

LOG created using L PLOT VH Version 3.0, September 10, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC.
WELL: WELLS RANCH AA 12-62-1HN
LOCATION: SEC 12 T6N R63W
COUNTY: WELD
STATE: COLORADO
SPOT: 1,039' FSL; 215' FEL
ELEVATION: 4,857' GL; 4,881' KB
FIELD: WATTENBERG
SPUD DATE: 9/5/2012
TD DATE: 9/6/2012 (VERTICAL)
DATES LOGGED: 9/6/2012 (VERTICAL)
DEPTHS LOGGED: 2,000' - 5,967' (VERTICAL)
LOGGERS: CHRIS SCAHEL; CHRIS COOK
DRILLING FLUID: LSND
DRILLING RIG: H&P 315
API: 05-123-35628
LOG TYPE: VERTICAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: SEE CORRESPONDING HORIZONTAL LOG
 WELLS_RANCH_AA12_62_1HN_HORZ.

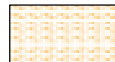
LITHOLOGIES



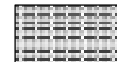
Sandstone



Shaly Sandstone



Shaly Siltstone



Silty Shale

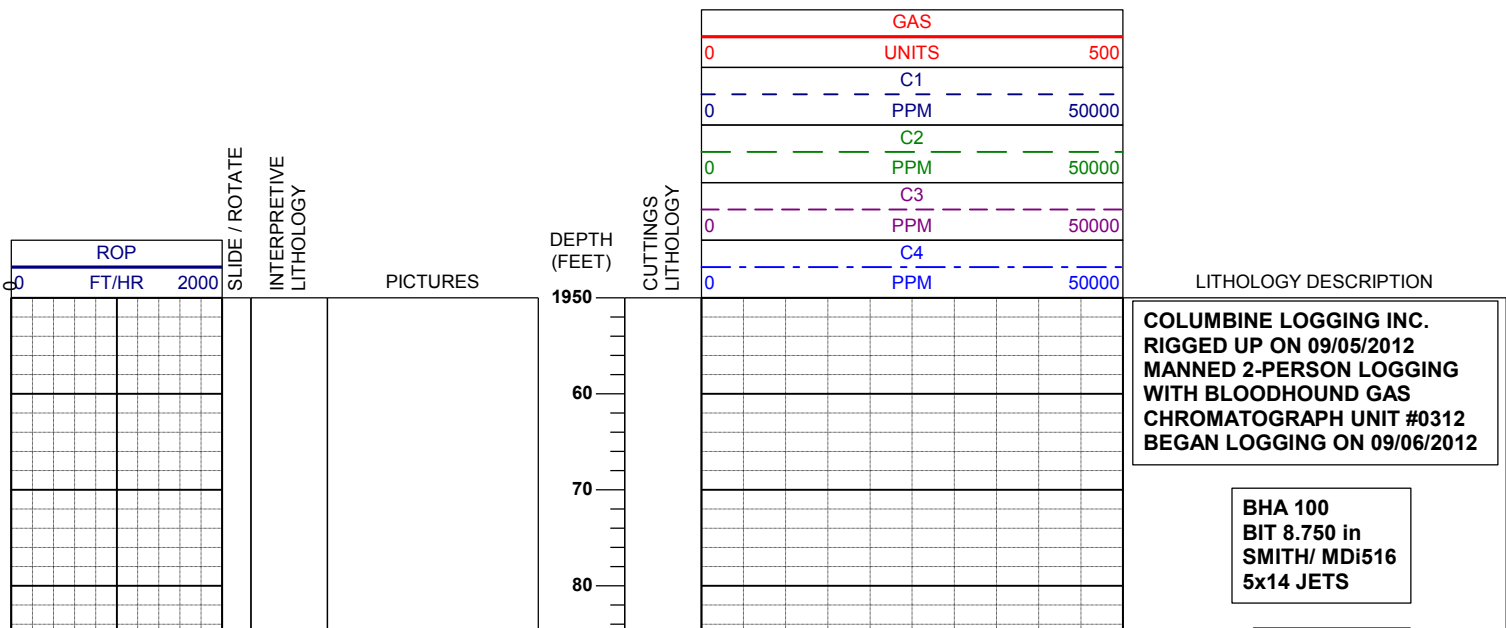
ENGINEERING SYMBOLS

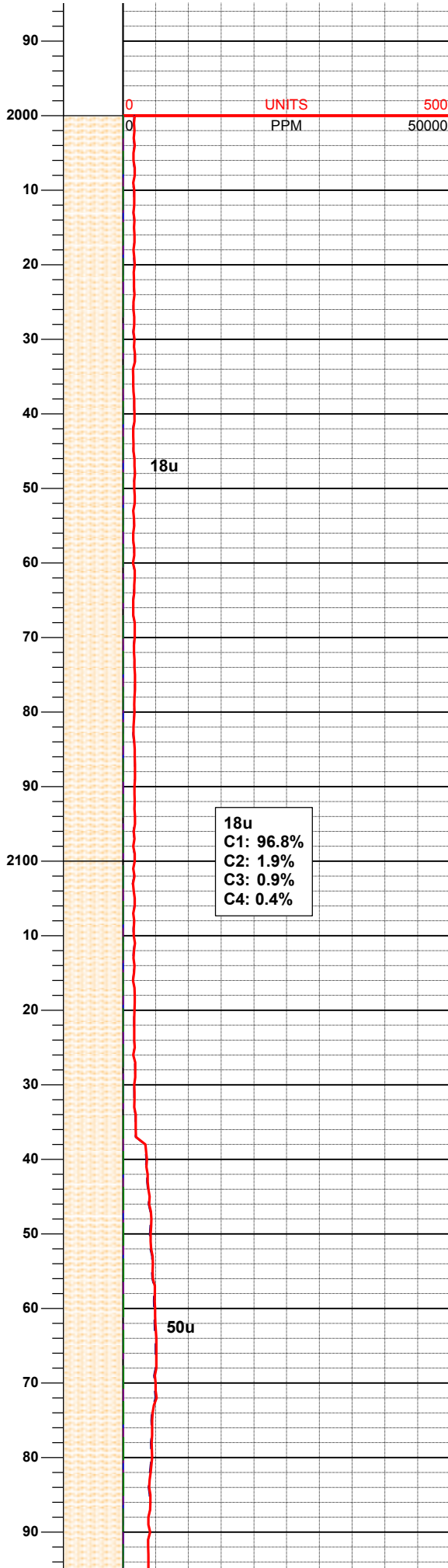
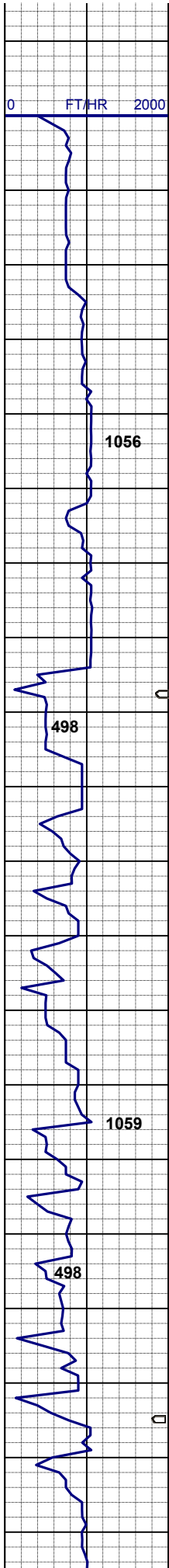


Connection



Connection Gas



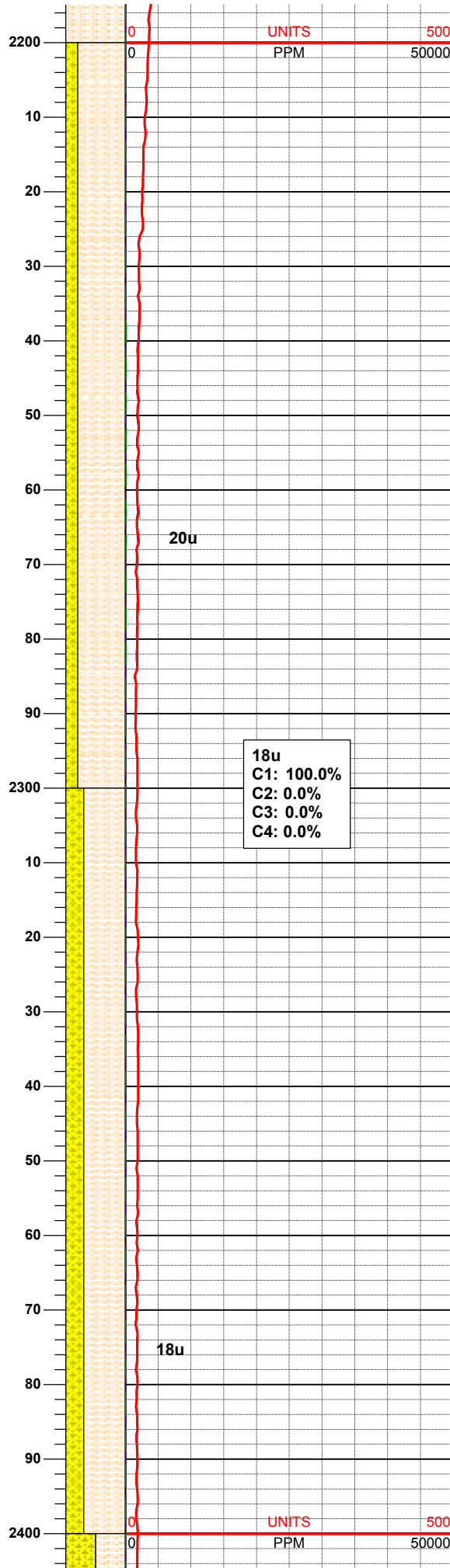
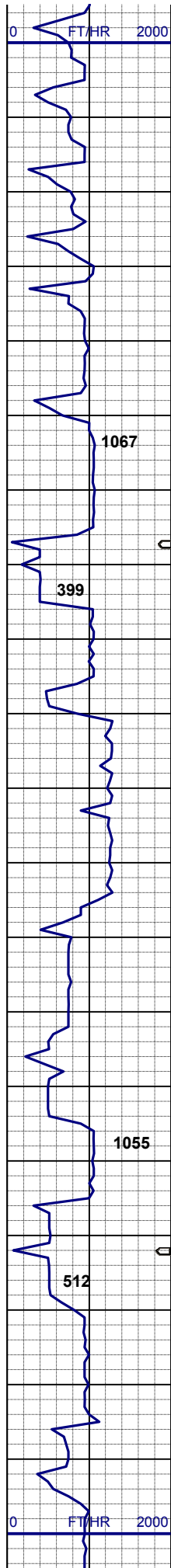


09/06/2012
 Mud Wt: 8.70
 FVis: 30
 PVis: 1
 YP: 4
 GELS: 2/3/4
 API Filt: N/A
 CAKE: 1/0
 pH: 11.0
 Cl: 1,700
 Ca: 120

