COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name	Hester Farms I-36-HN		
Location	SEC 31 T7N R66W		
State	Colorado	**County**	Weld
Country	United States	**Rig Number**	Frontier (Utah) 8
API Number	05-123-41999	**Field**	Wattenberg
Geographic Region	DJ Basin	**Drilling Completed**	12/15/2015
Spud Date	12/1/2015		
Surface Coordinates	40.533291/-104.831382 1709 FNL 202 FWL		
Bottom Hole Coordinates	1870 FFNLL 470 FFWLL		
Ground Elevation	4914'	**K.B. Elevation**	4937'
Logged Interval	6000' **To** 11969'	**Total Depth**	11969
Formation	Niobrara		
Type of Drilling Fluid	WBM		

Operator

Company Bayswater Exploration & Production, LLC.

Address 730 17th St.
Denver, CO 80202

BAYSWATE
EXPLORATION & PRODUCTI

Geologist

Name Mark E. Brown

Company Bayswater Exploration & Production, LLC.

Address 730 17th St.
Denver, CO 80202

Other

Robert Davis	Senior Lead Wellsite Geol
Andrew Martens	Wellsite Geologist
Columbine Logging Computer	148
Bloodhound Unit	331

R
ON

ogist

Zone Color Coding

Oil	Condensate	Gas
Note	Core	Pressure
Error	Water	Seal

Rock Types

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

Accessories

Fossils

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

Minerals

ANHYDRITIC
ARGILLACEOUS
ARGILLITE GRAIN
BENTONITE
BITUMENOUS SUBSTANCE
BRECCIA FRAGMENTS
CALCAREOUS
CARBONACEOUS FLAKES
CHTDK
CHTLT
COAL - THIN BEDS
DOLOMITIC
FELDSPAR
FERRUGINOUS PELLET
FERRUGINOUS
GLAUCONITE
GYPSIFEROUS
HEAVY MINERAL
KAOLIN
MARCASITE
MARLSTONE
MICACEOUS
MINERAL CRYSTALS
NODULES
PHOSPHATE PELLETS
PYRITE
SALT CAST
SANDY
SIDERITE
SILICEOUS
SILTY
TUFFACEOUS

Stringer

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

Oil Show

PINPOINT
VUGGY
DEAD
EVEN
QUESTIONABLE
SPOTTED STAINING

Porosity

EARTHY
FENESTRAL
FRACTURE
INTERCRYSTALLINE
INTEROOLITIC
MOLDIC
ORGANIC

Engineering

BIT
CONNECTION (UP)
CONNECTION (DOWN)
CONNECTION GAS
CONNECTION GAS (
TRIP GAS
TRIP GAS (LEFT)
DOWN TIME GAS
DOWN TIME GAS (L
CORE - LOST
CORE - RECOVERED

Other Symbols

DST INTERVAL

FAULT

FORMATION TOP

GAS SHOW

OIL SHOW

MN DEPTH UP

MN DEPTH (DOWN)

NORMAL FAULT

(LEFT) OVERTURNED STRATA

REVERSE FAULT

CASING

SIDEWALL CORE (LEFT)

(LEFT) SIDEWALL CORE (RIGHT)

SLIDE

SURVEY

WIRELINE TESTED - LEFT

WIRELINE TESTED - RT

DRILL STEM TEST

MN DEPTH MN DEPTH

Rounding

A ANGULAR

R ROUNDED

SR SUBANG

SRND SUBRND

Textures

BS BOUNDSTONE

C CHALKY

CX CRYPTOXLN

E EARTHY

FX FINELYXLN

GS GRAINSTONE

L LITHOGRAPHIC

MX MICROXLN

MS MUDSTONE

PS PACKSTONE

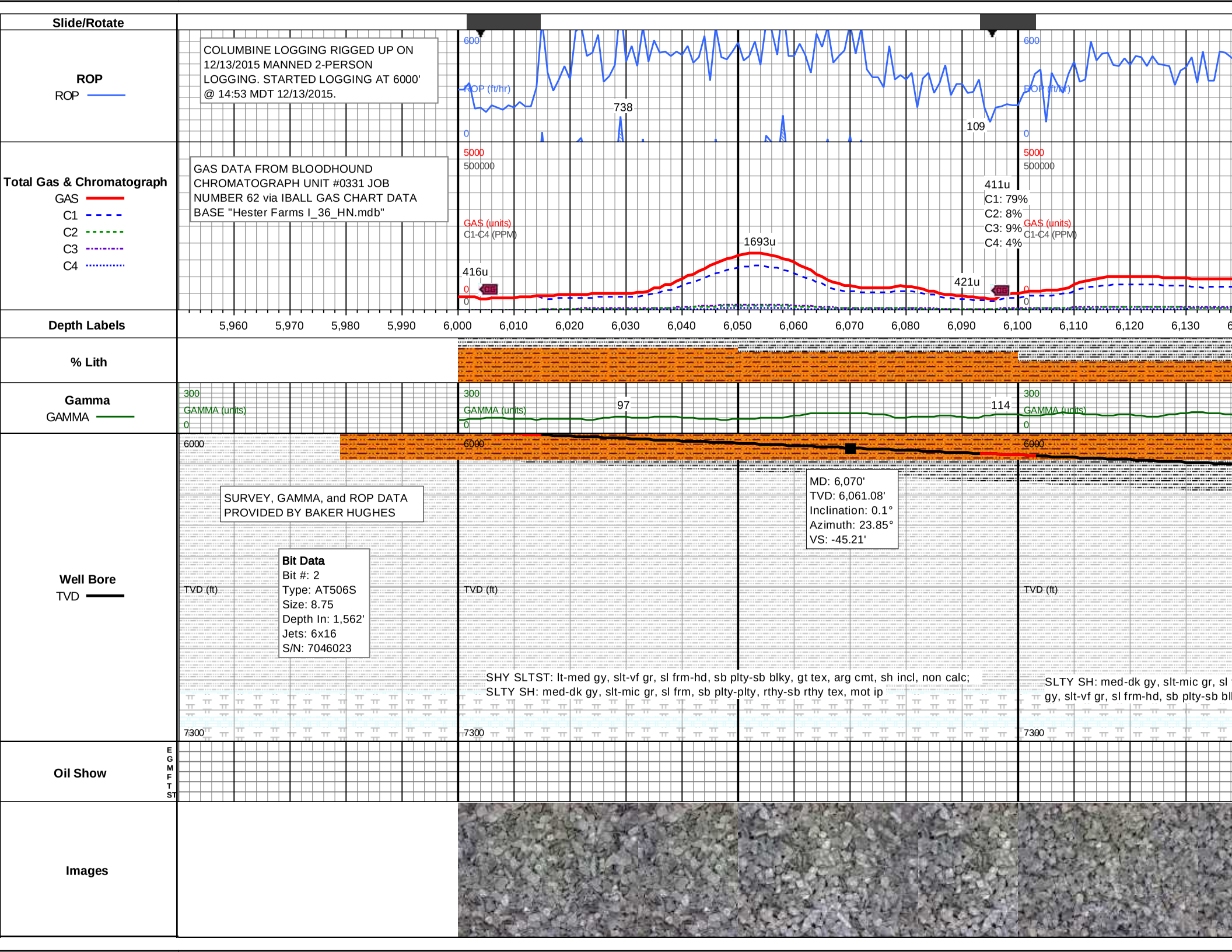
WS WACKESTONE

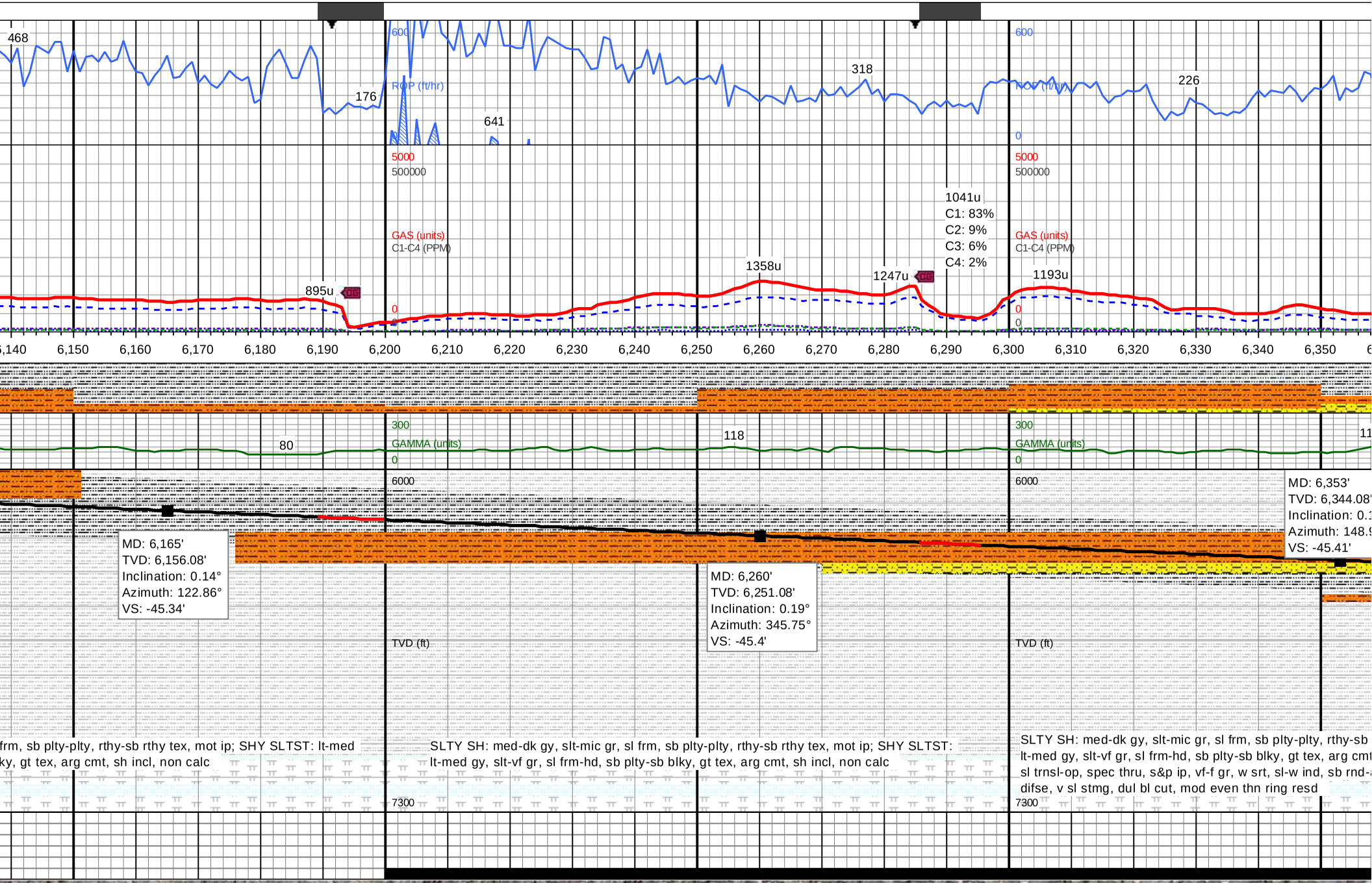
Sorting

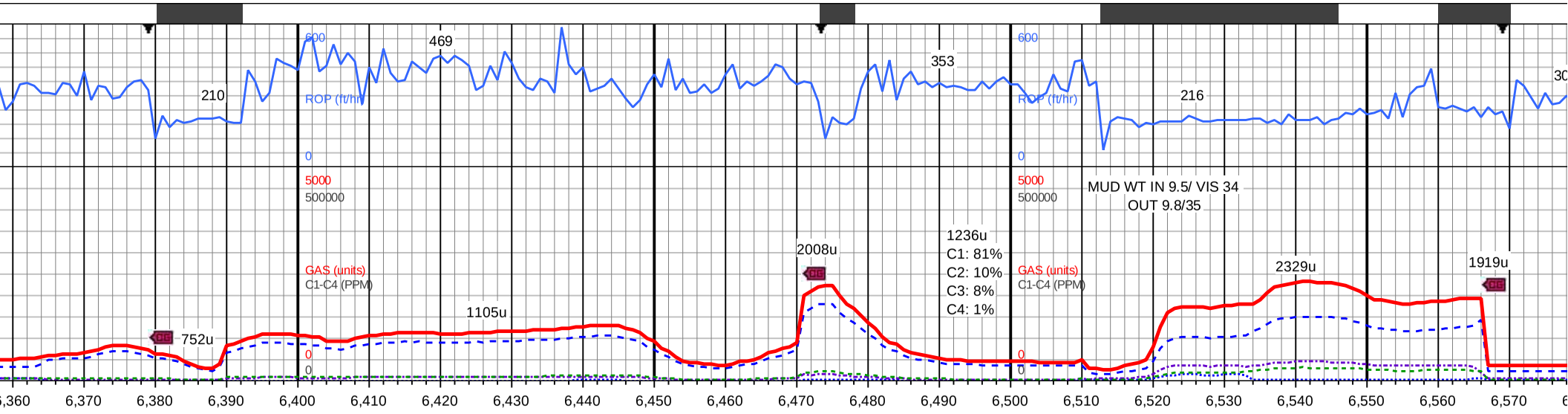
M MODERATE

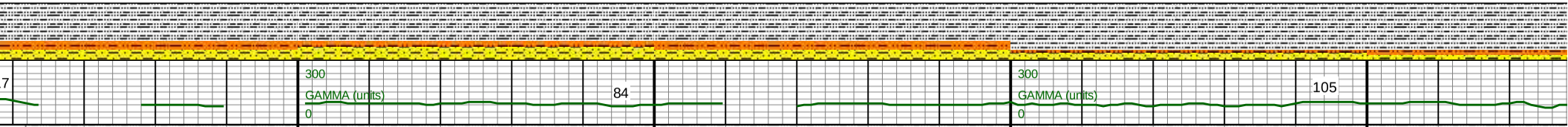
P POOR

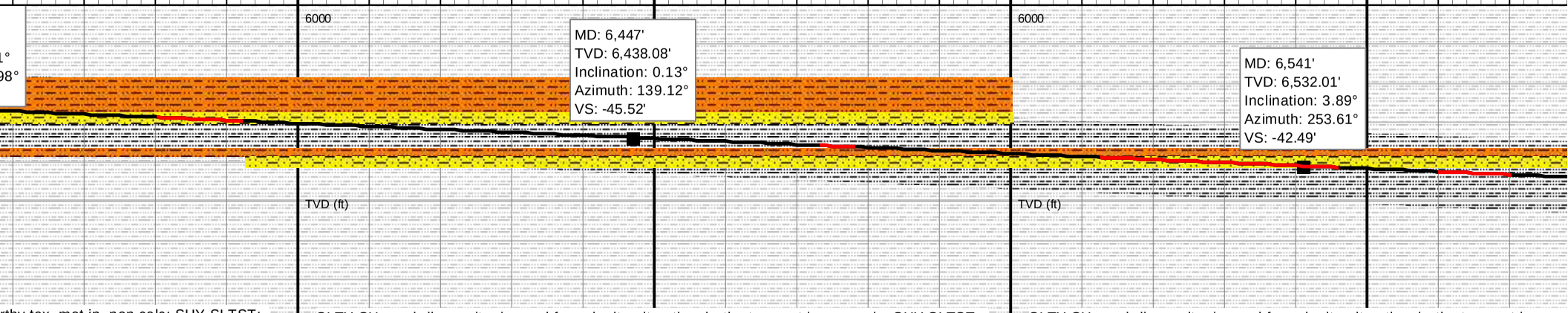
W WELL


Slide/Rotate
ROP
ROP
COLUMBINE LOGGING RIGGED UP ON 12/13/2015 MANNED 2-PERSON LOGGING. STARTED LOGGING AT 6000' @ 14:53 MDT 12/13/2015.
600
ROP (ft/hr)
0
738
109
Total Gas & Chromatograph
GAS
C1
C2
C3
C4
GAS DATA FROM BLOODHOUND CHROMATOGRAPH UNIT #0331 JOB NUMBER 62 via IBALL GAS CHART DATA BASE "Hester Farms I_36_HN.mdb"
5000
500000
GAS (units)
C1-C4 (PPM)
411u
C1: 79%
C2: 8%
C3: 9%
C4: 4%
1693u
416u
421u
Depth Labels
5,960
5,970
5,980
5,990
6,000
6,010
6,020
6,030
6,040
6,050
6,060
6,070
6,080
6,090
6,100
6,110
6,120
6,130
% Lith
Gamma
GAMMA
300
GAMMA (units)
0
97
114
Well Bore
TVD
6000
TVD (ft)
7300
SURVEY, GAMMA, and ROP DATA PROVIDED BY BAKER HUGHES
Bit Data
Bit #: 2
Type: AT506S
Size: 8.75
Depth In: 1,562'
Jets: 6x16
S/N: 7046023
MD: 6,070'
TVD: 6,061.08'
Inclination: 0.1°
Azimuth: 23.85°
VS: -45.21'
SHY SLTST: lt-med gy, slt-vf gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt, sh incl, non calc;
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip
SLTY SH: med-dk gy, slt-mic gr, sl
gy, slt-vf gr, sl frm-hd, sb plty-sb bl
Oil Show
E
G
M
F
T
ST
Images


468
176
600
ROP (ft/hr)
641
5000
500000
GAS (units)
C1-C4 (PPM)
895u
0
318
1358u
1247u
1041u
C1: 83%
C2: 9%
C3: 6%
C4: 2%
226
1193u
6,140
6,150
6,160
6,170
6,180
6,190
6,200
6,210
6,220
6,230
6,240
6,250
6,260
6,270
6,280
6,290
6,300
6,310
6,320
6,330
6,340
6,350
300
GAMMA (units)
80
118
6000
TVD (ft)
7300
MD: 6,165'
TVD: 6,156.08'
Inclination: 0.14°
Azimuth: 122.86°
VS: -45.34'
MD: 6,260'
TVD: 6,251.08'
Inclination: 0.19°
Azimuth: 345.75°
VS: -45.4'
MD: 6,353'
VS: -45.41'
frm, sb plty-plty, rthy-sb rthy tex, mot ip; SHY SLTST: lt-med
ky, gt tex, arg cmt, sh incl, non calc
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip; SHY SLTST:
lt-med gy, slt-vf gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt, sh incl, non calc
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb
lt-med gy, slt-vf gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt
sl trnsl-op, spec thru, s&p ip, vf-f gr, w srt, sl-w ind, sb rnd-
difse, v sl stmg, dul bl cut, mod even thn ring resd



