COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name	Five Rivers K08-67-1HN		
Location	SWNW SEC 9, T4N, R66W		
State	COLORADO	**County**	WELD
Country	USA	**Rig Number**	H&P 330
API Number	05-123-39475	**Field**	WATTENBERG
Region	DJ BASIN	**Drilling Completed**	8/3/2014
Spud Date	7/28/2014		
Surface Coordinates	2083' FNL, 512' FWL		
Bottom Hole Coordinates	580' FNL, 5728' FWL		
Ground Elevation	4699'	**K.B. Elevation**	4729'
Logged Interval	6366' **To** 11882'	**Total Depth**	11882'
Formation	NIOBRARA C CHALK		
Type of Drilling Fluid	LSND		

Operator

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

Geologist

Name RENEE CLACKLER

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

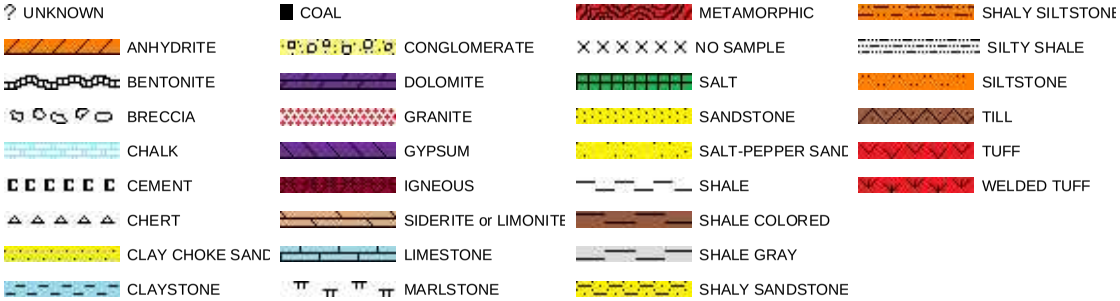
Other

WELL SITE GEOLOGIST ANDREA ZUIDEMA
JESSICA SIEBERG
ZACHARY UBER

Zone Color Coding

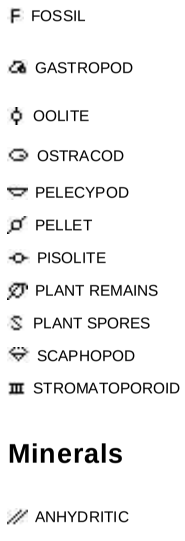
Oil	Condensate	Gas
Note	Core	Pres
Error	Water	Sea

Rock Types

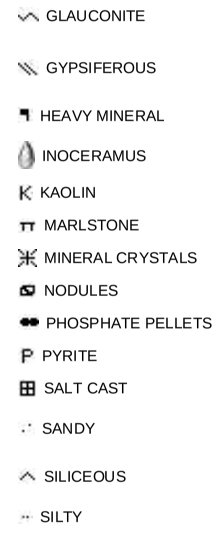


Accessories

Fossils



Minerals



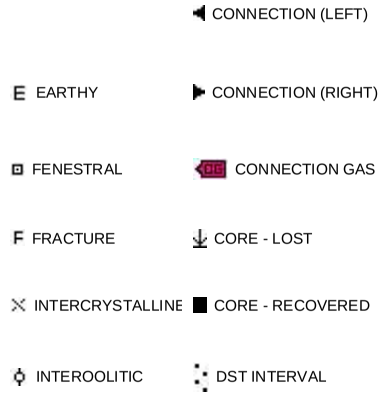
Stringer

C

Oil Show

Engineering

Porosity



Other Symbols

FAULT

FORMATION TOP

GAS SHOW

MN DEPTH

NORMAL FAULT

OIL SHOW

OVERTURNED STRATA

REVERSE FAULT

SIDEWALL CORE (LEFT)

SIDEWALL CORE (RIGHT)

SLIDE

SURVEY

TRIP GAS

WIRELINE TESTED - LEFT

WIRELINE TESTED - RT

Rounding

A ANGULAR

R ROUNDED

a SUBANG

r SUBRND

Textures

BS BOUNDSTONE

C CHALKY

CX CRYPTOXLN

E EARTHY

FX FINELYXLN

GS GRAINSTONE

L LITHOGRAPHIC

MX MICROXLN

MS MUDSTONE

PS PACKSTONE

WS WACKESTONE

Sorting

M MODERATE

P POOR

W WELL

Slide/Rotate

ROP
ROP

Total Gas & Chromatograph
GAS
C1
C2
C3
C4

Depth Labels

% Lith

Gamma
GAMMA

Well Bore
TVD

Oil Show

Images

BEGAN DRILLING CURVE @ 02:38 AM on 07/31/2014

50' Sample Interval

Bit Data
Bit #: 2
Type: Smith Mdi611
Size: 8.75"
Depth In: 6,366 '
Depth Out: 7,557 '
Jets: 6X16 : 2X11
S/N: JJ2936

COLUMBINE LOGGING INC.
RIGGED UP ON 07/28/2014
MANNED 2-PERSON LOGGING WITH BLOODHOUND GAS CHROMATOGRAPH UNIT #0595
COLUMBINE BEGAN LOGGING ON 07/29/2014

1500
ROP (ft/hr)
0

6000
600000
GAS (units)
C1-C4 (PPM)
0
0

2729u
3719u
2984u

6,290 **6,300** 6,310 6,320 6,330 6,340 **6,350** 6,360 6,370 6,380 6,390 **6,400** 6,410 6,420 6,430 6,440 **6,450** 6,460

200
GAMMA (API)
0
108

MUD WT 10.50 VIS 36

6200
MUD WT 10.40 VIS 36

MD: 6,407 '
TVD: 6,329.6 '
Inclination: 1.6 °
Azimuth: 260.61 °
VS: 711.62 '

TVD (ft)

8200

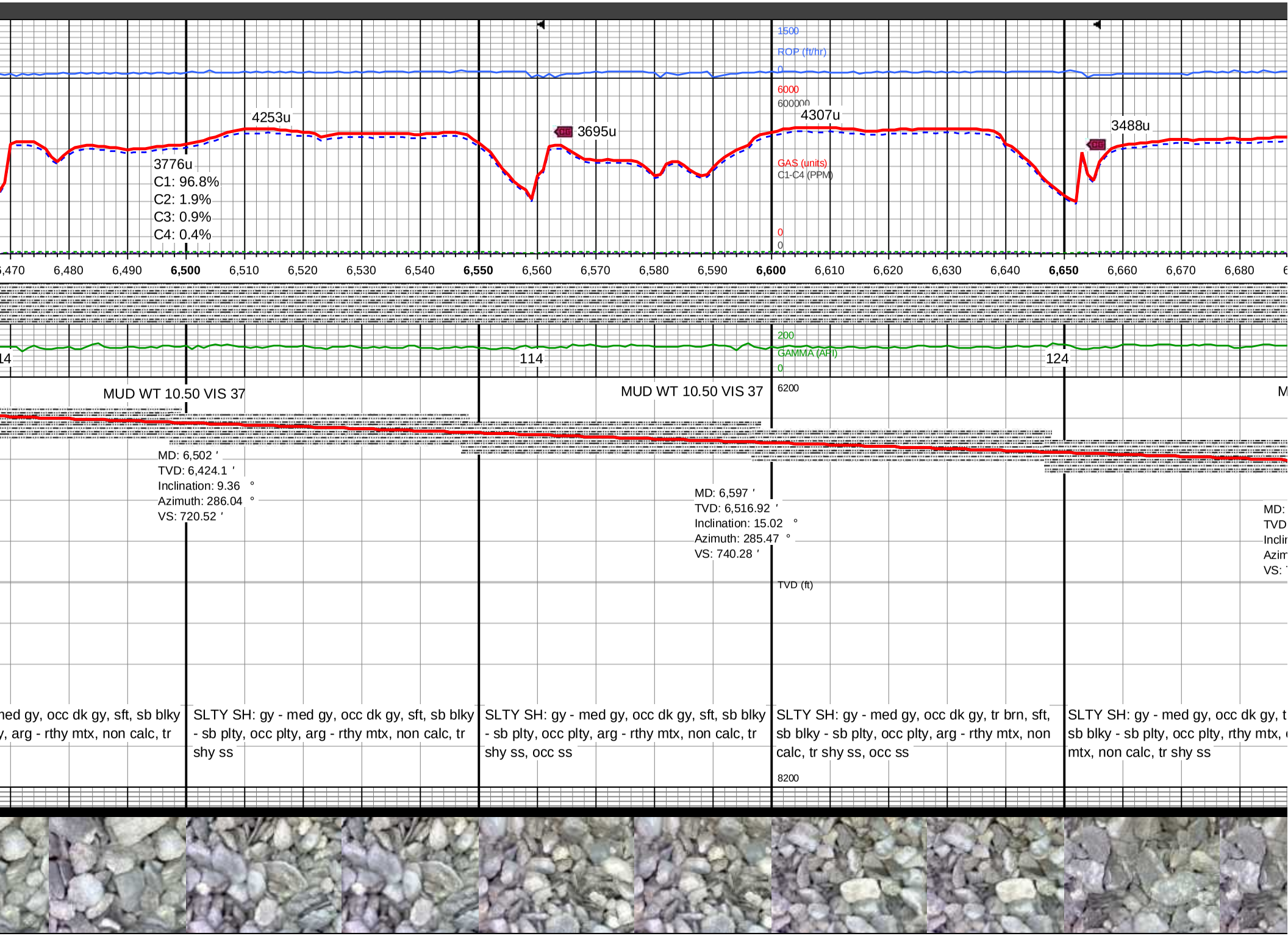
Acetone was used as the cutting agent with the dimple filled to the rim

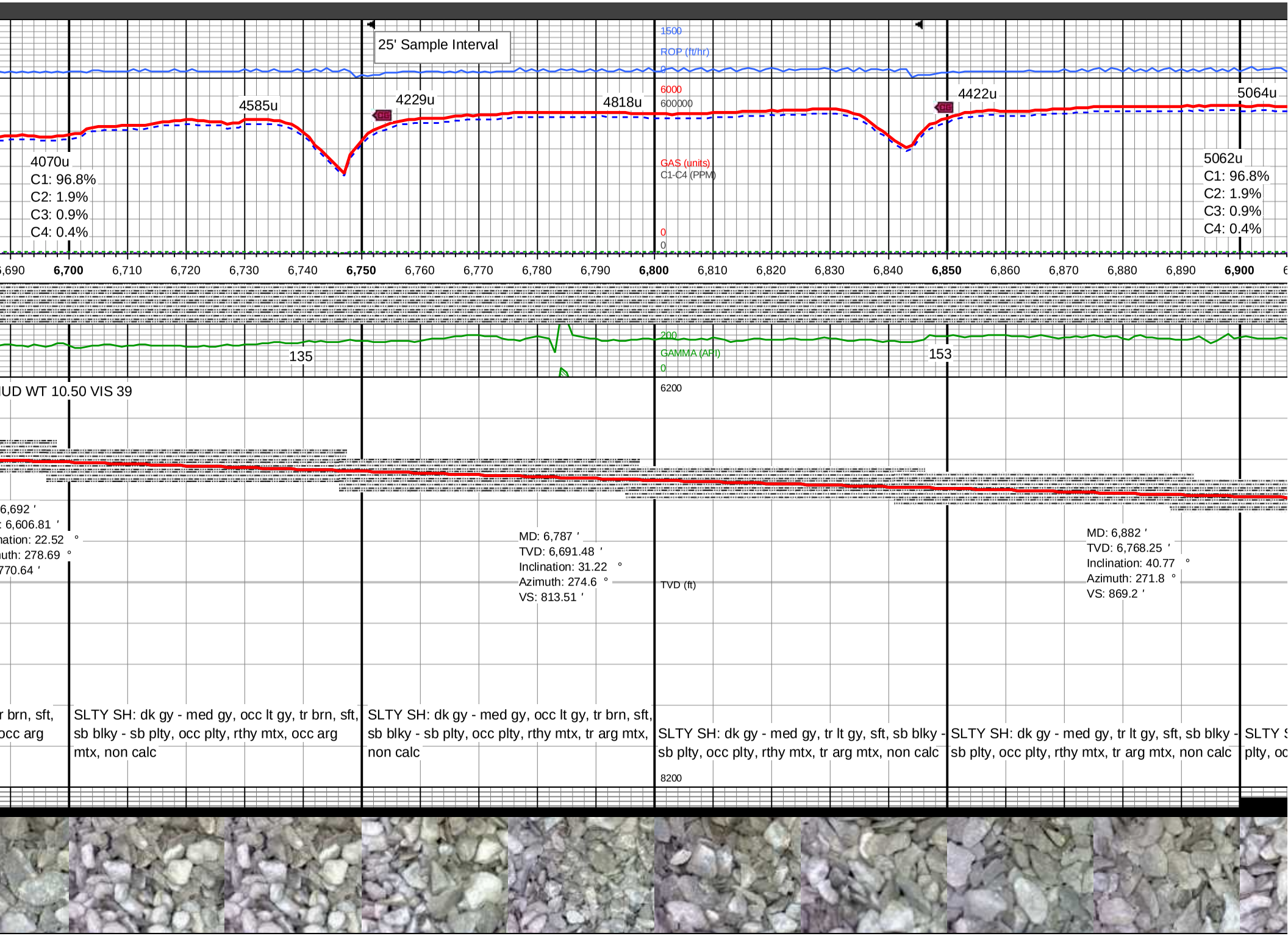
The ratings are based on 7 descriptors: None, Slight trace, Trace,Fair, Moderate, Good, and Excellent.The descriptor used is based on the loggers observations and best judgment of brilliance, color and longevity of the cut.

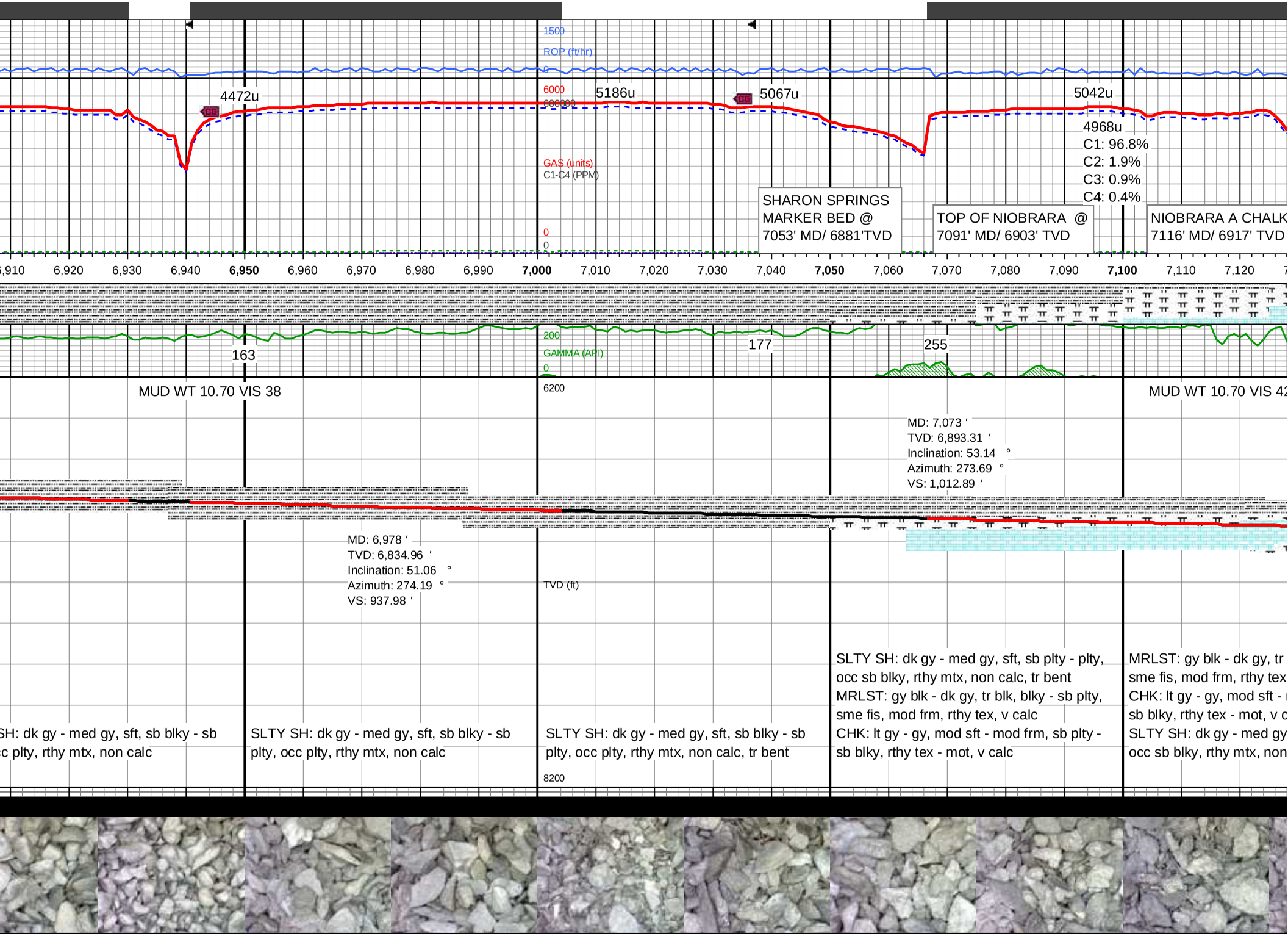
SLTY SH: gy - med gy, occ dk gy, sft, sb blky - sb plty, occ plty, arg - rthy mtx, non calc, tr shy ss

