

LOG created using LPLOT VH Version 3.0, May 29, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC.
WELL: CASTOR FEDERAL LD13-78HN
LOCATION: SEC 12, T9N, R58W
COUNTY: WELD
STATE: COLORADO
SPOT: 250 FSL, 660 FWL
ELEVATION: 4628' GL, 4652' KB
FIELD: WILDCAT
SPUD DATE: 5/23/2013
TD DATE: 5/28/2013
DATES LOGGED: 5/23/2013 - 5/29/2013
DEPTHS LOGGED: 1242' - 9888'
LOGGERS: JOHN T. READY, JEFF LACY
DRILLING FLUID: WATER, MUD, POLY
DRILLING RIG: H&P 322
API: 05-123-37097
LOG TYPE: VERTICAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.

LITHOLOGIES



Sandstone



Shaly Sandstone



Shaly Siltstone



Silty Shale

ENGINEERING SYMBOLS



Connection



Connection Gas



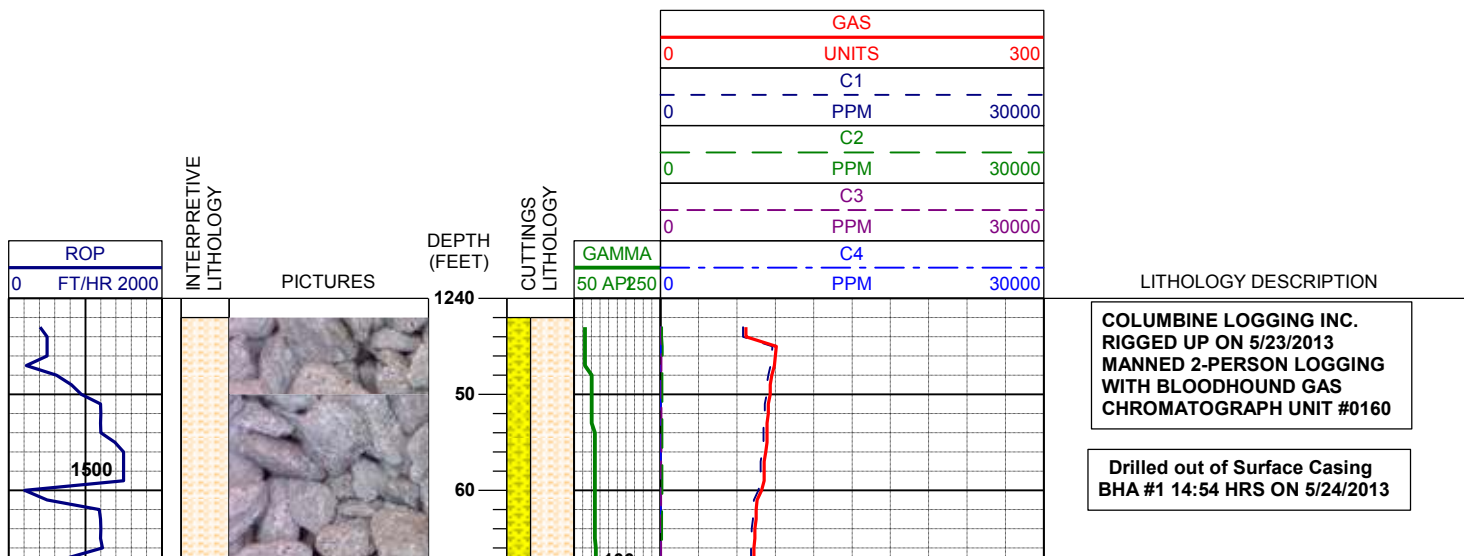
Arrow

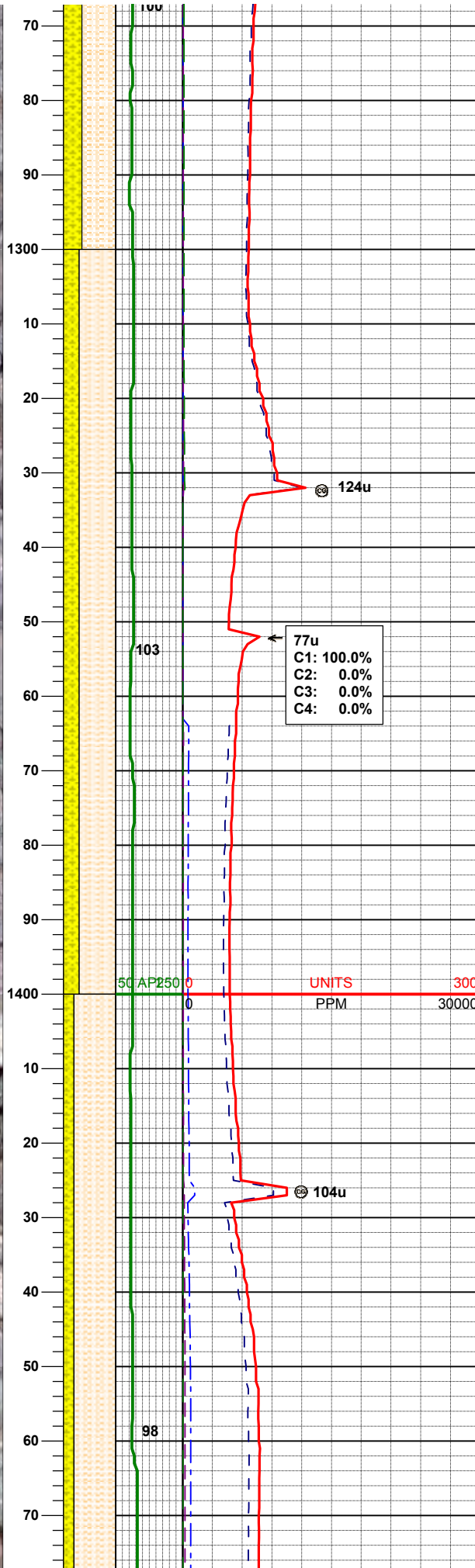
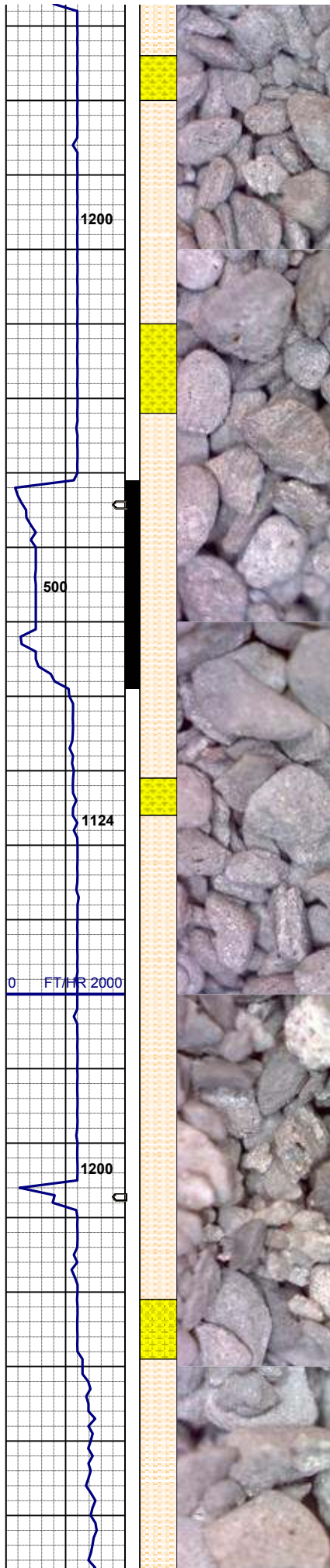


Midnight Depth



Arrow





65% SHYSLTST: lt gy, sft- fri, sbbiky- sl sbply,
aren- slty tex, tr biot incl
35% SHYSS: lt gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, rr biot, tr glau ;
abnt dk gy cly

BHA #1
Bit: 8.750"
Manufacturer: Schlumberger/Smith
Model: MDi516
Serial Number: JG4833
Nozzles: 5x14

