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

Well Name:	**Nichols 1N-5HZ**
Location:	**Weld County, CO**
License Number:	**05-123-35877**
Spud Date:	**12/28/12**
Surface Coordinates:	**2493' FNL, 578' FEL Sec 8, T2N, R65W**
Bottom Hole Coordinates:	**460' FNL, 700' FEL Sec 15, T2N, R65W**
Ground Elevation (m):	**4893'**
Logged Interval (m):	**7200' To: 14151'**
Formation:	**Niobrara B, C**
Type of Drilling Fluid:	**Water Based Mud**

Region:	**DJ Basin**
Drilling Completed:	**1/4/13**
K.B. Elevation (m):	**4910'**
Total Depth (m):	**14151'**

Printed by HORIZONTAL.LOG from WellSight Systems 1-800-447-1534 www.WellSight.com

OPERATOR

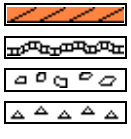
Company:	**Anadarko Petroleum Corporation**
Address:	**Granite Tower 1099 18th St., Suite 1800 Denver, CO 80202**

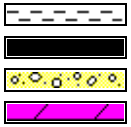
GEOLOGIST

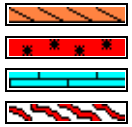
Name: Justin Robbins / Justin Graf
Company: Great Divide Consulting, Inc.
Address: P.O. Box 630263
Highlands Ranch, CO 80163

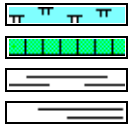
Comments

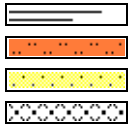
ROCK TYPES


Anhy
Bent
Brec
Cht


Clyst
Coal
Congl
Dol


Gyp
Igne
Lmst
Meta


Mrlst
Salt
Shale
Shcol


Shgy
Sltst
Ss
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

Earthy
Fenest
Fracture
Inter
Moldic
Organic
Pinpoint
Vuggy

SORTING

Well
Moderate
Poor

ROUNDING

Rounded
Subrnd
Subang
Angular

OIL SHOW

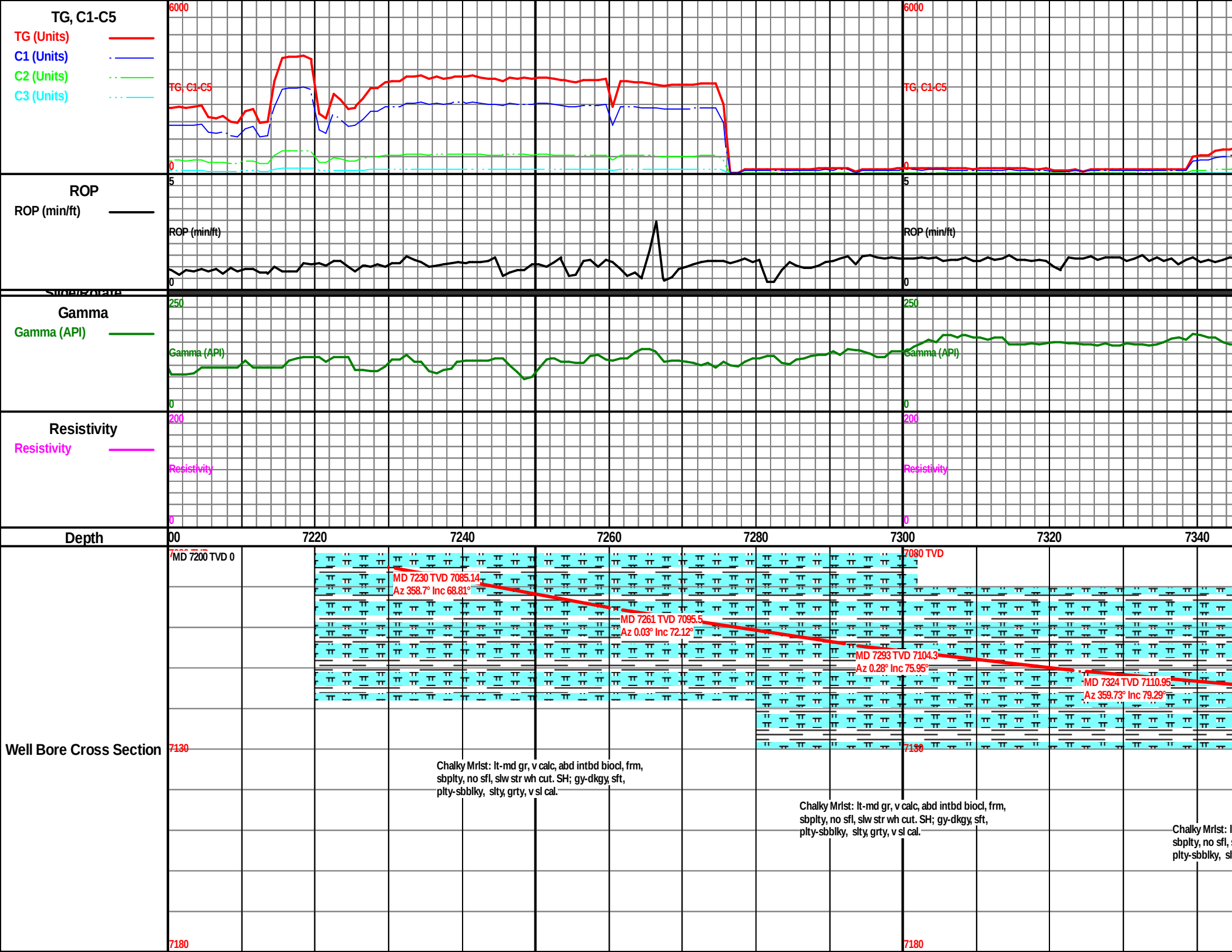
Even
Spotted
Ques
Dead

EVENT

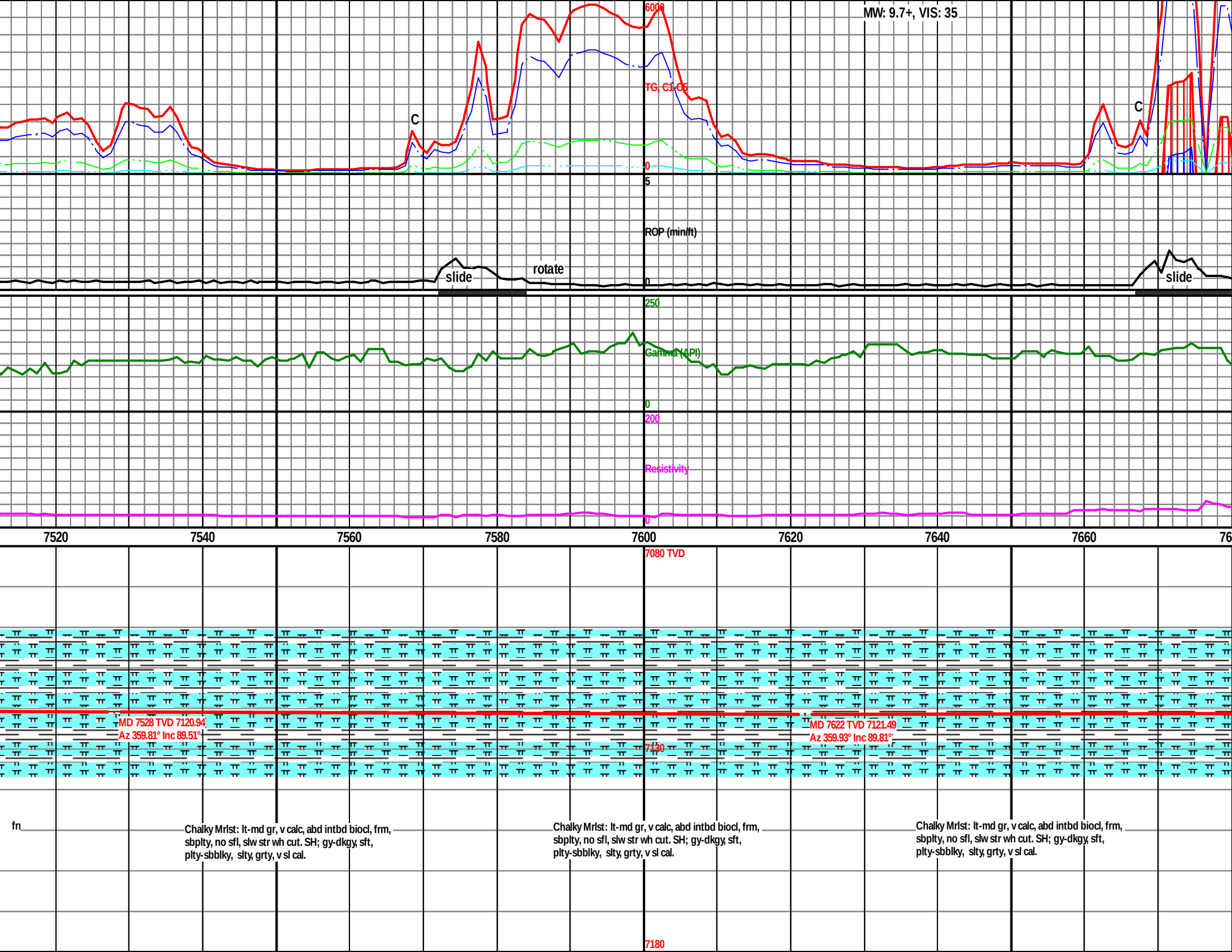
Rft
Sidewall

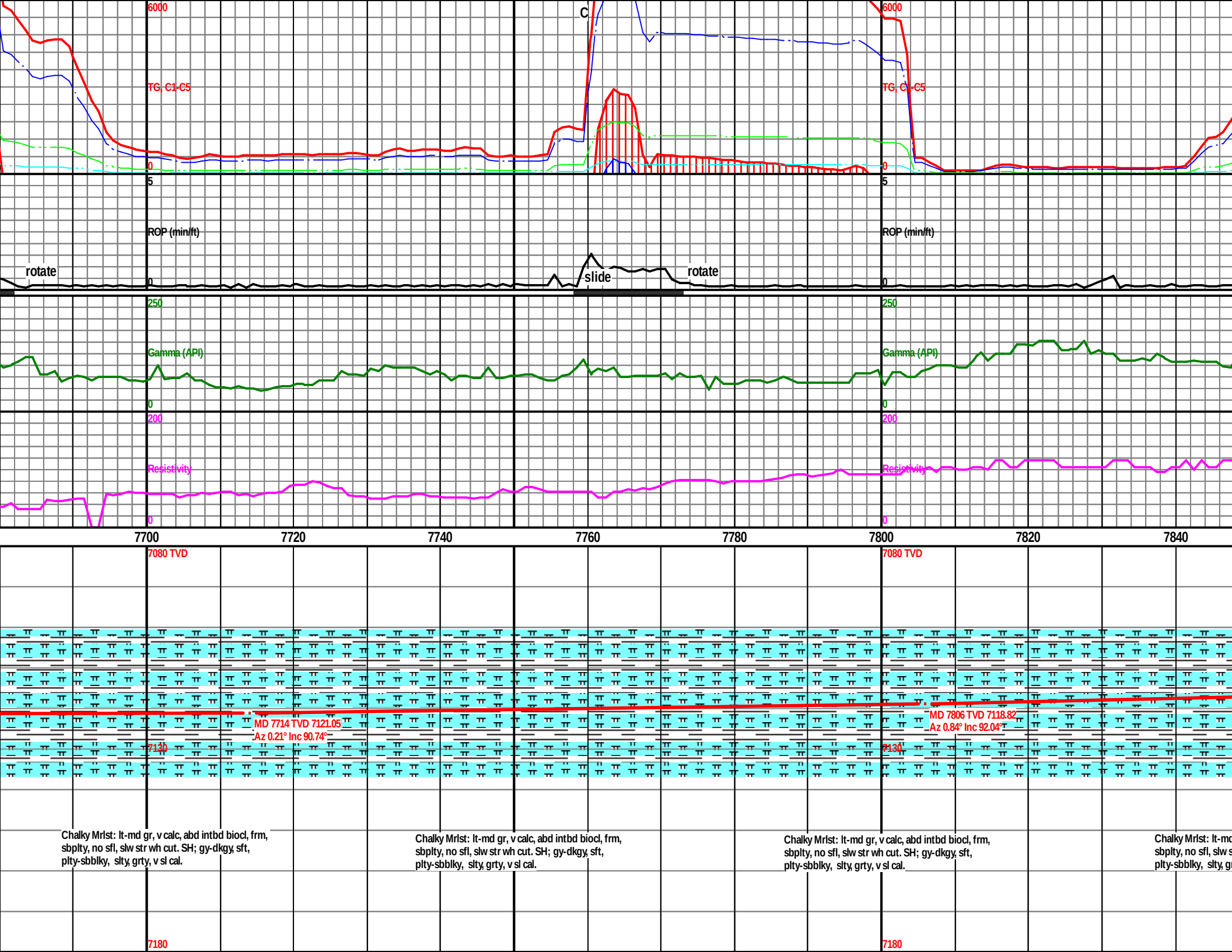
INTERVAL

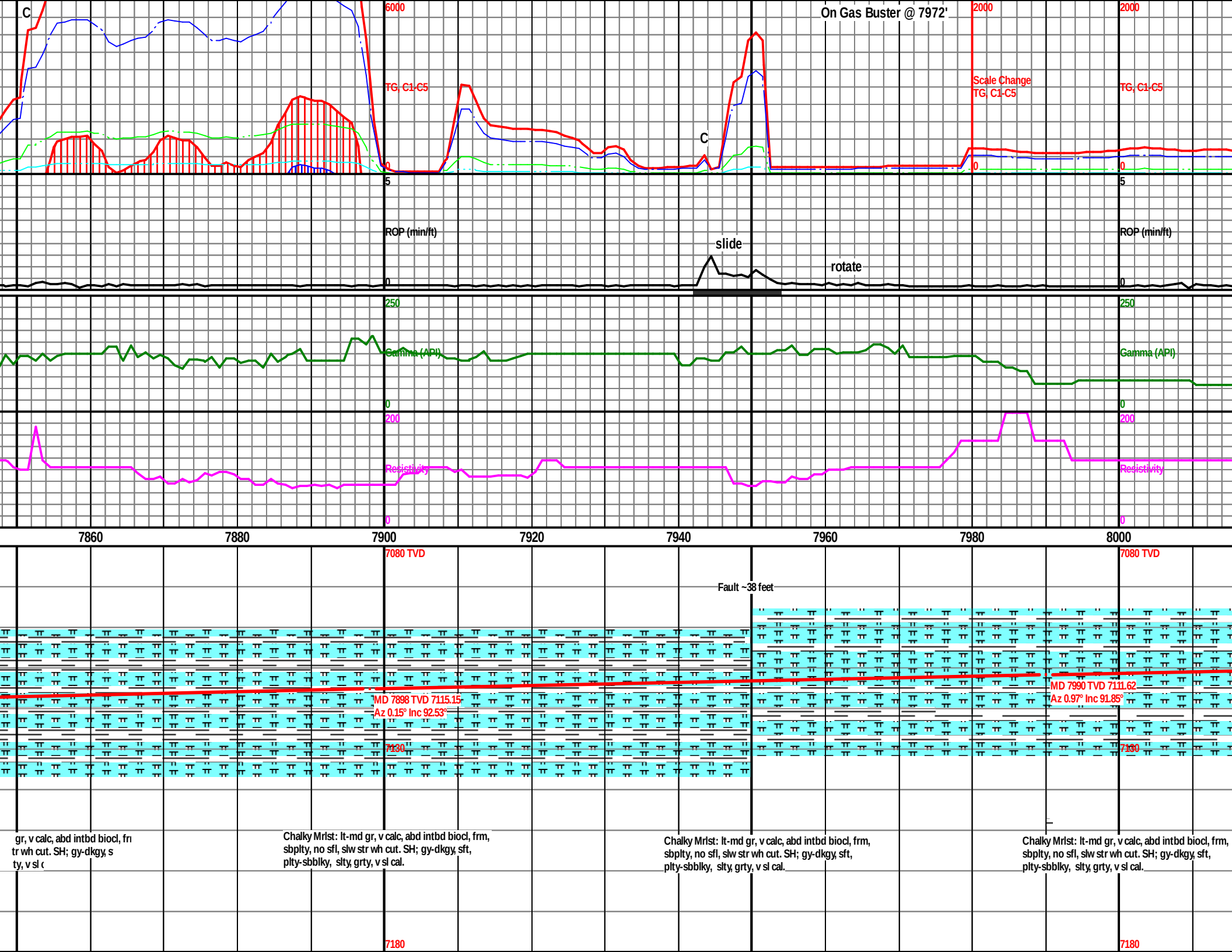
Core
Dst

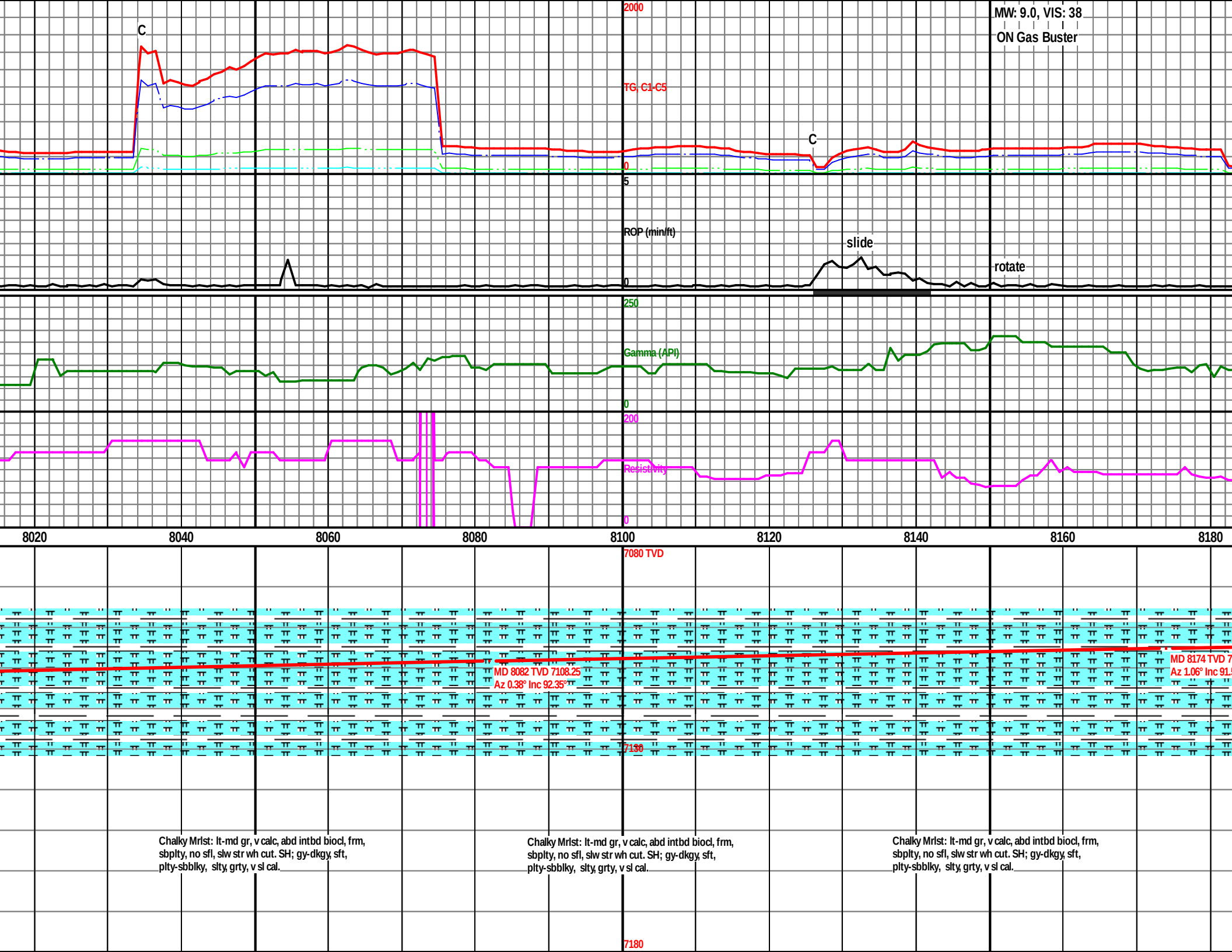

TG, C1-C5
TG (Units)
C1 (Units)
C2 (Units)
C3 (Units)
6000
TG, C1-C5
0
ROP
ROP (min/ft)
5
ROP (min/ft)
0
Gamma
Gamma (API)
250
Gamma (API)
0
Resistivity
Resistivity
200
Resistivity
0
Depth
7200
7220
7240
7260
7280
7300
7320
7340
Well Bore Cross Section
MD 7200 TVD 0
MD 7230 TVD 7085.14
Az 358.7° Inc 68.81°
MD 7261 TVD 7095.5
Az 0.03° Inc 72.12°
MD 7293 TVD 7104.3
Az 0.28° Inc 75.95°
MD 7324 TVD 7110.95
Az 359.73° Inc 79.29°
7080 TVD
7130
7180
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