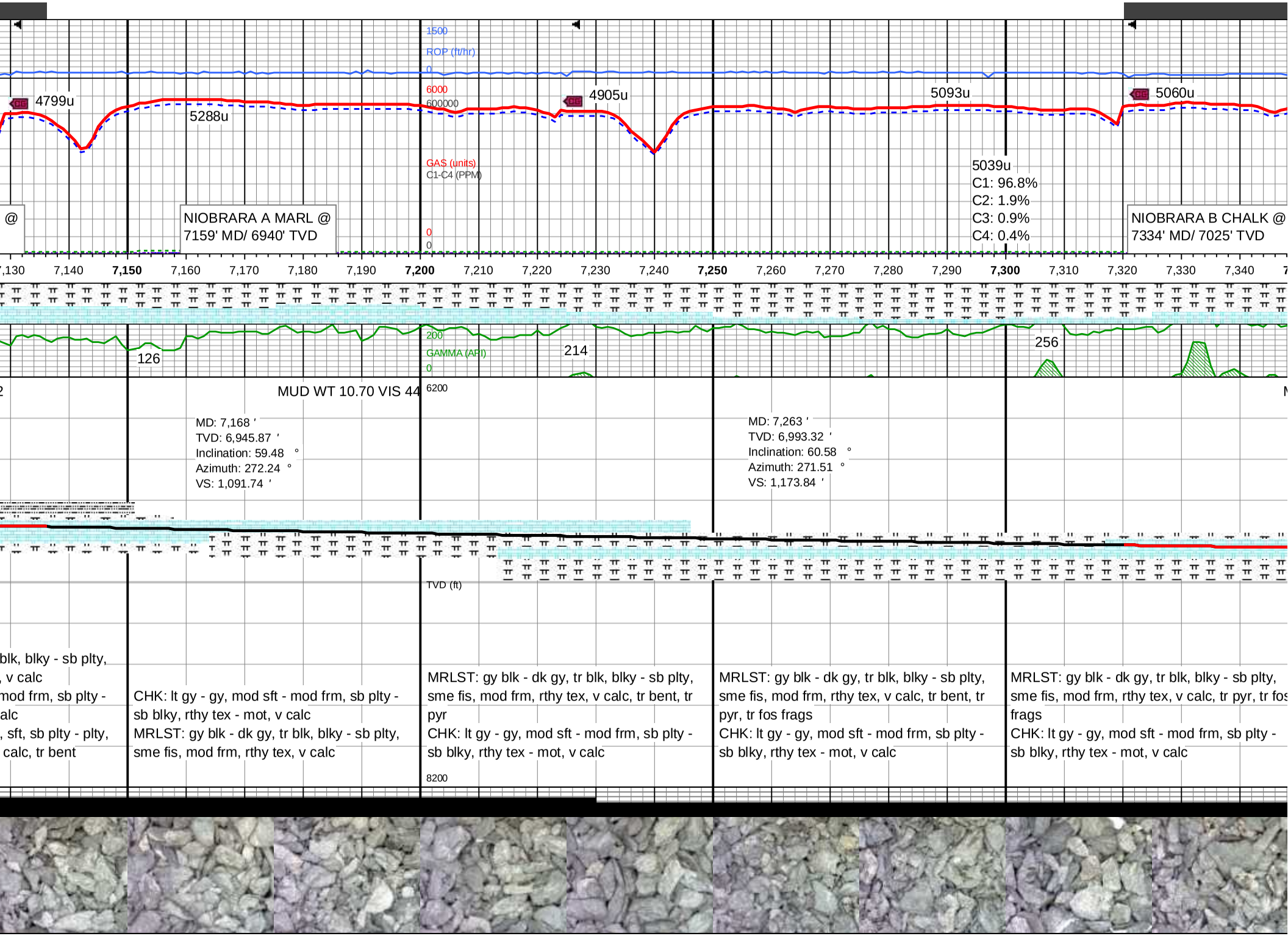
SLTY SH: gy - med gy, occ dk gy, sft, sb blky - sb plty, occ plty, arg - rthy mtx, non calc, tr shy ss

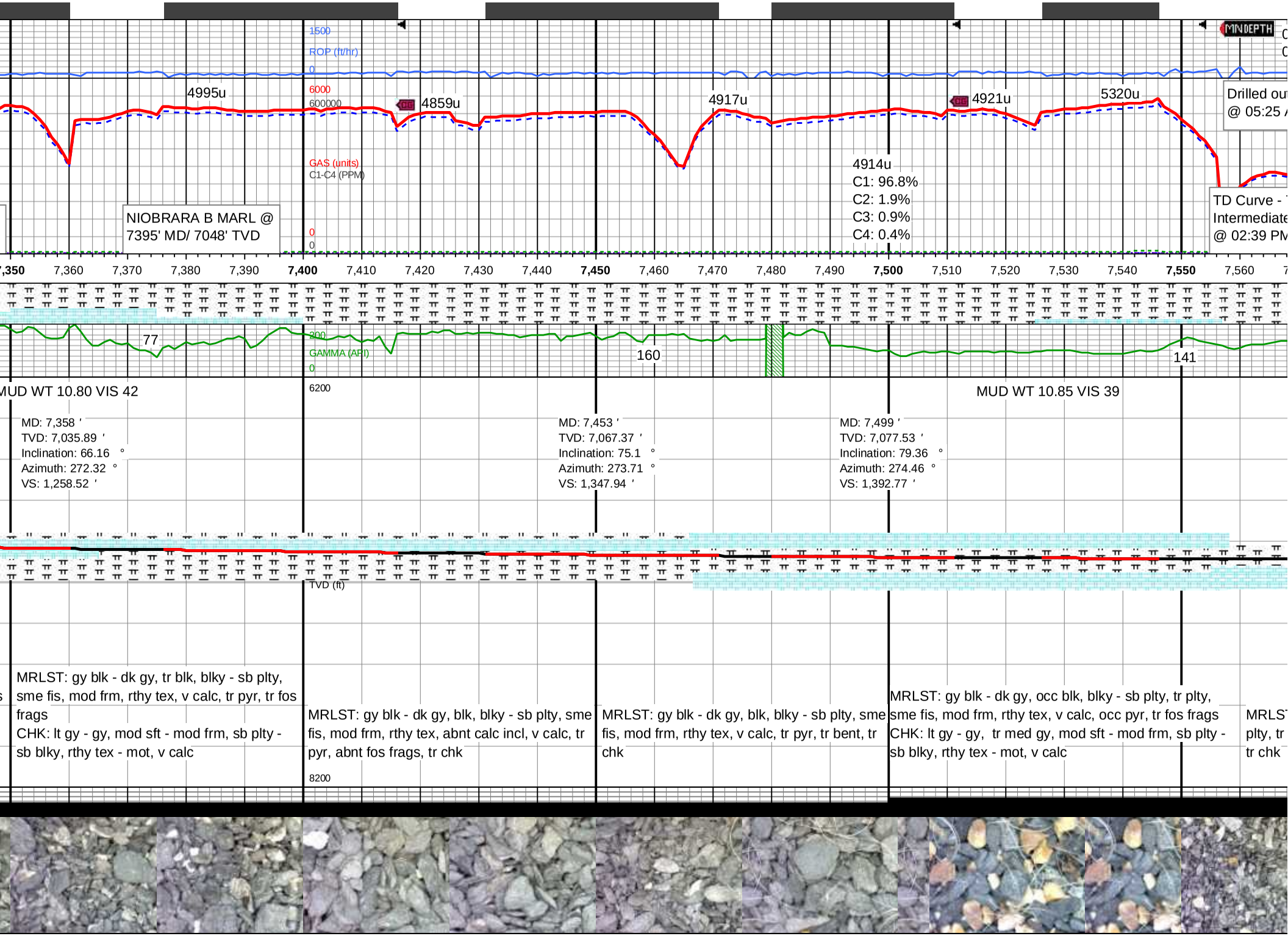
SLTY SH: gy - m
- sb plty, occ plty
shy ss

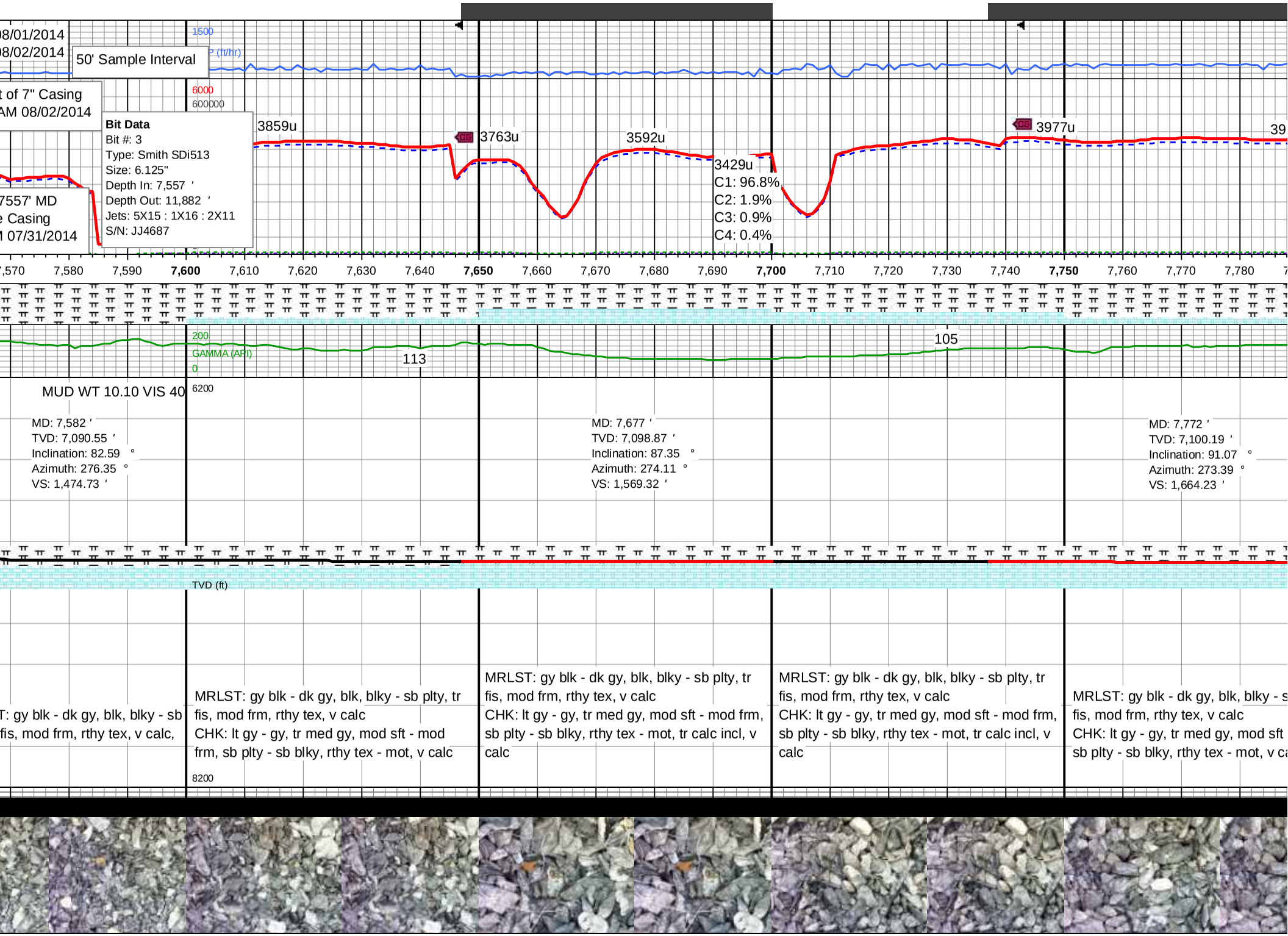

1500
ROP (ft/hr)
0
6000
600000
4253u
3695u
4307u
3488u
3776u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
6,470
6,480
6,490
6,500
6,510
6,520
6,530
6,540
6,550
6,560
6,570
6,580
6,590
6,600
6,610
6,620
6,630
6,640
6,650
6,660
6,670
6,680
200
GAMMA (API)
0
114
124
MUD WT 10.50 VIS 37
MUD WT 10.50 VIS 37
6200
MD: 6,502 '
TVD: 6,424.1 '
Inclination: 9.36 °
Azimuth: 286.04 °
VS: 720.52 '
MD: 6,597 '
TVD: 6,516.92 '
Inclination: 15.02 °
Azimuth: 285.47 °
VS: 740.28 '
TVD (ft)
ed gy, occ dk gy, sft, sb blky
y, arg - rthy mtx, non calc, tr
SLTY SH: gy - med gy, occ dk gy, sft, sb blky - sb plty, occ plty, arg - rthy mtx, non calc, tr shy ss
SLTY SH: gy - med gy, occ dk gy, sft, sb blky - sb plty, occ plty, arg - rthy mtx, non calc, tr shy ss, occ ss
SLTY SH: gy - med gy, occ dk gy, tr brn, sft, sb blky - sb plty, occ plty, arg - rthy mtx, non calc, tr shy ss, occ ss
8200
SLTY SH: gy - med gy, occ dk gy, t
sb blky - sb plty, occ plty, rthy mtx,
mtx, non calc, tr shy ss

