COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name	Arellano M-10-9HC		
Location	SEC 10 T5N R65W		
State	Colorado	**County**	Weld
Country	United States	**Rig Number**	Frontier (Utah) 8
API Number	05-123-41107	**AFE #**	41107
Region	DJ Basin	**Field**	Wattenberg
Spud Date	3/27/2015	**Drilling Completed**	5/31/2015
Surface Coordinates	Sec 10 - 1593' FSL x 298' FEL		
Bottom Hole Coordinates	Sec 9 - 1261' FSL x 2282' FEL		
Ground Elevation	4616'	**K.B. Elevation**	4640'
Logged Interval	6000' **To** 14030'	**Total Depth**	14030'
Formation	Codell		
Type of Drilling Fluid	FWLSND		

Operator

Company Bayswater Exploration & Production, LLC.

Address 730 17th St.
Denver, CO 80202

Geologist

Name Mark E. Brown

Company Bayswater Exploration & Production, LLC.

Address 730 17th St.
Denver, CO 80202

Other

Robert Davis	Wellsite Geologist
Ben Katka	Wellsite Geologist
Columbine Logging Computer	148
Bloodhound Unit	298
Columbine Logging, Inc.	602 S. Lipan Street Denver, Colorado 80223
Wellsite Geologists	Robbie Davis Ben Katka Joey Luce Andrew Martens Jason Beach

Zone Color Coding

- Oil
- Note
- Error
- Condensate
- Core
- Water
- Gas
- Pressure
- Seal

Rock Types

- UNKNOWN
- ANHYDRITE
- BENTONITE
- BRECCIA
- CHALK
- CEMENT
- CHERT
- CLAY CHOKE SAND
- CLAYSTONE
- COAL
- CONGLOMERATE
- DOLOMITE
- DOLOMITIC LIMESTONE
- GRANITE
- GYPSUM
- IGNEOUS
- SIDERITE or LIMONITE
- LIMESTONE
- MARLSTONE
- METAMORPHIC
- NO SAMPLE
- SALT
- SANDSTONE
- SALT-PEPPER SAND
- SHALE
- SHALE COLORED
- SHALE GRAY
- SHALY SANDSTONE
- SHALY SILTSTONE
- SILTY SHALE
- SILTSTONE
- TILL
- TUFF
- WELDED TUFF

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHOIPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA
- FOSSIL
- GASTROPOD
- INOCERAMUS
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID

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
- KAOLIN
- MARCASITE
- MARLSTONE
- MICACEOUS
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SIDERITE
- 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

Oil Show

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

Engineering

- BIT
- CONNECTION (UP)
- CONNECTION (DOW

Porosity

- CONNECTION GAS
- EARTHY
- CONNECTION GA
- FENESTRAL
- TRIP GAS
- FRACTURE
- TRIP GAS (LEFT)
- INTERCRYSTALLINE
- DOWN TIME GAS
- INTEROOLITIC
- DOWN TIME GAS
- MOLDIC
- CORE - LOST
- ORGANIC
- CORE - RECOVERED

Other Symbols

DST INTERVAL

FAULT

FORMATION TOP

GAS SHOW

OIL SHOW

MN DEPTH UP

MN DEPTH (DOWN)

NORMAL FAULT

OVERTURNED STRATA

REVERSE FAULT

CASING

SIDEWALL CORE (LEFT)

SIDEWALL CORE (RIGHT)

