COLUMBINE LOGGING

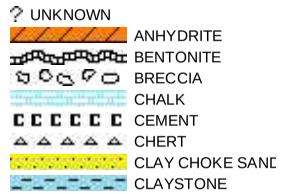
Scale: 5" / 100'
Measured Depth Log

Well Name	Oscar Y10-79-1HC		
Location	NWSW SEC 10, T2N, R64W		
State	COLORADO	**County**	WELD
Country	USA	**Rig Number**	H&P 330
API Number	05-123-38192		
Region	DJ BASIN	**Field**	WATTENBERG
Spud Date	3/14/2014	**Drilling Completed**	3/25/2014
Surface Coordinates	2380' FSL, 588' FWL		
Bottom Hole Coordinates	8076.9' FNL, 310.6' FWL		
Ground Elevation	4,943'	**K.B. Elevation**	4973'
Logged Interval	6417' **To** 14740'	**Total Depth**	14740'
Formation	CODELL		
Type of Drilling Fluid	LSND		

Company NOBLE ENERG
Address 1625 Broadway
Denver, CO 802

Name RENEE CLACK
Company NOBLE ENERG
Address 1625 Broadway
Denver, CO 802

ANDREA ZUIDEMA
ADAM HARRIS



Operator

GY INC.

Suite 2200
202

Geologist

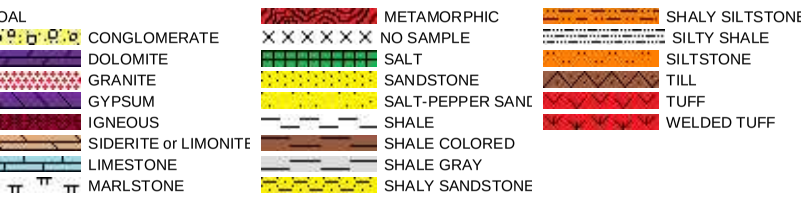
KLER

GY INC.

Suite 2200
202

Other

Rock Types



Accessories

Fossils

- FOSSIL
- GASTROPOD
- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHOIPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA

Minerals

- ANHYDRITIC
- ARGILLACEOUS
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHTDK
- CHTLT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS
- GLAUCONITE
- GYPSIFEROUS
- HEAVY MINERAL
- INOCERAMUS
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY
- TUFFACEOUS

Stringer

- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE (DOL) STRG
- SANDSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Other Symbols

Oil Show

- MOLDIC
- ORGANIC
- DEAD
- PINPOINT
- EVEN
- VUGGY
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC

Engineering

- BIT
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CORE - LOST
- CORE - RECOVERED
- DST INTERVAL
- 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

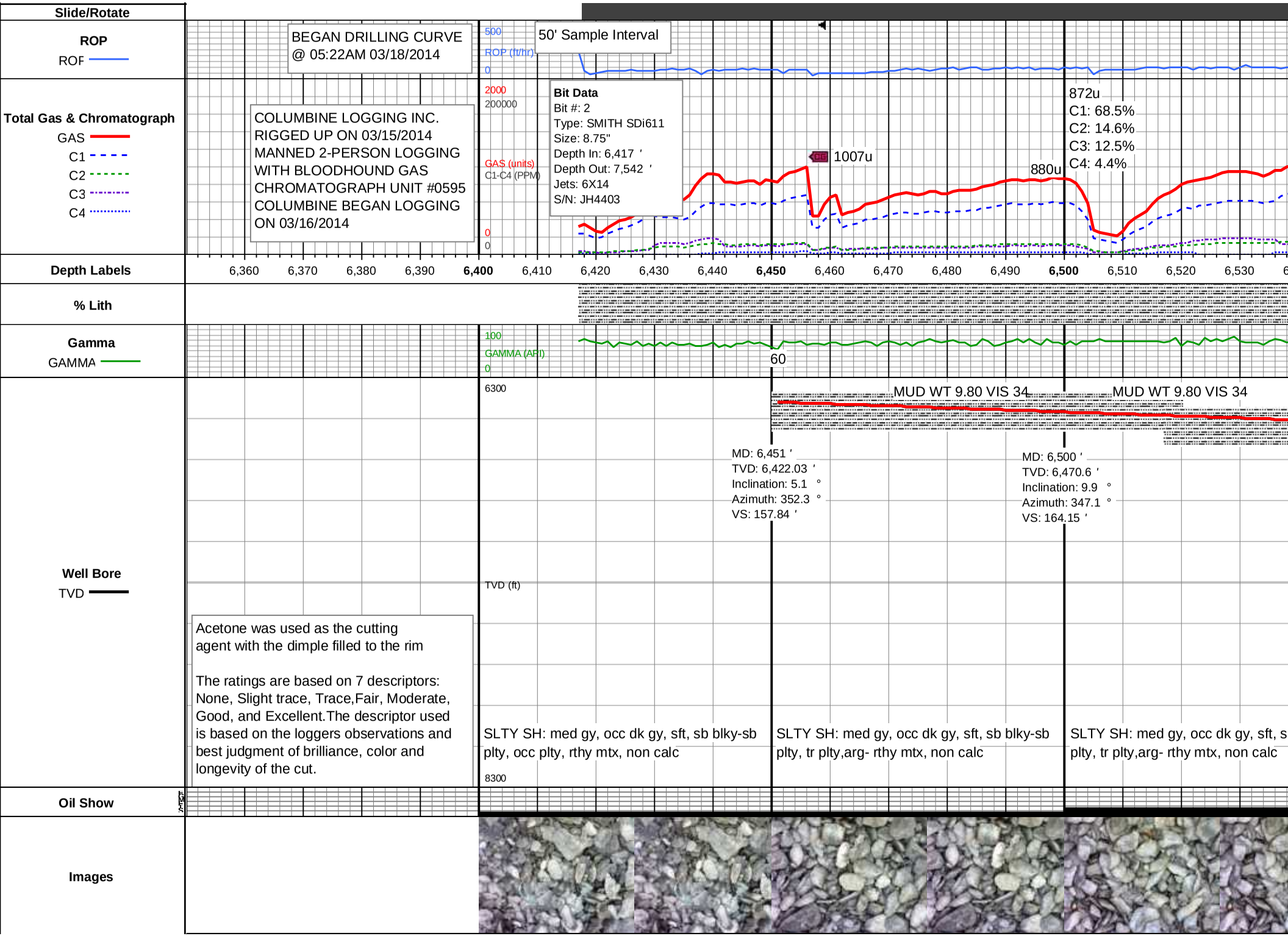
- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

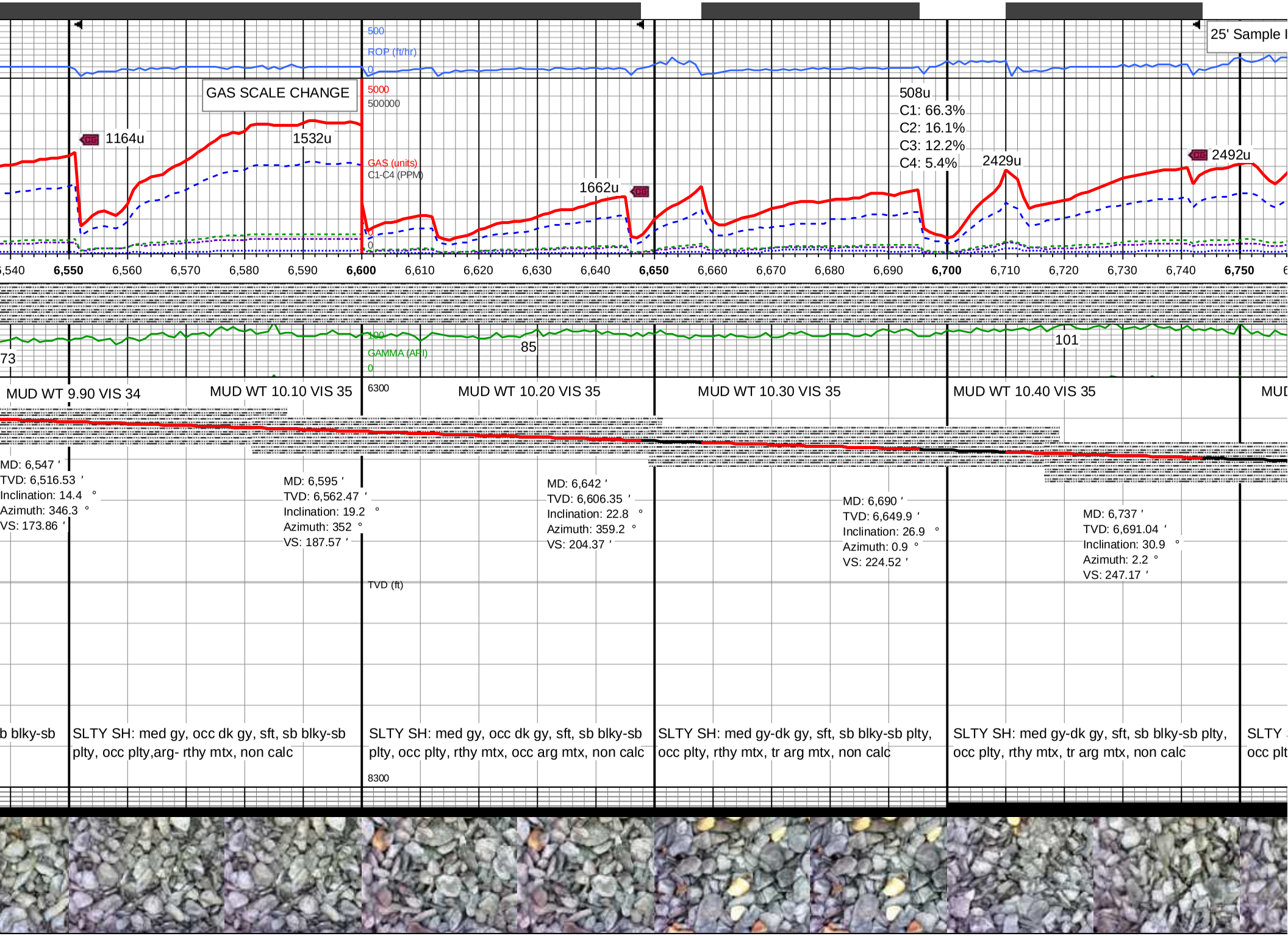
Textures

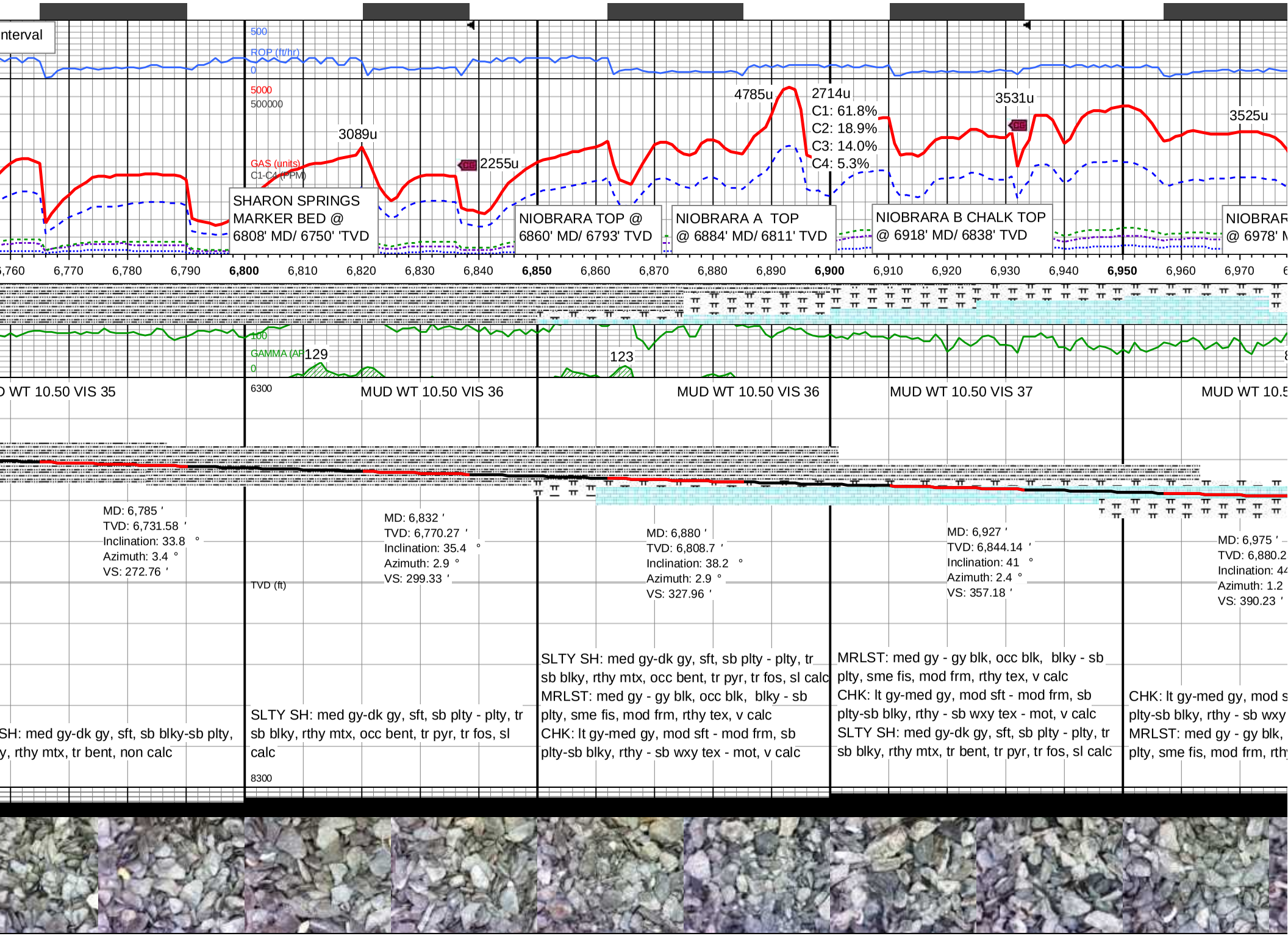
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

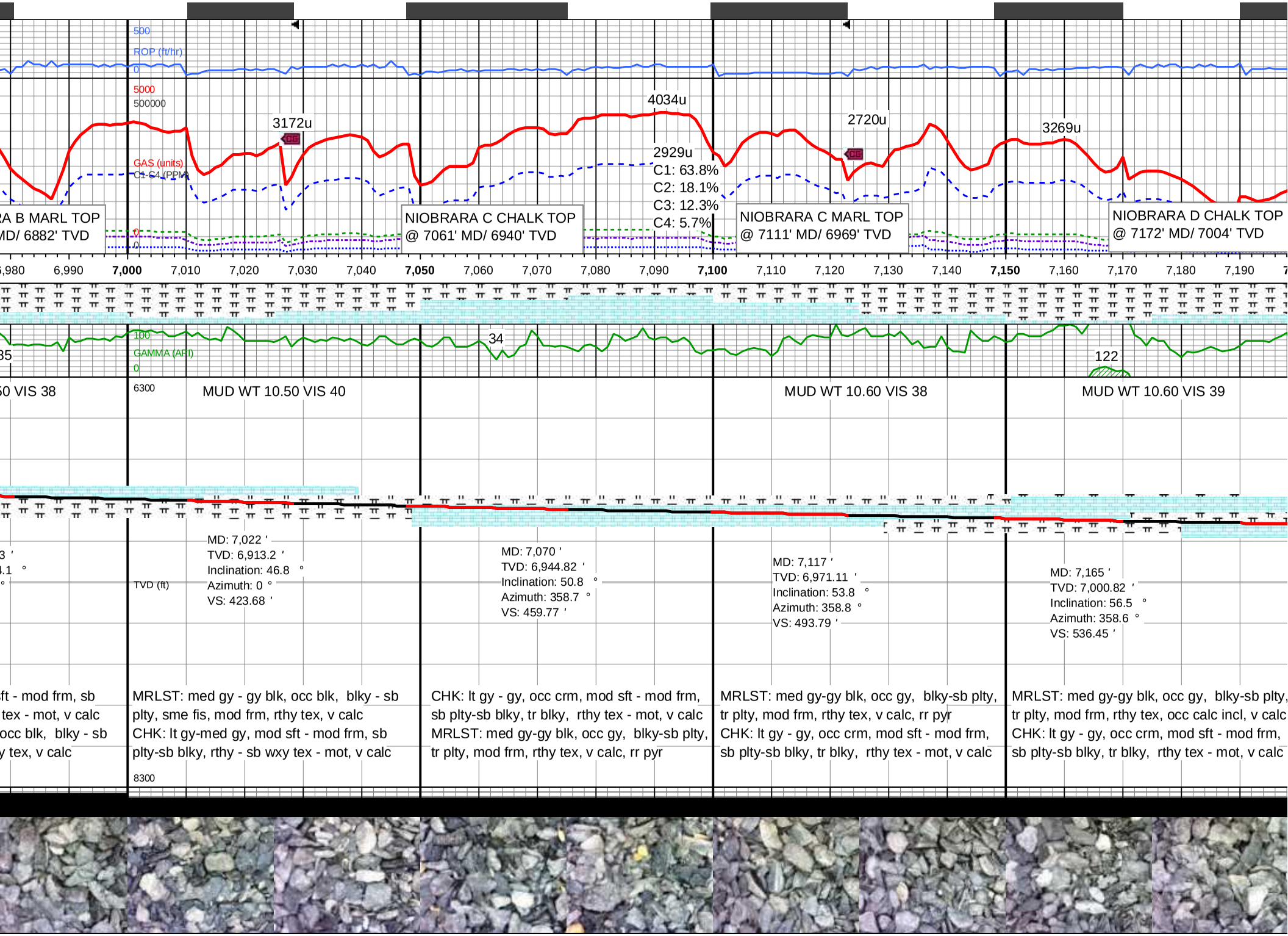
Sorting

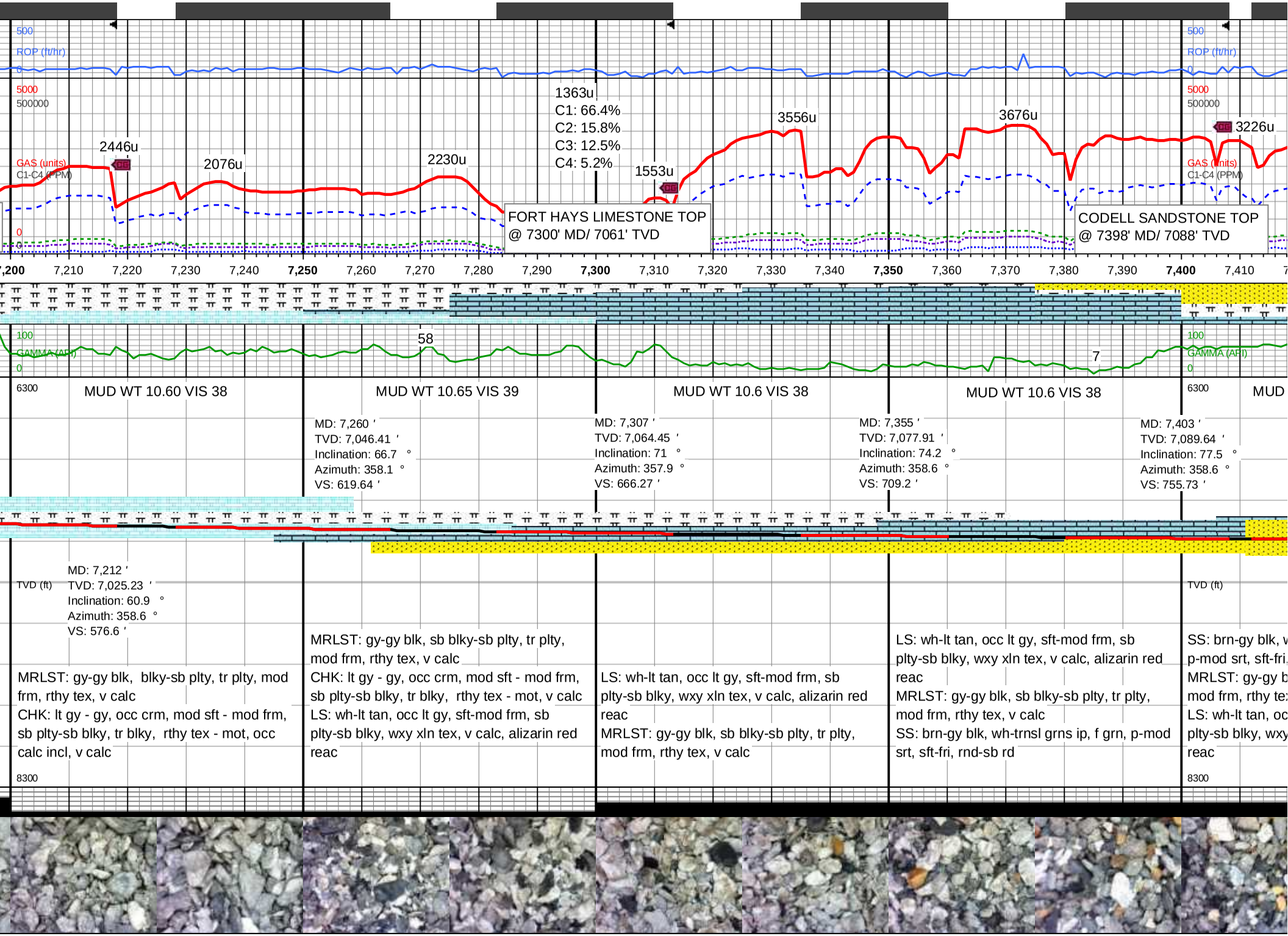
- MODERATE
- POOR
- WELL

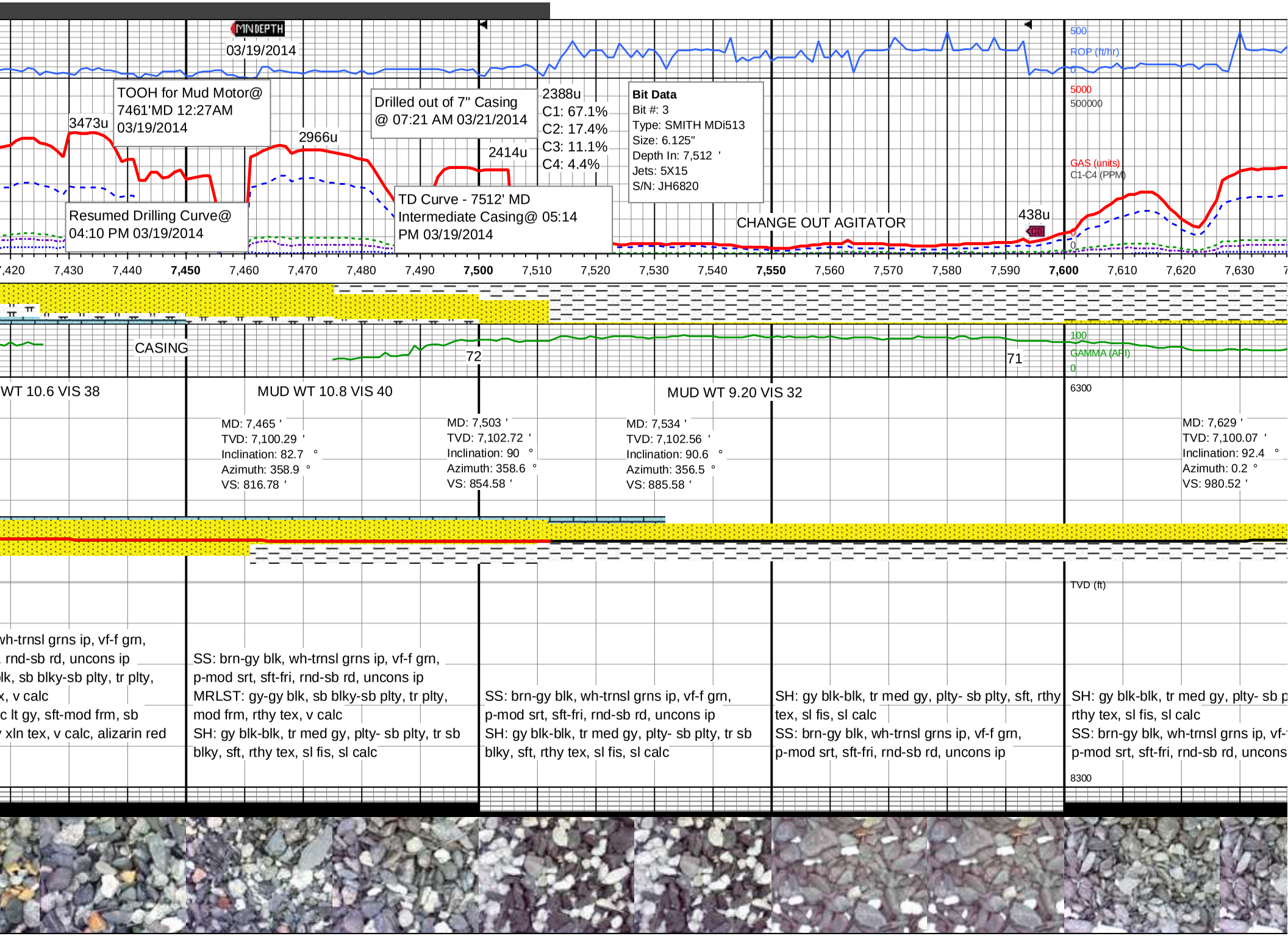

Slide/Rotate
ROP
ROP
BEGAN DRILLING CURVE @ 05:22AM 03/18/2014
500
ROP (ft/hr)
0
50' Sample Interval
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
COLUMBINE LOGGING INC.
RIGGED UP ON 03/15/2014
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0595
COLUMBINE BEGAN LOGGING
ON 03/16/2014
2000
200000
GAS (units)
C1-C4 (PPM)
0
0
Bit Data
Bit #: 2
Type: SMITH SDi611
Size: 8.75"
Depth In: 6,417 '
Depth Out: 7,542 '
Jets: 6X14
S/N: JH4403
1007u
880u
872u
C1: 68.5%
C2: 14.6%
C3: 12.5%
C4: 4.4%
Depth Labels
6,360
6,370
6,380
6,390
6,400
6,410
6,420
6,430
6,440
6,450
6,460
6,470
6,480
6,490
6,500
6,510
6,520
6,530
% Lith
Gamma
GAMMA
100
GAMMA (API)
0
60
6300
MUD WT 9.80 VIS 34
MUD WT 9.80 VIS 34
MD: 6,451 '
TVD: 6,422.03 '
Inclination: 5.1 °
Azimuth: 352.3 °
VS: 157.84 '
MD: 6,500 '
TVD: 6,470.6 '
Inclination: 9.9 °
Azimuth: 347.1 °
VS: 164.15 '
Well Bore
TVD
TVD (ft)
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: med gy, occ dk gy, sft, sb blky-sb plty, occ plty, rthy mtx, non calc
SLTY SH: med gy, occ dk gy, sft, sb blky-sb plty, tr plty,arg- rthy mtx, non calc
SLTY SH: med gy, occ dk gy, sft, s plty, tr plty,arg- rthy mtx, non calc
8300
Oil Show
Images

