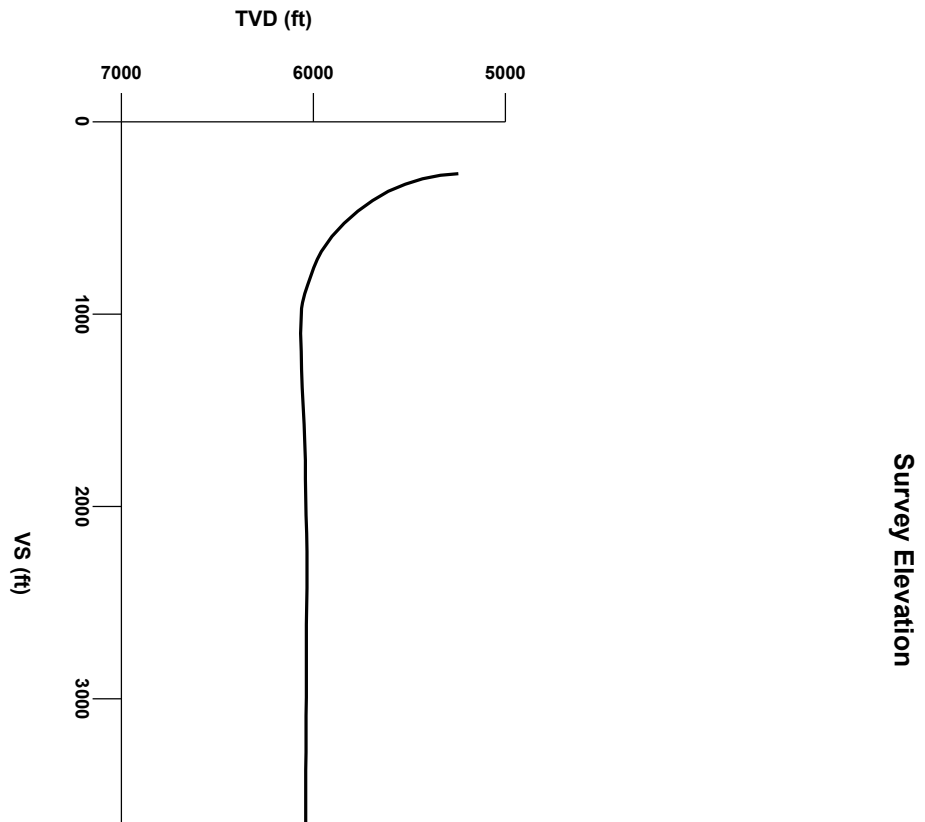
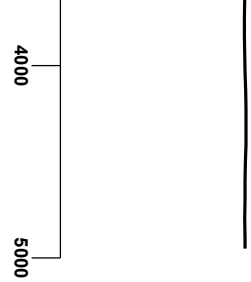
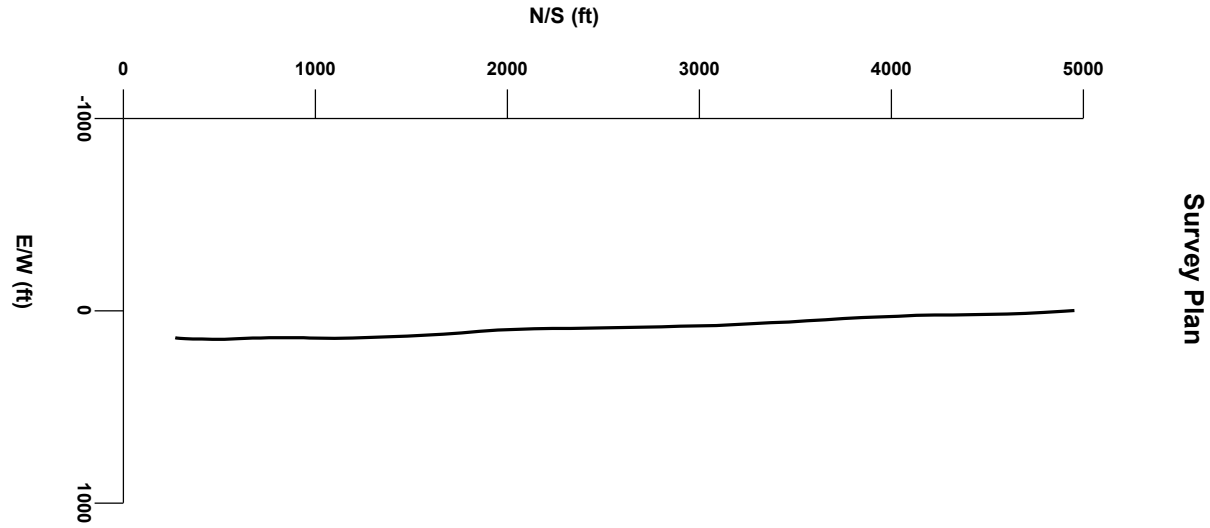
LOG created using LPLOT VH Version 3.0, May 25, 2013, Copyright (C) 1999-2009 Pason Systems Corp.

OPERATOR:	**NOBLE ENERGY INC**
WELL:	**TIMBRO LC13-76HN**
LOCATION:	**SEC 24 T9N R59W**
COUNTY:	**WELD**
STATE:	**COLORADO**
SPOT:	**280' FNL; 1800' FWL**
ELEVATION:	**4860' GL; 4884' KB**
FIELD:	**WILDCAT**
SPUD DATE:	**5/18/2013**
TD DATE:	**5/24/2013**
DATES LOGGED:	**5/20/2013 -5/24/2013**
DEPTHS LOGGED:	**5300' - 10420' MD**
LOGGERS:	**LAURA KELLOGG; CHRISTIAN V.; CONOR P.**
DRILLING FLUID:	**LSND**
DRILLING RIG:	**H&P 273**
API:	**05-123-36657**
LOG TYPE:	**HORIZONTAL**
SCALE:	**1:240 (5 inches per 100 feet)**
REMARKS:	**WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.**







