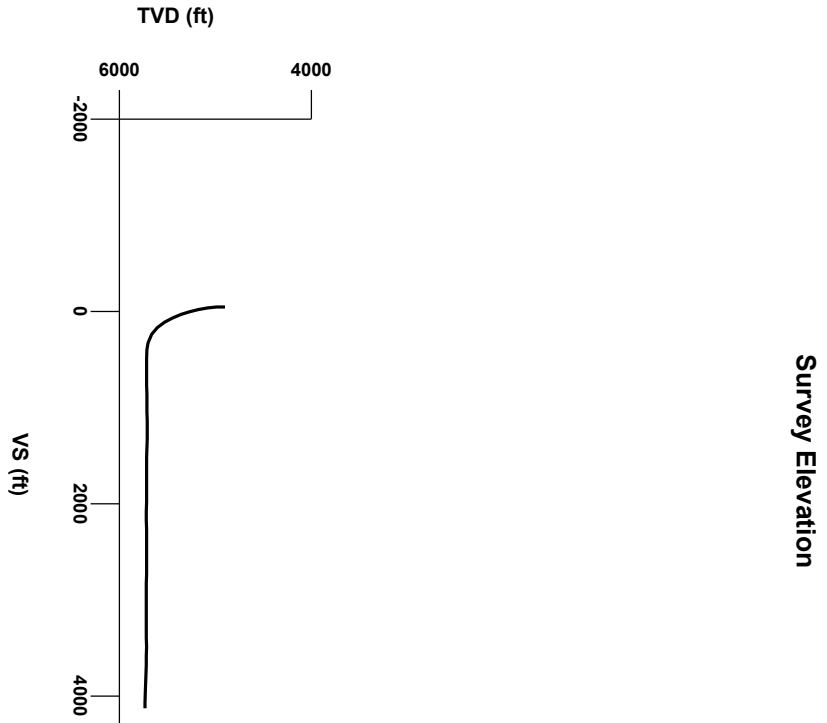
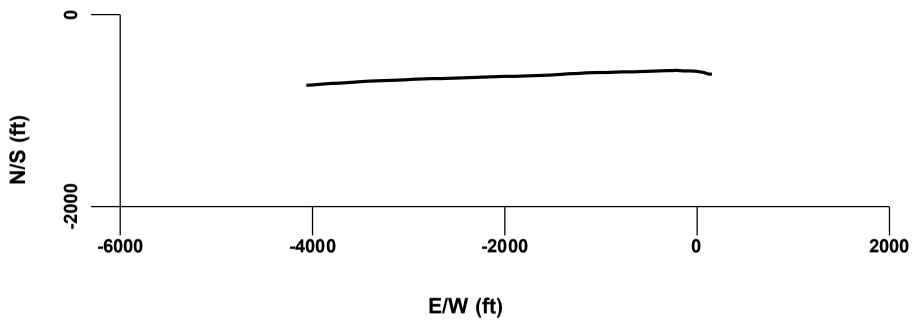
OPERATOR:	**NOBLE ENERGY INC**
WELL:	**ROHN STATE LD04-63HN**
LOCATION:	**SEC 4 T9N R58W**
COUNTY:	**WELD**
STATE:	**COLORADO**
SPOT:	**1952' FSL; 480' FEL**
ELEVATION:	**4709' GL; 4733' KB**
FIELD:	**WILDCAT**
SPUD DATE:	**08/23/2013**
TD DATE:	**08/29/2013**
DATES LOGGED:	**08/25/2013 - 08/29/2013**
DEPTHS LOGGED:	**4988' - 9758' MD**
LOGGERS:	**LAURA KELLOGG; CONOR PESICKA**
DRILLING FLUID:	**LSND**
DRILLING RIG:	**H&P 273**
API:	**05-123-37448**
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

Casing

Midnight Depth

Connection Gas

COLUMBINE LOGGING INC.
RIGGED UP ON 08/23/2013
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0540
COLUMBINE BEGAN LOGGING
ON 08/23/2013

08/25/2013

ROP FT/HR 0 500

GAS UNITS 0 2000 | C1 PPM 0 200000 | C2 PPM 0 200000 | C3 PPM 0 200000 | C4 PPM 0 200000

BHA BIT:
SEC 8.75" FXD55
Serial #: 12072493
Jets: 5x14

BEGAN DRILLING CURVE
@ 11:42 PM 08/24/2013

REPLACED
AGITATOR

880u

DEPTH (FEET) 4940 50 60 70 80 90 5000 10 20 30 40 50 60 70 80 90

CUTTINGS LITHOLOGY

GAMMA RAY API 40 300

112

TVD ft 4800 7000

MD 4976'
INC 1.1°
AZM 124.5°
TVD 4901.33'

MD 5071'
INC 2.6°
AZM 266.2°
TVD 4996.30'

WT IN 10.10/ OUT 10.10
VIS IN 40/ OUT 40

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

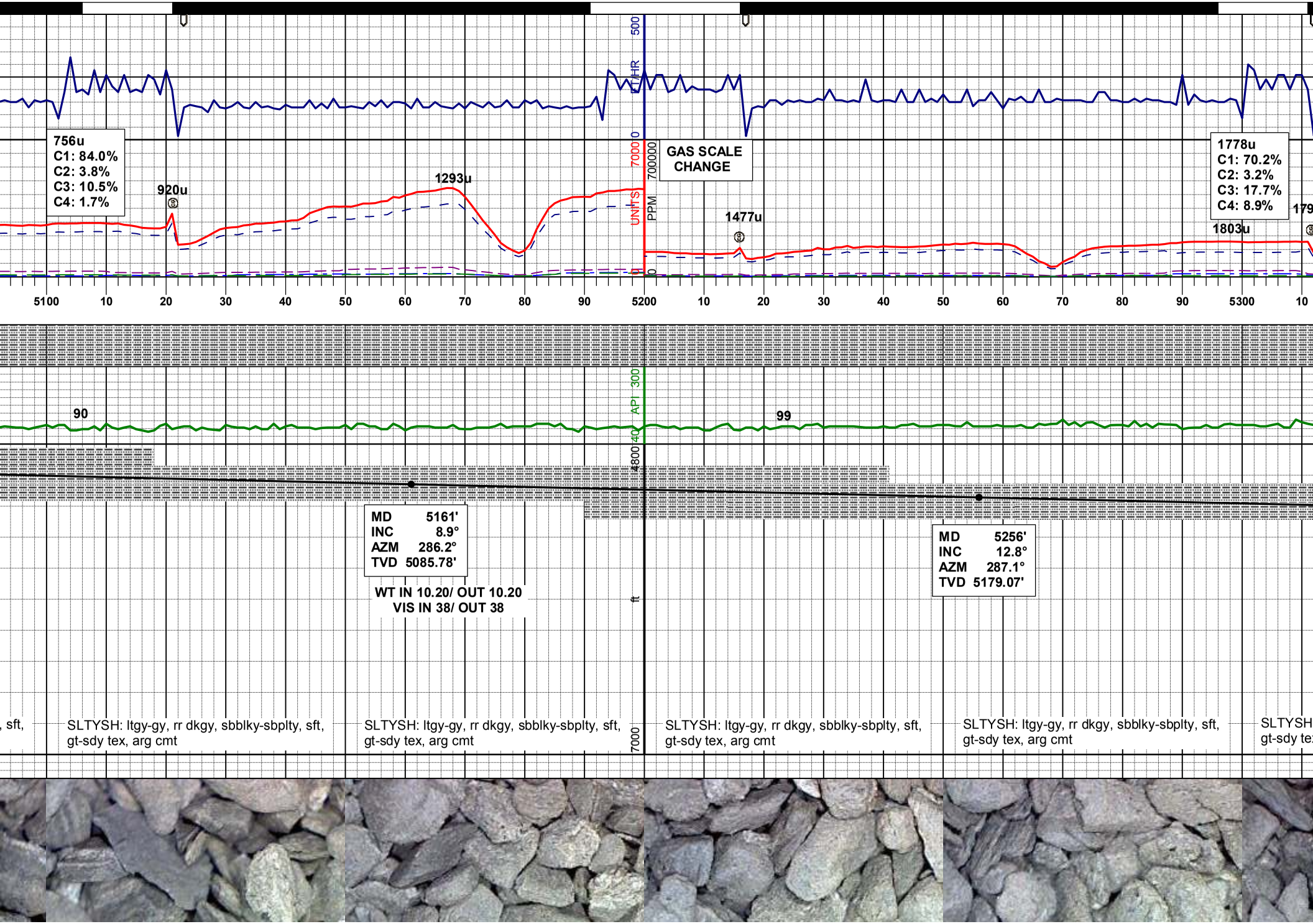
The ratings are based on 7 descriptors: None, Slight trace, Trace,Fair, Moderate, Good, and Excellent.The descriptor used is based on the loggers observations and best judgment of brilliance, color and longevity of the cut.

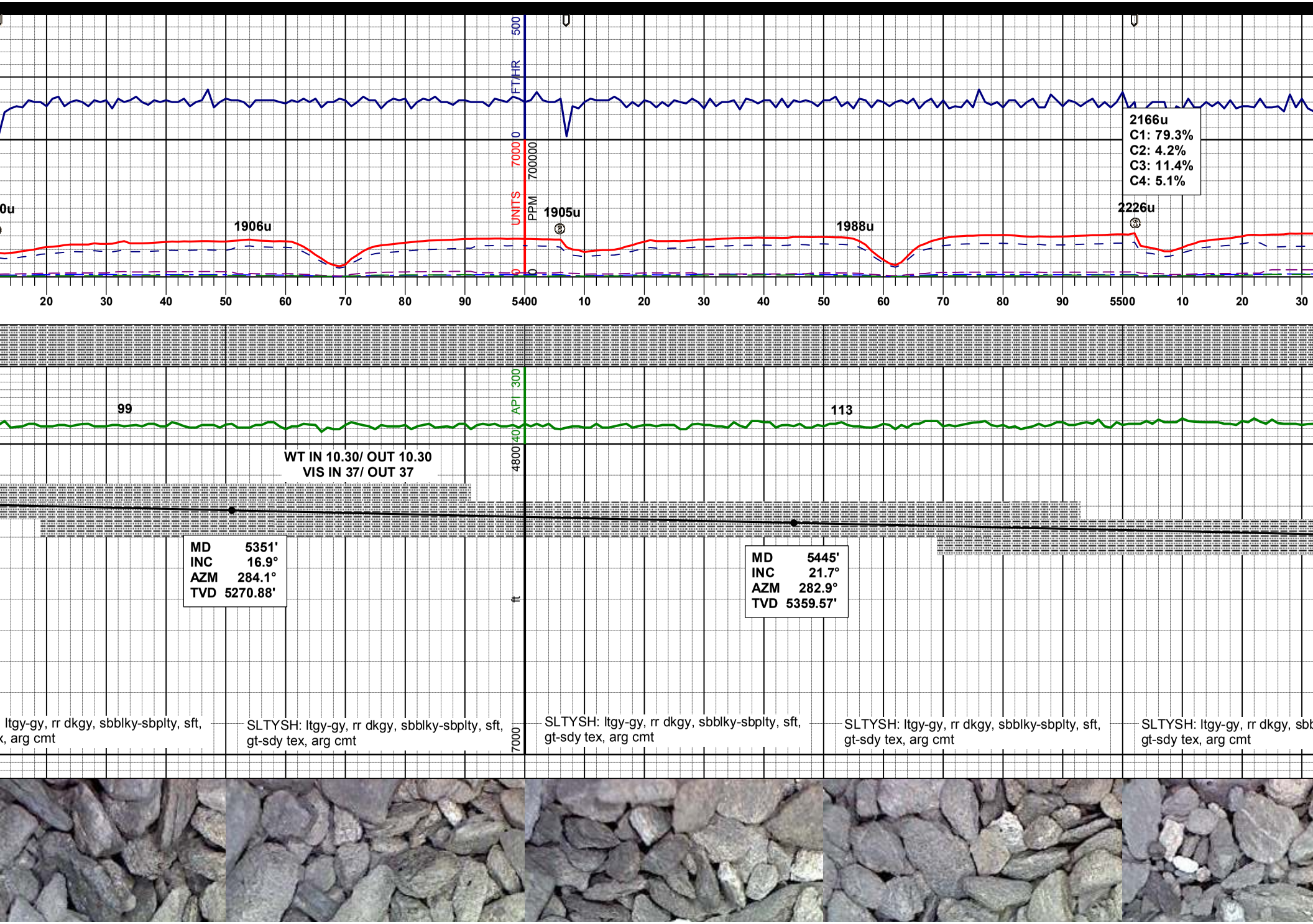
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, spar ip, tr pyr

