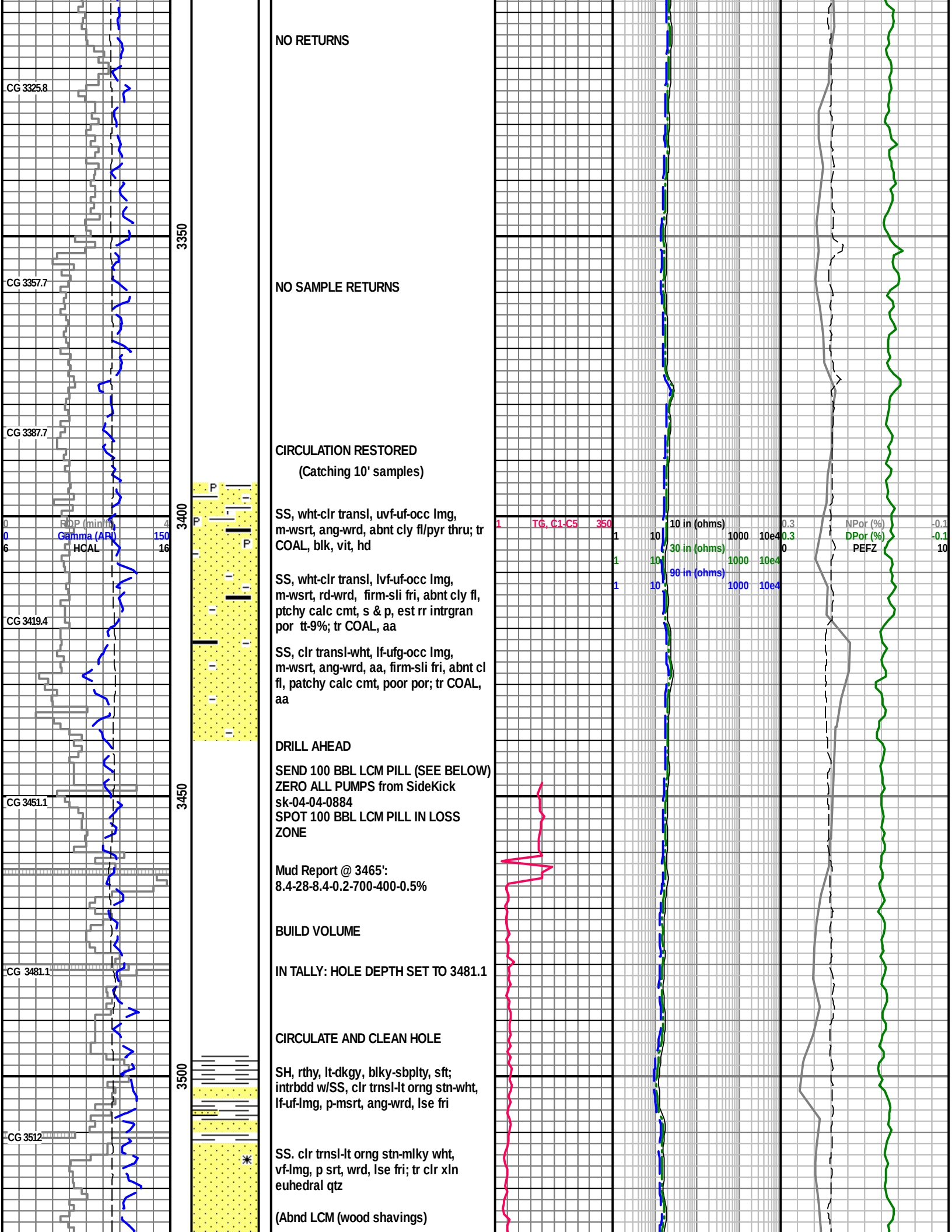

MIDNIGHT 1/24/12 @ 2210'
1/25/12
CG 2244.8
CG 2276.7
CG 2308.7
WT 8.4, VIS 28 CG
2372.4
2250
2300
2350
2400
SH, varieg lt tan-brn-dkgy; SS, wht (poor smple quality)
SS, clr-wht, uvf-occ lmg, p srt, sbrd, 100% lse fri, s & p
SS, clr transl-wht, aa; SH, slty, dkgy, blky to plty (poor sample quality)
SS, clr transl, lfg-ufg, wsrt, wrd, lse fri
SS, clr transl, vfg-ufg, wsrt, wrd, lse fri thru; SH, aa
LOST CIRCULATION NO RETURNS
Mud Report @ 2370':
8.4-27-9.4-0.22-500-60-0.5%
NO RETURNS
LOST 371 BBLS
NO RETURNS
LOST 214 BBLS @ 2398'
LOST 371 BBLS @ 2424'
90 in (ohms)
1
10
1000
10e4
ROP (min/ft)
Gamma (API)
HCAL
TG C1-C5
350
10 in (ohms)
30 in (ohms)
NPor (%)
DPor (%)
PEFZ
0.3
-0.1
0
10
6
16
150

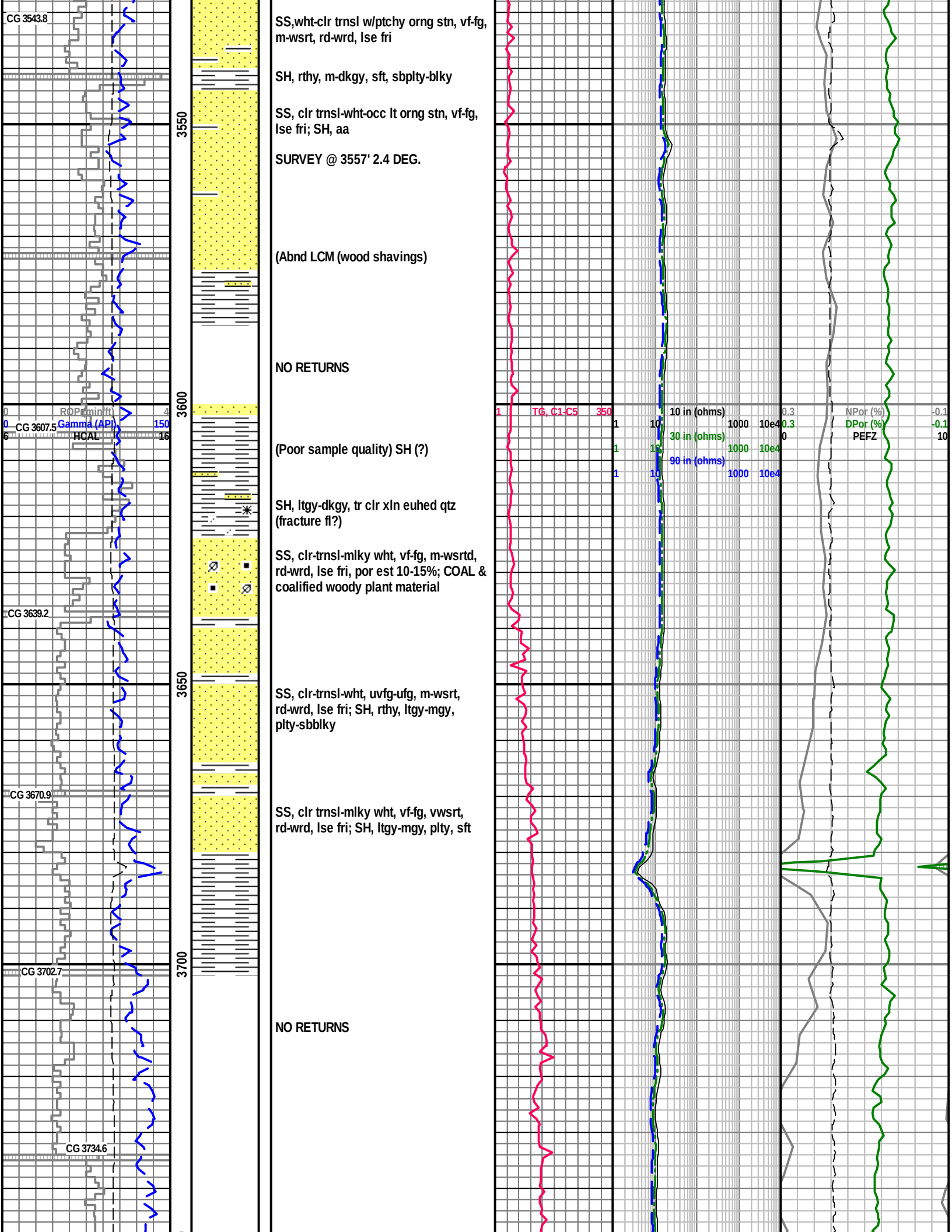

CG 2435.8
NO RETURNS 2440-2560'
2450
LOST 390 BBLS
CG 2467.7
COM SET TO TRIP @ 2478', TORQUE LOW READING RECALBRITED
NO RETURNS
(E2 SS marker@ -2490')
CG 2499.6
SURVEY 2.03 deg
2500
NO RETURNS to 2560'
MIDNIGHT 1/25/12 @ 2530'
CG 2531.2
12/26/12
NO RETURNS
(Catching 10' samples)
SS, wht-clr transl, vfg- ufg, p-msrtd, rd-wrd, lse fri; COAL, blk-vit, hd
2550
SS (50%), clr transl, lf-mg-occ crs-vcrs, p srtd, rd-wrd, lse fri; COAL (50%), blk, vit, hd
CG 2563
SS (90%), clr transl, uvf-ufg-occ mg, m-wsrtd, rd-wrd, lse fri; COAL (10%), blk, vit, hd
SS (85%), clr transl, vf-ufg-occ mg, m-wsrt, rd-wrd, lse fri aa; COAL(15%), blk, vit, hd, aa
COAL (100%), blky, vit, brittle-hd; tr SS, aa
CG 2594.8
2600
LOYD SS MBR @ 2600'
SS, uvf-fg-occ mg, lse fri, aa
CG 2626.6
LOST RETURNS
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

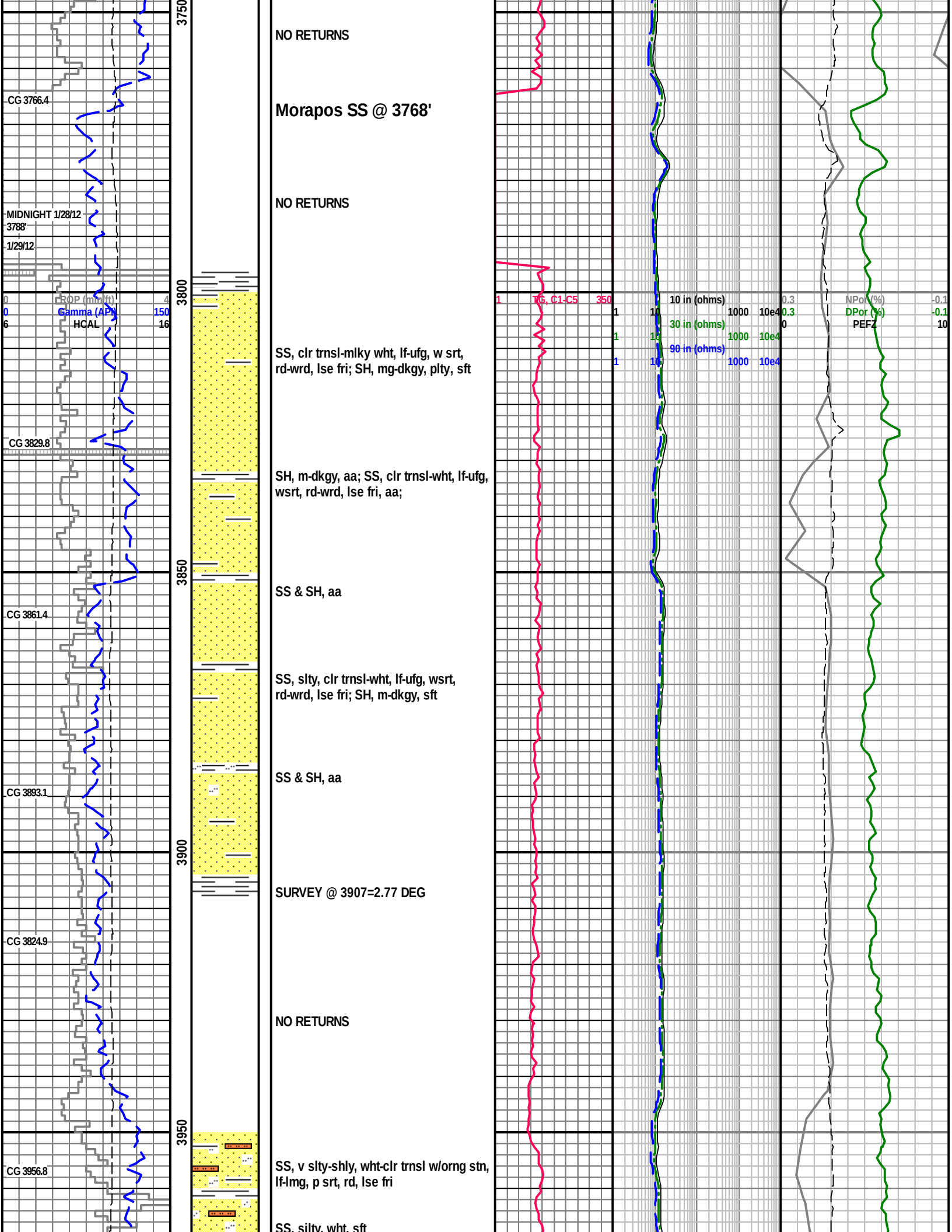

TOOH to 1,300' at 11:00 a.m.
CG 2658.5
Wait on LCM & H2O
CG 2690.3
CG 2722.1
CG 2753.8'
Drld to 2756' @ 9:45 am 1/26/12
TOOH to , BOP, DRILL
CG 2785.7
CG 2817.4
CG 2849.2
2650
2700
2750
2800
2850
MANCOS SH @ 2657'
BUILD VOLUME
NO RETURNS
VOLUME GAIN F/HOLE RETURNS
SS, clr transl-wht, lf-ufg, wsrt, rd-wrd, sli firm-lse fri; tr COAL, blk, vit
SS, wht-clr transl, lf-ufg, aa
SS, clr transl-wht, lf-ufg-occ mg, p-mwsrt, lse fri, s & p
SS, clr transl-wht, lf-ufg-occ mg, p-m srt, lse fri
Mud Report @2724': 8.4-27-8.8-0.21-600-40-0.5%
SS, wht-clr transl, uvf-fg-occ mg, p srt, lse fri
NO SAMPLE RETURNS
LOST CIRC-650 BBLS, BUILD VOLUME
(Catching 30' samples @ 2780')
SS, slty, wht-lt tan, uvf-lfg, p-m wsrt, firm-hd; rr crs frags of clr euhedral qtz (fractures?)
WAITING ON SAMPLE RETURNS
NO RETURNS
BUILD VOLUME
SS, slty, wht-lt tan-mbrn, sli firm-soft; tr COAL(float?), blk, vit, hd
NO SAMPLE RETURNS
SS, clr transl, fg - lmg, p srt, lse fri, rd-wrd; rr COAL, blk, vit, brittle, sli firm
NO SAMPLE
0 ROP (min/ft) 4
0 Gamma (API) 150
6 HCAL 16
1 TG, C1-C5 350
10 in (ohms)
30 in (ohms)
90 in (ohms)
1 10 1000 10e4
0.3 NPor (%) -0.1
0.3 DPor (%) -0.1
0 PEFZ 10

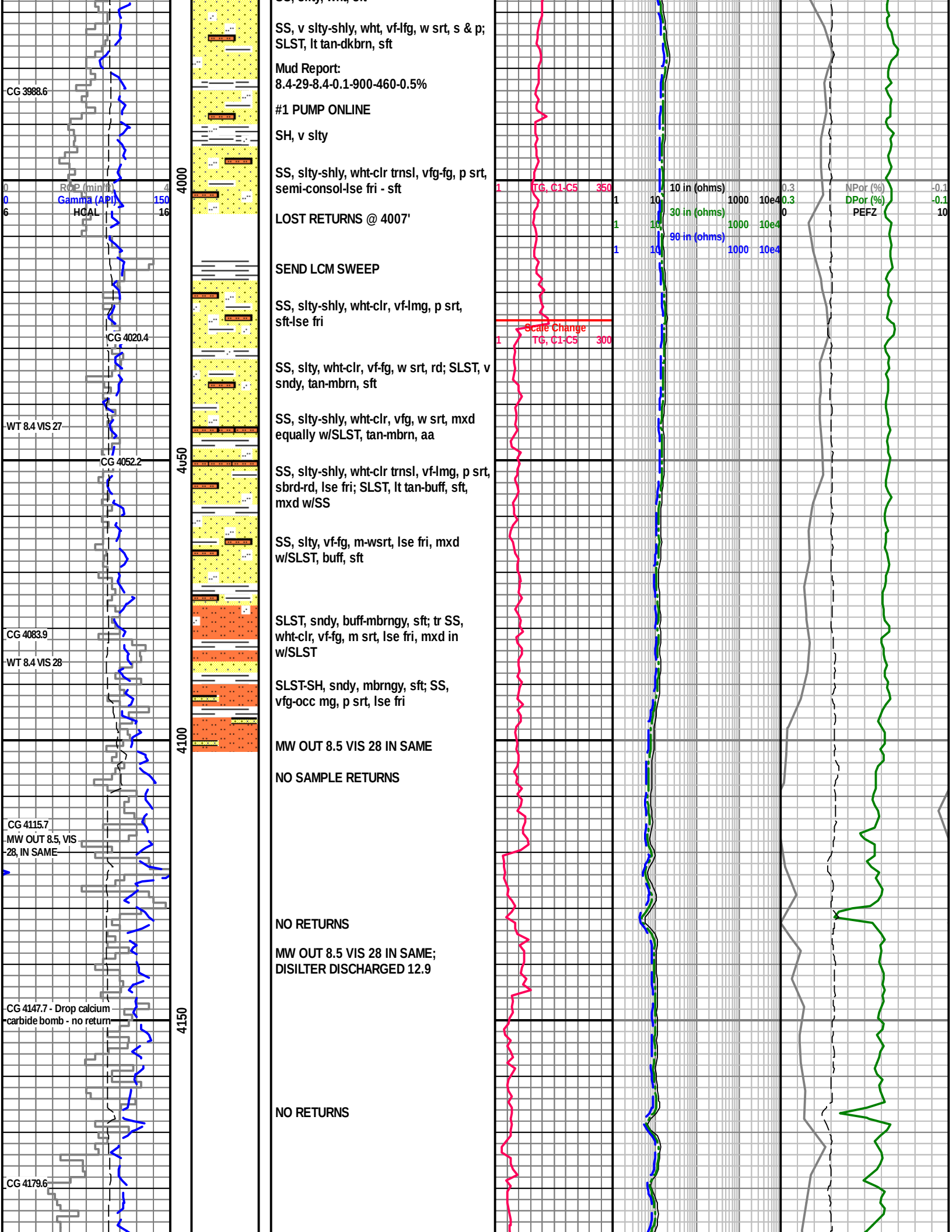

MIDNIGHT 1/26/12 @2880'
CG 2881.1
1/27/12
CG 2912.8
CG 3008.1
CG 3039.8
CG 3071.4
2900
2950
3000
3050
SS, clr transl, uf-lmg, m-wsrt, lse fri, rd-wrd, aa; COAL, blk, vit, hd
SLST, lt tan-m brn, firm-hd
SS, wht, vfg, wsrt; tr COAL, blk, vit, hd
SS, slty, wht, intrbdd w/SLST & SH, lt tan-m brn, aa
SS, wht, vfg, & intrbdd silty SH- sndy SLST, lt tan-brn
NO SAMPLE RETURNS
NO RETURNS
Mud Report @ 3072':
8.4-28-8.6-0.22-900-260-0.5%
LOST CIRC @ 525 BBLS
0 ROP (min/ft) 4
0 Gamma (API) 150
6 HCAL 16
1 TG, C1-C5 350
10 in (ohms)
30 in (ohms)
90 in (ohms)
1 10 1000 10e4
0.3 NPor (%) -0.1
0.3 DPor (%) -0.1
0 PEFZ 10