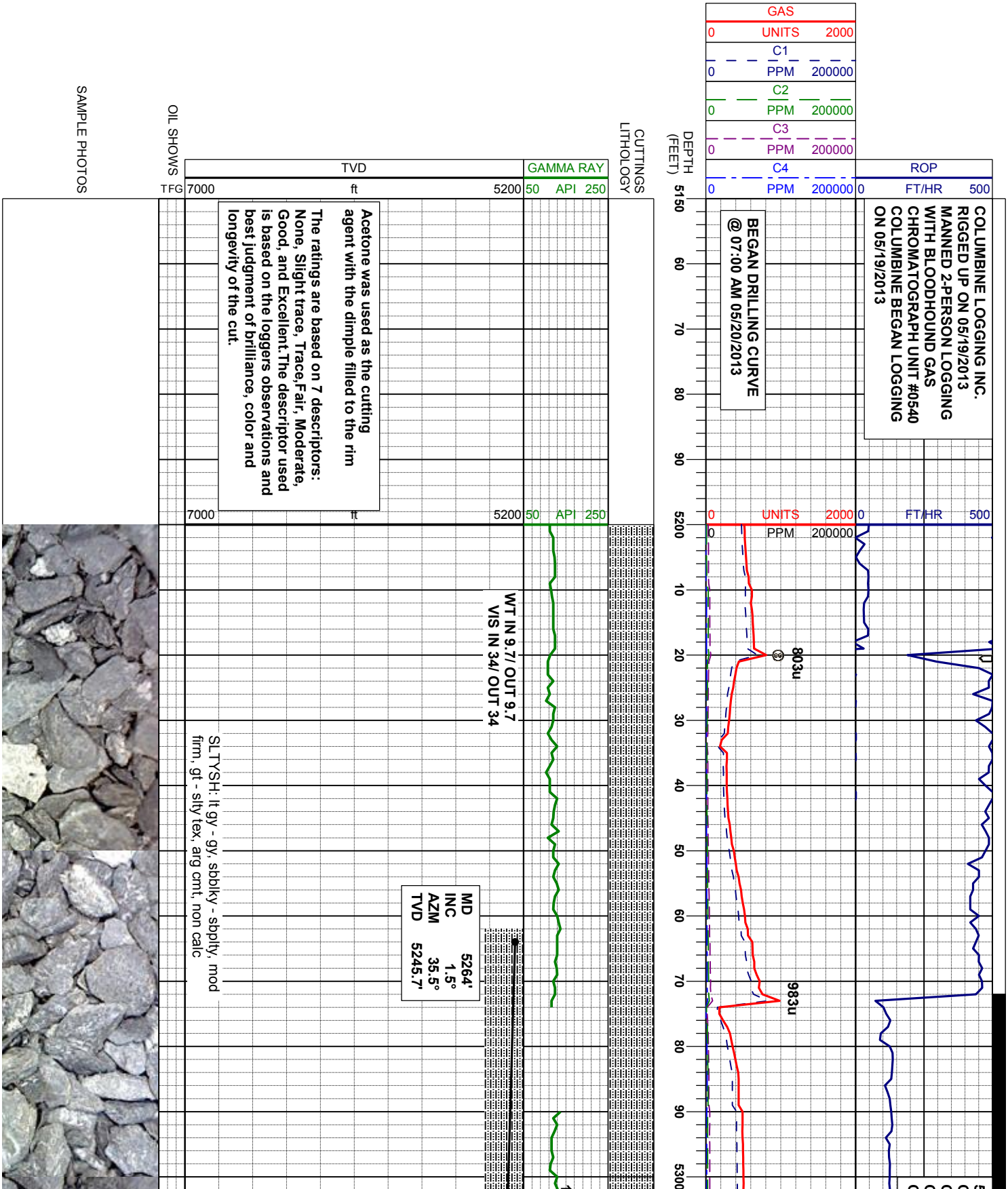
LITHOLOGIES

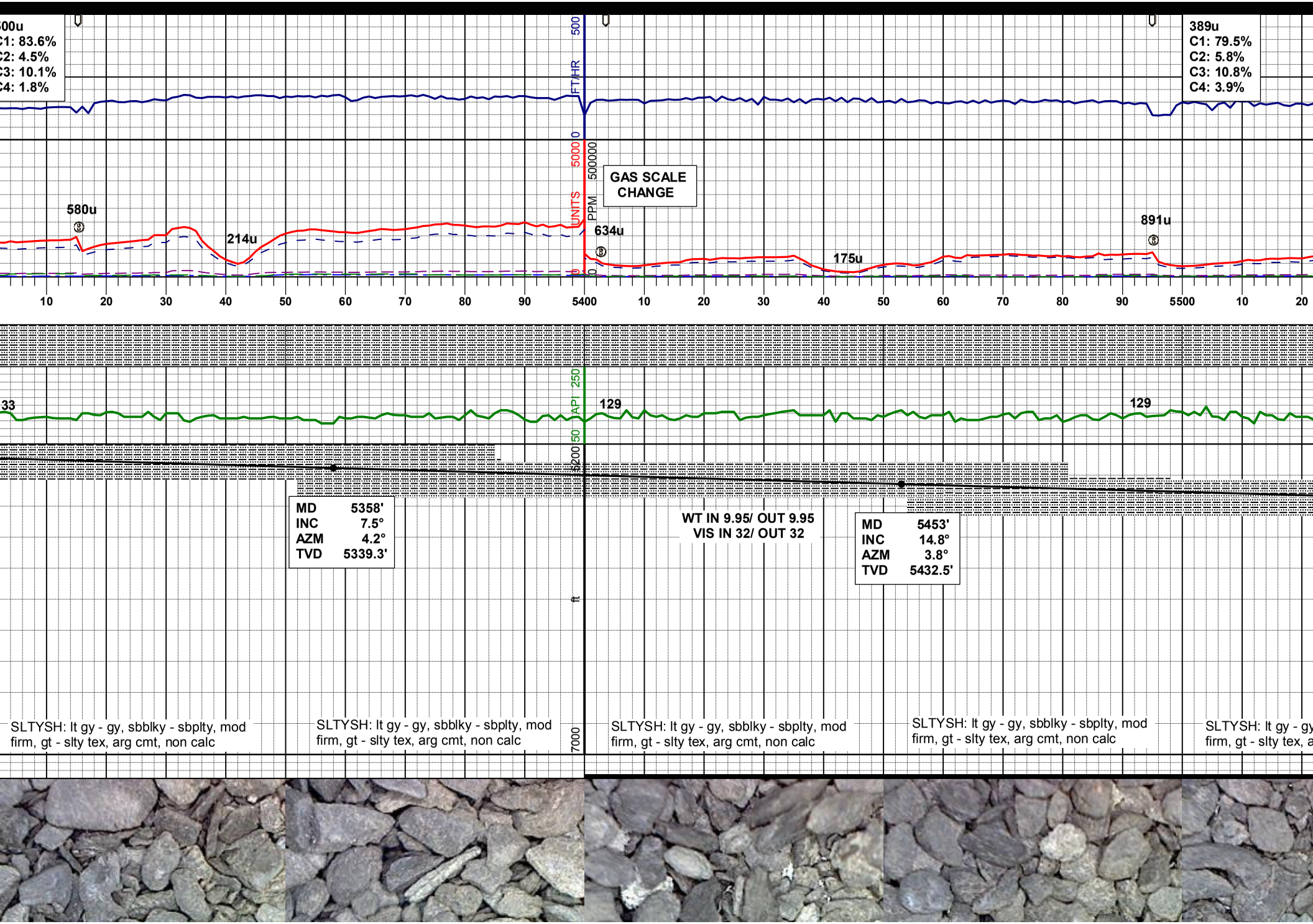
Chalk | Marl | Silty Shale

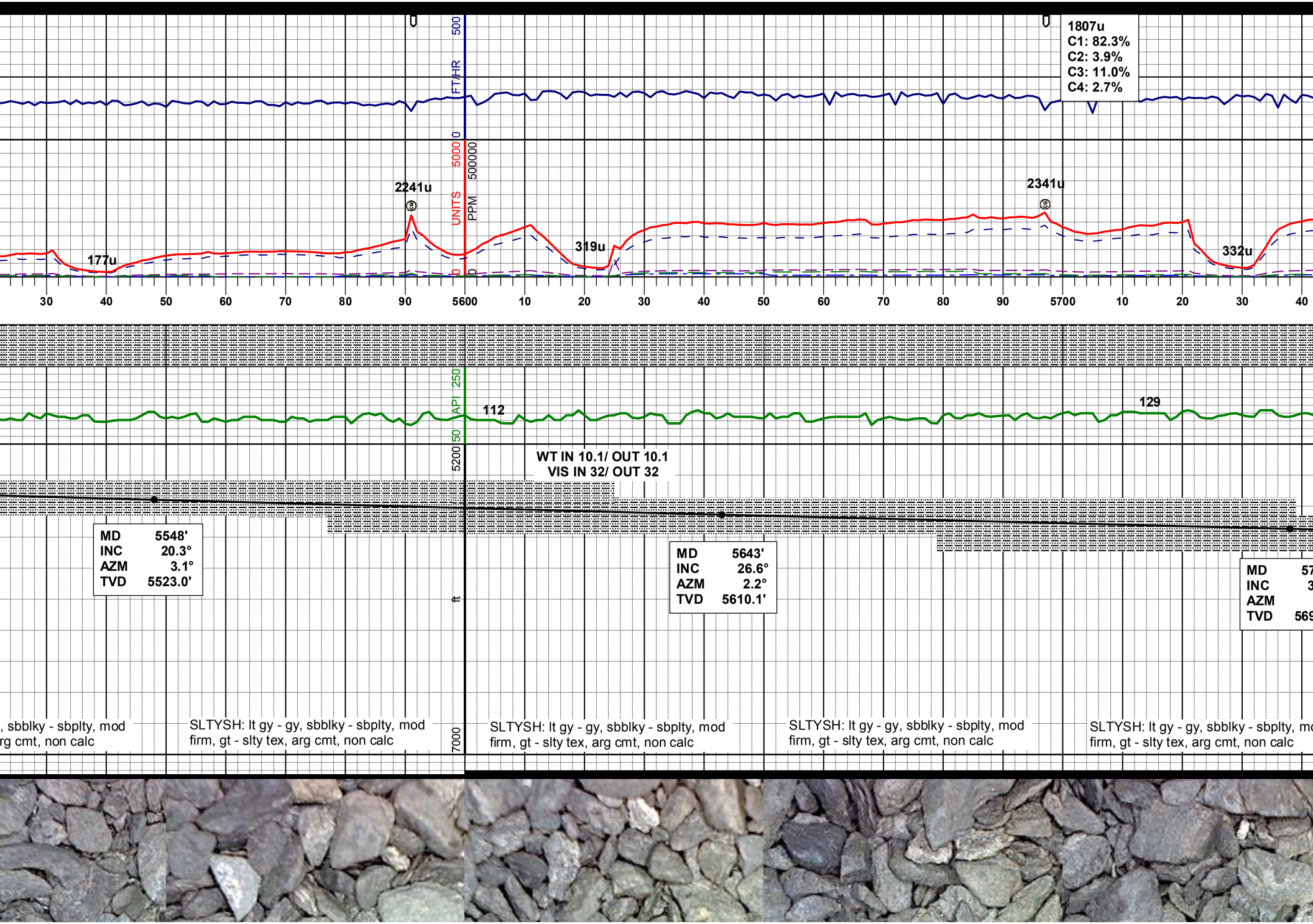
ENGINEERING SYMBOLS

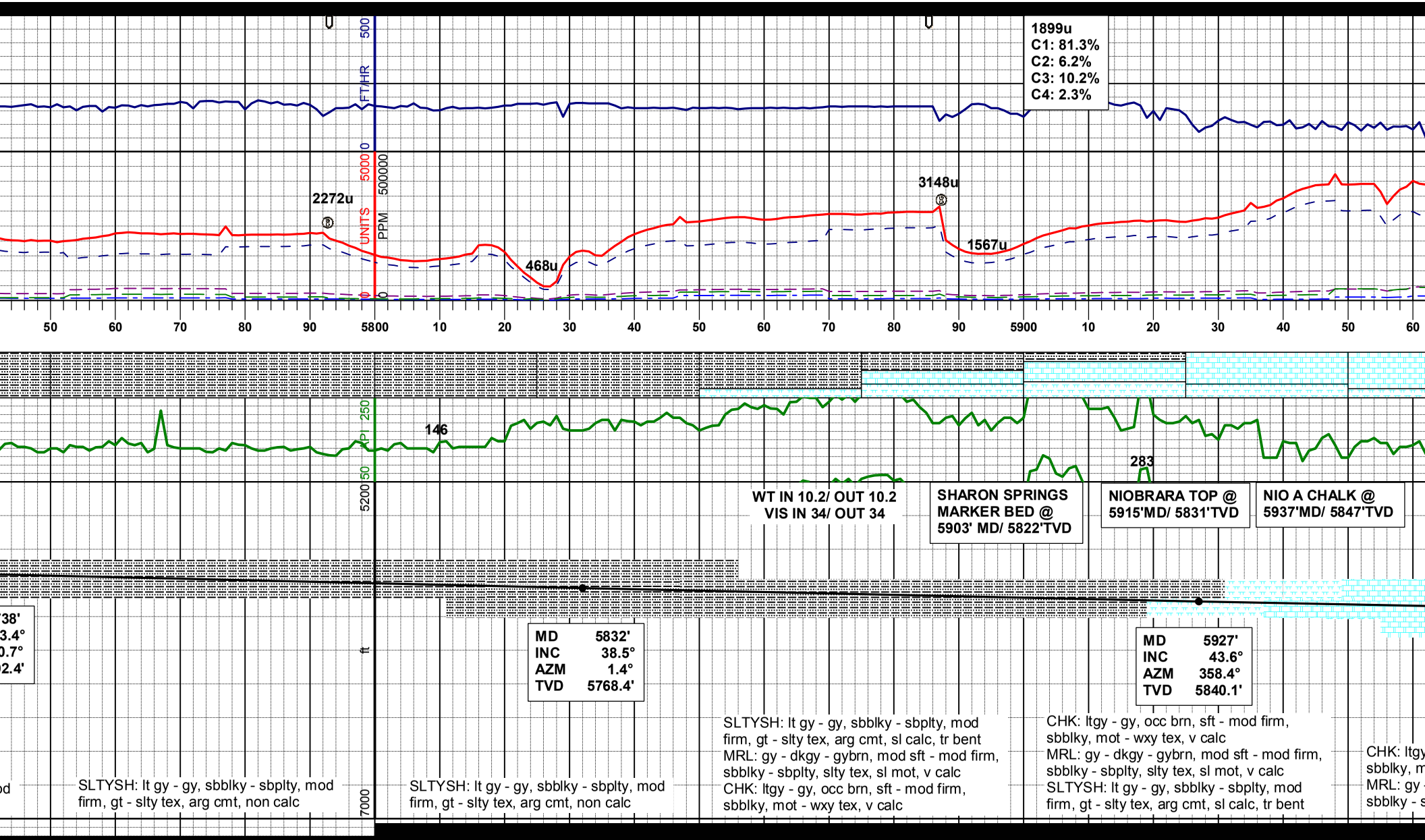
Casing | Casing | Connection

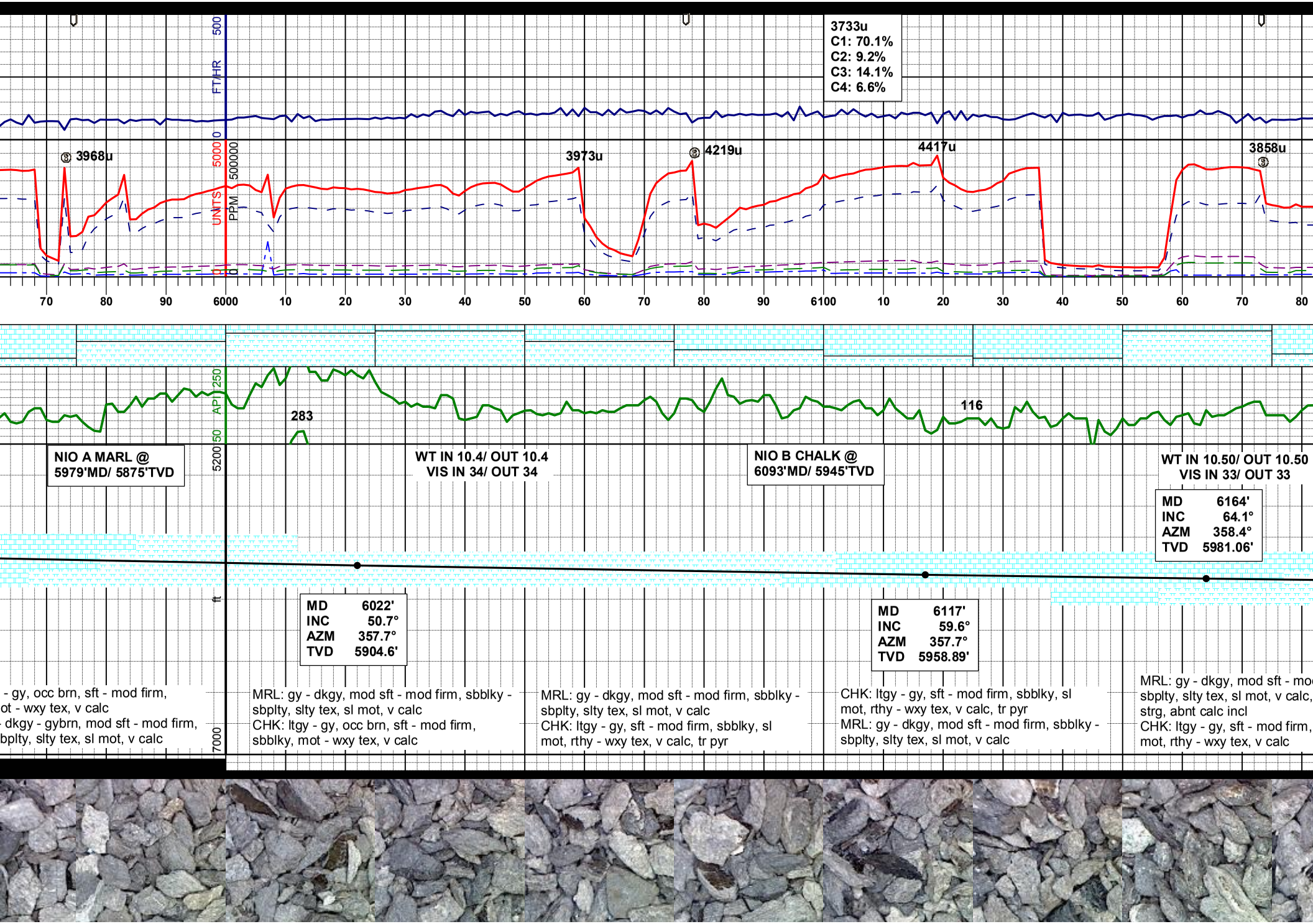
Connection Gas | Midnight Depth

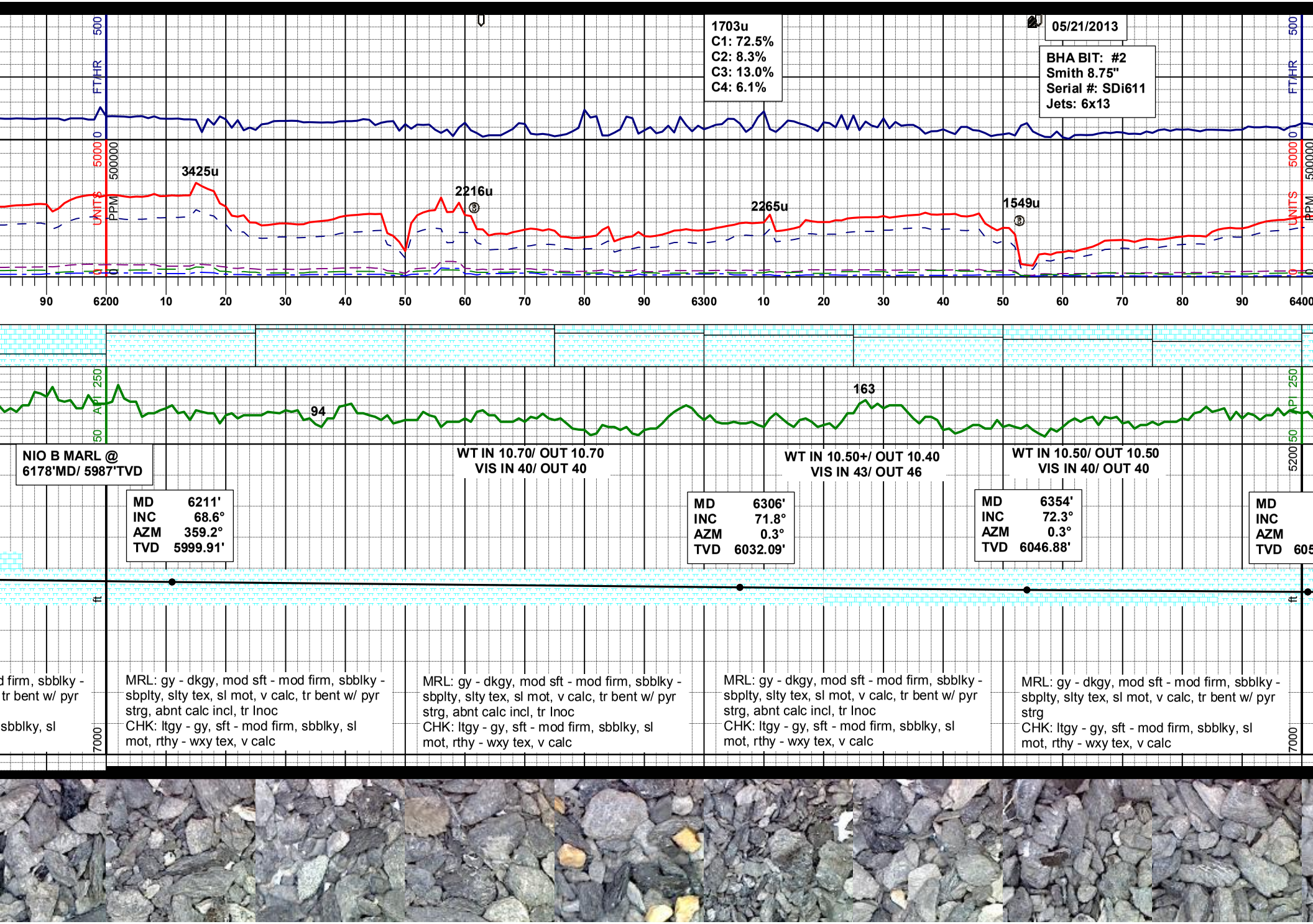


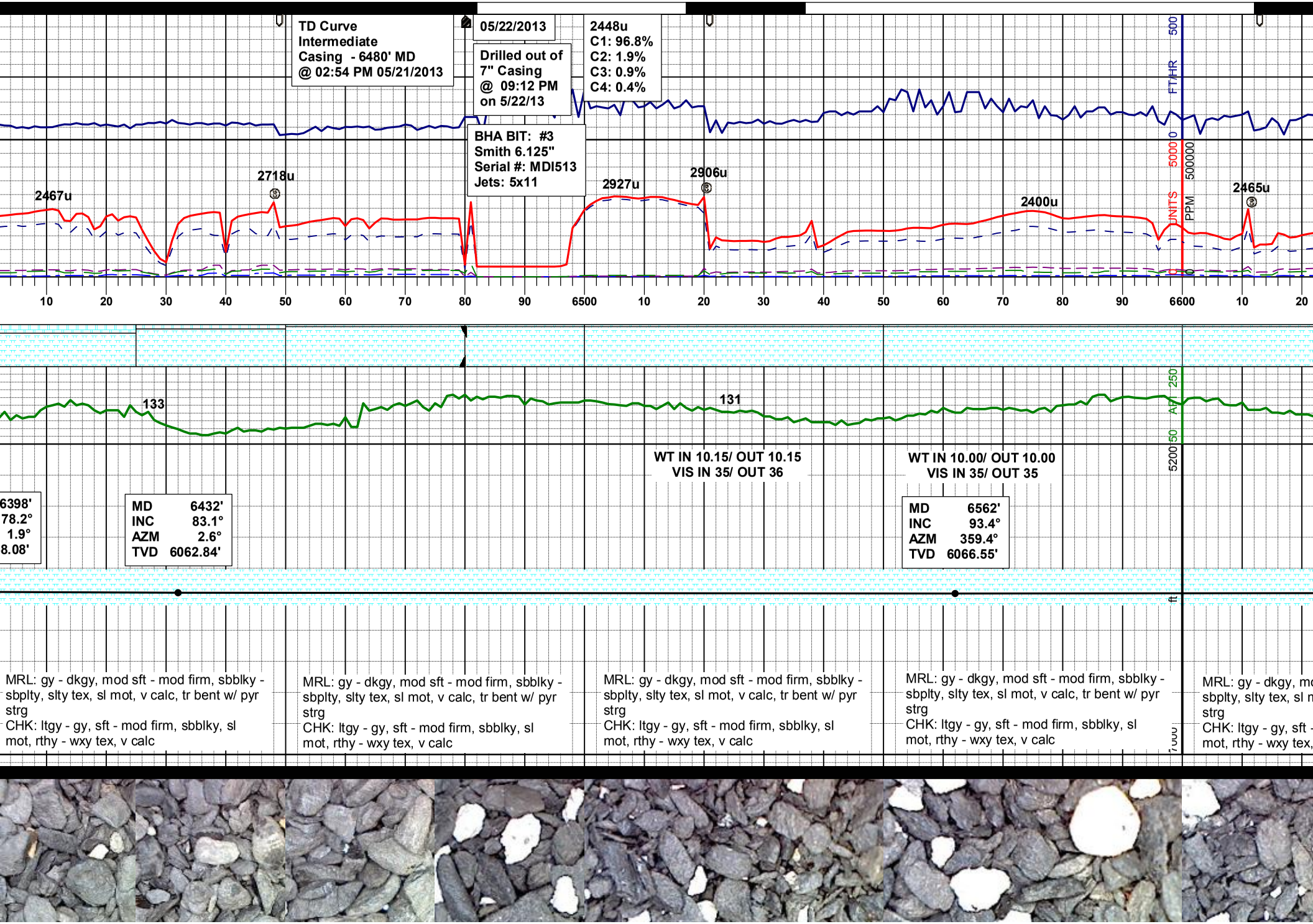

500u
C1: 83.6%
C2: 4.5%
C3: 10.1%
C4: 1.8%
389u
C1: 79.5%
C2: 5.8%
C3: 10.8%
C4: 3.9%
FT/HR
500
0
UNITS
5000
0
PPM
500000
0
GAS SCALE CHANGE
580u
214u
634u
175u
891u
10
20
30
40
50
60
70
80
90
5400
5500
API
250
50
33
129
129
5200
ft
7000
MD 5358'
INC 7.5°
AZM 4.2°
TVD 5339.3'
WT IN 9.95/ OUT 9.95
VIS IN 32/ OUT 32
MD 5453'
INC 14.8°
AZM 3.8°
TVD 5432.5'
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy
firm, gt - slty tex, a

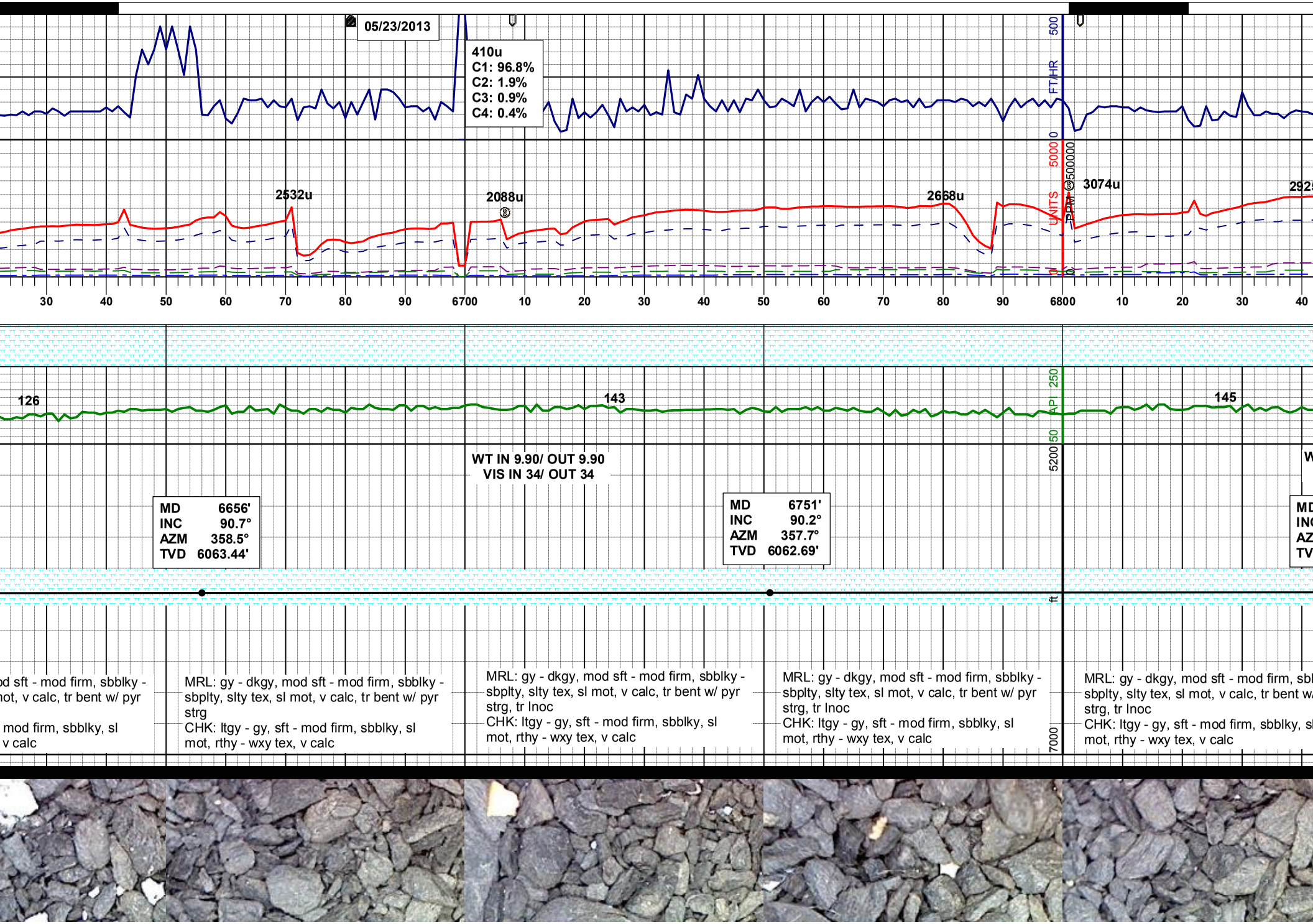

FT/HR
500
0
UNITS
5000
0
PPM
500000
0
1807u
C1: 82.3%
C2: 3.9%
C3: 11.0%
C4: 2.7%
2241u
2341u
177u
319u
332u
30
40
50
60
70
80
90
5600
10
20
30
40
50
60
70
80
90
5700
10
20
30
40
API
250
50
112
129
5200
WT IN 10.1/ OUT 10.1
VIS IN 32/ OUT 32
MD 5548'
INC 20.3°
AZM 3.1°
TVD 5523.0'
MD 5643'
INC 26.6°
AZM 2.2°
TVD 5610.1'
MD 57
INC 3
AZM
TVD 569
ft
7000
, sbblky - sbplty, mod
