Scale: 5" / 100'
Measured Depth Log

Well Name	Schneider HD 11-352HN		
Location	SWSW S19 T4N R66W		
State	COLORADO	**County**	WELD
Country	USA	**Rig Number**	XTREME 17
API Number	05-123-41748	**Field**	WATTENBERG
Region	DJ BASIN	**Drilling Completed**	10/11/2015
Spud Date	10/7/2015		
Surface Coordinates	1165' FSL, 280' FWL		
Bottom Hole Coordinates	PROJECTED: 659' FSL, 2174' FEL		
Ground Elevation	4735'	**K.B. Elevation**	4751'
Logged Interval	6000' **To** 14536'	**Total Depth**	14536'
Formation	NIO C CHALK		
Type of Drilling Fluid	OBM		

Operator

Company Great Western Oil and Gas

Address 1801 Broadway, Ste 500
Denver, CO 80202

Geologist

Name Kevin Donahue and Beth Storey

Company Terra Guidance

Address 1298 O Road
Loma CO 81524
(970) 260-5408

Zone Color Coding

Oil
Note
Error
Condensate
Core
Water
Gas
Press
Seal

Rock Types

LIMESTONE
Chalk
Marl
SHALE
Silty Shale
Shaly Siltstone
SILTSTONE
Shaly Sandston
SANDSTONE
BENTONITE
CEMENT
UNKNOWN
ANHYDRITE
GYPSUM
SALT
SIDERITE or LIMONITE
DOLOMITE
CHERT
COAL
MARLSTONE
CLAYSTONE
SHALE GRAY
SHALE COLOR
CONGLOMER

Accessories

Fossils

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

- DEAD
- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Porosity

- EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC
- ORGANIC
- PINPOINT
- VUGGY

Engineering

- BIT
- CASING
- 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

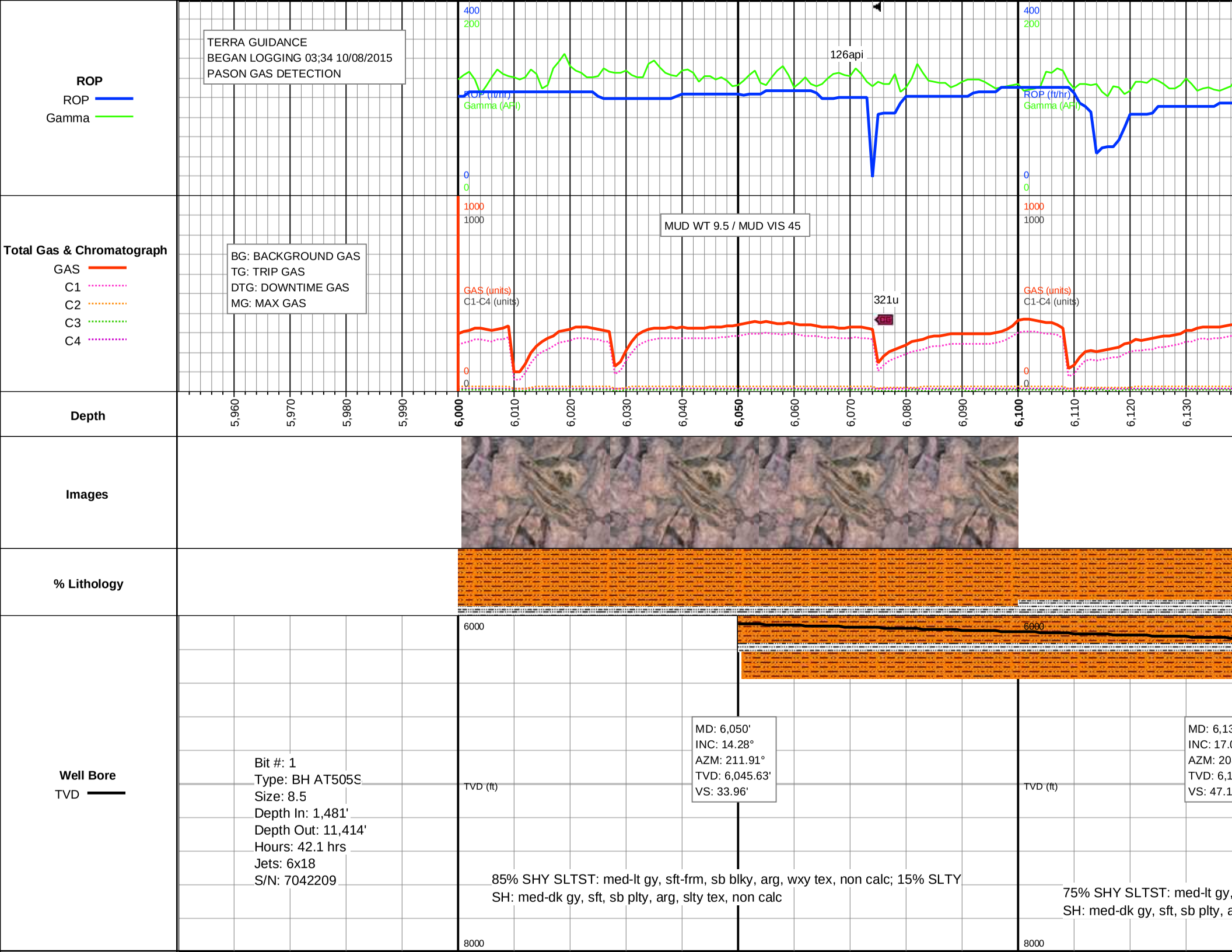
Textures

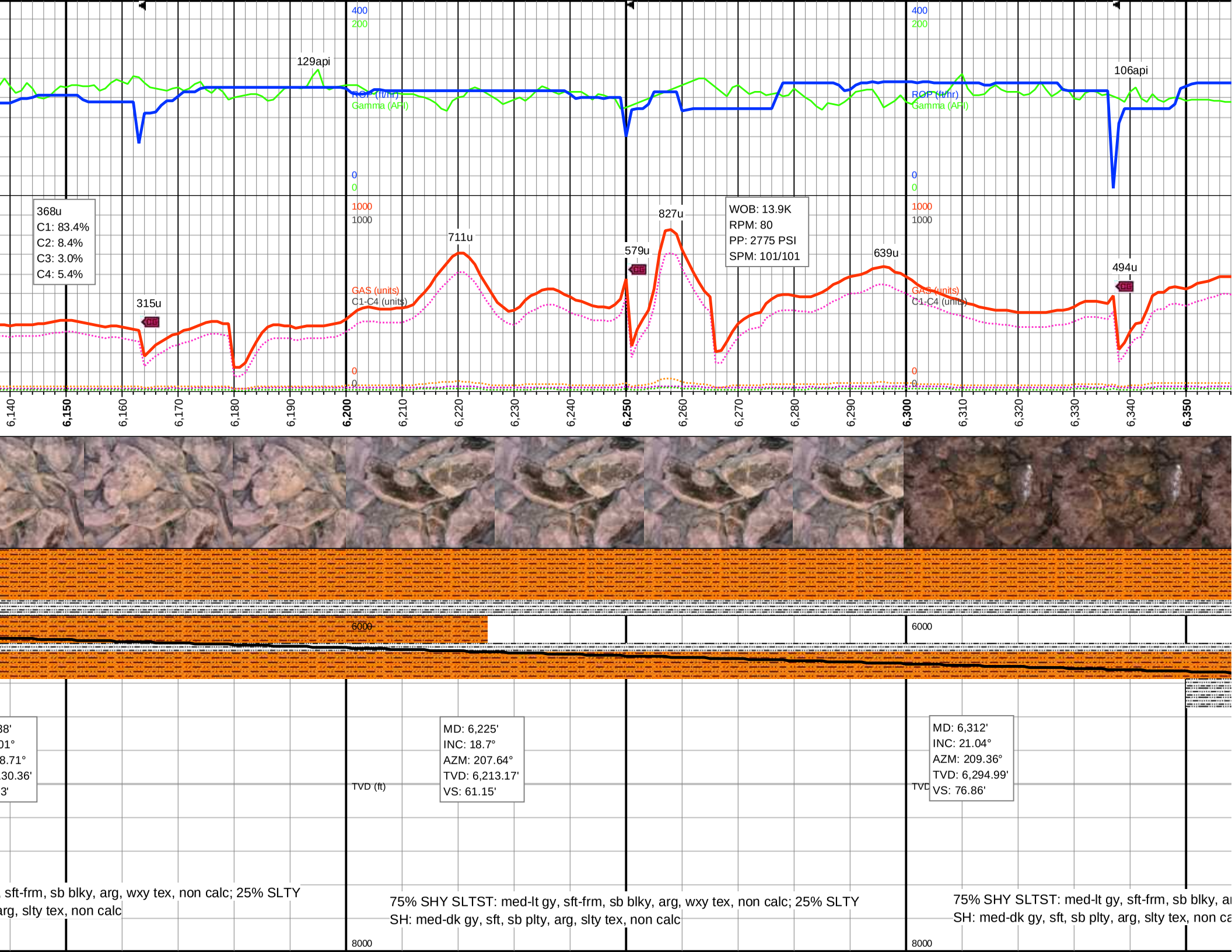
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

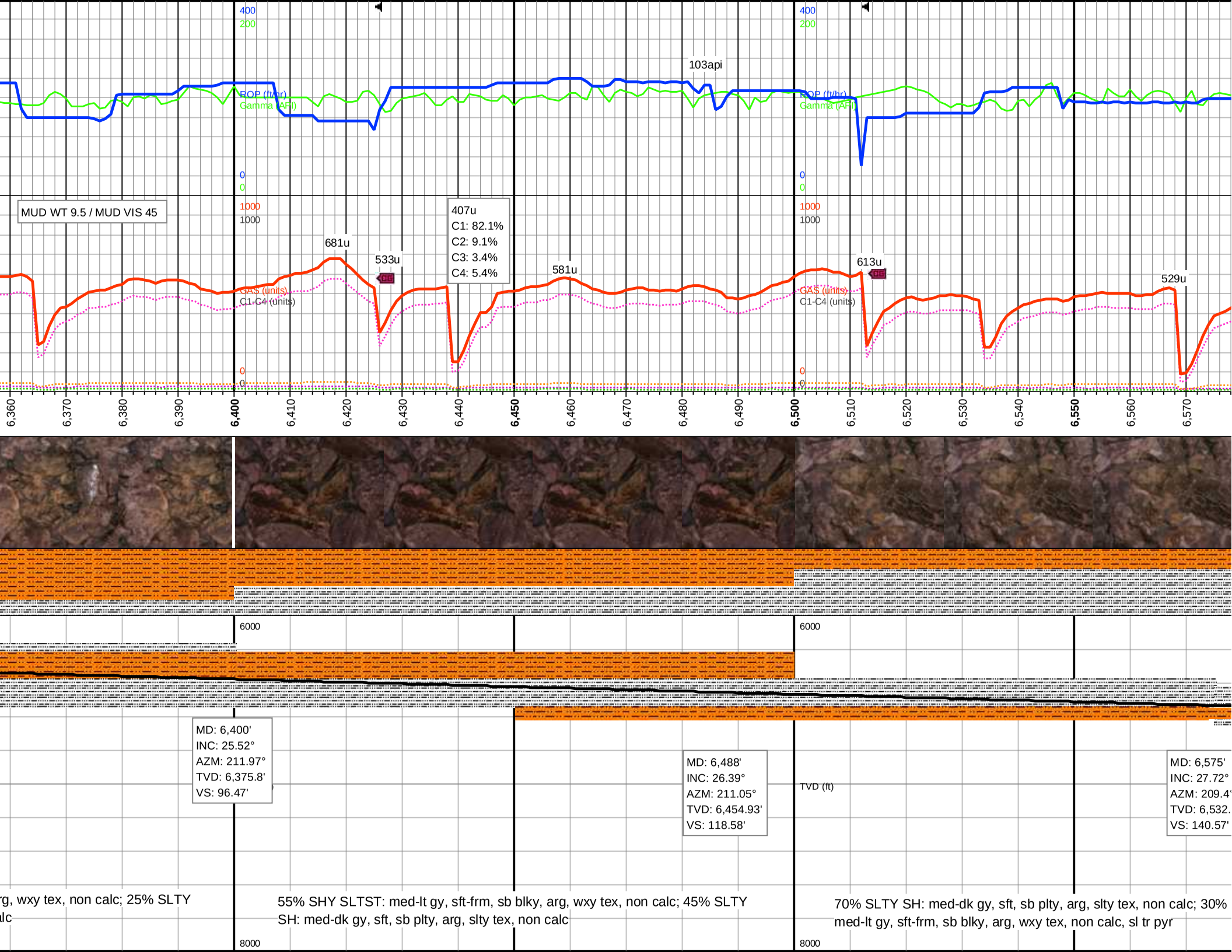
Sorting

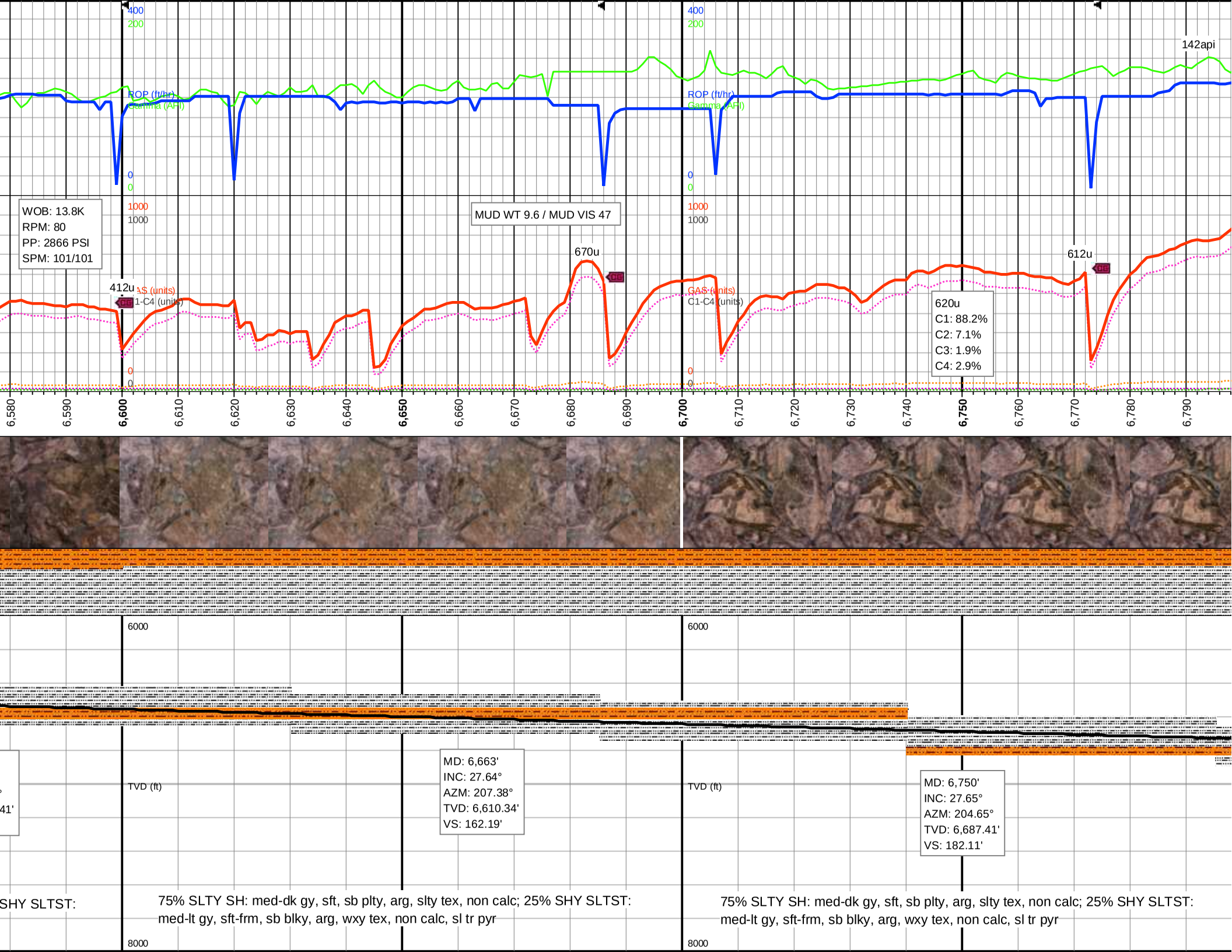
- MODERATE
- POOR
- WELL

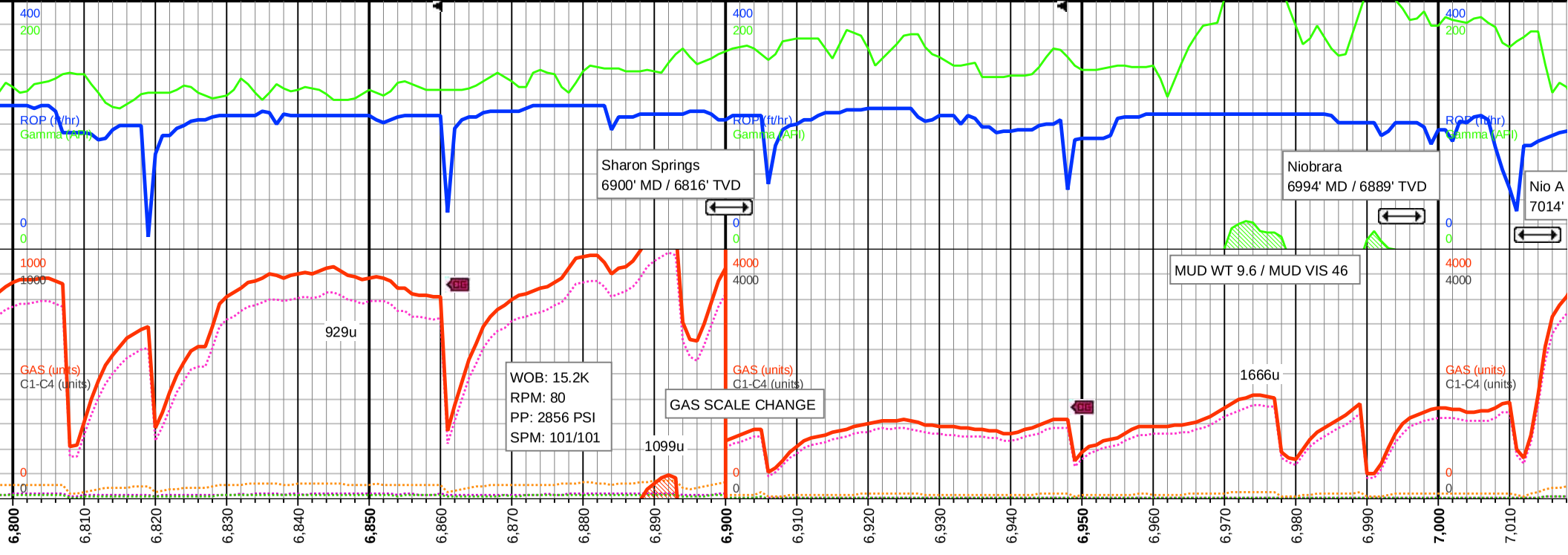
- BRECCIA
- TILL
- TUFF
- IGNEOUS
- METAMORPHIC

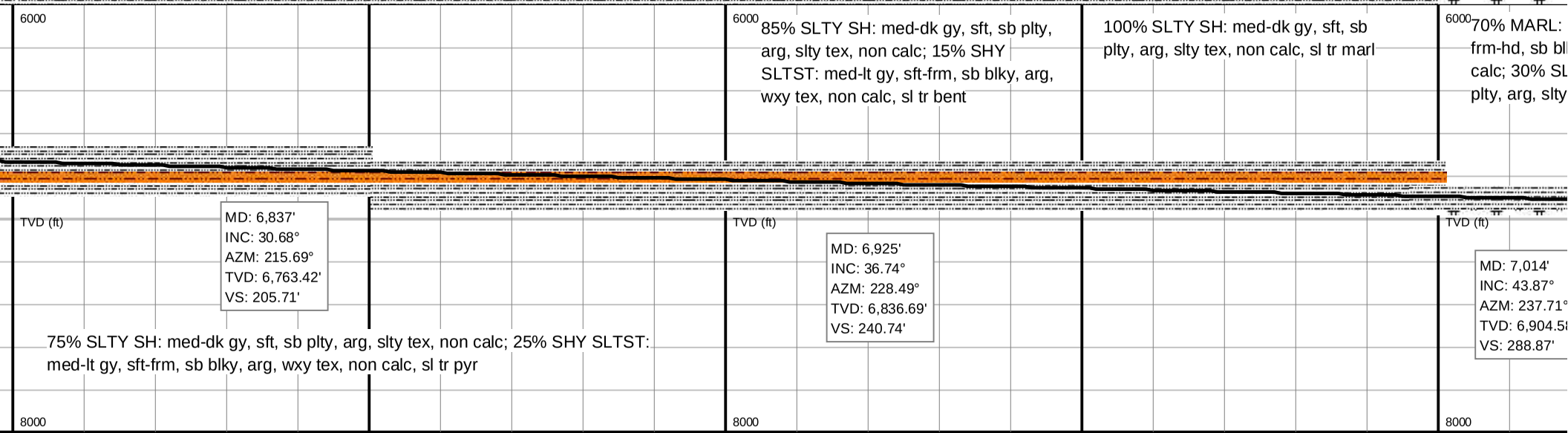

ROP
ROP
Gamma
TERRA GUIDANCE
BEGAN LOGGING 03;34 10/08/2015
PASON GAS DETECTION
400
200
126api
ROP (ft/hr)
Gamma (API)
0
0
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
BG: BACKGROUND GAS
TG: TRIP GAS
DTG: DOWNTIME GAS
MG: MAX GAS
1000
1000
MUD WT 9.5 / MUD VIS 45
GAS (units)
C1-C4 (units)
321u
Depth
5,960
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
Images
% Lithology
Well Bore
TVD
6000
8000
TVD (ft)
MD: 6,050'
INC: 14.28°
AZM: 211.91°
TVD: 6,045.63'
VS: 33.96'
Bit #: 1
Type: BH AT505S
Size: 8.5
Depth In: 1,481'
Depth Out: 11,414'
Hours: 42.1 hrs
Jets: 6x18
S/N: 7042209
85% SHY SLTST: med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc; 15% SLTY
SH: med-dk gy, sft, sb plty, arg, slty tex, non calc
75% SHY SLTST: med-lt gy,
SH: med-dk gy, sft, sb plty, a

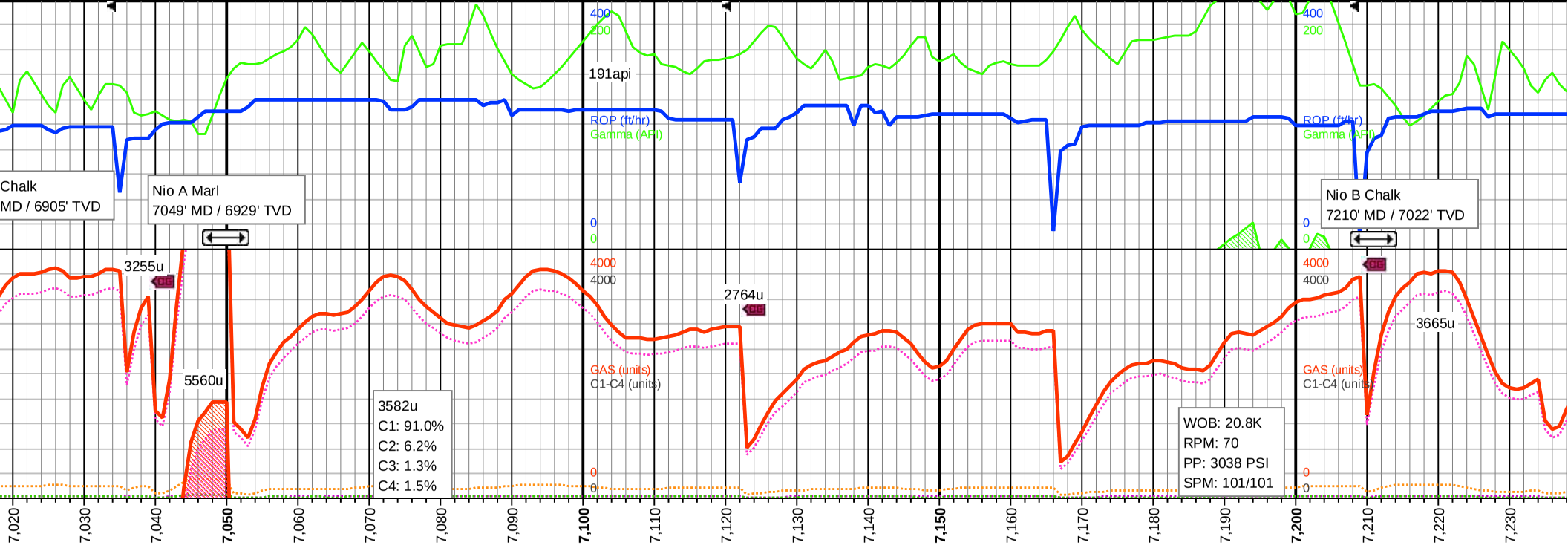

129api
106api
400
200
ROP (ft/hr)
Gamma (API)
0
0
1000
1000
GAS (units)
C1-C4 (units)
368u
C1: 83.4%
C2: 8.4%
C3: 3.0%
C4: 5.4%
315u
711u
579u
827u
639u
494u
WOB: 13.9K
RPM: 80
PP: 2775 PSI
SPM: 101/101
6,140
6,150
6,160
6,170
6,180
6,190
6,200
6,210
6,220
6,230
6,240
6,250
6,260
6,270
6,280
6,290
6,300
6,310
6,320
6,330
6,340
6,350
6000
TVD (ft)
MD: 6,225'
INC: 18.7°
AZM: 207.64°
TVD: 6,213.17'
VS: 61.15'
MD: 6,312'
INC: 21.04°
AZM: 209.36°
TVD: 6,294.99'
VS: 76.86'
sft-frm, sb blky, arg, wxy tex, non calc; 25% SLTY
arg, slty tex, non calc
75% SHY SLTST: med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc; 25% SLTY
SH: med-dk gy, sft, sb plty, arg, slty tex, non calc
75% SHY SLTST: med-lt gy, sft-frm, sb blky, ar
SH: med-dk gy, sft, sb plty, arg, slty tex, non ca
8000

