Scale: 5" / 100'
Measured Depth Log

Well Name	Crow Creek AA01-789		
Location	SEC 1 T6N R63W		
State	COLORADO	**County**	WELD
Country	USA	**Rig Number**	H&P 315
API Number	05-123-40166	**AFE #**	200435
Region	DJ BASIN	**Field**	WATTENBERG
Spud Date	12/16/2014	**Drilling Completed**	12/26/2014
Surface Coordinates	NWNW SEC 1 T6N R63W 290' FNL; 500' FWL LAT/LON: 40.52203/-104.39248		
Bottom Hole Coordinates	SEC 13 T6N R63W 30' FNL; 60' FWL		
Ground Elevation	4,796'	**K.B. Elevation**	4,820'
Logged Interval	6,101' **To** 16,966'	**Total Depth**	16,966'
Formation	NIOBRARA C CHALK		
Type of Drilling Fluid	LSND		

Operator

Company Noble Energy Inc

Address 1625 BROADWAY SUITE 2200
DENVER, CO 80202

Geologist

Name NATHAN MURPHY; ZACH UBER

Company COLUMBINE LOGGING, INC

Address 602 S LIPAN ST
DENVER, CO 80223

Zone Color Coding

Oil	Condensate
Note	Core
Error	Water

Rock Types

CHALK	CEMENT	IGNEO
MARLSTONE	CHERT	SIDER
SILTY SHALE	CLAY CHOKE SANE	METAN
SHALY SANDSTONE	CLAYSTONE	NO SAN
LIMESTONE	COAL	SALT
? UNKNOWN	CONGLOMERATE	SANDS
ANHYDRITE	DOLOMITE	SALT-F
BENTONITE	GRANITE	SHALE
BRECCIA	GYPSUM	SHALE

US
ITE or LIMONITE
MORPHIC
MPLE
STONE
PEPPER SAND
E
E COLORED

- SHALE GRAY
- SHALY SILTSTONE
- SILTSTONE
- TILL
- TUFF
- WELDED TUFF

- Gas
- Pressure
- Seal

Accessories

Fossils

- ALGAE
- AMPHIPORA
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- 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
- INOCERAMUS
- KAOLIN
- MARLSTONE
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SILICEOUS
- SILTY
- TUFFACEOUS

Stringer

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

Other Symbols

Oil Show

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

Engineering

- BIT
- CONNECTION (DOWN)
- CONNECTION (LEFT)
- CONNECTION (RIGHT)
- CONNECTION GAS
- CONNECTION GAS UP
- CONNECTION GAS LEFT
- CONNECTION GAS DOWN...
- 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

Porosity

- EARTHY
- FENESTRAL
- FRACTURE
- INTERCRYSTALLINE
- INTEROOLITIC
- MOLDIC

Rounding

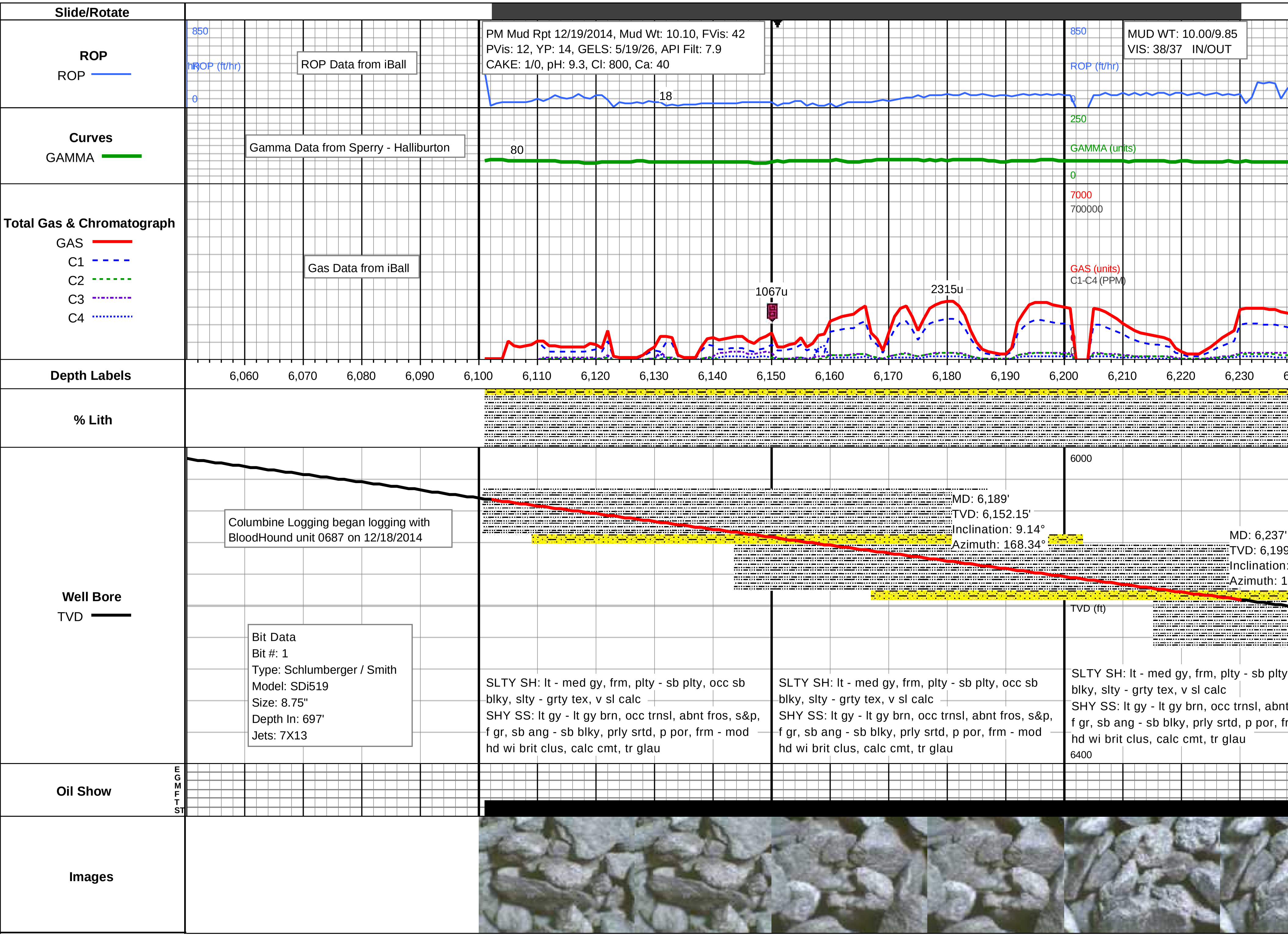
- ANGULAR
- ROUNDED
- SUBANG
- SUBRND

Textures

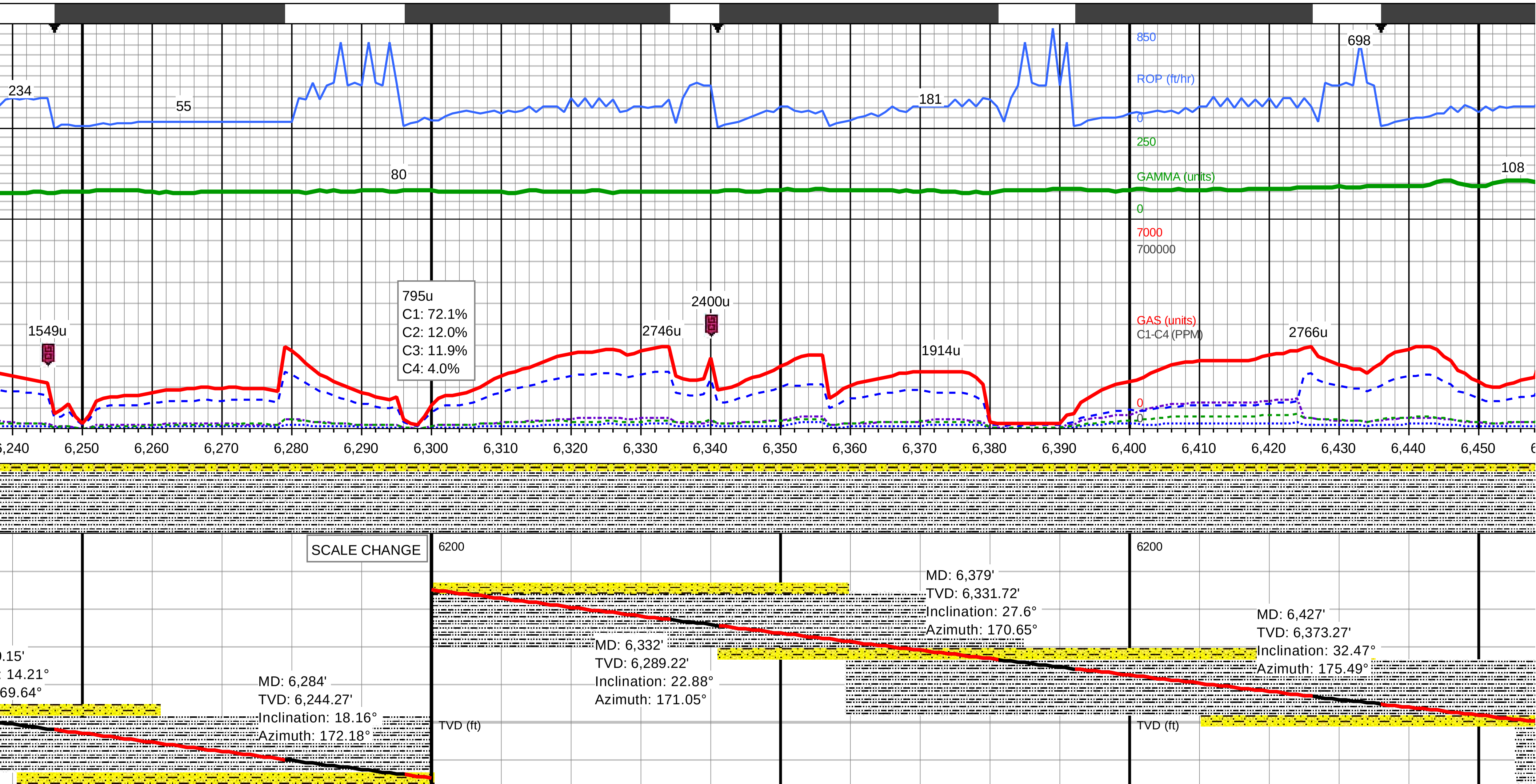
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL



Slide/Rotate
ROP
ROP
850
ROP (ft/hr)
0
ROP Data from iBall
PM Mud Rpt 12/19/2014, Mud Wt: 10.10, FVis: 42
PVis: 12, YP: 14, GELS: 5/19/26, API Filt: 7.9
CAKE: 1/0, pH: 9.3, Cl: 800, Ca: 40
18
MUD WT: 10.00/9.85
VIS: 38/37 IN/OUT
Curves
GAMMA
Gamma Data from Sperry - Halliburton
80
250
GAMMA (units)
0
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
Gas Data from iBall
1067u
2315u
7000
700000
GAS (units)
C1-C4 (PPM)
Depth Labels
6,060
6,070
6,080
6,090
6,100
6,110
6,120
6,130
6,140
6,150
6,160
6,170
6,180
6,190
6,200
6,210
6,220
6,230
% Lith
Well Bore
TVD
Columbine Logging began logging with
BloodHound unit 0687 on 12/18/2014
Bit Data
Bit #: 1
Type: Schlumberger / Smith
Model: SDi519
Size: 8.75"
Depth In: 697'
Jets: 7X13
MD: 6,189'
TVD: 6,152.15'
Inclination: 9.14°
Azimuth: 168.34°
MD: 6,237'
TVD: 6,199
Inclination:
Azimuth: 1
6000
TVD (ft)
6400
SLTY SH: lt - med gy, frm, plty - sb plty, occ sb
blky, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ trnsl, abnt fros, s&p,
f gr, sb ang - sb blky, prly srtd, p por, frm - mod
hd wi brit clus, calc cmt, tr glau
SLTY SH: lt - med gy, frm, plty - sb plty, occ sb
blky, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ trnsl, abnt fros, s&p,
f gr, sb ang - sb blky, prly srtd, p por, frm - mod
hd wi brit clus, calc cmt, tr glau
SLTY SH: lt - med gy, frm, plty - sb plty
blky, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ trnsl, abnt
f gr, sb ang - sb blky, prly srtd, p por, fr
hd wi brit clus, calc cmt, tr glau
Oil Show
E
G
M
F
T
ST
Images



, occ sb
fros, s&p,
rm - mod

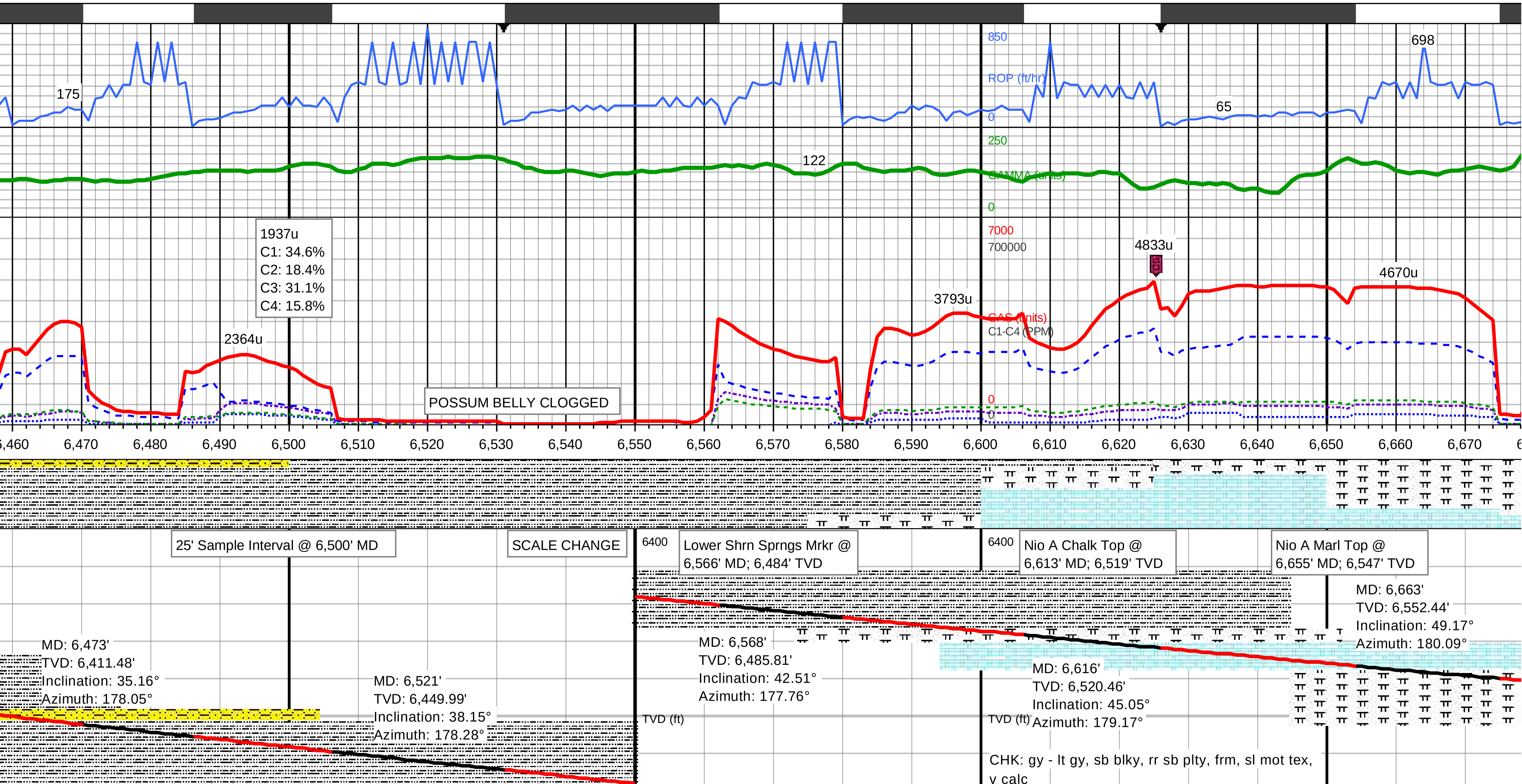
SLTY SH: lt - med gy, frm, plty - sb plty, occ sb blky, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ trnsl, abnt fros, s&p, f gr, sb ang - sb blky, prly srtd, p por, frm - mod hd wi brit clus, calc cmt, tr glau

SLTY SH: lt - med gy, frm, plty - sb plty, occ sb blky, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ trnsl, abnt fros, s&p, f gr, sb ang - sb blky, prly srtd, p por, frm - mod hd wi brit clus, calc cmt, tr glau

SLTY SH: lt - med gy, frm, plty - sb plty, occ sb blky, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ trnsl, abnt fros, s&p, f gr, sb ang - sb blky, prly srtd, p por, frm - mod hd wi brit clus, calc cmt, tr glau

SLTY SH: lt - med gy, frm, plty - sb plty, occ sb blky, slty - grty tex, v sl calc
SHY SS: lt gy - lt gy brn, occ trnsl, abnt fros, s&p, f gr, sb ang - sb blky, prly srtd, p por, frm - mod hd wi brit clus, calc cmt, tr glau

SLTY S
blky, sl
SHY SS
f gr, sb
hd wi b



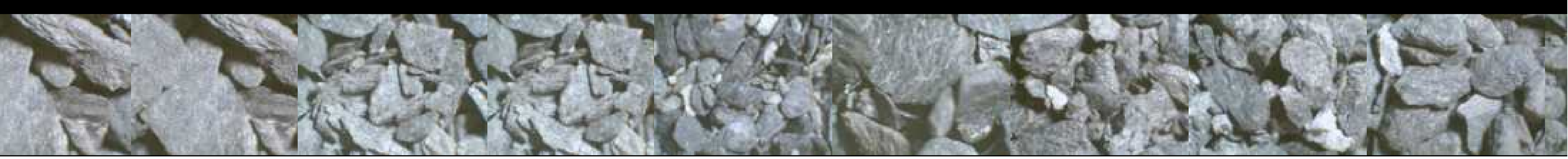
H: lt - med gy, frm, plty - sb plty, occ sb
ty - grty tex, v sl calc
S: lt gy - lt gy brn, occ trnsl, abnt fros, s&p,
ang - sb blky, prly srtd, p por, frm - mod
rit clus, calc cmt, tr glau

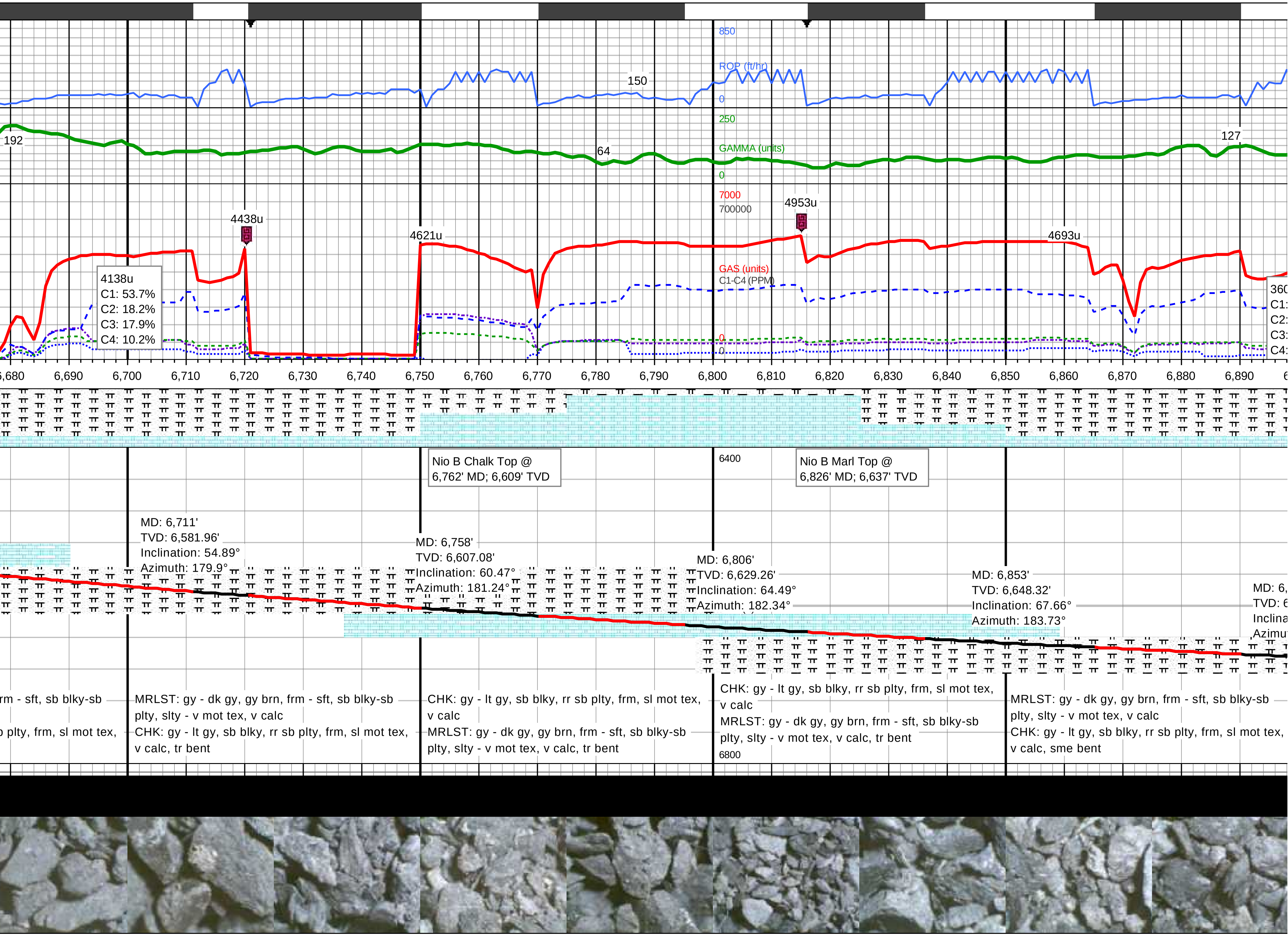
SLTY SH: lt - med gy, frm, plty - sb plty, occ sb blky, slty - grty tex, v sl calc

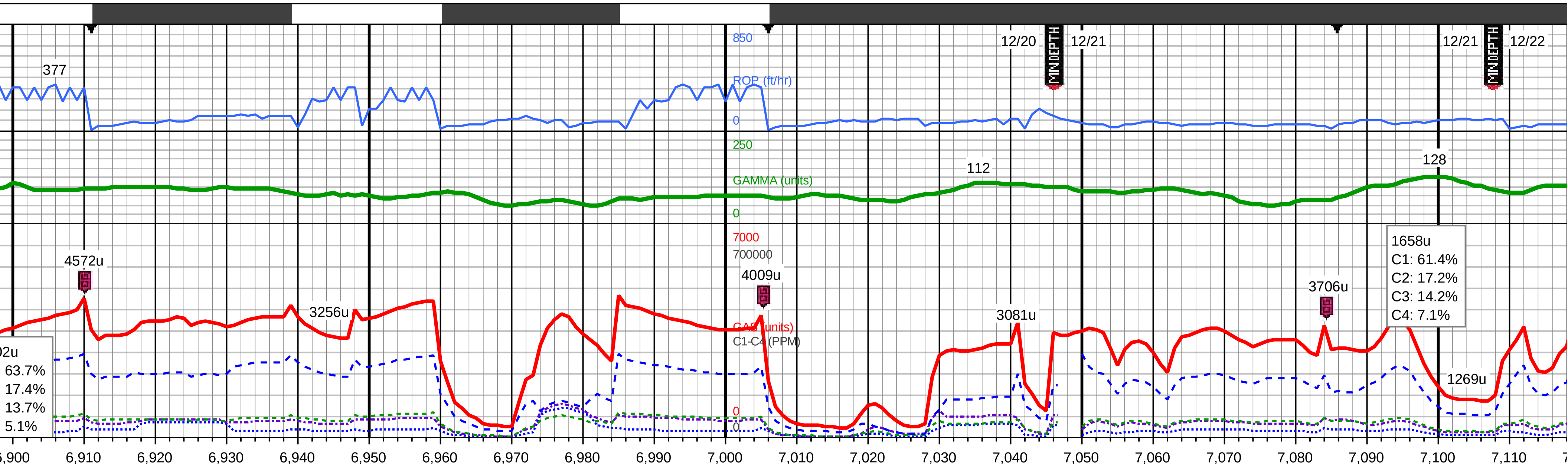
SLTY SH: predy ltgy - ltgy brn, occ med gy, frm, plty - sb plty, occ sb blky, slty - grty tex, sly calc
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, abnt bent

CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc
SLTY SH: predy ltgy - ltgy brn, occ med gy, frm, plty - sb plty, occ sb blky, slty - grty tex, sly calc, sme bent

MRLST: gy - dk gy, gy brn, f
plty, slty - v mot tex, v calc
CHK: gy - lt gy, sb blky, rr sb
v calc, sme bent




ROP (ft/hr)
850
0
150
GAMMA (units)
250
0
192
64
127
GAS (units)
C1-C4 (PPM)
7000
700000
0
4138u
C1: 53.7%
C2: 18.2%
C3: 17.9%
C4: 10.2%
4438u
4621u
4953u
4693u
6,680
6,690
6,700
6,710
6,720
6,730
6,740
6,750
6,760
6,770
6,780
6,790
6,800
6,810
6,820
6,830
6,840
6,850
6,860
6,870
6,880
6,890
Nio B Chalk Top @
6,762' MD; 6,609' TVD
Nio B Marl Top @
6,826' MD; 6,637' TVD
6400
6800
MD: 6,711'
TVD: 6,581.96'
Inclination: 54.89°
Azimuth: 179.9°
MD: 6,758'
TVD: 6,607.08'
Inclination: 60.47°
Azimuth: 181.24°
MD: 6,806'
TVD: 6,629.26'
Inclination: 64.49°
Azimuth: 182.34°
MD: 6,853'
TVD: 6,648.32'
Inclination: 67.66°
Azimuth: 183.73°
rm - sft, sb blky-sb
plty, frm, sl mot tex,
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb
plty, slty - v mot tex, v calc
CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex,
v calc, tr bent
CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex,
v calc
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb
plty, slty - v mot tex, v calc, tr bent
CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex,
v calc
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb
plty, slty - v mot tex, v calc, tr bent
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb
plty, slty - v mot tex, v calc
CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex,
v calc, sme bent



