

LOG created using LPLOT VH Version 3.0, July 07, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

**OPERATOR:** NOBLE ENERGY INC.  
**WELL:** WELLS RANCH USX AE07-63-1HN  
**LOCATION:** SEC12 T6N R63W  
**COUNTY:** WELD  
**STATE:** COLORADO  
**SPOT:** 1039' FSL ; 65' FEL  
**ELEVATION:** GE: 4,856' KB 4,880'  
**FIELD:** WATTENBERG  
**SPUD DATE:** 07/01/2013  
**TD DATE:** 07/06/2013  
**DATES LOGGED:** 07/01/2013 - 07/06/2013  
**DEPTHS LOGGED:** 1000' - 11122'  
**LOGGERS:** JOHN READY, MIKE GREENE  
**DRILLING FLUID:** WATER, MUD, POLY  
**DRILLING RIG:** H&P 322  
**API:** 05-123-37084  
**LOG TYPE:** VERTICAL  
**SCALE:** 1:240 (5 inches per 100 feet)  
**REMARKS:** WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING IN

### LITHOLOGIES



Sandstone



Shaly Sandstone



Shaly Siltstone



Silty Shale

### ENGINEERING SYMBOLS



Connection



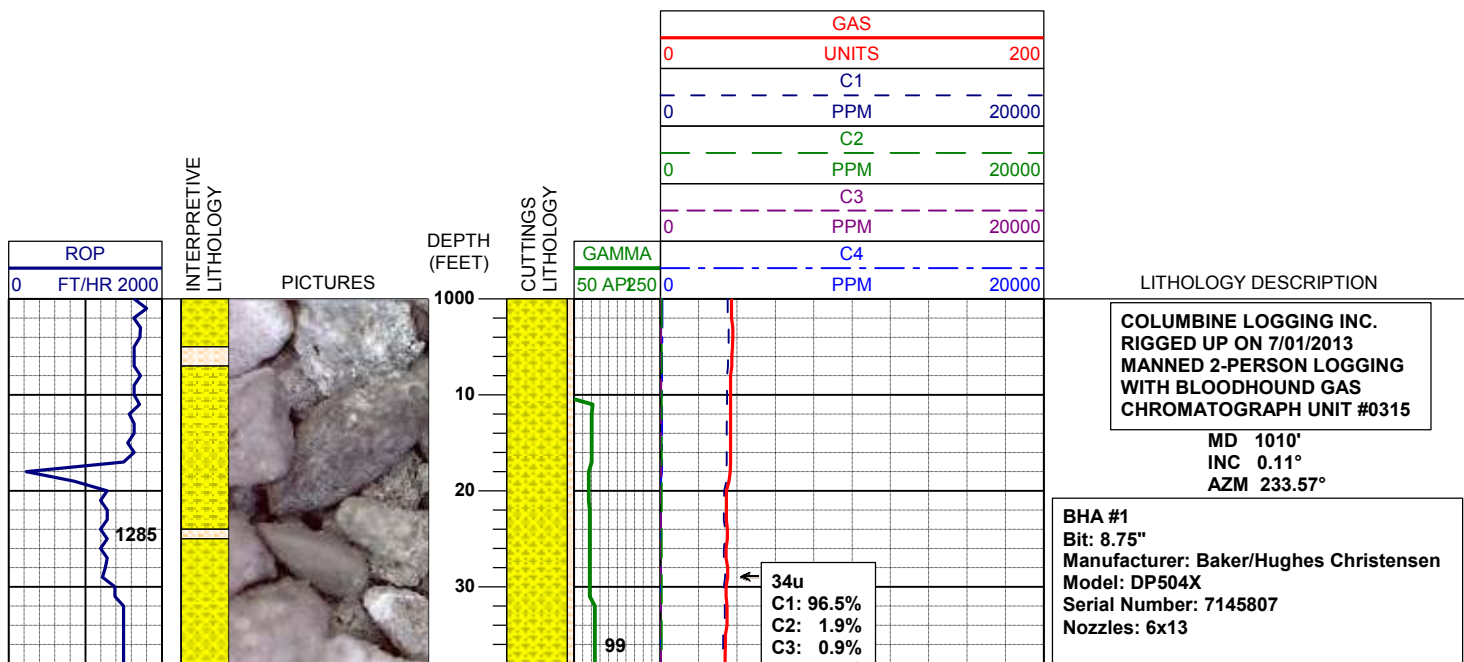
Connection Gas

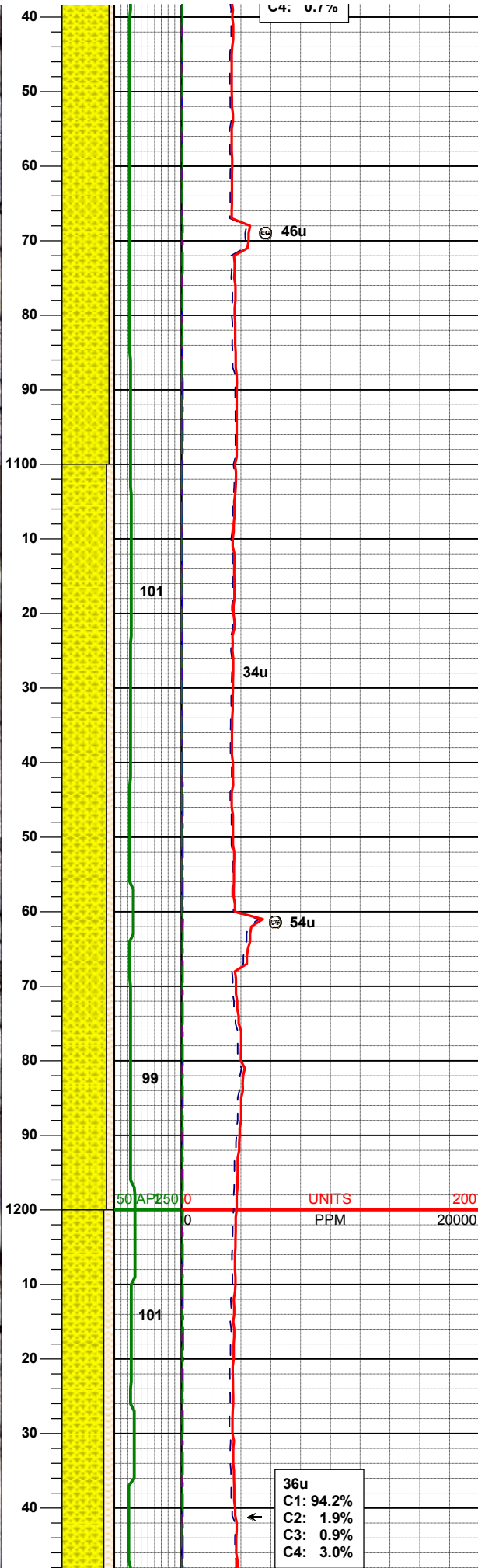
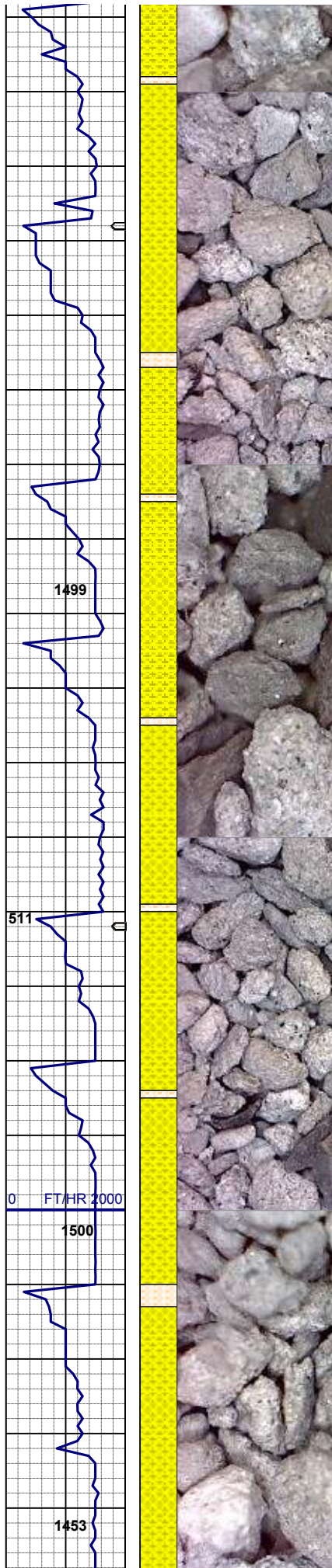


Arrow



Midnight Depth





Motor: Sperry Drill  
Manufacturer: Sperry Drilling  
Serial Number: 650-10-12  
Bend: 1.50

90% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, rr biot, tr  
glau ; abnt dk gy cly  
10% SHYSLTST: lt gy, sft- fri, sbbiky- sl sbply,  
aren- slty tex, tr biot incl

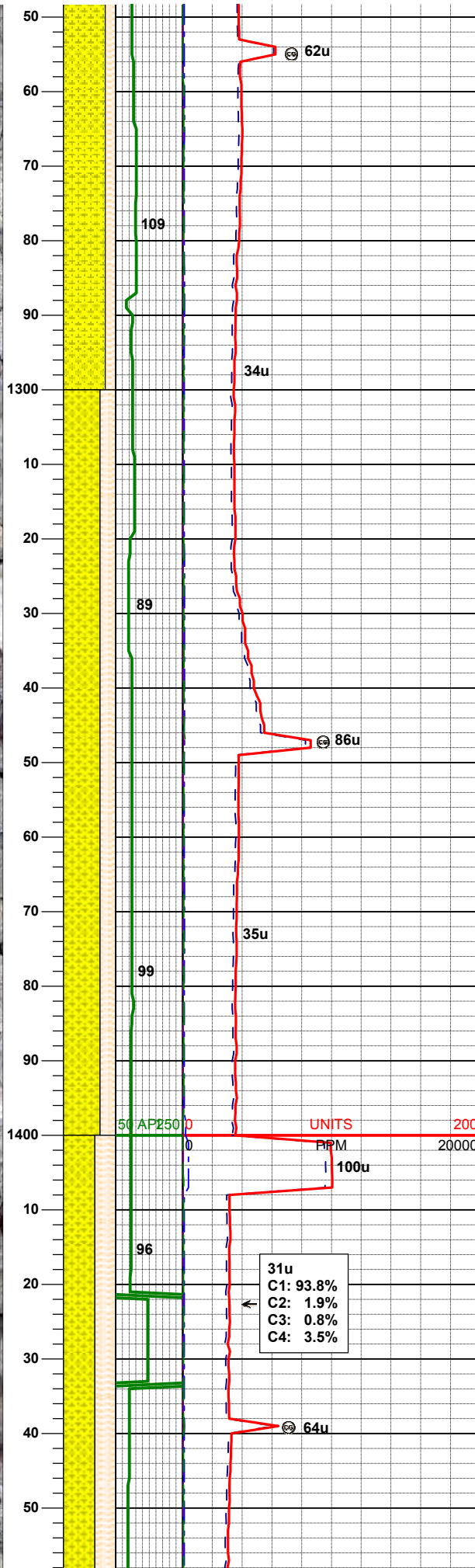
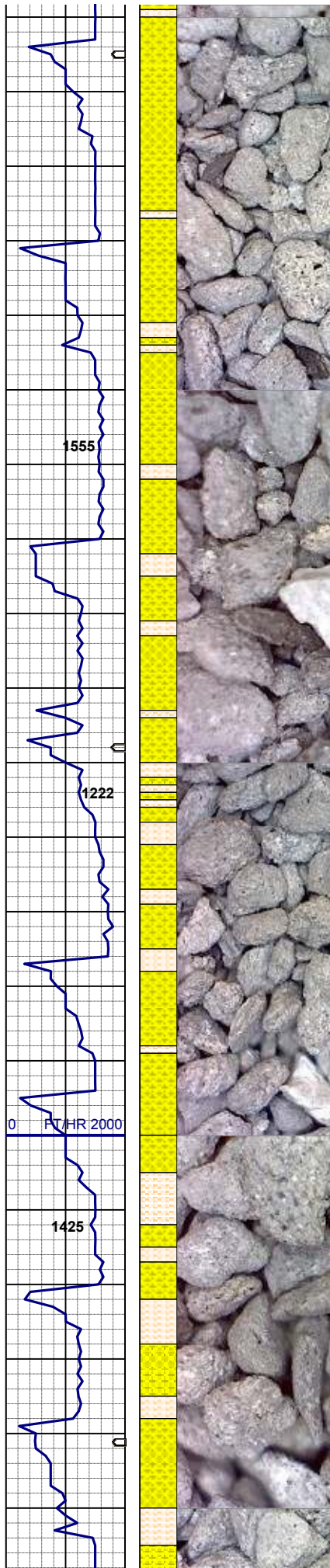
MD 1103'  
INC 0.37°  
AZM 212.21°

85% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, rr biot, tr  
glau ; abnt dk gy cly  
15% SHYSLTST: lt gy, sft- fri, sbbiky- sl sbply,  
aren- slty tex, tr biot incl