MUD WT 8.8/8.8
 VIS 36/36 IN/OUT

SHYSLTST: ltgy - mgy, sbpty-sbrd,
 firm -hd, slty - gt tex, arg cmt

SHYSLTST: ltgy - mgy, sbpty-sbrd,
 firm -hd, slty - gt tex, arg cmt



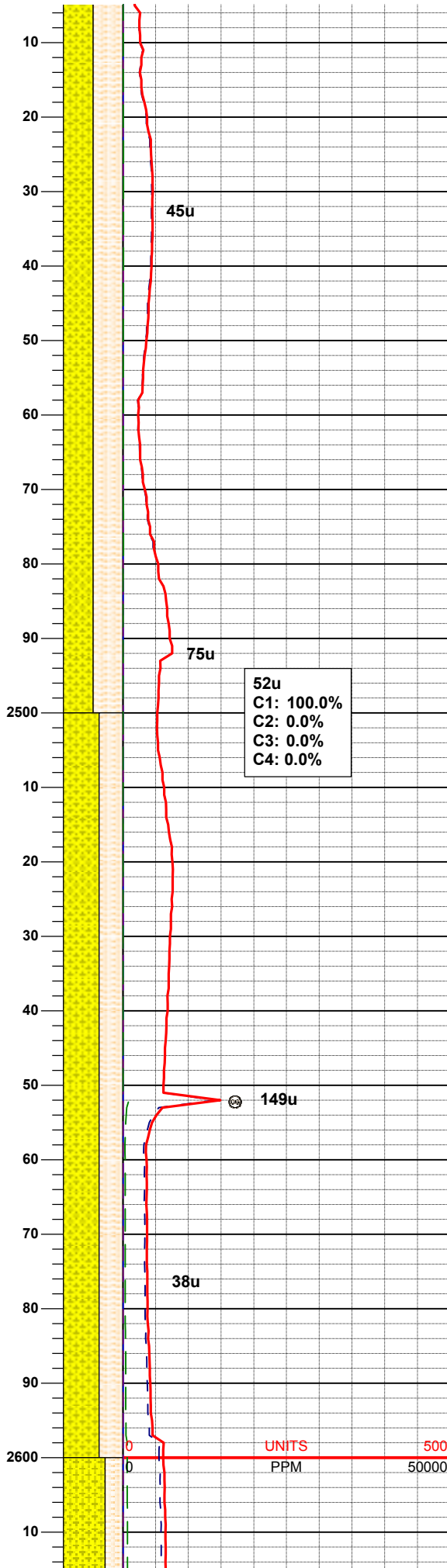
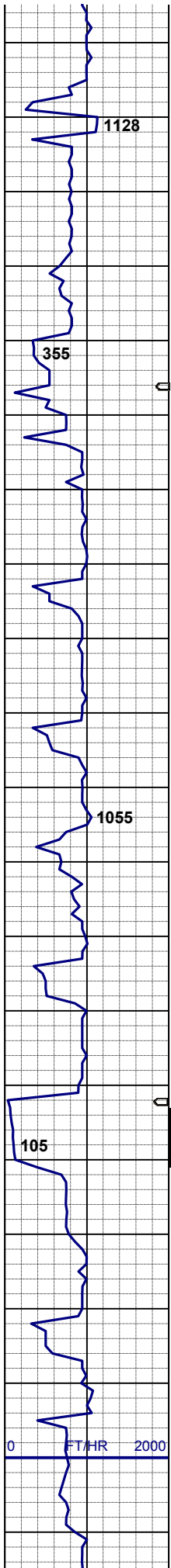
mm -rd, slty - gt tex, arg cmt

MD 2,211'
INC 0.51°
AZM 294.57°

MUD WT 8.70/8.95
VIS 30/30 IN/OUT

SHYSLTST: ltgy - mgy, sbply-sbrd,
firm -hd, slty - gt tex, arg cmt
SHYSS: wh, lt gy, sme s&p, spec w/
mica, sbrd - sbang, tt clus, brit-fri, sl
calc cmt,

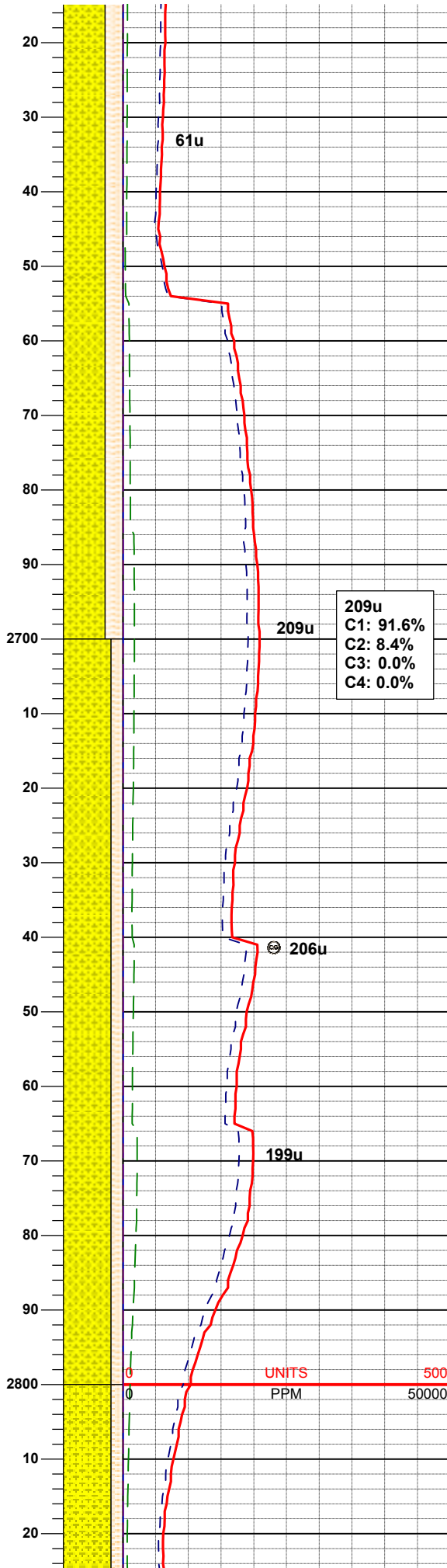
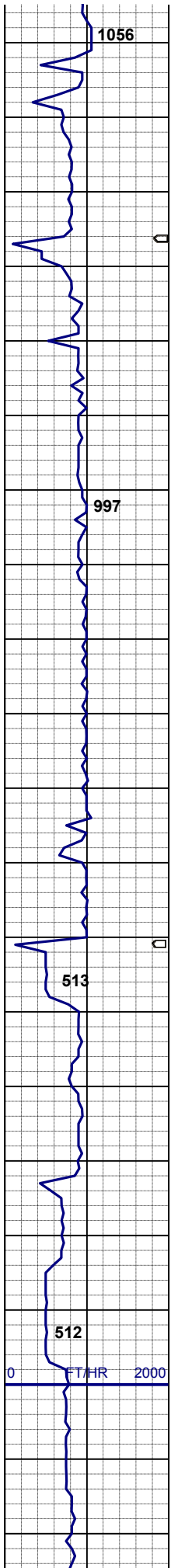
SHYSLTST: ltgy - mgy, sbply-sbrd,
firm -hd, slty - gt tex, arg cmt
SHYSS: wh, lt gy, s&p, spec w/ mica,
sbrd - sbang, tt clus, brit-fri, sl
calc cmt,



MD 2,495'
INC 1.60°
AZM 6.52°

SHYSLTST: ltgy - mgy, sbply-sbrd, firm -hd, slty - gt tex, arg cmt
SHYSS: wh, lt gy, s&p, spec w/ mica, sbrd - sbang, brit - fri, tt clus, sl calc cmt,

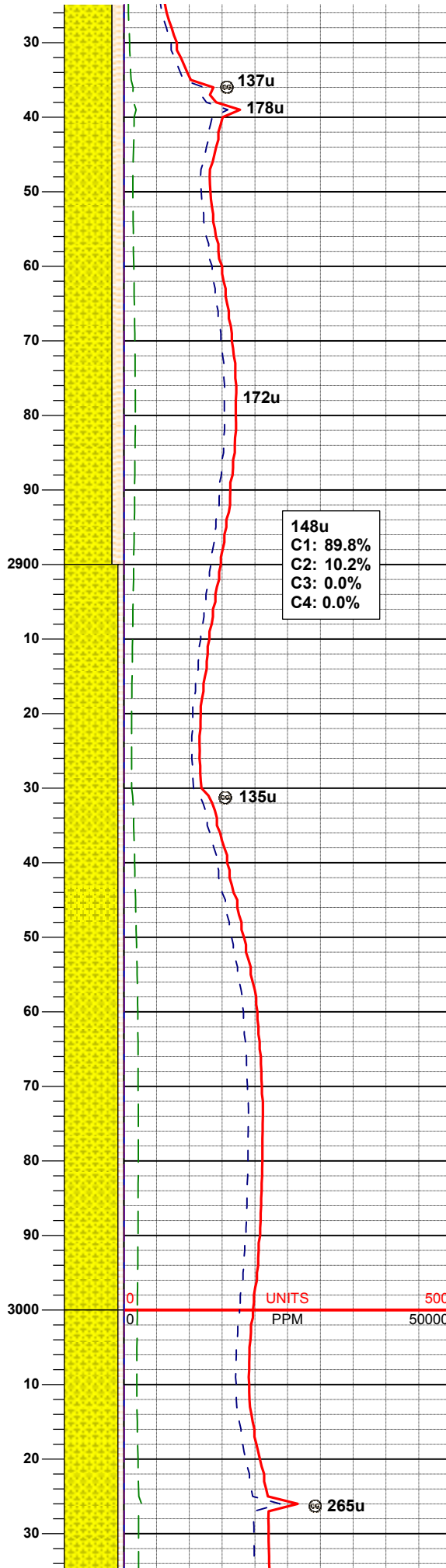
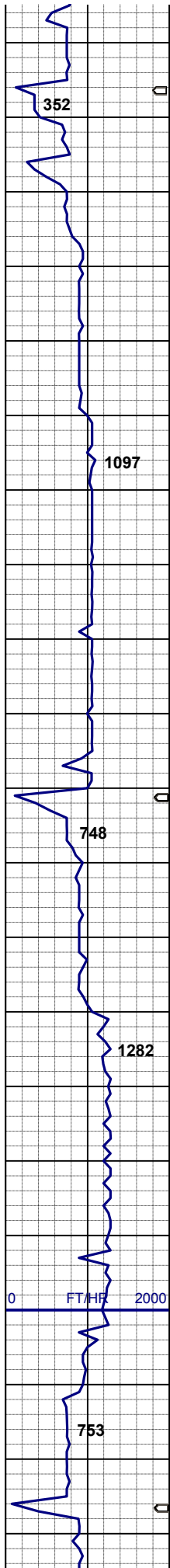
SHYSS: wh, lt gy, s&p, sme fros, spec w/ mica, sbrd - sbang, brit - fri, tt clus, sl calc cmt, dk gn xl glau
SHYSLTST: ltgy - mgy, sbply-sbrd, firm -hd, slty - gt tex, arg cmt



SHYSS: wh, lt gy, s&p, sme fros-trnsl, spec w/ mica, sbrd - sbang, brit - fri, tt clus, calc cmt, dk gn xl glau, intbd w/ SHYSLTST: ltgy - mgy, sbply-sbrd, firm -hd, silty - gt tex, arg-sl calc cmt