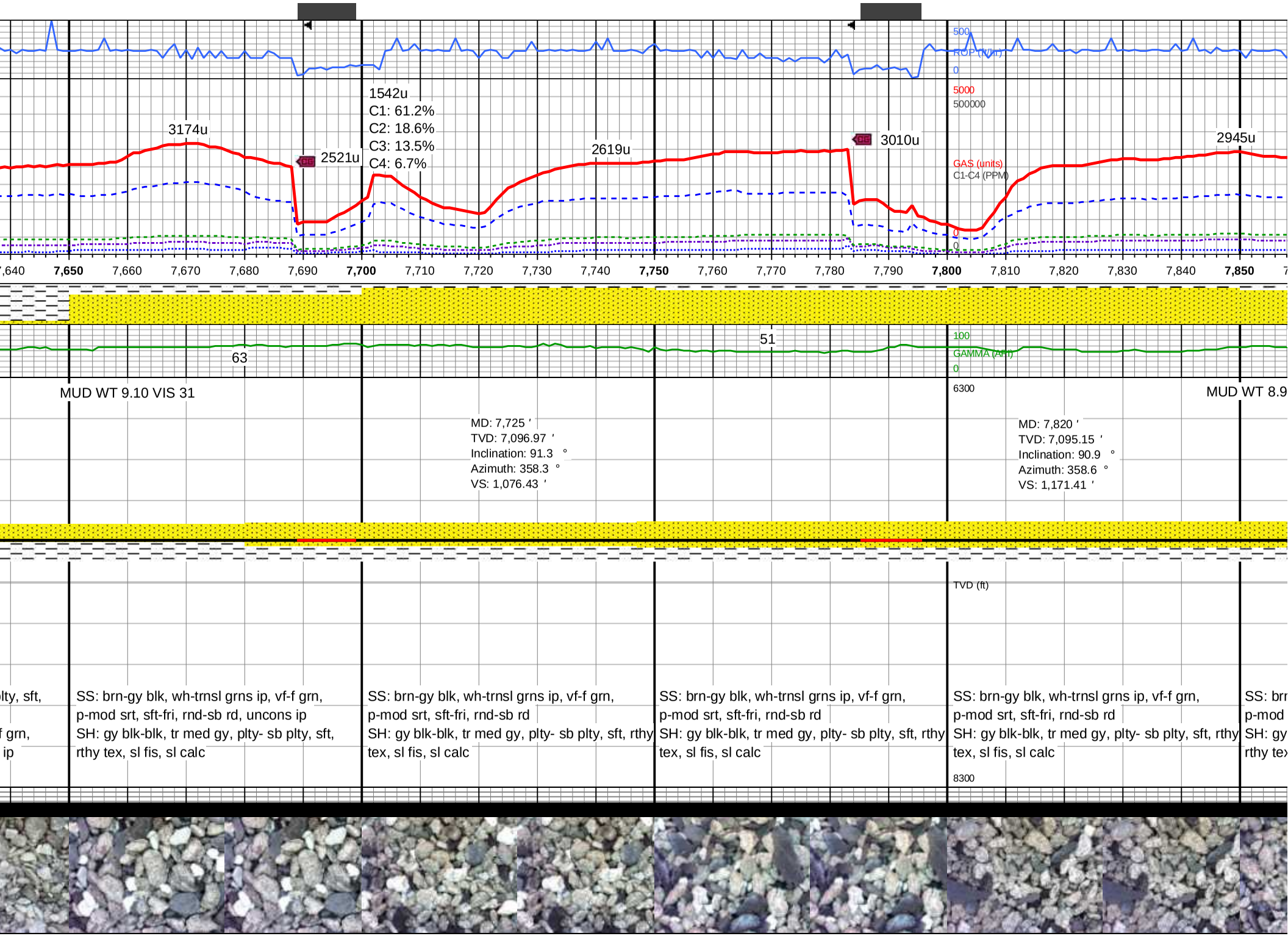

500
ROP (ft/hr)
0
GAS SCALE CHANGE
5000
500000
1164u
1532u
GAS (units)
C1-C4 (PPM)
1662u
508u
C1: 66.3%
C2: 16.1%
C3: 12.2%
C4: 5.4%
2429u
2492u
25' Sample I
6,540
6,550
6,560
6,570
6,580
6,590
6,600
6,610
6,620
6,630
6,640
6,650
6,660
6,670
6,680
6,690
6,700
6,710
6,720
6,730
6,740
6,750
73
100
GAMMA (API)
0
85
101
6300
MUD WT 9.90 VIS 34
MUD WT 10.10 VIS 35
MUD WT 10.20 VIS 35
MUD WT 10.30 VIS 35
MUD WT 10.40 VIS 35
MUD
MD: 6,547 '
TVD: 6,516.53 '
Inclination: 14.4 °
Azimuth: 346.3 °
VS: 173.86 '
MD: 6,595 '
TVD: 6,562.47 '
Inclination: 19.2 °
Azimuth: 352 °
VS: 187.57 '
MD: 6,642 '
TVD: 6,606.35 '
Inclination: 22.8 °
Azimuth: 359.2 °
VS: 204.37 '
MD: 6,690 '
TVD: 6,649.9 '
Inclination: 26.9 °
Azimuth: 0.9 °
VS: 224.52 '
MD: 6,737 '
TVD: 6,691.04 '
Inclination: 30.9 °
Azimuth: 2.2 °
VS: 247.17 '
TVD (ft)
b blky-sb
SLTY SH: med gy, occ dk gy, sft, sb blky-sb plty, occ plty,arg- rthy mtx, non calc
SLTY SH: med gy, occ dk gy, sft, sb blky-sb plty, occ plty, rthy mtx, occ arg mtx, non calc
SLTY SH: med gy-dk gy, sft, sb blky-sb plty, occ plty, rthy mtx, tr arg mtx, non calc
SLTY SH: med gy-dk gy, sft, sb blky-sb plty, occ plty, rthy mtx, tr arg mtx, non calc
SLTY
occ plt
8300

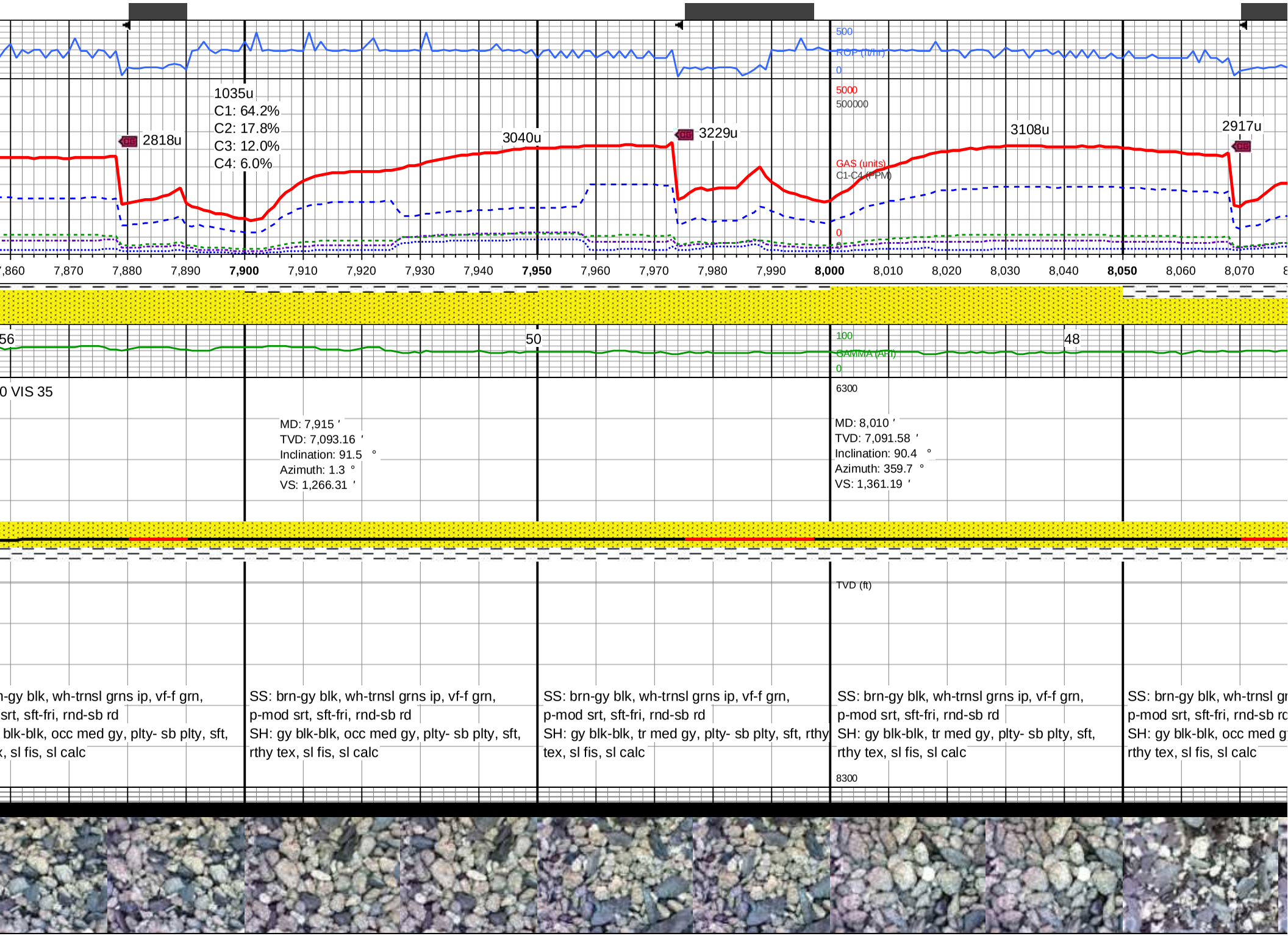

nterval
500
ROP (ft/hr)
0
5000
500000
GAS (units)
C1-C4 (PPM)
3089u
2255u
4785u
2714u
C1: 61.8%
C2: 18.9%
C3: 14.0%
C4: 5.3%
3531u
3525u
SHARON SPRINGS MARKER BED @ 6808' MD/ 6750' 'TVD
NIOBRARA TOP @ 6860' MD/ 6793' TVD
NIOBRARA A TOP @ 6884' MD/ 6811' TVD
NIOBRARA B CHALK TOP @ 6918' MD/ 6838' TVD
NIOBRAR @ 6978' M
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
6,910
6,920
6,930
6,940
6,950
6,960
6,970
100
GAMMA (AP
0
129
123
6300
D WT 10.50 VIS 35
MUD WT 10.50 VIS 36
MUD WT 10.50 VIS 36
MUD WT 10.50 VIS 37
MUD WT 10.5
MD: 6,785 '
TVD: 6,731.58 '
Inclination: 33.8 °
Azimuth: 3.4 °
VS: 272.76 '
MD: 6,832 '
TVD: 6,770.27 '
Inclination: 35.4 °
Azimuth: 2.9 °
VS: 299.33 '
MD: 6,880 '
TVD: 6,808.7 '
Inclination: 38.2 °
Azimuth: 2.9 °
VS: 327.96 '
MD: 6,927 '
TVD: 6,844.14 '
Inclination: 41 °
Azimuth: 2.4 °
VS: 357.18 '
MD: 6,975 '
TVD: 6,880.2
Inclination: 44
Azimuth: 1.2
VS: 390.23 '
TVD (ft)
SH: med gy-dk gy, sft, sb blky-sb plty, y, rthy mtx, tr bent, non calc
SLTY SH: med gy-dk gy, sft, sb plty - plty, tr sb blky, rthy mtx, occ bent, tr pyr, tr fos, sl calc
8300
SLTY SH: med gy-dk gy, sft, sb plty - plty, tr sb blky, rthy mtx, occ bent, tr pyr, tr fos, sl calc
MRLST: med gy - gy blk, occ blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc
CHK: lt gy-med gy, mod sft - mod frm, sb plty-sb blky, rthy - sb wxy tex - mot, v calc
MRLST: med gy - gy blk, occ blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc
CHK: lt gy-med gy, mod sft - mod frm, sb plty-sb blky, rthy - sb wxy tex - mot, v calc
SLTY SH: med gy-dk gy, sft, sb plty - plty, tr sb blky, rthy mtx, tr bent, tr pyr, tr fos, sl calc
CHK: lt gy-med gy, mod s
plty-sb blky, rthy - sb wxy
MRLST: med gy - gy blk,
plty, sme fis, mod frm, rthy

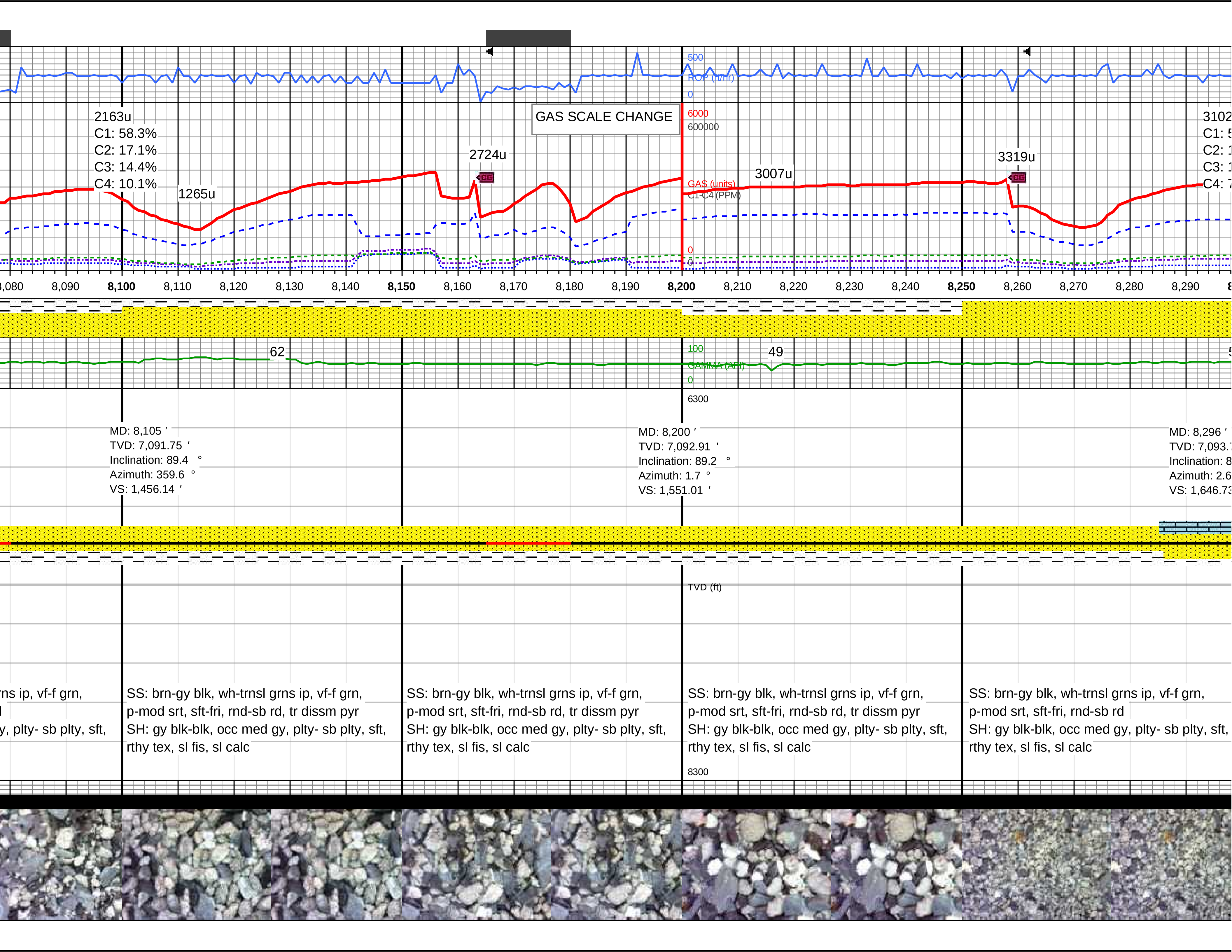

500
ROP (ft/hr)
0
5000
500000
GAS (units)
C1 C4 (PPM)
3172u
4034u
2929u
C1: 63.8%
C2: 18.1%
C3: 12.3%
C4: 5.7%
2720u
3269u
RA B MARL TOP
MD/ 6882' TVD
NIOBRARA C CHALK TOP
@ 7061' MD/ 6940' TVD
NIOBRARA C MARL TOP
@ 7111' MD/ 6969' TVD
NIOBRARA D CHALK TOP
@ 7172' MD/ 7004' TVD
6,980
6,990
7,000
7,010
7,020
7,030
7,040
7,050
7,060
7,070
7,080
7,090
7,100
7,110
7,120
7,130
7,140
7,150
7,160
7,170
7,180
7,190
100
GAMMA (API)
0
34
122
50 VIS 38
6300
MUD WT 10.50 VIS 40
MUD WT 10.60 VIS 38
MUD WT 10.60 VIS 39
MD: 7,022 '
TVD: 6,913.2 '
Inclination: 46.8 °
Azimuth: 0 °
VS: 423.68 '
TVD (ft)
MD: 7,070 '
TVD: 6,944.82 '
Inclination: 50.8 °
Azimuth: 358.7 °
VS: 459.77 '
MD: 7,117 '
TVD: 6,971.11 '
Inclination: 53.8 °
Azimuth: 358.8 °
VS: 493.79 '
MD: 7,165 '
TVD: 7,000.82 '
Inclination: 56.5 °
Azimuth: 358.6 °
VS: 536.45 '
MRLST: med gy - gy blk, occ blk, blky - sb plty, sme fis, mod frm, rthy tex, v calc
CHK: lt gy-med gy, mod sft - mod frm, sb plty-sb blky, rthy - sb wxy tex - mot, v calc
CHK: lt gy - gy, occ crm, mod sft - mod frm, sb plty-sb blky, tr blky, rthy tex - mot, v calc
MRLST: med gy-gy blk, occ gy, blky-sb plty, tr plty, mod frm, rthy tex, v calc, rr pyr
MRLST: med gy-gy blk, occ gy, blky-sb plty, tr plty, mod frm, rthy tex, v calc, rr pyr
CHK: lt gy - gy, occ crm, mod sft - mod frm, sb plty-sb blky, tr blky, rthy tex - mot, v calc
MRLST: med gy-gy blk, occ gy, blky-sb plty, tr plty, mod frm, rthy tex, occ calc incl, v calc
CHK: lt gy - gy, occ crm, mod sft - mod frm, sb plty-sb blky, tr blky, rthy tex - mot, v calc
8300

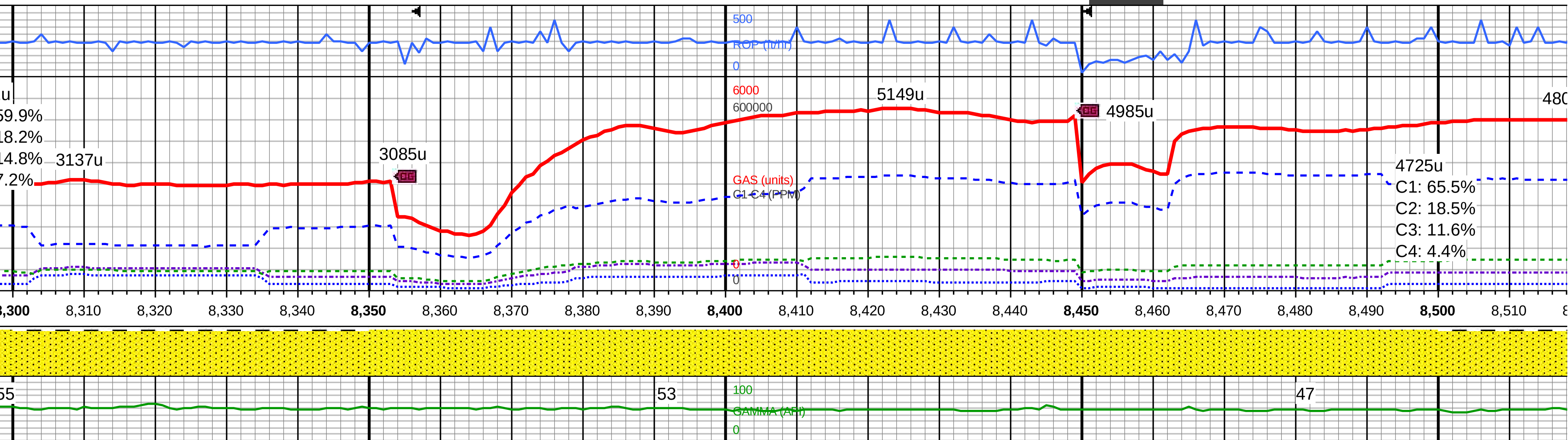

500
ROP (ft/hr)
0
5000
500000
GAS (units)
C1-C4 (PPM)
0
2446u
2076u
2230u
1363u
C1: 66.4%
C2: 15.8%
C3: 12.5%
C4: 5.2%
1553u
3556u
3676u
3226u
FORT HAYS LIMESTONE TOP
@ 7300' MD/ 7061' TVD
CODELL SANDSTONE TOP
@ 7398' MD/ 7088' TVD
7,200
7,210
7,220
7,230
7,240
7,250
7,260
7,270
7,280
7,290
7,300
7,310
7,320
7,330
7,340
7,350
7,360
7,370
7,380
7,390
7,400
7,410
100
GAMMA (API)
0
58
7
6300
MUD WT 10.60 VIS 38
MUD WT 10.65 VIS 39
MUD WT 10.6 VIS 38
MUD WT 10.6 VIS 38
MD: 7,260 '
TVD: 7,046.41 '
Inclination: 66.7 °
Azimuth: 358.1 °
VS: 619.64 '
MD: 7,307 '
TVD: 7,064.45 '
Inclination: 71 °
Azimuth: 357.9 °
VS: 666.27 '
MD: 7,355 '
TVD: 7,077.91 '
Inclination: 74.2 °
Azimuth: 358.6 °
VS: 709.2 '
MD: 7,403 '
TVD: 7,089.64 '
Inclination: 77.5 °
Azimuth: 358.6 °
VS: 755.73 '
TVD (ft)
MD: 7,212 '
TVD: 7,025.23 '
Inclination: 60.9 °
Azimuth: 358.6 °
VS: 576.6 '
MRLST: gy-gy blk, blky-sb plty, tr plty, mod frm, rthy tex, v calc
CHK: lt gy - gy, occ crm, mod sft - mod frm, sb plty-sb blky, tr blky, rthy tex - mot, occ calc incl, v calc
MRLST: gy-gy blk, sb blky-sb plty, tr plty, mod frm, rthy tex, v calc
CHK: lt gy - gy, occ crm, mod sft - mod frm, sb plty-sb blky, tr blky, rthy tex - mot, v calc
LS: wh-lt tan, occ lt gy, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, alizarin red reac
LS: wh-lt tan, occ lt gy, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, alizarin red reac
MRLST: gy-gy blk, sb blky-sb plty, tr plty, mod frm, rthy tex, v calc
LS: wh-lt tan, occ lt gy, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, alizarin red reac
MRLST: gy-gy blk, sb blky-sb plty, tr plty, mod frm, rthy tex, v calc
SS: brn-gy blk, wh-trnsl grns ip, f grn, p-mod srt, sft-fri, rnd-sb rd
8300


