

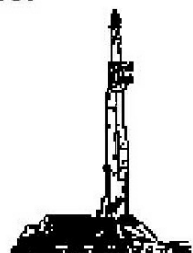
**GOOLSBY BROTHERS**  
and associates, inc.

575 Union Blvd, Suite 208  
Lakewood, CO 80228  
303-945-2860 Office



Geological Wellsite  
Supervision

[www.goolsbybrothers.com](http://www.goolsbybrothers.com)



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

Well Name: NRC 28N-5HZ

API: 05123391550000

Location: Section 8, T1N, R67W

License Number:

Spud Date: July 6, 2014

Surface Coordinates: NENE Sec 8-T1N-R67W; 500' FNL, 1350' FEL

LAT: 40° 04'17.123"N; LONG: 104° 54'35.783" W

Bottom Hole Coordinates: PBHL: NWNE Sec 5 T1N R67W; 460' FNL; 2265' FEL

Ground Elevation (ft): 5009'

Logged Interval (ft): 7000'

To: 12787'

K.B. Elevation (ft): 5027'

Total Depth (ft): 12787' DMTD

Formation: Pierre Shales/Sands, Sharon Springs, Niobrara, Niobrara B Chalk (Target)

Type of Drilling Fluid: Water & Poly to 5000', LSND 5000'-12787'

Region: Wattenberg, DJ Basin

Drilling Completed: July 13, 2014

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

**OPERATOR**

Company: Kerr-McGee Oil & Gas Onshore LP

Address: Granite Tower - 1099 18th St, Ste 1800

Denver, CO 80202

CO Geologist, Tom Birmingham

**GEOLOGIST**

Name: Blake Stacey and Shelton Davis

Company: Goolsby Brothers & Assoc. (GBA), Inc. ([www.goolsbybrothers.com](http://www.goolsbybrothers.com))

Address: 575 Union Blvd.

Suite 208,

Lakewood CO. 80228

## E-logs

MWD GR 7090' - 12787'

## Casing

9 5/8" Surface Casing set @ 1351' MD


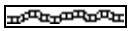
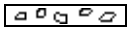

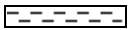
7" Intermediate Casing set @ 7928' MD






4 1/2" Production Liner hung 7/XX/2014, landed @ XXXX' MD


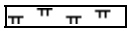
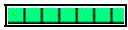
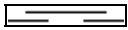
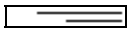
## Comments

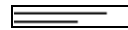

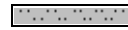


- 1) Drilling Contractor: Xtreme Drilling, Rig # 23
- 2) Directional Drilling: DRILLTECH LLC  
MWD GR: DRILLTECH LLC
- 3) Gas Equipment: Pason Gas Analyzer and Agitator

## ROCK TYPES

 Anhy  
 Bent  
 Brec  
 Cht  
 Clyst












 Coal  
 Oil sat.  
 Congl  
 Dol  
 Gyp















 Lmst  
 Mrlst  
 Salt  
 Shale  
 Shcol
















 Shgy  
 Ss  
 Sltst  
 Ss  
 Chalk







 Carb sh  
 Sltly sh

## 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**  
 Chlkstg  
 Anhy  
 Arg  
 Bent  
 Coal  
 Dol  
 Gyp  
 Ls

 Mrst  
 Sltstgr  
 Ssstgr

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

**OIL SHOWS**

- Even
- ◐ Spotted
- ◑ Ques
- ◒ Dead
- ◓ Vspotty

- ◑ near even

**POROSITY TYPE**

- ◑ Earthy
- ◑ Fenest
- ◑ Fracture

**OTHER SYMBOLS**

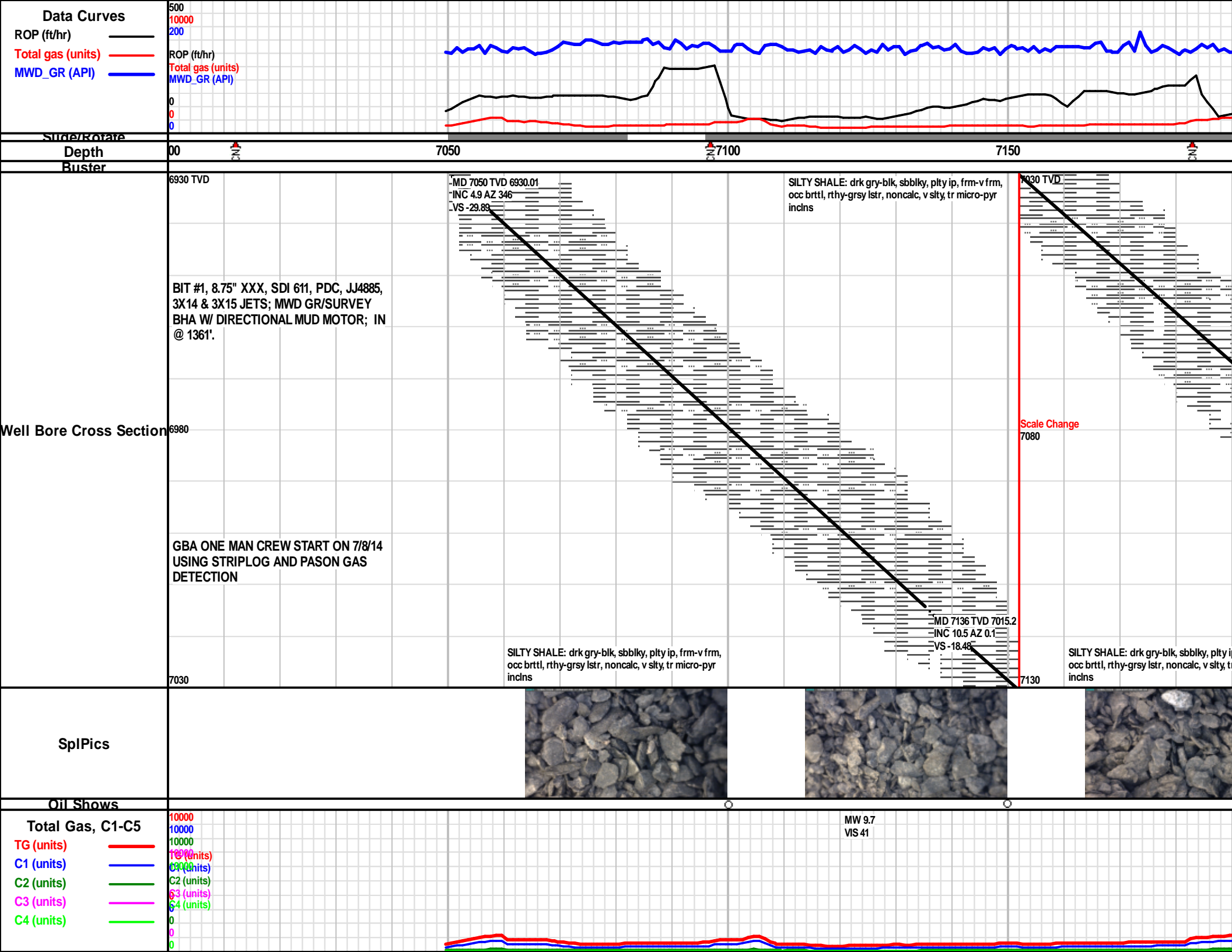
- ⊗ Inter
- ⊗ Moldic
- ◑ Organic
- ◑ Pinpoint
- ◑ Vuggy