Nio C Chalk Top @
6,971' MD; 6,683' TVD

6400

SCALE CHANGE

6500

TOOH @ 7,065' MD
to run 7" casing

Bit Data
Bit #: 2
Type: Schlumberger/Smith
Model: SDi513
Size: 6.12"
Depth In: 7,046'
Jets: 5x13
S/N: JK0853

50' Sample Interval

TVD (ft)

TVD (ft)

901'
,664.97'
tion: 71.73°
th: 181.98°

MD: 6,948'
TVD: 6,678.09'
Inclination: 75.84°
Azimuth: 180.48°

MD: 6,988'
TVD: 6,686.72'
Inclination: 79.25°
Azimuth: 179.94°

MD: 7,046'
TVD: 6,694.66'
Inclination: 85°
Azimuth: 179.2°

MD: 7,1
TVD: 6,
Inclinat
Azimuth

MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc
CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc, tr bent

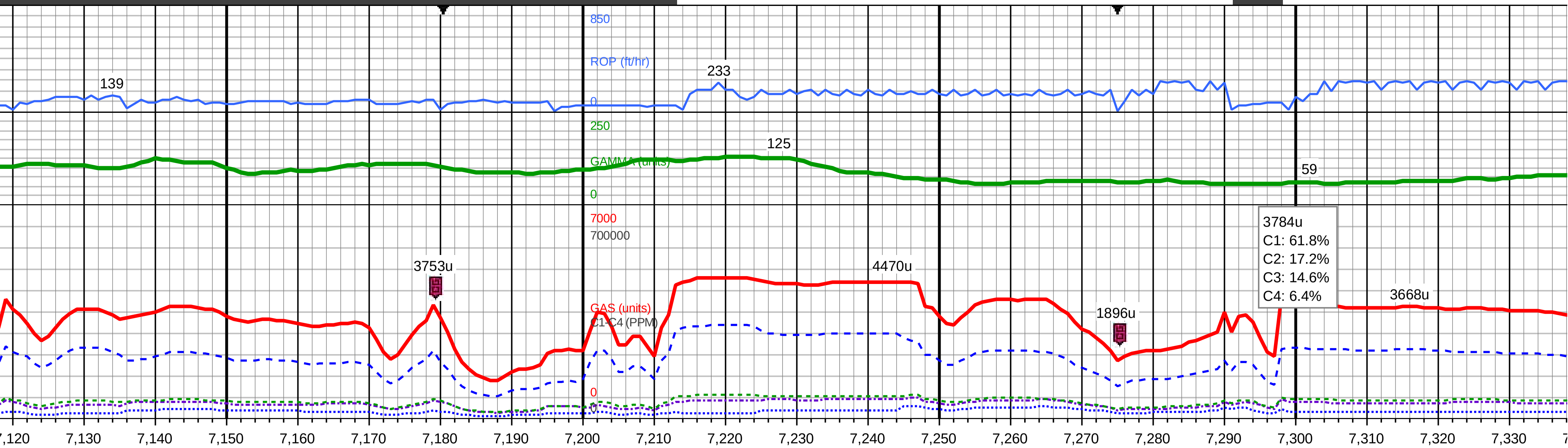
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc
CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc, tr bent

CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

6900

70%CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

40% CHK: gy - lt
mot tex, v calc
60% MRLST: gy
blky-sb plty, slty



@ 7,100' MD

6500

20'
704.44'
ion: 85.31°
n: 178.88°

MD: 7,215'
TVD: 6,710.04'
Inclination: 87.93°
Azimuth: 179.42°

MD: 7,310'
TVD: 6,712.47'
Inclination: 89.14°
Azimuth: 179.2°

TVD (ft)

6900

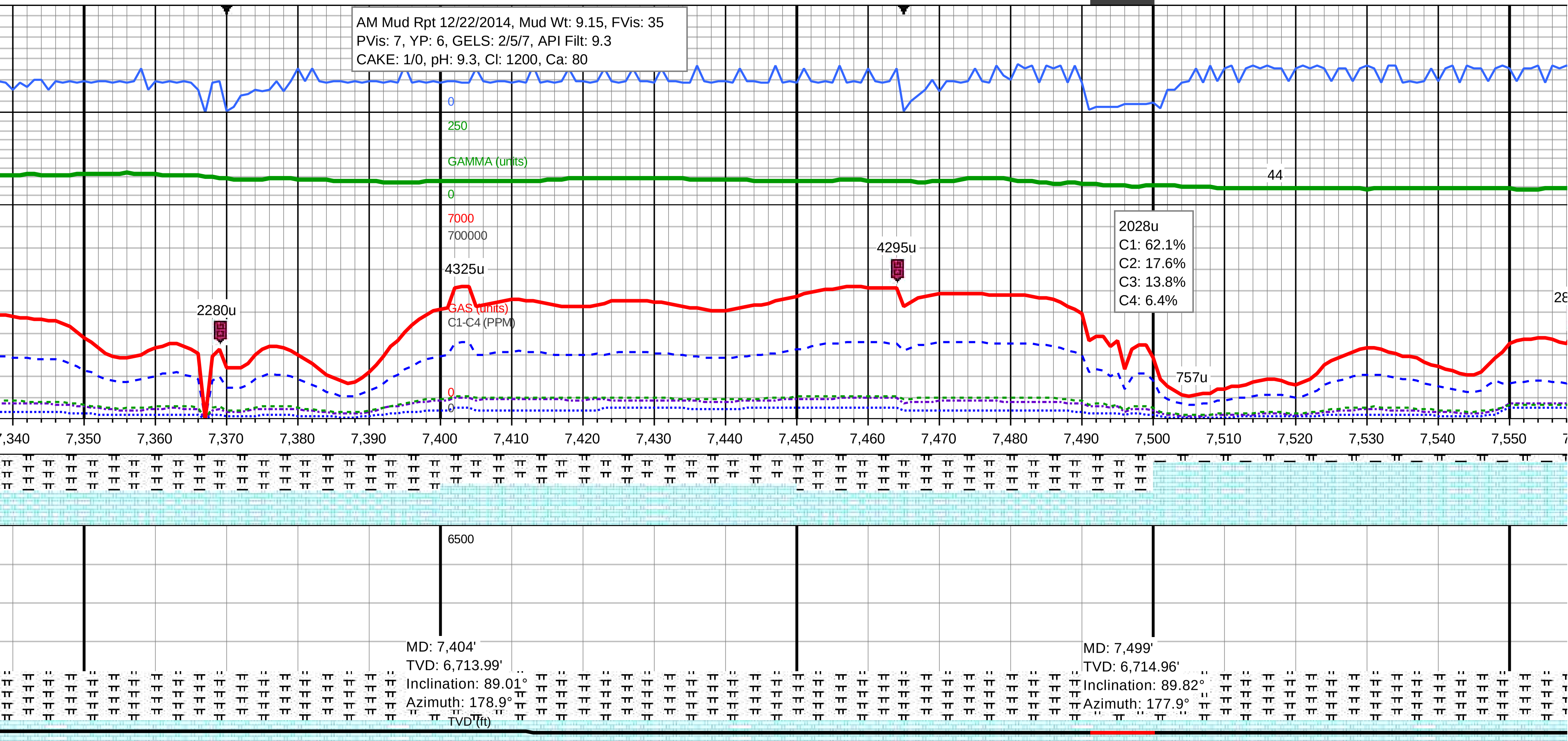
gy, sb blky, rr sb plty, frm, sl
- dk gy, gy brn, frm - sft, sb
- v mot tex, v calc, v tr bent

40% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
60% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

40% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
60% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

40% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
60% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

50% CHK: gy - lt gy, sb blky, rr sb plty,
mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - s
blky-sb plty, slty - v mot tex, v calc, v t



frm, sl
ft, sb
r bent

50% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, v tr bent

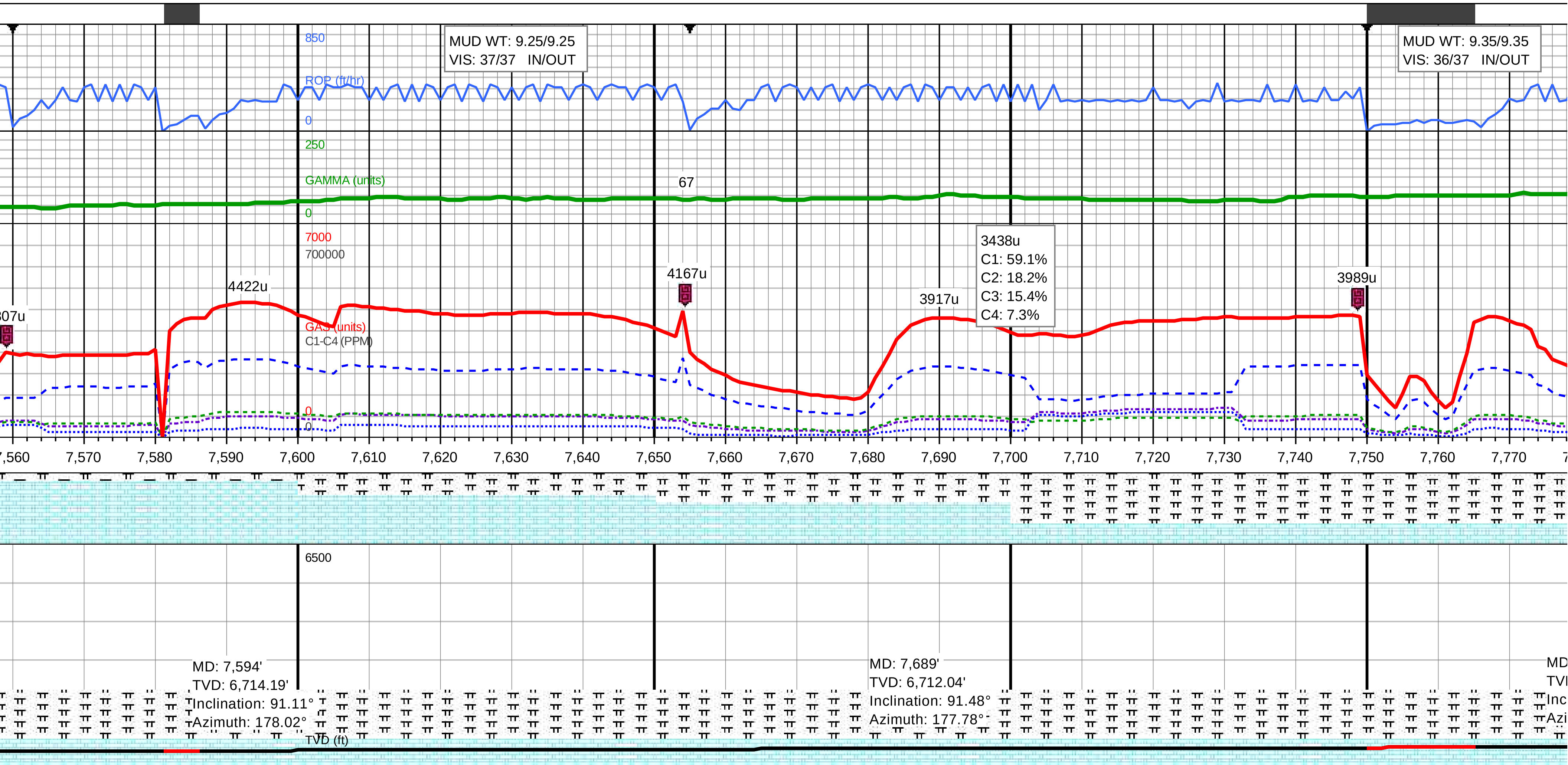
60% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
40% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, v tr bent

6900

50% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, v tr bent

90% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
10% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, v tr bent

90% C
mot tex
10% M
blky-sb



HK: gy - lt gy, sb blky, rr sb plty, frm, sl
x, v calc
RLST: gy - dk gy, gy brn, frm - sft, sb
plty, slty - v mot tex, v calc, v tr bent

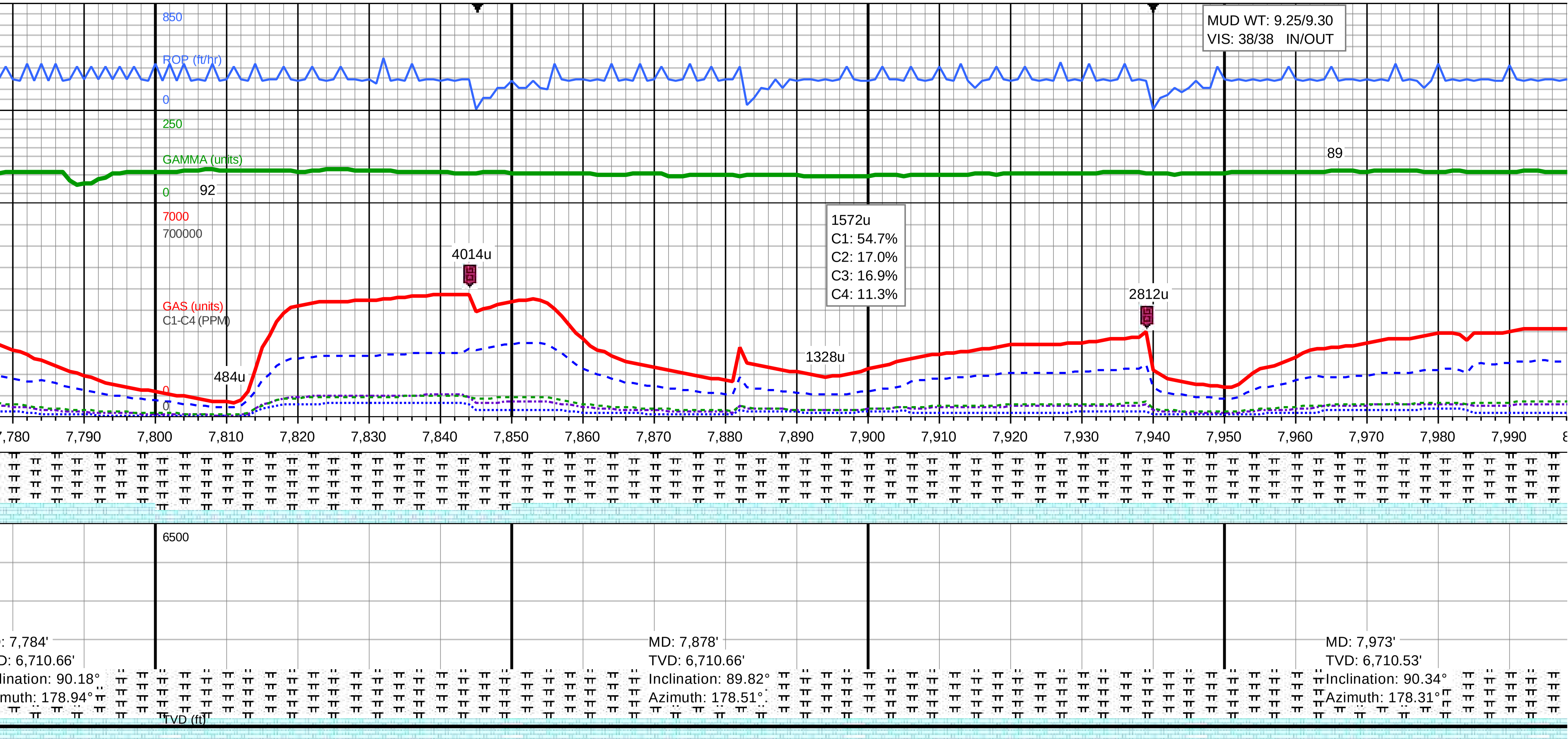
70% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

6900

60% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
40% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

30% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
70% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

30% CHK: gy - lt gy, sb blky,
mot tex, v calc
70% MRLST: gy - dk gy, gy b
blky-sb plty, slty - v mot tex,



rr sb plty, frm, sl
rn, frm - sft, sb
v calc, no bent

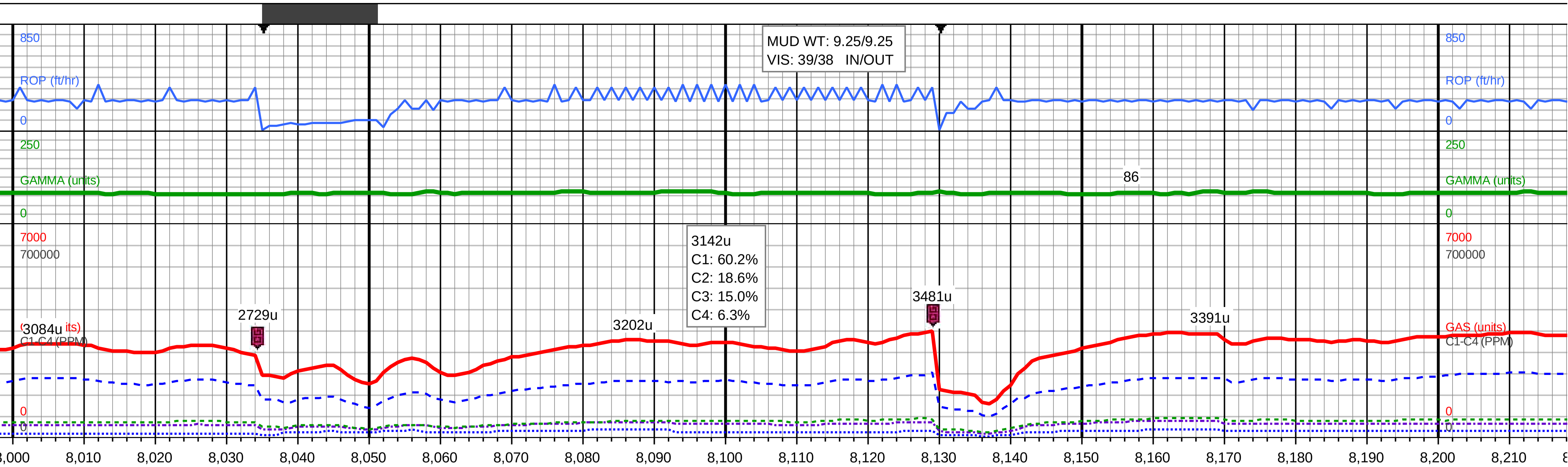
20% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
80% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, v tr bent

6900

30% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
70% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

30% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
70% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

30% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
70% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent



6500

MD: 8,068'
TVD: 6,710.56'
Inclination: 89.63°
Azimuth: 178.85°

MD: 8,163'
TVD: 6,710.94'
Inclination: 89.91°
Azimuth: 177.84°

TVD (ft)

20% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
80% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

6900

20% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
80% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

20% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
80% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

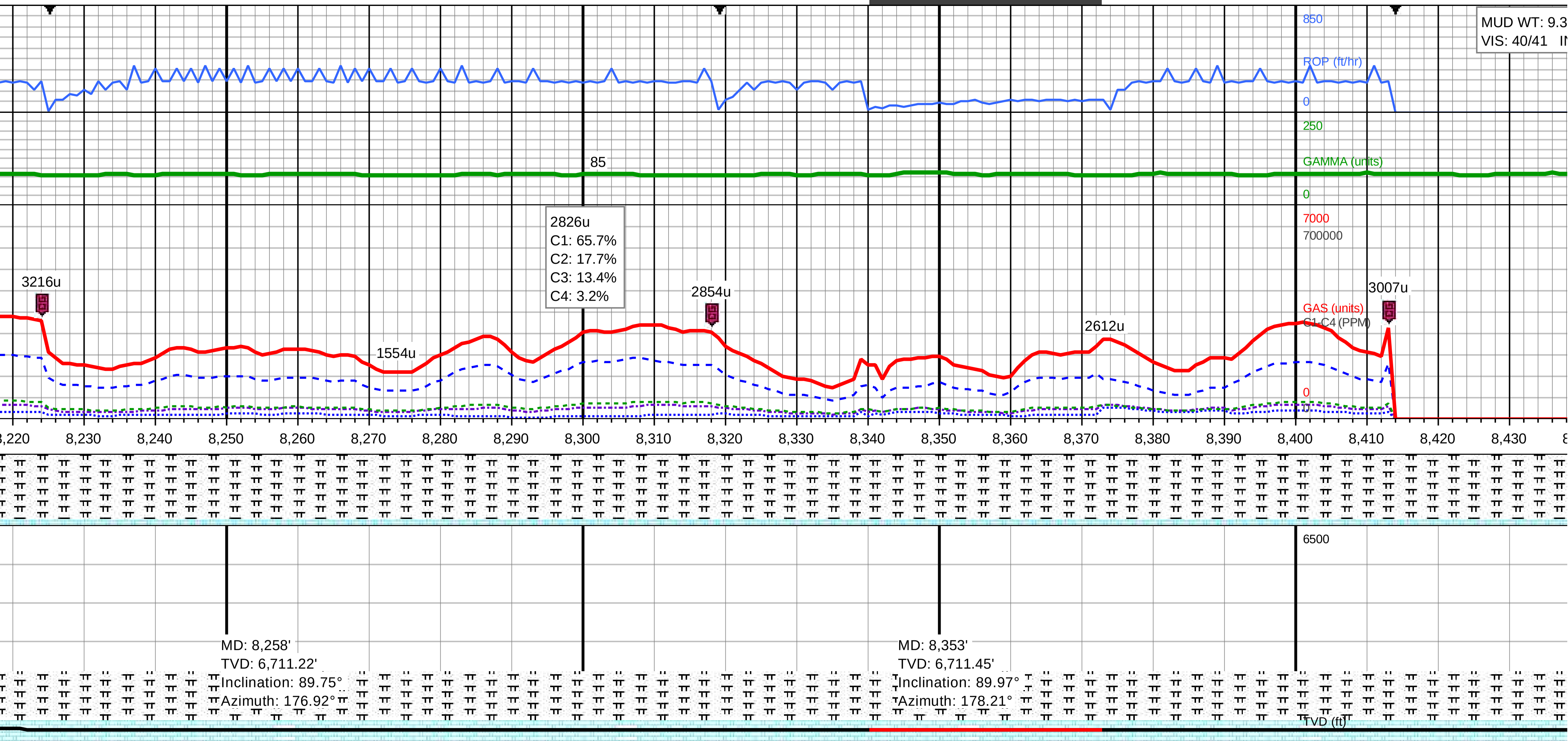
30% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
70% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

10% CHK: gy - lt g
mot tex, v calc
90% MRLST: gy -
blky-sb plty, slty -

6500

TVD (ft)

6900



gy, sb blky, rr sb plty, frm, sl
dk gy, gy brn, frm - sft, sb
v mot tex, v calc, no bent

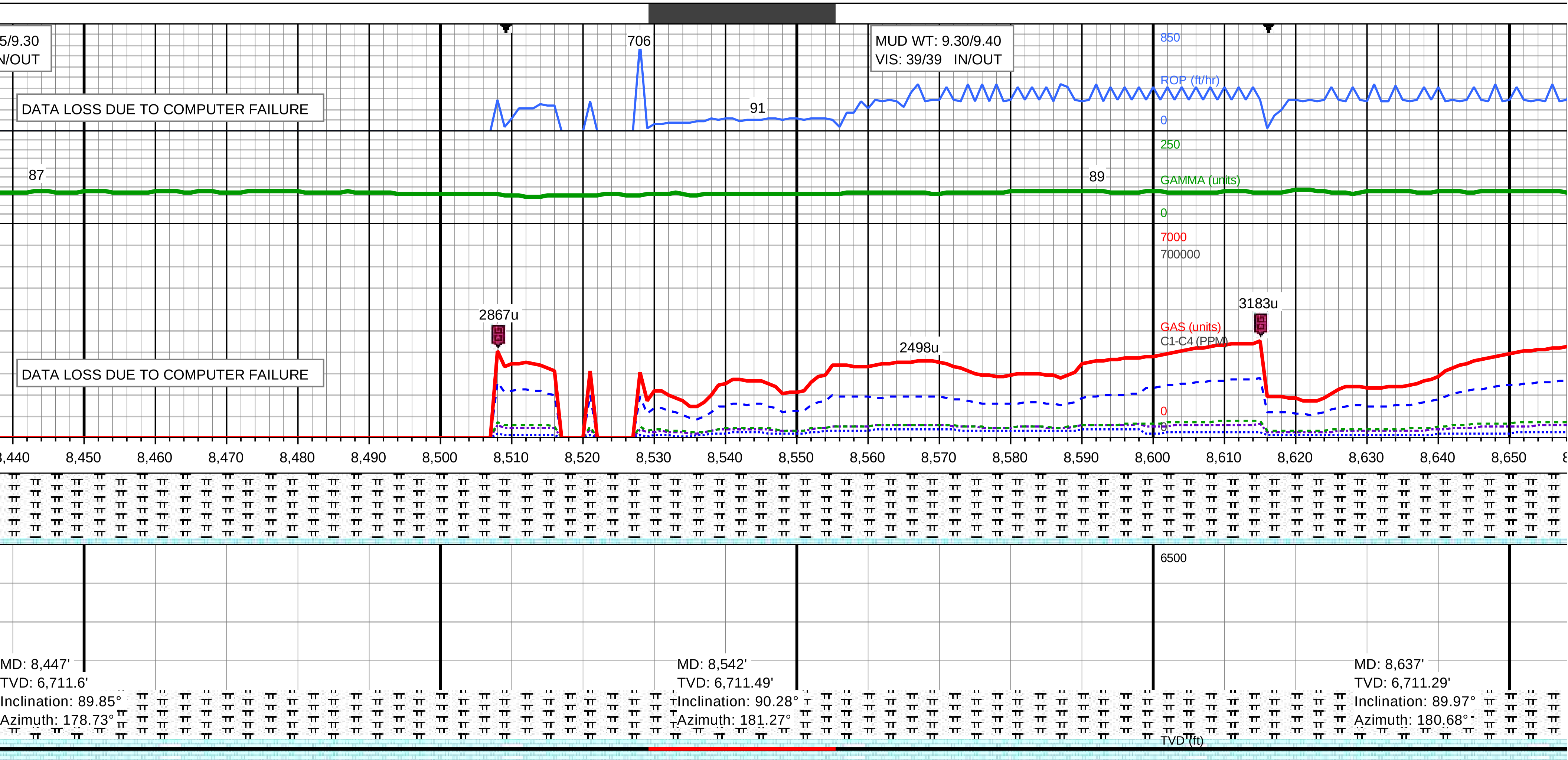
10% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
90% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

10% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
90% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

10% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
90% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

10% CHK: gy - lt gy, sb blky, rr sb plty,
mot tex, v calc
90% MRLST: gy - dk gy, gy brn, frm - sf
blky-sb plty, slty - v mot tex, v calc, no

