



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

Well Name: Crowder 38N-19HZ  
Location: Weld County, CO  
License Number: 05-123-36720  
Spud Date: 3/14/13  
Surface Coordinates: 564' FNL, 853' FEL  
Sec 18, T2N, R65W  
Bottom Hole Coordinates: 460' FSL, 196' FEL  
Sec 19, T2N, R65W  
Ground Elevation (m): 4952'  
Logged Interval (m): 7400'  
Formation: Niobrara C  
Type of Drilling Fluid: Oil Based Mud

Region: DJ Basin  
Drilling Completed: 3/25/13

To: 16553'

K.B. Elevation (m): 4969'  
Total Depth (m): 16553'

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 [www.WellSight.com](http://www.WellSight.com)

OPERATOR

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

# GEOLOGIST

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

## Comments

Hook load sensor issues were cause of multiple gaps and depth adjustments in measured depth.

## ROCK TYPES

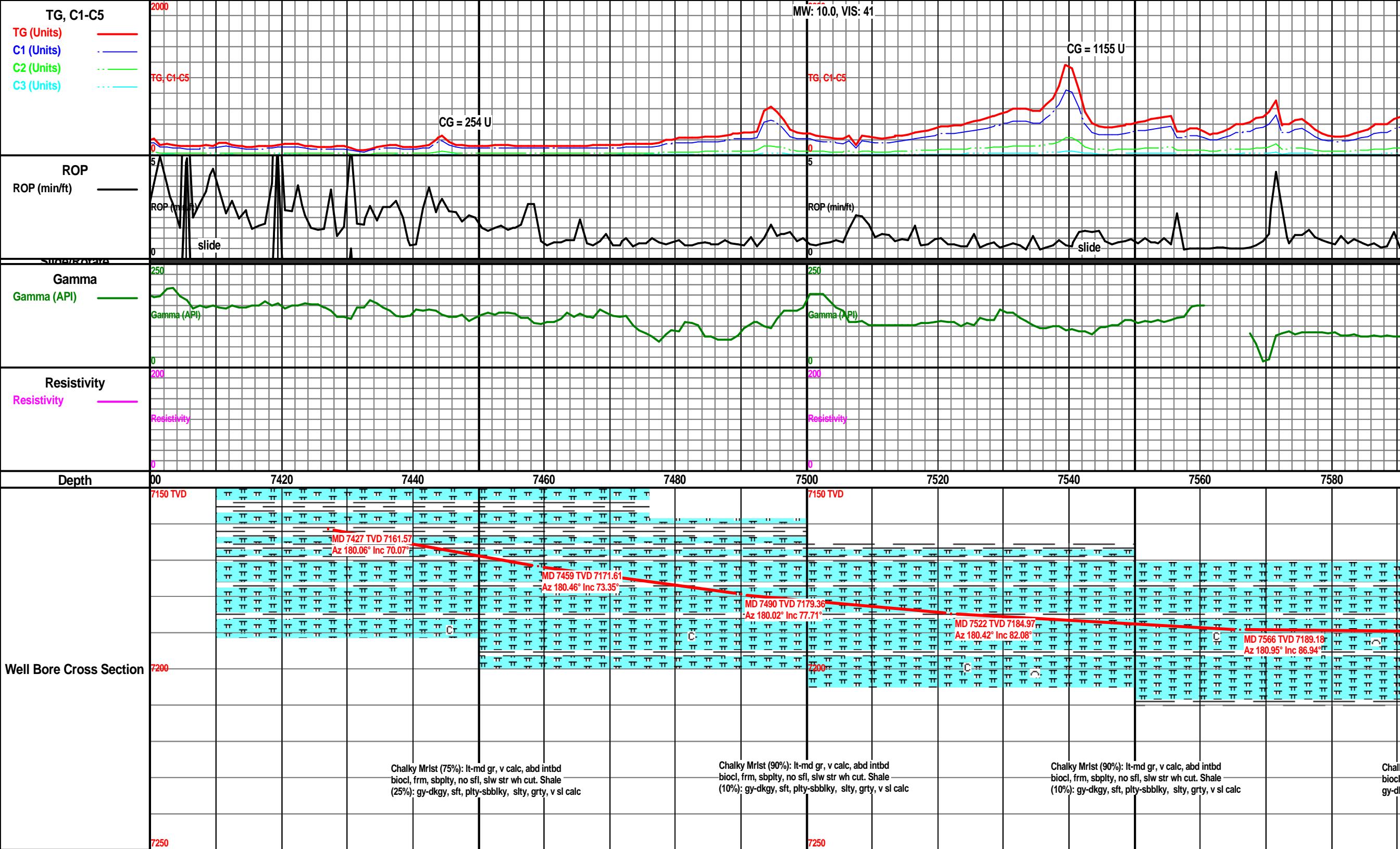
	Anhy		Cht		Congl		Igne		Mrlst		Shcol		Ss
	Bent		Clyst		Dol		Lmst		Salt		Shgy		Till
	Brec		Coal		Gyp		Meta		Shale		Sltst		

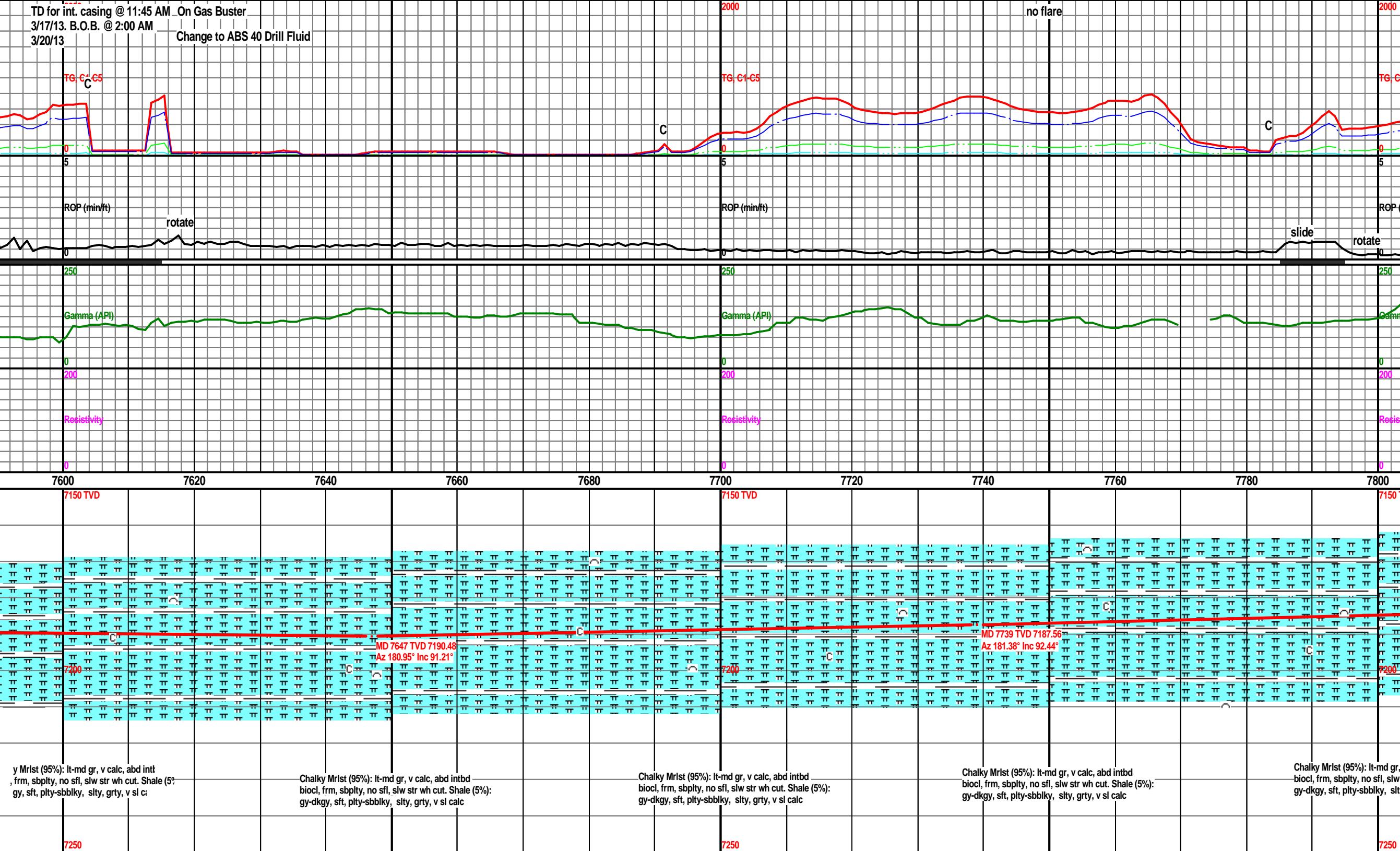
## ACCESSORIES

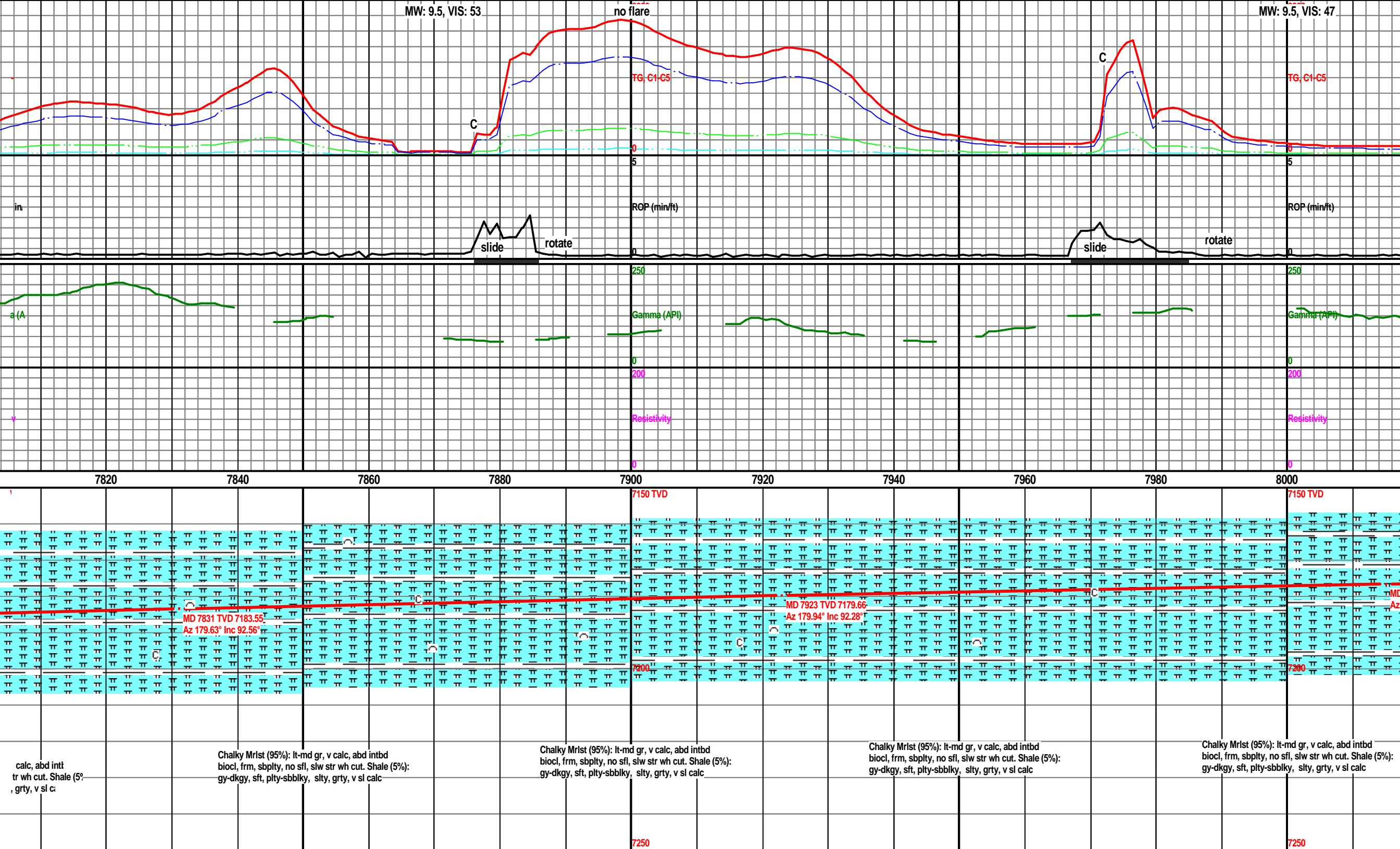
MINERAL	Dol	Phos	FOSSIL	Fish	STRINGER	TEXTURE	W	Wackest
								Boundst
								Chalky
								Cryxln
								Eartly
								Finexln
								Grainst
								Lithogr
								Microxln
								Mudst
								Packst

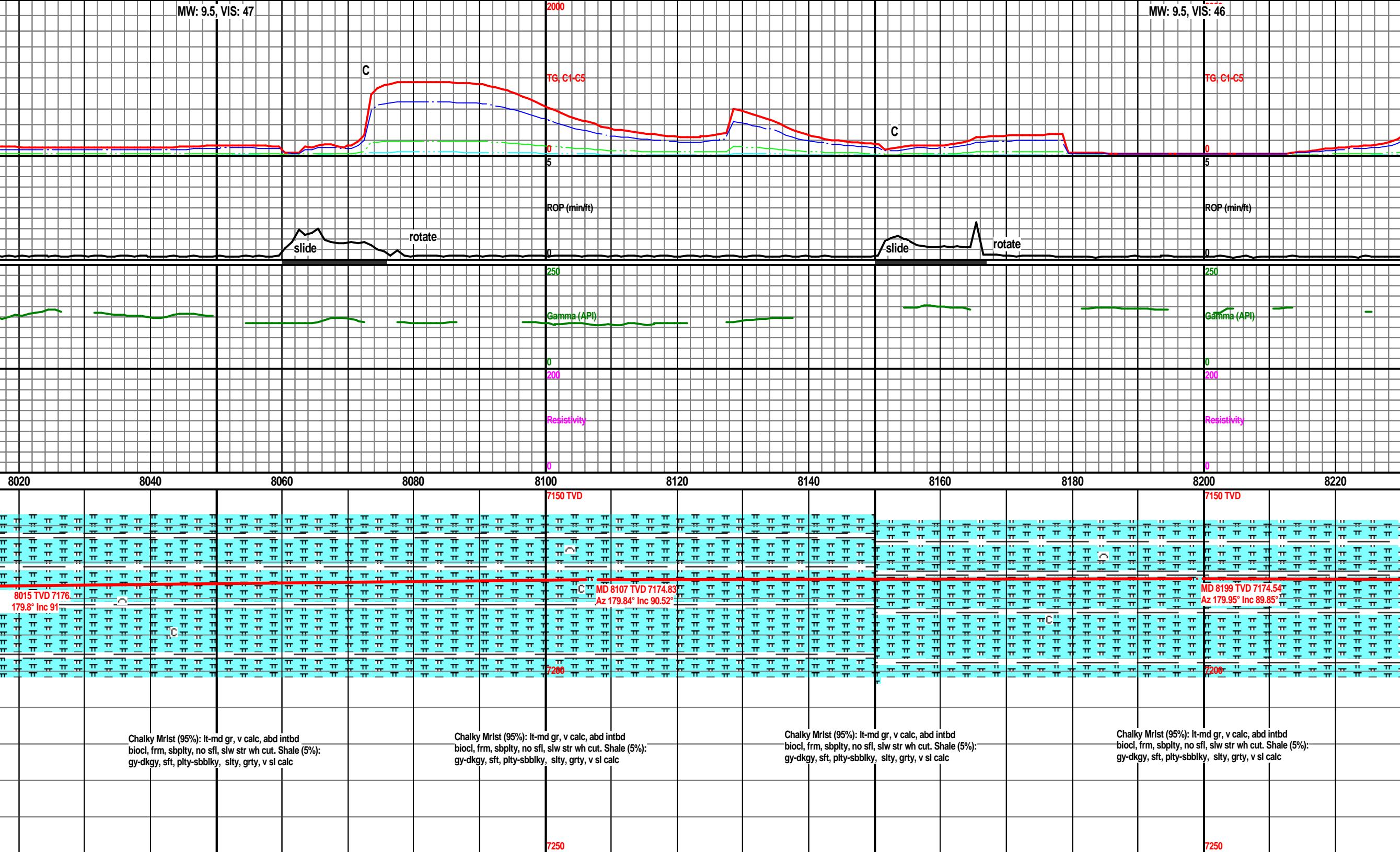
## OTHER SYMBOLS

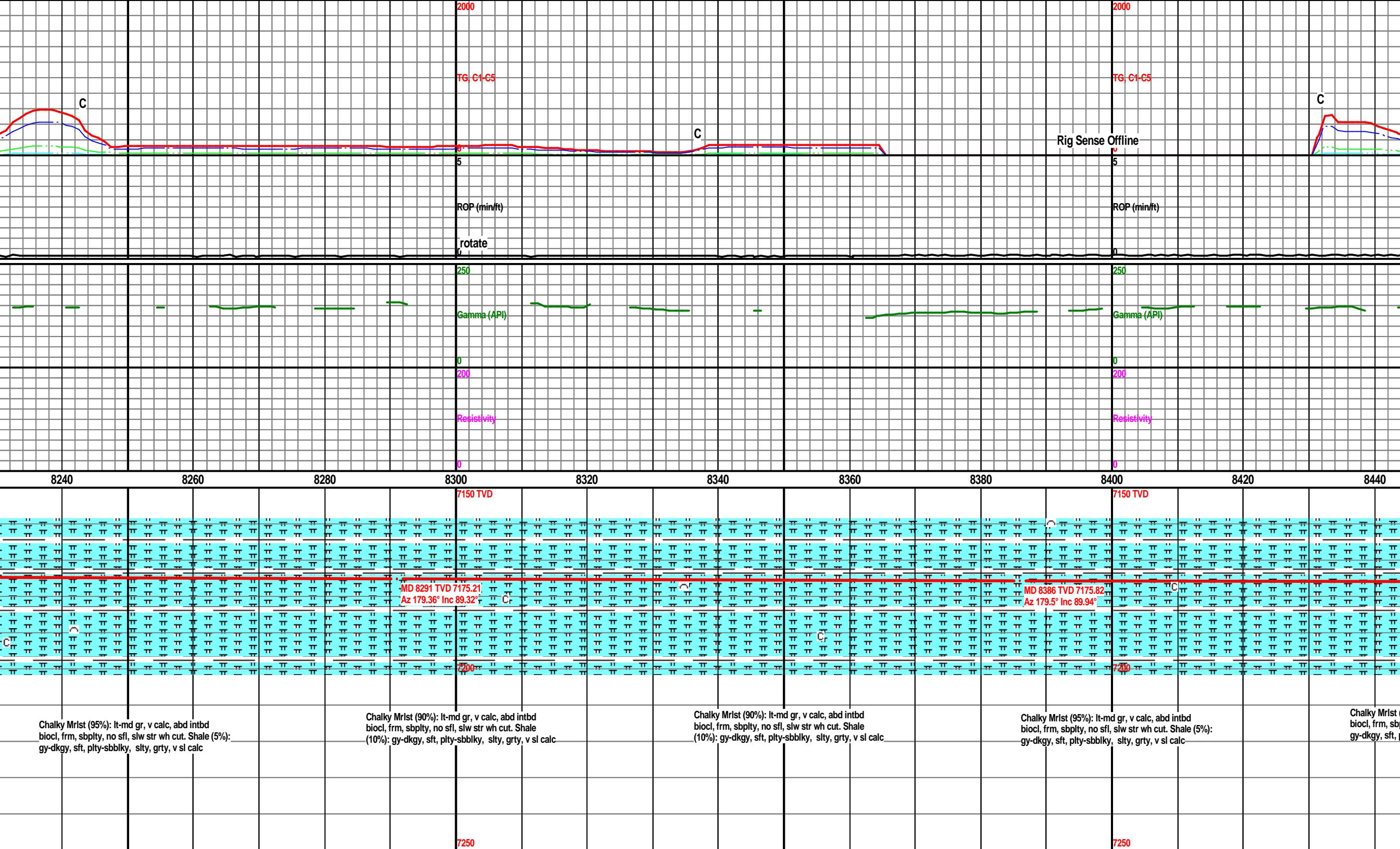
POROSITY	Moldic	SORTING	ROUNDING	OIL SHOW	INTERVAL	EVENT

