Scale 1:240 (5"=100') Imperial
Measured Depth Log

Well Name:	Buffalo 14N-15HZ		
API:	05123364550000		
Location:	Weld County, CO.		
License Number:		Region:	DJ Basin
Spud Date:	12/11/2014	Drilling Completed:	12/19/2014
Surface Coordinates:	384' FNL, 1409' FWL, SEC 15, T1N-R68W		
Bottom Hole Coordinates:	460' FSL, 2160' FWL, SEC 3, T1N-R68W		
Ground Elevation (ft):	5125'	K.B. Elevation (ft):	5150'
Logged Interval (ft):	7172' To: 12155'	Total Depth (ft):	12155'
Formation:	Niobrara		
Type of Drilling Fluid:	Water Base Mud		

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

OPERATOR

Company:	Anadarko Petroleum Corporation
Address:	1099 18th Street, Suite 1800 Denver, CO 80202-1918

GEOLOGIST

Name: Ben Thompson / Kyle Pickard
Company: Great Divide Consulting, Inc.
Address: 11990 North Grant Street, Suite 220
Northglenn, CO 80233

ROCK TYPES

Anhy
Bent
Brec
Cht
Clyst
Coal
Congl
Dol
Gyp
Igne
Lmst
Meta
Mrleb59
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
Pyr
Salt
Sandy
Silt
Sil
Sulphur
Tuff

