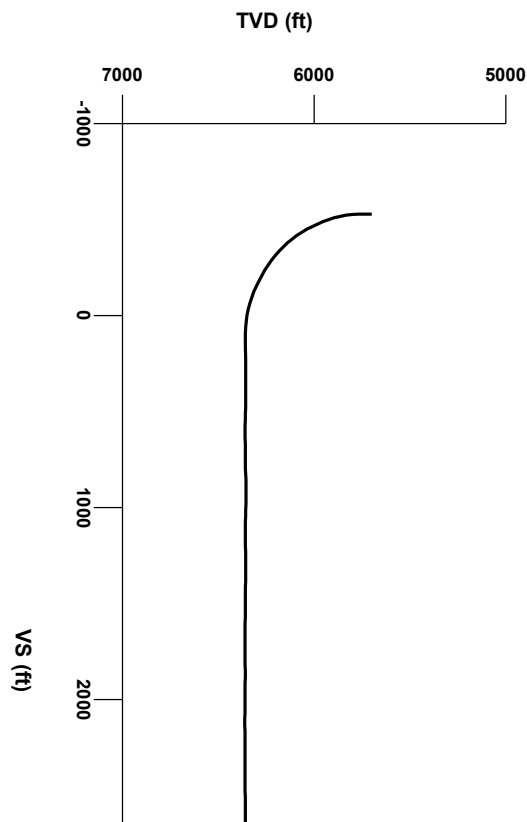


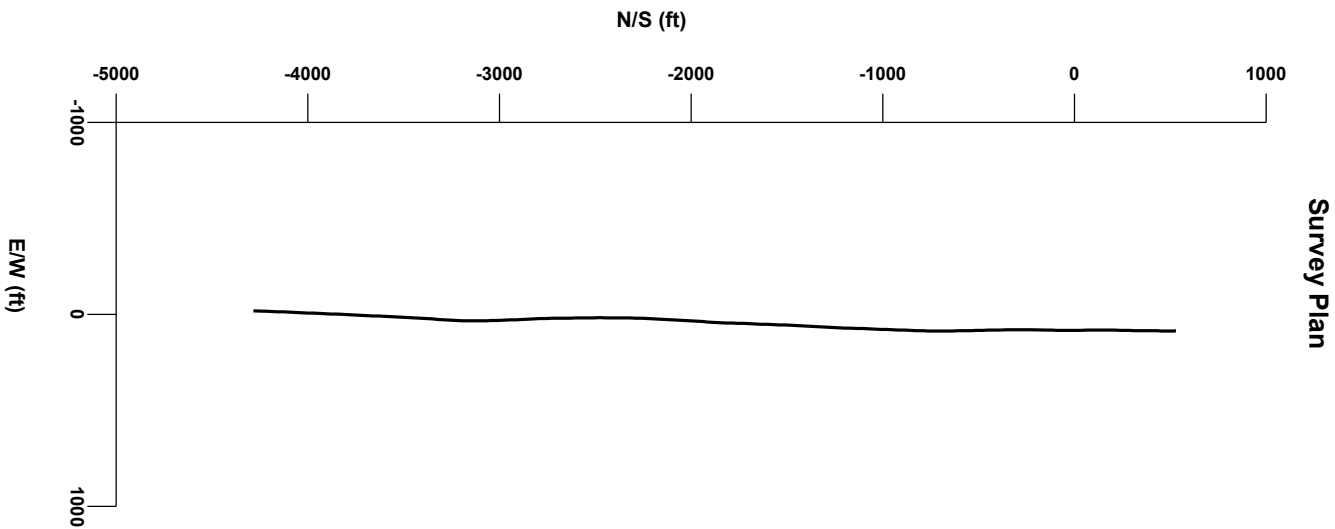
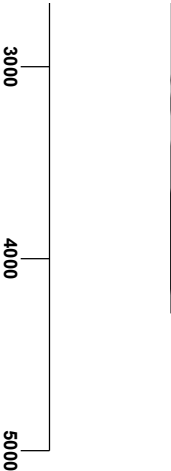


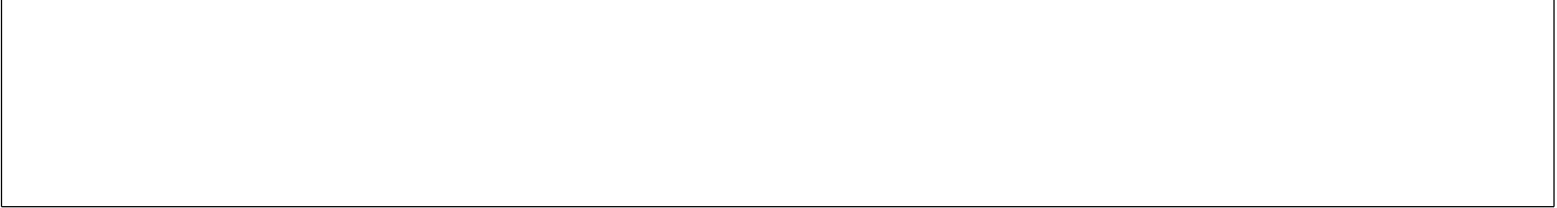
LOG created using L PLOT VH Version 3.0, October 04, 2012, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR: BONANZA CREEK ENERGY INC.
WELL: ANTELOPE-F-J-31HZ
LOCATION: NWNW Sec 31 T5N R62W
COUNTY: WELD
STATE: COLORADO
SPOT: 410 FNL X 1265 FWL
ELEVATION: 4608 GL 4623 KB
FIELD: WATTENBERG
SPUD DATE: 9/25/2012
TD DATE: 10/4/2012
DATES LOGGED: 9/27/2012 - 10/4/2012
DEPTHS LOGGED: 5800' - 10960' MD
LOGGERS: KEVIN GERAGHTY, WEDGE HOWLAND
DRILLING FLUID: LSND
DRILLING RIG: ENSIGN 128
API: 05-123-35994-00
LOG TYPE: Horizontal
SCALE: 1:240 (5 inches per 100 feet)
REMARKS: Wellsite Geological Services Provided By Columbine Logging Inc.
LAT: 40.36219, 104.37070



Survey Elevation





Chalk

Shale

Marl

Shaly Sandstone

Sandstone

Silty Shale

B

Bentonite

F

Fossils

ENGINEERING SYMBOLS

▲

Casing

◀

Casing

◻

Connection

⊕

Connection Gas

↖

Arrow

⬇

Midnight Depth

SLIDE/ROTATE

0

200

FT/HR

ROP

0

200

FT/HR

MUD WT: 9.2 VIS 42

2334u

1396u

1456u

1686u

C1: 51.5%

C2: 18.6%

C3: 17.8%

C4: 12.1%

GAS

0

6000

UNITS

C1

0

600000

PPM

C2

0

600000

PPM

C3

0

600000

PPM

C4

0

600000

PPM

DEPTH (FEET)

5800

10

20

30

40

50

60

70

80

CUTTINGS LITHOLOGY

88

85

TVD

ft

5770

0

125

GAMM

MD 5824'

INC 1.9°

AZI 156.7°

TVD 5770.11'

MD 5855'

INC 5.1°

AZI 174.6°

TVD 5801.05'

MD 588

INC 7.9°

AZI 177

TVD 58:

80% SLTY: SH: mgy-lgy, modst-sl firm, sbply-sbply, silty-aren, sl-n calc, tr inbd/ ss, grdg to sh, 15% SHY: SS: lt-mgy, occ s&p, vf-mt gr, sbang-sbrd, mod st-fi, modst- psrt, arg cnt, calc, 5% SH: dkgy-blk, firm, sbply-pty, occ sbply, rthy-sl silty

75% SLTY: SH: mgy-lgy, modst-sl firm, sbply-sbply, silty-aren, sl-n calc, tr inbd/ ss, grdg to sh, 20% SHY: SS: lt-mgy, occ s&p, vf-mt gr, sbang-sbrd, mod st-fi, modst- psrt, arg cnt, calc, 10% SH: dkgy-blk, firm, sbply-pty, occ sbply, rthy-sl silty

COLUMBINE LOGGING

RIGGED UP ON 09/27/12

MANNED 2-PERSON LOGGING

WITH BLOODHOUND GAS

CHROMATOGRAPH UNIT #0034

HZ BEGAN ON 09/28/2012 @ 00:00

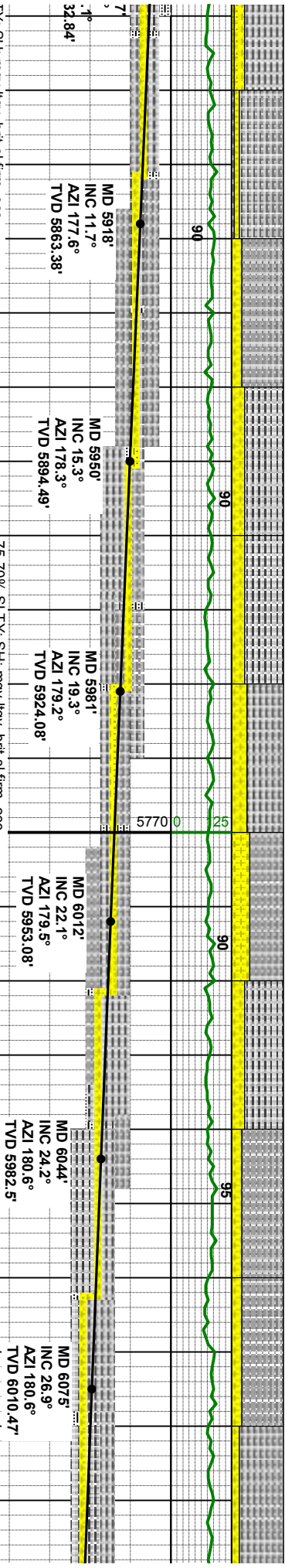
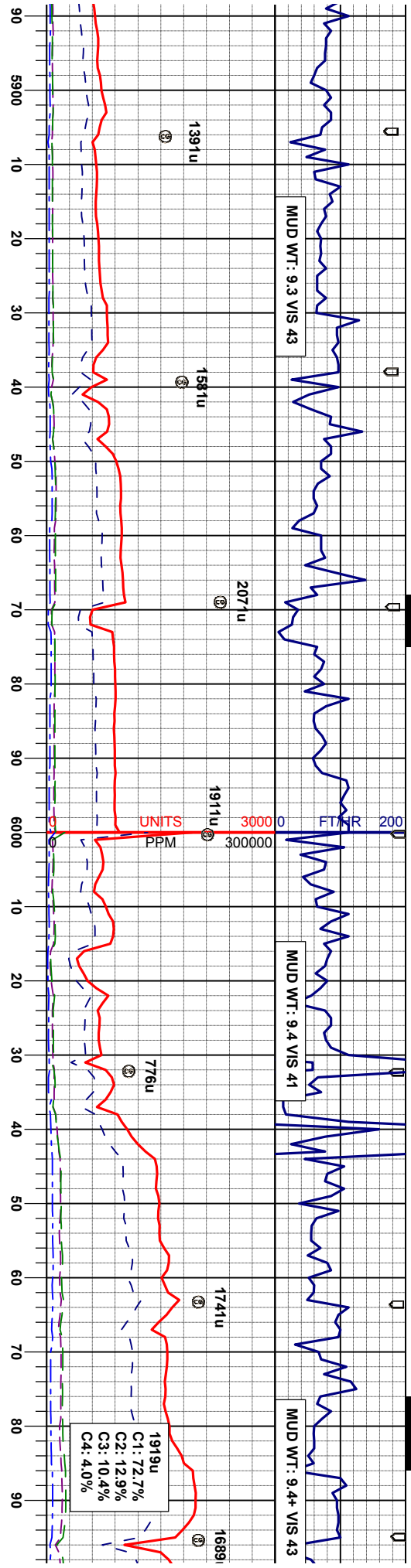
OIL SHOW

T F G

7000

SLIGHT TRACE

SAMPLE PHOTOS



TY: SH: mgy-llgy, brt-sl firm, occ
sbply-sbply, sily-aren, sl-n calc, tr
grdg to sh 20% SHY: SS: lt-mgy, occ
nt gr, sbang-sbrd, mod sft-fr, modst-
cmt, calc, 5% SH: dkyg-blk, firm, sbply
c sbply, rthy-sl sily

75-70% SLTY: SH: mgy-llgy, brt-sl firm, occ
modst, sbply-sbply, sily-aren, sl-n calc, sme
inbdl ss, 25-30% SHY: SS: lt-mgy, occ s&p, vf-
mf gr, sbang-sbrd, mod sft-fr, modst- psrt, arg
cmt, calc

