Décollement Consulting Inc.

Scale: 5" / 100'
Measured Depth Log

Well Name	Park T-P-4HC		
Location	SE/SE Section 4, T4N - R63W		
State	Colorado	**County**	Weld
Country	USA	**Rig Number**	Cade 21
API Number	05-123-38606		
Region	D.J. Basin		
Spud Date	3/20/2014	**Drilling Completed**	3/29/2014
Ground Elevation	4,615'	**K.B. Elevation**	4,632'
Logged Interval	6,000' **To** 11,191	**Total Depth**	11,191
Formation	Codell Sandstone		
Type of Drilling Fluid	Water Based Mud		

Operator

Company Bonanza Creek Energy, Inc.

Address 410 17th Street, Suite 1500
Denver, CO 80202

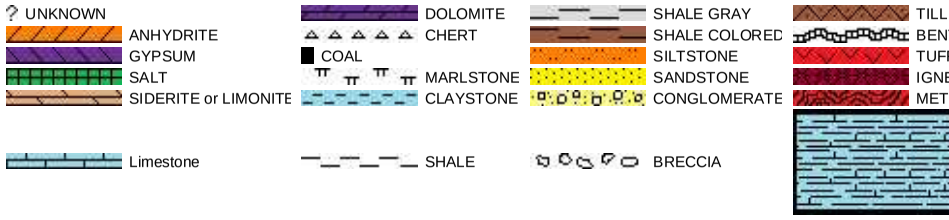
Geologist

Name Dick Brunner / Scott Sawyer

Company Decollement Consulting Inc.

Address 13300 Braun Road
Golden, CO 80401

Rock Types



TONITE
E
EOUS
AMORPHIC
Chalk

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
- 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

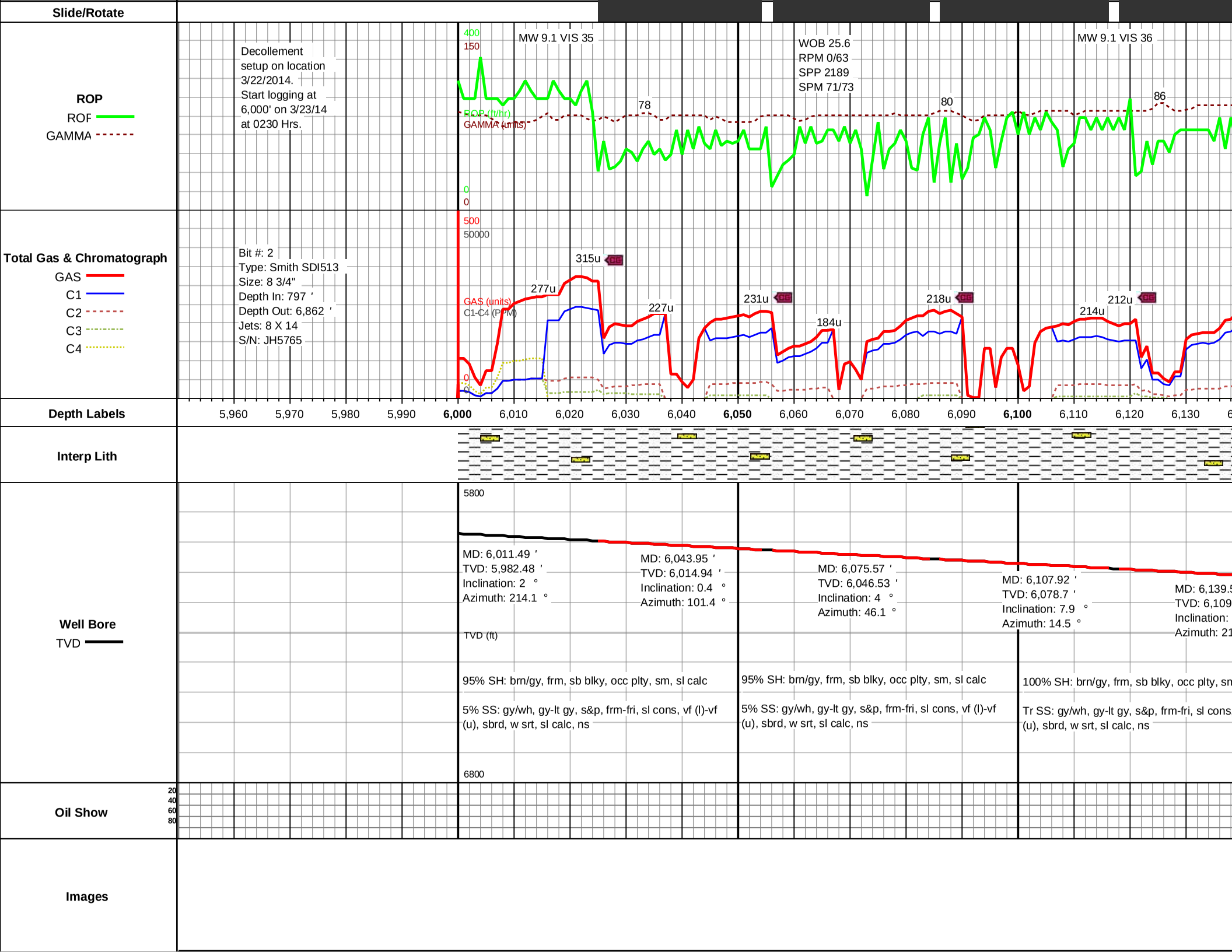
Textures

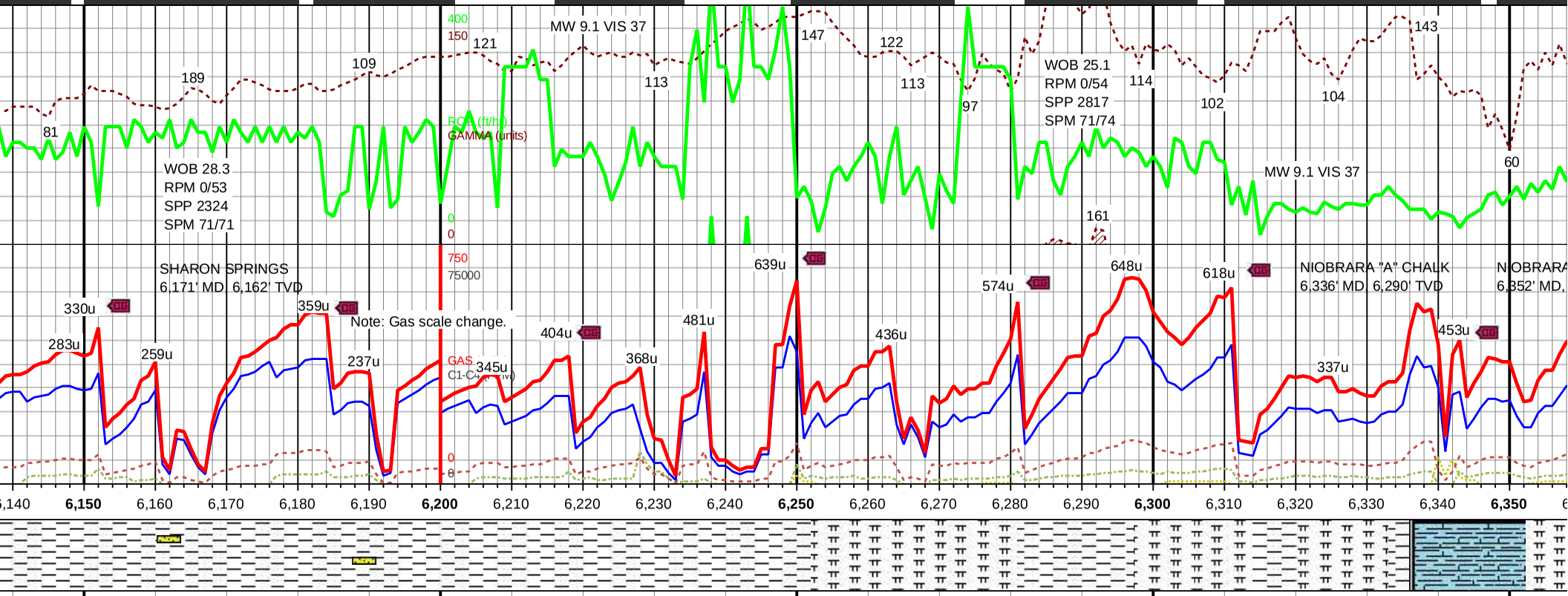
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- EARTHY
- FINELYXLN
- GRAINSTONE
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE
- PACKSTONE
- WACKESTONE

Sorting

- MODERATE
- POOR
- WELL

Chalk


Slide/Rotate
ROP
ROF
GAMMA
Decollement setup on location 3/22/2014. Start logging at 6,000' on 3/23/14 at 0230 Hrs.
400
150
MW 9.1 VIS 35
78
WOB 25.6
RPM 0/63
SPP 2189
SPM 71/73
80
MW 9.1 VIS 36
86
ROP (ft/hr)
GAMMA (units)
0
0
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
Bit #: 2
Type: Smith SDI513
Size: 8 3/4"
Depth In: 797 '
Depth Out: 6,862 '
Jets: 8 X 14
S/N: JH5765
500
50000
315u
277u
227u
231u
184u
218u
214u
212u
GAS (units)
C1-C4 (PPM)
0
0
Depth Labels
5,960
5,970
5,980
5,990
6,000
6,010
6,020
6,030
6,040
6,050
6,060
6,070
6,080
6,090
6,100
6,110
6,120
6,130
Interp Lith
Well Bore
TVD
5800
MD: 6,011.49 '
TVD: 5,982.48 '
Inclination: 2 °
Azimuth: 214.1 °
MD: 6,043.95 '
TVD: 6,014.94 '
Inclination: 0.4 °
Azimuth: 101.4 °
MD: 6,075.57 '
TVD: 6,046.53 '
Inclination: 4 °
Azimuth: 46.1 °
MD: 6,107.92 '
TVD: 6,078.7 '
Inclination: 7.9 °
Azimuth: 14.5 °
TVD (ft)
95% SH: brn/gy, frm, sb blky, occ plty, sm, sl calc
5% SS: gy/wh, gy-lt gy, s&p, frm-fri, sl cons, vf (l)-vf (u), sbrd, w srt, sl calc, ns
95% SH: brn/gy, frm, sb blky, occ plty, sm, sl calc
5% SS: gy/wh, gy-lt gy, s&p, frm-fri, sl cons, vf (l)-vf (u), sbrd, w srt, sl calc, ns
100% SH: brn/gy, frm, sb blky, occ plty, sm
Tr SS: gy/wh, gy-lt gy, s&p, frm-fri, sl cons (u), sbrd, w srt, sl calc, ns
6800
Oil Show
20
40
60
80
Images



5800

100% SH: gy, frm, sb blky, occ plty, sm, sl calc

60% MARL: gry-brn, drk gry, microxln, frm-hrd, arg

40% SH: gy, frm, sb blky, occ plty, sm, sl calc

80% MARL: gry-brn, drk gry, microxln, frm-hrd, arg

10% SH: gy, frm, sb blky, occ plty, sm, sl calc

10% CLK: wht, vfg-mass, v sft-sft, blk stn, yel flor, ns

100% M

5 '
.76 '
12.8 °
°

n, sl calc

, vf (l)-vf

MD: 6,171.74 '
TVD: 6,140.83 '
Inclination: 18.2 °
Azimuth: 32.7 °

100% SH: brn/gy, frm, sb blky, occ plty, sm, sl calc

Tr SS: gy/wh, gy-lt gy, s&p, frm-fri, sl cons, vf (l)-vf (u), sbrd, w srt, sl calc, ns

