

LOG created using L PLOT VH Version 3.0, January 19, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

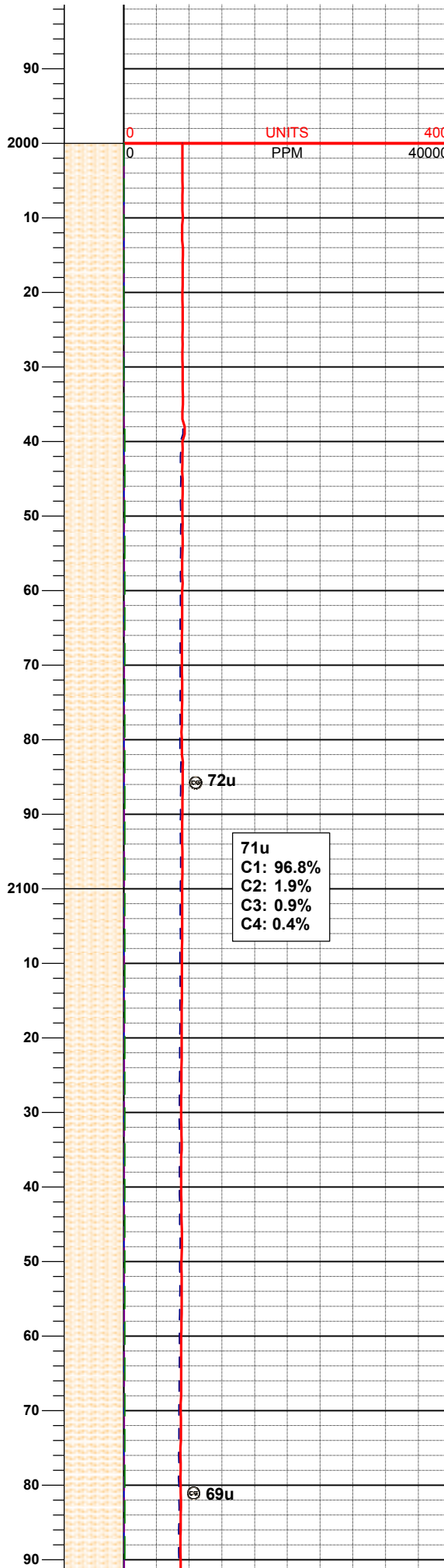
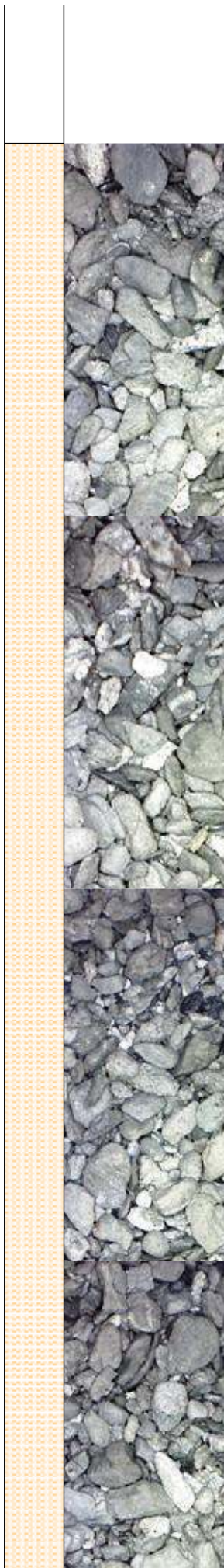
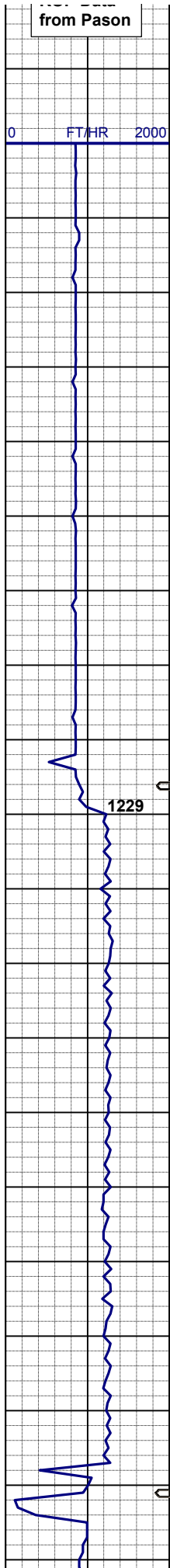
OPERATOR:	NOBLE ENERGY INC.
WELL:	SLW RANCH B01-66-1HN
LOCATION:	SEC 1 T5N R64W
COUNTY:	WELD
STATE:	COLORADO
SPOT:	1,420' FNL; 199' FEL
ELEVATION:	4,612' GL; 4,636' KB
FIELD:	WATTENBERG
SPUD DATE:	01/14/2013
TD DATE:	01/16/2013 (VERTICAL)
DATES LOGGED:	01/16/2013 (VERTICAL)
DEPTHS LOGGED:	2,000' - 5,978' (VERTICAL)
LOGGERS:	CHRIS COOK; CHRIS SCAHEL
DRILLING FLUID:	LSND
DRILLING RIG:	H&P 315
API:	05-123-36318
LOG TYPE:	VERTICAL
SCALE:	1:240 (5 inches per 100 feet)
REMARKS:	SEE CORRESPONDING HORIZONTAL LOG SLW RANCH B01-66-1HN HORZ. LAT/LON 40.431850/-104.489460 Wellsite Geological Services Provided by Columbine Logging Inc.

## LITHOLOGIES



## ENGINEERING SYMBOLS

[illegible]

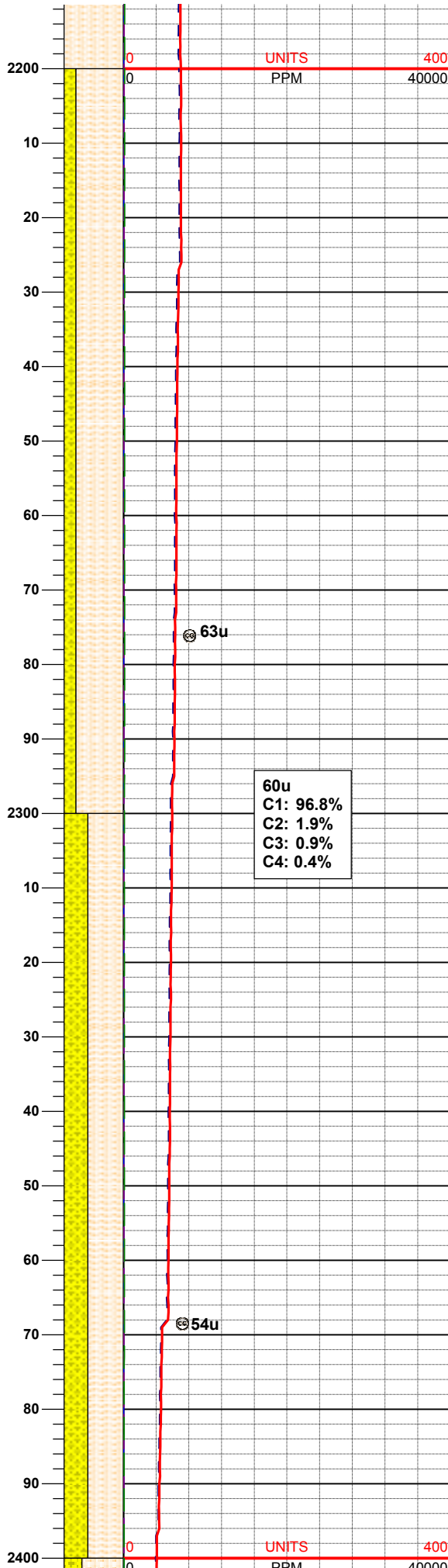
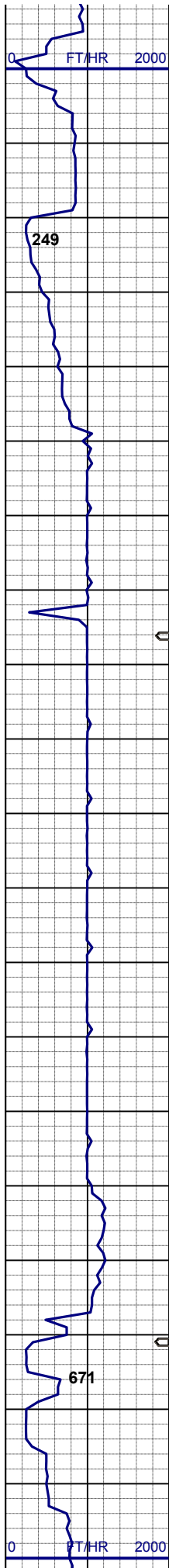


01/15/2013  
Mud Wt: 8.75  
FVis: 28  
PVis: 4  
YP: 3  
GELS: 2/3/4  
API Filt: N/A  
CAKE: 1/0  
pH: 9.0  
Cl: 1,500  
Ca: 120

MD 2,028'  
INC 0.35°  
AZM 48.93°

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd , w consol, gt tex, sl calc,  
v abnt cly mnrl

MUD WT 8.80/8.80  
VIS 28/28 IN/OUT

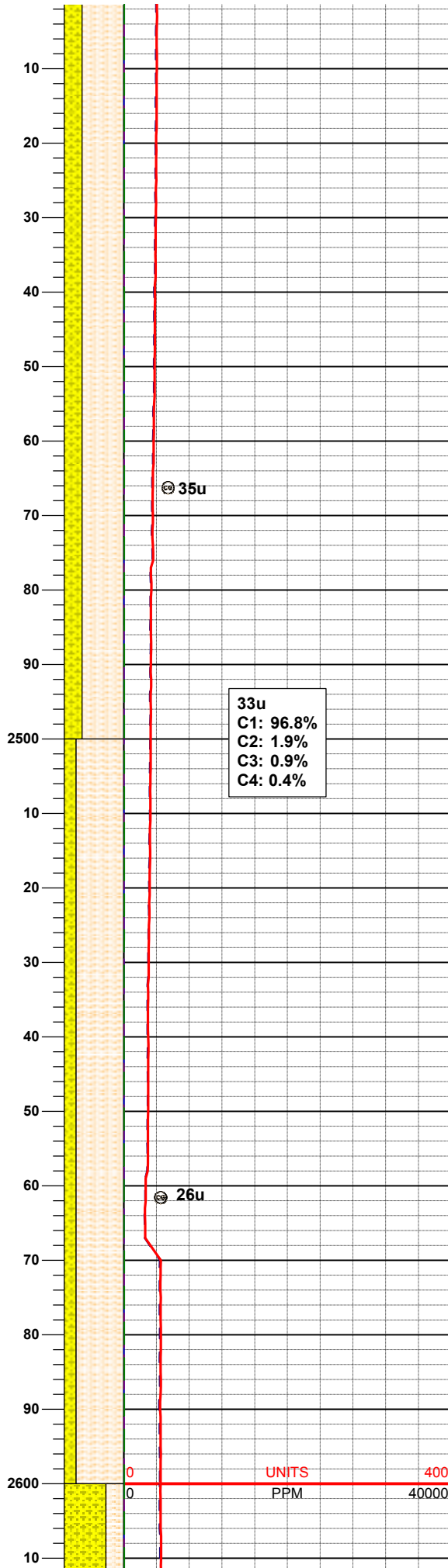
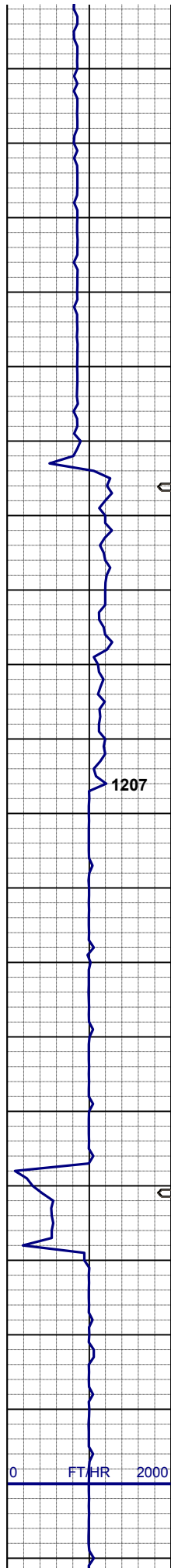