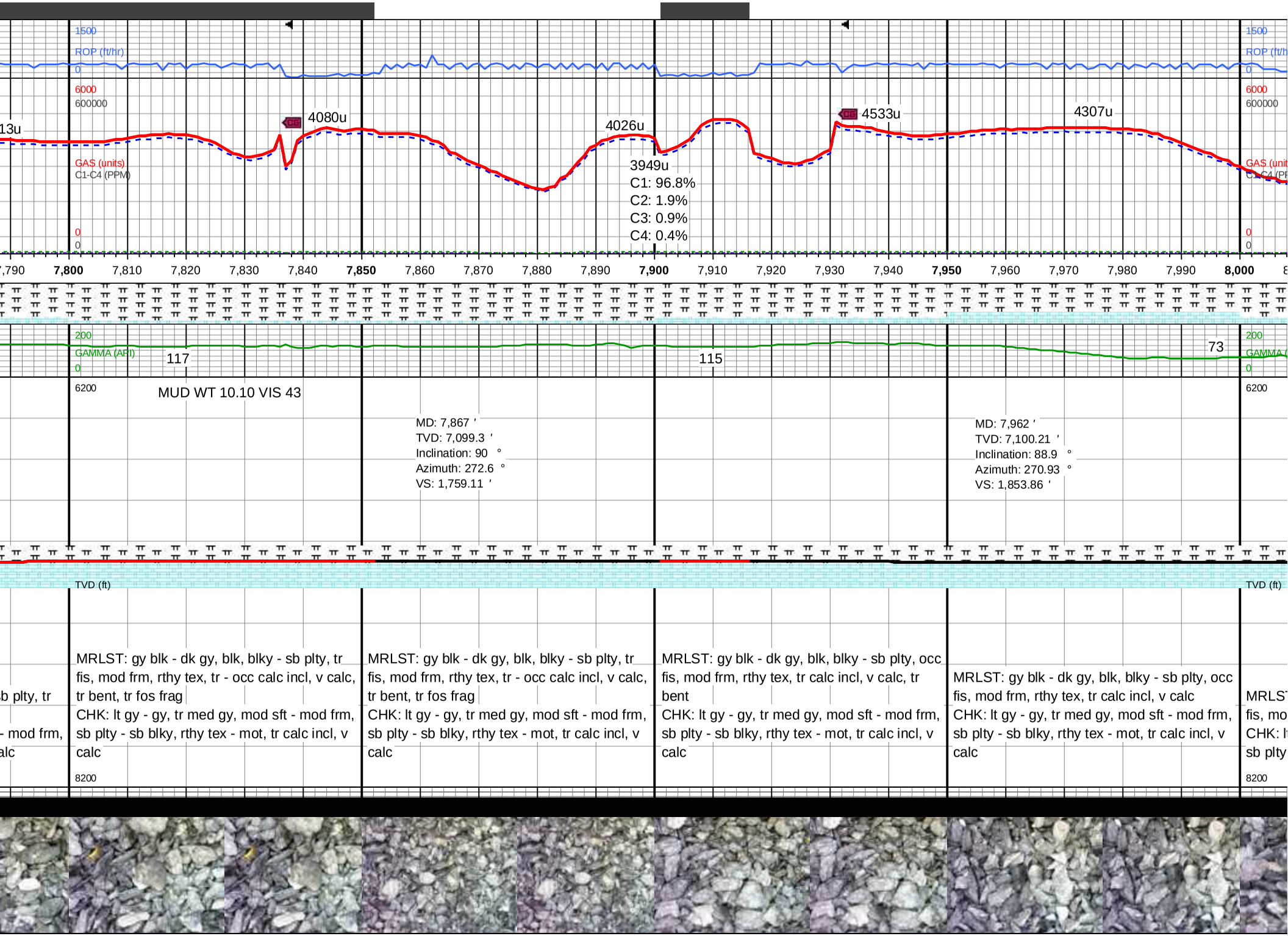

25' Sample Interval
1500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
4585u
4229u
4818u
4422u
5064u
4070u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
5062u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
6,690
6,700
6,710
6,720
6,730
6,740
6,750
6,760
6,770
6,780
6,790
6,800
6,810
6,820
6,830
6,840
6,850
6,860
6,870
6,880
6,890
6,900
135
200
GAMMA (API)
0
153
6200
UD WT 10.50 VIS 39
6,692 '
6,606.81 '
nation: 22.52 °
uth: 278.69 °
770.64 '
MD: 6,787 '
TVD: 6,691.48 '
Inclination: 31.22 °
Azimuth: 274.6 °
VS: 813.51 '
TVD (ft)
MD: 6,882 '
TVD: 6,768.25 '
Inclination: 40.77 °
Azimuth: 271.8 °
VS: 869.2 '
r brn, sft, occ arg
SLTY SH: dk gy - med gy, occ lt gy, tr brn, sft, sb blky - sb plty, occ plty, rthy mtx, occ arg mtx, non calc
SLTY SH: dk gy - med gy, occ lt gy, tr brn, sft, sb blky - sb plty, occ plty, rthy mtx, tr arg mtx, non calc
SLTY SH: dk gy - med gy, tr lt gy, sft, sb blky - sb plty, occ plty, rthy mtx, tr arg mtx, non calc
SLTY SH: dk gy - med gy, tr lt gy, sft, sb blky - sb plty, occ plty, rthy mtx, tr arg mtx, non calc
8200

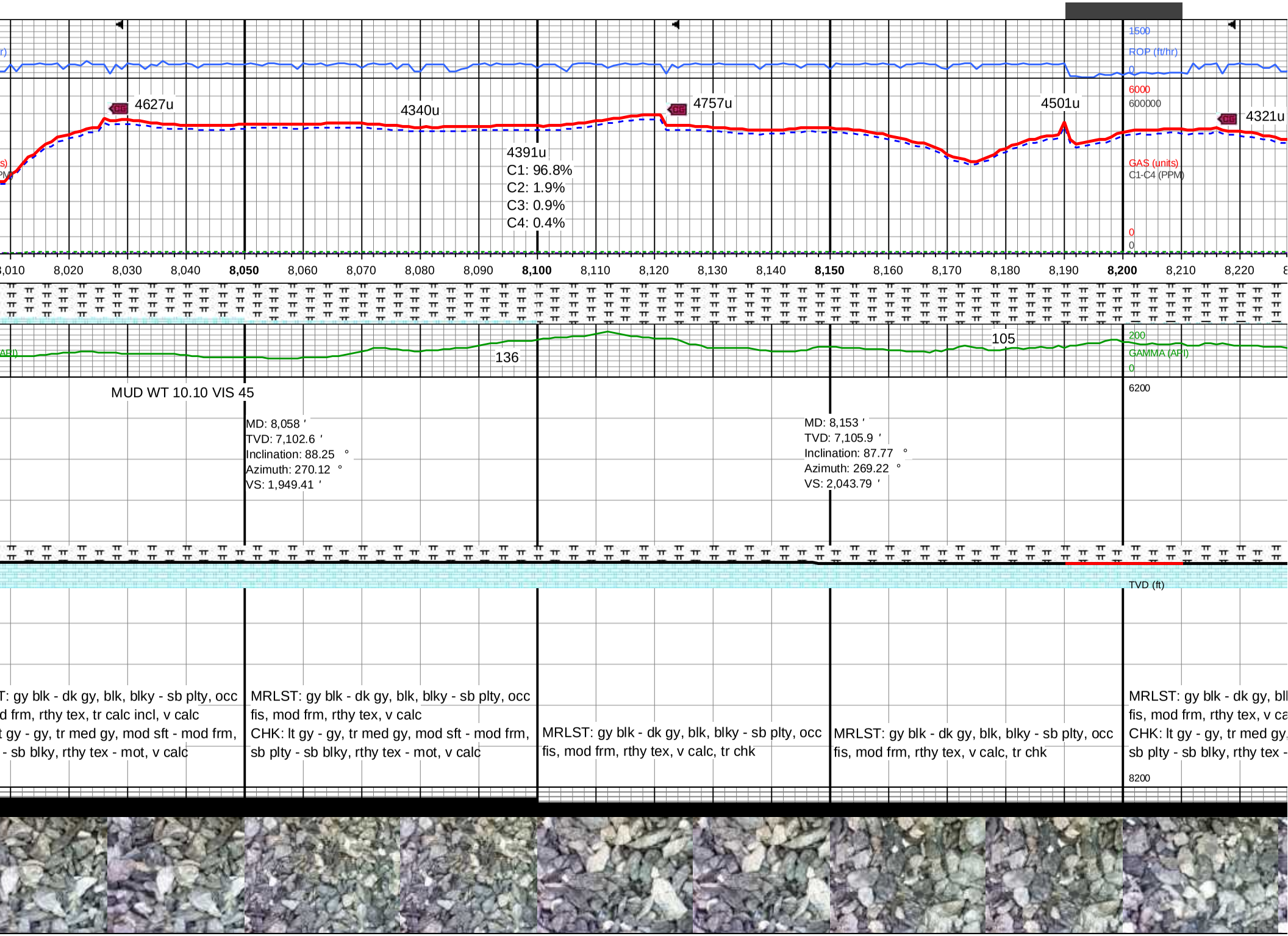

1500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
4472u
5186u
5067u
5042u
4968u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
SHARON SPRINGS
MARKER BED @
7053' MD/ 6881'TVD
TOP OF NIOBRARA @
7091' MD/ 6903' TVD
NIOBRARA A CHALK
7116' MD/ 6917' TVD
6,910
6,920
6,930
6,940
6,950
6,960
6,970
6,980
6,990
7,000
7,010
7,020
7,030
7,040
7,050
7,060
7,070
7,080
7,090
7,100
7,110
7,120
200
GAMMA (API)
0
163
177
255
6200
MUD WT 10.70 VIS 38
MUD WT 10.70 VIS 42
MD: 7,073 '
TVD: 6,893.31 '
Inclination: 53.14 °
Azimuth: 273.69 °
VS: 1,012.89 '
MD: 6,978 '
TVD: 6,834.96 '
Inclination: 51.06 °
Azimuth: 274.19 °
VS: 937.98 '
TVD (ft)
SH: dk gy - med gy, sft, sb blky - sb
c plty, rthy mtx, non calc
SLTY SH: dk gy - med gy, sft, sb blky - sb
plty, occ plty, rthy mtx, non calc
SLTY SH: dk gy - med gy, sft, sb blky - sb
plty, occ plty, rthy mtx, non calc, tr bent
8200
SLTY SH: dk gy - med gy, sft, sb plty - plty,
occ sb blky, rthy mtx, non calc, tr bent
MRLST: gy blk - dk gy, tr blk, blky - sb plty,
sme fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, mod sft - mod frm, sb plty -
sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr
sme fis, mod frm, rthy tex
CHK: lt gy - gy, mod sft -
sb blky, rthy tex - mot, v c
SLTY SH: dk gy - med gy
occ sb blky, rthy mtx, non

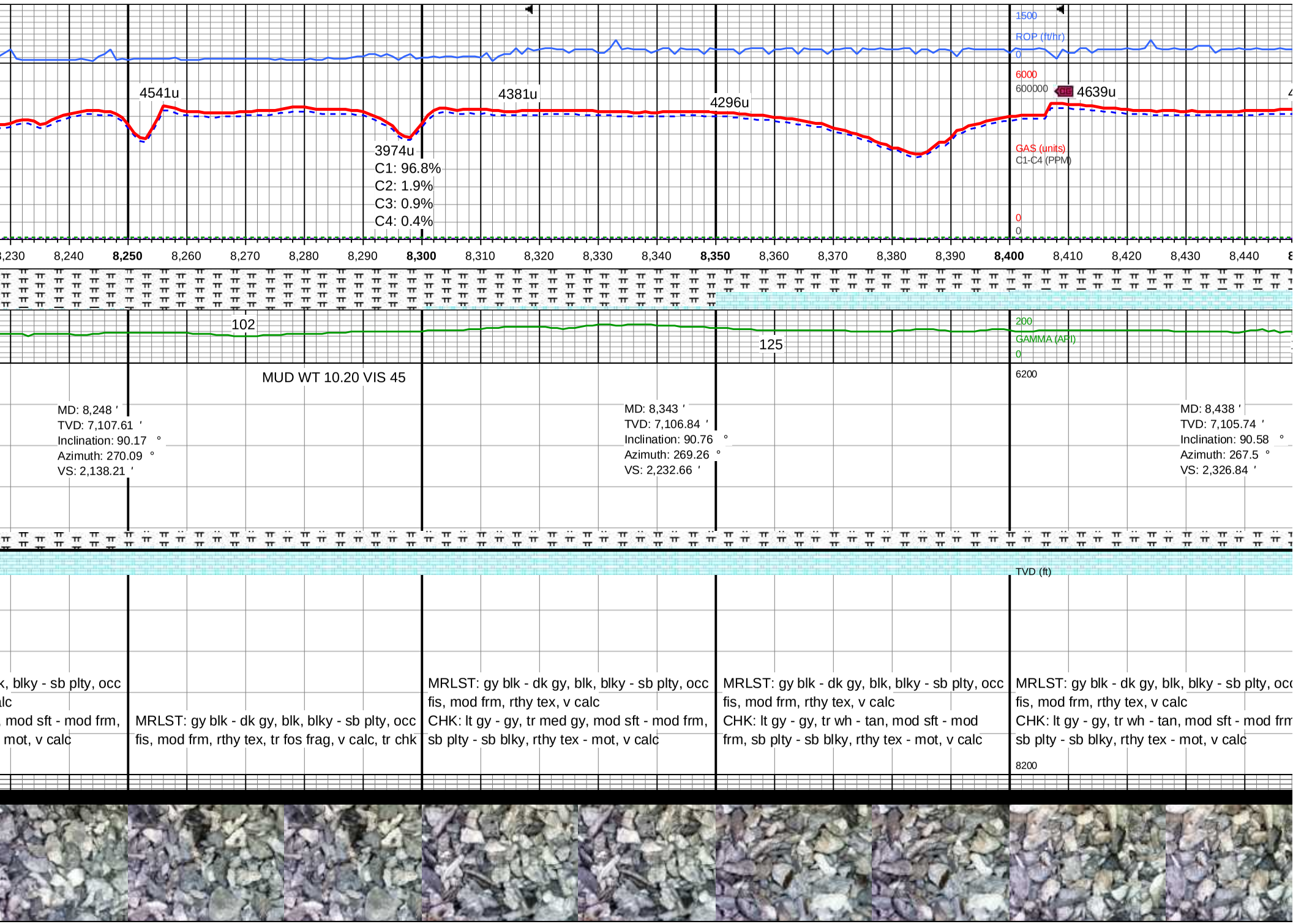

1500
ROP (ft/hr)
0
6000
600000
4799u
5288u
4905u
5093u
5060u
GAS (units)
C1-C4 (PPM)
0
0
5039u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
@
NIOBRARA A MARL @
7159' MD/ 6940' TVD
NIOBRARA B CHALK @
7334' MD/ 7025' TVD
7,130
7,140
7,150
7,160
7,170
7,180
7,190
7,200
7,210
7,220
7,230
7,240
7,250
7,260
7,270
7,280
7,290
7,300
7,310
7,320
7,330
7,340
200
GAMMA (API)
0
126
214
256
2
MUD WT 10.70 VIS 44
6200
MD: 7,168 '
TVD: 6,945.87 '
Inclination: 59.48 °
Azimuth: 272.24 °
VS: 1,091.74 '
MD: 7,263 '
TVD: 6,993.32 '
Inclination: 60.58 °
Azimuth: 271.51 °
VS: 1,173.84 '
TVD (ft)
blk, blky - sb plty,
v calc
mod frm, sb plty -
alc
sft, sb plty - plty,
calc, tr bent
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc, tr bent, tr pyr
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
8200
MRLST: gy blk - dk gy, tr blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc, tr bent, tr pyr, tr fos frags
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc, tr pyr, tr fos
frags
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc

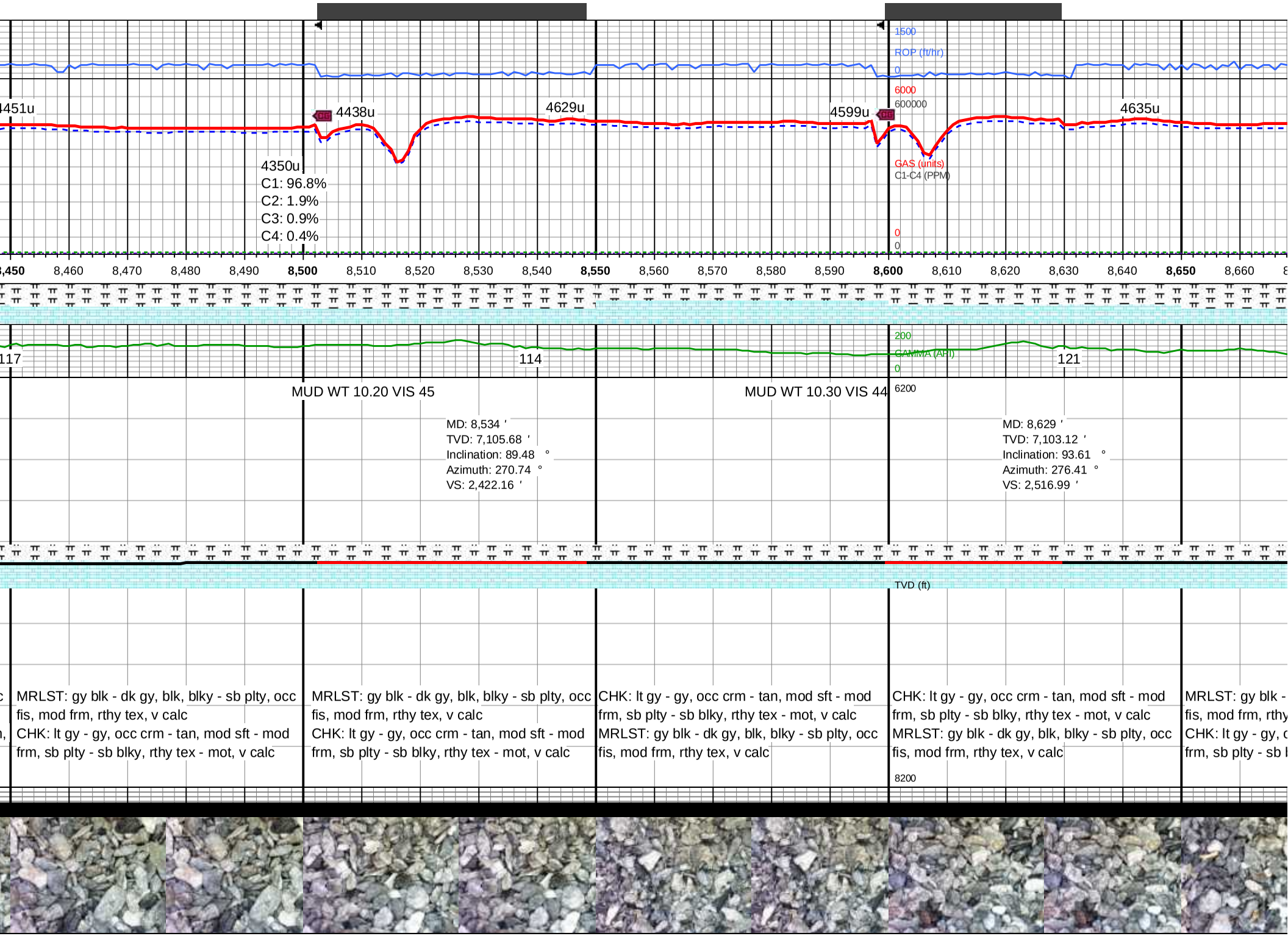

1500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
MNDEPTH
4995u
4859u
4917u
4921u
5320u
Drilled out
@ 05:25 A
NIOBRARA B MARL @
7395' MD/ 7048' TVD
4914u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
TD Curve -
Intermediate
@ 02:39 PM
7,350
7,360
7,370
7,380
7,390
7,400
7,410
7,420
7,430
7,440
7,450
7,460
7,470
7,480
7,490
7,500
7,510
7,520
7,530
7,540
7,550
7,560
77
200
GAMMA (API)
0
6200
160
141
MUD WT 10.80 VIS 42
MD: 7,358 '
TVD: 7,035.89 '
Inclination: 66.16 °
Azimuth: 272.32 °
VS: 1,258.52 '
MD: 7,453 '
TVD: 7,067.37 '
Inclination: 75.1 °
Azimuth: 273.71 °
VS: 1,347.94 '
MUD WT 10.85 VIS 39
MD: 7,499 '
TVD: 7,077.53 '
Inclination: 79.36 °
Azimuth: 274.46 °
VS: 1,392.77 '
TVD (ft)
MRLST: gy blk - dk gy, tr blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc, tr pyr, tr fos frags
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, sme fis, mod frm, rthy tex, abnt calc incl, v calc, tr pyr, abnt fos frags, tr chk
8200
MRLST: gy blk - dk gy, blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc, tr pyr, tr bent, tr chk
MRLST: gy blk - dk gy, occ blk, blky - sb plty, tr plty, sme fis, mod frm, rthy tex, v calc, occ pyr, tr fos frags
CHK: lt gy - gy, tr med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST
plty, tr
tr chk

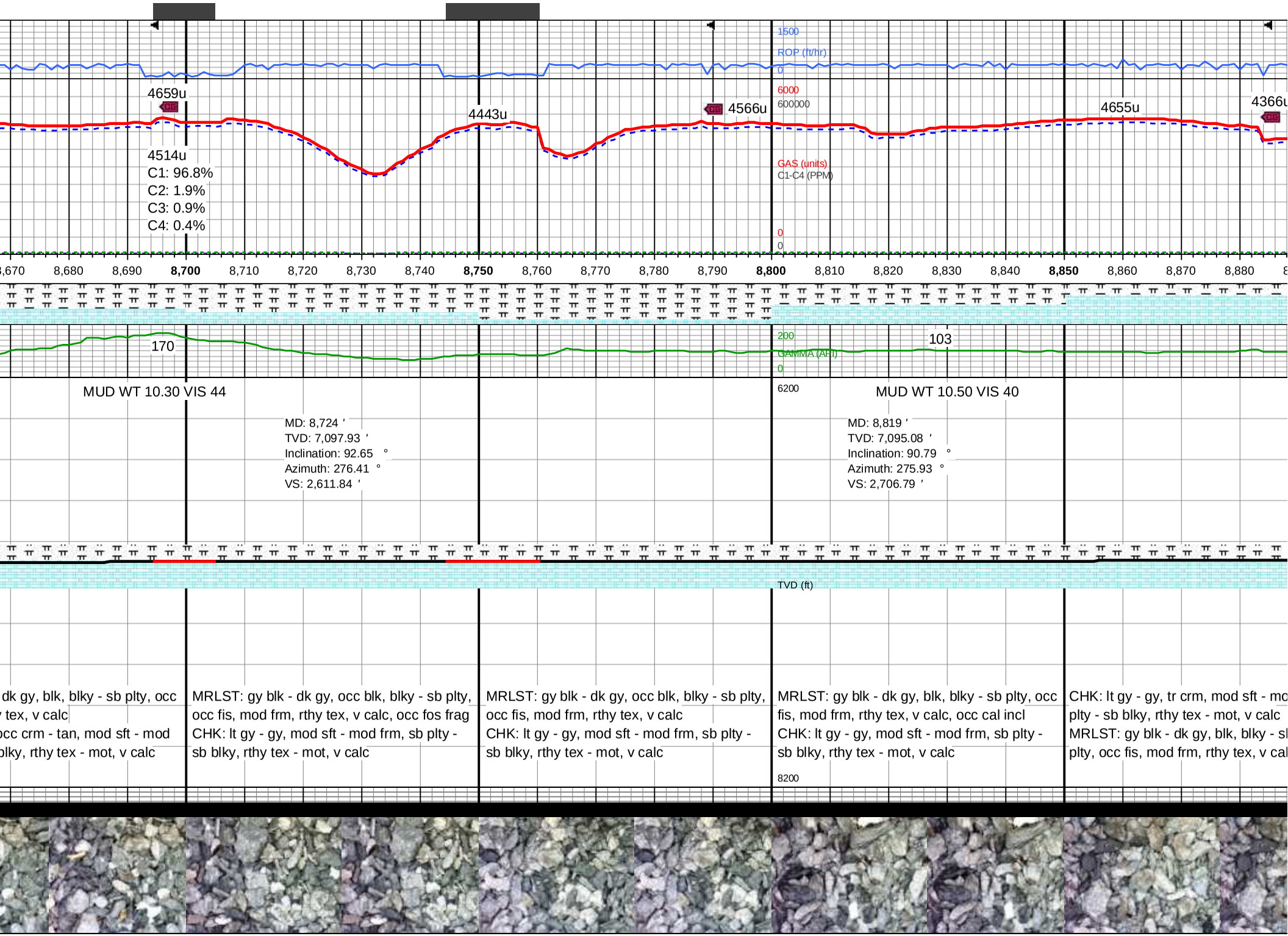

08/01/2014
08/02/2014
50' Sample Interval
1500
P (ft/hr)
6000
600000
t of 7" Casing
AM 08/02/2014
Bit Data
Bit #: 3
Type: Smith SDi513
Size: 6.125"
Depth In: 7,557 '
Depth Out: 11,882 '
Jets: 5X15 : 1X16 : 2X11
S/N: JJ4687
7557' MD
e Casing
M 07/31/2014
3859u
3763u
3592u
3429u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
3977u
39
7,570
7,580
7,590
7,600
7,610
7,620
7,630
7,640
7,650
7,660
7,670
7,680
7,690
7,700
7,710
7,720
7,730
7,740
7,750
7,760
7,770
7,780
200
GAMMA (API)
0
113
105
MUD WT 10.10 VIS 40
6200
MD: 7,582 '
TVD: 7,090.55 '
Inclination: 82.59 °
Azimuth: 276.35 °
VS: 1,474.73 '
MD: 7,677 '
TVD: 7,098.87 '
Inclination: 87.35 °
Azimuth: 274.11 °
VS: 1,569.32 '
MD: 7,772 '
TVD: 7,100.19 '
Inclination: 91.07 °
Azimuth: 273.39 °
VS: 1,664.23 '
TVD (ft)
T: gy blk - dk gy, blk, blky - sb
fis, mod frm, rthy tex, v calc,
MRLST: gy blk - dk gy, blk, blky - sb plty, tr
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr med gy, mod sft - mod
frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, tr
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr med gy, mod sft - mod frm,
sb plty - sb blky, rthy tex - mot, tr calc incl, v
calc
MRLST: gy blk - dk gy, blk, blky - sb plty, tr
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr med gy, mod sft - mod frm,
sb plty - sb blky, rthy tex - mot, tr calc incl, v
calc
MRLST: gy blk - dk gy, blk, blky - s
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr med gy, mod sft
sb plty - sb blky, rthy tex - mot, v ca
8200

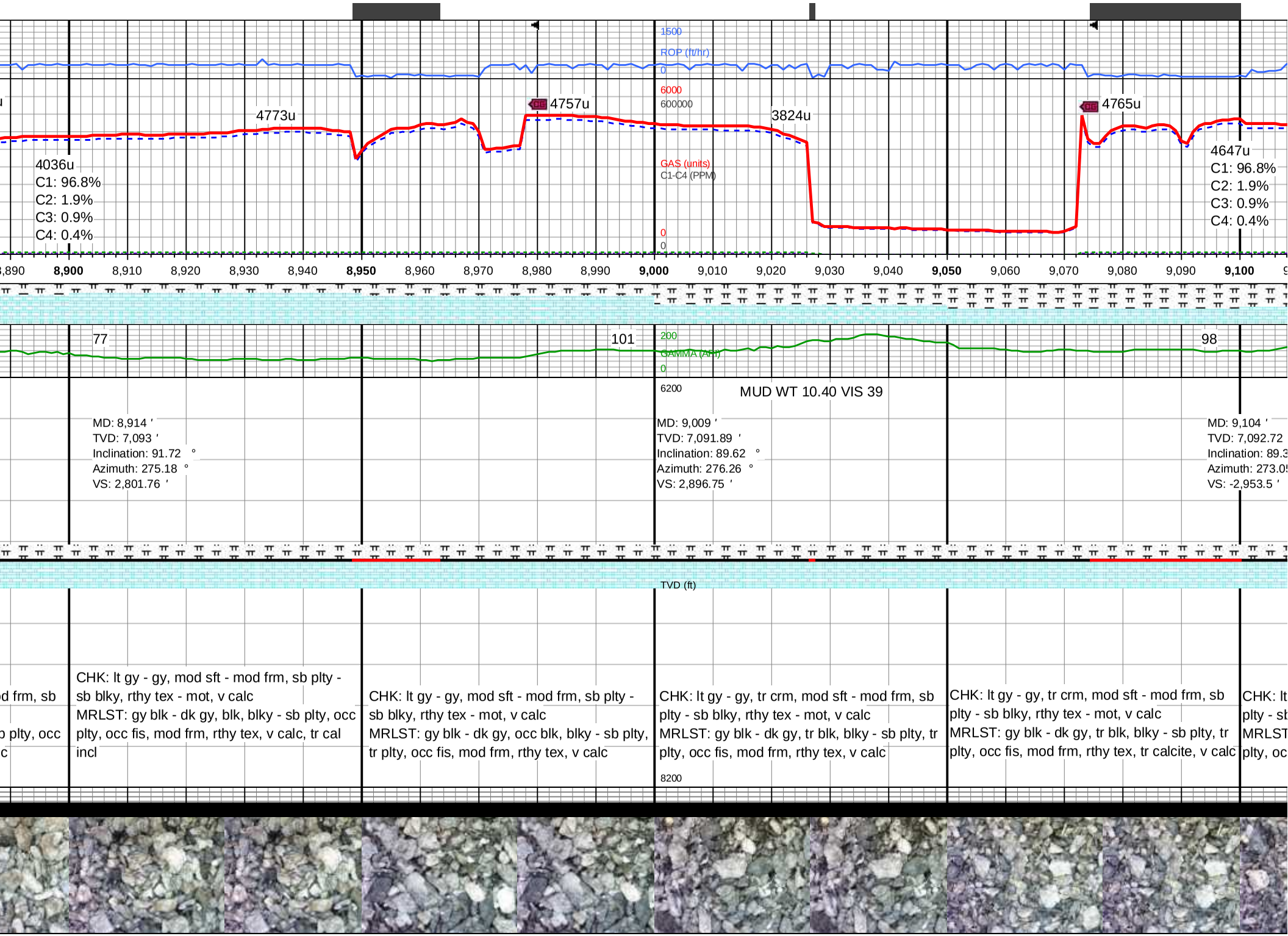

1500
ROP (ft/hr)
0
6000
600000
13u
4080u
4026u
4533u
4307u
GAS (units)
C1-C4 (PPM)
0
0
3949u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
7,790
7,800
7,810
7,820
7,830
7,840
7,850
7,860
7,870
7,880
7,890
7,900
7,910
7,920
7,930
7,940
7,950
7,960
7,970
7,980
7,990
8,000
200
GAMMA (API)
0
6200
117
115
73
MUD WT 10.10 VIS 43
MD: 7,867 '
TVD: 7,099.3 '
Inclination: 90 °
Azimuth: 272.6 °
VS: 1,759.11 '
MD: 7,962 '
TVD: 7,100.21 '
Inclination: 88.9 °
Azimuth: 270.93 °
VS: 1,853.86 '
TVD (ft)
MRLST: gy blk - dk gy, blk, blky - sb plty, tr fis, mod frm, rthy tex, tr - occ calc incl, v calc, tr bent, tr fos frag
CHK: lt gy - gy, tr med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, tr calc incl, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, tr fis, mod frm, rthy tex, tr - occ calc incl, v calc, tr bent, tr fos frag
CHK: lt gy - gy, tr med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, tr calc incl, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ fis, mod frm, rthy tex, tr calc incl, v calc, tr bent
CHK: lt gy - gy, tr med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, tr calc incl, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ fis, mod frm, rthy tex, tr calc incl, v calc
CHK: lt gy - gy, tr med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, tr calc incl, v calc
8200

