

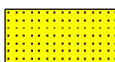
LOG created using LPLOT VH Version 3.0, July 09, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR:	NOBLE ENERGY INC
WELL:	GUTTERSEN D30-68-1HN
LOCATION:	NWNW SEC 29, T3N, R64W
COUNTY:	WELD
STATE:	COLORADO
SPOT:	1298' FNL, 370' FWL
ELEVATION:	4787' GL, 4800' KB
FIELD:	WATTENBERG
SPUD DATE:	07/01/2012
TD DATE:	07/09/2012
DATES LOGGED:	07/02/2012 - 07/09/2012
DEPTHS LOGGED:	845 - 11278' MD
LOGGERS:	BRITTANY GUZZO, RYAN SHILLING
DRILLING FLUID:	FW, LSND
DRILLING RIG:	ENSIGN 121
API:	05-123-35611
LOG TYPE:	VERTICAL
SCALE:	1:240 (5 inches per 100 feet)
REMARKS:	LAT, LONG: 40.20068, -104.60084

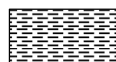
LITHOLOGIES



No Sample



Sandstone



Shale



Shaly Sandstone



Silty Shale

MODIFIERS



Sandstone Stringers



Shale Laminae

ENGINEERING SYMBOLS



Connection

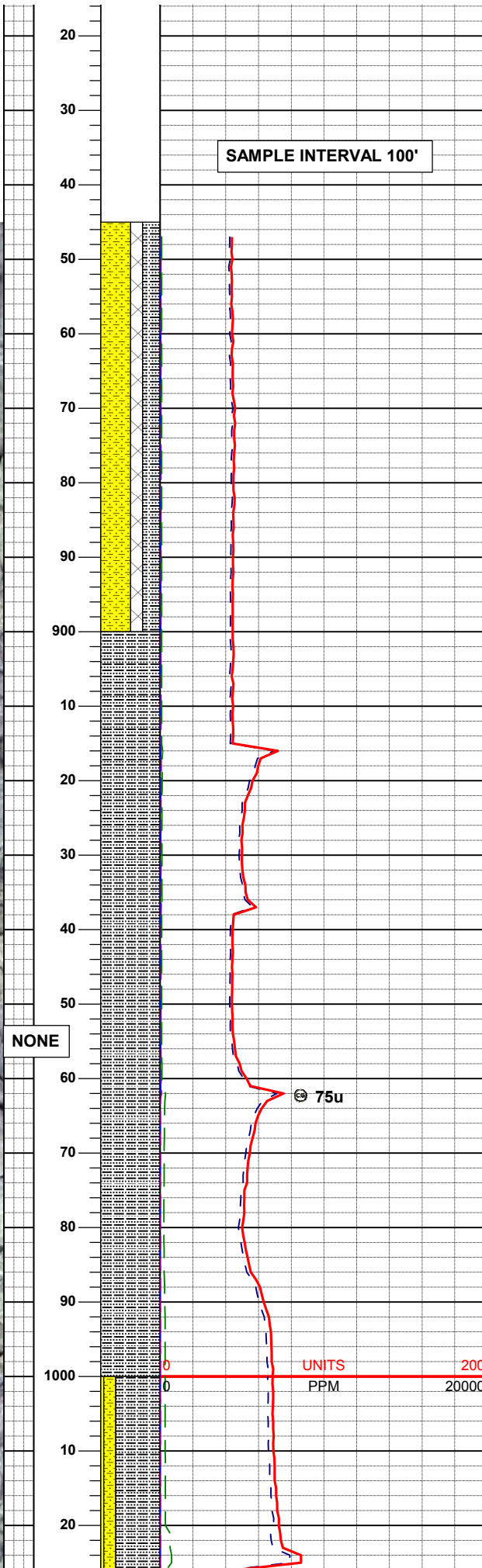
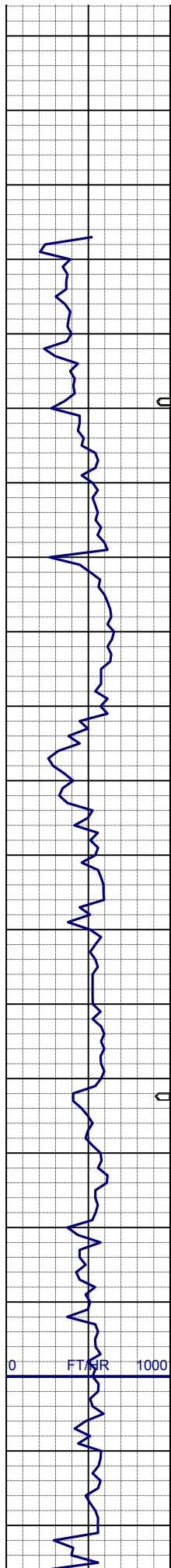


Connection Gas



Midnight Depth

[illegible]



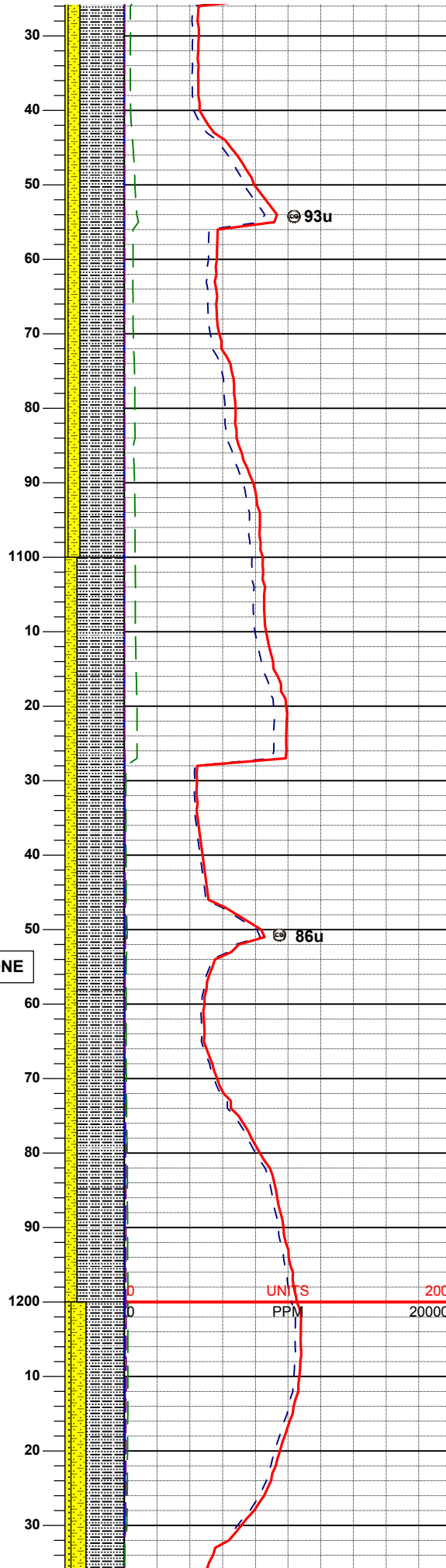
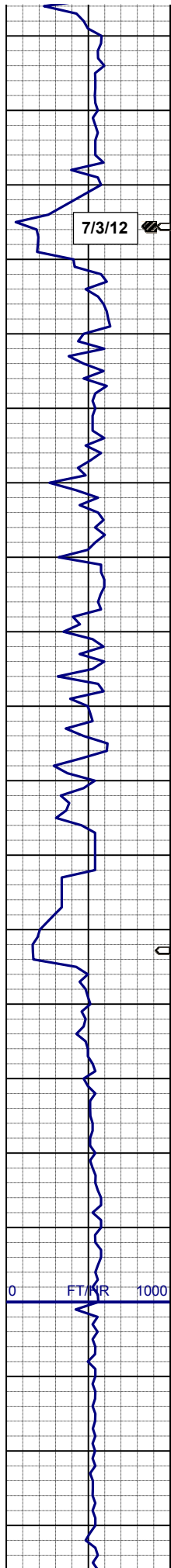
BHA #2
BIT: VAREL 8.75", VM516X
SERIAL #: 4004666
JETS: 5x13
DEPTH IN: 845' MD

50% SHYSS: vlt-mgy, vf-fgr, sbang-sbrd, sbplty-sbblky, mod-psrt, argcmt, noncalc, phlog, tr pyr ctd, grd to 30% SLTYSH: m-mdkgy, sft-sl firm, sbblky-sbplty, vfgr-sdy w/smeintbdss, noncalc, triamphlog, trss 20% CMT:

SURVEY
MD 909'
INC 0.2°
AZI 206.1°
TVD 909.00'

100% SLTYSH: m-mdkgy, sft-sl firm, sbblky-sbplty, vfgr-sdy, occintbdss, noncalc, triamphlog, sme cmt, trshyss

SURVEY
MD 1002'
INC 0.4°
AZI 195.9°
TVD 1002.00'

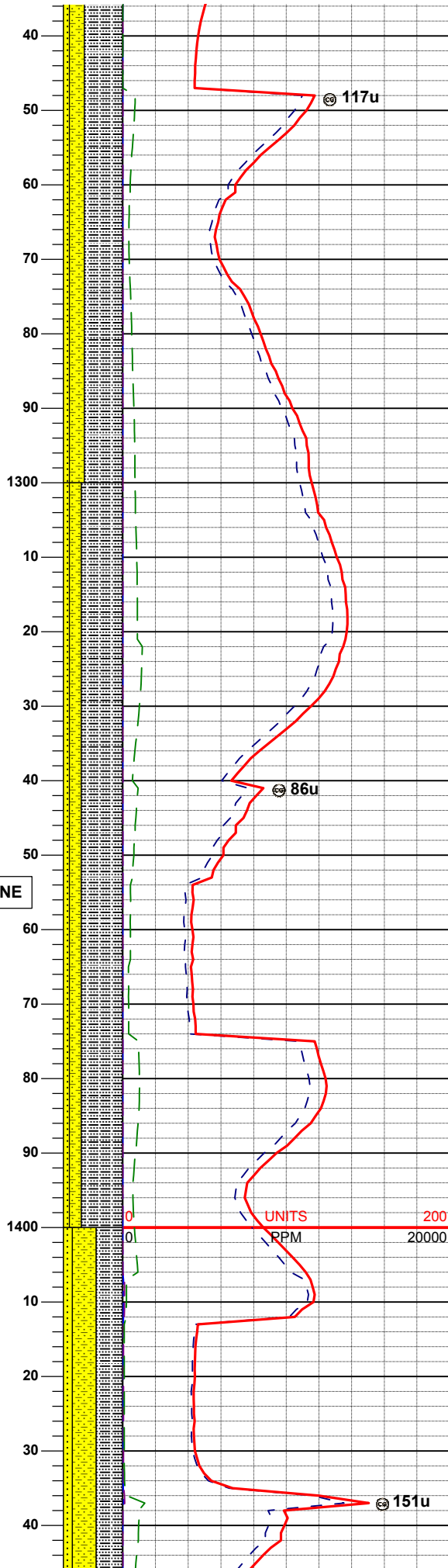
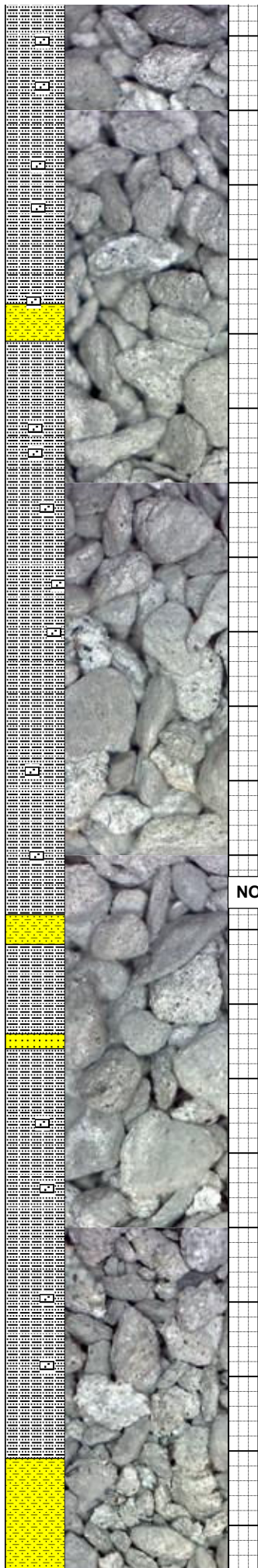
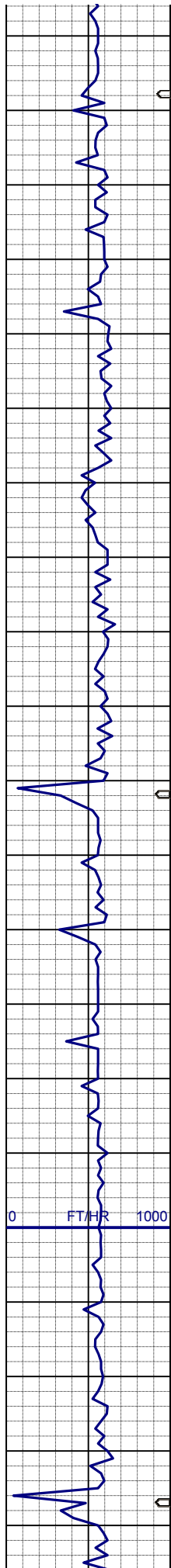


75% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbply-sbblky, sft, mod-psrt, argcmt, noncalc, phlog, grdg to 20% SLTYSH: m-mdkgy, sft-sl firm, sbblky-sbply, vfgr-sdy, occintbdss, noncalc, phlog
5% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, phlog, glau, tr sec calcite

SURVEY
MD 1099'
INC 1.3°
AZI 294.4°
TVD 1098.99'

80% SLTYSH: m-mdkgy, sft-sl firm, sbblky-sbply, vfgr-sdy, occintbdss, noncalc, phlog, grdg to 20% SHYSS: vlt-mgy, vf-fgr, sbang-sbrd, sbply-sbblky, mod-psrt, argcmt, noncalc, phlog

SURVEY
MD 1194'
INC 1.3°
AZI 300.4°
TVD 1193.96'



