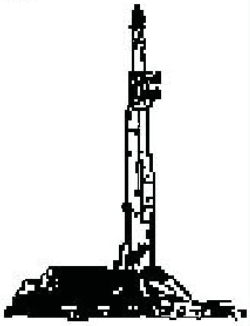
GOOLSBY BROTHERS and associates, inc.

575 Union Blvd, Suite 208
Lakewood, CO 80228
303-945-2860 Office

Geological Wellsite Supervision

PETCOM

www.goolsbybrothers.com



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

Well Name:	NGL Water Solutions DJ, LLC SWD C-1-C		
Location:	SESE Sec 8, T14N, R64W, Weld Co., CO		
License Number:	API #0512340377	**Region:**	Wattenberg
Spud Date:	Oct. 28, 2014	**Drilling Completed:**	Nov. 19, 2014
Surface Coordinates:	1987' FNL, 992' FWL		
Bottom Hole Coordinates:	SENW Sec 17, T4N, R64W		
Ground Elevation (ft):	4706'	**K.B. Elevation (ft):**	4721.5'
Logged Interval (ft):	6900' To: 10757'LTD	**Total Depth (ft):**	10757'DTD
Formation:	Morrow Fm.		
Type of Drilling Fluid:	Water, Gel Poly		

OPERATOR

Company: NGL Water Solutions D-J, LLC
Address: 3773 Cherry Creek North Dr., Ste. 1000
Denver, Colorado 80209

GEOLOGIST

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

Comments

Directional well logged by Pioneer (GR, SP, DCAL, RLL3, CNPor)
Mud data in Resistivity Track, Format: mw-vis-wl-pH-chlor-%solids.

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

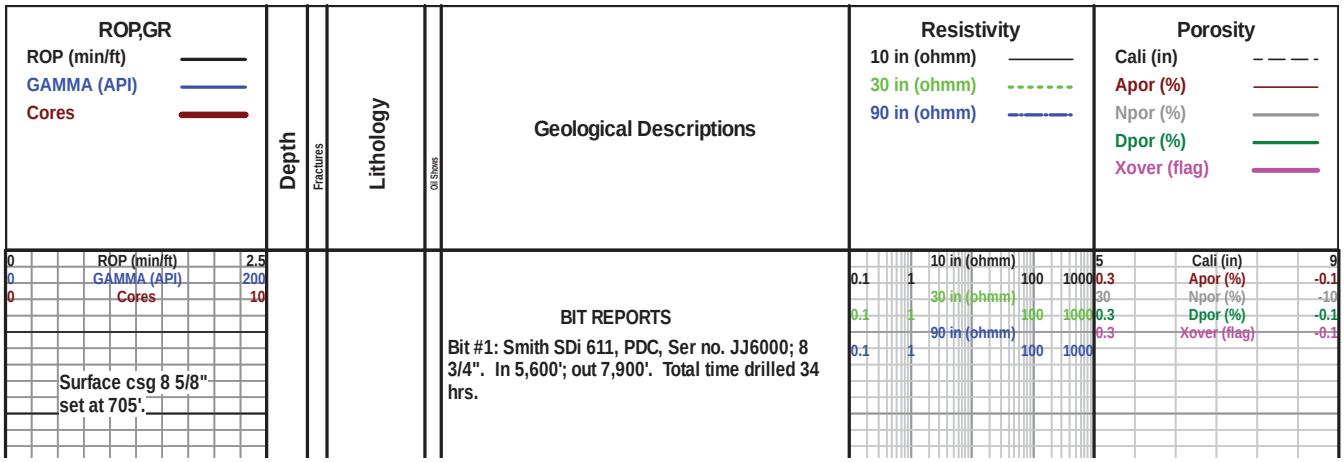
Even
Spotted
near even
Ques
Dead
vspotty
Stain
Oil in fracture
Bubbling
Bleeding

