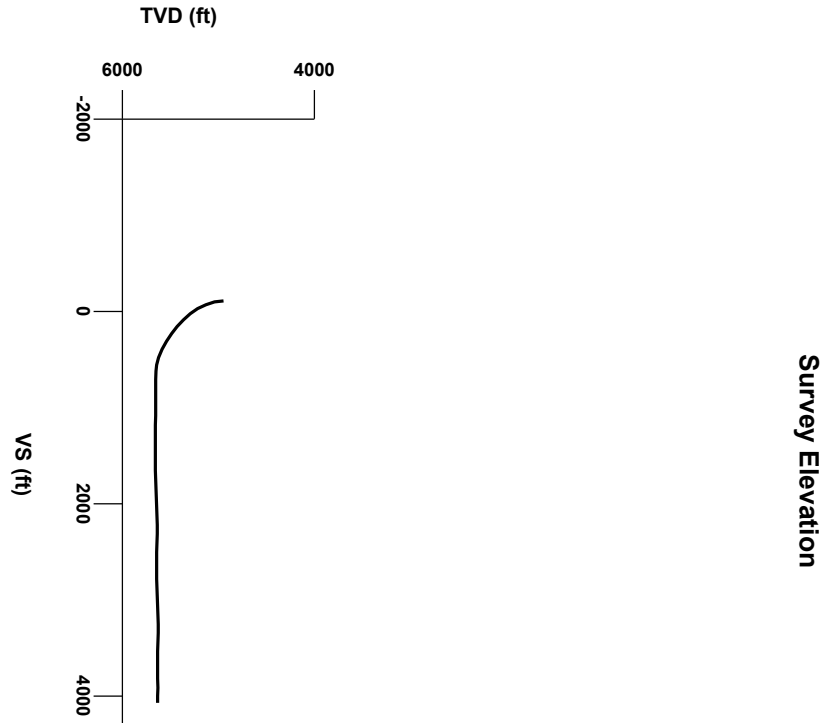
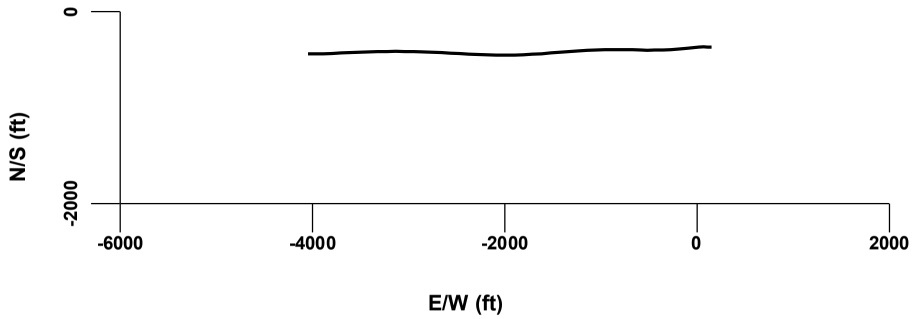
OPERATOR:	**NOBLE ENERGY INC**
WELL:	**ROHN STATE LD04-62-1HN**
LOCATION:	**SEC 4 T9N R58W**
COUNTY:	**WELD**
STATE:	**COLORADO**
SPOT:	**699' FSL; 480' FEL**
ELEVATION:	**4712' GL; 4736' KB**
FIELD:	**WILDCAT**
SPUD DATE:	**09/15/2013**
TD DATE:	**09/20/2013**
DATES LOGGED:	**09/16/2013 - 09/20/2013**
DEPTHS LOGGED:	**4940' - 9541' MD**
LOGGERS:	**LAURA KELLOGG; CONOR PESICKA**
DRILLING FLUID:	**LSND**
DRILLING RIG:	**H&P 273**
API:	**05-123-37460**
LOG TYPE:	**HORIZONTAL**
SCALE:	**1:240 (5 inches per 100 feet)**
REMARKS:	**WELLSITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.**



6000

Survey Plan



LITHOLOGIES

ENGINEERING SYMBOLS

Silty Shale

Marl

Chalk

Connection

Casing

Midnight Depth

Casing

Connection Gas

COLUMBINE LOGGING INC.
RIGGED UP ON 09/15/2013
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0540
COLUMBINE BEGAN LOGGING
ON 09/15/2013

BHA BIT:
SEC 8.75" FXD55
Serial #: 12076354
Jets: 5x14

BEGAN DRILLING CURVE
@ 07:43 AM 09/17/2013

09/17/2013

ROP FT/HR 0 500

GAS UNITS 0 3000
C1 PPM 0 300000
C2 PPM 0 300000
C3 PPM 0 300000
C4 PPM 0 300000

971u
1741u
1776

DEPTH (FEET) 4890 4900 10 20 30 40 50 60 70 80 90 5000 10 20 30 40

CUTTINGS LITHOLOGY

GAMMA RAY API 40 300

131

WT IN 9.80/ OUT 10.30+
VIS IN 34/ OUT 41

MD 4980'
INC 2.2°
AZM 259.8°
TVD 4948.84'

TVD ft 4800 7000

Acetone was used as the cutting agent with the dimple filled to the rim

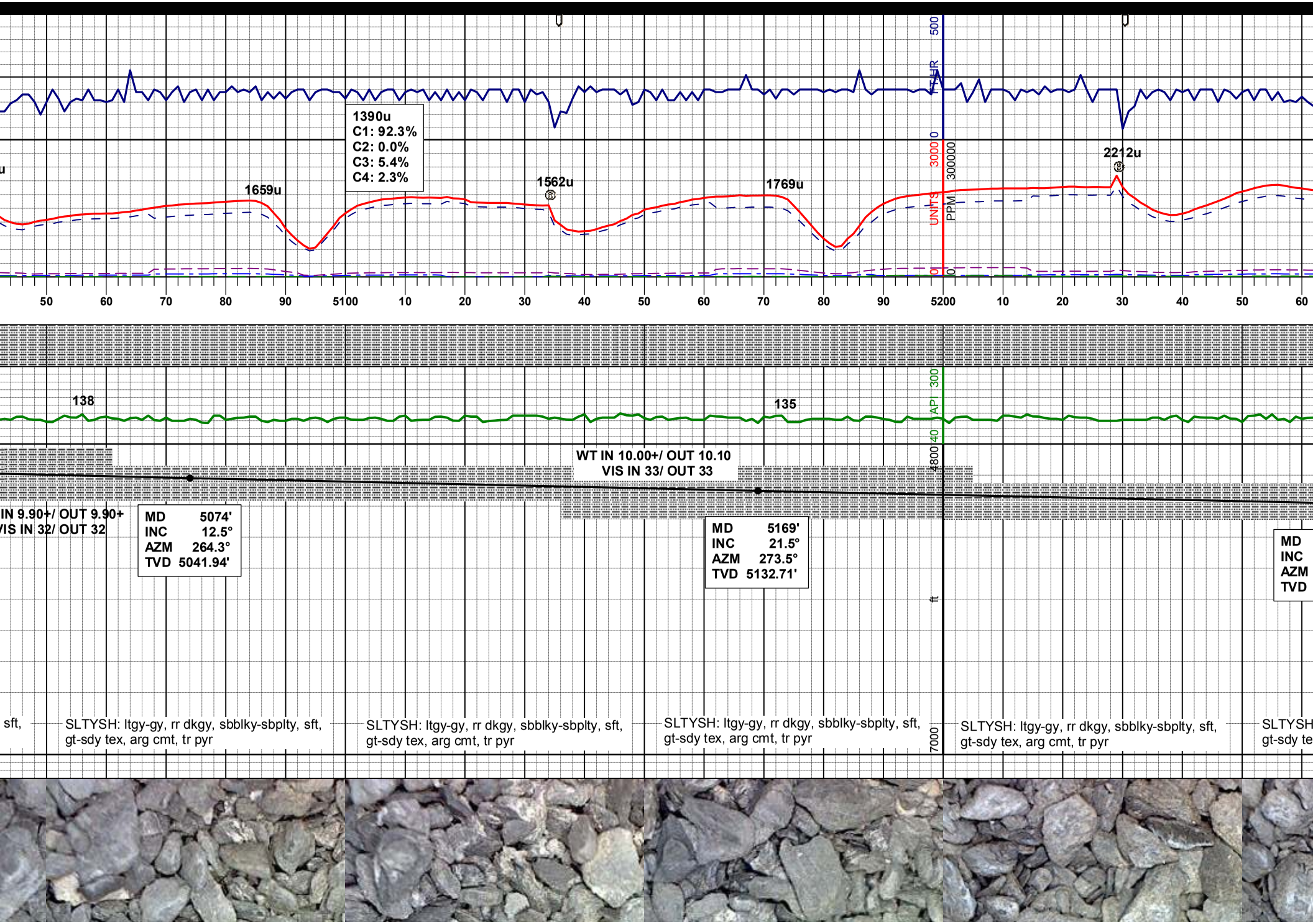
The ratings are based on 7 descriptors: None, Slight trace, Trace,Fair, Moderate, Good, and Excellent.The descriptor used is based on the loggers observations and best judgment of brilliance, color and longevity of the cut.

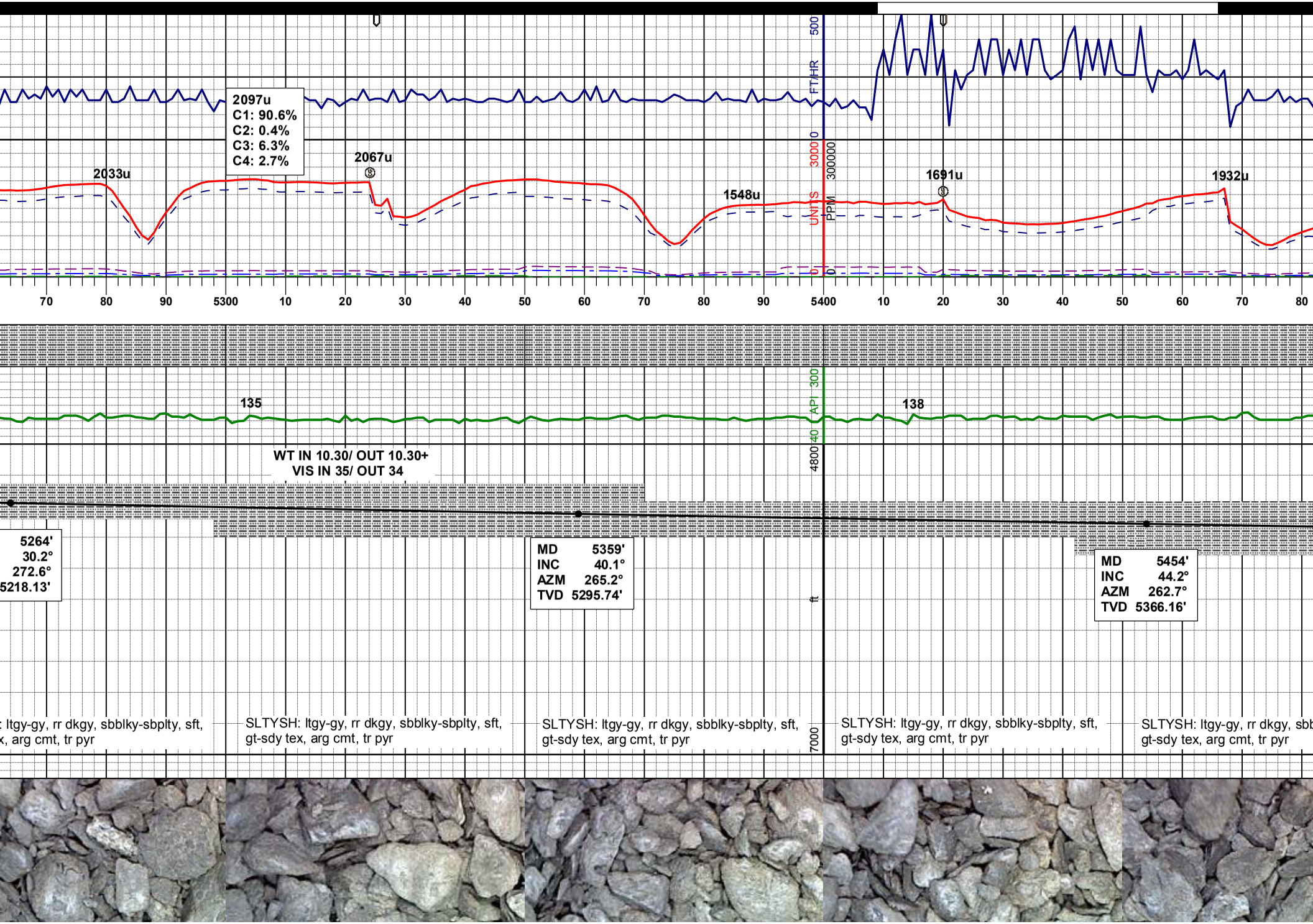
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr

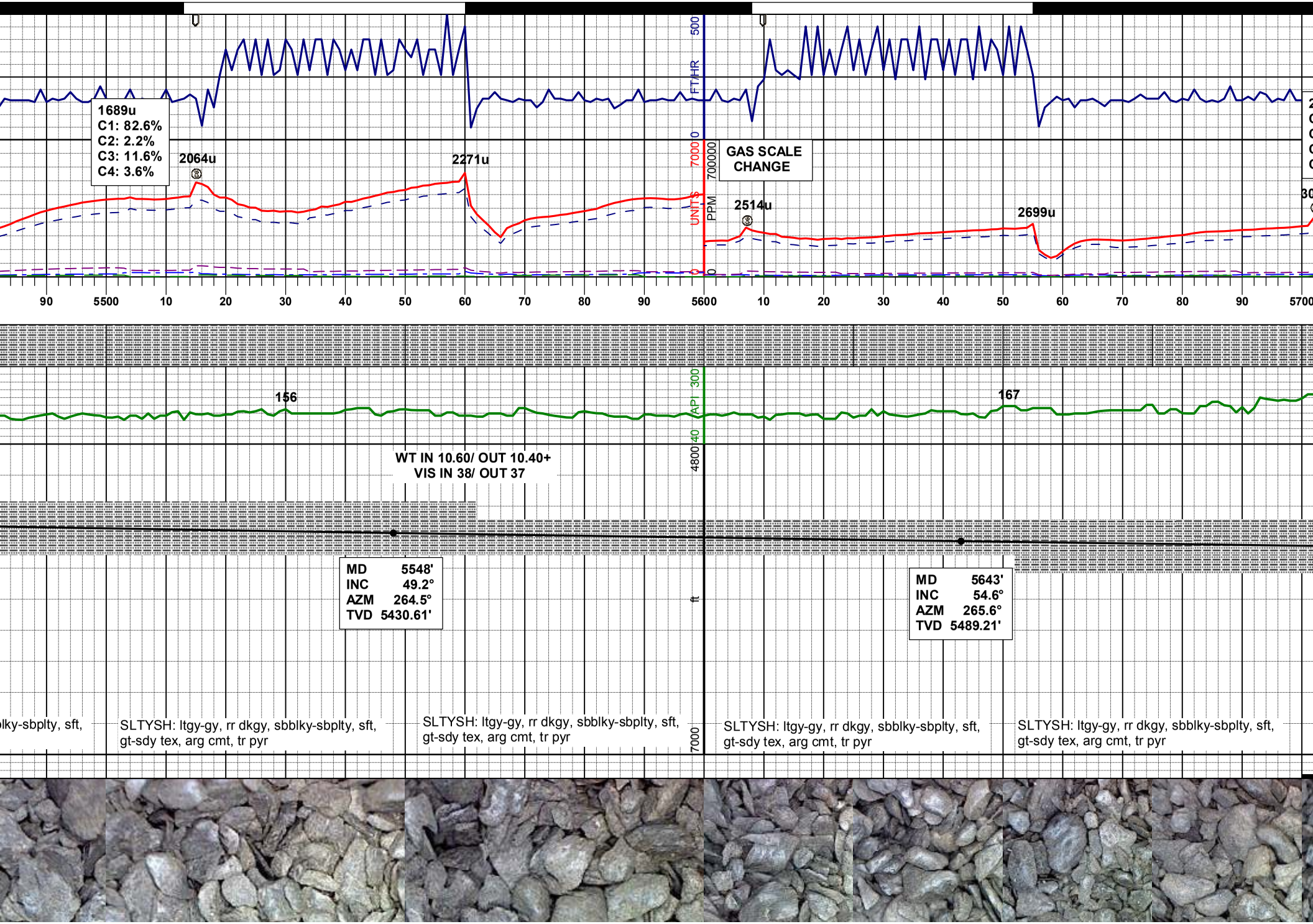
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, gt-sdy tex, arg cmt, tr pyr

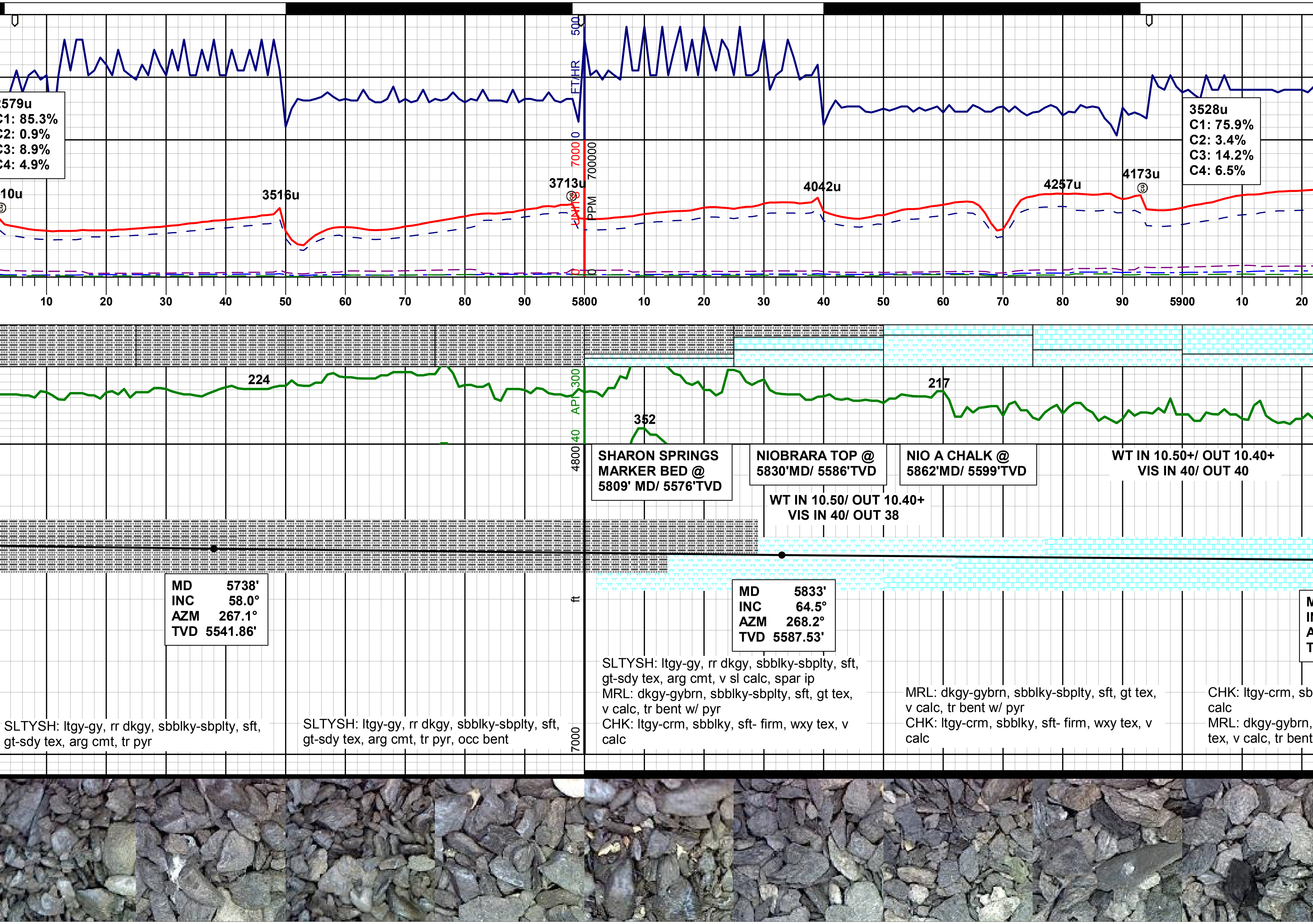
OIL SHOWS TFG

SAMPLE PHOTOS

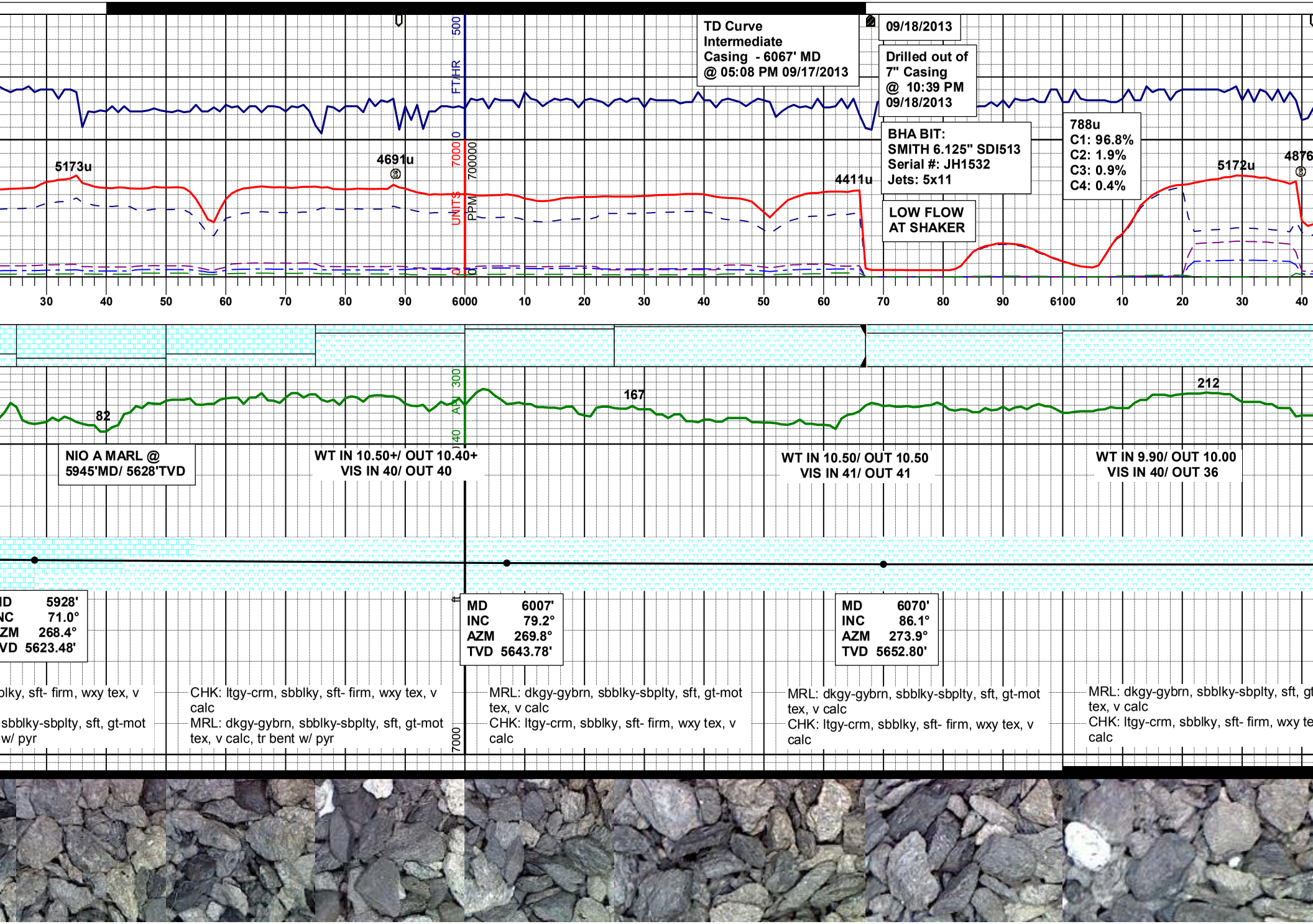

1390u
C1: 92.3%
C2: 0.0%
C3: 5.4%
C4: 2.3%
1659u
1562u
1769u
2212u
TOTAL
UNITS
PPM
500
3000
0
300000
0
50
60
70
80
90
5100
10
20
30
40
50
60
70
80
90
5200
10
20
30
40
50
60
138
135
API
300
40
WT IN 10.00+/ OUT 10.10
VIS IN 33/ OUT 33
IN 9.90+/ OUT 9.90+
VIS IN 32/ OUT 32
MD 5074'
INC 12.5°
AZM 264.3°
TVD 5041.94'
MD 5169'
INC 21.5°
AZM 273.5°
TVD 5132.71'
MD
INC
AZM
TVD
4800
ft
7000
sft,
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH
gt-sdy te

