COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name	Merritt 6-66-9-0758BH HZ		
Location	NWNE SEC 9, T6N, R66W		
State	COLORADO	**County**	WELD
Country	USA	**Rig Number**	NABORS M22
API Number	05-123-		
Region	DJ BASIN	**Field**	EATON
Formation	SUSSEX - SHANNON		
Type of Drilling Fluid	LSND - WATER POLY MUD		

Operator

Company Bill Barrett Corp.

Address 1099 18th Street, Suite 2300
Denver, CO 80202

Geologist

Name John Roesink

Company Bill Barrett Corp.

Address 1099 18th Street, Suite 2300
Denver, CO 80202

Rock Types

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

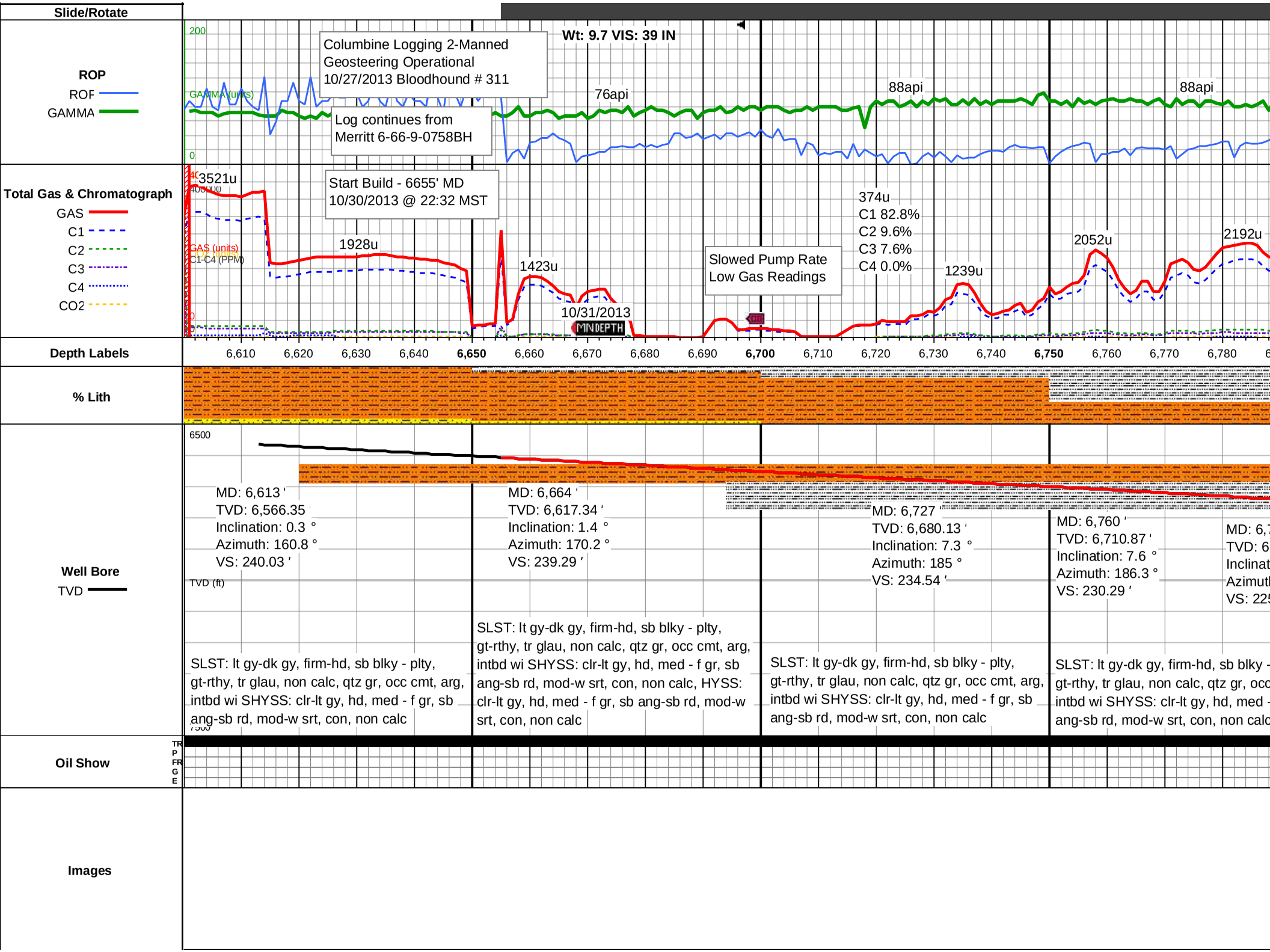
Accessories

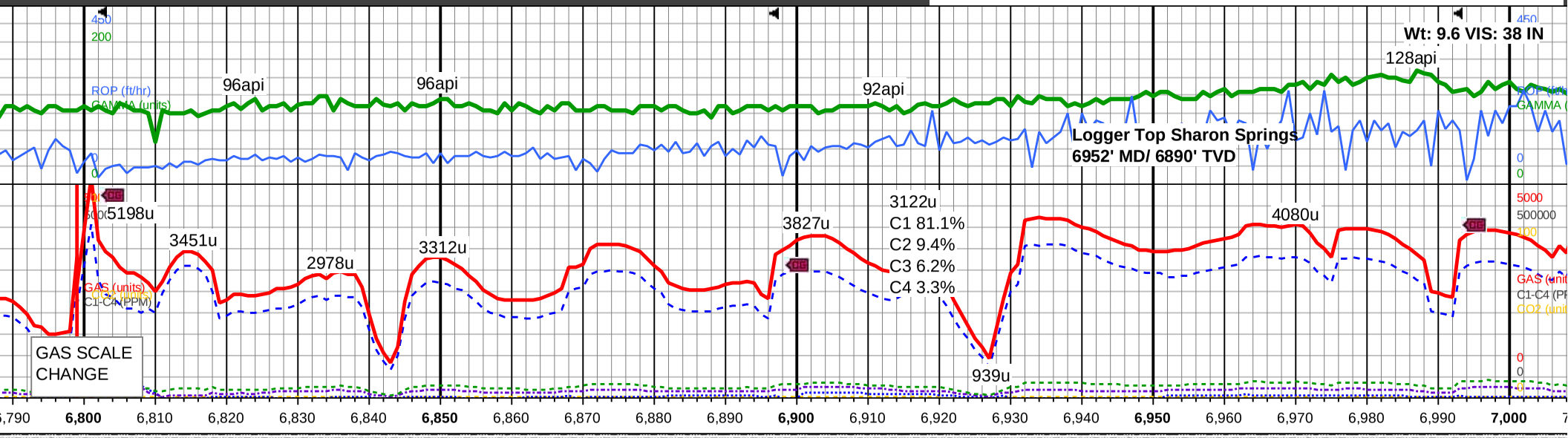
Fossils

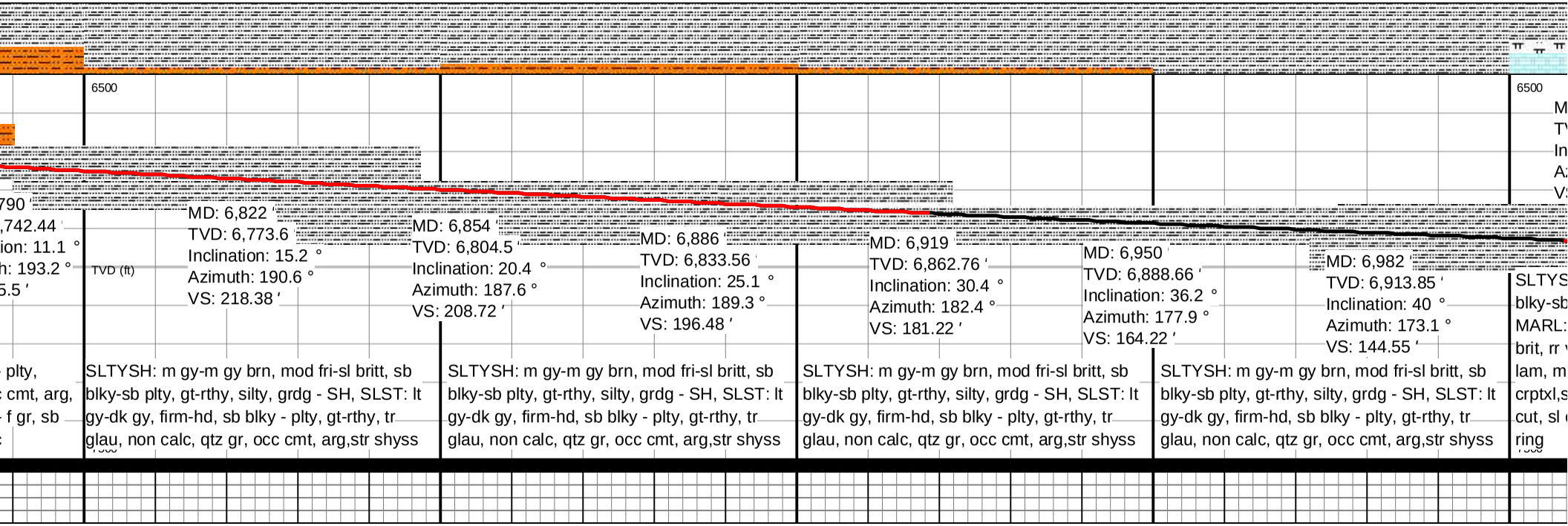
	FOSSIL	ARGILLACEOUS	GLAUCONITE
	GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS
ALGAE	OOLITE	BENTONITE	HEAVY MINERAL
AMPHIPORA	OSTRACOD	BITUMENOUS SUBSTANCE	INOCERAMUS
BELEMNITE	PELECYPOD	BRECCIA FRAGMENTS	KAOLIN
BIOCLASTIC	PELLET	CALCAREOUS	MARLSTONE
BRACHOIPOD	PISOLITE	CARBONACEOUS FLAKES	MINERAL CRYSTALS
BRYOZOA	PLANT REMAINS	CHTDK	NODULES
CEPHALOPOD	PLANT SPORES	CHTLT	PHOSPHATE PELLETS
CORAL	SCAPHOPOD	COAL - THIN BEDS	PYRITE
CRINOID	STROMATOPOROID	DOLOMITIC	SALT CAST
ECHINOID		FELDSPAR	SANDY
FISH		FERRUGINOUS PELLET	SILICEOUS
FORAMINIFERA		FERRUGINOUS	SILTY