SLIDE

SURVEY

WIRELINE TESTED - LEFT

WIRELINE TESTED - RT

DRILL STEM TEST

MN DEPTH

Rounding

ANGULAR

ROUNDED

SUBANG

SUBRND

Textures

BOUNDSTONE

CHALKY

CRYPTOXLN

EARTHY

FINELYXLN

GRAINSTONE

LITHOGRAPHIC

MICROXLN

MUDSTONE

PACKSTONE

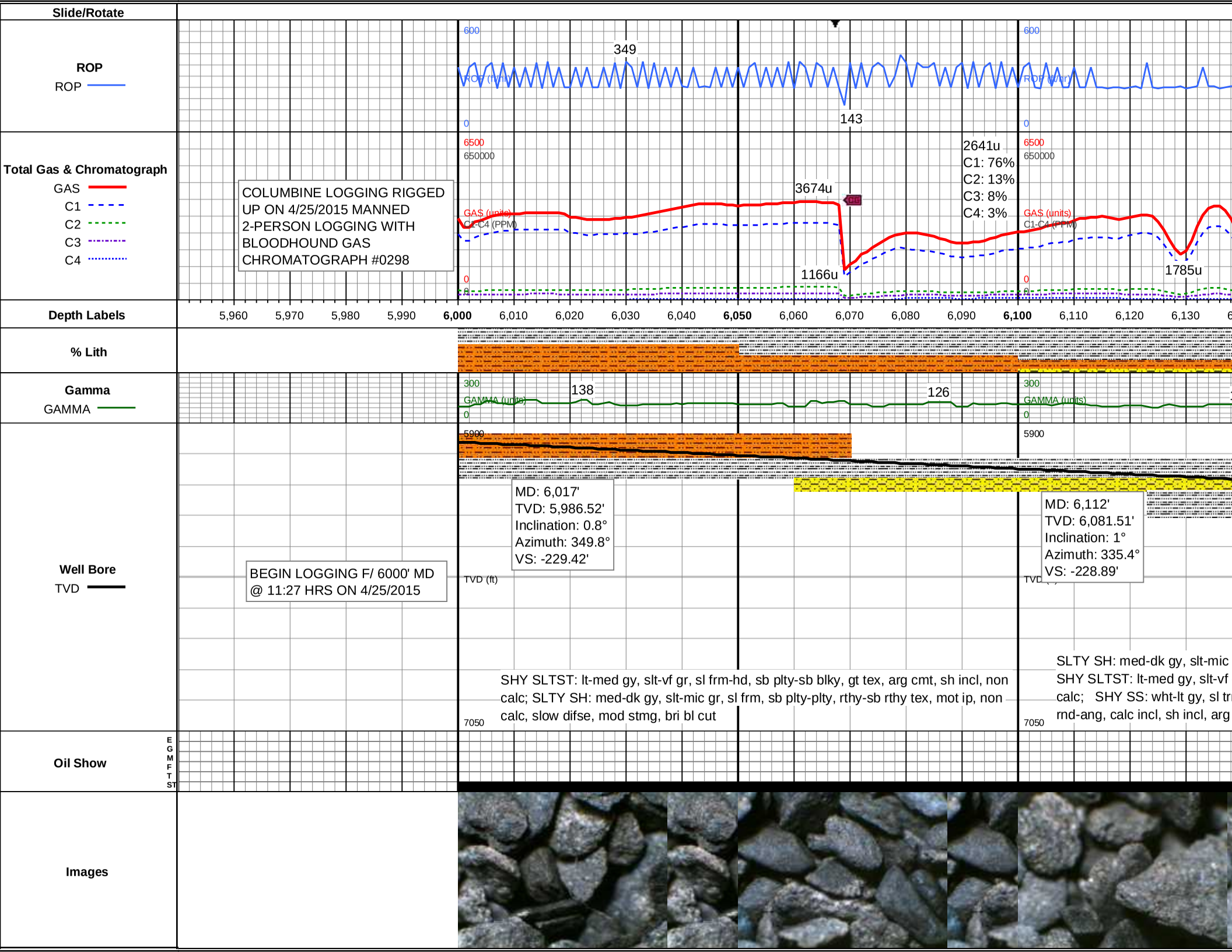
WACKESTONE

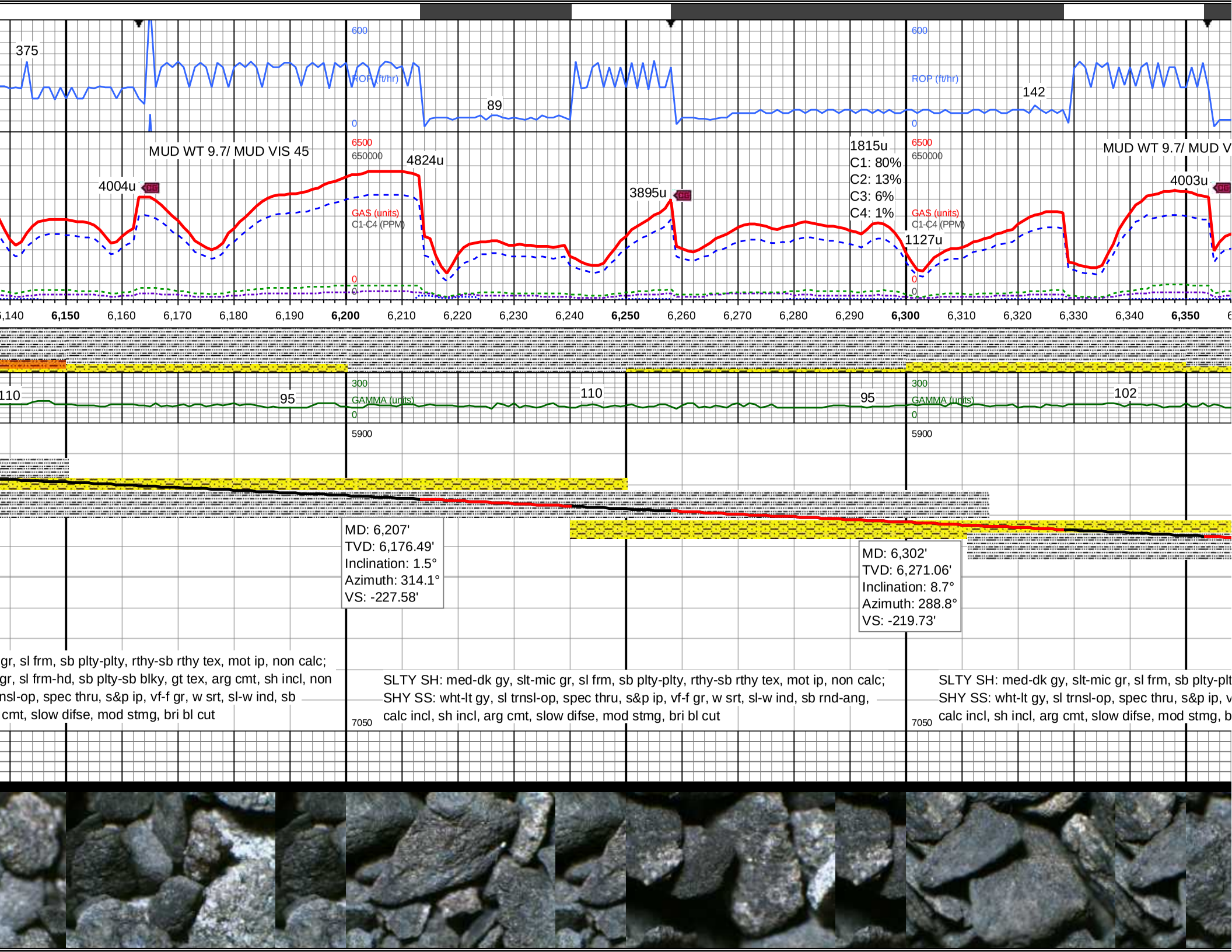
Sorting

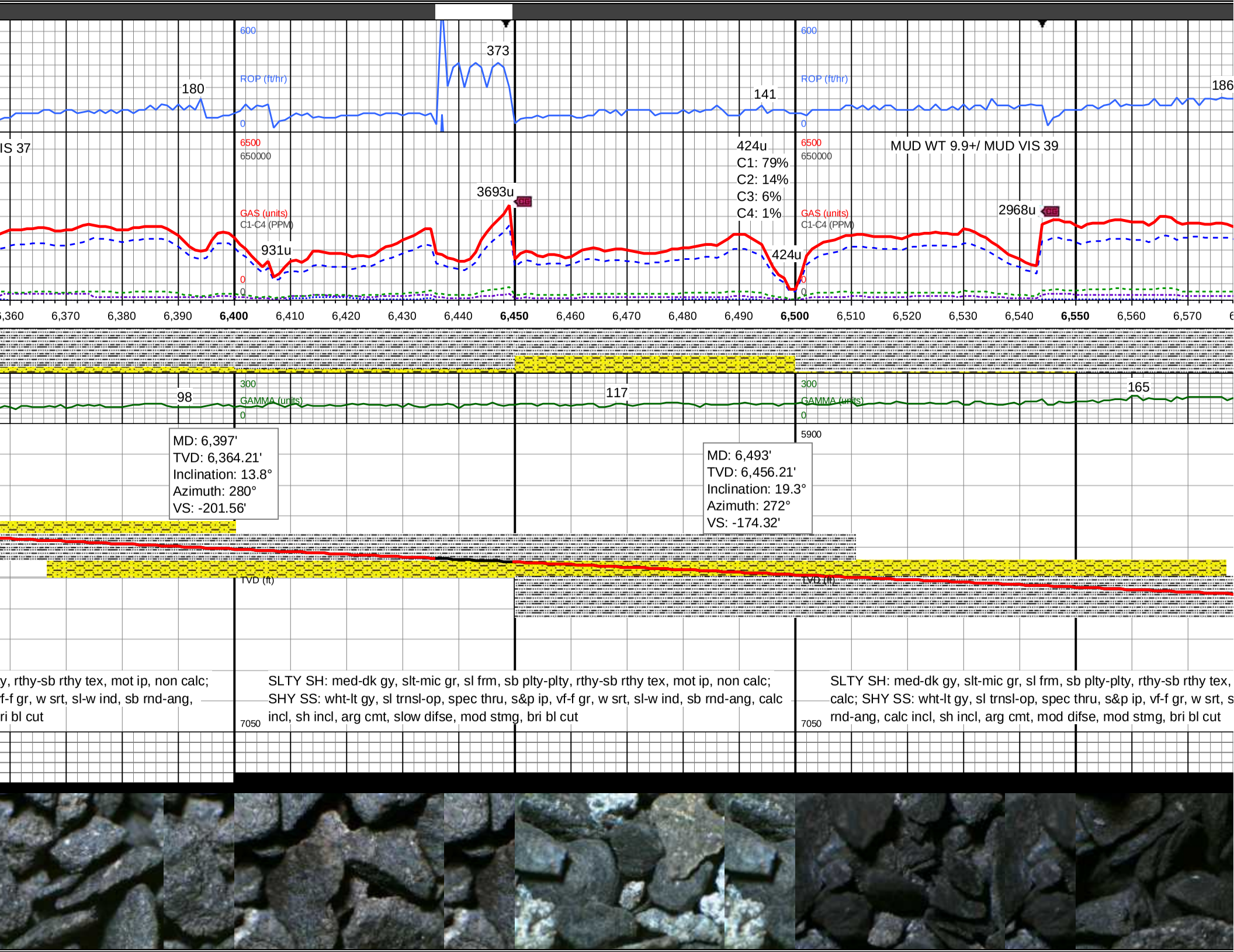
MODERATE

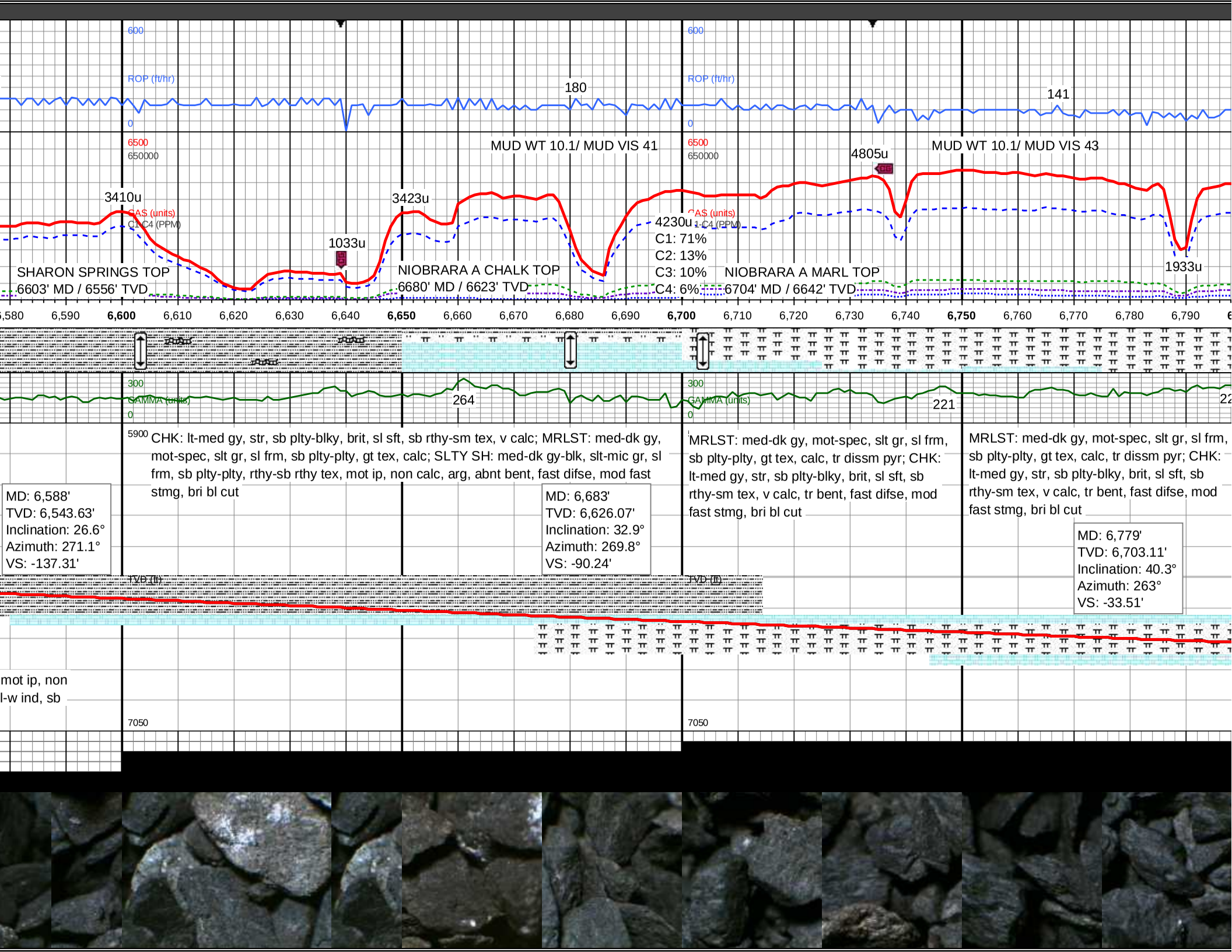
POOR

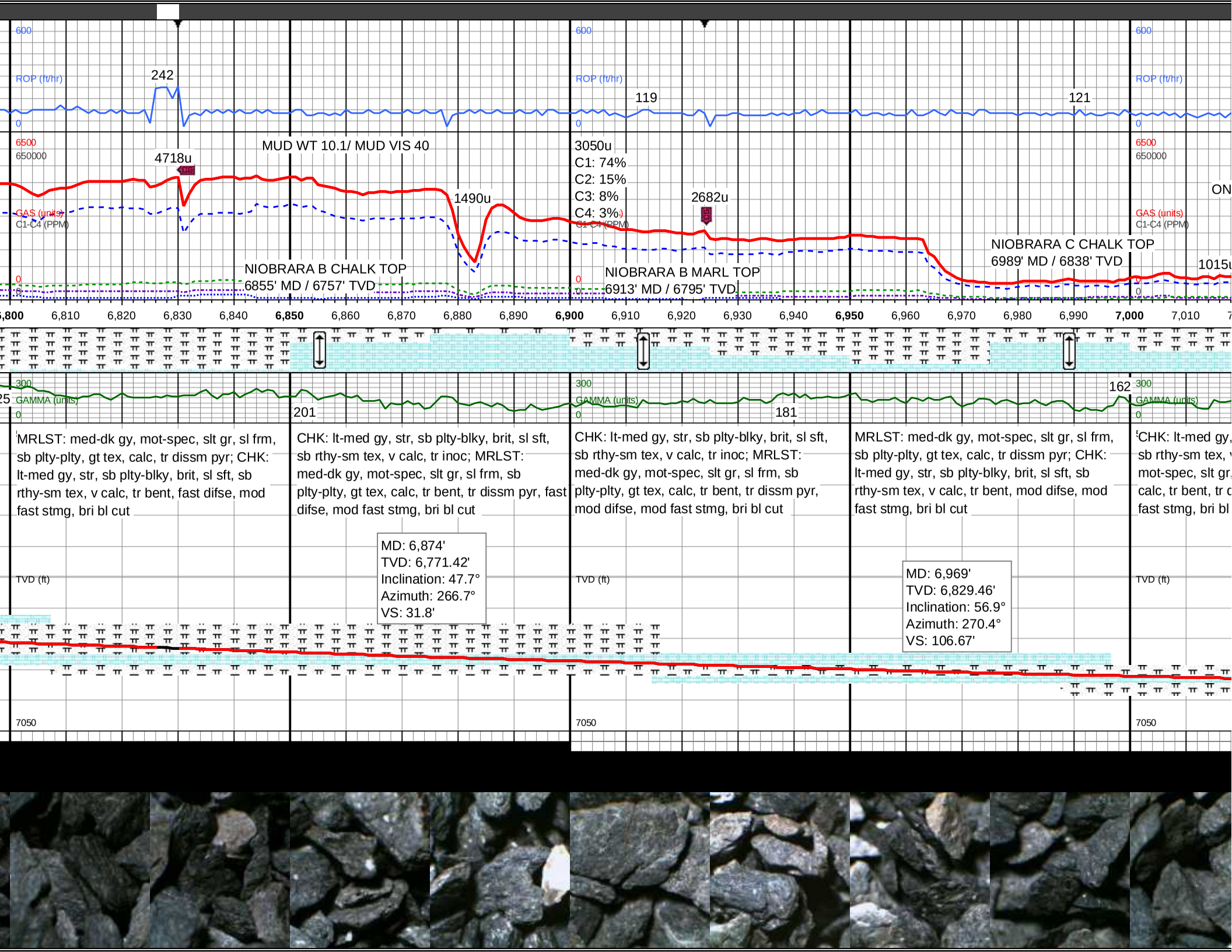
WELL

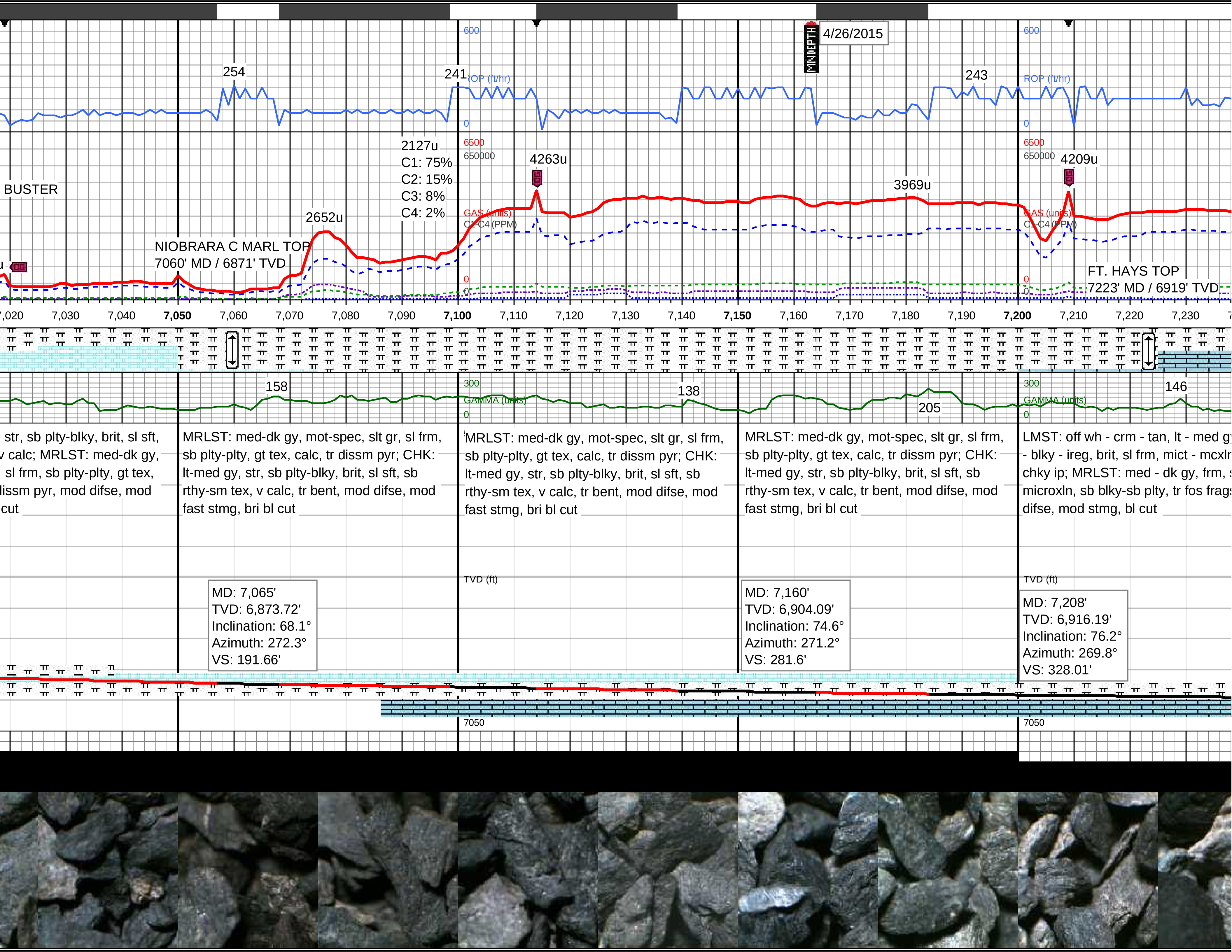

Slide/Rotate
ROP
ROP
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
600
349
ROP (min)
0
143
6500
650000
COLUMBINE LOGGING RIGGED UP ON 4/25/2015 MANNED 2-PERSON LOGGING WITH BLOODHOUND GAS CHROMATOGRAPH #0298
3674u
2641u
C1: 76%
C2: 13%
C3: 8%
C4: 3%
GAS (units)
C1-C4 (PPM)
1166u
1785u
Depth Labels
5,960
5,970
5,980
5,990
6,000
6,010
6,020
6,030
6,040
6,050
6,060
6,070
6,080
6,090
6,100
6,110
6,120
6,130
% Lith
Gamma
GAMMA
300
GAMMA (units)
138
126
Well Bore
TVD
5900
MD: 6,017'
TVD: 5,986.52'
Inclination: 0.8°
Azimuth: 349.8°
VS: -229.42'
MD: 6,112'
TVD: 6,081.51'
Inclination: 1°
Azimuth: 335.4°
VS: -228.89'
TVD (ft)
BEGIN LOGGING F/ 6000' MD @ 11:27 HRS ON 4/25/2015
SHY SLTST: lt-med gy, slt-vf gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt, sh incl, non calc; SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc, slow difse, mod stmg, bri bl cut
SLTY SH: med-dk gy, slt-mic
SHY SLTST: lt-med gy, slt-vf
calc; SHY SS: wht-lt gy, sl tr
rnd-ang, calc incl, sh incl, arg
7050
Oil Show
E
G
M
F
T
ST
Images


375
600
ROP (ft/hr)
0
89
142
MUD WT 9.7/ MUD VIS 45
MUD WT 9.7/ MUD V
6500
650000
4824u
4004u
3895u
4003u
1815u
C1: 80%
C2: 13%
C3: 6%
C4: 1%
1127u
GAS (units)
C1-C4 (PPM)
6,140
6,150
6,160
6,170
6,180
6,190
6,200
6,210
6,220
6,230
6,240
6,250
6,260
6,270
6,280
6,290
6,300
6,310
6,320
6,330
6,340
6,350
110
95
300
GAMMA (units)
5900
102
MD: 6,207'
TVD: 6,176.49'
Inclination: 1.5°
Azimuth: 314.1°
VS: -227.58'
MD: 6,302'
TVD: 6,271.06'
Inclination: 8.7°
Azimuth: 288.8°
VS: -219.73'
gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc;
gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt, sh incl, non
nsl-op, spec thru, s&p ip, vf-f gr, w srt, sl-w ind, sb
cmt, slow difse, mod stmg, bri bl cut
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc;
SHY SS: wht-lt gy, sl trnsl-op, spec thru, s&p ip, vf-f gr, w srt, sl-w ind, sb rnd-ang,
calc incl, sh incl, arg cmt, slow difse, mod stmg, bri bl cut
7050
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plt
SHY SS: wht-lt gy, sl trnsl-op, spec thru, s&p ip, v
calc incl, sh incl, arg cmt, slow difse, mod stmg, b
7050

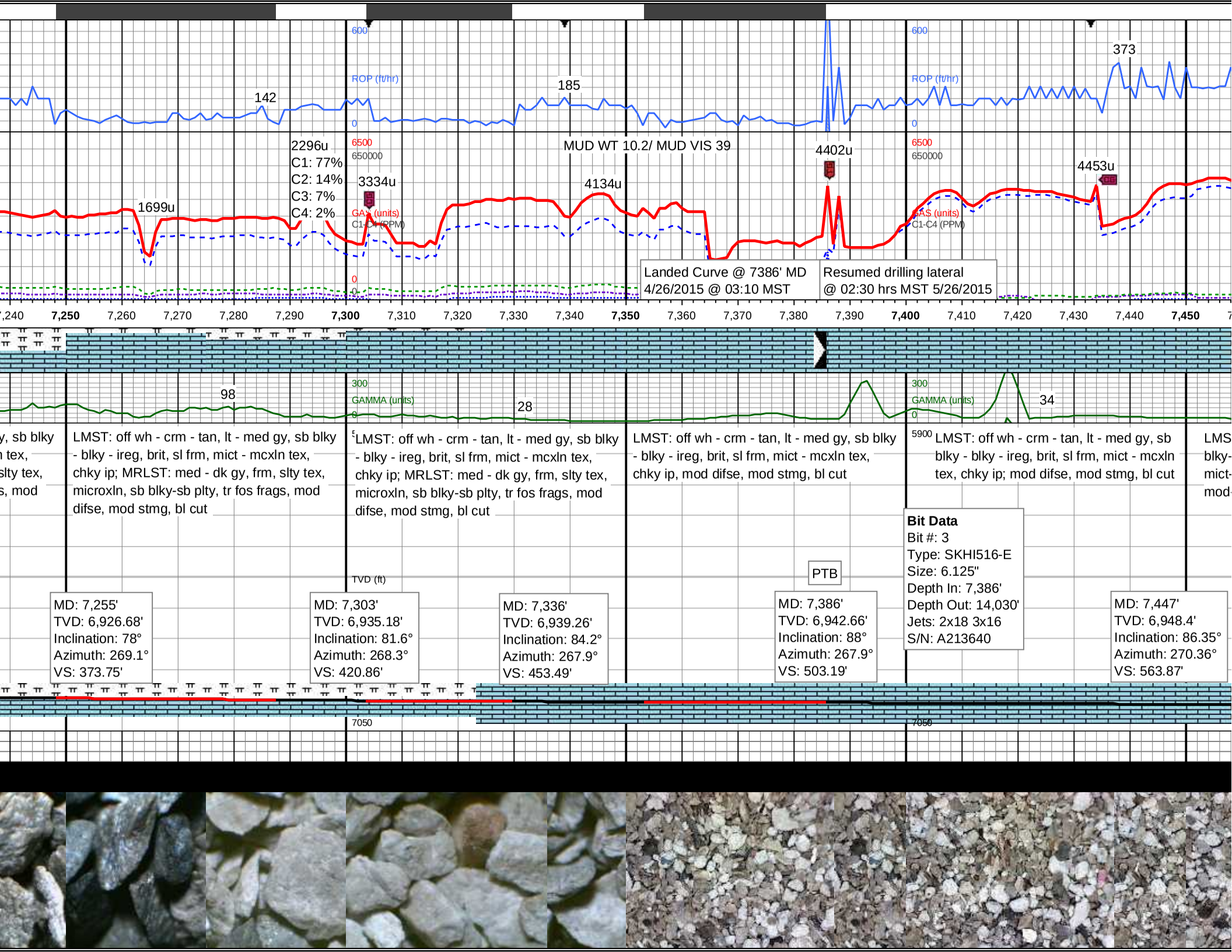

600
ROP (ft/hr)
0
180
373
141
186
600
ROP (ft/hr)
0
IS 37
6500
650000
424u
C1: 79%
C2: 14%
C3: 6%
C4: 1%
6500
650000
MUD WT 9.9+/ MUD VIS 39
3693u
GAS (units)
C1-C4 (PPM)
931u
0
0
GAS (units)
C1-C4 (PPM)
2968u
424u
0
0
6,360
6,370
6,380
6,390
6,400
6,410
6,420
6,430
6,440
6,450
6,460
6,470
6,480
6,490
6,500
6,510
6,520
6,530
6,540
6,550
6,560
6,570
300
GAMMA (units)
0
98
117
300
GAMMA (units)
0
5900
165
MD: 6,397'
TVD: 6,364.21'
Inclination: 13.8°
Azimuth: 280°
VS: -201.56'
MD: 6,493'
TVD: 6,456.21'
Inclination: 19.3°
Azimuth: 272°
VS: -174.32'
TVD (ft)
TVD (ft)
y, rthy-sb rthy tex, mot ip, non calc;
f-f gr, w srt, sl-w ind, sb rnd-ang,
ri bl cut
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc;
SHY SS: wht-lt gy, sl trnsl-op, spec thru, s&p ip, vf-f gr, w srt, sl-w ind, sb rnd-ang, calc
incl, sh incl, arg cmt, slow difse, mod stmg, bri bl cut
7050
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex,
calc; SHY SS: wht-lt gy, sl trnsl-op, spec thru, s&p ip, vf-f gr, w srt, s
rnd-ang, calc incl, sh incl, arg cmt, mod difse, mod stmg, bri bl cut
7050

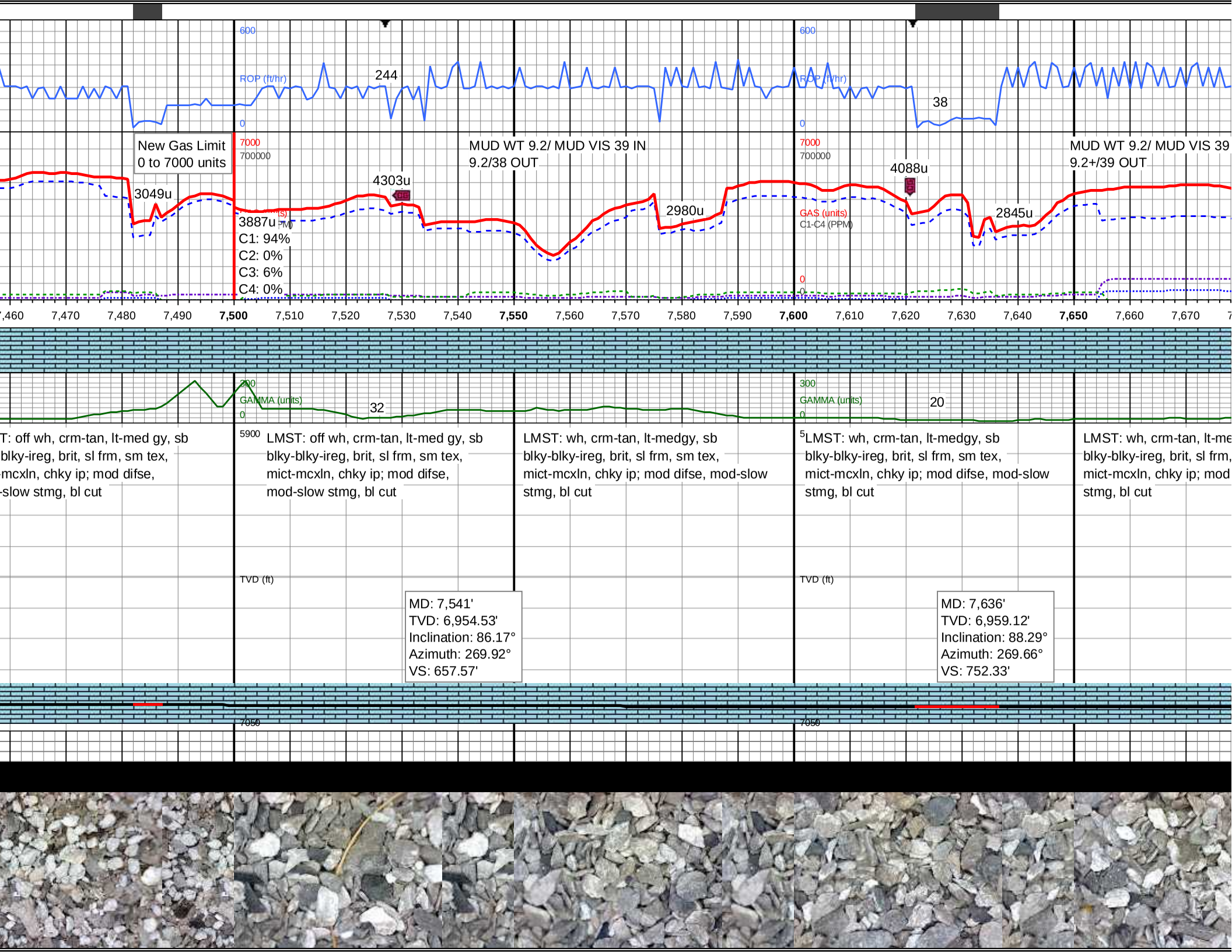

600
ROP (ft/hr)
180
0
6500
650000
MUD WT 10.1/ MUD VIS 41
3410u
GAS (units)
C1:C4 (PPM)
3423u
1033u
SHARON SPRINGS TOP
6603' MD / 6556' TVD
NIOBRARA A CHALK TOP
6680' MD / 6623' TVD
4230u
C1: 71%
C2: 13%
C3: 10%
C4: 6%
600
ROP (ft/hr)
141
0
6500
650000
MUD WT 10.1/ MUD VIS 43
4805u
1933u
NIOBRARA A MARL TOP
6704' MD / 6642' TVD
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
6,760
6,770
6,780
6,790
300
GAMMA (units)
0
264
300
GAMMA (units)
0
221
5900
CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc; MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc; SLTY SH: med-dk gy-blk, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc, arg, abnt bent, fast difse, mod fast stmg, bri bl cut
MD: 6,588'
TVD: 6,543.63'
Inclination: 26.6°
Azimuth: 271.1°
VS: -137.31'
MD: 6,683'
TVD: 6,626.07'
Inclination: 32.9°
Azimuth: 269.8°
VS: -90.24'
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr bent, fast difse, mod fast stmg, bri bl cut
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr bent, fast difse, mod fast stmg, bri bl cut
MD: 6,779'
TVD: 6,703.11'
Inclination: 40.3°
Azimuth: 263°
VS: -33.51'
TVD (ft)
TVD (ft)
mot ip, non
l-w ind, sb
7050
7050

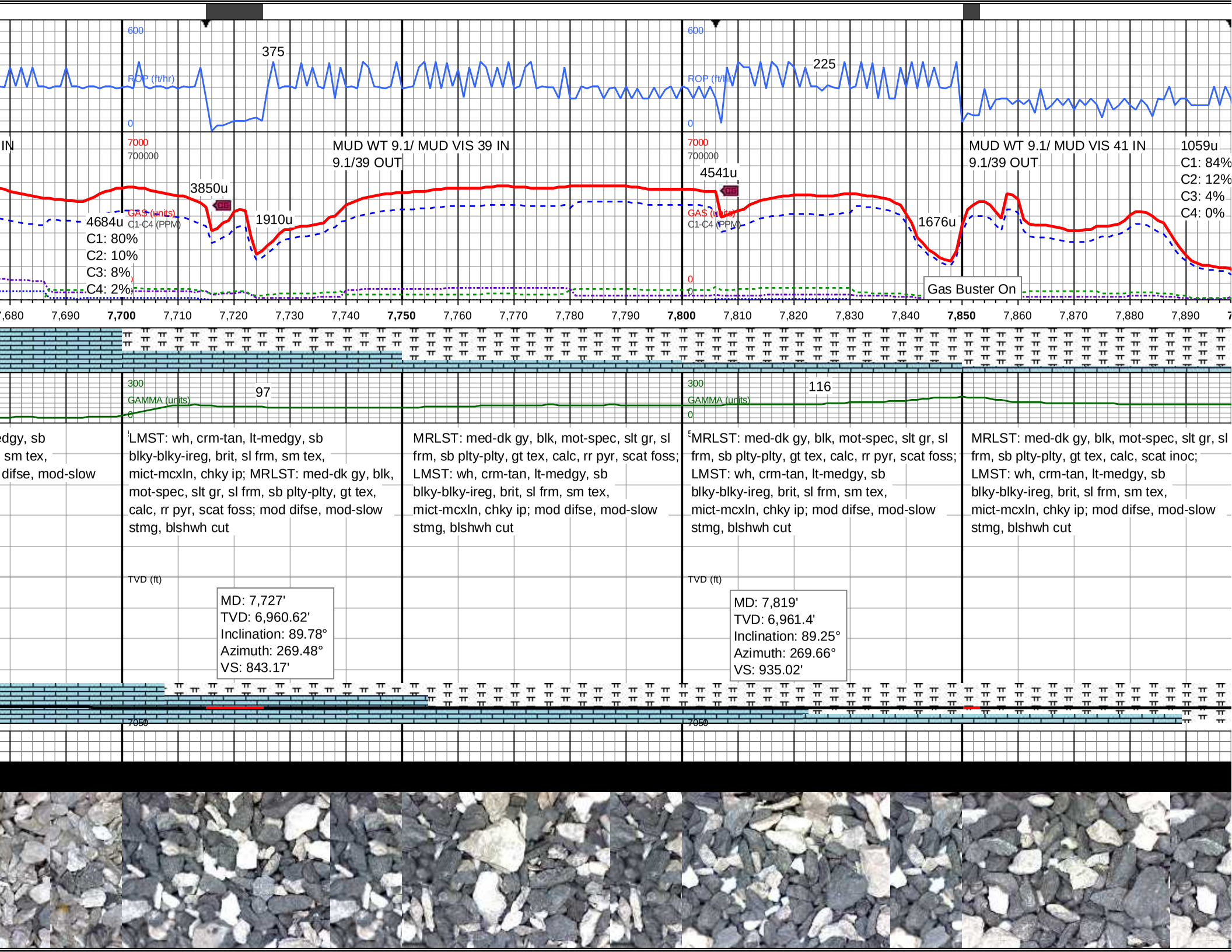

600
ROP (ft/hr)
242
0
6500
650000
4718u
MUD WT 10.1/ MUD VIS 40
1490u
GAS (units)
C1-C4 (PPM)
0
NIOBRARA B CHALK TOP
6855' MD / 6757' TVD
6,800
6,810
6,820
6,830
6,840
6,850
6,860
6,870
6,880
6,890
6,900
6,910
6,920
6,930
6,940
6,950
6,960
6,970
6,980
6,990
7,000
7,010
300
GAMMA (units)
201
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr bent, fast difse, mod fast stmg, bri bl cut
CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr inoc; MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr bent, tr dissm pyr, fast difse, mod fast stmg, bri bl cut
TVD (ft)
MD: 6,874'
TVD: 6,771.42'
Inclination: 47.7°
Azimuth: 266.7°
VS: 31.8'
7050
119
3050u
C1: 74%
C2: 15%
C3: 8%
C4: 3%
2682u
NIOBRARA B MARL TOP
6913' MD / 6795' TVD
181
CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr inoc; MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr bent, tr dissm pyr, mod difse, mod fast stmg, bri bl cut
121
NIOBRARA C CHALK TOP
6989' MD / 6838' TVD
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr bent, mod difse, mod fast stmg, bri bl cut
MD: 6,969'
TVD: 6,829.46'
Inclination: 56.9°
Azimuth: 270.4°
VS: 106.67'
162
1015u
ON