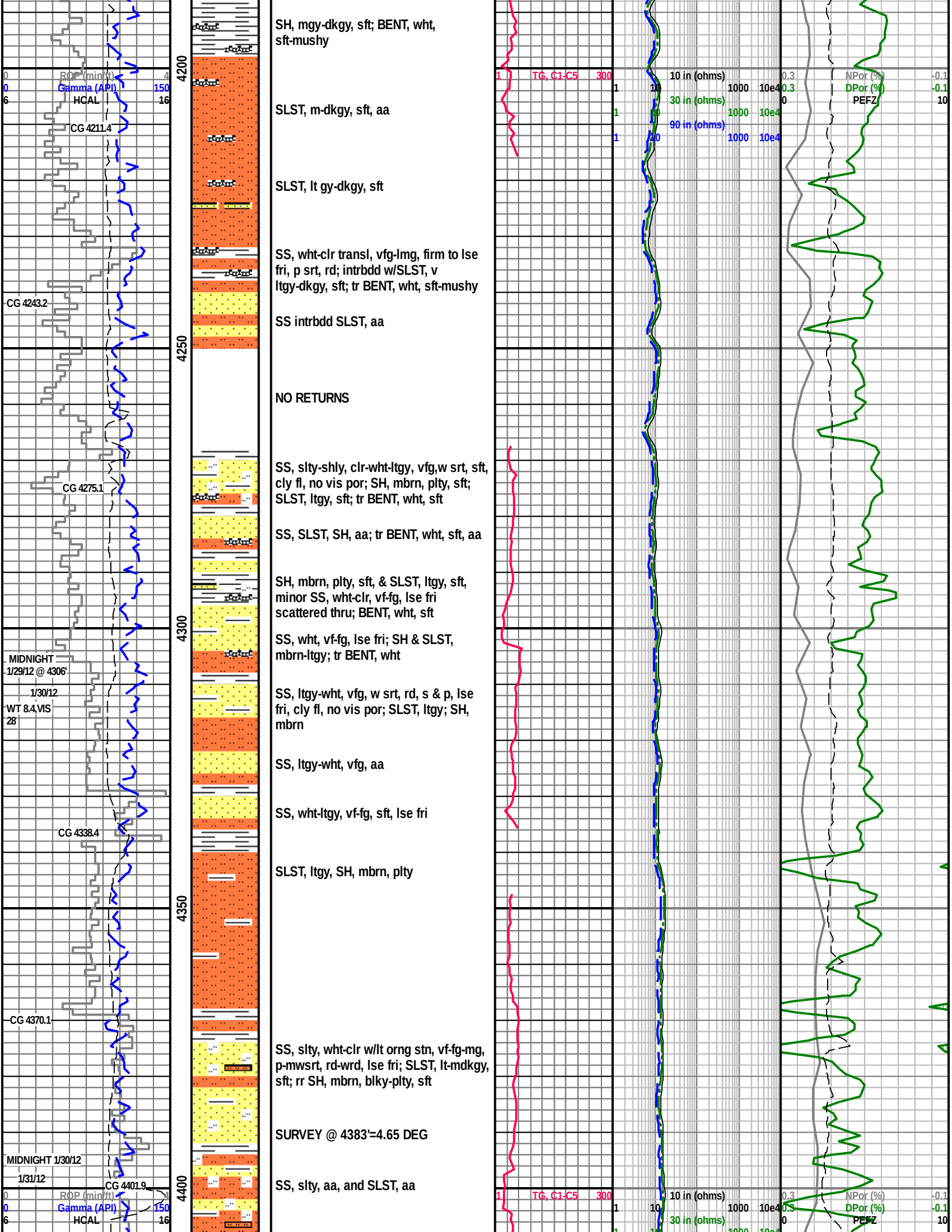

3100
3150
3200
3250
3300
CG 3135.1
CG 3166.8
CG 3198.6
CG 3230.3
CG 3262.1
MIDNIGHT 1/27/12
CG 3293.9
1/28/12
LOST CIRC - 538 BBLS
BUILD VOLUME
DRILL AHEAD
SPR #2 60 STKS @498 PSI
BUILD VOLUME 3194
NO RETURNS
CIRCULATE
NO RETURNS
0 ROP (min/ft) 4
0 Gamma (API) 150
6 HCAL 16
1 TG, C1-C5 350
1 10 10 in (ohms) 1000 10e4
1 10 30 in (ohms) 1000 10e4
1 10 90 in (ohms) 1000 10e4
0.3 NPor (%) -0.1
0.3 DPor (%) -0.1
0 PEFZ 10

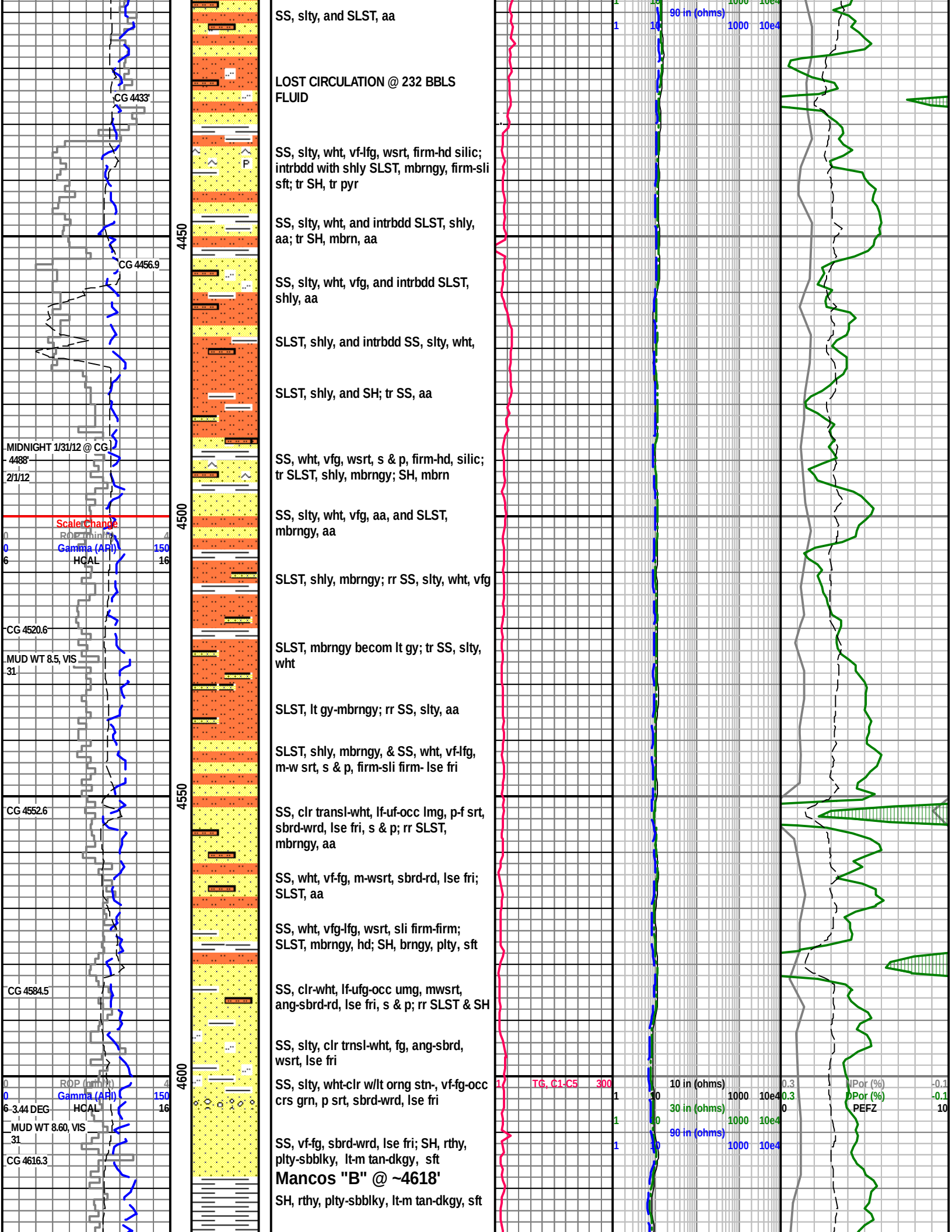

CG 3325.8
CG 3357.7
CG 3387.7
CG 3419.4
CG 3451.1
CG 3481.1
CG 3512
3350
3400
3450
3500
0
ROP (min/ft)
4
0
Gamma (API)
150
6
HCAL
16
1
TG, C1-C5
350
1
10
10 in (ohms)
1000
10e4
30 in (ohms)
90 in (ohms)
0.3
NPor (%)
-0.1
DPor (%)
PEFZ
10
NO RETURNS
NO SAMPLE RETURNS
CIRCULATION RESTORED
(Catching 10' samples)
SS, wht-clr transl, uvf-uf-occ lmg, m-wsrt, ang-wrd, abnt cly fl/pyr thru; tr COAL, blk, vit, hd
SS, wht-clr transl, lvf-uf-occ lmg, m-wsrt, rd-wrd, firm-sli fri, abnt cly fl, ptchy calc cmt, s & p, est rr intrgran por tt-9%; tr COAL, aa
SS, clr transl-wht, lf-ufg-occ lmg, m-wsrt, ang-wrd, aa, firm-sli fri, abnt cl fl, patchy calc cmt, poor por; tr COAL, aa
DRILL AHEAD
SEND 100 BBL LCM PILL (SEE BELOW)
ZERO ALL PUMPS from SideKick sk-04-04-0884
SPOT 100 BBL LCM PILL IN LOSS ZONE
Mud Report @ 3465':
8.4-28-8.4-0.2-700-400-0.5%
BUILD VOLUME
IN TALLY: HOLE DEPTH SET TO 3481.1
CIRCULATE AND CLEAN HOLE
SH, rthy, lt-dkgy, blky-sbplty, sft; intrbdd w/SS, clr trnsl-lt orng stn-wht, lf-uf-lmg, p-msrt, ang-wrd, lse fri
SS. clr trnsl-lt orng stn-mlky wht, vf-lmg, p srt, wrd, lse fri; tr clr xln euhedral qtz
(Abnd LCM (wood shavings)

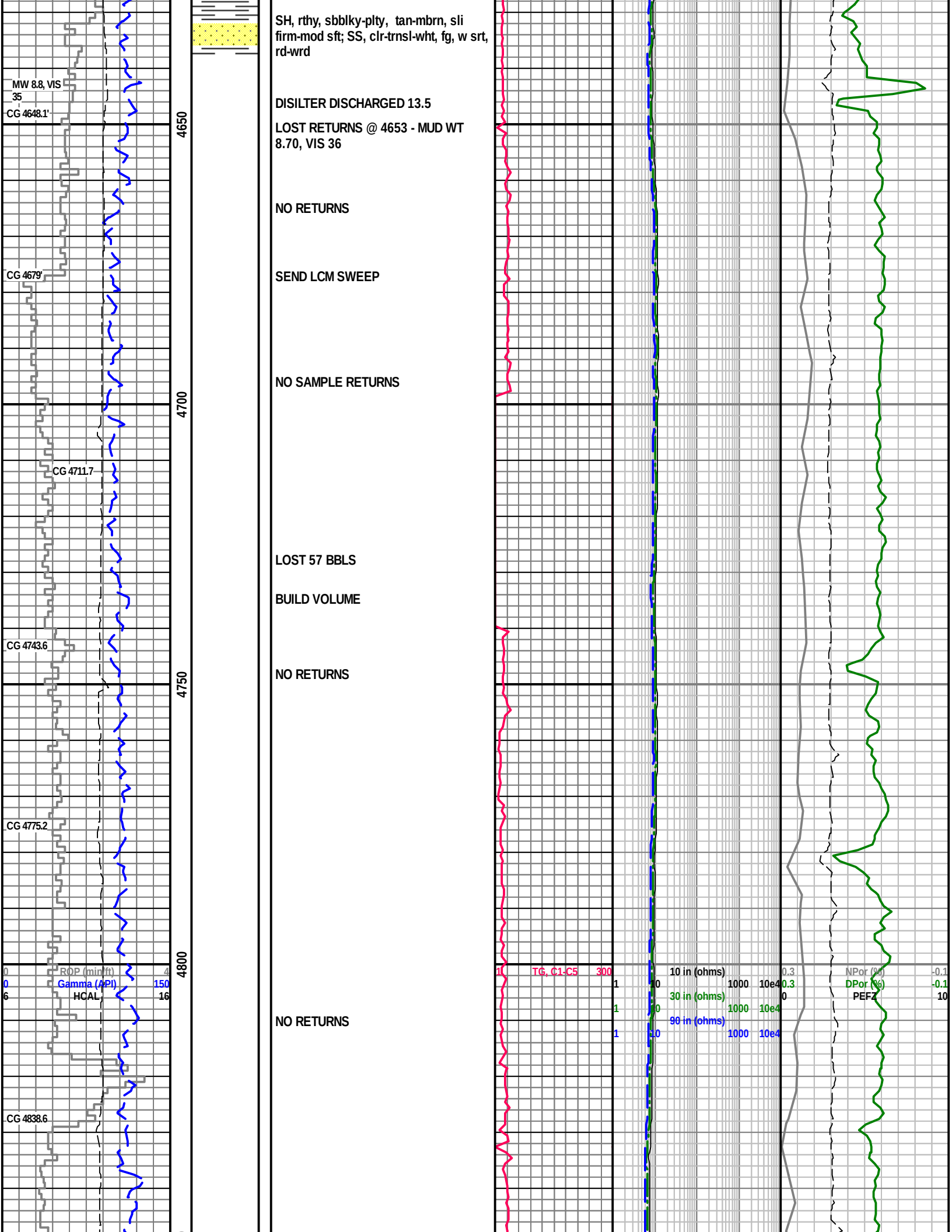

CG 3543.8
SS,wht-clr trnsl w/ptchy orng stn, vf-fg, m-wsrt, rd-wrd, lse fri
SH, rthy, m-dkgy, sft, sbplty-blky
SS, clr trnsl-wht-occ lt orng stn, vf-fg, lse fri; SH, aa
SURVEY @ 3557' 2.4 DEG.
3550
(Abnd LCM (wood shavings)
NO RETURNS
3600
0 ROP min (ft) 4
0 Gamma (API) 150
6 HCAL 16
CG 3607.5
(Poor sample quality) SH (?)
SH, ltgy-dkgy, tr clr xln euhed qtz (fracture fl?)
SS, clr-trnsl-mlky wht, vf-fg, m-wsrtd, rd-wrd, lse fri, por est 10-15%; COAL & coalified woody plant material
CG 3639.2
3650
SS, clr-trnsl-wht, uvfg-ufg, m-wsrt, rd-wrd, lse fri; SH, rthy, ltgy-mgy, plty-sbblky
CG 3670.9
SS, clr trnsl-mlky wht, vf-fg, vwsrt, rd-wrd, lse fri; SH, ltgy-mgy, plty, sft
3700
CG 3702.7
NO RETURNS
CG 3734.6
1 TG, C1-C5 350
10 in (ohms)
1 10 1000 10e4
30 in (ohms)
1 10 1000 10e4
90 in (ohms)
1 10 1000 10e4
0.3 NPor (%) -0.1
0.3 DPor (%) -0.1
0 PEFZ 10

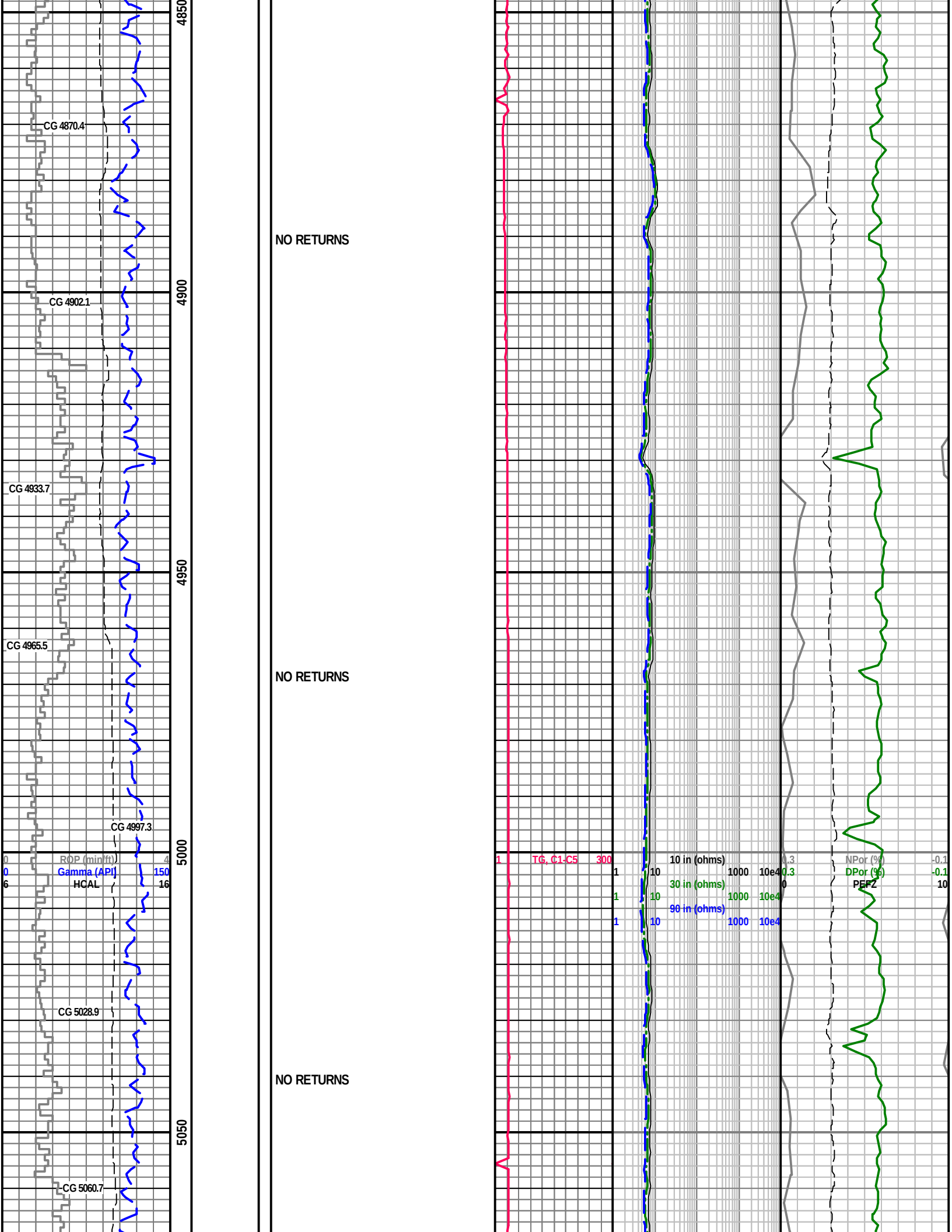

CG 3766.4
MIDNIGHT 1/28/12
3788'
1/29/12
CG 3829.8
CG 3861.4
CG 3893.1
CG 3824.9
CG 3956.8
3750
3800
3850
3900
3950
0 ROP (min/ft) 4
0 Gamma (API) 150
6 HCAL 16
1 TG, C1-C5 350
10 in (ohms)
30 in (ohms)
90 in (ohms)
1 10 1000 10e4
0.3 NPor (%) -0.1
0.3 DPor (%) -0.1
0 PEFZ 10
NO RETURNS
Morapos SS @ 3768'
NO RETURNS
SS, clr trnsl-mlky wht, lf-ufg, w srt, rd-wrd, lse fri; SH, mg-dkgy, plty, sft
SH, m-dkgy, aa; SS, clr trnsl-wht, lf-ufg, wsrt, rd-wrd, lse fri, aa;
SS & SH, aa
SS, slty, clr trnsl-wht, lf-ufg, wsrt, rd-wrd, lse fri; SH, m-dkgy, sft
SS & SH, aa
SURVEY @ 3907=2.77 DEG
NO RETURNS
SS, v slty-shly, wht-clr trnsl w/orng stn, lf-lmg, p srt, rd, lse fri
SS, silty, wht, sft