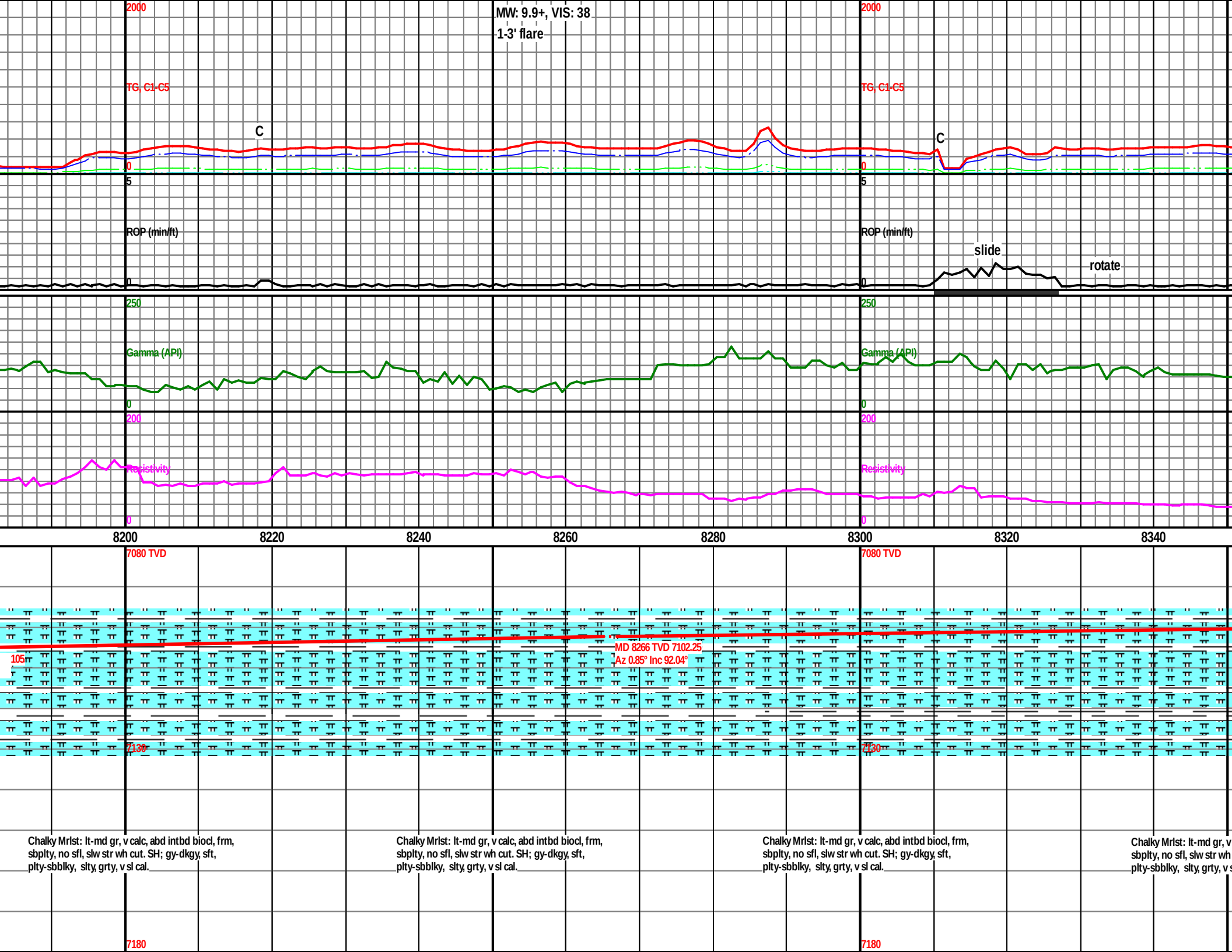
TD for int casing @ 12/31/12, 3:30 PM
TG, C1-C5
6000
C
0
5
ROP (min/ft)
rotate
250
Gamma (API)
200
Resistivity
7360
7380
7400
7420
7440
7460
7480
7500
7080 TVD
MD 7356 TVD 7115.75'
Az 359.48° Inc 83.77°
MD 7433 TVD 7120.32'
Az 359.97° Inc 89.75°
7130'
7180
t-md gr, v calc, abd intbd biocl, fr
lw str wh cut. SH; gy-dkgy, s
ty, grty, v sl
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

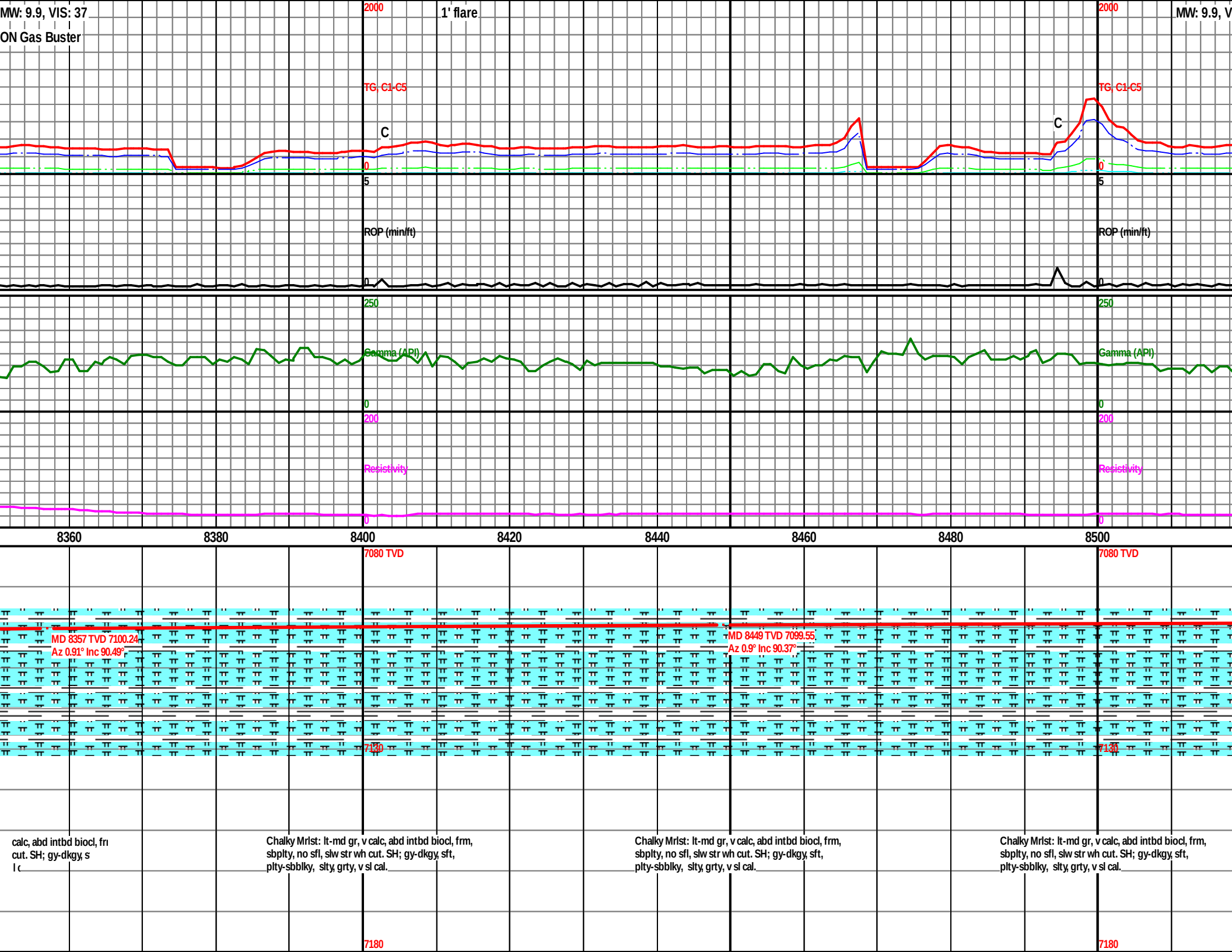

MW: 9.7+, VIS: 35
6000
TG, C1, C5
0
C
C
5
ROP (min/ft)
0
slide
rotate
slide
250
Gamma (API)
0
200
Resistivity
0
7520
7540
7560
7580
7600
7620
7640
7660
7080 TVD
MD 7528 TVD 7120.94
Az 359.81° Inc 89.51°
MD 7622 TVD 7121.49
Az 359.93° Inc 89.81°
7130
7180
fri
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

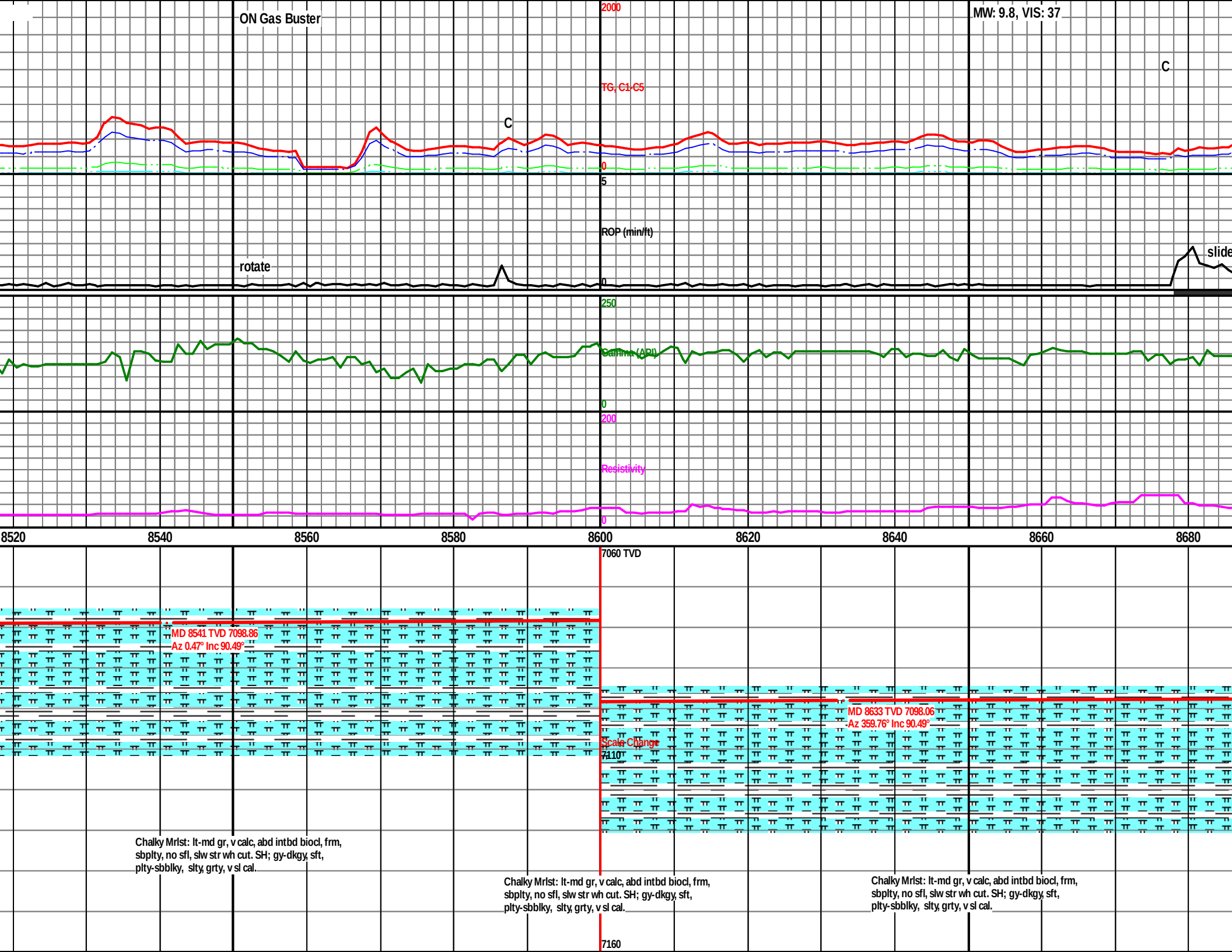

6000
TG, C1-C5
0
5
ROP (min/ft)
0
rotate
slide
rotate
250
Gamma (API)
0
200
Resistivity
0
7700
7720
7740
7760
7780
7800
7820
7840
7080 TVD
MD 7714 TVD 7121.05
Az 0.21° Inc 90.74°
MD 7806 TVD 7118.82
Az 0.84° Inc 92.04°
7130
7180
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

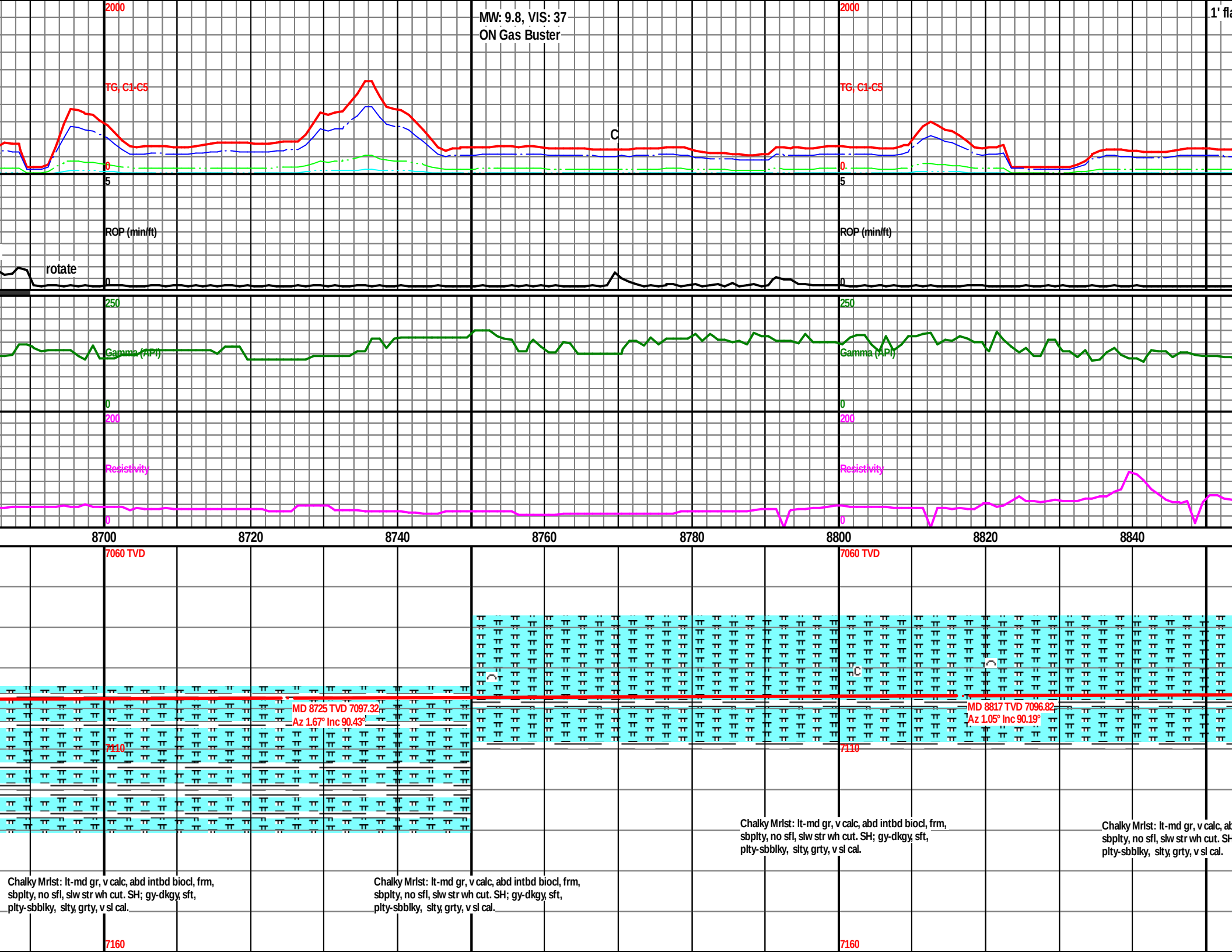

C
6000
TG, C1-C5
0
5
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
On Gas Buster @ 7972'
2000
Scale Change
TG, C1-C5
0
C
slide
rotate
7860
7880
7900
7920
7940
7960
7980
8000
7080 TVD
Fault ~38 feet
MD 7898 TVD 7115.15
Az 0.15° Inc 92.53°
MD 7990 TVD 7111.62
Az 0.97° Inc 91.85°
7130
7180
gr, v calc, abd intbd biocl, fr
tr wh cut. SH; gy-dkgy, s
ty, v sl
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.