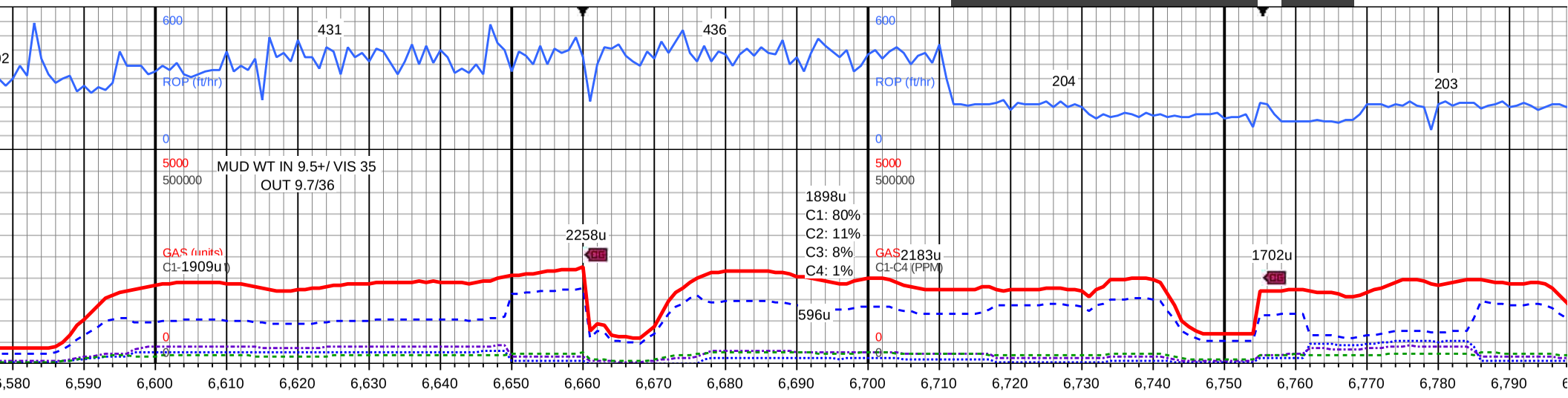


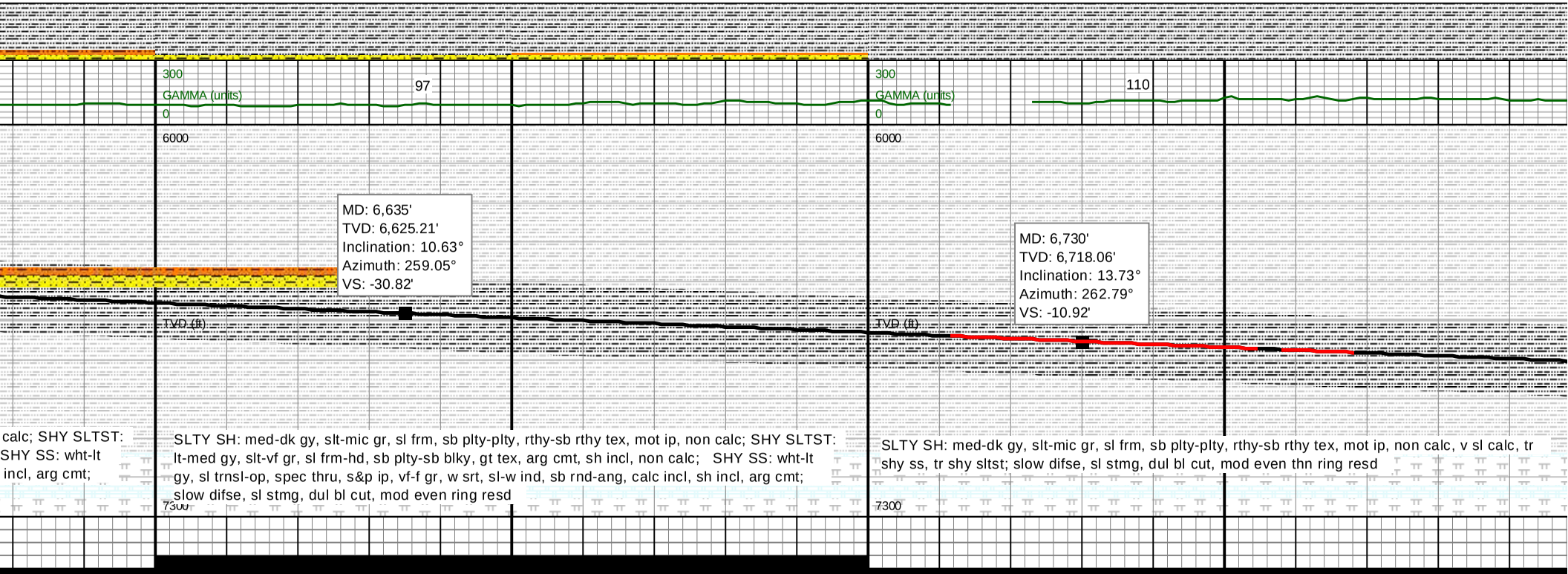


rthy tex, mot ip, non calc; SHY SLTST:
, sh incl, non calc; SHY SS: wht-lt gy,
ang, calc incl, sh incl, arg cmt; v slow

SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc; SHY SLTST: lt-med gy, slt-vf gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt, sh incl, non calc; SHY SS: wht-lt gy, sl trnsl-op, spec thru, s&p ip, vf-f gr, w srt, sl-w ind, sb rnd-ang, calc incl, sh incl, arg cmt; v slow difse, v sl stmg, dul bl cut, mod even thn ring resd

SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non
lt-med gy, slt-vf gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt, sh incl, non calc;
gy, sl trnsl-op, spec thru, s&p ip, vf-f gr, w srt, sl-w ind, sb rnd-ang, calc incl, sh
slow difse, sl stmg, dul bl cut, mod even thn ring resd





calc; SHY SLTST:
SHY SS: wht-lt
incl, arg cmt;

SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc; SHY SLTST: lt-med gy, slt-vf gr, sl frm-hd, sb plty-sb blky, gt tex, arg cmt, sh incl, non calc; SHY SS: wht-lt gy, sl trnsl-op, spec thru, s&p ip, vf-f gr, w srt, sl-w ind, sb rnd-ang, calc incl, sh incl, arg cmt; slow difse, sl stmg, dul bl cut, mod even ring resd

SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc, v sl calc, tr shy ss, tr shy sltst; slow difse, sl stmg, dul bl cut, mod even thn ring resd

600
ROP (ft/hr)
0
5000
500000
GAS (units)
C1-C4 (PPM)
0
0

224
125
MUD WT IN 9.6/ VIS 37
OUT 9.8/36
2126u
1818u
1509u
C1: 71%
C2: 14%
C3: 10%
C4: 5%

600
ROP (ft/hr)
0
5000
500000
GAS (units)
C1-C4 (PPM)
0
0

173
247
MUD WT IN 9.7/ VIS 38
OUT 9.8/37
1189u
2122u

600
ROP (ft/hr)
0
5000
500000
GAS (units)
C1-C4 (PPM)
0
0

6,800 6,810 6,820 6,830 6,840 6,850 6,860 6,870 6,880 6,890 6,900 6,910 6,920 6,930 6,940 6,950 6,960 6,970 6,980 6,990 7,000 7,010 7

300
GAMMA (units)
0
6000
TVD (ft)
7300

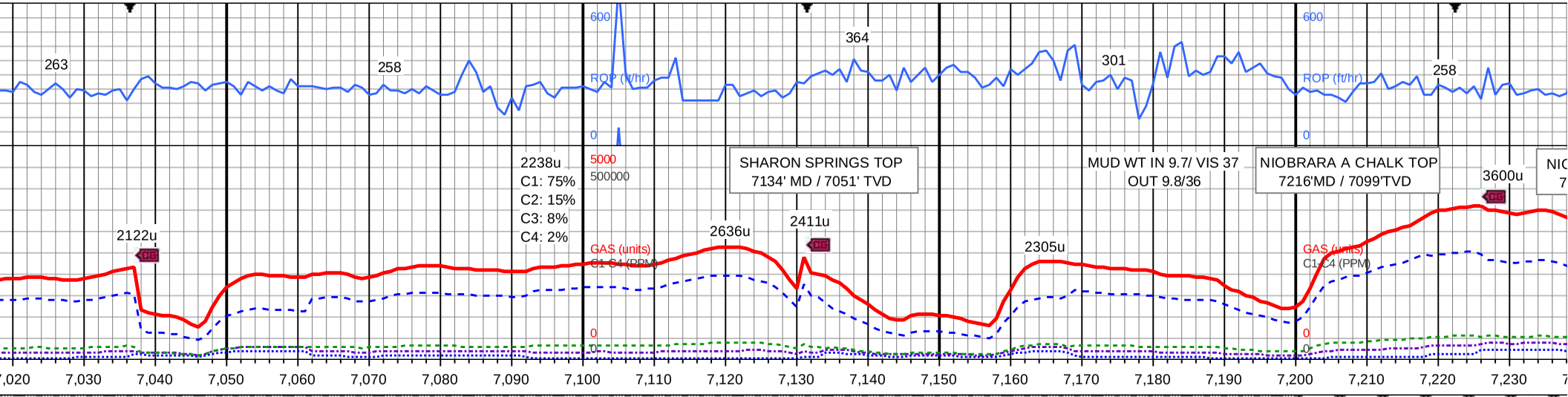
116
MD: 6,824'
TVD: 6,807.55'
Inclination: 21.6°
Azimuth: 264.24°
VS: 17.5'

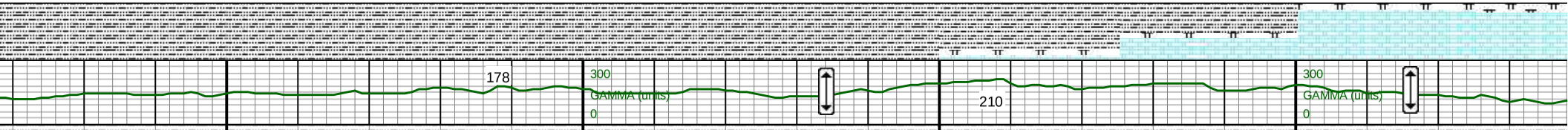
SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc, v sl calc, tr shy sltst; slow difse, sl stmg, dul bl cut, mod even thn ring resd

300
GAMMA (units)
0
6000
TVD (ft)
7300

124
SLTY SH: med-dk gy, occ lt gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc, v sl calc, tr shy sltst; slow difse, sl stmg, dul bl cut, mod even thn ring resd
MD: 6,917'
TVD: 6,890.54'
Inclination: 31.78°
Azimuth: 268.67°
VS: 59.19'

300
GAMMA (units)
0
6000
SLTY SH: med-dk
calc, tr shy sltst;
MD: 7,010'
TVD: 6,965.76'
Inclination: 40.14°
Azimuth: 271.87°
VS: 113.68'
7300





k gy, occ lt gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc, v sl
mod slow difse, sl stmg, bl cut, even mod thk ring resd

6000

SLTY SH: med-dk gy, occ lt gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, non calc, v sl calc, abnt bent, bri yel min flor; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd

CHK: pred lt - occ med gy, str, sb plty-blky, brit, sl sft, sb rthy-sl sm tex, v calc; SLTY SH: med-dk gy, slt-mic gr, sl frm, sb plty-plty, rthy-sb rthy tex, mot ip, v sl calc; MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, occ bent; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd

6000

CHK: lt-med gy, str, sb plty-blky, brit, s
rthy-sm tex, mot, v calc, MRLST: med-
mot-spec, slt gr, sl frm, sb plty-plty, gt
tr dissm pyr, tr bent; mod fast/fast difs
bri bl/wh mky cut, mod bri-bri even rin

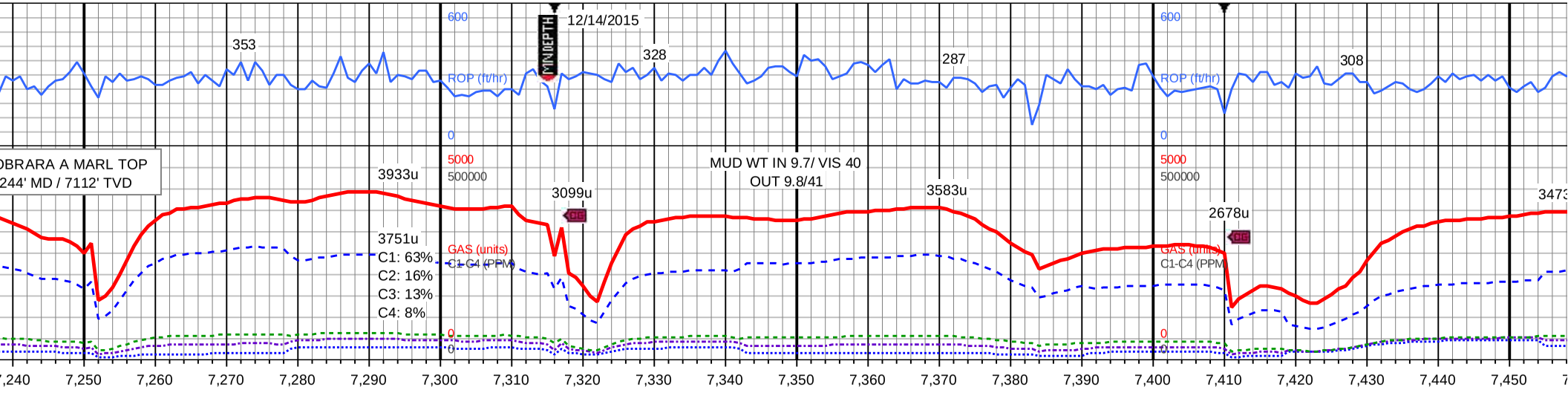
TVD (ft)

MD: 7,102'
TVD: 7,031.91'
Inclination: 47.83°
Azimuth: 273.98°
VS: 177.25'

MD: 7,197'
TVD: 7,089.99'
Inclination: 56.71°
Azimuth: 275.57°
VS: 251.75'

7300

7300


600
ROP (ft/hr)
0
353
12/14/2015
MINDEPTH
328
287
308
OBRARA A MARL TOP
244' MD / 7112' TVD
5000
500000
3933u
3099u
MUD WT IN 9.7/ VIS 40
OUT 9.8/41
3583u
2678u
3751u
C1: 63%
C2: 16%
C3: 13%
C4: 8%
GAS (units)
C1-C4 (PPM)
7,240
7,250
7,260
7,270
7,280
7,290
7,300
7,310
7,320
7,330
7,340
7,350
7,360
7,370
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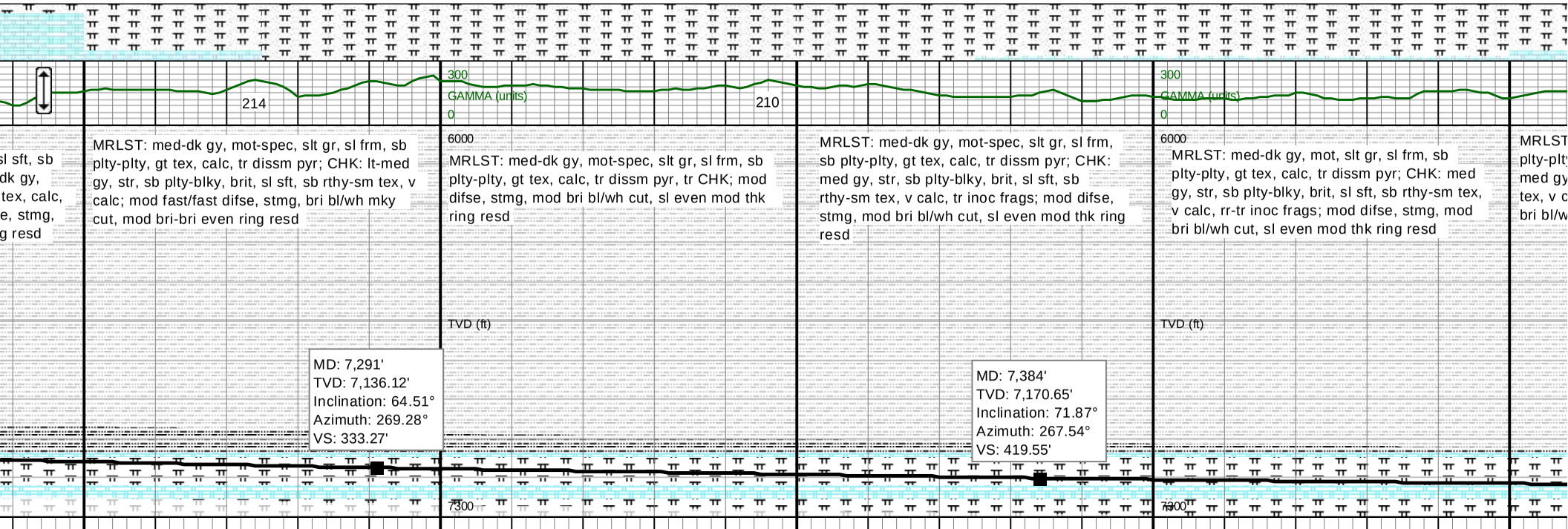
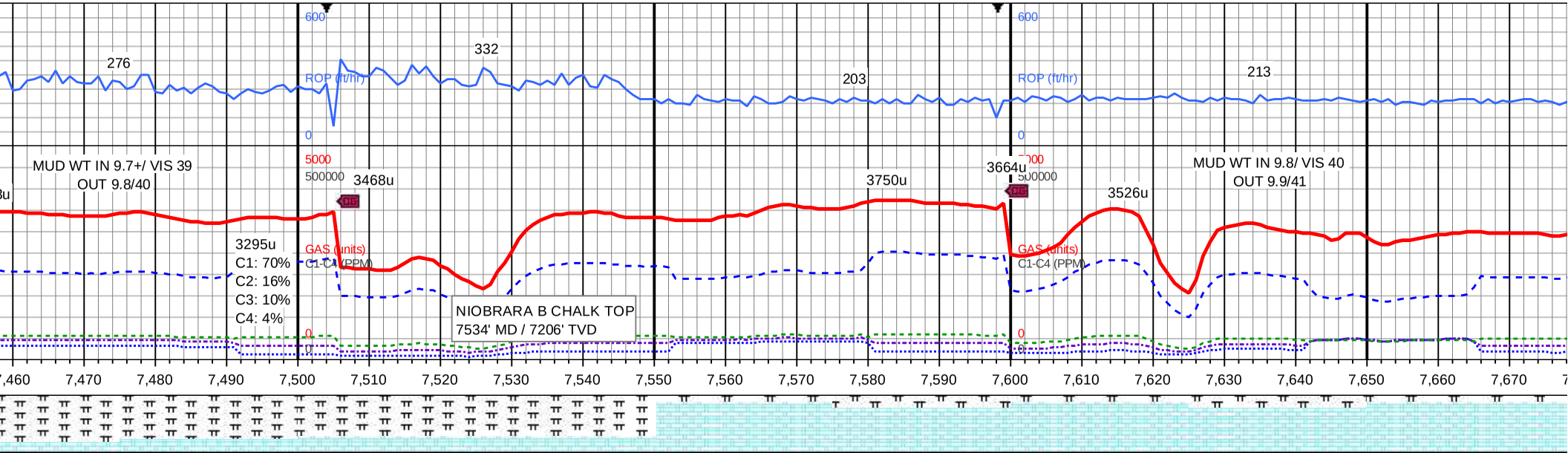
7,390
7,400
7,410
7,420
7,430
7,440
7,450


300
GAMMA (units)
0
214
210
6000
TVD (ft)
7300
sl sft, sb
dk gy,
tex, calc,
e, stmg,
g resd
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: lt-med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr, tr CHK; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd
MRLST: med-dk gy, mot-spec, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr inoc frags; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd
MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, gt tex, calc, tr dissm pyr; CHK: med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, rr-tr inoc frags; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd
MD: 7,291'
TVD: 7,136.12'
Inclination: 64.51°
Azimuth: 269.28°
VS: 333.27'
MD: 7,384'
TVD: 7,170.65'
Inclination: 71.87°
Azimuth: 267.54°
VS: 419.55'


276
332
203
213
600
ROP (ft/hr)
0
5000
500000
MUD WT IN 9.7+/ VIS 39
OUT 9.8/40
3468u
3750u
3664u
3526u
MUD WT IN 9.8/ VIS 40
OUT 9.9/41
3295u
C1: 70%
C2: 16%
C3: 10%
C4: 4%
GAS (units)
C1-C4 (PPM)
NIOBRARA B CHALK TOP
7534' MD / 7206' TVD
7,460
7,470
7,480
7,490
7,500
7,510
7,520
7,530
7,540
7,550
7,560
7,570
7,580
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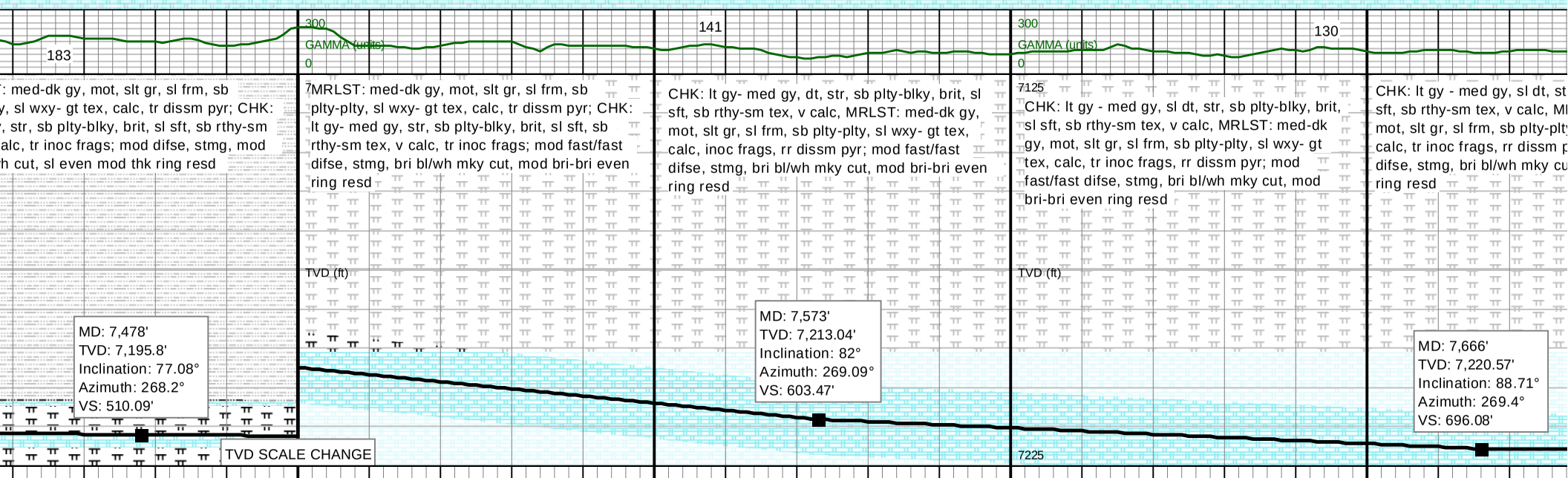
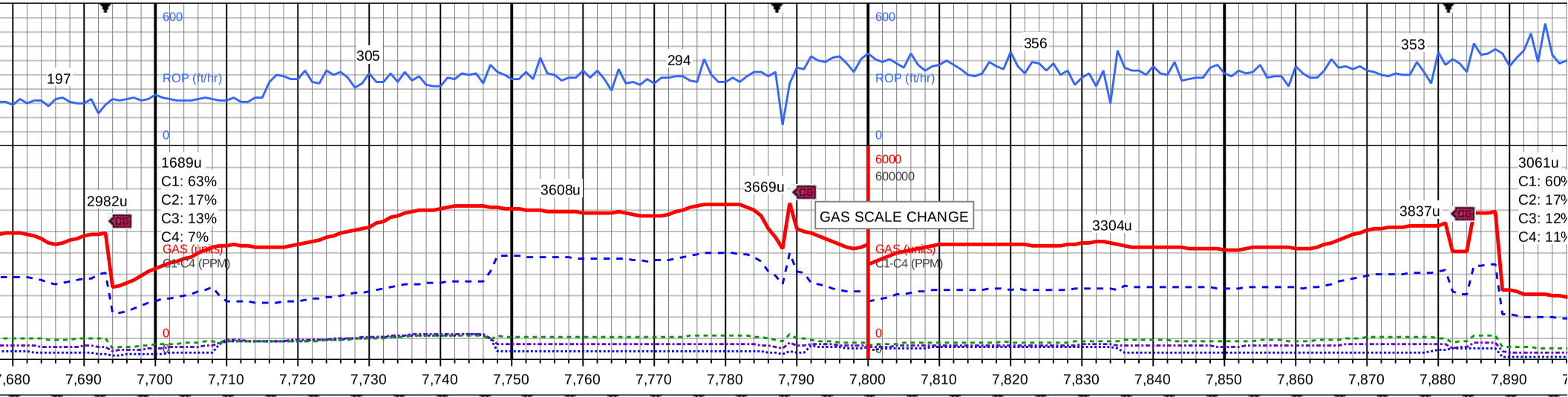
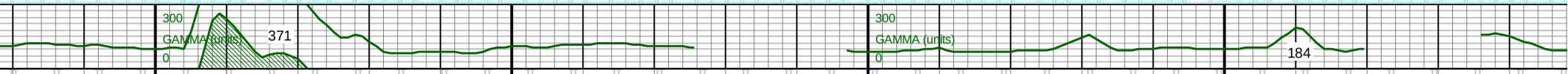
7,600
7,610
7,620
7,630
7,640
7,650
7,660
7,670


183
141
130
300
GAMMA (units)
0
: med-dk gy, mot, slt gr, sl frm, sb
y, sl wxy- gt tex, calc, tr dissm pyr; CHK:
, str, sb plty-blky, brit, sl sft, sb rthy-sm
alc, tr inoc frags; mod difse, stmg, mod
h cut, sl even mod thk ring resd
MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr dissm pyr; CHK: lt gy- med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr inoc frags; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: lt gy- med gy, dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, rr dissm pyr; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
7125
CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, rr dissm pyr; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: lt gy - med gy, sl dt, st
sft, sb rthy-sm tex, v calc, M
mot, slt gr, sl frm, sb plty-plt
calc, tr inoc frags, rr dissm p
difse, stmg, bri bl/wh mky cu
ring resd
TVD (ft)
MD: 7,478'
TVD: 7,195.8'
Inclination: 77.08°
Azimuth: 268.2°
VS: 510.09'
TVD SCALE CHANGE
MD: 7,573'
TVD: 7,213.04'
Inclination: 82°
Azimuth: 269.09°
VS: 603.47'
7225
MD: 7,666'
TVD: 7,220.57'
Inclination: 88.71°
Azimuth: 269.4°
VS: 696.08'





r, sb plty-blky, brit, sl
RLST: med-dk gy,
y, sl wxy- gt tex,
pyr; mod fast/fast
t, mod bri-bri even

7125

CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc; MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, tr bent, rr dissm pyr; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd

CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, rr dissm pyr, rr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd

7125

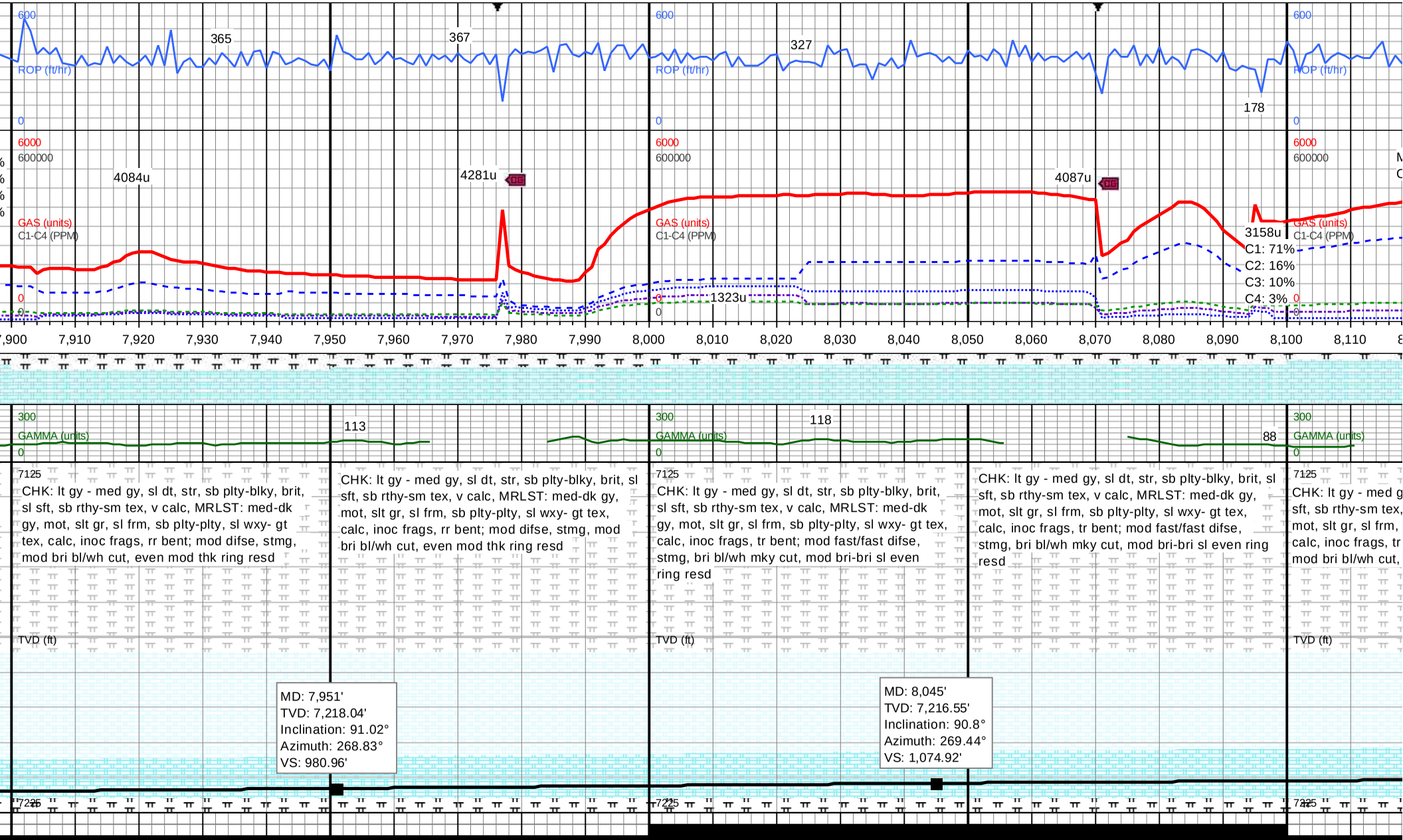
CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, rr dissm pyr, rr bent; mod difse, sl stmg, mod bri bl/wh cut, sl even mod thk ring resd

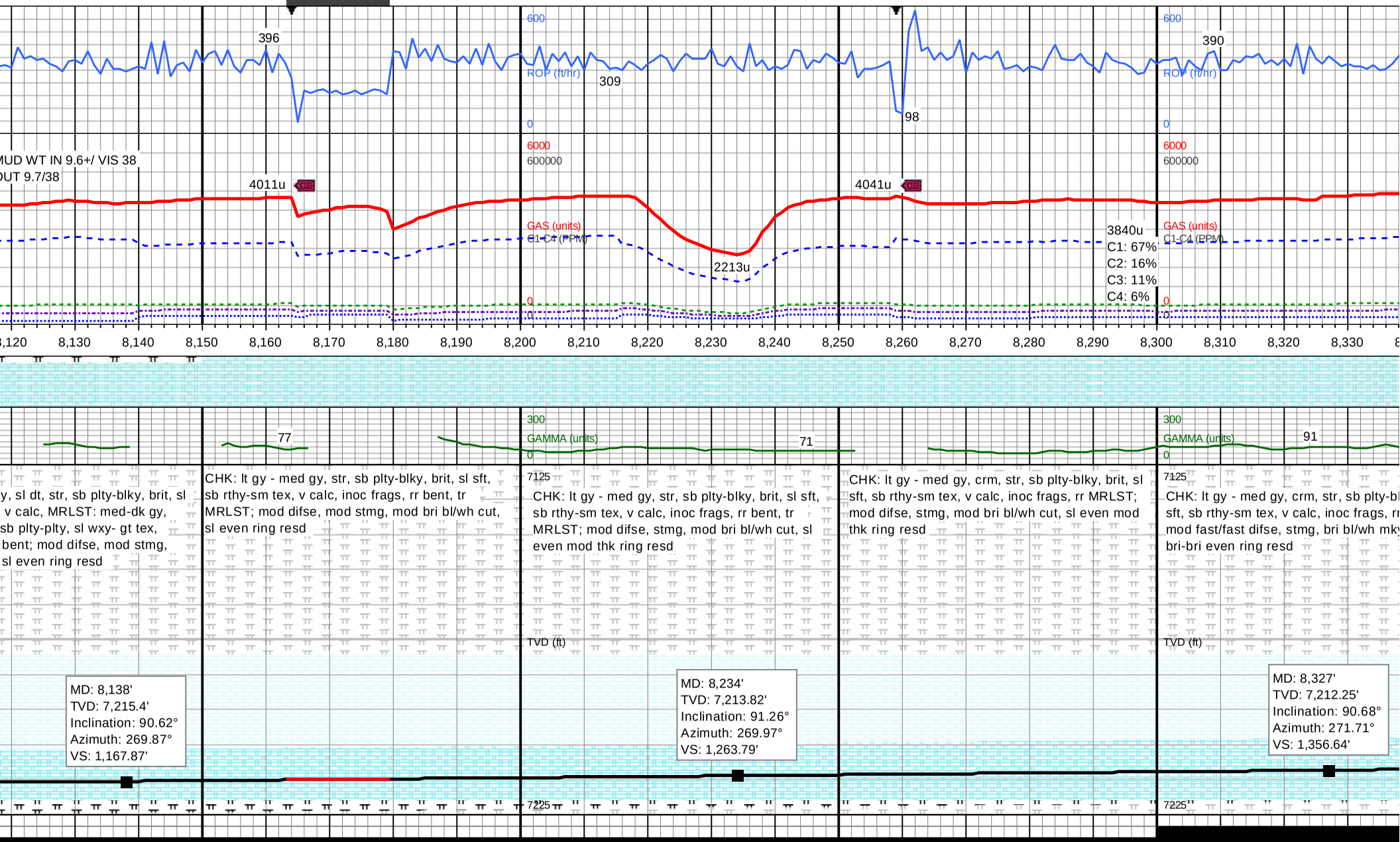
CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, rr dissm pyr, rr bent; mod difse, sl stmg, mod bri bl/wh cut, sl even mod thk ring resd

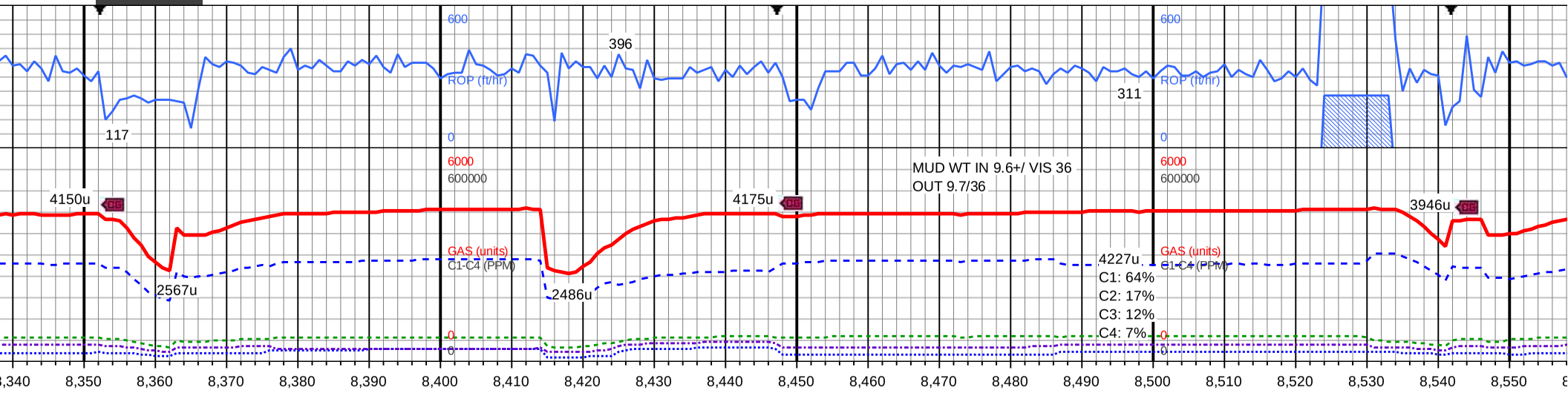
TVD (ft)

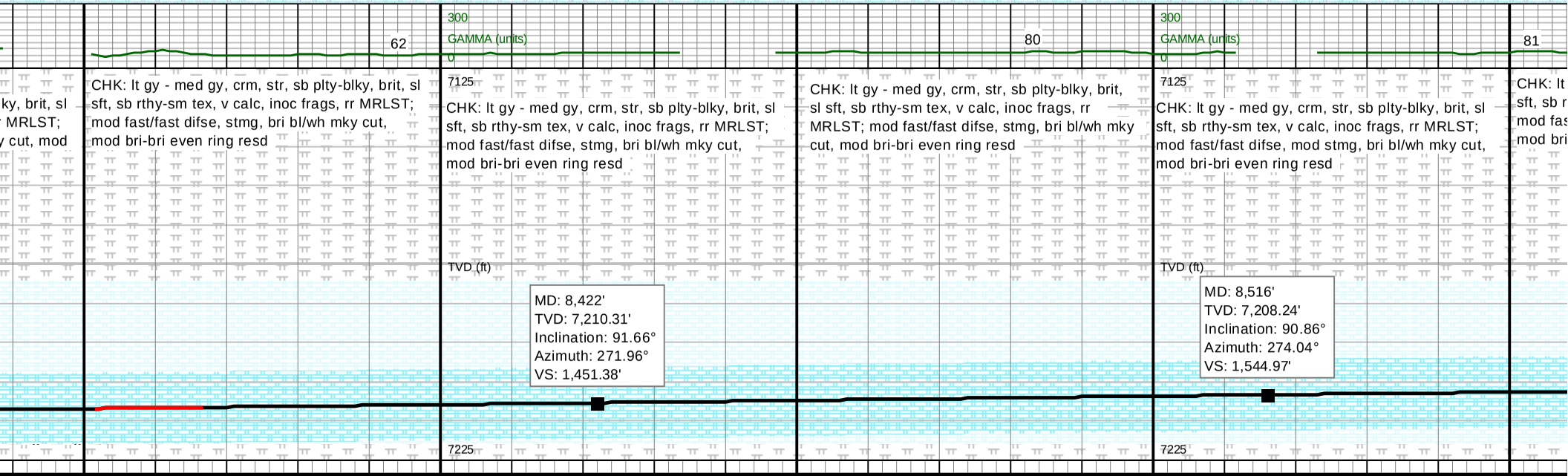
MD: 7,761'
TVD: 7,220.93'
Inclination: 90.86°
Azimuth: 269.49°
VS: 791.04'

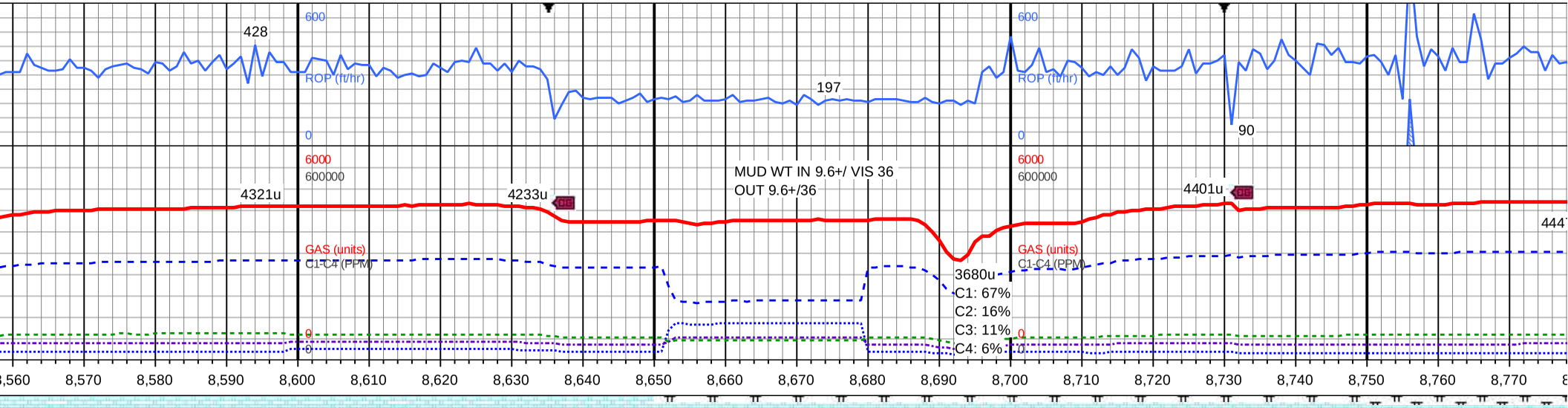
MD: 7,856'
TVD: 7,219.55'
Inclination: 90.8°
Azimuth: 269.25°
VS: 885.99'

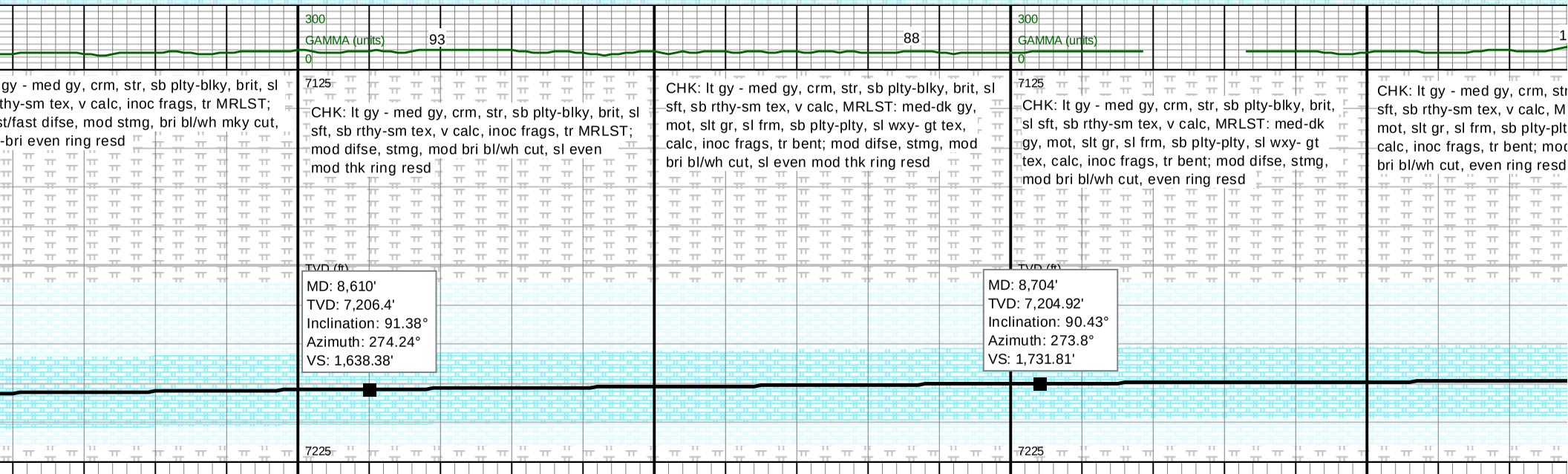

600
ROP (ft/hr)
0
365
367
327
178
6000
600000
4084u
4281u
4087u
3158u
C1: 71%
C2: 16%
C3: 10%
C4: 3%
1323u
GAS (units)
C1-C4 (PPM)
7,900
7,910
7,920
7,930
7,940
7,950
7,960
7,970
7,980
7,990
8,000
8,010
8,020
8,030
8,040
8,050
8,060
8,070
8,080
8,090
8,100
8,110
300
GAMMA (units)
113
118
88
7125
CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, rr bent; mod difse, stmg, mod bri bl/wh cut, even mod thk ring resd
CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, rr bent; mod difse, stmg, mod bri bl/wh cut, even mod thk ring resd
CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri sl even ring resd
CHK: lt gy - med gy, sl dt, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri sl even ring resd
TVD (ft)
MD: 7,951'
TVD: 7,218.04'
Inclination: 91.02°
Azimuth: 268.83°
VS: 980.96'
MD: 8,045'
TVD: 7,216.55'
Inclination: 90.8°
Azimuth: 269.44°
VS: 1,074.92'
7225


600
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
MUD WT IN 9.6+/ VIS 38
OUT 9.7/38
396
4011u
309
2213u
98
4041u
390
3840u
C1: 67%
C2: 16%
C3: 11%
C4: 6%
8,120
8,130
8,140
8,150
8,160
8,170
8,180
8,190
8,200
8,210
8,220
8,230
8,240
8,250
8,260
8,270
8,280
8,290
8,300
8,310
8,320
8,330
300
GAMMA (units)
0
77
71
91
7125
TVD (ft)
7225
y, sl dt, str, sb plty-blky, brit, sl
v calc, MRLST: med-dk gy,
sb plty-plty, sl wxy- gt tex,
bent; mod difse, mod stmg,
sl even ring resd
CHK: lt gy - med gy, str, sb plty-blky, brit, sl sft,
sb rthy-sm tex, v calc, inoc frags, rr bent, tr
MRLST; mod difse, mod stmg, mod bri bl/wh cut,
sl even ring resd
CHK: lt gy - med gy, str, sb plty-blky, brit, sl sft,
sb rthy-sm tex, v calc, inoc frags, rr bent, tr
MRLST; mod difse, stmg, mod bri bl/wh cut, sl
even mod thk ring resd
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl
sft, sb rthy-sm tex, v calc, inoc frags, rr MRLST;
mod difse, stmg, mod bri bl/wh cut, sl even mod
thk ring resd
CHK: lt gy - med gy, crm, str, sb plty-bl
sft, sb rthy-sm tex, v calc, inoc frags, r
mod fast/fast difse, stmg, bri bl/wh mk
bri-bri even ring resd
MD: 8,138'
TVD: 7,215.4'
Inclination: 90.62°
Azimuth: 269.87°
VS: 1,167.87'
MD: 8,234'
TVD: 7,213.82'
Inclination: 91.26°
Azimuth: 269.97°
VS: 1,263.79'
MD: 8,327'
TVD: 7,212.25'
Inclination: 90.68°
Azimuth: 271.71°
VS: 1,356.64'


600
ROP (ft/hr)
0
117
396
311
6000
600000
GAS (units)
C1-C4 (PPM)
4150u
2567u
2486u
4175u
MUD WT IN 9.6+/ VIS 36
OUT 9.7/36
4227u
C1: 64%
C2: 17%
C3: 12%
C4: 7%
3946u
8,340
8,350
8,360
8,370
8,380
8,390
8,400
8,410
8,420
8,430
8,440
8,450
8,460
8,470
8,480
8,490
8,500
8,510
8,520
8,530
8,540
8,550


300
GAMMA (units)
0
62
80
81
7125
7225
TVD (ft)
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, inoc frags, rr MRLST; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MD: 8,422'
TVD: 7,210.31'
Inclination: 91.66°
Azimuth: 271.96°
VS: 1,451.38'
MD: 8,516'
TVD: 7,208.24'
Inclination: 90.86°
Azimuth: 274.04°
VS: 1,544.97'





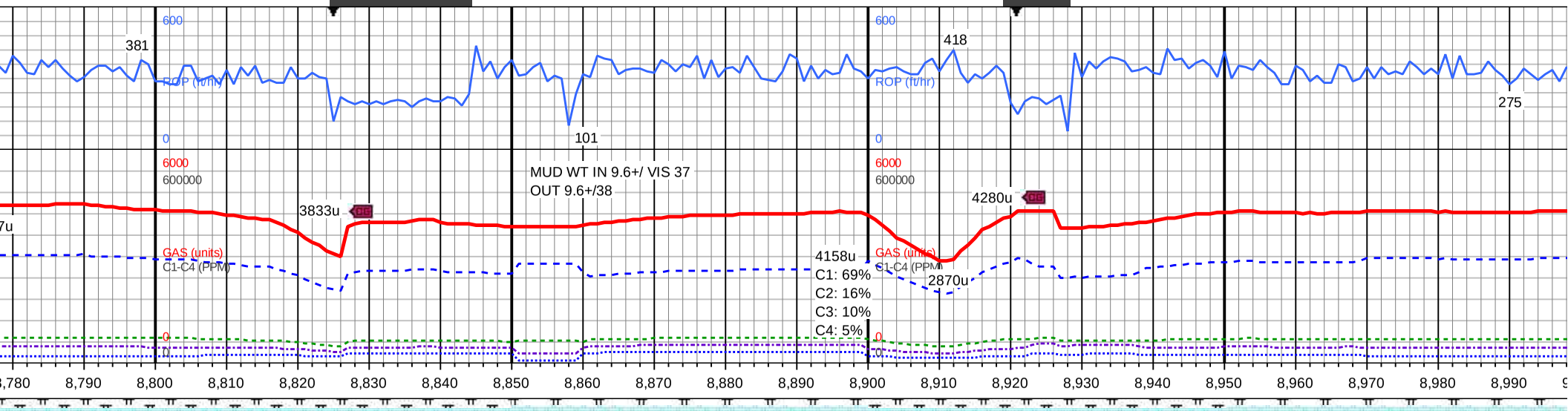
gy - med gy, crm, str, sb plty-blky, brit, sl
thy-sm tex, v calc, inoc frags, tr MRLST;
st/fast difse, mod stmg, bri bl/wh mky cut,
-bri even ring resd

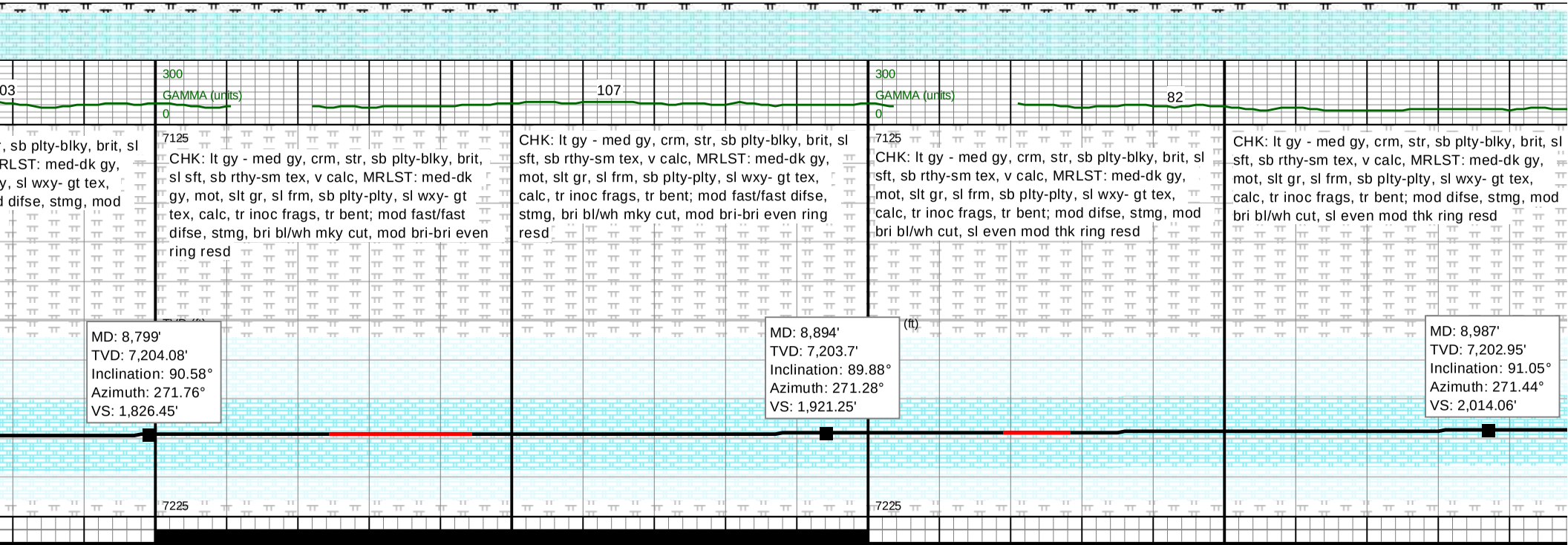
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, inoc frags, tr MRLST; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd

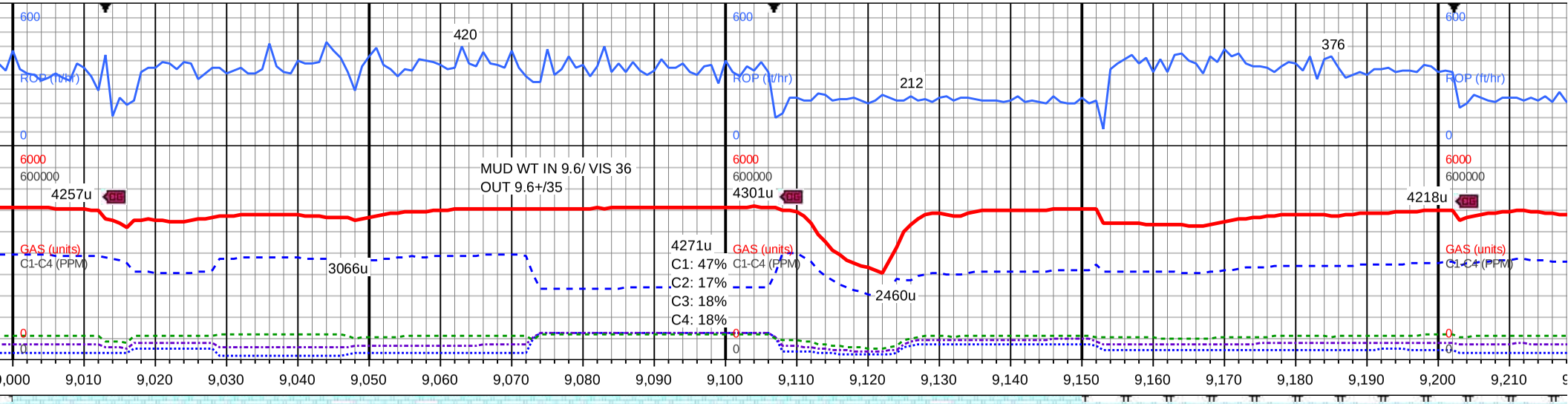
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, tr bent; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd

CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, inoc frags, tr bent; mod difse, stmg, mod bri bl/wh cut, even ring resd

CHK: lt gy - med gy, crm, str
sft, sb rthy-sm tex, v calc, M
mot, slt gr, sl frm, sb plty-plt
calc, inoc frags, tr bent; mod
bri bl/wh cut, even ring resd


600
ROP (ft/hr)
0
6000
600000
GAS (units)
C1-C4 (PPM)
0
0
381
101
418
275
3833u
4280u
4158u
2870u
MUD WT IN 9.6+/ VIS 37
OUT 9.6+/38
C1: 69%
C2: 16%
C3: 10%
C4: 5%
8,780
8,790
8,800
8,810
8,820
8,830
8,840
8,850
8,860
8,870
8,880
8,890
8,900
8,910
8,920
8,930
8,940
8,950
8,960
8,970
8,980
8,990


300
GAMMA (units)
0
107
82
7125
7225
(ft)
, sb plty-blky, brit, sl
RLST: med-dk gy,
y, sl wxy- gt tex,
d difse, stmg, mod
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, tr bent; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, tr bent; mod difse, stmg, mod bri bl/wh cut, sl even mod thk ring resd
MD: 8,799'
TVD: 7,204.08'
Inclination: 90.58°
Azimuth: 271.76°
VS: 1,826.45'
MD: 8,894'
TVD: 7,203.7'
Inclination: 89.88°
Azimuth: 271.28°
VS: 1,921.25'
MD: 8,987'
TVD: 7,202.95'
Inclination: 91.05°
Azimuth: 271.44°
VS: 2,014.06'


600
ROP (ft/hr)
0
420
212
376
6000
600000
4257u
MUD WT IN 9.6/ VIS 36
OUT 9.6+/35
4301u
4218u
GAS (units)
C1-C4 (PPM)
3066u
4271u
C1: 47%
C2: 17%
C3: 18%
C4: 18%
2460u
9,000
9,010
9,020
9,030
9,040
9,050
9,060
9,070
9,080
9,090
9,100
9,110
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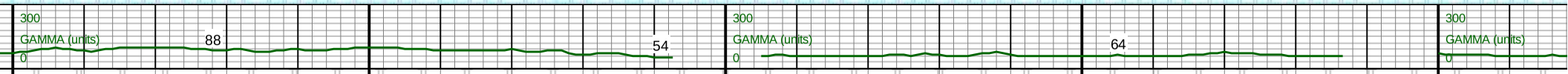
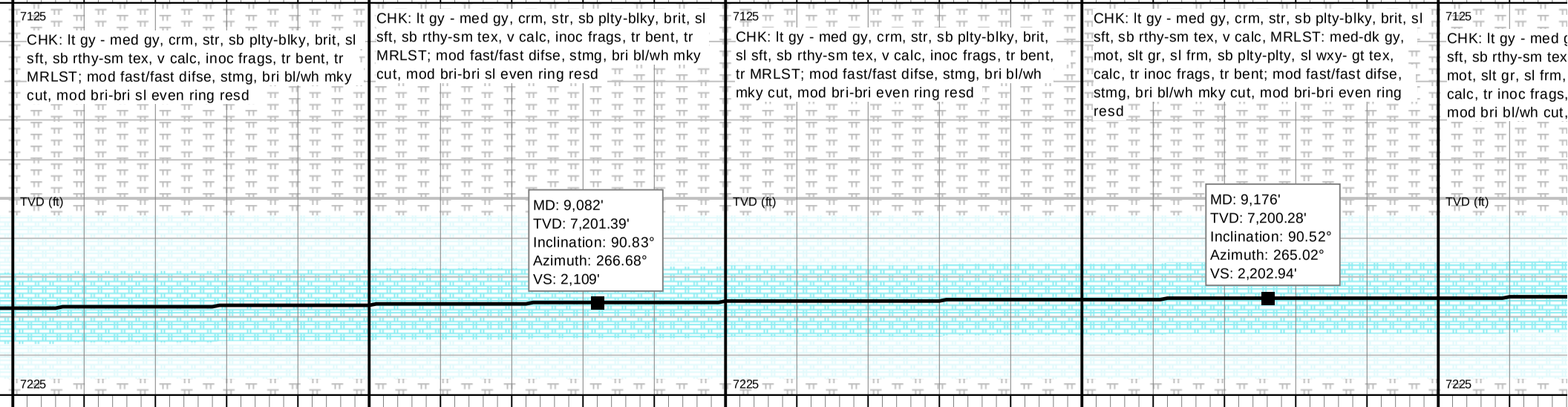
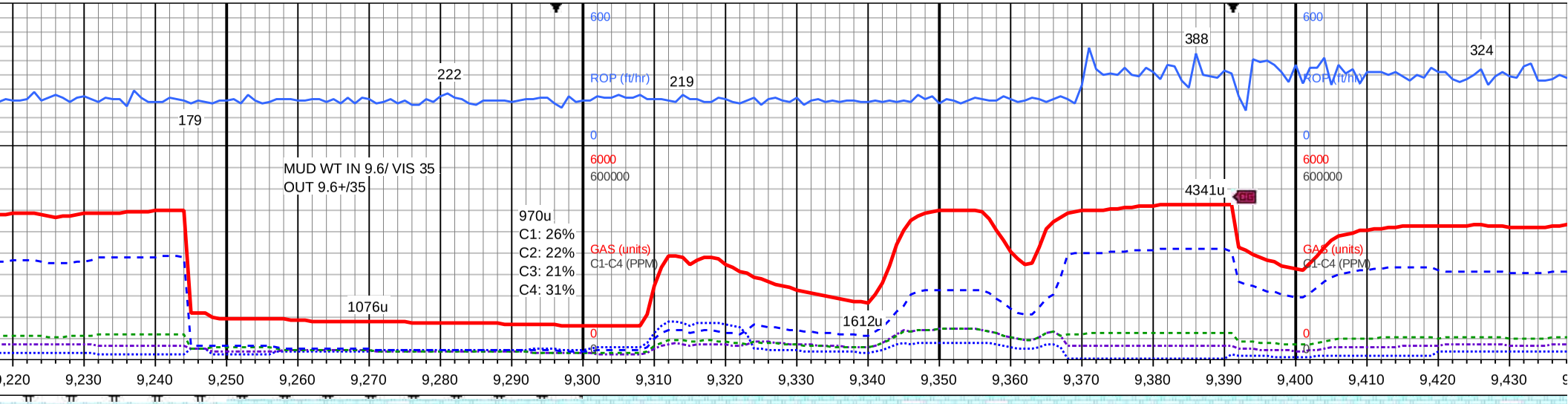
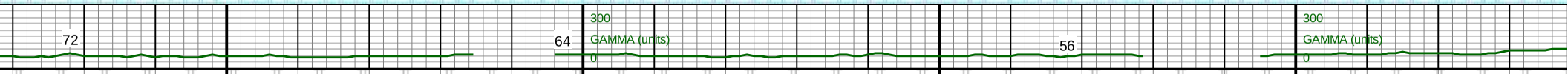
9,130
9,140
9,150
9,160
9,170
9,180
9,190
9,200
9,210


300
GAMMA (units)
0
88
54
64


7125
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, inoc frags, tr bent, tr MRLST; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri sl even ring resd
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, inoc frags, tr bent, tr MRLST; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri sl even ring resd
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
TVD (ft)
MD: 9,082'
TVD: 7,201.39'
Inclination: 90.83°
Azimuth: 266.68°
VS: 2,109'
MD: 9,176'
TVD: 7,200.28'
Inclination: 90.52°
Azimuth: 265.02°
VS: 2,202.94'
7225





gy, crm, str, sb plty-blky, brit, sl
, v calc, MRLST: med-dk gy,
sb plty-plty, sl wxy- gt tex,
tr bent; mod difse, mod stmg,
sl even mod thk ring resd

CHK: lt gy - med gy, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, MRLST: med-dk gy, mot, slt gr, sl frm, sb plty-plty, sl wxy- gt tex, calc, tr inoc frags, tr bent; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd

MD: 9,271'
TVD: 7,199.75'
Inclination: 90.12°
Azimuth: 266°
VS: 2,297.86'

7125
TVD (ft)
7225

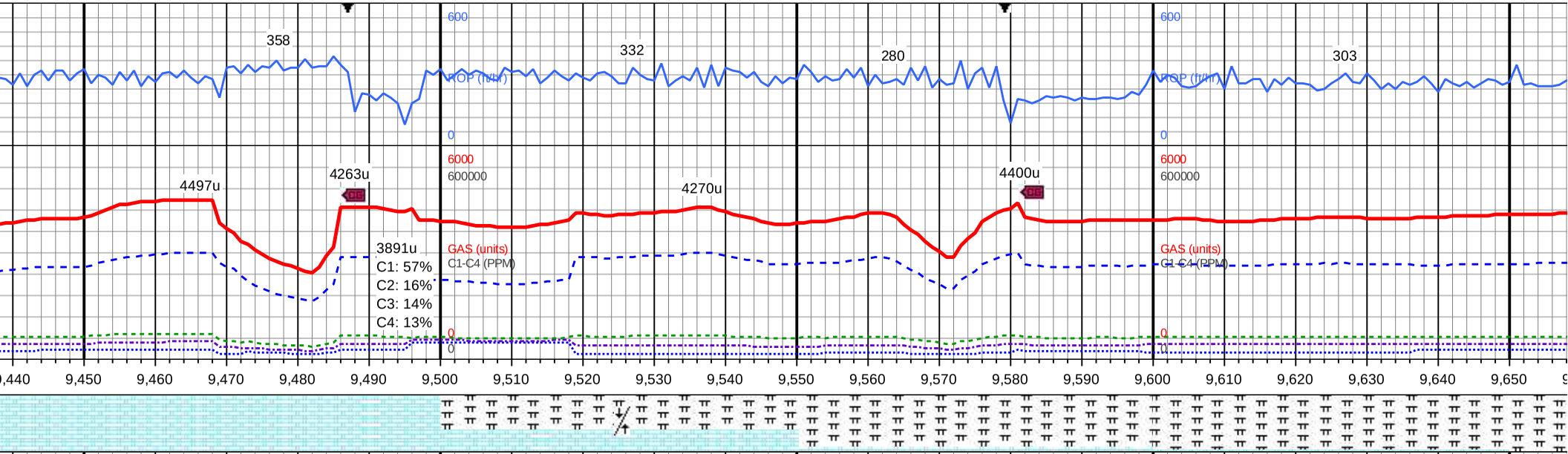
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, inoc frags, tr MRLST; mod difse, mod stmg, mod bri bl/wh cut, sl even ring resd

CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, inoc frags, tr MRLST; mod difse, mod stmg, mod bri bl/wh cut, sl even ring resd

MD: 9,366'
TVD: 7,199.29'
Inclination: 90.43°
Azimuth: 267.4°
VS: 2,392.84'

7125
TVD (ft)
7225

CHK: lt gy - med gy, crm, str, sb plty-bl
sft, sb rthy-sm tex, v calc, inoc frags, tr
mod fast/fast difse, mod stmg, bri bl/wh
cut, mod bri-bri sl even ring resd


358
332
280
303
600
ROP (ft/hr)
0
6000
600000
4497u
4263u
4270u
4400u
3891u
C1: 57%
C2: 16%
C3: 14%
C4: 13%
GAS (units)
C1-C4 (PPM)
9,440
9,450
9,460
9,470
9,480
9,490
9,500
9,510
9,520
9,530
9,540
9,550
9,560
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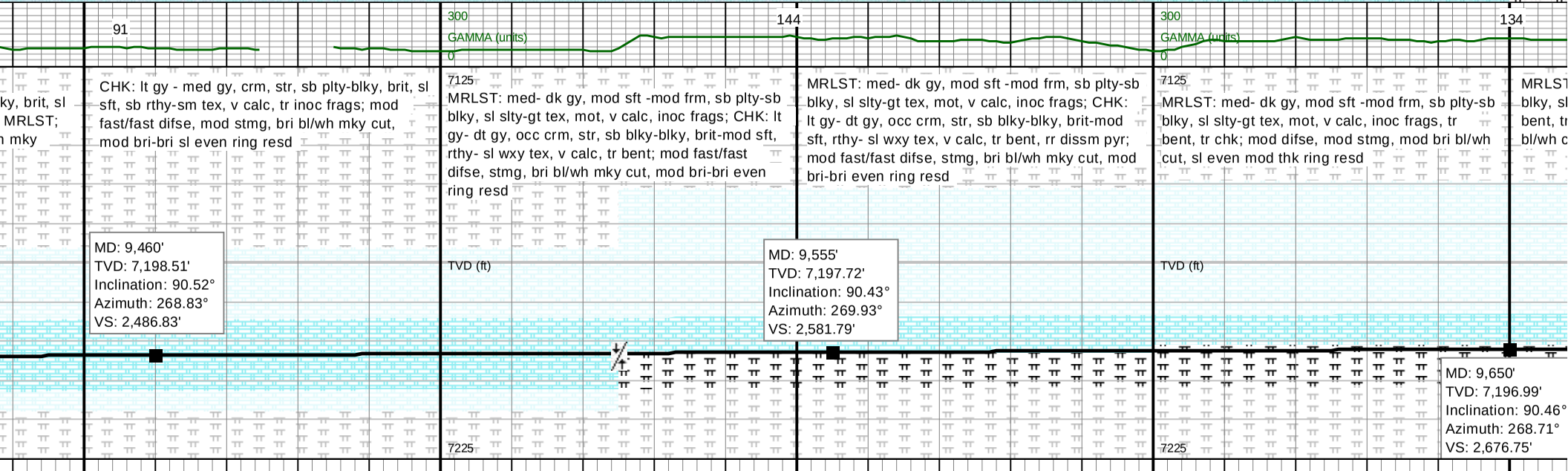
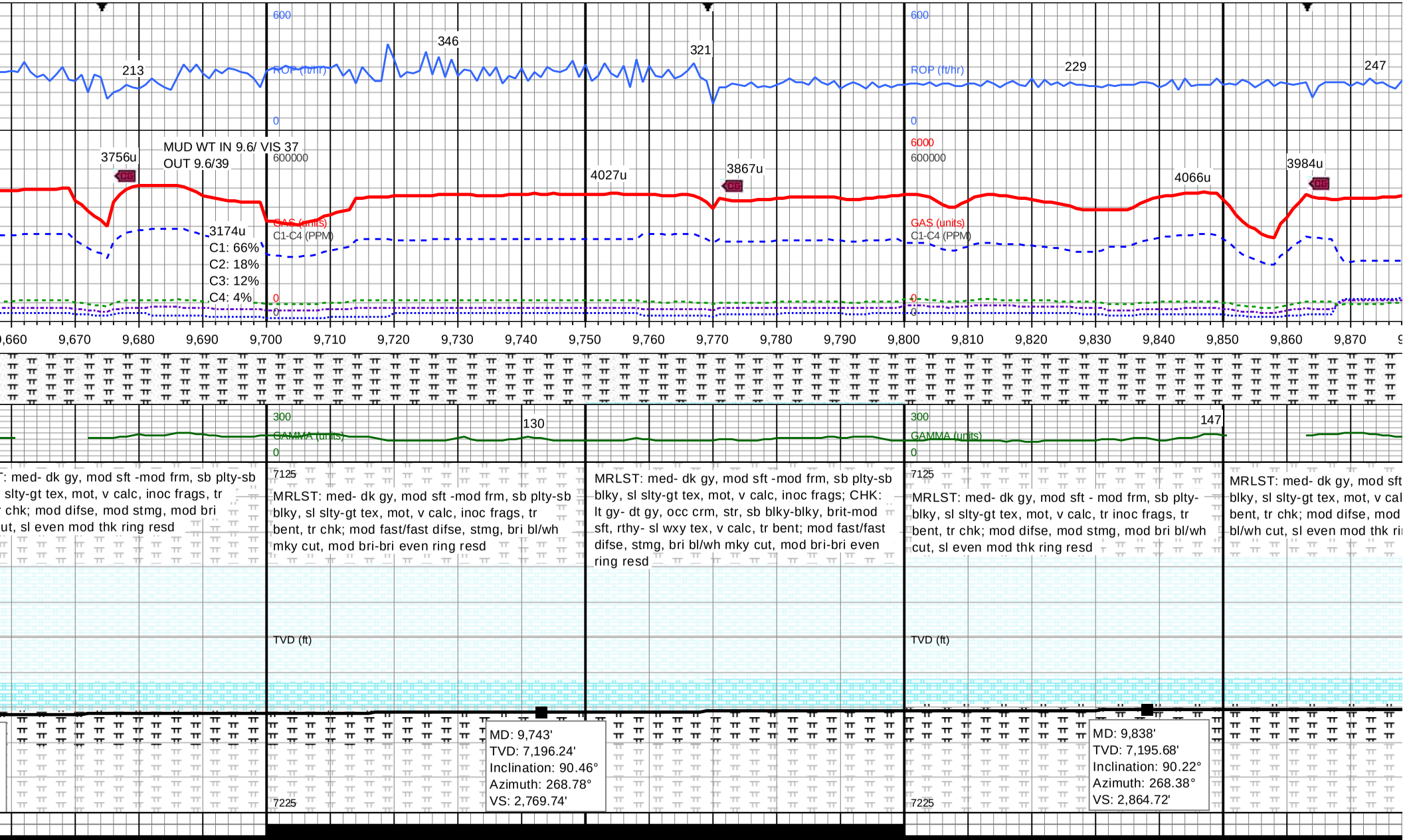
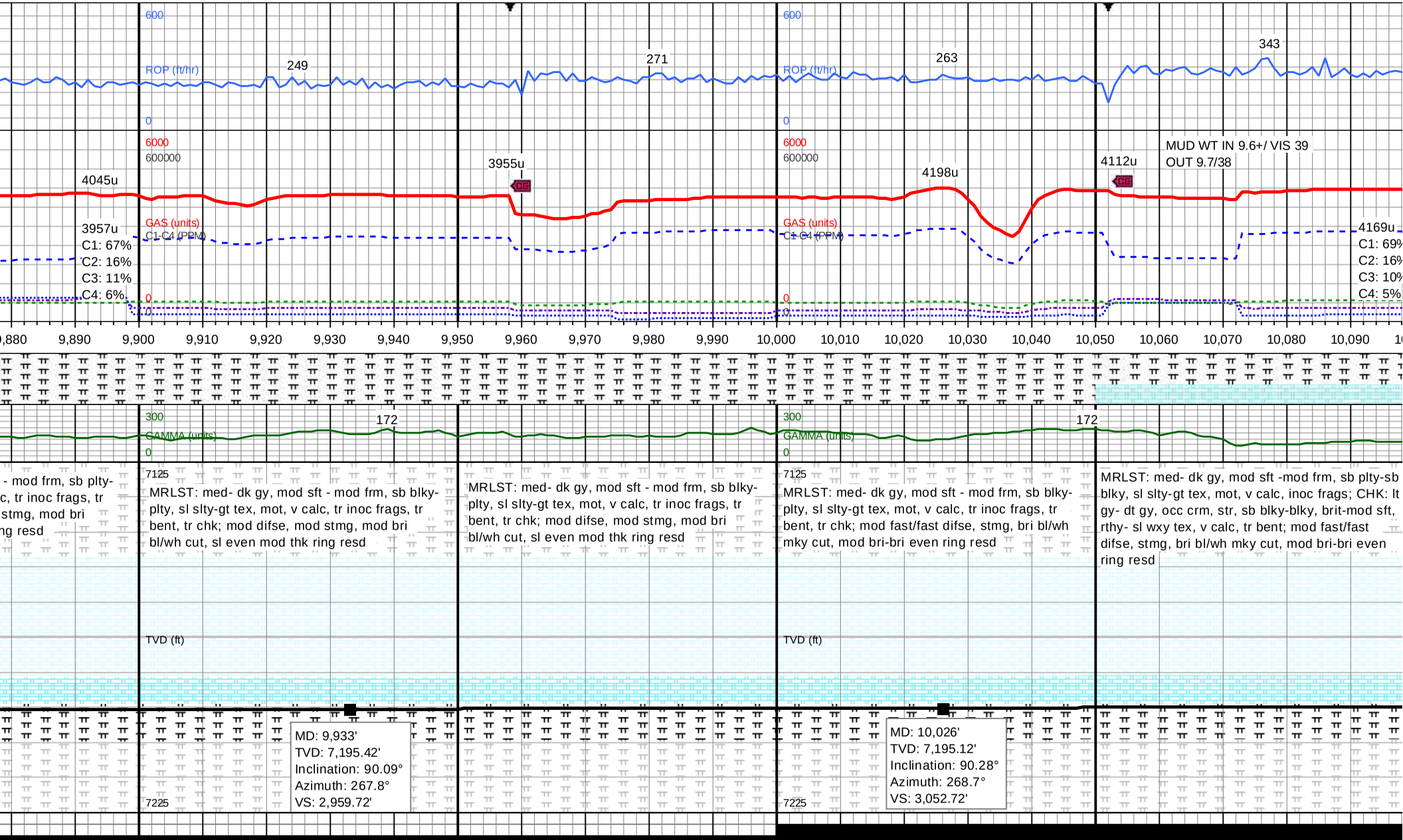
9,590
9,600
9,610
9,620
9,630
9,640
9,650


91
144
134
300
GAMMA (units)
0
7125
7225
TVD (ft)
CHK: lt gy - med gy, crm, str, sb plty-blky, brit, sl sft, sb rthy-sm tex, v calc, tr inoc frags; mod fast/fast difse, mod stmg, bri bl/wh mky cut, mod bri-bri sl even ring resd
MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, inoc frags; CHK: lt gy- dt gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, inoc frags; CHK: lt gy- dt gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr bent, rr dissm pyr; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, inoc frags, tr bent, tr chk; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
MD: 9,460'
TVD: 7,198.51'
Inclination: 90.52°
Azimuth: 268.83°
VS: 2,486.83'
MD: 9,555'
TVD: 7,197.72'
Inclination: 90.43°
Azimuth: 269.93°
VS: 2,581.79'
MD: 9,650'
TVD: 7,196.99'
Inclination: 90.46°
Azimuth: 268.71°
VS: 2,676.75'


600
ROP (ft/hr)
0
213
346
321
229
247
MUD WT IN 9.6/ VIS 37
OUT 9.6/39
3756u
3174u
C1: 66%
C2: 18%
C3: 12%
C4: 4%
600000
GAS (units)
C1-C4 (PPM)
4027u
3867u
4066u
3984u
6000
9,660
9,670
9,680
9,690
9,700
9,710
9,720
9,730
9,740
9,750
9,760
9,770
9,780
9,790
9,800
9,810
9,820
9,830
9,840
9,850
9,860
9,870
300
GAMMA (units)
130
147
7125
7225
TVD (ft)
MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, inoc frags, tr bent, tr chk; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, inoc frags; CHK: lt gy- dt gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MRLST: med- dk gy, mod sft - mod frm, sb plty-blky, sl slty-gt tex, mot, v calc, tr inoc frags, tr bent, tr chk; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
MD: 9,743'
TVD: 7,196.24'
Inclination: 90.46°
Azimuth: 268.78°
VS: 2,769.74'
MD: 9,838'
TVD: 7,195.68'
Inclination: 90.22°
Azimuth: 268.38°
VS: 2,864.72'


600
ROP (ft/hr)
0
249
271
263
343
6000
600000
GAS (units)
C1-C4 (PPM)
4045u
3957u
C1: 67%
C2: 16%
C3: 11%
C4: 6%
3955u
4198u
4112u
MUD WT IN 9.6+/ VIS 39
OUT 9.7/38
4169u
C1: 69%
C2: 16%
C3: 10%
C4: 5%
9,880
9,890
9,900
9,910
9,920
9,930
9,940
9,950
9,960
9,970
9,980
9,990
10,000
10,010
10,020
10,030
10,040
10,050
10,060
10,070
10,080
10,090
300
GAMMA (units)
172
7125
7225
TVD (ft)
- mod frm, sb plty-
c, tr inoc frags, tr
stmg, mod bri
ng resd
MRLST: med- dk gy, mod sft - mod frm, sb blky-plty, sl slty-gt tex, mot, v calc, tr inoc frags, tr bent, tr chk; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
MRLST: med- dk gy, mod sft - mod frm, sb blky-plty, sl slty-gt tex, mot, v calc, tr inoc frags, tr bent, tr chk; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
MRLST: med- dk gy, mod sft - mod frm, sb blky-plty, sl slty-gt tex, mot, v calc, tr inoc frags, tr bent, tr chk; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, inoc frags; CHK: lt gy- dt gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
MD: 9,933'
TVD: 7,195.42'
Inclination: 90.09°
Azimuth: 267.8°
VS: 2,959.72'
MD: 10,026'
TVD: 7,195.12'
Inclination: 90.28°
Azimuth: 268.7°
VS: 3,052.72'

600
ROP (ft/hr)
276
340
303
292
0
6000
600000
4182u
MUD WT IN 9.6+/ VIS 39
OUT 9.7+/39
4042u
4260u
4301u
4254u
C1: 68%
C2: 16%
C3: 10%
C4: 6%
GAS (units)
C1-C4 (PPM)

10,100 10,110 10,120 10,130 10,140 10,150 10,160 10,170 10,180 10,190 10,200 10,210 10,220 10,230 10,240 10,250 10,260 10,270 10,280 10,290 10,300 10,310

300
GAMMA (units)
112
106
0

7125

CHK: lt gy- dt/med gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc; MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, tr inoc frags, com bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd

CHK: lt gy- dt/med gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc; MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, tr-com inoc frags, com bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd

MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, inoc frags; CHK: lt gy- dt gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, com bent; mod difse, mod stmg, mod bri bl/wh cut, even ring resd

MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, sl slty-gt tex, mot, v calc, com inoc frags; CHK: lt gy- dt gy, occ crm, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, com bent; mod difse, mod stmg, mod bri bl/wh cut, even ring resd

CHK: pred dt gy, c
brit-mod sft, rthy-
med- dk gy, mod s
slty-gt tex, mot, v
mod difse, mod st
mod thk ring resd

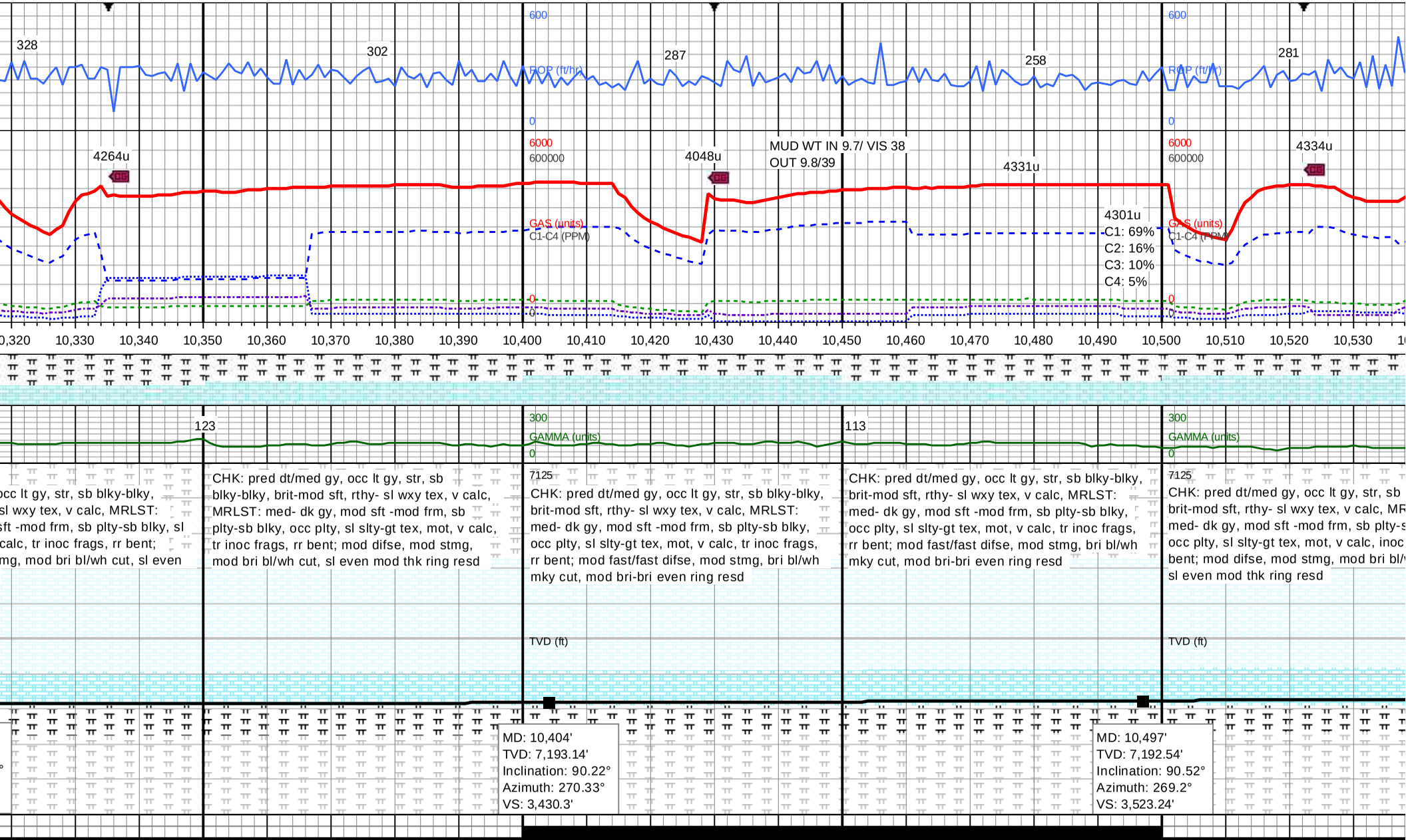
TVD (ft)

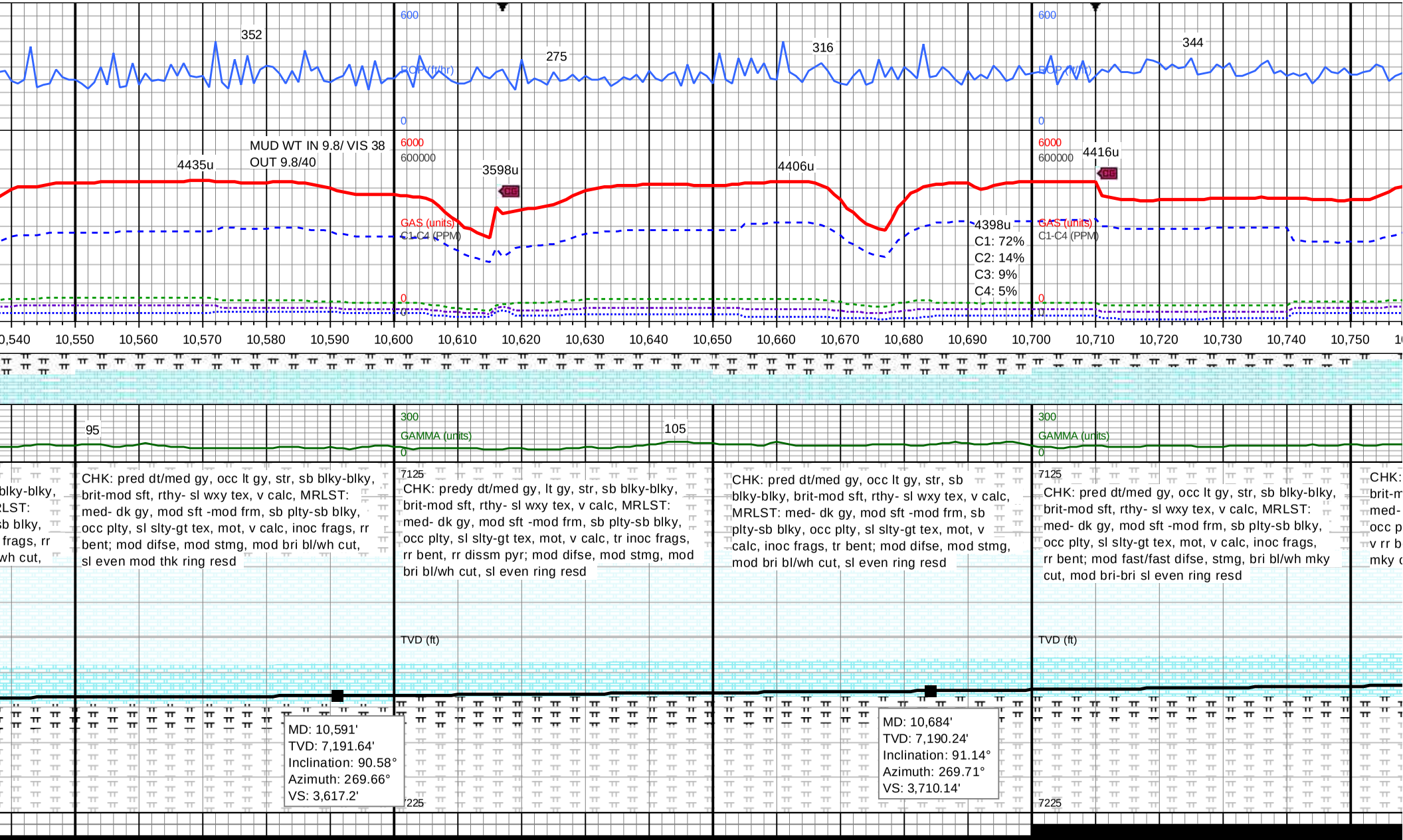
MD: 10,120'
TVD: 7,194.59'
Inclination: 90.37°
Azimuth: 269.82°
VS: 3,146.69'

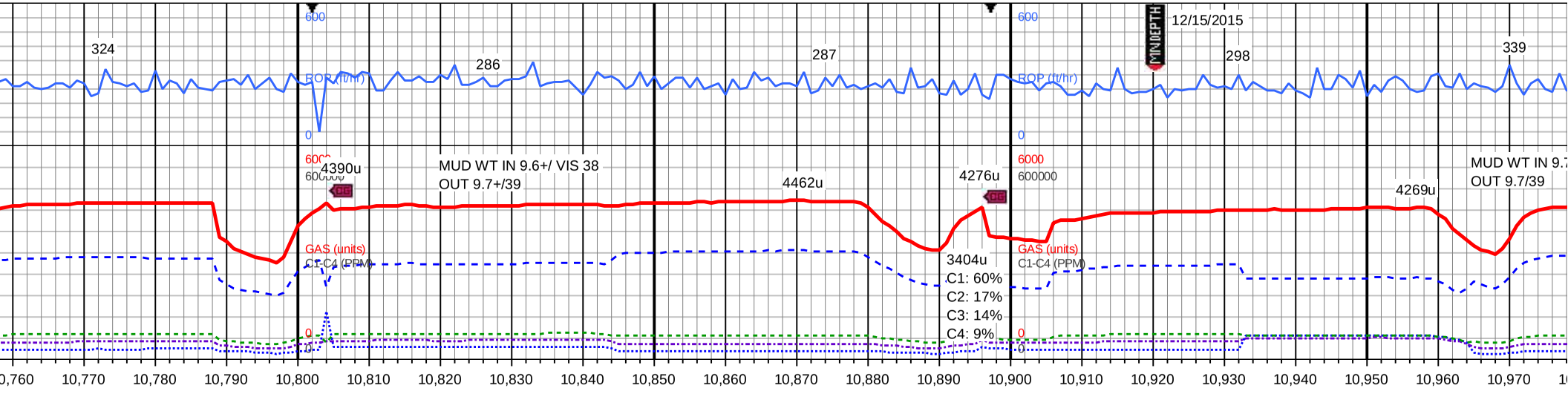
MD: 10,214'
TVD: 7,193.95'
Inclination: 90.4°
Azimuth: 271.26°
VS: 3,240.57'

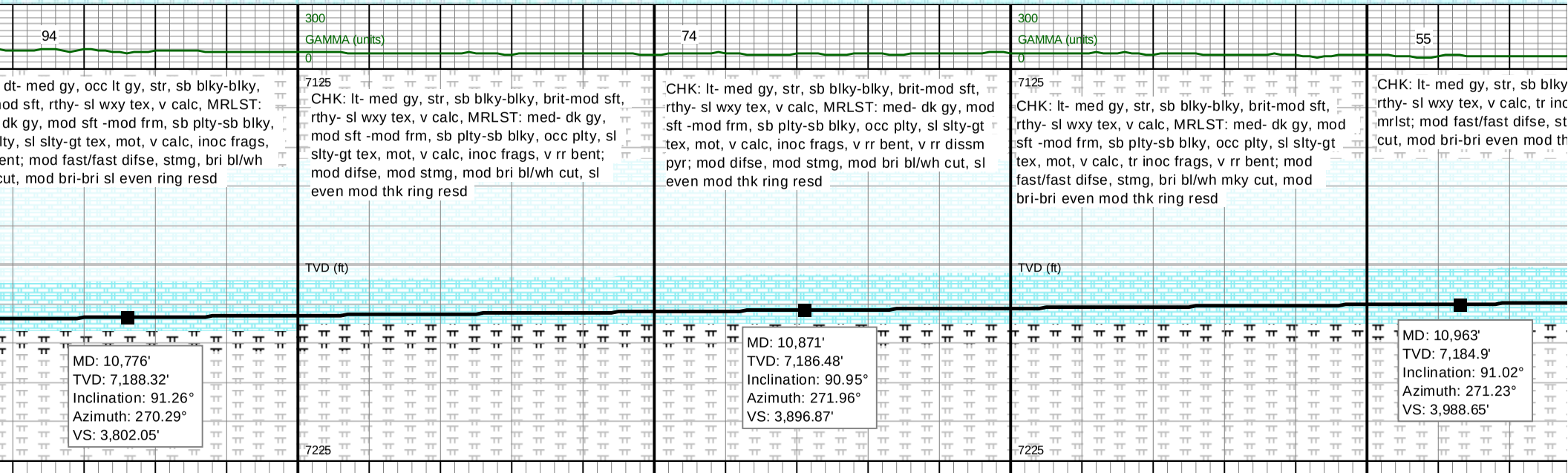
MD: 10,309'
TVD: 7,193.47'
Inclination: 90.18
Azimuth: 270.99°
VS: 3,335.41'

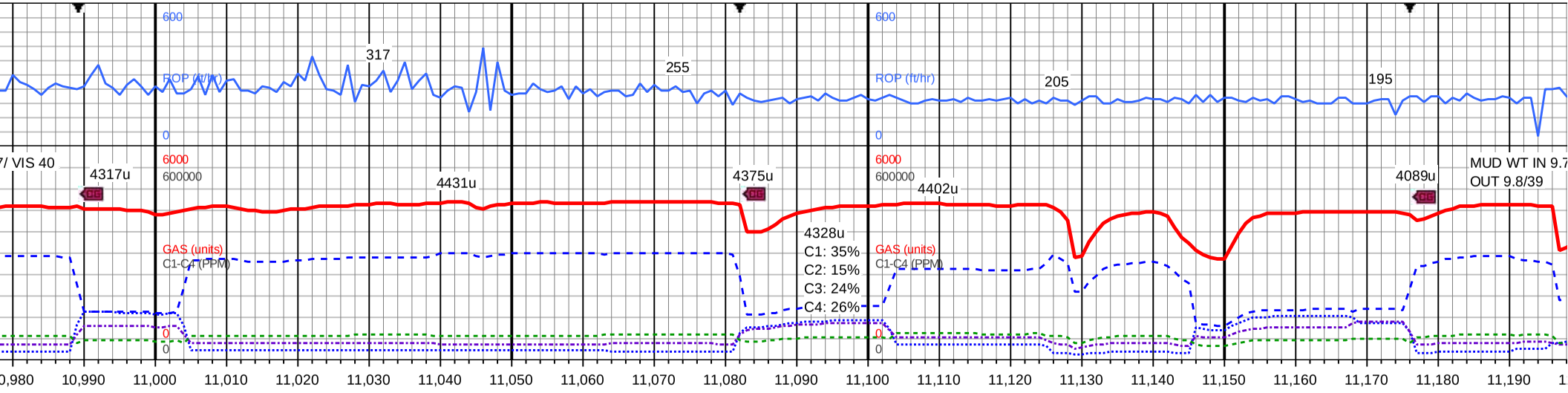
7225

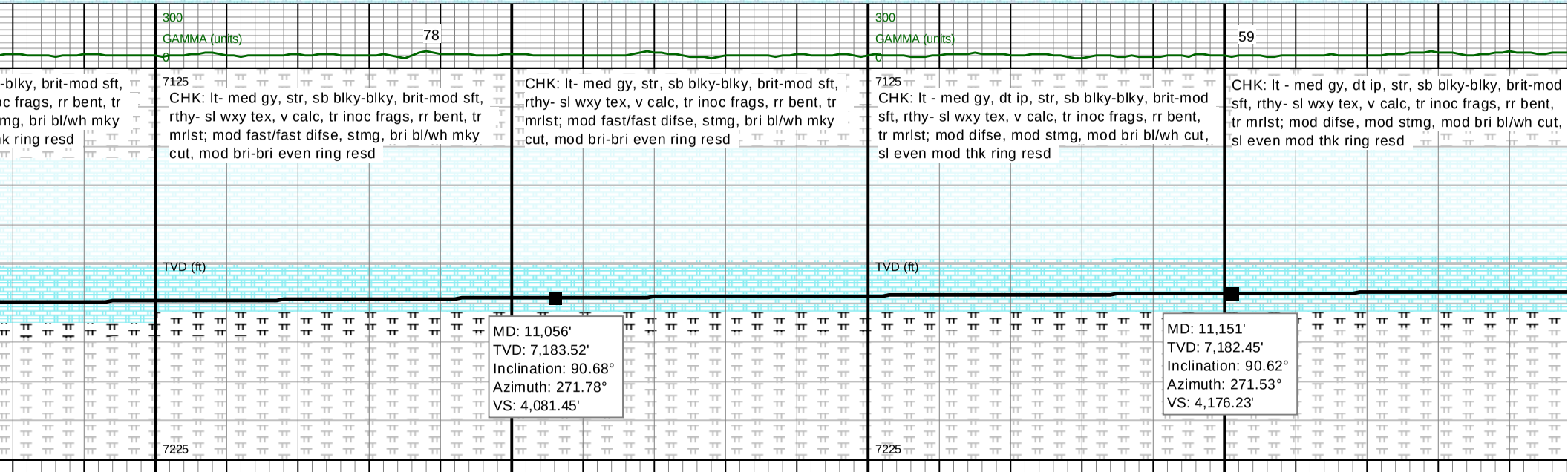

600
ROP (ft/hr)
0
328
302
287
258
281
6000
600000
GAS (units)
C1-C4 (PPM)
4264u
4048u
MUD WT IN 9.7/ VIS 38
OUT 9.8/39
4331u
4334u
4301u
C1: 69%
C2: 16%
C3: 10%
C4: 5%
0
10,320
10,330
10,340
10,350
10,360
10,370
10,380
10,390
10,400
10,410
10,420
10,430
10,440
10,450
10,460
10,470
10,480
10,490
10,500
10,510
10,520
10,530
300
GAMMA (units)
123
113
7125
TVD (ft)
occ lt gy, str, sb blky-blky, sl wxy tex, v calc, MRLST: sft -mod frm, sb plty-sb blky, sl calc, tr inoc frags, rr bent; mg, mod bri bl/wh cut, sl even
CHK: pred dt/med gy, occ lt gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, tr inoc frags, rr bent; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: pred dt/med gy, occ lt gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, tr inoc frags, rr bent; mod fast/fast difse, mod stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: pred dt/med gy, occ lt gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, tr inoc frags, rr bent; mod fast/fast difse, mod stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: pred dt/med gy, occ lt gy, str, sb brit-mod sft, rthy- sl wxy tex, v calc, MR med- dk gy, mod sft -mod frm, sb plty-s occ plty, sl slty-gt tex, mot, v calc, inoc bent; mod difse, mod stmg, mod bri bl/ sl even mod thk ring resd
MD: 10,404'
TVD: 7,193.14'
Inclination: 90.22°
Azimuth: 270.33°
VS: 3,430.3'
MD: 10,497'
TVD: 7,192.54'
Inclination: 90.52°
Azimuth: 269.2°
VS: 3,523.24'

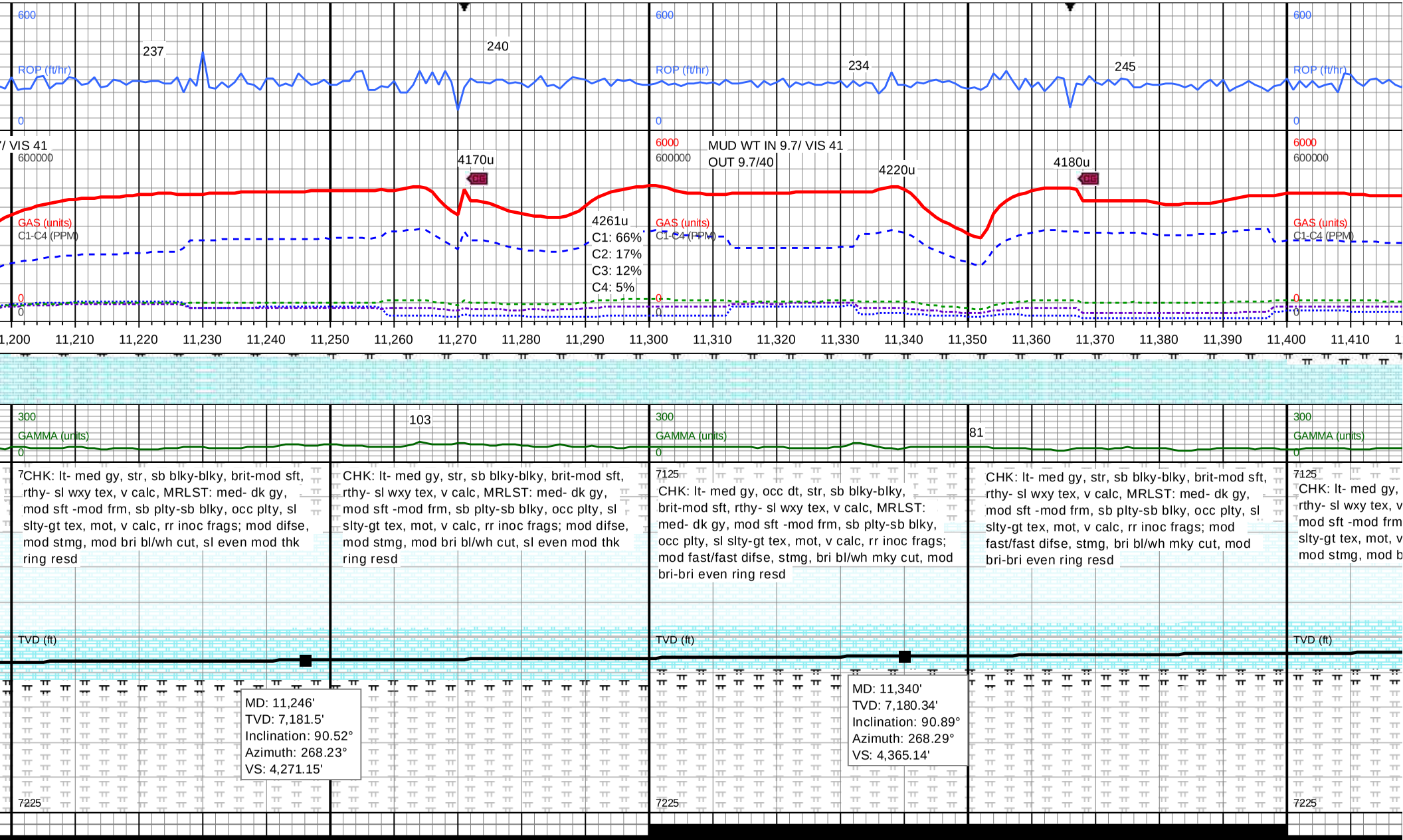

600
ROP (ft/hr)
0
352
275
316
344
6000
600000
GAS (units)
C1-C4 (PPM)
MUD WT IN 9.8/ VIS 38
OUT 9.8/40
4435u
3598u
4406u
4398u
C1: 72%
C2: 14%
C3: 9%
C4: 5%
4416u
BIT
10,540
10,550
10,560
10,570
10,580
10,590
10,600
10,610
10,620
10,630
10,640
10,650
10,660
10,670
10,680
10,690
10,700
10,710
10,720
10,730
10,740
10,750
300
GAMMA (units)
95
105
7125
TVD (ft)
7225
CHK: pred dt/med gy, occ lt gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, rr bent; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: predy dt/med gy, lt gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, tr inoc frags, rr bent, rr dissm pyr; mod difse, mod stmg, mod bri bl/wh cut, sl even ring resd
CHK: pred dt/med gy, occ lt gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, tr bent; mod difse, mod stmg, mod bri bl/wh cut, sl even ring resd
CHK: pred dt/med gy, occ lt gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, rr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri sl even ring resd
MD: 10,591'
TVD: 7,191.64'
Inclination: 90.58°
Azimuth: 269.66°
VS: 3,617.2'
MD: 10,684'
TVD: 7,190.24'
Inclination: 91.14°
Azimuth: 269.71°
VS: 3,710.14'

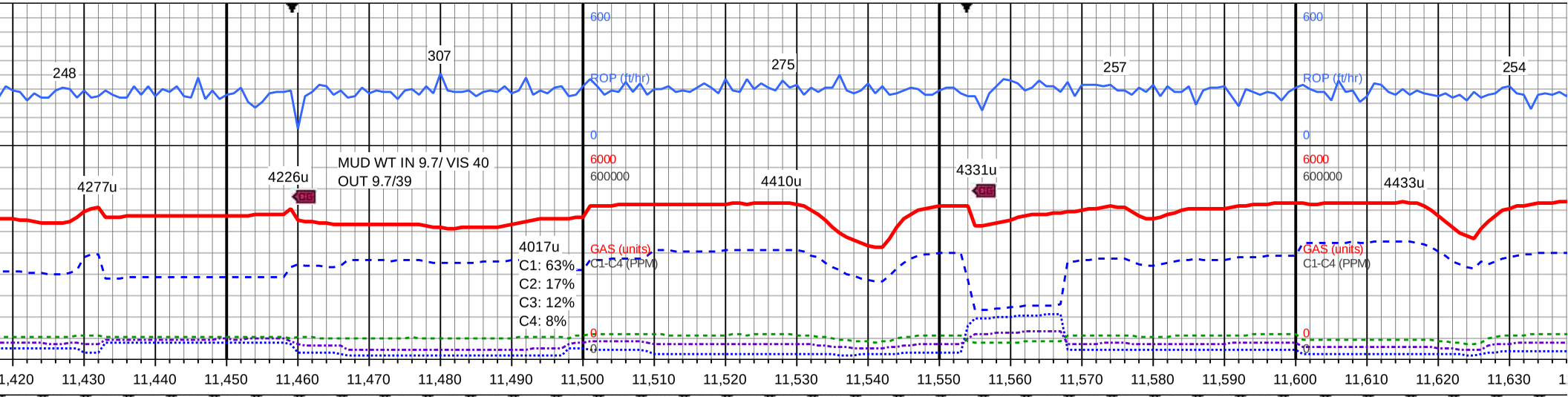

324
286
287
298
339
12/15/2015
MIN DEPTH
600
ROP (ft/hr)
0
6000
600000
4390u
MUD WT IN 9.6+/ VIS 38
OUT 9.7+/39
4462u
4276u
4269u
MUD WT IN 9.7
OUT 9.7/39
GAS (units)
C1-C4 (PPM)
3404u
C1: 60%
C2: 17%
C3: 14%
C4: 9%
10,760
10,770
10,780
10,790
10,800
10,810
10,820
10,830
10,840
10,850
10,860
10,870
10,880
10,890
10,900
10,910
10,920
10,930
10,940
10,950
10,960
10,970

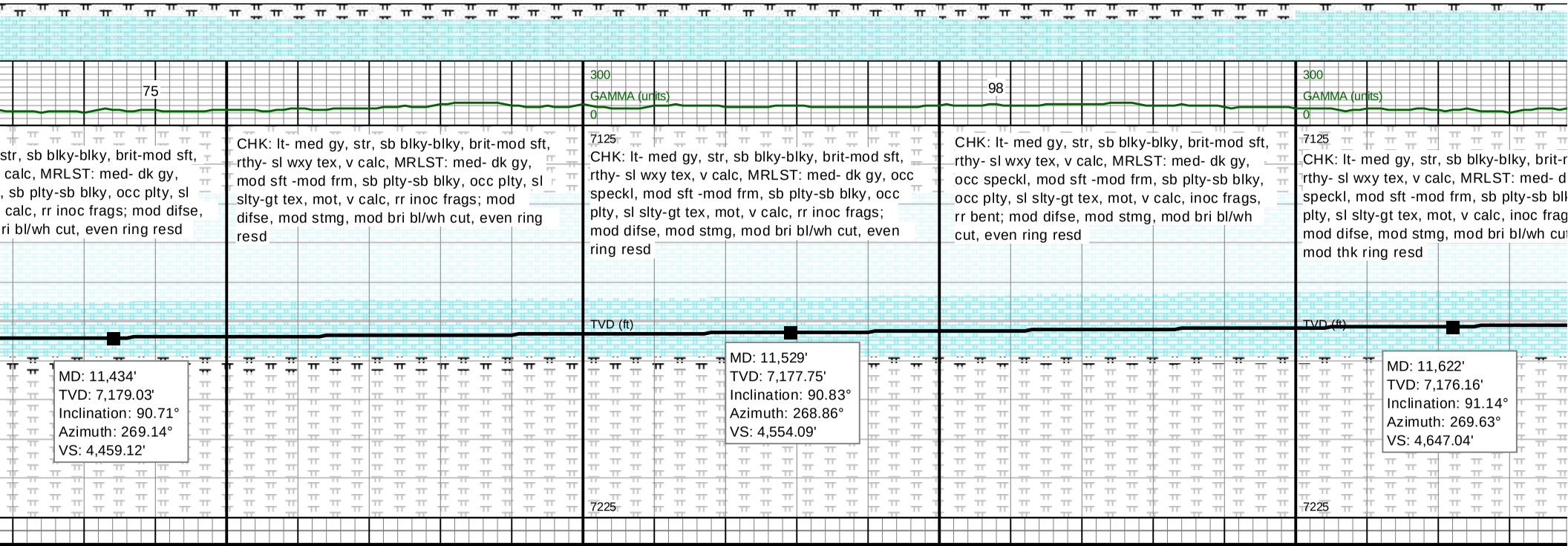

94
74
55
300
GAMMA (units)
0
7125
7225
TVD (ft)
dt- med gy, occ lt gy, str, sb blky-blky,
od sft, rthy- sl wxy tex, v calc, MRLST:
dk gy, mod sft -mod frm, sb plty-sb blky,
lty, sl slty-gt tex, mot, v calc, inoc frags,
ent; mod fast/fast difse, stmg, bri bl/wh
cut, mod bri-bri sl even ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, v rr bent; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, v rr bent, v rr dissm pyr; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, tr inoc frags, v rr bent; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even mod thk ring resd
CHK: lt- med gy, str, sb blky
rthy- sl wxy tex, v calc, tr ino
mrlst; mod fast/fast difse, st
cut, mod bri-bri even mod th
MD: 10,776'
TVD: 7,188.32'
Inclination: 91.26°
Azimuth: 270.29°
VS: 3,802.05'
MD: 10,871'
TVD: 7,186.48'
Inclination: 90.95°
Azimuth: 271.96°
VS: 3,896.87'
MD: 10,963'
TVD: 7,184.9'
Inclination: 91.02°
Azimuth: 271.23°
VS: 3,988.65'

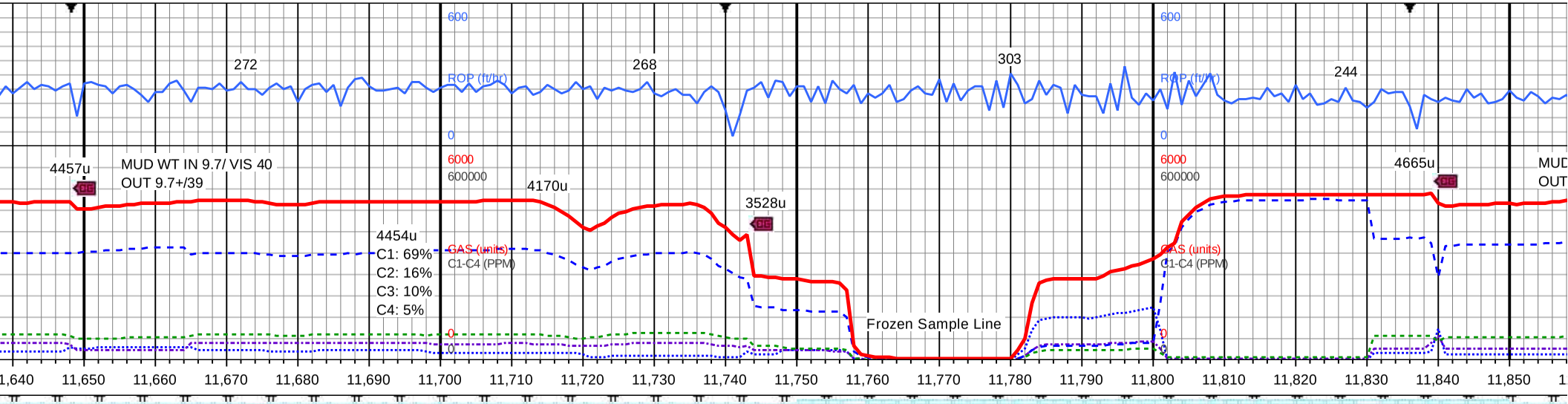

600
ROP (ft/hr)
0
317
255
205
195
7/ VIS 40
4317u
6000
600000
4431u
4375u
4402u
4089u
MUD WT IN 9.7
OUT 9.8/39
4328u
C1: 35%
C2: 15%
C3: 24%
C4: 26%
GAS (units)
C1-C4 (PPM)
0
10,980
10,990
11,000
11,010
11,020
11,030
11,040
11,050
11,060
11,070
11,080
11,090
11,100
11,110
11,120
11,130
11,140
11,150
11,160
11,170
11,180
11,190

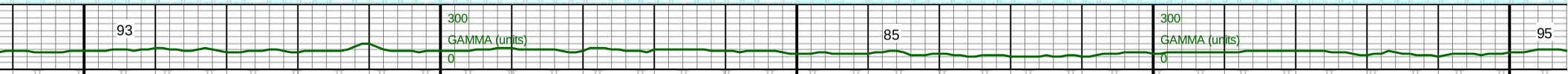

300
GAMMA (units)
0
78
59
-blky, brit-mod sft,
oc frags, rr bent, tr
mg, bri bl/wh mky
k ring resd
7125
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr inoc frags, rr bent, tr mrlst; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr inoc frags, rr bent, tr mrlst; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: lt - med gy, dt ip, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr inoc frags, rr bent, tr mrlst; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: lt - med gy, dt ip, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, tr inoc frags, rr bent, tr mrlst; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
TVD (ft)
MD: 11,056'
TVD: 7,183.52'
Inclination: 90.68°
Azimuth: 271.78°
VS: 4,081.45'
MD: 11,151'
TVD: 7,182.45'
Inclination: 90.62°
Azimuth: 271.53°
VS: 4,176.23'
7225


600
ROP (ft/hr)
0
237
240
234
245
/ VIS 41
600000
4170u
MUD WT IN 9.7/ VIS 41
OUT 9.7/40
4220u
4180u
6000
GAS (units)
C1-C4 (PPM)
4261u
C1: 66%
C2: 17%
C3: 12%
C4: 5%
11,200
11,210
11,220
11,230
11,240
11,250
11,260
11,270
11,280
11,290
11,300
11,310
11,320
11,330
11,340
11,350
11,360
11,370
11,380
11,390
11,400
11,410
300
GAMMA (units)
103
81
7125
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, rr inoc frags; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, rr inoc frags; mod difse, mod stmg, mod bri bl/wh cut, sl even mod thk ring resd
CHK: lt- med gy, occ dt, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, rr inoc frags; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, rr inoc frags; mod fast/fast difse, stmg, bri bl/wh mky cut, mod bri-bri even ring resd
TVD (ft)
MD: 11,246'
TVD: 7,181.5'
Inclination: 90.52°
Azimuth: 268.23°
VS: 4,271.15'
MD: 11,340'
TVD: 7,180.34'
Inclination: 90.89°
Azimuth: 268.29°
VS: 4,365.14'
7225


248
307
275
257
254
600
ROP (ft/hr)
0
6000
600000
4277u
4226u
MUD WT IN 9.7/ VIS 40
OUT 9.7/39
4017u
C1: 63%
C2: 17%
C3: 12%
C4: 8%
4410u
4331u
4433u
GAS (units)
C1-C4 (PPM)
11,420
11,430
11,440
11,450
11,460
11,470
11,480
11,490
11,500
11,510
11,520
11,530
11,540
11,550
11,560
11,570
11,580
11,590
11,600
11,610
11,620
11,630


75
98
300
GAMMA (units)
0
7125
7225
TVD (ft)
str, sb blky-blky, brit-mod sft,
calc, MRLST: med- dk gy,
, sb plty-sb blky, occ plty, sl
calc, rr inoc frags; mod difse,
ri bl/wh cut, even ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, rr inoc frags; mod difse, mod stmg, mod bri bl/wh cut, even ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, occ speckl, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, rr inoc frags; mod difse, mod stmg, mod bri bl/wh cut, even ring resd
CHK: lt- med gy, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, occ speckl, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, rr bent; mod difse, mod stmg, mod bri bl/wh cut, even ring resd
CHK: lt- med gy, str, sb blky-blky, brit-r
rthy- sl wxy tex, v calc, MRLST: med- d
speckl, mod sft -mod frm, sb plty-sb blk
plty, sl slty-gt tex, mot, v calc, inoc frag
mod difse, mod stmg, mod bri bl/wh cu
mod thk ring resd
MD: 11,434'
TVD: 7,179.03'
Inclination: 90.71°
Azimuth: 269.14°
VS: 4,459.12'
MD: 11,529'
TVD: 7,177.75'
Inclination: 90.83°
Azimuth: 268.86°
VS: 4,554.09'
MD: 11,622'
TVD: 7,176.16'
Inclination: 91.14°
Azimuth: 269.63°
VS: 4,647.04'





mod sft,
k gy, occ
ky, occ
s, rr bent;
t, even

CHK: lt- med gy, dt ip, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, occ speckl, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, rr bent, rr dissm pyr; mod difse, mod stmg, mod bri bl/wh cut, even mod thk ring resd

7125

CHK: lt- med gy, dt ip, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, MRLST: med- dk gy, occ speckl, mod sft -mod frm, sb plty-sb blky, occ plty, sl slty-gt tex, mot, v calc, inoc frags, rr bent, rr dissm pyr; mod fast/fast difse, mod stmg, bri bl/wh mky cut, mod bri-bri even ring resd

CHK: lt- med gy, dt ip, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, inoc frags, rr bent, rr dissm pyr, tr mrlst; mod fast/fast difse, mod stmg, bri bl/wh mky cut, mod bri-bri even ring resd

7125

CHK: lt- med gy, dt ip, str, sb blky-blky, brit-mod sft, rthy- sl wxy tex, v calc, inoc frags, rr bent, rr dissm pyr, tr mrlst; mod difse, mod stmg, mod bri bl/wh cut, even ring resd

CHK: lt
sft, rthy
occ sp
occ plty
bent, r
bl/wh c

TVD (ft)

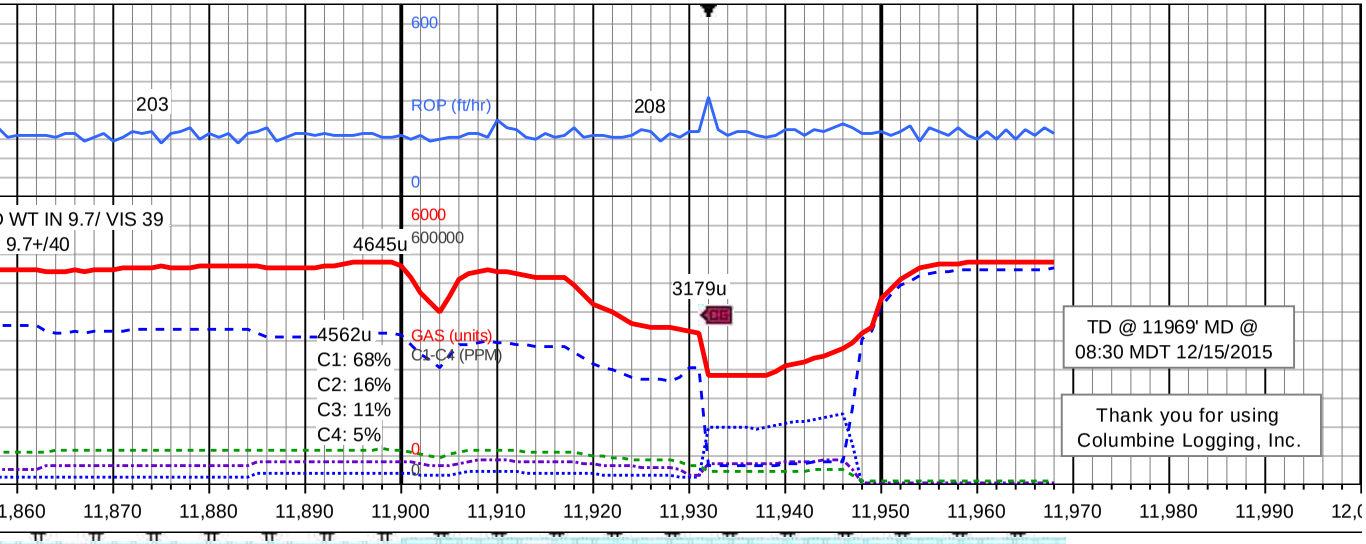
MD: 11,716'
TVD: 7,174.42'
Inclination: 90.98°
Azimuth: 268.84°
VS: 4,741'

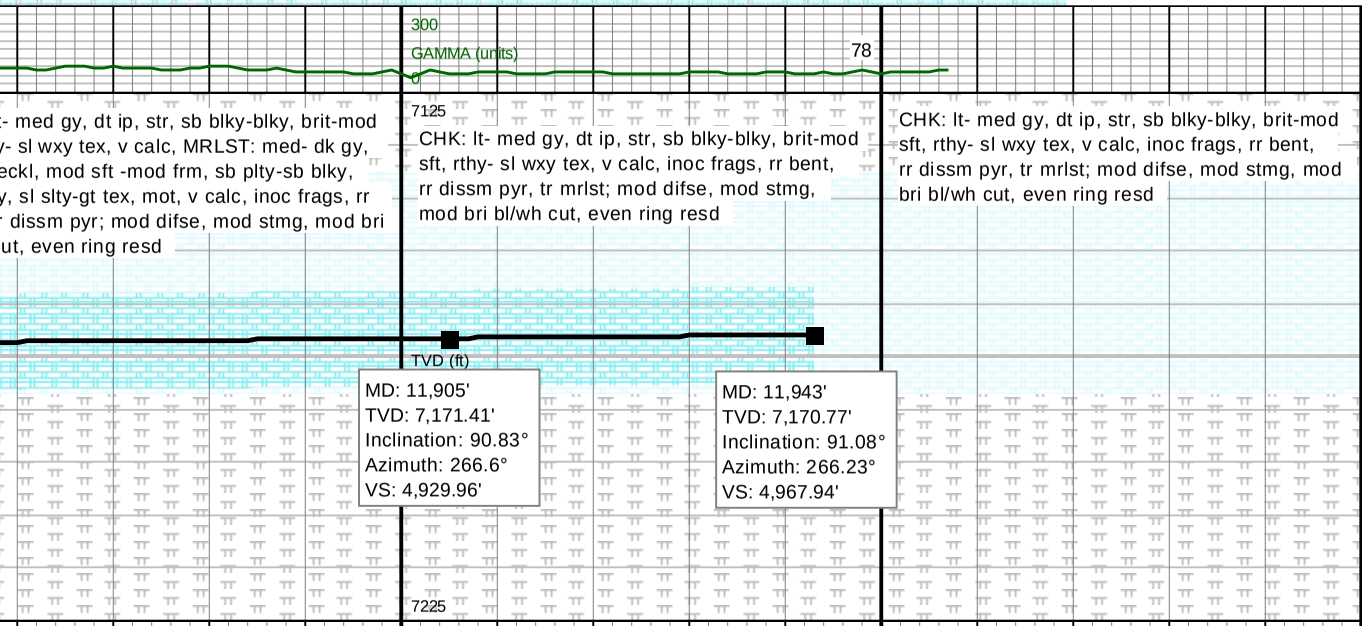
7225

TVD (ft)

MD: 11,811'
TVD: 7,172.84'
Inclination: 90.92°
Azimuth: 268.11°
VS: 4,835.98'

7225


600
ROP (ft/hr)
0
203
208
WT IN 9.7/ VIS 39
9.7+/40
4645u
6000
600000
3179u
4562u
GAS (units)
C1-C4 (PPM)
C1: 68%
C2: 16%
C3: 11%
C4: 5%
0
TD @ 11969' MD @
08:30 MDT 12/15/2015
Thank you for using
Columbine Logging, Inc.
11,860
11,870
11,880
11,890
11,900
11,910
11,920
11,930
11,940
11,950
11,960
11,970
11,980
11,990


300
GAMMA (units)
0
78
7125
- med gy, dt ip, str, sb blky-blky, brit-mod
y- sl wxy tex, v calc, MRLST: med- dk gy,
eckl, mod sft -mod frm, sb plty-sb blky,
y, sl slty-gt tex, mot, v calc, inoc frags, rr
dissm pyr; mod difse, mod stmg, mod bri
ut, even ring resd
CHK: lt- med gy, dt ip, str, sb blky-blky, brit-mod
sft, rthy- sl wxy tex, v calc, inoc frags, rr bent,
rr dissm pyr, tr mrlst; mod difse, mod stmg,
mod bri bl/wh cut, even ring resd
CHK: lt- med gy, dt ip, str, sb blky-blky, brit-mod
sft, rthy- sl wxy tex, v calc, inoc frags, rr bent,
rr dissm pyr, tr mrlst; mod difse, mod stmg, mod
bri bl/wh cut, even ring resd
TVD (ft)
MD: 11,905'
TVD: 7,171.41'
Inclination: 90.83°
Azimuth: 266.6°
VS: 4,929.96'
MD: 11,943'
TVD: 7,170.77'
Inclination: 91.08°
Azimuth: 266.23°
VS: 4,967.94'
7225