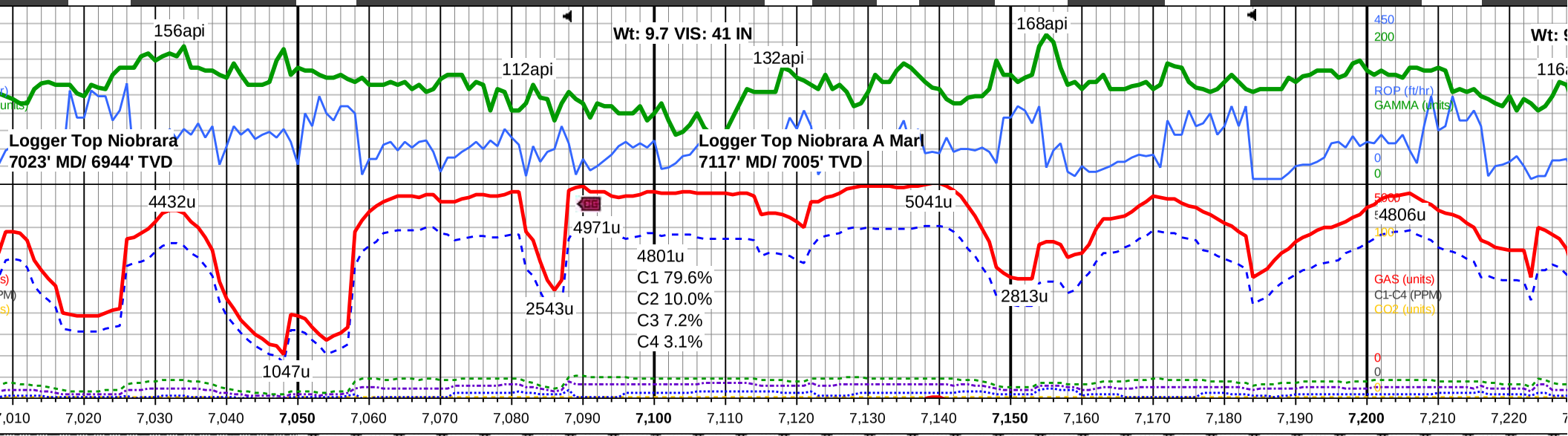
Minerals

ANHYDRITIC		


Slide/Rotate
ROP
ROF
GAMMA
200
GAMMA (units)
0
Columbine Logging 2-Manned
Geosteering Operational
10/27/2013 Bloodhound # 311
Wt: 9.7 VIS: 39 IN
76api
88api
88api
Log continues from
Merritt 6-66-9-0758BH
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
CO2
3521u
400000
GAS (units)
C1-C4 (PPM)
0
Start Build - 6655' MD
10/30/2013 @ 22:32 MST
1928u
1423u
10/31/2013
MINDEPTH
Slowed Pump Rate
Low Gas Readings
374u
C1 82.8%
C2 9.6%
C3 7.6%
C4 0.0%
1239u
2052u
2192u
Depth Labels
6,610
6,620
6,630
6,640
6,650
6,660
6,670
6,680
6,690
6,700
6,710
6,720
6,730
6,740
6,750
6,760
6,770
6,780
% Lith
Well Bore
TVD
6500
TVD (ft)
MD: 6,613 '
TVD: 6,566.35 '
Inclination: 0.3 °
Azimuth: 160.8 °
VS: 240.03 '
MD: 6,664 '
TVD: 6,617.34 '
Inclination: 1.4 °
Azimuth: 170.2 °
VS: 239.29 '
MD: 6,727 '
TVD: 6,680.13 '
Inclination: 7.3 °
Azimuth: 185 °
VS: 234.54 '
MD: 6,760 '
TVD: 6,710.87 '
Inclination: 7.6 °
Azimuth: 186.3 °
VS: 230.29 '
SLST: lt gy-dk gy, firm-hd, sb blky - plty, gt-rthy, tr glau, non calc, qtz gr, occ cmt, arg, intbd wi SHYSS: clr-lt gy, hd, med - f gr, sb ang-sb rd, mod-w srt, con, non calc
SLST: lt gy-dk gy, firm-hd, sb blky - plty, gt-rthy, tr glau, non calc, qtz gr, occ cmt, arg, intbd wi SHYSS: clr-lt gy, hd, med - f gr, sb ang-sb rd, mod-w srt, con, non calc, HYSS: clr-lt gy, hd, med - f gr, sb ang-sb rd, mod-w srt, con, non calc
SLST: lt gy-dk gy, firm-hd, sb blky - plty, gt-rthy, tr glau, non calc, qtz gr, occ cmt, arg, intbd wi SHYSS: clr-lt gy, hd, med - f gr, sb ang-sb rd, mod-w srt, con, non calc
Oil Show
TR
P
FR
G
E
Images


Wt: 9.6 VIS: 38 IN
ROP (ft/hr)
GAMMA (units)
96api
96api
92api
128api
Logger Top Sharon Springs
6952' MD/ 6890' TVD
5198u
3451u
2978u
3312u
3827u
3122u
C1 81.1%
C2 9.4%
C3 6.2%
C4 3.3%
939u
4080u
GAS (units)
C1-C4 (PPM)
GAS SCALE
CHANGE
6,790
6,800
6,810
6,820
6,830
6,840
6,850
6,860
6,870
6,880
6,890
6,900
6,910
6,920
6,930
6,940
6,950
6,960
6,970
6,980
6,990
7,000


6500
TVD (ft)
790 '
,742.44 '
ion: 11.1 °
h: 193.2 °
5.5 '
MD: 6,822 '
TVD: 6,773.6 '
Inclination: 15.2 °
Azimuth: 190.6 °
VS: 218.38 '
MD: 6,854 '
TVD: 6,804.5 '
Inclination: 20.4 °
Azimuth: 187.6 °
VS: 208.72 '
MD: 6,886 '
TVD: 6,833.56 '
Inclination: 25.1 °
Azimuth: 189.3 °
VS: 196.48 '
MD: 6,919 '
TVD: 6,862.76 '
Inclination: 30.4 °
Azimuth: 182.4 °
VS: 181.22 '
MD: 6,950 '
TVD: 6,888.66 '
Inclination: 36.2 °
Azimuth: 177.9 °
VS: 164.22 '
MD: 6,982 '
TVD: 6,913.85 '
Inclination: 40 °
Azimuth: 173.1 °
VS: 144.55 '
plty,
cmt, arg,
f gr, sb
SLTYSH: m gy-m gy brn, mod fri-sl britt, sb blky-sb plty, gt-rthy, silty, grdg - SH, SLST: lt gy-dk gy, firm-hd, sb blky - plty, gt-rthy, tr glau, non calc, qtz gr, occ cmt, arg,str shyss
SLTYSH: m gy-m gy brn, mod fri-sl britt, sb blky-sb plty, gt-rthy, silty, grdg - SH, SLST: lt gy-dk gy, firm-hd, sb blky - plty, gt-rthy, tr glau, non calc, qtz gr, occ cmt, arg,str shyss
SLTYSH: m gy-m gy brn, mod fri-sl britt, sb blky-sb plty, gt-rthy, silty, grdg - SH, SLST: lt gy-dk gy, firm-hd, sb blky - plty, gt-rthy, tr glau, non calc, qtz gr, occ cmt, arg,str shyss
SLTYSH: m gy-m gy brn, mod fri-sl britt, sb blky-sb plty, gt-rthy, silty, grdg - SH, SLST: lt gy-dk gy, firm-hd, sb blky - plty, gt-rthy, tr glau, non calc, qtz gr, occ cmt, arg,str shyss
SLTYS
blky-sb
MARL:
brit, rr
lam, m
crptxl,s
cut, sl
ring