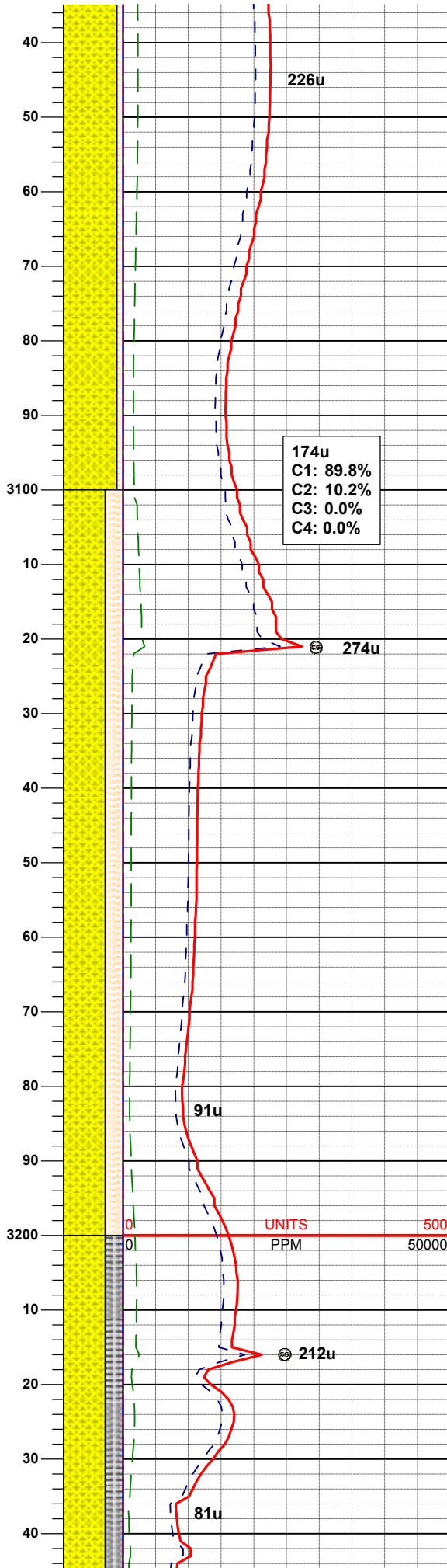
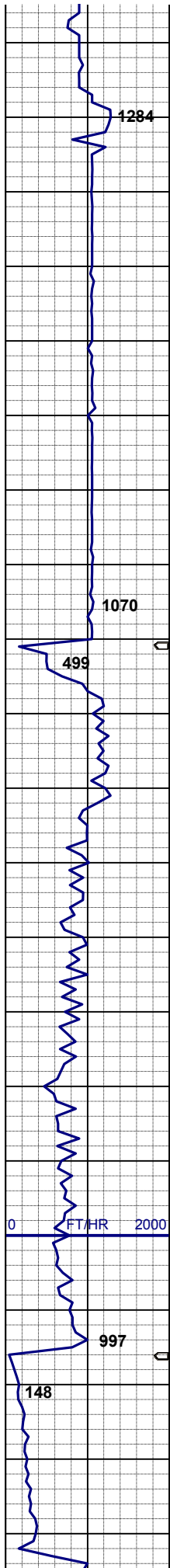
MD 2,780'
INC 0.52°
AZM 196.93°

SHYSS: wh, lt gy, s&p, sme fros-trnsl, spec w/ mica, f-vf gr, sbrd - sbang, brit - fri, tt clus, calc cmt, dk gn xl glau, intbd w/ SHYSLTST: ltgy - mgy, sbply-sbrd, firm -hd, silty - gt tex, arg-sl calc cmt



SHYSS: wh, lt gy, s&p, sme fros-trnsl, spec w/ mica, f-vf gr,sbrd - sbang, brit - fri, tt clus, calc cmt, dk gn xl glau, intbd w/
SHYSLTST: ltgy - mgy, sbply-sbrd, firm -hd, slty - gt tex, arg-sl calc cmt

SHYSS: wh, lt gy, s&p, sme fros-trnsl, spec w/ mica, f-vf gr,sbrd - sbang, brit - fri, tt clus, calc cmt, dk gn xl glau, intbd w/
SHYSLTST: ltgy - mgy, sbply-sbrd, firm -hd, slty - gt tex, arg-sl calc cmt



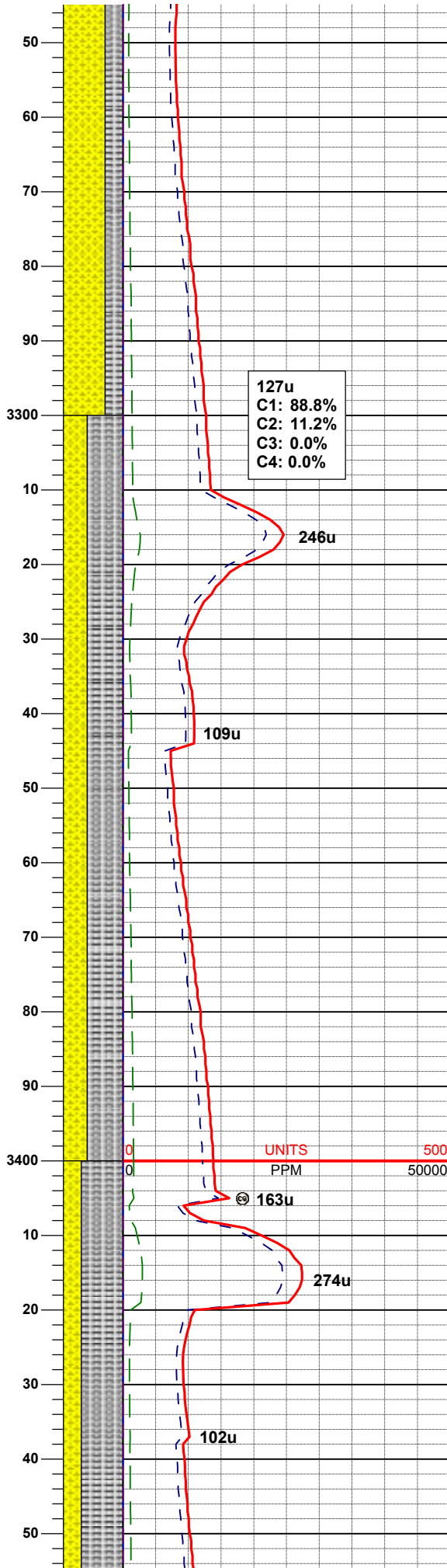
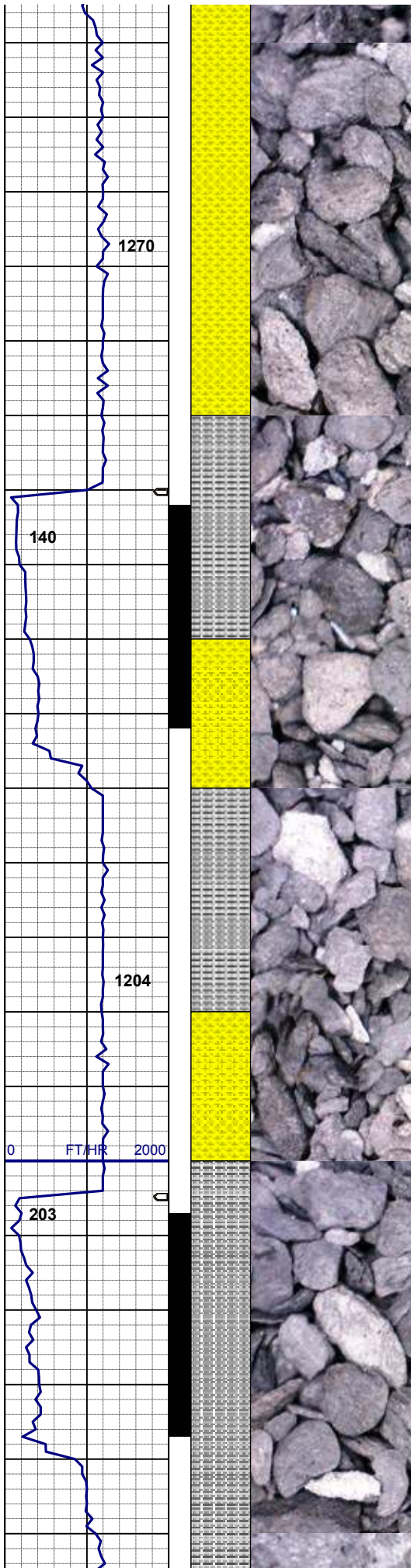
174u
 C1: 89.8%
 C2: 10.2%
 C3: 0.0%
 C4: 0.0%

MD 3,064'
INC 0.37°
AZM 224.42°

SHYSS: wh, lt gy, fros-trnsl, s&p,
 spec w/ mica, f-vf gr,sbrd - sbang, brit
 - fri, tt clus, calc cmt, dk gn xl glau,
 intbd w/
 SHYSLTST: ltgy - mgy, sbply-sbrd,
 firm -hd, slty - gt tex, arg-sl calc cmt

MD 3,159'
INC 0.39°
AZM 181.18°

SHYSS: wh, lt gy, fros-trnsl, s&p,
 spec w/ mica, f-vf gr,sbrd - sbang, brit
 - fri, tt clus, calc cmt, dk gn xl glau,
 intbd w/
 SHYSLTST: ltgy - mgy, sbply-sbrd,
 firm -hd, slty - gt tex, arg-sl calc cmt



MD 3,254'
 INC 2.27°
 AZM 184.18°

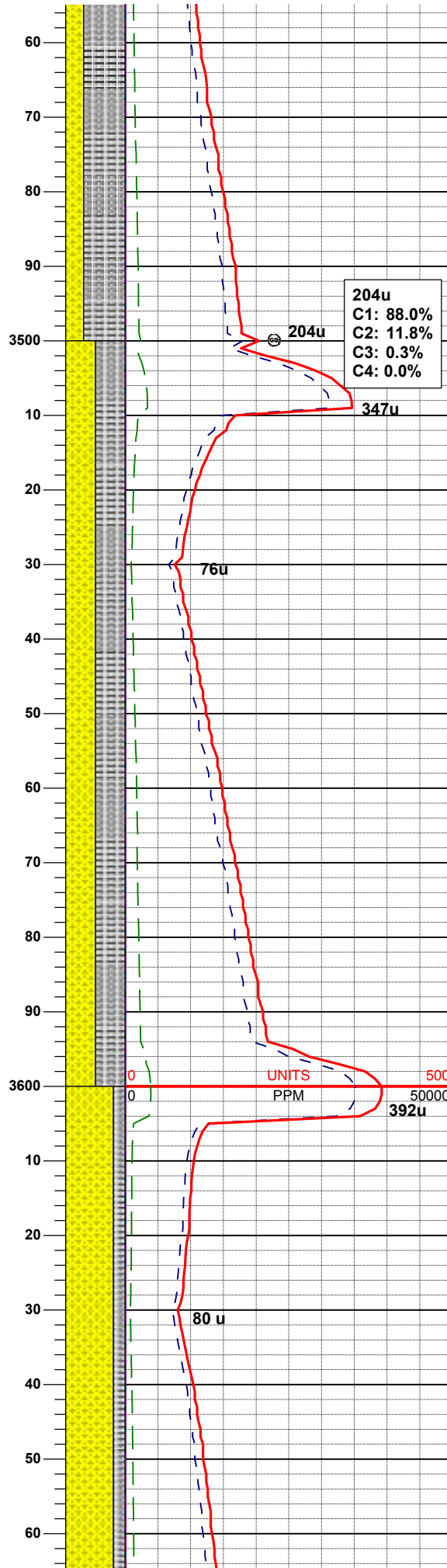
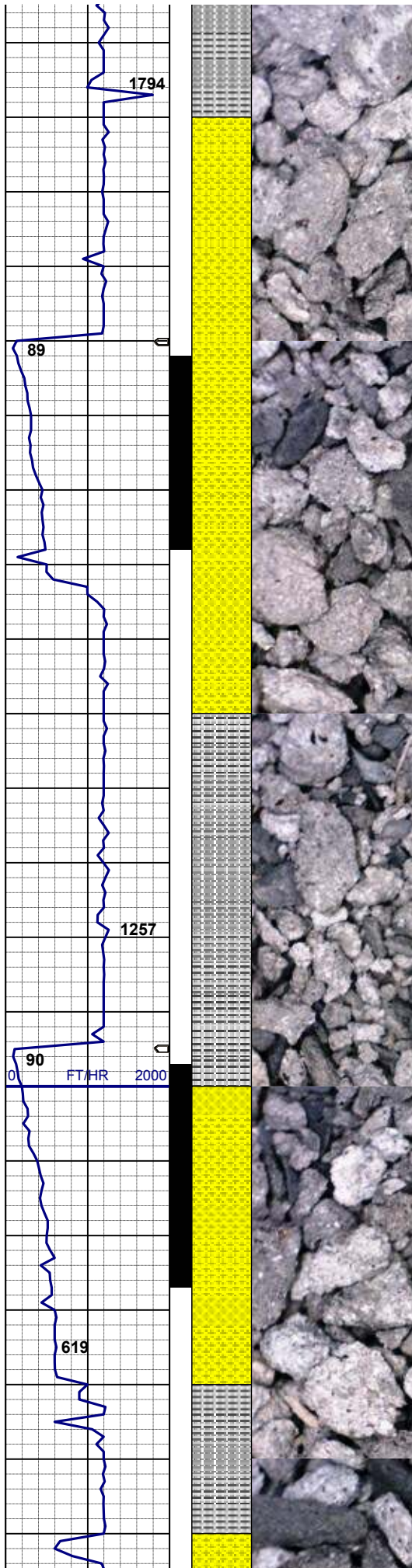
MUD WT 9.0/9.0
 VIS 29/31 IN/OUT