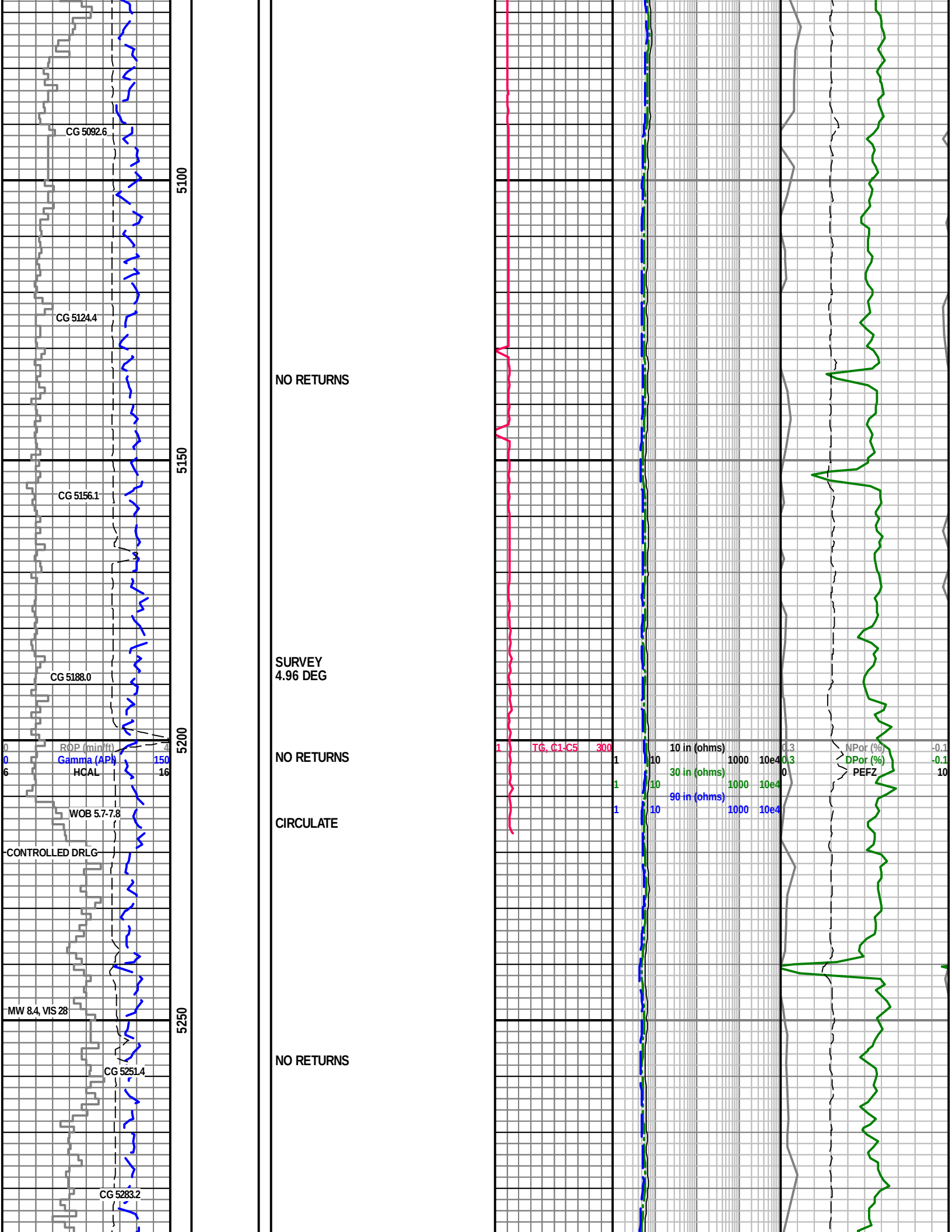

CG 3988.6
0 ROP (min/ft) 4
0 Gamma (API) 150
6 HCAL 16
4000
SS, v slty-shly, wht, vf-lfg, w srt, s & p; SLST, lt tan-dkbrn, sft
Mud Report: 8.4-29-8.4-0.1-900-460-0.5%
#1 PUMP ONLINE
SH, v slty
SS, slty-shly, wht-clr trnsl, vfg-fg, p srt, semi-consol-lse fri - sft
LOST RETURNS @ 4007'
SEND LCM SWEEP
SS, slty-shly, wht-clr, vf-lmg, p srt, sft-lse fri
CG 4020.4
SS, slty, wht-clr, vf-fg, w srt, rd; SLST, v sndy, tan-mbrn, sft
WT 8.4 VIS 27
SS, slty-shly, wht-clr, vfg, w srt, mxd equally w/SLST, tan-mbrn, aa
CG 4052.2
4050
SS, slty-shly, wht-clr trnsl, vf-lmg, p srt, sbrd-rd, lse fri; SLST, lt tan-buff, sft, mxd w/SS
SS, slty, vf-fg, m-wsrt, lse fri, mxd w/SLST, buff, sft
SLST, sndy, buff-mbrngy, sft; tr SS, wht-clr, vf-fg, m srt, lse fri, mxd in w/SLST
CG 4083.9
WT 8.4 VIS 28
SLST-SH, sndy, mbrngy, sft; SS, vfg-occ mg, p srt, lse fri
4100
MW OUT 8.5 VIS 28 IN SAME
NO SAMPLE RETURNS
CG 4115.7
MW OUT 8.5, VIS 28, IN SAME
NO RETURNS
MW OUT 8.5 VIS 28 IN SAME; DISILTER DISCHARGED 12.9
CG 4147.7 - Drop calcium carbide bomb - no return
4150
NO RETURNS
CG 4179.6
1 TG, C1-C5 350
Scale Change
1 TG, C1-C5 300
10 in (ohms)
30 in (ohms)
90 in (ohms)
1 10 1000 10e4
0.3 NPor (%) -0.1
0.3 DPor (%) -0.1
0 PEFZ 10

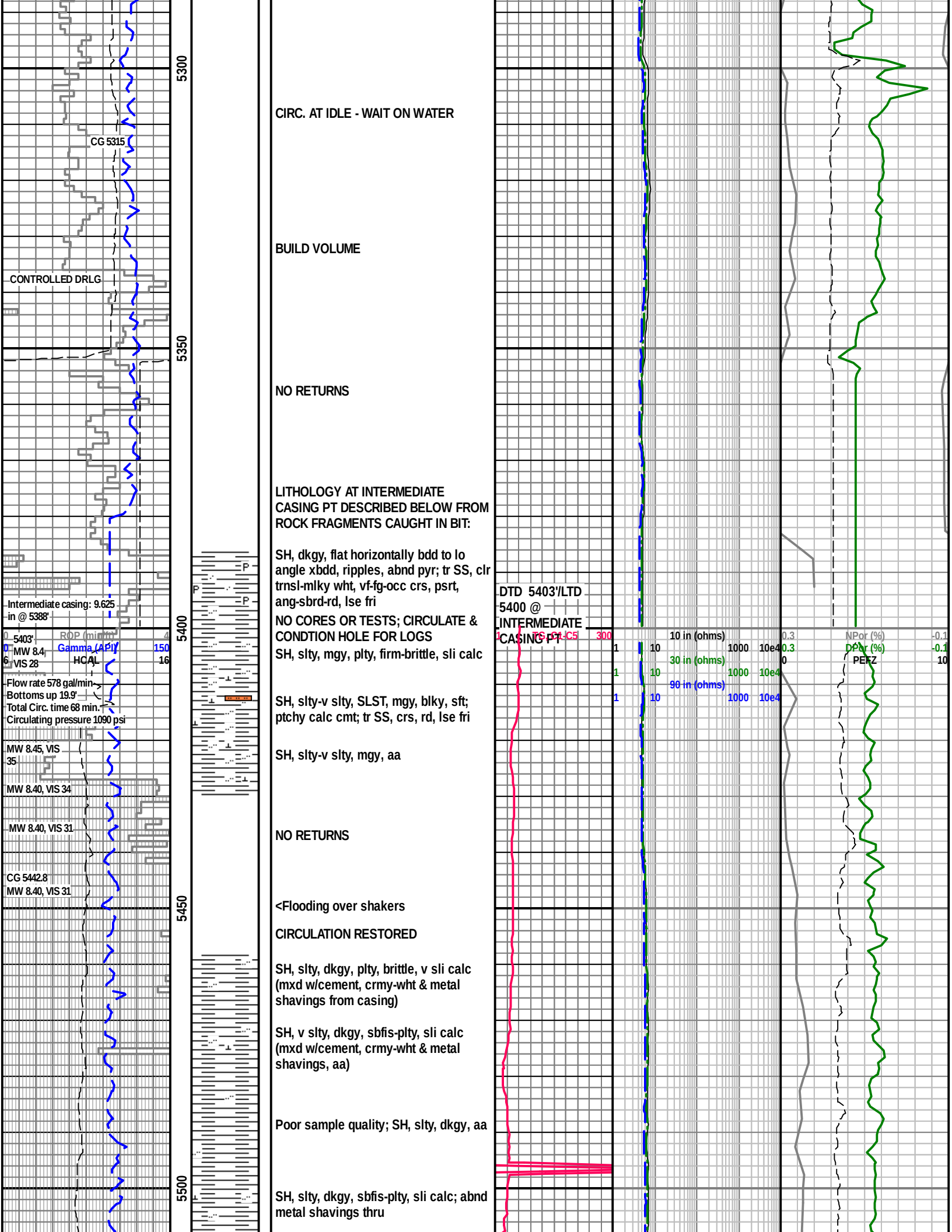

ROP (min/ft)
Gamma (API)
HCAL
CG 4211.4
CG 4243.2
CG 4275.1
MIDNIGHT
1/29/12 @ 4306'
1/30/12
WT 8.4,VIS
28
CG 4338.4
CG 4370.1
MIDNIGHT 1/30/12
1/31/12
CG 4401.9
4200
4250
4300
4350
4400
SH, mgy-dkgy, sft; BENT, wht, sft-mushy
SLST, m-dkgy, sft, aa
SLST, lt gy-dkgy, sft
SS, wht-clr transl, vfg-lmg, firm to lse fri, p srt, rd; intrbdd w/SLST, v ltgy-dkgy, sft; tr BENT, wht, sft-mushy
SS intrbdd SLST, aa
NO RETURNS
SS, slty-shly, clr-wht-ltgy, vfg,w srt, sft, cly fl, no vis por; SH, mbrn, plty, sft; SLST, ltgy, sft; tr BENT, wht, sft
SS, SLST, SH, aa; tr BENT, wht, sft, aa
SH, mbrn, plty, sft, & SLST, ltgy, sft, minor SS, wht-clr, vf-fg, lse fri scattered thru; BENT, wht, sft
SS, wht, vf-fg, lse fri; SH & SLST, mbrn-ltgy; tr BENT, wht
SS, ltgy-wht, vfg, w srt, rd, s & p, lse fri, cly fl, no vis por; SLST, ltgy; SH, mbrn
SS, ltgy-wht, vfg, aa
SS, wht-ltgy, vf-fg, sft, lse fri
SLST, ltgy, SH, mbrn, plty
SS, slty, wht-clr w/lt orng stn, vf-fg-mg, p-mwsrt, rd-wrd, lse fri; SLST, lt-mdkgy, sft; rr SH, mbrn, blky-plty, sft
SURVEY @ 4383'=4.65 DEG
SS, slty, aa, and SLST, aa
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

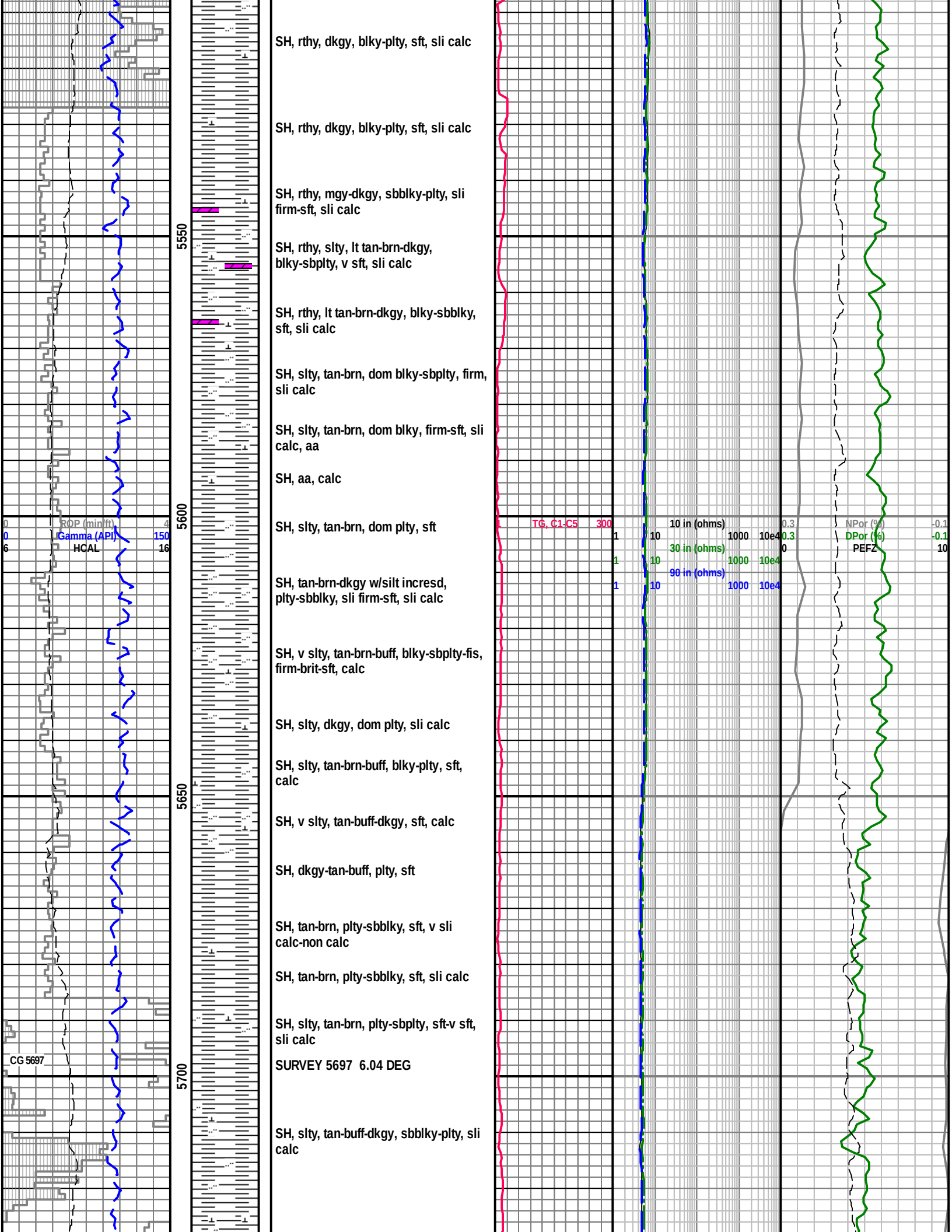

SS, slty, and SLST, aa
LOST CIRCULATION @ 232 BBLS FLUID
CG 4433'
SS, slty, wht, vf-lfg, wsrt, firm-hd silic; intrbdd with shly SLST, mbrngy, firm-sli sft; tr SH, tr pyr
SS, slty, wht, and intrbdd SLST, shly, aa; tr SH, mbrn, aa
4450
CG 4456.9
SS, slty, wht, vfg, and intrbdd SLST, shly, aa
SLST, shly, and intrbdd SS, slty, wht,
SLST, shly, and SH; tr SS, aa
MIDNIGHT 1/31/12 @ CG 4488'
2/1/12
SS, wht, vfg, wsrt, s & p, firm-hd, silic; tr SLST, shly, mbrngy; SH, mbrn
Scale Change
ROP (min/ft)
Gamma (API)
HCAL
SS, slty, wht, vfg, aa, and SLST, mbrngy, aa
4500
SLST, shly, mbrngy; rr SS, slty, wht, vfg
CG 4520.6
MUD WT 8.5, VIS 31
SLST, mbrngy becom lt gy; tr SS, slty, wht
SLST, lt gy-mbrngy; rr SS, slty, aa
SLST, shly, mbrngy, & SS, wht, vf-lfg, m-w srt, s & p, firm-sli firm- lse fri
4550
CG 4552.6
SS, clr transl-wht, lf-uf-occ lmg, p-f srt, sbrd-wrd, lse fri, s & p; rr SLST, mbrngy, aa
SS, wht, vf-fg, m-wsrt, sbrd-rd, lse fri; SLST, aa
SS, wht, vfg-lfg, wsrt, sli firm-firm; SLST, mbrngy, hd; SH, brngy, plty, sft
CG 4584.5
SS, clr-wht, lf-ufg-occ umg, mwsrt, ang-sbrd-rd, lse fri, s & p; rr SLST & SH
SS, slty, clr trnsl-wht, fg, ang-sbrd, wsrt, lse fri
4600
SS, slty, wht-clr w/lt orng stn-, vf-fg-occ crs grn, p srt, sbrd-wrd, lse fri
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
3.44 DEG
MUD WT 8.60, VIS 31
CG 4616.3
SS, vf-fg, sbrd-wrd, lse fri; SH, rthy, plty-sbblky, lt-m tan-dkgy, sft
Mancos "B" @ ~4618'
SH, rthy, plty-sbblky, lt-m tan-dkgy, sft

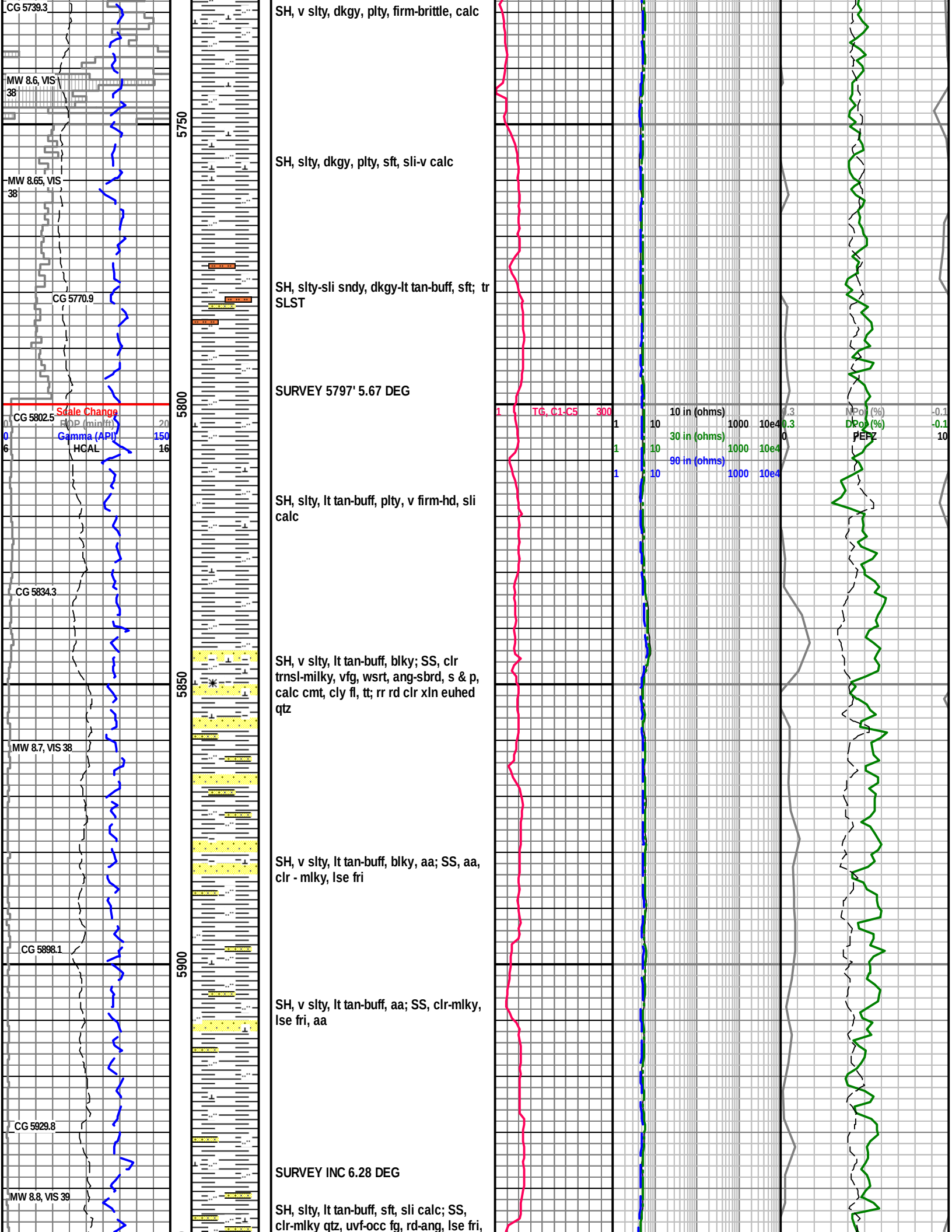

SH, rthy, sbblky-plty, tan-mbrn, sli firm-mod sft; SS, clr-trnsl-wht, fg, w srt, rd-wrd
MW 8.8, VIS 35
CG 4648.1'
DISILTER DISCHARGED 13.5
LOST RETURNS @ 4653 - MUD WT 8.70, VIS 36
NO RETURNS
CG 4679'
SEND LCM SWEEP
NO SAMPLE RETURNS
CG 4711.7
LOST 57 BBLS
BUILD VOLUME
CG 4743.6
NO RETURNS
CG 4775.2
NO RETURNS
CG 4838.6
4650
4700
4750
4800
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

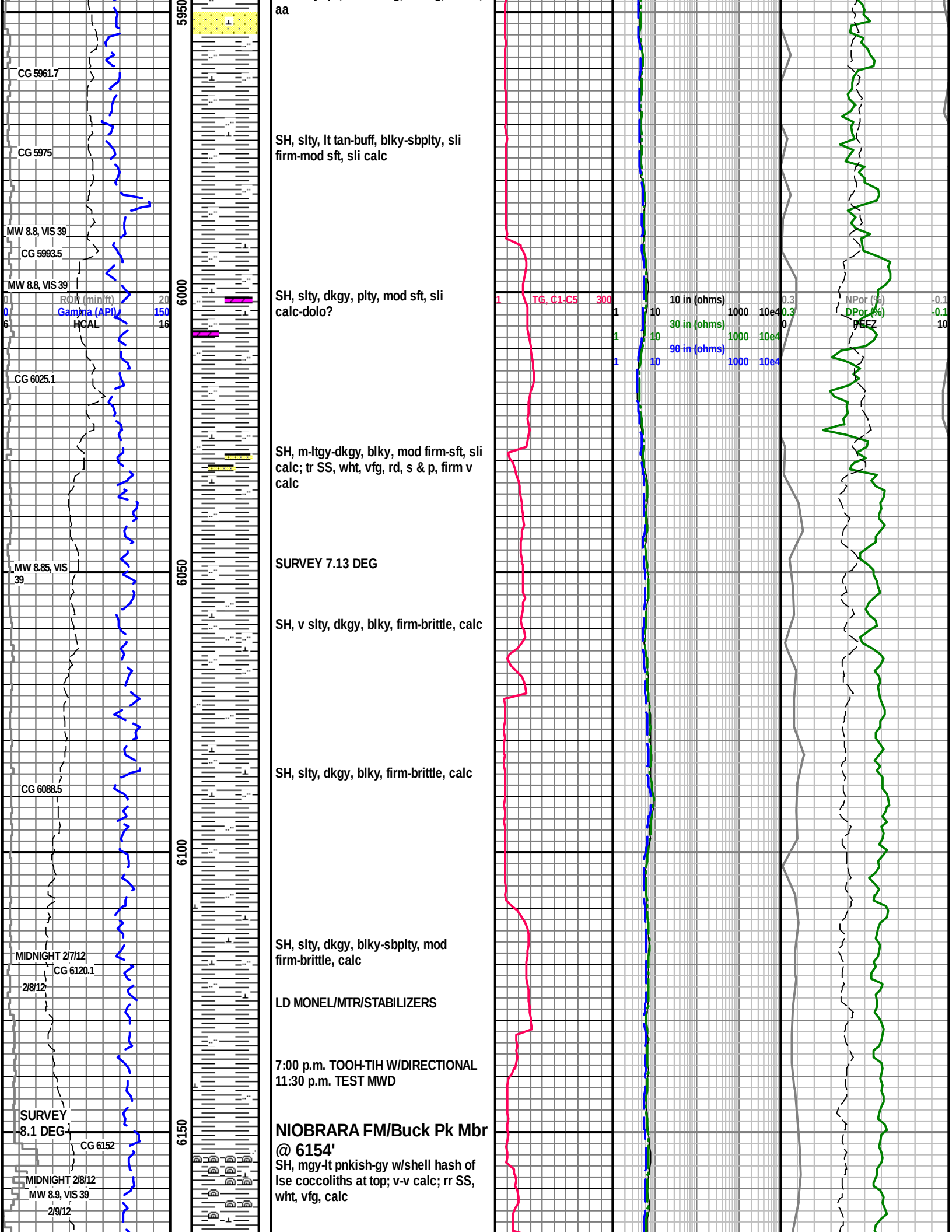

4850
4900
4950
5000
5050
CG 4870.4
CG 4902.1
CG 4933.7
CG 4965.5
CG 4997.3
CG 5028.9
CG 5060.7
NO RETURNS
NO RETURNS
NO RETURNS
0
ROP (min/ft)
4
0
Gamma (API)
150
6
HCAL
16
1
TG, C1-C5
300
1
10
1000
10e4
10 in (ohms)
30 in (ohms)
90 in (ohms)
0.3
0
NPor (%)
DPor (%)
PEFZ
-0.1
10