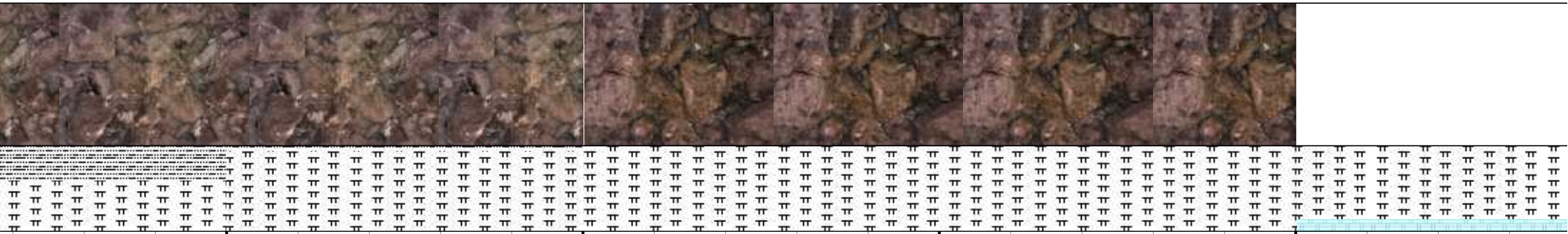

400
200
ROP (ft/hr)
Gamma (API)
0
0
103api
1000
1000
GAS (units)
C1-C4 (units)
MUD WT 9.5 / MUD VIS 45
681u
533u
407u
C1: 82.1%
C2: 9.1%
C3: 3.4%
C4: 5.4%
581u
613u
529u
6,360
6,370
6,380
6,390
6,400
6,410
6,420
6,430
6,440
6,450
6,460
6,470
6,480
6,490
6,500
6,510
6,520
6,530
6,540
6,550
6,560
6,570
6000
8000
MD: 6,400'
INC: 25.52°
AZM: 211.97°
TVD: 6,375.8'
VS: 96.47'
MD: 6,488'
INC: 26.39°
AZM: 211.05°
TVD: 6,454.93'
VS: 118.58'
MD: 6,575'
INC: 27.72°
TVD (ft)
55% SHY SLTST: med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc; 45% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex, non calc
70% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex, non calc; 30% med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc, sl tr pyr


400
200
ROP (ft/hr)
Gamma (API)
0
0
1000
1000
WOB: 13.8K
RPM: 80
PP: 2866 PSI
SPM: 101/101
MUD WT 9.6 / MUD VIS 47
142api
412u
670u
612u
620u
C1: 88.2%
C2: 7.1%
C3: 1.9%
C4: 2.9%
GAS (units)
C1-C4 (units)
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
6000
8000
TVD (ft)
MD: 6,663'
INC: 27.64°
AZM: 207.38°
TVD: 6,610.34'
VS: 162.19'
MD: 6,750'
INC: 27.65°
AZM: 204.65°
TVD: 6,687.41'
VS: 182.11'
SHY SLTST:
75% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex, non calc; 25% SHY SLTST: med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc, sl tr pyr
75% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex, non calc; 25% SHY SLTST: med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc, sl tr pyr


400
200
ROP (ft/hr)
Gamma (API)
0
0
1000
1000
GAS (units)
C1-C4 (units)
Sharon Springs
6900' MD / 6816' TVD
Niobrara
6994' MD / 6889' TVD
Nio A
7014'
MUD WT 9.6 / MUD VIS 46
929u
WOB: 15.2K
RPM: 80
PP: 2856 PSI
SPM: 101/101
1099u
GAS SCALE CHANGE
1666u
4000
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


6000
85% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex, non calc; 15% SHY SLTST: med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc, sl tr bent
100% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex, non calc, sl tr marl
70% MARL: frm-hd, sb bl
calc; 30% SL
plty, arg, slty
TVD (ft)
MD: 6,837'
INC: 30.68°
AZM: 215.69°
TVD: 6,763.42'
VS: 205.71'
MD: 6,925'
INC: 36.74°
AZM: 228.49°
TVD: 6,836.69'
VS: 240.74'
MD: 7,014'
INC: 43.87°
AZM: 237.71°
TVD: 6,904.58'
VS: 288.87'
75% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex, non calc; 25% SHY SLTST: med-lt gy, sft-frm, sb blky, arg, wxy tex, non calc, sl tr pyr
8000





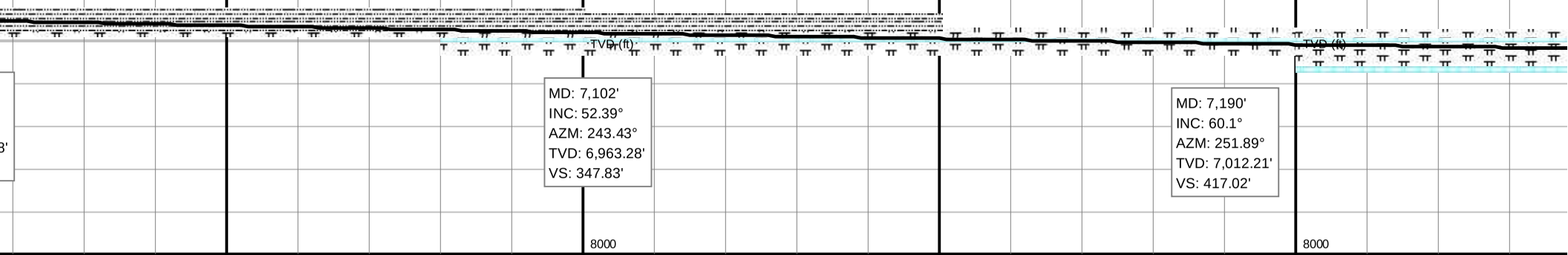
dk-med gy, dk gy brn,
ky-sb plty, slty mot tex, v
LTY SH: med-dk gy, sft, sb
tex

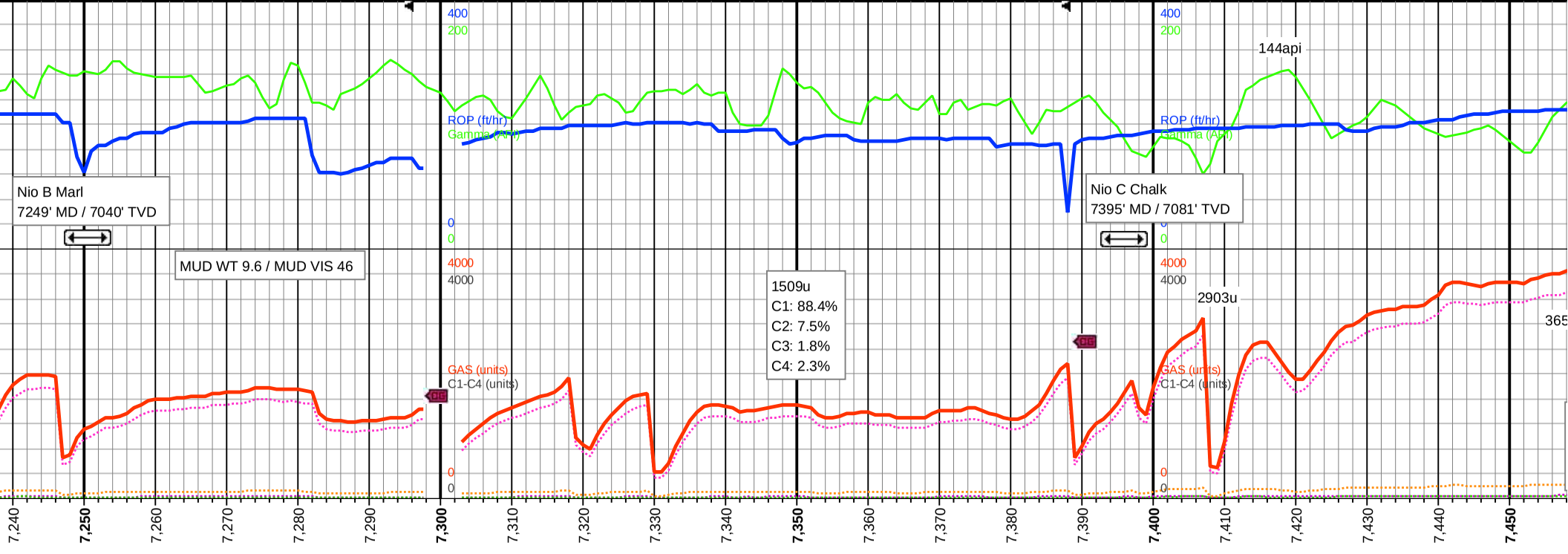
95% MARL: dk-med gy, dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, v calc; 5% SLTY SH: med-dk gy, sft, sb plty, arg, slty tex

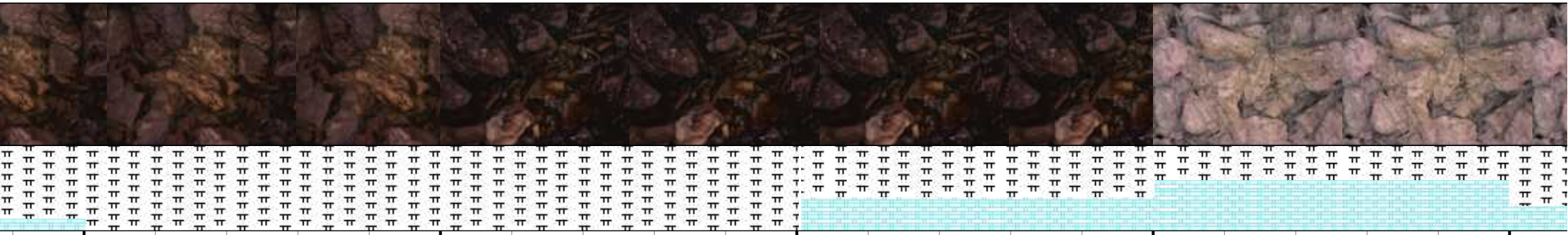
100% MARL: dk-med gy, dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, v calc, rr bent

100% MARL: dk-med gy, dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, v calc

85% MARL: dk-med gy, dk gy
frm-hd, sb blky-sb plty, slty m
calc; 15% CHK: gy brn, v sft,
plty-sb blky, wxy-rthy tex, v ca
tex







y brn,
ot tex, v
lam, sb
alc, slty

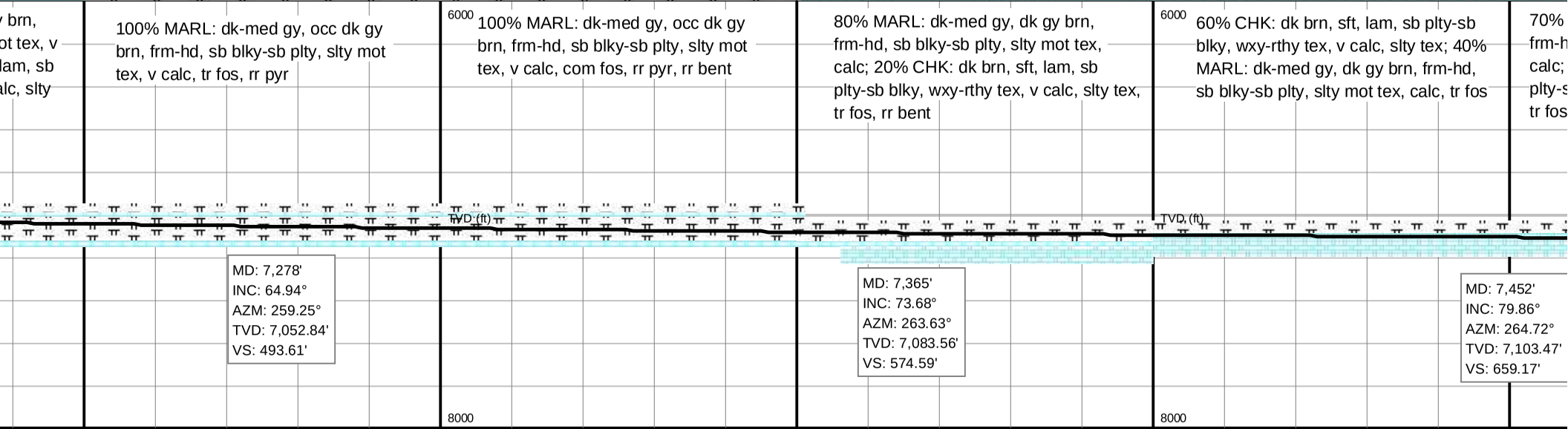
100% MARL: dk-med gy, occ dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, v calc, tr fos, rr pyr

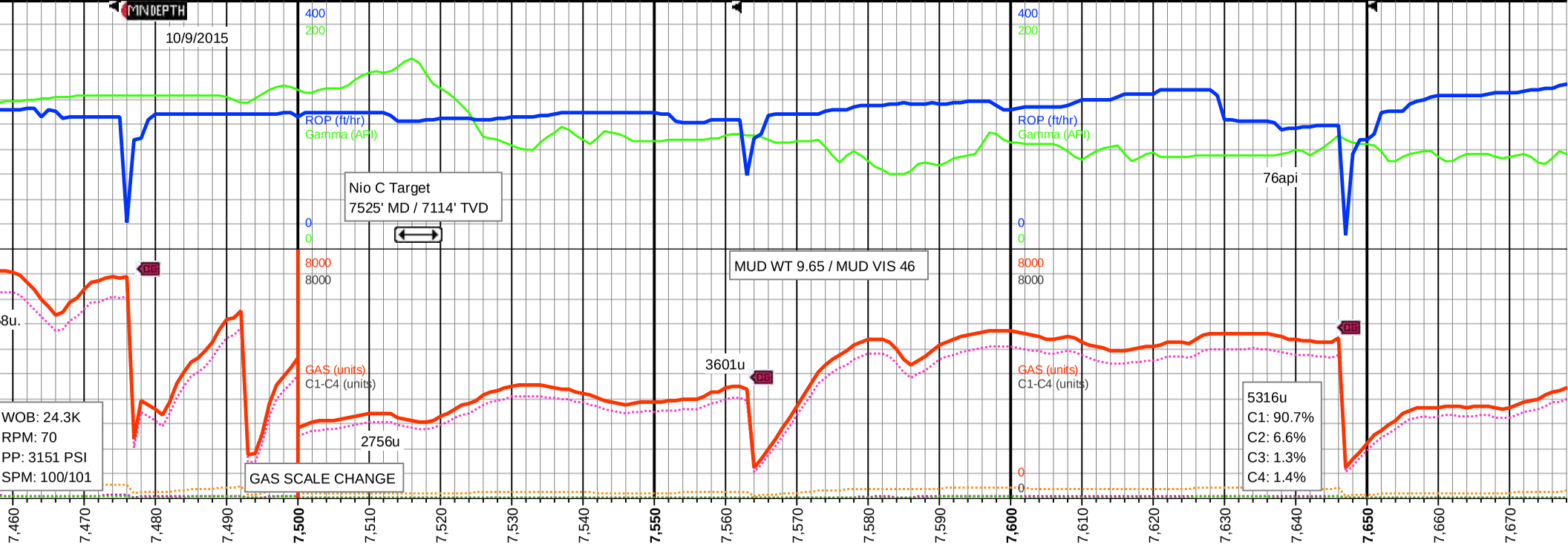
100% MARL: dk-med gy, occ dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, v calc, com fos, rr pyr, rr bent

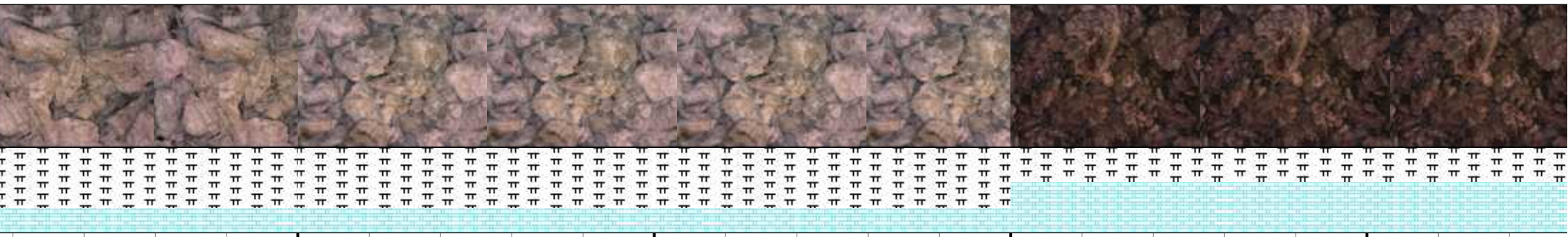
80% MARL: dk-med gy, dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, calc; 20% CHK: dk brn, sft, lam, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr fos, rr bent

60% CHK: dk brn, sft, lam, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; 40% MARL: dk-med gy, dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, calc, tr fos

70%
frm-h
calc;
plty-s
tr fos







MARL: dk-med gy, dk gy brn, hd, sb blky-sb plty, slty mot tex, 30% CHK: dk brn, sft, lam, sb sb blky, wxy-rthy tex, v calc, slty tex, , tr pyr, tr calcite

6000

70% MARL: dk-med gy, dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, calc; 30% CHK: dk brn, sft, lam, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr fos, tr pyr, tr calcite

70% MARL: dk-med gy, dk gy brn, frm-hd, sb blky-sb plty, slty mot tex, calc; 30% CHK: dk brn, sft, lam, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr fos, tr pyr, tr calcite

6000

60% CHK: dk brn - gy brn, sft - frm, sl lam, sb plty-sb blky, wxy-rth calc, slty tex; 40% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty

TVD (ft)

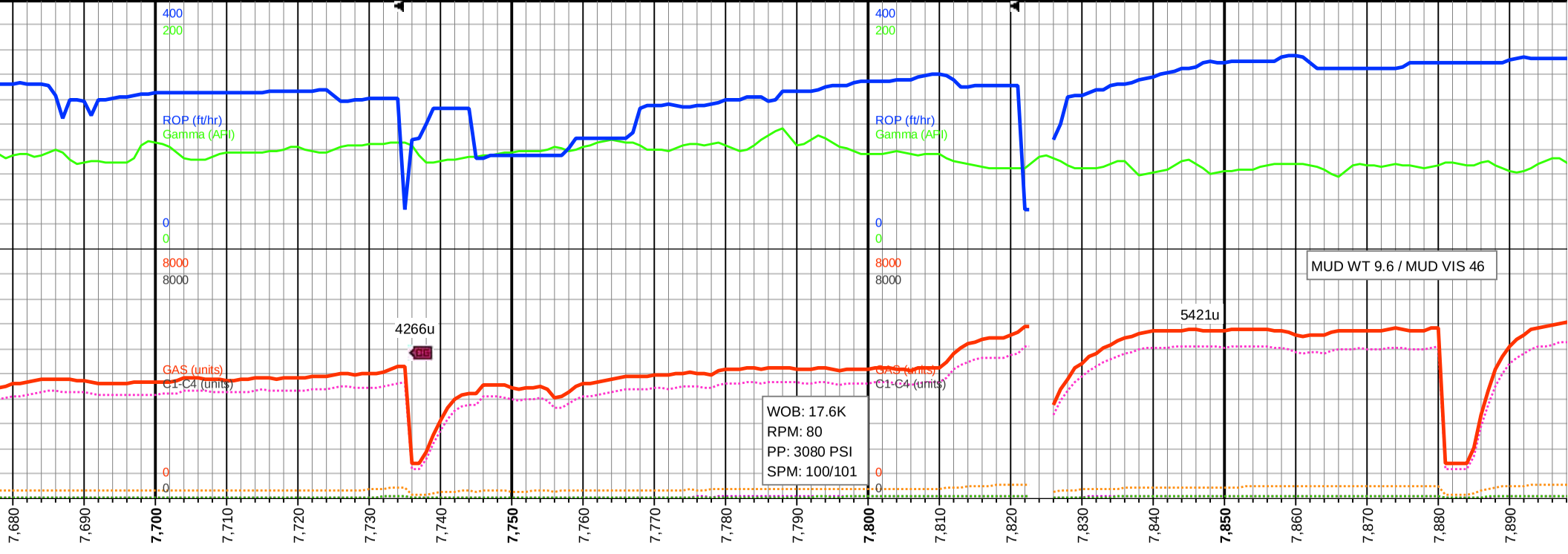
TVD (ft)

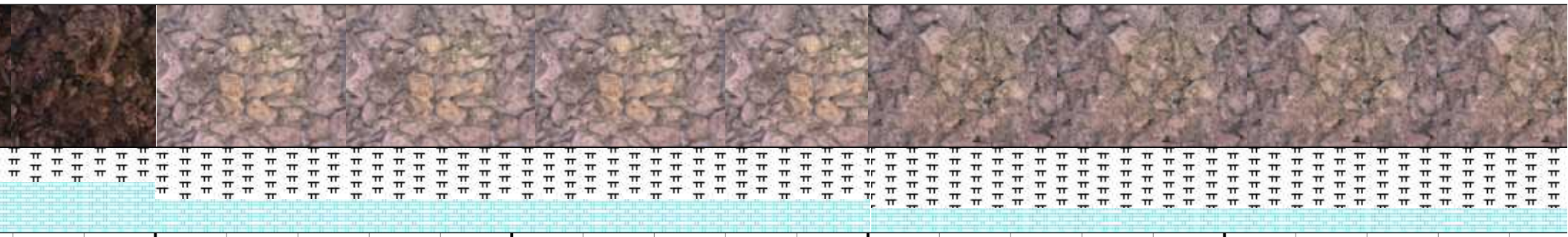
MD: 7,540'
INC: 84.51°
AZM: 266.32°
TVD: 7,115.43'
VS: 746.32'

MD: 7,628'
INC: 89.45°
AZM: 267.33°
TVD: 7,120.06'
VS: 834.16'

8000

8000





ny tex, v
tex, calc

6000

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, sft - frm, sl lam, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

70% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn - gy brn, sft - frm, sl lam, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