MD: 6,203.19 '
TVD: 6,170.47 '
Inclination: 20.8 °
Azimuth: 33.8 °

MD: 6,234.79 '
TVD: 6,199.89 '
Inclination: 22 °
Azimuth: 33.5 °

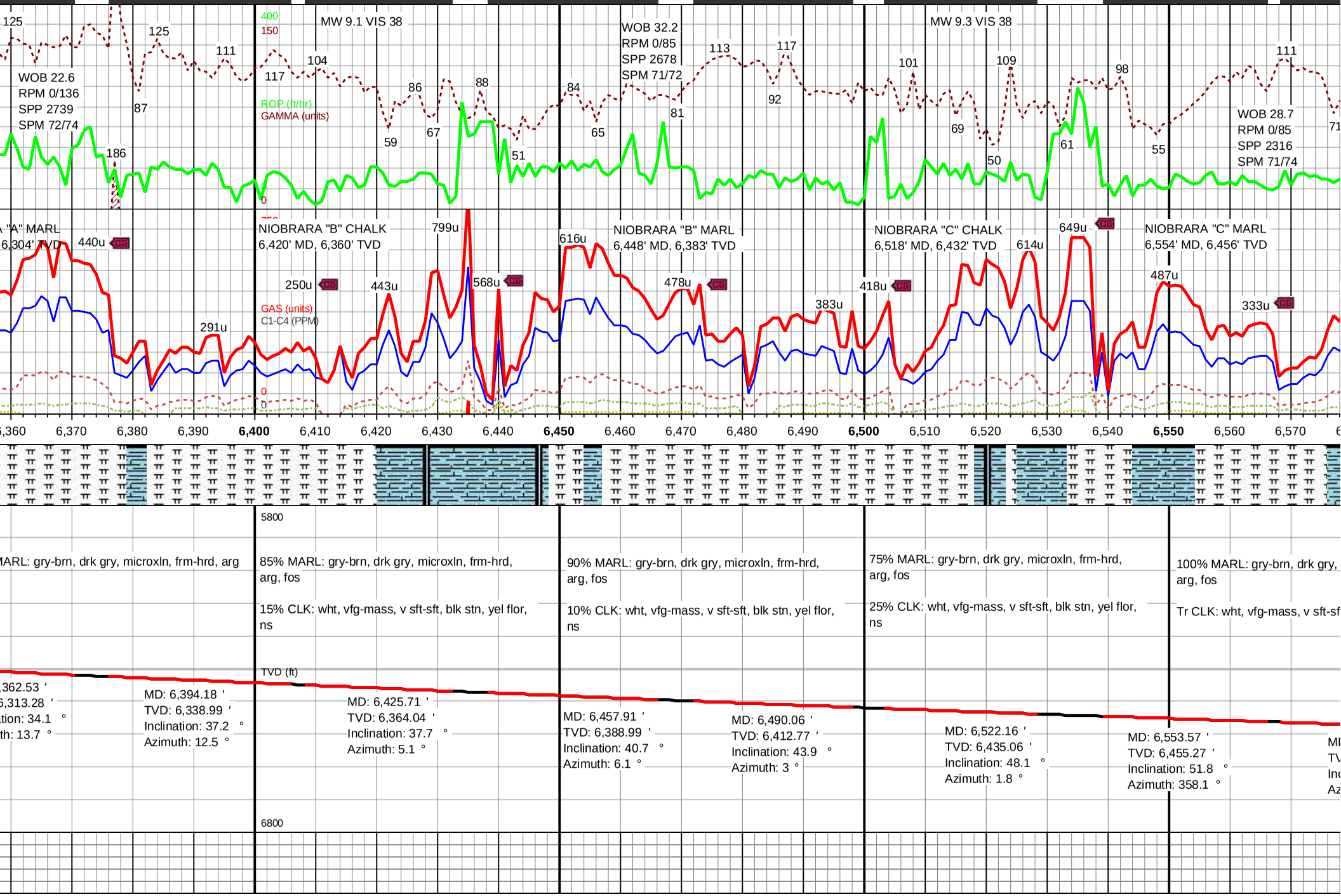
MD: 6,267.34 '
TVD: 6,229.9 '
Inclination: 23.6 °
Azimuth: 30.9 °

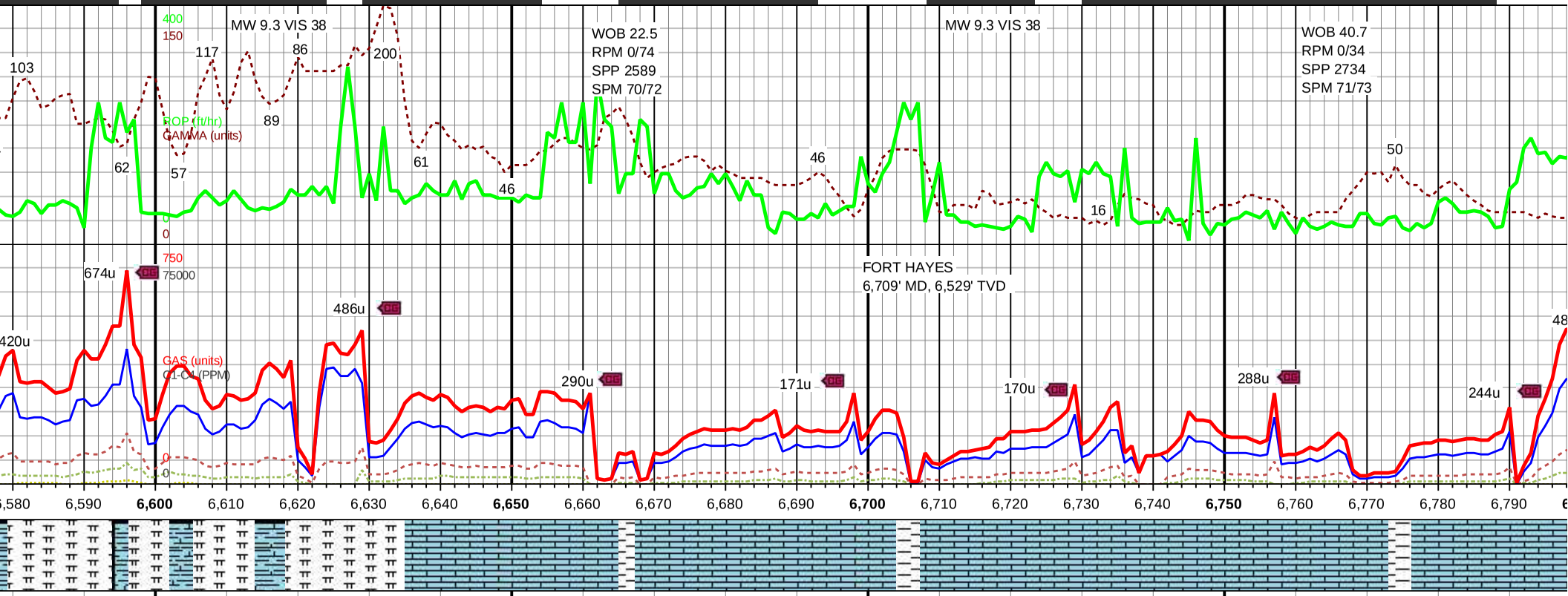
MD: 6,299.48 '
TVD: 6,258.93 '
Inclination: 27.2 °
Azimuth: 23.6 °

MD: 6,331 '
TVD: 6,286.59 '
Inclination: 30.2 °
Azimuth: 15.9 °

MD: 6
TVD: 6
Inclina
Azimu

6800


WOB 22.6
RPM 0/136
SPP 2739
SPM 72/74
MW 9.1 VIS 38
ROP (ft/hr)
GAMMA (units)
WOB 32.2
RPM 0/85
SPP 2678
SPM 71/72
MW 9.3 VIS 38
WOB 28.7
RPM 0/85
SPP 2316
SPM 71/74
"A" MARL
6,304' TVD
NIOBRARA "B" CHALK
6,420' MD, 6,360' TVD
NIOBRARA "B" MARL
6,448' MD, 6,383' TVD
NIOBRARA "C" CHALK
6,518' MD, 6,432' TVD
NIOBRARA "C" MARL
6,554' MD, 6,456' TVD
GAS (units)
C1-C4 (PPM)
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
5800
6800
TVD (ft)
MARL: gry-brn, drk gry, microxln, frm-hrd, arg
85% MARL: gry-brn, drk gry, microxln, frm-hrd, arg, fos
15% CLK: wht, vfg-mass, v sft-sft, blk stn, yel flor, ns
90% MARL: gry-brn, drk gry, microxln, frm-hrd, arg, fos
10% CLK: wht, vfg-mass, v sft-sft, blk stn, yel flor, ns
75% MARL: gry-brn, drk gry, microxln, frm-hrd, arg, fos
25% CLK: wht, vfg-mass, v sft-sft, blk stn, yel flor, ns
100% MARL: gry-brn, drk gry, arg, fos
Tr CLK: wht, vfg-mass, v sft-sf
MD: 6,394.18 '
TVD: 6,338.99 '
Inclination: 37.2 °
Azimuth: 12.5 °
MD: 6,425.71 '
TVD: 6,364.04 '
Inclination: 37.7 °
Azimuth: 5.1 °
MD: 6,457.91 '
TVD: 6,388.99 '
Inclination: 40.7 °
Azimuth: 6.1 °
MD: 6,490.06 '
TVD: 6,412.77 '
Inclination: 43.9 °
Azimuth: 3 °
MD: 6,522.16 '
TVD: 6,435.06 '
Inclination: 48.1 °
Azimuth: 1.8 °
MD: 6,553.57 '
TVD: 6,455.27 '
Inclination: 51.8 °
Azimuth: 358.1 °



5800

microxln, frm-hrd,

t, blk stn, yel flor, ns

75% MARL: gry-brn, drk gry, microxln, frm-hrd, arg, fos

25% LS: wh, lt tan, cryptoxln, mas, hrd, brit, plty, ns

Tr SH: drk brn, frm, blky, sm, intbd carb mat, sl calc

90% LS: lt tan, hd-brit, micro-cryptoxln, mas, ns, lse carb mat

10% SH: drk brn, gy, frm, blky, sm, intbd carb mat, sl calc

95% LS: lt tan, hd-brit, micro-cryptoxln, mas, ns, lse carb mat

5% SH: drk brn, gy, frm, blky, sm, intbd carb mat, sl calc

95% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns, lse carb mat

5% SH: drk brn, gy, frm, blky, sm, intbd carb mat, sl calc

ft)

D: 6,585.69 '
VD: 6,474.27 '
clination: 55.7 °
imuth: 354.3 °

MD: 6,617.35 '
TVD: 6,491.06 '
Inclination: 60.2 °
Azimuth: 352.2 °

MD: 6,648.81 '
TVD: 6,505.68 '
Inclination: 64.4 °
Azimuth: 353.1 °

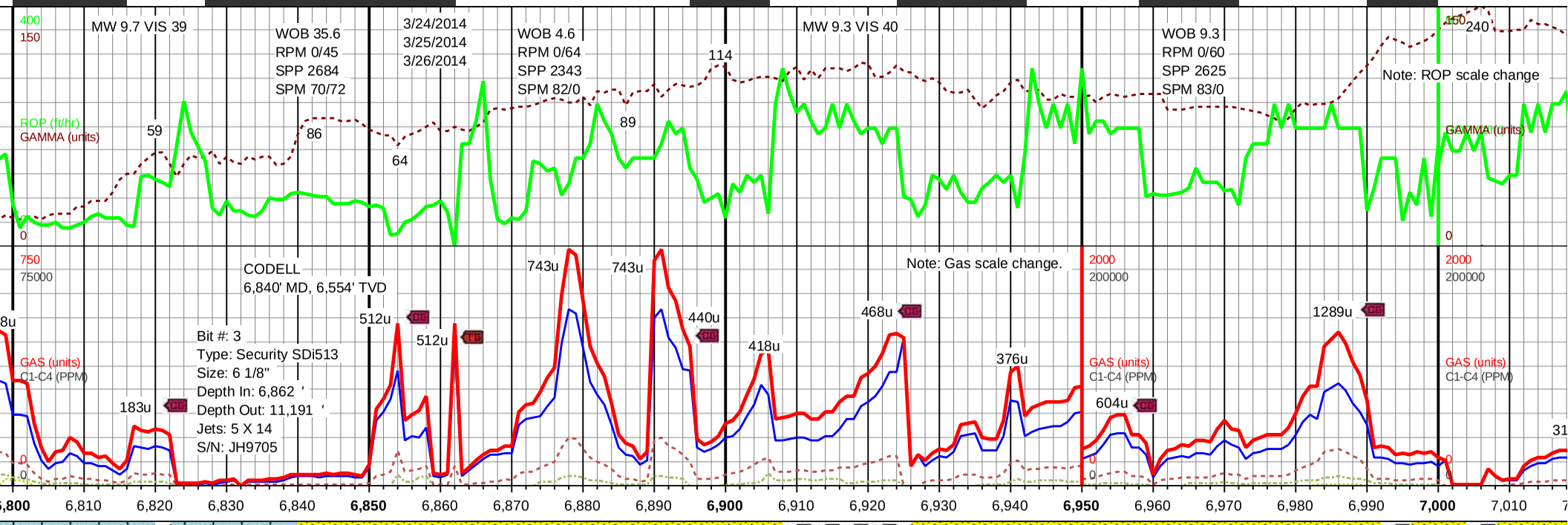
MD: 6,680.28 '
TVD: 6,518.58 '
Inclination: 67.2 °
Azimuth: 353.5 °

MD: 6,711.88 '
TVD: 6,530.11 '
Inclination: 70 °
Azimuth: 352.8 °

MD: 6,743.98 '
TVD: 6,540.08 '
Inclination: 73.8 °
Azimuth: 351.7 °

MD: 6,776.28 '
TVD: 6,547.95 '
Inclination: 78 °
Azimuth: 351.7 °

6800



5800

90% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns, lse carb mat

5% SH: drk brn, gy, frm, blky, sm, intbd carb mat, sl calc

5% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

95% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

5% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns, lse carb mat

90% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

10% SH: blk, drk brn, frm-hd, blky, sm, intbd carb mat, sl calc

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, p srt, p por, slty mtx

TVD (ft)