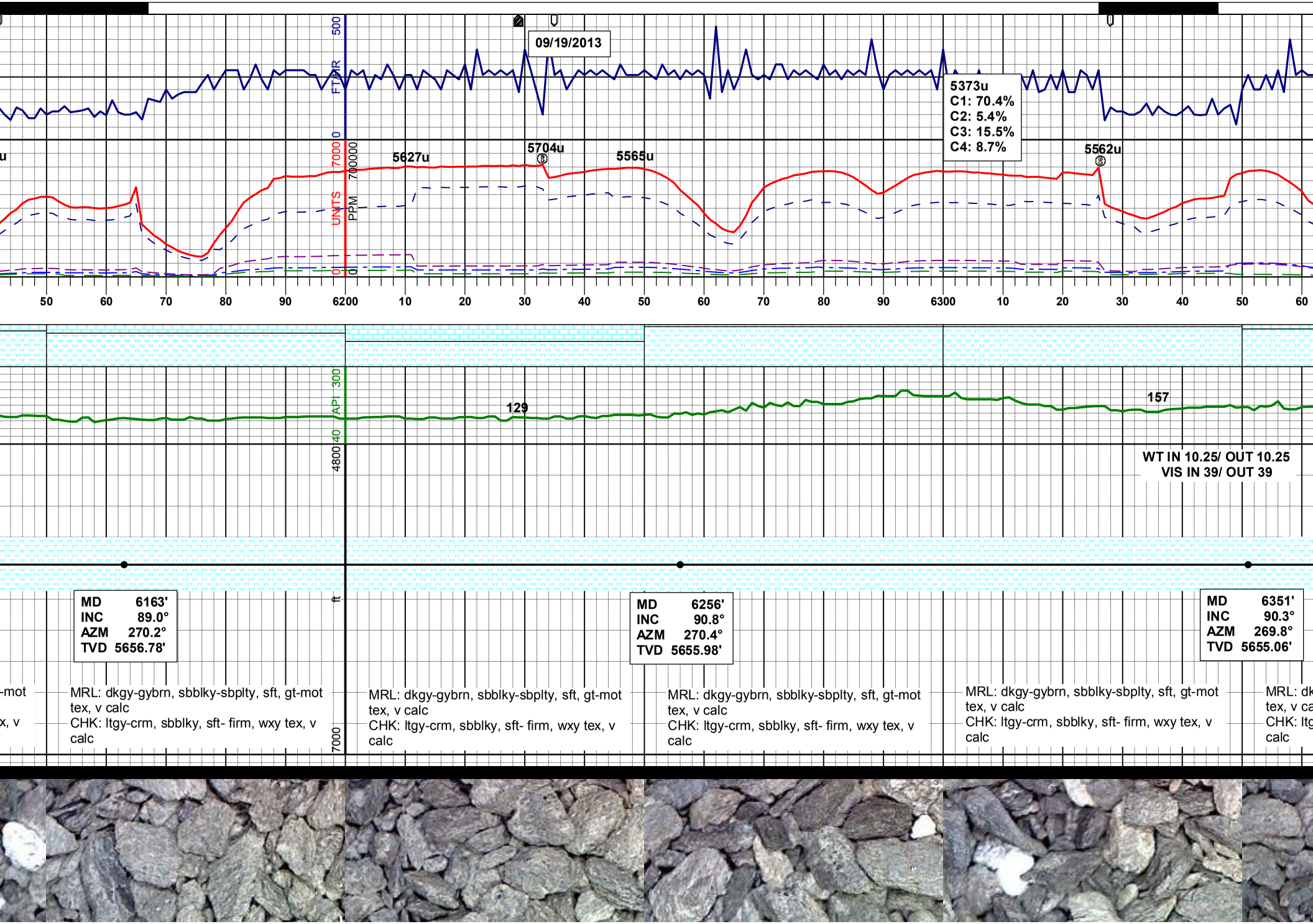

2097u
C1: 90.6%
C2: 0.4%
C3: 6.3%
C4: 2.7%
2033u
2067u
1548u
1691u
1932u
FT/HR
UNITS
PPM
API
135
138
WT IN 10.30/ OUT 10.30+
VIS IN 35/ OUT 34
5264'
30.2°
272.6°
5218.13'
MD 5359'
INC 40.1°
AZM 265.2°
TVD 5295.74'
MD 5454'
INC 44.2°
AZM 262.7°
TVD 5366.16'
ft
: ltgy-gy, rr dkgy, sbblky-sbplty, sft,
x, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft,
gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft,
gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft,
gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbb
gt-sdy tex, arg cmt, tr pyr

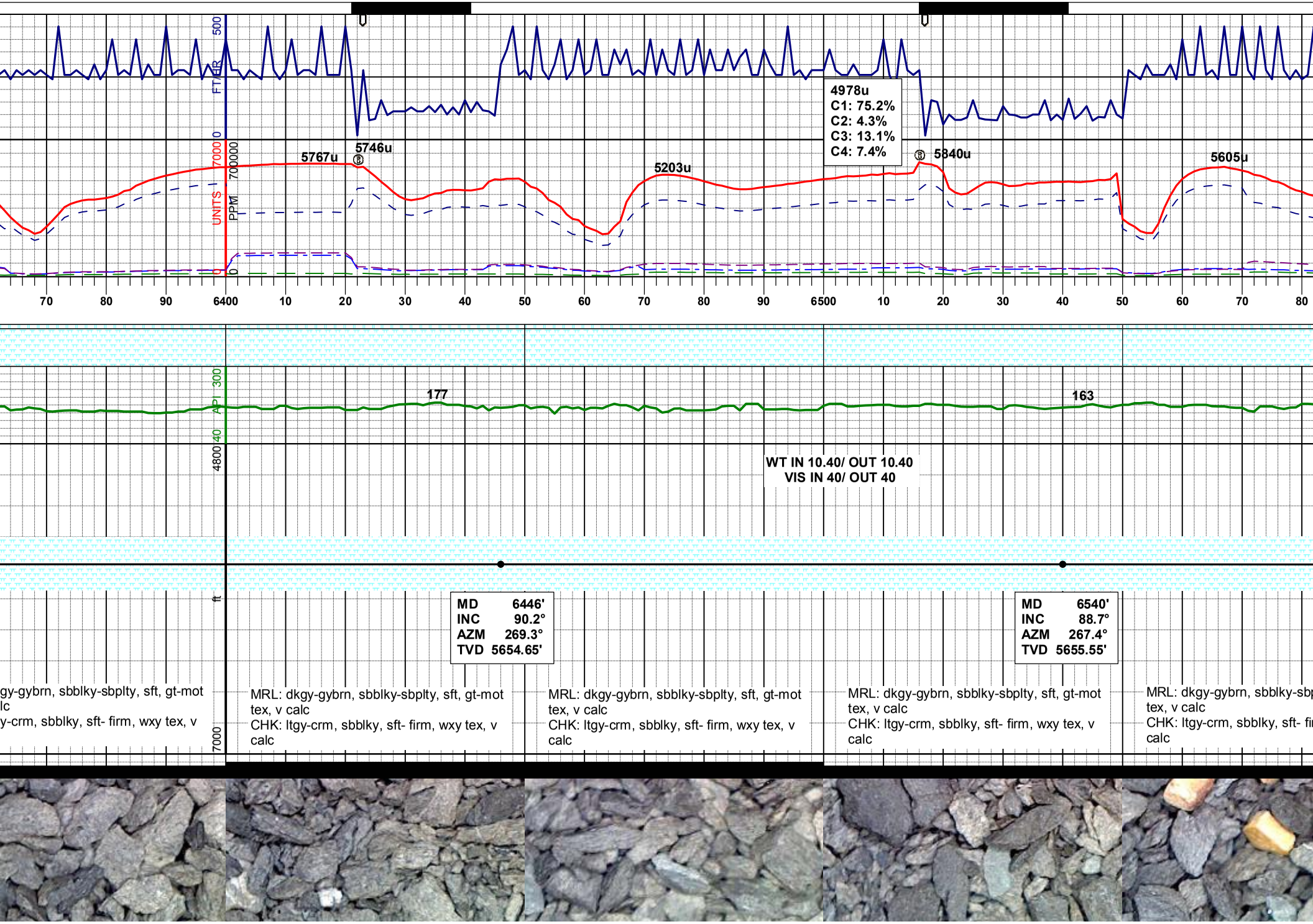

1689u
C1: 82.6%
C2: 2.2%
C3: 11.6%
C4: 3.6%
2064u
2271u
2514u
2699u
GAS SCALE CHANGE
FT/HR
UNITS
PPM
500
0
70000
700000
0
90
5500
10
20
30
40
50
60
70
80
90
5600
10
20
30
40
50
60
70
80
90
5700
156
167
API
300
40
4800
WT IN 10.60/ OUT 10.40+
VIS IN 38/ OUT 37
MD 5548'
INC 49.2°
AZM 264.5°
TVD 5430.61'
MD 5643'
INC 54.6°
AZM 265.6°
TVD 5489.21'
ft
7000
lky-sbplty, sft,
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr

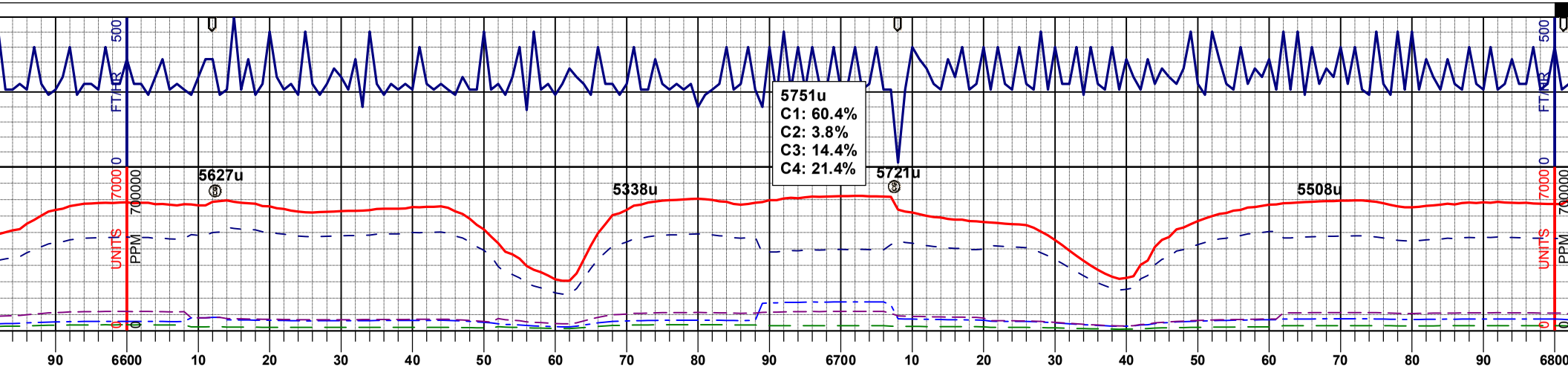


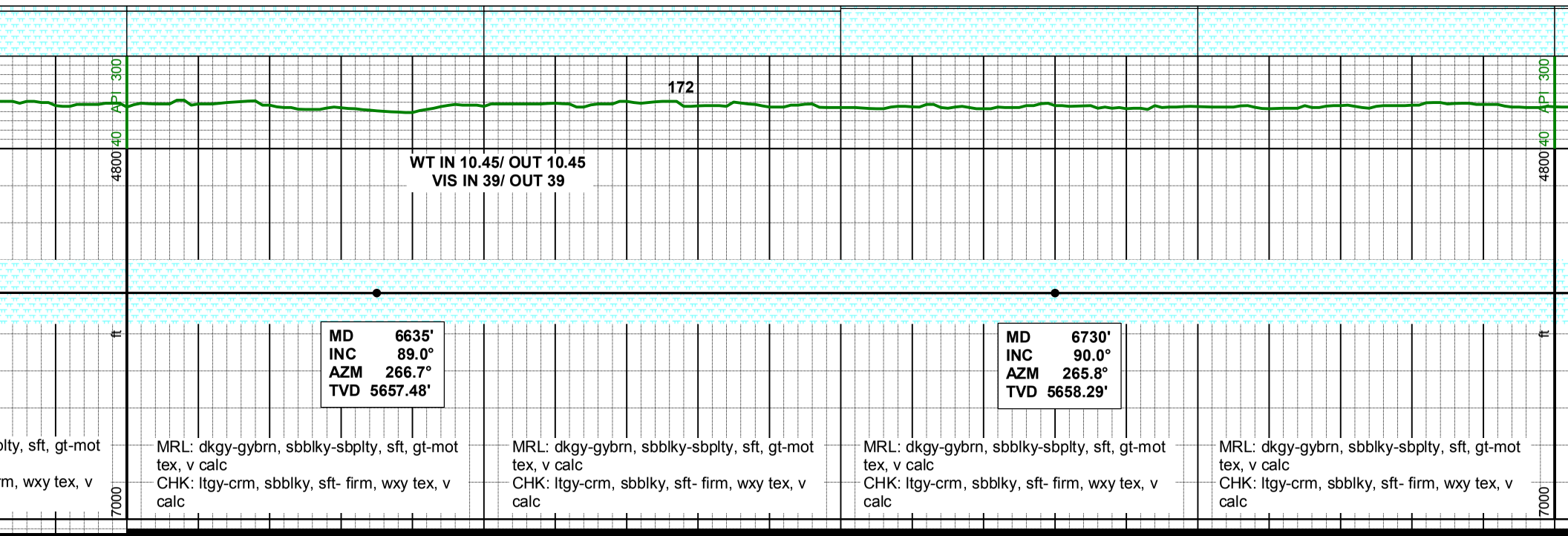
579u
C1: 85.3%
C2: 0.9%
C3: 8.9%
C4: 4.9%
10u
3516u
3713u
4042u
4257u
4173u
3528u
C1: 75.9%
C2: 3.4%
C3: 14.2%
C4: 6.5%
FT/HR 0 500
UNITS 0 7000
PPM 0 700000
10 20 30 40 50 60 70 80 90 5800 10 20 30 40 50 60 70 80 90 5900 10 20
224
352
217
API 40 300
4800 ft 7000
SHARON SPRINGS MARKER BED @ 5809' MD/ 5576'TVD
NIOBRARA TOP @ 5830'MD/ 5586'TVD
NIO A CHALK @ 5862'MD/ 5599'TVD
WT IN 10.50/ OUT 10.40+
VIS IN 40/ OUT 38
WT IN 10.50+/ OUT 10.40+
VIS IN 40/ OUT 40
MD 5738'
INC 58.0°
AZM 267.1°
TVD 5541.86'
MD 5833'
INC 64.5°
AZM 268.2°
TVD 5587.53'
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, tr pyr, occ bent
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, v sl calc, spar ip
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt tex, v calc, tr bent w/ pyr
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt tex, v calc, tr bent w/ pyr
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

