

LOG created using LPLOT VH Version 3.0, August 30, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** NOBLE ENERGY, INC.  
**WELL:** CASTOR LC35-62HN  
**LOCATION:** SEC35, T9N, R59W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 287' FSL, 150' FWL  
**ELEVATION:** 4836' GL, 4852' KB  
**FIELD:** WILDCAT  
**SPUD DATE:** 8/23/13  
**TD DATE:** 8/30/13  
**DATES LOGGED:** 8/24/13 - 8/30/13  
**DEPTHS LOGGED:** 600'-10206'  
**GEOLOGISTS:** GARY MYERS, ADAM NEUMANN  
**DRILLING FLUID:** LSND  
**DRILLING RIG:** PRECISION 828  
**API:** 05-123-37507  
**LOG TYPE:** VERTICAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.

**LOG CONTINUES ON FILE: Castor LC35-62HN Horiz.lplot**

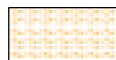
**LITHOLOGIES**



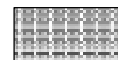
Sandstone



Shaly Sandstone



Shaly Siltstone



Silty Shale

**ENGINEERING SYMBOLS**



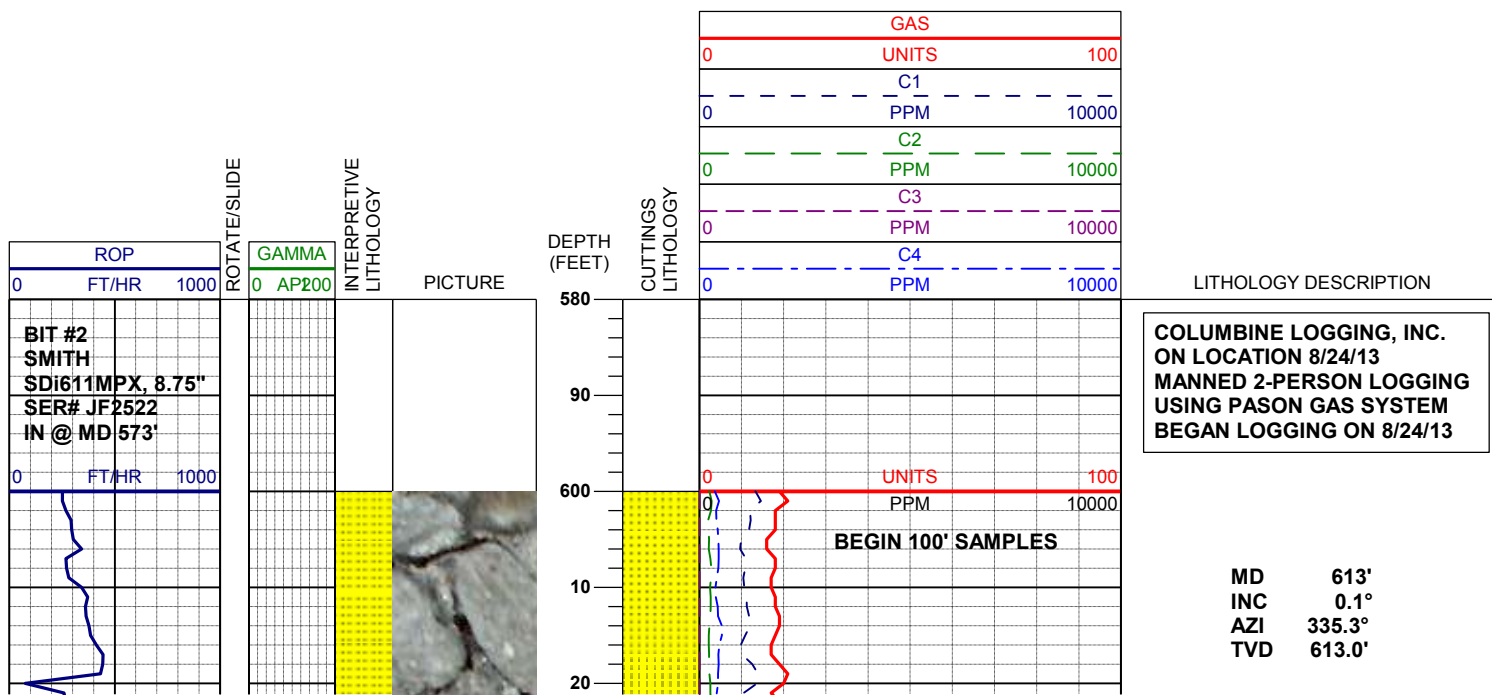
Connection

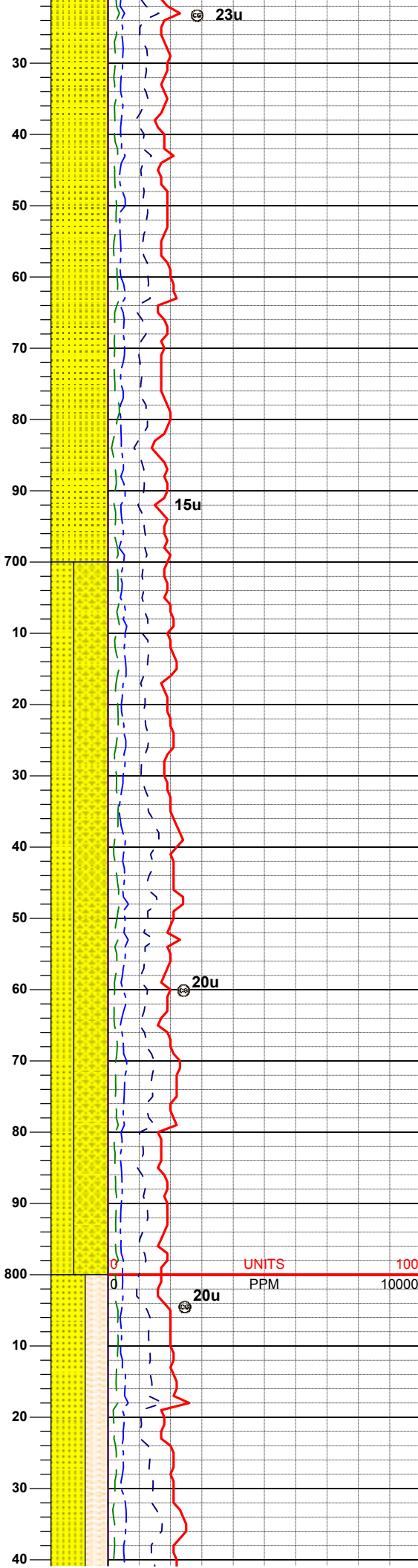
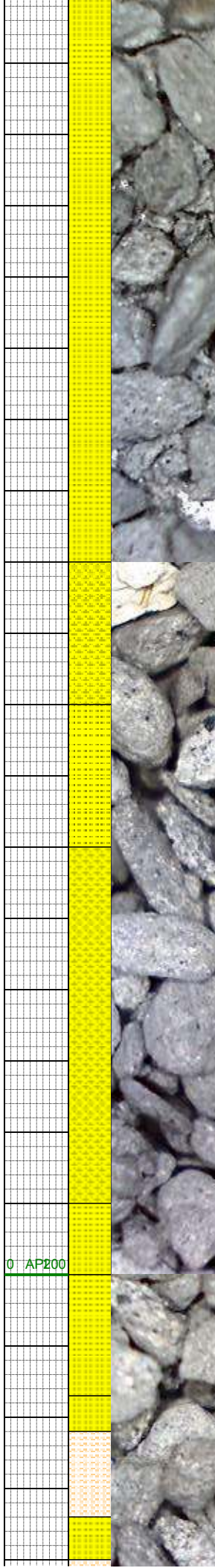
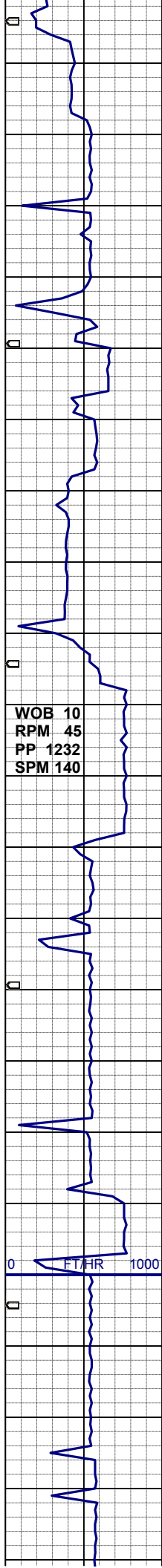


Connection Gas



Midnight Depth





SS: lt gy-lt tan ip, f-vf gr, sb blk, sb  
mdd-sb ang, w srt, v sft-sft, arg mtx,  
non calc, sl mica, tr pyr

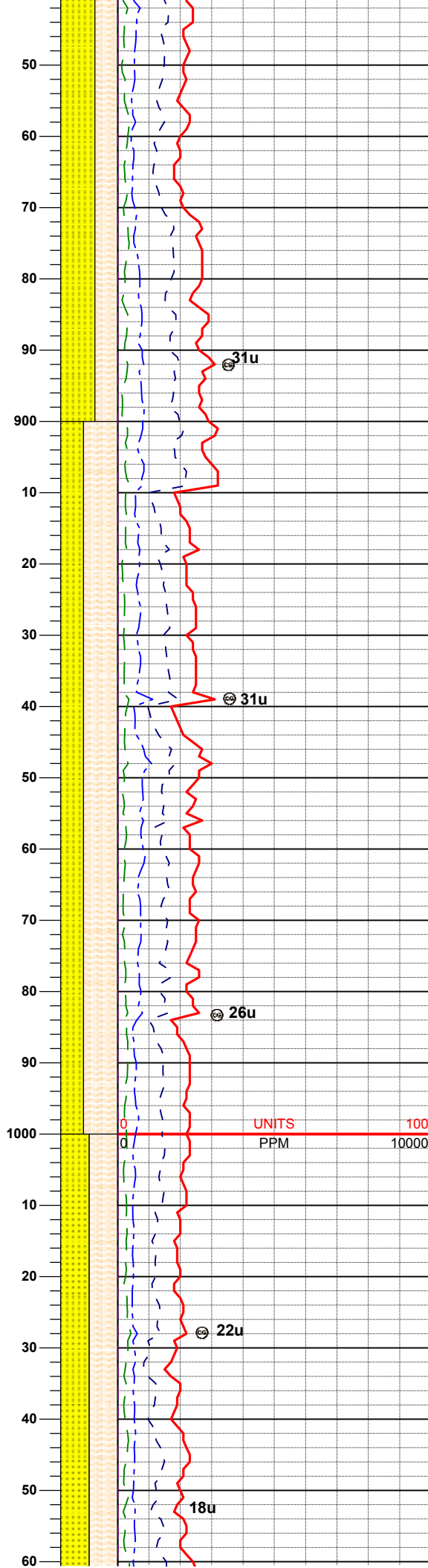
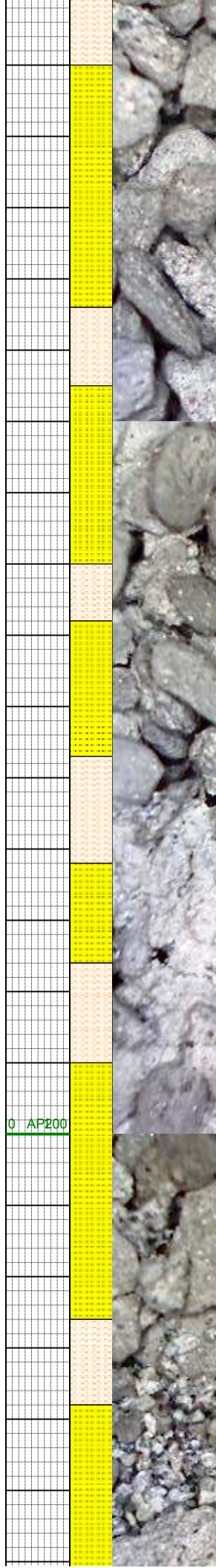
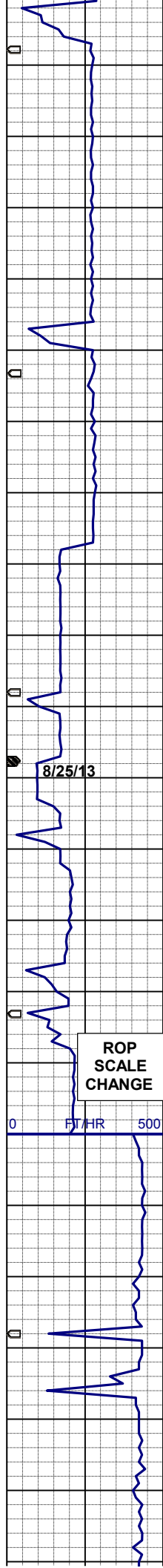
SHYSS: gy-lt gy, f-vf gr, sb blk-sb  
plty, mod srt, sft-v sl firm, arg mtx, v sl  
calc.  
SS: lt tan- lt gy, f-vf gr, blk-sb blk,  
sb mdd-sb ang, mod w srt, v sft-sft,  
arg mtx, non calc

MD 793'

INC 0.3°

AZI 328.5°

TVD 792.9'