SHYSLTST: ltgy - mgy, vfgr, hd, sbply - sbrd , w consol, gt tex, sl calc, v abnt cly mnrl

SHYSLTST: ltgy - mgy, hd, sbply - sbrd , w consol, gt tex, sl calc, SHYSS: wh, lt gy, vfgr, hd brit clus, sbply-sbang, calc cmt, v abnt cly mnrl

MD 2,313'  
INC 0.99°  
AZM 5.81°

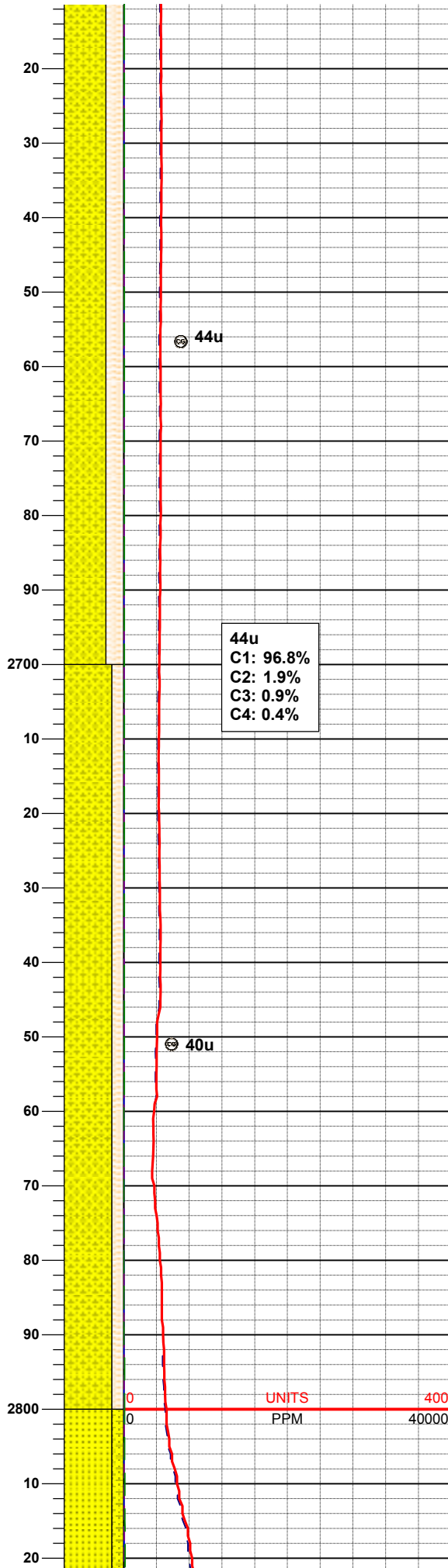
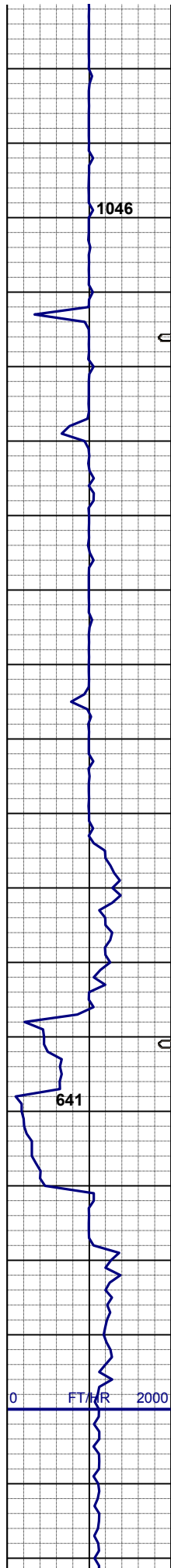
SHYSLTST: ltgy - mgy, hd, sbply - sbrd , w consol, gt tex, sl calc, intbd w/ SHYSS: wh, lt gy, s&p, vfgr, hd brit clus, sbply-sbang, calc cmt, v abnt cly mnrl



SHYSLTST: ltgy - mgy, gybrn, hd, sbply - sbrd , w consol, gt tex, sl calc, intbd w/  
SHYSS: wh, lt gy, s&p, vfgr, hd brit clus, sbply-sbang, calc cmt, v abnt cly mnrl

SHYSLTST: ltgy - mgy, gybrn, mod hd - hd, sbply - sbrd , w consol, gt tex, sl calc, intbd w/  
SHYSS: wh, lt gy, s&p, vfgr, hd brit clus, sbply-sbang, calc cmt

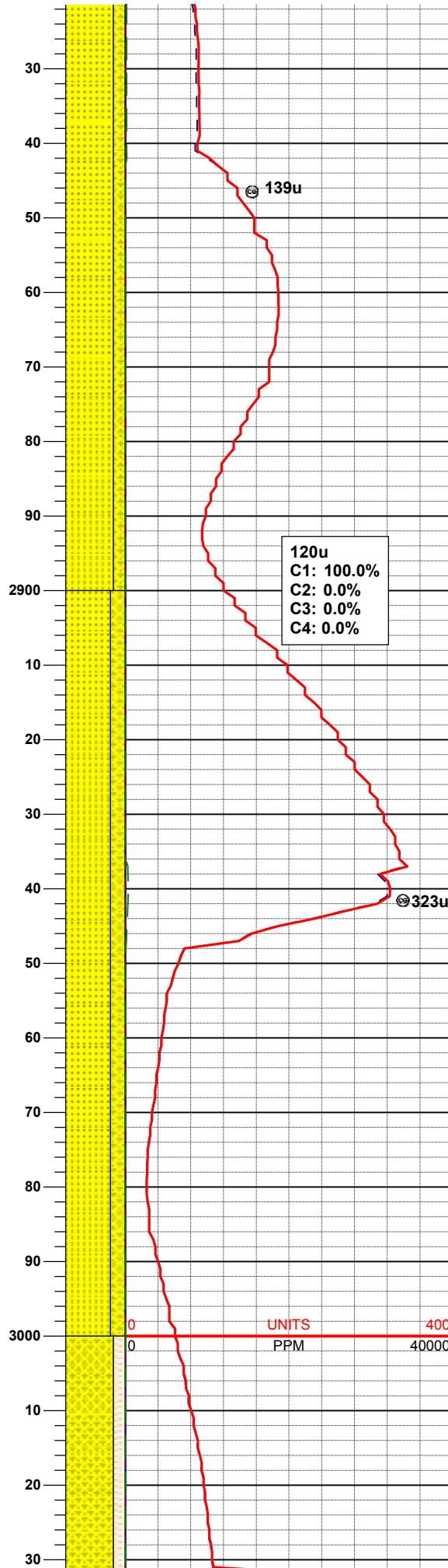
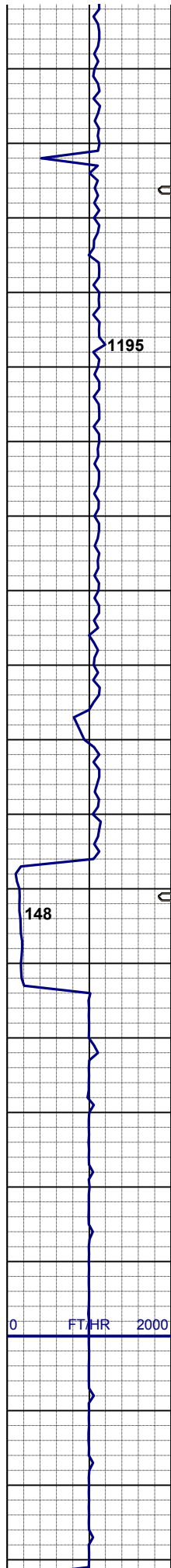
MD 2,598'  
INC 0.51°  
AZM 12.28°



SHYSS: wh, ltgy, fros - trnsi ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SHYSLTST: ltgy - mgy, gybrn, mod  
hd - hd, sbply - sbrd , w consol, slty -  
gt tex, sl calc

MUD WT 8.70/8.70  
VIS 28/28 IN/OUT

SHYSS: wh, ltgy, fros - trnsi ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SHYSLTST: ltgy - mgy, gybrn, mod  
hd - hd, sbply - sbrd , w consol, slty -  
gt tex, sl calc