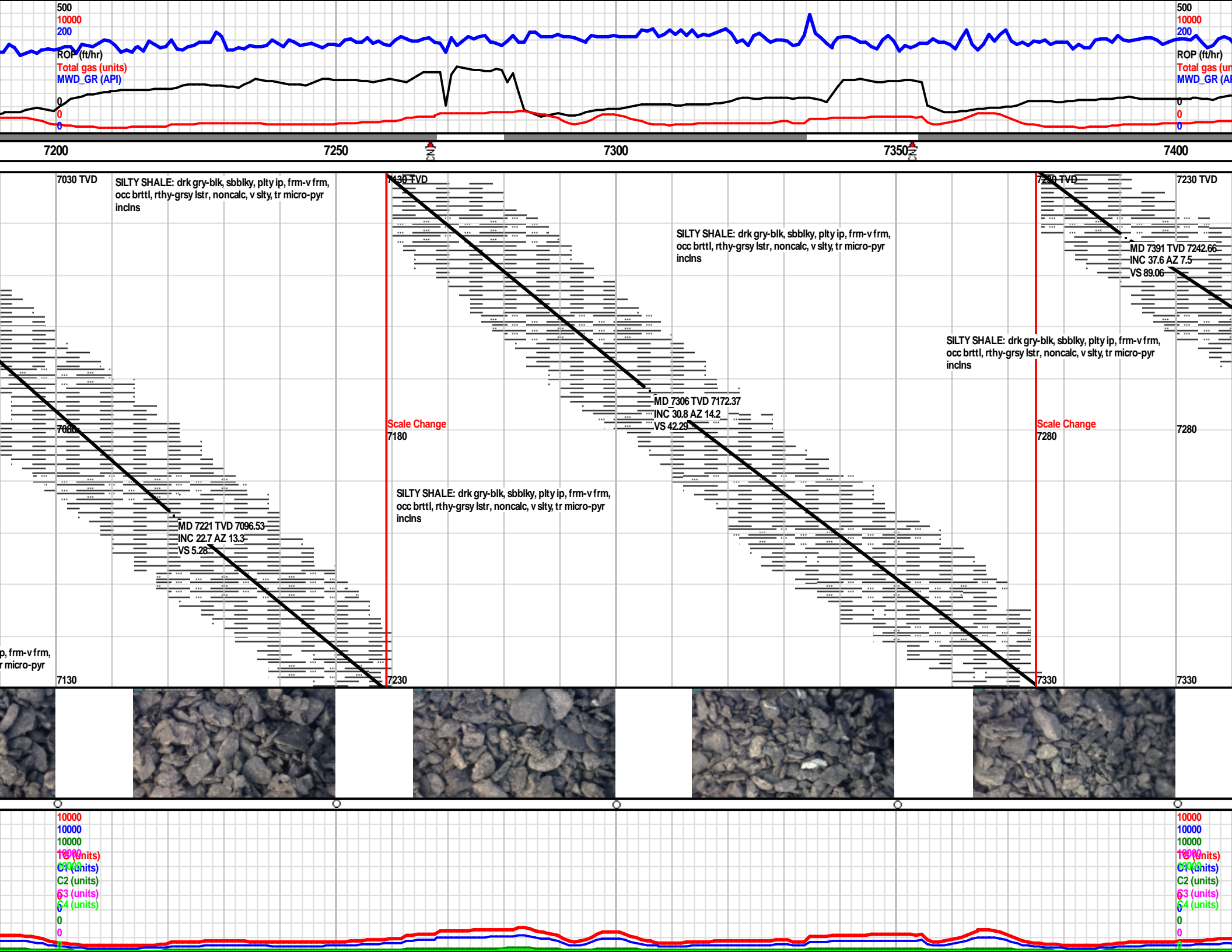
**ROUNDING**

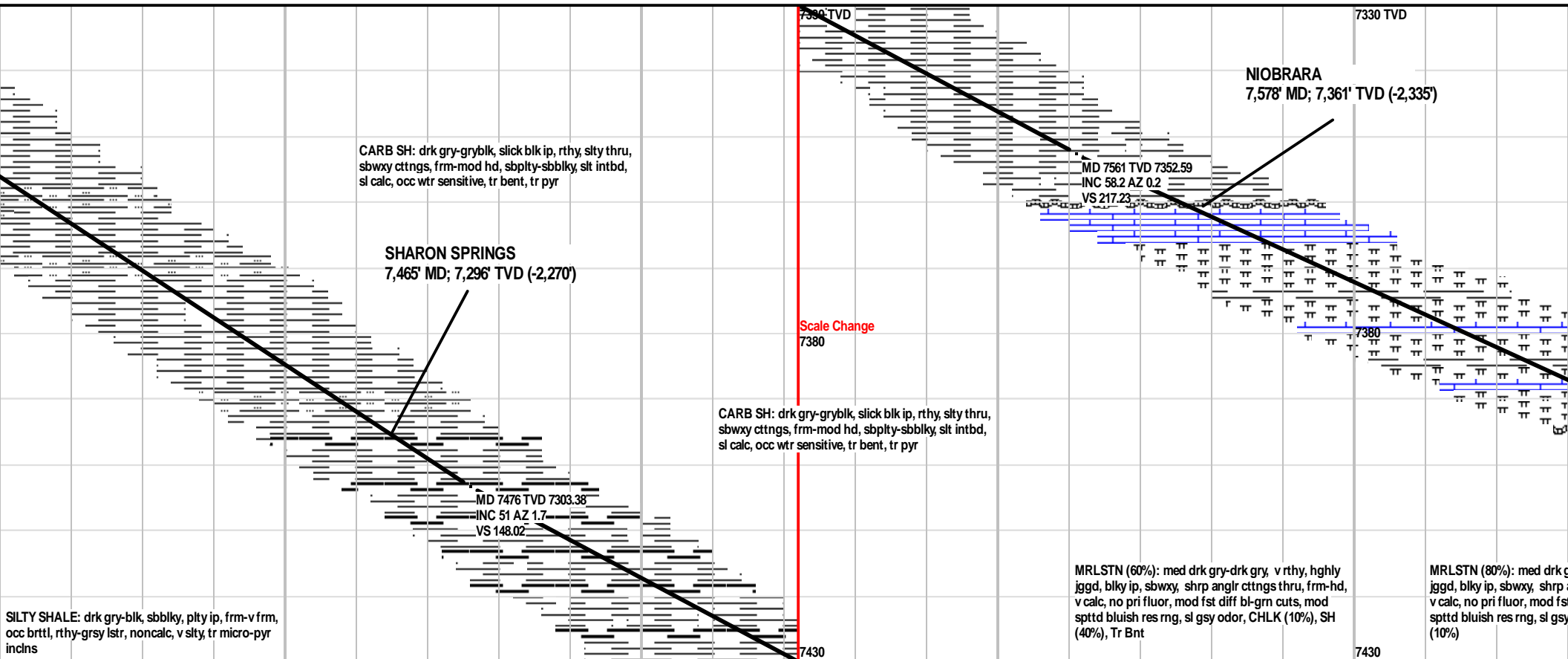
- ◑ Rounded
- ◑ Subrnd
- ◑ Subang
- ◑ Angular