D: 7,014 '
VD: 6,937.85 '
clination: 42.8 °
zimuth: 170.8 °
S: 123.61 '

MD: 7,045 '
TVD: 6,959.9 '
Inclination: 46.5 °
Azimuth: 169.5 °
VS: 102.15 '

MD: 7,077 '
TVD: 6,981.07 '
Inclination: 50.6 °
Azimuth: 168.9 °
VS: 78.59 '

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf dism pyr; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, crptxl, intbd w/ mrl; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf dism pyr; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, crptxl, intbd w/ mrl; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v s
brit, sil, vf grn, rr vf dism p
sme brn, lam, mot, vsft-sft
calc, crptxl, intbd w/ mrl; v
mky-stmg cut, sl od, fnt ye
tan vis light ring

H: m gy-m gy brn, mod fri-sl britt, sb
plty, gt-rthy, silty, dism pyr, occ bent;
lt-dk gy, stri, sft-v sft, sbplty-plty, fri-
vf dism pyr; CHK: lt-med gy, sme brn,
ot, vsft-sft, sbplty-blky, v calc,
cat bent; v bri bl mod fast mky-stmg
od, fnt yel bl flor res, v fnt tan vis light

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf dism pyr; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, crptxl, intbd w/ mrl; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

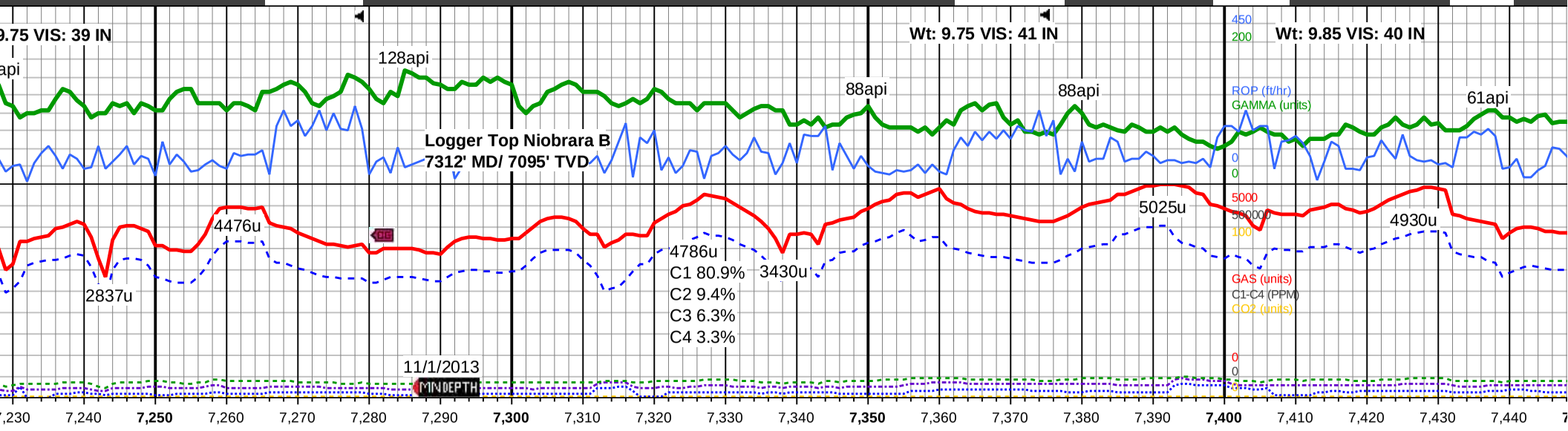
MD: 7,109 '
TVD: 7,000.5 '
Inclination: 54.6 °
Azimuth: 169.8 °
VS: 53.61 '

MD: 7,141 '
TVD: 7,018.56 '
Inclination: 56.7 °
Azimuth: 174 °
VS: 27.47 '

MD: 7,173 '
TVD: 7,035.61 '
Inclination: 58.9 °
Azimuth: 175.2 °
VS: 0.51 '

MD: 7,204 '
TVD: 7,050.83 '
Inclination: 62.3 °
Azimuth: 175.9 °
VS: -26.41 '

TVD (ft)
7500



ft, sbplty-plty, fri-
yr; CHK: lt-med gy,
, sbplty-blky, v
bri bl mod fast
l bl flor res, v fnt

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

TVD (ft)

D: 7,236 '
VD: 7,065.46 '
clination: 63.3 °
zimuth: 177.4 °
S: -54.82 '

MD: 7,267 '
TVD: 7,078.51 '
Inclination: 66.9 °
Azimuth: 177.4 °
VS: -82.91 '

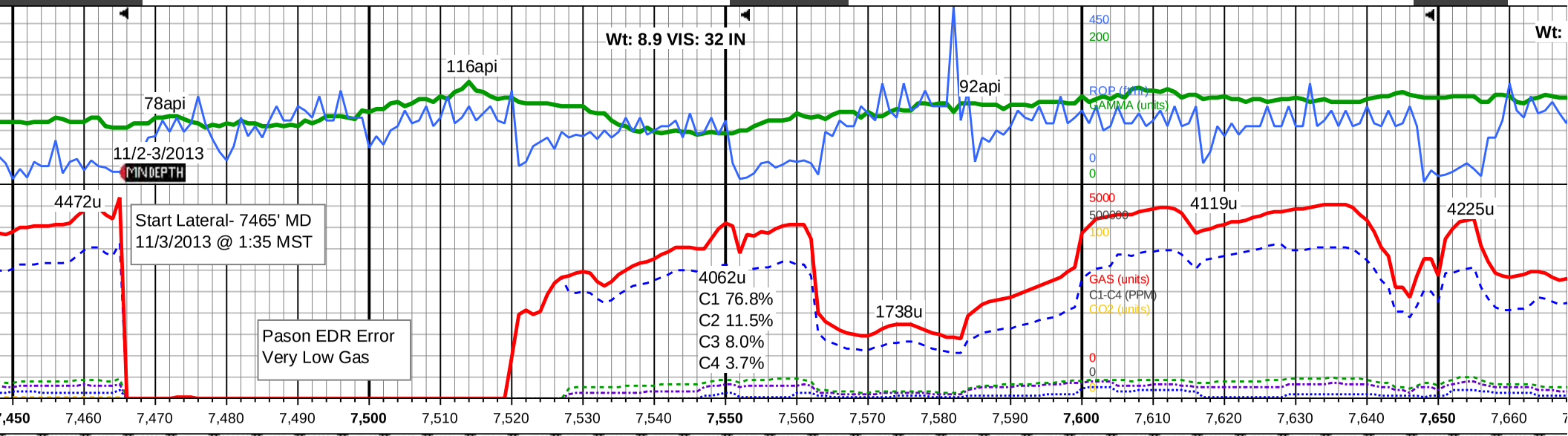
MD: 7,299 '
TVD: 7,090.34 '
Inclination: 69.7 °
Azimuth: 177.5 °
VS: -112.61 '

MD: 7,331 '
TVD: 7,100.84 '
Inclination: 72 °
Azimuth: 178.6 °
VS: -142.82 '

MD: 7,363 '
TVD: 7,110 '
Inclination: 74.7 °
Azimuth: 179.3 °
VS: -173.47 '

MD: 7,395 '
TVD: 7,117.74 '
Inclination: 77.3 °
Azimuth: 181 °
VS: -204.51 '

MD: 7,422 '
TVD: 7,122.9 '
Inclination: 80.7 °
Azimuth: 180.4 °
VS: -231.01 '



MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc; v bri bl mod fast mky-stmg cut, sl od, fnt yel bl flor res, v fnt tan vis light ring

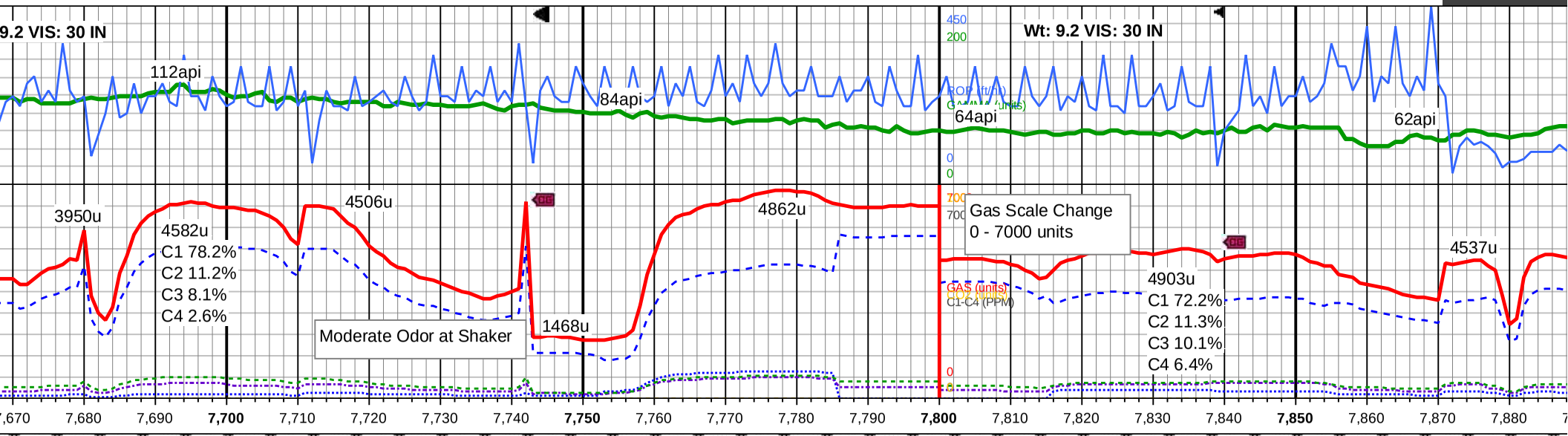
MARL: lt-dk gy, s
brit, sil, vf grn, rr
lam, mot, vsft-sft
v bri bl mod fast
bl flor res, v fnt t