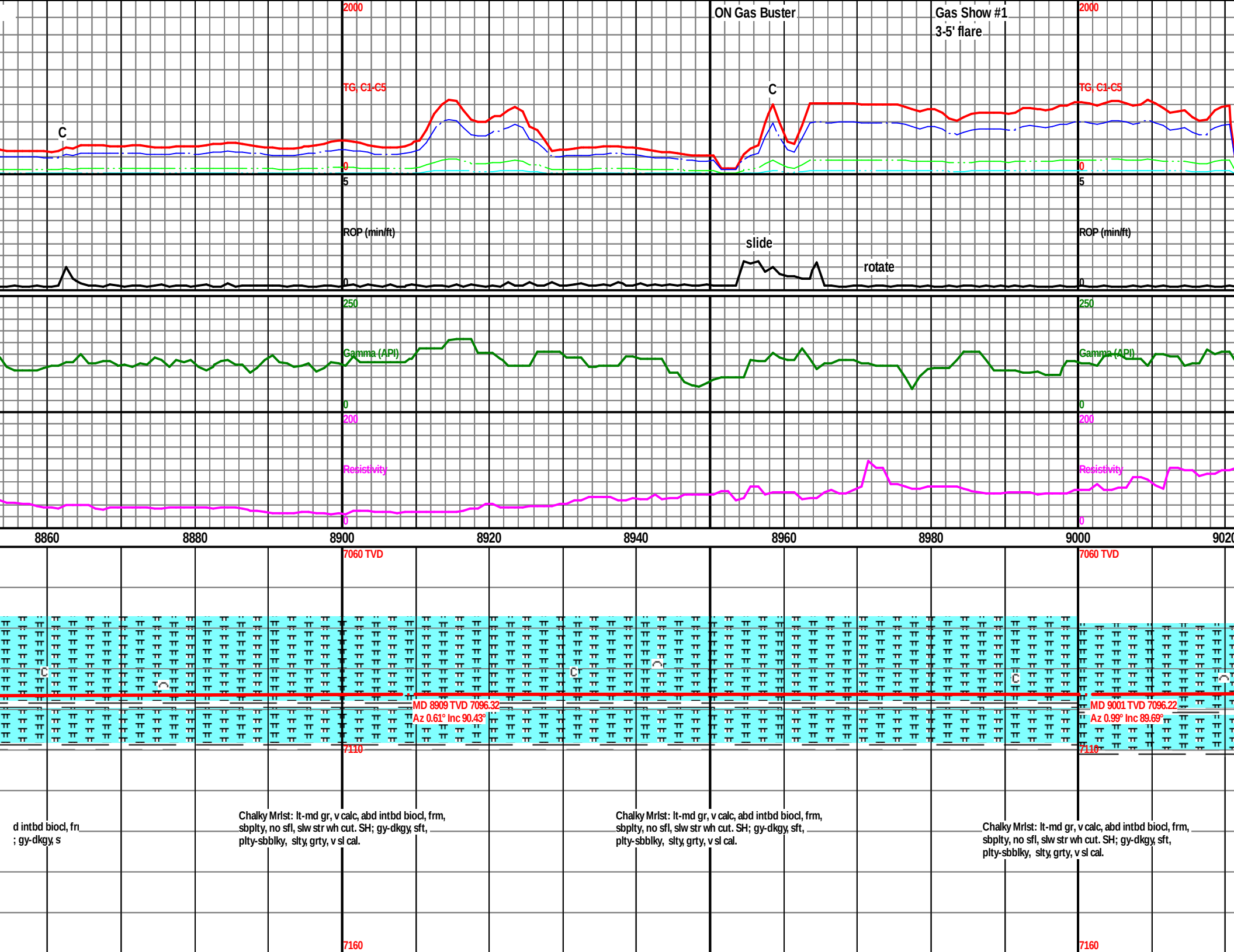

MW: 9.0, VIS: 38
ON Gas Buster
C
C
2000
TG, C1-C5
0
5
ROP (min/ft)
slide
rotate
0
250
Gamma (API)
0
200
Resistivity
0
8020
8040
8060
8080
8100
8120
8140
8160
8180
7080 TVD
MD 8082 TVD 7108.25
Az 0.38° Inc 92.35°
MD 8174 TVD 7
Az 1.06° Inc 91.
7130
7180
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

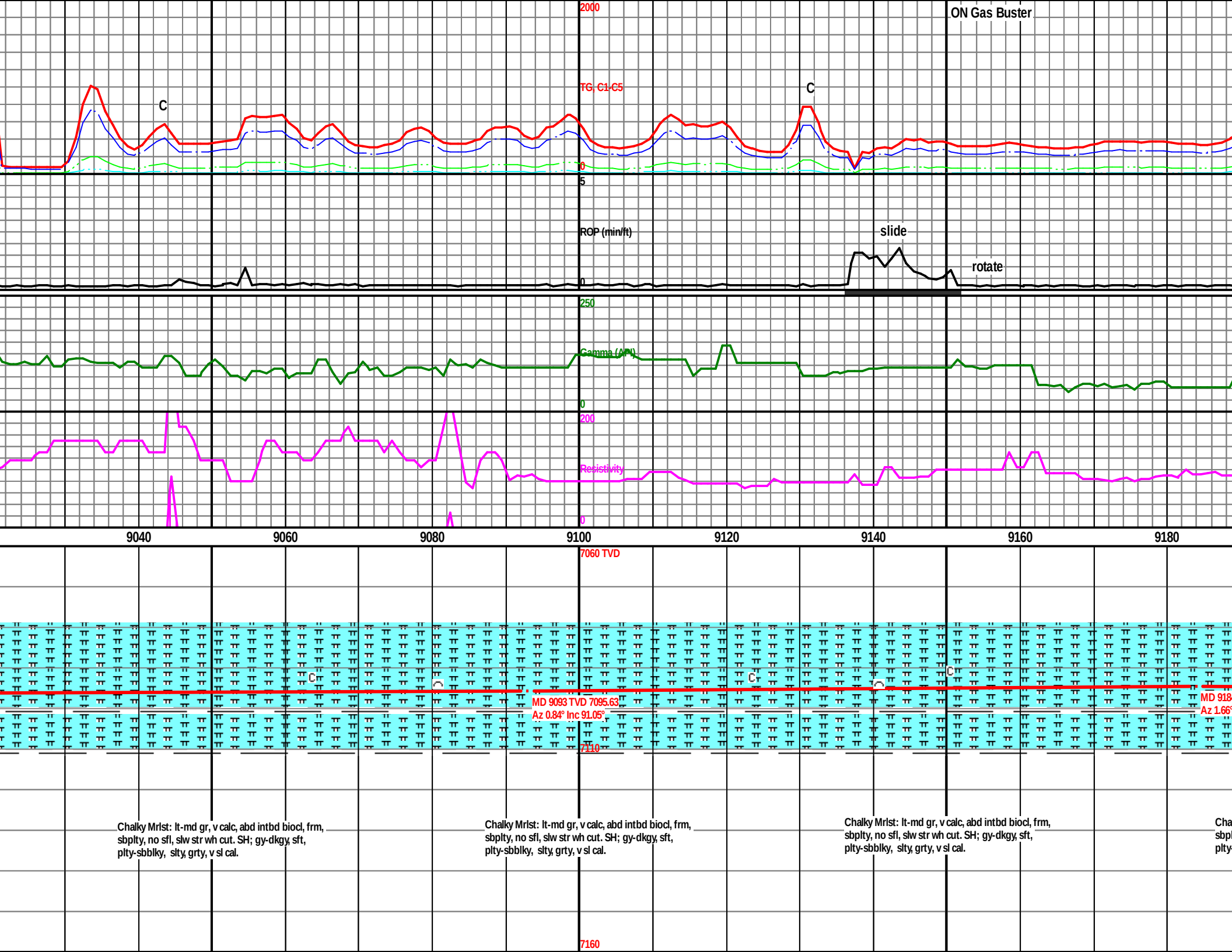

MW: 9.9+, VIS: 38
1-3' flare
2000
TG, C1-C5
C
0
5
ROP (min/ft)
0
slide
rotate
250
Gamma (API)
0
200
Resistivity
0
8200
8220
8240
8260
8280
8300
8320
8340
7080 TVD
105
MD 8266 TVD 7102.25
Az 0.85° Inc 92.04°
7130
7180
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

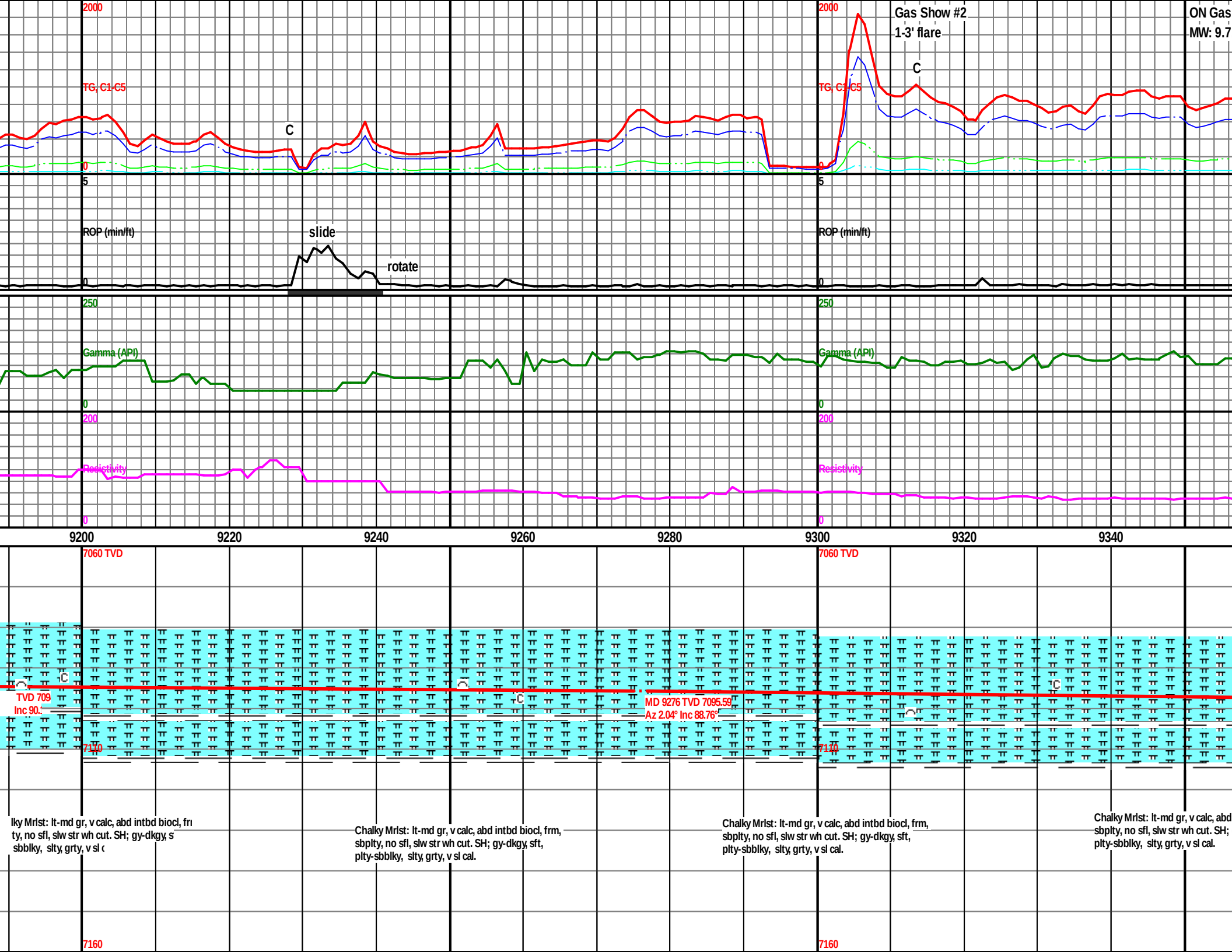

MW: 9.9, VIS: 37
ON Gas Buster
2000
1' flare
TG, C1-C5
C
0
5
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
8360
8380
8400
8420
8440
8460
8480
8500
7080 TVD
MD 8357 TVD 7100.24
Az 0.91° Inc 90.49°
MD 8449 TVD 7099.55
Az 0.9° Inc 90.37°
7130
7180
calc, abd intbd biocl, frı
cut. SH; gy-dkgy, s
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.

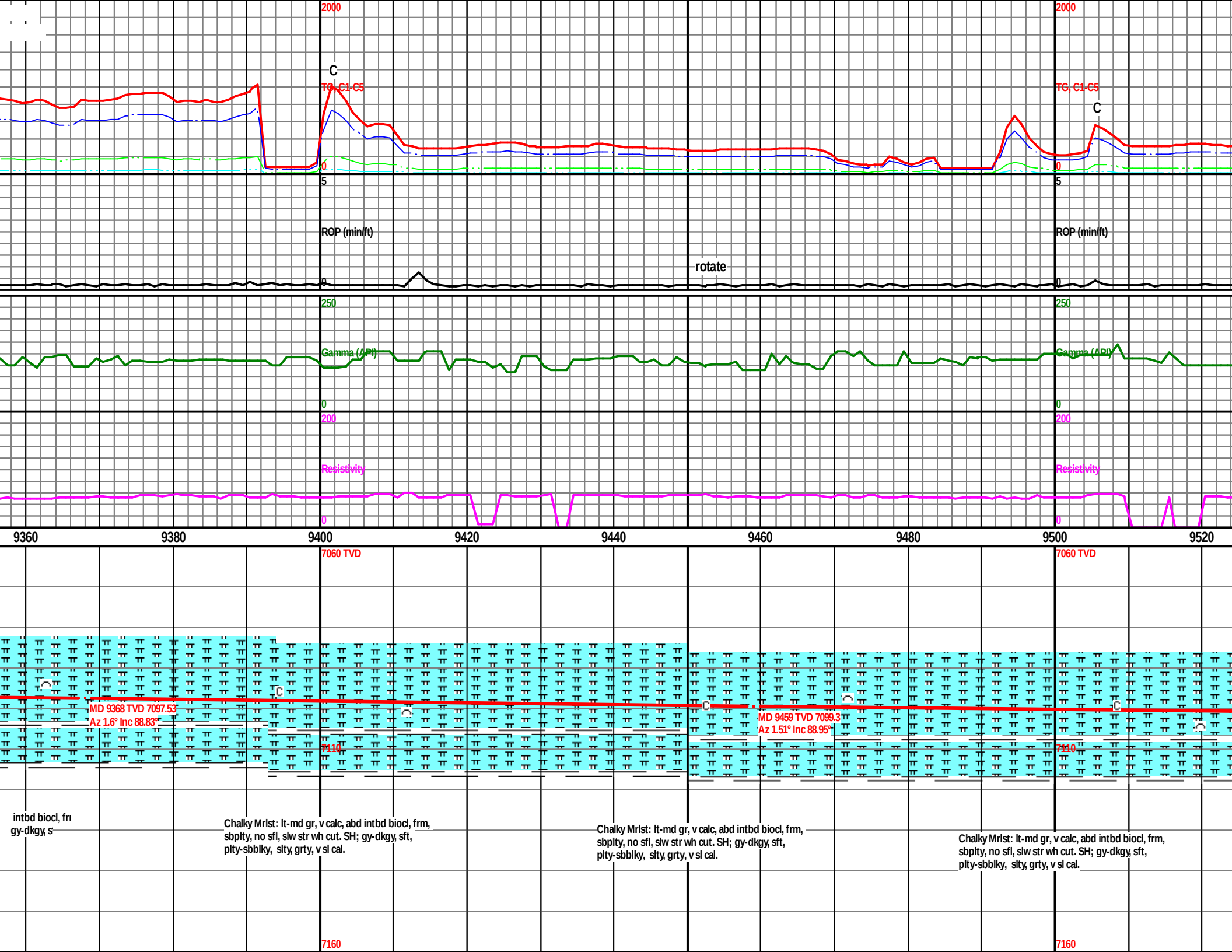

ON Gas Buster
MW: 9.8, VIS: 37
2000
TG, C1-C5
C
C
0
5
ROP (min/ft)
rotate
slide
0
250
Gamma (API)
0
200
Resistivity
0
8520
8540
8560
8580
8600
8620
8640
8660
8680
7060 TVD
MD 8541 TVD 7098.86
Az 0.47° Inc 90.49°
MD 8633 TVD 7098.06
Az 359.76° Inc 90.49°
Scale Change
7110
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
7160

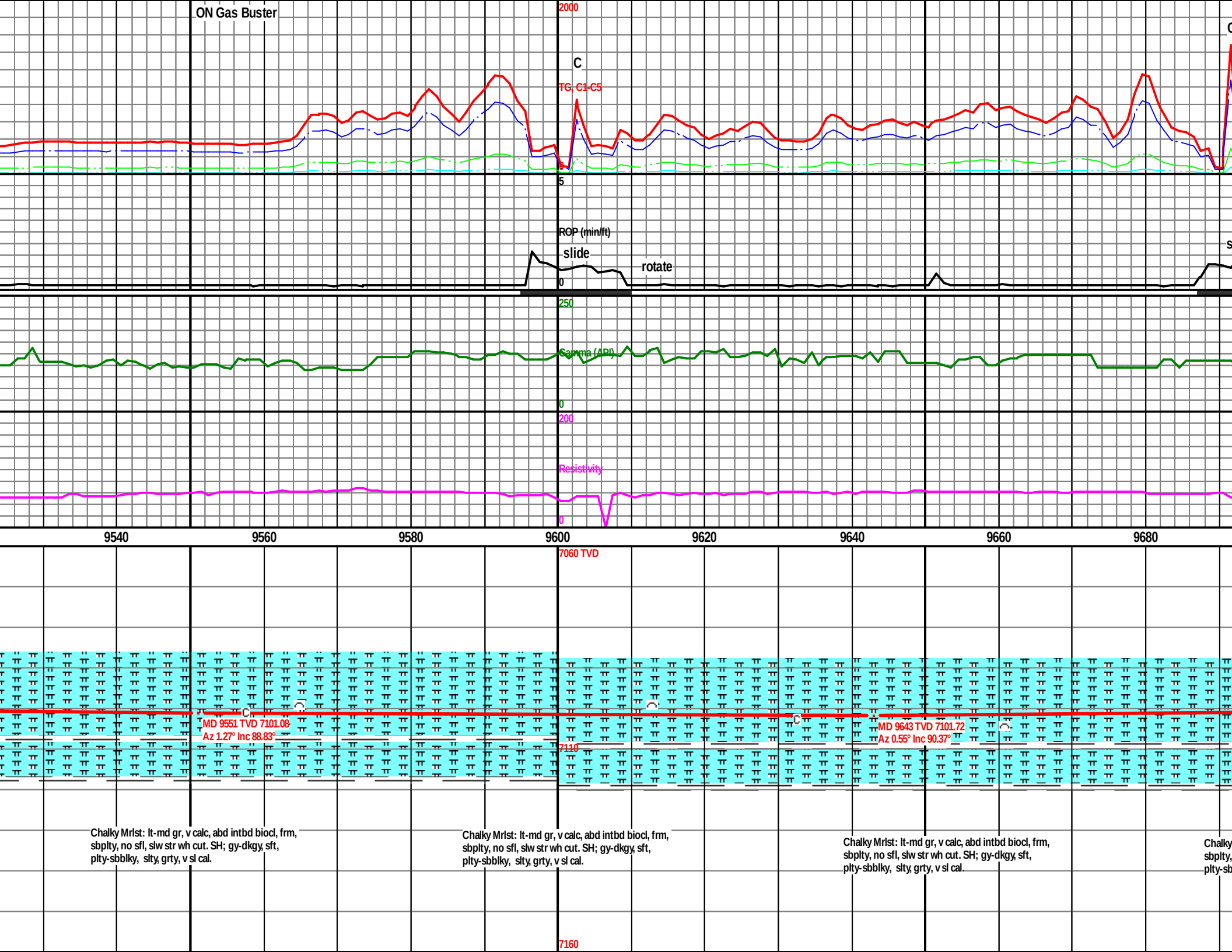

MW: 9.8, VIS: 37
ON Gas Buster
2000
TG, C1-C5
C
0
5
ROP (min/ft)
rotate
0
250
Gamma (API)
0
200
Resistivity
0
8700
8720
8740
8760
8780
8800
8820
8840
7060 TVD
MD 8725 TVD 7097.32
Az 1.67° Inc 90.43°
7110
MD 8817 TVD 7096.82
Az 1.05° Inc 90.19°
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
7160