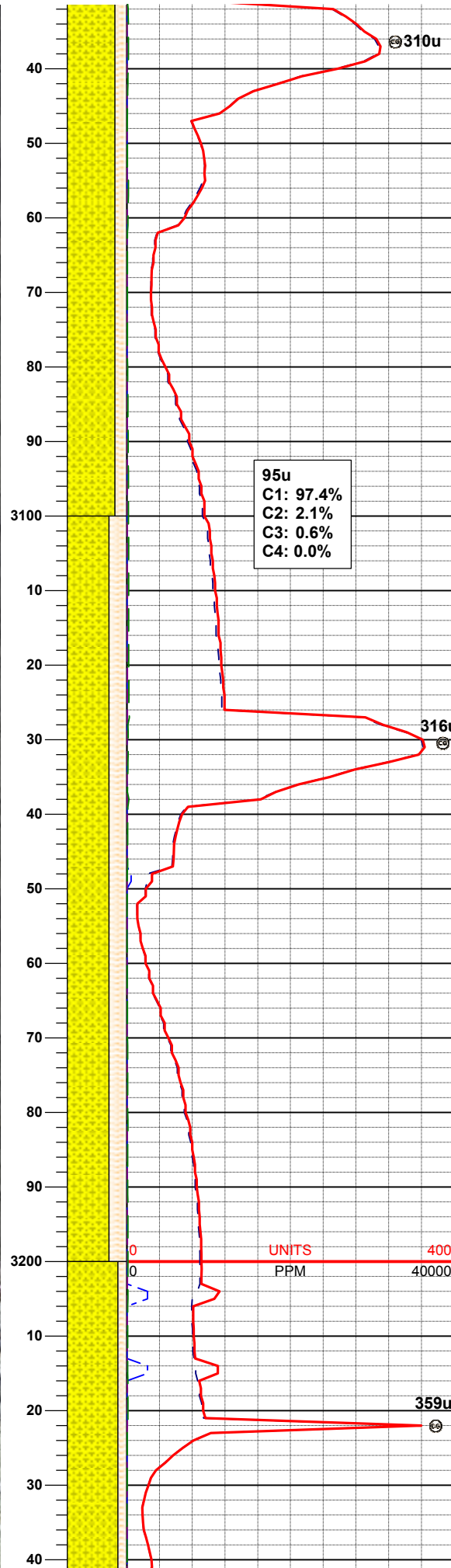
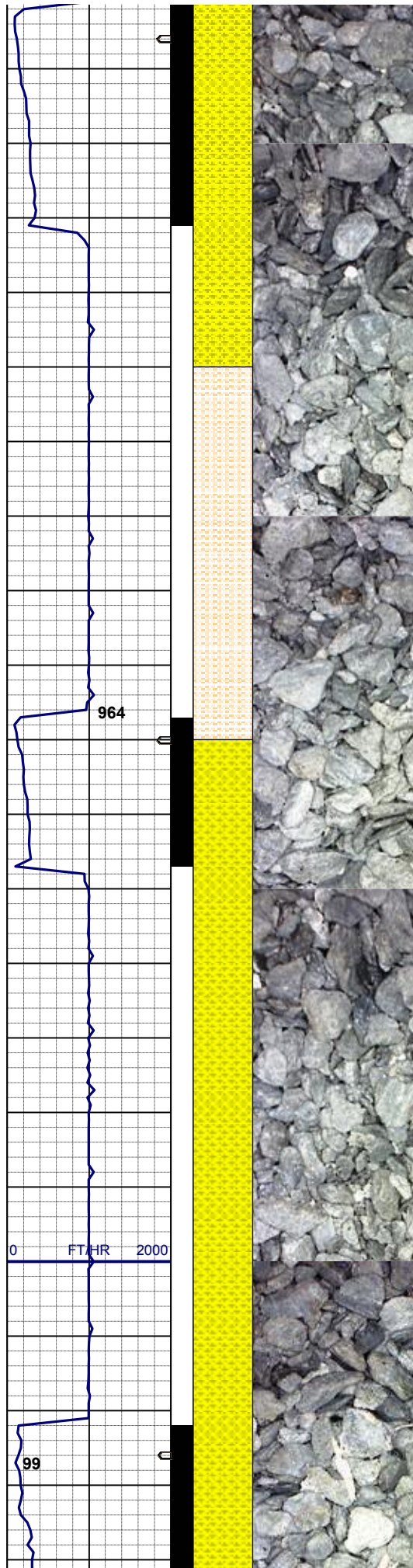
**MD 2,883'**  
**INC 0.37°**  
**AZM 125.87°**

SHYSS: wh, ltgy, fros - trnsl ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

**MD 2,978'**  
**INC 1.23°**  
**AZM 159.37°**

SHYSS: wh, ltgy, fros - trnsl ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

01/16/2013  
Mud Wt: 8.90  
FVis: 28  
PVis: 3  
YP: 4  
GELS: 2/3/4  
API Filt: N/A

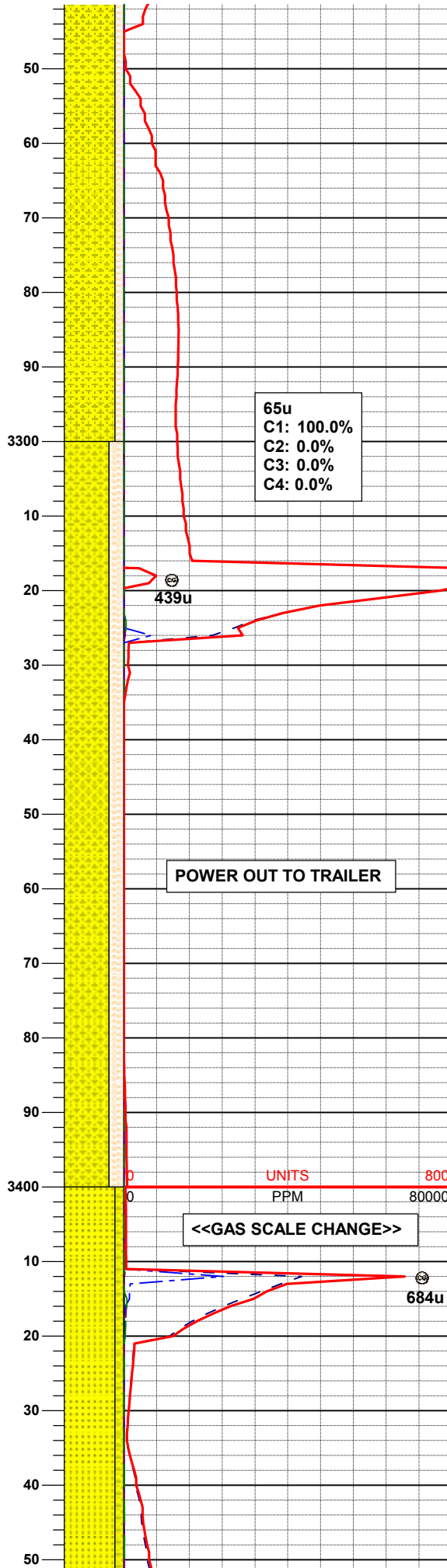
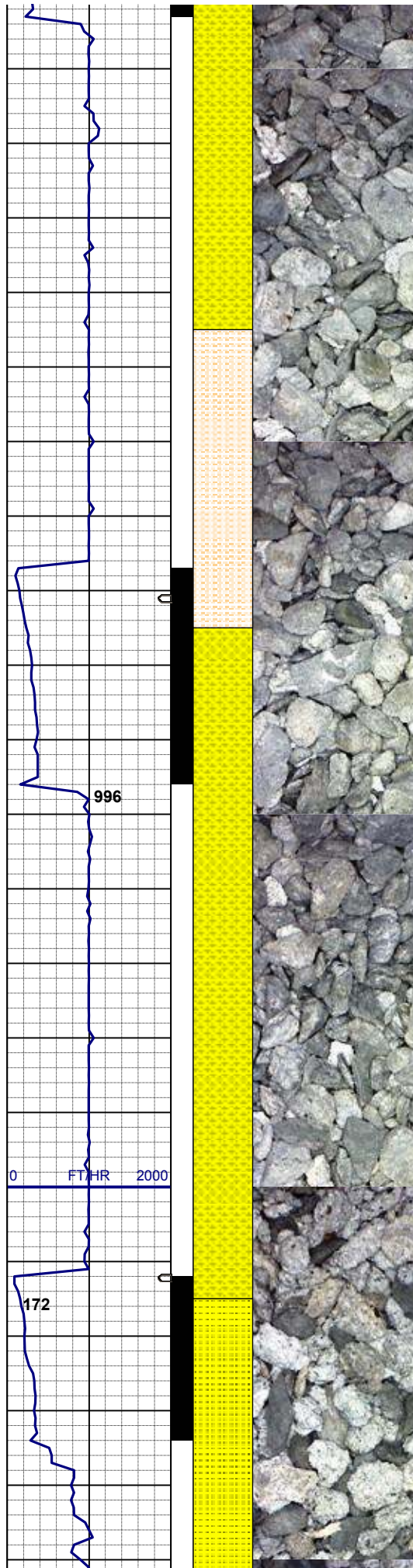


CAKE: 1/0  
pH: 9.4  
Cl: 1,300  
Ca: 40

SHYSS: wh, ltgy, fros - trnsi ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SHYSLTST: ltgy - mgy, gybrn, mod  
hd - hd, sbply - sbrd , w consol, slty -  
gt tex, sl calc

MD 3,168'  
INC 5.56°  
AZM 176.96°

SHYSS: wh, ltgy, fros - trnsi ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SHYSLTST: ltgy - mgy, gybrn, mod  
hd - hd, sbply - sbrd , w consol, slty -  
gt tex, sl calc



MD 3,263'  
INC 7.16°  
AZM 179.75°

SHYSS: wh, ltgy, fros - trnsi ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SHYSLTST: ltgy - mgy, gybrn, mod  
hd - hd, sbply - sbrd , w consol, slty -  
gt tex, sl calc

65u  
C1: 100.0%  
C2: 0.0%  
C3: 0.0%  
C4: 0.0%

439u

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

MD 3,358'  
INC 8.73°  
AZM 172.66°

POWER OUT TO TRAILER

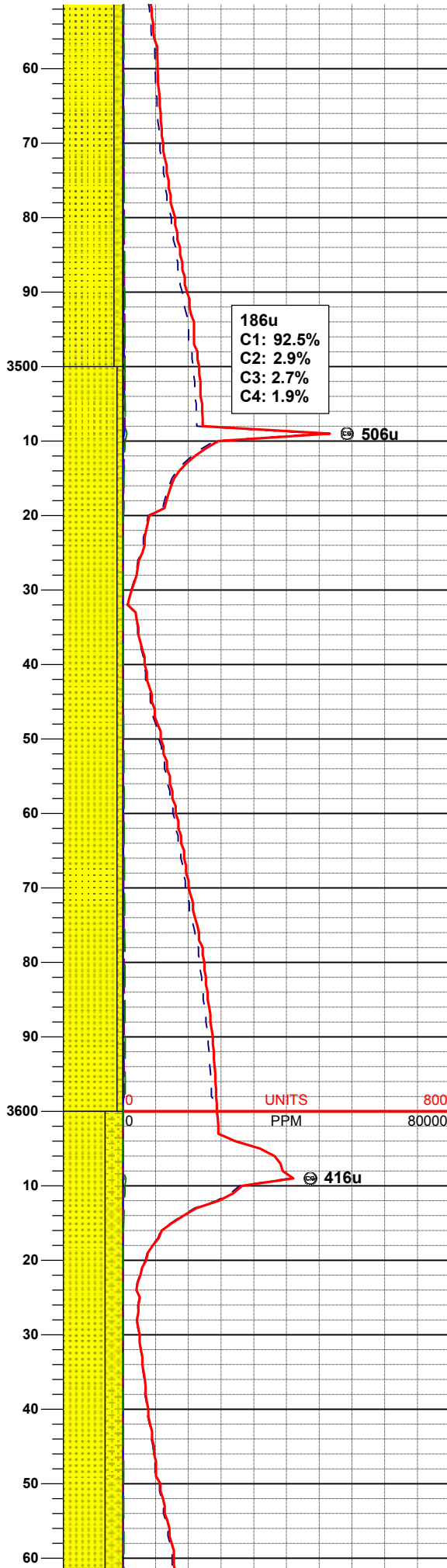
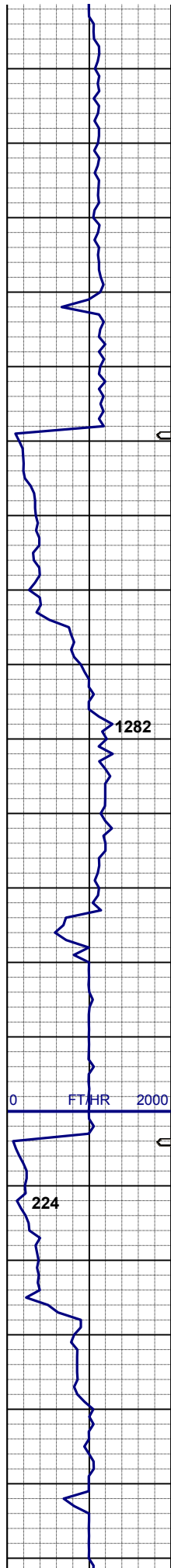
SHYSS: wh, ltgy, fros - trnsi ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SHYSLTST: ltgy - mgy, gybrn, mod  
hd - hd, sbply - sbrd , w consol, slty -  
gt tex, sl calc