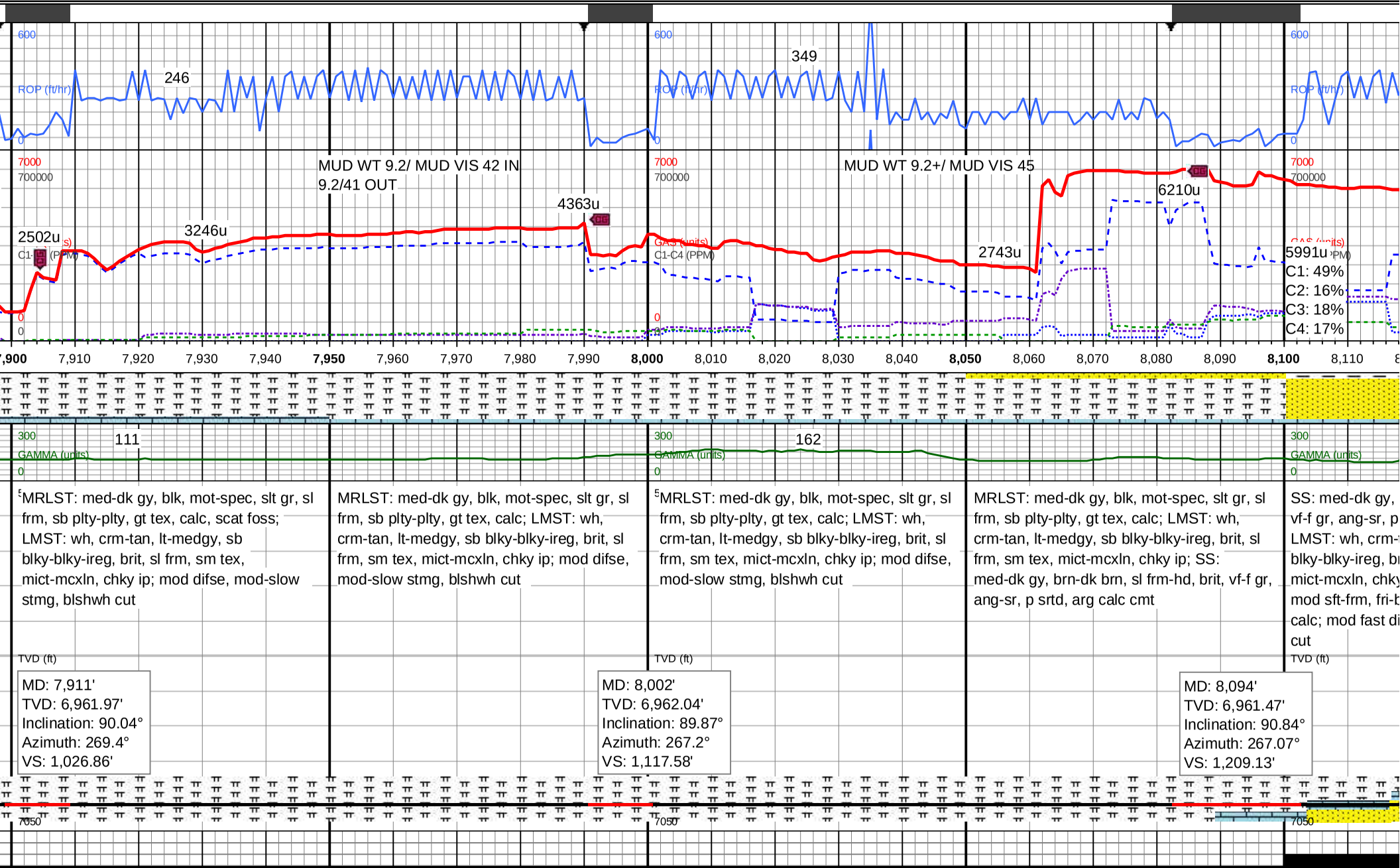


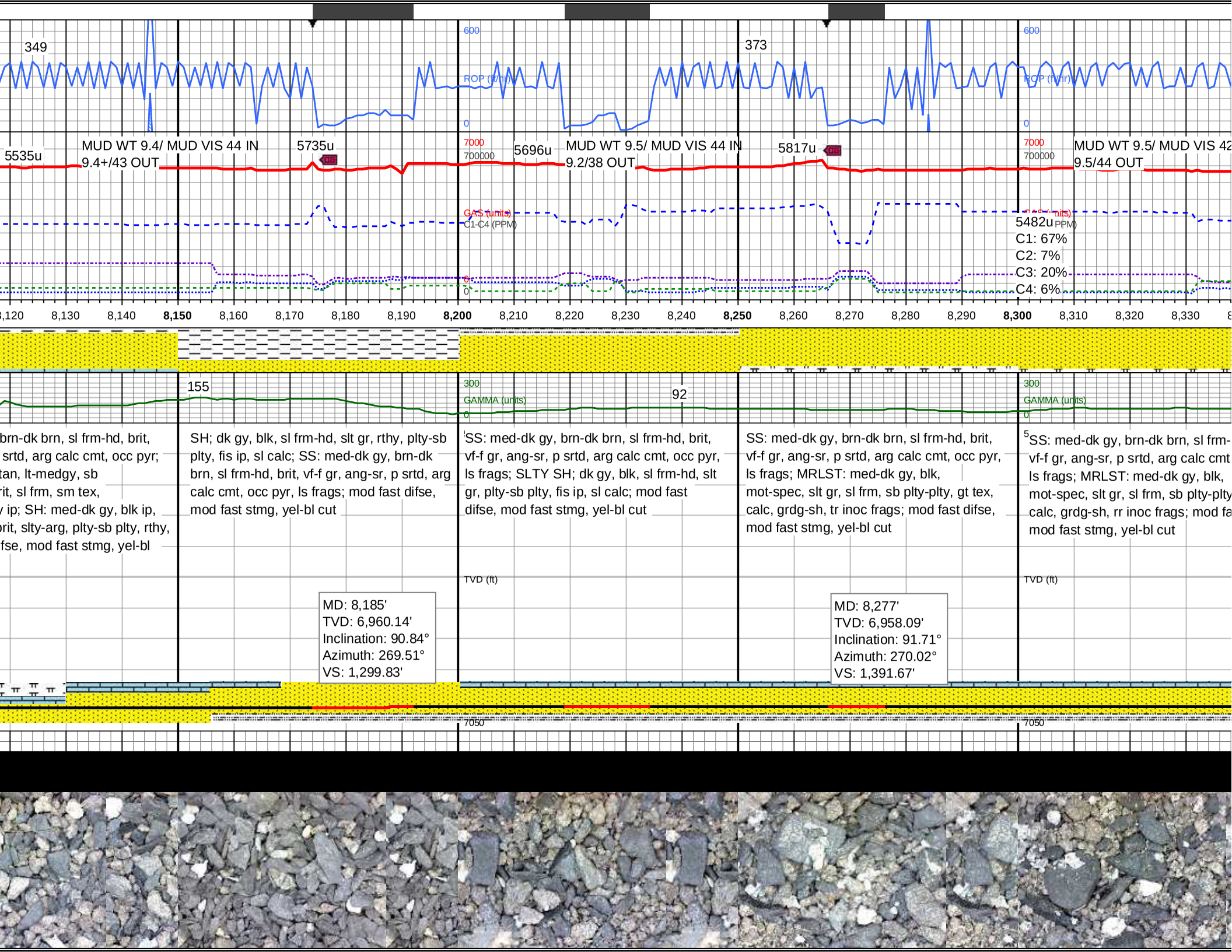
4/26/2015
MNDEPTH
254
241
243
ROP (ft/hr)
600
0
6500
650000
GAS (units)
C1-C4 (PPM)
2127u
C1: 75%
C2: 15%
C3: 8%
C4: 2%
4263u
3969u
4209u
2652u
BUSTER
NIOBRARA C MARL TOP
7060' MD / 6871' TVD
FT. HAYS TOP
7223' MD / 6919' TVD
7,020
7,030
7,040
7,050
7,060
7,070
7,080
7,090
7,100
7,110
7,120
7,130
7,140
7,150
7,160
7,170
7,180
7,190
7,200
7,210
7,220
7,230
300
GAMMA (units)
158
138
205
146
str, sb plty-blky, brit, sl sft, v calc; MRLST: med-dk gy, sl frm, sb plty-plty, gt tex, dissm pyr, mod difse, mod cut
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr bent, mod difse, mod fast stmg, bri bl cut
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr bent, mod difse, mod fast stmg, bri bl cut
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr bent, mod difse, mod fast stmg, bri bl cut
LMST: off wh - crm - tan, lt - med g - blky - ireg, brit, sl frm, mict - mcxl chky ip; MRLST: med - dk gy, frm, s microxln, sb blky-sb plty, tr fos frag difse, mod stmg, bl cut
TVD (ft)
MD: 7,065'
TVD: 6,873.72'
Inclination: 68.1°
Azimuth: 272.3°
VS: 191.66'
MD: 7,160'
TVD: 6,904.09'
Inclination: 74.6°
Azimuth: 271.2°
VS: 281.6'
MD: 7,208'
TVD: 6,916.19'
Inclination: 76.2°
Azimuth: 269.8°
VS: 328.01'
7050

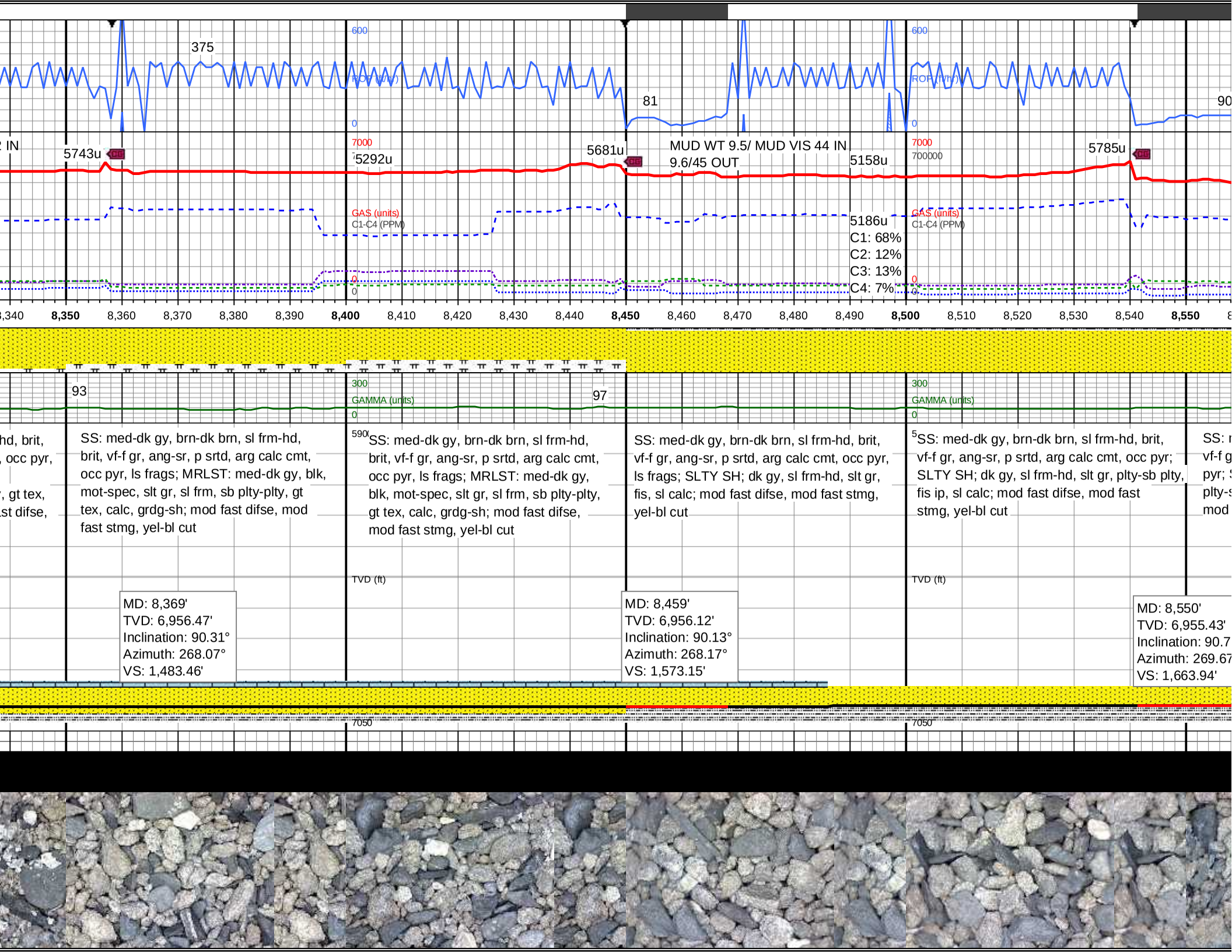

600
ROP (ft/hr)
0
142
185
373
6500
650000
2296u
C1: 77%
C2: 14%
C3: 7%
C4: 2%
3334u
1699u
4134u
4402u
4453u
MUD WT 10.2/ MUD VIS 39
GAS (units)
C1-C4 (PPM)
Landed Curve @ 7386' MD
4/26/2015 @ 03:10 MST
Resumed drilling lateral
@ 02:30 hrs MST 5/26/2015
7,240
7,250
7,260
7,270
7,280
7,290
7,300
7,310
7,320
7,330
7,340
7,350
7,360
7,370
7,380
7,390
7,400
7,410
7,420
7,430
7,440
7,450
300
GAMMA (units)
98
28
34
y, sb blky
n tex,
slty tex,
s, mod
LMST: off wh - crm - tan, lt - med gy, sb blky - blky - ireg, brit, sl frm, mict - mcxln tex, chky ip; MRLST: med - dk gy, frm, slty tex, microxln, sb blky-sb plty, tr fos frags, mod difse, mod stmg, bl cut
LMST: off wh - crm - tan, lt - med gy, sb blky - blky - ireg, brit, sl frm, mict - mcxln tex, chky ip; MRLST: med - dk gy, frm, slty tex, microxln, sb blky-sb plty, tr fos frags, mod difse, mod stmg, bl cut
LMST: off wh - crm - tan, lt - med gy, sb blky - blky - ireg, brit, sl frm, mict - mcxln tex, chky ip, mod difse, mod stmg, bl cut
5900
LMST: off wh - crm - tan, lt - med gy, sb blky - blky - ireg, brit, sl frm, mict - mcxln tex, chky ip; mod difse, mod stmg, bl cut
LMS
blky-
mict-
mod
Bit Data
Bit #: 3
Type: SKHI516-E
Size: 6.125"
Depth In: 7,386'
Depth Out: 14,030'
Jets: 2x18 3x16
S/N: A213640
PTB
MD: 7,255'
TVD: 6,926.68'
Inclination: 78°
Azimuth: 269.1°
VS: 373.75'
MD: 7,303'
TVD: 6,935.18'
Inclination: 81.6°
Azimuth: 268.3°
VS: 420.86'
MD: 7,336'
TVD: 6,939.26'
Inclination: 84.2°
Azimuth: 267.9°
VS: 453.49'
MD: 7,386'
TVD: 6,942.66'
Inclination: 88°
Azimuth: 267.9°
VS: 503.19'
MD: 7,447'
TVD: 6,948.4'
Inclination: 86.35°
Azimuth: 270.36°
VS: 563.87'
TVD (ft)
7050
7050

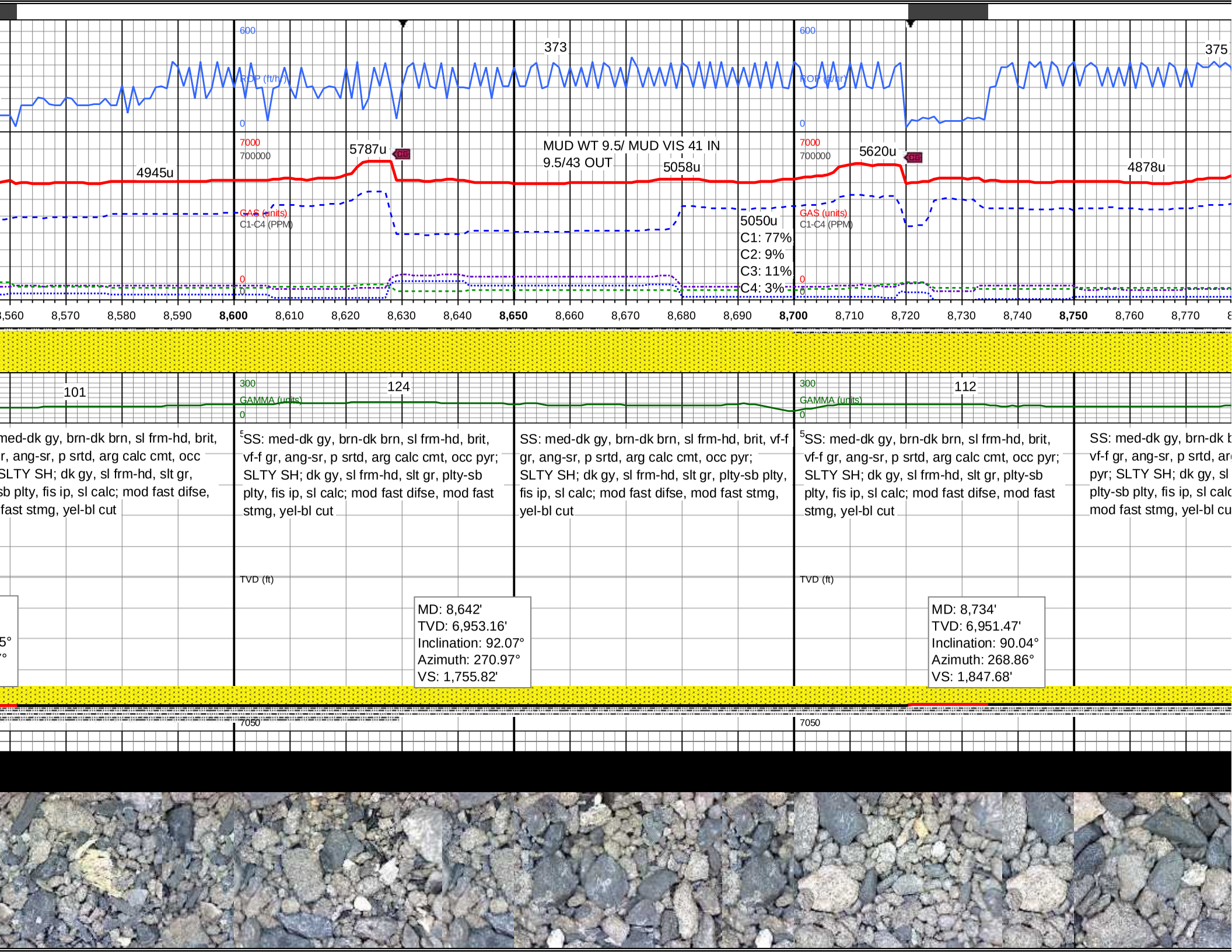

600
ROP (ft/hr)
244
0
New Gas Limit
0 to 7000 units
7000
700000
3049u
4303u
3887u
C1: 94%
C2: 0%
C3: 6%
C4: 0%
MUD WT 9.2/ MUD VIS 39 IN
9.2/38 OUT
2980u
GAS (units)
C1-C4 (PPM)
600
ROP (ft/hr)
38
0
7000
700000
4088u
2845u
MUD WT 9.2/ MUD VIS 39
9.2+/39 OUT
0
7,460
7,470
7,480
7,490
7,500
7,510
7,520
7,530
7,540
7,550
7,560
7,570
7,580
7,590
7,600
7,610
7,620
7,630
7,640
7,650
7,660
7,670
300
GAMMA (units)
0
32
300
GAMMA (units)
0
20
T: off wh, crm-tan, lt-med gy, sb
blky-ireg, brit, sl frm, sm tex,
-mcxln, chky ip; mod difse,
-slow stmg, bl cut
5900
LMST: off wh, crm-tan, lt-med gy, sb
blky-blky-ireg, brit, sl frm, sm tex,
mict-mcxln, chky ip; mod difse,
mod-slow stmg, bl cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, brit, sl frm, sm tex,
mict-mcxln, chky ip; mod difse, mod-slow
stmg, bl cut
5LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, brit, sl frm, sm tex,
mict-mcxln, chky ip; mod difse, mod-slow
stmg, bl cut
LMST: wh, crm-tan, lt-me
blky-blky-ireg, brit, sl frm,
mict-mcxln, chky ip; mod
stmg, bl cut
TVD (ft)
TVD (ft)
MD: 7,541'
TVD: 6,954.53'
Inclination: 86.17°
Azimuth: 269.92°
VS: 657.57'
MD: 7,636'
TVD: 6,959.12'
Inclination: 88.29°
Azimuth: 269.66°
VS: 752.33'
7050
7050

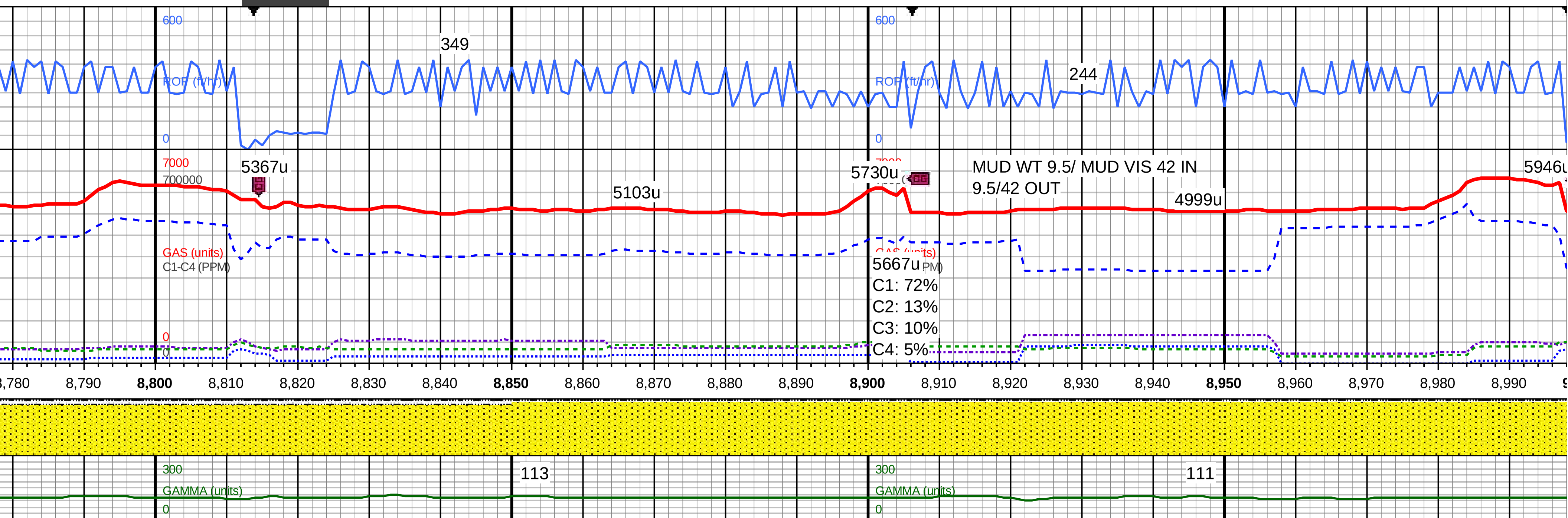

600
375
ROP (ft/hr)
0
600
225
ROP (ft/hr)
0
IN
7000
700000
MUD WT 9.1/ MUD VIS 39 IN
9.1/39 OUT
3850u
1910u
4684u
C1: 80%
C2: 10%
C3: 8%
C4: 2%
GAS (units)
C1-C4 (PPM)
7000
700000
4541u
1676u
MUD WT 9.1/ MUD VIS 41 IN
9.1/39 OUT
1059u
C1: 84%
C2: 12%
C3: 4%
C4: 0%
0
0
Gas Buster On
7,680
7,690
7,700
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
7,860
7,870
7,880
7,890
300
GAMMA (units)
0
97
300
GAMMA (units)
0
116
edgy, sb
sm tex,
difse, mod-slow
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, chky ip; MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, rr pyr, scat foss; mod difse, mod-slow stmg, blshwh cut
MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, rr pyr, scat foss; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, chky ip; mod difse, mod-slow stmg, blshwh cut
MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, rr pyr, scat foss; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, chky ip; mod difse, mod-slow stmg, blshwh cut
MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, scat inoc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, chky ip; mod difse, mod-slow stmg, blshwh cut
TVD (ft)
MD: 7,727'
TVD: 6,960.62'
Inclination: 89.78°
Azimuth: 269.48°
VS: 843.17'
TVD (ft)
MD: 7,819'
TVD: 6,961.4'
Inclination: 89.25°
Azimuth: 269.66°
VS: 935.02'
7050
7050