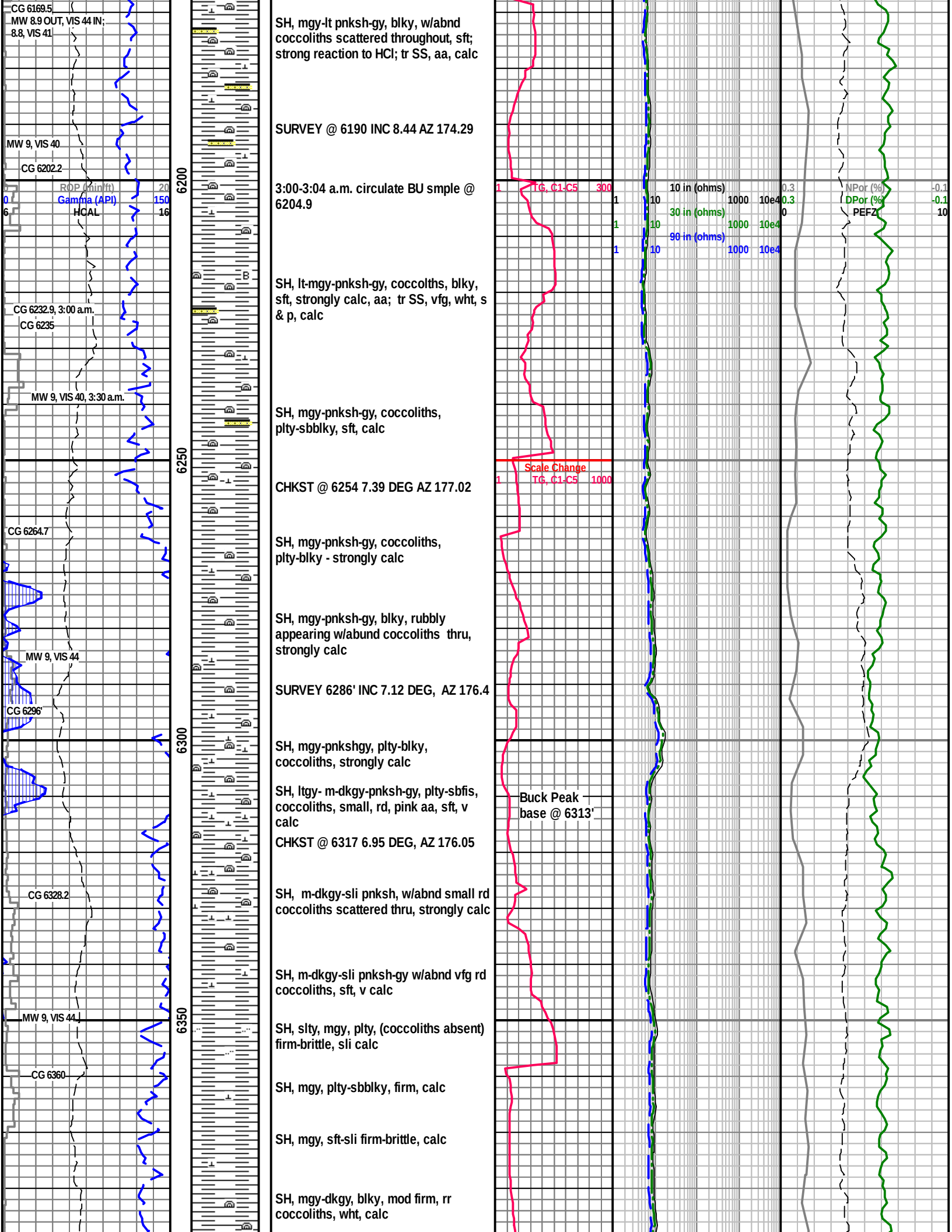

CG 5092.6
CG 5124.4
CG 5156.1
CG 5188.0
WOB 5.7-7.8
CONTROLLED DRLG
MW 8.4, VIS 28
CG 5251.4
CG 5283.2
5100
5150
5200
5250
NO RETURNS
SURVEY
4.96 DEG
NO RETURNS
CIRCULATE
NO RETURNS
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

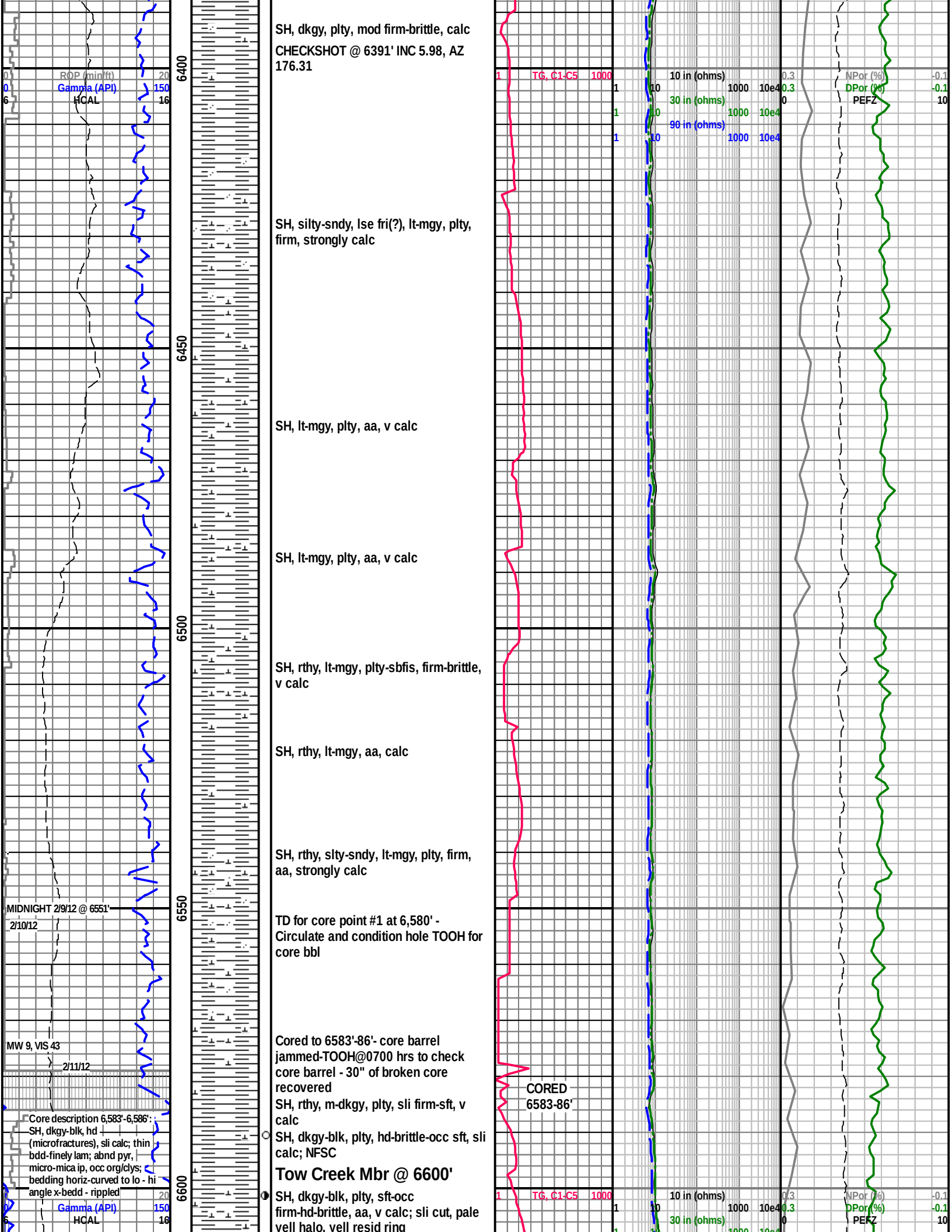

5300
5350
5400
5450
5500
CG 5315
CONTROLLED DRLG
Intermediate casing: 9.625 in @ 5388'
5403'
MW 8.4
VIS 28
ROP (min/ft)
Gamma (API)
HCAL
Flow rate 578 gal/min
Bottoms up 19.9'
Total Circ. time 68 min.
Circulating pressure 1090 psi
MW 8.45, VIS 35
MW 8.40, VIS 34
MW 8.40, VIS 31
CG 5442.8
MW 8.40, VIS 31
CIRC. AT IDLE - WAIT ON WATER
BUILD VOLUME
NO RETURNS
LITHOLOGY AT INTERMEDIATE CASING PT DESCRIBED BELOW FROM ROCK FRAGMENTS CAUGHT IN BIT:
SH, dkgy, flat horizontally bdd to lo angle xbdd, ripples, abnd pyr; tr SS, clr trnsl-mlky wht, vf-fg-occ crs, psrt, ang-sbrd-rd, lse fri
NO CORES OR TESTS; CIRCULATE & CONDTION HOLE FOR LOGS
SH, slty, mgy, plty, firm-brittle, sli calc
SH, slty-v slty, SLST, mgy, blky, sft; ptchy calc cmt; tr SS, crs, rd, lse fri
SH, slty-v slty, mgy, aa
NO RETURNS
<Flooding over shakers
CIRCULATION RESTORED
SH, slty, dkgy, plty, brittle, v sli calc (mxd w/cement, crmy-wht & metal shavings from casing)
SH, v slty, dkgy, sbfis-plty, sli calc (mxd w/cement, crmy-wht & metal shavings, aa)
Poor sample quality; SH, slty, dkgy, aa
SH, slty, dkgy, sbfis-plty, sli calc; abnd metal shavings thru
DTD 5403'/LTD 5400 @ INTERMEDIATE CASING PT
TG C1 C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

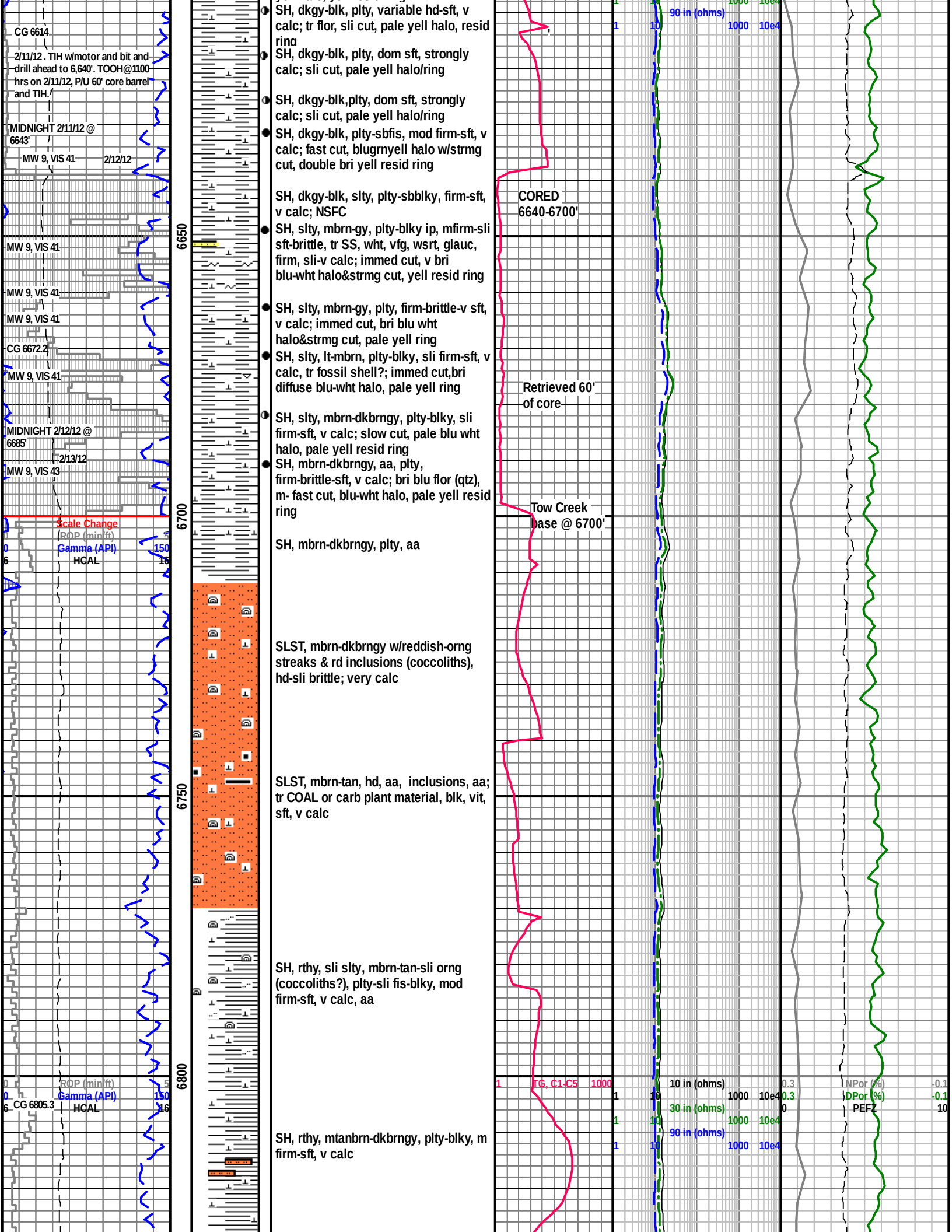

ROP (min/ft)
0
4
Gamma (API)
0
150
HCAL
6
16
TG, C1-C5
1
300
10 in (ohms)
30 in (ohms)
90 in (ohms)
1
10
1000
10e4
NPor (%)
0.3
-0.1
DPor (%)
0.3
-0.1
PEFZ
0
10
5550
5600
5650
5700
SH, rthy, dkgy, blky-plty, sft, sli calc
SH, rthy, dkgy, blky-plty, sft, sli calc
SH, rthy, mgy-dkgy, sbblky-plty, sli firm-sft, sli calc
SH, rthy, slty, lt tan-brn-dkgy, blky-sbplty, v sft, sli calc
SH, rthy, lt tan-brn-dkgy, blky-sbblky, sft, sli calc
SH, slty, tan-brn, dom blky-sbplty, firm, sli calc
SH, slty, tan-brn, dom blky, firm-sft, sli calc, aa
SH, aa, calc
SH, slty, tan-brn, dom plty, sft
SH, tan-brn-dkgy w/silt incresd, plty-sbblky, sli firm-sft, sli calc
SH, v slty, tan-brn-buff, blky-sbplty-fis, firm-brit-sft, calc
SH, slty, dkgy, dom plty, sli calc
SH, slty, tan-brn-buff, blky-plty, sft, calc
SH, v slty, tan-buff-dkgy, sft, calc
SH, dkgy-tan-buff, plty, sft
SH, tan-brn, plty-sbblky, sft, v sli calc-non calc
SH, tan-brn, plty-sbblky, sft, sli calc
SH, slty, tan-brn, plty-sbplty, sft-v sft, sli calc
CG 5697
SURVEY 5697 6.04 DEG
SH, slty, tan-buff-dkgy, sbblky-plty, sli calc

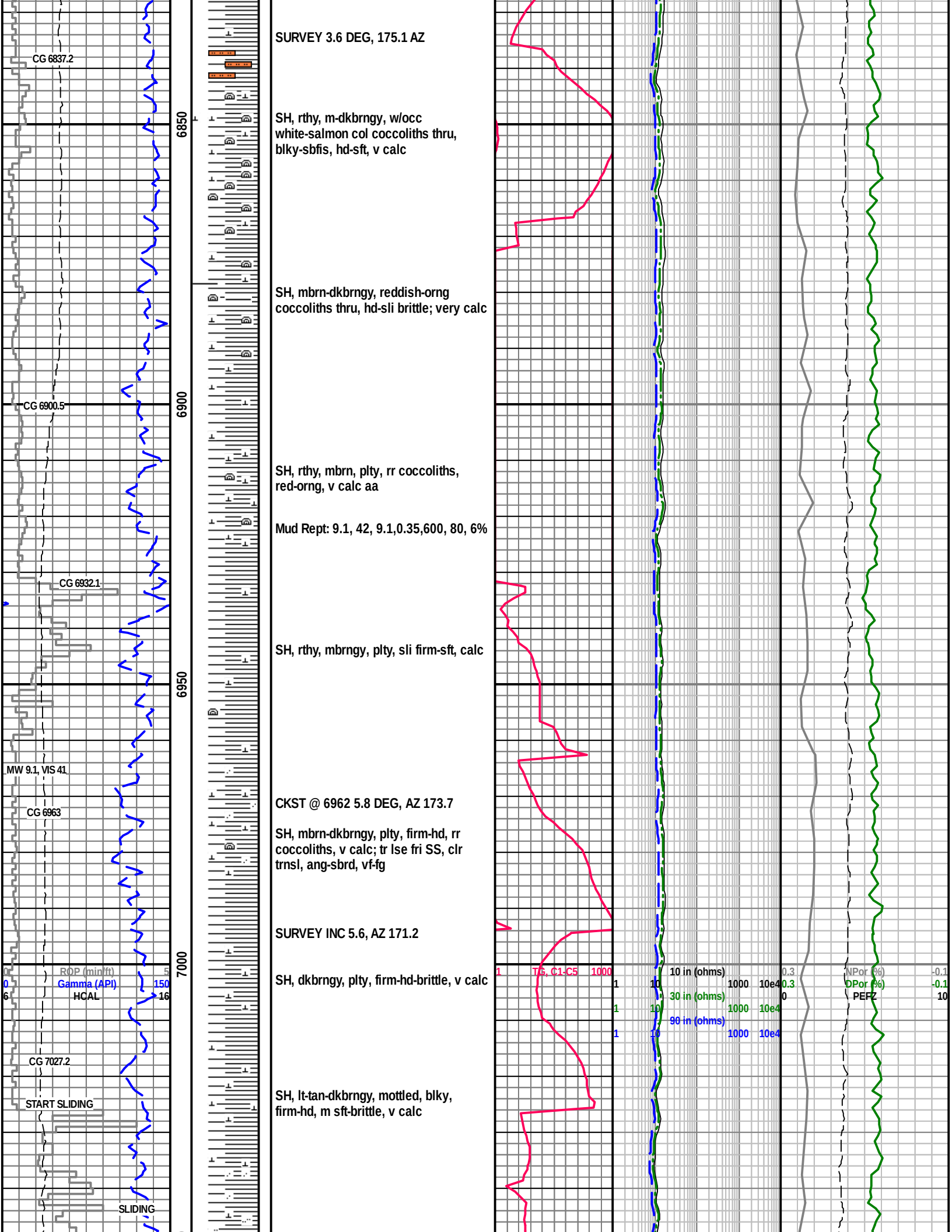

CG 5739.3
MW 8.6, VIS 38
MW 8.65, VIS 38
CG 5770.9
CG 5802.5
Scale Change
ROP (min/ft)
Gamma (API)
HCAL
CG 5834.3
MW 8.7, VIS 38
CG 5898.1
CG 5929.8
MW 8.8, VIS 39
5750
5800
5850
5900
SH, v slty, dkgy, plty, firm-brittle, calc
SH, slty, dkgy, plty, sft, sli-v calc
SH, slty-sli sndy, dkgy-lt tan-buff, sft; tr SLST
SURVEY 5797' 5.67 DEG
SH, slty, lt tan-buff, plty, v firm-hd, sli calc
SH, v slty, lt tan-buff, blky; SS, clr trnsl-milky, vfg, wsrt, ang-sbrd, s & p, calc cmt, cly fl, tt; rr rd clr xln euhed qtz
SH, v slty, lt tan-buff, blky, aa; SS, aa, clr - mlky, lse fri
SH, v slty, lt tan-buff, aa; SS, clr-mlky, lse fri, aa
SURVEY INC 6.28 DEG
SH, slty, lt tan-buff, sft, sli calc; SS, clr-mlky qtz, uvf-occ fg, rd-ang, lse fri,
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