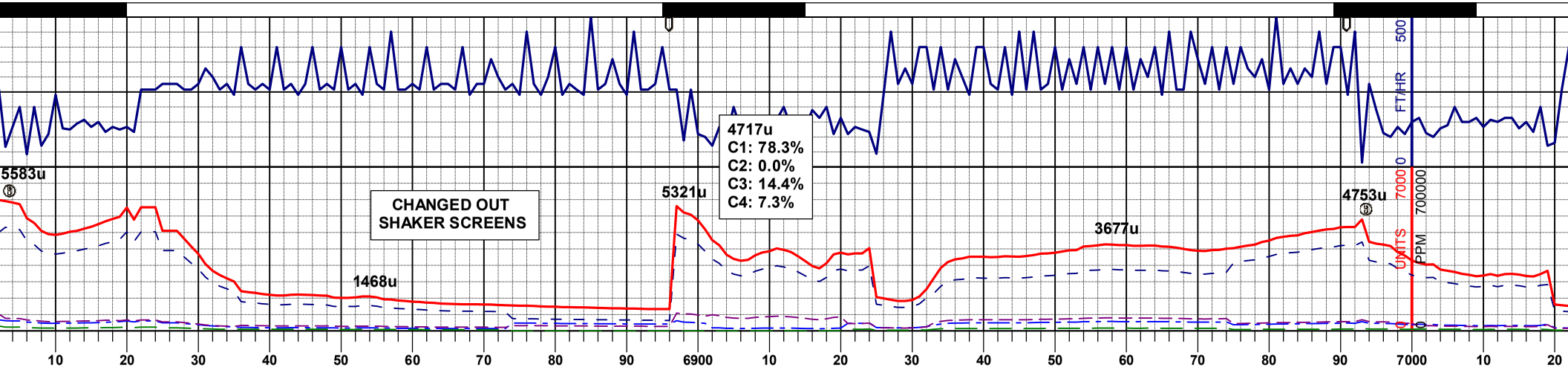

TD Curve
Intermediate
Casing - 6067' MD
@ 05:08 PM 09/17/2013
09/18/2013
Drilled out of
7" Casing
@ 10:39 PM
09/18/2013
BHA BIT:
SMITH 6.125" SDI513
Serial #: JH1532
Jets: 5x11
LOW FLOW
AT SHAKER
788u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
5173u
4691u
4411u
5172u
4876
FT/HR
UNITS
PPM
82
167
212
NIO A MARL @
5945'MD/ 5628'TVD
WT IN 10.50+/ OUT 10.40+
VIS IN 40/ OUT 40
WT IN 10.50/ OUT 10.50
VIS IN 41/ OUT 41
WT IN 9.90/ OUT 10.00
VIS IN 40/ OUT 36
MD 5928'
INC 71.0°
AZM 268.4°
TVD 5623.48'
MD 6007'
INC 79.2°
AZM 269.8°
TVD 5643.78'
MD 6070'
INC 86.1°
AZM 273.9°
TVD 5652.80'
sbblky-sbplty, sft, gt-mot
w/ pyr
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc, tr bent w/ pyr
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt
tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy te
calc

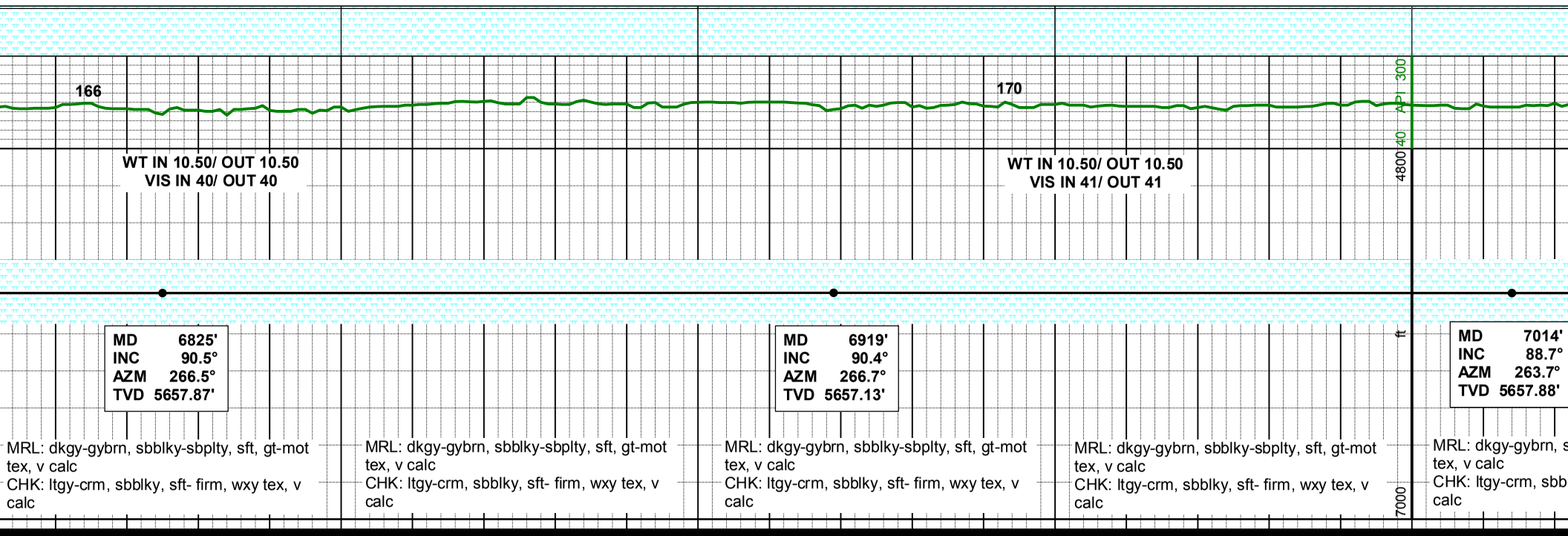

09/19/2013
5373u
C1: 70.4%
C2: 5.4%
C3: 15.5%
C4: 8.7%
5627u
5704u
5565u
5562u
FT/HR
UNITS
PPM
API
129
157
WT IN 10.25/ OUT 10.25
VIS IN 39/ OUT 39
MD 6163'
INC 89.0°
AZM 270.2°
TVD 5656.78'
MD 6256'
INC 90.8°
AZM 270.4°
TVD 5655.98'
MD 6351'
INC 90.3°
AZM 269.8°
TVD 5655.06'
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
ft


FTAIR
500
0
UNITS
7000
0
PPM
700000
0
5767u
5746u
5203u
4978u
C1: 75.2%
C2: 4.3%
C3: 13.1%
C4: 7.4%
5840u
5605u
70
80
90
6400
10
20
30
40
50
60
70
80
90
6500
10
20
30
40
50
60
70
80
API
300
40
4800
177
163
WT IN 10.40/ OUT 10.40
VIS IN 40/ OUT 40
ft
7000
MD 6446'
INC 90.2°
AZM 269.3°
TVD 5654.65'
MD 6540'
INC 88.7°
AZM 267.4°
TVD 5655.55'
gy-gybrn, sbblky-sbplty, sft, gt-mot
lc
y-crm, sbblky, sft- firm, wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbp
tex, v calc
CHK: ltgy-crm, sbblky, sft- fi
calc


FT/HR
500
0
UNITS
7000
0
PPM
700000
0
5627u
5338u
5751u
C1: 60.4%
C2: 3.8%
C3: 14.4%
C4: 21.4%
5721u
5508u
90
6600
10
20
30
40
50
60
70
80
90
6700
10
20
30
40
50
60
70
80
90
6800


API
300
40
4800
172
WT IN 10.45/ OUT 10.45
VIS IN 39/ OUT 39
ft
7000
MD 6635'
INC 89.0°
AZM 266.7°
TVD 5657.48'
MD 6730'
INC 90.0°
AZM 265.8°
TVD 5658.29'
lty, sft, gt-mot
m, wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc





MD 6825'
INC 90.5°
AZM 266.5°
TVD 5657.87'

MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

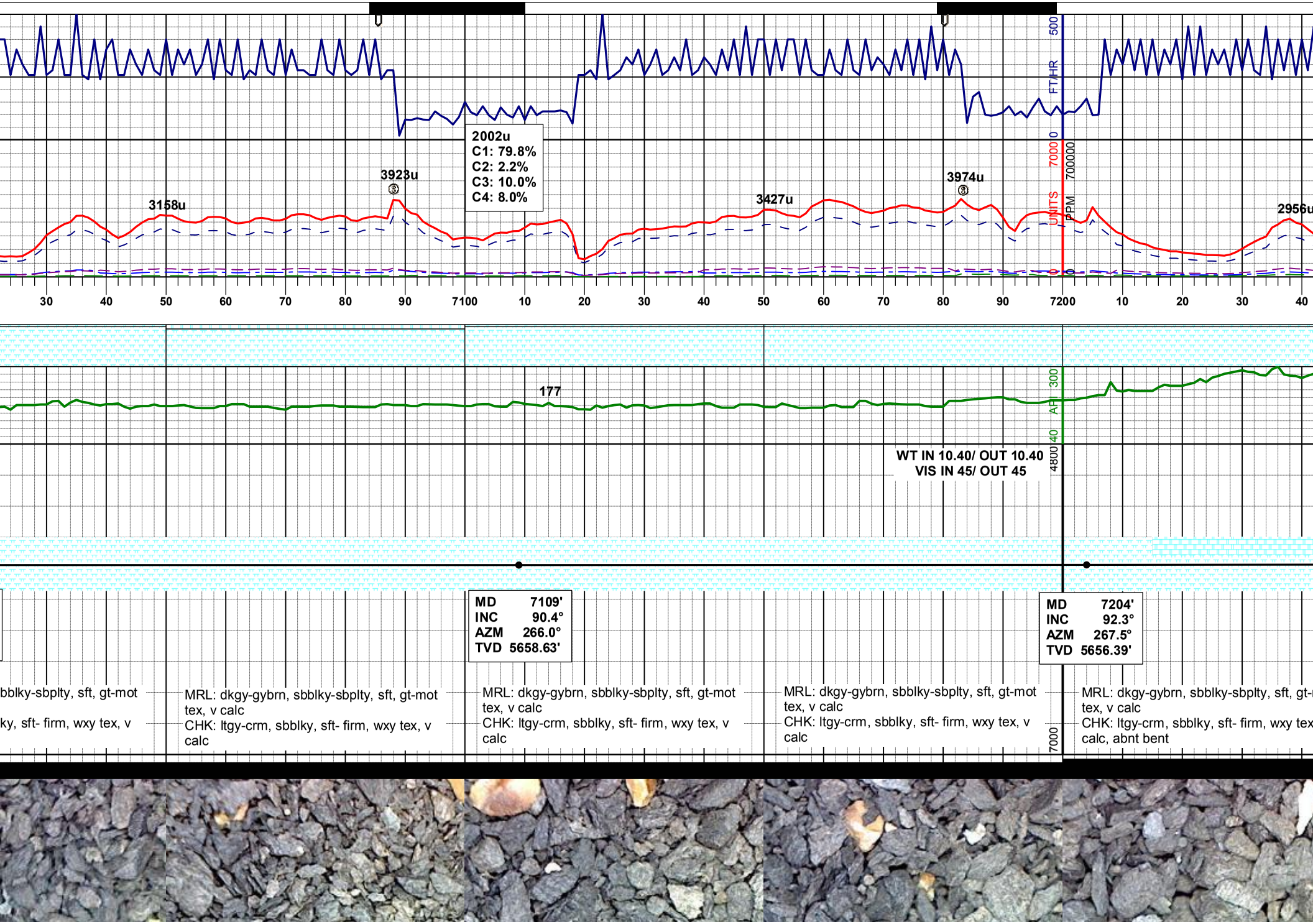
MD 6919'
INC 90.4°
AZM 266.7°
TVD 5657.13'