SS: lt gy- gy, m-f gr, blk-sb blk, sb  
rdd-sb ang, mod w srt, v sft-sft, arg-  
sil mt, sl calc, sl mica  
grd to SHYSLTST: gy-mod lt gy, f-vf  
gr, sb blk-sb plty, w srt, sft-sl firm,  
sdy ip, arg mt, sl calc

MD 883'  
INC 0.3°  
AZI 347.1°  
TVD 883.0'

SHYSLTST: gy-mod lt gy, vf gr, sb  
blk-sb plty, w srt, sft-sl firm, sdy ip,  
arg mt, sl calc  
grd to SS: lt gy- gy, m-f gr, blk-sb  
blk, sb rdd-sb ang, mod w srt, v sft-  
sft, arg-sil mt, sl calc, sl mica, pyr  
incl, occ bent

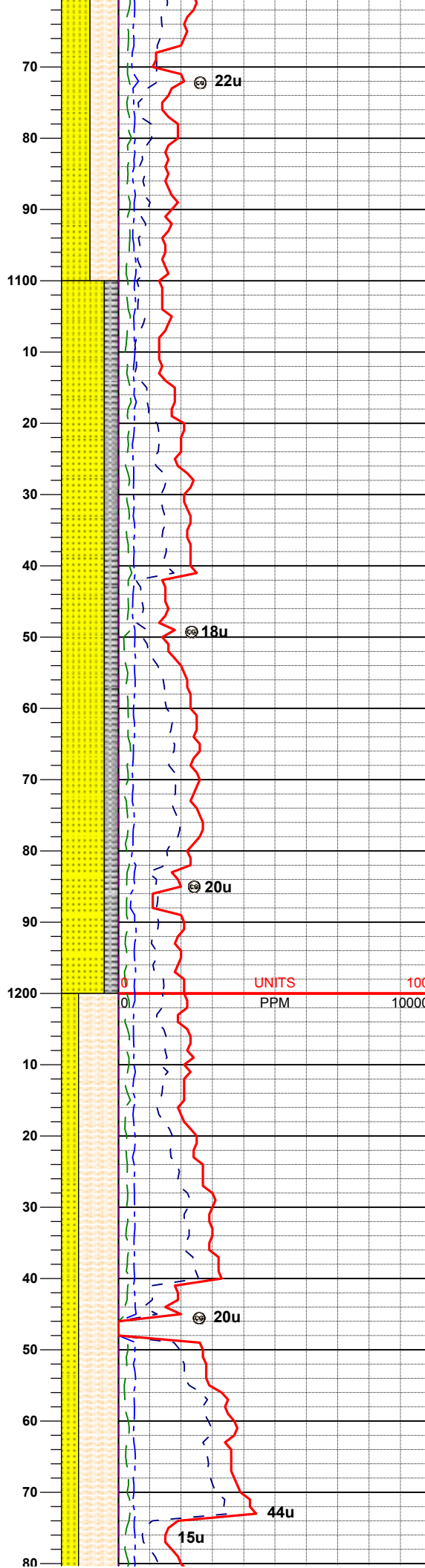
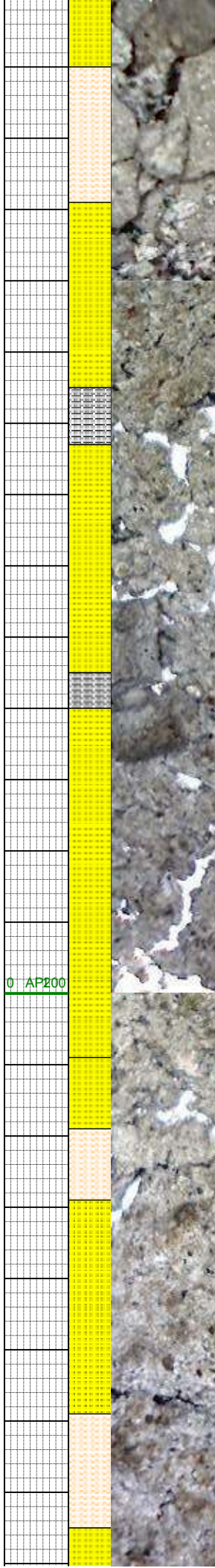
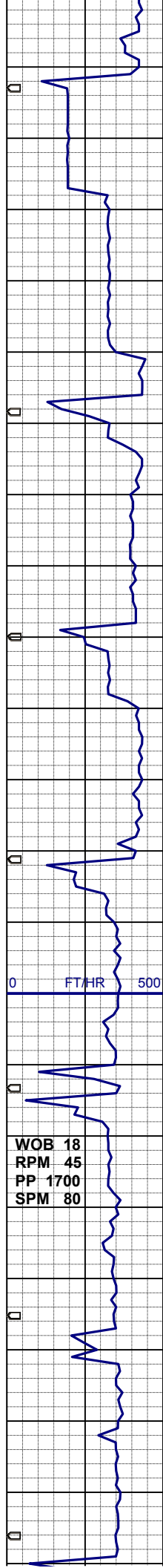
MD 973'  
INC 0.4°  
AZI 353.6°  
TVD 973.0'

WT 8.55 / VIS 26

SHYSLTST: gy-mod lt gy, vf gr, sb  
blk, rr sb plty, w srt, sft-sl firm, sdy ip,  
arg mt, sl calc  
grd to SS: lt gy- gy, f gr, blk-sb blk,  
sb rdd-sb ang, mod w srt, v sft-sft,  
arg-sil mt, sl calc, sl mica, pyr incl

MD 1062'





INC 0.3°  
AZI 351.0°  
TVD 1062.0'

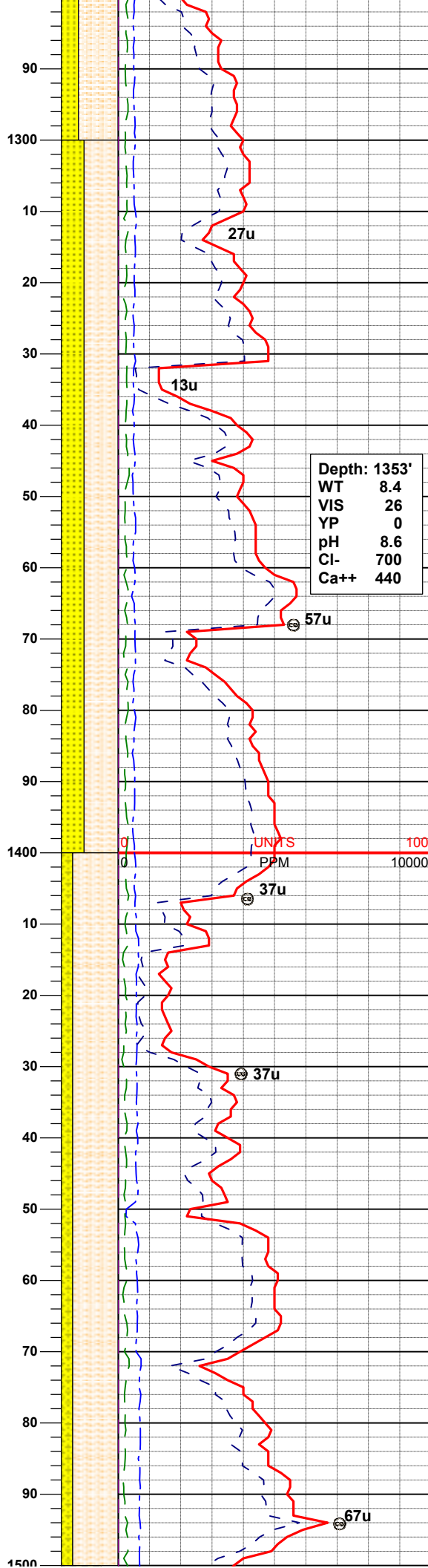
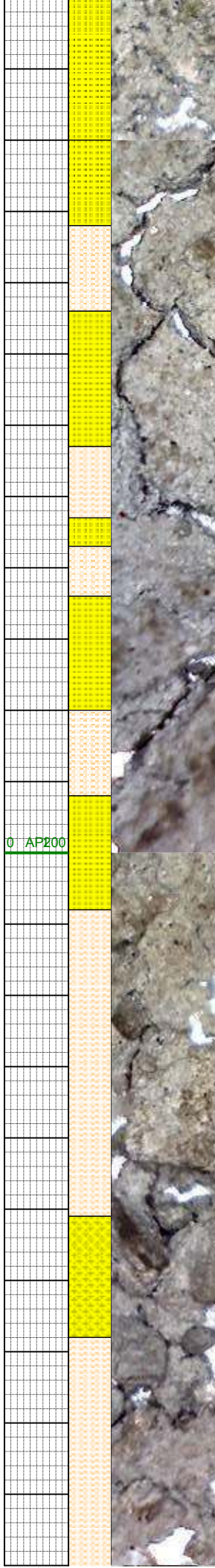
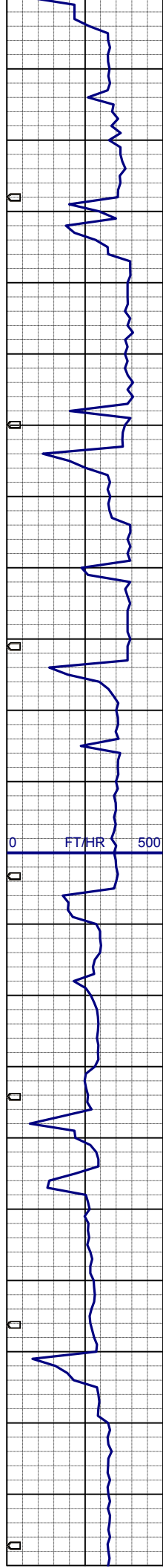
SS: lt gy- gy, f gr, blk- sb blk, sb  
mdd- sb ang, mod w srt, sft- fm, arg- sil  
mtx, sl calc, sl mica, pyr incl  
SLTYSH: gy- mod gy, vf gr, sb plty-  
plty, sb blk ip, v sft- sft, slty ip, arg  
mtx, sl calc, tr glauc, tr bent

MD 1157'  
INC 0.2°  
AZI 329.2°  
TVD 1157.0'

WT 8.35 / VIS 26

MD 1252'  
INC 0.4°  
AZI 4.3°  
TVD 1252.0'

SHYSLTST: gy- mod lt gy, vf gr, sb  
blk, rr sb plty, w srt, sft- sl firm, sdy ip,  
arg mtx, sl calc  
grdg to SS: lt gy- gy, f gr, blk- sb blk,  
sb mdd- sb ang, mod w srt, v sft- sft,  
arg- sil mtx, sl calc, sl mica, pyr incl



Depth: 1353'	
WT	8.4
VIS	26
YP	0
pH	8.6
Cl-	700
Ca++	440

MD 1347'  
INC 0.4°  
AZI 20.7°  
TVD 1347.0'

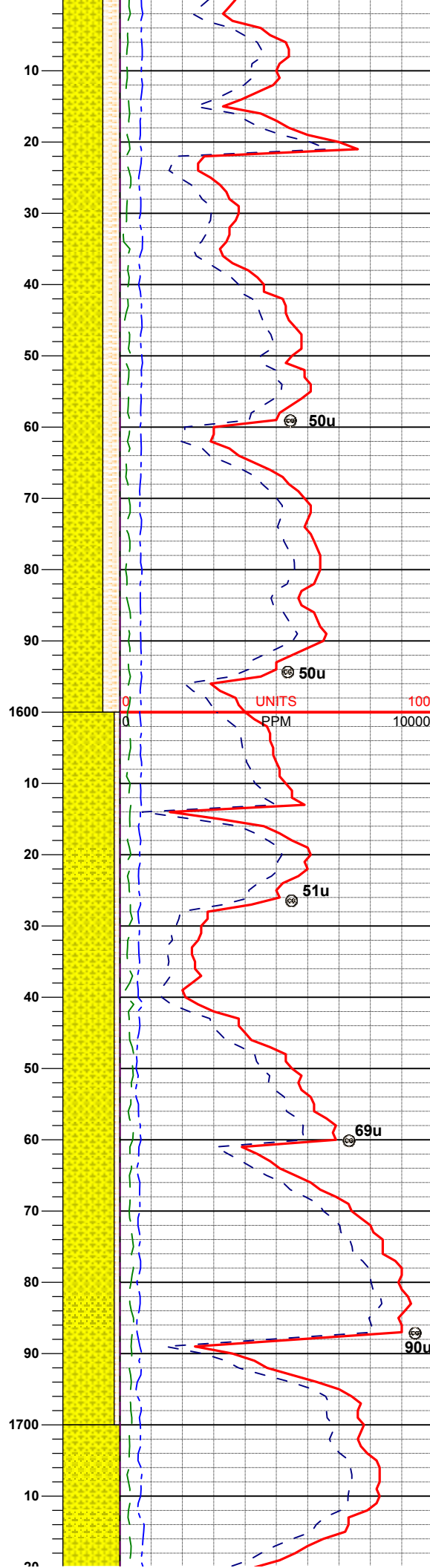
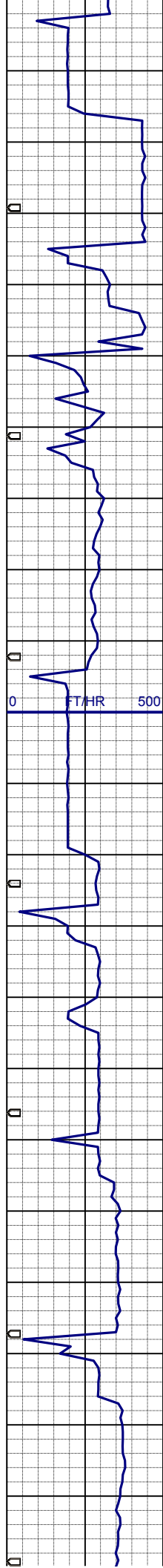
SHYSLTST: gy-mod lt gy, vf gr, sb  
blky, rr sb plty, w srt, sft-sl firm, sdy ip,  
arg mtx, sl calc  
grdg to SS: lt gy- gy, f gr, blky-sb blky,  
sb rndd-sb ang, mod w srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, pyr incl