TVD (ft)

MD: 7,500 '
TVD: 7,130.84 '
Inclination: 87.6 °
Azimuth: 180.8 °
VS: 401.27 '

MD: 7,596 '
TVD: 7,133.35 '
Inclination: 89.4 °
Azimuth: 180.3 °
VS: 496.03 '

7500



stri, sft-v sft, sbplty-plty, fri-
vf; CHK: lt-med gy, sme brn,
, sbplty-blky, v calc, v rr Inoc;
mky-stmg cut, sl od, fnt yel
an vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-
brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn,
lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc;
v bri bl mod fast mky-stmg cut, sl od, fnt yel
bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-
brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn,
lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc;
v bri bl mod fast mky-stmg cut, sl od, fnt yel
bl flor res, v fnt tan vis light ring

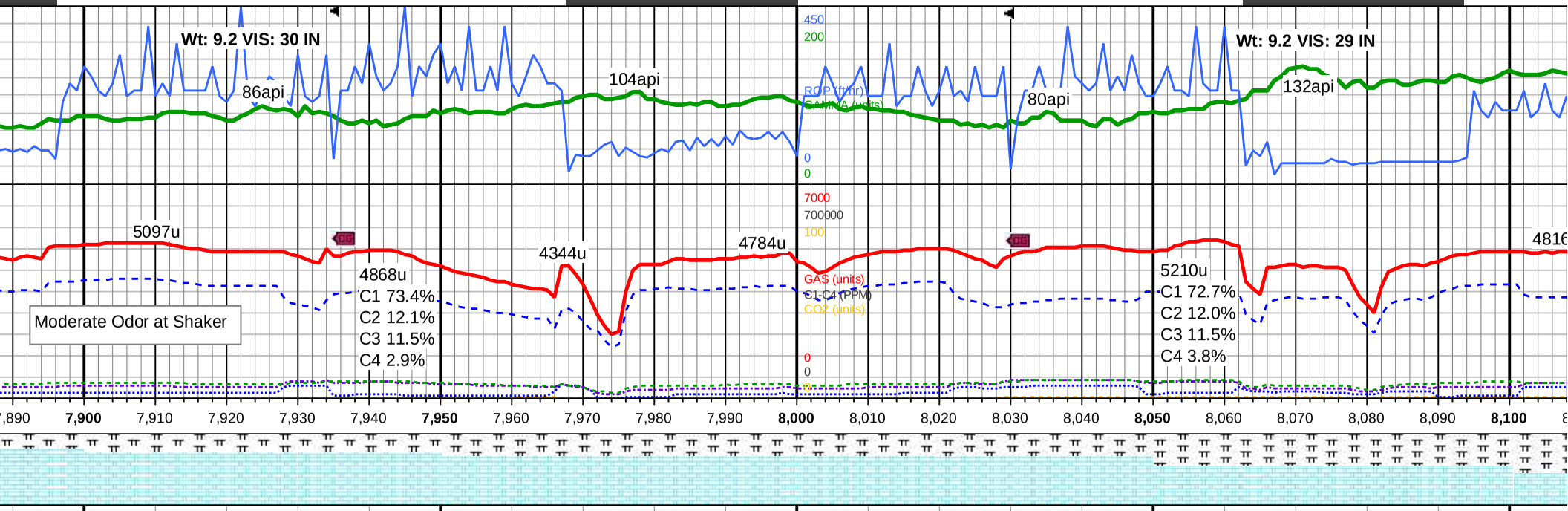
MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-
brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn,
lam, mot, vsft-sft, sbplty-blky, v calc, v rr Inoc;
v bri bl mod fast mky-stmg cut, sl od, fnt yel
bl flor res, v fnt tan vis light ring

MARL: lt-dk gy, stri, sft-v sft, sbplty-
brit, sil, vf grn, rr vf; CHK: lt-med gy
lam, mot, vsft-sft, sbplty-blky, v calc
v bri bl mod fast mky-stmg cut, sl od
bl flor res, v fnt tan vis light ring

MD: 7,690 '
TVD: 7,132.62 '
Inclination: 91.5 °
Azimuth: 179.6 °
VS: -498.5 '

MD: 7,786 '
TVD: 7,129.35 '
Inclination: 92.4 °
Azimuth: 179.6 °
VS: -594.44 '

MD: 7,881 '
TVD: 7,124.71 '
Inclination: 93.2 °
Azimuth: 180.7 °
VS: -689.33 '



-plty, fri-
, sme brn,
c, v rr lnoc;
d, fnt yel

MARL: lt-dk gy, stri, sft-v sft, sbplty-plty, fri-brit, sil, vf grn, rr vf; CHK: lt-med gy, sme brn, lam, mot, vsft-sft, sbplty-blky, v calc, v rr lnoc; v bri bl mod fast mky-stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

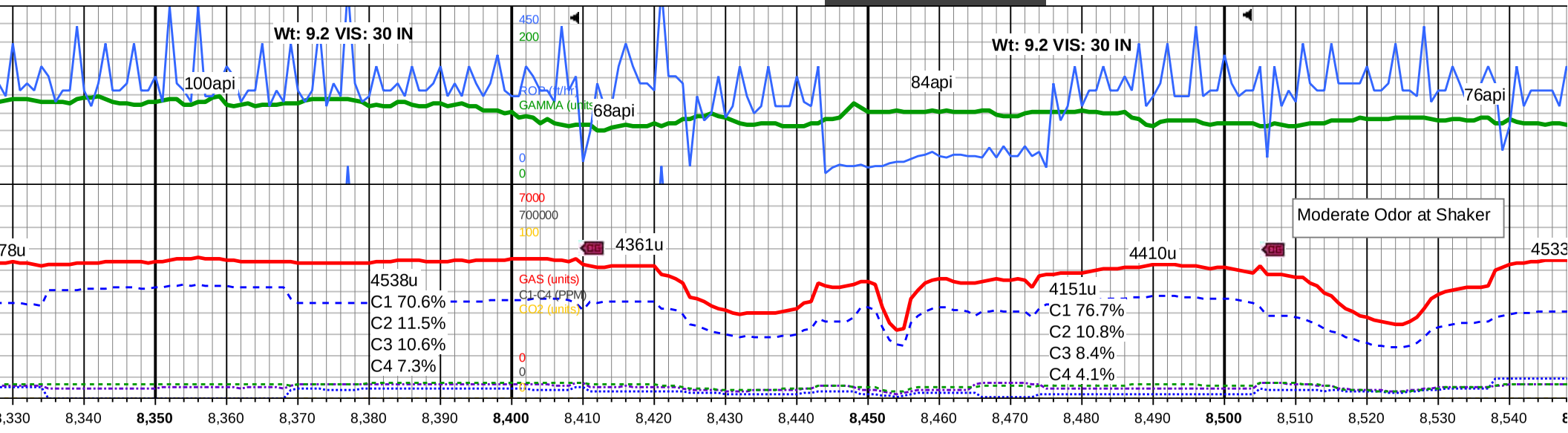
CHK:
sme br
MARL:
sbplty-
fnt yel

TVD (ft)