600
ROP (ft/hr)
246
0
7000
700000
MUD WT 9.2/ MUD VIS 42 IN
9.2/41 OUT
2502u
3246u
4363u
GAS (units)
C1-C4 (PPM)
0
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
8,080
8,090
8,100
8,110
300
GAMMA (units)
111
MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, scat foss; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, chky ip; mod difse, mod-slow stmg, blshwh cut
TVD (ft)
MD: 7,911'
TVD: 6,961.97'
Inclination: 90.04°
Azimuth: 269.4°
VS: 1,026.86'
7050
MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, chky ip; mod difse, mod-slow stmg, blshwh cut
MD: 8,002'
TVD: 6,962.04'
Inclination: 89.87°
Azimuth: 267.2°
VS: 1,117.58'
349
MUD WT 9.2+/ MUD VIS 45
6210u
2743u
162
MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, chky ip; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt
MD: 8,094'
TVD: 6,961.47'
Inclination: 90.84°
Azimuth: 267.07°
VS: 1,209.13'
5991u
C1: 49%
C2: 16%
C3: 18%
C4: 17%
SS: med-dk gy, vf-f gr, ang-sr, p
LMST: wh, crm-
blky-blky-ireg, br
mict-mcxln, chky
mod sft-frm, fri-b
calc; mod fast di
cut


349
373
600
ROP (fpm)
0
5535u
MUD WT 9.4/ MUD VIS 44 IN
9.4+/43 OUT
5735u
5696u
MUD WT 9.5/ MUD VIS 44 IN
9.2/38 OUT
5817u
MUD WT 9.5/ MUD VIS 42
9.5/44 OUT
7000
700000
GAS (units)
C1-C4 (PPM)
5482u PPM)
C1: 67%
C2: 7%
C3: 20%
C4: 6%
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
8,300
8,310
8,320
8,330
155
92
300
GAMMA (units)
0
brn-dk brn, sl frm-hd, brit,
srtd, arg calc cmt, occ pyr;
tan, lt-medgy, sb
rit, sl frm, sm tex,
ip; SH: med-dk gy, blk ip,
rit, slty-arg, plty-sb plty, rthy,
fse, mod fast stmg, yel-bl
SH; dk gy, blk, sl frm-hd, slt gr, rthy, plty-sb plty, fis ip, sl calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr, ls frags; mod fast difse, mod fast stmg, yel-bl cut
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr, ls frags; SLTY SH; dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod fast difse, mod fast stmg, yel-bl cut
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr, ls frags; MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, grdg-sh, tr inoc frags; mod fast difse, mod fast stmg, yel-bl cut
SS: med-dk gy, brn-dk brn, sl frm-
vf-f gr, ang-sr, p srtd, arg calc cmt
ls frags; MRLST: med-dk gy, blk,
mot-spec, slt gr, sl frm, sb plty-plty
calc, grdg-sh, rr inoc frags; mod fa
mod fast stmg, yel-bl cut
TVD (ft)
MD: 8,185'
TVD: 6,960.14'
Inclination: 90.84°
Azimuth: 269.51°
VS: 1,299.83'
MD: 8,277'
TVD: 6,958.09'
Inclination: 91.71°
Azimuth: 270.02°
VS: 1,391.67'
7050


375
600
ROP (min)
0
81
600
ROP (min)
0
90
2 IN
5743u
7000
5292u
5681u
MUD WT 9.5/ MUD VIS 44 IN
9.6/45 OUT
5158u
7000
700000
5785u
GAS (units)
C1-C4 (PPM)
5186u
C1: 68%
C2: 12%
C3: 13%
C4: 7%
GAS (units)
C1-C4 (PPM)
0
0
0
0
8,340
8,350
8,360
8,370
8,380
8,390
8,400
8,410
8,420
8,430
8,440
8,450
8,460
8,470
8,480
8,490
8,500
8,510
8,520
8,530
8,540
8,550
93
300
GAMMA (units)
0
97
300
GAMMA (units)
0
hd, brit,
, occ pyr,
, gt tex,
st difse,
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr, ls frags; MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, grdg-sh; mod fast difse, mod fast stmg, yel-bl cut
590'
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr, ls frags; MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, grdg-sh; mod fast difse, mod fast stmg, yel-bl cut
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr, ls frags; SLTY SH; dk gy, sl frm-hd, slt gr, fis, sl calc; mod fast difse, mod fast stmg, yel-bl cut
5
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod fast difse, mod fast stmg, yel-bl cut
SS: r
vf-f g
pyr; S
plty-s
mod
TVD (ft)
TVD (ft)
MD: 8,369'
TVD: 6,956.47'
Inclination: 90.31°
Azimuth: 268.07°
VS: 1,483.46'
MD: 8,459'
TVD: 6,956.12'
Inclination: 90.13°
Azimuth: 268.17°
VS: 1,573.15'
MD: 8,550'
TVD: 6,955.43'
Inclination: 90.7
Azimuth: 269.67
VS: 1,663.94'
7050
7050


600
ROP (ft/hr)
0
373
375
7000
700000
GAS (units)
C1-C4 (PPM)
4945u
5787u
MUD WT 9.5/ MUD VIS 41 IN
9.5/43 OUT
5058u
5050u
C1: 77%
C2: 9%
C3: 11%
C4: 3%
5620u
4878u
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
8,740
8,750
8,760
8,770
300
GAMMA (units)
101
124
112
med-dk gy, brn-dk brn, sl frm-hd, brit,
r, ang-sr, p srtd, arg calc cmt, occ
SLTY SH; dk gy, sl frm-hd, slt gr,
sb plty, fis ip, sl calc; mod fast difse,
fast stmg, yel-bl cut
SS: med-dk gy, brn-dk brn, sl frm-hd, brit,
vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr;
SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb
plty, fis ip, sl calc; mod fast difse, mod fast
stmg, yel-bl cut
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f
gr, ang-sr, p srtd, arg calc cmt, occ pyr;
SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb plty,
fis ip, sl calc; mod fast difse, mod fast stmg,
yel-bl cut
SS: med-dk gy, brn-dk brn, sl frm-hd, brit,
vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr;
SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb
plty, fis ip, sl calc; mod fast difse, mod fast
stmg, yel-bl cut
SS: med-dk gy, brn-dk b
vf-f gr, ang-sr, p srtd, ar
pyr; SLTY SH; dk gy, sl
plty-sb plty, fis ip, sl calc
mod fast stmg, yel-bl cu
TVD (ft)
MD: 8,642'
TVD: 6,953.16'
Inclination: 92.07°
Azimuth: 270.97°
VS: 1,755.82'
MD: 8,734'
TVD: 6,951.47'
Inclination: 90.04°
Azimuth: 268.86°
VS: 1,847.68'
7050



...rn, sl frm-hd, brit, ...g calc cmt, occ ...frm-hd, slt gr, ...; mod fast difse, ...t

5 SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod-slow stmg, blshwh cut

SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod-slow stmg, blshwh cut

5 SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod-slow stmg, blshwh cut

SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod-slow stmg, blshwh cut

TVD (ft)

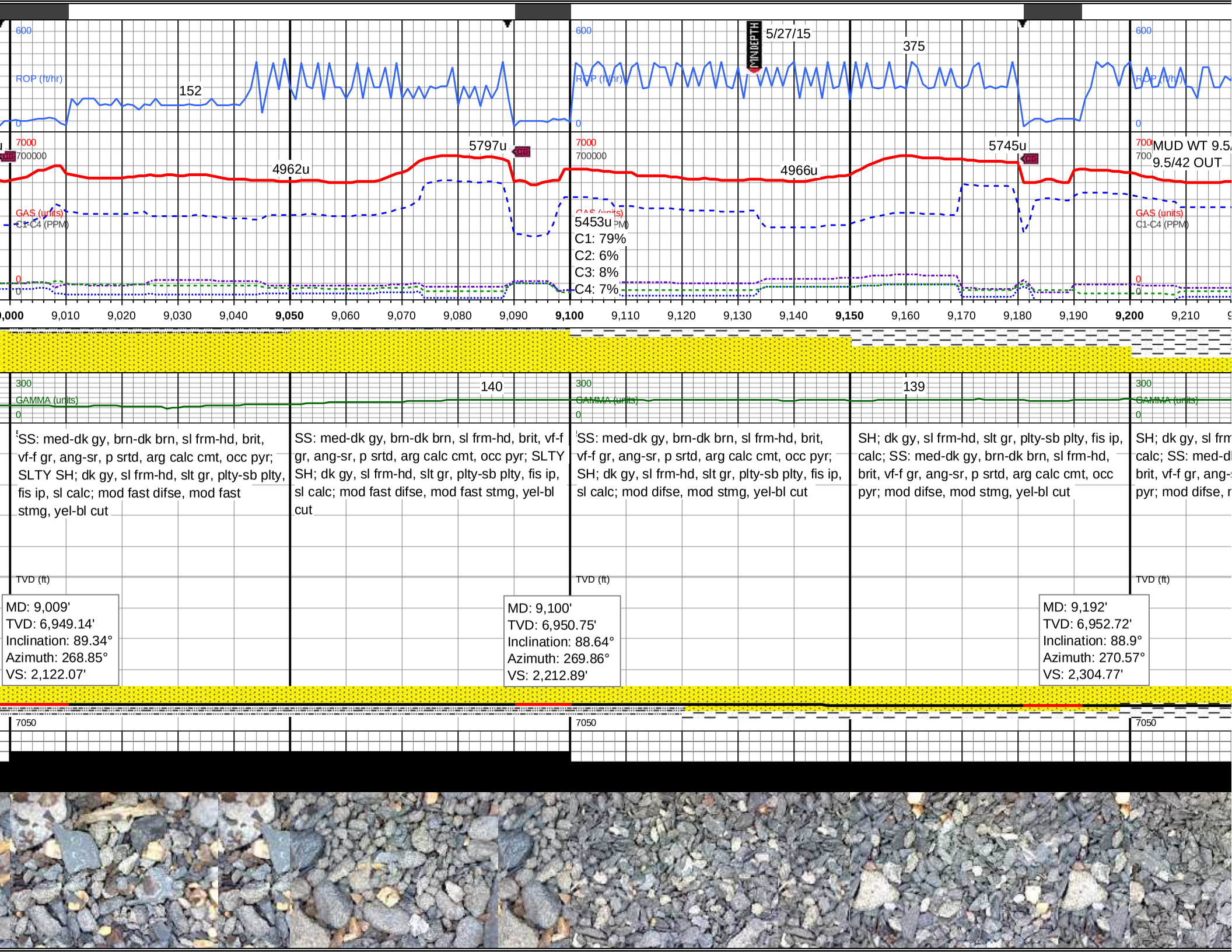
MD: 8,826'
TVD: 6,950.76'
Inclination: 90.84°
Azimuth: 269.23°
VS: 1,939.48'

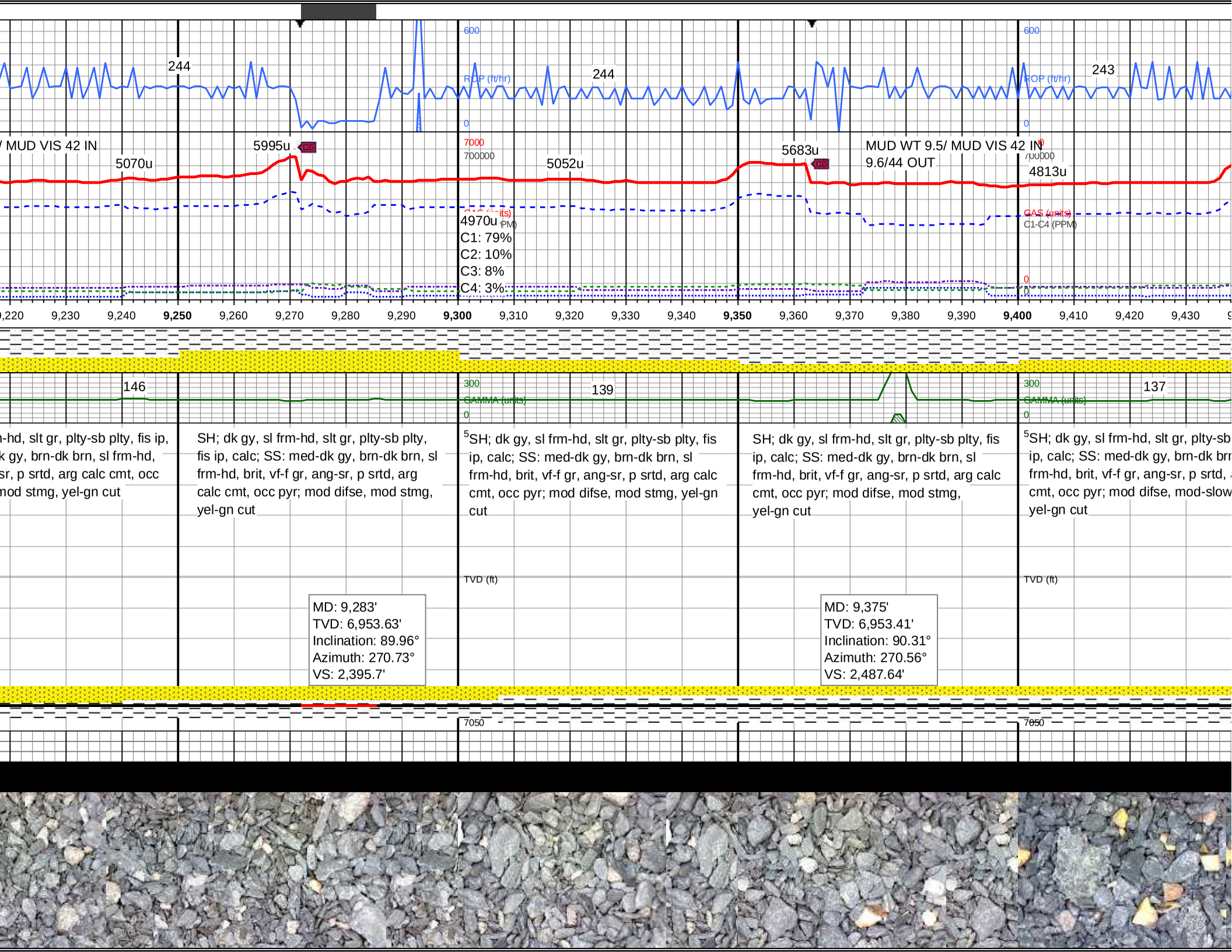
TVD (ft)

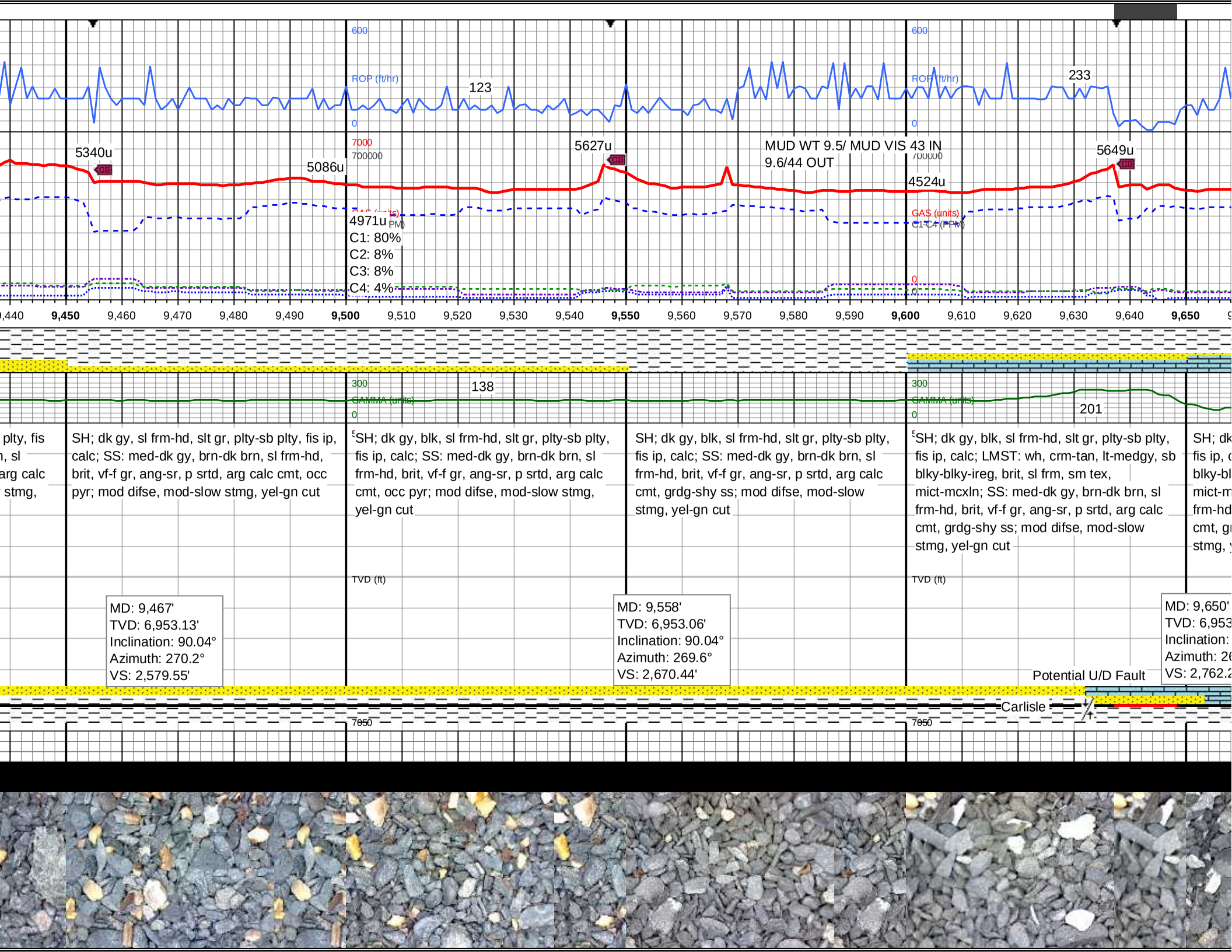
MD: 8,918'
TVD: 6,949.35'
Inclination: 90.92°
Azimuth: 269°
VS: 2,031.28'

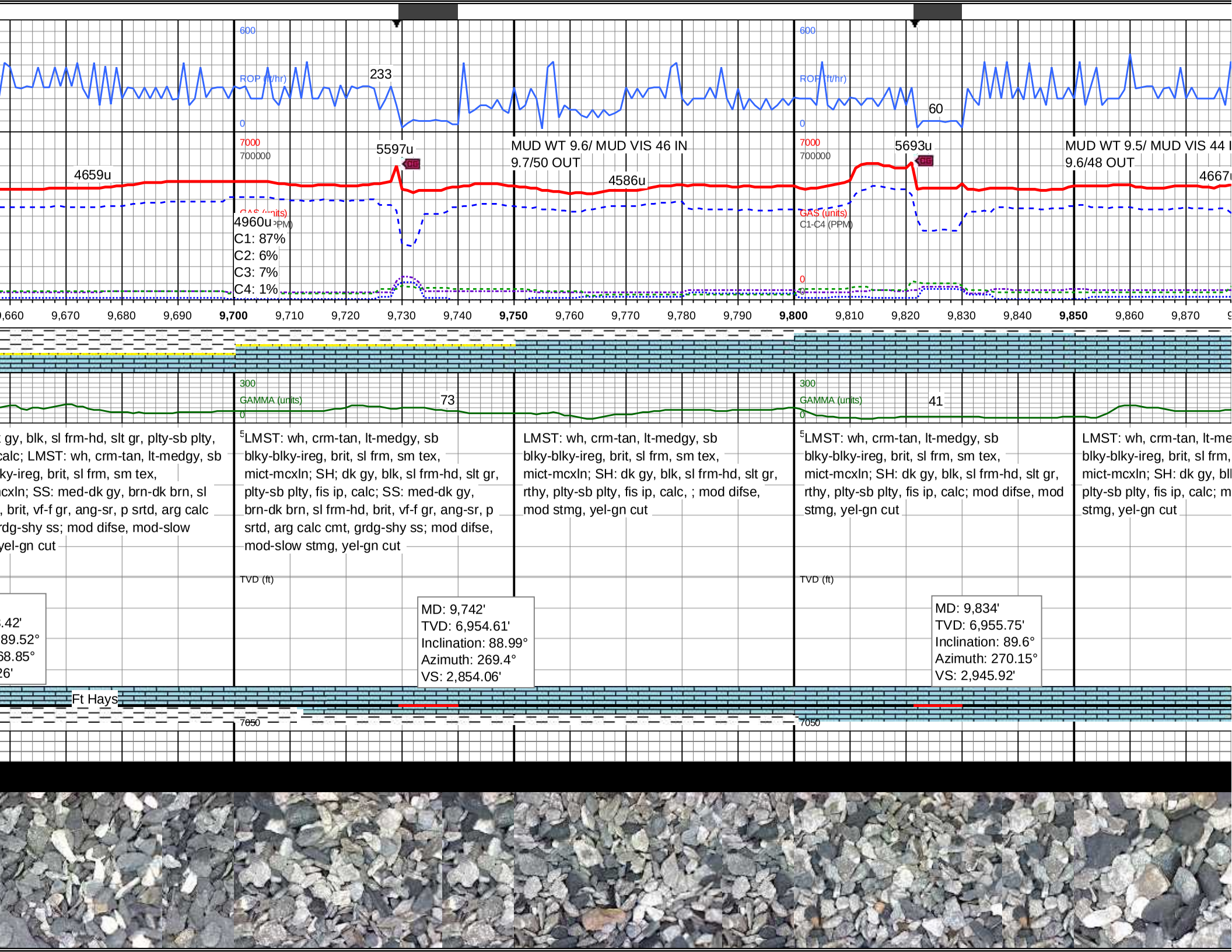
7050

7050


600
ROP (ft/hr)
152
0
7000
700000
4962u
5797u
GAS (units)
C1-C4 (PPM)
0
0
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
9,180
9,190
9,200
9,210
300
GAMMA (units)
0
140
SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; SLTY SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod fast difse, mod fast stmg, yel-bl cut
TVD (ft)
MD: 9,009'
TVD: 6,949.14'
Inclination: 89.34°
Azimuth: 268.85°
VS: 2,122.07'
7050
MD: 9,100'
TVD: 6,950.75'
Inclination: 88.64°
Azimuth: 269.86°
VS: 2,212.89'
5/27/15
MINDEPTH
375
5745u
4966u
5453u
C1: 79%
C2: 6%
C3: 8%
C4: 7%
139
SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; mod difse, mod stmg, yel-bl cut
MD: 9,192'
TVD: 6,952.72'
Inclination: 88.9°
Azimuth: 270.57°
VS: 2,304.77'
MUD WT 9.5
9.5/42 OUT