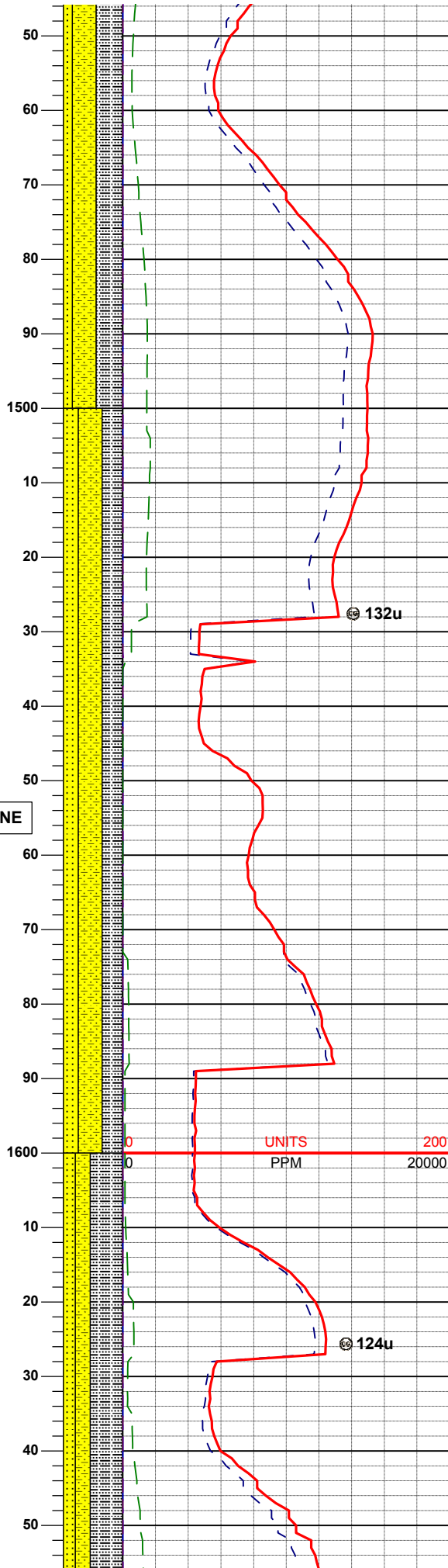
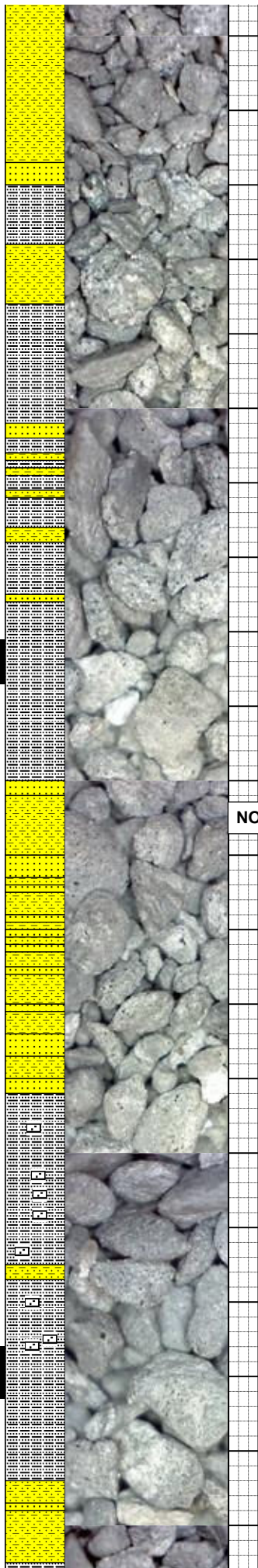
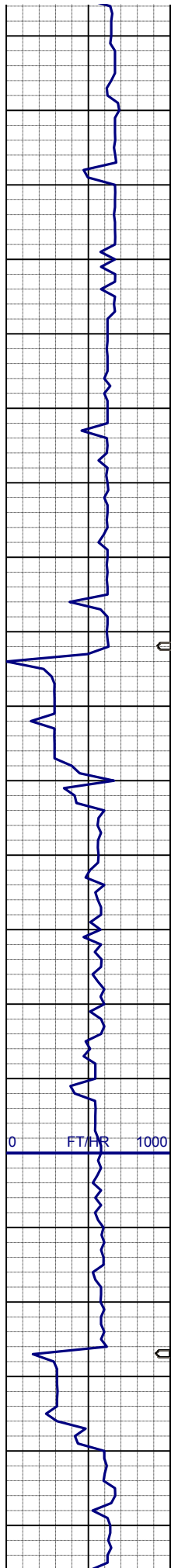
65% SLTYSH: m-mdkgy, sft-sl firm, sbblky-sbplty, vfgr-sdy, w/smeintbdss, noncalc, phlog, grd to 25% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbplty-sbblky, sft, mod-psrt, argcmt, noncalc, phlog 10% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, phlog, glau

SURVEY
MD 1288'
INC 1.3°
AZI 300.5°
TVD 1287.94'

70% SLTYSH: m-mdkgy, sft-sl firm, sbblky-sbplty, vfgr-sdy, occintbdss, noncalc, phlog, grd to 20% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbplty-sbblky, sft, mod-psrt, argcmt, noncalc, phlog 10% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, phlog, glau, tr sec calcite

SURVEY
MD 1383'
INC 1.2°
AZI 308.4°
TVD 1382.92'

45% SLTYSH: m-mdkgy, sft-sl firm, sbblky-sbplty, vfgr-sdy, occintbdss, noncalc. phlog. ard to



40% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbplty-sbblky, sft, mod-psrt, argcmt, noncalc, phlog
15% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, phlog, glau

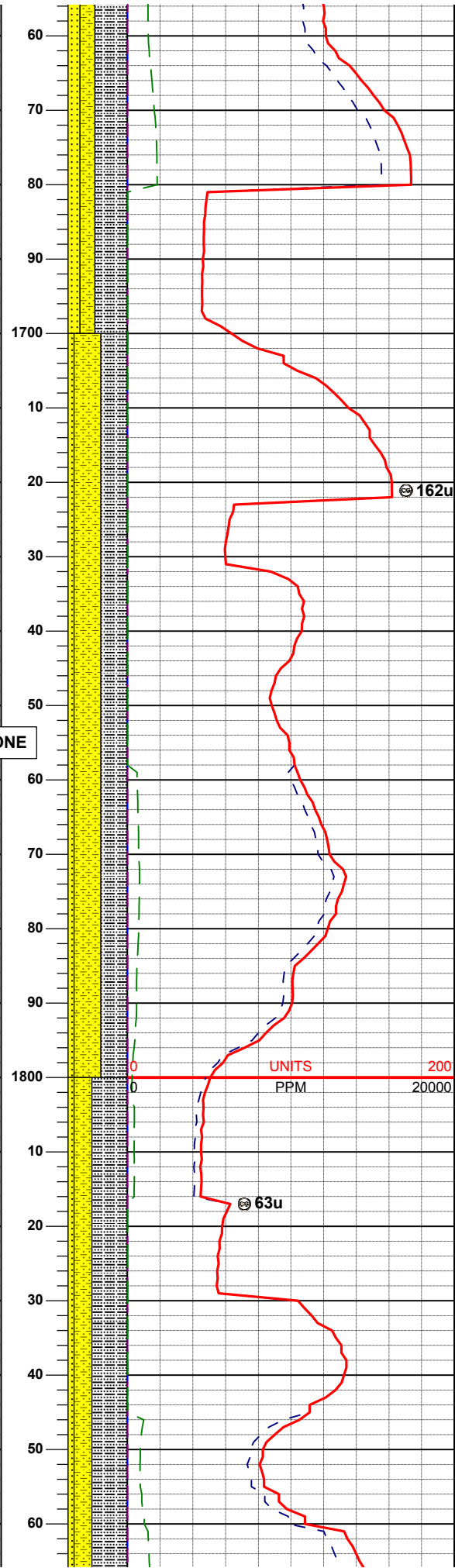
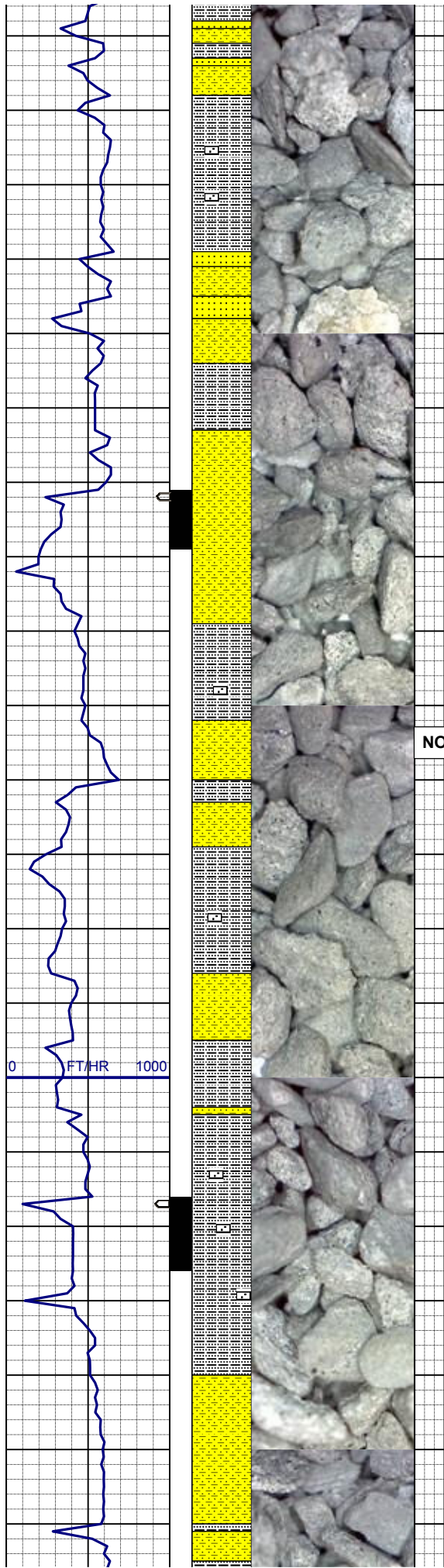
SURVEY
MD 1479'
INC 1.1°
AZI 313.5°
TVD 1478.9'

MUD REPORT
1533' MD
Wt - 8.50
Vis - 28
pH - 9.5
YP - N/A
API flt - nc
Ck - 0/0
Chld - 600

40% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbplty-sbblky, sft, p-modsrt, argcmt, noncalc, phlog,
35% SLTYSH: ltm-mgy, sft-sl firm, sbblky-sbplty, vfgr-slsdy, occintbdss, noncalc, phlog, grd to
25% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, phlog, glau

SURVEY
MD 1574'
INC 2.9°
AZI 320.0°
TVD 1573.84'

55% SLTYSH: ltm-mgy, sft-sl firm, sbblky-sbplty, vfgr-slsdy, occintbdss, noncalc, phlog, grd to
25% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbplty-sbblky, sft, p-modsrt, argcmt, noncalc, phlog, grd to
20% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, phlog, glau



sbrd, firm, mod-wsrt, arg&calc cmt,
phlog, glau

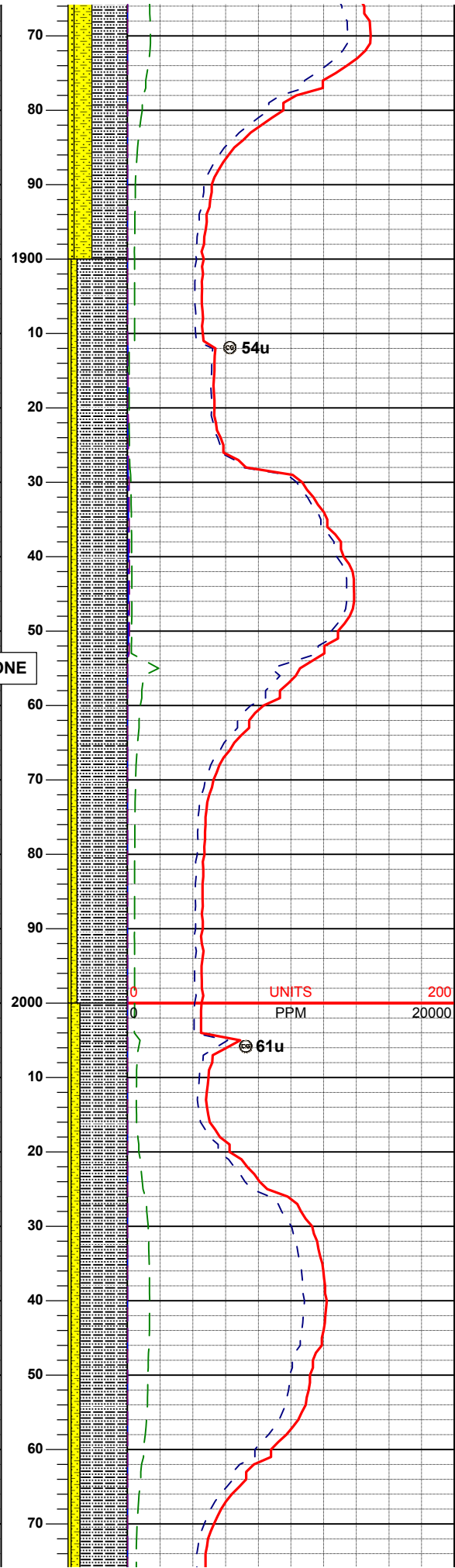
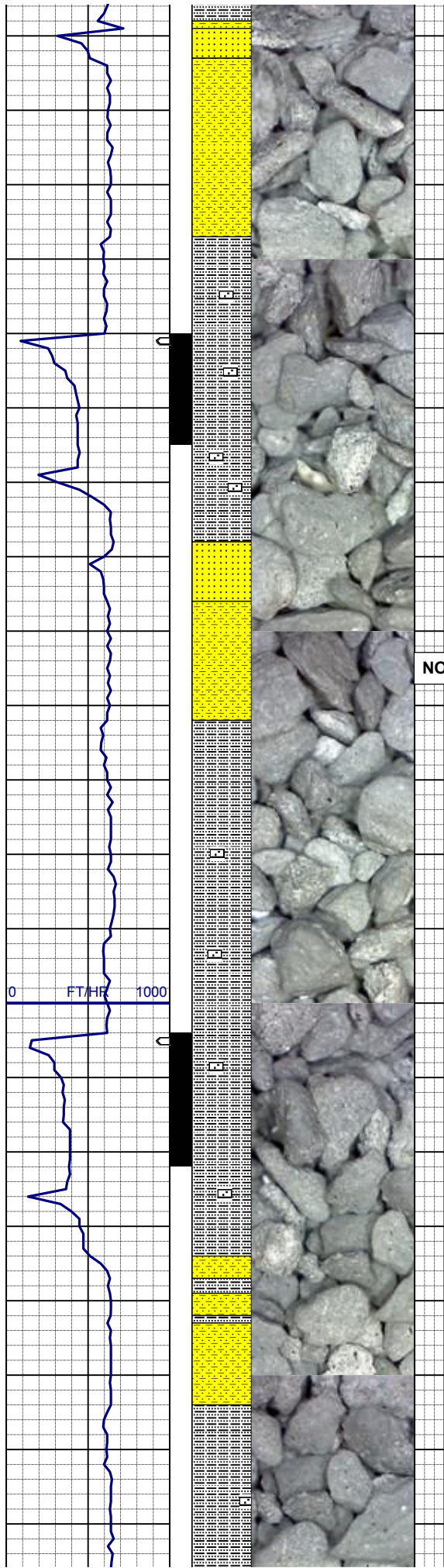
SURVEY
MD 1669'
INC 4.9°
AZI 322.2°
TVD 1668.61'

45% SLTYSH: ltm-mgy, sft-sl firm,
sbbly-sbply, vfgr-slsdy, occintbdss,
noncalc, grd to
45% SHYSS: ltm-mgy, vf-gr, sbang-
sbrd, sbply-sbbly, sft, p-modsrt,
argcmt, noncalc, grd to
10% SS: wh-ltgy, s&p, vf-gr, sbang-
sbrd, firm, mod-wsrt, arg&calc cmt,
glau ; smephlog, occcalcincl

SURVEY
MD 1764'
INC 5.5°
AZI 312.3°
TVD 1763.22'

60% SLTYSH: ltm-mgy, sft-sl firm,
sbbly-sbply, vfgr w/occintbdss,
noncalc, grd to
30% SHYSS: ltm-mgy, vf-gr, sbang-
sbrd, sbply-sbbly, sft, p-modsrt,
argcmt, noncalc, grd to
10% SS: wh-ltgy, s&p, vf-gr, sbang-
sbrd, firm, mod-wsrt, arg&calc cmt,
glau ; smephlog, occcalcincl