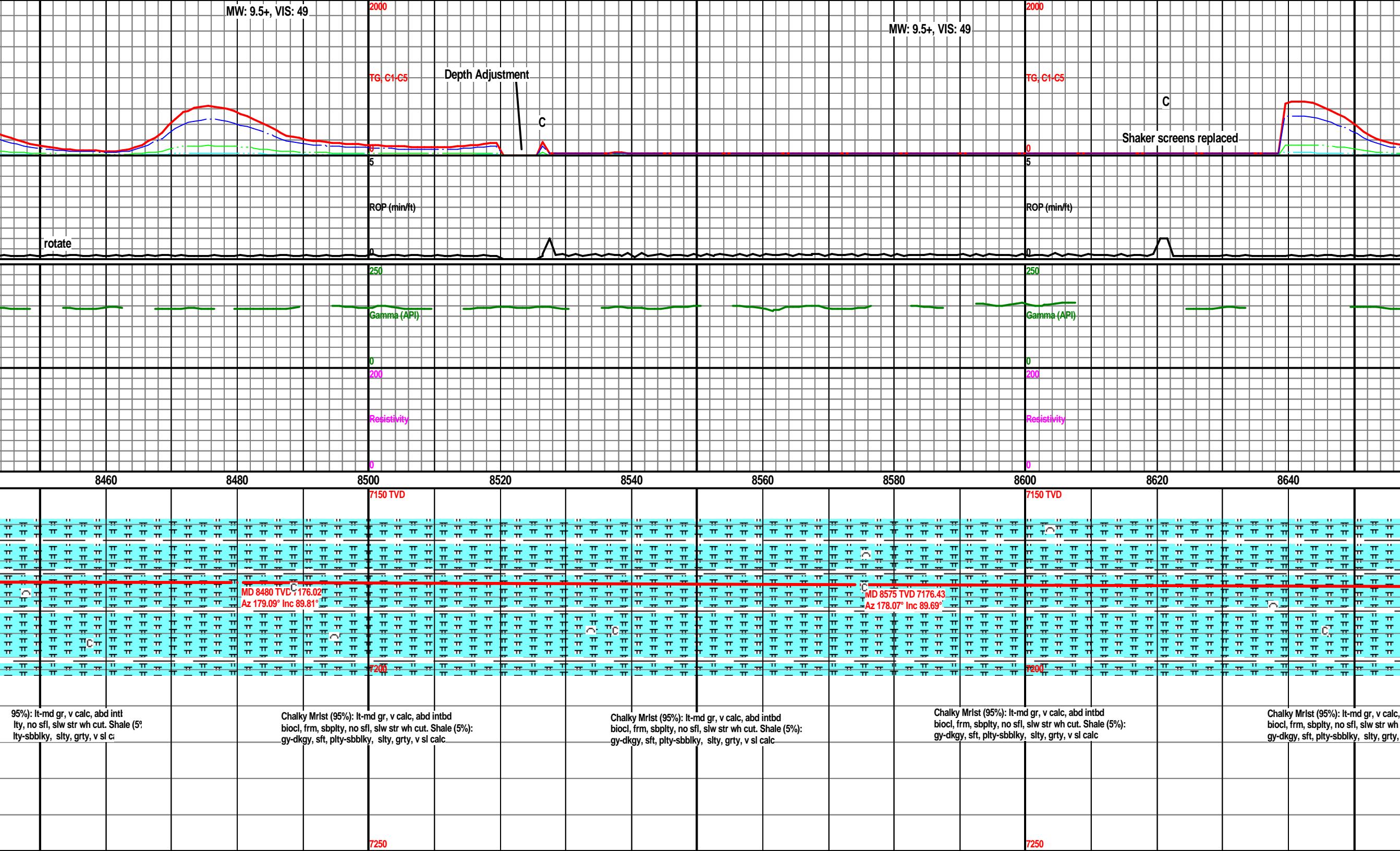


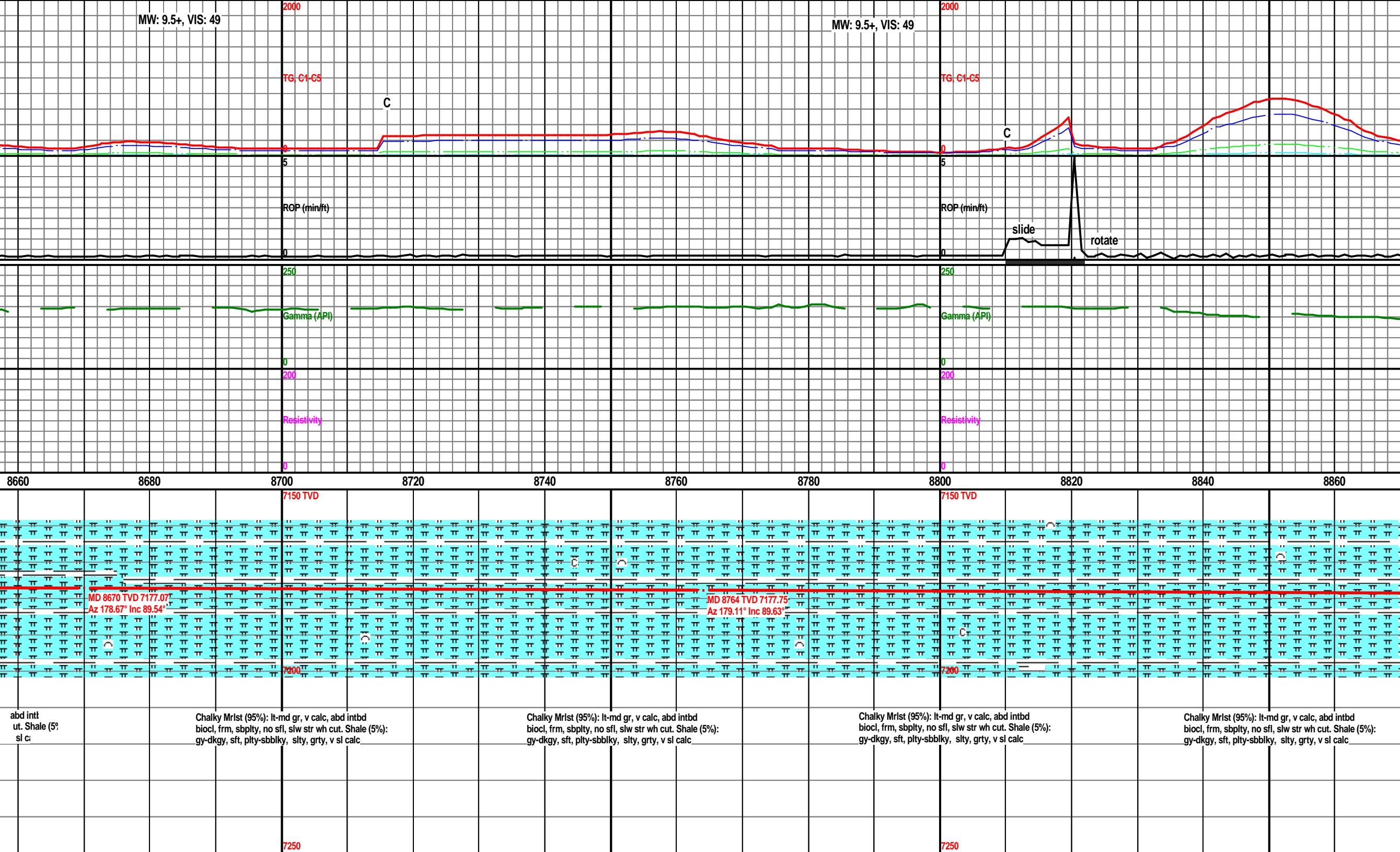












MW: 9.5+, VIS: 49

2000  
TG, C1-C5  
C

MW: 9.5+, VIS: 47

2000  
C  
TG, C1-C5

8880 8900 8920 8940 8960 8980 9000 9020 9040 9060 9080

7150 TVD

7150 TVD

Chalky Mrst (95%): lt-md gr, v calc, abd intbd  
biocl, frm, sbplty, no sfl, slw str wh cut. Shale (5%):  
gy-dkgry, sft, pfty-sbbly, slyt, grty, v sl calc

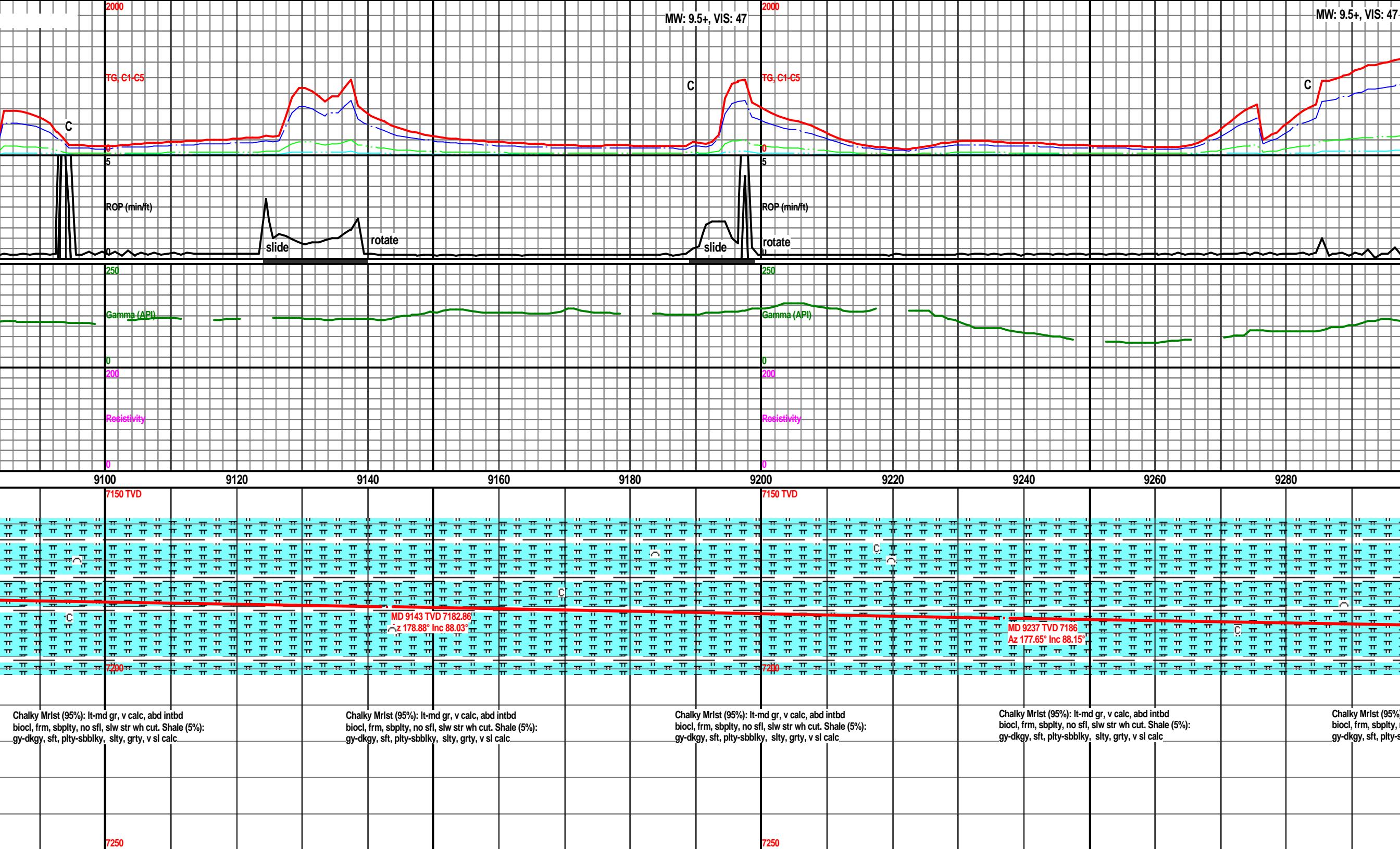
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gy-dkgry, sft, pfty-sbbly, slyt, grty, v sl calc

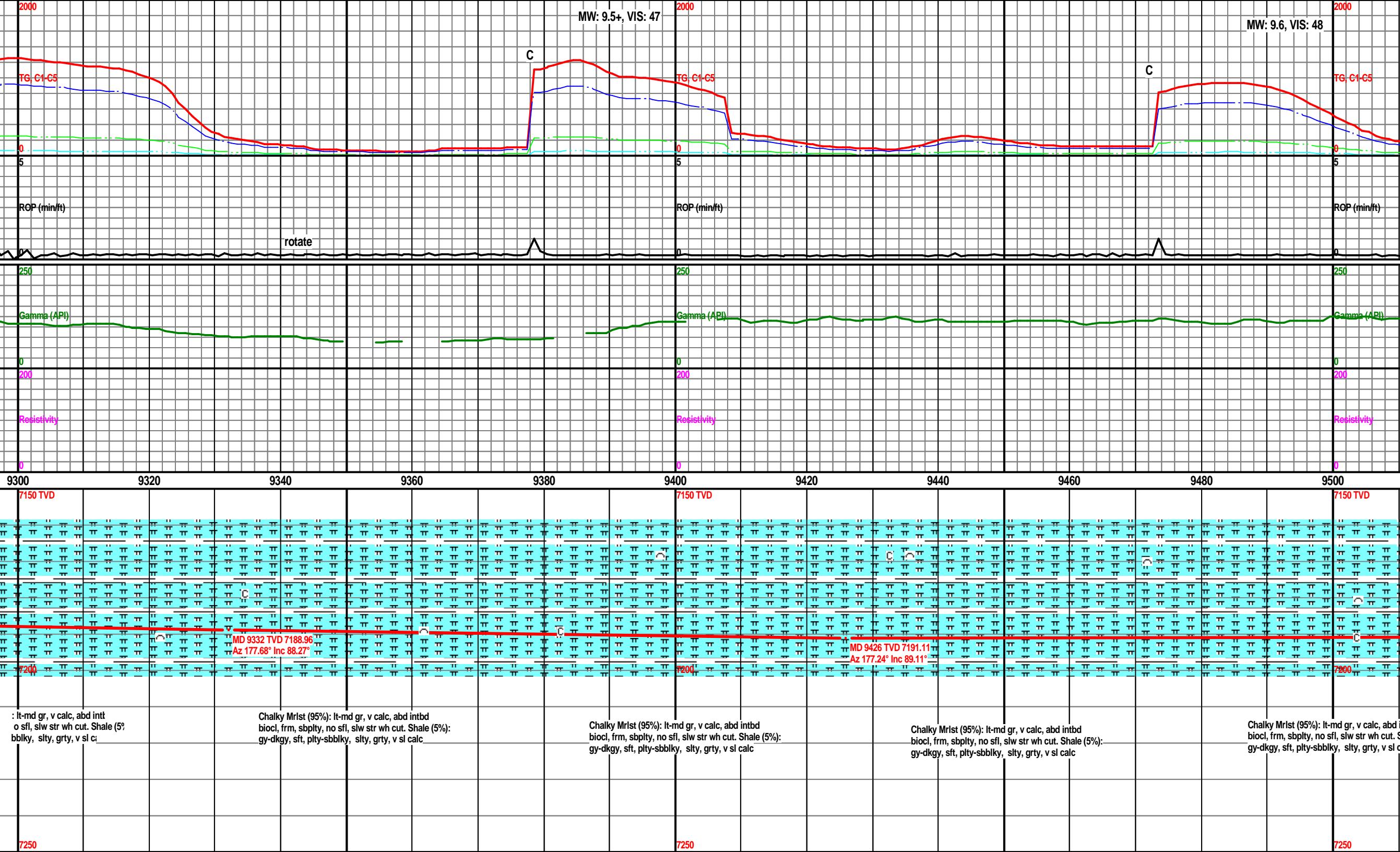
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gy-dkgry, sft, pfty-sbbly, slyt, grty, v sl calc

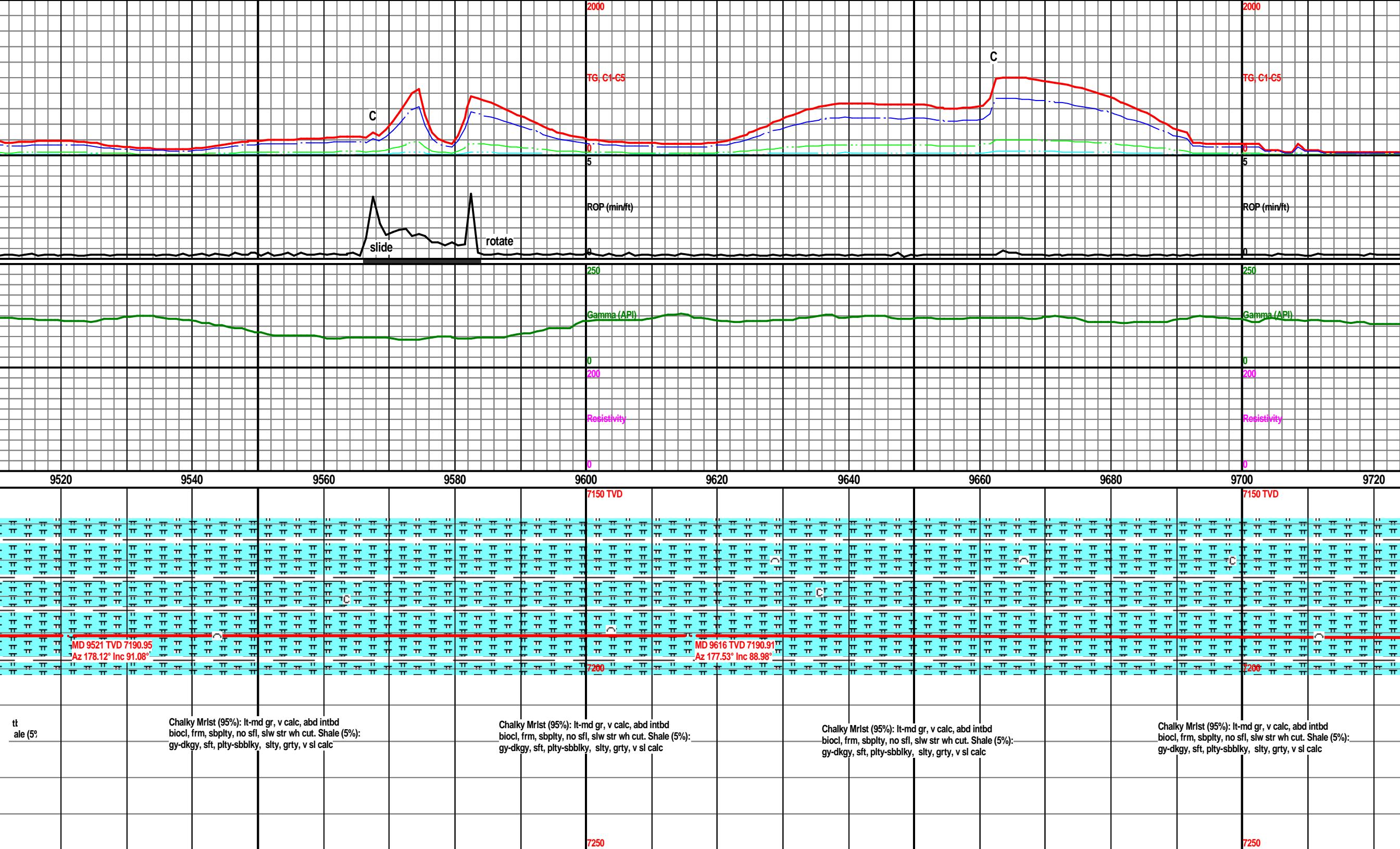
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biocl, frm, sbplty, no sfl, slw str wh cut. Shale (5%):  
gy-dkgry, sft, pfty-sbbly, slyt, grty, v sl calc

