

LOG created using Lplot VH Version 3.0, May 02, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: NOBLE ENERGY INC.
WELL: SAUER F33-78-1HN
LOCATION: SESW SEC 33 T5N R65W
COUNTY: WELD
STATE: COLORADO
SPOT: 238' FSL, 1,542' FWL
ELEVATION: 4,671' GL, 4,684' KB
FIELD: WATTENBERG
SPUD DATE: 04/24/2013
TD DATE: 05/02/2013
DATES LOGGED: 04/25/2013 - 05/02/2013
DEPTHS LOGGED: 618' - 11,122'
LOGGERS: KYLE KNIGHT, NATHAN MURPHY
DRILLING FLUID: FW, LSND
DRILLING RIG: ENSIGN 121
API: 05-123-35635
LOG TYPE: VERTICAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: Wellsite Geological Services Provided By Columbine Logging Inc.
 LAT, LONG: 40.34913/-104.67233

LITHOLOGIES



No Sample



Sandstone



Shaly Sandstone



Shaly Siltstone



Silty Shale

ENGINEERING SYMBOLS



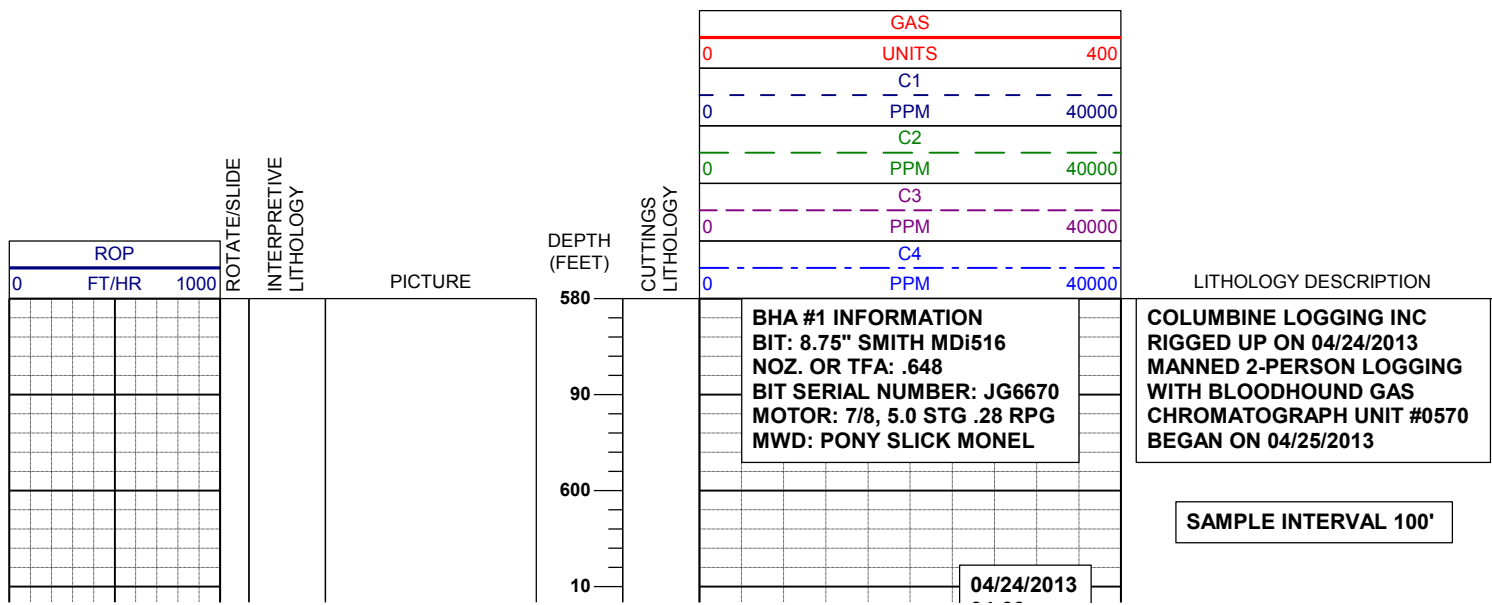
Connection



Connection Gas

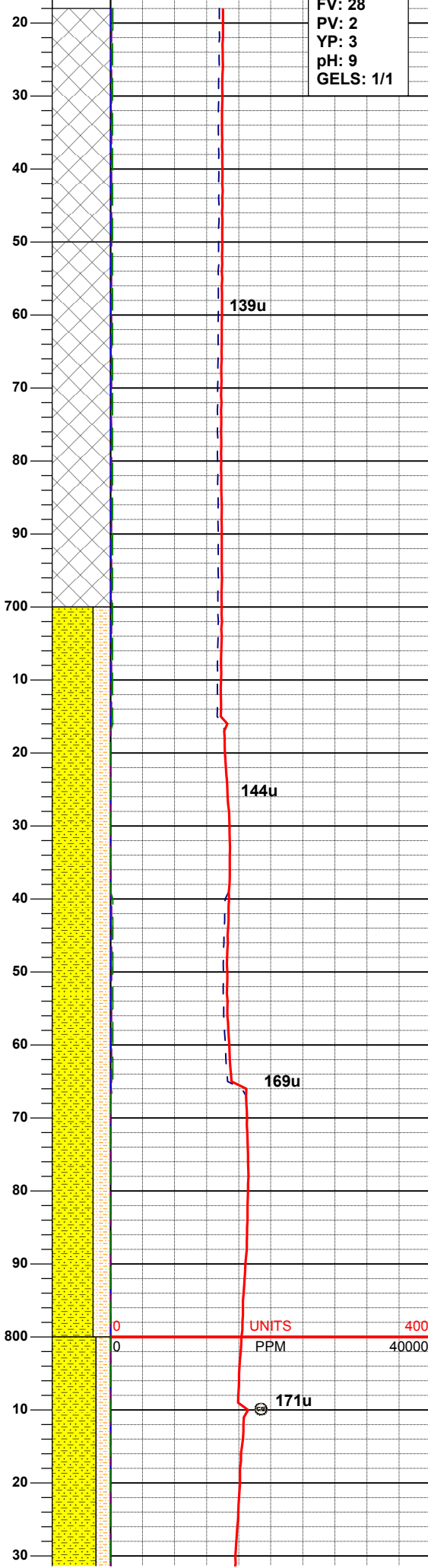
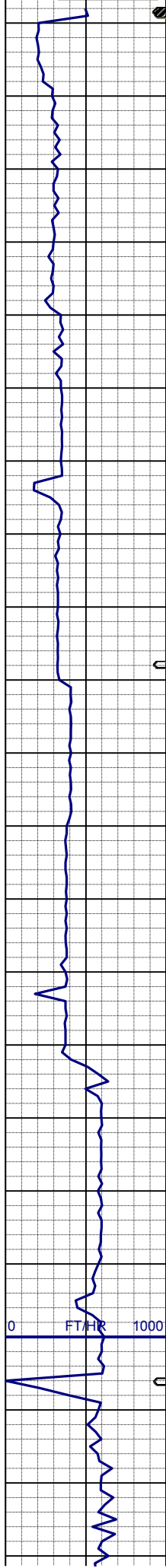


Midnight Depth



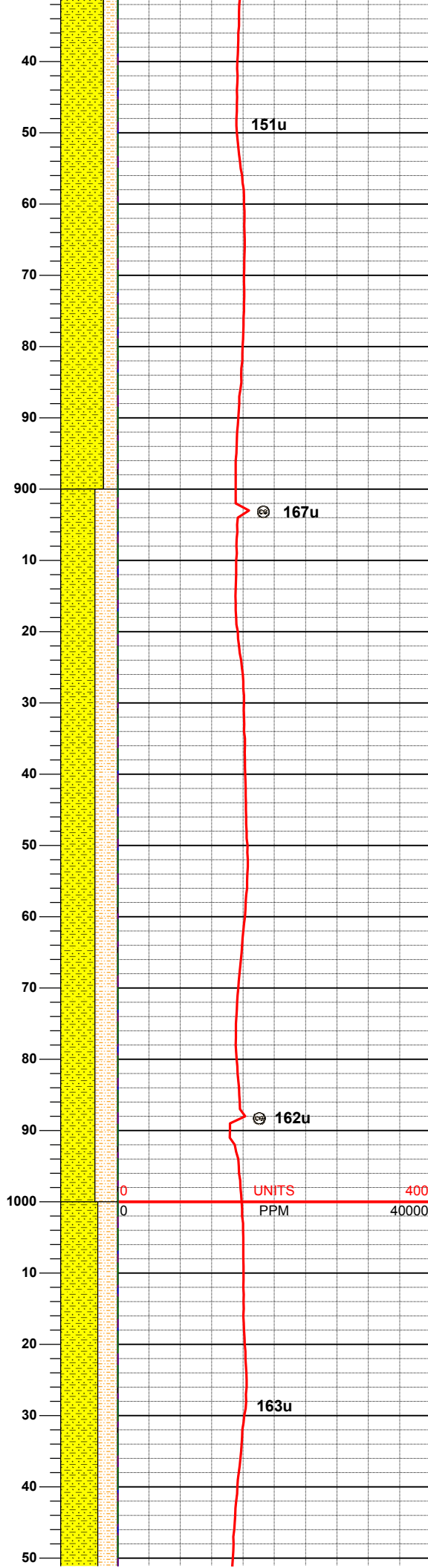
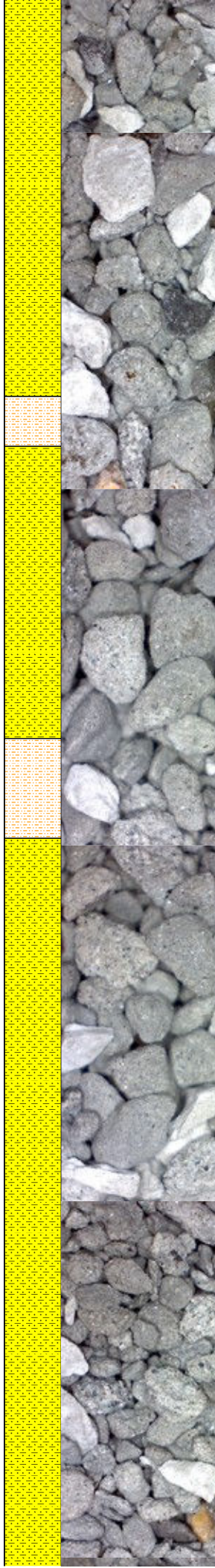
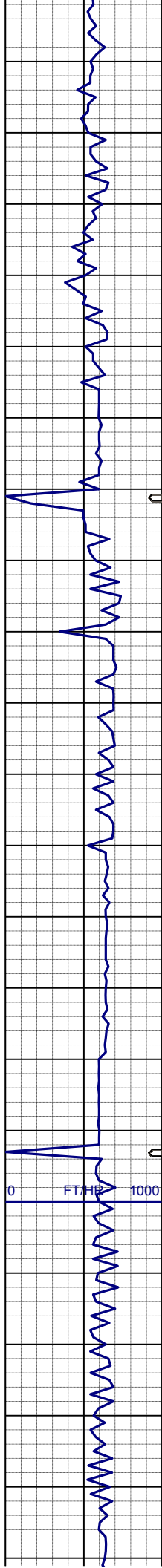
04/25/2013

04:00
MW: 8.4
FV: 28
PV: 2
YP: 3
pH: 9
GELS: 1/1



CMT

CMT:
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog
SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtx



SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog
SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtz

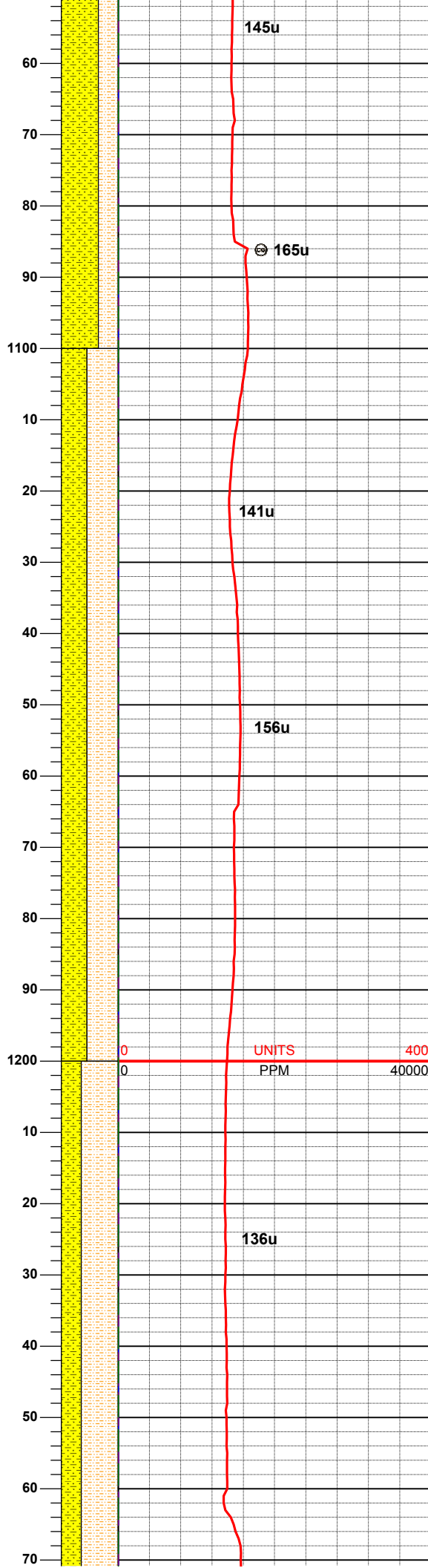
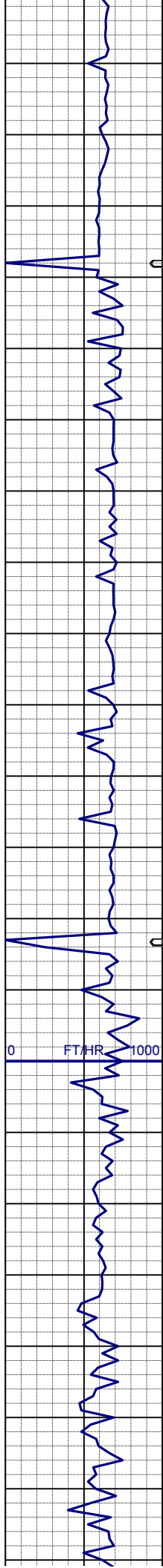
MUD WT: 8.4 VIS: 26 IN
MUD WT: 8.5 VIS: 26 OUT