2000
TG, C1-C5
0
C
ON Gas Buster
Gas Show #1
3-5' flare
5
ROP (min/ft)
0
slide
rotate
250
Gamma (API)
0
200
Resistivity
0
8860
8880
8900
8920
8940
8960
8980
9000
9020
7060 TVD
MD 8909 TVD 7096.32
Az 0.61° Inc 90.43°
MD 9001 TVD 7096.22
Az 0.99° Inc 89.69°
7110
7160
d intbd biocl, fr
; gy-dkgy, s
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

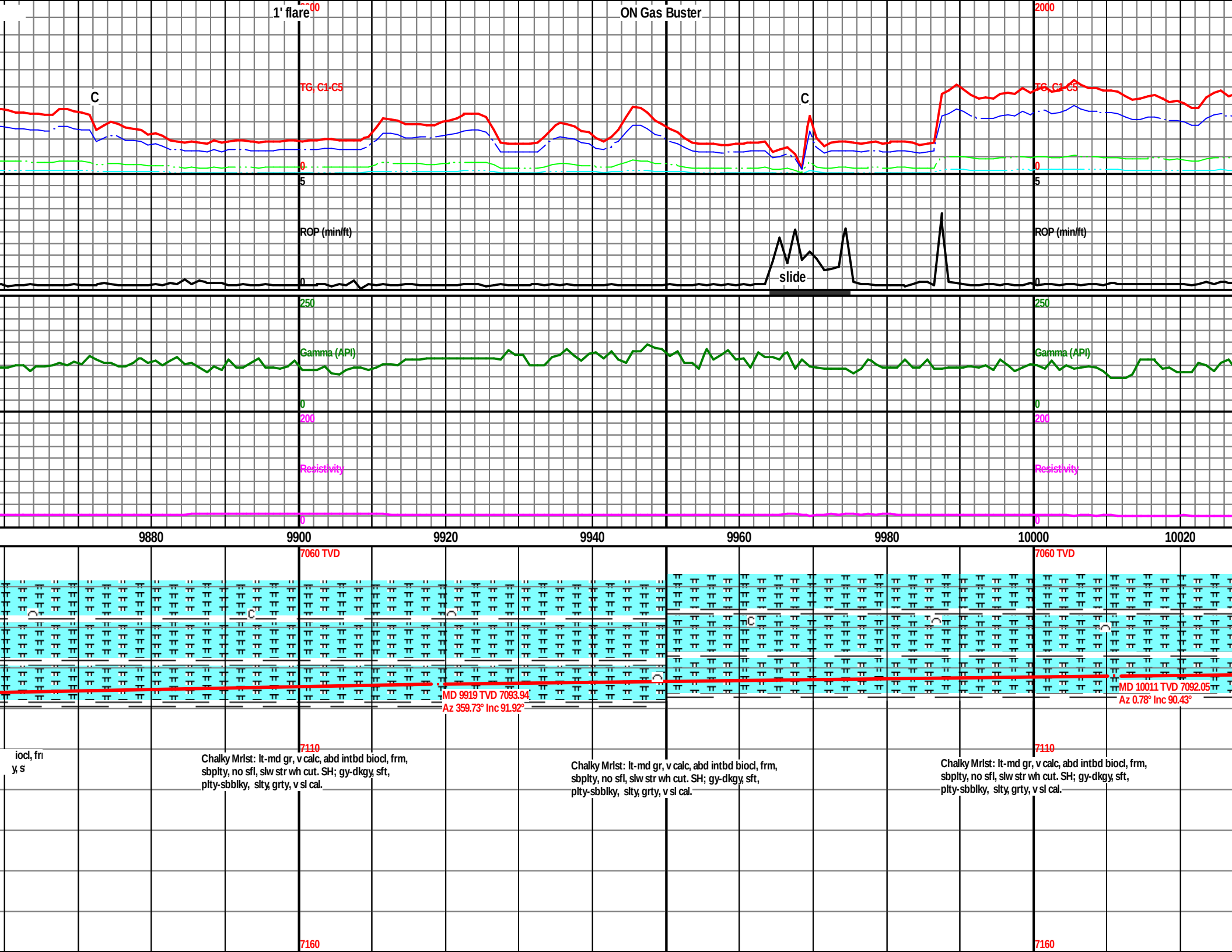

ON Gas Buster
2000
TG, C1-C5
C
C
0
5
ROP (min/ft)
slide
rotate
0
250
Gamma (API)
0
200
Resistivity
0
9040
9060
9080
9100
9120
9140
9160
9180
7060 TVD
C
C
C
C
C
MD 9093 TVD 7095.63
Az 0.84° Inc 91.05°
7110
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
7160

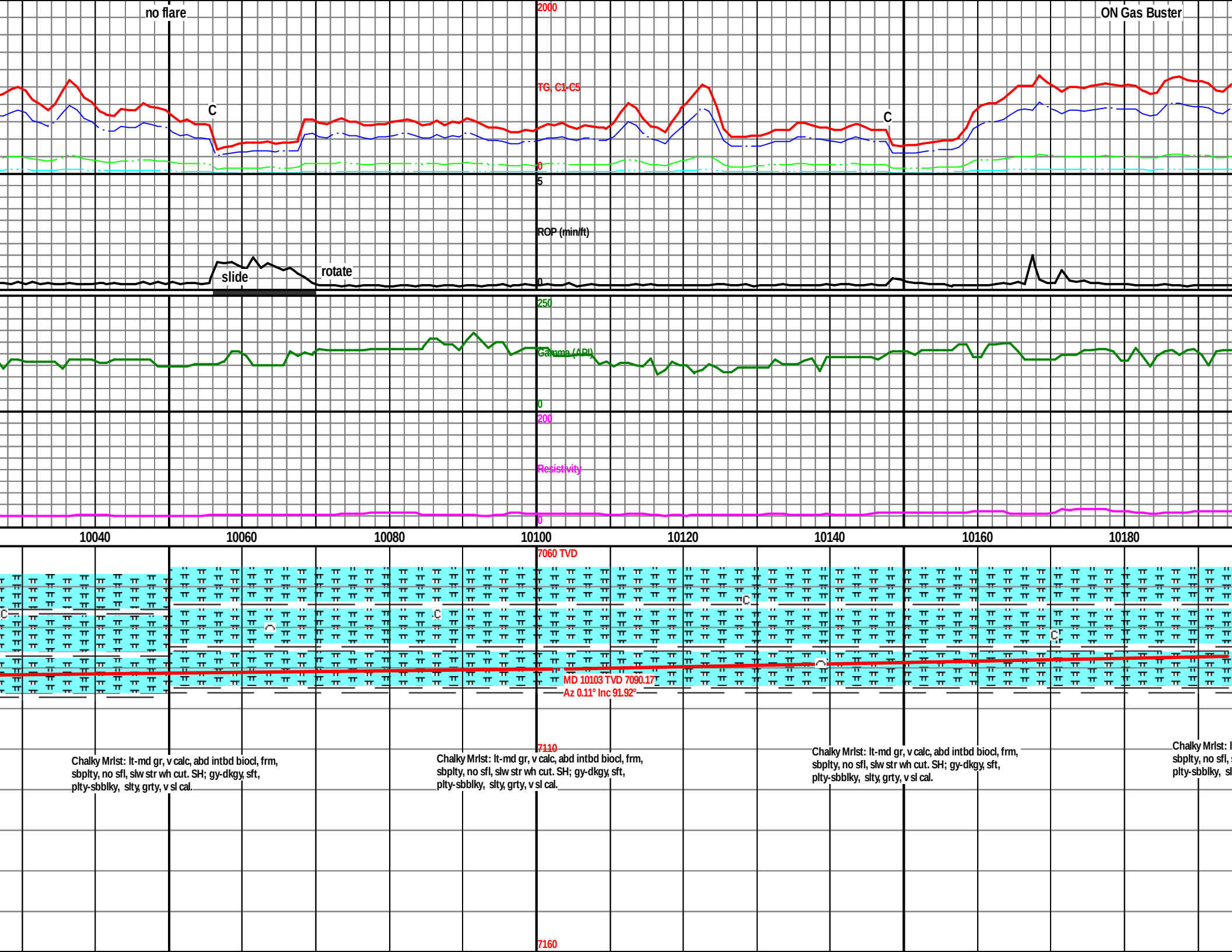

2000
TG, C1-C5
C
0
5
ROP (min/ft)
slide
rotate
0
250
Gamma (API)
0
200
Resistivity
0
Gas Show #2
1-3' flare
C
ON Gas
MW: 9.7
9200
9220
9240
9260
9280
9300
9320
9340
7060 TVD
TVD 709
Inc 90.
MD 9276 TVD 7095.59
Az 2.04° Inc 88.76°
7110
7160
lky Mrlst: lt-md gr, v calc, abd intbd biocl, frı
ty, no sfl, slw str wh cut. SH; gy-dkgy, s
sbblky, slty, grty, v sl (
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd
sbplty, no sfl, slw str wh cut. SH;
plty-sbblky, slty, grty, v sl cal.

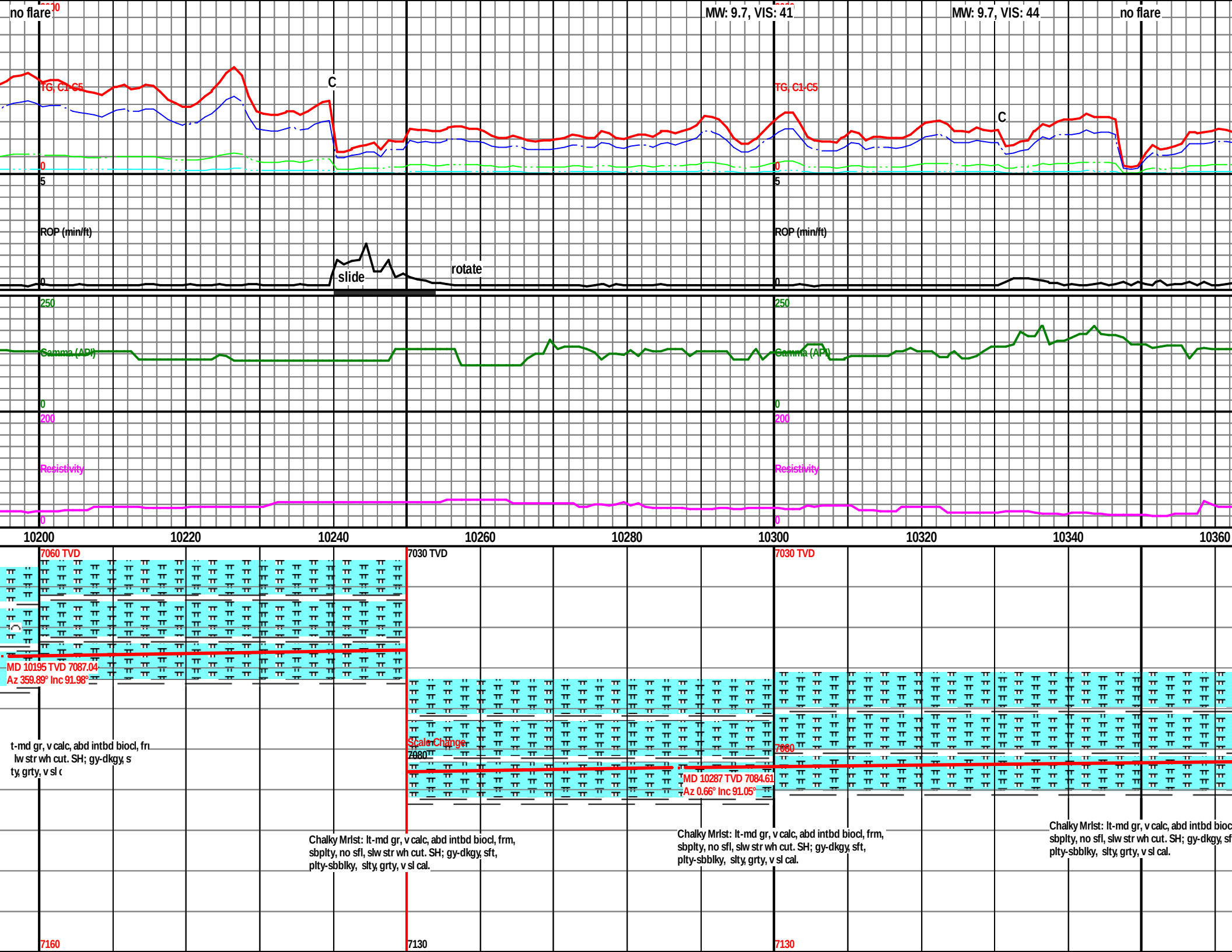

2000
C
TG_C1-C5
0
5
ROP (min/ft)
0
rotate
2000
TG_C1-C5
C
0
5
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
250
Gamma (API)
0
200
Resistivity
0
9360
9380
9400
9420
9440
9460
9480
9500
9520
7060 TVD
MD 9368 TVD 7097.53
Az 1.6° Inc 88.83°
7110
7160
intbd biocl, fri
gy-dkgy, s
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
MD 9459 TVD 7099.3
Az 1.51° Inc 88.95°
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
7060 TVD
7110
7160
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.


ON Gas Buster
2000
C
TG C1-C5
0
5
ROP (min/ft)
slide
rotate
0
250
Gamma (API)
0
200
Resistivity
0
9540
9560
9580
9600
9620
9640
9660
9680
7060 TVD
MD 9551 TVD 7101.08
Az 1.27° Inc 88.83°
MD 9643 TVD 7101.72
Az 0.55° Inc 90.37°
7110
7160
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

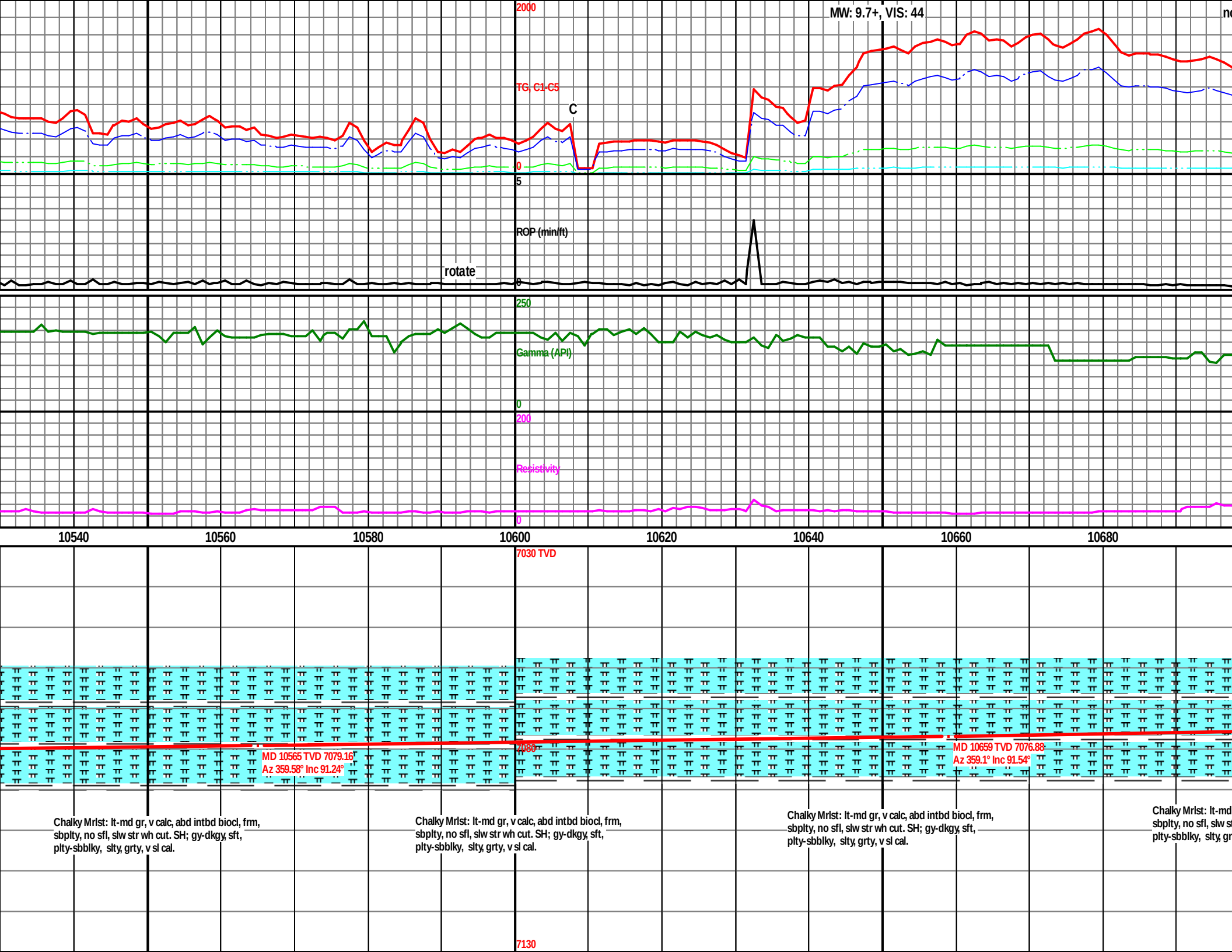
ON Gas Buster
1-3' flare
C
MW: 9.7, VIS
2000
TG, C1-C5
0
5
ROP (min/ft)
rotate
0
250
Gamma (API)
0
200
Resistivity
0
9700
9720
9740
9760
9780
9800
9820
9840
7060 TVD
7110
7160
MD 9725 TVD 7100.24
Az 0.1° Inc 91.73°
MD 9827 TVD 7097.06
Az 0.16° Inc 91.98°
Mrlst: lt-md gr, v calc, abd intbd biocl, fr
no sfl, slw str wh cut. SH; gy-dkgy, s
blky, slty, grty, v sl c
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd
sbplty, no sfl, slw str wh cut. SH; gy-dkg
plty-sbblky, slty, grty, v sl cal.