UNITS  
PPM 80000

<<GAS SCALE CHANGE>>

684u

MD 3,453'  
INC 9.12°



AZM 169.89°

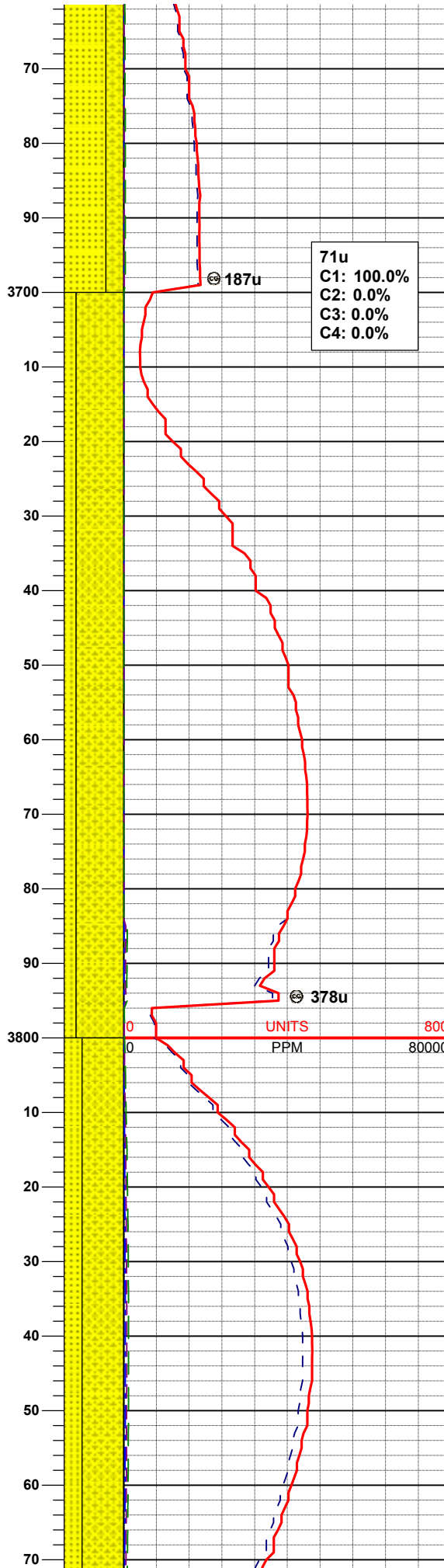
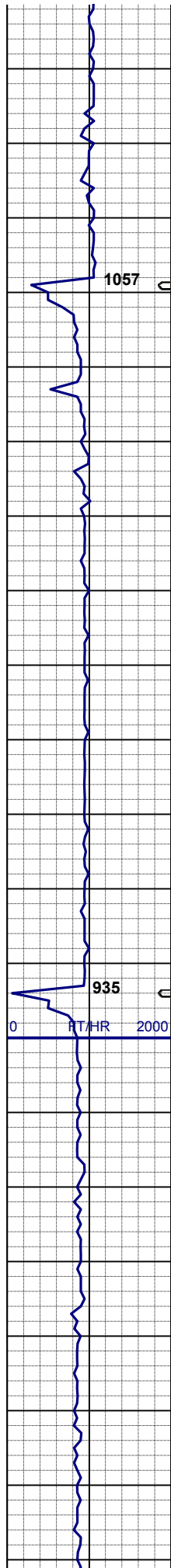
Parkman @  
3460' MD; 3456' TVD

SHYSS: wh, ltgy, fros - trnsl ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 3,548'  
TVD 3,543.46'  
INC 10.66°  
AZM 163.84°

SHYSS: wh, ltgy, fros - trnsl ip, spec  
w/ mica, tr dk gn xl glau, f - vfgr, hd  
brit clus, sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 3,643'  
TVD 3,636.51'  
INC 12.56°  
AZM 167.93°

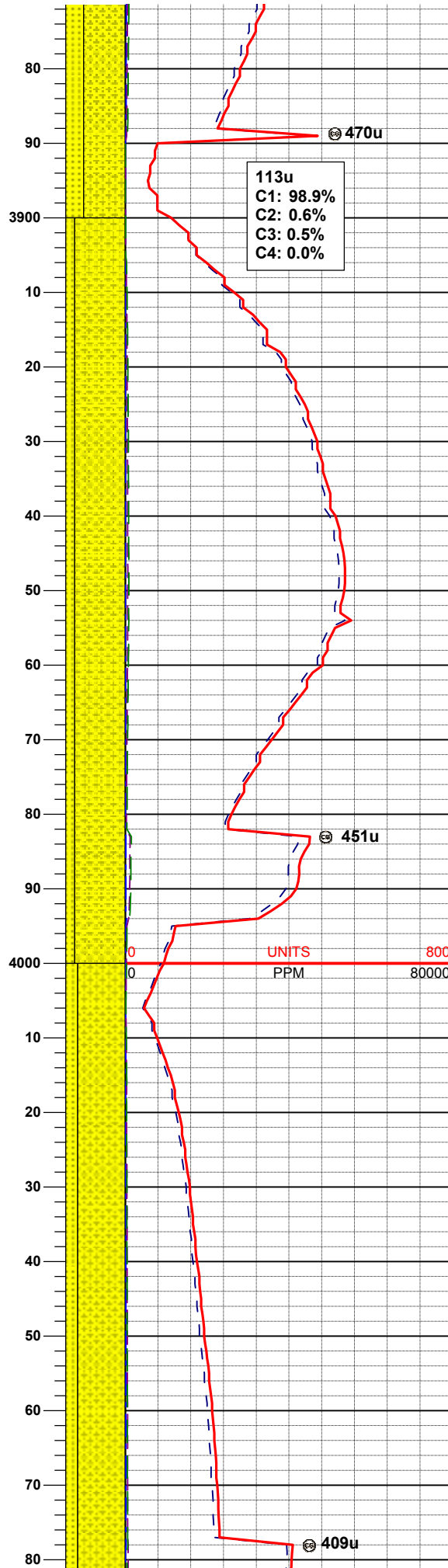
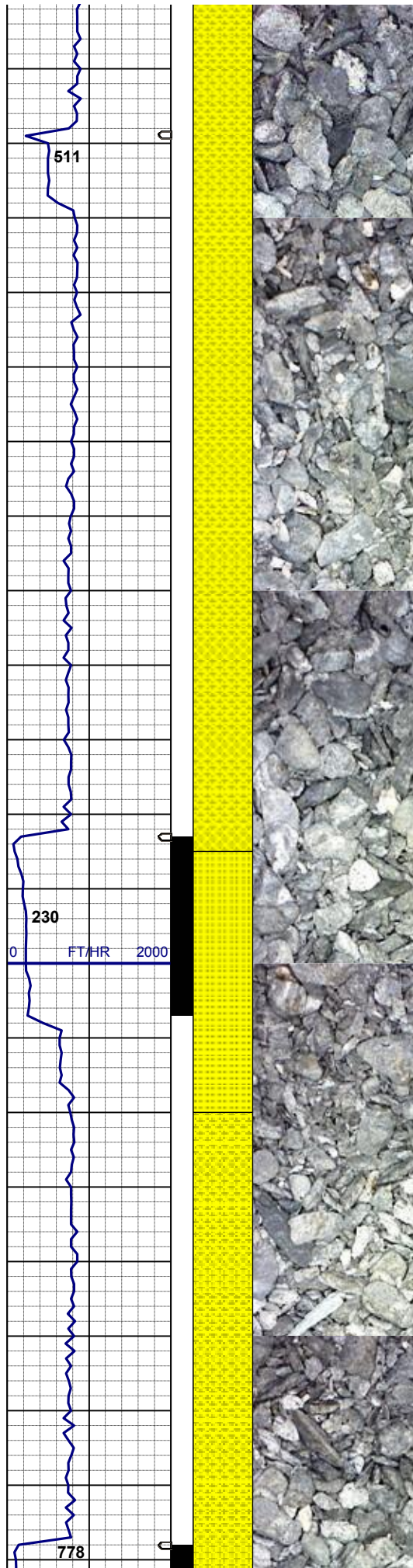


SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 3,738'  
TVD 3,729.17'  
INC 12.95°  
AZM 167.95°

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 3,833'  
TVD 3,821.68'  
INC 13.36°  
AZM 164.17°

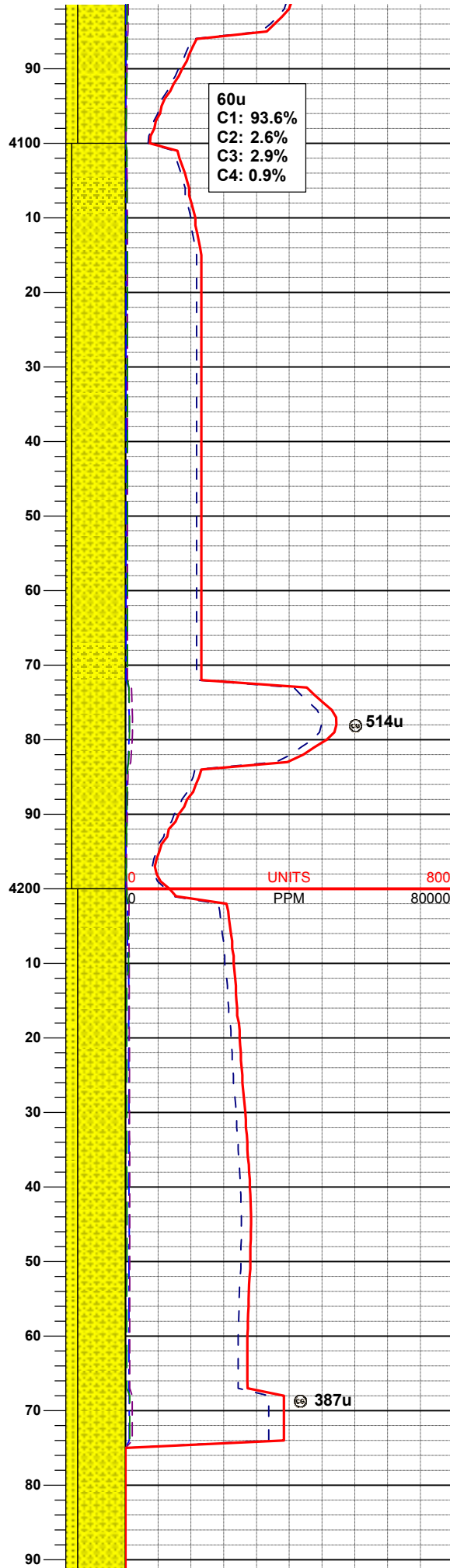
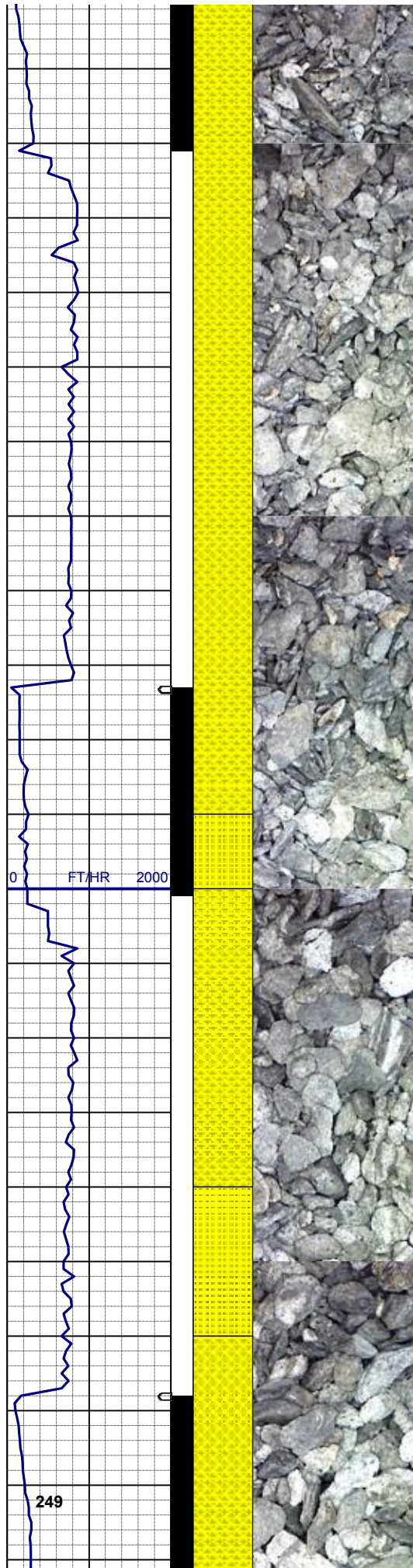


SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 3,928'  
TVD 3,914.41'  
INC 11.72°  
AZM 167.93°

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 4,023'  
TVD 4,007.23'  
INC 12.36°  
AZM 166.47°



SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 4,118'  
TVD 4,100.08'  
INC 12.56°  
AZM 166.20°

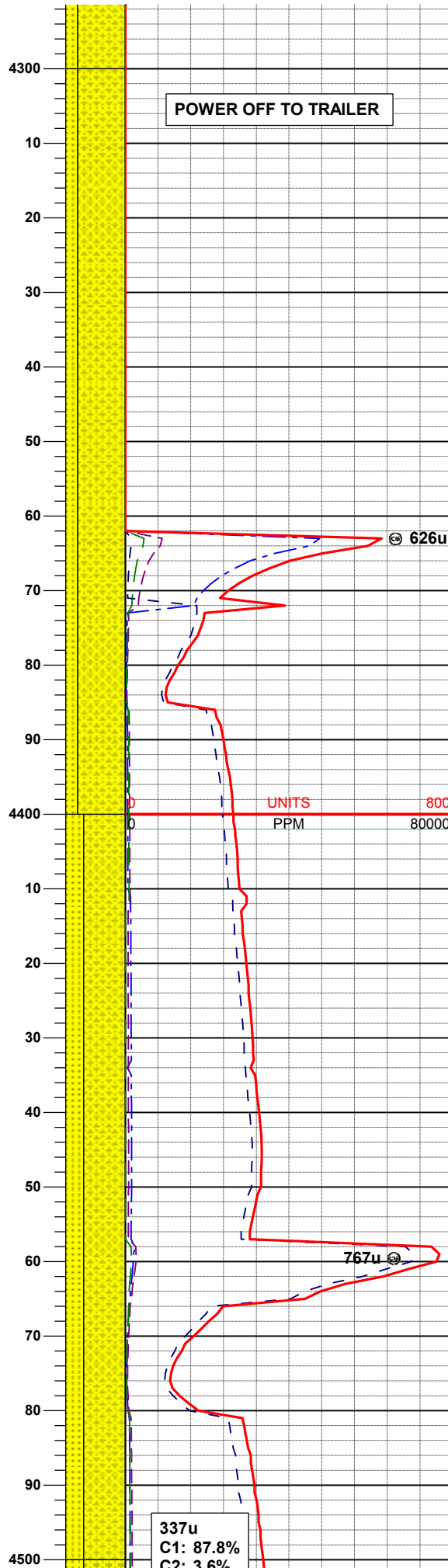
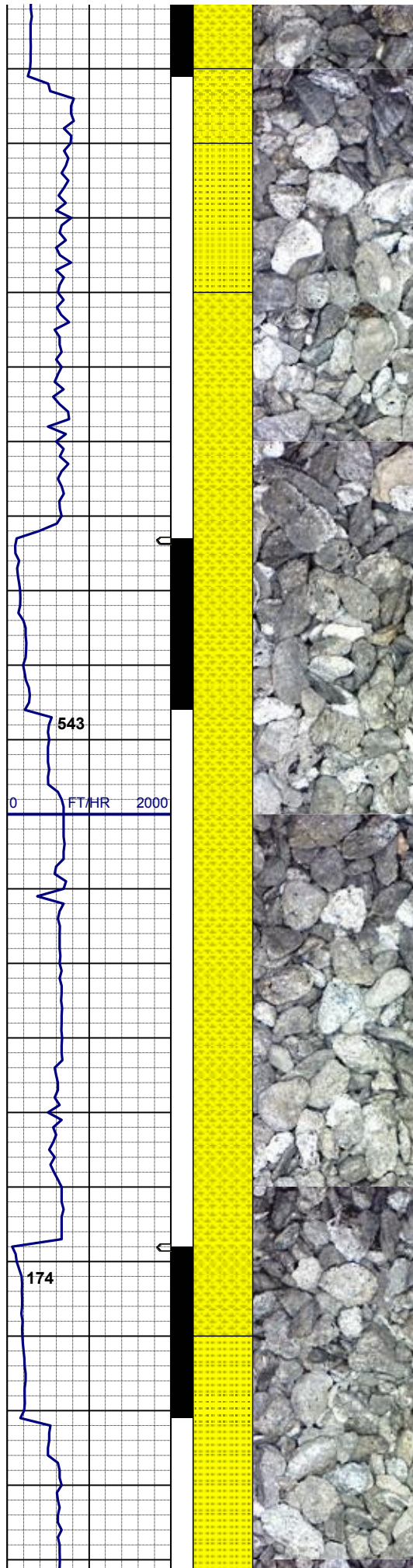
MUD WT 8.6+/8.6+  
VIS 30/30 IN/OUT

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbply-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

Sussex @  
4202' MD; 4182' TVD

MD 4,213'  
TVD 4,192.81'  
INC 12.59°  
AZM 174.16°

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbply-sbang, v calc cmt,



SS: wh, fros - trnsl, s&p, fgr, hd brit clus, sbang - sbrd, p consol, v calc cmt

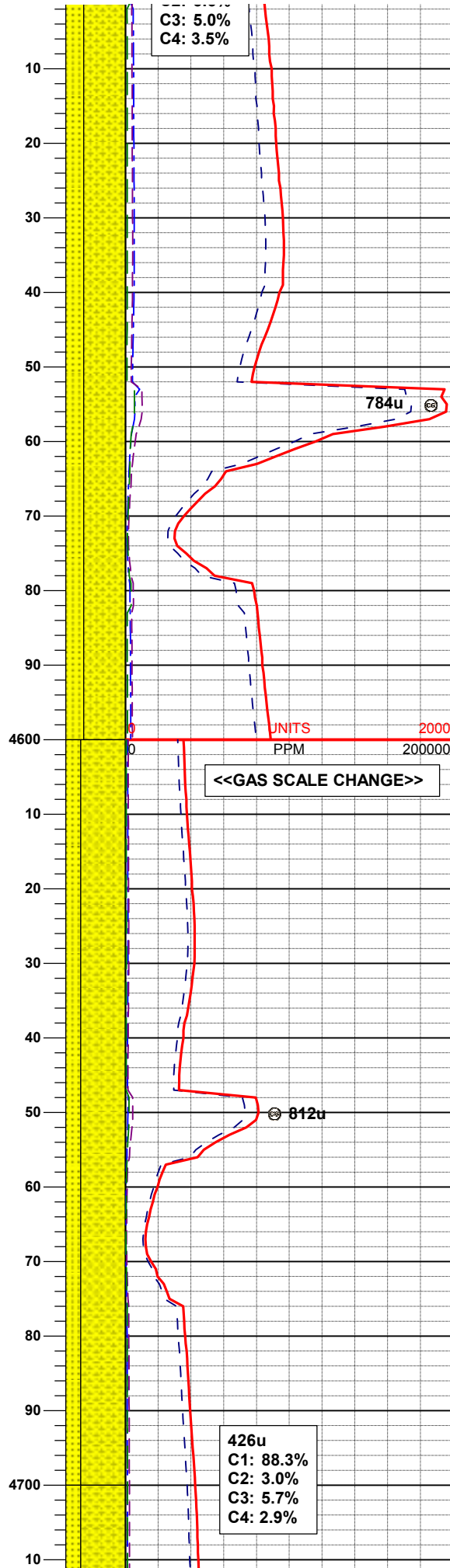
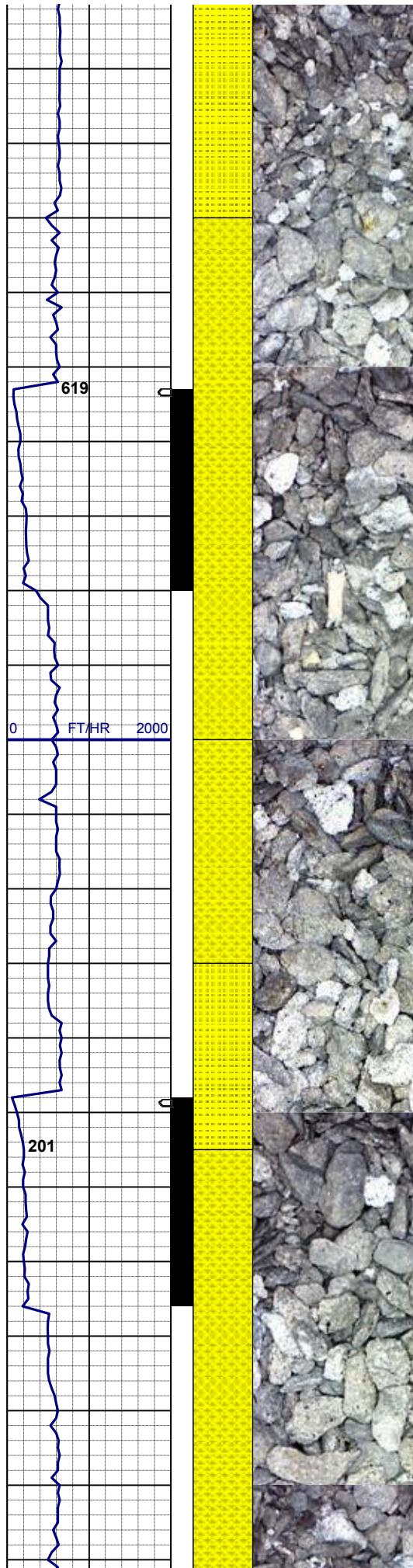
MD 4,308'  
TVD 4,285.41'  
INC 13.23°  
AZM 169.92°