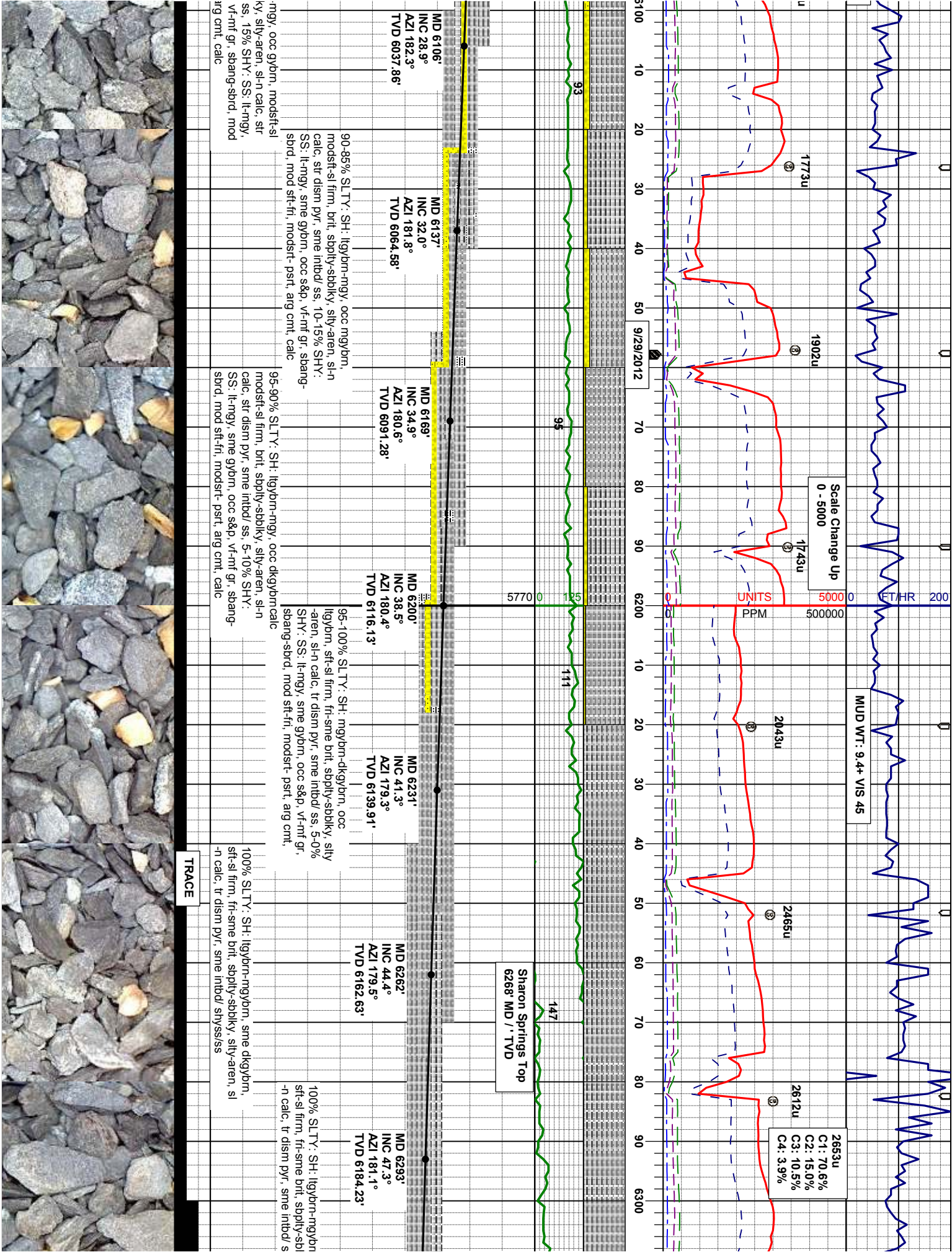
80% SLTY: SH: llyg-mgy, occ gybrn, modst-sl
firm, brt, sbply-sbply, sily-aren, sl-n calc, sme
inbdl ss, 20% SHY: SS: lt-mgy, sme gybrn, occ
s&p, vf-nt gr, sbang-sbrd, mod sft-fr, modst-
psrt, arg cmt, calc

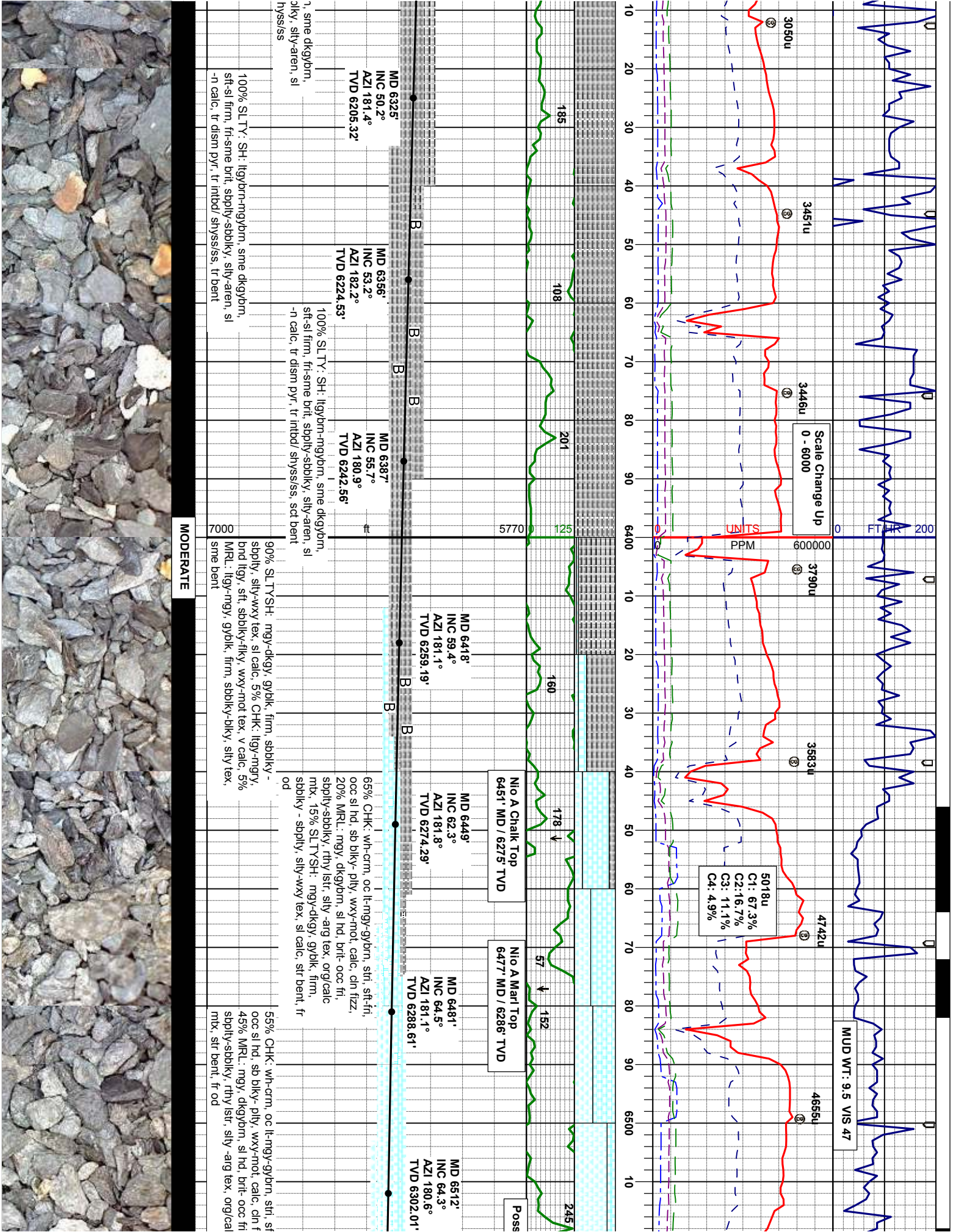
80% SLTY: SH: mgy-llgy, brt-sl firm, occ
modst, sbply-sbply, sily-aren, sl-n calc, sme
inbdl ss, 20% SHY: SS: lt-mgy, occ s&p, vf-
mf gr, sbang-sbrd, mod sft-fr, modst- psrt, arg
cmt, calc

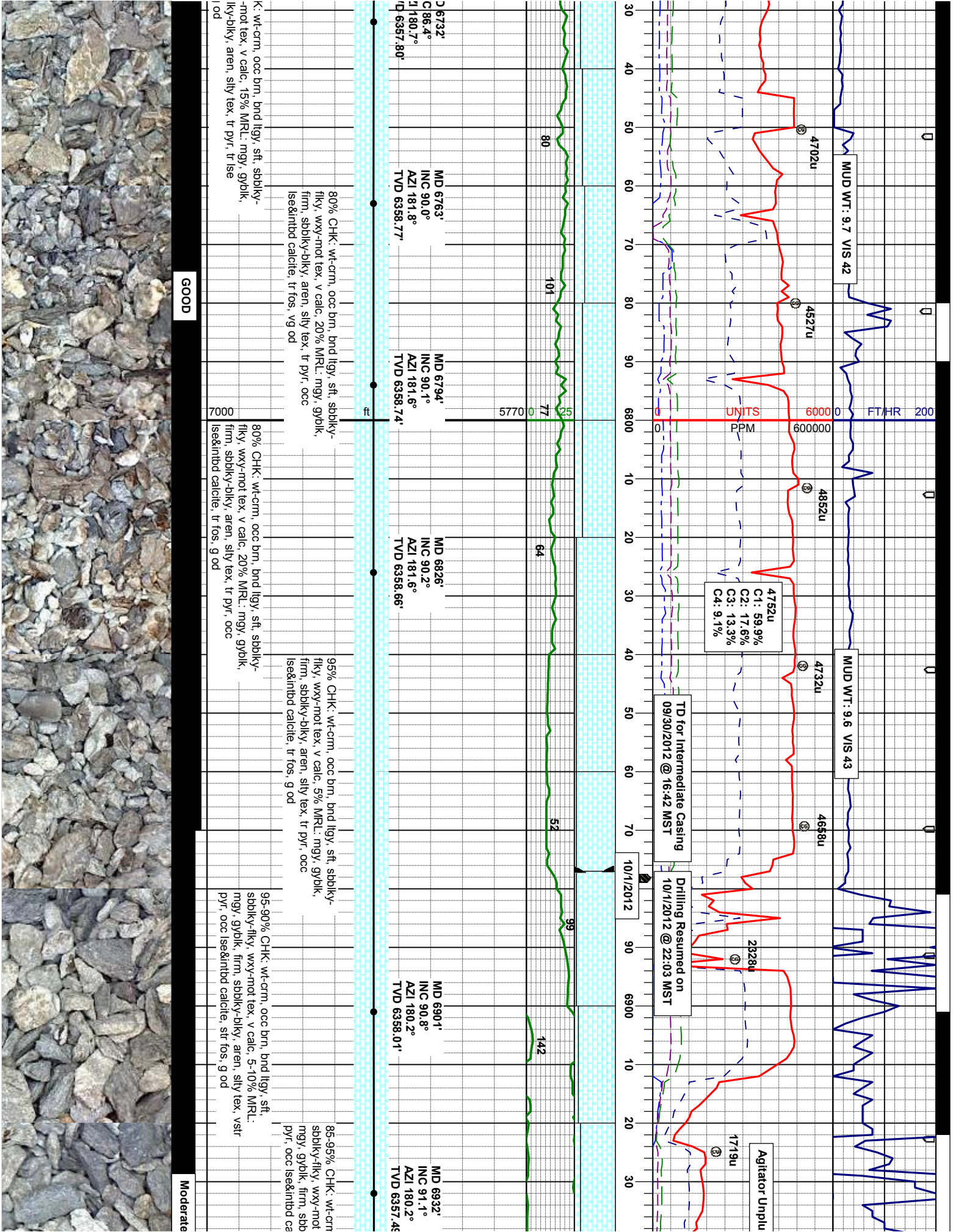
65-75% SLTY: SH: mgy-llgy, brt-sl firm, occ
modst, sbply-sbply, sily-aren, sl-n calc, sme
inbdl ss, 35-25% SHY: SS: lt-mgy, occ s&p, vf-
mf gr, sbang-sbrd, mod sft-fr, modst- psrt, arg
cmt, calc

85% SLTY: SH: llyg-
firm, brt, sbply-sbbl
dism pyr, sme inbdl
sme gybrn, occ s&p,
sft-fr, modst- psrt, e



