

LOG created using L PLOT VH Version 3.0, March 11, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR:	NOBLE ENERGY INC.
WELL:	LUCCI STATE B03-69HNL
LOCATION:	SEC 1 T5N R64W
COUNTY:	WELD
STATE:	COLORADO
SPOT:	376' FNL; 612' FWL
ELEVATION:	4,617' GL; 4,641' KB
FIELD:	WATTENBERG
SPUD DATE:	02/28/2013
TD DATE:	03/01/2013 (VERTICAL)
DATES LOGGED:	03/01/2013 (VERTICAL)
DEPTHS LOGGED:	2,000' - 5,891' (VERTICAL)
LOGGERS:	CHRIS SCAHEL; CHRIS COOK
DRILLING FLUID:	LSND
DRILLING RIG:	H&P 315
API:	05-123-36534
LOG TYPE:	VERTICAL
SCALE:	1:240 (5 inches per 100 feet)
REMARKS:	SEE CORRESPONDING HORIZONTAL LOG: LUCCI STATE B03-69HNL HORZ. LAT/LON 40.43464/-104.50564 Wellsite Geological Services Provided by Columbine Logging Inc.

## LITHOLOGIES



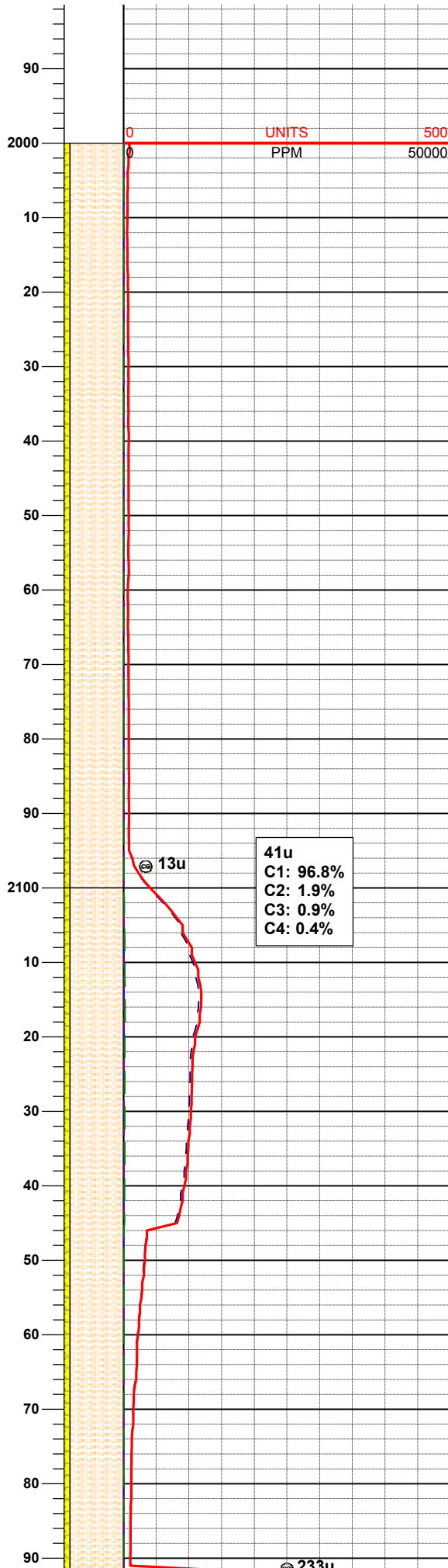
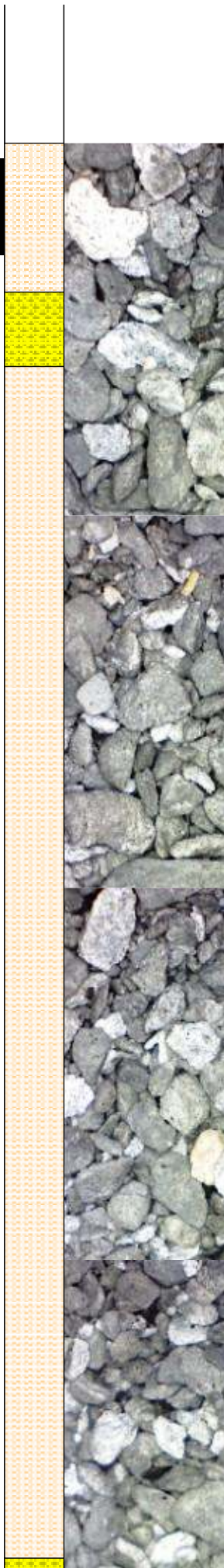
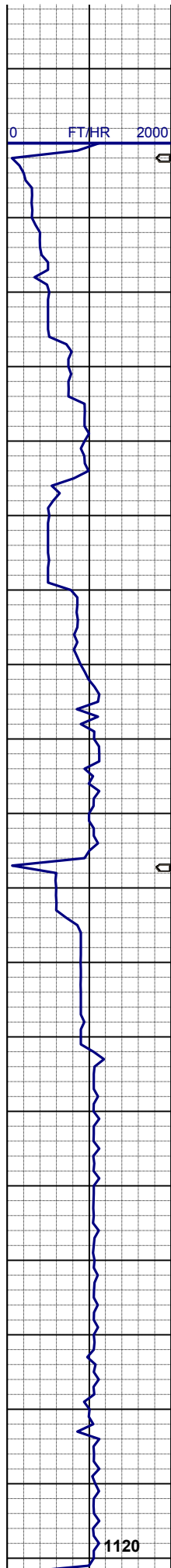
## ENGINEERING SYMBOLS



ROP		SLIDE / ROTATE	INTERPRETIVE LITHOLOGY	PICTURES	DEPTH (FEET)	CUTTINGS LITHOLOGY	GAS		LITHOLOGY DESCRIPTION
0	FT/HR						2000	0	
					1950			C1	
								PPM	50000
								C2	
								PPM	50000
								C3	
								PPM	50000
								C4	
								PPM	50000
					60				
					70				
					80				

BHA 100  
BIT 8.750 in

COLUMBINE LOGGING INC.  
RIGGED UP ON 02/28/2013  
MANNED 2-PERSON LOGGING  
WITH BLOODHOUND GAS  
CHROMATOGRAPH UNIT #0624  
BEGAN LOGGING ON 03/01/2013



Smith MD1516  
5x14 JETS

03/01/2013  
Mud Wt: 8.65  
FVis: 30  
PVis: 7  
YP: 4  
GELS: N/A  
API Filt: N/A  
CAKE: 1/0  
pH: 9.8  
Cl: 1,600  
Ca: 80

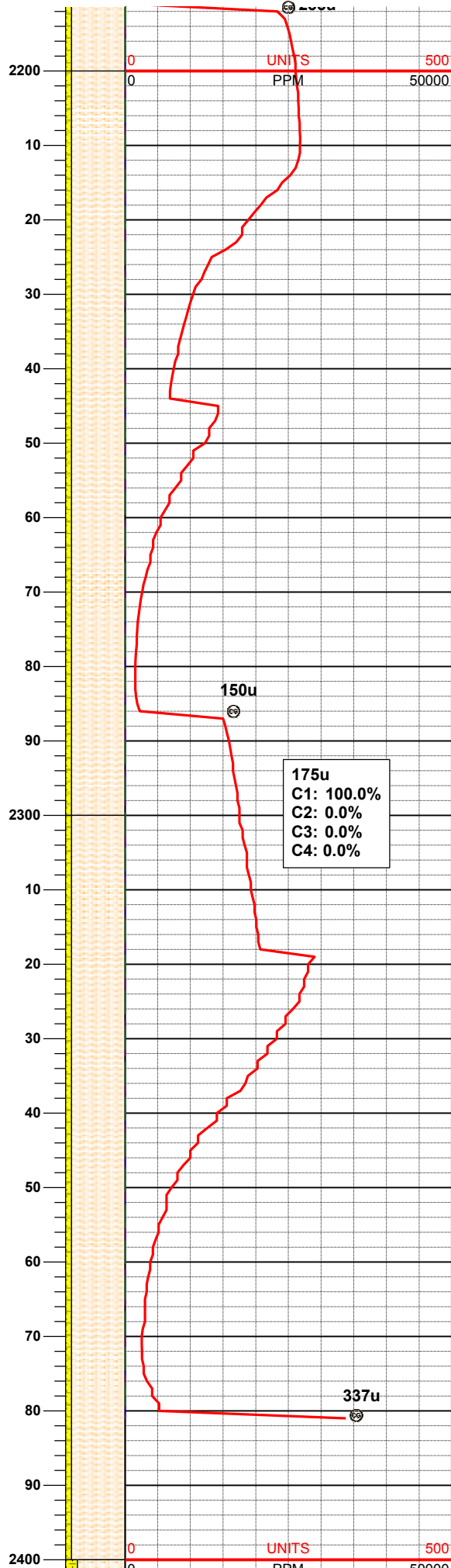
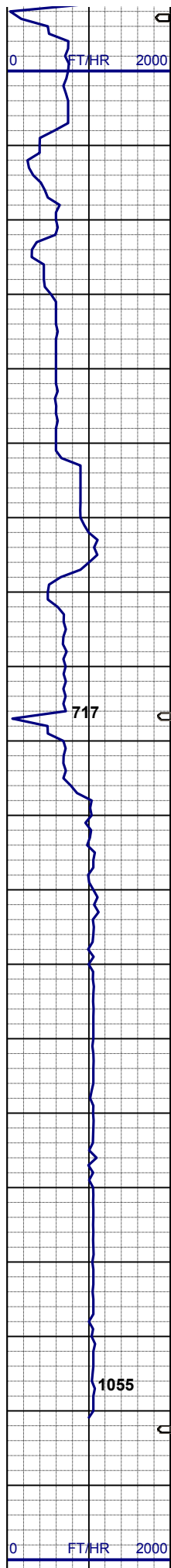
SD 2,040'  
INC 1.21°  
AZM 273.01°

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy, vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

