

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

OPERATOR:	NOBLE ENERGY INC.
WELL:	SHABLE LF07-68HN
LOCATION:	SEC 5, T8N, R60W
COUNTY:	WELD
STATE:	COLORADO
SPOT:	250' FSL, 250' FWL
ELEVATION:	GL 4921', KB 4937'
FIELD:	WILDCAT
SPUD DATE:	03/19/2013
TD DATE:	04/01/2013
DATES LOGGED:	03/21/2013 - 04/01/2013
DEPTHS LOGGED:	1,000' - 10,854'
LOGGERS:	BRAD WILSON, CHRIS WILLATT
DRILLING FLUID:	WBM, LSND
DRILLING RIG:	PRECISION DRILLING 829
API:	05-123-36272
LOG TYPE:	VERTICAL
SCALE:	1:240 (5 inches per 100 feet)
REMARKS:	WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.

LITHOLOGIES



Sandstone



Shale



Shaly Sandstone



Shaly Siltstone



Siltstone



Silty Shale

ENGINEERING SYMBOLS



Connection



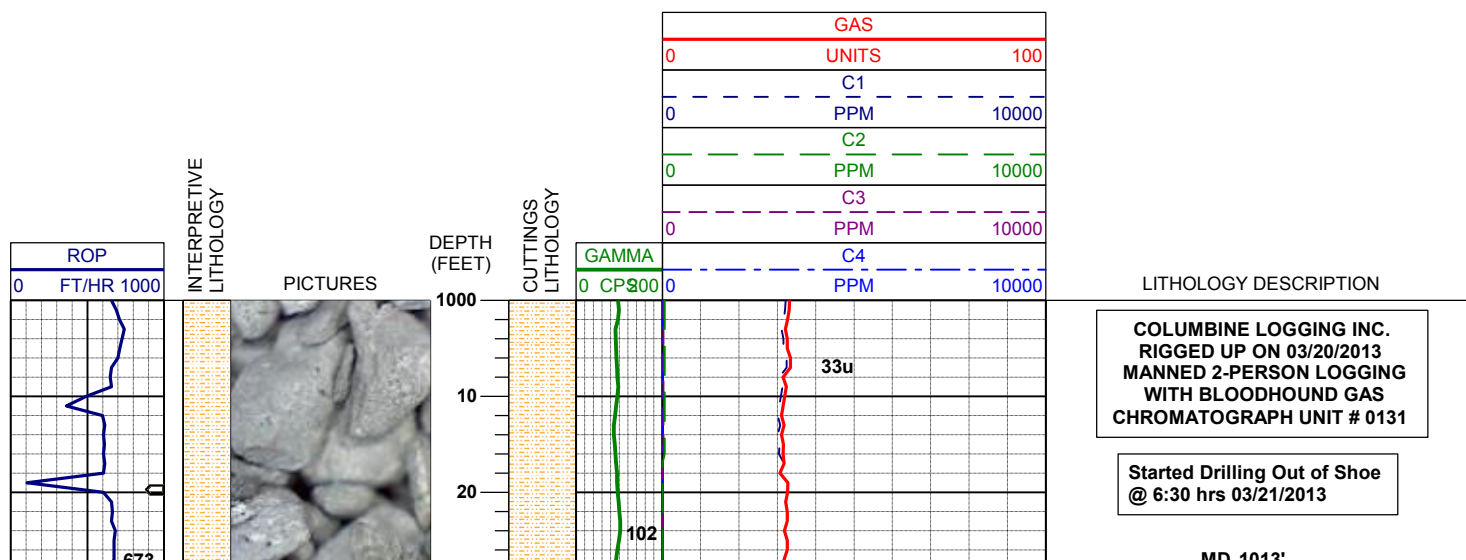
Connection Gas

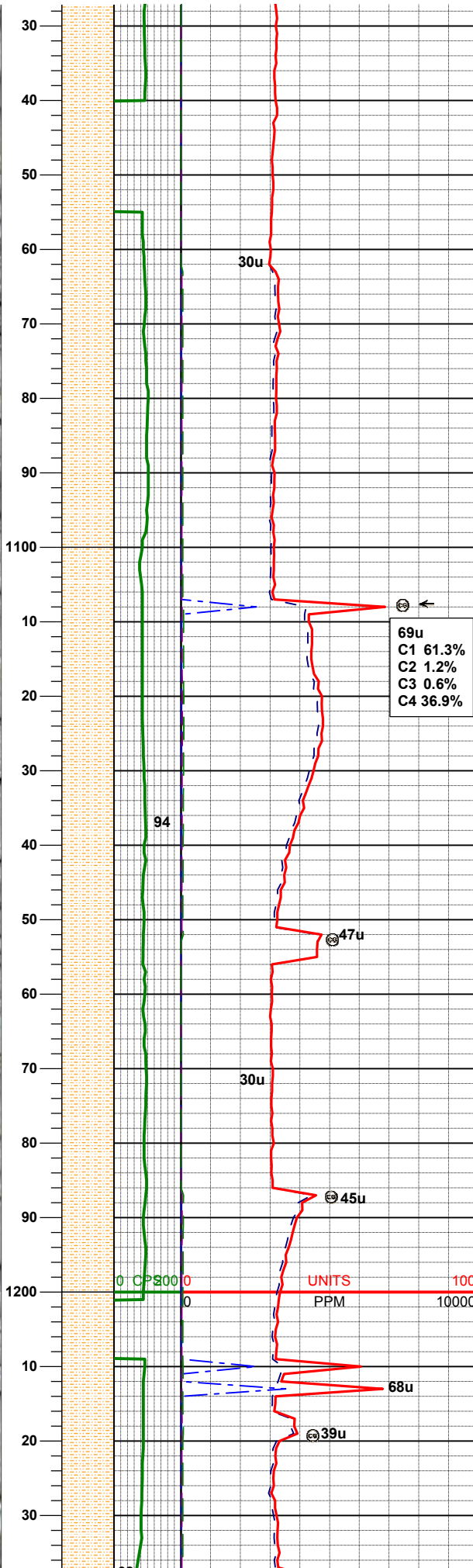
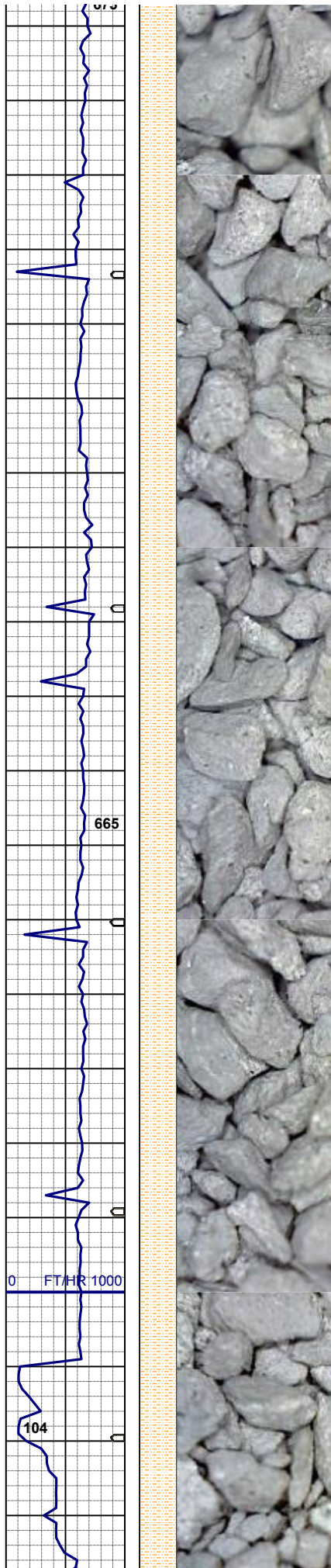


Arrow



Midnight Depth





MD 1013'
INC 0.48°
AZM 38.74°
TVD 1012.99'

100% SHALY SLTST: Itgy, sft- fri, sbblky- sl
sbplty, aren- slty tex, tr biot incl ; abnt m-dk gy
cly over shaker

BHA #2
Bit: 8.75"
Manufacturer: Varel
Model: VM513SH
Serial Number: 4004939
Nozzles: 7x12

MUD WT 8.4+ VIS 28

MD 1103'
INC 0.41°
AZM 55.82°
TVD 1102.99'

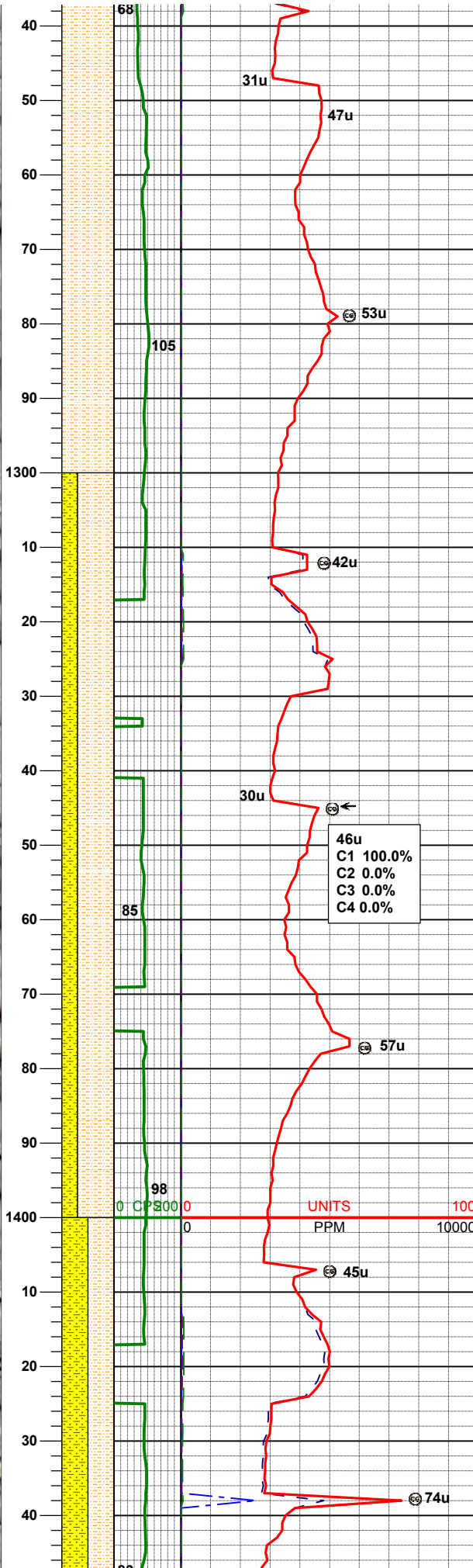
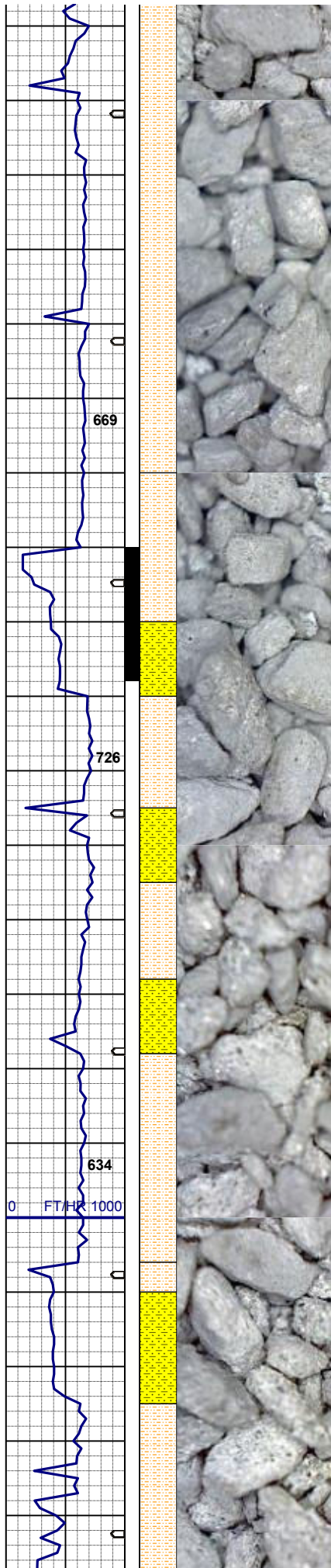
69u
C1 61.3%
C2 1.2%
C3 0.6%
C4 36.9%

100% SHALY SLTST: Itgy, sft- fri, sbblky- sl
sbplty, aren- slty tex, tr biot incl ; abnt m-dk gy
cly over shaker

MD 1169'
INC 0.44°
AZM 67.64°
TVD 1168.99'