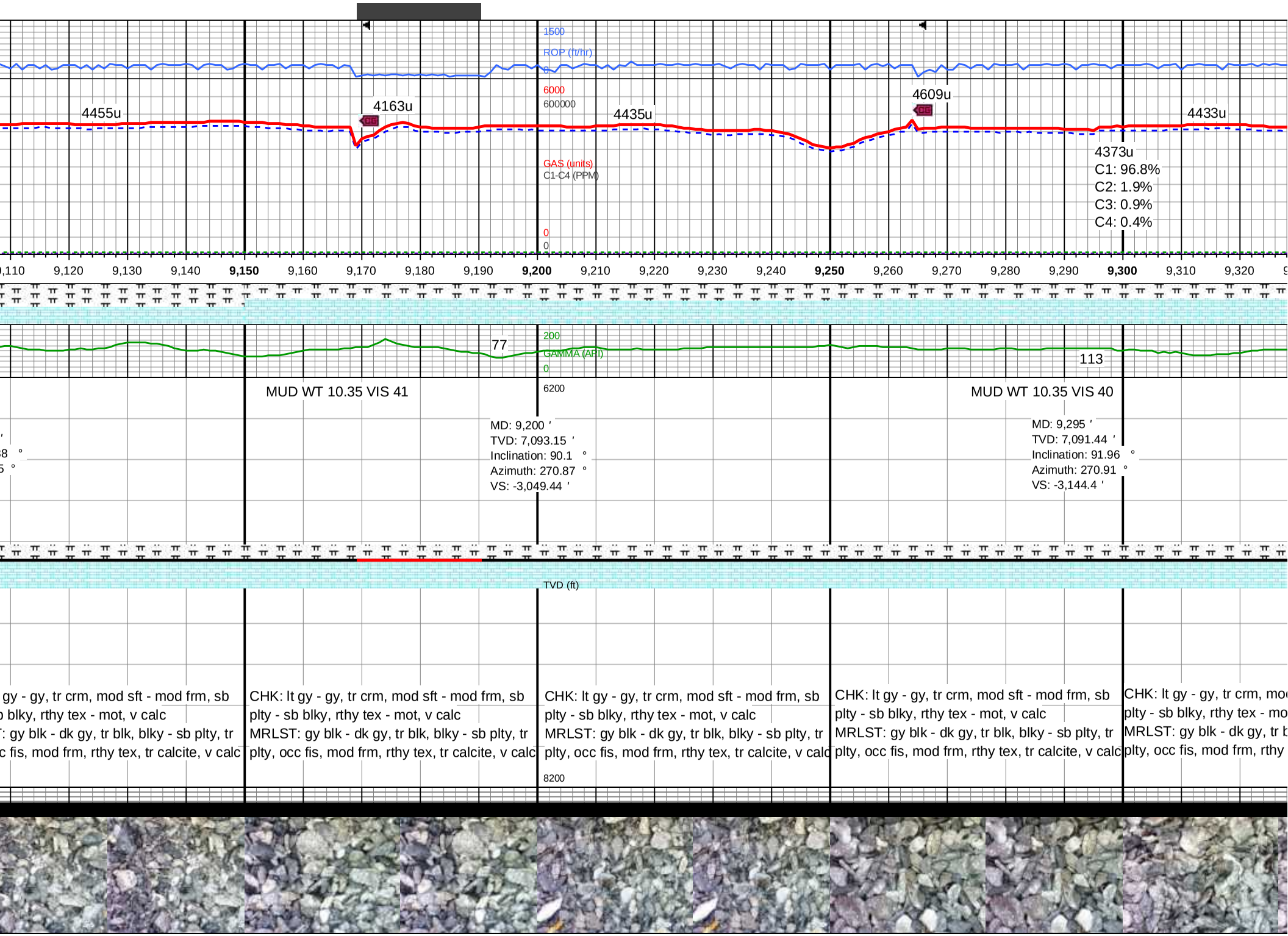

1500
ROP (ft/hr)
0
6000
600000
4627u
4340u
4757u
4501u
4321u
4391u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
8,010
8,020
8,030
8,040
8,050
8,060
8,070
8,080
8,090
8,100
8,110
8,120
8,130
8,140
8,150
8,160
8,170
8,180
8,190
8,200
8,210
8,220
136
105
200
GAMMA (API)
0
6200
MUD WT 10.10 VIS 45
MD: 8,058 '
TVD: 7,102.6 '
Inclination: 88.25 °
Azimuth: 270.12 °
VS: 1,949.41 '
MD: 8,153 '
TVD: 7,105.9 '
Inclination: 87.77 °
Azimuth: 269.22 °
VS: 2,043.79 '
TVD (ft)
T: gy blk - dk gy, blk, blky - sb plty, occ
d frm, rthy tex, tr calc incl, v calc
t gy - gy, tr med gy, mod sft - mod frm,
- sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr med gy, mod sft - mod frm,
sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ
fis, mod frm, rthy tex, v calc, tr chk
MRLST: gy blk - dk gy, blk, blky - sb plty, occ
fis, mod frm, rthy tex, v calc, tr chk
MRLST: gy blk - dk gy, bl
fis, mod frm, rthy tex, v ca
CHK: lt gy - gy, tr med gy,
sb plty - sb blky, rthy tex -
8200

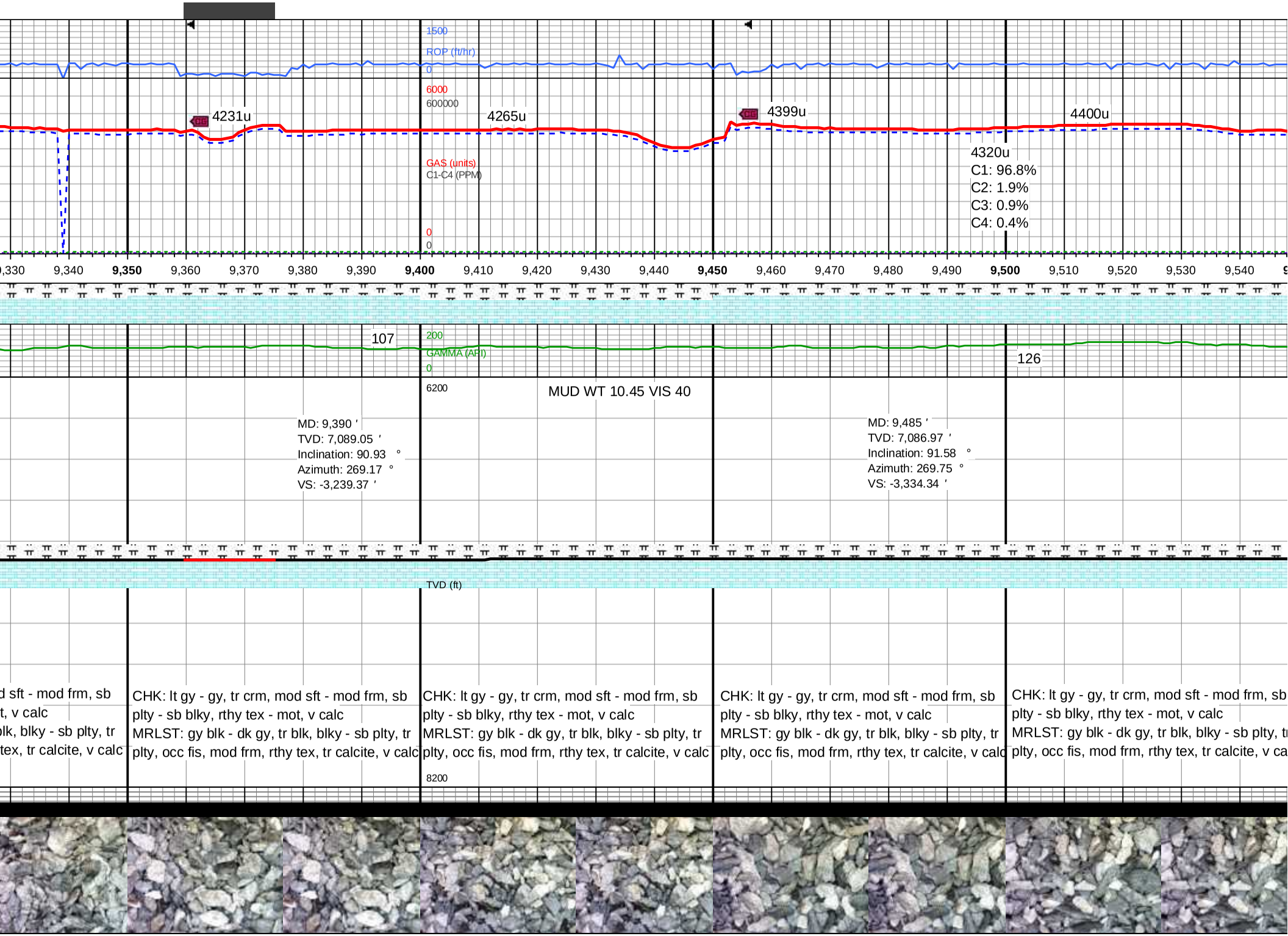

1500
ROP (ft/hr)
0
6000
600000
4639u
4541u
4381u
4296u
3974u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
8,230
8,240
8,250
8,260
8,270
8,280
8,290
8,300
8,310
8,320
8,330
8,340
8,350
8,360
8,370
8,380
8,390
8,400
8,410
8,420
8,430
8,440
102
125
200
GAMMA (API)
0
6200
MUD WT 10.20 VIS 45
MD: 8,248 '
TVD: 7,107.61 '
Inclination: 90.17 °
Azimuth: 270.09 °
VS: 2,138.21 '
MD: 8,343 '
TVD: 7,106.84 '
Inclination: 90.76 °
Azimuth: 269.26 °
VS: 2,232.66 '
MD: 8,438 '
TVD: 7,105.74 '
Inclination: 90.58 °
Azimuth: 267.5 °
VS: 2,326.84 '
TVD (ft)
k, blky - sb plty, occ
lc
, mod sft - mod frm,
mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ
fis, mod frm, rthy tex, tr fos frag, v calc, tr chk
MRLST: gy blk - dk gy, blk, blky - sb plty, occ
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr med gy, mod sft - mod frm,
sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr wh - tan, mod sft - mod
frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ
fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr wh - tan, mod sft - mod frm
sb plty - sb blky, rthy tex - mot, v calc
8200

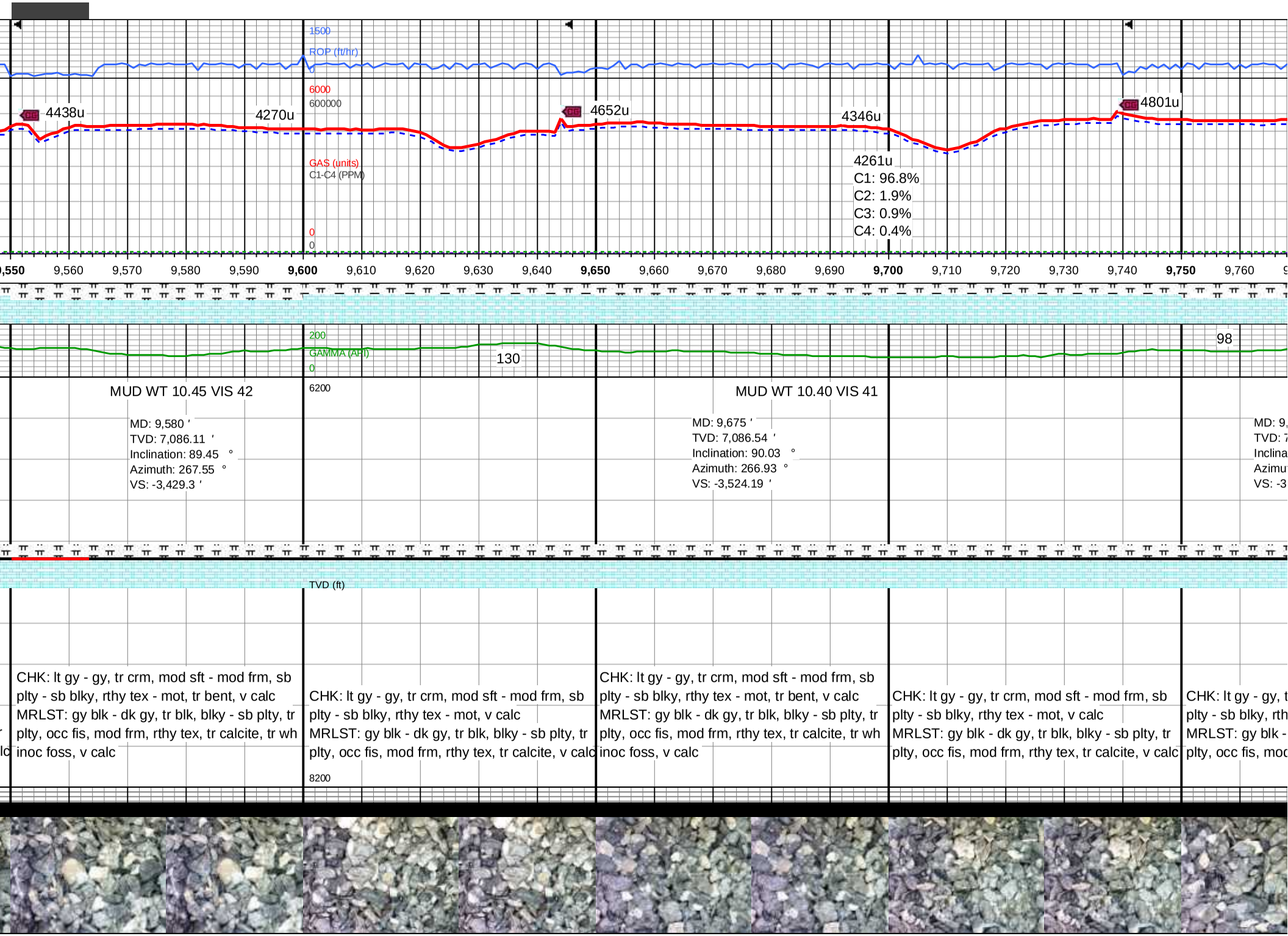

1500
ROP (ft/hr)
0
6000
600000
4451u
4438u
4629u
4599u
4635u
4350u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
8,450
8,460
8,470
8,480
8,490
8,500
8,510
8,520
8,530
8,540
8,550
8,560
8,570
8,580
8,590
8,600
8,610
8,620
8,630
8,640
8,650
8,660
117
114
200
GAMMA (API)
0
121
MUD WT 10.20 VIS 45
MUD WT 10.30 VIS 44
6200
MD: 8,534 '
TVD: 7,105.68 '
Inclination: 89.48 °
Azimuth: 270.74 °
VS: 2,422.16 '
MD: 8,629 '
TVD: 7,103.12 '
Inclination: 93.61 °
Azimuth: 276.41 °
VS: 2,516.99 '
TVD (ft)
MRLST: gy blk - dk gy, blk, blky - sb plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, occ crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, occ crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
CHK: lt gy - gy, occ crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, occ crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ fis, mod frm, rthy tex, v calc
8200

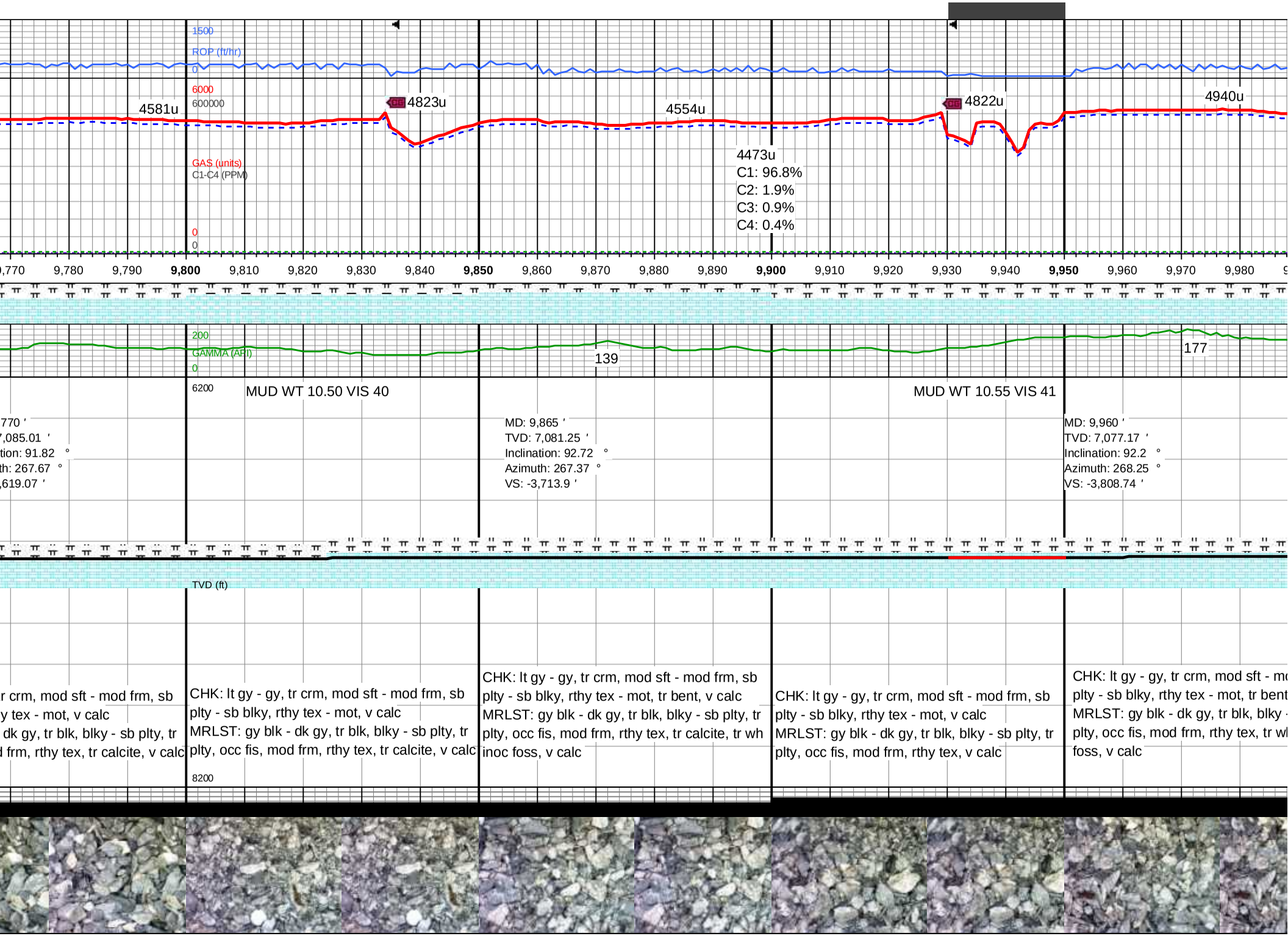

1500
ROP (ft/hr)
0
6000
600000
4659u
4443u
4566u
4655u
4366u
4514u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
8,670
8,680
8,690
8,700
8,710
8,720
8,730
8,740
8,750
8,760
8,770
8,780
8,790
8,800
8,810
8,820
8,830
8,840
8,850
8,860
8,870
8,880
170
200
GAMMA (API)
0
103
6200
MUD WT 10.30 VIS 44
MD: 8,724 '
TVD: 7,097.93 '
Inclination: 92.65 °
Azimuth: 276.41 °
VS: 2,611.84 '
MUD WT 10.50 VIS 40
MD: 8,819 '
TVD: 7,095.08 '
Inclination: 90.79 °
Azimuth: 275.93 °
VS: 2,706.79 '
TVD (ft)
dk gy, blk, blky - sb plty, occ
tex, v calc
cc crm - tan, mod sft - mod
lky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, occ blk, blky - sb plty, occ fis, mod frm, rthy tex, v calc, occ fos frag
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, occ blk, blky - sb plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ fis, mod frm, rthy tex, v calc, occ cal incl
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
8200
CHK: lt gy - gy, tr crm, mod sft - mo
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sl
plty, occ fis, mod frm, rthy tex, v cal