rg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod
firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod
firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod
firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mo
firm, gt - slty tex, arg cmt, non calc

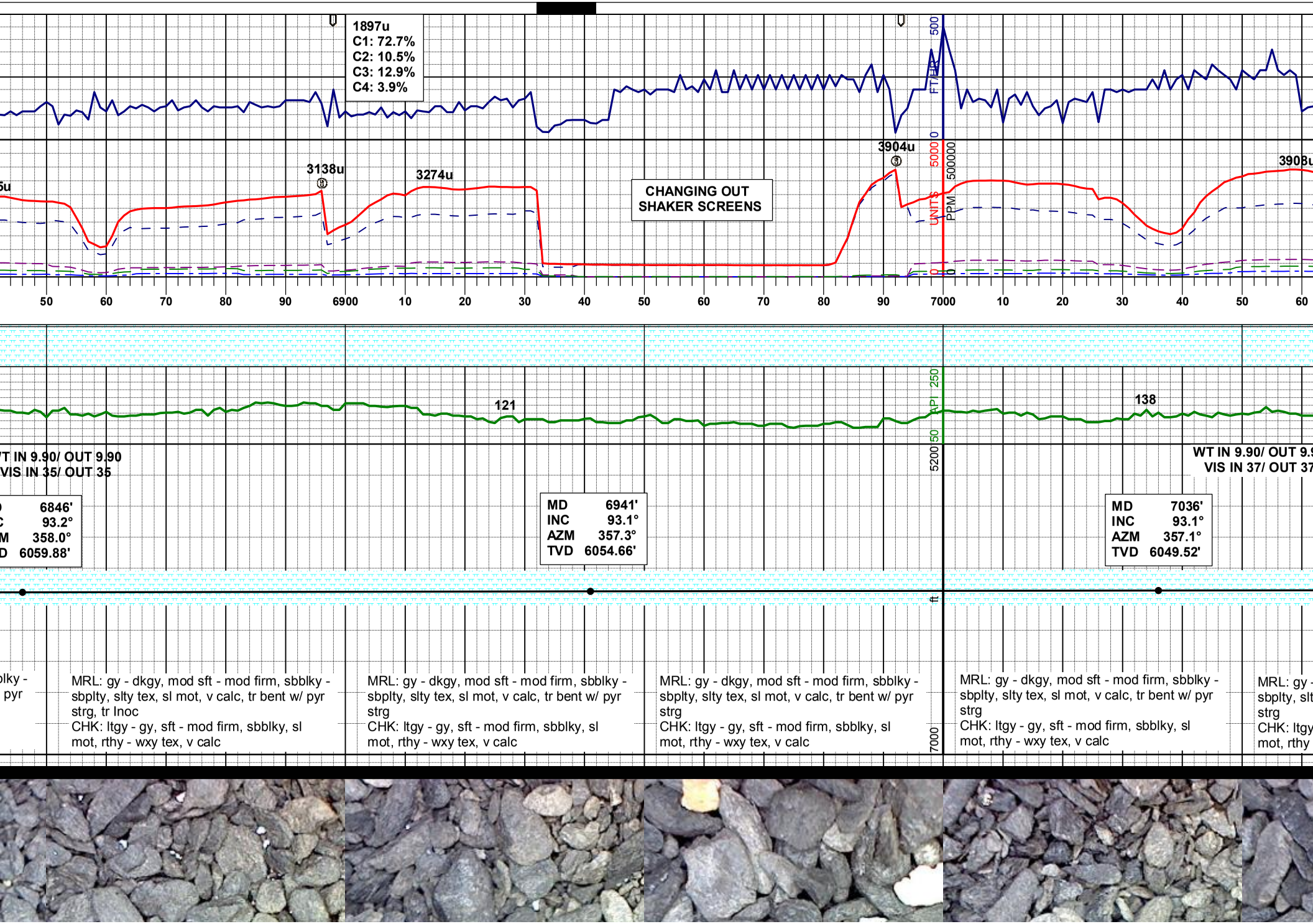

1899u
C1: 81.3%
C2: 6.2%
C3: 10.2%
C4: 2.3%
2272u
468u
3148u
1567u
FT/HR
UNITS
PPM
500
0
5000
0
500000
0
50
60
70
80
90
5800
10
20
30
40
50
60
70
80
90
5900
10
20
30
40
50
60
API
250
50
146
283
5200
WT IN 10.2/ OUT 10.2
VIS IN 34/ OUT 34
SHARON SPRINGS
MARKER BED @
5903' MD/ 5822'TVD
NIOBRARA TOP @
5915'MD/ 5831'TVD
NIO A CHALK @
5937'MD/ 5847'TVD
ft
7000
MD 5832'
INC 38.5°
AZM 1.4°
TVD 5768.4'
MD 5927'
INC 43.6°
AZM 358.4°
TVD 5840.1'
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, non calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, sl calc, tr bent
MRL: gy - dkgy - gybrn, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, occ brn, sft - mod firm, sbblky, mot - wxy tex, v calc
CHK: ltgy - gy, occ brn, sft - mod firm, sbblky, mot - wxy tex, v calc
MRL: gy - dkgy - gybrn, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
SLTYSH: lt gy - gy, sbblky - sbplty, mod firm, gt - slty tex, arg cmt, sl calc, tr bent