**SORTING**

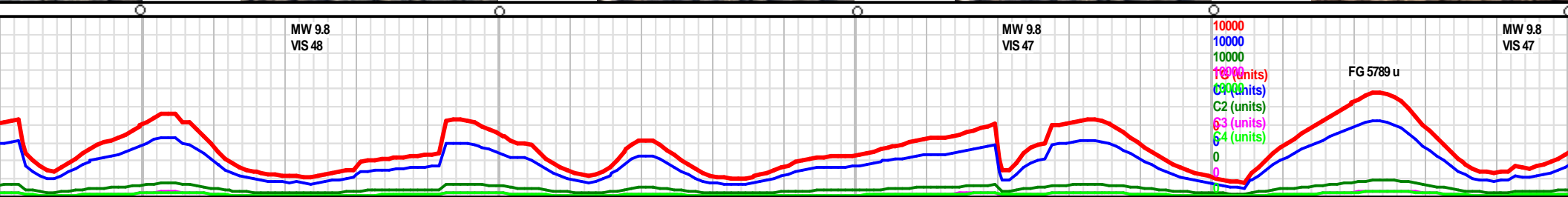
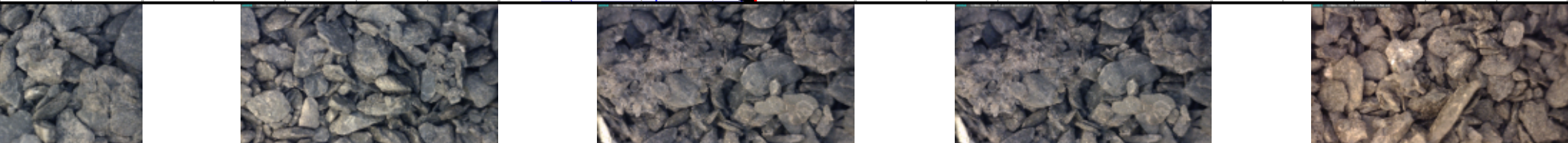
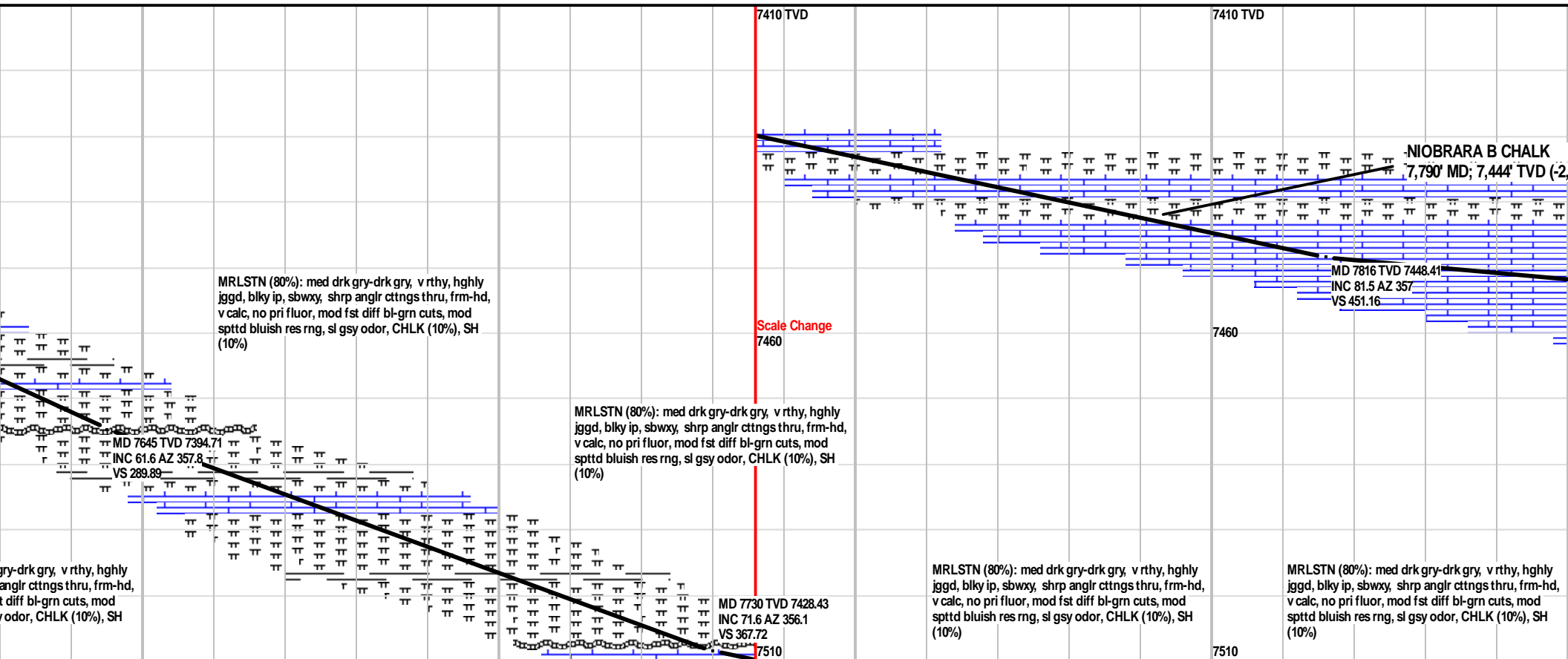
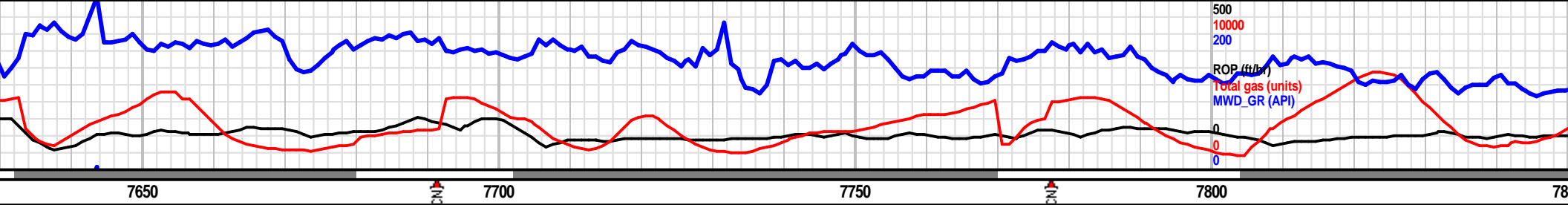
- ◑ Well
- ◑ Moderate
- ◑ Poor