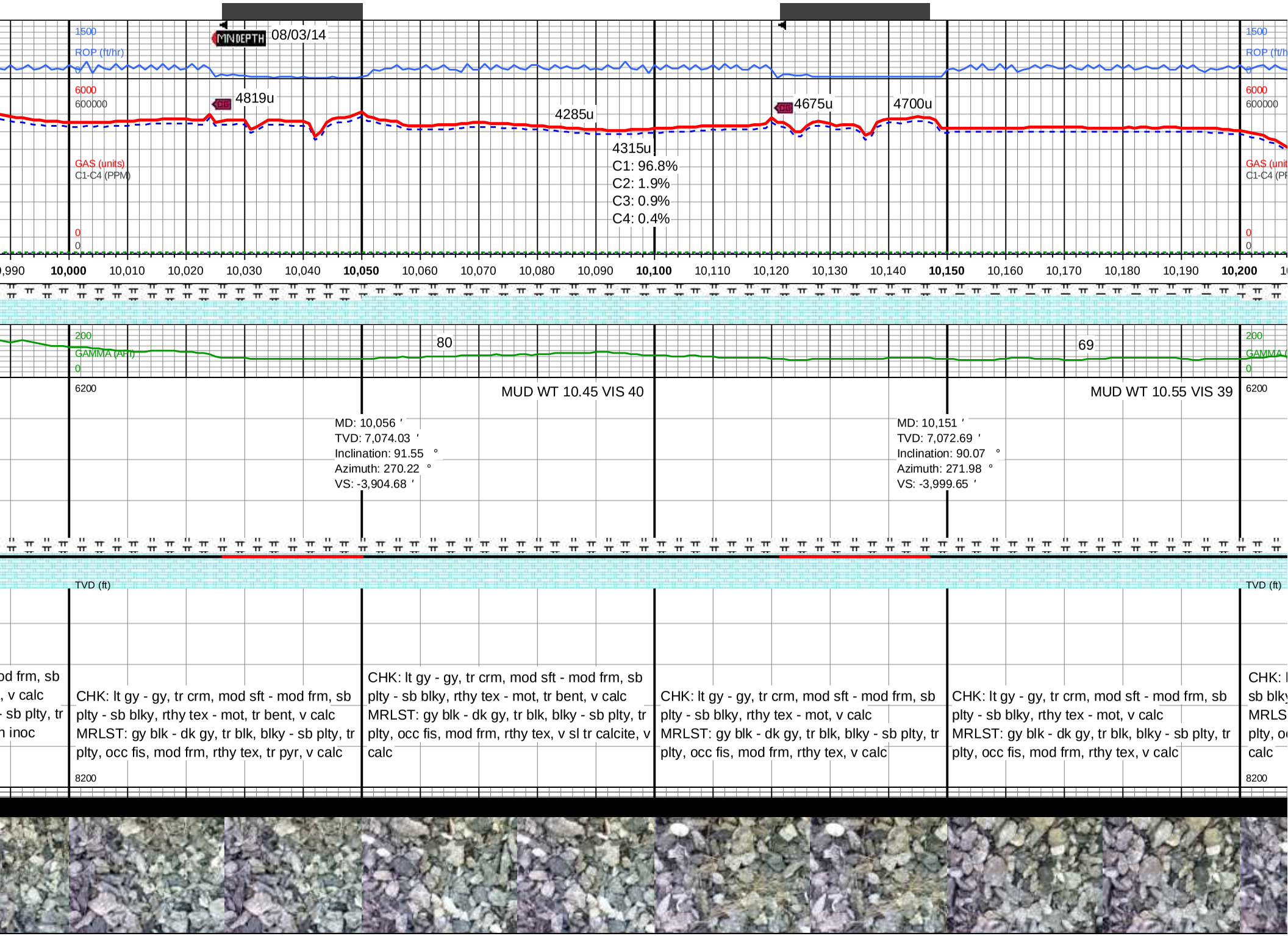

1500
ROP (ft/hr)
0
6000
600000
4773u
4757u
3824u
4765u
4036u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
4647u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
8,890
8,900
8,910
8,920
8,930
8,940
8,950
8,960
8,970
8,980
8,990
9,000
9,010
9,020
9,030
9,040
9,050
9,060
9,070
9,080
9,090
9,100
77
101
200
GAMMA (API)
0
98
6200
MUD WT 10.40 VIS 39
MD: 8,914 '
TVD: 7,093 '
Inclination: 91.72 °
Azimuth: 275.18 °
VS: 2,801.76 '
MD: 9,009 '
TVD: 7,091.89 '
Inclination: 89.62 °
Azimuth: 276.26 °
VS: 2,896.75 '
MD: 9,104 '
TVD: 7,092.72
Inclination: 89.3
Azimuth: 273.0
VS: -2,953.5 '
TVD (ft)
d frm, sb
p plty, occ
c
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, blk, blky - sb plty, occ plty, occ fis, mod frm, rthy tex, v calc, tr cal incl
CHK: lt gy - gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, occ blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc
8200
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr calcite, v calc
CHK: lt
plty - sb
MRLST
plty, oc

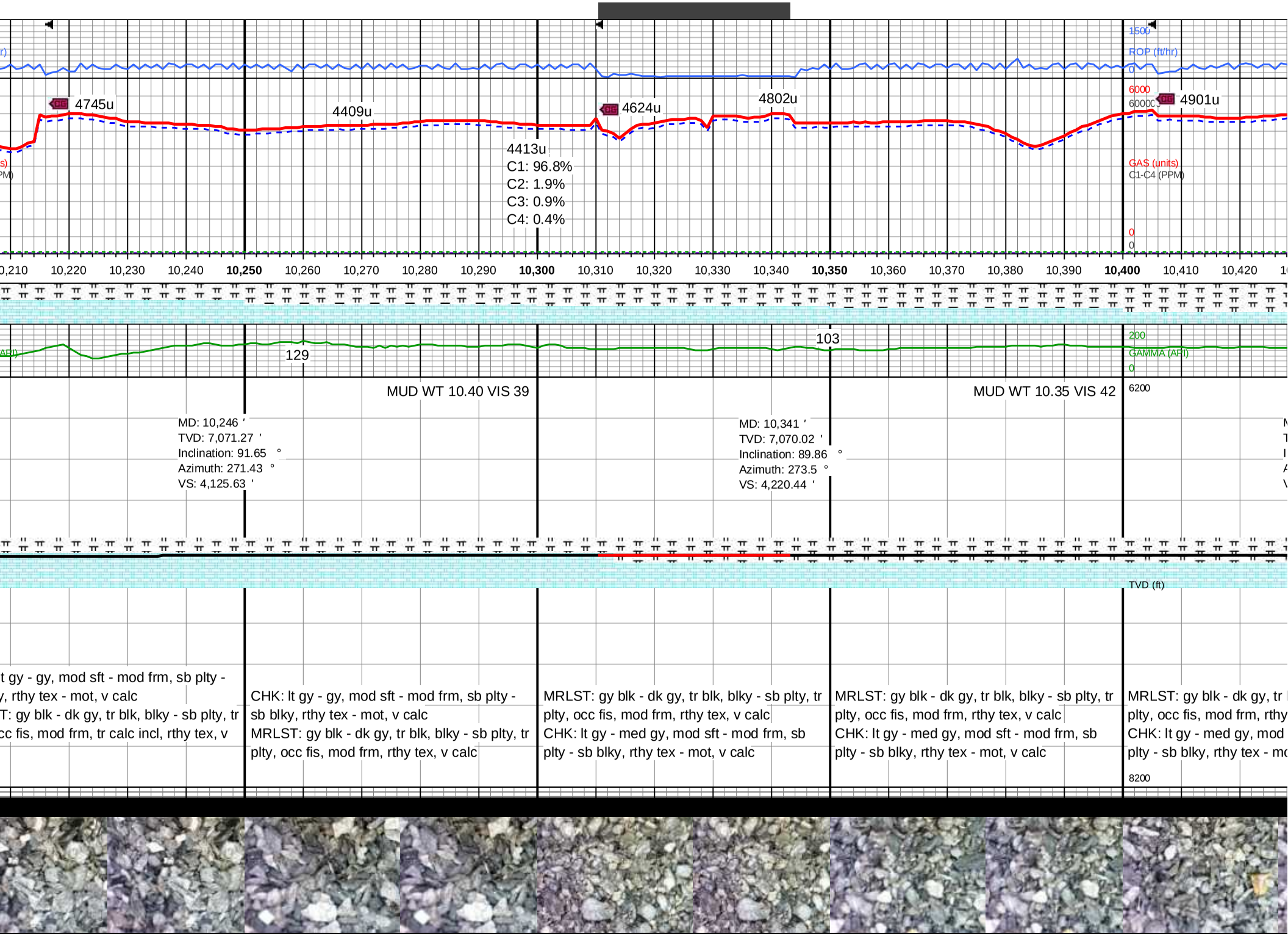

1500
ROP (ft/hr)
0
6000
600000
4455u
4163u
4435u
4609u
4433u
4373u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
9,110
9,120
9,130
9,140
9,150
9,160
9,170
9,180
9,190
9,200
9,210
9,220
9,230
9,240
9,250
9,260
9,270
9,280
9,290
9,300
9,310
9,320
77
200
GAMMA (API)
0
113
6200
MUD WT 10.35 VIS 41
MUD WT 10.35 VIS 40
MD: 9,200 '
TVD: 7,093.15 '
Inclination: 90.1 °
Azimuth: 270.87 °
VS: -3,049.44 '
MD: 9,295 '
TVD: 7,091.44 '
Inclination: 91.96 °
Azimuth: 270.91 °
VS: -3,144.4 '
TVD (ft)
gy - gy, tr crm, mod sft - mod frm, sb
b blky, rthy tex - mot, v calc
: gy blk - dk gy, tr blk, blky - sb plty, tr
c fis, mod frm, rthy tex, tr calcite, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v calc
8200
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v calc
CHK: lt gy - gy, tr crm, mo
plty - sb blky, rthy tex - mo
MRLST: gy blk - dk gy, tr b
plty, occ fis, mod frm, rthy

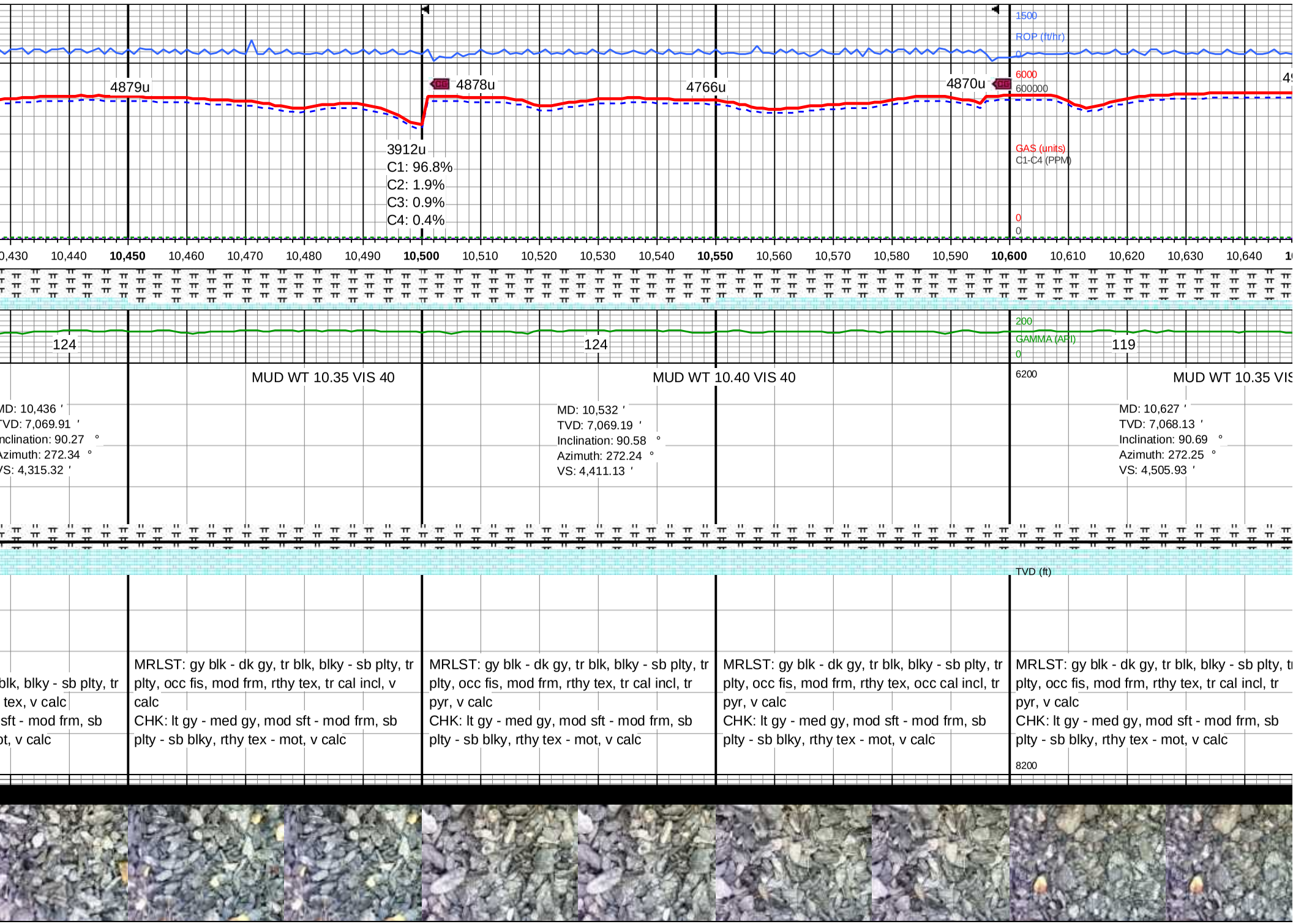

1500
ROP (ft/hr)
0
6000
600000
4231u
4265u
4399u
4400u
4320u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
9,330
9,340
9,350
9,360
9,370
9,380
9,390
9,400
9,410
9,420
9,430
9,440
9,450
9,460
9,470
9,480
9,490
9,500
9,510
9,520
9,530
9,540
107
200
GAMMA (API)
0
126
6200
MUD WT 10.45 VIS 40
MD: 9,390 '
TVD: 7,089.05 '
Inclination: 90.93 °
Azimuth: 269.17 °
VS: -3,239.37 '
MD: 9,485 '
TVD: 7,086.97 '
Inclination: 91.58 °
Azimuth: 269.75 °
VS: -3,334.34 '
TVD (ft)
d sft - mod frm, sb
t, v calc
lk, blky - sb plty, tr
tex, tr calcite, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v calc
8200
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v ca