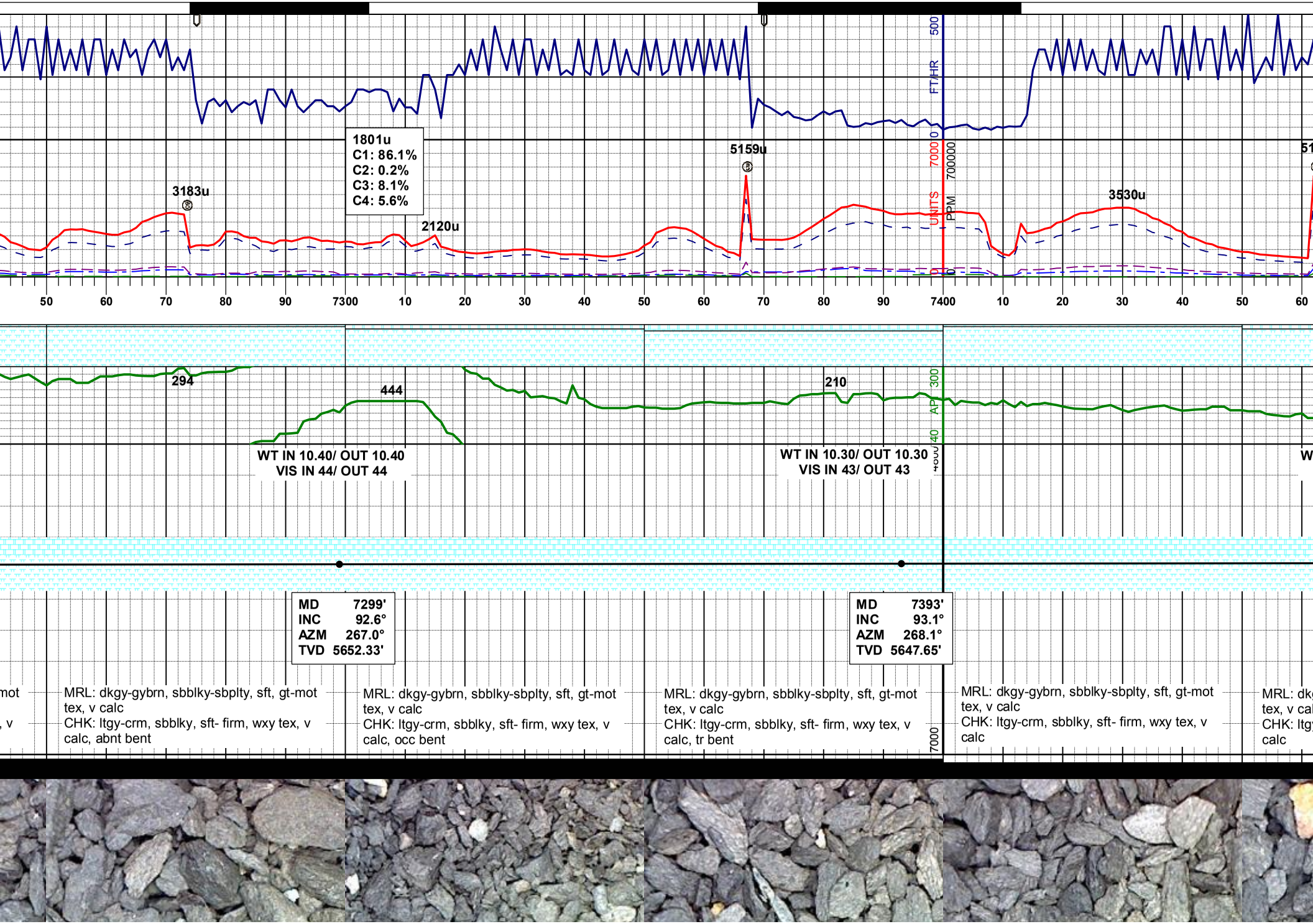
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

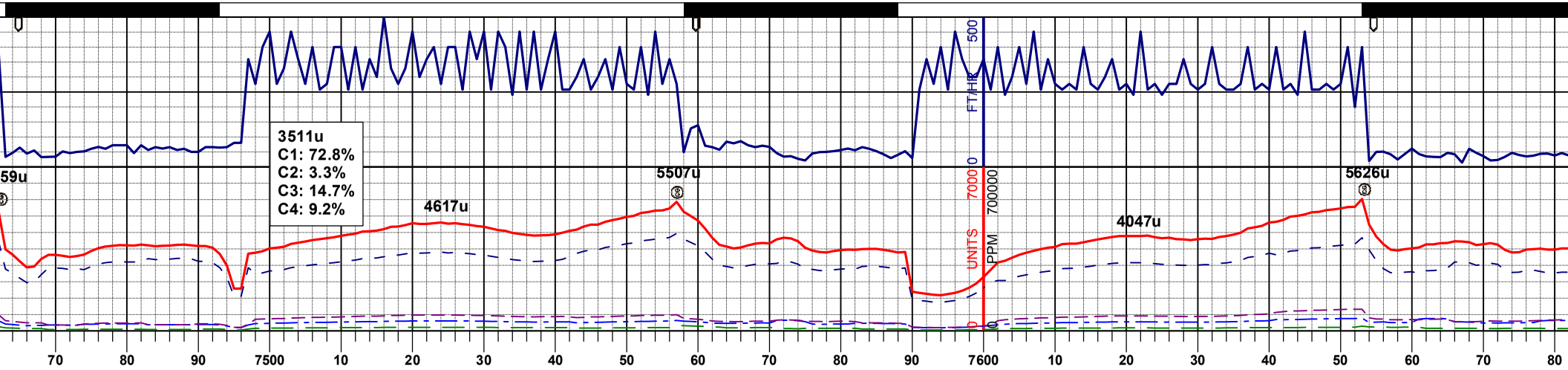
MD 7014'
INC 88.7°
AZM 263.7°
TVD 5657.88'

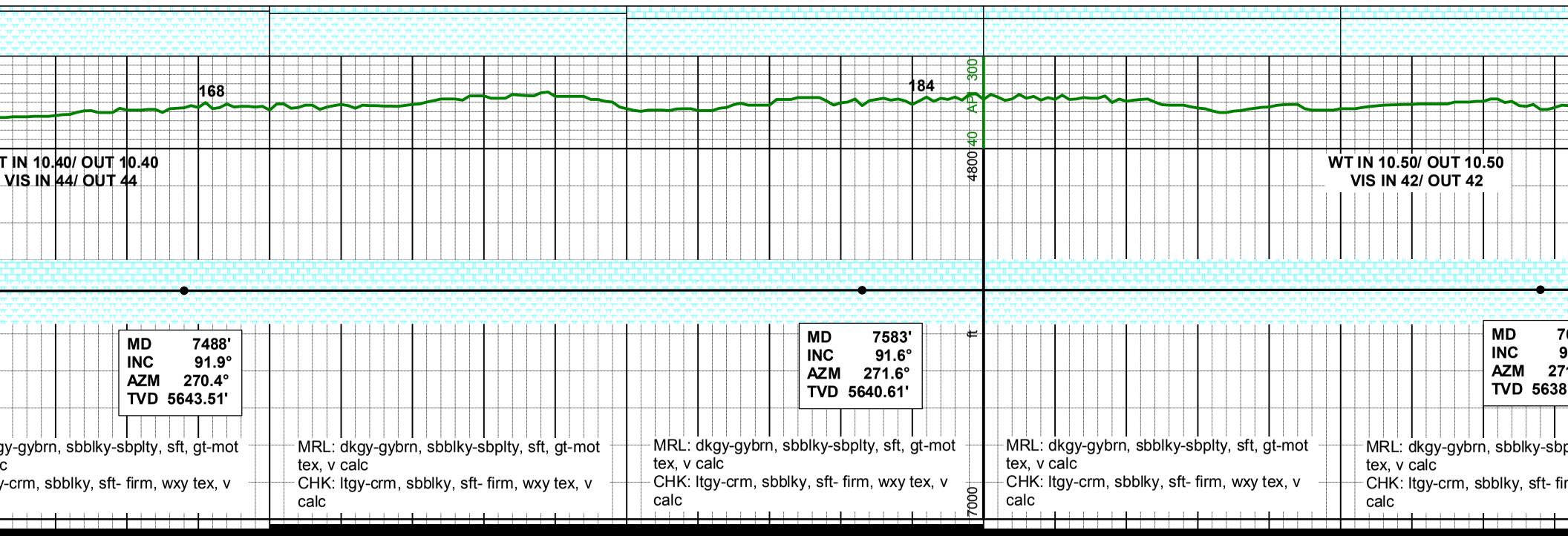
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

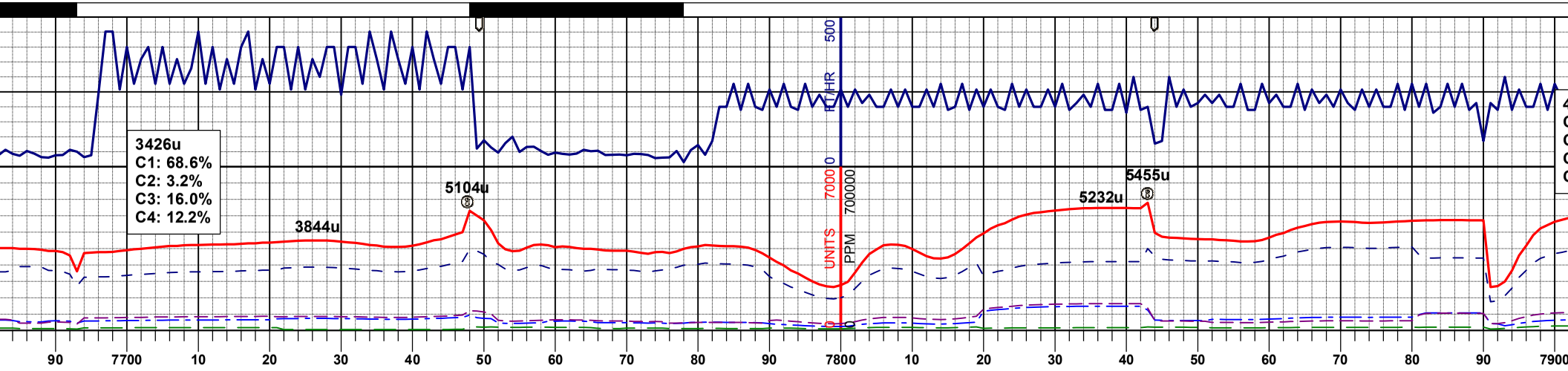
MRL: dkgy-gybrn, s
tex, v calc
CHK: ltgy-crm, sbb
calc

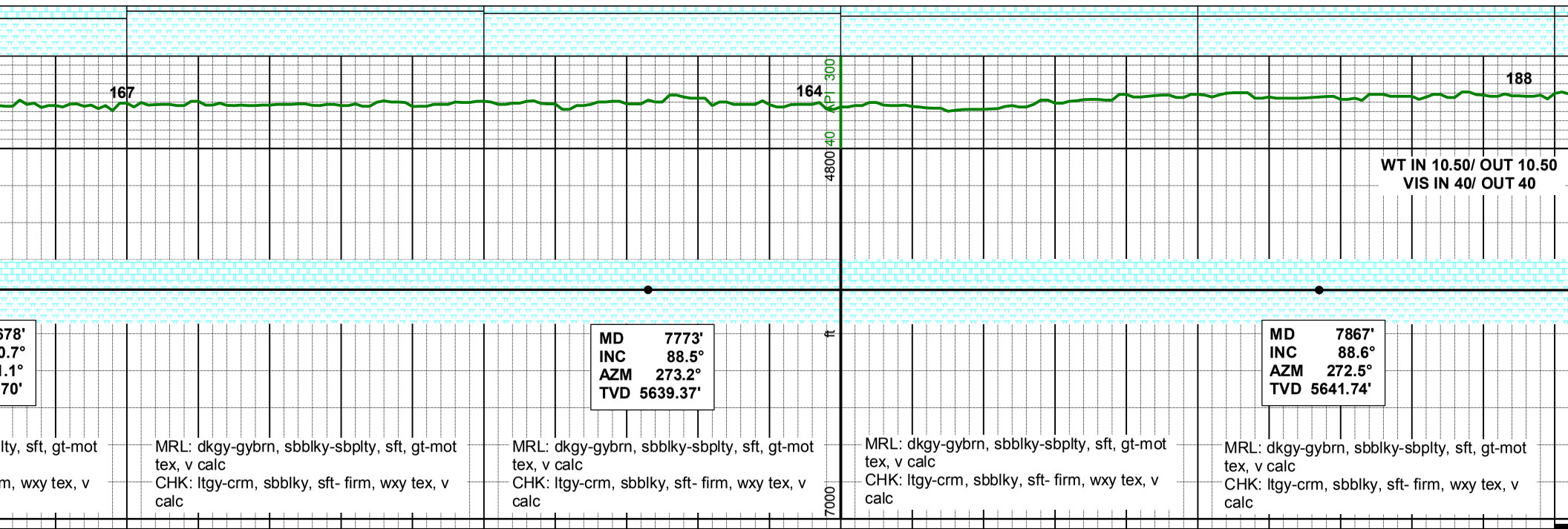

2002u
C1: 79.8%
C2: 2.2%
C3: 10.0%
C4: 8.0%
3158u
3923u
3427u
3974u
2956u
FT/HR
UNITS
PPM
500
0
7000
700000
0
30
40
50
60
70
80
90
7100
10
20
30
40
50
60
70
80
90
7200
10
20
30
40
177
API
300
40
4800
WT IN 10.40/ OUT 10.40
VIS IN 45/ OUT 45
MD 7109'
INC 90.4°
AZM 266.0°
TVD 5658.63'
MD 7204'
INC 92.3°
AZM 267.5°
TVD 5656.39'
bblky-sbplty, sft, gt-mot
ky, sft- firm, wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-
tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex
calc, abnt bent
7000


1801u
C1: 86.1%
C2: 0.2%
C3: 8.1%
C4: 5.6%
3183u
2120u
5159u
3530u
FT/HR
500
0
UNITS
7000
0
PPM
700000
50
60
70
80
90
7300
10
20
30
40
50
60
70
80
90
7400
10
20
30
40
50
60
294
444
210
APL
300
40
WT IN 10.40/ OUT 10.40
VIS IN 44/ OUT 44
WT IN 10.30/ OUT 10.30
VIS IN 43/ OUT 43
MD 7299'
INC 92.6°
AZM 267.0°
TVD 5652.33'
MD 7393'
INC 93.1°
AZM 268.1°
TVD 5647.65'
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc, abnt bent
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc, occ bent
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc, tr bent
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
7000


3511u
C1: 72.8%
C2: 3.3%
C3: 14.7%
C4: 9.2%
59u
4617u
5507u
4047u
5626u
FT/HR
UNITS
PPM
500
0
7000
700000
70
80
90
7500
10
20
30
40
50
60
70
80
90
7600
10
20
30
40
50
60
70
80