MD: 6,807.86 '
TVD: 6,553.16 '
Inclination: 83 °
Azimuth: 352.7 °

MD: 6,876.45 '
TVD: 6,559.43 '
Inclination: 85.9 °
Azimuth: 353.6 °

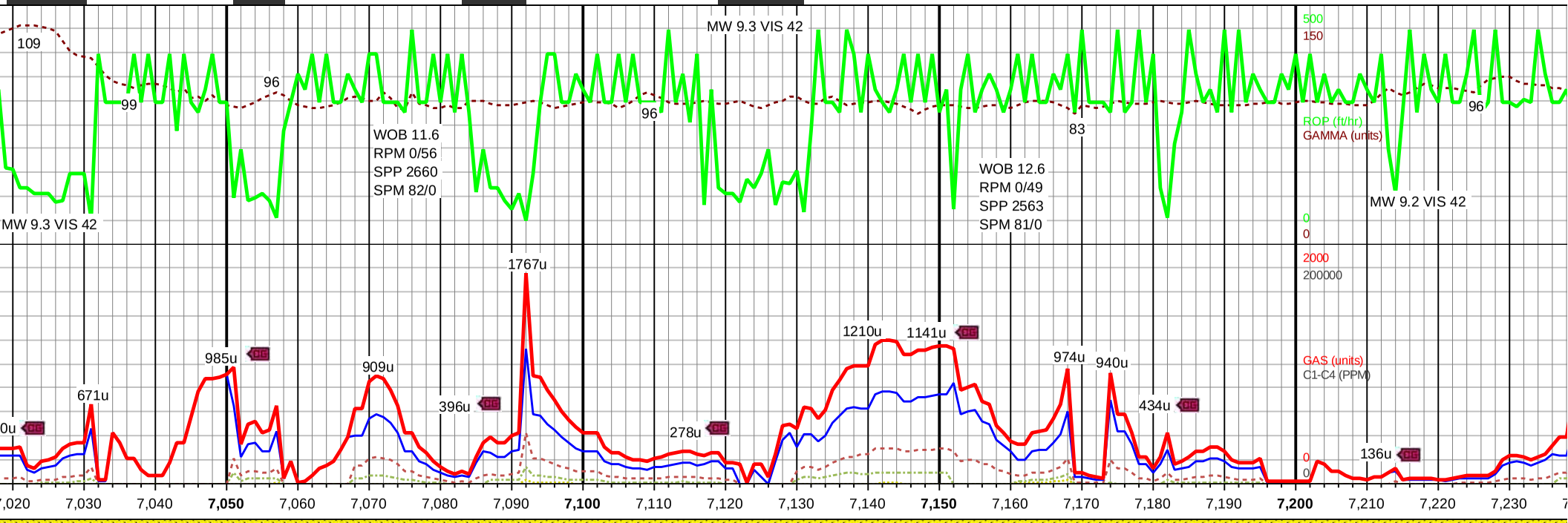
MD: 6,908.11 '
TVD: 6,561.2 '
Inclination: 87.7 °
Azimuth: 353.6 °

MD: 6,939.75 '
TVD: 6,561.89 '
Inclination: 89.8 °
Azimuth: 354.6 °

MD: 6,971.32 '
TVD: 6,561.72 '
Inclination: 90.9 °
Azimuth: 356.6 °

MD: 7,003.23 '
TVD: 6,561.05 '
Inclination: 91.5 °
Azimuth: 357.6 °

6800



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vf (l) - vf (u), frm-fri, sbang-sbrd,
, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd,
p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd,
p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd,
p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sb
p srt, p por, slty mtx, sl calc, occ lse carb m

TVD (ft)

MD: 7,035.6 '
TVD: 6,560.09 '
Inclination: 91.9 °
Azimuth: 359.2 °

MD: 7,067.99 '
TVD: 6,559.13 '
Inclination: 91.5 °
Azimuth: 0.7 °

MD: 7,099.61 '
TVD: 6,558.5 '
Inclination: 90.8 °
Azimuth: 1.7 °

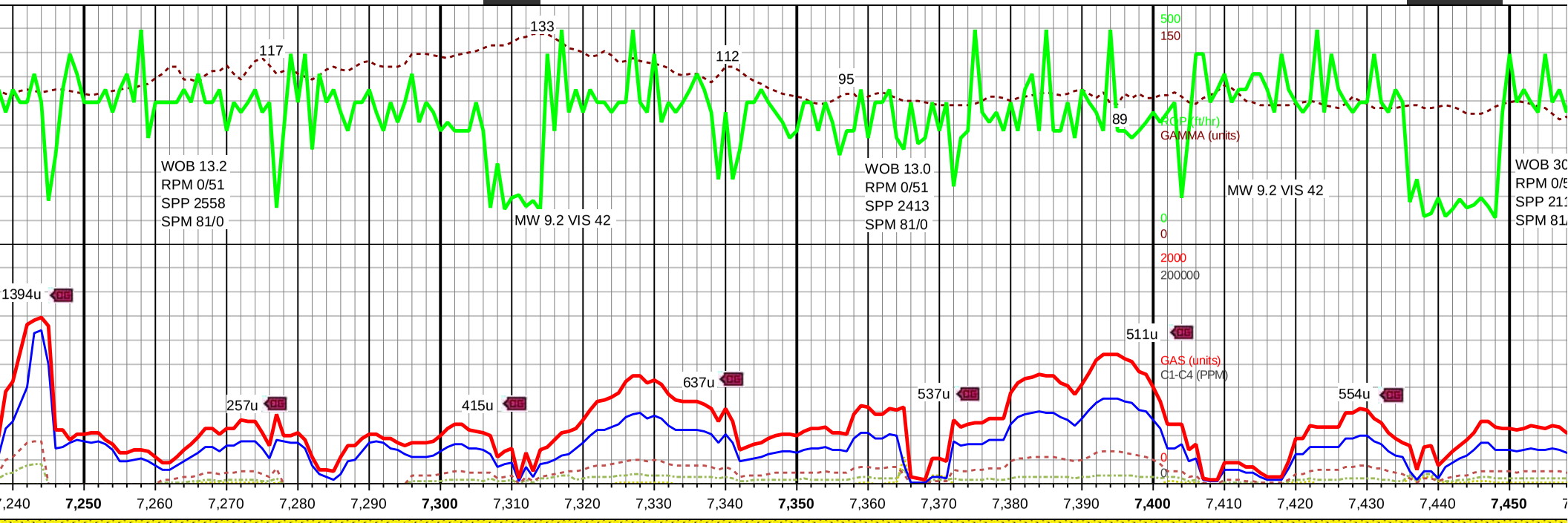
MD: 7,131.81 '
TVD: 6,558.41 '
Inclination: 89.5 °
Azimuth: 0.8 °

MD: 7,164.2 '
TVD: 6,558.44 '
Inclination: 90.4 °
Azimuth: 1.6 °

MD: 7,195.81 '
TVD: 6,558.5 '
Inclination: 89.4 °
Azimuth: 0.7 °

MD: 7,227.4 '
TVD: 6,558.83 '
Inclination: 89.4 °
Azimuth: 0.7 °

6800



5800

TVD (ft)

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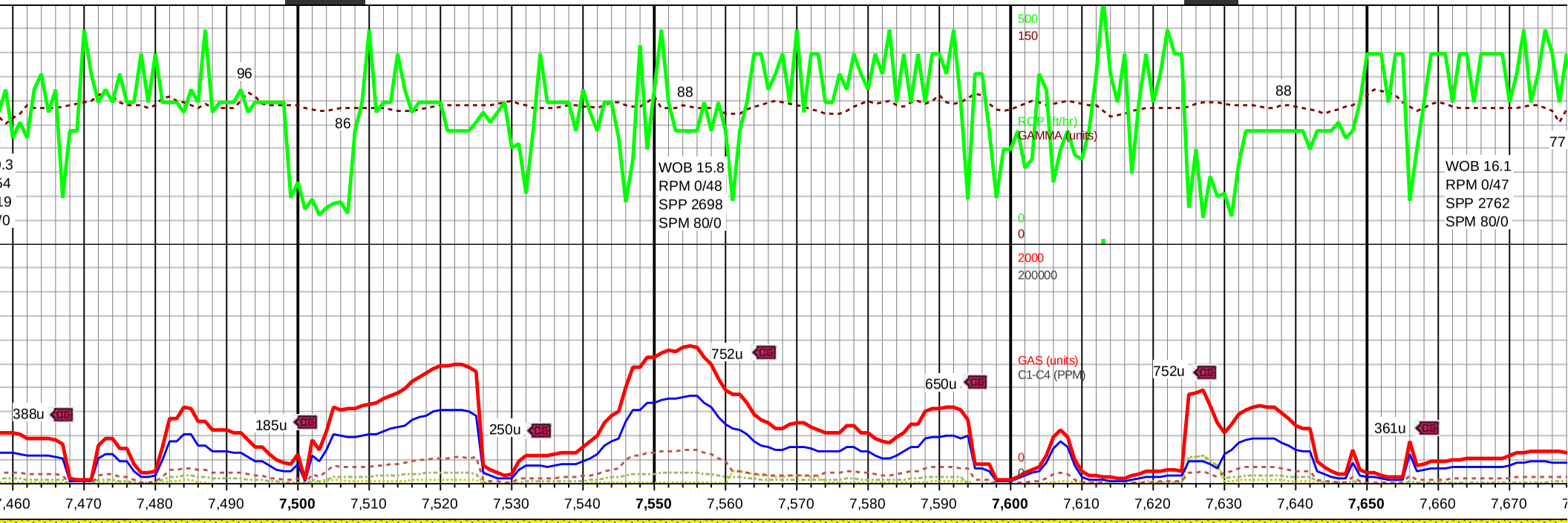
ang-sbrd, hat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% S p srt, p p
	MD: 7,258.81 ′ TVD: 6,559.16 ′ Inclination: 89.4 ° Azimuth: 359.6 °	MD: 7,290.73 ′ TVD: 6,559.49 ′ Inclination: 89.4 ° Azimuth: 0.4 °	MD: 7,322.24 ′ TVD: 6,559.49 ′ Inclination: 90.6 ° Azimuth: 359.7 °	MD: 7,353.84 ′ TVD: 6,559.08 ′ Inclination: 90.9 ° Azimuth: 0.4 °	MD: 7,385.94 ′ TVD: 6,558.55 ′ Inclination: 91 ° Azimuth: 0.5 °	MD: 7,417.49 ′ TVD: 6,557.91 ′ Inclination: 91.2 ° Azimuth: 0.2 °	MD: 7,449.71 ′ TVD: 6,557.32 ′ Inclination: 90.9 ° Azimuth: 2 °



5800

S: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

100% SS: lt brn/gy, vf (l) - vf (u grns, sbang-sbrd, p srt, p por, lse carb mat, tr pyr

TVD (ft)

MD: 7,481.09 '
TVD: 6,556.83 '
Inclination: 90.9 °
Azimuth: 2.8 °

MD: 7,512.85 '
TVD: 6,556.66 '
Inclination: 89.7 °
Azimuth: 2.5 °

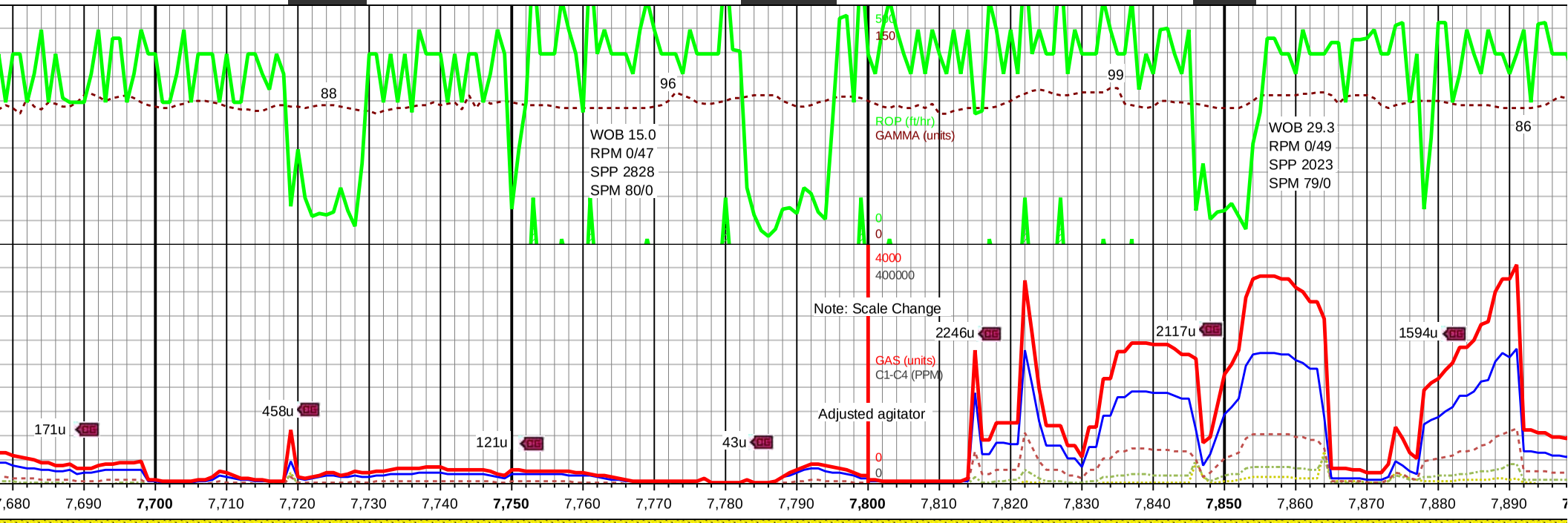
MD: 7,544.45 '
TVD: 6,556.88 '
Inclination: 89.5 °
Azimuth: 3 °