SURVEY
MD 943'
INC 0.5°
AZI 193.5°
TVD 942.98'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss

SURVEY
MD 1038'
INC 0.3°
AZI 181.7°
TVD 1037.98'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,



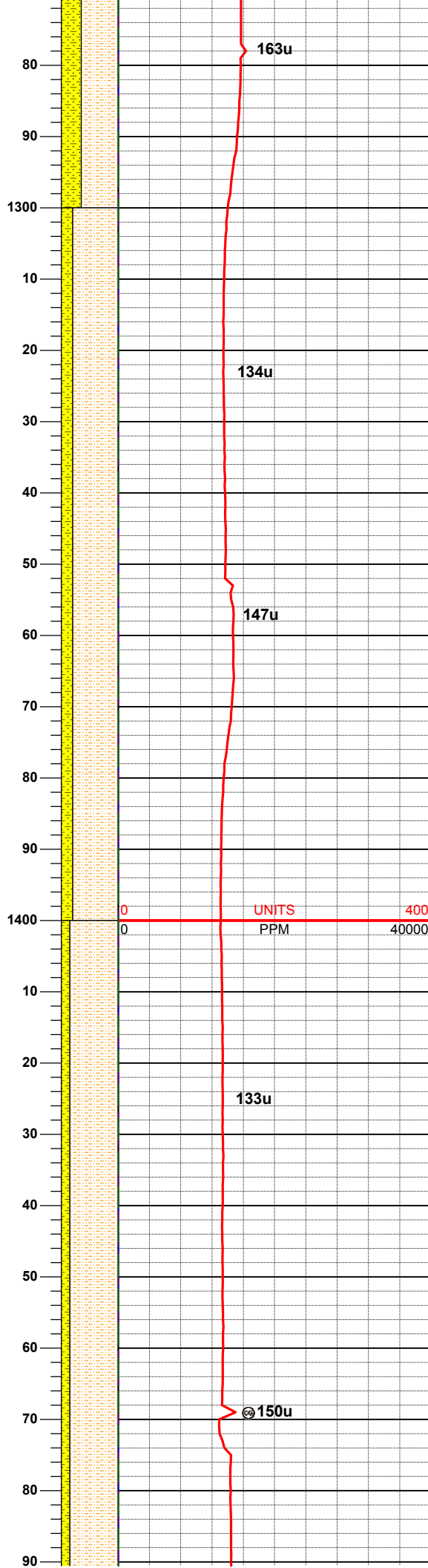
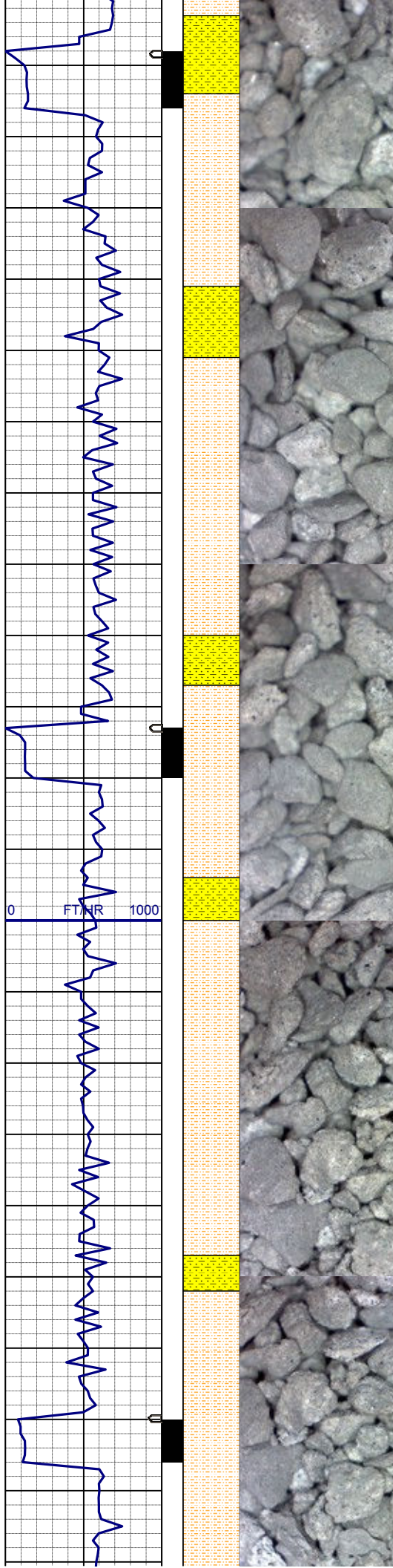
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss

SURVEY
MD 1133'
INC 0.5°
AZI 207.6°
TVD 1132.98'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss

SURVEY
MD 1228'
INC 0.6°
AZI 174.7°
TVD 1227.97'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss



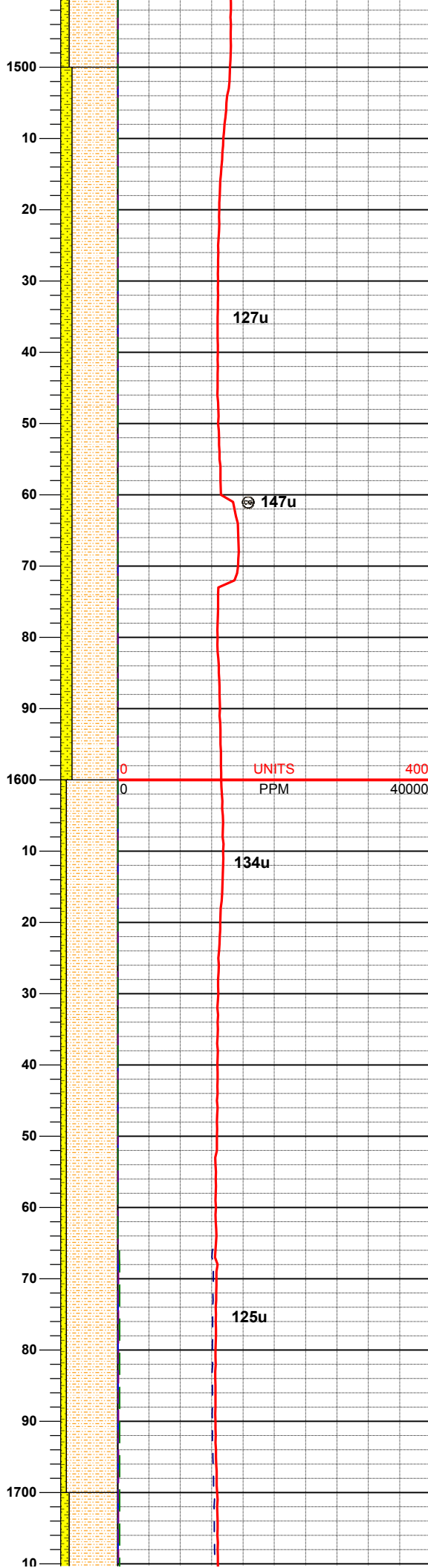
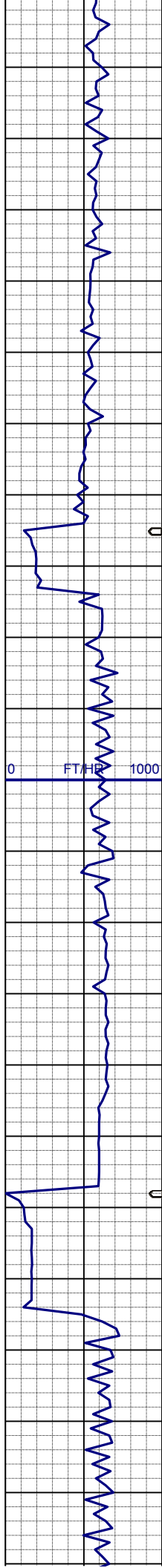
SURVEY
MD 1323'
INC 1.5°
AZI 285.8°
TVD 1322.96'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtx, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss

SURVEY
MD 1418'
INC 2.8°
AZI 271.0°
TVD 1417.89'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtx, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss

MUD WT: 8.4 VIS: 26 IN
MUD WT: 8.5 VIS: 26 OUT



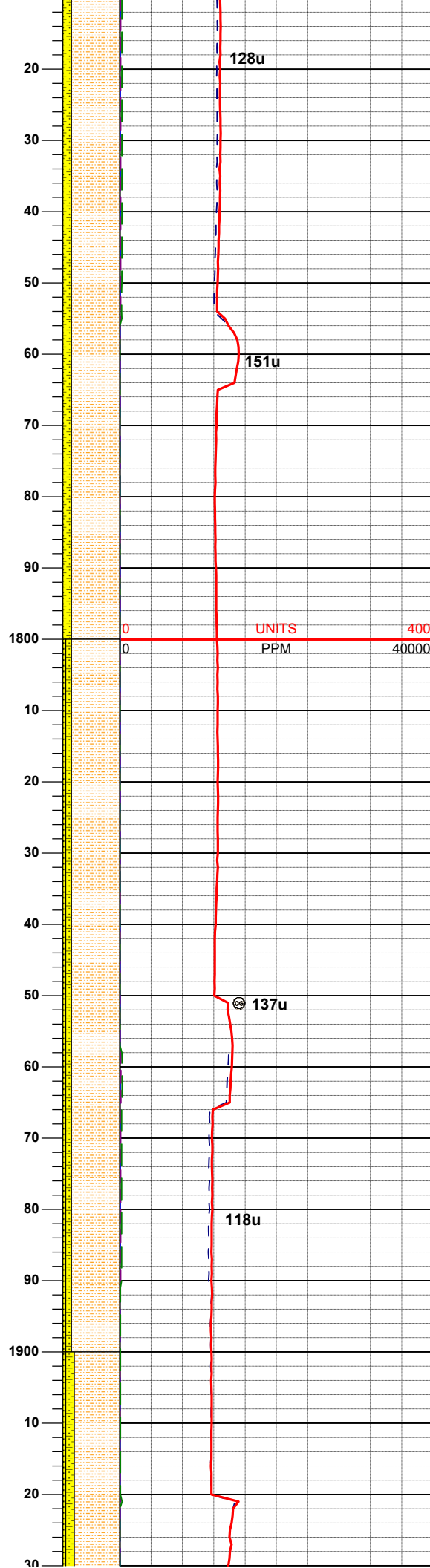
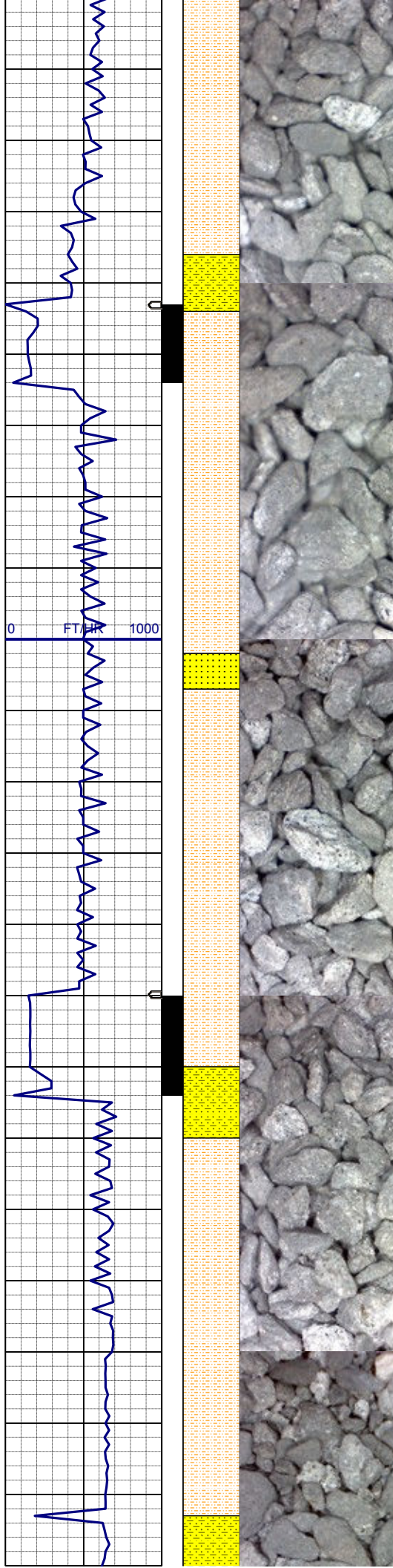
SURVEY
MD 1513'
INC 3.8°
AZI 274.0°
TVD 1512.73'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtx, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss

SURVEY
MD 1608'
INC 4.7°
AZI 275.6°
TVD 1607.47'

SHYSLTST: lt-mgy, occ dk gy, f-vfgr,
sbrd-sbang, mod srt, arg mtx, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, tr ss