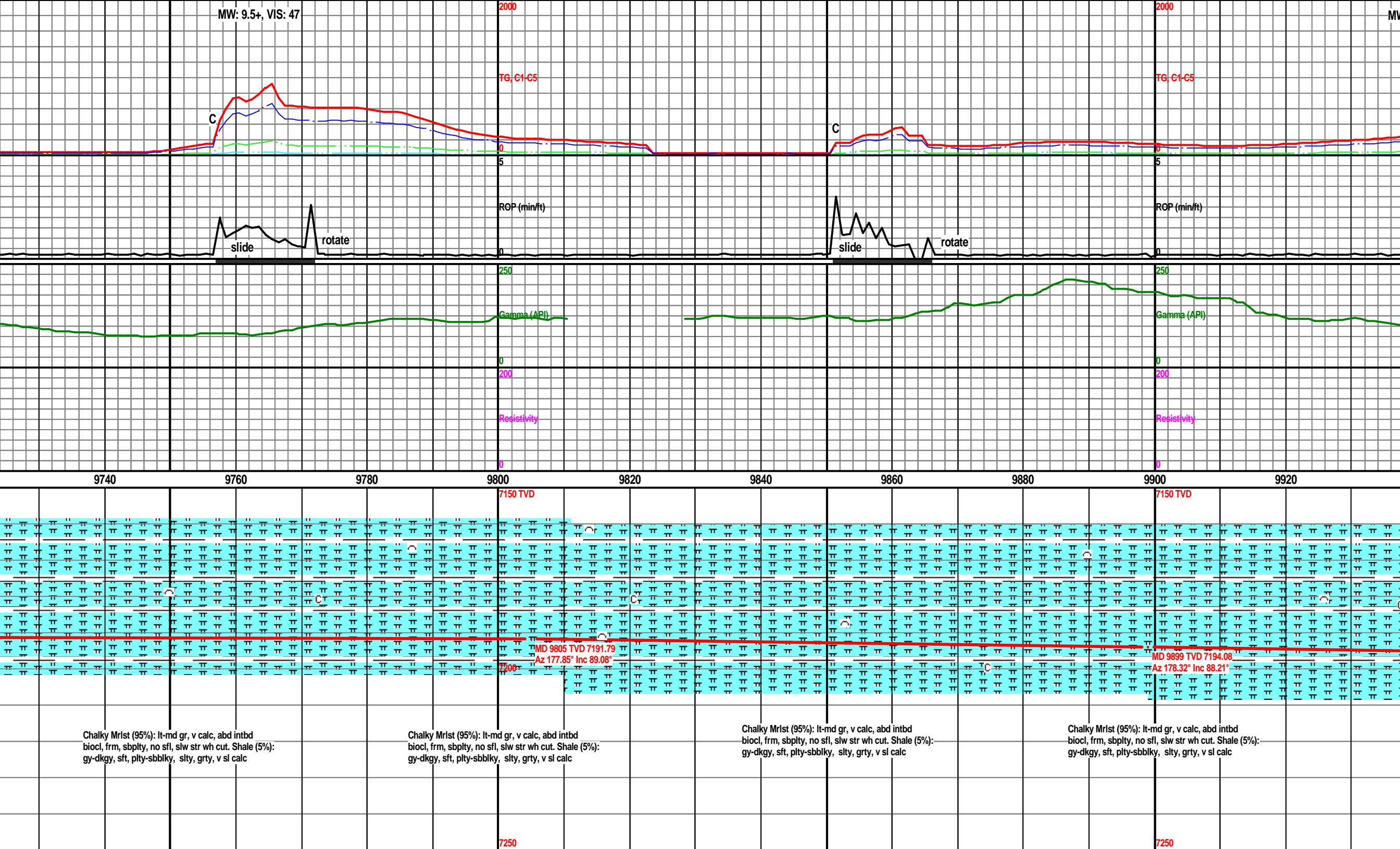
7250

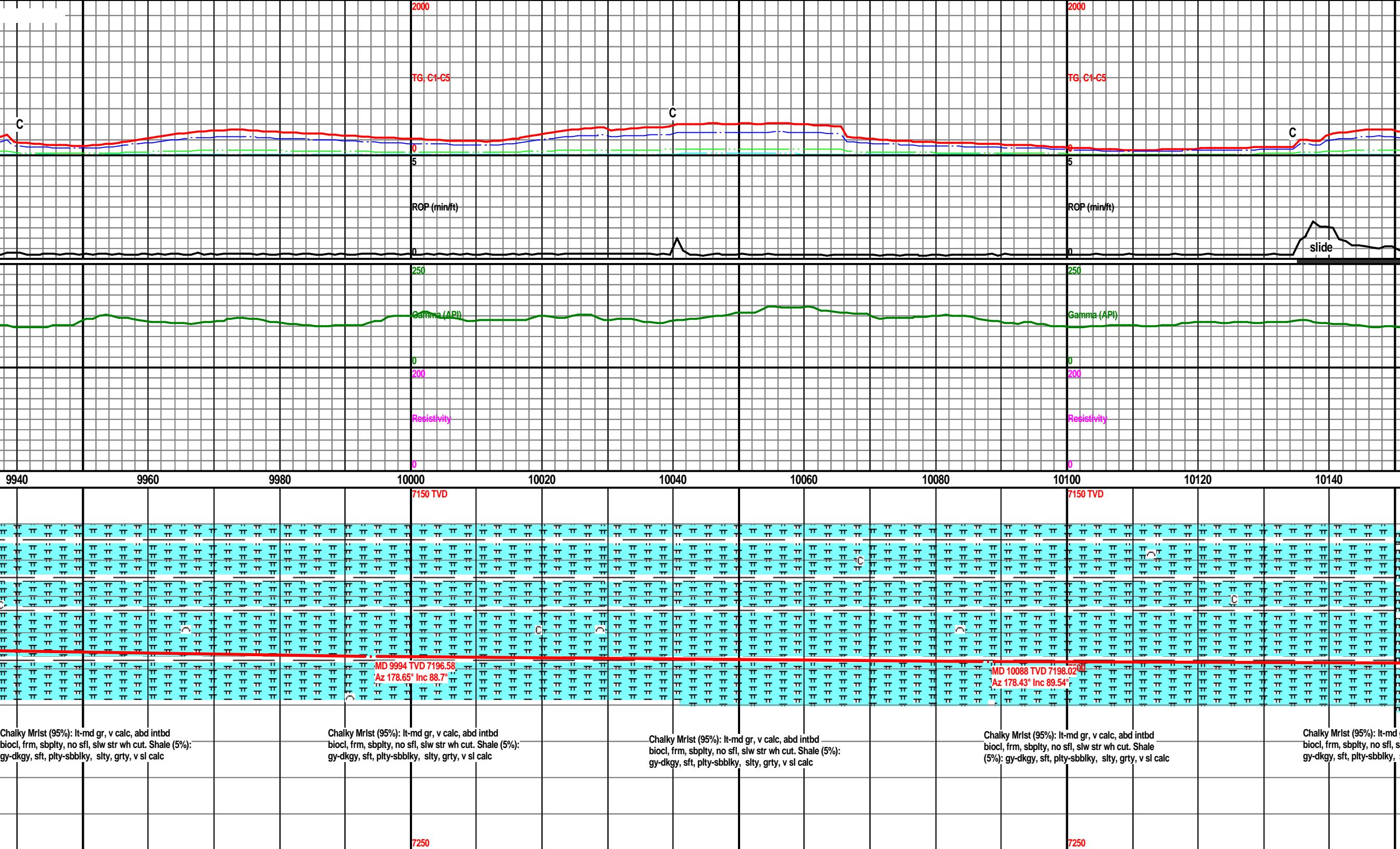
7250











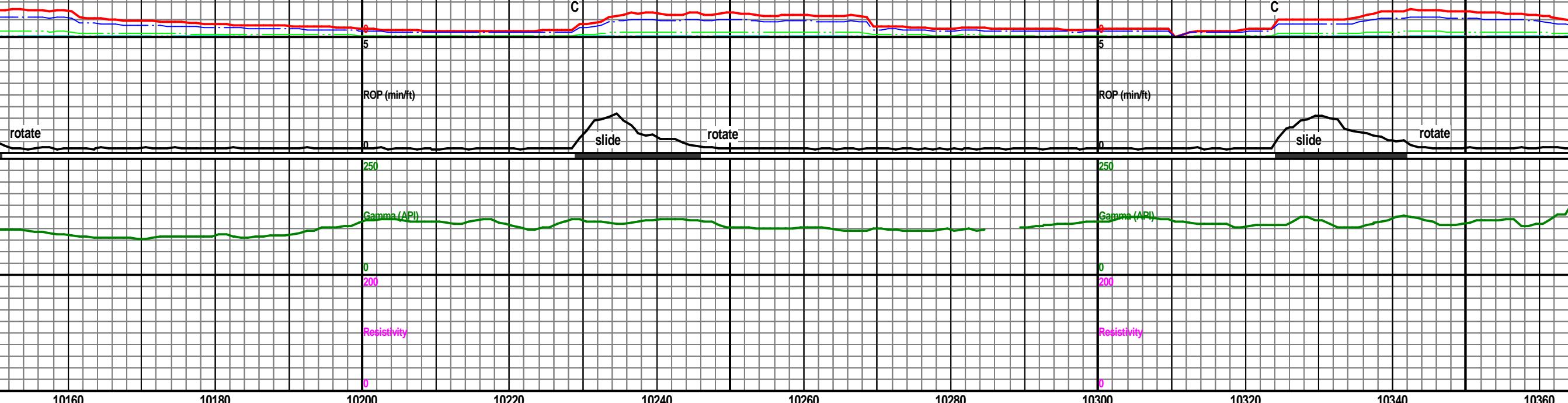
2000

MW: 9.7, VIS: 52

TG-C1-C5

2000

TG-C1-C5



10160 10180 10200 10220 10240 10260 10280 10300 10320 10340 10360

7150 TVD

7150 TVD

r, v calc, abd int  
lw str wh cut. Shale (5%  
lty, grty, v sl calc

Chalky Mrlst (95%): It-md gr, v calc, abd intbd  
biocl, frm, sbptry, no sfl, slw str wh cut. Shale (5%):  
gy-dkg, sft, pty-sbbkly, sly, grty, v sl calc

Chalky Mrlst (95%): It-md gr, v calc, abd intbd  
biocl, frm, sbptry, no sfl, slw str wh cut. Shale (5%):  
gy-dkg, sft, pty-sbbkly, sly, grty, v sl calc

Chalky Mrlst (95%): It-md gr, v calc, abd intbd  
biocl, frm, sbptry, no sfl, slw str wh cut. Shale (5%):  
gy-dkg, sft, pty-sbbkly, sly, grty, v sl calc

7200

MD 10183 TVD 7198.51°  
Az 180.89° Inc 89.88°

MD 10277 TVD 7199.27°  
Az 179.09° Inc 89.2°

7250

MW: 9.7, VIS: 52

2000

MW: 9.6, VIS: 50

TG-C1-C5

TG-C1-C5

\*Note scale change\*

Scale Change  
TG C1-C5

C

C

ROP (min/ft)

ROP (min/ft)

250

250

Gamma (API)

Gamma (API)

200

200

Resistivity

Resistivity

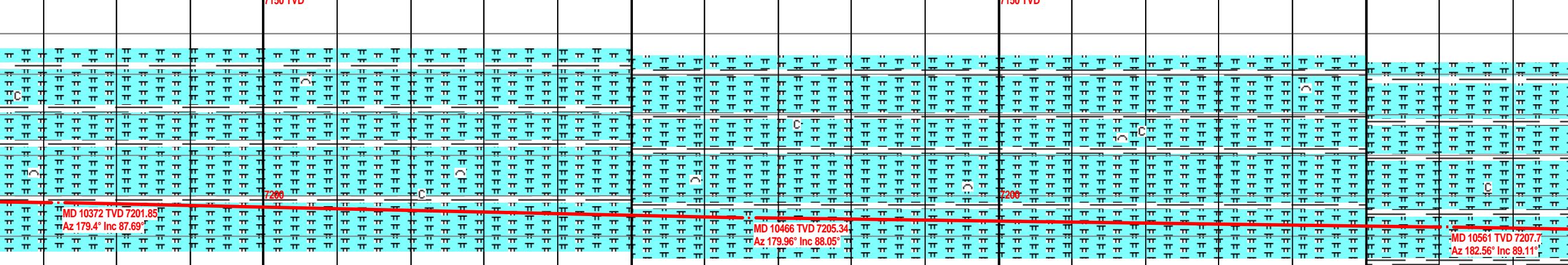
0

0

10380 10400 10420 10440 10460 10480 10500 10520 10540 10560

7150 TVD

7150 TVD



Chalky Mrst (95%): lt-md gr, v calc, abd intbd  
biocl, frm, sbpsty, no sfl, slw str wh cut. Shale (5%):  
gy-dkgry, sft, plty-sbbkly, sity, grty, v sl calc