41u  
C1: 96.8%  
C2: 1.9%  
C3: 0.9%  
C4: 0.4%

SD 2,135'  
INC 0.98°  
AZM 283.02°

SHYSLTST: ltgy - mgy, vfgr, hd,

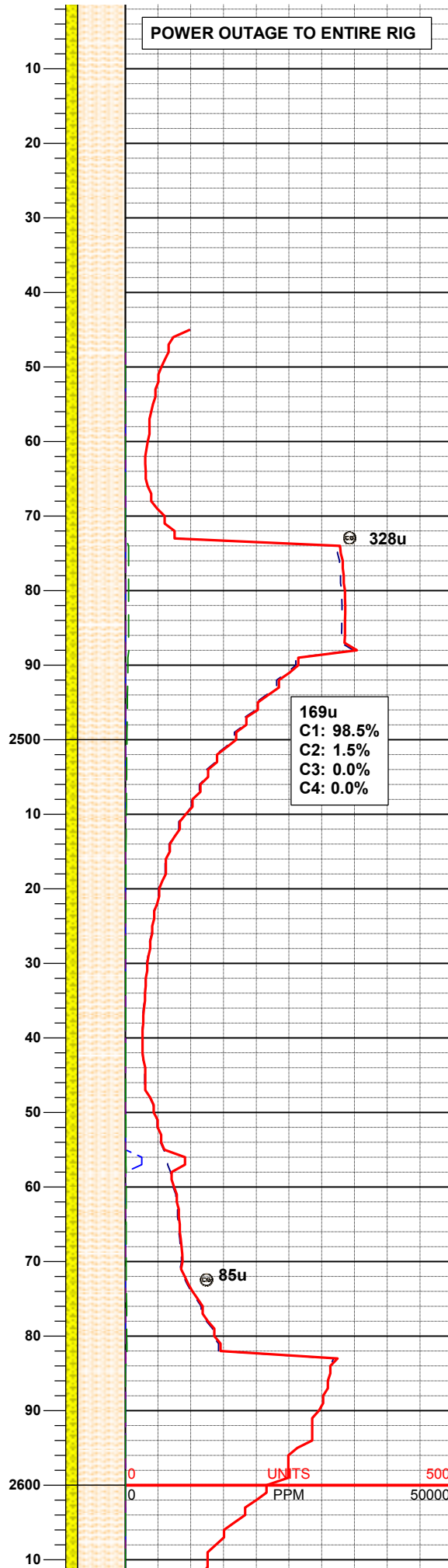
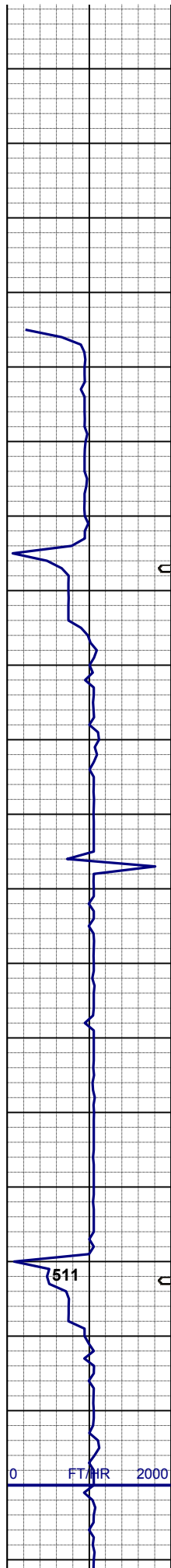


sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy.vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy.vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy.vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

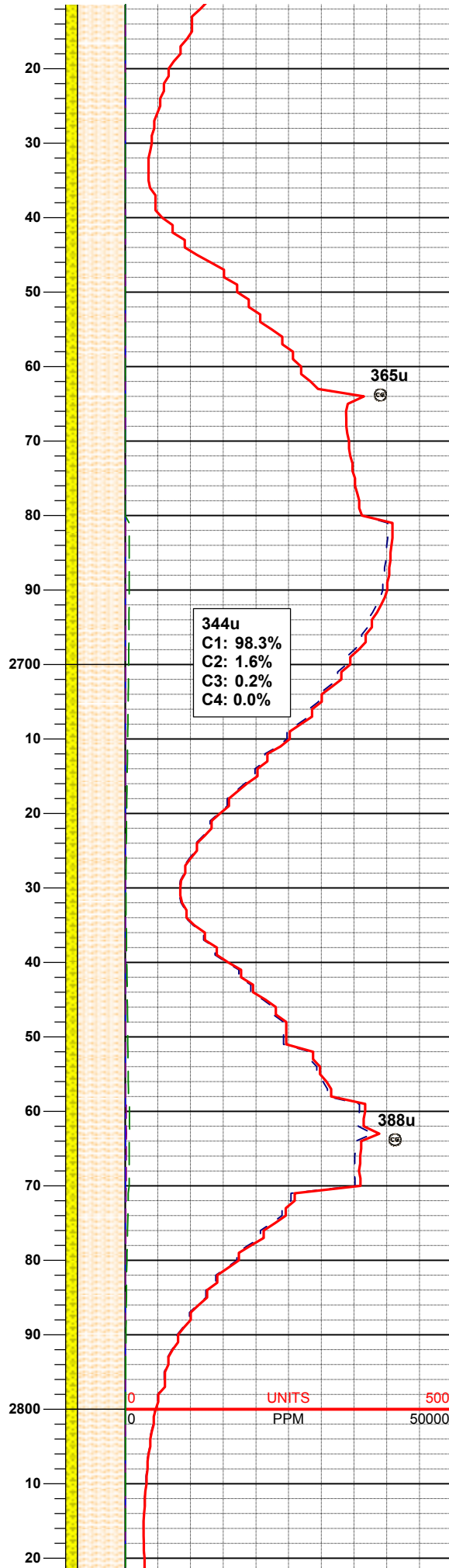
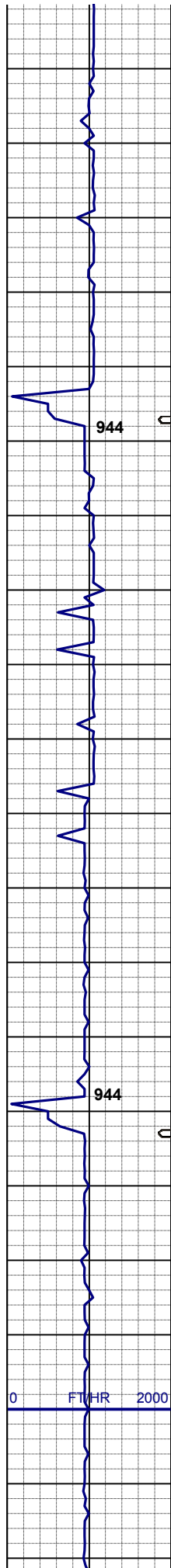




SD 2,419'  
INC 1.02°  
AZM 307.60°

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

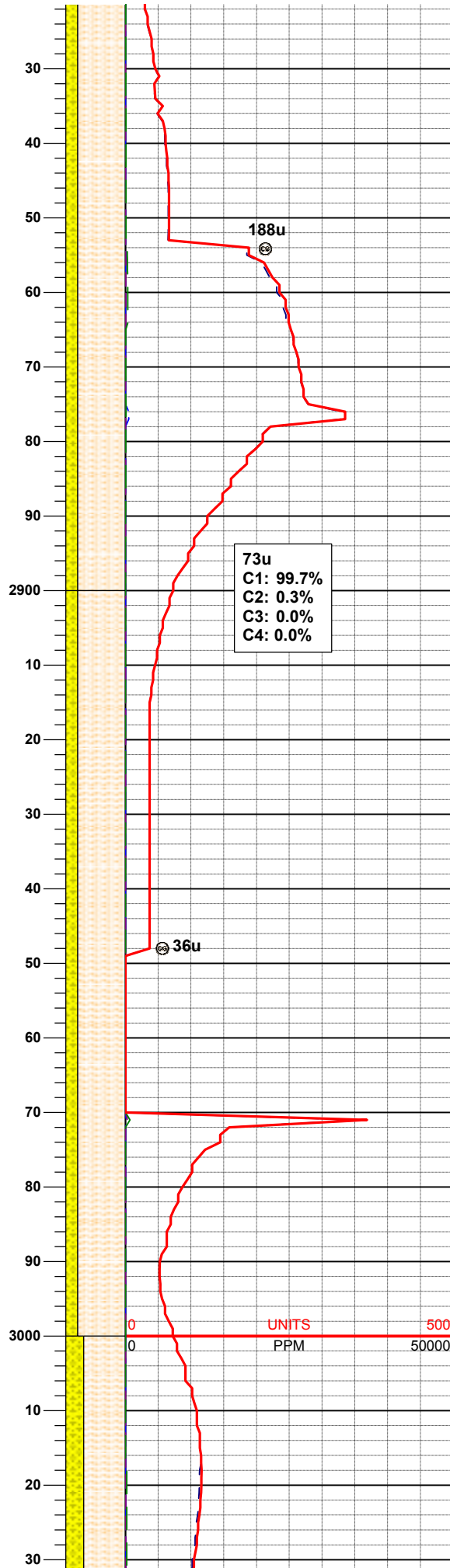
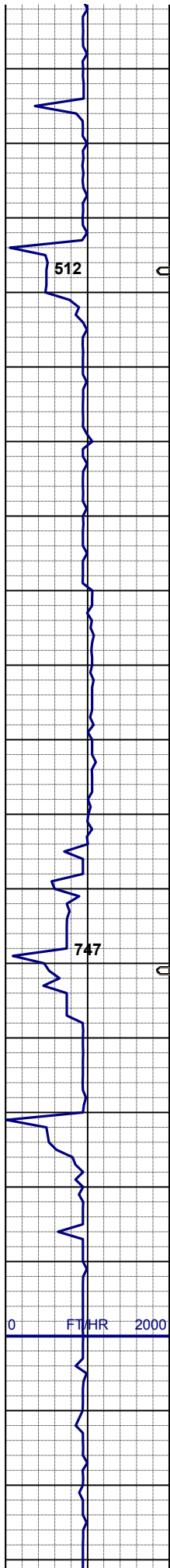


SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

**SD 2,704'**  
**INC 0.70°**  
**AZM 287.59°**

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

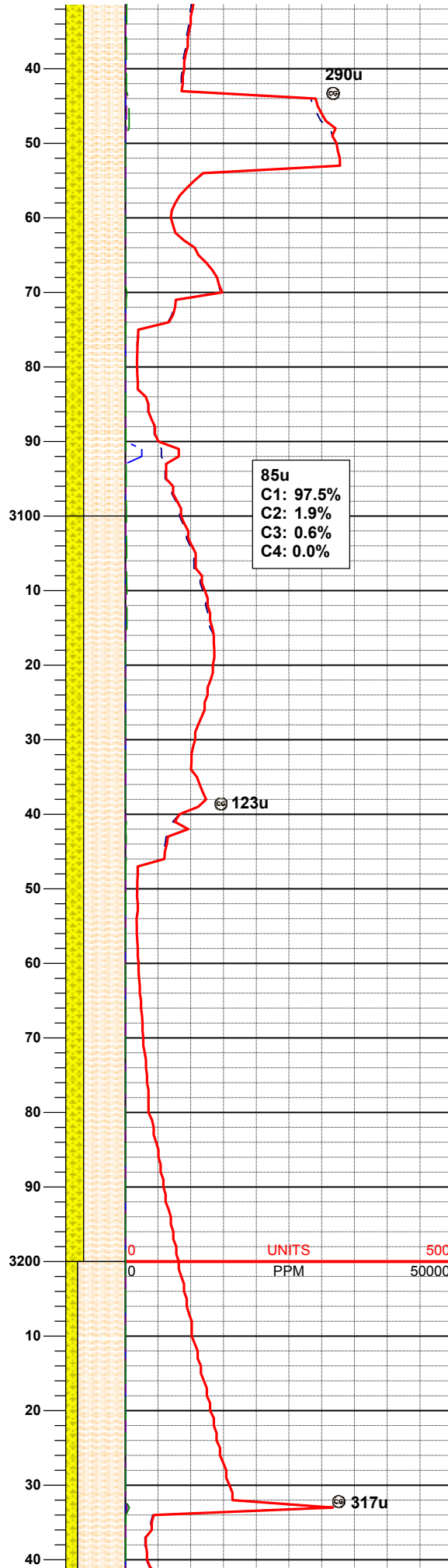
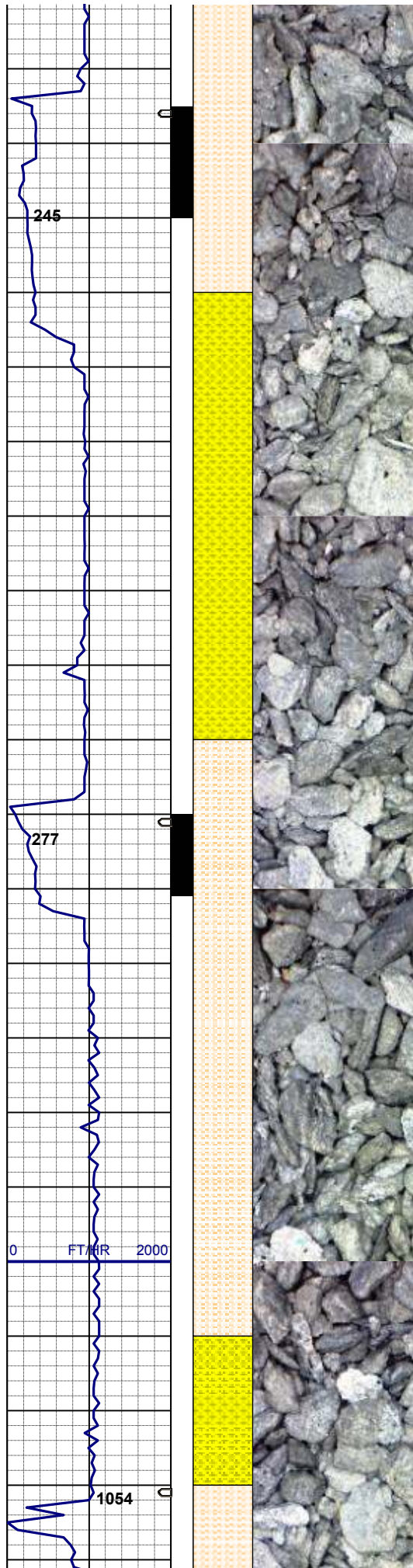




SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang, abnt cly mnrl

**SD 2,988'**  
**INC 1.64°**  
**AZM 247.71°**

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang,



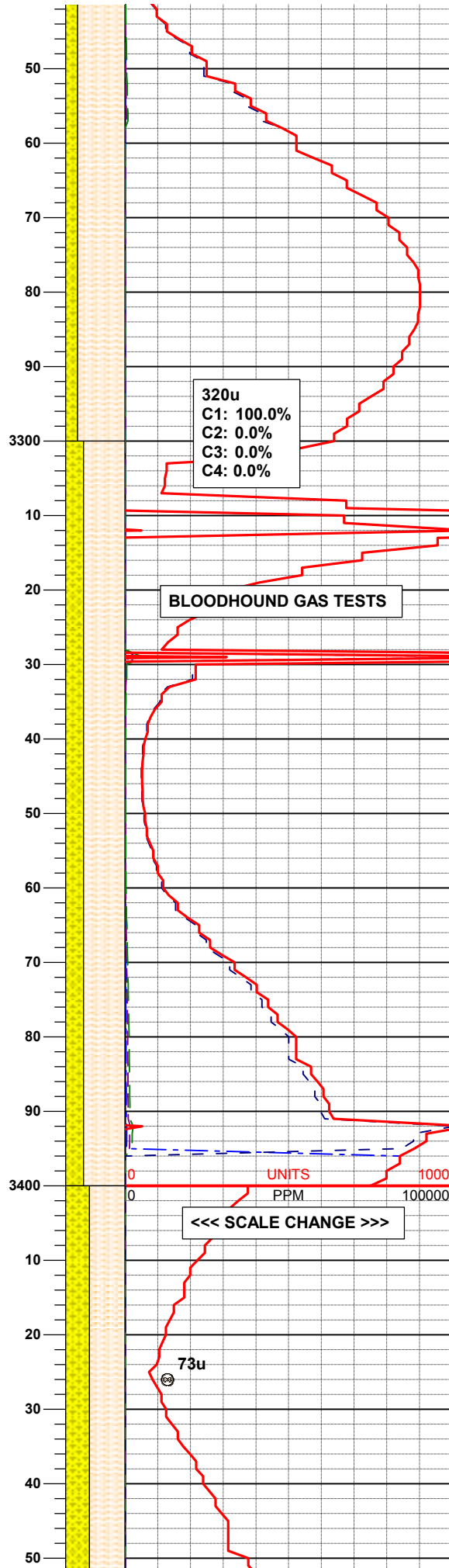
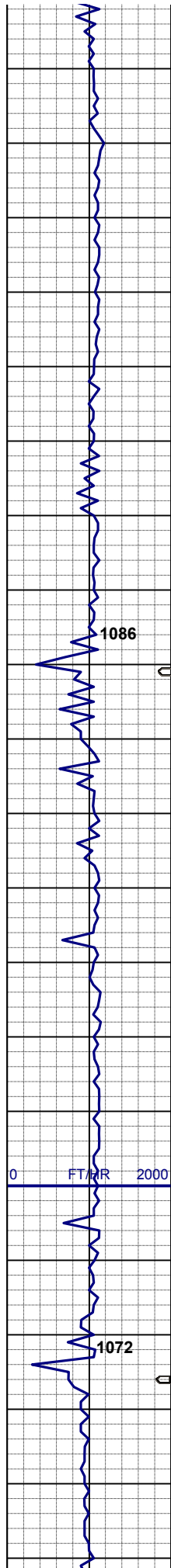
SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang,

**SD 3,178'**  
**INC 0.87°**  
**AZM 286.10°**

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang,

UNITS  
PPM

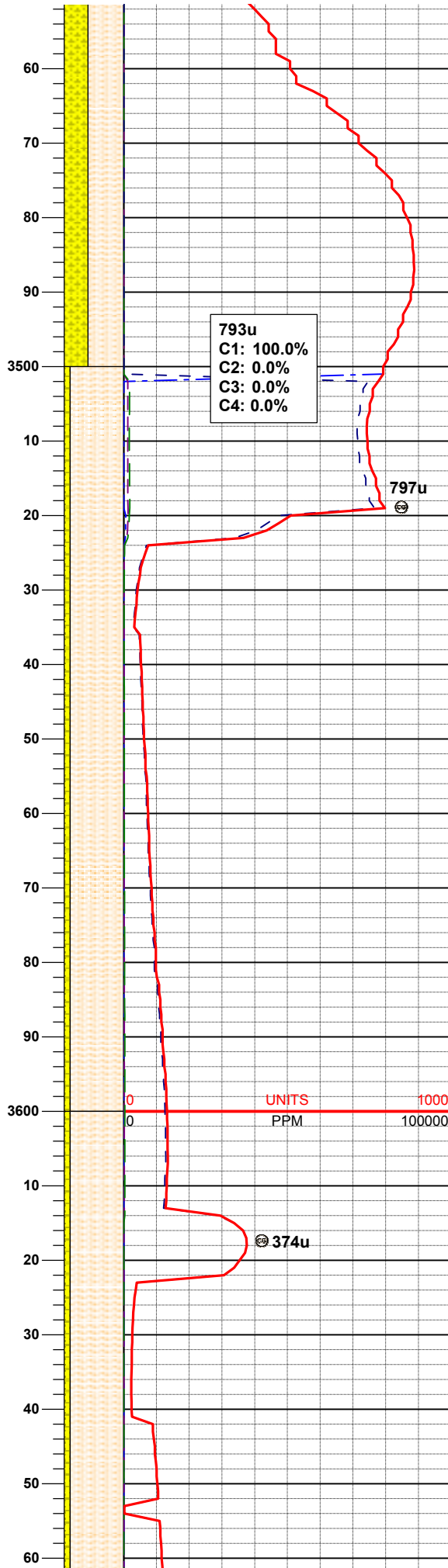
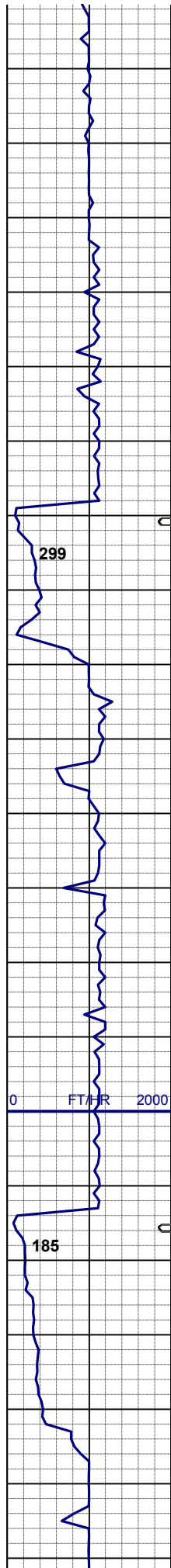




SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang,

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang,





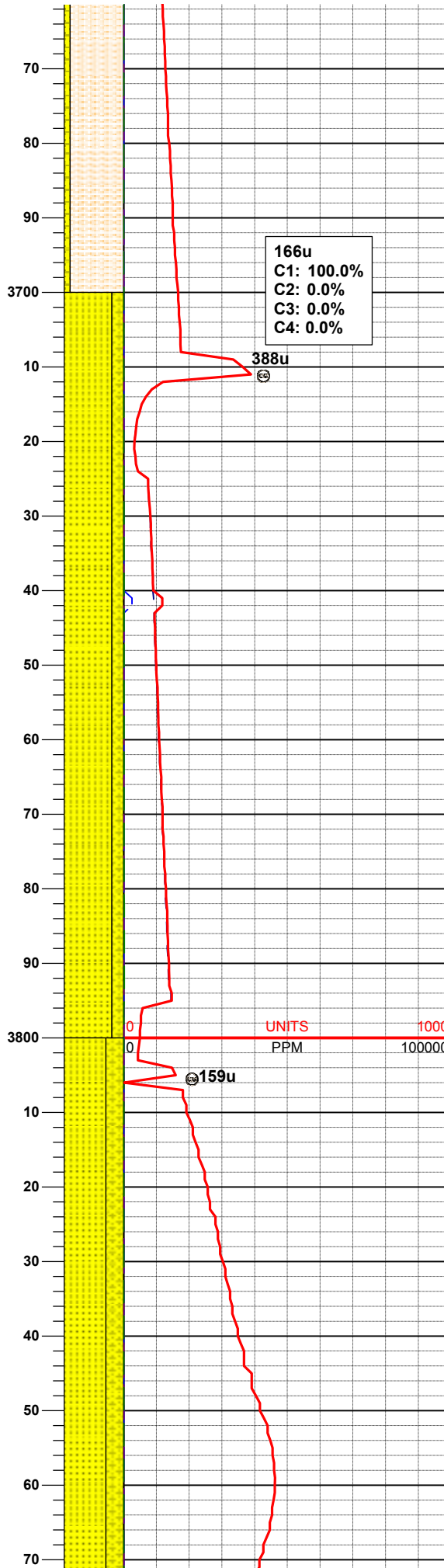
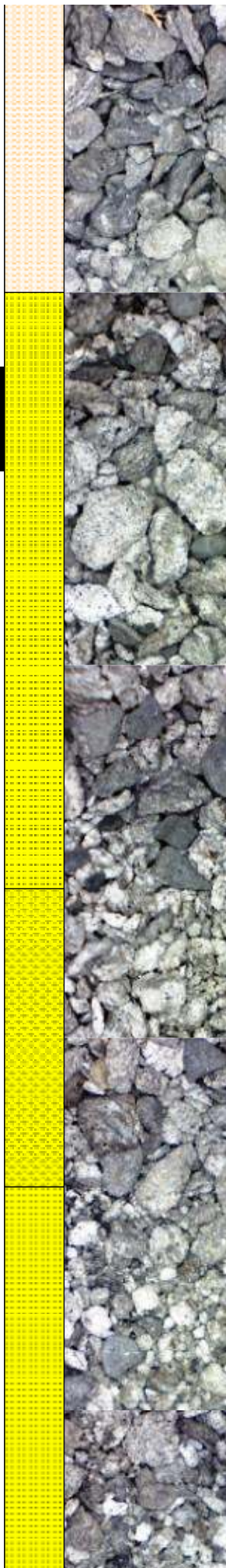
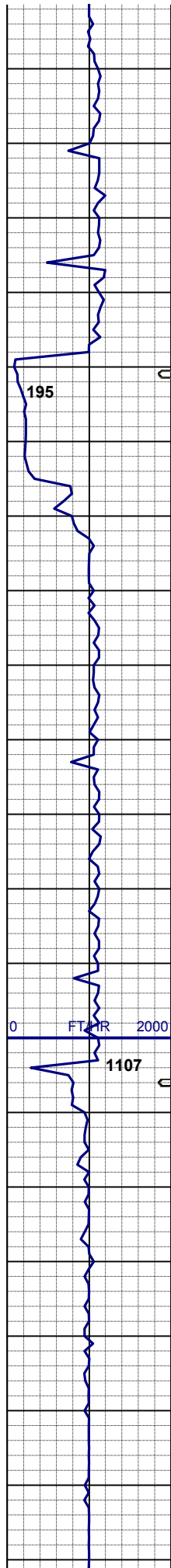
SD 3,463'  
INC 2.31°  
AZM 245.93°

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy, vfgr, hd brit, sbply-  
sbang,

SD 3,558'  
INC 1.01°  
AZM 263.91°

SHYSLTST: ltgy - mgy, vfgr, hd,  
sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy, vfgr, hd brit, sbply-  
sbang,

SD 3,653'  
INC 0.14°  
AZM 302.14°



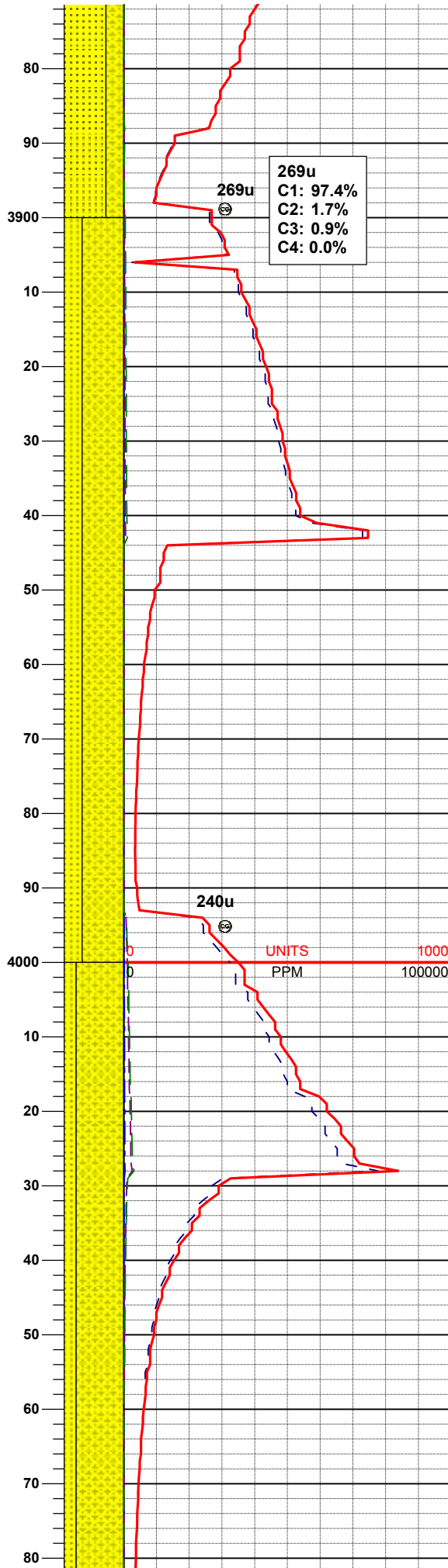
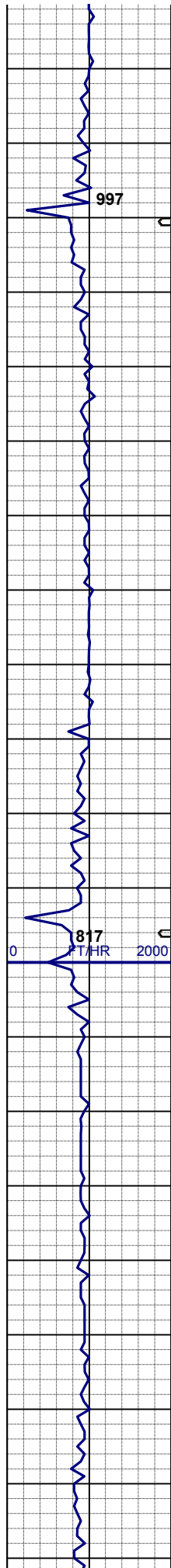
SHYSLTST: ltgy - mgy, vfgr, hd, sbply - sbrd, slty-gt tex, sl calc  
SHYSS: wh, lt gy,vfgr, hd brit, sbply-sbang,

SD 3,748'  
INC 1.59°  
AZM 42.35°

SHYSS: wh, lt gy,vfgr, hd brit, sbply-sbang,  
SS: wh, clr - trns, spec w/ mica, dk gn xl glau, f-vfgr, hd v brit clus, p consol, v calc cmt