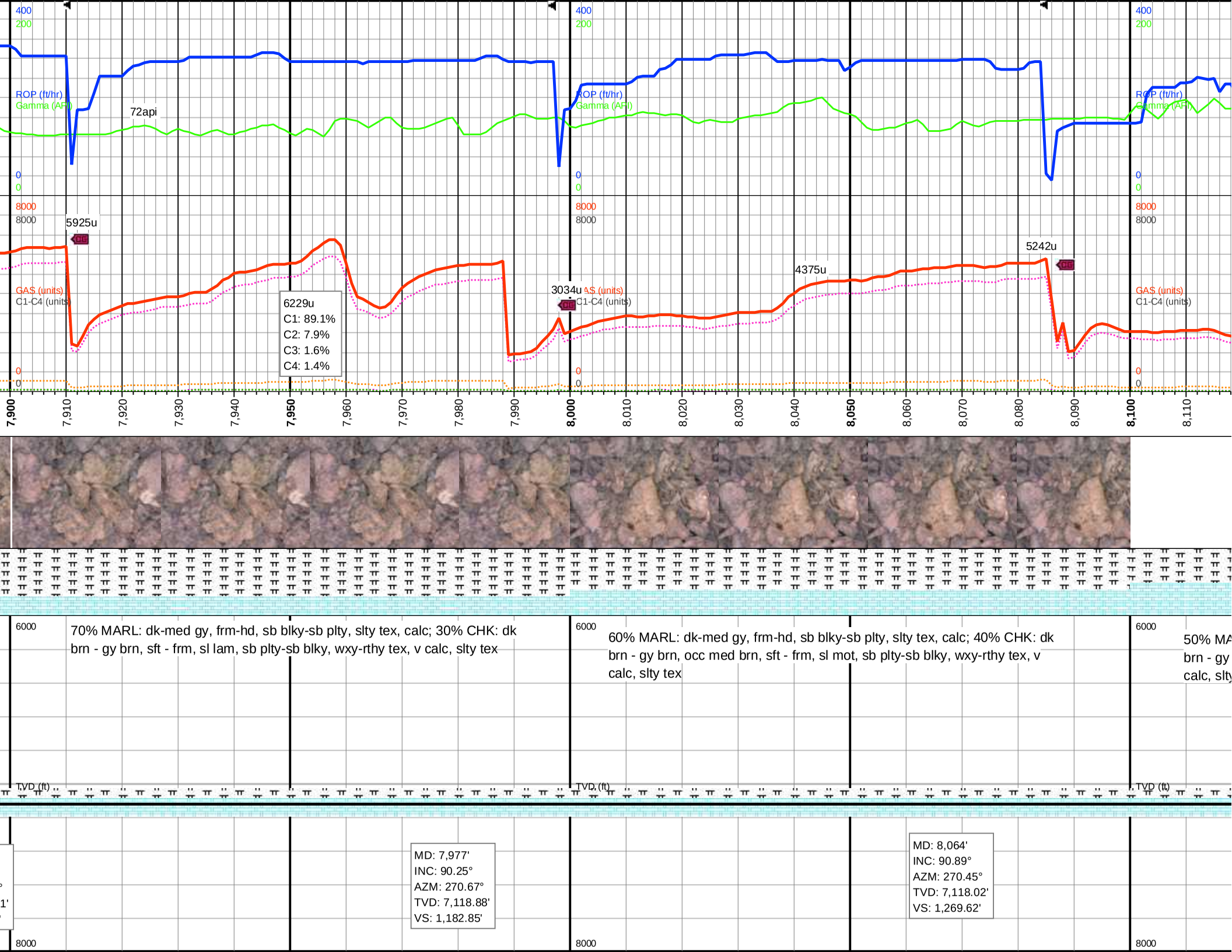
TVD (ft)

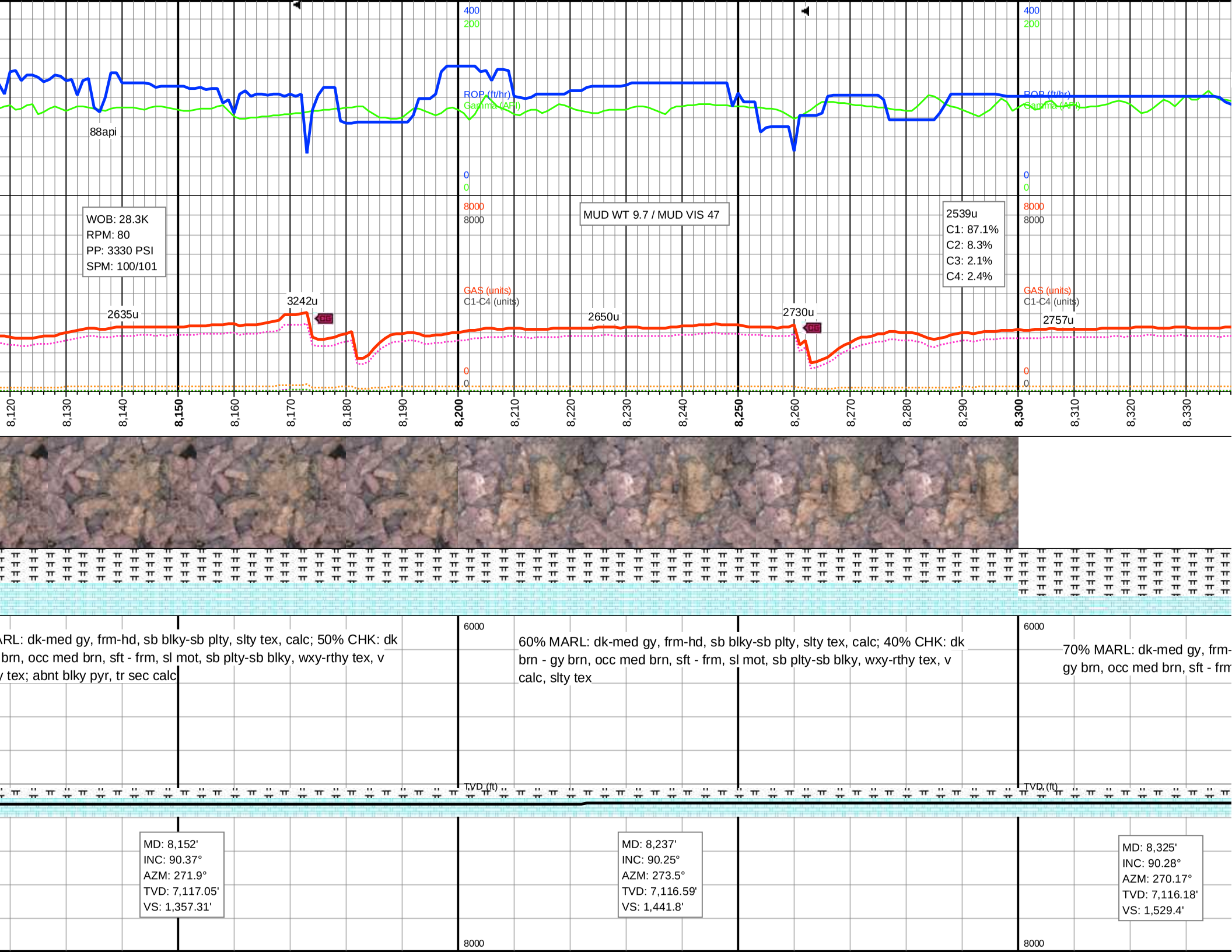
MD: 7,714'
INC: 90.22°
AZM: 267.86°
TVD: 7,120.31'
VS: 920.15'

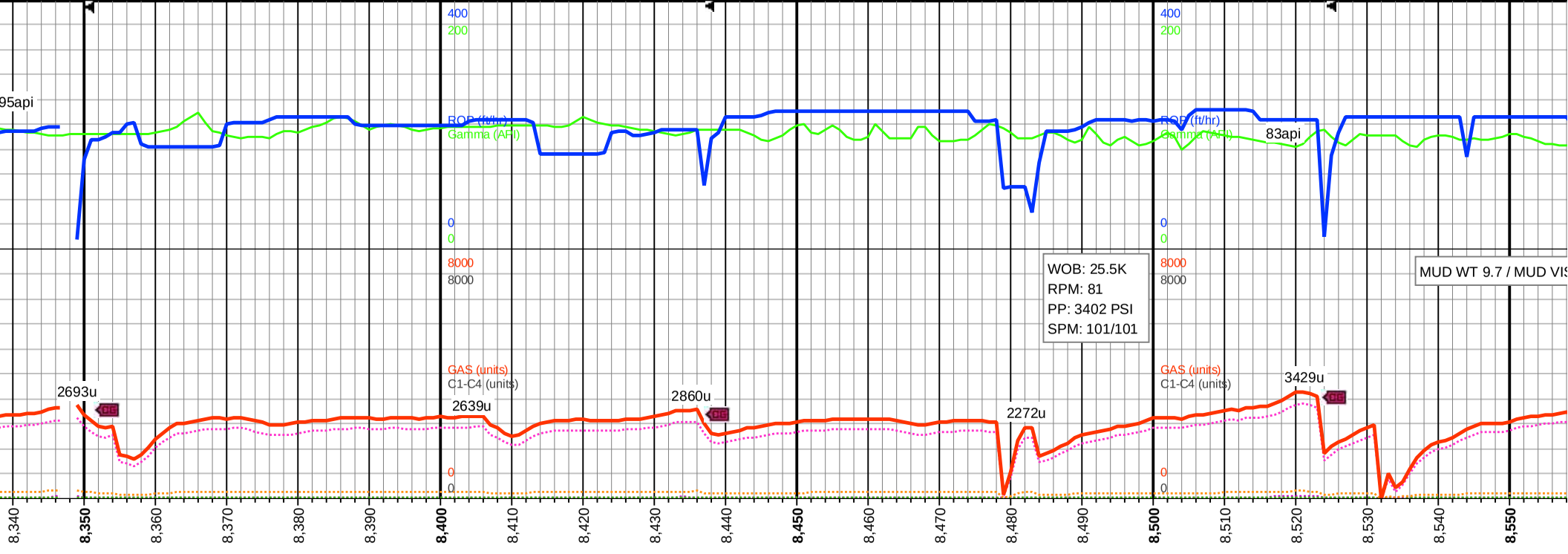
MD: 7,802'
INC: 90.52°
AZM: 267.25°
TVD: 7,119.74'
VS: 1,008.13'

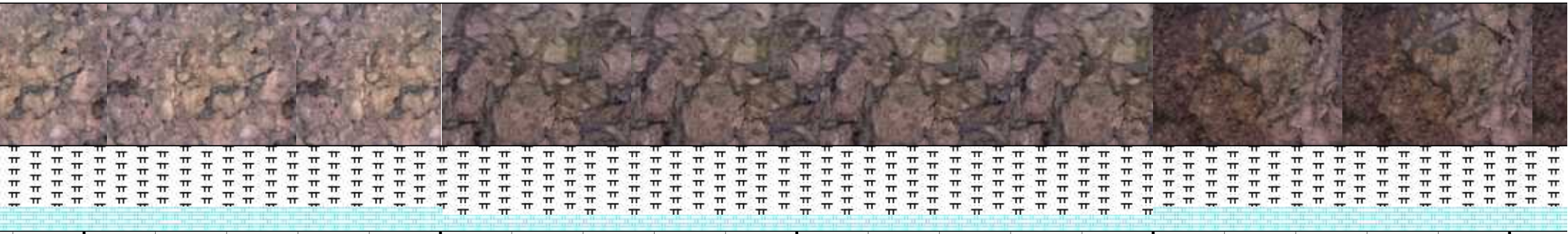
MD: 7,889'
INC: 90.18°
AZM: 270.03
TVD: 7,119.2
VS: 1,095.05

8000


400
200
ROP (ft/hr)
Gamma (API)
72api
0
0
8000
8000
5925u
GAS (units)
C1-C4 (units)
6229u
C1: 89.1%
C2: 7.9%
C3: 1.6%
C4: 1.4%
3034u
4375u
5242u
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
6000
70% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn - gy brn, sft - frm, sl lam, sb plty-sb blky, wxy-rthy tex, v calc, slty tex
60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex
50% MA
brn - gy
calc, slty
TVD (ft)
MD: 7,977'
INC: 90.25°
AZM: 270.67°
TVD: 7,118.88'
VS: 1,182.85'
MD: 8,064'
INC: 90.89°
AZM: 270.45°
TVD: 7,118.02'
VS: 1,269.62'
8000


400
200
ROP (ft/hr)
Gamma (API)
88api
0
0
8000
8000
WOB: 28.3K
RPM: 80
PP: 3330 PSI
SPM: 100/101
MUD WT 9.7 / MUD VIS 47
2539u
C1: 87.1%
C2: 8.3%
C3: 2.1%
C4: 2.4%
GAS (units)
C1-C4 (units)
2635u
3242u
2650u
2730u
2757u
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
RL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 50% CHK: dk
brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v
y tex; abnt blky pyr, tr sec calc
60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk
brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v
calc, slty tex
70% MARL: dk-med gy, frm-
gy brn, occ med brn, sft - frm
6000
TVD (ft)
8000
MD: 8,152'
INC: 90.37°
AZM: 271.9°
TVD: 7,117.05'
VS: 1,357.31'
MD: 8,237'
INC: 90.25°
AZM: 273.5°
TVD: 7,116.59'
VS: 1,441.8'
MD: 8,325'
INC: 90.28°
AZM: 270.17°
TVD: 7,116.18'
VS: 1,529.4'

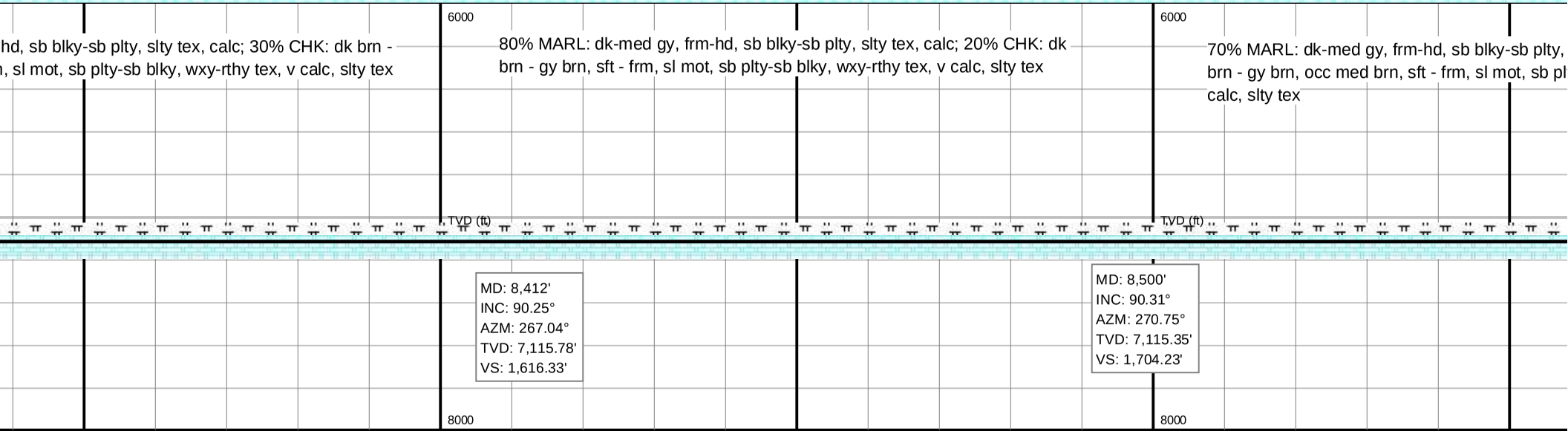


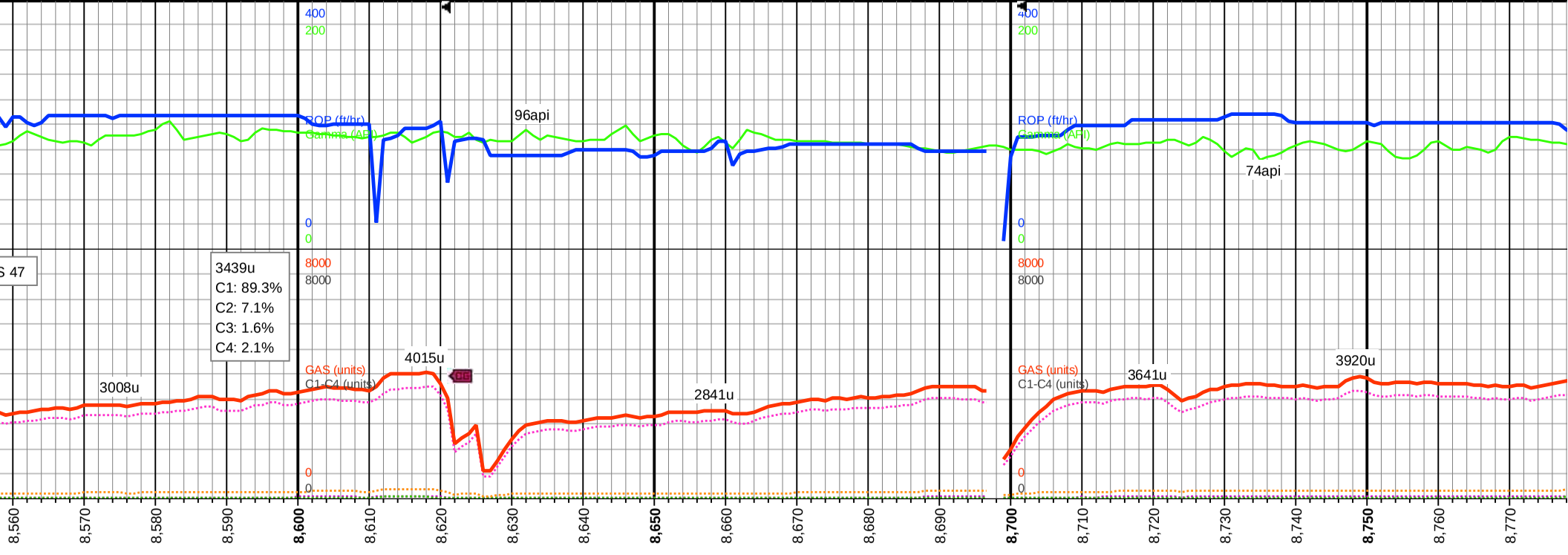


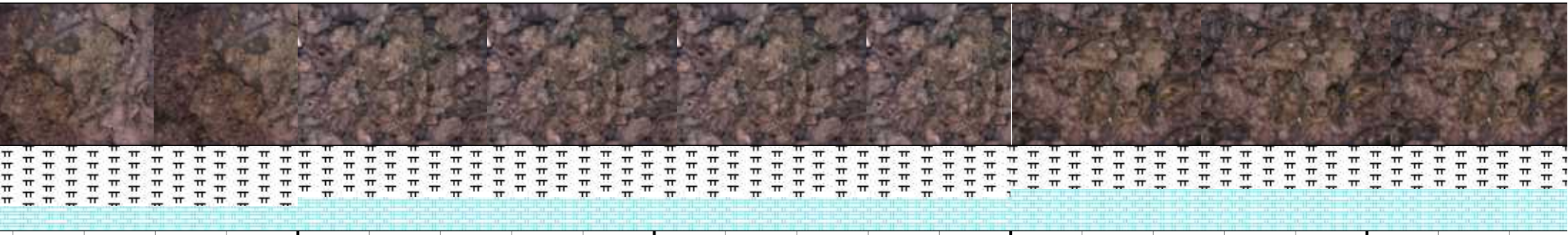
hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn -
n, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

80% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 20% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

70% MARL: dk-med gy, frm-hd, sb blky-sb plty,
brn - gy brn, occ med brn, sft - frm, sl mot, sb pl
calc, slty tex



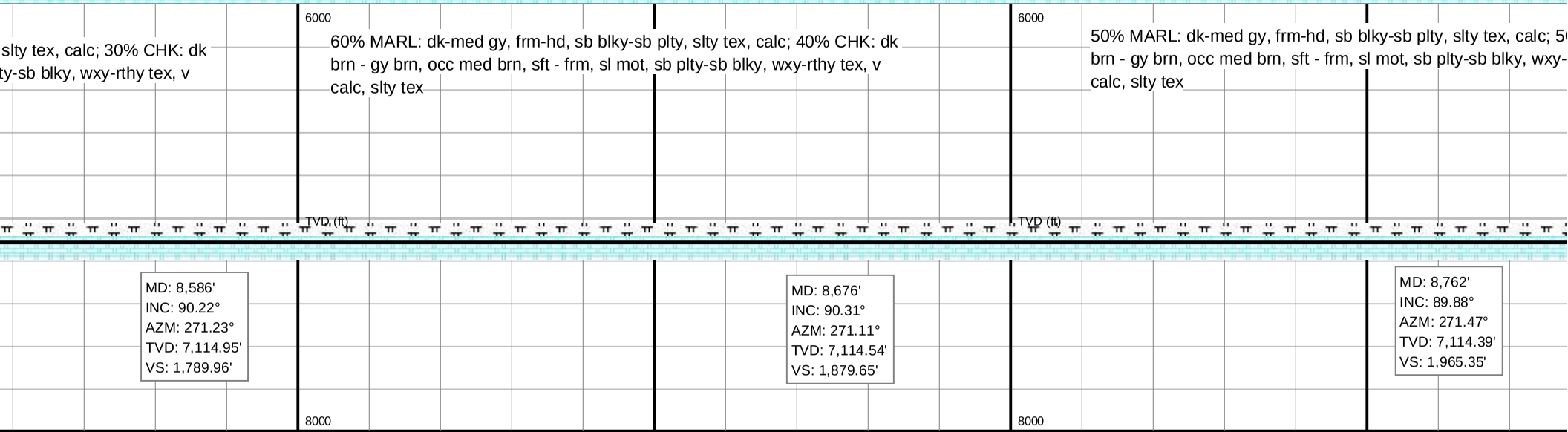




slty tex, calc; 30% CHK: dk
ty-sb blky, wxy-rthy tex, v

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

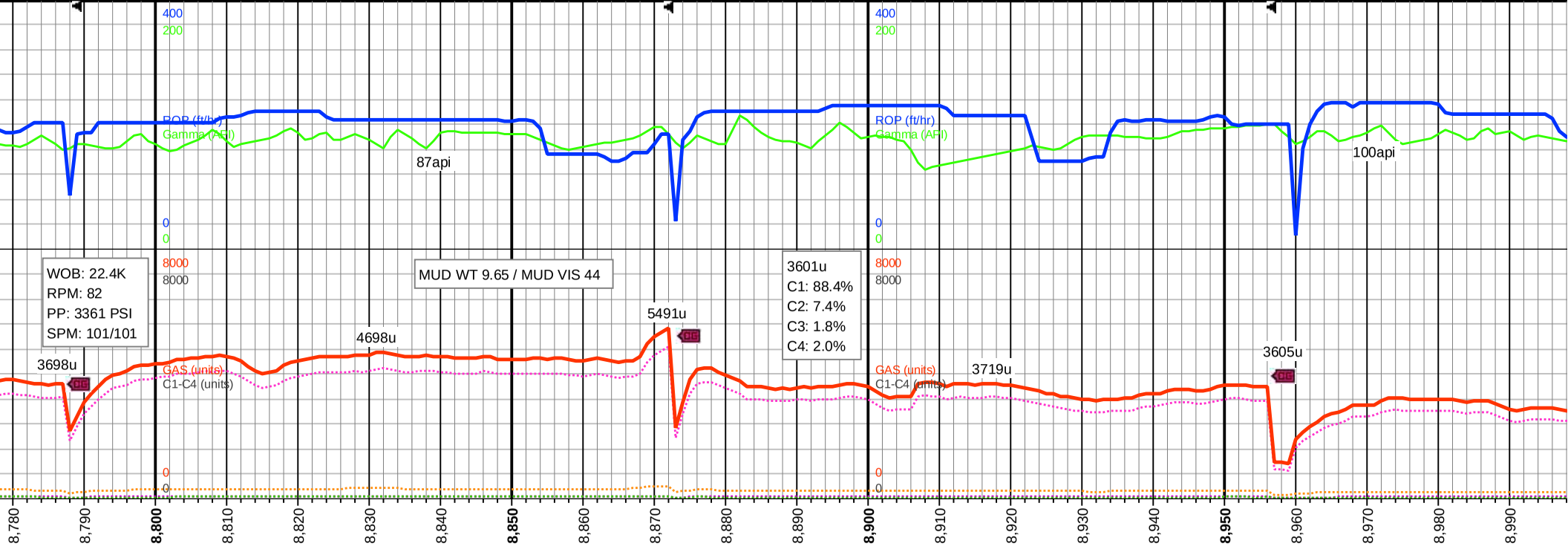
50% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 5
brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-
calc, slty tex