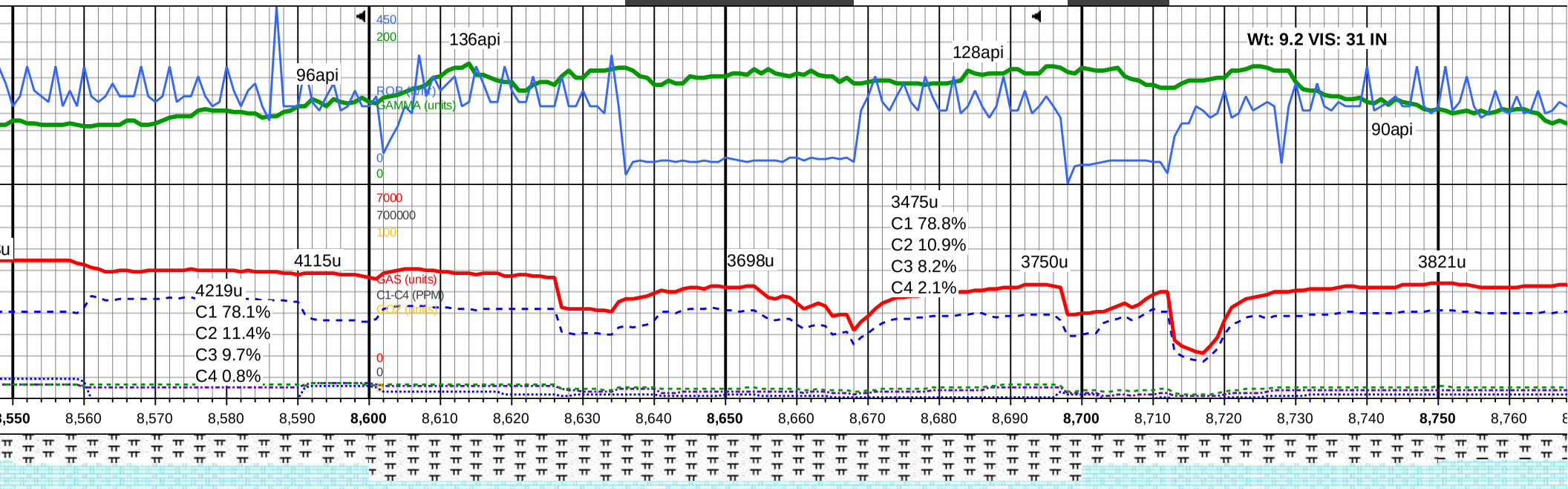
MD: 7,975 '
TVD: 7,119.54 '
Inclination: 93.1 °
Azimuth: 180.6 °
VS: -783.18 '

MD: 8,070 '
TVD: 7,115.23 '
Inclination: 92.1 °
Azimuth: 181.1 °
VS: -878.07 '

7500



rn, occ lt gy - crm, blky, v calc, crptxl; ren, sft - frm, l stmg cut, mod od, vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring
		TVD (ft)		
	MD: 8,356 ' TVD: 7,115.04 ' Inclination: 91.3 ° Azimuth: 182.3 ° VS: -1,163.88 '	7500	MD: 8,450 ' TVD: 7,112.91 ' Inclination: 91.3 ° Azimuth: 182.5 ° VS: -1,257.78 '	MD: 8,545 TVD: 7,110 Inclination: Azimuth: 18 VS: 1,430.8



CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

6500

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy -
sme brn, mot, s
MARL: dk gy, g
sbplty-sbblky, b
fnt yel bl flor res

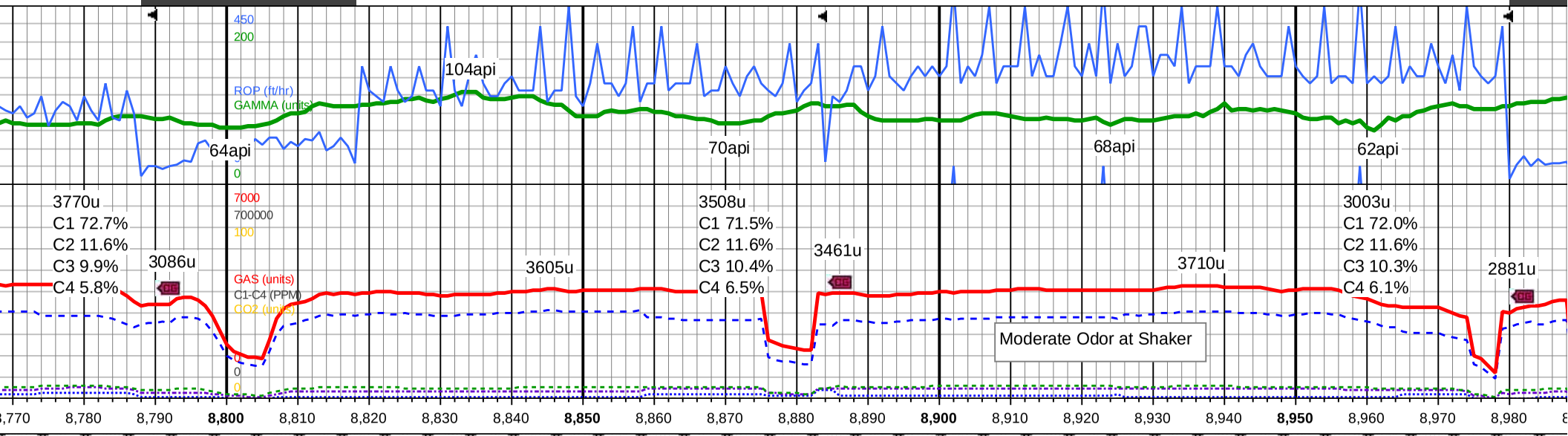
TVD (ft)

.67 '
91.4 °
82.1 °
35 '

MD: 8,641 '
TVD: 7,108.16 '
Inclination: 91.6 °
Azimuth: 181.7 °
VS: 1,525.23 '

7500

MD: 8,736 '
TVD: 7,107.82 '
Inclination: 88.8 °
Azimuth: 182.4 °
VS: -1,543.52 '



med gy brn, occ lt gy - crm,
ft, sbplty-blky, v calc, crptxl;
t tex, sl aren, sft - frm,
rit; v bri bl stmg cut, mod od,
, v fnt tan vis light ring

6500

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

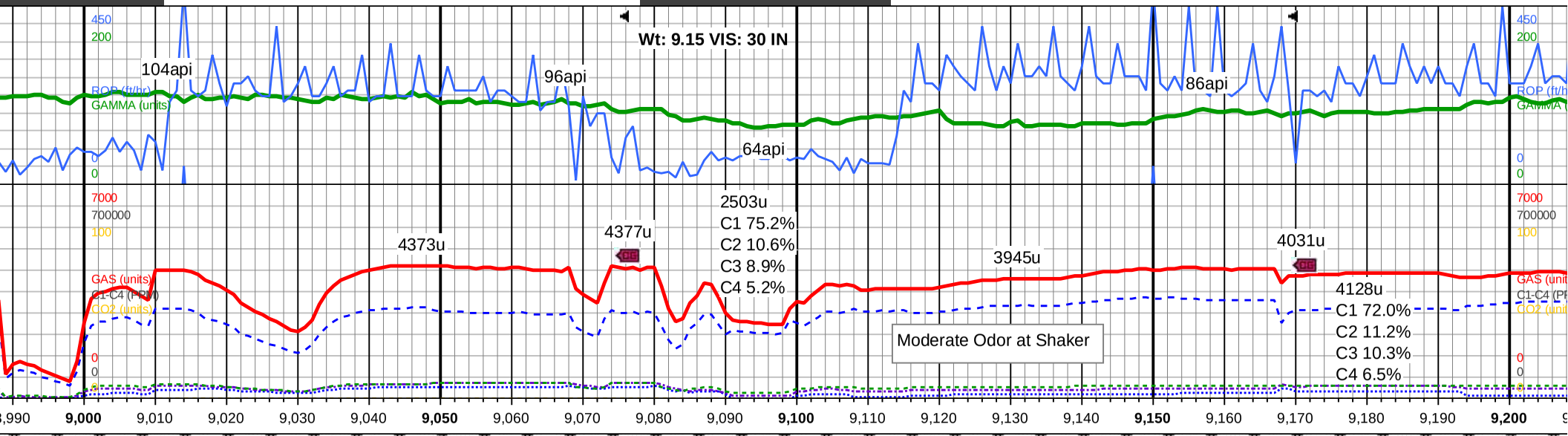
CHK: med gy - med gy brn, occ lt g
sme brn, mot, sft, sbplty-blky, v calc
MARL: dk gy, gt tex, sl aren, sft - fr
sbplty-sbblky, brit; v bri bl stmg cut,
fnt yel bl flor res, v fnt tan vis light r

TVD (ft)

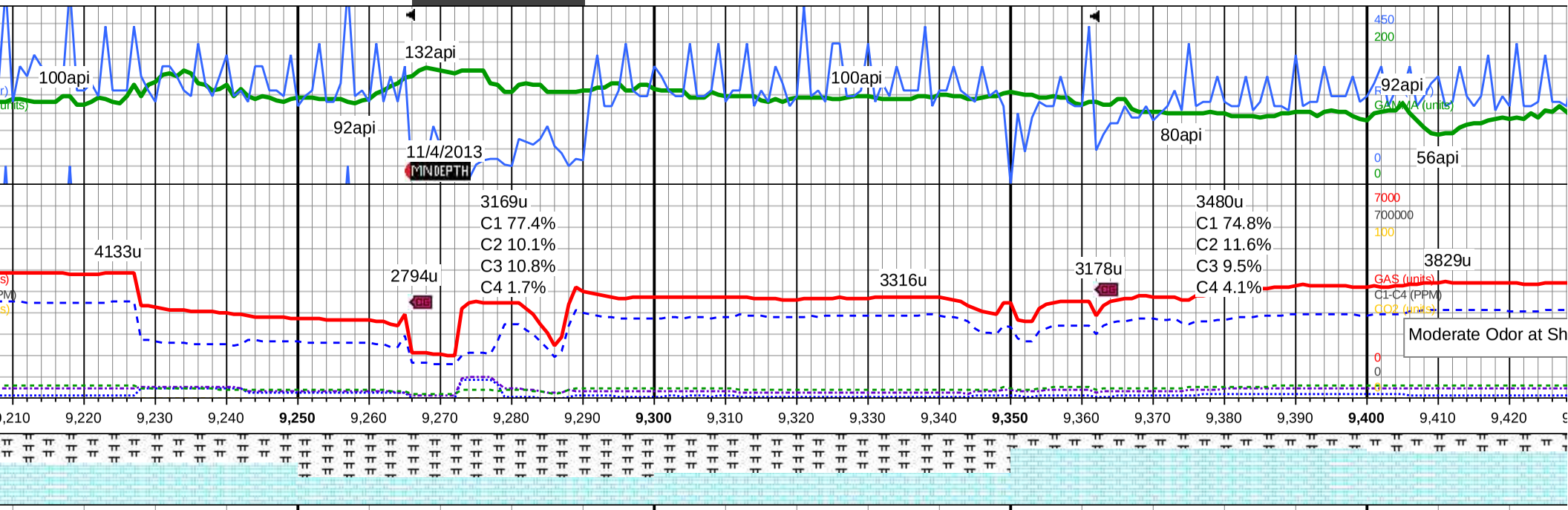
MD: 8,832 '
TVD: 7,110.5 '
Inclination: 88 °
Azimuth: 179.8 °
VS: -1,639.45 '