SD 3,843'  
INC 1.35°  
AZM 31.24°



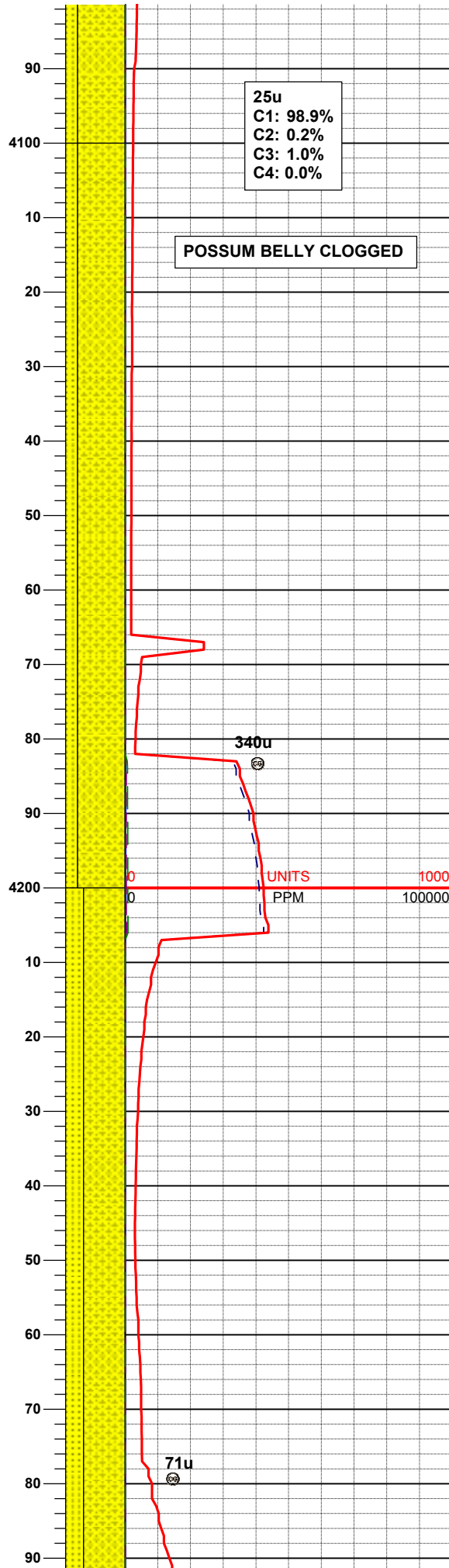
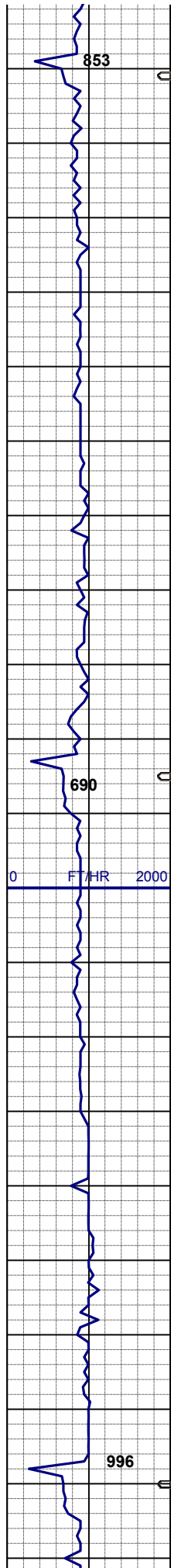


269u  
C1: 97.4%  
C2: 1.7%  
C3: 0.9%  
C4: 0.0%

SHYSS: wh, lt gy, vfgr, hd brit, sbply-  
sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn  
xl glau, f-vfgr, hd v brit clus, p consol,  
v calc cmt

SHYSS: wh, lt gy, vfgr, hd brit, sbply-  
sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn  
xl glau, f-vfgr, hd v brit clus, p consol,  
v calc cmt

SD 4,127'  
INC 1.44°  
AZM 342.56°

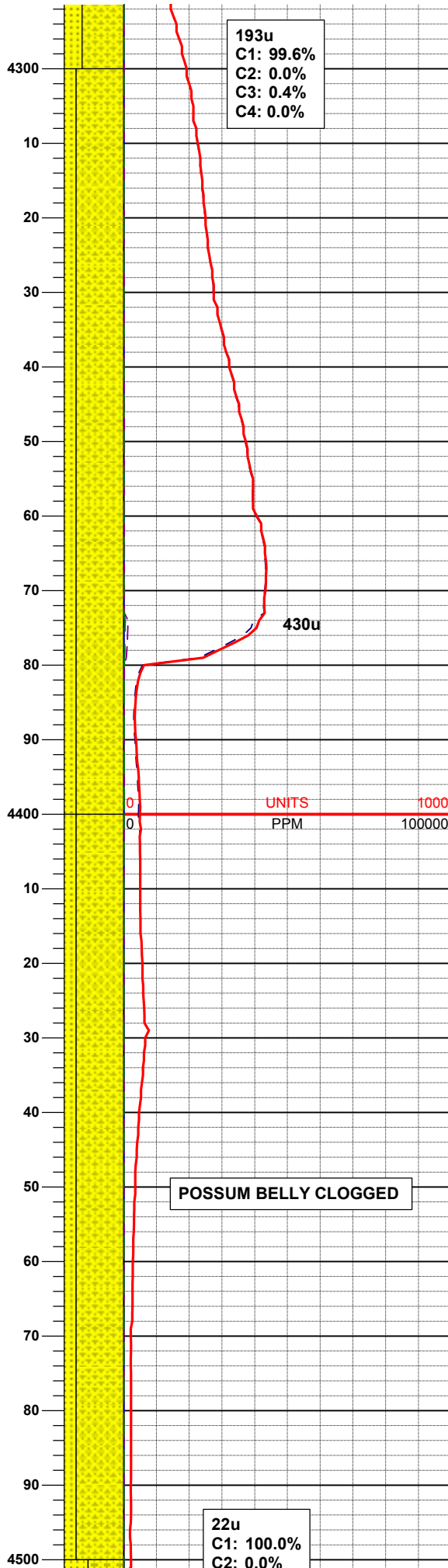
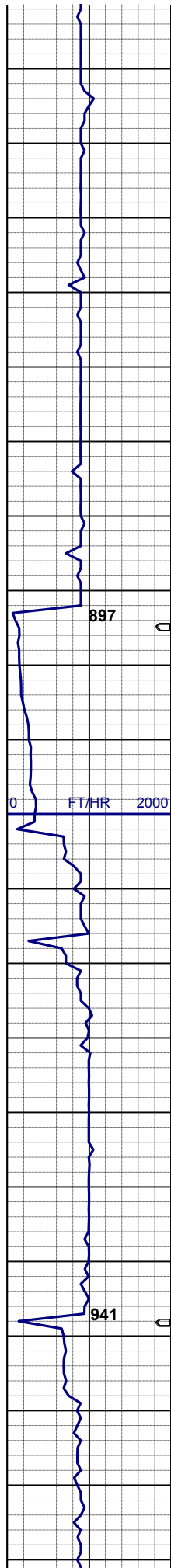


SHYSS: wh, lt gy, vfgr, hd brit, sbply-sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn xl glau, f-vfgr, hd v brit clus, p consol, v calc cmt

SHYSS: wh, lt gy, vfgr, hd brit, sbply-sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn xl glau, f-vfgr, hd v brit clus, p consol, v calc cmt

SHYSS: wh, lt gy, vfgr, hd brit, sbply-sbang.





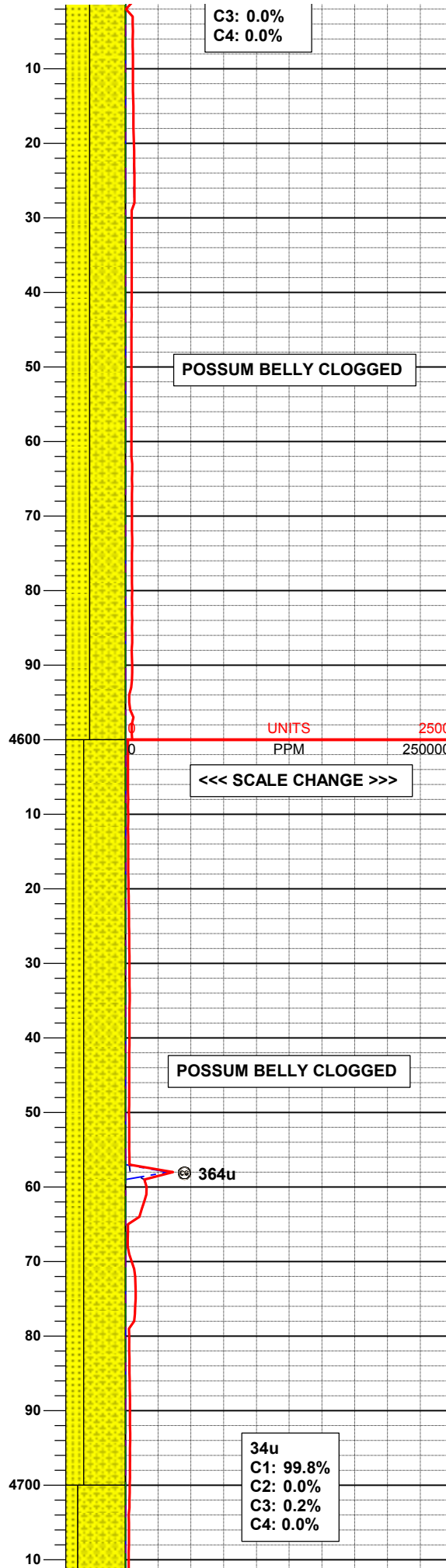
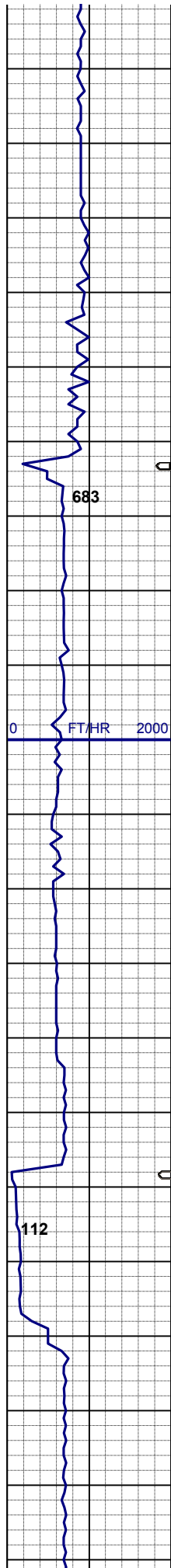
SS: wh, clr - trnsl, spec w/ mica, dk gn  
xl glau, f-vfgr, hd v brit clus, p consol,  
v calc cmt

SHYSS: wh, lt gy,vfgr, hd brit, sbplty-  
sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn  
xl glau, f-vfgr, hd v brit clus, p consol,  
v calc cmt