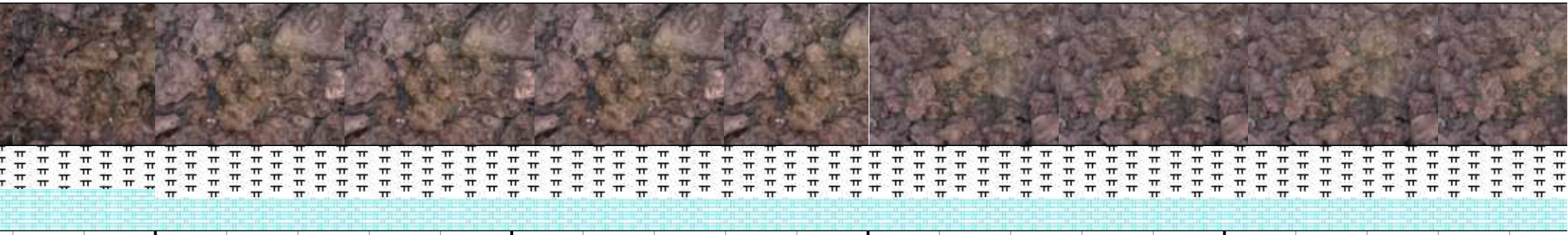


MD: 8,586'
INC: 90.22°
AZM: 271.23°
TVD: 7,114.95'
VS: 1,789.96'

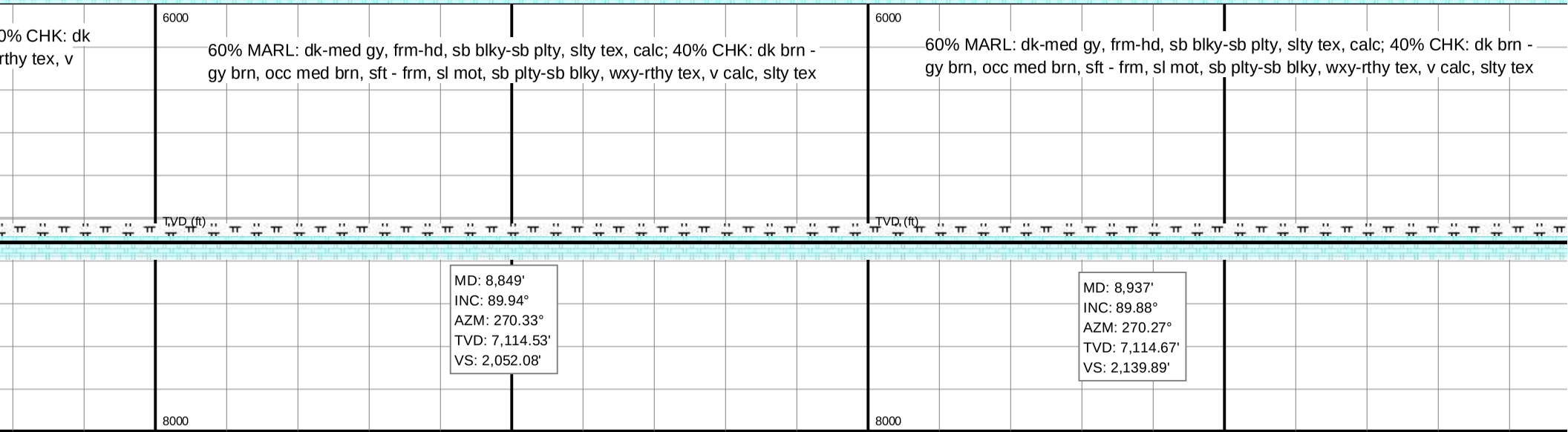
MD: 8,676'
INC: 90.31°
AZM: 271.11°
TVD: 7,114.54'
VS: 1,879.65'

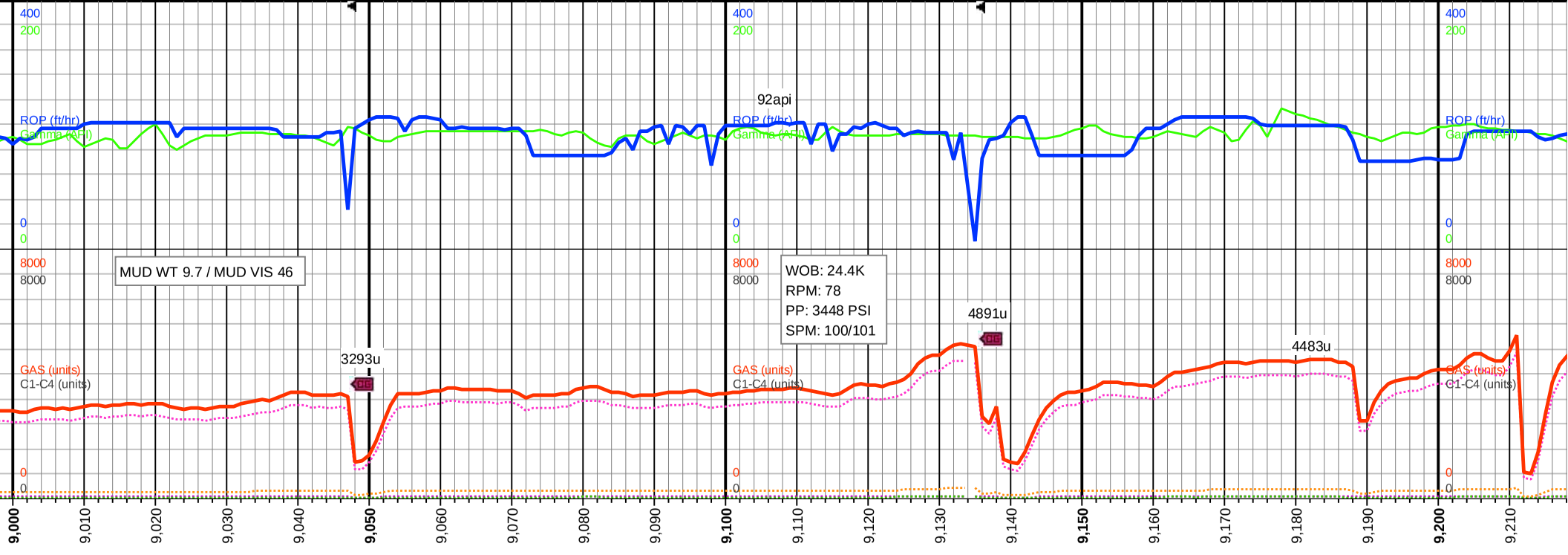
MD: 8,762'
INC: 89.88°
AZM: 271.47°
TVD: 7,114.39'
VS: 1,965.35'

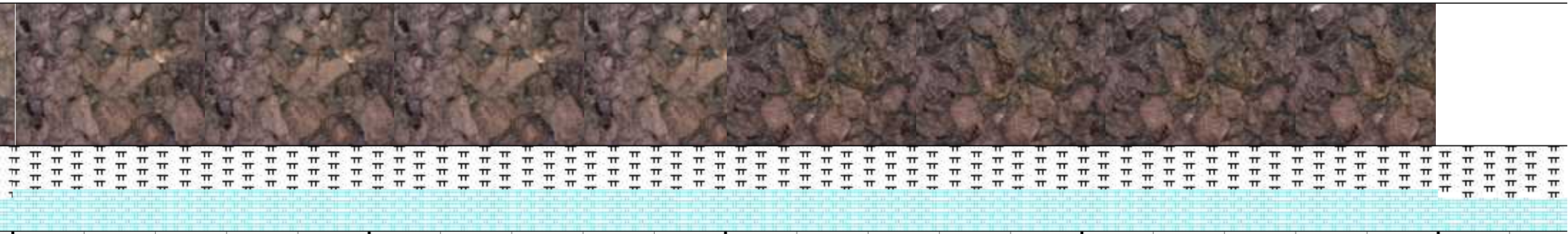




0% CHK: dk
rthy tex, v







6000

50% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 50% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr sec calc, tr pyr

50% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 50% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr sec calc, tr pyr

60% MARL
gy brn, occ

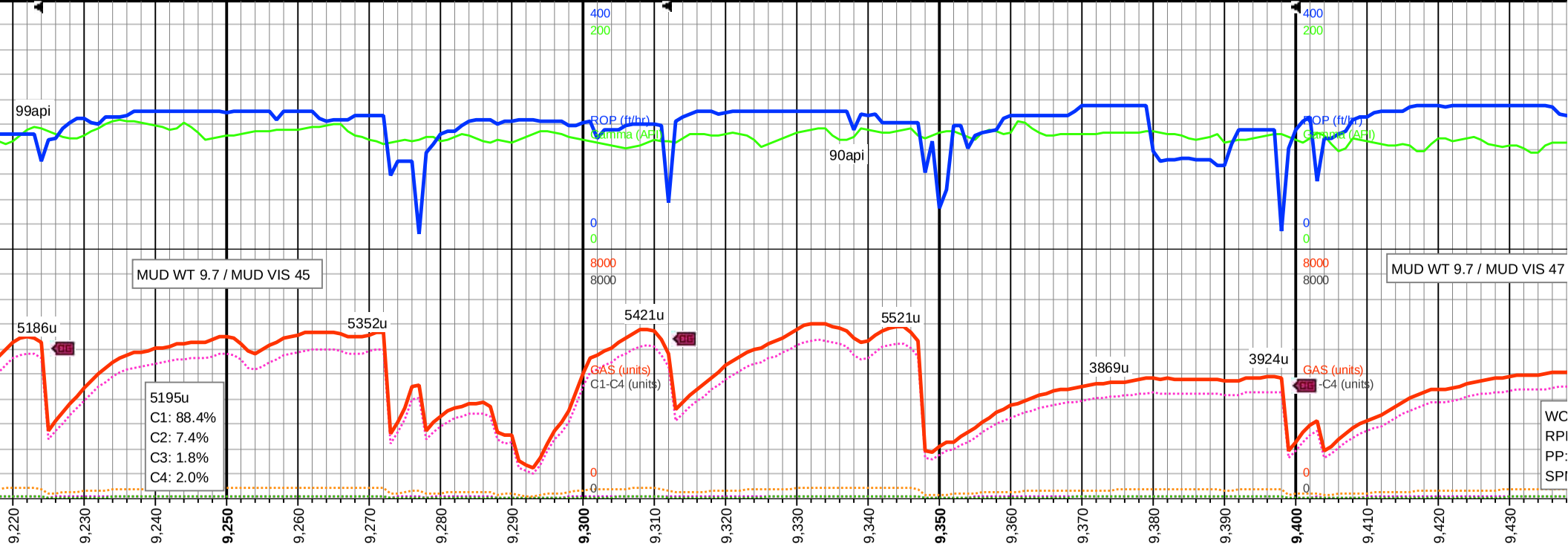
TVD (ft)

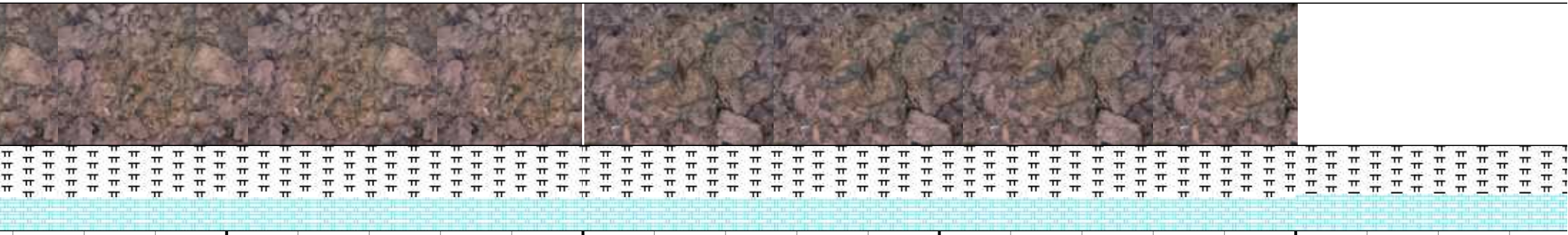
MD: 9,024'
INC: 89.85°
AZM: 270.99°
TVD: 7,114.87'
VS: 2,226.65'

MD: 9,111'
INC: 90.25°
AZM: 273.27°
TVD: 7,114.8'
VS: 2,313.22'

MD: 9,198'
INC: 90.03°
AZM: 273.34°
TVD: 7,114.58'
VS: 2,399.6'

8000





: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

55% MARL: dk-med gy, frm-h gy brn, occ med brn, sft - frm tr inoc fos

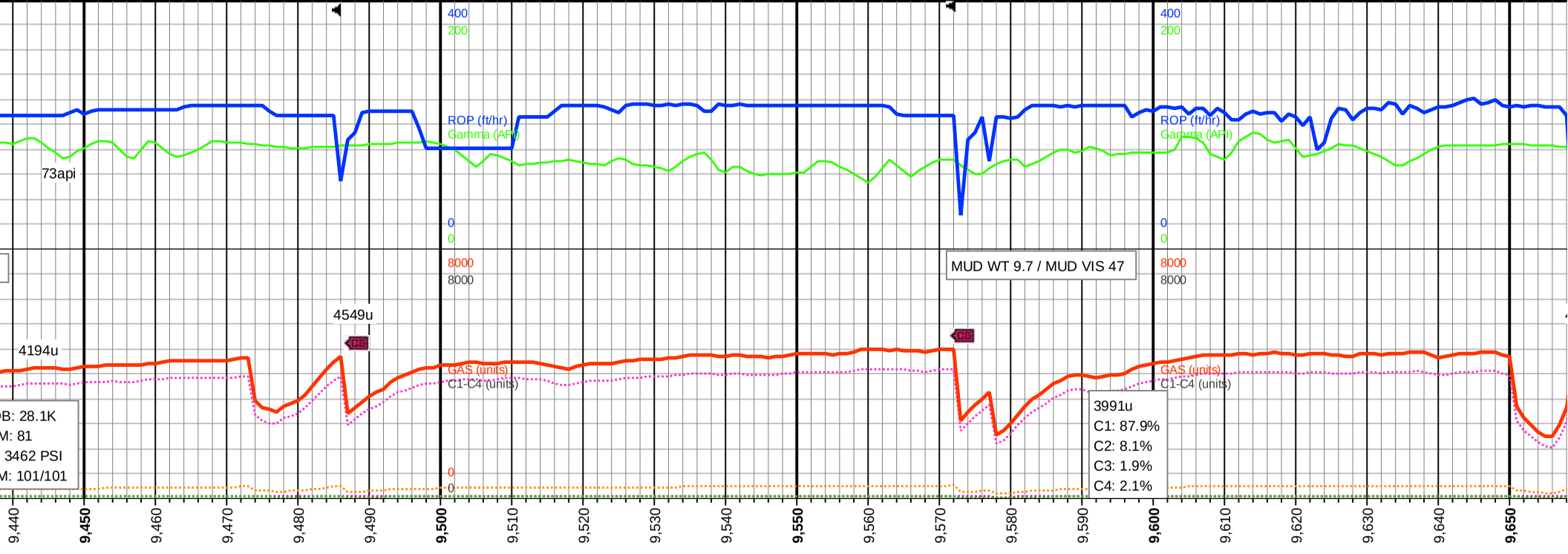
6000

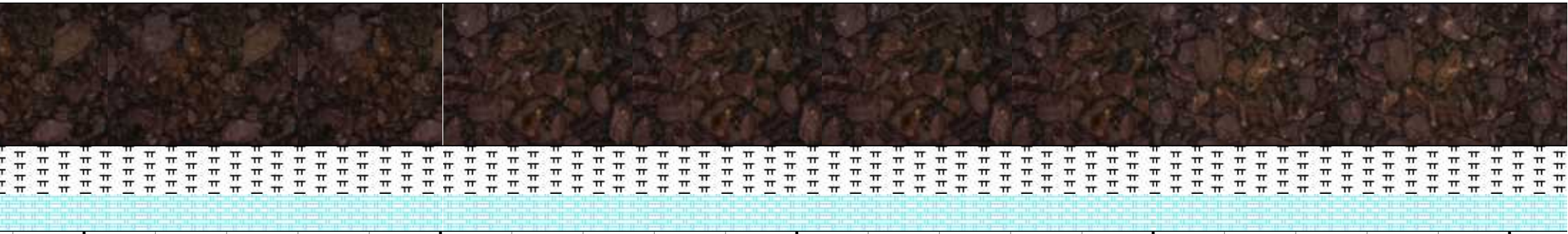
TVD (ft)

8000

MD: 9,286'
INC: 89.91°
AZM: 268.37°
TVD: 7,114.63'
VS: 2,487.31'

MD: 9,371'
INC: 89.94°
AZM: 268.83°
TVD: 7,114.74'
VS: 2,572.25'

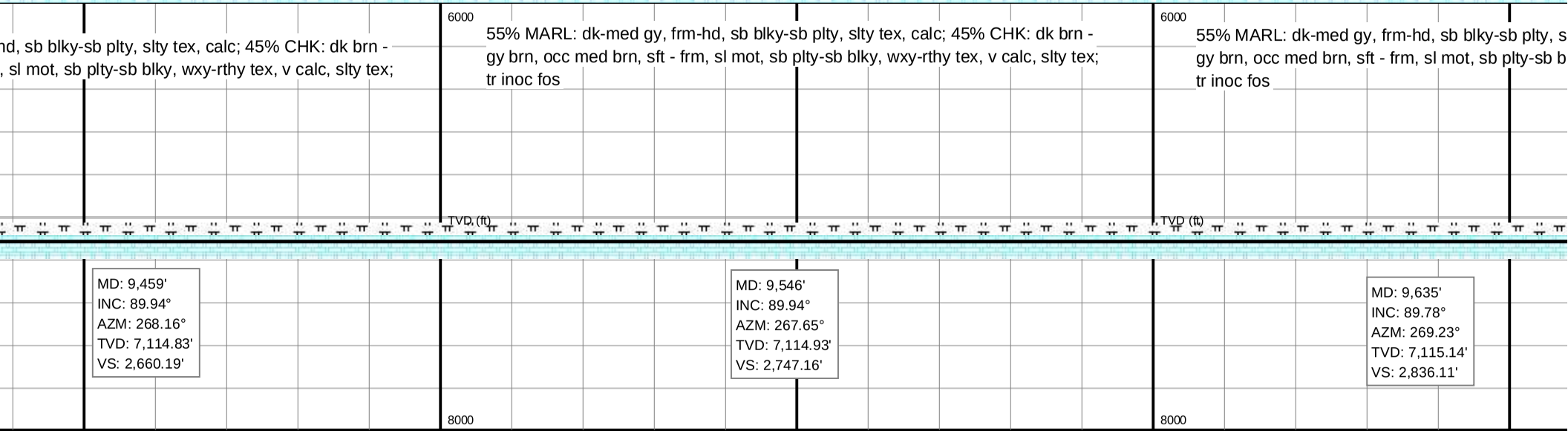


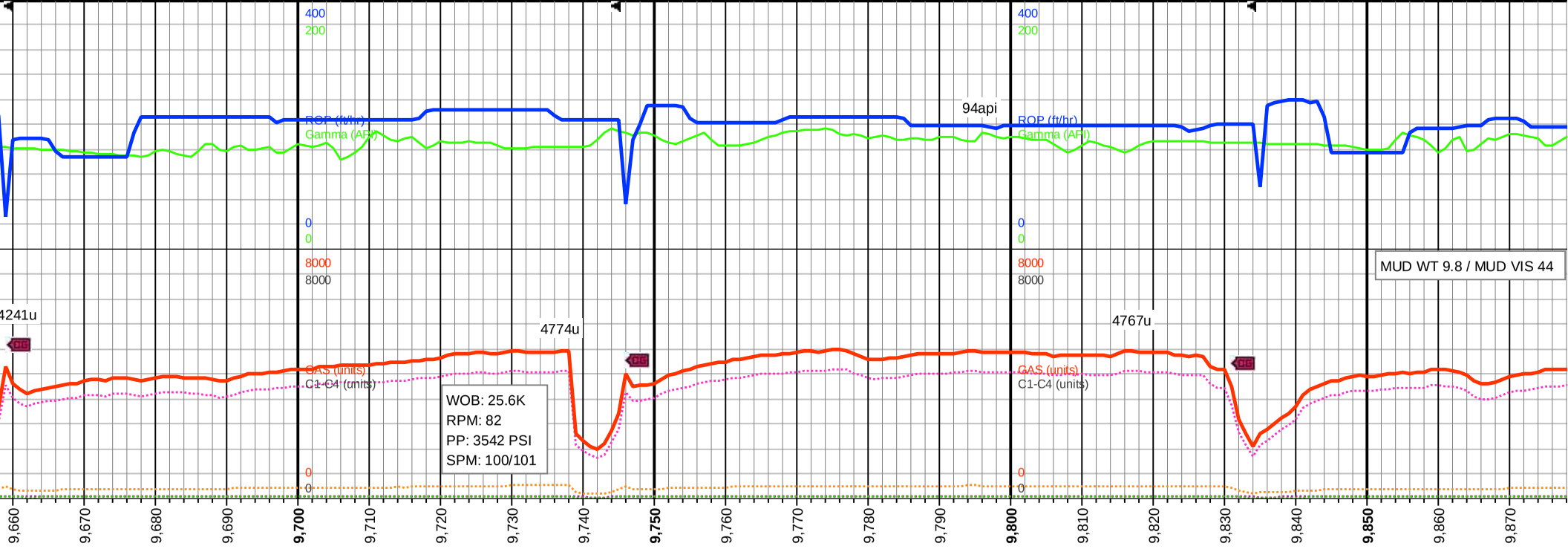


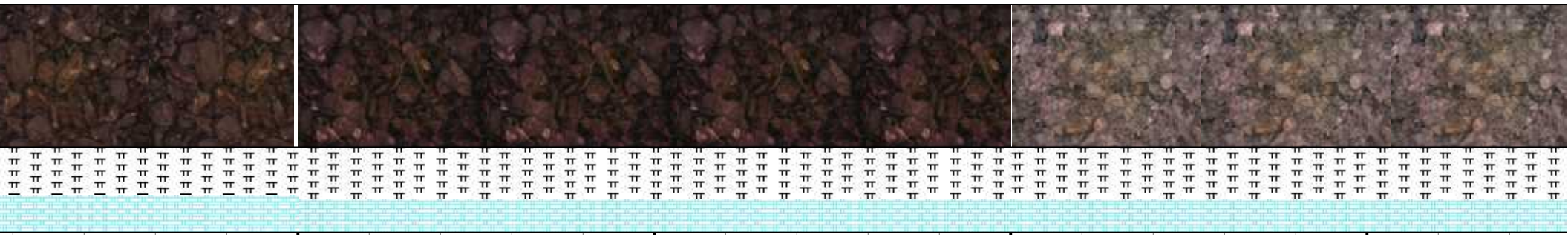
nd, sb blky-sb plty, slty tex, calc; 45% CHK: dk brn - , sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex;

55% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 45% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

55% MARL: dk-med gy, frm-hd, sb blky-sb plty, s gy brn, occ med brn, sft - frm, sl mot, sb plty-sb b tr inoc fos







lty tex, calc; 45% CHK: dk brn -
lky, wxy-rthy tex, v calc, slty tex;

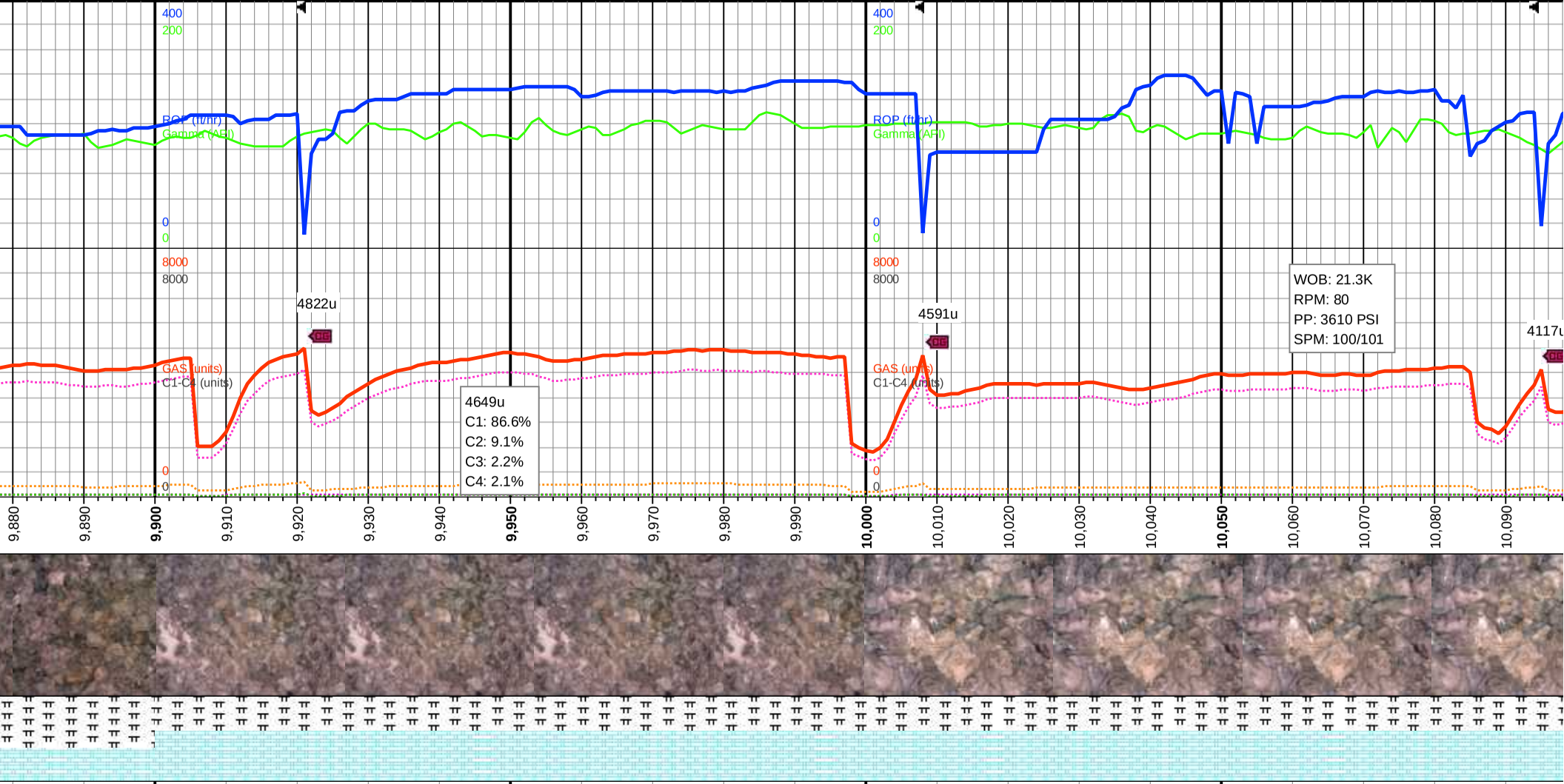
60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex tr inoc fos