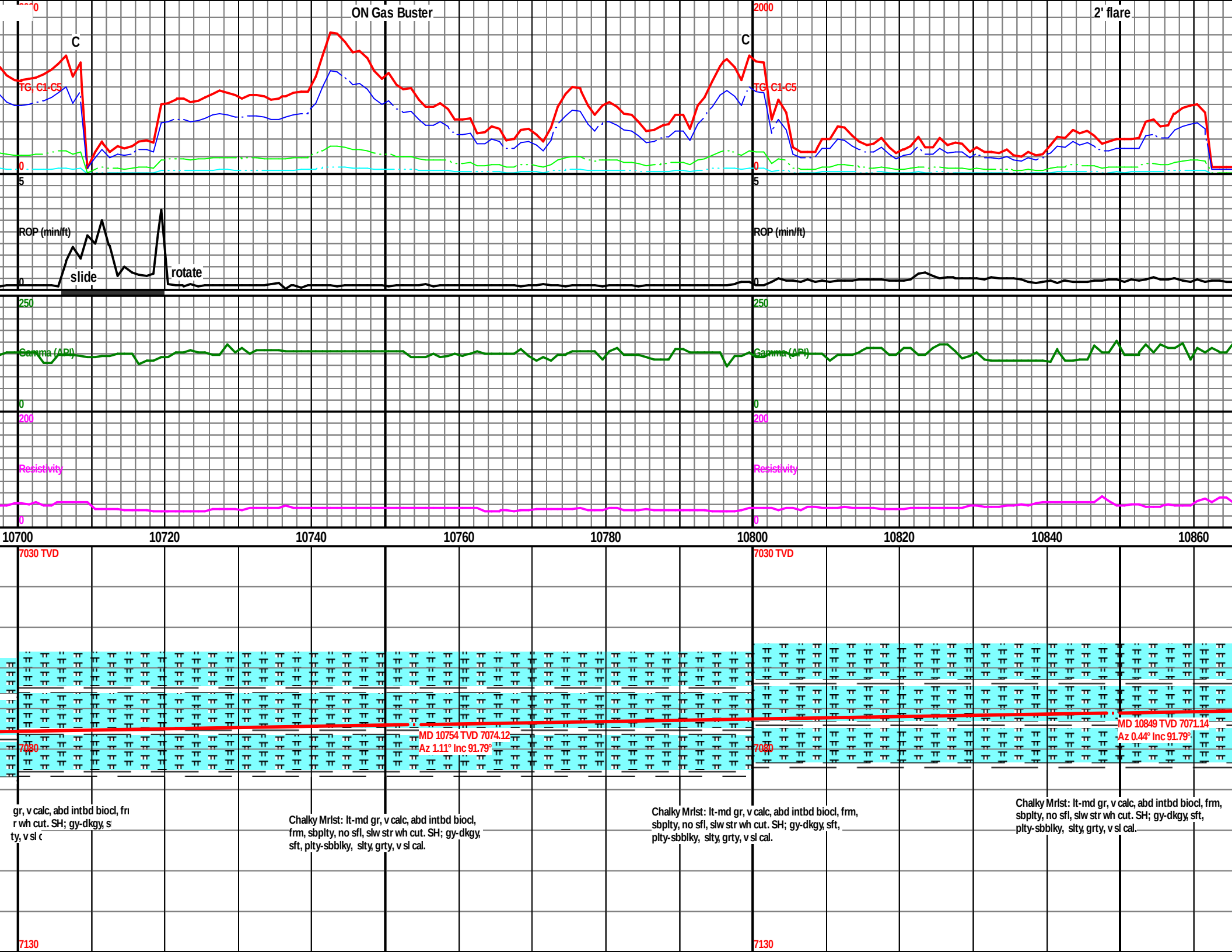

1' flare
ON Gas Buster
C
C
TG, C1-C5
TG, C1-C5
2000
0
5
ROP (min/ft)
ROP (min/ft)
slide
250
Gamma (API)
Gamma (API)
0
200
Resistivity
Resistivity
9880
9900
9920
9940
9960
9980
10000
10020
7060 TVD
7060 TVD
MD 9919 TVD 7093.94
Az 359.73° Inc 91.92°
MD 10011 TVD 7092.05
Az 0.78° Inc 90.43°
7110
7110
7160
7160
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

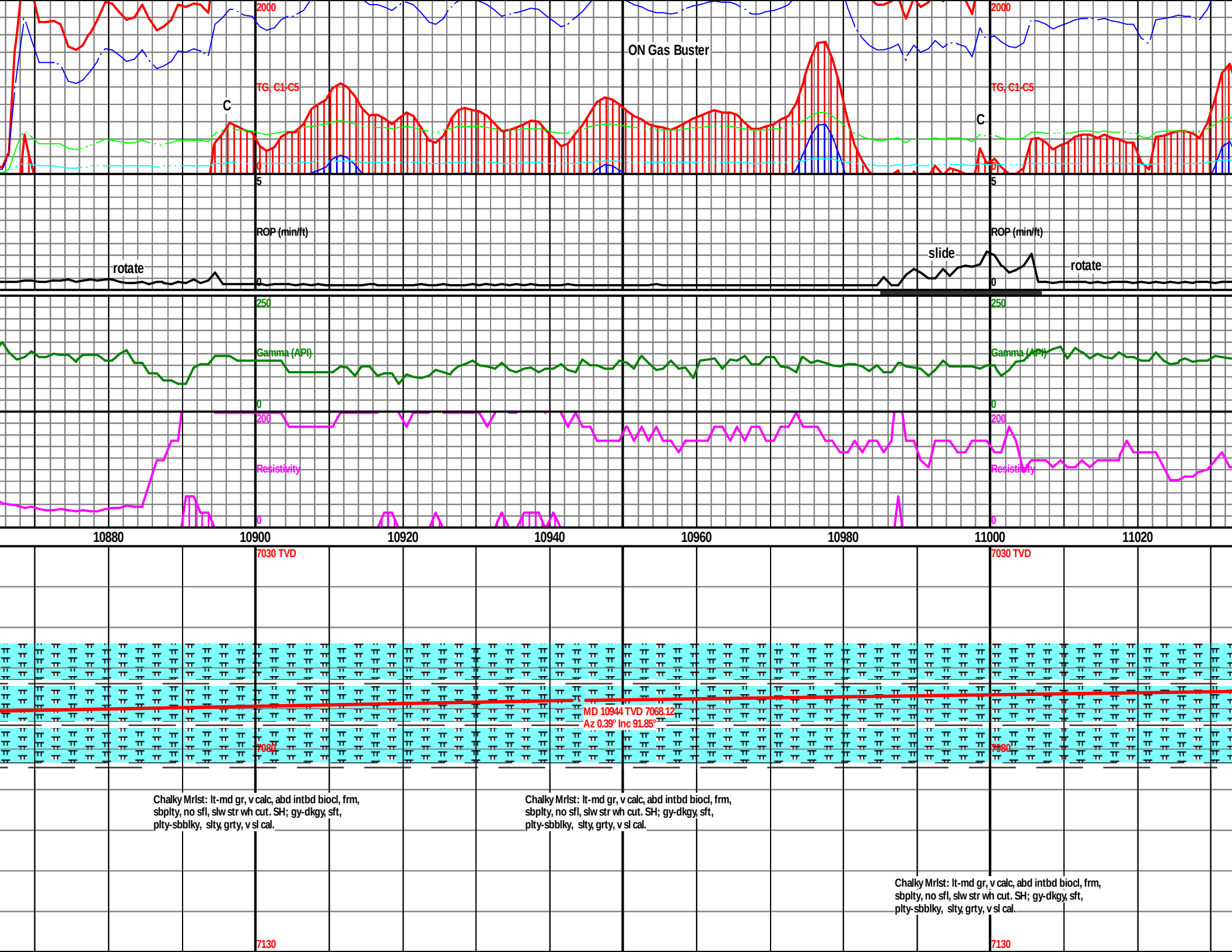

no flare
ON Gas Buster
2000
TG, C1-C5
0
5
ROP (min/ft)
0
slide
rotate
250
Gamma (API)
0
200
Resistivity
0
10040
10060
10080
10100
10120
10140
10160
10180
7060 TVD
MD 10103 TVD 7090.17
Az 0.11° Inc 91.92°
7110
7160
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

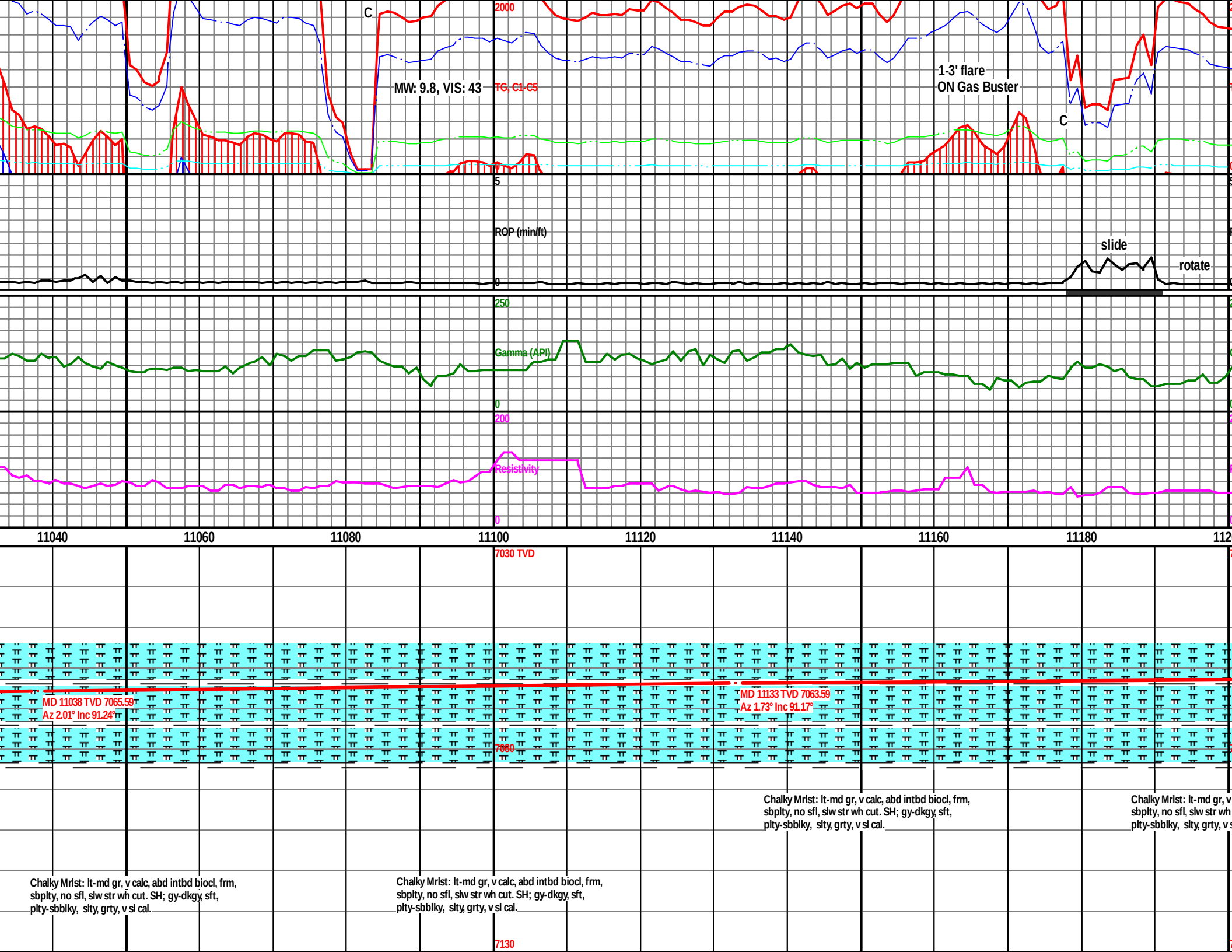

no flare
MW: 9.7, VIS: 41
MW: 9.7, VIS: 44
no flare
TG, C1-C5
C
TG, C1-C5
C
0
5
ROP (min/ft)
0
slide
rotate
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
Gamma (API)
0
200
Resistivity
0
10200
10220
10240
10260
10280
10300
10320
10340
10360
7060 TVD
MD 10195 TVD 7087.04
Az 359.89° Inc 91.98°
t-md gr, v calc, abd intbd biocl, fr
lw str wh cut. SH; gy-dkgy, s
ty, grty, v sl
7160
7030 TVD
Scale Change
7080
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
7130
7030 TVD
MD 10287 TVD 7084.61
Az 0.66° Inc 91.05°
7060
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
7130
Chalky Mrlst: lt-md gr, v calc, abd intbd bioc
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sf
plty-sbblky, slty, grty, v sl cal.

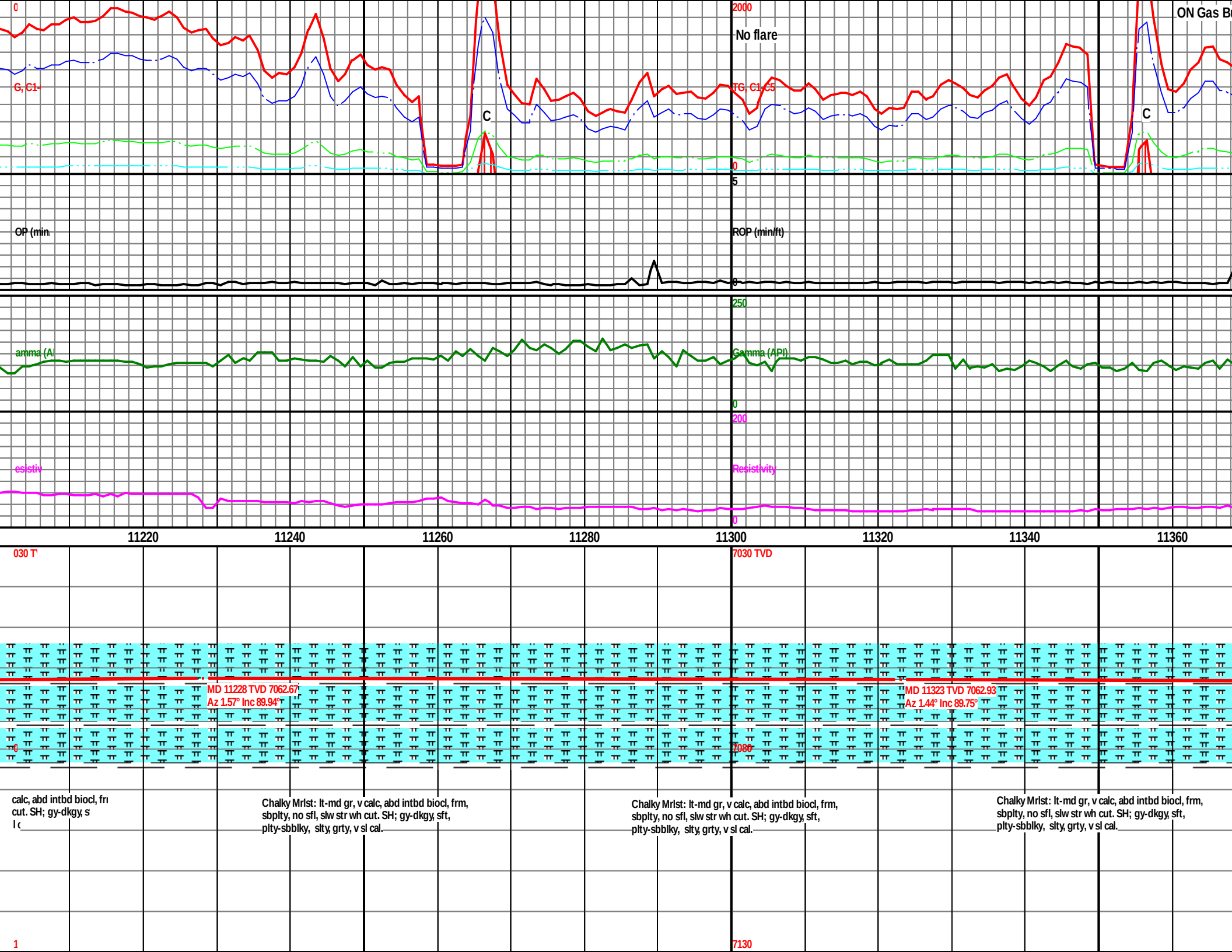
ON Gas Buster
no flare
2000
TG, C1-C5
C
C
0
5
ROP (min/ft)
rotate
250
Gamma (API)
200
Resistivity
10380
10400
10420
10440
10460
10480
10500
10520
7030 TVD
7080
7130
MD 10378 TVD 7082.94
Az 0.44° Inc 91.05°
MD 10470 TVD 7081.16
Az 359.99° Inc 91.17°
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.


MW: 9.7+, VIS: 44
2000
TG, C1-C5
C
0
5
ROP (min/ft)
rotate
0
250
Gamma (API)
0
200
Resistivity
0
10540
10560
10580
10600
10620
10640
10660
10680
7030 TVD
MD 10565 TVD 7079.16
Az 359.58° Inc 91.24°
MD 10659 TVD 7076.88
Az 359.1° Inc 91.54°
7080
7130
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.


ON Gas Buster
2' flare
C
C
TG C1-C5
TG C1-C5
2000
0
5
ROP (min/ft)
ROP (min/ft)
slide
rotate
250
Gamma (API)
Gamma (API)
0
200
Resistivity
Resistivity
10700
10720
10740
10760
10780
10800
10820
10840
10860
7030 TVD
7030 TVD
7080
7080
7130
7130
MD 10754 TVD 7074.12
Az 1.11° Inc 91.79°
MD 10849 TVD 7071.14
Az 0.44° Inc 91.79°
gr, v calc, abd intbd biocl, fr
r wh cut. SH; gy-dkgy, s
ty, v sl c
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl,
frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy,
sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.

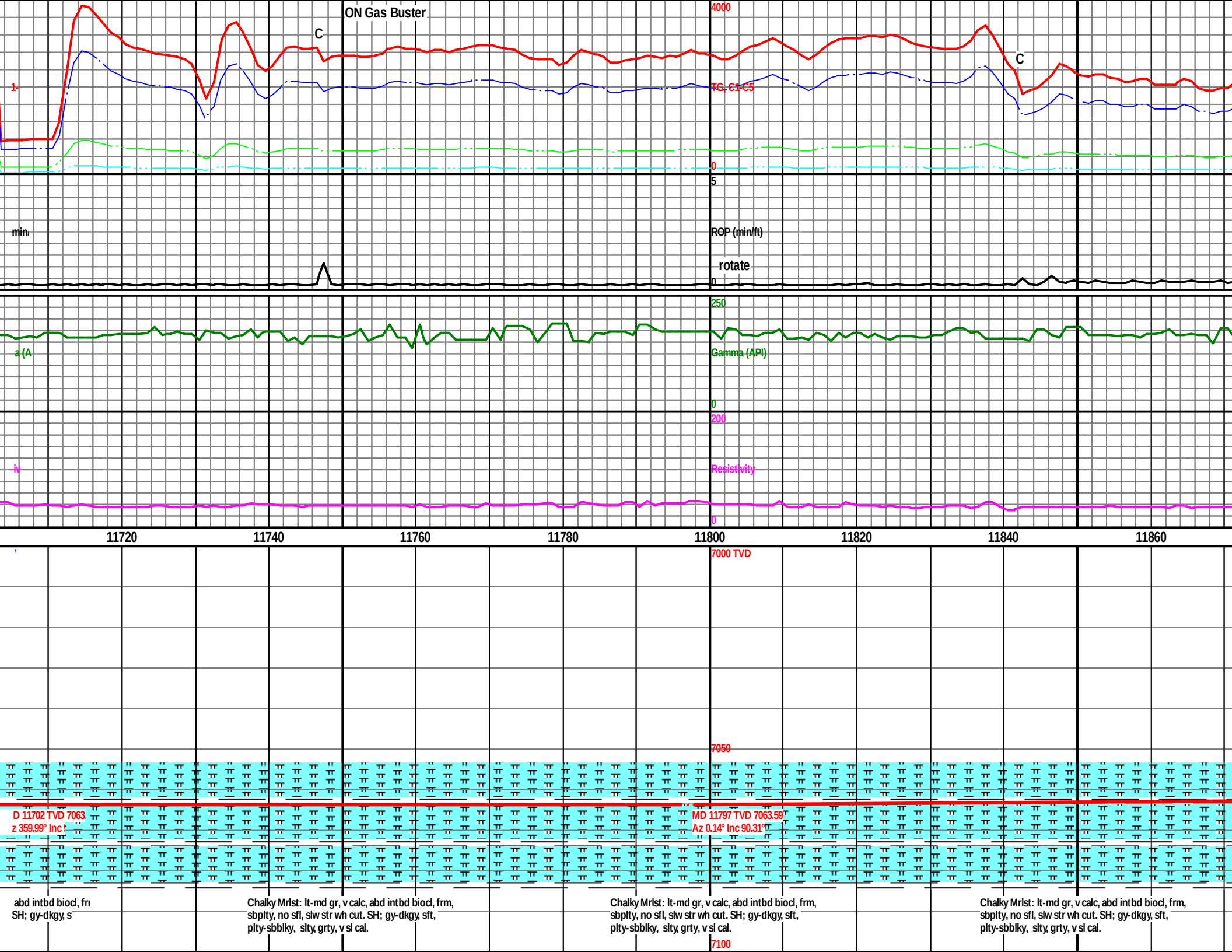

ON Gas Buster
2000
TG, C1-C5
C
0
5
ROP (min/ft)
rotate
slide
rotate
250
Gamma (API)
0
200
Resistivity
0
10880
10900
10920
10940
10960
10980
11000
11020
7030 TVD
MD 10944 TVD 7068.12
Az 0.39° Inc 91.85°
7080
7130
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