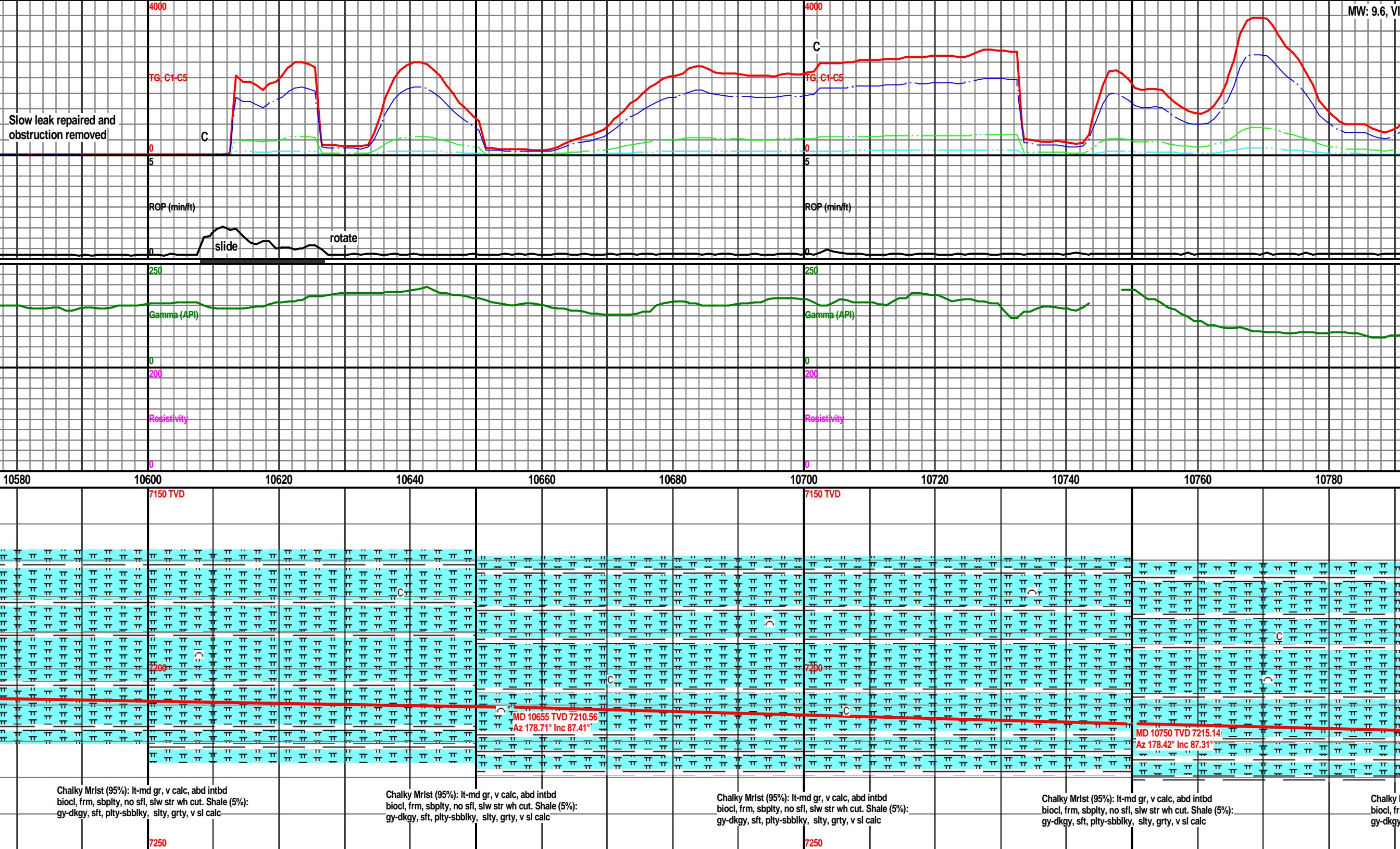
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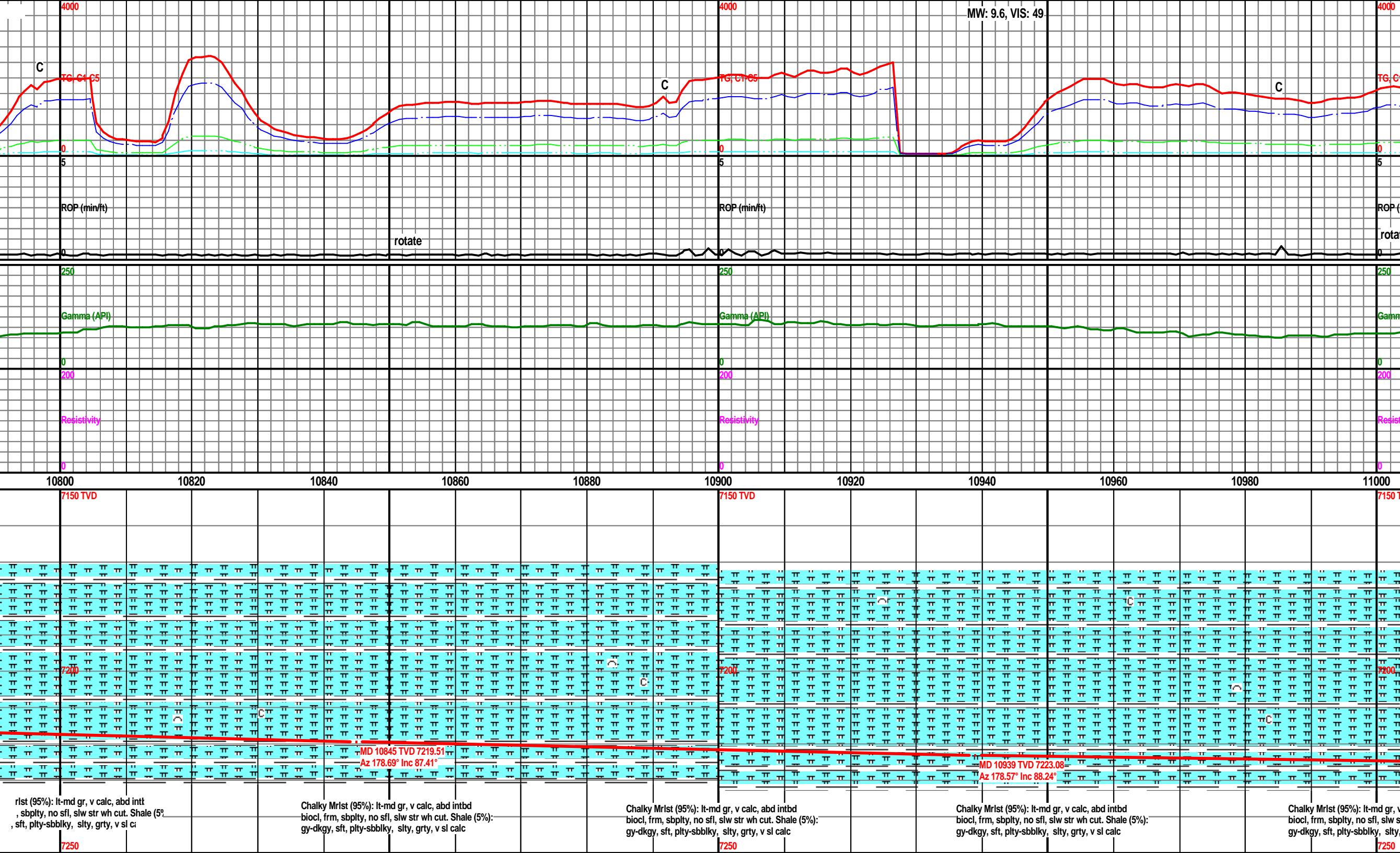
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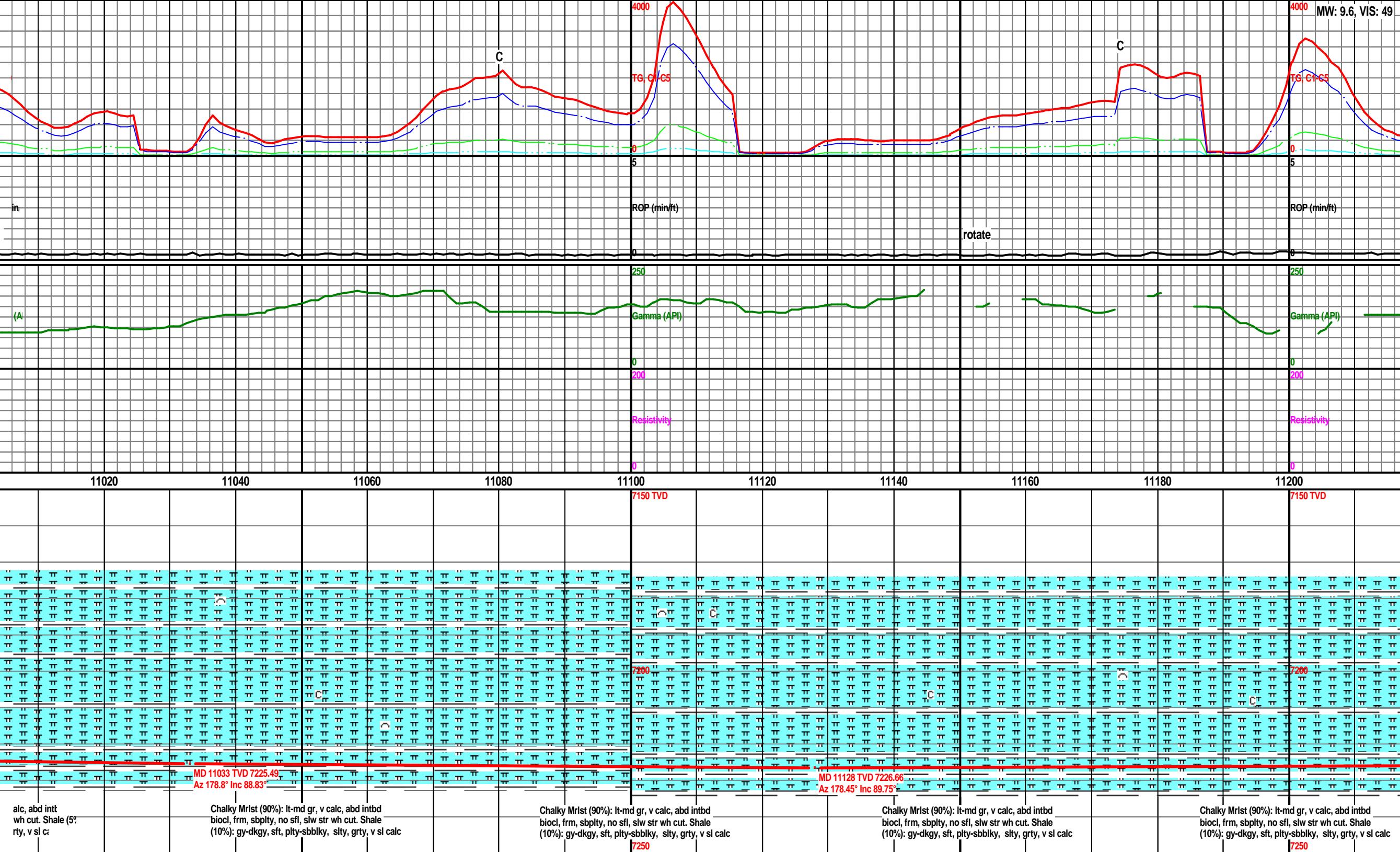
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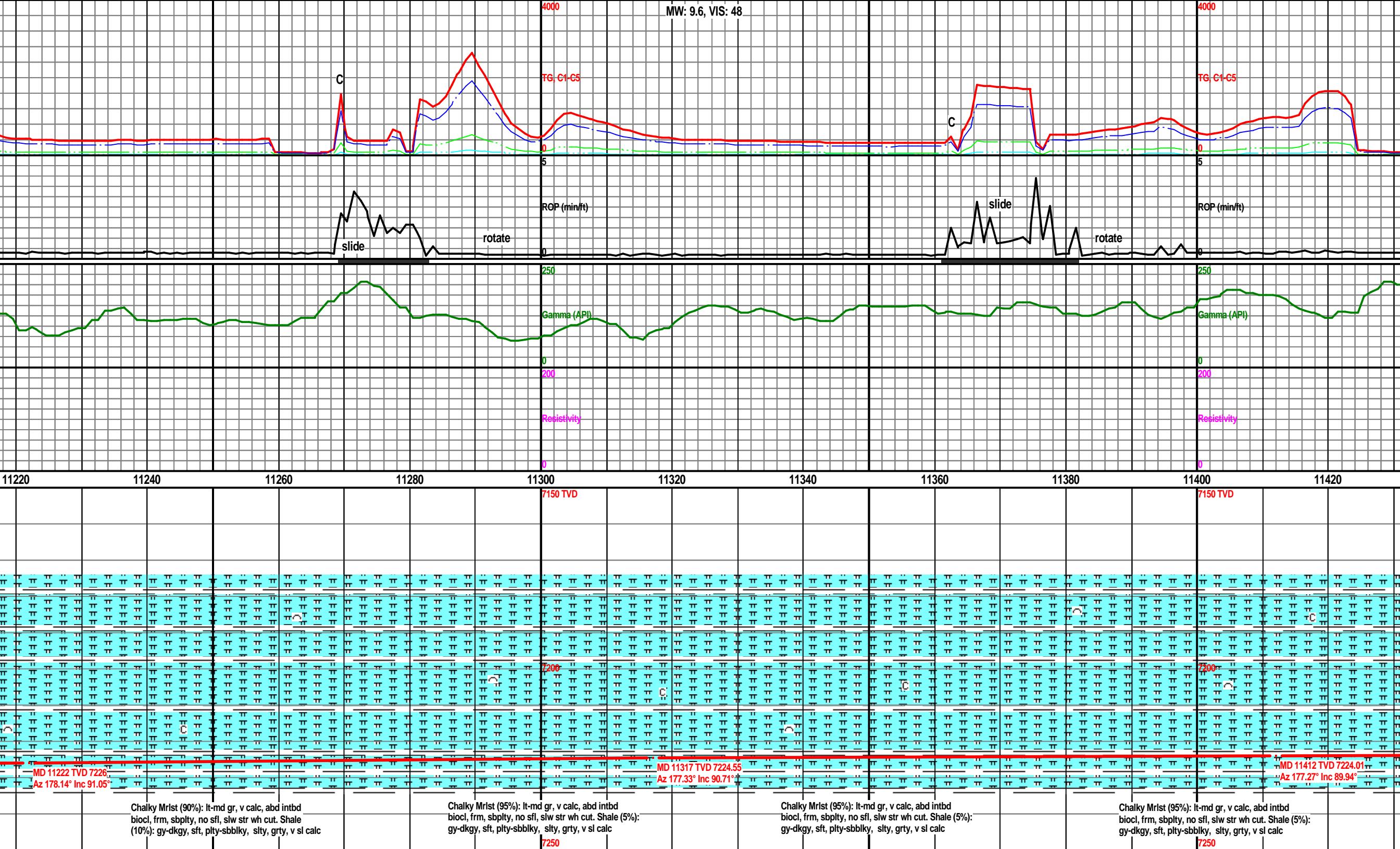
7250