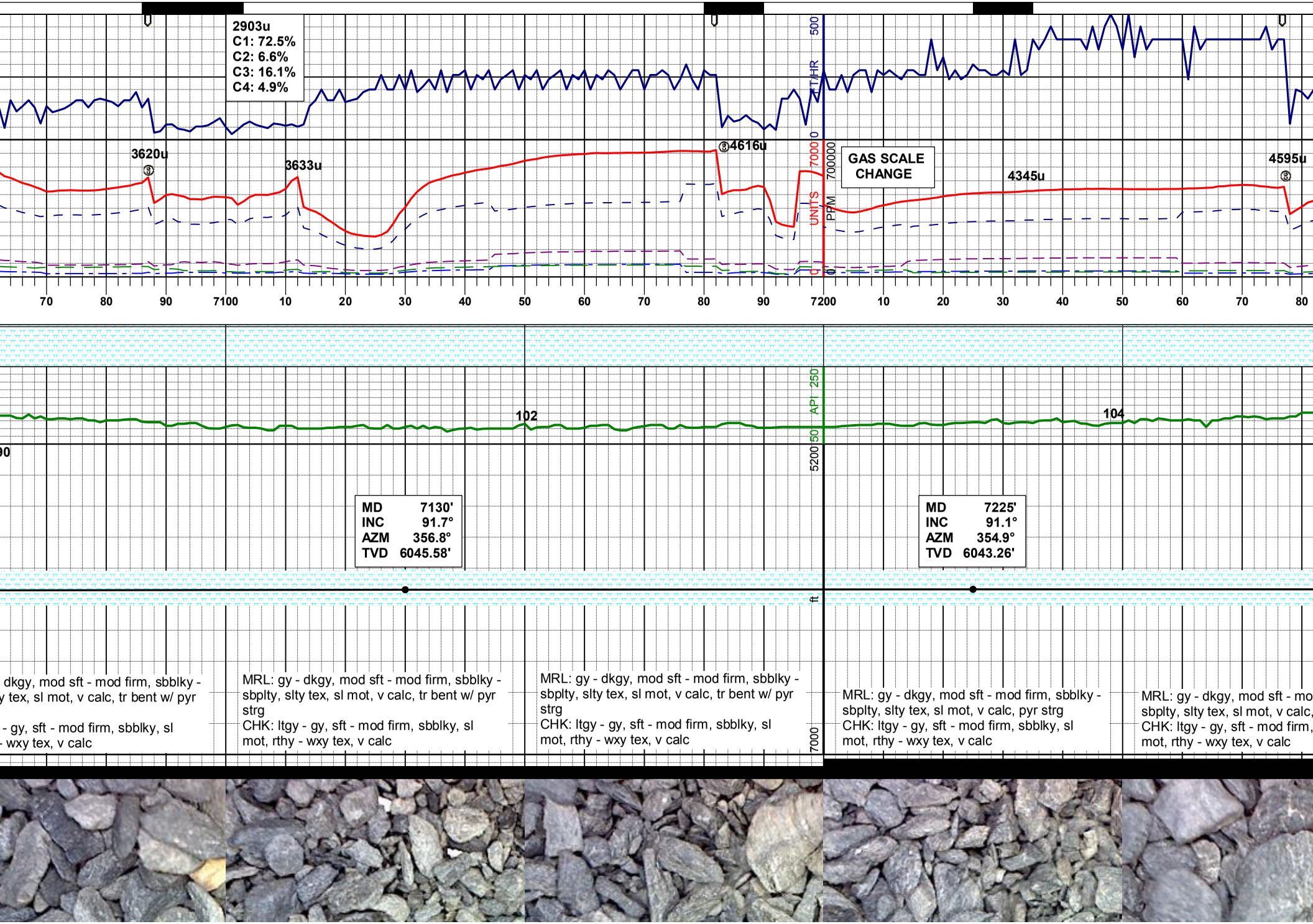

3733u
C1: 70.1%
C2: 9.2%
C3: 14.1%
C4: 6.6%
3968u
3973u
4219u
4417u
3858u
FT/HR
UNITS
PPM
70
80
90
6000
10
20
30
40
50
60
70
80
90
6100
10
20
30
40
50
60
70
80
API
283
116
NIO A MARL @
5979'MD/ 5875'TVD
WT IN 10.4/ OUT 10.4
VIS IN 34/ OUT 34
NIO B CHALK @
6093'MD/ 5945'TVD
WT IN 10.50/ OUT 10.50
VIS IN 33/ OUT 33
MD 6164'
INC 64.1°
AZM 358.4°
TVD 5981.06'
MD 6022'
INC 50.7°
AZM 357.7°
TVD 5904.6'
MD 6117'
INC 59.6°
AZM 357.7°
TVD 5958.89'
ft
- gy, occ brn, sft - mod firm,
ot - wxy tex, v calc
- dkgy - gybrn, mod sft - mod firm,
bplty, slty tex, sl mot, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, occ brn, sft - mod firm, sbblky, mot - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc, tr pyr
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc, tr pyr
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
MRL: gy - dkgy, mod sft - mo
sbplty, slty tex, sl mot, v calc,
strg, abnt calc incl
CHK: ltgy - gy, sft - mod firm,
mot, rthy - wxy tex, v calc

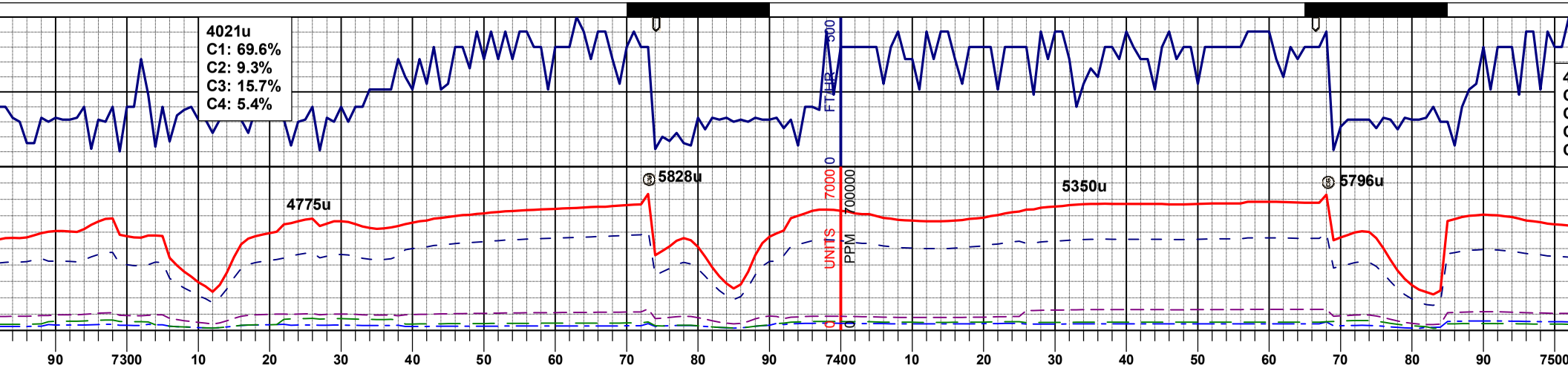

1703u
C1: 72.5%
C2: 8.3%
C3: 13.0%
C4: 6.1%
05/21/2013
BHA BIT: #2
Smith 8.75"
Serial #: SDi611
Jets: 6x13
FT/HR
UNITS
PPM
3425u
2216u
2265u
1549u
90 6200 10 20 30 40 50 60 70 80 90 6300 10 20 30 40 50 60 70 80 90 6400
API
94
163
NIO B MARL @
6178'MD/ 5987'TVD
WT IN 10.70/ OUT 10.70
VIS IN 40/ OUT 40
WT IN 10.50+/ OUT 10.40
VIS IN 43/ OUT 46
WT IN 10.50/ OUT 10.50
VIS IN 40/ OUT 40
MD 6211'
INC 68.6°
AZM 359.2°
TVD 5999.91'
MD 6306'
INC 71.8°
AZM 0.3°
TVD 6032.09'
MD 6354'
INC 72.3°
AZM 0.3°
TVD 6046.88'
MD
INC
AZM
TVD 605
ft
d firm, sbblky -
tr bent w/ pyr
sbblky, sl
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg, abnt calc incl, tr Inoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg, abnt calc incl, tr Inoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg, abnt calc incl, tr Inoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
7000
5200

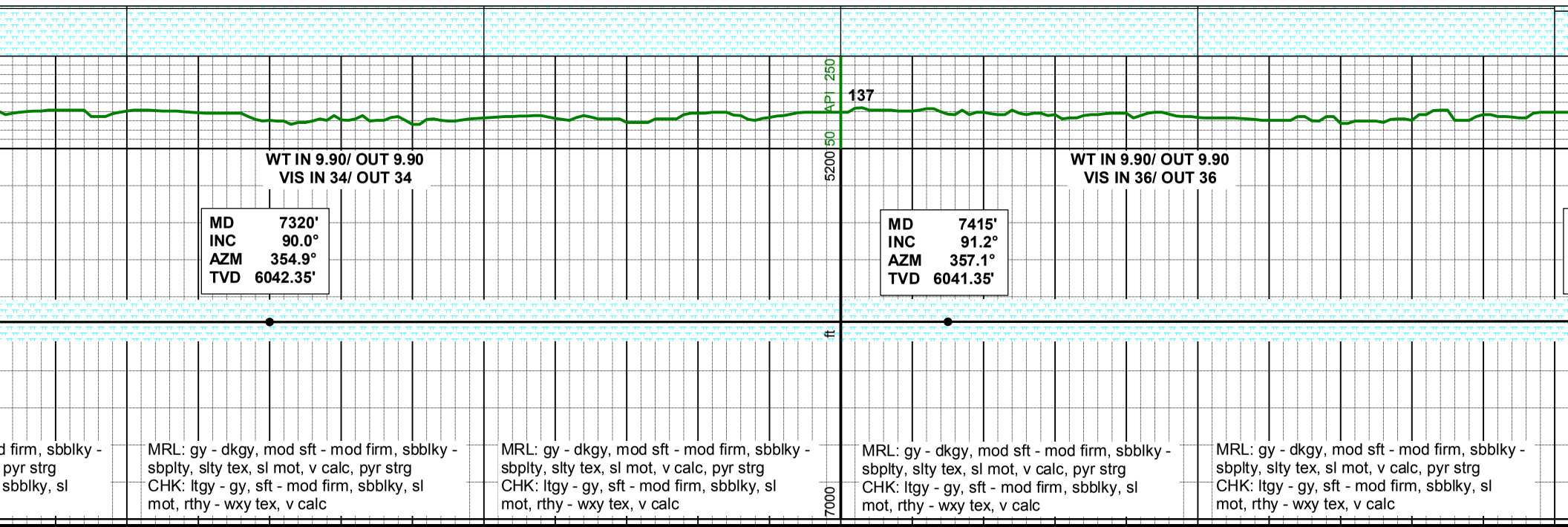

TD Curve
Intermediate
Casing - 6480' MD
@ 02:54 PM 05/21/2013
05/22/2013
Drilled out of
7" Casing
@ 09:12 PM
on 5/22/13
2448u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
BHA BIT: #3
Smith 6.125"
Serial #: MDI513
Jets: 5x11
2467u
2718u
2927u
2906u
2400u
2465u
FT/HR
UNITS
PPM
133
131
WT IN 10.15/ OUT 10.15
VIS IN 35/ OUT 36
WT IN 10.00/ OUT 10.00
VIS IN 35/ OUT 35
MD 6432'
INC 83.1°
AZM 2.6°
TVD 6062.84'
MD 6562'
INC 93.4°
AZM 359.4°
TVD 6066.55'
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc


05/23/2013
410u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
2532u
2088u
2668u
3074u
FT/HR
UNITS
PPM @500000
30 40 50 60 70 80 90 6700 10 20 30 40 50 60 70 80 90 6800 10 20 30 40
126
143
145
API
WT IN 9.90/ OUT 9.90
VIS IN 34/ OUT 34
MD 6656'
INC 90.7°
AZM 358.5°
TVD 6063.44'
MD 6751'
INC 90.2°
AZM 357.7°
TVD 6062.69'
ft
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg, tr lnoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc


1897u
C1: 72.7%
C2: 10.5%
C3: 12.9%
C4: 3.9%
3138u
3274u
3904u
CHANGING OUT
SHAKER SCREENS
UNITS
PPM
500000
121
138
API
250
50
5200
7000
ft
WT IN 9.90/ OUT 9.90
VIS IN 35/ OUT 35
MD 6846'
INC 93.2°
AZM 358.0°
TVD 6059.88'
MD 6941'
INC 93.1°
AZM 357.3°
TVD 6054.66'
WT IN 9.90/ OUT 9.9
VIS IN 37/ OUT 37
MD 7036'
INC 93.1°
AZM 357.1°
TVD 6049.52'
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg, tr lnoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc


2903u
C1: 72.5%
C2: 6.6%
C3: 16.1%
C4: 4.9%
3620u
3633u
4616u
4345u
4595u
GAS SCALE CHANGE
FT/HR
UNITS
PPM
500
0
7000
0
700000
0
70
80
90
7100
10
20
30
40
50
60
70
80
90
7200
10
20
30
40
50
60
70
80
API
250
50
102
104
5200
MD 7130'
INC 91.7°
AZM 356.8°
TVD 6045.58'
MD 7225'
INC 91.1°
AZM 354.9°
TVD 6043.26'
ft
7000
dkgy, mod sft - mod firm, sbblky -
y tex, sl mot, v calc, tr bent w/ pyr
- gy, sft - mod firm, sbblky, sl
- wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent w/ pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mo
sbplty, slty tex, sl mot, v calc,
CHK: ltgy - gy, sft - mod firm,
mot, rthy - wxy tex, v calc