SHYSS: dk gy - ltgy, spec w/ mica, abnt dk gn xl glau, f - vfgr, hd brit clus, sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit clus, sbang - sbrd, p consol, v calc cmt

MD 4,403'  
TVD 4,377.86'  
INC 13.42°  
AZM 176.95°

SHYSS: dk gy - ltgy, spec w/ mica, abnt dk gn xl glau, f - vfgr, hd brit clus, sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit clus, sbang - sbrd, p consol, v calc cmt

MD 4,498'



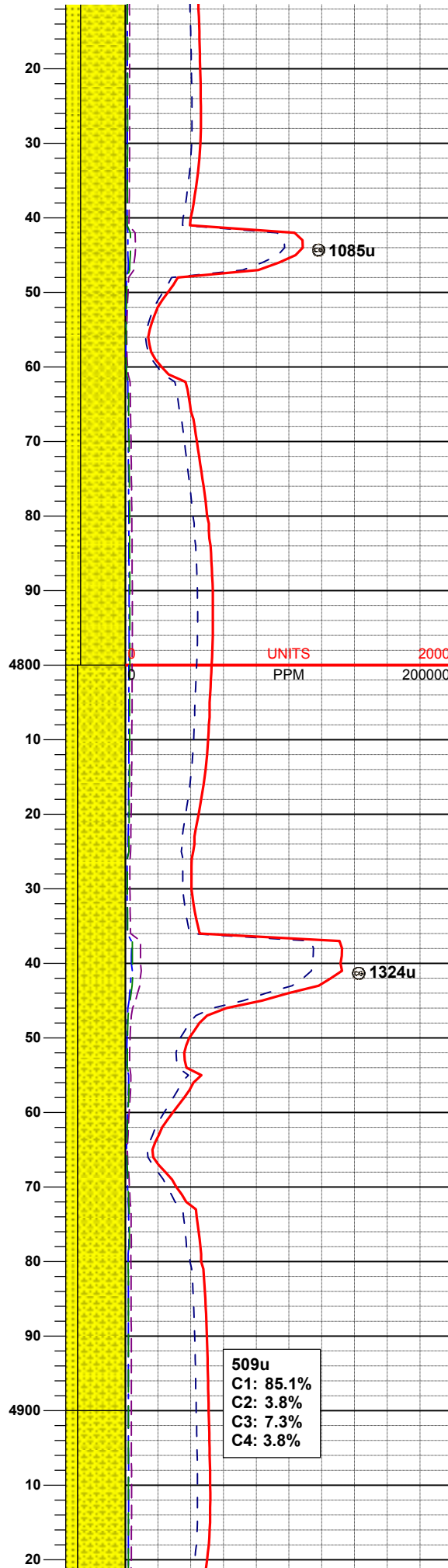
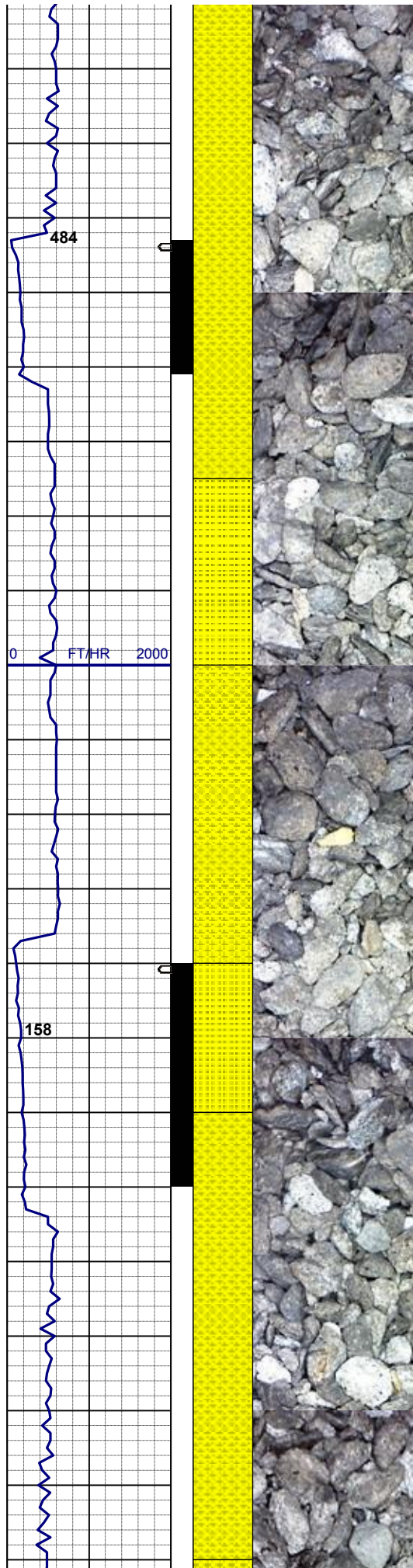
MD 4,593'  
TVD 4,562.90'  
INC 12.57°  
AZM 174.53°

MD 4,593'  
TVD 4,562.90'  
INC 12.57°  
AZM 174.53°

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

MD 4,688'  
TVD 4,655.50'  
INC 13.21°  
AZM 175.01°

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt



Shannon @  
4762' MD; 4728' TVD

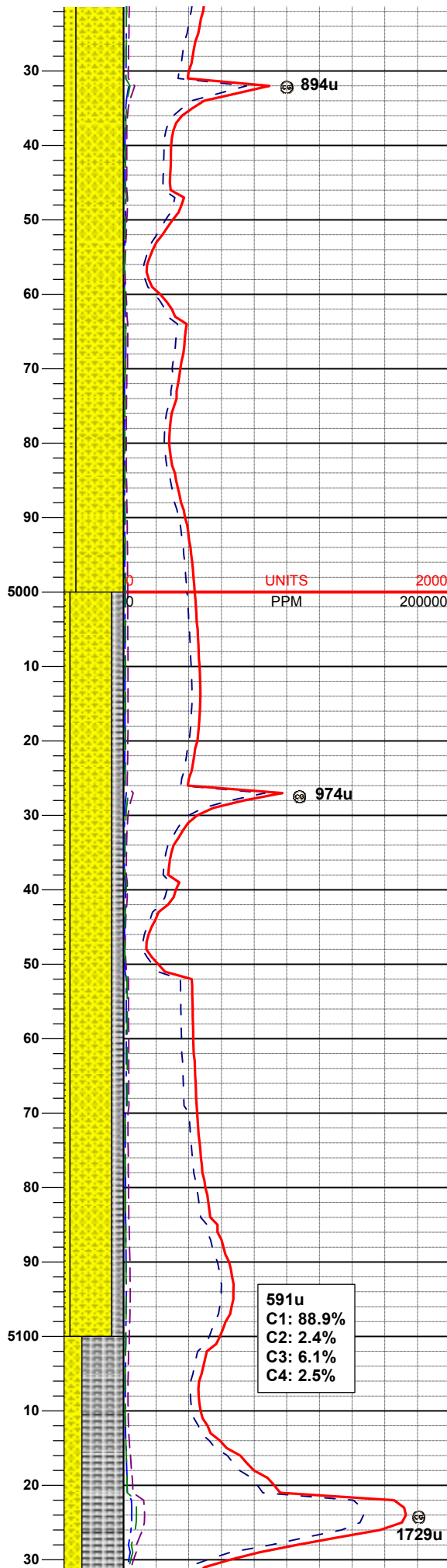
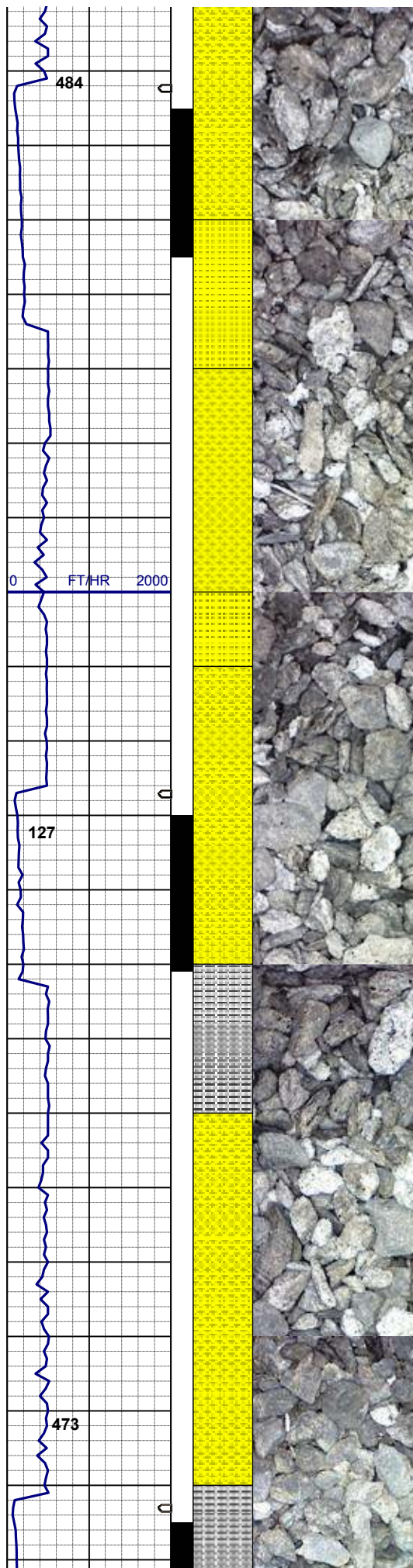
MD 4,783'  
TVD 4,748.16'  
INC 12.30°  
AZM 172.36°

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt

509u  
C1: 85.1%  
C2: 3.8%  
C3: 7.3%  
C4: 3.8%

MD 4,878'  
TVD 4,840.93'  
INC 12.60°  
AZM 167.33°

SHYSS: dk gy - ltgy, spec w/ mica,  
abnt dk gn xl glau, f - vfgr, hd brit clus,  
sbplty-sbang, v calc cmt,  
SS: wh, fros - trnsl, s&p, fgr, hd brit  
clus, sbang - sbrd, p consol, v calc  
cmt



MD 4,973'  
TVD 4,933.46'  
INC 13.65°  
AZM 177.32°

SHYSS: dk gy - ltgy, spec w/ mica, f - vfgr, hd brit clus, sbply-sbang, v calc cmt,  
SS: wh, fros - trns, s&p, fgr, hd brit clus, sbang - sbrd, p consol, v calc cmt