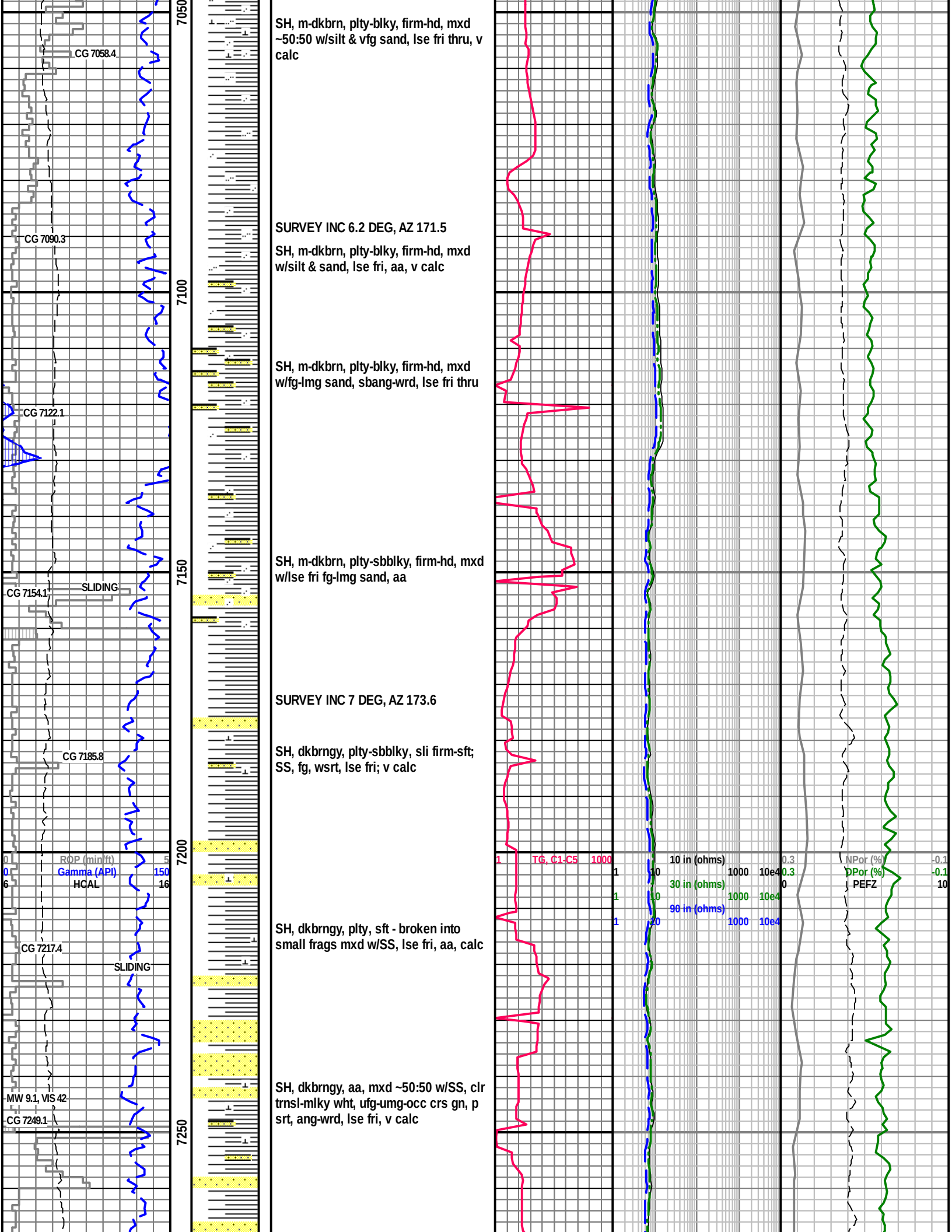

5950
6000
6050
6100
6150
CG 5961.7
CG 5975
MW 8.8, VIS 39
CG 5993.5
MW 8.8, VIS 39
ROP (min/ft)
Gamma (API)
HCAL
CG 6025.1
MW 8.85, VIS 39
CG 6088.5
MIDNIGHT 2/7/12
CG 6120.1
2/8/12
SURVEY 8.1 DEG
CG 6152
MIDNIGHT 2/8/12
MW 8.9, VIS 39
2/9/12
aa
SH, slty, lt tan-buff, blky-sbplty, sli firm-mod sft, sli calc
SH, slty, dkgy, plty, mod sft, sli calc-dolo?
SH, m-ltgy-dkgy, blky, mod firm-sft, sli calc; tr SS, wht, vfg, rd, s & p, firm v calc
SURVEY 7.13 DEG
SH, v slty, dkgy, blky, firm-brittle, calc
SH, slty, dkgy, blky, firm-brittle, calc
SH, slty, dkgy, blky-sbplty, mod firm-brittle, calc
LD MONEL/MTR/STABILIZERS
7:00 p.m. TOOH-TIH W/DIRECTIONAL
11:30 p.m. TEST MWD
NIOBRARA FM/Buck Pk Mbr @ 6154'
SH, mgy-lt pnkish-gy w/shell hash of lse coccoliths at top; v-v calc; rr SS, wht, vfg, calc
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

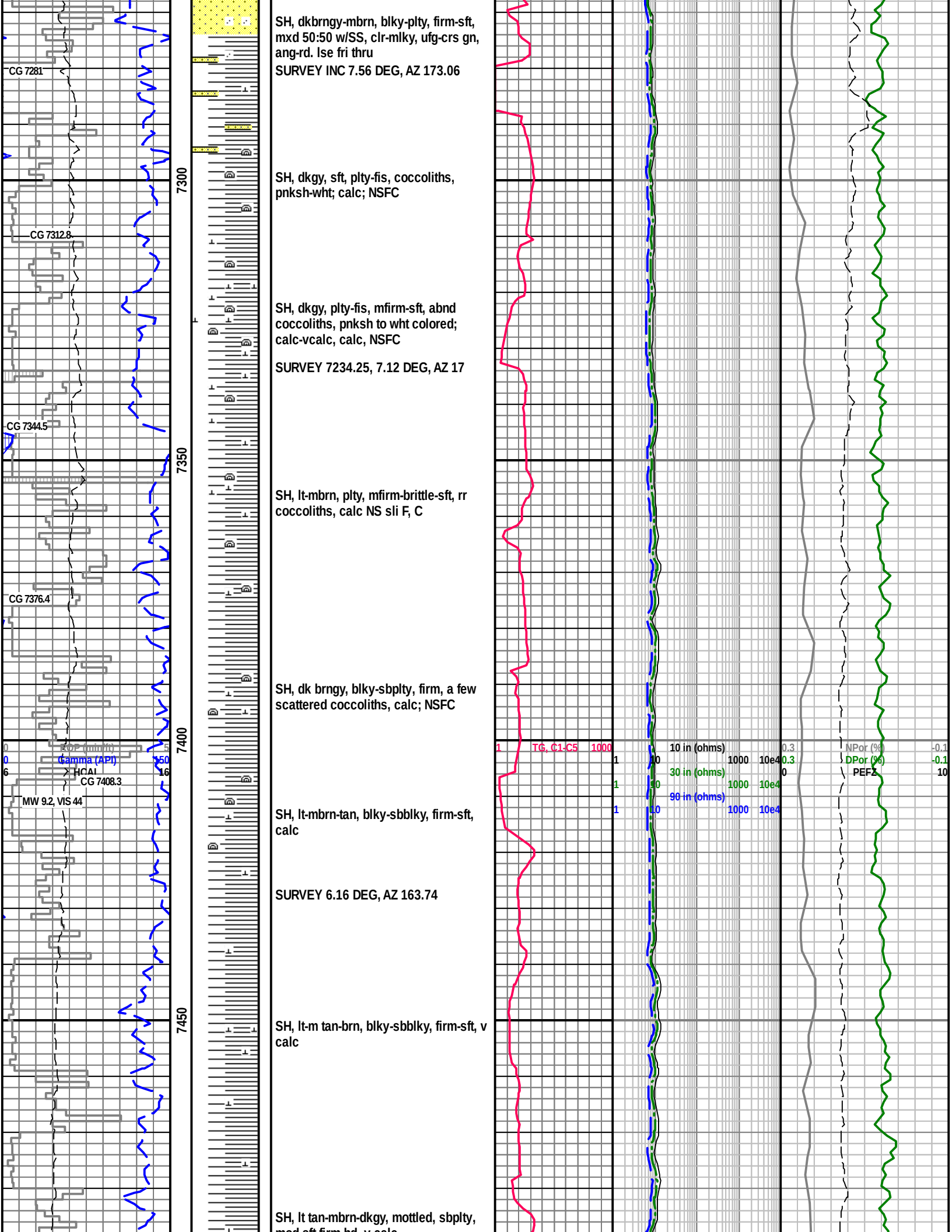

CG 6169.5
MW 8.9 OUT, VIS 44 IN;
8.8, VIS 41
MW 9, VIS 40
CG 6202.2
ROP (min/ft)
20
0
Gamma (API)
150
6
HCAL
16
6200
SH, mgy-lt pnksh-gy, blky, w/abnd coccoliths scattered throughout, sft; strong reaction to HCl; tr SS, aa, calc
SURVEY @ 6190 INC 8.44 AZ 174.29
3:00-3:04 a.m. circulate BU smple @ 6204.9
1
TG, C1-C5
300
10 in (ohms)
0.3
NPor (%)
-0.1
1
10
1000
10e4
0.3
DPor (%)
-0.1
30 in (ohms)
0
PEFZ
10
90 in (ohms)
B
SH, lt-mgy-pnksh-gy, coccolths, blky, sft, strongly calc, aa; tr SS, vfg, wht, s & p, calc
CG 6232.9, 3:00 a.m.
CG 6235
MW 9, VIS 40, 3:30 a.m.
SH, mgy-pnksh-gy, coccoliths, plty-sbblky, sft, calc
6250
Scale Change
1
TG, C1-C5
1000
CHKST @ 6254 7.39 DEG AZ 177.02
CG 6264.7
SH, mgy-pnksh-gy, coccoliths, plty-blky - strongly calc
SH, mgy-pnksh-gy, blky, rubbly appearing w/abund coccoliths thru, strongly calc
MW 9, VIS 44
SURVEY 6286' INC 7.12 DEG, AZ 176.4
CG 6296'
6300
SH, mgy-pnkshgy, plty-blky, coccoliths, strongly calc
SH, ltgy- m-dkgy-pnksh-gy, plty-sbfis, coccoliths, small, rd, pink aa, sft, v calc
Buck Peak
base @ 6313'
CHKST @ 6317 6.95 DEG, AZ 176.05
CG 6328.2
SH, m-dkgy-sli pnksh, w/abnd small rd coccoliths scattered thru, strongly calc
SH, m-dkgy-sli pnksh-gy w/abnd vfg rd coccoliths, sft, v calc
MW 9, VIS 44
6350
SH, slty, mgy, plty, (coccoliths absent) firm-brittle, sli calc
CG 6360
SH, mgy, plty-sbblky, firm, calc
SH, mgy, sft-sli firm-brittle, calc
SH, mgy-dkgy, blky, mod firm, rr coccoliths, wht, calc

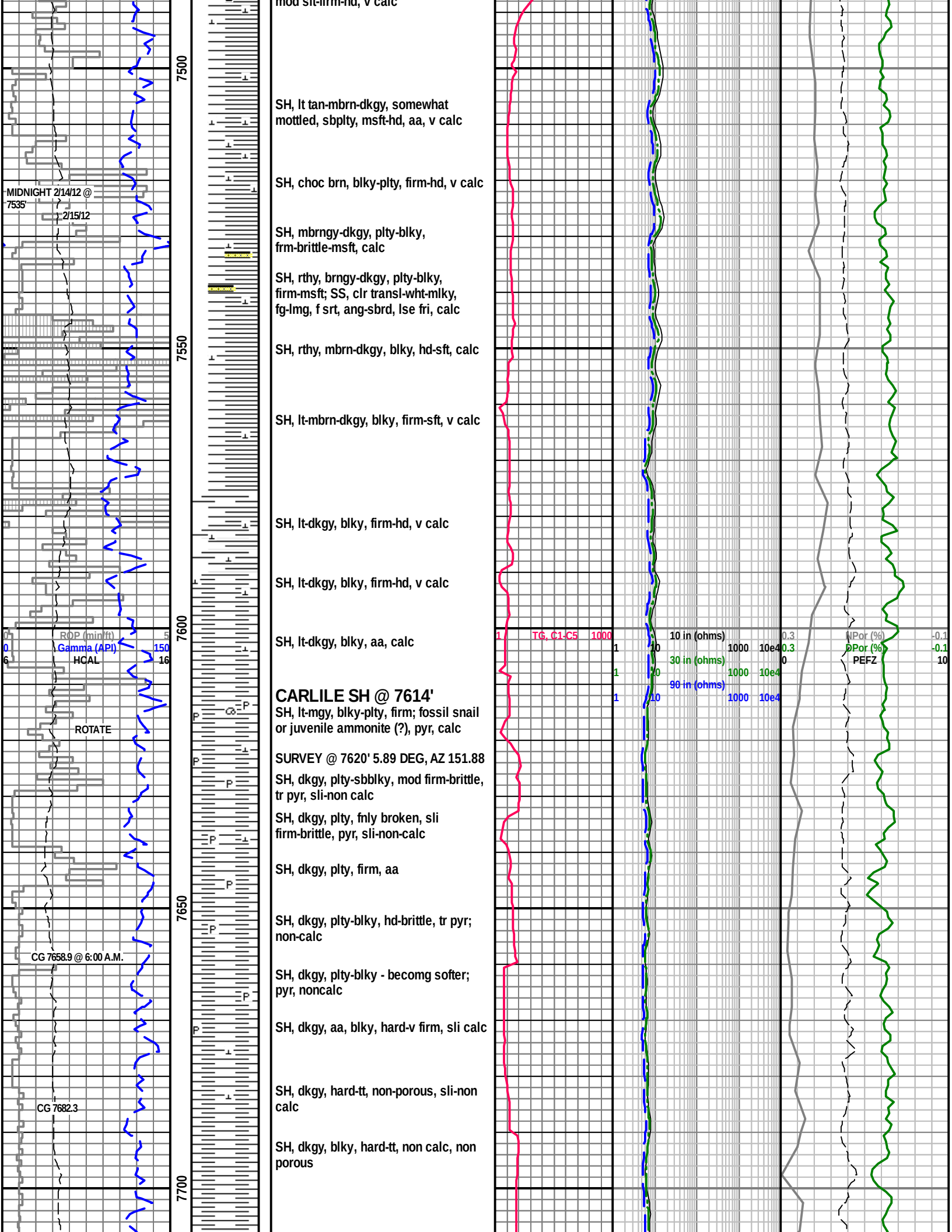

ROP (min/ft)
Gamma (API)
HCAL
6400
6450
6500
6550
6600
SH, dkgy, plty, mod firm-brittle, calc
CHECKSHOT @ 6391' INC 5.98, AZ 176.31
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
SH, silty-sndy, lse fri(?), lt-mgy, plty, firm, strongly calc
SH, lt-mgy, plty, aa, v calc
SH, lt-mgy, plty, aa, v calc
SH, rthy, lt-mgy, plty-sbfis, firm-brittle, v calc
SH, rthy, lt-mgy, aa, calc
SH, rthy, slty-sndy, lt-mgy, plty, firm, aa, strongly calc
MIDNIGHT 2/9/12 @ 6551'
2/10/12
TD for core point #1 at 6,580' - Circulate and condition hole TOOH for core bbl
MW 9, VIS 43
2/11/12
Cored to 6583'-86'- core barrel jammed-TOOH@0700 hrs to check core barrel - 30" of broken core recovered
CORED
6583-86'
SH, rthy, m-dkgy, plty, sli firm-sft, v calc
SH, dkgy-blk, plty, hd-brittle-occ sft, sli calc; NFSC
Core description 6,583'-6,586': SH, dkgy-blk, hd (microfractures), sli calc; thin bdd-finely lam; abnd pyr, micro-mica ip, occ org/clys; bedding horiz-curved to lo - hi angle x-bedd - rippled
Tow Creek Mbr @ 6600'
SH, dkgy-blk, plty, sft-occ firm-hd-brittle, aa, v calc; sli cut, pale yell halo, yell resid ring

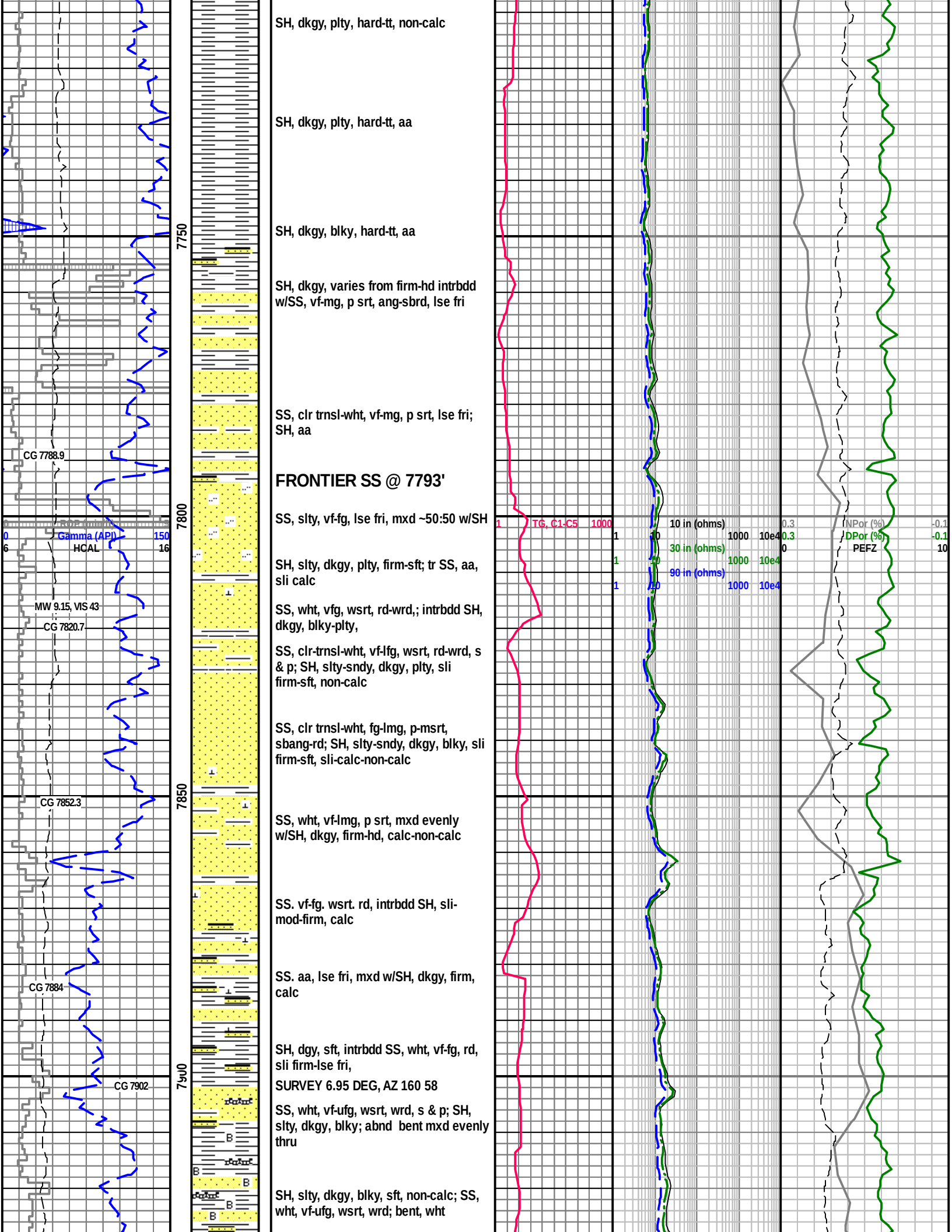

CG 6614
2/11/12 . TIH w/motor and bit and drill ahead to 6,640'. TOOH@1100 hrs on 2/11/12, P/U 60' core barrel and TIH.
MIDNIGHT 2/11/12 @ 6643'
MW 9, VIS 41
2/12/12
MW 9, VIS 41
MW 9, VIS 41
MW 9, VIS 41
CG 6672.2
MW 9, VIS 41
MIDNIGHT 2/12/12 @ 6685'
2/13/12
MW 9, VIS 43
Scale Change
ROP (min/ft)
Gamma (API)
HCAL
6650
6700
6750
6800
SH, dkgy-blk, plty, variable hd-sft, v calc; tr flor, sli cut, pale yell halo, resid ring
SH, dkgy-blk, plty, dom sft, strongly calc; sli cut, pale yell halo/ring
SH, dkgy-blk,plty, dom sft, strongly calc; sli cut, pale yell halo/ring
SH, dkgy-blk, plty-sbfis, mod firm-sft, v calc; fast cut, blugrnyell halo w/strmg cut, double bri yell resid ring
SH, dkgy-blk, slty, plty-sbblky, firm-sft, v calc; NSFC
CORED 6640-6700'
SH, slty, mbrn-gy, plty-blky ip, mfirm-sli sft-brittle, tr SS, wht, vfg, wsrt, glauc, firm, sli-v calc; immed cut, v bri blu-wht halo&strmg cut, yell resid ring
SH, slty, mbrn-gy, plty, firm-brittle-v sft, v calc; immed cut, bri blu wht halo&strmg cut, pale yell ring
SH, slty, lt-mbrn, plty-blky, sli firm-sft, v calc, tr fossil shell?; immed cut,bri diffuse blu-wht halo, pale yell ring
Retrieved 60' of core
SH, slty, mbrn-dkbrngy, plty-blky, sli firm-sft, v calc; slow cut, pale blu wht halo, pale yell resid ring
SH, mbrn-dkbrngy, aa, plty, firm-brittle-sft, v calc; bri blu flor (qtz), m- fast cut, blu-wht halo, pale yell resid ring
Tow Creek base @ 6700'
SH, mbrn-dkbrngy, plty, aa
SLST, mbrn-dkbrngy w/reddish-orng streaks & rd inclusions (coccoliths), hd-sli brittle; very calc
SLST, mbrn-tan, hd, aa, inclusions, aa; tr COAL or carb plant material, blk, vit, sft, v calc
SH, rthy, sli slty, mbrn-tan-sli orng (coccoliths?), plty-sli fis-blky, mod firm-sft, v calc, aa
SH, rthy, mtanbrn-dkbrngy, plty-blky, m firm-sft, v calc
90 in (ohms)
10 in (ohms)
30 in (ohms)
TG, C1-C5
NPor (%)
DPor (%)
PEFZ
CG 6805.3

