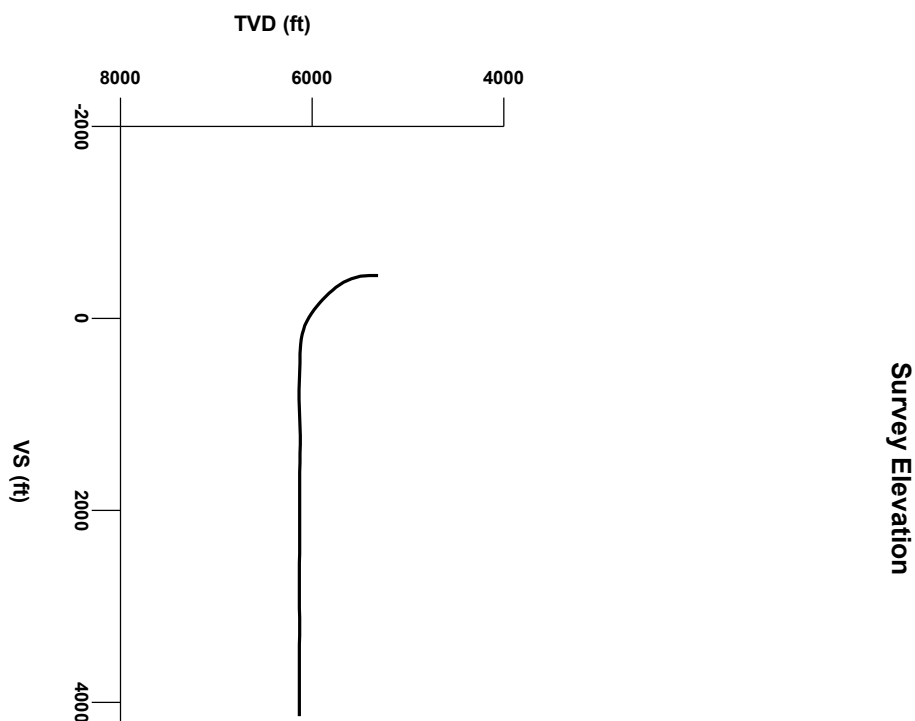
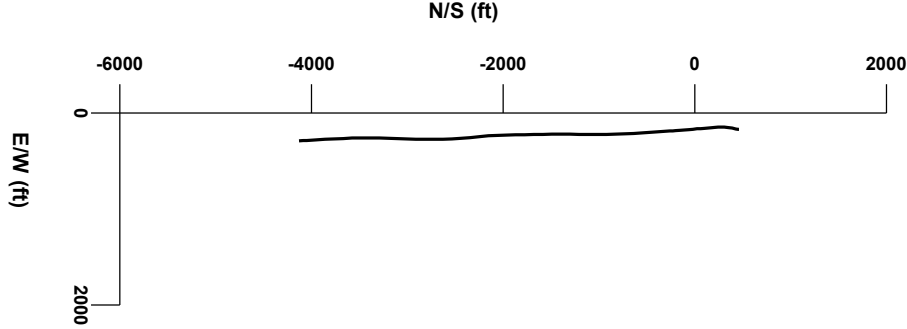


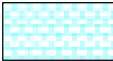
LOG created using LPLOT VH Version 3.0, January 18, 2013, Copyright (C) 1999-2009 Pason Systems Corp.


OPERATOR: NOBLE ENERGY INC.
WELL: CASTOR FEDERAL LC22-78HN
LOCATION: NWNW SEC 22, T9N, R59W
COUNTY: WELD
STATE: COLORADO
SPOT: 501' FNL, 501' FWL
ELEVATION: GR 4,916' KB 4,946'
FIELD: WILDCAT
SPUD DATE: 01/11/2013
TD DATE: 01/17/2013
DATES LOGGED: 01/13/2013 - 01/17/2013
DEPTHS LOGGED: 5407' MD - 10435' MD
LOGGERS: ANDREA ZUIDEMA, LAURA KELLOGG
DRILLING FLUID: LSND
DRILLING RIG: H&P 326
API: 05-123-33080
LOG TYPE: HORIZONTAL
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: WELLSITE GEOLOGICAL SERVICES
 PROVIDED BY COLUMBINE LOGGING INC.