SHYSS: wh, lt gy, fros-trnsl, s&p,
 spec w/ mica, f-vf gr,sbrd - sbang, brit
 - fri, tt clus, calc cmt, dk gn xl glau,
 SLTYSH: mgy - dkgy, brn, firm - hd,
 sbply - ppty, v sl calc, slty - gt tex

MD 3,349'
 INC 3.63°
 AZM 161.86°

SLTYSH: mgy - dkgy, brn, firm - hd,
 sbply - ppty, sme thin lam, v sl calc,
 slty - gt tex
 SHYSS: wh, lt gy, fros-trnsl, s&p,
 spec w/ mica, f-vf gr,sbrd - sbang, brit
 - fri, tt clus, calc cmt, dk gn xl glau,

MD 3,444'
 INC 4.75°
 AZM 157.89°



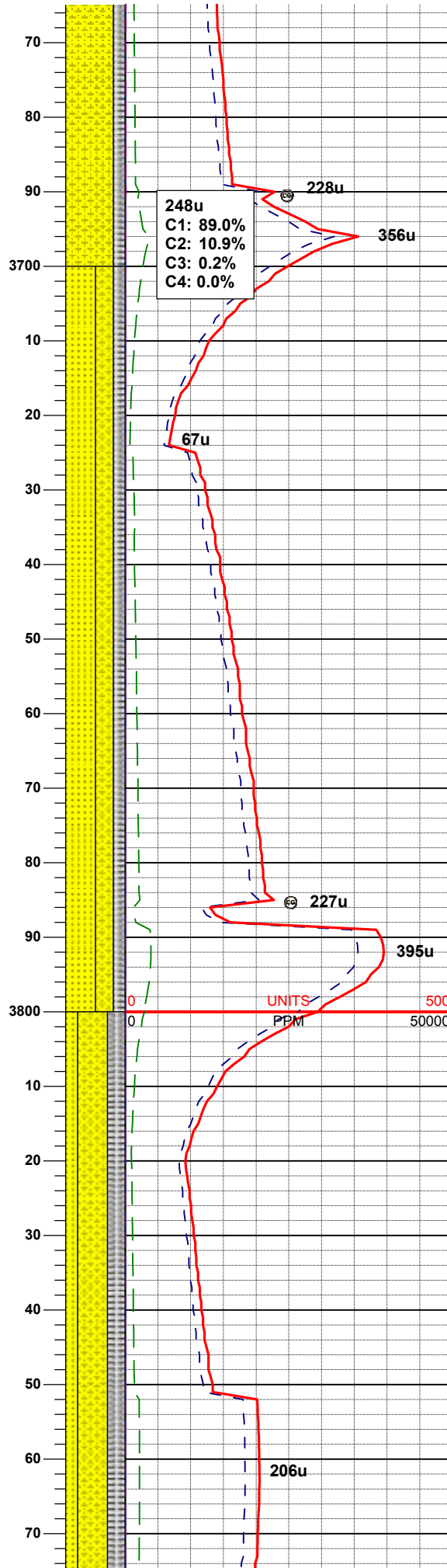
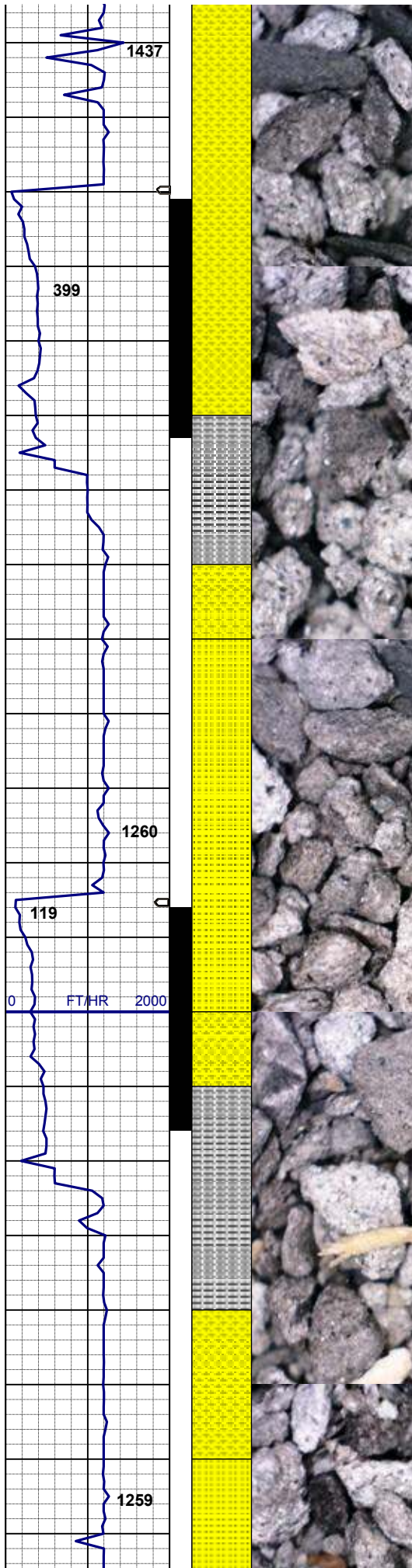
SLTYSH: mgy - dkgy, brn, firm - hd, sbply - pty, sme thin lam, slty - gt tex, v sl calc,
 SHYSS: wh, lt gy, fros-trnsl, s&p, spec w/ mica, f-vf gr,sbrd - sbang, brit - fri, tt clus, calc cmt, dk gn xl glau,

MD 3,539'
INC 6.82°
AZM 152.69°

SLTYSH: mgy - dkgy, brn, firm - hd, sbply - pty, sme thin lam, slty - gt tex, v sl calc,
 SHYSS: wh, lt gy, fros-trnsl, s&p, spec w/ mica, f-vf gr,sbrd - sbang, brit - fri, tt clus, calc cmt, dk gn xl glau,

MD 3,633'
INC 8.14°
AZM 167.77°

MUD WT 8.8/8.75
VIS 29/29 IN/OUT



248u
 C1: 89.0%
 C2: 10.9%
 C3: 0.2%
 C4: 0.0%

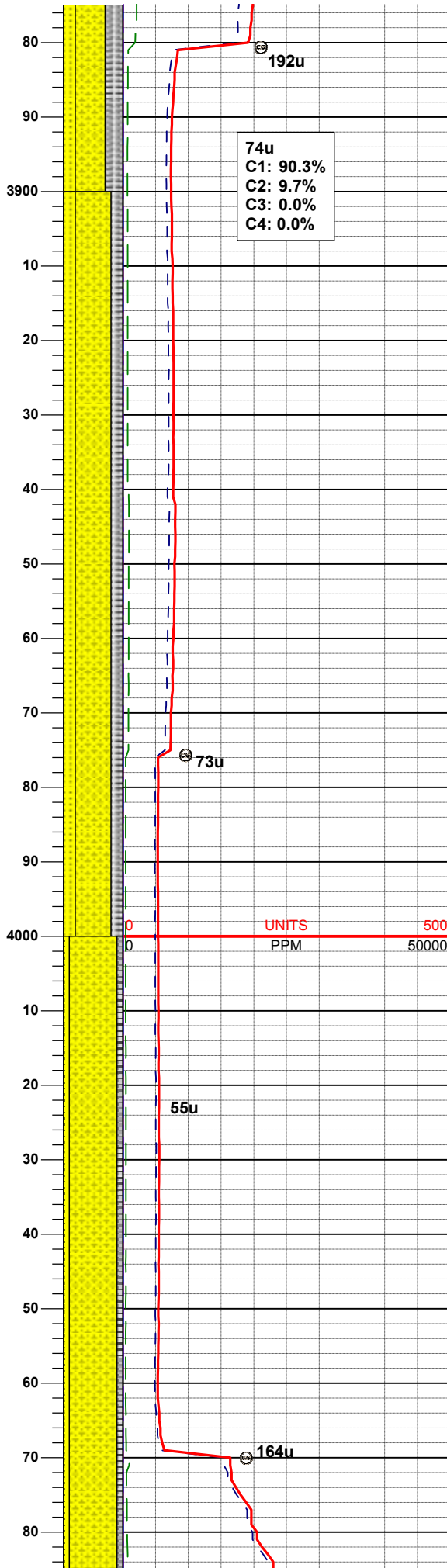
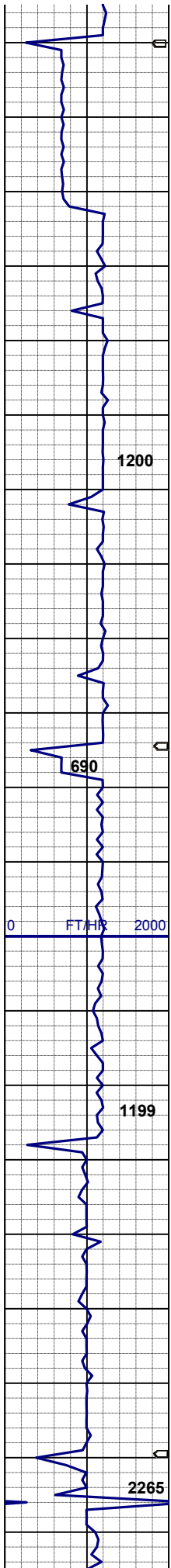
SHYSS: wh, lt gy, fros-trnsl, s&p,
 spec w/ mica, f-vf gr,sbrd - sbang, brit
 - fri, tt clus, calc cmt, dk gn xl glau,
 SLTYSH: mgy - dkg, brn, firm - hd,
 sbply - pty, sme thin lam, slty - gt
 tex, v sl calc,