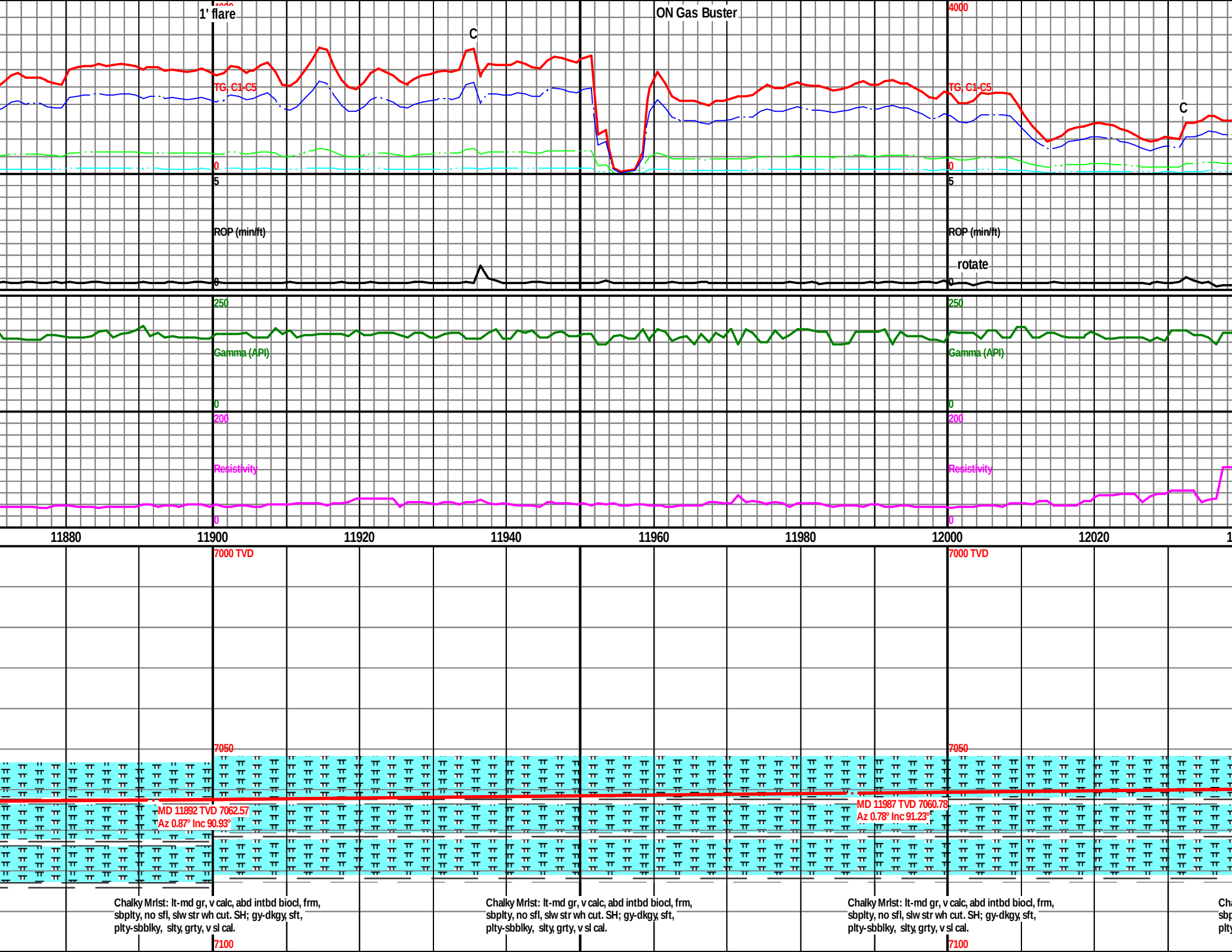

C
MW: 9.8, VIS: 43
2000
TG, C1-C5
1-3' flare
ON Gas Buster
C
5
ROP (min/ft)
slide
rotate
0
250
Gamma (API)
0
200
Resistivity
0
11040
11060
11080
11100
11120
11140
11160
11180
7030 TVD
MD 11038 TVD 7065.59
Az 2.01° Inc 91.24°
MD 11133 TVD 7063.59
Az 1.73° Inc 91.17°
7080
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v
sbplty, no sfl, slw str wh
plty-sbblky, slty, grty, v s
7130

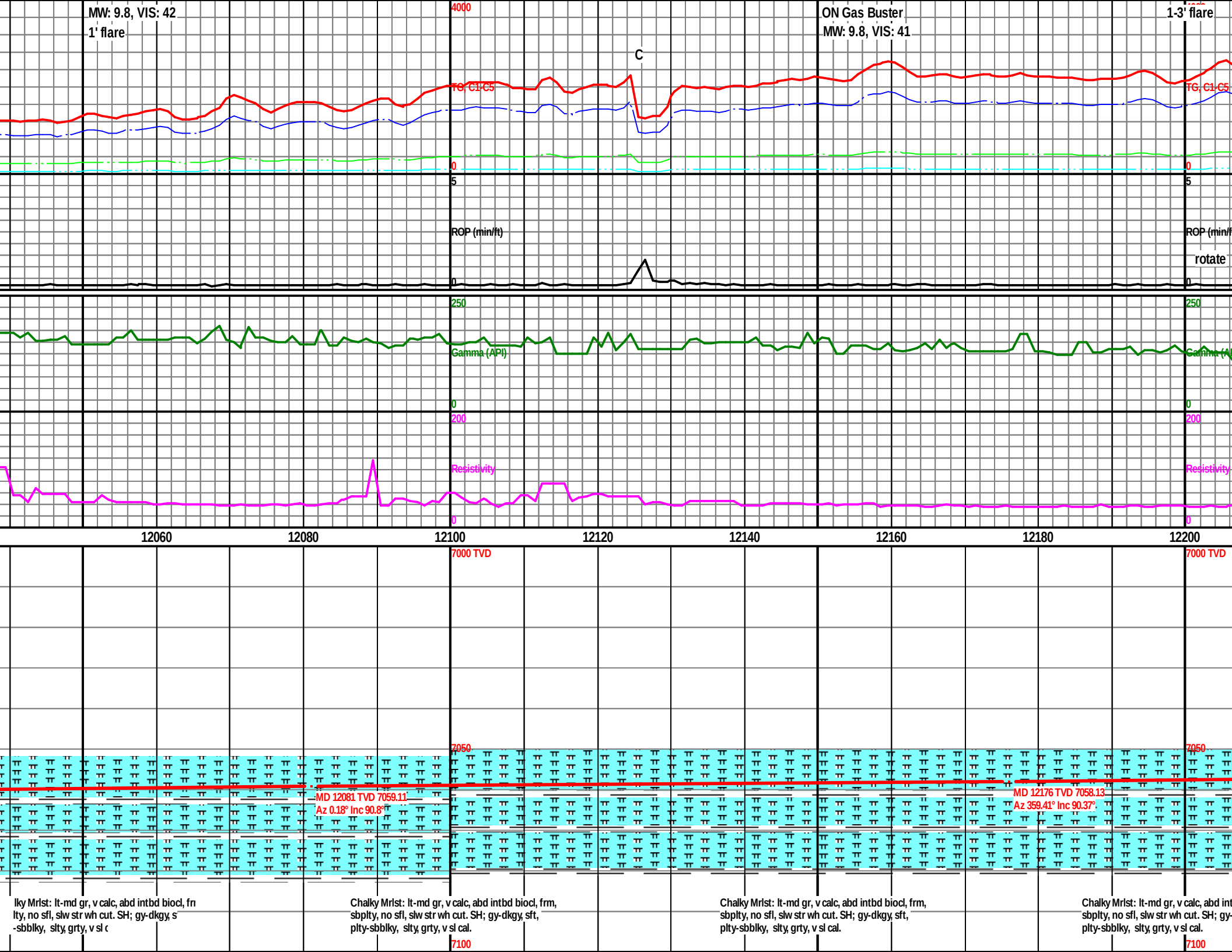

0
G, C1
C
2000
No flare
TG, C1-C5
C
ON Gas Bu
0
5
OP (min
ROP (min/ft)
0
250
amma (A
Gamma (API)
0
200
esistiv
Resistivity
0
11220
11240
11260
11280
11300
11320
11340
11360
030 T
7030 TVD
MD 11228 TVD 7062.67
Az 1.57° Inc 89.94°
MD 11323 TVD 7062.93
Az 1.44° Inc 89.75°
0
7080
calc, abd intbd biocl, fr
cut. SH; gy-dkgy, s
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
1
7130

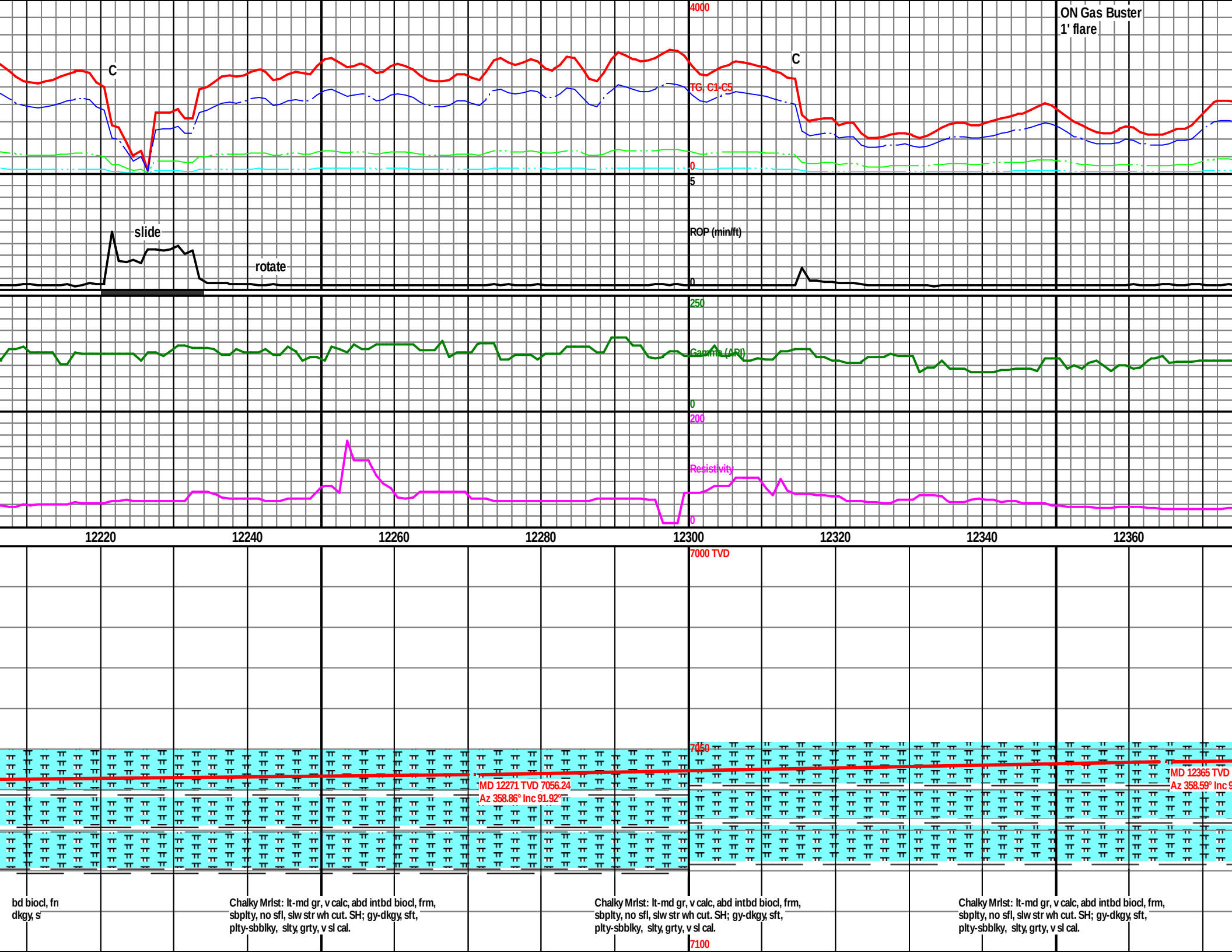
2000
TG, C1-C5
0
C
MW: 9.7+, VIS: 39
No flare
5
ROP (min/ft)
rotate
0
250
Gamma (API)
0
200
Resistivity
0
11380
11400
11420
11440
11460
11480
11500
11520
7030 TVD
MD 11418 TVD 7063.34
Az 1.04° Inc 89.75°
MD 11513 TVD 7063.59
Az 1.05° Inc 89.94°
7080
7130
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

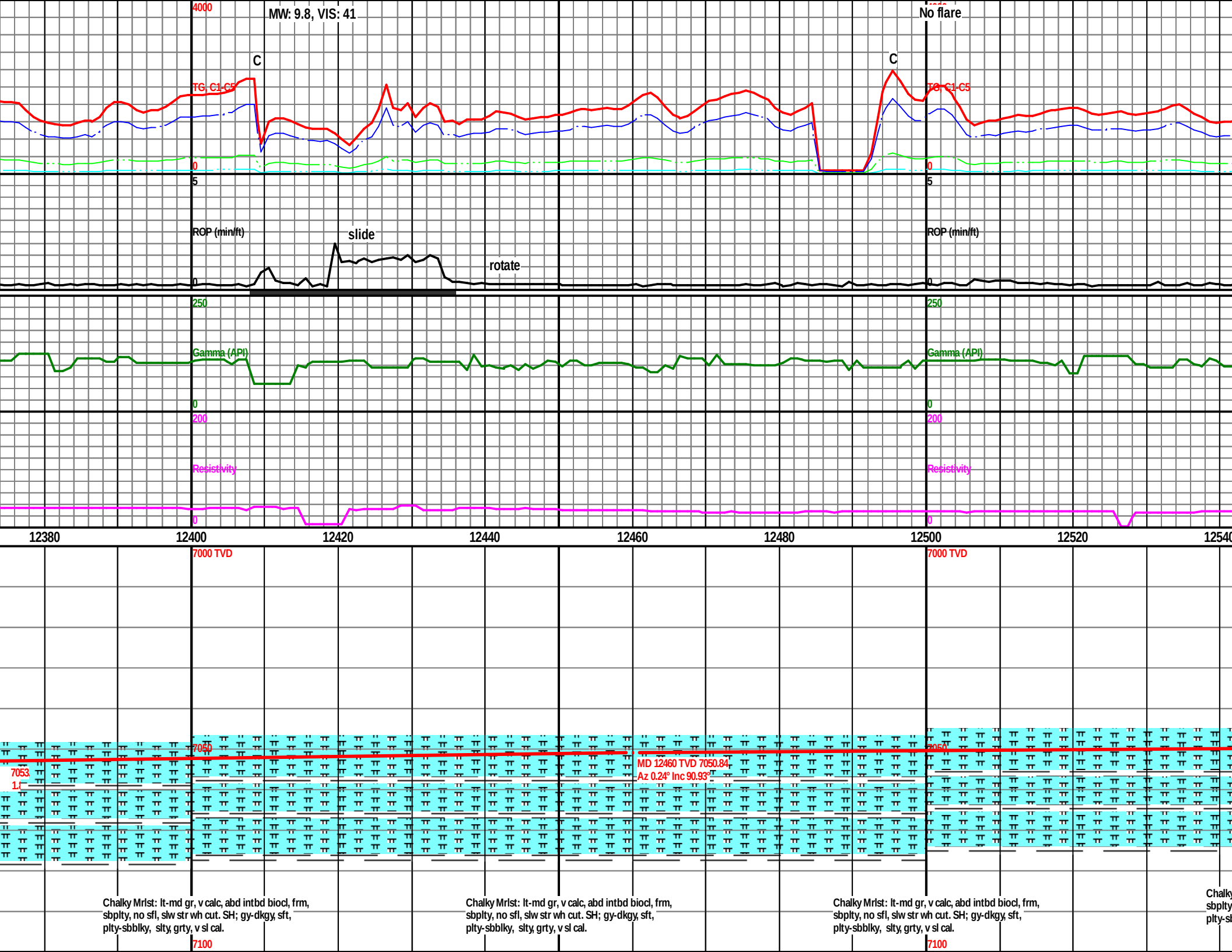
ON Gas Buster
MW: 9.7+, VIS:44
C
2000
1' flare
4000
Scale Change
TG, C1-C5
C
4000
0
5
ROP (min/ft)
rotate
0
250
Gamma (API)
0
200
Resistivity
0
11540
11560
11580
11600
11620
11640
11660
11680
11700
7000 TVD
Scale Change
7050
7100
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Az 0.43° Inc 89.88°
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, sbplty, no sfl, slw str wh cut. plty-sbblky, slty, grty, v sl cal

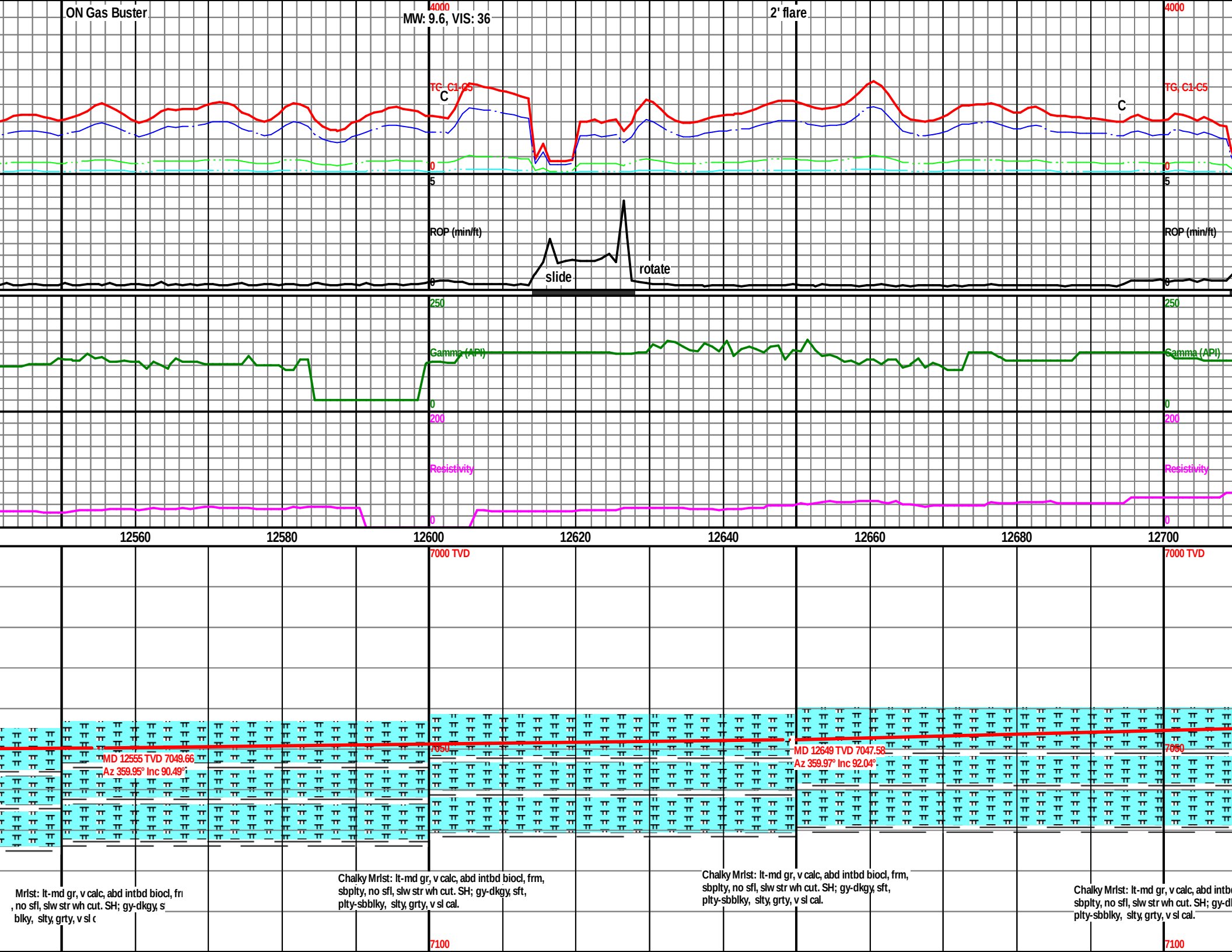

ON Gas Buster
C
C
4000
1-
TG. C1-C5
0
5
min
ROP (min/ft)
rotate
0
250
a (A
Gamma (API)
0
200
iv
Resistivity
0
11720
11740
11760
11780
11800
11820
11840
11860
7000 TVD
7050
D 11702 TVD 7063
z 359.99° Inc
MD 11797 TVD 7063.59
Az 0.14° Inc 90.31°
abd intbd biocl, fri
SH; gy-dkgy, s
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
7100