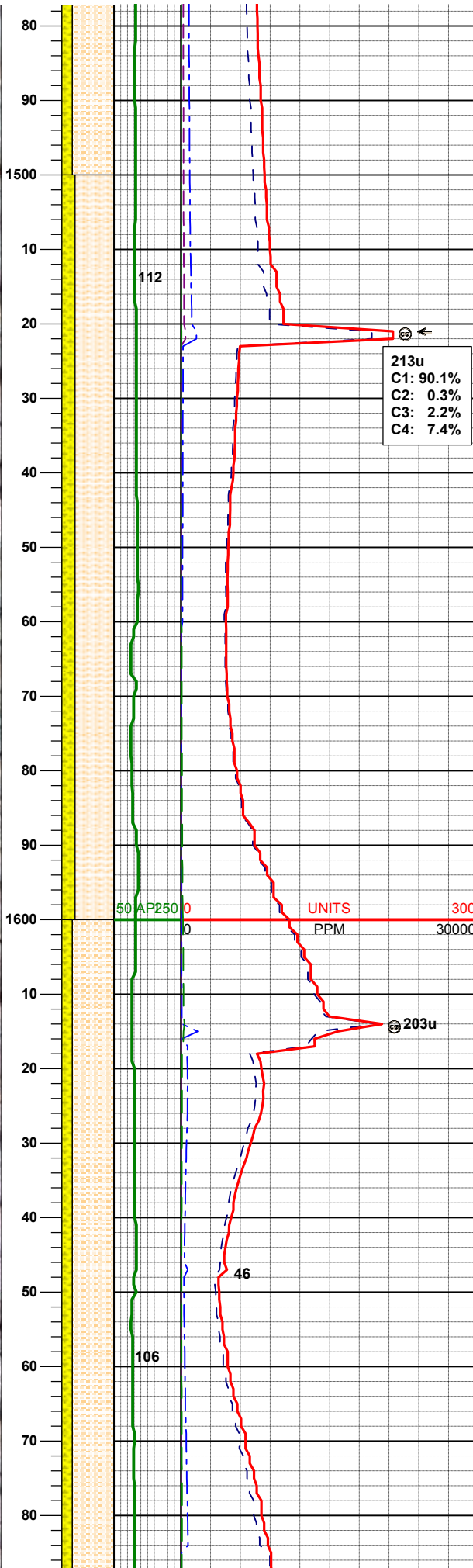
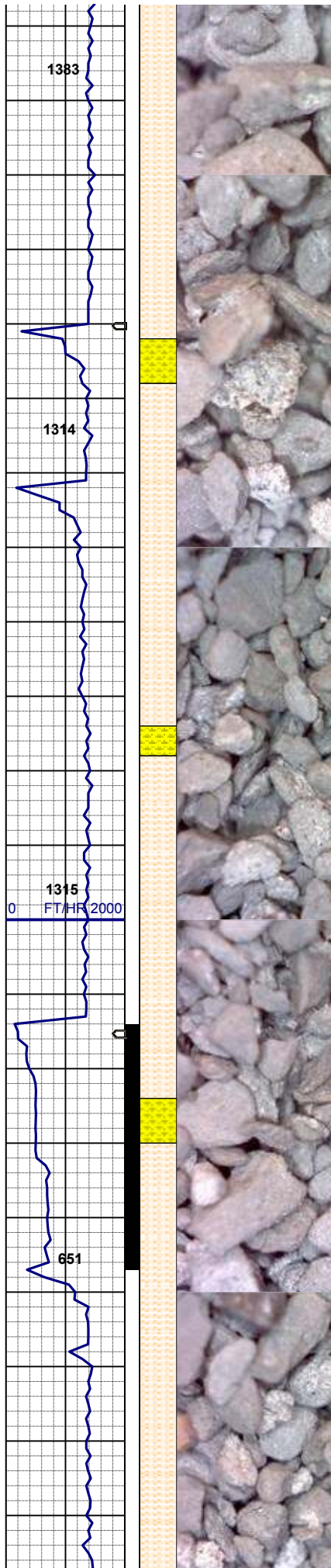
Motor: 6.750"
Manufacturer: Sperry Drill
Serial Number: 675-823
Bend: 1.50

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

MD 1373'
INC 1.76°
AZM 175.33°

MD 1466'
INC 1.59°
AZM 164.58°

80% SHYSLTST: lt gy, sft- fri, sbbiky- sl sbply,



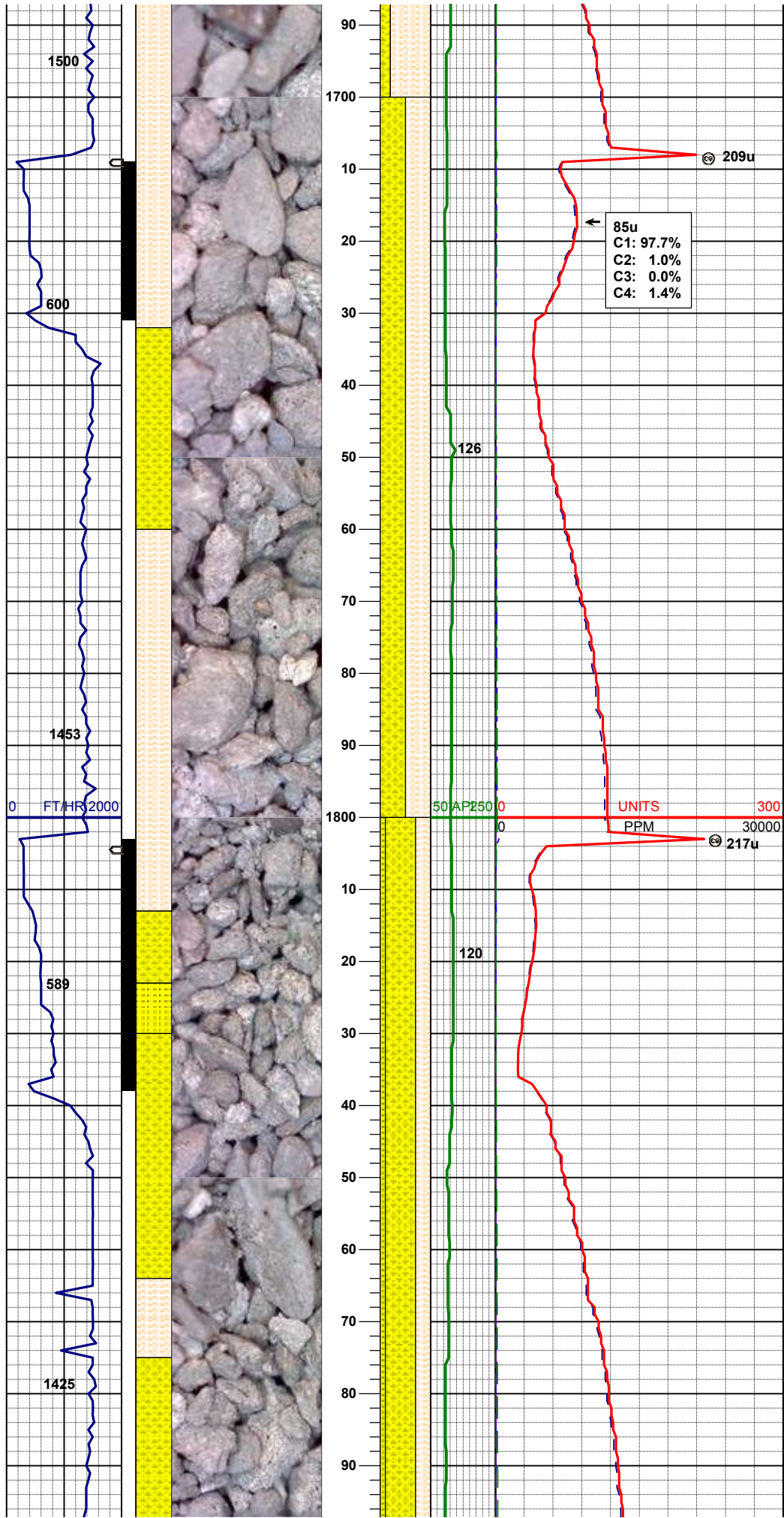
60% SHYLTST: lt gy, sft-fri, sbbly-si sbply,
aren- sly tex, tr biot incl
20% SHYSS: lt gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly

75% SHYLTST: lt gy, sft-fri, sbbly-si sbply,
aren- sly tex, tr biot incl
25% SHYSS: lt gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly

MD 1561'
INC 1.97°
AZM 163.39°

80% SHYLTST: lt gy, sft-fri, sbbly-si sbply,
aren- sly tex, tr biot incl
20% SHYSS: lt gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly

MD 1655'
INC 5.49°
AZM 182.9°



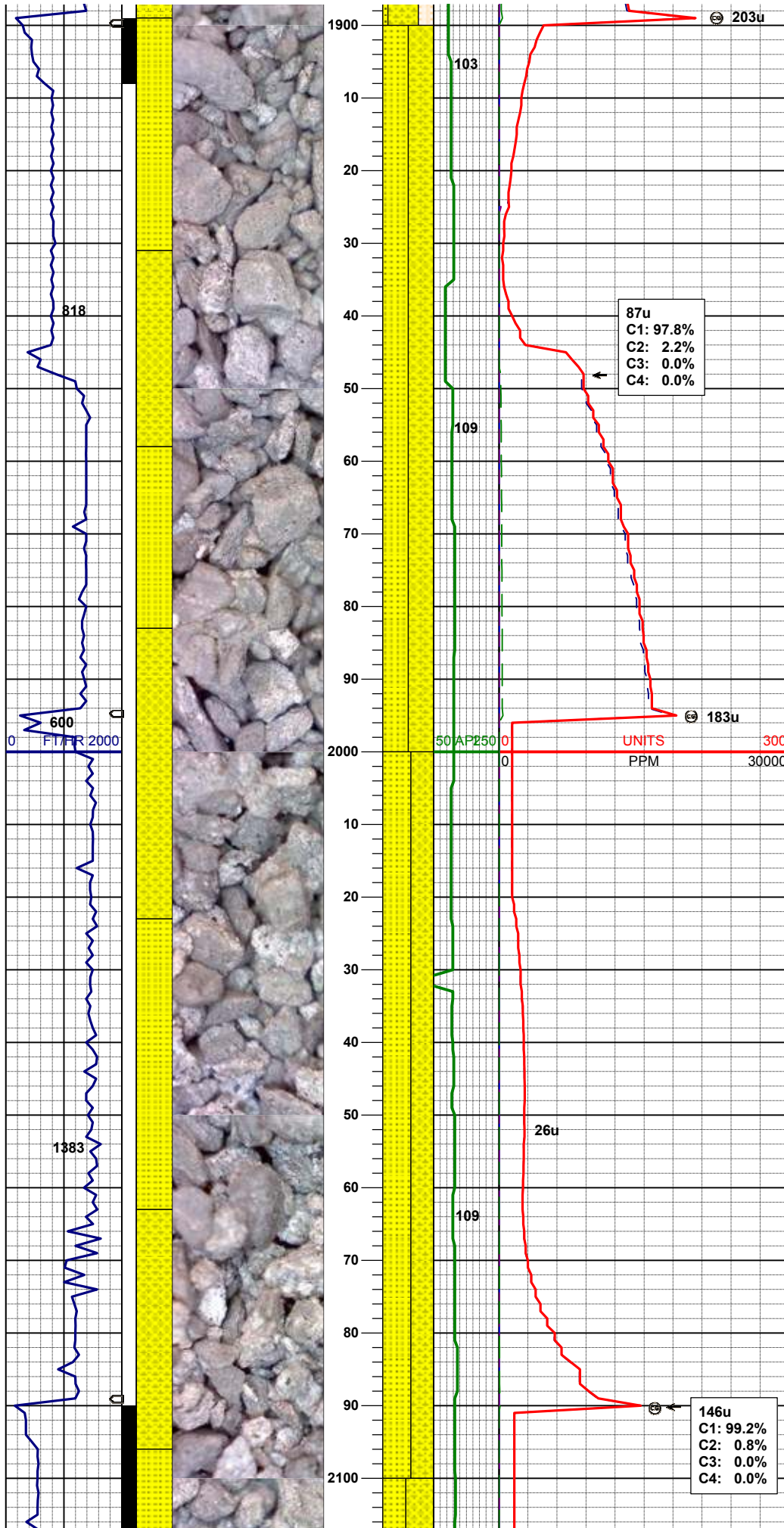
MD 1750'
INC 7.11°
AZM 172.21°

50% SHYSLTST: lt gy, sft- fri, sbbly- sl sbply,
aren- slty tex, tr biot incl
50% SHYSS: lt gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly

MUD WT 8.6 VIS 27

MD 1845'
INC 9.62°
AZM 175.13°

60% SHYSS: lt gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly
30% SHYSLTST: lt gy, sft- fri, sbbly- sl sbply,
aren- slty tex, tr biot incl
10% SS: lt gy - wh, vf-fgr, sbrd, g srt, frm-fri, g
por, rr biot

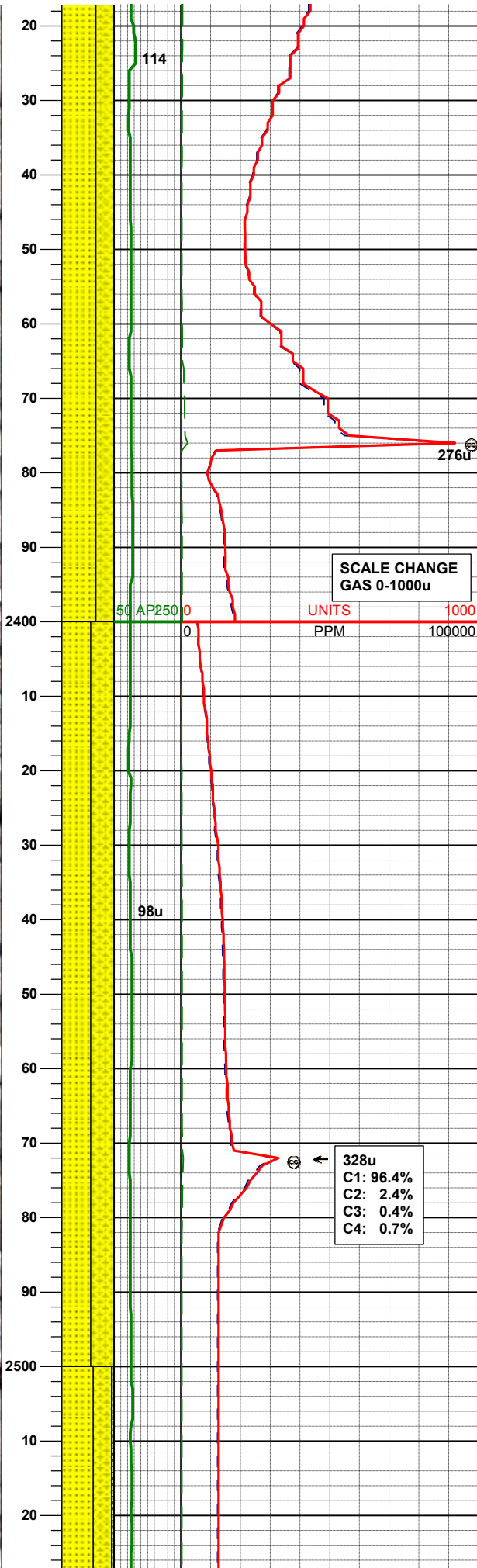
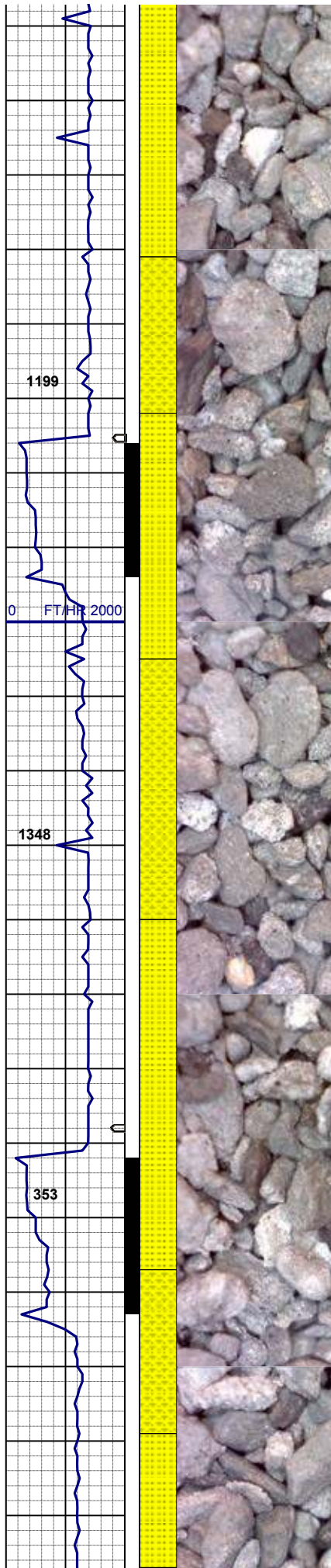


MD 1940'
INC 13.06°
AZM 181.93°

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

MD 2035'
INC 12.21°
AZM 179.91°

55% SS: lt gy - wh, vf-mfgr, sbrd, g srt, frm-fri,
g por, rr biot, sme glau incl
45% SHYSS: lt gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly



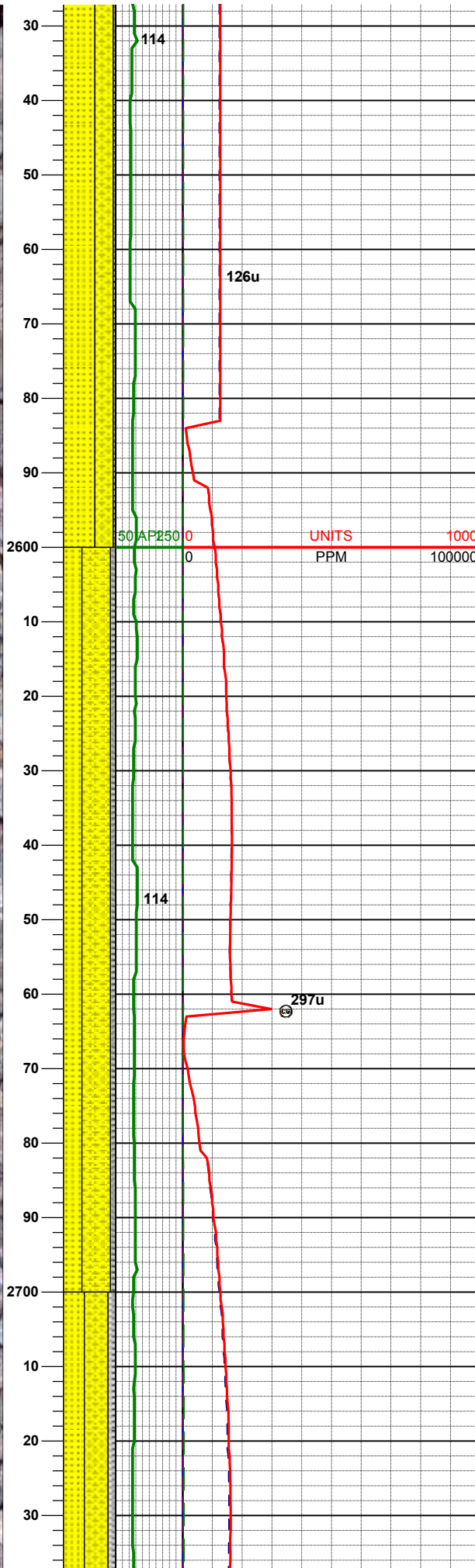
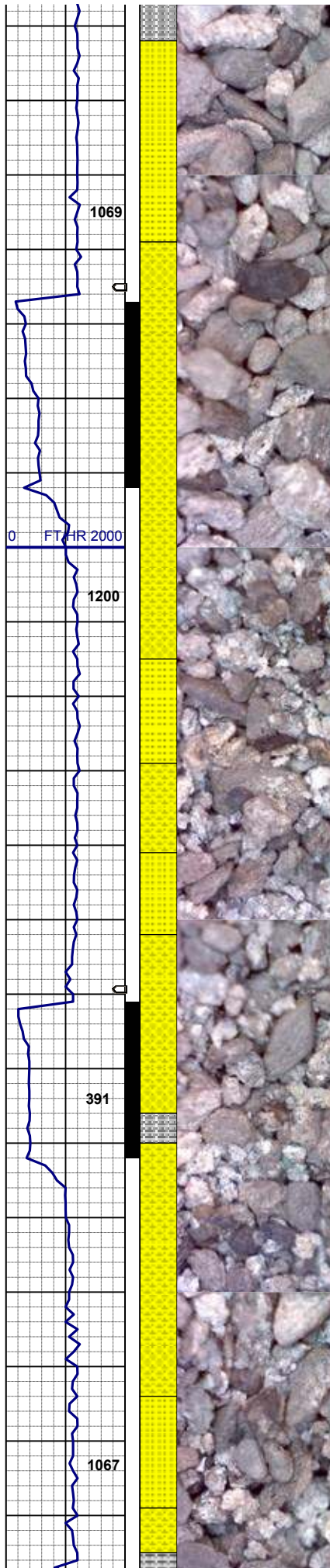
INC 12.43°
AZM 173.61°

65% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm
-mod fri, g por, rr biot, sme glau incl
35% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly

MD 2414'
INC 13.27°
AZM 177.55°

55% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm
-mod fri, g por, rr biot, sme glau incl
45% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly

MD 2509'
INC 11.37°
AZM 184.45°

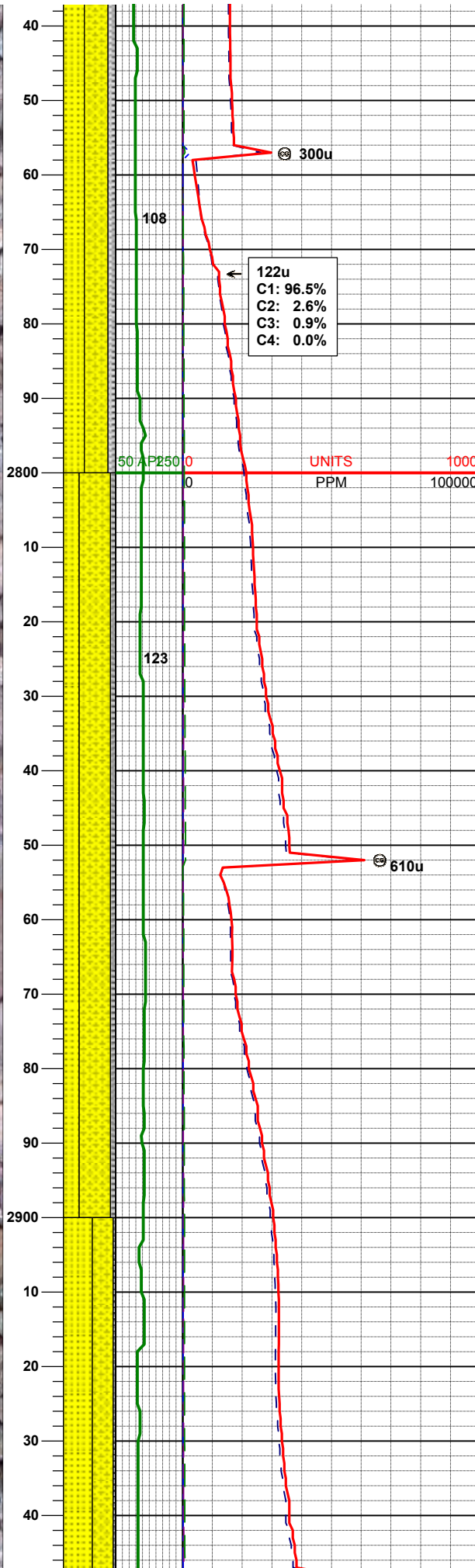
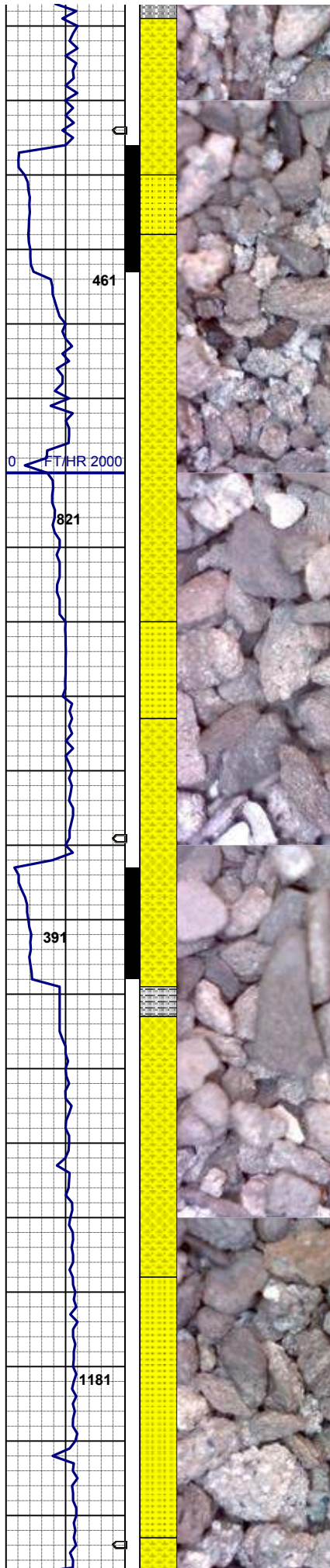


60% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm
-mod fri, g por, rr biot, sme glau incl
35% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly
5% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbbkly - sbplty, rthy sl slty tex

55% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly
35% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm
-mod fri, g por, rr biot, sme glau incl
10% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbbkly - sbplty, rthy sl slty tex, sme cly imbd

MUD WT 8.8 VIS 30

MD 2700'
INC 5.06°
AZM 173.94°



45% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly
40% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm
-mod fri, g por, rr biot, sme glau incl
15% SILTY SH: m gy-mgybrn occ dk gy, firm -
sft , sbblky - sbply, rthy sl silty tex, tr dism pyr