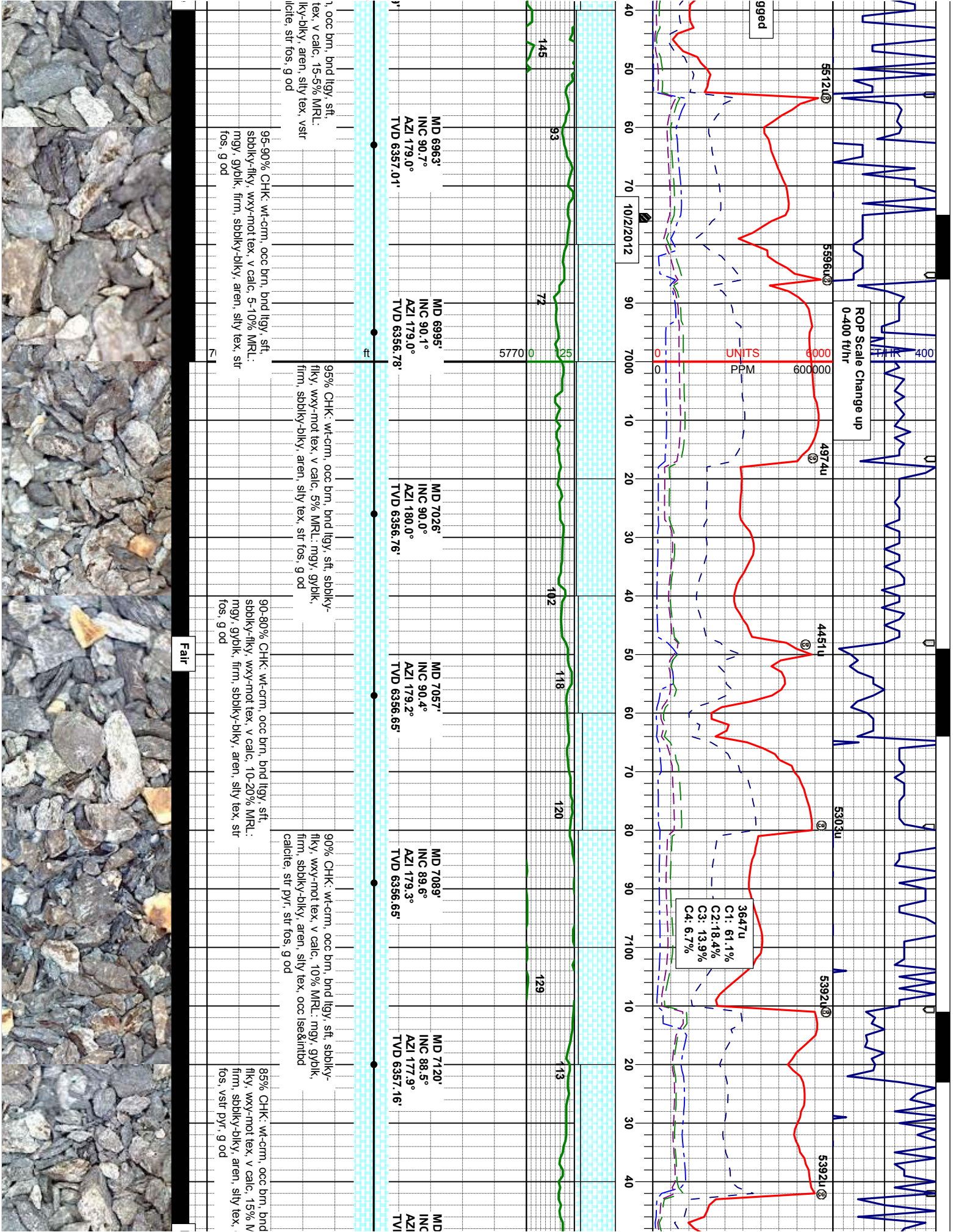


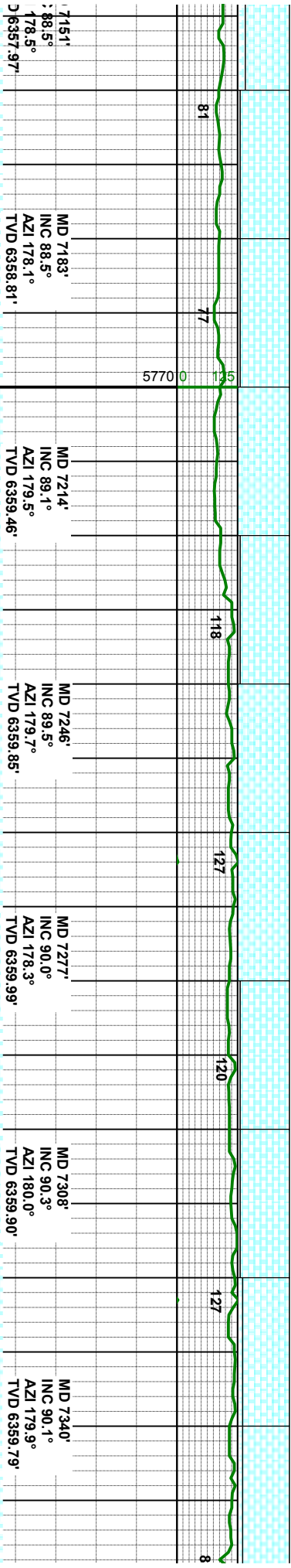
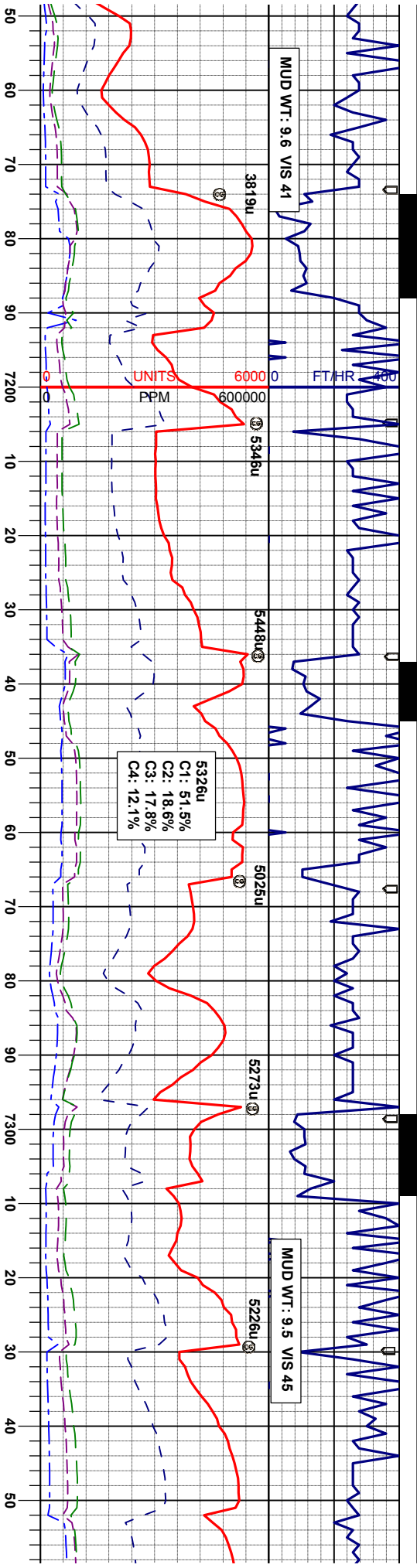




GOOD

Moderate





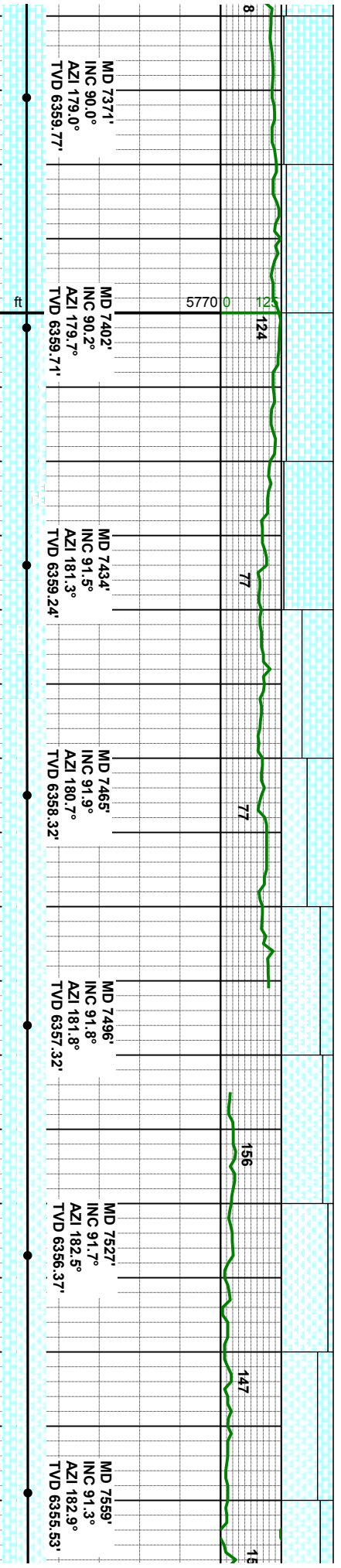
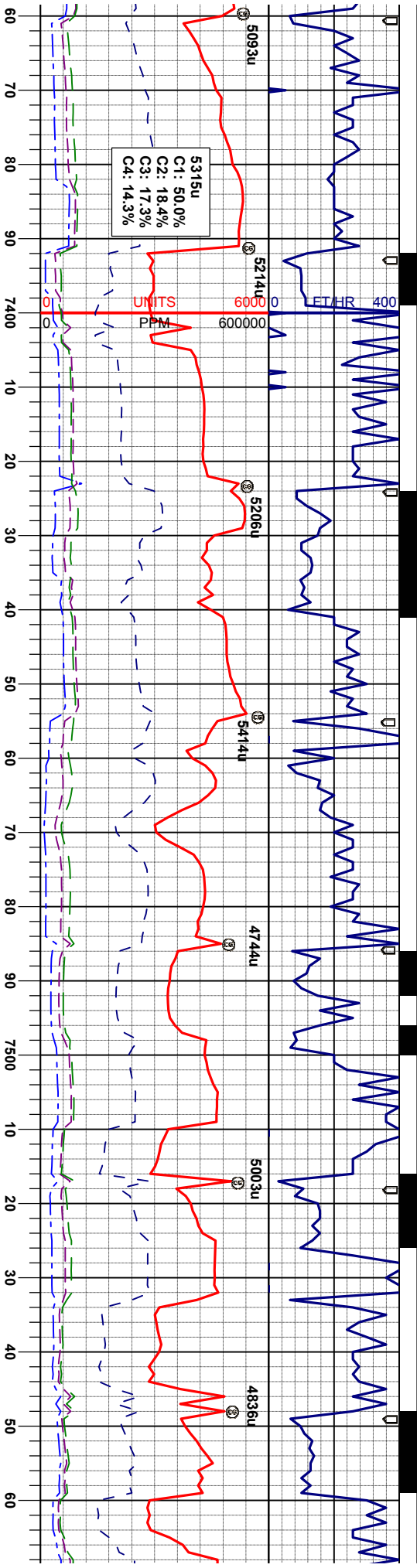
95% CHK: wt-crm, occ brn, bnd lgy, sft, sbblky-
flky, wxy-mot tex, v calc, 5% MRL: mgy, gybtk,
firm, sbblky-blky, aren, silty tex, occ lsekintnd
fos, g od

100-95% CHK: wt-crm, occ brn, bnd lgy, sft,
sbblky-flky, wxy-mot tex, v calc, 0-5% MRL:
mgy, gybtk, firm, sbblky-blky, aren, silty tex, occ
lsekintnd fos, g od

95% CHK: mgy-dkgy, brn, occ wt-crm, bnd lgy,
sft, sbblky-flky, wxy-mot tex, v calc, 5% MRL:
mgy, gybtk, firm, sbblky-blky, aren, silty tex, tr
fos, vg od

90% CHK: mgy-dkgy, brn, occ wt-crm, bnd
sft, sbblky-flky, wxy-mot tex, v calc, 10% M
mgy, gybtk, firm, sbblky-blky, aren, silty tex,
fos, vg od





lty, R.L. tr

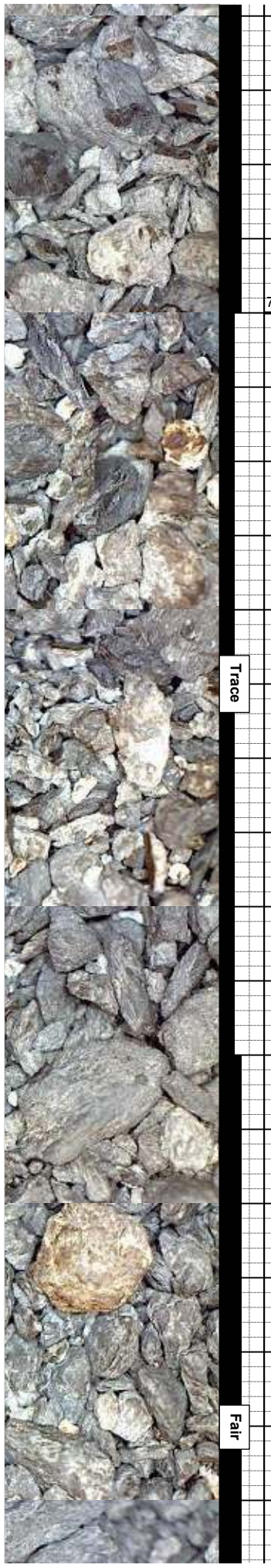
90% CHK: mgy-dkgy, brn, occ wt-crm, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, 10% MRL: mgy, gyblk, firm, sbdky-blky, str, aren, sily tex, sme pyr, tr fos, fr od