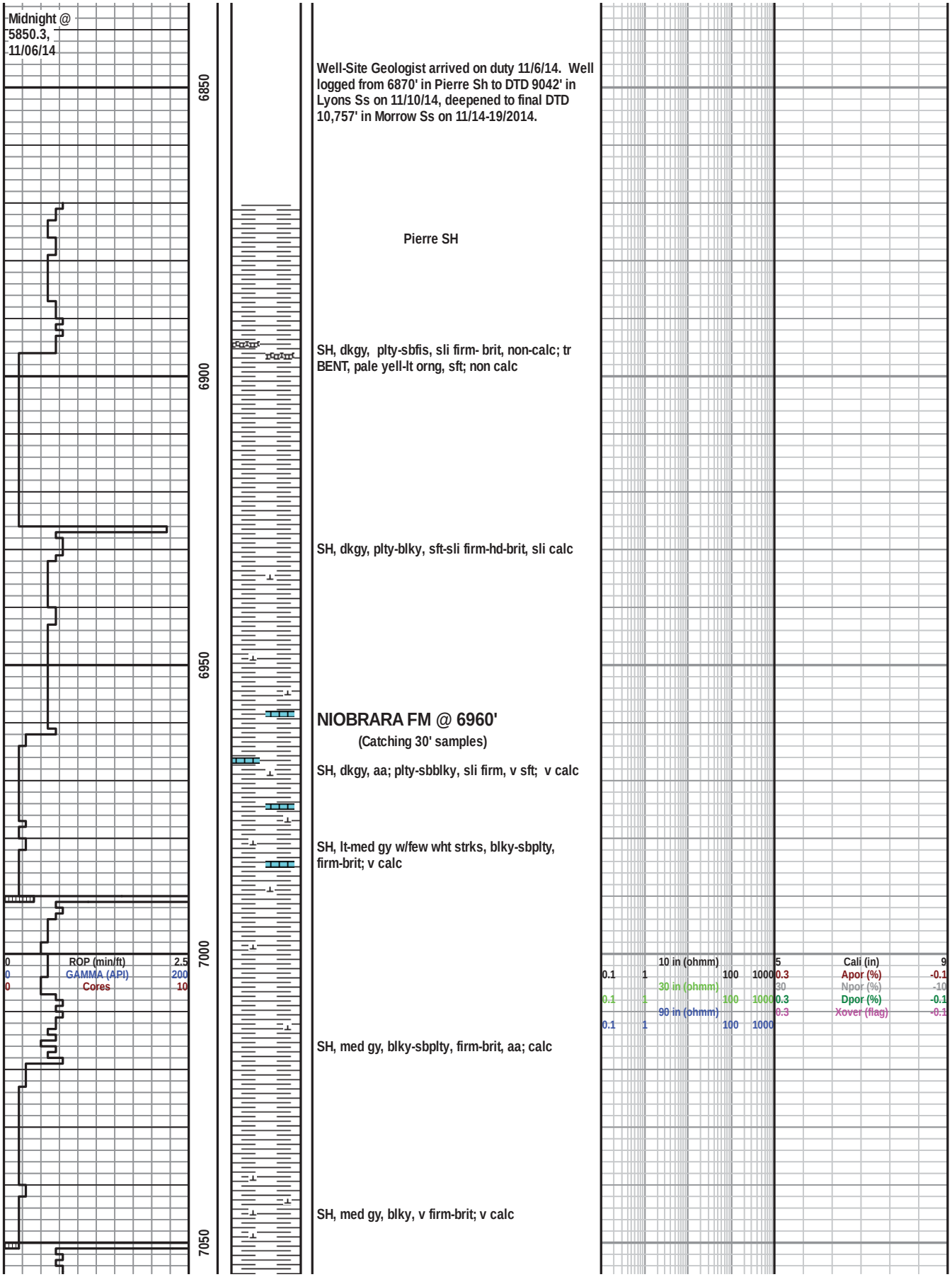
INTERVALS

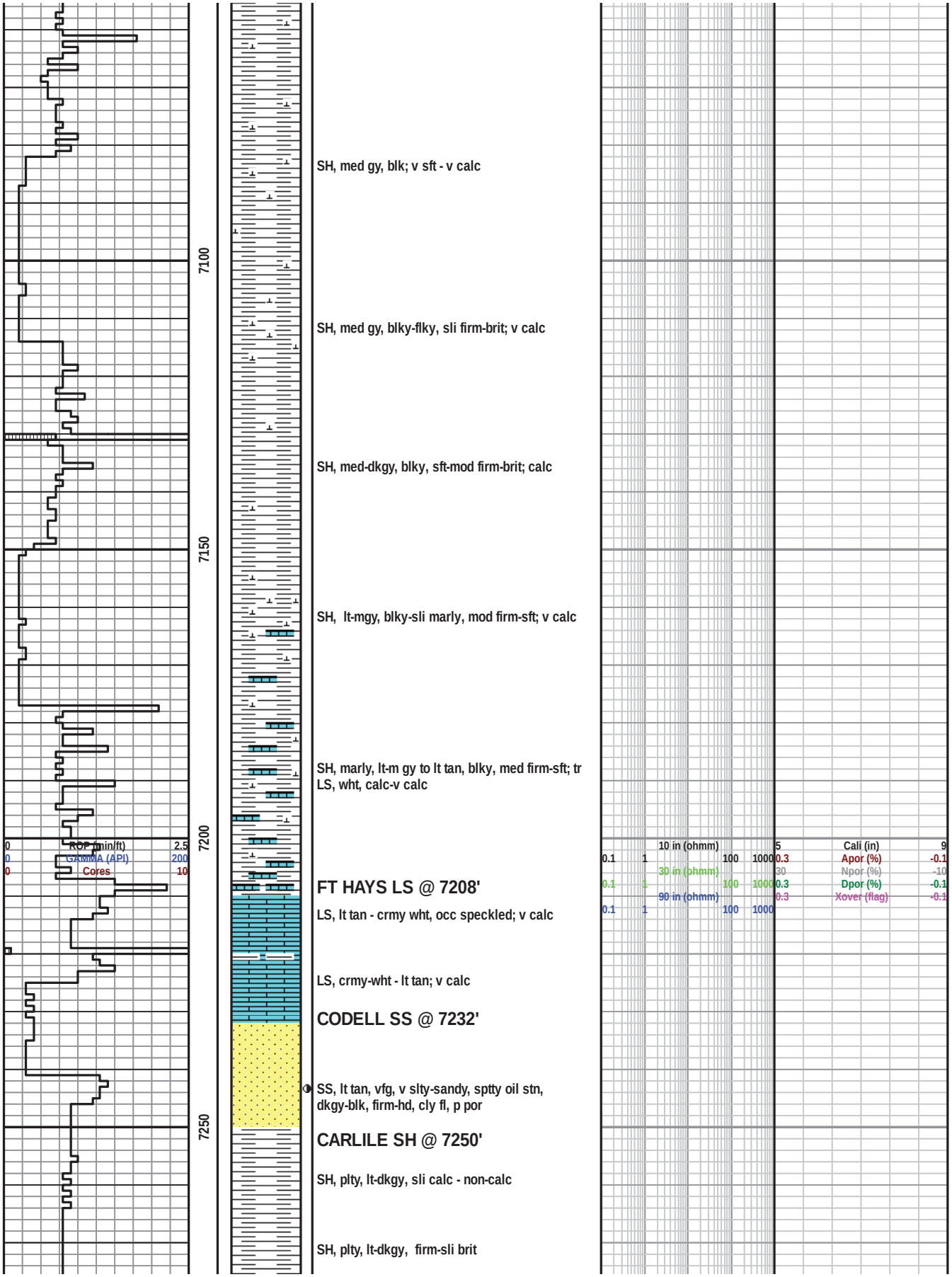
Core
Dst
casing

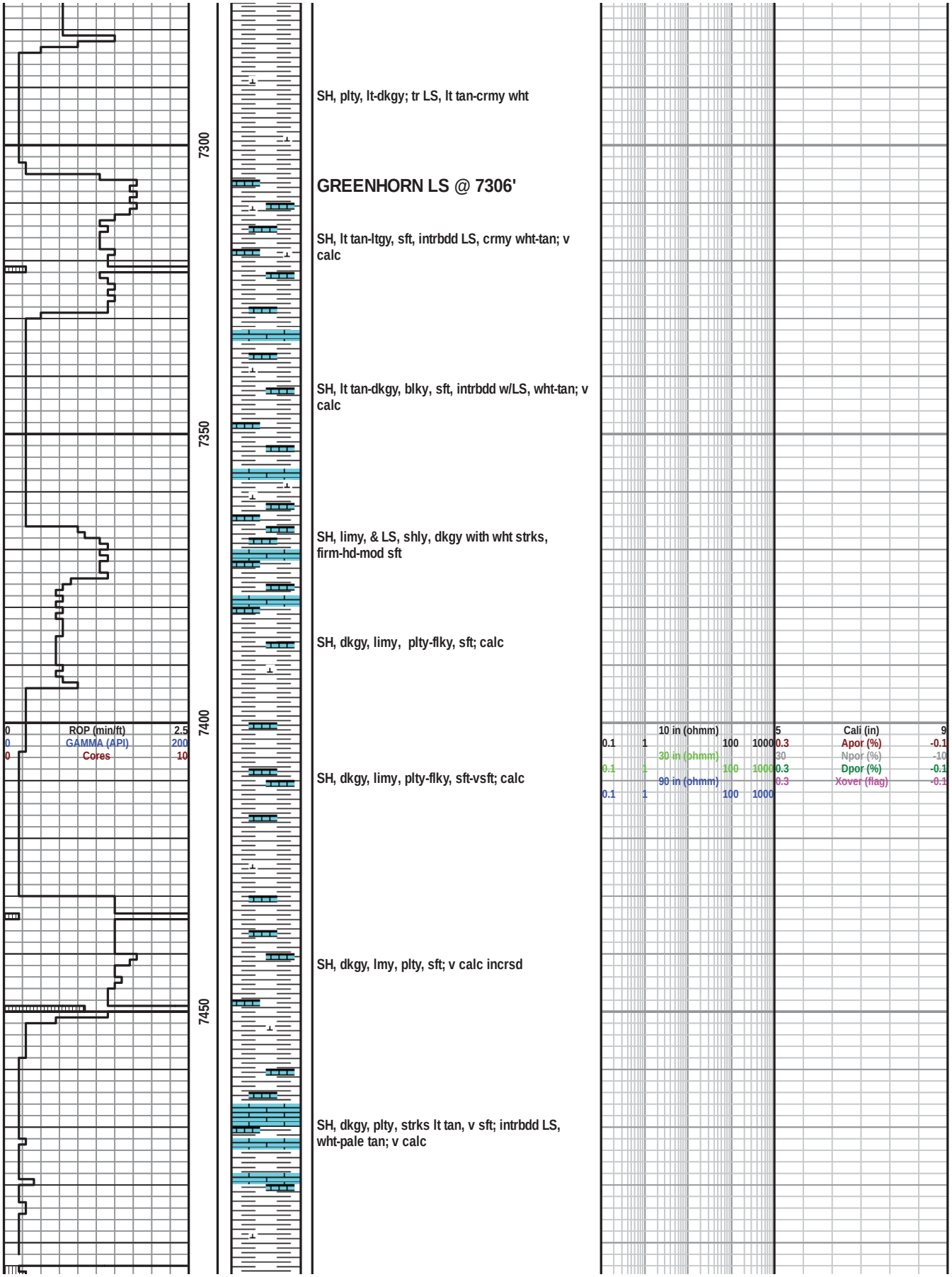
EVENTS

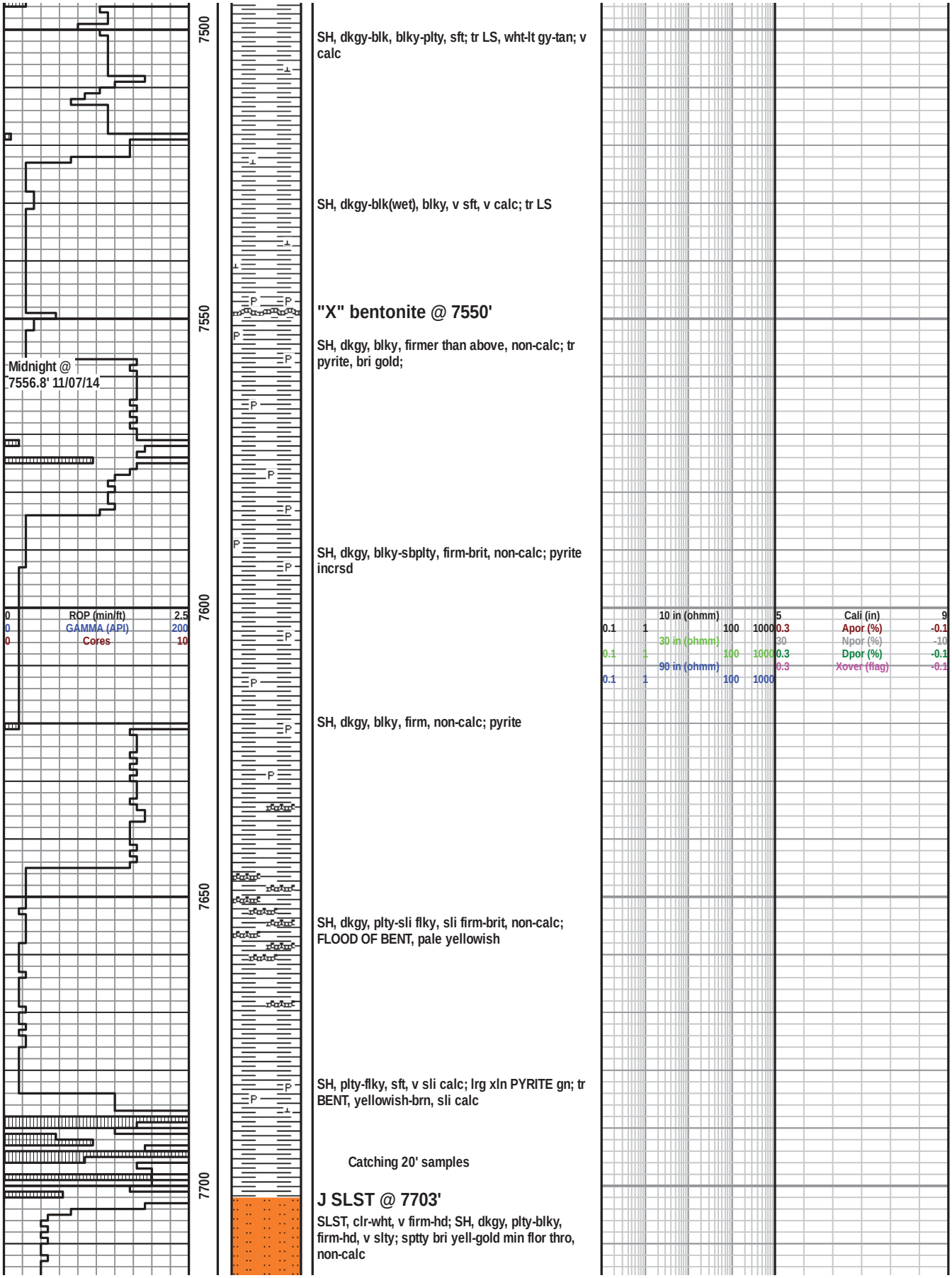
Rft
Sidewall
New bit
casingr
casing
Survey
Off bottom
conn
Survey(red)