6000
TVD (ft)
8000

MD: 9,722'
INC: 89.94°
AZM: 269.91°
TVD: 7,115.36'
VS: 2,922.98'

MD: 9,809'
INC: 89.82°
AZM: 270.98°
TVD: 7,115.54'
VS: 3,009.77'



% CHK: dk brn -
, v calc, slty tex;

6000

660% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy
ttex, v calc, slty tex; 40% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc

6000

60% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy
tex, v calc, slty tex; 40% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc

TVD (ft)

TVD (ft)

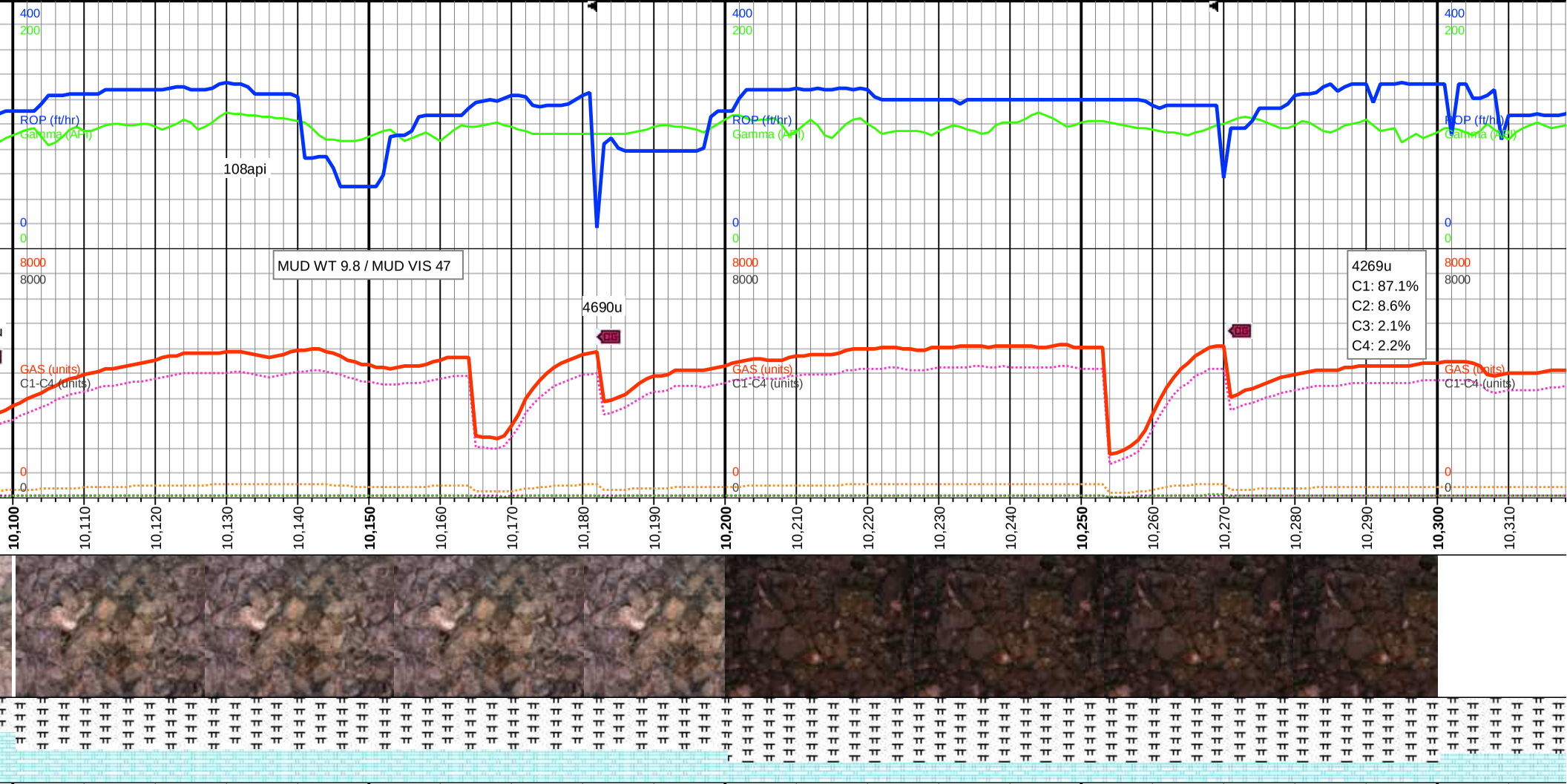
MD: 9,897'
INC: 89.91°
AZM: 270.33°
TVD: 7,115.74'
VS: 3,097.53'

MD: 9,983'
INC: 89.88°
AZM: 269.53°
TVD: 7,115.9'
VS: 3,183.37'

MD: 10,070'
INC: 89.94°
AZM: 268.96°
TVD: 7,116.04'
VS: 3,270.26'

8000

8000



6000

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

6000

75% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 25% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

6000

65% MA
gy brn,
tr inoc f

TVD (ft)

TVD (ft)

TVD (ft)

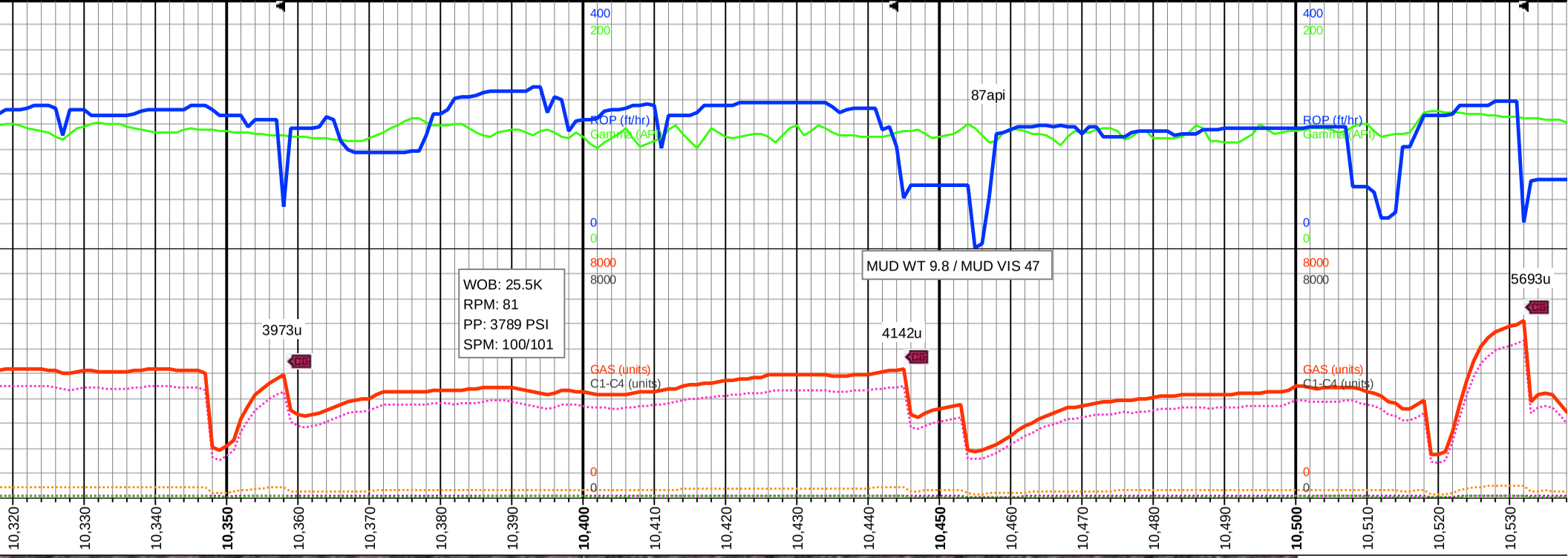
MD: 10,159'
INC: 90.4°
AZM: 270.95°
TVD: 7,115.77'
VS: 3,359.09'

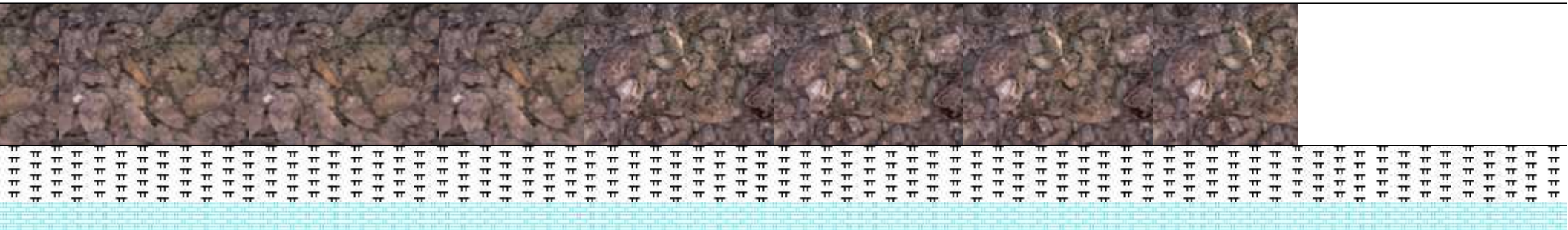
MD: 10,247'
INC: 90.65°
AZM: 271.35°
TVD: 7,114.97'
VS: 3,446.79'

8000

8000

8000





ARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 35% CHK: dk brn - occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; os

6000

65% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 35% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

65% MARL: dk-med gy, frm-hd, s gy brn, occ med brn, sft - frm, sl m tr inoc fos

TVD (ft)

TVD (ft)

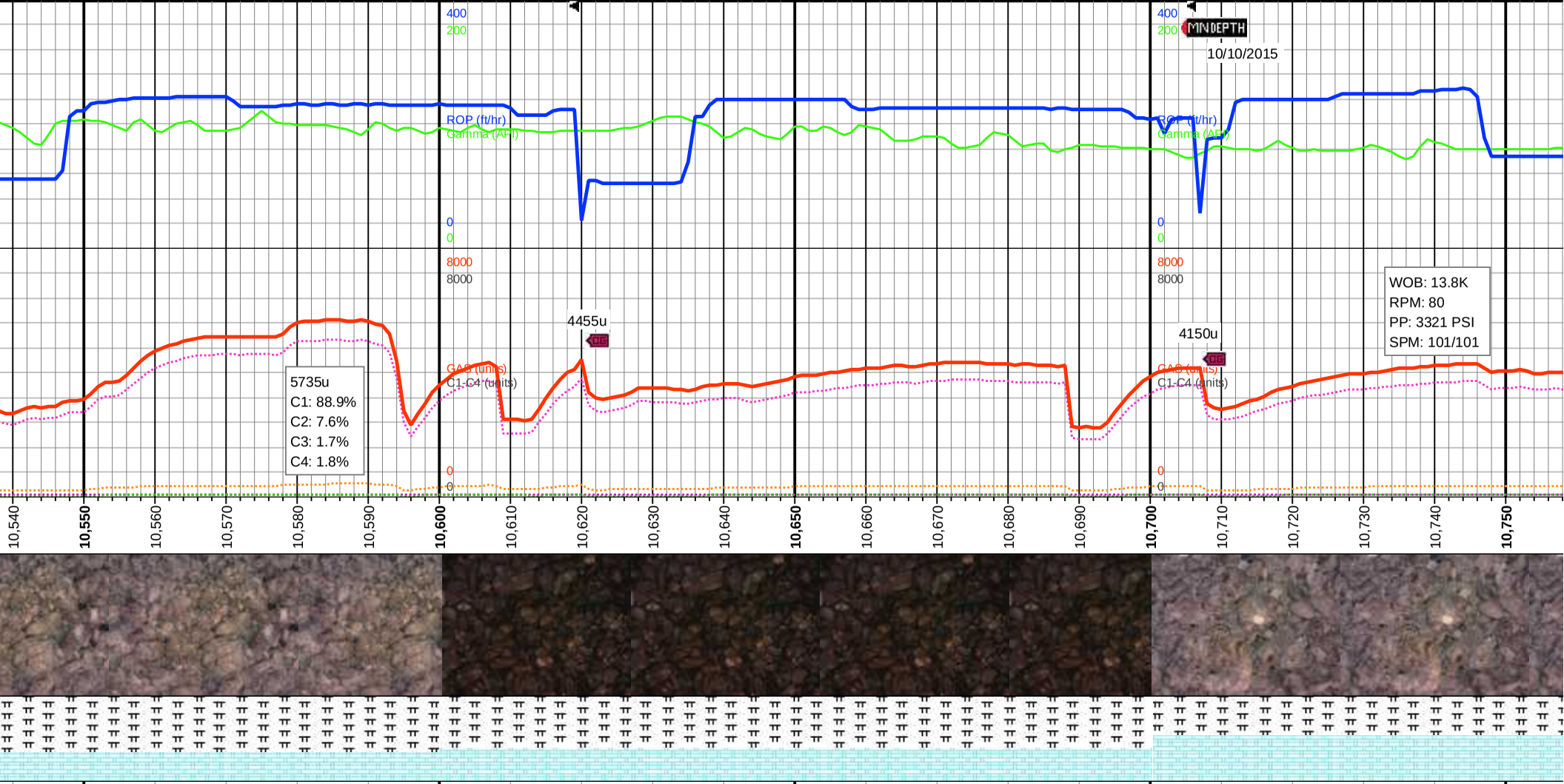
MD: 10,334'
INC: 90.65°
AZM: 272.76°
TVD: 7,113.98'
VS: 3,533.37'

MD: 10,421'
INC: 90.58°
AZM: 274.93°
TVD: 7,113.05'
VS: 3,619.64'

MD: 10,508'
INC: 90.28°
AZM: 272.88°
TVD: 7,112.39'
VS: 3,705.89'

8000

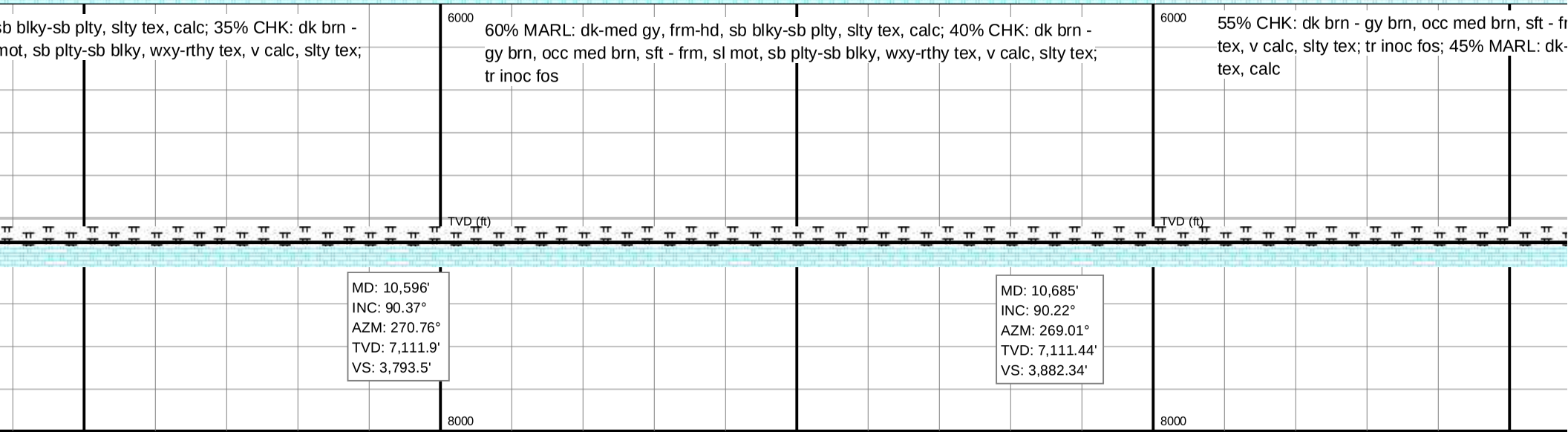
8000

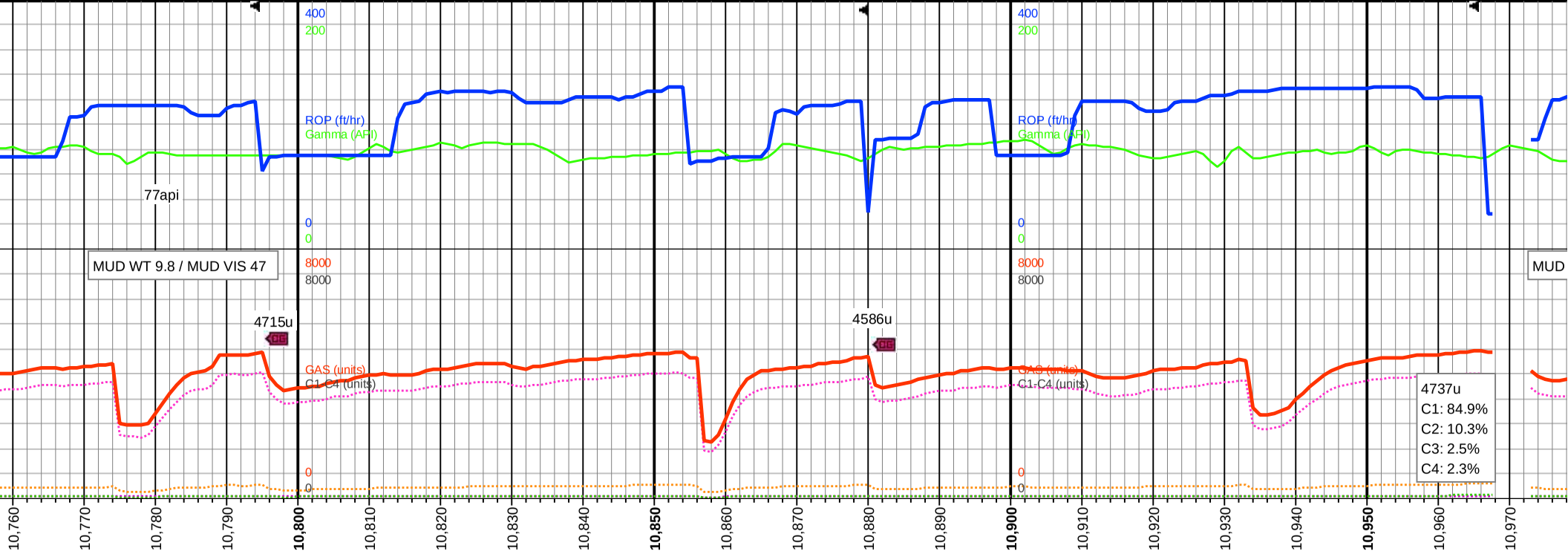


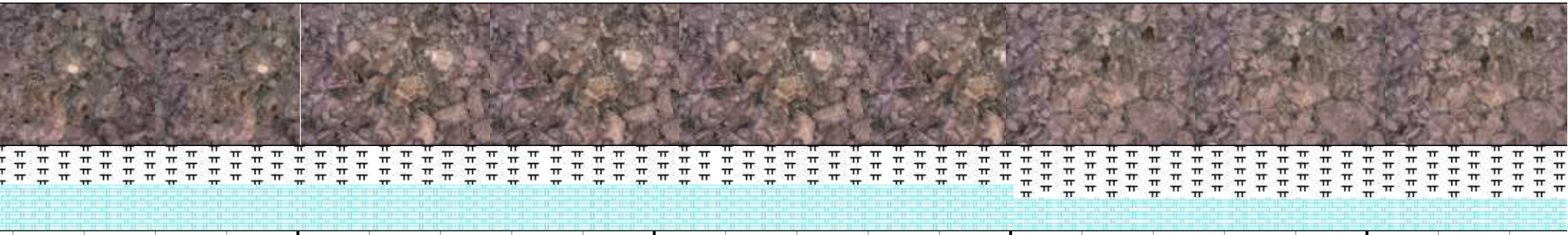
sb blky-sb plty, slty tex, calc; 35% CHK: dk brn - mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex;

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

55% CHK: dk brn - gy brn, occ med brn, sft - fr tex, v calc, slty tex; tr inoc fos; 45% MARL: dk- tex, calc







rm, sl mot, sb plty-sb blky, wxy-rthy
-med gy, frm-hd, sb blky-sb plty, slty

6000

55% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos; 45% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc

6000

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, tr inoc fos

TVD (ft)

TVD (ft)

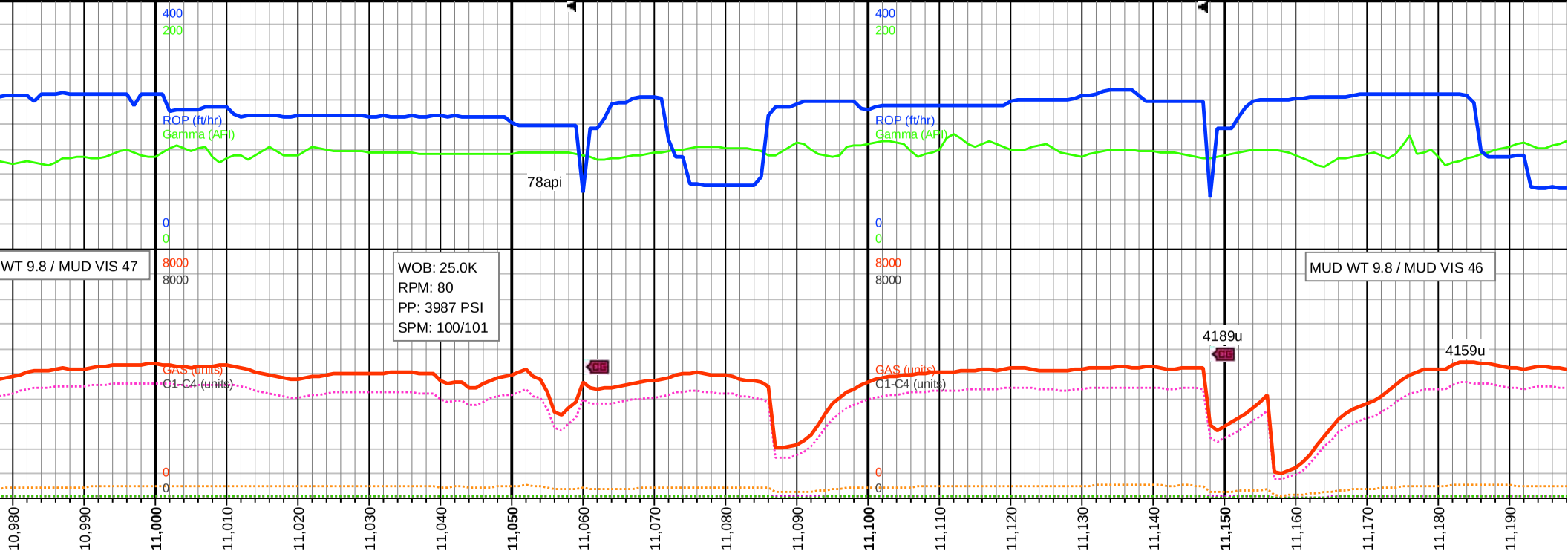
MD: 10,772'
INC: 90.4°
AZM: 267.31°
TVD: 7,110.97'
VS: 3,969.29'