MD: 7,575.67 '
TVD: 6,557.18 '
Inclination: 89.4 °
Azimuth: 1.4 °

MD: 7,608.07 '
TVD: 6,557.61 '
Inclination: 89.1 °
Azimuth: 1.1 °

MD: 7,671.29 '
TVD: 6,557.41 '
Inclination: 90.8 °
Azimuth: 2.2 °

6800

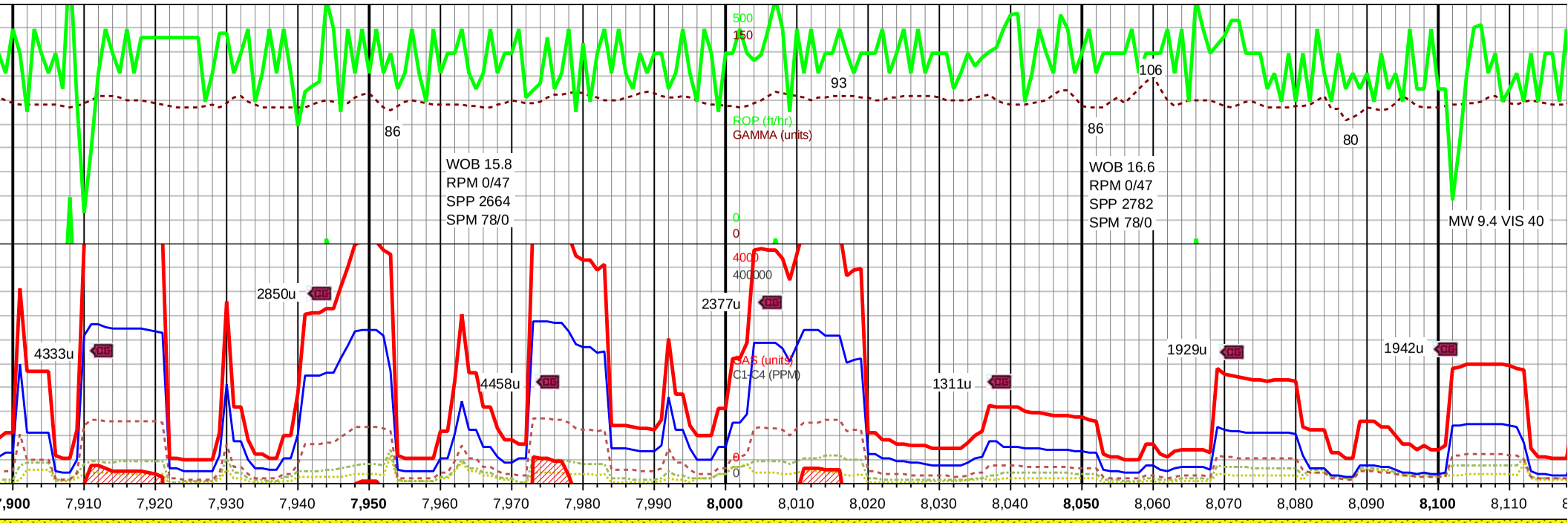


5800

TVD (ft)

6800

), frm-fri, occ lse slty mtx, sl calc, occ	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr	
MD: 7,702.99 ′ TVD: 6,557 ′ Inclination: 90.7 ° Azimuth: 2.8 °	MD: 7,734.88 ′ TVD: 6,556.89 ′ Inclination: 89.7 ° Azimuth: 3.5 °	MD: 7,766.49 ′ TVD: 6,557.11 ′ Inclination: 89.5 ° Azimuth: 2 °	MD: 7,798.07 ′ TVD: 6,557.58 ′ Inclination: 88.8 ° Azimuth: 1.7 °	MD: 7,829.57 ′ TVD: 6,558.21 ′ Inclination: 88.9 ° Azimuth: 0.5 °	MD: 7,860.61 ′ TVD: 6,558.45 ′ Inclination: 90.2 ° Azimuth: 2.1 °	MD: 7,892.14 ′ TVD: 6,558.26 ′ Inclination: 90.5 Azimuth: 2.1 °



5800

TVD (ft)

6800

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

MD: 7,924.64 ′
TVD: 6,558 ′
Inclination: 90.4 °
Azimuth: 1.1 °

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

MD: 7,956.44 ′
TVD: 6,557.78 ′
Inclination: 90.4 °
Azimuth: 1.9 °

MD: 7,987.85 ′
TVD: 6,557.62 ′
Inclination: 90.2 °
Azimuth: 2 °

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

MD: 8,018.42 ′
TVD: 6,557.51 ′
Inclination: 90.2 °
Azimuth: 2.3 °

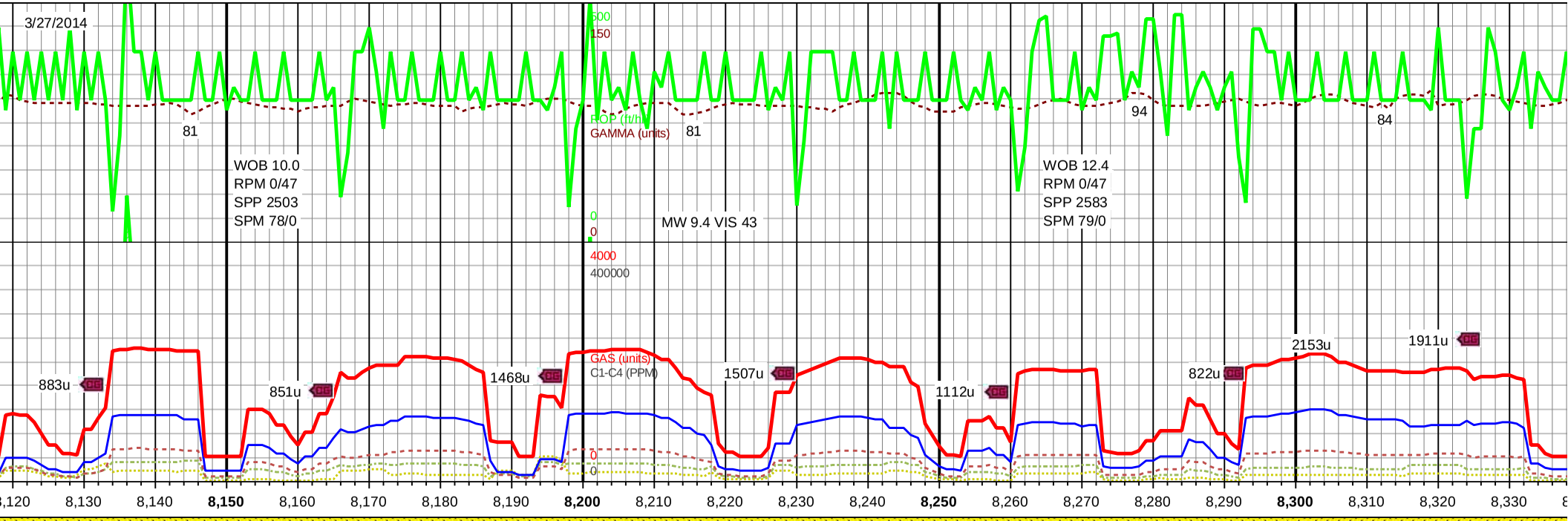
100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

MD: 8,049.99 ′
TVD: 6,557.37 ′
Inclination: 90.3 °
Azimuth: 1.2 °

MD: 8,081.85 ′
TVD: 6,557.15 ′
Inclination: 90.5 °
Azimuth: 0.7 °

100% SS: lt brn/gy, grns, sbang-sbrd, p lse carb mat, tr pyr

MD: 8,113.74
TVD: 6,556.87
Inclination: 90.
Azimuth: 1.2 °



5800

vf (l) - vf (u), frm-fri, occ lse
srt, p por, slty mtx, sl calc, occ

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, oc
grns, sbang-sbrd, p srt, p por, slty mtx, sl c
lse carb mat, tr pyr

TVD (ft)

MD: 8,146.1 '
TVD: 6,556.62 '
Inclination: 90.4 °
Azimuth: 0.1 °

MD: 8,177.71 '
TVD: 6,556.45 '
Inclination: 90.2 °
Azimuth: 0.9 °

MD: 8,210.19 '
TVD: 6,556.45 '
Inclination: 89.8 °
Azimuth: 359 °

MD: 8,242.03 '
TVD: 6,556.65 '
Inclination: 89.5 °
Azimuth: 358.5 °

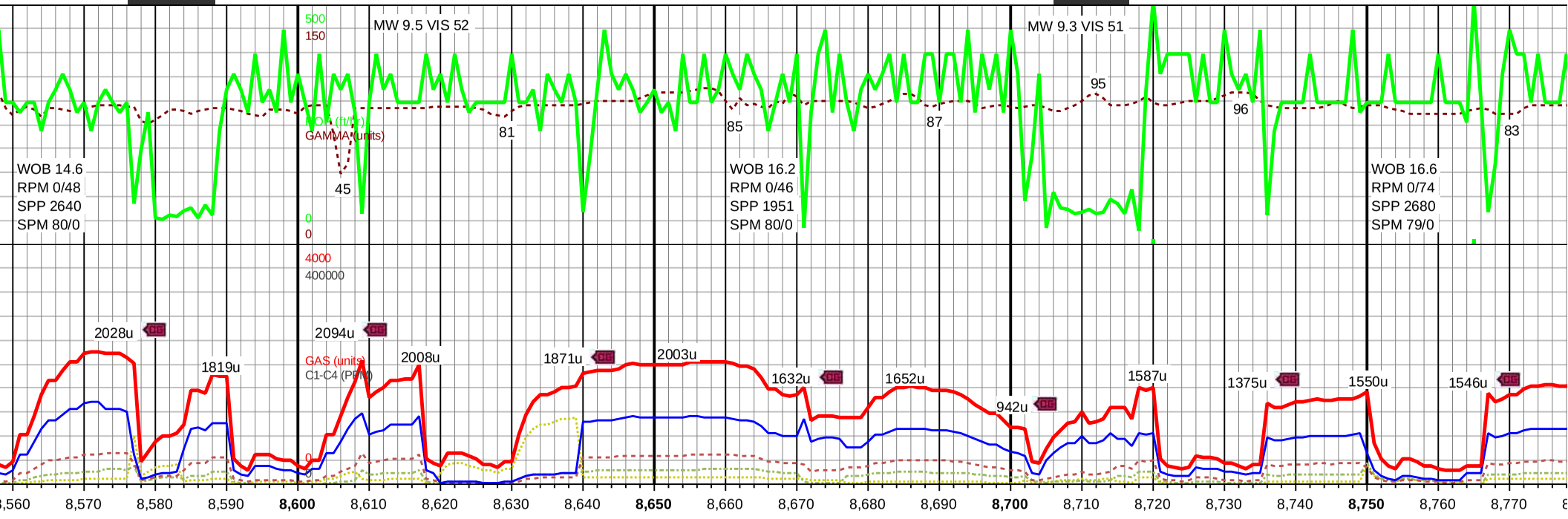
MD: 8,273.64 '
TVD: 6,556.92 '
Inclination: 89.5 °
Azimuth: 359.6 °