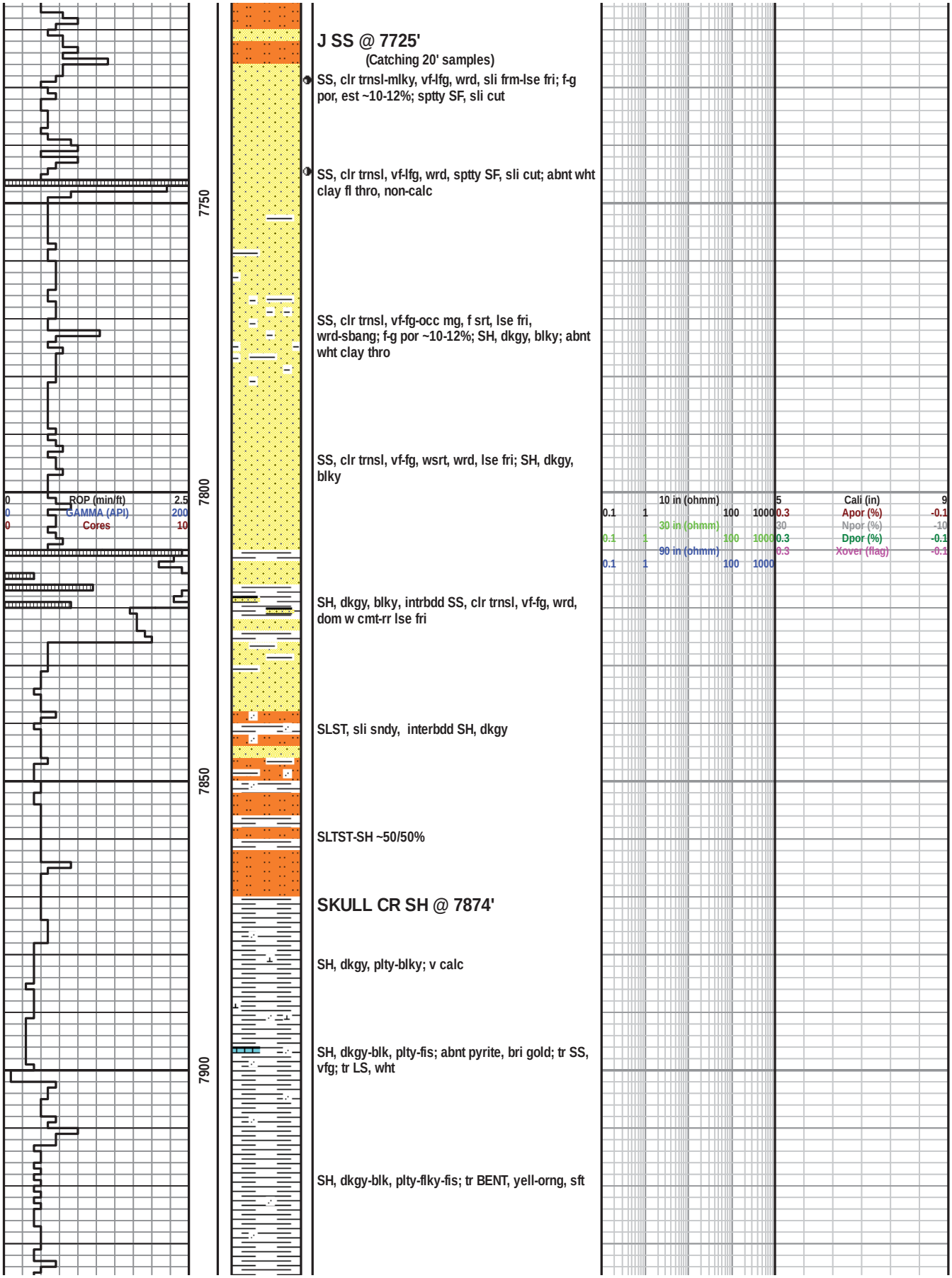


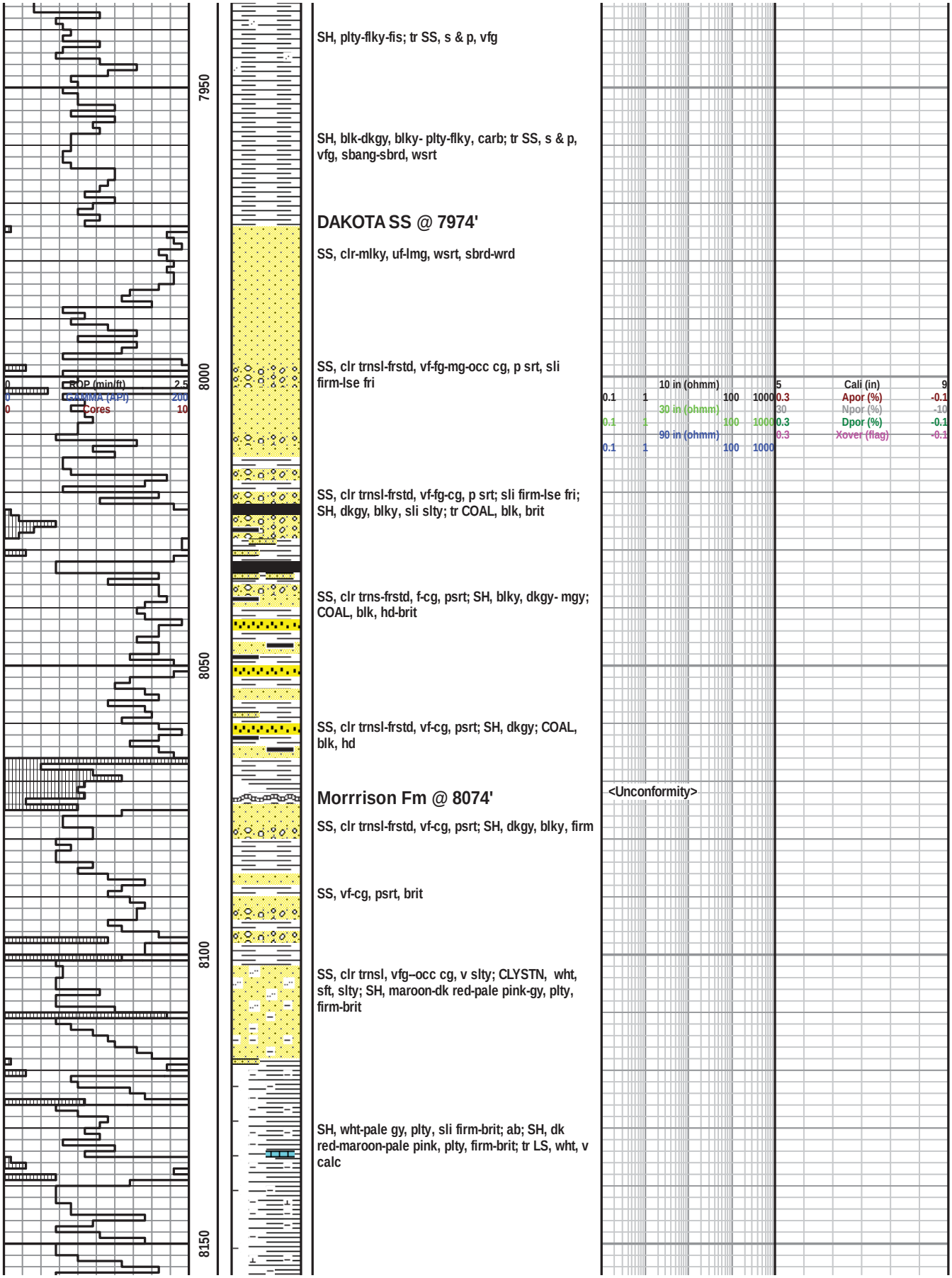

Midnight @ 5850.3, 11/06/14
6850
6900
6950
7000
7050
0 ROP (min/ft) 2.5
0 GAMMA (API) 200
0 Cores 10
10 in (ohmm)
30 in (ohmm)
90 in (ohmm)
0.1 1 100 1000
5 Cali (in) 9
0.3 Apor (%) -0.1
30 Npor (%) -10
0.3 Dpor (%) -0.1
0.3 Xover (flag) -0.1
Well-Site Geologist arrived on duty 11/6/14. Well logged from 6870' in Pierre Sh to DTD 9042' in Lyons Ss on 11/10/14, deepened to final DTD 10,757' in Morrow Ss on 11/14-19/2014.
Pierre SH
SH, dkgy, plty-sbfis, sli firm- brit, non-calc; tr BENT, pale yell-lt orng, sft; non calc
SH, dkgy, plty-blky, sft-sli firm-hd-brit, sli calc
NIOBRARA FM @ 6960'
(Catching 30' samples)
SH, dkgy, aa; plty-sbblky, sli firm, v sft; v calc
SH, lt-med gy w/few wht strks, blky-sbplty, firm-brit; v calc
SH, med gy, blky-sbplty, firm-brit, aa; calc
SH, med gy, blky, v firm-brit; v calc

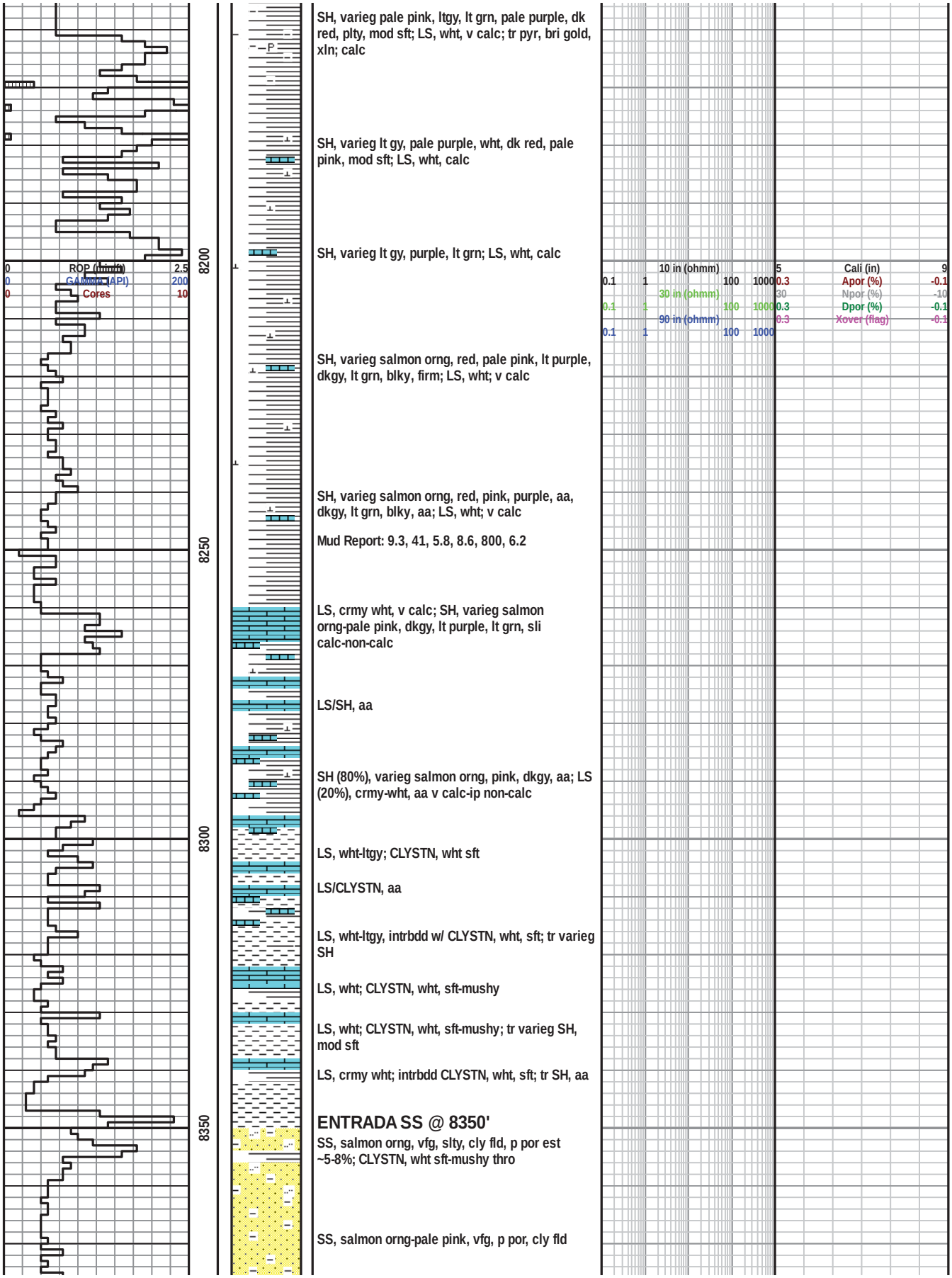

0
ROP (min/ft)
2.5
0
GAMMA (API)
200
0
Cores
10
7100
7150
7200
7250
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
90 in (ohmm)
5
0.3
Cali (in)
9
Apor (%)
-0.1
Npor (%)
-10
Dpor (%)
Xover (flag)
SH, med gy, blk; v sft - v calc
SH, med gy, blky-flky, sli firm-brit; v calc
SH, med-dkgy, blky, sft-mod firm-brit; calc
SH, lt-mgy, blky-sli marly, mod firm-sft; v calc
SH, marly, lt-m gy to lt tan, blky, med firm-sft; tr LS, wht, calc-v calc
FT HAYS LS @ 7208'
LS, lt tan - crmy wht, occ speckled; v calc
LS, crmy-wht - lt tan; v calc
CODELL SS @ 7232'
SS, lt tan, vfg, v slty-sandy, sptty oil stn, dkgy-blk, firm-hd, cly fl, p por
CARLILE SH @ 7250'
SH, plty, lt-dkgy, sli calc - non-calc
SH, plty, lt-dkgy, firm-sli brit

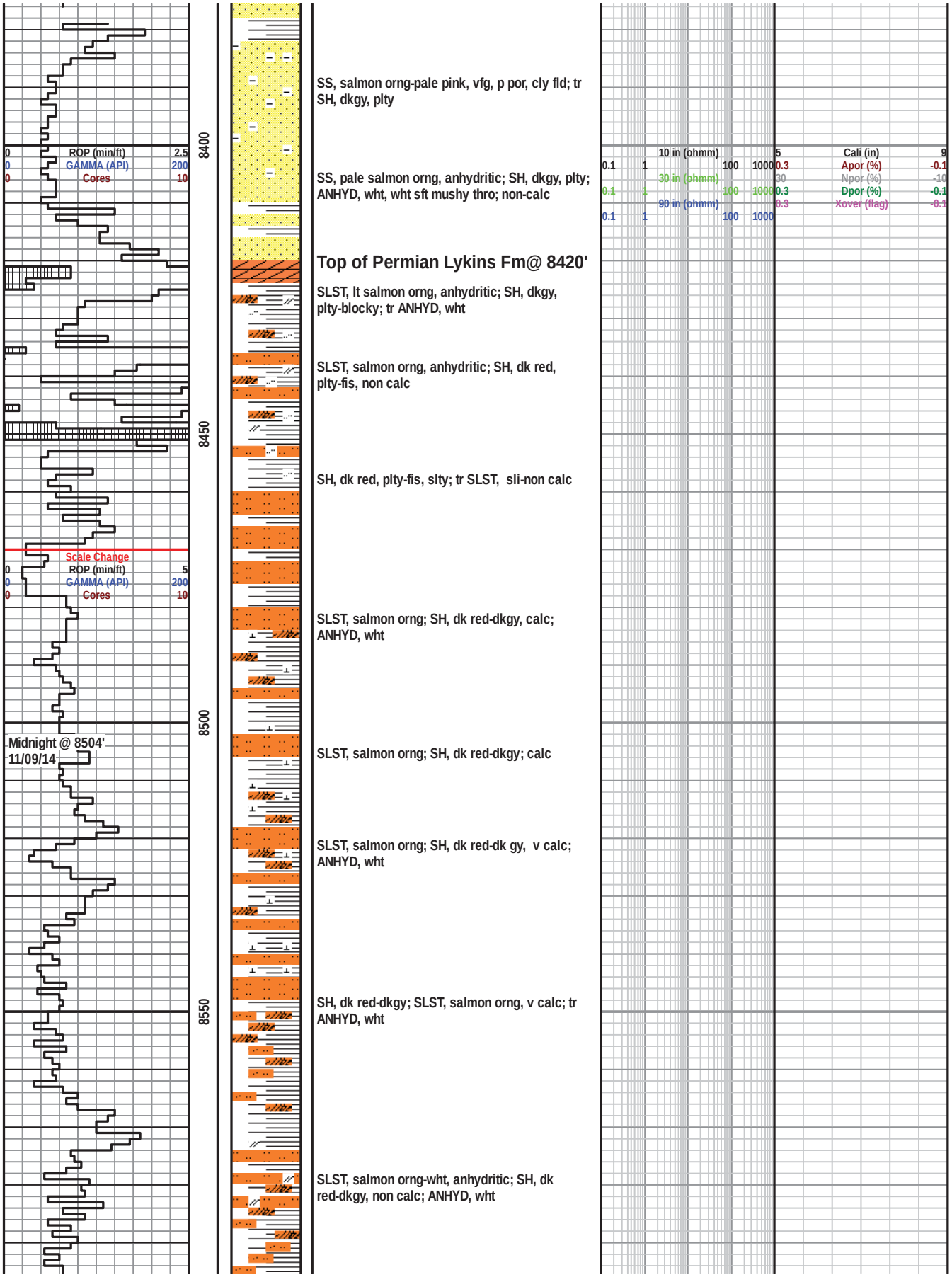

7300
7350
7400
7450
0
ROP (min/ft)
2.5
0
GAMMA (API)
200
0
Cores
10
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
Cali (in)
9
0.3
Apor (%)
-0.1
30
Npor (%)
-10
0.3
Dpor (%)
-0.1
0.3
Xover (flag)
-0.1
SH, plty, lt-dkgy; tr LS, lt tan-crmy wht
GREENHORN LS @ 7306'
SH, lt tan-ltgy, sft, intrbdd LS, crmy wht-tan; v calc
SH, lt tan-dkgy, blky, sft, intrbdd w/LS, wht-tan; v calc
SH, limy, & LS, shly, dkgy with wht strks, firm-hd-mod sft
SH, dkgy, limy, plty-flky, sft; calc
SH, dkgy, limy, plty-flky, sft-vsft; calc
SH, dkgy, lmy, plty, sft; v calc incrsd
SH, dkgy, plty, strks lt tan, v sft; intrbdd LS, wht-pale tan; v calc