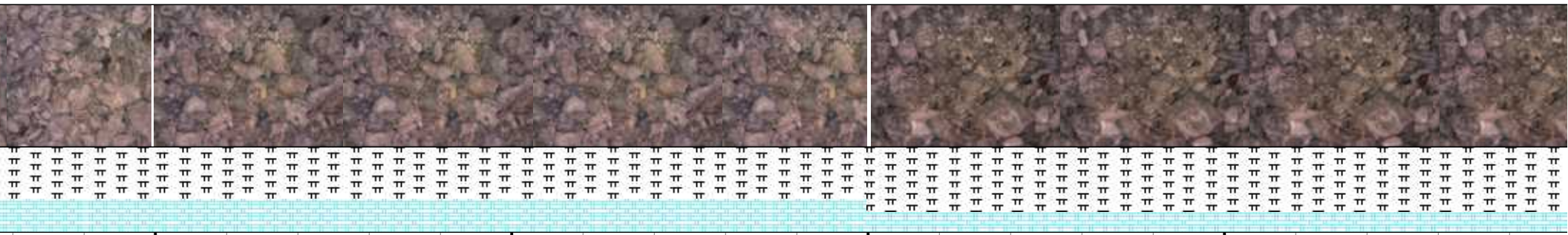
MD: 10,859'
INC: 90.59°
AZM: 269.39°
TVD: 7,110.21'
VS: 4,056.24'

MD: 10,949'
INC: 90.62°
AZM: 269.91°
TVD: 7,109.26'
VS: 4,146.09'

8000

8000

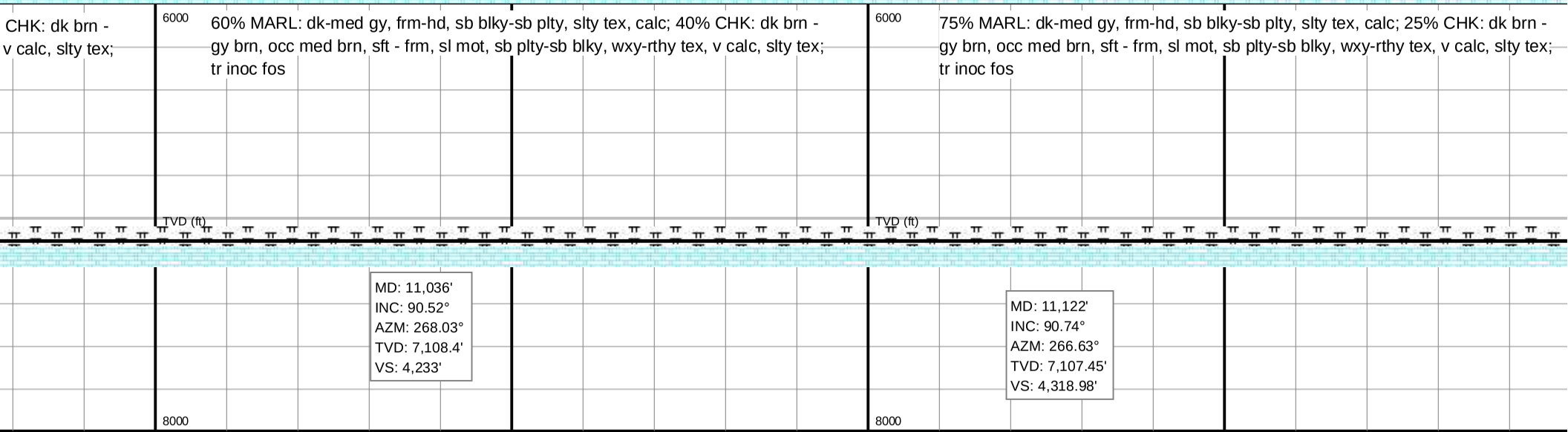


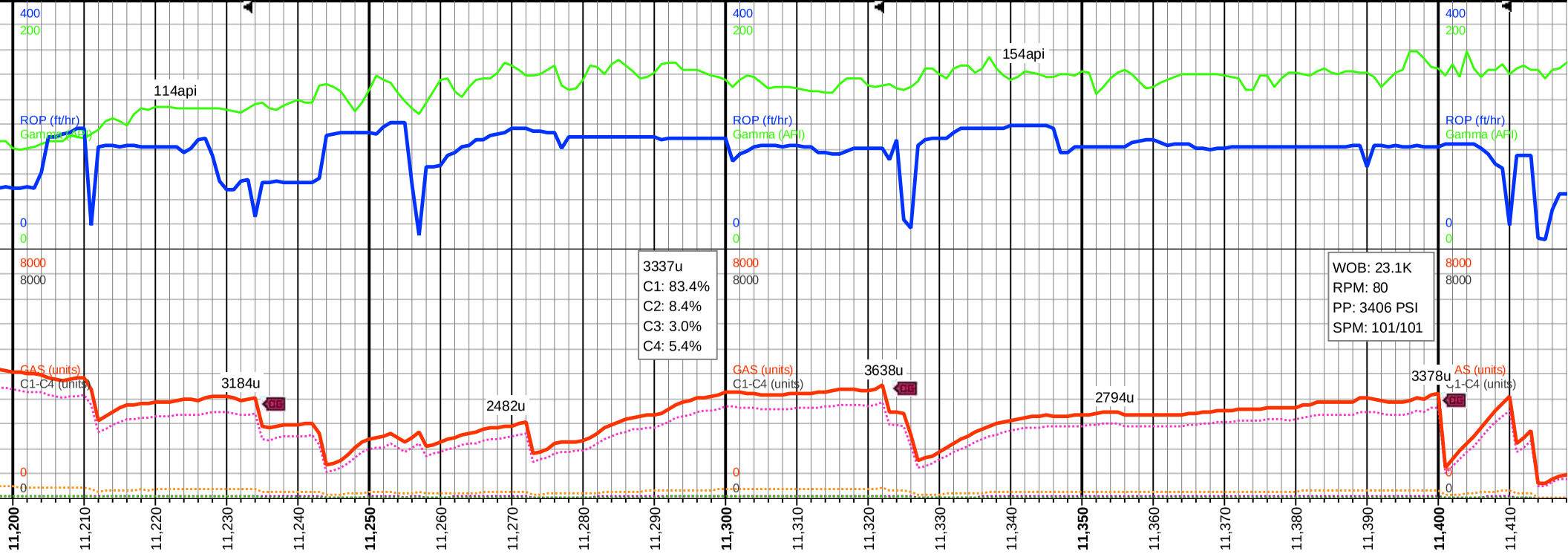


CHK: dk brn - v calc, slty tex;

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos

75% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 25% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos





6000

70% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos, tr pyr

TVD (ft)

MD: 11,209'
INC: 90.77°
AZM: 268.45°
TVD: 7,106.31'
VS: 4,405.95'

8000

6000

70% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn - gy brn, occ med brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; tr inoc fos, tr pyr

TVD (ft)

MD: 11,298'
INC: 90.8°
AZM: 269.92°
TVD: 7,105.09'
VS: 4,494.84'

8000

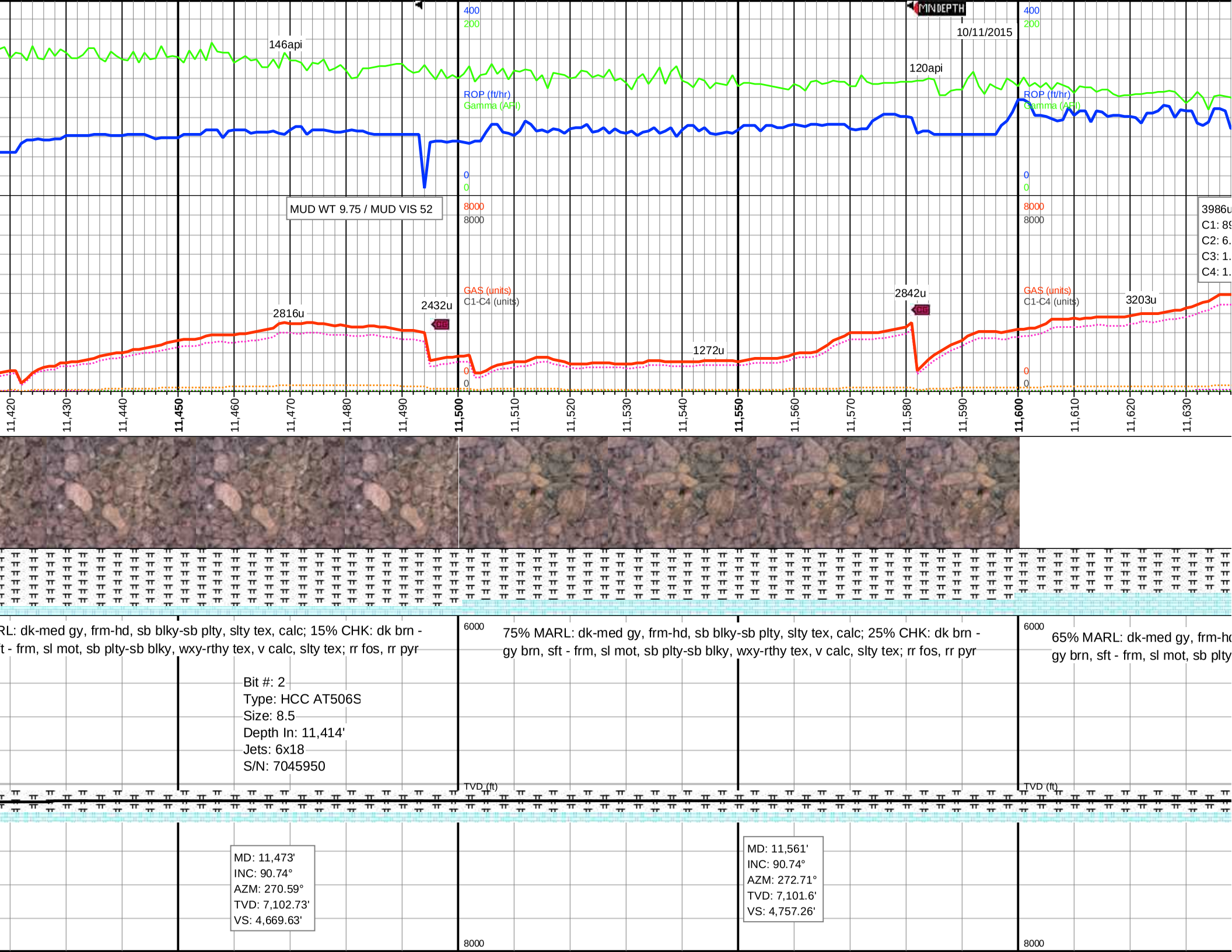
6000

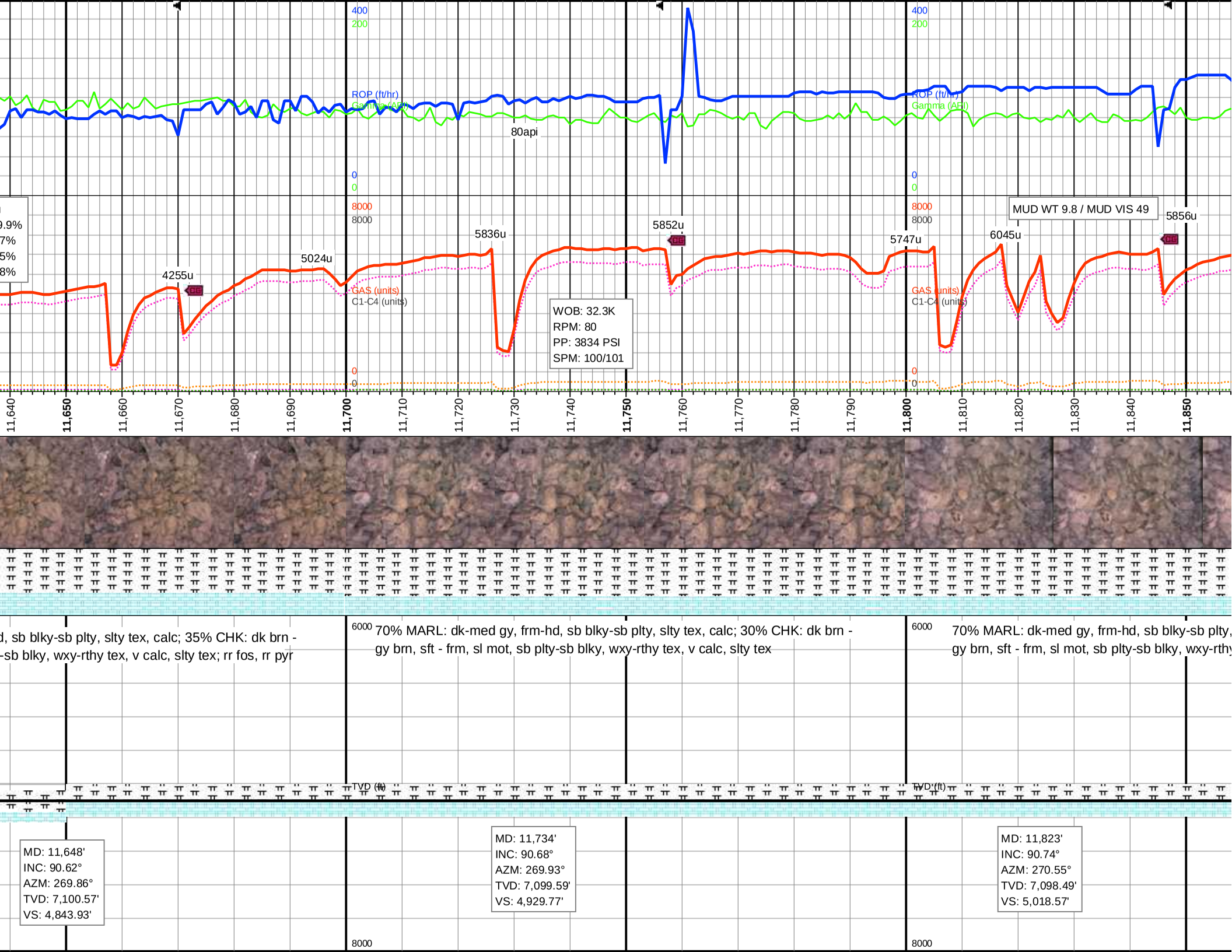
85% MAR
gy brn, sf

TVD (ft)

MD: 11,386'
INC: 90.77°
AZM: 267.83°
TVD: 7,103.88'
VS: 4,582.75'

8000


MINDEPTH
10/11/2015
146api
120api
400
200
ROP (ft/hr)
Gamma (API)
0
0
MUD WT 9.75 / MUD VIS 52
8000
8000
3986u
C1: 89
C2: 6.
C3: 1.
C4: 1.
GAS (units)
C1-C4 (units)
2816u
2432u
1272u
2842u
3203u
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
RL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 15% CHK: dk brn -
t - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; rr fos, rr pyr
Bit #: 2
Type: HCC AT506S
Size: 8.5
Depth In: 11,414'
Jets: 6x18
S/N: 7045950
6000
75% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 25% CHK: dk brn -
gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex; rr fos, rr pyr
6000
65% MARL: dk-med gy, frm-hd
gy brn, sft - frm, sl mot, sb plty
TVD (ft)
TVD (ft)
MD: 11,473'
INC: 90.74°
AZM: 270.59°
TVD: 7,102.73'
VS: 4,669.63'
MD: 11,561'
INC: 90.74°
AZM: 272.71°
TVD: 7,101.6'
VS: 4,757.26'
8000
8000


400
200
ROP (ft/hr)
Gamma (API)
80api
0
0
8000
8000
GAS (units)
C1-C4 (units)
0
0
4255u
5024u
5836u
5852u
5747u
6045u
5856u
MUD WT 9.8 / MUD VIS 49
WOB: 32.3K
RPM: 80
PP: 3834 PSI
SPM: 100/101
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
d, sb blky-sb plty, slty tex, calc; 35% CHK: dk brn -
-sb blky, wxy-rthy tex, v calc, slty tex; rr fos, rr pyr
6000
70% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn -
gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex
6000
70% MARL: dk-med gy, frm-hd, sb blky-sb plty,
gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy
TVD (ft)
TVD (ft)
MD: 11,648'
INC: 90.62°
AZM: 269.86°
TVD: 7,100.57'
VS: 4,843.93'
MD: 11,734'
INC: 90.68°
AZM: 269.93°
TVD: 7,099.59'
VS: 4,929.77'
MD: 11,823'
INC: 90.74°
AZM: 270.55°
TVD: 7,098.49'
VS: 5,018.57'
8000
8000

slty tex, calc; 30% CHK: dk brn -
y tex, v calc, slty tex

6000

80% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 20% CHK: dk brn -
gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

6000

60% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 40%
gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex

TVD (ft)

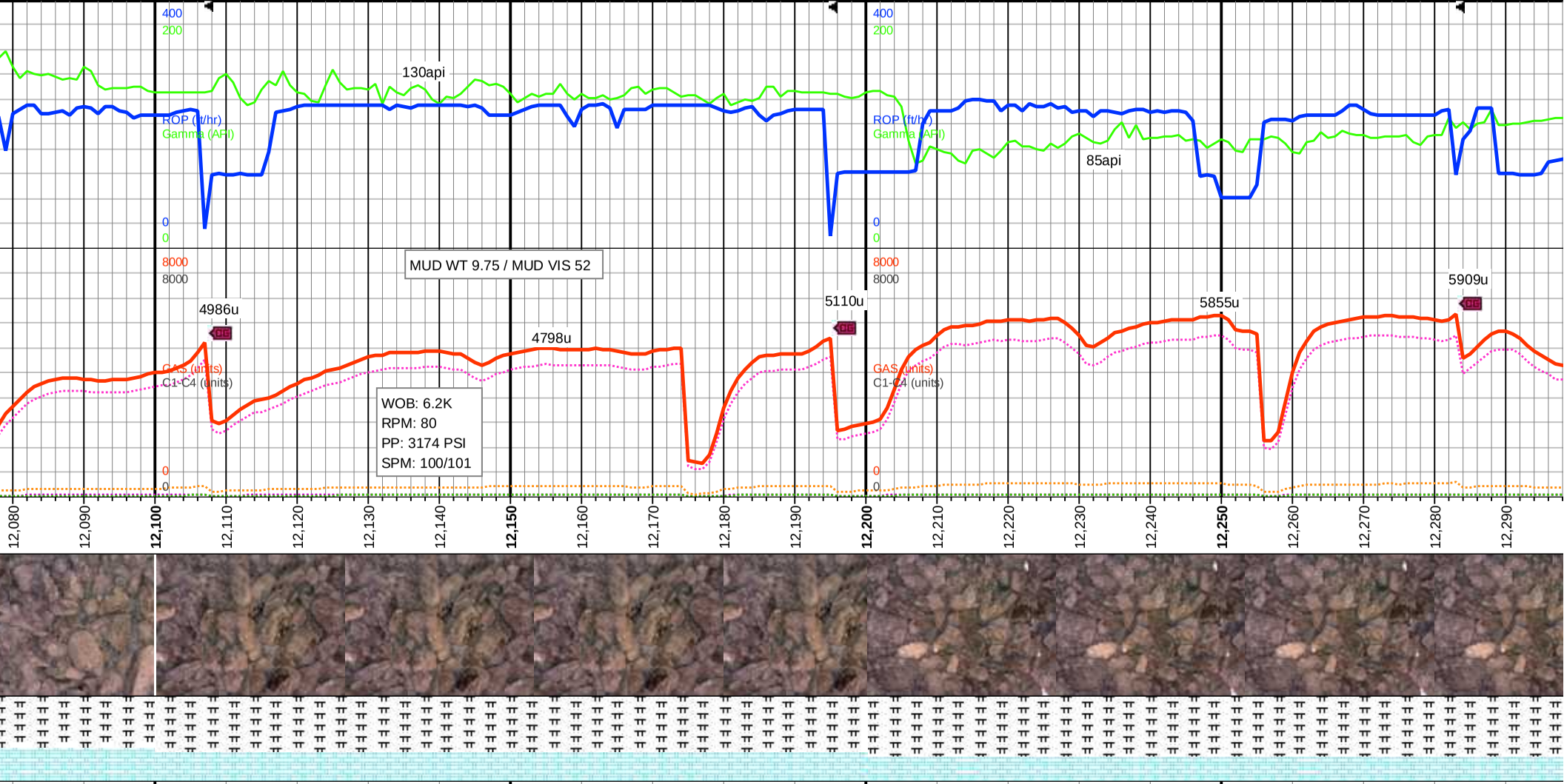
TVD (ft)

MD: 11,911'
INC: 90.68°
AZM: 271.79°
TVD: 7,097.4'
VS: 5,106.26'

MD: 11,999'
INC: 90.74°
AZM: 269.81°
TVD: 7,096.31'
VS: 5,194'

8000

8000



CHK: dk brn -
sl tr inoc fos

6000

65% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 35% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, sl tr inoc fos

6000

70% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, sl tr inoc fos, mod sec calc

TVD (ft)

TVD (ft)

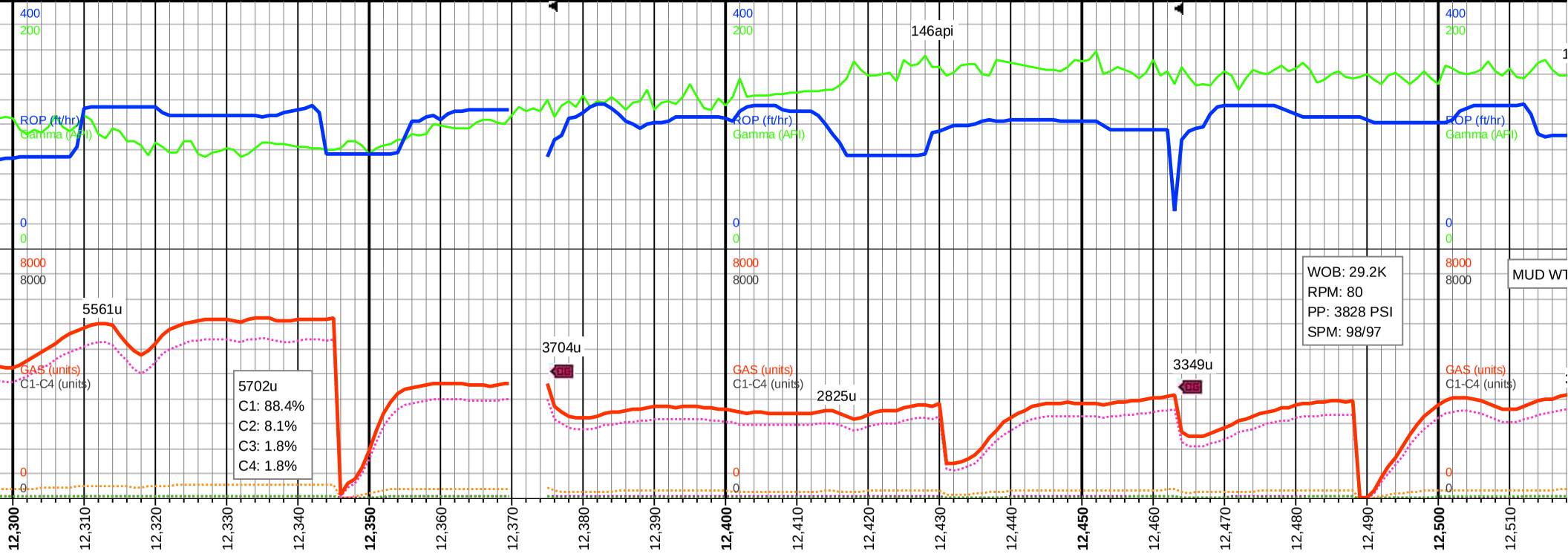
MD: 12,086'
INC: 90.71°
AZM: 269.6°
TVD: 7,095.21'
VS: 5,280.85'