6900



frm, sl
t, sb
bent

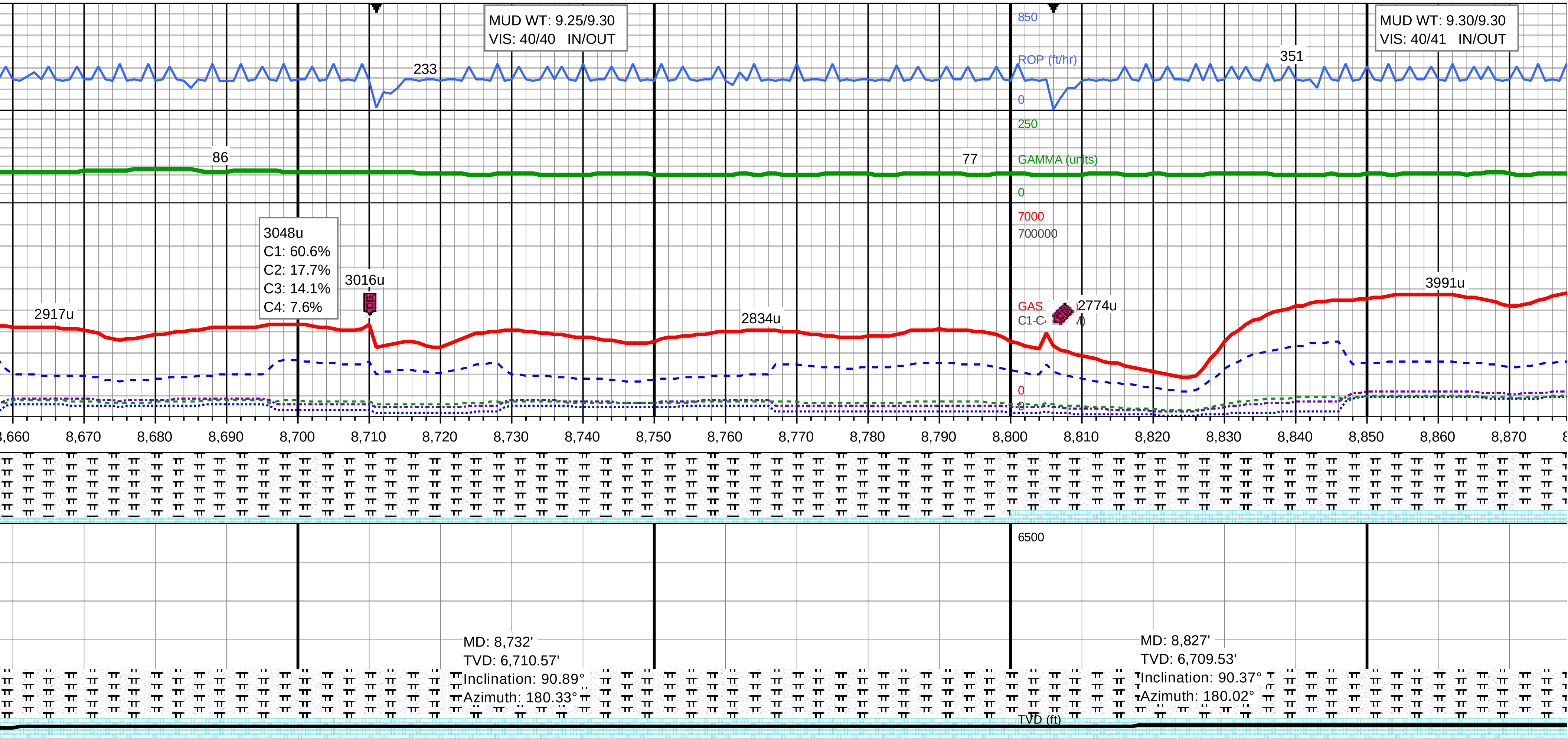
10% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
90% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

10% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
90% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

10% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
90% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

10% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
90% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

10% Cl
blky, rt
90% M
- sl frm
slty mt



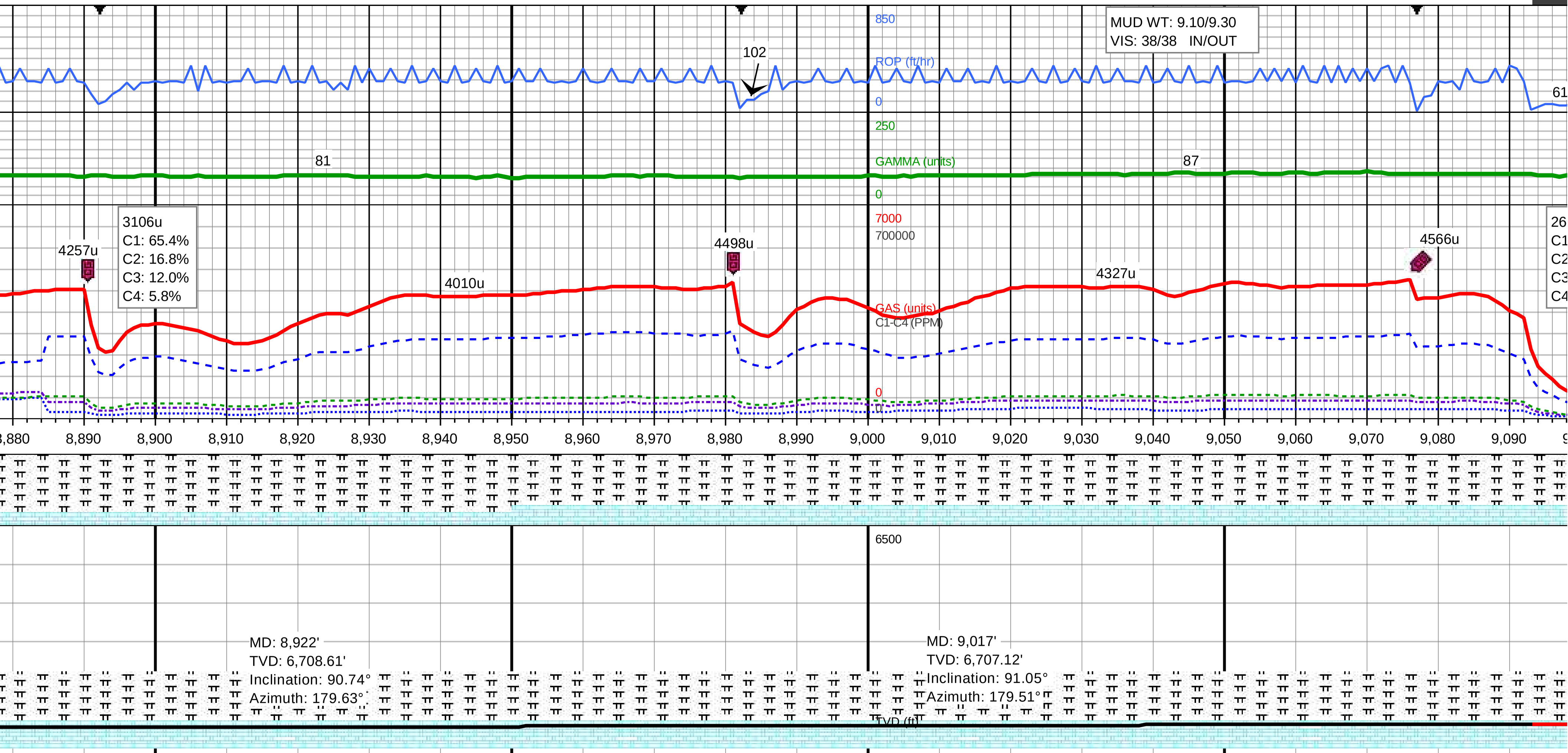
HK: mot gy brn - lt gy, v sft - sl frm, fri, sb
hy - sb wxy tex, v calc;
RLST: dk - med gy - blk, sme gy brn, mod
, brit - fri ip, gt tex, sb plty - sb blky, arg -
x, cal incl

10% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
90% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

10% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
90% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

20% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
80% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

20% CHK: mot gy brn - lt
fri, sb blky, rthy - sb wxy
80% MRLST: dk - med g
mod - sl frm, brit - fri ip,
blky, arg - slty mtx



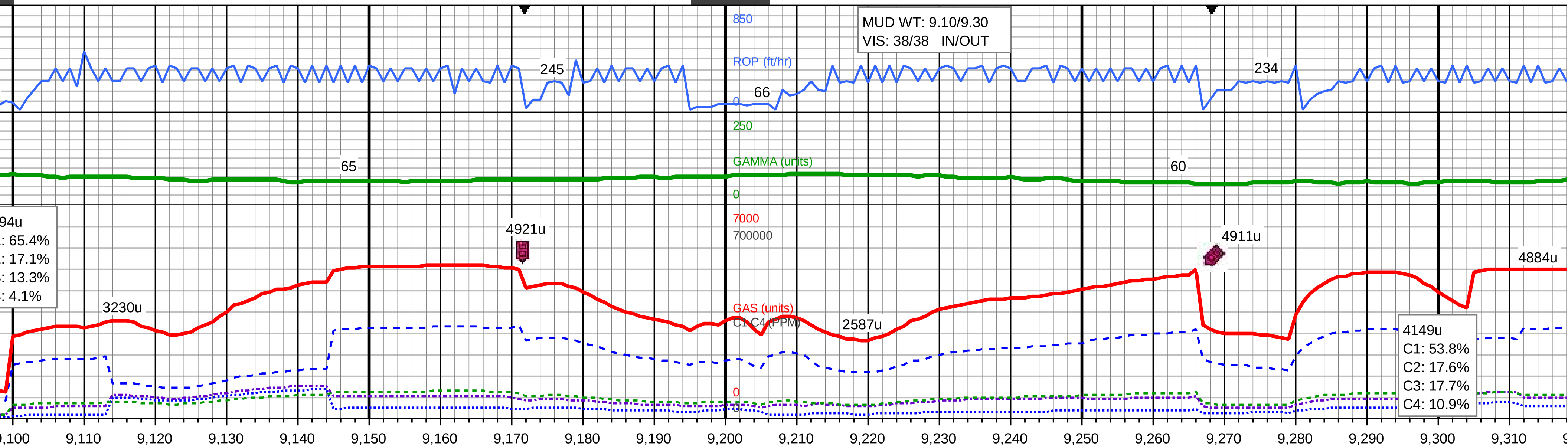
gy, v sft - sl frm,
tex, v calc;
- blk, sme gy brn,
gt tex, sb plty - sb

20% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
80% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx



6500

MD: 9,112'
TVD: 6,705.1'
Inclination: 91.39°
Azimuth: 179.04°

MD: 9,207'
TVD: 6,704.38'
Inclination: 89.48°
Azimuth: 179.29°

MD: 9,301'
TVD: 6,704.68'
Inclination: 90.15°
Azimuth: 179.01°

TVD (ft)

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

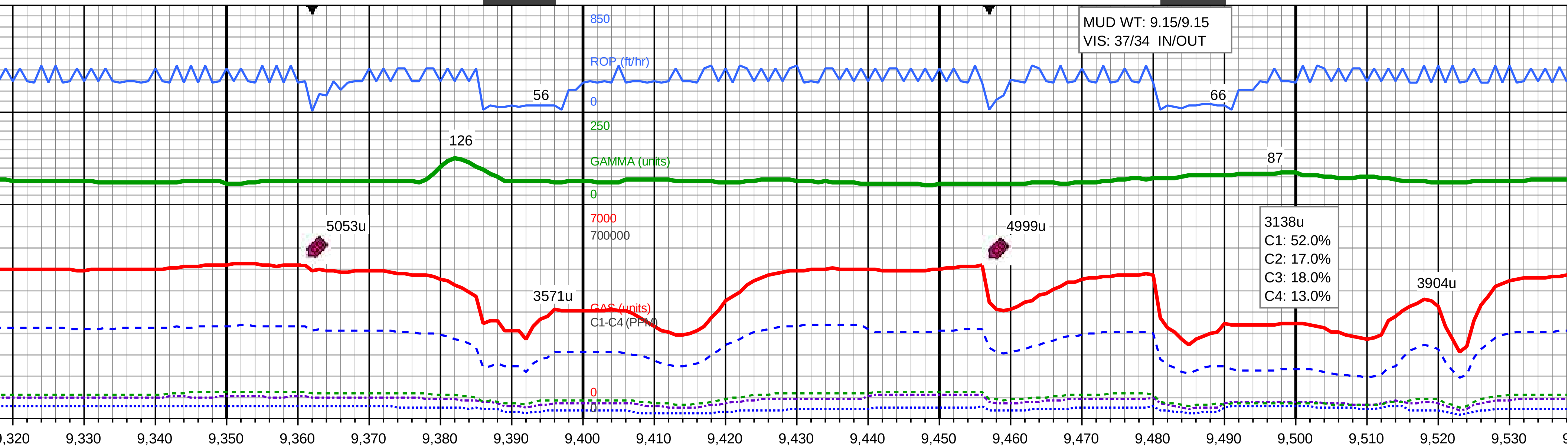
30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

6900

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

40% CHK: mot gy
sb blky, rthy - sb
60% MRLST: dk -
mod - sl frm, brit -
blky, arg - slty mt



6500

MD: 9,396'
TVD: 6,704.48'
Inclination: 90.09°
Azimuth: 178.58°

MD: 9,491'
TVD: 6,706.02'
Inclination: 88.06°
Azimuth: 178.16°

TVD (ft)

6900

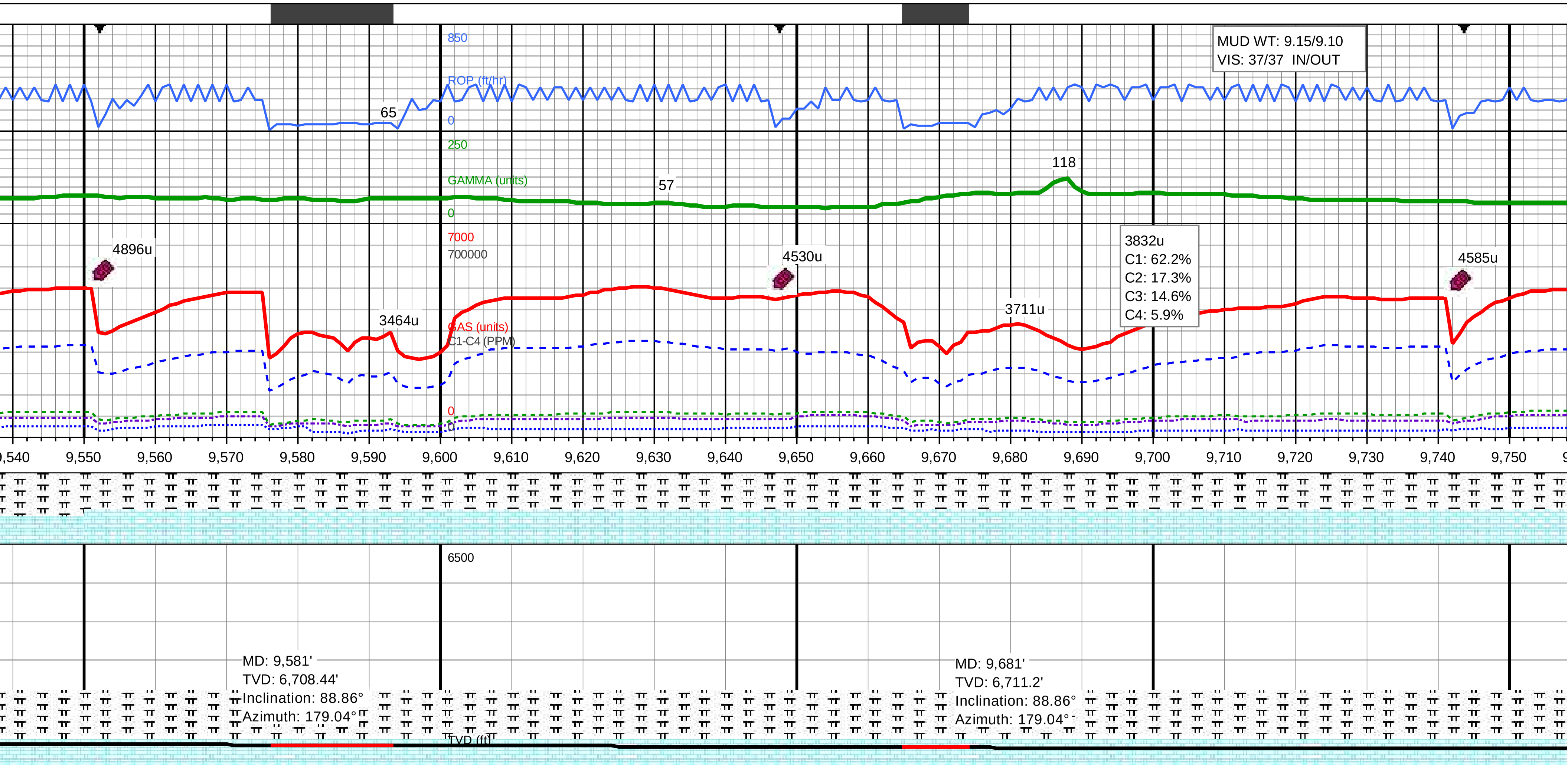
brn - lt gy, v sft - sl frm, fri,
wxy tex, v calc;
med gy - blk, sme gy brn,
fri ip, gt tex, sb plty - sb
x

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

40% CHK: mot gy brn - lt gy, v sft - sl f
sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy - blk, sme gy
mod - sl frm, brit - fri ip, gt tex, sb plty
blky, arg - slty mtx



rm, fri,
y brn,
- sb

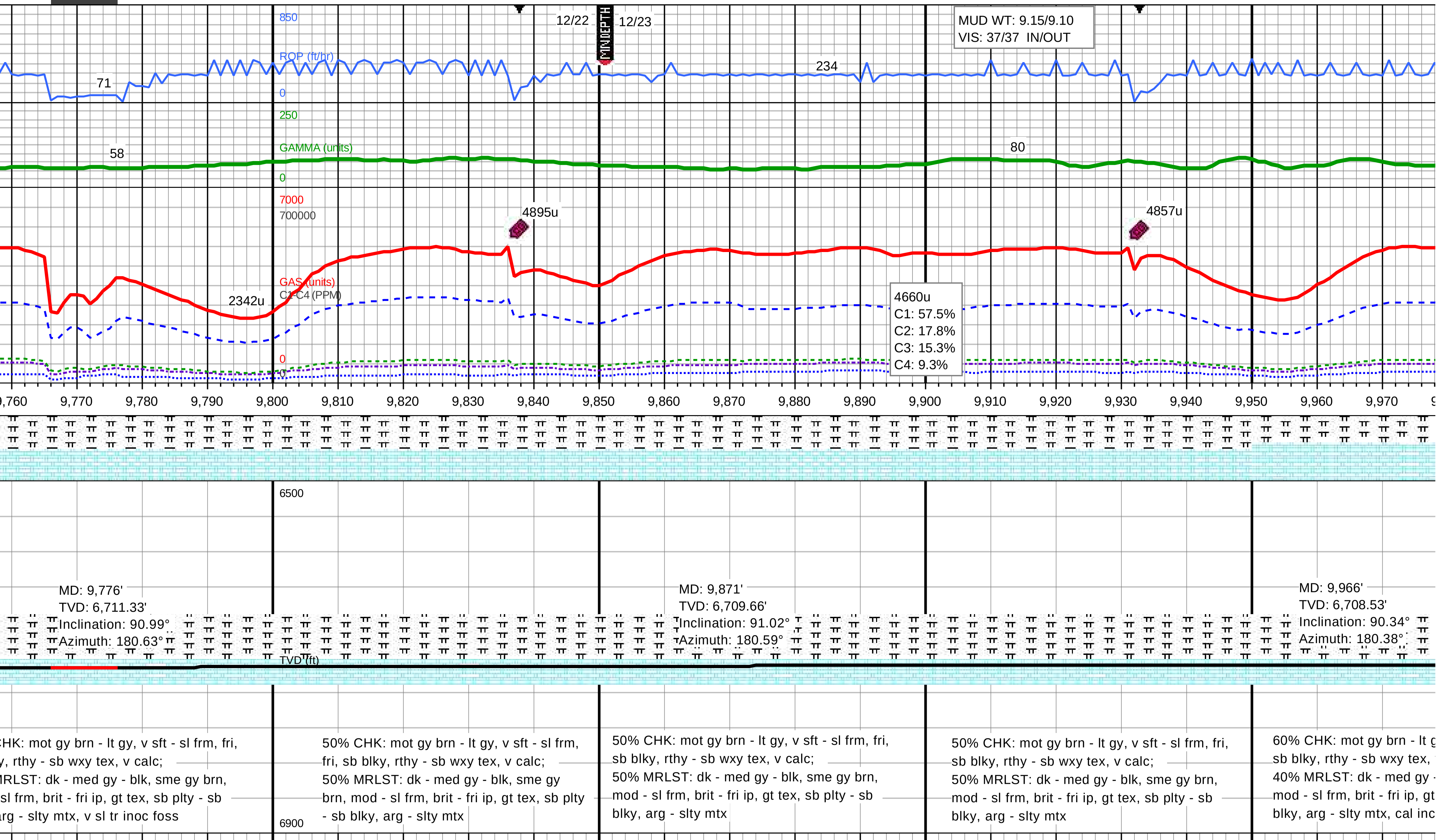
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc foss

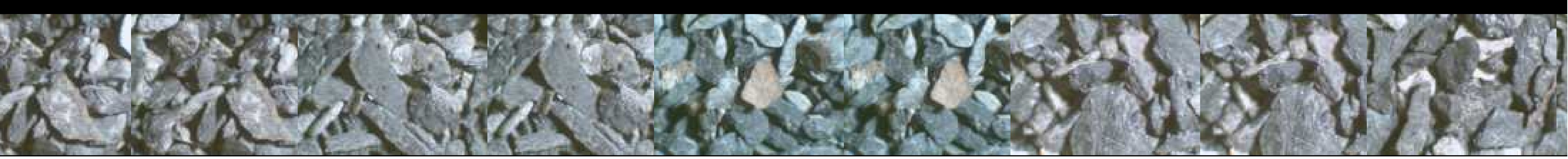
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc foss

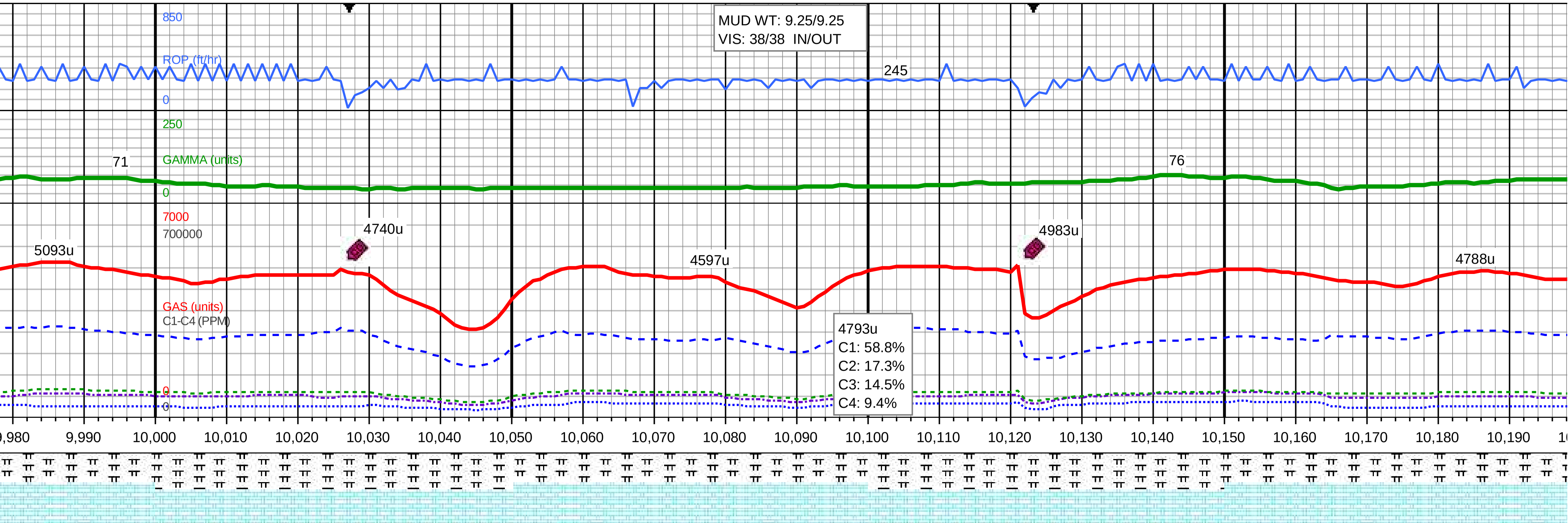
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

50% C
sb blk
50% M
mod -
blky, a



MUD WT: 9.15/9.10
VIS: 37/37 IN/OUT
12/22
MNDEPTH
12/23
850
ROP (ft/hr)
0
71
234
250
GAMMA (units)
0
58
80
7000
700000
GAS (units)
C1-C4 (PPM)
0
4895u
4857u
2342u
4660u
C1: 57.5%
C2: 17.8%
C3: 15.3%
C4: 9.3%
9,760
9,770
9,780
9,790
9,800
9,810
9,820
9,830
9,840
9,850
9,860
9,870
9,880
9,890
9,900
9,910
9,920
9,930
9,940
9,950
9,960
9,970
6500
TVD (ft)
6900
MD: 9,776'
TVD: 6,711.33'
Inclination: 90.99°
Azimuth: 180.63°
MD: 9,871'
TVD: 6,709.66'
Inclination: 91.02°
Azimuth: 180.59°
MD: 9,966'
TVD: 6,708.53'
Inclination: 90.34°
Azimuth: 180.38°
CHK: mot gy brn - lt gy, v sft - sl frm, fri, y, rthy - sb wxy tex, v calc; MRLST: dk - med gy - blk, sme gy brn, sl frm, brit - fri ip, gt tex, sb plty - sb rg - slty mtx, v sl tr inoc foss
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx
60% CHK: mot gy brn - lt g sb blky, rthy - sb wxy tex, 40% MRLST: dk - med gy - mod - sl frm, brit - fri ip, gt blky, arg - slty mtx, cal inc