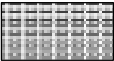


Survey Plan





Chalk


Marl


Silty Shale


ENGINEERING SYMBOLS


Casing

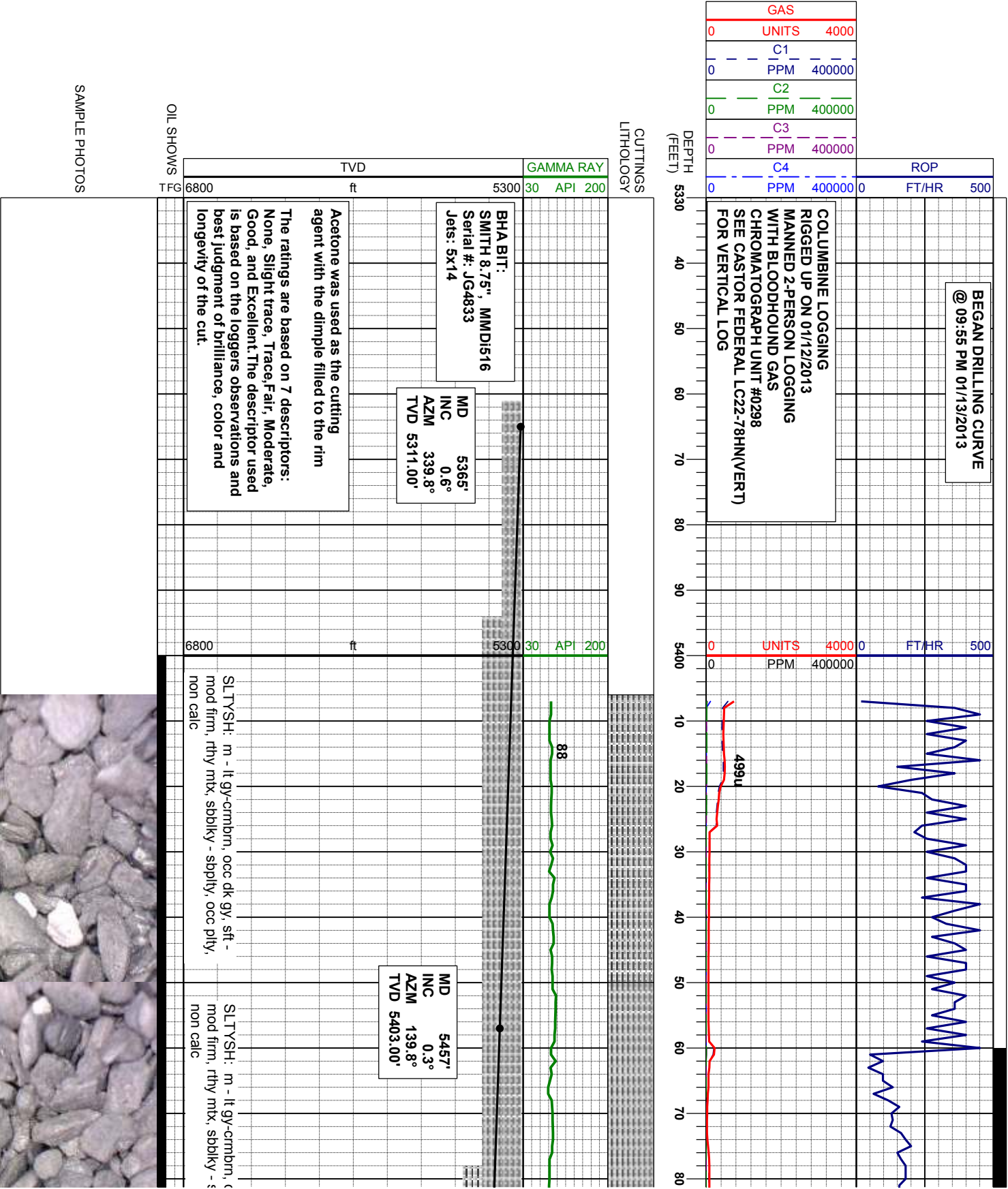
Casing

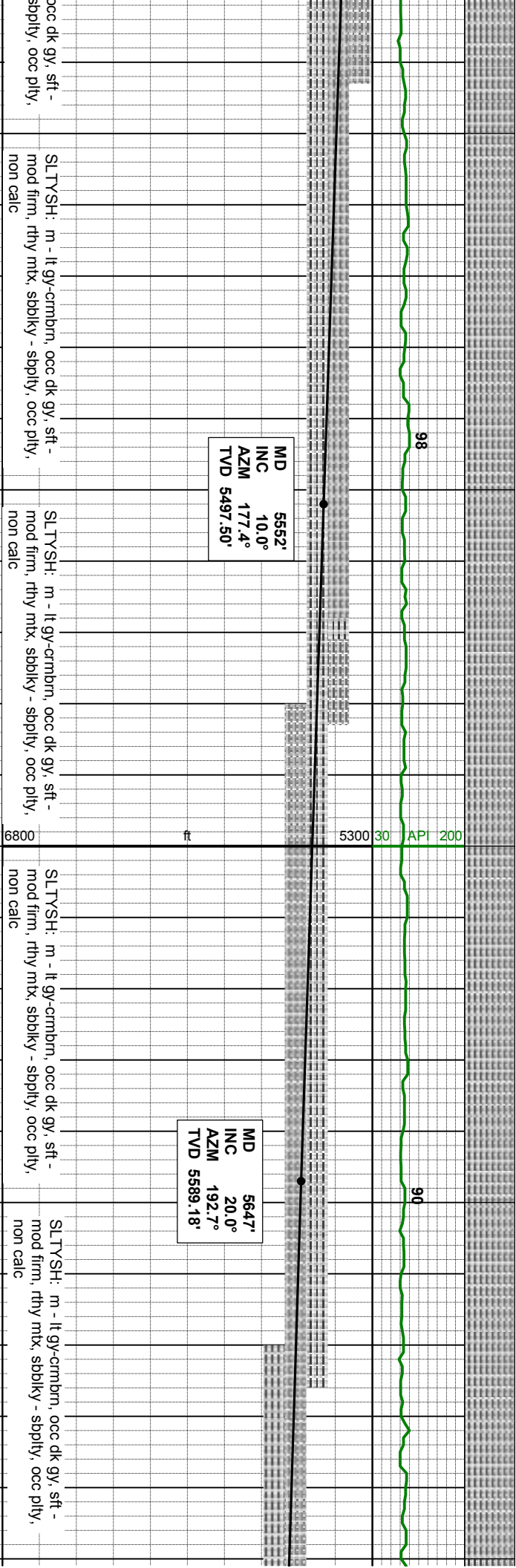
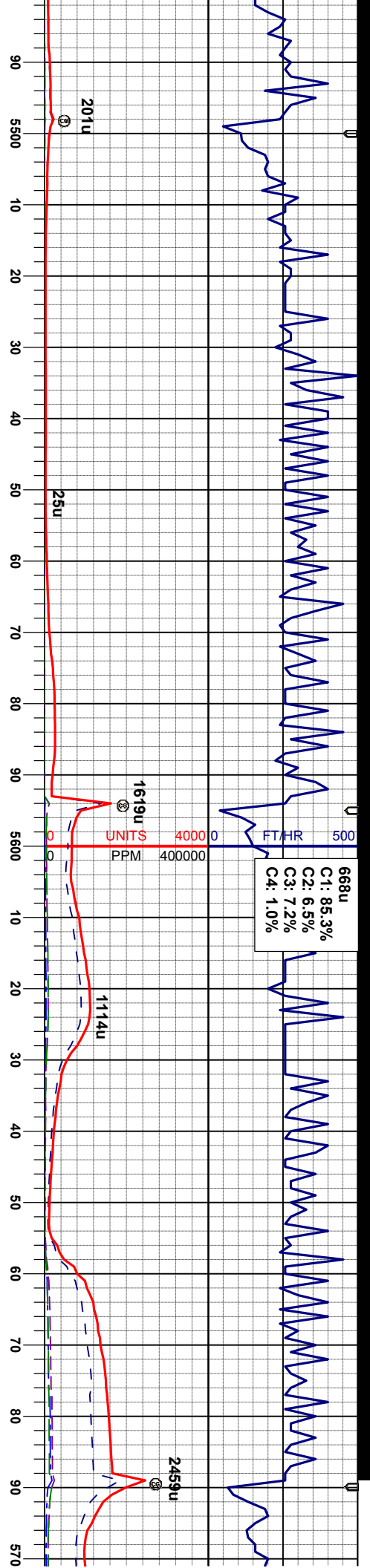
Connection

Connection Gas

Midnight Depth

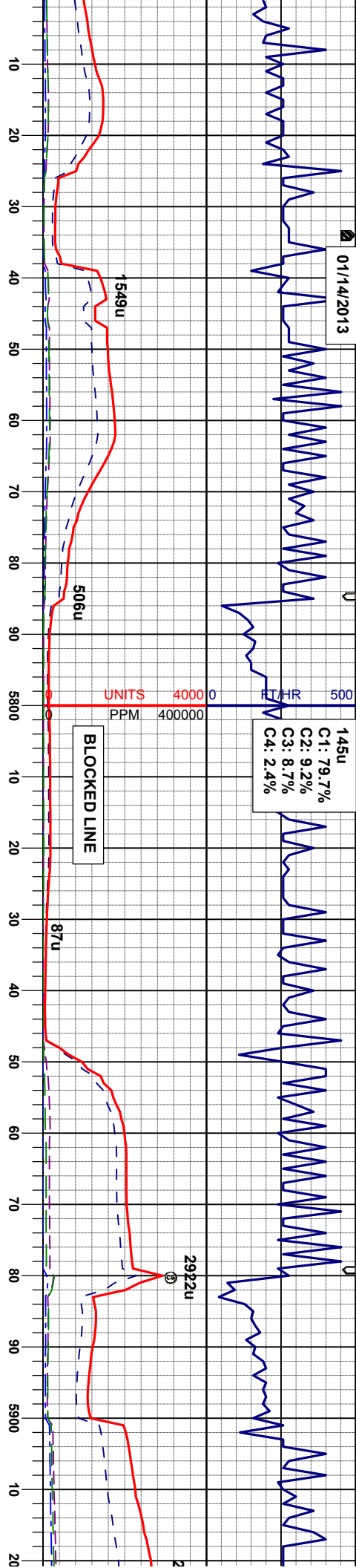
Oil To Surface





01/14/2013

145u
C1: 79.7%
C2: 9.2%
C3: 8.7%
C4: 2.4%



WT IN 10.30/ OUT 10.30
VIS IN 43/ OUT 43

MD 5741'
INC 30.1°
AZM 191.5°
TVD 5674.23'

MD 5836'
INC 39.8°
AZM 186.0°
TVD 5752.02'

MD 5881'
INC 41.2°
AZM 184.3°
TVD 5786.24'

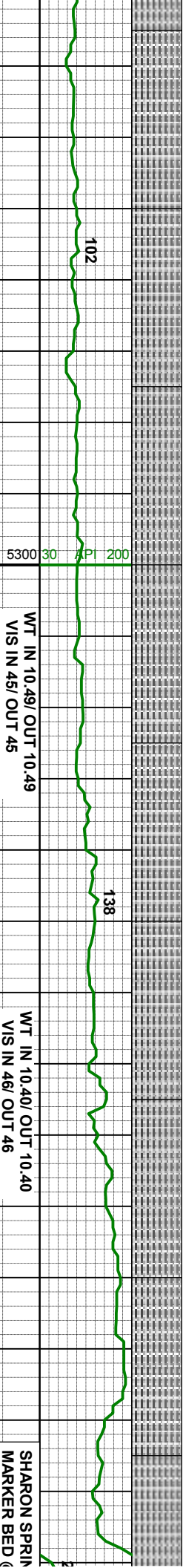
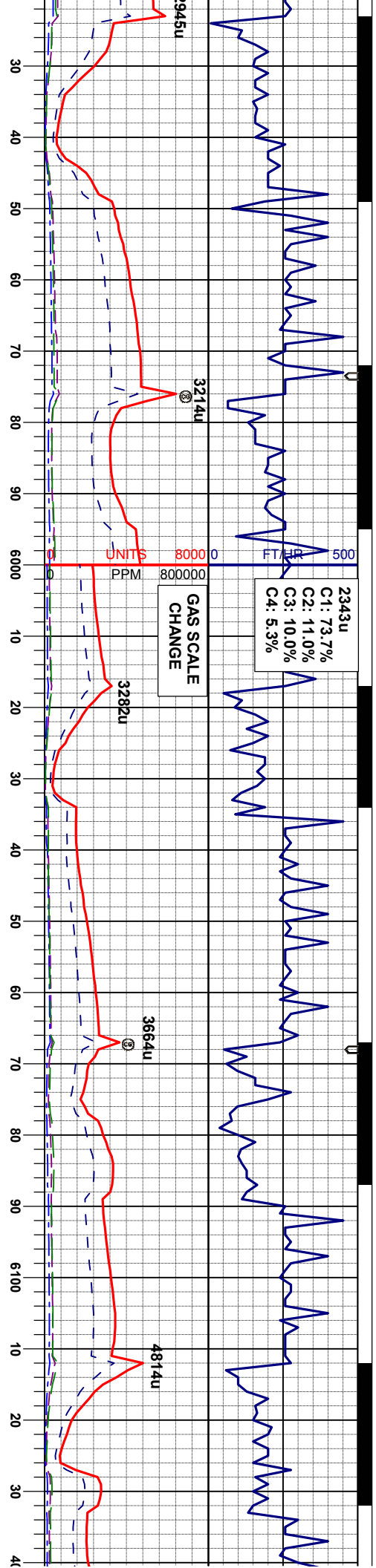
SLTYSH: m - lt gy-crmbm, occ dk gy, sft -
mod firm, rthy mtx, sbblky - sbply, occ pily,
non calc

SLTYSH: m - lt gy-crmbm, occ dk gy, sft -
mod firm, rthy mtx, sbblky - sbply, occ pily,
non calc

SLTYSH: m - lt gy-crmbm, occ dk gy, sft -
mod firm, rthy mtx, sbblky - sbply, occ pily,
non calc

SLTYSH: m - lt gy-crmbm, occ dk gy, sft -
mod firm, rthy mtx, sbblky - sbply, occ pily,
non calc

SLTYSH: m - lt gy-crmbm, occ dk gy, sft -
mod firm, rthy mtx, sbblky - sbply, occ pily,
non calc



SHARON SPRING
MARKER BED (6)
6138' MD/ 5964'

MD 5330'
INC 42.4°
AZM 179.2°
TVD 5822.78'

MD 5975'
INC 44.2°
AZM 176.9°
TVD 5855.53'

MD 6025'
INC 47.0°
AZM 175.3°
TVD 5890.51'

MD 6070'
INC 48.4°
AZM 175.0°
TVD 5920.80'

MD 6120'
INC 51.0°
AZM 175.0°
TVD 5953.14'

