Scale 1:600 (2"=100') Metric
Measured Depth Log

Well Name: Turkey Springs 3N-14HZ
Location: Weld County, CO
License Number: 05-123-36691   **Region:** DJ Basin
Spud Date: 06/23/2013   **Drilling Completed:** 6/30/13
Surface Coordinates: 758' FNL; 2178' FEL
Sec 23, T2N, R66W
Bottom Hole 460' FNL; 2015' FWL
Coordinates: Sec 14, T2N, R66W
Ground Elevation (m): 5153'   **K.B. Elevation (m):** 5170'
Logged Interval (m): 8108'   **To:** 12283'   **Total Depth (m):** 12283'
Formation: Niobrara B
Type of Drilling Fluid: Water Based Mud

OPERATOR

Company: Anadarko Petroleum Corporation
Address: Granite Tower
1099 18th St., Suite 1800
Denver, CO 80202

GEOLOGIST

Name: **Justin Robbins / Justin Graf**
Company: **Great Divide Consulting, Inc.**
Address: **P.O. Box 630263**
Highlands Ranch, CO 80163

Comments

ROCK TYPES

Anhy	Clyst	Gyp	Mrlst	Shgy
Bent	Coal	Igne	Salt	Sltst
Brec	Congl	Lmst	Shale	Ss
Cht	Dol	Meta	Shcol	Till

ACCESSORIES

MINERAL
Anhy
Arggrn
Arg
Bent
Bit
Brecfrag
Calc
Carb
Chtdk
Chtlt
Dol
Feldspar
Ferrpel
Ferr
Glau
Gyp

Hvymin
Kaol
Marl
Minxl
Nodule
Phos
Spr calc
Pyr
Salt
Sandy
Silt
Sil
Sulphur
Tuff
New symbol
New symbol

FOSSIL
Algae
Amph
Belm
Bioclst
Brach
Bryozoa
Cephal
Coral
Crin
Echin
Fish
Foram
Fossil
Gastro
Oolite
Ostra

Pelec
Pellet
Pisolite
Plant
Strom

STRINGER
Anhy
Arg
Bent
Coal
Dol
Gyp
Ls
Mrst
Sltstrg
Ssstrg

TEXTURE
Boundst
Chalky
Cryxln
Earthy
Finexln
Grainst
Lithogr
Microxln
Mudst
Packst
Wackest

OTHER SYMBOLS

POROSITY
- E   Earthy
- ▣   Fenest
- F   Fracture
- ⊠   Inter
- ⧄   Moldic
- ⊙   Organic
- P   Pinpoint

- V   Vuggy

SORTING
- W   Well
- M   Moderate
- P   Poor

ROUNDING
- R   Rounded
- r   Subrnd
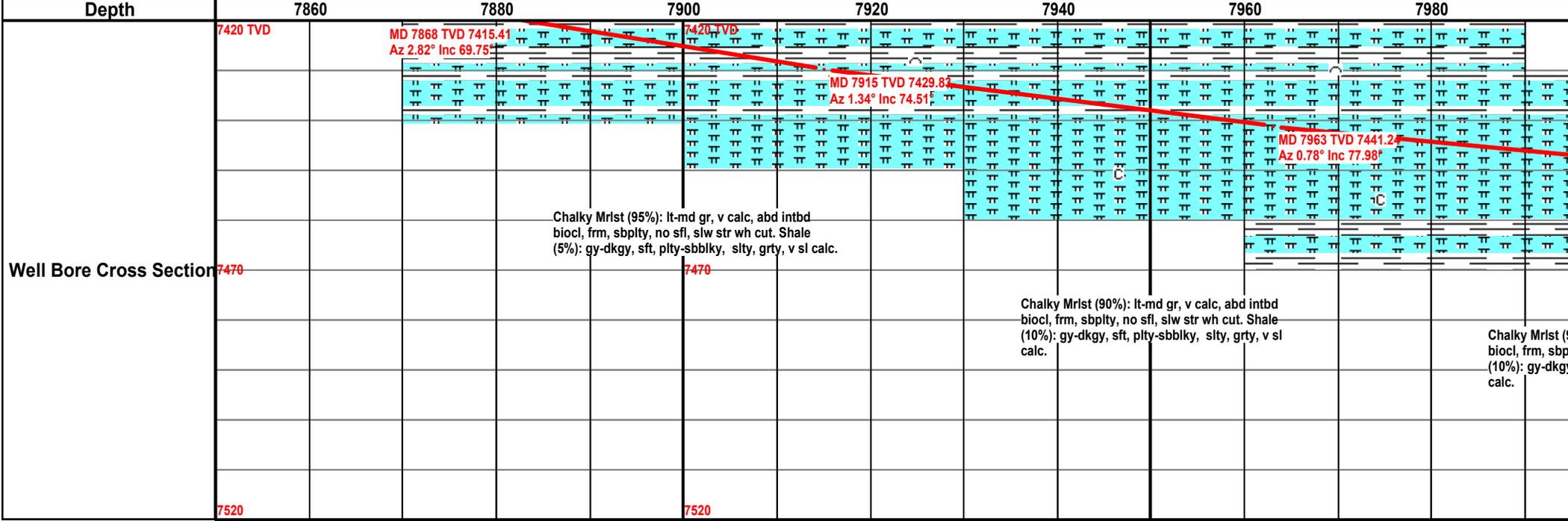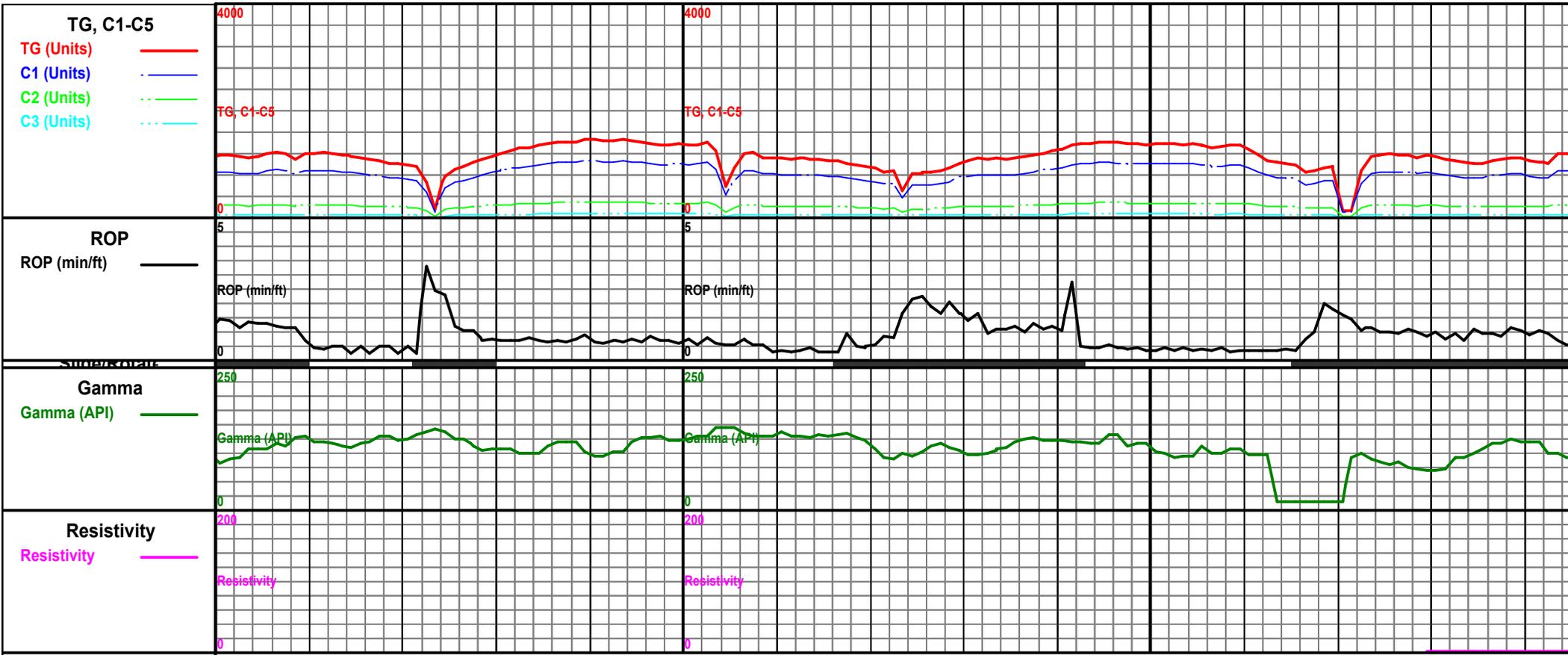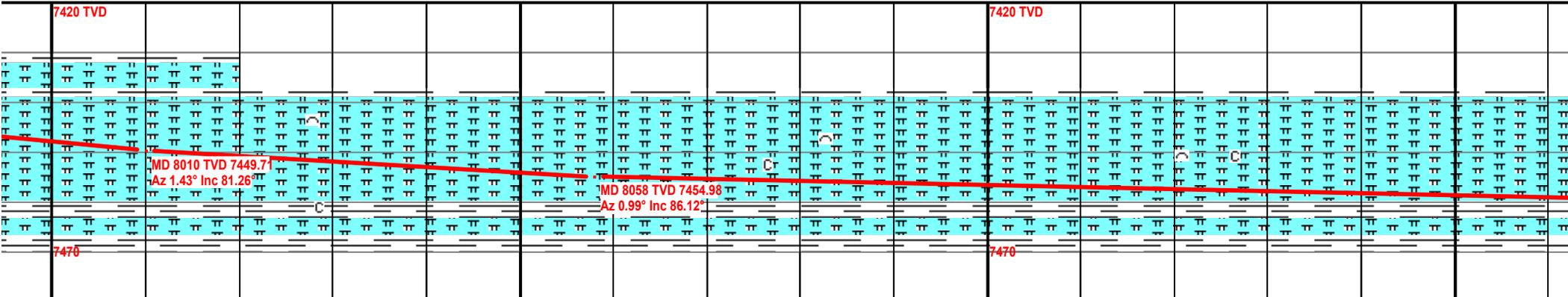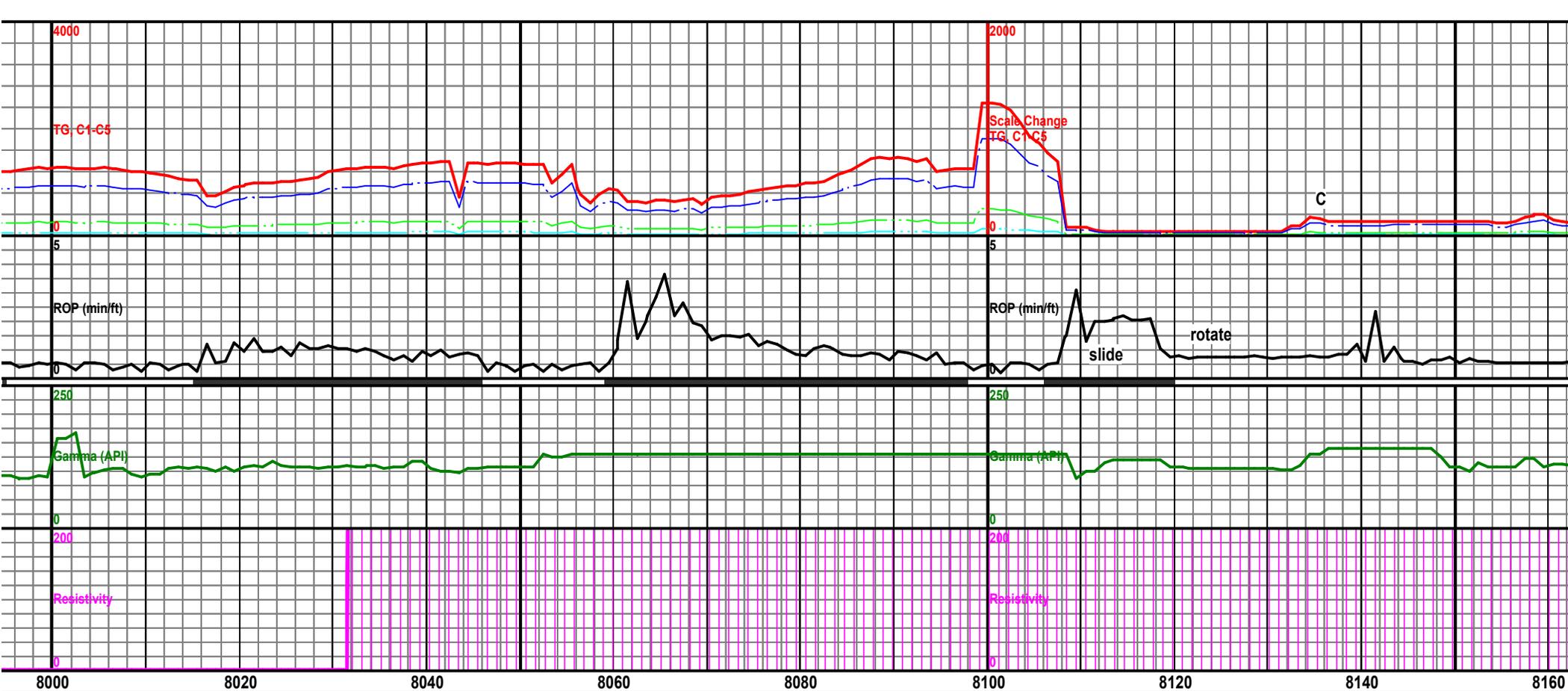- a   Subang
- A   Angular

OIL SHOW
- ◉   Even

- ◑   Spotted
- ◎   Ques
- D   Dead

INTERVAL
- ■   Core
- ⠠   Dst

EVENT
- ▷   Rft
- ▶   Sidewall

TG, C1-C5

- **TG (Units)** ——
- **C1 (Units)** ——
- **C2 (Units)** ——·—·
- **C3 (Units)** ——·—·

4000

TG, C1-C5

0

4000

TG, C1-C5

0

ROP

- **ROP (min/ft)** ——

5

ROP (min/ft)

0

5

ROP (min/ft)

0

Slide/Rotate

Gamma

- **Gamma (API)** ——

250

Gamma (API)

0

250

Gamma (API)

0

Resistivity

- **Resistivity** ——

200

Resistivity

0

200

Resistivity

0

Depth	7860	7880	7900	7920	7940	7960	7980

Well Bore Cross Section

7420 TVD

MD 7868 TVD 7415.41
Az 2.82° Inc 69.75°

7420 TVD

MD 7915 TVD 7429.83
Az 1.34° Inc 74.51°

MD 7963 TVD 7441.24
Az 0.78° Inc 77.98°

Chalky Mrlst (95%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(5%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.
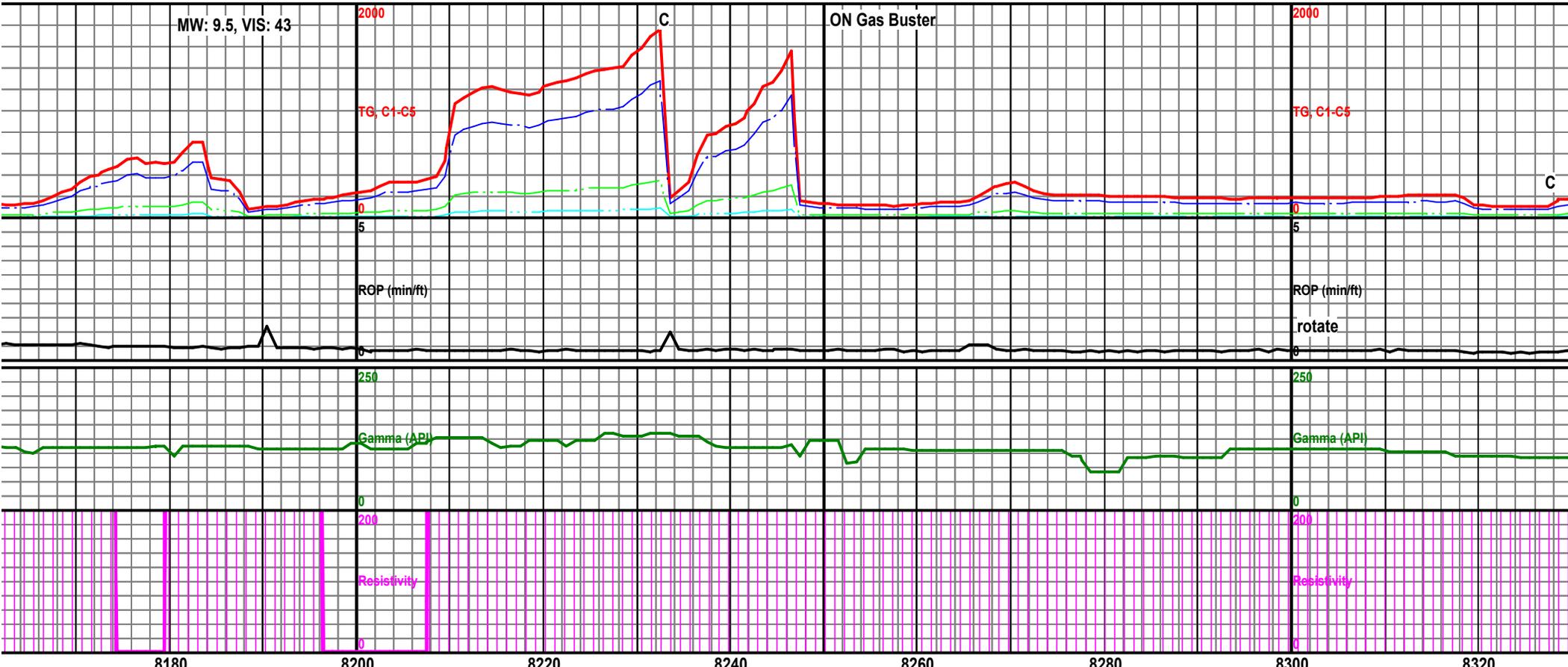
7470

7470

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (9
biocl, frm, sbp
(10%): gy-dkgy
calc.