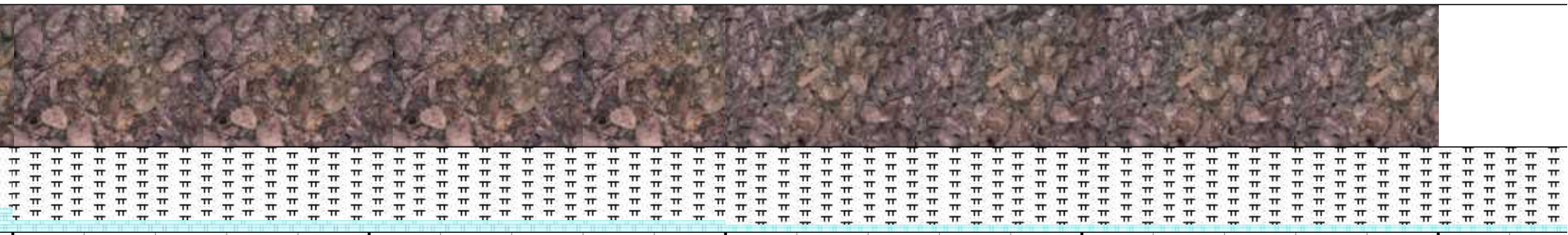
MD: 12,173'
INC: 90.74°
AZM: 271.71°
TVD: 7,094.1'
VS: 5,367.61'

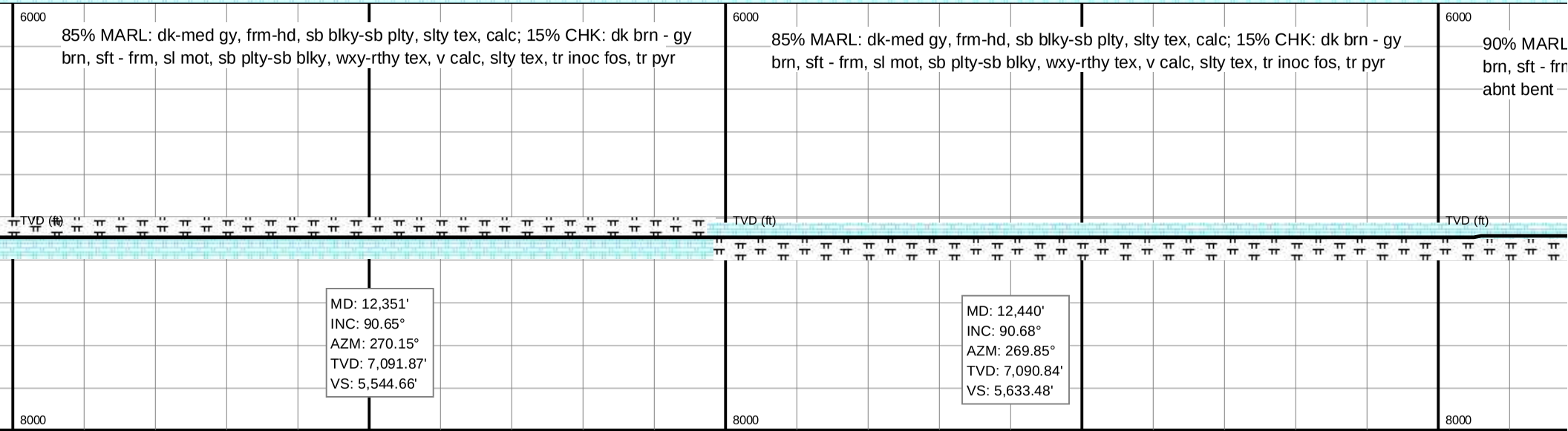
MD: 12,262'
INC: 90.74°
AZM: 273.58°
TVD: 7,092.95'
VS: 5,456.08'

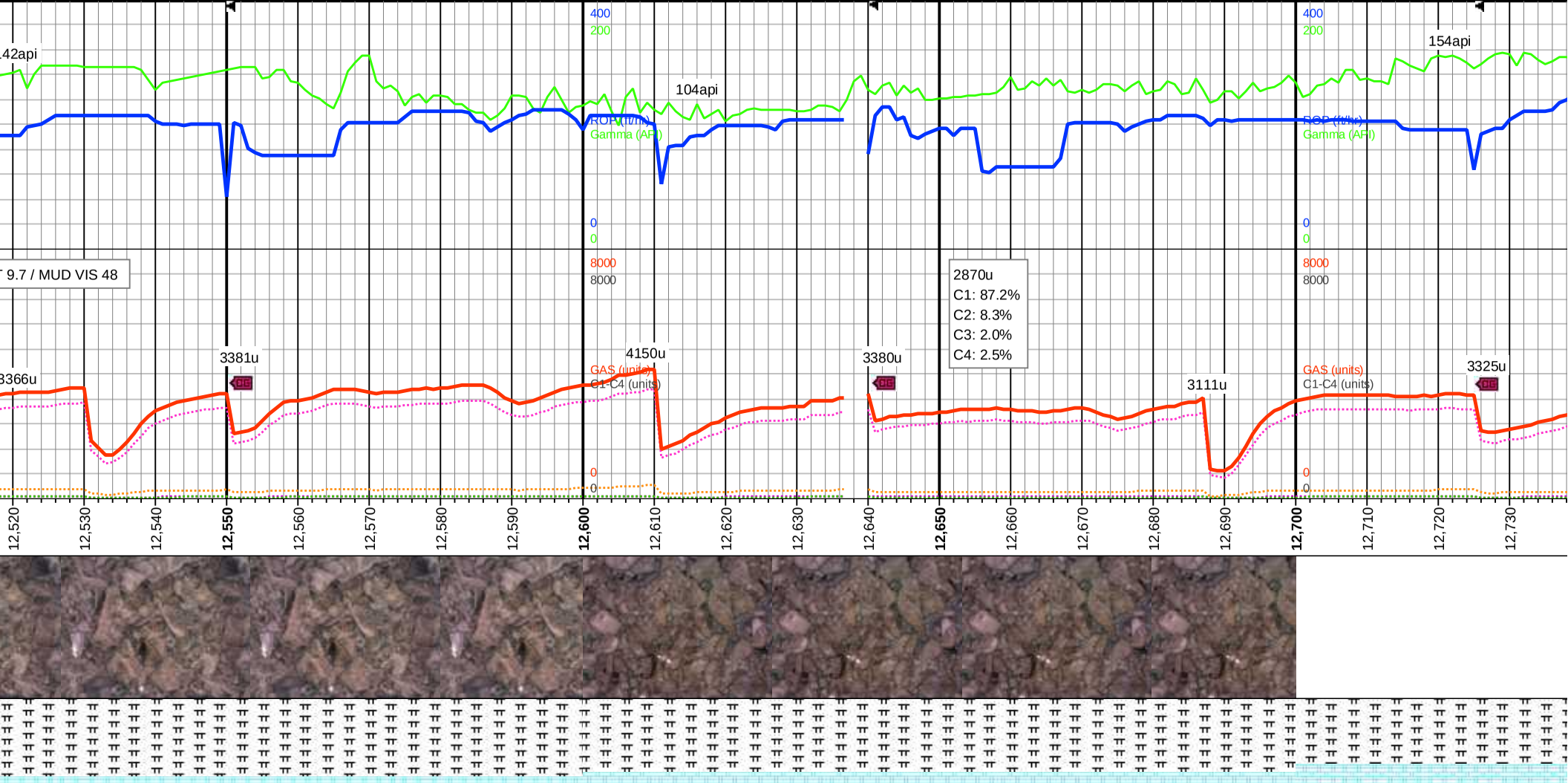
8000

8000


400
200
ROP (ft/hr)
Gamma (API)
0
0
8000
8000
GAS (units)
C1-C4 (units)
0
0
5561u
5702u
C1: 88.4%
C2: 8.1%
C3: 1.8%
C4: 1.8%
3704u
146api
2825u
3349u
WOB: 29.2K
RPM: 80
PP: 3828 PSI
SPM: 98/97
MUD WT
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
12,480
12,490
12,500
12,510




6000
85% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 15% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc fos, tr pyr
TVD (ft)
MD: 12,351'
INC: 90.65°
AZM: 270.15°
TVD: 7,091.87'
VS: 5,544.66'
8000
6000
85% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 15% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc fos, tr pyr
TVD (ft)
MD: 12,440'
INC: 90.68°
AZM: 269.85°
TVD: 7,090.84'
VS: 5,633.48'
8000
6000
90% MARL
brn, sft - frm
abnt bent
TVD (ft)
8000



L: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 10% CHK: dk brn - gy
m, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc fos, tr pyr;

6000

85% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 15% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc, abnt bent

6000

75% MARL: dk-med gy, frm-hd
brn, sft - frm, sl mot, sb plty-sb

TVD (ft)

TVD (ft)

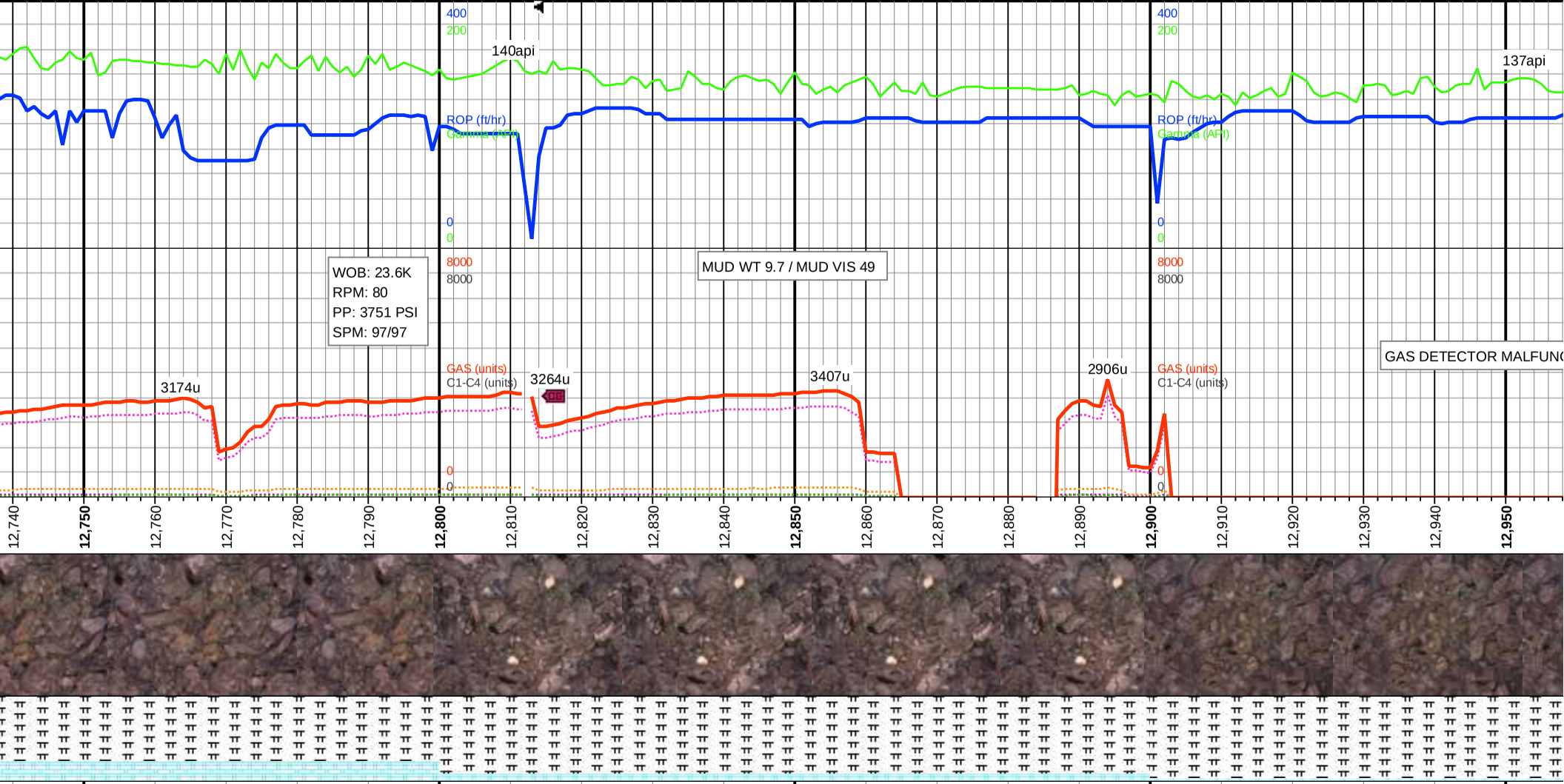
MD: 12,528'
INC: 90.8°
AZM: 269.95°
TVD: 7,089.71'
VS: 5,721.31'

MD: 12,615'
INC: 90.09°
AZM: 271.08°
TVD: 7,089.03'
VS: 5,808.09'

MD: 12,702'
INC: 89.91°
AZM: 271.1°
TVD: 7,089.03'
VS: 5,894.81'

8000

8000



, sb blky-sb plty, slty tex, calc; 25% CHK: dk brn - gy
blky, wxy-rthy tex, v calc, slty tex, tr inoc

6000

90% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 10% CHK: dk brn - gy
brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc, tr bent

6000

95% MARL: dk-med gy, frm-hd, sb blky-sb plty, s
brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex

TVD (ft)

TVD (ft)

MD: 12,790'
INC: 89.82°
AZM: 270.11°
TVD: 7,089.24'
VS: 5,982.57'

MD: 12,878'
INC: 89.82°
AZM: 271.62°
TVD: 7,089.51'
VS: 6,070.31'

8000

8000

6000

slty tex, calc; 5% CHK: dk brn - gy
, v calc, slty tex, tr inoc

6000

90% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 10% CHK: dk brn - gy
brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc

6000

90% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 10% C
brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr i

TVD (ft)

TVD (ft)

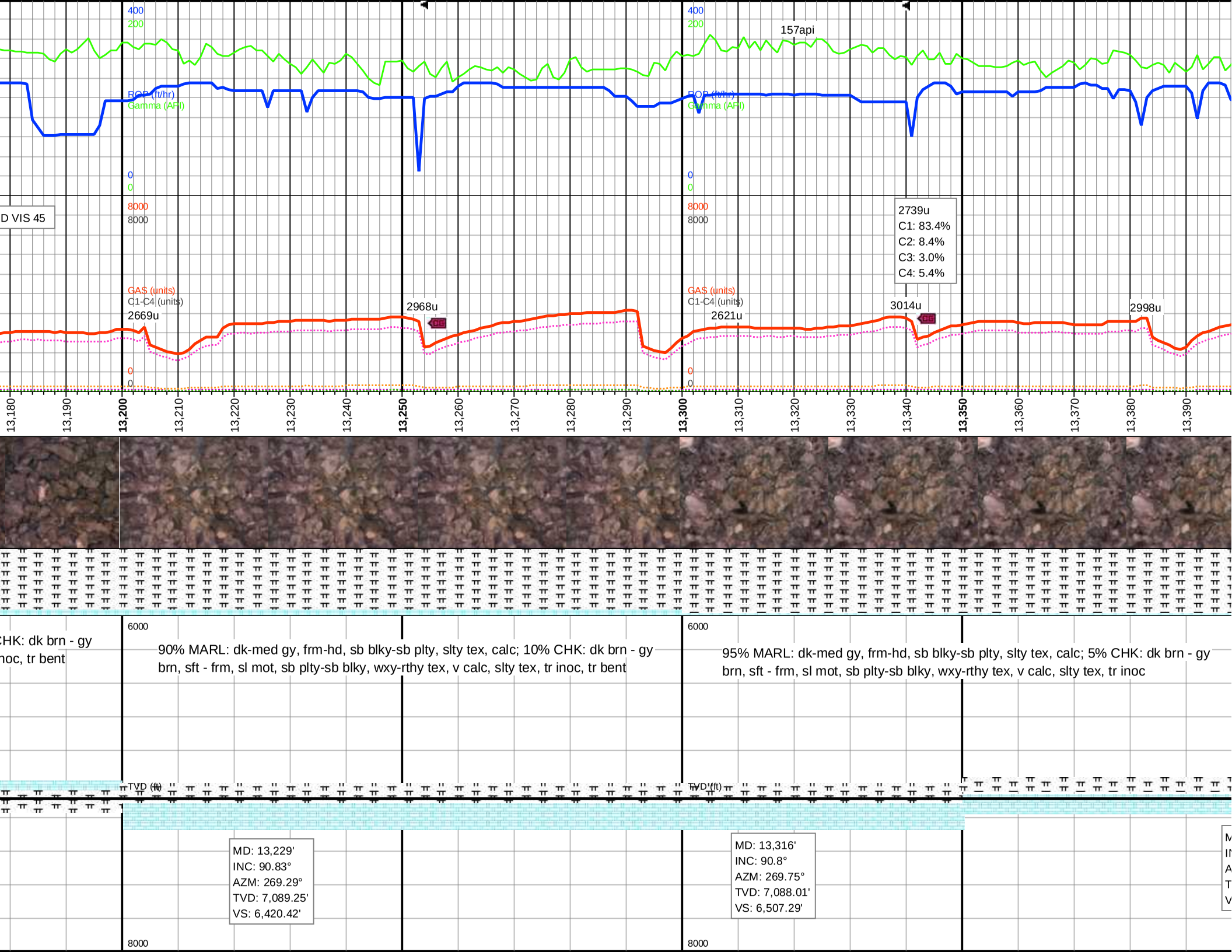
MD: 12,965'
INC: 89.94°
AZM: 271.23°
TVD: 7,089.7'
VS: 6,156.98'

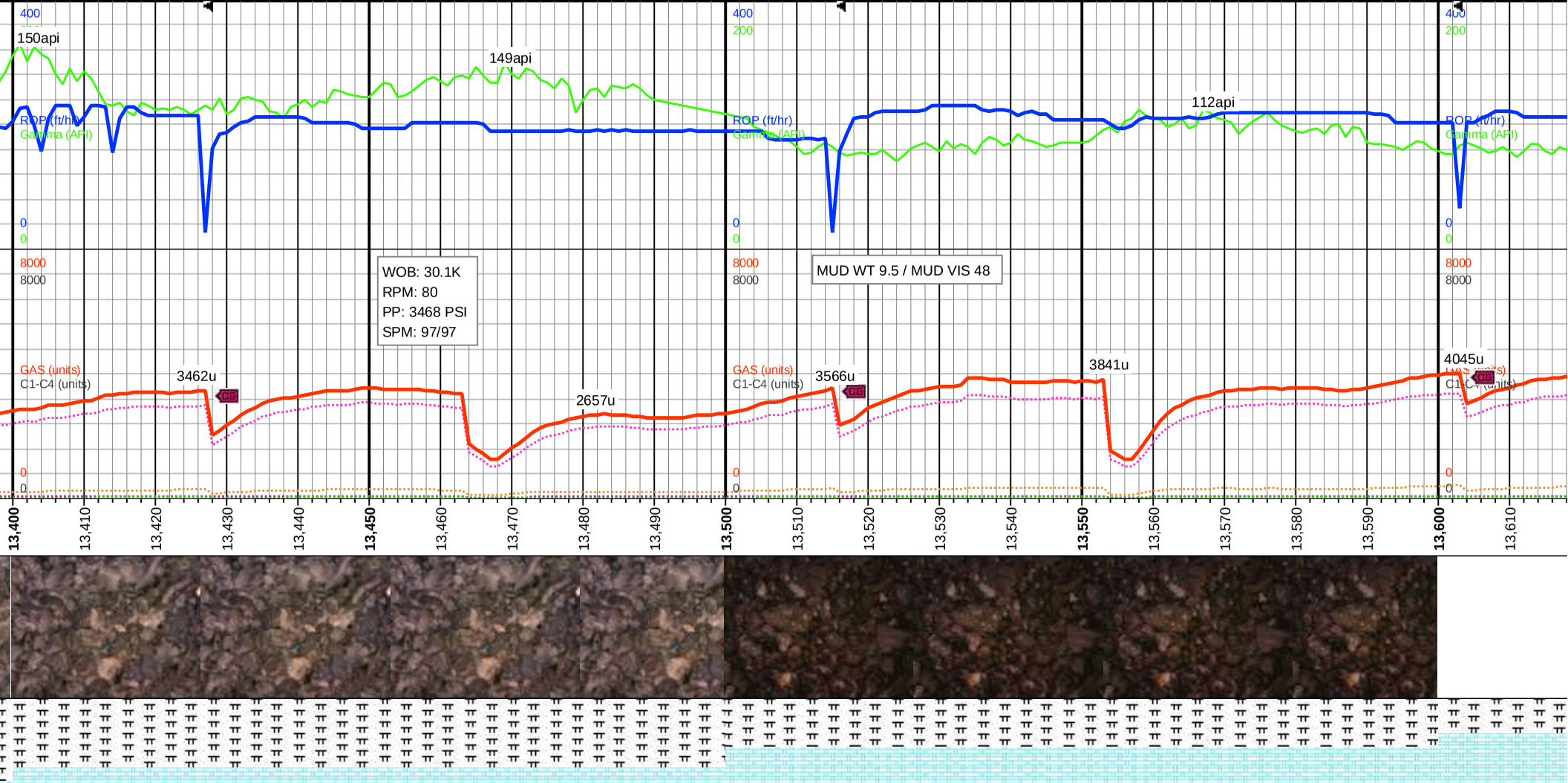
MD: 13,053'
INC: 89.88°
AZM: 270.36°
TVD: 7,089.83'
VS: 6,244.73'

MD: 13,142'
INC: 90.03°
AZM: 269.78°
TVD: 7,089.9'
VS: 6,333.55'

8000

8000


400
200
ROP (ft/hr)
Gamma (API)
0
0
8000
8000
GAS (units)
C1-C4 (units)
2669u
2968u
0
0
D VIS 45
157api
2739u
C1: 83.4%
C2: 8.4%
C3: 3.0%
C4: 5.4%
2621u
3014u
2998u
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
6000
8000
TVD (ft)
HK: dk brn - gy
oc, tr bent
90% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 10% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc, tr bent
95% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 5% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc
MD: 13,229'
INC: 90.83°
AZM: 269.29°
TVD: 7,089.25'
VS: 6,420.42'
MD: 13,316'
INC: 90.8°
AZM: 269.75°
TVD: 7,088.01'
VS: 6,507.29'



6000

80% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 20% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc

55% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 45% CHK: dk brn - gy brn, occ lt gy, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc

60% CHK: tex; 40% M

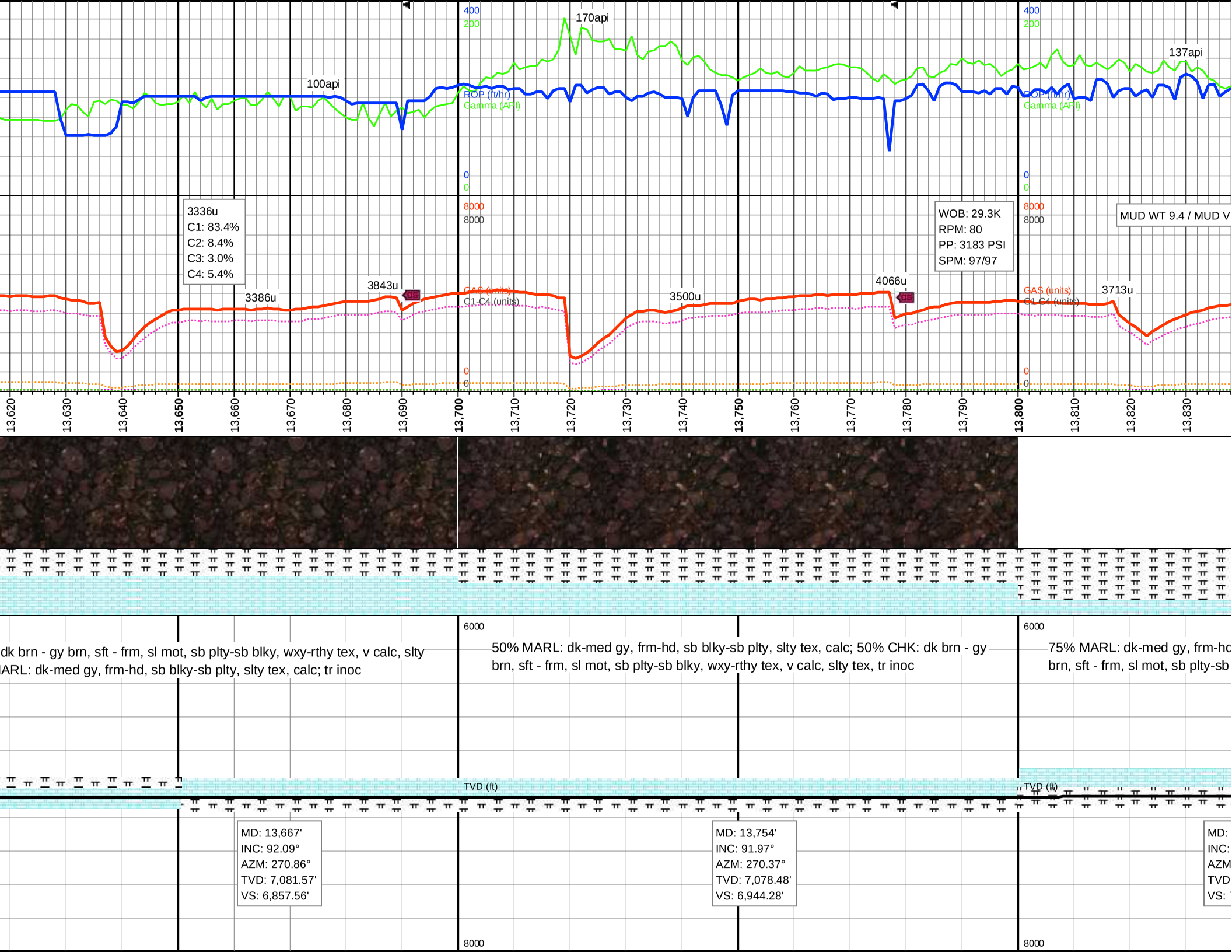
TVD (ft)

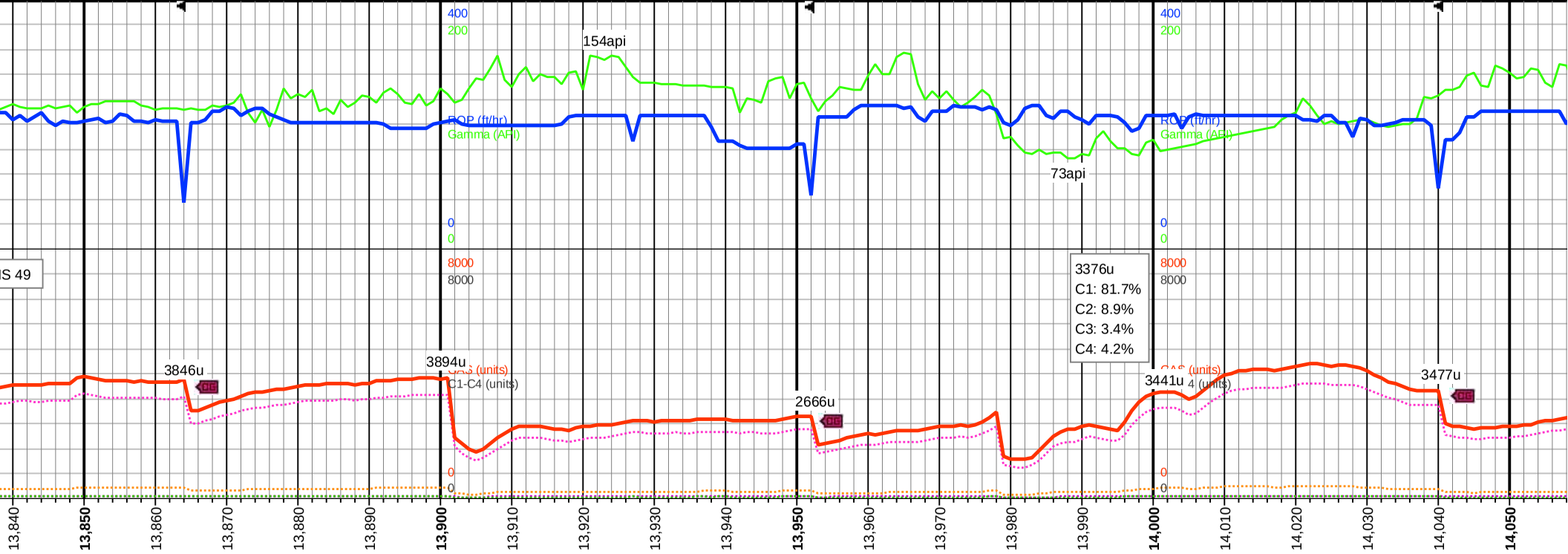
MD: 13,404'
NC: 90.77°
ZM: 269.77°
VD: 7,086.81'
S: 6,595.13'

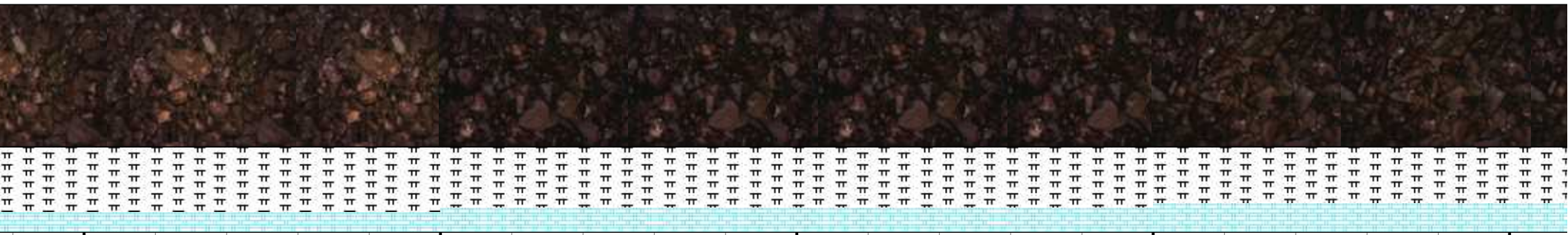
MD: 13,491'
INC: 90.68°
AZM: 269.29°
TVD: 7,085.71'
VS: 6,682'

MD: 13,580'
INC: 91.32°
AZM: 270.32°
TVD: 7,084.15'
VS: 6,770.83'

8000


100api
170api
137api
ROP (ft/hr)
Gamma (API)
3336u
C1: 83.4%
C2: 8.4%
C3: 3.0%
C4: 5.4%
3386u
3843u
3500u
4066u
3713u
GAS (units)
C1-C4 (units)
WOB: 29.3K
RPM: 80
PP: 3183 PSI
SPM: 97/97
MUD WT 9.4 / MUD V
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
13,800
13,810
13,820
13,830
dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty
ARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; tr inoc
50% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 50% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc
75% MARL: dk-med gy, frm-hd
brn, sft - frm, sl mot, sb plty-sb
TVD (ft)
MD: 13,667'
INC: 92.09°
AZM: 270.86°
TVD: 7,081.57'
VS: 6,857.56'
MD: 13,754'
INC: 91.97°
AZM: 270.37°
TVD: 7,078.48'
VS: 6,944.28'





, sb blky-sb plty, slty tex, calc; 25% CHK: dk brn - gy
blky, wxy-rthy tex, v calc, slty tex, tr inoc

6000

70% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 30% CHK: dk brn - gy
brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc

6000

65% MARL: dk-med gy, frm-hd, sb blky-sb plty, sl
brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex,

TVD (ft)

TVD (ft)

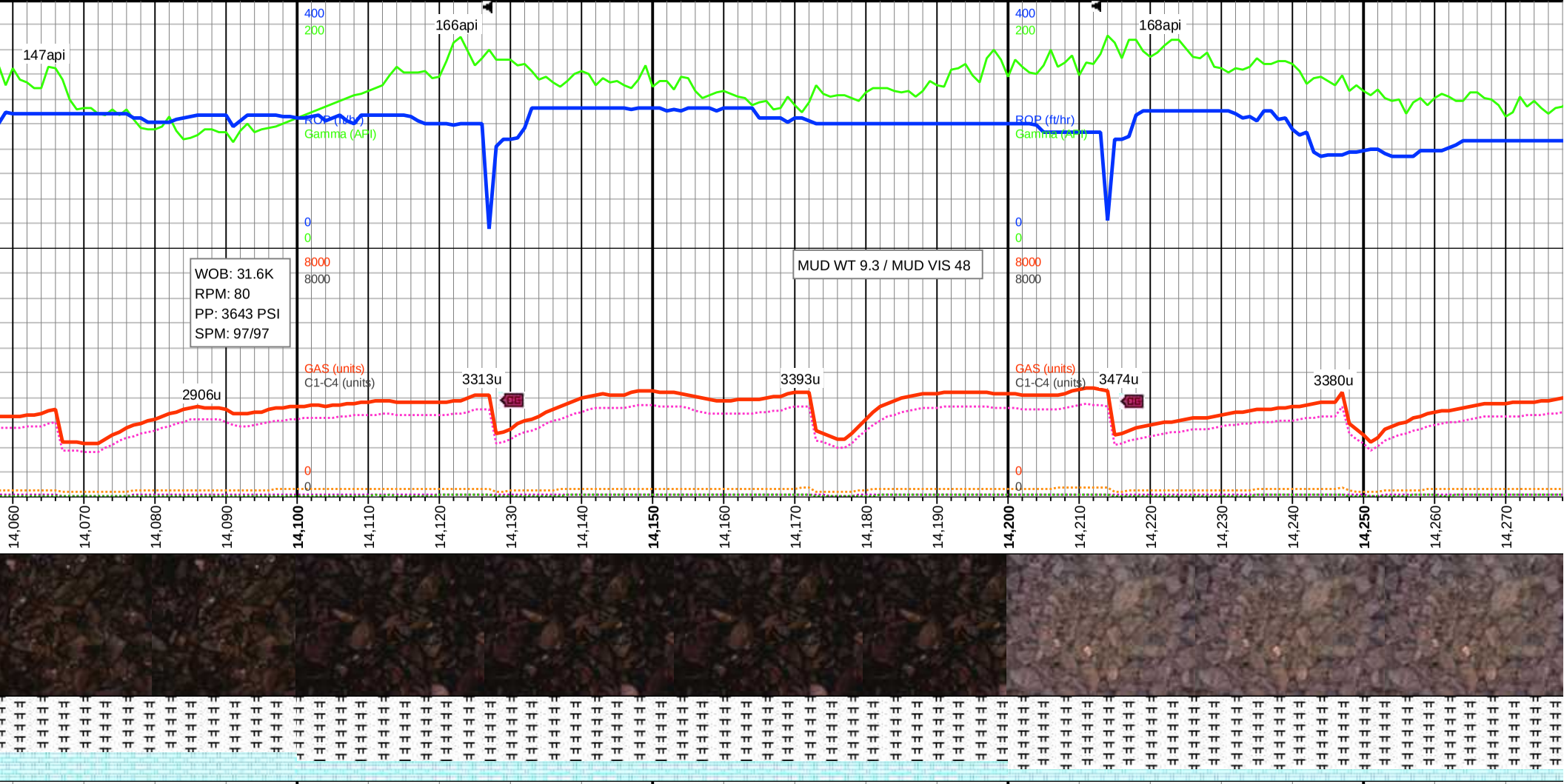
13,841'
91.94°
: 270.77°
: 7,075.52'
7,031'

MD: 13,929'
INC: 92.09°
AZM: 270.07°
TVD: 7,072.42'
VS: 7,118.74'

MD: 14,018'
INC: 91.6°
AZM: 269.73°
TVD: 7,069.56'
VS: 7,207.53'

8000

8000



6000

ty tex, calc; 35% CHK: dk brn - gy
v calc, slty tex, tr inoc

75% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 25% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc

85% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 15% C
brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr in

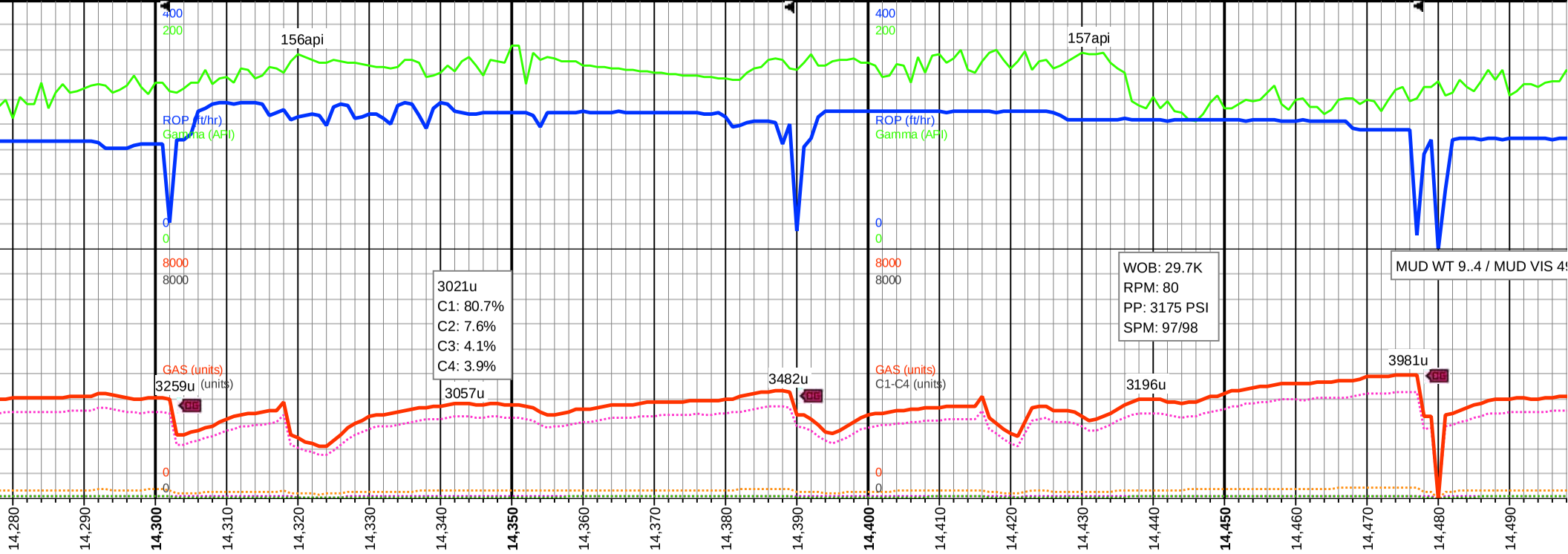
TVD (ft)

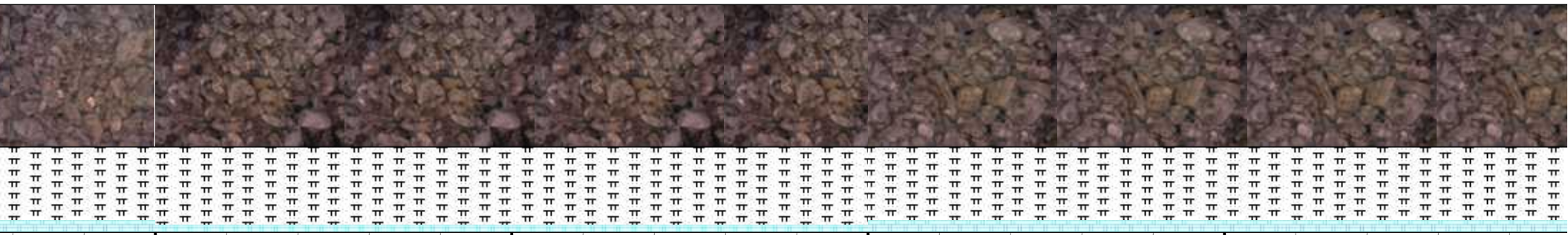
MD: 14,105'
INC: 91.54°
AZM: 270.94°
TVD: 7,067.17'
VS: 7,294.3'

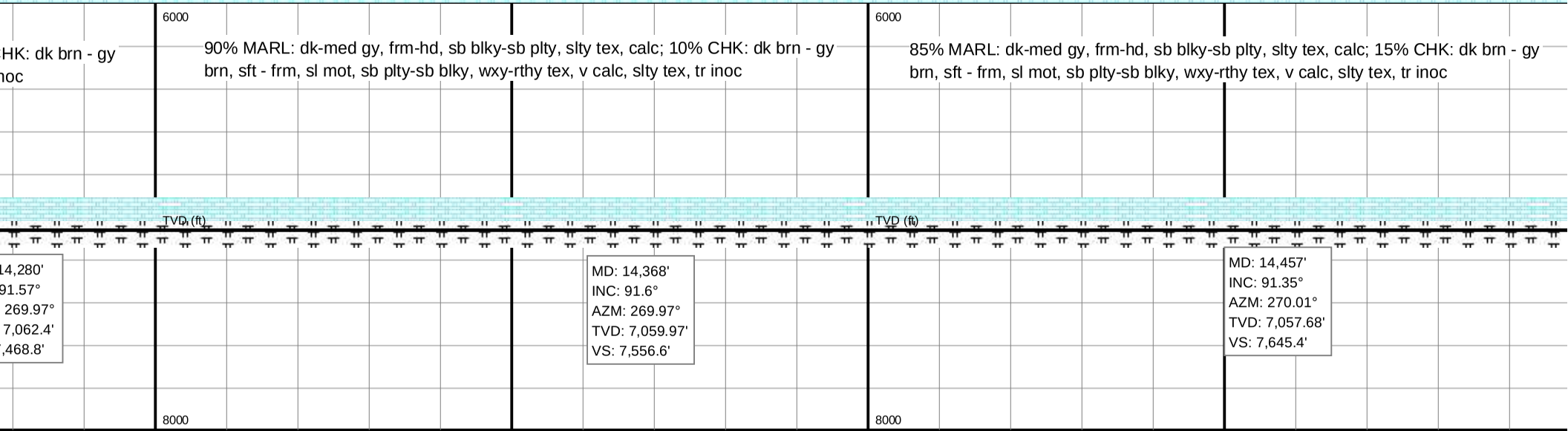
MD: 14,193'
INC: 91.57°
AZM: 270.45°
TVD: 7,064.78'
VS: 7,382.02'

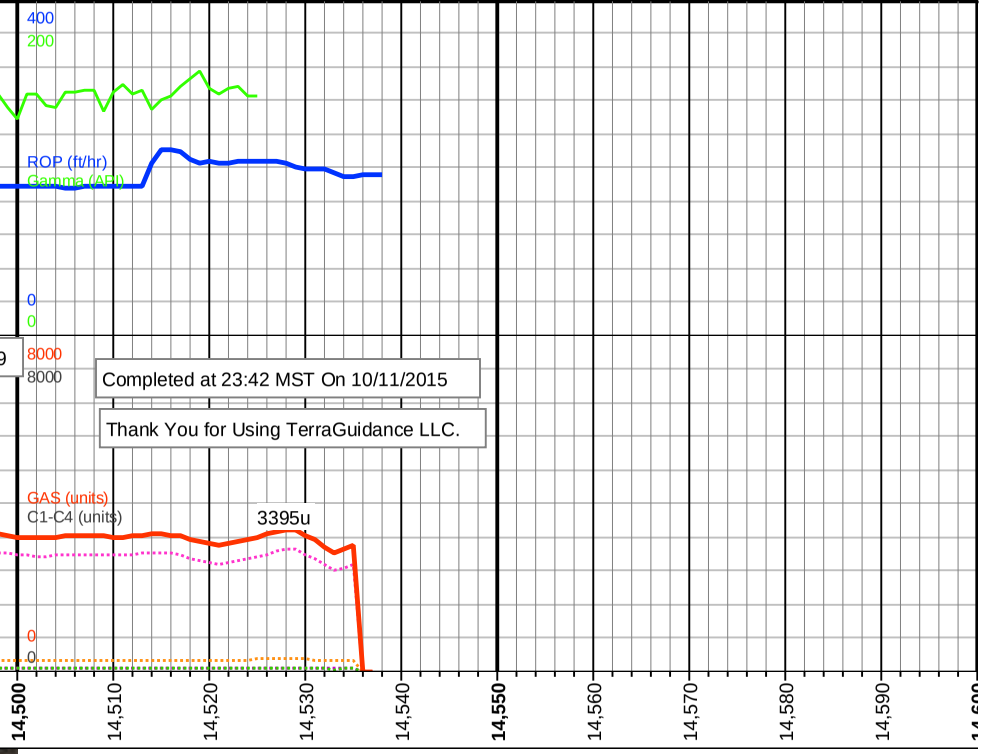
MD: 1
INC:
AZM:
TVD:
VS: 7

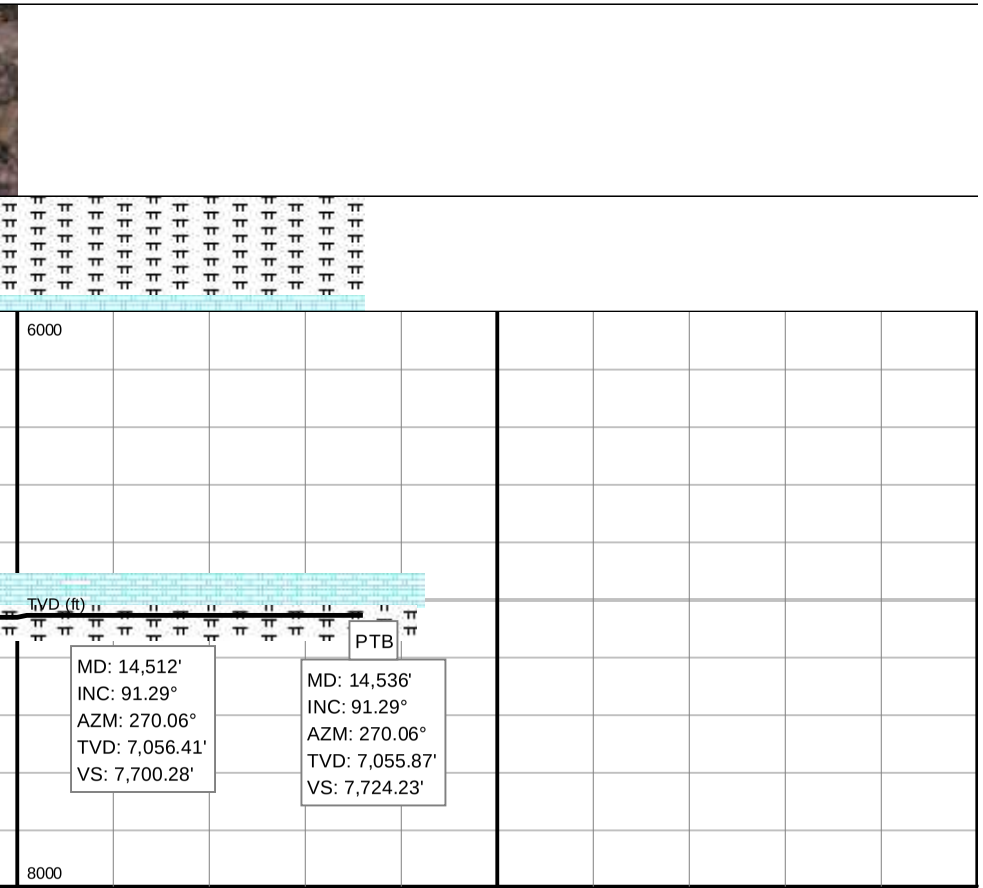
8000


400
200
156api
ROP (ft/hr)
Gamma (API)
0
0
8000
8000
3021u
C1: 80.7%
C2: 7.6%
C3: 4.1%
C4: 3.9%
GAS (units)
3259u
(units)
3057u
3482u
0
0
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
14,460
14,470
14,480
14,490
400
200
157api
ROP (ft/hr)
Gamma (API)
0
0
8000
8000
WOB: 29.7K
RPM: 80
PP: 3175 PSI
SPM: 97/98
MUD WT 9..4 / MUD VIS 4
GAS (units)
C1-C4 (units)
3196u
3981u
0
0




6000
CHK: dk brn - gy
noc
90% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 10% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc
6000
85% MARL: dk-med gy, frm-hd, sb blky-sb plty, slty tex, calc; 15% CHK: dk brn - gy brn, sft - frm, sl mot, sb plty-sb blky, wxy-rthy tex, v calc, slty tex, tr inoc
TVD (ft)
TVD (ft)
14,280'
91.57°
269.97°
7,062.4'
,468.8'
MD: 14,368'
INC: 91.6°
AZM: 269.97°
TVD: 7,059.97'
VS: 7,556.6'
MD: 14,457'
INC: 91.35°
AZM: 270.01°
TVD: 7,057.68'
VS: 7,645.4'
8000
8000


400
200
ROP (ft/hr)
Gamma (API)
0
0
8000
8000
Completed at 23:42 MST On 10/11/2015
Thank You for Using TerraGuidance LLC.
GAS (units)
C1-C4 (units)
3395u
0
0
14,500
14,510
14,520
14,530
14,540
14,550
14,560
14,570
14,580
14,590


6000
TVD (ft)
PTB
MD: 14,512'
INC: 91.29°
AZM: 270.06°
TVD: 7,056.41'
VS: 7,700.28'
MD: 14,536'
INC: 91.29°
AZM: 270.06°
TVD: 7,055.87'
VS: 7,724.23'
8000