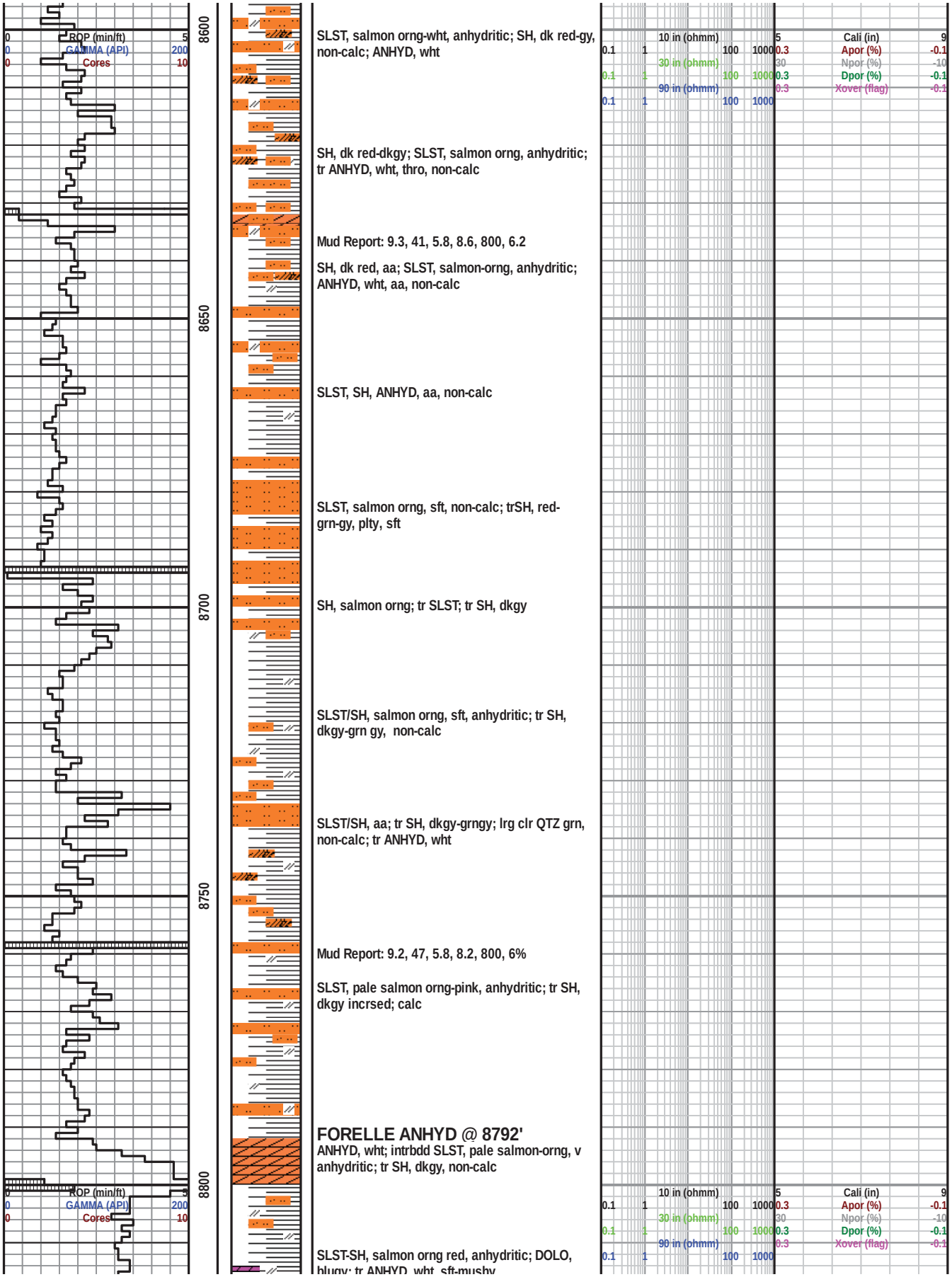

7500
7550
7600
7650
7700
Midnight @
7556.8' 11/07/14
0
ROP (min/ft)
2.5
0
GAMMA (API)
200
0
Cores
10
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
Cali (in)
9
0.3
Apor (%)
-0.1
30
Npor (%)
-10
0.3
Dpor (%)
-0.1
0.3
Xover (flag)
-0.1
SH, dkgy-blk, blky-plty, sft; tr LS, wht-lt gy-tan; v calc
SH, dkgy-blk(wet), blky, v sft, v calc; tr LS
"X" bentonite @ 7550'
SH, dkgy, blky, firmer than above, non-calc; tr pyrite, bri gold;
SH, dkgy, blky-sbplty, firm-brit, non-calc; pyrite incrsd
SH, dkgy, blky, firm, non-calc; pyrite
SH, dkgy, plty-sli flky, sli firm-brit, non-calc; FLOOD OF BENT, pale yellowish
SH, plty-flky, sft, v sli calc; lrg xln PYRITE gn; tr BENT, yellowish-brn, sli calc
Catching 20' samples
J SLST @ 7703'
SLST, clr-wht, v firm-hd; SH, dkgy, plty-blky, firm-hd, v slty; sptty bri yell-gold min flor thro, non-calc

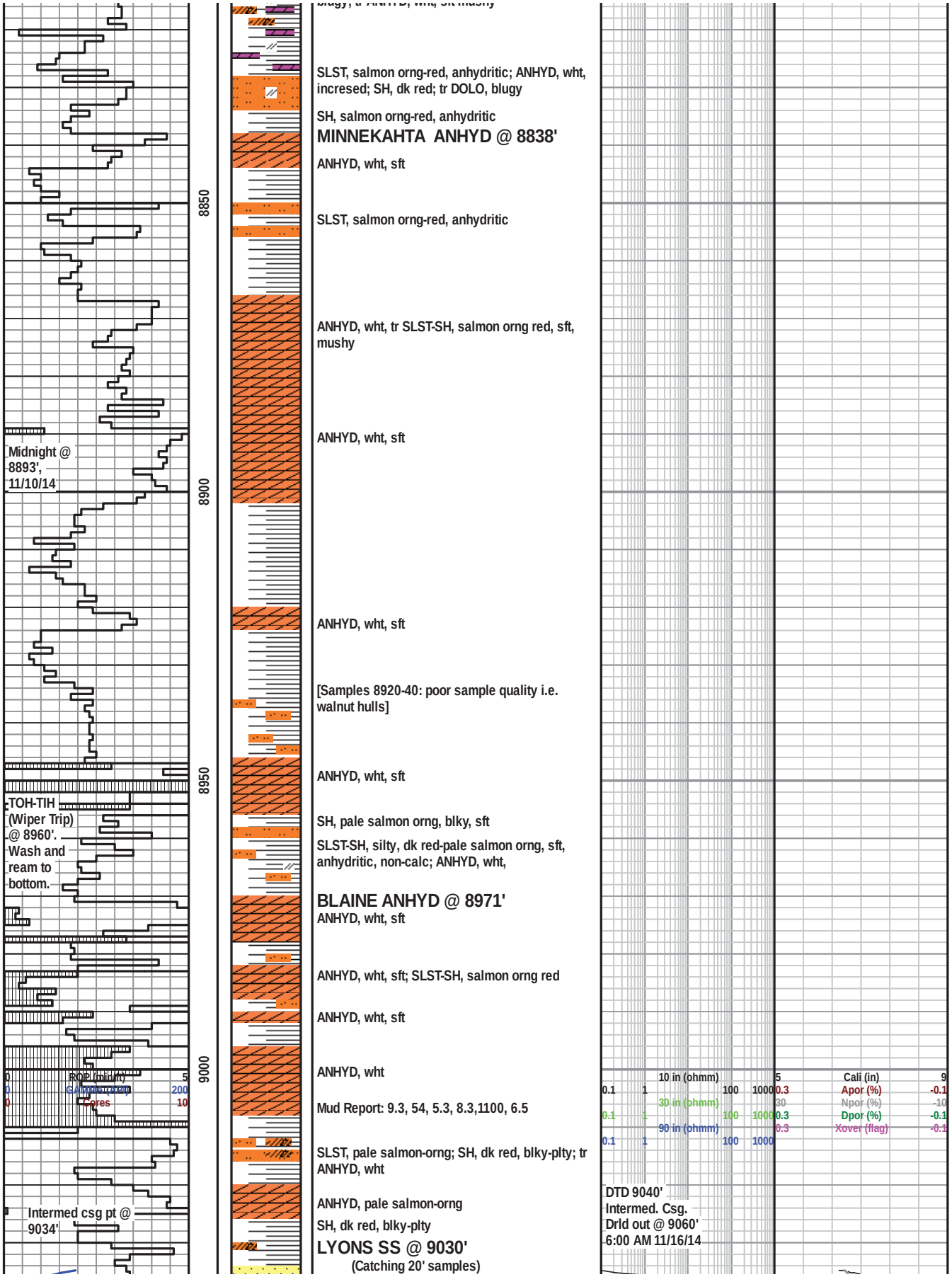

0 ROP (min/ft) 2.5
0 GAMMA (API) 200
0 Cores 10
7750
7800
7850
7900
J SS @ 7725'
(Catching 20' samples)
SS, clr trnsl-mlky, vf-lfg, wrd, sli frm-lse fri; f-g por, est ~10-12%; sptty SF, sli cut
SS, clr trnsl, vf-lfg, wrd, sptty SF, sli cut; abnt wht clay fl thro, non-calc
SS, clr trnsl, vf-fg-occ mg, f srt, lse fri, wrd-sbang; f-g por ~10-12%; SH, dkgy, blky; abnt wht clay thro
SS, clr trnsl, vf-fg, wsrt, wrd, lse fri; SH, dkgy, blky
SH, dkgy, blky, intrbdd SS, clr trnsl, vf-fg, wrd, dom w cmt-rr lse fri
SLST, sli sndy, interbdd SH, dkgy
SLTST-SH ~50/50%
SKULL CR SH @ 7874'
SH, dkgy, plty-blky; v calc
SH, dkgy-blk, plty-fis; abnt pyrite, bri gold; tr SS, vfg; tr LS, wht
SH, dkgy-blk, plty-flky-fis; tr BENT, yell-orng, sft
10 in (ohmm)
0.1 1 100 1000
30 in (ohmm)
0.1 1 100 1000
90 in (ohmm)
0.1 1 100 1000
5 Cali (in) 9
0.3 Apor (%) -0.1
30 Npor (%) -10
0.3 Dpor (%) -0.1
0.3 Xover (flag) -0.1