7250

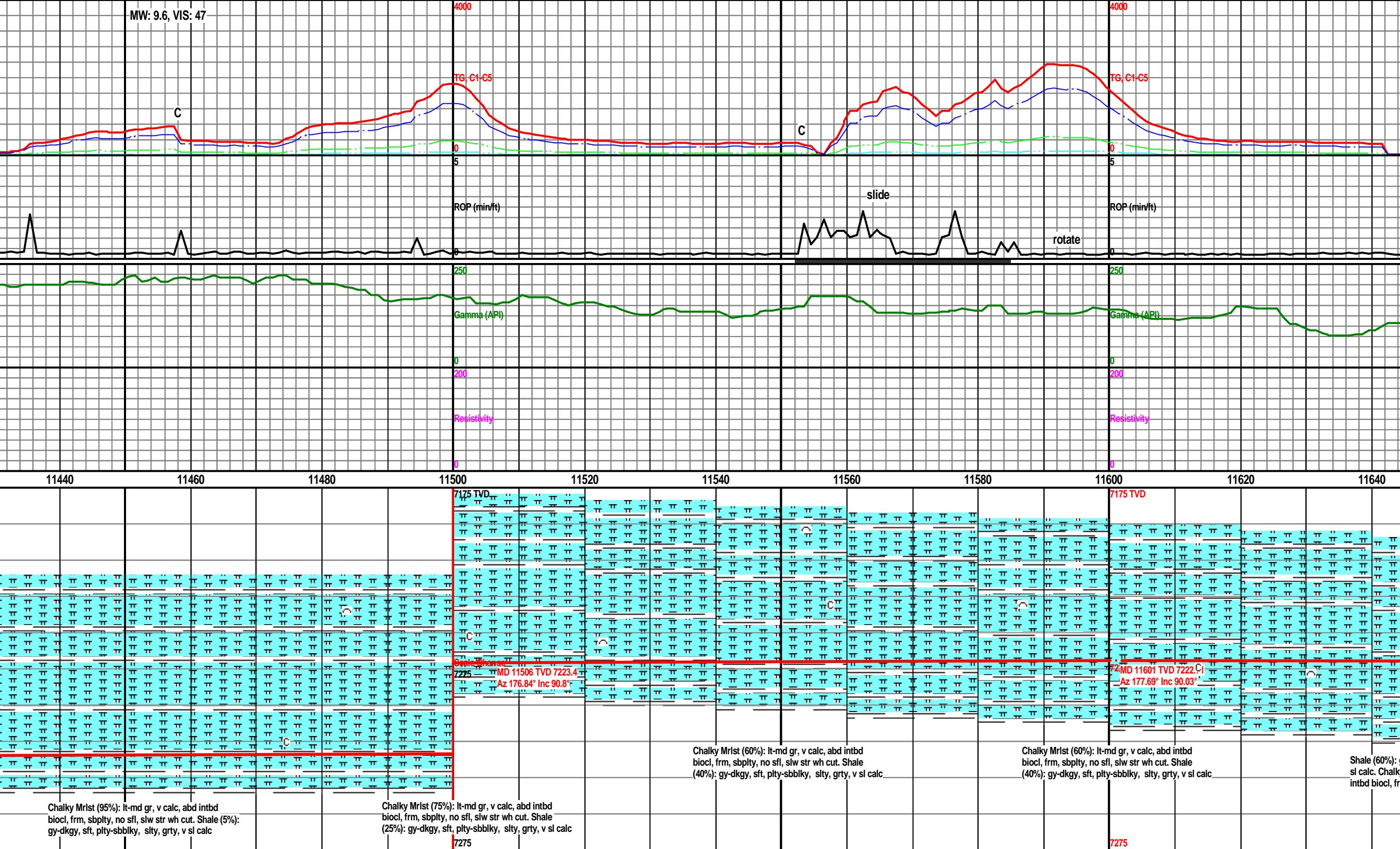


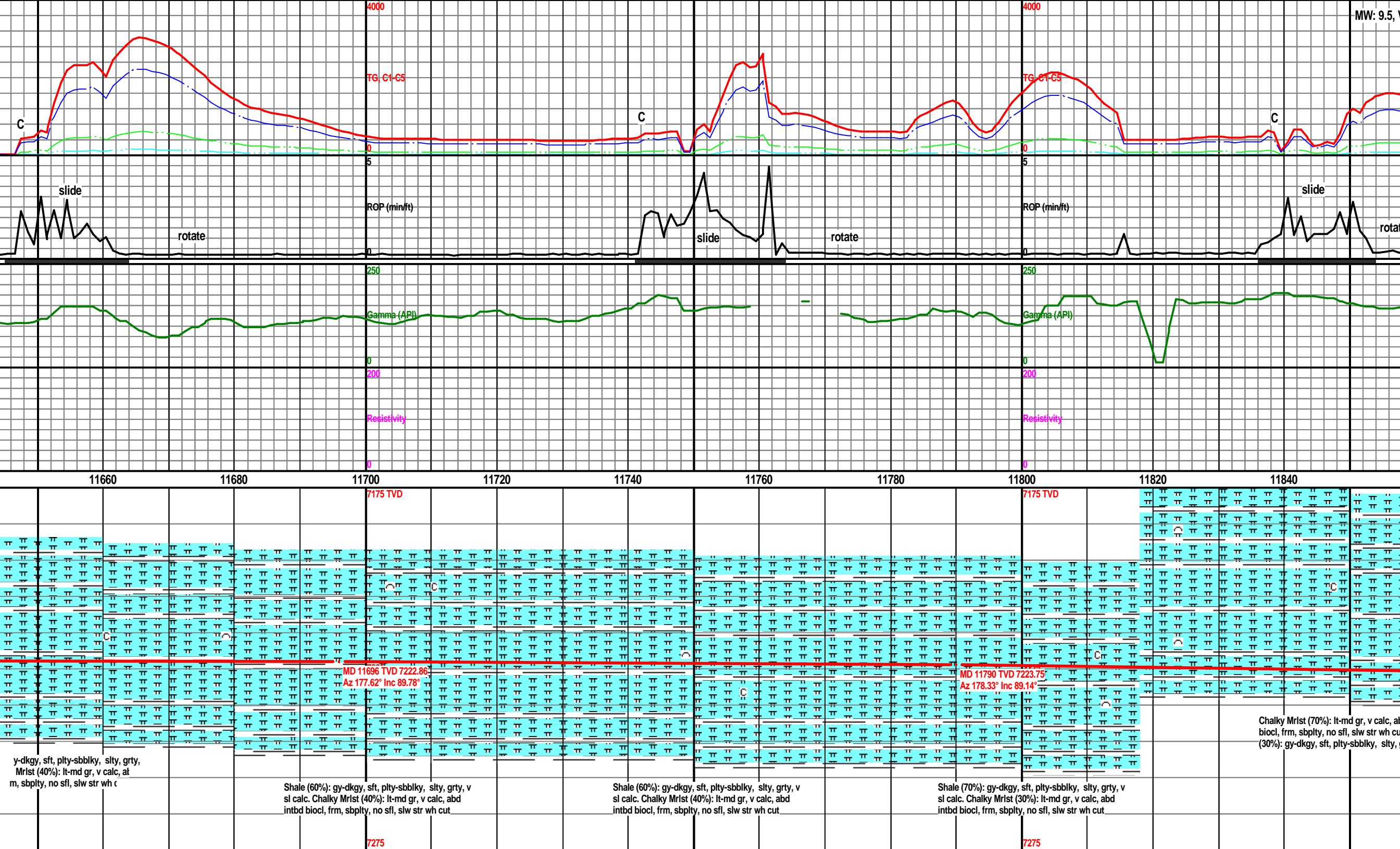


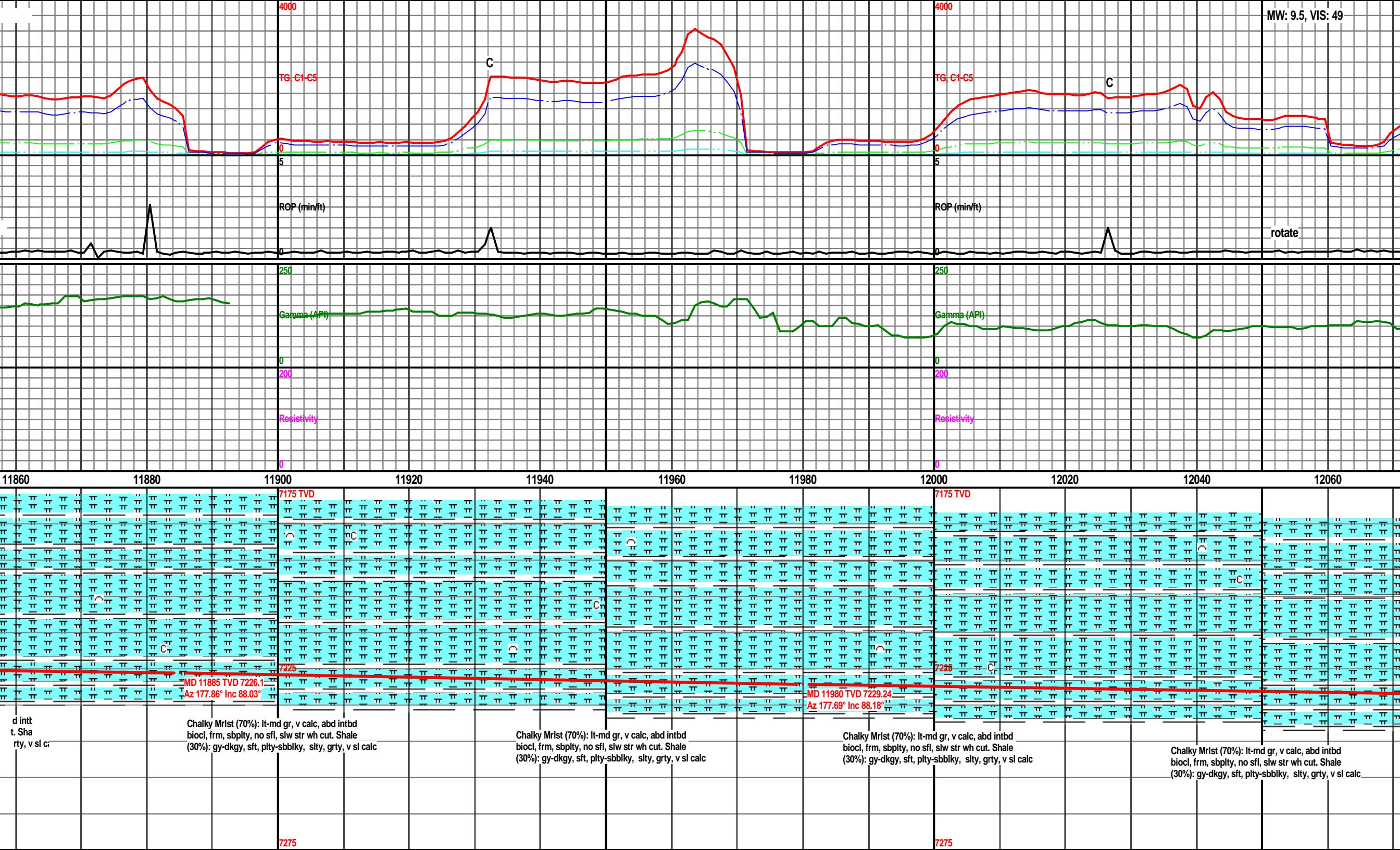


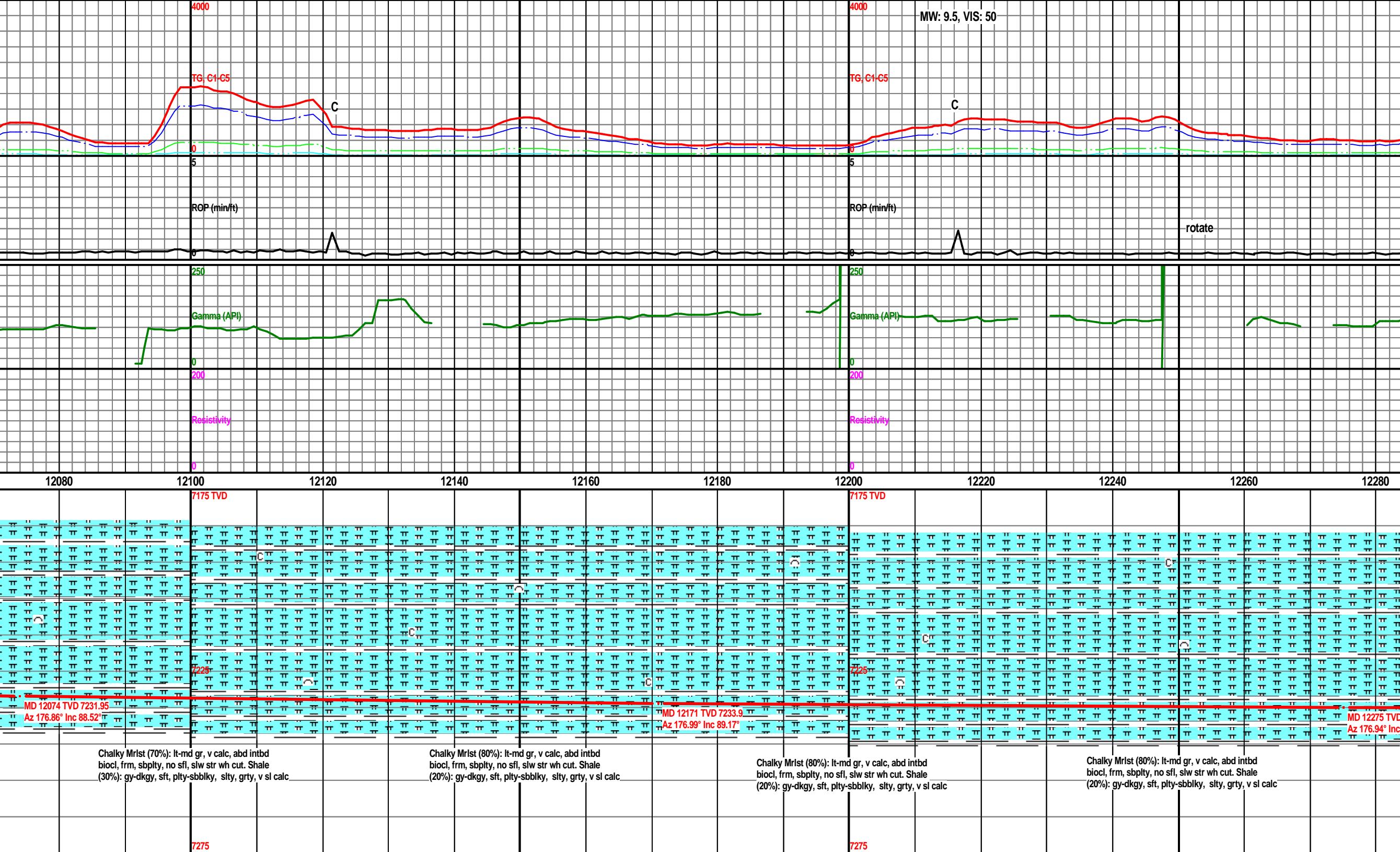


MW: 9.6, VIS: 47









4000  
Wiper Trip @ 12310' 11:30 PM MW: 9.6, VIS: 51  
03/21/13  
ON Gas Buster  
On bottom and drilling ahead  
@ 5:00 PM 03/22/13

TG-C1-C5

4000  
MW: 9.6, VIS: 51  
03/21/13  
ON Gas Buster

On bottom and drilling ahead  
@ 5:00 PM 03/22/13

C

0

5

ROP (min/ft)

0

250

Gamma (API)

0

200

Resistivity

0

12300 12320 12340 12360 12380 12400 12420 12440 12460 12480

7175 TVD

7175 TVD

7175 TVD

7175 TVD

7175 TVD

7175 TVD

7225

7225

7225

7225

7225

7225

234.  
9.0

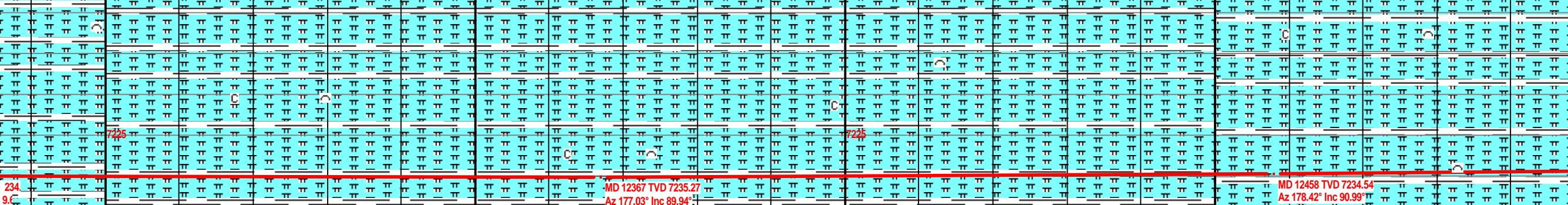
MD 12367 TVD 7235.27  
Az 177.03° Inc 89.94°

MD 12458 TVD 7234.54  
Az 178.42° Inc 90.99°

7225

7225

7225



Chalky Mrst (80%): lt-md gr, v calc, abd intbd  
biocl, frm, sbptry, no sfl, slw str wh cut. Shale  
(20%): gy-dkg, sft, plty-sbbkly, sly, grty, v sl calc

Chalky Mrst (70%): lt-md gr, v calc, abd intbd  
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(30%): gy-dkg, sft, plty-sbbkly, sly, grty, v sl calc

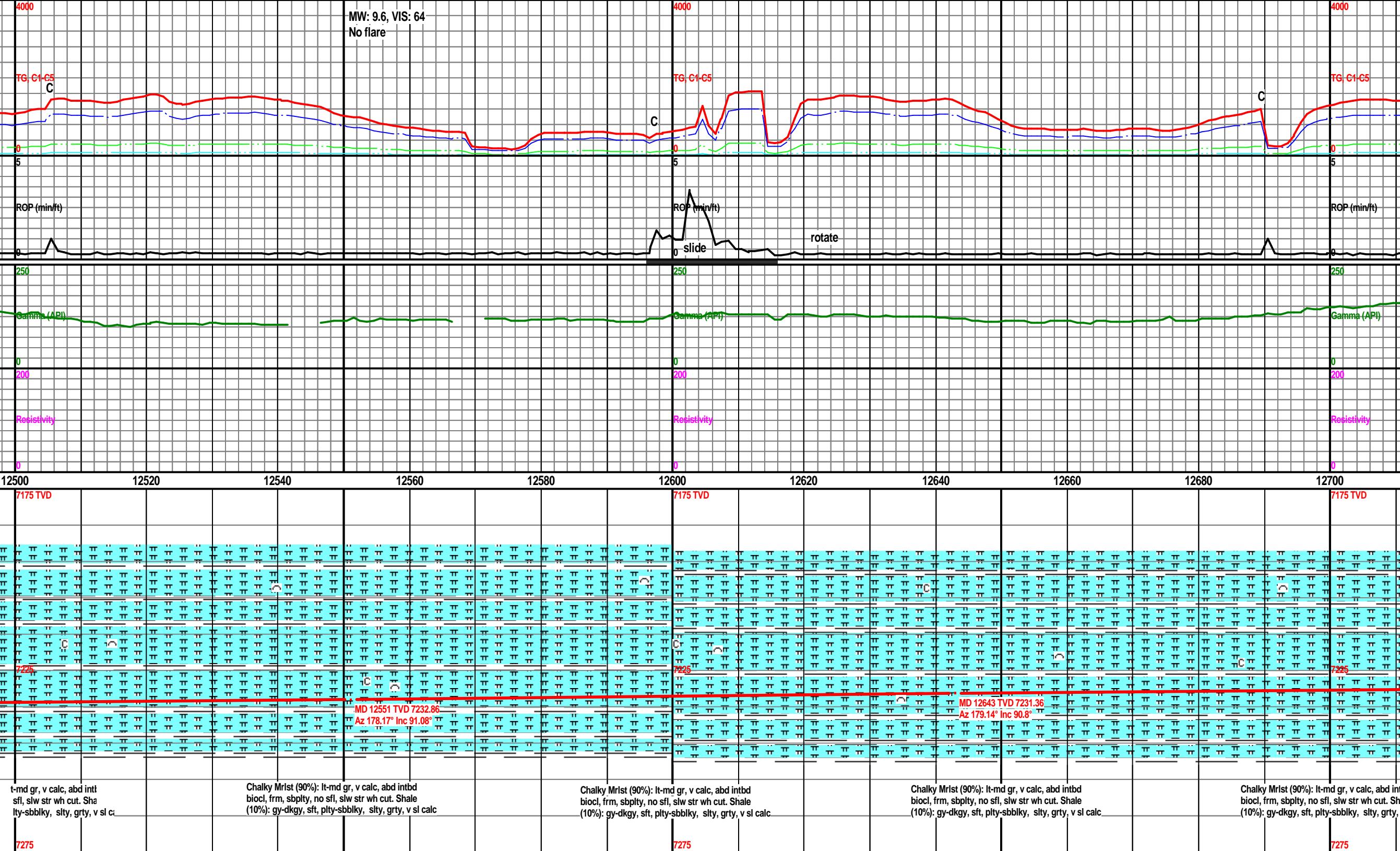
Chalky Mrst (70%): lt-md gr, v calc, abd intbd  
biocl, frm, sbptry, no sfl, slw str wh cut. Shale  
(30%): gy-dkg, sft, plty-sbbkly, sly, grty, v sl calc

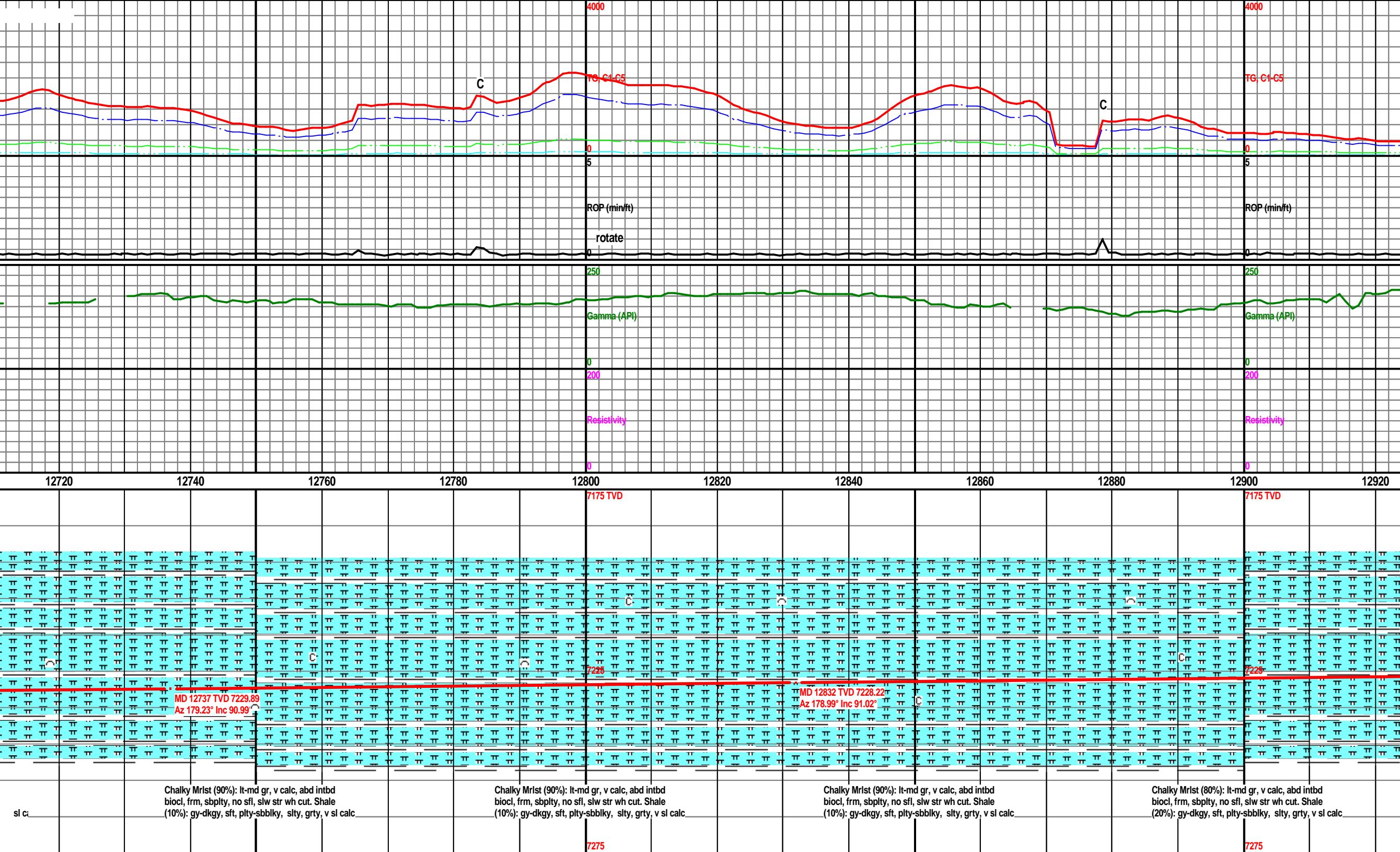
Chalky Mrst (80%): lt-md gr, v calc, abd intbd  
biocl, frm, sbptry, no sfl, slw str wh cut. Shale  
(20%): gy-dkg, sft, plty-sbbkly, sly, grty, v sl calc

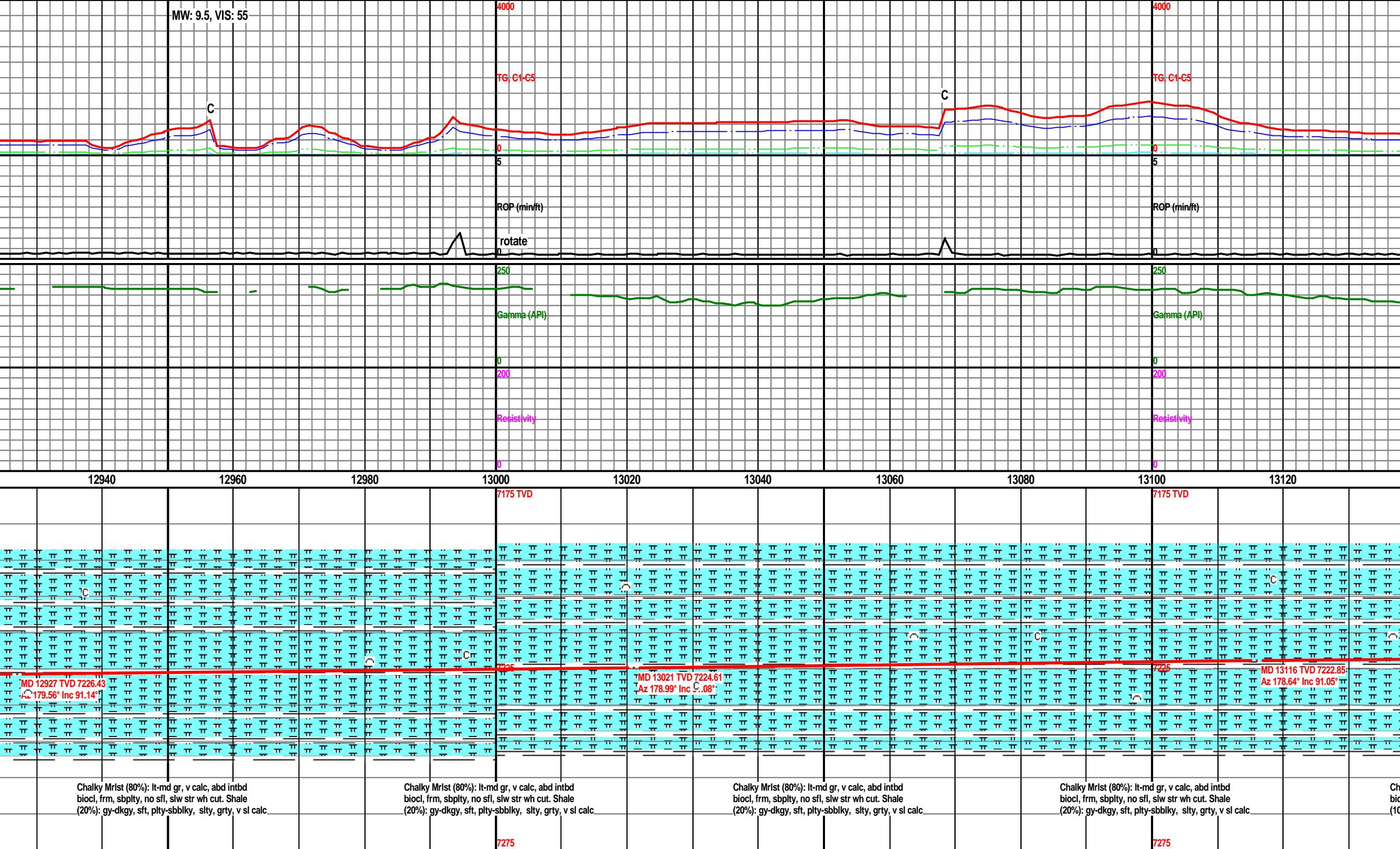
Chalky Mrst (80%):  
biocl, frm, sbptry, no  
(20%): gy-dkg, sft,