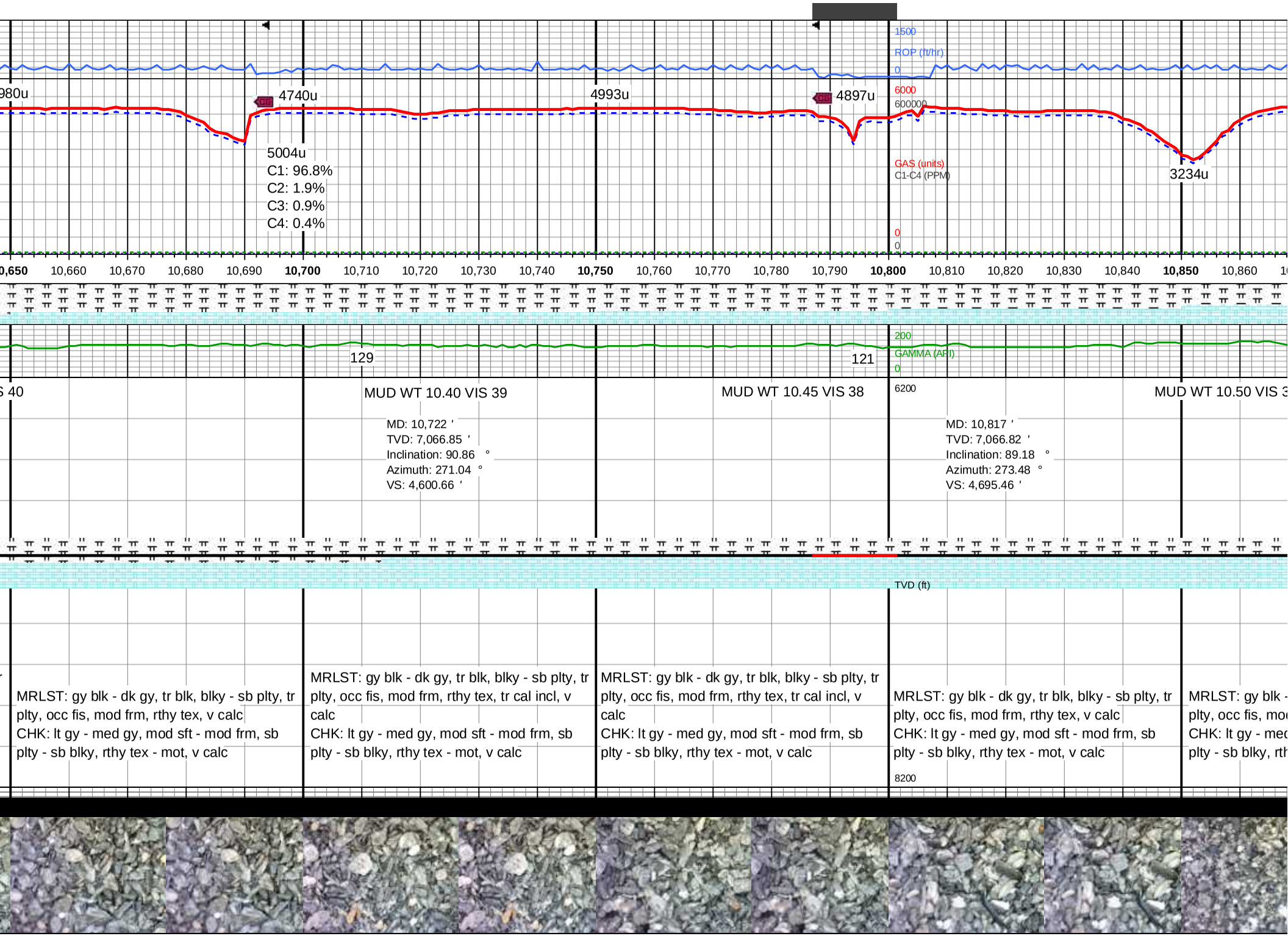

1500
ROP (ft/hr)
6000
600000
4438u
4270u
4652u
4346u
4801u
GAS (units)
C1-C4 (PPM)
0
0
4261u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
9,550
9,560
9,570
9,580
9,590
9,600
9,610
9,620
9,630
9,640
9,650
9,660
9,670
9,680
9,690
9,700
9,710
9,720
9,730
9,740
9,750
9,760
200
GAMMA (API)
0
130
98
6200
MUD WT 10.45 VIS 42
MD: 9,580 '
TVD: 7,086.11 '
Inclination: 89.45 °
Azimuth: 267.55 °
VS: -3,429.3 '
MUD WT 10.40 VIS 41
MD: 9,675 '
TVD: 7,086.54 '
Inclination: 90.03 °
Azimuth: 266.93 °
VS: -3,524.19 '
TVD (ft)
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, tr bent, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr calcite, tr wh inoc foss, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr calcite, v calc
8200

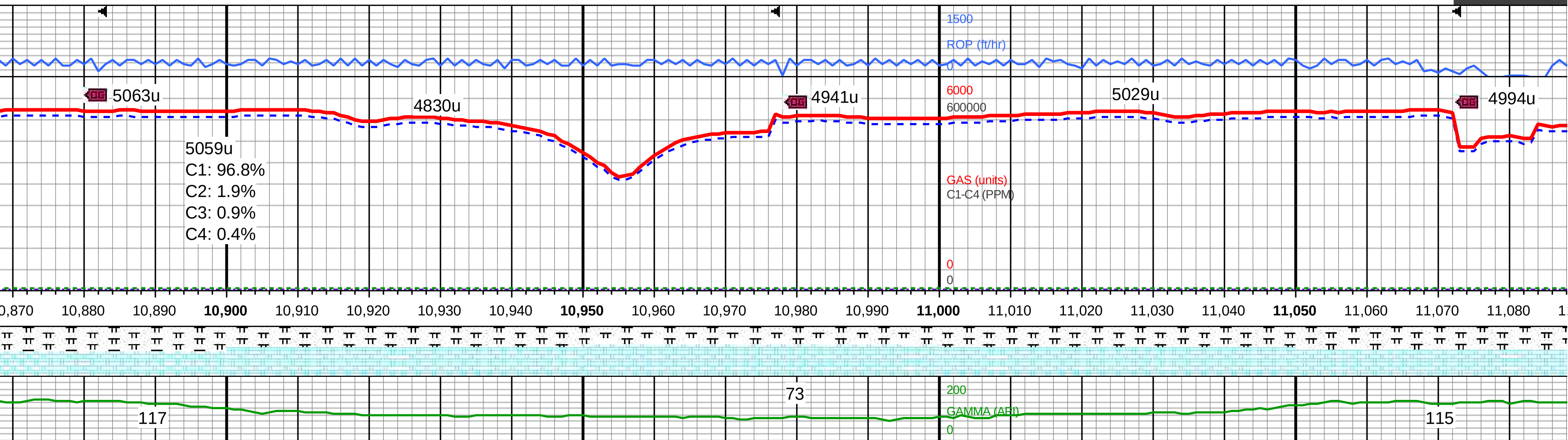

1500
ROP (ft/hr)
0
6000
600000
4581u
4823u
4554u
4822u
4940u
GA$ (units)
C1-C4 (PPM)
0
0
4473u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
9,770
9,780
9,790
9,800
9,810
9,820
9,830
9,840
9,850
9,860
9,870
9,880
9,890
9,900
9,910
9,920
9,930
9,940
9,950
9,960
9,970
9,980
200
GAMMA (API)
0
139
177
6200
MUD WT 10.50 VIS 40
MUD WT 10.55 VIS 41
770 '
,085.01 '
tion: 91.82 °
th: 267.67 °
,619.07 '
MD: 9,865 '
TVD: 7,081.25 '
Inclination: 92.72 °
Azimuth: 267.37 °
VS: -3,713.9 '
MD: 9,960 '
TVD: 7,077.17 '
Inclination: 92.2 °
Azimuth: 268.25 °
VS: -3,808.74 '
TVD (ft)
r crm, mod sft - mod frm, sb
y tex - mot, v calc
dk gy, tr blk, blky - sb plty, tr
d frm, rthy tex, tr calcite, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, v calc
8200
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, tr bent, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, tr calcite, tr wh
inoc foss, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr crm, mod sft - mo
plty - sb blky, rthy tex - mot, tr bent
MRLST: gy blk - dk gy, tr blk, blky
plty, occ fis, mod frm, rthy tex, tr wh
foss, v calc


1500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
MNDEPTH
08/03/14
4819u
4285u
4315u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
4675u
4700u
10,000
10,050
10,100
10,150
10,200
200
GAMMA (API)
0
80
69
6200
MUD WT 10.45 VIS 40
MUD WT 10.55 VIS 39
MD: 10,056 '
TVD: 7,074.03 '
Inclination: 91.55 °
Azimuth: 270.22 °
VS: -3,904.68 '
MD: 10,151 '
TVD: 7,072.69 '
Inclination: 90.07 °
Azimuth: 271.98 °
VS: -3,999.65 '
TVD (ft)
od frm, sb
, v calc
- sb plty, tr
n inoc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, tr bent, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr pyr, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, tr bent, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v sl tr calcite, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - gy, tr crm, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc
8200


1500
ROP (ft/hr)
0
6000
GAS (units)
C1-C4 (PPM)
0
4745u
4409u
4624u
4802u
4901u
4413u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
10,210
10,220
10,230
10,240
10,250
10,260
10,270
10,280
10,290
10,300
10,310
10,320
10,330
10,340
10,350
10,360
10,370
10,380
10,390
10,400
10,410
10,420
129
103
200
GAMMA (API)
0
6200
MUD WT 10.40 VIS 39
MUD WT 10.35 VIS 42
MD: 10,246 '
TVD: 7,071.27 '
Inclination: 91.65 °
Azimuth: 271.43 °
VS: 4,125.63 '
MD: 10,341 '
TVD: 7,070.02 '
Inclination: 89.86 °
Azimuth: 273.5 °
VS: 4,220.44 '
TVD (ft)
t gy - gy, mod sft - mod frm, sb plty -
y, rthy tex - mot, v calc
T: gy blk - dk gy, tr blk, blky - sb plty, tr
cc fis, mod frm, tr calc incl, rthy tex, v
CHK: lt gy - gy, mod sft - mod frm, sb plty -
sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr
plty, occ fis, mod frm, rthy
CHK: lt gy - med gy, mod
plty - sb blky, rthy tex - mo
8200


1500
ROP (ft/hr)
0
6000
600000
4879u
4878u
4766u
4870u
3912u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
10,430
10,440
10,450
10,460
10,470
10,480
10,490
10,500
10,510
10,520
10,530
10,540
10,550
10,560
10,570
10,580
10,590
10,600
10,610
10,620
10,630
10,640
200
GAMMA (API)
0
124
124
119
6200
MUD WT 10.35 VIS 40
MUD WT 10.40 VIS 40
MUD WT 10.35 VIS
MD: 10,436 '
TVD: 7,069.91 '
Inclination: 90.27 °
Azimuth: 272.34 °
VS: 4,315.32 '
MD: 10,532 '
TVD: 7,069.19 '
Inclination: 90.58 °
Azimuth: 272.24 °
VS: 4,411.13 '
MD: 10,627 '
TVD: 7,068.13 '
Inclination: 90.69 °
Azimuth: 272.25 °
VS: 4,505.93 '
TVD (ft)
blk, blky - sb plty, tr
tex, v calc
sft - mod frm, sb
ot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, tr pyr, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, occ cal incl, tr pyr, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, tr pyr, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
8200


1500
ROP (ft/hr)
0
980u
4740u
4993u
4897u
6000
600000
5004u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
3234u
0
0
10,650
10,660
10,670
10,680
10,690
10,700
10,710
10,720
10,730
10,740
10,750
10,760
10,770
10,780
10,790
10,800
10,810
10,820
10,830
10,840
10,850
10,860
200
GAMMA (API)
0
129
121
6200
S 40
MUD WT 10.40 VIS 39
MUD WT 10.45 VIS 38
MUD WT 10.50 VIS 3
MD: 10,722 '
TVD: 7,066.85 '
Inclination: 90.86 °
Azimuth: 271.04 °
VS: 4,600.66 '
MD: 10,817 '
TVD: 7,066.82 '
Inclination: 89.18 °
Azimuth: 273.48 °
VS: 4,695.46 '
TVD (ft)
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
8200



MUD WT 10.40 VIS 39

MUD WT 10.40 VIS 41

6200

MD: 10,912 '
TVD: 7,067.88 '
Inclination: 89.55 °
Azimuth: 273.31 °
VS: 4,790.37 '

MD: 11,007 '
TVD: 7,067.65 '
Inclination: 90.72 °
Azimuth: 272.06 °
VS: 4,885.22 '

TVD (ft)

- dk gy, tr blk, blky - sb plty, tr
d frm, rthy tex, v calc
d gy, mod sft - mod frm, sb
ny tex - mot, v calc

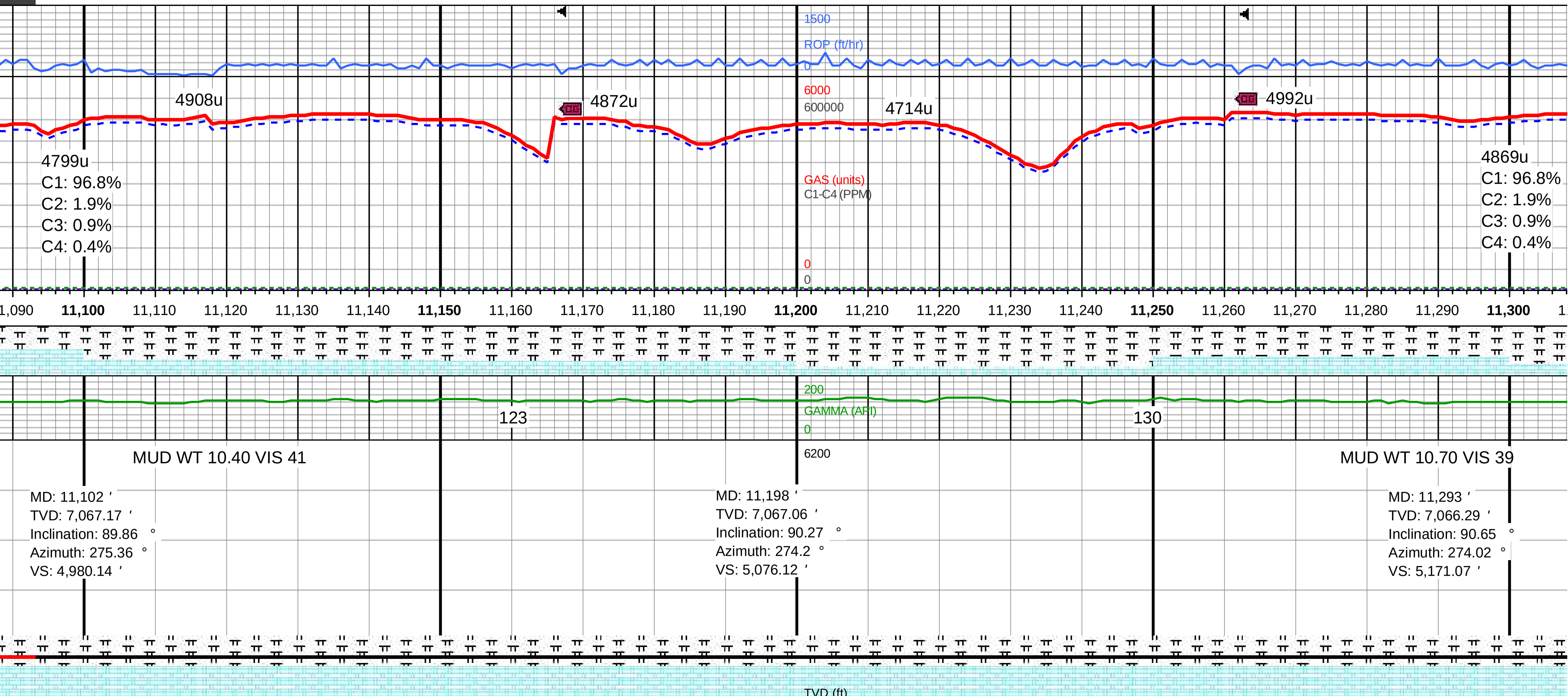
CHK: lt gy - med gy, tr crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc

CHK: lt gy - med gy, tr crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, v calc

CHK: lt gy - med gy, tr crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, tr pyr, v calc

8200

CHK: lt gy - med gy, tr crm - tan, m
mod frm, sb plty - sb blky, rthy tex -
calc
MRLST: gy blk - dk gy, tr blk, blky -
plty, occ fis, mod frm, rthy tex, tr ca
pyr, v calc