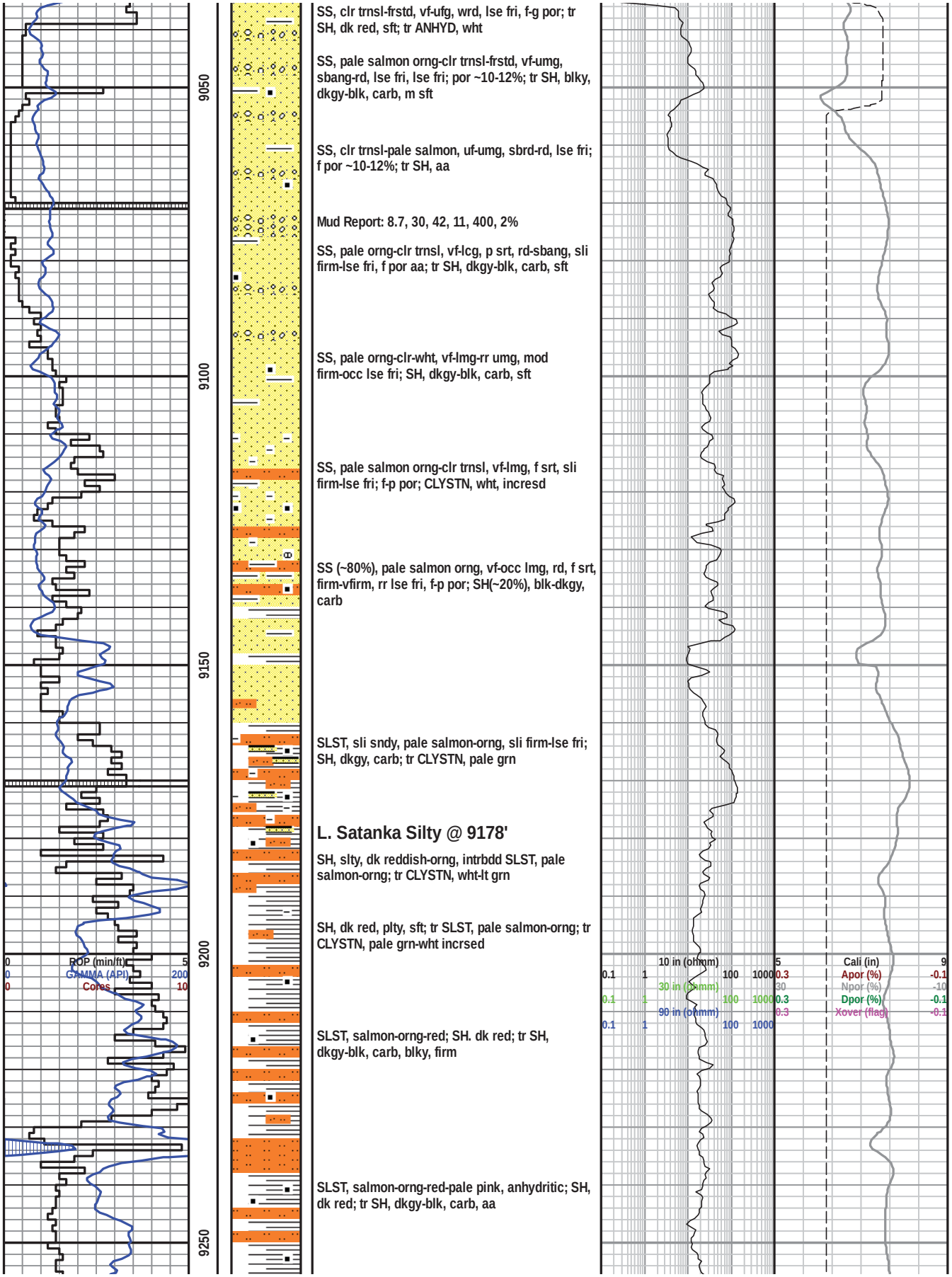

0
ROP (min/ft)
2.5
0
GAMMA (API)
200
0
Cores
10
7950
8000
8050
8100
8150
SH, plty-flky-fis; tr SS, s & p, vfg
SH, blk-dkgy, blky- plty-flky, carb; tr SS, s & p, vfg, sbang-sbrd, wsrt
DAKOTA SS @ 7974'
SS, clr-mlky, uf-lmg, wsrt, sbrd-wrd
SS, clr trnsl-frstd, vf-fg-mg-occ cg, p srt, sli firm-lse fri
SS, clr trnsl-frstd, vf-fg-cg, p srt; sli firm-lse fri; SH, dkgy, blky, sli slty; tr COAL, blk, brit
SS, clr trns-frstd, f-cg, psrt; SH, blky, dkgy- mgy; COAL, blk, hd-brit
SS, clr trnsl-frstd, vf-cg, psrt; SH, dkgy; COAL, blk, hd
Morrrison Fm @ 8074'
SS, clr trnsl-frstd, vf-cg, psrt; SH, dkgy, blky, firm
SS, vf-cg, psrt, brit
SS, clr trnsl, vfg--occ cg, v slty; CLYSTN, wht, sft, slty; SH, maroon-dk red-pale pink-gy, plty, firm-brit
SH, wht-pale gy, plty, sli firm-brit; ab; SH, dk red-maroon-pale pink, plty, firm-brit; tr LS, wht, v calc
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
Cali (in)
9
0.3
Apor (%)
-0.1
30
Npor (%)
-10
0.3
Dpor (%)
-0.1
0.3
Xover (flag)
-0.1
<Unconformity>

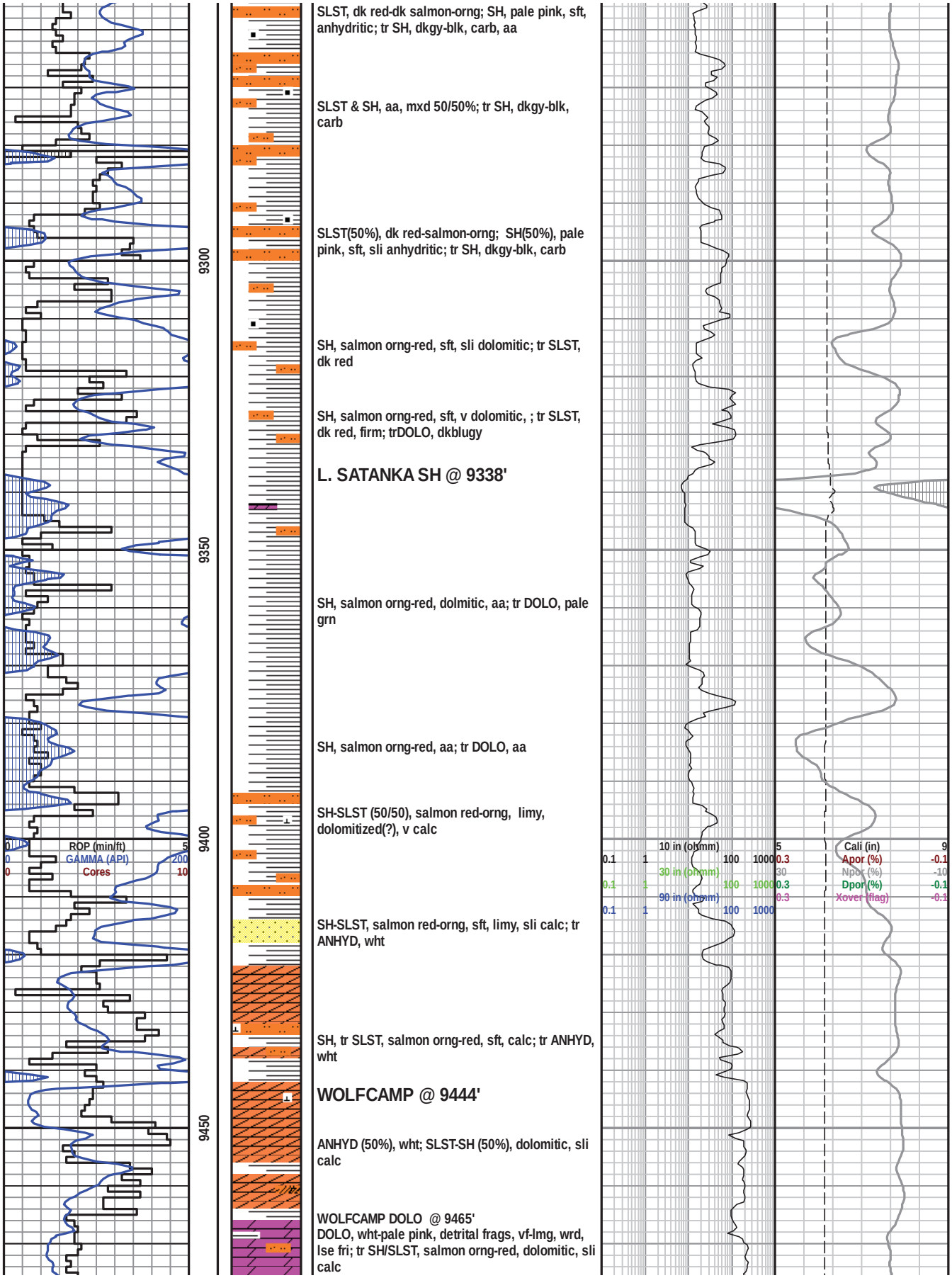

0
ROP (min/ft)
2.5
0
GAMMA (API)
200
0
Cores
10
8200
8250
8300
8350
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
Cali (in)
9
0.3
Apor (%)
-0.1
30
Npor (%)
-10
0.3
Dpor (%)
-0.1
0.3
Xover (flag)
-0.1
SH, varieg pale pink, ltgy, lt grn, pale purple, dk red, plty, mod sft; LS, wht, v calc; tr pyr, bri gold, xln; calc
SH, varieg lt gy, pale purple, wht, dk red, pale pink, mod sft; LS, wht, calc
SH, varieg lt gy, purple, lt grn; LS, wht, calc
SH, varieg salmon orng, red, pale pink, lt purple, dkgy, lt grn, blky, firm; LS, wht; v calc
SH, varieg salmon orng, red, pink, purple, aa, dkgy, lt grn, blky, aa; LS, wht; v calc
Mud Report: 9.3, 41, 5.8, 8.6, 800, 6.2
LS, crmy wht, v calc; SH, varieg salmon orng-pale pink, dkgy, lt purple, lt grn, sli calc-non-calc
LS/SH, aa
SH (80%), varieg salmon orng, pink, dkgy, aa; LS (20%), crmy-wht, aa v calc-ip non-calc
LS, wht-ltgy; CLYSTN, wht sft
LS/CLYSTN, aa
LS, wht-ltgy, intrbdd w/ CLYSTN, wht, sft; tr varieg SH
LS, wht; CLYSTN, wht, sft-mushy
LS, wht; CLYSTN, wht, sft-mushy; tr varieg SH, mod sft
LS, crmy wht; intrbdd CLYSTN, wht, sft; tr SH, aa
ENTRADA SS @ 8350'
SS, salmon orng, vfg, slty, cly fld, p por est ~5-8%; CLYSTN, wht sft-mushy thro
SS, salmon orng-pale pink, vfg, p por, cly fld


0
ROP (min/ft)
2.5
0
GAMMA (API)
200
0
Cores
10
8400
8450
Scale Change
0
ROP (min/ft)
5
0
GAMMA (API)
200
0
Cores
10
8500
Midnight @ 8504'
11/09/14
8550
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
Cali (in)
9
0.3
Apor (%)
-0.1
30
Npor (%)
-10
0.3
Dpor (%)
-0.1
0.3
Xover (flag)
-0.1
SS, salmon orng-pale pink, vfg, p por, cly fld; tr SH, dkgy, plty
SS, pale salmon orng, anhydritic; SH, dkgy, plty; ANHYD, wht, wht sft mushy thro; non-calc
Top of Permian Lykins Fm@ 8420'
SLST, lt salmon orng, anhydritic; SH, dkgy, plty-blocky; tr ANHYD, wht
SLST, salmon orng, anhydritic; SH, dk red, plty-fis, non calc
SH, dk red, plty-fis, slty; tr SLST, sli-non calc
SLST, salmon orng; SH, dk red-dkgy, calc; ANHYD, wht
SLST, salmon orng; SH, dk red-dkgy; calc
SLST, salmon orng; SH, dk red-dk gy, v calc; ANHYD, wht
SH, dk red-dkgy; SLST, salmon orng, v calc; tr ANHYD, wht
SLST, salmon orng-wht, anhydritic; SH, dk red-dkgy, non calc; ANHYD, wht


0
ROP (min/ft)
5
0
GAMMA (API)
200
0
Cores
10
8600
8650
8700
8750
8800
SLST, salmon orng-wht, anhydritic; SH, dk red-gy, non-calc; ANHYD, wht
SH, dk red-dkgy; SLST, salmon orng, anhydritic; tr ANHYD, wht, thro, non-calc
Mud Report: 9.3, 41, 5.8, 8.6, 800, 6.2
SH, dk red, aa; SLST, salmon-orng, anhydritic; ANHYD, wht, aa, non-calc
SLST, SH, ANHYD, aa, non-calc
SLST, salmon orng, sft, non-calc; trSH, red-grn-gy, plty, sft
SH, salmon orng; tr SLST; tr SH, dkgy
SLST/SH, salmon orng, sft, anhydritic; tr SH, dkgy-grn gy, non-calc
SLST/SH, aa; tr SH, dkgy-grngy; lrg clr QTZ grn, non-calc; tr ANHYD, wht
Mud Report: 9.2, 47, 5.8, 8.2, 800, 6%
SLST, pale salmon orng-pink, anhydritic; tr SH, dkgy incrsed; calc
FORELLE ANHYD @ 8792'
ANHYD, wht; intrbdd SLST, pale salmon-orng, v anhydritic; tr SH, dkgy, non-calc
SLST-SH, salmon orng red, anhydritic; DOLO, blugy; tr ANHYD, wht, sft-mushy
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
Cali (in)
9
0.3
Apor (%)
-0.1
30
Npor (%)
-10
0.3
Dpor (%)
-0.1
0.3
Xover (flag)
-0.1


8850
8900
8950
9000
Midnight @ 8893', 11/10/14
TOH-TIH (Wiper Trip) @ 8960'. Wash and ream to bottom.
Intermed csg pt @ 9034'
ROP (min/ft)
Cores
SLST, salmon orng-red, anhydritic; ANHYD, wht, incresed; SH, dk red; tr DOLO, blugy
SH, salmon orng-red, anhydritic
MINNEKAHTA ANHYD @ 8838'
ANHYD, wht, sft
SLST, salmon orng-red, anhydritic
ANHYD, wht, tr SLST-SH, salmon orng red, sft, mushy
ANHYD, wht, sft
ANHYD, wht, sft
[Samples 8920-40: poor sample quality i.e. walnut hulls]
ANHYD, wht, sft
SH, pale salmon orng, blky, sft
SLST-SH, silty, dk red-pale salmon orng, sft, anhydritic, non-calc; ANHYD, wht,
BLAINE ANHYD @ 8971'
ANHYD, wht, sft
ANHYD, wht, sft; SLST-SH, salmon orng red
ANHYD, wht, sft
ANHYD, wht
Mud Report: 9.3, 54, 5.3, 8.3,1100, 6.5
SLST, pale salmon-orng; SH, dk red, blky-plty; tr ANHYD, wht
ANHYD, pale salmon-orng
SH, dk red, blky-plty
LYONS SS @ 9030'
(Catching 20' samples)
10 in (ohmm)
30 in (ohmm)
90 in (ohmm)
Cali (in)
Apor (%)
Npor (%)
Dpor (%)
Xover (flag)
DTD 9040'
Intermed. Csg.
Drld out @ 9060'
6:00 AM 11/16/14