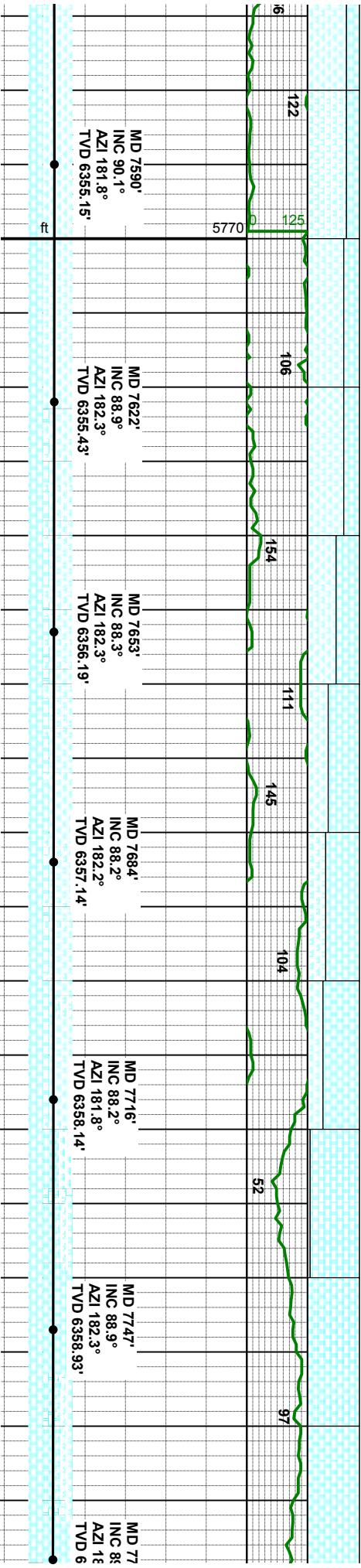
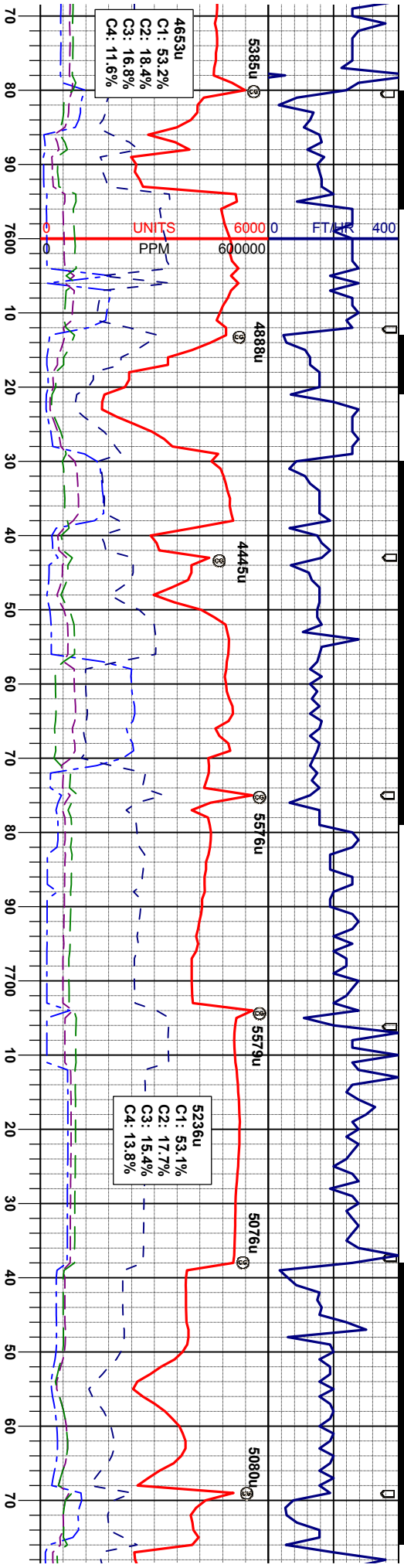
60% CHK: mgy-dkgy, brn, occ wt-crm, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, 40% MRL: mgy, gyblk, firm, sbdky-blky, str, aren, sily tex, sme pyr, tr fos, fr od

75% MRL: mgy, gyblk, firm, sbdky-blky, str, aren, sily tex, 25% CHK: mgy-dkgy, brn, occ wt-crm, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, sme pyr, tr fos, fr od

90% MRL: mgy, gyblk, firm, sbdky-blky, str, aren, sily tex, 10% CHK: mgy-dkgy, brn, occ wt-crm, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, sme pyr, tr fos, fr od

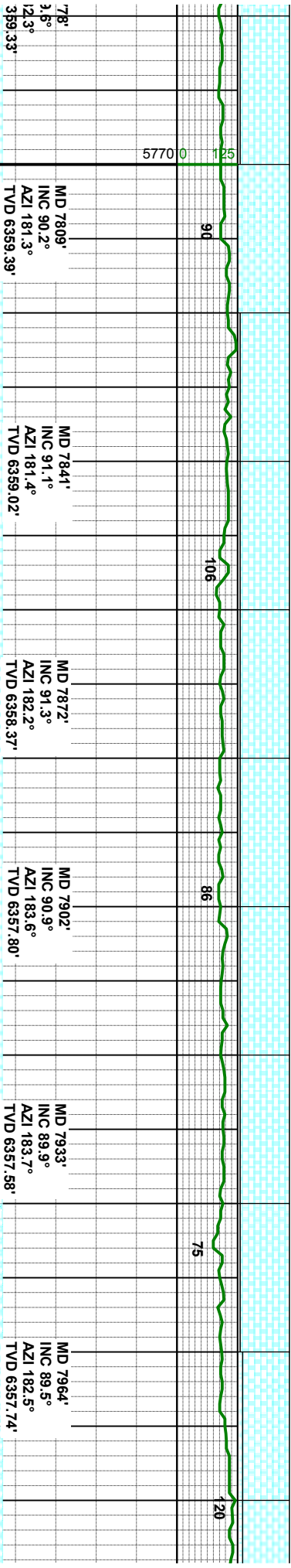
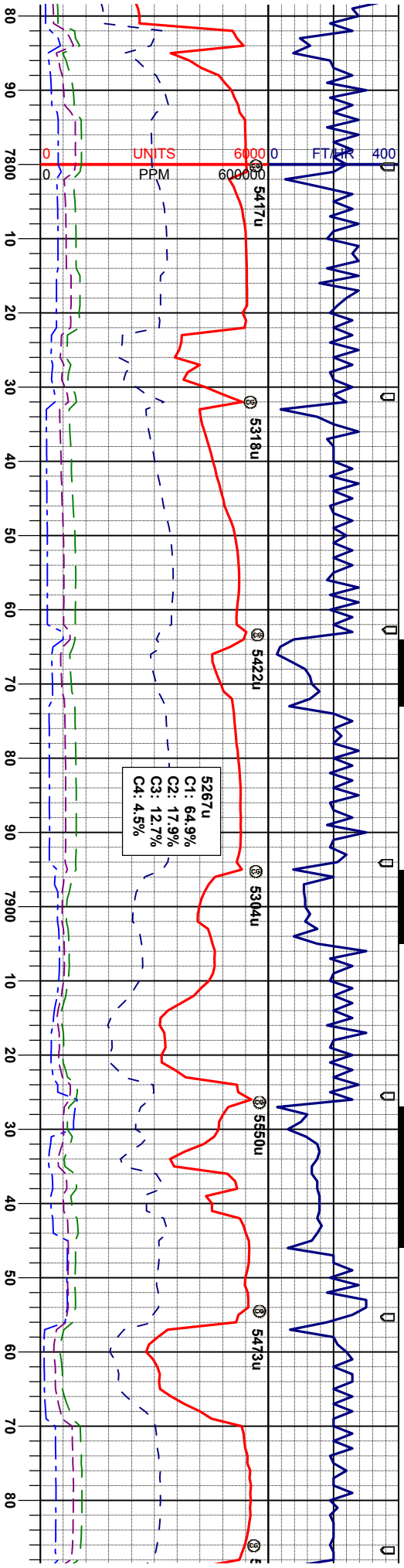
75% MRL: aren, sily cfm, bnd calc, sm





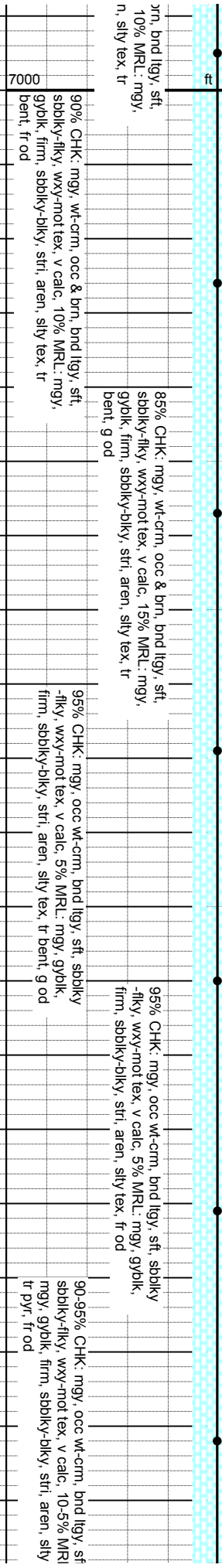
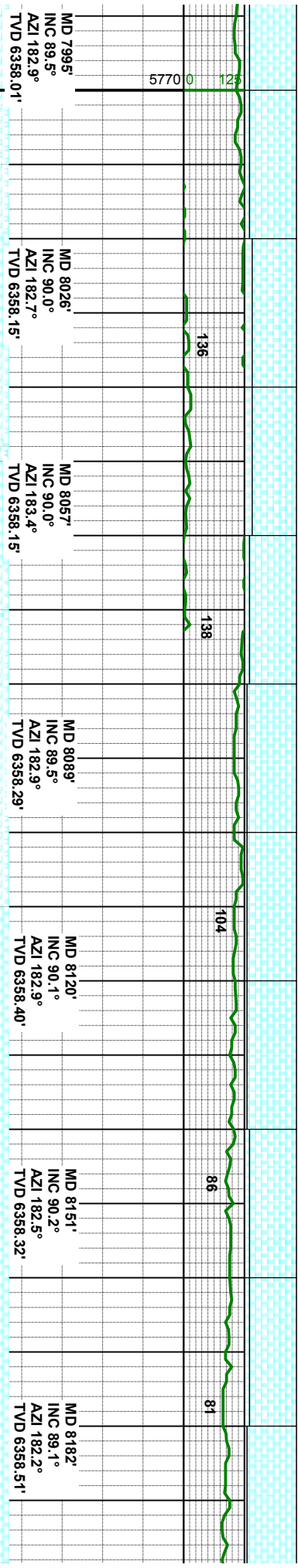
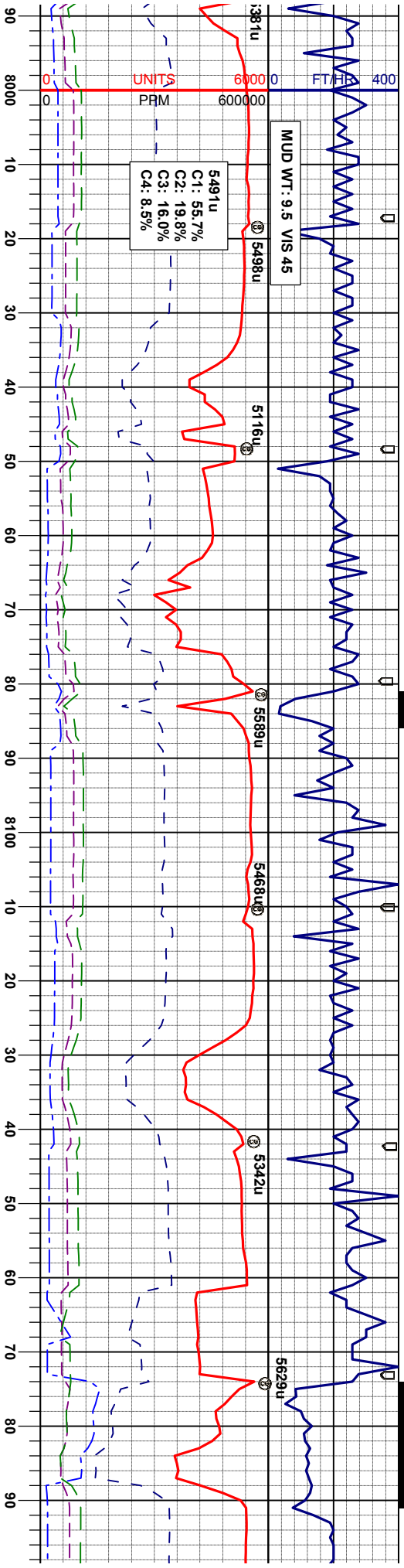
MD 7590' INC 90.1° AZI 181.8° TVD 6355.15'	MD 7622' INC 88.9° AZI 182.3° TVD 6355.43'	MD 7653' INC 88.3° AZI 182.3° TVD 6356.19'	MD 7684' INC 88.2° AZI 182.2° TVD 6357.14'	MD 7716' INC 88.2° AZI 181.8° TVD 6358.14'	MD 7747' INC 88.9° AZI 182.3° TVD 6358.93'	MD 77 INC 85 AZI 18 TVD 6
70% MRL: mgy, gyblk, firm, sbblky-blky, strf, aren, slty tex, 30% CHK: mgy-dkgy, brn, occ wt-crm, bnd ltyg, stf, sbblky-blky, wxy-mot tex, v calc, sme pyr, tr fos, tr od	55% MRL: mgy, gyblk, firm, sbblky-blky, strf, aren, slty tex, 45% CHK: mgy-dkgy, brn, occ wt-crm, bnd ltyg, stf, sbblky-blky, wxy-mot tex, v calc, tr pyr, tr fos, g od	65% CHK: wt-crm, occ mgy & brn, bnd ltyg, stf, sbblky-blky, wxy-mot tex, v calc, 35% MRL: mgy, gyblk, firm, sbblky-blky, strf, aren, slty tex, tr pyr, tr fos, g od	95% CHK: wt-crm, occ mgy & brn, bnd ltyg, stf, sbblky-blky, wxy-mot tex, v calc, 5% MRL: mgy, gyblk, firm, sbblky-blky, strf, aren, slty tex, tr pyr, tr fos, tr bent, g od	100% CHK: wt-crm, sbblky-blky, wxy-mot od		