MN DEPTH
03/19/2014
TOOH for Mud Motor@
7461'MD 12:27AM
03/19/2014
3473u
2966u
Drilled out of 7" Casing
@ 07:21 AM 03/21/2014
2414u
2388u
C1: 67.1%
C2: 17.4%
C3: 11.1%
C4: 4.4%
Bit Data
Bit #: 3
Type: SMITH MDi513
Size: 6.125"
Depth In: 7,512 '
Jets: 5X15
S/N: JH6820
Resumed Drilling Curve@
04:10 PM 03/19/2014
TD Curve - 7512' MD
Intermediate Casing@ 05:14
PM 03/19/2014
CHANGE OUT AGITATOR
438u
500
ROP (ft/hr)
0
5000
500000
GAS (units)
C1-C4 (PPM)
0
0
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
7,570
7,580
7,590
7,600
7,610
7,620
7,630
CASING
72
71
100
GAMMA (API)
0
6300
WT 10.6 VIS 38
MUD WT 10.8 VIS 40
MUD WT 9.20 VIS 32
MD: 7,465 '
TVD: 7,100.29 '
Inclination: 82.7 °
Azimuth: 358.9 °
VS: 816.78 '
MD: 7,503 '
TVD: 7,102.72 '
Inclination: 90 °
Azimuth: 358.6 °
VS: 854.58 '
MD: 7,534 '
TVD: 7,102.56 '
Inclination: 90.6 °
Azimuth: 356.5 °
VS: 885.58 '
MD: 7,629 '
TVD: 7,100.07 '
Inclination: 92.4 °
Azimuth: 0.2 °
VS: 980.52 '
TVD (ft)
wh-trnsl grns ip, vf-f grn,
rnd-sb rd, uncons ip
lk, sb blky-sb plty, tr plty,
x, v calc
c lt gy, sft-mod frm, sb
xln tex, v calc, alizarin red
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd, uncons ip
MRLST: gy-gy blk, sb blky-sb plty, tr plty,
mod frm, rthy tex, v calc
SH: gy blk-blk, tr med gy, plty- sb plty, tr sb
blky, sft, rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, tr med gy, plty- sb plty, tr sb
blky, sft, rthy tex, sl fis, sl calc
SH: gy blk-blk, tr med gy, plty- sb plty, sft, rthy
tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, tr med gy, plty- sb p
rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-
p-mod srt, sft-fri, rnd-sb rd, uncons
8300


500
ROP (M/H)
0
5000
500000
GAS (units)
C1-C4 (PPM)
0
0
3174u
2521u
1542u
C1: 61.2%
C2: 18.6%
C3: 13.5%
C4: 6.7%
2619u
3010u
2945u
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
7,790
7,800
7,810
7,820
7,830
7,840
7,850
63
51
100
GAMMA (API)
0
6300
MUD WT 9.10 VIS 31
MD: 7,725 '
TVD: 7,096.97 '
Inclination: 91.3 °
Azimuth: 358.3 °
VS: 1,076.43 '
MD: 7,820 '
TVD: 7,095.15 '
Inclination: 90.9 °
Azimuth: 358.6 °
VS: 1,171.41 '
MUD WT 8.9
TVD (ft)
lty, sft,
f grn,
ip
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, tr med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, tr med gy, plty- sb plty, sft, rthy
tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, tr med gy, plty- sb plty, sft, rthy
tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, tr med gy, plty- sb plty, sft, rthy
tex, sl fis, sl calc
8300
SS: brn
p-mod
SH: gy
rthy tex


500
ROP (min)
0
5000
500000
GAS (units)
C1-C4 (PPM)
0
0
1035u
C1: 64.2%
C2: 17.8%
C3: 12.0%
C4: 6.0%
2818u
3040u
3229u
3108u
2917u
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
8,010
8,020
8,030
8,040
8,050
8,060
8,070
56
50
48
100
GAMMA (API)
0
0 VIS 35
6300
MD: 7,915 '
TVD: 7,093.16 '
Inclination: 91.5 °
Azimuth: 1.3 °
VS: 1,266.31 '
MD: 8,010 '
TVD: 7,091.58 '
Inclination: 90.4 °
Azimuth: 359.7 °
VS: 1,361.19 '
TVD (ft)
n-gy blk, wh-trnsl grns ip, vf-f grn,
srt, sft-fri, rnd-sb rd
blk-blk, occ med gy, plty- sb plty, sft,
, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, tr med gy, plty- sb plty, sft, rthy
tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, tr med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
8300
SS: brn-gy blk, wh-trnsl gr
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med g
rthy tex, sl fis, sl calc


2163u
C1: 58.3%
C2: 17.1%
C3: 14.4%
C4: 10.1%
1265u
2724u
GAS SCALE CHANGE
3007u
3319u
500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
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
8,230
8,240
8,250
8,260
8,270
8,280
8,290
62
49
100
GAMMA (API)
0
6300
MD: 8,105 ′
TVD: 7,091.75 ′
Inclination: 89.4 °
Azimuth: 359.6 °
VS: 1,456.14 ′
MD: 8,200 ′
TVD: 7,092.91 ′
Inclination: 89.2 °
Azimuth: 1.7 °
VS: 1,551.01 ′
TVD (ft)
8300
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc



MUD WT 9.05 VIS 33

6300

MD: 8,391 ʹ
TVD: 7,093.42 ʹ
Inclination: 90.6 °
Azimuth: 2.7 °
VS: 1,741.38 ʹ

MD: 8,486 ʹ
TVD: 7,093.25 ʹ
Inclination: 89.6 °
Azimuth: 0.6 °
VS: 1,836.16 ʹ

TVD (ft)

8300

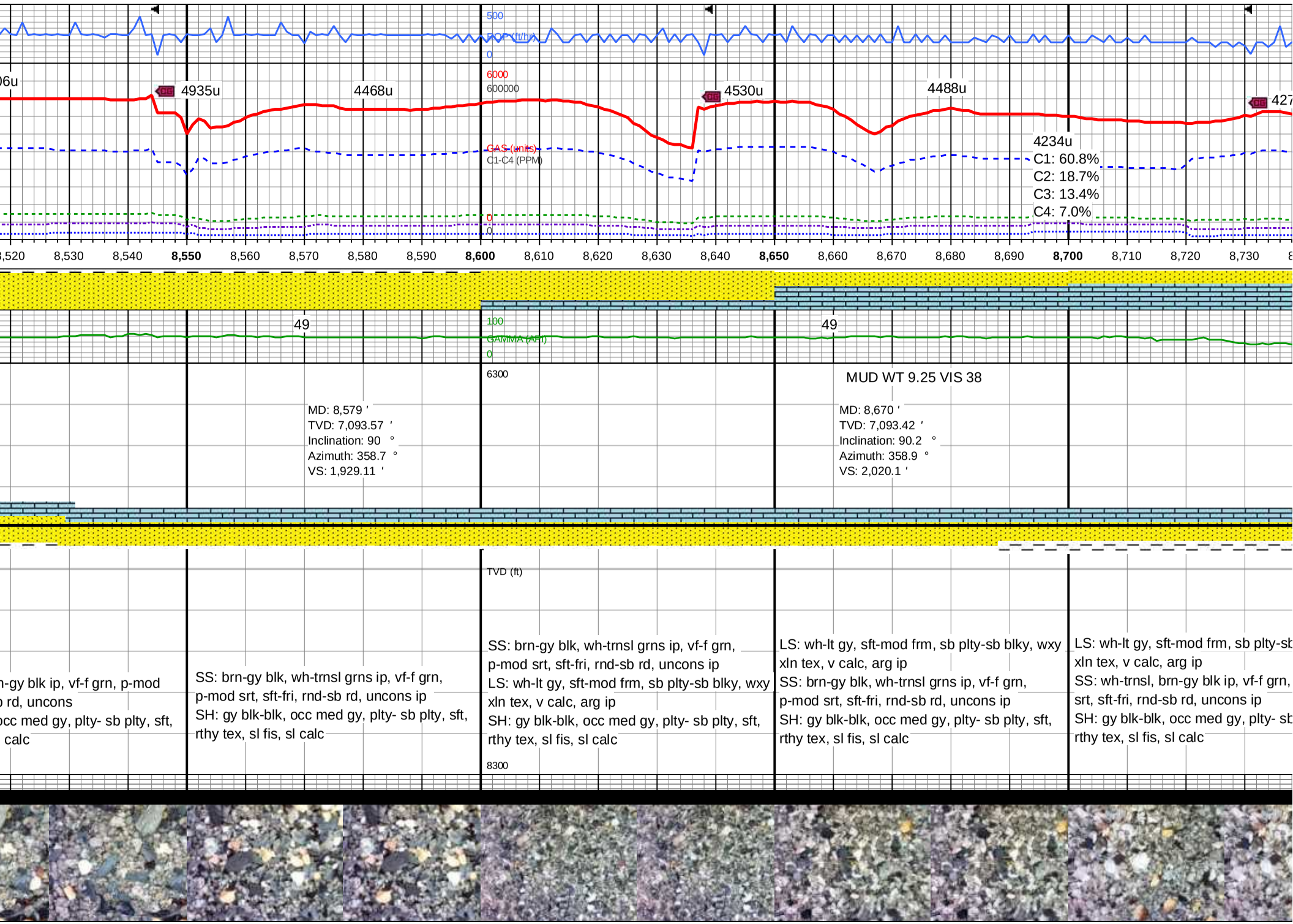
SS: brn-gy blk, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, sl uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

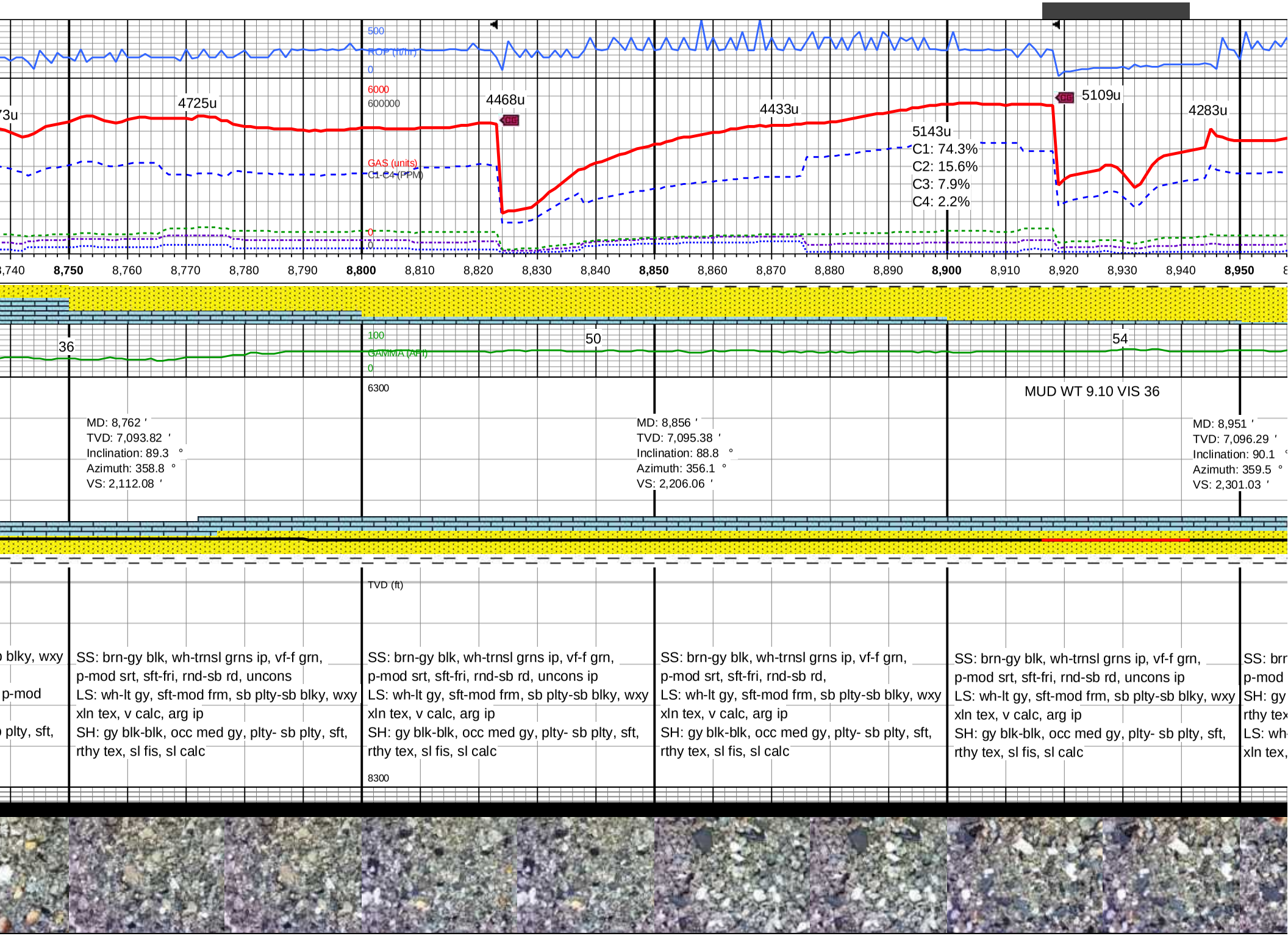
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, sl uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

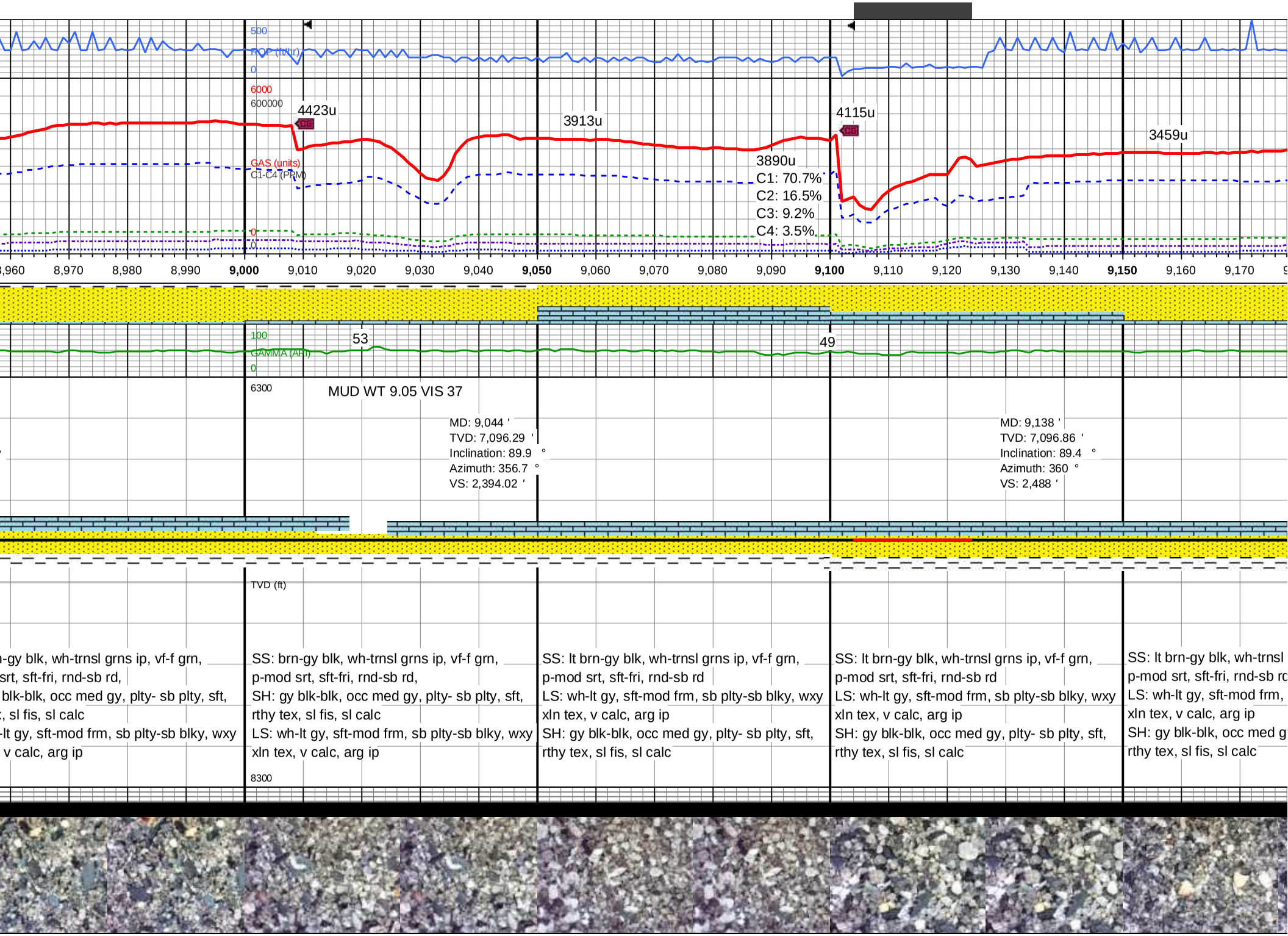
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, sl uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

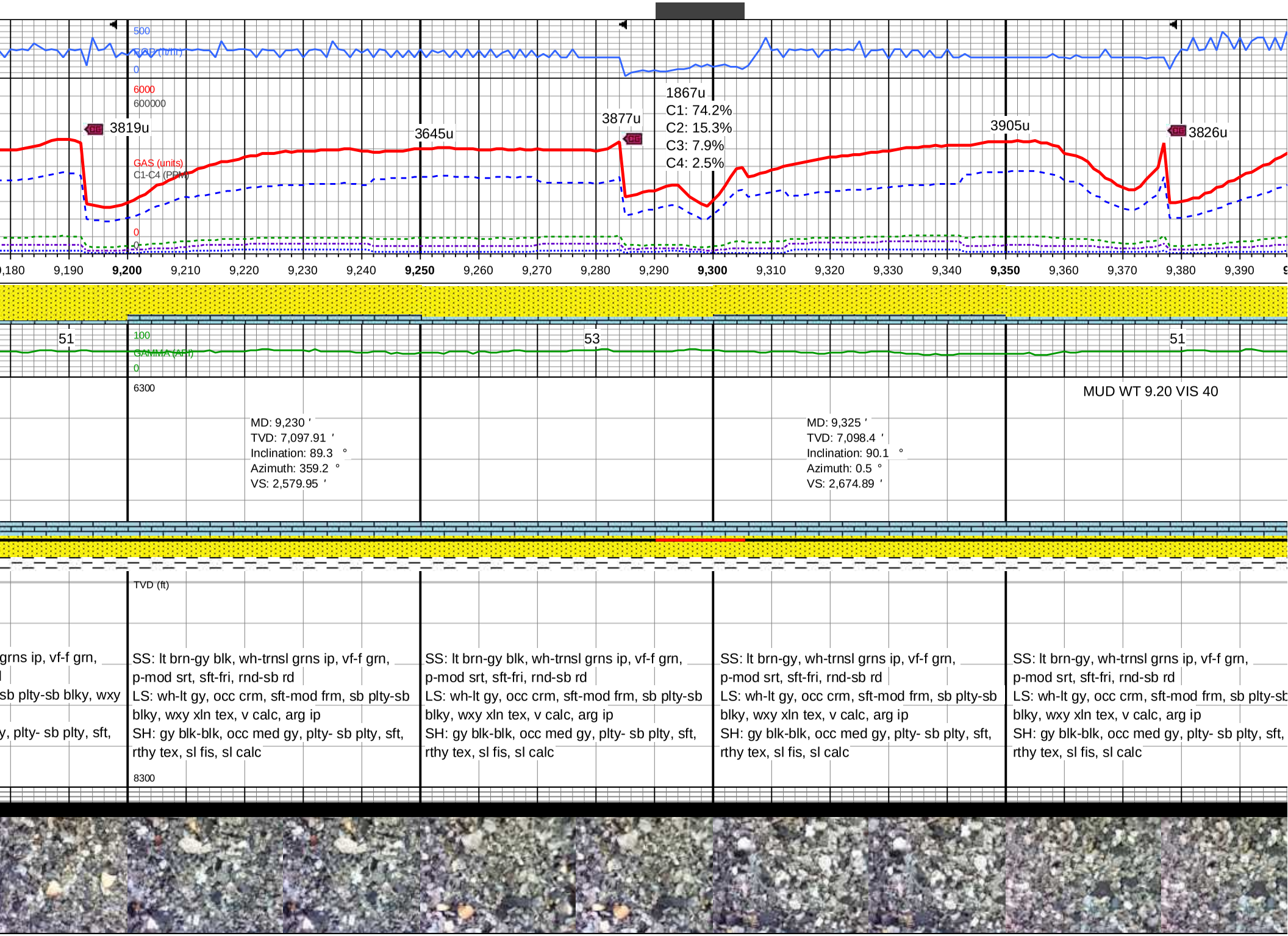
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

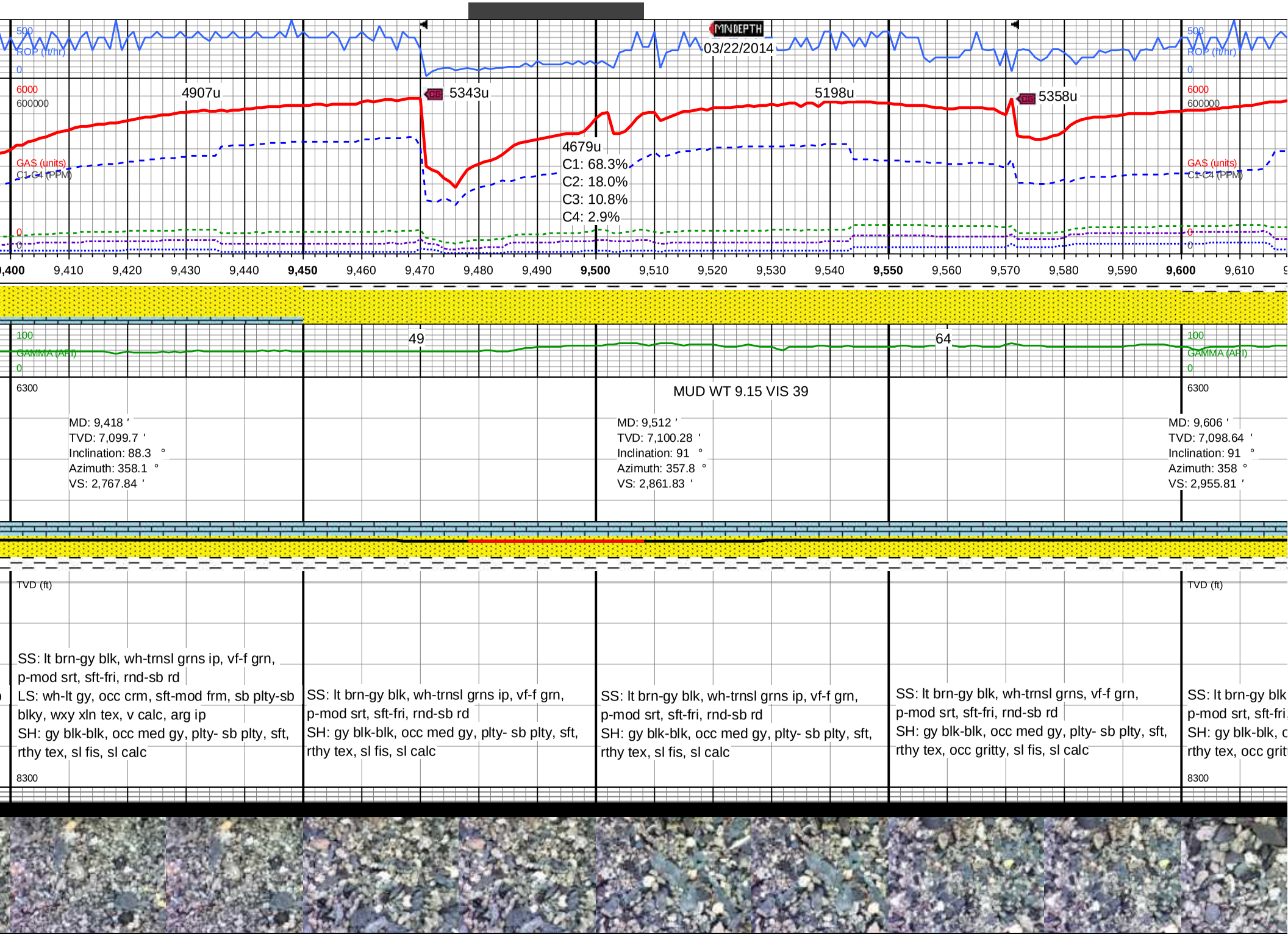
SS: wh-trnsl, bri…
srt, sft-fri, rnd-sb…
SH: gy blk-blk, o…
rthy tex, sl fis, sl…