WT 8.3 / VIS 26

MD 1442'  
INC 0.3°  
AZI 25.4°  
TVD 1442.0'

SHYSLTST: lt- mgy, sbbky, w srt, sft-  
sl firm, sdy ip, arg mtx, sl calc, grdg to  
shysltst



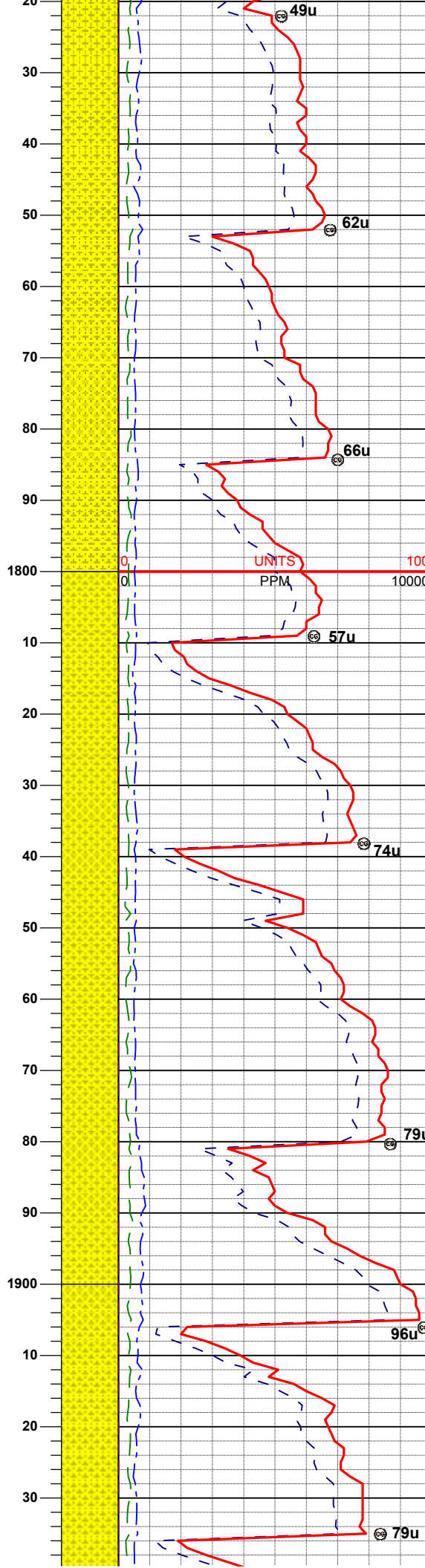
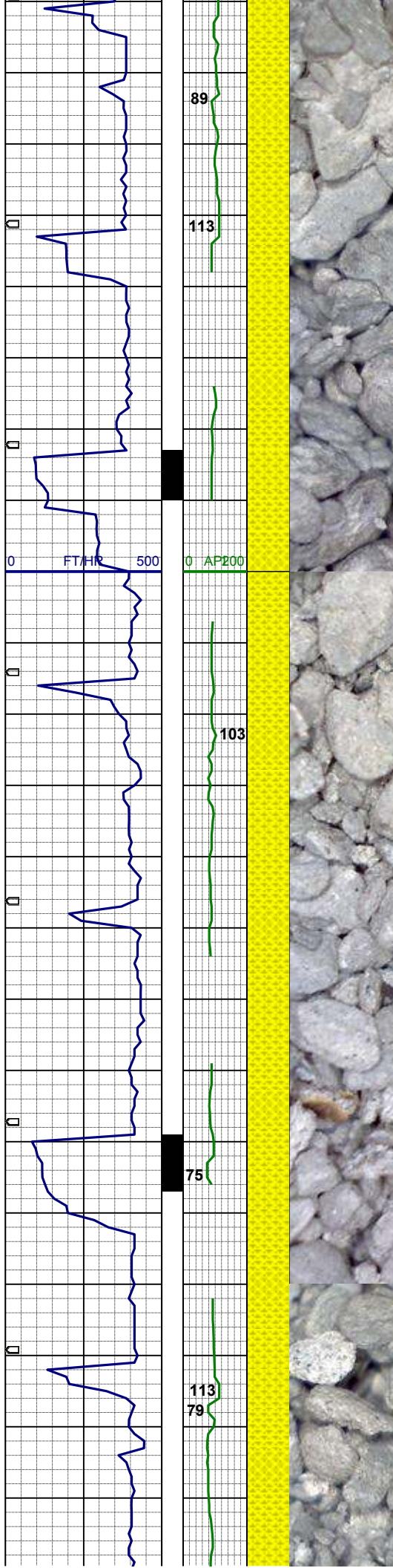


MD 1537'  
INC 0.5°  
AZI 8.0°  
TVD 1537.0'

SHYSS: lt -mgy, vf- fgr, sbbkly, mod  
srt, v sft-sft, arg-sil mtx, sl calc, sl  
mica, grdg- shysltst

MD 1632'  
INC 0.7°  
AZI 9.3°  
TVD 1632.0'

SHYSS: lt -mgy, vf- fgr, sbbkly, sbplty  
ip mod srt, v sft-sft, arg-sil mtx, sl  
calc, sl mica, tr pyr clus, grdg- shysltst



MD 1727'  
INC 0.6°  
AZI 333.4°  
TVD 1727.0'

SHYSS: lt -mgy, vf- fgr, sbbiky, sbply  
ip mod srt, v sft-sft, arg-sil mtx, sl  
calc, sl mica, tr pyr clus, grdg- shysltst

MD 1822'  
INC 2.7°  
AZI 348.3°  
TVD 1821.9'

SHYSS: lt -mgy, trnsl- op, sme clr, vf-  
fgr, sbbiky, sbply ip mod srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, tr pyr  
clus, grdg- shysltst

WT 8.45 / VIS 26

MD 1917'  
INC 5.2°  
AZI 355.7°  
TVD 1916.7'

96u

79u

74u

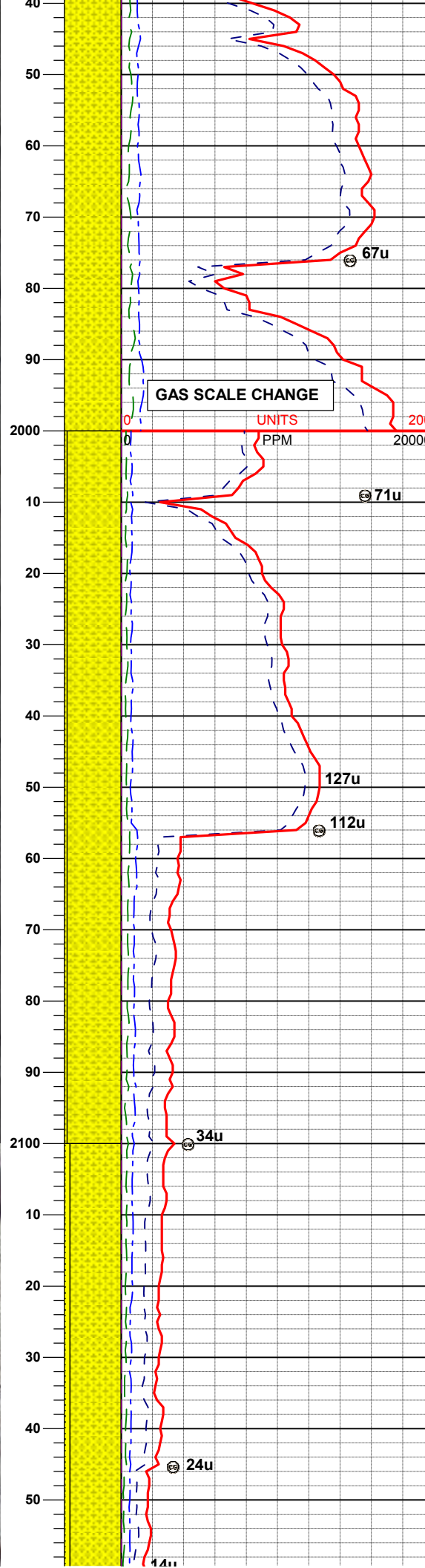
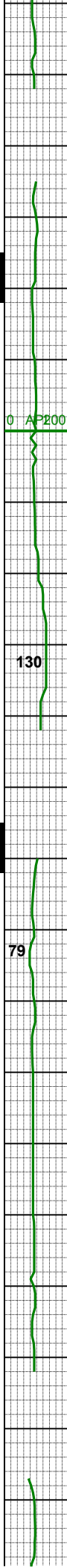
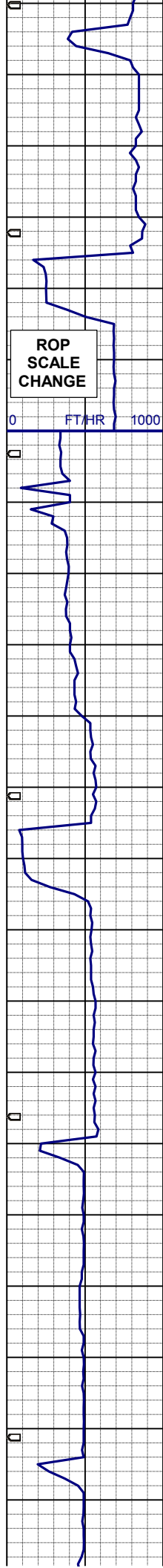
57u

66u

62u

49u





SHYSS: lt -mgy, trnsl- op, sme clr, vf-  
fgr, sbblky, sbplty ip mod srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, tr pyr  
clus, grdg- shysltst

MD 1996'  
INC 6.7°  
AZI 355.9°  
TVD 1995.3'

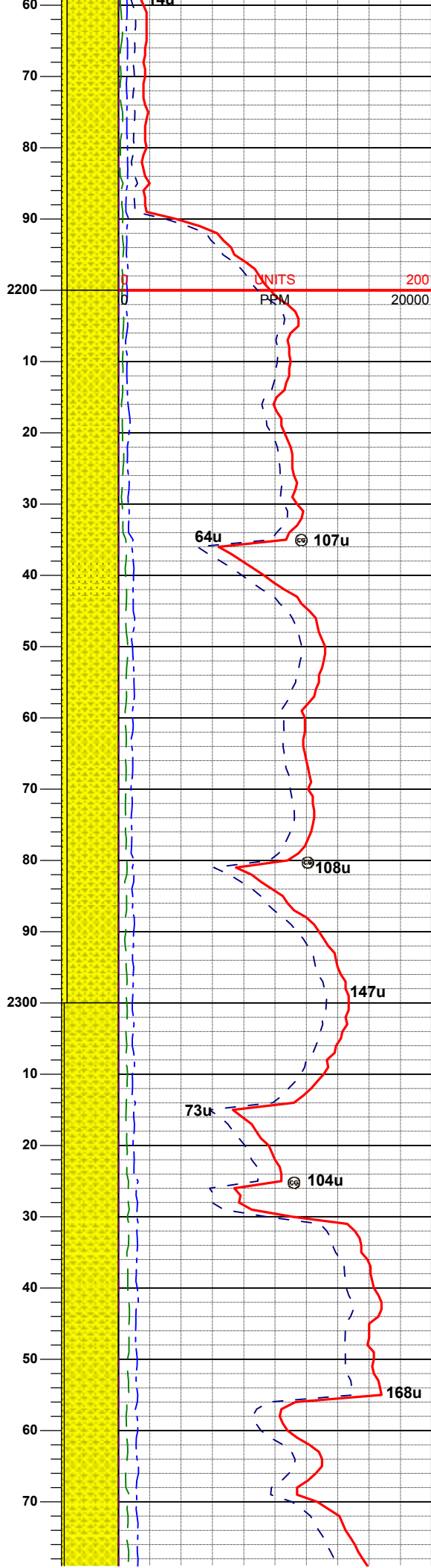
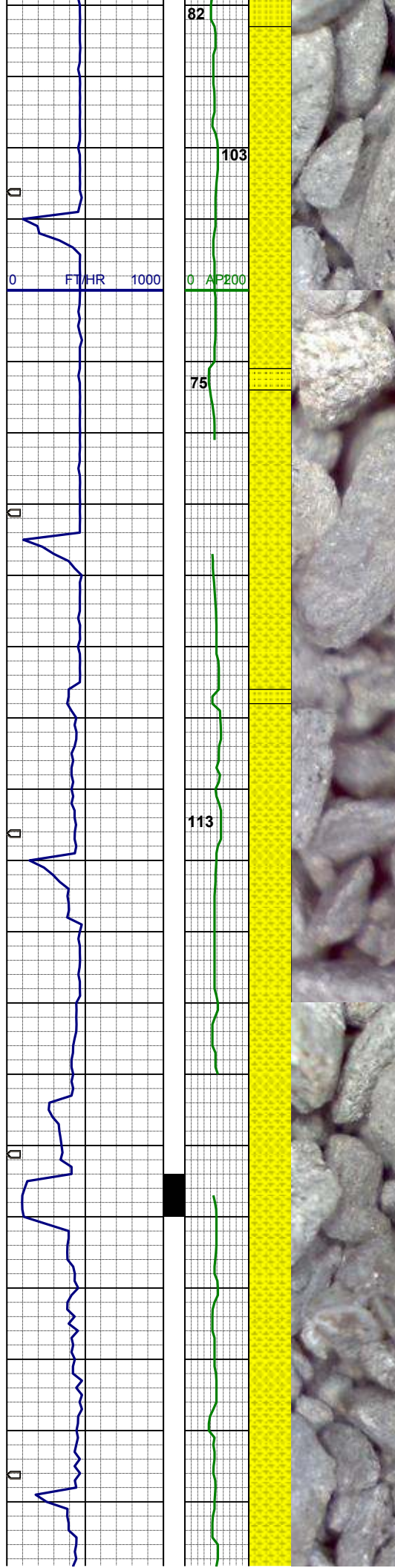
WT 8.4 / VIS 27