9050
9100
9150
9200
9250
0 ROP (min/ft) 5
0 GAMMA (API) 200
0 Cores 10
10 in (ohmm)
30 in (ohmm)
90 in (ohmm)
0.1 1 100 1000
Cali (in) 5 9
Apor (%) 0.3 -0.1
Npor (%) 30 -10
Dpor (%) 0.3 -0.1
Xover (flag) 0.3 -0.1
SS, clr trnsl-frstd, vf-ufg, wrd, lse fri, f-g por; tr SH, dk red, sft; tr ANHYD, wht
SS, pale salmon orng-clr trnsl-frstd, vf-umg, sbang-rd, lse fri, lse fri; por ~10-12%; tr SH, blky, dkgy-blk, carb, m sft
SS, clr trnsl-pale salmon, uf-umg, sbrd-rd, lse fri; f por ~10-12%; tr SH, aa
Mud Report: 8.7, 30, 42, 11, 400, 2%
SS, pale orng-clr trnsl, vf-lcg, p srt, rd-sbang, sli firm-lse fri, f por aa; tr SH, dkgy-blk, carb, sft
SS, pale orng-clr-wht, vf-lmg-rr umg, mod firm-occ lse fri; SH, dkgy-blk, carb, sft
SS, pale salmon orng-clr trnsl, vf-lmg, f srt, sli firm-lse fri; f-p por; CLYSTN, wht, incresd
SS (~80%), pale salmon orng, vf-occ lmg, rd, f srt, firm-vfirm, rr lse fri, f-p por; SH(~20%), blk-dkgy, carb
SLST, sli sndy, pale salmon-orng, sli firm-lse fri; SH, dkgy, carb; tr CLYSTN, pale grn
L. Satanka Silty @ 9178'
SH, slty, dk reddish-orng, intrbdd SLST, pale salmon-orng; tr CLYSTN, wht-lt grn
SH, dk red, plty, sft; tr SLST, pale salmon-orng; tr CLYSTN, pale grn-wht incrsed
SLST, salmon-orng-red; SH. dk red; tr SH, dkgy-blk, carb, blky, firm
SLST, salmon-orng-red-pale pink, anhydritic; SH, dk red; tr SH, dkgy-blk, carb, aa



SLST, dk red-dk salmon-orng; SH, pale pink, sft, anhydritic; tr SH, dkgy-blk, carb, aa

SLST & SH, aa, mxd 50/50%; tr SH, dkgy-blk, carb

SLST(50%), dk red-salmon-orng; SH(50%), pale pink, sft, sli anhydritic; tr SH, dkgy-blk, carb

SH, salmon orng-red, sft, sli dolomitic; tr SLST, dk red

SH, salmon orng-red, sft, v dolomitic, ; tr SLST, dk red, firm; trDOLO, dkblugy

L. SATANKA SH @ 9338'

SH, salmon orng-red, dolmitic, aa; tr DOLO, pale grn

SH, salmon orng-red, aa; tr DOLO, aa

SH-SLST (50/50), salmon red-orng, limy, dolomitized(?), v calc

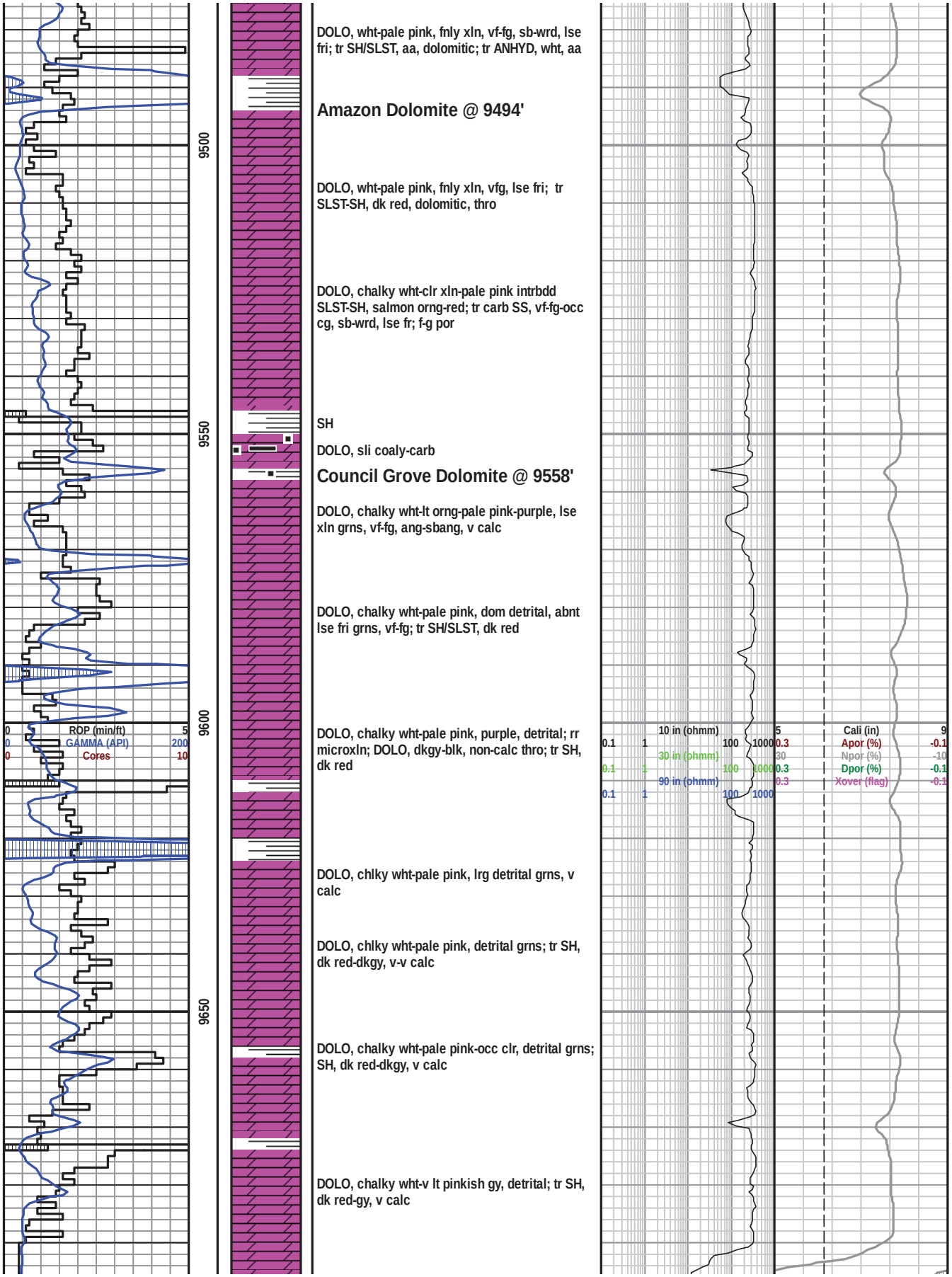
SH-SLST, salmon red-orng, sft, limy, sli calc; tr ANHYD, wht

SH, tr SLST, salmon orng-red, sft, calc; tr ANHYD, wht

WOLFCAMP @ 9444'

ANHYD (50%), wht; SLST-SH (50%), dolomitic, sli calc

WOLFCAMP DOLO @ 9465'
DOLO, wht-pale pink, detrital frags, vf-lmg, wrd, lse fri; tr SH/SLST, salmon orng-red, dolomitic, sli calc



DOLO, wht-pale pink, fnly xln, vf-fg, sb-wrd, lse fri; tr SH/SLST, aa, dolomitic; tr ANHYD, wht, aa

Amazon Dolomite @ 9494'

DOLO, wht-pale pink, fnly xln, vfg, lse fri; tr SLST-SH, dk red, dolomitic, thro

DOLO, chalky wht-clr xln-pale pink intrbdd SLST-SH, salmon orng-red; tr carb SS, vf-fg-occ cg, sb-wrd, lse fr; f-g por

SH

DOLO, sli coaly-carb

Council Grove Dolomite @ 9558'

DOLO, chalky wht-lt orng-pale pink-purple, lse xln grns, vf-fg, ang-sbang, v calc

DOLO, chalky wht-pale pink, dom detrital, abnt lse fri grns, vf-fg; tr SH/SLST, dk red

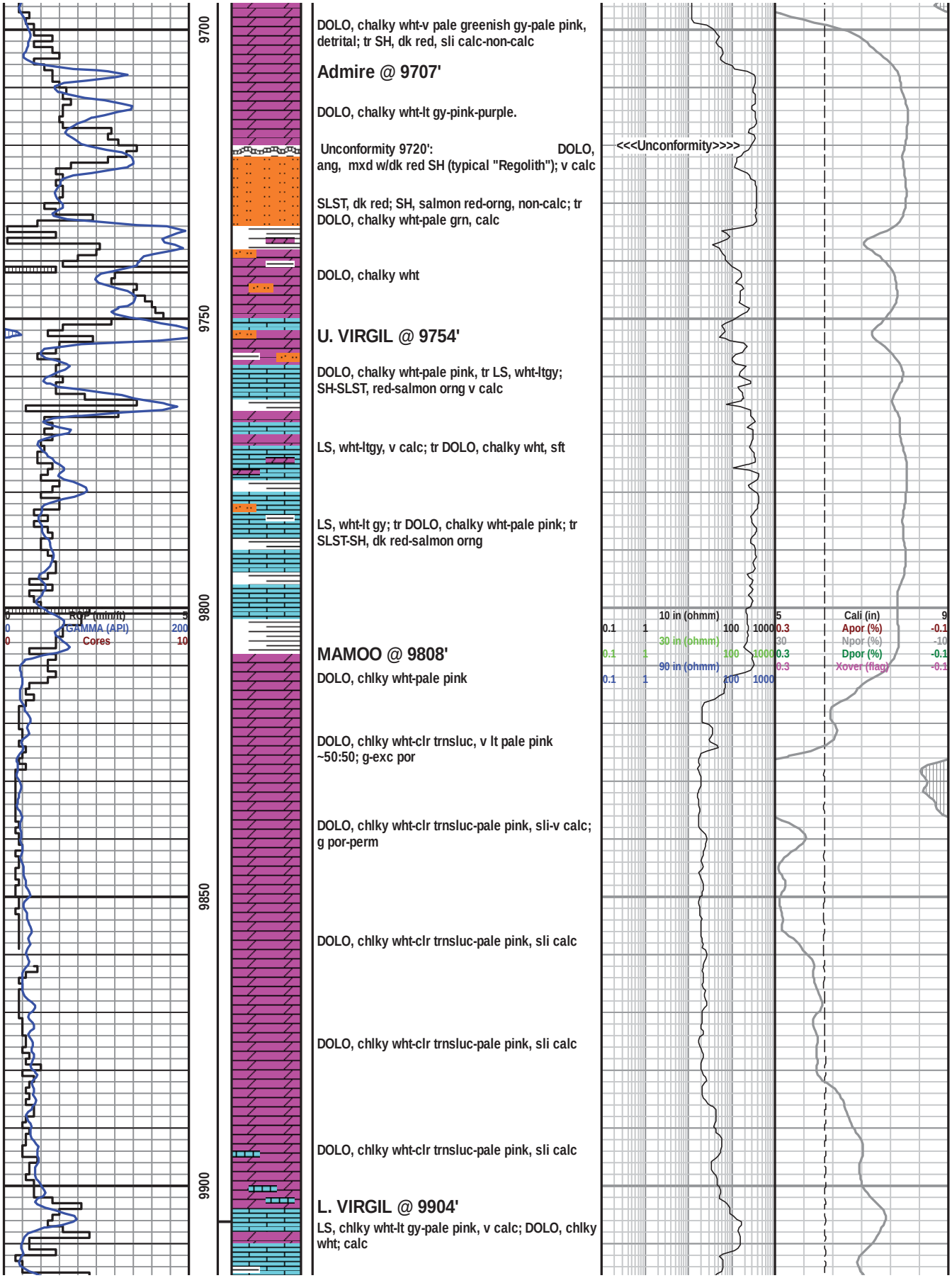
DOLO, chalky wht-pale pink, purple, detrital; rr microxln; DOLO, dkgy-blk, non-calc thro; tr SH, dk red