MD: 10,061'
TVD: 6,708.65'
Inclination: 90.4°
Azimuth: 180.19°

MD: 10,156'
TVD: 6,707.66'
Inclination: 90.8°
Azimuth: 180.24°

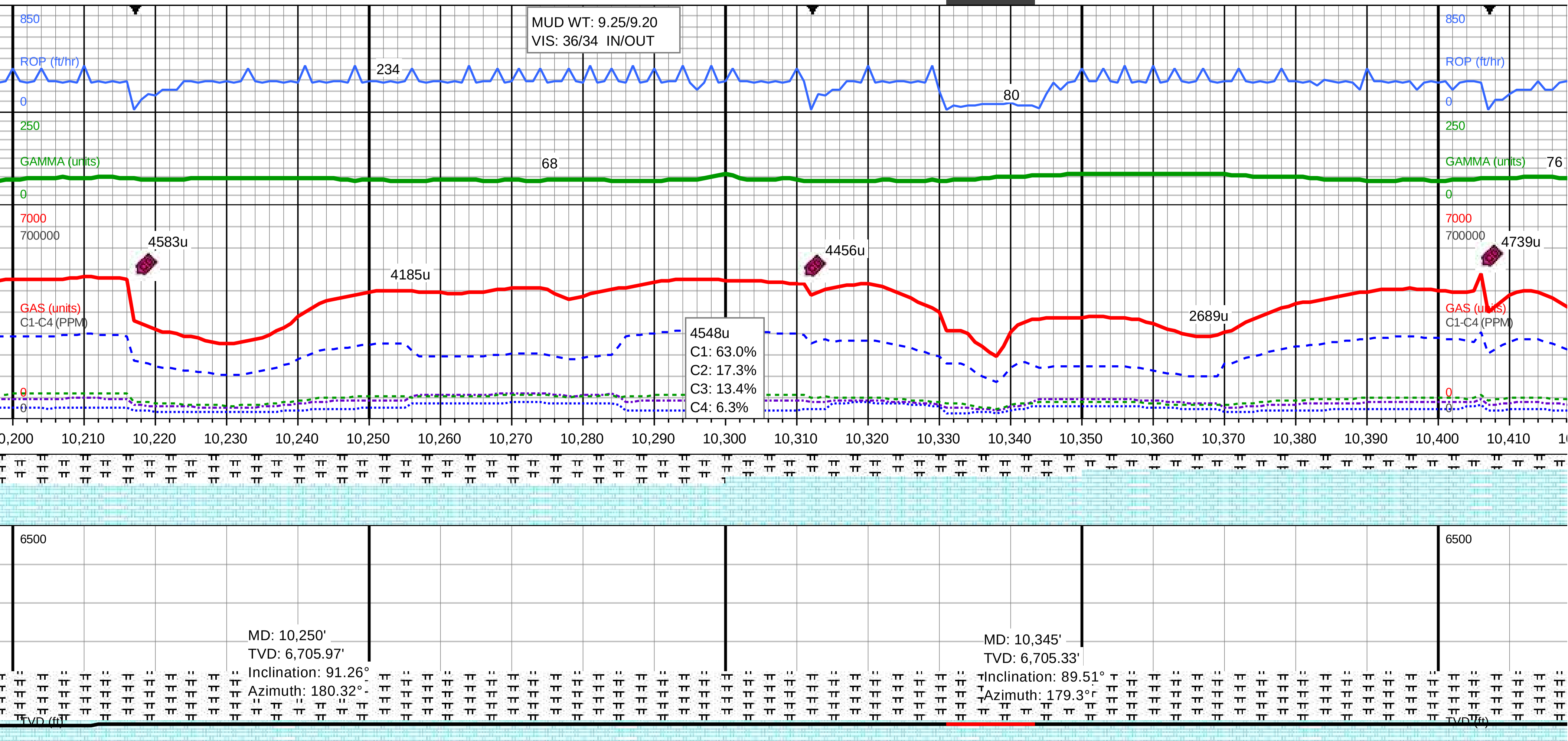
gy, v sft - sl frm, fri, v calc; - blk, sme gy brn, tex, sb plty - sb l, v sl tr bent

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 40% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr wh inoc foss

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 40% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, v sl tr inoc foss



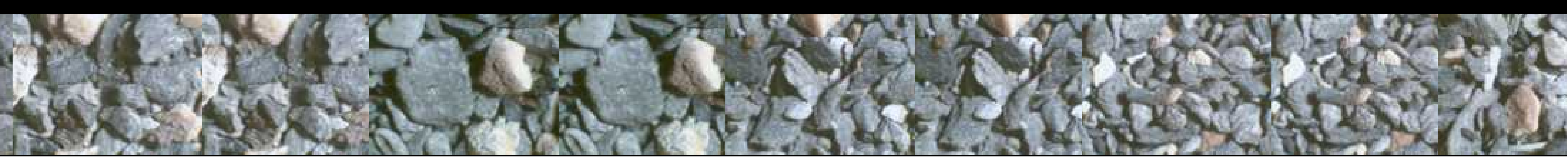
60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, v sl tr bent

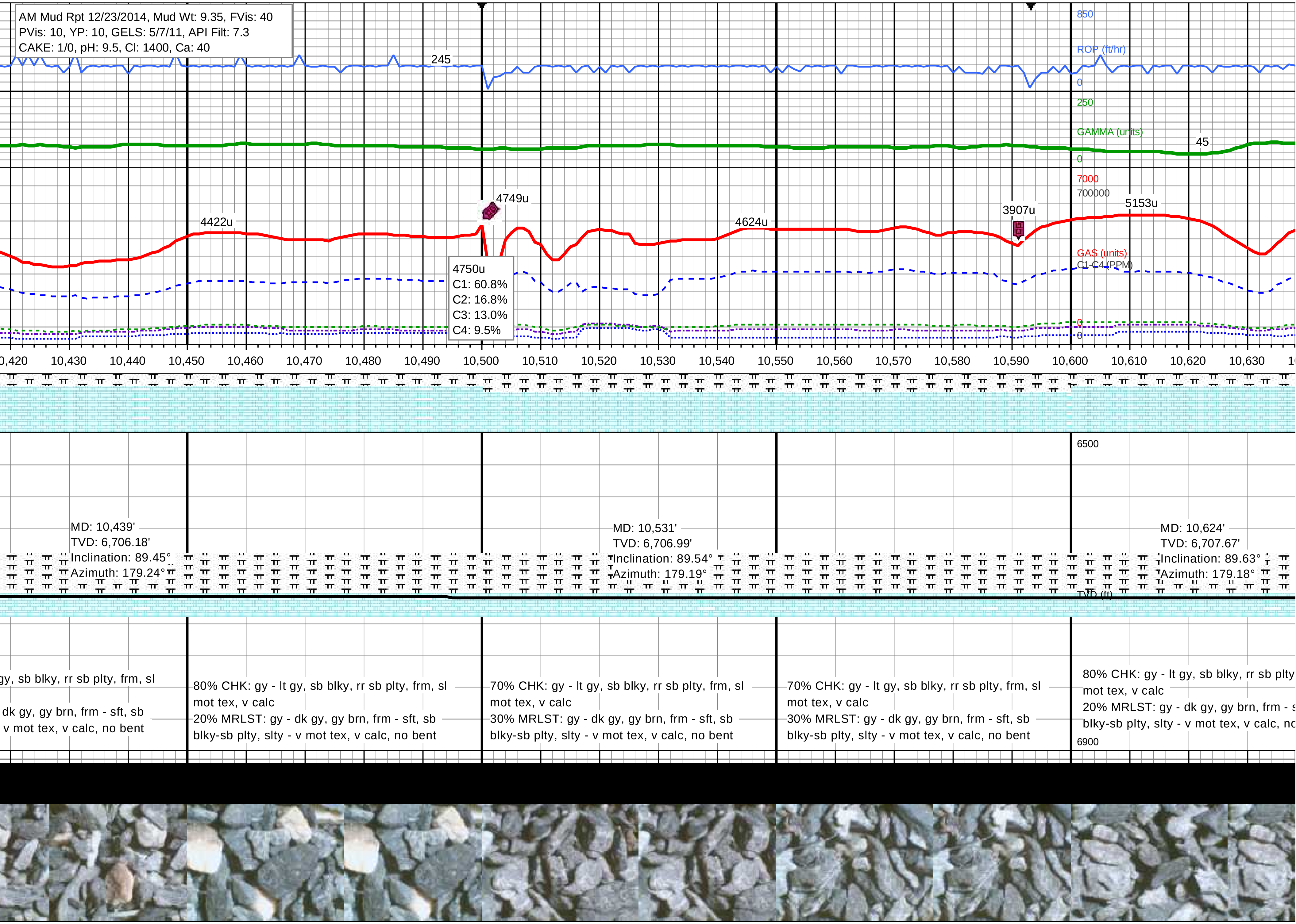
60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, v sl tr bent

70% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

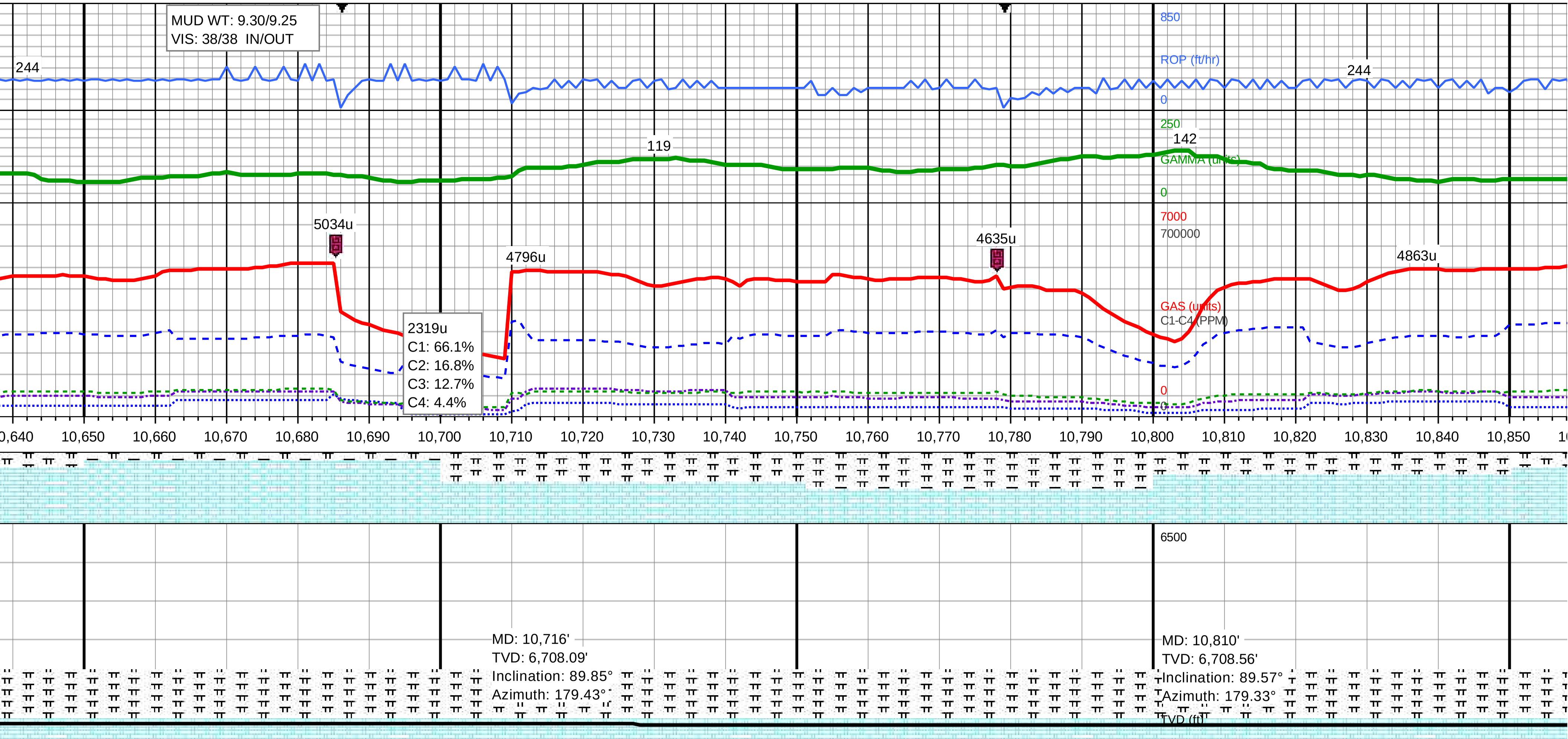
80% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
20% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

80% CHK: gy - lt g
mot tex, v calc
20% MRLST: gy -
blky-sb plty, slty -





AM Mud Rpt 12/23/2014, Mud Wt: 9.35, FVis: 40
PVis: 10, YP: 10, GELS: 5/7/11, API Filt: 7.3
CAKE: 1/0, pH: 9.5, Cl: 1400, Ca: 40
245
850
ROP (ft/hr)
0
250
GAMMA (units)
45
0
7000
700000
4422u
4749u
4750u
C1: 60.8%
C2: 16.8%
C3: 13.0%
C4: 9.5%
4624u
3907u
5153u
GAS (units)
C1-C4 (PPM)
0
0
10,420
10,430
10,440
10,450
10,460
10,470
10,480
10,490
10,500
10,510
10,520
10,530
10,540
10,550
10,560
10,570
10,580
10,590
10,600
10,610
10,620
10,630
6500
MD: 10,439'
TVD: 6,706.18'
Inclination: 89.45°
Azimuth: 179.24°
MD: 10,531'
TVD: 6,706.99'
Inclination: 89.54°
Azimuth: 179.19°
MD: 10,624'
TVD: 6,707.67'
Inclination: 89.63°
Azimuth: 179.18°
TVD (ft)
gy, sb blky, rr sb plty, frm, sl
dk gy, gy brn, frm - sft, sb
v mot tex, v calc, no bent
80% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
20% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent
70% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent
70% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent
80% CHK: gy - lt gy, sb blky, rr sb plty
mot tex, v calc
20% MRLST: gy - dk gy, gy brn, frm - s
blky-sb plty, slty - v mot tex, v calc, no
6900



..., frm, sl
...sft, sb
...o bent

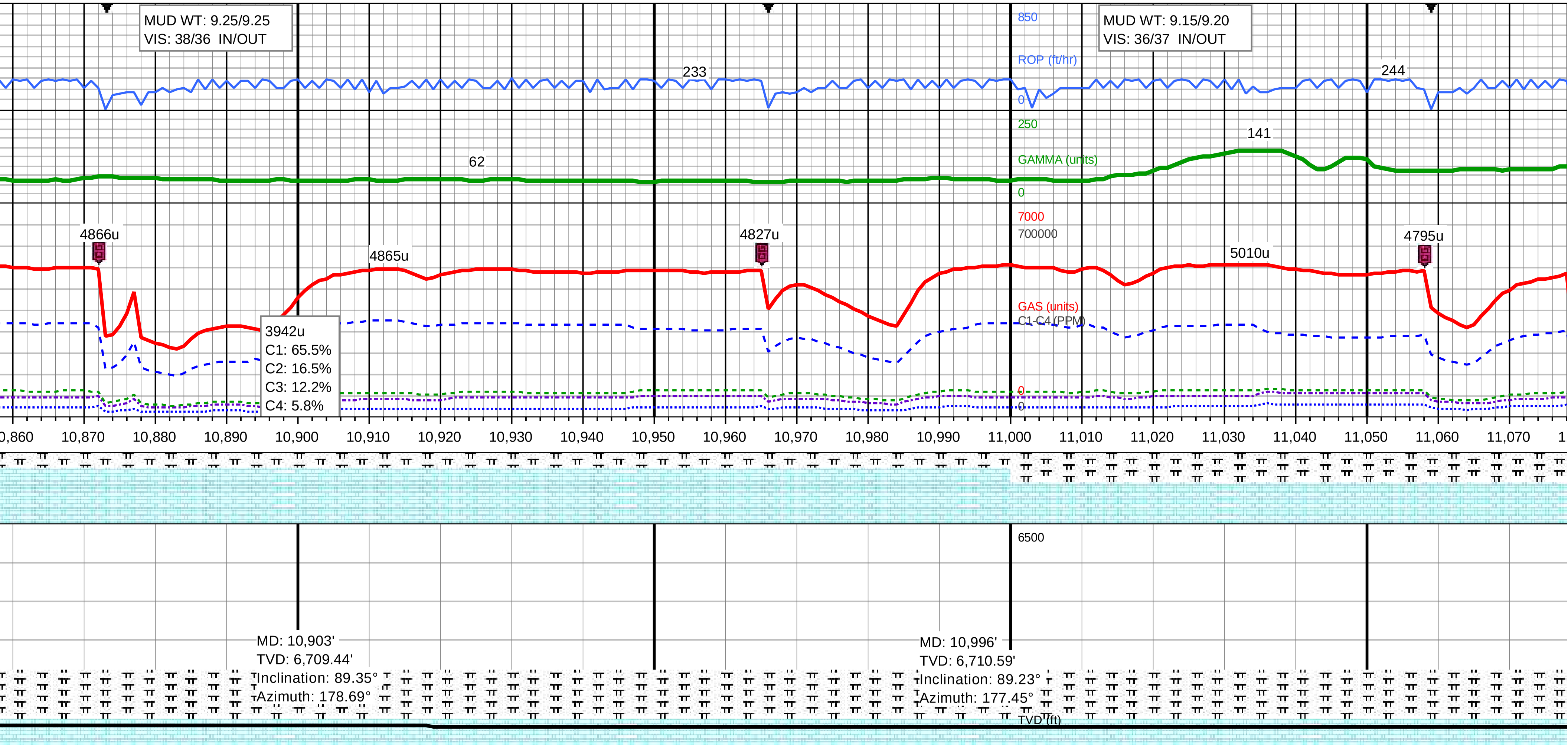
90% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
10% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr bent

60% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
40% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr bent

50% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

70% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

80% CH...
mot tex...
20% MR...
blky-sb...



HK: gy - lt gy, sb blky, rr sb plty, frm, sl
, v calc
RLST: gy - dk gy, gy brn, frm - sft, sb
plty, slty - v mot tex, v calc, no bent

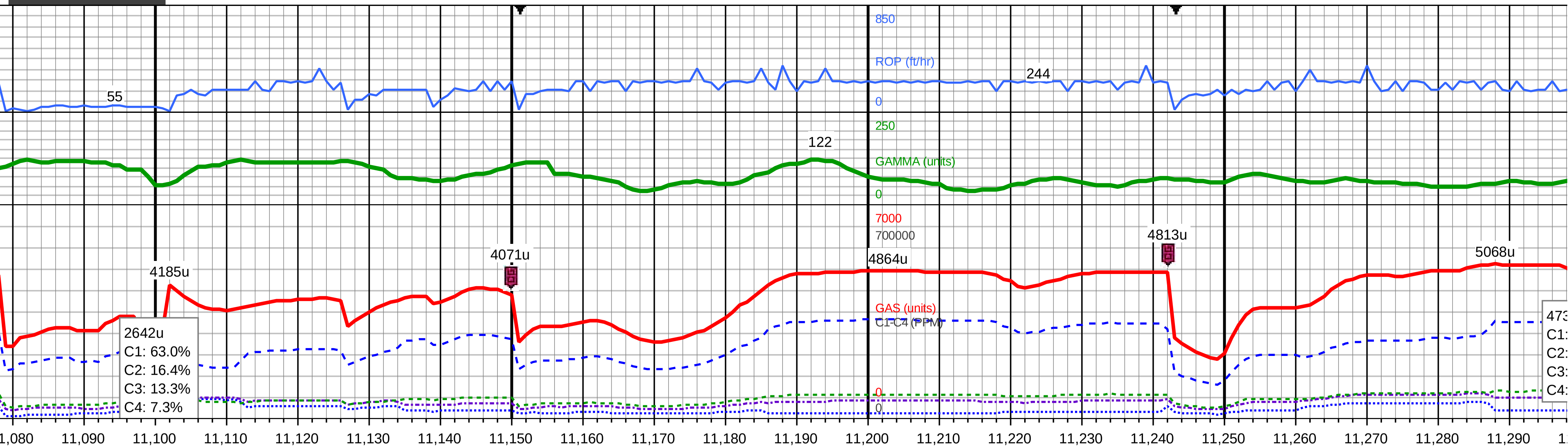
80% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
20% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent

80% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
20% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent

60% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
40% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent

6900

60% CHK: gy - lt gy, sb blky
mot tex, v calc
40% MRLST: gy - dk gy, gy
blky-sb plty, slty - v mot tex



6500

MD: 11,087'
TVD: 6,711.13'
Inclination: 90.09°
Azimuth: 177.71°

MD: 11,180'
TVD: 6,710.43'
Inclination: 90.77°
Azimuth: 178.96°

MD: 11,272'
TVD: 6,708.9'
Inclination: 91.14°
Azimuth: 178.32°

TVD (ft)

6900

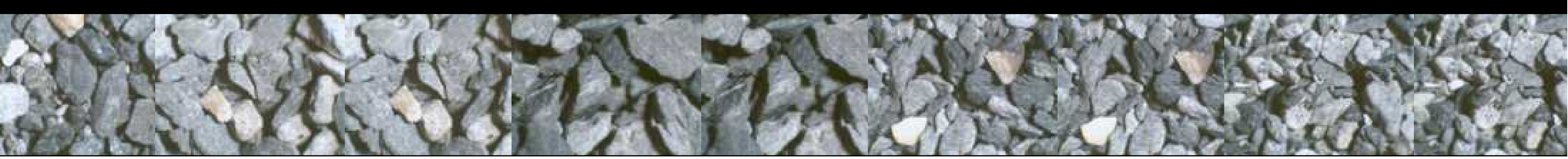
..., rr sb plty, frm, sl
... brn, frm - sft, sb
..., v calc, tr bent

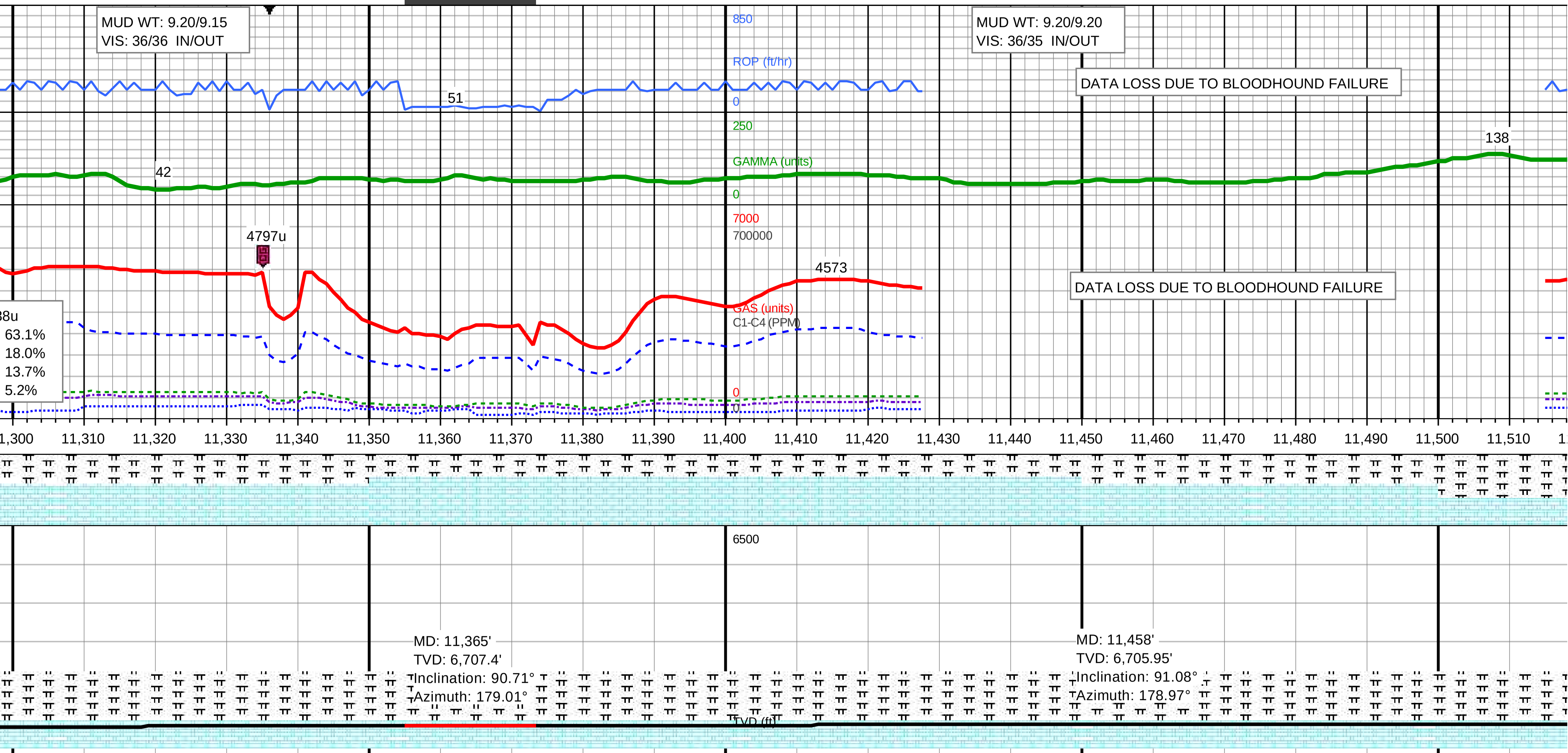
50% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr bent

40% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
60% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr bent

50% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr bent

60% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
40% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr bent