SHYSS: lt -mgy, trnsl- op, sme clr, vf-  
fgr, sbblky, sbplty ip mod srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, tr pyr  
clus, grdg- shysltst, occ wh- lt gy mgr  
ss

MD 2086'  
INC 8.4°  
AZI 349.0°  
TVD 2084.5'

SHYSS: lt -mgy, trnsl- op, sme clr, vf-  
fgr, sbblky, sbplty ip mod srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, grdg-  
shysltst, occ wh- lt gy mgr ss





MD 2176'  
INC 8.2°  
AZI 350.8°  
TVD 2173.5'

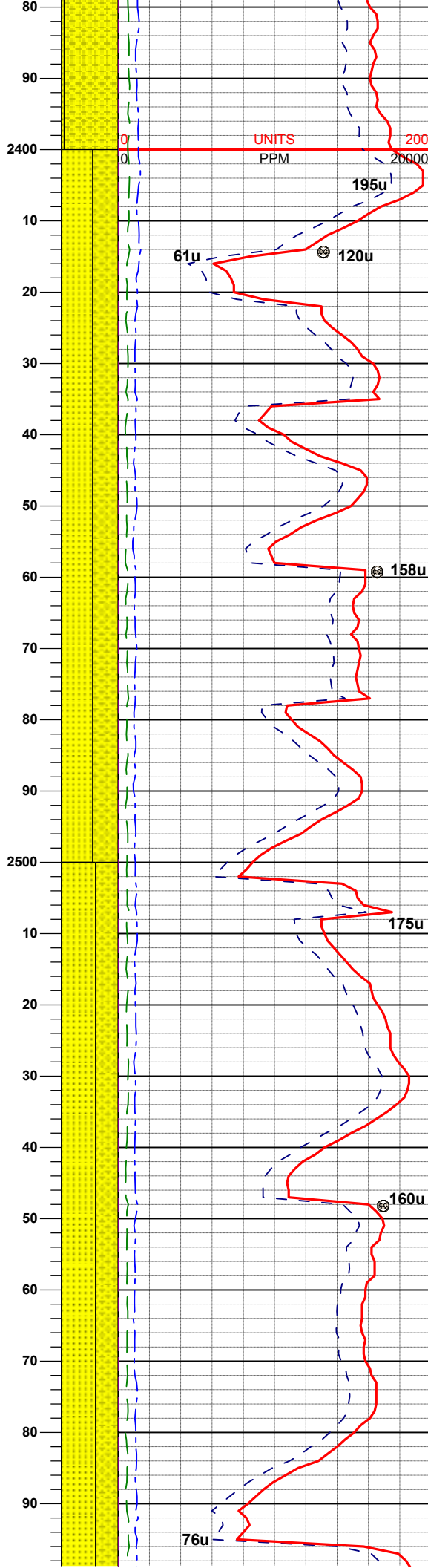
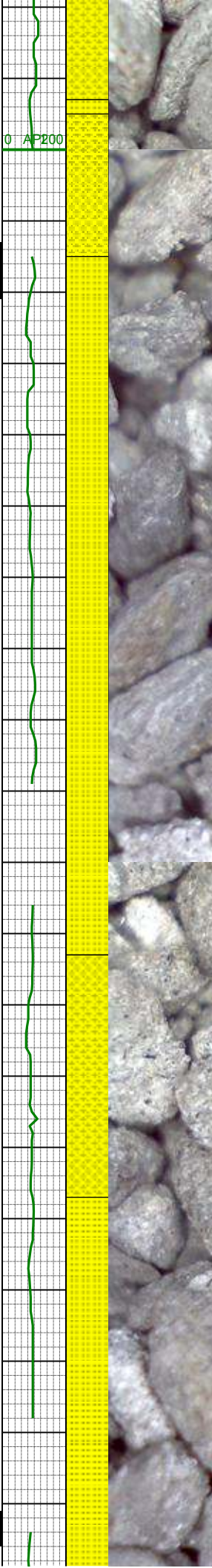
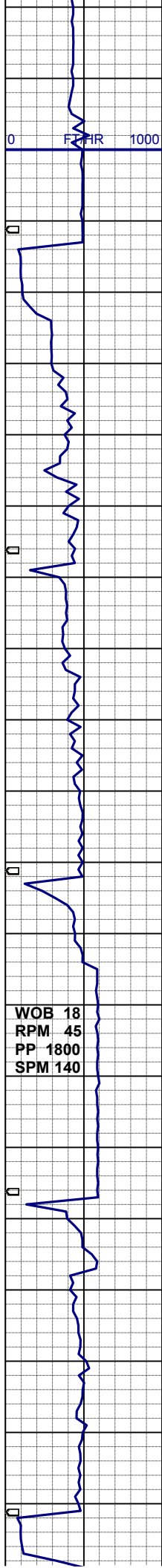
SHYSS: lt-mgy, trnsi- op, sme clr, vf-  
fgr, sbblky, sbply ip mod srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, grdg-  
shysltst, occ wh- lt gy mgr ss

MD 2266'  
INC 7.7°  
AZI 345.4°  
TVD 2262.7'

WT 8.45 / VIS 27

SHYSS: lt-mgy, trnsi- op, sme clr, vf-  
fgr, sbblky, sbply ip mod srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, grdg-  
shysltst, occ wh- lt gy mgr ss

MD 2356'  
INC 7.8°  
AZI 342.5°  
TVD 2351.9'



MD 2446'  
INC 9.2°  
AZI 342.9°  
TVD 2440.9'

SS: lt -mgy, trnsi- op, sme clr, f-mgr, sbbiky, sbply ip, mod srt, sft- sl firm, arg-sil mtx, sl calc, sl mica, grdg- vf gr shyss

WT 8.6 / VIS 27

MD 2536'  
INC 9.5°  
AZI 344.3°  
TVD 2529.7'

SS: lt -mgy, trnsi- op, sme clr, f-mgr, sbbiky, sbply ip, mod srt, sft- sl firm, arg-sil mtx, sl calc, sl mica, grdg- vf gr shyss

WOB 18  
RPM 45  
PP 1800  
SPM 140

76u

175u

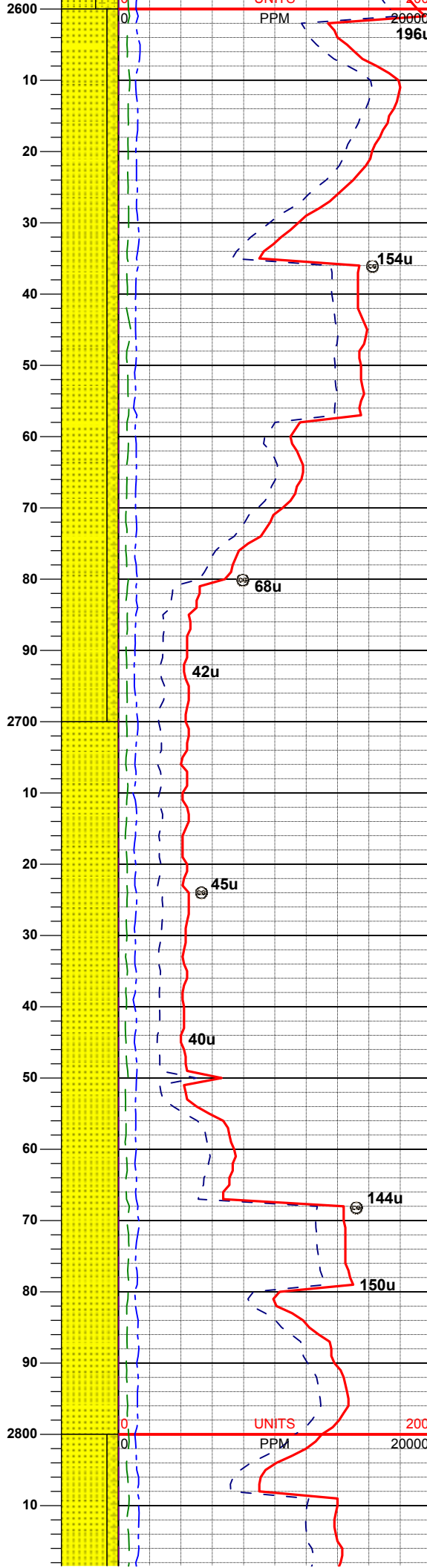
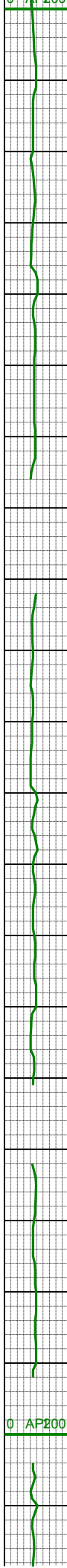
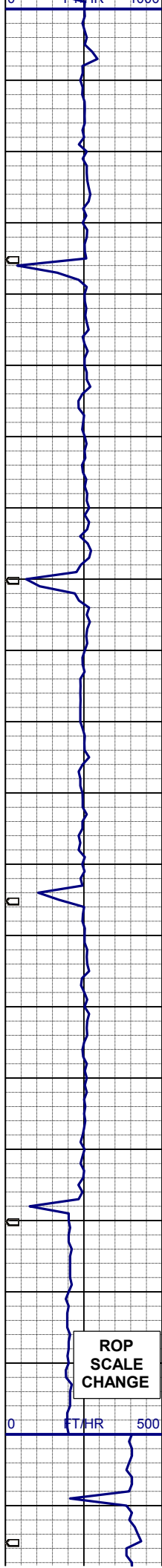
158u

120u

61u

195u





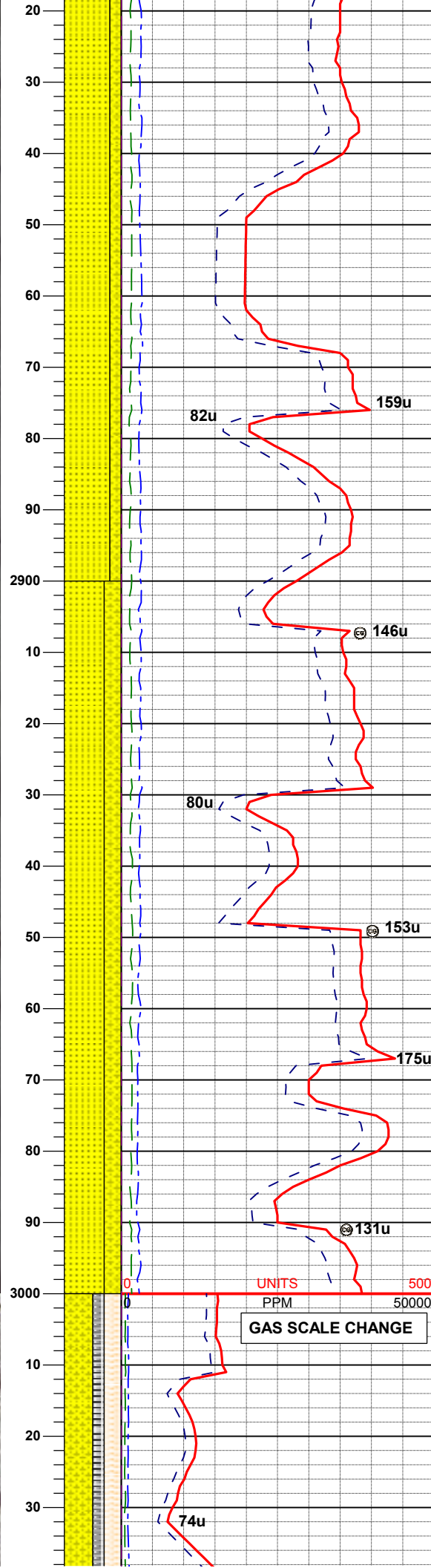
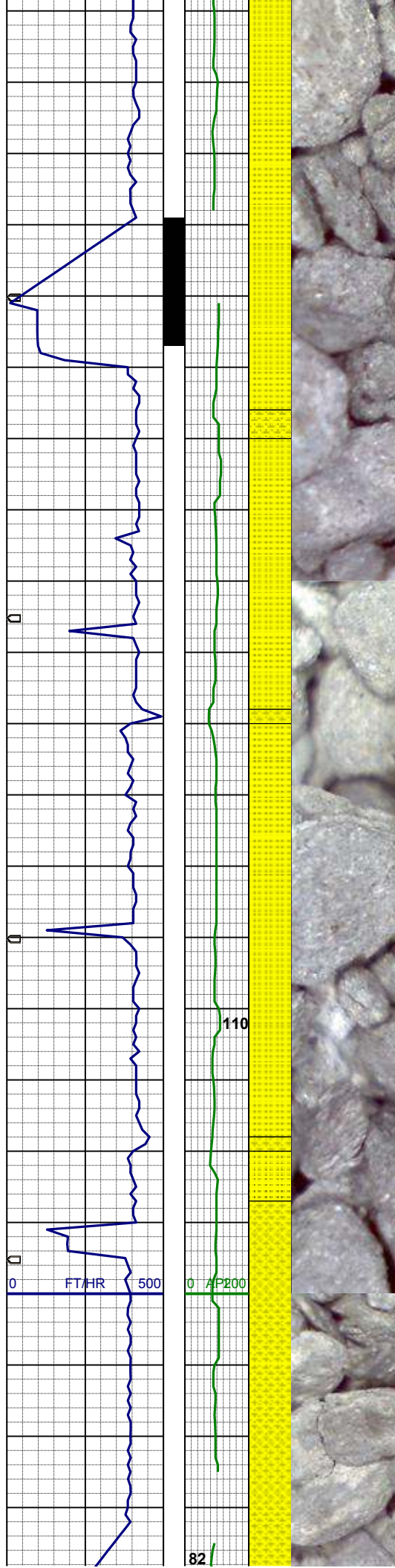
MD 2625'  
INC 9.5°  
AZI 348.7°  
TVD 2617.4'