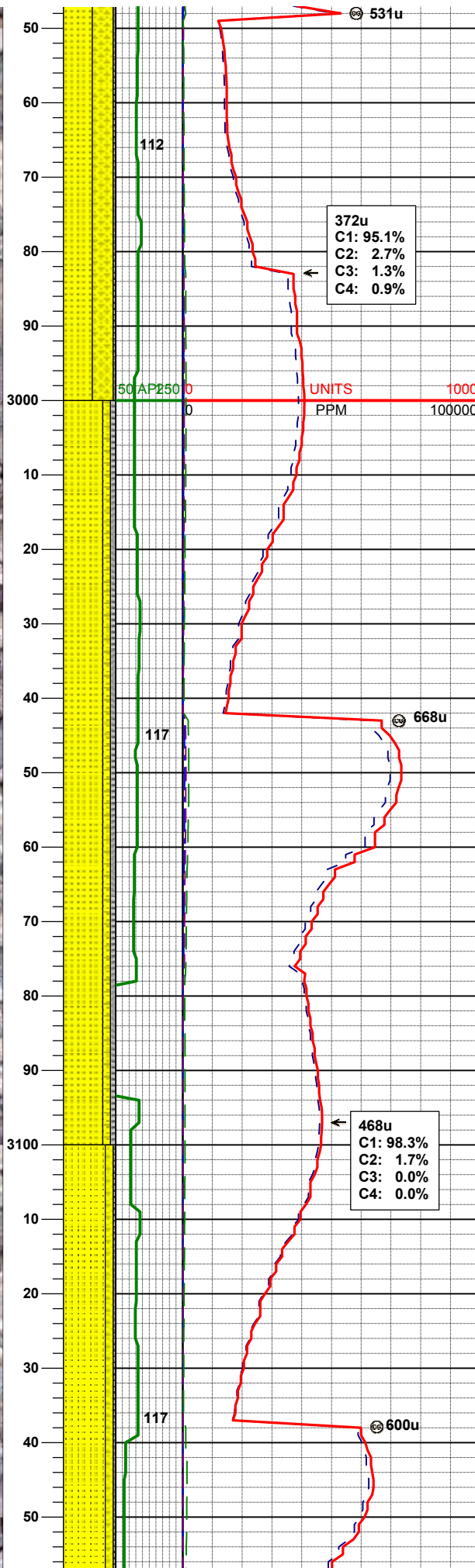
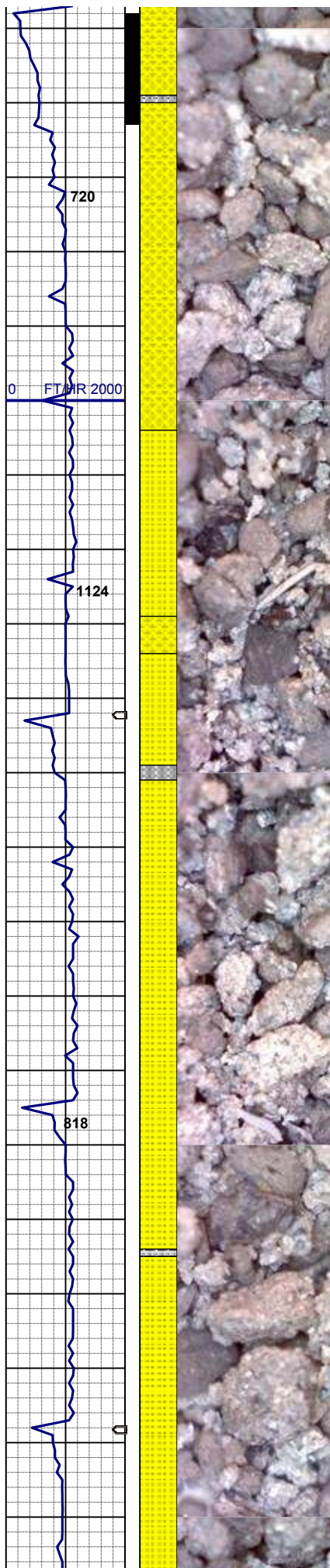
MD 2795'
INC 3.08°
AZM 190.66°

60% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt
dk gy cly
30% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm
-mod fri, g por, rr biot, sme glau incl
10% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbblky - sbply, rthy sl silty tex, tr dism pyr

MD 2890'
INC 1.80°
AZM 179.05°

MUD WT 8.9 VIS 31

55% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm
-mod fri, g por, rr biot, sme glau incl



40% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt dk gy cly
5% SILTY SH: m gy-mgybrn occ v dk gy, firm - sft , sbbkly - sbply, rthy sl silty tex, tr dism pyr

MD 2985'
INC 0.81°
AZM 235.76°

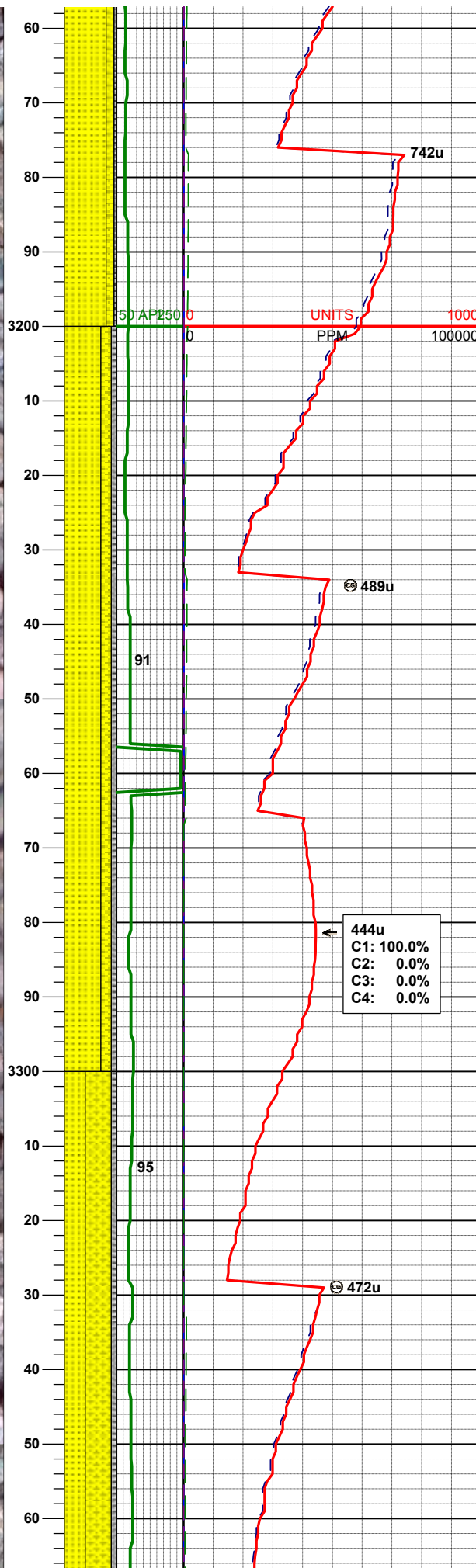
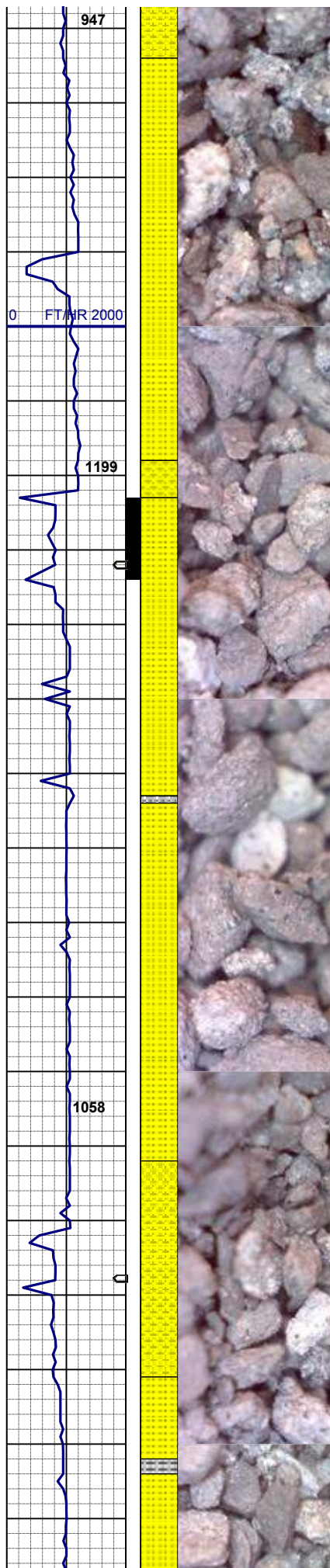
372u
C1: 95.1%
C2: 2.7%
C3: 1.3%
C4: 0.9%

75% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm -mod fri, g por, rr biot, sme glau incl
15% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt dk gy cly
10% SILTY SH: m gy-mgybrn occ v dk gy, firm - sft , sbbkly - sbply, rthy sl silty tex, tr dism pyr