SURVEY
MD 1708'
INC 6.9°
AZI 274.2°

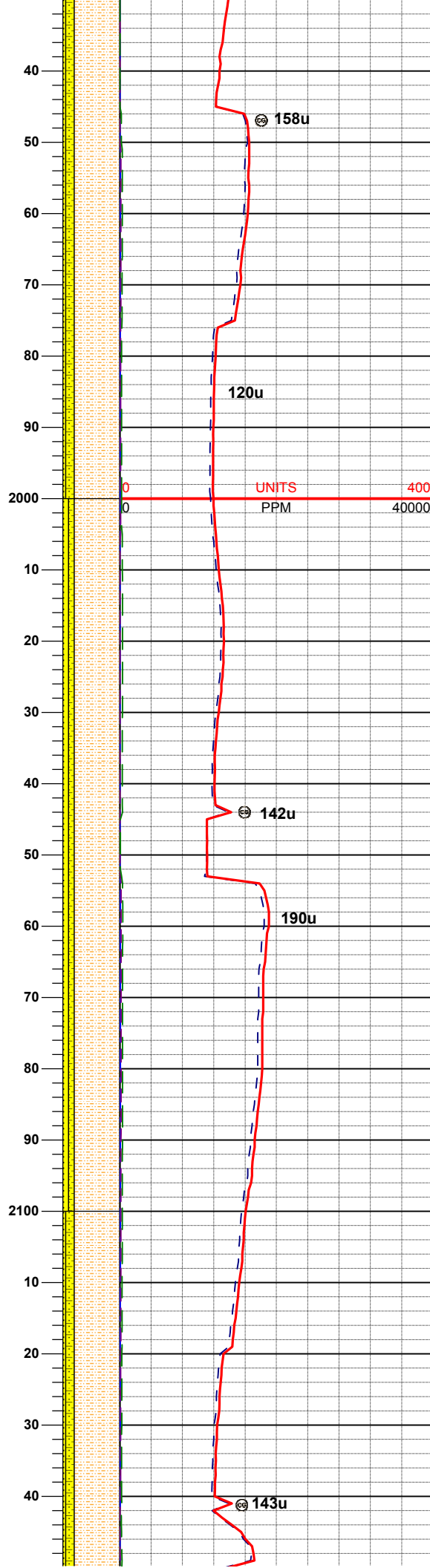
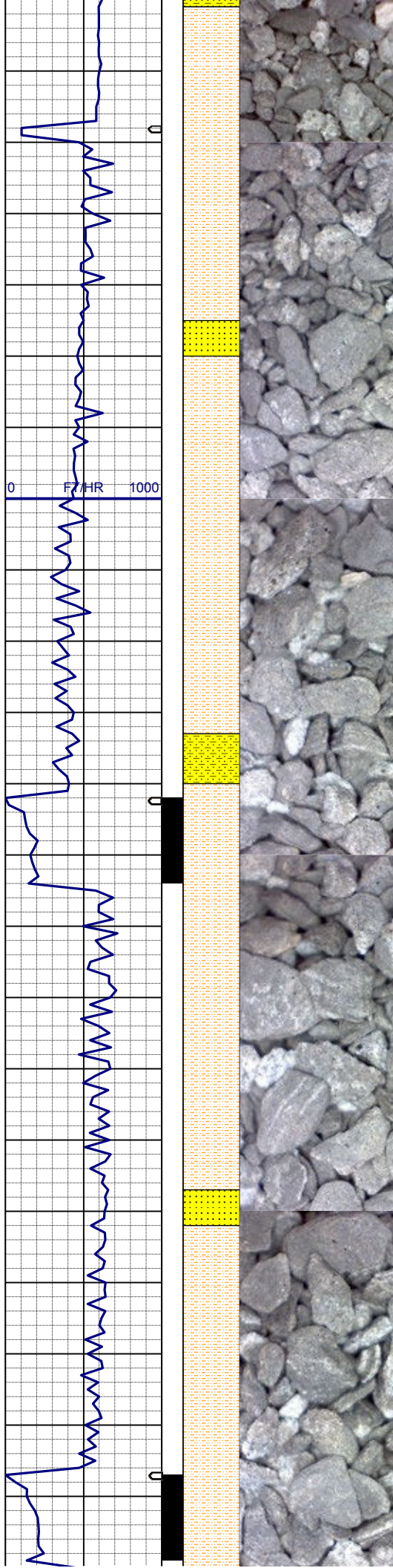


SHYSLTST: lt-mgy, occ dk gy, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, tr ss

SURVEY
MD 1803'
INC 6.9°
AZI 265.7°
TVD 1801.29'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 1898'
INC 8.5°
AZI 264.3°
TVD 1895.43'



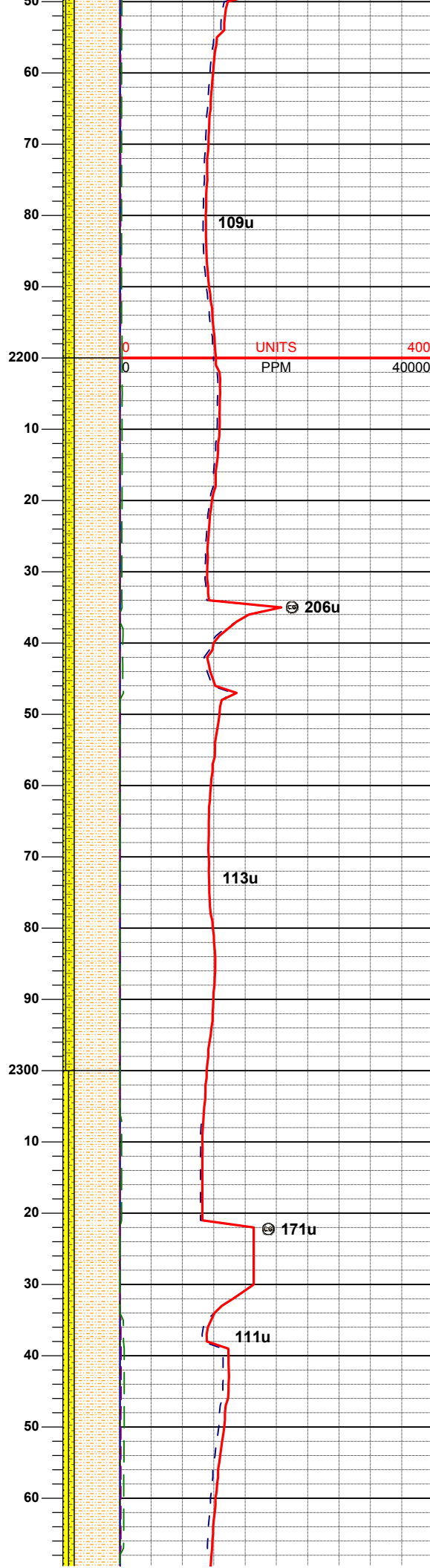
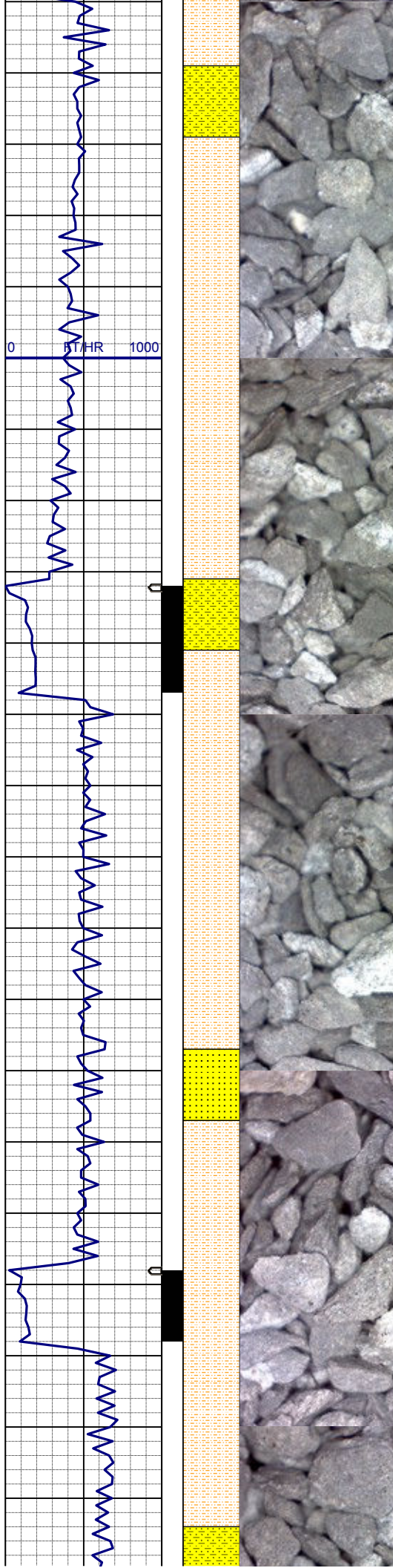
SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 1992'
INC 7.7°
AZI 259.9°
TVD 1988.5'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 2087'
INC 7.8°
AZI 263.6°
TVD 2082.63'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc,



phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

SURVEY
MD 2182'
INC 7.7°
AZI 267.7°
TVD 2176.76'

109u

UNITS
PPM

206u

SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

SURVEY
MD 2277'
INC 7.8°
AZI 272.8°
TVD 2270.90'

113u

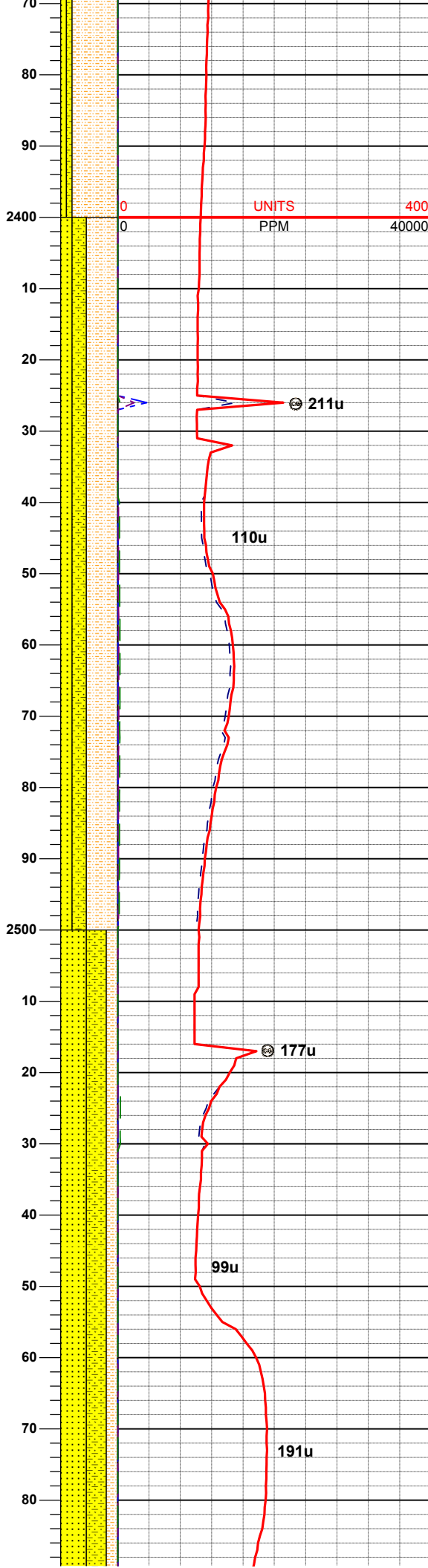
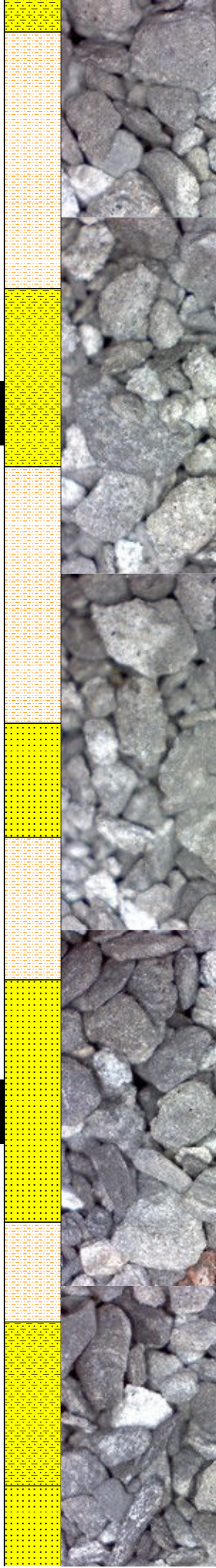
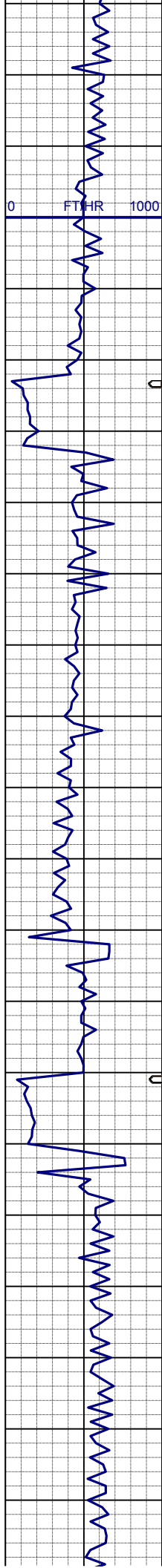
171u

MUD WT: 8.3 VIS: 26 IN
MUD WT: 8.4 VIS: 26 OUT

111u

SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

SURVEY



SURVEY
MD 2372'
INC 8.7°
AZI 270.7°
TVD 2364.91'

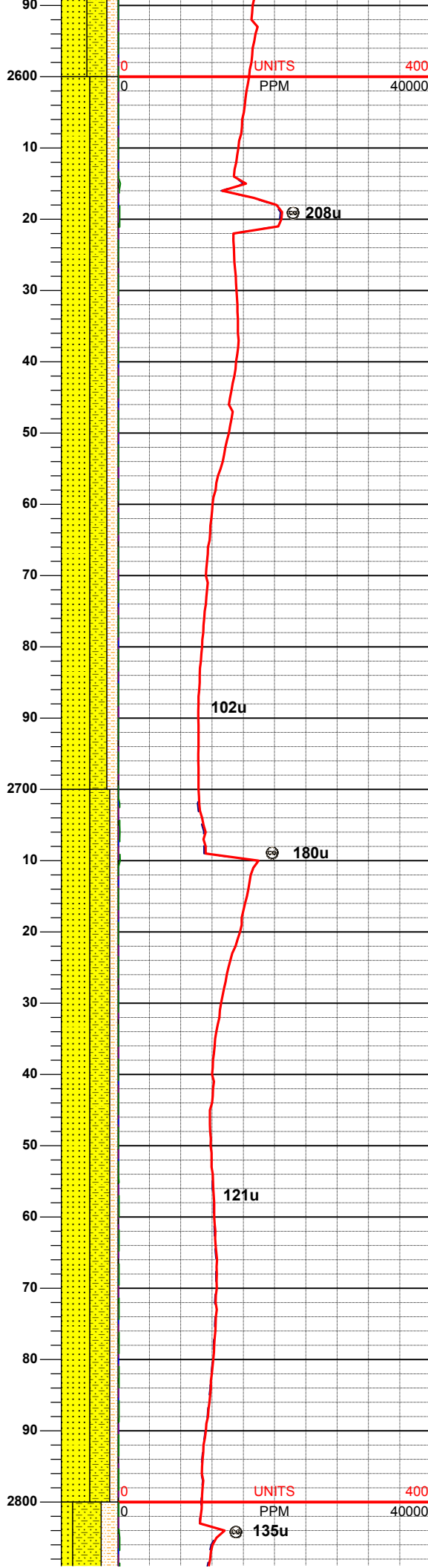
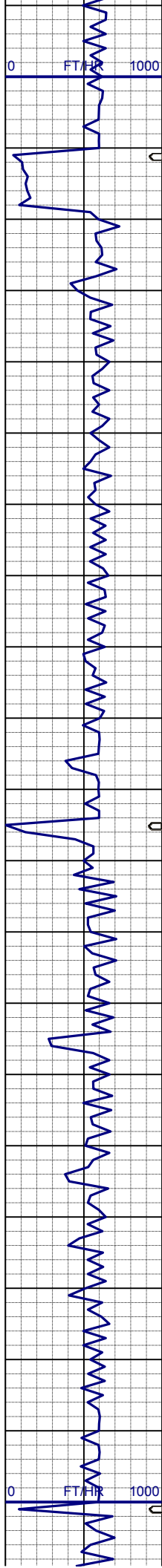
SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 2465'
INC 8.3°
AZI 270.5°
TVD 2456.89'