UNITS
PPM

100
10000

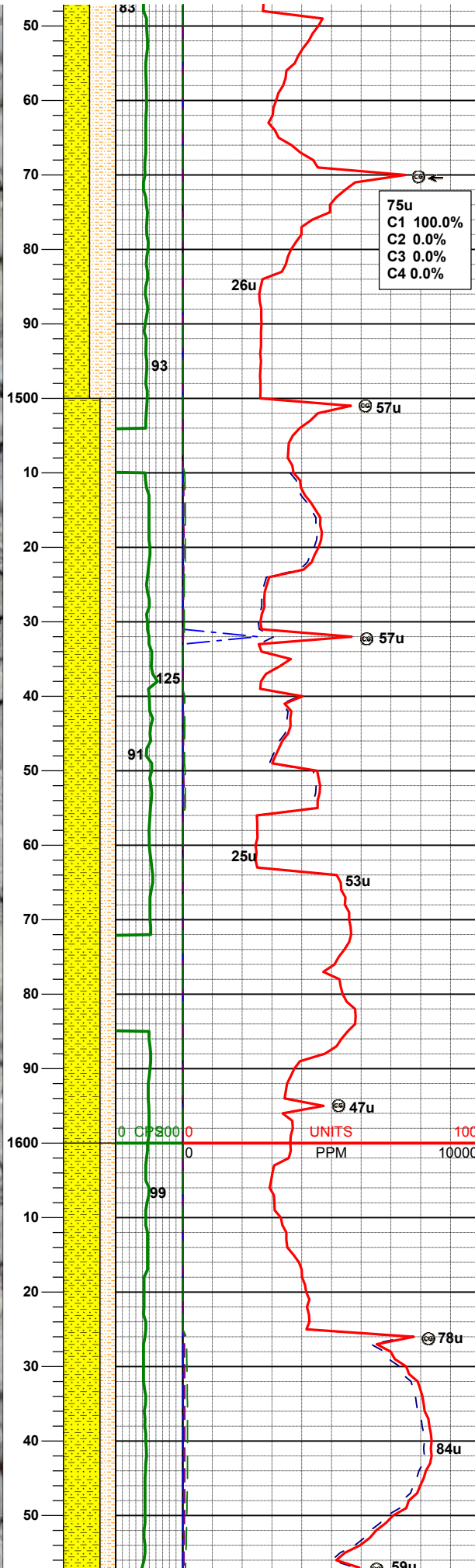
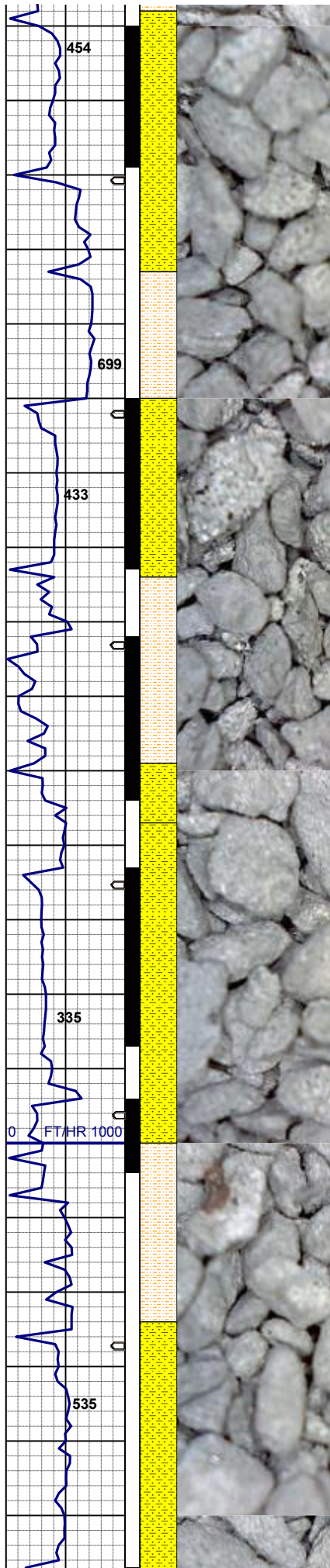


100% SHALY SLTST: ltgy, sft- fri, sbblky- sl sbplty, aren- slty tex, tr biot incl ; abnt m-dk gy cly over shaker

MD 1263'
INC 0.65°
AZM 198.12°
TVD 1262.99'

MD 1357'
INC 1.938°
AZM 213.49°
TVD 1356.96'

70% SHALY SLTST: ltgy, sft- fri, sbblky- sl sbplty, aren- slty tex, tr biot incl
30% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang, mod srt, firm- fri, p por, arg cmt, rr biot, rr glau, occ grdg - sltst



MD 1452'
INC 4.12°
AZM 205.16°
TVD 1451.82'

50% SHALY SLTST: ltgy, sft- fri, sbbly- sl
sbply, aren- slty tex, tr biot incl
50% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, rr biot, rr glau,
occ grdg - sltst

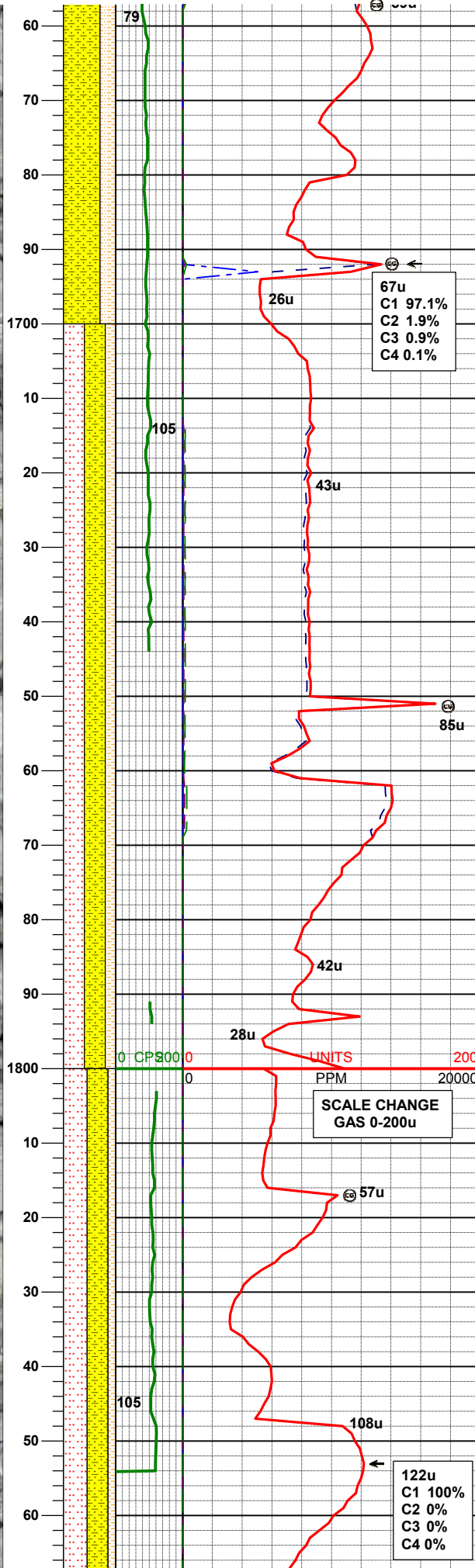
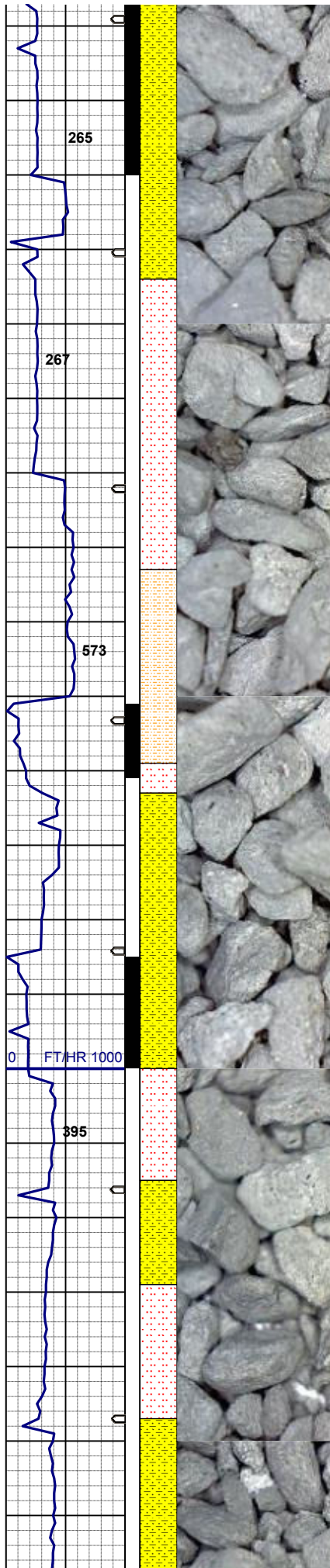
MUD WT 8.4+ VIS 28

MD 1546'
INC 7.99°
AZM 184.97°
TVD 1545.29'

70% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, rr biot, tr glau,
grdg - sltst
30% SHALY SLTST: ltgy, sft- fri, sbbly- sl
sbply, slty tex, tr biot incl

MD 1640'
INC 10.37°
AZM 177.93°
TVD 1638.08'

70% SHYSS: ltgy- tr s&p, ml-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, rr biot, tr glau,
grdg - sltst
30% SHALY SLTST: ltgy, sft- fri, sbbly- sl
sbply, slty tex, tr biot



MUD WT 8.4+ VIS 28

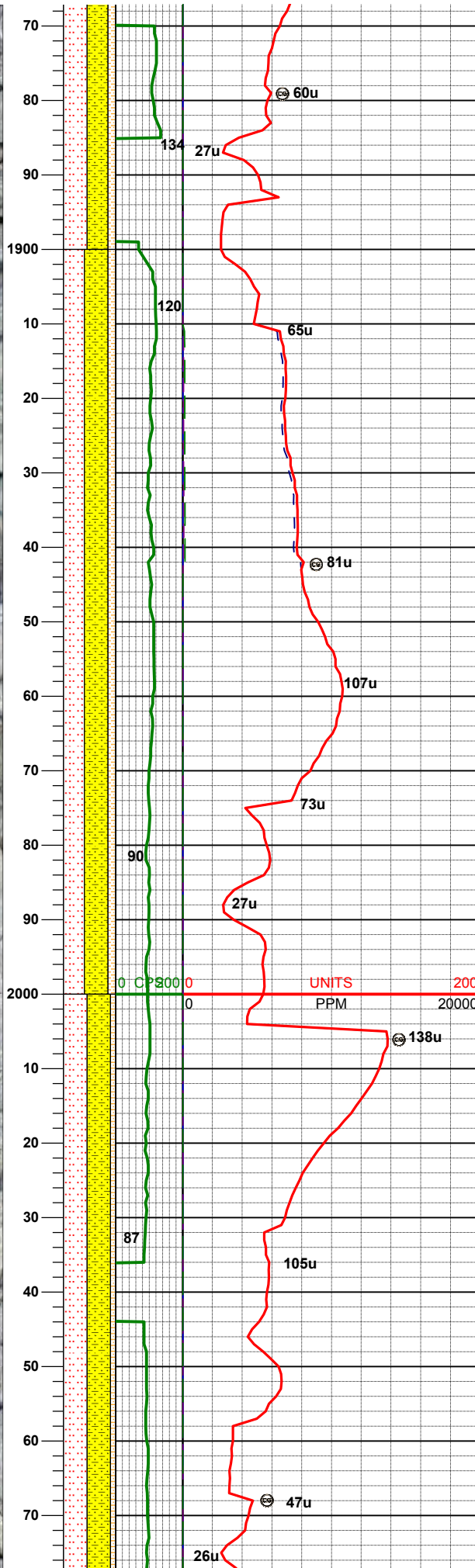
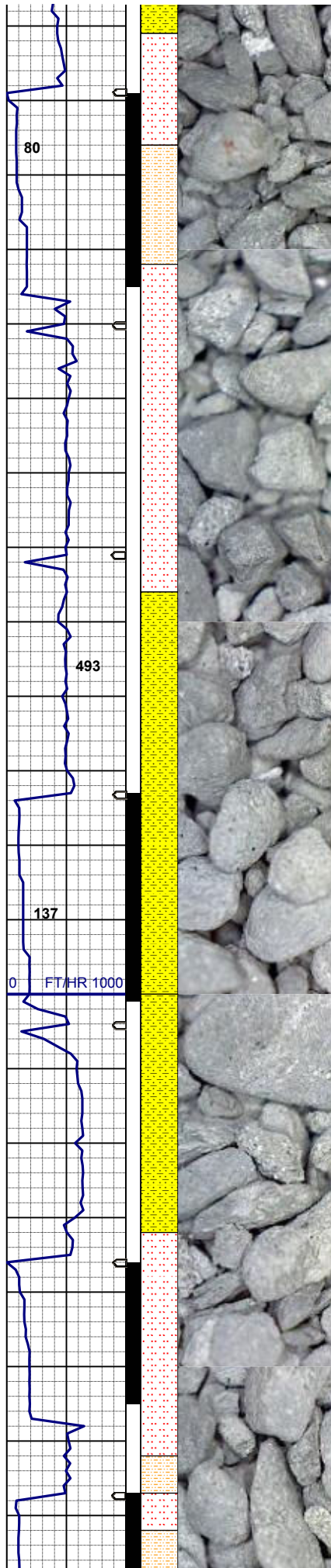
MD 1734'
INC 13.49°
AZM 188.51°
TVD 1730.05'

40% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, rr biot, tr glau,
grdg - sltst
40% SLTST: ltgy, sft- fri, sbbly.v slty tex, occ
biot incl
20% SHALY SLTST: ltgy, sft- fri, sbbly, non
fis, v slty tex, tr biot incl