SURVEY



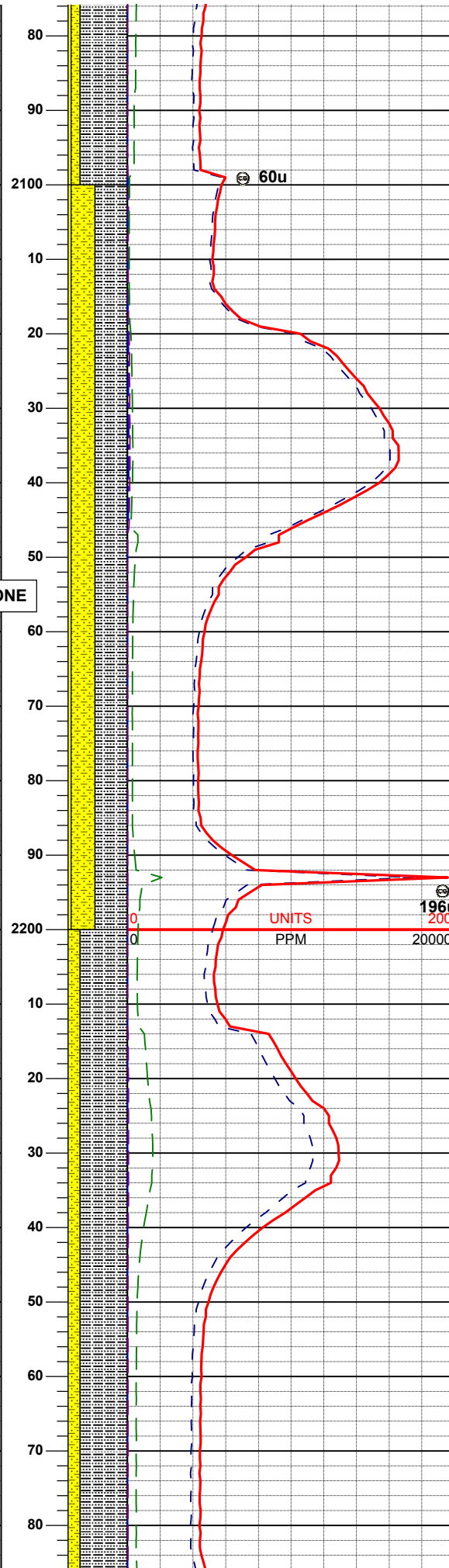
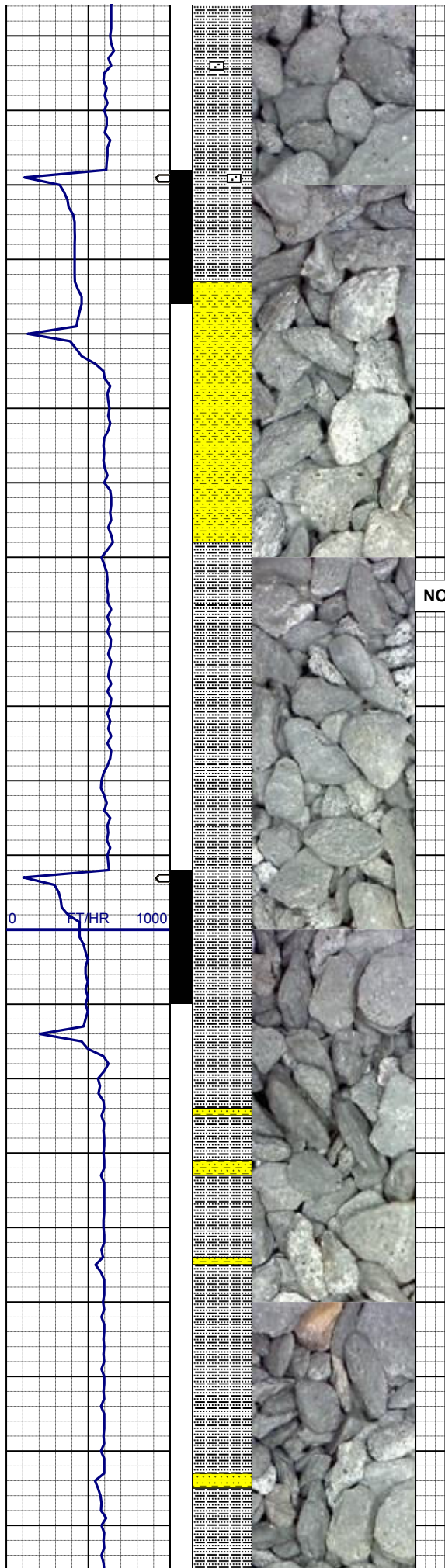
SURVEY
MD 1858'
INC 7.1°
AZI 311.1°
TVD 1856.65'

85% SLTYSH: ltm-mgy, sl firm -sft, sbblky-sbply, vfgr-slsdy w/occintbdss, noncalc, grd to 10% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbply-sbblky, sft, mod-psrt, argcmt, noncalc, grd to 5% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, glau ; smephlog, occcalcincl

SURVEY
MD 1952'
INC 8.9°
AZI 310.9°
TVD 1949.73'

SURVEY
MD 2046'
INC 11.0°
AZI 311.6°
TVD 2042.32'

80% SLTYSH: ltm-mgy, sl firm -sft, sbblky-sbply, vfgr-slsdy w/occintbdss, noncalc, grd to 15% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbply-sbblky, sft, mod-psrt, argcmt, noncalc, grd to 5% SS: wh-ltgy, s&p, vf-fgr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, glau ; occphlog, occcalcincl &trmicr

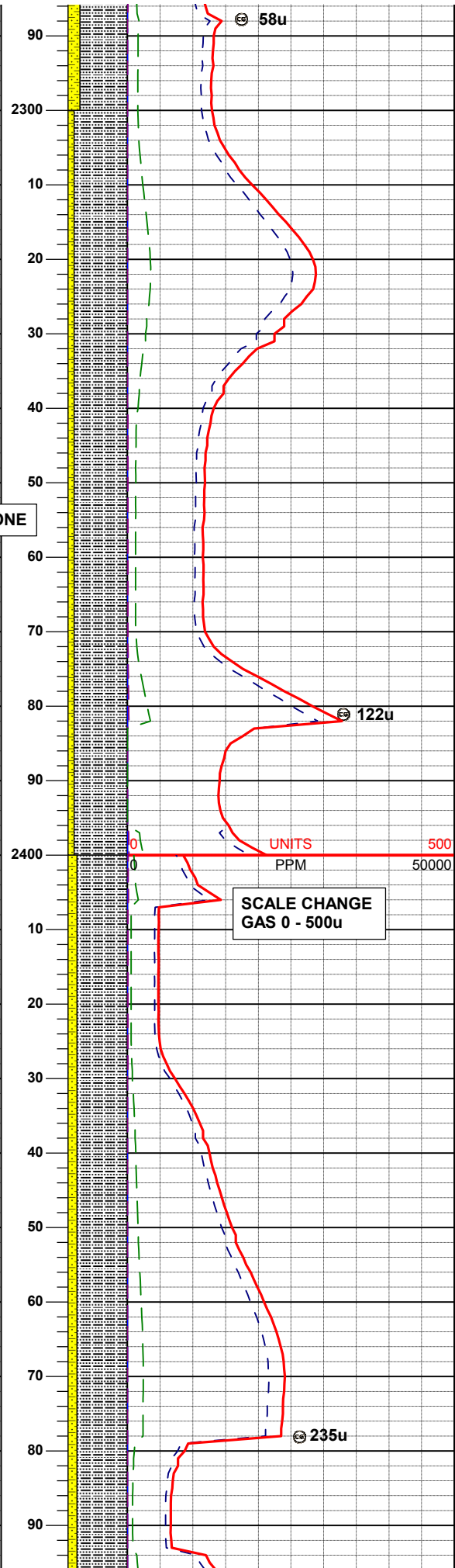
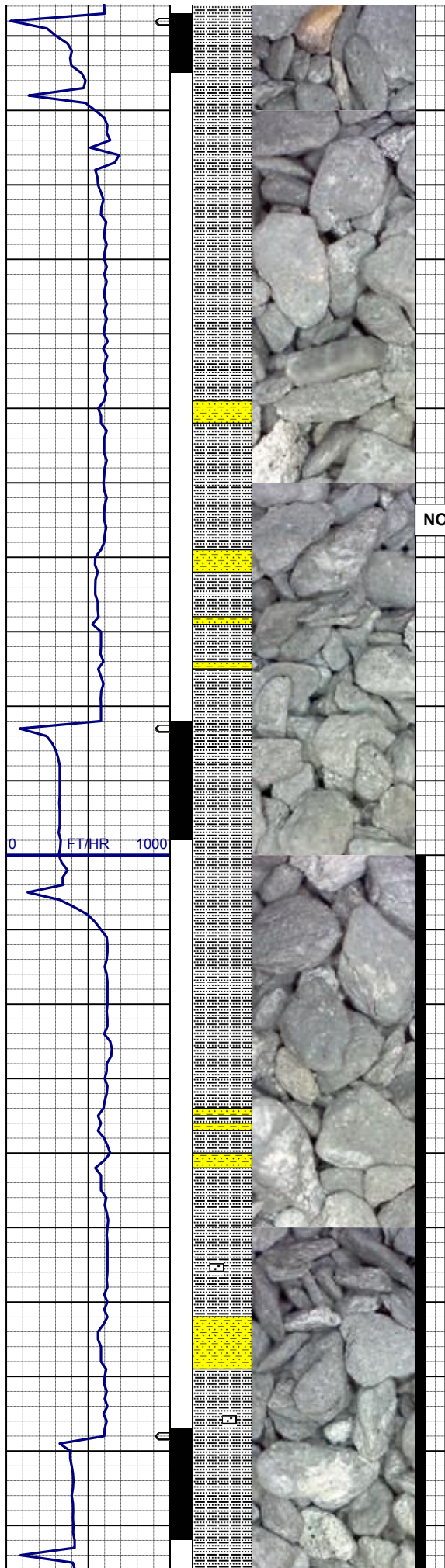


SURVEY
MD 2140'
INC 12.0°
AZI 314.9°
TVD 2134.43'

55% SLTYSH: ltm-mgy, sl firm -sft, sbblky-sbply, vfgr-slsdy w/occintbdss, noncalc, grdg to
40% SHYSS: ltm-mgy, vf-gr, sbang-sbrd, sbply-sbblky, sft, mod-psrt, argcmt, noncalc, grdg to
5% SS: wh-ltgy, s&p, vf-gr, sbang-sbrd, firm, mod-wsrt, arg&calc cmt, glau ; occphlog, occcalcincl &trmicr

SURVEY
MD 2235'
INC 13.5°
AZI 313.5°
TVD 2227.08'

80% SLTYSH: ltm-mdkgy, sl firm -sft, sbblky-sbply, vfgr-slsdy w/trintbdss, vsicalc, grdg to
20% SHYSS: ltm-mgy, vf-gr, sbang-sbrd, sbply-sbblky, sft-sl firm, mod-psrt, argcmt, noncalc ; occphlog, occcalcincl &trmicr, occss



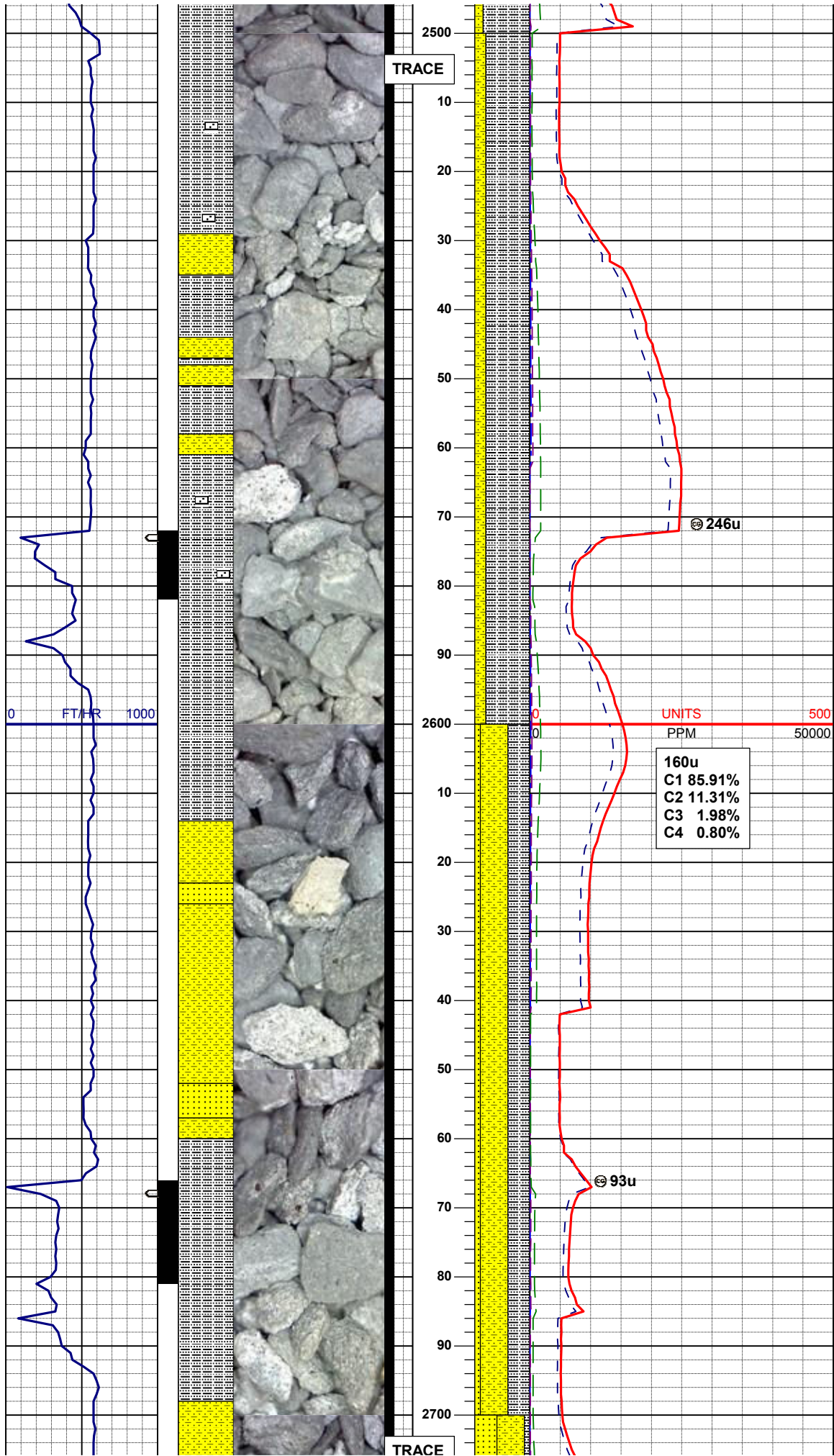
MUD WT: 8.4 VIS: 25 IN
MUD WT: 8.4 VIS: 25 OUT

SURVEY
MD 2330'
INC 12.5°
AZI 311.3°
TVD 2319.65'

90% SLTYSH: ltm-mgy, sl firm -sft, sbblky-plty, vfgr w/trintbdss, vsldcalc, grdg to
10% SHYSS: ltm-mgy, vf-fgr, sbang-sbrd, sbplty-sbblky, sft-sl firm, mod-psrt, argcmt, noncalc ; occss, trphlog, trcalcincl &trmicr

SURVEY
MD 2425'
INC 13.2°
AZI 317.2°
TVD 2412.27'

85% SLTYSH: m-mdkgy, firm - modsf, sbblky-plty, vfgr-slsdy w/trintbdss, vsldcalc, grdg to
15% SHYSS: m-mltgy, vf-fgr, sbang-sbrd, sbplty-sbblky, sft-sl firm, mod-psrt, argcmt, noncalc ; occss, trphlog, trcalcincl &trmicr