MD: 8,305.74 '
TVD: 6,557.23 '
Inclination: 89.4 °
Azimuth: 358.3 °

MD: 8,337.
TVD: 6,557
Inclination:
Azimuth: 35

6800

500
150
ROP (ft/hr)
GAMMA (units)
MW 9.5 VIS 53
86
91
83
82
96
83
82
99
WOB 14.7
RPM 0/47
SPP 2582
SPM 78/0
WOB 16.4
RPM 0/49
SPP 2762
SPM 80/0
MW 9.5 VIS 53
4000
400000
GAS (units)
C1-C4 (PPM)
1333u
1300u
1589u
815u
1528u
1887u
1928u
2187u
1847u
0
8,350
8,360
8,370
8,380
8,390
8,400
8,410
8,420
8,430
8,440
8,450
8,460
8,470
8,480
8,490
8,500
8,510
8,520
8,530
8,540
8,550
5800
100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr
100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr
100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat, tr pyr
100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat
TVD (ft)
MD: 8,369.4 ′
TVD: 6,557.59 ′
Inclination: 90.3 °
Azimuth: 0.1 °
MD: 8,402.05 ′
TVD: 6,557.36 ′
Inclination: 90.5 °
Azimuth: 0.6 °
MD: 8,434.3 ′
TVD: 6,557.16 ′
Inclination: 90.2 °
Azimuth: 359.7 °
MD: 8,465.95 ′
TVD: 6,557.14 ′
Inclination: 90 °
Azimuth: 359.3 °
MD: 8,497.62 ′
TVD: 6,556.97 ′
Inclination: 90.6 °
Azimuth: 359.8 °
MD: 8,528.83 ′
TVD: 6,556.86 ′
Inclination: 89.8 °
Azimuth: 0.6 °
6800



5800

S: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse
ang-sbrd, p srt, p por, slty mtx, sl calc, occ
mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse
grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ
lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse
grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ
lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse
grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ
lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u)
grns, sbang-sbrd, p srt, p por, s
lse carb mat

TVD (ft)

561.08 ′
,556.98 ′
ion: 89.8 °
h: 1.5 °

MD: 8,592.98 ′
TVD: 6,557.14 ′
Inclination: 89.6 °
Azimuth: 2.9 °

MD: 8,624.61 ′
TVD: 6,557.42 ′
Inclination: 89.4 °
Azimuth: 1.2 °

MD: 8,656.25 ′
TVD: 6,557.83 ′
Inclination: 89.1 °
Azimuth: 0.6 °

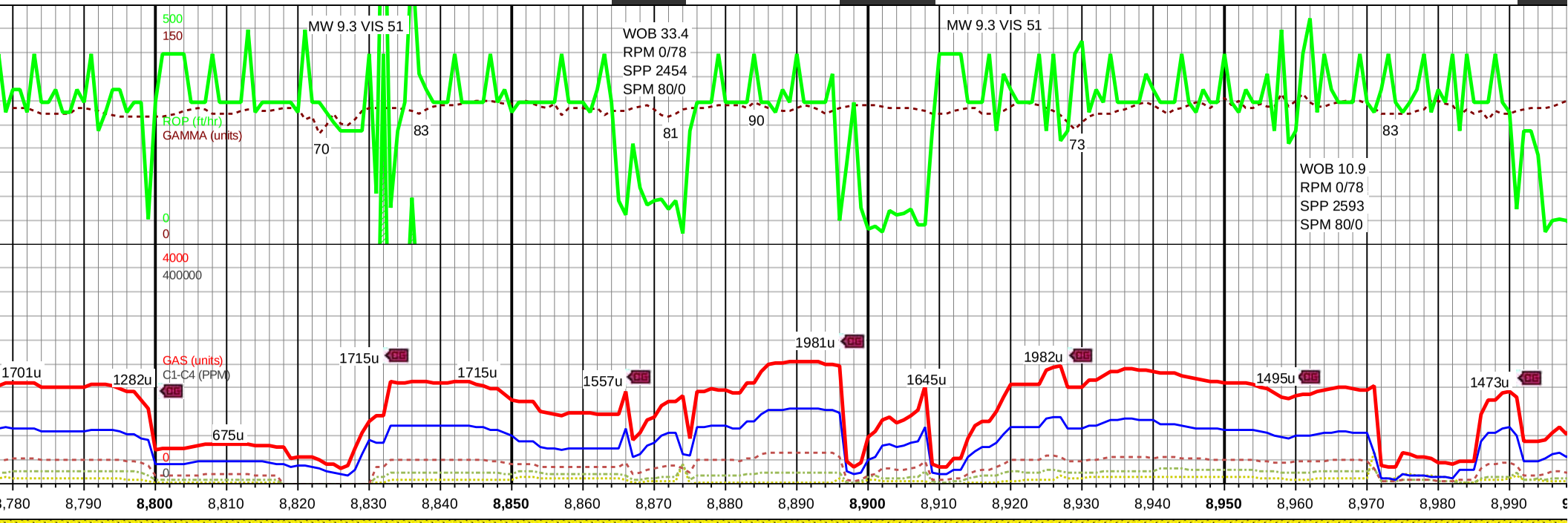
MD: 8,687.84 ′
TVD: 6,558.33 ′
Inclination: 89.1 °
Azimuth: 1.9 °

MD: 8,719.84 ′
TVD: 6,558.44 ′
Inclination: 90.5 °
Azimuth: 1.9 °

MD: 8,751.58 ′
TVD: 6,558.14 ′
Inclination: 90.6 °
Azimuth: 2.1 °

MD:
TVD
Inclin
Azim

6800



5800

, frm-fri, occ lse
lty mtx, sl calc, occ

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

TVD (ft)

8,783.24 ′
: 6,557.89 ′
nation: 90.3 °
uth: 1 °

MD: 8,815.59 ′
TVD: 6,557.77 ′
Inclination: 90.1 °
Azimuth: 0.3 °

MD: 8,847.21 ′
TVD: 6,557.75 ′
Inclination: 90 °
Azimuth: 358.8 °

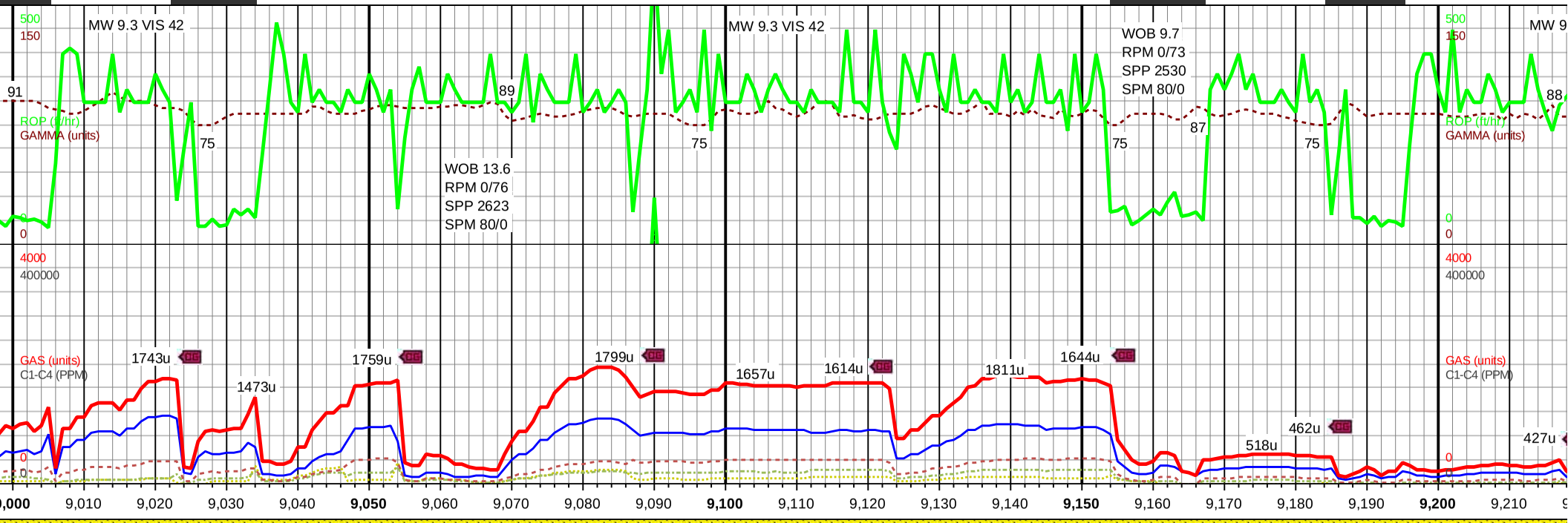
MD: 8,879.45 ′
TVD: 6,557.89 ′
Inclination: 89.5 °
Azimuth: 0.8 °

MD: 8,911.59 ′
TVD: 6,558.14 ′
Inclination: 89.6 °
Azimuth: 1.8 °

MD: 8,943.24 ′
TVD: 6,558.39 ′
Inclination: 89.5 °
Azimuth: 1.6 °

MD: 8,975.03 ′
TVD: 6,558.72 ′
Inclination: 89.3 °
Azimuth: 359.9 °

6800



5800

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

5800

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p lse carb mat

TVD (ft)

MD: 9,007.37 ′
TVD: 6,558.86 ′
Inclination: 90.2 °
Azimuth: 0.8 °

MD: 9,039.67 ′
TVD: 6,558.69 ′
Inclination: 90.4 °
Azimuth: 2.5 °

MD: 9,071.85 ′
TVD: 6,558.55 ′
Inclination: 90.1 °
Azimuth: 2.6 °

MD: 9,104.02 ′
TVD: 6,558.53 ′
Inclination: 90 °
Azimuth: 1.1 °

MD: 9,136.21 ′
TVD: 6,558.58 ′
Inclination: 89.8 °
Azimuth: 0.4 °

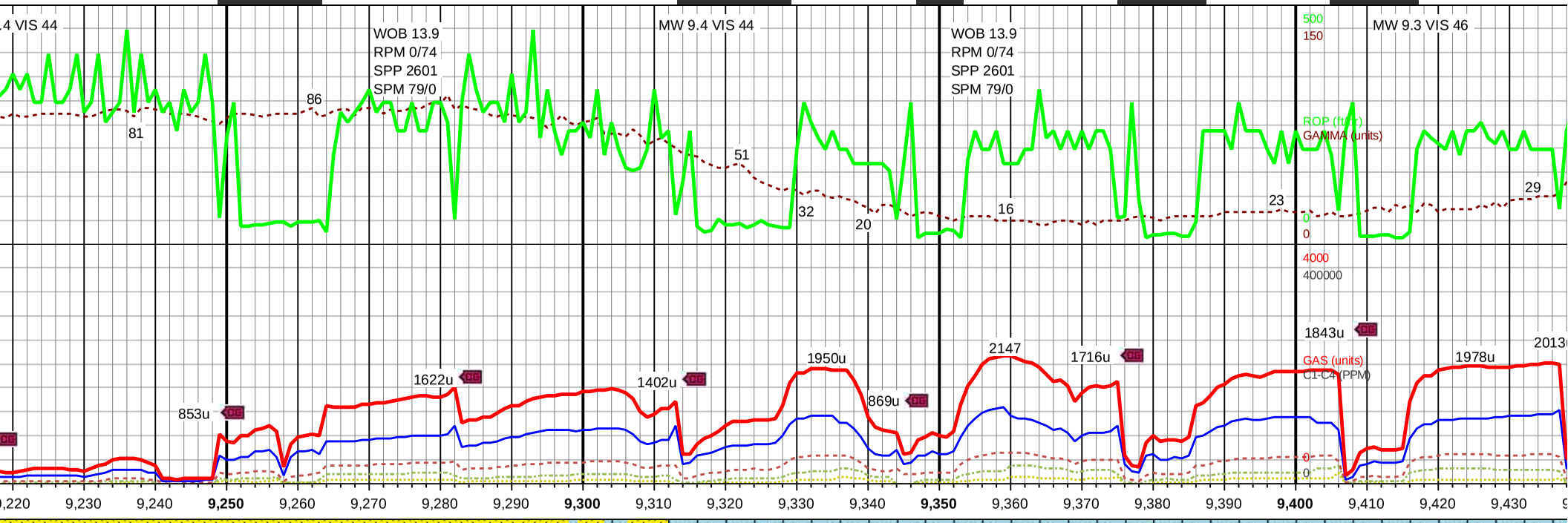
MD: 9,168.54 ′
TVD: 6,558.72 ′
Inclination: 89.7 °
Azimuth: 2.3 °

TVD (ft)

MD: 9,200.2 ′
TVD: 6,558.75 ′
Inclination: 90.2 °
Azimuth: 1.5 °

6800

6800



5800

vf (l) - vf (u), frm-fri, occ lse
srt, p por, slty mtx, sl calc, occ

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

Tr LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

50% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

50% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

100% LS: lt tan, tan, hd-brit, micro-cryptox
mas, ns

TVD (ft)