168
184
AP
300
40
4800
T IN 10.40/ OUT 10.40
VIS IN 44/ OUT 44
WT IN 10.50/ OUT 10.50
VIS IN 42/ OUT 42
MD 7488'
INC 91.9°
AZM 270.4°
TVD 5643.51'
MD 7583'
INC 91.6°
AZM 271.6°
TVD 5640.61'
MD 7
INC 9
AZM 27
TVD 5638
ft
7000
gy-gybrn, sbblky-sbplty, sft, gt-mot
c
y-crm, sbblky, sft- firm, wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbp
tex, v calc
CHK: ltgy-crm, sbblky, sft- fir
calc





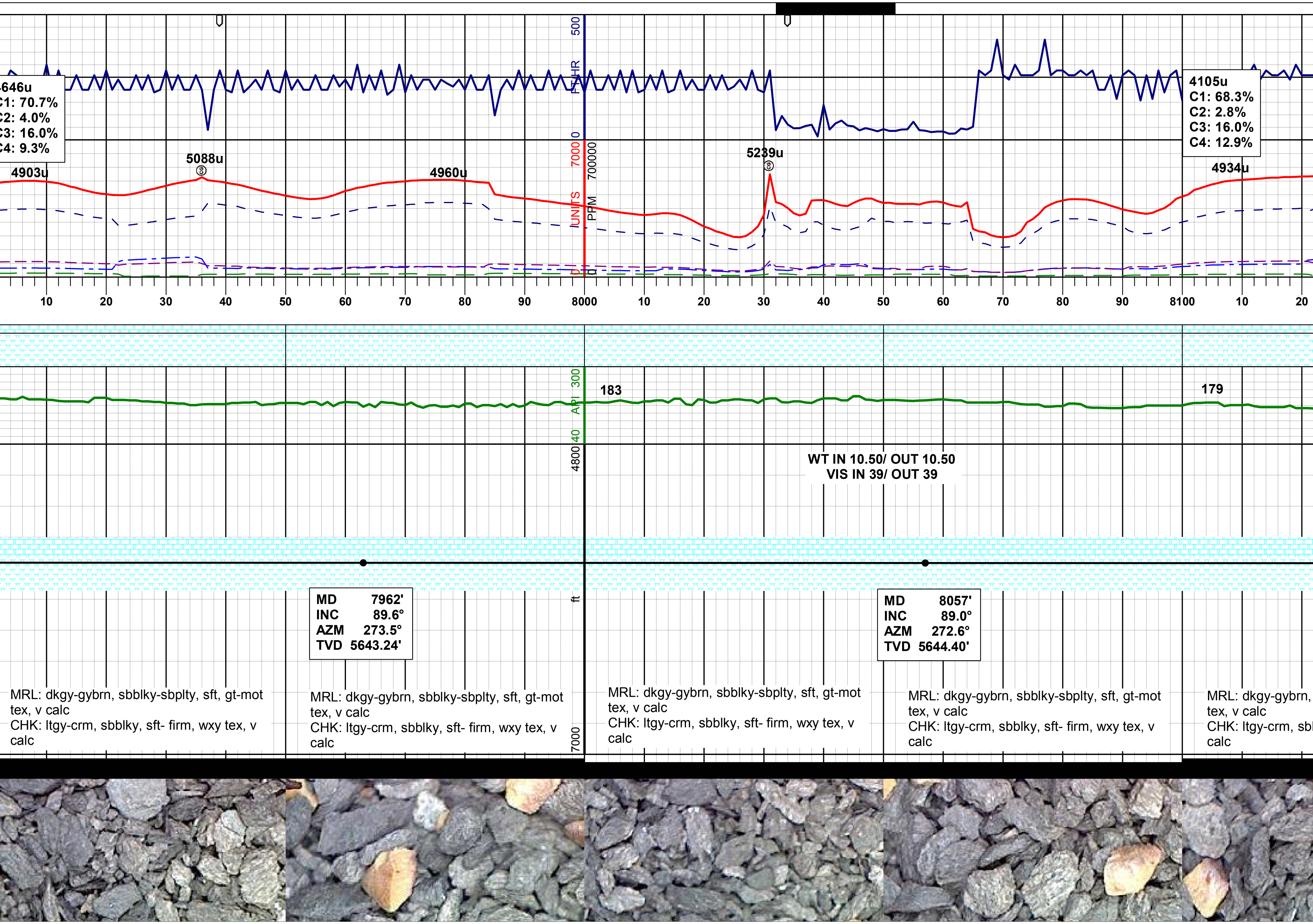
lty, sft, gt-mot
m, wxy tex, v

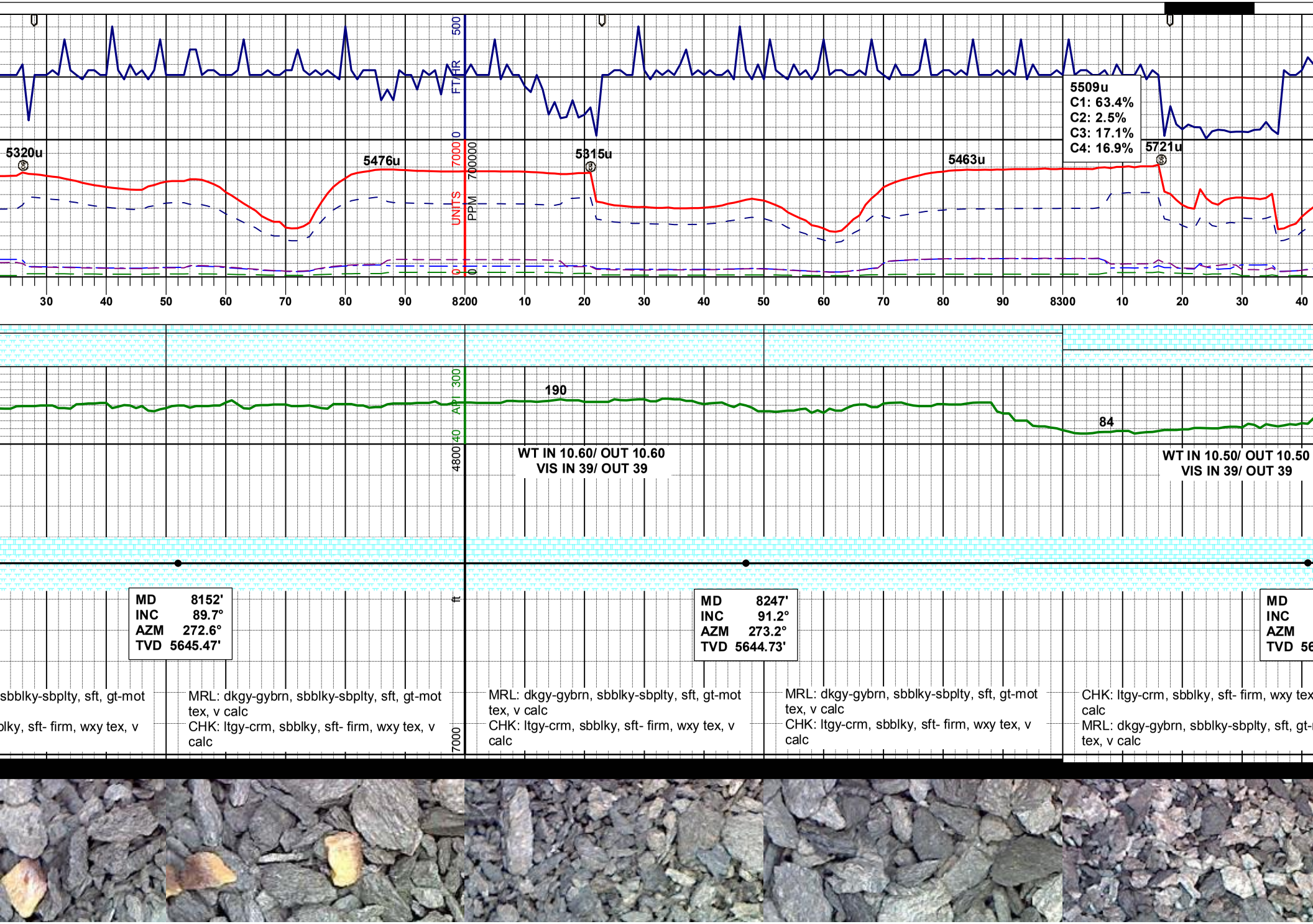
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

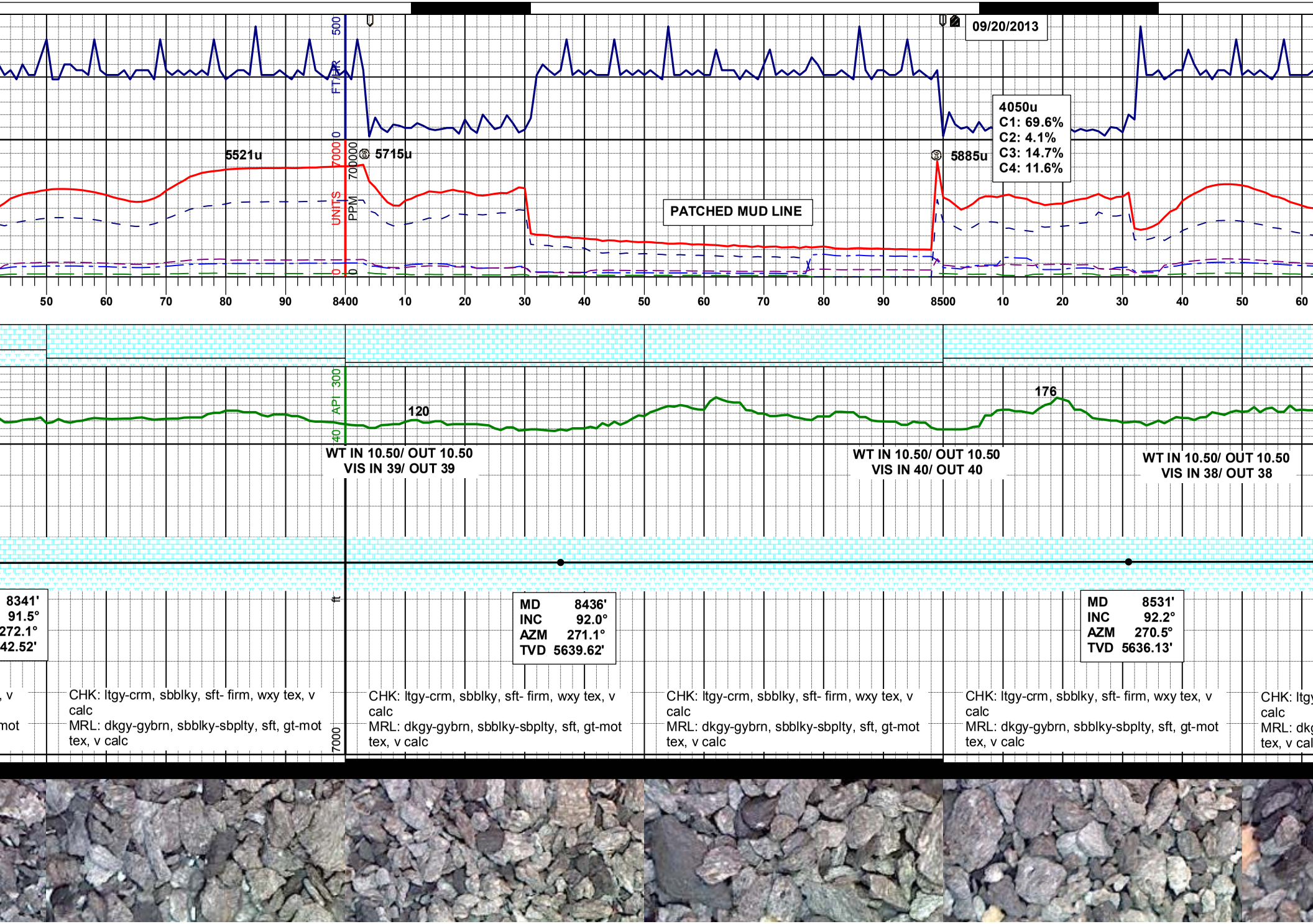
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