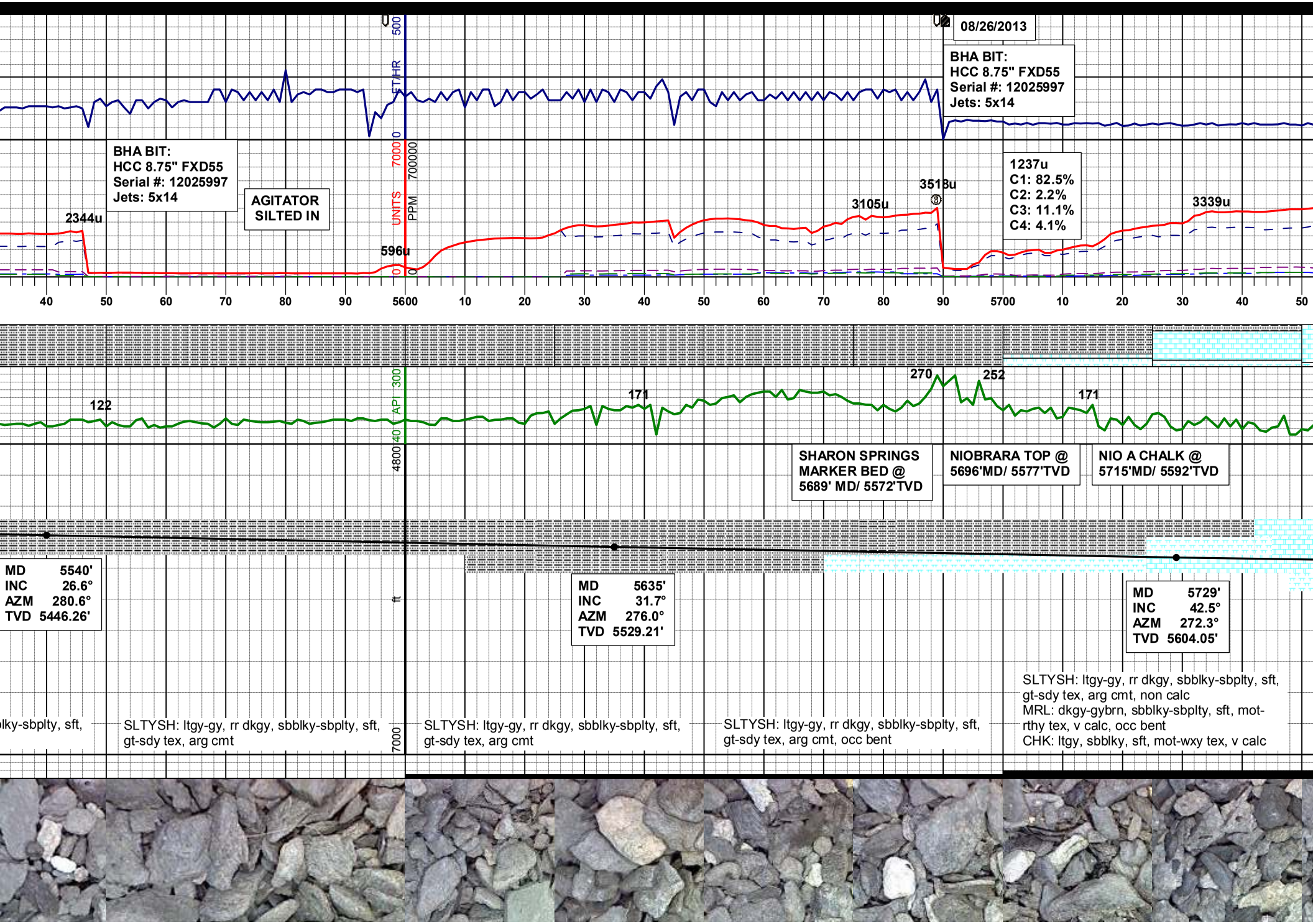
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty gt-sdy tex, arg cmt

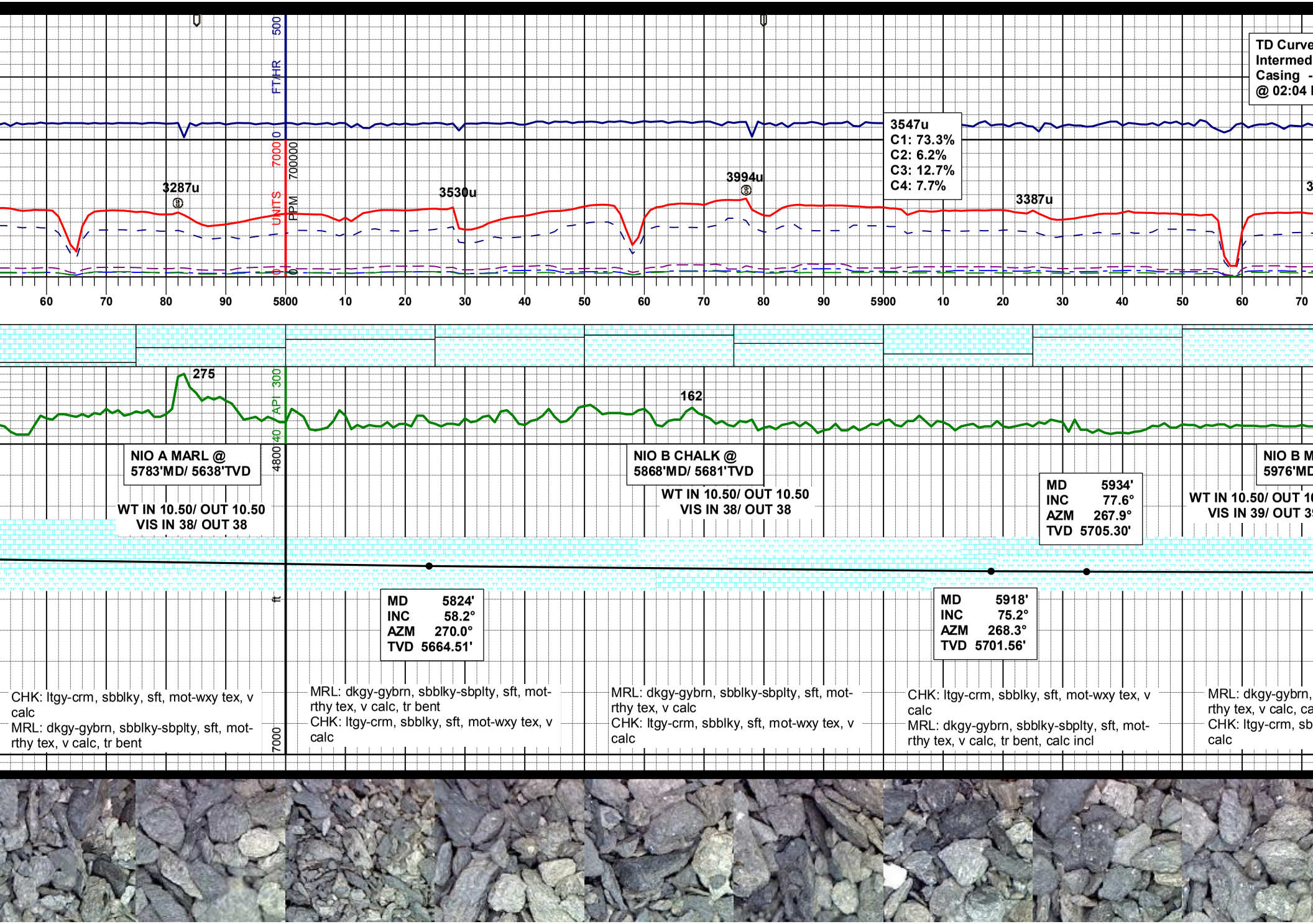
OIL SHOWS TFG

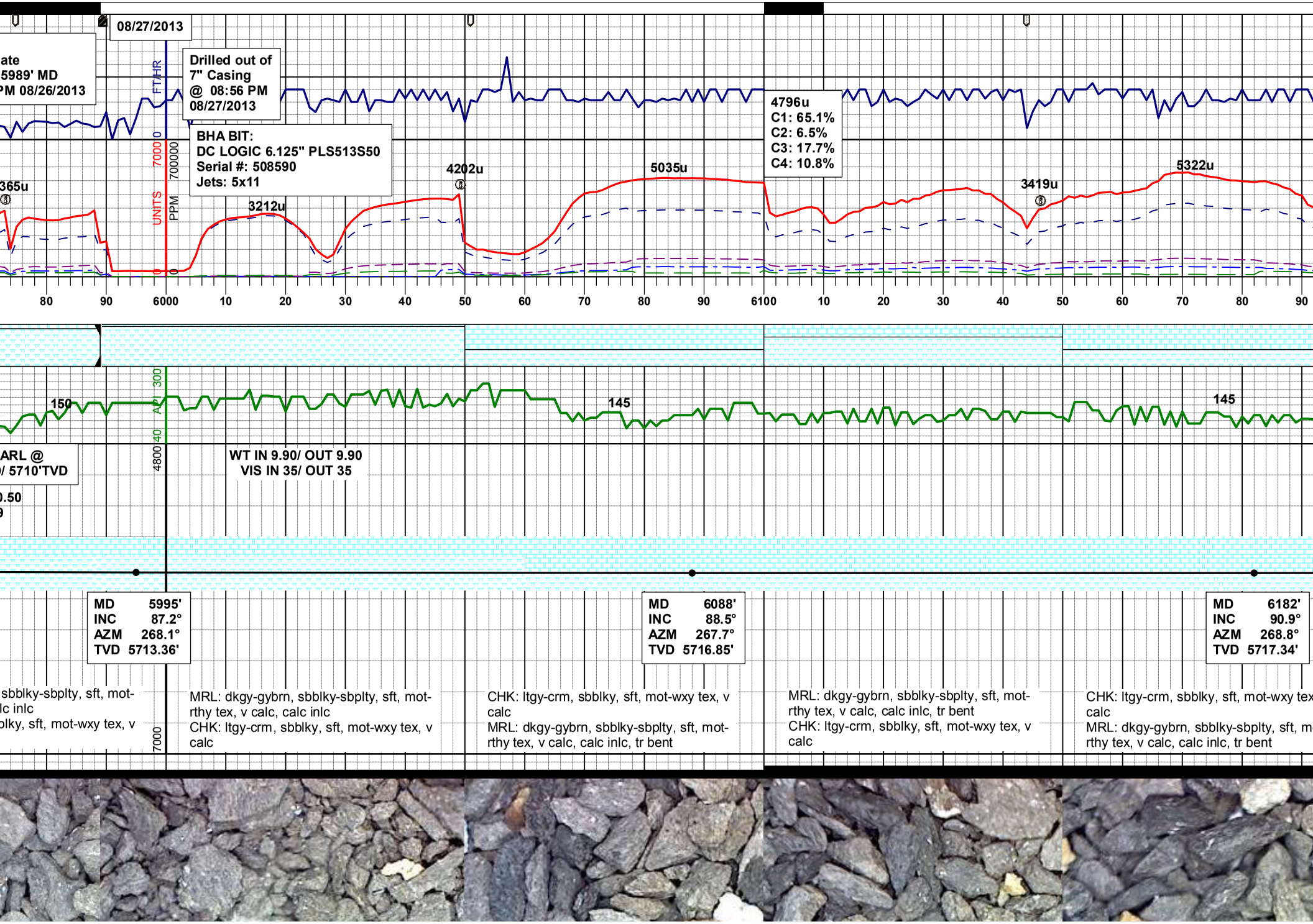
SAMPLE PHOTOS


500
ETHR
0
7000
700000
UNITS
PPM
0
GAS SCALE CHANGE
756u
C1: 84.0%
C2: 3.8%
C3: 10.5%
C4: 1.7%
920u
1293u
1477u
1778u
C1: 70.2%
C2: 3.2%
C3: 17.7%
C4: 8.9%
1803u
5100
10
20
30
40
50
60
70
80
90
5200
10
20
30
40
50
60
70
80
90
5300
10
300
API
40
90
99
4800
ft
MD 5161'
INC 8.9°
AZM 286.2°
TVD 5085.78'
WT IN 10.20/ OUT 10.20
VIS IN 38/ OUT 38
MD 5256'
INC 12.8°
AZM 287.1°
TVD 5179.07'
7000
, sft,
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt
SLTYSH
gt-sdy te