MD 1197'  
INC 0.55°  
AZM 254.40°

MUD WT 8.6 VIS 28

80% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -



sbang, mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt dk gy cly  
20% SHYSLTST: lt gy, sft- fri, sbbky- sl sbply, aren- slty tex, tr biot incl

MD 1290'  
INC 0.60°  
AZM 227.57°

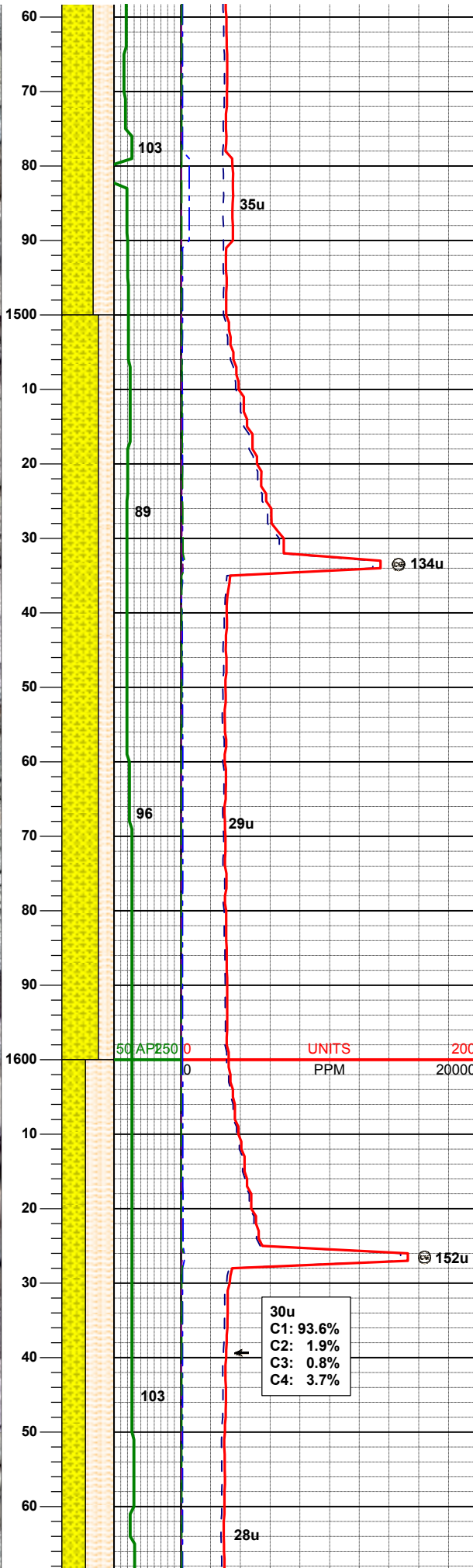
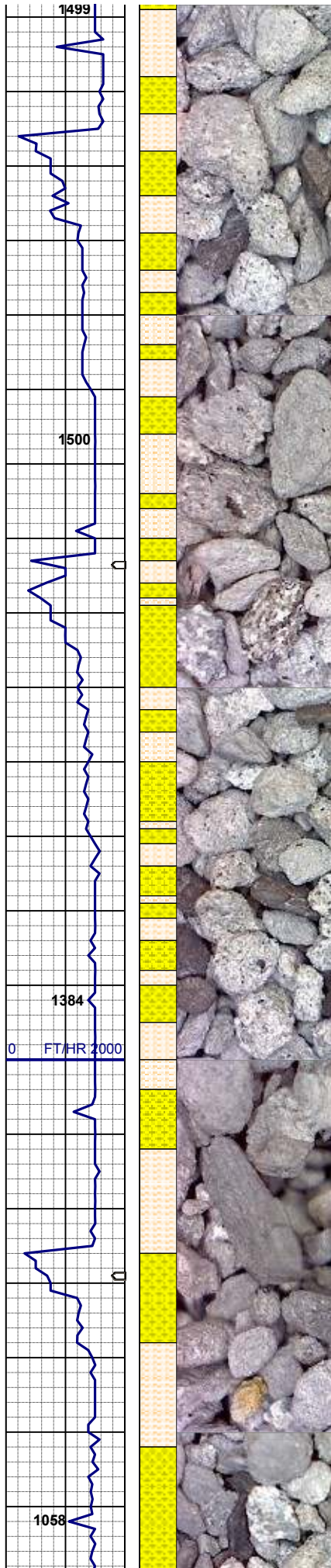
70% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, rr  
30% SHYSLTST: lt gy, lt wh, sft- fri, sbbky- sl sbply, aren- slty tex, tr biot incl

MD 1383'  
INC 0.48°  
AZM 224.85°

31u  
C1: 93.8%  
C2: 1.9%  
C3: 0.8%  
C4: 3.5%

60% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, rr  
40% SHYSLTST: lt gy, lt wh, sft- fri, sbbky- sl sbply, aren- slty tex, tr biot incl





MD 1476'  
INC 0.56°  
AZM 236.60°

MUD WT 8.6 VIS 28

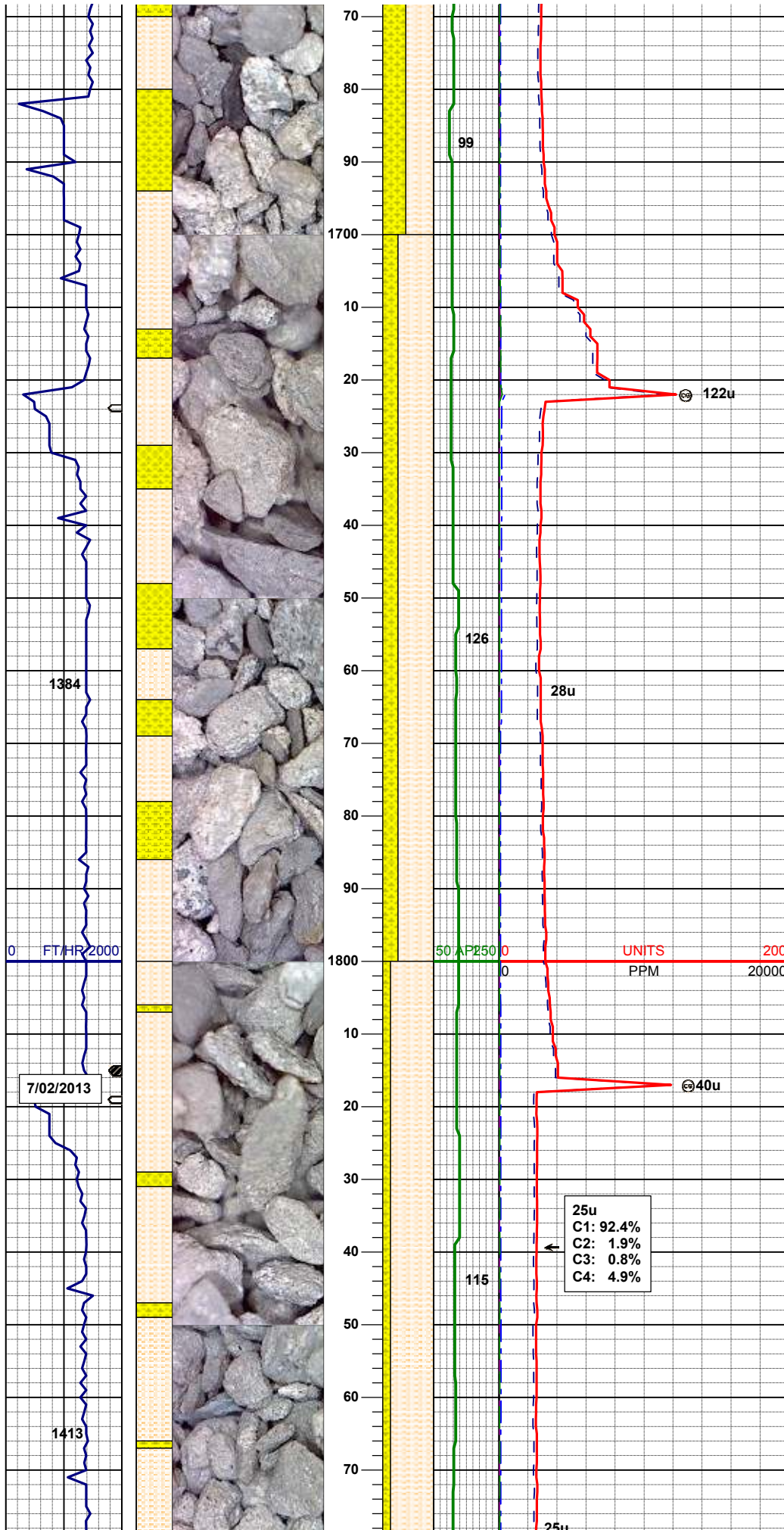
70% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, rr  
30% SHYSLTST: lt gy, lt wh, sft- fri, sbbky- sl  
sbply, aren- slty tex, tr biot incl

MD 1571'  
INC 0.47°  
AZM 196.06°

30u  
C1: 93.6%  
C2: 1.9%  
C3: 0.8%  
C4: 3.7%

55% SHYSLTST: lt gy, sft- fri, sbbky- sl sbply,  
aren- slty tex, tr biot incl  
45% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, tr  
glau; abnt dk gy cly

MD 1666'  
INC 0.56°  
AZM 204.96°



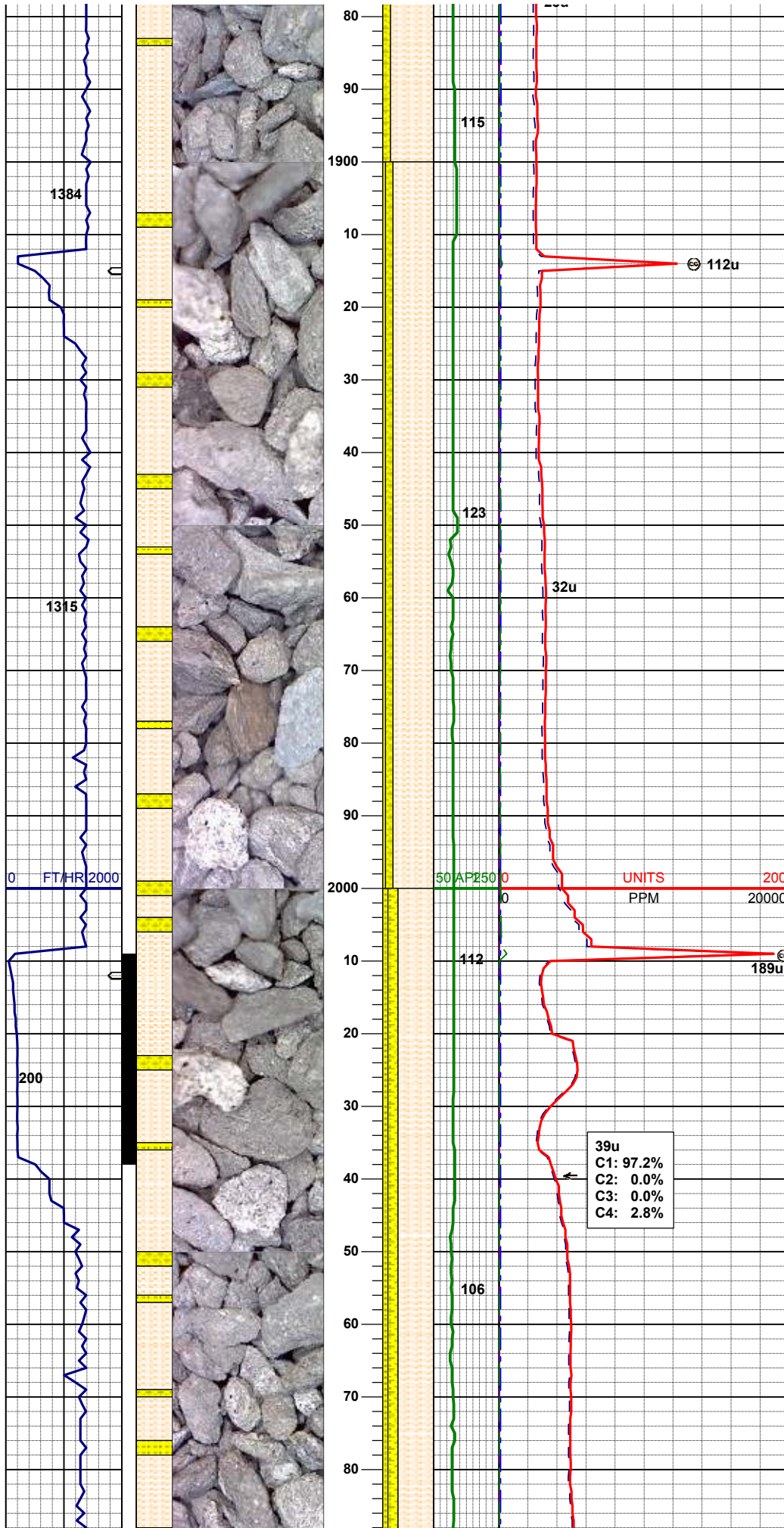
70% SHYSLTST: lt gy, sft-fri, sbbly-sl sbply, aren-silty tex, tr biot incl  
30% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, v rr biot, tr glau; abnt dk gy cly