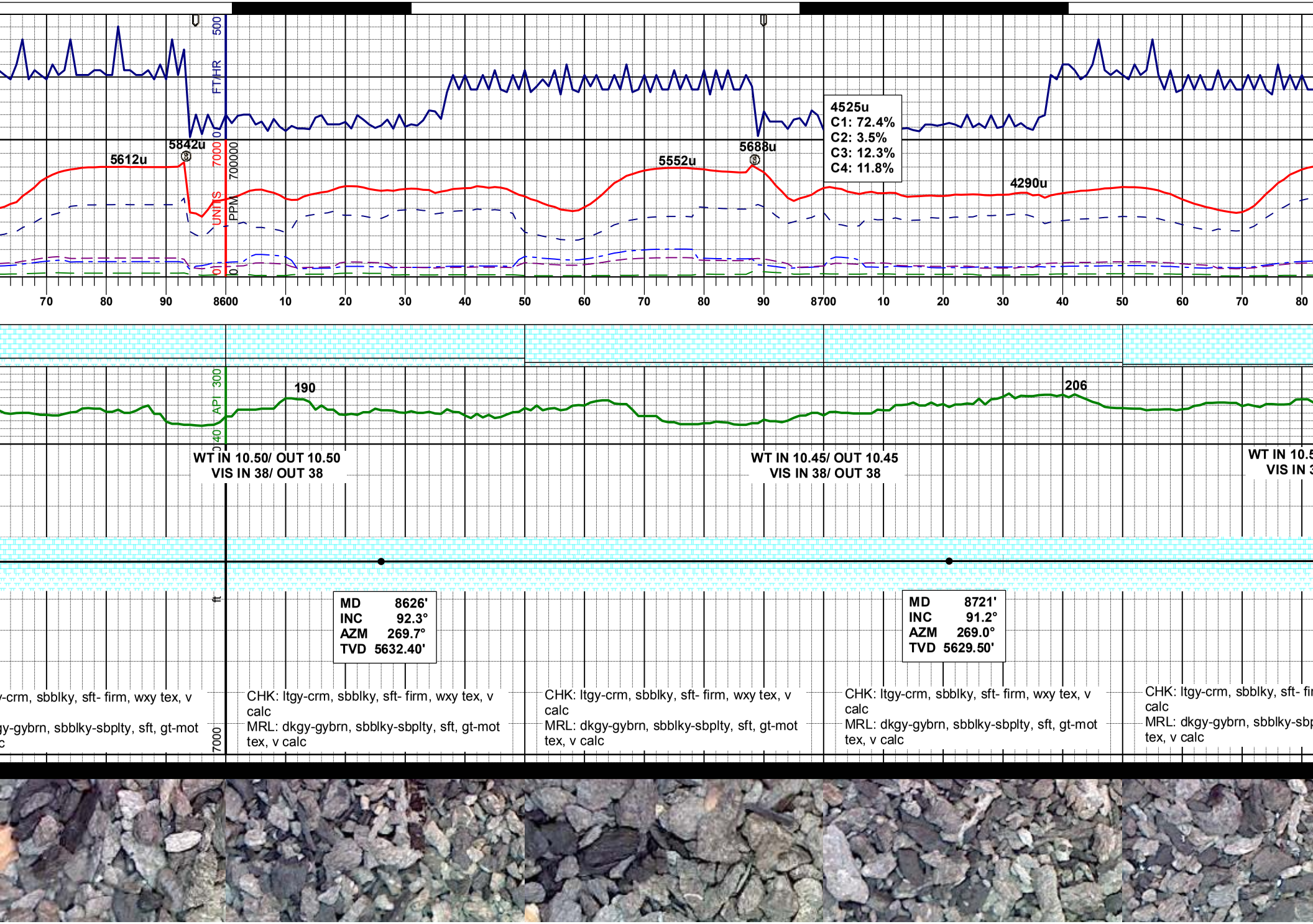
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

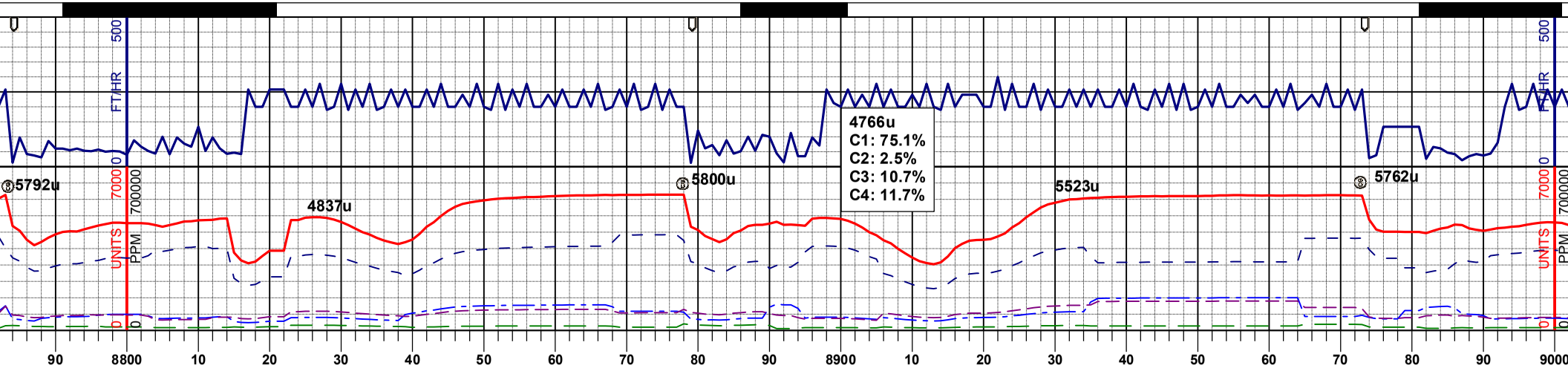
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc

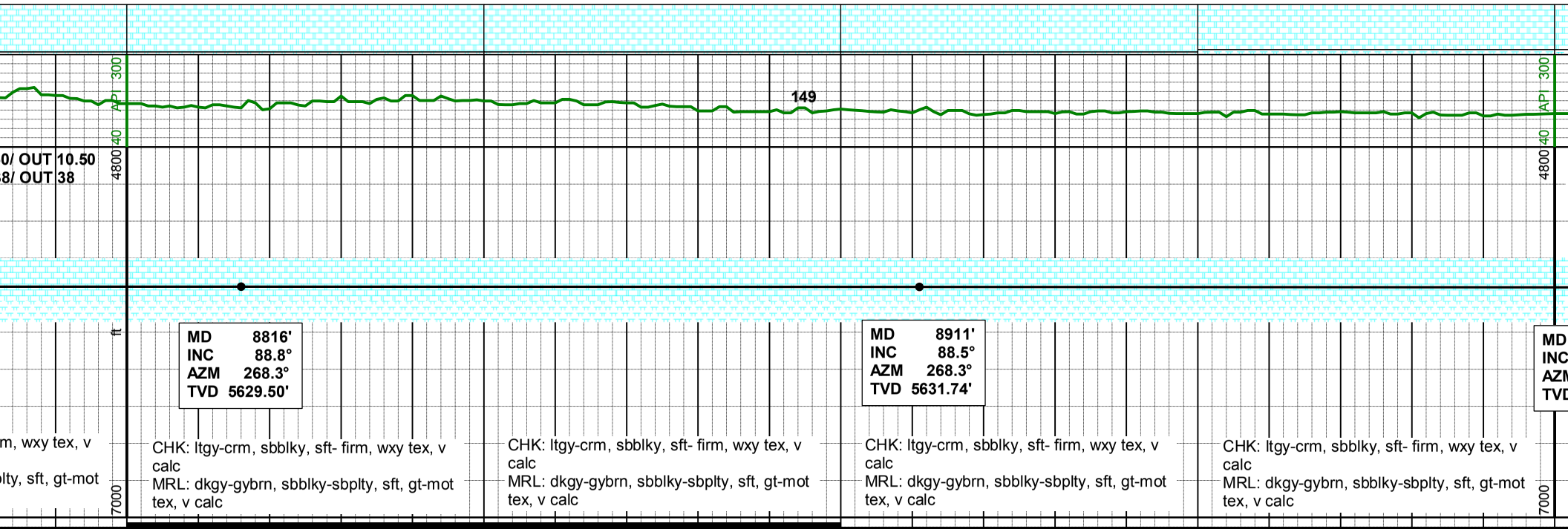

646u
C1: 70.7%
C2: 4.0%
C3: 16.0%
C4: 9.3%
4903u
5088u
4960u
5239u
4105u
C1: 68.3%
C2: 2.8%
C3: 16.0%
C4: 12.9%
4934u
0 FT/HR 500
0 UNITS 7000
0 PPM 700000
10 20 30 40 50 60 70 80 90 8000 10 20 30 40 50 60 70 80 90 8100 10 20
40 API 300
183
179
4800 ft 7000
WT IN 10.50/ OUT 10.50
VIS IN 39/ OUT 39
MD 7962'
INC 89.6°
AZM 273.5°
TVD 5643.24'
MD 8057'
INC 89.0°
AZM 272.6°
TVD 5644.40'
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn,
tex, v calc
CHK: ltgy-crm, sb
calc

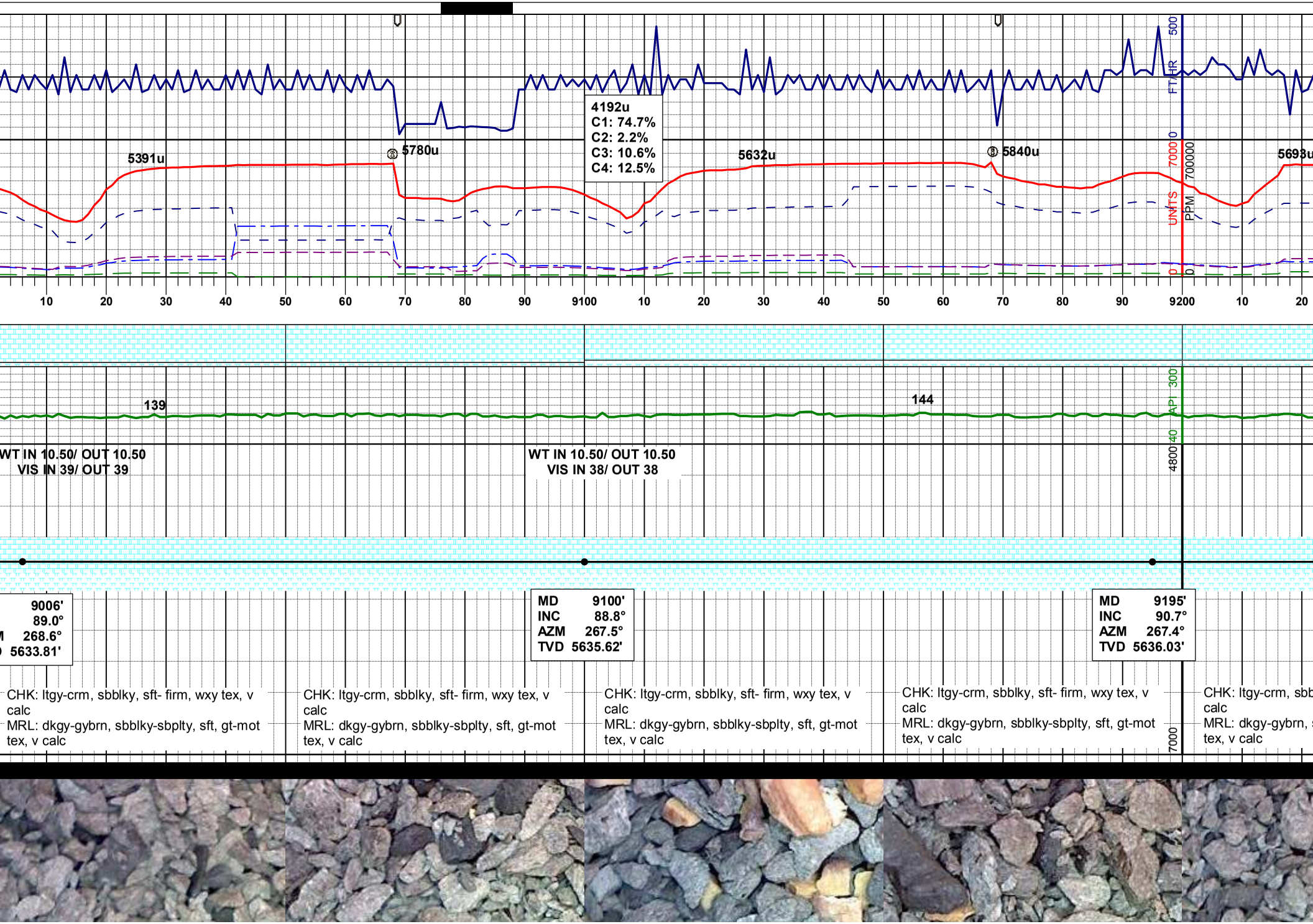

5320u
5476u
5315u
5463u
5509u
C1: 63.4%
C2: 2.5%
C3: 17.1%
C4: 16.9%
5721u
FT/HR
UNITS
PPM
API
190
84
WT IN 10.60/ OUT 10.60
VIS IN 39/ OUT 39
WT IN 10.50/ OUT 10.50
VIS IN 39/ OUT 39
MD 8152'
INC 89.7°
AZM 272.6°
TVD 5645.47'
MD 8247'
INC 91.2°
AZM 273.2°
TVD 5644.73'
MD
INC
AZM
TVD 56
ft
sbblky-sbplty, sft, gt-mot
lky, sft- firm, wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex
calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-
tex, v calc