7520

7520

Top track (gas):
4000 | **2000**
TG, C1-C5 | Scale Change TG, C1-C5
0 | 0 | C

ROP track:
5 | **5**
ROP (min/ft) | ROP (min/ft)
0 | 0 | slide — rotate

Gamma track:
250 | **250**
Gamma (API) | Gamma (API)
0 | 0

Resistivity track:
200 | **200**
Resistivity | Resistivity
0 | 0

Depth scale:
8000 8020 8040 8060 8080 8100 8120 8140 8160

7420 TVD | **7420 TVD**

MD 8010 TVD 7449.71
Az 1.43° Inc 81.26°

MD 8058 TVD 7454.98
Az 0.99° Inc 86.12°

7470 | **7470**

7520 | **7520**

Lithology descriptions:
90%): lt-md gr, v calc, intb
lty, no sfl, slw str wh cut. Shal
, sft, plty-sbblky, slty, grty, v s

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd int biocl, frm, sbplty, no sfl, slw str wh cut. Sh (15%): gy-dkgy, sft, plty-sbblky, slty, grty,

MW: 9.5, VIS: 43

2000

C

ON Gas Buster

2000

C

TG, C1-C5

TG, C1-C5

TG, C1-C5

0

5

0

5

ROP (min/ft)

ROP (min/ft)

rotate

0

0

250

Gamma (API)

250

Gamma (API)

Gamma (API)

0

200

Resistivity

0

200

Resistivity

Resistivity

0

0

| 8180 | 8200 | 8220 | 8240 | 8260 | 8280 | 8300 | 8320 |

7420 TVD

7420 TVD

MD 8185 TVD 7459.93
Az 359.66° Inc 89.57°

MD 8280 TVD 7460.84
Az 0.24° Inc 89.32°

7470

7470

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

7520

7520

1' flare

TG, C1-C5

C

0

5

ROP (min/ft)

rotate

0

250

Gamma (API)

0

200

Resistivity

0

8340   8360   8380   8400   8420   8440   8460   8480

7420 TVD

MD 8374 TVD 7460.94
Az 358.97° Inc 90.56°

MD 8469 TVD 7458.79
Az 358.6° Inc 92.04°
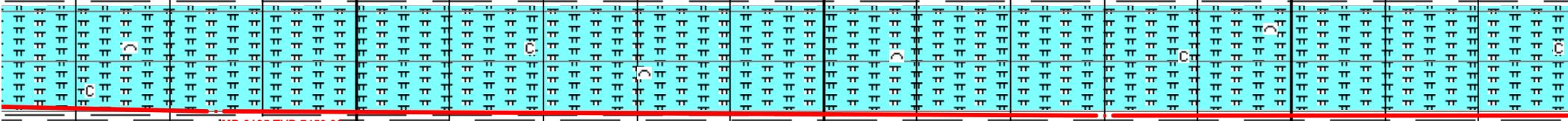
7470

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
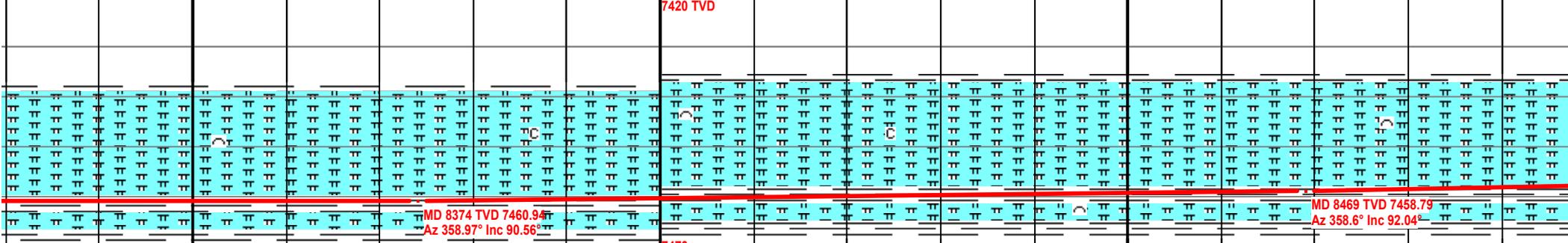calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85
biocl, frm, sbplty
(15%): gy-dkgy, s
calc.

7520

TG, C1-C5

C

0

5

ROP (min/ft)

slide

rotate

0

TG, C1-C5

C

0

5

ROP (min/ft)

slide

rotate

0

250

Gamma (API)

0

250

Gamma (API)

0

200

Resistivity

0

200

Resistivity

0

8500   8520   8540   8560   8580   8600   8620   8640   8660
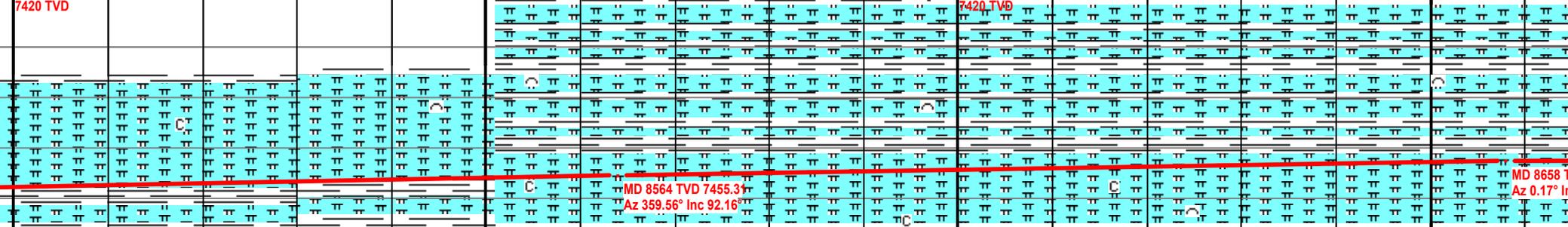
7420 TVD

7420 TVD

MD 8564 TVD 7455.31
Az 359.56° Inc 92.16°

MD 8658 T
Az 0.17° In

7470

7470

7520

7520

%): lt-md gr, v calc, abd intbd
/, no sfl, slw str wh cut. Shal
sft, plty-sbblky, slty, grty, v s

Chalky Mrlst (80%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
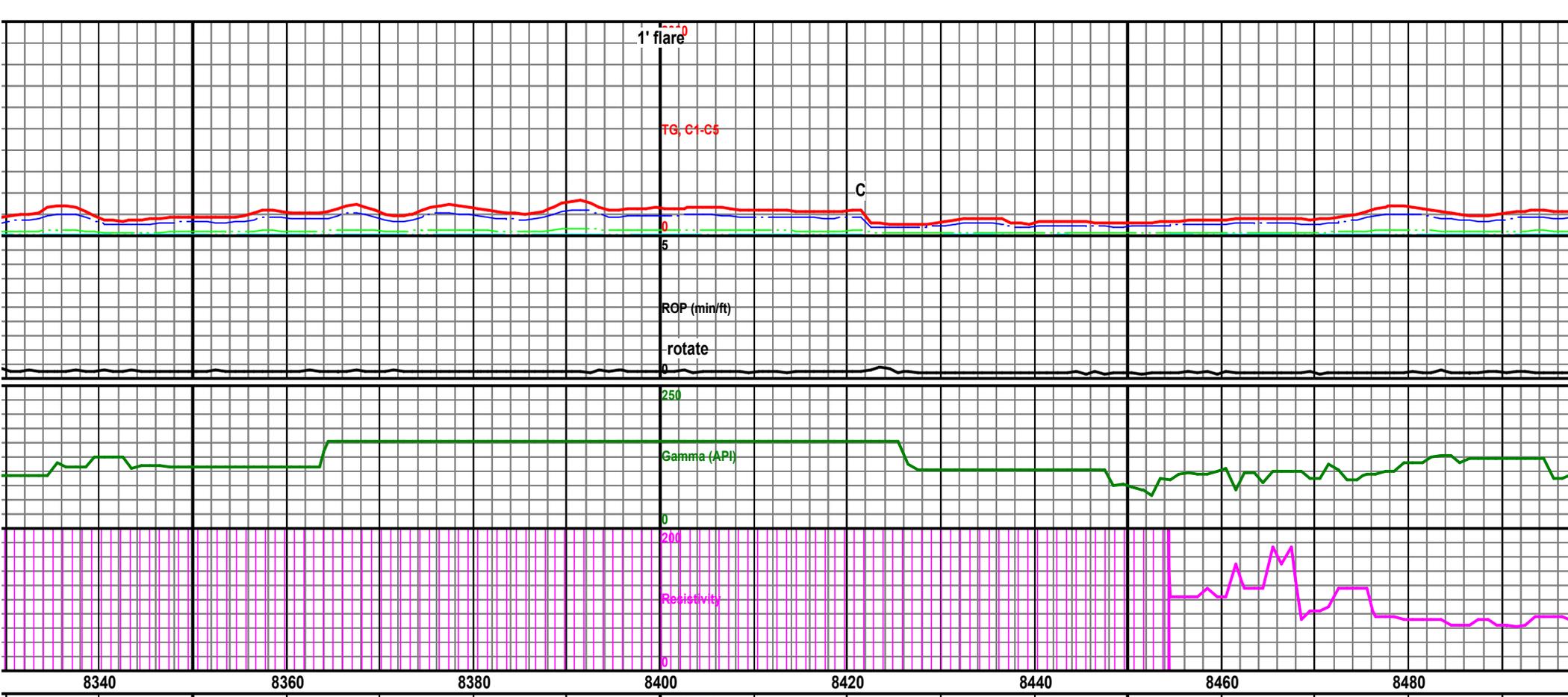(20%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (95%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(5%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v s
calc.

1'-2' flare

TG, C1-C5

C

2000

TG, C1-C5

C

0

5

ROP (min/ft)

slide

rotate

0

ROP (min/ft)

slide

0

5

250

Gamma (API)

0

250

Gamma (API)

0

200

Resistivity

0

200

Resistivity

0

8680   8700   8720   8740   8760   8780   8800   8820

7420 TVD

7420 TVD

TVD 7452.6

Inc 91.11

C

C

MD 8753 TVD 7452.22
Az 0.58° Inc 89.38°

C

C

7470

7470

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

7520

7520

1'-2' flare

MW: 9.5+, VIS: 43

2000

TG, C1-C5

C

0

5

ROP (min/ft)

rotate

slide

rotate

slide

250

Gamma (API)

0
200

Resistivity

0

8840   8860   8880   8900   8920   8940   8960   8980

7420 TVD

MD 8847 TVD 7453.13
Az 359.12° Inc 89.51°

MD 8942 TVD 7454.25
Az 0.54° Inc 89.13°

7470

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.
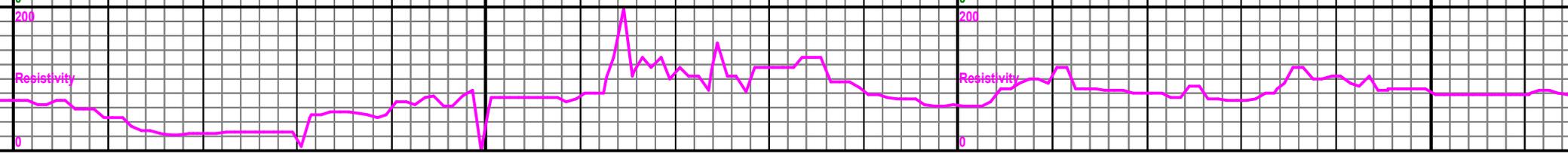
Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, Shale (10%): gy-dkgy, sft, p calc.