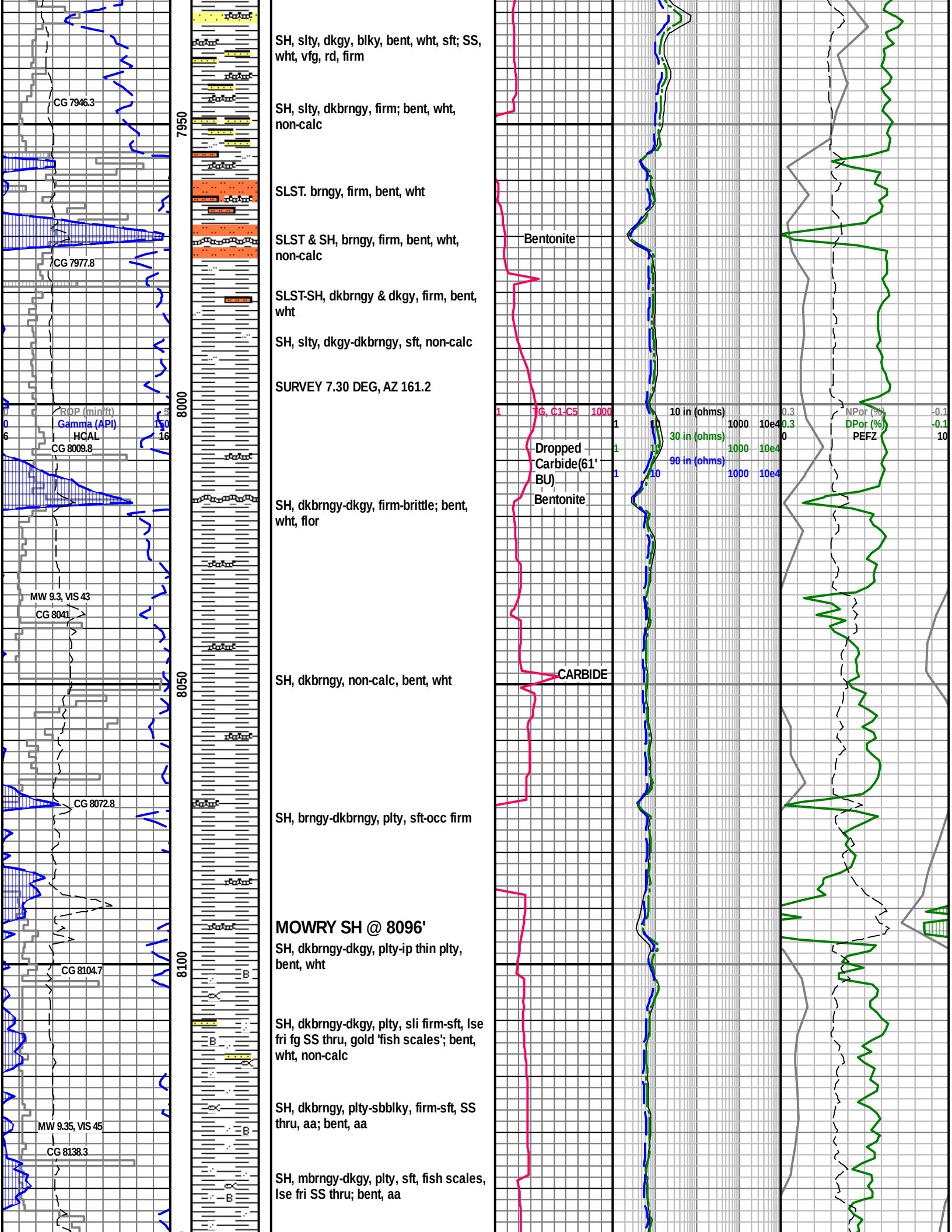

CG 6837.2
6850
SURVEY 3.6 DEG, 175.1 AZ
SH, rthy, m-dkbrngy, w/occ white-salmon col coccoliths thru, blky-sbfis, hd-sft, v calc
SH, mbrn-dkbrngy, reddish-orng coccoliths thru, hd-sli brittle; very calc
CG 6900.5
6900
SH, rthy, mbrn, plty, rr coccoliths, red-orng, v calc aa
Mud Rept: 9.1, 42, 9.1,0.35,600, 80, 6%
CG 6932.1
SH, rthy, mbrngy, plty, sli firm-sft, calc
6950
MW 9.1, VIS 41
CG 6963
CKST @ 6962 5.8 DEG, AZ 173.7
SH, mbrn-dkbrngy, plty, firm-hd, rr coccoliths, v calc; tr lse fri SS, clr trnsl, ang-sbrd, vf-fg
SURVEY INC 5.6, AZ 171.2
7000
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
SH, dkbrngy, plty, firm-hd-brittle, v calc
CG 7027.2
START SLIDING
SH, lt-tan-dkbrngy, mottled, blky, firm-hd, m sft-brittle, v calc
SLIDING

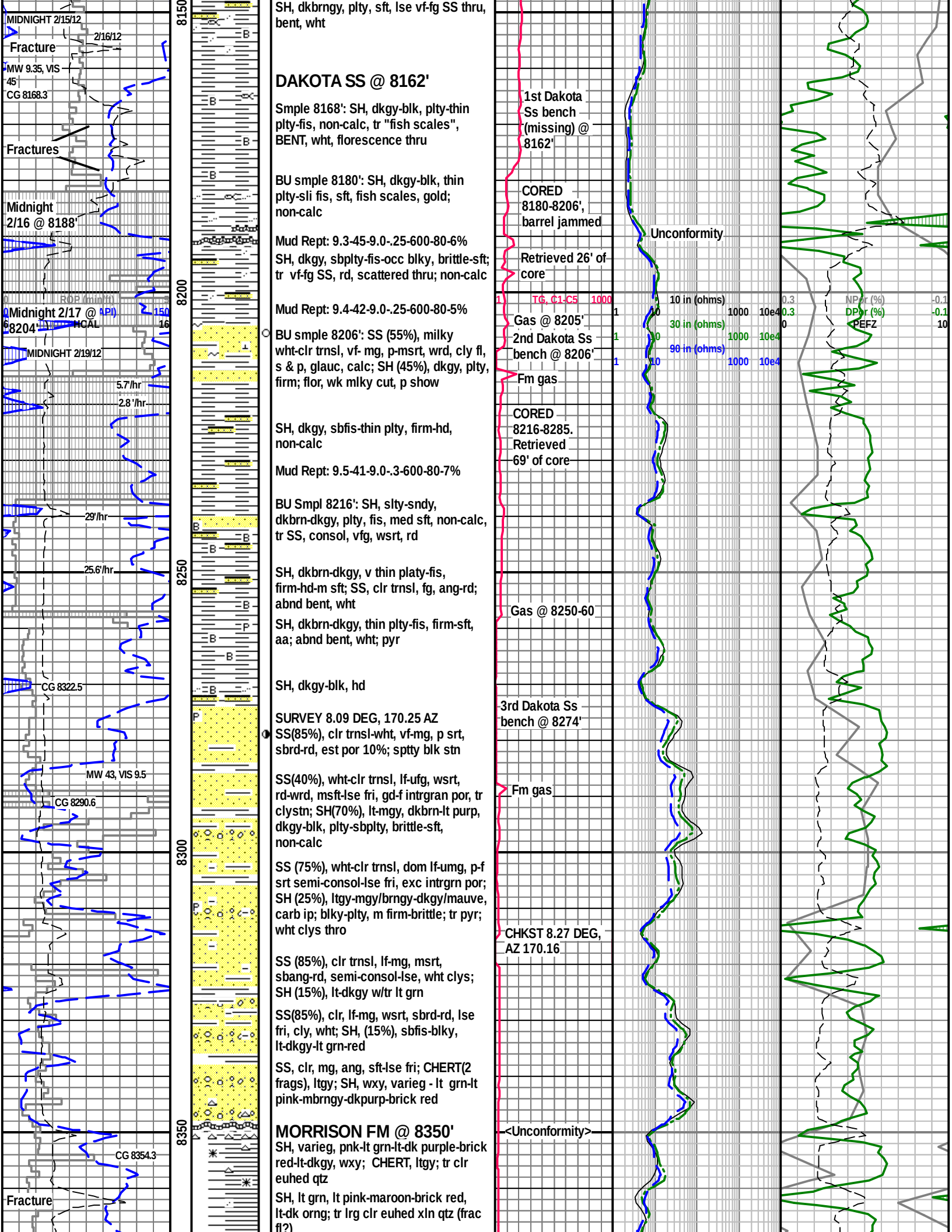

7050
7100
7150
7200
7250
CG 7058.4
CG 7090.3
CG 7122.1
CG 7154.1
SLIDING
CG 7185.8
CG 7217.4
SLIDING
MW 9.1, VIS 42
CG 7249.1
SH, m-dkbrn, plty-blky, firm-hd, mxd ~50:50 w/silt & vfg sand, lse fri thru, v calc
SURVEY INC 6.2 DEG, AZ 171.5
SH, m-dkbrn, plty-blky, firm-hd, mxd w/silt & sand, lse fri, aa, v calc
SH, m-dkbrn, plty-blky, firm-hd, mxd w/fg-lmg sand, sbang-wrd, lse fri thru
SH, m-dkbrn, plty-sbblky, firm-hd, mxd w/lse fri fg-lmg sand, aa
SURVEY INC 7 DEG, AZ 173.6
SH, dkbrngy, plty-sbblky, sli firm-sft; SS, fg, wsrt, lse fri; v calc
SH, dkbrngy, plty, sft - broken into small frags mxd w/SS, lse fri, aa, calc
SH, dkbrngy, aa, mxd ~50:50 w/SS, clr trnsl-mlky wht, ufg-umg-occ crs gn, p srt, ang-wrd, lse fri, v calc
0
ROP (min/ft)
5
0
Gamma (API)
150
6
HCAL
16
1
TG, C1-C5
1000
10 in (ohms)
30 in (ohms)
90 in (ohms)
1
10
1000
10e4
0.3
NPor (%)
-0.1
DPor (%)
PEFZ
10

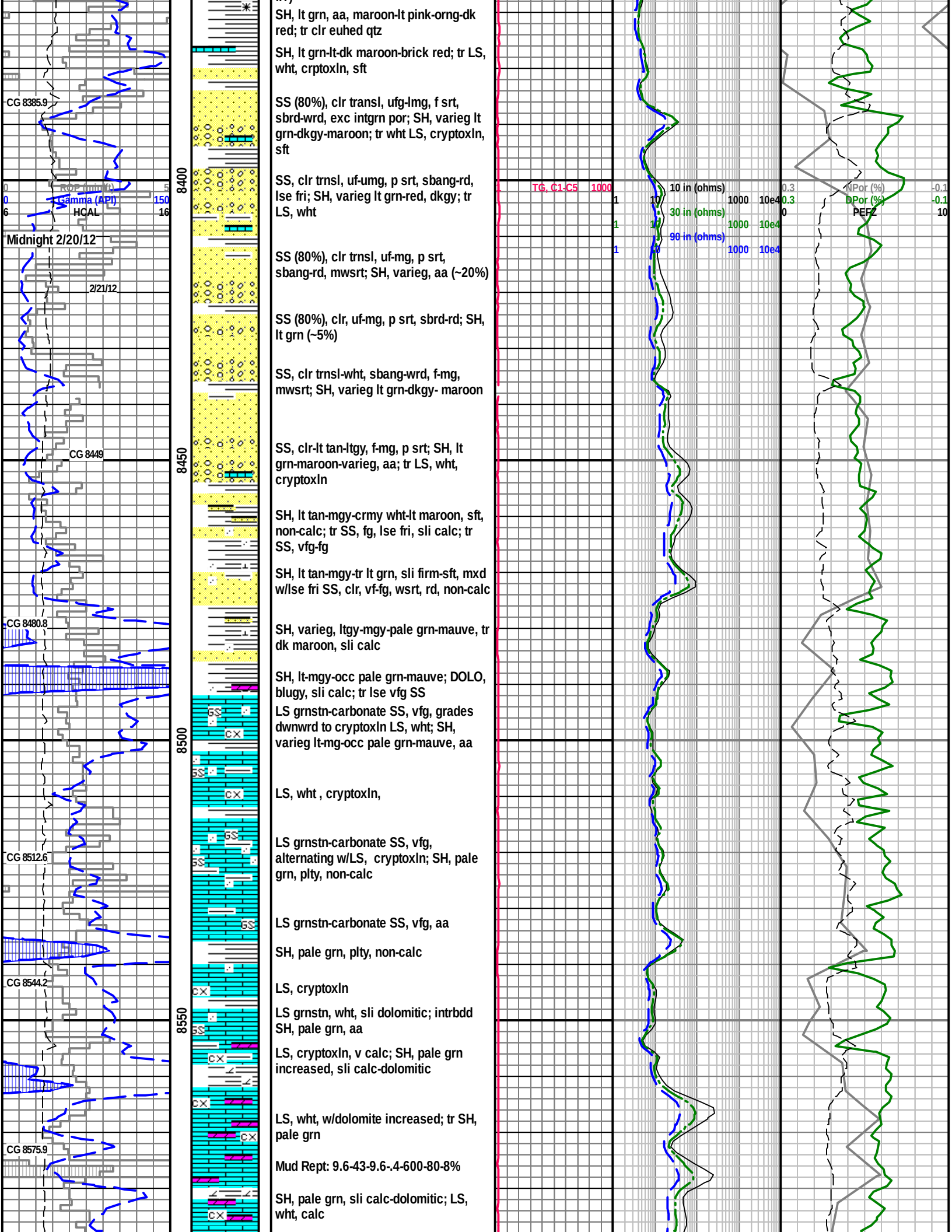

CG 7281
CG 7312.8
CG 7344.5
CG 7376.4
CG 7408.3
MW 9.2, VIS 44
7300
7350
7400
7450
SH, dkbrngy-mbrn, blky-plty, firm-sft, mxd 50:50 w/SS, clr-mlky, ufg-crs gn, ang-rd. lse fri thru
SURVEY INC 7.56 DEG, AZ 173.06
SH, dkgy, sft, plty-fis, coccoliths, pnksh-wht; calc; NSFC
SH, dkgy, plty-fis, mfirm-sft, abnd coccoliths, pnksh to wht colored; calc-vcalc, calc, NSFC
SURVEY 7234.25, 7.12 DEG, AZ 17
SH, lt-mbrn, plty, mfirm-brittle-sft, rr coccoliths, calc NS sli F, C
SH, dk brngy, blky-sbplty, firm, a few scattered coccoliths, calc; NSFC
SH, lt-mbrn-tan, blky-sbblky, firm-sft, calc
SURVEY 6.16 DEG, AZ 163.74
SH, lt-m tan-brn, blky-sbblky, firm-sft, v calc
SH, lt tan-mbrn-dkgy, mottled, sbplty,
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

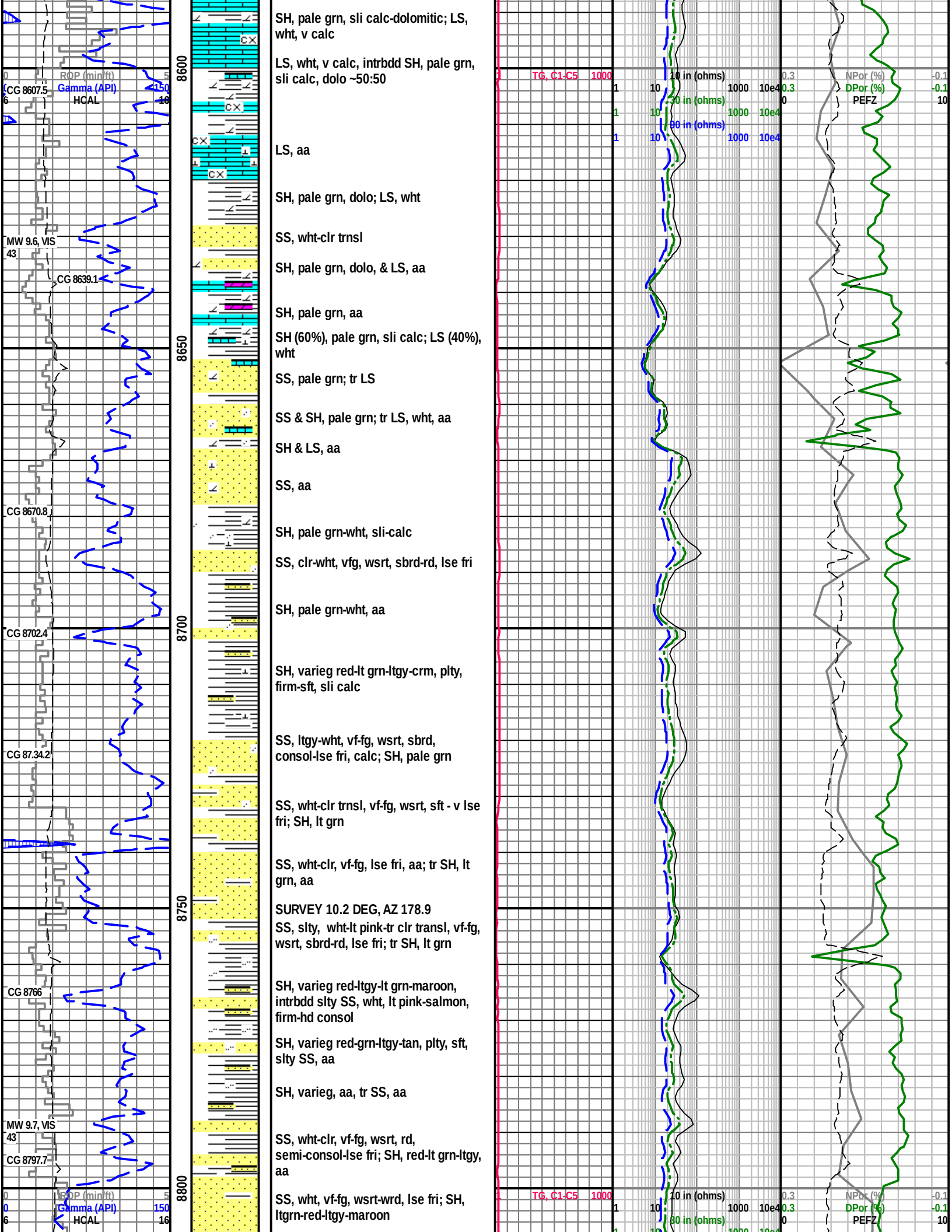

mod slt-firm-hd, v calc
SH, lt tan-mbrn-dkgy, somewhat mottled, sbplty, msft-hd, aa, v calc
SH, choc brn, blky-plty, firm-hd, v calc
MIDNIGHT 2/14/12 @ 7535'
2/15/12
SH, mbrngy-dkgy, plty-blky, frm-brittle-msft, calc
SH, rthy, brngy-dkgy, plty-blky, firm-msft; SS, clr transl-wht-mlky, fg-lmg, f srt, ang-sbrd, lse fri, calc
SH, rthy, mbrn-dkgy, blky, hd-sft, calc
SH, lt-mbrn-dkgy, blky, firm-sft, v calc
SH, lt-dkgy, blky, firm-hd, v calc
SH, lt-dkgy, blky, firm-hd, v calc
SH, lt-dkgy, blky, aa, calc
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
CARLILE SH @ 7614'
SH, lt-mgy, blky-plty, firm; fossil snail or juvenile ammonite (?), pyr, calc
ROTATE
SURVEY @ 7620' 5.89 DEG, AZ 151.88
SH, dkgy, plty-sbblky, mod firm-brittle, tr pyr, sli-non calc
SH, dkgy, plty, fnly broken, sli firm-brittle, pyr, sli-non-calc
SH, dkgy, plty, firm, aa
SH, dkgy, plty-blky, hd-brittle, tr pyr; non-calc
CG 7658.9 @ 6:00 A.M.
SH, dkgy, plty-blky - becomg softer; pyr, noncalc
SH, dkgy, aa, blky, hard-v firm, sli calc
SH, dkgy, hard-tt, non-porous, sli-non calc
CG 7682.3
SH, dkgy, blky, hard-tt, non calc, non porous
7500
7550
7600
7650
7700