SS: lt -mgy, trns- op, sme clr, f-mgr, sbbiky, sbply ip, mod srt, sft- sl firm, arg-sil mtx, sl calc, sl mica, grdg- vf gr shyss

MD 2715'  
INC 9.3°  
AZI 344.6°  
TVD 2706.2'

SS: lt -mgy, trns- op, sme clr, f-mgr, sbbiky, sbply ip, mod srt, sft- sl firm, arg-sil mtx, sl calc, sl mica, grdg- vf gr shyss

MD 2805'  
INC 9.3°  
AZI 342.7°  
TVD 2795.1'



SS: lt -mgy, trnsl- op, sme clr, f-mgr, sbbilky, sbpity ip, mod srt, sft- sl firm, arg-sil mtx, sl calc, sl mica, grd- vf gr shyss

WT 8.8 / VIS 26

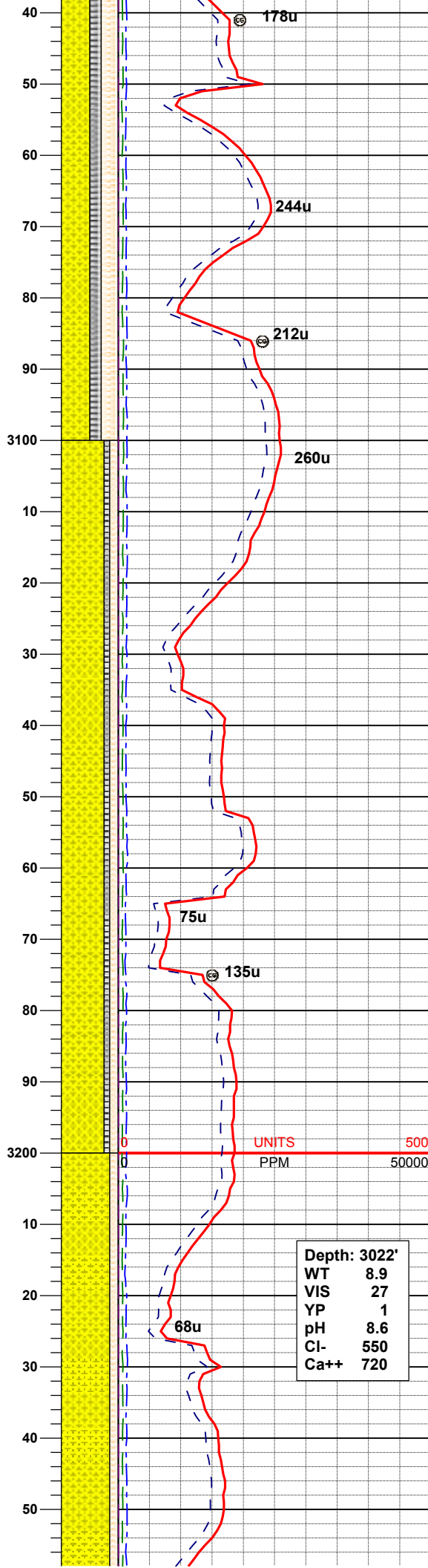
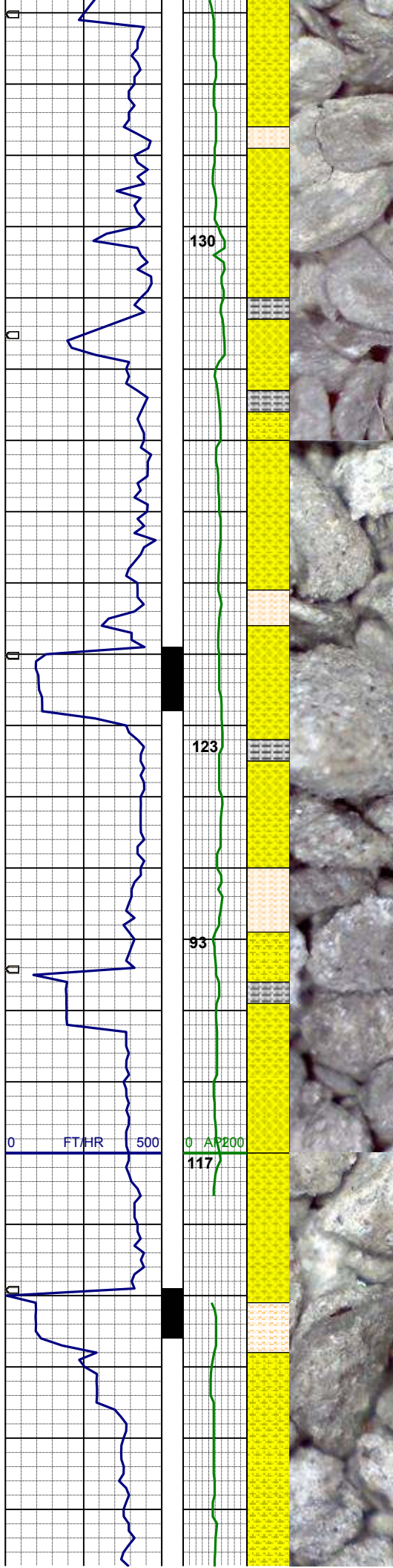
MD 2895'  
INC 8.9°  
AZI 348.3°  
TVD 2883.9'

SS: lt -mgy, trnsl- op, sme clr, f-mgr, sbbilky, sbpity ip, mod srt, sft- sl firm, arg-sil mtx, sl calc, sl mica, grd- vf gr shyss

MD 2985'  
INC 8.4°  
AZI 349.0°  
TVD 2972.9'

UNITS 0 500  
PPM 0 50000  
GAS SCALE CHANGE





SHYSS: It -mgy, trnsi- op, sme clr, vf-fgr, sbbky, sbply ip, mod srt, v sft-sft, arg-sil mt, sl calc, sl mica, grdg-shysltst  
SLTYSH:m- dkgy, sbply- pty, sft-sl firm, arg, sl calc

MD 3075'  
INC 8.1°  
AZI 345.2°  
TVD 3062.0'

WT 8.75 / VIS 26

SHYSS: It -mgy, trnsi- op, sme clr, vf-fgr, sbbky, sbply ip, mod srt, med frm-sft, arg-sil mt, sl calc, sl mica, grdg-shysltst ip  
rr SLTYSH:m- dkgy, sbply- pty, sft-sl firm, arg, sl calc

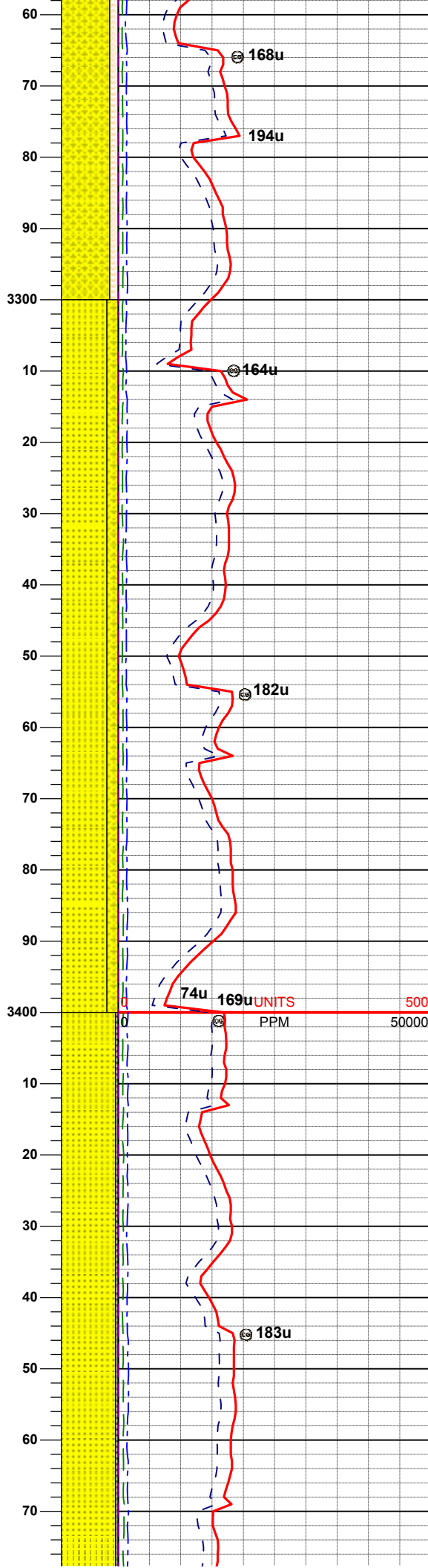
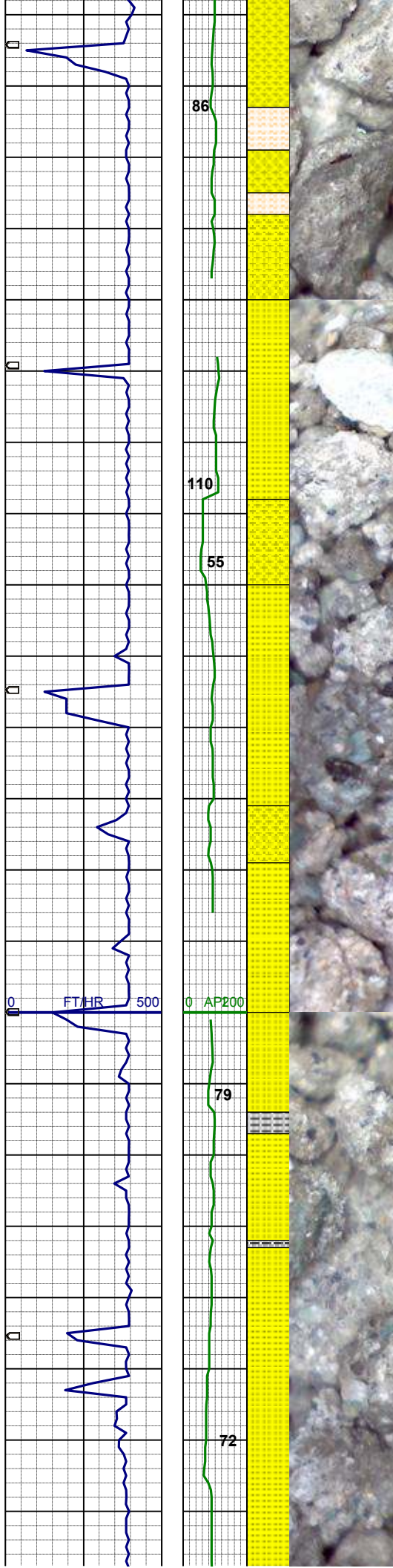
MD 3164'  
INC 7.5°  
AZI 355.5°  
TVD 3150.2'

WT 8.95 / VIS 27

Depth: 3022'  
WT 8.9  
VIS 27  
YP 1  
pH 8.6  
Cl- 550  
Ca++ 720

SHYSS: It -m gy, trnsi- op, sme clr, vf-fgr, sbrnd-rnd grns, sbbky, sbply ip, mod w srt, med frm-sft, occ p cmt, arg-sil mt, sl calc, sl mica, grdg-shysltst ip

MD 3254'  
INC 8.2°  
AZI 348.2°  
TVD 3230.2'