**MUD WT 8.90/9.20  
VIS 26/28 IN/OUT**

**SD 4,412'  
INC 2.06°  
AZM 337.01°**

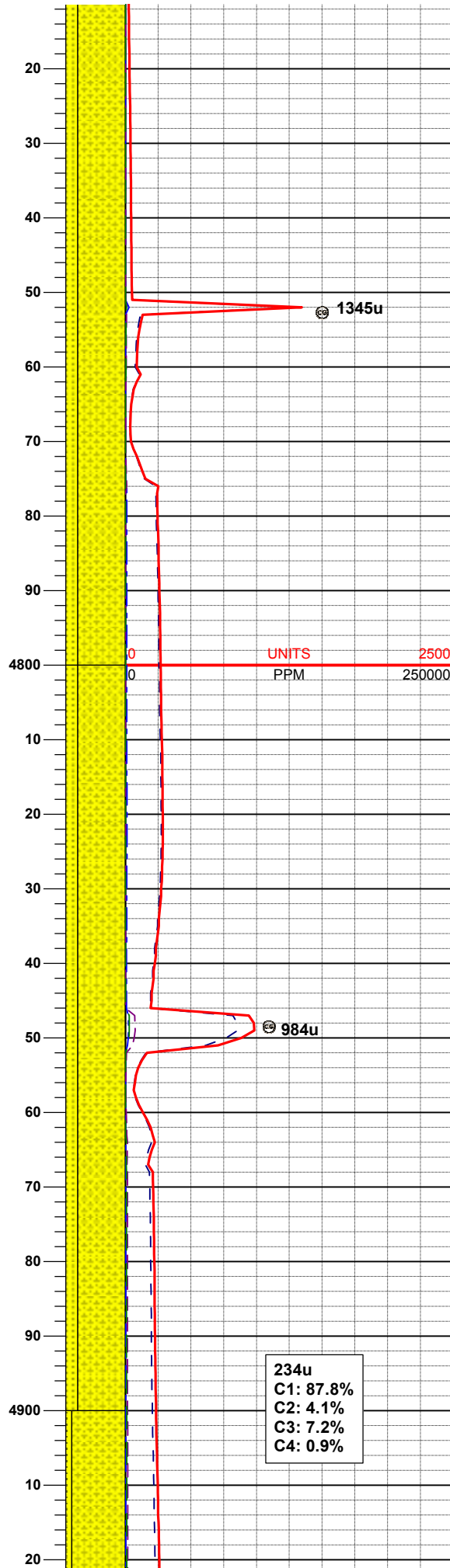
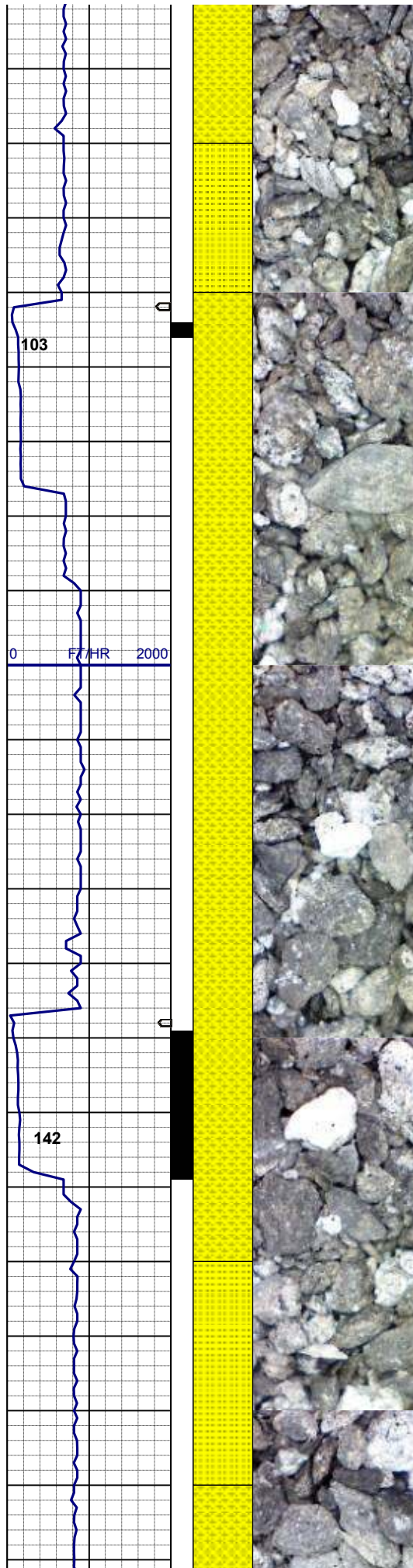
SHYSS: wh, lt gy,vfgr, hd brit, sbplty-  
sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn  
xl glau, f-vfgr, hd v brit clus, p consol,  
v calc cmt



SHYSS: wh, lt gy,vfgr, hd brit, sbply-sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn xl glau, f-vfgr, hd v brit clus, p consol, v calc cmt

SHYSS: wh, lt gy,vfgr, hd brit, sbply-sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn xl glau, f-vfgr, hd v brit clus, p consol, v calc cmt





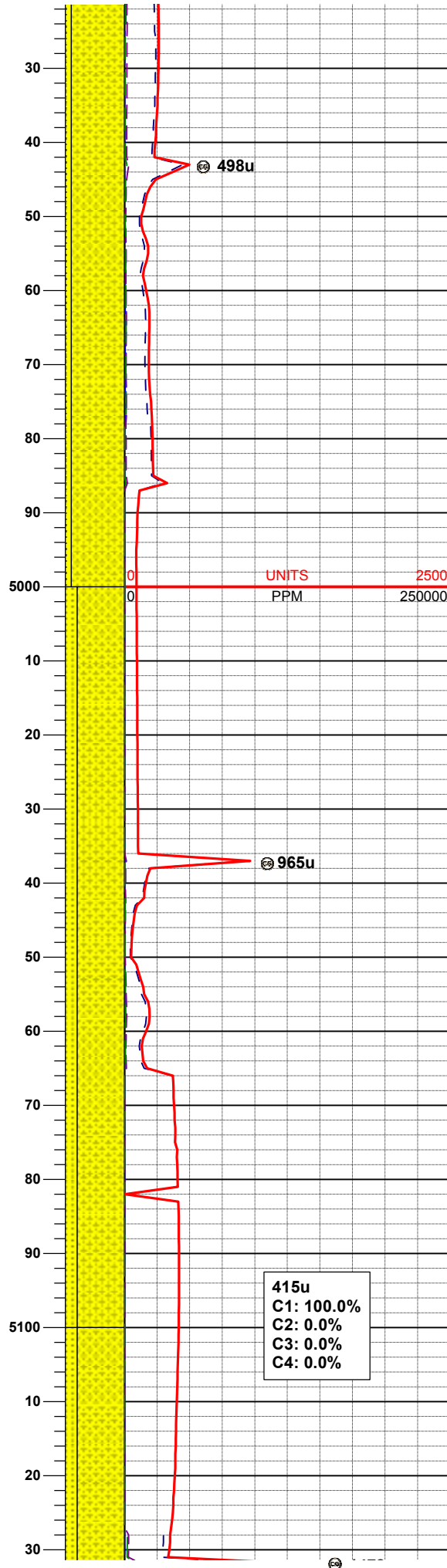
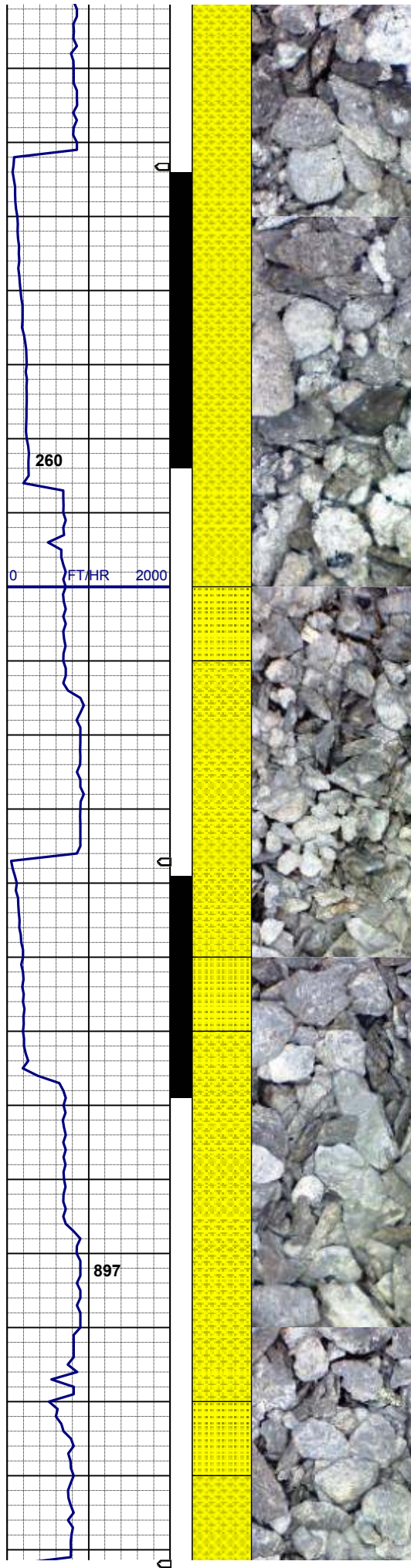
**SD 4,792'**  
**INC 3.22°**  
**AZM 352.70°**

SHYSS: wh, lt gy, vfgr, hd brit, sbply-sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn xl glau, f-vfgr, hd v brit clus, p consol, v calc cmt