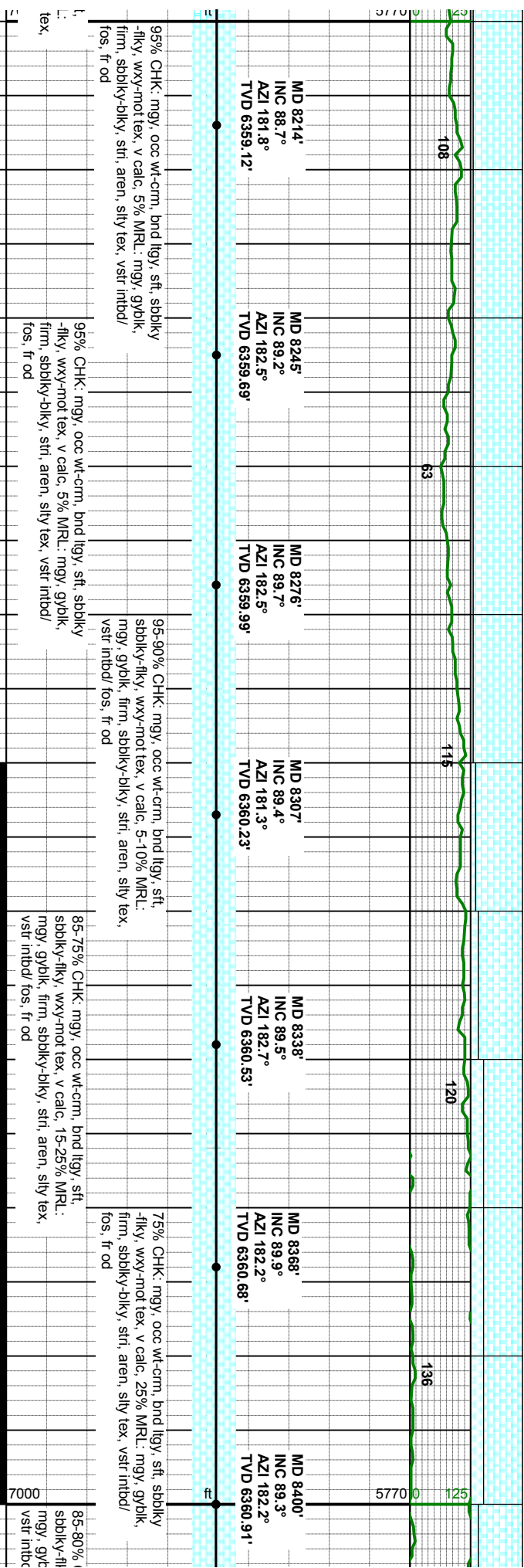
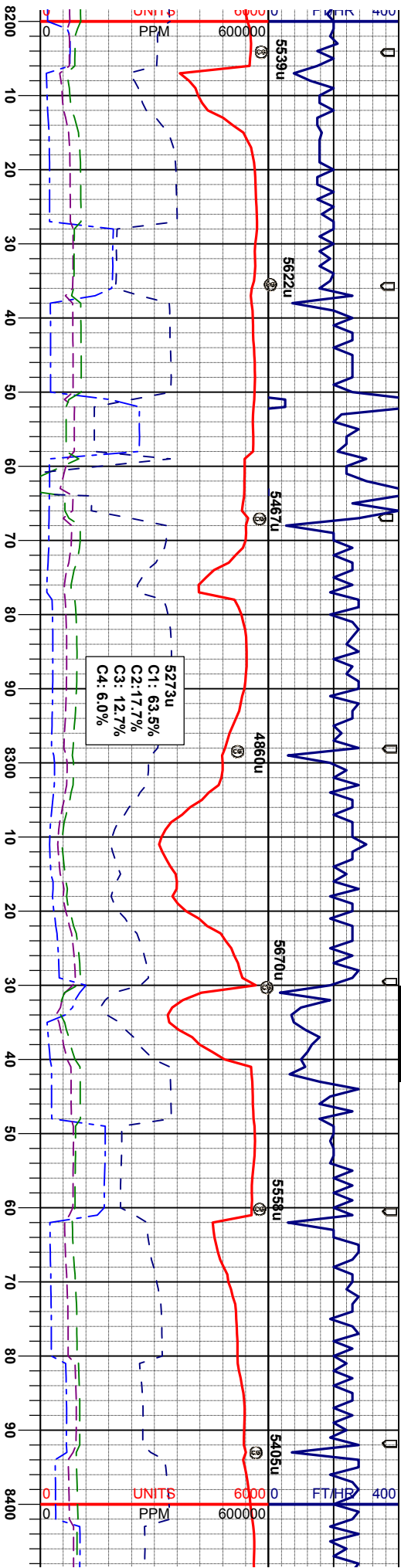


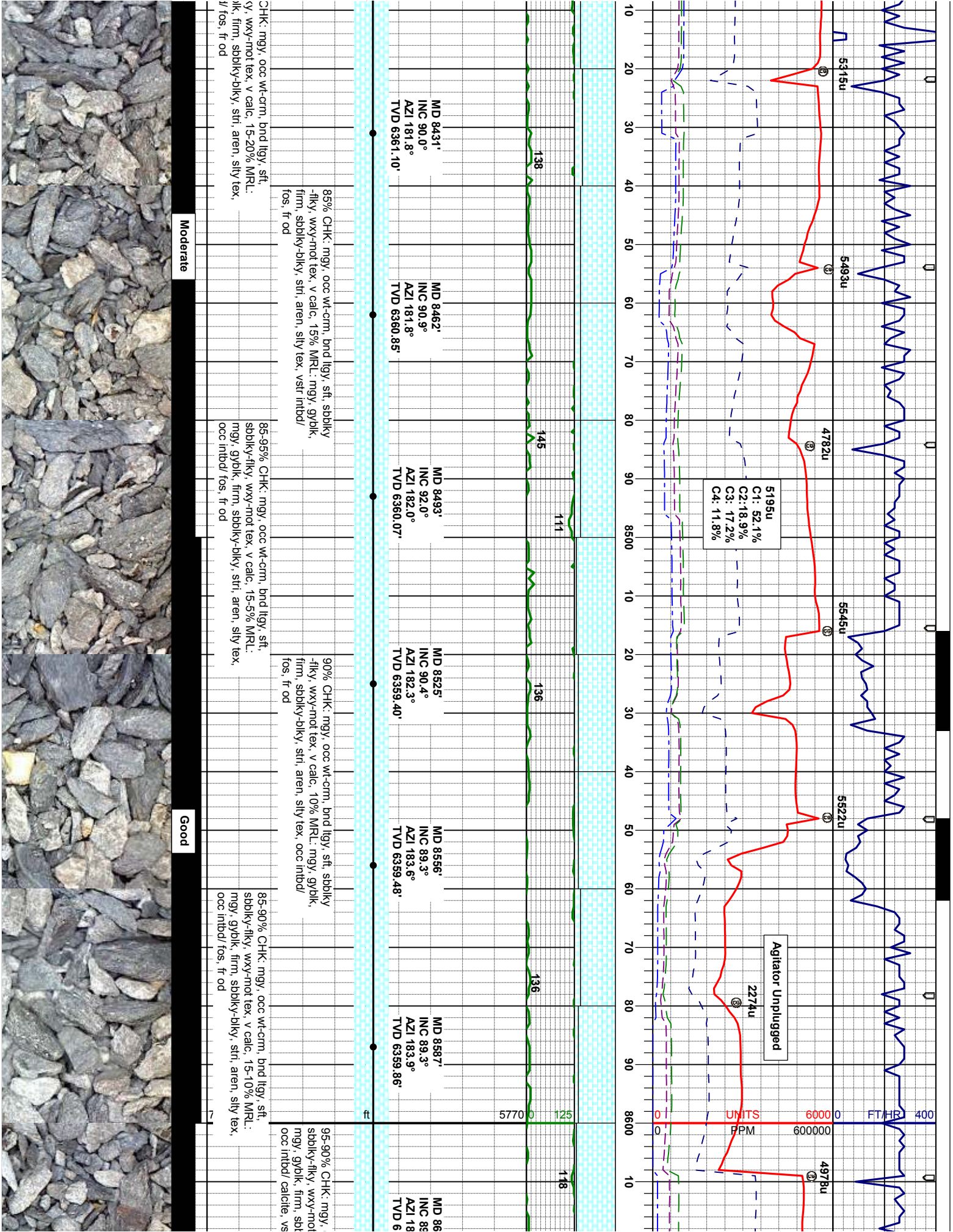


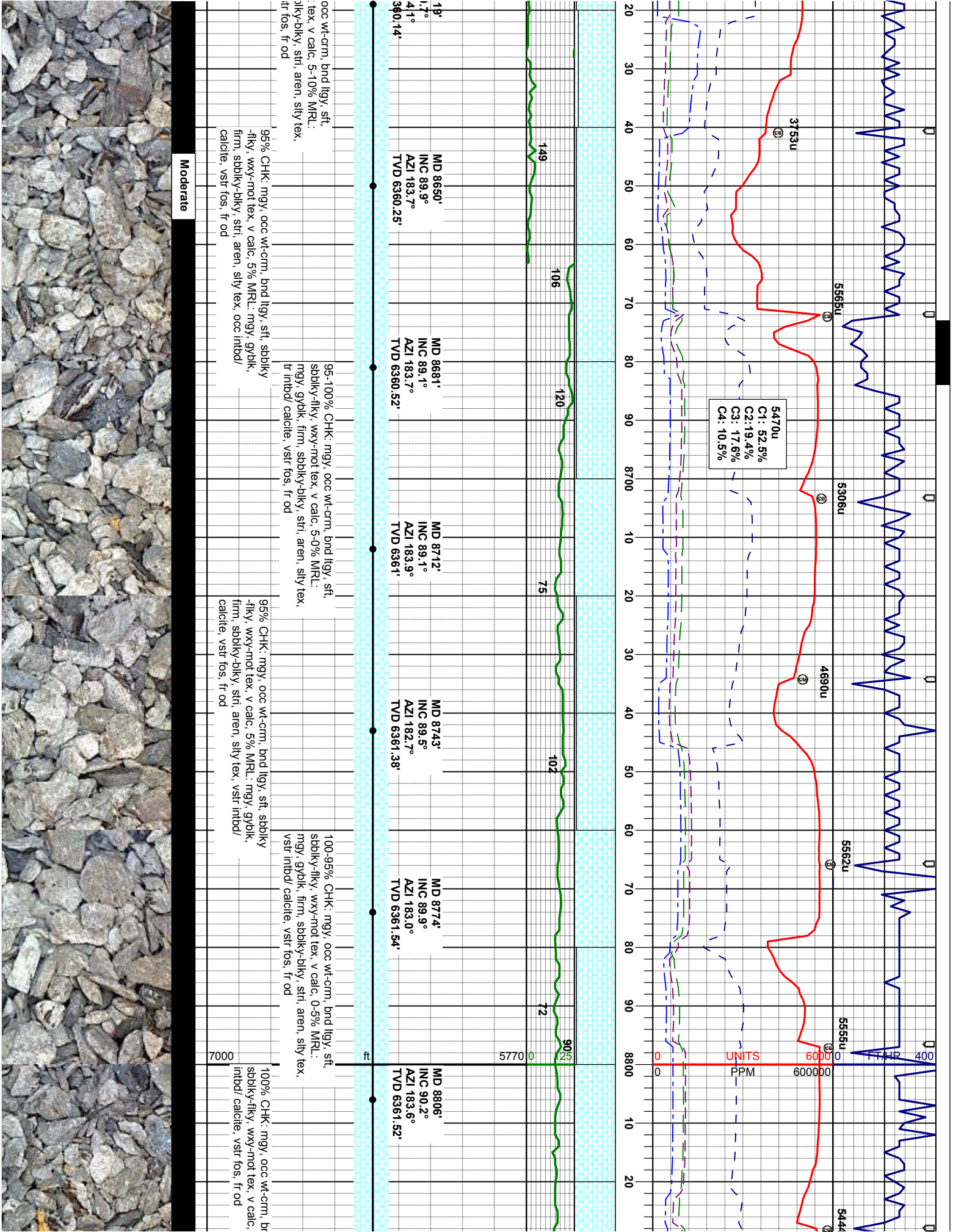
MD 7809' INC 90.2° AZI 181.3° TVD 6359.39'	MD 7841' INC 91.1° AZI 181.4° TVD 6359.02'	MD 7872' INC 91.3° AZI 182.2° TVD 6358.37'	MD 7902' INC 90.3° AZI 183.6° TVD 6357.80'	MD 7933' INC 89.9° AZI 183.7° TVD 6357.58'	MD 7964' INC 89.5° AZI 182.5° TVD 6357.14'
100% CHK: wt-crm, occ mgy & brn, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, tr pyr, tr fos, g od	95% CHK: mgy, wt-crm, occ & brn, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, 5% MRL, mgy, gyblk, firm, sbdky-bkly, stri, aren, silty tex, tr pyr, tr fos, tr bent, g od	95% CHK: mgy, wt-crm, occ & brn, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, 5% MRL, mgy, gyblk, firm, sbdky-bkly, stri, aren, silty tex, tr pyr, tr fos, tr bent, g od	95% CHK: mgy, wt-crm, occ & brn, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, 5% MRL, mgy, gyblk, firm, sbdky-bkly, stri, aren, silty tex, tr pyr, tr fos, tr bent, g od	95% CHK: mgy, wt-crm, occ & brn, bnd lty, sft, sbdky-flky, wxy-mot tex, v calc, 5% MRL, mgy, gyblk, firm, sbdky-bkly, stri, aren, silty tex, tr pyr, tr fos, tr bent, g od	90% CHK: mgy, wt-crm, occ & t sbdky-flky, wxy-mot tex, v calc, gyblk, firm, sbdky-bkly, stri, are bent, fr od