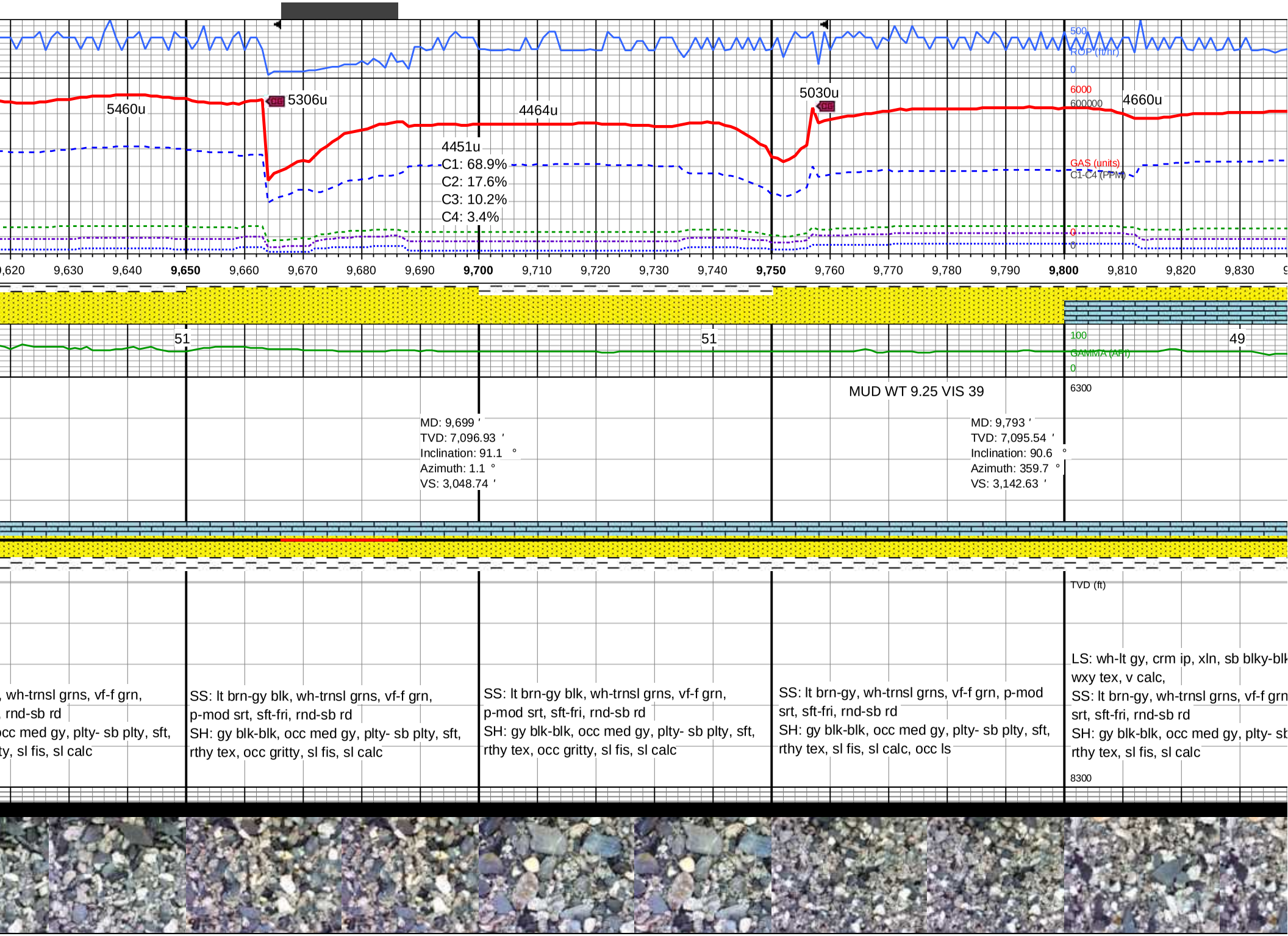

500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
06u
4935u
4468u
4530u
4488u
427
4234u
C1: 60.8%
C2: 18.7%
C3: 13.4%
C4: 7.0%
8,520
8,530
8,540
8,550
8,560
8,570
8,580
8,590
8,600
8,610
8,620
8,630
8,640
8,650
8,660
8,670
8,680
8,690
8,700
8,710
8,720
8,730
49
100
GAMMA (API)
0
6300
49
MUD WT 9.25 VIS 38
MD: 8,579 '
TVD: 7,093.57 '
Inclination: 90 °
Azimuth: 358.7 °
VS: 1,929.11 '
MD: 8,670 '
TVD: 7,093.42 '
Inclination: 90.2 °
Azimuth: 358.9 °
VS: 2,020.1 '
TVD (ft)
n-gy blk ip, vf-f grn, p-mod
p rd, uncons
occ med gy, plty- sb plty, sft,
calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd, uncons ip
LS: wh-lt gy, sft-mod frm, sb plty-sb blky, wxy
xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
8300
LS: wh-lt gy, sft-mod frm, sb plty-sb blky, wxy
xln tex, v calc, arg ip
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
LS: wh-lt gy, sft-mod frm, sb plty-sb
xln tex, v calc, arg ip
SS: wh-trnsl, brn-gy blk ip, vf-f grn,
srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb
rthy tex, sl fis, sl calc

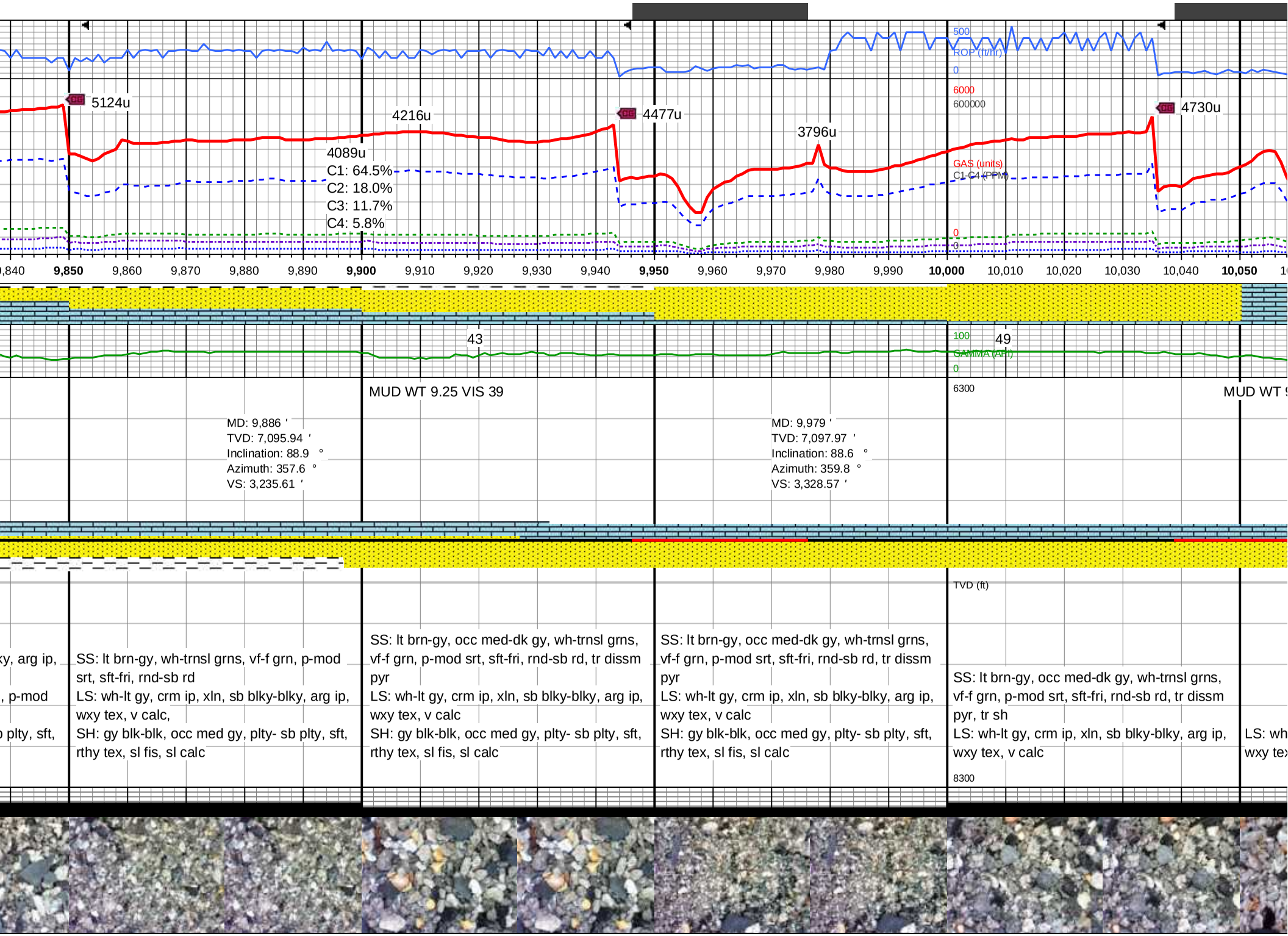

500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
4725u
4468u
4433u
5109u
4283u
5143u
C1: 74.3%
C2: 15.6%
C3: 7.9%
C4: 2.2%
8,740
8,750
8,760
8,770
8,780
8,790
8,800
8,810
8,820
8,830
8,840
8,850
8,860
8,870
8,880
8,890
8,900
8,910
8,920
8,930
8,940
8,950
100
GAMMA (API)
0
6300
36
50
54
MUD WT 9.10 VIS 36
MD: 8,762 '
TVD: 7,093.82 '
Inclination: 89.3 °
Azimuth: 358.8 °
VS: 2,112.08 '
MD: 8,856 '
TVD: 7,095.38 '
Inclination: 88.8 °
Azimuth: 356.1 °
VS: 2,206.06 '
MD: 8,951 '
TVD: 7,096.29 '
Inclination: 90.1 °
Azimuth: 359.5 °
VS: 2,301.03 '
TVD (ft)
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons
LS: wh-lt gy, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
8300

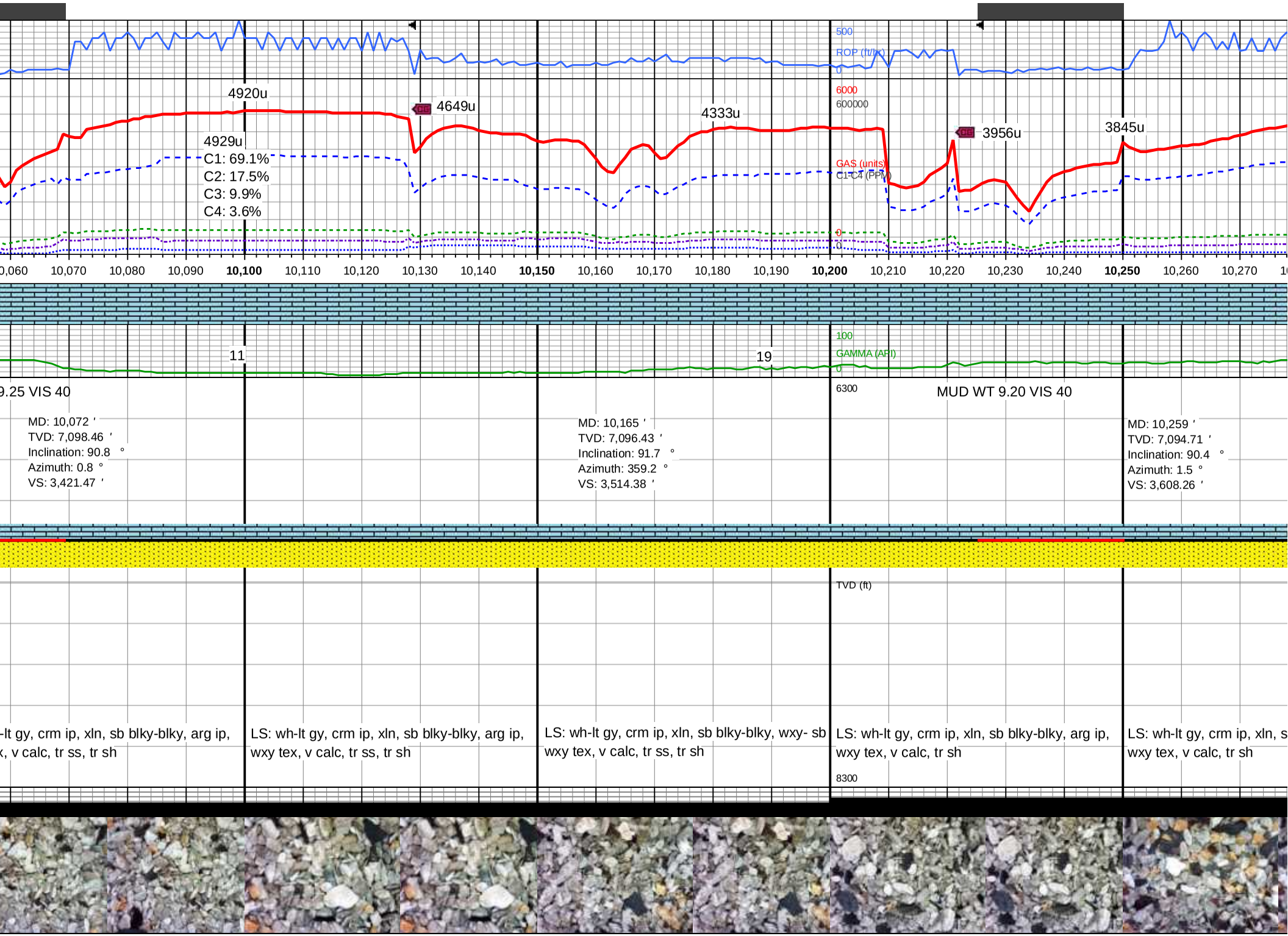

500
ROP (ft/hr)
0
6000
600000
4423u
3913u
4115u
3459u
3890u
C1: 70.7%
C2: 16.5%
C3: 9.2%
C4: 3.5%
GAS (units)
C1-C4 (PPM)
0
0
8,960
8,970
8,980
8,990
9,000
9,010
9,020
9,030
9,040
9,050
9,060
9,070
9,080
9,090
9,100
9,110
9,120
9,130
9,140
9,150
9,160
9,170
100
GAMMA (API)
0
6300
53
49
MUD WT 9.05 VIS 37
MD: 9,044 '
TVD: 7,096.29 '
Inclination: 89.9 °
Azimuth: 356.7 °
VS: 2,394.02 '
MD: 9,138 '
TVD: 7,096.86 '
Inclination: 89.4 °
Azimuth: 360 °
VS: 2,488 '
TVD (ft)
-gy blk, wh-trnsl grns ip, vf-f grn,
srt, sft-fri, rnd-sb rd,
blk-blk, occ med gy, plty- sb plty, sft,
, sl fis, sl calc
-lt gy, sft-mod frm, sb plty-sb blky, wxy
v calc, arg ip
SS: brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd,
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
LS: wh-lt gy, sft-mod frm, sb plty-sb blky, wxy
xln tex, v calc, arg ip
8300
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, sft-mod frm, sb plty-sb blky, wxy
xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, sft-mod frm, sb plty-sb blky, wxy
xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl
p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, sft-mod frm,
xln tex, v calc, arg ip
SH: gy blk-blk, occ med g
rthy tex, sl fis, sl calc

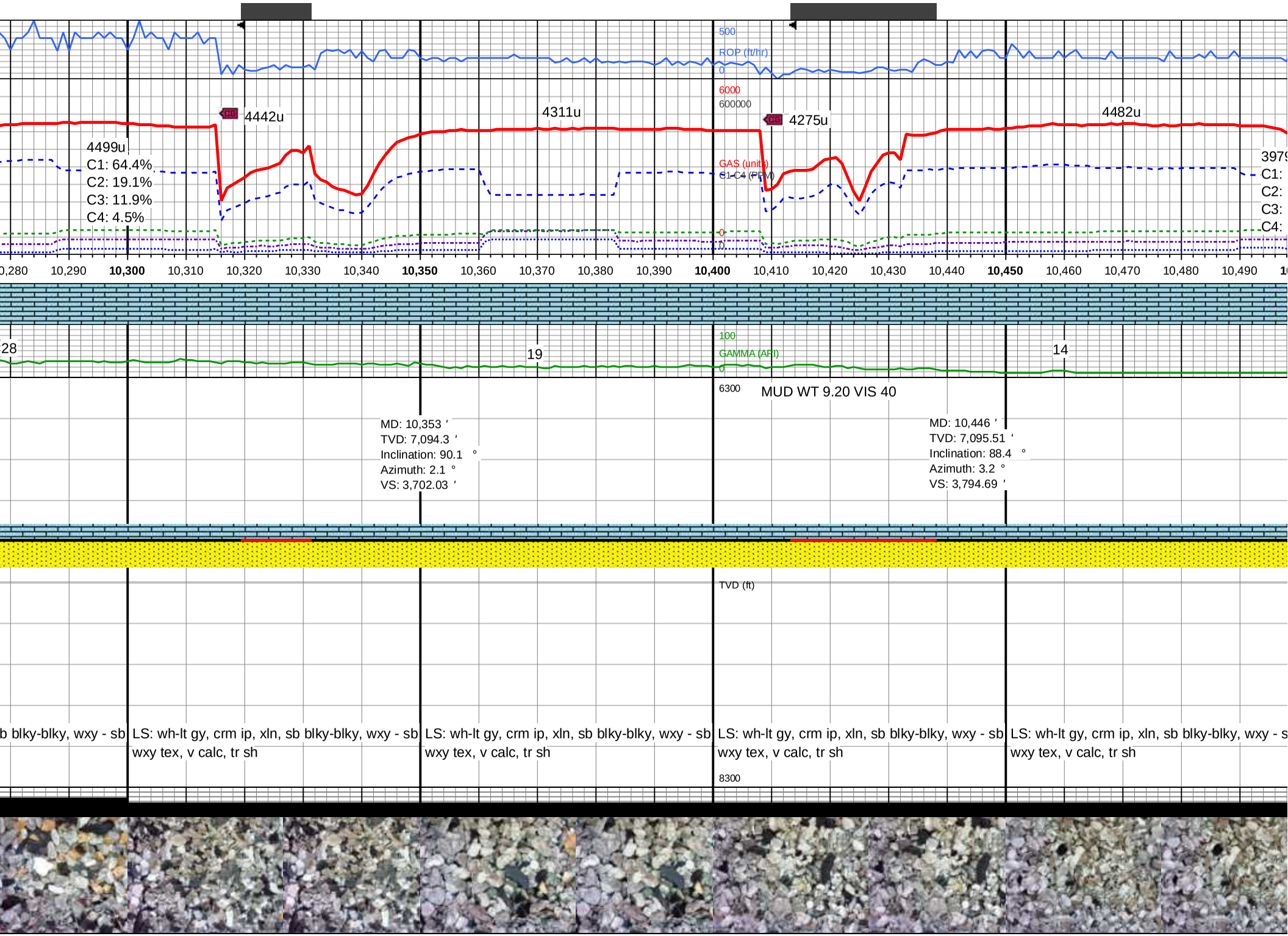

500
ROP (ft/hr)
0
6000
600000
3819u
3645u
3877u
1867u
C1: 74.2%
C2: 15.3%
C3: 7.9%
C4: 2.5%
3905u
3826u
GAS (units)
C1-C4 (PPM)
0
0
9,180
9,190
9,200
9,210
9,220
9,230
9,240
9,250
9,260
9,270
9,280
9,290
9,300
9,310
9,320
9,330
9,340
9,350
9,360
9,370
9,380
9,390
51
100
GAMMA (API)
0
53
51
6300
MUD WT 9.20 VIS 40
MD: 9,230 '
TVD: 7,097.91 '
Inclination: 89.3 °
Azimuth: 359.2 °
VS: 2,579.95 '
MD: 9,325 '
TVD: 7,098.4 '
Inclination: 90.1 °
Azimuth: 0.5 °
VS: 2,674.89 '
TVD (ft)
grns ip, vf-f grn,
sb plty-sb blky, wxy
y, plty- sb plty, sft,
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, occ crm, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, occ crm, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, occ crm, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, occ crm, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
8300

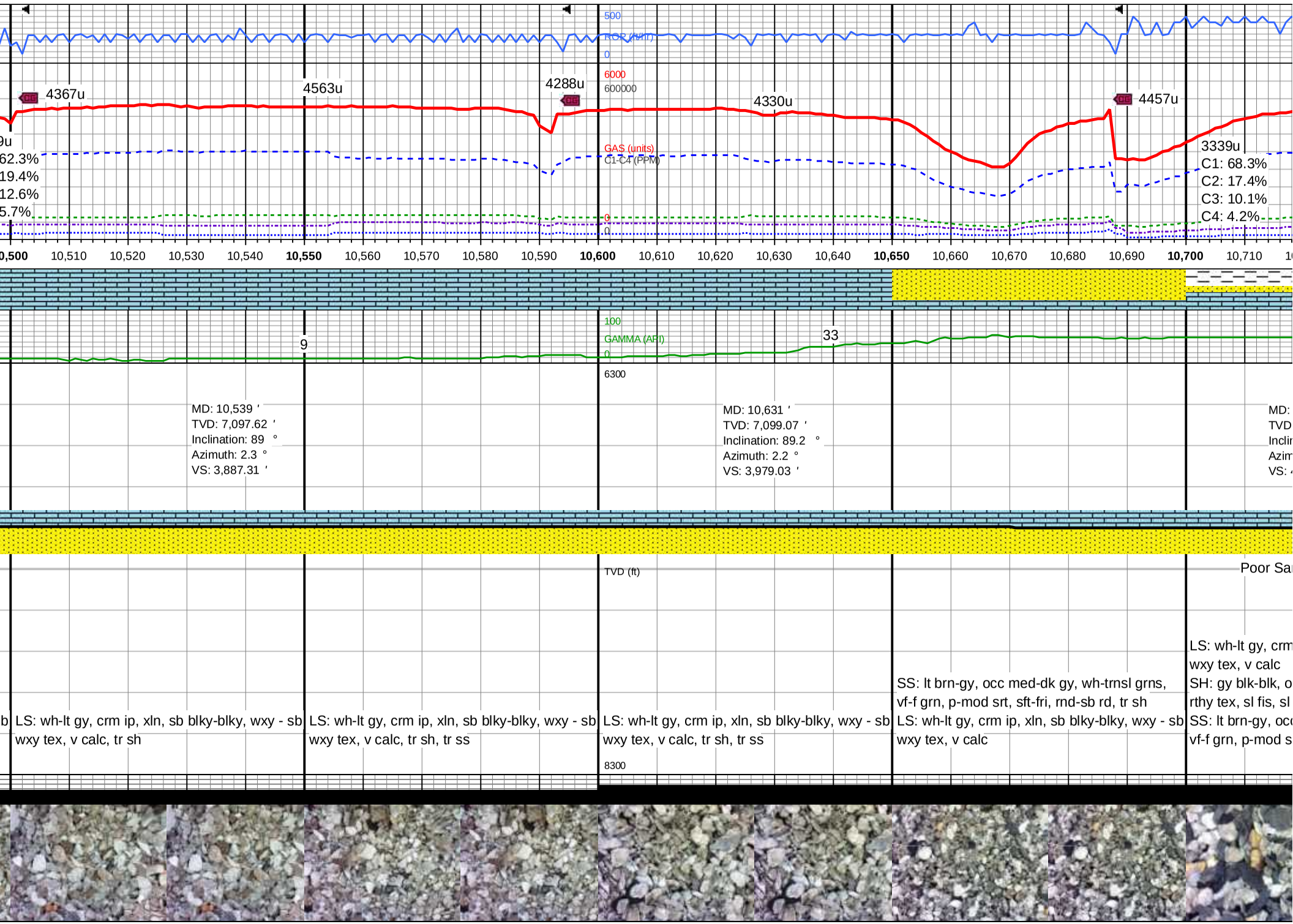

MNDEPTH
03/22/2014
ROP (m/hr)
500
0
6000
600000
GAS (units)
C1-C4 (PPM)
4907u
5343u
5198u
5358u
4679u
C1: 68.3%
C2: 18.0%
C3: 10.8%
C4: 2.9%
9,400
9,410
9,420
9,430
9,440
9,450
9,460
9,470
9,480
9,490
9,500
9,510
9,520
9,530
9,540
9,550
9,560
9,570
9,580
9,590
9,600
9,610
GAMMA (API)
100
0
49
64
6300
MUD WT 9.15 VIS 39
MD: 9,418 '
TVD: 7,099.7 '
Inclination: 88.3 °
Azimuth: 358.1 °
VS: 2,767.84 '
MD: 9,512 '
TVD: 7,100.28 '
Inclination: 91 °
Azimuth: 357.8 °
VS: 2,861.83 '
MD: 9,606 '
TVD: 7,098.64 '
Inclination: 91 °
Azimuth: 358 °
VS: 2,955.81 '
TVD (ft)
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, occ crm, sft-mod frm, sb plty-sb blky, wxy xln tex, v calc, arg ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl grns ip, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, occ gritty, sl fis, sl calc
8300