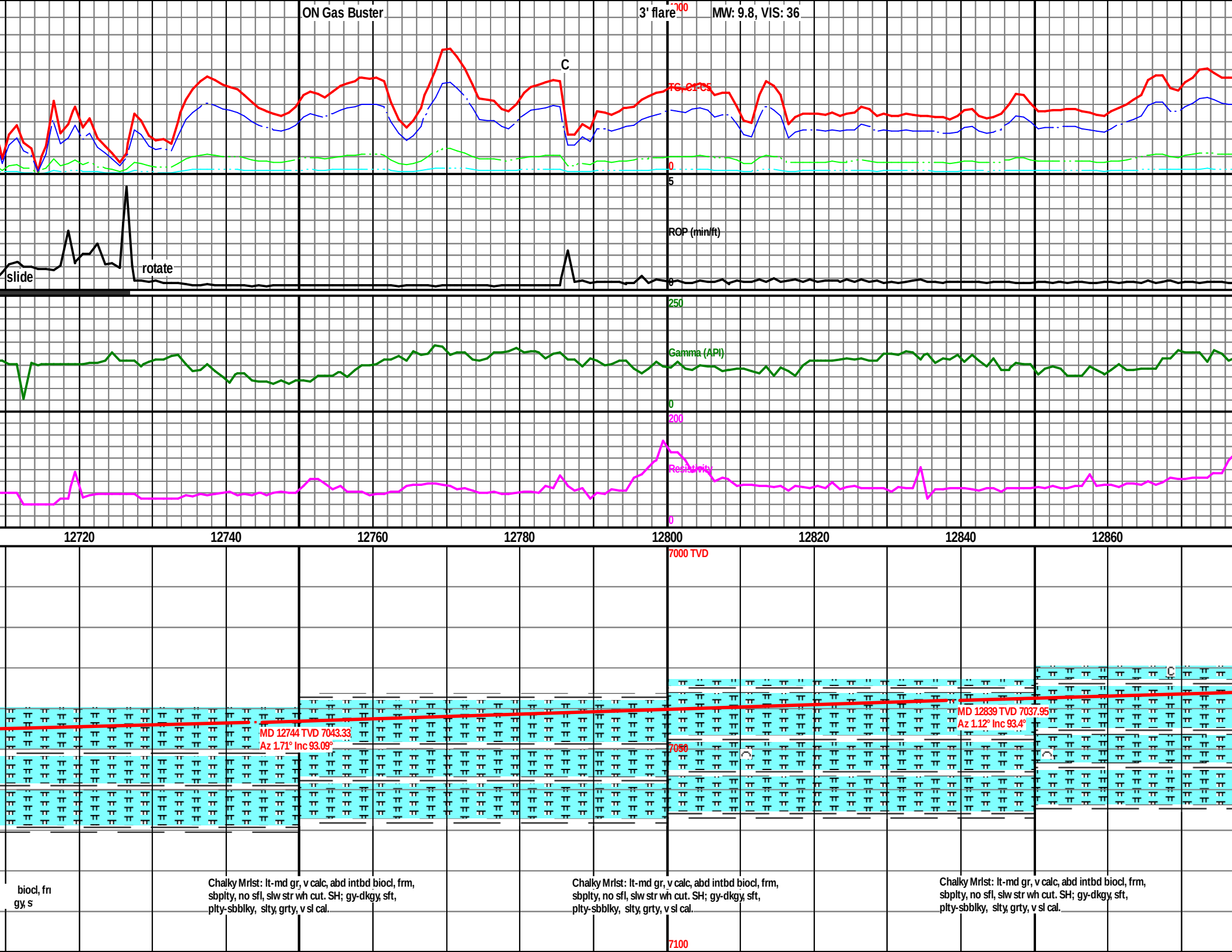

1' flare
C
TG, C1-C5
4000
0
5
ROP (min/ft)
0
ON Gas Buster
4000
TG, C1-C5
C
0
5
ROP (min/ft)
rotate
0
250
Gamma (API)
0
200
Resistivity
0
250
Gamma (API)
0
200
Resistivity
0
11880
11900
11920
11940
11960
11980
12000
12020
7000 TVD
7050
7100
MD 11892 TVD 7062.57
Az 0.87° Inc 90.93°
MD 11987 TVD 7060.78
Az 0.78° Inc 91.23°
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.


MW: 9.8, VIS: 42
1' flare
4000
C
TG, C1-C5
0
5
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
ON Gas Buster
MW: 9.8, VIS: 41
1-3' flare
TG, C1-C5
0
5
ROP (min/f
rotate
0
250
Gamma (A
0
200
Resistivity
0
12060
12080
12100
12120
12140
12160
12180
12200
7000 TVD
7050
MD 12081 TVD 7059.11
Az 0.18° Inc 90.8°
7100
lky Mrlst: lt-md gr, v calc, abd intbd biocl, frn
lty, no sfl, slw str wh cut. SH; gy-dkgy, s
-sbblky, slty, grty, v sl c
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
7000 TVD
7050
MD 12176 TVD 7058.13
Az 359.41° Inc 90.37°
7100
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
7000 TVD
7050
7100
Chalky Mrlst: lt-md gr, v calc, abd int
sbplty, no sfl, slw str wh cut. SH; gy-
plty-sbblky, slty, grty, v sl cal.

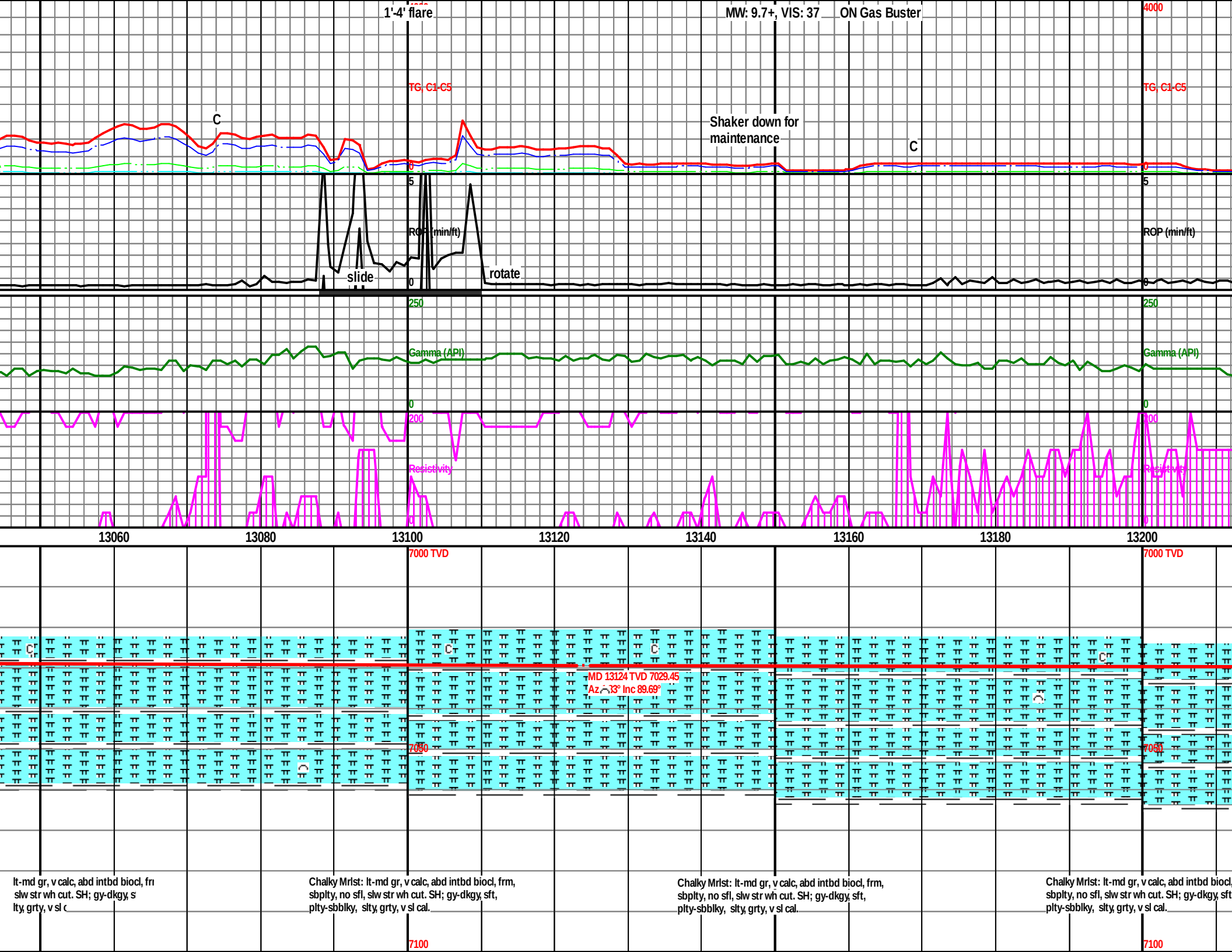

4000
ON Gas Buster
1' flare
C
C
TG C1-C5
0
5
slide
rotate
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
12220
12240
12260
12280
12300
12320
12340
12360
7000 TVD
7050
7100
MD 12271 TVD 7056.24
Az 358.86° Inc 91.92°
MD 12365 TVD
Az 358.59° Inc 9
bd biocl, fri
dkgy, s
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

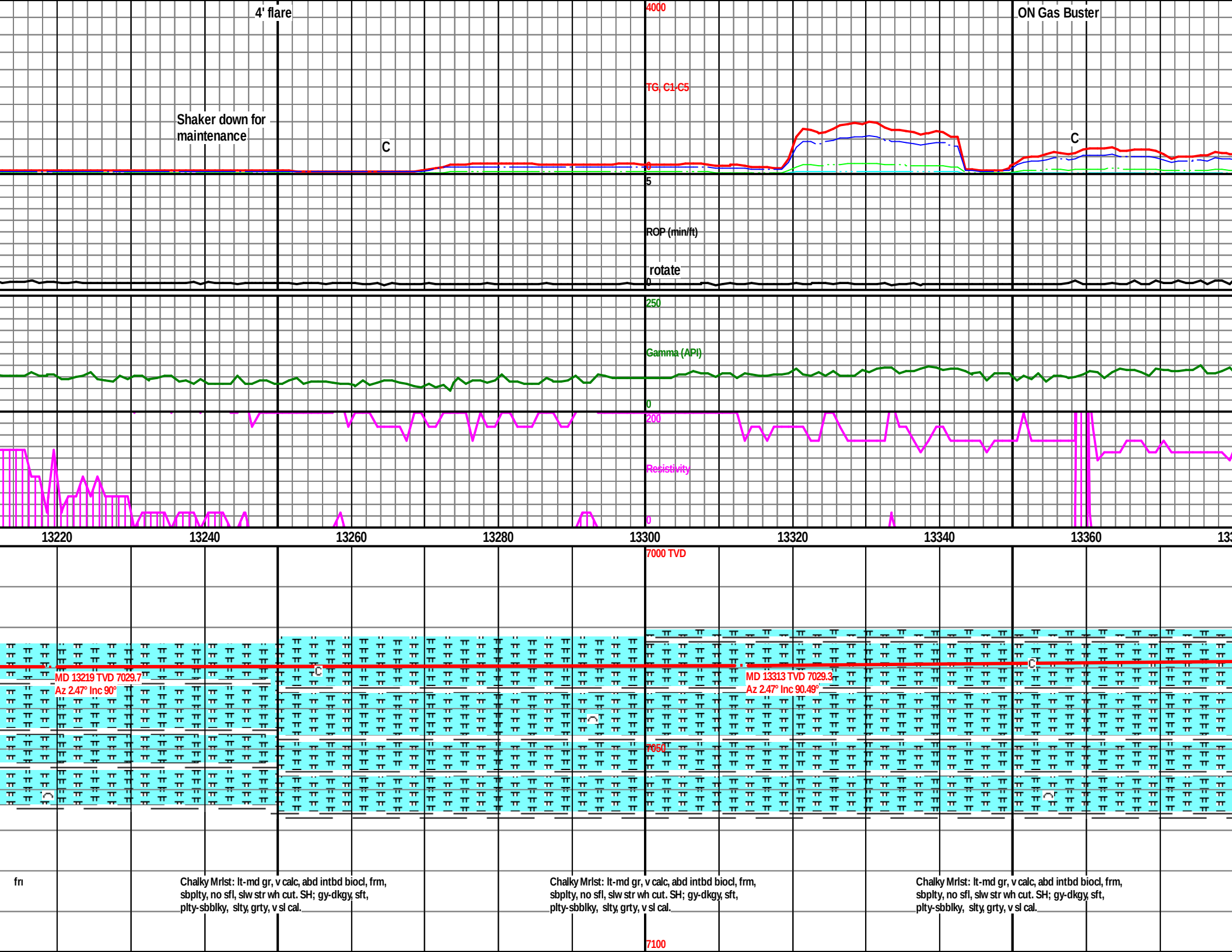

4000
MW: 9.8, VIS: 41
C
TG_C1-C5
0
5
ROP (min/ft)
slide
rotate
0
250
Gamma (API)
0
200
Resistivity
0
No flare
C
TG_C1-C5
0
5
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
12380
12400
12420
12440
12460
12480
12500
12520
12540
7000 TVD
7050
7053
MD 12460 TVD 7050.84
Az 0.24° Inc 90.93°
7100
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
7000 TVD
7050
7100

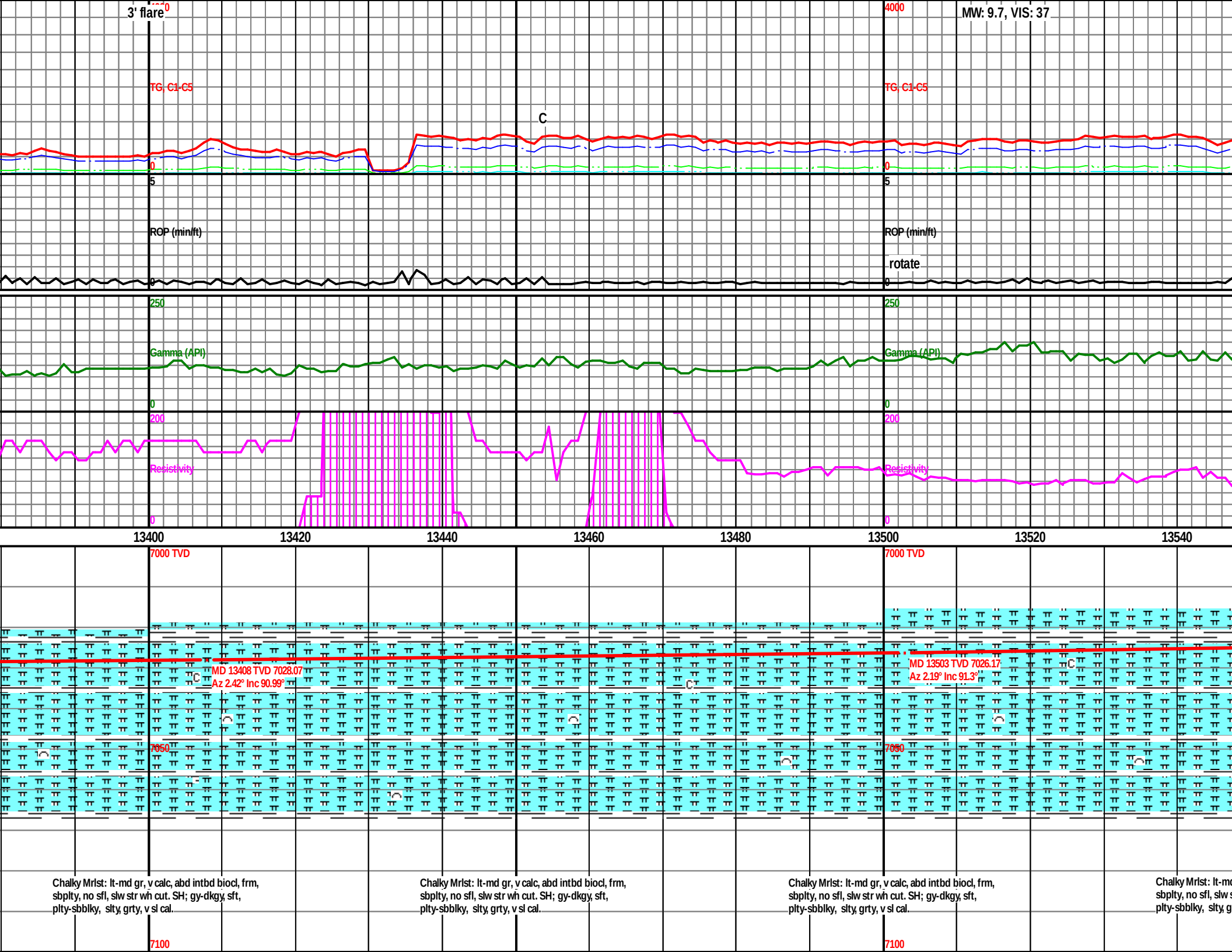

ON Gas Buster
MW: 9.6, VIS: 36
2' flare
4000
TG, C1-C5
C
C
TG, C1-C5
4000
0
5
0
5
ROP (min/ft)
ROP (min/ft)
slide
rotate
0
0
250
Gamma (API)
Gamma (API)
0
0
200
Resistivity
Resistivity
0
0
12560
12580
12600
12620
12640
12660
12680
12700
7000 TVD
7000 TVD
7050
7050
MD 12555 TVD 7049.66
Az 359.95° Inc 90.49°
MD 12649 TVD 7047.58
Az 359.97° Inc 92.04°
Mrlst: lt-md gr, v calc, abd intbd biocl, fr
, no sfl, slw str wh cut. SH; gy-dkgy, s
blky, slty, grty, v sl
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intb
sbplty, no sfl, slw str wh cut. SH; gy-d
plty-sbblky, slty, grty, v sl cal.
7100
7100