MD: 8,928 '
TVD: 7,112.1 '
Inclination: 90.1 °
Azimuth: 180.2 °
VS: -1,735.43 '

7500



y - crm, c, crptxl; m, mod od, ing	6500 CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	6500 CHK: m sme br MARL: sbplty-s fnt yel l
	TVD (ft) MD: 9,023 ' TVD: 7,112.76 ' Inclination: 89.1 ° Azimuth: 179.1 ° VS: -1,830.43 ' 7500		MD: 9,117 ' TVD: 7,114.24 ' Inclination: 89.1 ° Azimuth: 177.8 ° VS: -1,924.38 '		TVD (ft) MD TV Inc Az VS 7500



med gy - med gy brn, occ lt gy - crm,
n, mot, sft, sbplty-blky, v calc, crptxl;
dk gy, gt tex, sl aren, sft - frm,
sbblky, brit; v bri bl stmg cut, mod od,
bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

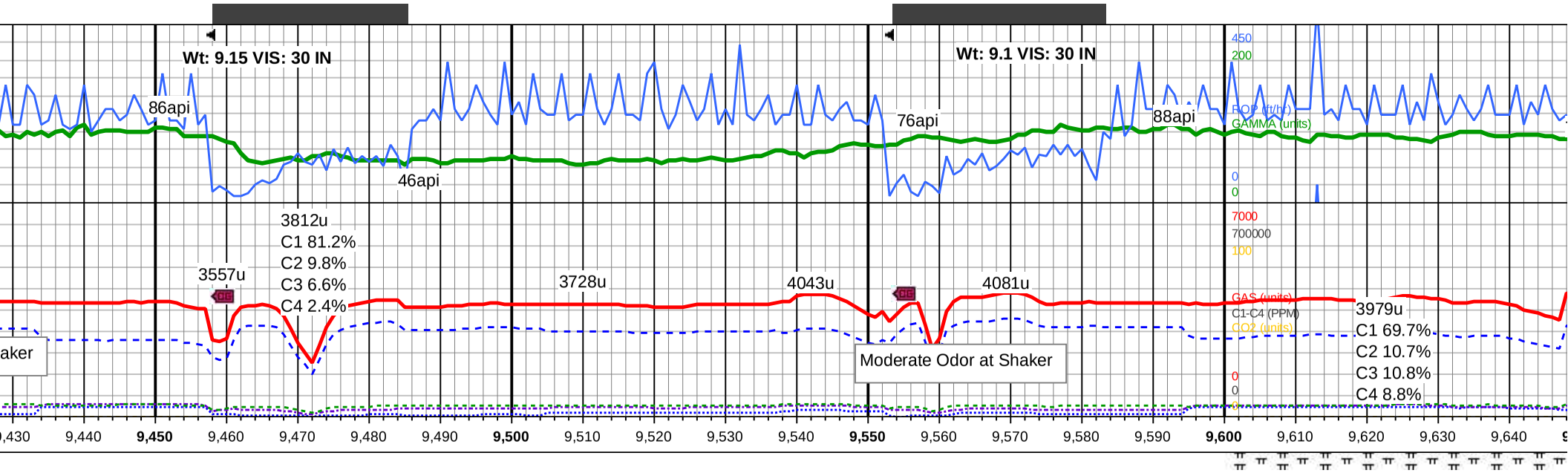
CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy br
sme brn, mot, sft, sbplty-b
MARL: dk gy, gt tex, sl are
sbplty-sbblky, brit; v bri bl
fnt yel bl flor res, v fnt tan

D: 9,212 '
VD: 7,114.32 '
clination: 90.8 °
imuth: 178.2 °
S: -2,019.32 '

MD: 9,308 '
TVD: 7,114.15 '
Inclination: 89.4 °
Azimuth: 176.8 °
VS: -2,115.22 '

MD: 9,403 '
TVD: 7,113.57 '
Inclination: 91.3 °
Azimuth: 175.8 °
VS: -2,210.02 '



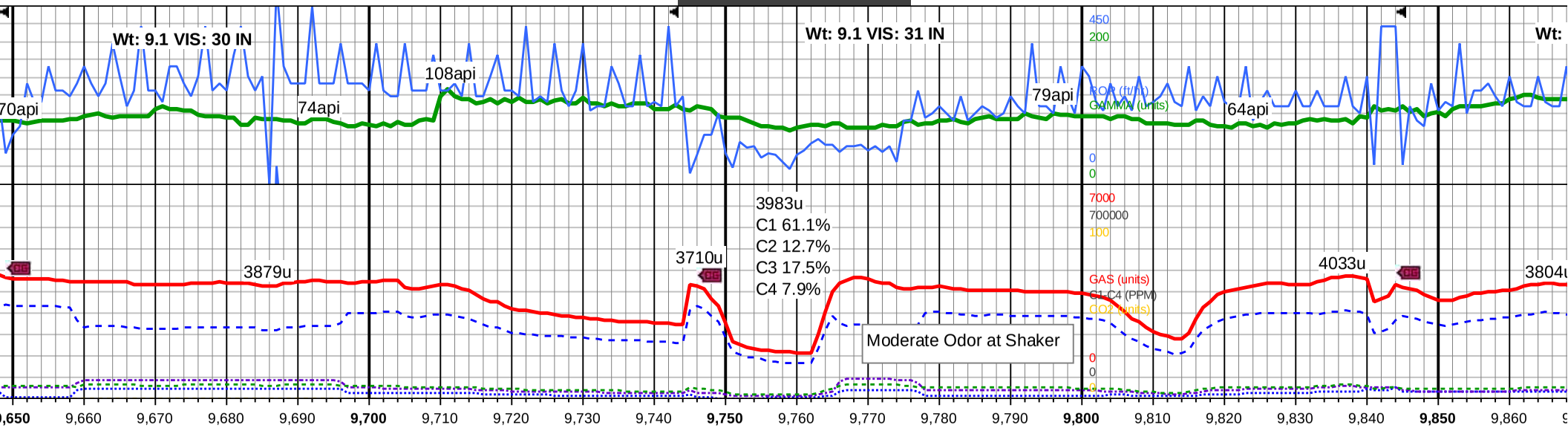
n, occ lt gy - crm, lky, v calc, crptxl; en, sft - frm, stmg cut, mod od, vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy - crm, sme brn, mot, sft, sbplty-blky, v calc, crptxl; MARL: dk gy, gt tex, sl aren, sft - frm, sbplty-sbblky, brit; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

TVD (ft)

MD: 9,499 '
TVD: 7,111.81 '
Inclination: 90.8 °
Azimuth: 178.5 °
VS: -2,305.87 '

MD: 9,594 '
TVD: 7,111.06 '
Inclination: 90.1 °
Azimuth: 177.2 °
VS: -2,400.8 '