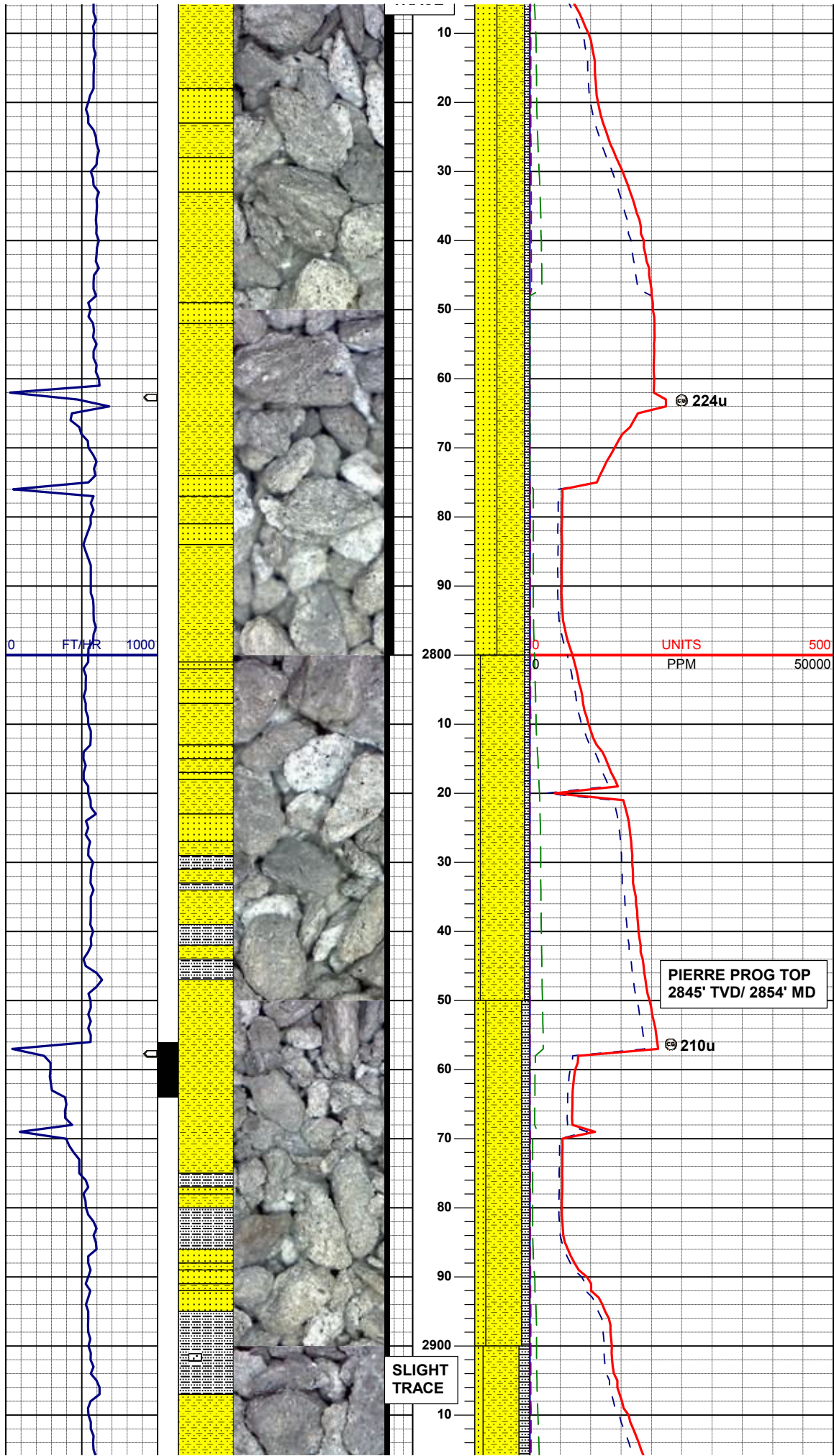
SURVEY
MD 2520'
INC 14.0°
AZI 316.2°
TVD 2504.61'

80% SLTYSH: m-mdkgy, firm -
modstf, sbblky-plty, vfgr-slsdy
w/trintbdss, vsclalc, grdg to
20% SHYSS: m-mltgy, vf-fgr, sbang-
sbrd, sbplty-sbblky, sft-sl firm, mod-
psrt, argcmt, noncalc ; occss, trphlog,
trcalcincl &trmicr

SURVEY
MD 2615'
INC 13.4°
AZI 319.9°
TVD 2595.93'

50% SHYSS: m-mltgy, vf-fgr, sbrd-
sbang, sbplty-sbblky, sft-sl firm, mod-
psrt, argcmt, slcalc, grdg to
40% SLTYSH: m-mdkgy, firm -
modstf, sbblky-plty, vfgr-slsdy
w/trintbdss, vsclalc,
10% SS: wh-ltgy, s&p, vf-mfgr, sbrd-
sbang, mod-wsrt, arg&calccmt ;
smecalcincl, trmicr, trphlog, trglau

SURVEY
MD 2709'
INC 13.4°
AZI 319.9°
TVD 2681.04'



INC 15.2°
AZI 314.1°
TVD 2687.99'

50% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbplty-sbbiky, sft-sl firm, mod-psrt, argcmt, slcalc, grdg to 40% SLTYSH: m-mdkgy, firm - modsf, sbbiky-plty, vfgr-slsdy w/trintbdss, vsalc, 10% SS: wh-ltgy, s&p, vf-mfgr, sbrd-sbang, mod-wsrt, arg&calccmt ; smecalcncl, trmicr, trphlog, trglau

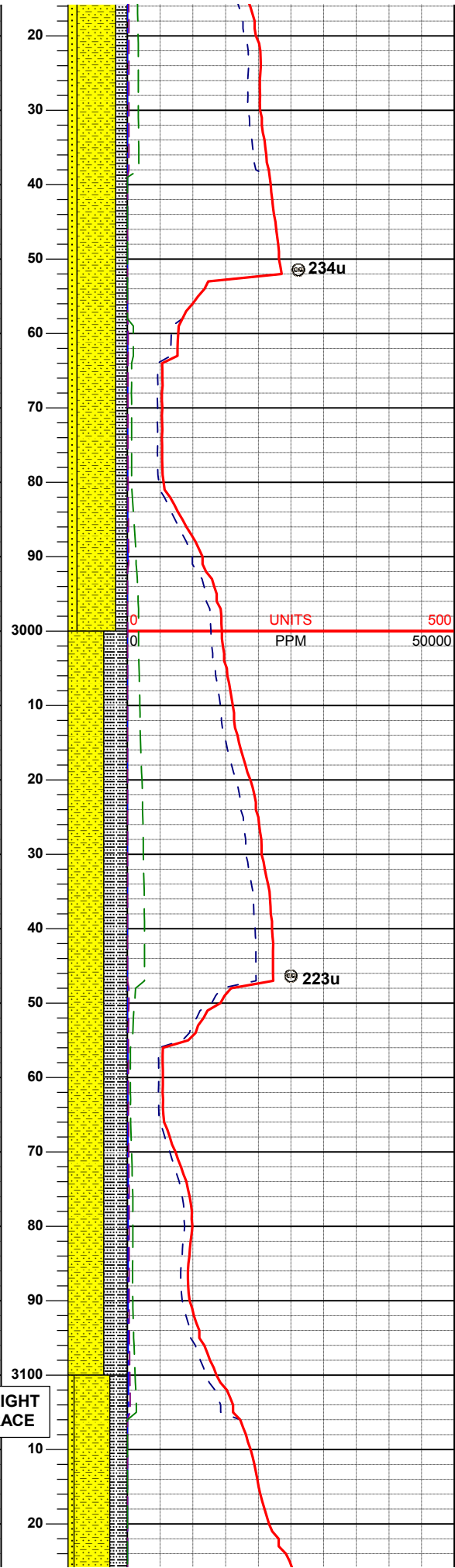
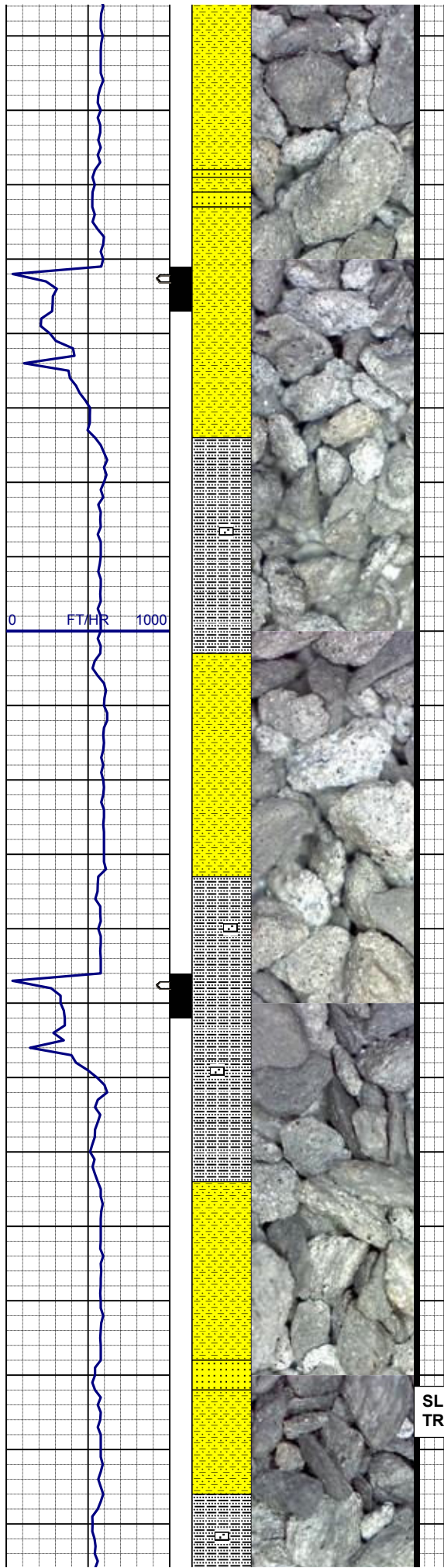
SURVEY
MD 2804'
INC 14.9°
AZI 311.6°
TVD 2779.73'

80% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbplty-sbbiky, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 10% SLTYSH: m-mdkgy, firm - modsf, sbbiky-plty, vfgr-slsdy w/trintbdss, vsalc, 10% SS: wh-ltgy, s&p, vf-mfgr, sbrd-sbang, mod-wsrt, arg&calccmt ; smecalcncl, trmicr, trphlog, trglau

PIERRE PROG TOP
2845' TVD/ 2854' MD

65% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbplty-sbbiky, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 20% SS: wh-ltgy, s&p, vf-mfgr, sbrd-sbang, mod-wsrt, arg&calccmt, 15% SLTYSH: m-mdkgy, firm - modsf, sbbiky-plty, vfgr-slsdy w/trintbdss, vsalc ; smecalcncl, smelamphlog, trmicr, trglau

SURVEY
MD 2899'
INC 15.4°
AZI 314.1°
TVD 2871.43'

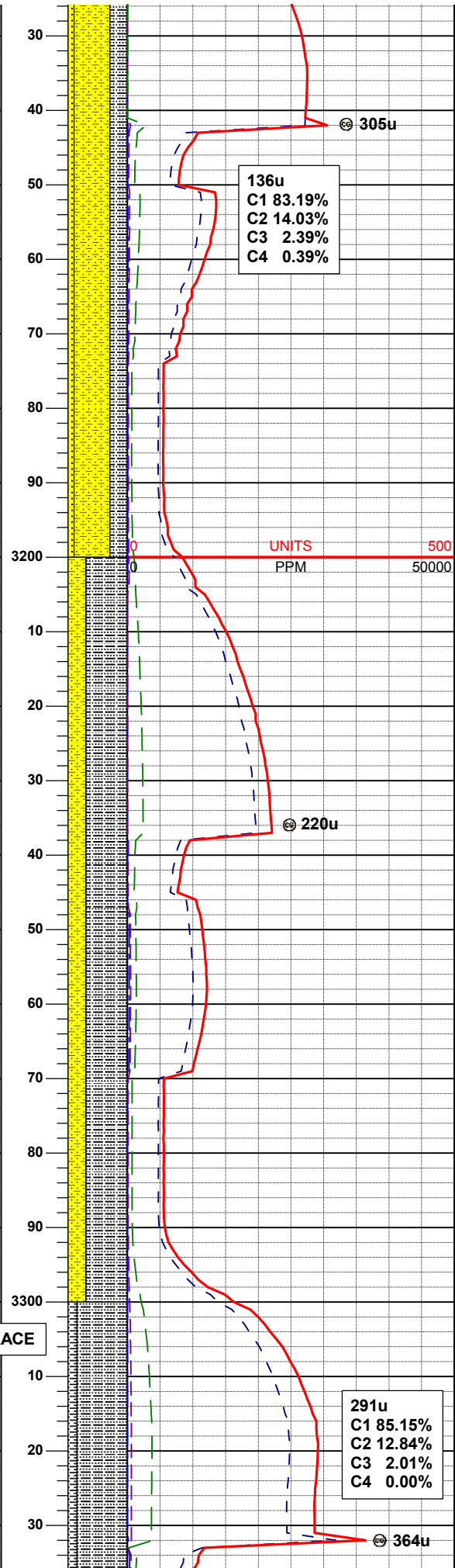
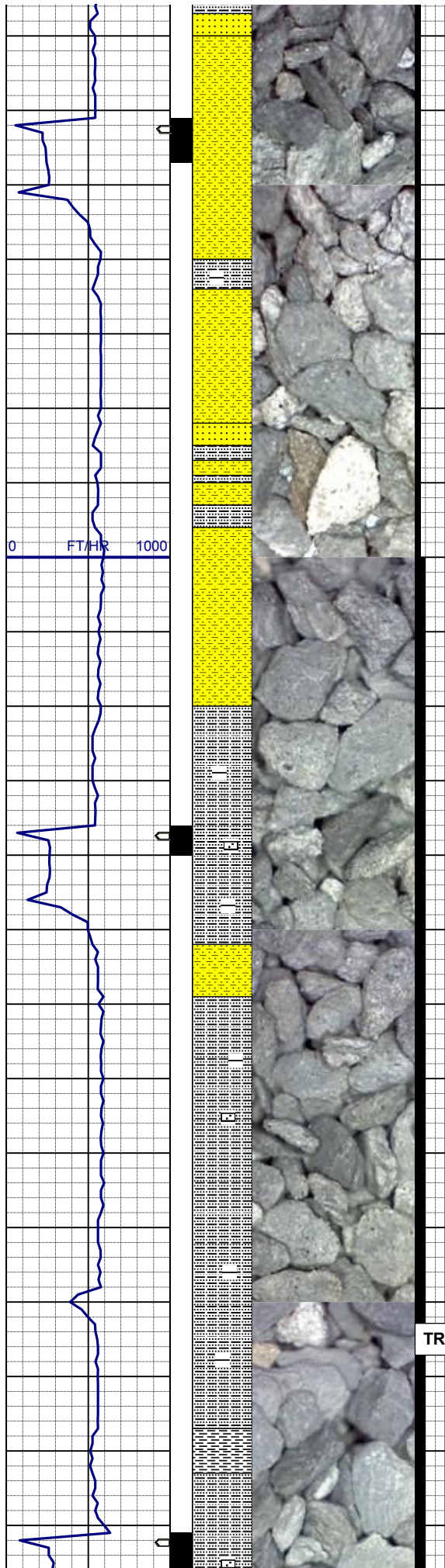


65% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbppty-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 20% SLTYSH: m-mdkgy, firm -modsf, sbblky-plty, vfgr-slsdy w/trintbdss, vsalc, 15% SS: wh-ltgy, s&p, vf-mfgr, sbrd-sbang, mod-wsrt, arg&calccmt, ; smecalcincl, smelamphlog, trmicr, trglau

SURVEY
MD 2994'
INC 15.5°
AZI 314.9°
TVD 2963.0'

60% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbppty-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 40% SLTYSH: m-mdkgy, firm -modsf, sbblky-plty, fgr-sdy w/trintbdss, vsalc ; scatss, smecalcincl, smelamphlog, occmicr, trsh, trglau, trpyrcotg

SURVEY
MD 3089'
INC 15.7°
AZI 313.9°
TVD 3054.5'



60% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbply-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 30% SLTYSH: m-mdkgy, firm -modsft, sbblky-plty, fgr-sdy w/trintbdss, vsalc, 10% SS: wh-ltgy, s&p, f-mfgr, sbrd-sbang, firm, fri, mod-wsrt, arg&calccmt ; smecalcncl, smelamphlog, occmicr, trsh, trglau, trpyrcotg

SURVEY
MD 3184'
INC 15.97°
AZI 316.7°
TVD 3145.91'