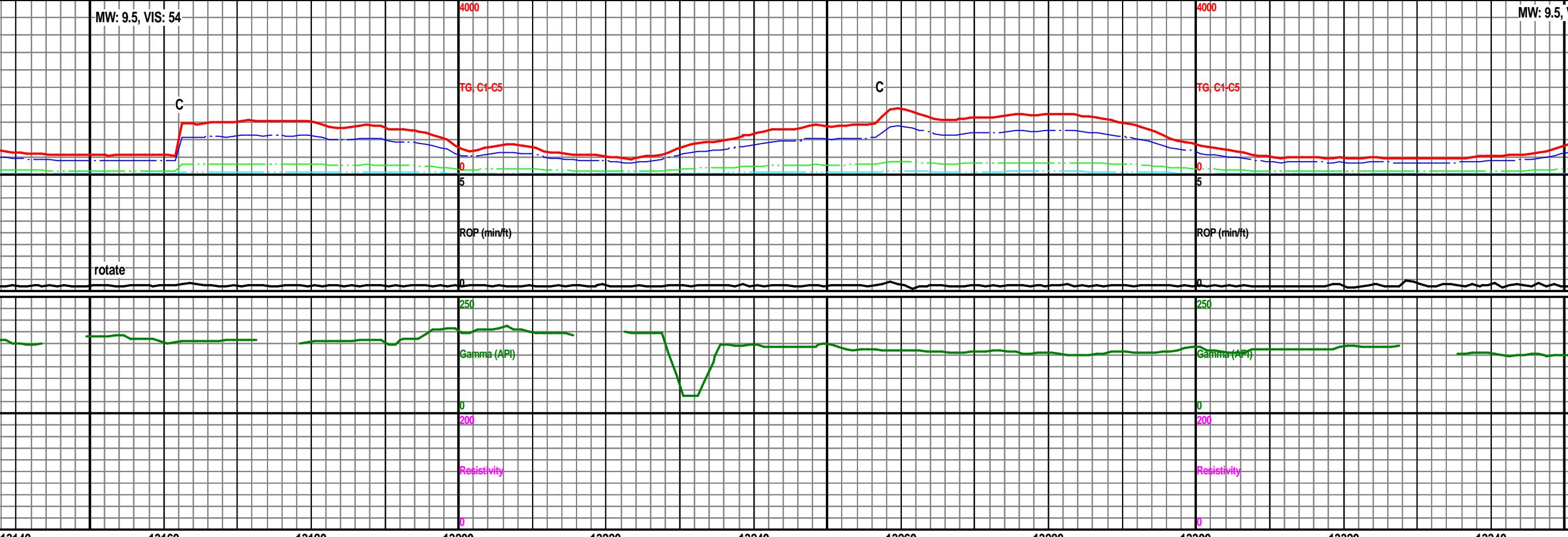
7275

7275

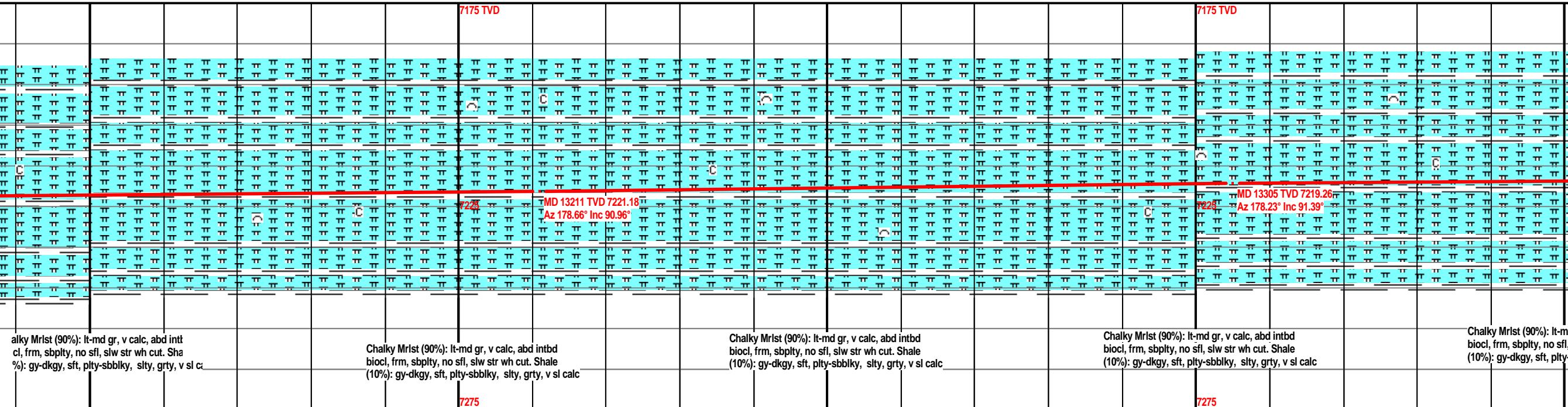


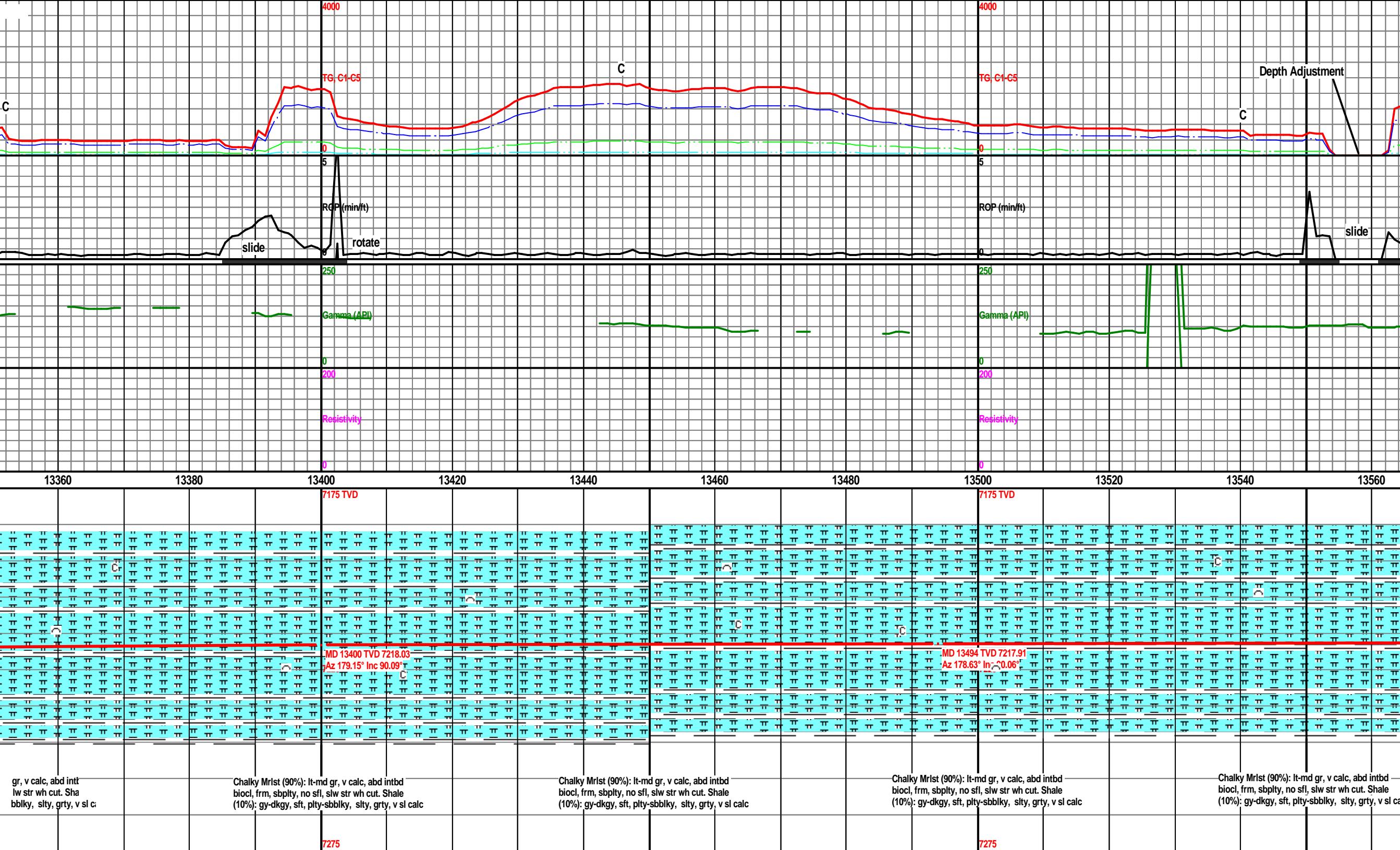


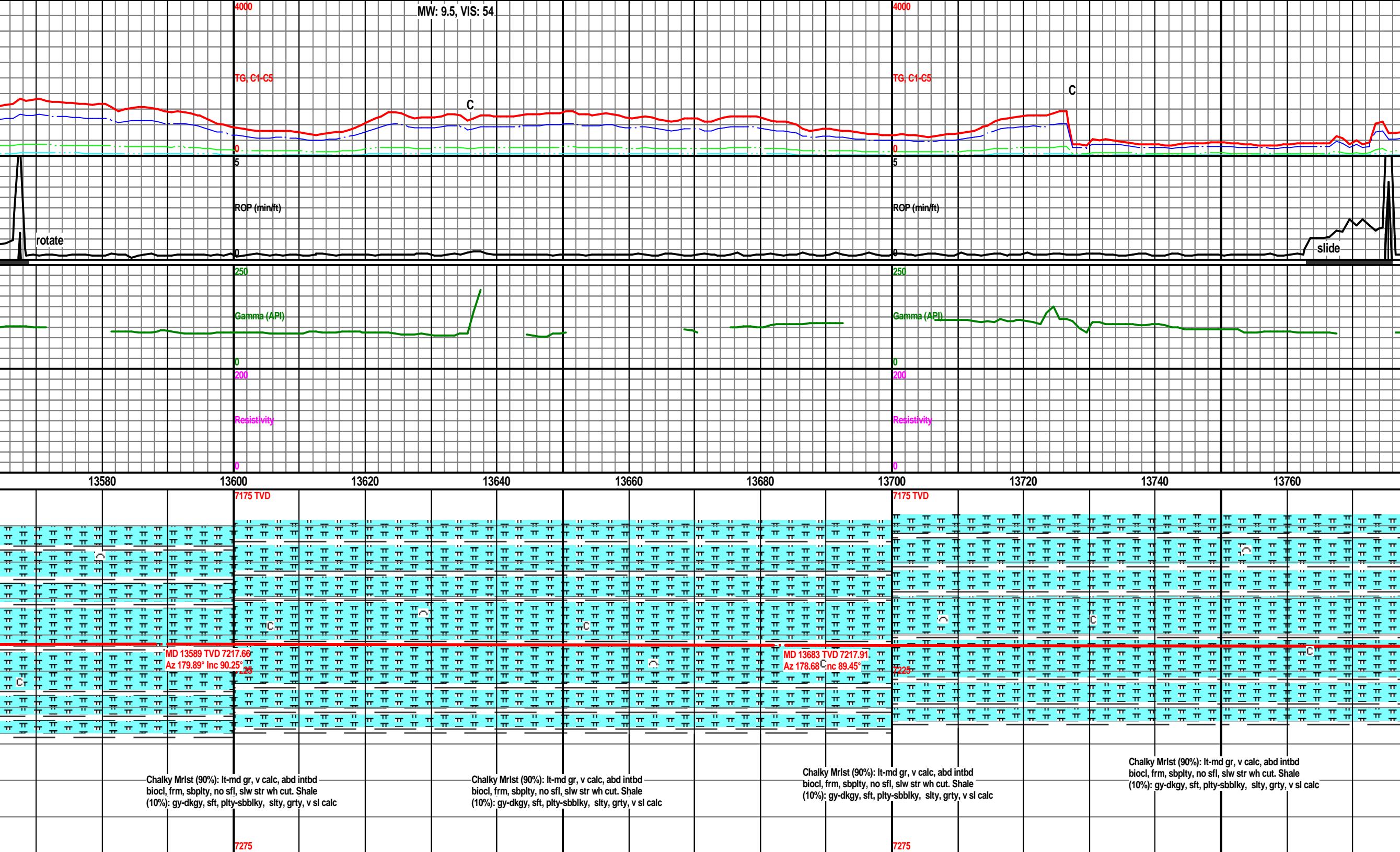


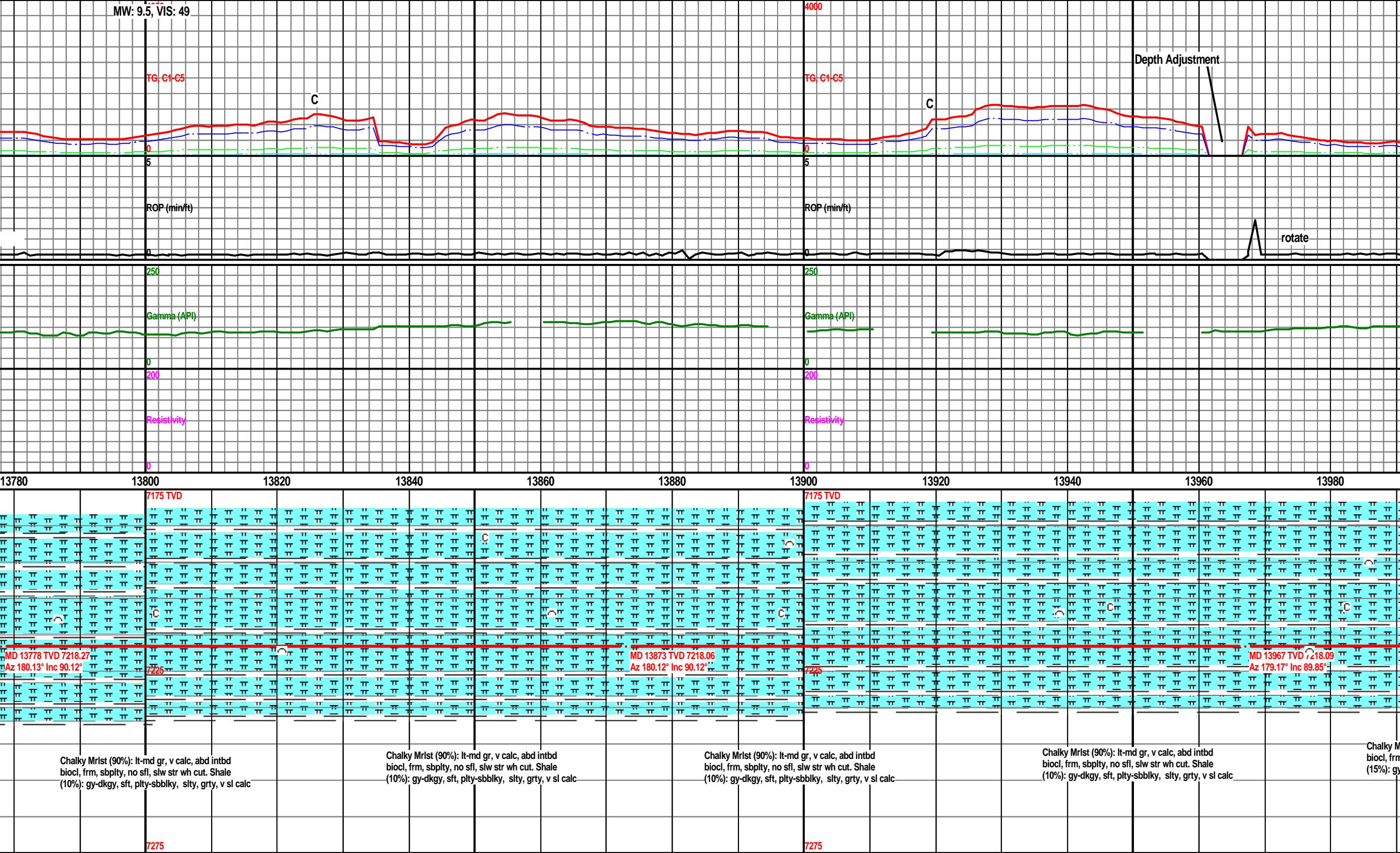


13140 13160 13180 13200 13220 13240 13260 13280 13300 13320 13340

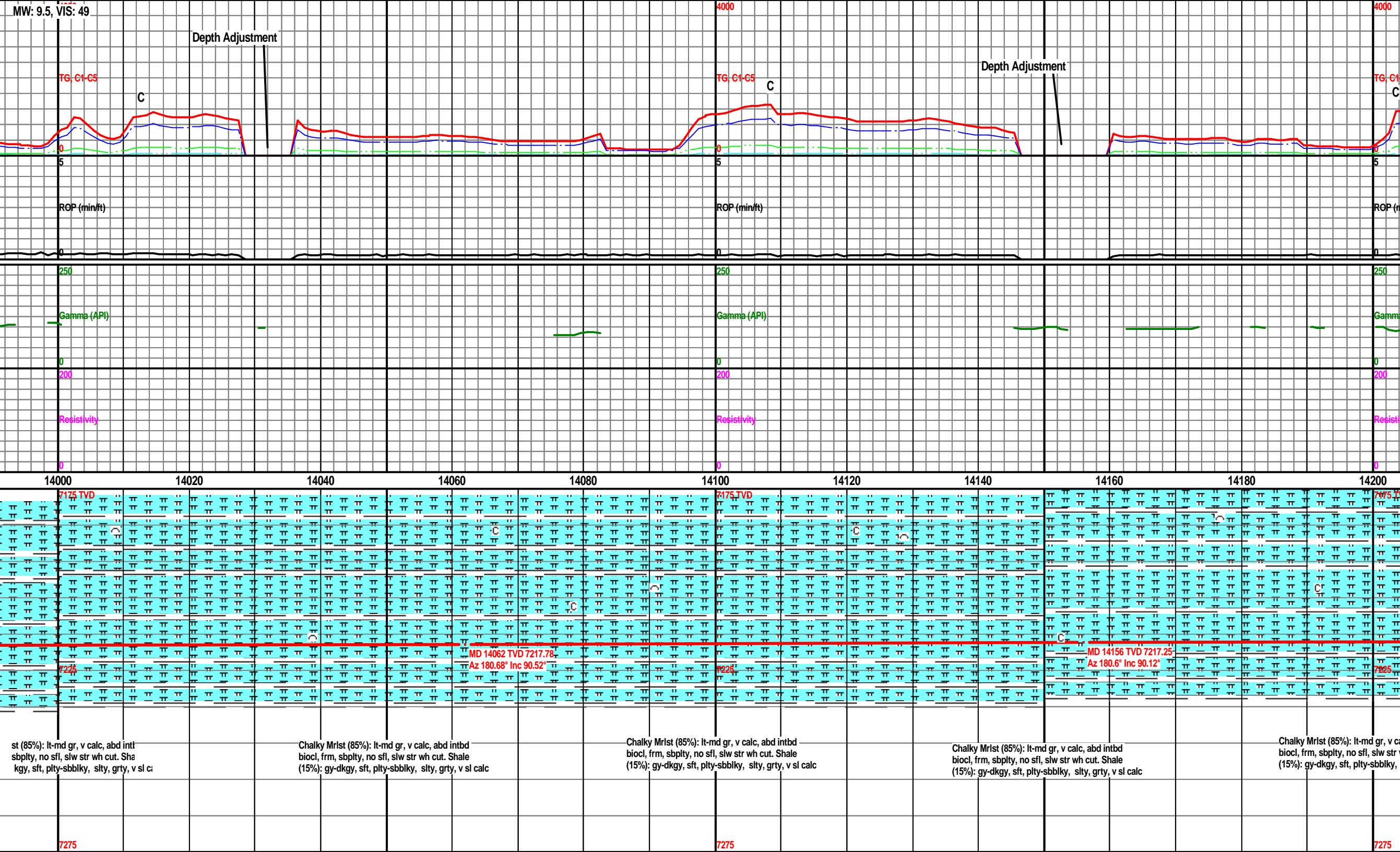


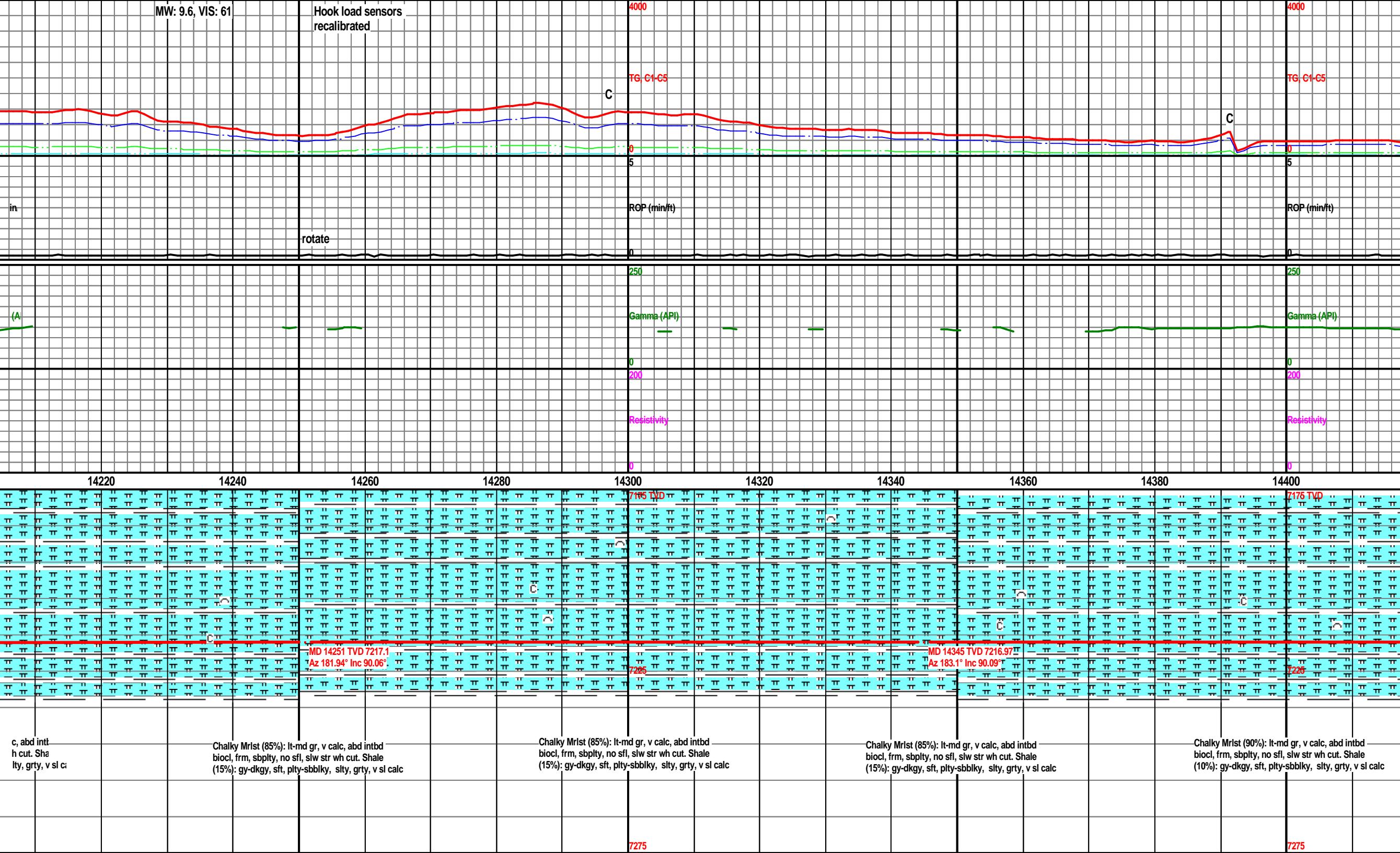


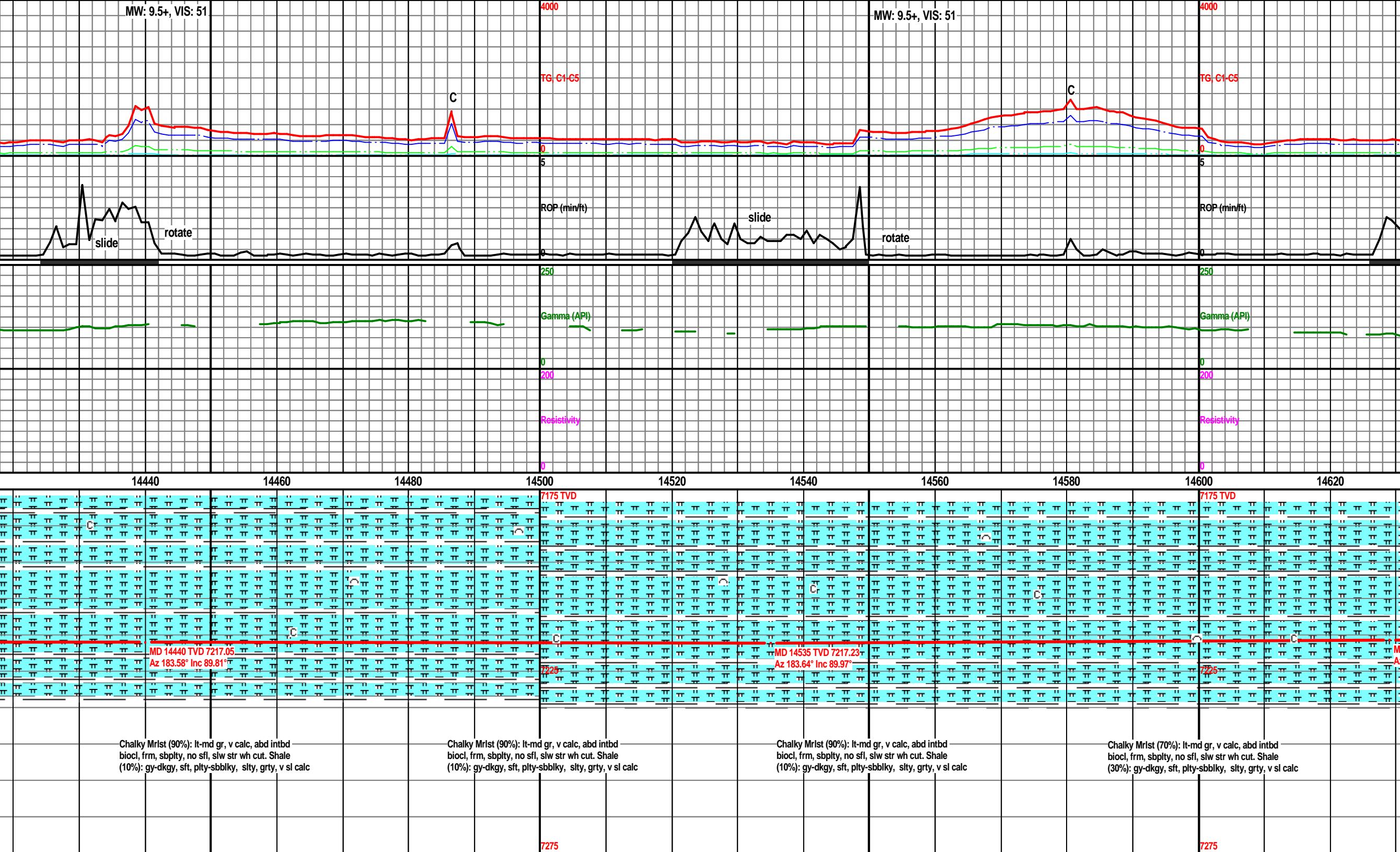


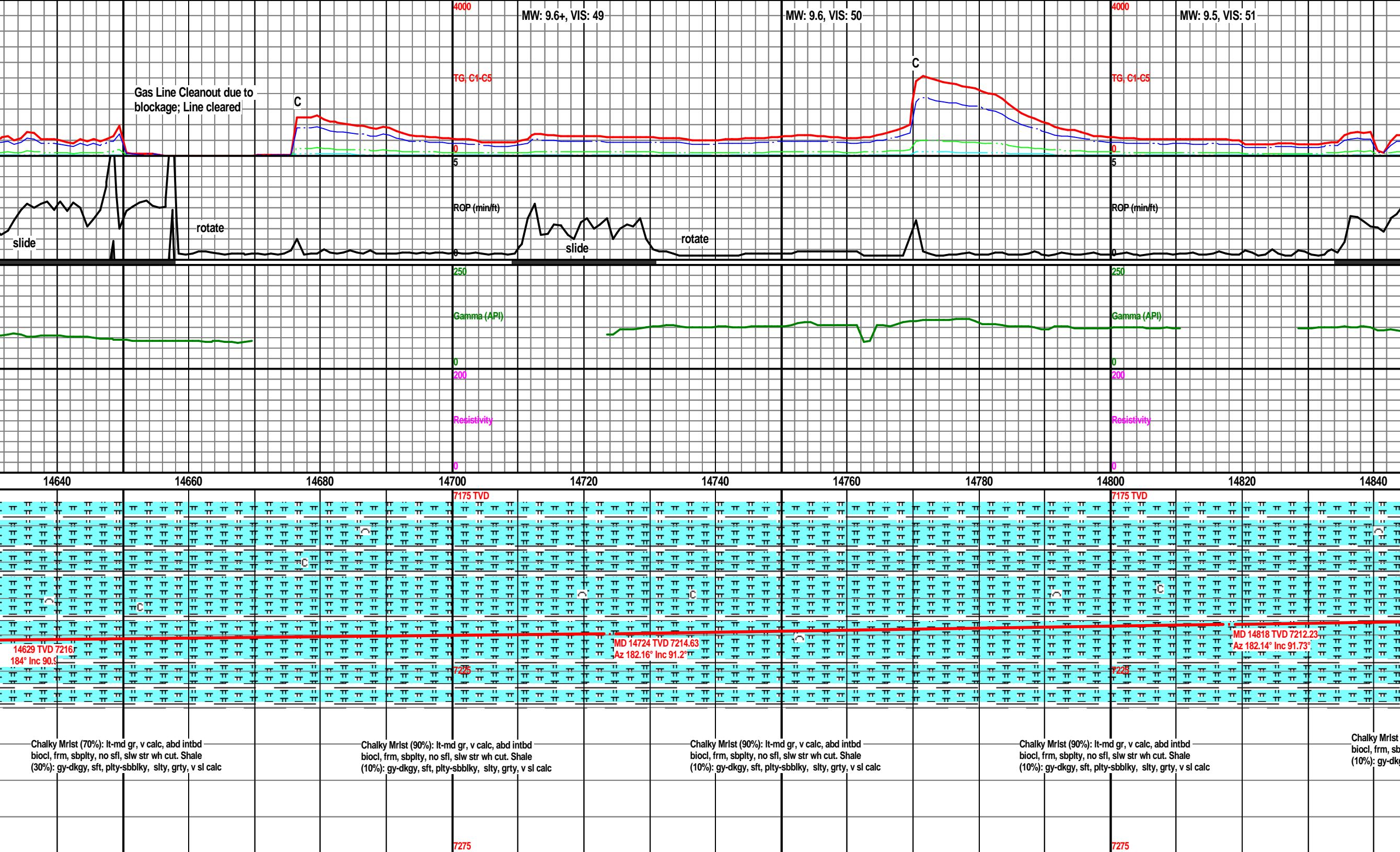


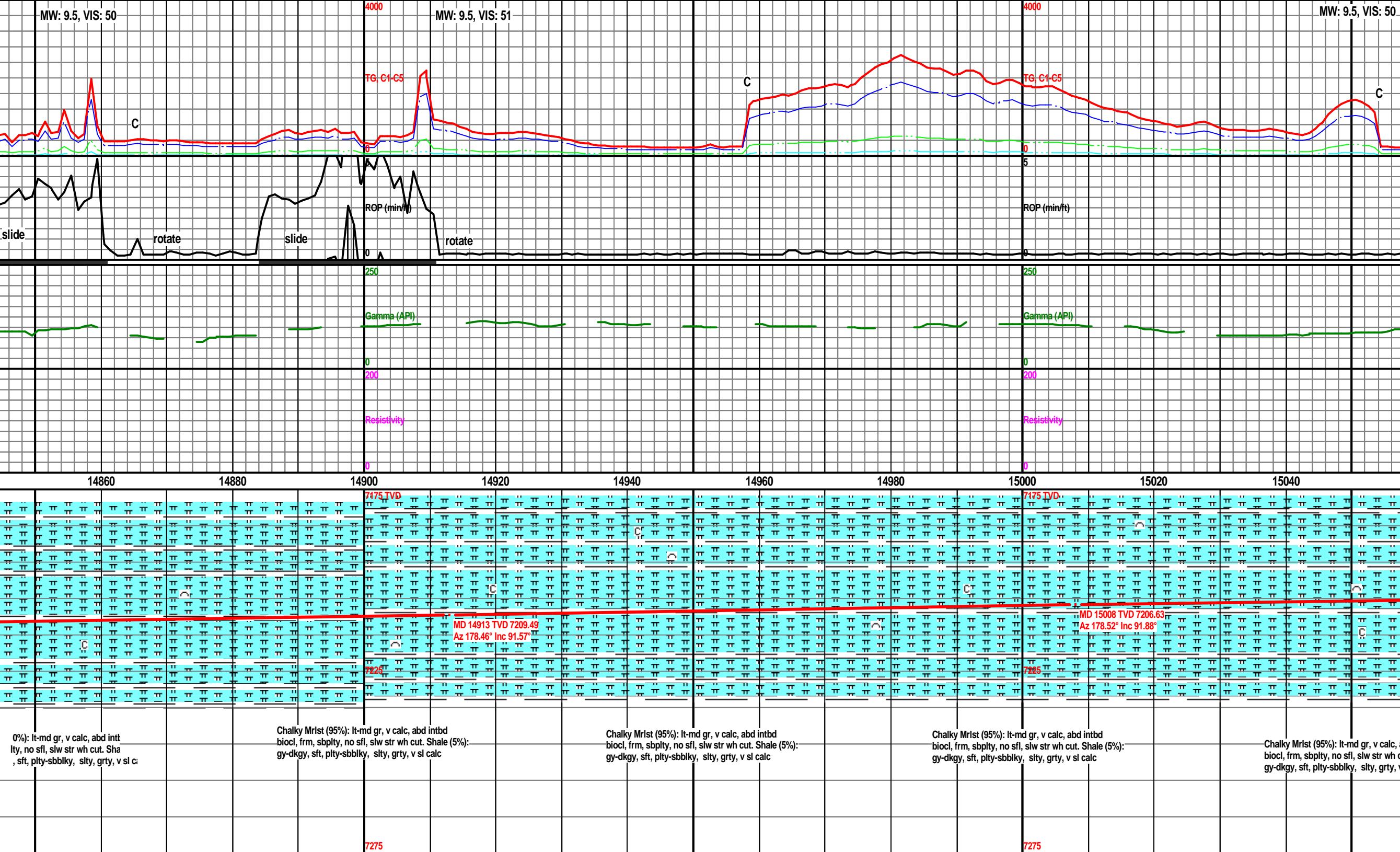
MW: 9.5, VIS: 49

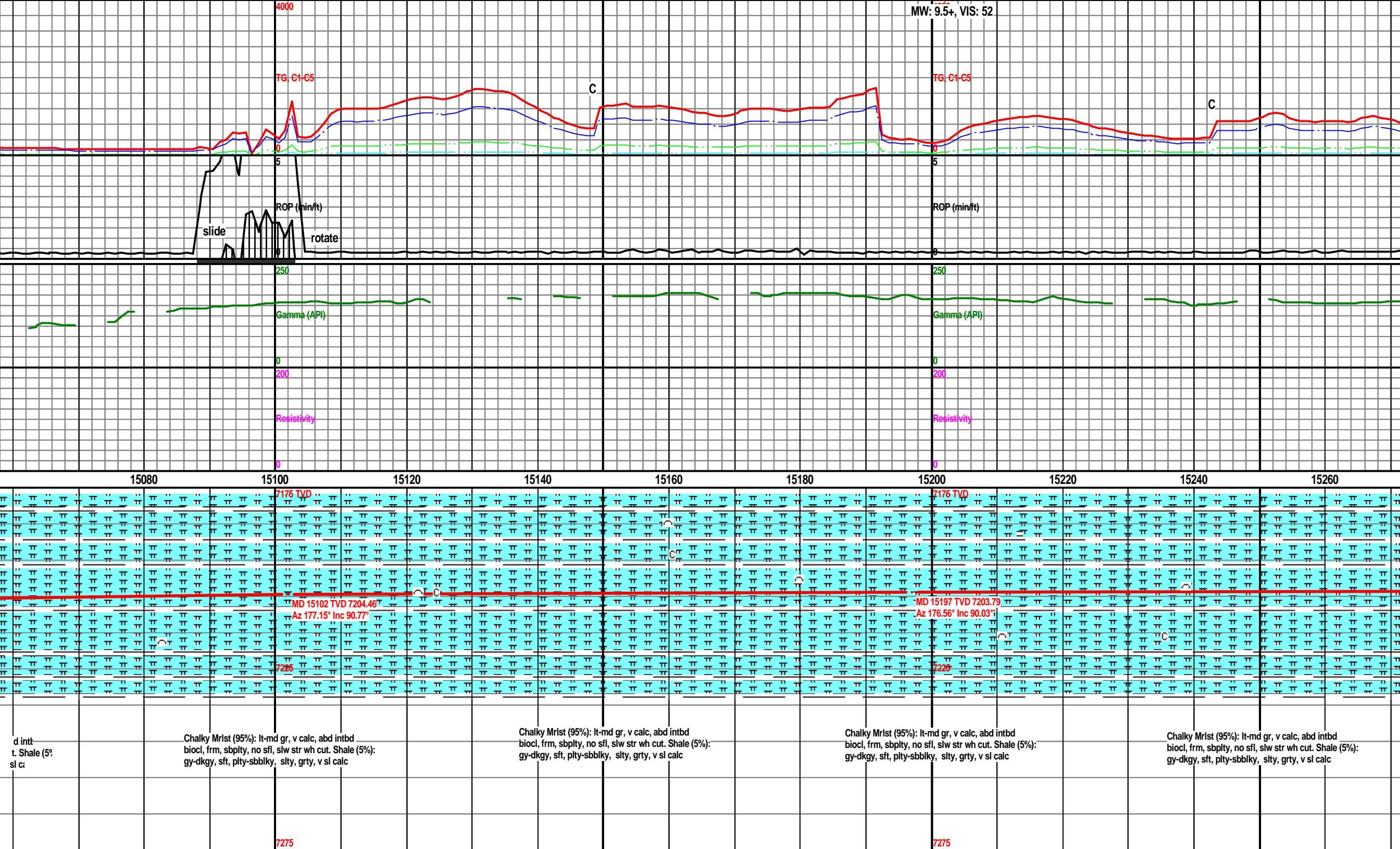


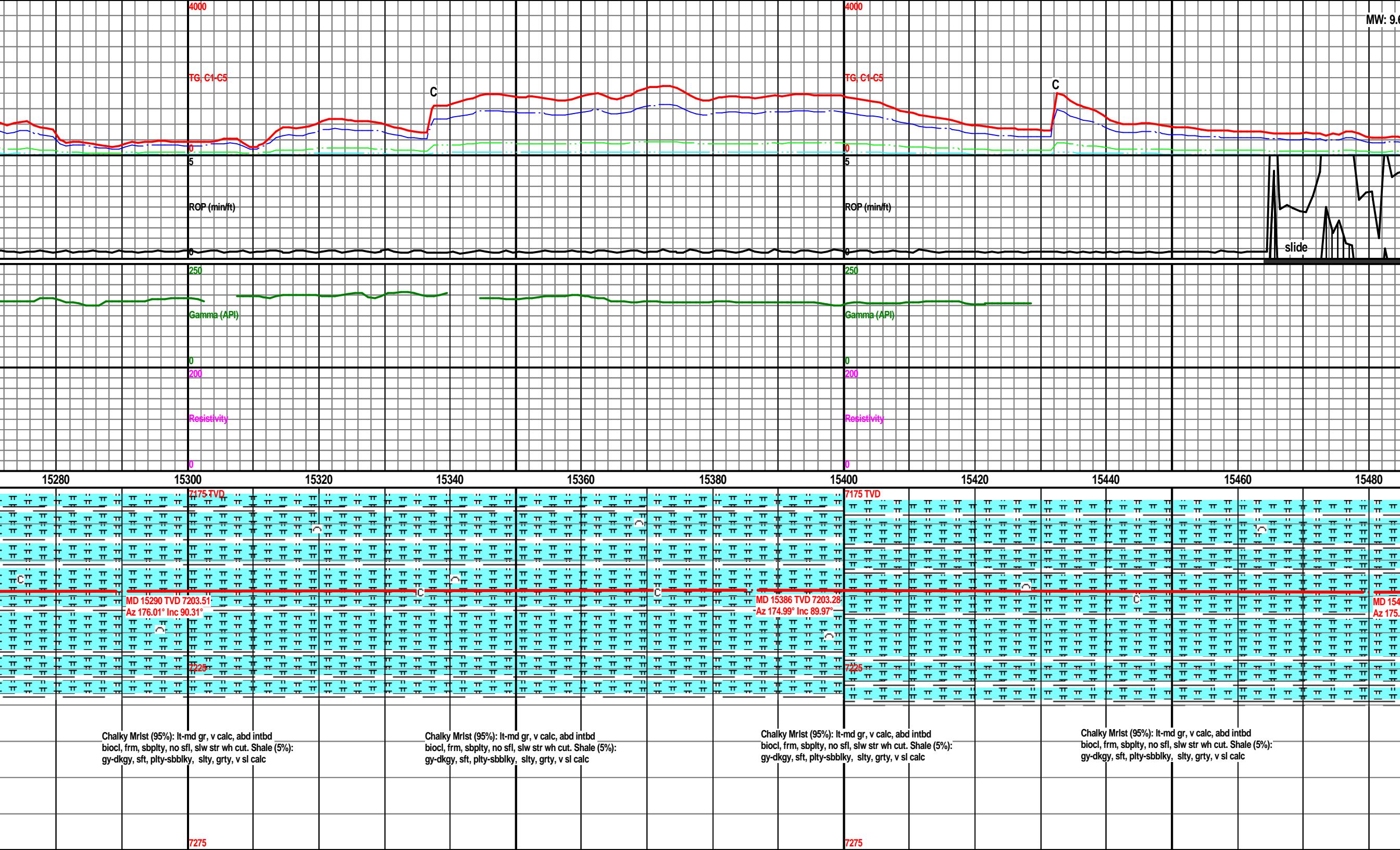


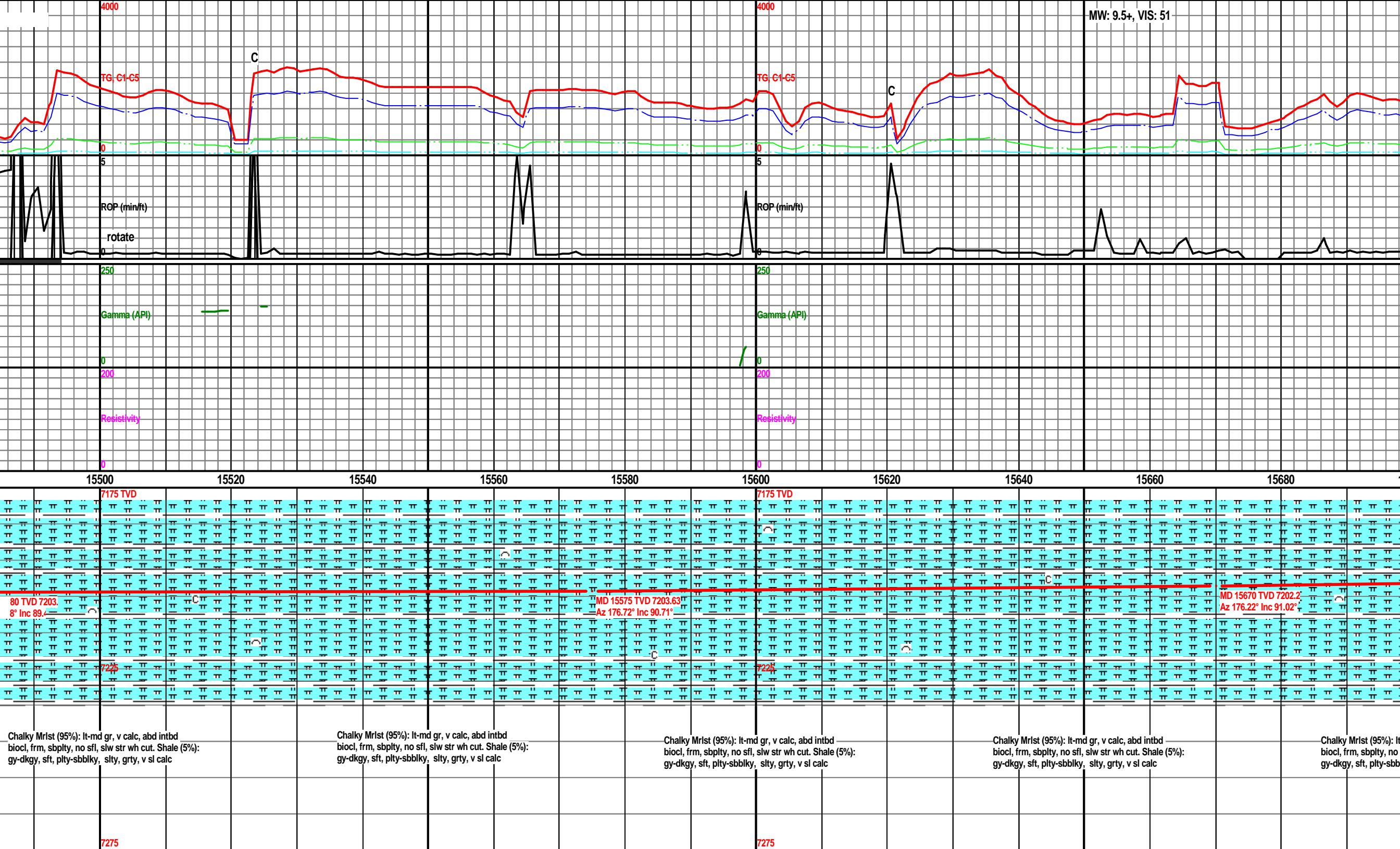


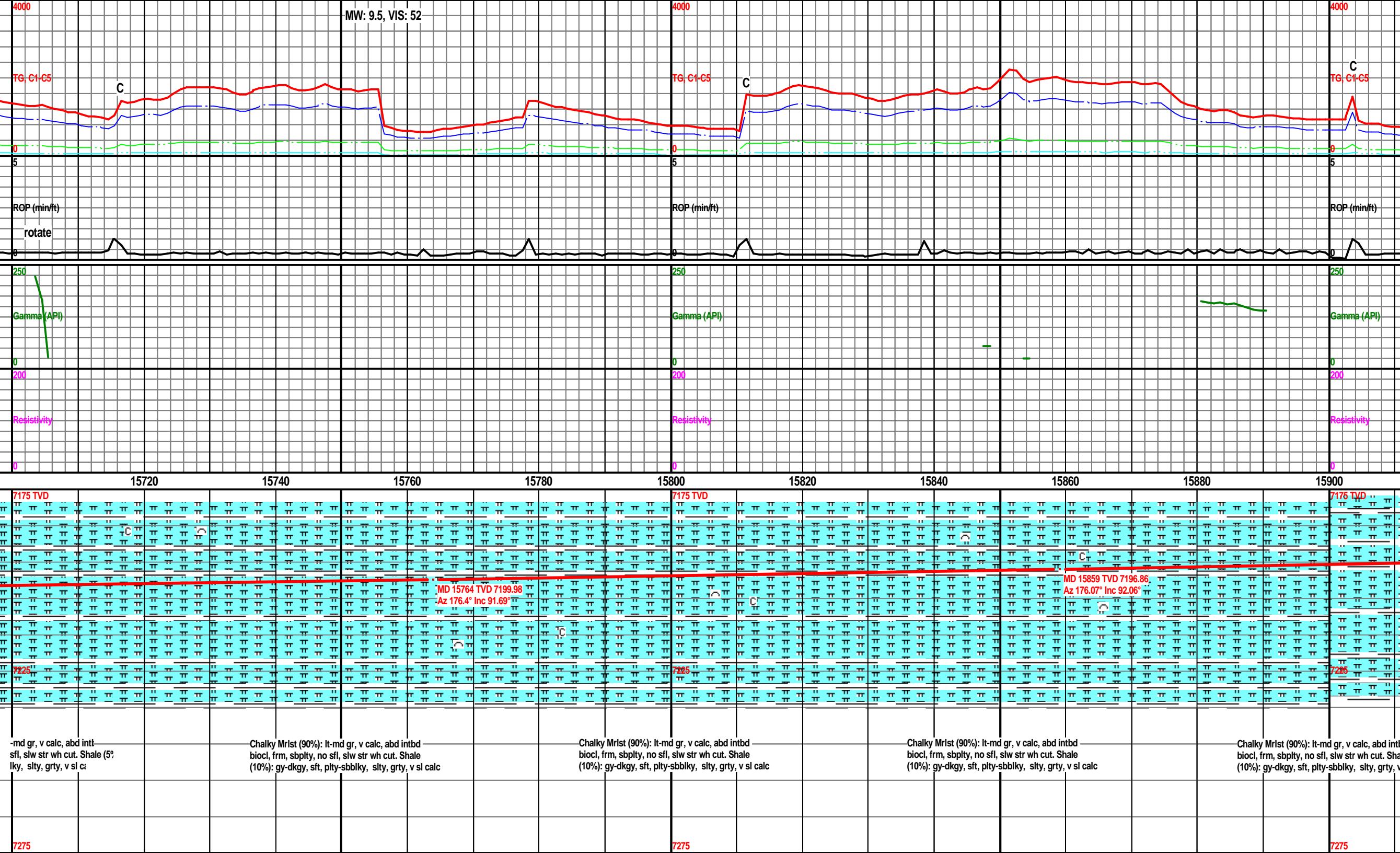