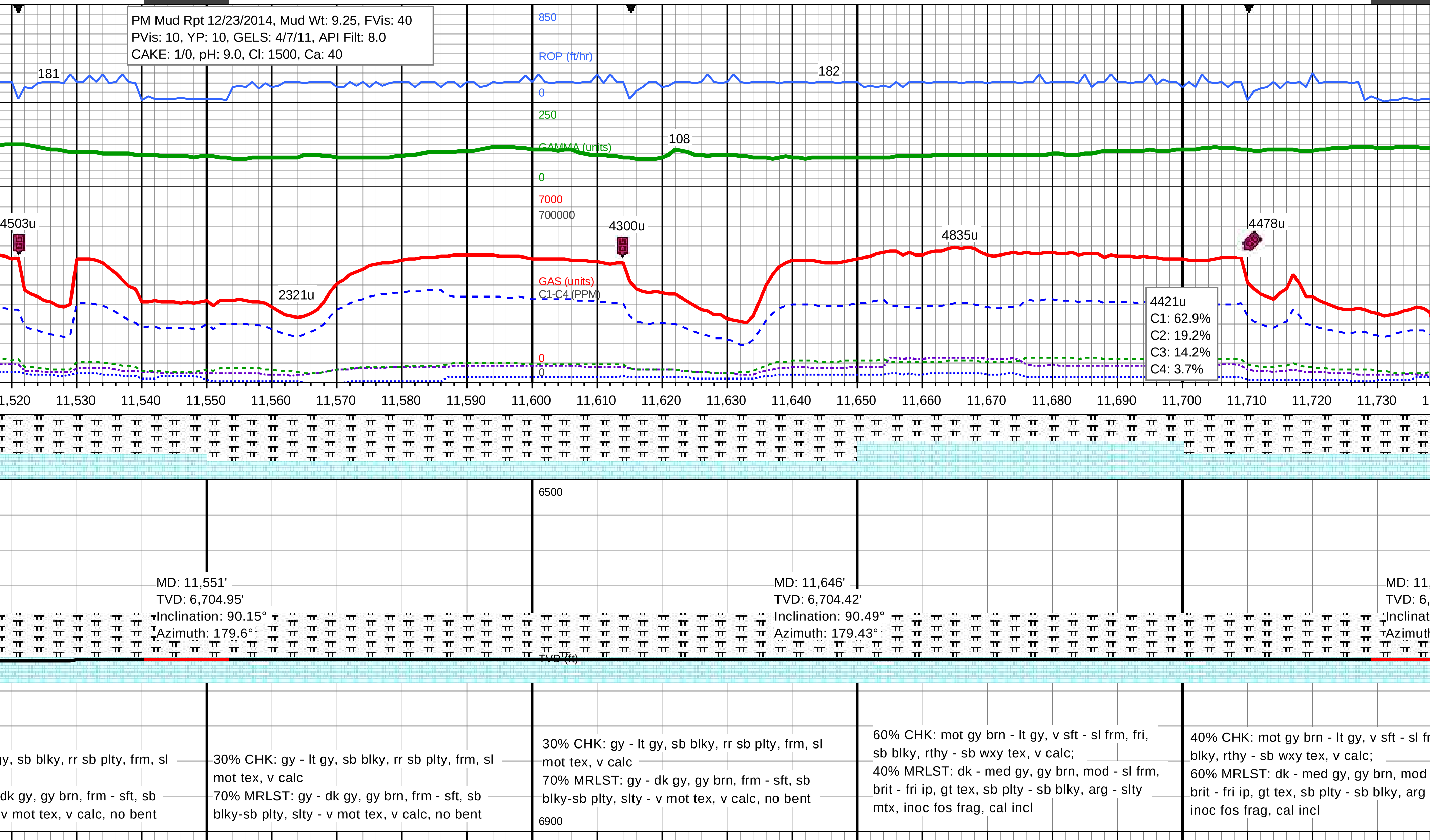
60% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
40% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr bent

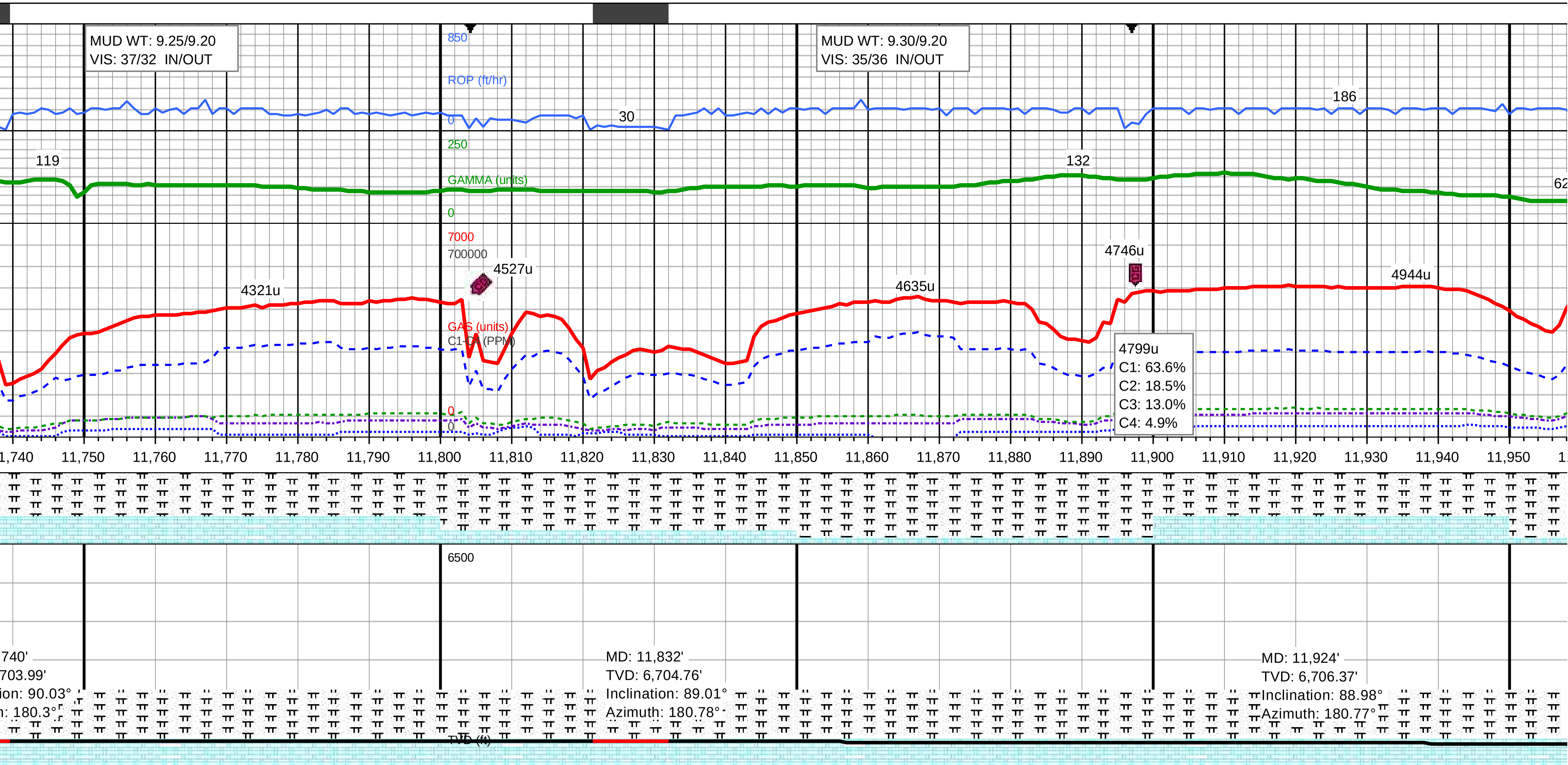
70% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

70% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
30% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

60% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
40% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, no bent

40% CHK: gy - lt g
mot tex, v calc
60% MRLST: gy -
blky-sb plty, slty -


PM Mud Rpt 12/23/2014, Mud Wt: 9.25, FVis: 40
PVis: 10, YP: 10, GELS: 4/7/11, API Filt: 8.0
CAKE: 1/0, pH: 9.0, Cl: 1500, Ca: 40
850
ROP (ft/hr)
0
181
182
250
GAMMA (units)
0
108
7000
700000
GAS (units)
C1-C4 (PPM)
0
0
4503u
2321u
4300u
4835u
4478u
4421u
C1: 62.9%
C2: 19.2%
C3: 14.2%
C4: 3.7%
1,520
11,530
11,540
11,550
11,560
11,570
11,580
11,590
11,600
11,610
11,620
11,630
11,640
11,650
11,660
11,670
11,680
11,690
11,700
11,710
11,720
11,730
6500
MD: 11,551'
TVD: 6,704.95'
Inclination: 90.15°
Azimuth: 179.6°
MD: 11,646'
TVD: 6,704.42'
Inclination: 90.49°
Azimuth: 179.43°
MD: 11,
TVD: 6,
Inclinat
Azimuth
TVD (ft)
6900
gy, sb blky, rr sb plty, frm, sl
dk gy, gy brn, frm - sft, sb
v mot tex, v calc, no bent
30% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
70% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent
30% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl
mot tex, v calc
70% MRLST: gy - dk gy, gy brn, frm - sft, sb
blky-sb plty, slty - v mot tex, v calc, no bent
60% CHK: mot gy brn - lt gy, v sft - sl frm, fri,
sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn, mod - sl frm,
brit - fri ip, gt tex, sb plty - sb blky, arg - slty
mtx, inoc fos frag, cal incl
40% CHK: mot gy brn - lt gy, v sft - sl fr
blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn, mod
brit - fri ip, gt tex, sb plty - sb blky, arg
inoc fos frag, cal incl



m, fri, sb
- sl frm,
- slty mtx,

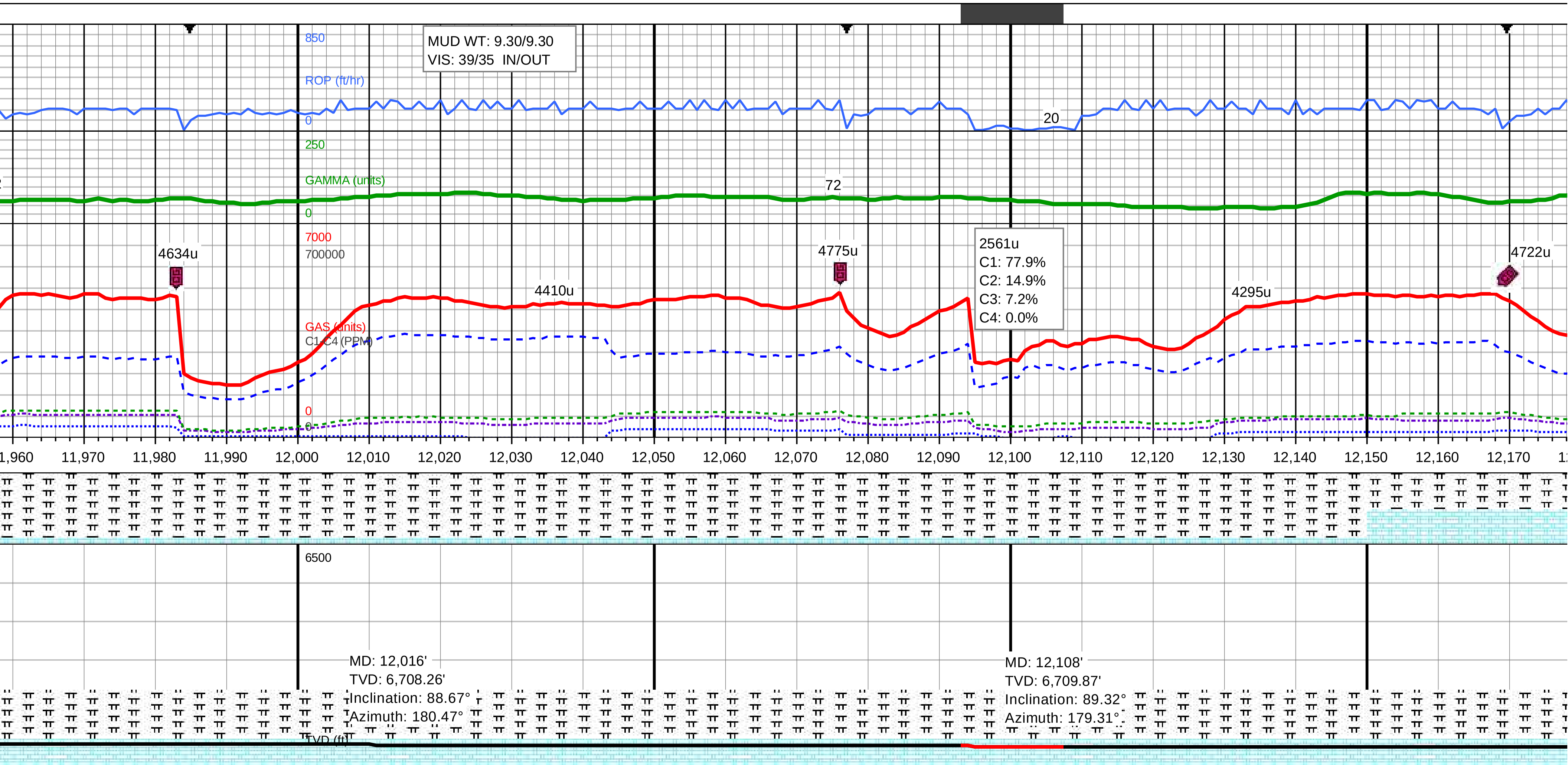
40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

20% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
80% MRLST: dk - med gy, gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

10% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
90% MRLST: dk - med gy, gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, inoc fos frag, cal incl

10% C
sb blk
90% M
frm, b
slty m



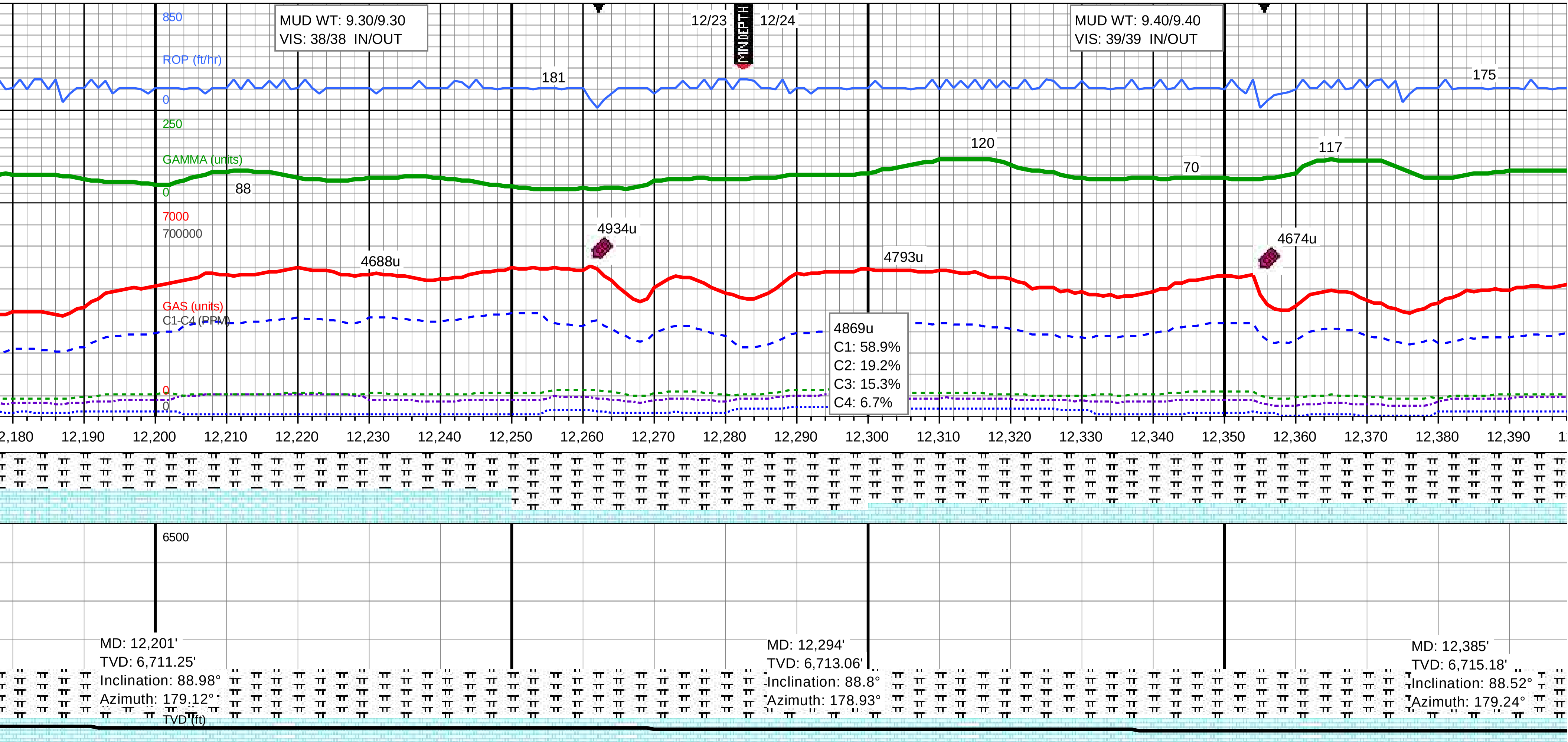
CHK: mot gy brn - lt gy, v sft - sl frm, fri, y, rthy - sb wxy tex, v calc; MRLST: dk - med gy, gy brn, mod - sl rit - fri ip, gt tex, sb plty - sb blky, arg - tx, cal incl

10% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 90% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

10% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 90% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx

10% CHK: mot gy brn - med gy, sme dk gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 90% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, v sl tr bent

50% CHK: mot gy brn - lt gy sb blky, rthy - sb wxy tex, v 50% MRLST: dk - med gy - b mod - sl frm, brit - fri ip, gt te blky, arg - slty mtx, v sl tr be



, v sft - sl frm, fri, calc; blk, sme gy brn, ex, sb plty - sb ent

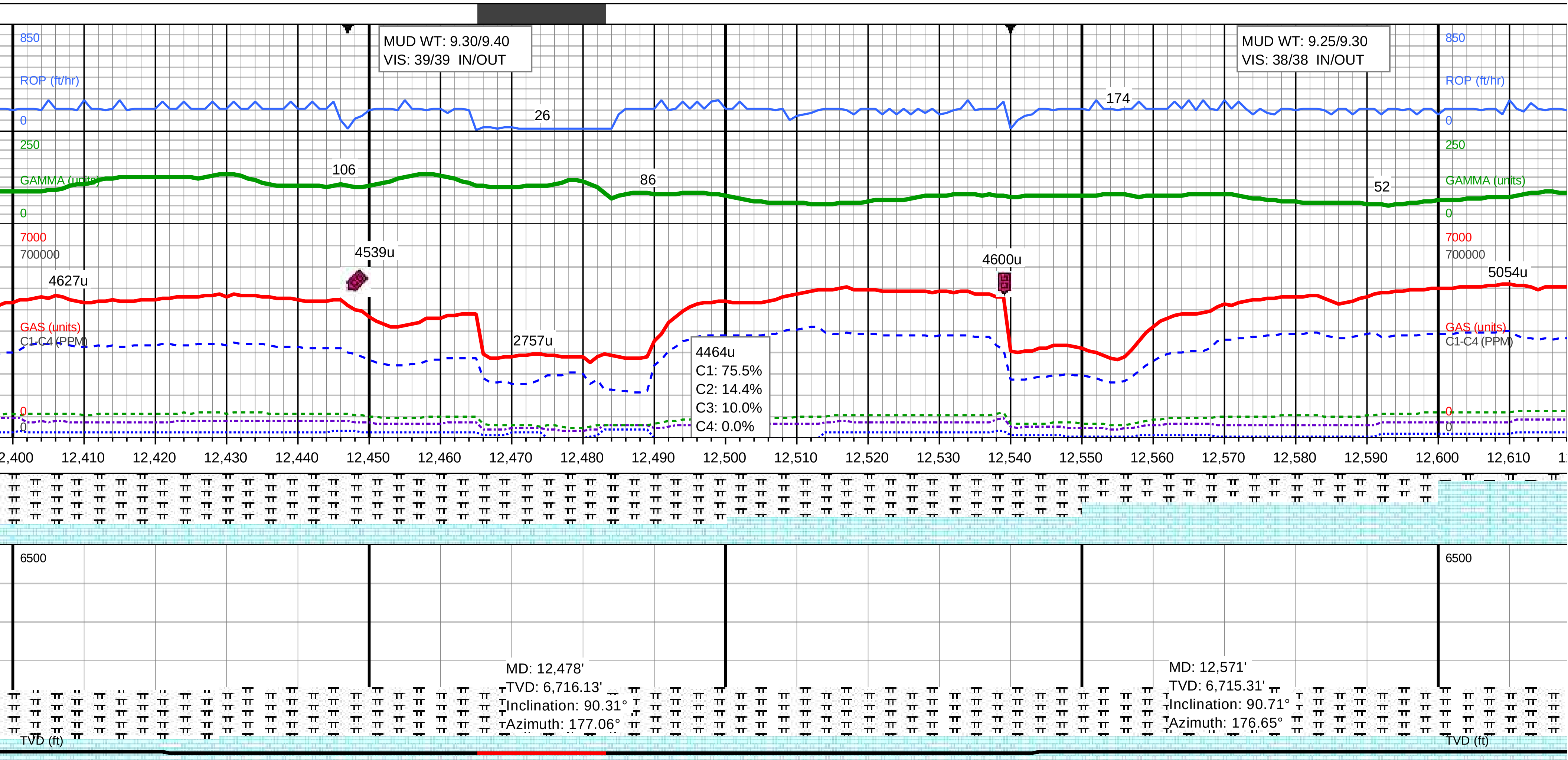
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy - blk, sme gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, v sl tr bent

6900

20% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 80% MRLST: dk - med gy, gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, inoc fos frag, cal incl, no bent

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 70% MRLST: dk - med gy, gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, inoc fos frag, cal incl, no bent

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 70% MRLST: dk - med gy, gy brn, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, inoc fos frag, cal incl, no bent



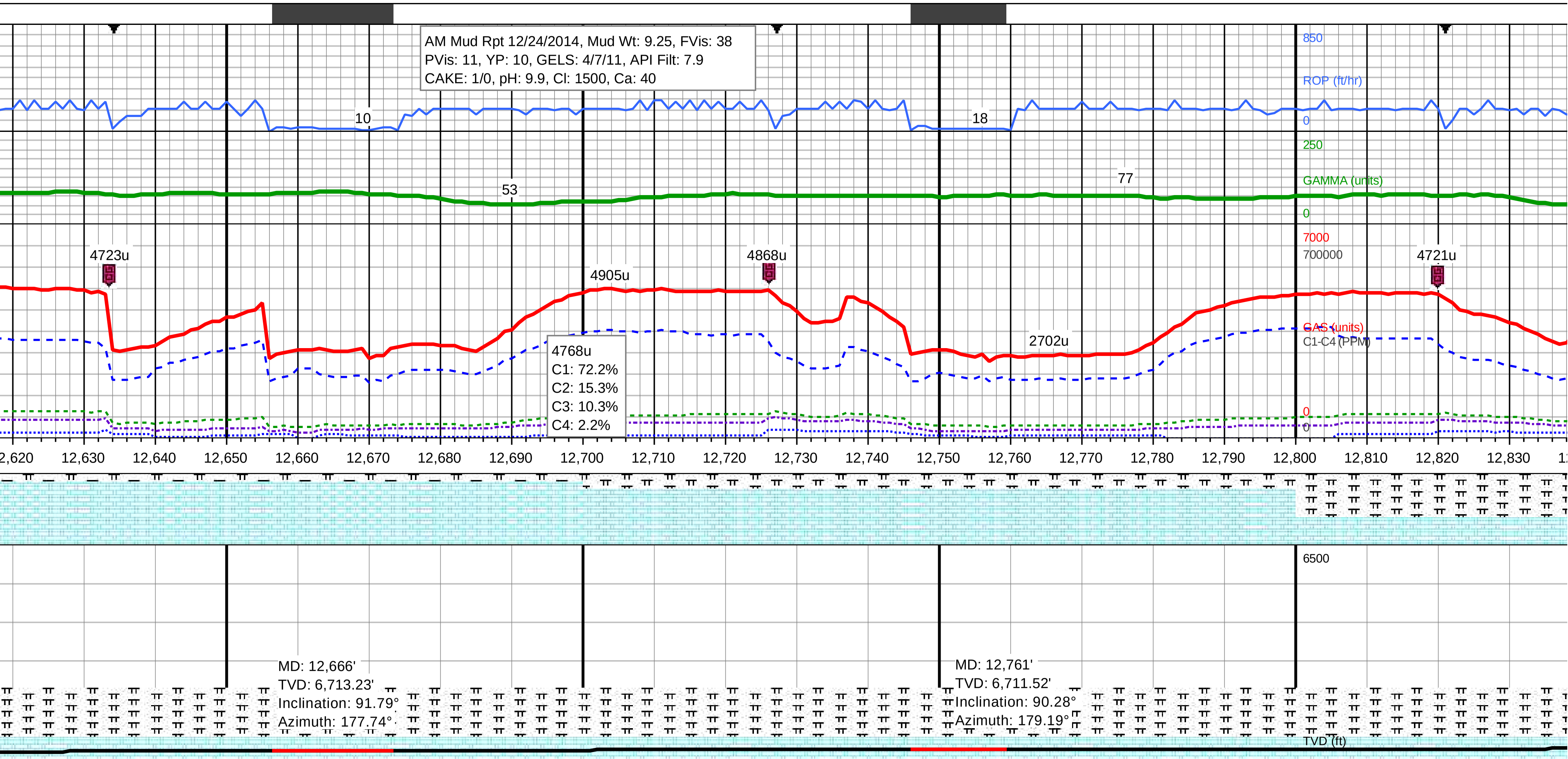
30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, no bent

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

90% CHK: mot gy
blky, rthy - sb wxy
10% MRLST: dk -
frm, brit - fri ip, gt
mtx, tr inoc fos fra



brn - lt gy, v sft - sl frm, fri, sb
tex, v calc;
med gy, gy brn - blk, mod - sl
tex, sb plty - sb blky, arg - slty
g, cal incl, no bent

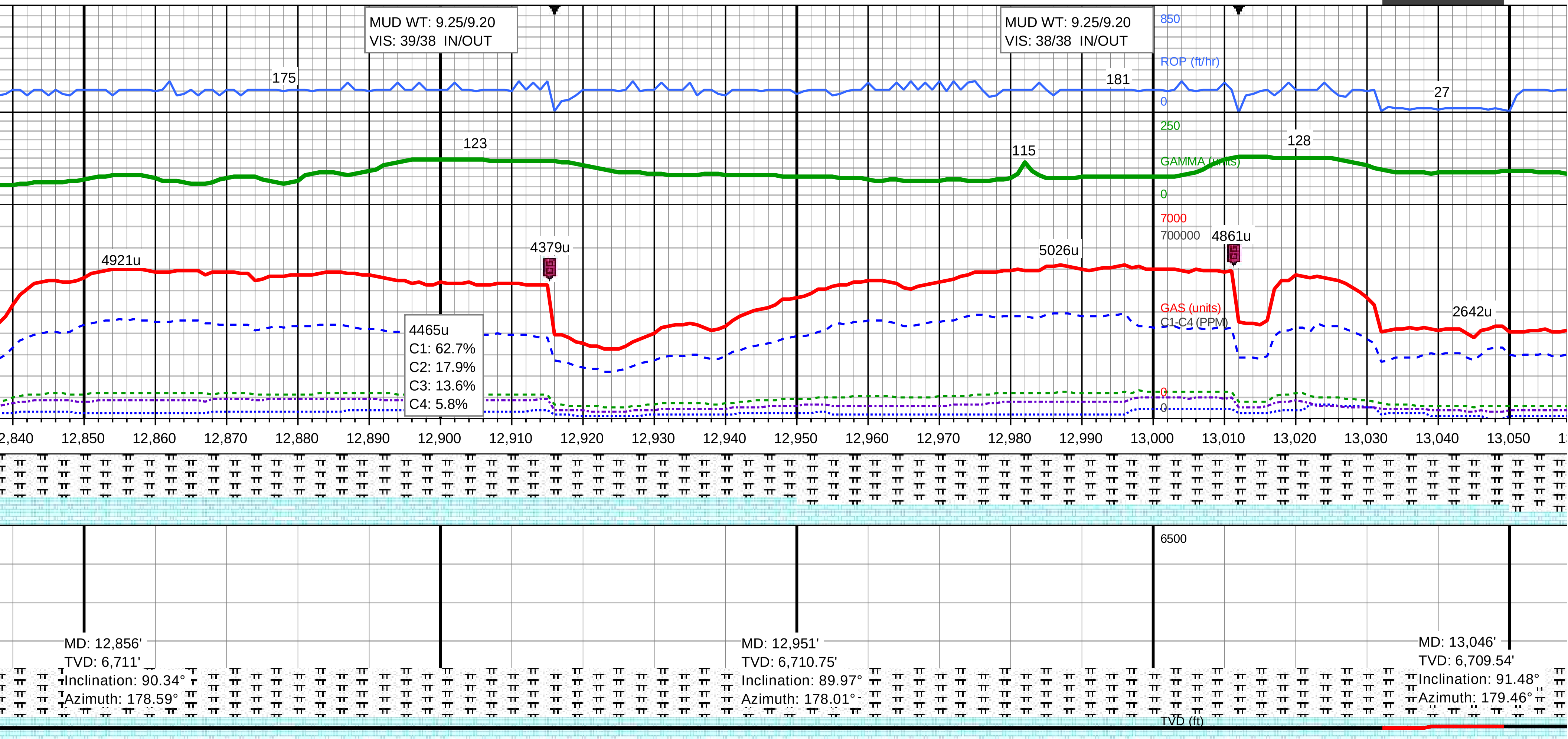
90% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
10% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

80% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
20% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

80% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
20% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

40% CHK: mot gy brn - lt gy, v sft - sl fr
blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk,
frm, brit - fri ip, gt tex, sb plty - sb blky,
mtx, tr inoc fos frag, cal incl, no bent

6900



m, fri, sb
mod - sl
arg - slty

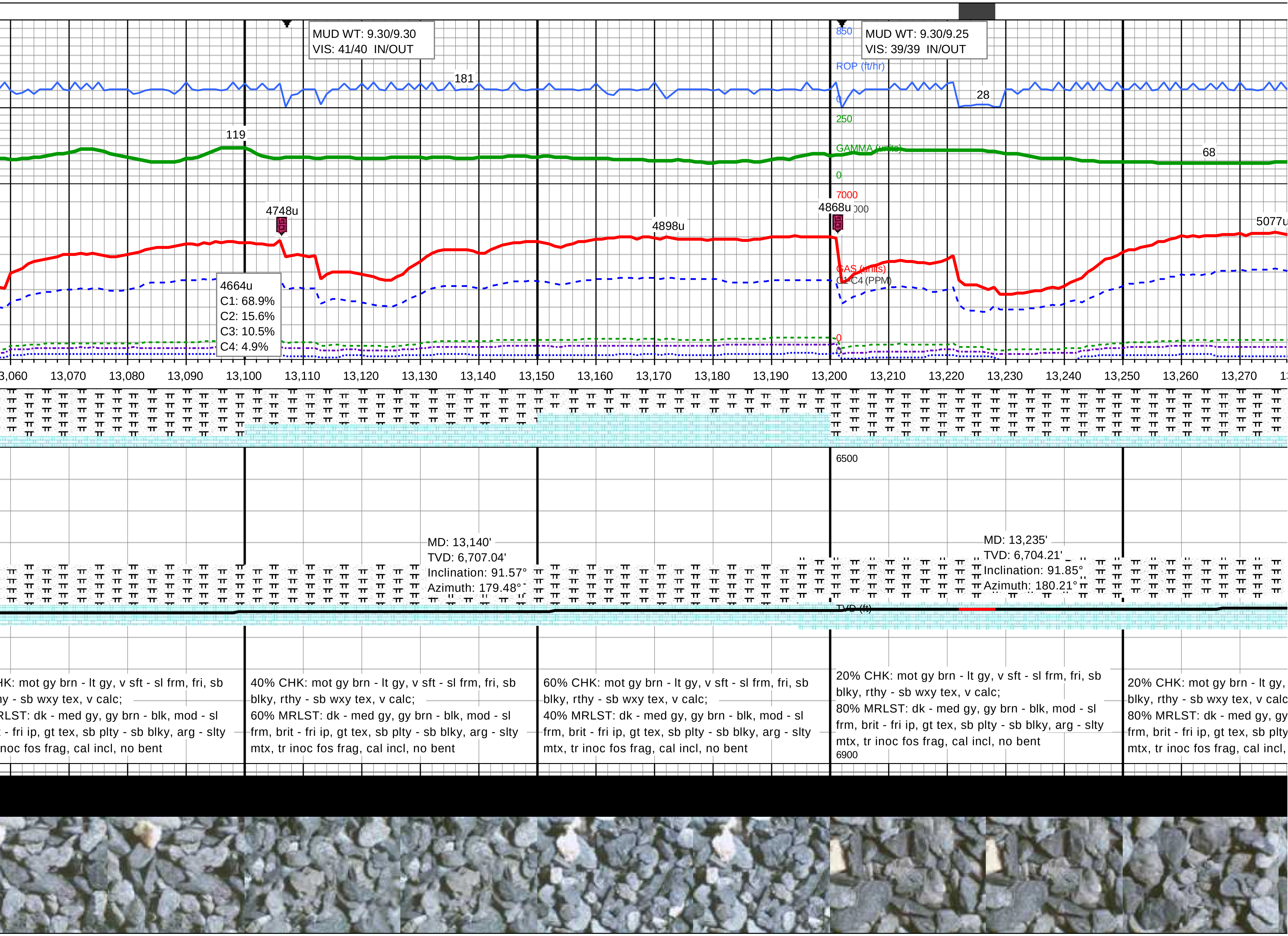
40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

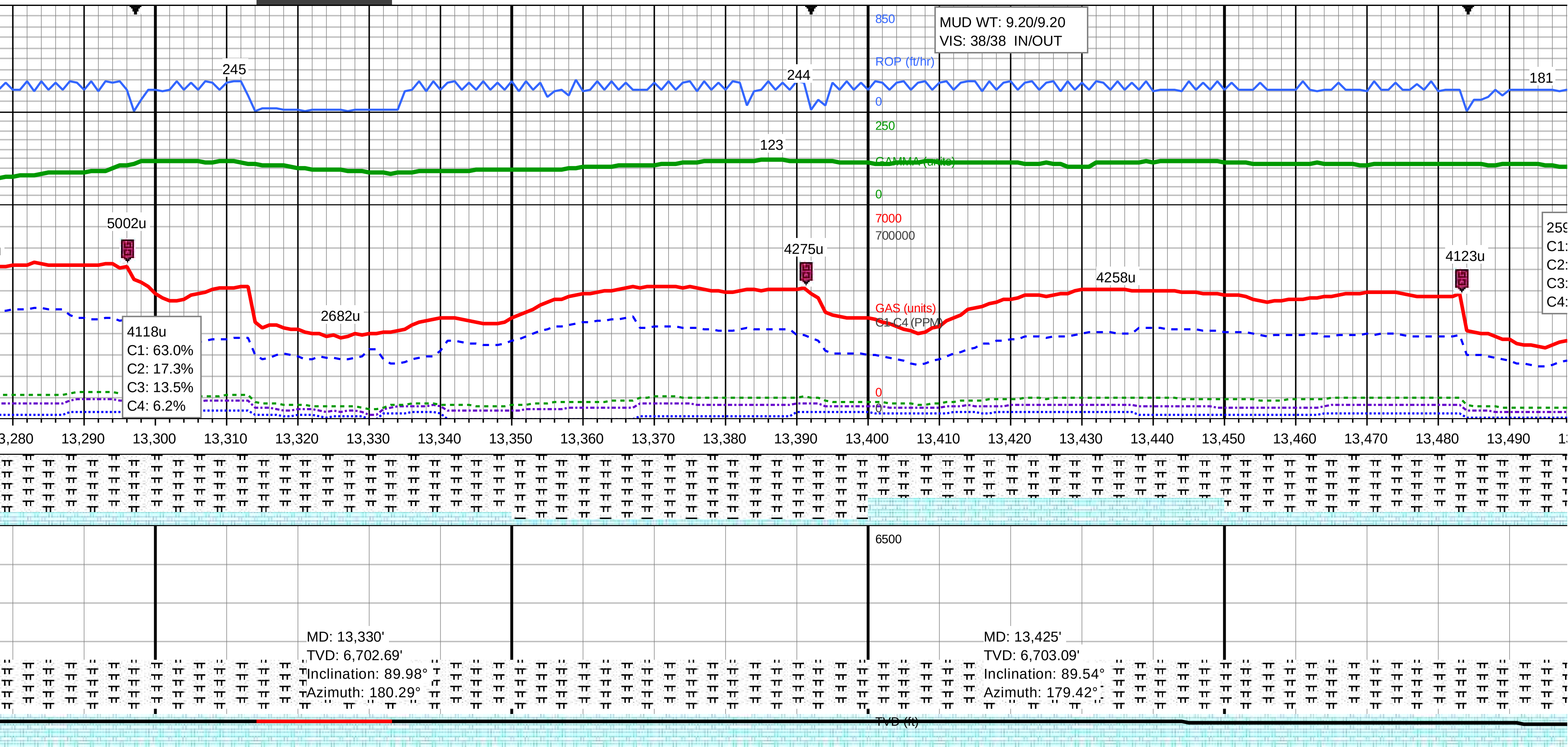
40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent
6900

20% CH
blky, rth
80% MF
frm, brit
mtx, tr i


MUD WT: 9.30/9.30
VIS: 41/40 IN/OUT
181
119
4748u
4664u
C1: 68.9%
C2: 15.6%
C3: 10.5%
C4: 4.9%
4898u
4868u
MUD WT: 9.30/9.25
VIS: 39/39 IN/OUT
850
ROP (ft/hr)
0
250
GAMMA (units)
0
7000
GAS (units)
C1-C4 (PPM)
28
68
5077u
13,060
13,070
13,080
13,090
13,100
13,110
13,120
13,130
13,140
13,150
13,160
13,170
13,180
13,190
13,200
13,210
13,220
13,230
13,240
13,250
13,260
13,270
6500
MD: 13,140'
TVD: 6,707.04'
Inclination: 91.57°
Azimuth: 179.48°
MD: 13,235'
TVD: 6,704.21'
Inclination: 91.85°
Azimuth: 180.21°
TVD (ft)
HK: mot gy brn - lt gy, v sft - sl frm, fri, sb
hy - sb wxy tex, v calc;
RLST: dk - med gy, gy brn - blk, mod - sl
- fri ip, gt tex, sb plty - sb blky, arg - slty
inoc fos frag, cal incl, no bent
40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent
60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent
20% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
80% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent
6900
20% CHK: mot gy brn - lt gy,
blky, rthy - sb wxy tex, v calc
80% MRLST: dk - med gy, gy
frm, brit - fri ip, gt tex, sb plty
mtx, tr inoc fos frag, cal incl,



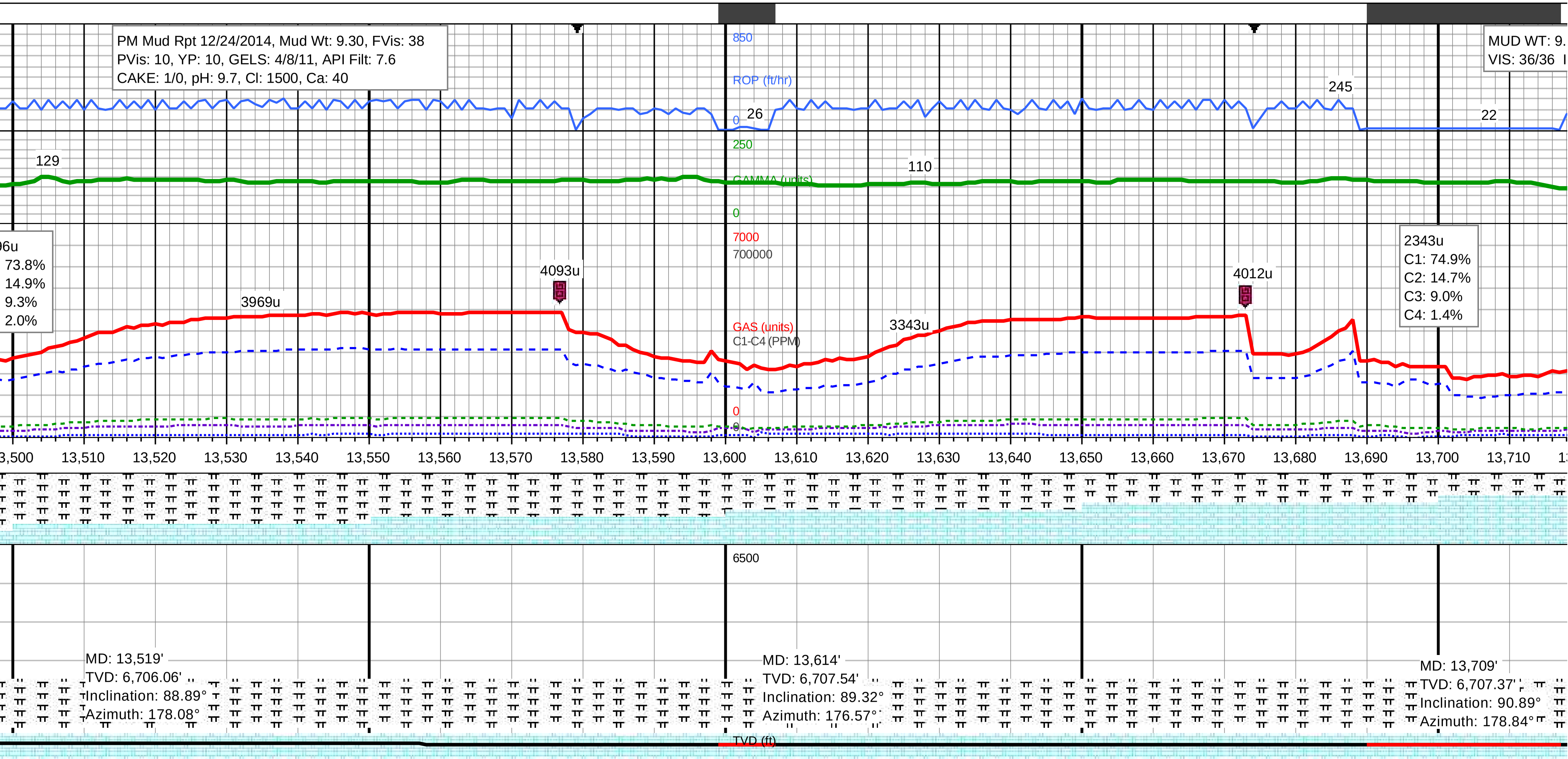
v sft - sl frm, fri, sb
;
brn - blk, mod - sl
- sb blky, arg - slty
no bent

20% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
80% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

10% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
90% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

20% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
80% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent



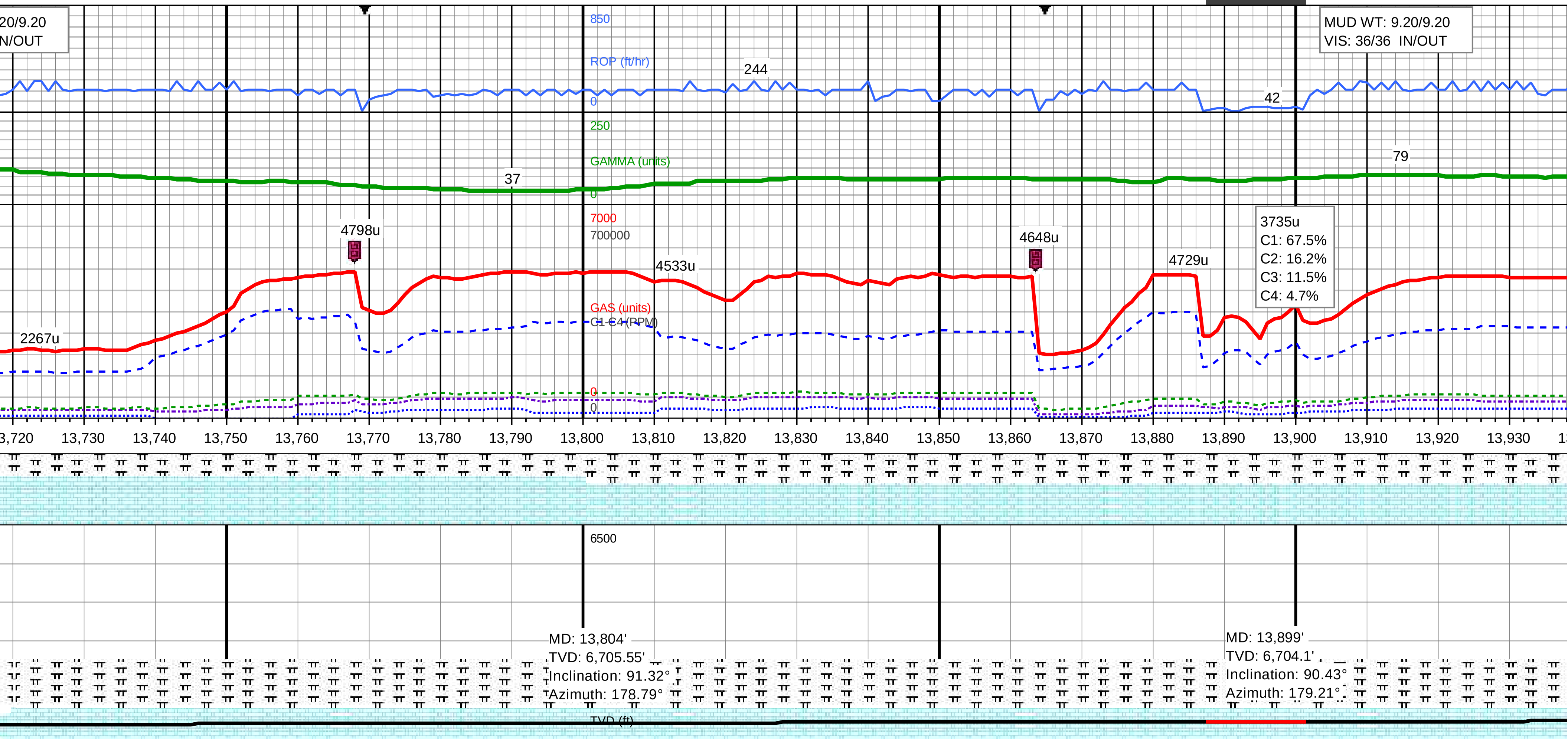
30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, no bent

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, no bent

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl, no bent

70% CHK: mot gy
blky, rthy - sb wxy
30% MRLST: dk -
frm, brit - fri ip, gt
mtx, cal incl, no b



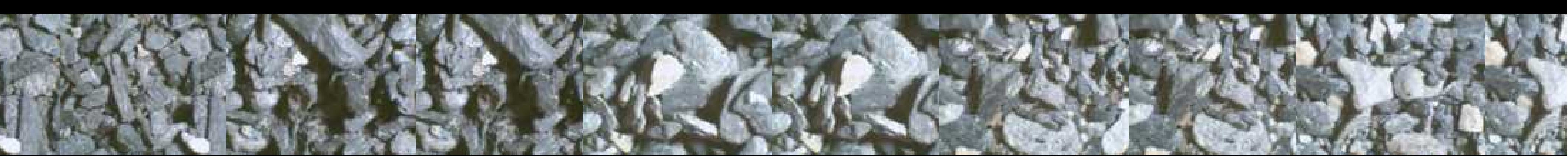
brn - lt gy, v sft - sl frm, fri, sb
tex, v calc;
med gy, gy brn - blk, mod - sl
tex, sb plty - sb blky, arg - slty
ent

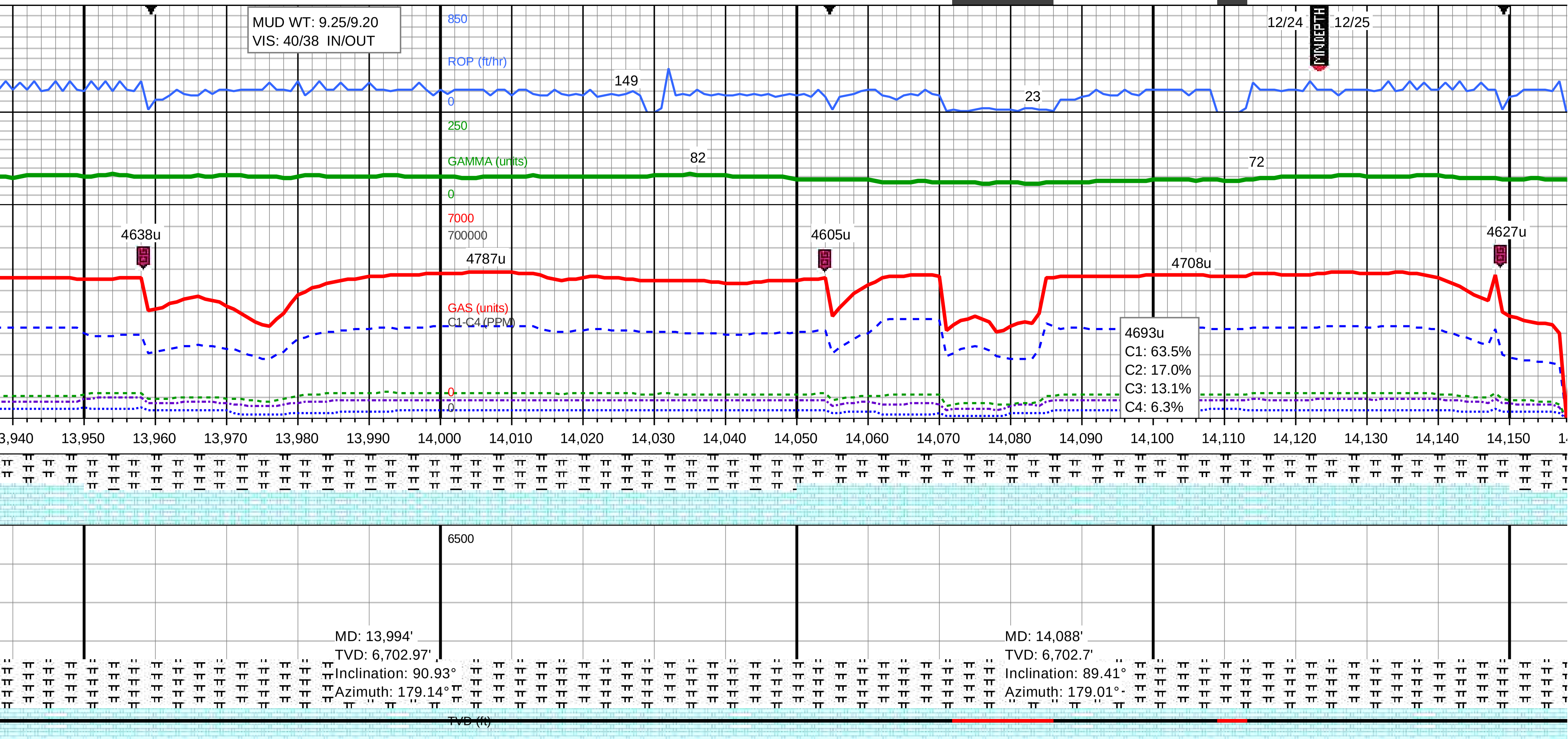
70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, no bent

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc fos frag, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

60% CHK: mot gy brn - lt gy, v sft - s
sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - bl
sl frm, brit - fri ip, gt tex, sb plty - sb
- slty mtx, cal incl





l frm, fri,
k, mod -
blky, arg

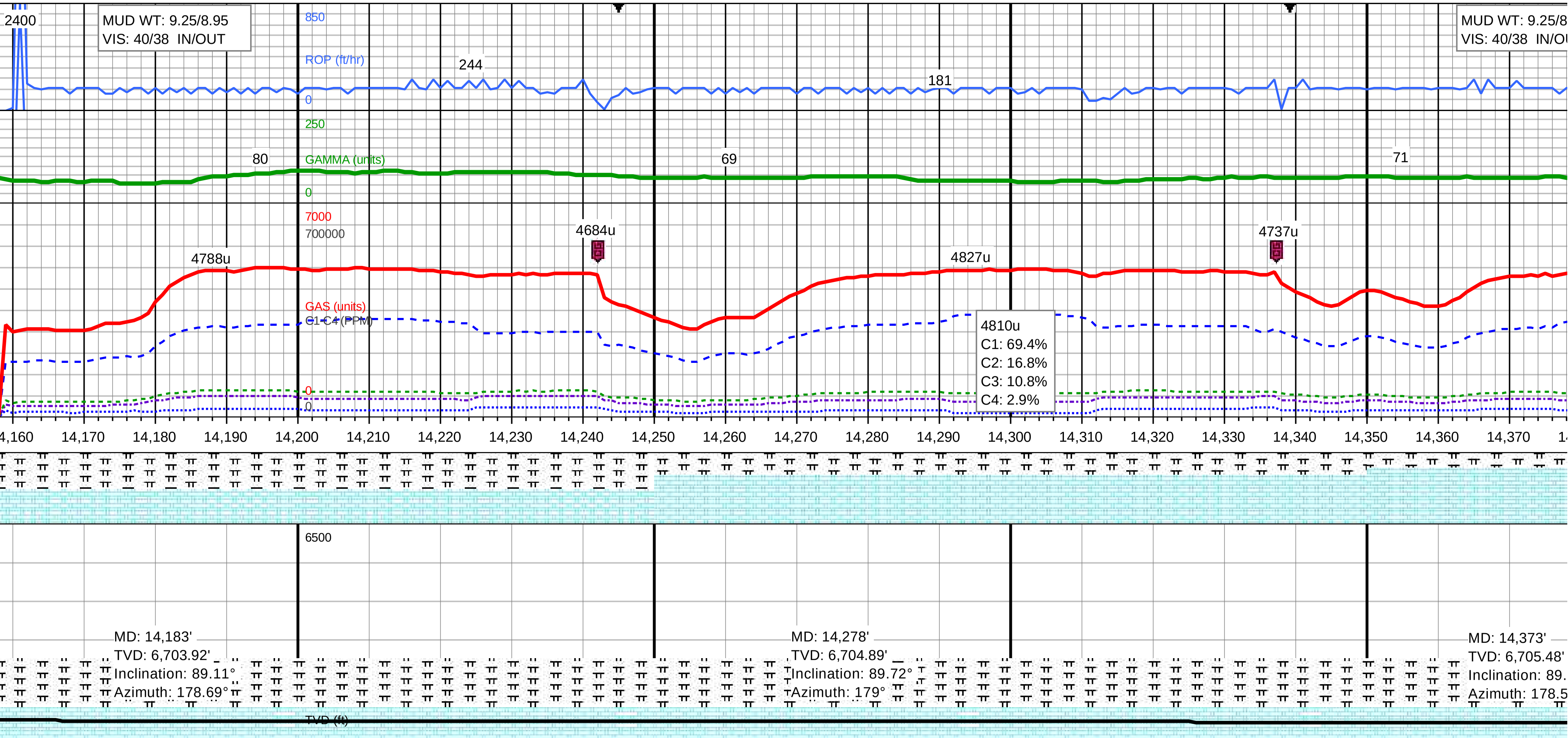
50% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr inoc foss, no bent