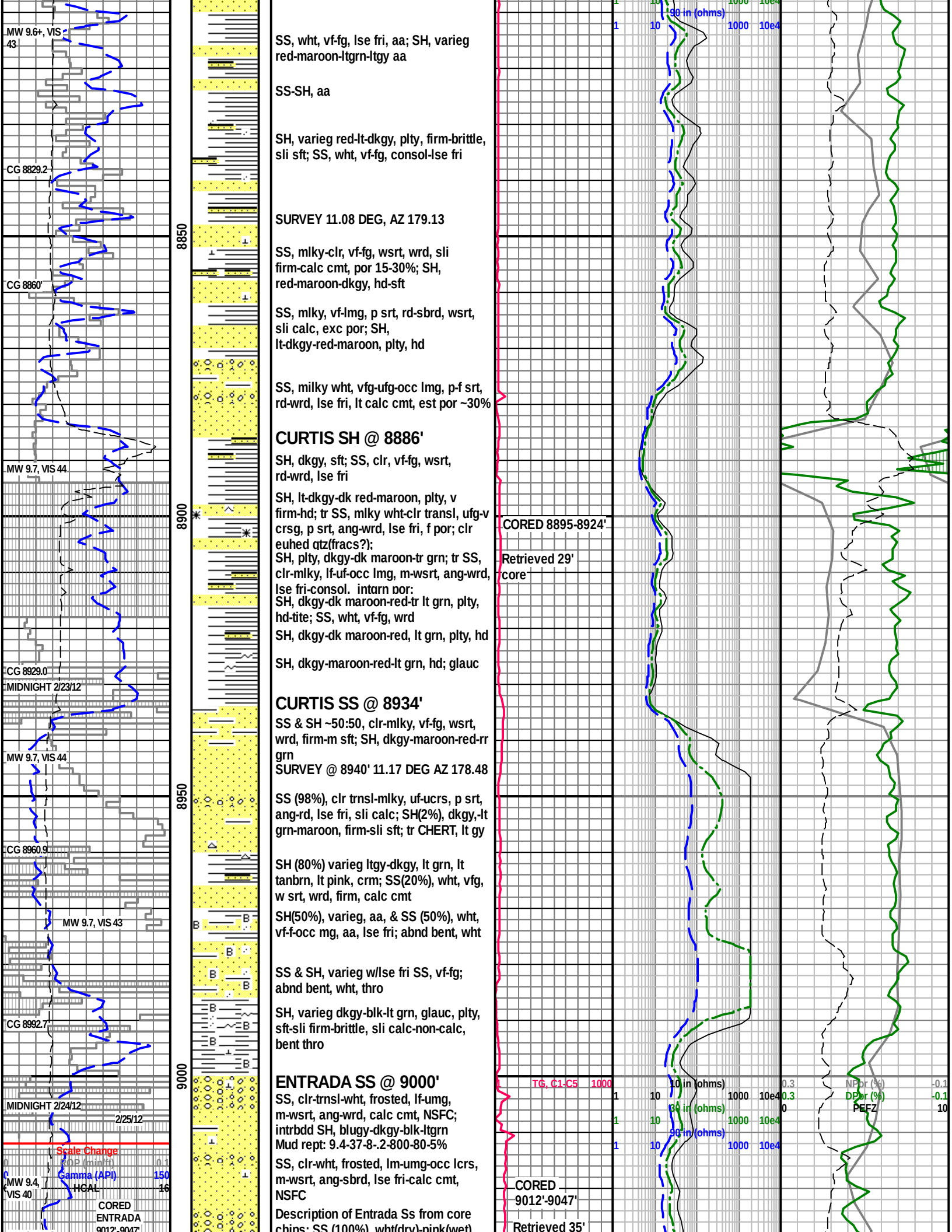

SH, dkgy, plty, hard-tt, non-calc
SH, dkgy, plty, hard-tt, aa
SH, dkgy, blky, hard-tt, aa
SH, dkgy, varies from firm-hd intrbdd w/SS, vf-mg, p srt, ang-sbrd, lse fri
SS, clr trnsl-wht, vf-mg, p srt, lse fri; SH, aa
CG 7788.9
FRONTIER SS @ 7793'
SS, slty, vf-fg, lse fri, mxd ~50:50 w/SH
SH, slty, dkgy, plty, firm-sft; tr SS, aa, sli calc
MW 9.15, VIS 43
CG 7820.7
SS, wht, vfg, wsrt, rd-wrd,; intrbdd SH, dkgy, blky-plty,
SS, clr-trnsl-wht, vf-lfg, wsrt, rd-wrd, s & p; SH, slty-sndy, dkgy, plty, sli firm-sft, non-calc
SS, clr trnsl-wht, fg-lmg, p-msrt, sbang-rd; SH, slty-sndy, dkgy, blky, sli firm-sft, sli-calc-non-calc
CG 7852.3
SS, wht, vf-lmg, p srt, mxd evenly w/SH, dkgy, firm-hd, calc-non-calc
SS. vf-fg. wsrt. rd, intrbdd SH, sli-mod-firm, calc
CG 7884
SS. aa, lse fri, mxd w/SH, dkgy, firm, calc
SH, dgy, sft, intrbdd SS, wht, vf-fg, rd, sli firm-lse fri,
CG 7902
SURVEY 6.95 DEG, AZ 160 58
SS, wht, vf-ufg, wsrt, wrd, s & p; SH, slty, dkgy, blky; abnd bent mxd evenly thru
SH, slty, dkgy, blky, sft, non-calc; SS, wht, vf-ufg, wsrt, wrd; bent, wht
7750
7800
7850
7900
ROP (min/ft)
0
Gamma (API)
150
6
HCAL
16
1
TG, C1-C5
1000
10 in (ohms)
30 in (ohms)
90 in (ohms)
1000
10e4
0.3
NPor (%)
-0.1
DPor (%)
PEFZ
10

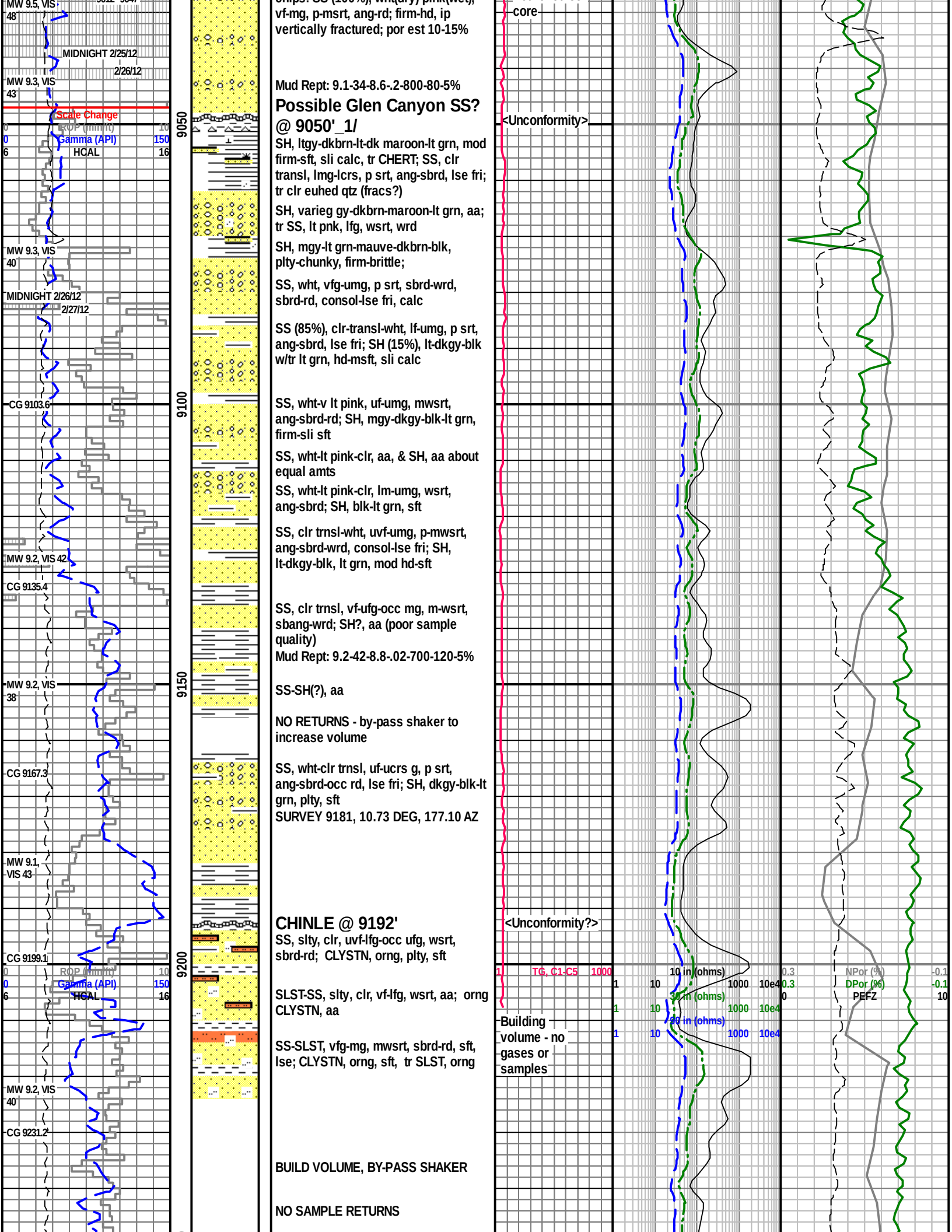

CG 7946.3
CG 7977.8
CG 8009.8
MW 9.3, VIS 43
CG 8041
CG 8072.8
CG 8104.7
MW 9.35, VIS 45
CG 8138.3
7950
8000
8050
8100
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
Bentonite
Dropped Carbide(61' BU)
Bentonite
CARBIDE
SH, slty, dkgy, blky, bent, wht, sft; SS, wht, vfg, rd, firm
SH, slty, dkbrngy, firm; bent, wht, non-calc
SLST. brngy, firm, bent, wht
SLST & SH, brngy, firm, bent, wht, non-calc
SLST-SH, dkbrngy & dkgy, firm, bent, wht
SH, slty, dkgy-dkbrngy, sft, non-calc
SURVEY 7.30 DEG, AZ 161.2
SH, dkbrngy-dkgy, firm-brittle; bent, wht, flor
SH, dkbrngy, non-calc, bent, wht
SH, brngy-dkbrngy, plty, sft-occ firm
MOWRY SH @ 8096'
SH, dkbrngy-dkgy, plty-ip thin plty, bent, wht
SH, dkbrngy-dkgy, plty, sli firm-sft, lse fri fg SS thru, gold 'fish scales'; bent, wht, non-calc
SH, dkbrngy, plty-sbblky, firm-sft, SS thru, aa; bent, aa
SH, mbrngy-dkgy, plty, sft, fish scales, lse fri SS thru; bent, aa

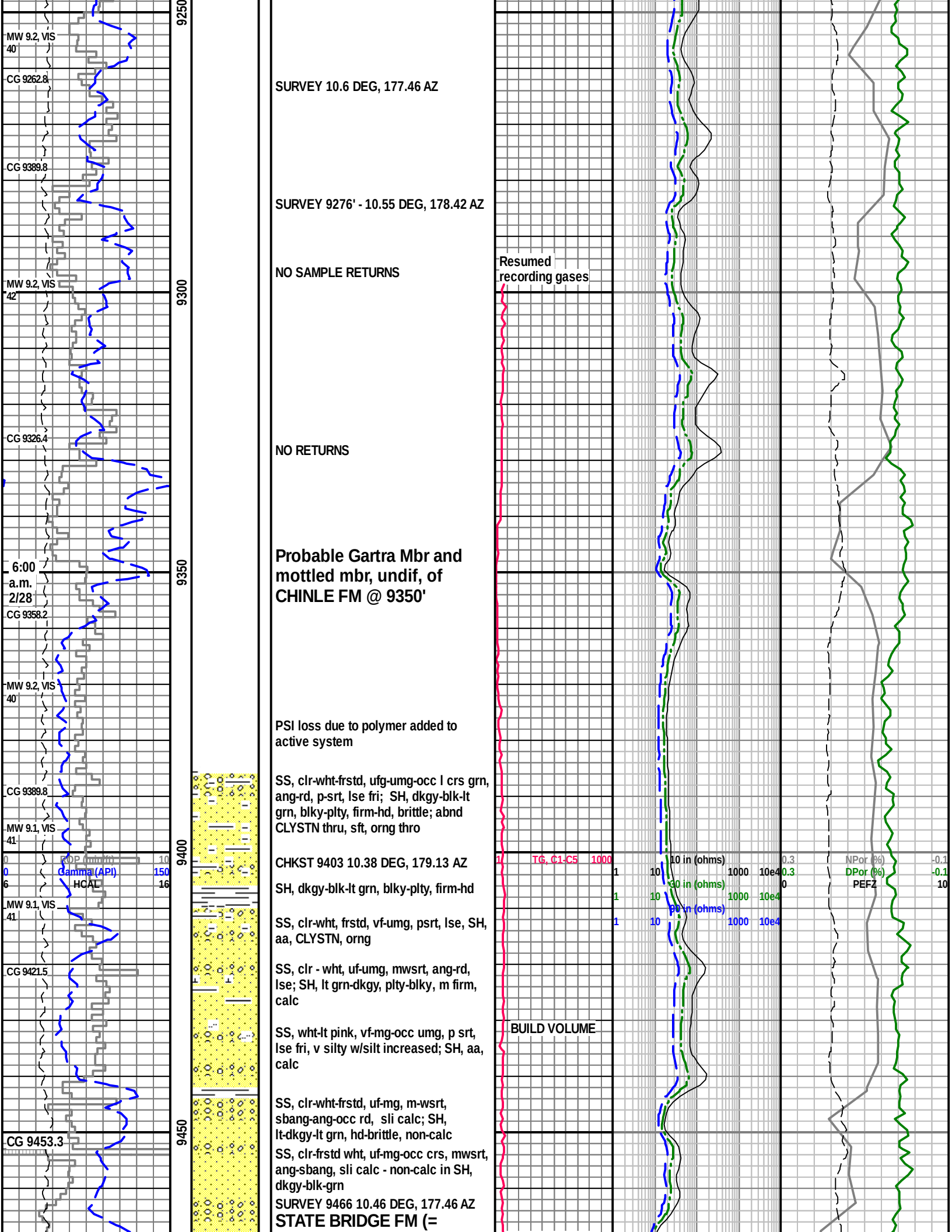

MIDNIGHT 2/15/12
2/16/12
Fracture
MW 9.35, VIS 45
CG 8168.3
Fractures
Midnight 2/16 @ 8188'
Midnight 2/17 @ 8204'
MIDNIGHT 2/19/12
5.7'/hr
2.8 '/hr
29'/hr
25.6'/hr
CG 8322.5
MW 43, VIS 9.5
CG 8290.6
CG 8354.3
Fracture
8150
8200
8250
8300
8350
SH, dkbrngy, plty, sft, lse vf-fg SS thru, bent, wht
DAKOTA SS @ 8162'
Smple 8168': SH, dkgy-blk, plty-thin plty-fis, non-calc, tr "fish scales", BENT, wht, florescence thru
BU smple 8180': SH, dkgy-blk, thin plty-sli fis, sft, fish scales, gold; non-calc
Mud Rept: 9.3-45-9.0-.25-600-80-6%
SH, dkgy, sbplty-fis-occ blky, brittle-sft; tr vf-fg SS, rd, scattered thru; non-calc
Mud Rept: 9.4-42-9.0-.25-600-80-5%
BU smple 8206': SS (55%), milky wht-clr trnsl, vf- mg, p-msrt, wrd, cly fl, s & p, glauc, calc; SH (45%), dkgy, plty, firm; flor, wk mlky cut, p show
SH, dkgy, sbfis-thin plty, firm-hd, non-calc
Mud Rept: 9.5-41-9.0-.3-600-80-7%
BU Smpl 8216': SH, slty-sndy, dkbrn-dkgy, plty, fis, med sft, non-calc, tr SS, consol, vfg, wsrt, rd
SH, dkbrn-dkgy, v thin platy-fis, firm-hd-m sft; SS, clr trnsl, fg, ang-rd; abnd bent, wht
SH, dkbrn-dkgy, thin plty-fis, firm-sft, aa; abnd bent, wht; pyr
SH, dkgy-blk, hd
SURVEY 8.09 DEG, 170.25 AZ
SS(85%), clr trnsl-wht, vf-mg, p srt, sbrd-rd, est por 10%; sptty blk stn
SS(40%), wht-clr trnsl, lf-ufg, wsrt, rd-wrd, msft-lse fri, gd-f intrgran por, tr clystn; SH(70%), lt-mgy, dkbrn-lt purp, dkgy-blk, plty-sbplty, brittle-sft, non-calc
SS (75%), wht-clr trnsl, dom lf-umg, p-f srt semi-consol-lse fri, exc intrgrn por; SH (25%), ltgy-mgy/brngy-dkgy/mauve, carb ip; blky-plty, m firm-brittle; tr pyr; wht clys thro
SS (85%), clr trnsl, lf-mg, msrt, sbang-rd, semi-consol-lse, wht clys; SH (15%), lt-dkgy w/tr lt grn
SS(85%), clr, lf-mg, wsrt, sbrd-rd, lse fri, cly, wht; SH, (15%), sbfis-blky, lt-dkgy-lt grn-red
SS, clr, mg, ang, sft-lse fri; CHERT(2 frags), ltgy; SH, wxy, varieg - lt grn-lt pink-mbrngy-dkpurp-brick red
MORRISON FM @ 8350'
SH, varieg, pnk-lt grn-lt-dk purple-brick red-lt-dkgy, wxy; CHERT, ltgy; tr clr euhed qtz
SH, lt grn, lt pink-maroon-brick red, lt-dk orng; tr lrg clr euhed xln qtz (frac fl?)
1st Dakota Ss bench (missing) @ 8162'
CORED 8180-8206', barrel jammed
Retrieved 26' of core
Gas @ 8205'
2nd Dakota Ss bench @ 8206'
Fm gas
CORED 8216-8285. Retrieved 69' of core
Gas @ 8250-60
3rd Dakota Ss bench @ 8274'
Fm gas
CHKST 8.27 DEG, AZ 170.16
<Unconformity>
Unconformity
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