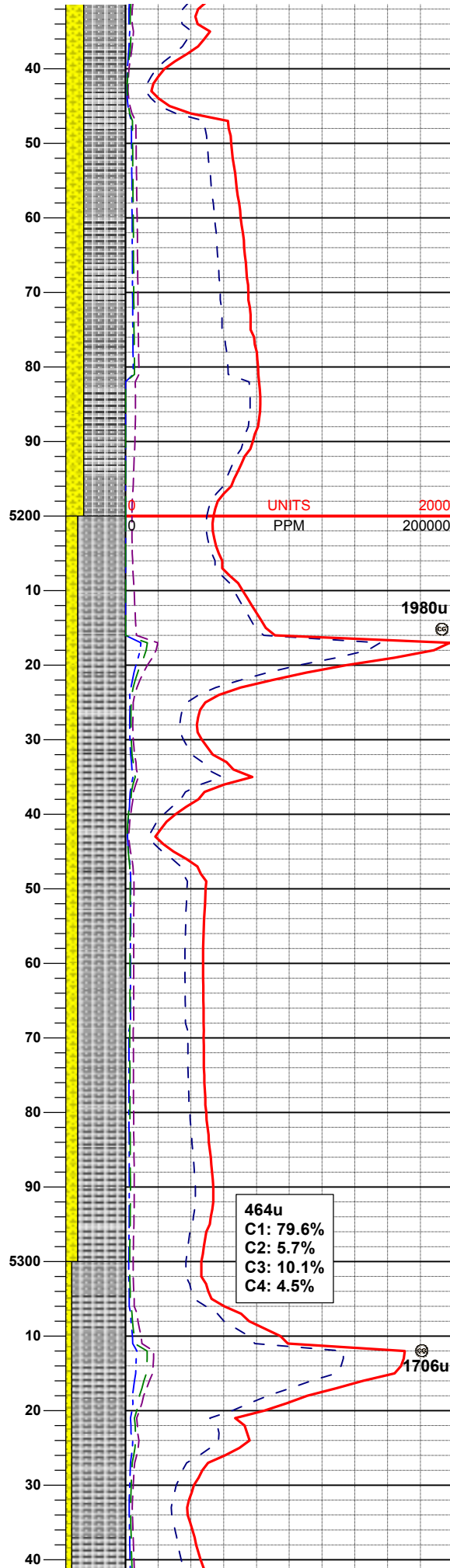
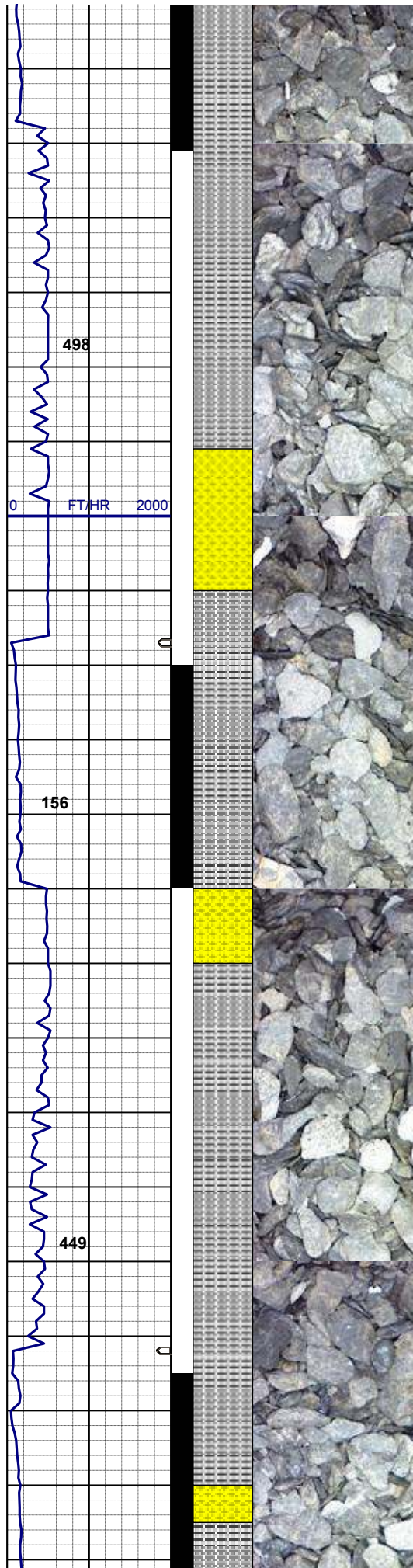
MUD WT 8.7/8.7  
VIS 30/30 IN/OUT

MD 5,068'  
TVD 5,025.75'  
INC 13.77°  
AZM 175.02°

SHYSS: dk gy - ltgy, spec w/ mica, vfgr, hd brit clus, sbply-sbang, v calc cmt,  
SLTYSH: mgy-dkgy, gybrn, sbply-pty, mod hd, slty-gt tex, v sl calc  
SS: wh, fros - trns, s&p, f-vfgr, hd brit clus, sbang - sbrd, p consol, v calc cmt

591u  
C1: 88.9%  
C2: 2.4%  
C3: 6.1%  
C4: 2.5%

01/16/2013  
Mud Wt: 8.55  
FVis: 28  
PVIs: 2  
YP: 4  
GELS: 2/3/4  
API Filt: N/A  
CAKE: 1/0  
pH: 9.3



Cl: 1,300  
Ca: 40

MD 5,163'  
TVD 5,118.14'  
INC 13.15°  
AZM 175.43°

SLTYSH: mgy-dkgy, gybrn, sbplty-  
plty, mod hd, slty-gt tex, v sl calc,  
SHYSS: wh, lt gy, spec w/ mica, vfgr,  
hd brit clus, sbplty-sbang, v calc cmt

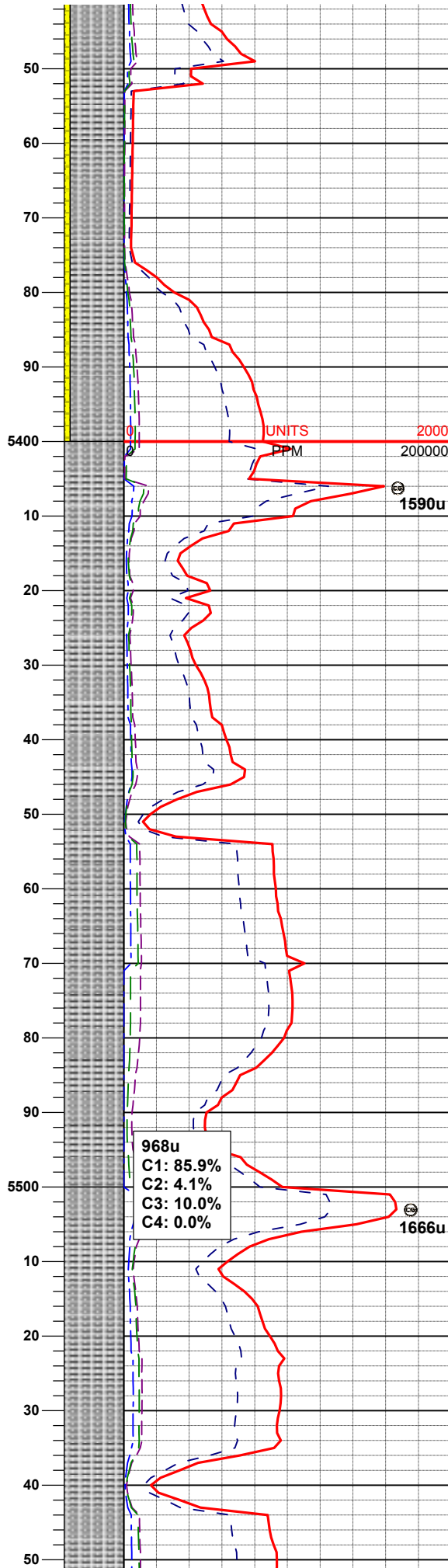
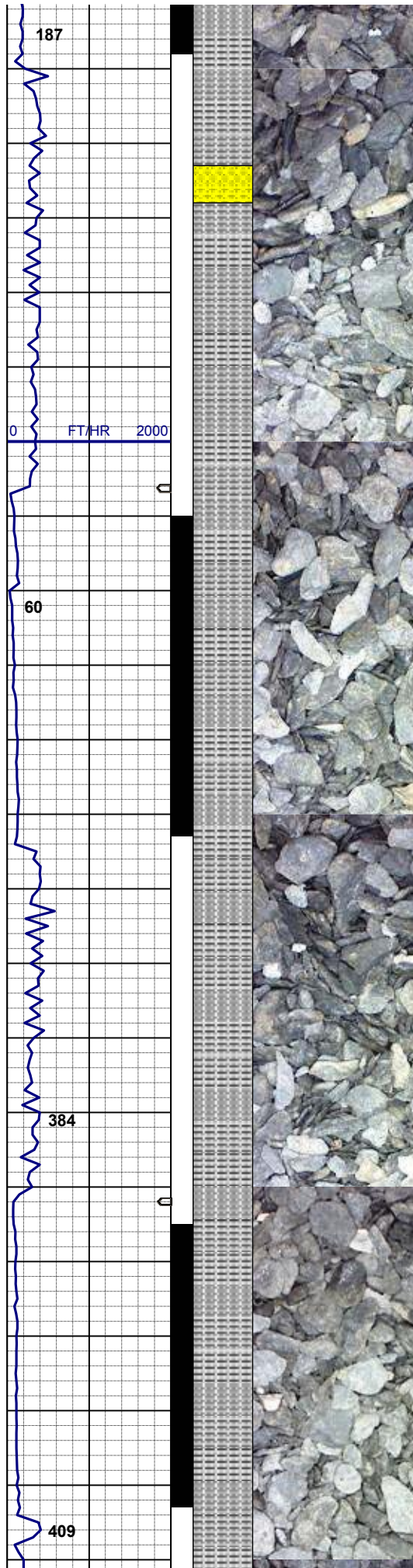
MUD WT 8.6/8.6  
VIS 30/30 IN/OUT

MD 5,258'  
TVD 5,210.73'  
INC 12.74°  
AZM 180.00°

SLTYSH: mgy-dkgy, gybrn, sbplty-  
plty, mod hd, slty-gt tex, v sl calc,  
SHYSS: wh, lt gy, spec w/ mica, vfgr,  
hd brit clus, sbang-sbrd, v calc cmt