MUD WT: 8.3 VIS: 26 IN
MUD WT: 8.4 VIS: 26 OUT

SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx,

SURVEY
MD 2560'
INC 8.1°
AZI 281.9°
TVD 2550.93'



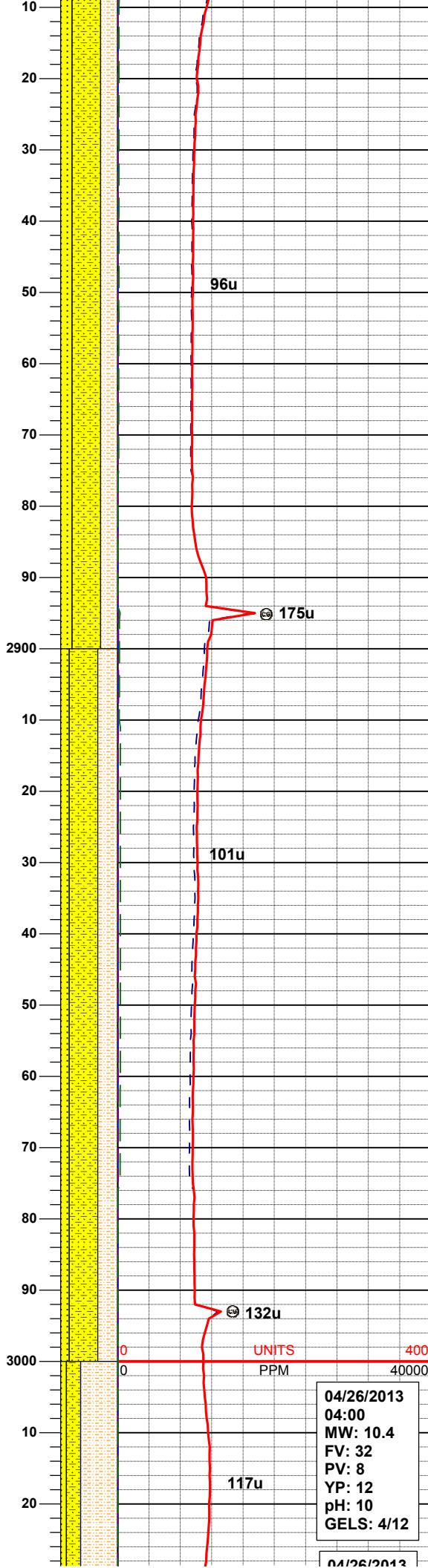
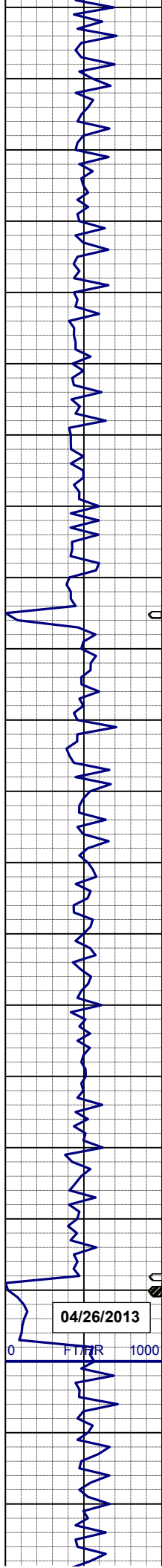
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx,

SURVEY
MD 2655'
INC 8.9°
AZI 281.7°
TVD 2644.88'

MUD WT: 8.3 VIS: 26 IN
MUD WT: 8.3 VIS: 26 OUT

SURVEY
MD 2750'
INC 9.1°
AZI 279.5°
TVD 2738.71'

SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx,



SURVEY
MD 2845'
INC 8.6°
AZI 278.4°
TVD 2832.58'

SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz,
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

SURVEY
MD 2939'
INC 8.1°
AZI 271.0°
TVD 2925.59'

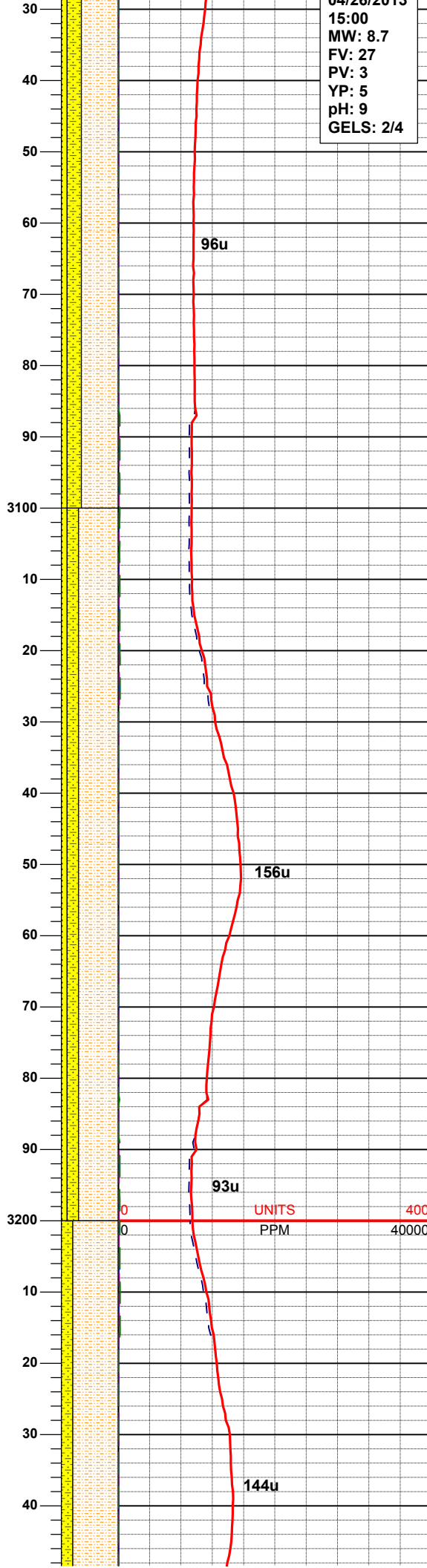
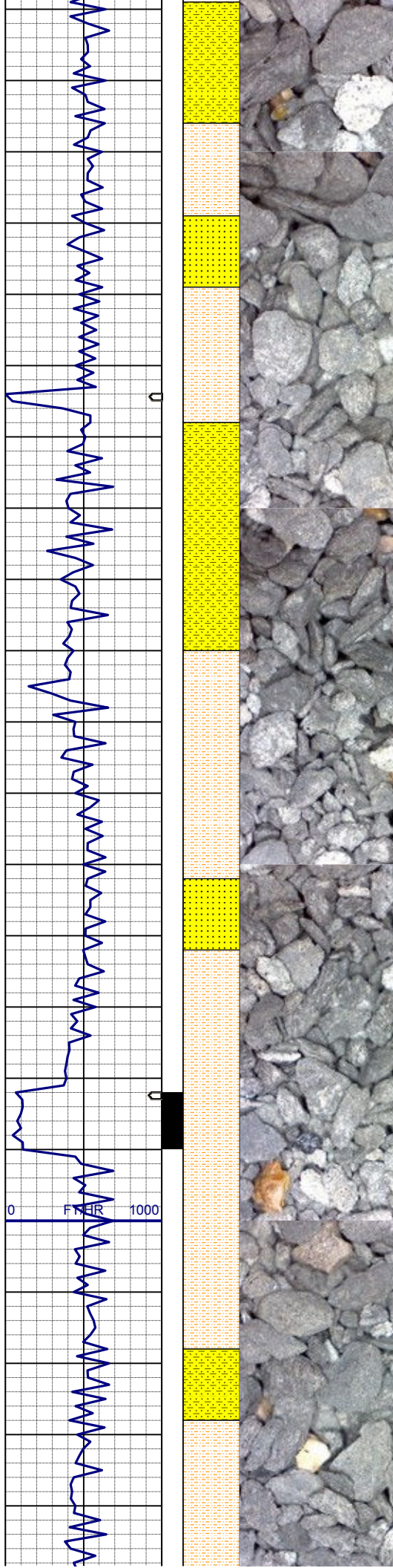
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz,
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

04/26/2013

04/26/2013
04:00
MW: 10.4
FV: 32
PV: 8
YP: 12
pH: 10
GELS: 4/12

04/26/2013

SURVEY



04/26/2013
15:00
MW: 8.7
FV: 27
PV: 3
YP: 5
pH: 9
GELS: 2/4

MD 3034'
INC 8.6°
AZI 270.1°
TVD 3019.58'

SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz,
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

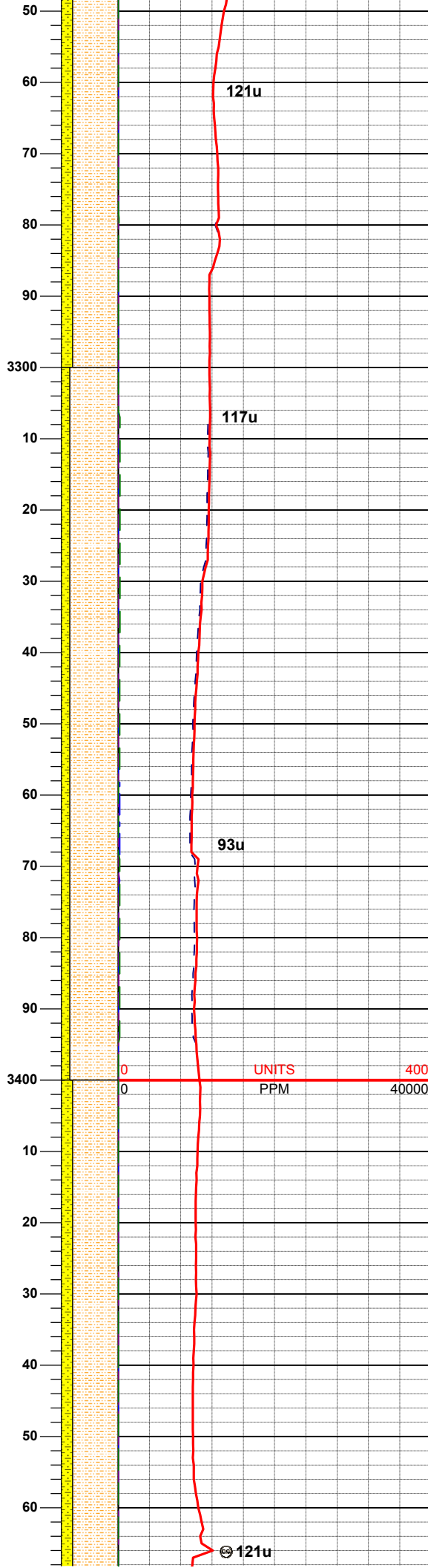
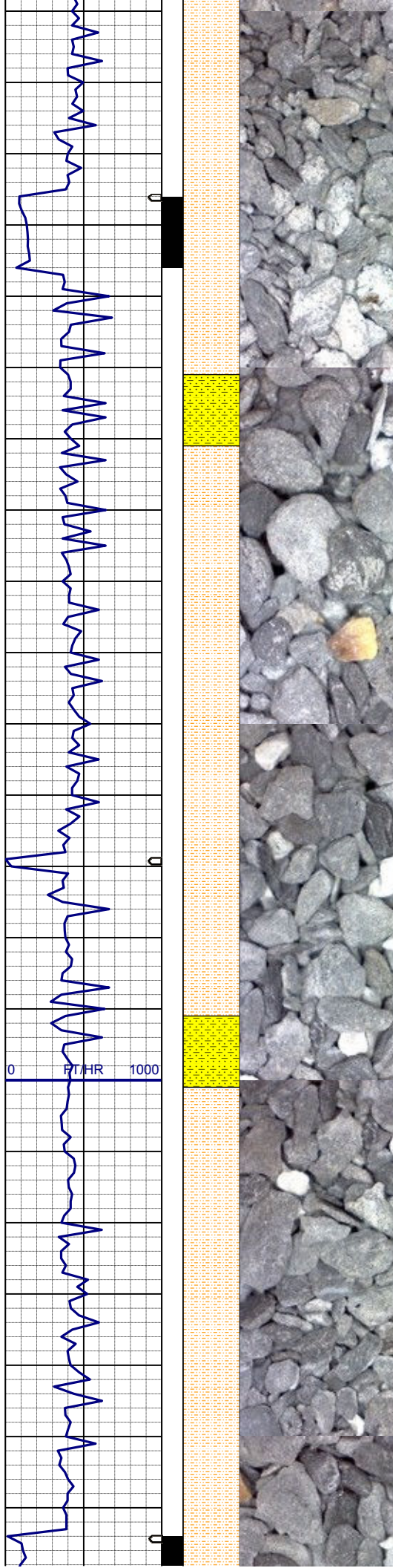
SURVEY
MD 3129'
INC 8.0°
AZI 268.9°
TVD 3113.58'

SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz,
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

SURVEY
MD 3224'
INC 8.1°
AZI 268.4°
TVD 3207.65'