MD 1829'
INC 15.01°
AZM 190.30°
TVD 1822.13'

MUD WT 8.5 VIS 28

40% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, tr biot, grdg -
sltst
45% SLTST: ltgy, sft- fri, sbbly.v slty tex, occ



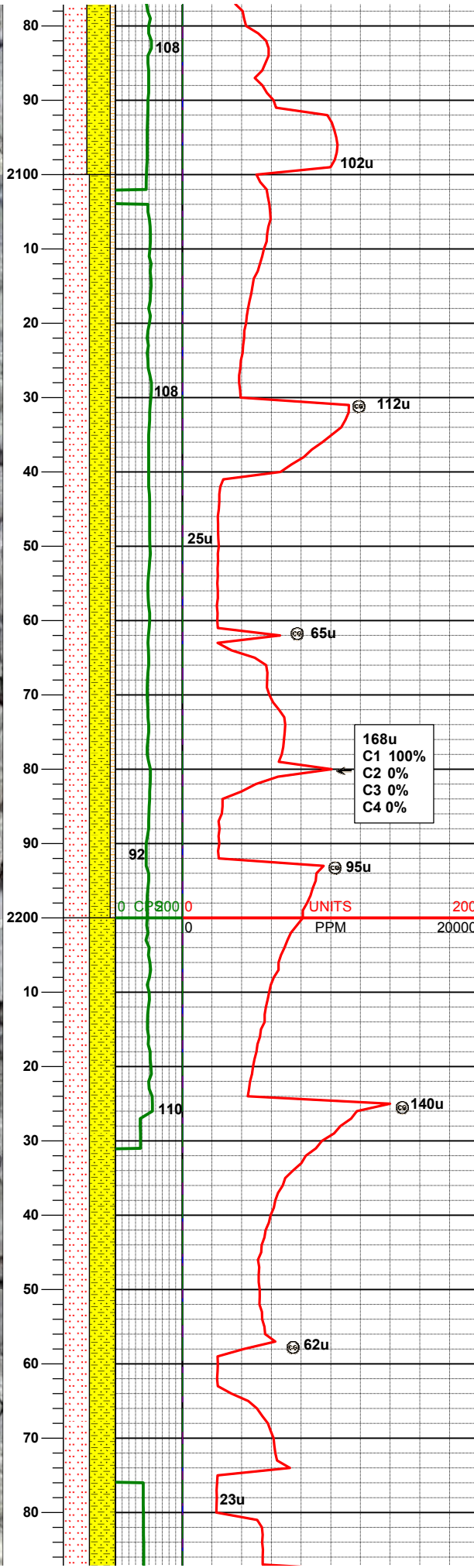
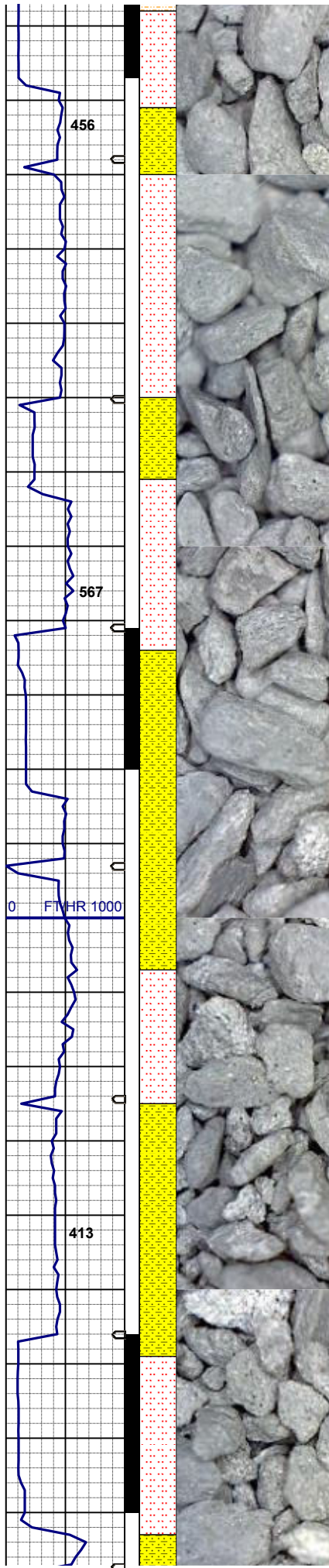
biot incl
15% SHALY SLTST: ltgy, sft- fri, sbblky, non
fis, v slty tex, tr biot incl

MD 1923'
INC 15.33°
AZM 187.74°
TVD 1912.85'

45% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, tr biot, grdg -
sltst
40% SLTST: ltgy, sft- fri, sbblky - sbplty, v slty
tex, occ biot incl
15% SHALY SLTST: ltgy, sft- fri, sbblky, non
fis, v slty tex, tr biot incl

MD 2017'
INC 15.93°
AZM 196.07°
TVD 2003.30'

45% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod-psrt, mod fri, p por, arg cmt, tr biot, grdg -
sltst
45% SLTST: ltgy, sft- fri, sbblky - sbplty, v slty
tex, occ biot incl
10% SHALY SLTST: ltgy, sft- fri, sbblky, non
fis, v slty tex, tr biot incl



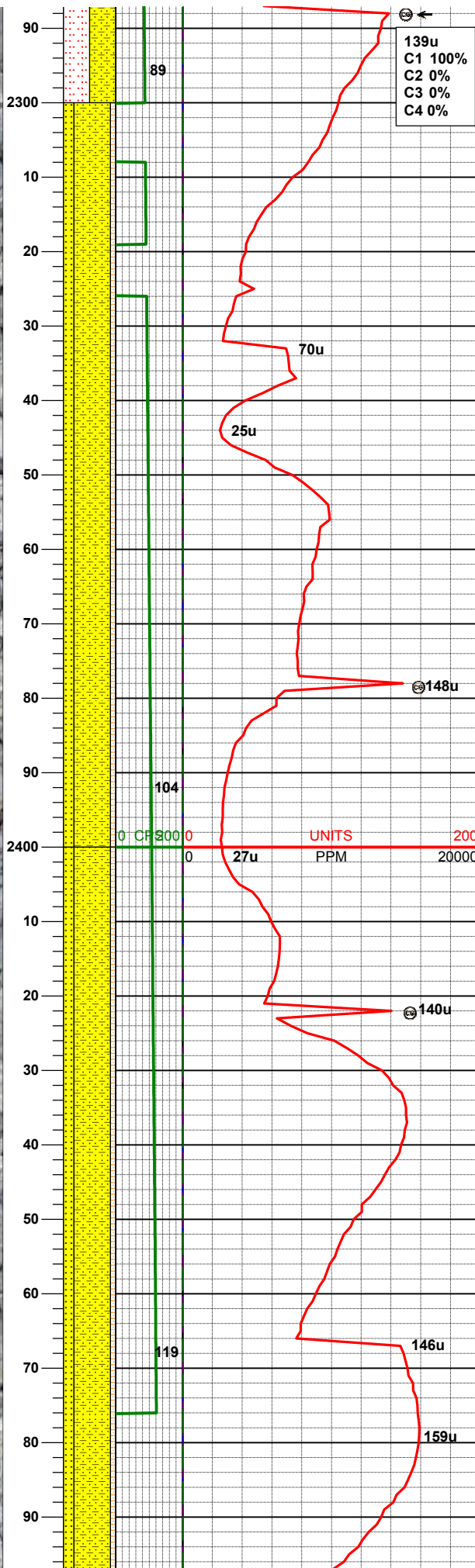
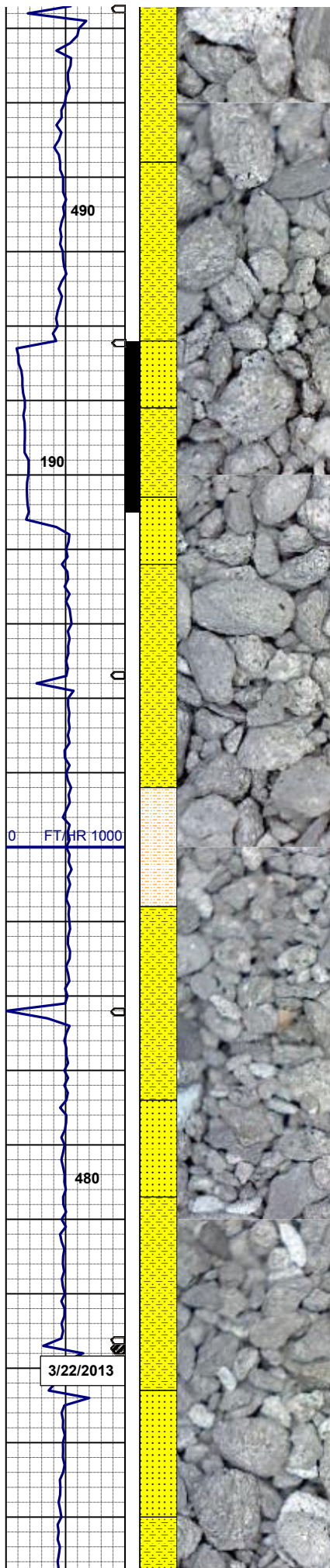
MD 2111'
INC 17.7°
AZM 200.92°
TVD 2093.3'

40% SHYSS: Itgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, tr biot, grdg -
sltst
50% SLTST: Itgy, sft- fri, sbblky - sbply, v slty
tex, occ biot incl
10% SHALY SLTST: Itgy, sft- fri, sbblky, non
fis, v slty tex, tr biot incl

MD 2206'
INC 18.19°
AZM 200.00°
TVD 2183.74'

50% SHYSS: Itgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, tr biot, tr glau,
grdg - sltst
50% SLTST: Itgy, sft- fri, sbblky - sbply, v slty
tex, occ biot incl

MD 2282'
INC 18.70°
AZM 203.37°
TVD 2255.83'



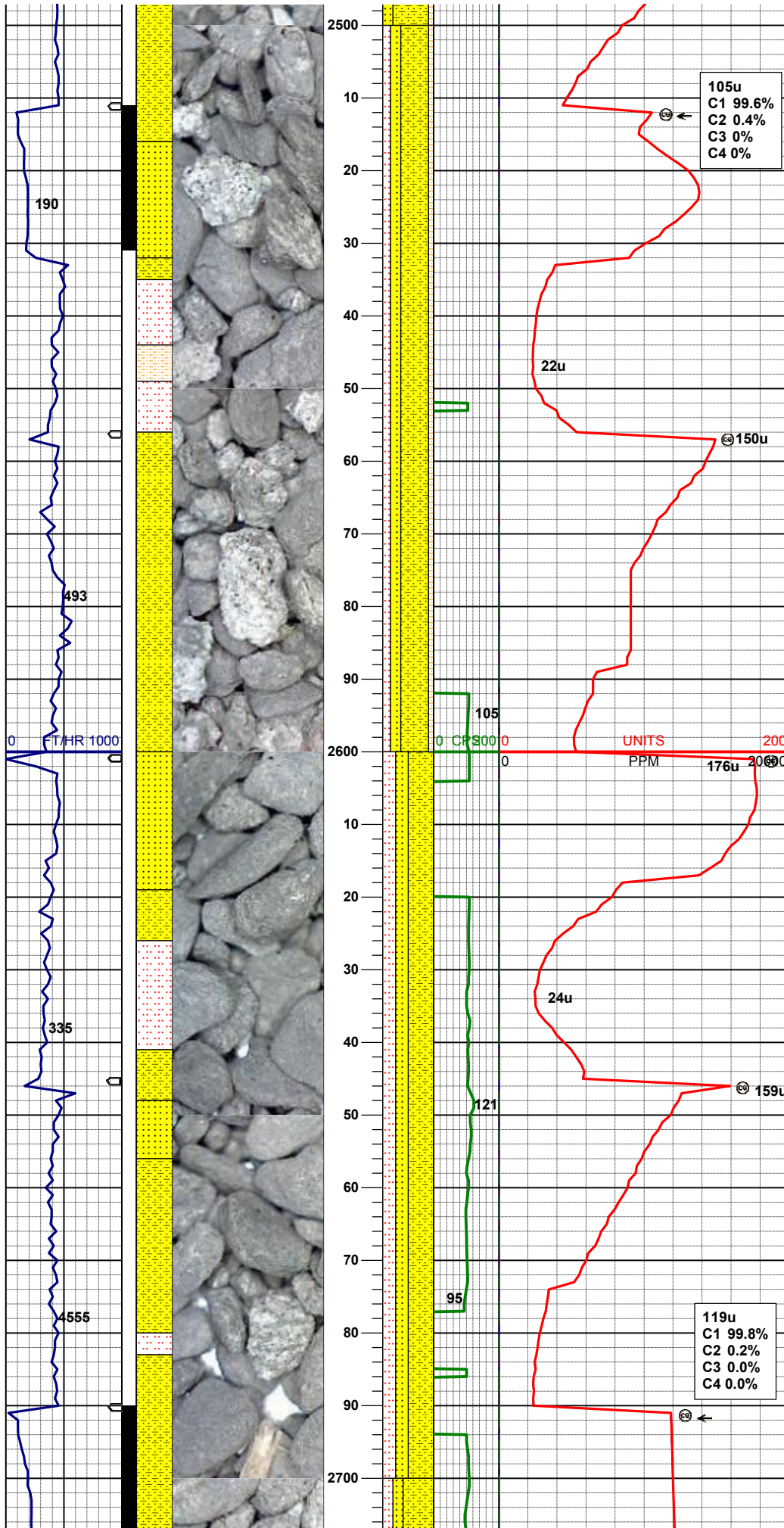
MUD WT 8.5 VIS 28

70% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang, mod srt, firm- fri, p por, arg cmt, tr biot, tr glau, grdg - ss
20% SS: wh- mgy, s&p ip, clr-trnsl, f-mgr, sbblky- sbang, mod srt, w cmt, arg cmt, mod calc, tr glau, qtz arenite
10% SHYSLTST: ltgy, sft- fri, sbblky, non fis, v slty tex, tr biot incl