7500



CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

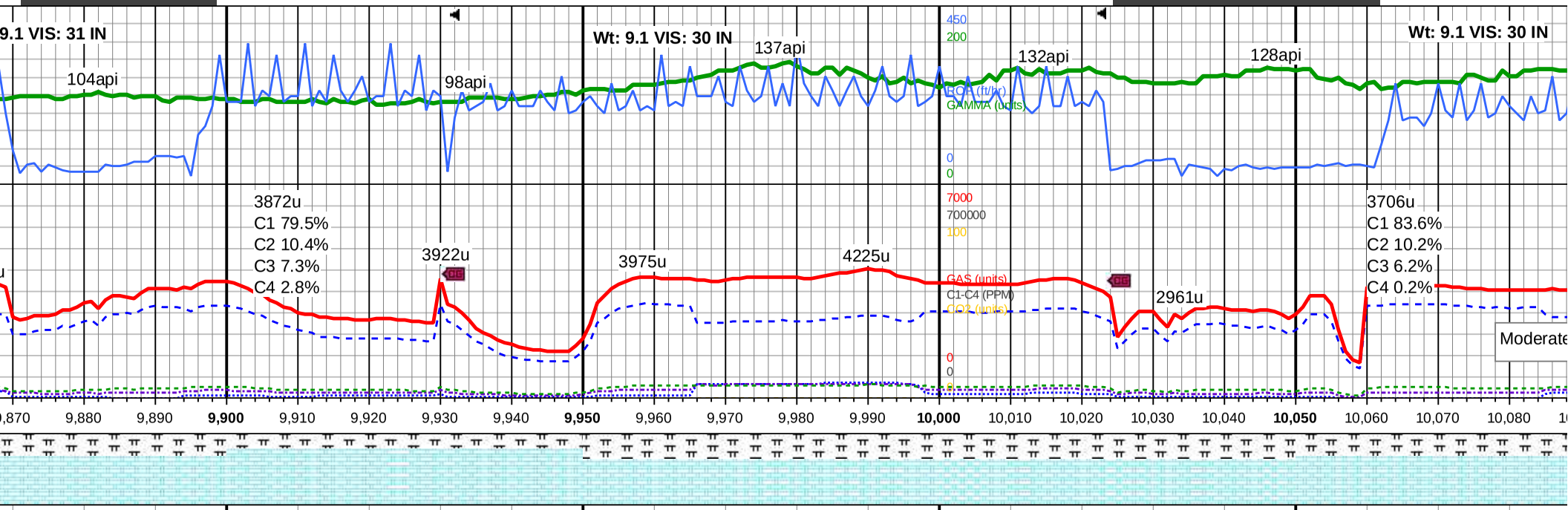
CHK: med gy - sft-frm, sbplty-bl gy, sl gt tex, sl a brit, tr sec calc; yel bl flor res, v

TVD (ft)

MD: 9,690 '
TVD: 7,109.89 '
Inclination: 91.3 °
Azimuth: 177.7 °
VS: -2,496.69 '

MD: 9,784 '
TVD: 7,108.42 '
Inclination: 90.5 °
Azimuth: 177.9 °
VS: -2,590.61 '

7500



med gy brn, occ lt gy, sl mot, ky, v calc, crptxl; MARL: dk aren, sft - frm, sbplty-sbblky, v bri bl stmg cut, mod od, fnt fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

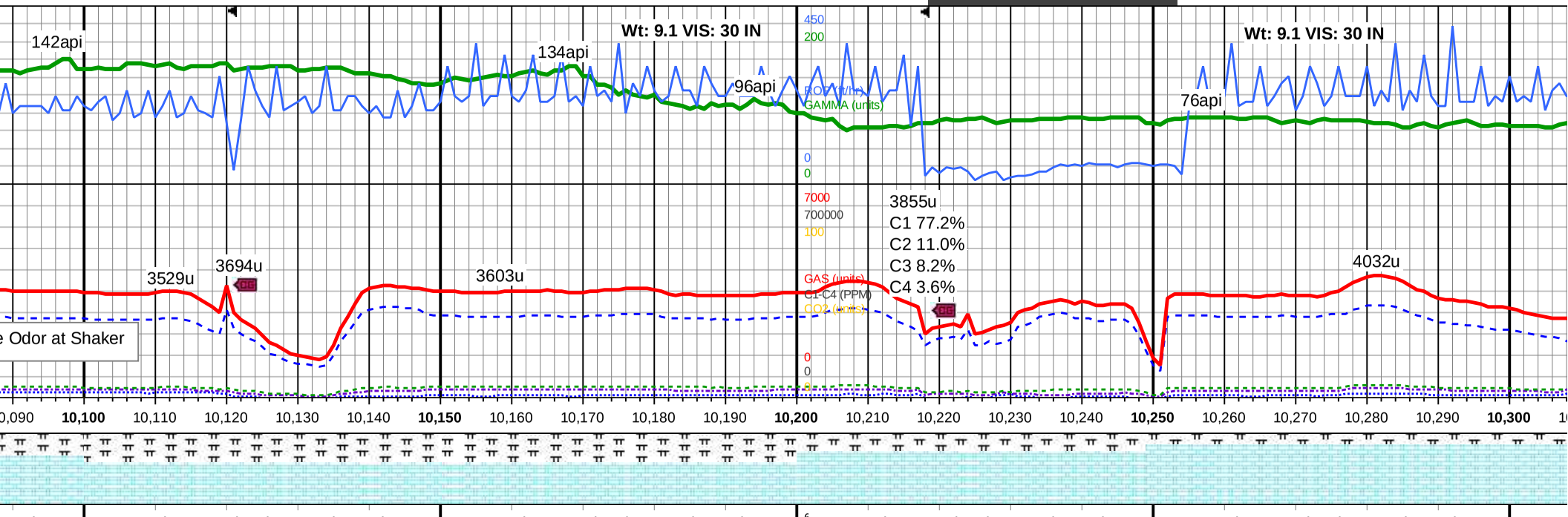
CHK: med gy - med gy brn, occ lt g sft-frm, sbplty-blky, v calc, crptxl; M gy, sl gt tex, sl aren, sft - frm, sbplt brit, tr sec calc; v bri bl stmg cut, m yel bl flor res, v fnt tan vis light ring

MD: 9,878 '
TVD: 7,107.43 '
Inclination: 90.7 °
Azimuth: 177.7 °
VS: -2,684.54 '

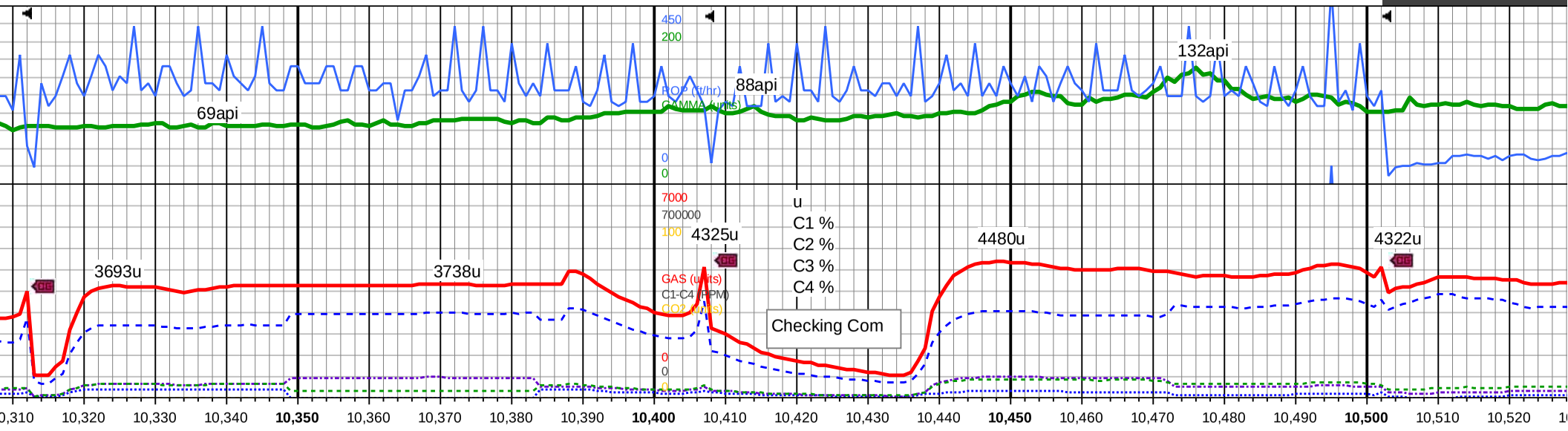
MD: 9,975 '
TVD: 7,106.08 '
Inclination: 90.9 °
Azimuth: 177.1 °
VS: -2,781.43 '

MD: 10,071 '
TVD: 7,105.99 '
Inclination: 89.2 °
Azimuth: 178.5 °
VS: -2,877.35 '

TVD (ft)
7500



gy, sl mot, MARL: dk y-sbblky, nod od, fnt	CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: m sft-frm, gy, sl g brit, tr s yel bl fl
		MD: 10,165 ' TVD: 7,105.83 ' Inclination: 91 ° Azimuth: 178.7 ° VS: -2,971.32 '	TVD (ft) 7500	MD: 10,260 ' TVD: 7,105.66 ' Inclination: 89.2 ° Azimuth: 178.7 ° VS: -3,066.29 '	



med gy - med gy brn, occ lt gy, sl mot, sbplty-blky, v calc, crptxl; MARL: dk gt tex, sl aren, sft - frm, sbplty-sbblky, sec calc; v bri bl stmg cut, mod od, fnt or res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

6500

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

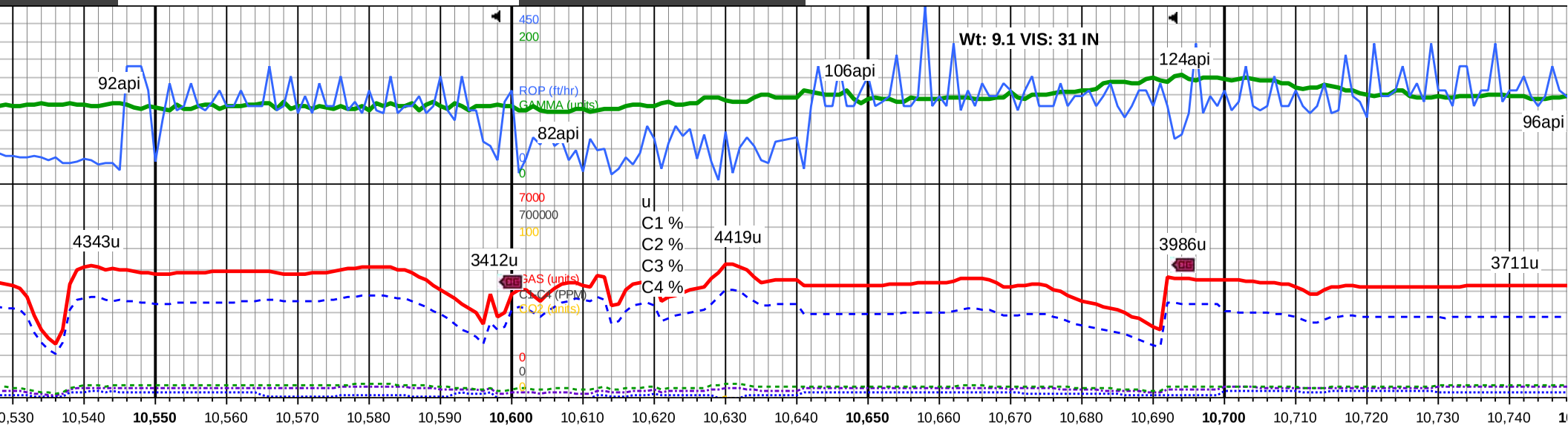
CHK: med gy - med gy br sft-frm, sbplty-blky, v calc gy, sl gt tex, sl aren, sft - brit, tr sec calc; v bri bl str yel bl flor res, v fnt tan vis

TVD (ft)

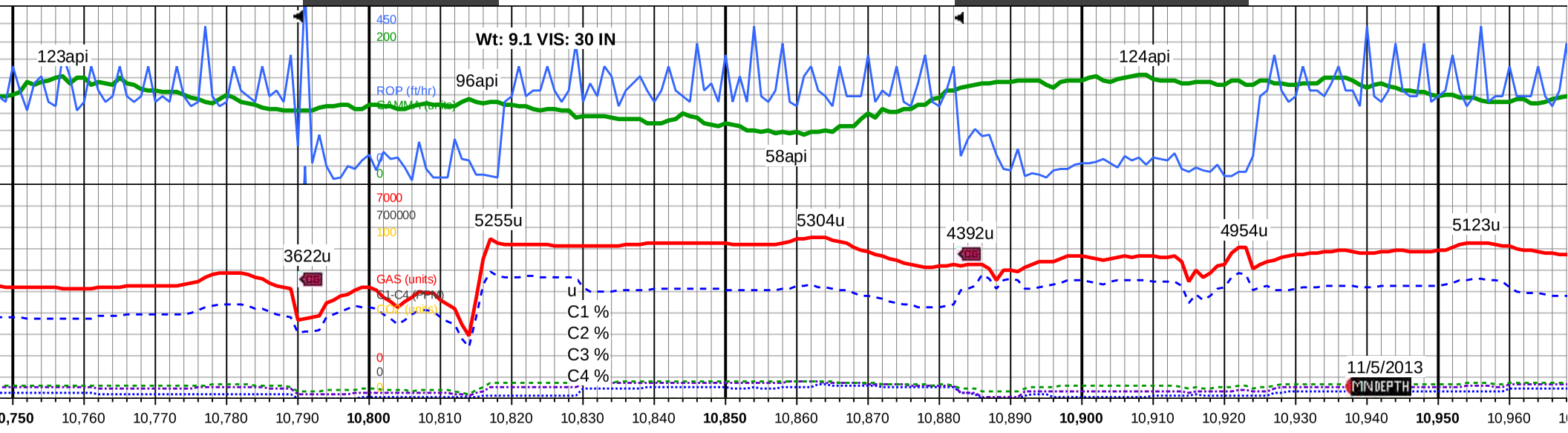
MD: 10,355 '
TVD: 7,105.99 '
Inclination: 90.4 °
Azimuth: 178.4 °
VS: -3,161.26 '

MD: 10,450 '
TVD: 7,104.42 '
Inclination: 91.5 °
Azimuth: 178.2 °
VS: -3,256.2 '

7500



rn, occ lt gy, sl mot, , crptxl; MARL: dk frm, sbplty-sbblky, mg cut, mod od, fnt light ring	CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	6500 CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring	CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring
		TVD (ft)		
MD: 10,545 ' TVD: 7,103.01 ' Inclination: 90.2 ° Azimuth: 179.2 ° VS: -3,351.16 '		7500 MD: 10,640 ' TVD: 7,103.26 ' Inclination: 89.5 ° Azimuth: 179.9 ° VS: -3,446.16 '		MD: 10,735 ' TVD: 7,102.68 ' Inclination: 91.2 ° Azimuth: 179.9 ° VS: -3,541.15 '



CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

6500

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc, tr wh fos incl; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

TVD (ft)

MD: 10,830 '
TVD: 7,100.94 '
Inclination: 90.9 °
Azimuth: 181.5 °
VS: -3,636.13 '

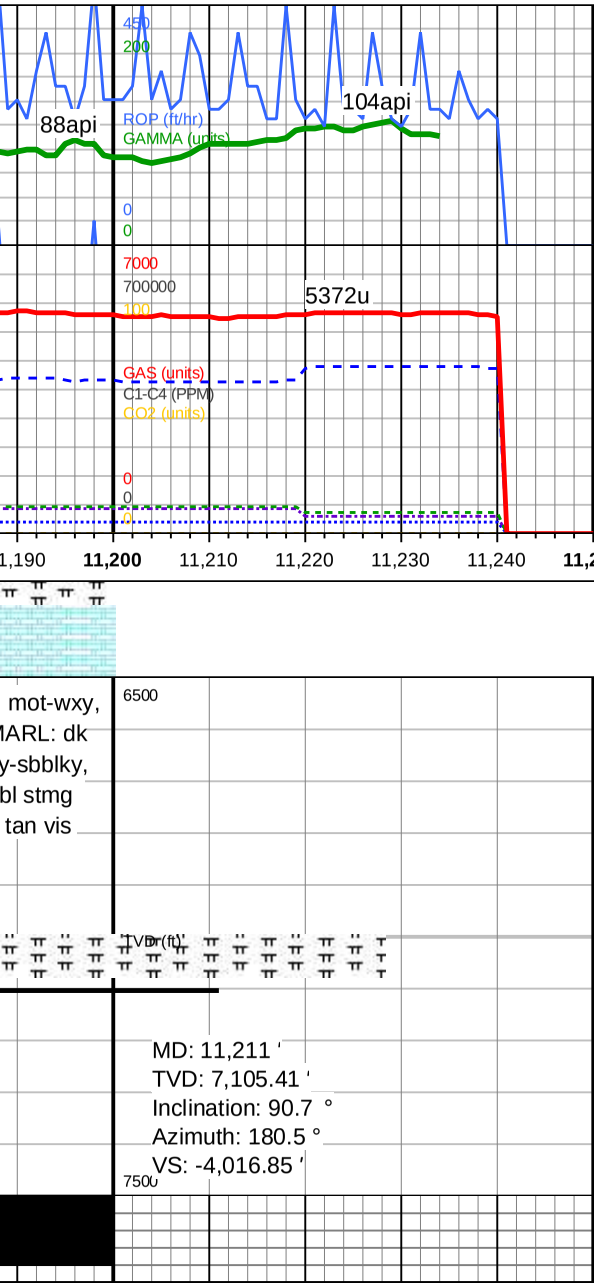
7500

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc, tr wh fos incl; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

CHK: med gy - med gy brn, occ lt gy, sl mot, sft-frm, sbplty-blky, v calc, crptxl; MARL: dk gy, sl gt tex, sl aren, sft - frm, sbplty-sbblky, brit, tr sec calc, tr wh fos incl; v bri bl stmg cut, mod od, fnt yel bl flor res, v fnt tan vis light ring

MD: 10,926 '
TVD: 7,101.36 '
Inclination: 88.6 °
Azimuth: 183 °
VS: -3,732.04 '

CHK: med gy - r
sft-frm, sbplty-bl
gy, sl gt tex, sl a
brit, tr sec calc,
cut, mod od, fnt
light ring


450
200
88api
ROP (ft/hr)
GAMMA (units)
104api
0
0
7000
700000
100
5372u
GAS (units)
C1-C4 (PPM)
CO2 (units)
0
0
1,190
11,200
11,210
11,220
11,230
11,240
mot-wxy,
ARL: dk
y-sbblky,
bl stmg
tan vis
6500
TVD (ft)
MD: 11,211 '
TVD: 7,105.41 '
Inclination: 90.7 °
Azimuth: 180.5 °
VS: -4,016.85 '
7500