MD 3,728'
INC 10.38°
AZM 170.28°

SS: wh, lt gy, s&p, clr - trnsl, f - vf gr,
 sbang - ang, p srt, p consol, fri clus,
 calc cmt / mtx, freq dk gn xl glau,
 SHYSS: lt gy - m gy, gybrn, fros, spec
 w/ mica, f-vf gr,sbrd - sbang, mod
 consol, brit - fri clus, calc cmt, sme xl
 glau,
 SLTYSH: mgy - dkg, brn, firm - hd,
 sbply - pty, sme thin lam, slty - gt
 tex, v sl calc,

MD 3,823'
INC 12.56°
AZM 166.75°

SHYSS: lt gy - m gy, gybrn, fros, spec



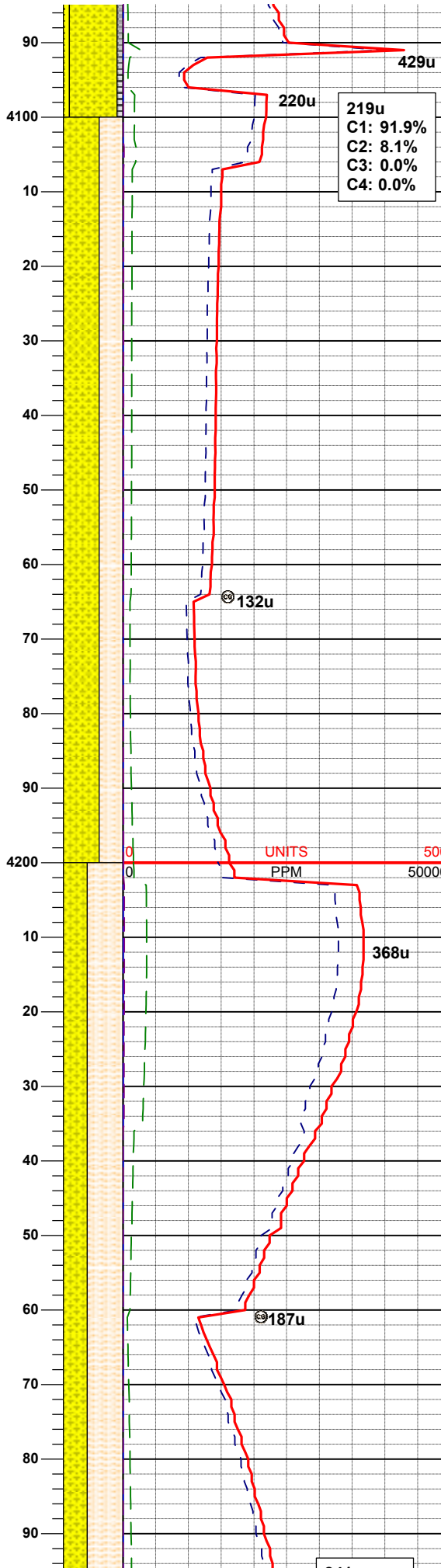
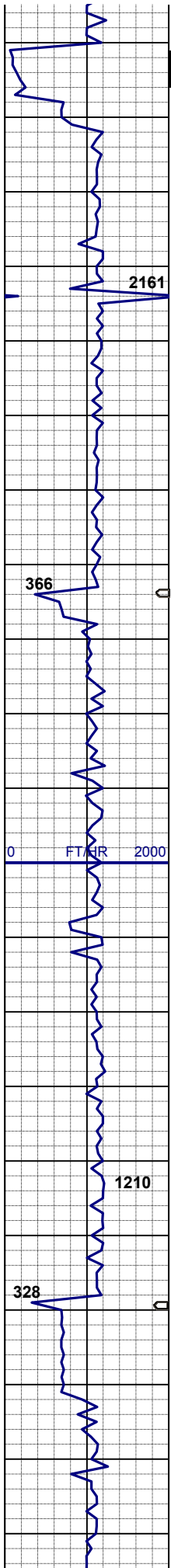
w/ mica, f-vf gr,sbrd - sbang, mod consol, brit - fri clus, calc cmt, sme xl glau,
 SLTYSH: mgy - dkgy, brn, firm - hd, sbply - pty, sme thin lam, stly - gt tex, v sl calc,
 SS: wh, lt gy, s&p, clr - trnsl, f - vf gr, sbang - ang, p srt, p consol, fri clus, calc cmt / mtz, freq dk gn xl glau,

MD 3,918'
INC 13.48°
AZM 166.46°

SHYSS: lt gy - m gy, gybrn, fros, spec w/ mica, f-vf gr,sbrd - sbang, mod consol, brit - fri clus, calc cmt, sme xl glau,
 SLTYSH: mgy - dkgy, brn, firm - hd, sbply - pty, sme thin lam, stly - gt tex, v sl calc,
 SS: wh, lt gy, s&p, clr - trnsl, f - vf gr, sbang - ang, p srt, p consol, fri clus, calc cmt / mtz, freq dk gn xl glau,

MD 4,013'
TVD 4,002.81'
INC 14.14°
AZM 168.26°

SHYSS: lt gy - m gy, gybrn, fros, spec w/ mica, f-vf gr,sbrd - sbang, mod consol, brit - fri clus, calc cmt, sme xl glau,
 SLTYSH: mgy - dkgy, brn, firm - hd



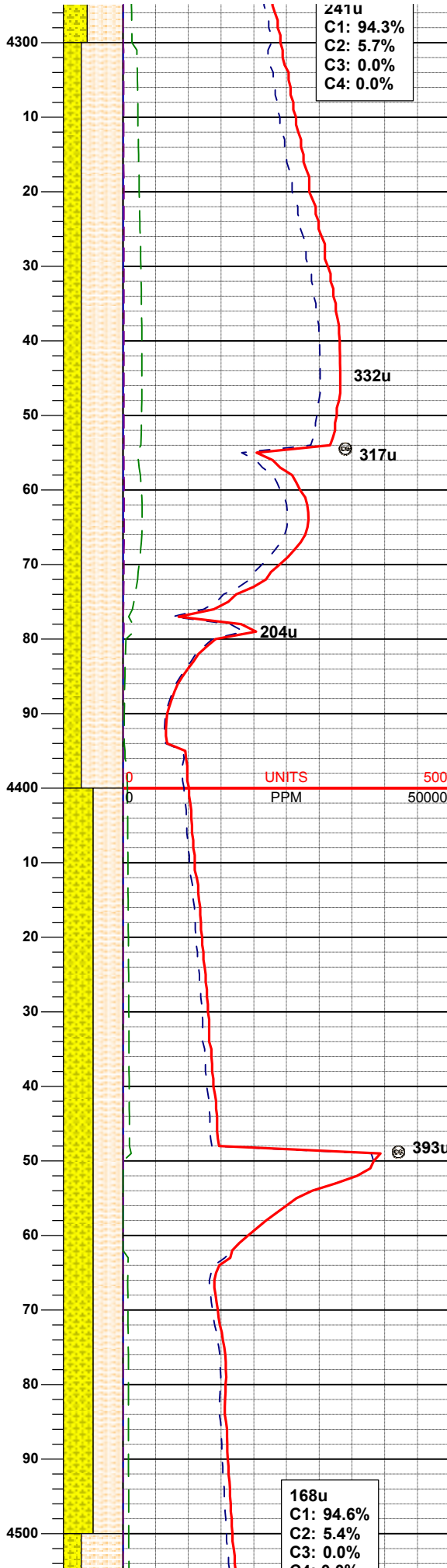
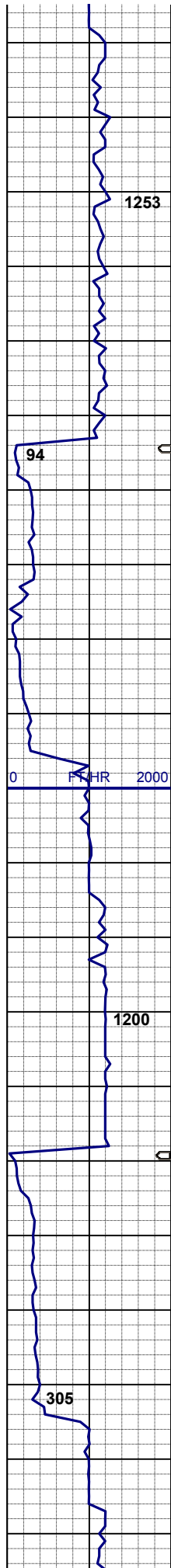
sbply - pty, sme thin lam, slty - gt
 tex, v sl calc,
 SS: wh, lt gy, s&p, clr - trnsl, f - vf gr,
 sbang - ang, p srt, p consol, fri clus,
 calc cmt / mtx, freq dk gn xl glau,

MD 4,108'
TVD 4,095.08'
INC 13.43°
AZM 170.11°

SHYSS: wh, lt gy - m gy, fros - trnsl, f -
 vf gr, sbrd - sbang, mod consol, brit -
 fri clus, v calc cmt / mtx, spec w/
 mica, dk gn xl glau,
 SHYLTST: lt gy - m gy, gybrn, sbrd -
 w rd, vfgr, firm - mod hd, v calc cmt,
 abnt fos frag

MD 4,203'
TVD 4,187.57'
INC 12.95°
AZM 169.05°

SHYLTST: lt gy - m gy, gybrn, sbrd -
 w rd, vfgr, firm - mod hd, mod calc,
 SHYSS: wh, lt gy - m gy, fros - trnsl, f -
 vf gr, sbrd - sbang, mod consol, brit -
 fri clus, v calc cmt / mtx, spec w/