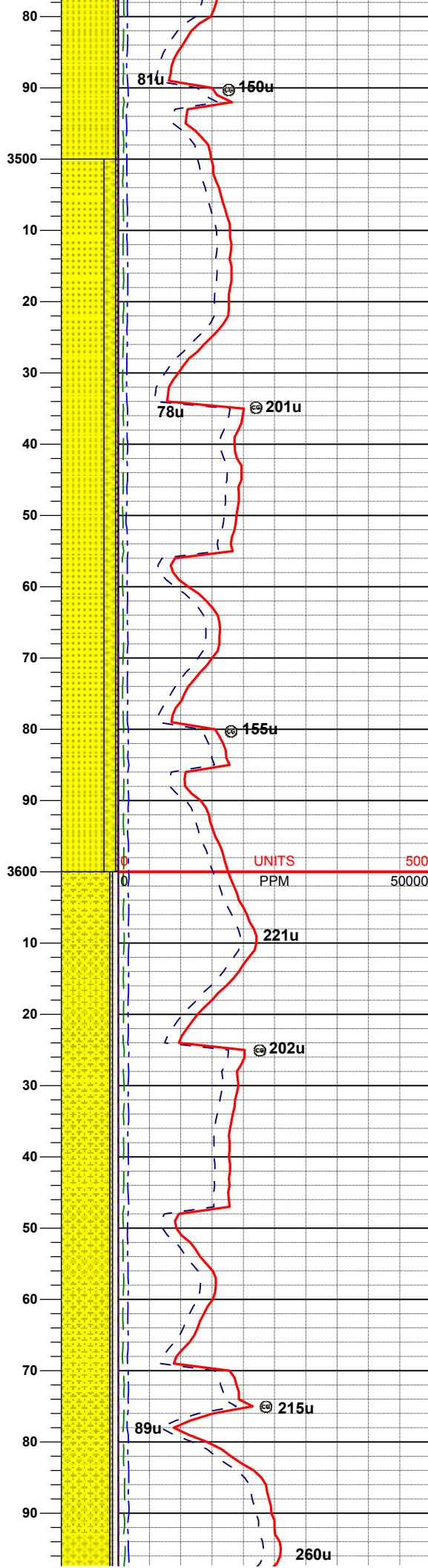
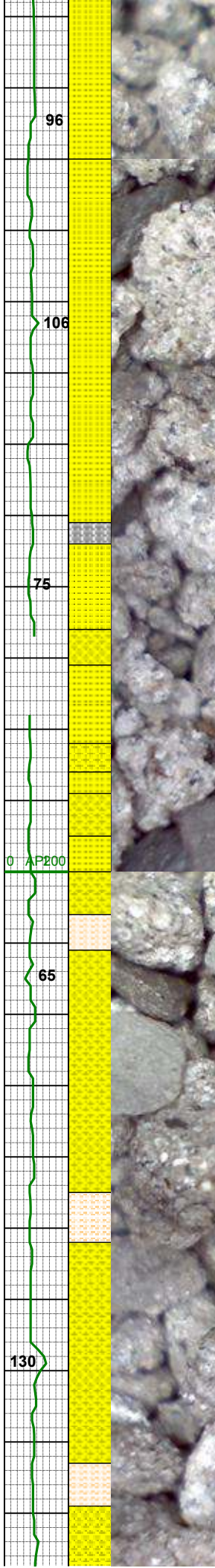
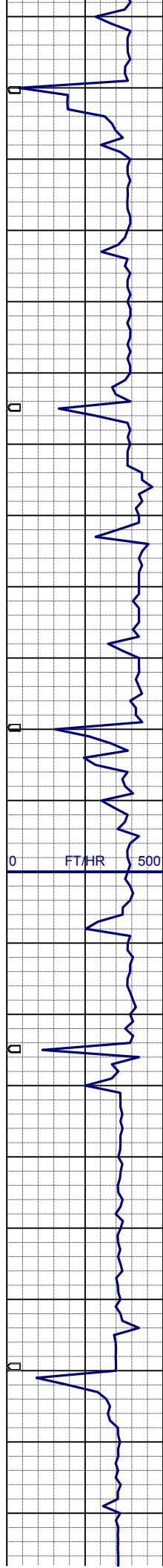
MD 3344'  
INC 8.7°  
AZI 347.8°  
TVD 3328.3'

SS: lt -m gy, trnsl- op, clr, vf- f gr, sme m gr, sbrnd-sbang grns, sbblky, mod w srt, v sl frm-frm, occ p cmt, arg-sil mtx, sl calc, sl mica, glau incl, rr grdg-shyss

MD 3434'  
INC 9.2°  
AZI 347.5°  
TVD 3417.2'

SS: lt -m gy, trnsl- op, occ lt tan, f gr, sme m gr, sbrnd-sbang grns, sbblky, mod w srt, v sl frm-frm, occ p cmt, arg-sil mtx, sl calc, sl mica, glau incl, rr SLTYSH:m- dkgy, sbply- ply, sft-sl firm, arg, sl calc





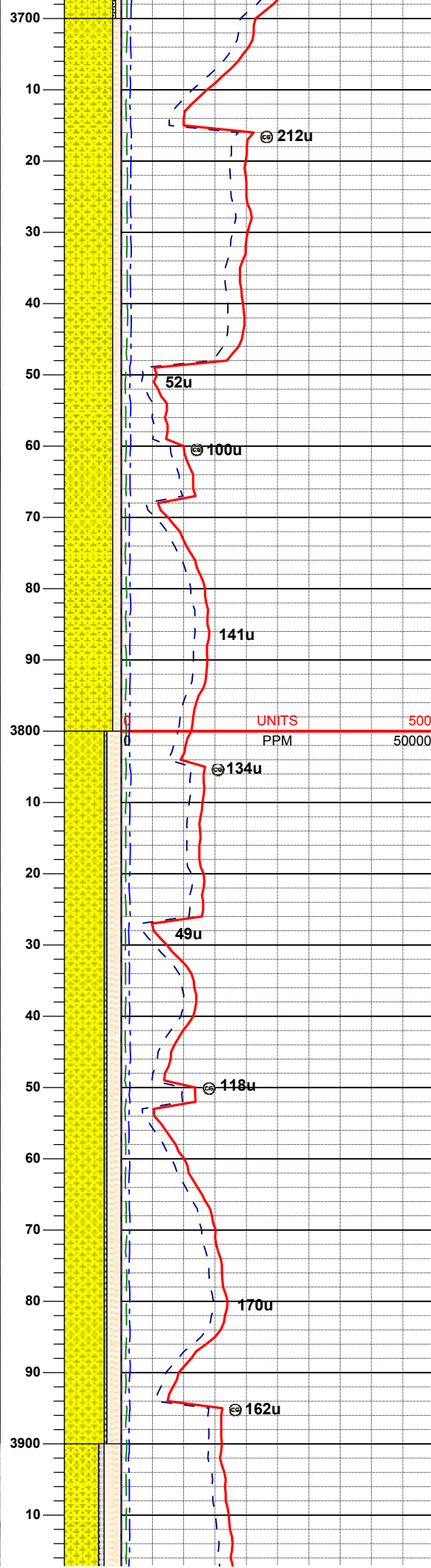
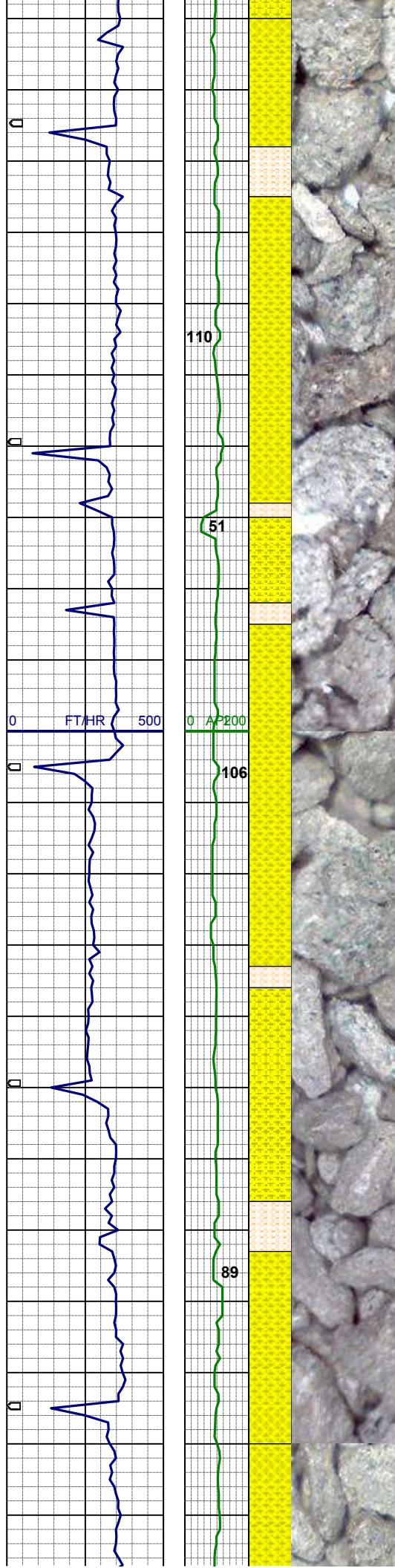
WT 9.10 / VIS 28

MD 3524'  
INC 9.1°  
AZI 348.0°  
TVD 3506.1'

SS: lt -m gy, trnsl- op, occ lt tan, f gr,  
sme m gr, sbrnd-sbang grns, sbbkly,  
mod w srt, v sl frm-frm, occ p cmt, arg  
-sil mtx, sl calc, sl mica, glau incl,  
grdg to shyss ip,  
rr SLTYSH:m- dkgy, sbplty- plty, sft-sl  
firm, arg, sl calc

MD 3614'  
INC 9.6°  
AZI 348.5°  
TVD 3594.9'

SHYSS: lt -mgy, trnsl- op, sme clr, vf-  
fgr, sbbkly, sbplty ip, mod srt, v sft-sft,  
arg-sil mtx, sl calc, sl mica, grdg-  
shysltst  
SLTYSH:m- dkgy, sbplty- plty, sft-sl  
firm, arg, sl calc



MD 3704'  
INC 9.8°  
AZI 348.2°  
TVD 3683.6'

SHYSS: m-lt gy, occ trnsl- op, vf- fgr, sbbiky, sbply ip, mod w srt, sft-sl frm, arg-sil mtx, sl calc, sl mica, grdg-shysltst ip

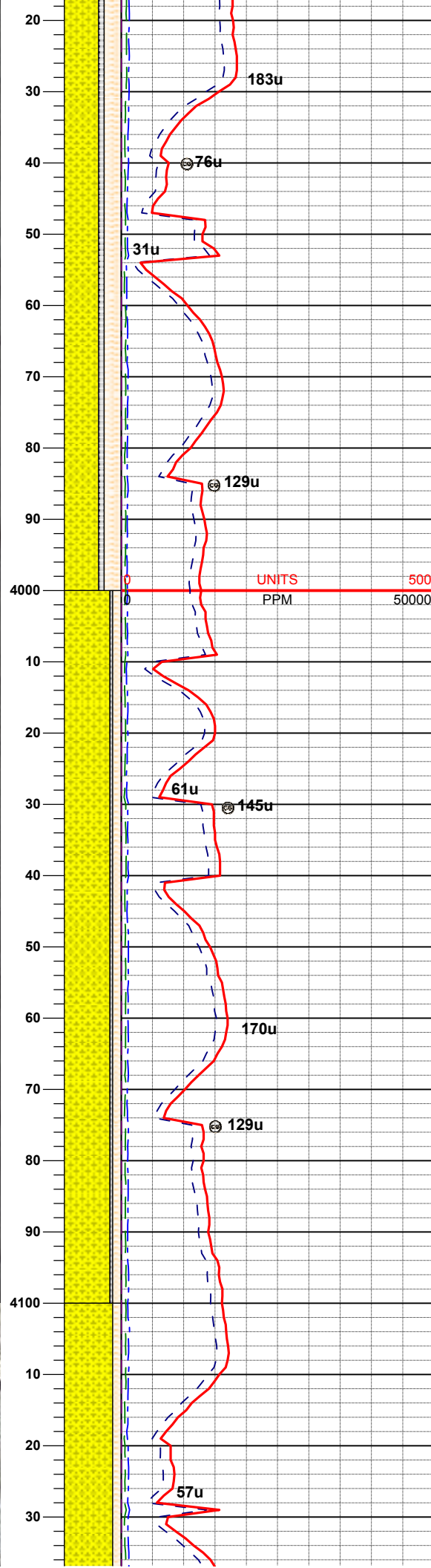
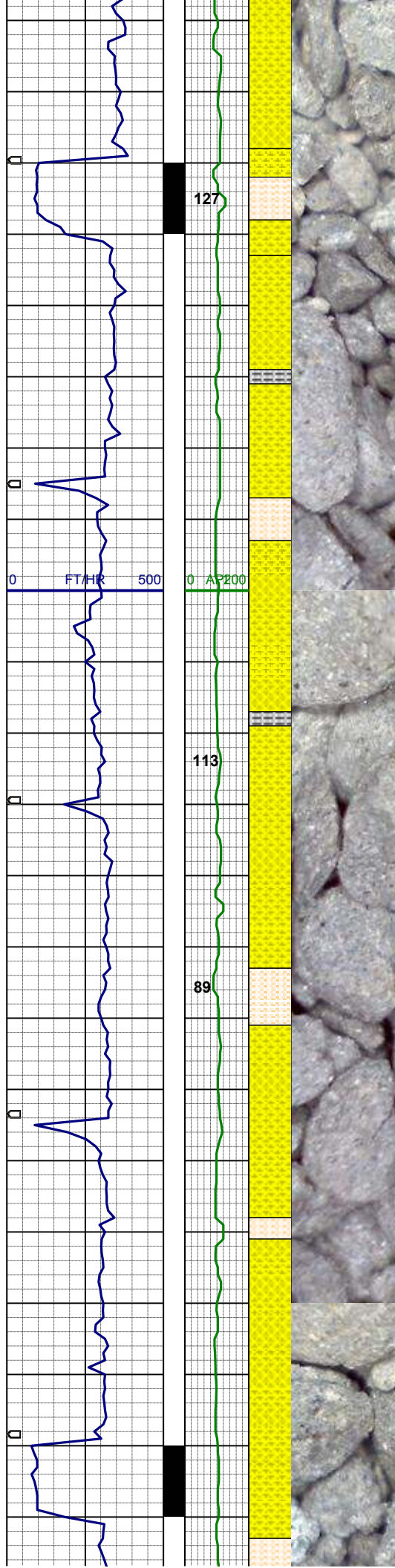
WT 9.0 / VIS 26