MD 2372'
INC 20.280°
AZM 205.1°
TVD 2340.67'

70% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang, mod srt, firm- fri, p por, arg cmt, tr biot, tr glau, grdg - ss
20% SS: wh- mgy, s&p ip, clr-trnsl, f-mgr, sbblky- sbang, mod srt, w cmt, arg cmt, mod calc, tr glau, qtz arenite
10% SHYSLTST: ltgy, sft- fri, sbblky, non fis, v slty tex, tr biot incl

MD 2461'
INC 18.76°
AZM 202.80°
TVD 2424.56'

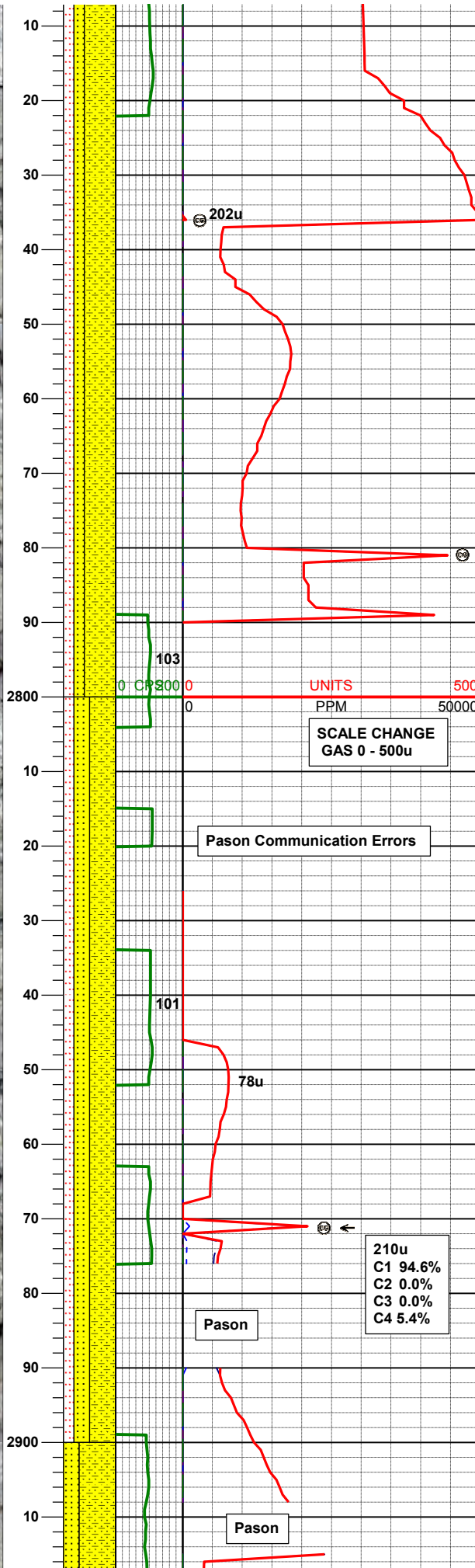
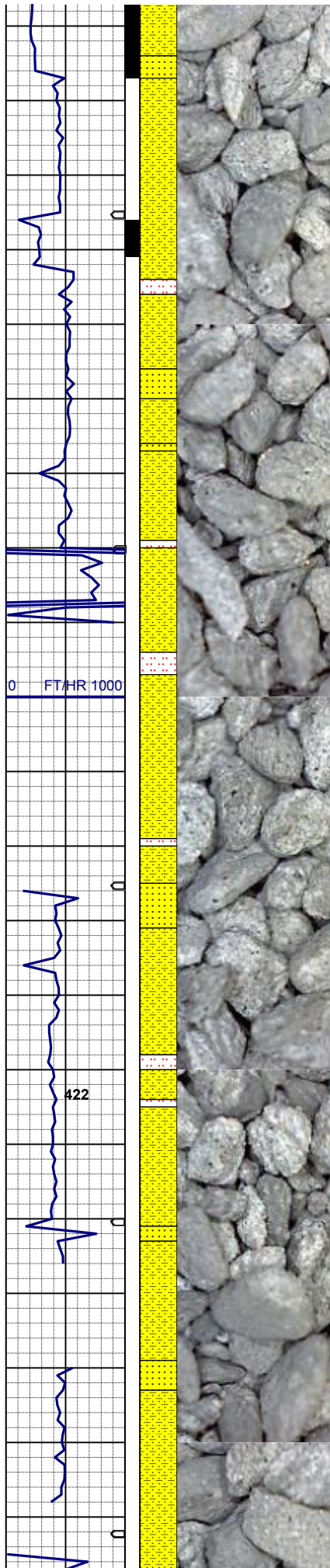


MD 2551'
INC 19.49°
AZM 204.59°
TVD 2509.50'

55% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, firm- fri, p por, arg cmt, tr biot.grdg - ss
20% SS: wh- mgy, s&p ip, clr-trnsl, f-mgr,
sbbly- sbang, mod srt, w cmt, arg cmt, mod
calc, tr glau, qtz arenite
15% SLTST: ltgy, sft- fri, sbbly - sbply, v slty
tex, occ biot incl
10% SHYSLTST: ltgy, sft- fri, sbbly, non fis, v
slty tex, tr biot incl

MD 2640'
INC 17.9°
AZM 202.39°
TVD 2593.88'

50% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, mod calc, tr
biot.grdg - ss
25% SS: wh- mgy, s&p ip, clr-trnsl, f-mgr,
sbbly- sbang, mod srt, firm, w cmt, arg cmt,
mod calc, tr glau, qtz arenite
25% SLTST: ltgy, sft- fri, sbbly - sbply, v slty
tex, occ biot incl



MD 2730'
INC 19.45°
AZM 202.35°
TVD 2679.13'

60% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, mod calc, tr
biot,grdg - ss
20% SS: wh- mgy, s&p ip, clr-trnsl, f-mgr,
sbbly- sbang, mod srt, firm, w cmt, arg cmt,
mod calc, tr glau, qtz arenite
20% SLTST: ltgy, sft- fri, sbbly - sbply, v slty
tex, occ biot incl

SCALE CHANGE
GAS 0 - 500u

Pason Communication Errors

MD 2820'
INC 19.41°
AZM 201.33°
TVD 2764.01'

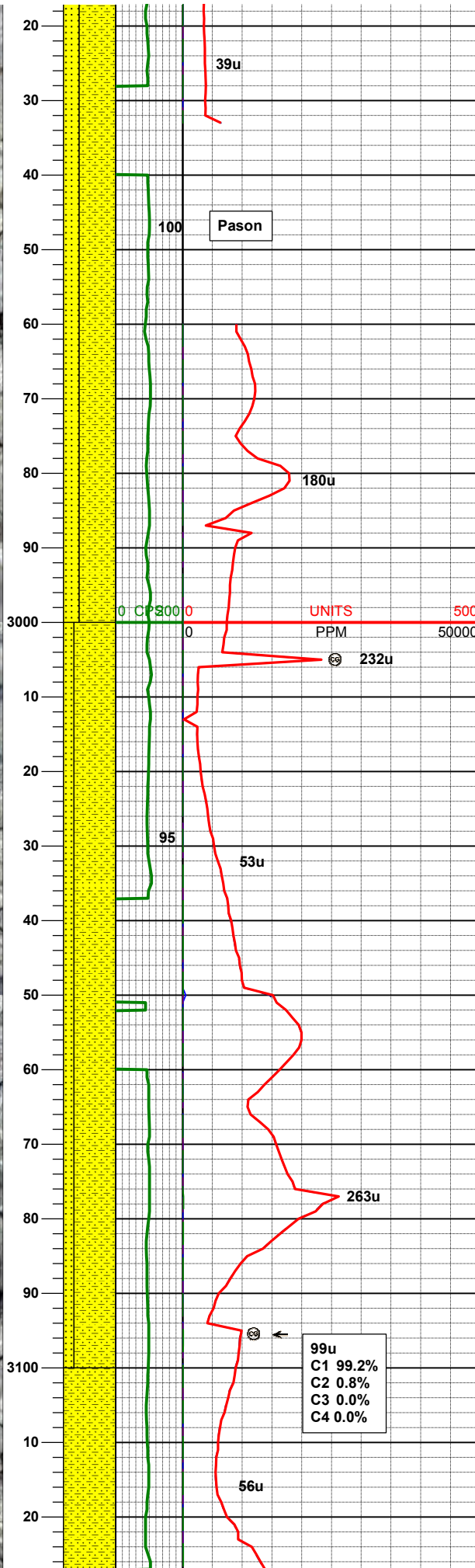
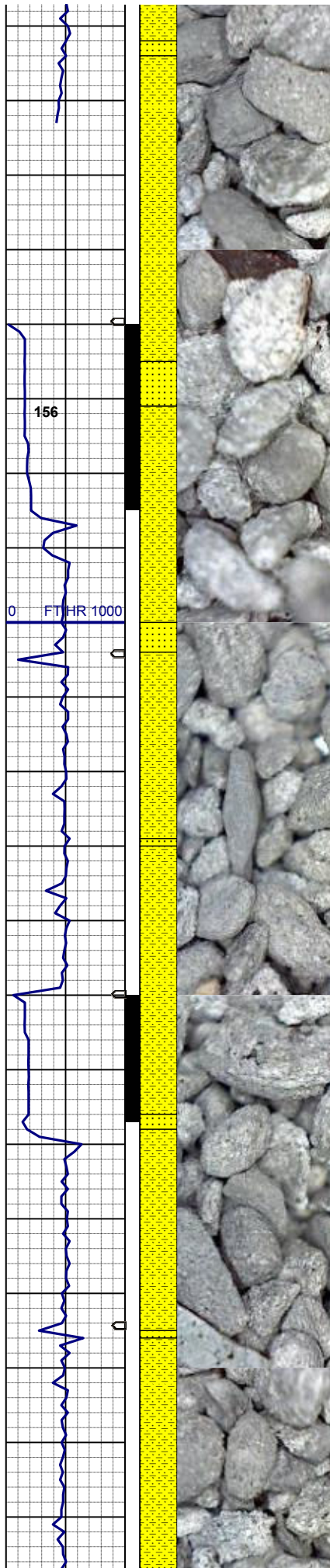
50% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, mod calc, tr biot
30% SS: wh- lt gy, s&p ip, clr-trnsl, f-mgr,
sbbly- sbang, mod srt, firm, w cmt, arg cmt,
mod calc, tr glau
20% SLTST: ltgy, sft- fri, sbbly - sbply, sl-v
silty tex, occ biot incl

210u
C1 94.6%
C2 0.0%
C3 0.0%
C4 5.4%

Pason

Pason

MD 2909'
INC 19.15°
AZM 198.79°
TVD 2848.02'



70% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, mod calc, tr biot, rr
glau
30% SS: wh- lt gy, s&p ip, clr-trnsl, f-mgr,
sbbiky- sbang, mod srt, firm, w cmt, arg cmt,
mod calc, occ imbd glau

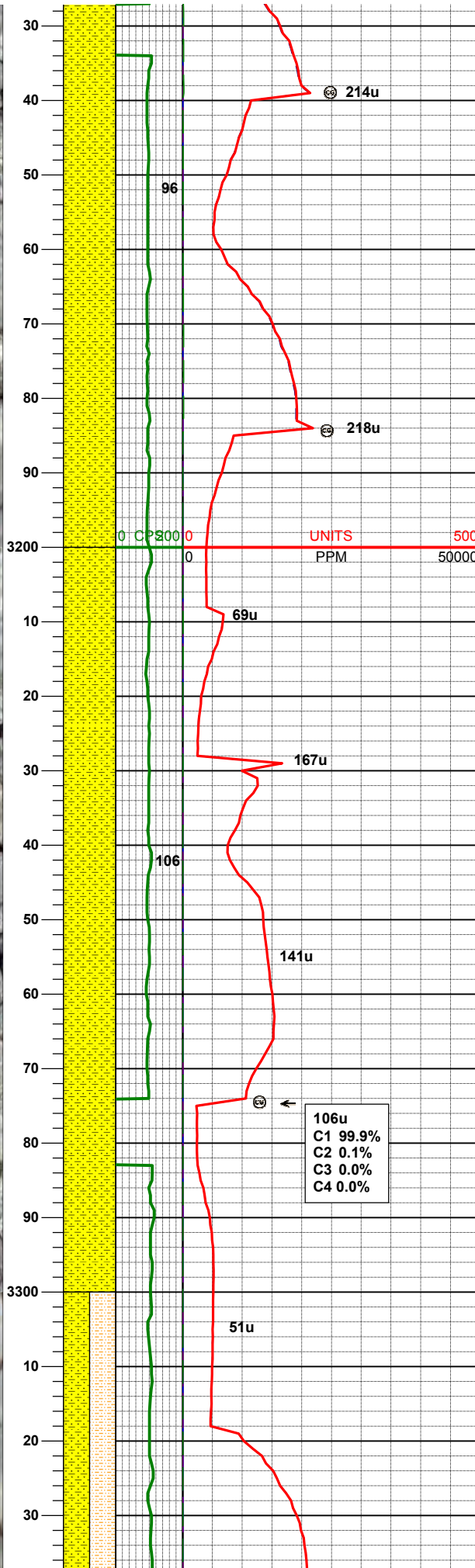
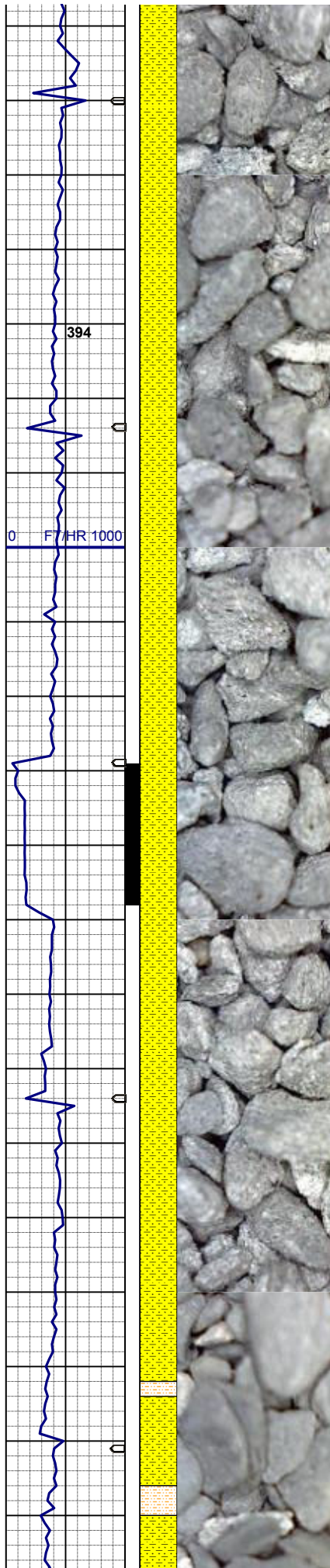
MD 2999'
INC 20.71°
AZM 199.58°
TVD 2932.62'

80% SHYSS: ltgy- tr s&p, vf-fgr, sbrd - sbang,
mod srt, fri, p por, arg cmt, mod calc, tr biot, rr
glau
20% SS: wh- lt gy, s&p ip, clr-trnsl, f-mgr,
sbbiky- sbang, mod srt, firm, w cmt, arg cmt,
mod calc, occ imbd glau

MD 3089'
INC 21.15°
AZM 204.2°
TVD 3016.69'

MUD WT 8.4 VIS 26

99u
C1 99.2%
C2 0.8%
C3 0.0%
C4 0.0%



100% SHYSS: ltgy tr wh-s&p, vf-fgr, sbdr -
sbang, mod srt, fri, p por, arg cmt, mod calc, tr
biot, rr glau, occ grdg - ss

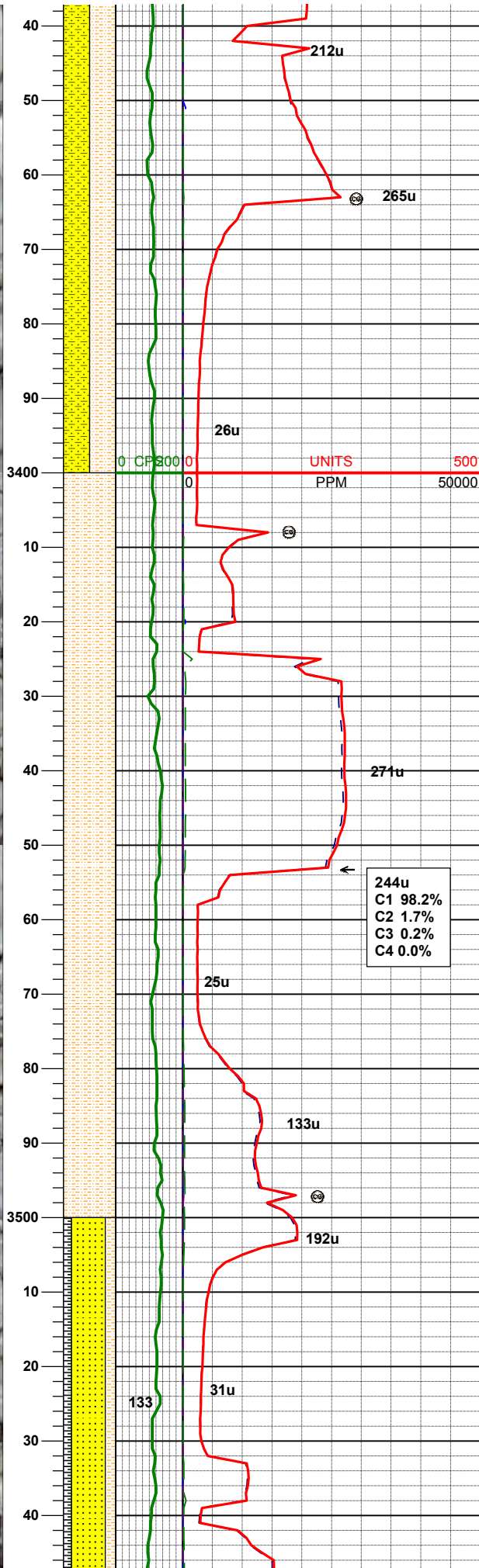
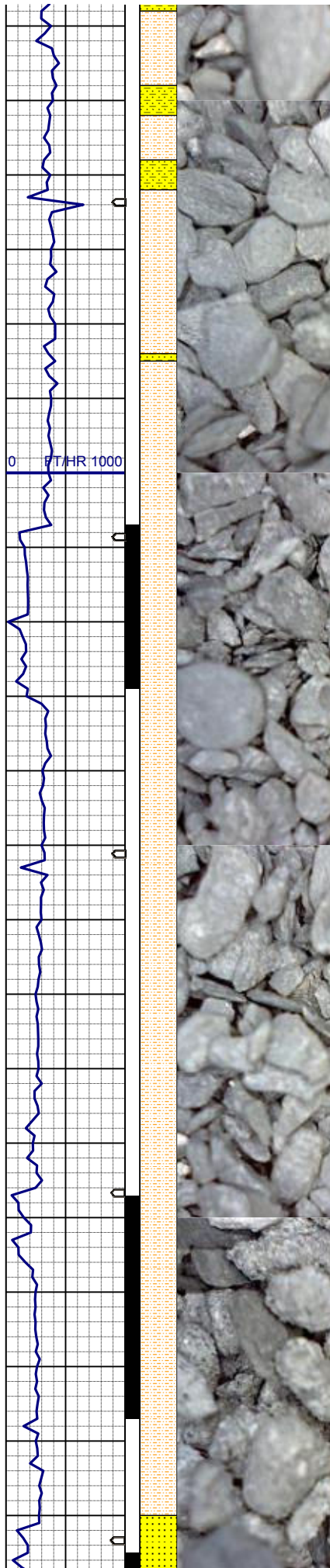
MD 3178'
INC 20.17°
AZM 199.89°
TVD 3099.98'

100% SHYSS: ltgy tr wh-s&p, vf-fgr, sbdr -
sbang, mod srt, fri, p por, arg cmt, mod calc, tr
biot, rr glau, occ grdg - ss

MD 3268'
INC 20.03°
AZM 205.98°
TVD 3184.51'

MUD WT 8.4 VIS 26

106u
C1 99.9%
C2 0.1%
C3 0.0%
C4 0.0%



50% SHYSS: ltgy tr wh-s&p, vf-fgr, sbrd -
sbang, mod srt, fri, p por, arg cmt, mod calc, tr
biot, rr glau, grdg - shaly sltst
50% SHALY SLTST: m gy, sft- firm, sbblky- sl
sbplty, aren- slty tex, tr biot incl

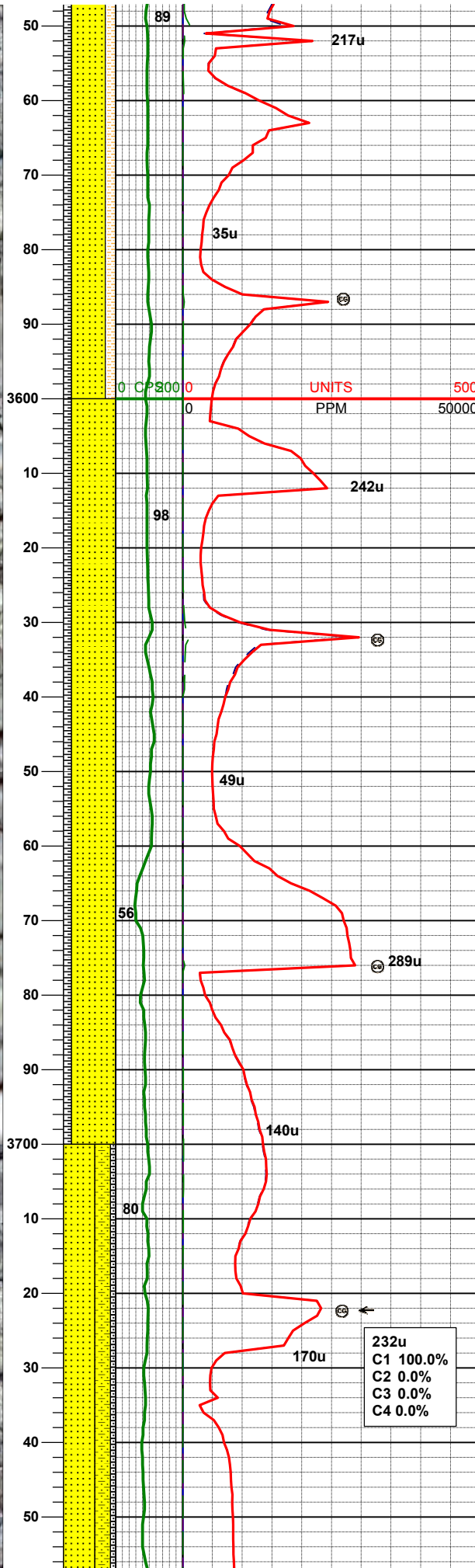
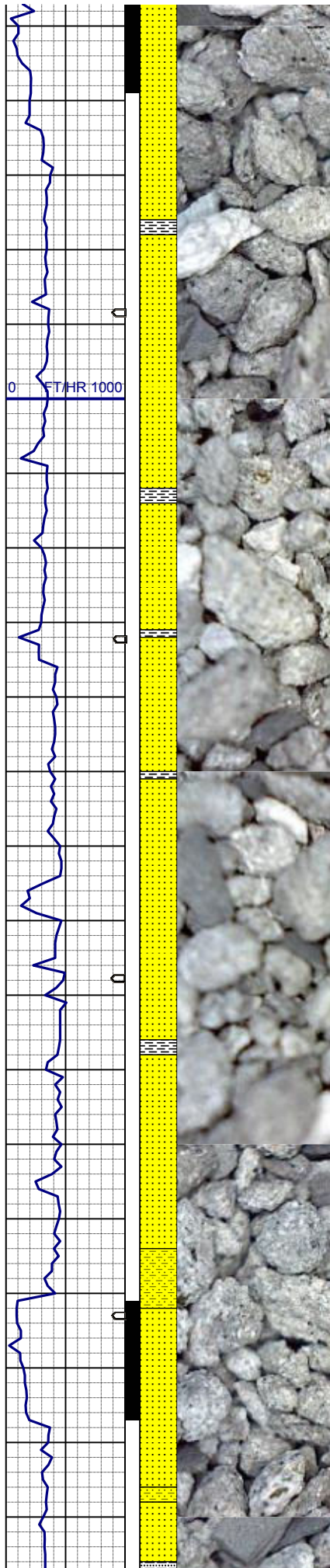
MD 3357'
INC 18.6°
AZM 203.51°
TVD 3268.49'

MD 3447'
INC 17.71°
AZM 202.27°
TVD 3354.01'

100% SHALY SLTST: m gy, sft- firm, sbblky -
sbplty, aren- slty tex, tr biot incl, grdg - silty sh ;
sl incr m gy cly over shaker

MUD WT 8.4 VIS 26

MD 3537'
INC 18.2°
AZM 206.8°
TVD 3439.63'



65% SS: wh-op occ lt gy s&p, m-fgr, sbrd-sbang, firm-brit, mod w srt, occ glau ; tr dk yel o flor
20% SHALY SLTST: m gy, sft- firm, sbblky - sbplty, aren- slty tex, tr biot incl
15% SH: m gy-mgybrn occ v dk gy, firm -sft , pty- fis, rthy occ v sl slty tex, hom, tr imbd fos

MD 3626'
INC 20.57°
AZM 207.05°
TVD 3523.58'

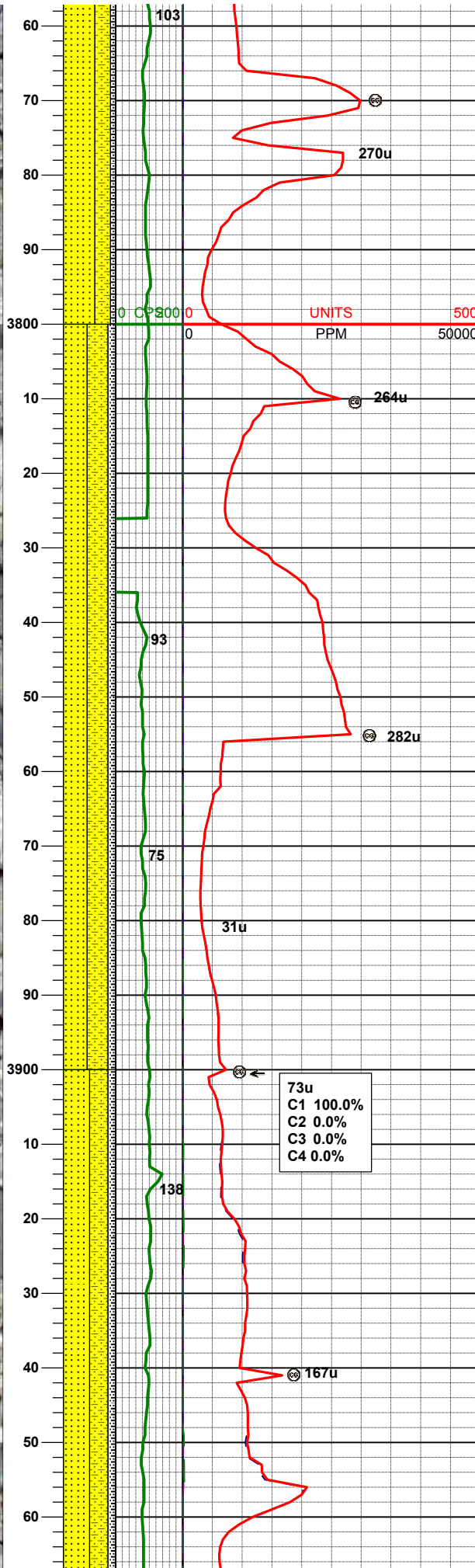
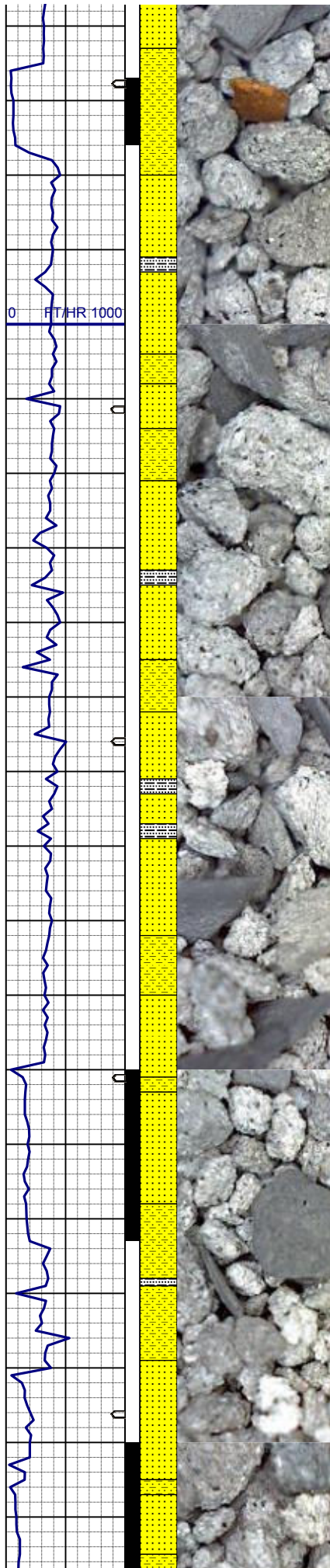
85% SS: wh-op occ lt gy s&p, m-fgr, sbrd-sbang, firm-brit, mod w srt, occ glau ; tr dk yel o flor, sl grdg - shaly ss
15% SH: m gy-mgybrn occ v dk gy, firm -sft , pty- fis, rthy occ v sl slty tex, hom, tr imbd fos

MUD WT 8.4 VIS 26

MD 3716'
INC 21.23°
AZM 207.18°
TVD 3607.66'

232u
C1 100.0%
C2 0.0%
C3 0.0%
C4 0.0%

60% SS: wh-op occ lt gy s&p, m-fgr, sbrd-



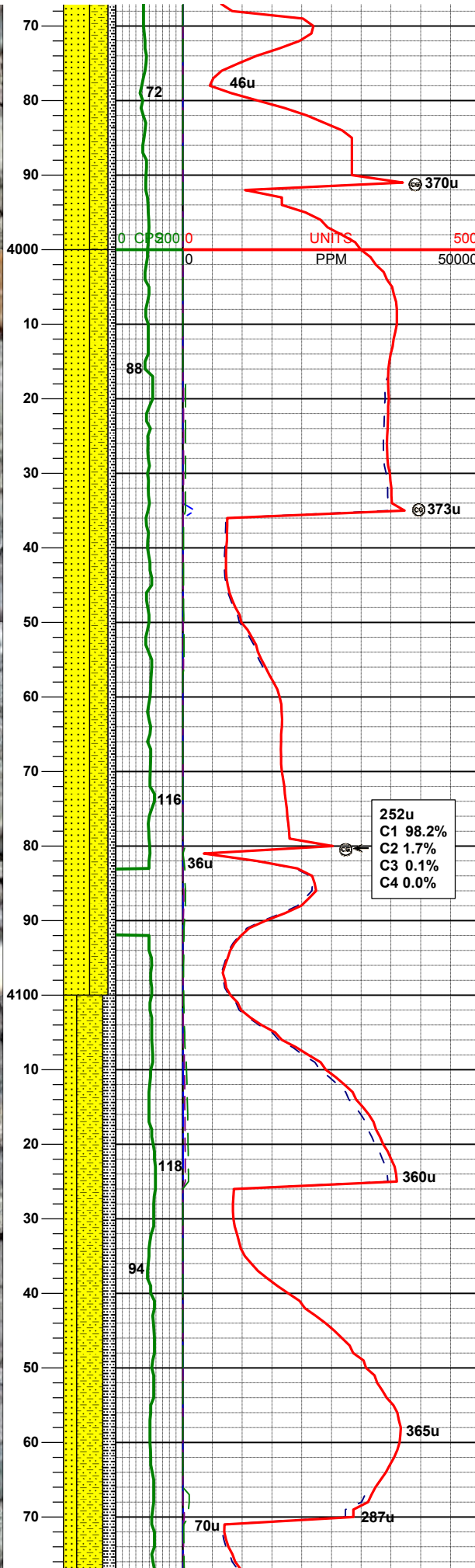
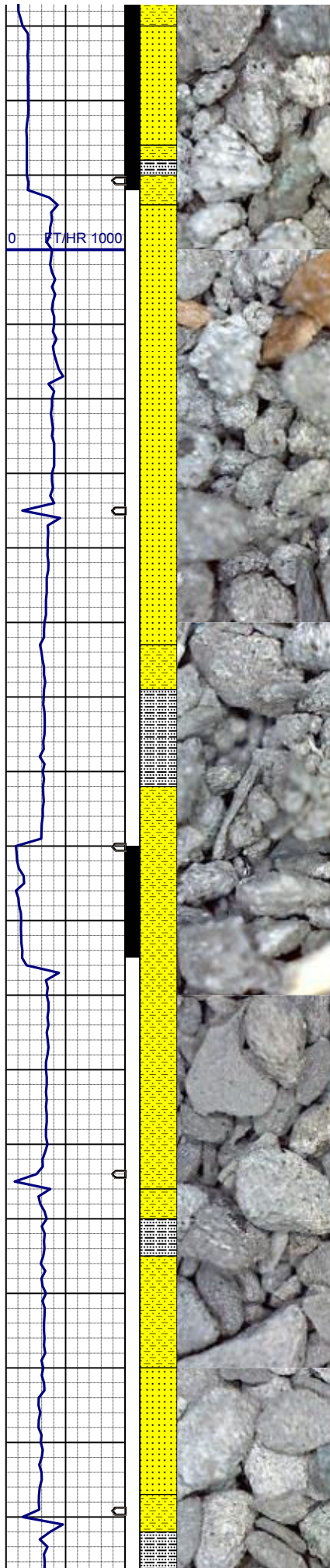
sbang, firm-brit, mod w srt, occ glau ; tr dk yel o
flor, sl grdg - shaly ss
30% SHYSS: ltgy, vf-fgr, sbdr - sbang, mod srt,
firm- fri, v por, arg cmt, tr biot
10% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbblky - sbply, rthy sl slty tex, hom

MD 3805'
INC 19.68°
AZM 206.53°
TVD 3691.05'

45% SS: wh-op occ lt gy s&p, m-fgr, sbdr-
sbang, firm-brit, mod w srt, occ glau ; tr dk yel o
flor, sl grdg - shaly ss
40% SHYSS: ltgy, vf-fgr, sbdr - sbang, mod srt,
firm- fri, v por, arg cmt, tr biot
15% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbblky - sbply, rthy sl slty tex, hom

MD 3895'
INC 20.378°
AZM 205.55°
TVD 3775.61'
MUD WT 8.4 VIS 26

50% SS: wh-op occ lt gy s&p, m-fgr, sbdr-
sbang, firm-brit, mod w srt, occ glau ; g dk yel o
flor, sl grdg - shaly ss
35% SHYSS: ltgy, vf-fgr, sbdr - sbang, mod srt,
firm- fri, v por, arg cmt, tr biot
15% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbblky - sbply, rthy sl slty tex, hom ; occ bl
talc



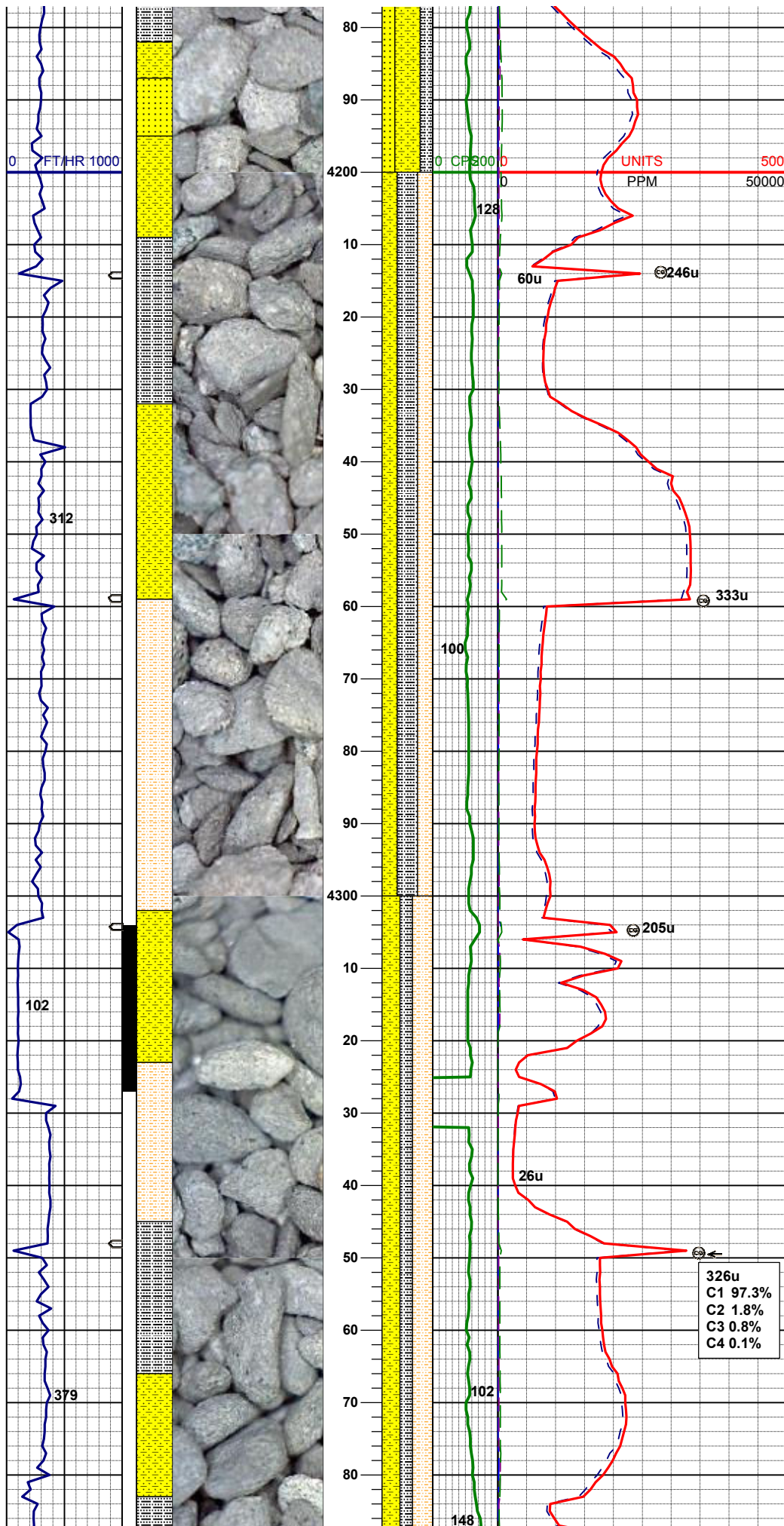
MD 3985'
INC 16.37°
AZM 203.44°
TVD 3861.00'

50% SS: wh-op occ lt gy s&p, m-fgr, sbrd-sbang, firm-brit, mod w srt, tr glau, mod clac, sl grdg - shaly ss
35% SHYSS: ltgy-dkgy, vf-fgr, sbrd - sbang, mod srt, firm- fri, v por, arg cmt, tr biot, mod calc
15% SILTY SH: m gy-mgybrn occ v dk gy, firm - sft , sbblky - sbply, rthy sl sity tex, hom ; occ bl talc

MD 4074'
INC 16.34°
AZM 202.12°
TVD 3946.4'

50% SS: wh-op occ lt gy s&p, m-fgr, sbrd-sbang, firm-brit, mod w srt, occ glau ; g dk yel o flor, sl grdg - shaly ss
25% SHYSS: ltgy, vf-fgr, sbrd - sbang, mod srt, firm- fri, v por, arg cmt, tr biot
25% SILTY SH: m gy-mgybrn occ v dk gy, sft fri , sbblky - sbply, rthy sl sity tex, hom

MD 4164'
INC 15.43°
AZM 197.83°
TVD 4032.97'



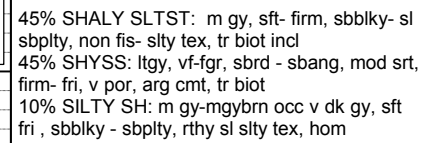
40% SILTY SH: m gy-mgybrn occ v dk gy, sft
fri , sbbly - sbply, rthy sl slty tex, hom
30% SHYSS: ltgy, vf-fgr, sbrd - sbang, mod srt,
firm- fri, v por, arg cmt, tr biot
30% SHALY SLTST: m gy, sft- firm, sbbly- sl
sbply, non fis- slty tex, tr biot incl

MD 4254'
INC 14.01°
AZM 197.43°
TVD 4120.01'

MD 4343'
INC 13.34°
AZM 190.66°
TVD 4206.49'

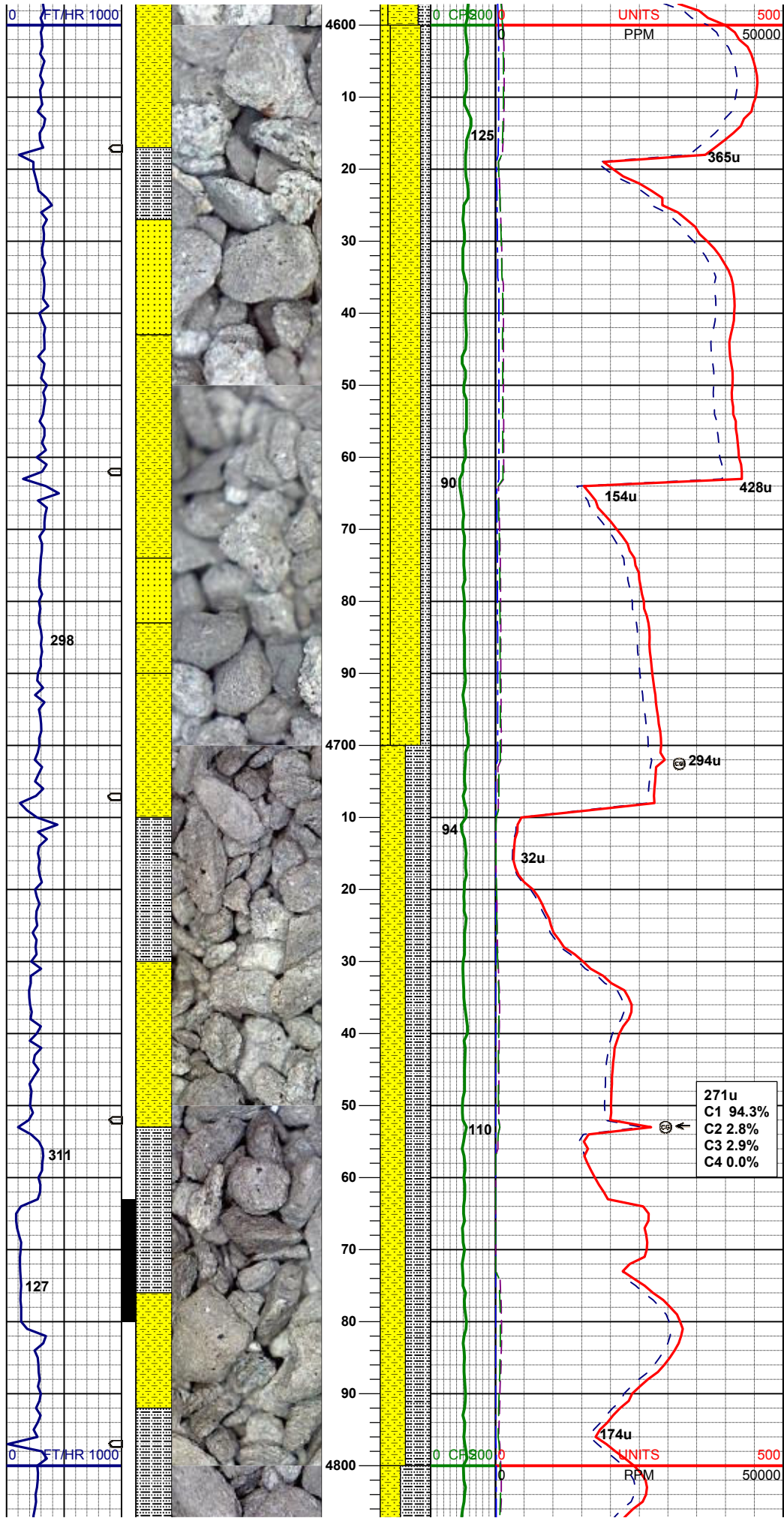
40% SHALY SLTST: m gy, sft- firm, sbbly- sl
sbply, non fis- slty tex, tr biot incl
35% SHYSS: ltgy, vf-fgr, sbrd - sbang, mod srt,
firm- fri, v por, arg cmt, tr biot
25% SILTY SH: m gy-mgybrn occ v dk gy, sft
fri , sbbly - sbply, rthy sl slty tex, hom

326u
C1 97.3%
C2 1.8%
C3 0.8%
C4 0.1%



MD 4522'
INC 14.36°
AZM 188.84°
TVD 4380.28'

60% SHYSS: ltgy, vf-fgr, sbrrd - sbang, mod srt,
firm- fri, v por, arg cmt, tr biot, occ glau
25% SILTY SH: gty-mgybrn occ v dk gyt, sft
fri, sbbkly - sbplty, rthy sl sty tex, hom
15% SS: wh-lt gyt, s&p, clr, m up-fgr, sbrrd-
sbang, fri-bit, mod w srt, occ glau ; tr dk yel o
flor, sl grdq - shaly ss



MUD WT 8.7+ VIS 28

MD 4612'
INC 13.17°
AZM 188.96°
TVD 4467.69'

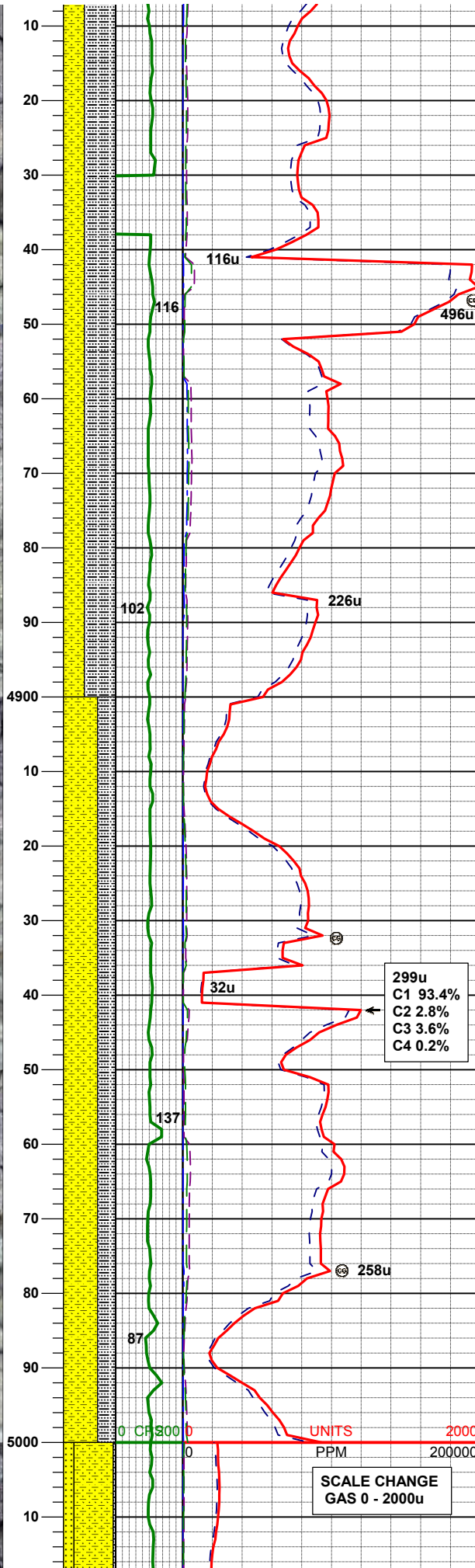
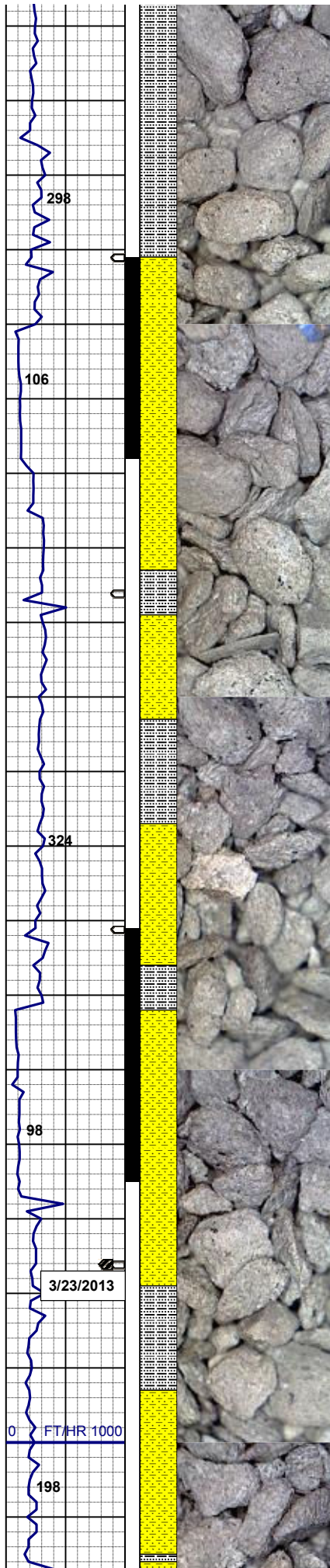
60% SHYSS: ltgy, vf-fgr, sbdr - sbang, mod srt, firm- fri, v por, arg cmt, tr biot, occ glau, mod calc
20% SILTY SH: m gy-mgybrn occ v dk gy, sft fri, sbbiky - sbply, rthy sl slty tex, hom
20% SS: wh-lt gy, s&p, clr, m up-fgr, sbdr-sbang, fri-brit, mod w srt, occ glau; tr dk yel o flor, sl grdg - shaly ss

MD 4702'
INC 12.21°
AZM 189.58°
TVD 4555.49'

50% SHYSS: ltgy, vf-fgr, sbdr - sbang, mod-p srt, firm- fri, v por, arg cmt, tr biot, sl calc
50% SILTY SH: m gy-mgybrn occ v dk gy, sft fri, sbbiky - sbply, rthy sl slty tex, hom

MD 4791'
INC 9.33°
AZM 194.40°
TVD 4642.92'

MUD WT 9.1+ VIS 35



40% SHYSS: ltgy, vf-fgr, sbrd - sbang, mod-p
srt, firm- fri, v por, arg cmt, tr biot, sl calc
60% SILTY SH: m gy-mgybrn occ v dk gy, sft
fri , sbbiky - sbply, rthy sl slty tex, hom

MD 4881'
INC 6.81°
AZM 203.27°
TVD 4732.02'

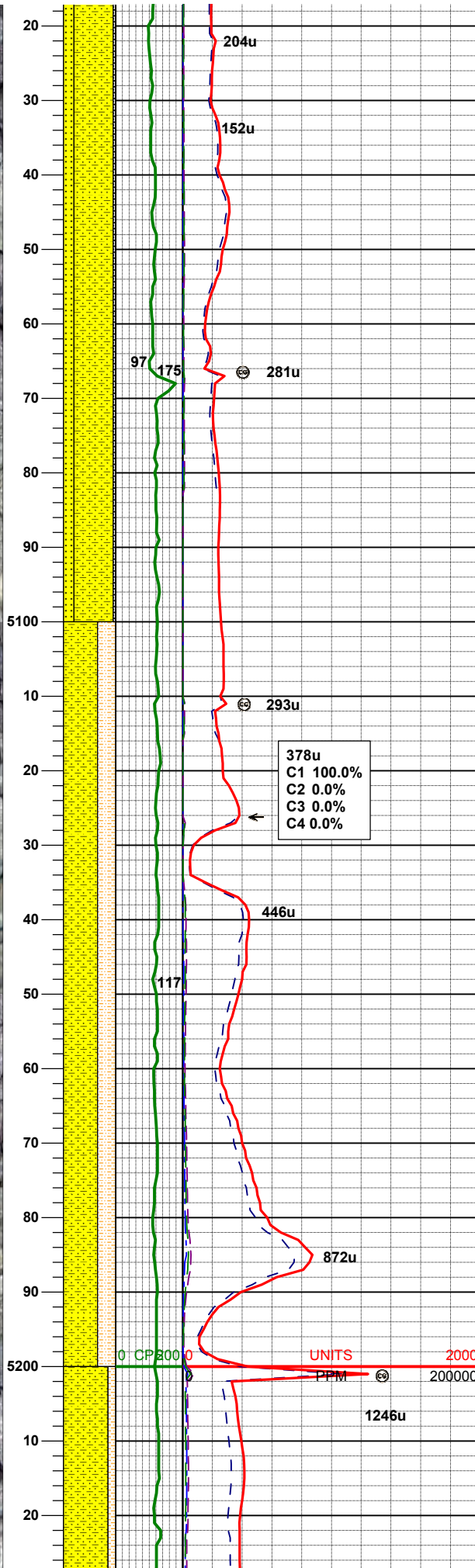
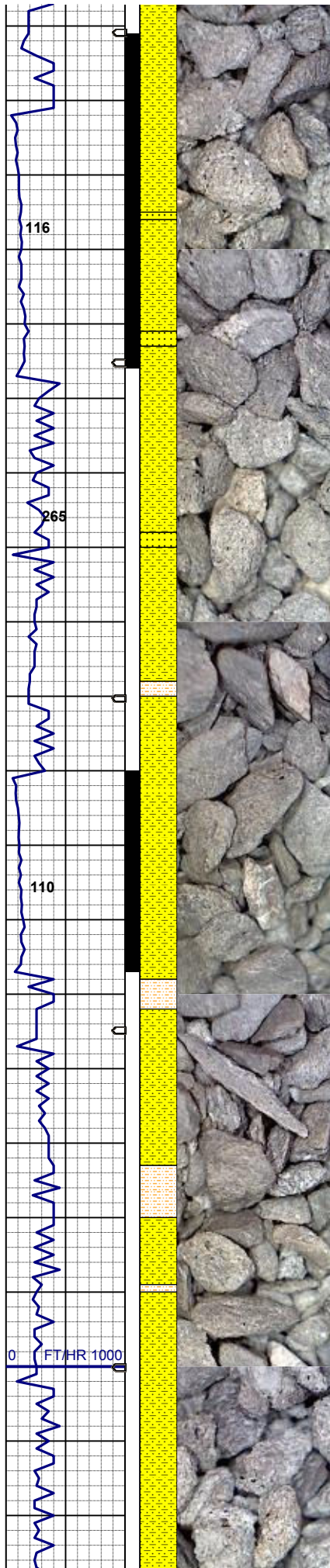
299u
C1 93.4%
C2 2.8%
C3 3.6%
C4 0.2%

65% SHYSS: ltgy, vf-fgr, sbrd - sbang, mod-p
srt, firm- fri, v por, arg cmt, tr biot, sl calc
35% SILTY SH: m gy-mgybrn occ v dk gy, sft
fri , sbbiky - sbply, rthy sl slty tex, hom

MD 4971'
INC 5.38°
AZM 211.11°
TVD 4821.51'

MUD WT 9.2+ VIS 32

SCALE CHANGE
GAS 0 - 2000u



75% SHYSS: ltgy, vf-fgr, sbrd - sbang, mod-p
srt, firm- fri, v por, arg cmt, tr biot, tr pyr, sl calc
20% SS: lt gy, s&p, m up-fgr, sbrd-sbang, firm-
brit, mod-p srt, grdg - shaly ss
5% SILTY SH: m gy-mgybrn occ v dk gy, sft fri ,
sbbly - sbply, rthy sl silty tex, hom

MD 5060'
INC 2.74°
AZM 231.90°
TVD 4910.29'

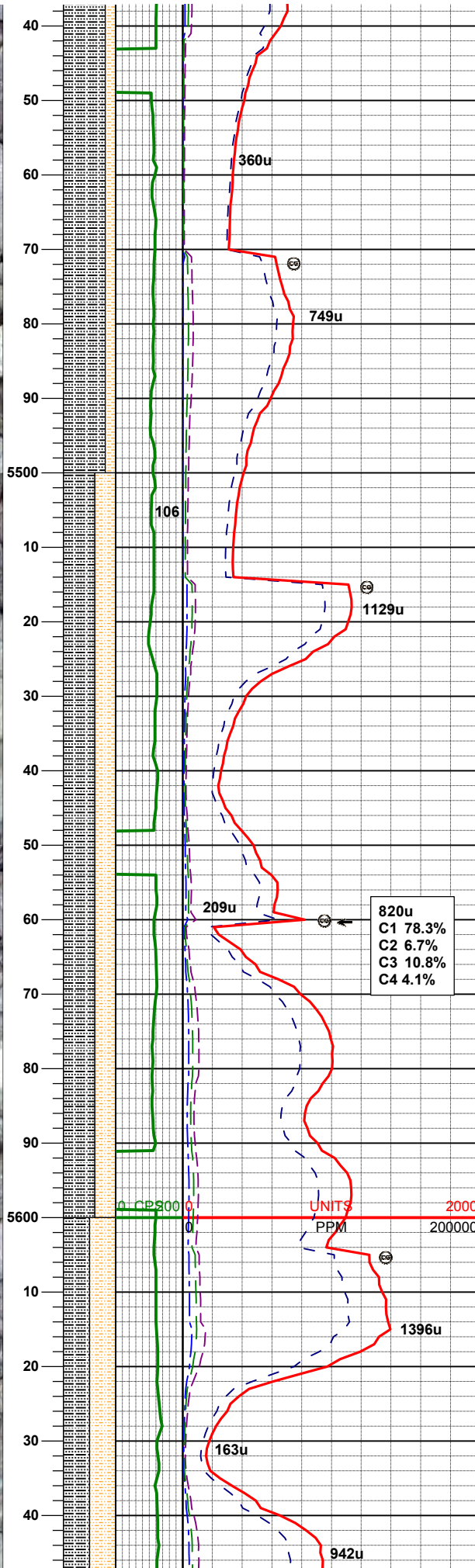
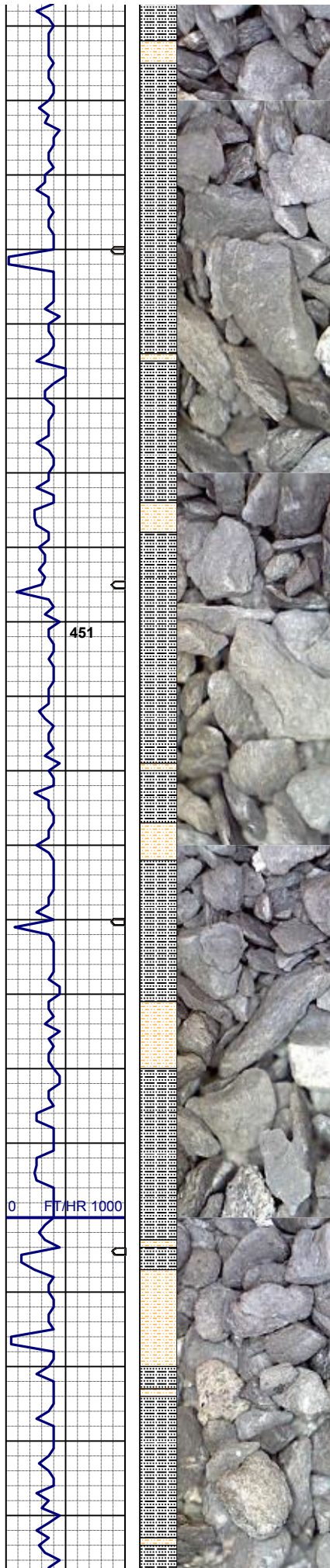
378u
C1 100.0%
C2 0.0%
C3 0.0%
C4 0.0%

65% SHYSS: ltgy, vf-fgr, sbrd - sbang, mod-p
srt, firm- fri, v por, arg cmt, tr biot, tr pyr, mod
calc
35% SHALY SLTST: lt-m gy, sft- firm, sbbly -
sbply, silty tex, tr biot incl, grdg - silty sh

MD 5150'
INC 1.08°
AZM 304.30°
TVD 5000.24'

0 CP 2000 0 UNITS 2000
PPM 200000

1246u



80% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbblky - sbpity, rthy sl slty tex, sl grdg - sltst
20% SHALY SLTST: lt-m gy, sft- firm, sbblky -
sbpity, slty tex, tr biot incl

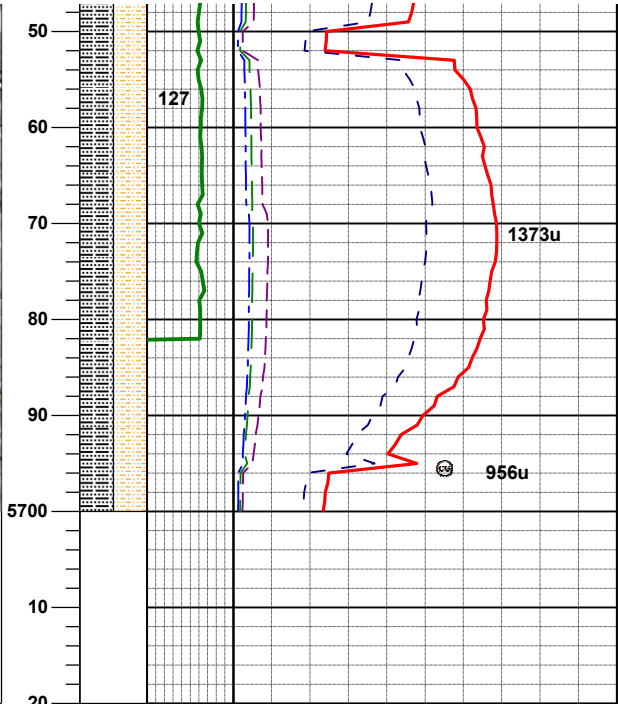
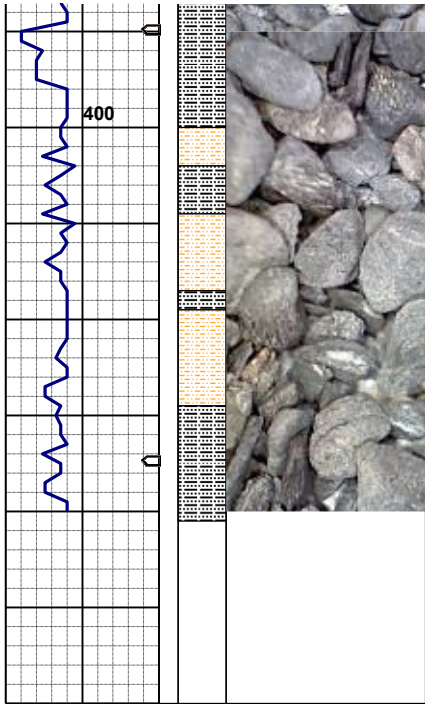
MUD WT 9.8 VIS 38

MD 5509'
INC 0.44°
AZM 119.62°
TVD 5359.2'

60% SILTY SH: m gy-mgybrn occ v dk gy, firm -
sft , sbblky - sbpity, rthy sl slty tex, sl grdg - sltst
40% SHALY SLTST: lt-m gy, sft- firm, sbblky -
sbpity, slty tex, tr biot incl

MD 5599'
INC 0.61°
AZM 116.6°
TVD 5449.19'

MUD WT 10.2 VIS 38



sft , sbbky - sbply, rhy sl slty tex, sl grdg - sltst
50% SHALY SLTST: lt-m gy, sft- firm, sbbky -
sbply, slty tex, tr biot incl

Teepee Buttes
Prog Top: 5537' TVD/ 5387' MD

MD 5688'
INC 0.47°
AZM 118.97°
TVD 5538.19'

No TOOHH Needed for Curve Tools

Log Continues on
Shable LF07-68HN HORZ.Lplot