MUD WT: 8.3 VIS: 26 IN
MUD WT: 8.5 VIS: 26 OUT

SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to



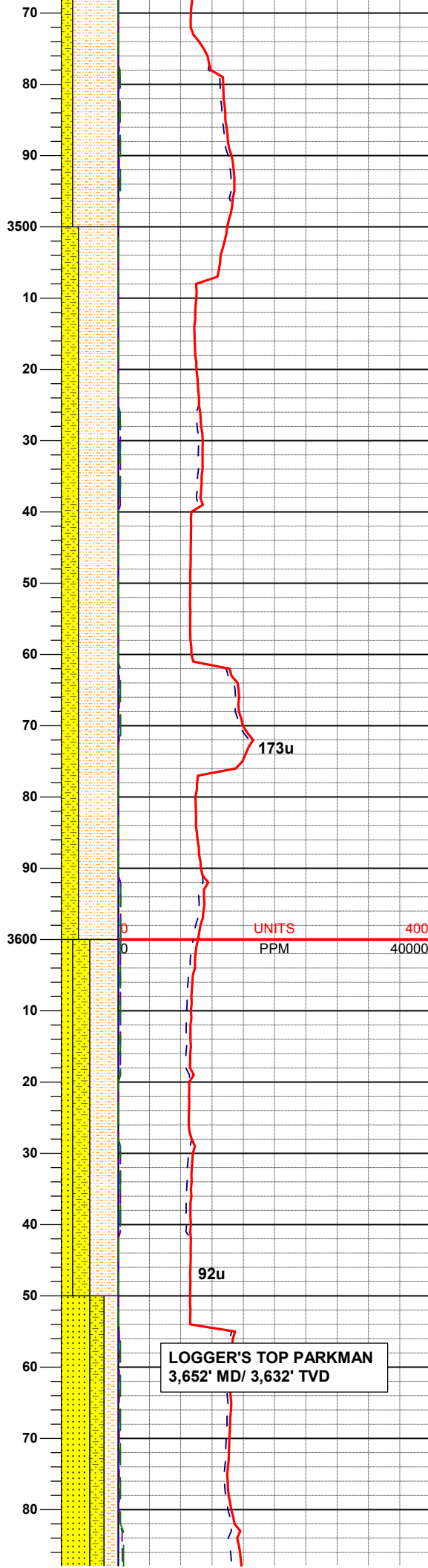
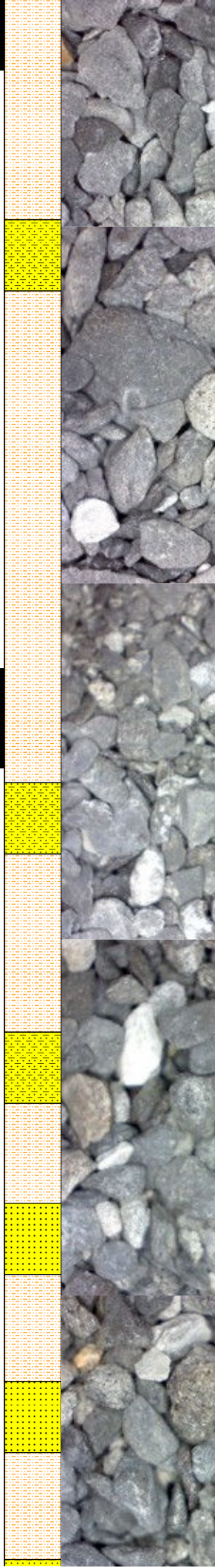
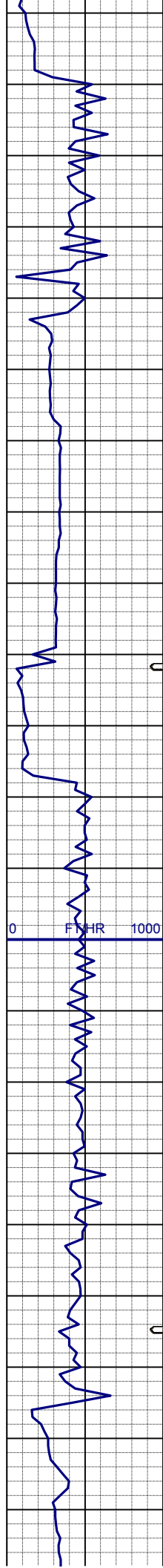
SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, sme ss

SURVEY
MD 3319'
INC 8.4°
AZI 273.0°
TVD 3301.67'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, sme ss

SURVEY
MD 3413'
INC 7.0°
AZI 270.8°
TVD 3394.82'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, sme ss



SURVEY
MD 3508'
INC 6.9°
AZI 274.9°
TVD 3489.12'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, sme ss

173u

92u

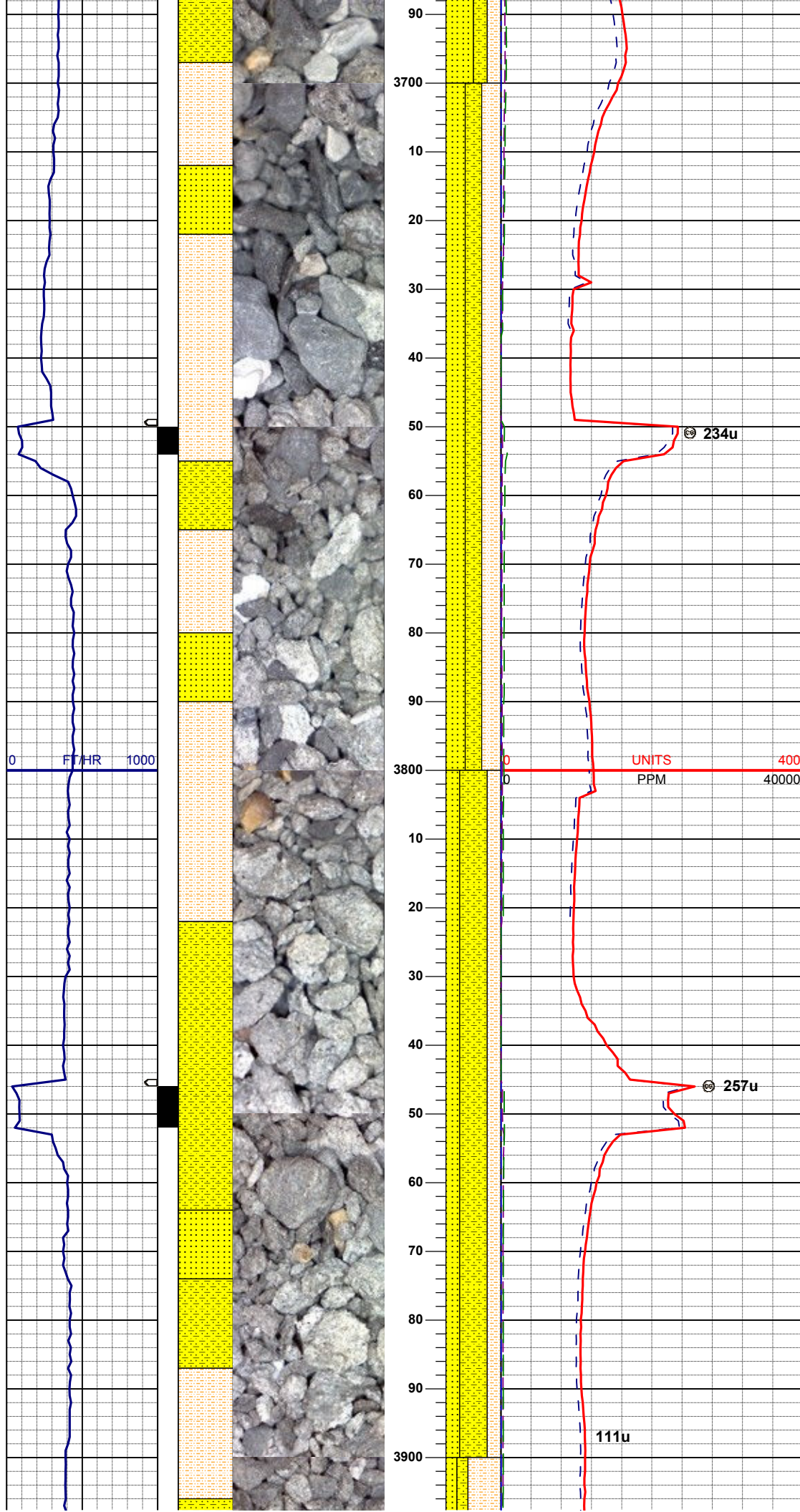
LOGGER'S TOP PARKMAN
3,652' MD/ 3,632' TVD

SURVEY
MD 3603'
INC 8.4°
AZI 269.3°
TVD 3583.27'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog

MUD WT: 8.3 VIS: 26 IN
MUD WT: 8.4 VIS: 26 OUT

SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau, grd to SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog



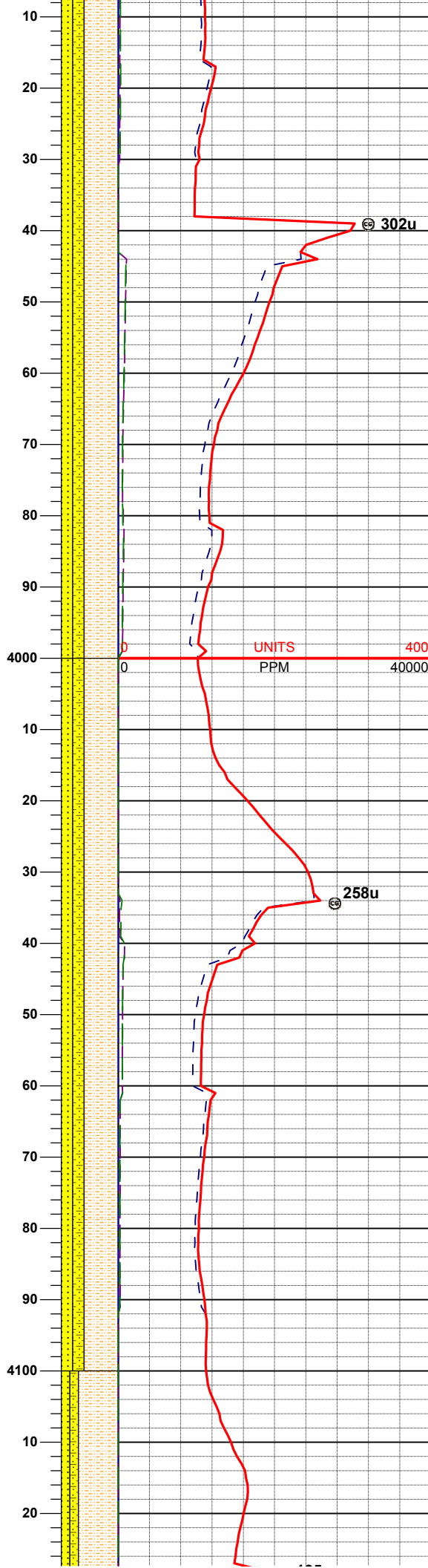
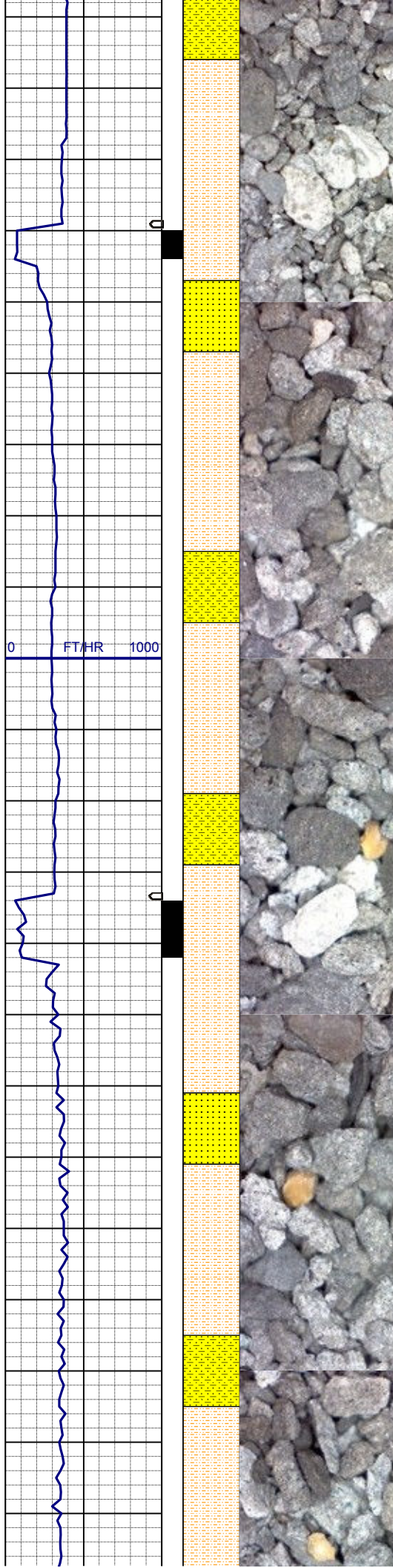
SURVEY
MD 3698'
INC 7.6°
AZI 267.7°
TVD 3677.35'

SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtx,
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog

SURVEY
MD 3793'
INC 7.9°
AZI 267.5°
TVD 3771.48'

SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtx, grd to
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau,
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog

SURVEY
MD 3888'
INC 8.2°
AZI 271.9°
TVD 3865.54'