244
600
ROP (ft/hr)
0
244
600
ROP (ft/hr)
243
/ MUD VIS 42 IN
5070u
5995u
7000
700000
5052u
5683u
MUD WT 9.5/ MUD VIS 42 IN
9.6/44 OUT
4813u
4970u
C1: 79%
C2: 10%
C3: 8%
C4: 3%
GAS (units)
C1-C4 (PPM)
0
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
9,400
9,410
9,420
9,430
146
300
GAMMA (units)
0
139
137
-hd, slt gr, plty-sb plty, fis ip,
k gy, brn-dk brn, sl frm-hd,
sr, p srtd, arg calc cmt, occ
mod stmg, yel-gn cut
SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; mod difse, mod stmg, yel-gn cut
5SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; mod difse, mod stmg, yel-gn cut
SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; mod difse, mod stmg, yel-gn cut
5SH; dk gy, sl frm-hd, slt gr, plty-sb
ip, calc; SS: med-dk gy, brn-dk brn
frm-hd, brit, vf-f gr, ang-sr, p srtd,
cmt, occ pyr; mod difse, mod-slow
yel-gn cut
TVD (ft)
TVD (ft)
MD: 9,283'
TVD: 6,953.63'
Inclination: 89.96°
Azimuth: 270.73°
VS: 2,395.7'
MD: 9,375'
TVD: 6,953.41'
Inclination: 90.31°
Azimuth: 270.56°
VS: 2,487.64'
7050
7050


600
ROP (ft/hr)
0
123
233
7000
700000
5340u
5086u
5627u
5649u
4524u
MUD WT 9.5/ MUD VIS 43 IN
9.6/44 OUT
4971u
C1: 80%
C2: 8%
C3: 8%
C4: 4%
GAS (units)
C1 C4 (PPM)
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
9,620
9,630
9,640
9,650
300
GAMMA (units)
138
201
plty, fis
n, sl
arg calc
stmg,
SH; dk gy, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; mod difse, mod-slow stmg, yel-gn cut
SH; dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, occ pyr; mod difse, mod-slow stmg, yel-gn cut
SH; dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, grdg-shy ss; mod difse, mod-slow stmg, yel-gn cut
SH; dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, grdg-shy ss; mod difse, mod-slow stmg, yel-gn cut
SH; dk
fis ip, c
blky-bl
mict-m
frm-hd
cmt, gr
stmg, y
TVD (ft)
MD: 9,467'
TVD: 6,953.13'
Inclination: 90.04°
Azimuth: 270.2°
VS: 2,579.55'
MD: 9,558'
TVD: 6,953.06'
Inclination: 90.04°
Azimuth: 269.6°
VS: 2,670.44'
MD: 9,650'
TVD: 6,953
Inclination:
Azimuth: 26
VS: 2,762.2
Potential U/D Fault
Carlisle
7050


600
ROP (ft/hr)
233
0
7000
700000
5597u
4659u
MUD WT 9.6/ MUD VIS 46 IN
9.7/50 OUT
4586u
4960u
C1: 87%
C2: 6%
C3: 7%
C4: 1%
GAS (units)
C1-C4 (PPM)
600
ROP (ft/hr)
60
0
7000
700000
5693u
MUD WT 9.5/ MUD VIS 44
9.6/48 OUT
4667
GAS (units)
C1-C4 (PPM)
0
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
9,840
9,850
9,860
9,870
300
GAMMA (units)
73
0
300
GAMMA (units)
41
0
gy, blk, sl frm-hd, slt gr, plty-sb plty,
calc; LMST: wh, crm-tan, lt-medgy, sb
ky-ireg, brit, sl frm, sm tex,
cxln; SS: med-dk gy, brn-dk brn, sl
, brit, vf-f gr, ang-sr, p srtd, arg calc
rdg-shy ss; mod difse, mod-slow
yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln; SH; dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, grdg-shy ss; mod difse, mod-slow stmg, yel-gn cut
TVD (ft)
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, rthy, plty-sb plty, fis ip, calc, ; mod difse, mod stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, rthy, plty-sb plty, fis ip, calc; mod difse, mod stmg, yel-gn cut
TVD (ft)
LMST: wh, crm-tan, lt-me
blky-blky-ireg, brit, sl frm,
mict-mcxln; SH: dk gy, bl
plty-sb plty, fis ip, calc; m
stmg, yel-gn cut
.42'
89.52°
68.85°
26'
MD: 9,742'
TVD: 6,954.61'
Inclination: 88.99°
Azimuth: 269.4°
VS: 2,854.06'
MD: 9,834'
TVD: 6,955.75'
Inclination: 89.6°
Azimuth: 270.15°
VS: 2,945.92'
Ft Hays
7050
7050

New ROP Limit
0 to 850 ft/hr

850
ROP (ft/hr)
0
373
349

7000
700000
5699u
4627u
5654u
4772u
MUD WT 9.6/ MUD VIS 45 IN
9.6/49 OUT
GAS (units)
4632u (PPM)
C1: 77%
C2: 13%
C3: 7%
C4: 3%
C1-C4 (PPM)
0

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** 10,060 10,070 10,080 10,090

300
GAMMA (units)
0
66
56

dgy, sb
sm tex,
k, sl frm-hd, slt gr,
od difse, mod

LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, occ cal grn; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, calc; mod difse, mod stmg, yel-gn cut

LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, occ cal grn; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut

LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, brit, sl frm, sm tex, mict-mcxln, occ cal grn; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut

LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln, occ cal grn; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod-slow difse, mod stmg, gn-wh cut

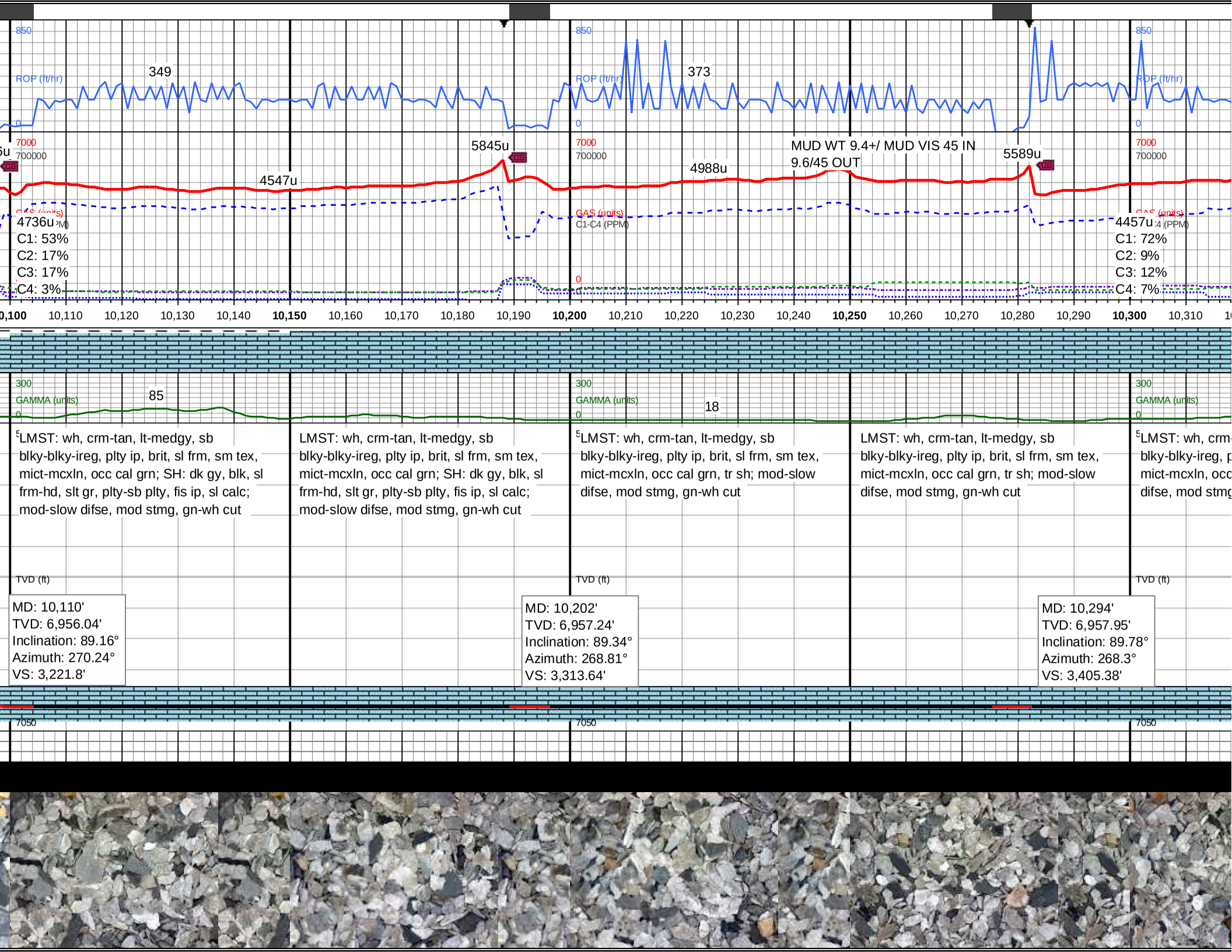
TVD (ft)

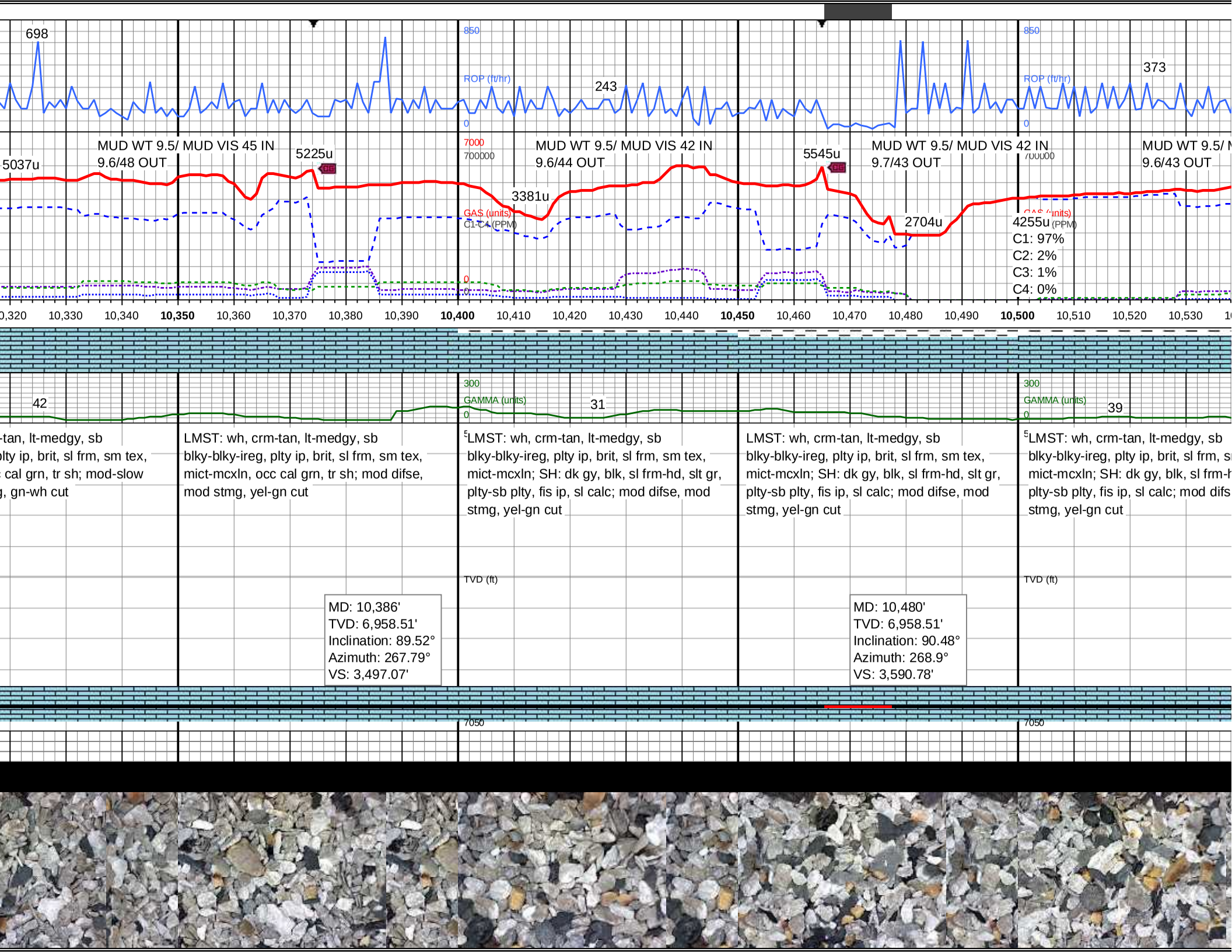
MD: 9,926'
TVD: 6,955.33'
Inclination: 90.92°
Azimuth: 271.98°
VS: 3,037.87'

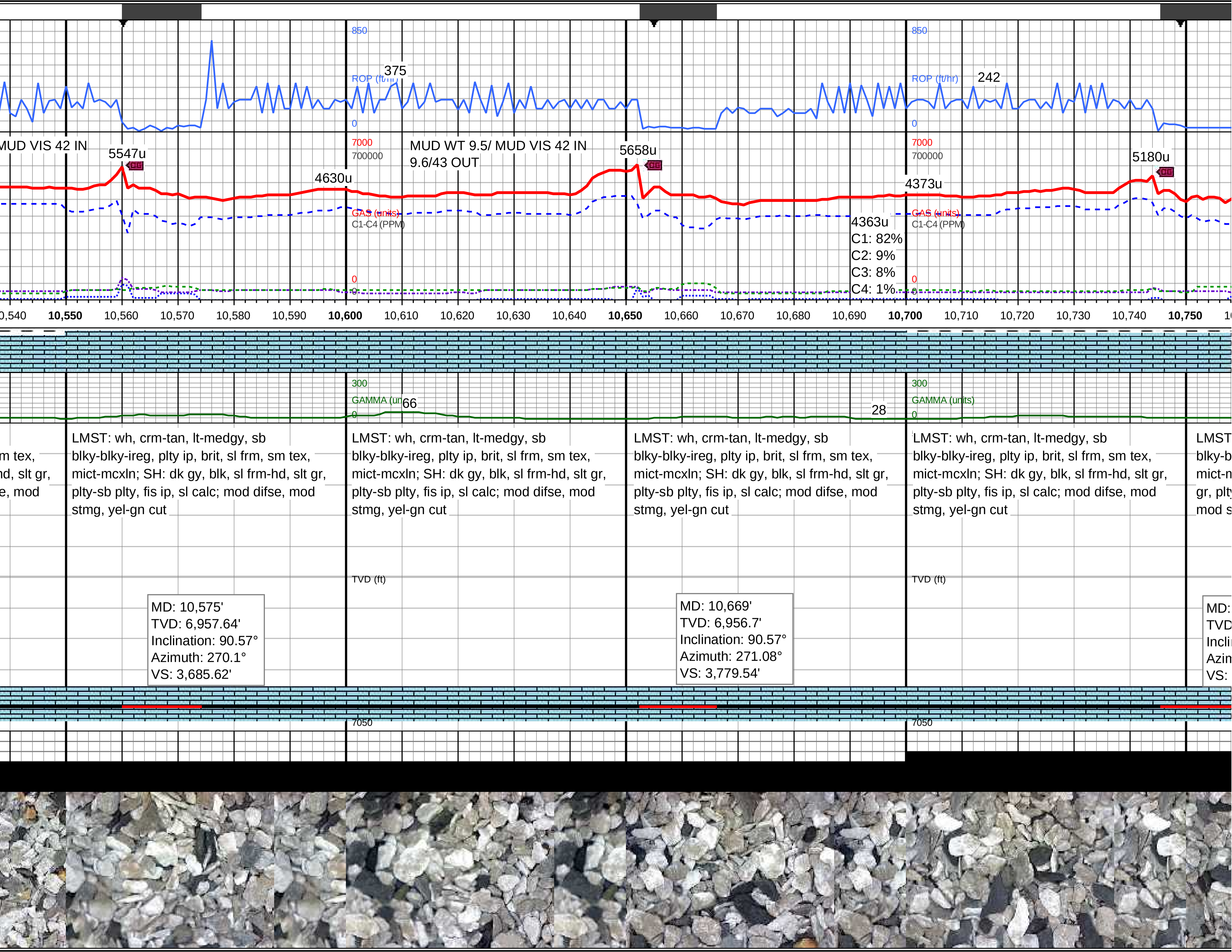
TVD (ft)

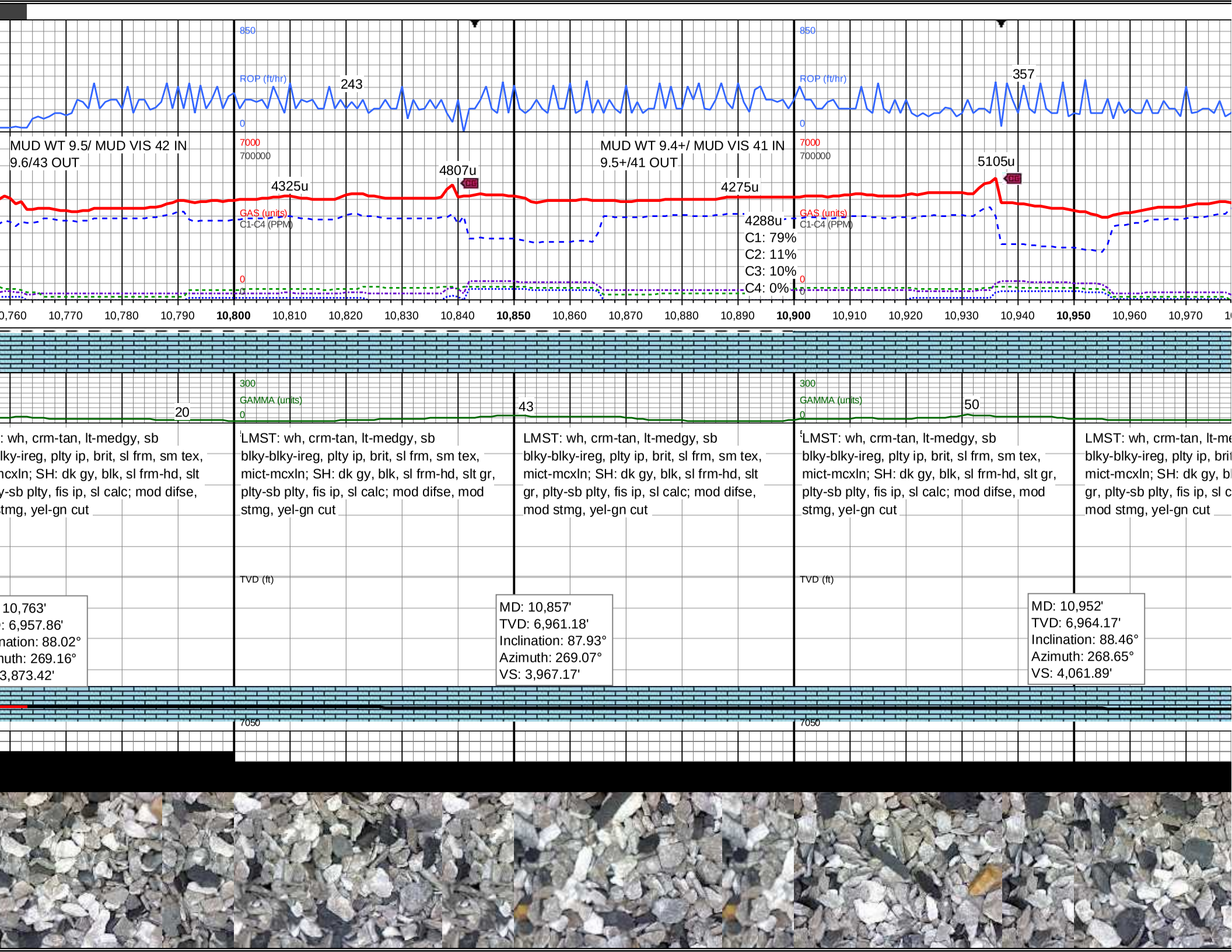
MD: 10,018'
TVD: 6,954.98'
Inclination: 89.52°
Azimuth: 271.71°
VS: 3,129.86'

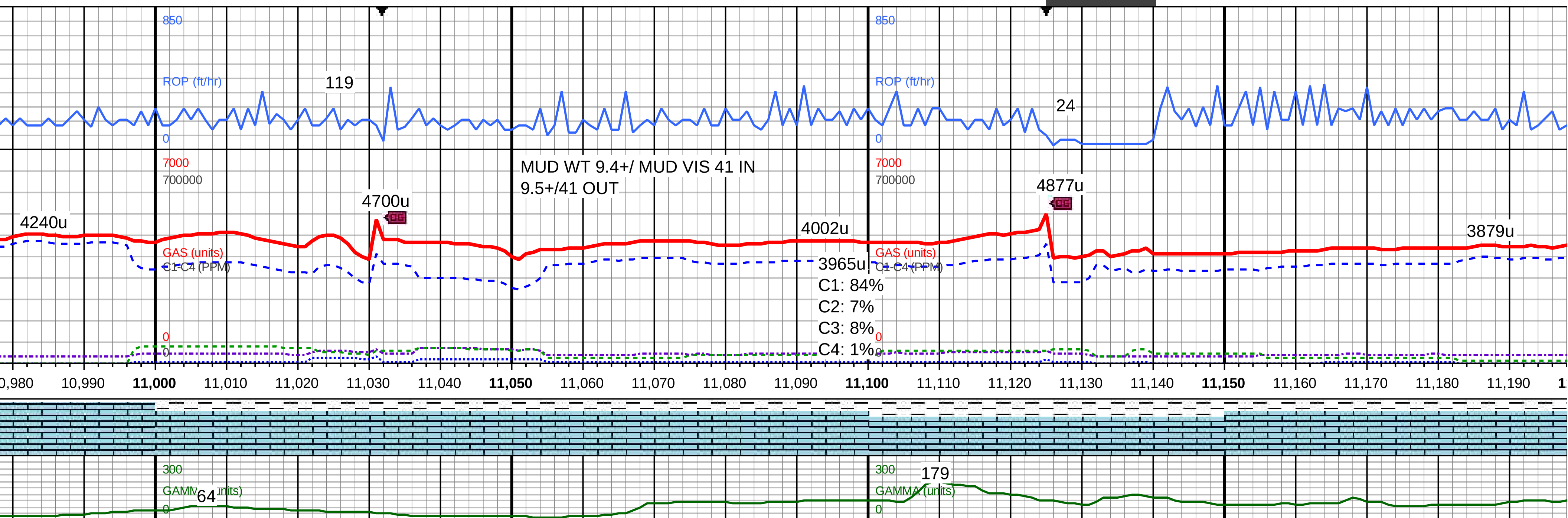
7050
7050


850
ROP (ft/hr)
0
349
373
7000
700000
5845u
4547u
4988u
5589u
MUD WT 9.4+/ MUD VIS 45 IN
9.6/45 OUT
GAS (units)
C1-C4 (PPM)
4736u
C1: 53%
C2: 17%
C3: 17%
C4: 3%
4457u
C1: 72%
C2: 9%
C3: 12%
C4: 7%
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
10,280
10,290
10,300
300
GAMMA (units)
85
18
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln, occ cal grn; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod-slow difse, mod stmg, gn-wh cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln, occ cal grn; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod-slow difse, mod stmg, gn-wh cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln, occ cal grn, tr sh; mod-slow difse, mod stmg, gn-wh cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln, occ cal grn, tr sh; mod-slow difse, mod stmg, gn-wh cut
TVD (ft)
7050
MD: 10,110'
TVD: 6,956.04'
Inclination: 89.16°
Azimuth: 270.24°
VS: 3,221.8'
MD: 10,202'
TVD: 6,957.24'
Inclination: 89.34°
Azimuth: 268.81°
VS: 3,313.64'
MD: 10,294'
TVD: 6,957.95'
Inclination: 89.78°
Azimuth: 268.3°
VS: 3,405.38'