MD 3080'
INC 0.66°
AZM 233.65°

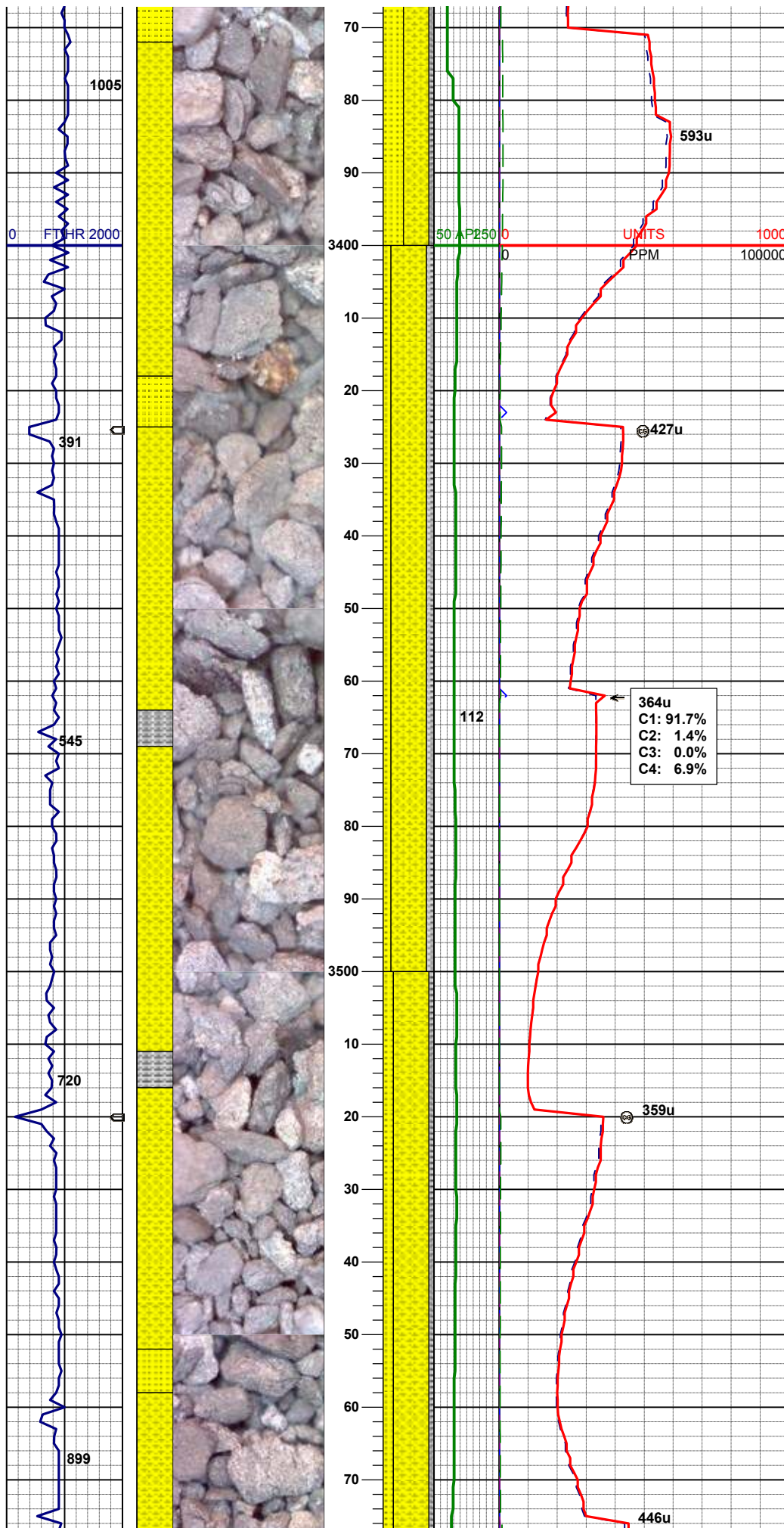
468u
C1: 98.3%
C2: 1.7%
C3: 0.0%
C4: 0.0%

80% SS: lt gy - wh, f-c, sbrd-sbang, p srt, firm-mod fri, g por, rr biot, abnt glau incl
15% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt dk gy cly



5% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbblky - sbplty, rthy sl slty tex, dism pyr

AZM 271.90°



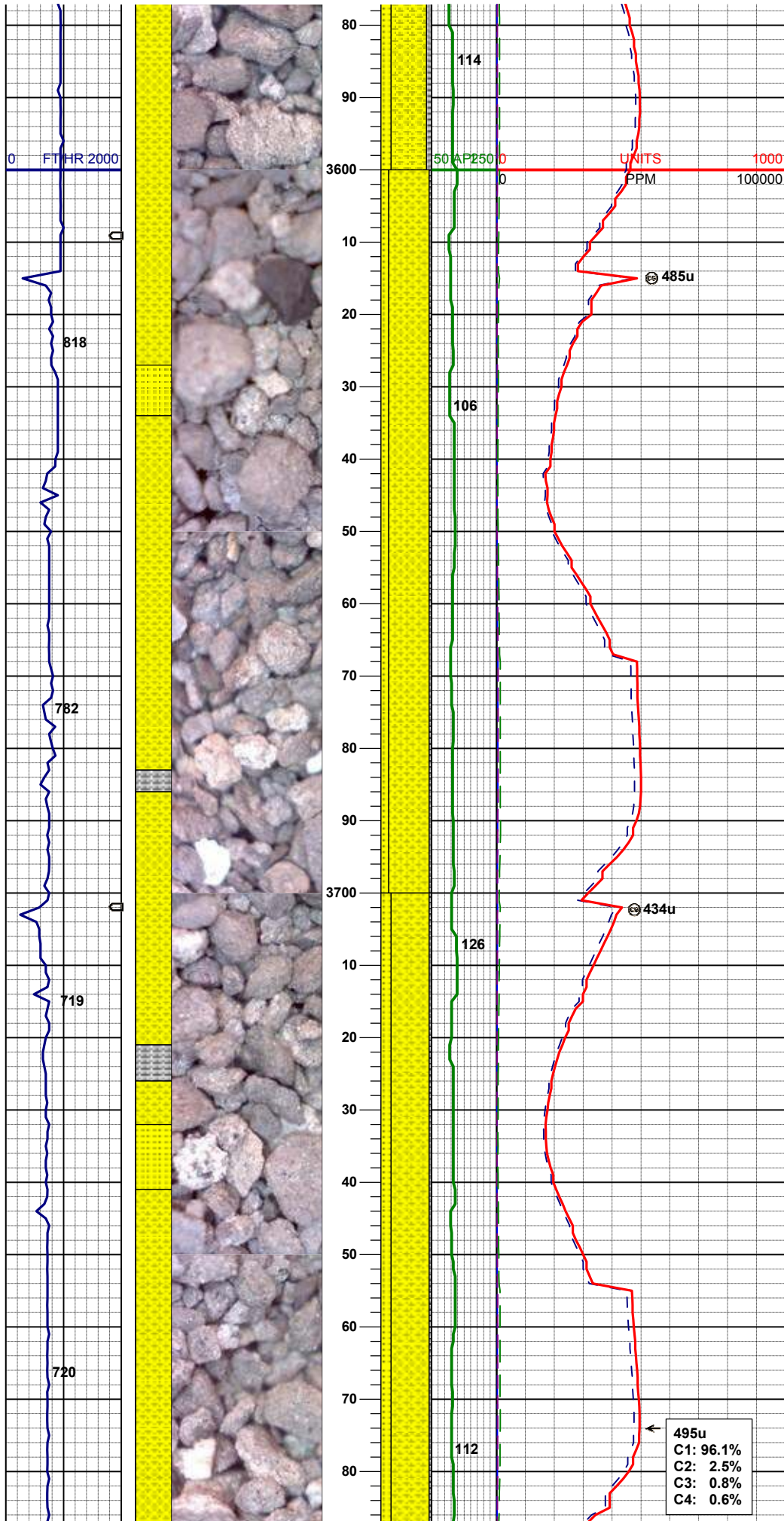
70% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang, mod srt, fri, p por, arg cmt, rr biot, tr glau ; abnt dk gy cly
 15% SS: gy - lt gy, vf-fgr, sbrd-sbang, p srt, firm -mod fri, g por, rr biot, sme glau incl
 15% SILTY SH: m gy-mgybrn occ v dk gy, firm - sft , sbblky - sbply, rthy sl silty tex, tr dism pyr