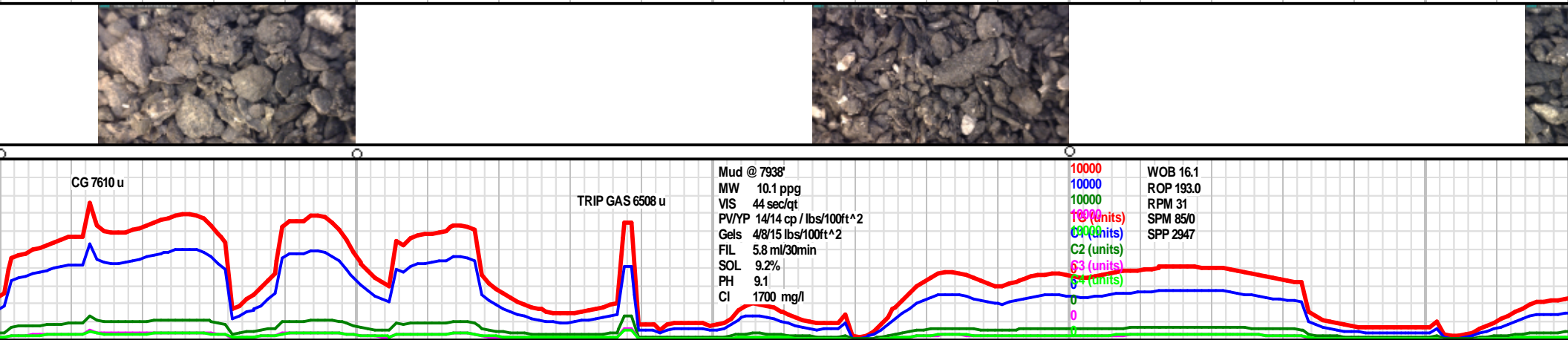
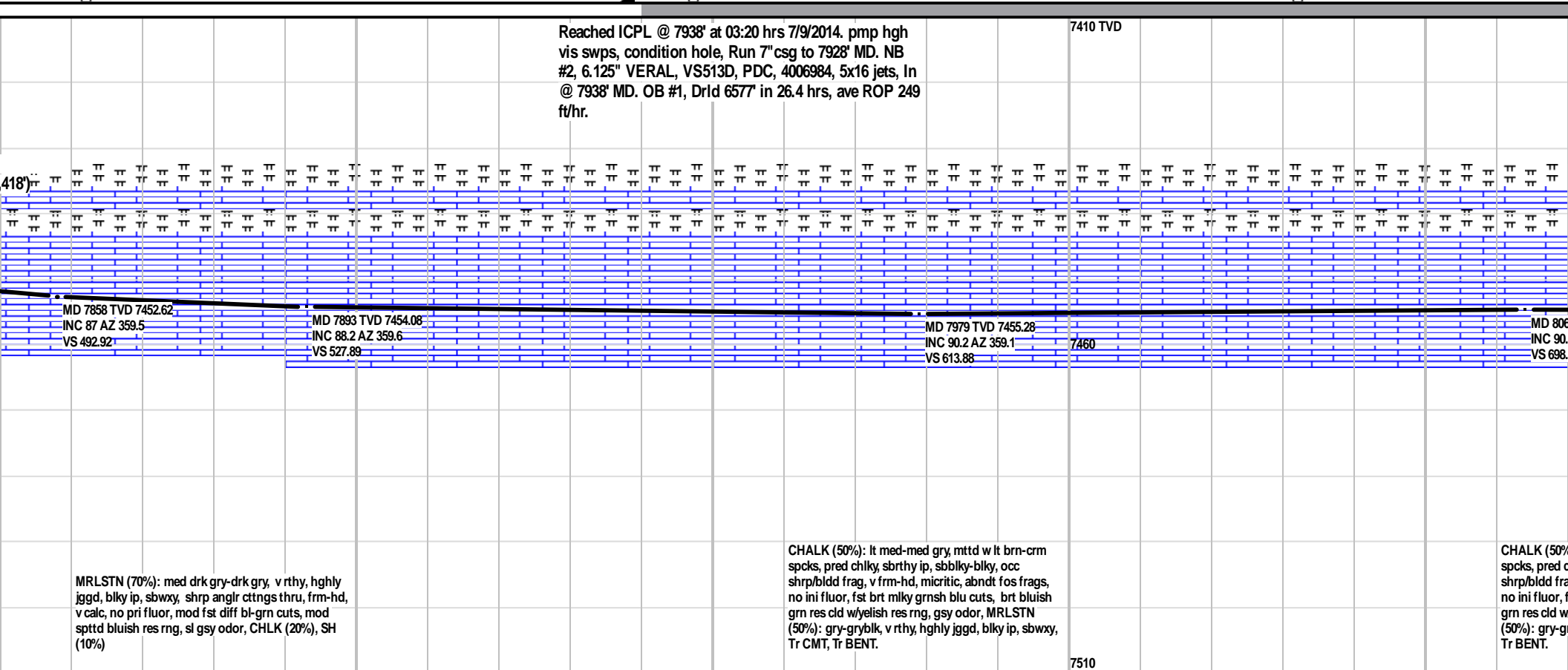




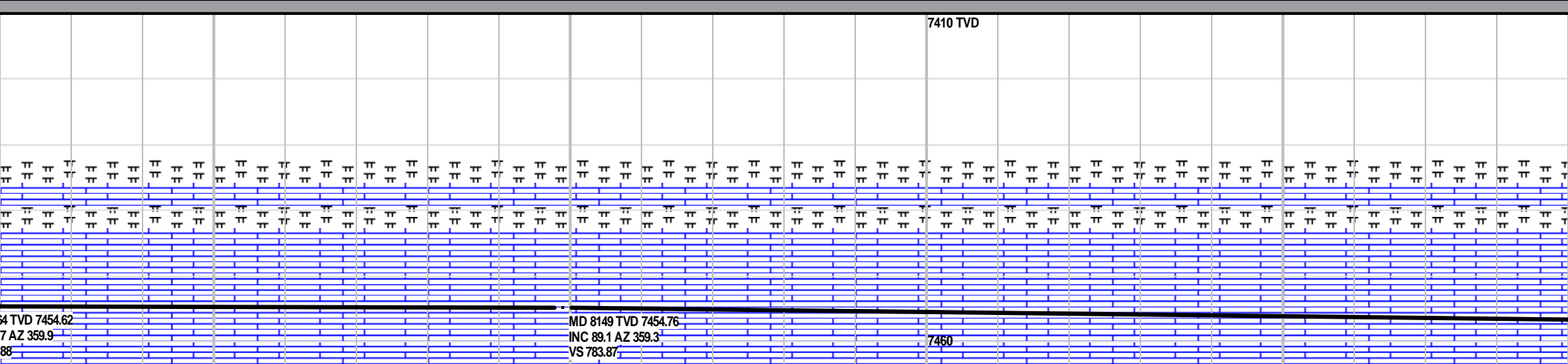
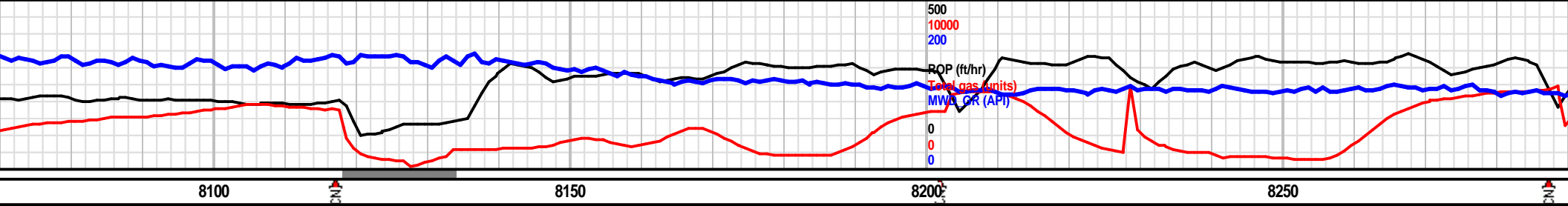