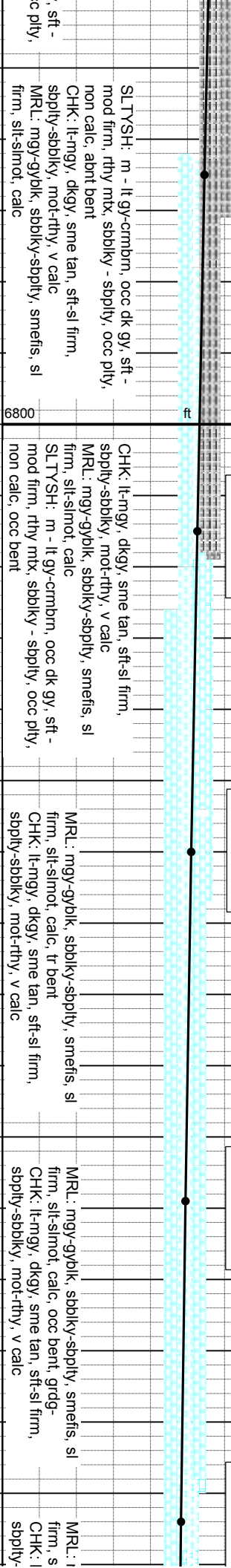
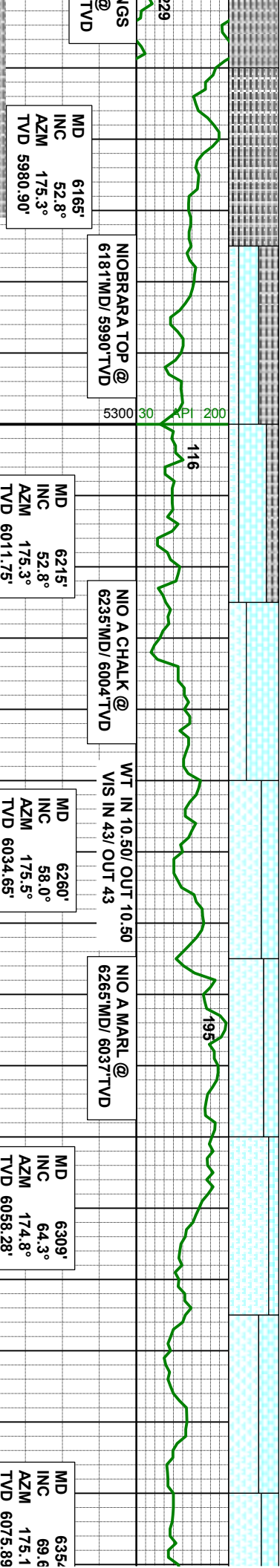
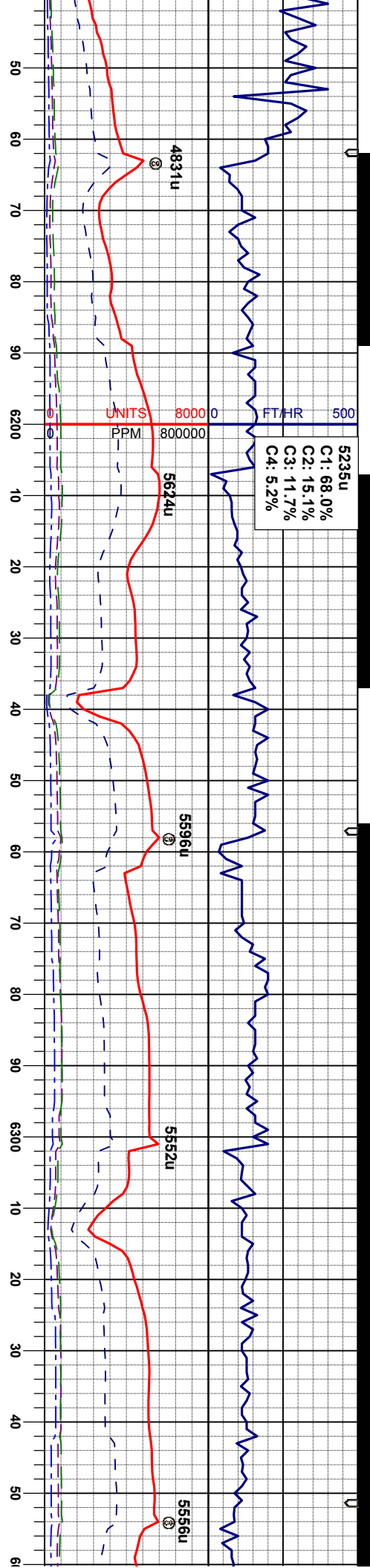
SLT YSH: m - lt gy-crmbn, occ dk gy, sft - mod firm, rthy mtx, sbblky - non calc

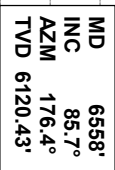
SLT YSH: m - lt gy-crmbn, occ dk gy, sft - mod firm, rthy mtx, sbblky - non calc

SLT YSH: m - lt gy-crmbn, occ dk gy, sft - mod firm, rthy mtx, sbblky - non calc

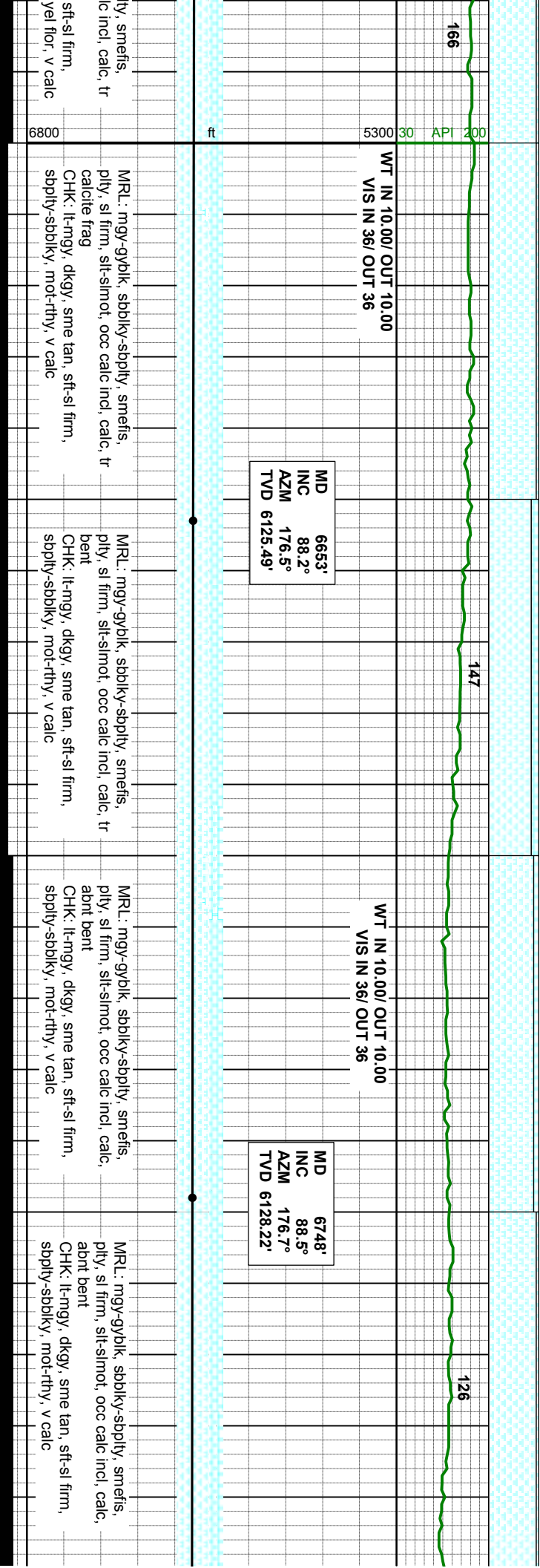
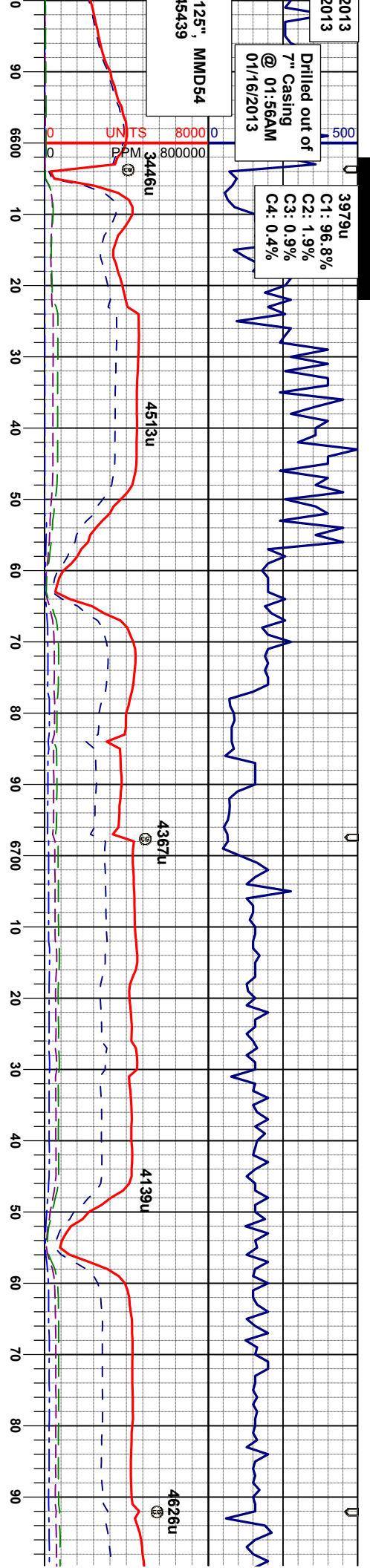
SLT YSH: m - lt gy-crmbn, occ dk gy, sft - mod firm, rthy mtx, sbblky - non calc

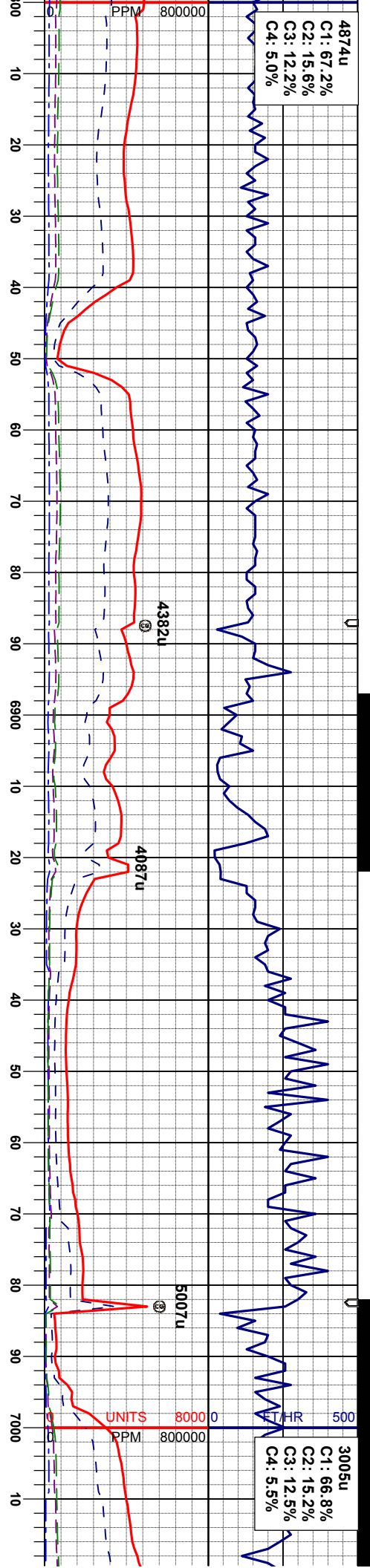






MRL: mgy-gybk, sbblky-sbpi-
ply, sl firm, slt-slmot, occ ca-
bent, tr calcie frag
CHK: lt-mgy, dkgy, sme tan,
sbply-sbblky, mot-ttly, pale