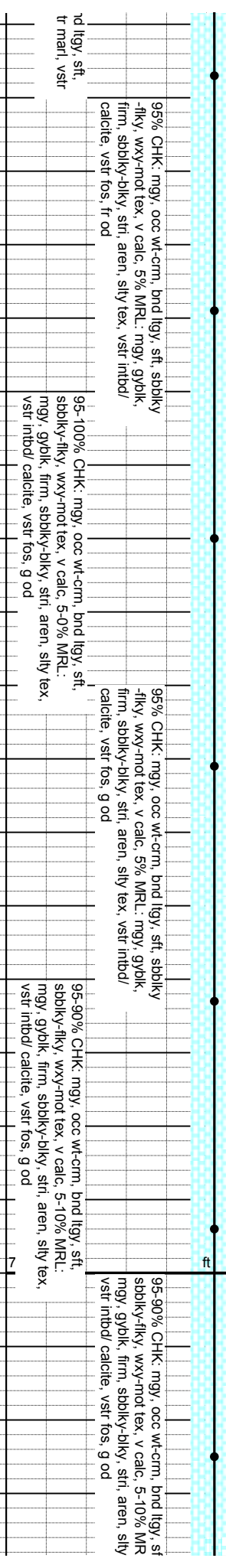
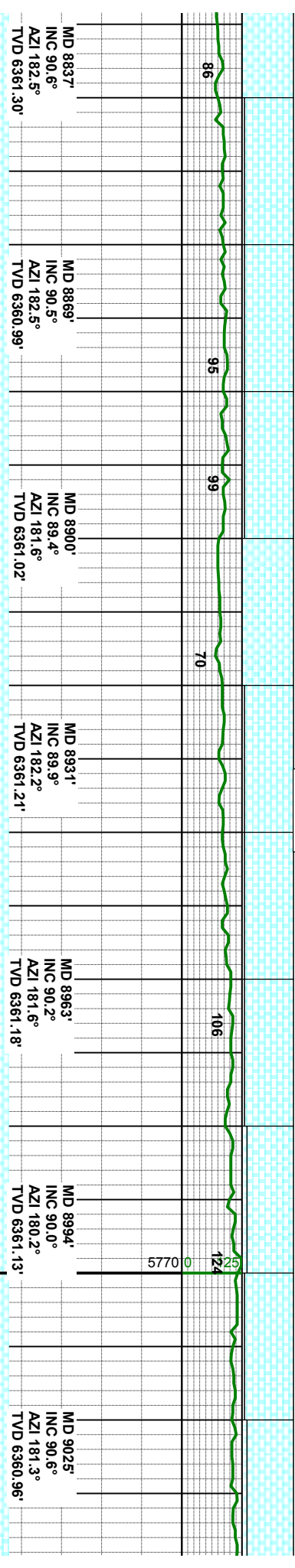
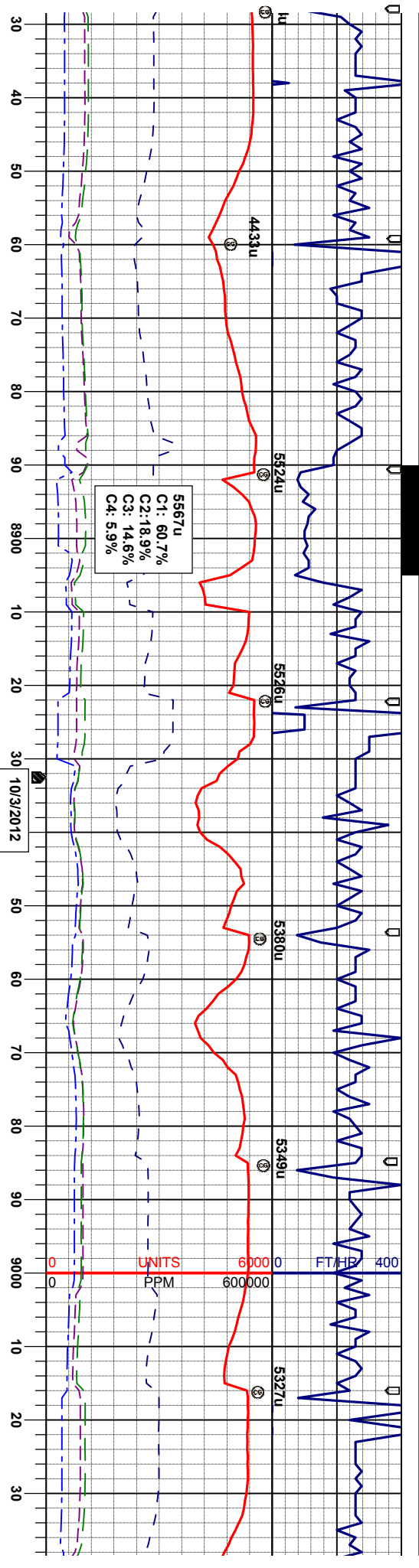