698
850
ROP (ft/hr)
0
243
373
MUD WT 9.5/ MUD VIS 45 IN
9.6/48 OUT
MUD WT 9.5/ MUD VIS 42 IN
9.6/44 OUT
MUD WT 9.5/ MUD VIS 42 IN
9.7/43 OUT
MUD WT 9.5/
9.6/43 OUT
5037u
5225u
5545u
3381u
2704u
4255u (PPM)
C1: 97%
C2: 2%
C3: 1%
C4: 0%
7000
700000
GAS (units)
C1-C4 (PPM)
0
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
10,500
10,510
10,520
10,530
300
GAMMA (units)
0
42
31
39
-tan, lt-medgy, sb
lty ip, brit, sl frm, sm tex,
cal grn, tr sh; mod-slow
, gn-wh cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, plty ip, brit, sl frm, sm tex,
mict-mcxln, occ cal grn, tr sh; mod difse,
mod stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, plty ip, brit, sl frm, sm tex,
mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr,
plty-sb plty, fis ip, sl calc; mod difse, mod
stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, plty ip, brit, sl frm, sm tex,
mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr,
plty-sb plty, fis ip, sl calc; mod difse, mod
stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, plty ip, brit, sl frm, s
mict-mcxln; SH: dk gy, blk, sl frm-h
plty-sb plty, fis ip, sl calc; mod difs
stmg, yel-gn cut
TVD (ft)
MD: 10,386'
TVD: 6,958.51'
Inclination: 89.52°
Azimuth: 267.79°
VS: 3,497.07'
MD: 10,480'
TVD: 6,958.51'
Inclination: 90.48°
Azimuth: 268.9°
VS: 3,590.78'
7050


MUD VIS 42 IN
5547u
4630u
375
ROP (ft/hr)
850
0
7000
700000
GAS (units)
C1-C4 (PPM)
MUD WT 9.5/ MUD VIS 42 IN
9.6/43 OUT
5658u
4363u
C1: 82%
C2: 9%
C3: 8%
C4: 1%
4373u
242
5180u
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
10,720
10,730
10,740
10,750
300
GAMMA (units)
66
28
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut
TVD (ft)
MD: 10,575'
TVD: 6,957.64'
Inclination: 90.57°
Azimuth: 270.1°
VS: 3,685.62'
MD: 10,669'
TVD: 6,956.7'
Inclination: 90.57°
Azimuth: 271.08°
VS: 3,779.54'
7050


850
ROP (ft/hr)
0
243
357
MUD WT 9.5/ MUD VIS 42 IN
9.6/43 OUT
MUD WT 9.4+/ MUD VIS 41 IN
9.5+/41 OUT
7000
700000
GAS (units)
C1-C4 (PPM)
4325u
4807u
4275u
5105u
4288u
C1: 79%
C2: 11%
C3: 10%
C4: 0%
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
10,940
10,950
10,960
10,970
300
GAMMA (units)
20
43
50
: wh, crm-tan, lt-medgy, sb
lky-ireg, plty ip, brit, sl frm, sm tex,
ncxln; SH: dk gy, blk, sl frm-hd, slt
y-sb plty, fis ip, sl calc; mod difse,
tmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, plty ip, brit, sl frm, sm tex,
mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr,
plty-sb plty, fis ip, sl calc; mod difse, mod
stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, plty ip, brit, sl frm, sm tex,
mict-mcxln; SH: dk gy, blk, sl frm-hd, slt
gr, plty-sb plty, fis ip, sl calc; mod difse,
mod stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb
blky-blky-ireg, plty ip, brit, sl frm, sm tex,
mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr,
plty-sb plty, fis ip, sl calc; mod difse, mod
stmg, yel-gn cut
LMST: wh, crm-tan, lt-me
blky-blky-ireg, plty ip, brit
mict-mcxln; SH: dk gy, bl
gr, plty-sb plty, fis ip, sl c
mod stmg, yel-gn cut
TVD (ft)
10,763'
: 6,957.86'
nation: 88.02°
muth: 269.16°
3,873.42'
MD: 10,857'
TVD: 6,961.18'
Inclination: 87.93°
Azimuth: 269.07°
VS: 3,967.17'
MD: 10,952'
TVD: 6,964.17'
Inclination: 88.46°
Azimuth: 268.65°
VS: 4,061.89'
7050



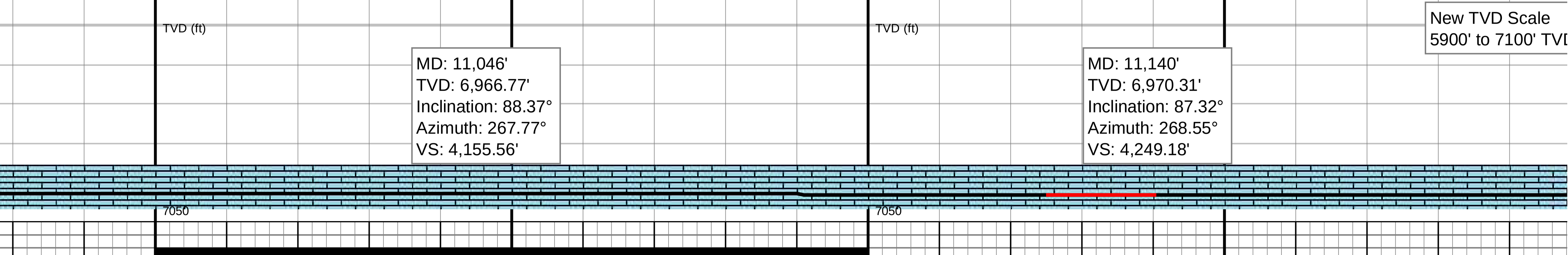
...edgy, sb
..., sl frm, sm tex,
...lk, sl frm-hd, slt
...alc; mod difse,

LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc, tr shy ss; mod difse, mod stmg, yel-gn cut

LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc, tr shy ss; mod difse, mod stmg, yel-gn cut

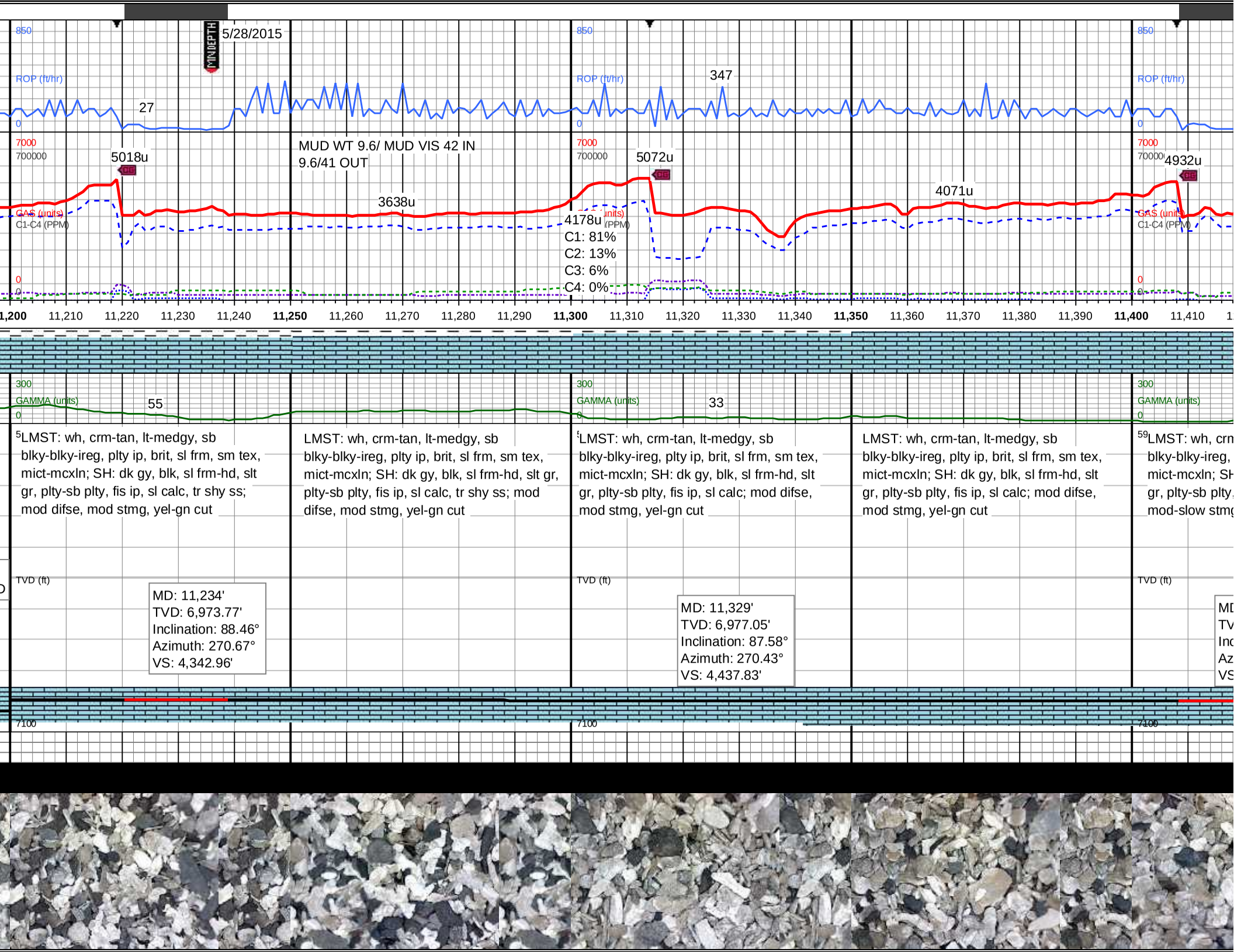
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc, tr shy ss; mod difse, mod stmg, yel-gn cut

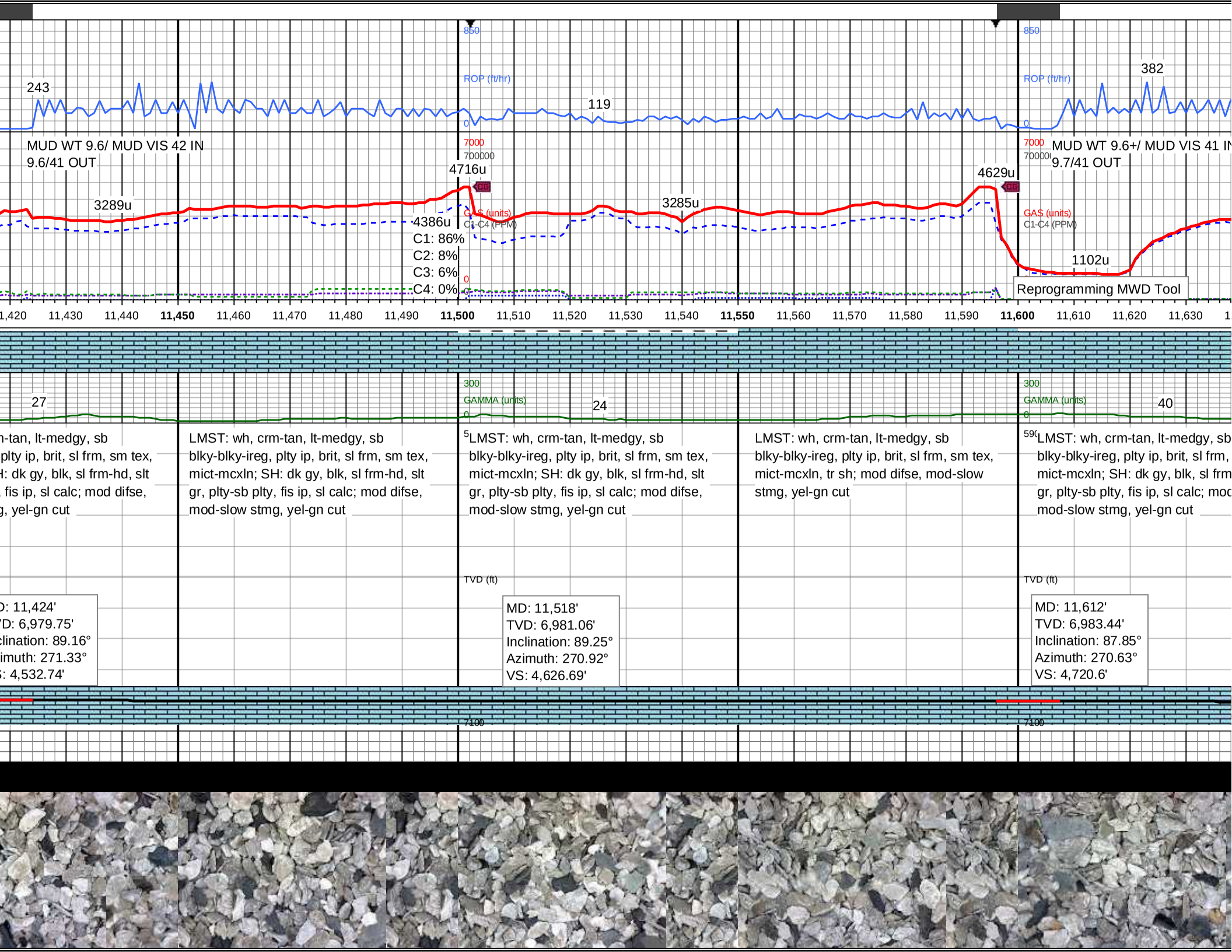
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc, tr shy ss; mod difse, mod stmg, yel-gn cut

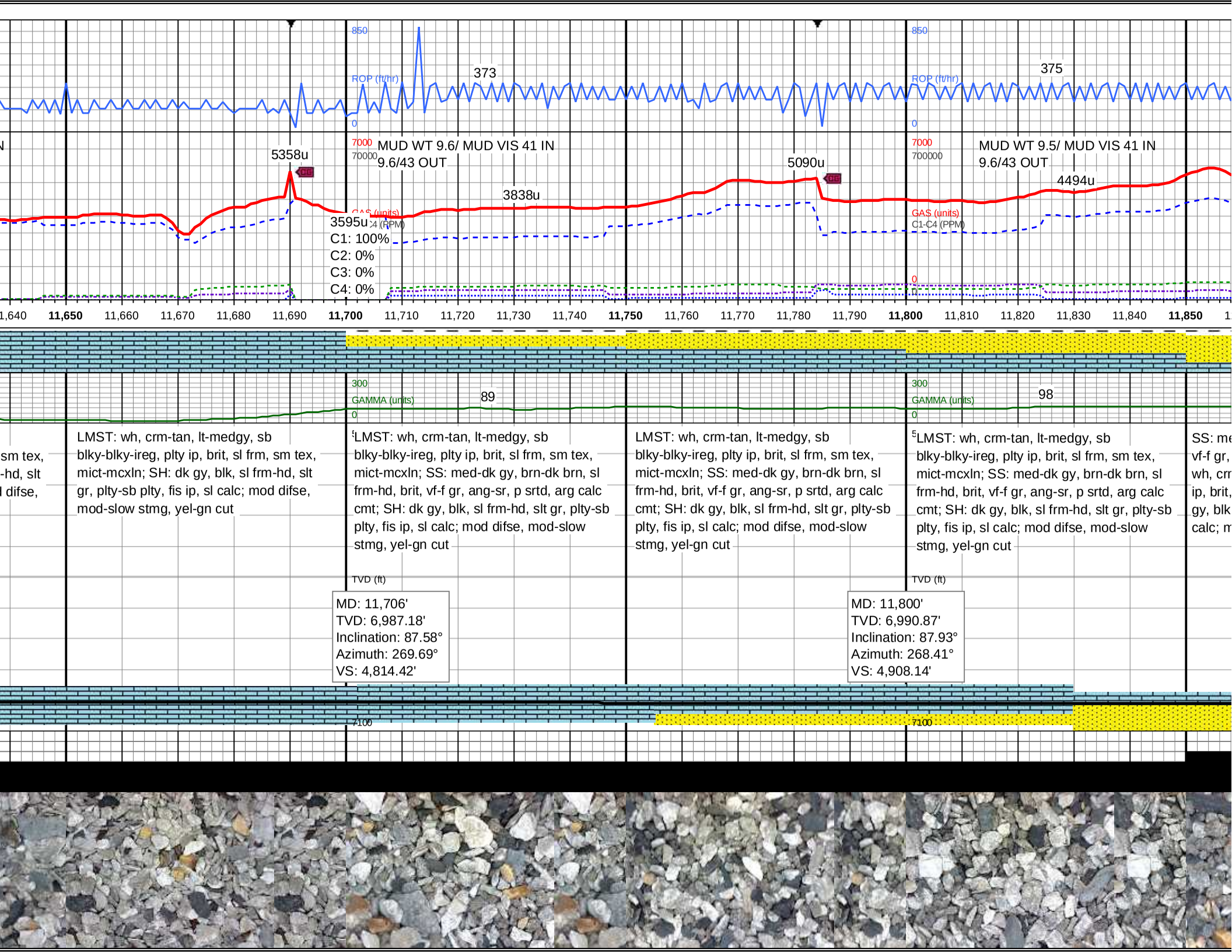


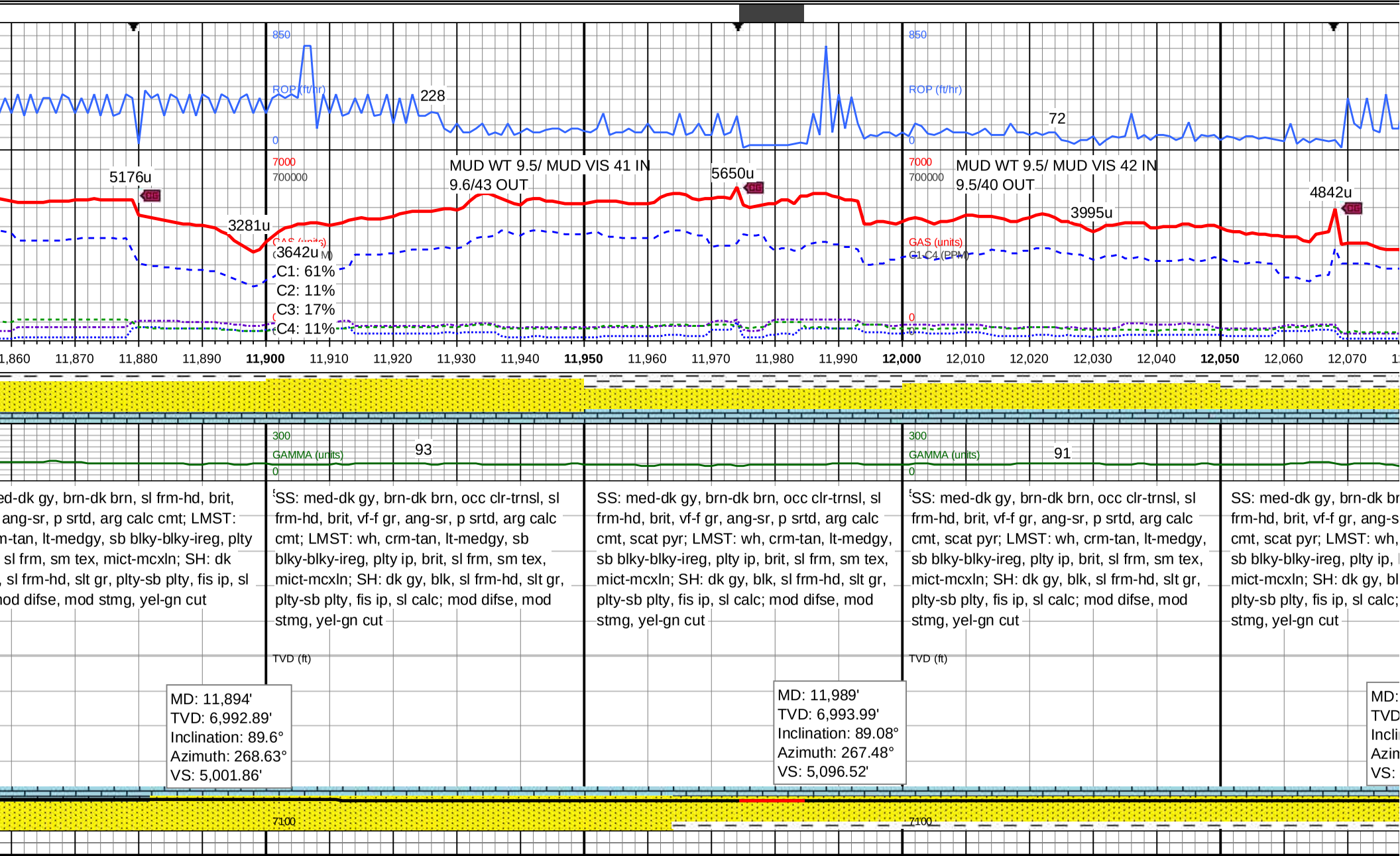
MD: 11,046'
TVD: 6,966.77'
Inclination: 88.37°
Azimuth: 267.77°
VS: 4,155.56'