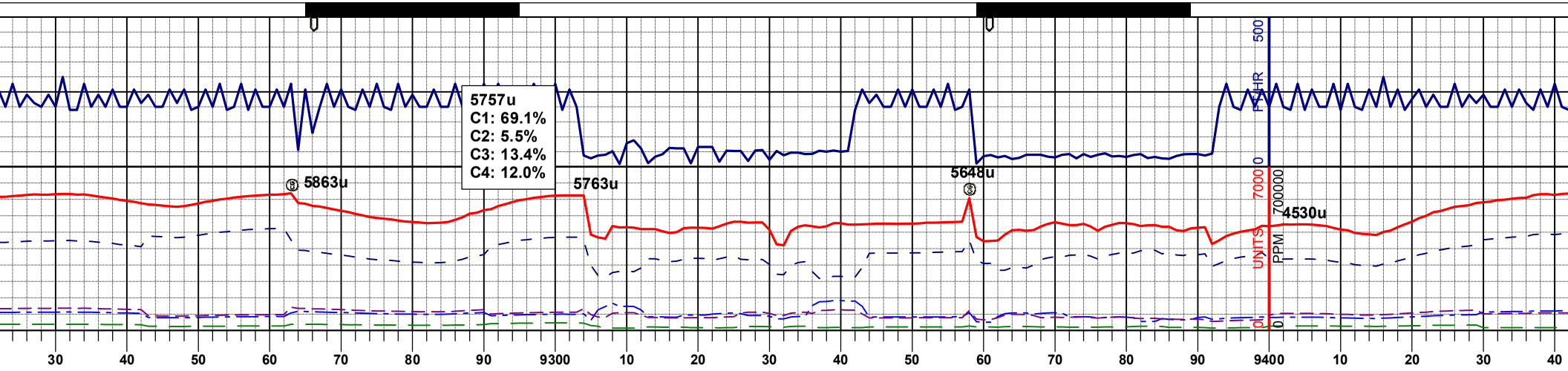

09/20/2013
500
FT/HR
0
7000
700000
UNITS
PPM
0
6
5521u
5715u
5885u
4050u
C1: 69.6%
C2: 4.1%
C3: 14.7%
C4: 11.6%
PATCHED MUD LINE
50
60
70
80
90
8400
10
20
30
40
50
60
70
80
90
8500
10
20
30
40
50
60
300
API
40
120
176
WT IN 10.50/ OUT 10.50
VIS IN 39/ OUT 39
WT IN 10.50/ OUT 10.50
VIS IN 40/ OUT 40
WT IN 10.50/ OUT 10.50
VIS IN 38/ OUT 38
ft
7000
8341'
91.5°
272.1°
42.52'
MD 8436'
INC 92.0°
AZM 271.1°
TVD 5639.62'
MD 8531'
INC 92.2°
AZM 270.5°
TVD 5636.13'
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc

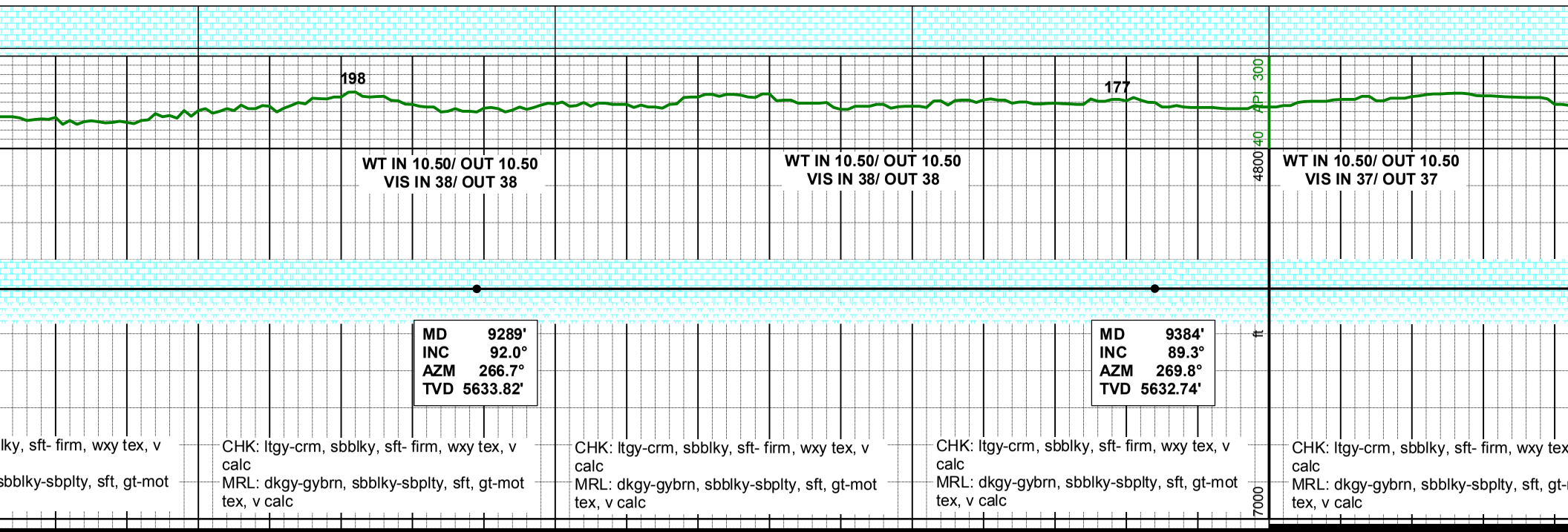

FT/HR
500
0
UNITS
7000
0
PPM
700000
0
5612u
5842u
5552u
5688u
4290u
4525u
C1: 72.4%
C2: 3.5%
C3: 12.3%
C4: 11.8%
70
80
90
8600
10
20
30
40
50
60
70
80
90
8700
10
20
30
40
50
60
70
80
API
300
40
190
206
WT IN 10.50/ OUT 10.50
VIS IN 38/ OUT 38
WT IN 10.45/ OUT 10.45
VIS IN 38/ OUT 38
WT IN 10.5
VIS IN 3
ft
7000
MD 8626'
INC 92.3°
AZM 269.7°
TVD 5632.40'
MD 8721'
INC 91.2°
AZM 269.0°
TVD 5629.50'
-crm, sbblky, sft- firm, wxy tex, v
gy-gybrn, sbblky-sbplty, sft, gt-mot
c
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- fi
calc
MRL: dkgy-gybrn, sbblky-sbp
tex, v calc


FT/HR
500
0
UNITS
7000
0
PPM
700000
0
5792u
4837u
5800u
4766u
C1: 75.1%
C2: 2.5%
C3: 10.7%
C4: 11.7%
5523u
5762u
90
8800
10
20
30
40
50
60
70
80
90
8900
10
20
30
40
50
60
70
80
90
9000


API
300
40
4800
149
0/ OUT 10.50
8/ OUT 38
ft
7000
MD 8816'
INC 88.8°
AZM 268.3°
TVD 5629.50'
MD 8911'
INC 88.5°
AZM 268.3°
TVD 5631.74'
m, wxy tex, v
lty, sft, gt-mot
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc


4192u
C1: 74.7%
C2: 2.2%
C3: 10.6%
C4: 12.5%
5391u
5780u
5632u
5840u
5693u
FT/HR
UNITS
PPM
139
144
API
WT IN 10.50/ OUT 10.50
VIS IN 39/ OUT 39
WT IN 10.50/ OUT 10.50
VIS IN 38/ OUT 38
9006'
89.0°
268.6°
5633.81'
MD 9100'
INC 88.8°
AZM 267.5°
TVD 5635.62'
MD 9195'
INC 90.7°
AZM 267.4°
TVD 5636.03'
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc





lky, sft- firm, wxy tex, v

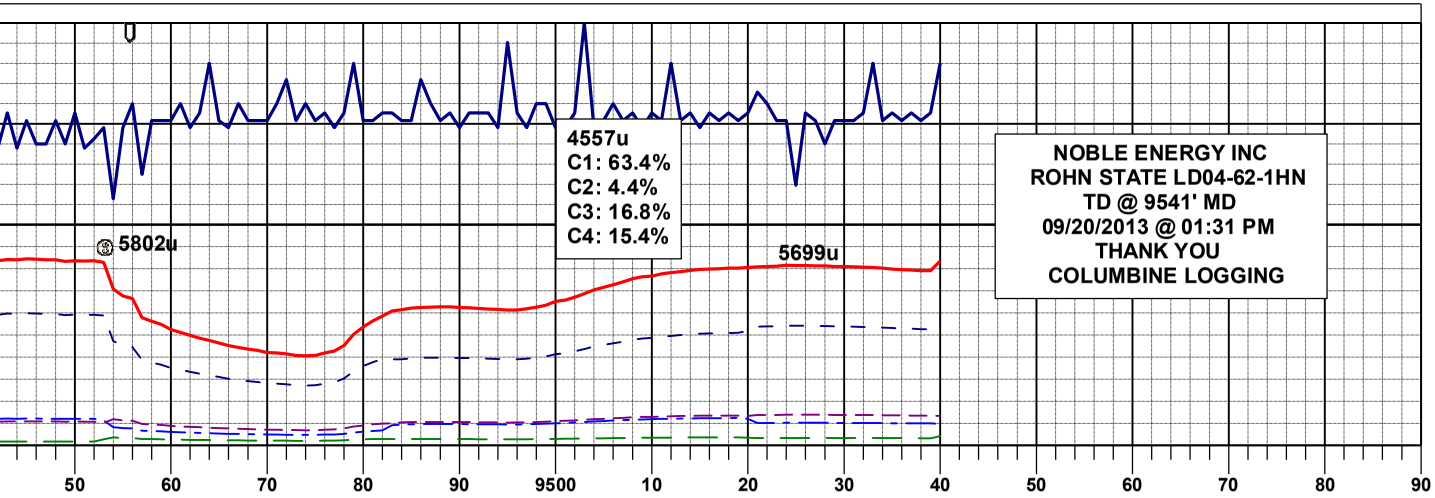
sbblky-sbplty, sft, gt-mot

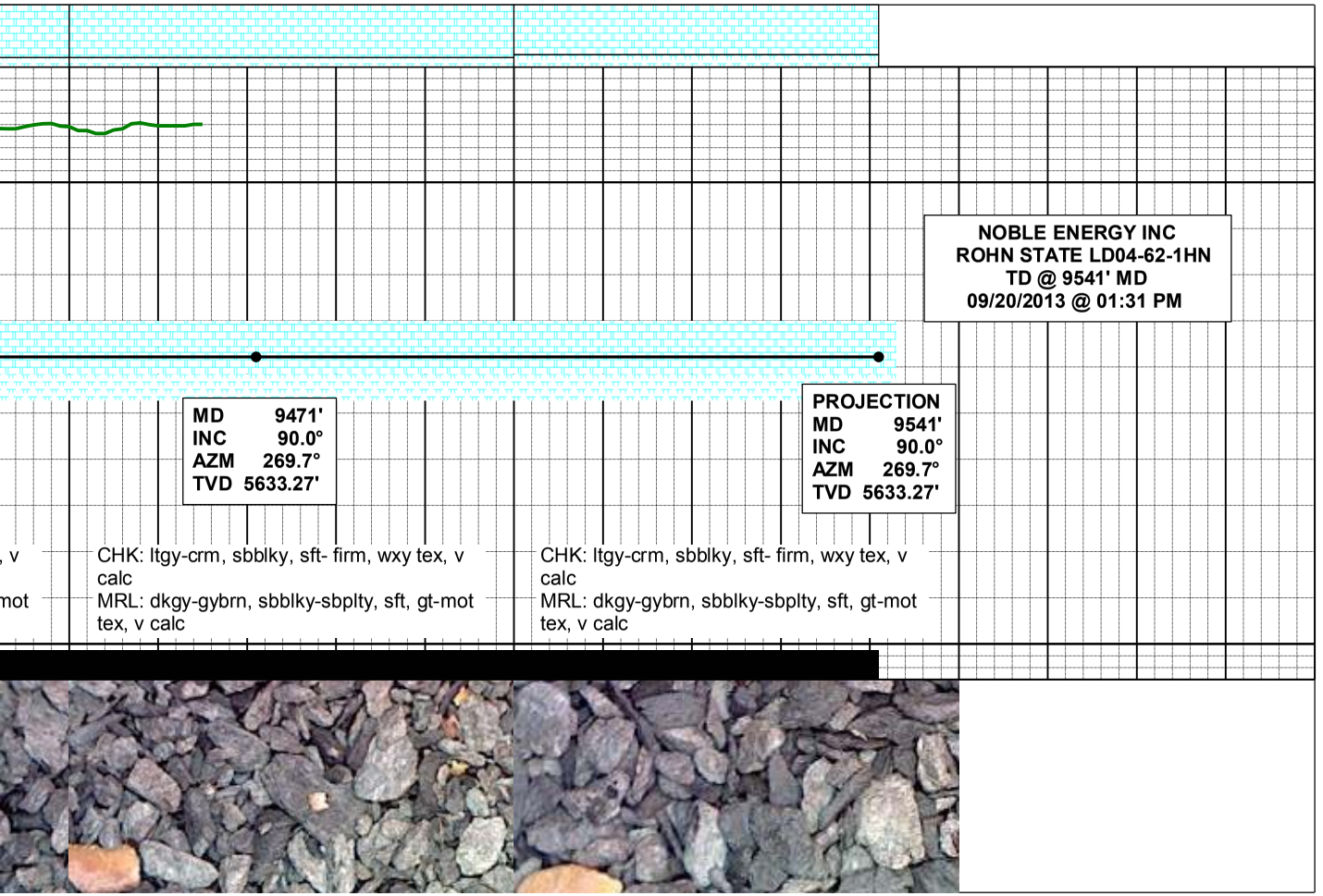
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc

CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc

CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc

CHK: ltgy-crm, sbblky, sft- firm, wxy tex
calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-
tex, v calc


0
4557u
C1: 63.4%
C2: 4.4%
C3: 16.8%
C4: 15.4%
5802u
5699u
NOBLE ENERGY INC
ROHN STATE LD04-62-1HN
TD @ 9541' MD
09/20/2013 @ 01:31 PM
THANK YOU
COLUMBINE LOGGING
50
60
70
80
90
9500
10
20
30
40
50
60
70
80
90


NOBLE ENERGY INC
ROHN STATE LD04-62-1HN
TD @ 9541' MD
09/20/2013 @ 01:31 PM
MD 9471'
INC 90.0°
AZM 269.7°
TVD 5633.27'
PROJECTION
MD 9541'
INC 90.0°
AZM 269.7°
TVD 5633.27'
, v
mot
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc
CHK: ltgy-crm, sbblky, sft- firm, wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, gt-mot tex, v calc