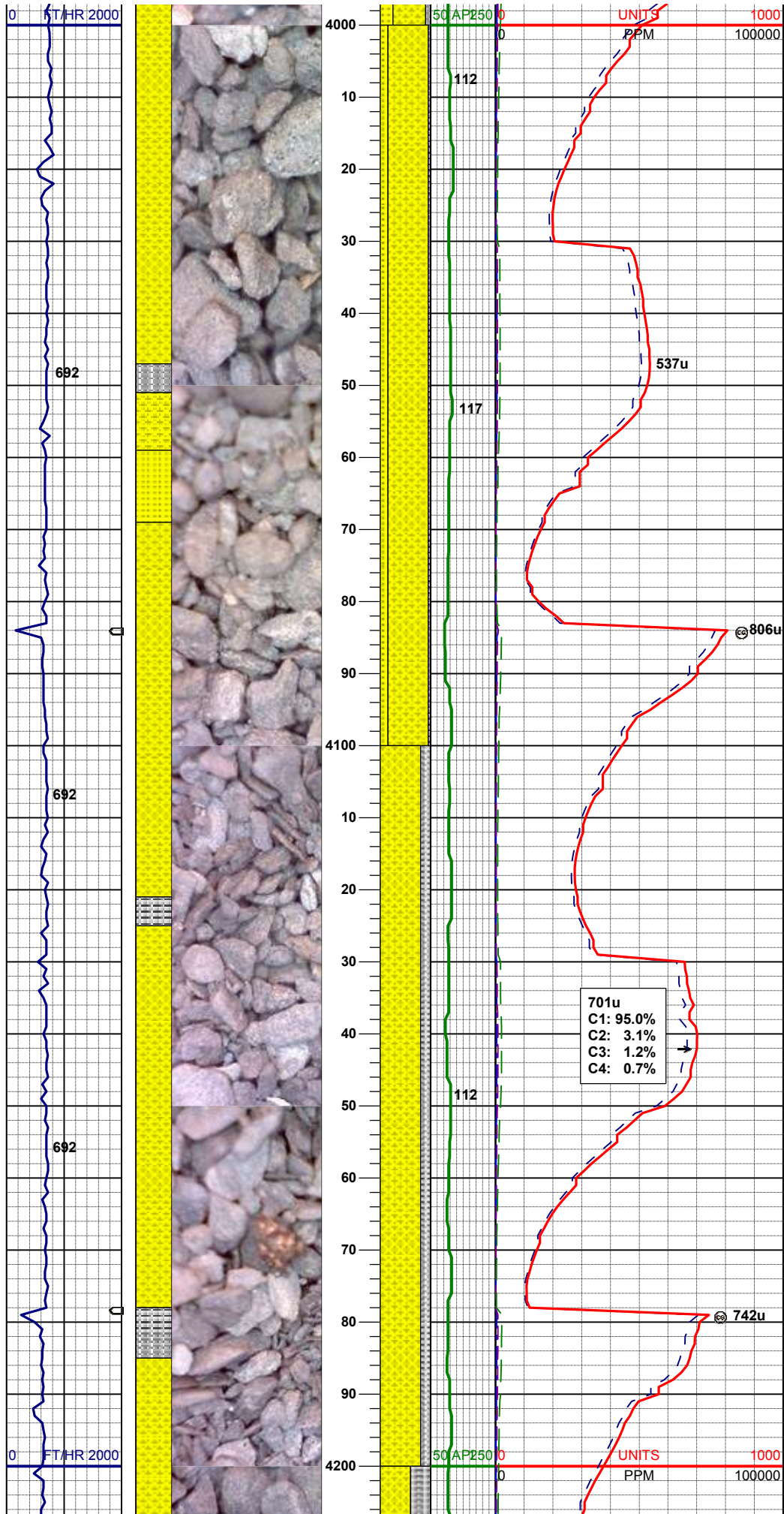
MD 3460'
 INC 0.43°
 AZM 246.86°

MUD WT 8.9 VIS 31

70% SHYSS: gy- tr s&p, vf-fgr, sbrd - sbang, g srt, fri, p por, arg cmt, rr biot, tr glau ; sme gy cly
 20% SS: gy - wh, f-mgr, sbrd-sbang, mod srt, firm-mod fri, g por, sme glau incl
 10% SILTY SH: dk gy-mgybrn, firm, sbblky - sbply, rthy sl silty tex, tr dism pyr

MD 3555'
 INC 0.31°
 AZM 199.38°





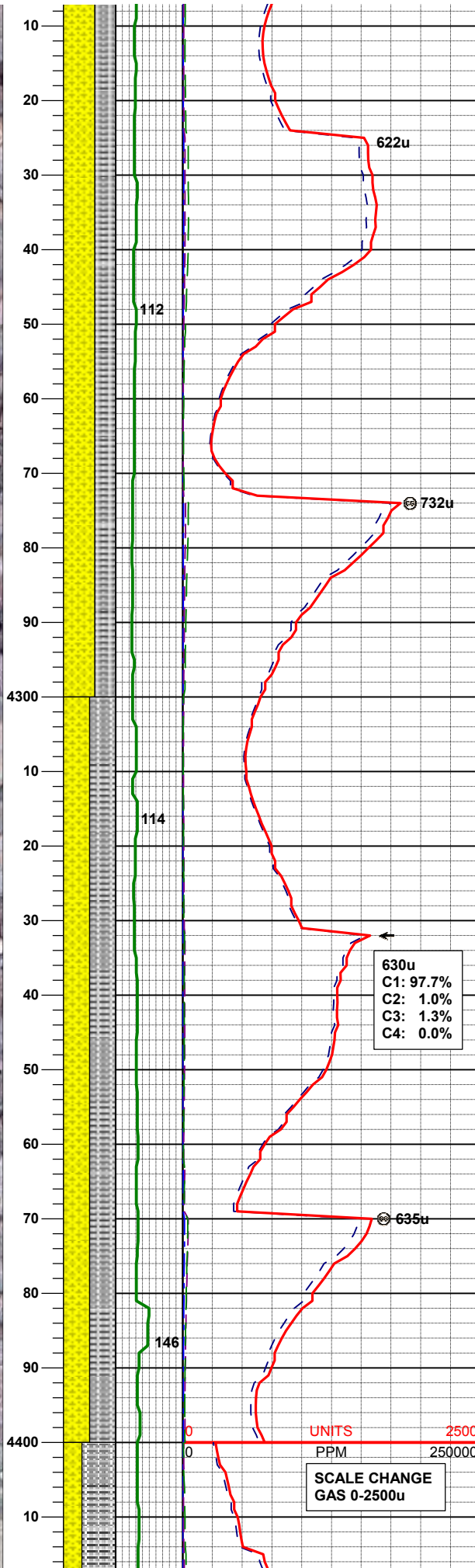
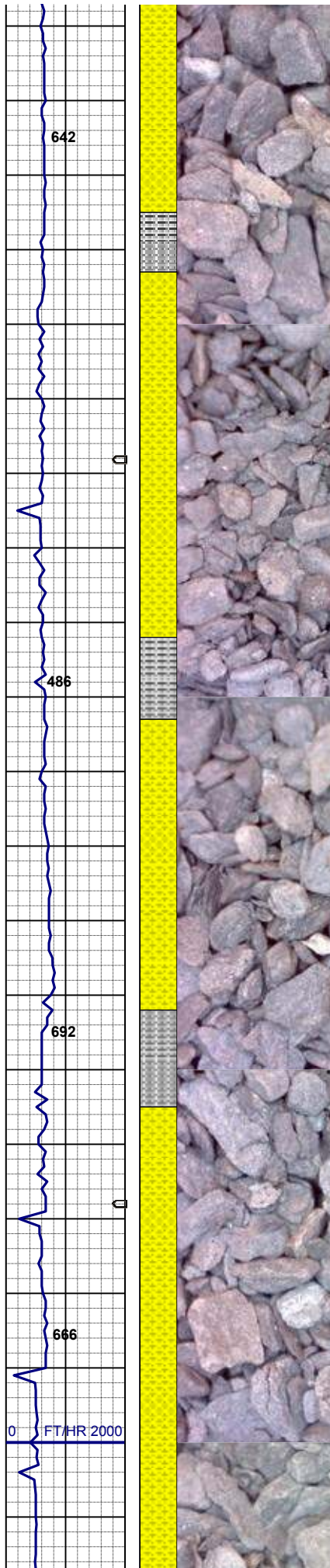
MD 4030'
INC 0.48°
AZM 158.85°

80% SHYSS: gy- abnt s&p, vf-mfgr, sbdr -
sbang, g srt, fri, p por, arg cmt, rr biot, v rr glau ;
sme dk gy cly
15% SS: gy - wh, f-mgr, sbdr-sbang, mod srt,
firm-mod fri, g por, tr glau incl
5% SILTY SH: dk gy-mgybrn, firm, sbblky -
sbplty, rthy sl silty tex, tr dism pyr

MD 4124'
INC 0.48°
AZM 158.99°

80% SILTY SH: dk gy-mgybrn, firm, sbblky -
sbplty, rthy sl silty tex, tr dism pyr
20% SHYSS: gy- abnt s&p, vf-mfgr, sbdr -
sbang, g srt, fri, p por, arg cmt, rr biot, v rr glau ;
sme dk gy cly

701u
C1: 95.0%
C2: 3.1%
C3: 1.2%
C4: 0.7%



MD 4219'
INC 0.67°
AZM 173.78°

60% SHYSS: gy- abnt s&p, vf-mfgr, sbrd - sbang, g srt, fri, p por, arg cmt, rr biot; sme dk gy cly, v tr Inoc fos, v sl calc
40% SILTY SH: dk gy-mgybrn, firm, sbblky - sbplty, rthy sl slty tex, tr dism pyr