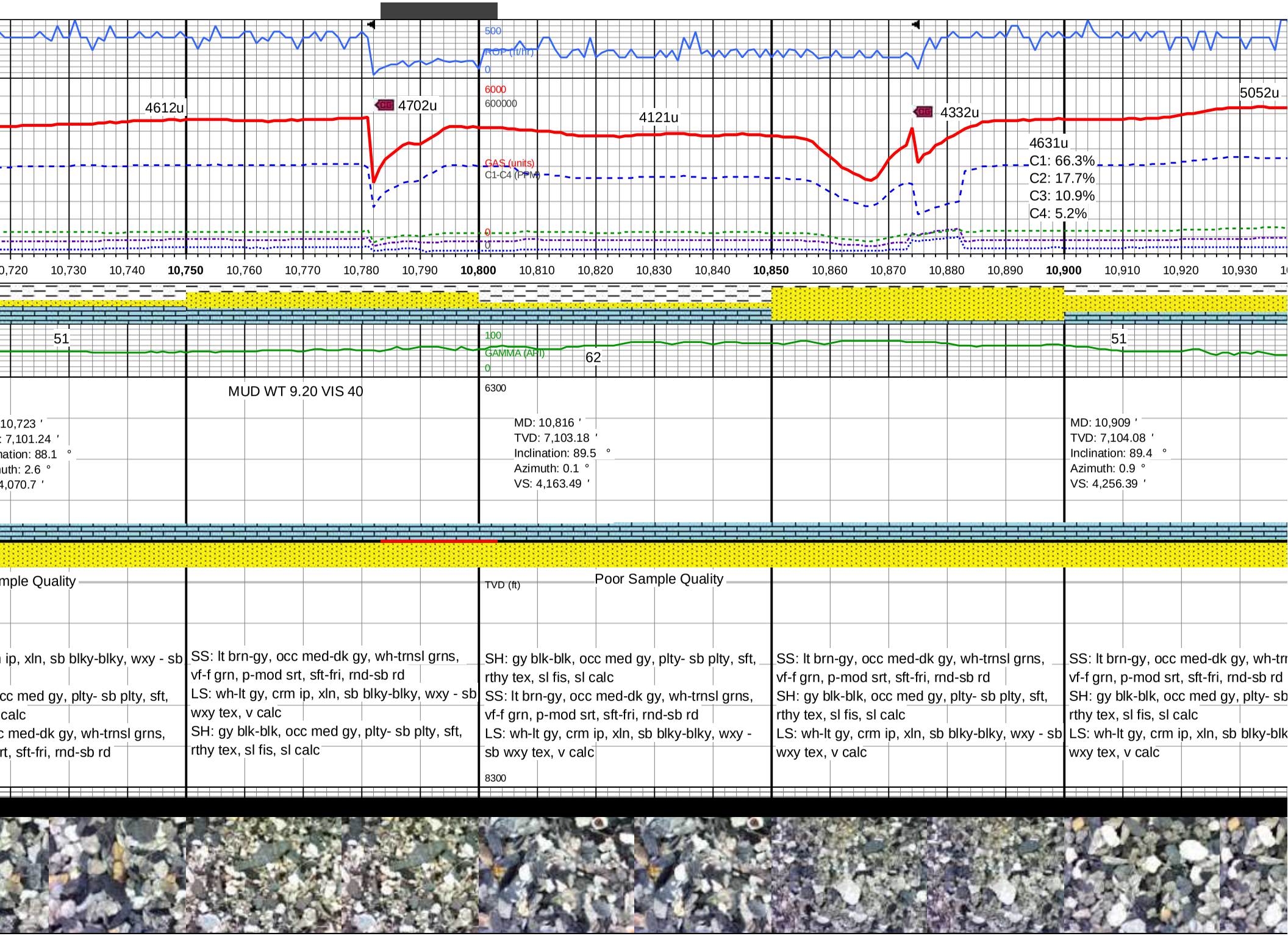

500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
5460u
5306u
4464u
5030u
4660u
4451u
C1: 68.9%
C2: 17.6%
C3: 10.2%
C4: 3.4%
9,620
9,630
9,640
9,650
9,660
9,670
9,680
9,690
9,700
9,710
9,720
9,730
9,740
9,750
9,760
9,770
9,780
9,790
9,800
9,810
9,820
9,830
51
51
49
100
GAMMA (API)
0
MUD WT 9.25 VIS 39
6300
MD: 9,699 '
TVD: 7,096.93 '
Inclination: 91.1 °
Azimuth: 1.1 °
VS: 3,048.74 '
MD: 9,793 '
TVD: 7,095.54 '
Inclination: 90.6 °
Azimuth: 359.7 °
VS: 3,142.63 '
TVD (ft)
, wh-trnsl grns, vf-f grn,
, rnd-sb rd
cc med gy, plty- sb plty, sft,
y, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl grns, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, occ gritty, sl fis, sl calc
SS: lt brn-gy blk, wh-trnsl grns, vf-f grn,
p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, occ gritty, sl fis, sl calc
SS: lt brn-gy, wh-trnsl grns, vf-f grn, p-mod
srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc, occ ls
LS: wh-lt gy, crm ip, xln, sb blky-blk
wxy tex, v calc,
SS: lt brn-gy, wh-trnsl grns, vf-f grn
srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb
rthy tex, sl fis, sl calc
8300

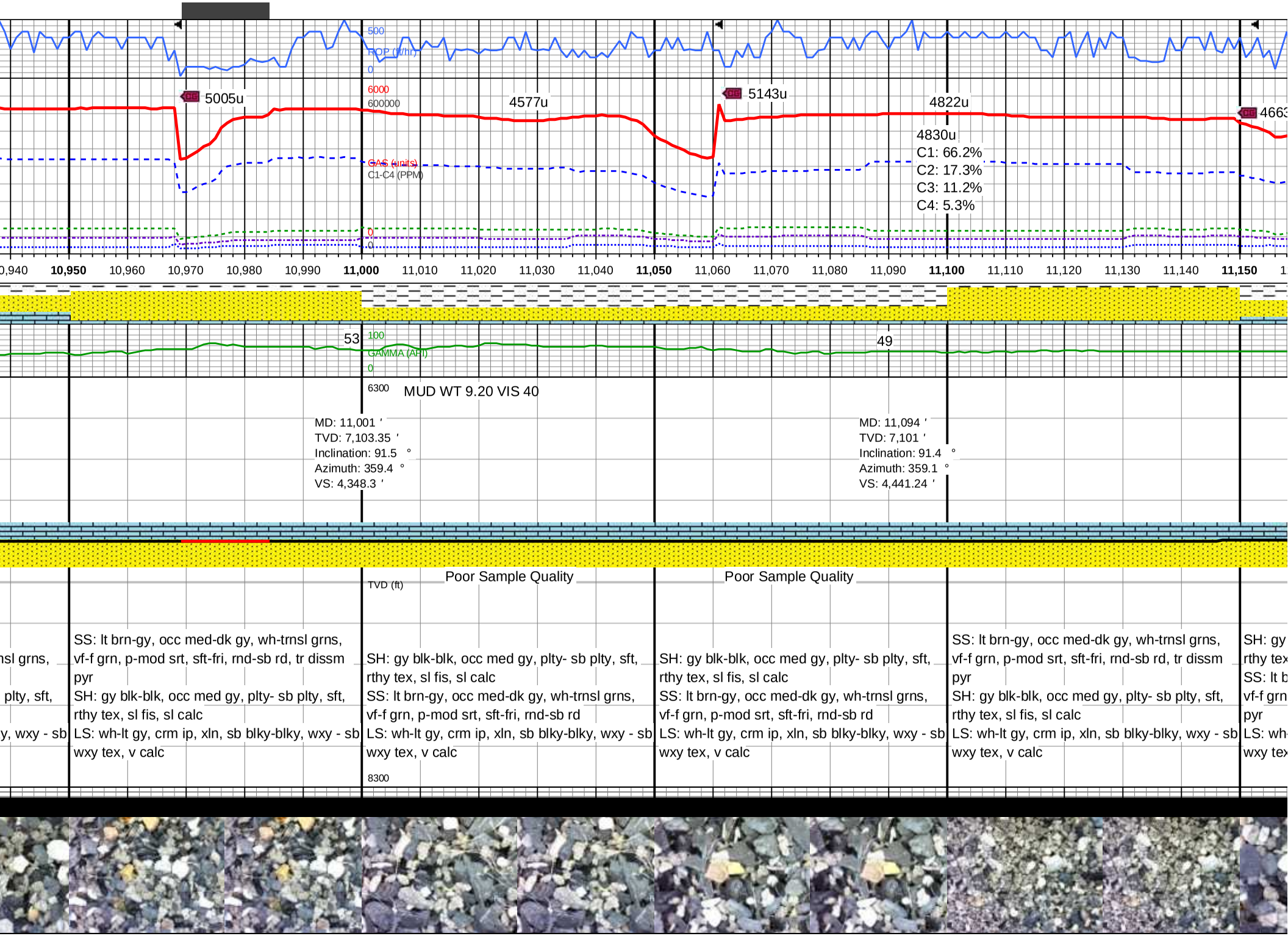

500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
5124u
4216u
4089u
C1: 64.5%
C2: 18.0%
C3: 11.7%
C4: 5.8%
4477u
3796u
4730u
9,840
9,850
9,860
9,870
9,880
9,890
9,900
9,910
9,920
9,930
9,940
9,950
9,960
9,970
9,980
9,990
10,000
10,010
10,020
10,030
10,040
10,050
43
100
GAMMA (API)
0
49
6300
MUD WT 9.25 VIS 39
MUD WT
MD: 9,886 '
TVD: 7,095.94 '
Inclination: 88.9 °
Azimuth: 357.6 °
VS: 3,235.61 '
MD: 9,979 '
TVD: 7,097.97 '
Inclination: 88.6 °
Azimuth: 359.8 °
VS: 3,328.57 '
TVD (ft)
SS: lt brn-gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, arg ip, wxy tex, v calc,
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr
LS: wh-lt gy, crm ip, xln, sb blky-blky, arg ip, wxy tex, v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr
LS: wh-lt gy, crm ip, xln, sb blky-blky, arg ip, wxy tex, v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, arg ip, wxy tex, v calc
8300

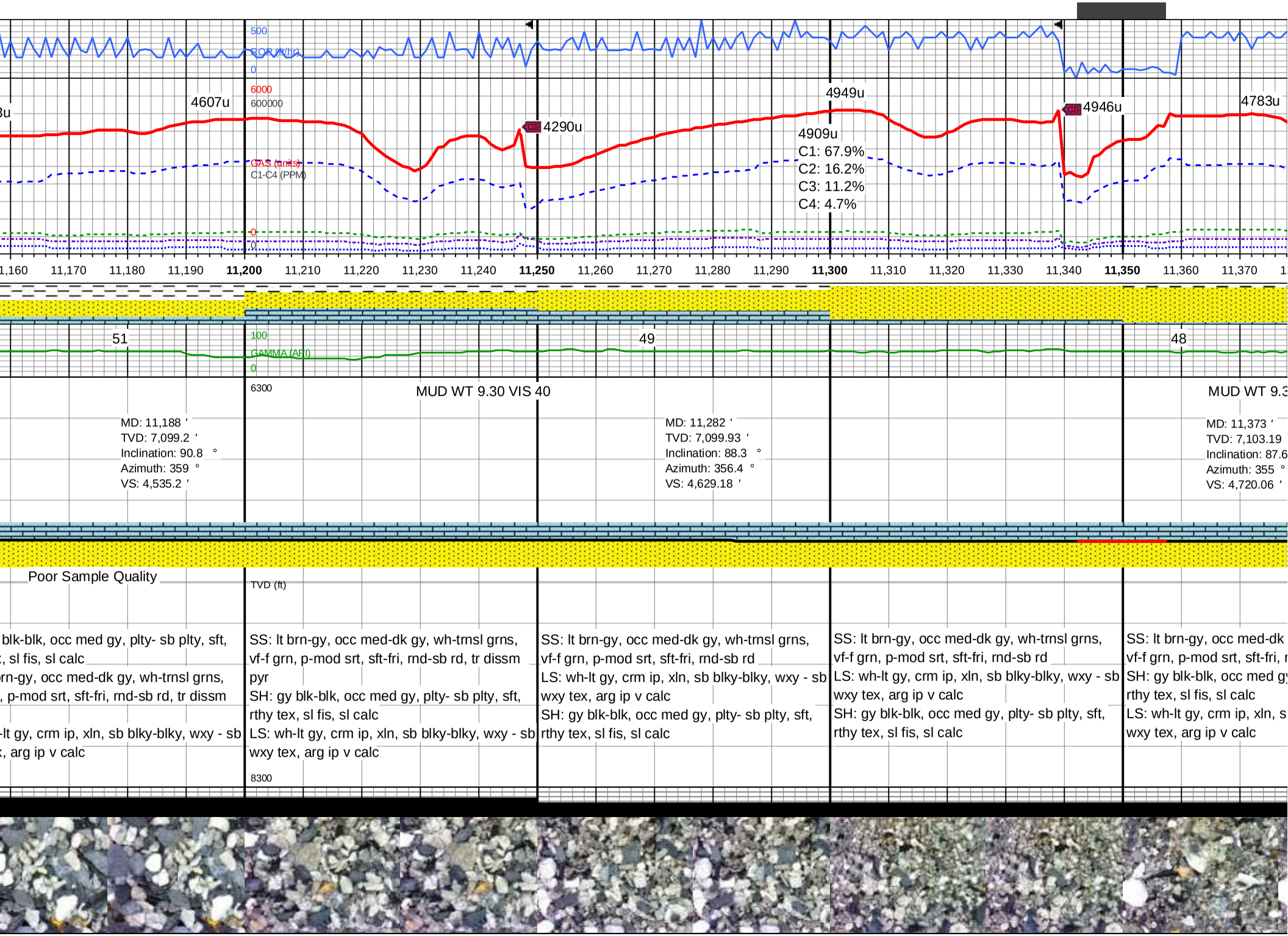

500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
4920u
4649u
4333u
3956u
3845u
4929u
C1: 69.1%
C2: 17.5%
C3: 9.9%
C4: 3.6%
10,060
10,070
10,080
10,090
10,100
10,110
10,120
10,130
10,140
10,150
10,160
10,170
10,180
10,190
10,200
10,210
10,220
10,230
10,240
10,250
10,260
10,270
100
GAMMA (API)
0
6300
11
19
9.25 VIS 40
MUD WT 9.20 VIS 40
MD: 10,072 '
TVD: 7,098.46 '
Inclination: 90.8 °
Azimuth: 0.8 °
VS: 3,421.47 '
MD: 10,165 '
TVD: 7,096.43 '
Inclination: 91.7 °
Azimuth: 359.2 °
VS: 3,514.38 '
MD: 10,259 '
TVD: 7,094.71 '
Inclination: 90.4 °
Azimuth: 1.5 °
VS: 3,608.26 '
TVD (ft)
-lt gy, crm ip, xln, sb blky-blky, arg ip,
x, v calc, tr ss, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, arg ip,
wxy tex, v calc, tr ss, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy- sb
wxy tex, v calc, tr ss, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, arg ip,
wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, s
wxy tex, v calc, tr sh
8300

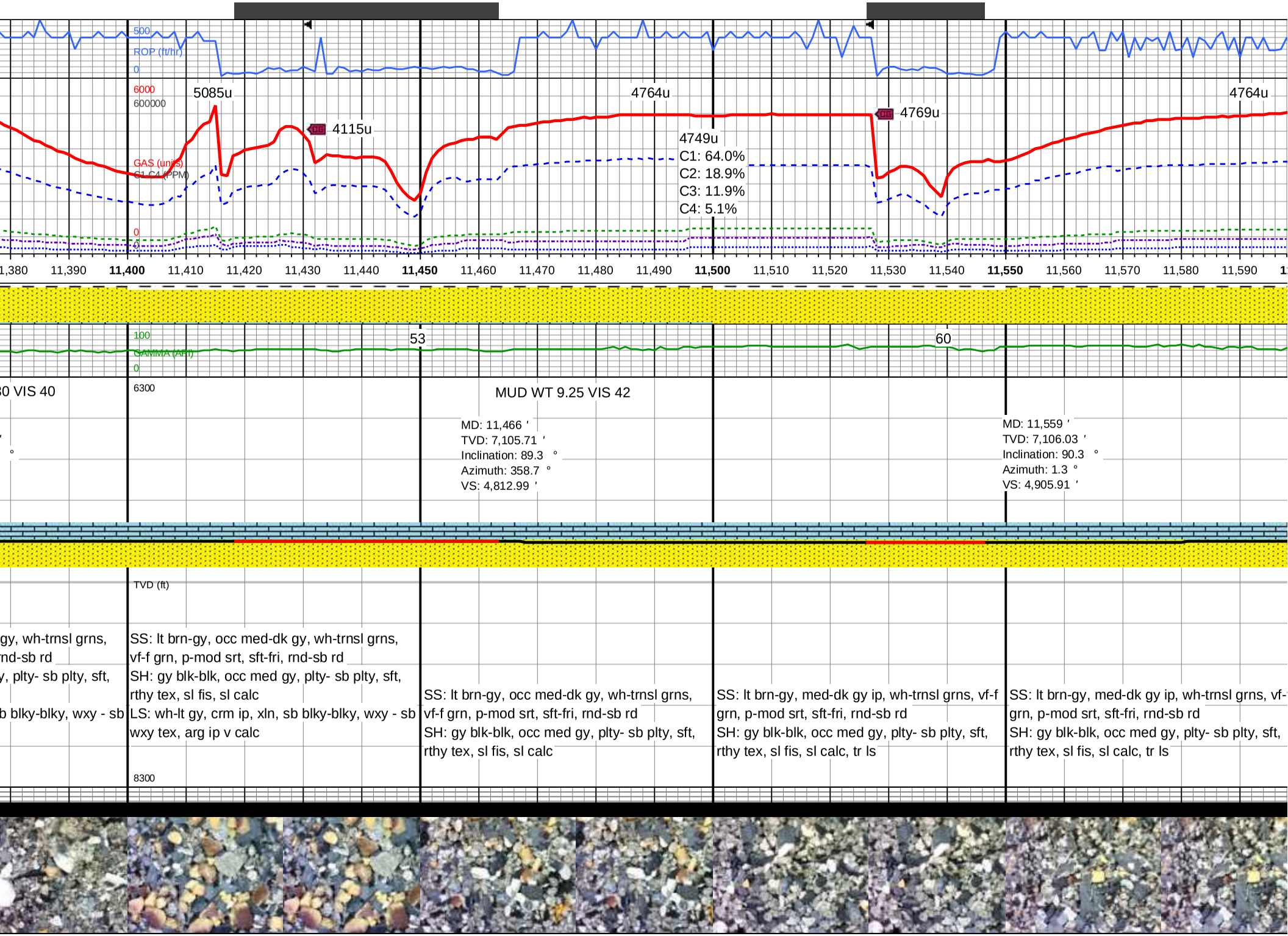

500
ROP (ft/hr)
0
6000
600000
4442u
4311u
4275u
4482u
4499u
C1: 64.4%
C2: 19.1%
C3: 11.9%
C4: 4.5%
GAS (units)
C1-C4 (PPM)
0
0
10,280
10,290
10,300
10,310
10,320
10,330
10,340
10,350
10,360
10,370
10,380
10,390
10,400
10,410
10,420
10,430
10,440
10,450
10,460
10,470
10,480
10,490
100
GAMMA (API)
0
19
14
6300
MUD WT 9.20 VIS 40
MD: 10,353 '
TVD: 7,094.3 '
Inclination: 90.1 °
Azimuth: 2.1 °
VS: 3,702.03 '
MD: 10,446 '
TVD: 7,095.51 '
Inclination: 88.4 °
Azimuth: 3.2 °
VS: 3,794.69 '
TVD (ft)
b blky-blky, wxy - sb
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc, tr sh
8300

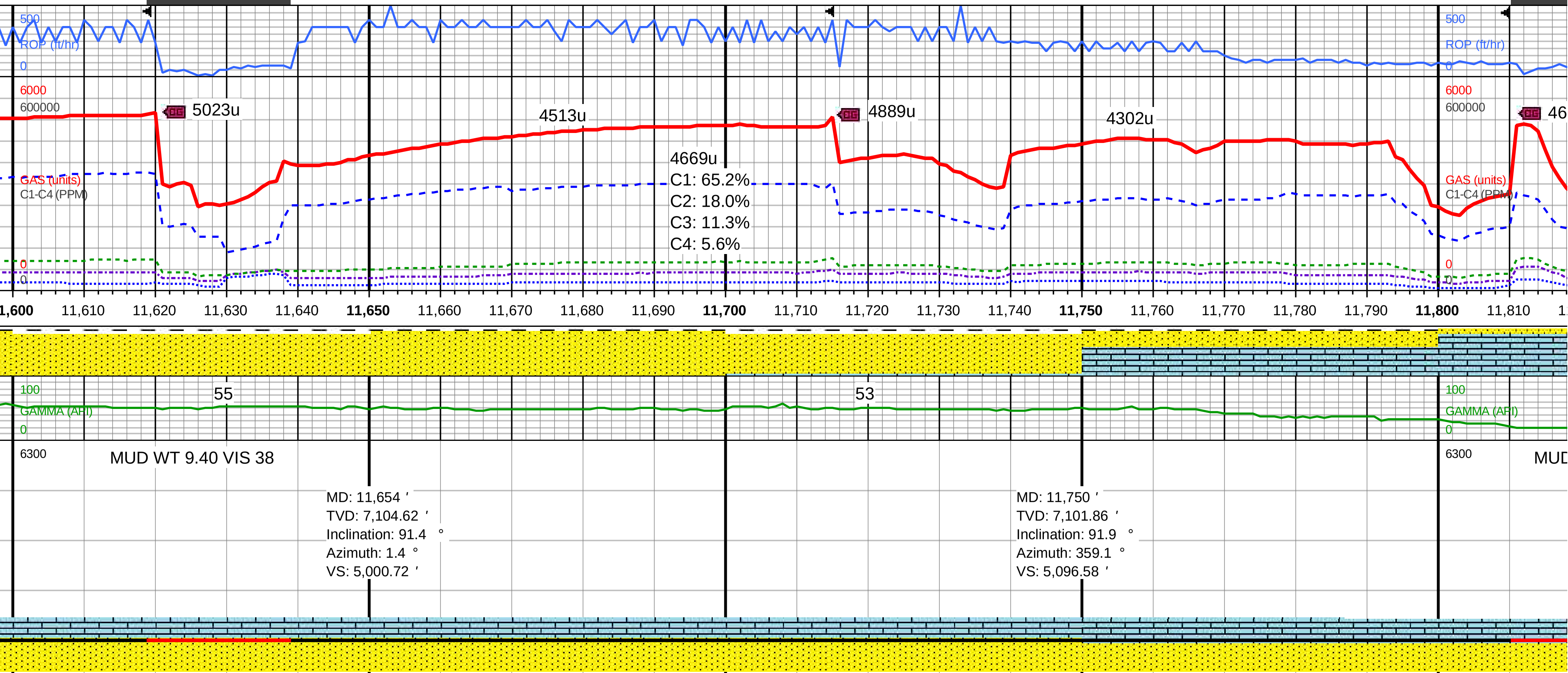

500
ROP (MIN)
0
6000
600000
4367u
4563u
4288u
4330u
4457u
3339u
C1: 68.3%
C2: 17.4%
C3: 10.1%
C4: 4.2%
GAS (units)
C1-C4 (PPM)
0
0
62.3%
19.4%
12.6%
5.7%
10,500
10,510
10,520
10,530
10,540
10,550
10,560
10,570
10,580
10,590
10,600
10,610
10,620
10,630
10,640
10,650
10,660
10,670
10,680
10,690
10,700
10,710
100
GAMMA (API)
0
9
33
6300
MD: 10,539 '
TVD: 7,097.62 '
Inclination: 89 °
Azimuth: 2.3 °
VS: 3,887.31 '
MD: 10,631 '
TVD: 7,099.07 '
Inclination: 89.2 °
Azimuth: 2.2 °
VS: 3,979.03 '
TVD (ft)
Poor Sa
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc, tr sh, tr ss
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc, tr sh, tr ss
8300
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns,
vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, v calc
LS: wh-lt gy, crm
wxy tex, v calc
SH: gy blk-blk, o
rthy tex, sl fis, sl
SS: lt brn-gy, occ
vf-f grn, p-mod s