MD: 9,232.48 '
TVD: 6,558.78 '
Inclination: 89.7 °
Azimuth: 1.8 °

MD: 9,263.96 '
TVD: 6,558.7 '
Inclination: 90.6 °
Azimuth: 0.1 °

MD: 9,295.63 '
TVD: 6,558.23 '
Inclination: 91.1 °
Azimuth: 0.7 °

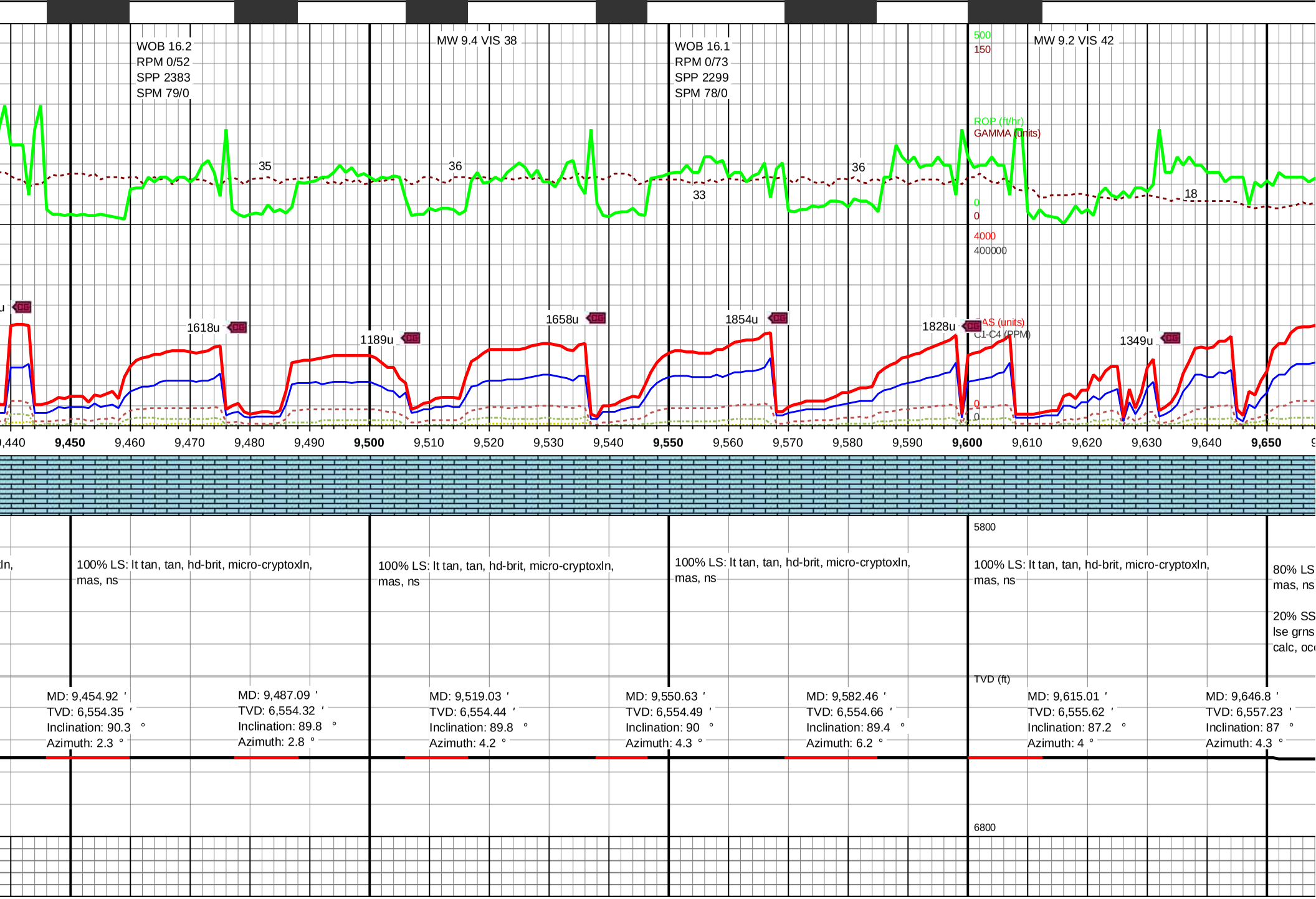
MD: 9,327.25 '
TVD: 6,557.45 '
Inclination: 91.7 °
Azimuth: 359.9 °

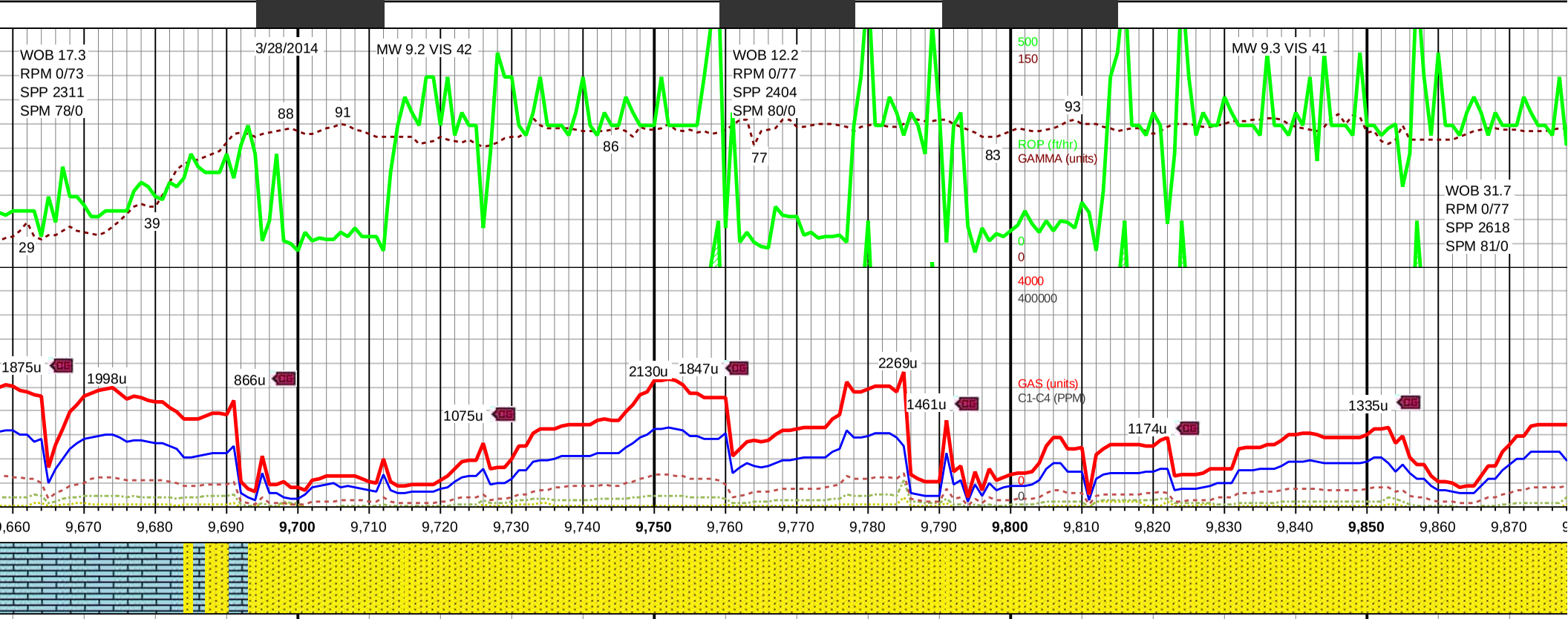
MD: 9,359.39 '
TVD: 6,556.58 '
Inclination: 91.4 °
Azimuth: 1.1 °

MD: 9,391.75 '
TVD: 6,555.68 '
Inclination: 91.7 °
Azimuth: 3 °

MD: 9,423.37 '
TVD: 6,554.82 '
Inclination: 91.4 °
Azimuth: 4.8 °

6800


WOB 16.2
RPM 0/52
SPP 2383
SPM 79/0
MW 9.4 VIS 38
WOB 16.1
RPM 0/73
SPP 2299
SPM 78/0
MW 9.2 VIS 42
500
150
ROP (ft/hr)
GAMMA (units)
0
0
4000
400000
35
36
33
36
18
1618u
1189u
1658u
1854u
1828u
1349u
AS (units)
C1-C4 (PPM)
0
0
9,440
9,450
9,460
9,470
9,480
9,490
9,500
9,510
9,520
9,530
9,540
9,550
9,560
9,570
9,580
9,590
9,600
9,610
9,620
9,630
9,640
9,650
5800
100% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns
100% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns
100% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns
100% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns
80% LS
mas, ns
20% SS
lse grns
calc, oc
TVD (ft)
MD: 9,454.92 '
TVD: 6,554.35 '
Inclination: 90.3 °
Azimuth: 2.3 °
MD: 9,487.09 '
TVD: 6,554.32 '
Inclination: 89.8 °
Azimuth: 2.8 °
MD: 9,519.03 '
TVD: 6,554.44 '
Inclination: 89.8 °
Azimuth: 4.2 °
MD: 9,550.63 '
TVD: 6,554.49 '
Inclination: 90 °
Azimuth: 4.3 °
MD: 9,582.46 '
TVD: 6,554.66 '
Inclination: 89.4 °
Azimuth: 6.2 °
MD: 9,615.01 '
TVD: 6,555.62 '
Inclination: 87.2 °
Azimuth: 4 °
MD: 9,646.8 '
TVD: 6,557.23 '
Inclination: 87 °
Azimuth: 4.3 °
6800



5800

: lt tan, tan, hd-brit, micro-cryptoxln,

: lt brn/gy, vf (l) - vf (u), frm-fri, occ
, sbang-sbrd, p srt, p por, slty mtx, sl
c lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u
grns, sbang-sbrd, p srt, p por,
occ lse carb mat

TVD (ft)

MD: 9,679.19 ′
TVD: 6,559.01 ′
Inclination: 86.7 °
Azimuth: 2.8 °

MD: 9,711.01 ′
TVD: 6,560.57 ′
Inclination: 87.7 °
Azimuth: 3.6 °

MD: 9,742.84 ′
TVD: 6,561.81 ′
Inclination: 87.8 °
Azimuth: 2 °

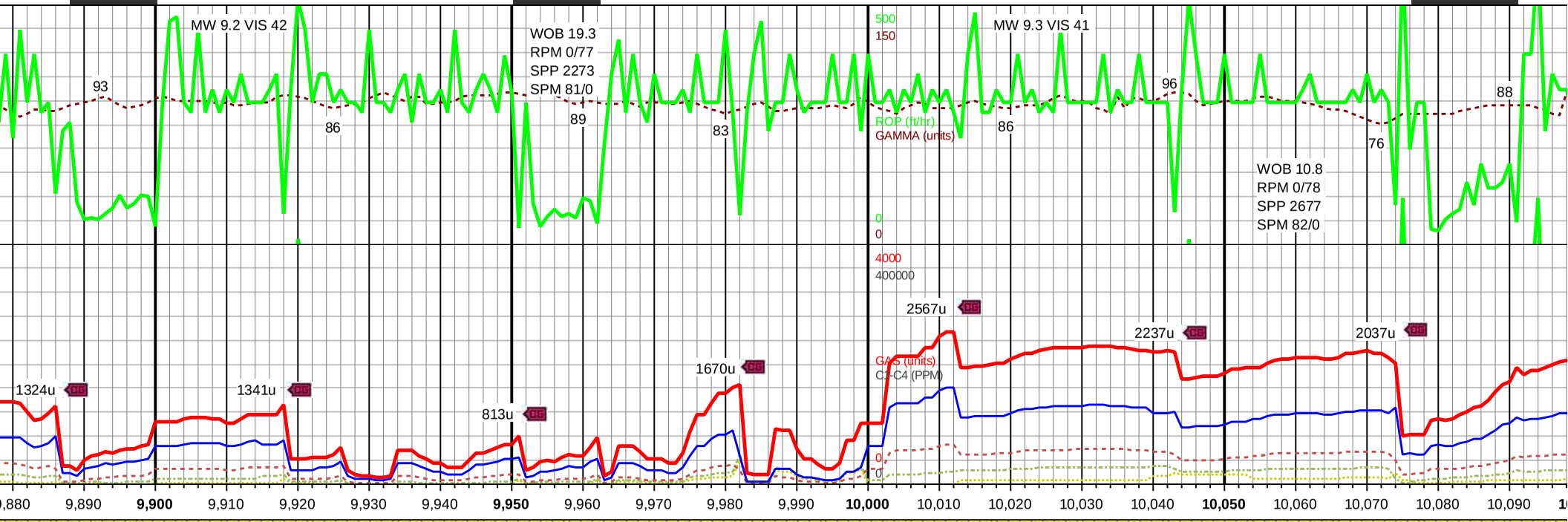
MD: 9,774.65 ′
TVD: 6,562.7 ′
Inclination: 89 °
Azimuth: 1.5 °