464u  
C1: 79.6%  
C2: 5.7%  
C3: 10.1%  
C4: 4.5%

1706u



MD 5,353'  
TVD 5,303.59'  
INC 11.63°  
AZM 173.76°

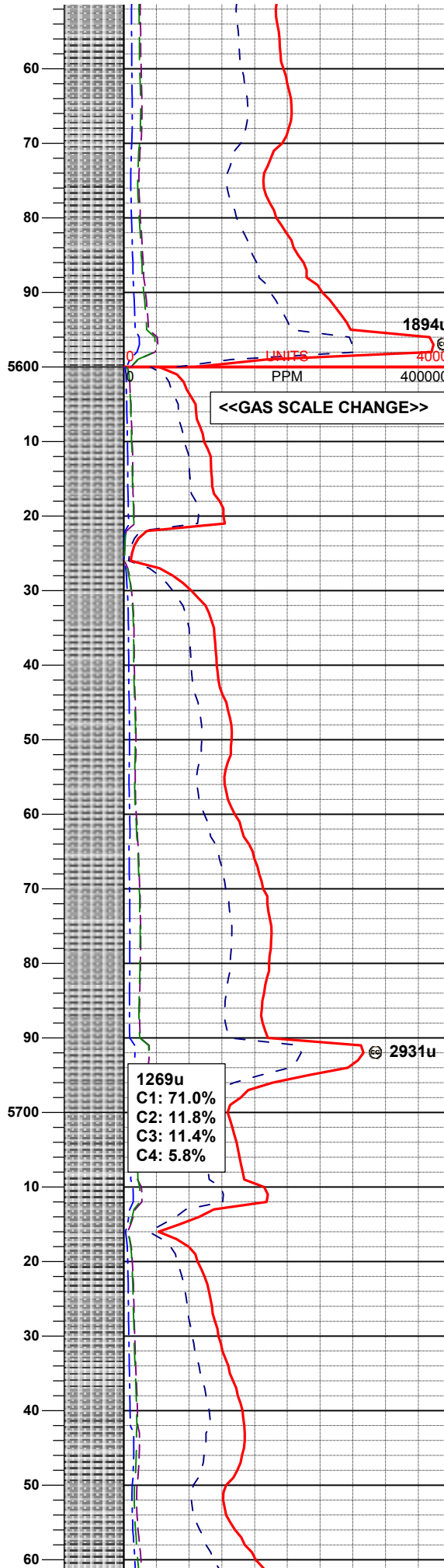
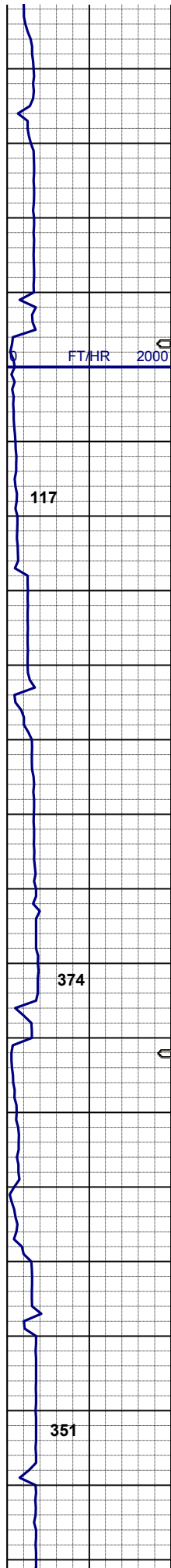
SLTYSH: mgy-dkgy, gybrn, sbplty-  
plty, mod hd, slty-gt tex, v sl calc,  
SHYSS: wh, lt gy, spec w/ mica, vfgr,  
hd brit clus, sbang-sbrd, v calc cmt

MUD WT 8.9+/8.9+  
VIS 33/33 IN/OUT

MD 5,448'  
TVD 5,396.46'  
INC 12.70°  
AZM 173.48°

SLTYSH: mgy-dkgy, gybrn, sbplty-  
plty, mod hd, slty-gt tex, v sl calc

MD 5,543'  
TVD 5,489.05'  
INC 13.23°  
AZM 165.84°



MUD WT 9.2/9.2  
VIS 32/32 IN/OUT

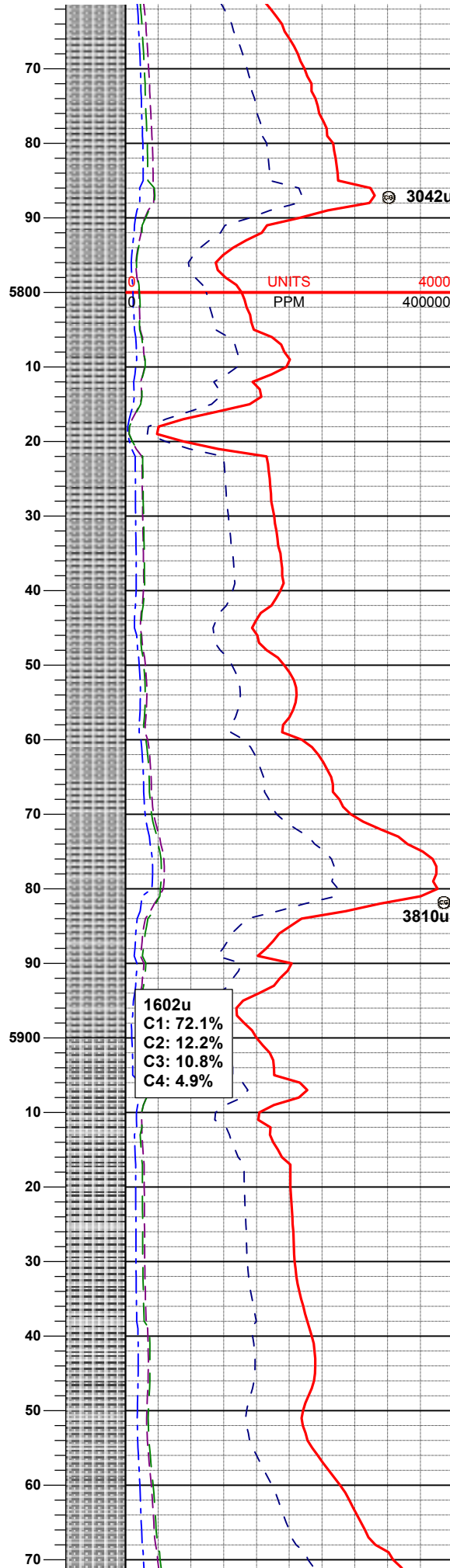
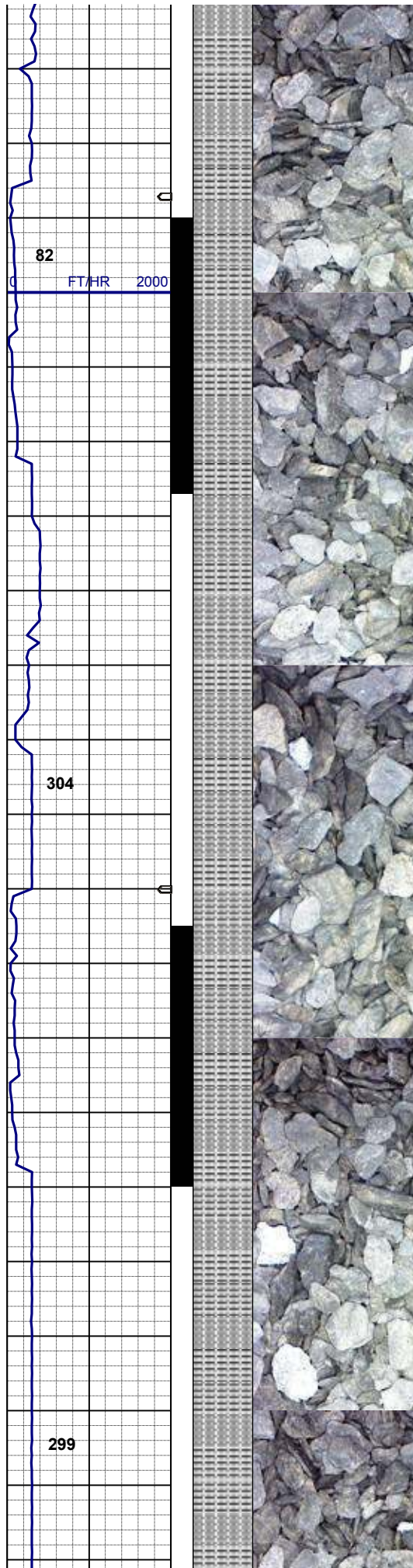
SLTYSH: mgy-dkgy, gybrn, sbplty-  
plty, sme thn lam, mod hd - hd, brit,  
slty-gt tex, v sl calc

MD 5,638'  
TVD 5,581.45'  
INC 13.64°  
AZM 167.90°

SLTYSH: mgy-dkgy, gybrn, sbplty-  
plty, sme thn lam, mod hd - hd, brit,  
slty-gt tex, sl calc

MUD WT 9.2+/9.2+  
VIS 32/32 IN/OUT

MD 5,733'  
TVD 5,673.87'  
INC 13.09°  
AZM 167.47°



SLTYSH: mgybrn-dkgybrn, sbply-  
ply, sme thn lam, mod hd - hd, brit,  
sity-gt tex, sl calc

**MUD WT 9.3+/9.3**  
**VIS 32/32 IN/OUT**

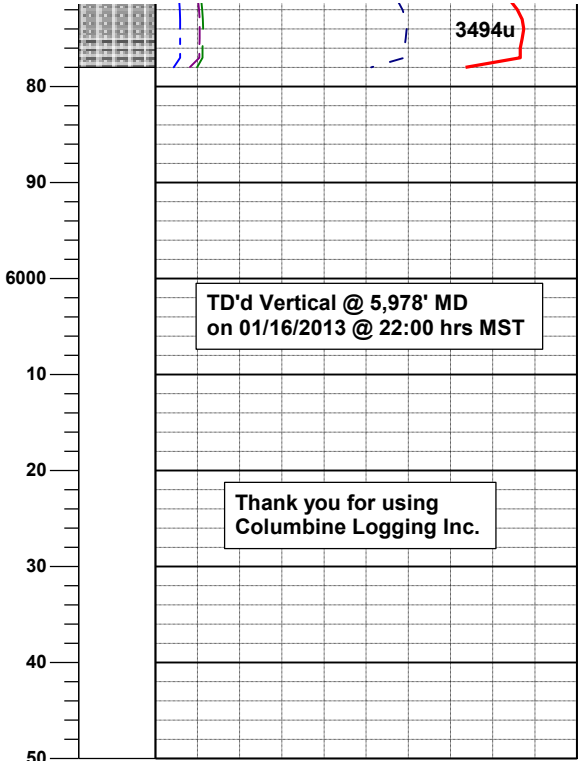
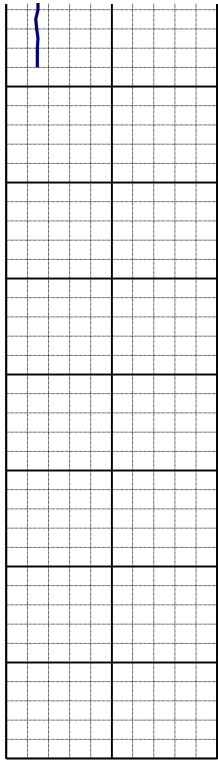
**MD 5,828'**  
**TVD 5,766.30'**  
**INC 13.64°**  
**AZM 167.51°**

**Teepee Buttes @**  
**5865' MD; 5802' TVD**

SLTYSH: mgybrn-dkgybrn, sbply-  
ply, sme thn lam, mod hd - hd, brit,  
sity-gt tex, incr calc

**MD 5,922'**  
**TVD 5,857.89'**  
**INC 12.41°**  
**AZM 174.34°**

SLTYSH: mgybrn-dkgybrn, sbply-ply



3494u

TD'd Vertical @ 5,978' MD  
on 01/16/2013 @ 22:00 hrs MST

Thank you for using  
Columbine Logging Inc.

plty, sme thn lam, mod hd - hd, brit,  
slty-gt tex, incr calc, tr scat fos frag

LOG CONTINUES ON  
HORIZONTAL L PLOT LOG  
SLW RANCH  
B01-66-1HN HORZ