MD 1761'  
INC 0.36°  
AZM 215.77°

85% SHYSLTST: lt gy-occ crm, sft-fri, sbbly-sl sbply, aren-silty tex, tr biot incl  
15% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, v rr biot, v tr glau ; abnt dk gy cly

MD 1856'  
INC 0.58°  
AZM 254.26°

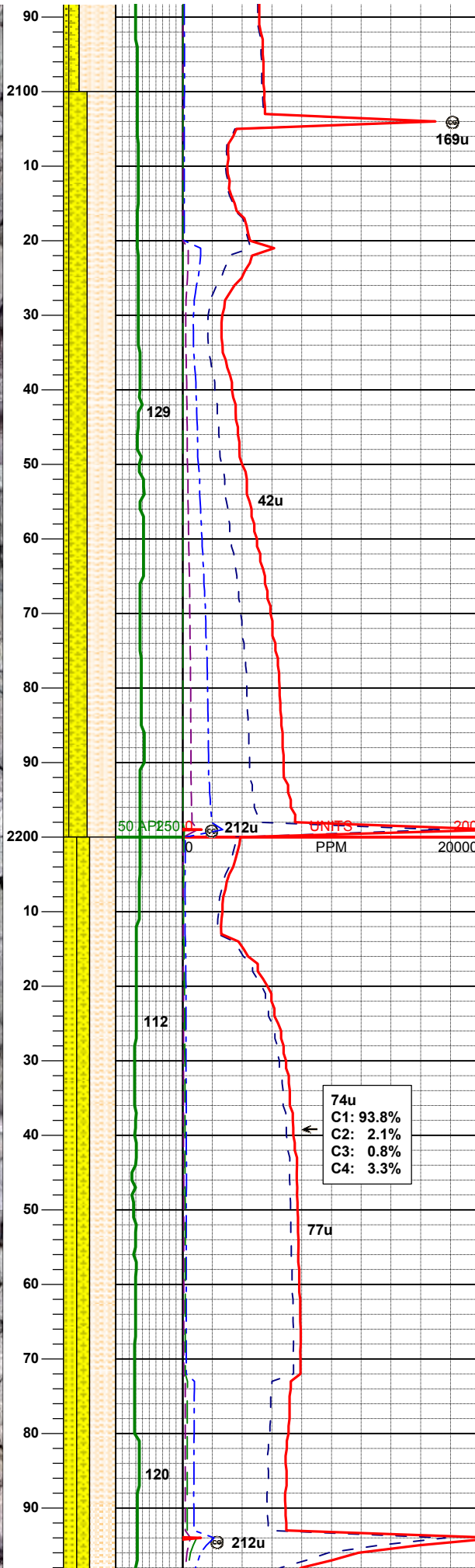
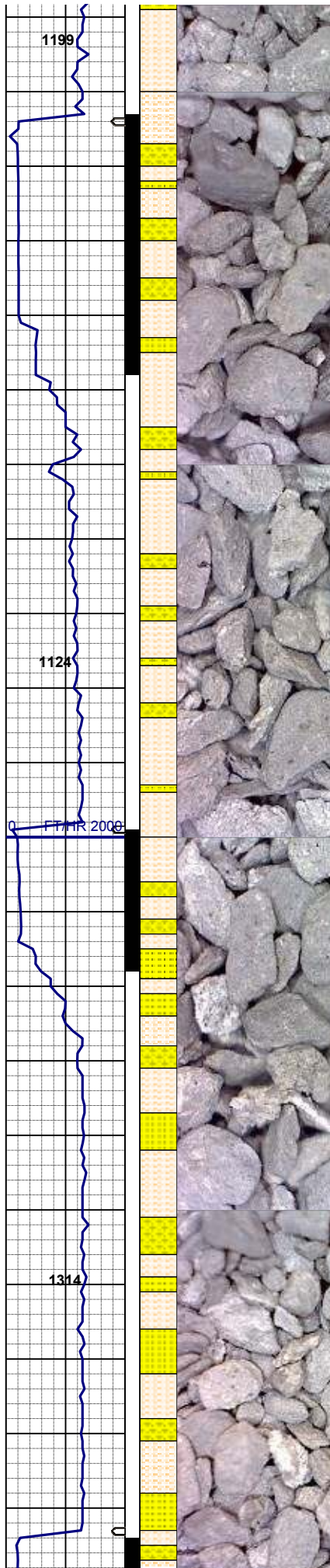




80% SHYSLTST: lt gy-occ crm, sft- fri, sbblky-  
sl sbplty, aren- slty tex, tr biot incl  
15% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, v tr  
glau ; abnt dk gy cly  
5% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm-  
mod fri, g por, rr biot, sme glau incl  
MD 1951'  
INC 0.64°  
AZM 223.07°

MD 2046'  
INC 2.67°  
AZM 147.24°

70% SHYSLTST: lt gy-occ crm, sft- fri, sbblky-  
sl sbplty, aren- slty tex, tr biot incl  
20% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, v tr  
glau ; abnt dk gy cly  
10% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm-  
mod fri, g por, rr biot, sme glau incl



MUD WT 8.7 VIS 28

MD 2141'  
INC 5.41°  
AZM 138.15°

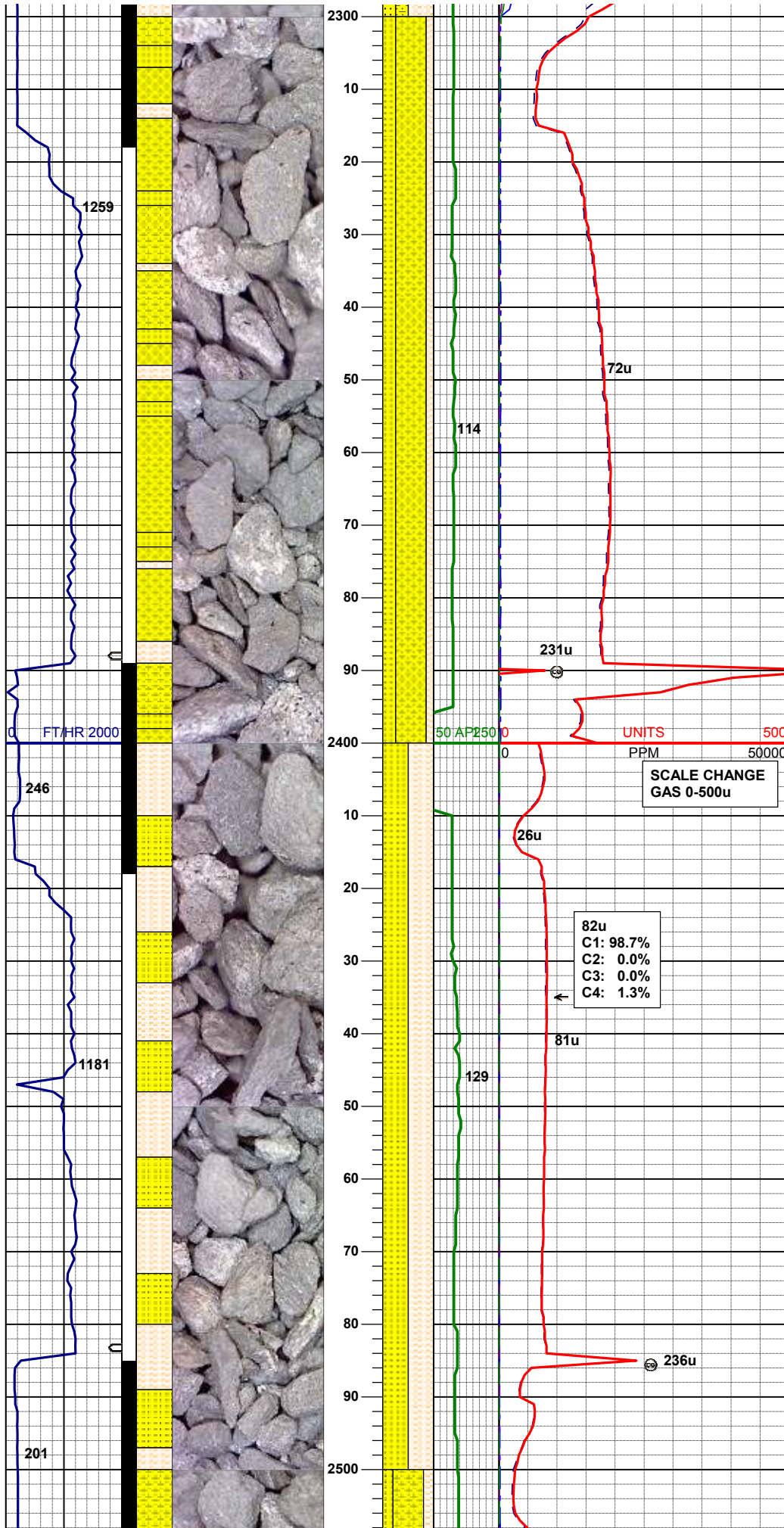
55% SHYSLTST: lt gy-occ crm, sft- fri, sbbly-  
sl sbplty, aren- slty tex, tr biot incl  
35% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, v tr  
glau ; abnt dk gy cly  
10% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm  
-mod fri, g por, rr biot, sme glau incl

MD 2235'  
INC 6.57°  
AZM 135.06°

50% SHYSLTST: lt gy-occ crm, sft- fri, sbbly-  
sl sbplty, aren- slty tex, tr biot incl  
25% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, v tr  
glau ; abnt dk gy cly  
25% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm  
-mod fri, g por, rr biot, sme glau incl

74u  
C1: 93.8%  
C2: 2.1%  
C3: 0.8%  
C4: 3.3%





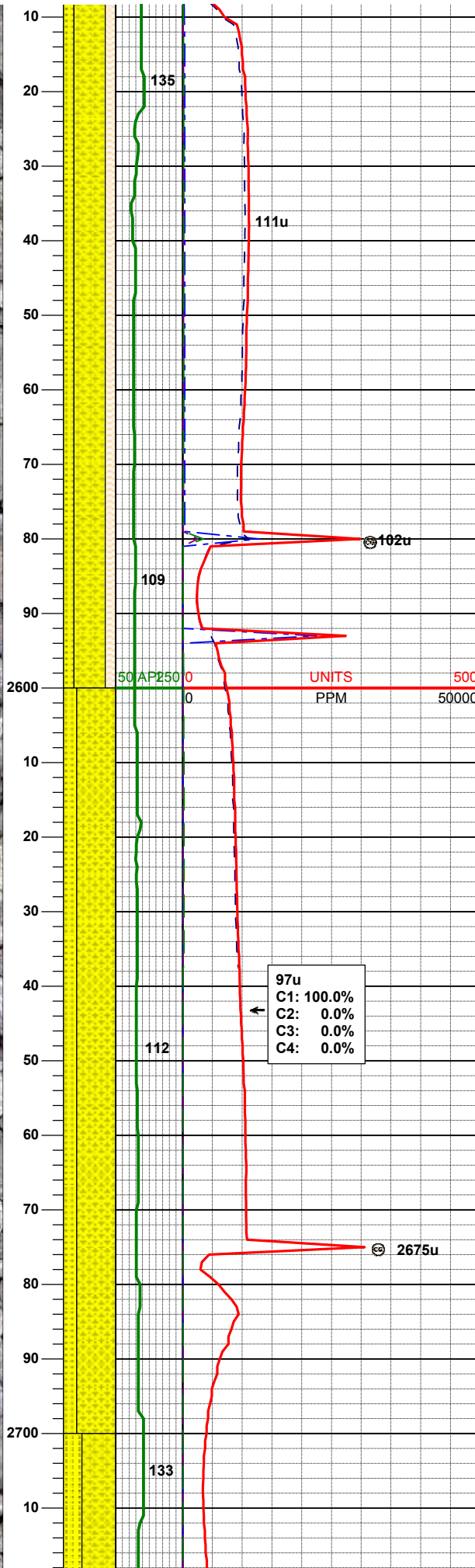
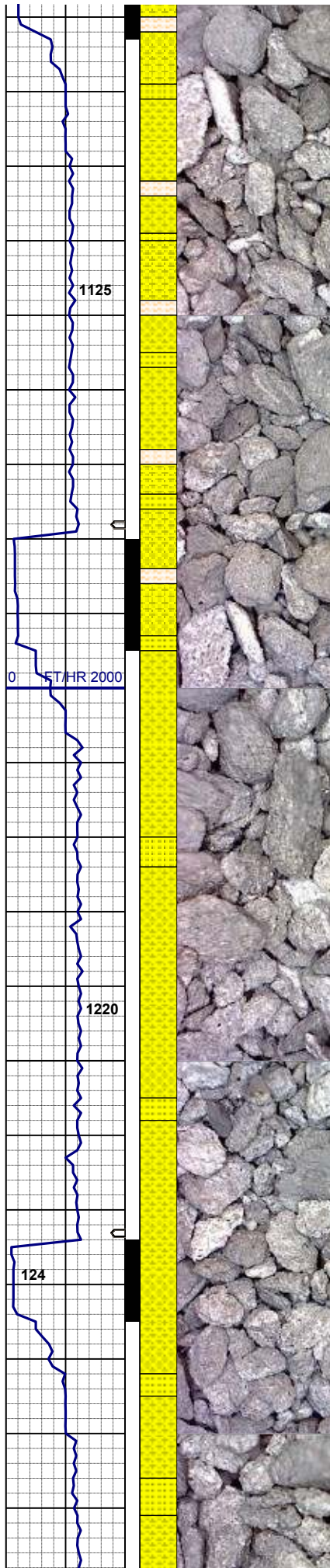
MD 2330'  
INC 8.07°  
AZM 134.77°

60% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt  
25% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por  
15% SHYLTST: lt gy, sft- fri, sbblky- sl sbply,  
aren- slty tex

MD 2425'  
INC 9.32°  
AZM 135.21°

50% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, tr biot  
50% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por, rr biot ; abnt gy cly





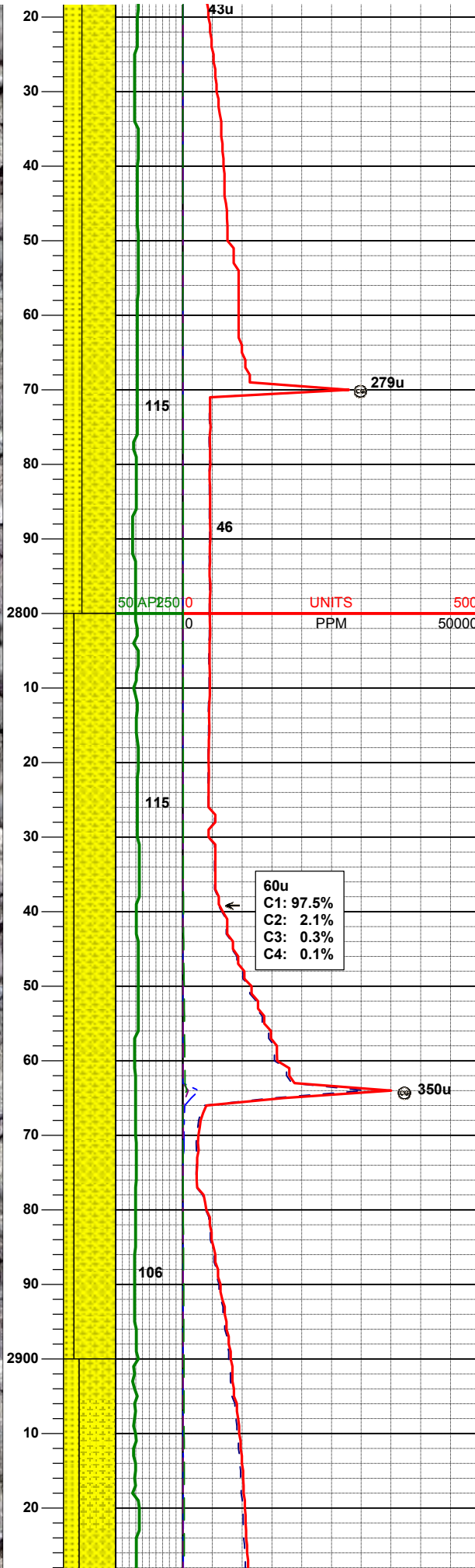
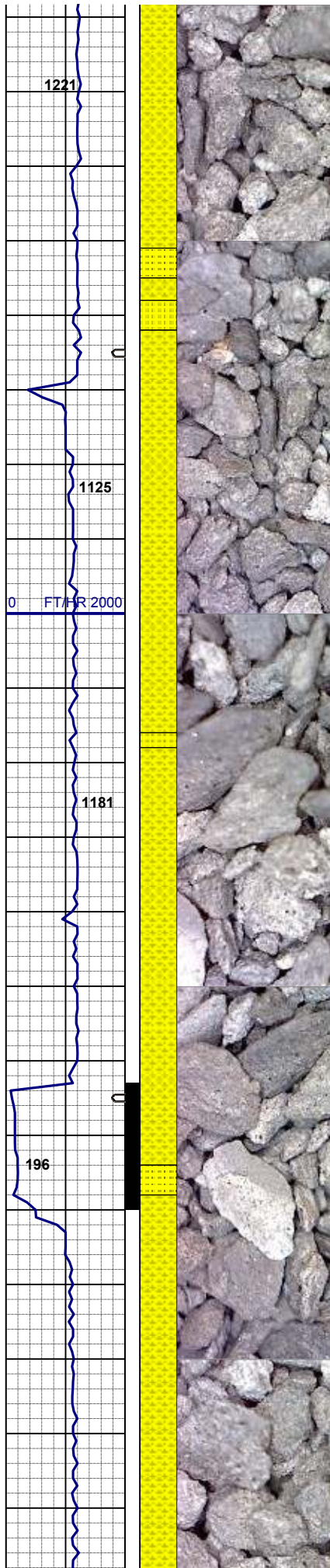
MD 2520'  
INC 11.34°  
AZM 128.15°

60% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot  
20% SHYSLTST: lt gy, sft- fri, sbbiky- sl sbply,  
aren- slty tex  
20% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por

MD 2615'  
INC 12.75°  
AZM 130.03°

75% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot  
25% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por

MD 2710'  
INC 13.06°  
AZM 133.92°



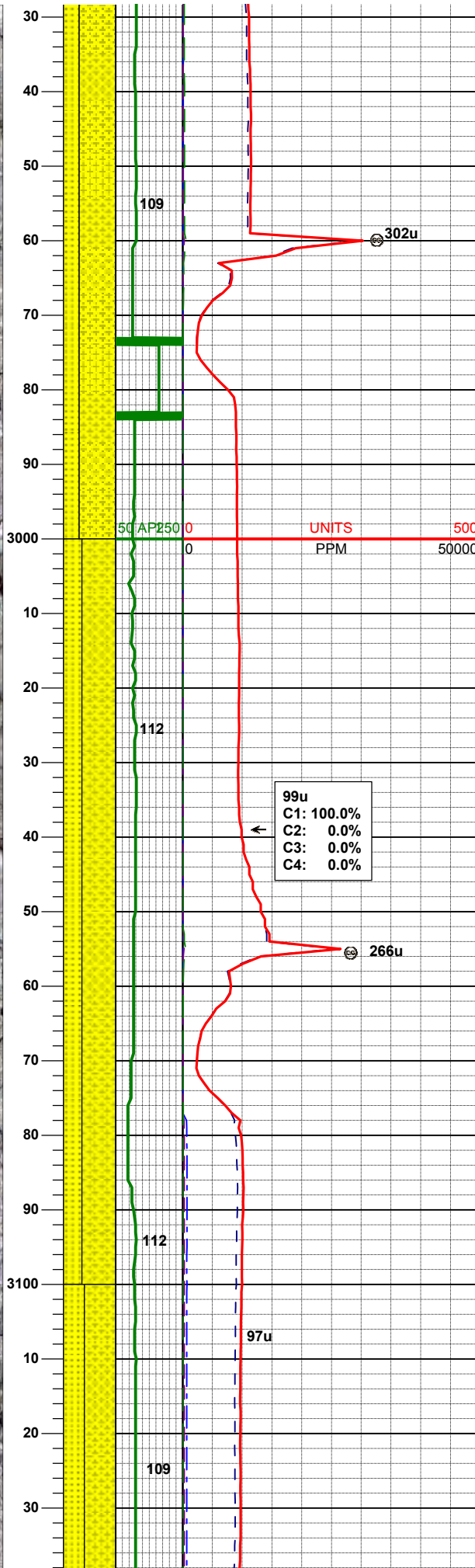
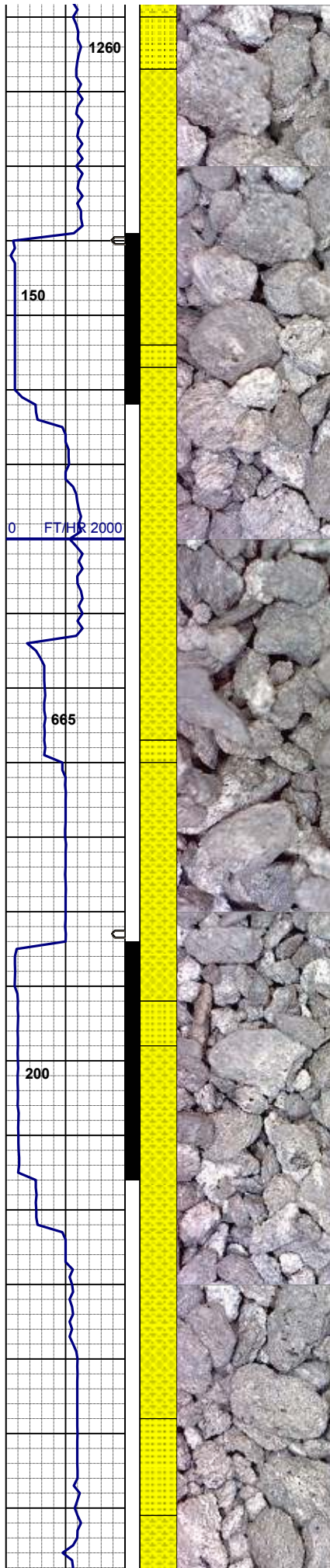
65% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot  
35% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por

MD 2805'  
INC 12.49°  
AZM 132.12°

80% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot  
20% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por

MD 2900'  
INC 10.33°  
AZM 144.21°





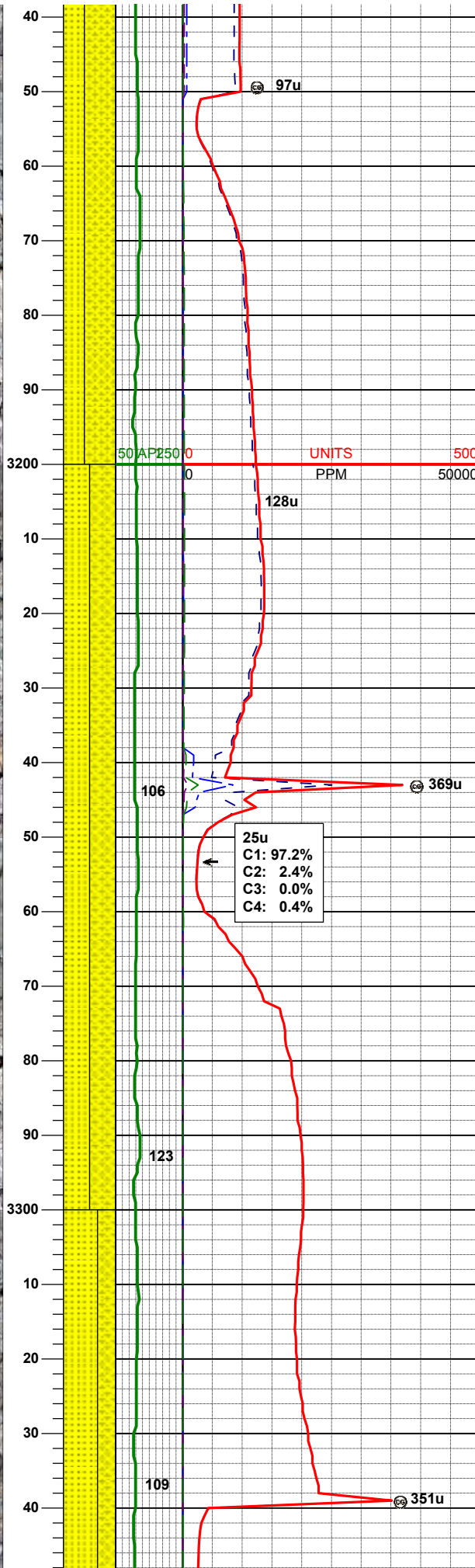
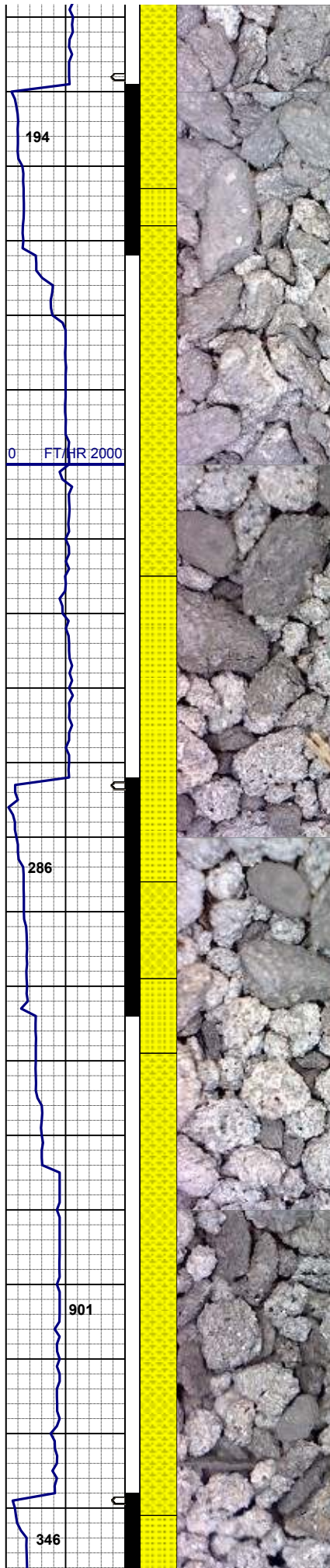
70% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot  
30% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por