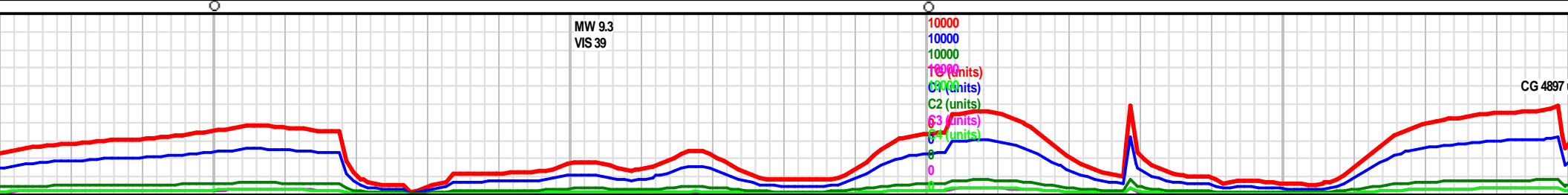


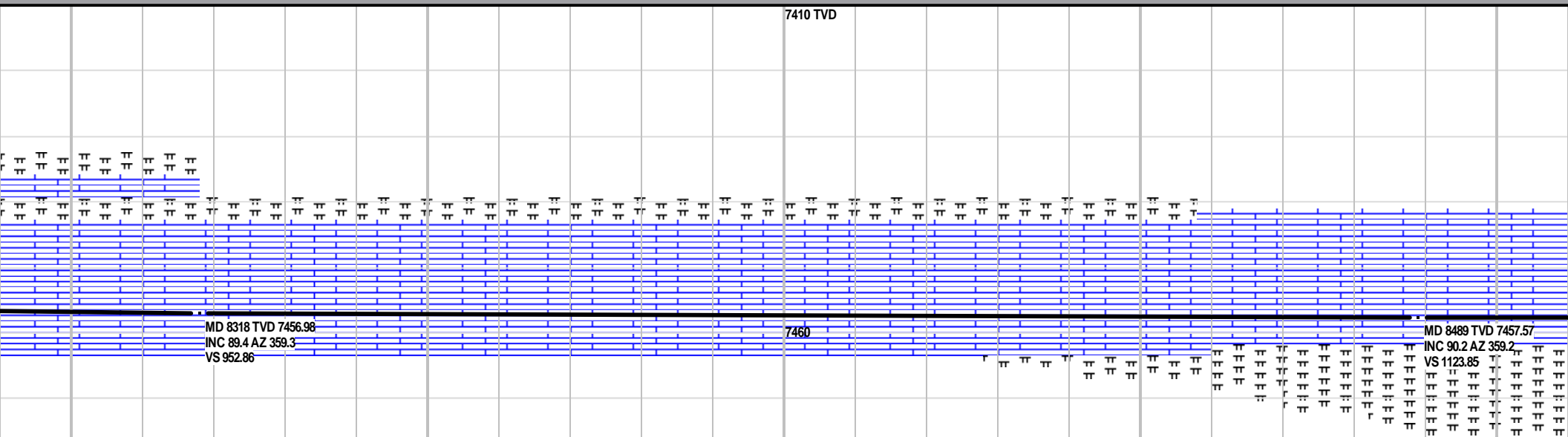


MD 8149 TVD 7454.76  
INC 89.1 AZ 359.3  
VS 783.87

CHALK (60%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlky, sbrthy ip, sbbly-bly, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, MRLSTN (40%): gry-gryblk, v rthy, hghly jggd, bly ip, sbwxy, Tr BENT.

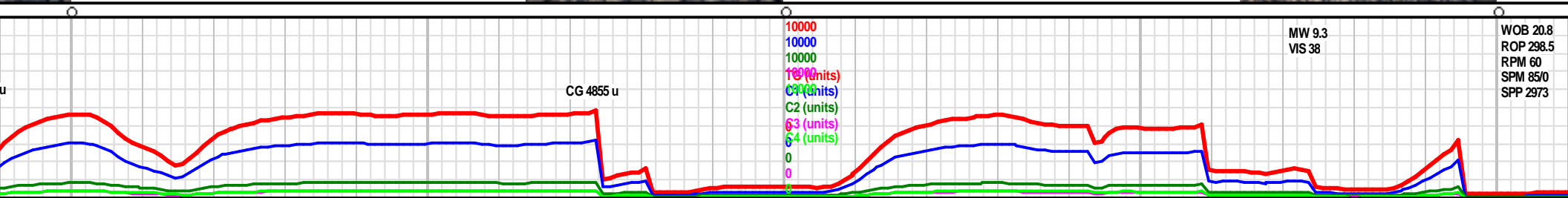
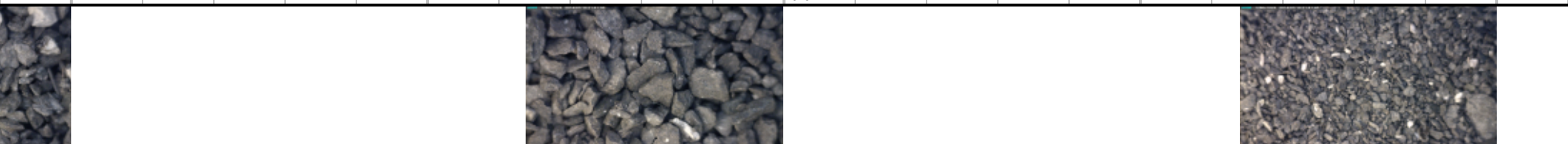
CHALK (80%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlky, sbrthy ip, sbbly-bly, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, MRLSTN (20%): gry-gryblk, v rthy, hghly jggd, bly ip, sbwxy, Tr BENT.