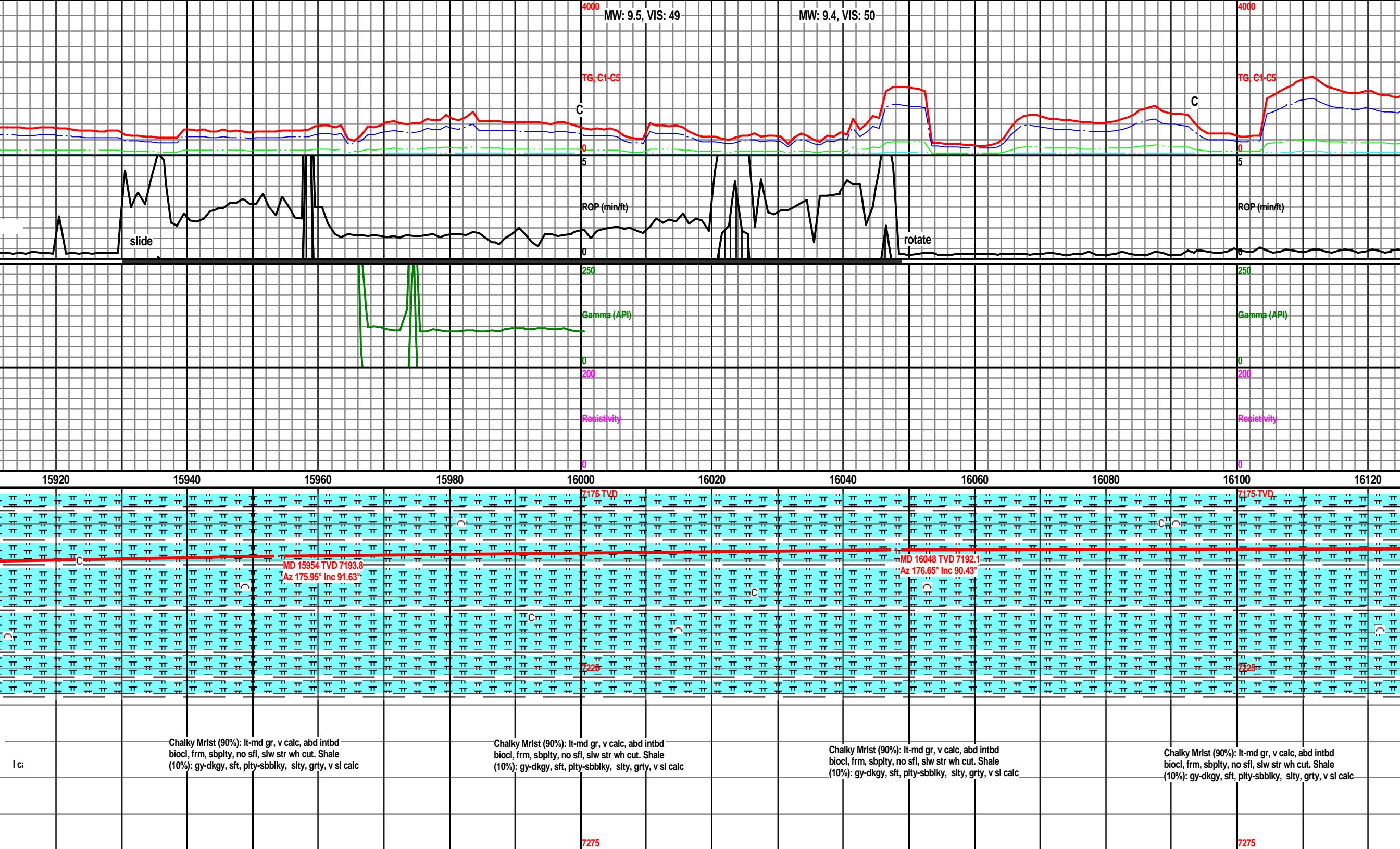


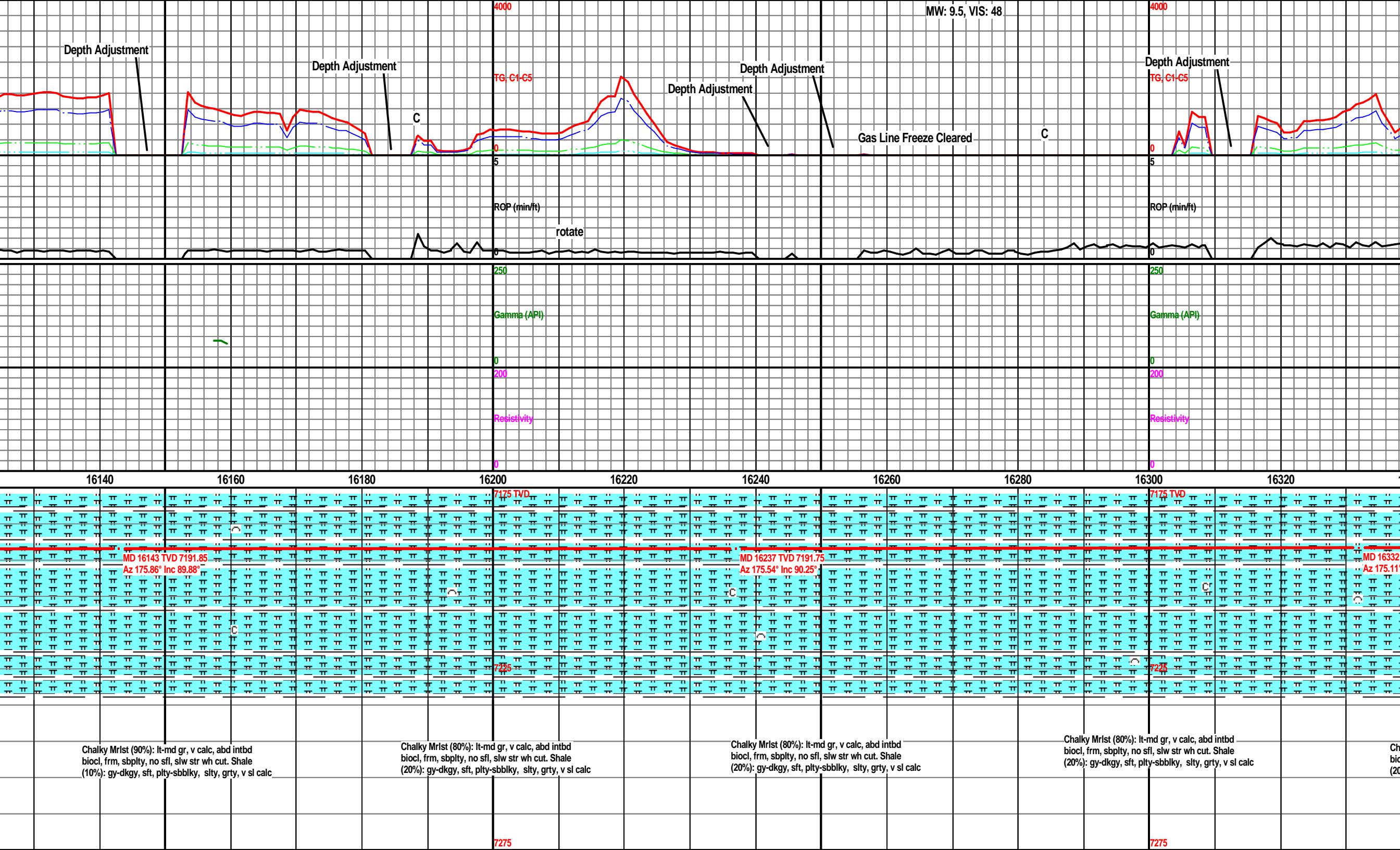












MW: 9.5, VIS: 49

MW: 9.5, VIS: 50

4000

Depth Adjustment

Depth Adjustment

C

TG, C1-C5

C

TG, C1-C5

ROP (min/ft)

ROP (min/ft)

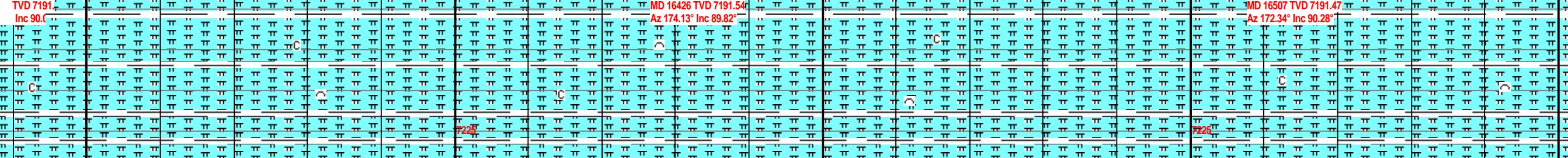
Gamma (API)

Gamma (API)

Resistivity

Resistivity

16360 16380 16400 16420 16440 16460 16480 16500 16520 16540



alky Mrlst (80%): lt-md gr, v calc, abd intbd  
cl, frm, sbpsty, no sfl, slw str wh cut. Shale  
(20%): gy-dkg, sft, pty-sbbly, sly, gryt, v sl calc

Chalky Mrlst (80%): lt-md gr, v calc, abd intbd  
biocl, frm, sbpsty, no sfl, slw str wh cut. Shale  
(20%): gy-dkg, sft, pty-sbbly, sly, gryt, v sl calc

Chalky Mrlst (80%): lt-md gr, v calc, abd intbd  
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biocl, frm, sbpsty, no sfl, slw str wh cut. Shale  
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biocl, frm, sbpsty, no sfl, slw str wh cut. Shale  
(20%): gy-dkg, sft, pty-sbbly, sly, gryt, v sl calc

7275

7275

TD @ 16553' 8:30 AM  
03/25/2013  
Reamer Trip circulated 2804  
gas units  
Casing Trip circulated 7736  
gas units and 10' flare  
  
2 Man Logging Unit released  
@ 7:30 PM 03/27/2013

16560      16580      16

MD 16553 TVD 7191.24  
Az 172.34° Inc 90.28°

v calc, abd intt  
str wh cut. Sha  
lky, sly, grty, v sl c: