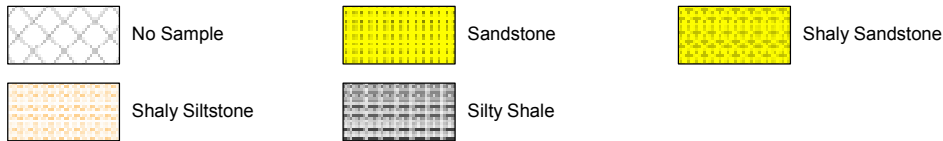


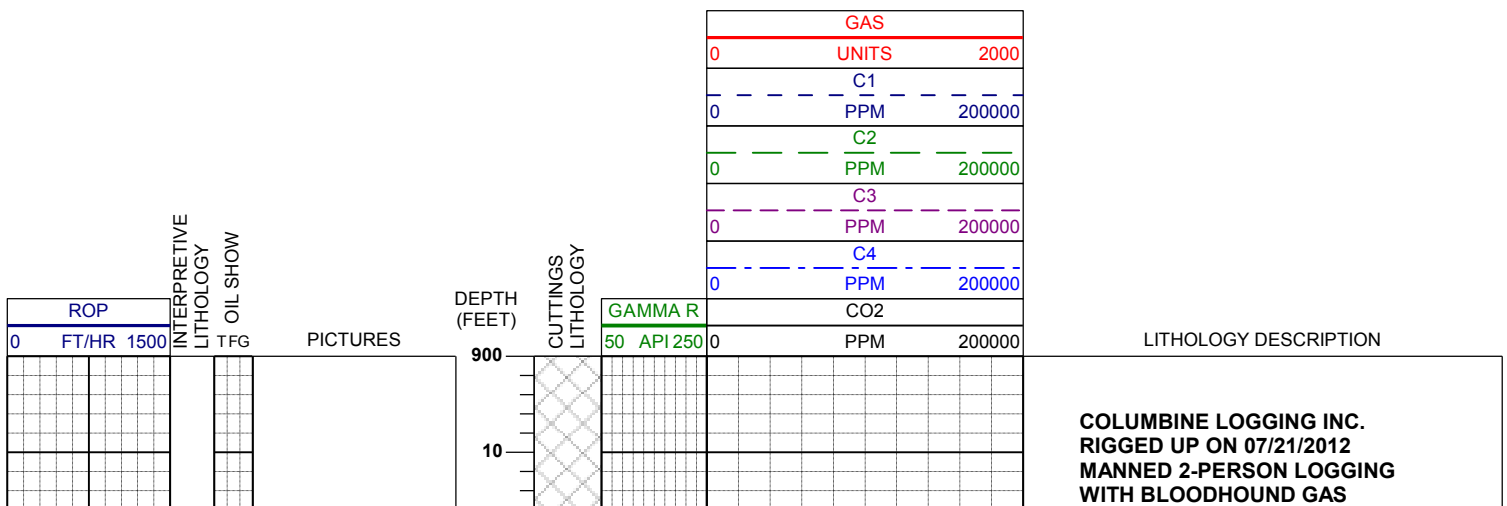
LOG created using L PLOT VH Version 3.0, July 29, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC
WELL: KERN GW17-78HN
LOCATION: NWNW, SEC 20, T8N, R63W
COUNTY: WELD
STATE: COLORADO
SPOT: 280' FNL, 250' FWL
ELEVATION: GE 4977', KB 5001'
FIELD: WILDCAT
SPUD DATE: JULY 20, 2012
TD DATE: JULY 28, 2012
DATES LOGGED: 7/22/12 - 7/23/12
DEPTHS LOGGED: 947' - 6400'
LOGGERS: MIKE KERSCHEN / JOHN READY
DRILLING FLUID: WATER, MUD, POLY
DRILLING RIG: H&P 322
API: 05-123-35652
LOG TYPE: VERTICAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: Log continues on KERN GW17-78HN Horizontal.

LITHOLOGIES



ENGINEERING SYMBOLS

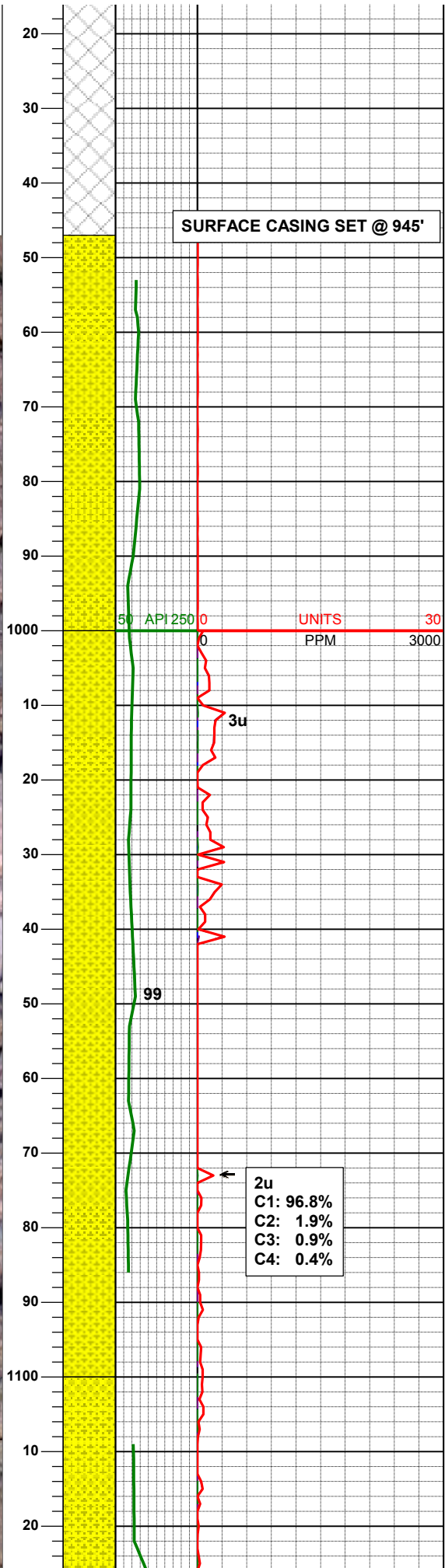


DRILLING BEGAN AT: 00:10hrs
ON: 07/22/2012

MUD WT 8.33
VIS 0.28

SURFACE CASING SET @ 945'

100% SHYSS: lt gy-gy, wh, s&p, vf- f gr, sbbkly, sbrd-sbang, mod srt, frm to fri, arg, calc cmt

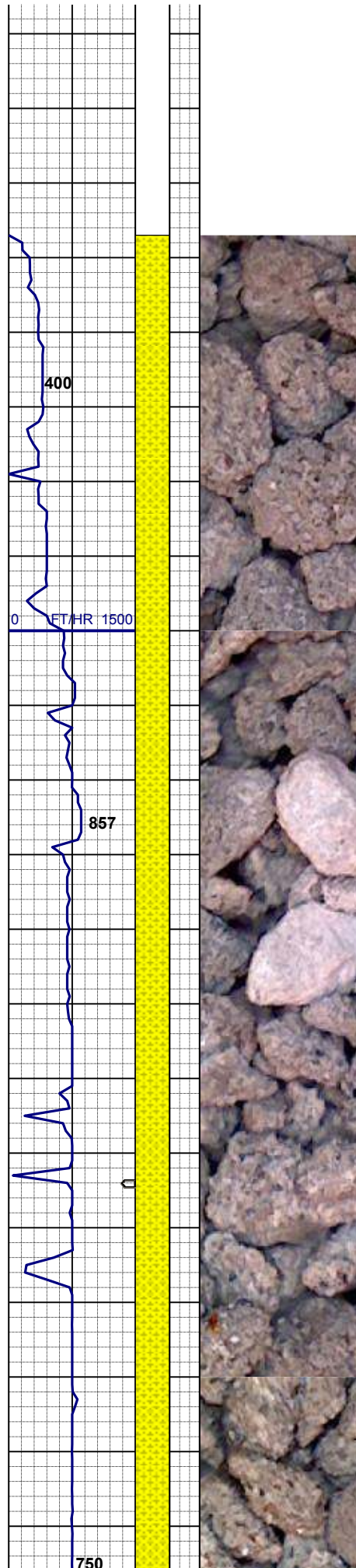


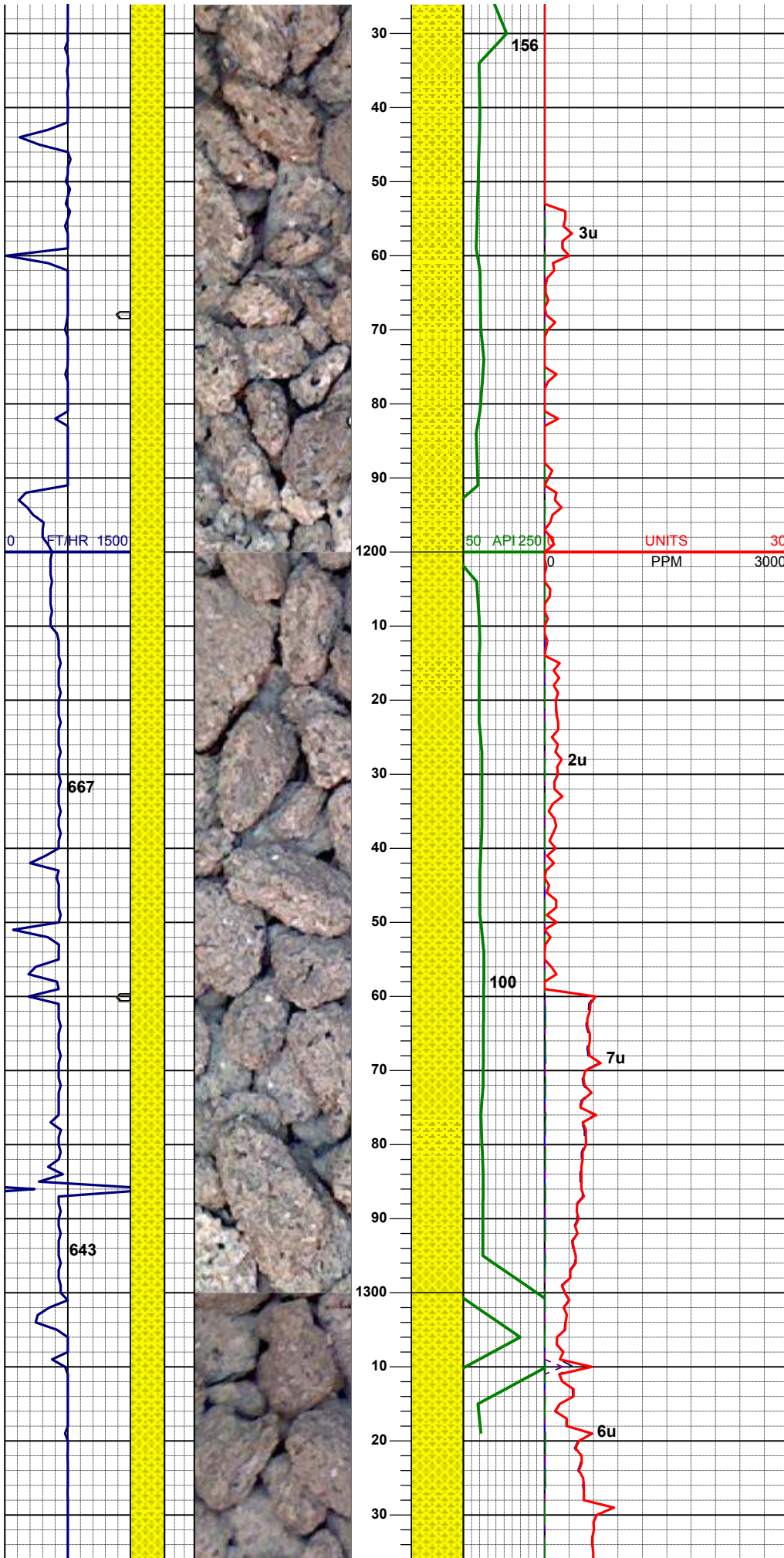
SURVEY
MD 1017'
INC 0.43°
AZM 112.45°

100% SHYSS: lt gy-gy, wh, s&p, vf- f gr, sbbkly, sbrd-sbang, mod srt, frm to fri, arg, calc cmt, tr biot

2u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%

SURVEY
MD 1112'
INC 0.61°
AZM 118.34°



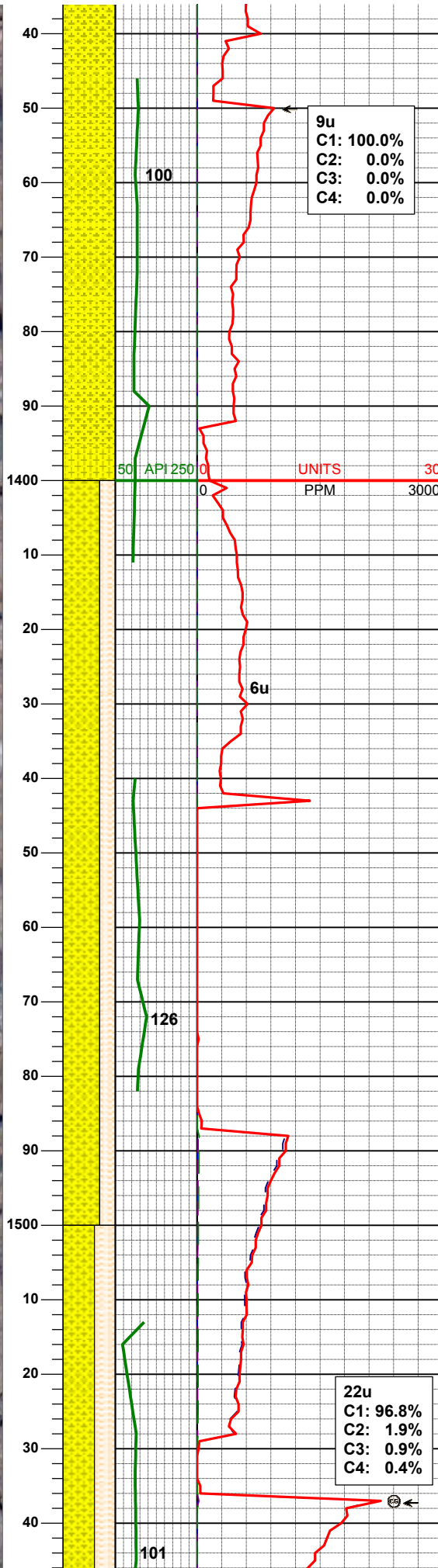
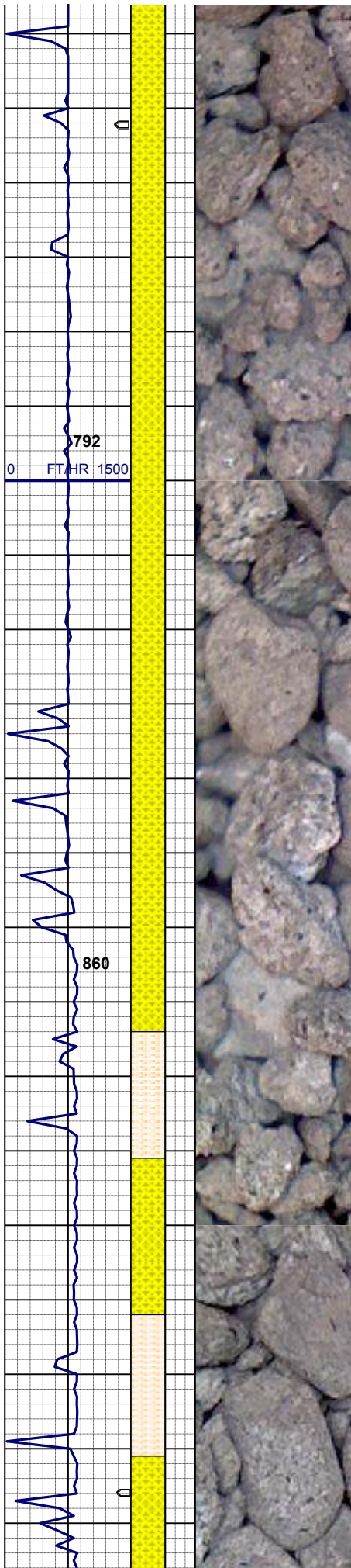


100% SHYSS: lt gy-gy, wh, s&p, vf-f gr, sbbkly, sbrd-sbang, mod srt, frm to fri, arg, calc cmt, tr biot

SURVEY
MD 1204'
INC 0.44°
AZM 64.81°

100% SHYSS: lt gy-gy, wh, s&p, vf-f gr, sbbkly, sbrd-sbang, mod srt, frm to fri, arg, calc cmt, tr biot, v rr glau

SURVEY
MD 1296'
INC 0.47°
AZM 113.59°



9u
 C1: 100.0%
 C2: 0.0%
 C3: 0.0%
 C4: 0.0%

100% SHYSS: lt gy-gy, wh, s&p, vf-f gr, sbbkly, sbrd-sbang, mod srt, frm to fri, arg, calc cmt, tr biot, v rr glau, abnt clays

SURVEY
 MD 1387'
 INC 0.28°
 AZM 77.98°

UNITS
 PPM

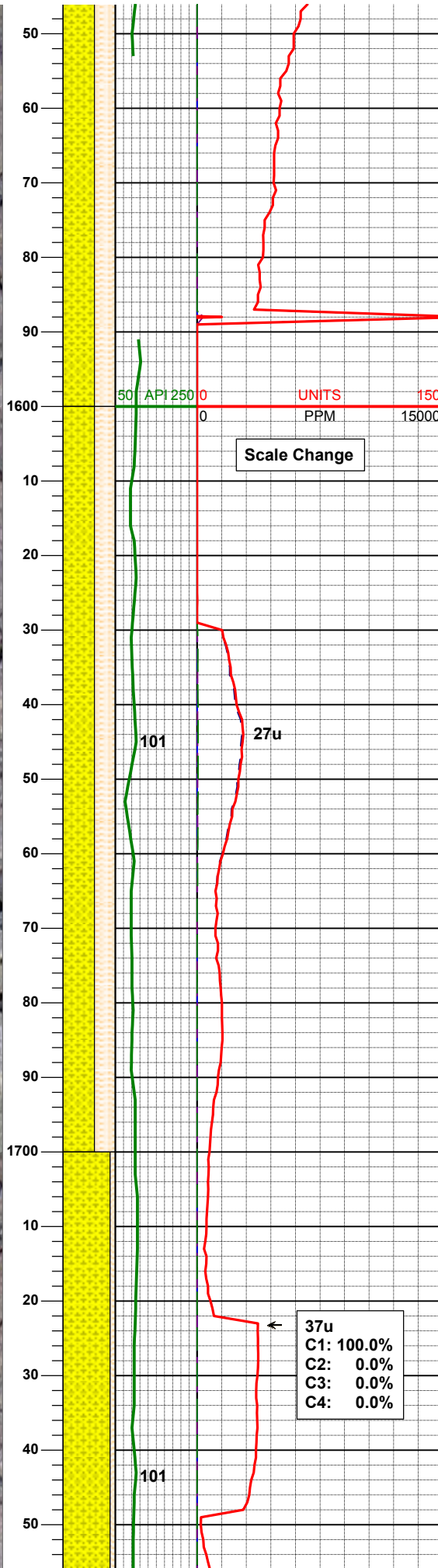
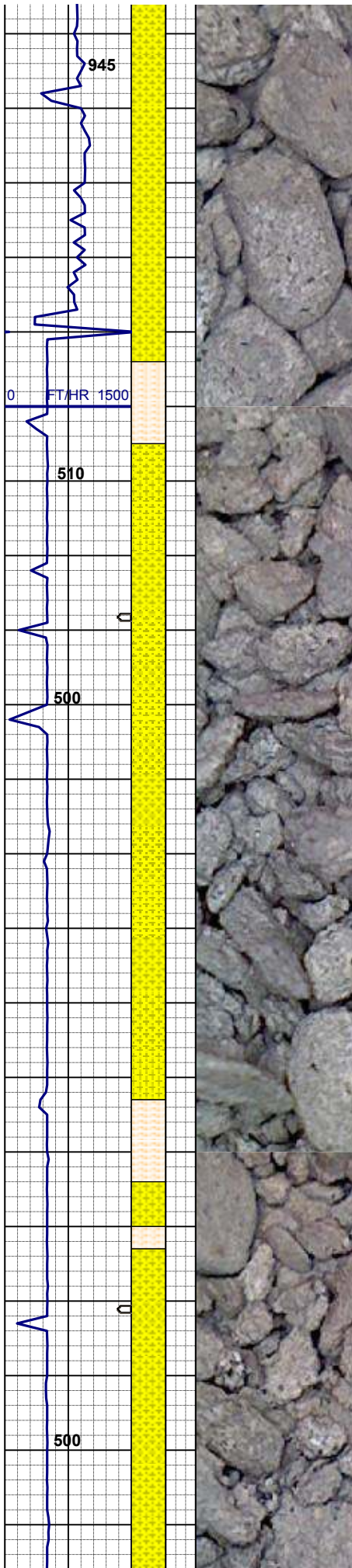
70% SHYSS: wh, lt gy-gy, s&p, vf, sbbkly, sbrd-sbang, mod srt, fri, arg, sl calc, tr biot, 30% SHYSLTST: lt gy-m gy, s&p, sb plty-sb blkly, w srt, vf gr, sft, sdy, arg cmt, sme intbd

MUD WT 8.40
VIS 0.28

SURVEY
 MD 1480'
 INC 0.25°
 AZM 194.02°

22u
 C1: 96.8%
 C2: 1.9%
 C3: 0.9%
 C4: 0.4%

60% SHYSS: wh, lt gy-gy, s&p, vf, sbbkly, sbrd-sbang, mod srt, fri, arg, sl calc, tr biot, 40% SHYSLTST: lt av-m av. s&n. sb oltv-sb blkv. w



srt, vf gr, sft, sdy, arg cmt, sme intbd

SURVEY
MD 1572'
INC 0.22°
AZM 116.54°

60% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, tr biot, 40% SHYSLTST: lt gy-m gy, s&p, sb plty-sb blky, w srt, vf gr, sft, sdy, arg cmt, sme intbd

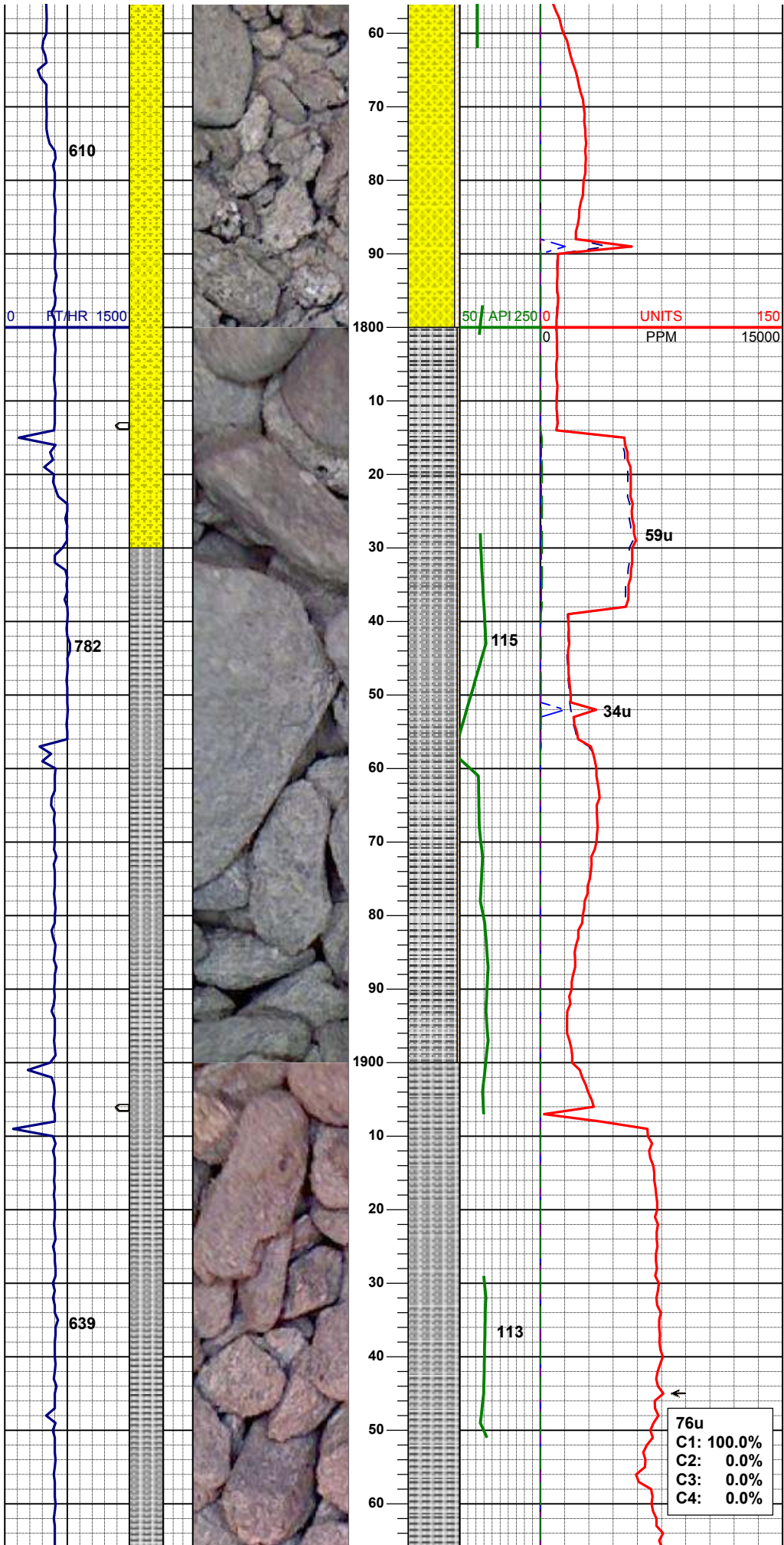
SURVEY
MD 1664'
INC 0.28°
AZM 129.08°

37u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

90% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau tr biot, 10% SHYSLTST: lt gy-m gy, s&p, sb plty-sb blky, w srt, vf gr, sft, sdy, arg cmt, sme intbd

SURVEY
MD 1756'

INC 0.26°
AZM 119.62°



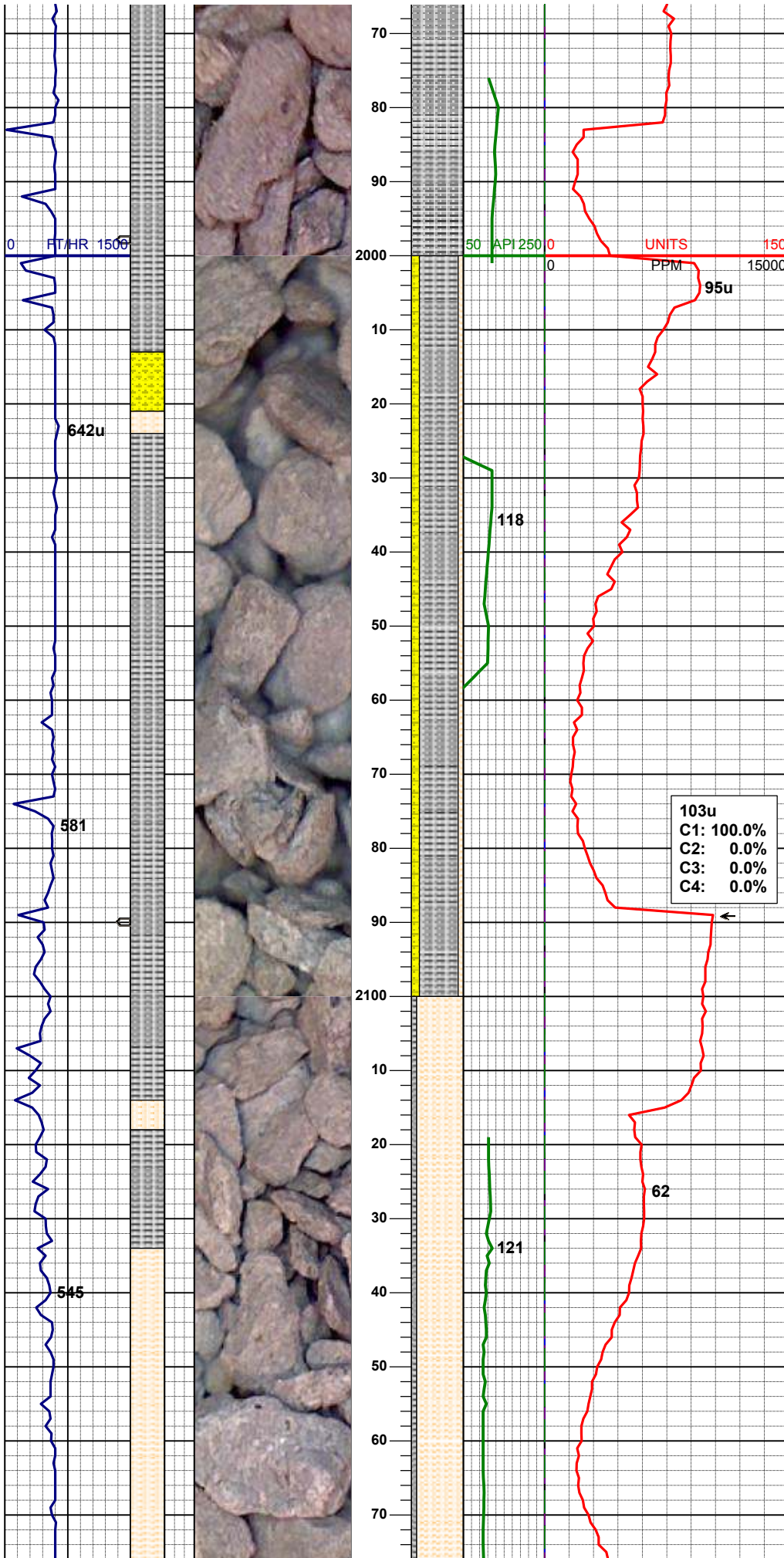
25% SLTY SH: lt gy -gy, sft-firm, sbply - sbbkly, sdy-slty tex, sl calc, 5% SHYSLTST: lt gy-m gy, s&p, sb ply-sb blkly, w srt, vf gr, sft, sdy, arg cmt, sme intbd

SURVEY
MD 1849'
INC 0.25°
AZM 163.05°

MUD WT 8.40
VIS 0.27

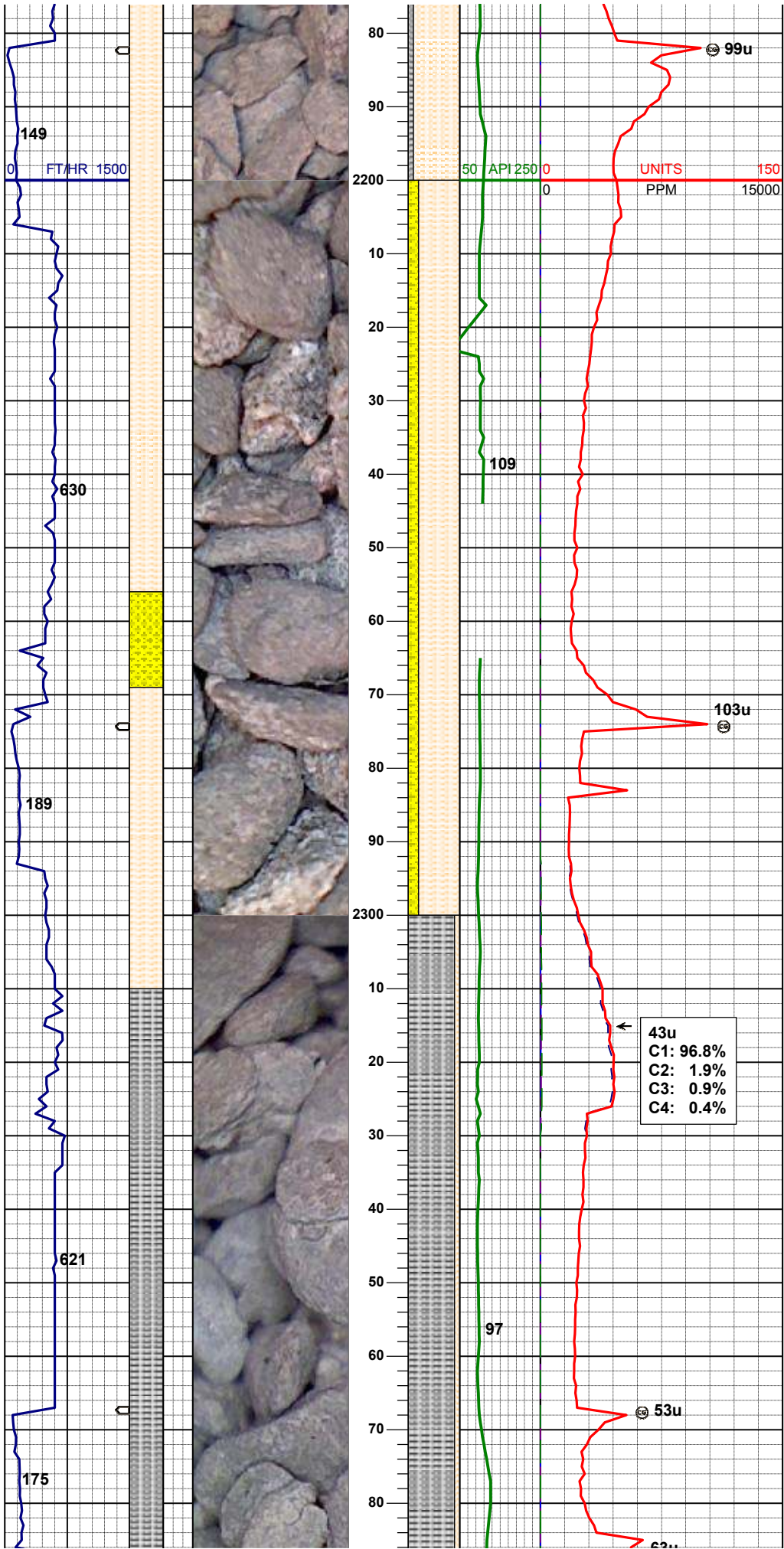
76u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

100% SLTY SH: lt gy -gy, sft-firm, sbply - sbbkly, sdy-slty tex, sme lam ip w/ blk carb flk, sl calc, tr shysltst



75% SLTY SH: lt gy-gy, sft-firm, sbply - sbblky, sdy-silty tex, sl calc, 15% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau tr biot 10% SHYSLTST: lt gy-m gy, s&p, sb ply-sb blky, w srt, vf gr, sft, sdy, arg cmt, sme intbd

90% SHYSLTST: lt gy-m gy, s&p, sb ply-sb blky, w srt, vf gr, sft, sdy, arg cmt, sme intbd w/ ss 10% SLTY SH: lt gy-gy, sft-firm, sbply - sbblky, sdy-silty tex, sl calc, tr ss

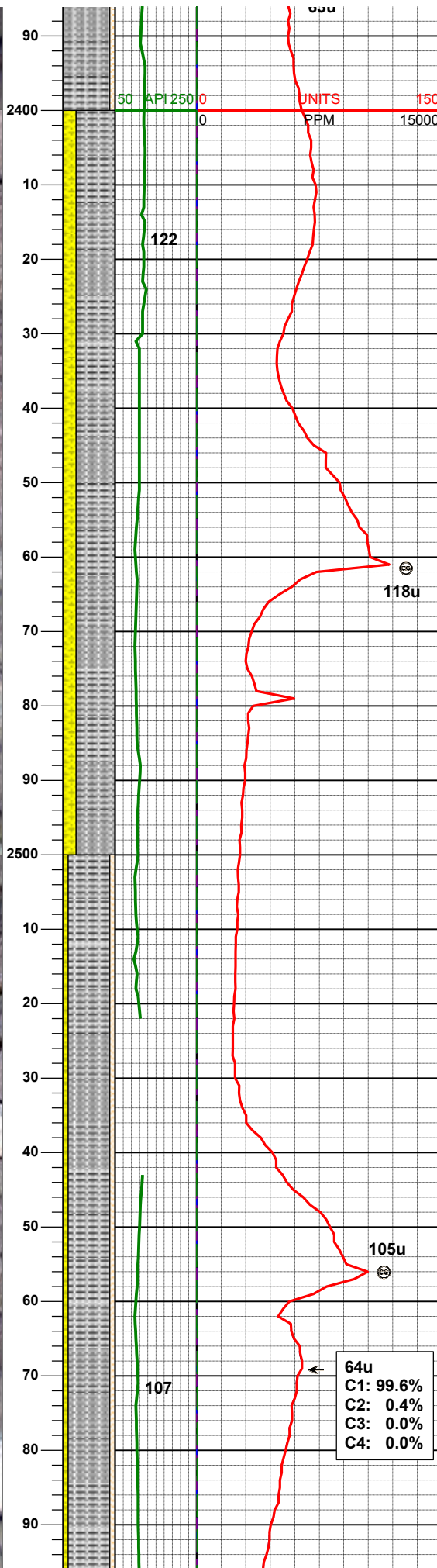
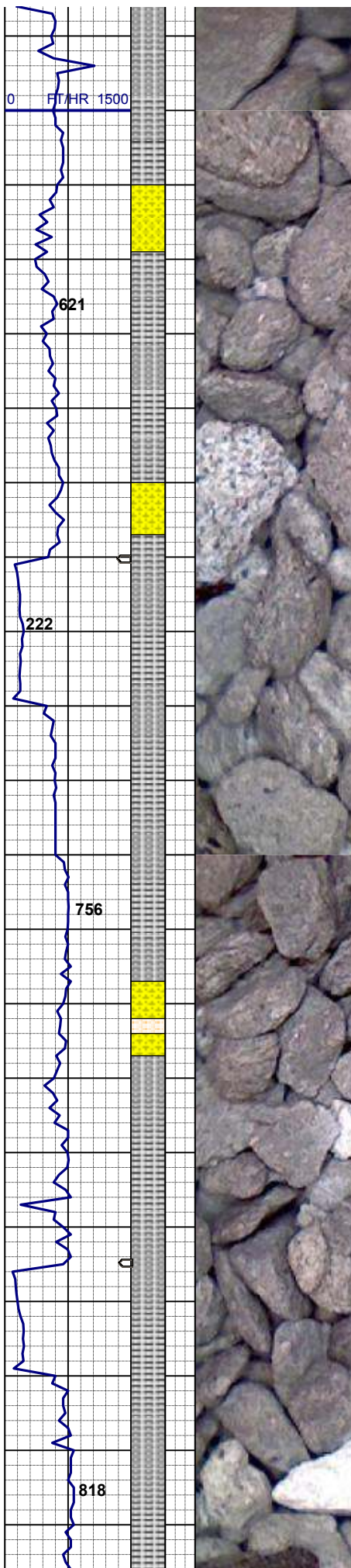


80% SHYSLTST: lt gy-m gy, s&p, sb ply-sb blkly, w srt, vf gr, sft, sdy, arg cmt, sme intbd w/ ss 20% SHYSS: wh, lt gy-gy, s&p, vf, sbblkly, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau, tr sltysh

SURVEY
MD 2310'
INC 5.01°
AZM 72.66°

MUD WT 8.35
VIS 28.0

90% SLTY SH: lt gy-gy, sft-firm, sbply - sbblkly, sdy-slty tex, sl calc, 10% SHYSLTST: lt gy-m gy, s&p, sb ply-sb blkly, w srt, vf gr, sft, sdy, arg cmt, sme intbd w/ ss



SURVEY
MD 2403'
INC 7.18°
AZM 61.02°

75% SLTY SH: lt gy-gy, sft-firm, sbplty - sbbkly, sdy-slty tex, sl calc, 25% SHYSS: wh, lt gy-gy, s&p, vf, sbbkly, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau

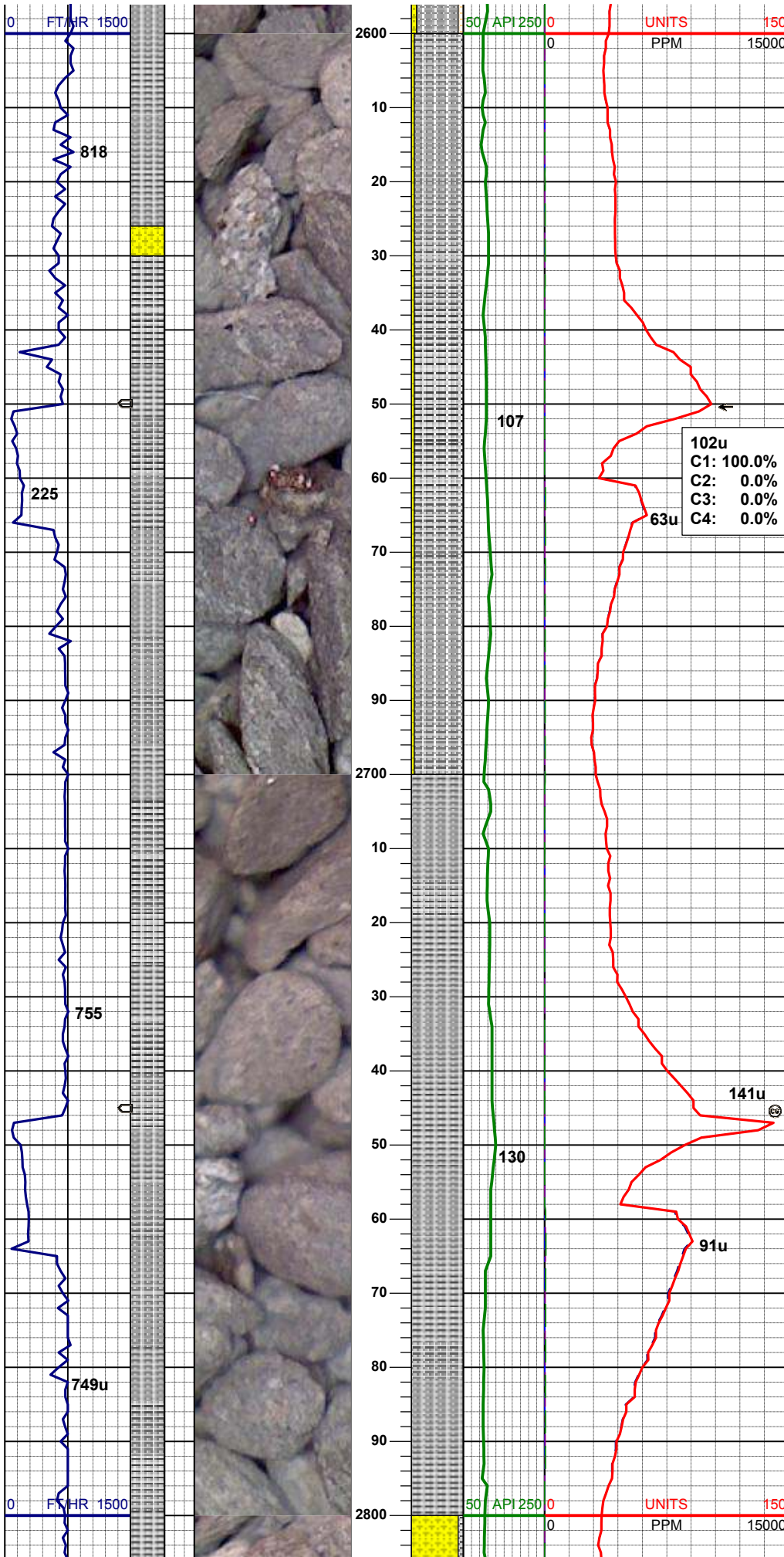
MUD WT 8.30
VIS 28.0

SURVEY
MD 2497'
INC 8.98°
AZM 56.54°

80% SLTY SH: lt gy-gy, sft-firm, sbplty - sbbkly, sdy-slty tex, sme blk carb sh, sl calc, 10% SHYSS: wh, lt gy-gy, s&p, vf, sbbkly, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau, tr biot
 10% SHYSLTST: lt gy-m gy, s&p, sb plty-sb bkly, w srt, vf gr, sft, sdy

64u
C1: 99.6%
C2: 0.4%
C3: 0.0%
C4: 0.0%

SURVEY
MD 2593'
INC 10.87°
AZM 52.38°



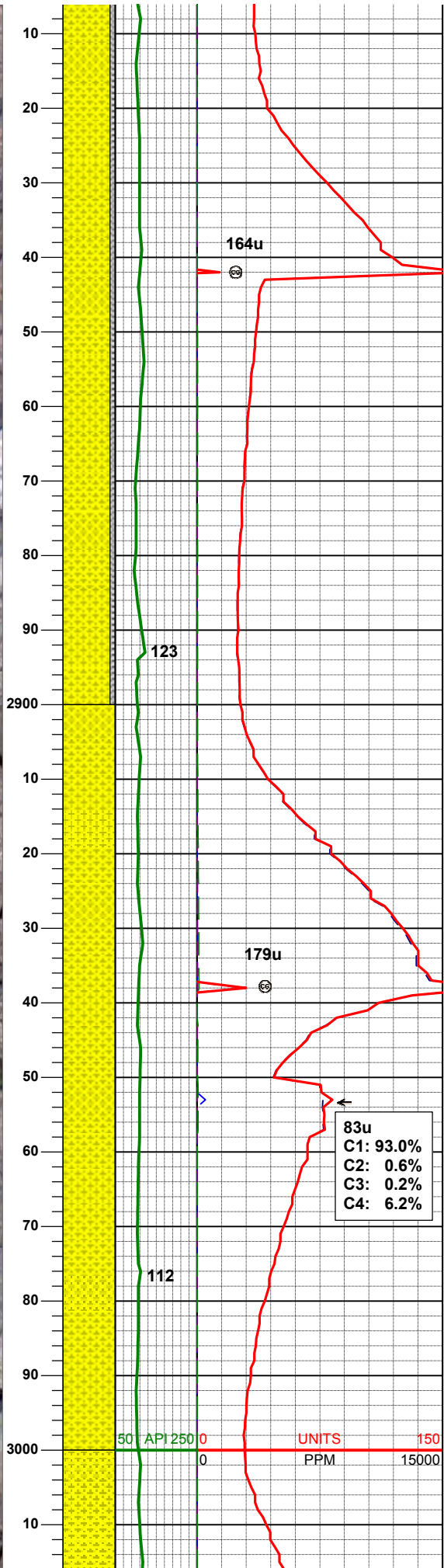
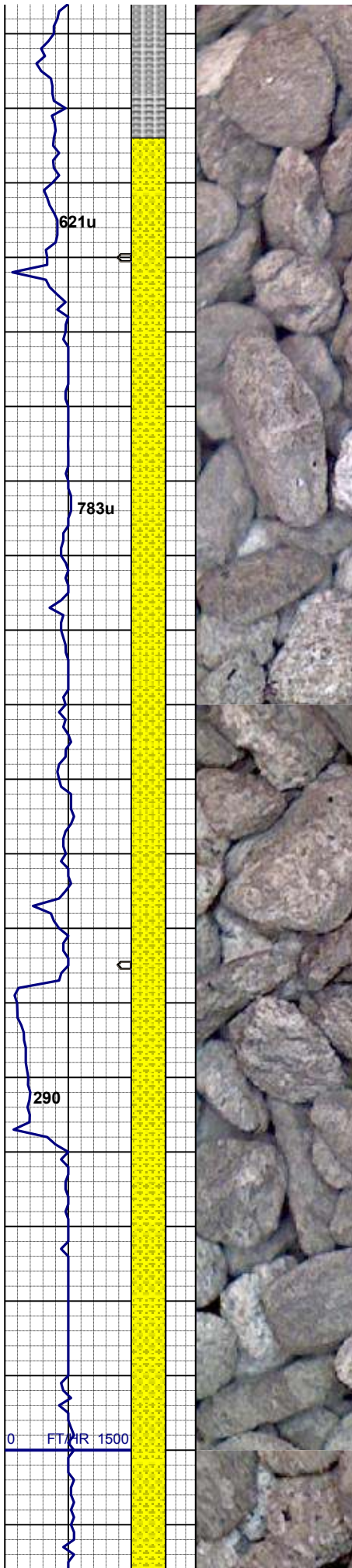
95% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc, 5% SHYSS: wh, lt gy-gy, s&p, vf, sbbly, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau, tr biot

SURVEY
MD 2688'
INC 12.24°
AZM 55.64°

100% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc; tr ss, bent

SURVEY
MD 2783'
INC 14.55°
AZM 51.30°

102u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%



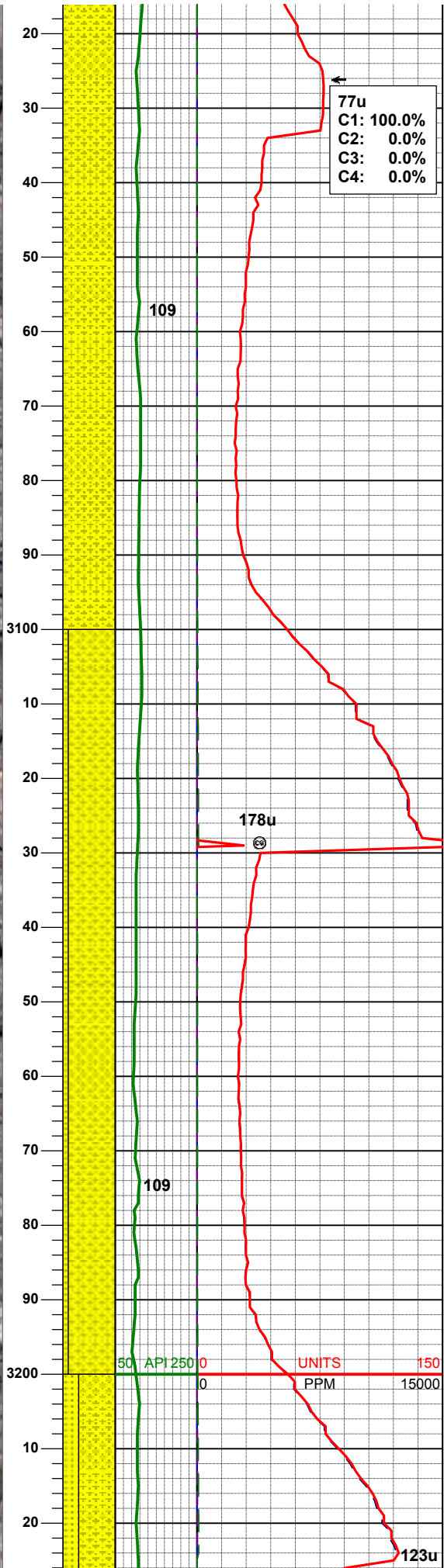
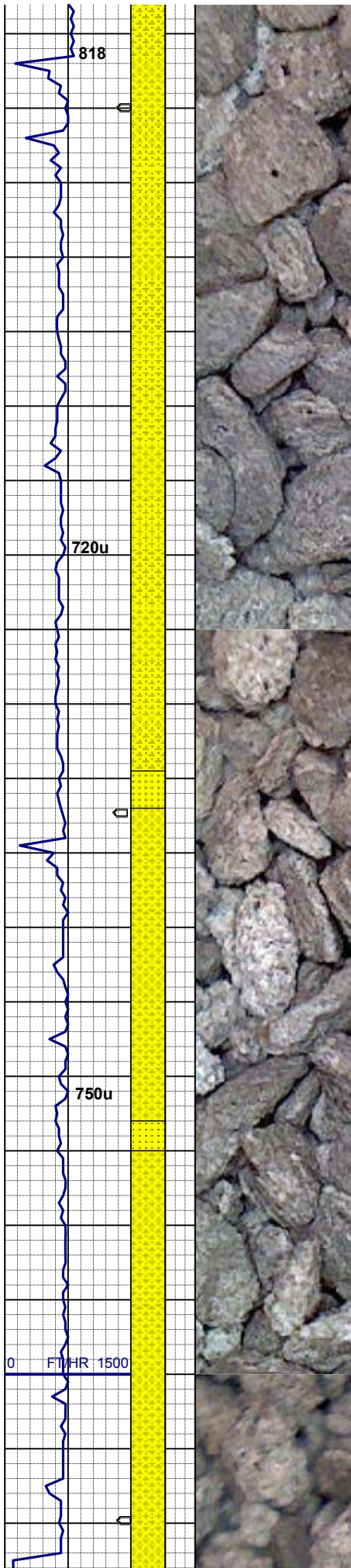
90% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau, tr biot
 5% SLTY SH: lt gy-gy, sft-firm, sbplty - sbblky, sdy-slty tex, sl calc,

SURVEY
MD 2878'
INC 14.13°
AZM 51.07°

100% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau; tr ss, shyslst

83u
C1: 93.0%
C2: 0.6%
C3: 0.2%
C4: 6.2%

SURVEY
MD 2972'
INC 16.51°
AZM 46.16°



77u
 C1: 100.0%
 C2: 0.0%
 C3: 0.0%
 C4: 0.0%

100% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme grd - ss, glau

SURVEY
 MD 3067'
 INC 17.36°
 AZM 43.41°

90% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau; 10% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; tr glau, slty sh

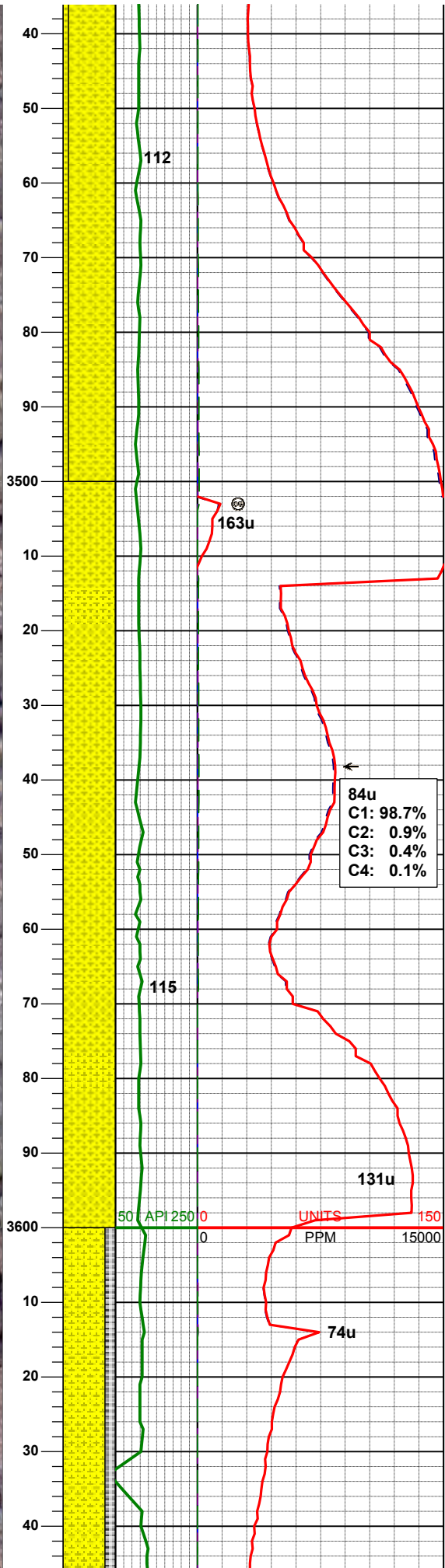
SURVEY
 MD 3162'
 INC 18.06°
 AZM 42.45°

MUD WT 8.40
 VIS 28.0

50 API 250 0 UNITS 150
 0 PPM 15000

SURVEY
MD 3446'
INC 15.90°
AZM 49.57°

90% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau; 10% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; tr glau, stly sh



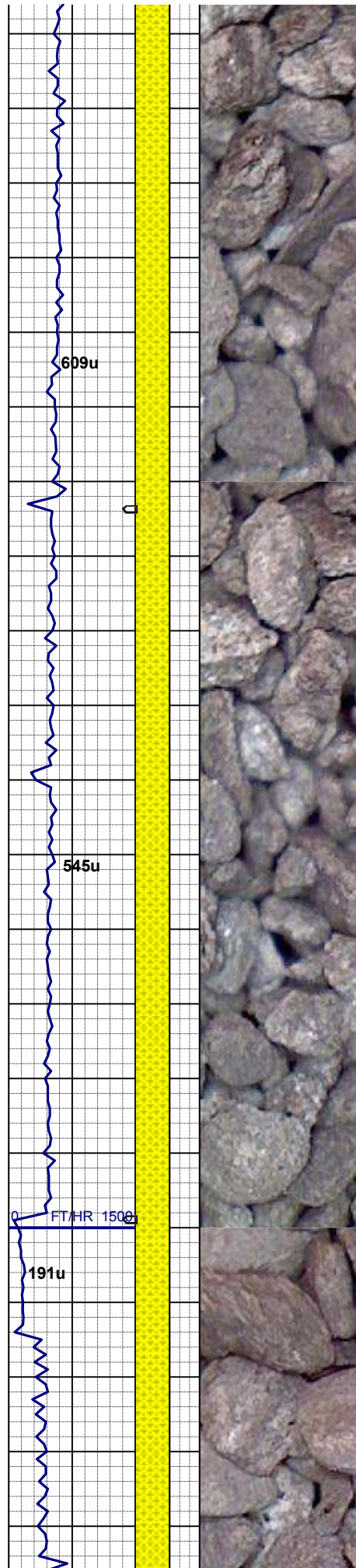
SURVEY
MD 3542'
INC 16.28°
AZM 47.63°

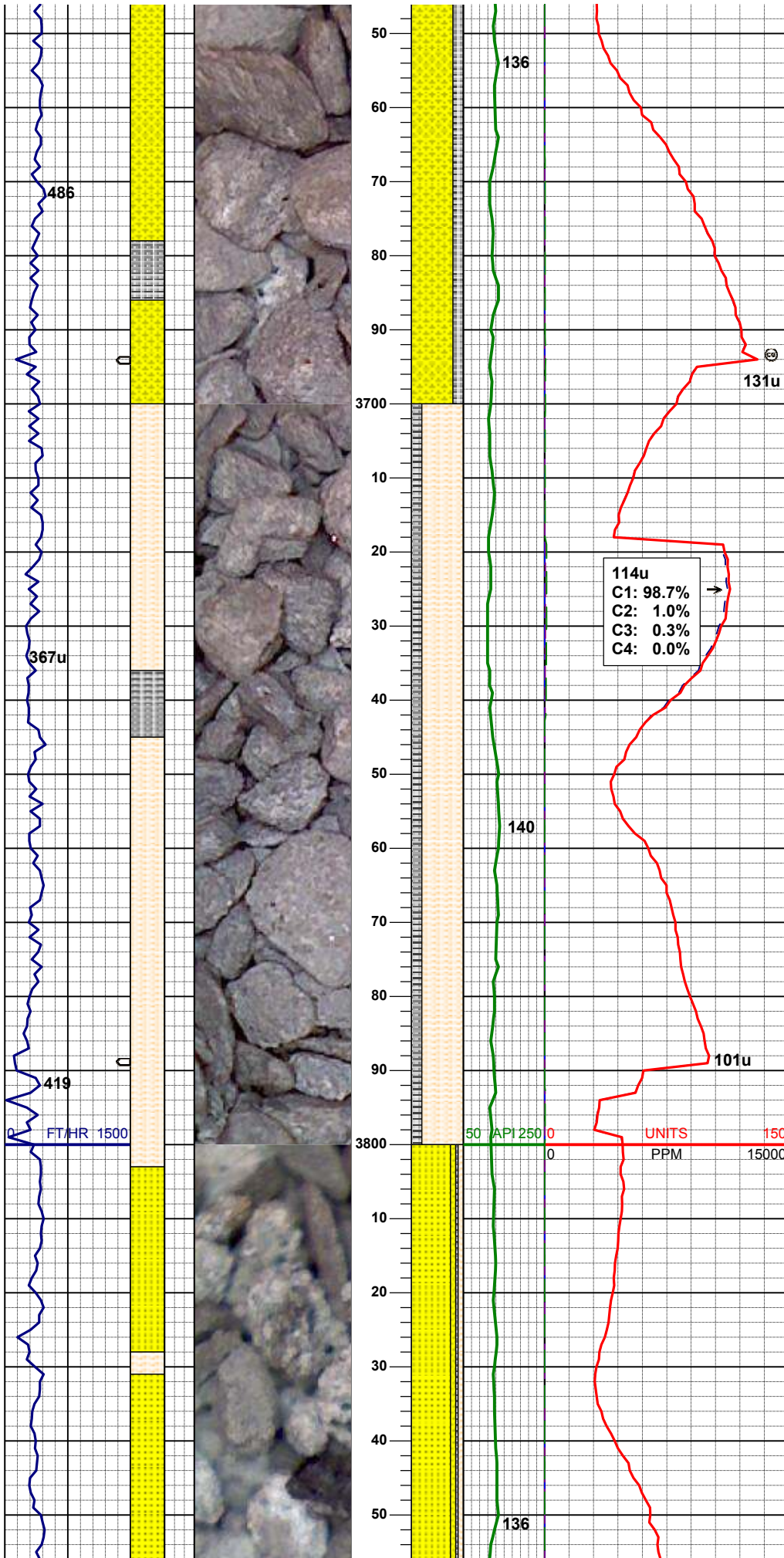
100% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sme grd - ss, sl calc, sme glau; tr glau, ss, stly sh

MUD WT 8.65
VIS 29.0

SURVEY
MD 3637'
INC 15.65°
AZM 54.35°

80% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau, tr biot





20% SLTY SH: lt gy-gy, sft-firm, sbply - sbbkly, sdy-slty tex, sl calc,

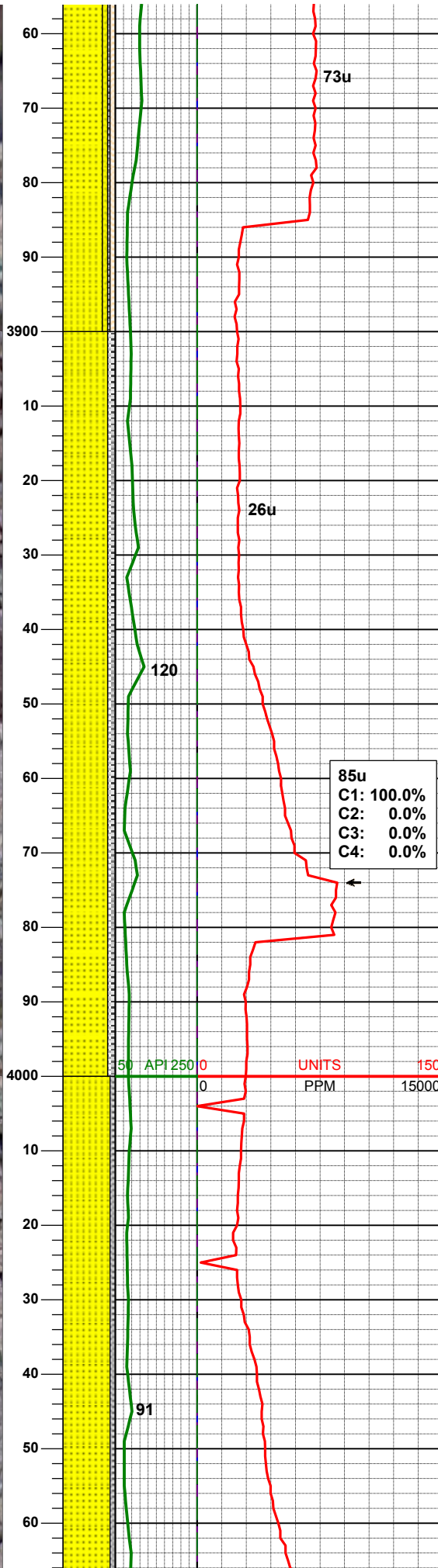
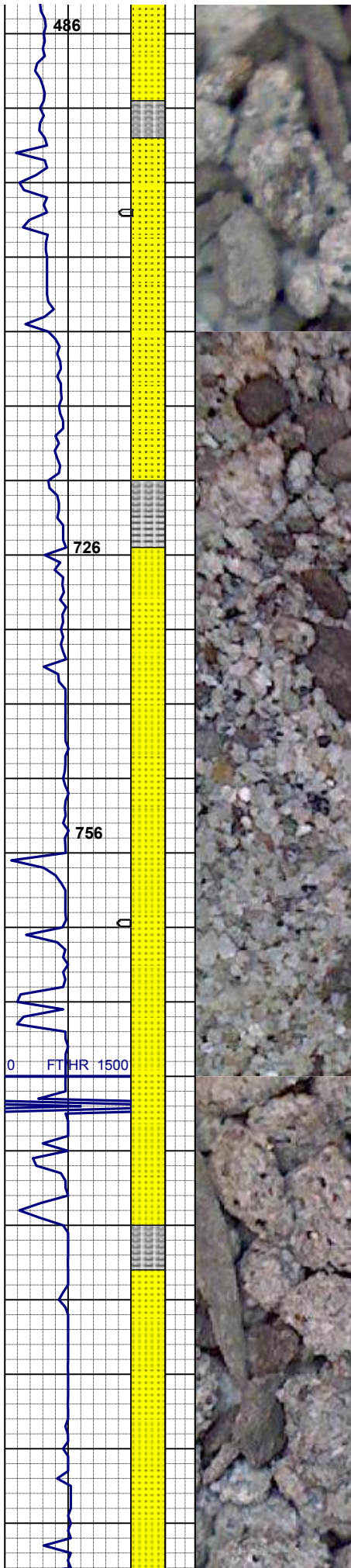
SURVEY
MD 3731'
INC 14.39°
AZM 53.74°

80% SHYSLTST: lt gy-m gy, s&p, sb ply-sb blkly, w srt, vf gr, sft, sdy, arg cmt, sme intbd w/ ss 20% SLTY SH: lt gy-gy, sft-firm, sbply - sbbkly, sdy-slty tex, sl calc, tr ss

MUD WT 8.55
VIS 28.0

SURVEY
MD 3827'
INC 13.52°
AZM 52.79°

75% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; com glau 10% SHYSS: wh, lt gy-gy, s&p, vf, sbbkly, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau; 10% SHYSLTST: lt gy-m gy, s&p, sb ply-sb blkly, w srt, vf gr, sft, sdy, arg



cmt 5% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc

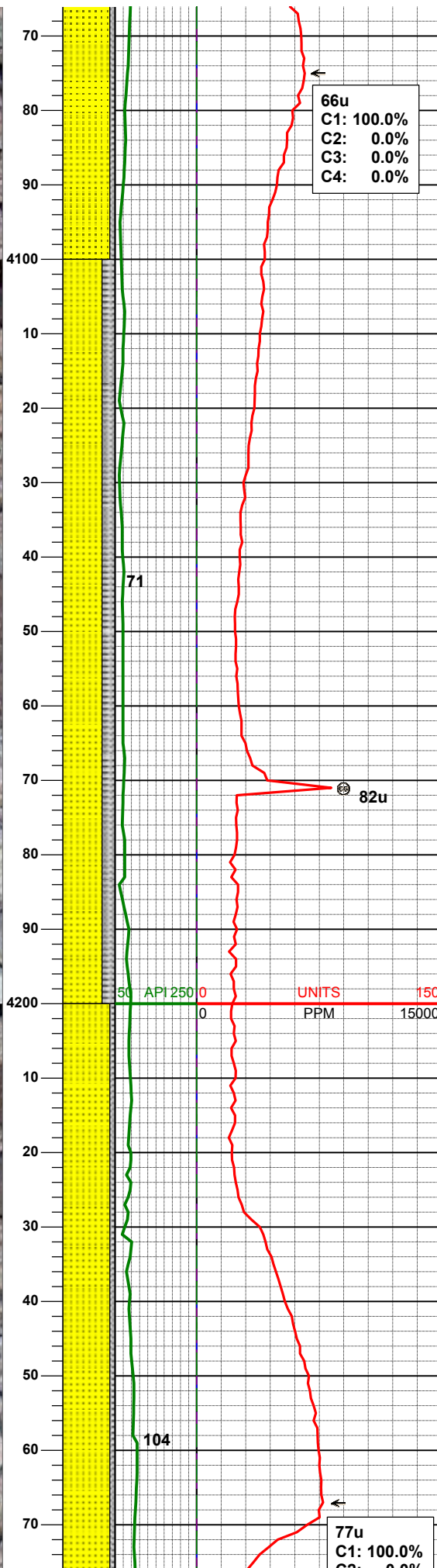
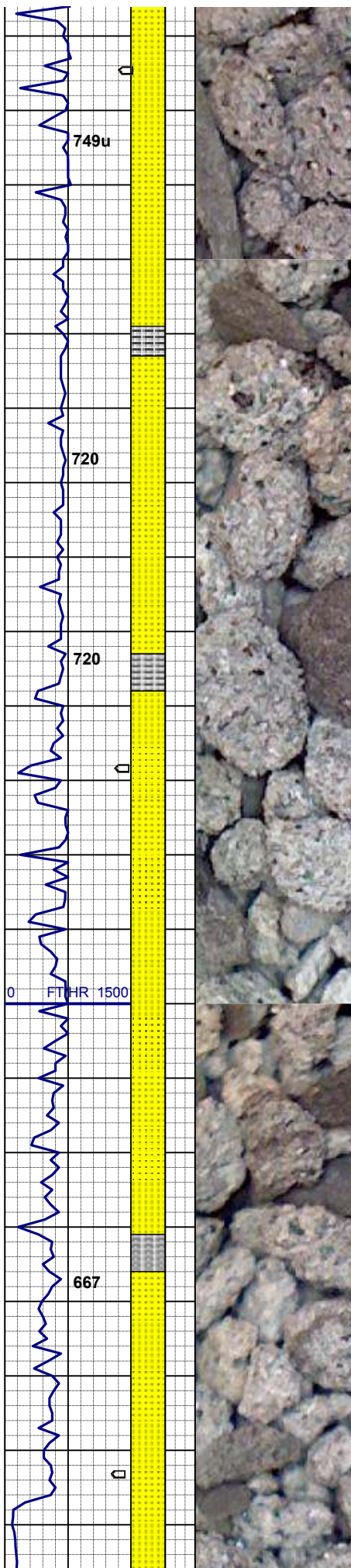
SURVEY
MD 3922'
INC 14.10°
AZM 54.67°

85% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; com glau, 15% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc

85u
C1: 100.0%
C2: 0.0%
C3: 0.0%
C4: 0.0%

SURVEY
MD 4017'
INC 15.41°
AZM 54.98°

90% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; com glau, 10% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc



66u
 C1: 100.0%
 C2: 0.0%
 C3: 0.0%
 C4: 0.0%

SURVEY
 MD 4112'
 INC 15.93°
 AZM 54.94°

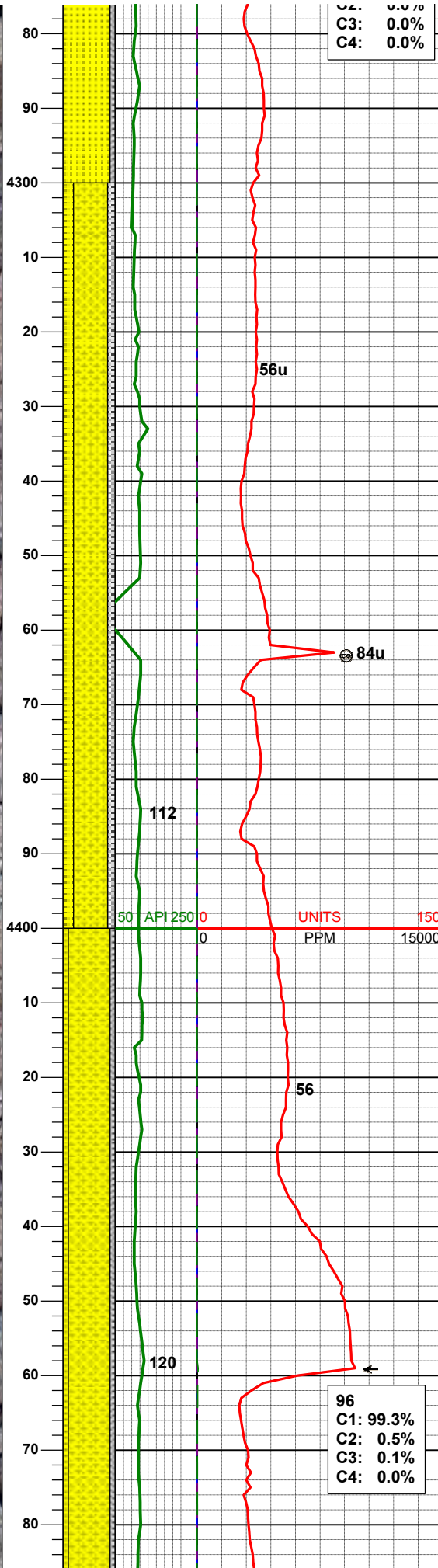
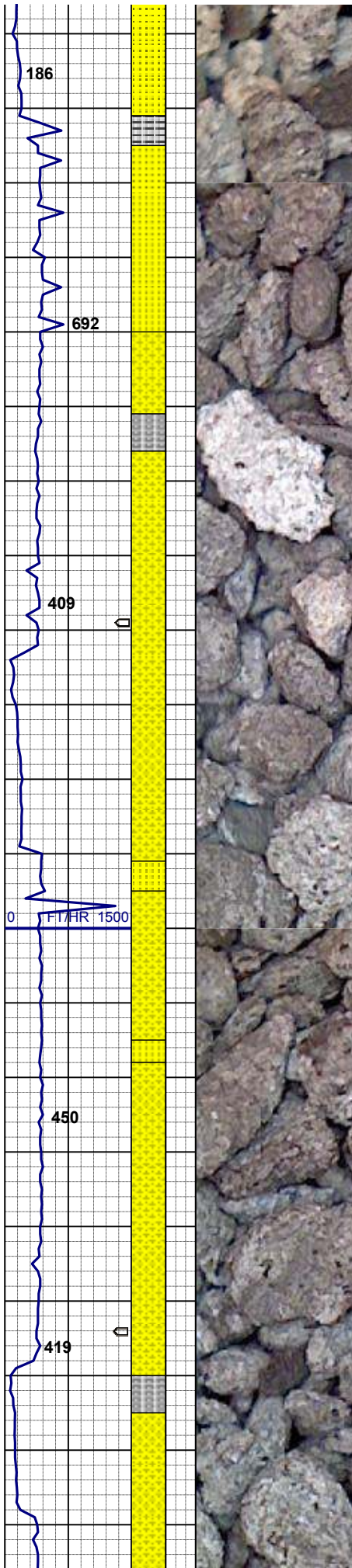
75% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; sme glau, 25% SLTY SH: lt gy - gy, sft-firm, sbply - sbbkly, sdy-sity tex, sl calc

SURVEY
 MD 4207'
 INC 17.25°
 AZM 55.50°

MUD WT 8.50
VIS 28.0

90% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; sme glau, 10% SLTY SH: lt gy - gy, sft-firm, sbply - sbbkly, sdy-sity tex, sl calc

77u
 C1: 100.0%
 C2: 0.0%



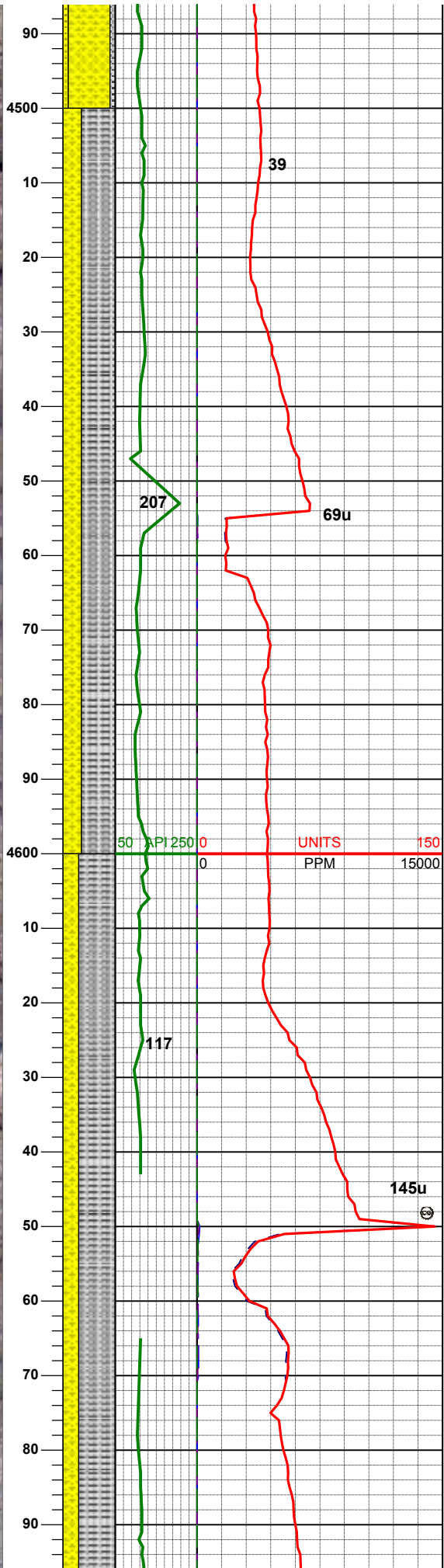
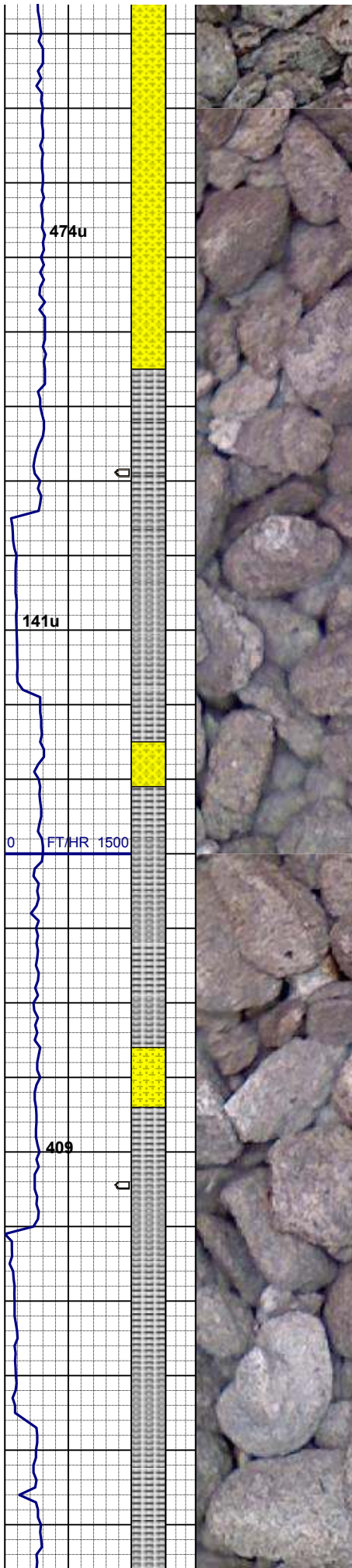
**SURVEY
MD 4303'
INC 15.66°
AZM 51.20°**

65% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau; 20% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; com glau; 15% SLTY SH: lt gy-gy, sft-firm, sbply - sbblky, sdy-sly tex, sl calc

**MUD WT 8.40
VIS 28.0**

**SURVEY
MD 4398'
INC 13.09°
AZM 47.15°**

80% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau; 10% SS: ltgy-gy, vfgr-fgr, sbrd-sbang, mod srt, hrd-fri, sl calc; com glau; 10% SLTY SH: lt gy-gy, sft-firm, sbply - sbblky, sdy-sly tex, sl calc



**SURVEY
MD 4493'
INC 11.36°
AZM 43.69°**

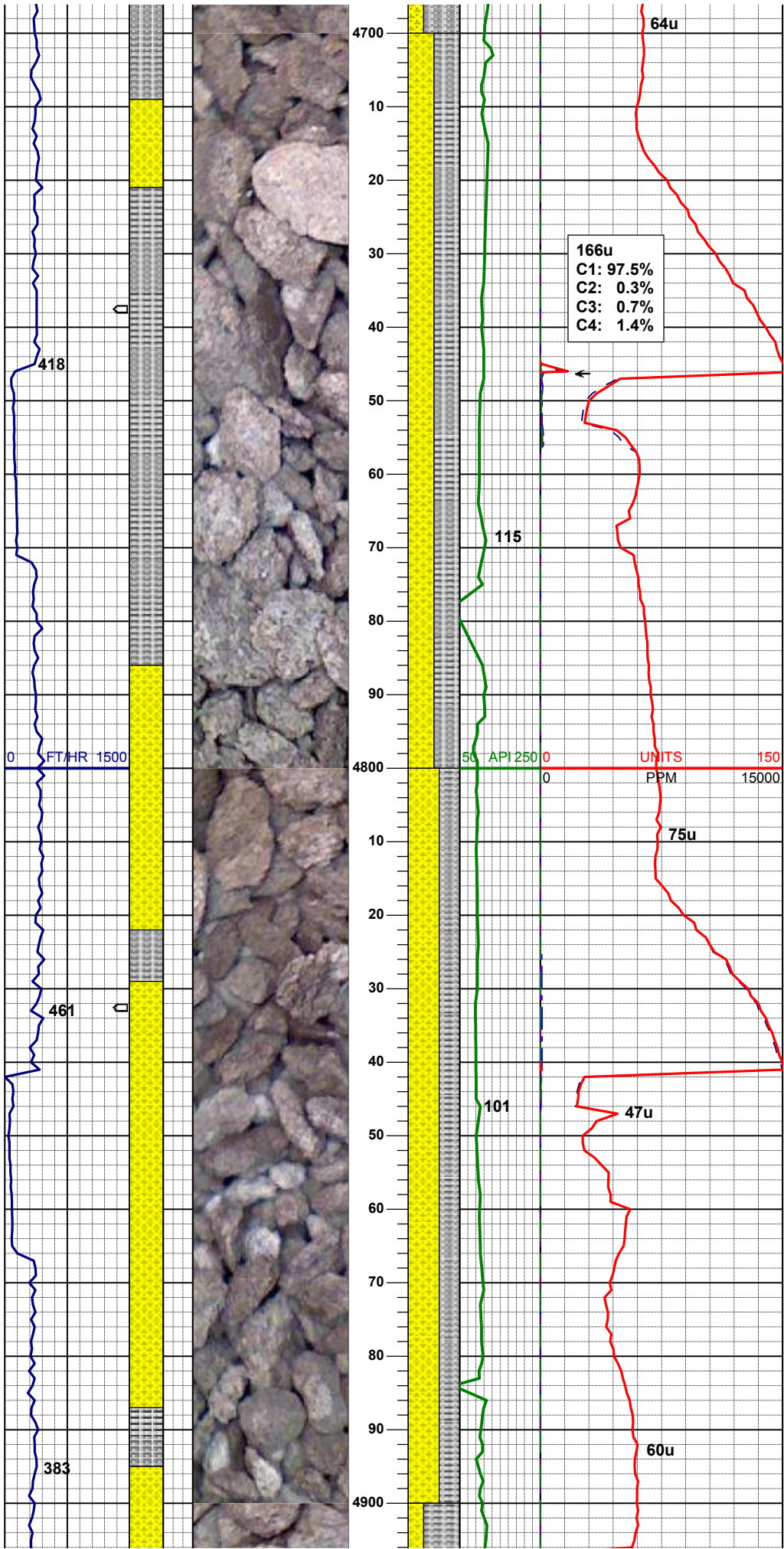
65% SLTY SH: lt gy -gy, sft-firm, sbply - sbbky, sdy-slty tex, sl calc; 35% SHYSS: wh, lt gy-gy, s&p, vf, sbbky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau

**MUD WT 8.45
VIS 28.0**

**SURVEY
MD 4587'
INC 8.73°
AZM 36.96°**

70% SLTY SH: lt gy -gy, sft-firm, sbply - sbbky, sdy-slty tex, sl calc; 30% SHYSS: wh, lt gy-gy, s&p, vf, sbbky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau

**SURVEY
MD 4683'
INC 6.21°
AZM 25.43°**



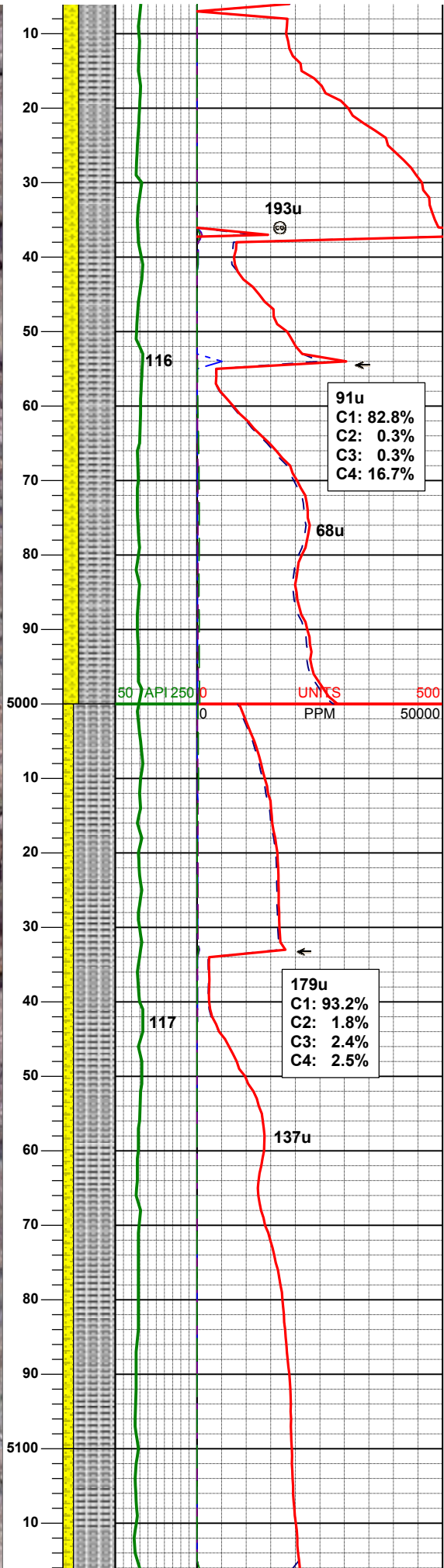
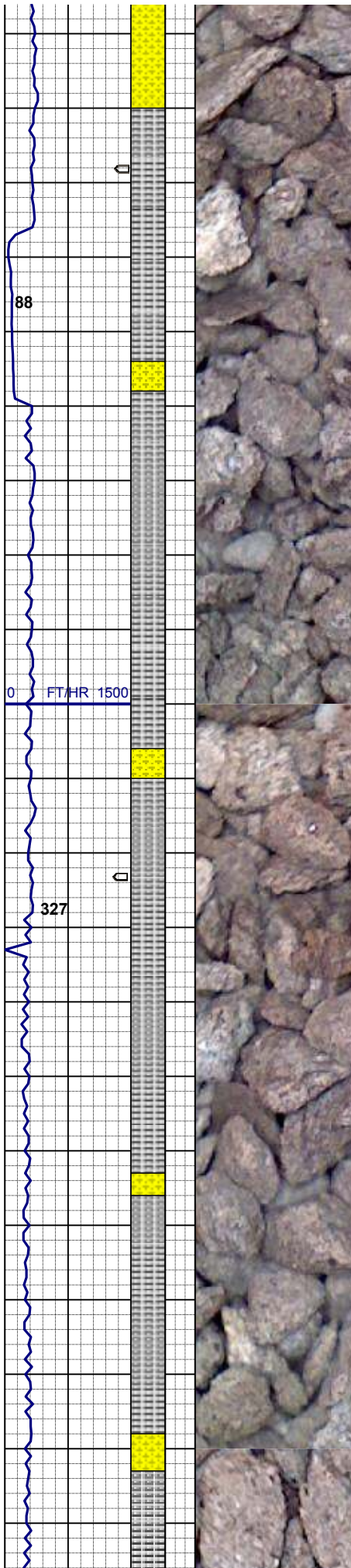
166u
 C1: 97.5%
 C2: 0.3%
 C3: 0.7%
 C4: 1.4%

50% SLTY SH: lt gy-gy, sft-firm, sbply - sbblky, sdy-slty tex, sl calc; 50% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau

SURVEY
 MD 4777'
 INC 3.80°
 AZM 8.99°

60% SHYSS: wh, lt gy-gy, s&p, vf, sbblky, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau; 40% SLTY SH: lt gy-gy, sft-firm, sbply - sbblky, sdy-slty tex, sl calc;

SURVEY
 MD 4872'
 INC 2.31°
 AZM 4.83°



70% SLTY SH: lt gy -gy, sft-firm, sbplty - sbbkly, sdy-slty tex, sl calc; 30% SHYSS: wh, lt gy-gy, s&p, vf, sbbkly, sbrd-sbang, mod srt, fri, arg, sl calc, sme glau

SURVEY
MD 4967'
INC 0.23°
AZM 16.02°

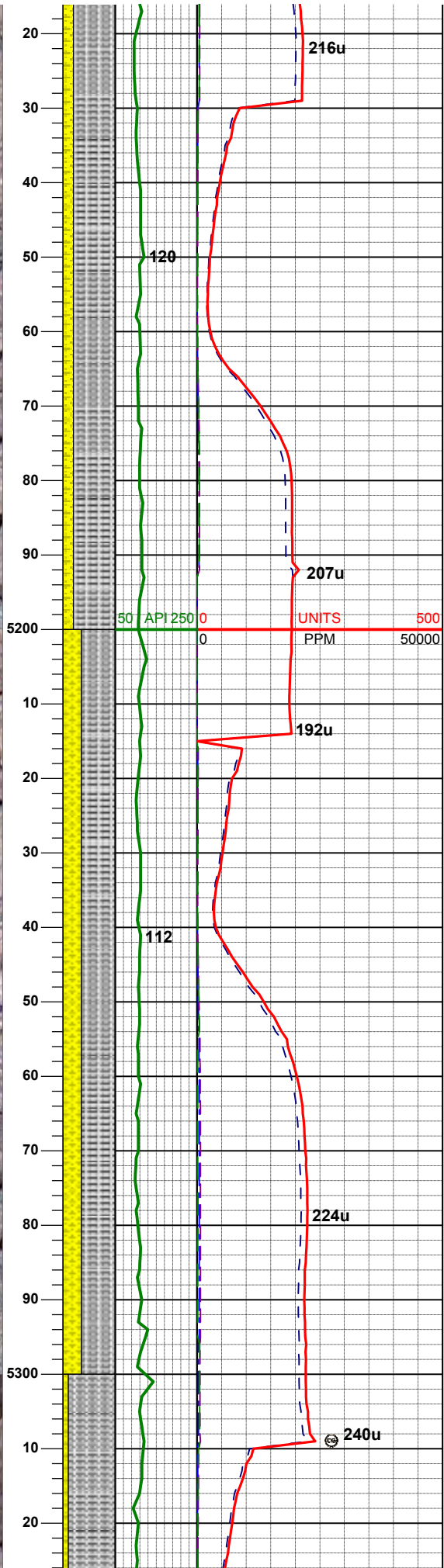
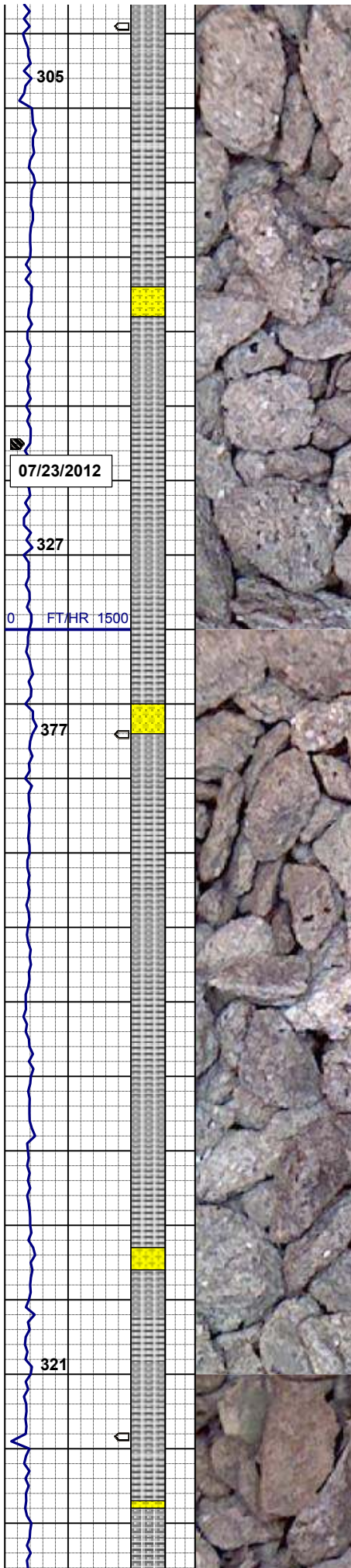
91u
C1: 82.8%
C2: 0.3%
C3: 0.3%
C4: 16.7%

<<GAS SCALE CHANGE>>

179u
C1: 93.2%
C2: 1.8%
C3: 2.4%
C4: 2.5%

80% SLTY SH: lt gy -gy, sft-firm, sbplty - sbbkly, sdy-slty tex, sl calc; 20% SHYSS: wh, lt gy-gy, s&p, vf, sbbkly, sbrd-sbang, mod srt, fri, arg, sl calc, tr glau

SURVEY
MD 5063'
INC 0.22°
AZM 115.77°

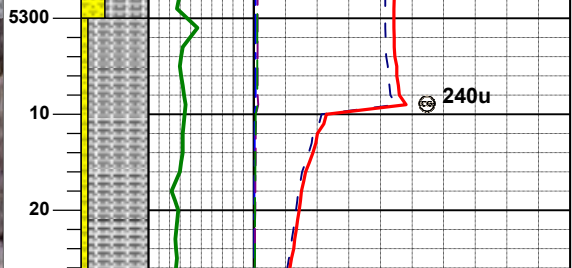


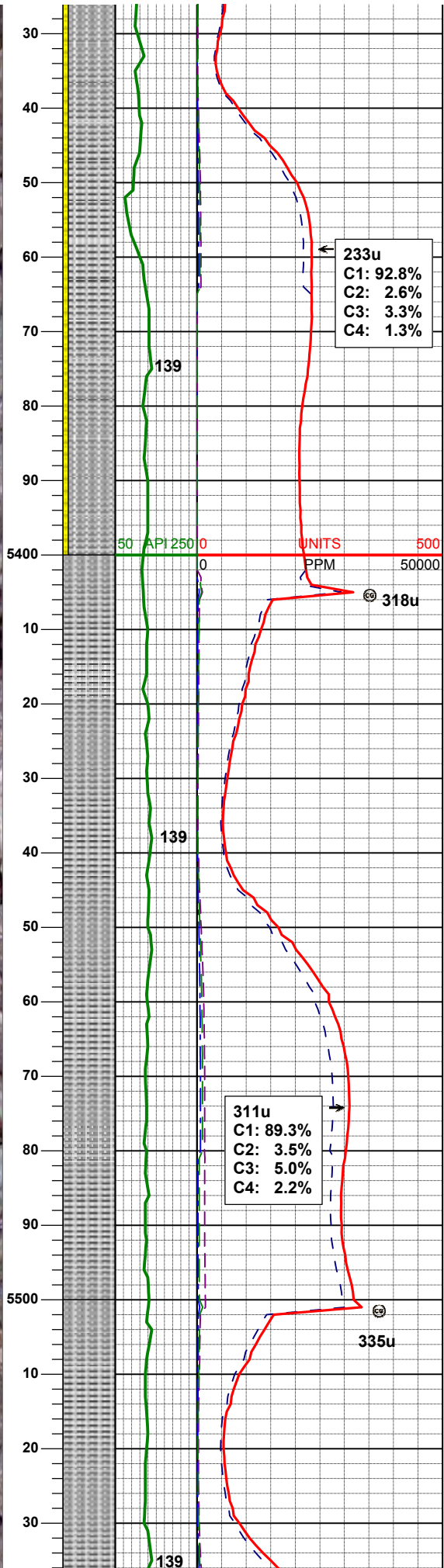
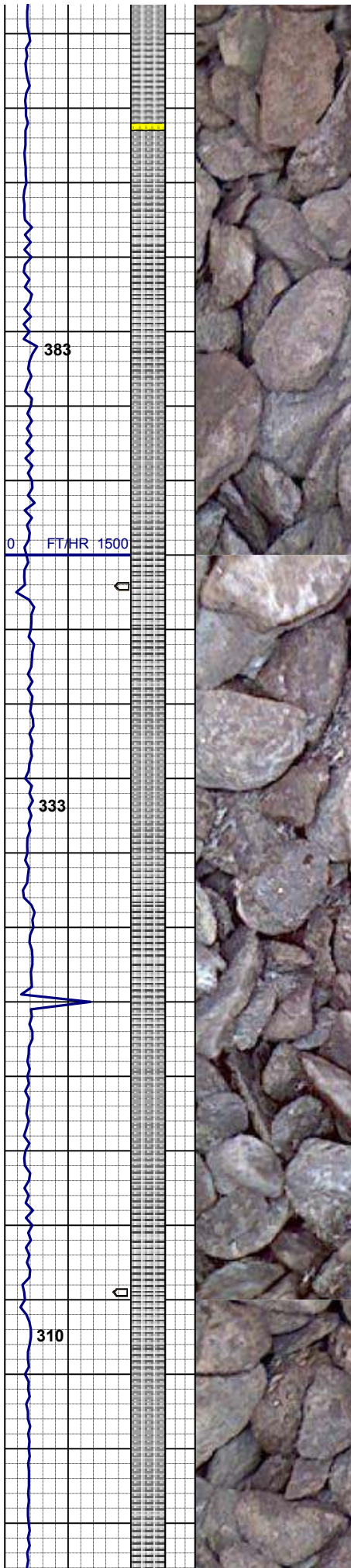
80% SLTY SH: lt gy-gy, sft-firm, sbply - sbbky, sdy-slty tex, sl calc; 20% SHYSS: wh, lt gy-gy, s&p, vf, sbbky, sbrd-sbang, mod srt, fri, arg, sl calc, tr glau

SURVEY
MD 5158'
INC 0.30°
AZM 123.72°

SURVEY
MD 5253'
INC 0.33°
AZM 182.58°

65% SLTY SH: lt gy-gy, sft-firm, sbply - sbbky, sdy-slty tex, sl calc; 35% SHYSS: wh, lt gy-gy, s&p, vf, sbbky, sbrd-sbang, mod srt, fri, arg, sl calc, tr glau





SURVEY
MD 5348'
INC 0.28°
AZM 103.41°

90% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc; 10% SHYSS: wh, lt gy-gy, s&p, vf, sbbly, sbrd-sbang, mod srt, fri, arg, sl calc, tr glau

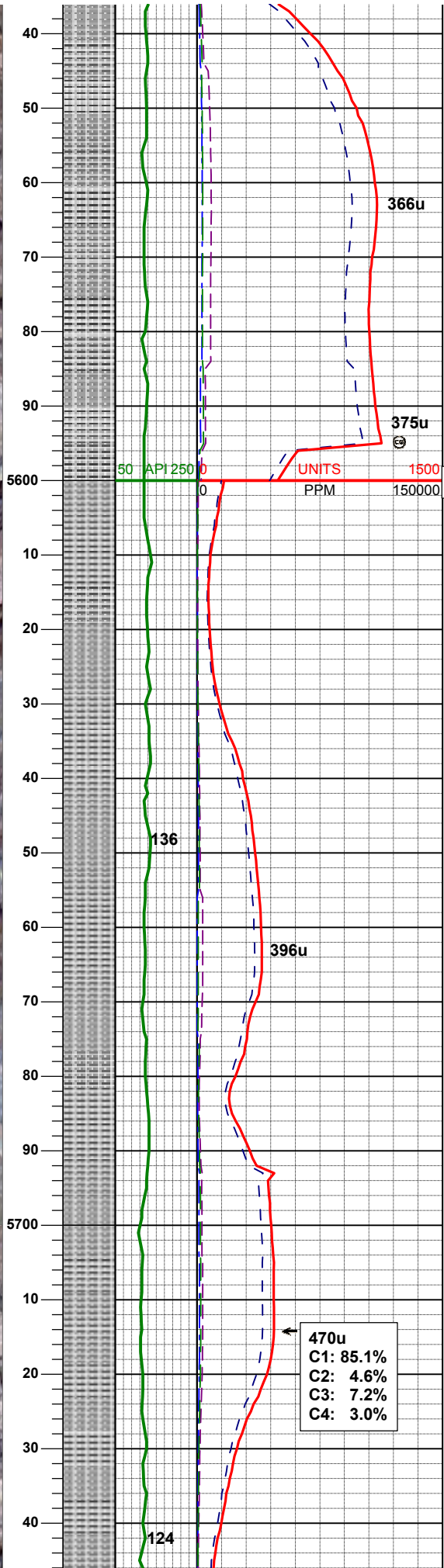
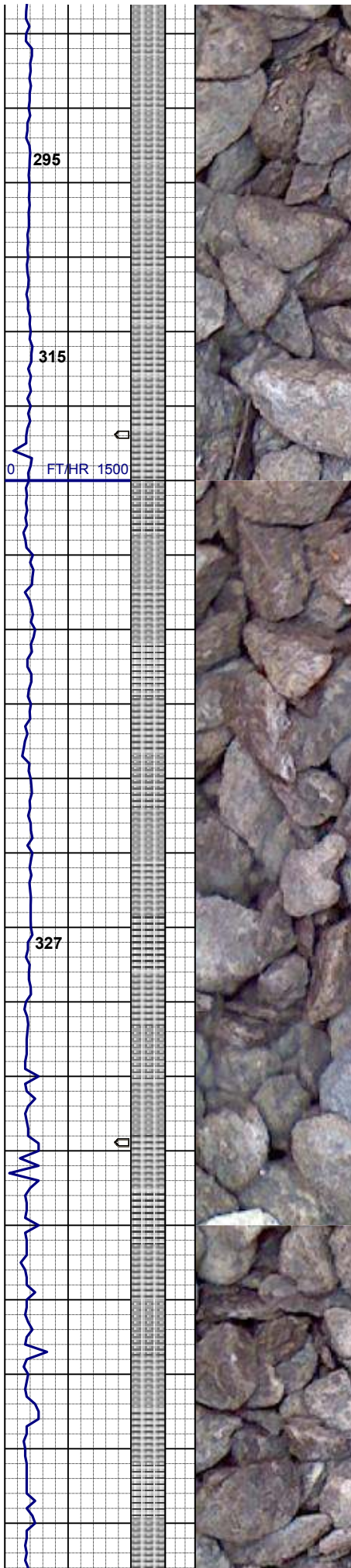
233u
C1: 92.8%
C2: 2.6%
C3: 3.3%
C4: 1.3%

SURVEY
MD 5443'
INC 0.53°
AZM 53.14°

100% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, v sl calc;

311u
C1: 89.3%
C2: 3.5%
C3: 5.0%
C4: 2.2%

SURVEY
MD 5538'



INC 0.59°
AZM 64.14°

100% SLTY SH: lt gy -gy, sft-firm, sbply -
sbbly, sdy-slty tex, v sl calc;

<<GAS SCALE CHANGE>>

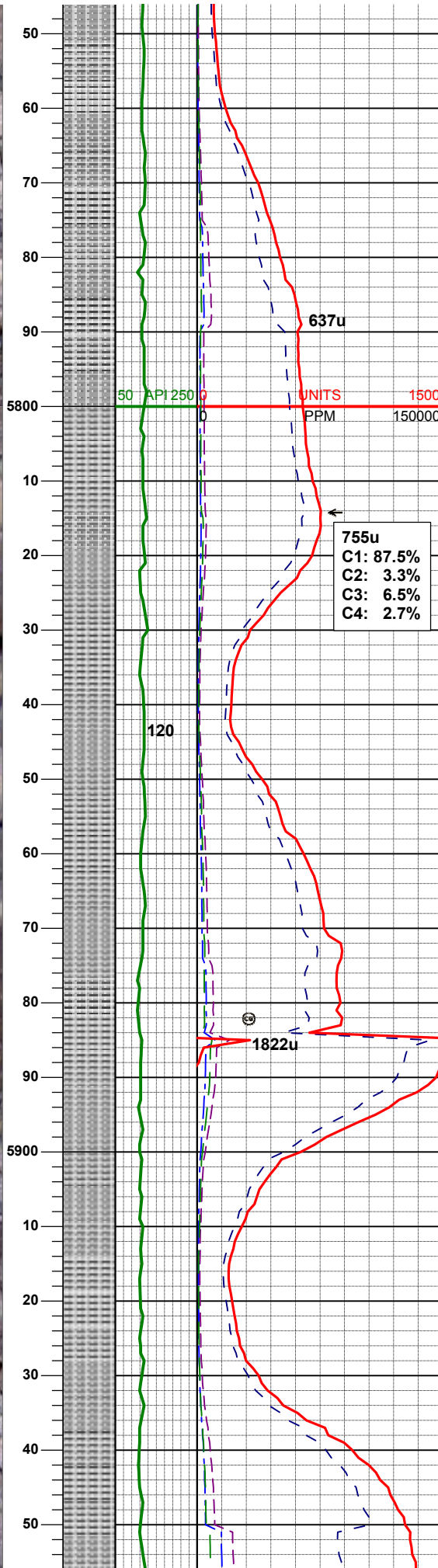
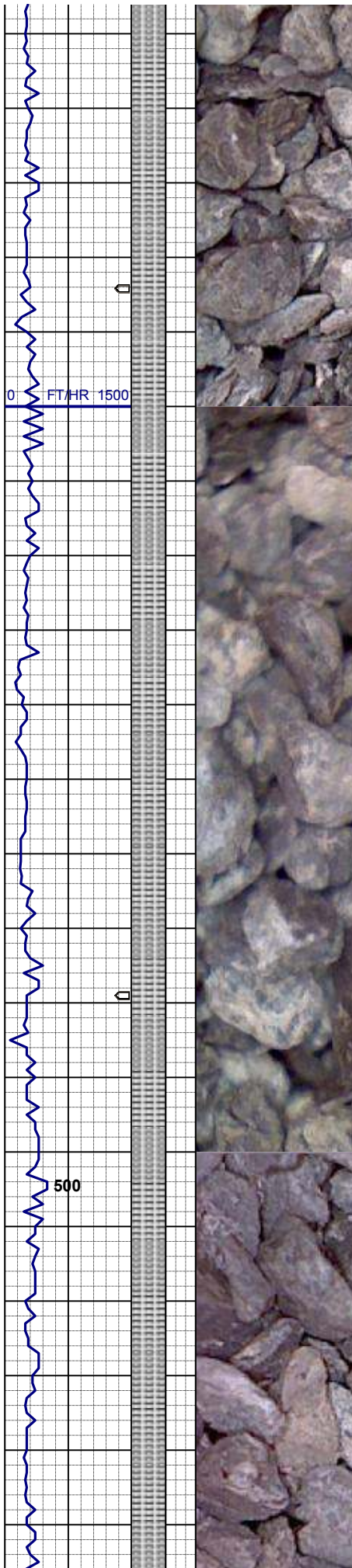
SURVEY
MD 5633'
INC 0.61°
AZM 19.64°

100% SLTY SH: lt gy -gy, sft-firm, sbply -
sbbly, sdy-slty tex, v sl calc;

470u
C1: 85.1%
C2: 4.6%
C3: 7.2%
C4: 3.0%

SURVEY
MD 5728'
INC 0.94°
AZM 0.37°

100% SLTY SH: lt gy -gy, sft-firm, sbply -



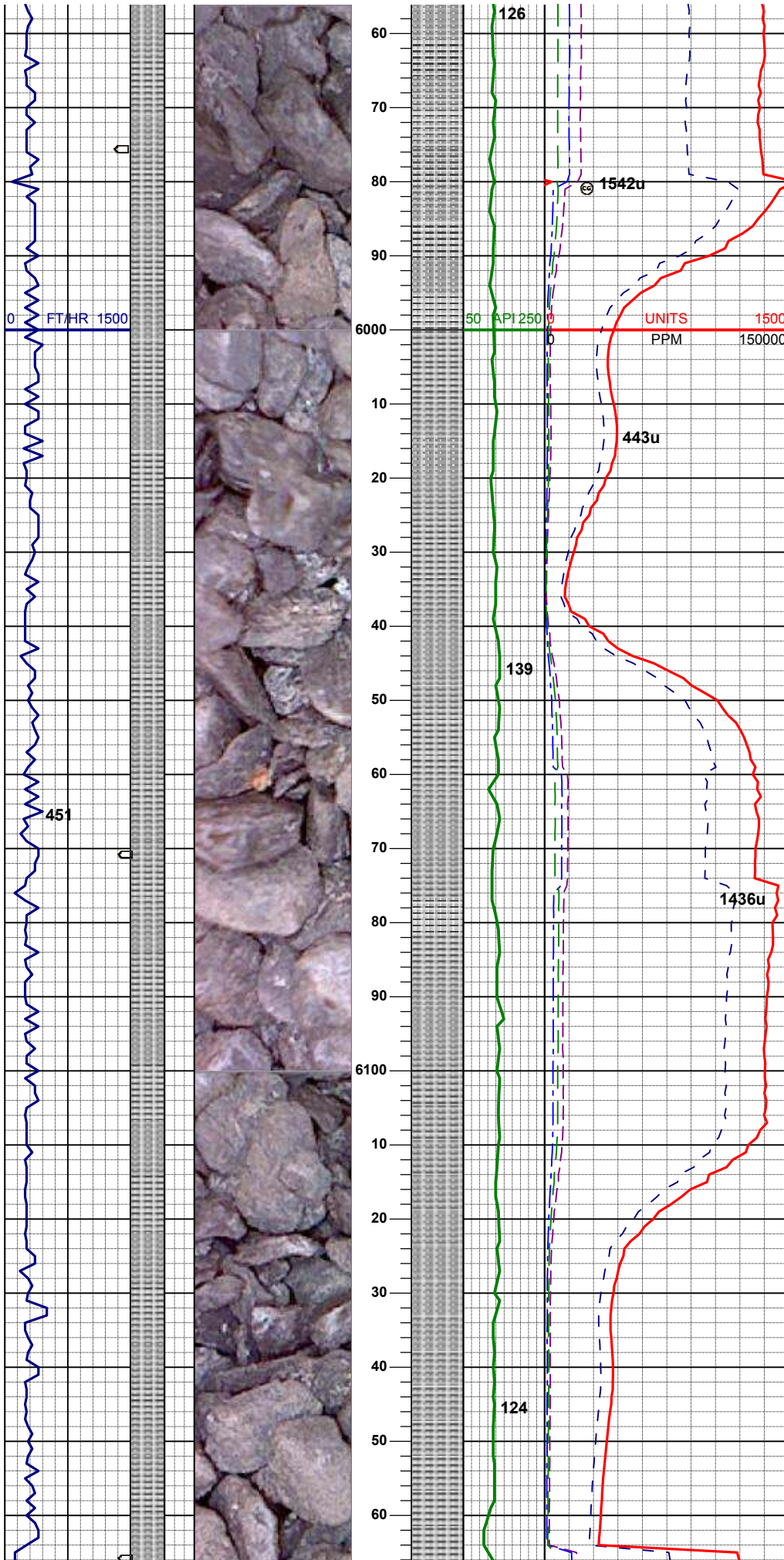
100% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-slty tex, v sl calc;

SURVEY
MD 5823'
INC 0.77°
AZM 346.66°

100% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-slty tex, v sl calc;

SURVEY
MD 5918'
INC 0.83°
AZM 311.69°

100% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-slty tex, v sl calc; tr bent

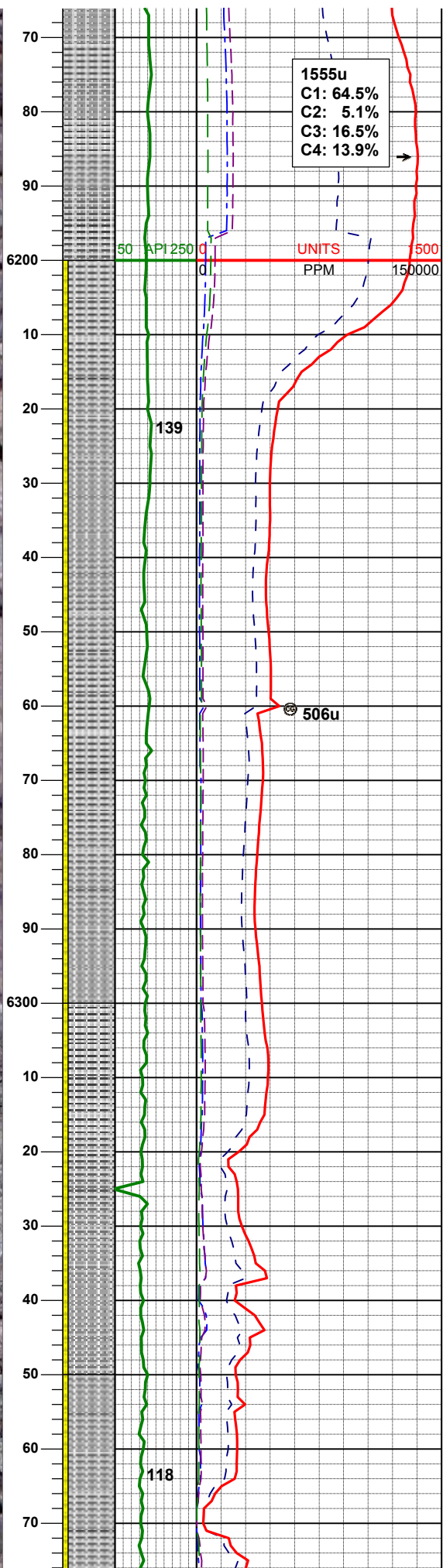
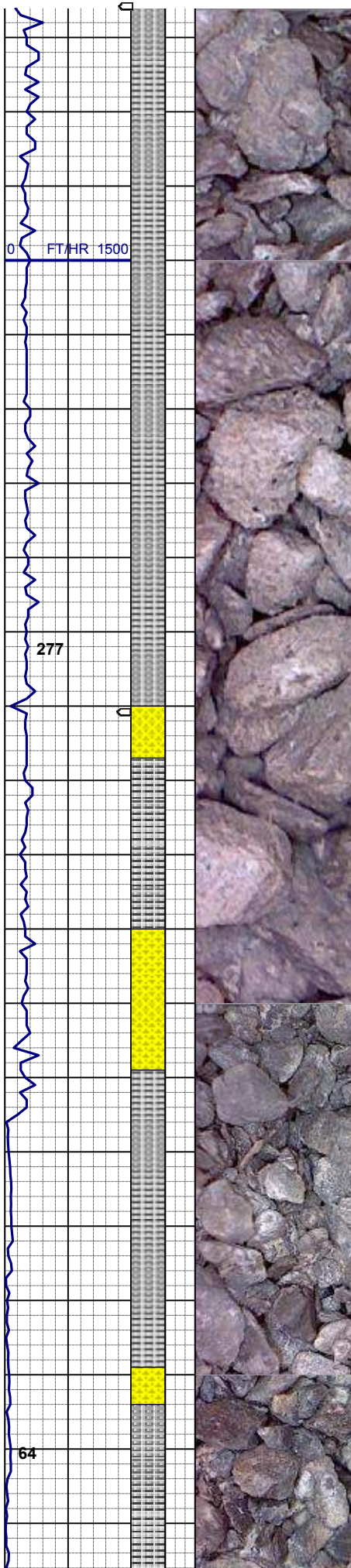


SURVEY
MD 6108'
INC 1.01°
AZM 318.41°

100% SLTY SH: lt gy -gy, sft-firm, sbply -
 sbbly, sdy-slty tex, v sl calc; tr bent

MUD WT 9.30
VIS 33.0

100% SLTY SH: lt gy -gy, sft-firm, sbply -
 sbbly, sdy-slty tex, v sl calc



SURVEY
MD 6203'
INC 0.57°
AZM 308.89°

90% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc; 10% SHYSS: wh, lt gy-gy, s&p, vf, sbbly, sbrd-sbang, mod srt, fri, arg, sl calc, tr glau

MUD WT 9.55
VIS 35.0

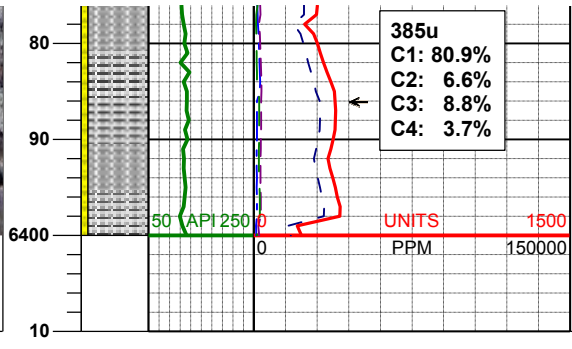
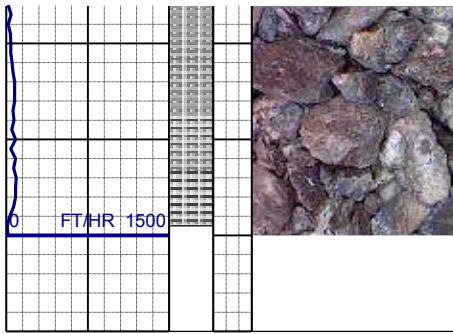
SURVEY
MD 6298'
INC 0.89°
AZM 334.05°

90% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc; 10% SHYSS: wh, lt gy-gy, s&p, vf, sbbly, sbrd-sbang, mod srt, fri, arg, sl calc, tr glau, bent

SURVEY
MD 6343'
INC 2.48°
AZM 8.58°

MUD WT 9.85
VIS 37.0

90% SLTY SH: lt gy -gy, sft-firm, sbply - sbbly, sdy-sly tex, sl calc; 10% SHYSS: wh, lt gy-gy, s



LOG CONTINUED ON
KERN GW17-78HN HORIZONTAL