MD 6843'
INC 88.2°
AZM 175.7°
TVD 6130.96'

MR.L: mgy-gyblk, sbbiky-sbpity, smeifs,
pity, sl firm, silt-slmot, occ calc incl, calc,
occ bent

MR.L: mgy-gyblk, sbbiky-sbpity, smeifs,
pity, sl firm, silt-slmot, occ calc incl, calc,
occ bent

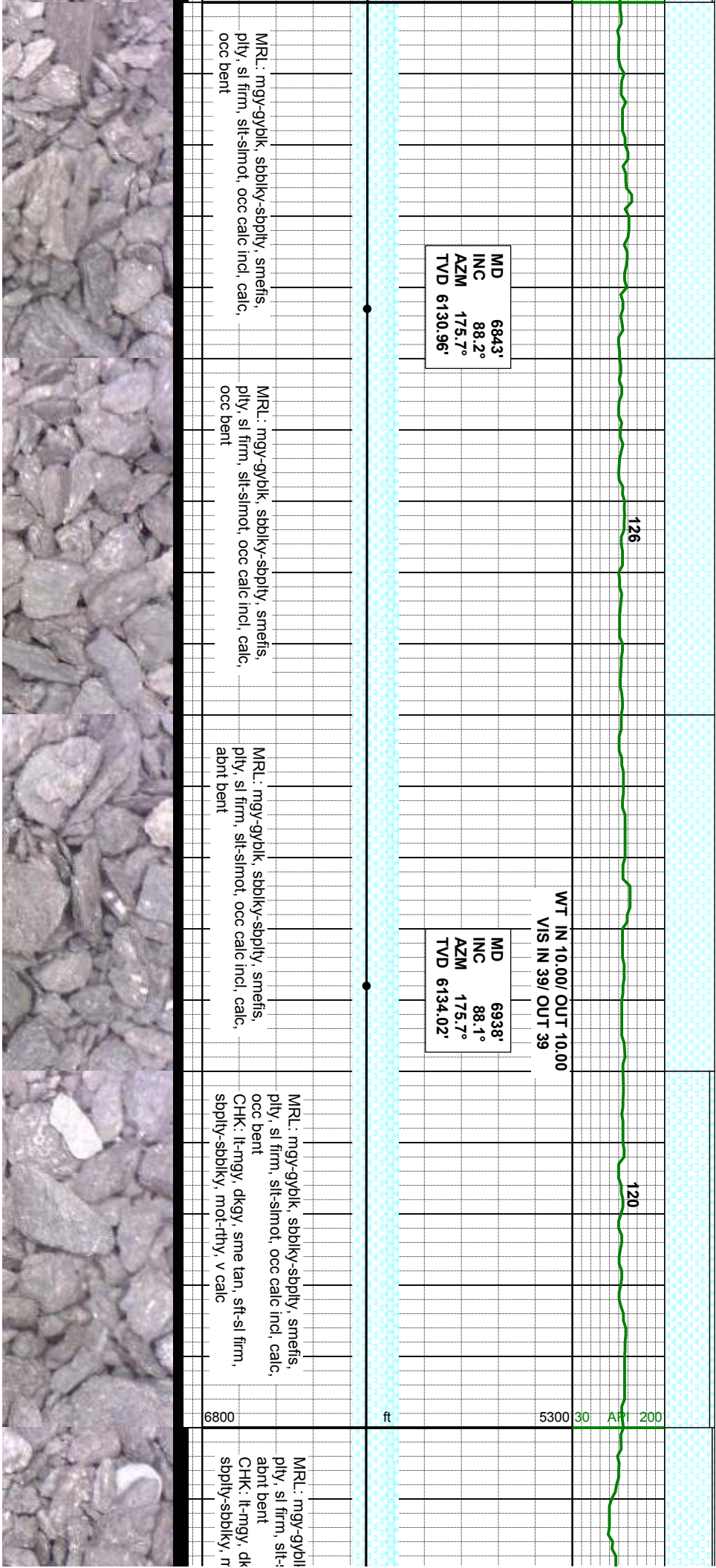
MR.L: mgy-gyblk, sbbiky-sbpity, smeifs,
pity, sl firm, silt-slmot, occ calc incl, calc,
abnt bent

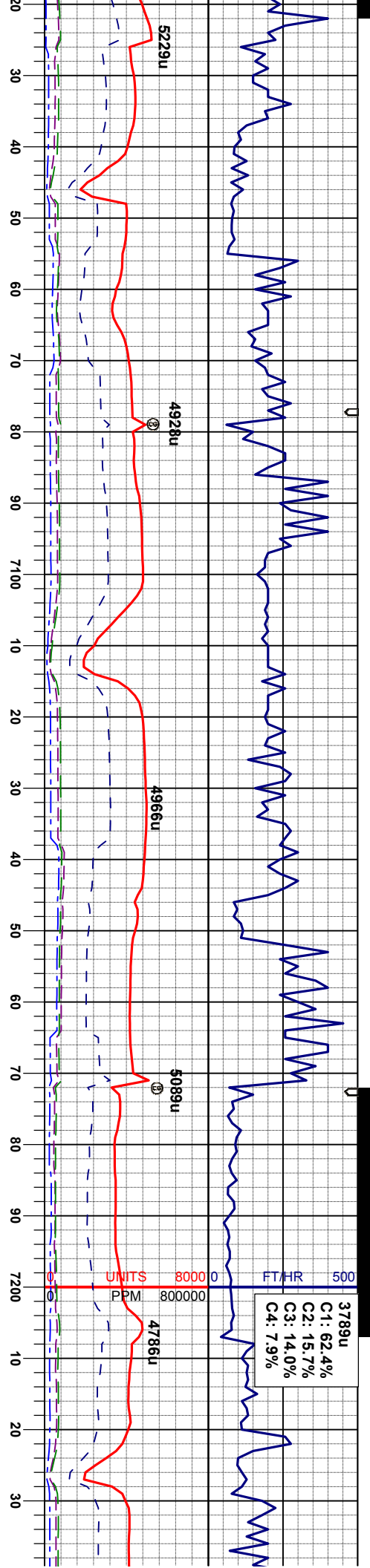
MR.L: mgy-gyblk, sbbiky-sbpity, smeifs,
pity, sl firm, silt-slmot, occ calc incl, calc,
occ bent
CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbbiky-sbbiky, mot-rthy, v calc

MR.L: mgy-gyblk
pity, sl firm, silt-
abnt bent
CHK: lt-mgy, dk
sbbiky-sbbiky, r

WT IN 10.00/ OUT 10.00
VIS IN 39/ OUT 39

MD 6938'
INC 88.1°
AZM 175.7°
TVD 6134.02'





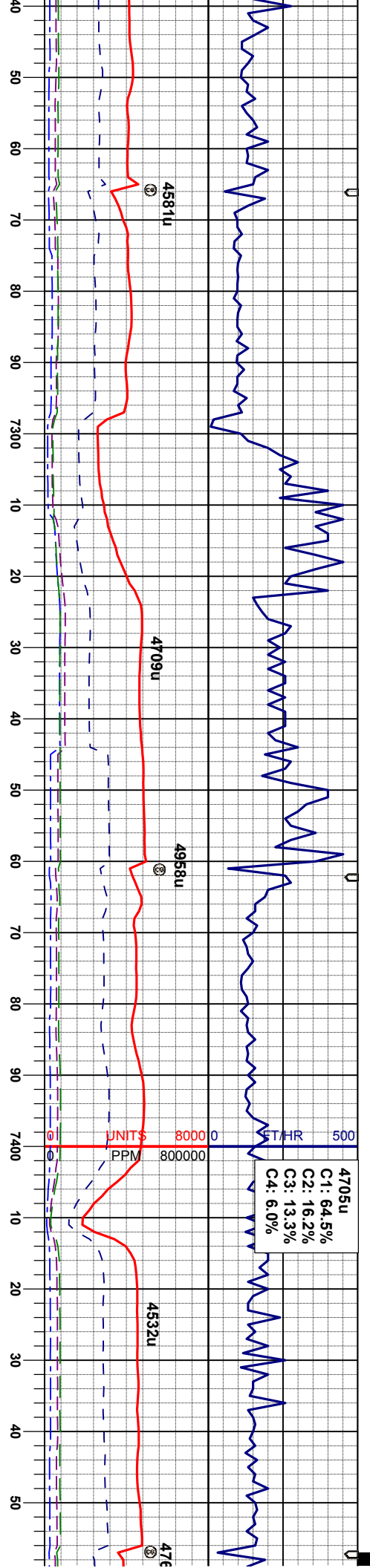
MD 7038'
INC 89.8°
AZM 178.5°
TVD 6135.77'

MD 7128'
INC 89.3°
AZM 178.3°
TVD 6136.51'

MD 7223'
INC 92.5°
AZM 180.1°
TVD 6135.02'

k, sbbiky-sbply, smeifs, simot, occ calc incl, calc, MRL: mgy-gyblk, sbbiky-sbply, smeifs, ply, sl firm, silt-simot, occ calc incl, calc, occ bent





WT IN 10.00/ OUT 10.00
VIS IN 50/ OUT 50

MD 7317'
INC 92.3°
AZM 179.7°
TVD 6131.08'

MD 7413'
INC 92.5°
AZM 179.4°
TVD 6127.06'

MR: mgy-gyblk, sbblky-sbply, smefts, pily, sl firm, silt-slmot, occ calc incl, calc, abnt bent