FT/HR
500
0
UNITS
7000
0
PPM
700000
0
1906u
1905u
1988u
2166u
C1: 79.3%
C2: 4.2%
C3: 11.4%
C4: 5.1%
2226u
20
30
40
50
60
70
80
90
5400
10
20
30
40
50
60
70
80
90
5500
10
20
30
API
300
40
99
113
WT IN 10.30/ OUT 10.30
VIS IN 37/ OUT 37
4800
ft
MD 5351'
INC 16.9°
AZM 284.1°
TVD 5270.88'
MD 5445'
INC 21.7°
AZM 282.9°
TVD 5359.57'
7000
ltgy-gy, rr dkgy, sbblky-sbplty, sft,
x, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft,
gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft,
gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft,
gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbb
gt-sdy tex, arg cmt


08/26/2013
BHA BIT:
HCC 8.75" FXD55
Serial #: 12025997
Jets: 5x14
BHA BIT:
HCC 8.75" FXD55
Serial #: 12025997
Jets: 5x14
AGITATOR
SILTED IN
FT/HR
UNITS
PPM
2344u
596u
3105u
3518u
1237u
C1: 82.5%
C2: 2.2%
C3: 11.1%
C4: 4.1%
3339u
40
50
60
70
80
90
5600
10
20
30
40
50
60
70
80
90
5700
10
20
30
40
50
API
122
171
270
252
171
SHARON SPRINGS
MARKER BED @
5689' MD/ 5572'TVD
NIOBRARA TOP @
5696'MD/ 5577'TVD
NIO A CHALK @
5715'MD/ 5592'TVD
ft
MD 5540'
INC 26.6°
AZM 280.6°
TVD 5446.26'
MD 5635'
INC 31.7°
AZM 276.0°
TVD 5529.21'
MD 5729'
INC 42.5°
AZM 272.3°
TVD 5604.05'
lky-sbplty, sft,
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, occ bent
SLTYSH: ltgy-gy, rr dkgy, sbblky-sbplty, sft, gt-sdy tex, arg cmt, non calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, occ bent
CHK: ltgy, sbblky, sft, mot-wxy tex, v calc


TD Curve
Intermed
Casing -
@ 02:04
3547u
C1: 73.3%
C2: 6.2%
C3: 12.7%
C4: 7.7%
3287u
3530u
3994u
3387u
FT/HR
UNITS
PPM
500
0
7000
0
700000
60
70
80
90
5800
10
20
30
40
50
60
70
80
90
5900
10
20
30
40
50
60
70
275
162
API
300
40
4800
NIO A MARL @
5783'MD/ 5638'TVD
WT IN 10.50/ OUT 10.50
VIS IN 38/ OUT 38
NIO B CHALK @
5868'MD/ 5681'TVD
WT IN 10.50/ OUT 10.50
VIS IN 38/ OUT 38
NIO B M
5976'MD
WT IN 10.50/ OUT 10
VIS IN 39/ OUT 3
MD 5934'
INC 77.6°
AZM 267.9°
TVD 5705.30'
MD 5824'
INC 58.2°
AZM 270.0°
TVD 5664.51'
MD 5918'
INC 75.2°
AZM 268.3°
TVD 5701.56'
ft
7000
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, tr bent
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, tr bent
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, tr bent, calc incl
MRL: dkgy-gybrn,
rthy tex, v calc, ca
CHK: ltgy-crm, sb
calc


ate
5989' MD
PM 08/26/2013
08/27/2013
Drilled out of
7" Casing
@ 08:56 PM
08/27/2013
BHA BIT:
DC LOGIC 6.125" PLS513S50
Serial #: 508590
Jets: 5x11
FT/HR
UNITS
PPM
7000
0
700000
0
365u
3212u
4202u
5035u
4796u
C1: 65.1%
C2: 6.5%
C3: 17.7%
C4: 10.8%
3419u
5322u
80
90
6000
10
20
30
40
50
60
70
80
90
6100
10
20
30
40
50
60
70
80
90
API
300
40
4800
7000
150
145
145
ARL @
/ 5710'TVD
.50
9
WT IN 9.90/ OUT 9.90
VIS IN 35/ OUT 35
MD 5995'
INC 87.2°
AZM 268.1°
TVD 5713.36'
MD 6088'
INC 88.5°
AZM 267.7°
TVD 5716.85'
MD 6182'
INC 90.9°
AZM 268.8°
TVD 5717.34'
sbblky-sbplty, sft, mot-
lc inlc
blky, sft, mot-wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex
calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, m
rthy tex, v calc, calc inlc, tr bent

08/28/2013

4748u
C1: 67.5%
C2: 6.6%
C3: 17.1%
C4: 8.9%

4868u
4663u
5403u
4712u

FT/HR 500 0
UNITS 7000 0
RPM 700000 0
PPM 700000 0

6200 10 20 30 40 50 60 70 80 90 6300 10 20 30 40 50 60 70 80 90 6400 10

API 300 40

154
164

WT IN 10.00/ OUT 10.00
VIS IN 34/ OUT 34

WT IN 10.00/ OUT 10.00
VIS IN 33/ OUT 33

4800 ft 7000

MD	6275'
INC	90.0°
AZM	267.7°
TVD	5716.61'

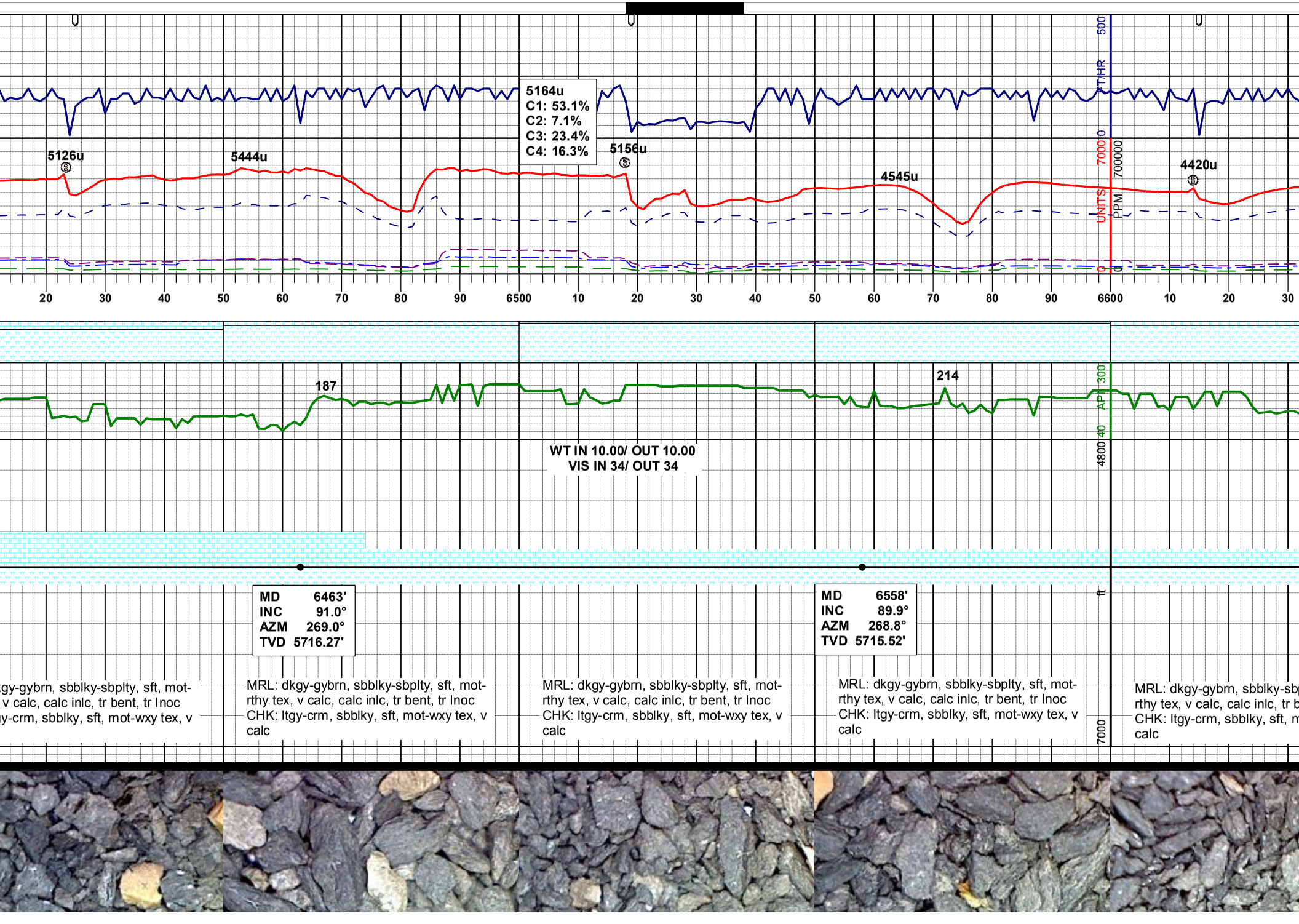
MD	6368'
INC	89.7°
AZM	268.8°
TVD	5716.85'

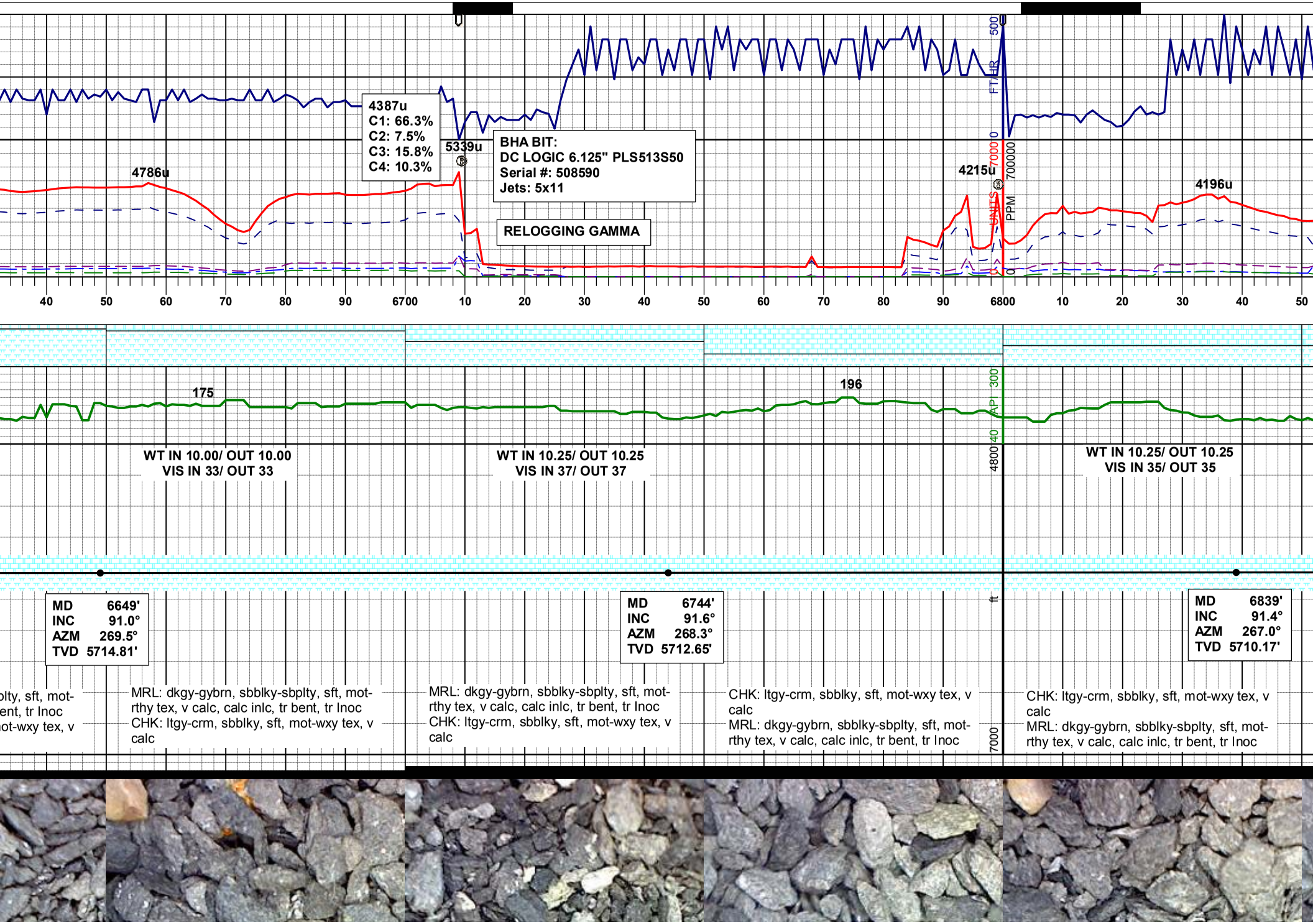
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent

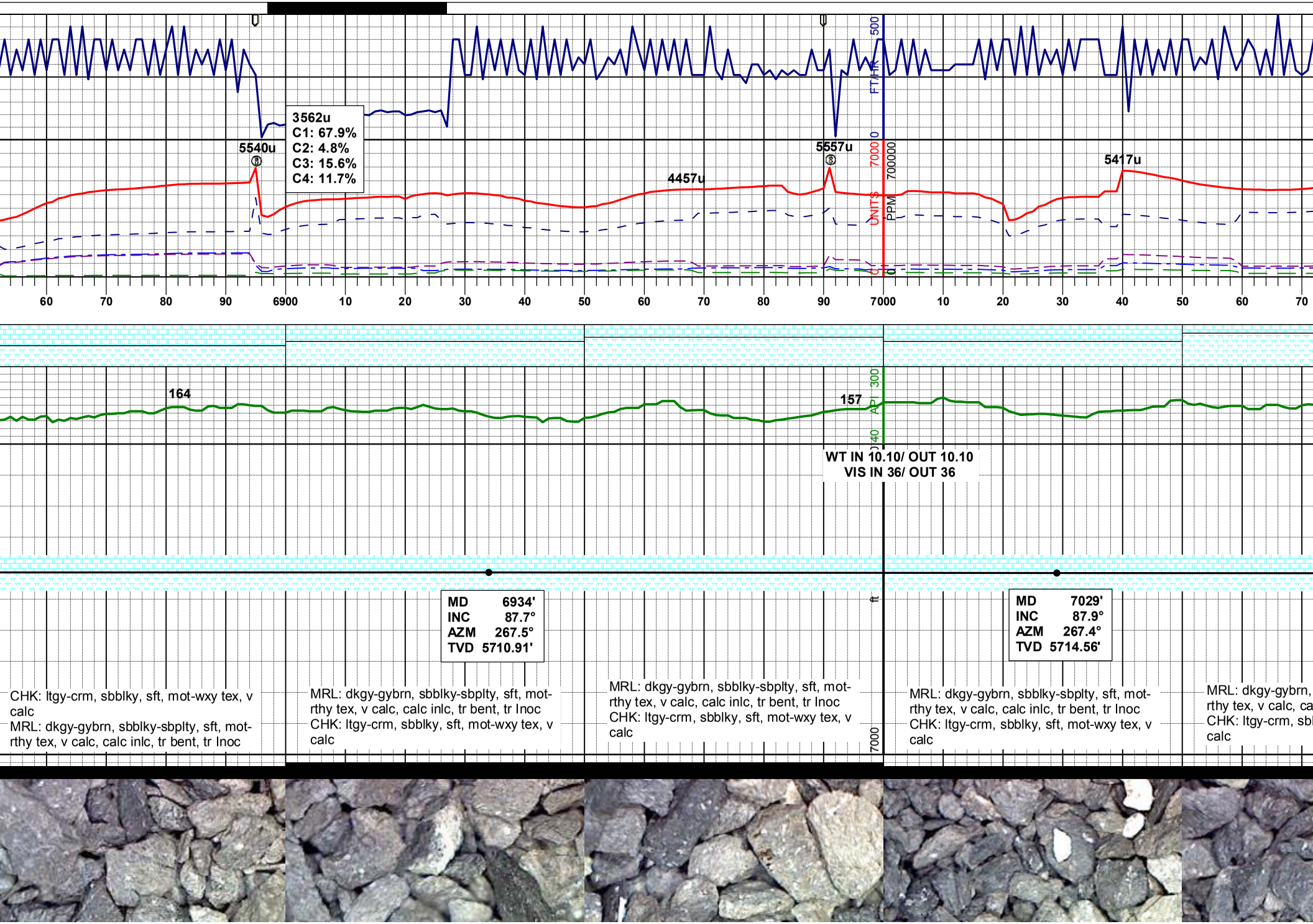
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent

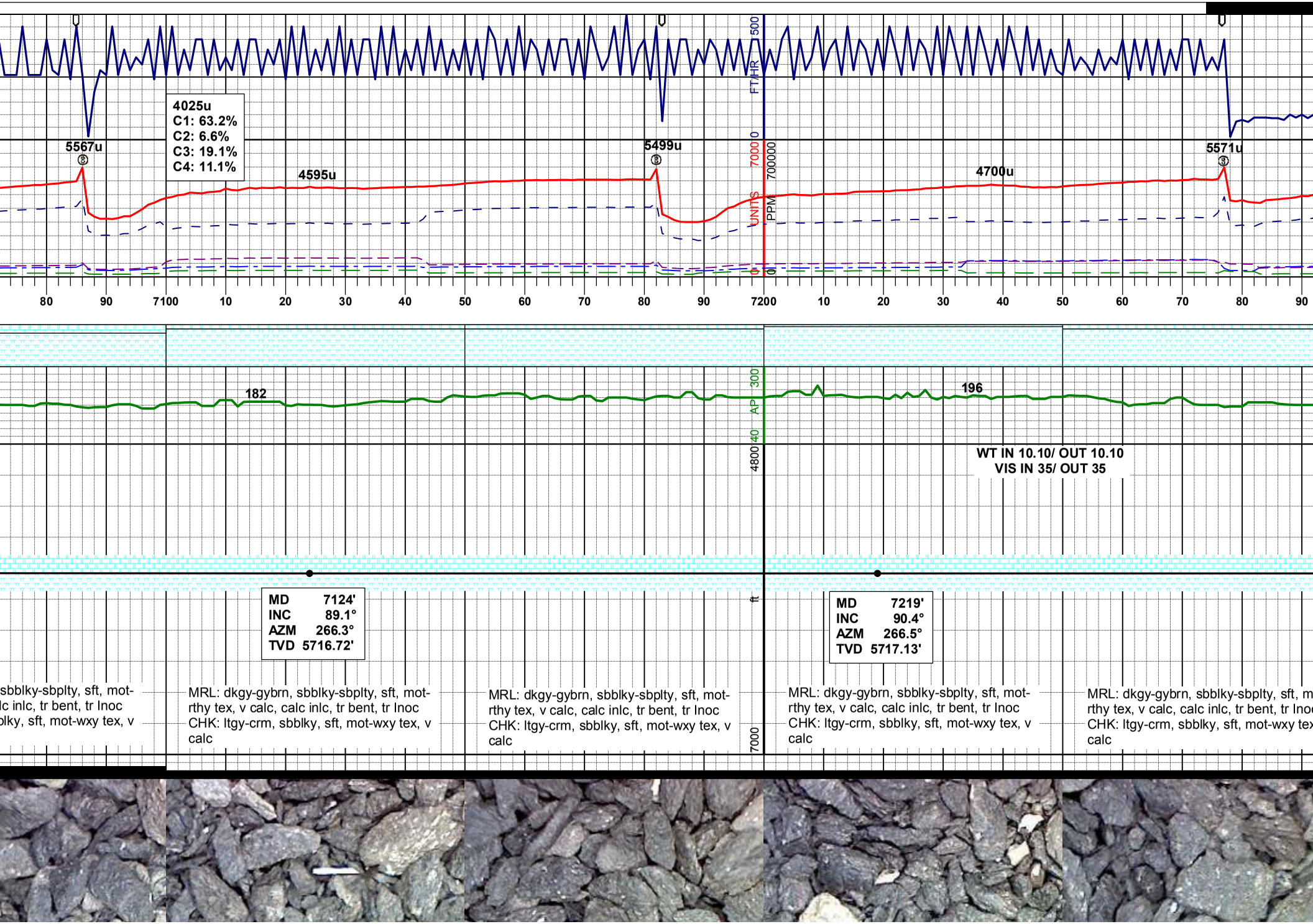
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr lnoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

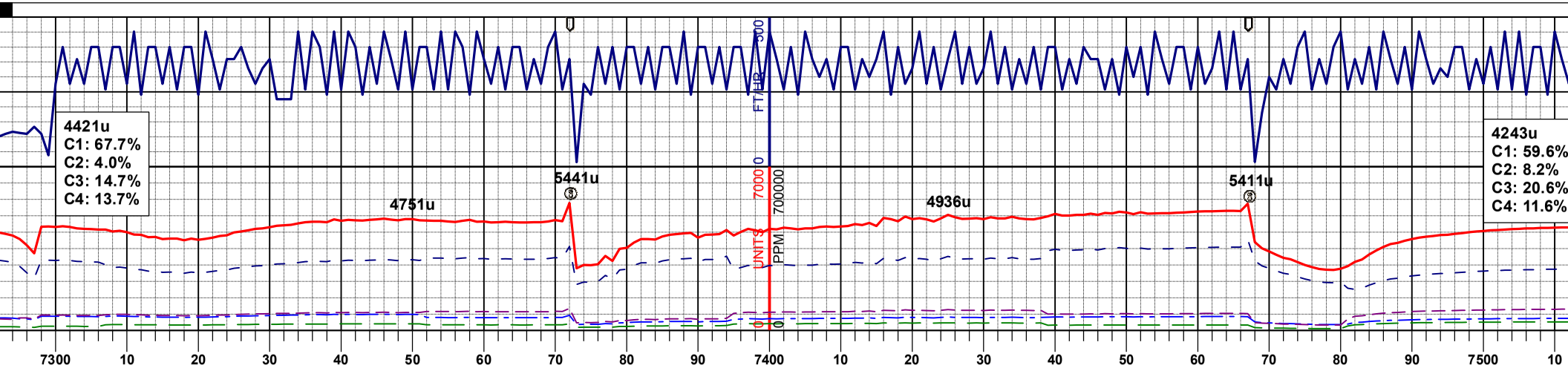
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr lnoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

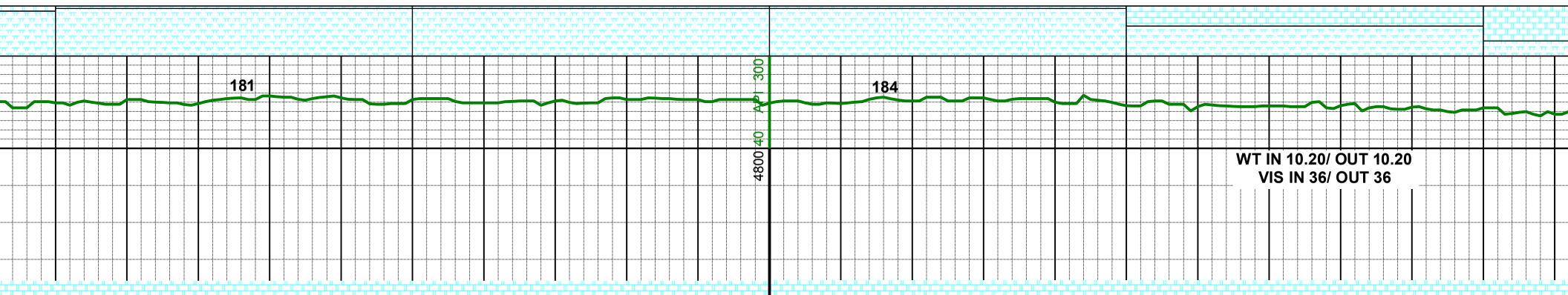

5164u
C1: 53.1%
C2: 7.1%
C3: 23.4%
C4: 16.3%
5126u
5444u
5156u
4545u
4420u
FT/HR
UNITS
PPM
187
214
API
WT IN 10.00/ OUT 10.00
VIS IN 34/ OUT 34
MD 6463'
INC 91.0°
AZM 269.0°
TVD 5716.27'
MD 6558'
INC 89.9°
AZM 268.8°
TVD 5715.52'
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr lnoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
ft


4387u
C1: 66.3%
C2: 7.5%
C3: 15.8%
C4: 10.3%
5339u
BHA BIT:
DC LOGIC 6.125" PLS513S50
Serial #: 508590
Jets: 5x11
RELOGGING GAMMA
4786u
4215u
4196u
FT/HR
UNITS
PPM
500
0
7000
0
700000
40
50
60
70
80
90
6700
10
20
30
40
50
60
70
80
90
6800
10
20
30
40
50
175
196
API
300
40
4800
7000
ft
WT IN 10.00/ OUT 10.00
VIS IN 33/ OUT 33
WT IN 10.25/ OUT 10.25
VIS IN 37/ OUT 37
WT IN 10.25/ OUT 10.25
VIS IN 35/ OUT 35
MD 6649'
INC 91.0°
AZM 269.5°
TVD 5714.81'
MD 6744'
INC 91.6°
AZM 268.3°
TVD 5712.65'
MD 6839'
INC 91.4°
AZM 267.0°
TVD 5710.17'
lty, sft, mot-
ent, tr Inoc
ot-wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc


3562u
C1: 67.9%
C2: 4.8%
C3: 15.6%
C4: 11.7%
5540u
4457u
5557u
5417u
FT/HR
UNITS
PPM
60
70
80
90
6900
10
20
30
40
50
60
70
80
90
7000
10
20
30
40
50
60
70
164
157
API
WT IN 10.10/ OUT 10.10
VIS IN 36/ OUT 36
MD 6934'
INC 87.7°
AZM 267.5°
TVD 5710.91'
MD 7029'
INC 87.9°
AZM 267.4°
TVD 5714.56'
ft
7000
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn,
CHK: ltgy-crm, sb
calc


4025u
C1: 63.2%
C2: 6.6%
C3: 19.1%
C4: 11.1%
5567u
4595u
5499u
4700u
5571u
FT/HR
UNITS
PPM
500
0
7000
0
700000
0
80
90
7100
10
20
30
40
50
60
70
80
90
7200
10
20
30
40
50
60
70
80
90
182
196
AP
300
40
4800
WT IN 10.10/ OUT 10.10
VIS IN 35/ OUT 35
ft
7000
MD 7124'
INC 89.1°
AZM 266.3°
TVD 5716.72'
MD 7219'
INC 90.4°
AZM 266.5°
TVD 5717.13'
sbblky-sbplty, sft, mot-
lc inlc, tr bent, tr Inoc
olky, sft, mot-wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-
rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v
calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-
rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v
calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-
rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v
calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, m
rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex
calc





MD	7313'
INC	88.5°
AZM	268.6°
TVD	5718.03'

MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

ft
7000

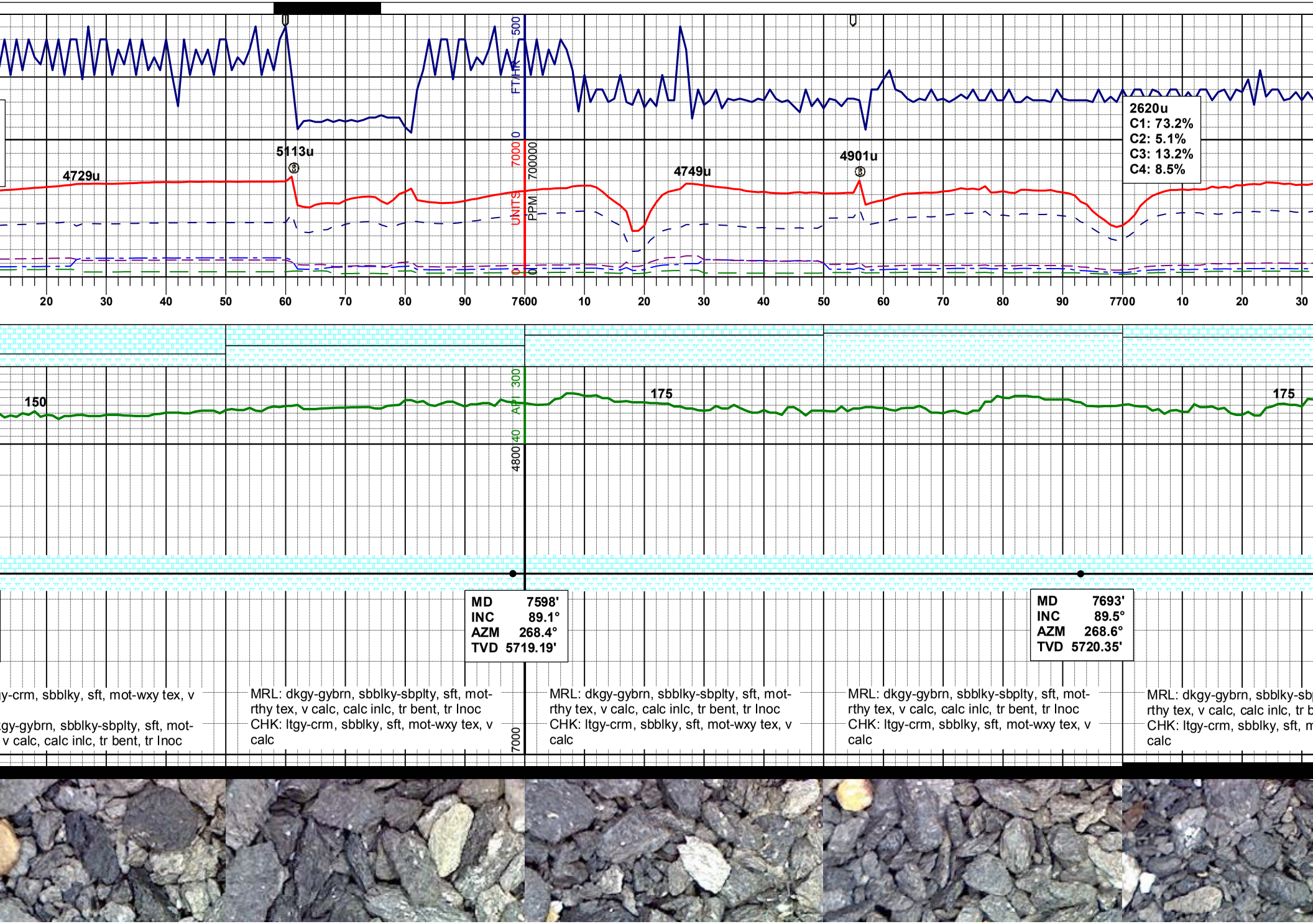
MD	7408'
INC	89.7°
AZM	268.3°
TVD	5719.53'

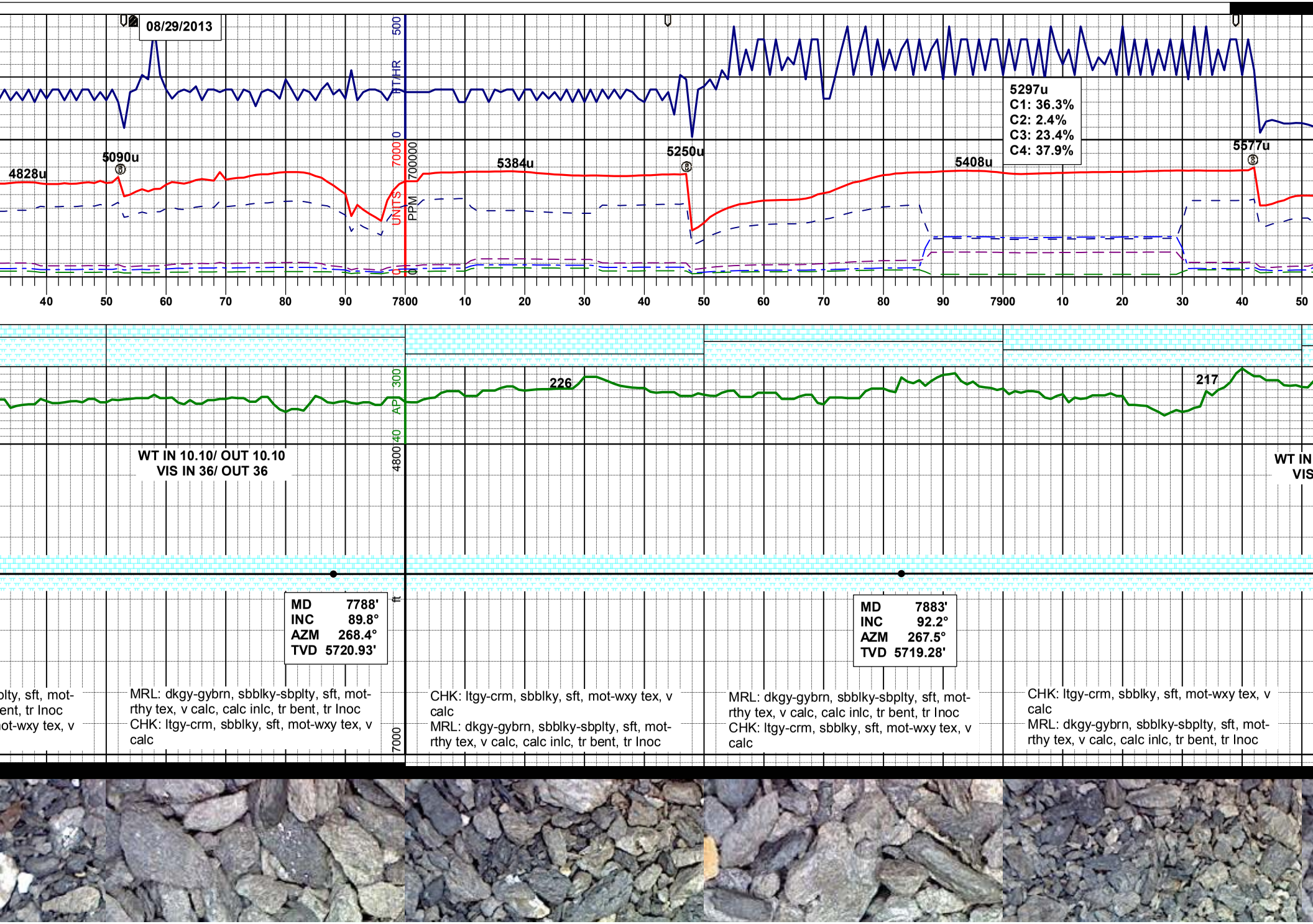
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

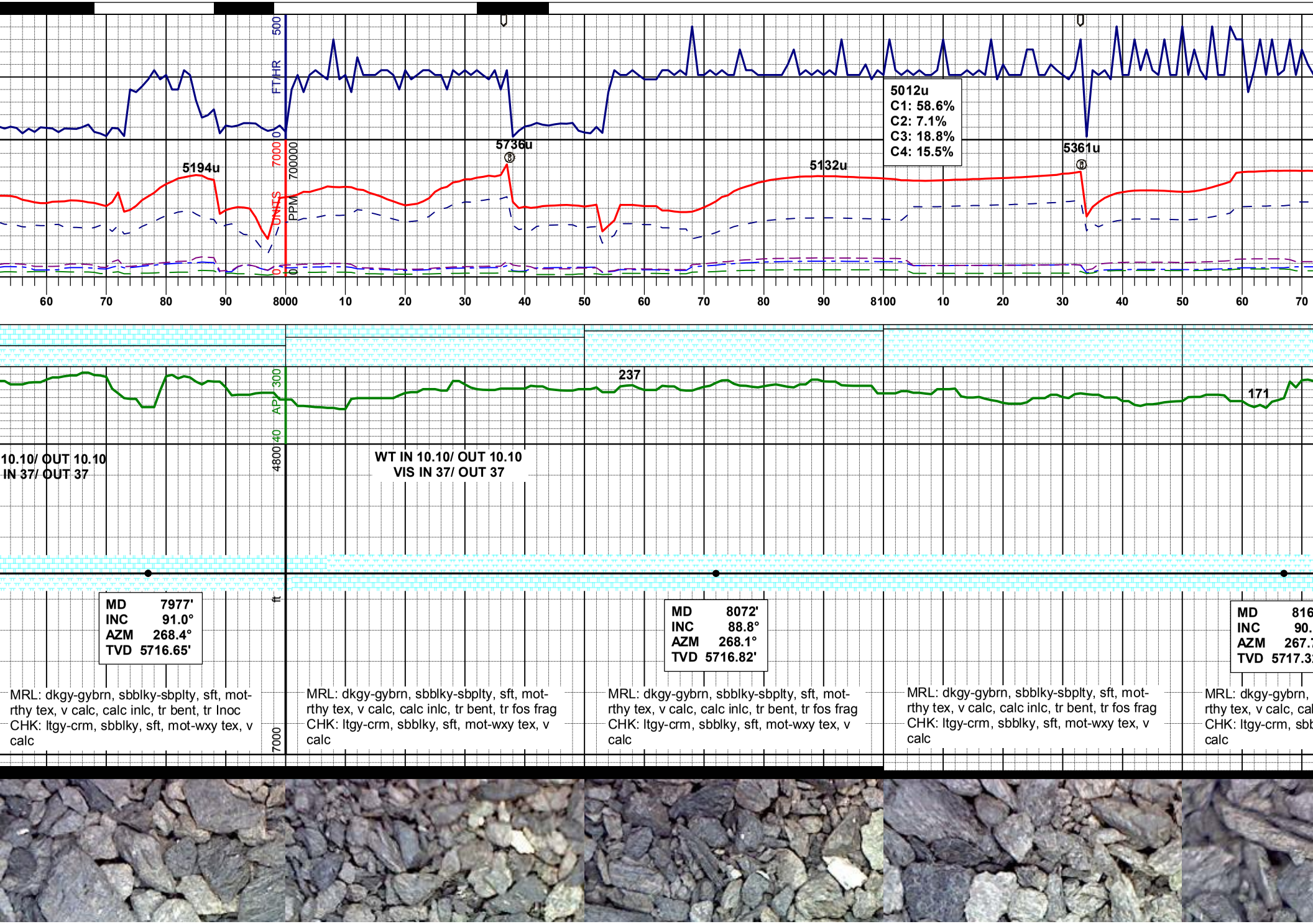
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