MD 2995'  
INC 11.46°  
AZM 138.09°

MUD WT 8.8 VIS 28

65% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot  
35% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por

MD 3090'  
INC 8.14°  
AZM 142.44°



60% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, occ biot  
40% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g por

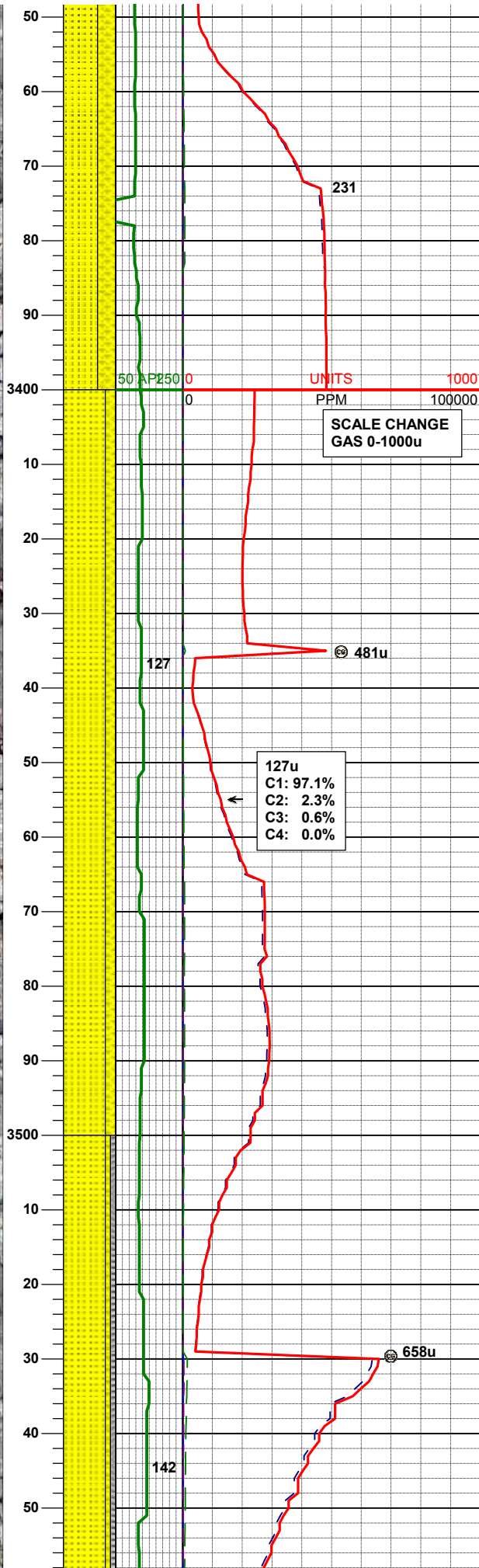
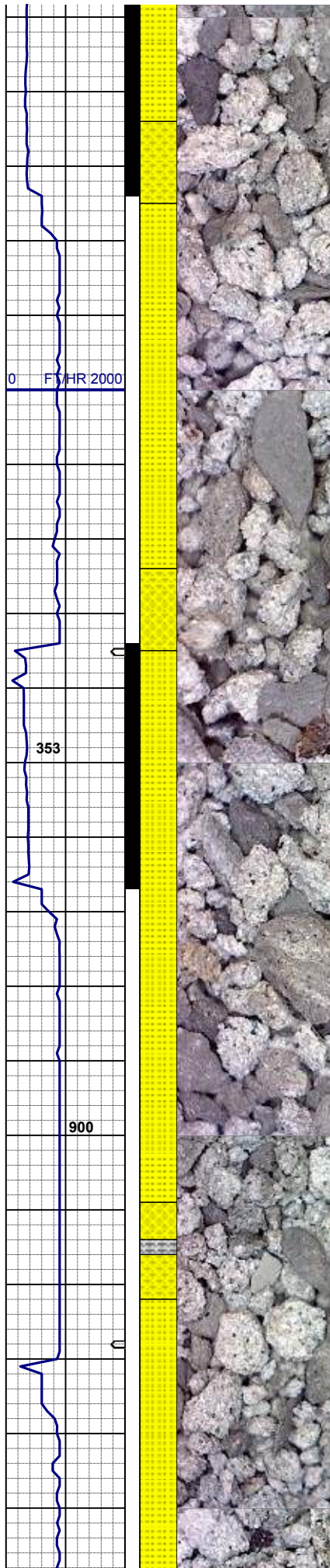
MD 3185'  
INC 6.45°  
AZM 129.52°

50% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g por  
50% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, occ biot

MD 3280'  
INC 5.12°  
AZM 154.26°

65% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g





por  
35% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot

MD 3374'  
INC 2.24°  
AZM 172.59°

UNITS 1000  
PPM 100000  
SCALE CHANGE  
GAS 0-1000u

127u  
C1: 97.1%  
C2: 2.3%  
C3: 0.6%  
C4: 0.0%

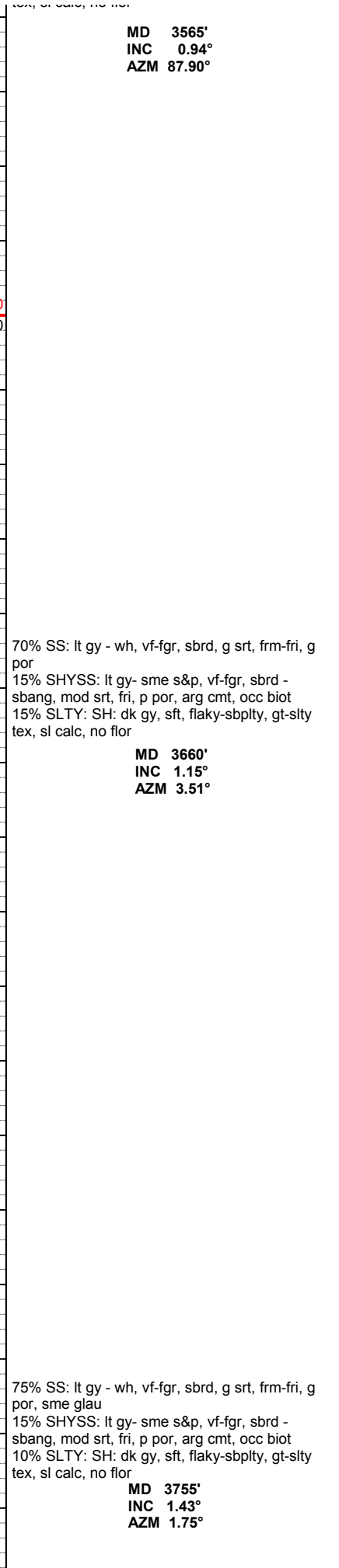
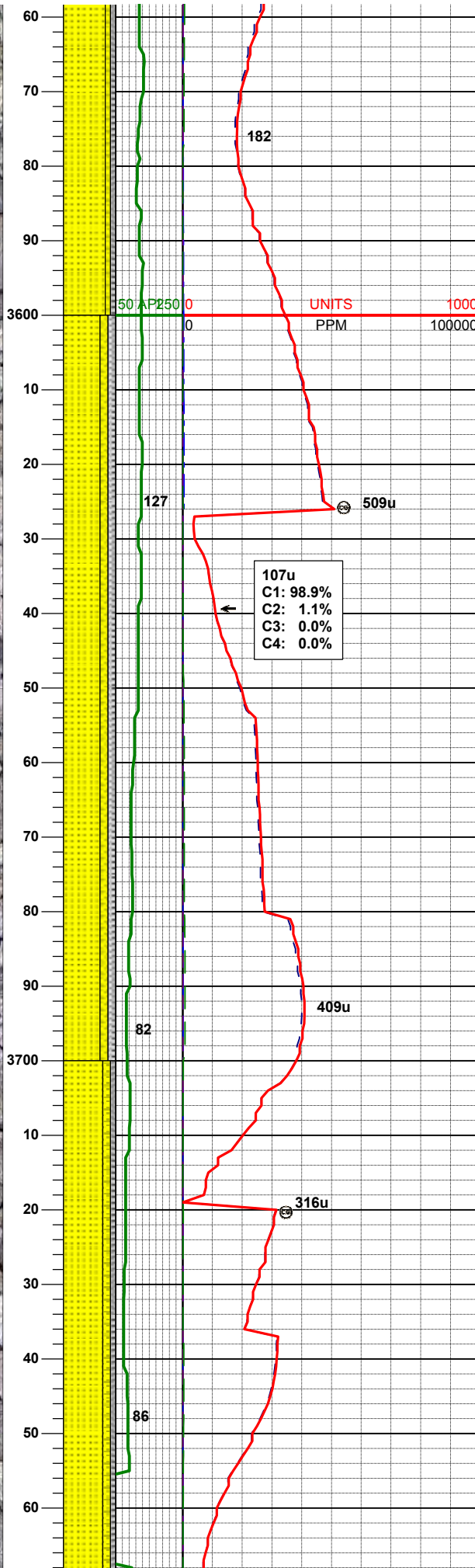
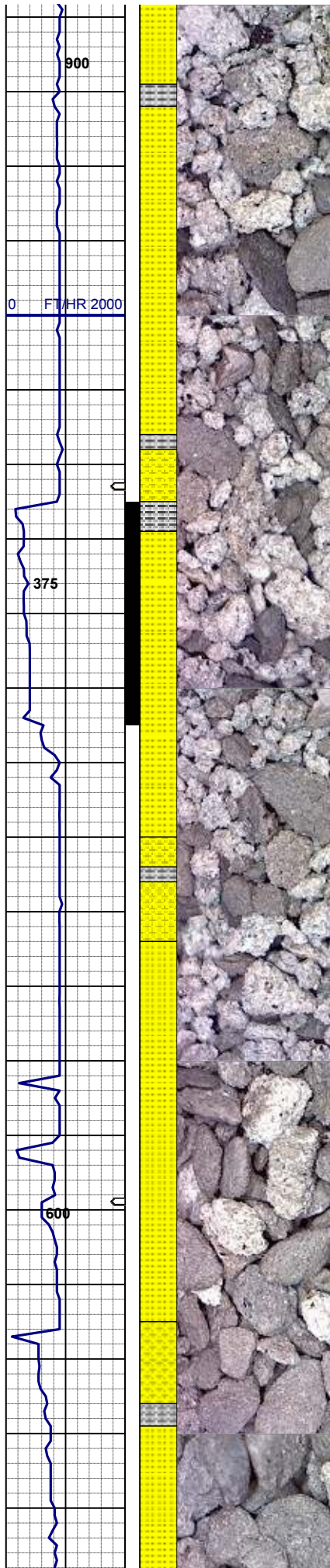
80% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por  
20% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot

MD 3470'  
INC 0.87°  
AZM 74.01°

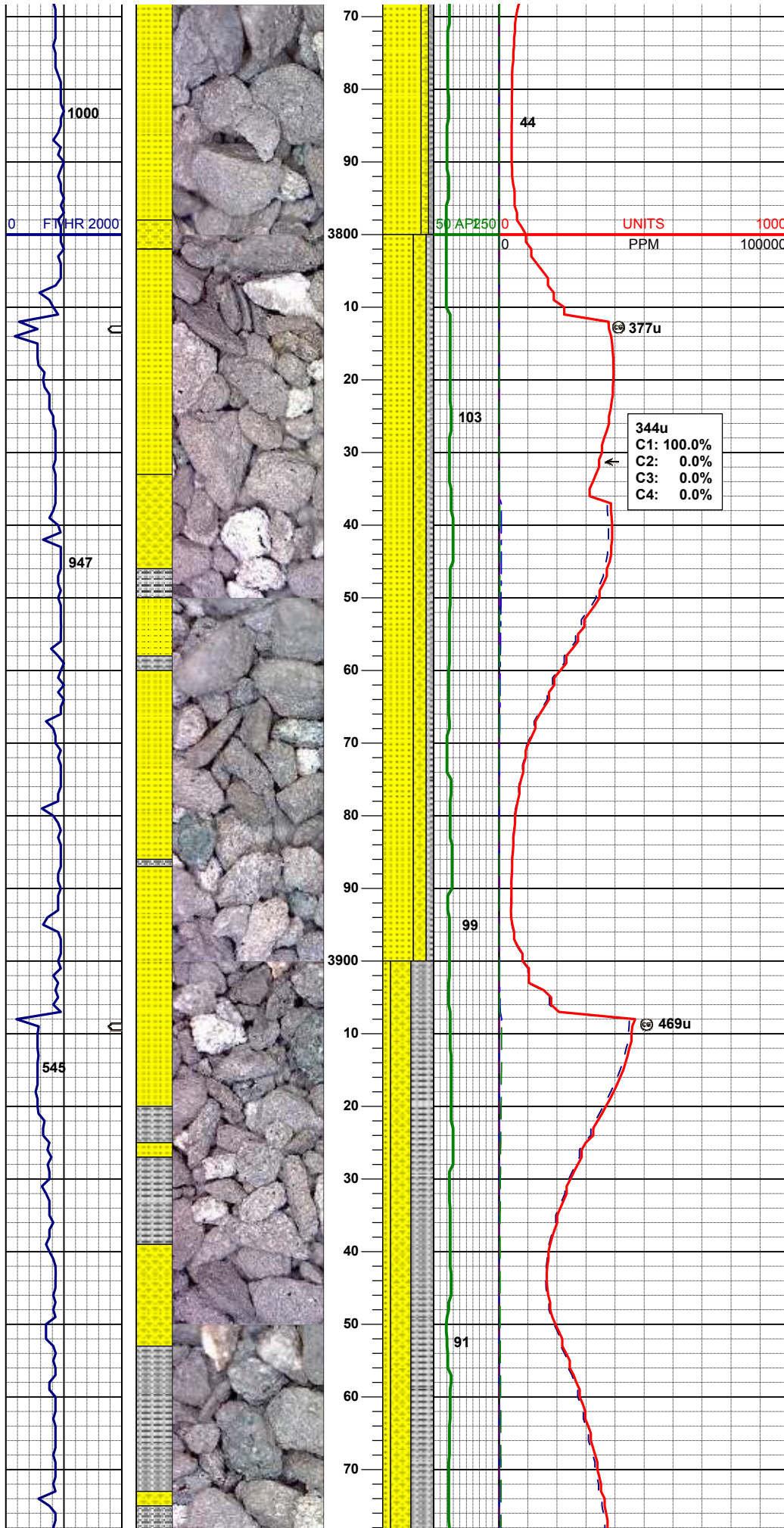
MUD WT 8.8 VIS 28

MUD WT 8.8 VIS 28

80% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g  
por  
10% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot  
10% SLTY: SH: dk gy, sft, flaky-sbply, gt-silty  
tex sl calc no flor





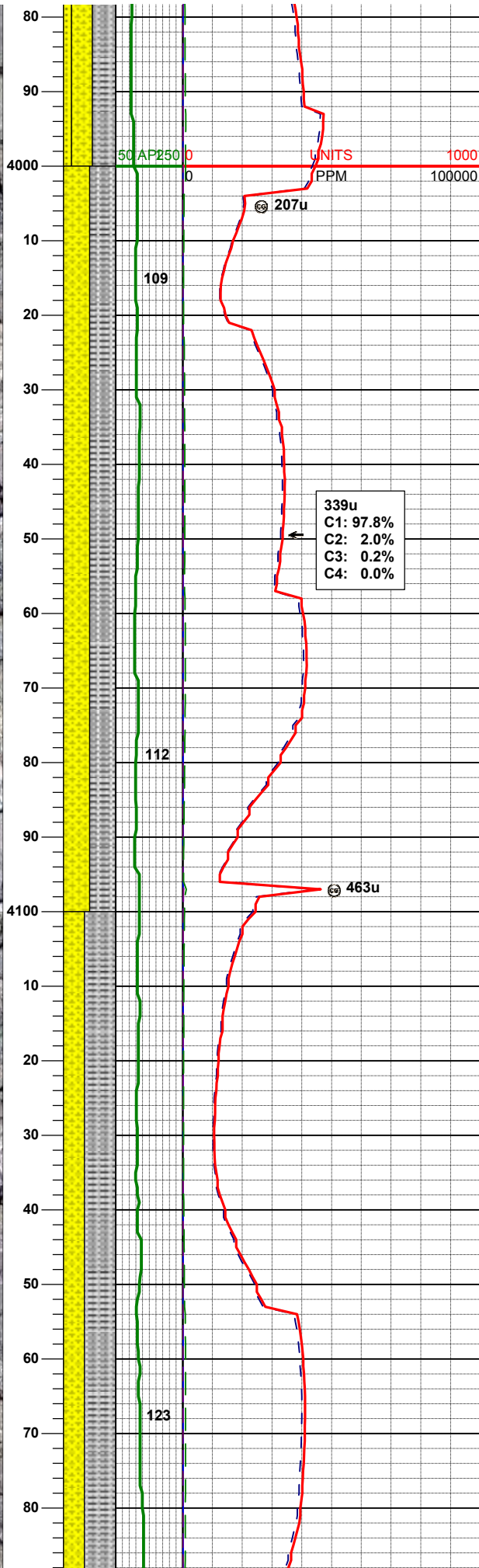
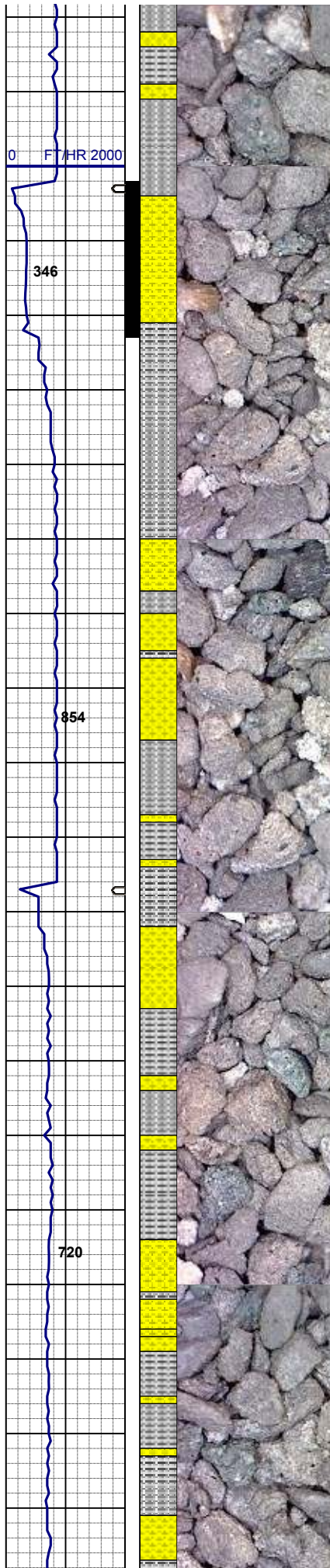


MD 3850'  
INC 1.88°  
AZM 10.08°

60% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g por, sme glau  
25% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, occ biot  
15% SLTY: SH: dk gy, sft, flaky-sbplty, gt-slty tex, sl calc, no flor

MD 3944'  
INC 1.75°  
AZM 11.58°

45% SLTY: SH: dk gy, sft, flaky-sbplty, gt-slty tex, sl calc, no flor  
40% SHYSS: lt gy- sme s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, occ biot  
15% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g por, sme glau



MD 4039'  
INC 2.04°  
AZM 329.03°

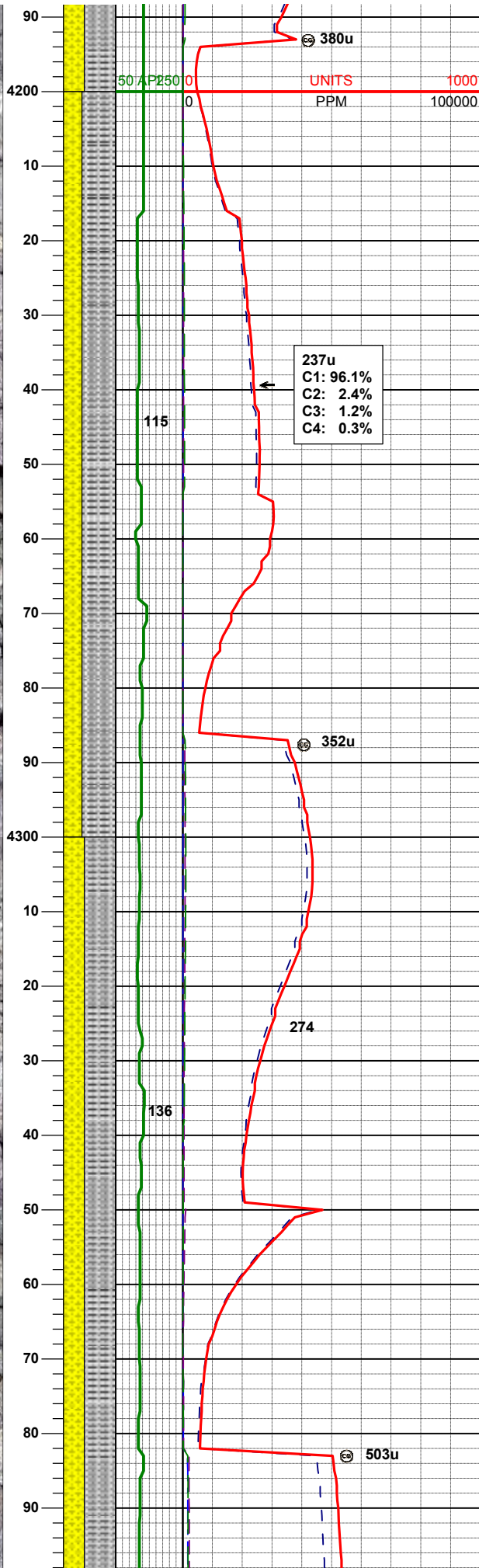
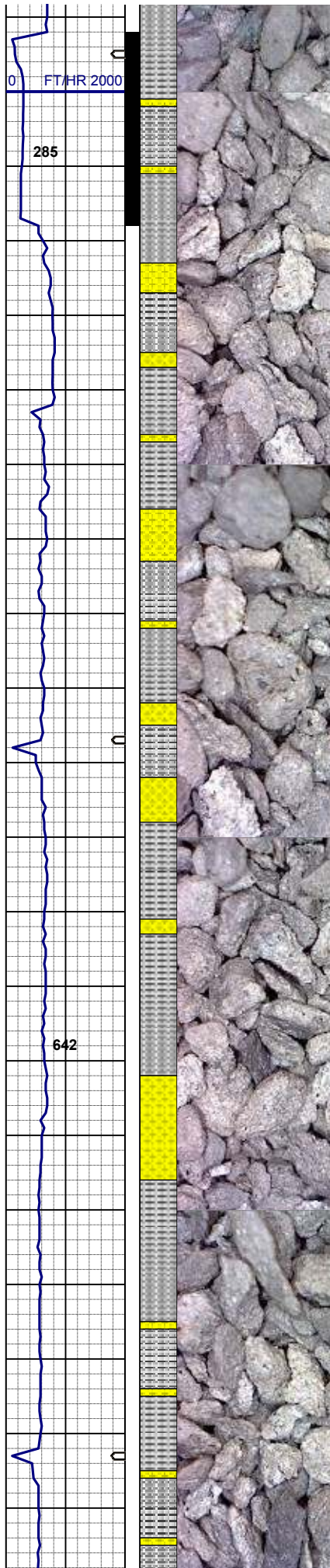
50% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
50% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot, scat  
glau, no flor

MD 4134'  
INC 1.67°  
AZM 319.92°

60% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
40% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot, scat  
glau, no flor