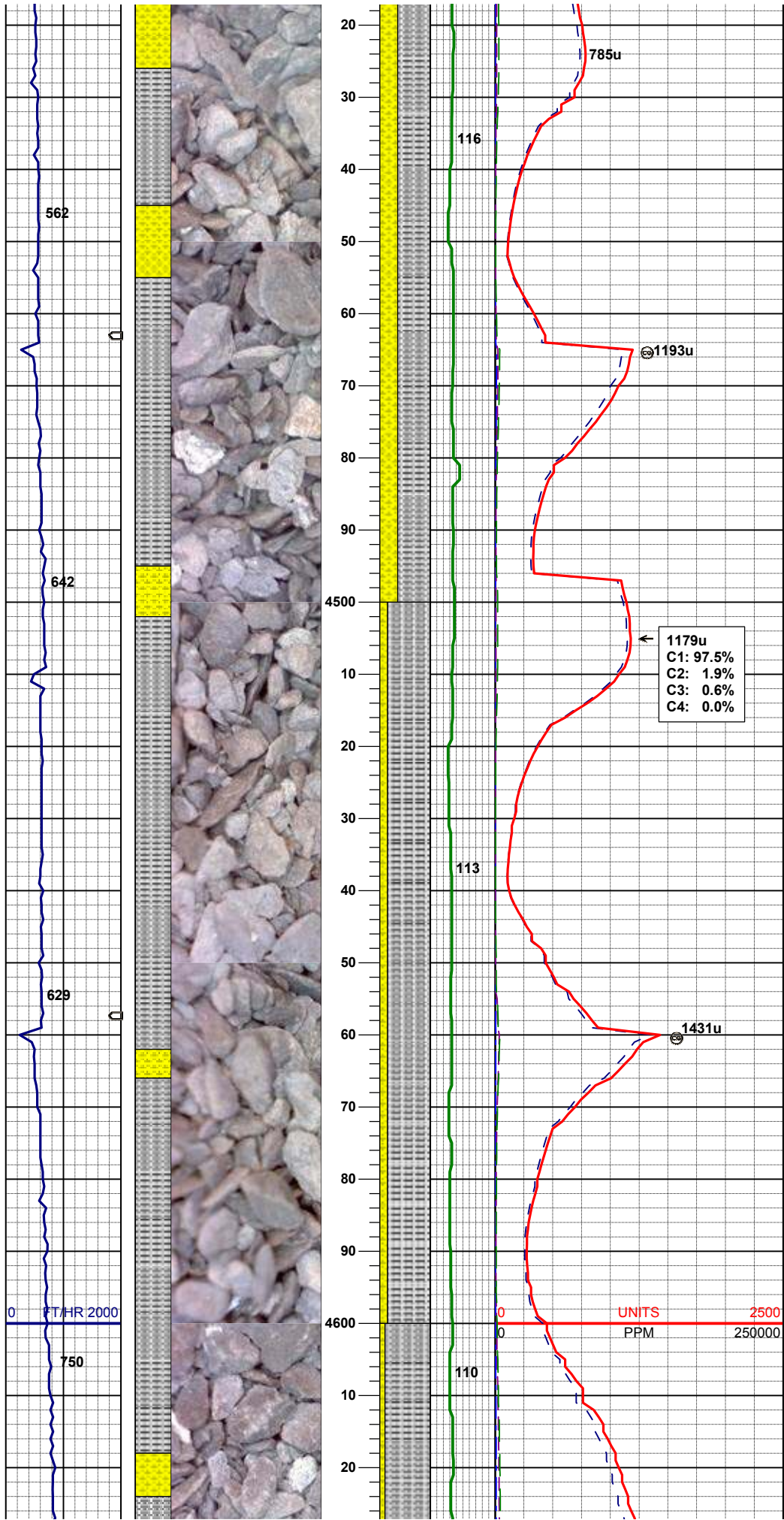
MD 4314'
INC 0.40°
AZM 211.30°

50% SHYSS: gy- abnt s&p, vf-fgr, sbrd - sbang, g srt, sft-fri, p por, arg cmt, rr biot; sme dk gy cly, tr Inoc fos
50% SS: SILTY SH: mdgy-mgybrn, firm, sbblky - sbplty, rthy sl slty tex, tr-sme dism pyr, v sl calc

630u
C1: 97.7%
C2: 1.0%
C3: 1.3%
C4: 0.0%

SCALE CHANGE
GAS 0-2500u

MD 4409'
INC 0.35°
AZM 248.77°



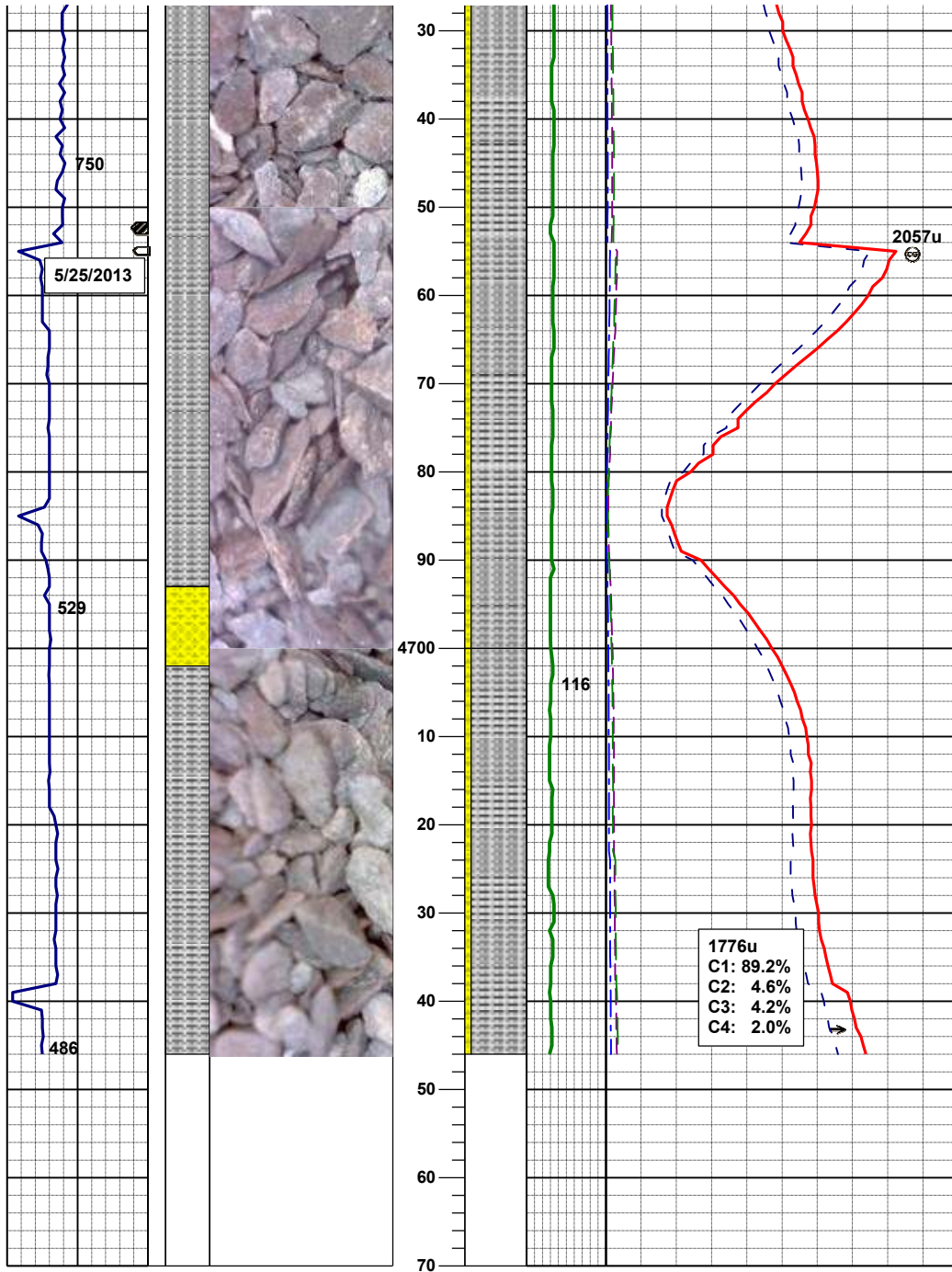
65% SS: SILTY SH: mdgy-mgybrn, firm, sbbkly
- sbplty, rthy sl slty tex, tr-sme dism pyr, v sl
calc
35% SHYSS: gy- abnt s&p, vf-fgr, sbrd - sbang,
g srt, sft-fri, p por, arg cmt, rr biot; sme dk gy
cly, tr lnoc fos

MUD WT 9.1 VIS 31

MD 4503'
INC 0.07°
AZM 168.86°

85% SS: SILTY SH: mdgy-mgybrn, firm, sbbkly
- sbplty, rthy sl slty tex, tr-sme dism pyr, v sl
calc
15% SHYSS: gy- abnt s&p, vf-fgr, sbrd - sbang,
g srt, sft-fri, p por, arg cmt, rr biot; sme dk gy
cly, tr lnoc fos

MD 4598'
INC 0.28°
AZM 150.38°



90% SILTY SH: mdgy-mgybrn, firm, sbblky -
sbplty, rthy sl silty tex, tr-sme dism pyr, v sl calc
10% SHYSS: gy- abnt s&p, vf-fgr, sbrd - sbang,
g srt, sft-fri, p por, arg cmt, rr biot; sme dk gy
cly, tr Inoc fos

MD 4693'
INC 0.46°
AZM 147.73°

TOOH For Tools @: 4746' MD
00:45 hrs 5/25/2013

Log Continued On:
CASTOR LD13-78HN(HORZ).lplot

Thank you for choosing
Columbine Logging INC.