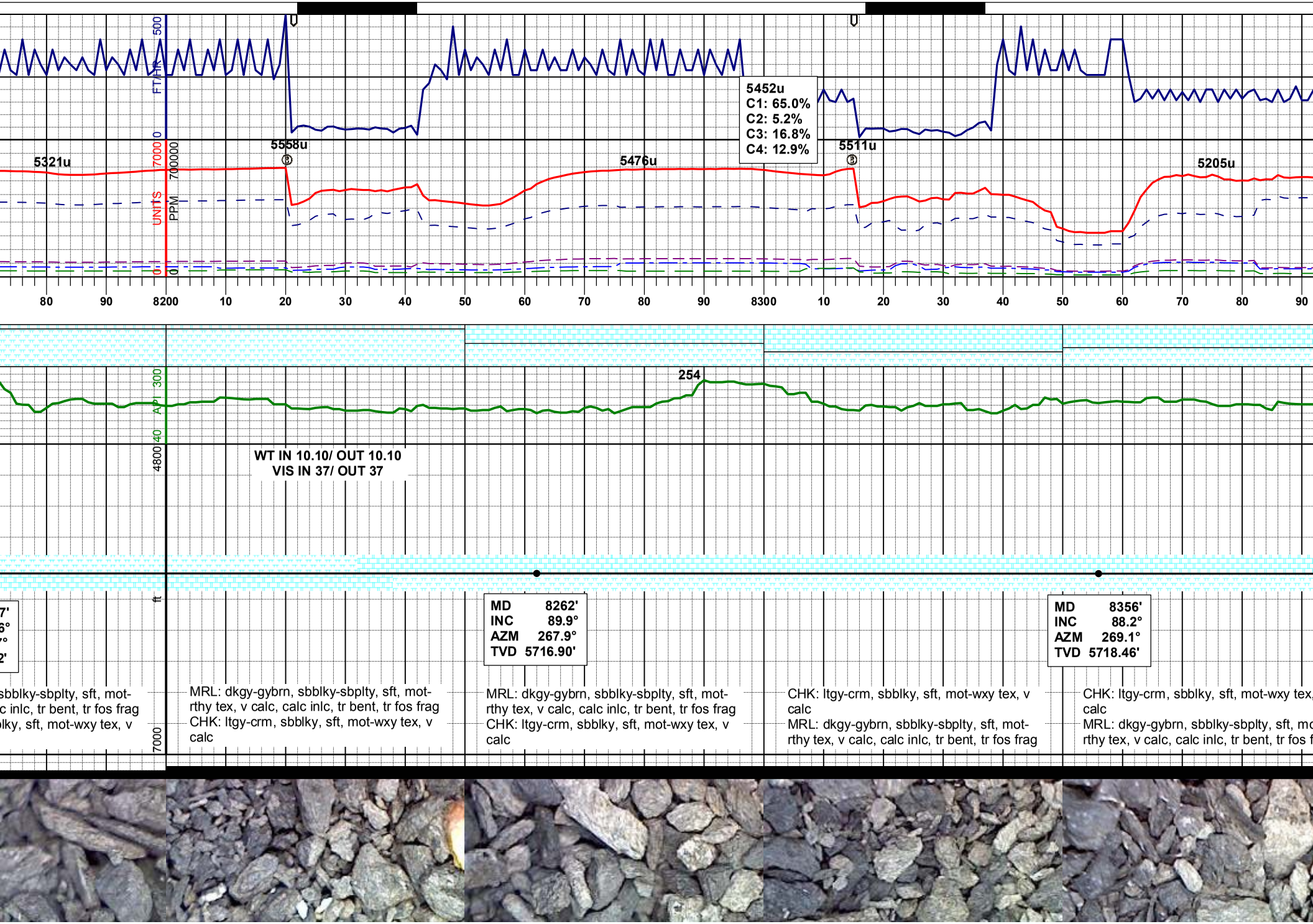
MD	7503'
INC	90.8°
AZM	267.5°
TVD	5719.11'

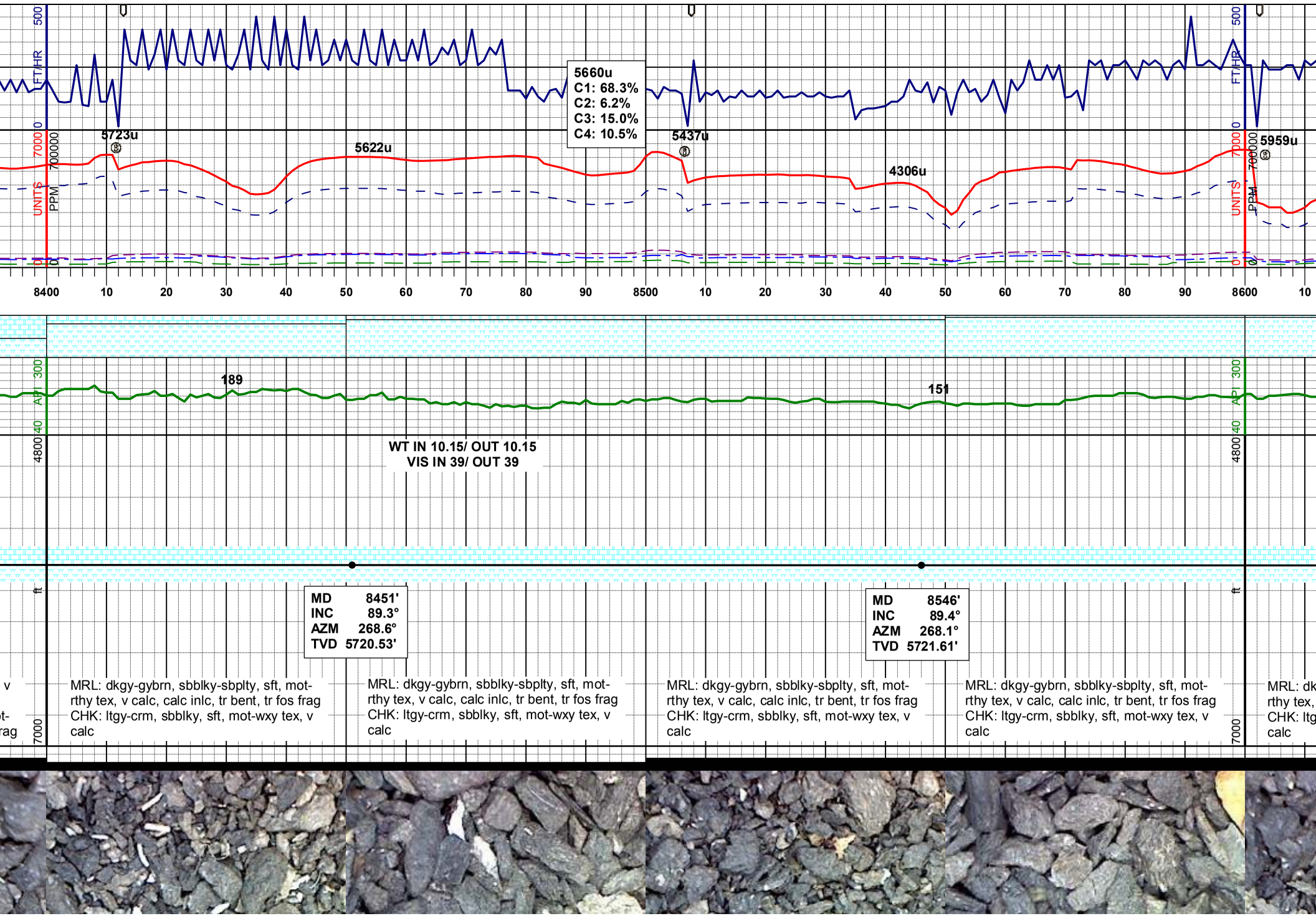
CHK: ltg
calc
MRL: dk
rthy tex,

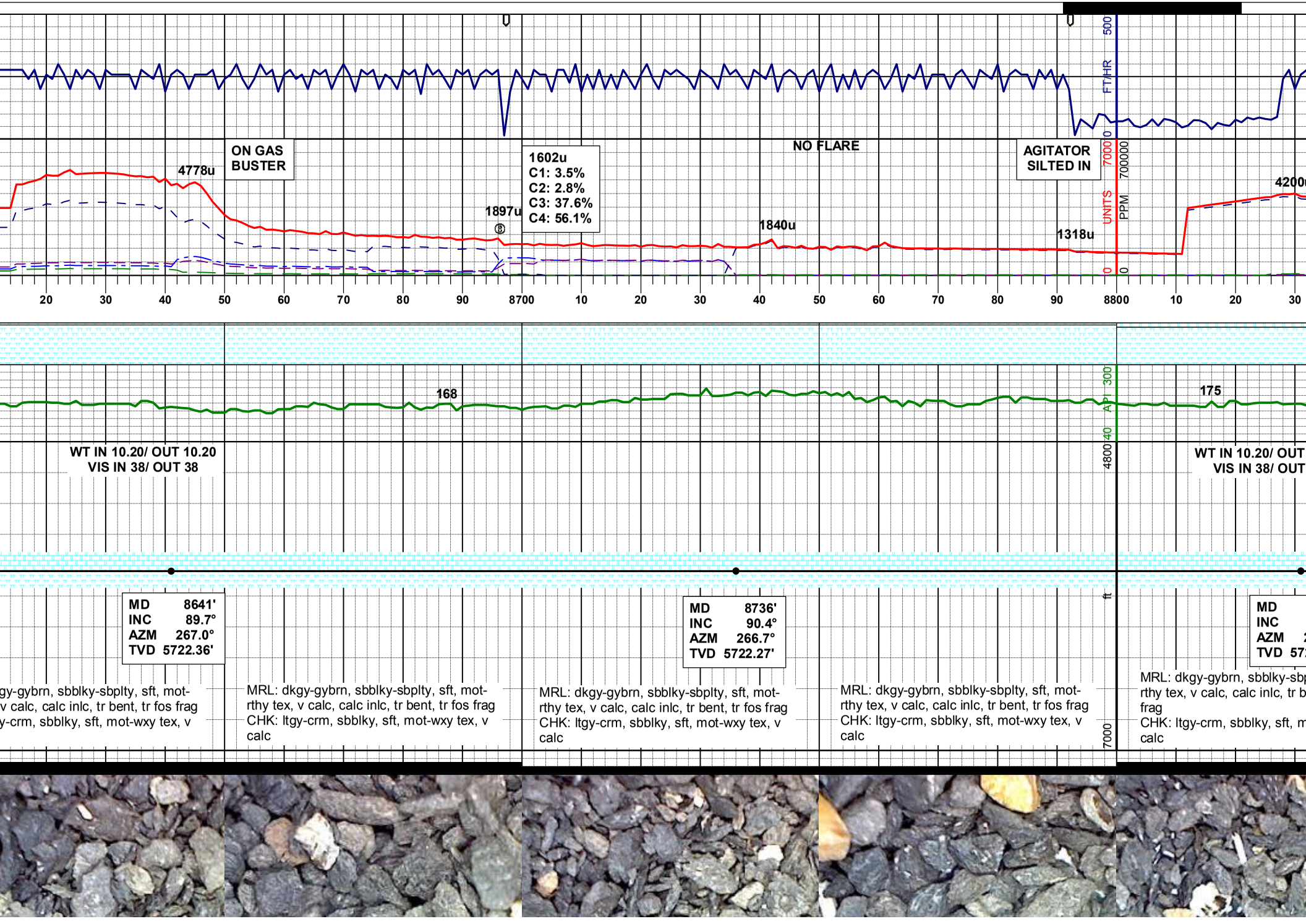

4729u
5113u
4749u
4901u
2620u
C1: 73.2%
C2: 5.1%
C3: 13.2%
C4: 8.5%
FT/HR
UNITS
PPM
API
MD 7598'
INC 89.1°
AZM 268.4°
TVD 5719.19'
MD 7693'
INC 89.5°
AZM 268.6°
TVD 5720.35'
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