MUD WT 8.8 VIS 28



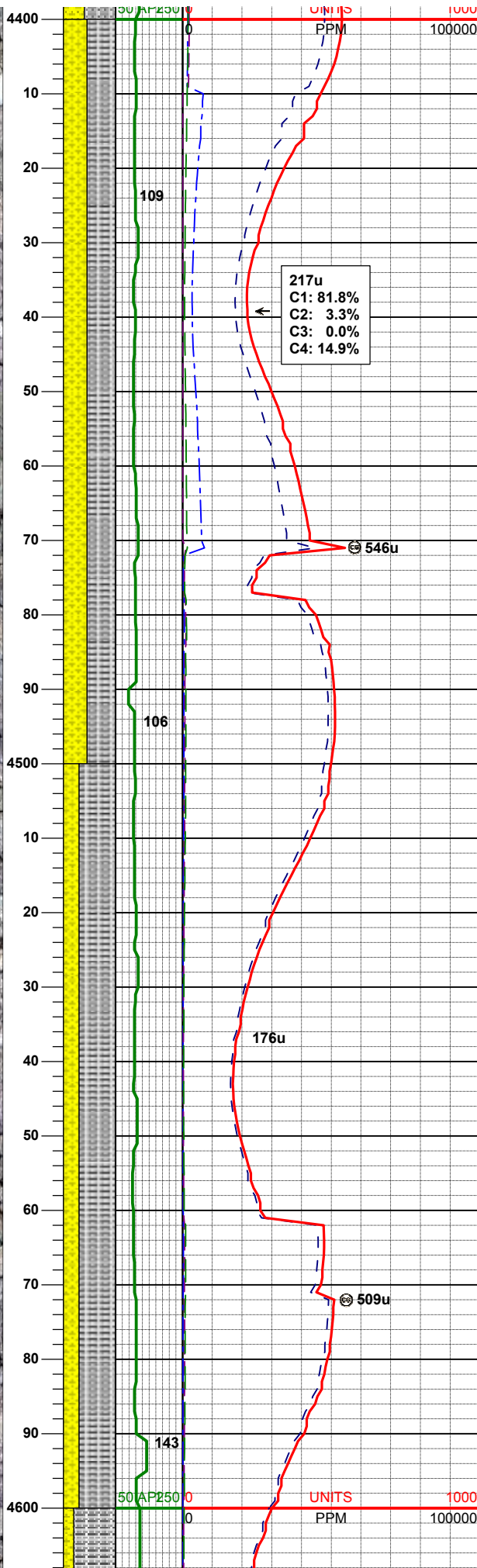
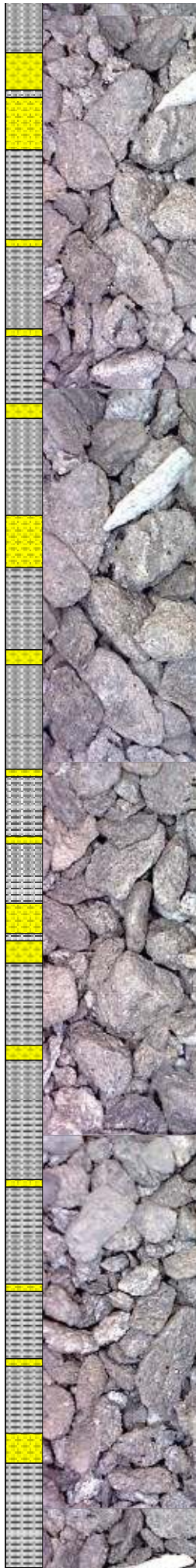
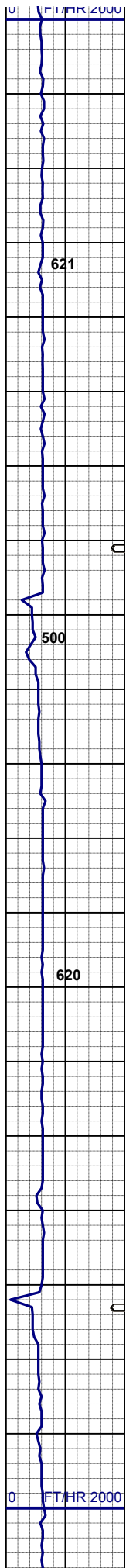


MD 4229'  
INC 1.20°  
AZM 257.11°

65% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
35% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot, scat  
glau, no flor

MD 4324'  
INC 1.76°  
AZM 279.54°

60% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
40% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, occ biot, scat  
glau, no flor



MD 4419'  
INC 2.15°  
AZM 276.03°

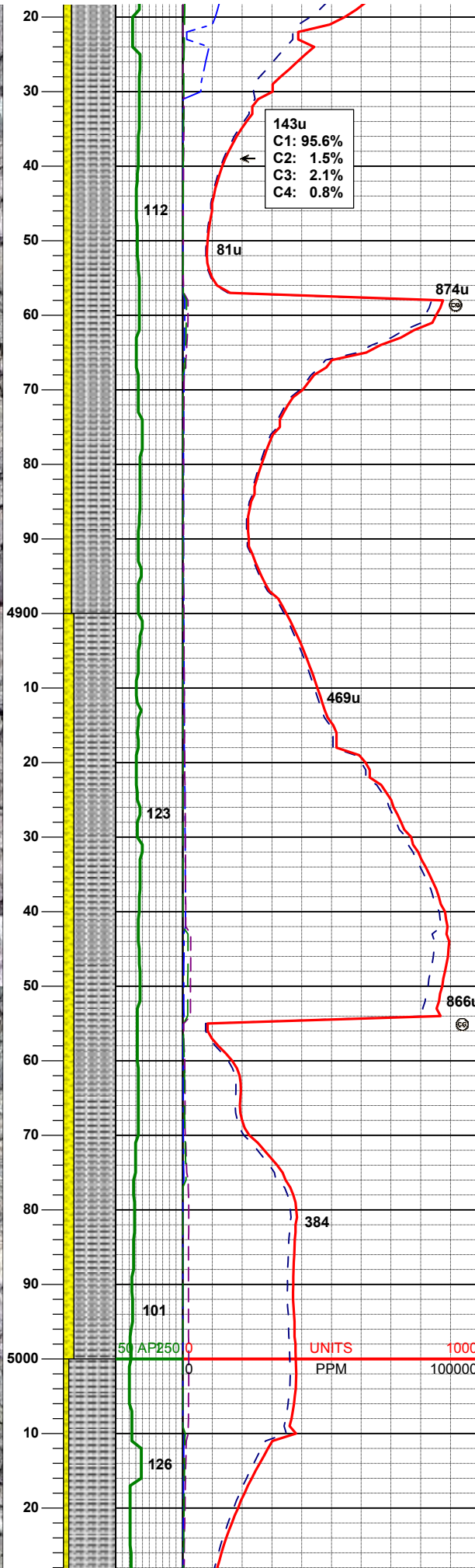
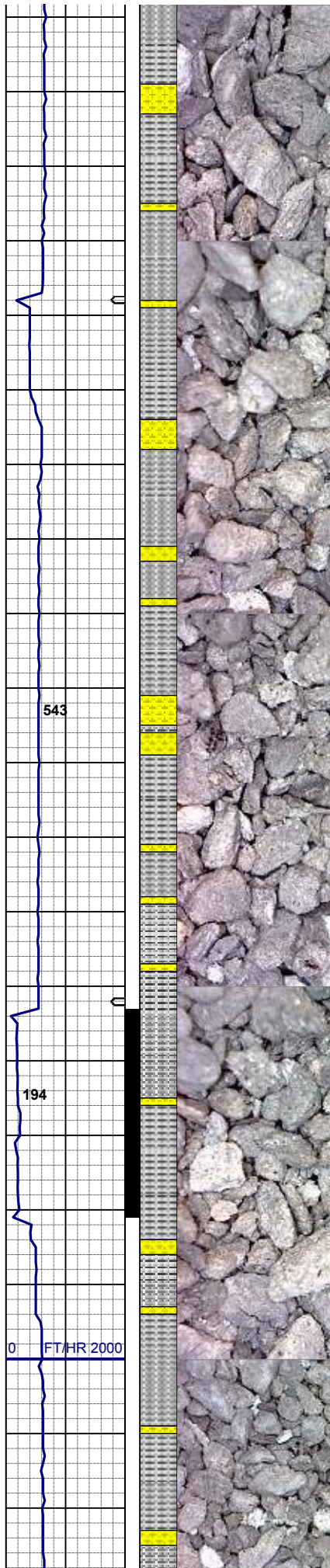
55% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
45% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, rr biot, no flor

MD 4514'  
INC 2.63°  
AZM 282.89°

70% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
30% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, rr biot, no flor







143u  
C1: 95.6%  
C2: 1.5%  
C3: 2.1%  
C4: 0.8%

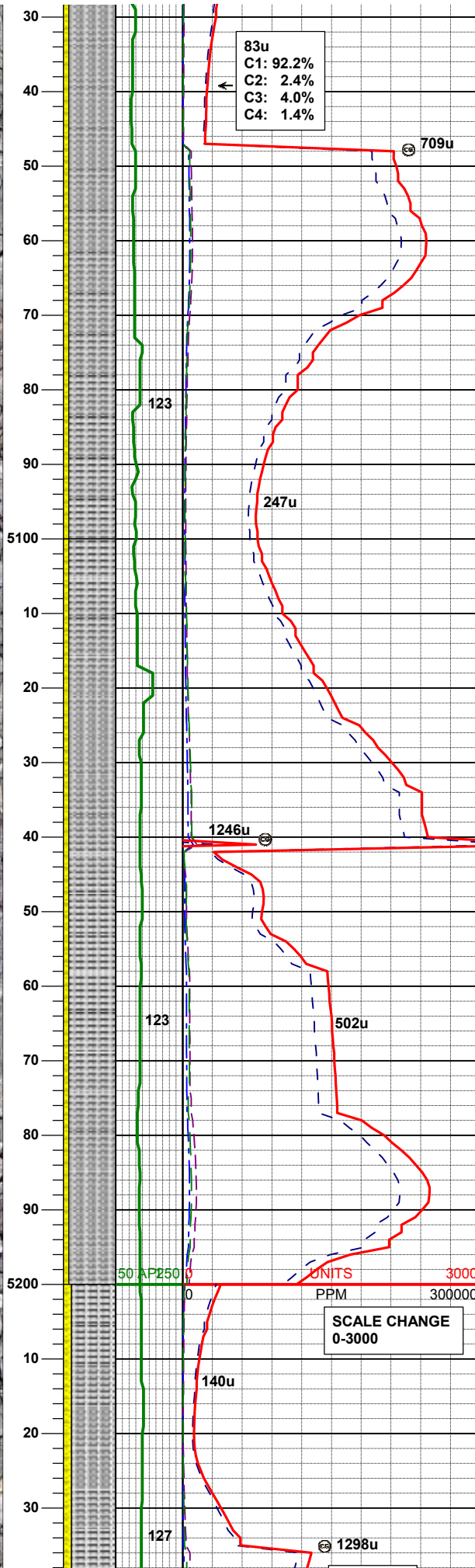
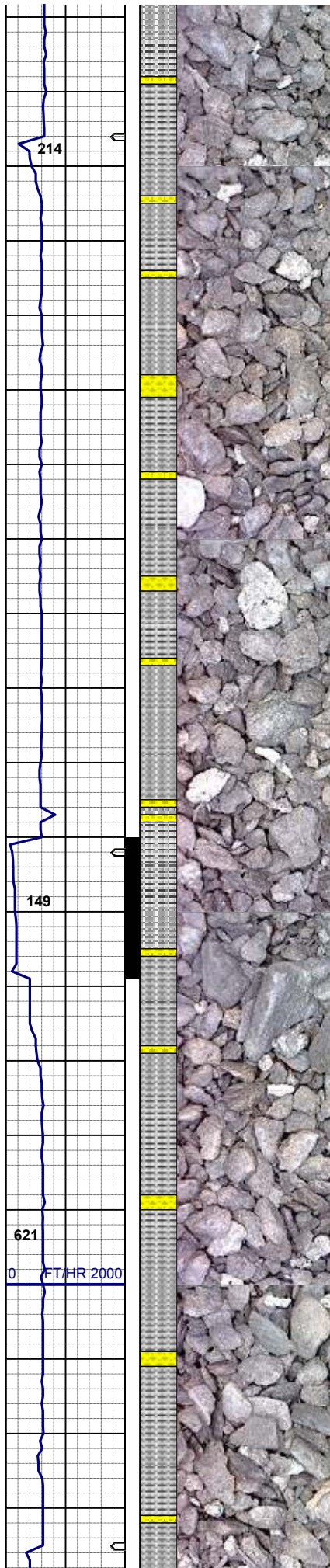
85% SLTY: SH: dk gy, sft, flaky-sbplty, gt-slty  
tex, sl calc, no flor  
15% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, no  
flor

MD 4893'  
INC 1.06°  
AZM 49.42°  
MUD WT 8.85 VIS 28

80% SLTY: SH: dk gy, sft, flaky-sbplty, gt-slty  
tex, sl calc, no flor  
20% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, no  
flor

MD 4988'  
INC 1.30°  
AZM 81.62°





83u  
C1: 92.2%  
C2: 2.4%  
C3: 4.0%  
C4: 1.4%

709u

90% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
10% SHYSS: lt gy- sme s&p, vf-fgr, sbdr -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, no  
flor