500
ROP (u/hr)
0
6000
600000
4612u
4702u
4121u
4332u
5052u
4631u
C1: 66.3%
C2: 17.7%
C3: 10.9%
C4: 5.2%
GAS (units)
C1-C4 (PPM)
0
0
0,720
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
10,870
10,880
10,890
10,900
10,910
10,920
10,930
51
100
GAMMA (API)
0
62
51
6300
MUD WT 9.20 VIS 40
10,723 '
7,101.24 '
nation: 88.1 °
uth: 2.6 °
4,070.7 '
MD: 10,816 '
TVD: 7,103.18 '
Inclination: 89.5 °
Azimuth: 0.1 °
VS: 4,163.49 '
MD: 10,909 '
TVD: 7,104.08 '
Inclination: 89.4 °
Azimuth: 0.9 °
VS: 4,256.39 '
mple Quality
TVD (ft)
Poor Sample Quality
ip, xln, sb blky-blky, wxy - sb
cc med gy, plty- sb plty, sft,
calc
c med-dk gy, wh-trnsl grns,
rt, sft-fri, rnd-sb rd
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc
8300
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb
rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blk
wxy tex, v calc


500
ROP (min)
0
6000
600000
5005u
4577u
5143u
4822u
4830u
C1: 66.2%
C2: 17.3%
C3: 11.2%
C4: 5.3%
GAS (units)
C1-C4 (PPM)
0
0
0,940
10,950
10,960
10,970
10,980
10,990
11,000
11,010
11,020
11,030
11,040
11,050
11,060
11,070
11,080
11,090
11,100
11,110
11,120
11,130
11,140
11,150
53
100
GAMMA (API)
0
6300
MUD WT 9.20 VIS 40
49
MD: 11,001 '
TVD: 7,103.35 '
Inclination: 91.5 °
Azimuth: 359.4 °
VS: 4,348.3 '
MD: 11,094 '
TVD: 7,101 '
Inclination: 91.4 °
Azimuth: 359.1 °
VS: 4,441.24 '
Poor Sample Quality
Poor Sample Quality
TVD (ft)
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc
8300


500
ROP (ft/hr)
0
6000
600000
4607u
4290u
4949u
4946u
4783u
4909u
C1: 67.9%
C2: 16.2%
C3: 11.2%
C4: 4.7%
GAS (units)
C1-C4 (PPM)
0
0
11,160
11,170
11,180
11,190
11,200
11,210
11,220
11,230
11,240
11,250
11,260
11,270
11,280
11,290
11,300
11,310
11,320
11,330
11,340
11,350
11,360
11,370
51
49
48
100
GAMMA (API)
0
6300
MUD WT 9.30 VIS 40
MUD WT 9.3
MD: 11,188 '
TVD: 7,099.2 '
Inclination: 90.8 °
Azimuth: 359 °
VS: 4,535.2 '
MD: 11,282 '
TVD: 7,099.93 '
Inclination: 88.3 °
Azimuth: 356.4 °
VS: 4,629.18 '
MD: 11,373 '
TVD: 7,103.19
Inclination: 87.6
Azimuth: 355 °
VS: 4,720.06 '
Poor Sample Quality
TVD (ft)
blk-blk, occ med gy, plty- sb plty, sft,
, sl fis, sl calc
rn-gy, occ med-dk gy, wh-trnsl grns,
, p-mod srt, sft-fri, rnd-sb rd, tr dissm
lt gy, crm ip, xln, sb blky-blky, wxy - sb
, arg ip v calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, tr dissm pyr
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip v calc
8300
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk
vf-f grn, p-mod srt, sft-fri,
SH: gy blk-blk, occ med g
rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, s
wxy tex, arg ip v calc


500
ROP (ft/hr)
0
6000
600000
5085u
4115u
4764u
4749u
C1: 64.0%
C2: 18.9%
C3: 11.9%
C4: 5.1%
4769u
4764u
GAS (units)
C1 C4 (PPM)
0
0
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
11,530
11,540
11,550
11,560
11,570
11,580
11,590
100
GAMMA (API)
0
53
60
0 VIS 40
6300
MUD WT 9.25 VIS 42
MD: 11,466 '
TVD: 7,105.71 '
Inclination: 89.3 °
Azimuth: 358.7 °
VS: 4,812.99 '
MD: 11,559 '
TVD: 7,106.03 '
Inclination: 90.3 °
Azimuth: 1.3 °
VS: 4,905.91 '
TVD (ft)
gy, wh-trnsl grns,
rnd-sb rd
, plty- sb plty, sft,
b blky-blky, wxy - sb
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns,
vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, arg ip v calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns,
vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f
grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc, tr ls
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-
grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc, tr ls
8300

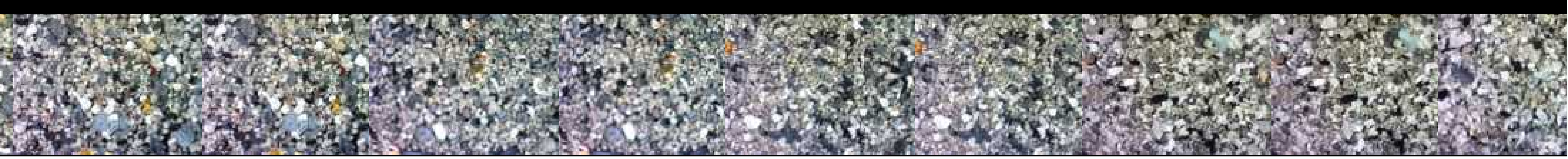


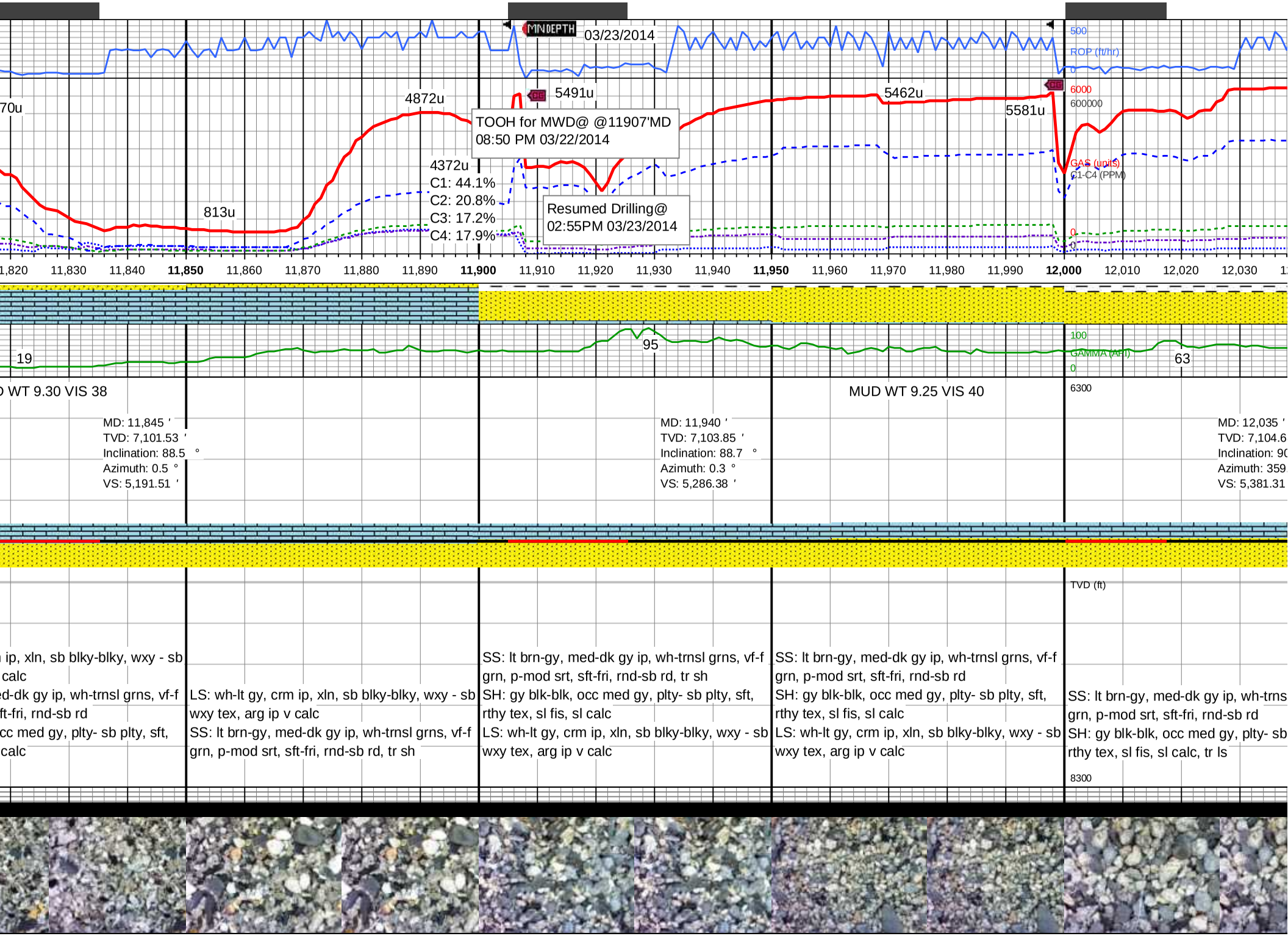
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc, tr ls

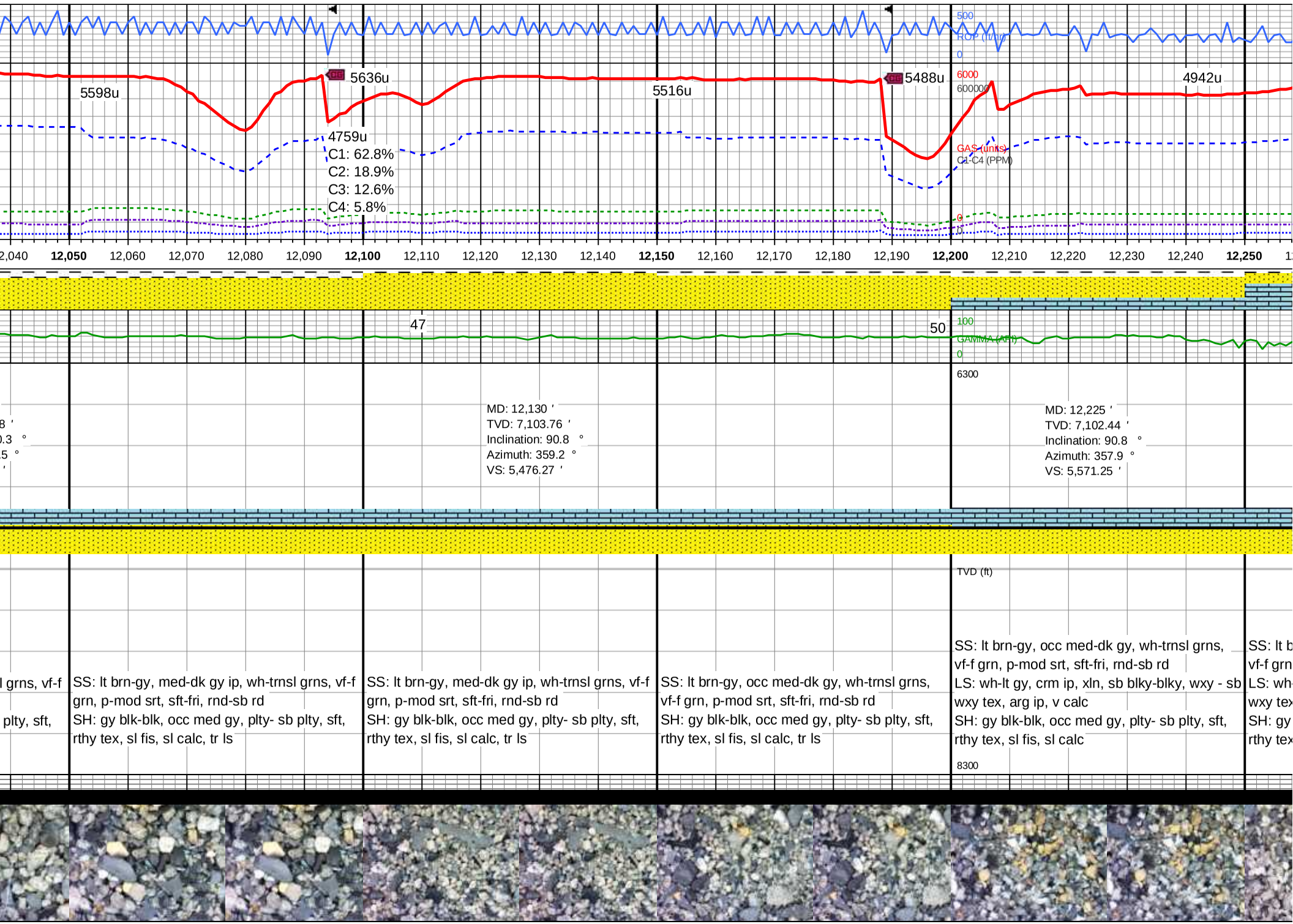
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc, tr ls

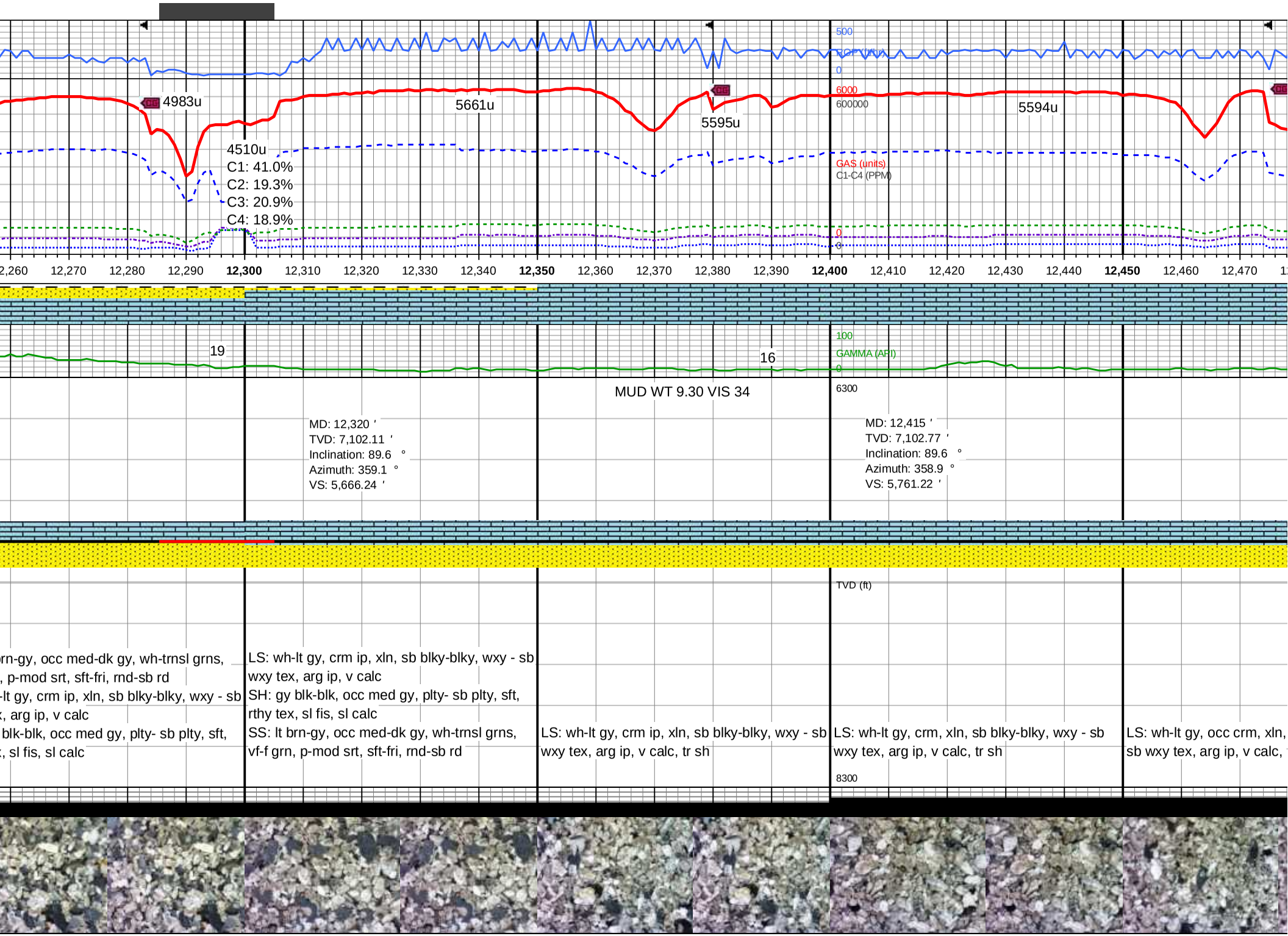
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip v calc

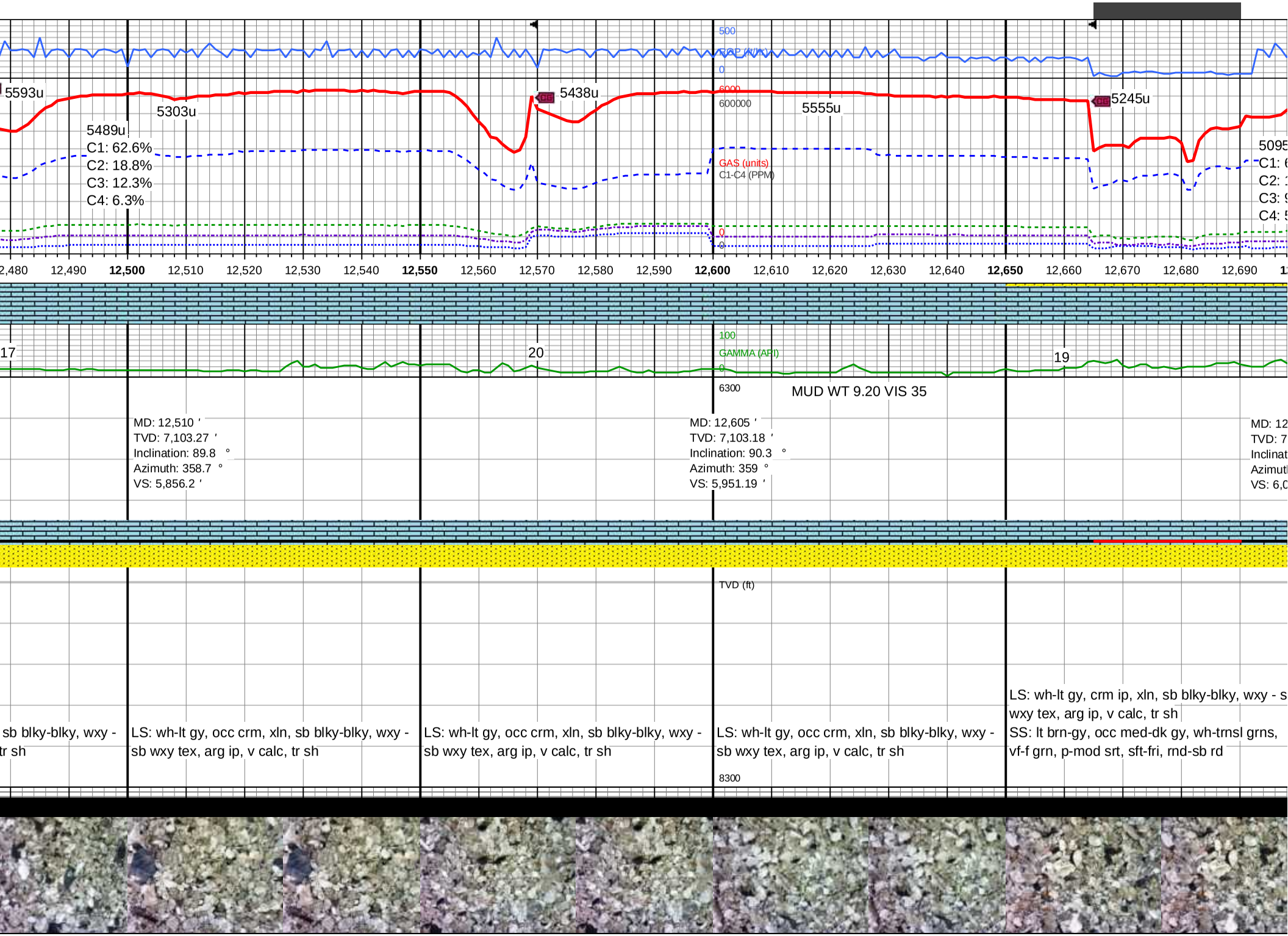
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip v calc
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