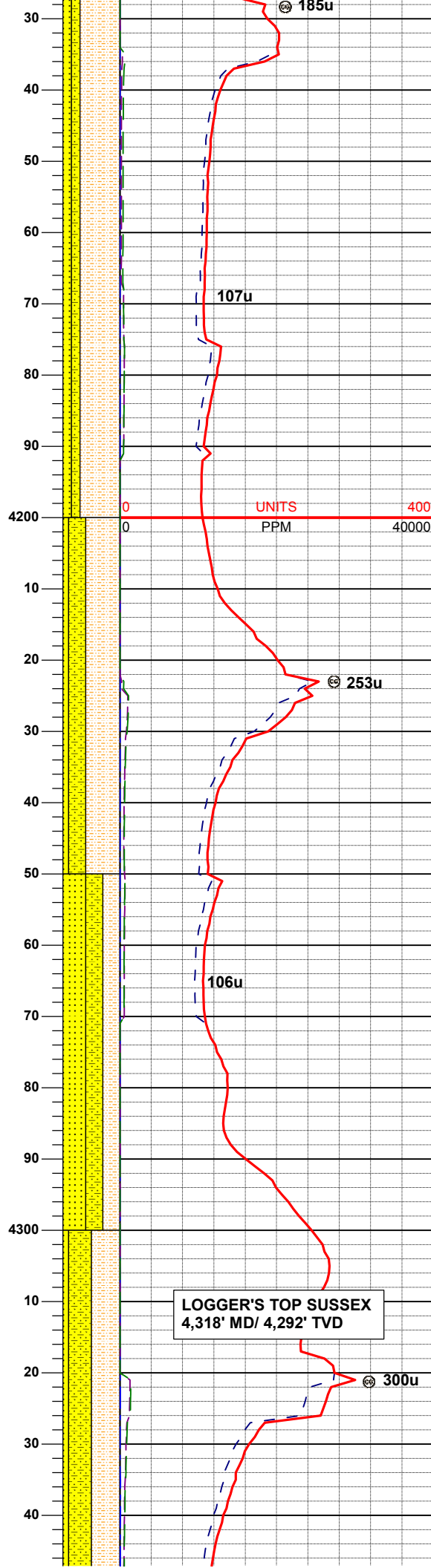
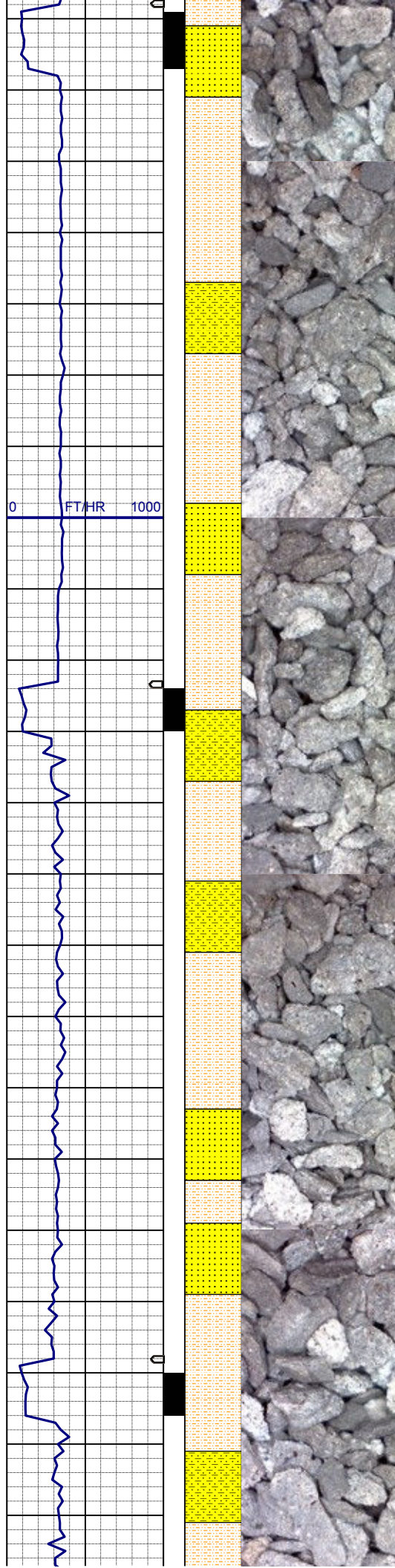


SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 3983'
INC 7.7°
AZI 270.7°
TVD 3959.63'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 4077'
INC 7.8°
AZI 266.6°
TVD 4052.80'



SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

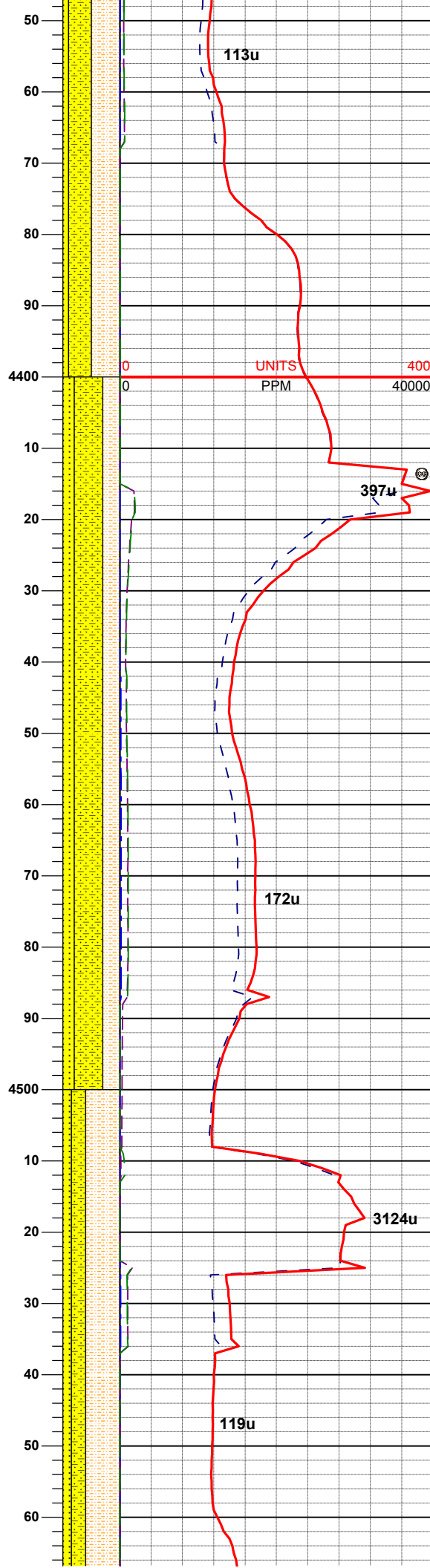
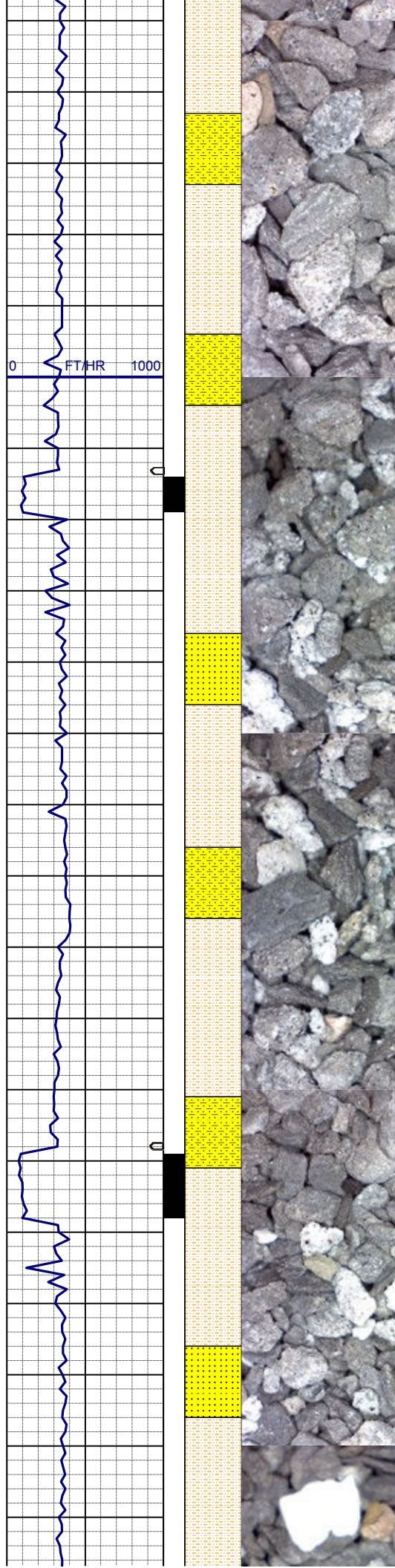
SURVEY
MD 4172'
INC 8.3°
AZI 264.7°
TVD 4146.84'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 4267'
INC 7.3°
AZI 264.2°
TVD 4240.96'

SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau, grd to SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog



phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

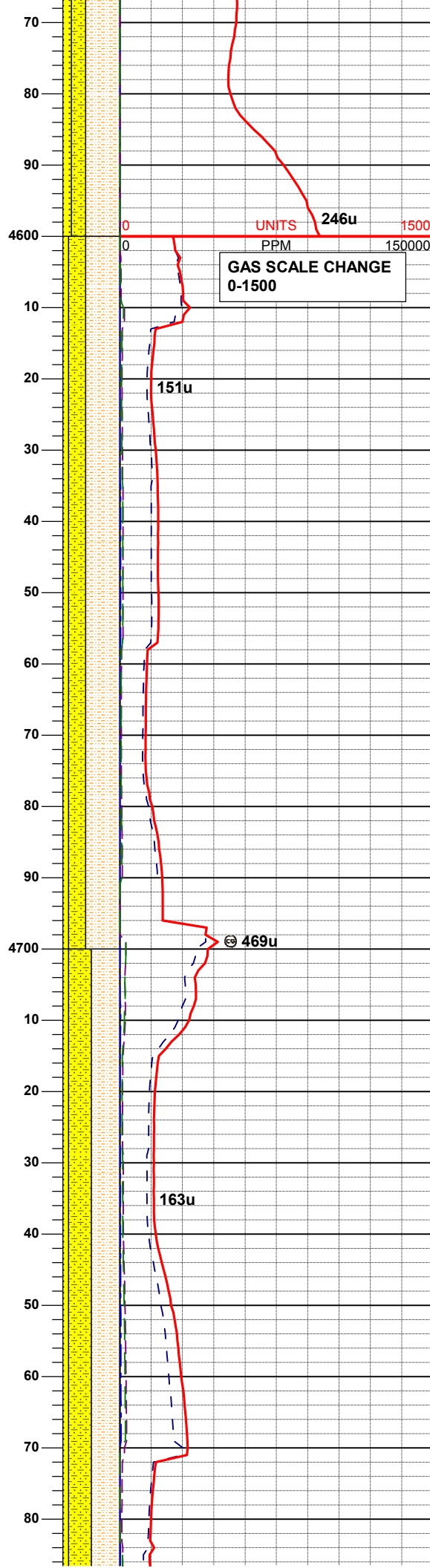
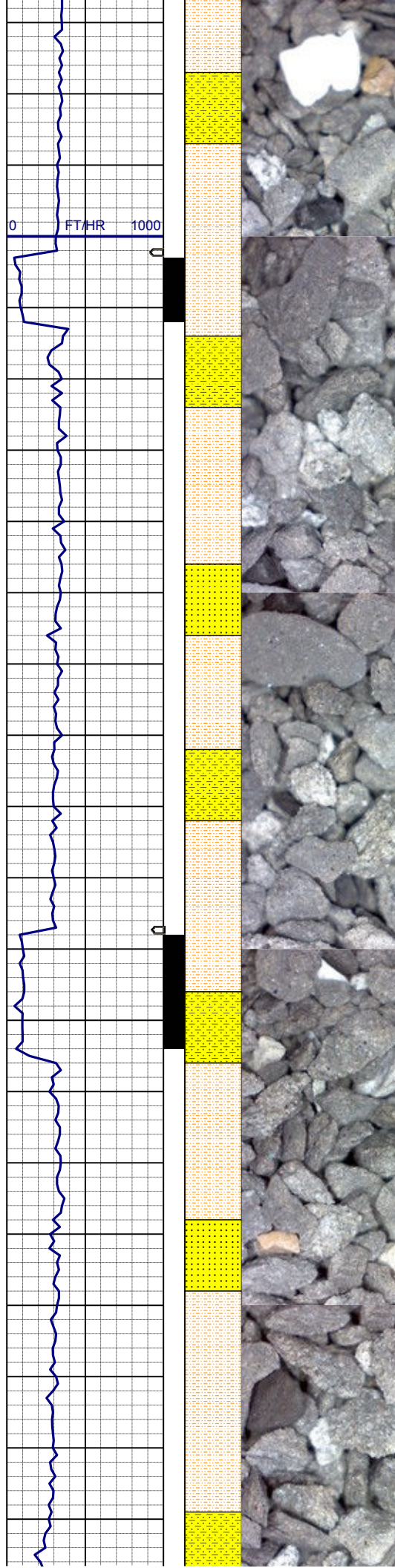
SURVEY
MD 4362'
INC 7.3°
AZI 270.1°
TVD 4335.19'

SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz,
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

SURVEY
MD 4457'
INC 6.9°
AZI 272.8°
TVD 4429.46'

SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-
wsrt, ppor, argcmt, slcalc, phlog, tr
glau