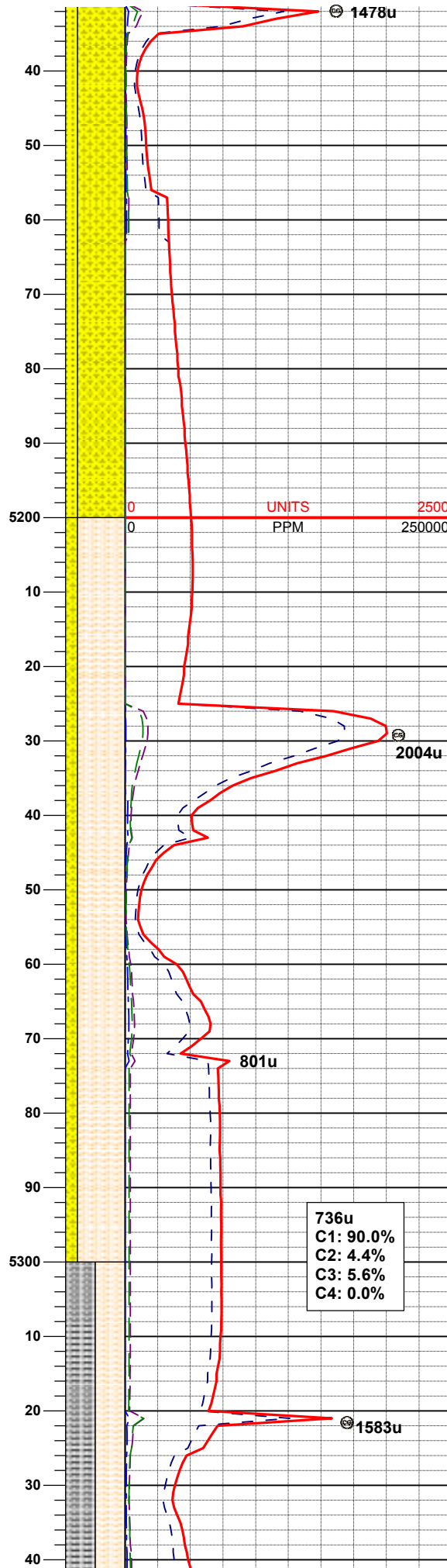
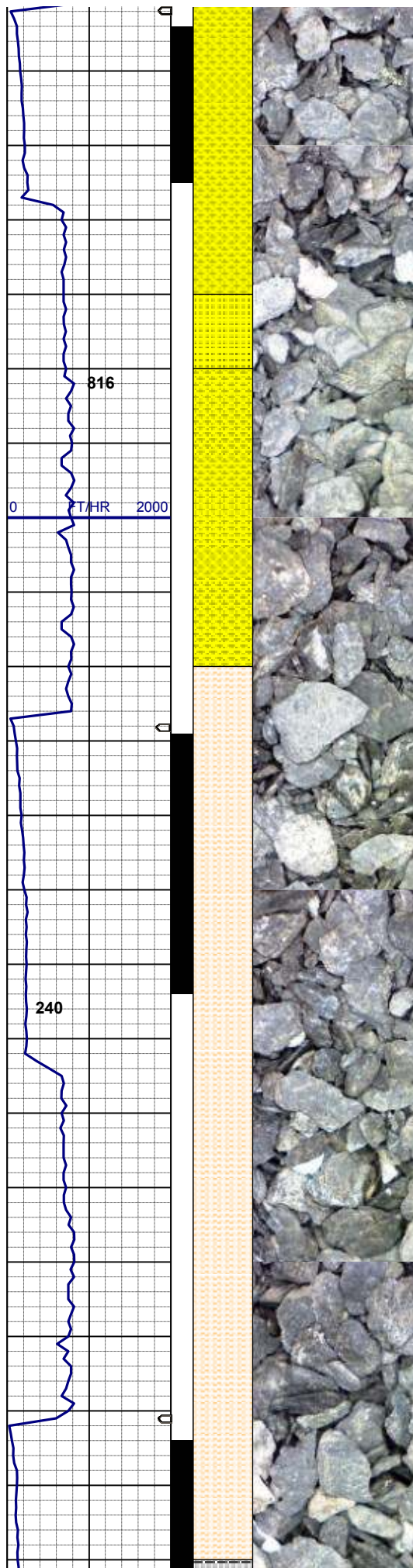
**SD 4,887'**  
**TVD 4,885.71'**  
**INC 3.81°**  
**AZM 358.10°**

SHYSS: wh, lt gy, vfgr, hd brit, sbply-sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn xl glau, f-vfgr, hd v brit clus, p consol, v calc cmt

**234u**  
**C1: 87.8%**  
**C2: 4.1%**  
**C3: 7.2%**  
**C4: 0.9%**







SD 5,172'  
TVD 5,169.09'  
INC 7.32°  
AZM 358.01°

SHYSS: wh, lt gy,vfgr, hd brit, sbply-  
sbang,  
SS: wh, clr - trnsl, spec w/ mica, dk gn  
xl glau, f-vfgr, hd v brit clus, p consol,  
v calc cmt

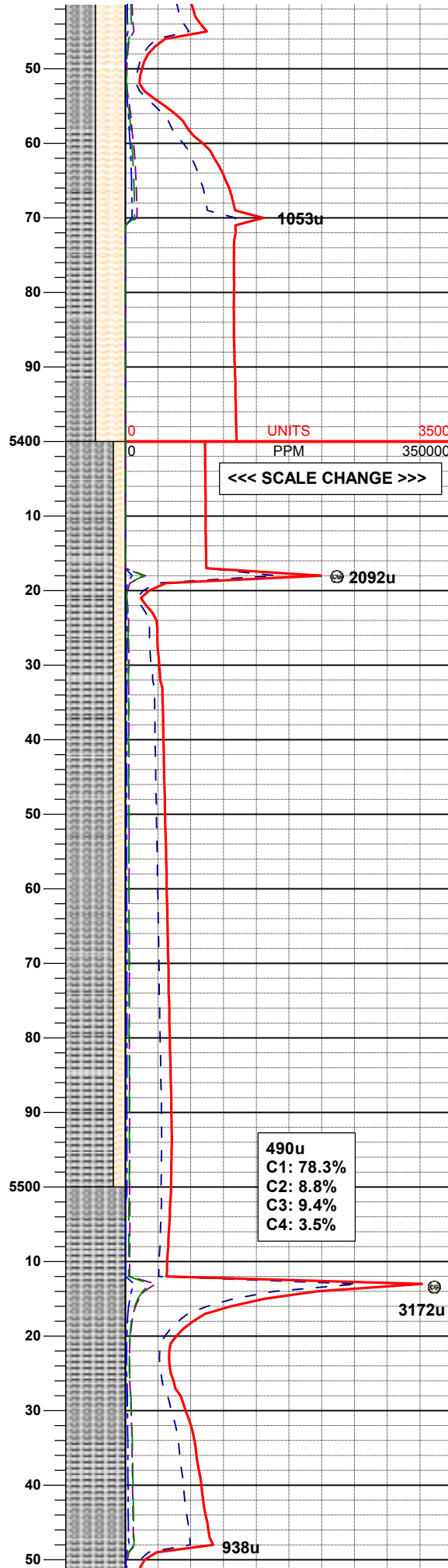
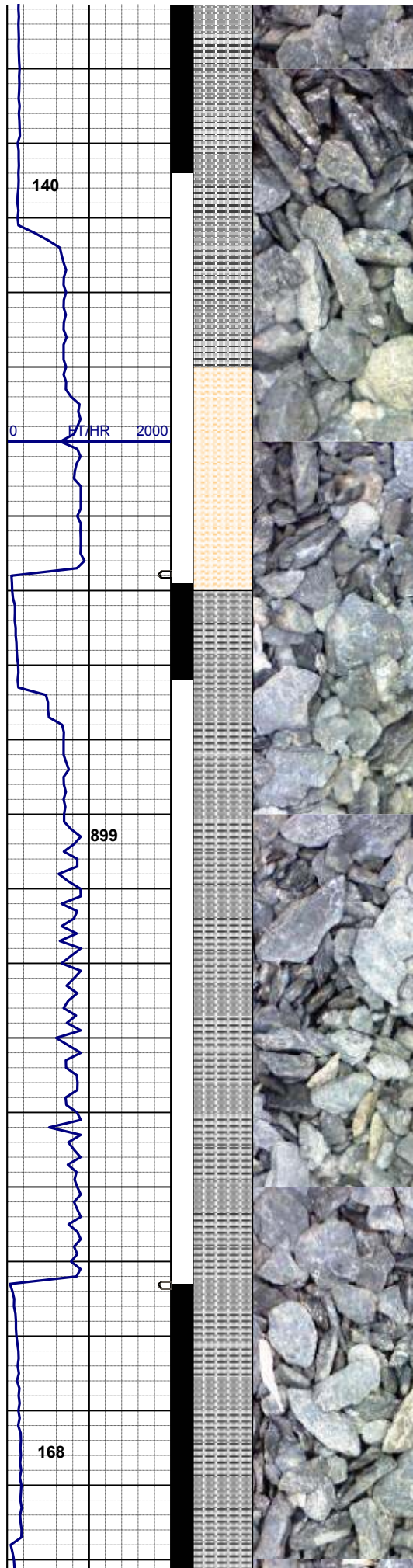
MUD WT 8.80/8.90  
VIS 31/34 IN/OUT

SD 5,267'  
TVD 5,263.30'  
INC 7.45°  
AZM 4.99°

SHYSS: wh, lt gy,vfgr, hd brit clus,  
sbang-ang, calc cmt  
SHYSLTST: ltgy-mgy, gybrn, mod hd,  
slyt-gt tex, sbply-sbang, v sl calc

736u  
C1: 90.0%  
C2: 4.4%  
C3: 5.6%  
C4: 0.0%

03/01/2013  
Mud Wt: 8.70  
FVis: 31  
PVis: 4  
YP: 4  
GELS: 2/4/6  
API Filt: 12.0  
CAKE: 1/0  
pH: 9.4  
Cl: 1,600



Ca: 80

SD 5,362'  
TVD 5,357.28'  
INC 9.31°  
AZM 5.17°

SHYSLTST: ltgy - ltgybrn, vfgr, mod  
hd - hd, gt tex, sbply-sbang, calc  
cmt / mtx  
SLTYSH: mgy-dkgy, mod hd-hd, slty-  
gt tex, sbply-plty, v sl calc