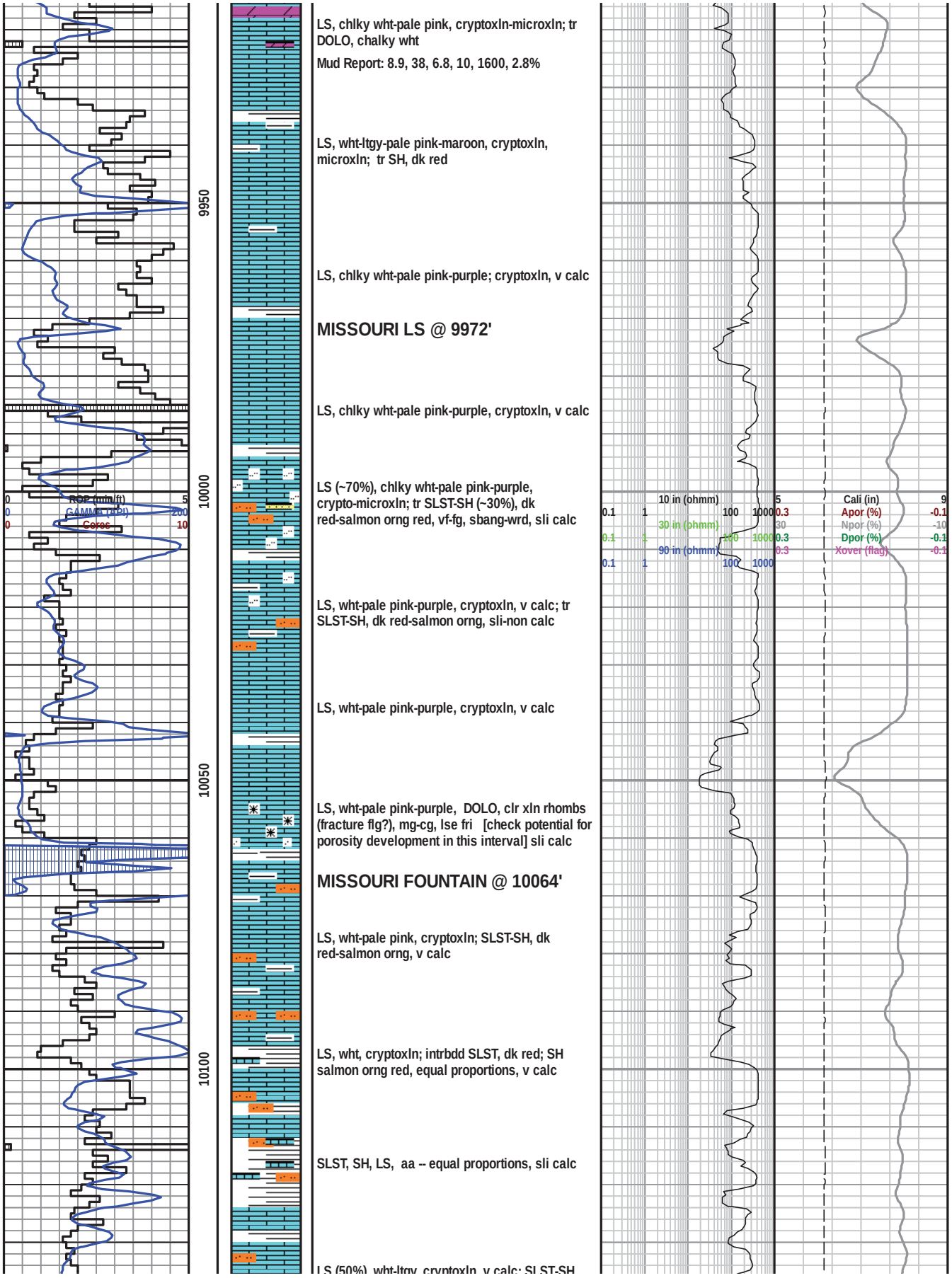
DOLO, chlky wht-pale pink, lrg detrital grns, v calc

DOLO, chlky wht-pale pink, detrital grns; tr SH, dk red-dkgy, v-v calc

DOLO, chalky wht-pale pink-occ clr, detrital grns; SH, dk red-dkgy, v calc

DOLO, chalky wht-v lt pinkish gy, detrital; tr SH, dk red-gy, v calc


9700
9750
9800
9850
9900
0 RxRt (ohmm) 5
0 GAMMA (API) 200
0 Cores 10
DOLO, chalky wht-v pale greenish gy-pale pink, detrital; tr SH, dk red, sli calc-non-calc
Admire @ 9707'
DOLO, chalky wht-lt gy-pink-purple.
Unconformity 9720': DOLO, ang, mxd w/dk red SH (typical "Regolith"); v calc
SLST, dk red; SH, salmon red-orng, non-calc; tr DOLO, chalky wht-pale grn, calc
DOLO, chalky wht
U. VIRGIL @ 9754'
DOLO, chalky wht-pale pink, tr LS, wht-ltgy; SH-SLST, red-salmon orng v calc
LS, wht-ltgy, v calc; tr DOLO, chalky wht, sft
LS, wht-lt gy; tr DOLO, chalky wht-pale pink; tr SLST-SH, dk red-salmon orng
MAMOO @ 9808'
DOLO, chlky wht-pale pink
DOLO, chlky wht-clr trnsluc, v lt pale pink ~50:50; g-exc por
DOLO, chlky wht-clr trnsluc-pale pink, sli-v calc; g por-perm
DOLO, chlky wht-clr trnsluc-pale pink, sli calc
DOLO, chlky wht-clr trnsluc-pale pink, sli calc
DOLO, chlky wht-clr trnsluc-pale pink, sli calc
L. VIRGIL @ 9904'
LS, chlky wht-lt gy-pale pink, v calc; DOLO, chlky wht; calc
<<<Unconformity>>>>
10 in (ohmm)
0.1 1 100 1000
30 in (ohmm)
0.1 1 100 1000
90 in (ohmm)
0.1 1 100 1000
5 Cali (in) 9
0.3 Apor (%) -0.1
30 Npor (%) -10
0.3 Dpor (%) -0.1
0.3 Xover (flag) -0.1



LS, chlky wht-pale pink, cryptoxln-microxln; tr DOLO, chalky wht

Mud Report: 8.9, 38, 6.8, 10, 1600, 2.8%

LS, wht-ltgy-pale pink-maroon, cryptoxln, microxln; tr SH, dk red

LS, chlky wht-pale pink-purple; cryptoxln, v calc

MISSOURI LS @ 9972'

LS, chlky wht-pale pink-purple, cryptoxln, v calc

LS (~70%), chlky wht-pale pink-purple, crypto-microxln; tr SLST-SH (~30%), dk red-salmon orng red, vf-fg, sbang-wrd, sli calc

LS, wht-pale pink-purple, cryptoxln, v calc; tr SLST-SH, dk red-salmon orng, sli-non calc

LS, wht-pale pink-purple, cryptoxln, v calc

LS, wht-pale pink-purple, DOLO, clr xln rhombs (fracture flg?), mg-cg, lse fri [check potential for porosity development in this interval] sli calc

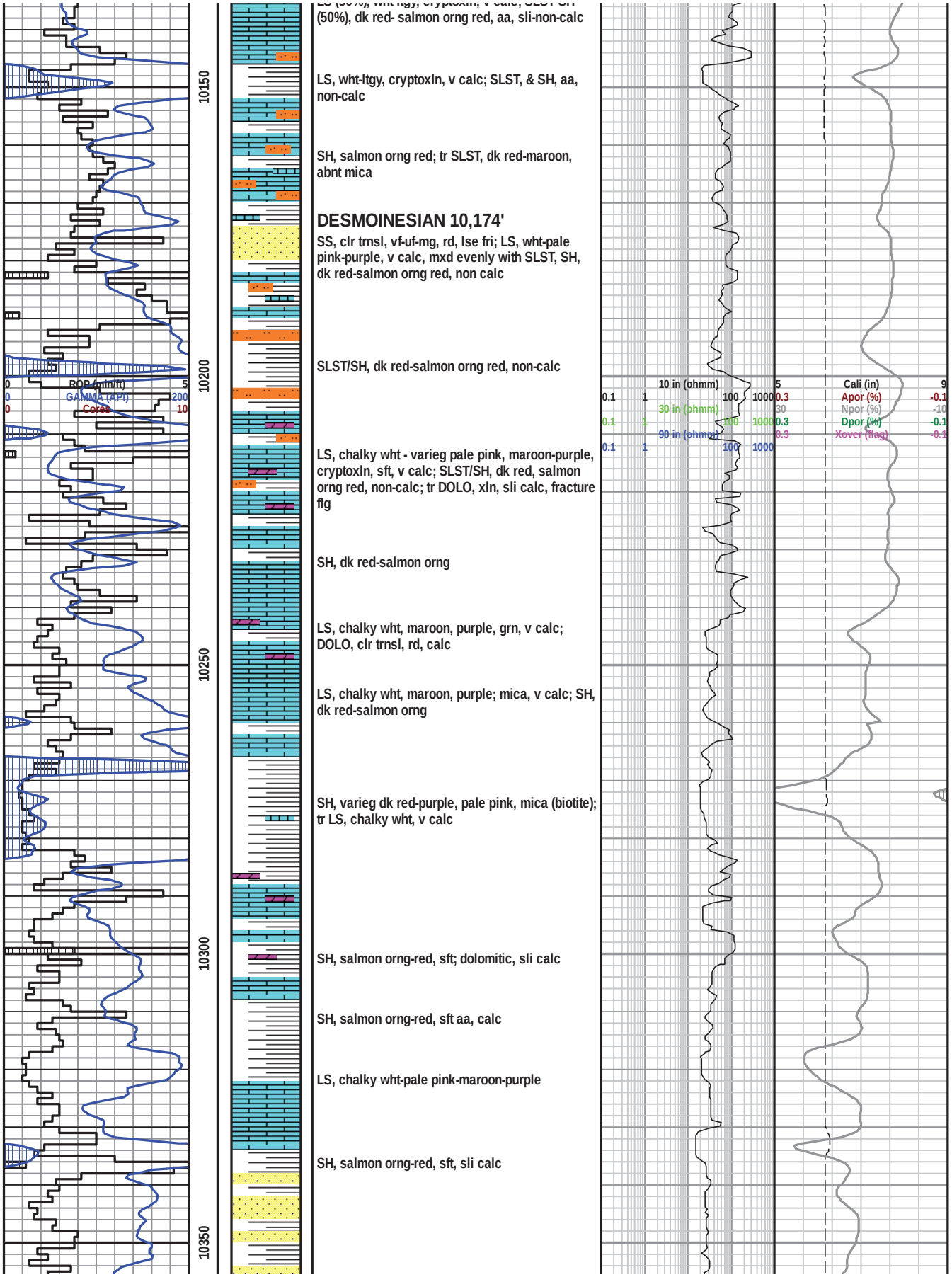
MISSOURI FOUNTAIN @ 10064'

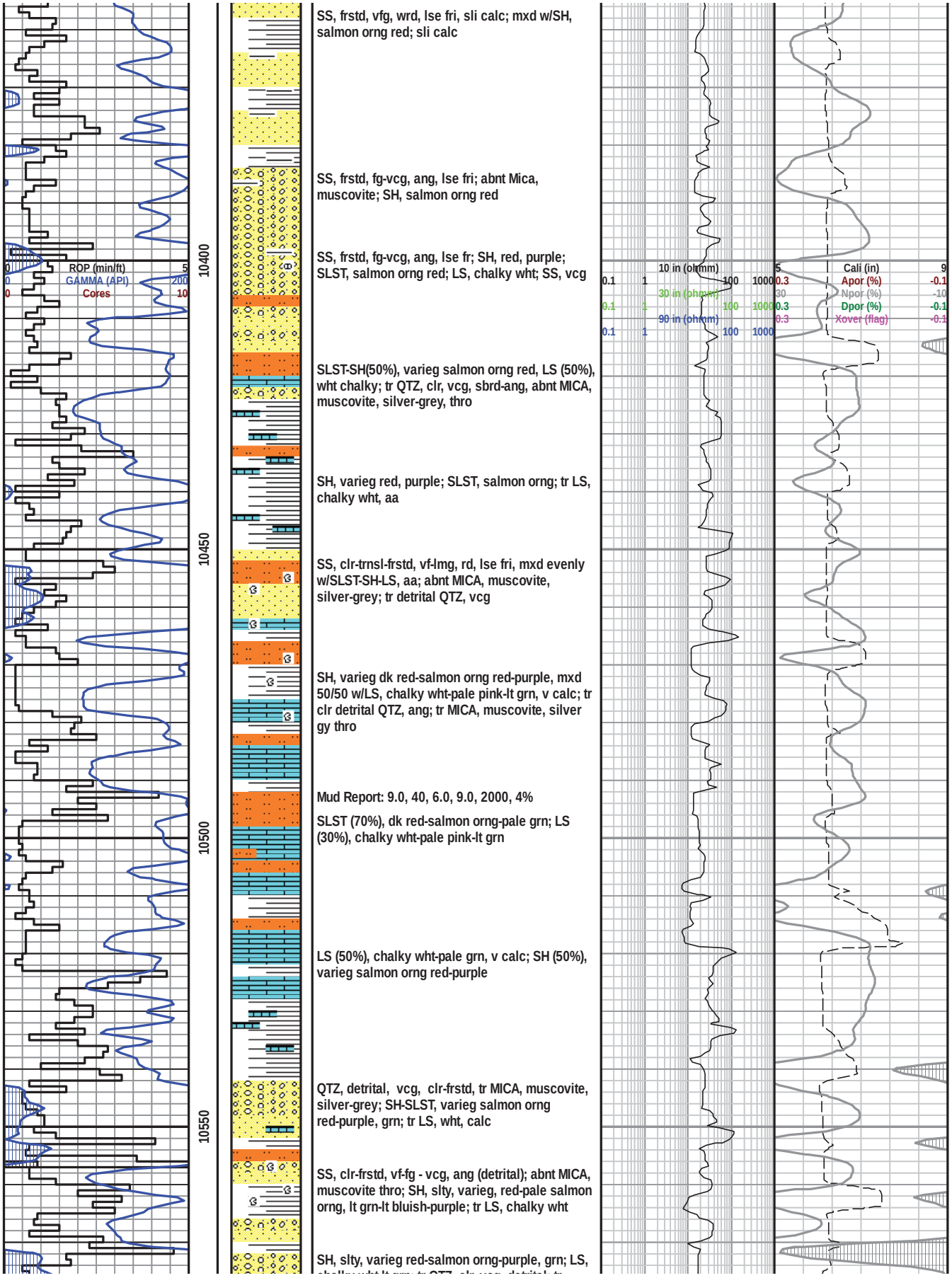
LS, wht-pale pink, cryptoxln; SLST-SH, dk red-salmon orng, v calc