SURVEY
MD 4552'
INC 7.4°
AZI 265.2°



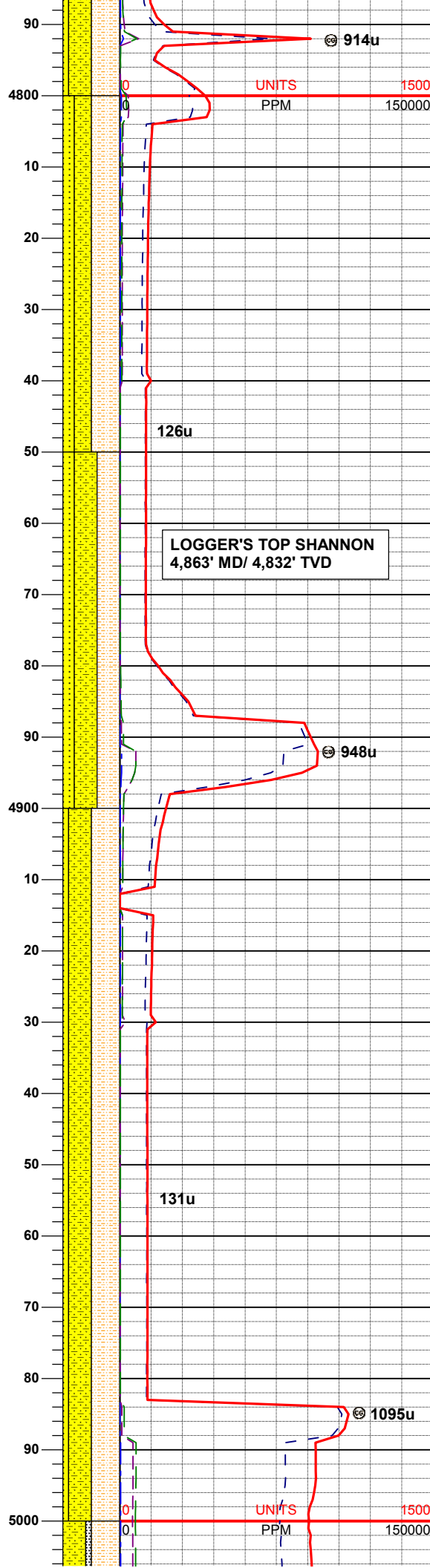
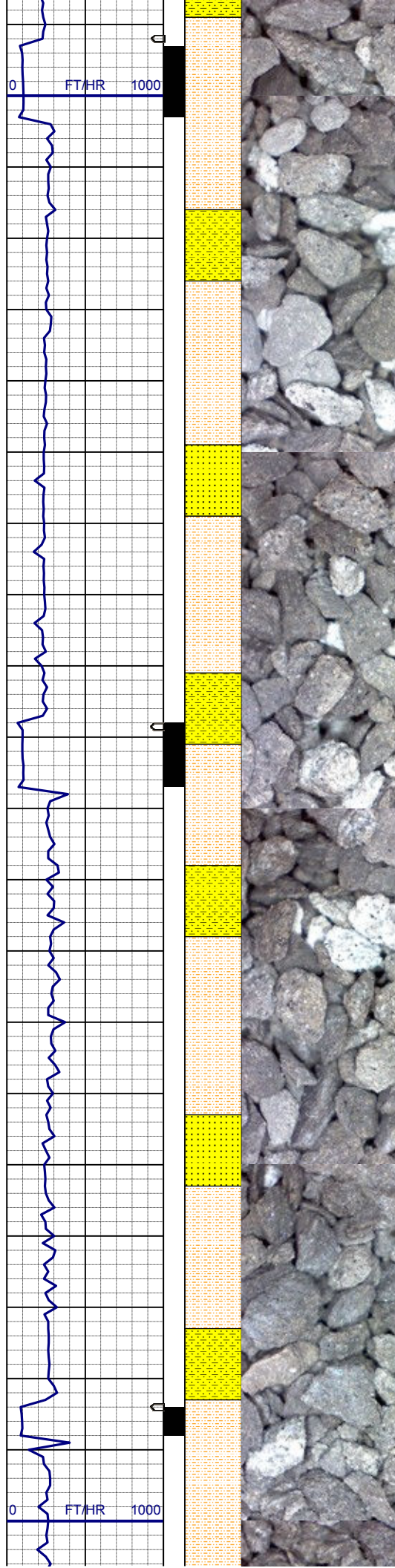
AZI 265.2°
TVD 4523.72'

SURVEY
MD 4646'
INC 7.6°
AZI 260.5°
TVD 4616.92'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog
SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 4741'
INC 7.6°
AZI 264.2°
TVD 4711.08'

SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtz, SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau



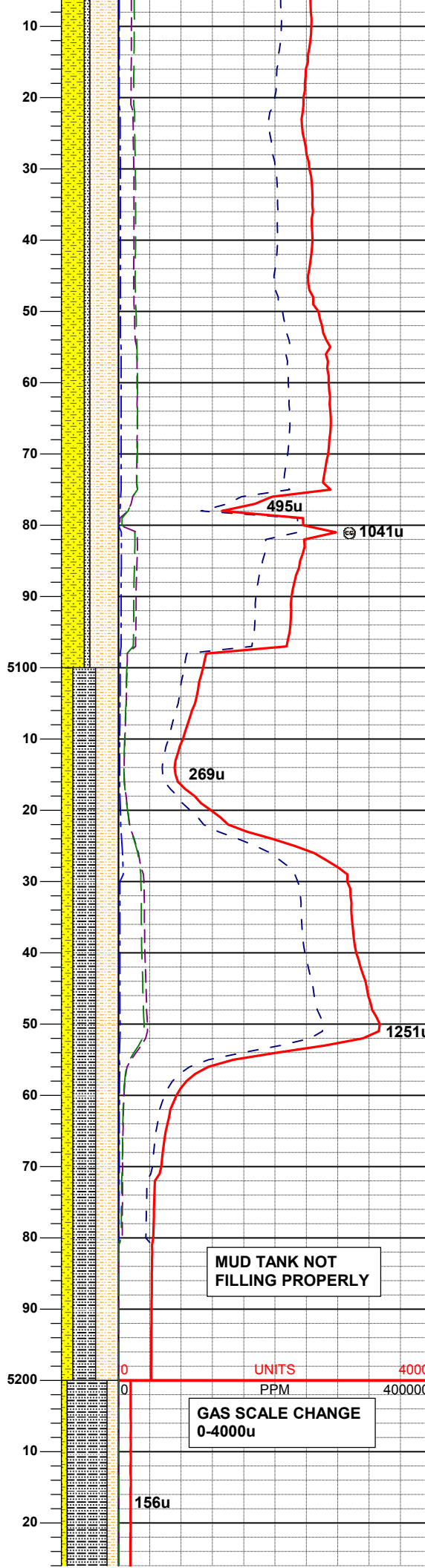
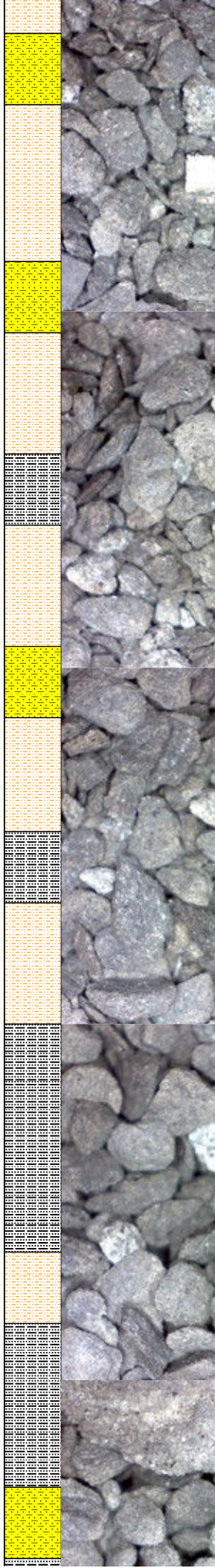
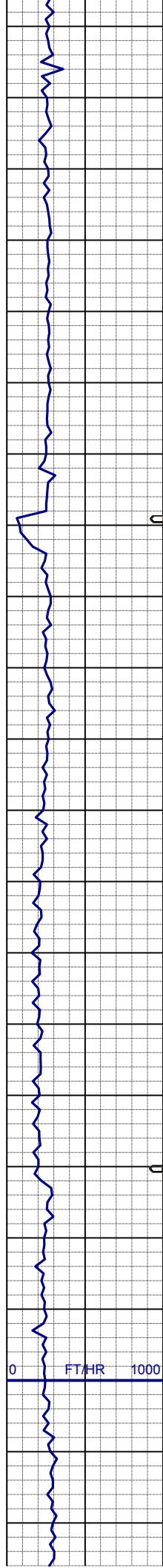
SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 4836'
INC 8.1°
AZI 260.5°
TVD 4805.19'

SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, grd to SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau

SURVEY
MD 4931'
INC 8.3°
AZI 266.3°
TVD 4899.22'

SHYSLTST: lt-mgy, occ tan, f-vfgr, sbrd-sbang, mod srt, arg mtx, grd to SHYSS: lt-mgy, f-mfgr, sbrd-sbang, mod-psrt, sft, ppor, argcmt, slcalc, phlog, SS: w-ltgy, s&p, mf-c gr, sbrd, mod-wsrt, ppor, argcmt, slcalc, phlog, tr glau



SURVEY
MD 5025'
INC 7.8°
AZI 273.3°
TVD 4992.3'

SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtx, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog
SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbply-sbbiky, sl calc, tr pyr
ctd, tr cln ss

SURVEY
MD 5120'
INC 7.2°
AZI 270.8°
TVD 5086.49'

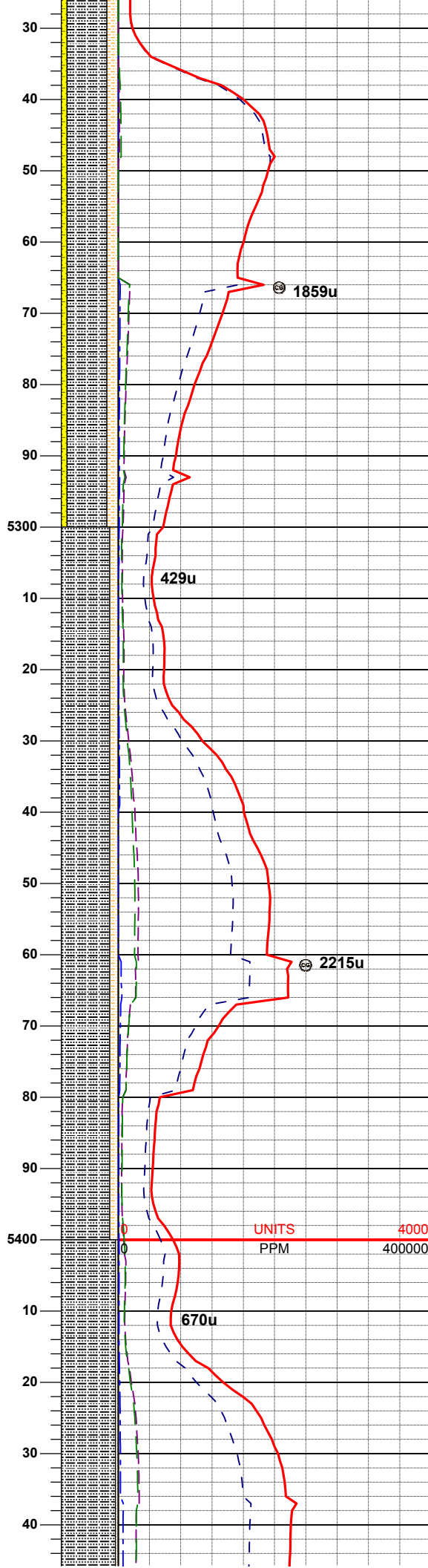
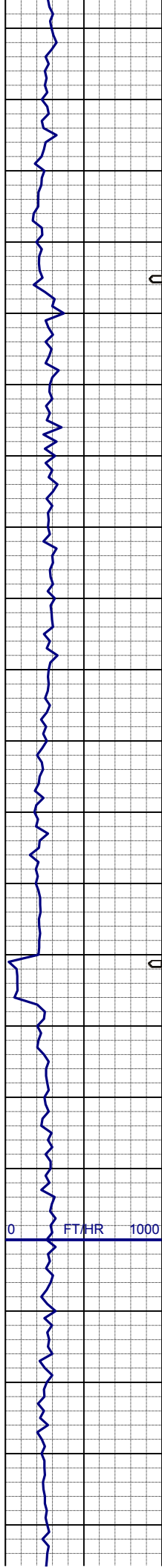
MUD WT: 8.8 VIS: 28 IN
MUD WT: 8.7 VIS: 27 OUT

SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtx, grd to
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog
SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbply-sbbiky, sl calc, tr pyr
ctd, tr cln ss

**MUD TANK NOT
FILLING PROPERLY**

**GAS SCALE CHANGE
0-4000u**

SURVEY
MD 5215'
INC 6.9°
AZI 267.3°
TVD 5180.77'



SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbplty-sbblky, sl calc, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtx,
SHYSS: lt-mgy, f-mfgr, sbrd-sbang,
mod-psrt, sft, ppor, argcmt, slcalc,
phlog, trss, tr pyr ctd

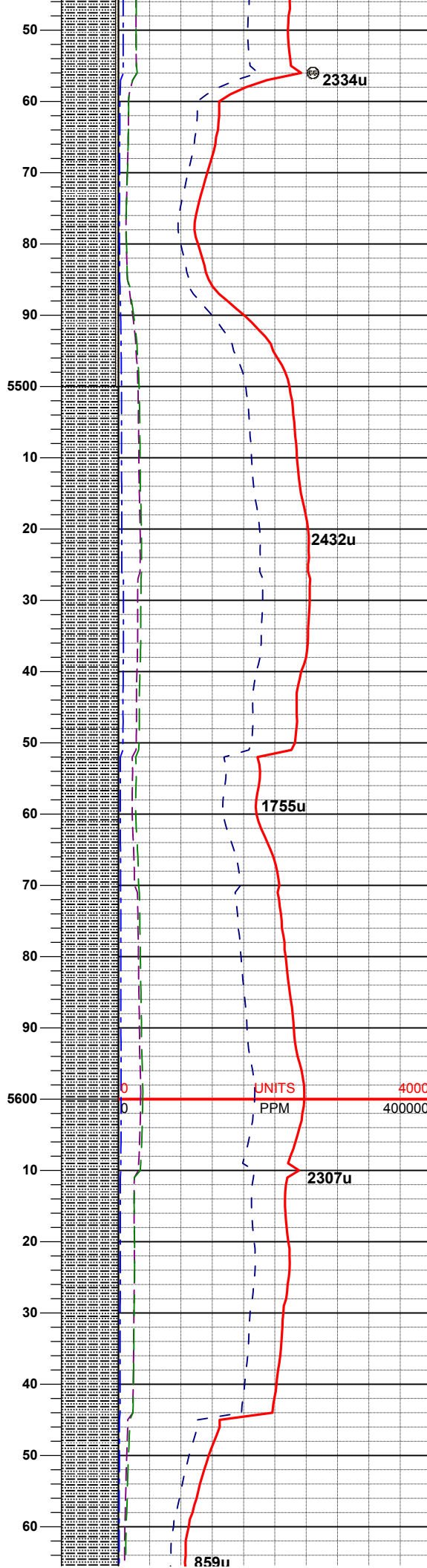
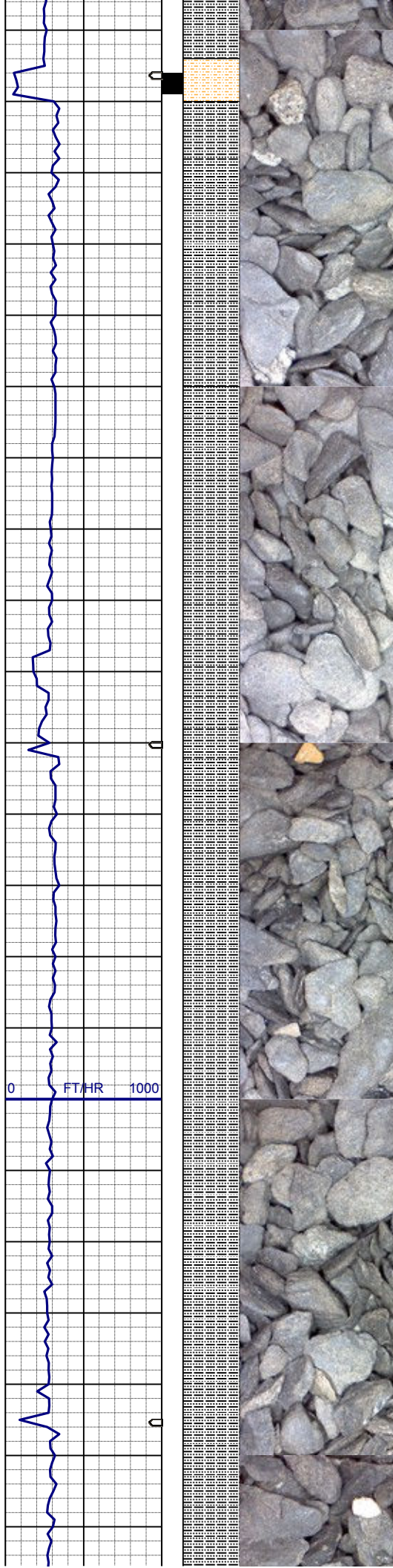
SURVEY
MD 5310'
INC 5.9°
AZI 264.2°
TVD 5275.18'

SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbplty-sbblky, sl calc, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtx, sme
shyss, trss, tr pyr ctd

SURVEY
MD 5405'
INC 5.2°
AZI 269.8°
TVD 5369.73'

MUD WT: 9.1 VIS: 28 IN
MUD WT: 9.1 VIS: 28 OUT

SLTYSH: lt - mgy, dk gy, occ tan, v f



gr, fri-brit, sbply-sbbiky, sl calc, grd to
SHYSLTST: lt-mgy, occ tan, f-vfgr,
sbrd-sbang, mod srt, arg mtx, sme
shyss, trss, tr pyr ctd

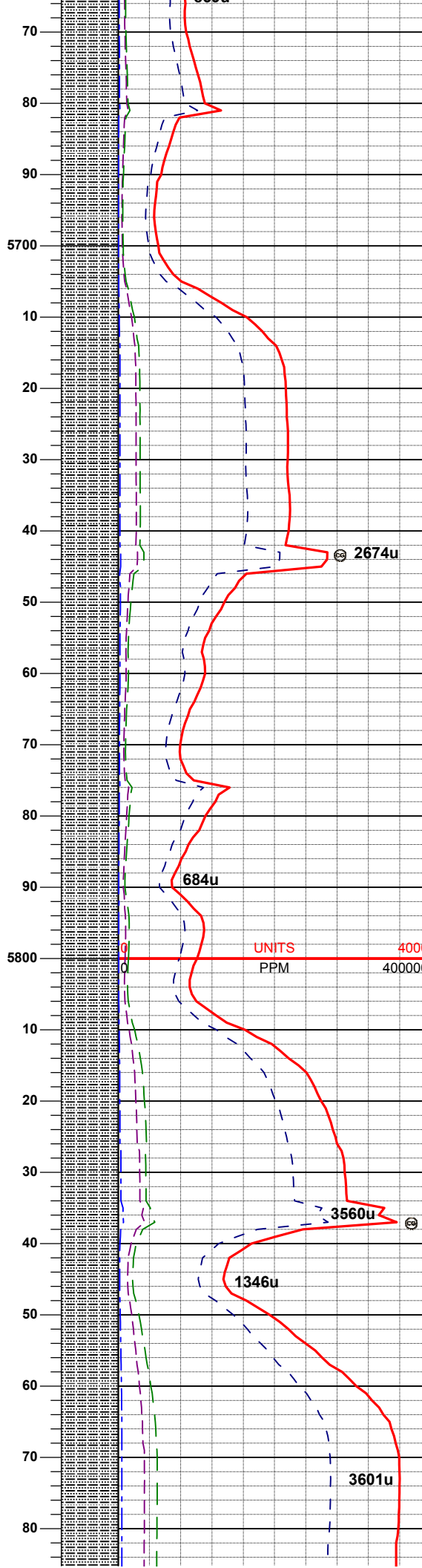
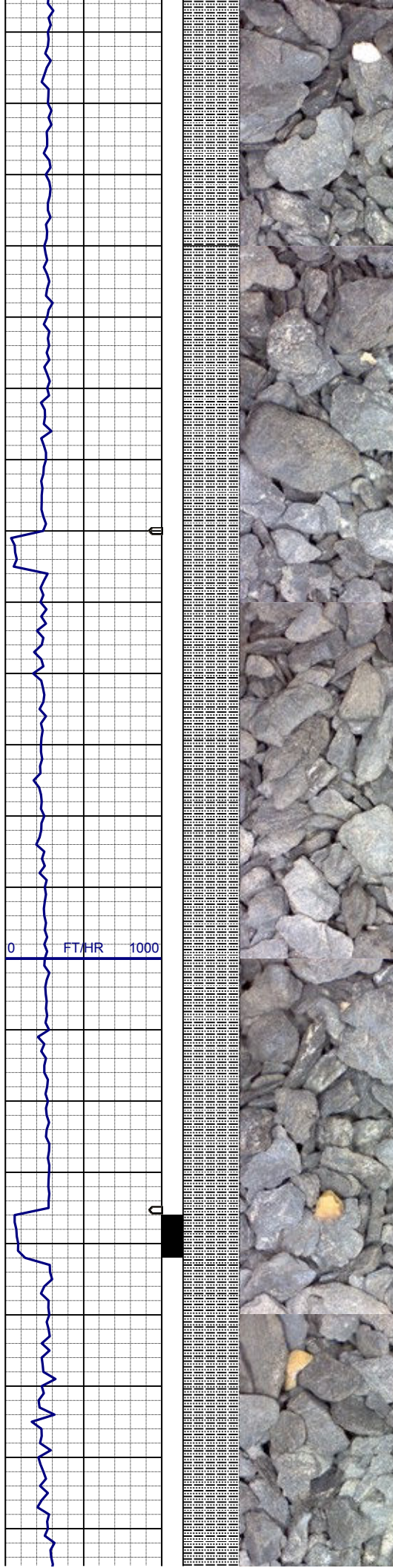
SURVEY
MD 5500'
INC 4.2°
AZI 272.1°
TVD 5464.41'

SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbply-sbbiky, sl calc, tr
shysltst, tr shyss, tr pyr ctd

SURVEY
MD 5594'
INC 3.0°
AZI 277.2°
TVD 5558.22'

MUD WT: 9.1 VIS: 29 IN
MUD WT: 9.1 VIS: 28 OUT

SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbply-sbbiky, sl calc, tr
shysltst, tr shyss, tr pyr ctd



SURVEY
MD 5689'
INC 2.7°
AZI 280.7°
TVD 5653.11'

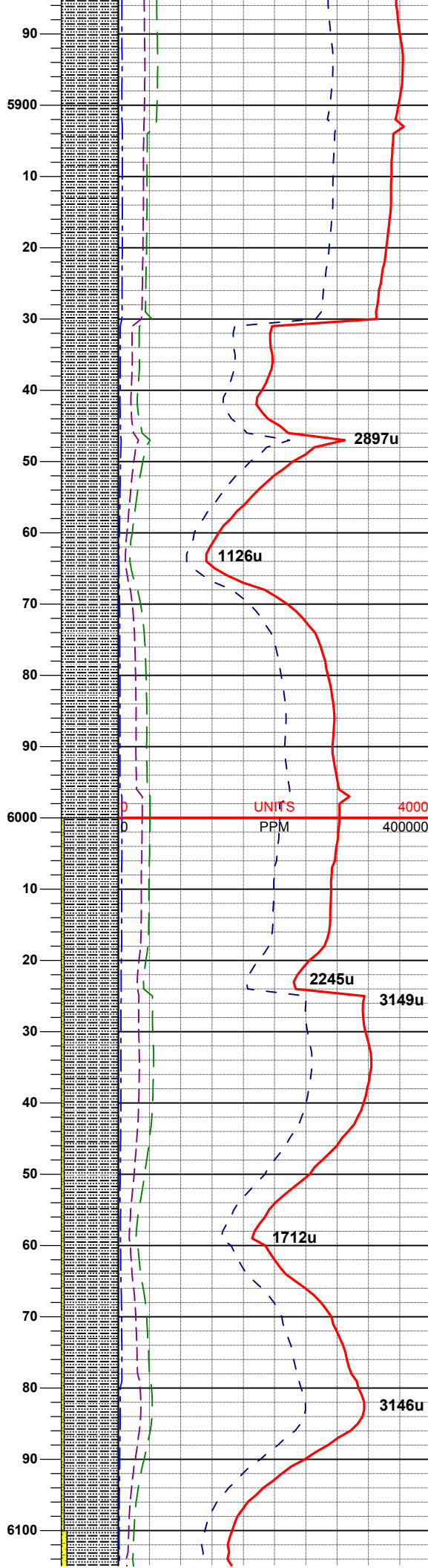
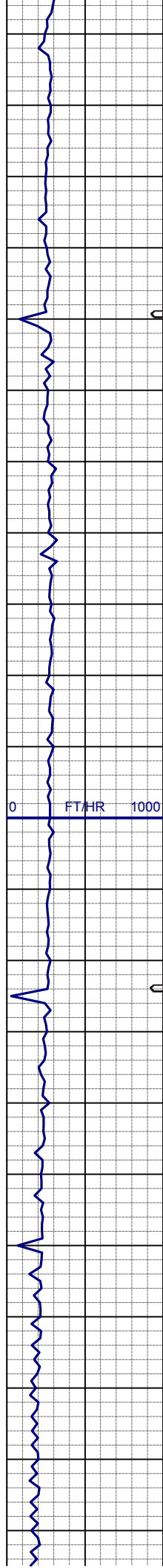
MUD WT: 9.1 VIS: 29 IN
MUD WT: 9.1 VIS: 29 OUT

SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbplty-sbblky, sl calc, tr
shysltst, tr shyss, tr pyr ctd

SURVEY
MD 5784'
INC 1.6°
AZI 274.4°
TVD 5748.04'

SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbplty-sbblky, sl calc, tr
shysltst, tr shyss, tr pyr ctd

SURVEY
MD 5879'
INC 0.5°
AZI 287.4°
TVD 5843.02'



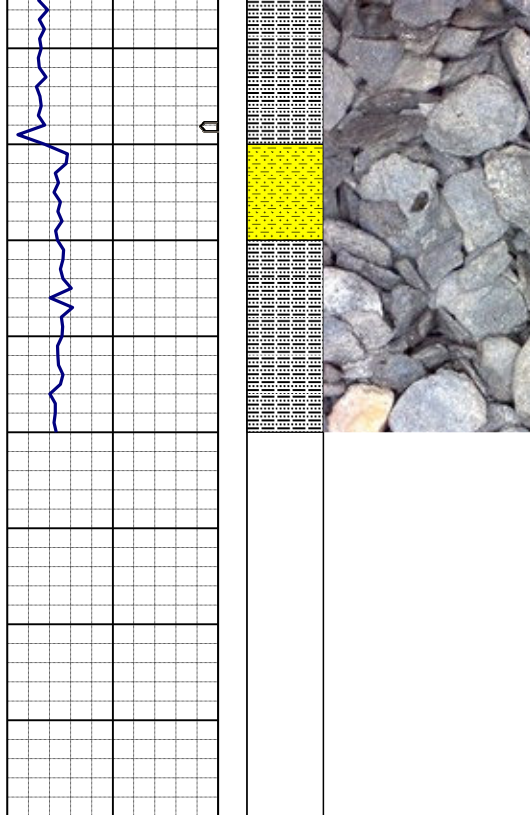
SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbplty-sbbiky, sl calc, tr
shysltst, tr shyss, tr pyr ctd

SURVEY
MD 5973'
INC 0.4°
AZI 172.2°
TVD 5937.02'

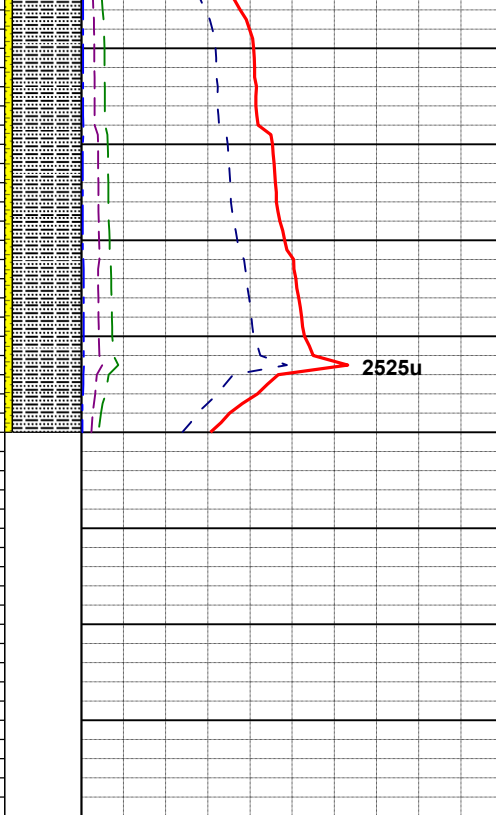
MUD WT: 9.5 VIS: 31IN
MUD WT: 9.3 VIS: 30 OUT

SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbplty-sbbiky, sl calc, occ
pyr ctd
SHYSS: lt-mgy, f-mggr, sbrd-sbang,
mod-psrt, ppor, argcmt

SURVEY
MD 6068'
INC 0.1°
AZI 268.0°
TVD 6032.02'



10
20
30
40
50
60
70
80
90



SLTYSH: lt - mgy, dk gy, occ tan, v f
gr, fri-brit, sbply-sbbiky, sl calc, occ
pyr ctd
SHYSS: lt-mgy, f-mggr, sbrd-sbang,
mod-psrt, ppor, argcmt

TD VERTICAL @ 6,150' MD
@ 09:20 MST 04/26/2013

LOG CONTINUES ON LPLOT
SAUER F33-78-1HN HORIZONTAL

THANK YOU FOR USING
COLUMBINE LOGGING INC.