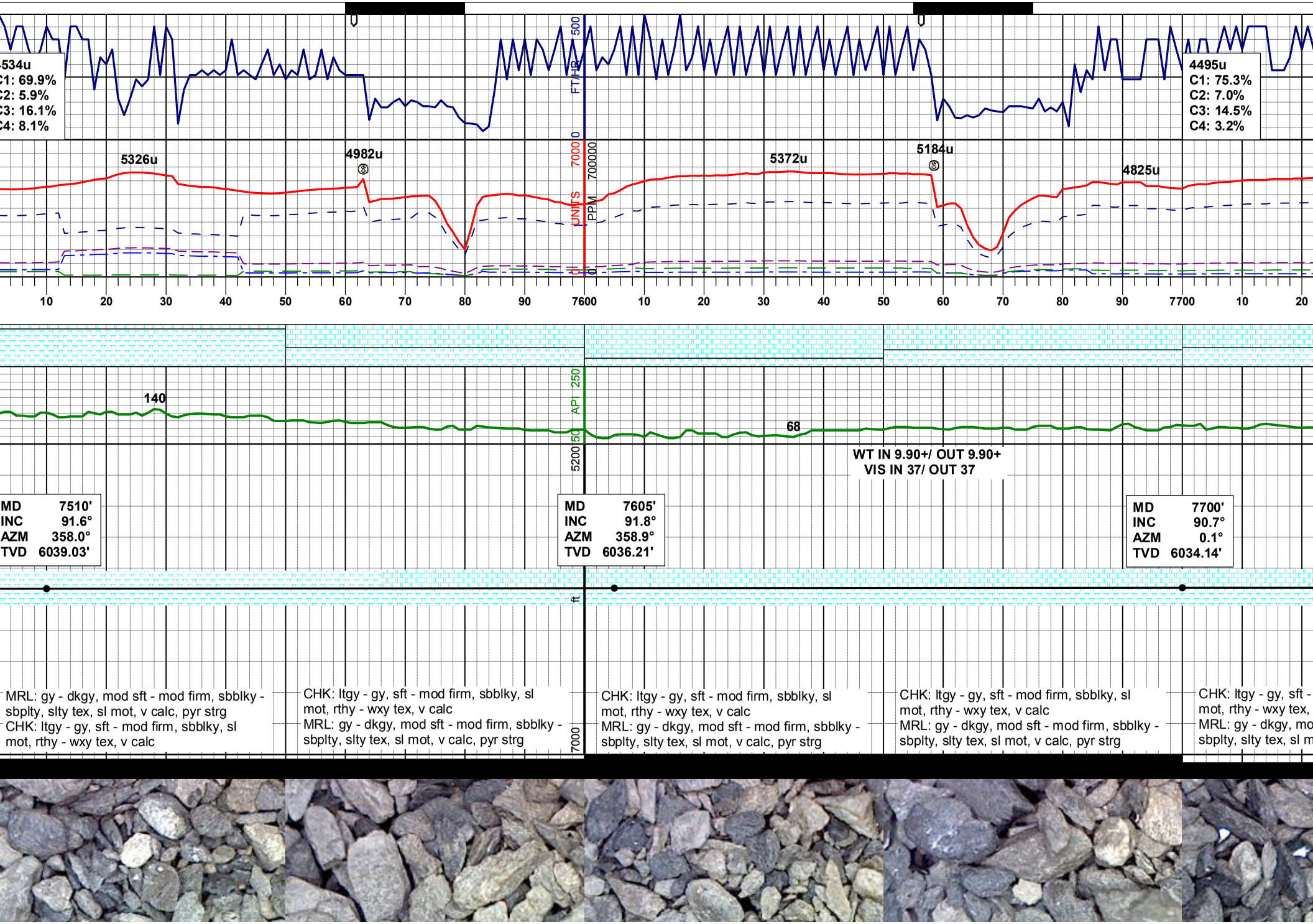
d firm, sbblky -
pyr strg
sbblky, sl

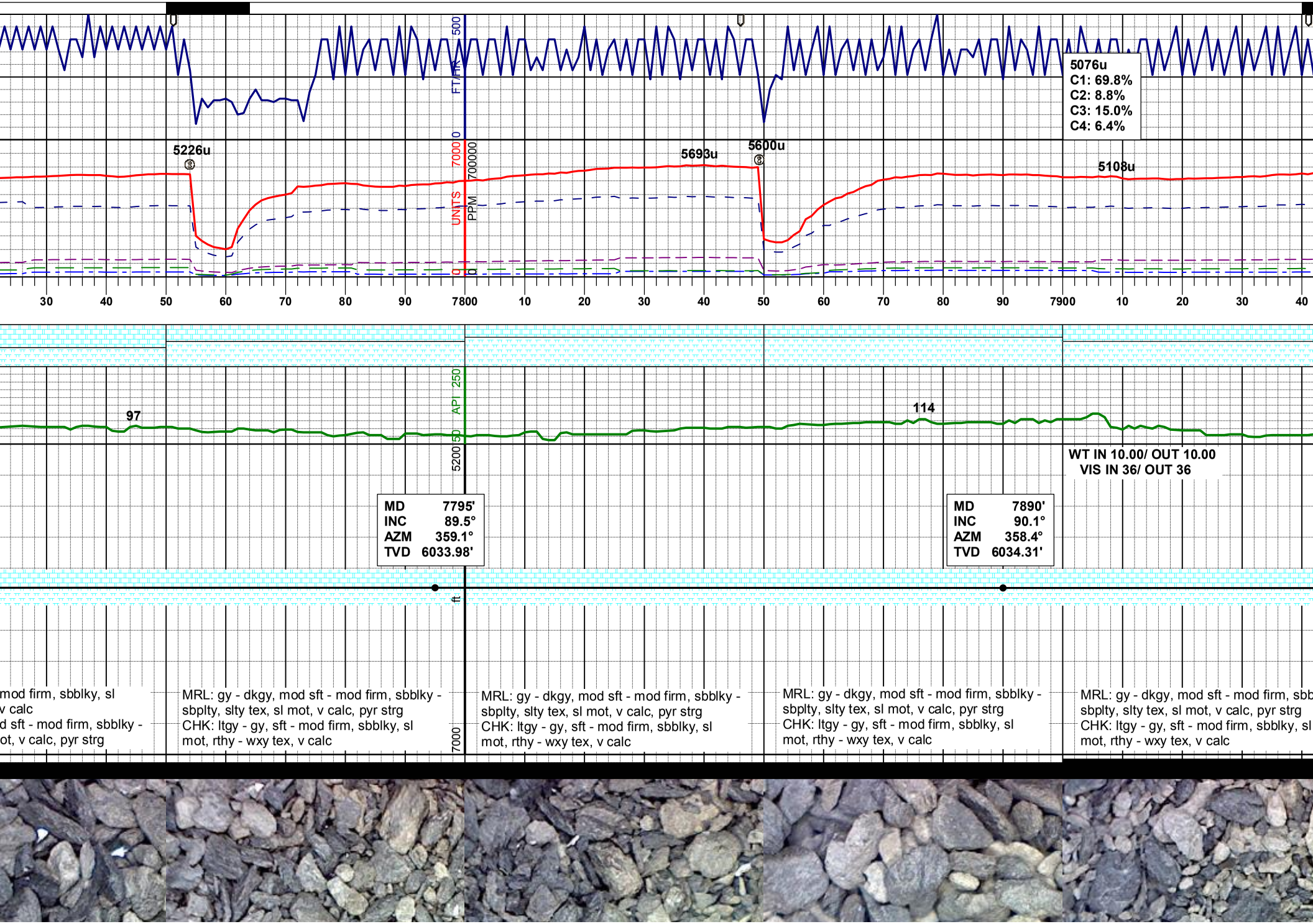
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc

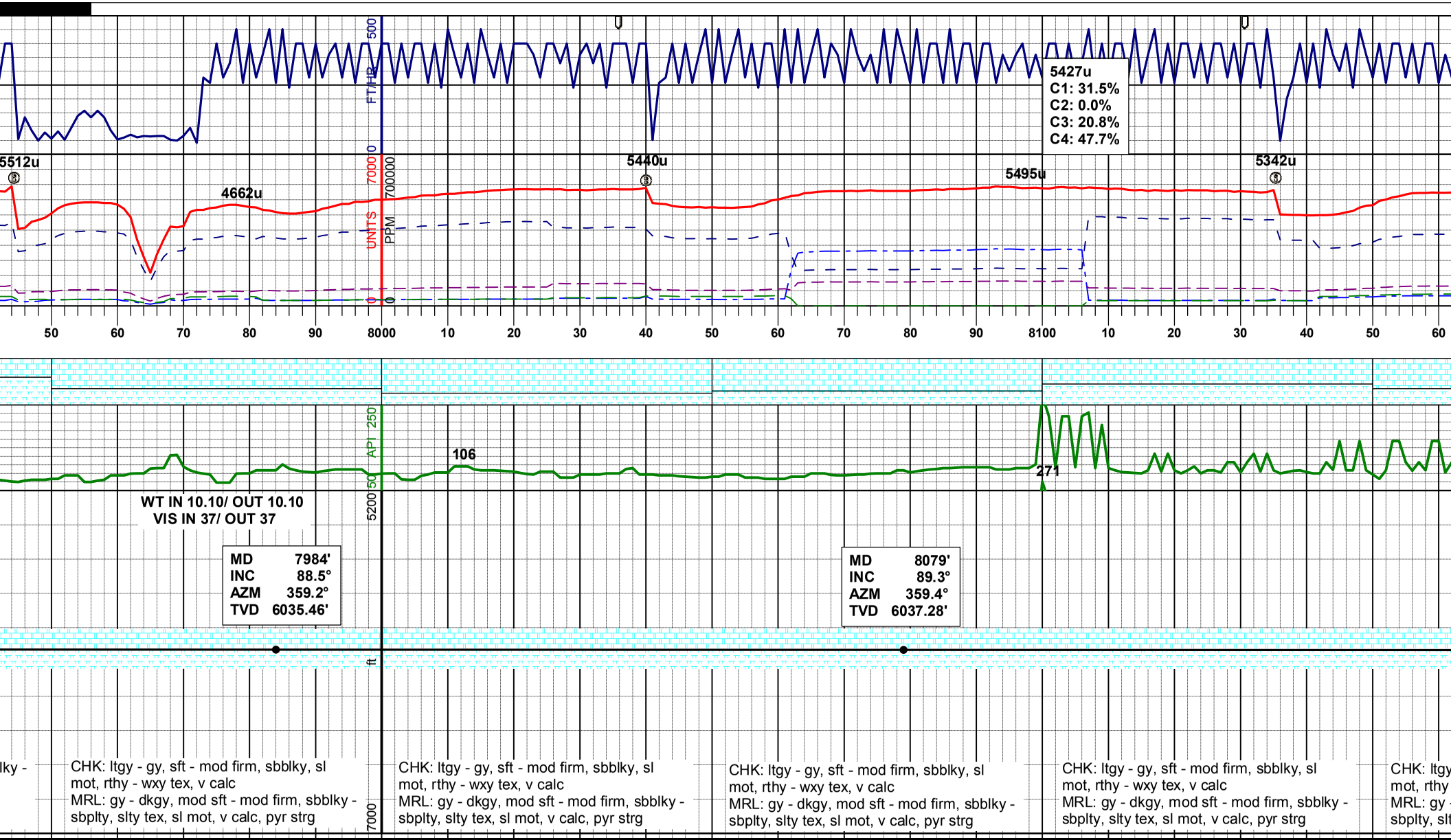
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc

MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc

MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc


534u
C1: 69.9%
C2: 5.9%
C3: 16.1%
C4: 8.1%
4495u
C1: 75.3%
C2: 7.0%
C3: 14.5%
C4: 3.2%
5326u
4982u
5372u
5184u
4825u
FT/HR
500
0
UNITS
7000
0
PPM
700000
0
10
20
30
40
50
60
70
80
90
7600
10
20
30
40
50
60
70
80
90
7700
10
20
140
API
250
50
68
5200
WT IN 9.90+/ OUT 9.90+
VIS IN 37/ OUT 37
MD 7510'
INC 91.6°
AZM 358.0°
TVD 6039.03'
MD 7605'
INC 91.8°
AZM 358.9°
TVD 6036.21'
MD 7700'
INC 90.7°
AZM 0.1°
TVD 6034.14'
ft
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft -
mot, rthy - wxy tex,
MRL: gy - dkgy, mo
sbplty, slty tex, sl m
7000


FT/HR
500
0
UNITS
7000
0
PPM
700000
0
5226u
5693u
5600u
5108u
5076u
C1: 69.8%
C2: 8.8%
C3: 15.0%
C4: 6.4%
30
40
50
60
70
80
90
7800
10
20
30
40
50
60
70
80
90
7900
10
20
30
40
API
250
50
5200
97
114
WT IN 10.00/ OUT 10.00
VIS IN 36/ OUT 36
MD 7795'
INC 89.5°
AZM 359.1°
TVD 6033.98'
MD 7890'
INC 90.1°
AZM 358.4°
TVD 6034.31'
ft
7000
mod firm, sbblky, sl
v calc
d sft - mod firm, sbblky -
ot, v calc, pyr strg
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbb
sbplty, slty tex, sl mot, v calc, pyr strg
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc



lky -

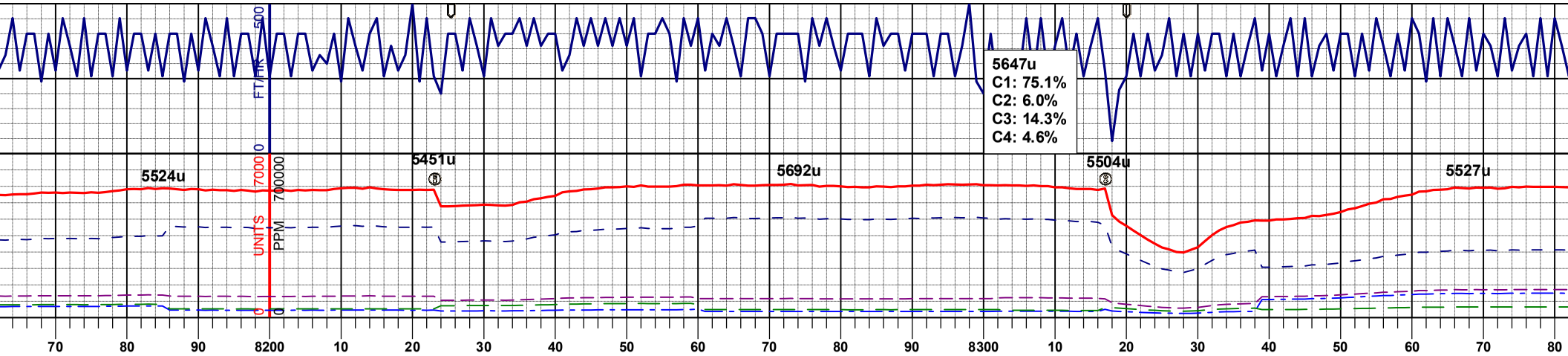
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg

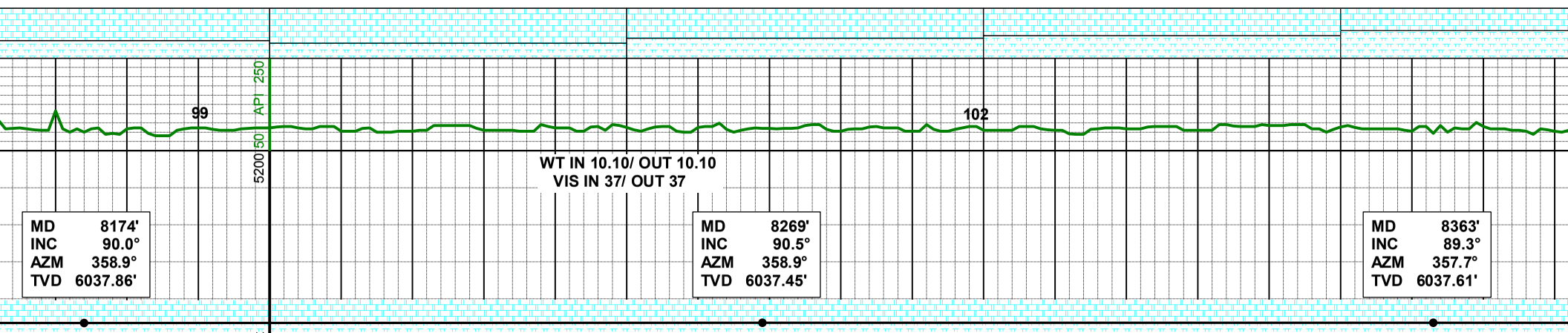
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg

CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg

CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, pyr strg

CHK: ltgy
mot, rthy
MRL: gy -
sbplty, slt





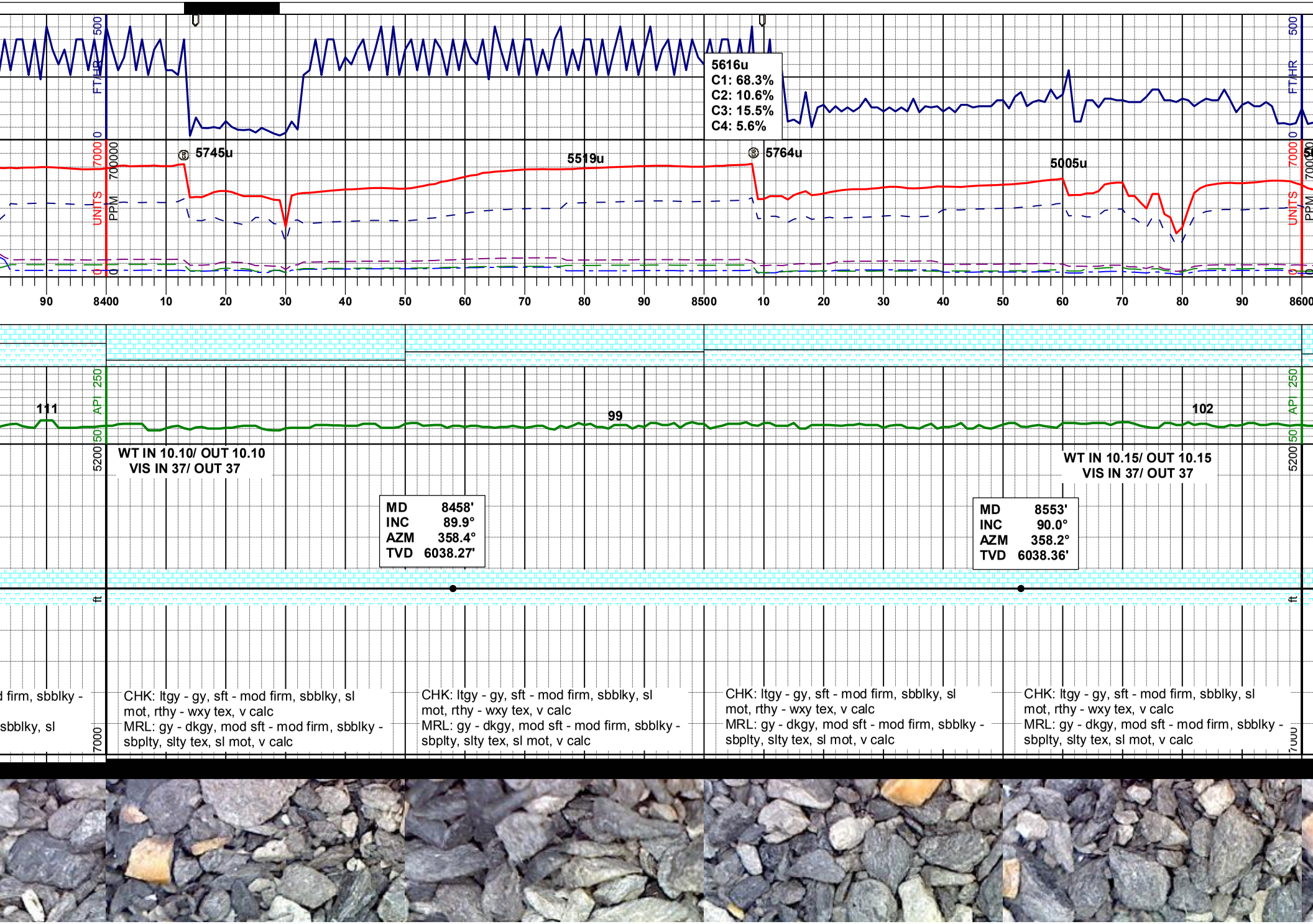
- gy, sft - mod firm, sbblky, sl
- wxy tex, v calc
dkgy, mod sft - mod firm, sbblky -
y tex, sl mot, v calc, pyr strg

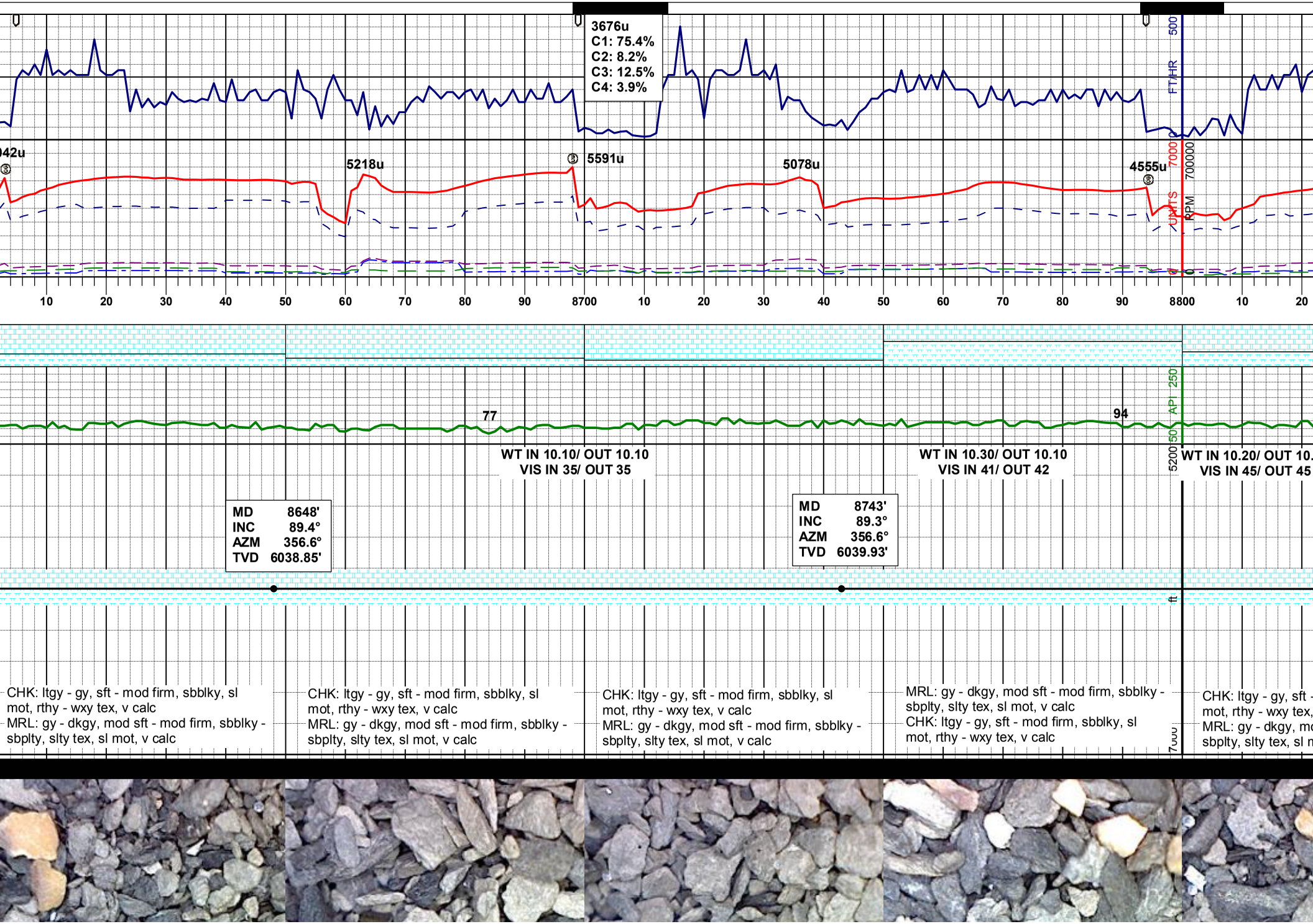
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc

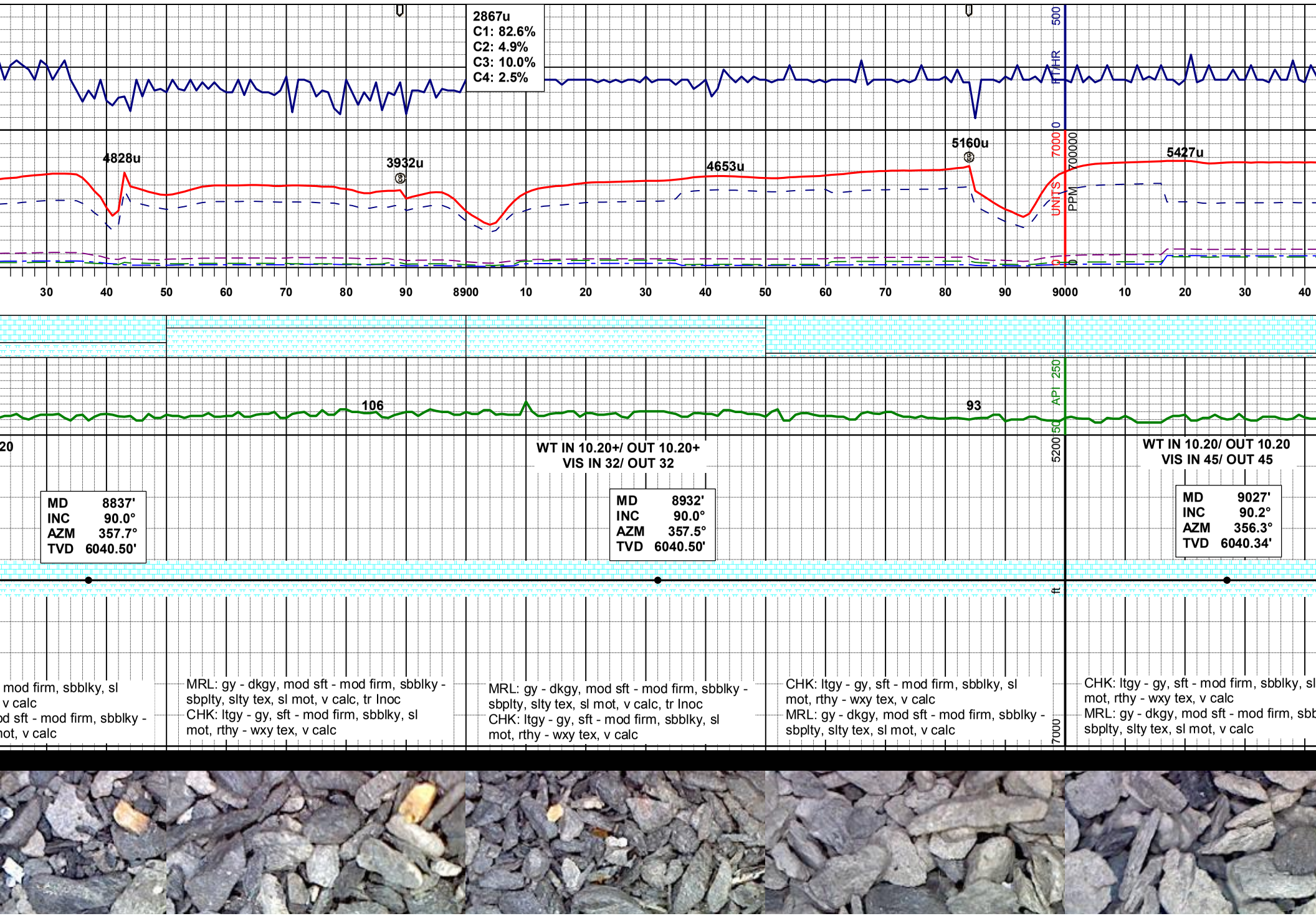
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc

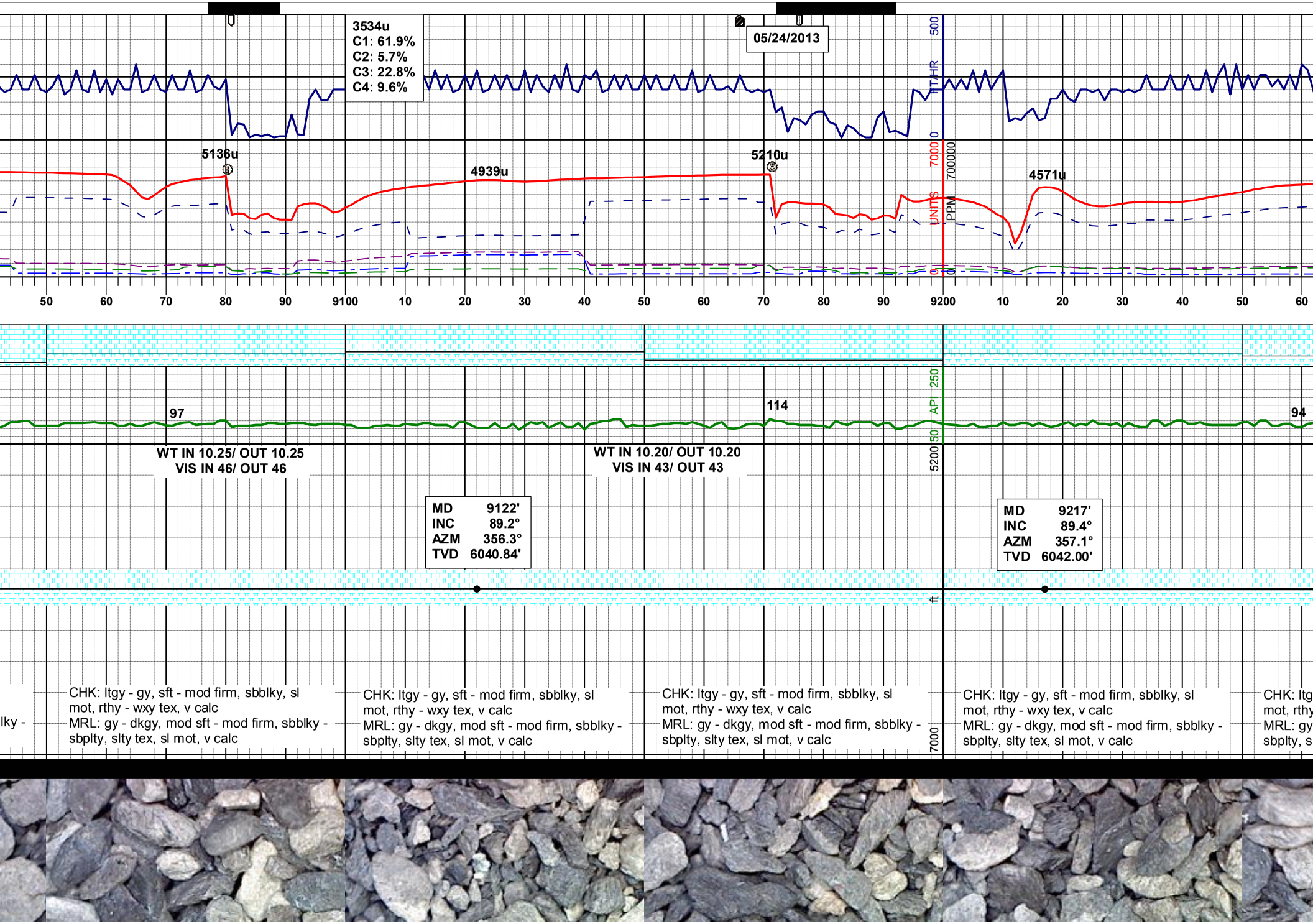
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc

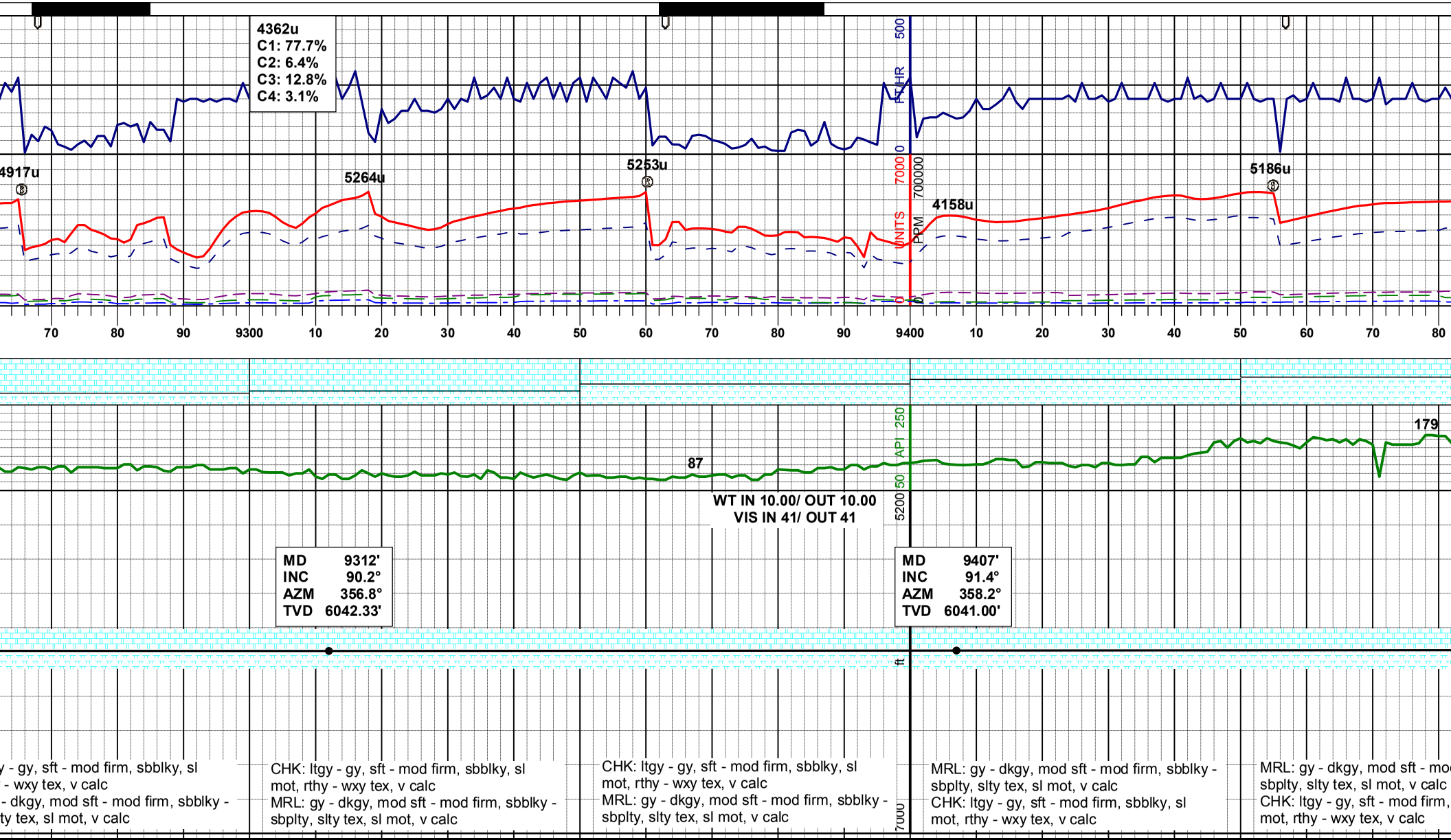
MRL: gy - dkgy, mod sft - mod
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm,
mot, rthy - wxy tex, v calc

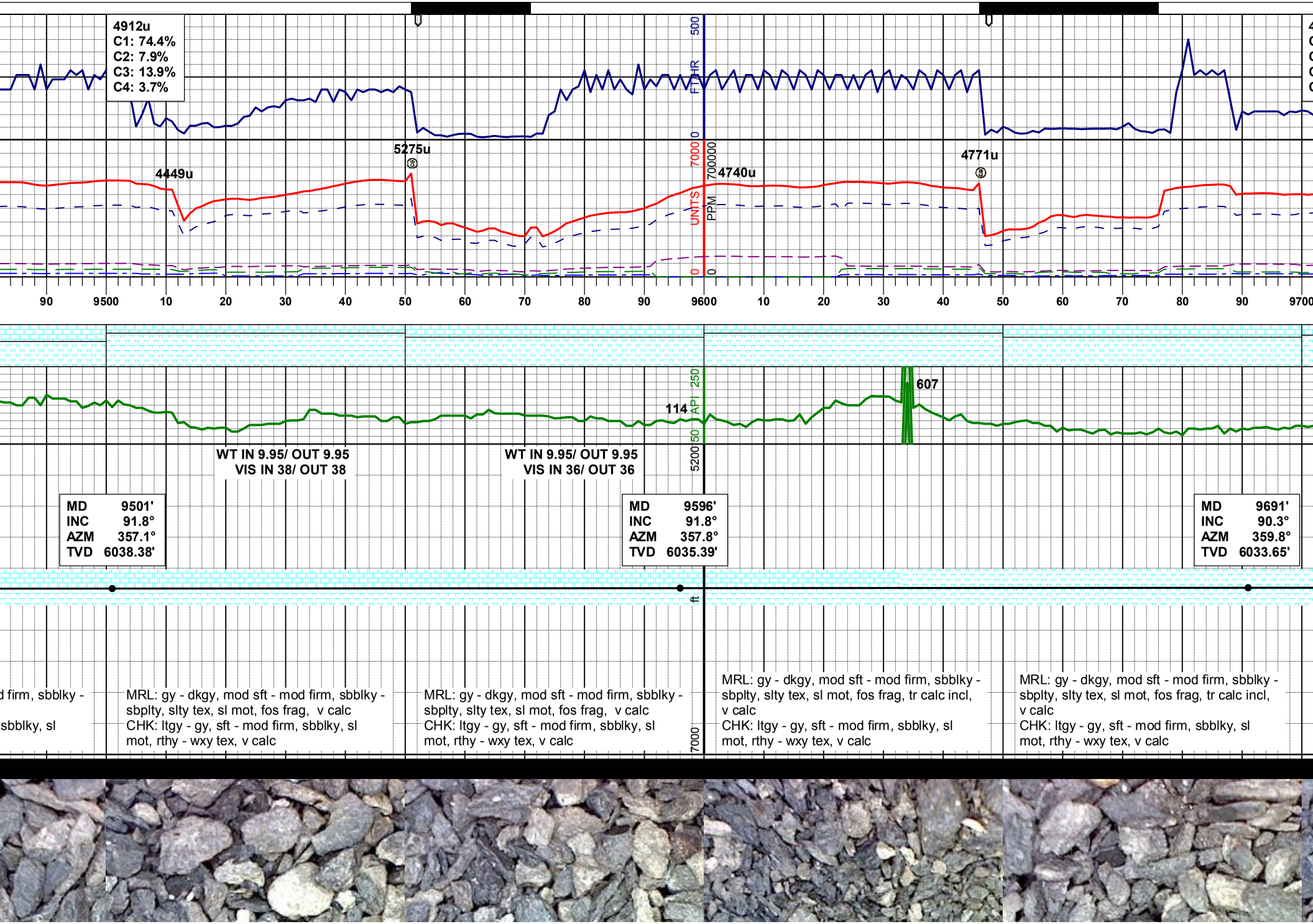

FT/HR 500 0
UNITS 7000 0
PPM 700000 0
5745u
5519u
5616u
C1: 68.3%
C2: 10.6%
C3: 15.5%
C4: 5.6%
5764u
5005u
90 8400 10 20 30 40 50 60 70 80 90 8500 10 20 30 40 50 60 70 80 90 8600
API 250 50
111
99
102
5200
WT IN 10.10/ OUT 10.10
VIS IN 37/ OUT 37
MD 8458'
INC 89.9°
AZM 358.4°
TVD 6038.27'
WT IN 10.15/ OUT 10.15
VIS IN 37/ OUT 37
MD 8553'
INC 90.0°
AZM 358.2°
TVD 6038.36'
ft
7000
d firm, sbblky -
sbblky, sl
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc

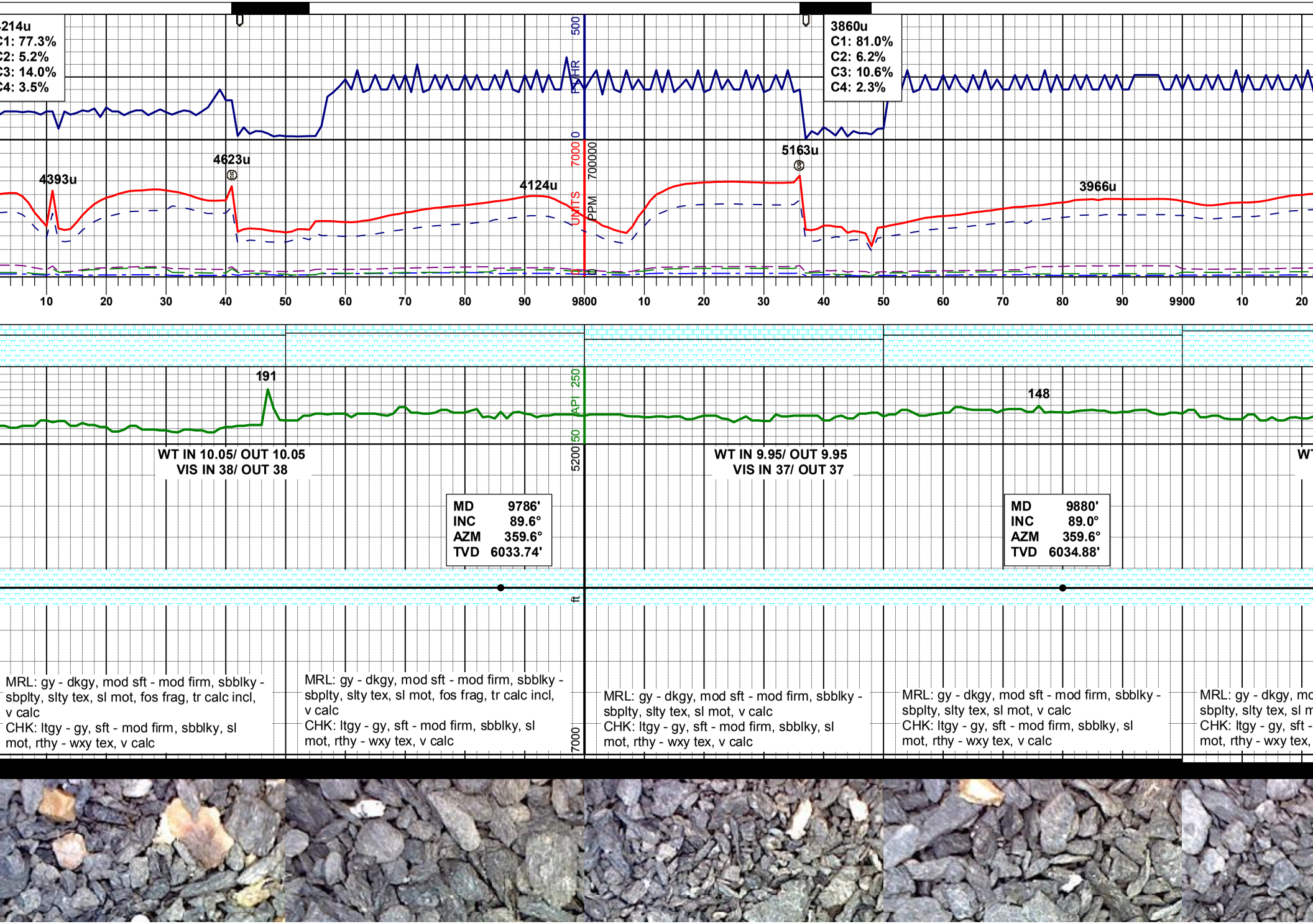

3676u
C1: 75.4%
C2: 8.2%
C3: 12.5%
C4: 3.9%
942u
5218u
5591u
5078u
4555u
FT/HR
UNITS
RPM
500
7000
700000
0
10
20
30
40
50
60
70
80
90
8700
8800
API
250
50
5200
77
94
WT IN 10.10/ OUT 10.10
VIS IN 35/ OUT 35
WT IN 10.30/ OUT 10.10
VIS IN 41/ OUT 42
WT IN 10.20/ OUT 10.
VIS IN 45/ OUT 45
MD 8648'
INC 89.4°
AZM 356.6°
TVD 6038.85'
MD 8743'
INC 89.3°
AZM 356.6°
TVD 6039.93'
ft
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
CHK: ltgy - gy, sft -
mot, rthy - wxy tex,
MRL: gy - dkgy, mo
sbplty, slty tex, sl m

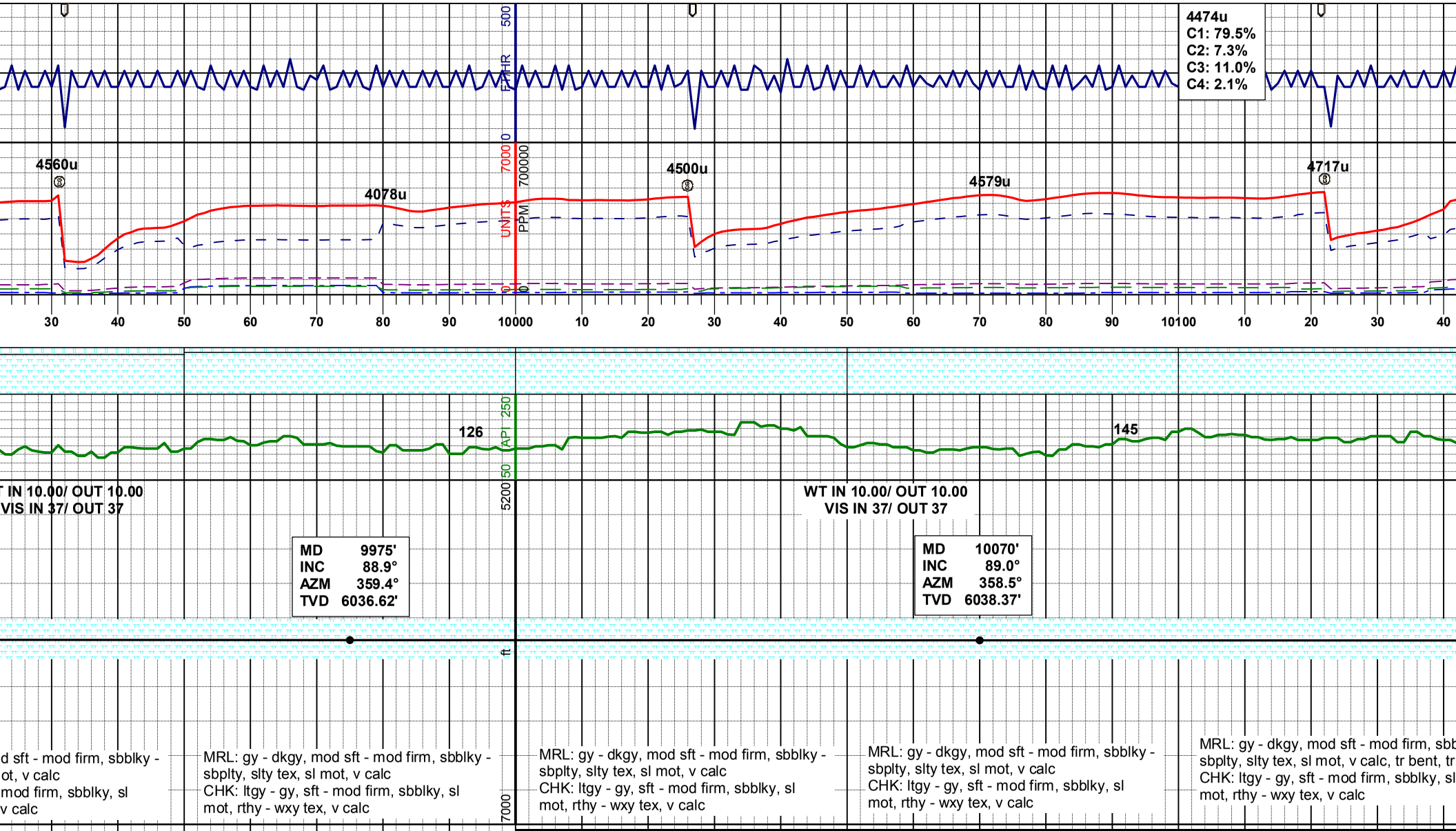

2867u
C1: 82.6%
C2: 4.9%
C3: 10.0%
C4: 2.5%
4828u
3932u
4653u
5160u
5427u
500
FT/HR
0
7000
700000
UNITS
PPM
0
30
40
50
60
70
80
90
8900
10
20
30
40
50
60
70
80
90
9000
10
20
30
40
106
93
250
API
50
5200
WT IN 10.20+/ OUT 10.20+
VIS IN 32/ OUT 32
MD 8837'
INC 90.0°
AZM 357.7°
TVD 6040.50'
MD 8932'
INC 90.0°
AZM 357.5°
TVD 6040.50'
WT IN 10.20/ OUT 10.20
VIS IN 45/ OUT 45
MD 9027'
INC 90.2°
AZM 356.3°
TVD 6040.34'
ft
7000
mod firm, sbblky, sl
v calc
od sft - mod firm, sbblky -
hot, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc, tr Inoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc, tr Inoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbb
sbplty, slty tex, sl mot, v calc