MD 3793'  
INC 9.7°  
AZI 349.2°  
TVD 3771.3'

SHYSS: m-dk gy, vf- fgr, sbbiky, sbply ip, w srt, sft-sl frm, arg-sil mtx, sl calc, sl mica, grdg- shysltst  
SLTYSH: m- dk gy, sbply- pty, sft-sl firm, arg, sl calc

MD 3883'  
INC 9.4°  
AZI 349.7°  
TVD 3860.1'





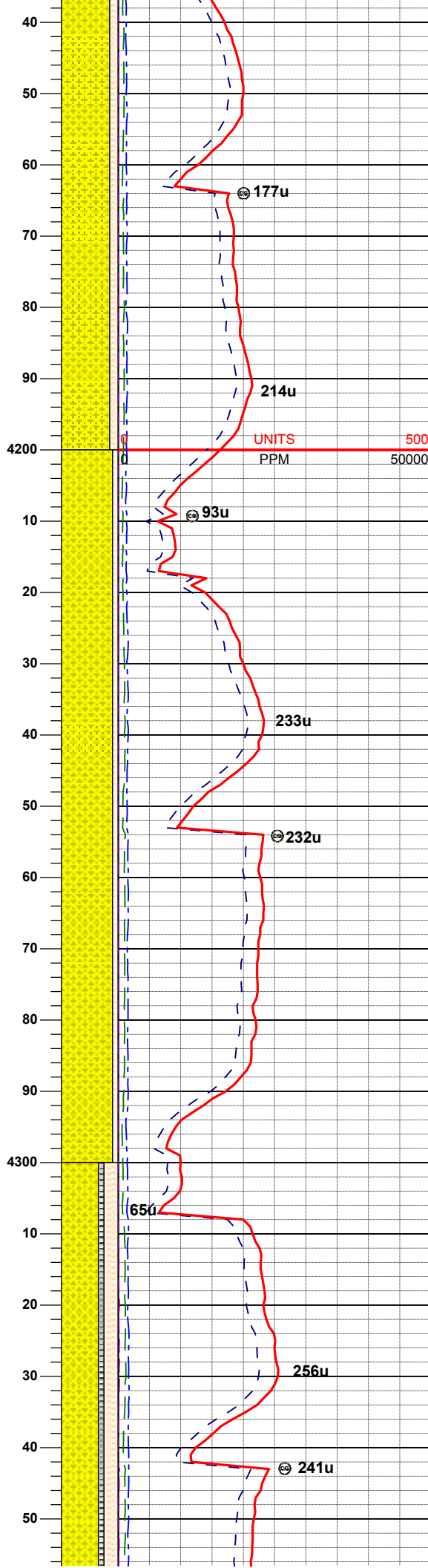
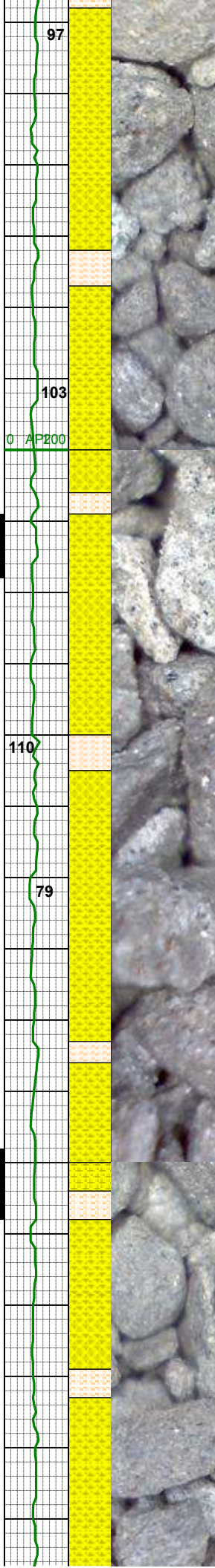
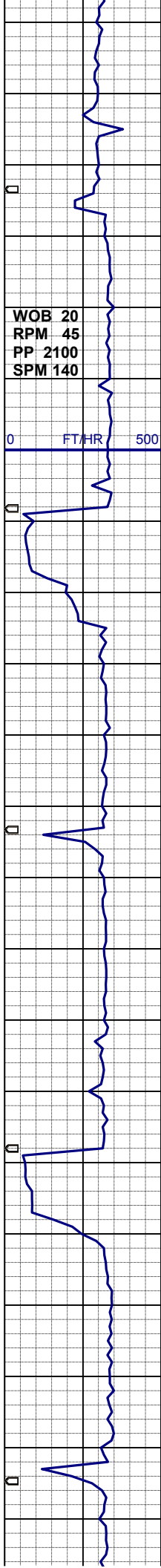
SHYSS: m-dk gy, vf gr, sbblky, sbplty  
ip, w srt, v sft-sl frm, arg-sil mtx, sl  
calc, sl mica, grdg to shysltst  
SLTYSH:m- dk gy, sbplty- plty, sft-sl  
firm, arg, sl calc

MD 3973'  
INC 7.7°  
AZI 350.3°  
TVD 3949.1'

SHYSS: m-dk gy, vf gr, sbblky, sbplty  
ip, w srt, v sft-sl frm, arg-sil mtx, sl  
calc, sl mica, grdg to shysltst  
SLTYSH:m- dk gy, sbplty- plty, sft-sl  
firm, arg, sl calc

MD 4063'  
INC 7.6°  
AZI 345.0°  
TVD 4038.3'

SHYSS: m-dk gy, rr brn gy, vf gr,  
sbblky, rr sbplty, w srt, v sft-sl frm, arg  
-sil mtx, sl calc, sl mica, grdg to



shysltst

MD 4153'  
INC 6.3°  
AZI 351.3°  
TVD 4127.6'

WT 9.2 / VIS 26

MD 4242'  
INC 5.5°  
AZI 345.5°  
TVD 4216.1'

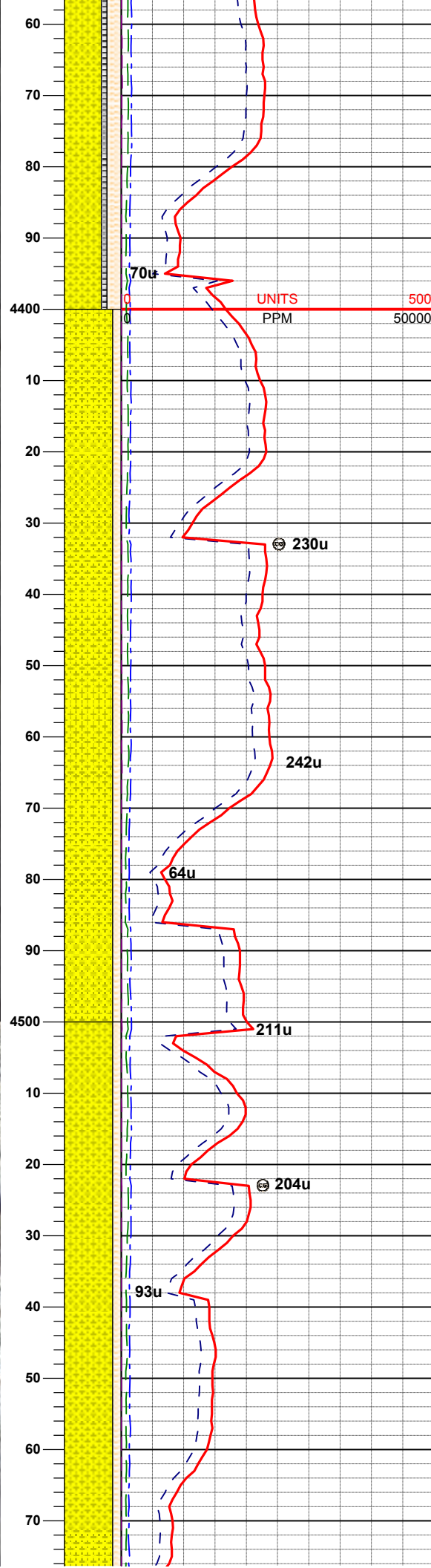
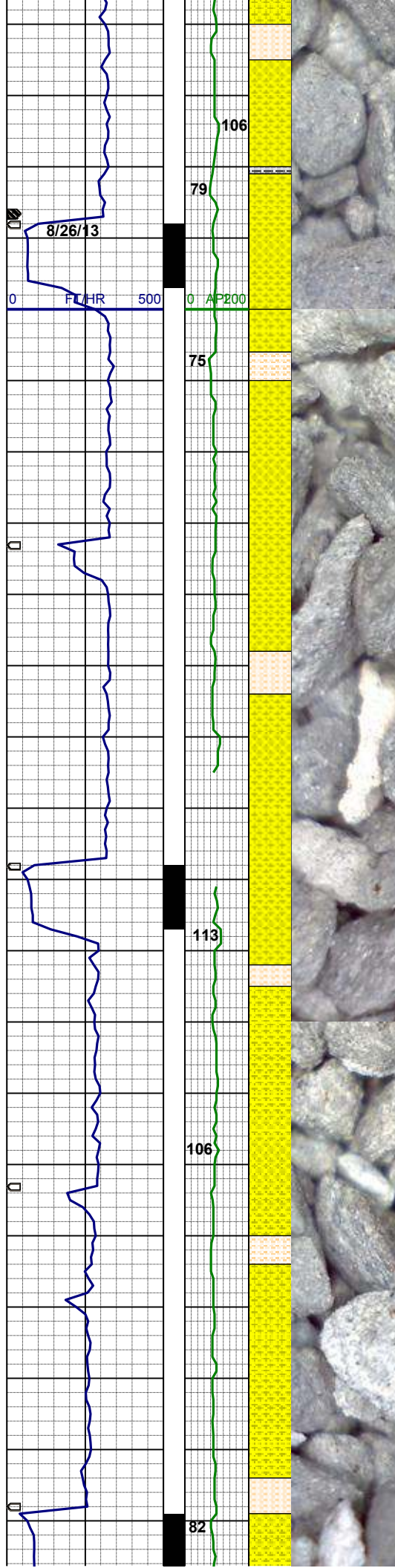
SHYSS: m-dk gy, vf-f gr, sbbiky-sbplty, w srt, sl sft-frm, arg-sil mtx, sl calc, sl mica, tr grdg to shysltst

WT 9.0 / VIS 27

MD 4332'  
INC 4.2°  
AZI 1.0°  
TVD 4305.8'

SHYSS: m-dk gy, vf gr, sbbiky-sbplty, w srt, sl sft-frm, arg-sil mtx, sl calc, sl mica, grdg to shysltst  
SLTYSH: m-dk gy, sbplty- plty, sft-sl