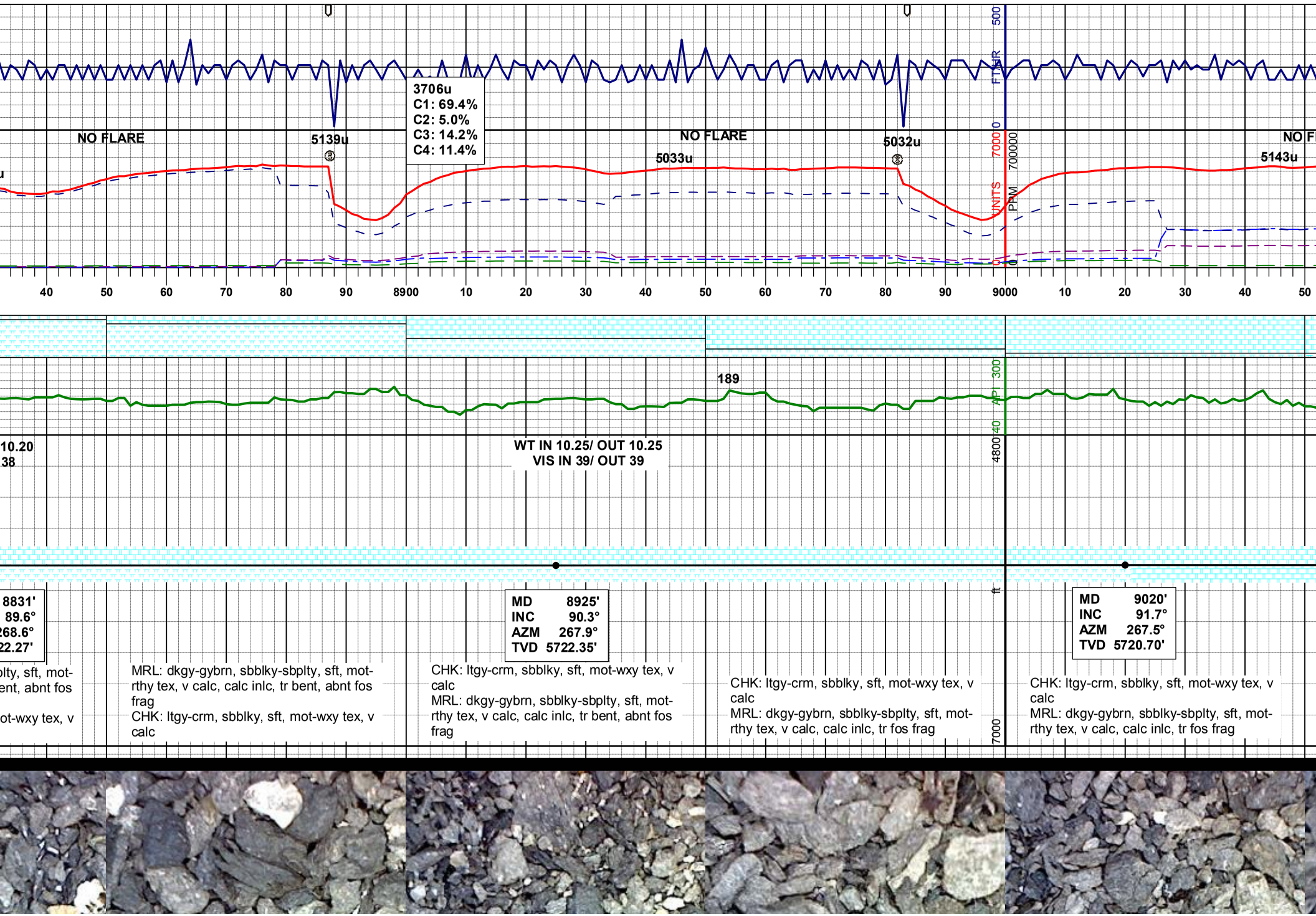

08/29/2013
FT/HR
500
0
UNITS
PPM
700000
0
4828u
5090u
5384u
5250u
5408u
5297u
C1: 36.3%
C2: 2.4%
C3: 23.4%
C4: 37.9%
5577u
40
50
60
70
80
90
7800
10
20
30
40
50
60
70
80
90
7900
10
20
30
40
50
AP
300
40
4800
226
217
WT IN 10.10/ OUT 10.10
VIS IN 36/ OUT 36
WT IN
VIS
MD 7788'
INC 89.8°
AZM 268.4°
TVD 5720.93'
MD 7883'
INC 92.2°
AZM 267.5°
TVD 5719.28'
ft
7000
olty, sft, mot-
ent, tr Inoc
ot-wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc

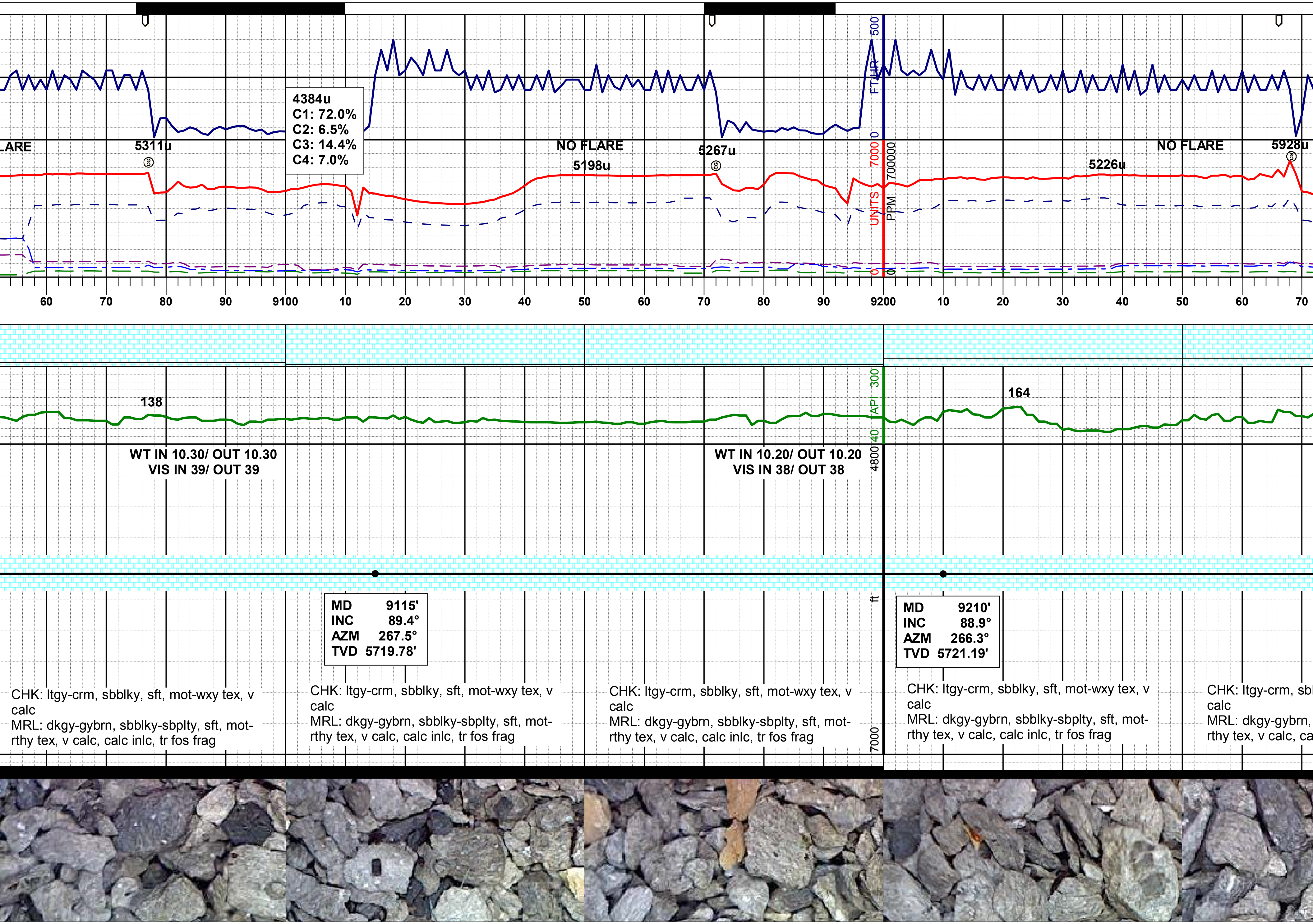

FT/HR
500
0
7000
UNITS
0
PPM
700000
0
5194u
5736u
5132u
5012u
C1: 58.6%
C2: 7.1%
C3: 18.8%
C4: 15.5%
5361u
60
70
80
90
8000
10
20
30
40
50
60
70
80
90
8100
10
20
30
40
50
60
70
APL
300
40
4800
237
171
10.10/ OUT 10.10
IN 37/ OUT 37
WT IN 10.10/ OUT 10.10
VIS IN 37/ OUT 37
MD 7977'
INC 91.0°
AZM 268.4°
TVD 5716.65'
MD 8072'
INC 88.8°
AZM 268.1°
TVD 5716.82'
ft
7000
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr Inoc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

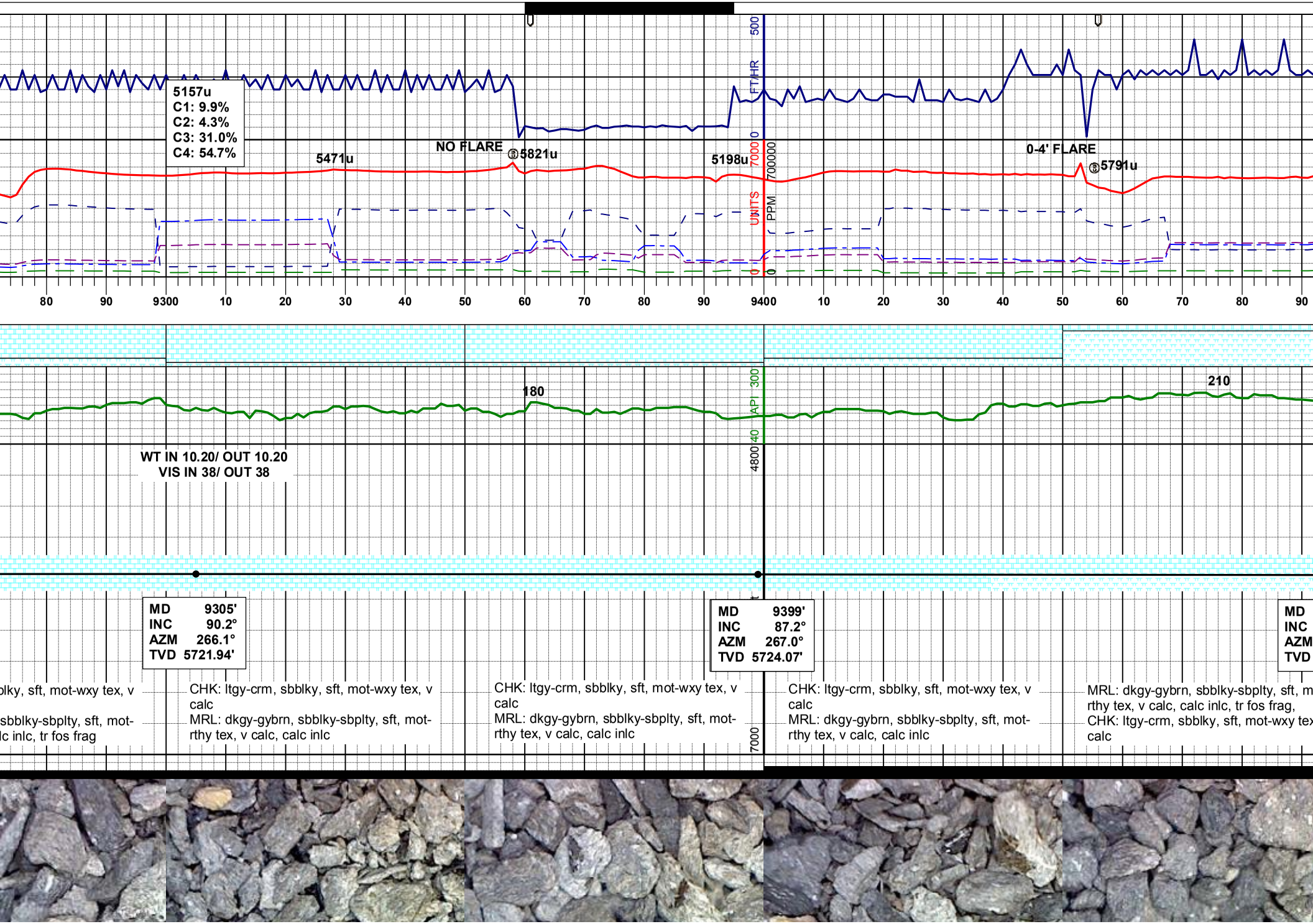

FT/HR
500
0
UNITS
7000
0
PPM
700000
0
5321u
5558u
5476u
5452u
C1: 65.0%
C2: 5.2%
C3: 16.8%
C4: 12.9%
5511u
5205u
80
90
8200
10
20
30
40
50
60
70
80
90
8300
10
20
30
40
50
60
70
80
90
API
300
40
254
4800
WT IN 10.10/ OUT 10.10
VIS IN 37/ OUT 37
ft
7000
MD 8262'
INC 89.9°
AZM 267.9°
TVD 5716.90'
MD 8356'
INC 88.2°
AZM 269.1°
TVD 5718.46'
sbblky-sbplty, sft, mot-
c inlc, tr bent, tr fos frag
lky, sft, mot-wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mo
rthy tex, v calc, calc inlc, tr bent, tr fos f