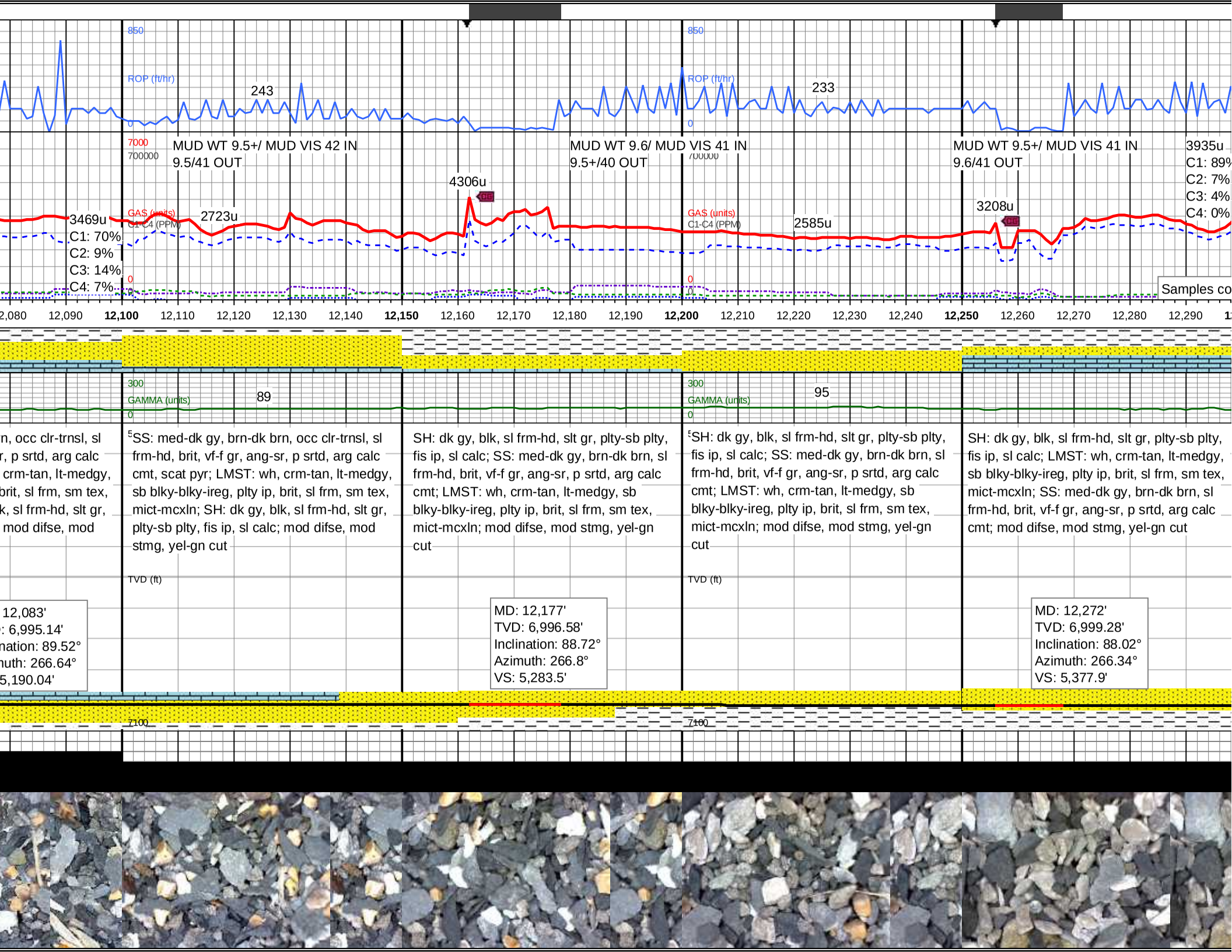
MD: 11,140'
TVD: 6,970.31'
Inclination: 87.32°
Azimuth: 268.55°
VS: 4,249.18'

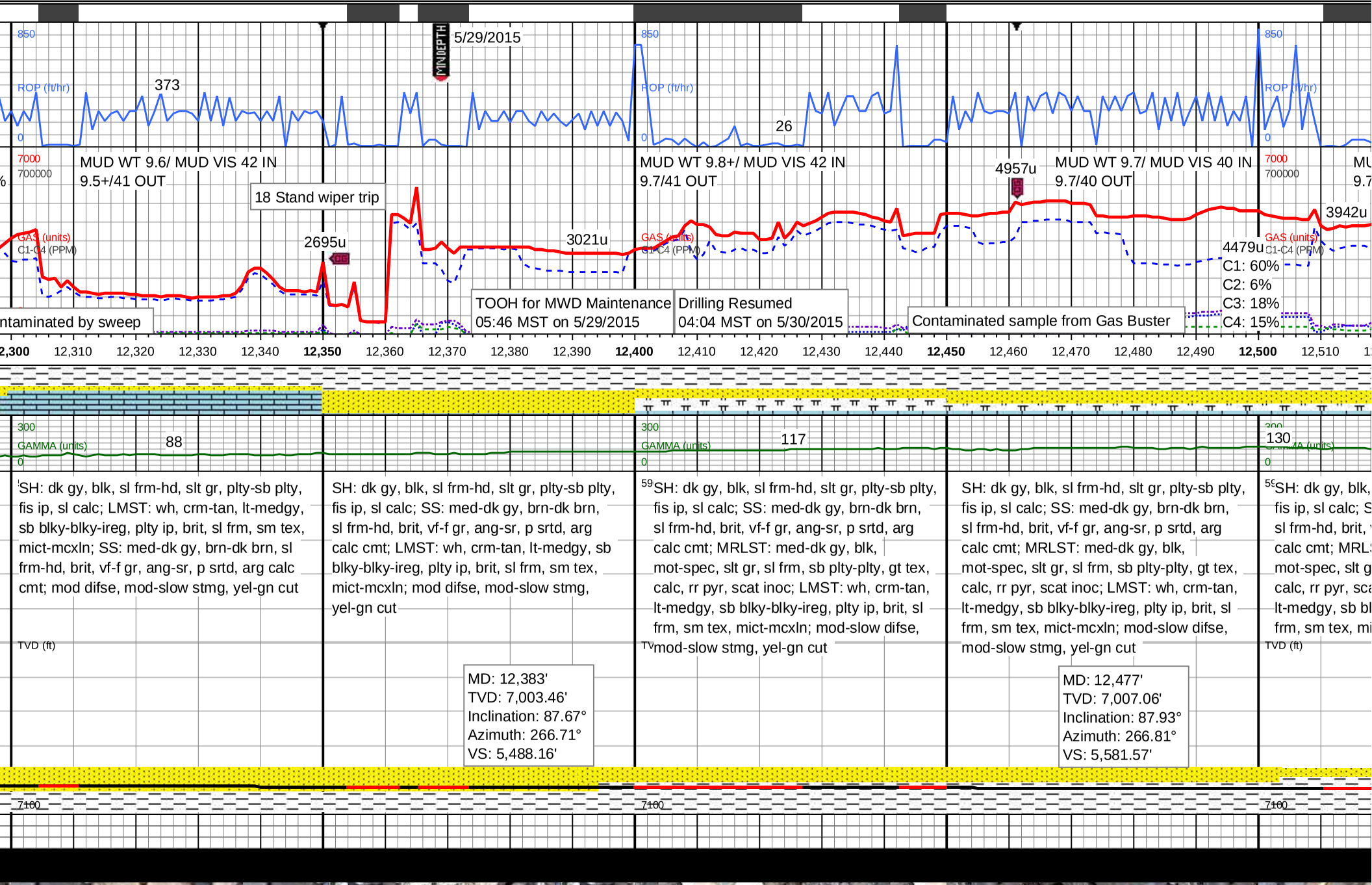

850
ROP (ft/hr)
0
MD
5/28/2015
27
347
7000
700000
GAS (units)
C1-C4 (PPM)
MUD WT 9.6/ MUD VIS 42 IN
9.6/41 OUT
5018u
3638u
5072u
4178u
C1: 81%
C2: 13%
C3: 6%
C4: 0%
4071u
4932u
11,200
11,210
11,220
11,230
11,240
11,250
11,260
11,270
11,280
11,290
11,300
11,310
11,320
11,330
11,340
11,350
11,360
11,370
11,380
11,390
11,400
11,410
300
GAMMA (units)
55
33
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc, tr shy ss; mod difse, mod stmg, yel-gn cut
TVD (ft)
MD: 11,234'
TVD: 6,973.77'
Inclination: 88.46°
Azimuth: 270.67°
VS: 4,342.96'
MD: 11,329'
TVD: 6,977.05'
Inclination: 87.58°
Azimuth: 270.43°
VS: 4,437.83'
7100

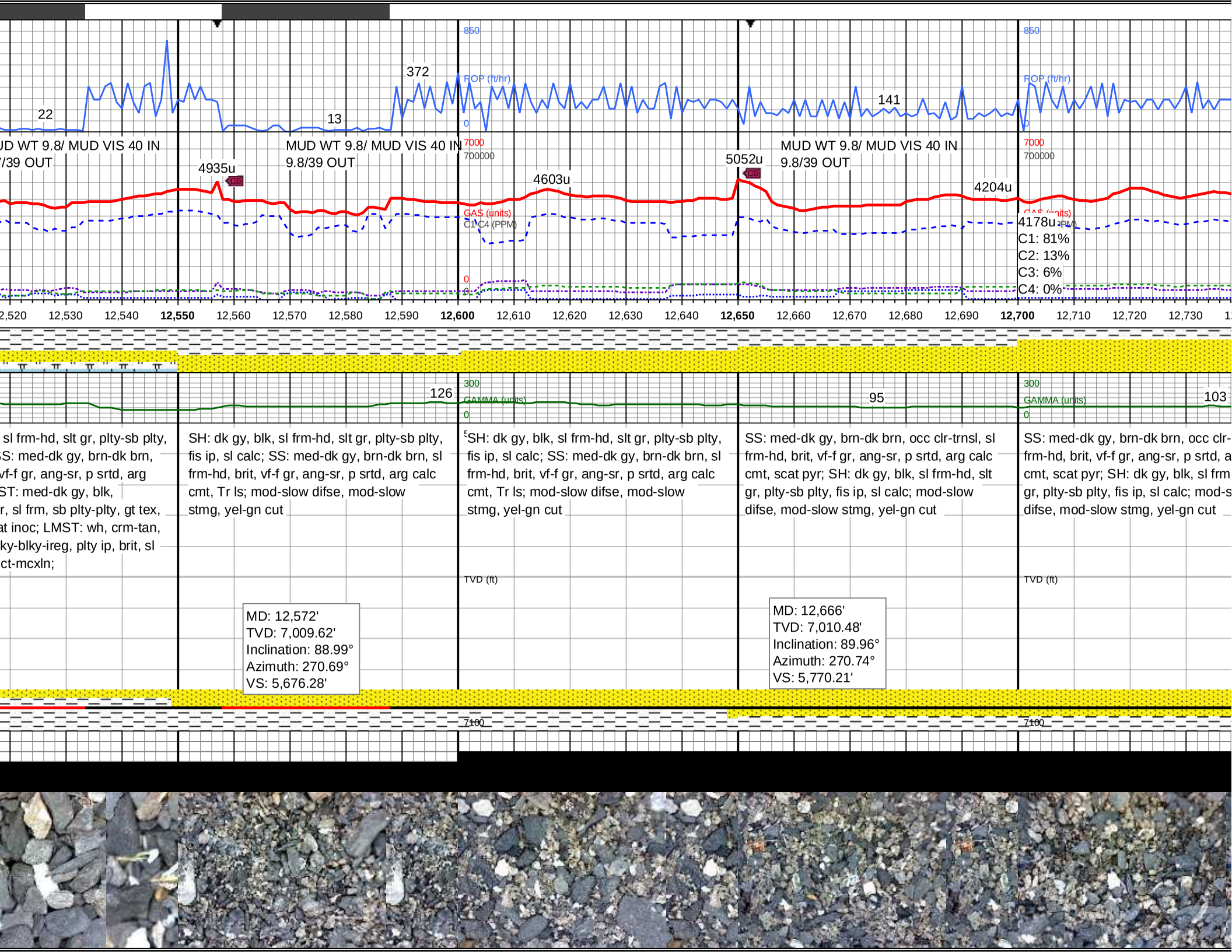

850
ROP (ft/hr)
0
243
119
382
MUD WT 9.6/ MUD VIS 42 IN
9.6/41 OUT
MUD WT 9.6+/ MUD VIS 41 IN
9.7/41 OUT
7000
700000
GAS (units)
C1-C4 (PPM)
0
4716u
4629u
3289u
3285u
4386u
C1: 86%
C2: 8%
C3: 6%
C4: 0%
1102u
Reprogramming MWD Tool
11,420
11,430
11,440
11,450
11,460
11,470
11,480
11,490
11,500
11,510
11,520
11,530
11,540
11,550
11,560
11,570
11,580
11,590
11,600
11,610
11,620
11,630
300
GAMMA (units)
0
27
24
40
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod-slow stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln, tr sh; mod difse, mod-slow stmg, yel-gn cut
TVD (ft)
MD: 11,518'
TVD: 6,981.06'
Inclination: 89.25°
Azimuth: 270.92°
VS: 4,626.69'
MD: 11,612'
TVD: 6,983.44'
Inclination: 87.85°
Azimuth: 270.63°
VS: 4,720.6'
7100


850
ROP (ft/hr)
0
373
375
7000
700000
MUD WT 9.6/ MUD VIS 41 IN
9.6/43 OUT
MUD WT 9.5/ MUD VIS 41 IN
9.6/43 OUT
5358u
5090u
4494u
3838u
3595u
GAS (units)
C1-C4 (PPM)
C1: 100%
C2: 0%
C3: 0%
C4: 0%
0
11,640
11,650
11,660
11,670
11,680
11,690
11,700
11,710
11,720
11,730
11,740
11,750
11,760
11,770
11,780
11,790
11,800
11,810
11,820
11,830
11,840
11,850
300
GAMMA (units)
89
98
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod-slow stmg, yel-gn cut
LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod-slow stmg, yel-gn cut
TVD (ft)
MD: 11,706'
TVD: 6,987.18'
Inclination: 87.58°
Azimuth: 269.69°
VS: 4,814.42'
MD: 11,800'
TVD: 6,990.87'
Inclination: 87.93°
Azimuth: 268.41°
VS: 4,908.14'
7100


850
ROP (ft/hr)
0
228
72
7000
700000
5176u
3281u
3642u
C1: 61%
C2: 11%
C3: 17%
C4: 11%
MUD WT 9.5/ MUD VIS 41 IN
9.6/43 OUT
5650u
MUD WT 9.5/ MUD VIS 42 IN
9.5/40 OUT
3995u
4842u
GAS (units)
C1-C4 (PPM)
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
12,040
12,050
12,060
12,070
300
GAMMA (units)
93
91
ed-dk gy, brn-dk brn, sl frm-hd, brit,
ang-sr, p srtd, arg calc cmt; LMST:
m-tan, lt-medgy, sb blky-blky-ireg, plty
sl frm, sm tex, mict-mcxln; SH: dk
, sl frm-hd, slt gr, plty-sb plty, fis ip, sl
od difse, mod stmg, yel-gn cut
SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut
TVD (ft)
MD: 11,894'
TVD: 6,992.89'
Inclination: 89.6°
Azimuth: 268.63°
VS: 5,001.86'
MD: 11,989'
TVD: 6,993.99'
Inclination: 89.08°
Azimuth: 267.48°
VS: 5,096.52'
7100


850
ROP (ft/hr)
0
243
233
7000
700000
MUD WT 9.5+/ MUD VIS 42 IN
9.5/41 OUT
MUD WT 9.6/ MUD VIS 41 IN
9.5+/40 OUT
MUD WT 9.5+/ MUD VIS 41 IN
9.6/41 OUT
4306u
3469u
C1: 70%
C2: 9%
C3: 14%
C4: 7%
2723u
3208u
2585u
3935u
C1: 89%
C2: 7%
C3: 4%
C4: 0%
GAS (units)
C1-C4 (PPM)
Samples co
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
12,260
12,270
12,280
12,290
300
GAMMA (units)
89
95
rn, occ clr-trnsl, sl
r, p srtd, arg calc
crm-tan, lt-medgy,
brit, sl frm, sm tex,
k, sl frm-hd, slt gr,
mod difse, mod
SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod difse, mod stmg, yel-gn cut
SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; mod difse, mod stmg, yel-gn cut
SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; mod difse, mod stmg, yel-gn cut
TVD (ft)
12,083'
: 6,995.14'
nation: 89.52°
muth: 266.64°
5,190.04'
MD: 12,177'
TVD: 6,996.58'
Inclination: 88.72°
Azimuth: 266.8°
VS: 5,283.5'
MD: 12,272'
TVD: 6,999.28'
Inclination: 88.02°
Azimuth: 266.34°
VS: 5,377.9'
7100


850
ROP (ft/hr)
0
373
5/29/2015
MD
850
ROP (ft/hr)
0
26
850
ROP (ft/hr)
0
7000
700000
MUD WT 9.6/ MUD VIS 42 IN
9.5+/41 OUT
18 Stand wiper trip
2695u
3021u
GAS (units)
C1-C4 (PPM)
MUD WT 9.8+/ MUD VIS 42 IN
9.7/41 OUT
4957u
MUD WT 9.7/ MUD VIS 40 IN
9.7/40 OUT
3942u
4479u
C1: 60%
C2: 6%
C3: 18%
C4: 15%
ntaminated by sweep
TOOH for MWD Maintenance
05:46 MST on 5/29/2015
Drilling Resumed
04:04 MST on 5/30/2015
Contaminated sample from Gas Buster
2,300
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
12,480
12,490
12,500
12,510
300
GAMMA (units)
0
88
117
130
SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; mod difse, mod-slow stmg, yel-gn cut
SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; mod difse, mod-slow stmg, yel-gn cut
SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, rr pyr, scat inoc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; mod-slow difse, mod-slow stmg, yel-gn cut
SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt; MRLST: med-dk gy, blk, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, rr pyr, scat inoc; LMST: wh, crm-tan, lt-medgy, sb blky-blky-ireg, plty ip, brit, sl frm, sm tex, mict-mcxln; mod-slow difse, mod-slow stmg, yel-gn cut
TVD (ft)
MD: 12,383'
TVD: 7,003.46'
Inclination: 87.67°
Azimuth: 266.71°
VS: 5,488.16'
MD: 12,477'
TVD: 7,007.06'
Inclination: 87.93°
Azimuth: 266.81°
VS: 5,581.57'
7100



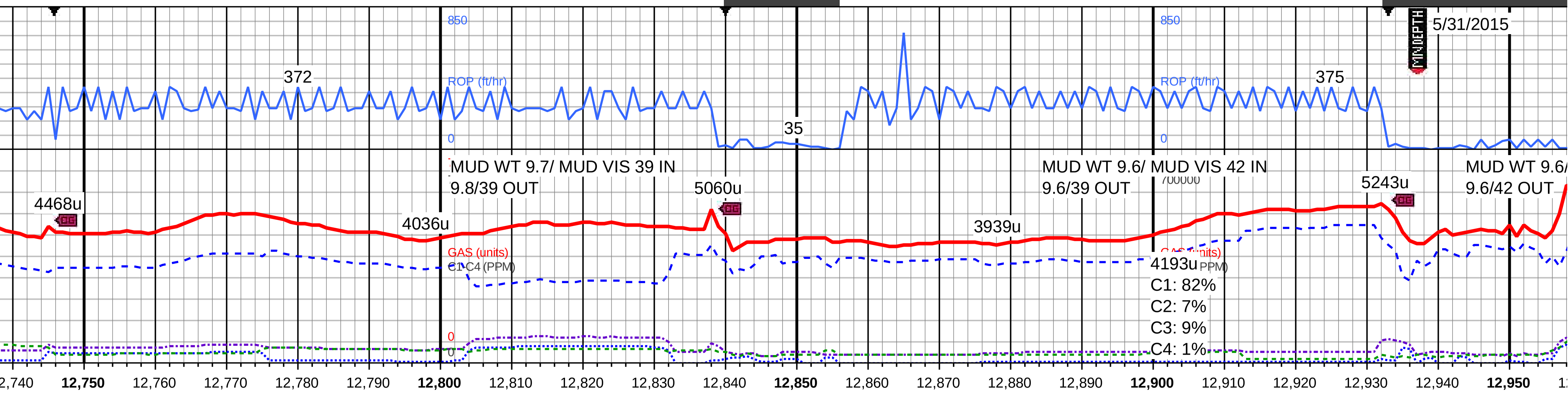
sl frm-hd, slt gr, plty-sb plty, SS: med-dk gy, brn-dk brn, vf-f gr, ang-sr, p srtd, arg ST: med-dk gy, blk, r, sl frm, sb plty-plty, gt tex, at inoc; LMST: wh, crm-tan, lky-blky-ireg, plty ip, brit, sl ct-mcxln;

SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, Tr ls; mod-slow difse, mod-slow stmg, yel-gn cut

SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; SS: med-dk gy, brn-dk brn, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, Tr ls; mod-slow difse, mod-slow stmg, yel-gn cut

SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod-slow difse, mod-slow stmg, yel-gn cut

SS: med-dk gy, brn-dk brn, occ clr- frm-hd, brit, vf-f gr, ang-sr, p srtd, a cmt, scat pyr; SH: dk gy, blk, sl frm gr, plty-sb plty, fis ip, sl calc; mod-s difse, mod-slow stmg, yel-gn cut



...trnsl, sl ...rg calc ...-hd, slt ...low

SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod-slow difse, mod-slow stmg, yel-gn cut

MD: 12,760'
TVD: 7,009.97'
Inclination: 90.66°
Azimuth: 270.28°
VS: 5,864.13'

SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod-slow difse, mod-slow stmg, yel-gn cut

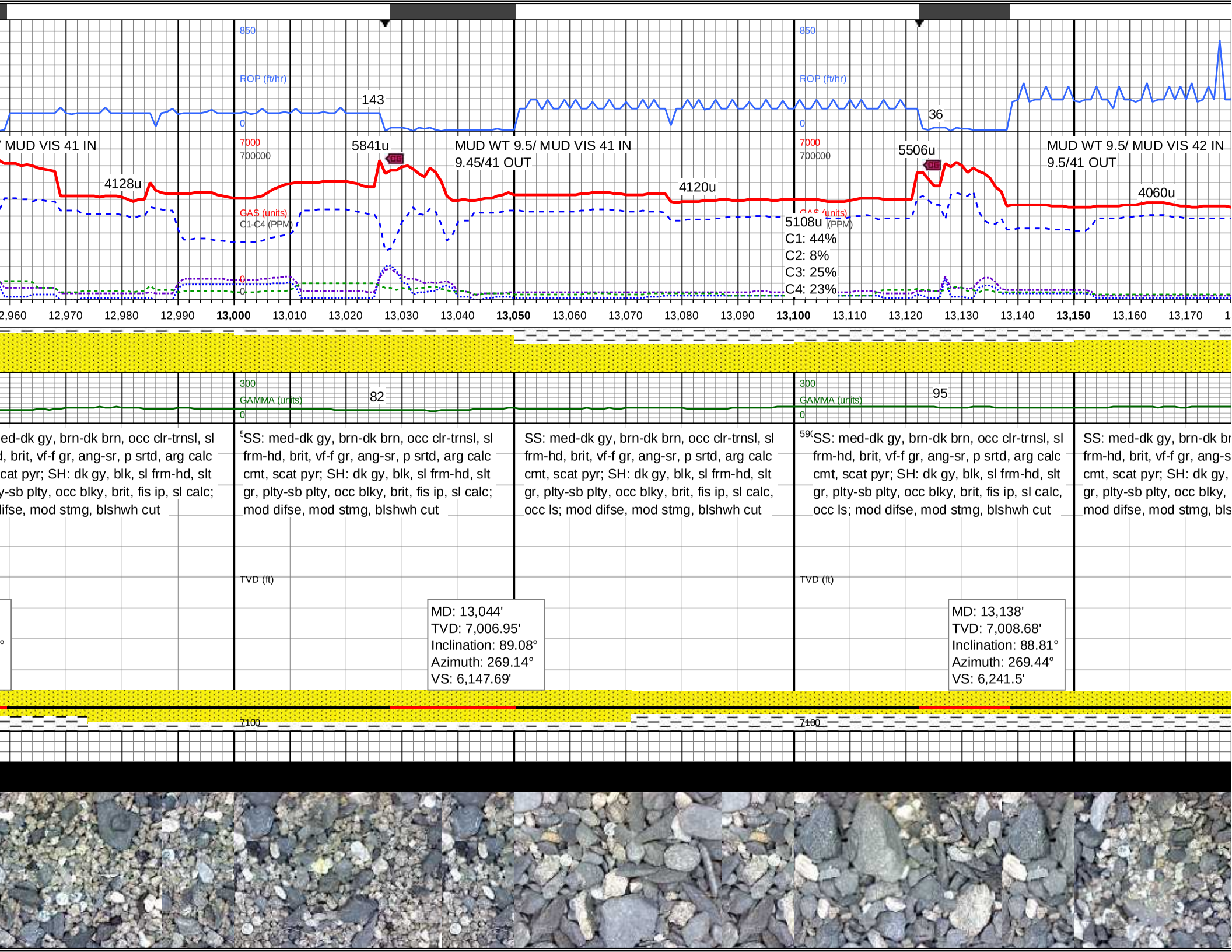
SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, fis ip, sl calc; mod-slow difse, mod-slow stmg, yel-gn cut