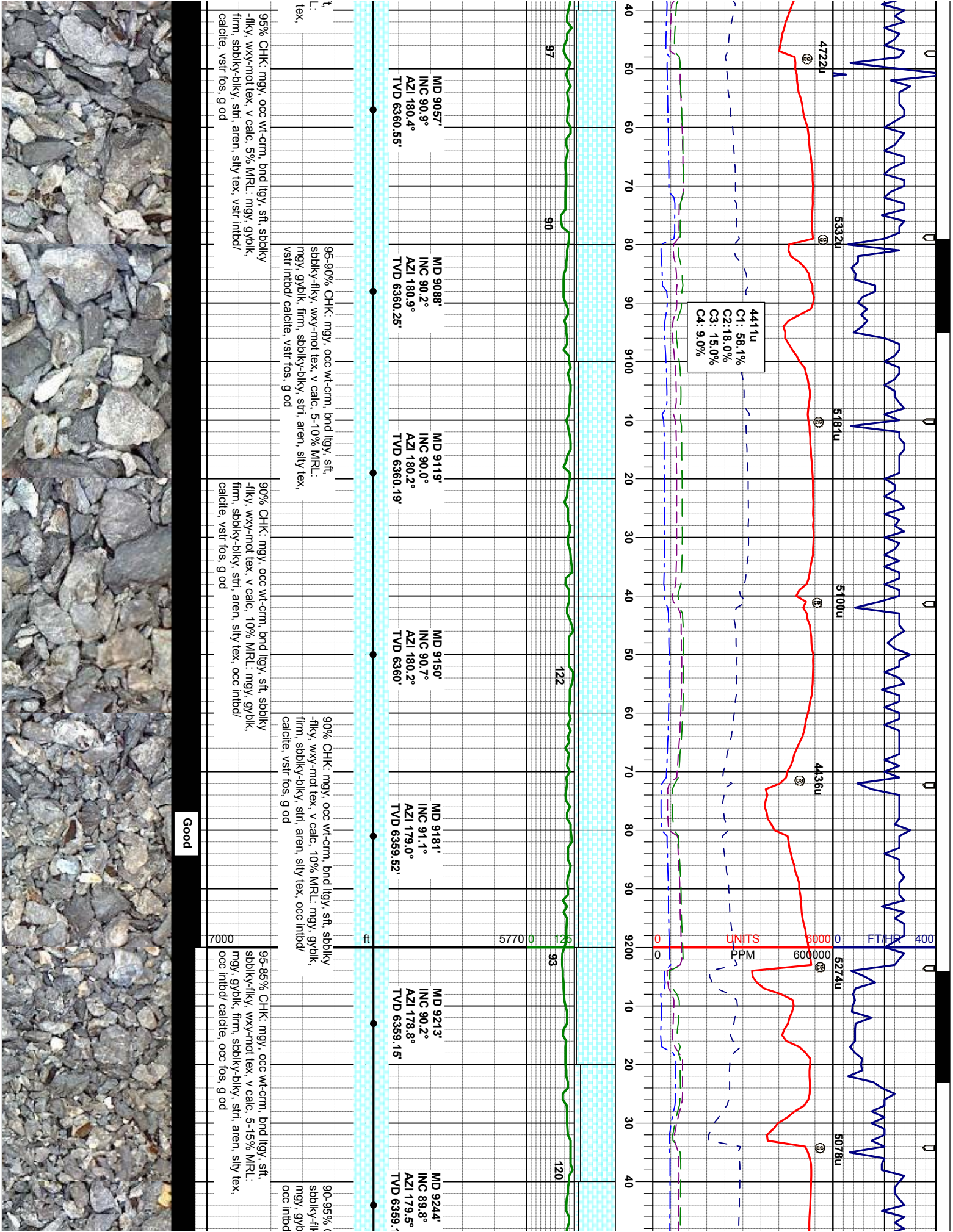


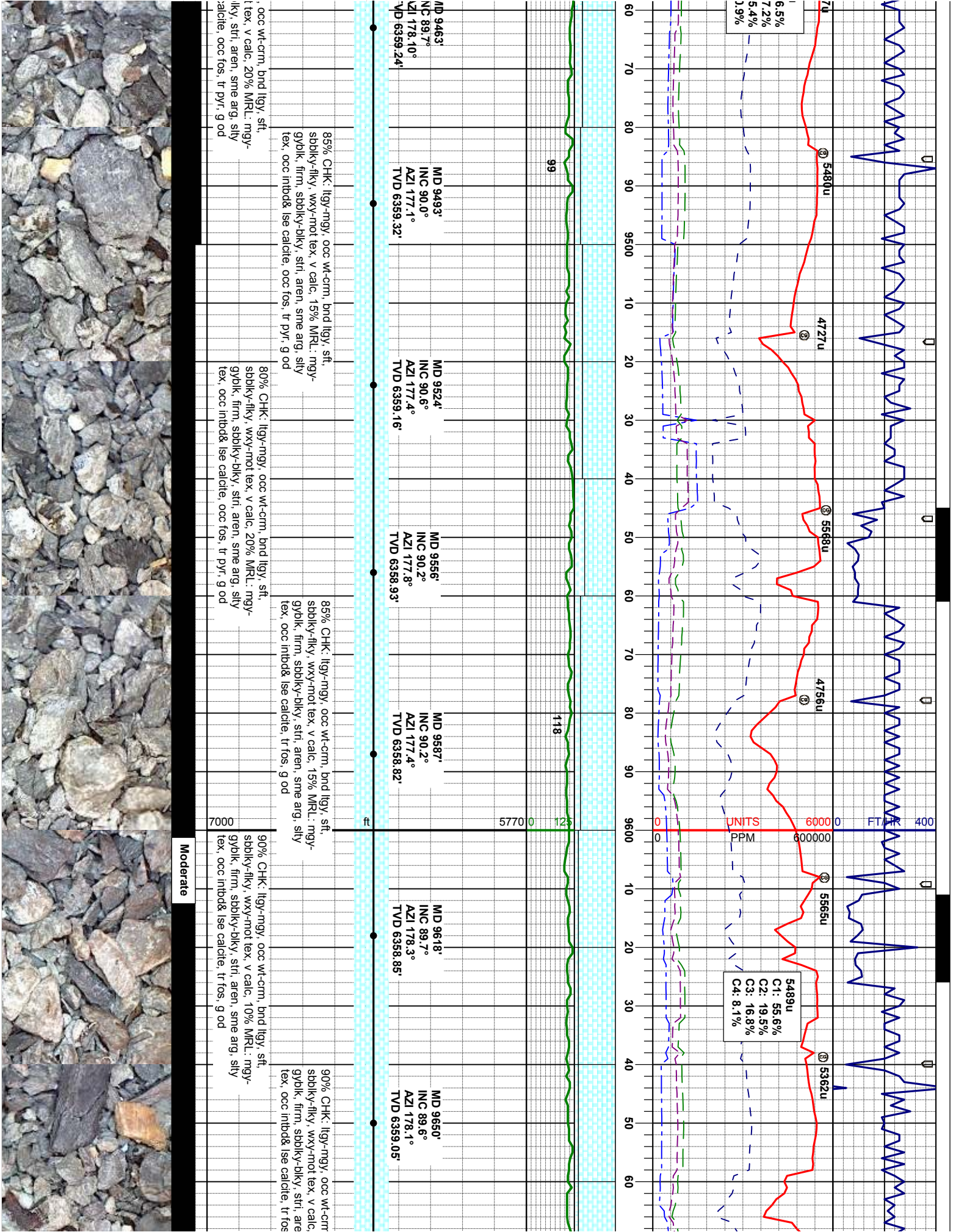


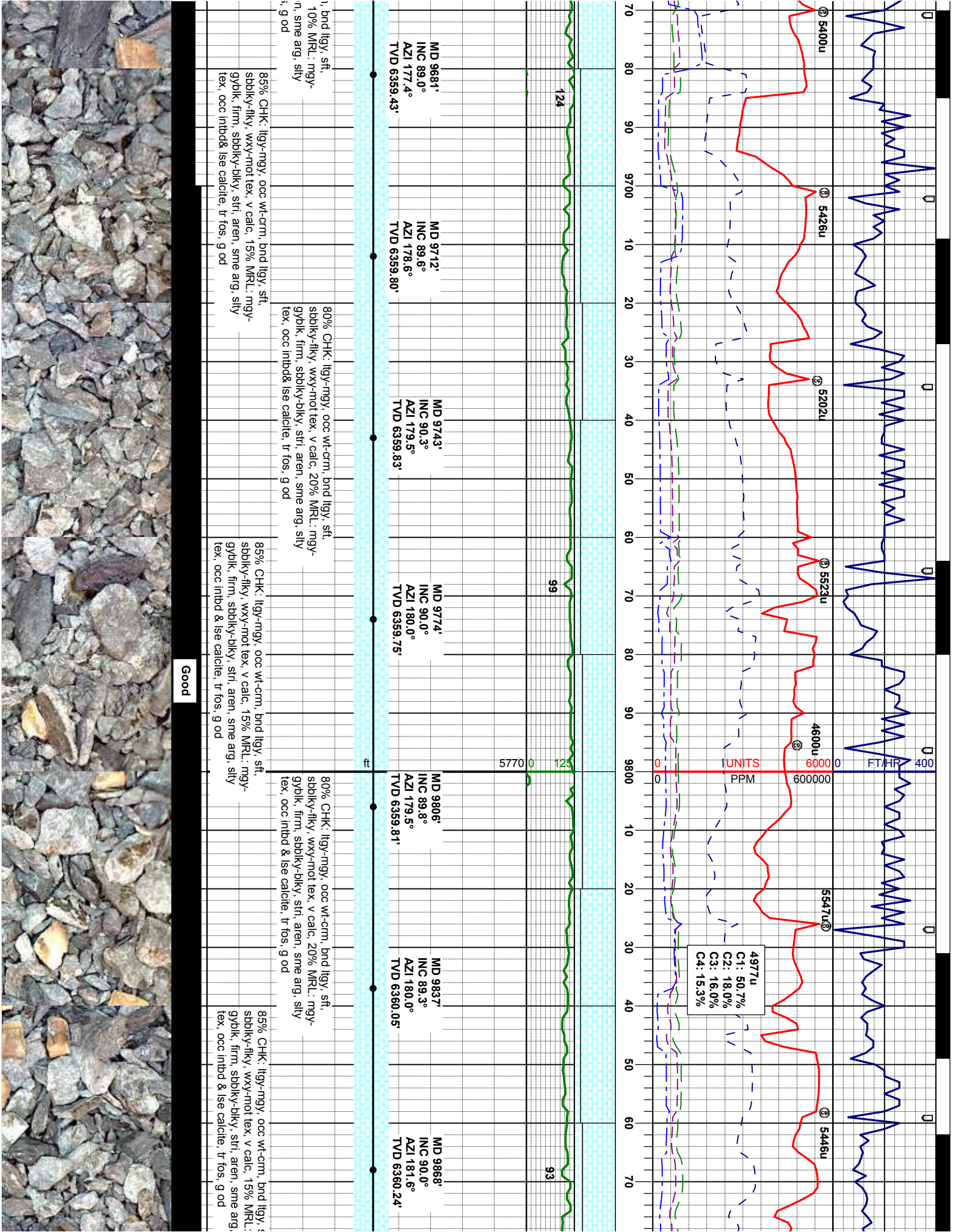


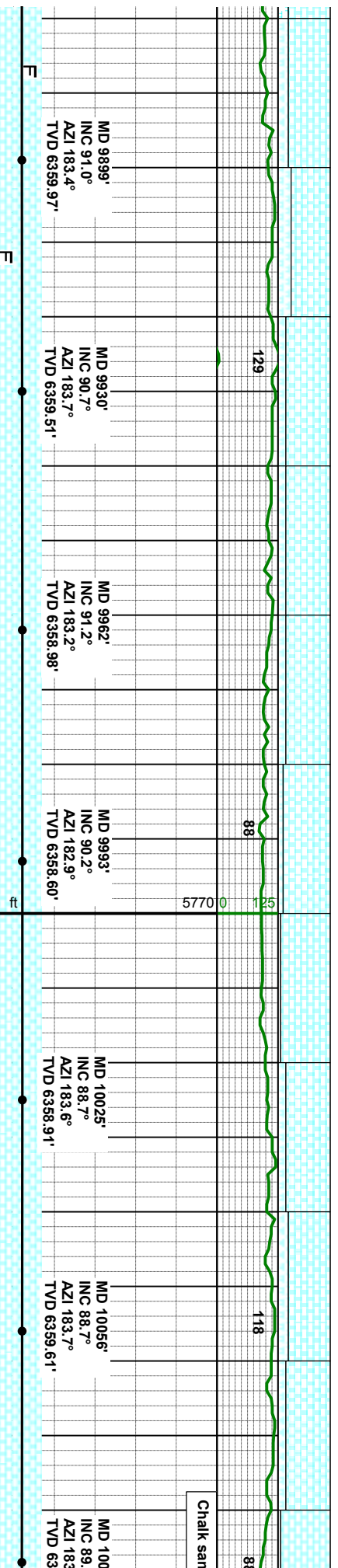
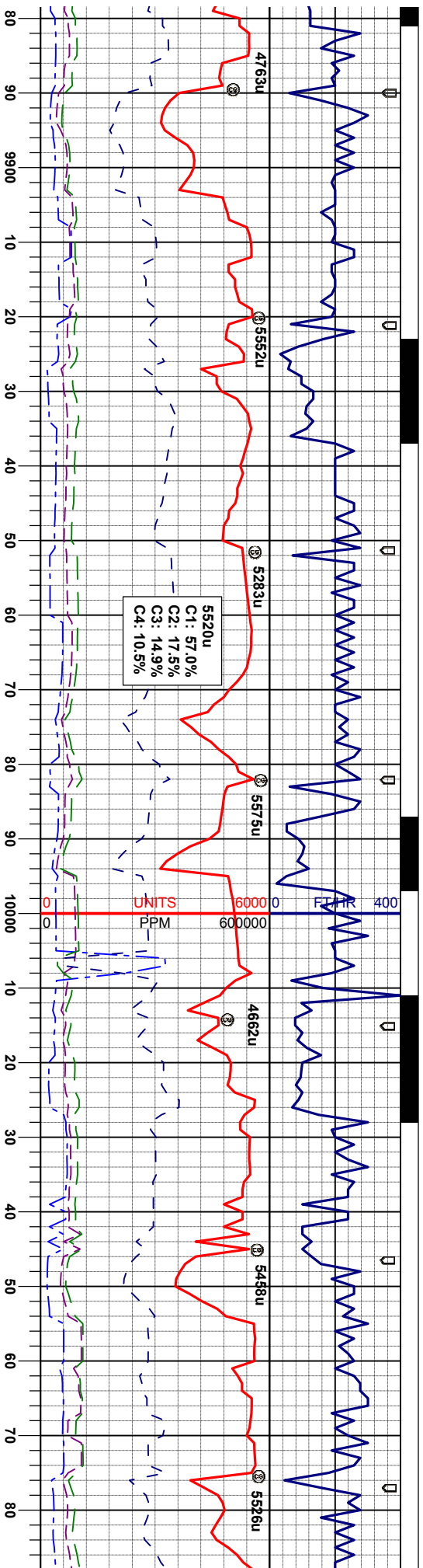












80% CHK: llyg-mgy, occ wt-crm, bnd llyg, sft, sbblky-llky, wxy-mot tex, v calc, 20% MRL: mgy-gyblk, firm, sbblky-blky, stri, aren, sme arg, silty tex, occ inbnd & lse calcite, incr fos, g od

85% CHK: llyg-mgy, occ wt-crm, bnd llyg, sft, sbbyk-llky, wxy-mot tex, v calc, 15% MRL: mgy-gyblk, firm, sbbyk-blky, stri, aren, sme arg, silly tex, occ intbd & lse calcite, tr pyr, sct fos, g od

80% CHK: ltyg-mgy, occ wt-crm, bnd ltyg, sft, sbblky-flky, wxy-mot tex, v calc, 20% MRL: mgy gyblk, firm, sbblky-blky, stri, aren, sme aeg, slty tex, occ intbd & lse calcite, sme fos, g od

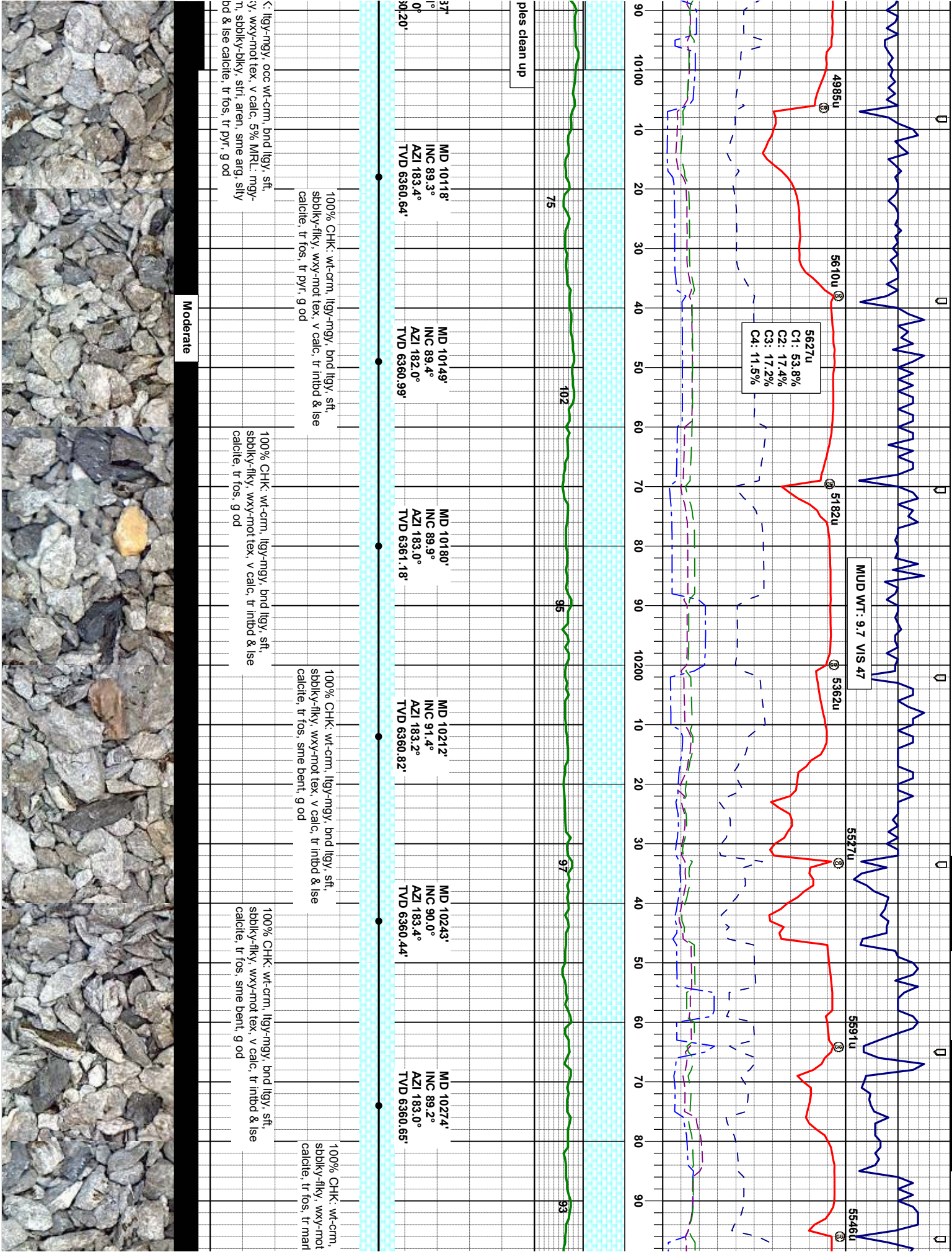
sft. mgy- stly	
	85% CHK: lly-mgy, occ w-crtn, bnd lly, sft, sbblky-llky, wxy-mot tex, v calc, 15% MFL: mgy gyblk, firm, sbblky-blky, strl, aren, sme arg, stly tex, occ imbd & ise calctie, scf tos, g od