7520

MW: 9.6, VIS: 45

no flare

2000

2000

TG, C1-C5

TG, C1-C5

C

5

5

ROP (min/ft)

ROP (min/ft)

rotate

0

0

250

250

Gamma (API)

Gamma (API)

0

0

200

200

Resistivity

Resistivity

0

9020   9040   9060   9080   9100   9120   9140   9160

7420 TVD

7420 TVD

MD 9036 TVD 7455.73
Az 0.93° Inc 89.07°

C

MD 9131 TVD 7456.66
Az 358.54° Inc 89.81°

7470

7470

7520

7520

lt-md gr, v calc, abd intb
sfl, slw str wh cut. Shal
lty-sbblky, slty, grty, v s

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
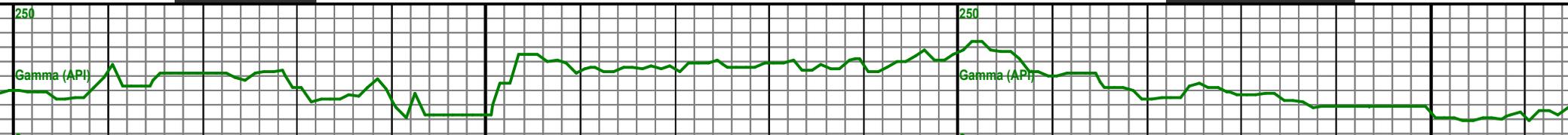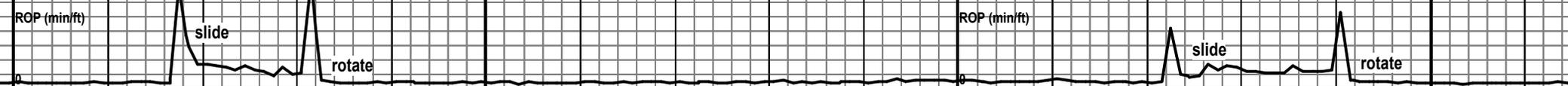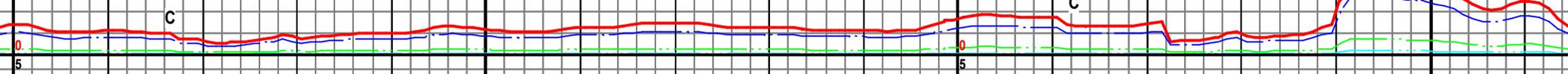(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

MW: 9.6+, VIS: 44

1'-2' flare

2000

TG, C1-C5

C

C

TG, C1-C5

0

0

0

5

5

ROP (min/ft)

slide

silde

rotate

slide

rotate

ROP (min/ft)

rotate

0

0

250

250

Gamma (API)

Gamma (API)

0

0

200

200

Resistivity

Resistivity

0

0

9180   9200   9220   9240   9260   9280   9300   9320

7420 TVD

7420 TVD

MD 9226 TVD 7456.82
Az 0.06° Inc 90°

MD 9320 TVD 7456.61
Az 1.6° Inc 90.25°

7470

7470

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
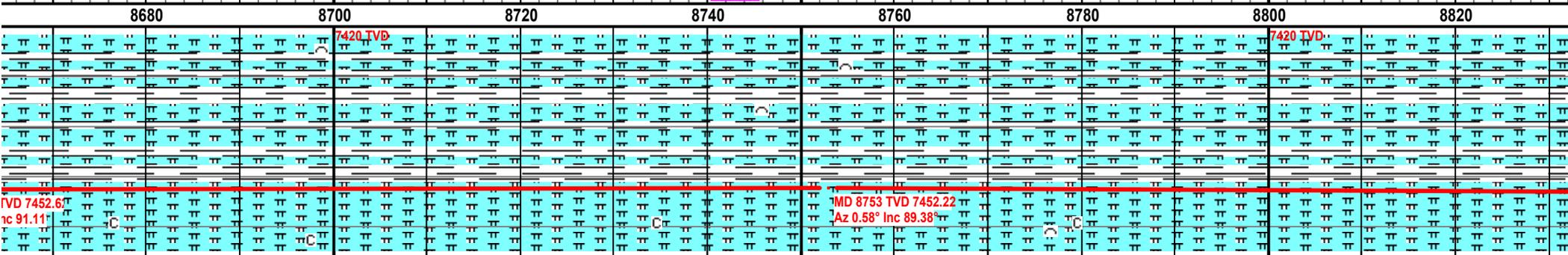(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
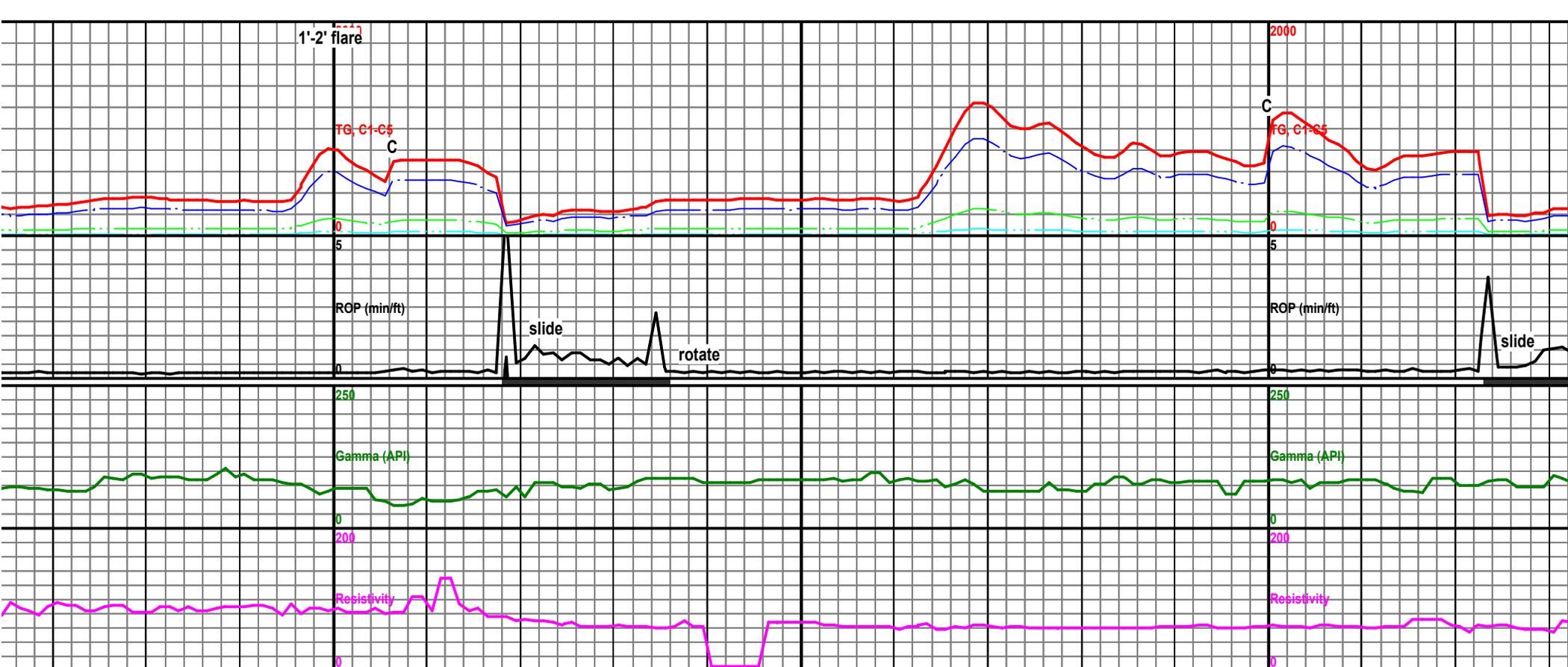calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

7520

7520

MW: 9.6+, VIS: 43

1'-2' flare

2000

TG, C1-C5

C

C

0

5

ROP (min/ft)

slide   rotate

0

250

Gamma (API)

0

200

Resistivity

0

9340	9360	9380	9400	9420	9440	9460	9480	9500

7420 TVD

MD 9415 TVD 7455.94
Az 3.83° Inc 90.56°

7470

7520

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, s
(10%): gy-dkgy, sft, plty-s
calc.

MW: 9.6+, VIS: 42

TG, C1-C5

C

TG, C1-C5

C

2000

0

ROP (min/ft)

slide   rotate

slide   rotate

ROP (min/ft)

5

0

Gamma (API)

Gamma (API)

250

0

Resistivity

Resistivity

200

0

Resistivity

0

9520   9540   9560   9580   9600   9620   9640   9660

7420 TVD

7420 TVD

7470

7470

7520

7520

MD 9509 TVD 7455.08
Az 0.45° Inc 90.49°

MD 9604 TVD 7454.21
Az 3.97° Inc 90.56°

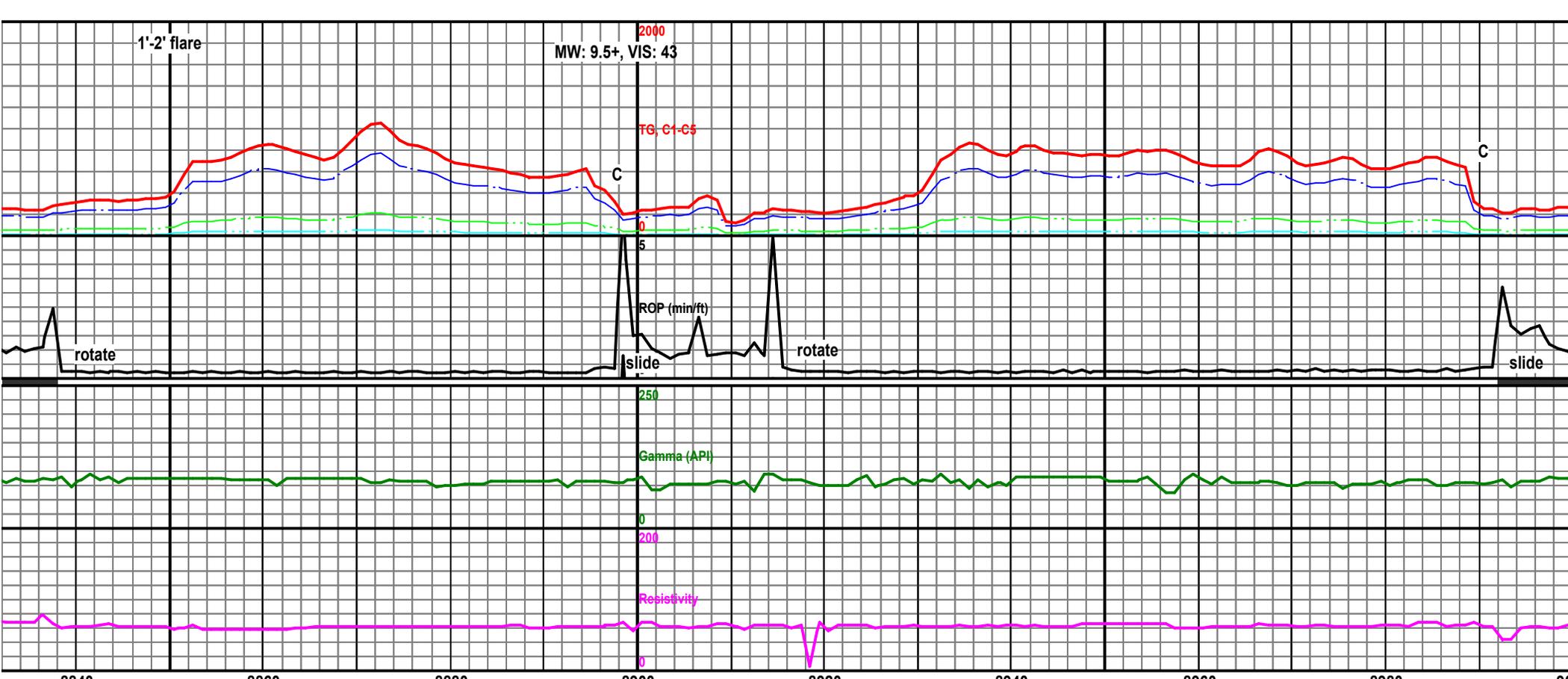gr, v calc, abd intbd
slw str wh cut. Shal
sbblky, slty, grty, v s

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
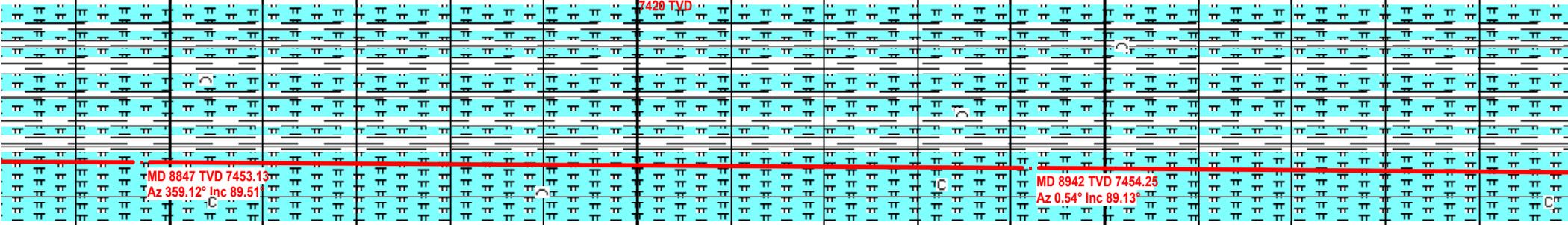(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

MW: 9.6, VIS: 45

2000 | 2000

TG, C1-C5 | TG, C1-C5

C

0 | 0

5 | 5

ROP (min/ft) | ROP (min/ft)

slide | rotate

0 | 0

250 | 250

Gamma (API) | Gamma (API)

0 | 0

200 | 200

Resistivity | Resistivity

0 | 0

9680   9700   9720   9740   9760   9780   9800   9820

7420 TVD | 7420 TVD

MD 9698 TVD 7453.14
Az 2.3° Inc 90.74°

MD 9793 TVD 7453.55
Az 1.61° Inc 88.76°

7470 | 7470

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
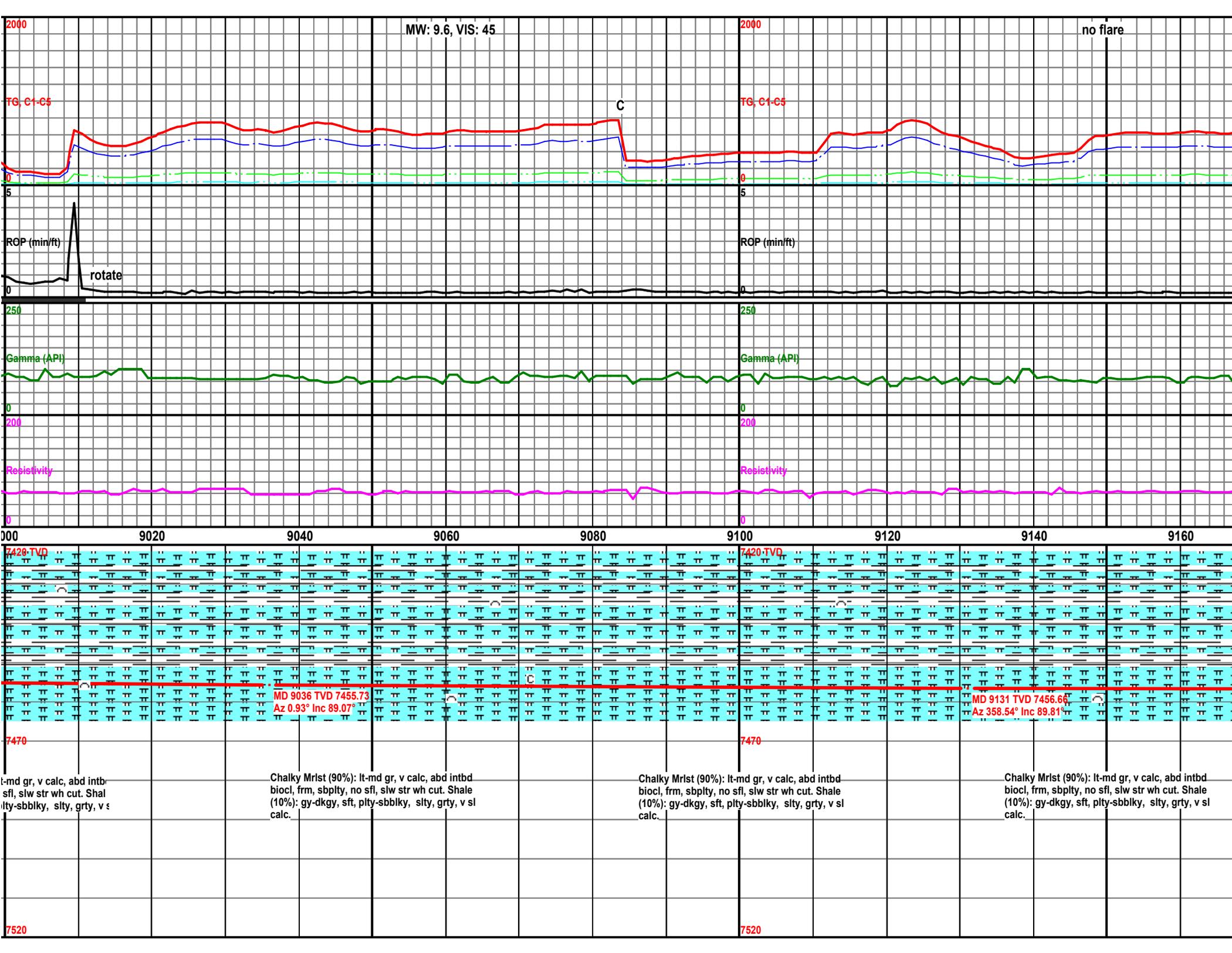(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

C
bi
(1
ca

7520 | 7520

MW: 9.6+, VIS: 44

1' flare

TG, C1-C5

0

5

ROP (min/ft)

slide

rotate

0

250

Gamma (API)