241u
 C1: 94.3%
 C2: 5.7%
 C3: 0.0%
 C4: 0.0%

mica, dk gn xl glau, abnt fos frag

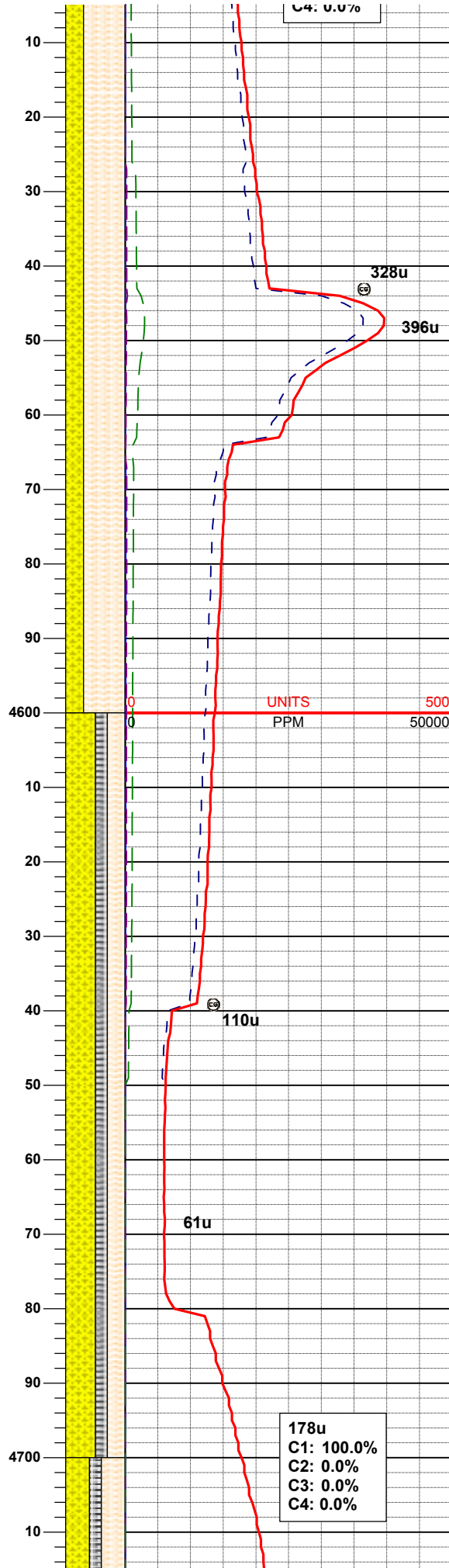
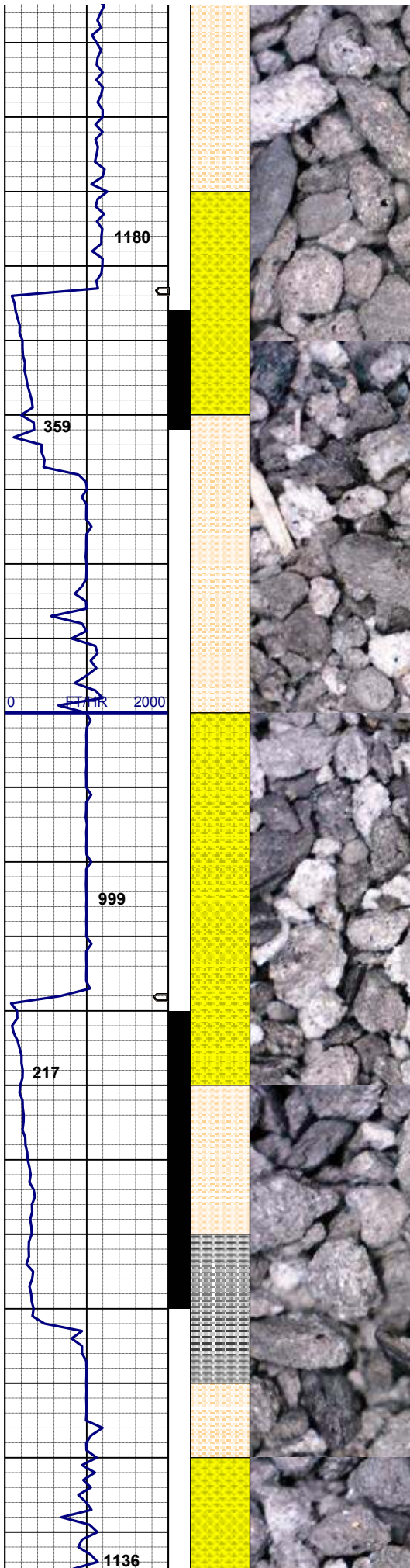
MD 4,298'
TVD 4,280.55'
INC 10.73°
AZM 173.34°

SHYSLTST: lt gy - m gy, gybrn, sbrd - w rd, vfgr, firm - mod hd, mod calc, SHYSS: wh, lt gy - m gy, fros - trnsl, f - vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau, abnt fos frag

MD 4,393'
TVD 4,373.81'
INC 11.26°
AZM 171.20°

168u
 C1: 94.6%
 C2: 5.4%
 C3: 0.0%
 C4: 0.0%

MD 4,488'
TVD 4,466.87'
INC 11.95°
AZM 165.63°
 SHYSLTST: lt gy - m gy, gybrn, sbrd - w rd, vfgr, firm - mod hd, mod calc, SHYSS: wh, lt gy - m gy, fros - trnsl, f - vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau, sme scat fos frag



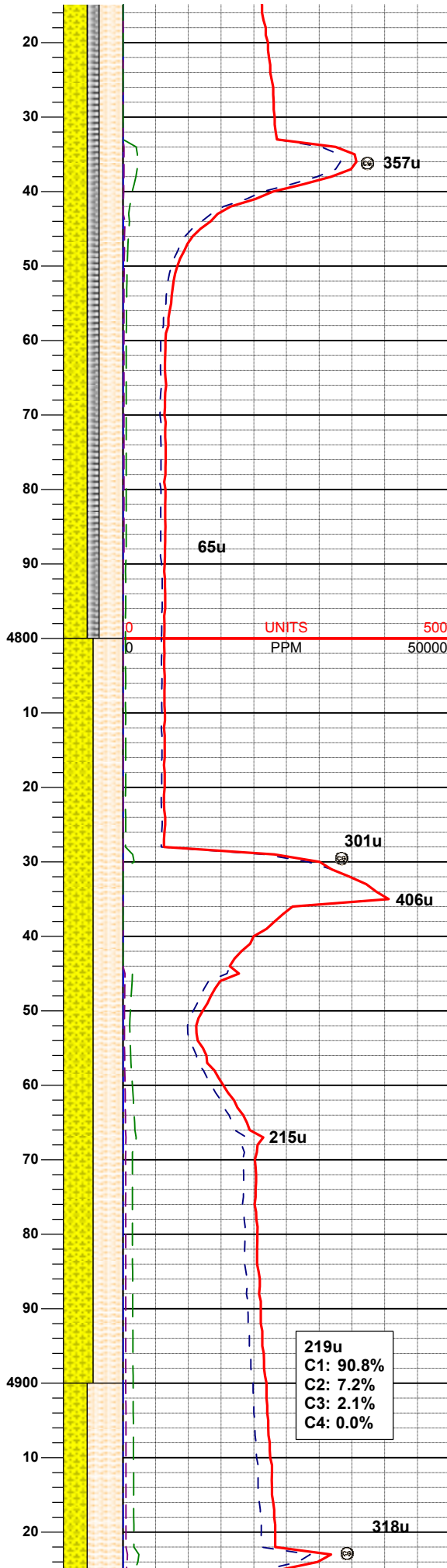
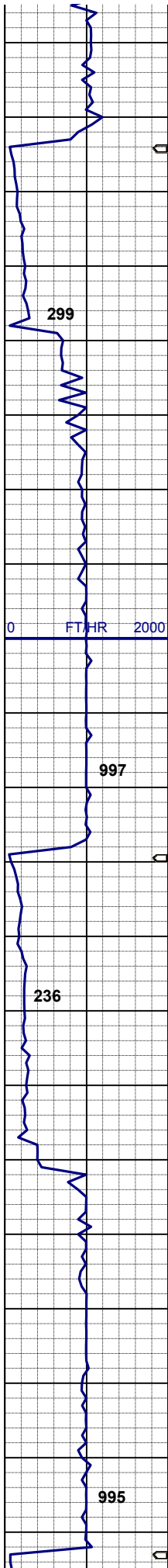
MUD WT 8.8/8.9
VIS 28/29 IN/OUT

MD 4,582'
TVD 4,558.79'
INC 12.16°
AZM 165.17°

SHYSLTST: lt gy - m gy, gybrn, sbrd - w rd, vfgr, firm - mod hd, gt tex, mod calc,
SHYSS: wh, lt gy - m gy, fros - trnsl, f - vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau, sme scat fos frag

MD 4,677'
TVD 4,651.75'
INC 11.64°
AZM 165.08°

SHYSS: wh, lt gy - m gy, fros - trnsl, f - vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau,
SHYSLTST: lt gy - m gy, gybrn, sbrd - w rd, vfgr, firm - mod hd, gt tex, mod calc,
SLTYSH: dk gy, dk brn, firm - hd, brit, sbplty - plty, sme thin lam, v sl calc, scat fos frag



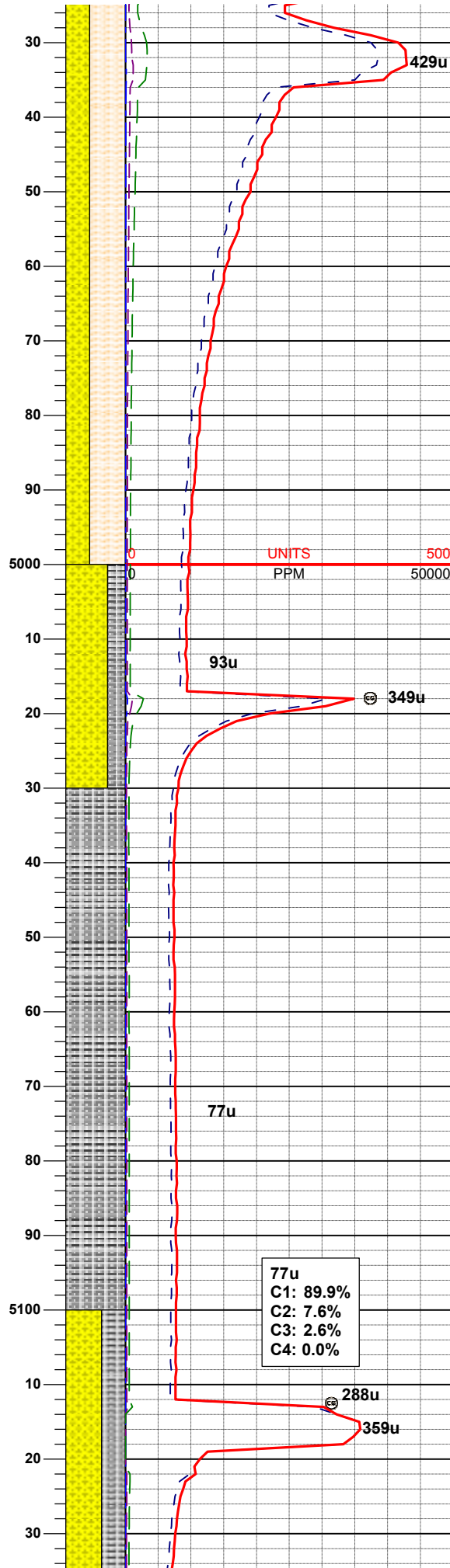
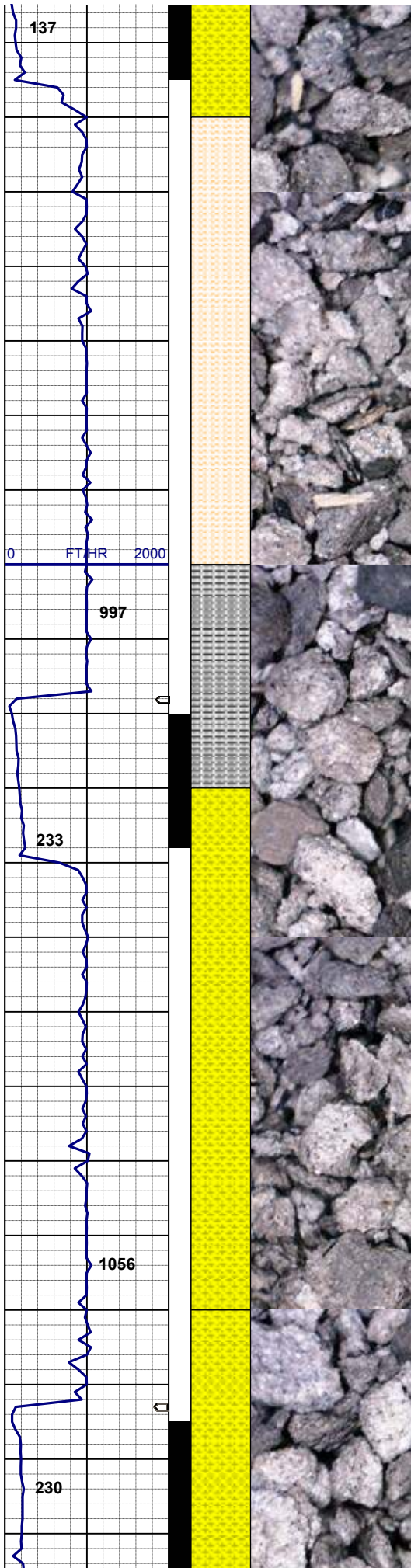
MD 4,772'
TVD 4,744.84'
INC 11.41°
AZM 165.08°