50% CHK: gy - lt gy, sb blky, rr sb plty, frm, sl mot tex, v calc
50% MRLST: gy - dk gy, gy brn, frm - sft, sb blky-sb plty, slty - v mot tex, v calc, tr inoc foss, no bent

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

50%
sb bl
50%
sl frm
- slty



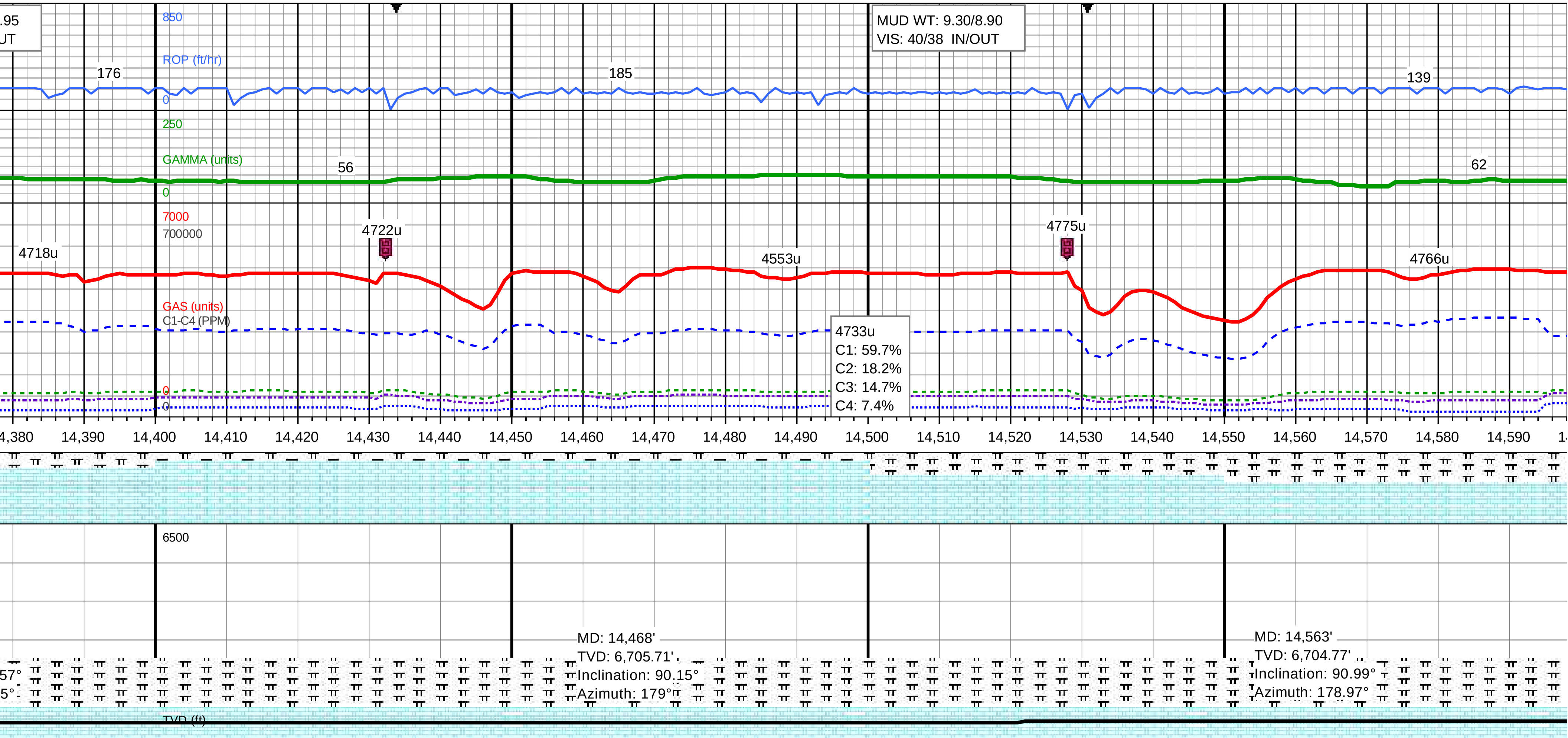
CHK: mot gy brn - lt gy, v sft - sl frm, fri, ky, rthy - sb wxy tex, v calc; MRLST: dk - med gy, gy brn - blk, mod - , brit - fri ip, gt tex, sb plty - sb blky, arg mtx, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl, tr bent

70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl, v sl tr bent

70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

80% CHK: mot gy brn - lt g sb blky, rthy - sb wxy tex, v 20% MRLST: dk - med gy, sl frm, brit - fri ip, gt tex, sb slty mtx, sme inoc foss, ca



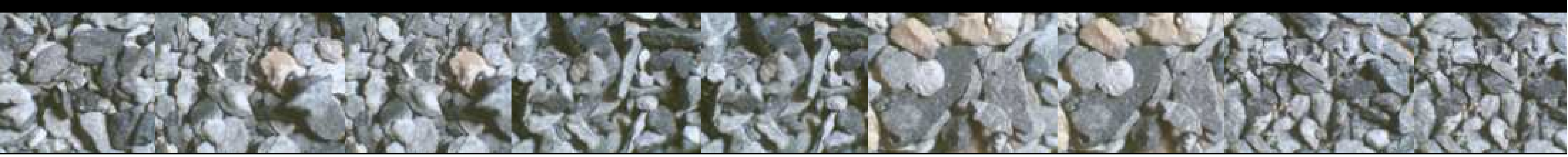
y, v sft - sl frm, fri, v calc; gy brn - blk, mod - plty - sb blky, arg - l incl

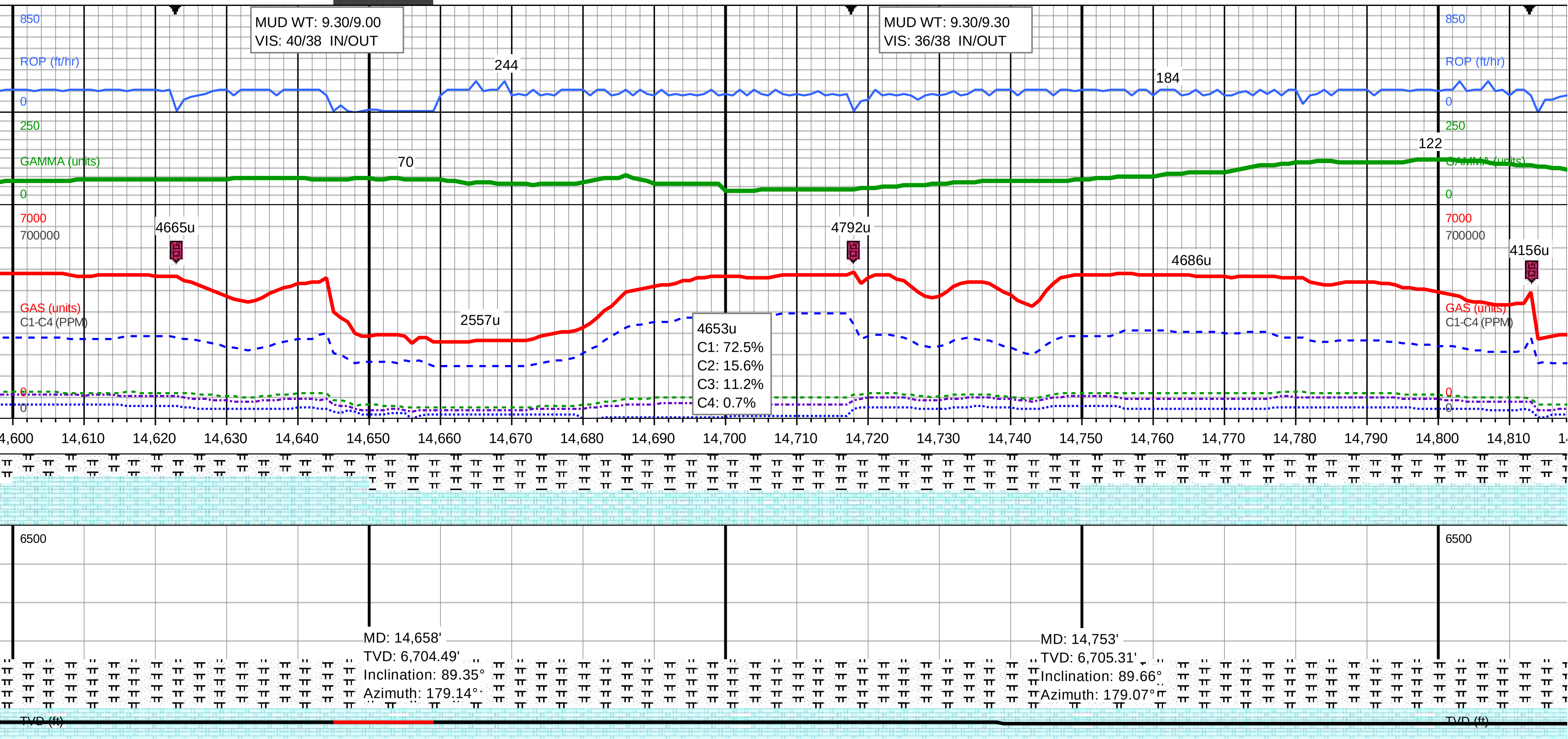
90% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
10% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

90% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
10% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl





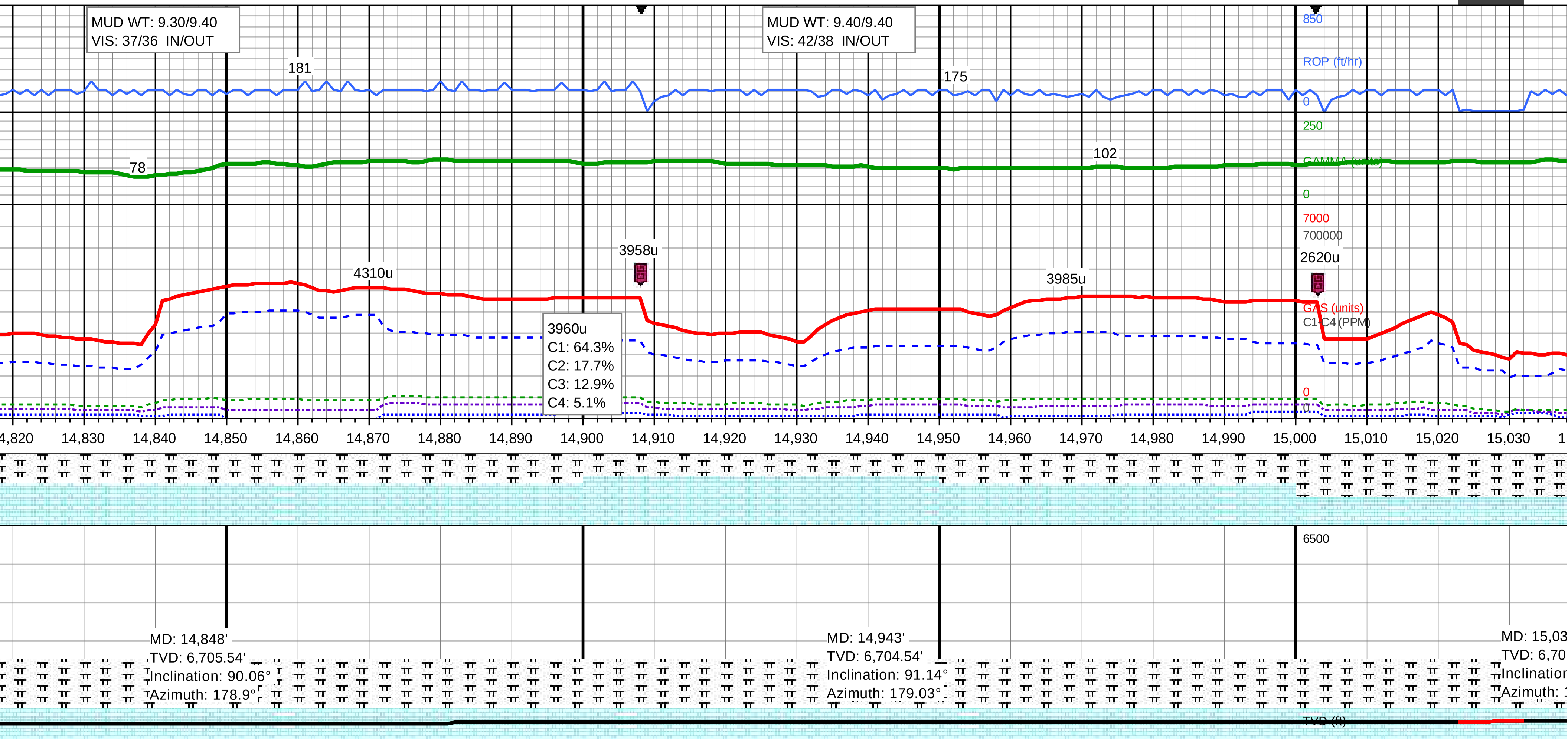
70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

60% CHK: m
fri, sb blky, r
40% MRLST
- sl frm, brit
arg - slty mt



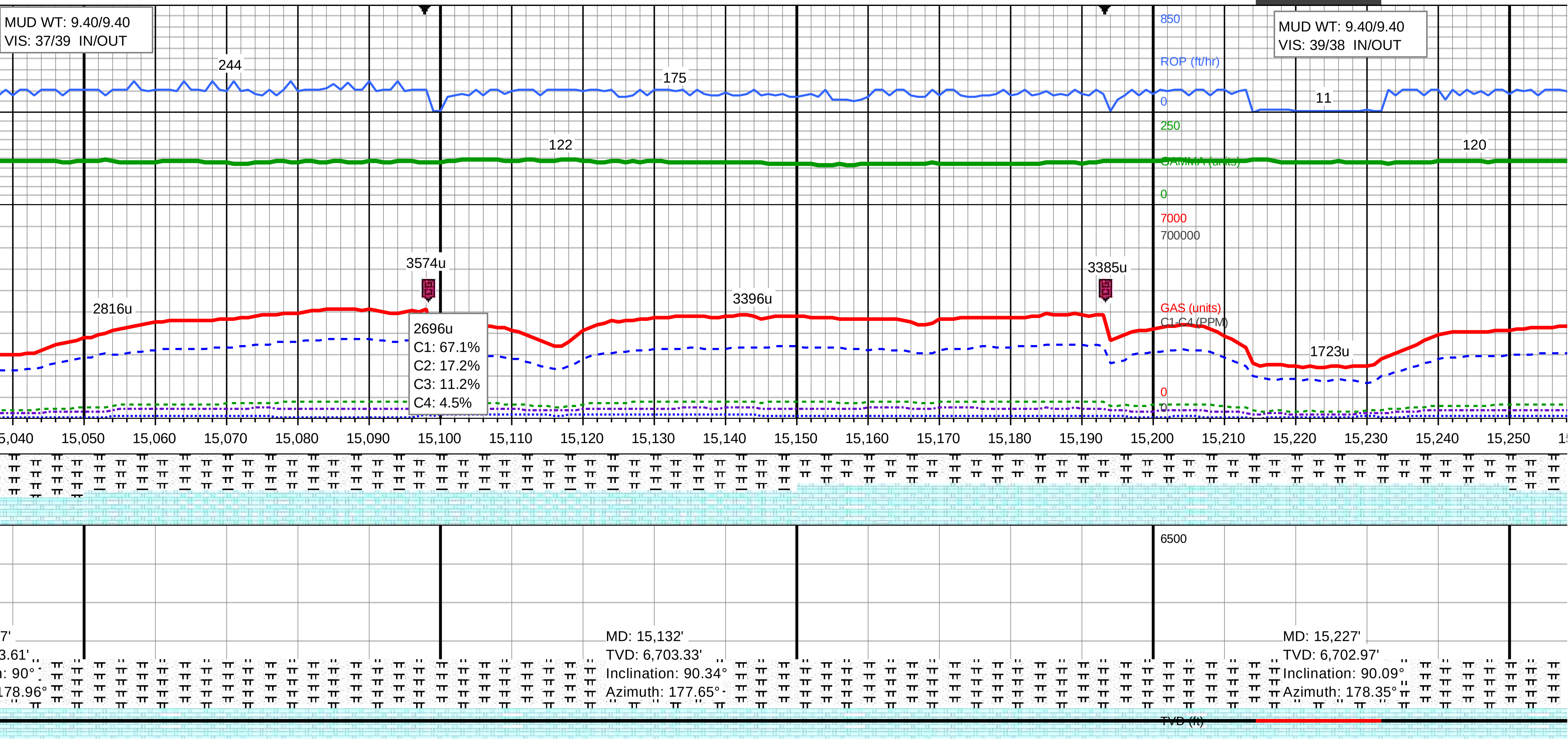
...ot gy brn - lt gy, v sft - sl frm, ...thy - sb wxy tex, v calc; ...: dk - med gy, gy brn - blk, mod ... - fri ip, gt tex, sb plty - sb blky, ...x, sme inoc foss, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

40% CHK: mot gy brn - lt gy, v sft... fri, sb blky, rthy - sb wxy tex, v ca... 60% MRLST: dk - med gy, gy brn -... sl frm, brit - fri ip, gt tex, sb plty -... arg - slty mtx, sme inoc foss, cal i...



- sl frm, lc; blk, mod - sb blky, ncl

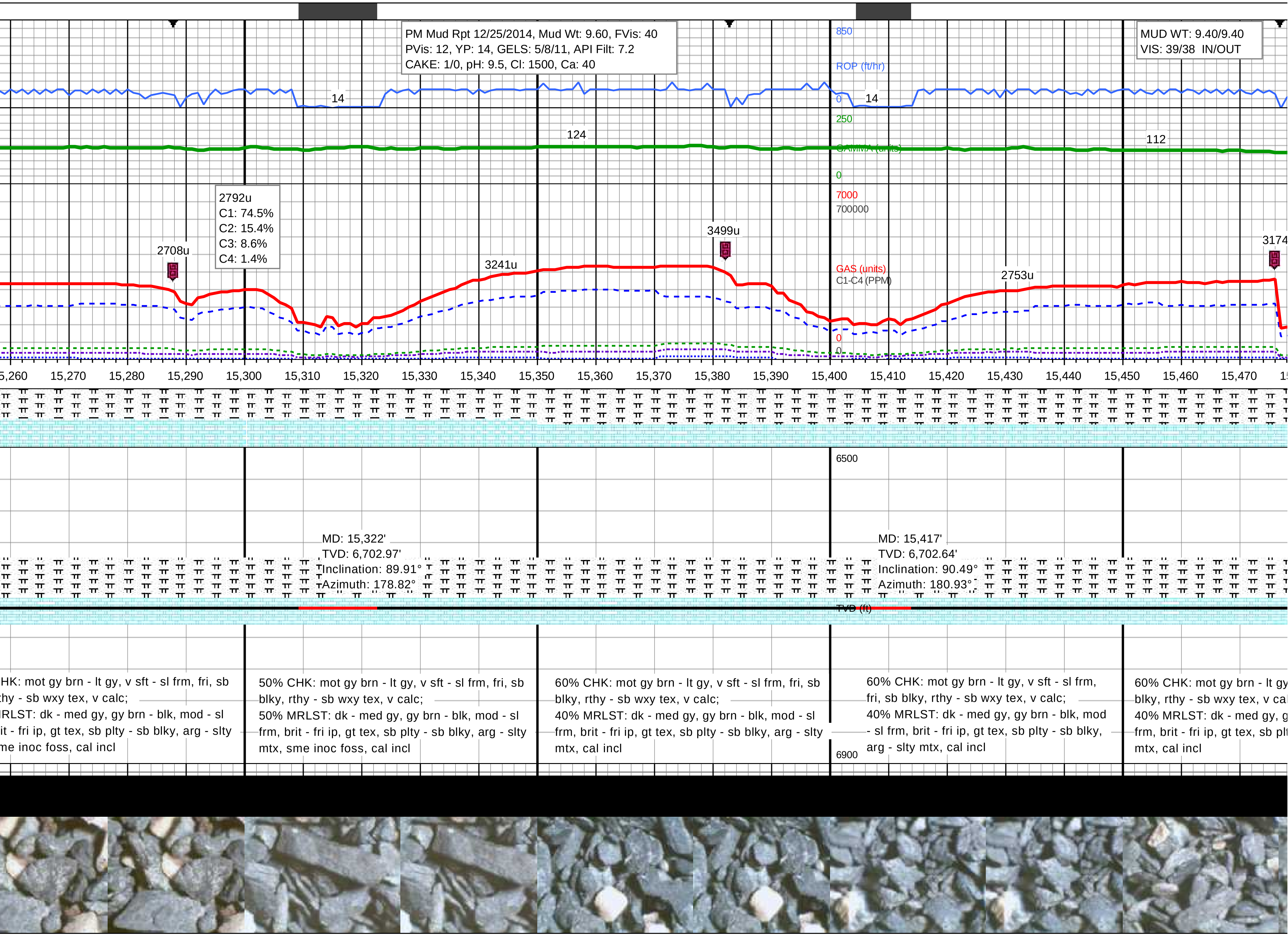
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

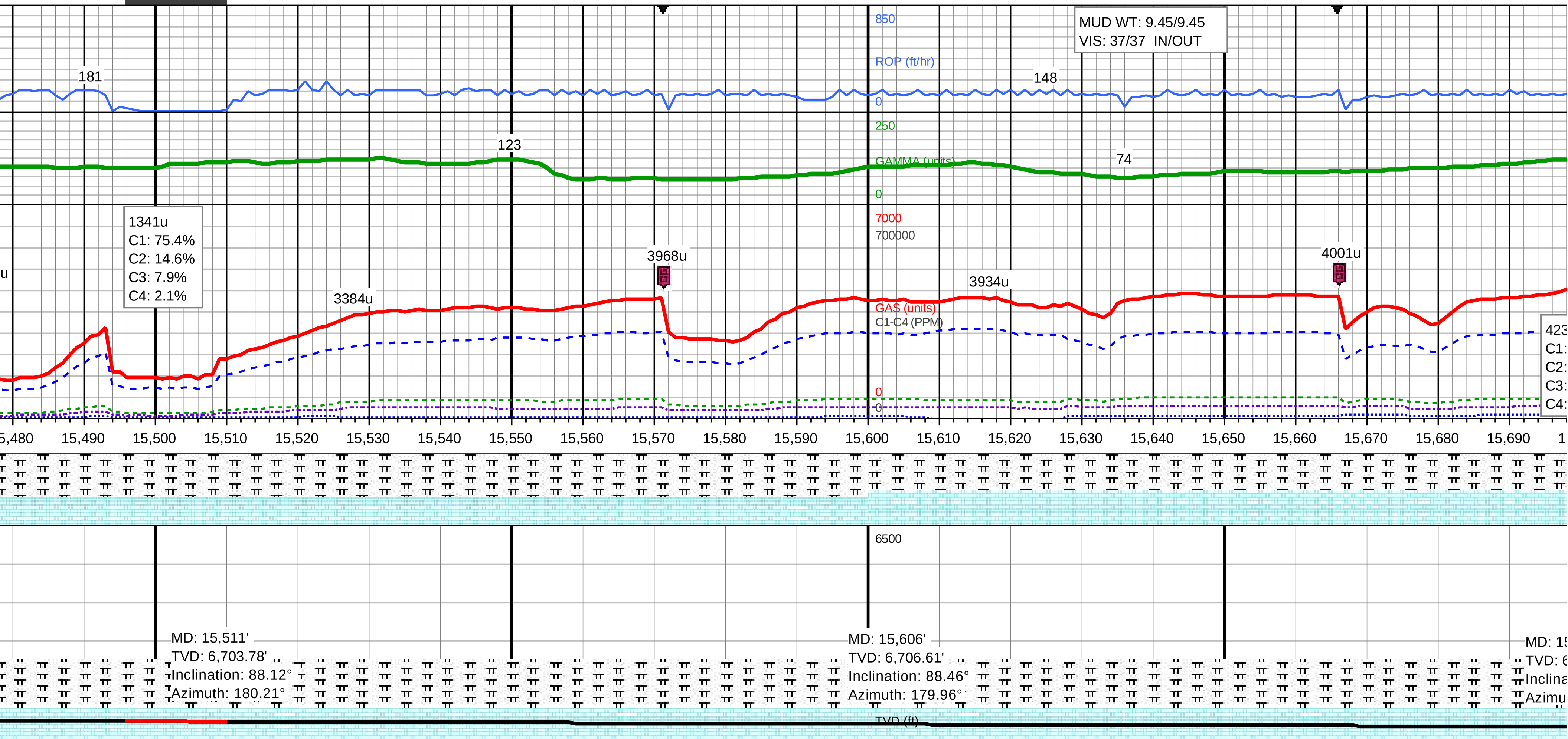
60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

50% C blky, r 50% M frm, br mtx, s



PM Mud Rpt 12/25/2014, Mud Wt: 9.60, FVis: 40
PVis: 12, YP: 14, GELS: 5/8/11, API Filt: 7.2
CAKE: 1/0, pH: 9.5, Cl: 1500, Ca: 40
MUD WT: 9.40/9.40
VIS: 39/38 IN/OUT
850
ROP (ft/hr)
0
14
14
250
GAMMA (units)
0
124
112
7000
700000
GAS (units)
C1-C4 (PPM)
0
2708u
2792u
C1: 74.5%
C2: 15.4%
C3: 8.6%
C4: 1.4%
3241u
3499u
2753u
3174
15,270
15,280
15,290
15,300
15,310
15,320
15,330
15,340
15,350
15,360
15,370
15,380
15,390
15,400
15,410
15,420
15,430
15,440
15,450
15,460
15,470
6500
6900
TVD (ft)
MD: 15,322'
TVD: 6,702.97'
Inclination: 89.91°
Azimuth: 178.82°
MD: 15,417'
TVD: 6,702.64'
Inclination: 90.49°
Azimuth: 180.93°
HK: mot gy brn - lt gy, v sft - sl frm, fri, sb
thy - sb wxy tex, v calc;
RLST: dk - med gy, gy brn - blk, mod - sl
it - fri ip, gt tex, sb plty - sb blky, arg - slty
me inoc foss, cal incl
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb
blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl
frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty
mtx, sme inoc foss, cal incl
60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb
blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl
frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty
mtx, cal incl
60% CHK: mot gy brn - lt gy, v sft - sl frm,
fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod
- sl frm, brit - fri ip, gt tex, sb plty - sb blky,
arg - slty mtx, cal incl
60% CHK: mot gy brn - lt gy
blky, rthy - sb wxy tex, v ca
40% MRLST: dk - med gy, g
frm, brit - fri ip, gt tex, sb pl
mtx, cal incl