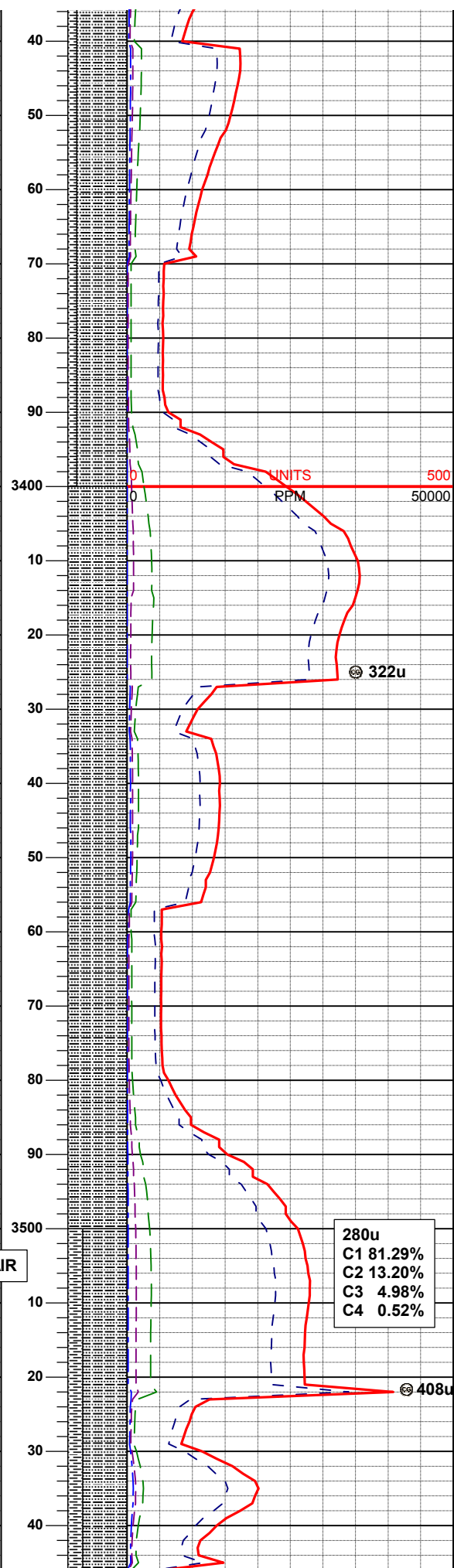
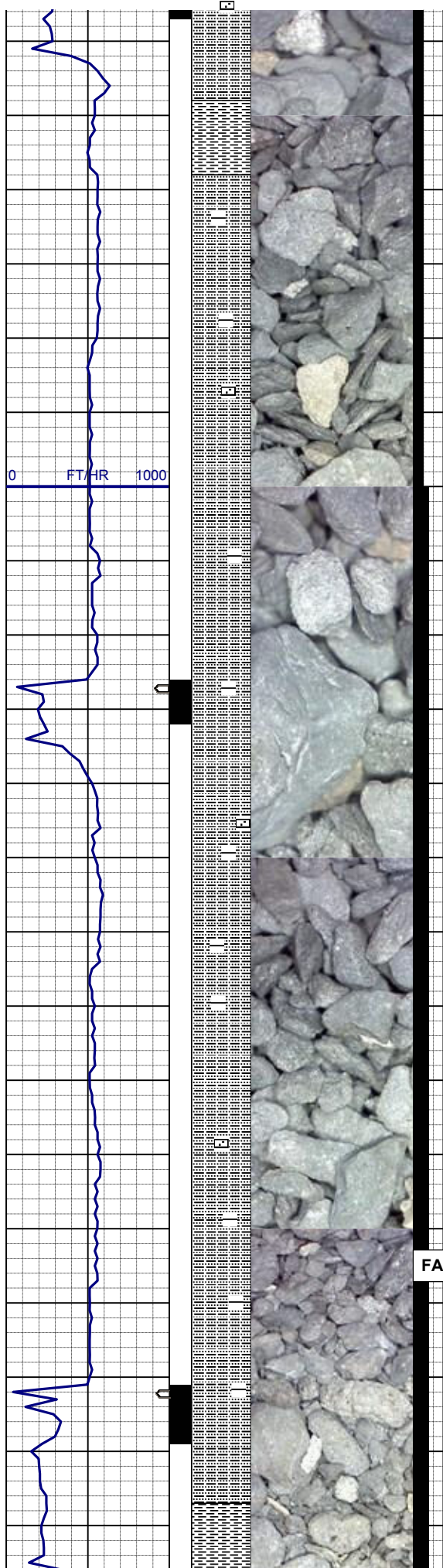
70% SLTYSH: m-mdkgy, firm -slhd, sbply-sbblky, occpity, fgr-slady w/trintbdss, vsalc, grdg to 30% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbply-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc ; smecalcncl, smelamphlog, occmicr, trss, trsh, trglau, trpyrcotg

SURVEY
MD 3279'
INC 14.0°
AZI 315.1°
TVD 3237.69'

MUD WT: 8.4 VIS: 25 IN
MUD WT: 8.4 VIS: 25 OUT

TRACE

291u
C1 85.15%
C2 12.84%
C3 2.01%
C4 0.00%



85% SLTYSH: m-mdkgy, firm -slhd, sbply-sbblky, occply, fgr-slsdy w/trintbdss, vslcalc, grdg to 15% SH: m-dkgy, firm -hd, sbply-plty, rthy-slsly, vslcalc ; occcalcincl, trlaphlog, trmicr, trss, trpyrcotg

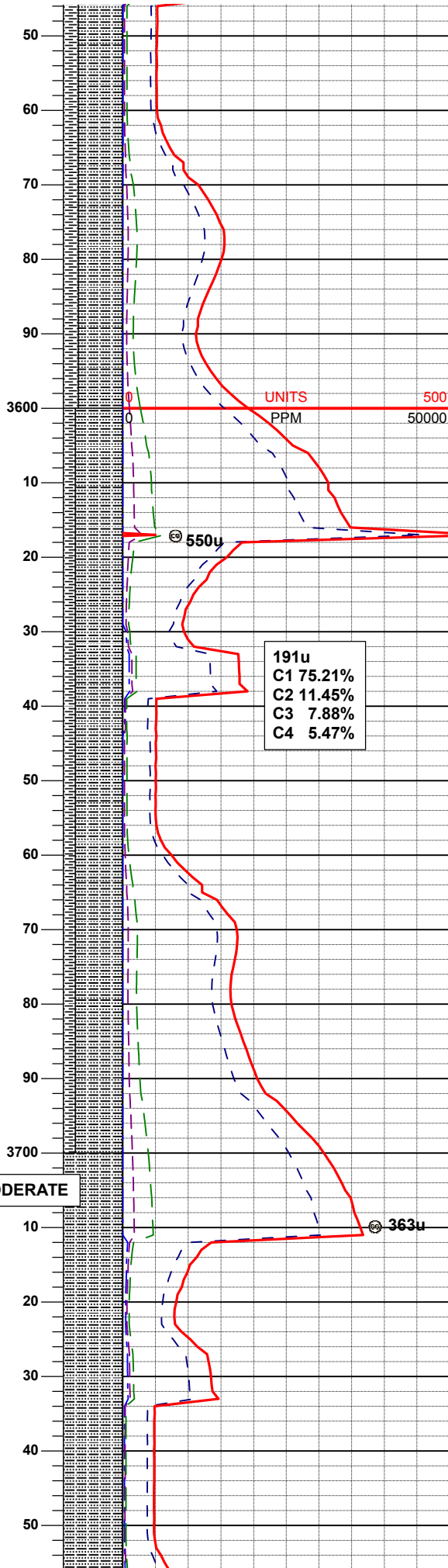
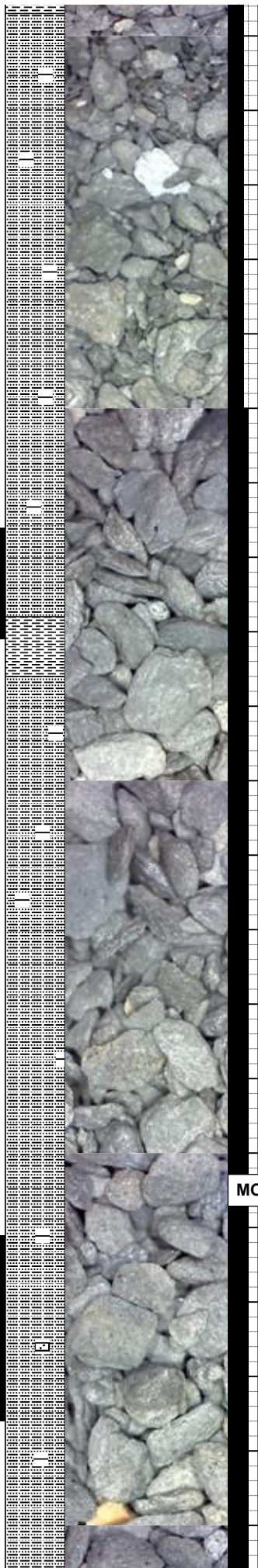
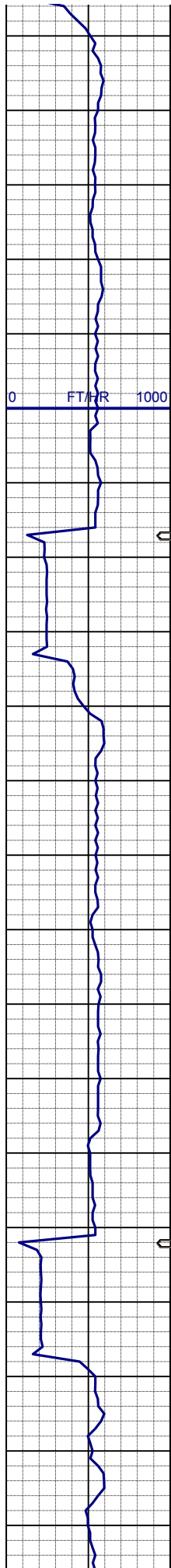
SURVEY
MD 3374'
INC 11.6°
AZI 312.8°
TVD 3330.33'

100% SLTYSH: m-mdkgy, firm -slhd, sbply-sbblky, occply, fgr-slsdy w/trintbdss, vslcalc ; scatshyss, scatsh, occmicr, trcalcincl, trlaphlog, trpyrcotg

SURVEY
MD 3469'
INC 9.8°
AZI 310.9°
TVD 3423.67'

280u
C1 81.29%
C2 13.20%
C3 4.98%
C4 0.52%

75% SLTYSH: ltm-mdkgy, firm -slhd, " " " " " "



smesft, sbply-sbbiky, occpity, tgr,
vsalc, grdg to
25% SH: m-dkgy, firm -hd, sbply-plty,
rthy-slsly, vsalc ; scatmicr,
trlamphlog, trpyrcotg

SURVEY
MD 3564'
INC 8.2°
AZI 315.1°
TVD 3517.50'

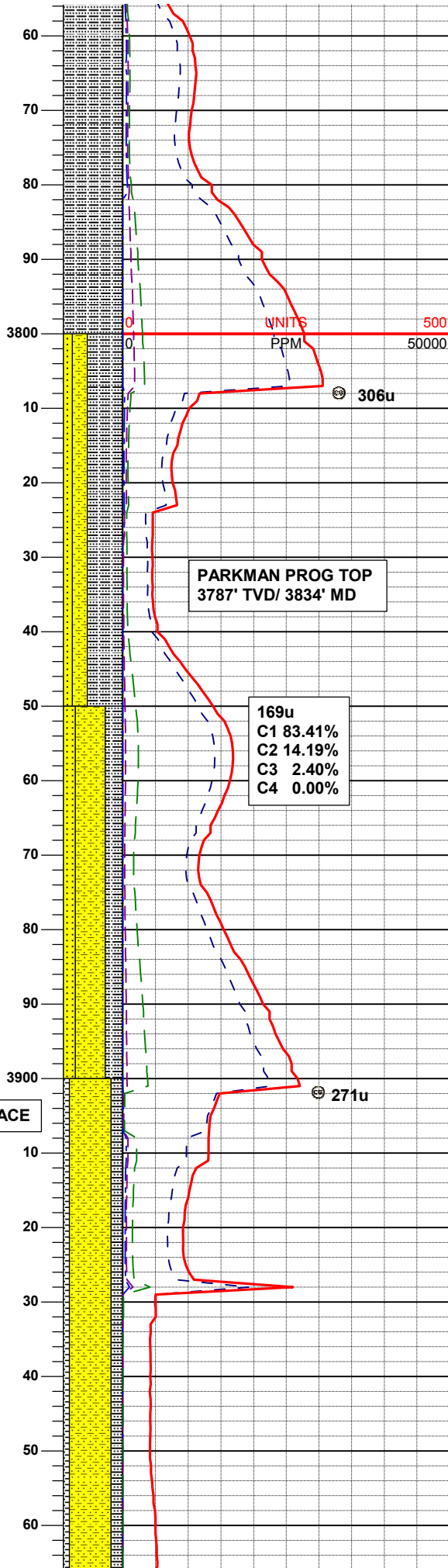
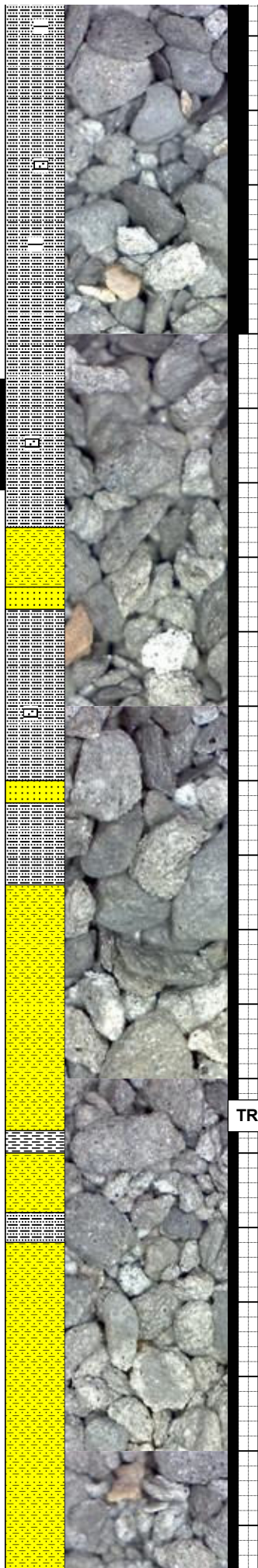
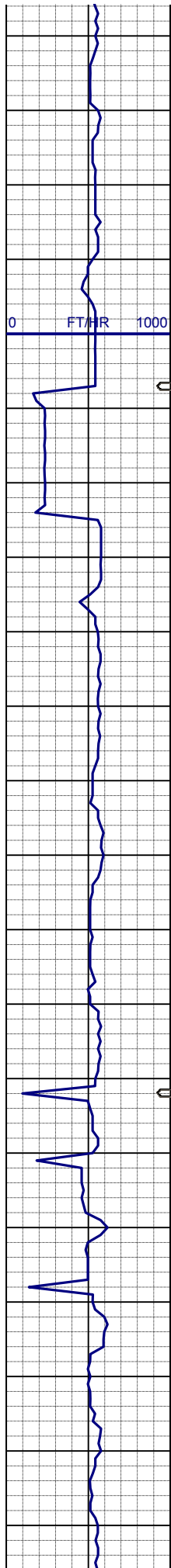
191u
C1 75.21%
C2 11.45%
C3 7.88%
C4 5.47%

80% SLTYSH: ltm-mdkgy, firm -slhd,
smesft, sbply-sbbiky, occpity, fgr,
vsalc, grdg to
20% SH: m-dkgy, firm -hd, sbply-plty,
rthy-slsly, vsalc ; trss, trmicr,
trlamphlog, trpyrcotg

SURVEY
MD 3659'
INC 5.5°
AZI 323.6°
TVD 3611.82'

MUD REPORT
3753' MD
Wt - 8.40
Vis - 26
pH - 9.0
YP - N/A
API flt - nc
Ck - 0/0
Chld - 600

100% SLTYSH: ltm-mdkgy, firm -slhd,
smesft, sbply-sbbiky, occpity, fgr,
vsalc, scat sh, occ shyss, trss,
trmicr, trlamphlog, trpyrcotg



SURVEY
MD 3754'
INC 2.8°
AZI 322.7°
TVD 3706.56'