SHYSS: wh, lt gy- m gy, fros - trnsl, f-
 vf gr, sbrd - sbang, mod consol, brit -
 fri clus, v calc cmt / mtx, spec w/
 mica, dk gn xl glau,
 SHYSLTST: lt gy - m gy, gybrn, sbrd -
 w rd, vfgr, firm - mod hd, gt tex, mod
 calc,
 SLTYSH: dk gy, dk brn, firm - hd, brit,
 sbply -ply, sme thin lam, v sl calc,
 scat fos frag

MD 4,867'
TVD 4,837.83'
INC 12.25°
AZM 152.33°

SHYSS: wh, lt gy- m gy, fros - trnsl, f-
 vf gr, sbrd - sbang, mod consol, brit -
 fri clus, v calc cmt / mtx, spec w/
 mica, dk gn xl glau,
 SHYSLTST: lt gy - m gy, gybrn, sbrd -
 w rd, vfgr, firm - mod hd, gt tex, mod
 calc, scat fos frag

219u
C1: 90.8%
C2: 7.2%
C3: 2.1%
C4: 0.0%



MD 4,962'
 TVD 4,930.84'
 INC 11.27°
 AZM 154.58°

SHYSLTST: lt gy - m gy, gybrn, sbrd - w rd, vfgr, firm - mod hd, gt tex, mod calc,
 SHYSS: wh, lt gy- m gy, fros - trnsl, f- vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau, scat fos frag

UNITS PPM 500 50000

MD 5,057'
 TVD 5,024.01'
 INC 11.24°
 AZM 155.35°

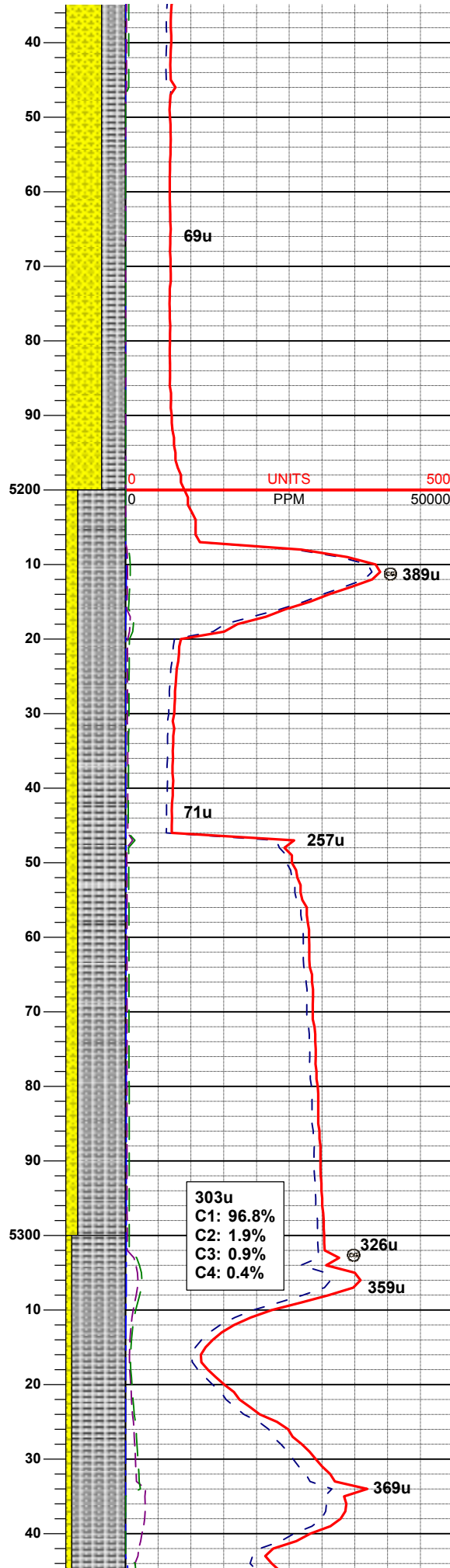
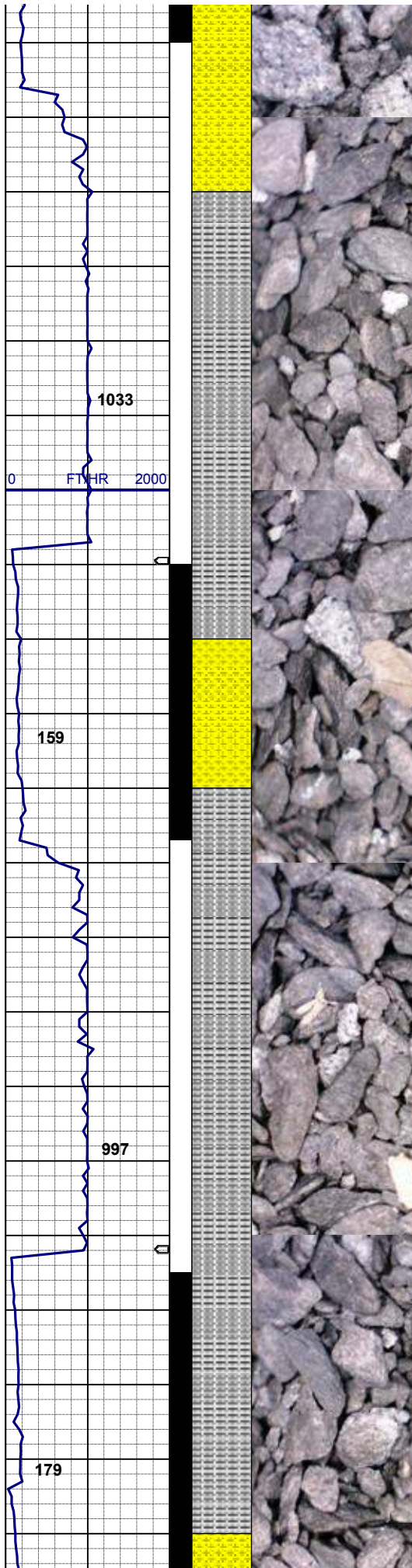
SHYSS: wh, lt gy- m gy, ltbrn, fros - trnsl, f- vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau,
 SLTYSH: dk gy, dk brn, blk, firm - hd, brit, sbply - pty, sme thin lam, v sl calc, scat fos frag

77u
 C1: 89.9%
 C2: 7.6%
 C3: 2.6%
 C4: 0.0%

288u
 359u

93u
 349u

429u



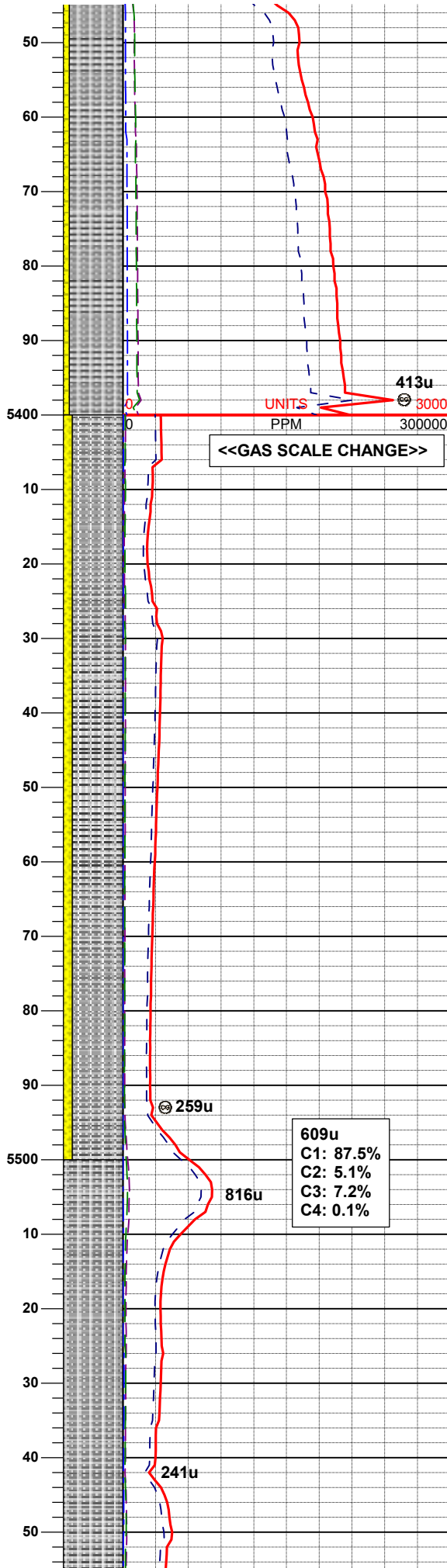
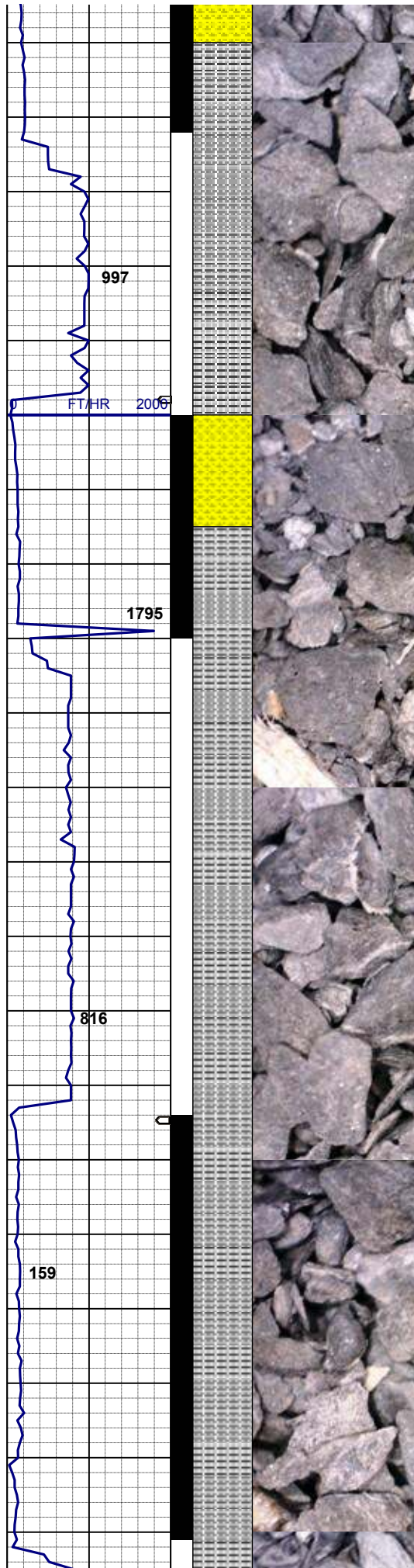
MD 5,152'
 TVD 5,117.24'
 INC 10.94°
 AZM 156.74°

SHYSS: wh, lt gy- m gy, ltbrn, fros - trnsl, f-vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau, SLTYSH: dk gy, dk brn, blk, firm - hd, brit, sbply -ply, sme thin lam, v sl calc, scat fos frag

MD 5,246'
 TVD 5,209.63'
 INC 10.27°
 AZM 156.43°

SLTYSH: m gy - dk gy, dk brn, firm - hd, brit, sbply -ply, sme thin lam, v sl calc, SHYSS: wh, lt gy- m gy, ltbrn, fros - trnsl, f-vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau, scat fos frag

MD 5,341'