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

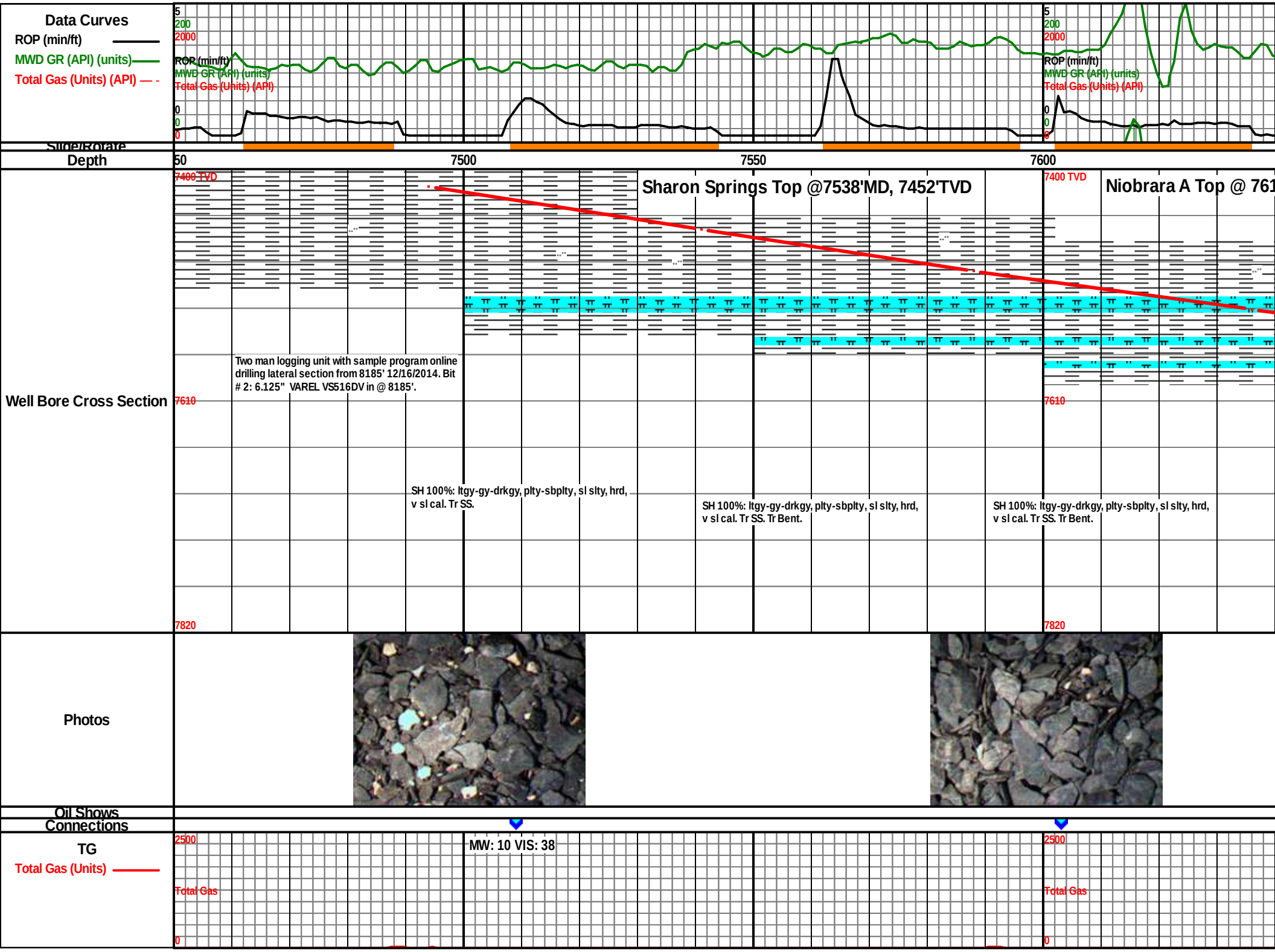
Even
Spotted
Ques
Dead

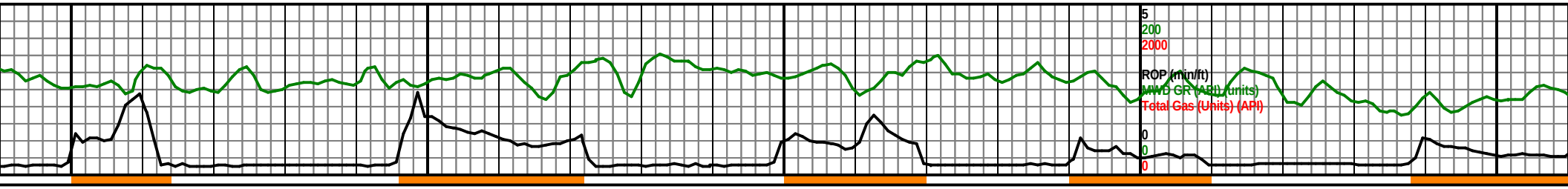
INTERVAL

Core
Dst

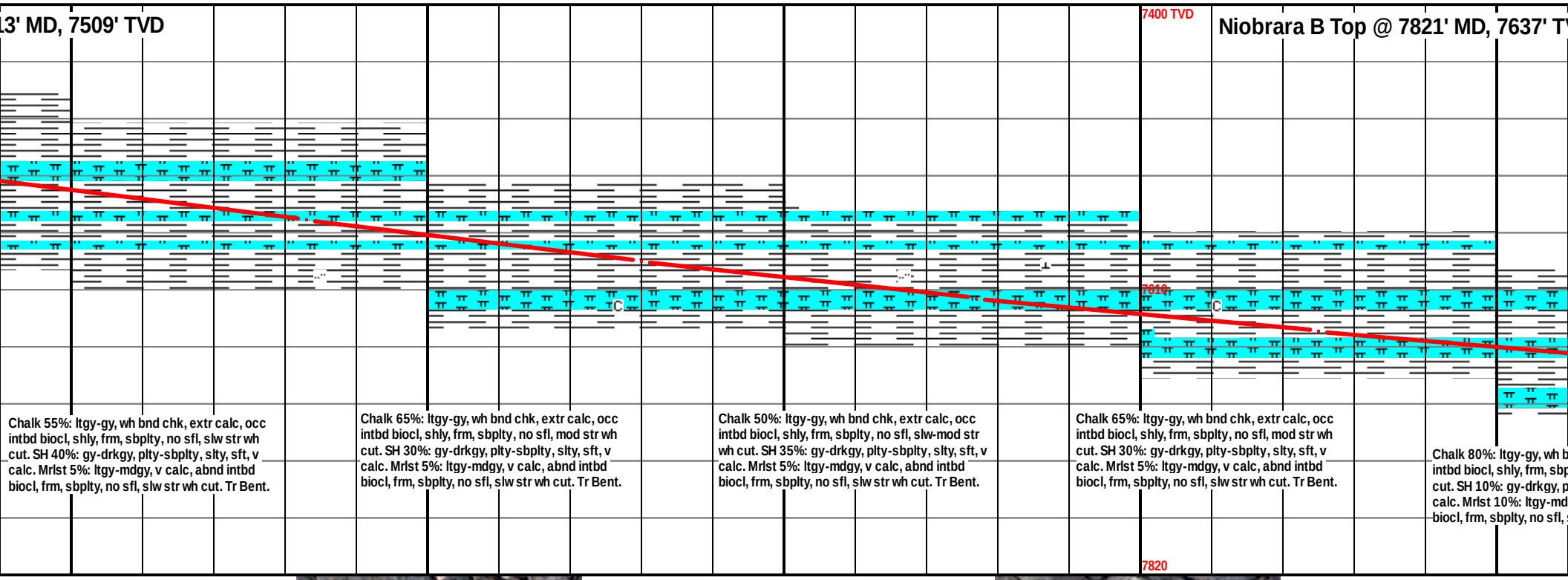
EVENT

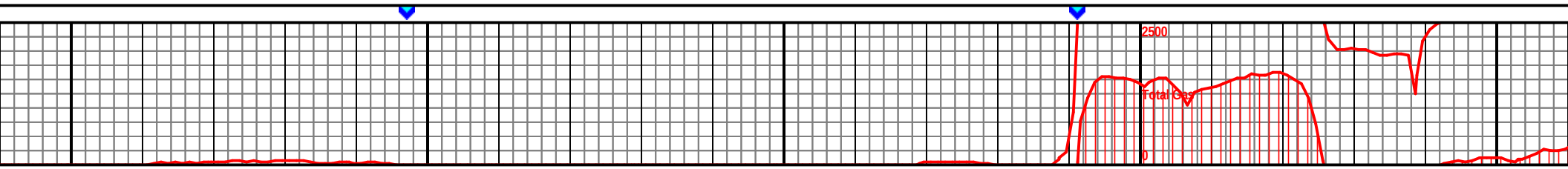
Rft
Sidewall

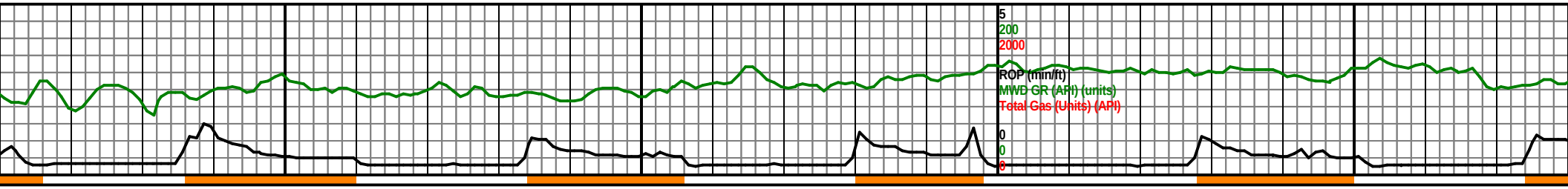

Data Curves
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
5
200
2000
0
0
0
Slide/Rotate
Depth
50
7500
7550
7600
7400 TVD
7610
7820
Sharon Springs Top @7538'MD, 7452'TVD
Niobrara A Top @ 761
Well Bore Cross Section
Two man logging unit with sample program online drilling lateral section from 8185' 12/16/2014. Bit # 2: 6.125" VAREL VS516DV in @ 8185'.
SH 100%: ltgy-gy-drkgy, plty-sbplty, sl slty, hrd, v sl cal. Tr SS.
SH 100%: ltgy-gy-drkgy, plty-sbplty, sl slty, hrd, v sl cal. Tr SS. Tr Bent.
SH 100%: ltgy-gy-drkgy, plty-sbplty, sl slty, hrd, v sl cal. Tr SS. Tr Bent.
Photos
Oil Shows
Connections
TG
Total Gas (Units)
2500
Total Gas
0
MW: 10 VIS: 38



7650 7700 7750 7800 7850







7900 7950 8000 8050

VD

7400 TVD

7610

nd chk, extr calc, occ
lty, no sfl, mod str wh
lty-sbplty, slty, sft, v
gy, v calc, abnd intbd
slw str wh cut.

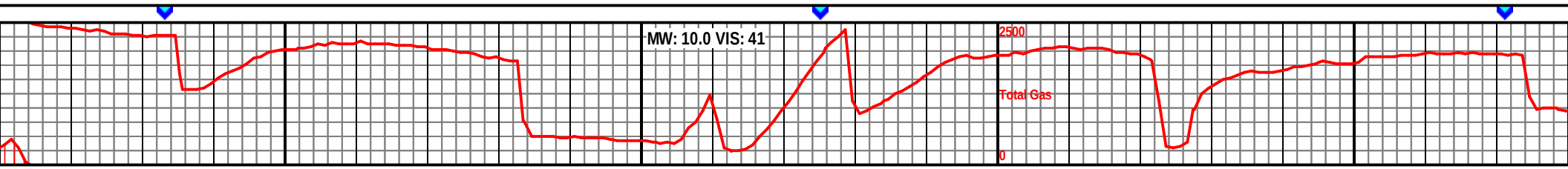
Chalk 70%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut. SH 15%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

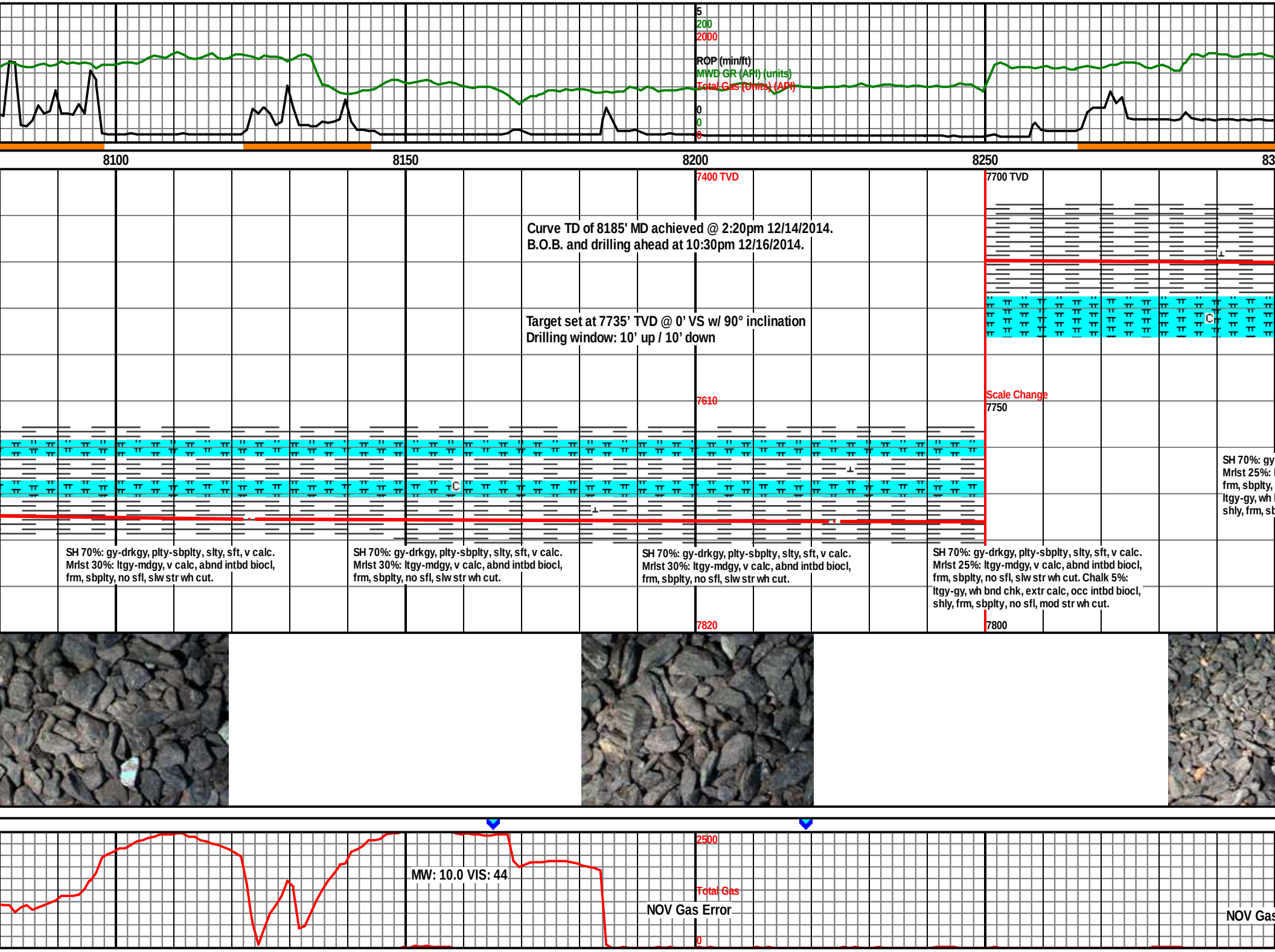
Chalk 50%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut. Mrlst 40%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 10%: gy-drkgy, plty-sbplty, slty, sft, v calc.

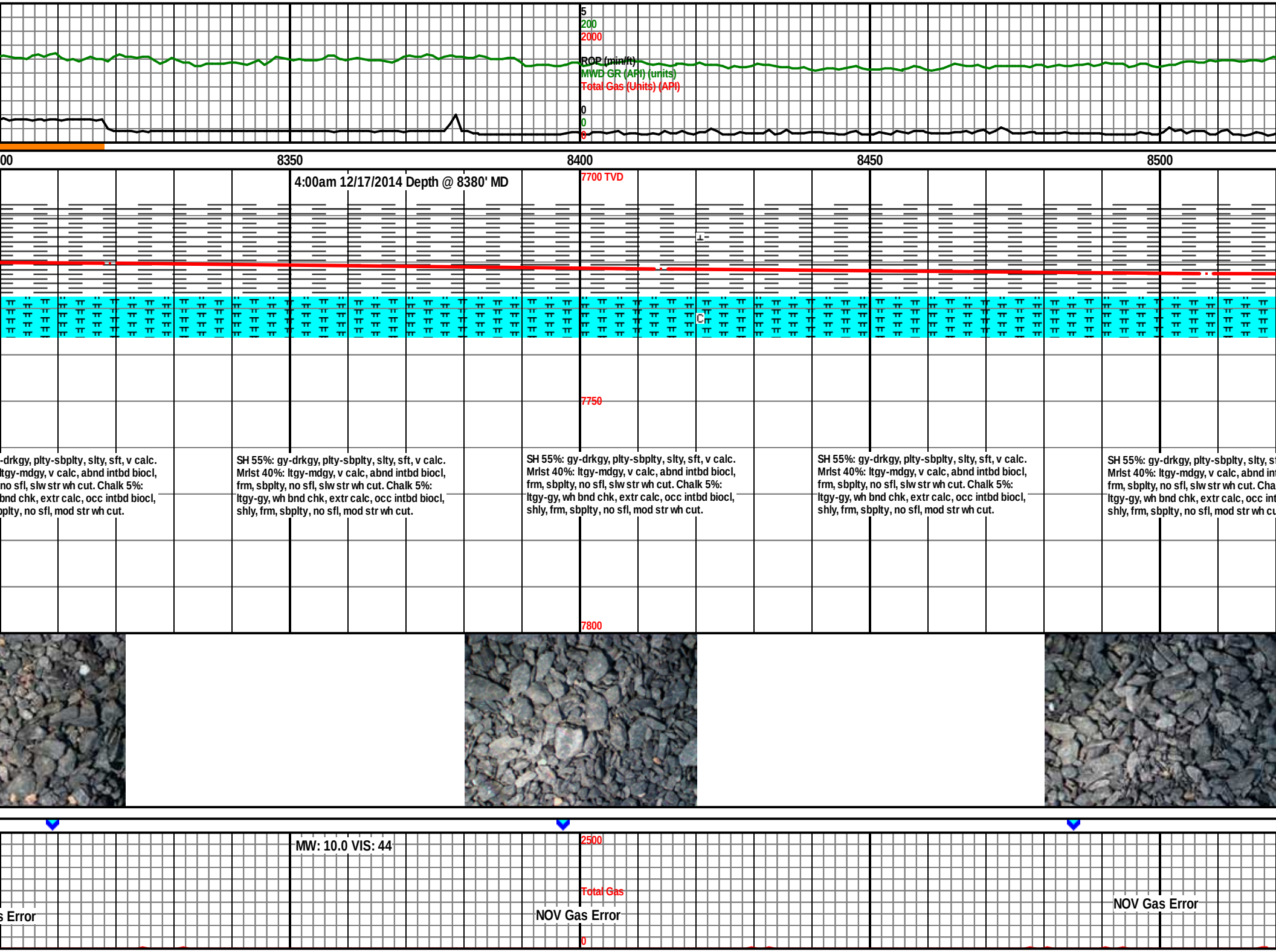
Mrlst 70%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 20%: gy-drkgy, plty-sbplty, slty, sft, v calc. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod-fst str wh cut.