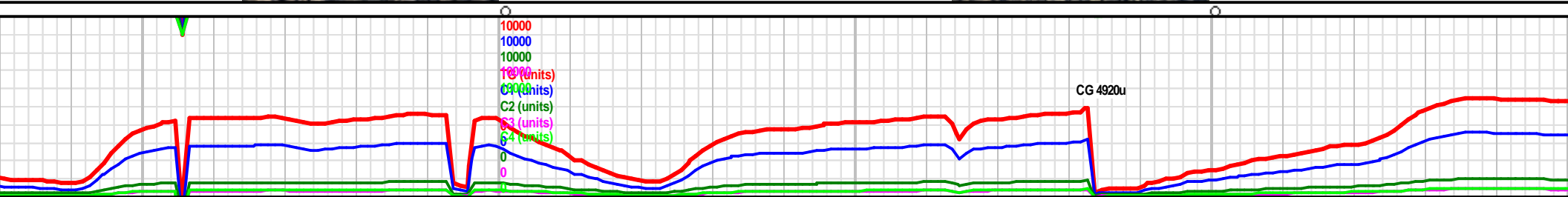
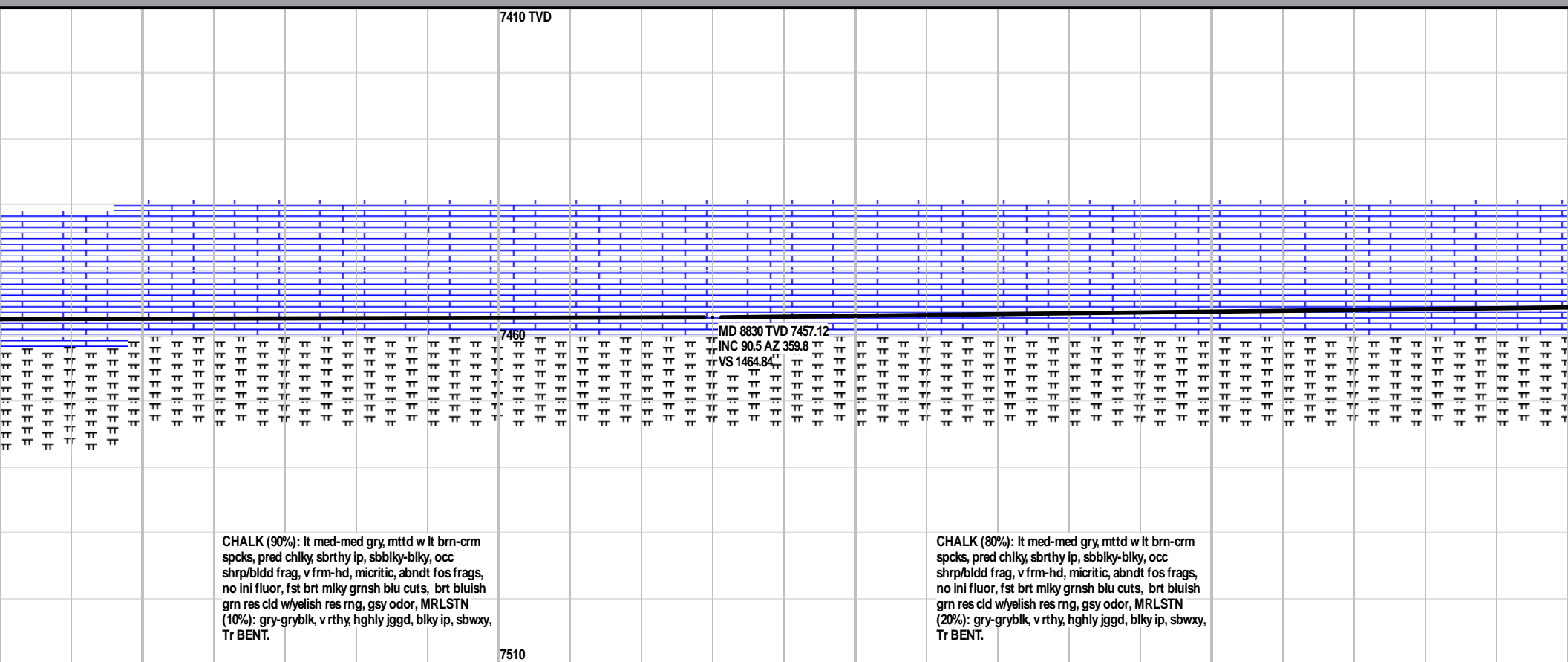
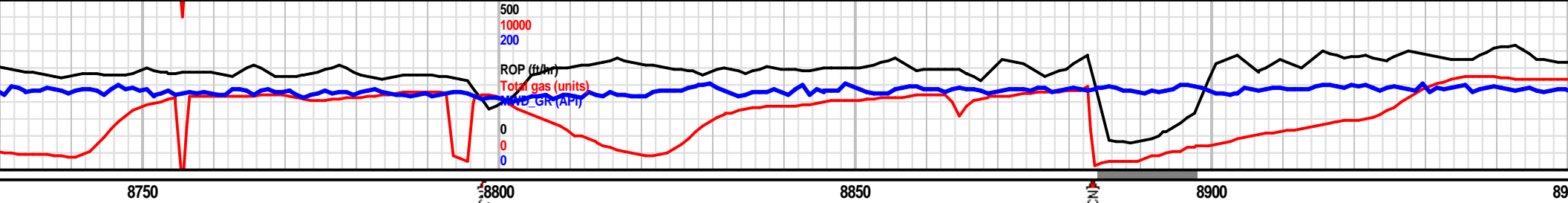


CHALK (90%): lt med-med gry, mttmd w lt brn-crm  
spcks, pred chlyk, srbrty ip, sbblky-blky, occ  
shrp/bldd frag, v frm-hnd, micritic, abndt fss frags,  
no ini fluor, fst brt mlky grnsh blu cuts, brt bluish  
grn res cld wylsh res rng, gsy odor, MRLSTN  
(10%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy,  
TR BENT.