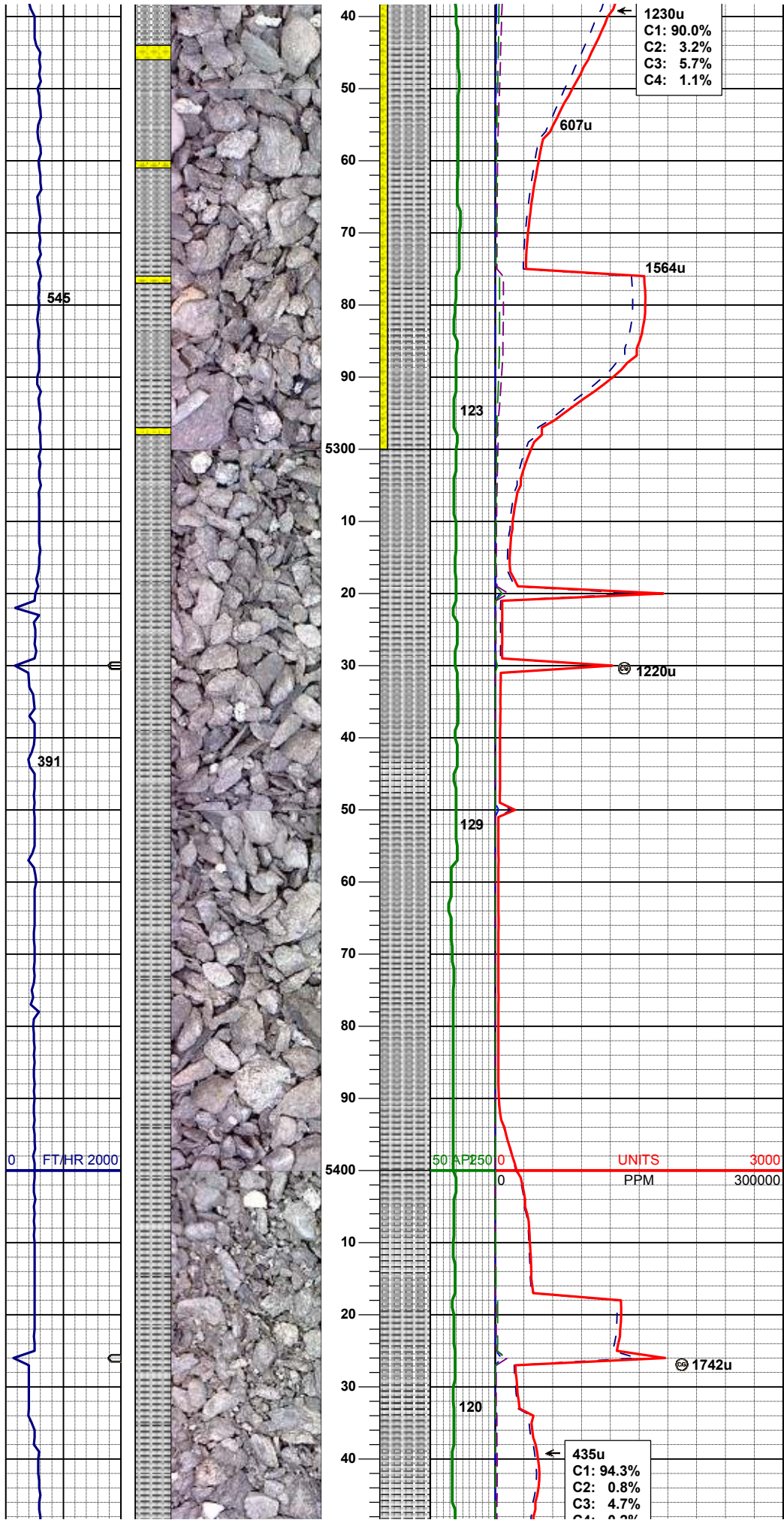
MD 5083'  
INC 1.18°  
AZM 70.25°

90% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
10% SHYSS: lt gy- sme s&p, vf-fgr, sbdr -  
sbang, mod srt, fri, p por, arg cmt, v rr biot, no  
flor

MUD WT 8.85 VIS 28

MD 5177'  
INC 0.86°  
AZM 164.66°

SCALE CHANGE  
0-3000



85% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor  
15% SHYSS: lt gy- sme s&p, vf-fgr, sbrd -  
sbang, mod srt, fri, p por, arg cmt

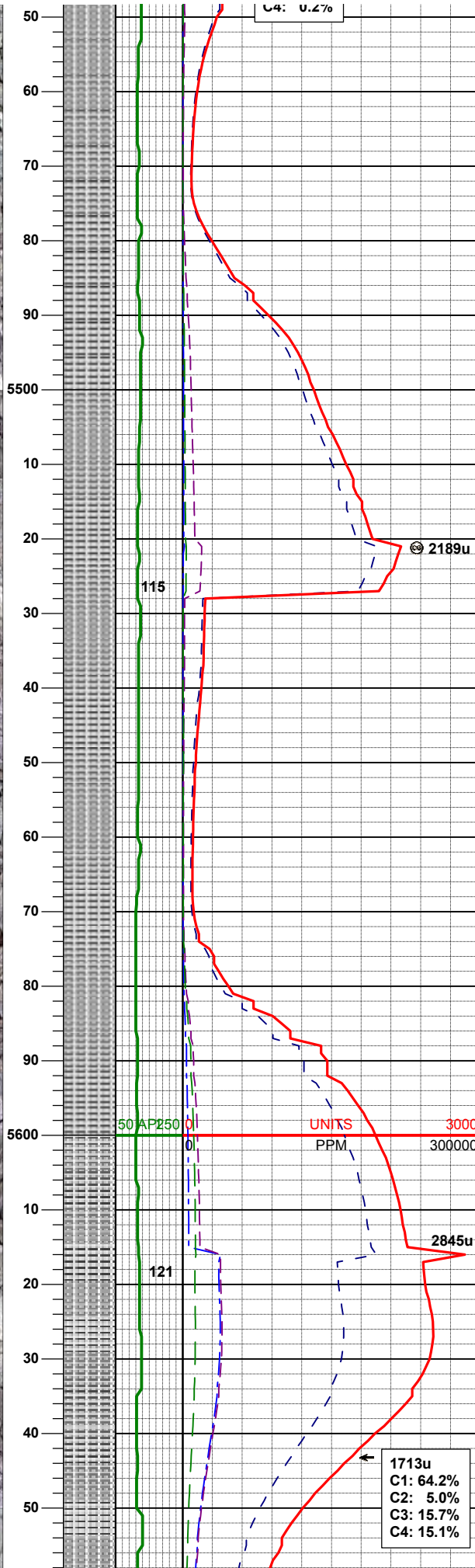
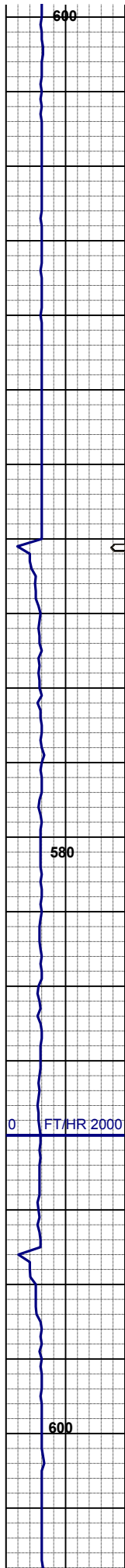
MD 5272'  
INC 0.43°  
AZM 188.73°

100% SLTY: SH: dk gy, sft, flaky-sbplty, gt-silty  
tex, sl calc, no flor

MD 5367'  
INC 0.07°  
AZM 332.69°

MUD WT 8.9 VIS 28





100% SLTY: SH: dk gy, sft, flaky-sbply, gt-slty  
tex, sl calc, no flor

MD 5462'  
INC 0.19°  
AZM 94.14°

MUD WT 8.9 VIS 28

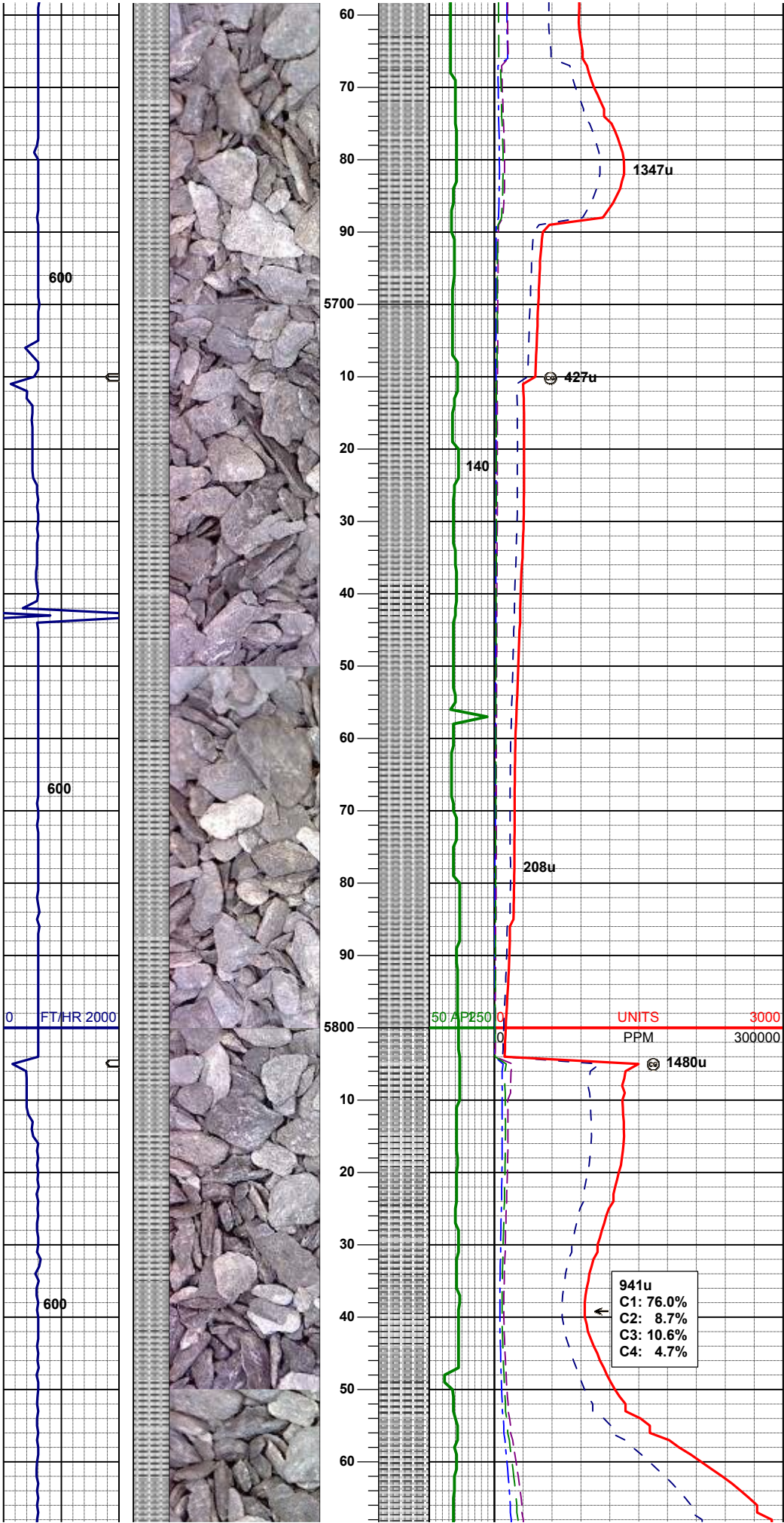
100% SLTY: SH: dk gy, sft, flaky-sbply, gt-slty  
tex, sl calc, no flor

MD 5557'  
INC 0.16°  
AZM 349.17°

100% SLTY: SH: dk gy, sft, flaky-sbply, gt-slty  
tex, sl calc, no flor

MD 5652'  
INC 0.25°

AZM 318.99°



MD 5746'  
INC 0.38°  
AZM 301.35°

100% SLTY: SH: dk gy, sft, flaky-sbplty, gt-slty  
tex, sl calc, no flor

MUD WT 9.0 VIS 28

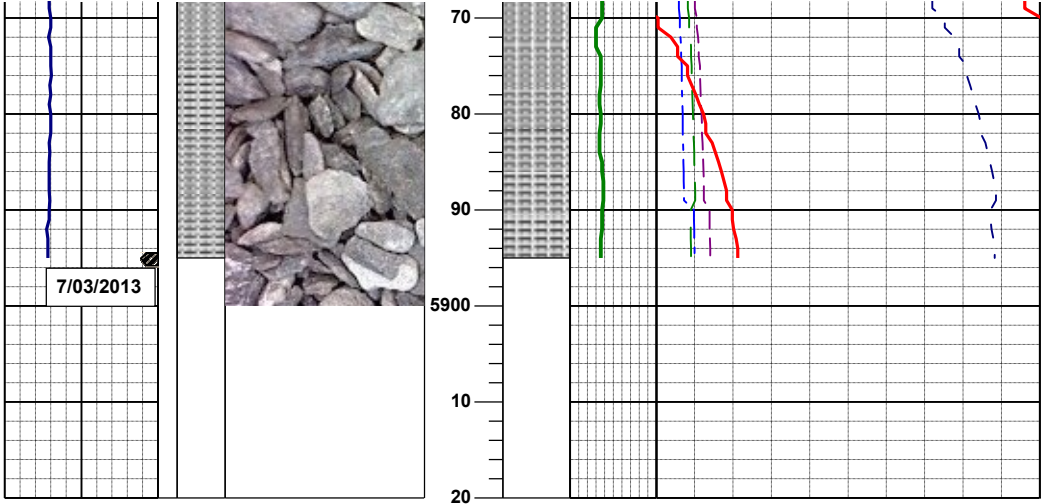
UNITS 3000  
PPM 300000

941u  
C1: 76.0%  
C2: 8.7%  
C3: 10.6%  
C4: 4.7%

100% SLTY: SH: dk gy, sft, flaky-sbplty, gt-slty  
tex, sl calc, no flor

MUD WT 9.1 VIS 30





TOOH for Curve BHA  
5895' MD 15:00hrs 7/02/2013  
Resumed Drilling 23:50hrs 7/03/2013

Log Continued On:  
WELLS RANCH USX  
AE07-63-1HN(HORZ).lplot

Thank you for choosing  
Columbine Logging Inc.