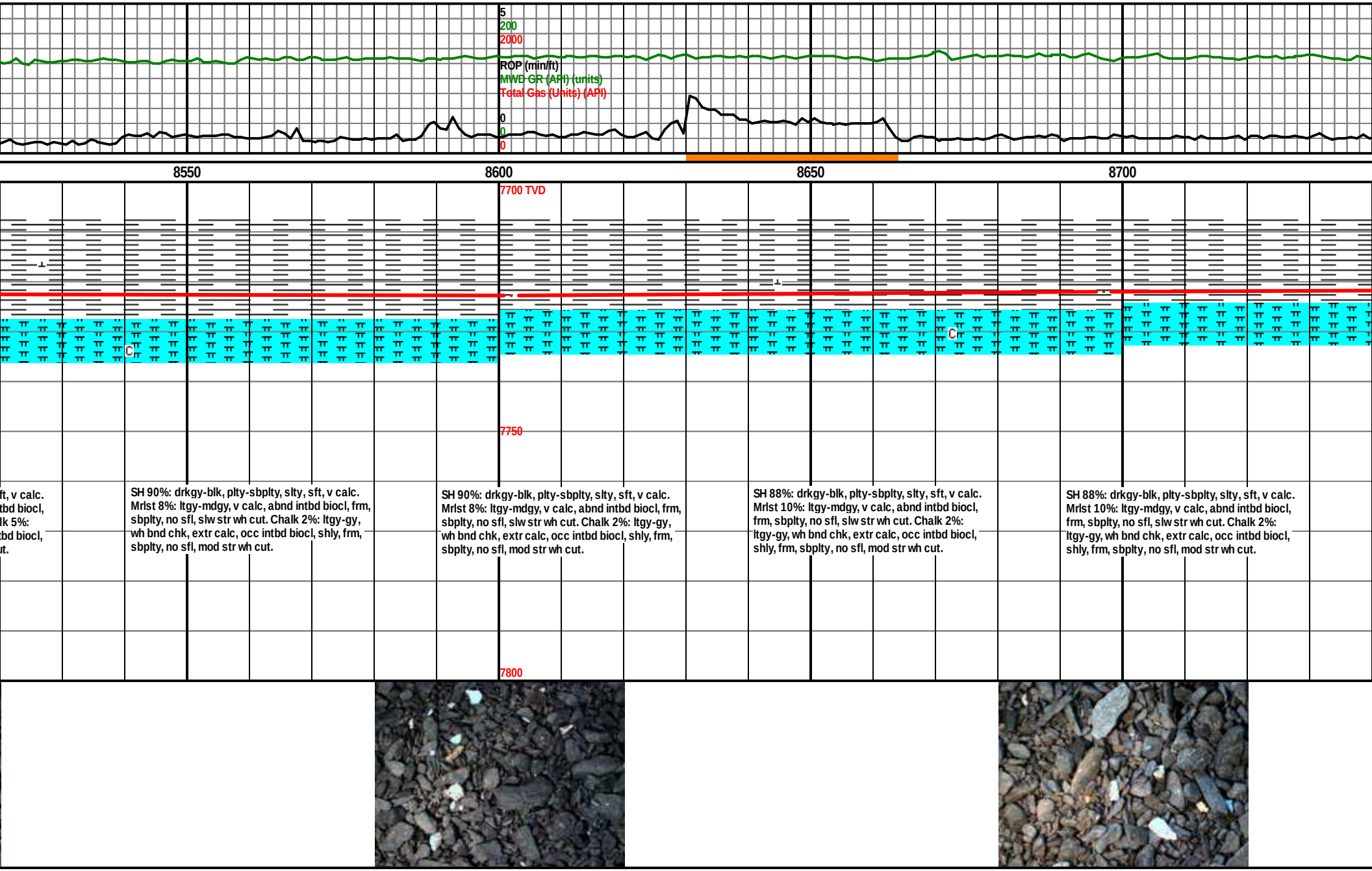
SH 60%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 40%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Tr Chalk

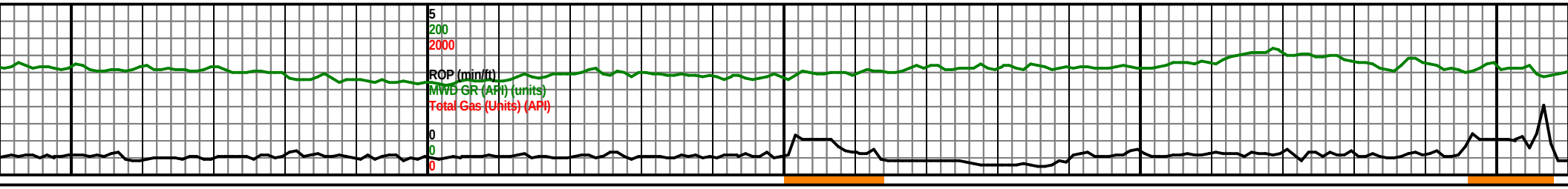
7820



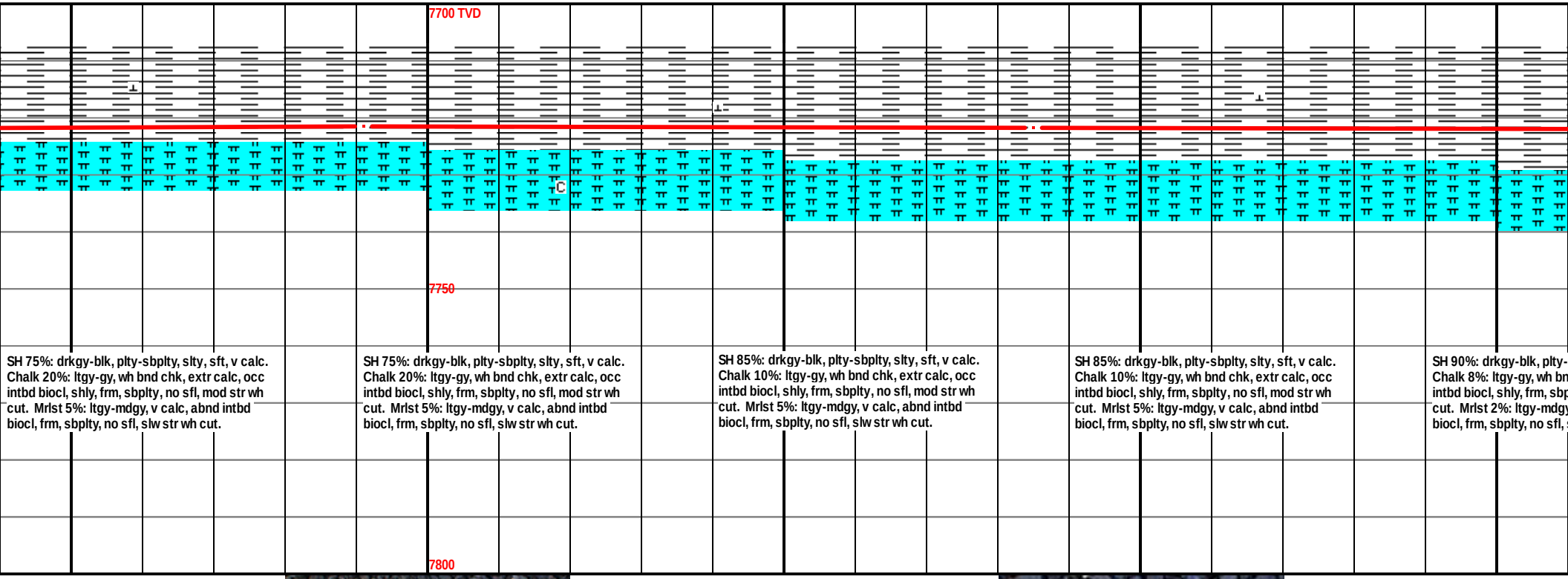

5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
8
8100
8150
8200
8250
83
7400 TVD
7700 TVD
Curve TD of 8185' MD achieved @ 2:20pm 12/14/2014.
B.O.B. and drilling ahead at 10:30pm 12/16/2014.
Target set at 7735' TVD @ 0' VS w/ 90° inclination
Drilling window: 10' up / 10' down
Scale Change
7610
7750
SH 70%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 30%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.
SH 70%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 30%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.
SH 70%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 30%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.
SH 70%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 25%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
7820
7800
2500
MW: 10.0 VIS: 44
Total Gas
NOV Gas Error
0


5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0
00
8350
8400
8450
8500
4:00am 12/17/2014 Depth @ 8380' MD
7700 TVD
7750
7800
-drkgy, plty-sbplty, slty, sft, v calc. ltgy-mdgy, v calc, abnd intbd biocl, no sfl, slw str wh cut. Chalk 5%: bnd chk, extr calc, occ intbd biocl, bplty, no sfl, mod str wh cut.
SH 55%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 40%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 55%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 40%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 55%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 40%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 55%: gy-drkgy, plty-sbplty, slty, s Mrlst 40%: ltgy-mdgy, v calc, abnd in frm, sbplty, no sfl, slw str wh cut. Cha ltgy-gy, wh bnd chk, extr calc, occ int shly, frm, sbplty, no sfl, mod str wh cu
MW: 10.0 VIS: 44
2500
Total Gas
s Error
NOV Gas Error
NOV Gas Error
0


5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0
8550
8600
8650
8700
7700 TVD
7750
7800
ft, v calc.
tbd biocl,
lk 5%:
tbd biocl,
ut.
SH 90%: drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 8%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 90%: drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 8%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 88%: drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 88%: drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
MW: 10.1 VIS: 35
2500
Total Gas
0
NOV Gas Error



8750 8800 8850 8900 8950



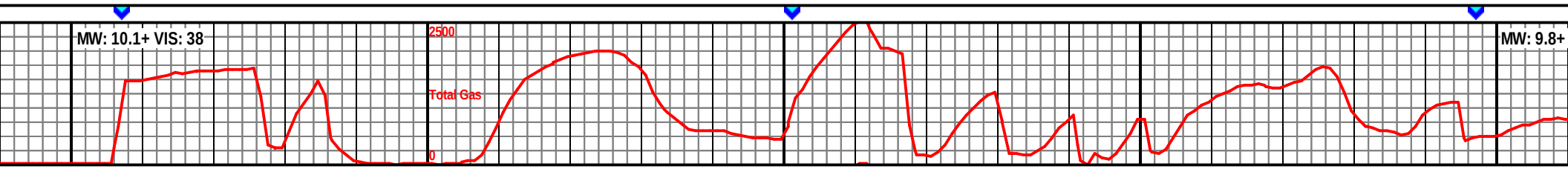
SH 75%: drkgy-blk, plty-sbplty, slty, sft, v calc. Chalk 20%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

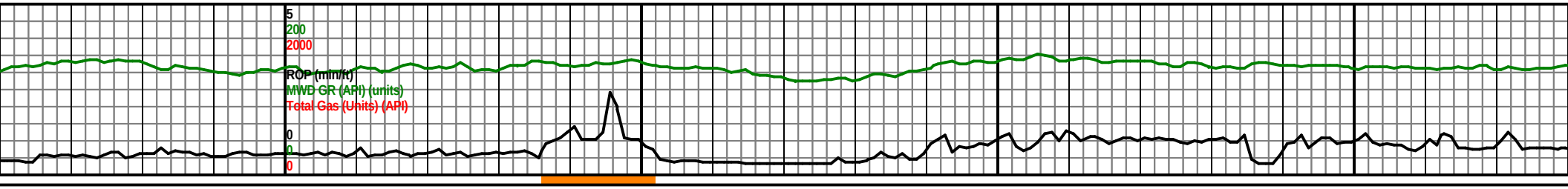
SH 75%: drkgy-blk, plty-sbplty, slty, sft, v calc. Chalk 20%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

SH 85%: drkgy-blk, plty-sbplty, slty, sft, v calc. Chalk 10%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

SH 85%: drkgy-blk, plty-sbplty, slty, sft, v calc. Chalk 10%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

SH 90%: drkgy-blk, plty-
Chalk 8%: ltgy-gy, wh bn
intbd biocl, shly, frm, sbp
cut. Mrlst 2%: ltgy-mdgy
biocl, frm, sbplty, no sfl,





9000 9050 9100 9150

7700 TVD

7750

7800

sbplty, slty, sft, v calc. d chk, extr calc, occ lty, no sfl, mod str wh , v calc, abnd intbd slw str wh cut.

SH 90%: drkgy-blk, plty-sbplty, slty, sft, v calc. Chalk 8%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut. Mrlst 2%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

SH 90%: drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 9%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 90%: drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 9%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 90%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 9%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

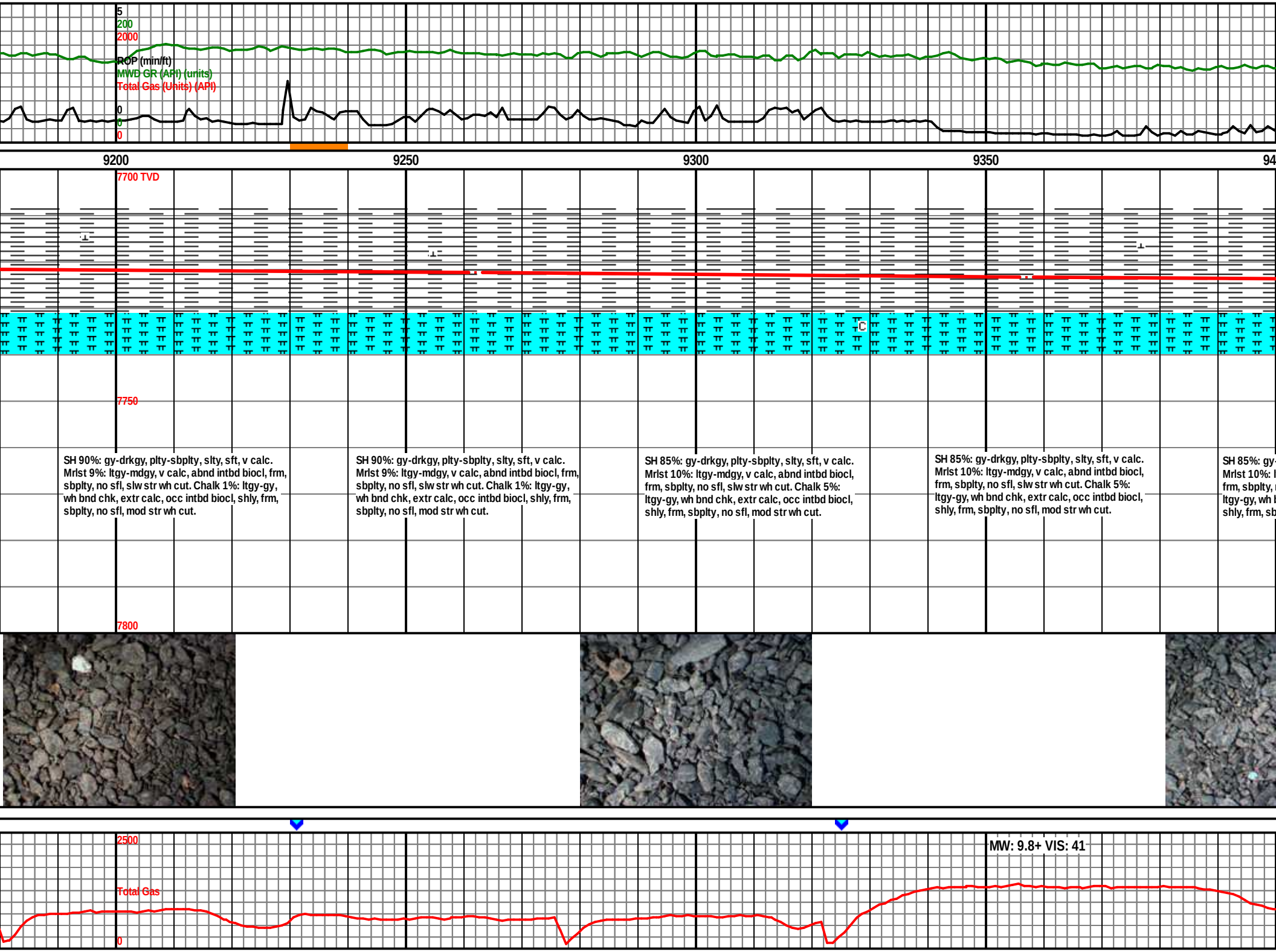
VIS: 41

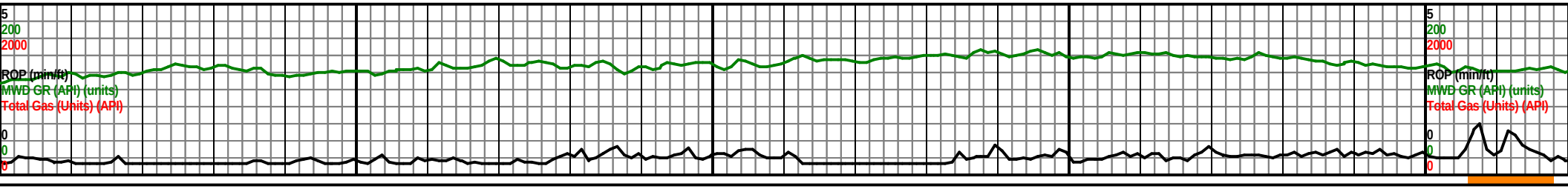
2500

Total Gas

0

MW: 9.8+ VIS: 41


5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0
9200
9250
9300
9350
7700 TVD
7750
7800
SH 90%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 9%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 90%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 9%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 85%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 85%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
2500
Total Gas
0
MW: 9.8+ VIS: 41



00 9450 9500 9550 9600

7700 TVD

7750

7800

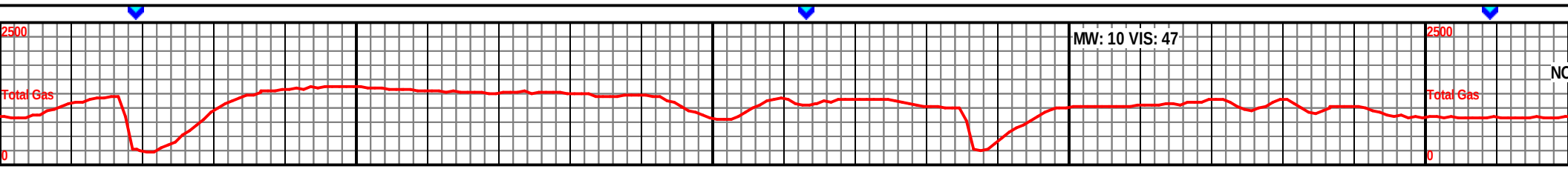
-drkgy, plty-sbplty, slty, sft, v calc. ltgy-mdgy, v calc, abnd intbd biocl, no sfl, slw str wh cut. Chalk 5%: bnd chk, extr calc, occ intbd biocl, plty, no sfl, mod str wh cut.

SH 85%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

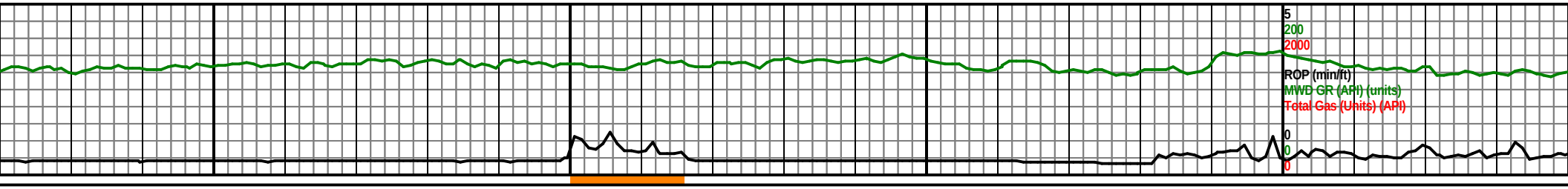
SH 75%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 15%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 75%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 15%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 75%: gy-drkgy, plty-sbplty, slty, s Mrlst 10%: ltgy-mdgy, v calc, abnd in frm, sbplty, no sfl, slw str wh cut. Cha ltgy-gy, wh bnd chk, extr calc, occ in shly, frm, sbplty, no sfl, mod str wh cu



NC



9650 9700 9750 9800

7700 TVD

Fault @ 9791' MD

7750

ft, v calc. tbd biocl, lk 15%: tbd biocl, ut.

SH 75%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 15%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 75%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 15%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 75%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 15%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 80%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

7800

MW: 10 VIS: 47

2500

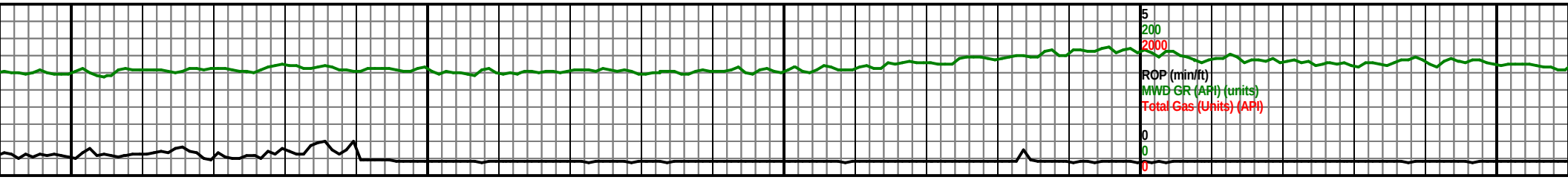
OV Gas Error

NOV Gas Error

Total Gas

NOV Gas Error

0



9850 9900 9950 10000 10050

4:00am 12/18/2014 Depth @ 9891' MD

7700 TVD

7750

7800

SH 80%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 80%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 80%: gy-drkgy, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 80%: drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 5%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 88%: drkgy-blk, plty-
Mrlst 10%: ltgy-mdgy, v
frm, sbplty, no sfl, slw st
ltgy-gy, wh bnd chk, extr
shly, frm, sbplty, no sfl, r

MW: 10.1 VIS: 45

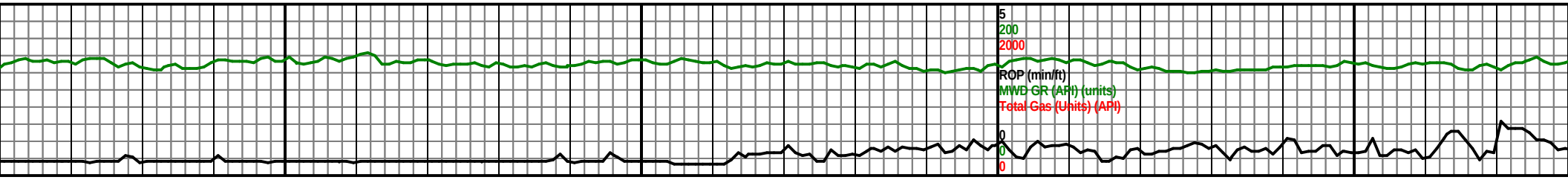
NOV Gas Error

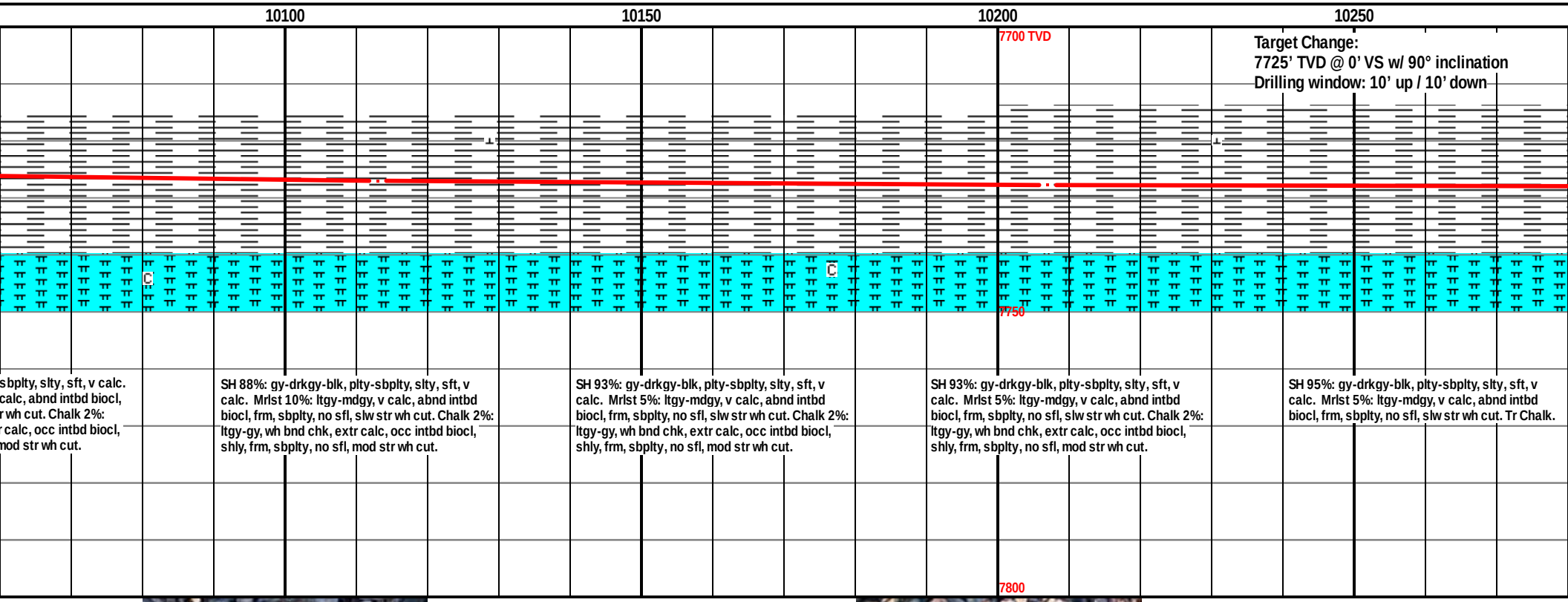
2500

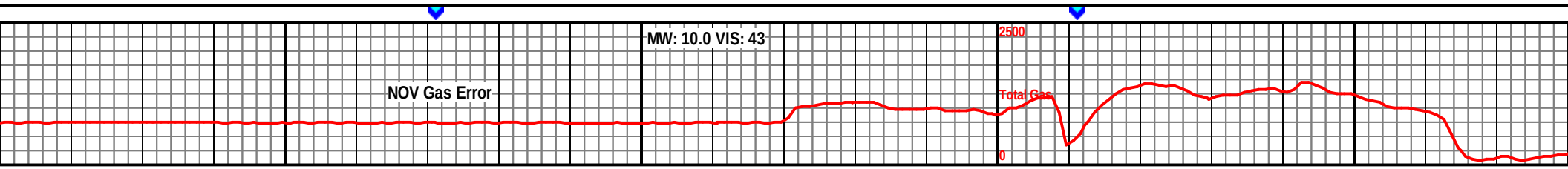
Total Gas

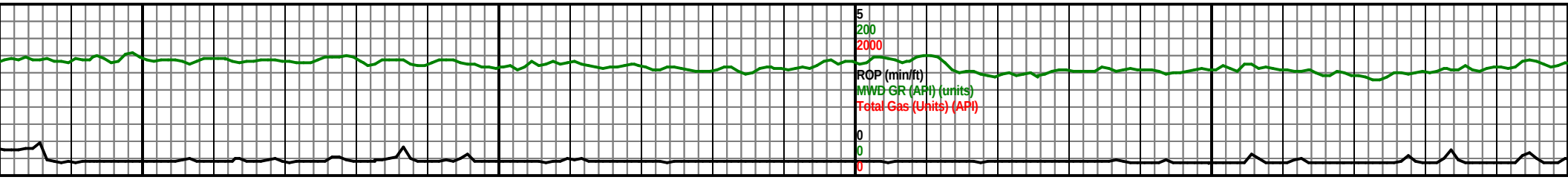
NOV Gas Error

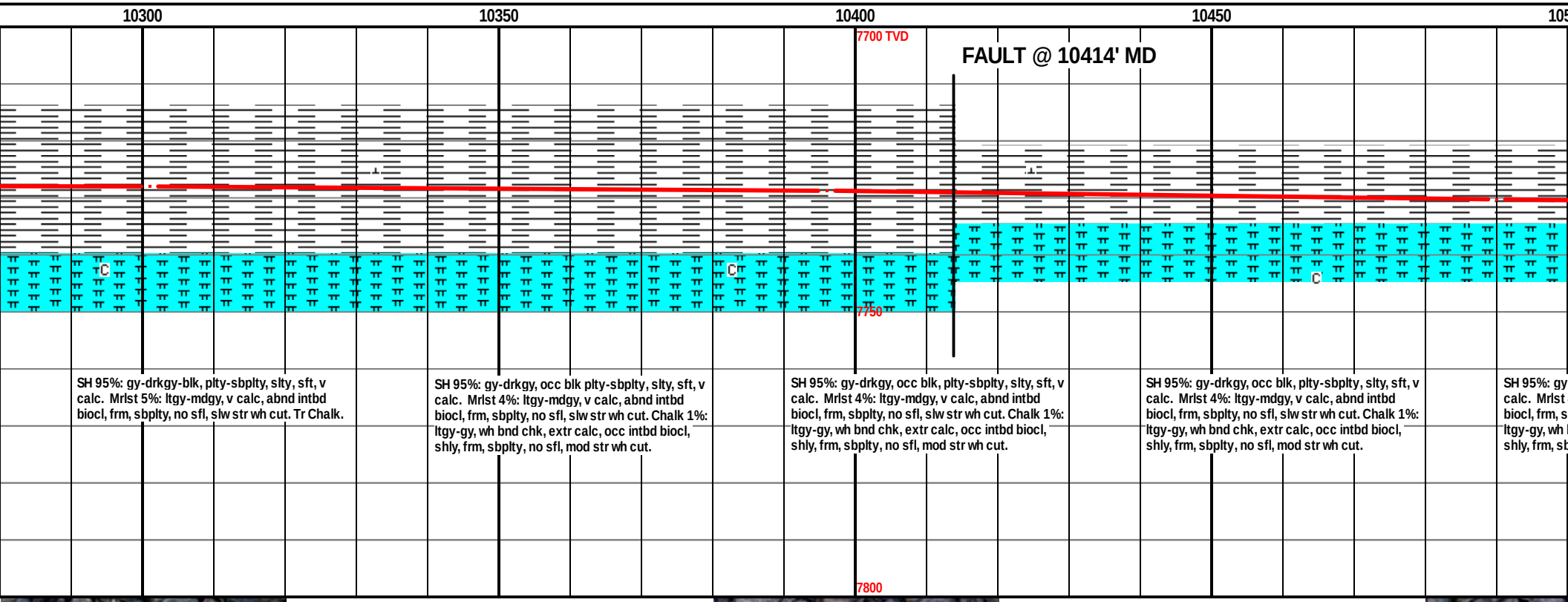
0

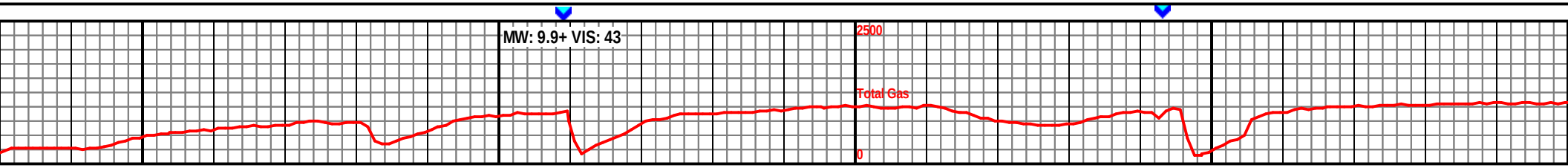

5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0

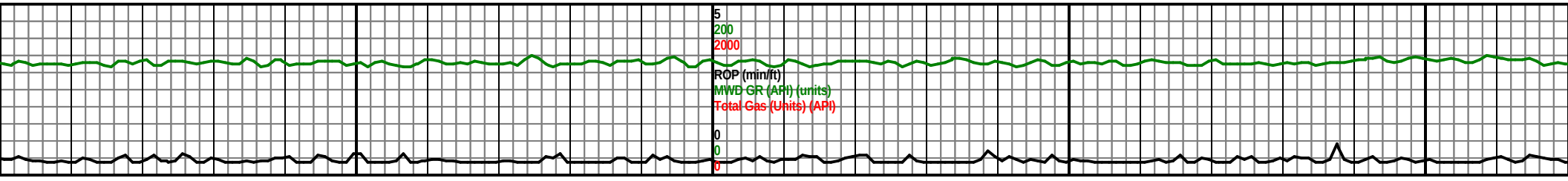

10100
10150
10200
10250
7700 TVD
Target Change:
7725' TVD @ 0' VS w/ 90° inclination
Drilling window: 10' up / 10' down
7750
7800
sbplty, slty, sft, v calc.
calc, abnd intbd biocl,
r wh cut. Chalk 2%:
r calc, occ intbd biocl,
mod str wh cut.
SH 88%: gy-drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 10%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 93%: gy-drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 93%: gy-drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 95%: gy-drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Tr Chalk.


MW: 10.0 VIS: 43
NOV Gas Error
2500
Total Gas
0


5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0


10300
10350
10400
10450
7700 TVD
FAULT @ 10414' MD
7750
7800
SH 95%: gy-drkgy-blk, plty-sbplty, slty, sft, v calc. Mrlst 5%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Tr Chalk.
SH 95%: gy-drkgy, occ blk plty-sbplty, slty, sft, v calc. Mrlst 4%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 95%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 4%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 95%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 4%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.


MW: 9.9+ VIS: 43
2500
Total Gas
0



500 10550 10600 10650 10700

7700 TVD

7750

7800

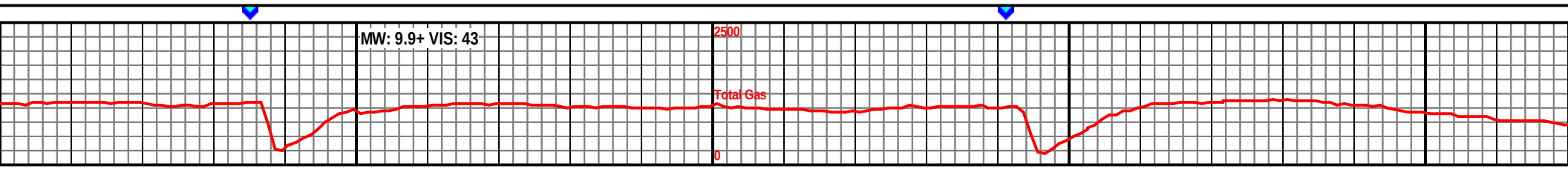
-drkgy, occ blk, plty-sbplty, slty, sft, v
4%: ltgy-mdgy, v calc, abnd intbd
bplty, no sfl, slw str wh cut. Chalk 1%:
bnd chk, extr calc, occ intbd biocl,
bplty, no sfl, mod str wh cut.

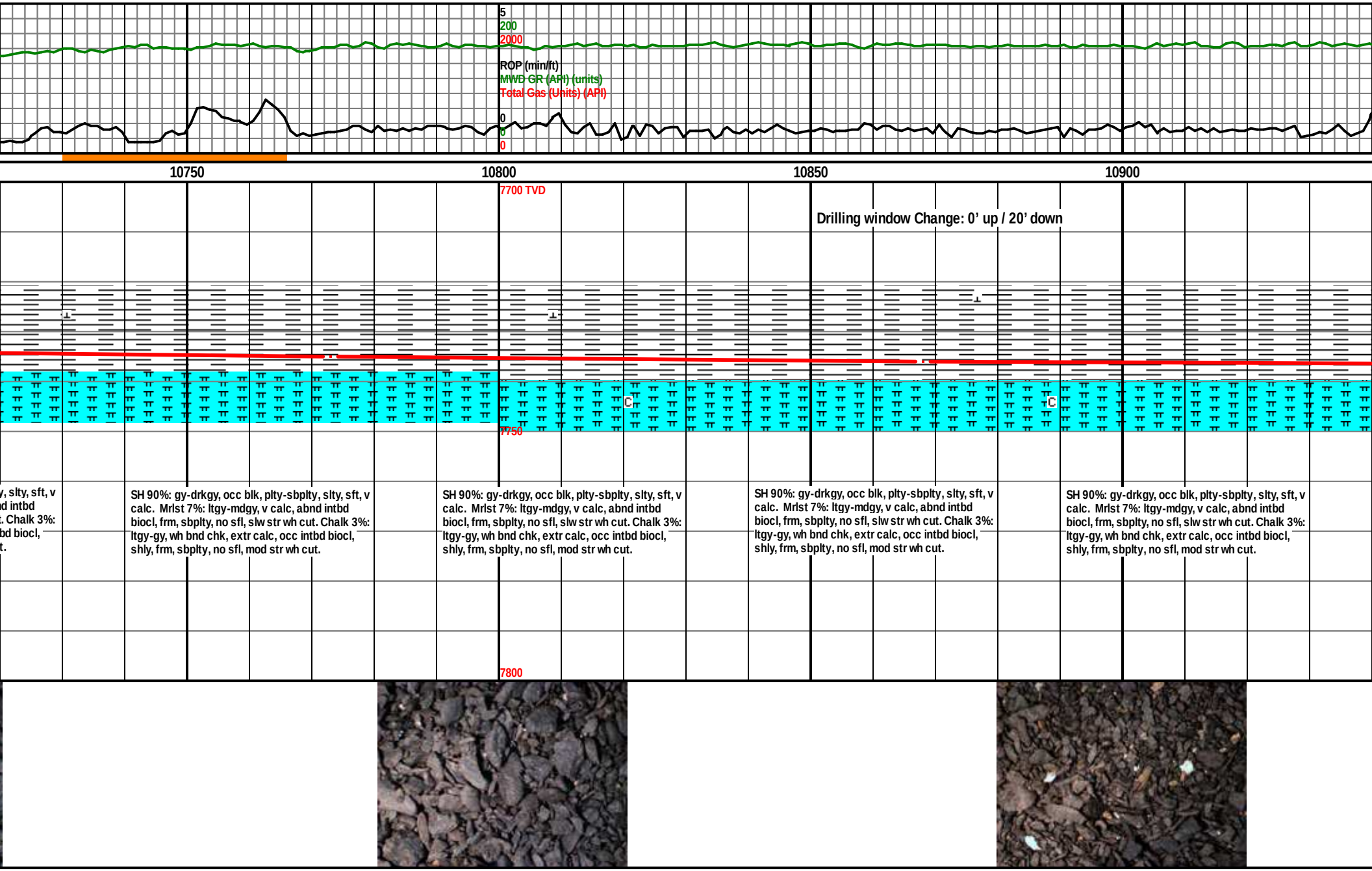
SH 92%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v
calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%:
ltgy-gy, wh bnd chk, extr calc, occ intbd biocl,
shly, frm, sbplty, no sfl, mod str wh cut.

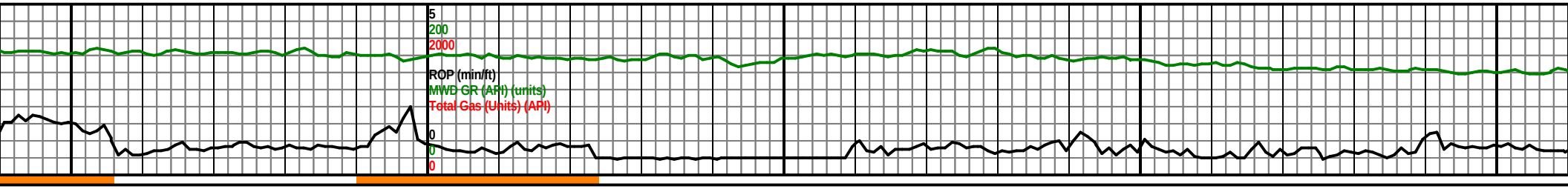
SH 92%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v
calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 1%:
ltgy-gy, wh bnd chk, extr calc, occ intbd biocl,
shly, frm, sbplty, no sfl, mod str wh cut.

SH 90%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v
calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd
biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 3%:
ltgy-gy, wh bnd chk, extr calc, occ intbd biocl,
shly, frm, sbplty, no sfl, mod str wh cut.

SH 90%: gy-drkgy, occ blk, plty-sbplty
calc. Mrlst 7%: ltgy-mdgy, v calc, abn
biocl, frm, sbplty, no sfl, slw str wh cut
ltgy-gy, wh bnd chk, extr calc, occ int
shly, frm, sbplty, no sfl, mod str wh cu




5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0
10750
10800
10850
10900
7700 TVD
Drilling window Change: 0' up / 20' down
7750
7800
y, slty, sft, v
d intbd
. Chalk 3%:
bd biocl,
t.
SH 90%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 3%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 90%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 3%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 90%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 3%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
SH 90%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 3%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.
MW: 9.9+ VIS: 42
2500
Total Gas
0



10950 11000 11050 11100 11150

7700 TVD

Nio C Chalk in @ ~11102' MD

7750

SH 90%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 7%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 3%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

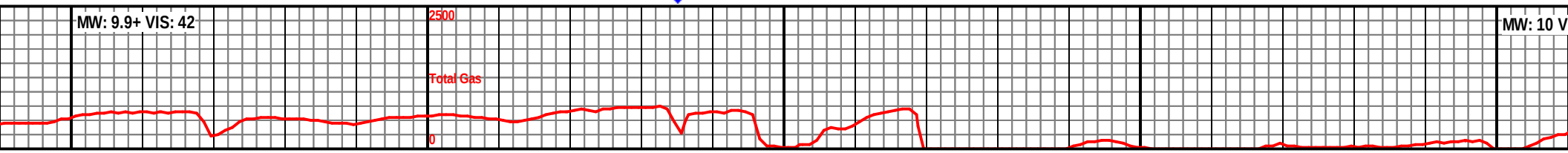
SH 65%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 20%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

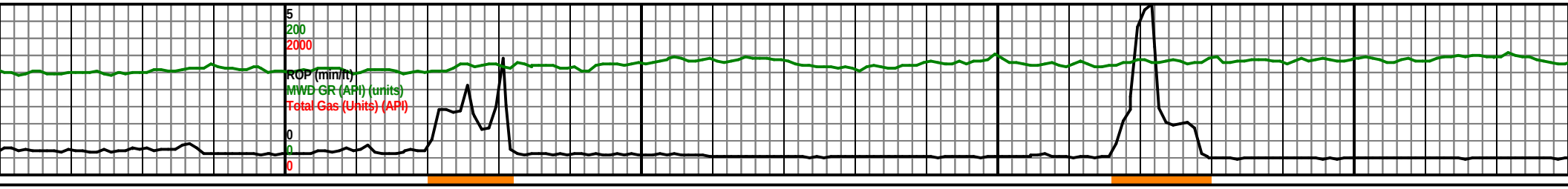
SH 65%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 20%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 65%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 20%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

SH 65%: gy-drkgy, occ b
calc. Mrlst 15%: ltgy-mo
biocl, frm, sbplty, no sfl,
20%: ltgy-gy, wh bnd chl
biocl, shly, frm, sbplty, n

7800





11200 11250 11300 11350

7700 TVD

7750

7800

lk, plty-sbplty, slty, sft, v dgy, v calc, abnd intbd slw str wh cut. Chalk k, extr calc, occ intbd o sfl, mod str wh cut.

SH 65%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. Chalk 20%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty, no sfl, mod str wh cut.

Chalk 50%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 25%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 25%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

Chalk 50%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 25%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 25%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

Chalk 50%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 25%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 25%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

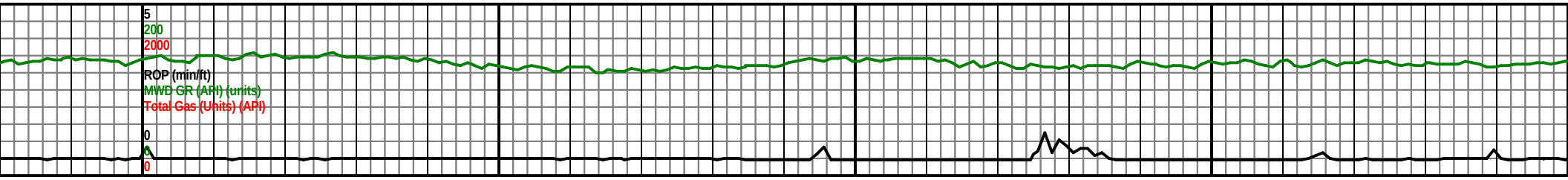
IS: 40

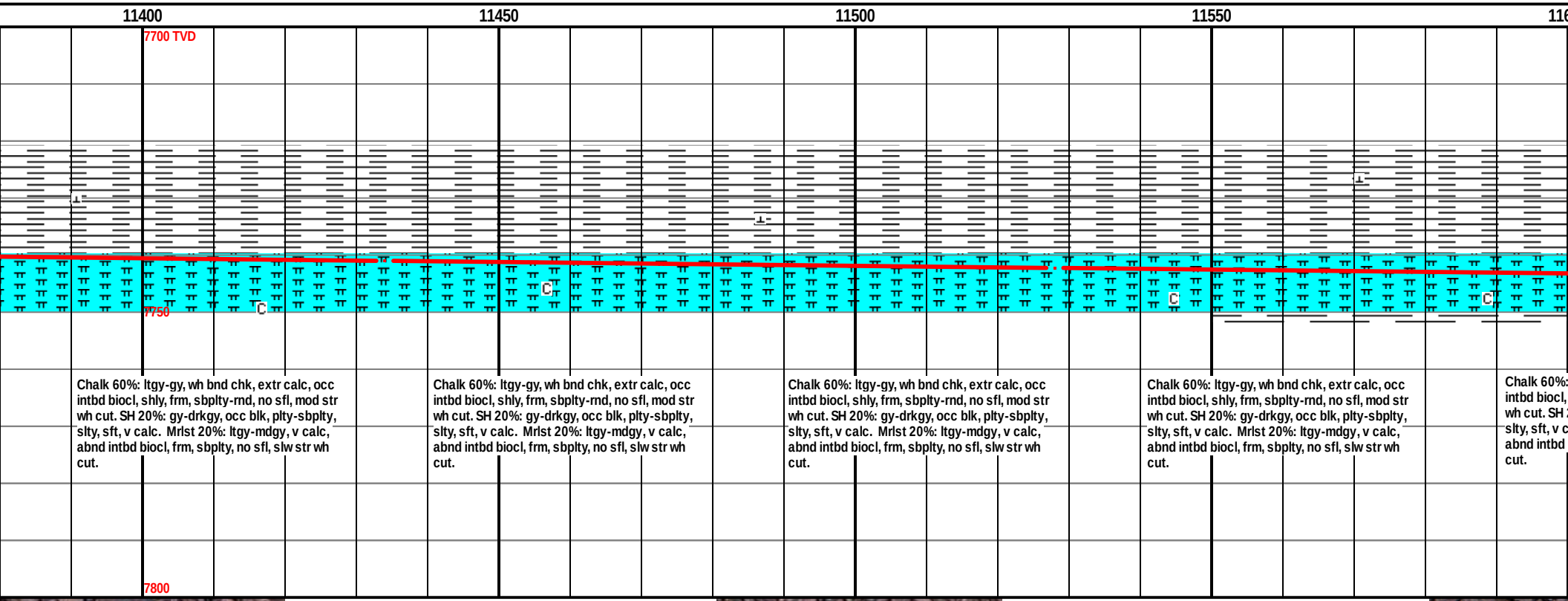
2500

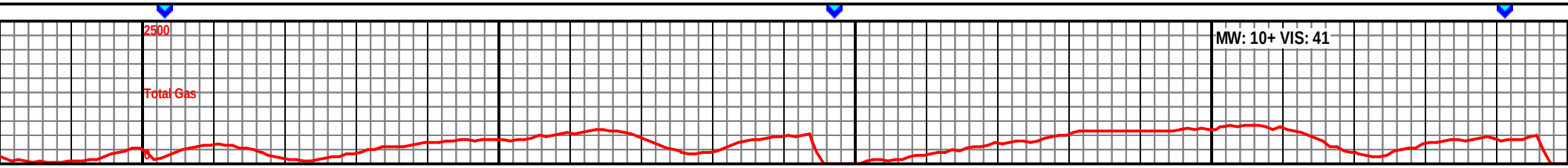
Total Gas

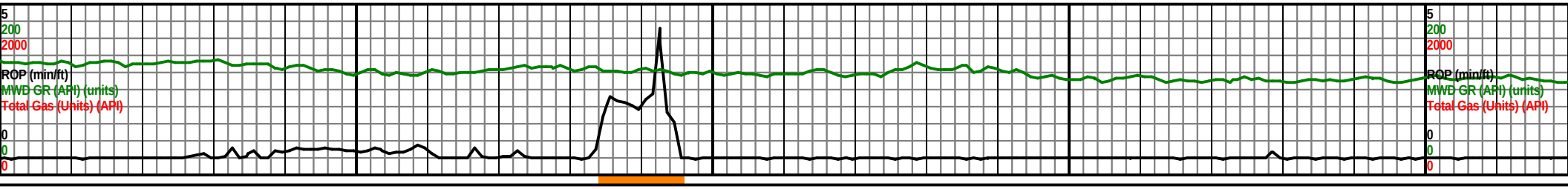
0

MW: 10+ VIS: 41


5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0


11400
11450
11500
11550
7700 TVD
7750
7800
Chalk 60%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 20%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 20%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.
Chalk 60%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 20%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 20%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.
Chalk 60%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 20%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 20%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.
Chalk 60%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 20%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 20%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.
Chalk 60%:
intbd biocl,
wh cut. SH
slty, sft, v c
abnd intbd
cut.


2500
Total Gas
0
MW: 10+ VIS: 41



600 11650 11700 11750 11800

7700 TVD

4:00am 12/19/2014 Depth @ 11686' MD

7750

: ltgy-gy, wh bnd chk, extr calc, occ shly, frm, sbplty-rnd, no sfl, mod str 20%: gy-drkgy, occ blk, plty-sbplty, calc. Mrlst 20%: ltgy-mdgy, v calc, biocl, frm, sbplty, no sfl, slw str wh

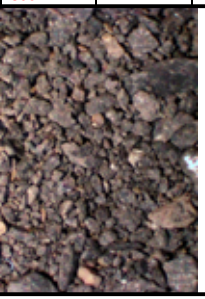
Chalk 60%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 20%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 20%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

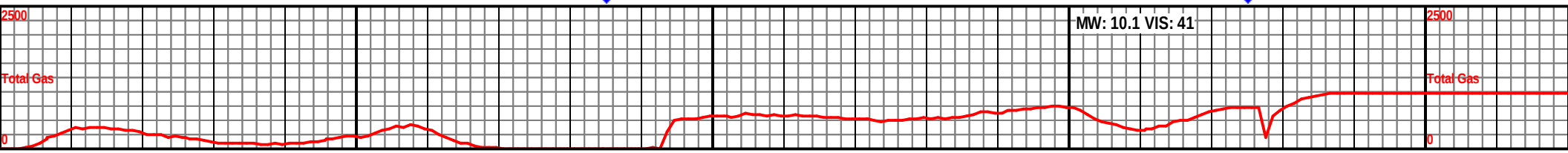
Chalk 60%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. SH 20%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Mrlst 20%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut.