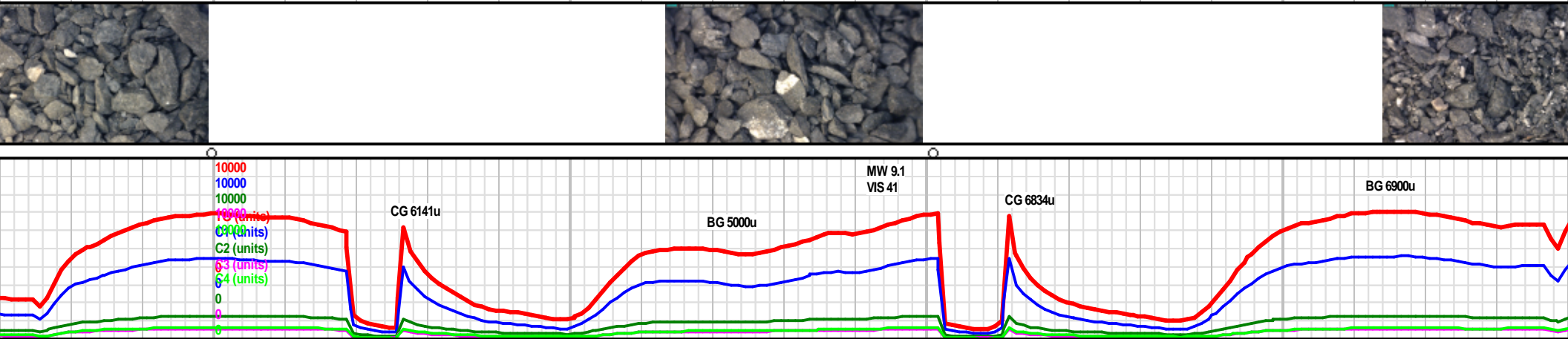
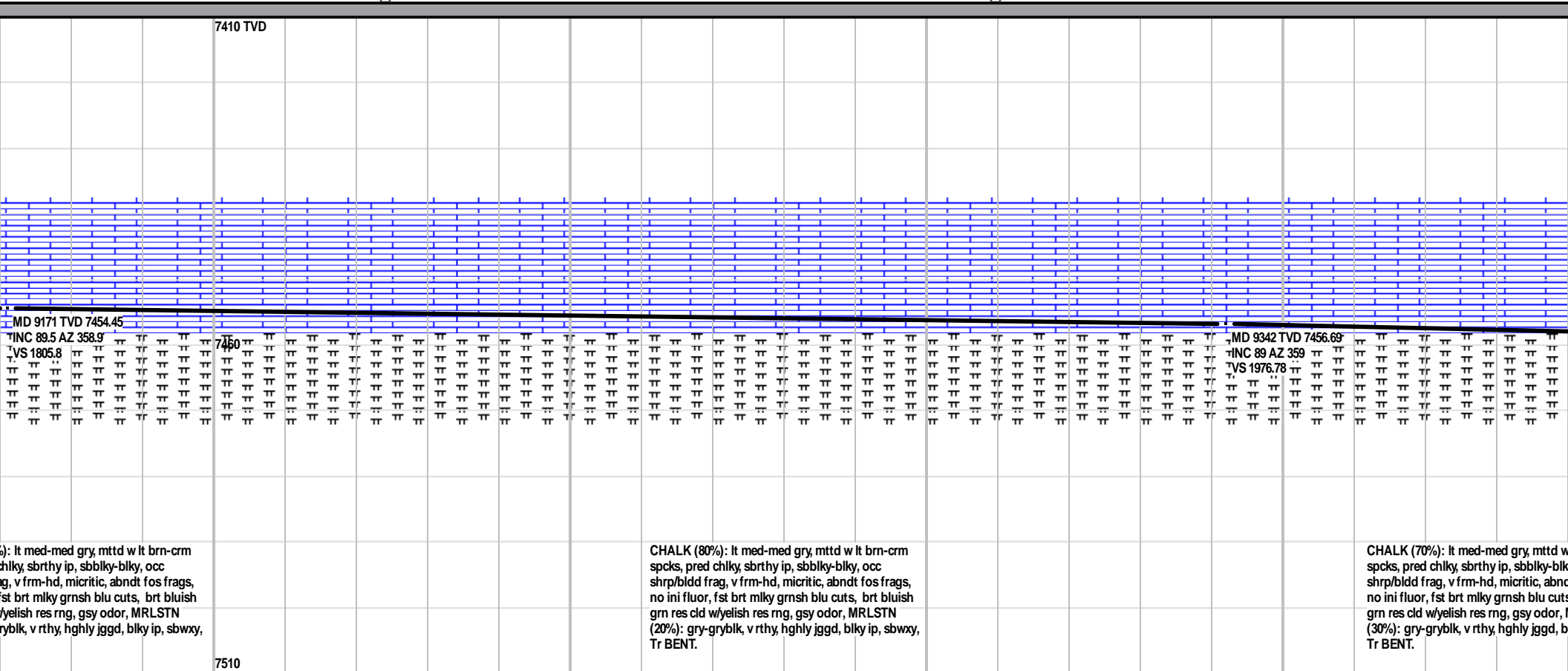
CHALK (90%): lt med-med gry, mttmd w lt brn-crm spcks, pred chag, sbtrthy ip, sbblky-blky, occ shrp/bldd frly, v frm-hld, micritic, abndnt fss frags, no ini fluor, fst brt mky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, MRLSTN (10%): gry-gryblk, v rthy, highly jggd, blkly ip, sbwxy, Tr BENT.



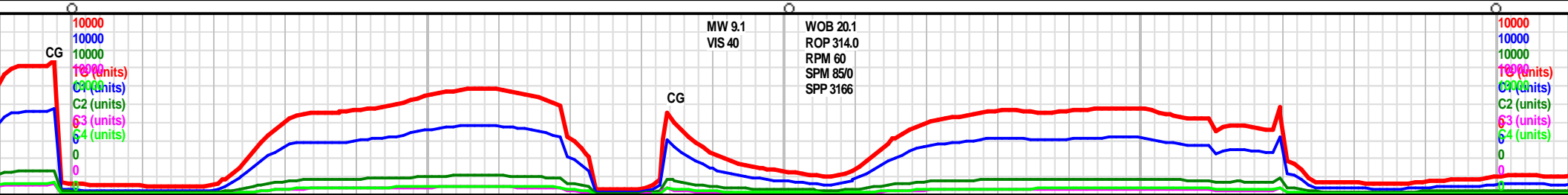
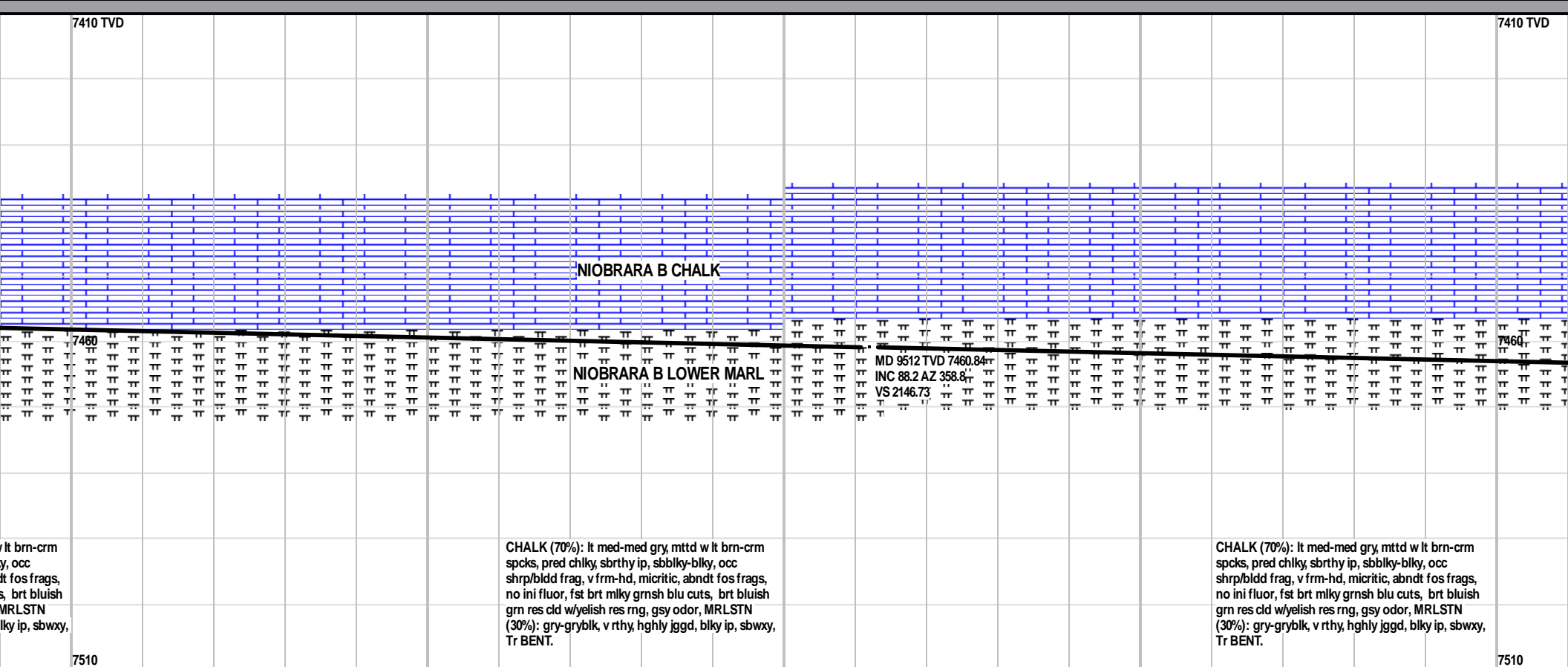
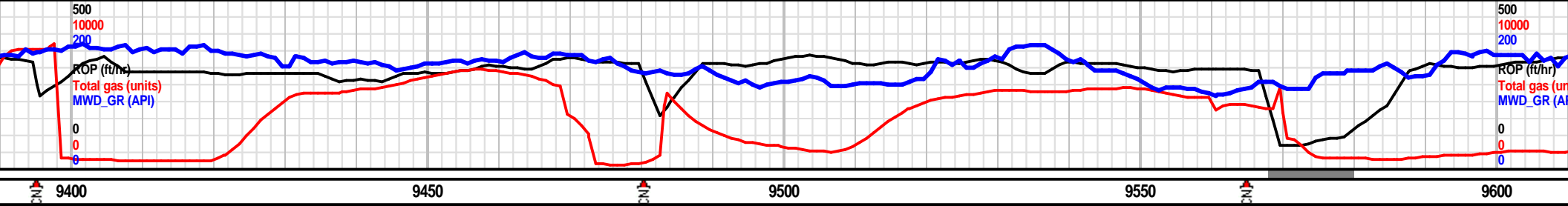