firm, arg, sl calc

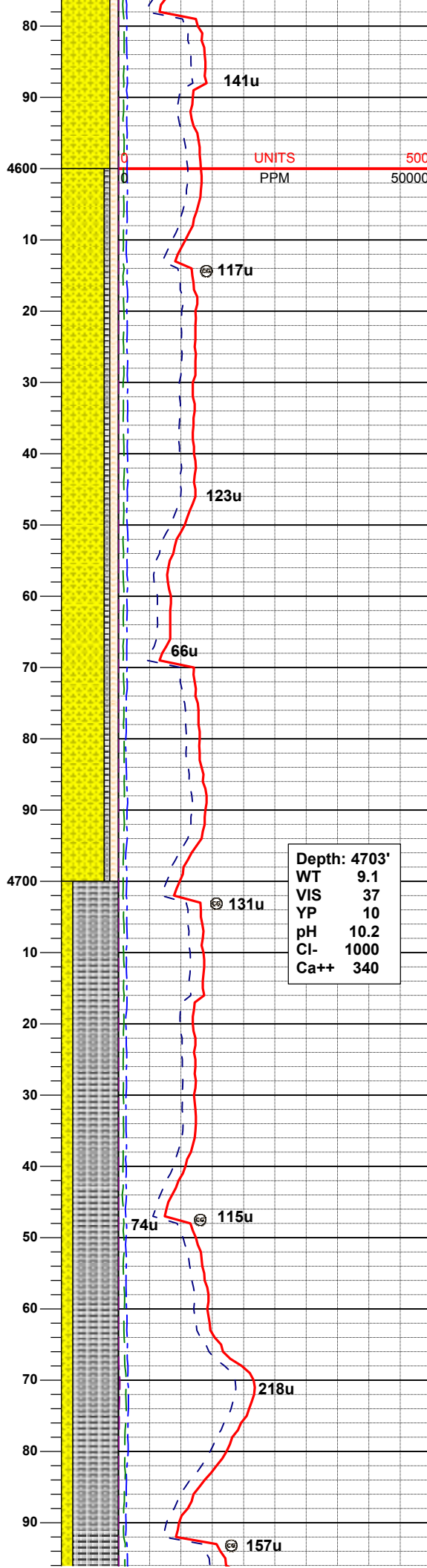
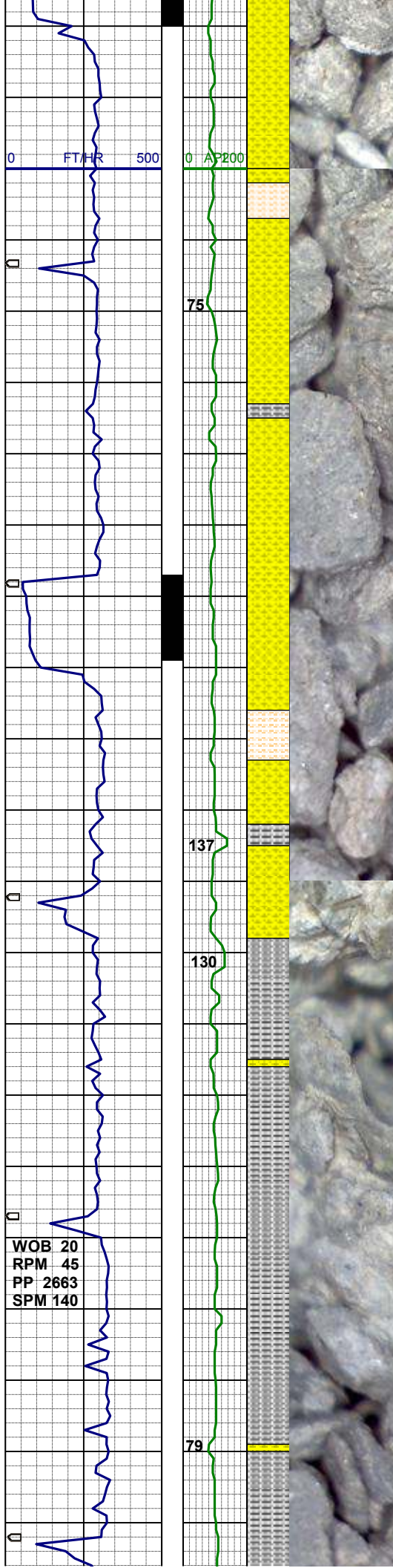
MD 4422'  
INC 2.8°  
AZI 359.2°  
TVD 4395.7'

WT 9.0 / VIS 25

SHYSS: m-dk gy, occ tan, f-vf gr, sbbiky-sbply, rr pty, w srt, frm-sl sft, arg-sil mtx, sl calc, sl mica, grdg to shysltst

MD 4512'  
INC 2.2°  
AZI 352.6°  
TVD 4485.6'

SHYSS: m-dk gy, occ lt gy-tan, f-vf gr, sbbiky-sbply, rr pty, w srt, frm-sl sft, arg-sil mtx, sl calc, sl mica, grdg to shysltst ip



MD 4602'  
INC 1.1°  
AZI 49.5°  
TVD 4575.5'

SHYSS: m-dk gy, vf-f gr, sbblky-sbply, w srt, sl sft frm, arg-sil mtx, sl calc, sl mica, grdg to shysltst  
SLTYSH: m-dk gy, sbply- ply, rthy tex, sft-sl firm, arg, sl calc

MD 4692'  
INC 0.4°  
AZI 141.8°  
TVD 4665.5'

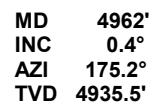
Depth: 4703'  
WT 9.1  
VIS 37  
YP 10  
pH 10.2  
Cl- 1000  
Ca++ 340

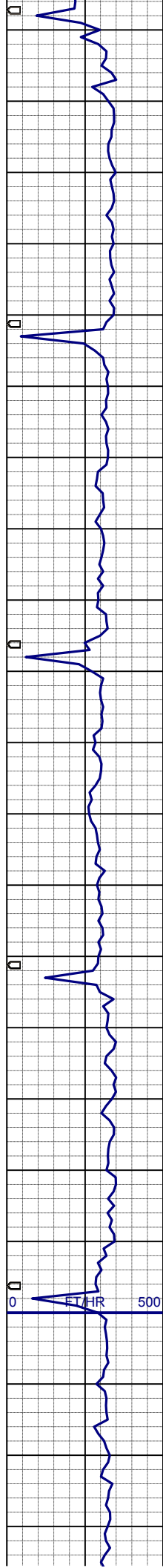
SLTYSH: lt- mgy, sbply- ply, sft- m firm, rthy- gt tex, sl calc, sdy ip, tr pyr, grdg- shyss

WT 9.3 / VIS 41

MD 4782'  
INC 0.5°  
AZI 70.3°  
TVD 4755.5'







103

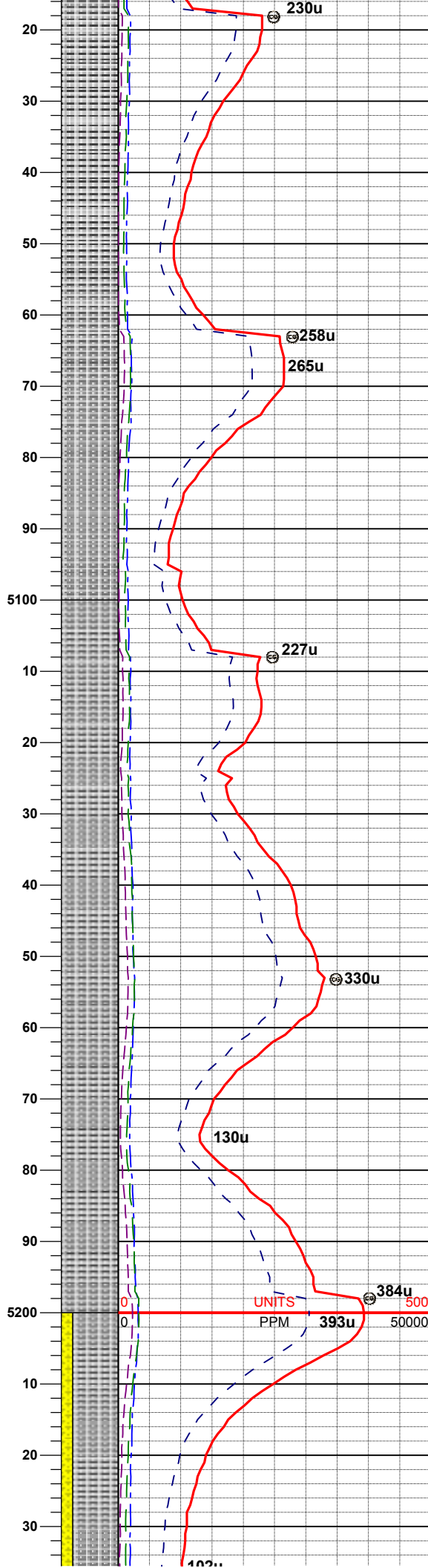
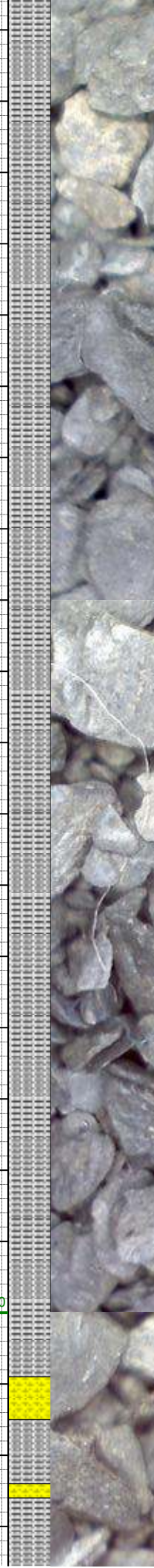
79

110

82

123

93



SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, occ  
calc frag, sl sdy ip, grdg- shyss

MD 5051'  
INC 0.2°  
AZI 221.8°  
TVD 5024.5'

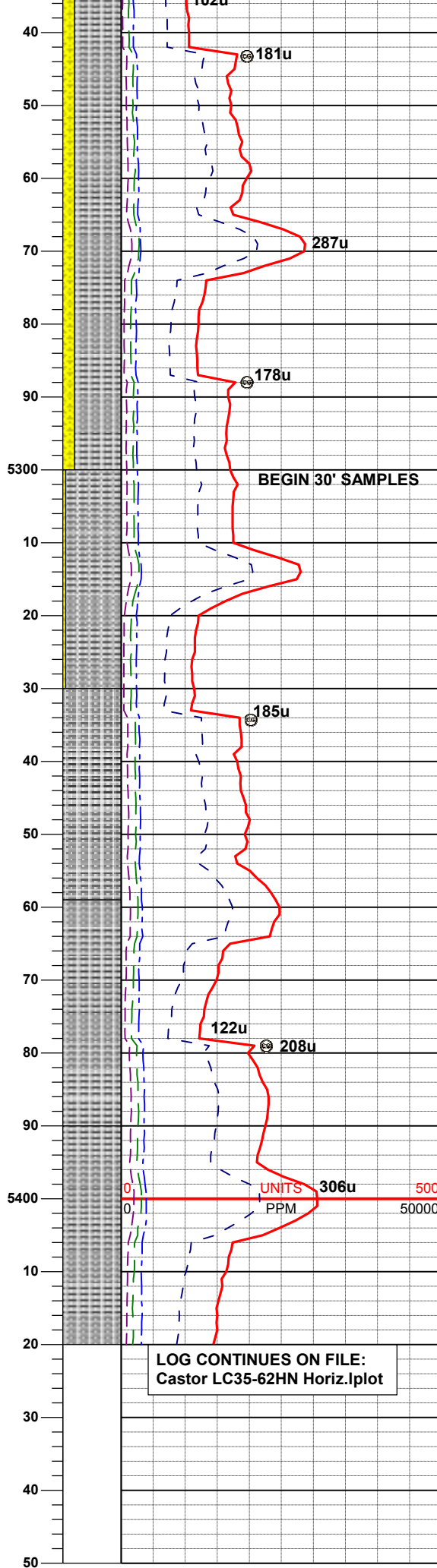
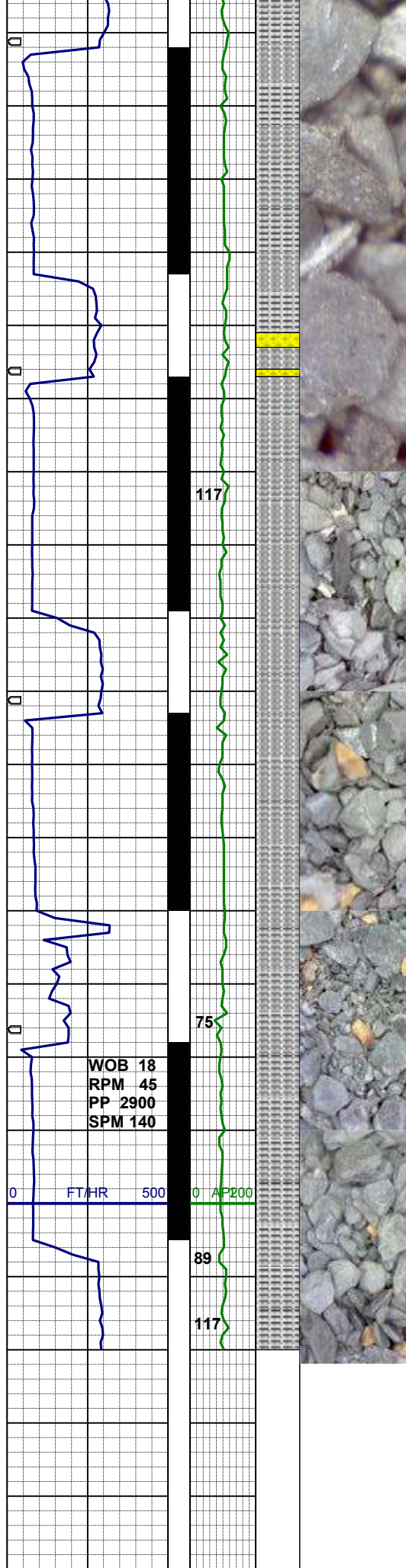
SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, occ  
calc frag, sl sdy ip, grdg- shyss

MD 5141'  
INC 0.0°  
AZI 117.2°  
TVD 5114.5'

SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, occ  
calc frag, sl sdy ip, grdg- shyss

MD 5231'  
INC 0.5°  
AZI 107.0°  
TVD 5204.5'





TVD 5204.3

WT 9.5 / VIS 36

SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, sdy  
ip, grdg- shyss

MD 5276'  
INC 3.9°  
AZI 85.9°  
TVD 5249.5'

SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, sdy  
ip, grdg- shyss

MD 5321'  
INC 7.1°  
AZI 76.8°  
TVD 5294.3'

SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, sdy  
ip, grdg- shyss

WT 9.8 / VIS 36

MD 5366'  
INC 9.8°  
AZI 80.6°  
TVD 5338.8'

SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, sdy  
ip, grdg- shyss

SLTYSH: m- dkgy- gybrn, sbplty- plty,  
m firm- firm, rthy- gt tex, sl calc, sdy  
ip, grdg- shyss

UNITS 306u  
PPM 50000

MD 5411'  
INC 12.8°  
AZI 80.8°  
TVD 5382.9'

THANK YOU FOR CHOOSING  
COLUMBINE LOGGING, INC.