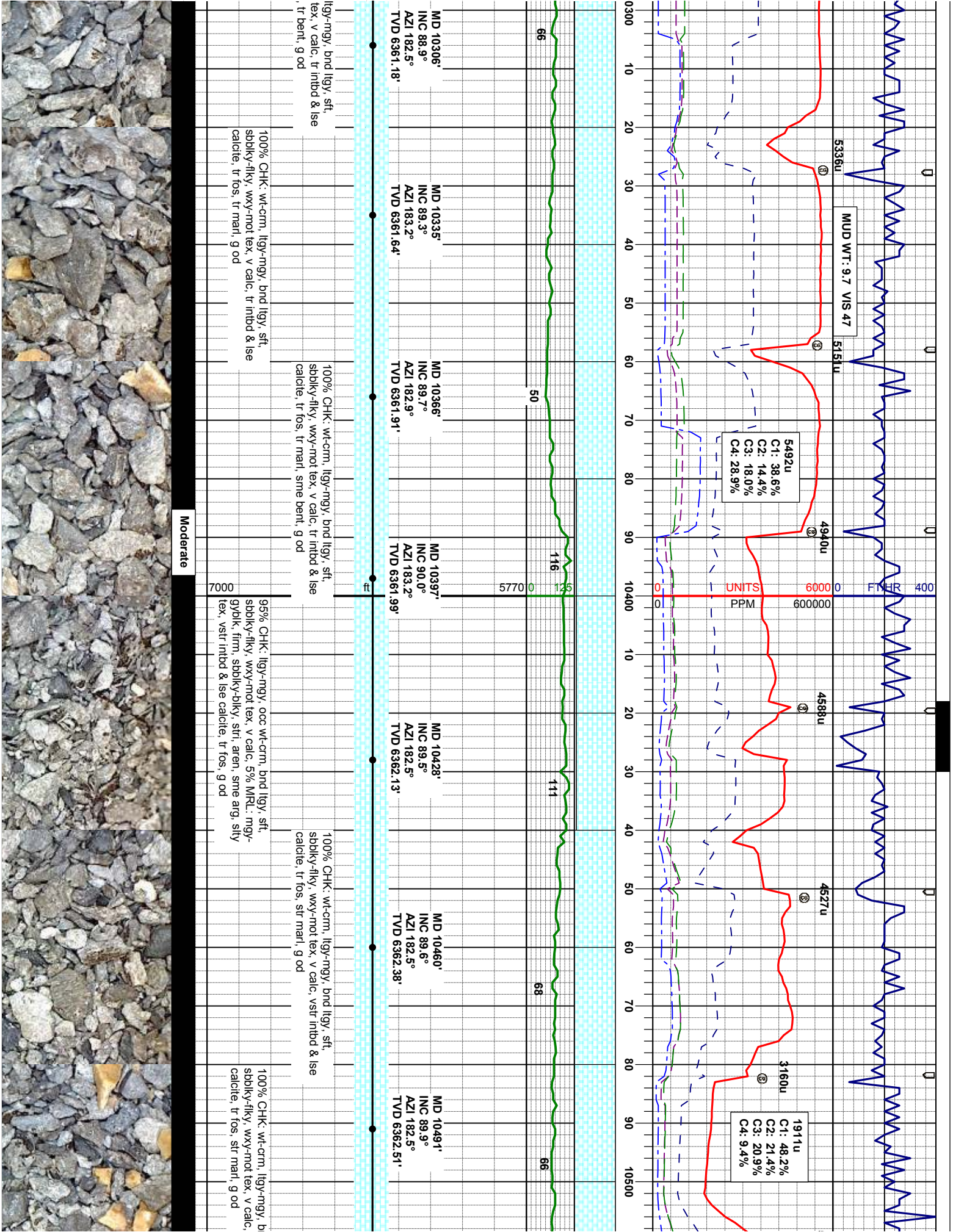
95% CHK: itgy-mgy, occ wt-cm, bnd itgy, sft, sbblky-flky, wxy-mot tex, v calc, 5% MRL: mgy-gyblk, frm, sbblky-blky, strl, aren, sme arg, stly tex, occ inbnd & ise calcite, scf fcs, a od

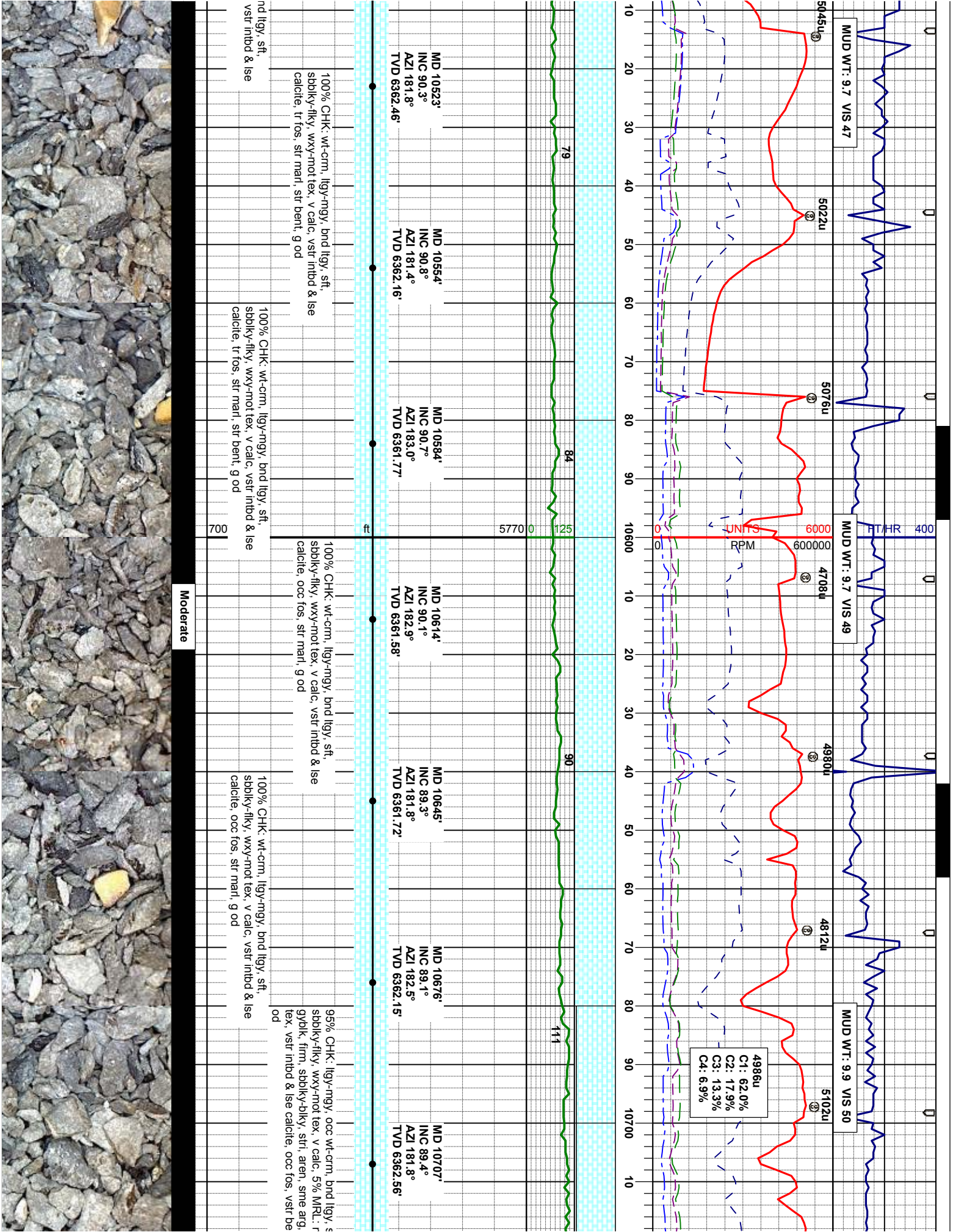
95% CHH
sbbiky-fir
gyblk, firm
tex, tr int

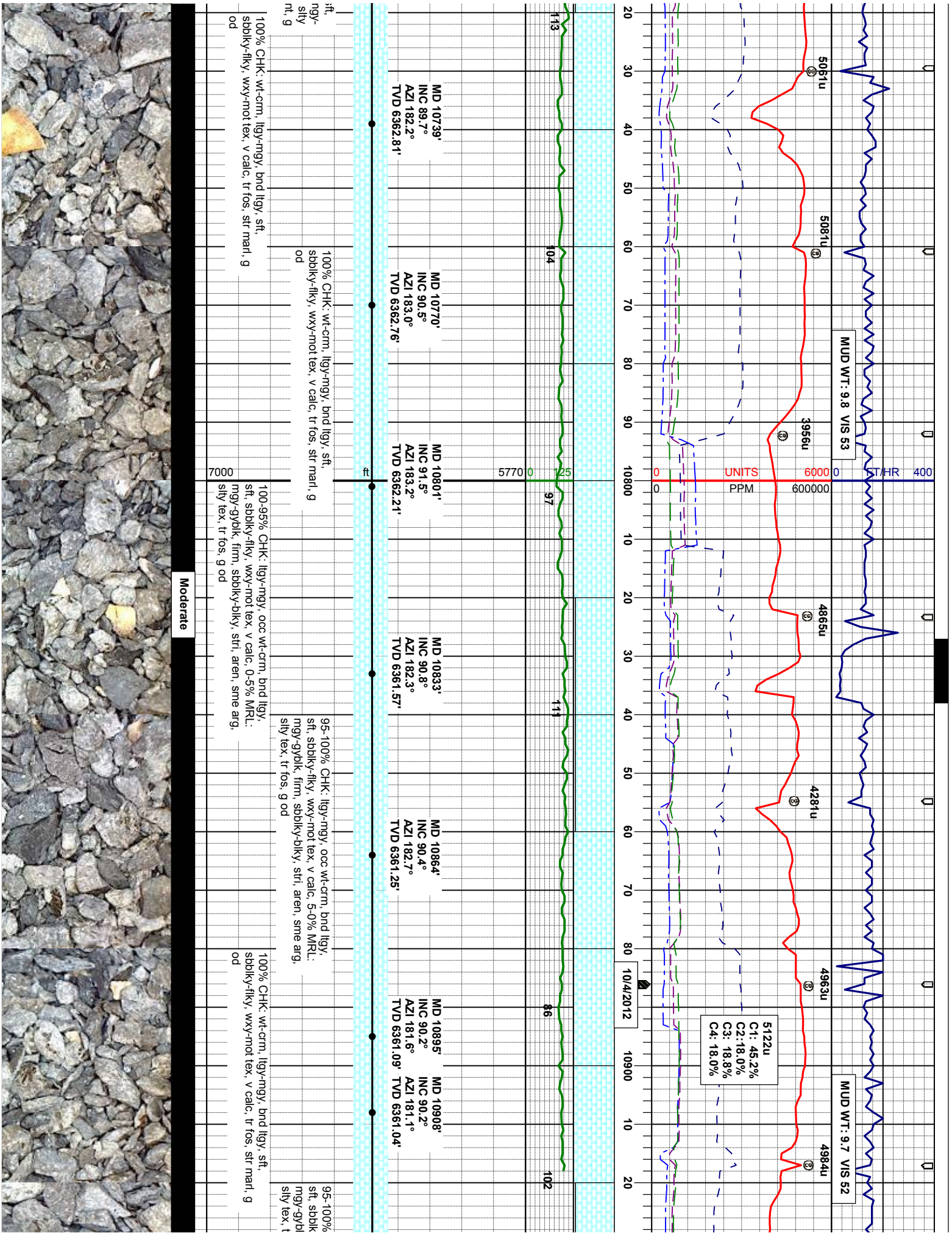
Good

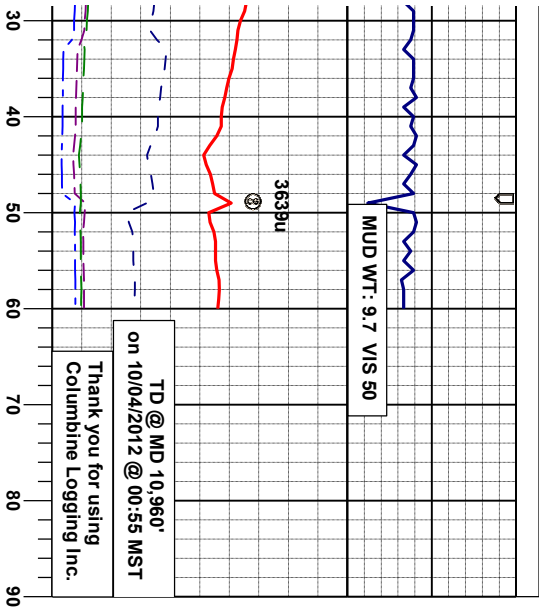












Projection to Bit

MD 10960'
INC 90.4°
AZI 181.1°
TVD 6360.77'

CHK: lly-ngy, occ wt-crm, bnd lly,
y-flky, wxy-mot tex, v calc, 5-0% MRL:
k, firm, sbdky-blky, stri, aren, sme aly,
r fos, g od