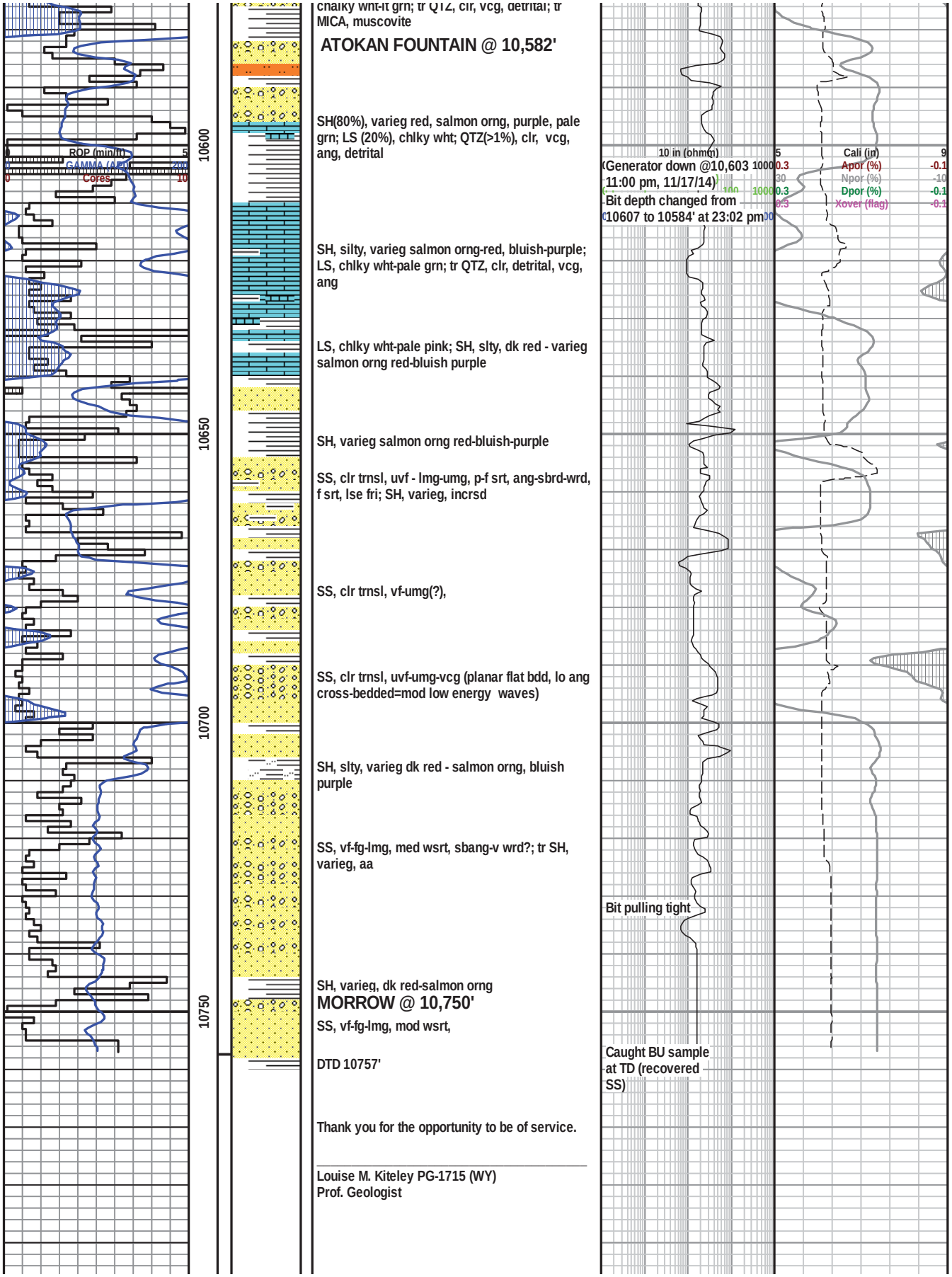
LS, wht, cryptoxln; intrbdd SLST, dk red; SH salmon orng red, equal proportions, v calc

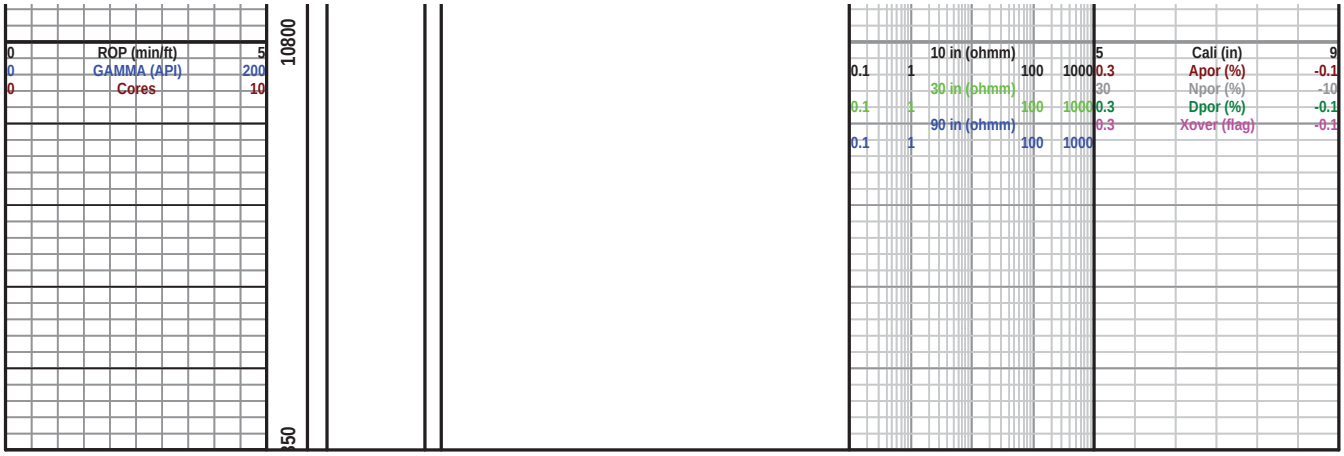
SLST, SH, LS, aa -- equal proportions, sli calc

LS (50%), wht-ltgy, cryptoxln, v calc; SLST-SH


ROP (min/ft)
0
5
GAMMA (API)
0
200
Cores
0
10
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
0.3
30
0.3
0.3
Cali (in)
9
Apor (%)
-0.1
Npor (%)
-10
Dpor (%)
-0.1
Xover (flag)
-0.1
10150
10200
10250
10300
10350
(50%), dk red- salmon orng red, aa, sli-non-calc
LS, wht-ltgy, cryptoxln, v calc; SLST, & SH, aa, non-calc
SH, salmon orng red; tr SLST, dk red-maroon, abnt mica
DESMOINESIAN 10,174'
SS, clr trnsl, vf-uf-mg, rd, lse fri; LS, wht-pale pink-purple, v calc, mxd evenly with SLST, SH, dk red-salmon orng red, non calc
SLST/SH, dk red-salmon orng red, non-calc
LS, chalky wht - varieg pale pink, maroon-purple, cryptoxln, sft, v calc; SLST/SH, dk red, salmon orng red, non-calc; tr DOLO, xln, sli calc, fracture flg
SH, dk red-salmon orng
LS, chalky wht, maroon, purple, grn, v calc; DOLO, clr trnsl, rd, calc
LS, chalky wht, maroon, purple; mica, v calc; SH, dk red-salmon orng
SH, varieg dk red-purple, pale pink, mica (biotite); tr LS, chalky wht, v calc
SH, salmon orng-red, sft; dolomitic, sli calc
SH, salmon orng-red, sft aa, calc
LS, chalky wht-pale pink-maroon-purple
SH, salmon orng-red, sft, sli calc


ROP (min/ft)
0
5
GAMMA (API)
0
200
Cores
0
10
10400
10450
10500
10550
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
Cali (in)
5
9
Apor (%)
0.3
-0.1
Npor (%)
30
-10
Dpor (%)
0.3
-0.1
Xover (flag)
0.3
-0.1
SS, frstd, vfg, wrd, lse fri, sli calc; mxd w/SH, salmon orng red; sli calc
SS, frstd, fg-vcg, ang, lse fri; abnt Mica, muscovite; SH, salmon orng red
SS, frstd, fg-vcg, ang, lse fr; SH, red, purple; SLST, salmon orng red; LS, chalky wht; SS, vcg
SLST-SH(50%), varieg salmon orng red, LS (50%), wht chalky; tr QTZ, clr, vcg, sbrd-ang, abnt MICA, muscovite, silver-grey, thro
SH, varieg red, purple; SLST, salmon orng; tr LS, chalky wht, aa
SS, clr-trnsl-frstd, vf-lmg, rd, lse fri, mxd evenly w/SLST-SH-LS, aa; abnt MICA, muscovite, silver-grey; tr detrital QTZ, vcg
SH, varieg dk red-salmon orng red-purple, mxd 50/50 w/LS, chalky wht-pale pink-lt grn, v calc; tr clr detrital QTZ, ang; tr MICA, muscovite, silver gy thro
Mud Report: 9.0, 40, 6.0, 9.0, 2000, 4%
SLST (70%), dk red-salmon orng-pale grn; LS (30%), chalky wht-pale pink-lt grn
LS (50%), chalky wht-pale grn, v calc; SH (50%), varieg salmon orng red-purple
QTZ, detrital, vcg, clr-frstd, tr MICA, muscovite, silver-grey; SH-SLST, varieg salmon orng red-purple, grn; tr LS, wht, calc
SS, clr-frstd, vf-fg - vcg, ang (detrital); abnt MICA, muscovite thro; SH, slty, varieg, red-pale salmon orng, lt grn-lt bluish-purple; tr LS, chalky wht
SH, slty, varieg red-salmon orng-purple, grn; LS,


ROP (min/ft)
GAMMA (API)
Cores
10600
10650
10700
10750
chalky wht-lt grn; tr QTZ, clr, vcg, detrital; tr MICA, muscovite
ATOKAN FOUNTAIN @ 10,582'
SH(80%), varieg red, salmon orng, purple, pale grn; LS (20%), chlky wht; QTZ(>1%), clr, vcg, ang, detrital
SH, silty, varieg salmon orng-red, bluish-purple; LS, chlky wht-pale grn; tr QTZ, clr, detrital, vcg, ang
LS, chlky wht-pale pink; SH, slty, dk red - varieg salmon orng red-bluish purple
SH, varieg salmon orng red-bluish-purple
SS, clr trnsl, uvf - lmg-umg, p-f srt, ang-sbrd-wrd, f srt, lse fri; SH, varieg, incrsd
SS, clr trnsl, vf-umg(?),
SS, clr trnsl, uvf-umg-vcg (planar flat bdd, lo ang cross-bedded=mod low energy waves)
SH, slty, varieg dk red - salmon orng, bluish purple
SS, vf-fg-lmg, med wsrt, sbang-v wrd?; tr SH, varieg, aa
SH, varieg, dk red-salmon orng
MORROW @ 10,750'
SS, vf-fg-lmg, mod wsrt,
DTD 10757'
Thank you for the opportunity to be of service.
Louise M. Kiteley PG-1715 (WY)
Prof. Geologist
10 in (ohmm)
Cali (in)
Apor (%)
Npor (%)
Dpor (%)
Xover (flag)
Generator down @10,603 11:00 pm, 11/17/14)
Bit depth changed from 10607 to 10584' at 23:02 pm
Bit pulling tight
Caught BU sample at TD (recovered SS)


0
ROP (min/ft)
5
0
GAMMA (API)
200
0
Cores
10
10800
10850
10 in (ohmm)
0.1
1
100
1000
30 in (ohmm)
0.1
1
100
1000
90 in (ohmm)
0.1
1
100
1000
5
Cali (in)
9
0.3
Apor (%)
-0.1
30
Npor (%)
-10
0.3
Dpor (%)
-0.1
0.3
Xover (flag)
-0.1