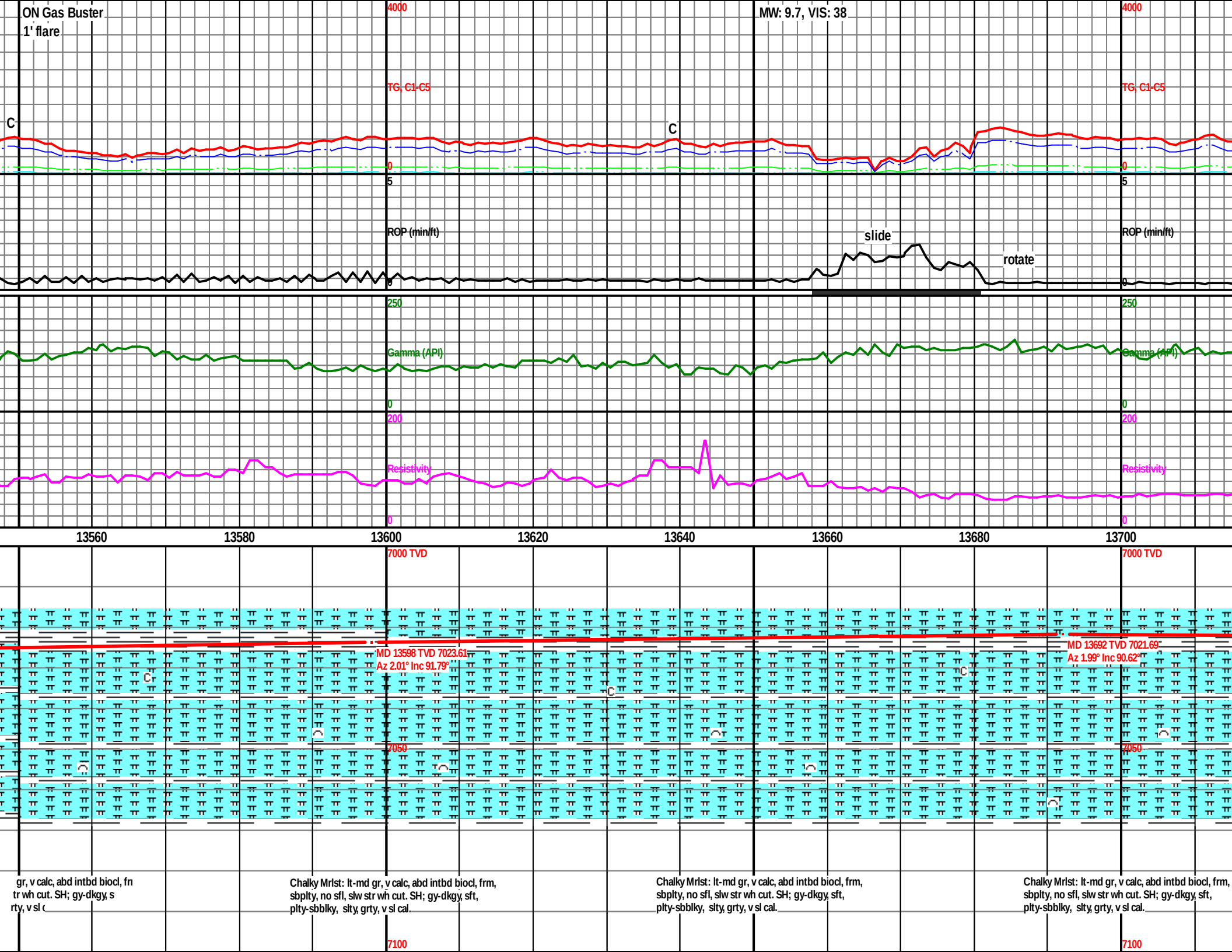

ON Gas Buster
3' flare
MW: 9.8, VIS: 36
C
TG-C1-C5
0
5
ROP (min/ft)
0
slide
rotate
250
Gamma (API)
0
200
Resistivity
0
12720
12740
12760
12780
12800
12820
12840
12860
7000 TVD
MD 12744 TVD 7043.33
Az 1.71° Inc 93.09°
7050
MD 12839 TVD 7037.95
Az 1.12° Inc 93.4°
C
biocl, fri
gy, s
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
7100

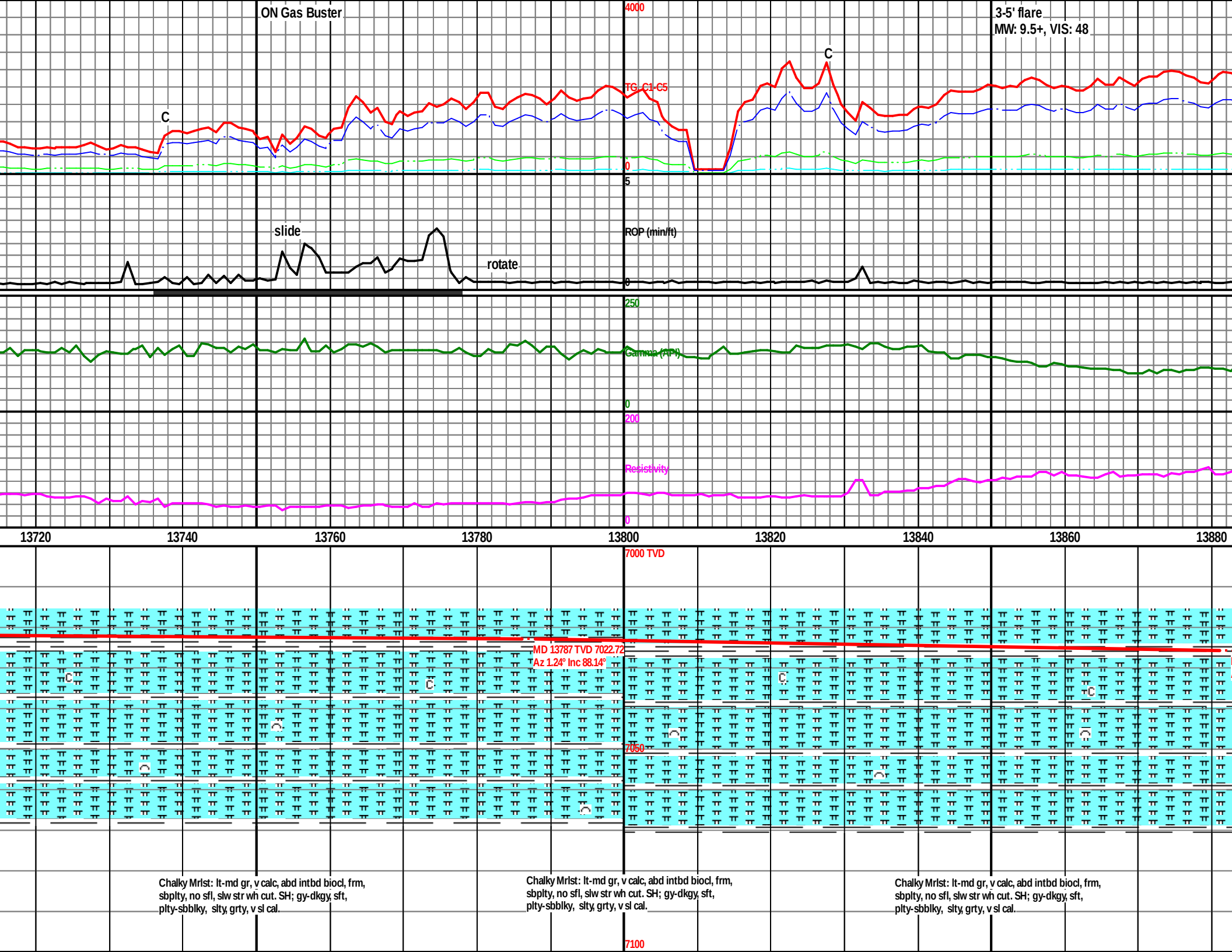
MW: 9.8, VIS: 36
2' flare
ON Gas Buster
C
C
TG, C1-C5
4000
0
5
ROP (min/ft)
slide
rotate
0
250
Gamma (API)
0
200
Resistivity
0
12880
12900
12920
12940
12960
12980
13000
13020
13040
7000 TVD
7050
7100
MD 12934 TVD 7033.14
Az 1.47° Inc 92.41°
MD 13029 TVD 7028.89
Az 2.43° Inc 91.17°
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

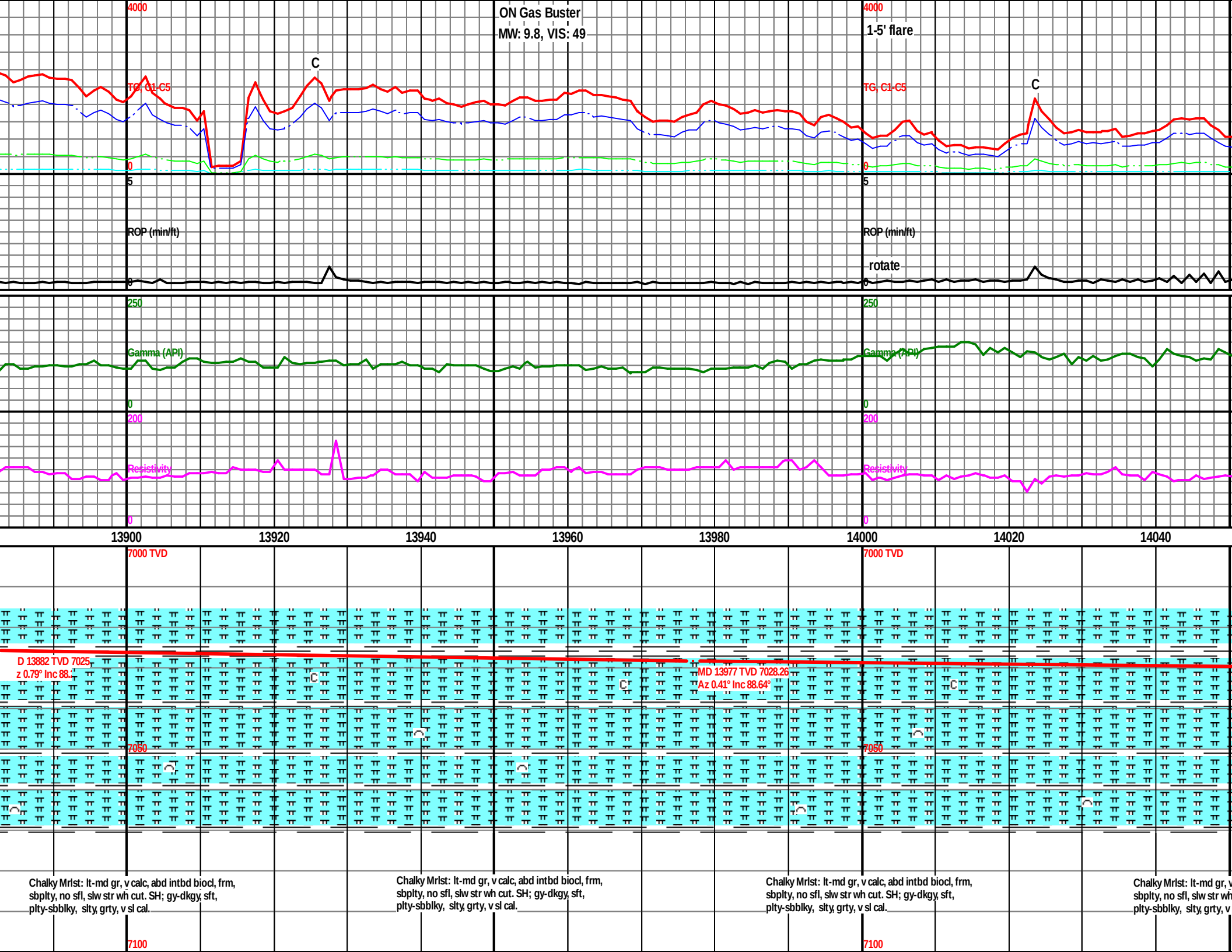

1'-4' flare
MW: 9.7+, VIS: 37
ON Gas Buster
TG, C1-C5
C
Shaker down for maintenance
C
slide
rotate
ROP (min/ft)
Gamma (API)
Resistivity
13060
13080
13100
13120
13140
13160
13180
13200
7000 TVD
MD 13124 TVD 7029.45
Az 13° Inc 89.69°
7050
7100
lt-md gr, v calc, abd intbd biocl, frm, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.

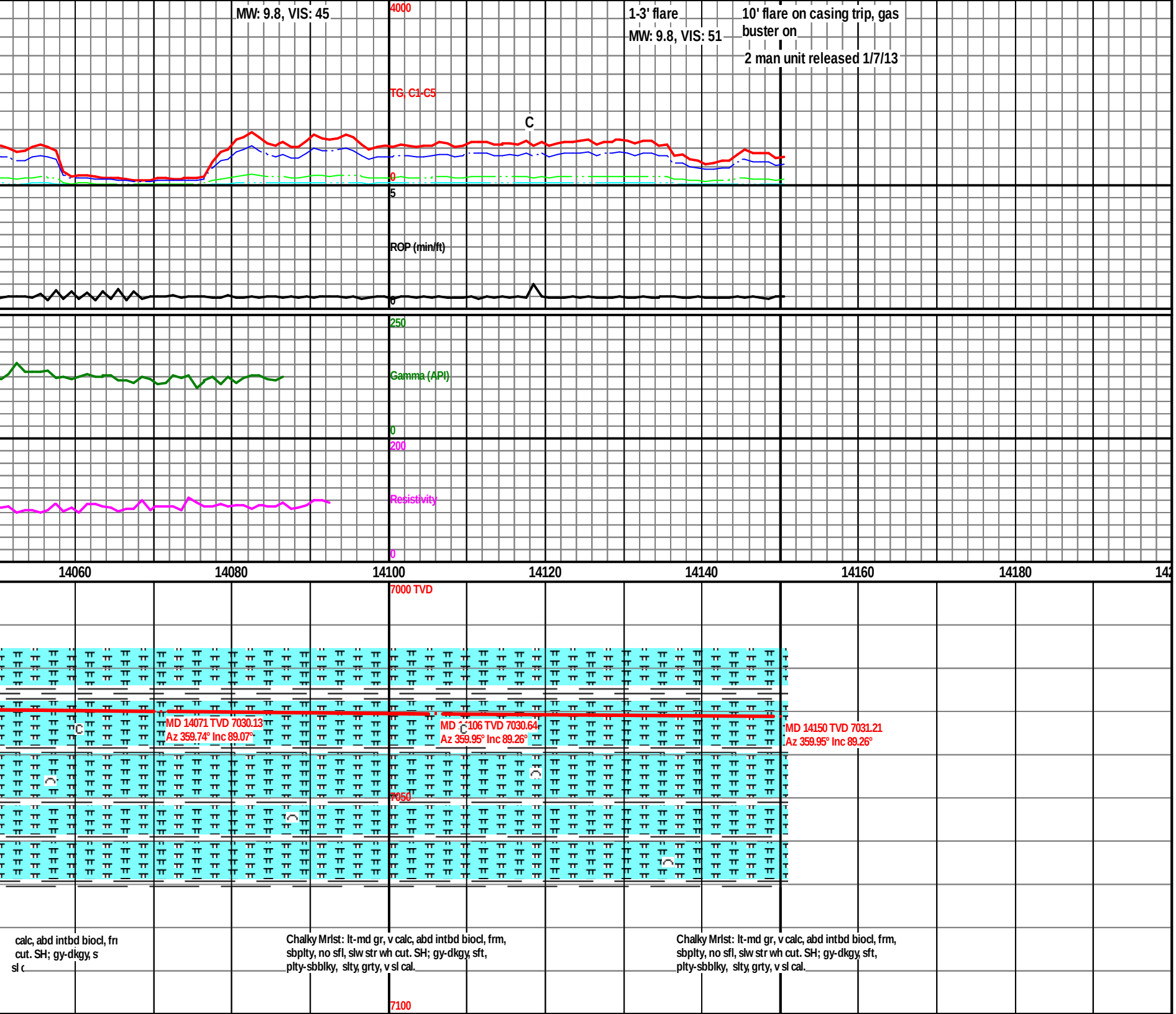

4' flare
Shaker down for maintenance
C
4000
TG, C1-C5
0
5
ROP (min/ft)
rotate
0
ON Gas Buster
C
250
Gamma (API)
0
200
Resistivity
0
13220
13240
13260
13280
13300
13320
13340
13360
7000 TVD
MD 13219 TVD 7029.7
Az 2.47° Inc 90°
MD 13313 TVD 7029.3
Az 2.47° Inc 90.49°
7050
7100
fri
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.


3' flare
MW: 9.7, VIS: 37
TG, C1-C5
C
ROP (min/ft)
rotate
Gamma (API)
Resistivity
13400
13420
13440
13460
13480
13500
13520
13540
7000 TVD
7050
7100
MD 13408 TVD 7028.07
Az 2.42° Inc 90.99°
MD 13503 TVD 7026.17
Az 2.19° Inc 91.3°
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.


ON Gas Buster
1' flare
MW: 9.7, VIS: 38
4000
TG, C1-C5
0
5
ROP (min/ft)
slide
rotate
250
Gamma (API)
200
Resistivity
13560
13580
13600
13620
13640
13660
13680
13700
7000 TVD
MD 13598 TVD 7023.61
Az 2.01° Inc 91.79°
MD 13692 TVD 7021.69
Az 1.99° Inc 90.62°
7050
7100
gr, v calc, abd intbd biocl, fr
tr wh cut. SH; gy-dkgy, s
rty, v sl
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm,
sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft,
plty-sbblky, slty, grty, v sl cal.


ON Gas Buster
3-5' flare
MW: 9.5+, VIS: 48
C
C
4000
TG, C1-C5
0
5
slide
rotate
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
13720
13740
13760
13780
13800
13820
13840
13860
13880
7000 TVD
MD 13787 TVD 7022.72
Az 1.24° Inc 88.14°
7050
7100
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.


ON Gas Buster
MW: 9.8, VIS: 49
1-5' flare
4000
TG, C1-C5
0
C
5
ROP (min/ft)
rotate
250
Gamma (API)
200
Resistivity
13900
13920
13940
13960
13980
14000
14020
14040
7000 TVD
D 13882 TVD 7025
z 0.79° Inc 88.
MD 13977 TVD 7028.26
Az 0.41° Inc 88.64°
7050
7100
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.


MW: 9.8, VIS: 45
4000
1-3' flare
MW: 9.8, VIS: 51
10' flare on casing trip, gas buster on
2 man unit released 1/7/13
TG, C1-C5
C
0
5
ROP (min/ft)
0
250
Gamma (API)
0
200
Resistivity
0
14060
14080
14100
14120
14140
14160
14180
7000 TVD
MD 14071 TVD 7030.13
Az 359.74° Inc 89.07°
MD 14106 TVD 7030.64
Az 359.95° Inc 89.26°
MD 14150 TVD 7031.21
Az 359.95° Inc 89.26°
7050
7100
calc, abd intbd biocl, fri
cut. SH; gy-dkgy, s
sl c
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.
Chalky Mrlst: lt-md gr, v calc, abd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH; gy-dkgy, sft, plty-sbblky, slty, grty, v sl cal.