0

200

Resistivity

0

9840 9860 9880 9900 9920 9940 9960 9980 10000

7420 TVD

C

MD 9888 TVD 7456.17
Az 2.93° Inc 88.08°

C

MD 9982 TVD 7461.25
Az 1.48° Inc 85.74°

7470

7470

Chalky Mrlst (90%): lt-md gr, v calc, abd intb
biocl, frm, sbplty, no sfl, slw str wh cut. Shal
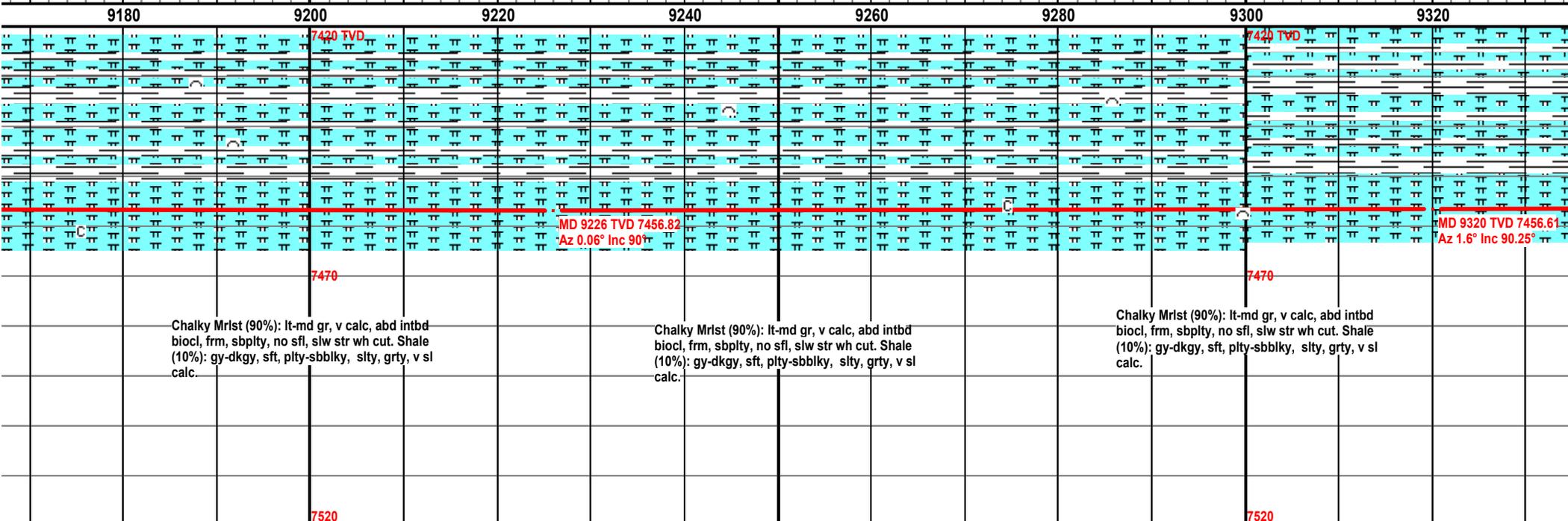0%): gy-dkgy, sft, plty-sbblky, slty, grty, v s
alc.

Chalky Mrlst (95%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(5%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

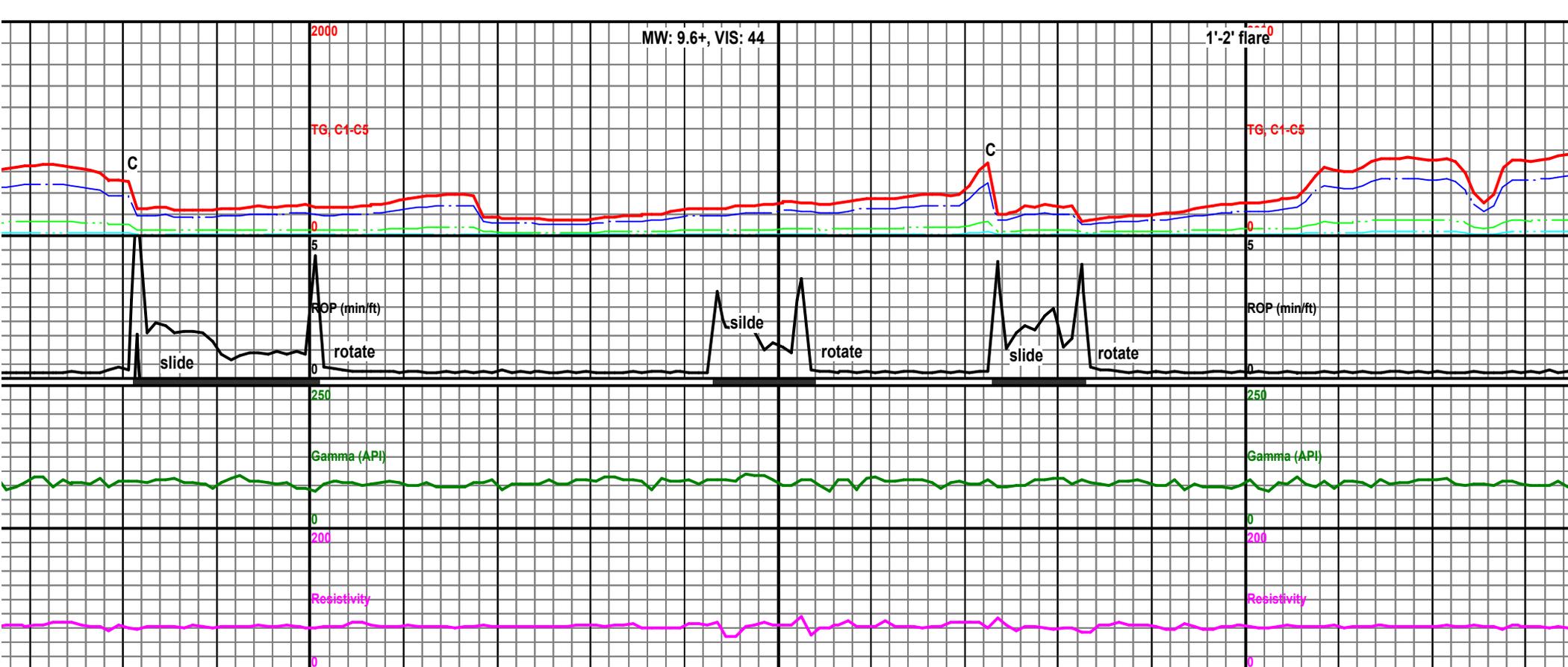Chalky Mrlst (95%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(5%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (95%): lt-md gr, v ca
biocl, frm, sbplty, no sfl, slw str w
(5%): gy-dkgy, sft, plty-sbblky, s

7520

7520

2000

TG, C1-

0

5

ROP (m

Gamma

200

Resist

7420 TV

MW: 9.6+, VIS: 43
1-6' flare

MW: 9.7, VIS: 48
1-3' flare

10' flare

MW: 9.7, VIS: 43
1-4' flare

C1-C5

C

TG, C1-C5

2000

C

0

5

min/ft

ROP (min/ft)

slide

rotate

slide

rotate

slide

rotate

0

250

(API)

Gamma (API)

0

200

vity

Resistivity

0

10020   10040   10060   10080   10100   10120   10140   10160

VD

7420 TVD

7470

MD 10077 TVD 7470
Az 0.35° Inc 83.68

C

C

7520

lc, abd intb
wh cut. Shal
lty, grty, v sl cal

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
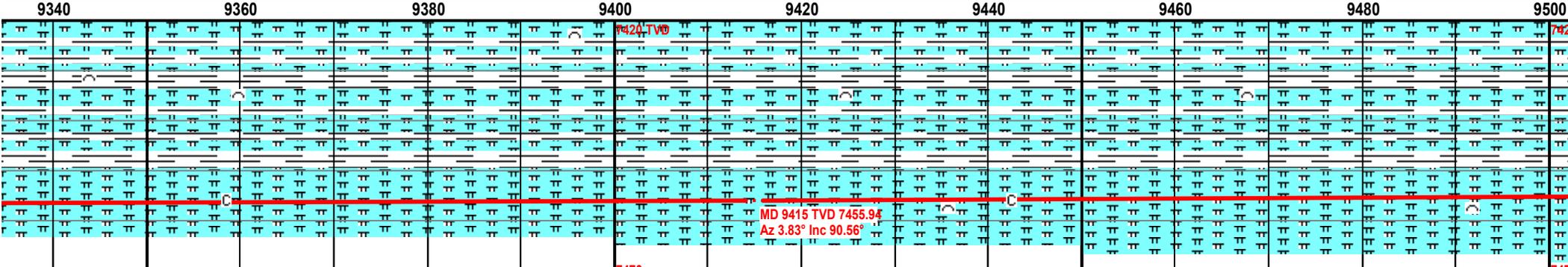(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

2000

20' flare

C

TG, C1-C5

0

5

ROP (min/ft)

slide

rotate

slide

rotate

slide

rotate

0

250

Gamma (API)

0

200

Resistivity

0

2000

C

TG, C1-C5

0

5

ROP (min/ft)

0

250

Gamma (API)

0

200

Resistivity

0

10180   10200   10220   10240   10260   10280   10300   10320

7450 TVD

Scale Change
7500

MD 10171 TVD 7479.3:
Az 0.61° Inc 84.93°

C

MD 10266 TV 7486.3
Az 1.94° Inc 86.66°

7450 TVD

7500

7550

7550

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
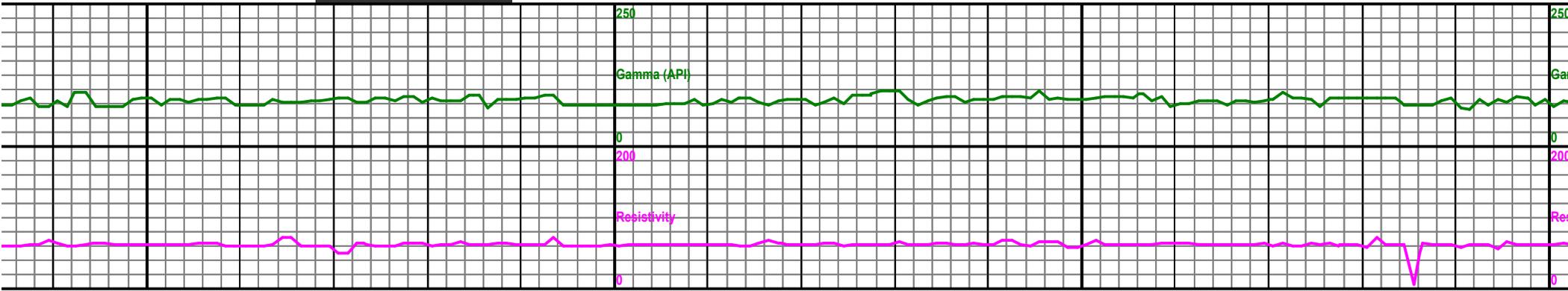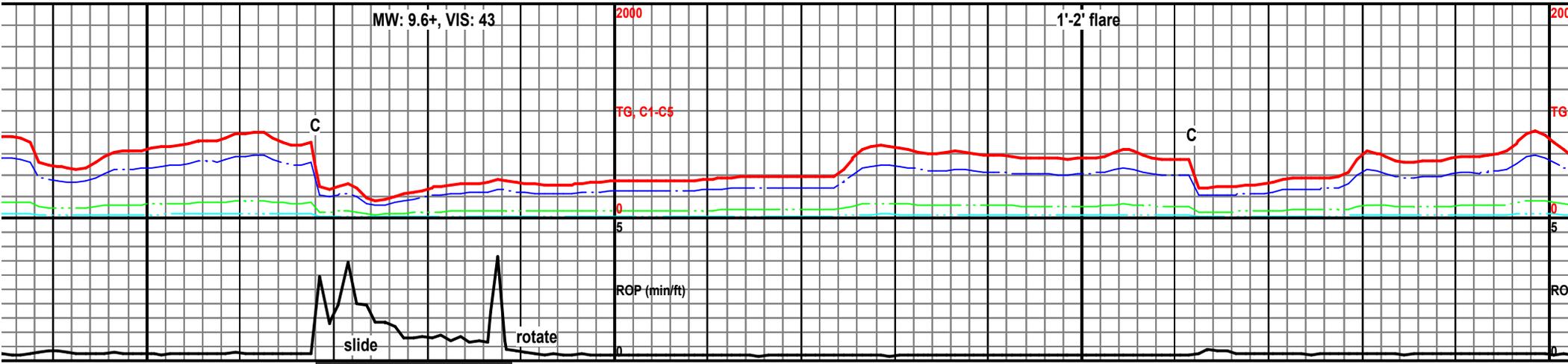(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
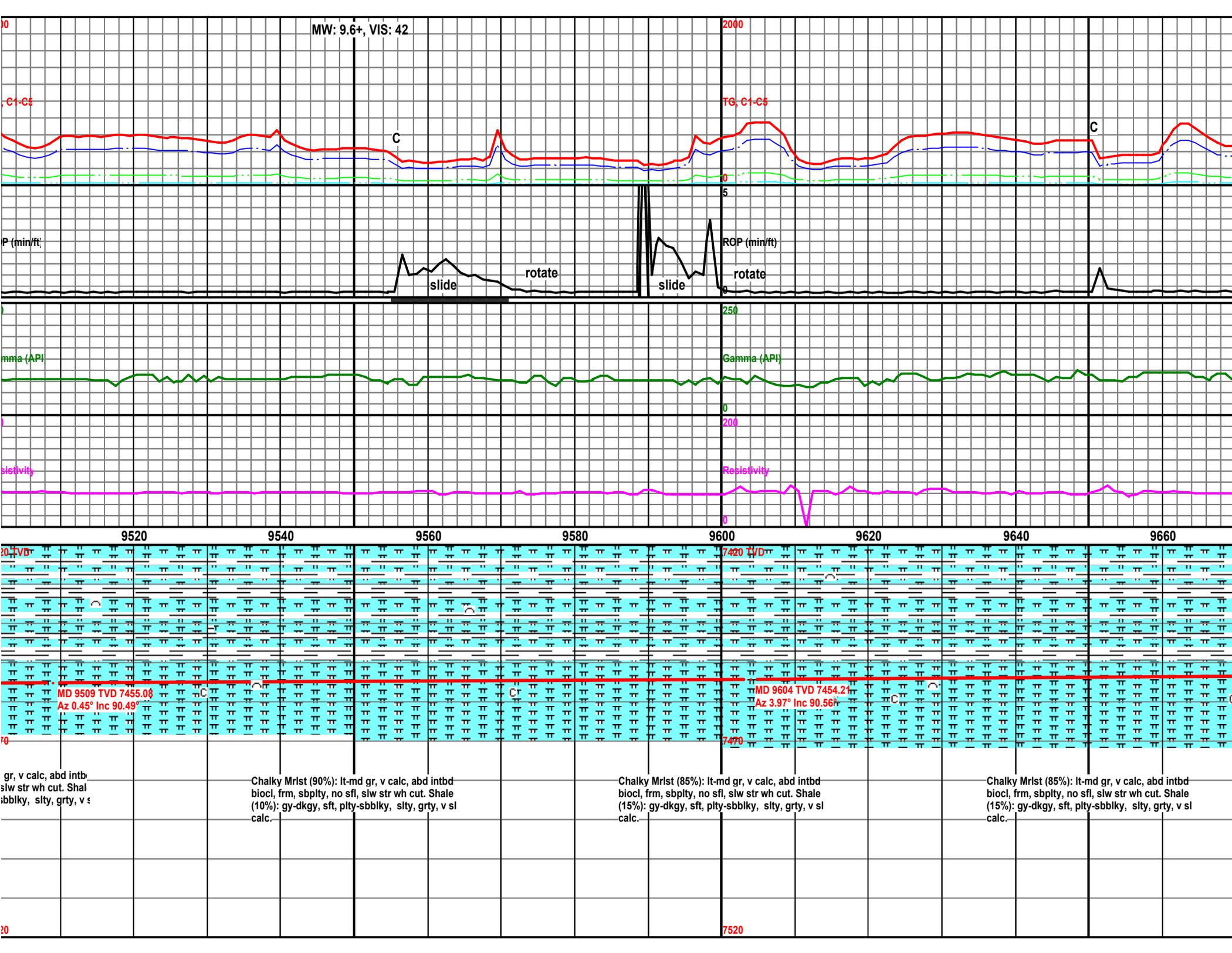(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Cha
bioc
(10°
calc

2000

C

TG, C1-C5

TG, C1-C5

C

0

0

5

5

slide

ROP (min/ft)

ROP (min/f

rotate

rotate

slide

slide   rotate

0

0

250

250

Gamma (API)

Gamma (A

0

0

200

200

Resistivity

Resistivity

0

0

0340   10360   10380   10400   10420   10440   10460   10480   10500

7450 TVD   7450 TVD

MD 10360 TVD 7489.9
Az 2.54° Inc 88.95°

MD 10455 TVD 7491.59
Az 2.65° Inc 89.01°

C

C

C

C

C

C

7500   7500

alky Mrlst (90%): lt-md gr, v calc, abd intb
cl, frm, sbplty, no sfl, slw str wh cut. Shal
%): gy-dkgy, sft, plty-sbblky, slty, grty, v s

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (80%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(20%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (70%): lt-md gr, v ca
biocl, frm, sbplty, no sfl, slw str
(30%): gy-dkgy, sft, plty-sbblky,
calc.

7550   7550

MW: 9.7, VIS: 42

2000

no flare

C

TG, C1-C5

0

5

ROP (min/ft)

slide   rotate

0

250

Gamma (API)

0

200

Resistivity

0

10520   10540   10560   10580   10600   10620   10640   10660

7450 TVD

MD 10549 TVD 7491.49
Az 4.02° Inc 91.11°

7500

MD 10644 TVD 7491.64
Az 2.87° Inc 88.7°

Chalky Mrlst (60%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(40%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (60%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(40%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (60%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(40%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

calc, abd intb
wh cut. Sha
slty, grty, v s

7550

MW: 9.7, VIS: 41   no flare

2000   2000

TG, C1-C5   TG, C1-C5

C   C

0   0
5   5

ROP (min/ft)   ROP (min/ft)

slide   rotate

0   0

250   250

Gamma (API)   Gamma (API)

0   0
200   200

Resistivity   Resistivity

0   0

| 10680 | 10700 | 10720 | 10740 | 10760 | 10780 | 10800 | 10820 | 1084(|

7450 TVD   7450 TVD

MD 10738 TVD 7492.61
Az 6.92° Inc 90.12°

MD 10833 TVD
Az 9.44° Inc 9

7500   7500

Chalky Mrlst (60%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(40%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (60%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(40%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (70%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(30%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalk
biocl,
(30%)
calc.

7550   7550

MW: 9.6, VIS: 40   no flare

2000   TG, C1-C5   2000   TG, C1-C5

C   C

0   0

5   5

ROP (min/ft)   ROP (min/ft)

slide   rotate   slide   rotate   slide

0   0

250   Gamma (API)   250   Gamma (API)

0   0

200   200

Resistivity   Resistivity

0   0

10860   10880   10900   10920   10940   10960   10980   11000

7450 TVD   7450 TVD

D 7491.0   MD 10928 TVD 7488.76
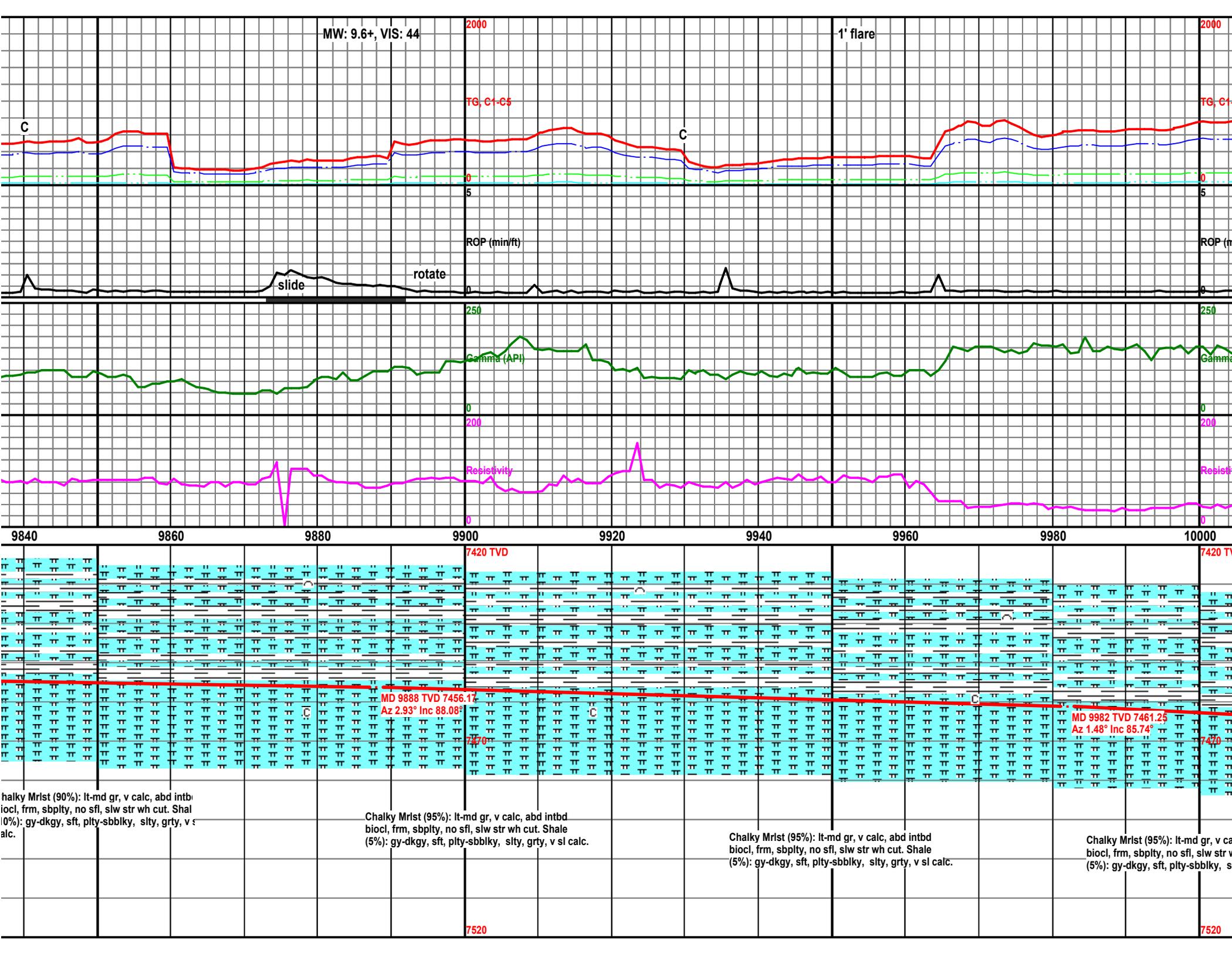1.73   Az 9.77° Inc 91.91

7500   7500

C   C   C   C

Chalky Mrlst (70%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(30%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
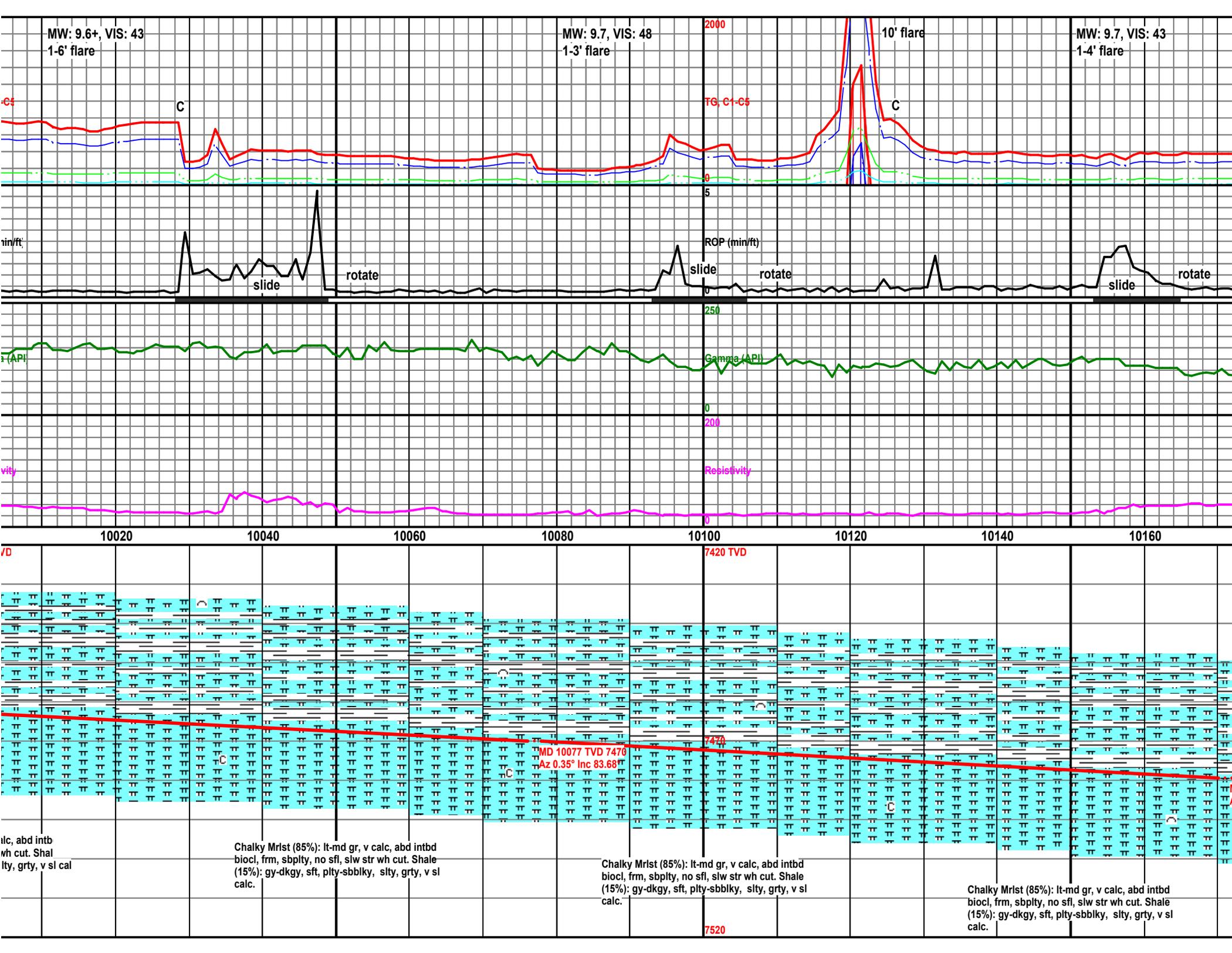calc.

Chalky Mrlst (70%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(30%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (90%): lt-md gr, v calc, ab
biocl, frm, sbplty, no sfl, slw str wh cut
(10%): gy-dkgy, sft, plty-sbblky, slty, g
calc.

y Mrlst (70%): lt-md gr, v calc, abd intb
frm, sbplty, no sfl, slw str wh cut. Shal
: gy-dkgy, sft, plty-sbblky, slty, grty, v s

7550   7550

TG, C1-C5

C

C

0

5

ROP (min/ft)

rotate   slide   rotate   slide   rotate

0

250

Gamma (API)

0

200

Resistivity

0

| 11020 | 11040 | 11060 | 11080 | 11100 | 11120 | 11140 | 11160 |

7450 TVD

7500

MD 11022 TVD 7488.31
Az 6.37° Inc 88.64°

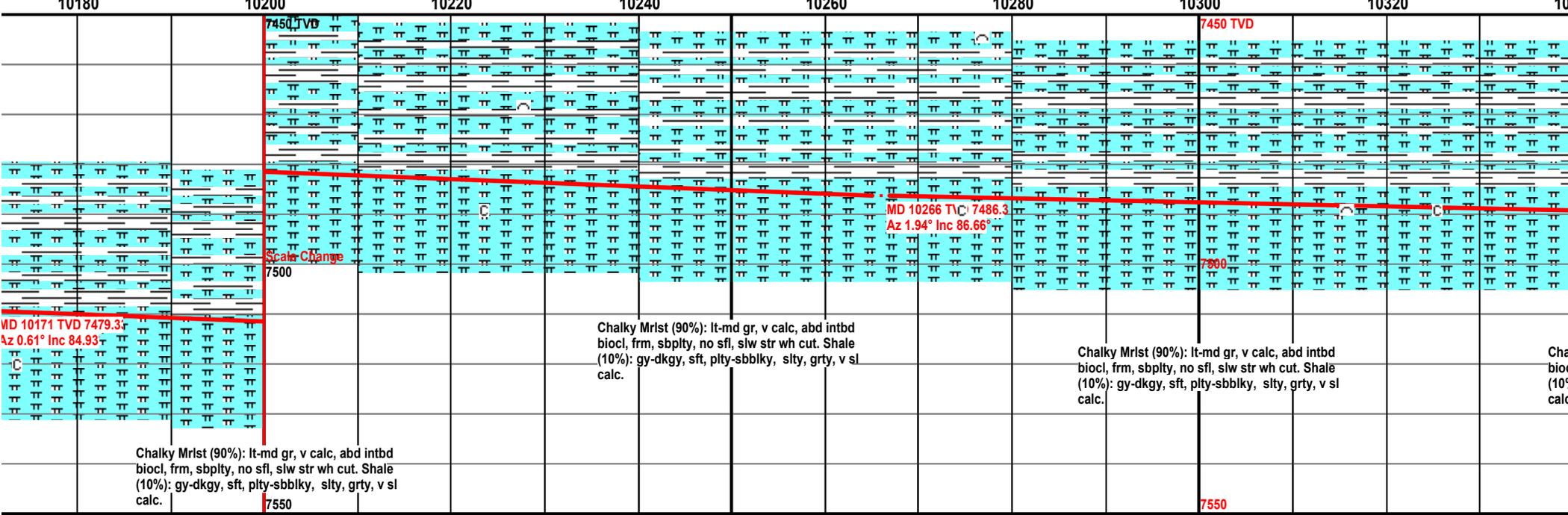MD 11117 TVD 7488.72
Az 4.93° Inc 90.87°

7550

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.
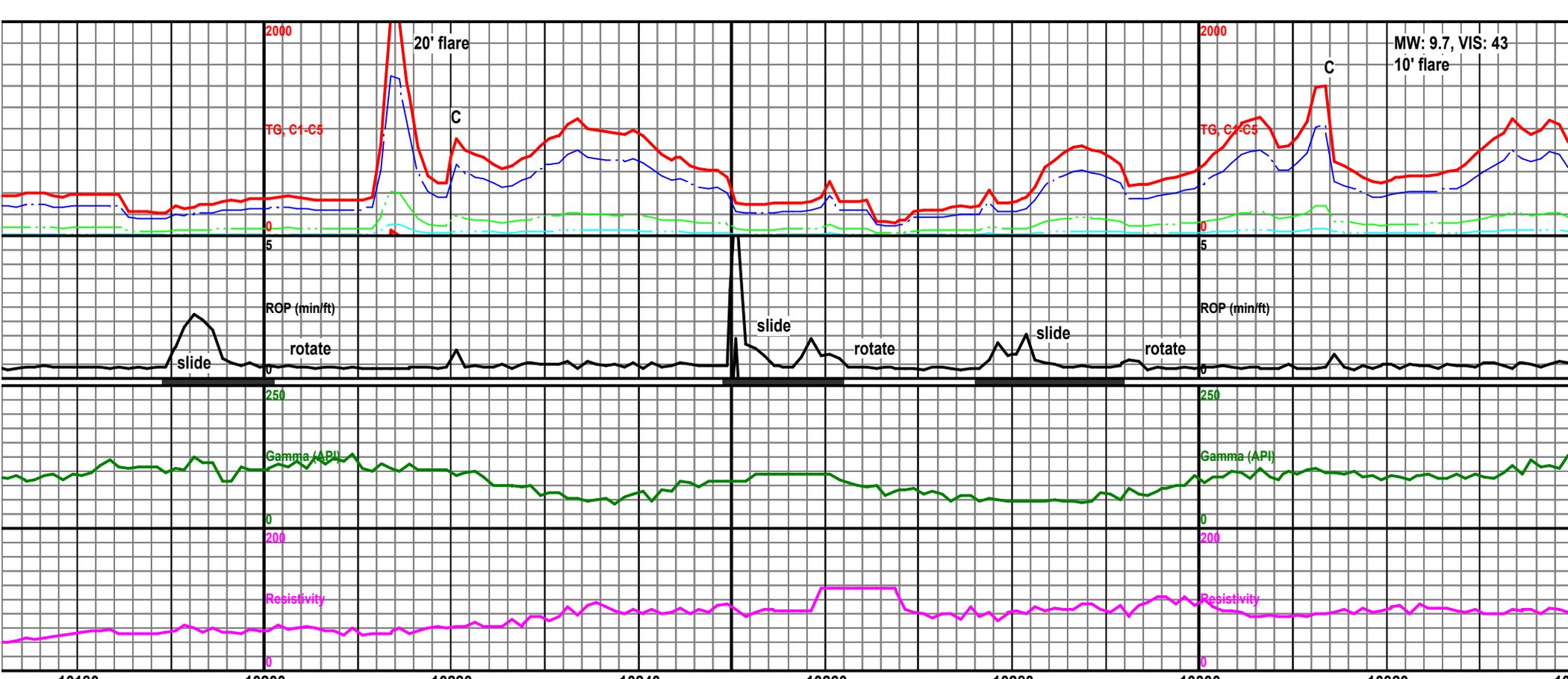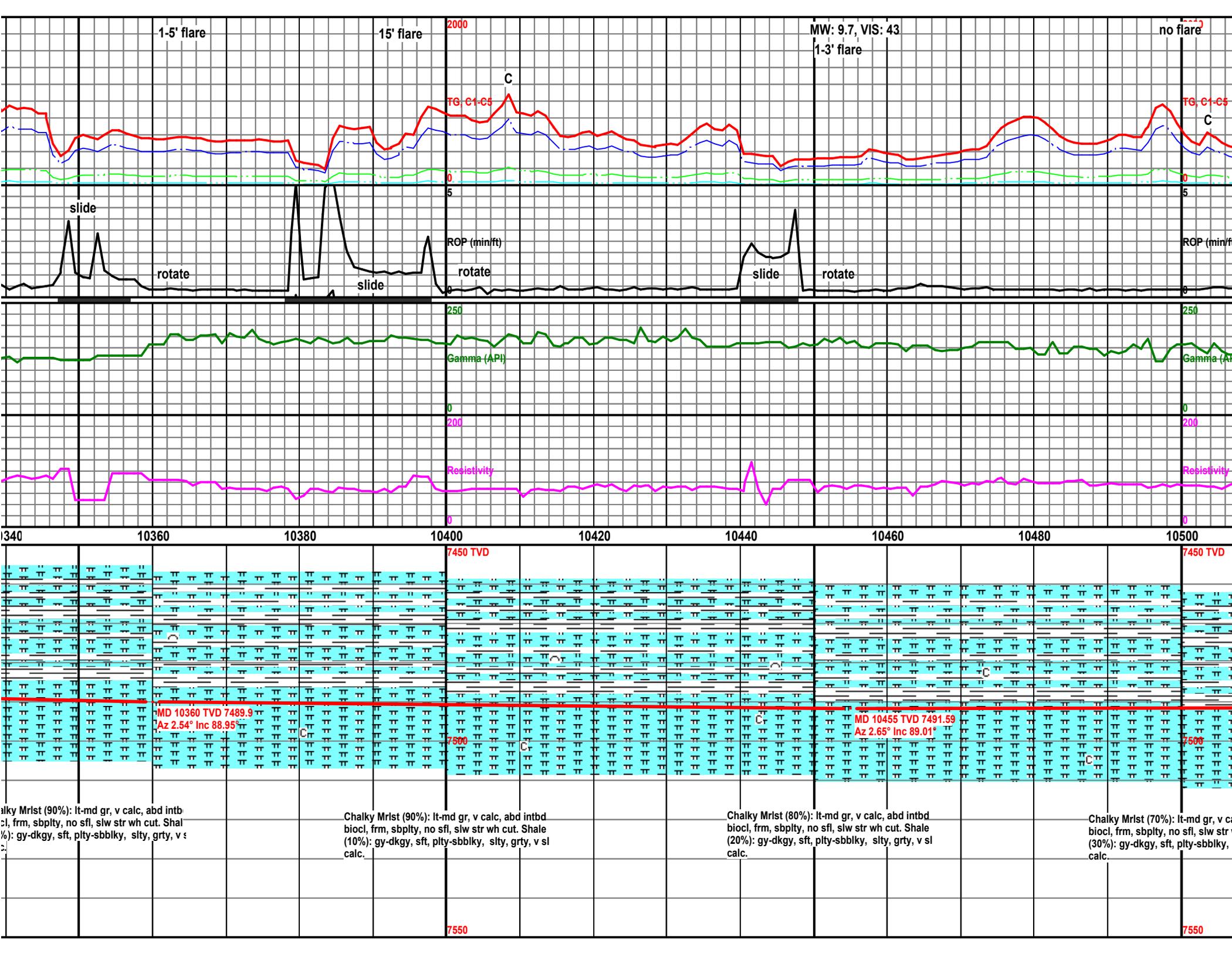
Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

d intb
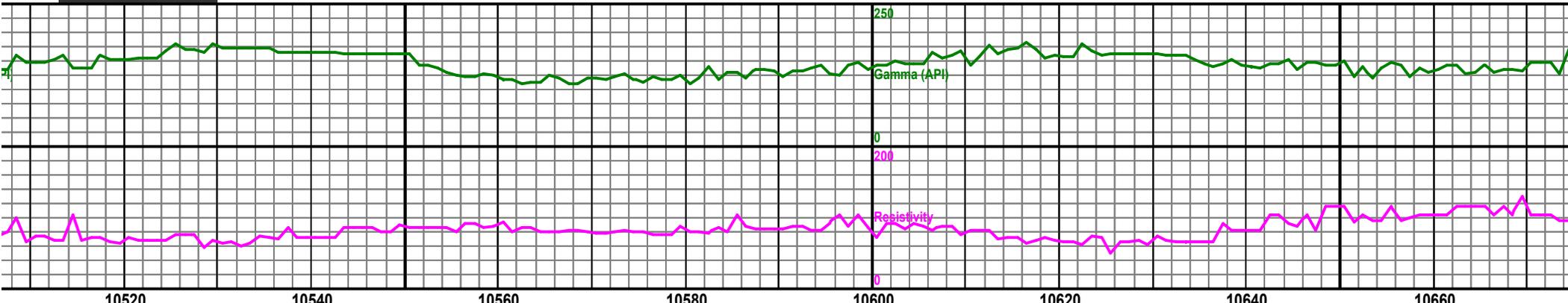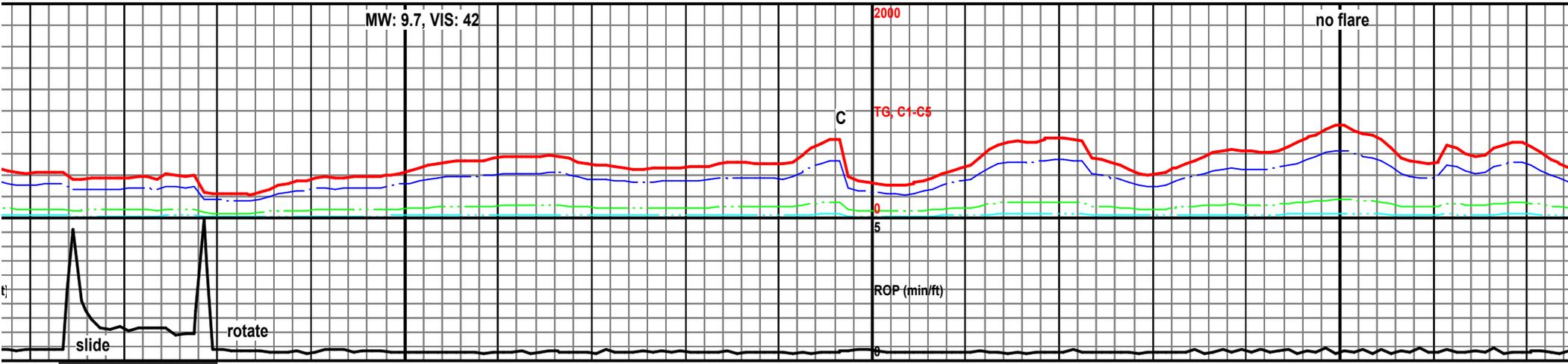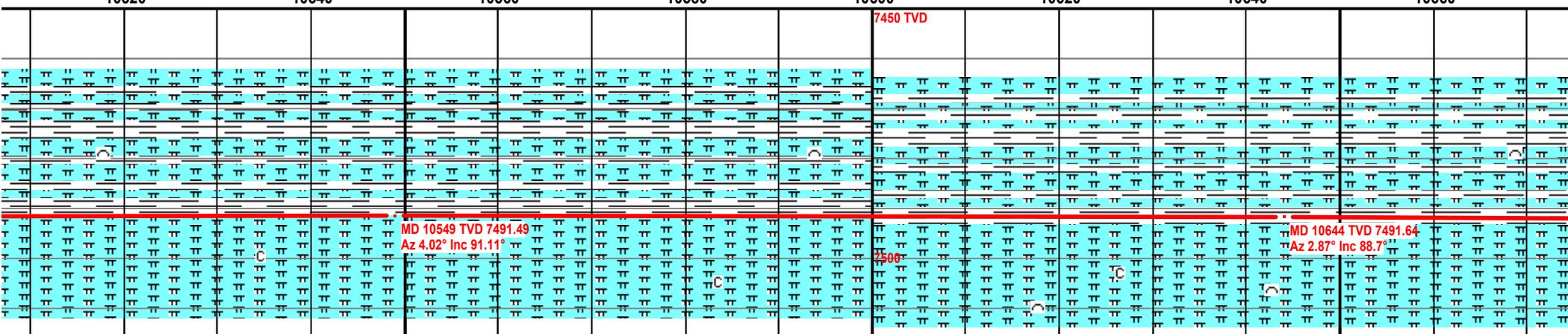. Shal
rty, v s

MW: 9.5+, VIS: 40   MW: 9.5, VIS: 37

2000   2000

TG, C1-C5   C   TG, C1-C5

0   0

5   5

ROP (min/ft)   ROP (min/ft)

rotate   slide   rotate
slide   0   0

250   250

Gamma (API)   Gamma (API)

0   0
200   200

Resistivity   Resistivity

0   0

11180   11200   11220   11240   11260   11280   11300   11320   11340

7450 TVD   7450 TVD

MD 11211 TVD 7489.37
Az 1.9° Inc 88.33°   MD 11306 TVD 7493.37
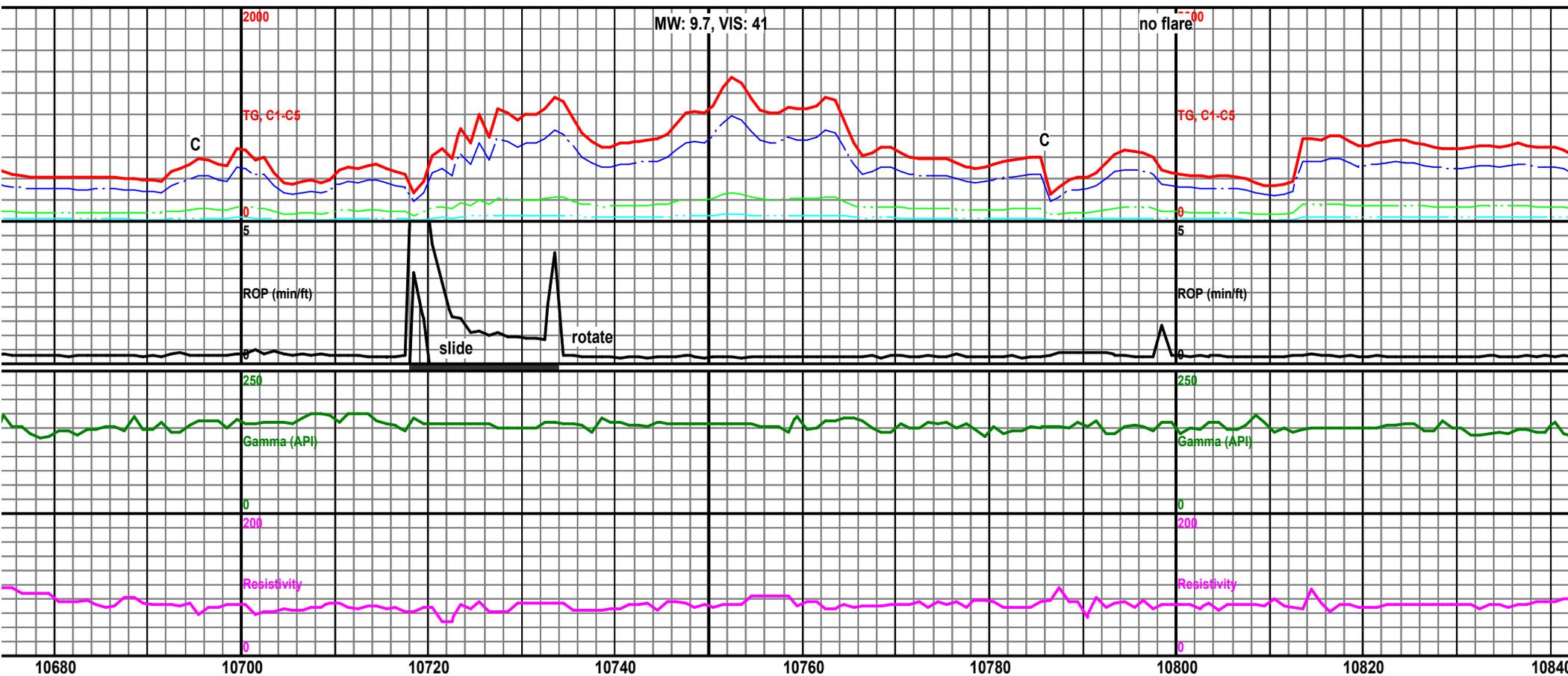   Az 0.29° Inc 86.85°
7500   7500

Chalky Mrlst (90%): lt-md gr, v calc, abd intbd   Chalky Mrlst (85%): lt-md gr, v calc, abd intbd   Chalky Mrlst (85%): lt-md gr, v calc, abd intbd   Chalky Mrlst (
biocl, frm, sbplty, no sfl, slw str wh cut. Shale biocl, frm, sbplty, no sfl, slw str wh cut. Shale biocl, frm, sbplty, no sfl, slw str wh cut. Shale biocl, frm, sbp
(10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl (15%): gy-dkg
calc.   calc.   calc.   calc.

7550   7550

MW: 9.4+, VIS: 36
1-8' flare

MW: 9.5, VIS: 37

MW: 9.5, VIS: 40

MW: 9.6, VIS: 42
1-4' flare

C

C

C

2000
TG, C1-C5
0

TG, C1-C5

5
ROP (min/ft)
0

ROP (min/ft)

slide

rotate

slide

rotate

250
Gamma (API)
0

Gamma (API)

200
Resistivity
0

Resistivity

| 11360 | 11380 | 11400 | 11420 | 11440 | 11460 | 11480 | 11500 |

7450 TVD

7450 TVD

7500

7500

7550

7550

MD 11401 TVD 7498.79
Az 2.08° Inc 86.6°

MD 11495 TVD 7504.32
Az 2.28° Inc 86.66°

85%): lt-md gr, v calc, abd intb
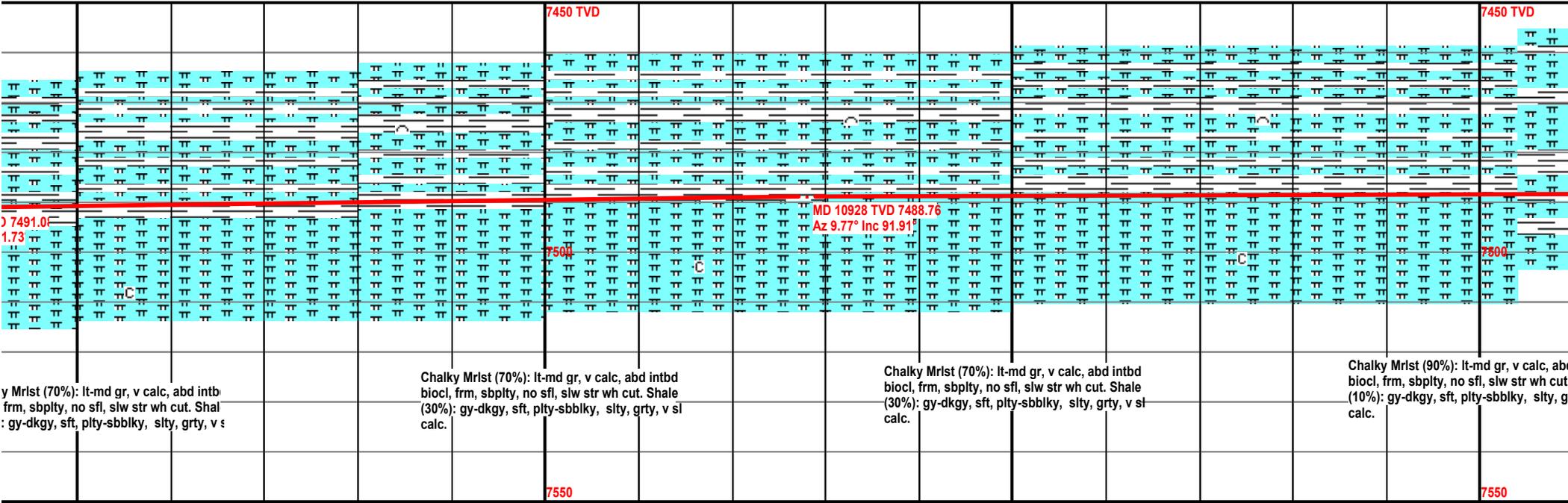lty, no sfl, slw str wh cut. Shal
y, sft, plty-sbblky, slty, grty, v s

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.
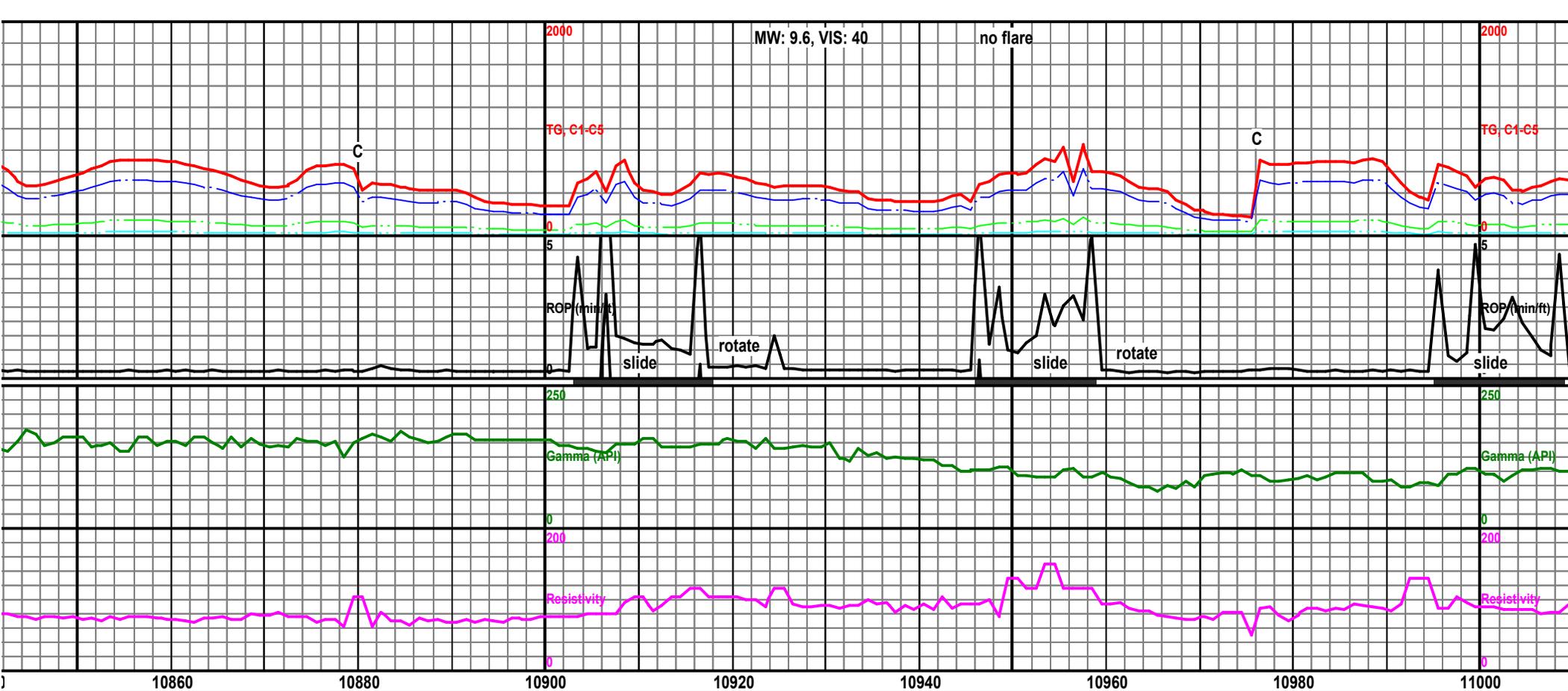
Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd int
biocl, frm, sbplty, no sfl, slw str wh cut. Sh
(15%): gy-dkgy, sft, plty-sbblky, slty, grty,
calc.

MW: 9.5+, VIS: 38   1-6' flare   MW: 9.5+, VIS: 39   10' flare

2000

C   TG C1-C5   C

0

5

ROP (min/ft)

slide   rotate   slide   rotate   slide   rotate

0

250

Gamma (API)

0

200

Resistivity

0

11520   11540   11560   11580   11600   11620   11640   11660

7450 TVD

7500

MD 11590 TVD 7508.52
Az 2.54° Inc 88.27°

7550

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.
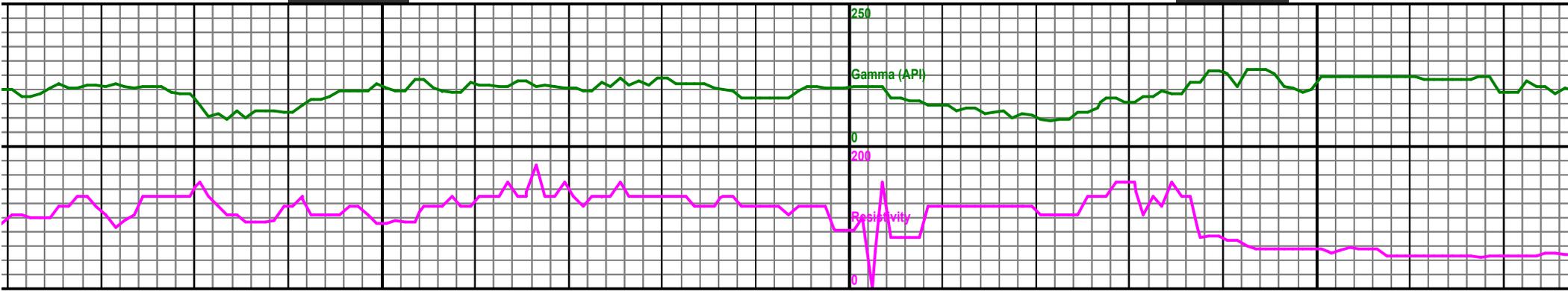
MW: 9.5+, VIS: 39

2000
TG, C1-C5
0

C

2000
TG, C1-C5
0

C

1'-

5
ROP (min/ft)
0

slide   rotate

5
ROP (min/ft)
0

250
Gamma (API)
0

250
Gamma (API)
0

200
Resistivity
0

200
Resistivity
0

680   11700   11720   11740   11760   11780   11800   11820   11840

7450 TVD

7450 TVD

7500

7500

MD 11684 TVD 7509.94
Az 1.42° Inc 90°

MD 11779 TVD 7507.64
Az 1.28° Inc 92.75°

Chalky Mrlst (95%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (5%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.
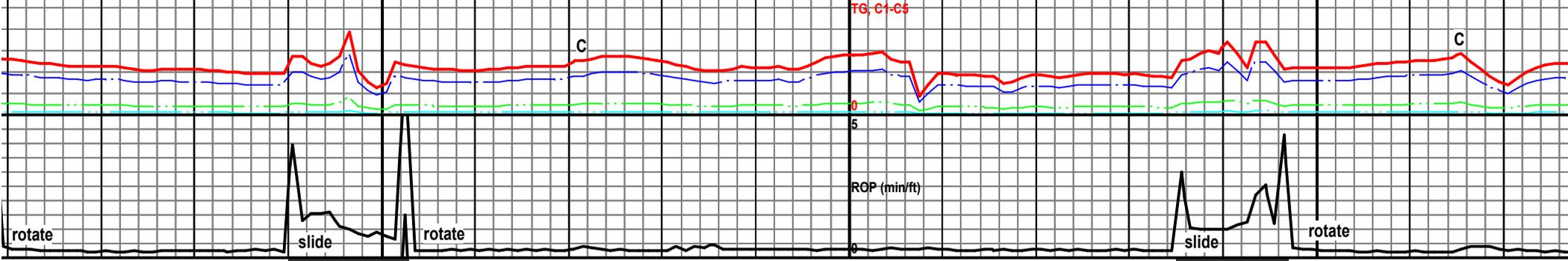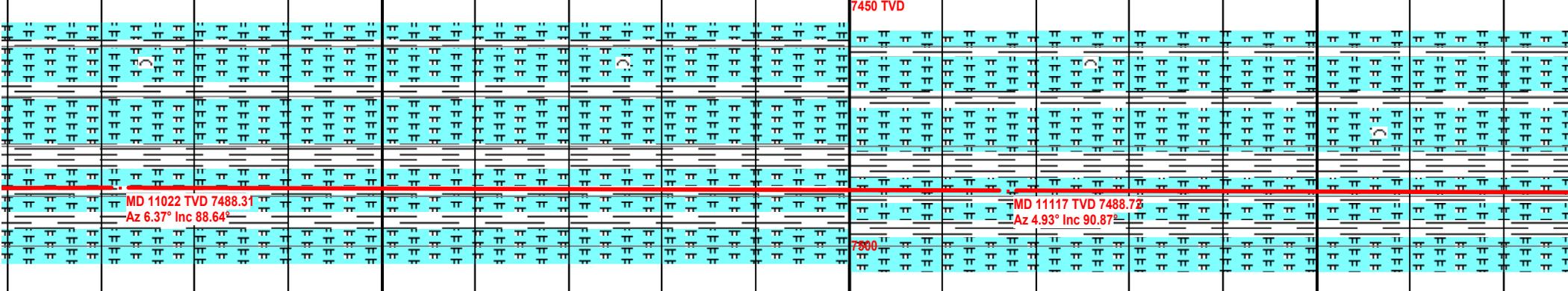
Chalky Mrlst (95%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (5%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.
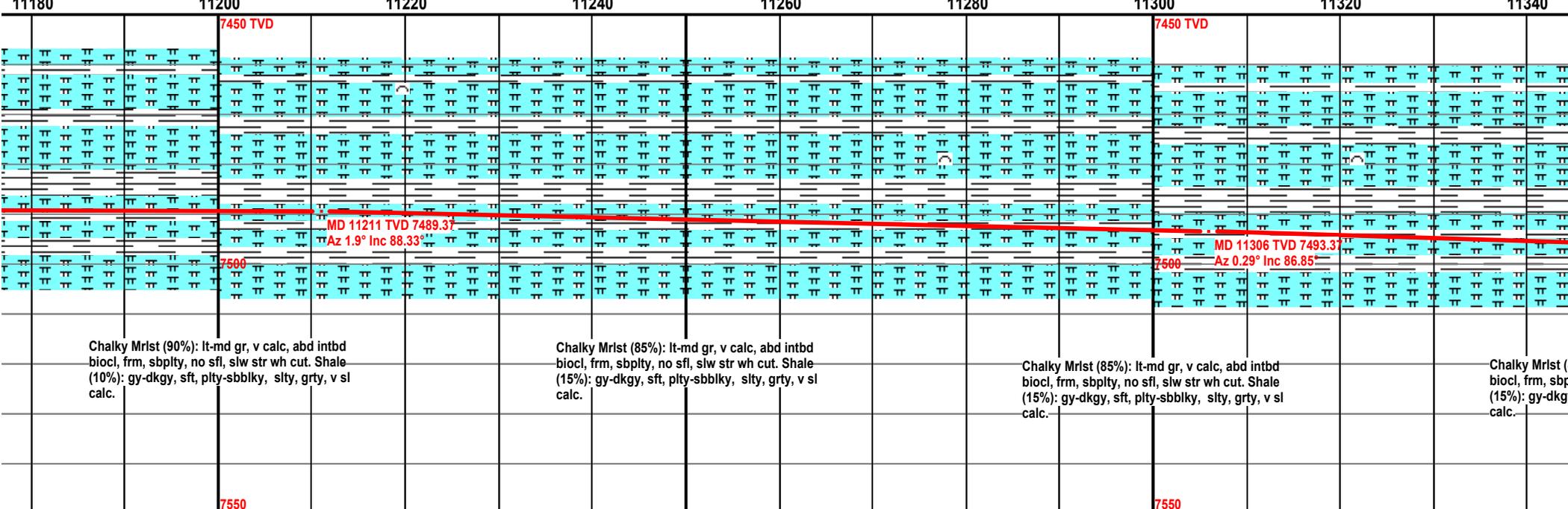
Chalky Mrlst (90%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (10%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

**Chalky Mrlst (biocl, frm, sbp (15%): gy-dkg calc.

7550

7550

2000

TG, C1-C5

C

0

5

ROP (min/ft)

rotate

0

250

Gamma (API)

0

200

Resistivity

0

11860   11880   11900   11920   11940   11960   11980   12000

7450 TVD

TG, C1-C5

ROP (min/ft)

250

Gamma (API)

0

200

Resistivity

7450 TVD

7500

MD 11874 TVD 7503.33
Az 0.04° Inc 92.41

MD 11968 TVD 7499.48
Az 0.88° Inc 92.29

7500

85%): lt-md gr, v calc, abd intbd
plty, no sfl, slw str wh cut. Shal
y, sft, plty-sbblky, slty, grty, v s

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
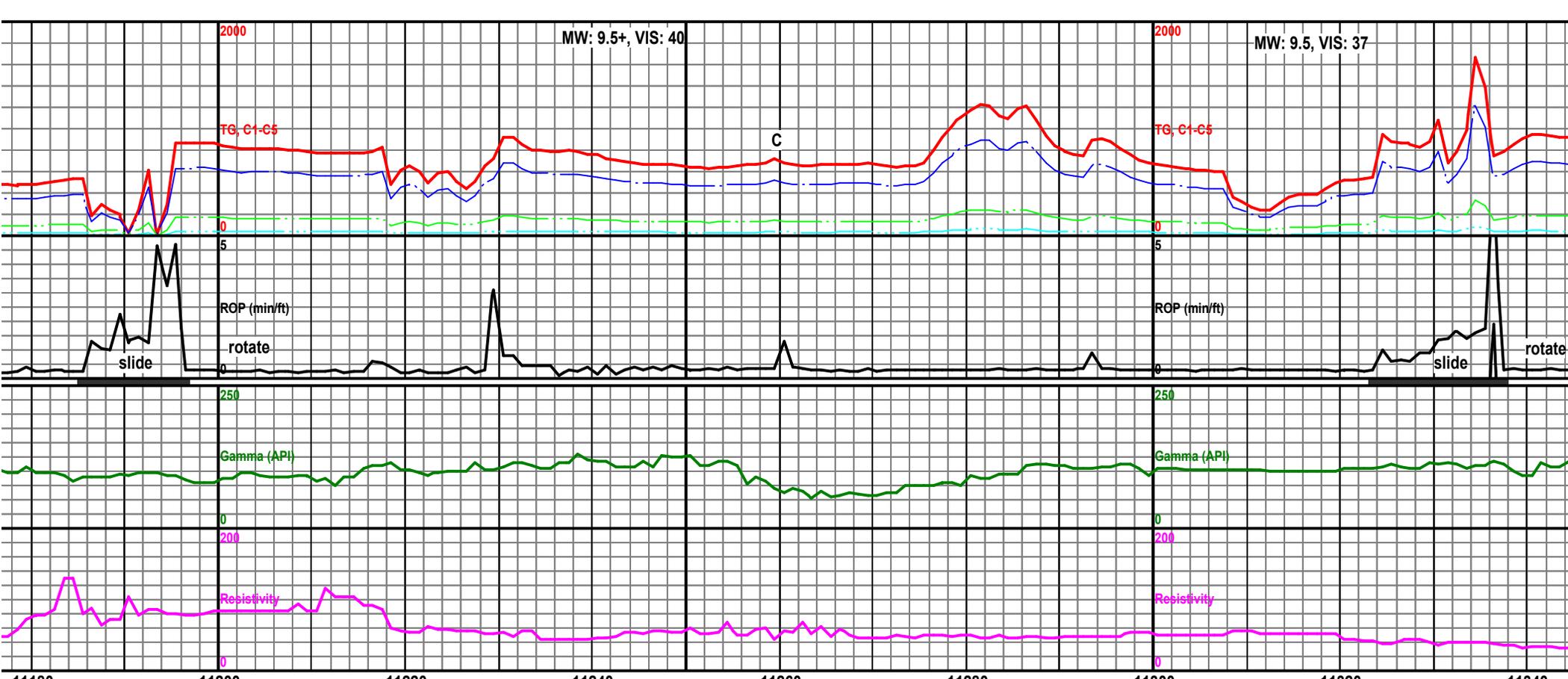calc.

Chalky Mrlst (80%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(20%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
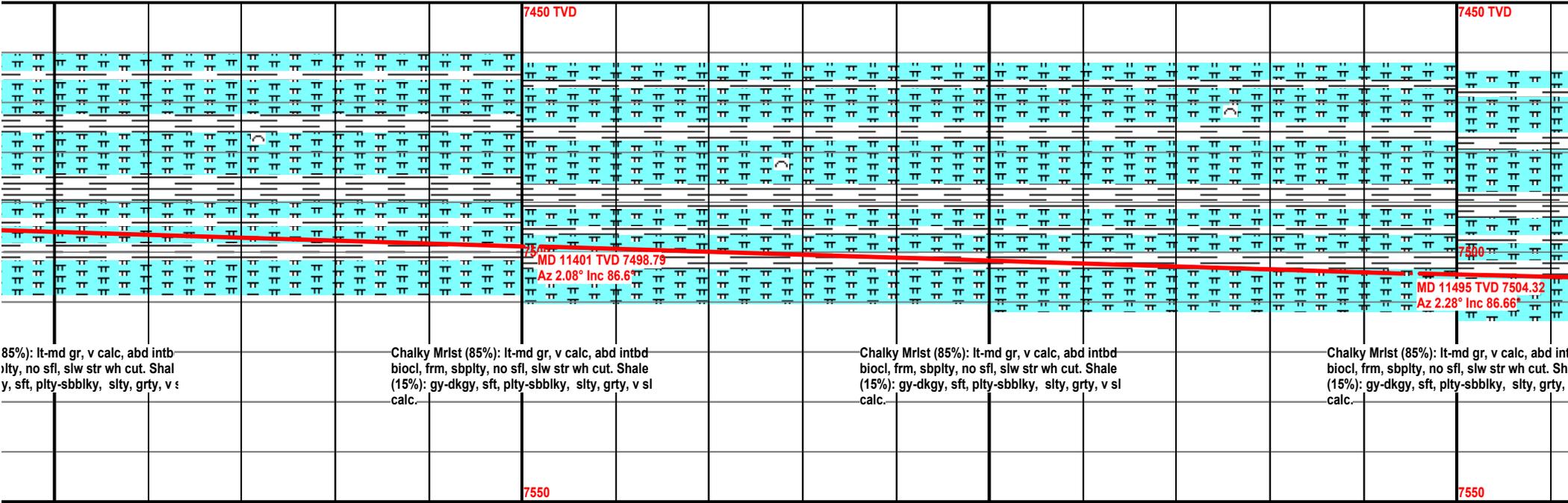calc.

Chalky Mrlst (80%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(20%): gy-dkgy, sft, plty-sbblky, slty, grty, v s
calc.

7550   7550

MW: 9.6+, VIS: 40   1' flare

TG, C1-C5

C   C

0

5

ROP (min/ft)

rotate

0

250

Gamma (API)

0

200

Resistivity

0

| 12020 | 12040 | 12060 | 12080 | 12100 | 12120 | 12140 | 12160 | 1218 |

7450 TVD

MD 12063 TVD 7496.2
Az 359.59° Inc 91.67°

7500

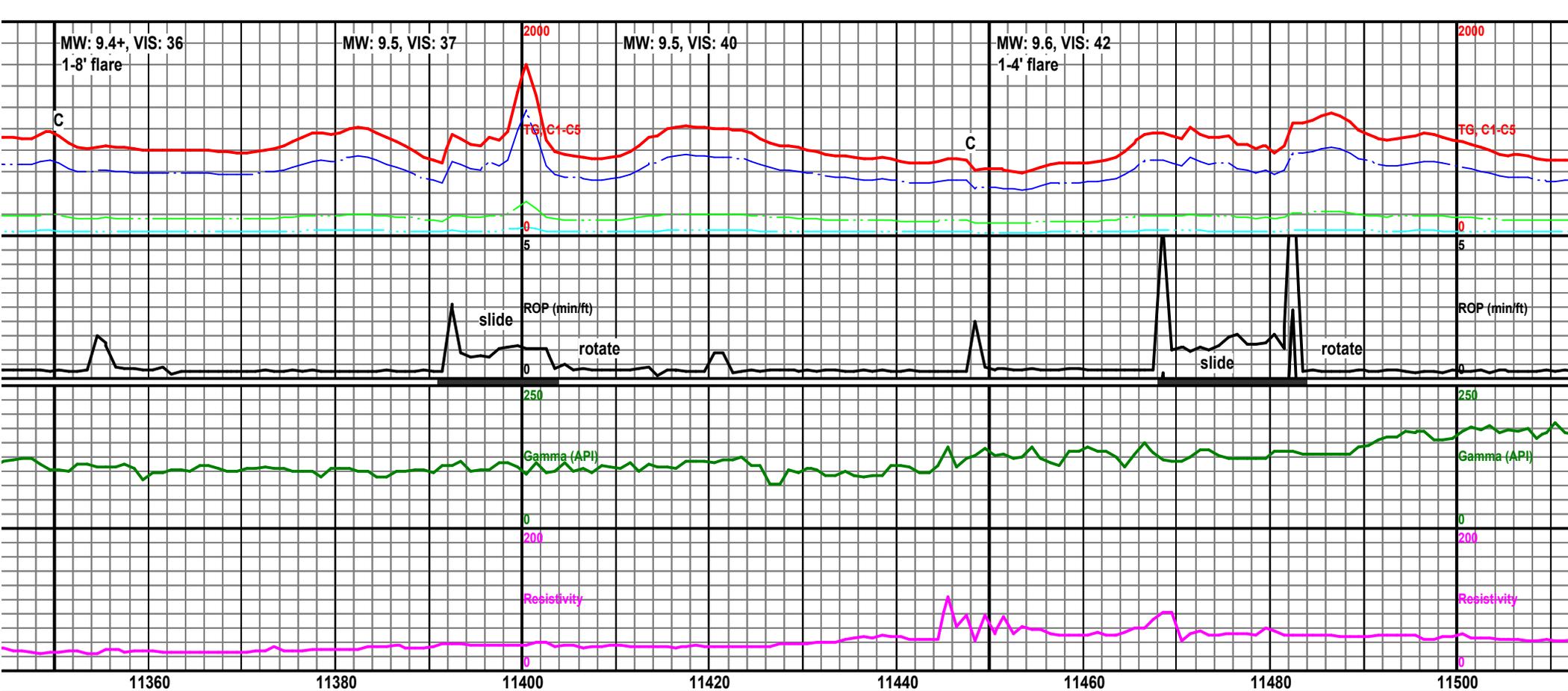MD 12158 TVD 7494.15
Az 359.58° Inc 90.8°

Chalky Mrlst (80%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (20%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.
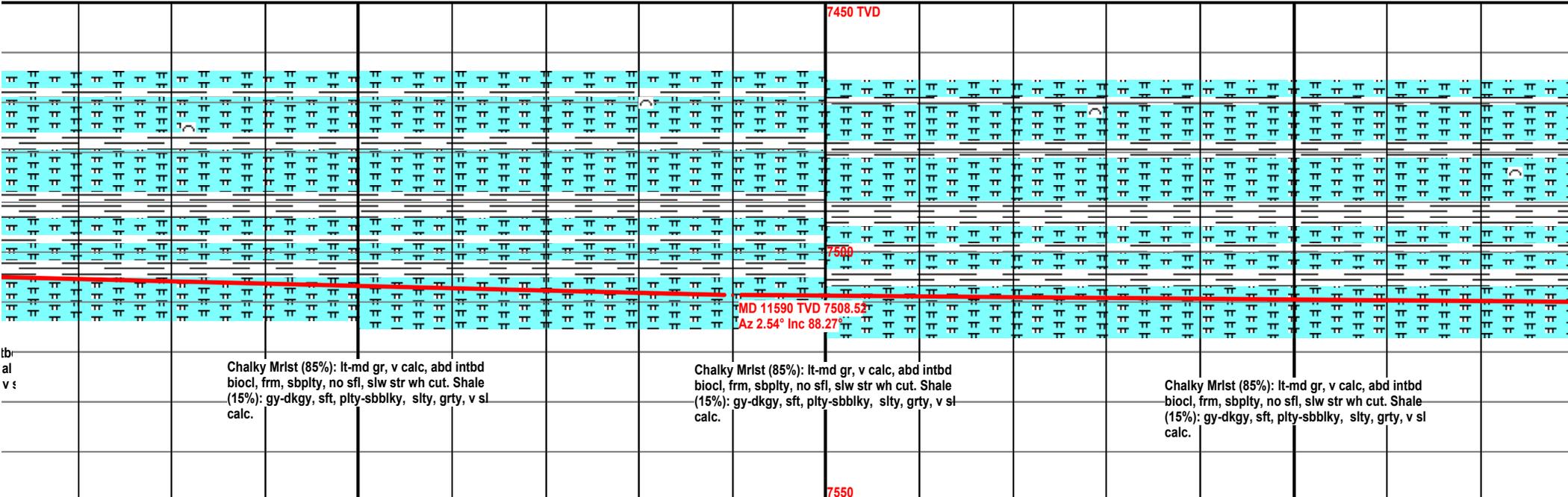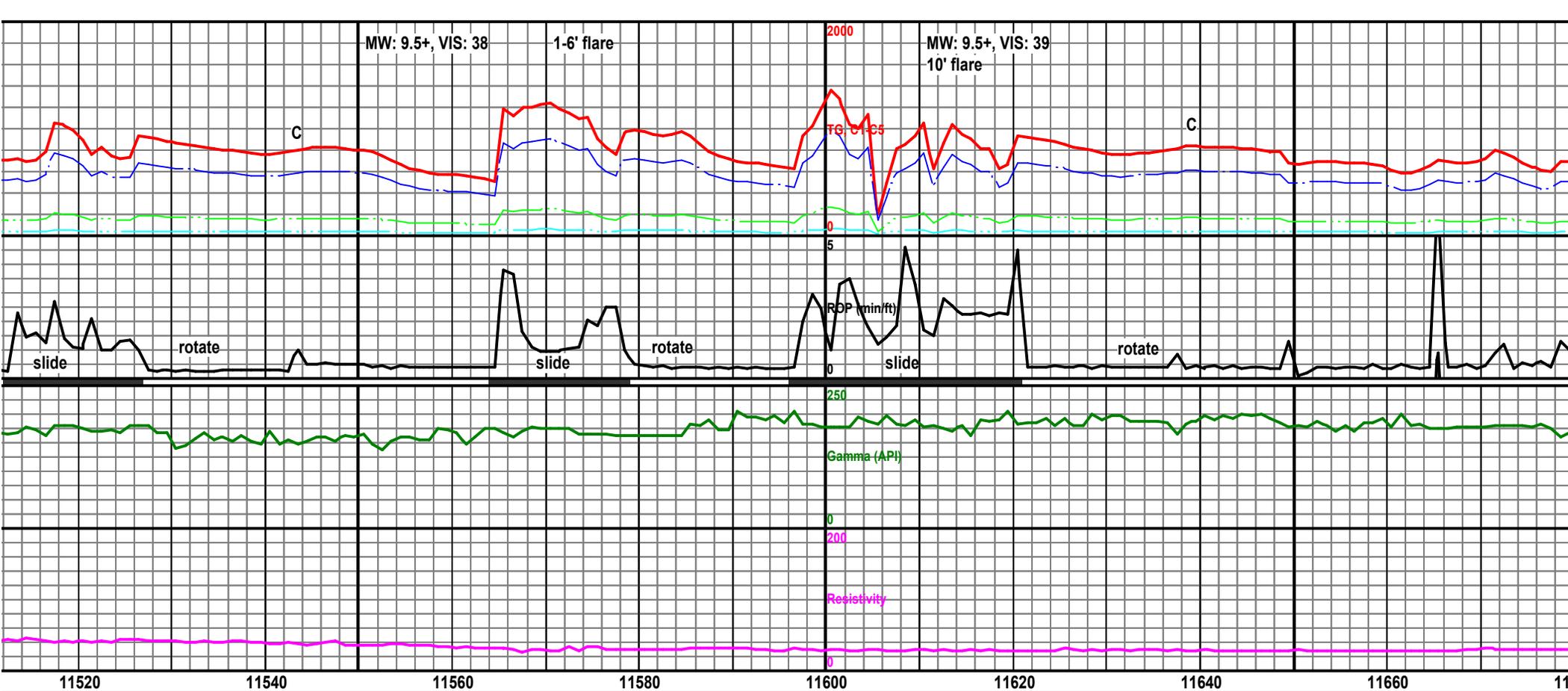
Chalky Mrlst (85%): lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Shale (15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl calc.

7550

2000

TG, C1-C5

C

MW: 9.7+, VIS: 40
Reamer Trip - 2042 units and
25' flare
Casing - 1425 units and 20'
flare

TD @ 7:30 AM 6/30/13
2 Man Logging Unit released
@ 1:00 AM 07/03/2013

0

5

ROP (min/ft)

rotate

0

250

Gamma (API)

0
200

Resistivity

0

| 12200 | 12220 | 12240 | 12260 | 12280 | 12 |

7450 TVD

MD 12233 TVD 7493.67
Az 0.89° Inc 89.94°

MD 12283 TVD 7493.72
Az 0.89° Inc 89.94°

7500

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

Chalky Mrlst (85%): lt-md gr, v calc, abd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Shale
(15%): gy-dkgy, sft, plty-sbblky, slty, grty, v sl
calc.

7550