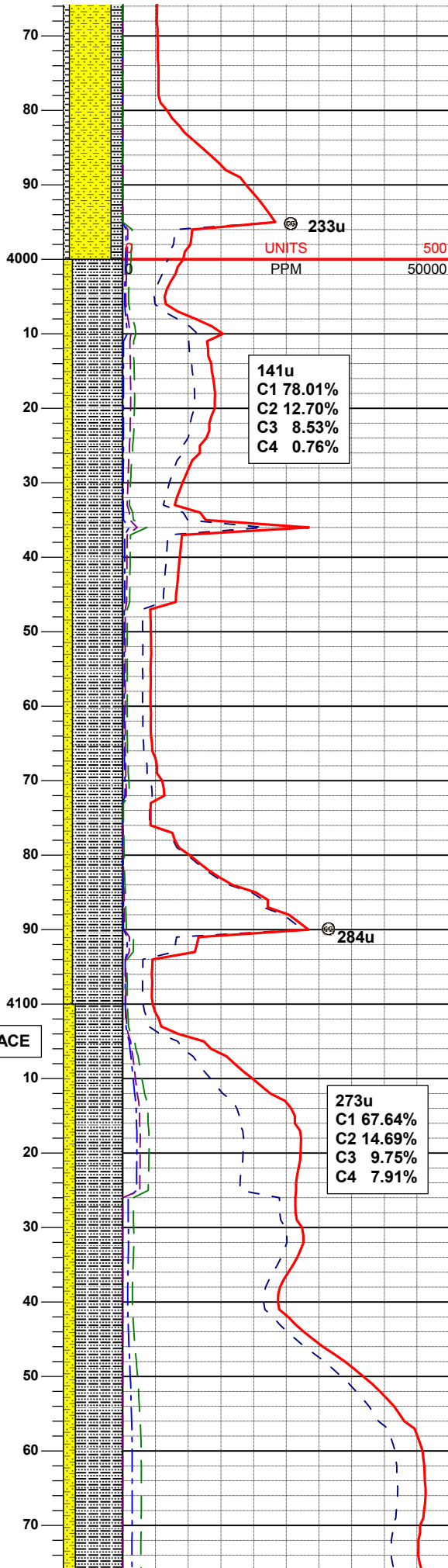
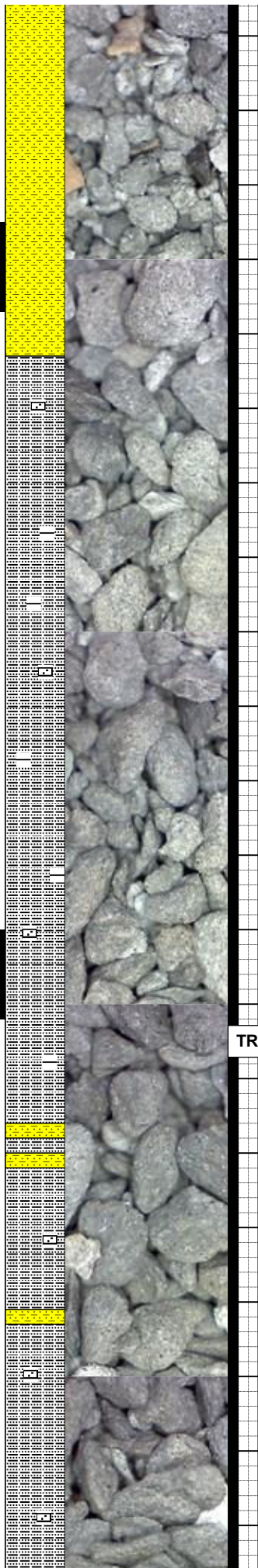
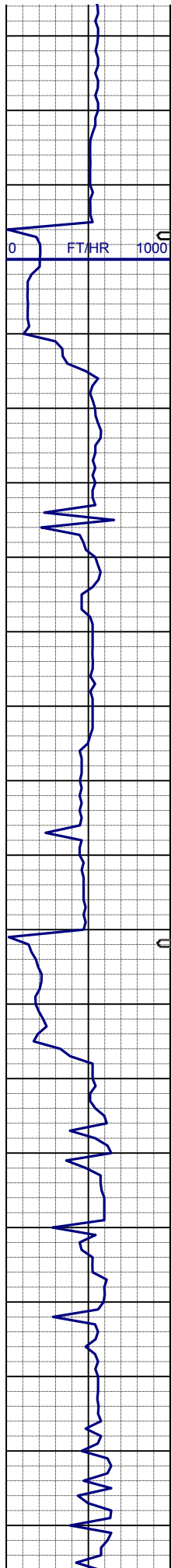
60% SLTYSH: m-mdkgy, firm - modsft, sbbly-pty, vfgr-slsdy w/trintbdss, vsalc,
25% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbply-sbbly, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 15% SS: wh-ltgy, s&p, vf-mfgr, sbrd-sbang, mod-wsrt, arg&calcc, tr sec calcite, tr glau, tr phlog

SURVEY
MD 3849'
INC 0.6°
AZI 296.8°
TVD 3801.51'

50% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbply-sbbly, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 30% SLTYSH: m-mdkgy, firm - modsft, sbbly-pty, vfgr-slsdy w/trintbdss, vsalc,
20% SS: wh-ltgy, s&p, vf-mfgr, sbrd-sbang, mod-wsrt, arg&calccmt, ; smecalclncl, smelamphlog, trmicr, trglau

SURVEY
MD 3943'
INC 0.7°
AZI 300.5°
TVD 3895.50'

70% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbply-sbbly, sl firm -occsft, mod-psrt, argcmt, slcalc, grdg to 20% SLTYSH: ltm-mdkgy, firm -slhd, smesft, sbply-sbbly, occply, fgr, vsalc
10% SH: m-dkgy, firm -hd, sbply-pty, rthy-slsly, vsalc ; smess, trmicr, triamphlog, trpyrcotg

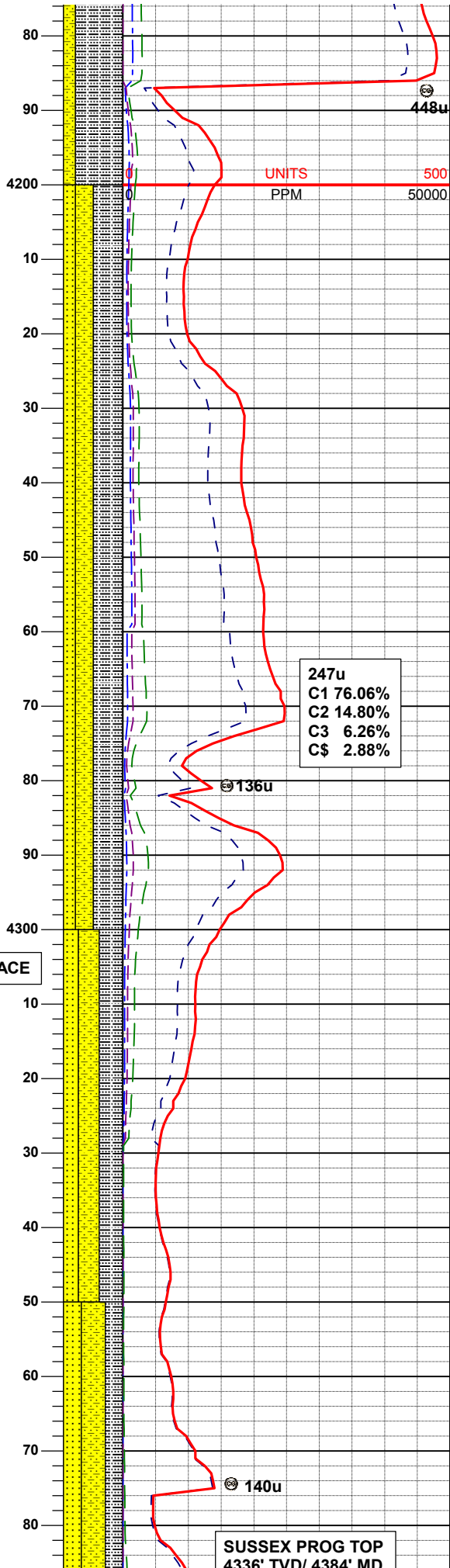
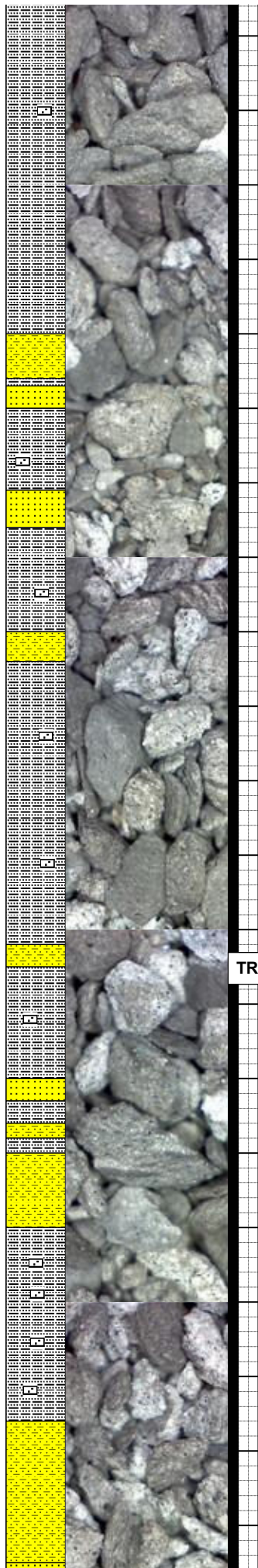
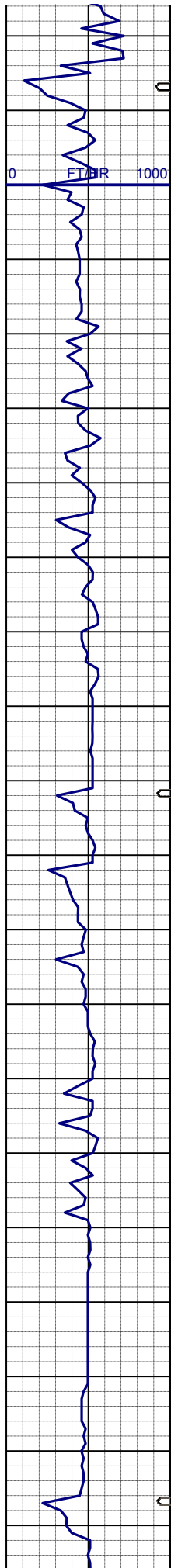


SURVEY
MD 4038'
INC 1.0°
AZI 49.7°
TVD 3990.50'

85% SLTYSH: m-mdkgy, firm -slhd, sbply-sbblky, occpity, fgr-slidy w/intbdss, vsalc, grdg to 15% SHYSS: m-mltgy, vf-fgr, sbdr-sbang, sbply-sbblky, sl firm -occsft, mod-psrt, argcm, slcalc ; smelamphlog, occmicr, trss, trsh, trglau, trpyrcotg

SURVEY
MD 4133'
INC 1.7°
AZI 110.0°
TVD 4085.48'

80% SLTYSH: m-mdkgy, firm -slhd, sbply-sbblky, occpity, fgr-slidy w/trintbdss, vsalc, grdg to 20% SHYSS: m-mltgy, vf-fgr, sbdr-sbang, sbply-sbblky, sl firm -occsft, mod-psrt, argcm, slcalc ; phlog, trglau, trpyrcotg



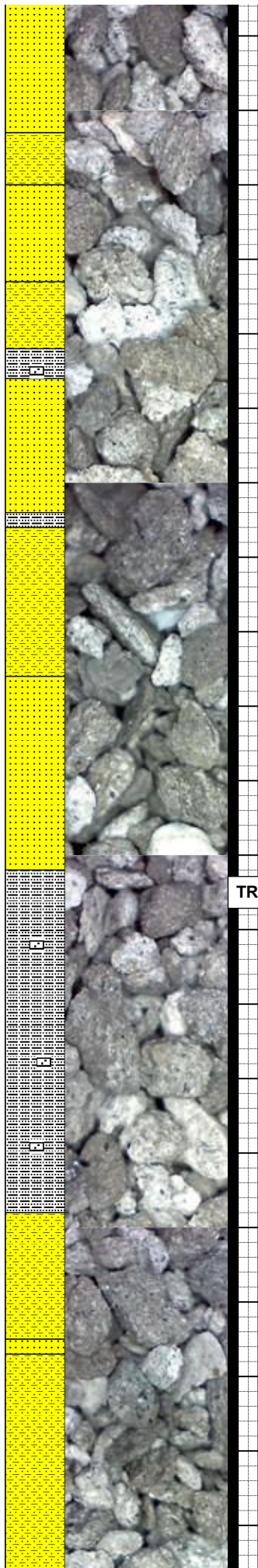
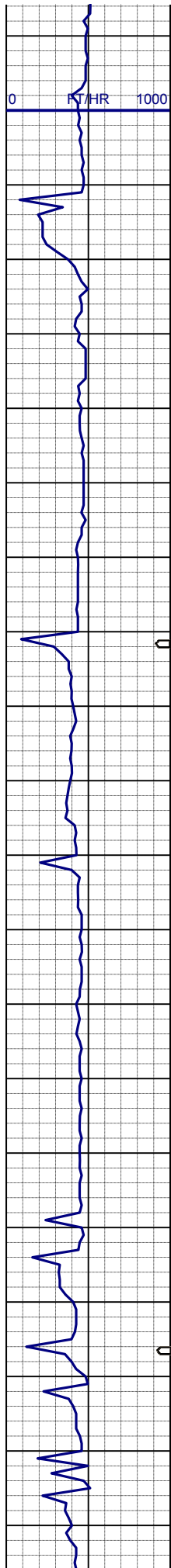
SURVEY
MD 4228'
INC 1.2°
AZI 112.1°
TVD 4180.44'

50% SLTYSH: m-mdkgy, firm -
modsf, sbblky-plty, vfgr-slsdy
w/trintbdss, vsclalc, grdg to
30% SHYSS: m-mltgy, vf-fgr, sbdr-
sbang, sbplty-sbblky, sl firm -occsft,
mod-psrt, argcmt, slcalc,
20% SS: wh-ltgy, s&p, vf-mfgr, sbdr-
sbang, mod-wsrt, arg&calcc, phlog, tr
glau

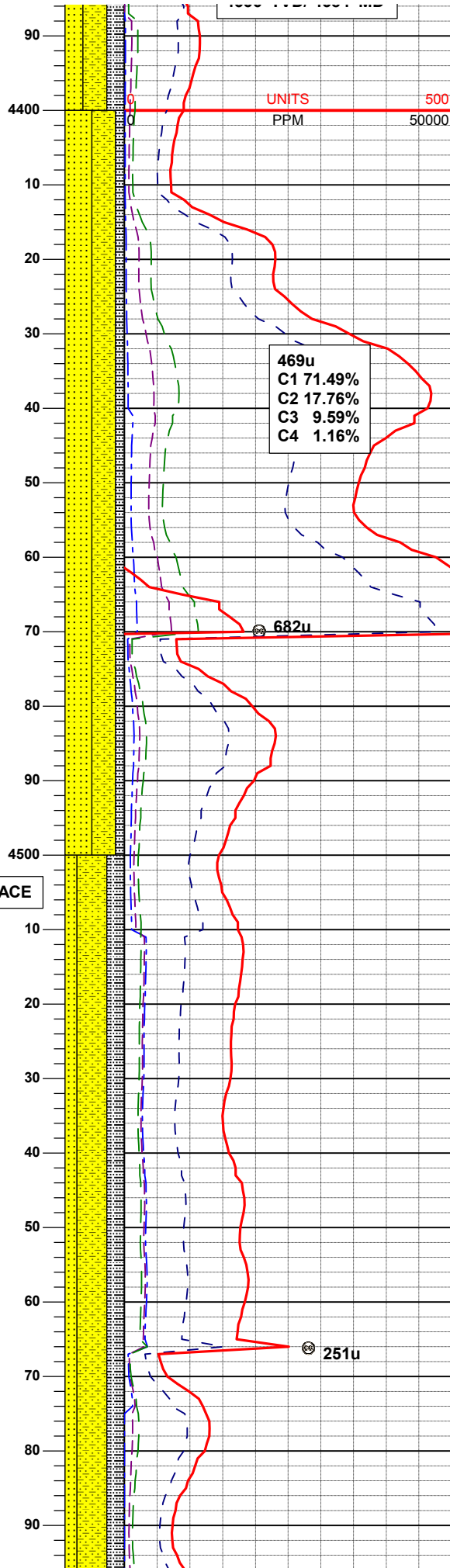
SURVEY
MD 4322'
INC 1.1°
AZI 113.7°
TVD 4275.43'

40% SLTYSH: m-mdkgy, firm -
modsf, sbblky-plty, vfgr-slsdy
w/trintbdss, vsclalc, grdg to
35% SHYSS: m-mltgy, vf-fgr, sbdr-
sbang, sbplty-sbblky, sl firm -occsft,
mod-psrt, argcmt, slcalc,
25% SS: wh-ltgy, s&p, vf-mfgr, sbdr-
sbang, mod-wsrt, arg&calcc, phlog, tr
glau

40% SHYSS: m-mltgy, vf-fgr, sbdr-
sbang, sbplty-sbblky, sl firm -occsft,
mod-psrt, argcmt, slcalc, grdg to
30% SLTYSH: m-mdkgy, firm -
modsf, sbblky-plty, vfgr-slsdy
w/smeintbdss, vsclalc,
30% SS: wh-ltgy, s&p, vf-mfgr, sbdr-
sbang, mod-wsrt, arg&calcc, phlog, tr
glau