…od sft - … mot, v

… sb plty, tr … l incl, tr

MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, tr crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc

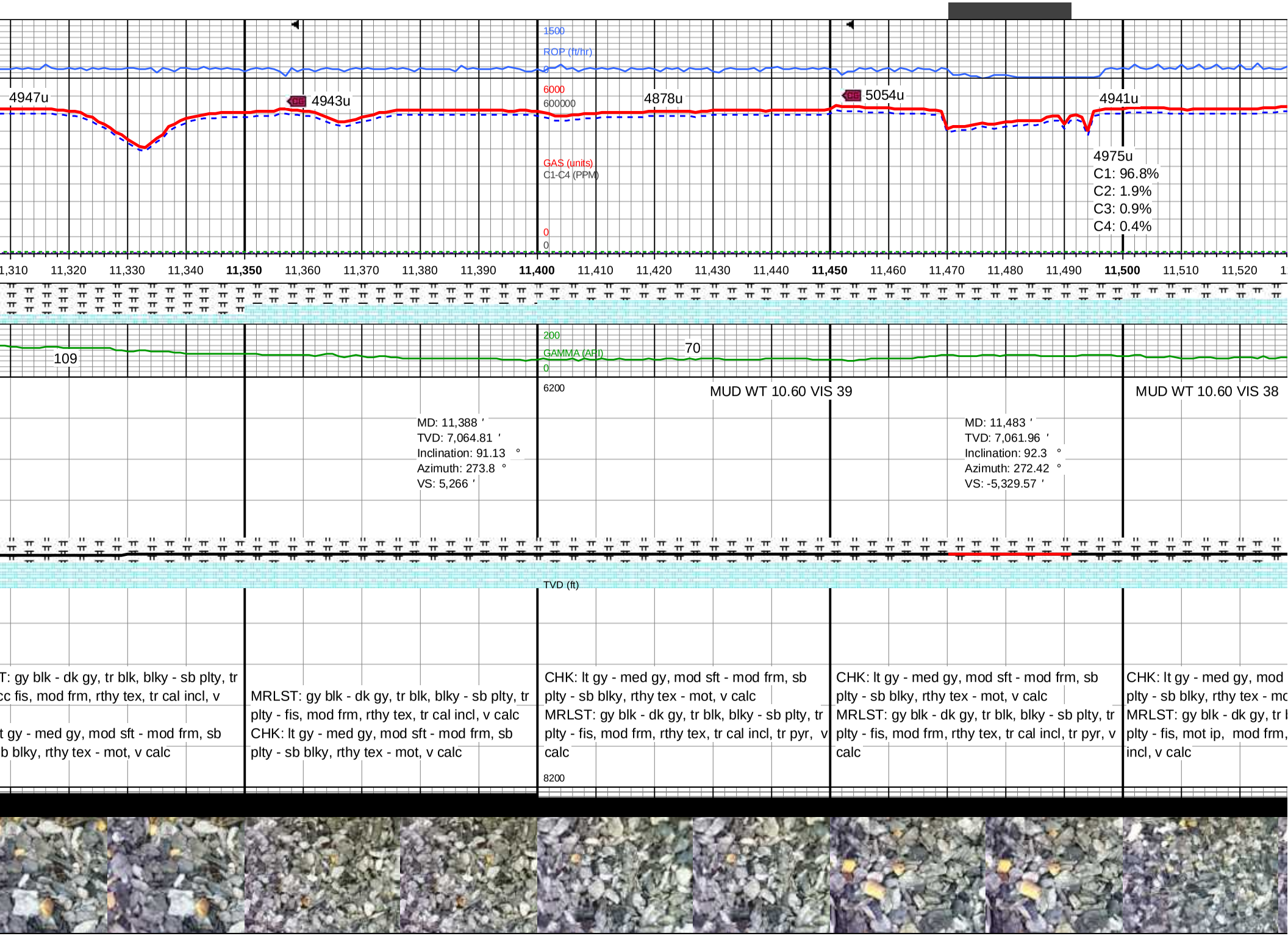
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, tr crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc

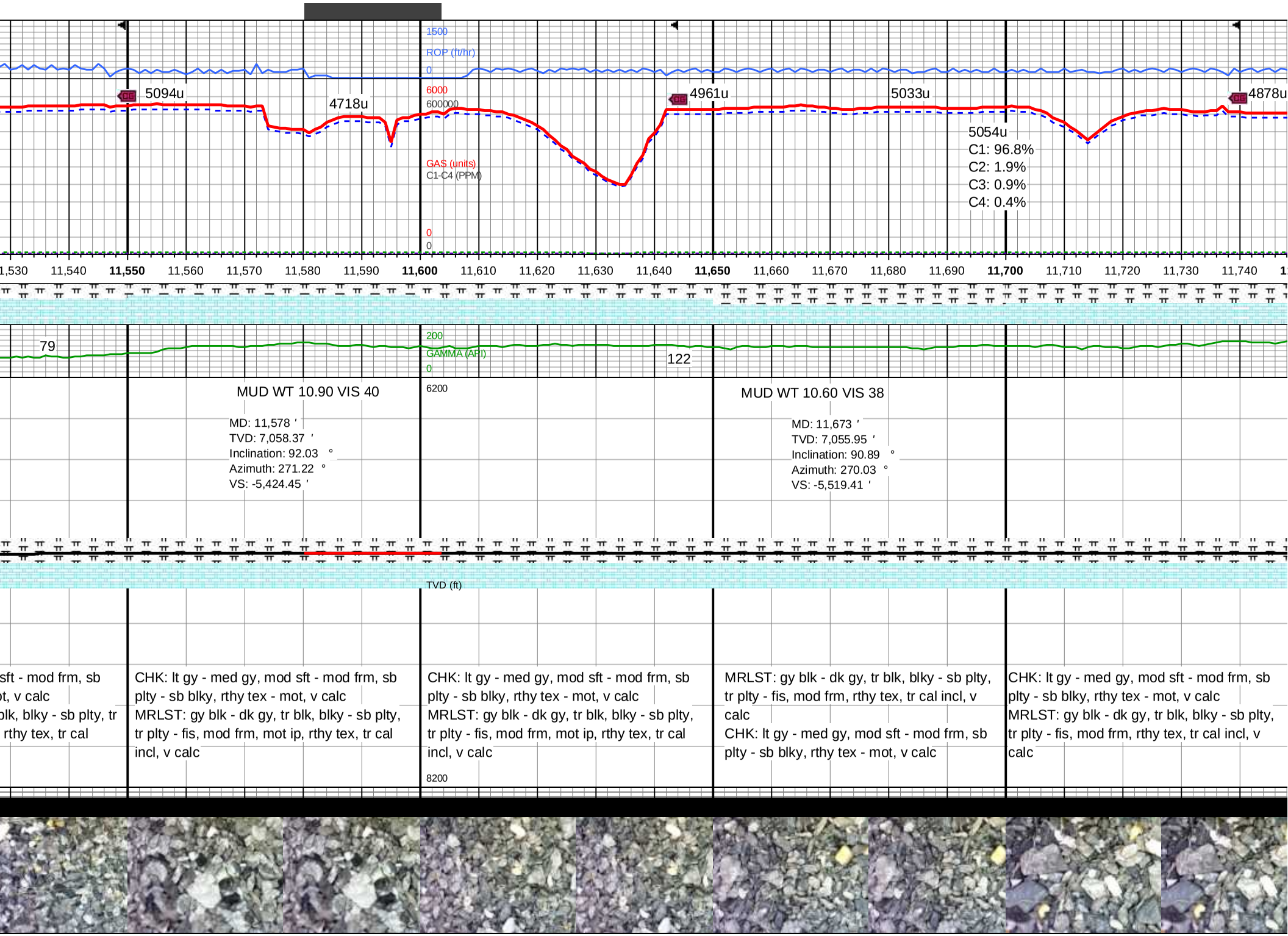
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, tr crm - tan, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc

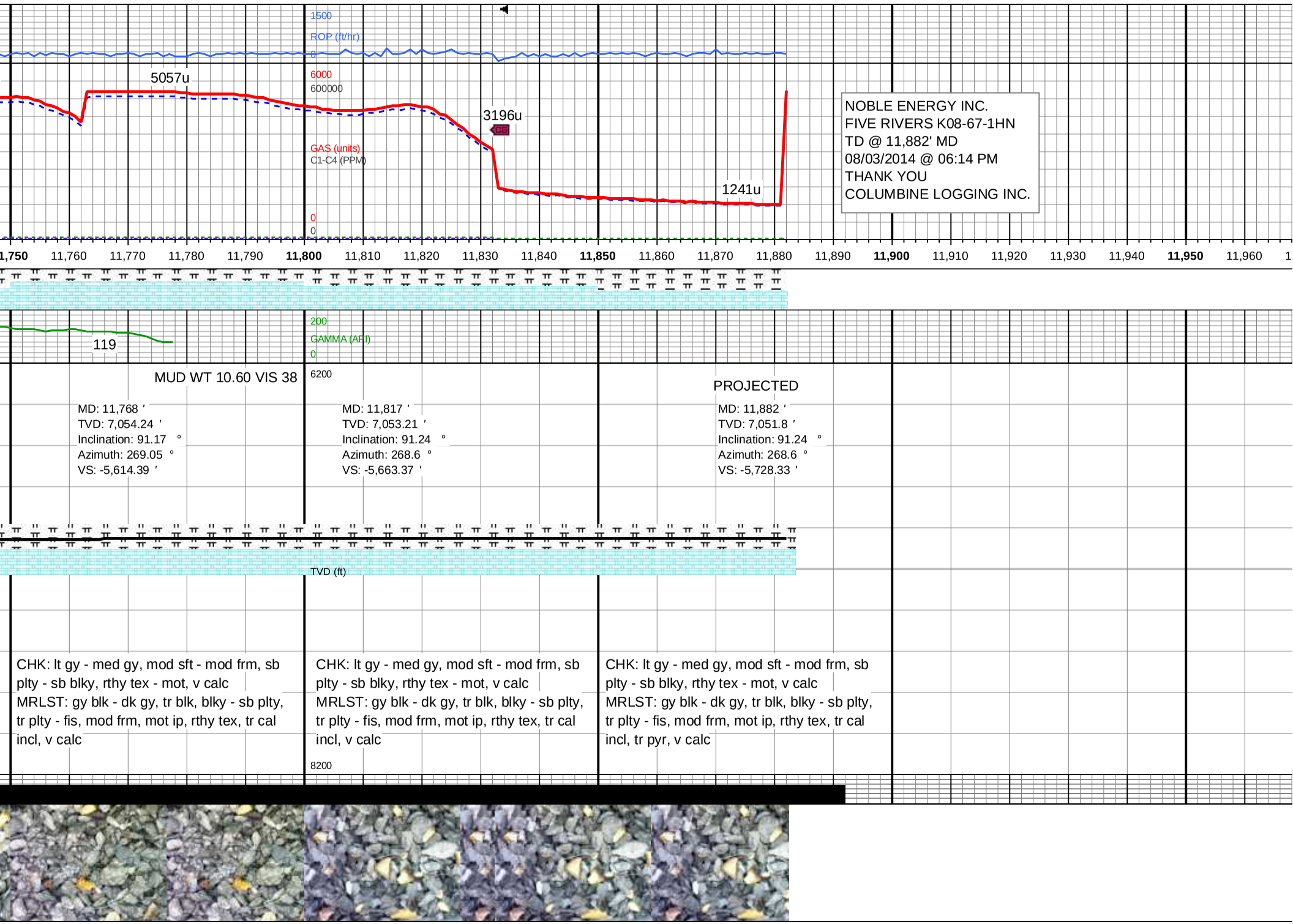
8200

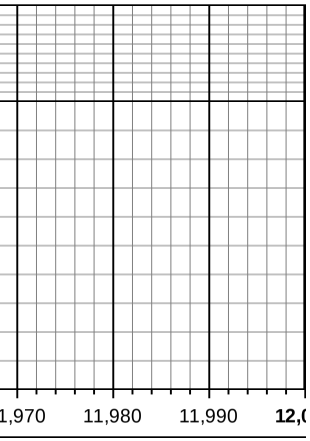
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty, occ fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc

MRLS… plty, o… calc
CHK: l… plty - s…


1500
ROP (ft/hr)
0
6000
600000
4947u
4943u
4878u
5054u
4941u
4975u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
GAS (units)
C1-C4 (PPM)
0
0
11,310
11,320
11,330
11,340
11,350
11,360
11,370
11,380
11,390
11,400
11,410
11,420
11,430
11,440
11,450
11,460
11,470
11,480
11,490
11,500
11,510
11,520
200
GAMMA (API)
0
109
70
6200
MUD WT 10.60 VIS 39
MUD WT 10.60 VIS 38
MD: 11,388 '
TVD: 7,064.81 '
Inclination: 91.13 °
Azimuth: 273.8 °
VS: 5,266 '
MD: 11,483 '
TVD: 7,061.96 '
Inclination: 92.3 °
Azimuth: 272.42 °
VS: -5,329.57 '
TVD (ft)
T: gy blk - dk gy, tr blk, blky - sb plty, tr
cc fis, mod frm, rthy tex, tr cal incl, v
t gy - med gy, mod sft - mod frm, sb
b blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty - fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty - fis, mod frm, rthy tex, tr cal incl, tr pyr, v
calc
8200
CHK: lt gy - med gy, mod sft - mod frm, sb
plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr
plty - fis, mod frm, rthy tex, tr cal incl, tr pyr, v
calc
CHK: lt gy - med gy, mod
plty - sb blky, rthy tex - mo
MRLST: gy blk - dk gy, tr
plty - fis, mot ip, mod frm,
incl, v calc


1500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
5094u
4718u
4961u
5033u
4878u
5054u
C1: 96.8%
C2: 1.9%
C3: 0.9%
C4: 0.4%
11,530
11,540
11,550
11,560
11,570
11,580
11,590
11,600
11,610
11,620
11,630
11,640
11,650
11,660
11,670
11,680
11,690
11,700
11,710
11,720
11,730
11,740
79
200
GAMMA (API)
0
122
6200
MUD WT 10.90 VIS 40
MD: 11,578 '
TVD: 7,058.37 '
Inclination: 92.03 °
Azimuth: 271.22 °
VS: -5,424.45 '
MUD WT 10.60 VIS 38
MD: 11,673 '
TVD: 7,055.95 '
Inclination: 90.89 °
Azimuth: 270.03 °
VS: -5,519.41 '
TVD (ft)
sft - mod frm, sb
ot, v calc
lk, blky - sb plty, tr
rthy tex, tr cal
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty - fis, mod frm, mot ip, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty - fis, mod frm, mot ip, rthy tex, tr cal incl, v calc
8200
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty - fis, mod frm, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty - fis, mod frm, rthy tex, tr cal incl, v calc


1500
ROP (ft/hr)
0
6000
600000
5057u
3196u
1241u
GAS (units)
C1-C4 (PPM)
0
0
NOBLE ENERGY INC.
FIVE RIVERS K08-67-1HN
TD @ 11,882' MD
08/03/2014 @ 06:14 PM
THANK YOU
COLUMBINE LOGGING INC.
11,750 11,760 11,770 11,780 11,790 11,800 11,810 11,820 11,830 11,840 11,850 11,860 11,870 11,880 11,890 11,900 11,910 11,920 11,930 11,940 11,950 11,960
200
GAMMA (API)
0
119
6200
MUD WT 10.60 VIS 38
MD: 11,768 '
TVD: 7,054.24 '
Inclination: 91.17 °
Azimuth: 269.05 °
VS: -5,614.39 '
MD: 11,817 '
TVD: 7,053.21 '
Inclination: 91.24 °
Azimuth: 268.6 °
VS: -5,663.37 '
PROJECTED
MD: 11,882 '
TVD: 7,051.8 '
Inclination: 91.24 °
Azimuth: 268.6 °
VS: -5,728.33 '
TVD (ft)
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty - fis, mod frm, mot ip, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty - fis, mod frm, mot ip, rthy tex, tr cal incl, v calc
CHK: lt gy - med gy, mod sft - mod frm, sb plty - sb blky, rthy tex - mot, v calc
MRLST: gy blk - dk gy, tr blk, blky - sb plty, tr plty - fis, mod frm, mot ip, rthy tex, tr cal incl, tr pyr, v calc
8200


1,970
11,980
11,990
12,(