TVD 5,303.01'
 INC 10.93°
 AZM 154.84°

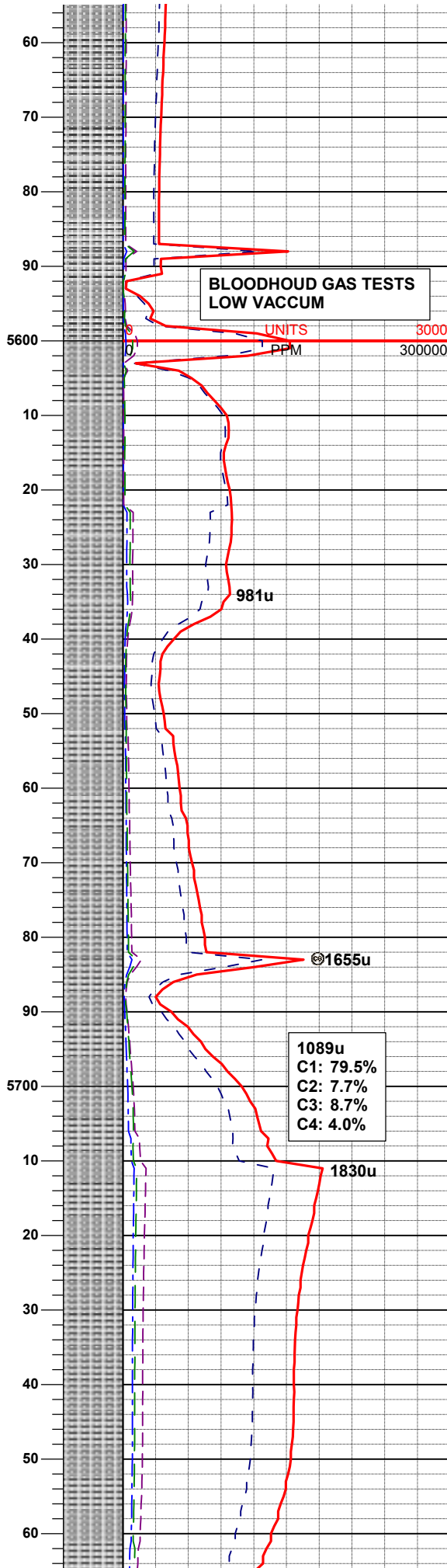
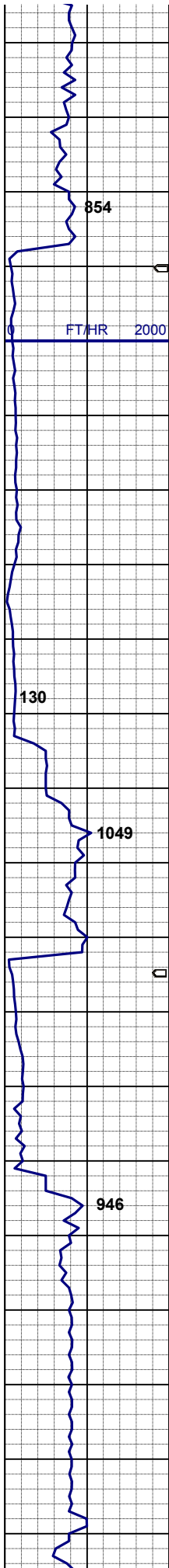
SLTYSH: m gy - dk gy, dk brn, firm - hd, brit, sbply -ply, sme thin lam, v sl calc, SHYSS: wh, lt gy- m gy, ltbrn, fros - trnsl, f-vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau, scat fos frag

MD 5,436'
 TVD 5,396.22'
 INC 11.436°
 AZM 164.00°

SLTYSH: m gy - dk gy, dk brn, firm - hd, brit, sbply -ply, sme thin lam, v sl calc, SHYSS: wh, lt gy- m gy, ltbrn, fros - trnsl, f-vf gr, sbrd - sbang, mod consol, brit - fri clus, v calc cmt / mtx, spec w/ mica, dk gn xl glau,

609u
 C1: 87.5%
 C2: 5.1%
 C3: 7.2%
 C4: 0.1%

MD 5,531'
 TVD 5,489.33'
 INC 11.52°
 AZM 175.71°



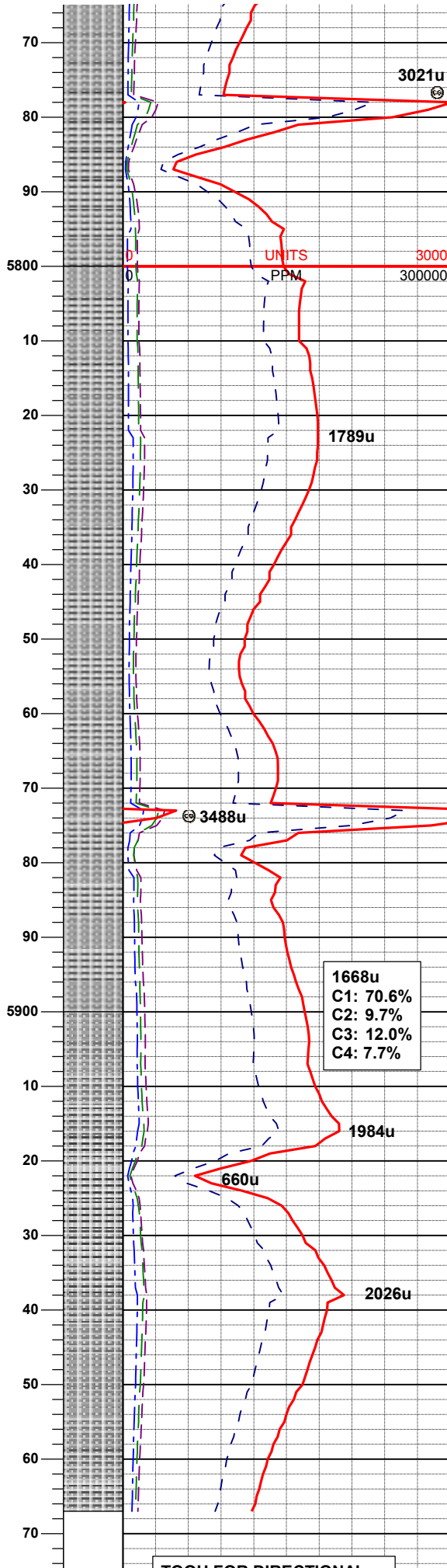
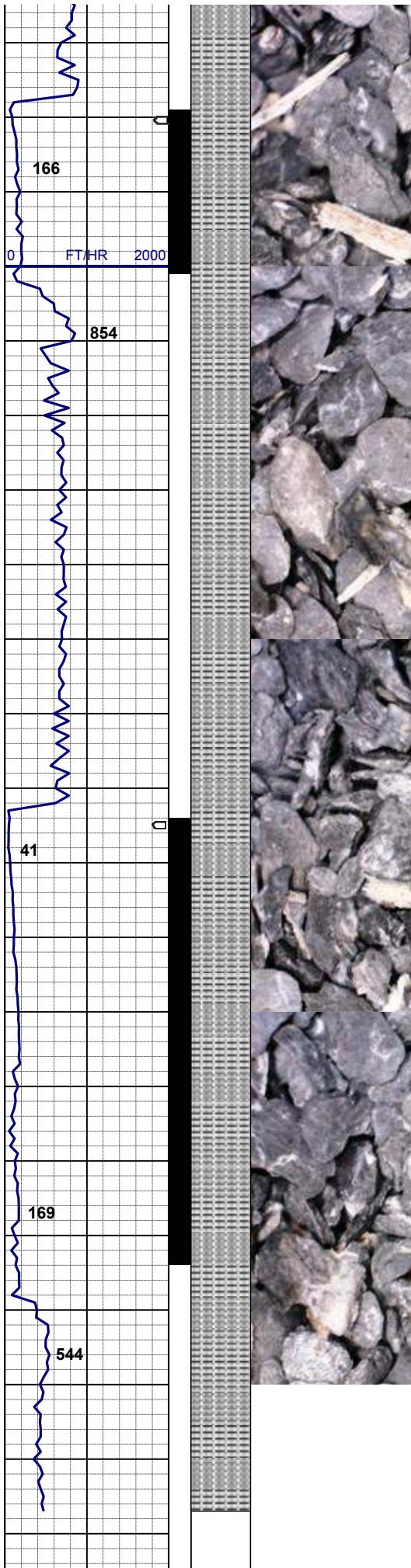
SLTYSH: m gy - dk gy, dk brn, firm -
hd, brit, sbply -ply, sme thin lam, v sl
calc

MD 5,626'
TVD 5,582.15'
INC 13.05°
AZM 175.54°

SLTYSH: m gy - dk gy, dk brn, firm -
hd, brit, sbply -ply, sme thin lam, v sl
calc

MD 5,721'
TVD 5,674.53'
INC 13.94°
AZM 180.59°

MUD WT 9.45/9.45
VIS 35/36 IN/OUT



MD 5,816'
TVD 5,766.94'
INC 12.87°
AZM 179.12°

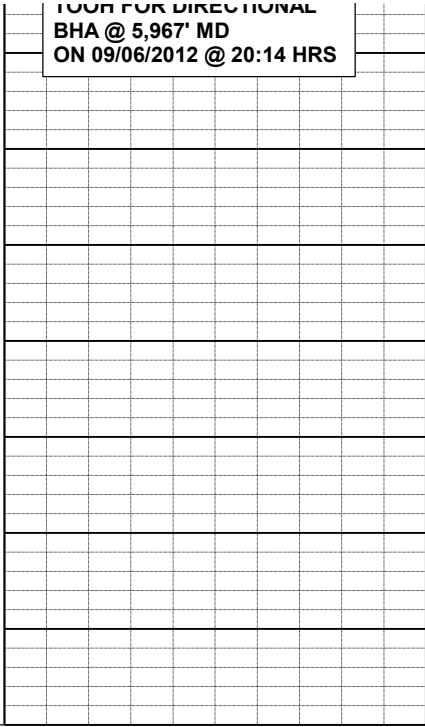
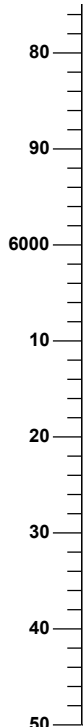
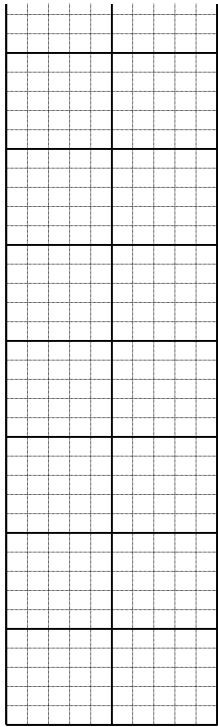
SLTYSH: m gy - dk gy, dk brn, firm -
hd, brit, sbply -ply, sme thin lam, v sl
calc

MD 5,909'
TVD 5,857.56'
INC 13.15°
AZM 177.67°

MUD WT 9.55/9.60
VIS 36/36 IN/OUT

SLTYSH: m gy - dk gy, dk brn, firm -
hd, brit, sbply -ply, sme thin lam, v sl
calc

TOOL FOR DIRECTIONAL



TOOH FOR DIRECTIONAL
BHA @ 5,967' MD
ON 09/06/2012 @ 20:14 HRS

LOG CONTINUES ON
HORIZONTAL L PLOT LOG
WELLS RANCH
AA12-62-1HN
HORIZONTAL

Thank You for Using
Columbine Logging Inc.