MUD WT 9.00/9.00  
VIS 34/31 IN/OUT

SD 5,456'  
TVD 5,450.09'  
INC 8.98°  
AZM 1.74°

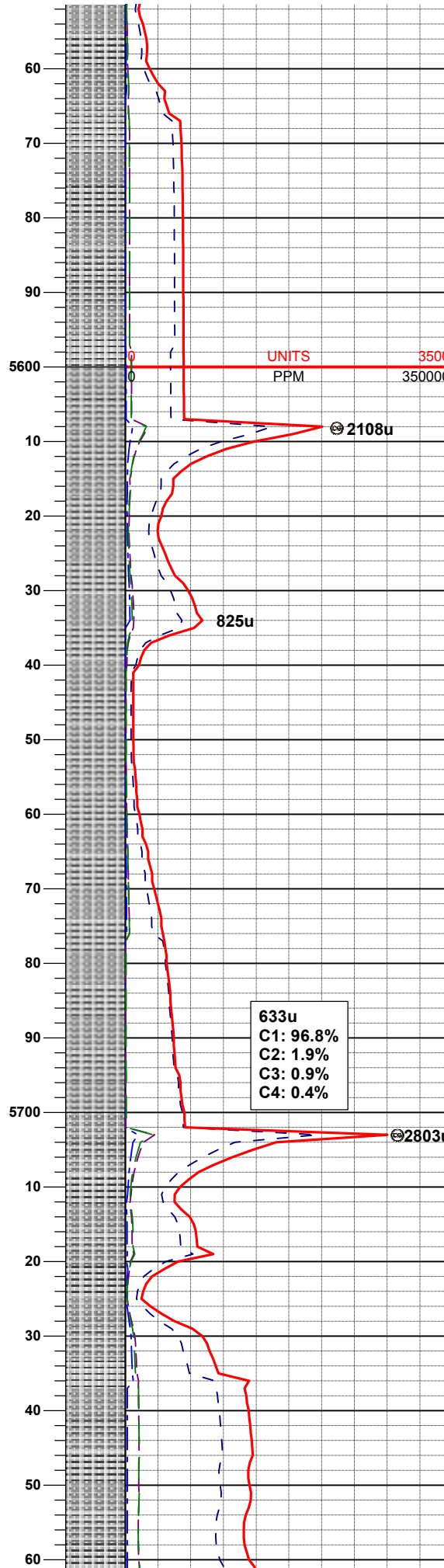
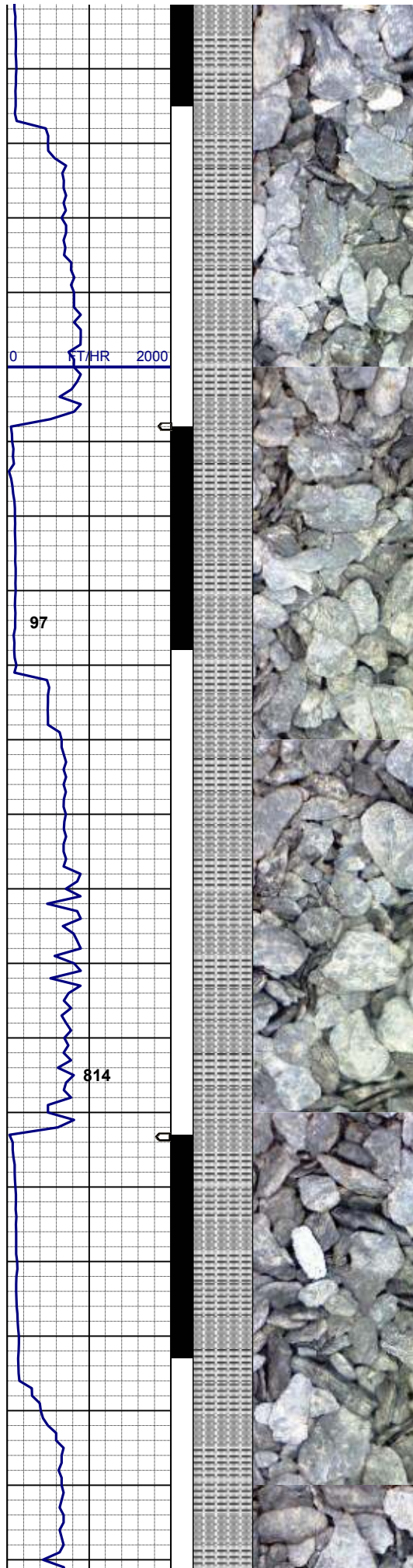
SHYSLTST: ltgy - ltgybrn, vfgr, mod  
hd - hd, gt tex, sbply-sbang, calc  
cmt / mtx  
SLTYSH: mgy-dkgy, mod hd-hd, slty-  
gt tex, sbply-plty, v sl calc

490u  
C1: 78.3%  
C2: 8.8%  
C3: 9.4%  
C4: 3.5%

MUD WT 9.15/9.00  
VIS 33/32 IN/OUT

SD 5,551'  
TVD 5,543.88'





INC 9.34°  
AZM 7.59°

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

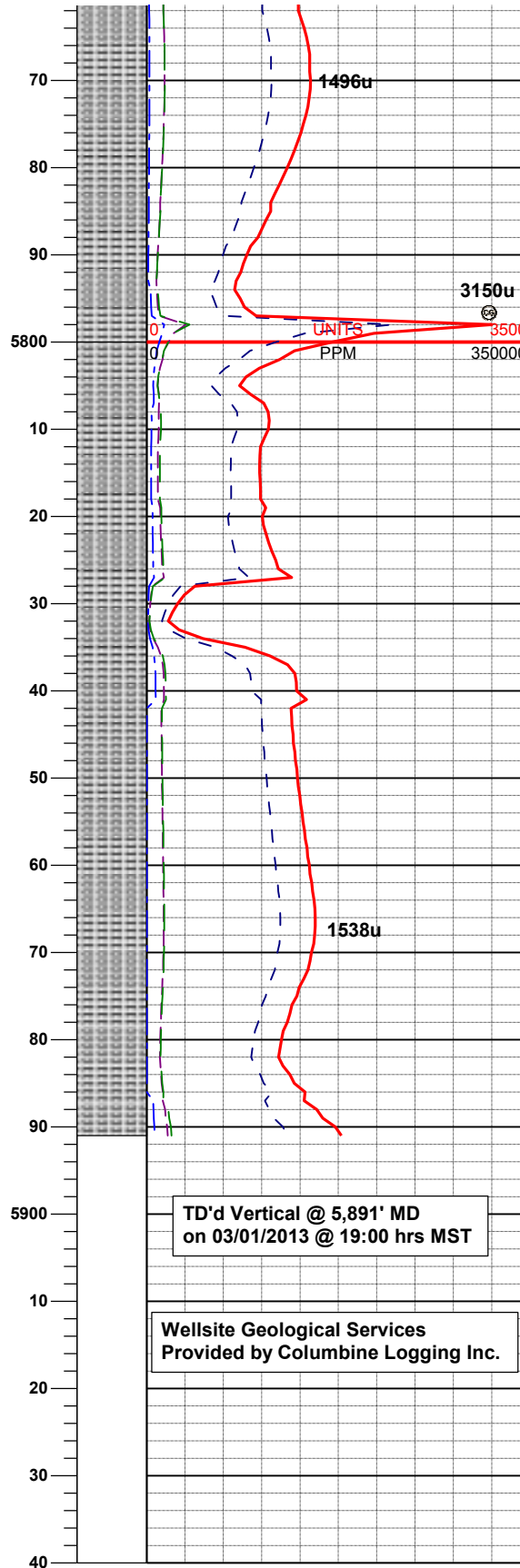
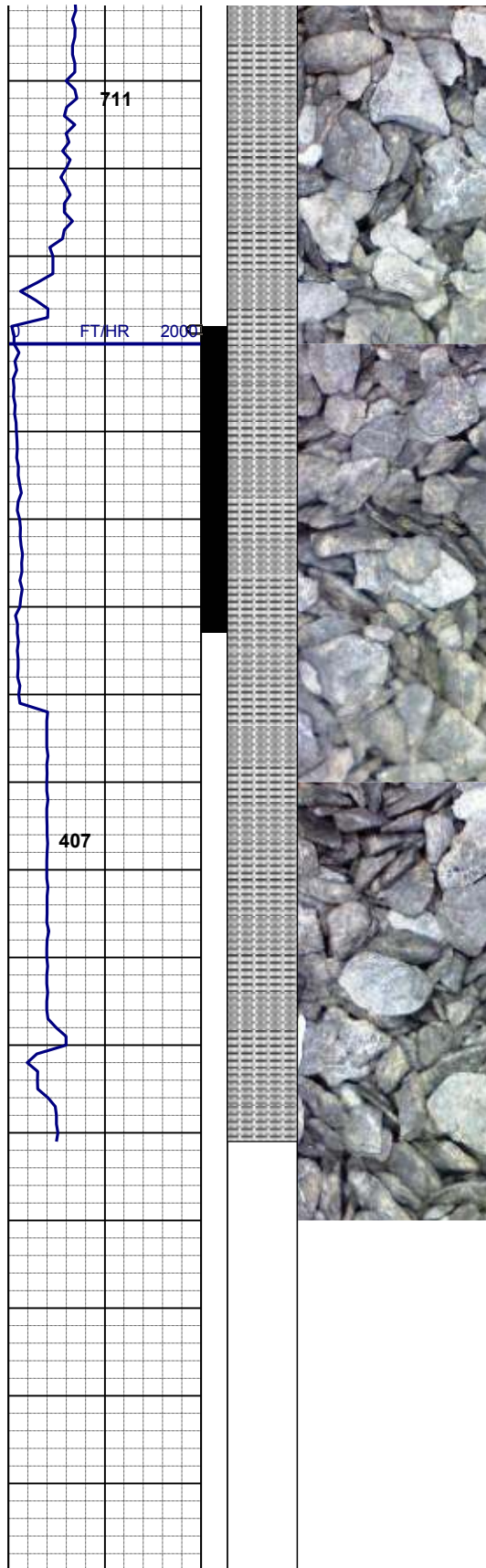
MUD WT 9.25/9.10  
VIS 33/32 IN/OUT

SD 5,646'  
TVD 5,637.42'  
INC 10.73°  
AZM 3.33°

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

MUD WT 9.30/9.25  
VIS 32/32 IN/OUT

SD 5,741'  
TVD 5,730.83'  
INC 10.32°  
AZM 358.57°



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

SD 5,836'  
TVD 5,824.30'  
INC 10.30°  
AZM 350.04°

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

TD'd Vertical @ 5,891' MD  
on 03/01/2013 @ 19:00 hrs MST

Wellsite Geological Services  
Provided by Columbine Logging Inc.

LOG CONTINUES ON  
HORIZONTAL L PLOT LOG  
LUCCI STATE  
B03-69HNL HORZ