MD: 9,806.26 ′
TVD: 6,562.73 ′
Inclination: 90.9 °
Azimuth: 1.5 °

MD: 9,838.44 ′
TVD: 6,562.17 ′
Inclination: 91.1 °
Azimuth: 2.3 °

MD: 9,869.83 ′
TVD: 6,561.68 ′
Inclination: 90.7 °
Azimuth: 1.2 °

6800

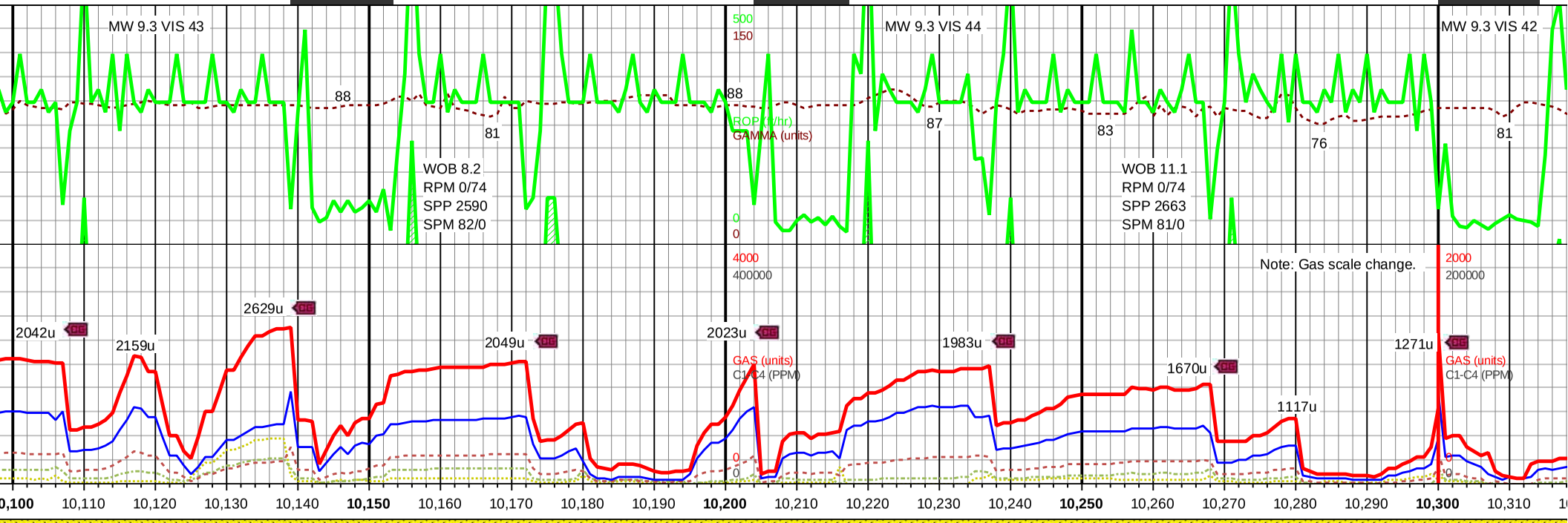


), frm-fri, occ lse slty mtx, sl calc,	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat	
	MD: 9,901.04 ′ TVD: 6,561.87 ′ Inclination: 88.6 ° Azimuth: 2.1 °	MD: 9,932.68 ′ TVD: 6,562.69 ′ Inclination: 88.4 ° Azimuth: 0.6 °	MD: 9,963.92 ′ TVD: 6,563.3 ′ Inclination: 89.5 ° Azimuth: 359.7 °	MD: 9,995.79 ′ TVD: 6,563.38 ′ Inclination: 90.2 ° Azimuth: 359.8 °	MD: 10,027.67 ′ TVD: 6,563.13 ′ Inclination: 90.7 ° Azimuth: 359.1 °	MD: 10,059.89 ′ TVD: 6,562.66 ′ Inclination: 91 ° Azimuth: 359.5 °	MD: 10,091.55 ′ TVD: 6,562.32 ′ Inclination: 90.2 ° Azimuth: 359 °

5800

TVD (ft)

6800



5800

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p
occ lse carb mat

TVD (ft)

MD: 10,123.62 '
TVD: 6,562.32 '
Inclination: 89.8 °
Azimuth: 359.2 °

MD: 10,155.91 '
TVD: 6,562.47 '
Inclination: 89.7 °
Azimuth: 0.6 °

MD: 10,187.27 '
TVD: 6,562.49 '
Inclination: 90.2 °
Azimuth: 1.1 °

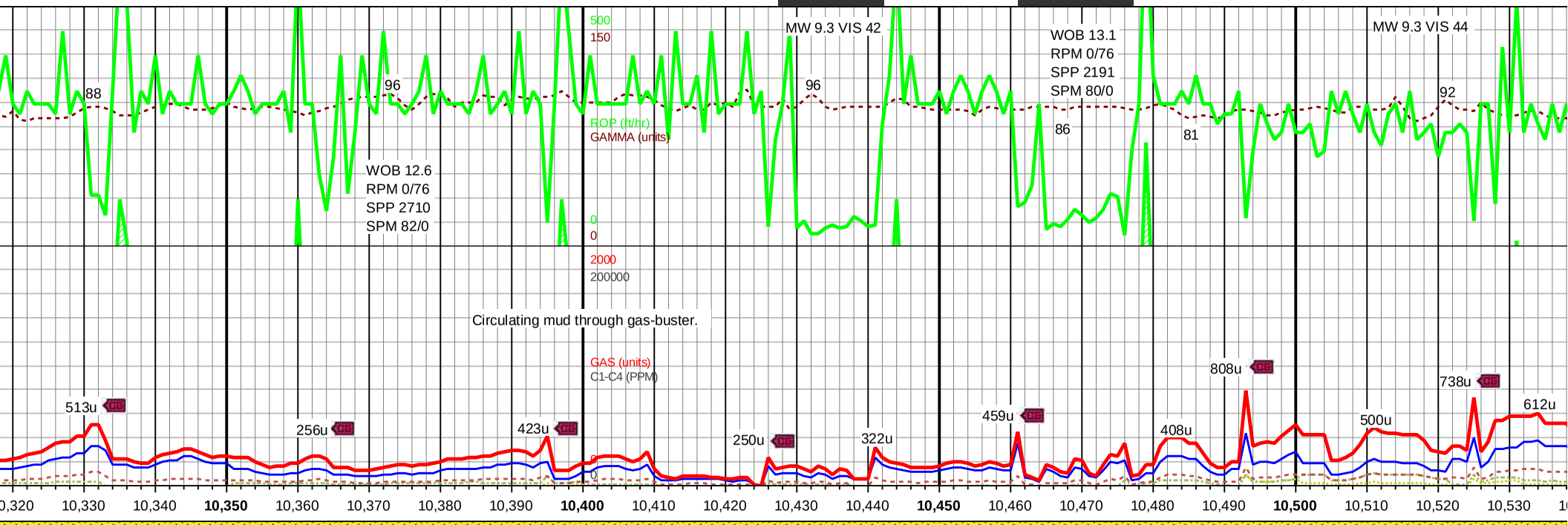
MD: 10,219.14 '
TVD: 6,562.16 '
Inclination: 91 °
Azimuth: 0.9 °

MD: 10,251.11 '
TVD: 6,561.71 '
Inclination: 90.6 °
Azimuth: 359.9 °

MD: 10,283.03 '
TVD: 6,561.43 '
Inclination: 90.4 °
Azimuth: 0.6 °

MD: 10,314.6
TVD: 6,561.3
Inclination: 89
Azimuth: 0.3

6800



5800

vf (l) - vf (u), frm-fri, occ lse
srt, p por, slty mtx, sl calc,

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ grns, sbang-sbrd, p srt, p por, slty mtx, sl c occ lse carb mat

TVD (ft)

9 '
3 '
.8 °
°

MD: 10,346.5 '
TVD: 6,561.66 '
Inclination: 89.2 °
Azimuth: 1.7 °

MD: 10,378.76 '
TVD: 6,562.14 '
Inclination: 89.1 °
Azimuth: 1.1 °

MD: 10,410.44 '
TVD: 6,562.52 '
Inclination: 89.5 °
Azimuth: 359.4 °

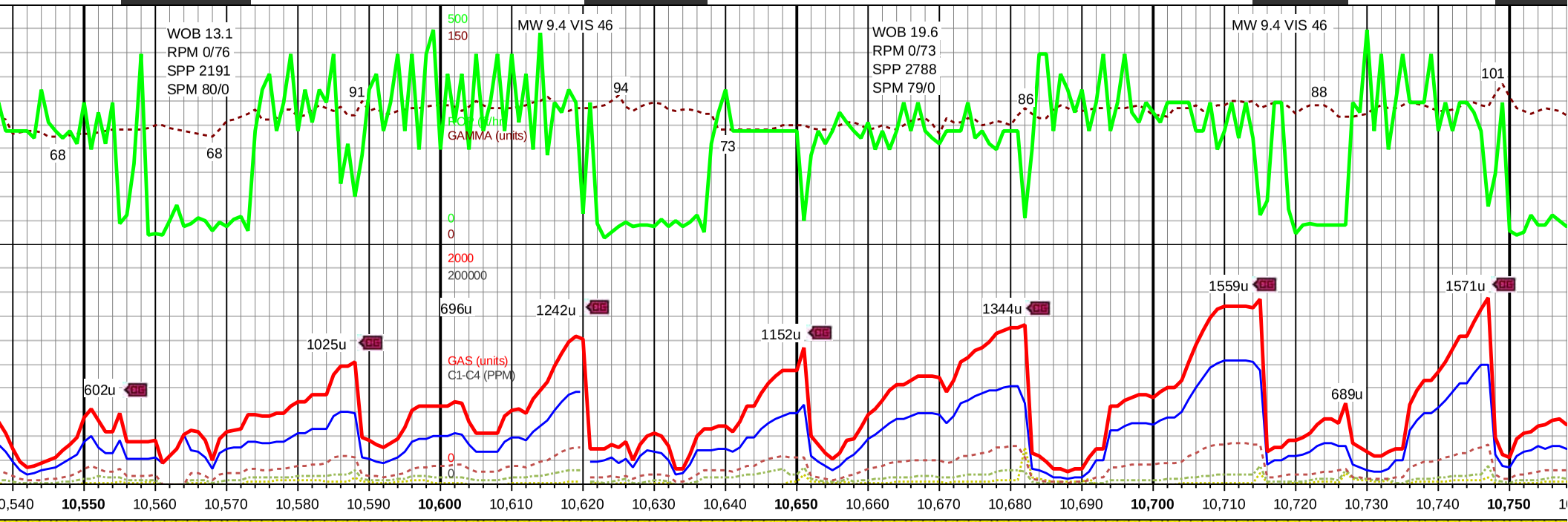
MD: 10,442.21 '
TVD: 6,562.52 '
Inclination: 90.5 °
Azimuth: 0.3 °

MD: 10,474.69 '
TVD: 6,562.21 '
Inclination: 90.6 °
Azimuth: 1.2 °

MD: 10,506.89 '
TVD: 6,561.93 '
Inclination: 90.4 °
Azimuth: 1.1 °

MD: 10,5
TVD: 6,5
Inclinatio
Azimuth:

6800



5800

c lse
calc,

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

Tr LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

Tr LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

100% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

Tr LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

95% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

5% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

95% SS
sbang-sb
carb mat

5% LS: l

TVD (ft)