3534u
C1: 61.9%
C2: 5.7%
C3: 22.8%
C4: 9.6%
05/24/2013
5136u
4939u
5210u
4571u
FT/HR
UNITS
PPM
API
ft
97
114
94
WT IN 10.25/ OUT 10.25
VIS IN 46/ OUT 46
WT IN 10.20/ OUT 10.20
VIS IN 43/ OUT 43
MD 9122'
INC 89.2°
AZM 356.3°
TVD 6040.84'
MD 9217'
INC 89.4°
AZM 357.1°
TVD 6042.00'
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc

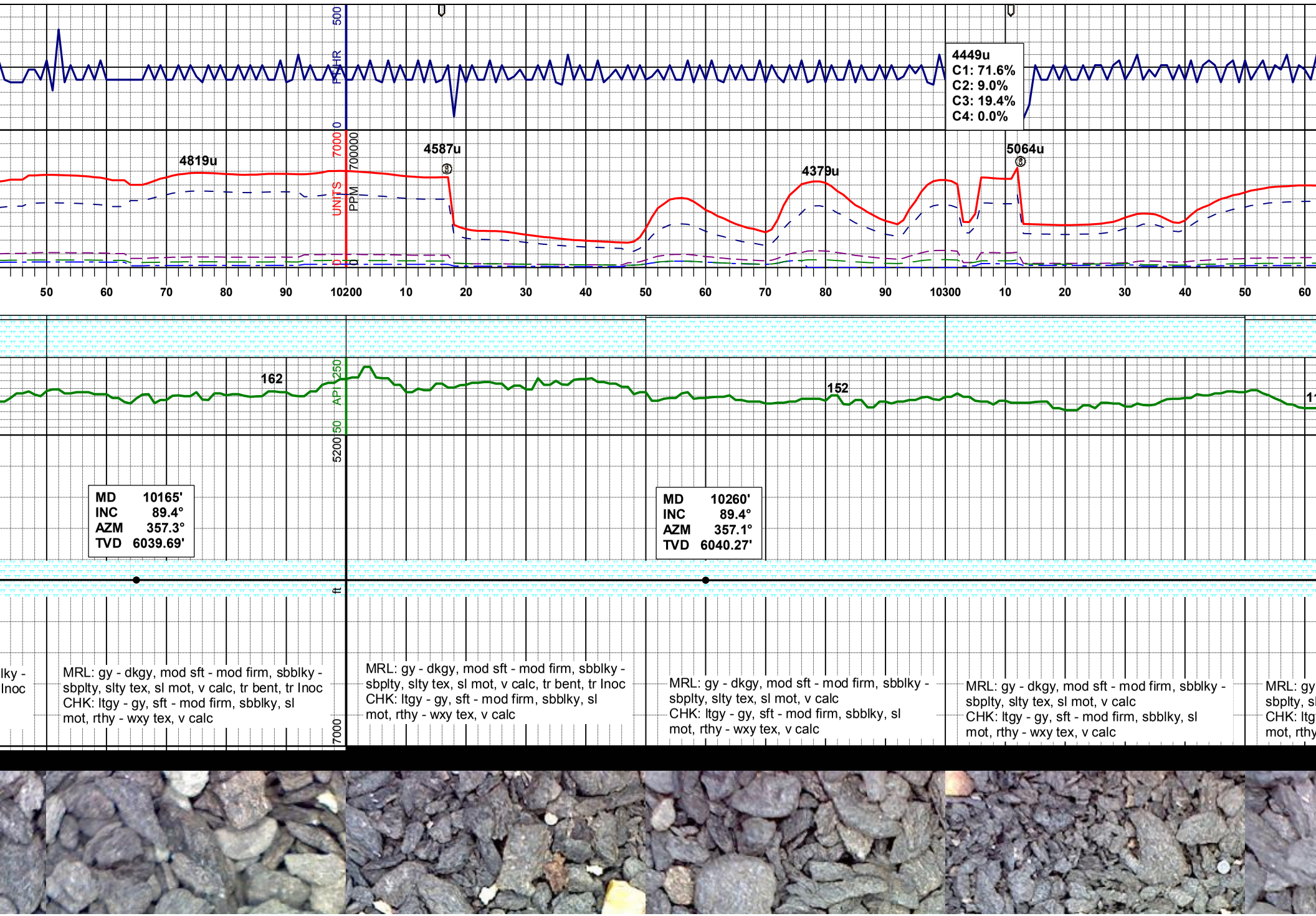

4362u
C1: 77.7%
C2: 6.4%
C3: 12.8%
C4: 3.1%
4917u
5264u
5253u
5186u
4158u
FT/HR
UNITS
PPM
API
87
179
WT IN 10.00/ OUT 10.00
VIS IN 41/ OUT 41
MD 9312'
INC 90.2°
AZM 356.8°
TVD 6042.33'
MD 9407'
INC 91.4°
AZM 358.2°
TVD 6041.00'
ft
- gy, sft - mod firm, sbblky, sl
- wxy tex, v calc
- dkgy, mod sft - mod firm, sbblky -
ty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mo
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm,
mot, rthy - wxy tex, v calc


4912u
C1: 74.4%
C2: 7.9%
C3: 13.9%
C4: 3.7%
4449u
5275u
4740u
4771u
FT/HR
UNITS
PPM
90
9500
10
20
30
40
50
60
70
80
90
9600
10
20
30
40
50
60
70
80
90
9700
114
API
607
WT IN 9.95/ OUT 9.95
VIS IN 38/ OUT 38
WT IN 9.95/ OUT 9.95
VIS IN 36/ OUT 36
MD 9501'
INC 91.8°
AZM 357.1°
TVD 6038.38'
MD 9596'
INC 91.8°
AZM 357.8°
TVD 6035.39'
MD 9691'
INC 90.3°
AZM 359.8°
TVD 6033.65'
ft
d firm, sbblky -
sbblky, sl
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, fos frag, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, fos frag, tr calc incl, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, fos frag, tr calc incl, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc

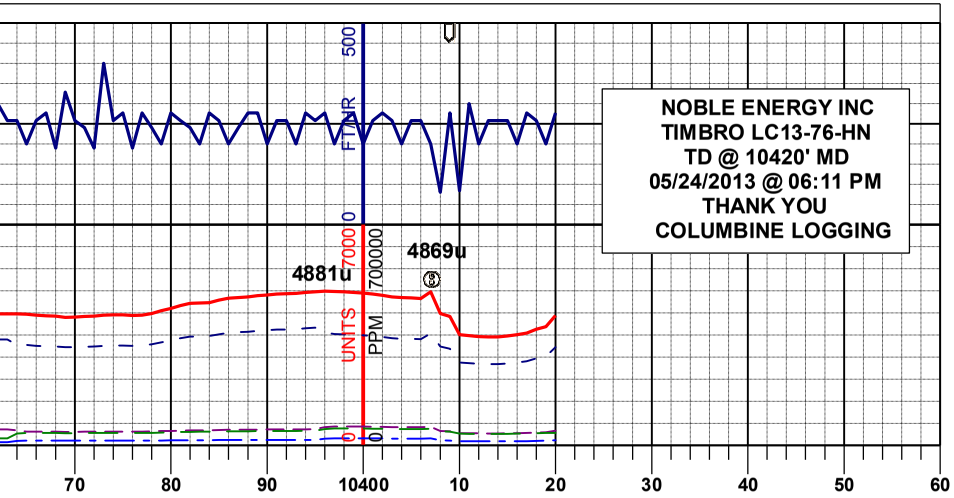

214u
C1: 77.3%
C2: 5.2%
C3: 14.0%
C4: 3.5%
3860u
C1: 81.0%
C2: 6.2%
C3: 10.6%
C4: 2.3%
500
FHR
0
7000
UNITS
0
700000
PPM
4393u
4623u
4124u
5163u
3966u
10
20
30
40
50
60
70
80
90
9800
10
20
30
40
50
60
70
80
90
9900
10
20
191
250
API
50
148
WT IN 10.05/ OUT 10.05
VIS IN 38/ OUT 38
WT IN 9.95/ OUT 9.95
VIS IN 37/ OUT 37
MD 9786'
INC 89.6°
AZM 359.6°
TVD 6033.74'
MD 9880'
INC 89.0°
AZM 359.6°
TVD 6034.88'
5200
ft
7000
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, fos frag, tr calc incl, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, fos frag, tr calc incl, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mo
sbplty, slty tex, sl m
CHK: ltgy - gy, sft -
mot, rthy - wxy tex,



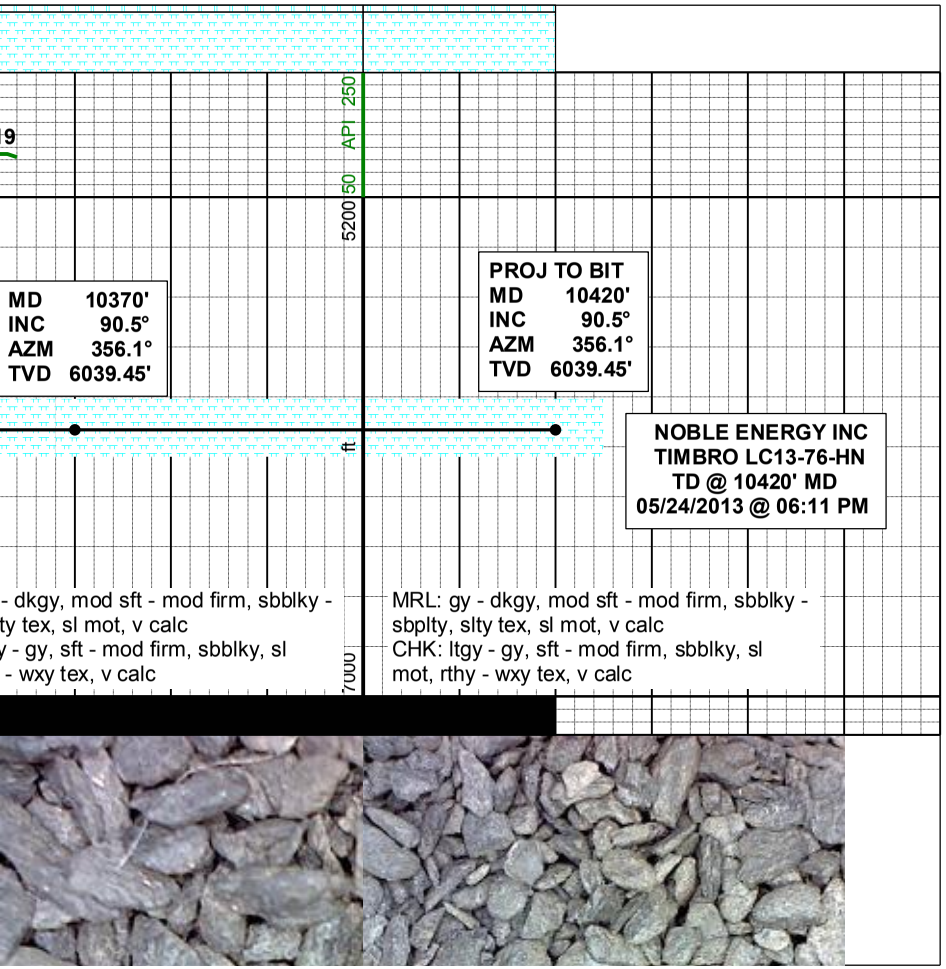
4474u
C1: 79.5%
C2: 7.3%
C3: 11.0%
C4: 2.1%
FT/HR
500
0
4560u
4078u
4500u
4579u
4717u
UNITS
7000
0
PPM
700000
0
30
40
50
60
70
80
90
10000
10
20
30
40
50
60
70
80
90
10100
10
20
30
40
126
145
API
250
50
5200
T IN 10.00/ OUT 10.00
VIS IN 37/ OUT 37
WT IN 10.00/ OUT 10.00
VIS IN 37/ OUT 37
MD 9975'
INC 88.9°
AZM 359.4°
TVD 6036.62'
MD 10070'
INC 89.0°
AZM 358.5°
TVD 6038.37'
ft
7000
d sft - mod firm, sbblky -
ot, v calc
mod firm, sbblky, sl
v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbblky -
sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc
MRL: gy - dkgy, mod sft - mod firm, sbb
sbplty, slty tex, sl mot, v calc, tr bent, tr
CHK: ltgy - gy, sft - mod firm, sbblky, sl
mot, rthy - wxy tex, v calc



4449u
C1: 71.6%
C2: 9.0%
C3: 19.4%
C4: 0.0%
4819u
4587u
4379u
5064u
162
152
MD 10165'
INC 89.4°
AZM 357.3°
TVD 6039.69'
MD 10260'
INC 89.4°
AZM 357.1°
TVD 6040.27'
MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc, tr bent, tr Inoc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc



NOBLE ENERGY INC
TIMBRO LC13-76-HN
TD @ 10420' MD
05/24/2013 @ 06:11 PM
THANK YOU
COLUMBINE LOGGING



MD	10370'
INC	90.5°
AZM	356.1°
TVD	6039.45'

PROJ TO BIT	
MD	10420'
INC	90.5°
AZM	356.1°
TVD	6039.45'

NOBLE ENERGY INC
TIMBRO LC13-76-HN
TD @ 10420' MD
05/24/2013 @ 06:11 PM

- dkgy, mod sft - mod firm, sbblky -
ty tex, sl mot, v calc
y - gy, sft - mod firm, sbblky, sl
- wxy tex, v calc

MRL: gy - dkgy, mod sft - mod firm, sbblky - sbplty, slty tex, sl mot, v calc
CHK: ltgy - gy, sft - mod firm, sbblky, sl mot, rthy - wxy tex, v calc