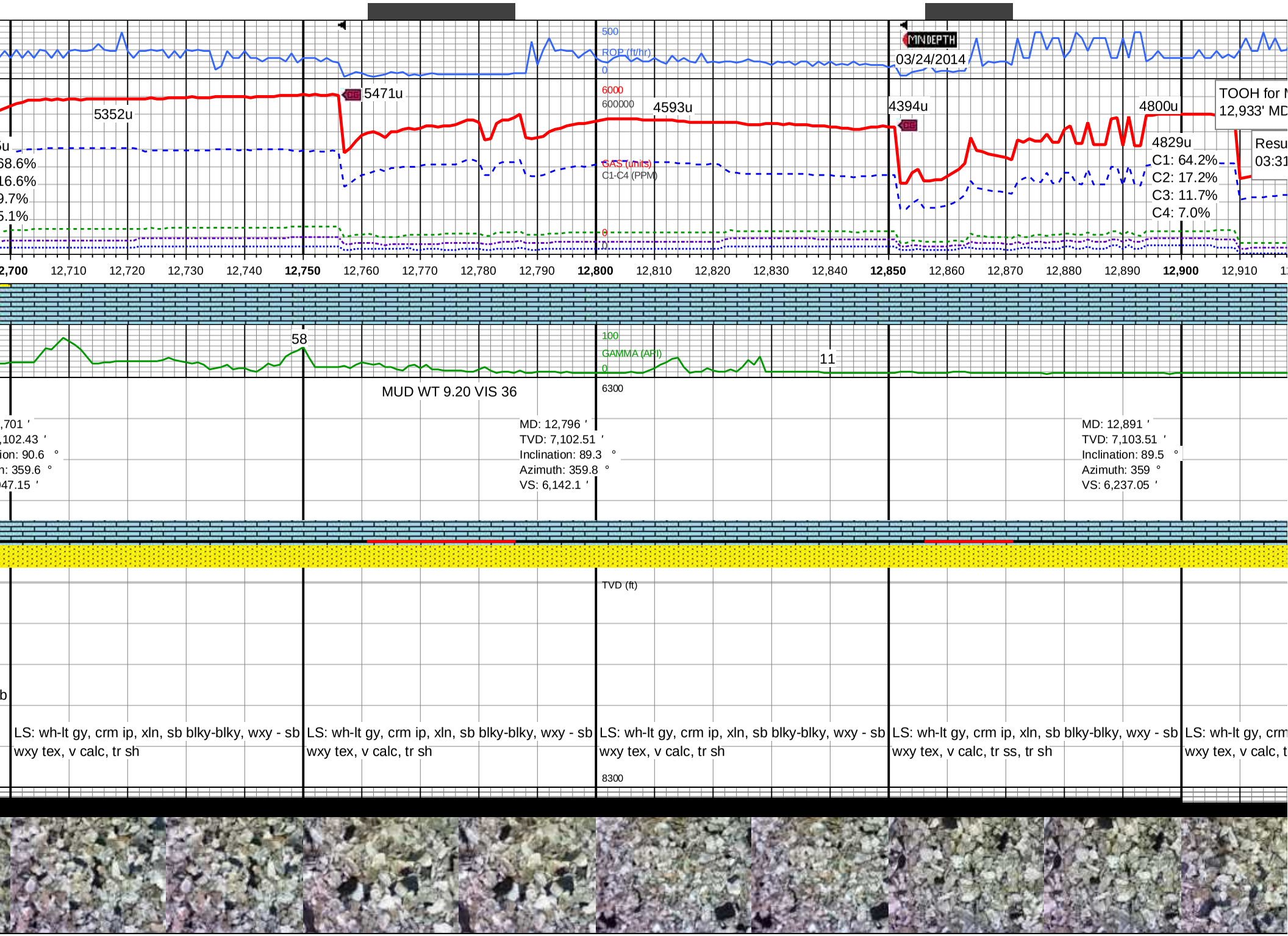


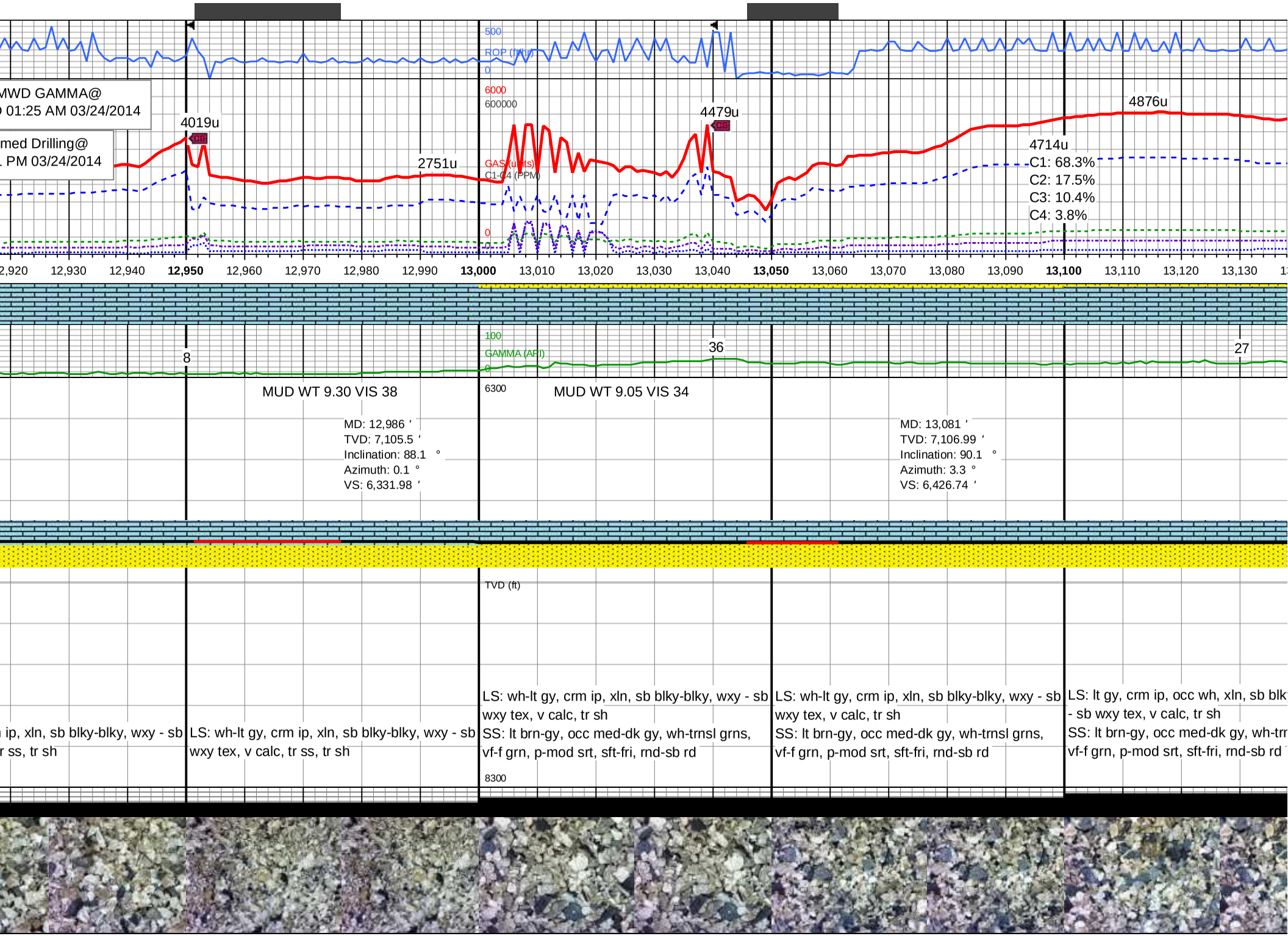

MNDEPTH
03/23/2014
500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
5491u
4872u
5462u
5581u
TOOH for MWD@ @11907'MD
08:50 PM 03/22/2014
4372u
C1: 44.1%
C2: 20.8%
C3: 17.2%
C4: 17.9%
813u
Resumed Drilling@
02:55PM 03/23/2014
11,820
11,830
11,840
11,850
11,860
11,870
11,880
11,890
11,900
11,910
11,920
11,930
11,940
11,950
11,960
11,970
11,980
11,990
12,000
12,010
12,020
12,030
19
95
63
100
GAMMA (API)
0
WT 9.30 VIS 38
MUD WT 9.25 VIS 40
6300
MD: 11,845 '
TVD: 7,101.53 '
Inclination: 88.5 °
Azimuth: 0.5 °
VS: 5,191.51 '
MD: 11,940 '
TVD: 7,103.85 '
Inclination: 88.7 °
Azimuth: 0.3 °
VS: 5,286.38 '
MD: 12,035 '
TVD: 7,104.6
Inclination: 90
Azimuth: 359
VS: 5,381.31
TVD (ft)
ip, xln, sb blky-blky, wxy - sb
calc
d-dk gy ip, wh-trnsl grns, vf-f
ft-fri, rnd-sb rd
cc med gy, plty- sb plty, sft,
calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, arg ip v calc
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f
grn, p-mod srt, sft-fri, rnd-sb rd, tr sh
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f
grn, p-mod srt, sft-fri, rnd-sb rd, tr sh
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, arg ip v calc
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f
grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb
wxy tex, arg ip v calc
SS: lt brn-gy, med-dk gy ip, wh-trns
grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb
rthy tex, sl fis, sl calc, tr ls
8300

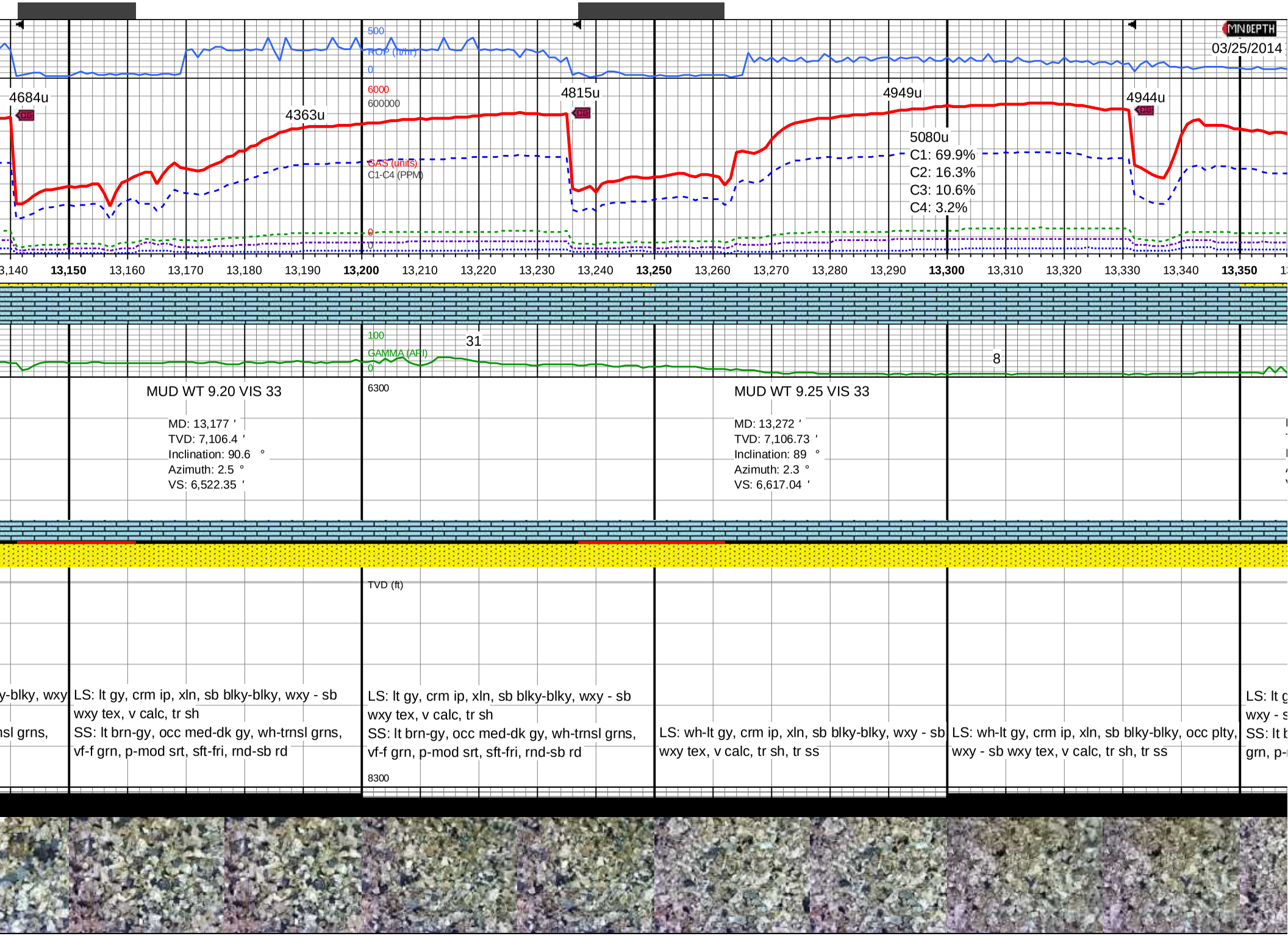

500
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
5598u
5636u
4759u
C1: 62.8%
C2: 18.9%
C3: 12.6%
C4: 5.8%
5516u
5488u
4942u
12,040
12,050
12,060
12,070
12,080
12,090
12,100
12,110
12,120
12,130
12,140
12,150
12,160
12,170
12,180
12,190
12,200
12,210
12,220
12,230
12,240
12,250
47
50
100
GAMMA (API)
0
6300
MD: 12,130 '
TVD: 7,103.76 '
Inclination: 90.8 °
Azimuth: 359.2 °
VS: 5,476.27 '
MD: 12,225 '
TVD: 7,102.44 '
Inclination: 90.8 °
Azimuth: 357.9 °
VS: 5,571.25 '
TVD (ft)
l grns, vf-f
plty, sft,
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc, tr ls
SS: lt brn-gy, med-dk gy ip, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc, tr ls
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc, tr ls
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip, v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
8300

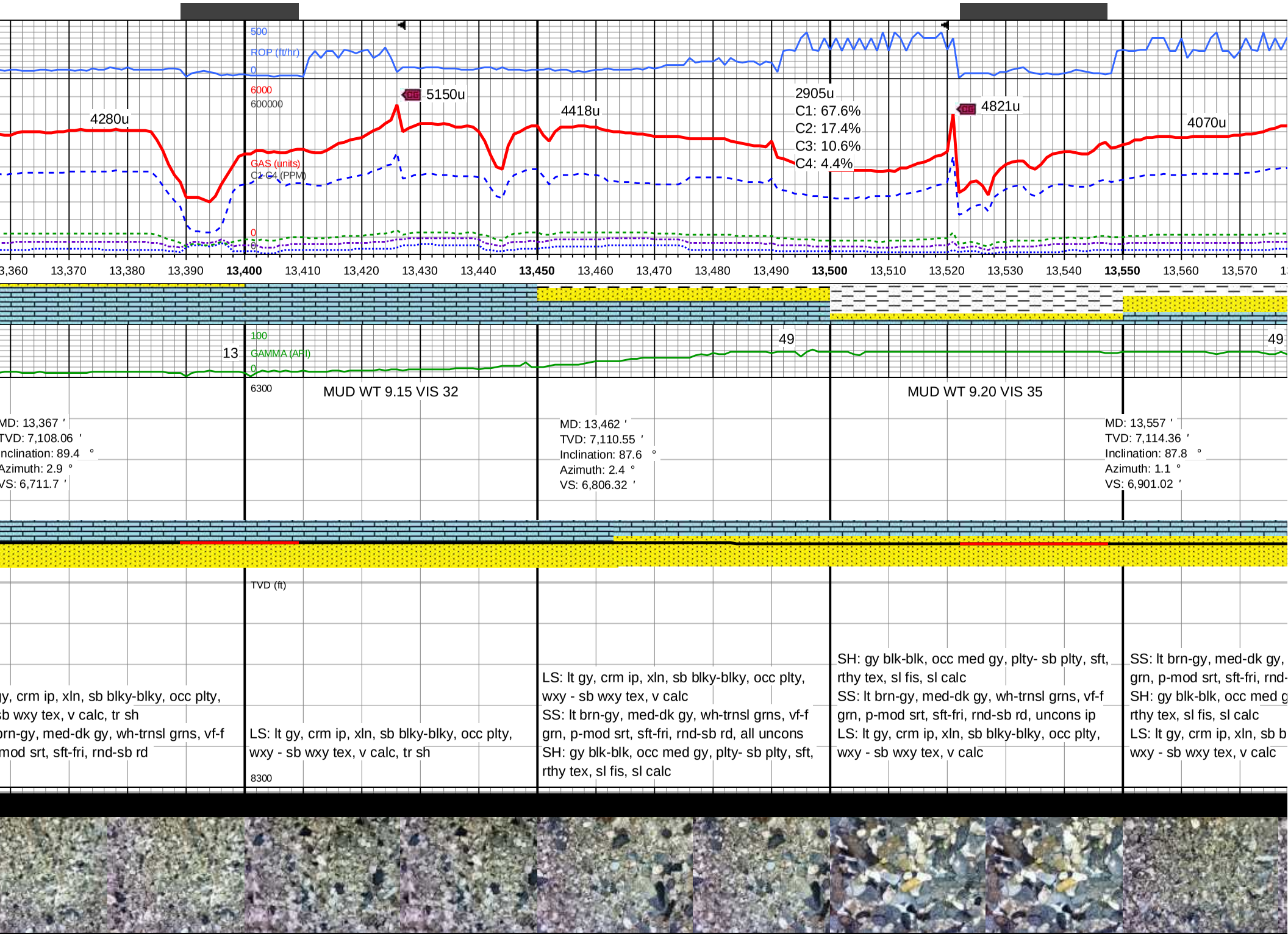

4983u
5661u
5595u
5594u
4510u
C1: 41.0%
C2: 19.3%
C3: 20.9%
C4: 18.9%
500
600000
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
12,260
12,270
12,280
12,290
12,300
12,310
12,320
12,330
12,340
12,350
12,360
12,370
12,380
12,390
12,400
12,410
12,420
12,430
12,440
12,450
12,460
12,470
19
16
100
GAMMA (API)
0
MUD WT 9.30 VIS 34
6300
MD: 12,320 '
TVD: 7,102.11 '
Inclination: 89.6 °
Azimuth: 359.1 °
VS: 5,666.24 '
MD: 12,415 '
TVD: 7,102.77 '
Inclination: 89.6 °
Azimuth: 358.9 °
VS: 5,761.22 '
TVD (ft)
rn-gy, occ med-dk gy, wh-trnsl grns,
, p-mod srt, sft-fri, rnd-sb rd
lt gy, crm ip, xln, sb blky-blky, wxy - sb
, arg ip, v calc
blk-blk, occ med gy, plty- sb plty, sft,
, sl fis, sl calc
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip, v calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, arg ip, v calc, tr sh
LS: wh-lt gy, crm, xln, sb blky-blky, wxy - sb wxy tex, arg ip, v calc, tr sh
8300
LS: wh-lt gy, occ crm, xln,
sb wxy tex, arg ip, v calc,

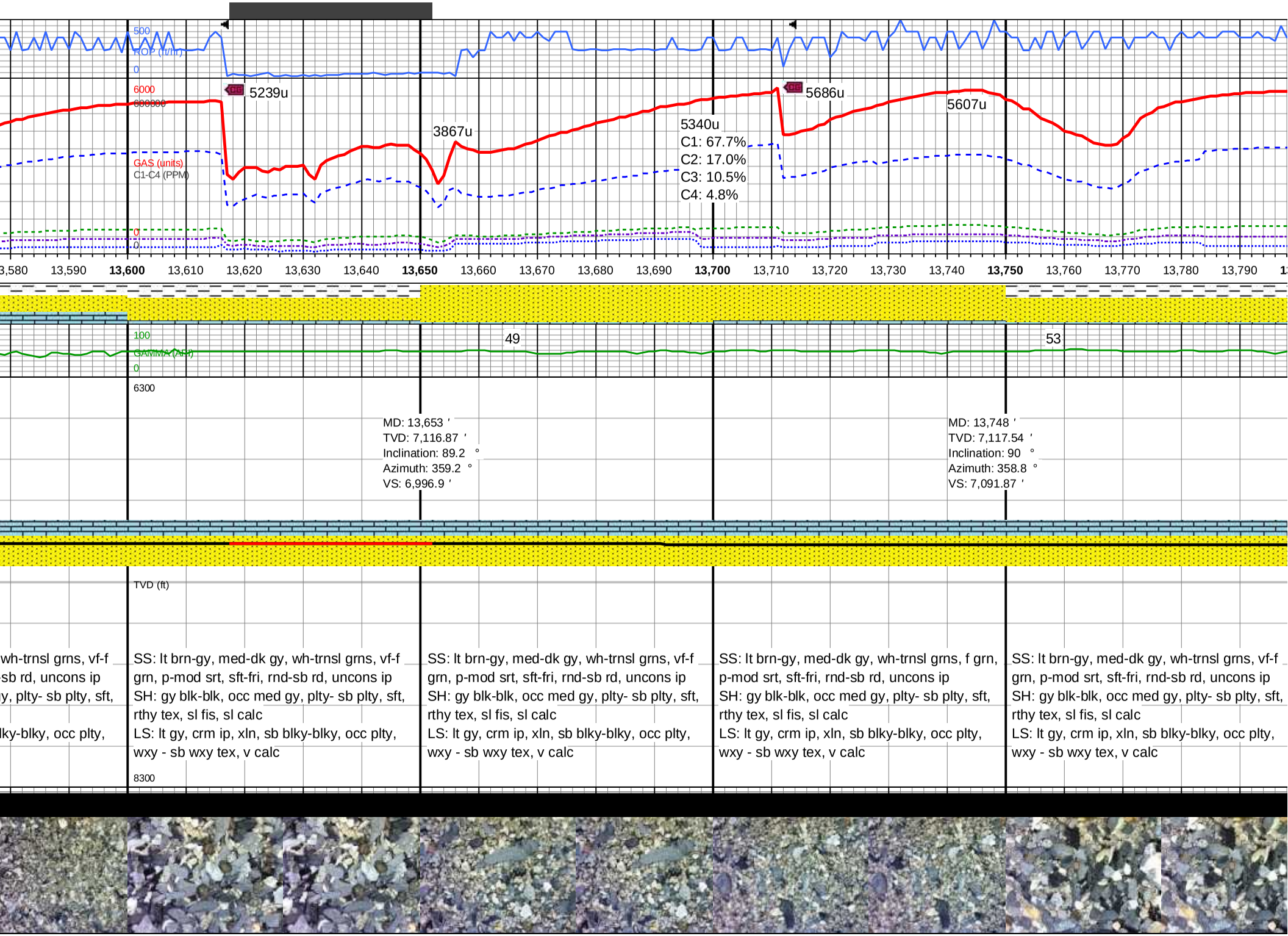

500
ROP (M/H)
0
6000
600000
5593u
5303u
5489u
C1: 62.6%
C2: 18.8%
C3: 12.3%
C4: 6.3%
5438u
5555u
5245u
GAS (units)
C1-C4 (PPM)
0
-0
2,480
12,490
12,500
12,510
12,520
12,530
12,540
12,550
12,560
12,570
12,580
12,590
12,600
12,610
12,620
12,630
12,640
12,650
12,660
12,670
12,680
12,690
100
GAMMA (API)
0
6300
17
20
19
MUD WT 9.20 VIS 35
MD: 12,510 '
TVD: 7,103.27 '
Inclination: 89.8 °
Azimuth: 358.7 °
VS: 5,856.2 '
MD: 12,605 '
TVD: 7,103.18 '
Inclination: 90.3 °
Azimuth: 359 °
VS: 5,951.19 '
TVD (ft)
sb blky-blky, wxy -
tr sh
LS: wh-lt gy, occ crm, xln, sb blky-blky, wxy -
sb wxy tex, arg ip, v calc, tr sh
LS: wh-lt gy, occ crm, xln, sb blky-blky, wxy -
sb wxy tex, arg ip, v calc, tr sh
LS: wh-lt gy, occ crm, xln, sb blky-blky, wxy -
sb wxy tex, arg ip, v calc, tr sh
8300
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - s
wxy tex, arg ip, v calc, tr sh
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns,
vf-f grn, p-mod srt, sft-fri, rnd-sb rd

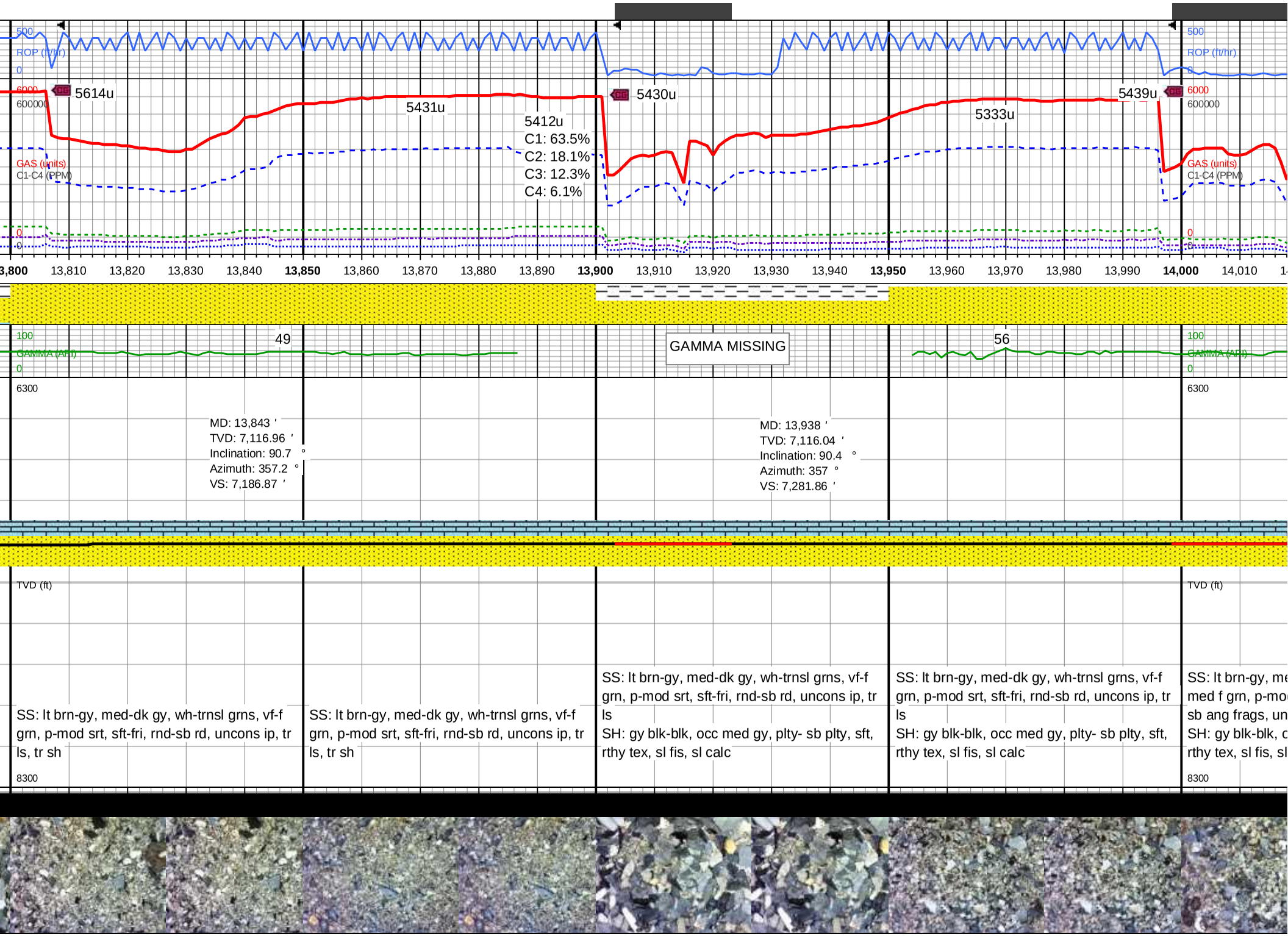

500
ROP (ft/hr)
0
MNDEPTH
03/24/2014
6000
600000
5352u
5471u
4593u
4394u
4800u
4829u
TOOH for
12,933' MD
Resu
03:31
GAS (units)
C1-C4 (PPM)
C1: 64.2%
C2: 17.2%
C3: 11.7%
C4: 7.0%
68.6%
16.6%
9.7%
5.1%
0
0
12,700
12,710
12,720
12,730
12,740
12,750
12,760
12,770
12,780
12,790
12,800
12,810
12,820
12,830
12,840
12,850
12,860
12,870
12,880
12,890
12,900
12,910
58
100
GAMMA (API)
0
11
6300
MUD WT 9.20 VIS 36
MD: 12,796 '
TVD: 7,102.51 '
Inclination: 89.3 °
Azimuth: 359.8 °
VS: 6,142.1 '
MD: 12,891 '
TVD: 7,103.51 '
Inclination: 89.5 °
Azimuth: 359 °
VS: 6,237.05 '
TVD (ft)
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr ss, tr sh
LS: wh-lt gy, crm
wxy tex, v calc, t
8300

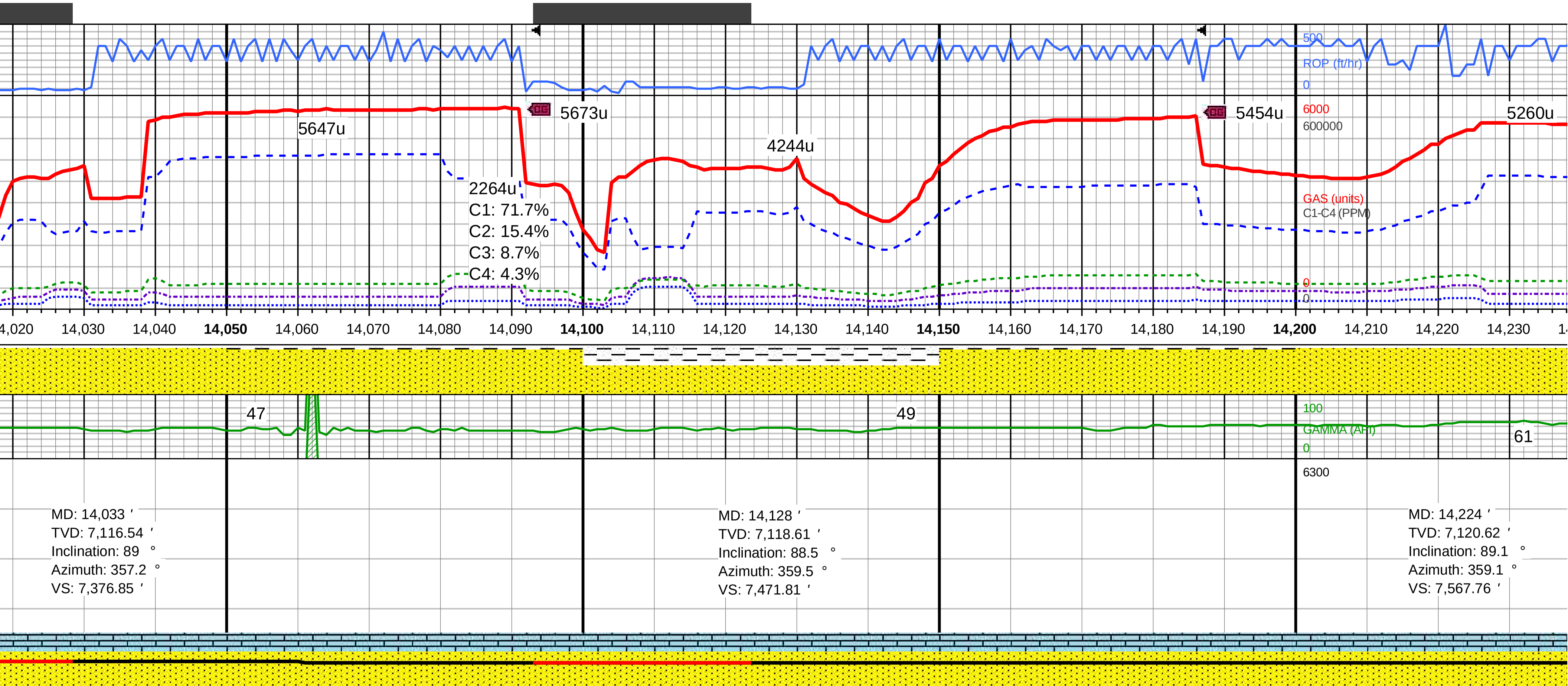

MWD GAMMA@
01:25 AM 03/24/2014
med Drilling@
PM 03/24/2014
500
ROP (FPH)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
4019u
2751u
4479u
4876u
4714u
C1: 68.3%
C2: 17.5%
C3: 10.4%
C4: 3.8%
12,920 12,930 12,940 12,950 12,960 12,970 12,980 12,990 13,000 13,010 13,020 13,030 13,040 13,050 13,060 13,070 13,080 13,090 13,100 13,110 13,120 13,130
100
GAMMA (API)
0
6300
8
36
27
MUD WT 9.30 VIS 38
MUD WT 9.05 VIS 34
MD: 12,986 '
TVD: 7,105.5 '
Inclination: 88.1 °
Azimuth: 0.1 °
VS: 6,331.98 '
MD: 13,081 '
TVD: 7,106.99 '
Inclination: 90.1 °
Azimuth: 3.3 °
VS: 6,426.74 '
TVD (ft)
ip, xln, sb blky-blky, wxy - sb
r ss, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr ss, tr sh
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: lt gy, crm ip, occ wh, xln, sb blk
- sb wxy tex, v calc, tr sh
SS: lt brn-gy, occ med-dk gy, wh-tr
vf-f grn, p-mod srt, sft-fri, rnd-sb rd
8300


500
ROP (min)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
MINDEPTH
03/25/2014
4684u
4363u
4815u
4949u
4944u
5080u
C1: 69.9%
C2: 16.3%
C3: 10.6%
C4: 3.2%
13,140
13,150
13,160
13,170
13,180
13,190
13,200
13,210
13,220
13,230
13,240
13,250
13,260
13,270
13,280
13,290
13,300
13,310
13,320
13,330
13,340
13,350
100
GAMMA (API)
0
31
8
6300
MUD WT 9.20 VIS 33
MD: 13,177 '
TVD: 7,106.4 '
Inclination: 90.6 °
Azimuth: 2.5 °
VS: 6,522.35 '
MUD WT 9.25 VIS 33
MD: 13,272 '
TVD: 7,106.73 '
Inclination: 89 °
Azimuth: 2.3 °
VS: 6,617.04 '
TVD (ft)
y-blky, wxy
nsl grns,
LS: lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
LS: lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh
SS: lt brn-gy, occ med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd
8300
LS: wh-lt gy, crm ip, xln, sb blky-blky, wxy - sb wxy tex, v calc, tr sh, tr ss
LS: wh-lt gy, crm ip, xln, sb blky-blky, occ plty, wxy - sb wxy tex, v calc, tr sh, tr ss
LS: lt g
wxy - s
SS: lt b
grn, p-


500
ROP (ft/hr)
0
6000
600000
4280u
5150u
4418u
2905u
C1: 67.6%
C2: 17.4%
C3: 10.6%
C4: 4.4%
4821u
4070u
GAS (units)
C1-C4 (PPM)
0
0
13,360
13,370
13,380
13,390
13,400
13,410
13,420
13,430
13,440
13,450
13,460
13,470
13,480
13,490
13,500
13,510
13,520
13,530
13,540
13,550
13,560
13,570
100
GAMMA (API)
0
13
49
49
6300
MUD WT 9.15 VIS 32
MUD WT 9.20 VIS 35
MD: 13,367 '
TVD: 7,108.06 '
Inclination: 89.4 °
Azimuth: 2.9 °
VS: 6,711.7 '
MD: 13,462 '
TVD: 7,110.55 '
Inclination: 87.6 °
Azimuth: 2.4 °
VS: 6,806.32 '
MD: 13,557 '
TVD: 7,114.36 '
Inclination: 87.8 °
Azimuth: 1.1 °
VS: 6,901.02 '
TVD (ft)
gy, crm ip, xln, sb blky-blky, occ plty,
sb wxy tex, v calc, tr sh
brn-gy, med-dk gy, wh-trnsl grns, vf-f
mod srt, sft-fri, rnd-sb rd
LS: lt gy, crm ip, xln, sb blky-blky, occ plty,
wxy - sb wxy tex, v calc, tr sh
8300
LS: lt gy, crm ip, xln, sb blky-blky, occ plty,
wxy - sb wxy tex, v calc
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f
grn, p-mod srt, sft-fri, rnd-sb rd, all uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc
SS: lt brn-gy, med-dk gy,
grn, p-mod srt, sft-fri, rnd-
SH: gy blk-blk, occ med g
rthy tex, sl fis, sl calc
LS: lt gy, crm ip, xln, sb b
wxy - sb wxy tex, v calc


500
ROP (ft/hr)
0
6000
GAS (units)
C1-C4 (PPM)
0
0
5239u
3867u
5340u
C1: 67.7%
C2: 17.0%
C3: 10.5%
C4: 4.8%
5686u
5607u
13,580
13,590
13,600
13,610
13,620
13,630
13,640
13,650
13,660
13,670
13,680
13,690
13,700
13,710
13,720
13,730
13,740
13,750
13,760
13,770
13,780
13,790
100
GAMMA (API)
0
49
53
6300
MD: 13,653 '
TVD: 7,116.87 '
Inclination: 89.2 °
Azimuth: 359.2 °
VS: 6,996.9 '
MD: 13,748 '
TVD: 7,117.54 '
Inclination: 90 °
Azimuth: 358.8 °
VS: 7,091.87 '
TVD (ft)
wh-trnsl grns, vf-f
sb rd, uncons ip
y, plty- sb plty, sft,
lky-blky, occ plty,
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: lt gy, crm ip, xln, sb blky-blky, occ plty, wxy - sb wxy tex, v calc
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: lt gy, crm ip, xln, sb blky-blky, occ plty, wxy - sb wxy tex, v calc
SS: lt brn-gy, med-dk gy, wh-trnsl grns, f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: lt gy, crm ip, xln, sb blky-blky, occ plty, wxy - sb wxy tex, v calc
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
LS: lt gy, crm ip, xln, sb blky-blky, occ plty, wxy - sb wxy tex, v calc
8300


500
ROP (ft/hr)
0
6000
600000
5614u
5431u
5412u
C1: 63.5%
C2: 18.1%
C3: 12.3%
C4: 6.1%
5430u
5333u
5439u
GAS (units)
C1-C4 (PPM)
0
0
13,800
13,810
13,820
13,830
13,840
13,850
13,860
13,870
13,880
13,890
13,900
13,910
13,920
13,930
13,940
13,950
13,960
13,970
13,980
13,990
14,000
14,010
100
GAMMA (API)
0
6300
49
GAMMA MISSING
56
MD: 13,843 '
TVD: 7,116.96 '
Inclination: 90.7 °
Azimuth: 357.2 °
VS: 7,186.87 '
MD: 13,938 '
TVD: 7,116.04 '
Inclination: 90.4 °
Azimuth: 357 °
VS: 7,281.86 '
TVD (ft)
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip, tr ls, tr sh
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip, tr ls, tr sh
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip, tr ls
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: lt brn-gy, med-dk gy, wh-trnsl grns, vf-f grn, p-mod srt, sft-fri, rnd-sb rd, uncons ip, tr ls
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
8300



ed-dk gy, wh-trnsl grns, f -
d srt, sft-fri, rnd-sb rd, occ
cons ip
occ med gy, plty- sb plty, sft,
calc

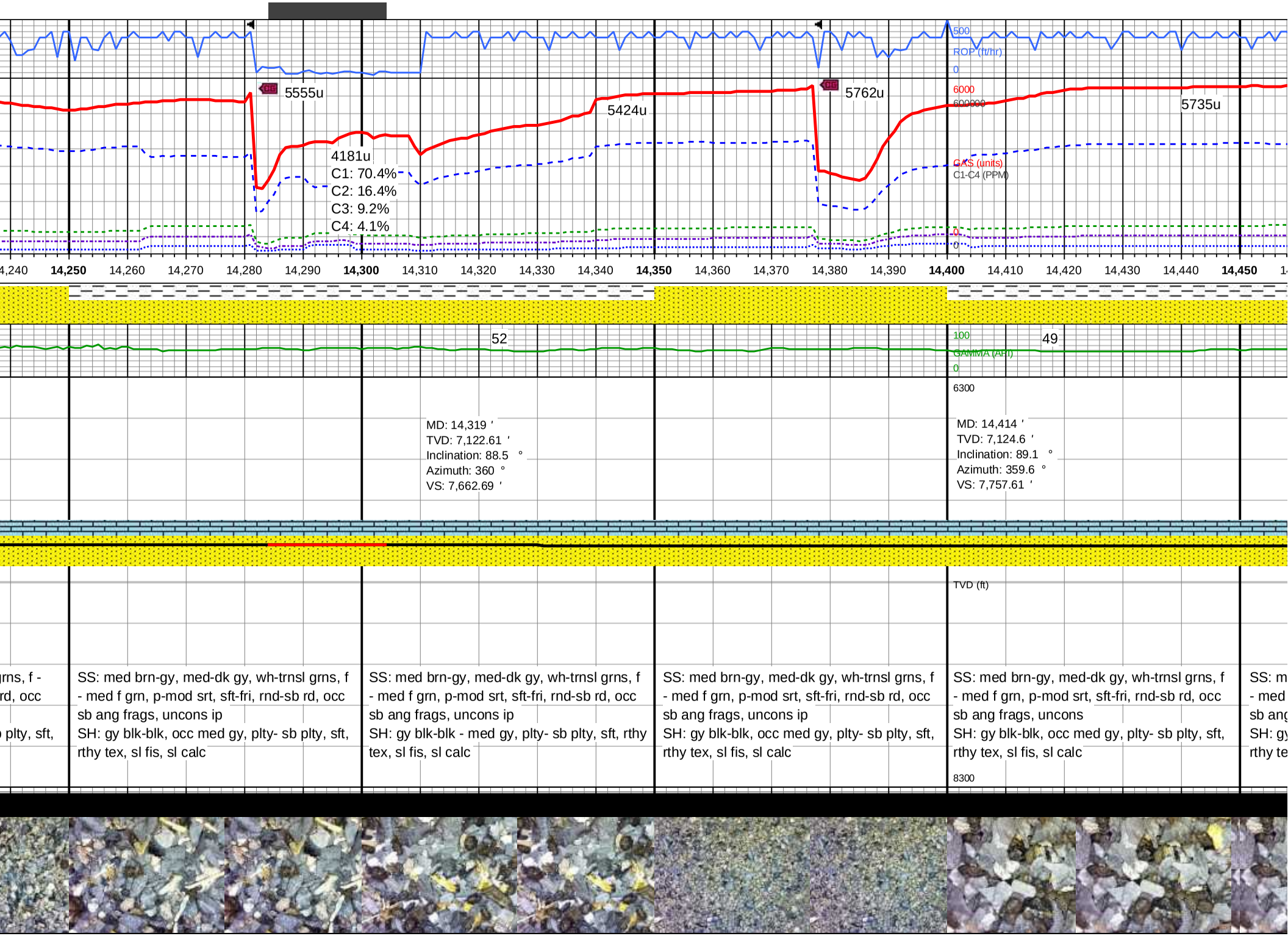
SS: lt brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

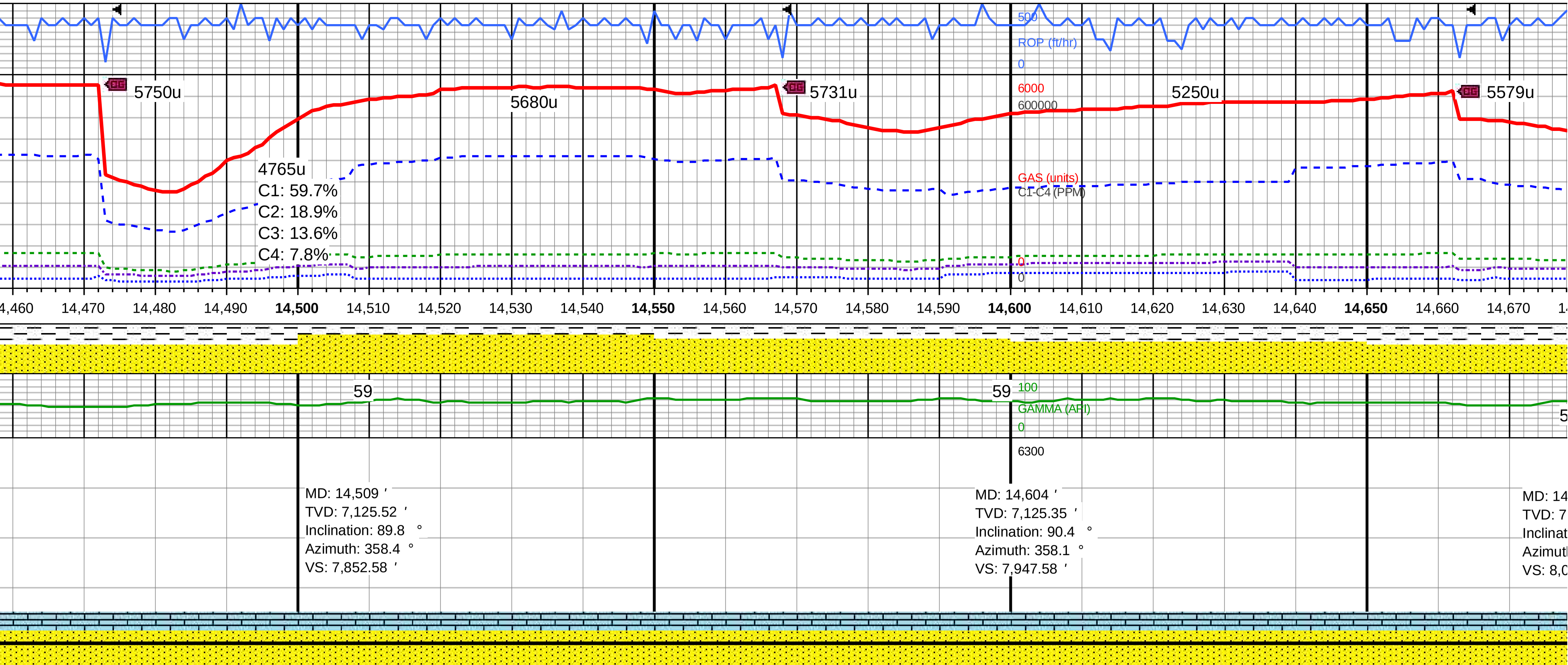
SS: lt brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

SS: lt brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

SS: lt brn-gy, med-dk gy, wh-trnsl g
med f grn, p-mod srt, sft-fri, rnd-sb
sb ang frags, uncons ip
SH: gy blk-blk, occ med gy, plty- sb
rthy tex, sl fis, sl calc

8300


500
ROP (ft/hr)
0
6000
600000
5555u
5424u
5762u
5735u
4181u
C1: 70.4%
C2: 16.4%
C3: 9.2%
C4: 4.1%
GAS (units)
C1-C4 (PPM)
0
0
14,240
14,250
14,260
14,270
14,280
14,290
14,300
14,310
14,320
14,330
14,340
14,350
14,360
14,370
14,380
14,390
14,400
14,410
14,420
14,430
14,440
14,450
52
100
GAMMA (API)
0
49
6300
MD: 14,319 '
TVD: 7,122.61 '
Inclination: 88.5 °
Azimuth: 360 °
VS: 7,662.69 '
MD: 14,414 '
TVD: 7,124.6 '
Inclination: 89.1 °
Azimuth: 359.6 °
VS: 7,757.61 '
TVD (ft)
rns, f -
rd, occ
plty, sft,
SS: med brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: med brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, uncons ip
SH: gy blk-blk - med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: med brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, uncons ip
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
SS: med brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc
8300



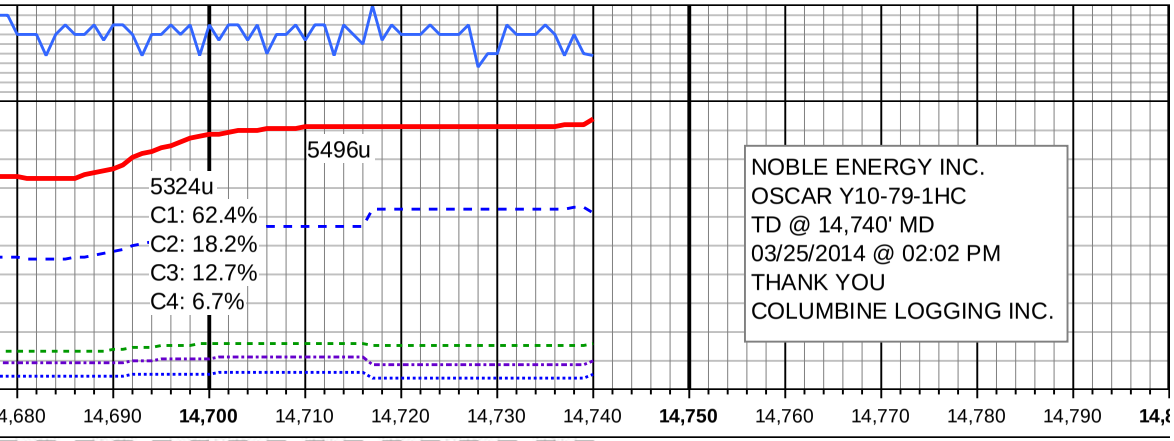
ed brn-gy, med-dk gy, wh-trnsl grns, f
f grn, p-mod srt, sft-fri, rnd-sb rd, occ
g frags, uncons
/ blk-blk, occ med gy, plty- sb plty, sft,
x, sl fis, sl calc

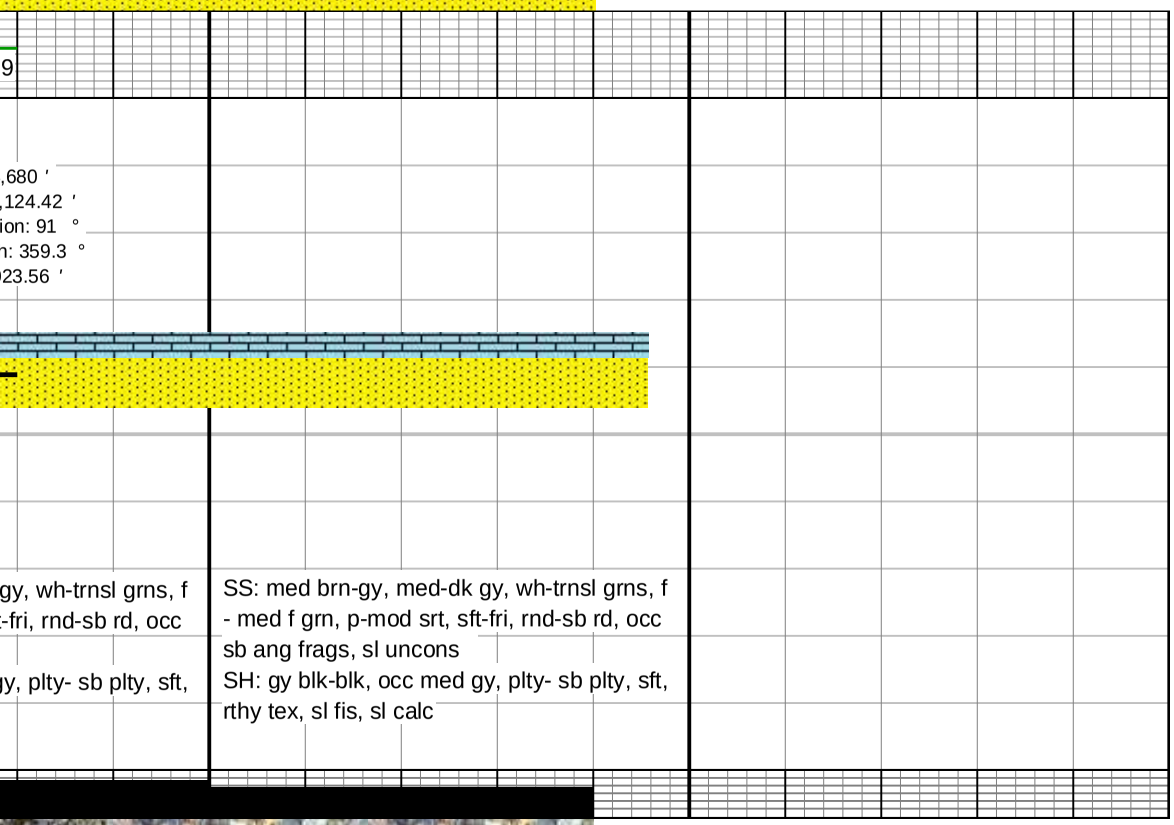
SS: med brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, sl uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

SS: med brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, sl uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

SS: med brn-gy, med-dk gy, wh-trnsl grns, f - med f grn, p-mod srt, sft-fri, rnd-sb rd, occ sb ang frags, sl uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft, rthy tex, sl fis, sl calc

SS: med brn-gy, med-dk
- med f grn, p-mod srt, sft
sb ang frags, uncons
SH: gy blk-blk, occ med g
rthy tex, sl fis, sl calc


5496u
5324u
C1: 62.4%
C2: 18.2%
C3: 12.7%
C4: 6.7%
NOBLE ENERGY INC.
OSCAR Y10-79-1HC
TD @ 14,740' MD
03/25/2014 @ 02:02 PM
THANK YOU
COLUMBINE LOGGING INC.
4,680
14,690
14,700
14,710
14,720
14,730
14,740
14,750
14,760
14,770
14,780
14,790


,680 '
,124.42 '
ion: 91 °
n: 359.3 °
023.56 '
gy, wh-trnsl grns, f
-fri, rnd-sb rd, occ
y, plty- sb plty, sft,
SS: med brn-gy, med-dk gy, wh-trnsl grns, f
- med f grn, p-mod srt, sft-fri, rnd-sb rd, occ
sb ang frags, sl uncons
SH: gy blk-blk, occ med gy, plty- sb plty, sft,
rthy tex, sl fis, sl calc