38.73 '
61.68 '
n: 90.5 °
0.2 °

MD: 10,570.59 '
TVD: 6,561.9 '
Inclination: 88.7 °
Azimuth: 1.1 °

MD: 10,602.5 '
TVD: 6,562.6 '
Inclination: 88.8 °
Azimuth: 3 °

MD: 10,634.15 '
TVD: 6,562.96 '
Inclination: 89.9 °
Azimuth: 4.2 °

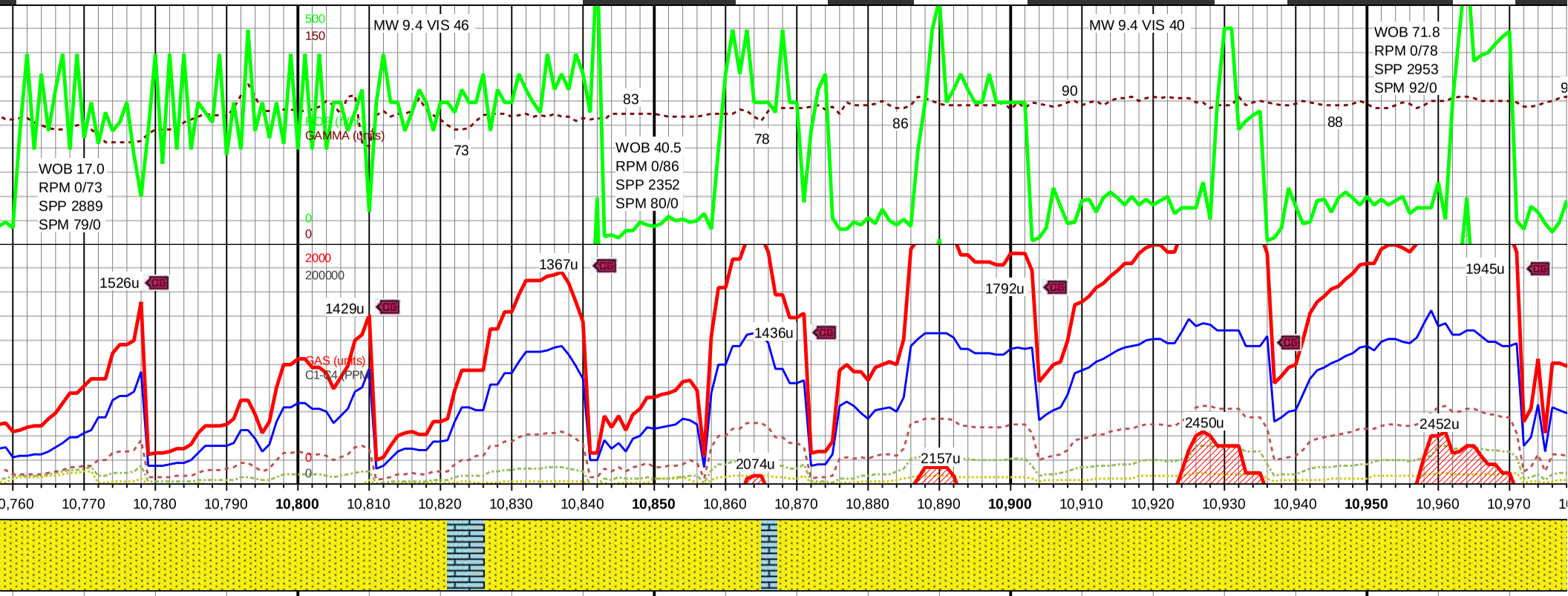
MD: 10,665.61 '
TVD: 6,563.37 '
Inclination: 88.6 °
Azimuth: 2.9 °

MD: 10,697.12 '
TVD: 6,564.28 '
Inclination: 88.1 °
Azimuth: 0.8 °

MD: 10,728.29 '
TVD: 6,565.01 '
Inclination: 89.2 °
Azimuth: 0.3 °

MD: 10,
TVD: 6,5
Inclinati
Azimuth

6800



5800

lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

95% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

95% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

95% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

95% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty m carb mat

t tan, tan, hd-brit, micro-cryptoxln, mas, ns

5% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

5% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

5% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

5% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

5% LS: lt tan, tan, hd-brit, micro

TVD (ft)

760.45 ′
565.26 ′
on: 89.9 °
: 2.4 °

MD: 10,792.72 ′
TVD: 6,565.77 ′
Inclination: 88.3 °
Azimuth: 0.8 °

MD: 10,824.73 ′
TVD: 6,566.78 ′
Inclination: 88 °
Azimuth: 359.5 °

MD: 10,856.27 ′
TVD: 6,567.71 ′
Inclination: 88.6 °
Azimuth: 0.6 °

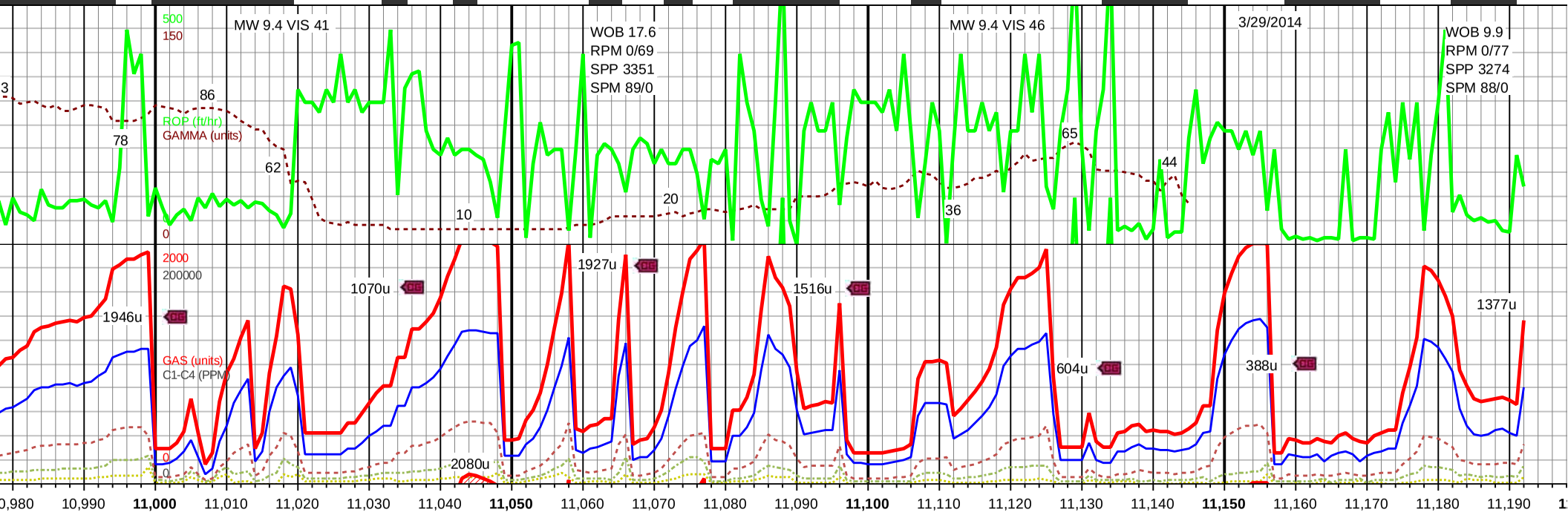
MD: 10,888.64 ′
TVD: 6,568.39 ′
Inclination: 89 °
Azimuth: 0.1 °

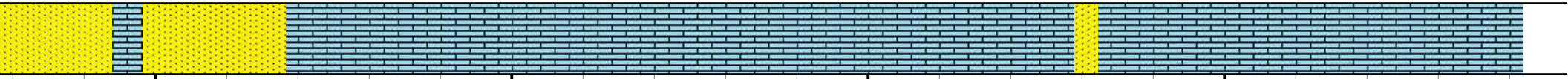
MD: 10,921.03 ′
TVD: 6,568.79 ′
Inclination: 89.6 °
Azimuth: 2.3 °

MD: 10,952.75 ′
TVD: 6,568.65 ′
Inclination: 90.9 °
Azimuth: 3.8 °

MD
TVD
Incl
Azi

6800





5800

frm-fri, occ lse grns,
tx, sl calc, occ lse

o-cryptoxln, mas, ns

: 10,984.17 ′
D: 6,567.55 ′
ination: 93.1 °
muth: 3.7 °

70% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

30% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

95% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

5% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

95% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

5% SS: lt brn/gy, vf (l) - vf (u), frm-fri, occ lse grns, sbang-sbrd, p srt, p por, slty mtx, sl calc, occ lse carb mat

100% LS: lt tan, tan, hd-brit, micro-cryptoxln, mas, ns

TVD (ft)

MD: 11,015.78 ′
TVD: 6,565.82 ′
Inclination: 93.2 °
Azimuth: 3.7 °

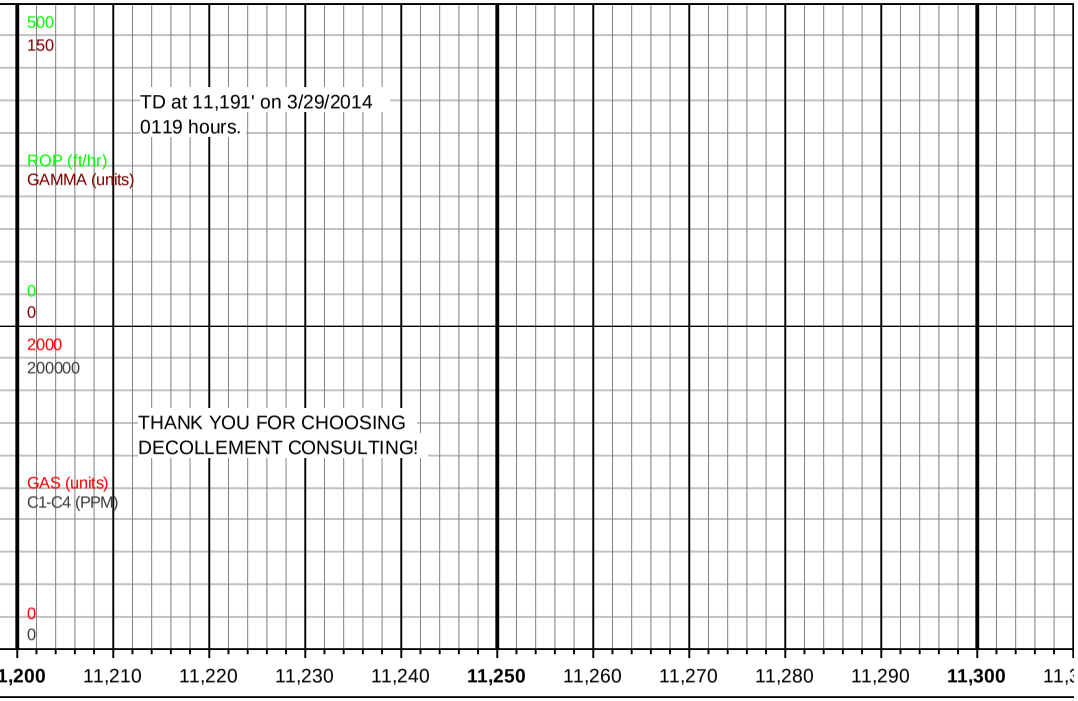
MD: 11,047.95 ′
TVD: 6,563.94 ′
Inclination: 93.5 °
Azimuth: 3.6 °

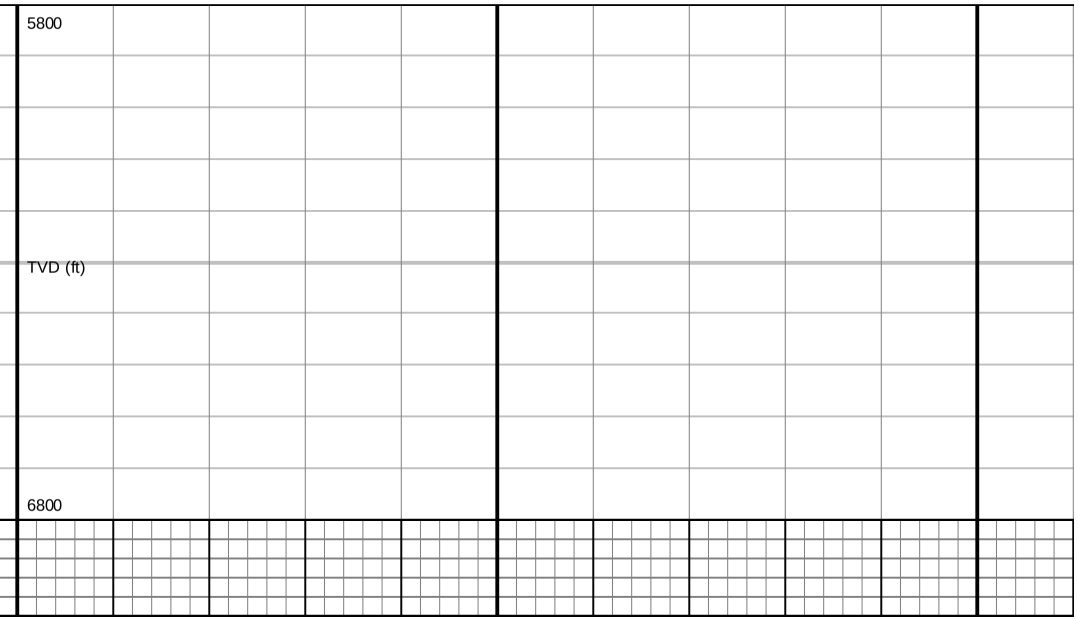
MD: 11,079.59 ′
TVD: 6,562 ′
Inclination: 93.5 °
Azimuth: 4.5 °

MD: 11,111.14 ′
TVD: 6,560.11 ′
Inclination: 93.4 °
Azimuth: 3.9 °

MD: 11,143.51 ′
TVD: 6,558.07 ′
Inclination: 93.8 °
Azimuth: 4 °

6800


500
150
TD at 11,191' on 3/29/2014
0119 hours.
ROP (ft/hr)
GAMMA (units)
0
0
2000
200000
THANK YOU FOR CHOOSING
DECOLLEMENT CONSULTING!
GAS (units)
C1-C4 (PPM)
0
0
1,200
11,210
11,220
11,230
11,240
11,250
11,260
11,270
11,280
11,290
11,300


5800
TVD (ft)
6800