TRACE

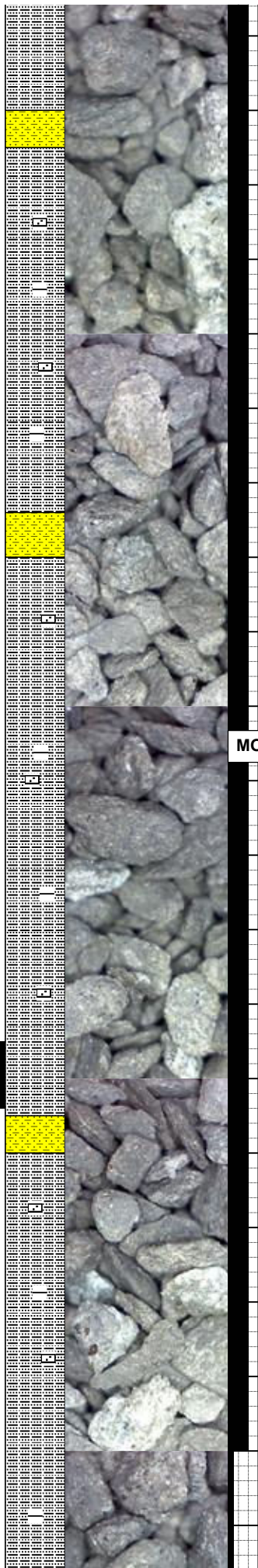
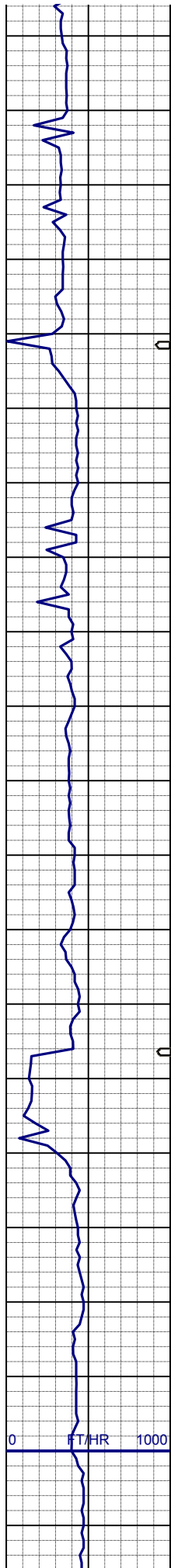


SURVEY
MD 4418'
INC 1.0°
AZI 117.0°
TVD 4370.41'

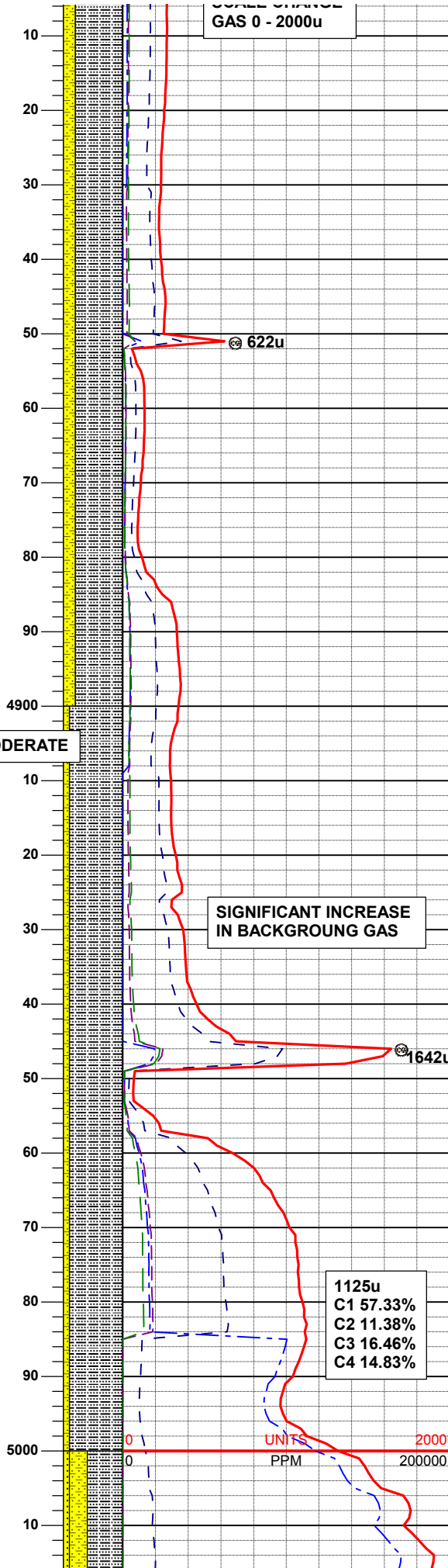
45% SS: wh-ltgy, s&p, vf-mfgr, sbdr-sbang, mod-wsrt, arg&calcc, grd to 40% SHYSS: m-mltgy, vf-fgr, sbdr-sbang, sbplty-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc, 15% SLTYSH: m-mdkgy, firm - modsf, sbblky-plty, vfgr-slsdy w/smeintbdss, vsiscalc, phlog, tr glau

SURVEY
MD 4513'
INC 1.1°
AZI 110.9°
TVD 4465.39'

50% SHYSS: m-mltgy, vf-fgr, sbdr-sbang, sbplty-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc, grd to 30% SLTYSH: m-mdkgy, firm - modsf, sbblky-plty, vfgr-slsdy w/smeintbdss, vsiscalc, 20% SS: wh-ltgy, s&p, vf-mfgr, sbdr-sbang, mod-wsrt, arg&calcc, phlog, tr glau, tr sec calcite



MODERATE



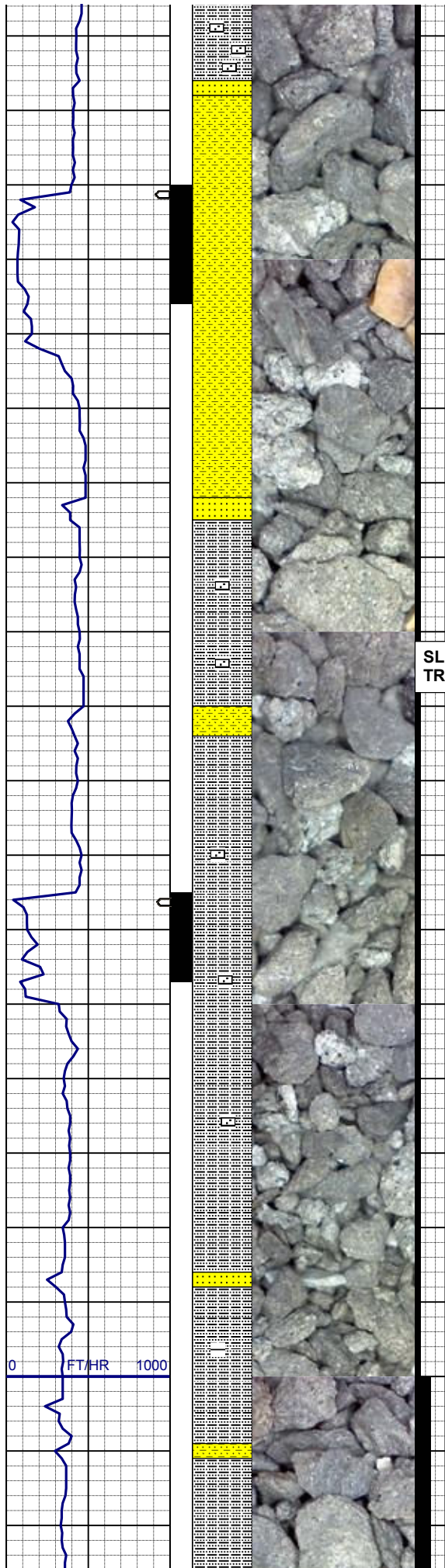
80% SLTYSH: m-mdkgy, firm -slhd, sbplty-sbblky, occplty, fgr-slady w/trintbdss, vsclalc, grdg to 20% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbplty-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc ; phlog, trss, tr sh, trglau, tr pyrctd

SURVEY
MD 4893'
INC 1.3°
AZI 126.5°
TVD 4845.35'

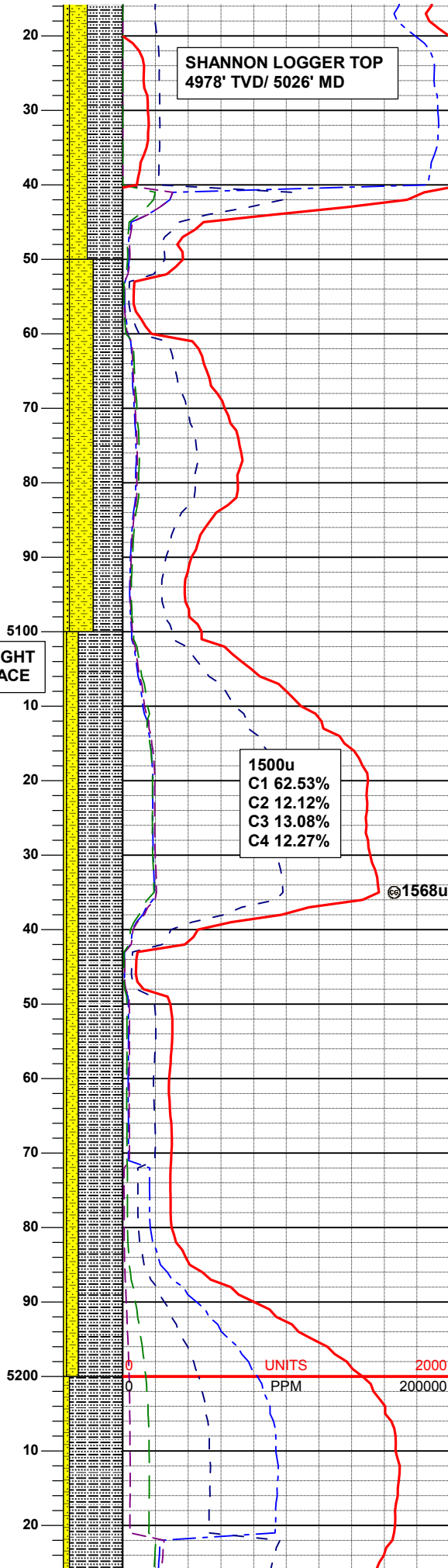
90% SLTYSH: m-mdkgy, firm -slhd, sbplty-sbblky, occplty, fgr-slady w/trintbdss, vsclalc, grdg to 10% SHYSS: m-mltgy, vf-fgr, sbrd-sbang, sbplty-sbblky, sl firm -occsft, mod-psrt, argcmt, slcalc ; phlog, trss, tr sh, trglau

SURVEY
MD 4988'
INC 2.7°
AZI 93.3°
TVD 4940.29'

60% SLTYSH: m-mdkav. firm -



SLIGHT
TRACE



SHANNON LOGGER TOP
4978' TVD/ 5026' MD

1500u
C1 62.53%
C2 12.12%
C3 13.08%
C4 12.27%

1568u

modsf, sbbly-plty, vfgr-slsdy
w/smeintbdss, vsicalc, grd to
30% SHYSS: m-mltgy, vf-fgr, sbrd-
sbang, sbply-sbbly, sl firm -occsft,
mod-psrt, argcmt, slcalc,
10% SS: wh-ltgy, s&p, vf-mfgr, sbrd-
sbang, mod-wsrt, arg&calcc, phlog, tr
glau, tr sh

50% SLTYSH: m-mdkgy, firm -
modsf, sbbly-plty, vfgr-slsdy
w/smeintbdss, vsicalc, grd to
40% SHYSS: m-mltgy, vf-fgr, sbrd-
sbang, sbply-sbbly, sl firm -occsft,
mod-psrt, argcmt, slcalc,
10% SS: wh-ltgy, s&p, vf-mfgr, sbrd-
sbang, mod-wsrt, arg&calcc, phlog, tr
glau, tr sh

SURVEY
MD 5083'
INC 1.7°
AZI 133.7°
TVD 5035.22'

75% SLTYSH: m-mdkgy, firm -
modsf, sbbly-plty, vfgr-slsdy
w/smeintbdss, vsicalc, grd to
20% SHYSS: m-mltgy, vf-fgr, sbrd-
sbang, sbply-sbbly, sl firm -occsft,
mod-psrt, argcmt, slcalc,
5% SS: wh-ltgy, s&p, vf-mfgr, sbrd-
sbang, mod-wsrt, arg&calcc, phlog

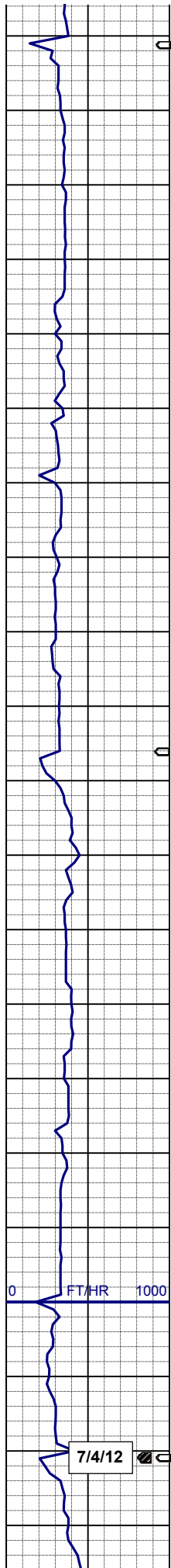
SURVEY
MD 5178'
INC 0.4°
AZI 22.4°
TVD 5130.21'

UNITS

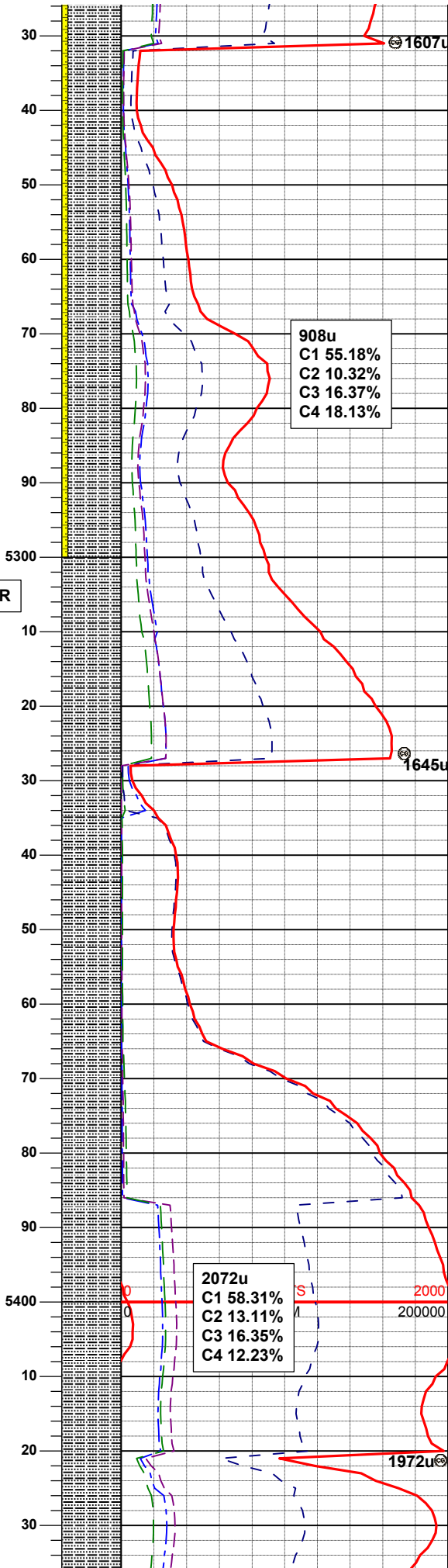
PPM

2000

200000



FAIR



90% SLTYSH: m-mdkgy, firm -
modsf, sbbly-plty, vfgr-slsdy
w/trintbdss, vsclac, grd to
10% SHYSS: m-mltgy, vf-fgr, sbrd-
sbang, sbply-sbbly, sl firm -occsft,
mod-psrt, argcmt, slcalc, phlog, tr sh,
tr ss