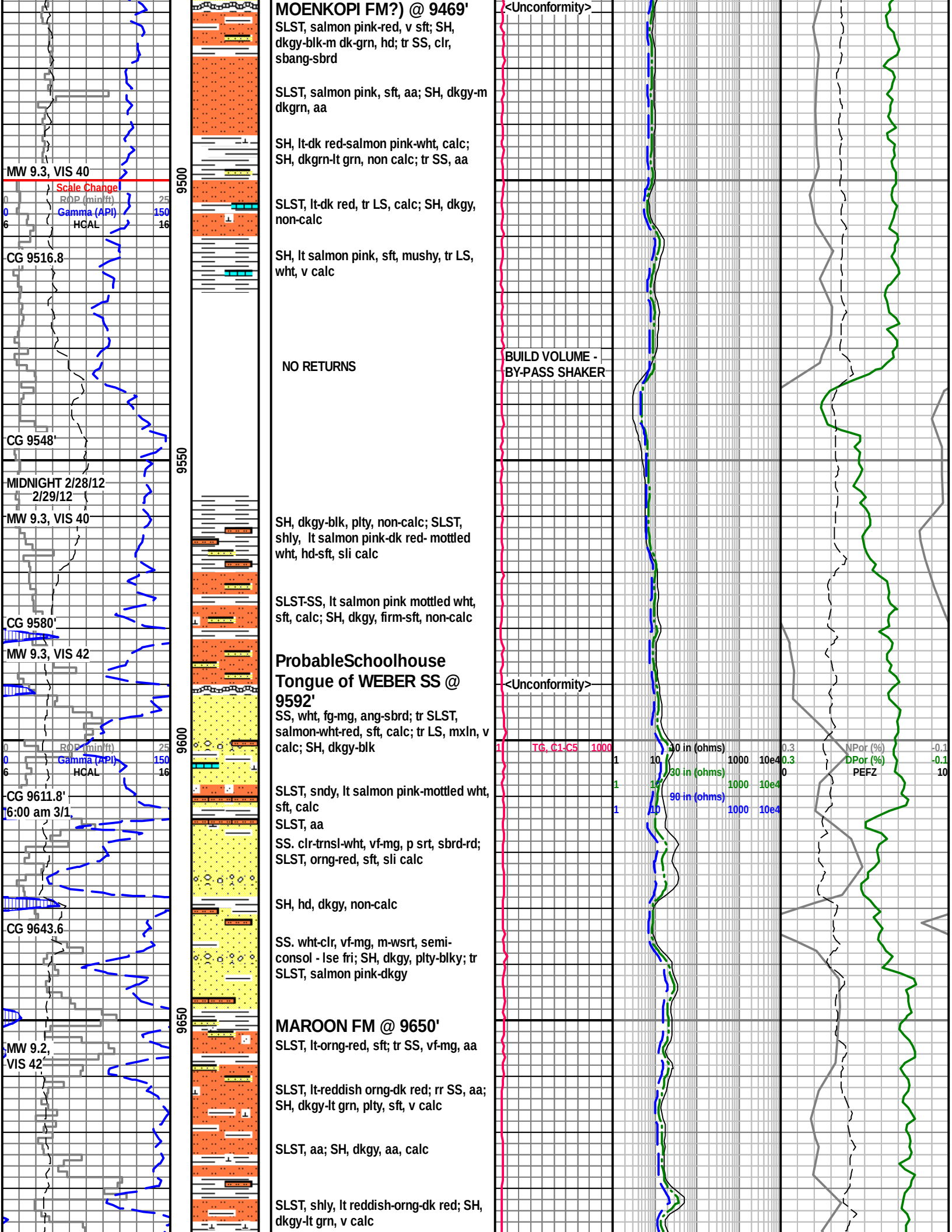

CG 8385.9
ROP (min/ft)
Gamma (API)
HCAL
Midnight 2/20/12
2/21/12
CG 8449
CG 8480.8
CG 8512.6
CG 8544.2
CG 8575.9
8400
8450
8500
8550
SH, lt grn, aa, maroon-lt pink-orng-dk red; tr clr euhed qtz
SH, lt grn-lt-dk maroon-brick red; tr LS, wht, crptoxln, sft
SS (80%), clr transl, ufg-lmg, f srt, sbrd-wrd, exc intgrn por; SH, varieg lt grn-dkgy-maroon; tr wht LS, cryptoxln, sft
SS, clr trnsl, uf-umg, p srt, sbang-rd, lse fri; SH, varieg lt grn-red, dkgy; tr LS, wht
SS (80%), clr trnsl, uf-mg, p srt, sbang-rd, mwsrt; SH, varieg, aa (~20%)
SS (80%), clr, uf-mg, p srt, sbrd-rd; SH, lt grn (~5%)
SS, clr trnsl-wht, sbang-wrd, f-mg, mwsrt; SH, varieg lt grn-dkgy- maroon
SS, clr-lt tan-ltgy, f-mg, p srt; SH, lt grn-maroon-varieg, aa; tr LS, wht, cryptoxln
SH, lt tan-mgy-crmy wht-lt maroon, sft, non-calc; tr SS, fg, lse fri, sli calc; tr SS, vfg-fg
SH, lt tan-mgy-tr lt grn, sli firm-sft, mxd w/lse fri SS, clr, vf-fg, wsrt, rd, non-calc
SH, varieg, ltgy-mgy-pale grn-mauve, tr dk maroon, sli calc
SH, lt-mgy-occ pale grn-mauve; DOLO, blugy, sli calc; tr lse vfg SS
LS grnstn-carbonate SS, vfg, grades dwnwrd to cryptoxln LS, wht; SH, varieg lt-mg-occ pale grn-mauve, aa
LS, wht , cryptoxln,
LS grnstn-carbonate SS, vfg, alternating w/LS, cryptoxln; SH, pale grn, plty, non-calc
LS grnstn-carbonate SS, vfg, aa
SH, pale grn, plty, non-calc
LS, cryptoxln
LS grnstn, wht, sli dolomitic; intrbdd SH, pale grn, aa
LS, cryptoxln, v calc; SH, pale grn increased, sli calc-dolomitic
LS, wht, w/dolomite increased; tr SH, pale grn
Mud Rept: 9.6-43-9.6-.4-600-80-8%
SH, pale grn, sli calc-dolomitic; LS, wht, calc
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ

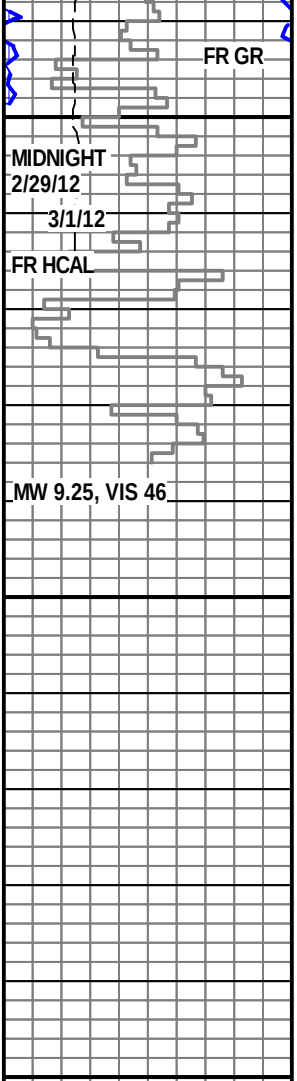

ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ
CG 8607.5
CG 8639.1
CG 8670.8
CG 8702.4
CG 87.34.2
CG 8766
CG 8797.7
MW 9.6, VIS 43
MW 9.7, VIS 43
8600
8650
8700
8750
8800
SH, pale grn, sli calc-dolomitic; LS, wht, v calc
LS, wht, v calc, intrbdd SH, pale grn, sli calc, dolo ~50:50
LS, aa
SH, pale grn, dolo; LS, wht
SS, wht-clr trnsl
SH, pale grn, dolo, & LS, aa
SH, pale grn, aa
SH (60%), pale grn, sli calc; LS (40%), wht
SS, pale grn; tr LS
SS & SH, pale grn; tr LS, wht, aa
SH & LS, aa
SS, aa
SH, pale grn-wht, sli-calc
SS, clr-wht, vfg, wsrt, sbrd-rd, lse fri
SH, pale grn-wht, aa
SH, varieg red-lt grn-ltgy-crm, plty, firm-sft, sli calc
SS, ltgy-wht, vf-fg, wsrt, sbrd, consol-lse fri, calc; SH, pale grn
SS, wht-clr trnsl, vf-fg, wsrt, sft - v lse fri; SH, lt grn
SS, wht-clr, vf-fg, lse fri, aa; tr SH, lt grn, aa
SURVEY 10.2 DEG, AZ 178.9
SS, slty, wht-lt pink-tr clr transl, vf-fg, wsrt, sbrd-rd, lse fri; tr SH, lt grn
SH, varieg red-ltgy-lt grn-maroon, intrbdd slty SS, wht, lt pink-salmon, firm-hd consol
SH, varieg red-grn-ltgy-tan, plty, sft, slty SS, aa
SH, varieg, aa, tr SS, aa
SS, wht-clr, vf-fg, wsrt, rd, semi-consol-lse fri; SH, red-lt grn-ltgy, aa
SS, wht, vf-fg, wsrt-wrd, lse fri; SH, ltgrn-red-ltgy-maroon

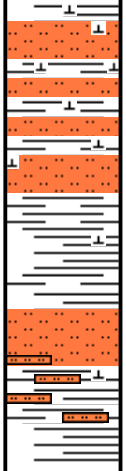

MW 9.6+, VIS 43
CG 8829.2
CG 8860'
MW 9.7, VIS 44
CG 8929.0
MIDNIGHT 2/23/12
MW 9.7, VIS 44
CG 8960.9
MW 9.7, VIS 43
CG 8992.7
MIDNIGHT 2/24/12
2/25/12
Scale Change
ROP (min/ft)
0.1
0
Gamma (API)
150
MW 9.4, VIS 40
HCAL
16
CORED ENTRADA 9012'-9047'
8850
8900
8950
9000
SS, wht, vf-fg, lse fri, aa; SH, varieg red-maroon-ltgrn-ltgy aa
SS-SH, aa
SH, varieg red-lt-dkgy, plty, firm-brittle, sli sft; SS, wht, vf-fg, consol-lse fri
SURVEY 11.08 DEG, AZ 179.13
SS, mlky-clr, vf-fg, wsrt, wrd, sli firm-calc cmt, por 15-30%; SH, red-maroon-dkgy, hd-sft
SS, mlky, vf-lmg, p srt, rd-sbrd, wsrt, sli calc, exc por; SH, lt-dkgy-red-maroon, plty, hd
SS, milky wht, vfg-ufg-occ lmg, p-f srt, rd-wrd, lse fri, lt calc cmt, est por ~30%
CURTIS SH @ 8886'
SH, dkgy, sft; SS, clr, vf-fg, wsrt, rd-wrd, lse fri
SH, lt-dkgy-dk red-maroon, plty, v firm-hd; tr SS, mlky wht-clr transl, ufg-v crsg, p srt, ang-wrd, lse fri, f por; clr euhed qtz(fracs?);
SH, plty, dkgy-dk maroon-tr grn; tr SS, clr-mlky, lf-uf-occ lmg, m-wsrt, ang-wrd, lse fri-consol, intgrn por;
SH, dkgy-dk maroon-red-tr lt grn, plty, hd-tite; SS, wht, vf-fg, wrd
SH, dkgy-dk maroon-red, lt grn, plty, hd
SH, dkgy-maroon-red-lt grn, hd; glauc
CURTIS SS @ 8934'
SS & SH ~50:50, clr-mlky, vf-fg, wsrt, wrd, firm-m sft; SH, dkgy-maroon-red-rr grn
SURVEY @ 8940' 11.17 DEG AZ 178.48
SS (98%), clr trnsl-mlky, uf-ucrs, p srt, ang-rd, lse fri, sli calc; SH(2%), dkgy,-lt grn-maroon, firm-sli sft; tr CHERT, lt gy
SH (80%) varieg ltgy-dkgy, lt grn, lt tanbrn, lt pink, crm; SS(20%), wht, vfg, w srt, wrd, firm, calc cmt
SH(50%), varieg, aa, & SS (50%), wht, vf-f-occ mg, aa, lse fri; abnd bent, wht
SS & SH, varieg w/lse fri SS, vf-fg; abnd bent, wht, thro
SH, varieg dkgy-blk-lt grn, glauc, plty, sft-sli firm-brittle, sli calc-non-calc, bent thro
ENTRADA SS @ 9000'
SS, clr-trnsl-wht, frosted, lf-umg, m-wsrt, ang-wrd, calc cmt, NSFC; intrbdd SH, blugy-dkgy-blk-ltgrn
Mud rept: 9.4-37-8-.2-800-80-5%
SS, clr-wht, frosted, lm-umg-occ lcrs, m-wsrt, ang-sbrd, lse fri-calc cmt, NSFC
Description of Entrada Ss from core chips; SS (100%), wht(dry)-pink(wet)
CORED 8895-8924'
Retrieved 29' core
CORED 9012'-9047'
Retrieved 35'
TG, C1-C5
1000
10 in (ohms)
30 in (ohms)
90 in (ohms)
1
10
1000
10e4
0.3
0
NPor (%)
DPor (%)
PEFZ
-0.1
10


MW 9.5, VIS 48
MIDNIGHT 2/25/12
2/26/12
MW 9.3, VIS 43
Scale Change
ROP (mm/h)
Gamma (API)
HCAL
MW 9.3, VIS 40
MIDNIGHT 2/26/12
2/27/12
CG 9103.6
MW 9.2, VIS 42
CG 9135.4
MW 9.2, VIS 38
CG 9167.3
MW 9.1, VIS 43
CG 9199.1
MW 9.2, VIS 40
CG 9231.2
9050
9100
9150
9200
vf-mg, p-msrt, ang-rd; firm-hd, ip vertically fractured; por est 10-15%
Mud Rept: 9.1-34-8.6-.2-800-80-5%
Possible Glen Canyon SS? @ 9050'_1/
SH, ltgy-dkbrn-lt-dk maroon-lt grn, mod firm-sft, sli calc, tr CHERT; SS, clr transl, lmg-lcrs, p srt, ang-sbrd, lse fri; tr clr euhed qtz (fracs?)
SH, varieg gy-dkbrn-maroon-lt grn, aa; tr SS, lt pnk, lfg, wsrt, wrd
SH, mgy-lt grn-mauve-dkbrn-blk, plty-chunky, firm-brittle;
SS, wht, vfg-umg, p srt, sbrd-wrd, sbrd-rd, consol-lse fri, calc
SS (85%), clr-transl-wht, lf-umg, p srt, ang-sbrd, lse fri; SH (15%), lt-dkgy-blk w/tr lt grn, hd-msft, sli calc
SS, wht-v lt pink, uf-umg, mwsrt, ang-sbrd-rd; SH, mgy-dkgy-blk-lt grn, firm-sli sft
SS, wht-lt pink-clr, aa, & SH, aa about equal amts
SS, wht-lt pink-clr, lm-umg, wsrt, ang-sbrd; SH, blk-lt grn, sft
SS, clr trnsl-wht, uvf-umg, p-mwsrt, ang-sbrd-wrd, consol-lse fri; SH, lt-dkgy-blk, lt grn, mod hd-sft
SS, clr trnsl, vf-ufg-occ mg, m-wsrt, sbang-wrd; SH?, aa (poor sample quality)
Mud Rept: 9.2-42-8.8-.02-700-120-5%
SS-SH(?), aa
NO RETURNS - by-pass shaker to increase volume
SS, wht-clr trnsl, uf-ucrs g, p srt, ang-sbrd-occ rd, lse fri; SH, dkgy-blk-lt grn, plty, sft
SURVEY 9181, 10.73 DEG, 177.10 AZ
CHINLE @ 9192'
SS, slty, clr, uvf-lfg-occ ufg, wsrt, sbrd-rd; CLYSTN, orng, plty, sft
SLST-SS, slty, clr, vf-lfg, wsrt, aa; orng CLYSTN, aa
SS-SLST, vfg-mg, mwsrt, sbrd-rd, sft, lse; CLYSTN, orng, sft, tr SLST, orng
BUILD VOLUME, BY-PASS SHAKER
NO SAMPLE RETURNS
core
<Unconformity>
<Unconformity?>
Building volume - no gases or samples
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ


MW 9.2, VIS 40
CG 9262.8
CG 9389.8
MW 9.2, VIS 42
CG 9326.4
6:00 a.m. 2/28
CG 9358.2
MW 9.2, VIS 40
CG 9389.8
MW 9.1, VIS 41
MW 9.1, VIS 41
CG 9421.5
CG 9453.3
9250
9300
9350
9400
9450
SURVEY 10.6 DEG, 177.46 AZ
SURVEY 9276' - 10.55 DEG, 178.42 AZ
NO SAMPLE RETURNS
Resumed recording gases
NO RETURNS
Probable Gartra Mbr and mottled mbr, undif, of CHINLE FM @ 9350'
PSI loss due to polymer added to active system
SS, clr-wht-frstd, ufg-umg-occ l crs grn, ang-rd, p-srt, lse fri; SH, dkgy-blk-lt grn, blky-plty, firm-hd, brittle; abnd CLYSTN thru, sft, orng thro
CHKST 9403 10.38 DEG, 179.13 AZ
SH, dkgy-blk-lt grn, blky-plty, firm-hd
SS, clr-wht, frstd, vf-umg, psrt, lse, SH, aa, CLYSTN, orng
SS, clr - wht, uf-umg, mwsrt, ang-rd, lse; SH, lt grn-dkgy, plty-blky, m firm, calc
SS, wht-lt pink, vf-mg-occ umg, p srt, lse fri, v silty w/silt increased; SH, aa, calc
BUILD VOLUME
SS, clr-wht-frstd, uf-mg, m-wsrt, sbang-ang-occ rd, sli calc; SH, lt-dkgy-lt grn, hd-brittle, non-calc
SS, clr-frstd wht, uf-mg-occ crs, mwsrt, ang-sbang, sli calc - non-calc in SH, dkgy-blk-grn
SURVEY 9466 10.46 DEG, 177.46 AZ
STATE BRIDGE FM (=
ROP (min/ft)
Gamma (API)
HCAL
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ


MOENKOPI FM?) @ 9469'
SLST, salmon pink-red, v sft; SH, dkgy-blk-m dk-grn, hd; tr SS, clr, sbang-sbrd
SLST, salmon pink, sft, aa; SH, dkgy-m dkgrn, aa
SH, lt-dk red-salmon pink-wht, calc; SH, dkgrn-lt grn, non calc; tr SS, aa
SLST, lt-dk red, tr LS, calc; SH, dkgy, non-calc
SH, lt salmon pink, sft, mushy, tr LS, wht, v calc
NO RETURNS
SH, dkgy-blk, plty, non-calc; SLST, shly, lt salmon pink-dk red- mottled wht, hd-sft, sli calc
SLST-SS, lt salmon pink mottled wht, sft, calc; SH, dkgy, firm-sft, non-calc
ProbableSchoolhouse Tongue of WEBER SS @ 9592'
SS, wht, fg-mg, ang-sbrd; tr SLST, salmon-wht-red, sft, calc; tr LS, mxln, v calc; SH, dkgy-blk
SLST, sndy, lt salmon pink-mottled wht, sft, calc
SLST, aa
SS. clr-trnsl-wht, vf-mg, p srt, sbrd-rd; SLST, orng-red, sft, sli calc
SH, hd, dkgy, non-calc
SS. wht-clr, vf-mg, m-wsrt, semi-consol - lse fri; SH, dkgy, plty-blky; tr SLST, salmon pink-dkgy
MAROON FM @ 9650'
SLST, lt-orng-red, sft; tr SS, vf-mg, aa
SLST, lt-reddish orng-dk red; rr SS, aa; SH, dkgy-lt grn, plty, sft, v calc
SLST, aa; SH, dkgy, aa, calc
SLST, shly, lt reddish-orng-dk red; SH, dkgy-lt grn, v calc
<Unconformity>
BUILD VOLUME - BY-PASS SHAKER
<Unconformity>
MW 9.3, VIS 40
Scale Change
ROP (min/ft)
Gamma (API)
HCAL
CG 9516.8
CG 9548'
MIDNIGHT 2/28/12
2/29/12
MW 9.3, VIS 40
CG 9580'
MW 9.3, VIS 42
CG 9611.8'
6:00 am 3/1
CG 9643.6
MW 9.2, VIS 42
9500
9550
9600
9650
TG, C1-C5
10 in (ohms)
30 in (ohms)
90 in (ohms)
NPor (%)
DPor (%)
PEFZ





9700

SLST, lt reddish-orng; SH, aa; v calc

SLST, pale reddish-orng-red, sft

SH, dkgy-lt grn, plty, firm, sli calc

SLST, lt orng-red-dk red, sft; SH, dkgy-dk grn-lt purple, firm, sli calc

9733' @ 6:00 a.m, 3/1/12

DTD 9745'
LTD 9736'

Mud Rept @ TD: 9.25-49-9.5-.5-800-60 -6%

3/3 Mud Rept 9.2-50-9.3-.4-800-60-6%

Ran the ff: PEX-AIT, Sonic Scanner, Rotary Side-Wall Cores, FMI, CMR-ECS-HNGS. Plugged and abandoned as a research well for CO2 sequestration.

Thank you for this opportunity to serve as Well Site Geologist on this well.

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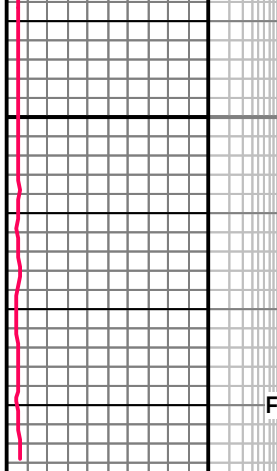

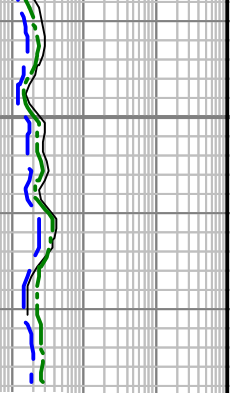

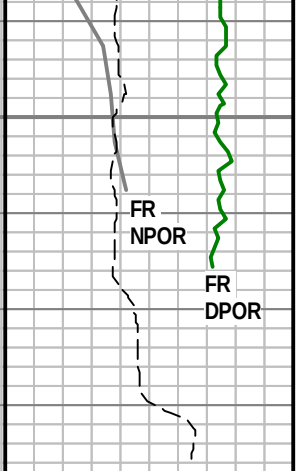

9750

9800

0 ROP (min/ft) 25
0 Gamma (API) 150
6 HCAL 16

1 TG, C1-C5 1000

10 in (ohms)
1 10 1000 10e4

30 in (ohms)
1 10 1000 10e4

90 in (ohms)
1 10 1000 10e4

0.3 NPor (%) -0.1
0.3 DPor (%) -0.1
0 PEFZ 10

<<<<FORMATION TOPS>>>>>

Top of Iles Fm/Trout Cr SS ~ 1338
Trout Creek Sh 1500
Iles Fm (non-marine) 1586
Loyd Ss Mbr 2600
Mancos Sh 2657
Morapos Ss 3768
Mancos "B" Sh ~ 4618
Niobrara Fm 6154
Buck Peak Mbr 6154
Tow Creek Mbr 6600
Carlile Sh 7614
Frontier Ss 7793
Mowry Sh 8096
Dakota Ss 8162
Morrison Fm 8350
Curtis Sh 8886
Curtis Ss 8934
Entrada Ss 9000
Possible Glen Canyon SS (?) 9050
Chinle Fm 9192
Gartra Mbr & mottled mbr, undif 9350
State Bridge Fm(= Moenkopi Fm?) 9469
Probable Schoolhouse Tongue of Weber Ss 9592
Maroon Fm 9650

_1/ Note: From base of Entrada down tops are projected from known outcrop sections in NW Colorado, and picked in this well in consulation with F.G. (Barney) Poole (oral communication, 3/28/12; Poole, F. G, and Stewart, J.H., 1964, Chinle Formation and Glen

9850

9900

			Canyon Sandstone in NE Utah-NW CO: U.S. Geol. Prof. Paper 501-D, p. D30-D39.)			