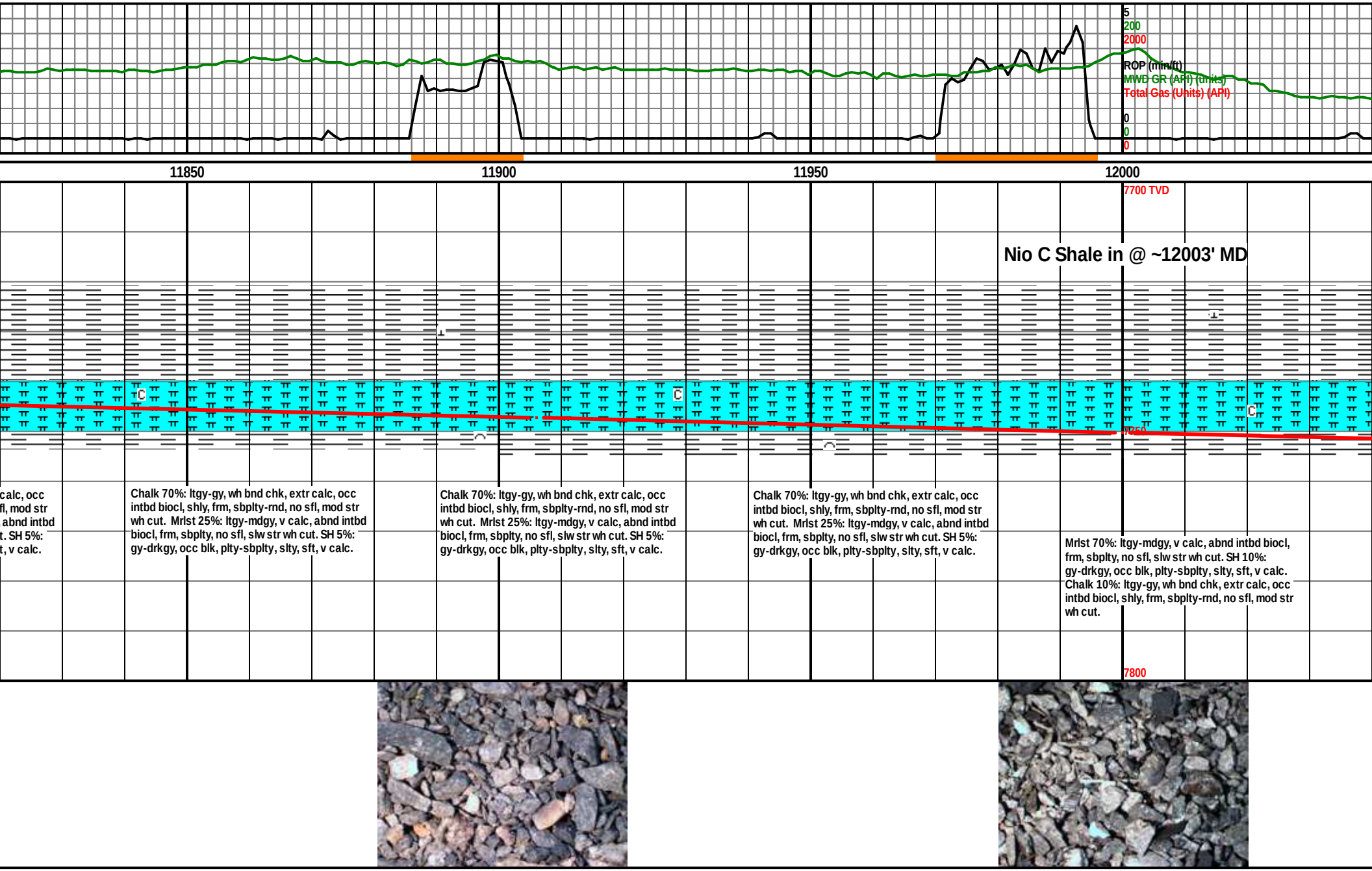
Chalk 80%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. Mrlst 15%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 5%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc.

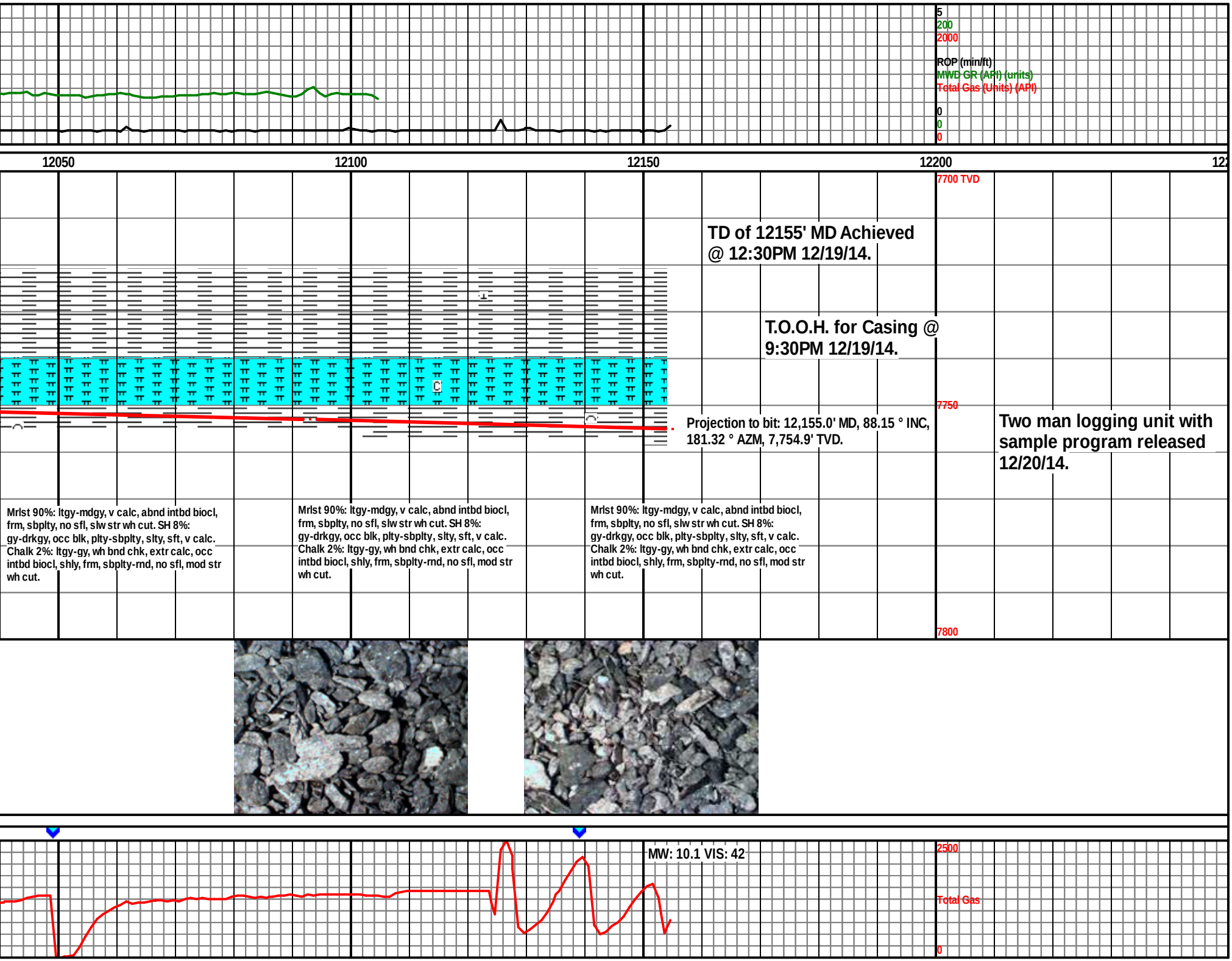
Chalk 80%: ltgy-gy, wh bnd chk, extr intbd biocl, shly, frm, sbplty-rnd, no s wh cut. Mrlst 15%: ltgy-mdgy, v calc, biocl, frm, sbplty, no sfl, slw str wh cu gy-drkgy, occ blk, plty-sbplty, slty, sf

7800






5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0
11850
11900
11950
12000
7700 TVD
Nio C Shale in @ ~12003' MD
calc, occ
fl, mod str
abnd intbd
t. SH 5%:
t, v calc.
Chalk 70%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. Mrlst 25%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 5%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc.
Chalk 70%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. Mrlst 25%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 5%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc.
Chalk 70%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut. Mrlst 25%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 5%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc.
Mrlst 70%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 10%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Chalk 10%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut.
7800
MW: 10+ VIS: 41
2500
Total Gas
0


5
200
2000
ROP (min/ft)
MWD GR (API) (units)
Total Gas (Units) (API)
0
0
0
12050
12100
12150
12200
7700 TVD
TD of 12155' MD Achieved @ 12:30PM 12/19/14.
T.O.O.H. for Casing @ 9:30PM 12/19/14.
7750
Projection to bit: 12,155.0' MD, 88.15 ° INC, 181.32 ° AZM, 7,754.9' TVD.
Two man logging unit with sample program released 12/20/14.
Mrlst 90%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 8%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut.
Mrlst 90%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 8%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut.
Mrlst 90%: ltgy-mdgy, v calc, abnd intbd biocl, frm, sbplty, no sfl, slw str wh cut. SH 8%: gy-drkgy, occ blk, plty-sbplty, slty, sft, v calc. Chalk 2%: ltgy-gy, wh bnd chk, extr calc, occ intbd biocl, shly, frm, sbplty-rnd, no sfl, mod str wh cut.
7800
MW: 10.1 VIS: 42
2500
Total Gas
0