SURVEY
MD 5273'
INC 0.5°
AZI 75.9°
TVD 5225.21'

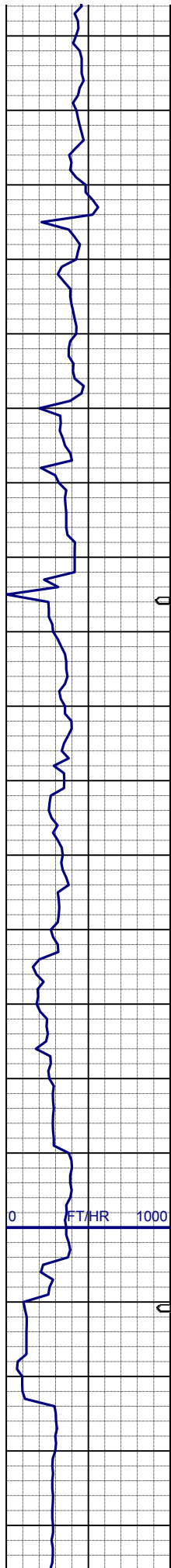
908u
C1 55.18%
C2 10.32%
C3 16.37%
C4 18.13%

100% SLTYSH: m-mdkgy, firm -
modsf, sbbly-plty, vfgr-slsdy
w/trintbdss, vsclac, phlog, tr sh, tr
shyss, trpyrctd

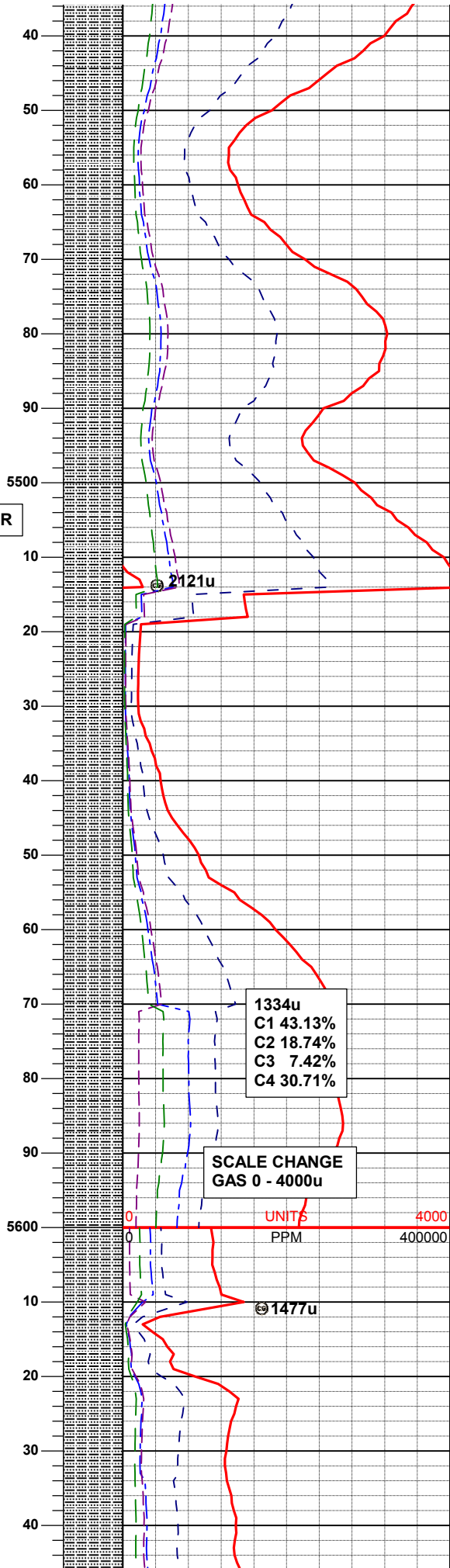
SURVEY
MD 5368'
INC 0.6°
AZI 60.2°
TVD 5320.20'

2072u
C1 58.31%
C2 13.11%
C3 16.35%
C4 12.23%

1972u



FAIR



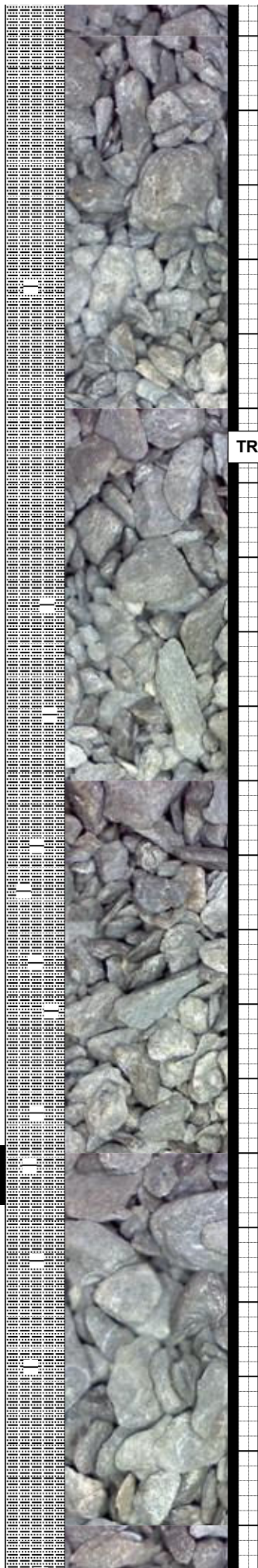
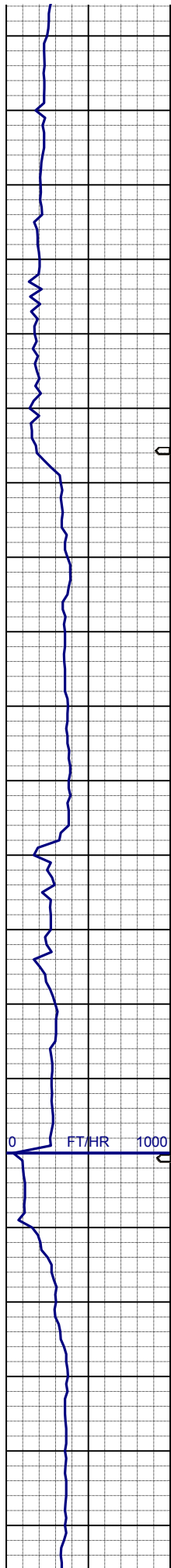
100% SLTYSH: m-mdkgy, firm -
modsf, sbbiky-plty, vfgr-slsdy
w/trintbdss, vsldcalc, trphlog, tr sh,
trpyrctd

SURVEY
MD 5462'
INC 0.6°
AZI 40.4°
TVD 5414.20'

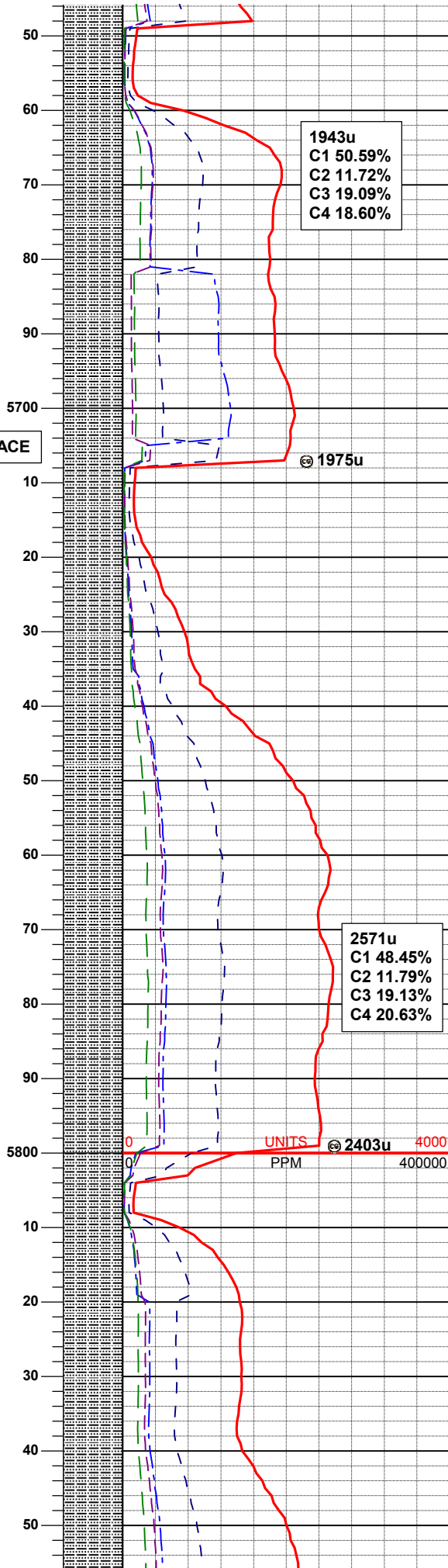
100% SLTYSH: m-mdkgy, firm -
modsf, sbbiky-plty, vfgr-slsdy
w/trintbdss, vsldcalc, sme sh, trphlog,
trpyrctd

SURVEY
MD 5557'
INC 0.5°
AZI 49.7°
TVD 5509.19'

100% SLTYSH: m-mdkgy, firm



TRACE



100% SLTYSH: m-mdkgy, firm -
modstf, sbbiky-plty, vfgr-slsdy
w/trintbdss, vsclalc, trsh, trphlog,
trpyrctd, vtrshyss

SURVEY
MD 5652'
INC 1.0°
AZI 114.2°
TVD 5604.19'

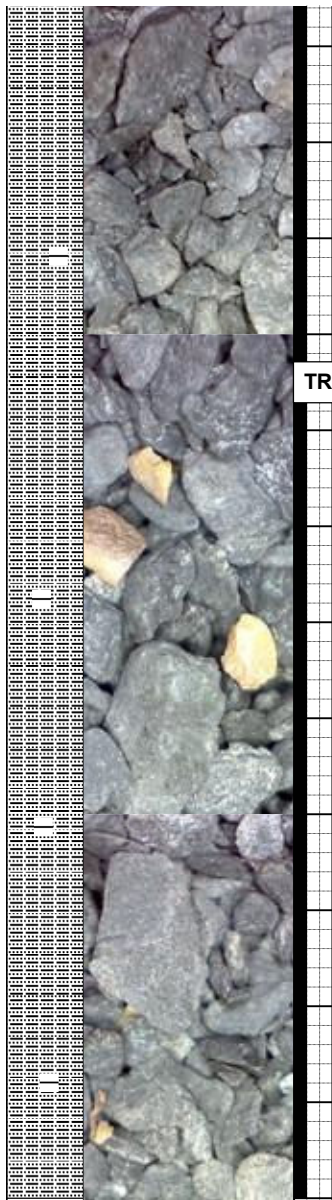
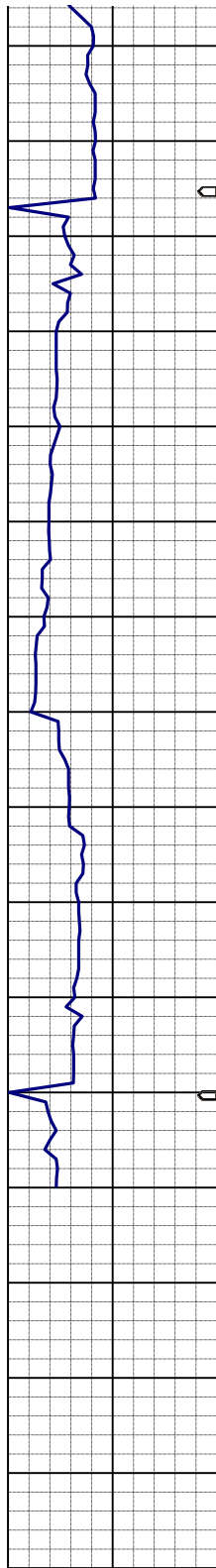
MUD WT: 8.9+ VIS: 29 IN
MUD WT: 8.9 VIS: 28 OUT

SURVEY
MD 5747'
INC 1.1°
AZI 110.9°
TVD 5699.17'

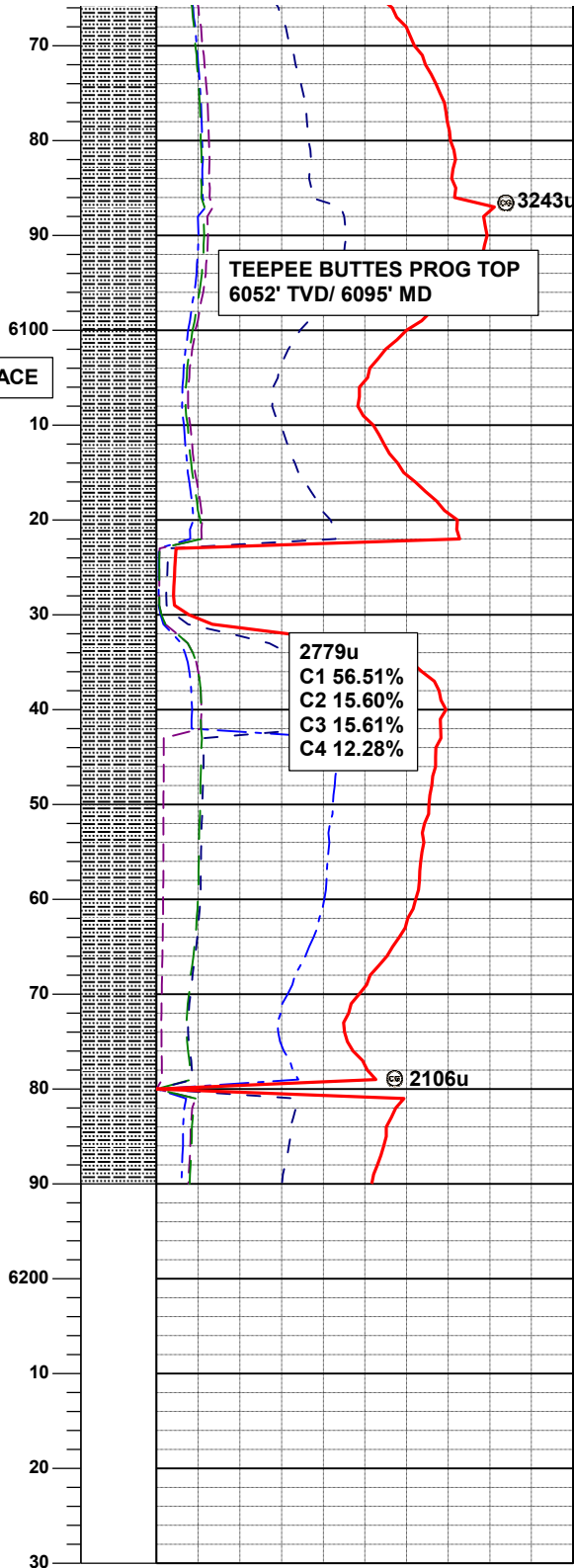
100% SLTYSH: m-mdkgy, firm -
modstf, sbbiky-plty, vfgr-slsdy
w/trintbdss, vsclalc, smesh, trphlog,
trpyrctd

SURVEY
MD 5842'
INC 0.8°
AZI 75.9°
TVD 5794.16'

100% SLTYSH: m-mdkgy, firm -
modstf, sbbiky-plty, vfgr-slsdy
w/trintbdss, vsclalc, smesh, trphlog,
trpyrctd



TRACE



100% SLTYSH: m-mdkbrngy, sme mlt, firm -modsft, sbplty-pty, occsbbiky, vfgr-slstdy, vsiscalc, lamphlog, occsh, occss, trmicr, trbent, trpyrctd

100% SLTYSH: m-mdkbrngy, sme mlt, firm -modsft, sbplty-pty, occsbbiky, vfgr-slstdy, vsiscalc, lamphlog, scatshyss, occss, trsh, trpyrctd

100% SLTYSH: m-mdkbrngy, sme mlt, firm -modsft, sbplty-pty, occsbbiky, vfgr-slstdy, vsiscalc, lamphlog, scatshyss, occss, trsh, trpyrctd

TD VERTICAL @ 6190' MD
7/04/2012 05:27 MST

LOG CONTINUES ON
L PLOT GUTTERSEN
D30-68-1HN HORIZONTAL

THANK YOU FOR USING
COLUMBINE LOGGING INC.