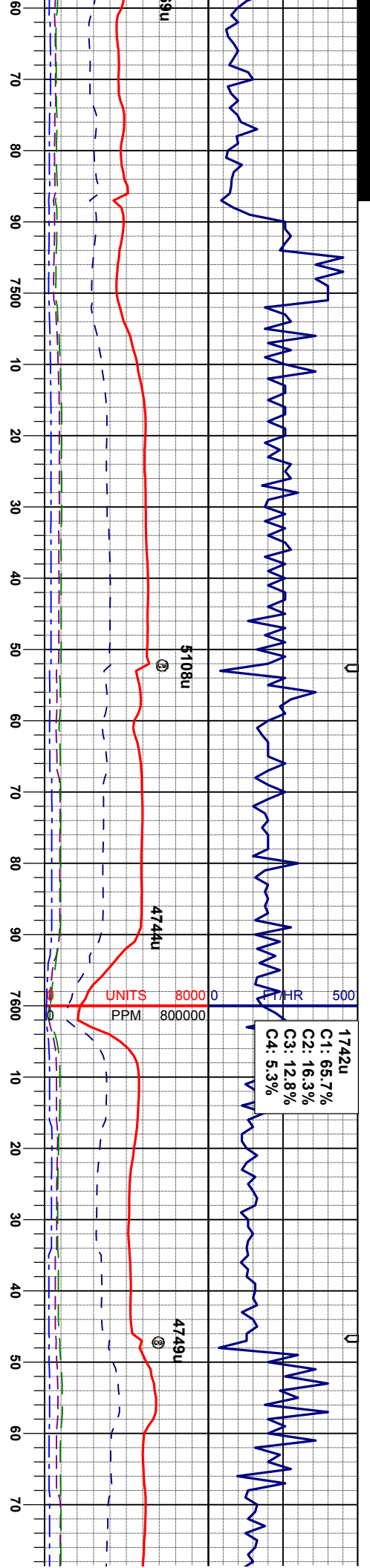
MR: mgy-gyblk, sbblky-sbply, smefts, pily, sl firm, silt-slmot, occ calc incl, calc, abnt bent

MR: mgy-gyblk, sbblky-sbply, smefts, pily, sl firm, silt-slmot, occ calc incl, calc, CHK: lt-mgy, dkgy, sme tan, sft-sl firm, sbply-sbblky, mot-rthy, v calc

MR: mgy-gyblk, sbblky-sbply, smefts, pily, sl firm, silt-slmot, occ calc incl, calc, occ bent

MR: mgy-gyblk, sbblky-sbply, smefts, pily, sl firm, silt-slmot, occ calc incl, calc, bent





WT IN 9.90/ OUT 9.90
VIS IN 43/ OUT 43

MD 7508'
INC 90.2°
AZM 181.6°
TVD 6124.82'

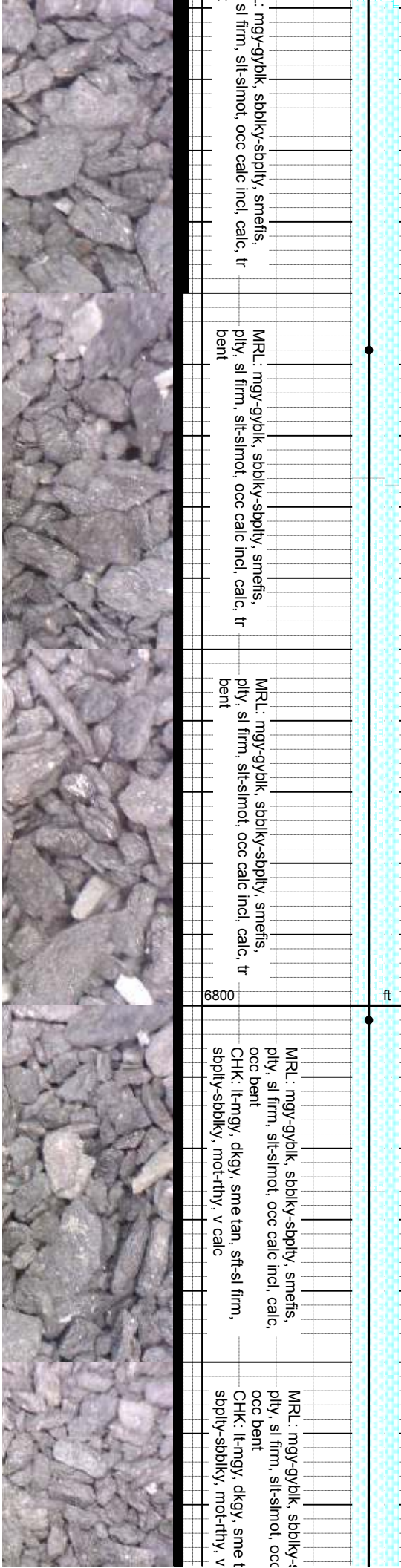
MR.L: mgy-gyblk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, occ calc incl, calc, tr
bent

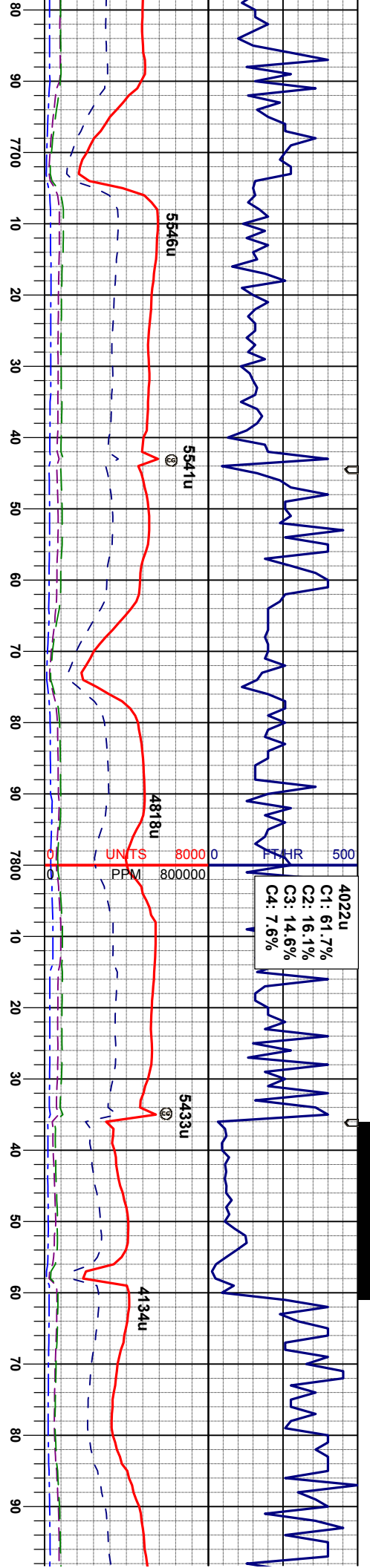
MR.L: mgy-gyblk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, occ calc incl, calc, tr
bent

MD 7602'
INC 89.6°
AZM 180.2°
TVD 6124.99'

MR.L: mgy-gyblk, sbblky-sbply, smeifs,
ply, sl firm, silt-slmot, occ calc incl, calc,
CHK: lt-mgy, dkgy, sme tan, sft-sl firm,
sbply-sbblky, mot-rthy, v calc

MR.L: mgy-gyblk, sbblky-sbply,
ply, sl firm, silt-slmot, occ
CHK: lt-mgy, dkgy, sme t
sbply-sbblky, mot-rthy, v





MD 7697'
INC 89.3°
AZM 180.2°
TVD 6125.90'

MD 7792'
INC 88.6°
AZM 178.8°
TVD 6127.64'

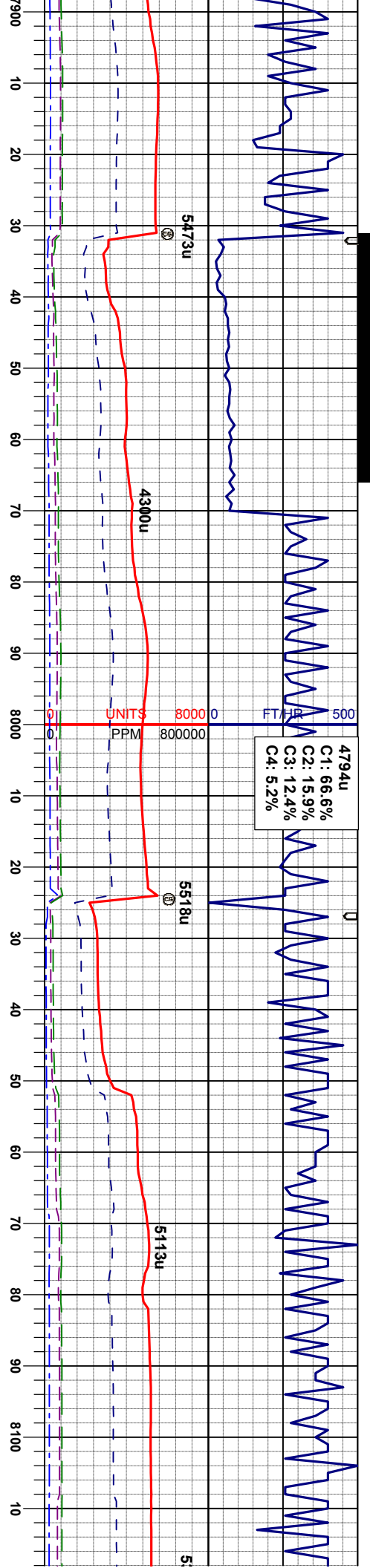
MD 7887'
INC 88.5°
AZM 178.5°
TVD 6130.05'

ssply, smefis, calc incl, calc.
MRL: mgy-gyblk, sbblky-sbply, smefis, pty, sl firm, silt-slmot, occ calc incl, calc, occ bent

ssply, smefis, calc incl, calc.
MRL: mgy-gyblk, sbblky-sbply, smefis, pty, sl firm, silt-slmot, occ calc incl, calc, occ bent

ssply, smefis, calc incl, calc.
MRL: mgy-gyblk, sbblky-sbply, smefis, pty, sl firm, silt-slmot, occ calc incl, calc, occ bent





WT IN 9.80/ OUT 9.80
VIS IN 41/ OUT 41

MD 7981'
INC 90.4°
AZM 179.5°
TVD 6130.94'

WT IN 9.80/ OUT 9.80
VIS IN 40/ OUT 40

125

MD 8077'
INC 90.2°
AZM 179.0°
TVD 6130.44'

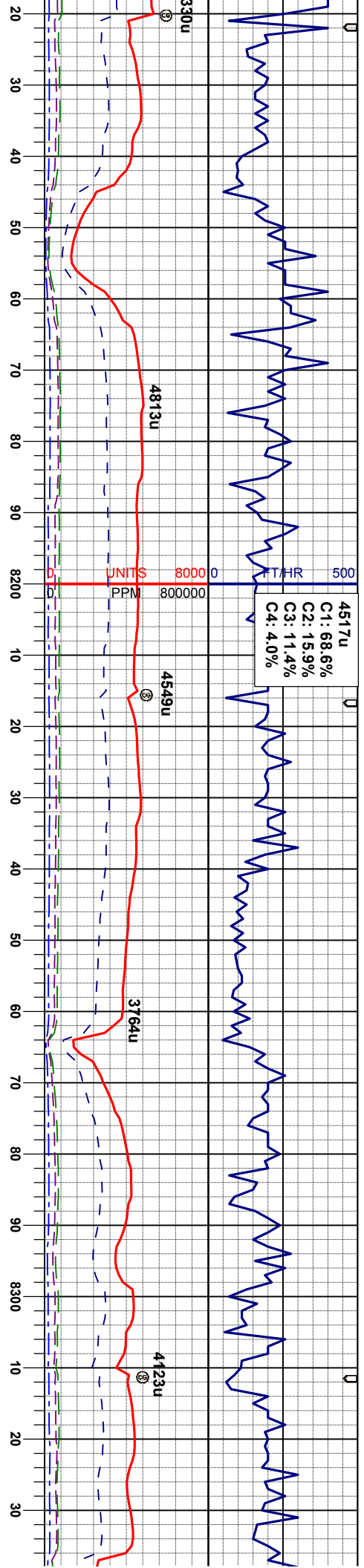
MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, slt-slmot, occ calc incl, calc, occ bent

MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, slt-slmot, occ calc incl, calc, occ bent

MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, slt-slmot, occ calc incl, calc, occ bent

MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, slt-slmot, occ calc incl, calc, occ bent

MRL: mgy-gyblk, sbblky-sbply, smefis, pily, sl firm, slt-slmot, occ calc incl, calc, occ bent



MD 8171'
INC 89.7°
AZM 178.8°
TVD 6130.52'

WT IN 9.90 / OUT 9.90
VIS IN 39 / OUT 39

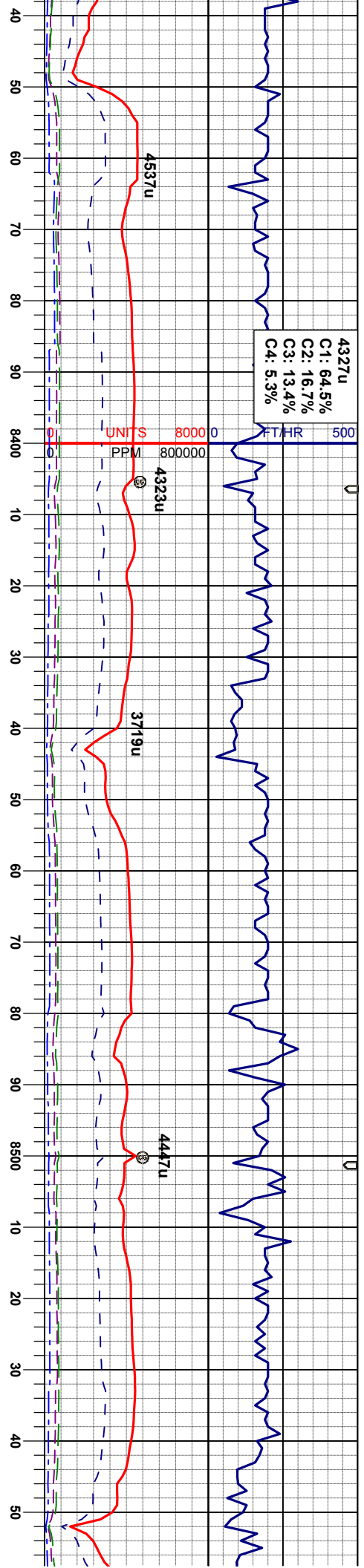
MD 8266'
INC 90.2°
AZM 179.7°
TVD 6130.61'

MRL: moy-gyblk, sbblky-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl, calc,
occ bent

MRL: moy-gyblk, sbblky-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl, calc,
occ bent

MRL: moy-gyblk, sbblky-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl, calc,
occ bent

MRL: moy-gyblk, sbblky-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl,
occ bent



MD 8361'
INC 89.4°
AZM 177.2°
TVD 6130.94'

WT IN 9.99/ OUT 9.99
VIS IN 36/ OUT 36

MD 8456'
INC 89.9°
AZM 175.3°
TVD 6131.52'

MD 8551'
INC 89.8°
AZM 174.3°
TVD 6131.77'

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, silt-simot, occ calc incl, calc, abnt bent

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, silt-simot, occ calc incl, calc, abnt bent

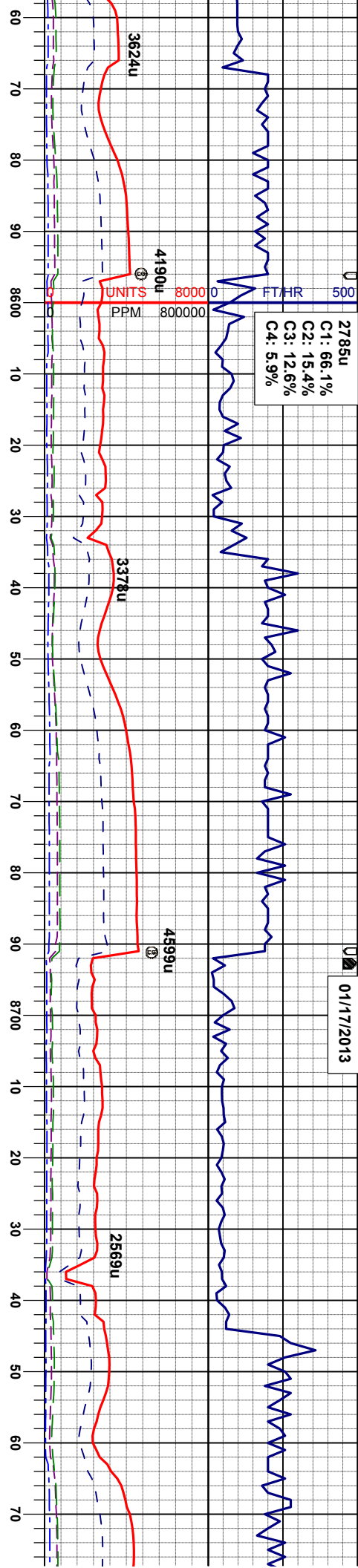
MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, silt-simot, occ calc incl, calc, abnt bent

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, silt-simot, occ calc incl, calc, abnt bent

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, silt-simot, occ calc incl, calc, abnt bent



2785u
C1: 66.1%
C2: 15.4%
C3: 12.6%
C4: 5.9%



WT IN 10.0/ OUT 10.0
VIS IN 45/ OUT 45

MD 8646'
INC 92.2°
AZM 174.1°
TVD 6130.11'

WT IN 9.89/ OUT 9.89
VIS IN 42/ OUT 42

MD 8741'
INC 87.0°
AZM 176.2°
TVD 6130.78'

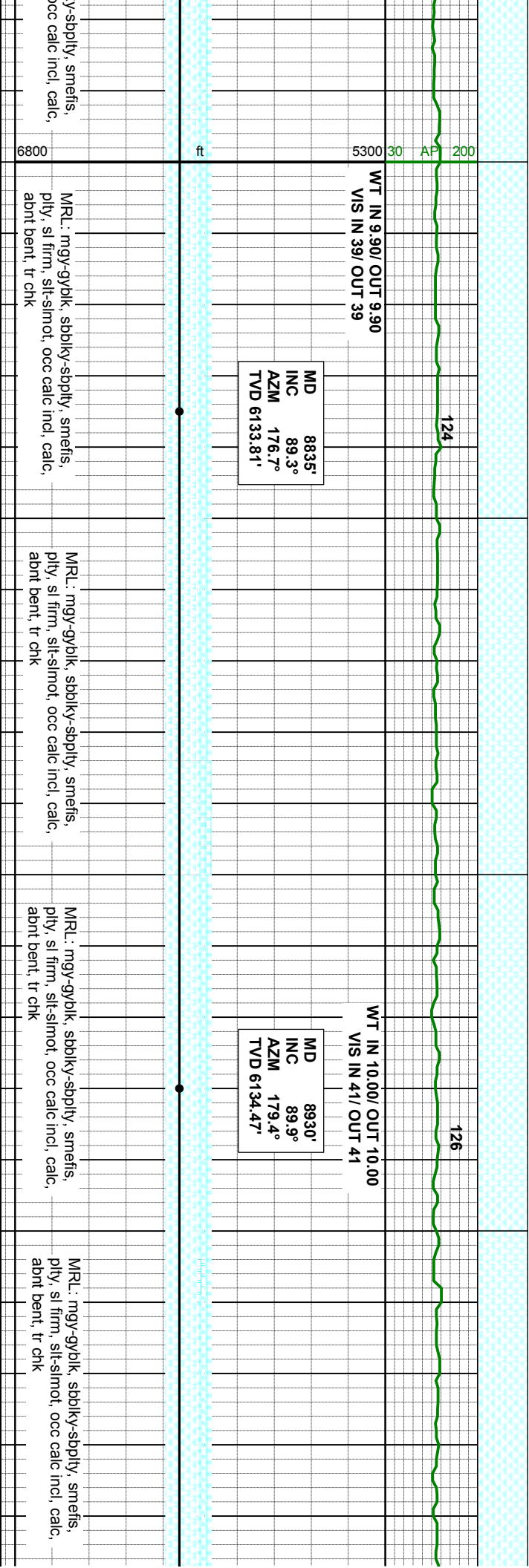
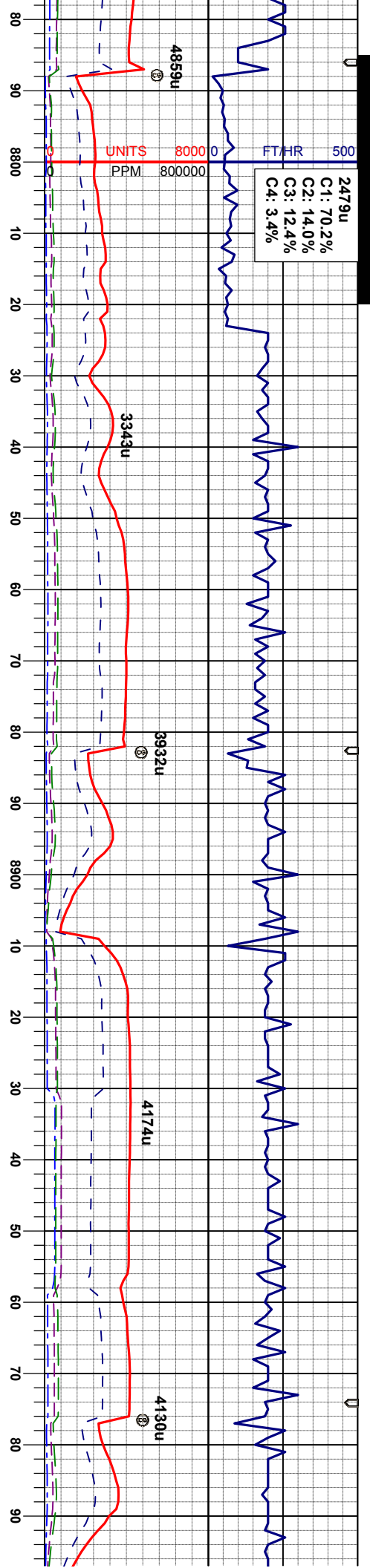
MRL: mgy-gyblk, sbbky-sbply, smefis,
ply, sl firm, slt-slmot, occ calc incl, calc,
abt bent

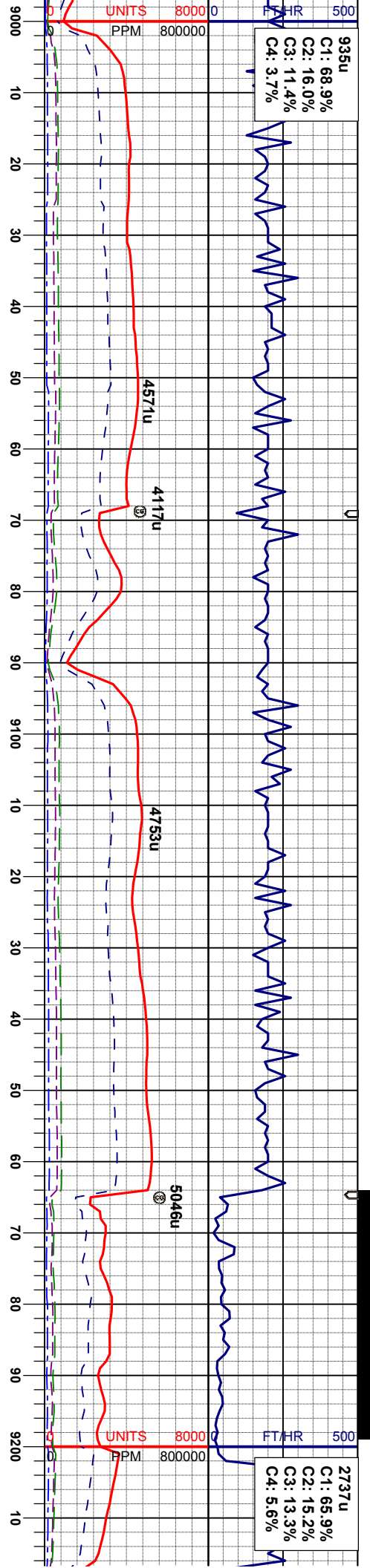
MRL: mgy-gyblk, sbbky-sbply, smefis,
ply, sl firm, slt-slmot, occ calc incl, calc,
abt bent

MRL: mgy-gyblk, sbbky-sbply, smefis,
ply, sl firm, slt-slmot, occ calc incl, calc,
abt bent

MRL: mgy-gyblk, sbbky-sbply, smefis,
ply, sl firm, slt-slmot, occ calc incl, calc,
abt bent

MRL: mgy-gyblk, sbbky-sbply, smefis,
ply, sl firm, slt-slmot, occ calc incl, calc,
abt bent





MD 9025'
INC 90.1°
AZM 179.7°
TVD 6134.47'

MD 9120'
INC 89.3°
AZM 179.7°
TVD 6134.97'

MD
INC
AZM
TVD 613

MRL: mgy-gyblk, sdbiky-sbply, smefs,
ply, sl firm, slt-slmot, occ calc incl, calc,
abnt bent, tr chk

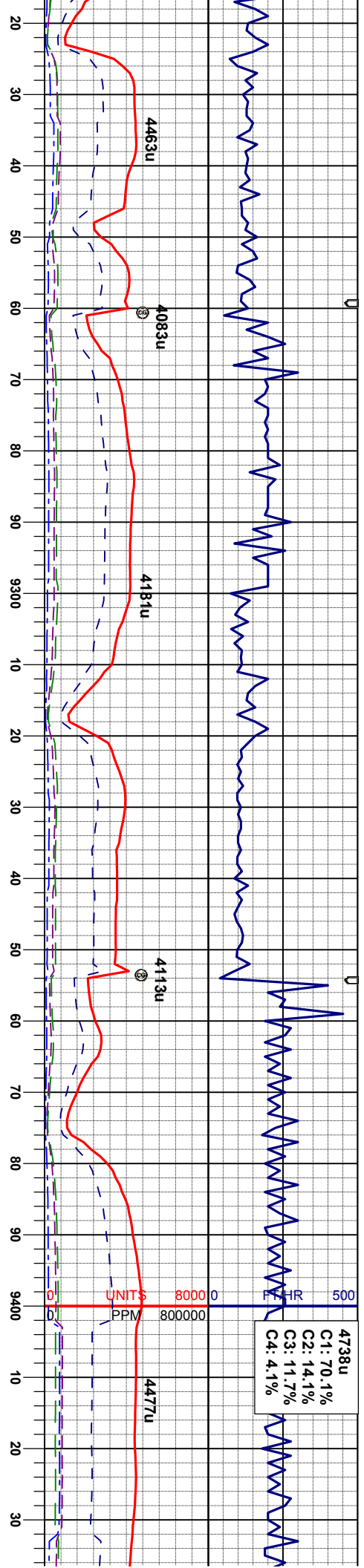
MRL: mgy-gyblk, sdbiky-sbply, smefs,
ply, sl firm, slt-slmot, occ calc incl, calc,
abnt bent, tr chk

MRL: mgy-gyblk, sdbiky-sbply, smefs,
ply, sl firm, slt-slmot, occ calc incl, calc,
abnt bent, tr chk

MRL: mgy-gyblk, sdbiky-sbply, smefs,
ply, sl firm, slt-slmot, occ calc incl, calc,
abnt bent, tr chk

MRL: mgy-gyblk, sdbiky-sbply, smefs,
ply, sl firm, slt-slmot, occ calc incl, calc,
abnt bent, tr chk





WT IN 10.00/ OUT 10.00
VIS IN 42/ OUT 42

92.15'
90.8°
81.3°
4.89°

MD 9310'
INC 91.0°
AZM 182.3°
TVD 6133.40'

MD 9405'
INC 90.8°
AZM 182.9°
TVD 6131.90'

gyblk, sbblky-sbply, smefts,
sft-slmot, occ calc incl, calc,
chk

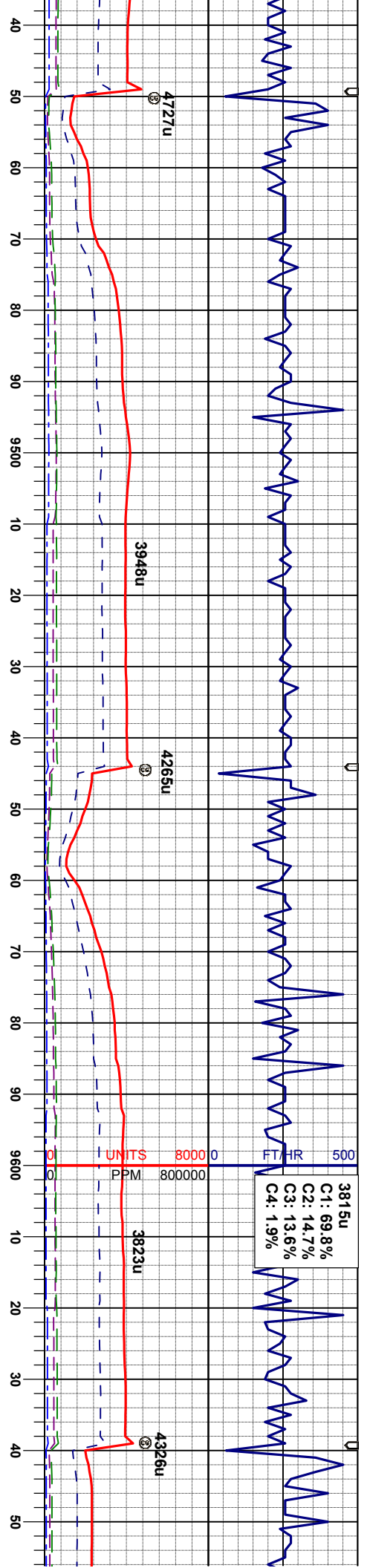
MRL: mgy-gyblk, sbblky-sbply, smefts,
ply, sl firm, sft-slmot, occ calc incl, calc,
abt bent, tr chk

MRL: mgy-gyblk, sbblky-sbply, smefts,
ply, sl firm, sft-slmot, occ calc incl, calc,
abt bent, tr chk

MRL: mgy-gyblk, sbblky-sbply, smefts,
ply, sl firm, sft-slmot, occ calc incl, calc,
abt bent, tr chk

MRL: mgy-gyblk, sbblky-sbply, s
ply, sl firm, sft-slmot, occ calc in
abt bent, tr chk





WT IN 10.00/ OUT 10.00
VIS IN 40/ OUT 40

MD 9500'
INC 90.0°
AZM 180.8°
TVD 6131.24'

MD 9594'
INC 89.3°
AZM 181.3°
TVD 6131.81'

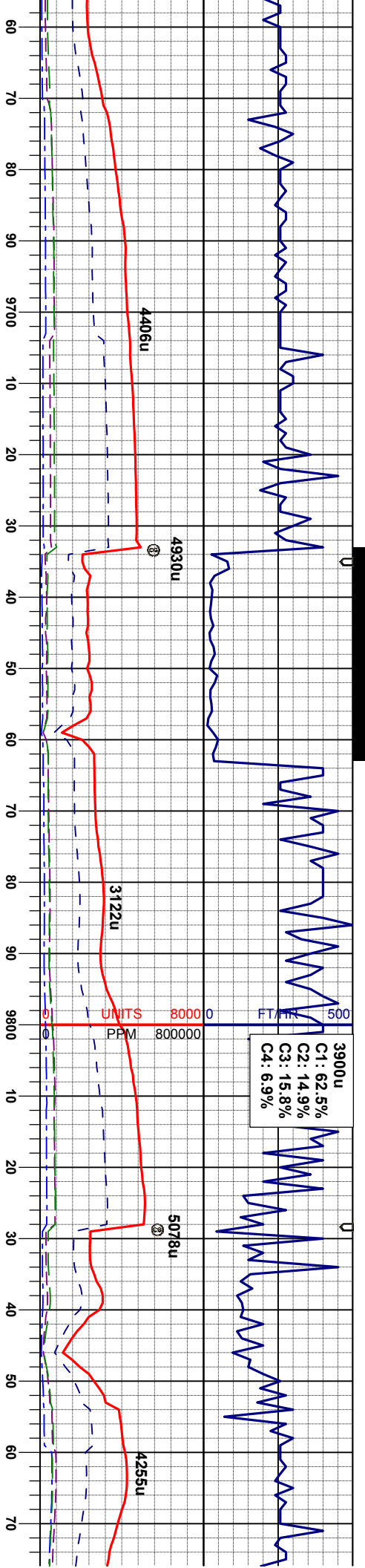
MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, sl firm, silt-slmot, occ calc incl, calc, abnt bent, tr chk

MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, sl firm, silt-slmot, occ calc incl, calc, occ bent, tr pyr

MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, sl firm, silt-slmot, occ calc incl, calc, occ bent, tr pyr

MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, sl firm, silt-slmot, occ calc incl, calc, tr bent

MRL: mgy-gyblk, sbblky-sbply, smeifs, pily, sl firm, silt-slmot, occ calc incl, calc, tr bent



WT IN 10.05/ OUT 10.05
VIS IN 42/ OUT 42

MD 9689'
INC 89.1°
AZM 181.5°
TVD 6133.14'

MRL: mgy-gyblk, sbblk-y-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl, calc, tr
bent

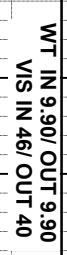
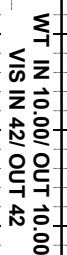
MRL: mgy-gyblk, sbblk-y-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl, calc, tr
bent

MRL: mgy-gyblk, sbblk-y-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl, calc, tr
bent, tr fos

MRL: mgy-gyblk, sbblk-y-sbply, smefts,
ply, sl firm, silt-slmot, occ calc incl, calc, tr
bent, occ fos

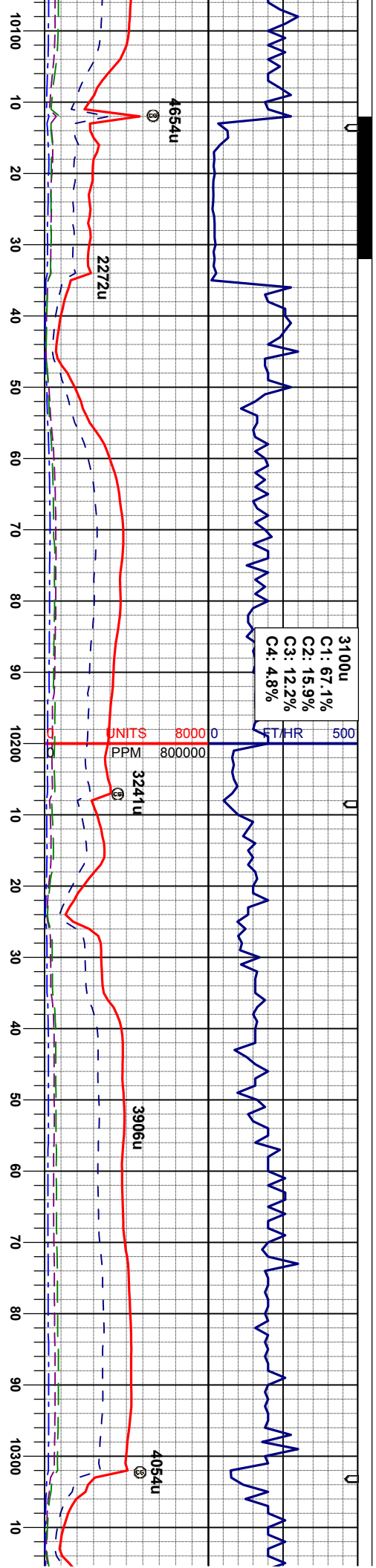
MD 9784'
INC 90.3°
AZM 179.0°
TVD 6133.64'

MD
INC
AZM
TVD 6



MRL: mgy-gyblk, sbblky
pily, sl firm, slt-slmot, occ
occ bent
CHK: lt-mgy, dky, sme
sbply-sbblky, mot-rthy,





MD 10163'
INC 90.6°
AZM 177.1°
TVD 6135.21'

MD 10258'
INC 90.7°
AZM 176.7°
TVD 6134.13'

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, sft-slmot, occ calc incl, calc, tr bent

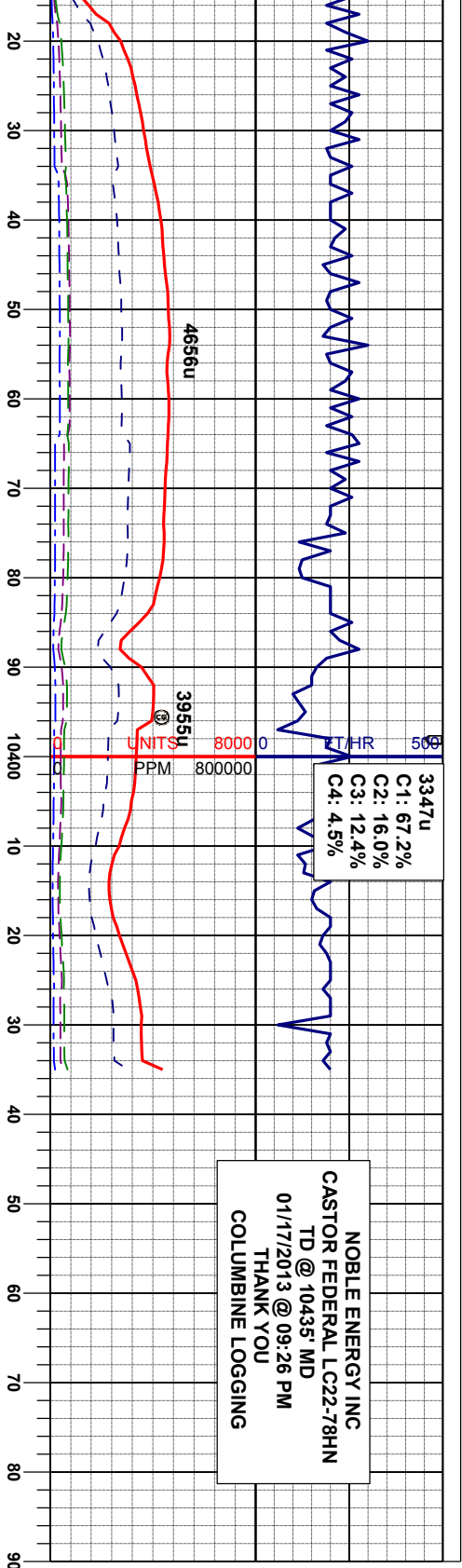
MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, sft-slmot, occ calc incl, calc, tr bent

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, sft-slmot, occ calc incl, calc, r occ bent
CHK: lt-mgy, dkg, sme tan, sft-sl firm, sbpity-sbbiky, mot-rthy, v calc

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, sft-slmot, occ calc incl, calc, tr bent
CHK: lt-mgy, dkg, sme tan, sft-sl firm, sbpity-sbbiky, mot-rthy, v calc

MRL: mgy-gyblk, sbbiky-sbpity, smefts, pily, sl firm, sft-slmot, occ calc incl, calc, tr bent
CHK: lt-mgy, dkg, sme tan, sft-sl firm, sbpity-sbbiky, mot-rthy, v calc





5300 30 API 200
WT IN 9.90/ OUT 9.90
VIS IN 39/ OUT 39

MD 10353'
INC 89.9°
AZM 176.5°
TVD 6133.63'

MD 10391'
INC 89.3°
AZM 175.8°
TVD 6133.89'

PROJECTED
MD 10435'
INC 89.3°
AZM 175.8°
TVD 6134.43'

NOBLE ENERGY INC
CASTOR FEDERAL LC22-78HN
TD @ 10435' MD
01/17/2013 @ 09:26 PM

gyblk, sbblk-y-sbply, smeñs,
sñs-smot, occ calc incl, calc, tr
y, mot-rthy, v calc

MRL: mgy-gyblk, sbblk-y-sbply, smeñs,
ply, sl firm, sñs-smot, occ calc incl, calc, tr
bent
CHK: lt-mgy, dkgy, sme tan, sñs-sl firm,
sbply-sbblk-y, mot-rthy, v calc

MRL: mgy-gyblk, sbblk-y-sbply, smeñs,
ply, sl firm, sñs-smot, occ calc incl, calc, tr
bent
CHK: lt-mgy, dkgy, sme tan, sñs-sl firm,
sbply-sbblk-y, mot-rthy, v calc