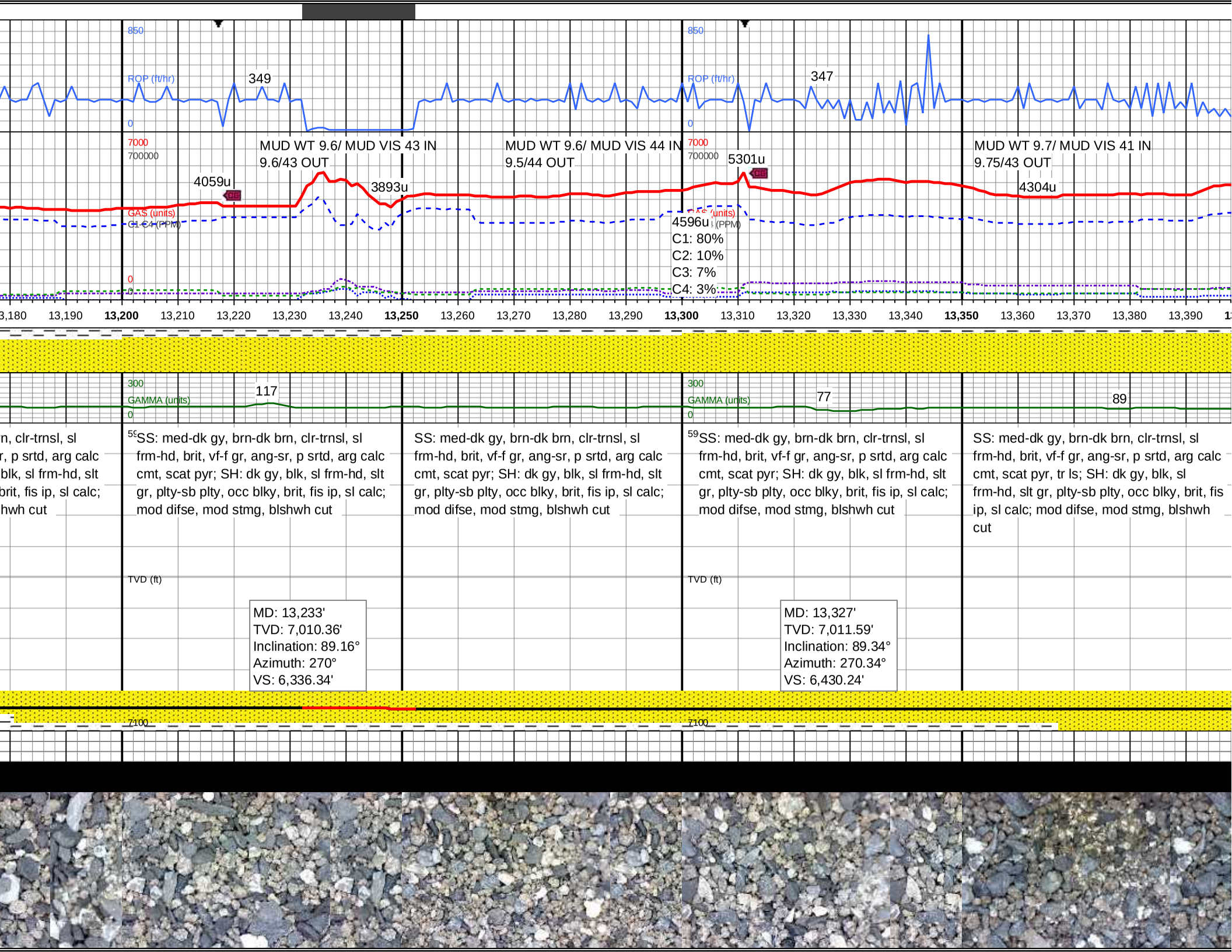
MD: 12,854'
TVD: 7,008.67'
Inclination: 90.92°
Azimuth: 269.87°
VS: 5,958.02'

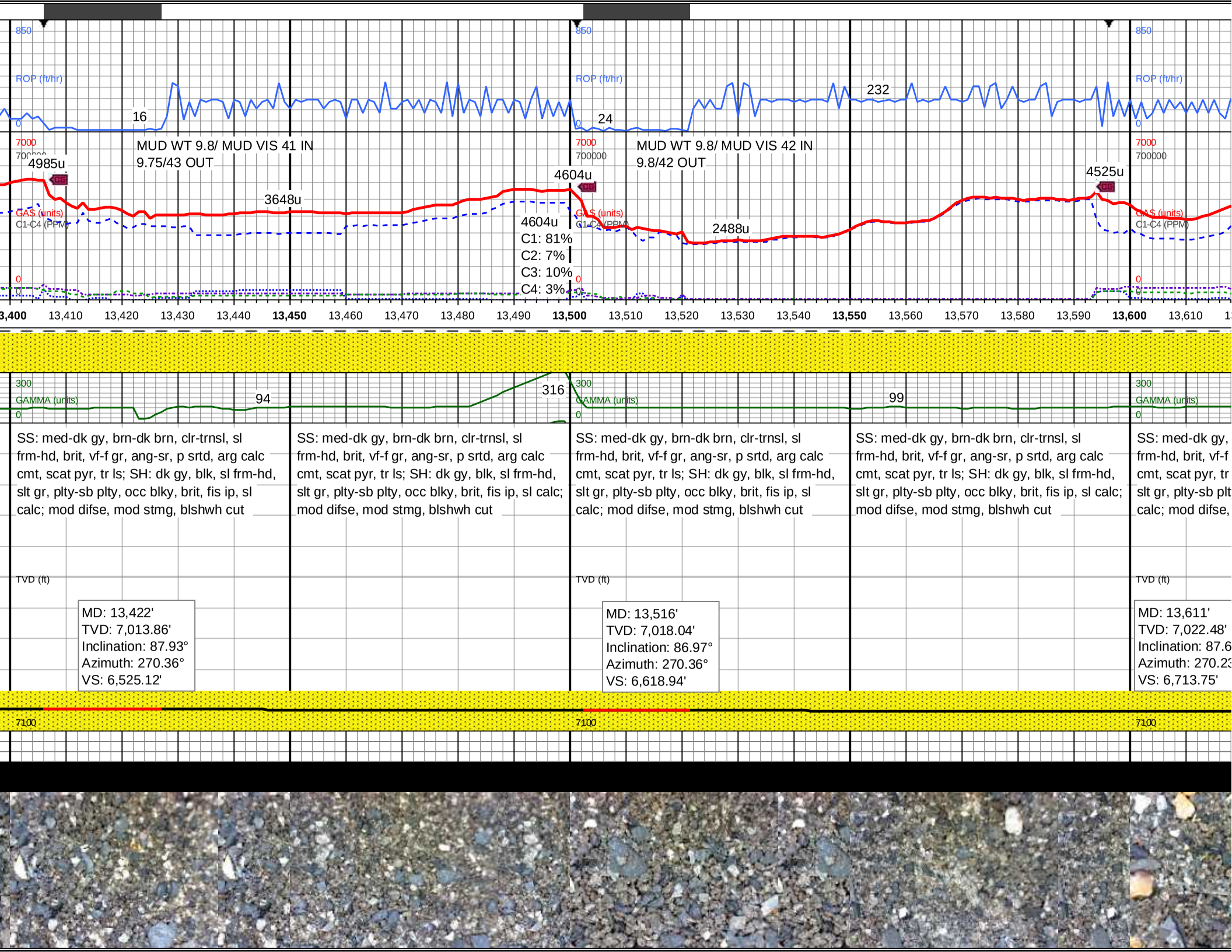
SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, occ blky, brit, fis ip, sl calc; mod difse, mod stmg, blshwh cut

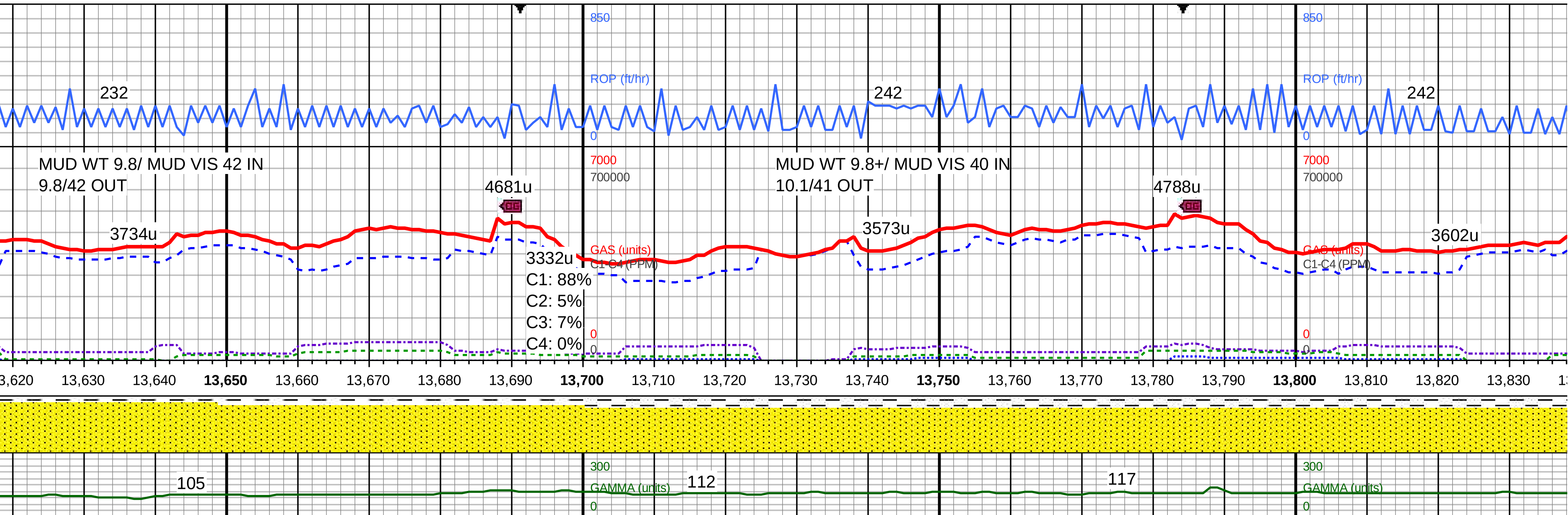
SS: m... frm-h... cmt, s... gr, plt... mod c...

MD: 12,949'
TVD: 7,006.88'
Inclination: 90.84...
Azimuth: 269.84°
VS: 6,052.85'


850
ROP (ft/hr)
0
143
36
MUD VIS 41 IN
7000
700000
5841u
MUD WT 9.5/ MUD VIS 41 IN
9.45/41 OUT
MUD WT 9.5/ MUD VIS 42 IN
9.5/41 OUT
4128u
4120u
5506u
4060u
GAS (units)
C1-C4 (PPM)
5108u
C1: 44%
C2: 8%
C3: 25%
C4: 23%
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
13,140
13,150
13,160
13,170
300
GAMMA (units)
82
95
ed-dk gy, brn-dk brn, occ clr-trnsl, sl
, brit, vf-f gr, ang-sr, p srtd, arg calc
cat pyr; SH: dk gy, blk, sl frm-hd, slt
y-sb plty, occ blky, brit, fis ip, sl calc;
ifse, mod stmg, blshwh cut
SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl
frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc
cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt
gr, plty-sb plty, occ blky, brit, fis ip, sl calc;
mod difse, mod stmg, blshwh cut
SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl
frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc
cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt
gr, plty-sb plty, occ blky, brit, fis ip, sl calc,
occ ls; mod difse, mod stmg, blshwh cut
SS: med-dk gy, brn-dk brn, occ clr-trnsl, sl
frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc
cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt
gr, plty-sb plty, occ blky, brit, fis ip, sl calc,
occ ls; mod difse, mod stmg, blshwh cut
SS: med-dk gy, brn-dk br
frm-hd, brit, vf-f gr, ang-s
cmt, scat pyr; SH: dk gy,
gr, plty-sb plty, occ blky,
mod difse, mod stmg, bls
TVD (ft)
MD: 13,044'
TVD: 7,006.95'
Inclination: 89.08°
Azimuth: 269.14°
VS: 6,147.69'
MD: 13,138'
TVD: 7,008.68'
Inclination: 88.81°
Azimuth: 269.44°
VS: 6,241.5'
7100


850
ROP (ft/hr)
0
349
347
7000
700000
GAS (units)
C1-C4 (PPM)
0
MUD WT 9.6/ MUD VIS 43 IN
9.6/43 OUT
MUD WT 9.6/ MUD VIS 44 IN
9.5/44 OUT
MUD WT 9.7/ MUD VIS 41 IN
9.75/43 OUT
4059u
3893u
5301u
4304u
4596u
C1: 80%
C2: 10%
C3: 7%
C4: 3%
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
13,360
13,370
13,380
13,390
300
GAMMA (units)
0
117
77
89
SS: med-dk gy, brn-dk brn, clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, occ blky, brit, fis ip, sl calc; mod difse, mod stmg, blshwh cut
TVD (ft)
MD: 13,233'
TVD: 7,010.36'
Inclination: 89.16°
Azimuth: 270°
VS: 6,336.34'
MD: 13,327'
TVD: 7,011.59'
Inclination: 89.34°
Azimuth: 270.34°
VS: 6,430.24'
7100


850
ROP (ft/hr)
0
16
24
232
MUD WT 9.8/ MUD VIS 41 IN
9.75/43 OUT
MUD WT 9.8/ MUD VIS 42 IN
9.8/42 OUT
7000
700000
4985u
3648u
4604u
4604u
C1: 81%
C2: 7%
C3: 10%
C4: 3%
2488u
4525u
GAS (units)
C1-C4 (PPM)
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
13,580
13,590
13,600
13,610
300
GAMMA (units)
94
316
99
SS: med-dk gy, brn-dk brn, clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr, tr ls; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, occ blky, brit, fis ip, sl calc; mod difse, mod stmg, blshwh cut
TVD (ft)
MD: 13,422'
TVD: 7,013.86'
Inclination: 87.93°
Azimuth: 270.36°
VS: 6,525.12'
MD: 13,516'
TVD: 7,018.04'
Inclination: 86.97°
Azimuth: 270.36°
VS: 6,618.94'
MD: 13,611'
TVD: 7,022.48'
Inclination: 87.6
Azimuth: 270.23
VS: 6,713.75'
7100



brn-dk brn, clr-trnsl, sl
gr, ang-sr, p srtd, arg calc
ls; SH: dk gy, blk, sl frm-hd,
y, occ blky, brit, fis ip, sl
mod stmg, blshwh cut

SS: med-dk gy, brn-dk brn, clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr, tr ls; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, occ blky, brit, fis ip, sl calc; mod difse, mod stmg, blshwh cut

SS: med-dk gy, brn-dk brn, clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr, tr ls; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, occ blky, brit, fis ip, sl calc; mod difse, mod stmg, blshwh cut

SS: med-dk gy, brn-dk brn, clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr, tr ls; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, occ blky, brit, fis ip, sl calc; mod difse, mod stmg, blshwh cut

SS: med-dk gy, brn-dk brn, clr-trnsl
frm-hd, brit, vf-f gr, ang-sr, p srtd, a
cmt, scat pyr, tr ls; SH: dk gy, blk, s
slt gr, plty-sb plty, occ blky, brit, fis
calc; mod difse, mod stmg, blshwh

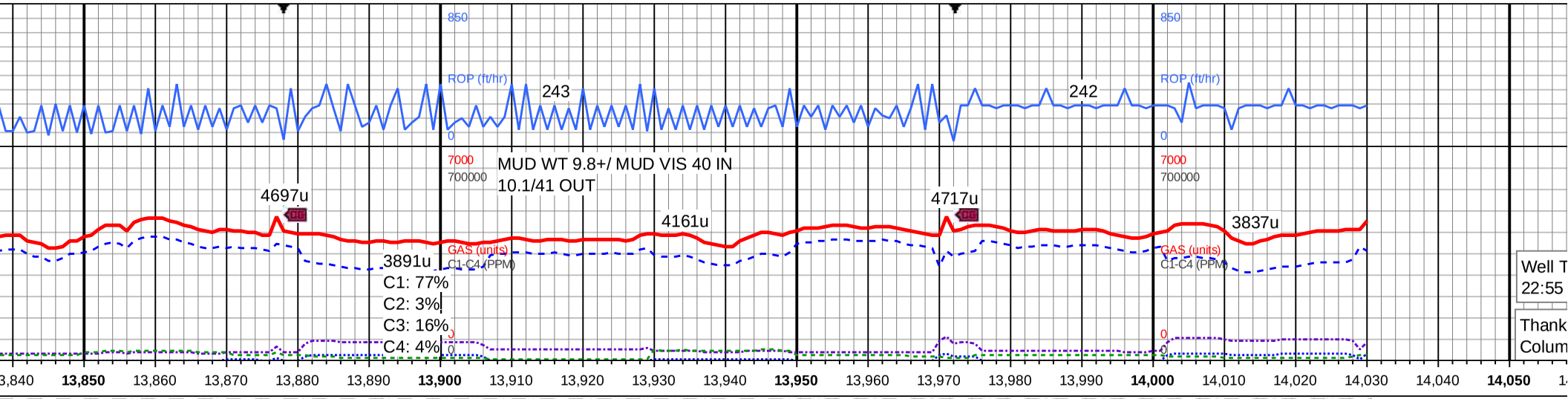
TVD (ft)

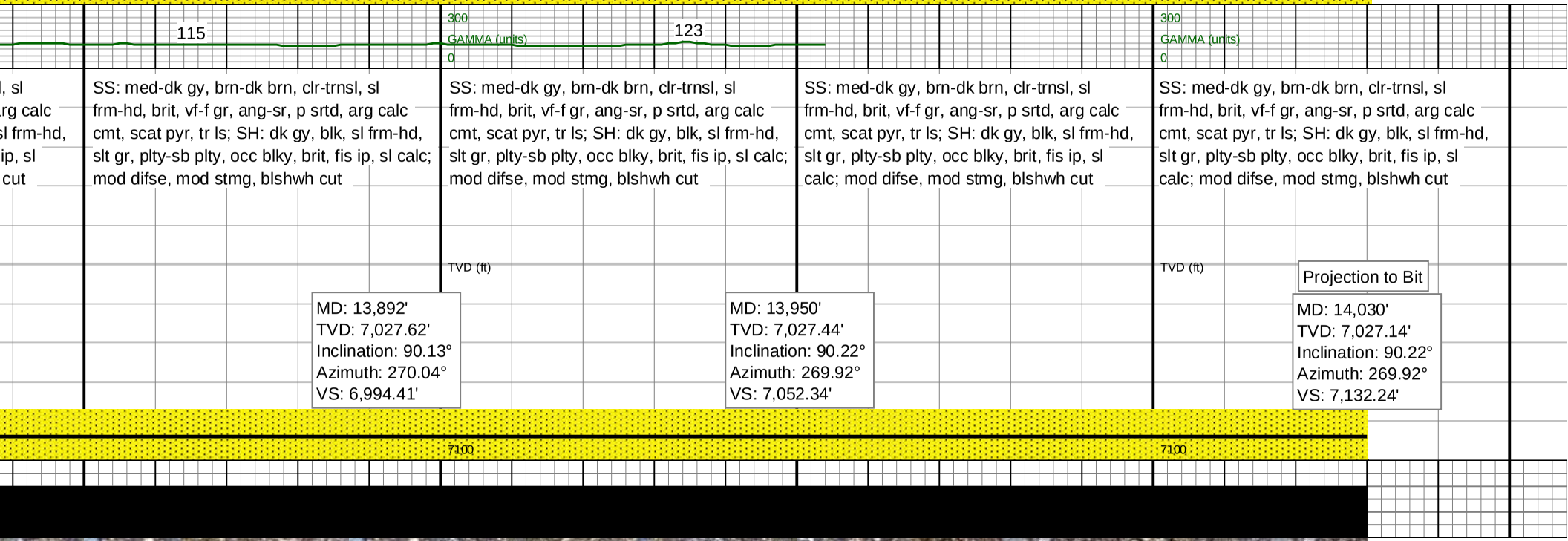
7°
3°

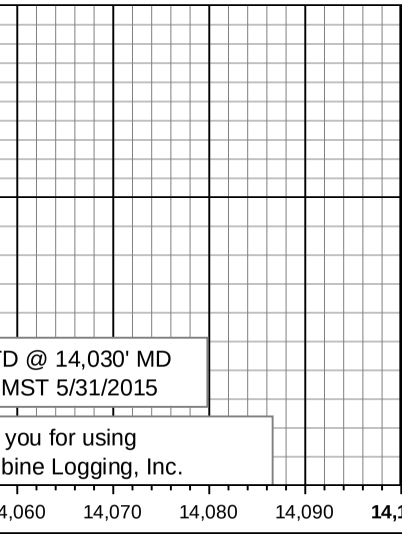
MD: 13,704'
TVD: 7,025.41'
Inclination: 88.72°
Azimuth: 270.24°
VS: 6,806.61'

MD: 13,798'
TVD: 7,026.93'
Inclination: 89.43°
Azimuth: 270.07°
VS: 6,900.49'

7100


850
ROP (ft/hr)
0
243
242
MUD WT 9.8+/ MUD VIS 40 IN
10.1/41 OUT
7000
700000
4697u
4161u
4717u
3837u
3891u
C1: 77%
C2: 3%
C3: 16%
C4: 4%
GAS (units)
C1-C4 (PPM)
Well T
22:55
Thank
Colum
3,840
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
14,020
14,030
14,040
14,050


115
123
300
GAMMA (units)
0
TVD (ft)
7100
SS: med-dk gy, brn-dk brn, clr-trnsl, sl frm-hd, brit, vf-f gr, ang-sr, p srtd, arg calc cmt, scat pyr, tr ls; SH: dk gy, blk, sl frm-hd, slt gr, plty-sb plty, occ blky, brit, fis ip, sl calc; mod difse, mod stmg, blshwh cut
MD: 13,892'
TVD: 7,027.62'
Inclination: 90.13°
Azimuth: 270.04°
VS: 6,994.41'
MD: 13,950'
TVD: 7,027.44'
Inclination: 90.22°
Azimuth: 269.92°
VS: 7,052.34'
Projection to Bit
MD: 14,030'
TVD: 7,027.14'
Inclination: 90.22°
Azimuth: 269.92°
VS: 7,132.24'


D @ 14,030' MD
MST 5/31/2015
you for using
bine Logging, Inc.
4,060
14,070
14,080
14,090