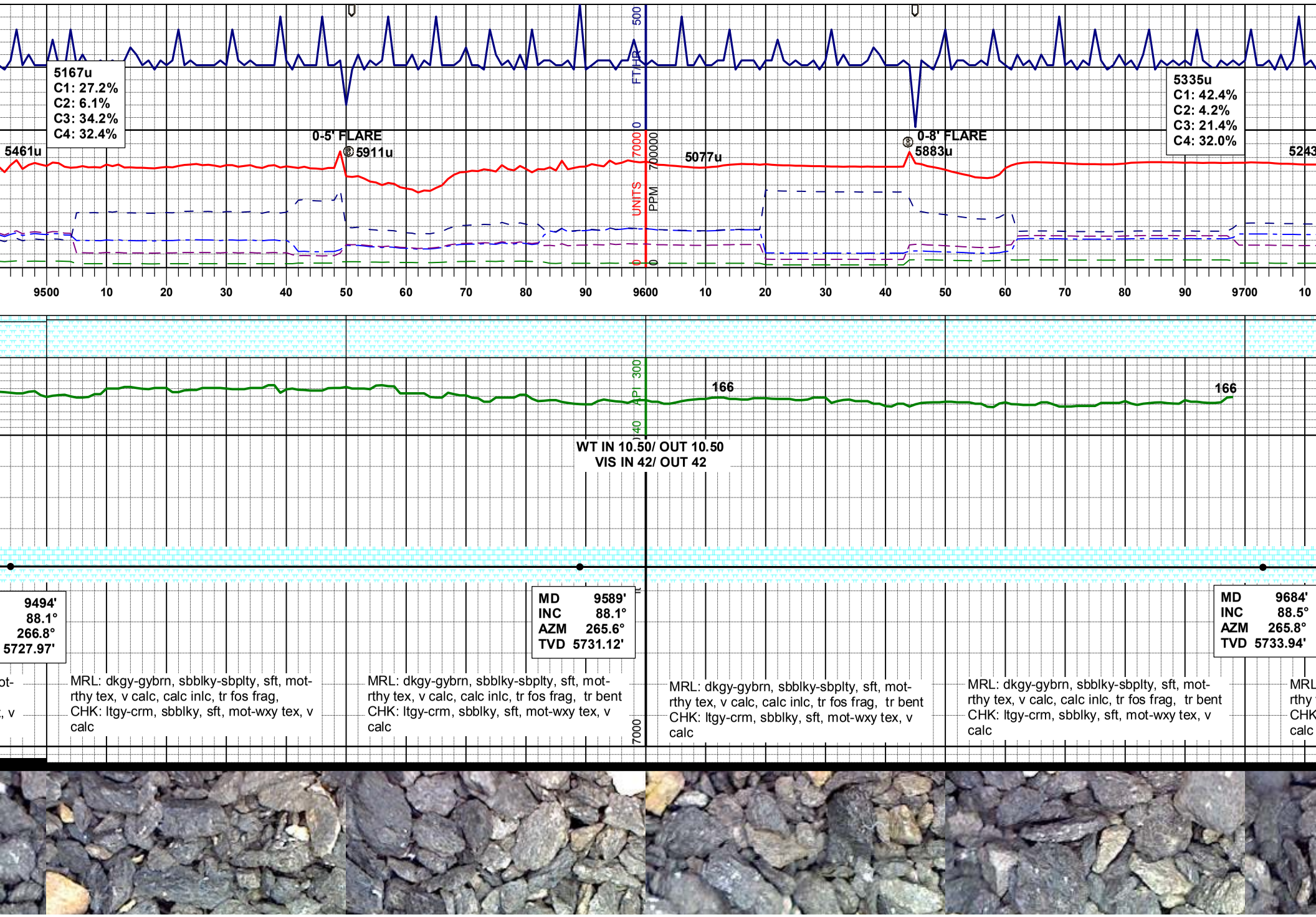

FT/HR
500
0
UNITS
7000
0
PPM
700000
0
5660u
C1: 68.3%
C2: 6.2%
C3: 15.0%
C4: 10.5%
5723u
5622u
5437u
4306u
5959u
8400
10
20
30
40
50
60
70
80
90
8500
8600
API
300
40
189
151
4800
WT IN 10.15/ OUT 10.15
VIS IN 39/ OUT 39
ft
7000
MD 8451'
INC 89.3°
AZM 268.6°
TVD 5720.53'
MD 8546'
INC 89.4°
AZM 268.1°
TVD 5721.61'
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc

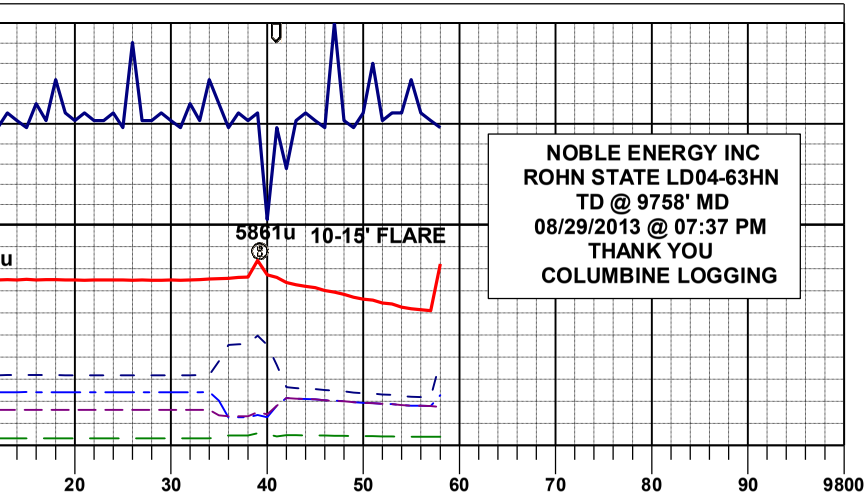

ON GAS BUSTER
4778u
1897u
1602u
C1: 3.5%
C2: 2.8%
C3: 37.6%
C4: 56.1%
NO FLARE
1840u
AGITATOR SILTED IN
1318u
4200u
FT/HR
UNITS
PPM
20 30 40 50 60 70 80 90 8700 10 20 30 40 50 60 70 80 90 8800 10 20 30
168
175
API
WT IN 10.20/ OUT 10.20
VIS IN 38/ OUT 38
MD 8641'
INC 89.7°
AZM 267.0°
TVD 5722.36'
MD 8736'
INC 90.4°
AZM 266.7°
TVD 5722.27'
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
ft


NO FLARE
5139u
3706u
C1: 69.4%
C2: 5.0%
C3: 14.2%
C4: 11.4%
NO FLARE
5033u
5032u
NO F
5143u
500
FLAIR
0
7000
UNITS
700000
PPM
0
40
50
60
70
80
90
8900
10
20
30
40
50
60
70
80
90
9000
10
20
30
40
50
189
300
API
40
4800
10.20
38
WT IN 10.25/ OUT 10.25
VIS IN 39/ OUT 39
ft
7000
8831'
89.6°
268.6°
22.27'
MD 8925'
INC 90.3°
AZM 267.9°
TVD 5722.35'
MD 9020'
INC 91.7°
AZM 267.5°
TVD 5720.70'
lty, sft, mot-
ent, abnt fos
ot-wxy tex, v
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, abnt fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr bent, abnt fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag


ARE
5311u
4384u
C1: 72.0%
C2: 6.5%
C3: 14.4%
C4: 7.0%
NO FLARE
5198u
5267u
5226u
NO FLARE
5928u
0 UNITS 7000
0 PPM 700000
0 FT/HR 500
60
70
80
90
9100
10
20
30
40
50
60
70
80
90
9200
10
20
30
40
50
60
70
138
164
40 API 300
4800
WT IN 10.30/ OUT 10.30
VIS IN 39/ OUT 39
WT IN 10.20/ OUT 10.20
VIS IN 38/ OUT 38
ft
7000
MD 9115'
INC 89.4°
AZM 267.5°
TVD 5719.78'
MD 9210'
INC 88.9°
AZM 266.3°
TVD 5721.19'
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag
CHK: ltgy-crm, sb
calc
MRL: dkgy-gybrn,
rthy tex, v calc, ca


5157u
C1: 9.9%
C2: 4.3%
C3: 31.0%
C4: 54.7%
5471u
NO FLARE
5821u
5198u
0-4' FLARE
5791u
500
FT/HR
0
7000
UNITS
0
700000
PPM
0
80
90
9300
10
20
30
40
50
60
70
80
90
9400
10
20
30
40
50
60
70
80
90
180
210
300
API
40
4800
WT IN 10.20/ OUT 10.20
VIS IN 38/ OUT 38
MD 9305'
INC 90.2°
AZM 266.1°
TVD 5721.94'
MD 9399'
INC 87.2°
AZM 267.0°
TVD 5724.07'
MD
INC
AZM
TVD
7000
lky, sft, mot-wxy tex, v
sbblky-sbplty, sft, mot-
lc inlc, tr fos frag
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc
MRL: dkgy-gybrn, sbblky-sbplty, sft, m
rthy tex, v calc, calc inlc, tr fos frag,
CHK: ltgy-crm, sbblky, sft, mot-wxy tex
calc


5167u
C1: 27.2%
C2: 6.1%
C3: 34.2%
C4: 32.4%
5335u
C1: 42.4%
C2: 4.2%
C3: 21.4%
C4: 32.0%
0-5' FLARE
0-8' FLARE
5461u
5911u
5077u
5883u
5243
FT/HR
UNITS
PPM
500
0
7000
700000
9500
10
20
30
40
50
60
70
80
90
9600
9700
API
300
140
166
166
WT IN 10.50/ OUT 10.50
VIS IN 42/ OUT 42
9494'
88.1°
266.8°
5727.97'
MD 9589'
INC 88.1°
AZM 265.6°
TVD 5731.12'
MD 9684'
INC 88.5°
AZM 265.8°
TVD 5733.94'
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag,
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag, tr bent
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag, tr bent
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
MRL: dkgy-gybrn, sbblky-sbplty, sft, mot-rthy tex, v calc, calc inlc, tr fos frag, tr bent
CHK: ltgy-crm, sbblky, sft, mot-wxy tex, v calc
7000



NOBLE ENERGY INC
ROHN STATE LD04-63HN
TD @ 9758' MD
08/29/2013 @ 07:37 PM
THANK YOU
COLUMBINE LOGGING

WT IN 10.50/ OUT 10.50
VIS IN 42/ OUT 42

NOBLE ENERGY INC
ROHN STATE LD04-63HN
TD @ 9758' MD
08/29/2013 @ 07:37 PM

PROJECTED	
MD	9758'
INC	88.5°
AZM	265.8°
TVD	5735.87'

: dkgy-gybrn, sbblky-sbplty, sft, mot-
ex, v calc, calc inlc, tr fos frag, tr bent
: ltgy-crm, sbblky, sft, mot-wxy tex, v