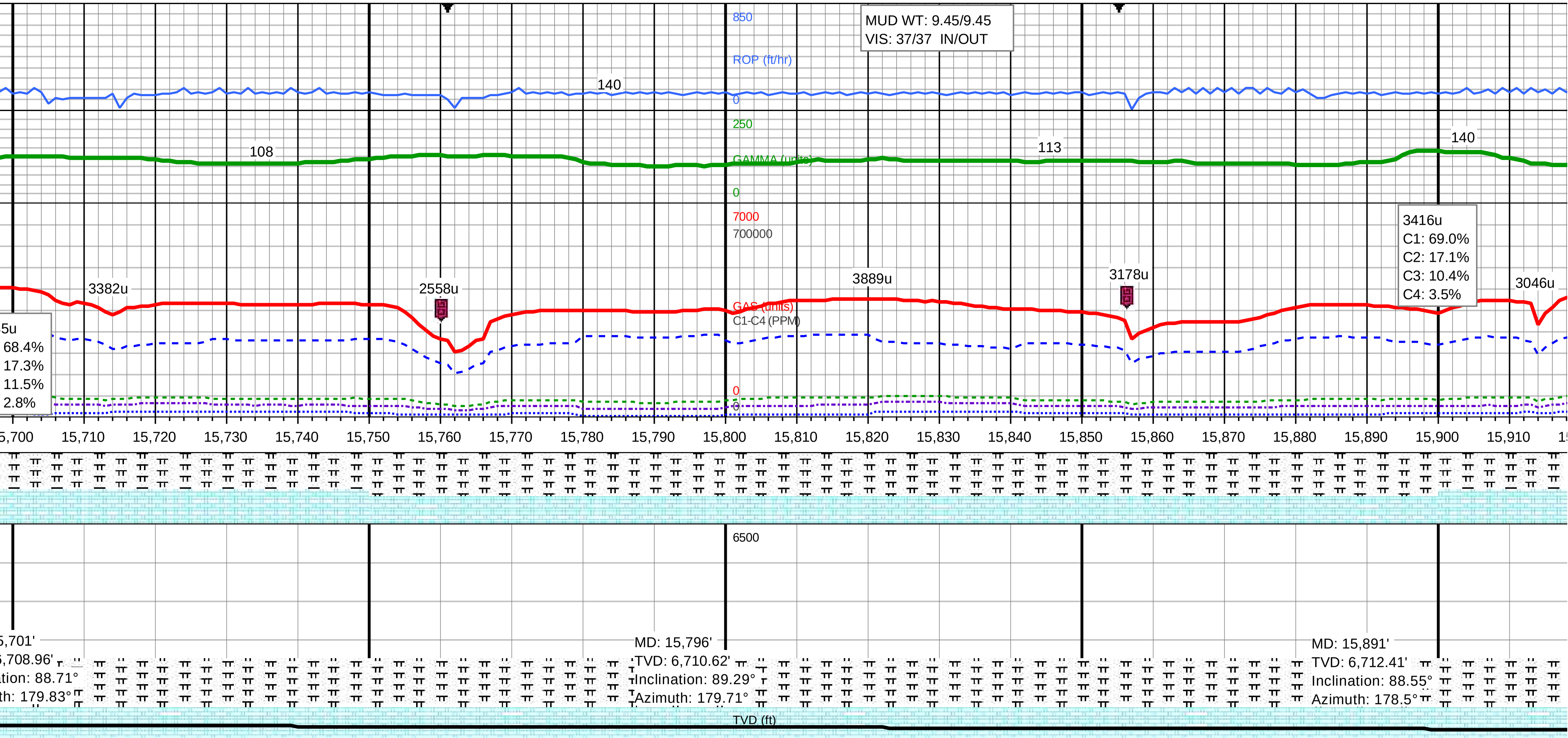
..., v sft - sl frm, fri, sb ...lc; ...y brn - blk, mod - sl ...y - sb blky, arg - slty

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl



50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

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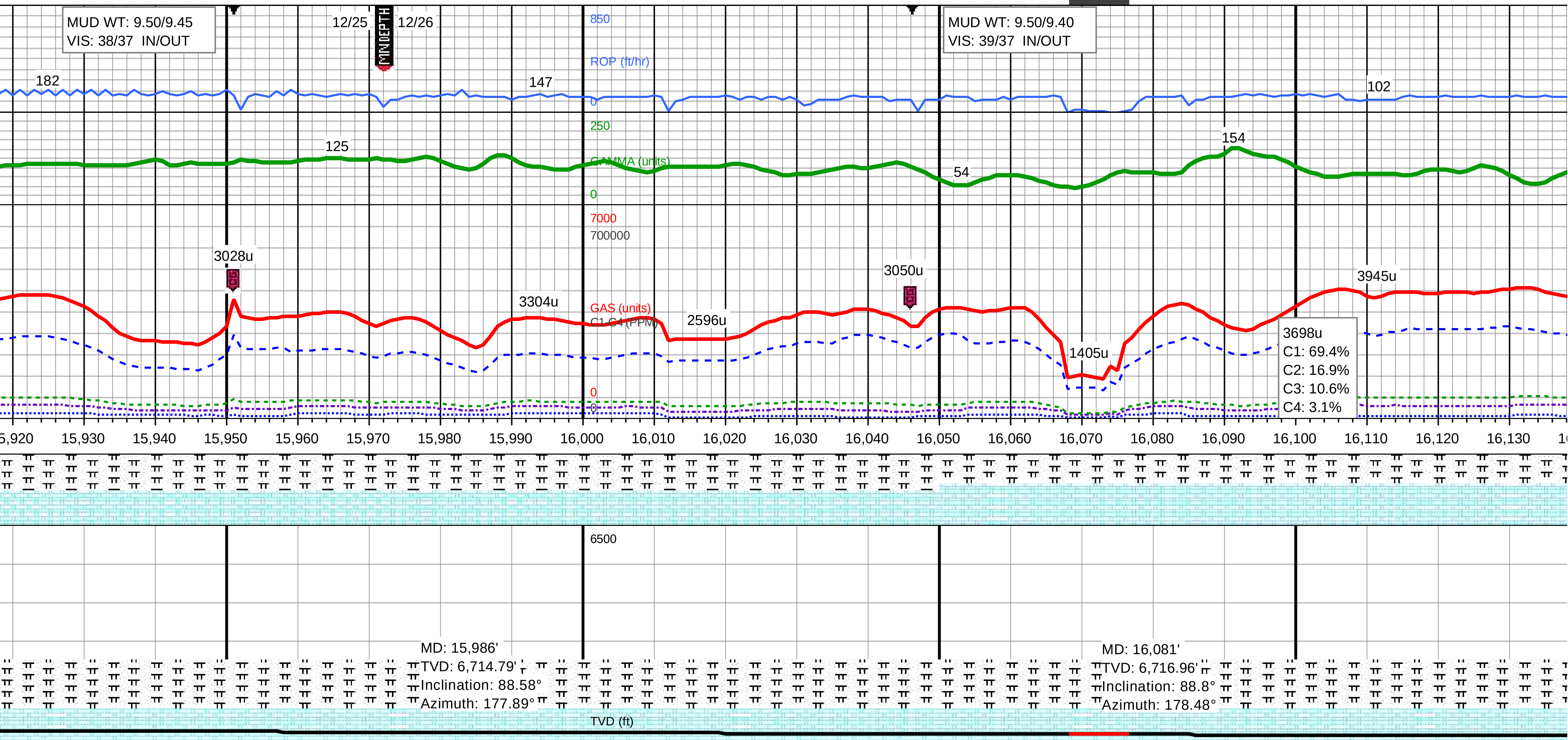
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

50% CHK: mot gy
blky, rthy - sb wx
50% MRLST: dk -
frm, brit - fri ip, gt
mtx, tr wh inoc, c



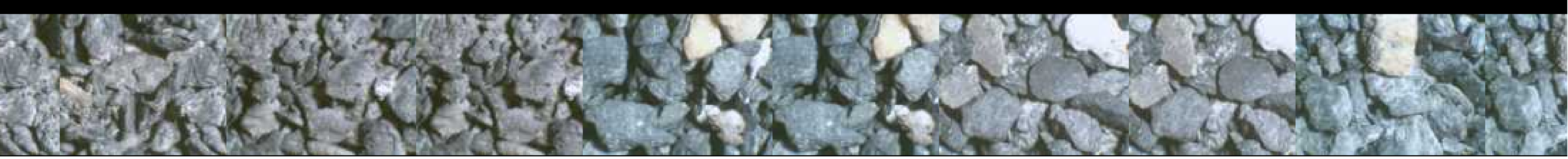
y brn - lt gy, v sft - sl frm, fri, sb
y tex, v calc;
med gy, gy brn - blk, mod - sl
tex, sb plty - sb blky, arg - slty
al incl

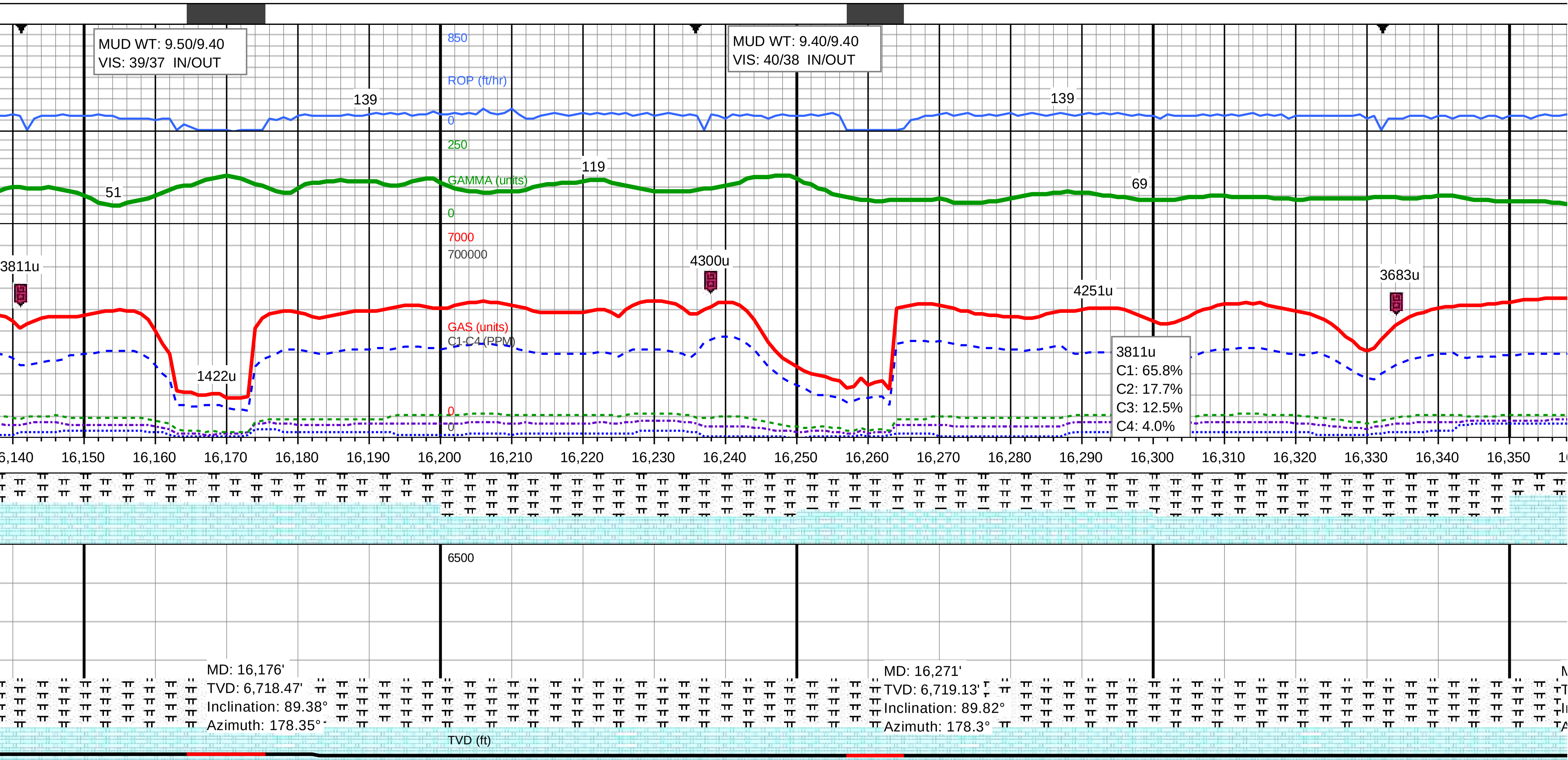
50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

60% CHK: mot gy brn - lt gy, v sft - sl
sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk
sl frm, brit - fri ip, gt tex, sb plty - sb b
- slty mtx, sme inoc foss, cal incl





frm, fri, ... , mod - ... lky, arg

60% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
40% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

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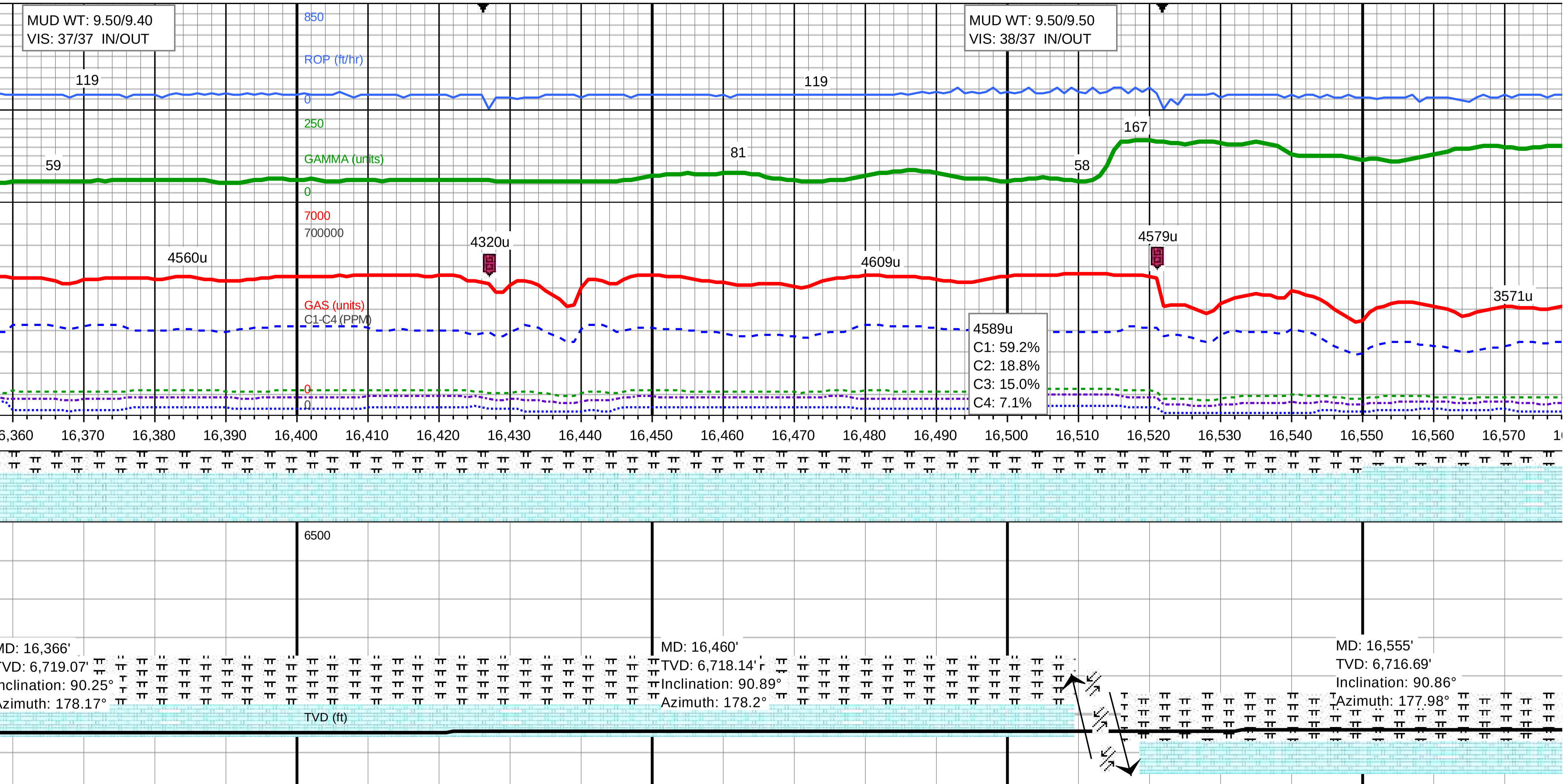
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

70% C... sb blk... 30% M... sl frm... - slty ...



CHK: mot gy brn - lt gy, v sft - sl frm, fri, y, rthy - sb wxy tex, v calc; MRLST: dk - med gy, gy brn - blk, mod - , brit - fri ip, gt tex, sb plty - sb blky, arg mtx, sme inoc foss, cal incl

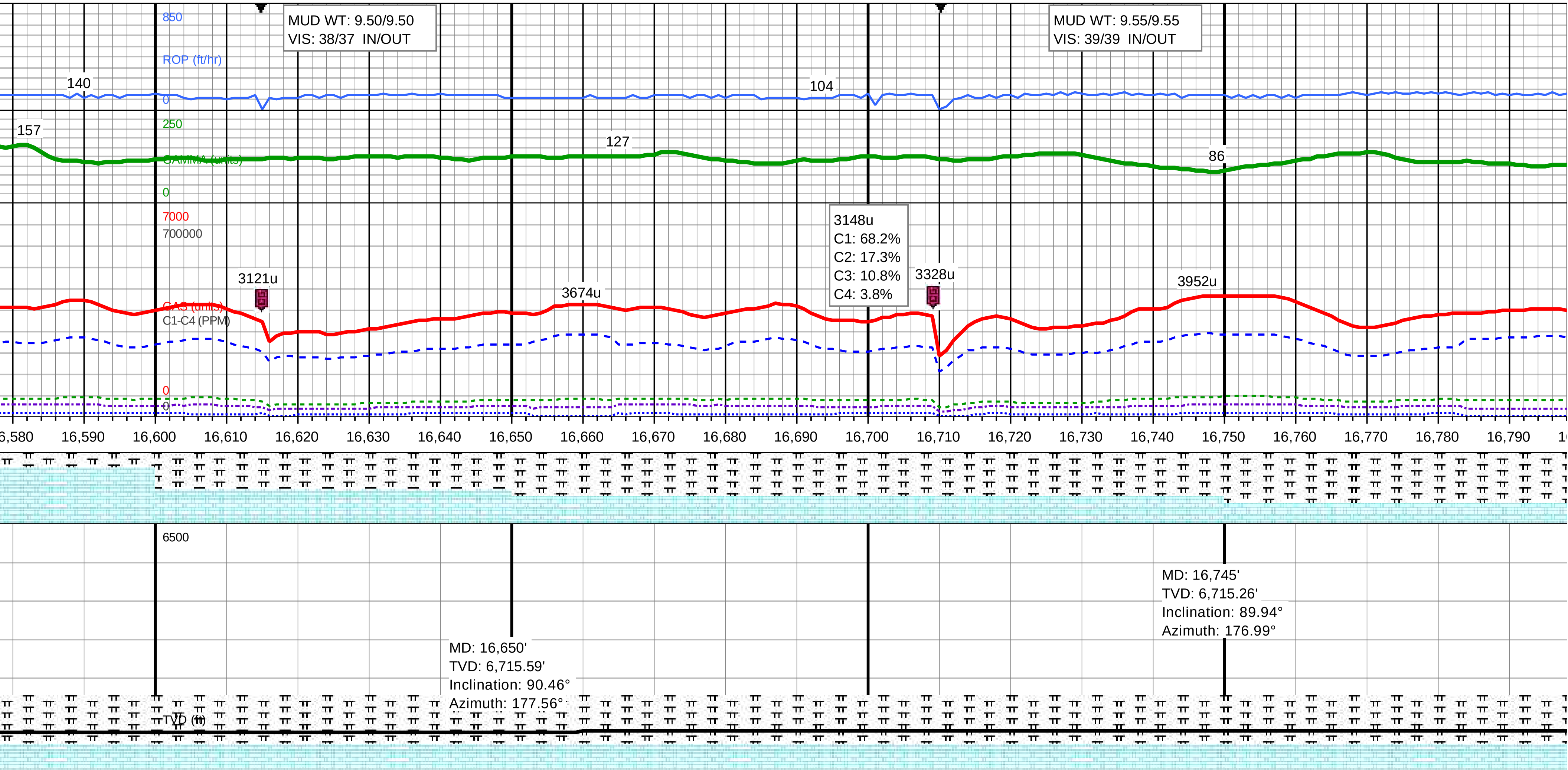
70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

6900

70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

70% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc; 30% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

80% CHK: mot gy brn - lt gy blky, rthy - sb wxy tex, v ca 20% MRLST: dk - med gy, g frm, brit - fri ip, gt tex, sb pl mtx, sme inoc foss, cal incl



..., v sft - sl frm, fri, sb ...lc;
...y brn - blk, mod - sl ...ty - sb blky, arg - slty

50% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
50% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, sme inoc foss, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

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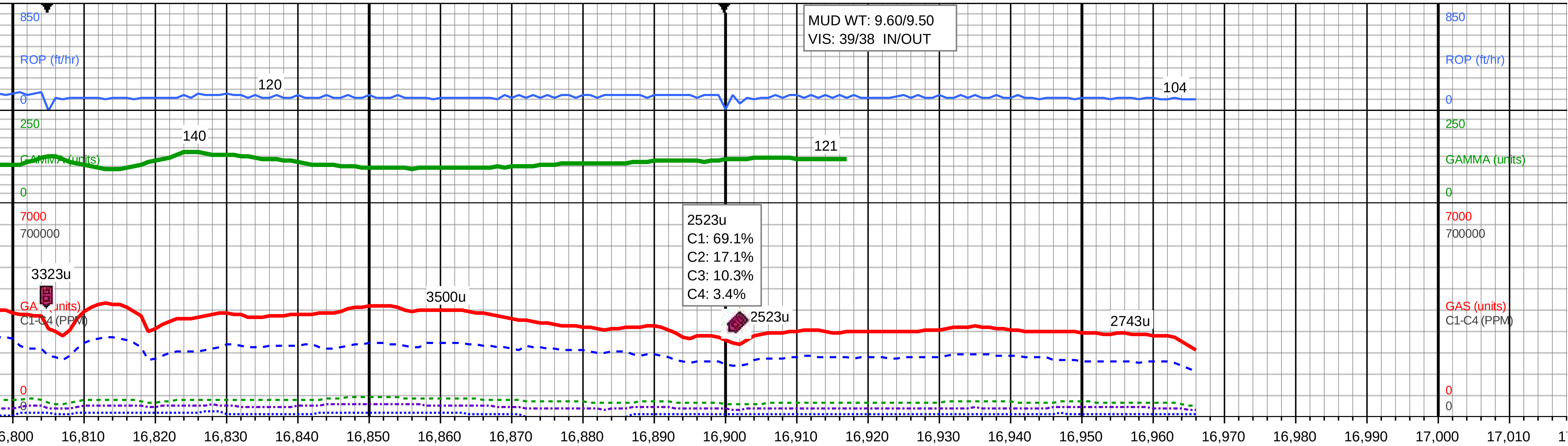
70% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc foss, cal incl



6500

TVD (ft)

6900

MD: 16,840'
TVD: 6,715.19'
Inclination: 90.15°
Azimuth: 176.96°

MD: 16,905'
TVD: 6,714.98'
Inclination: 90.22°
Azimuth: 176.79°

Projection to Bit:
MD: 16,966'
TVD: 6,714.74'
Inclination: 90.22°
Azimuth: 176.79°

TD @ 1
hrs MST

See Cor
Crow Cre

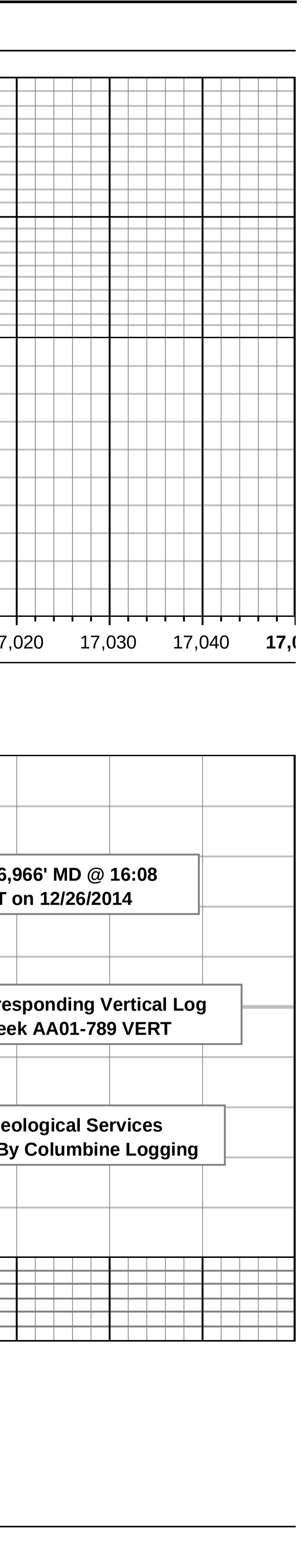
Wellsite G
Provided

30% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
70% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, tr inoc foss, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl

40% CHK: mot gy brn - lt gy, v sft - sl frm, fri, sb blky, rthy - sb wxy tex, v calc;
60% MRLST: dk - med gy, gy brn - blk, mod - sl frm, brit - fri ip, gt tex, sb plty - sb blky, arg - slty mtx, cal incl


7,020
17,030
17,040
17,(
6,966' MD @ 16:08
T on 12/26/2014
esponding Vertical Log
eek AA01-789 VERT
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By Columbine Logging