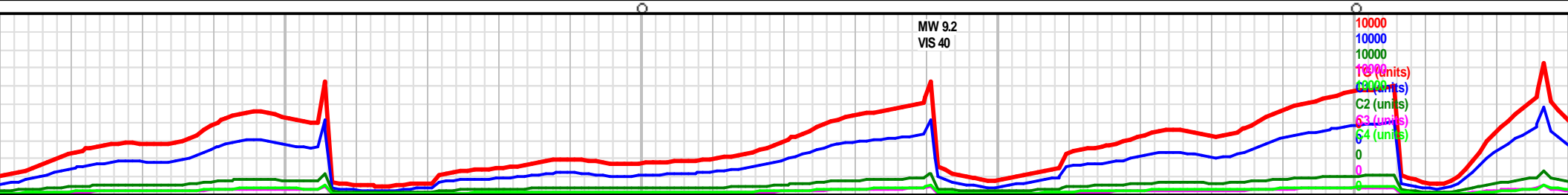
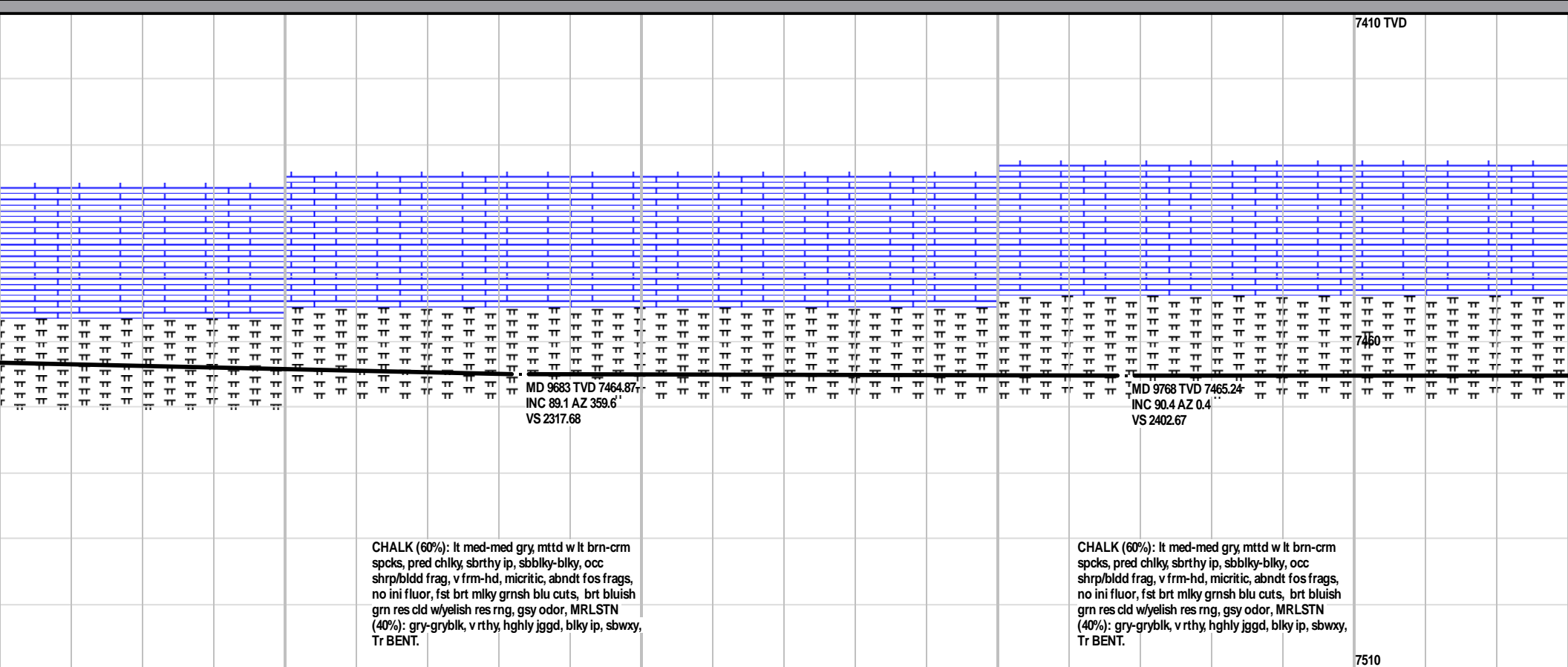
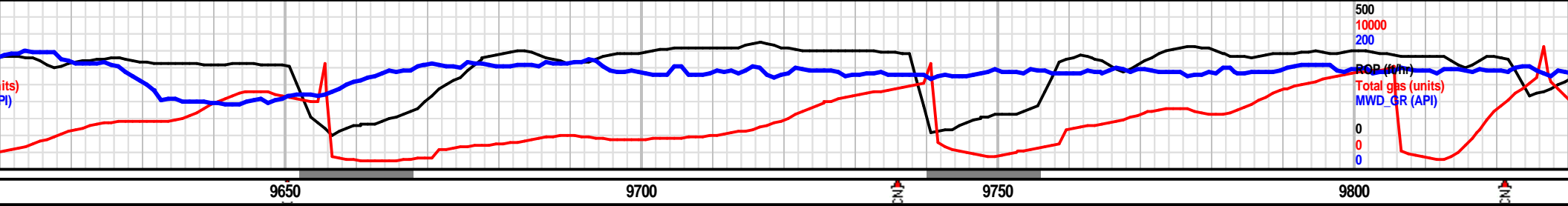




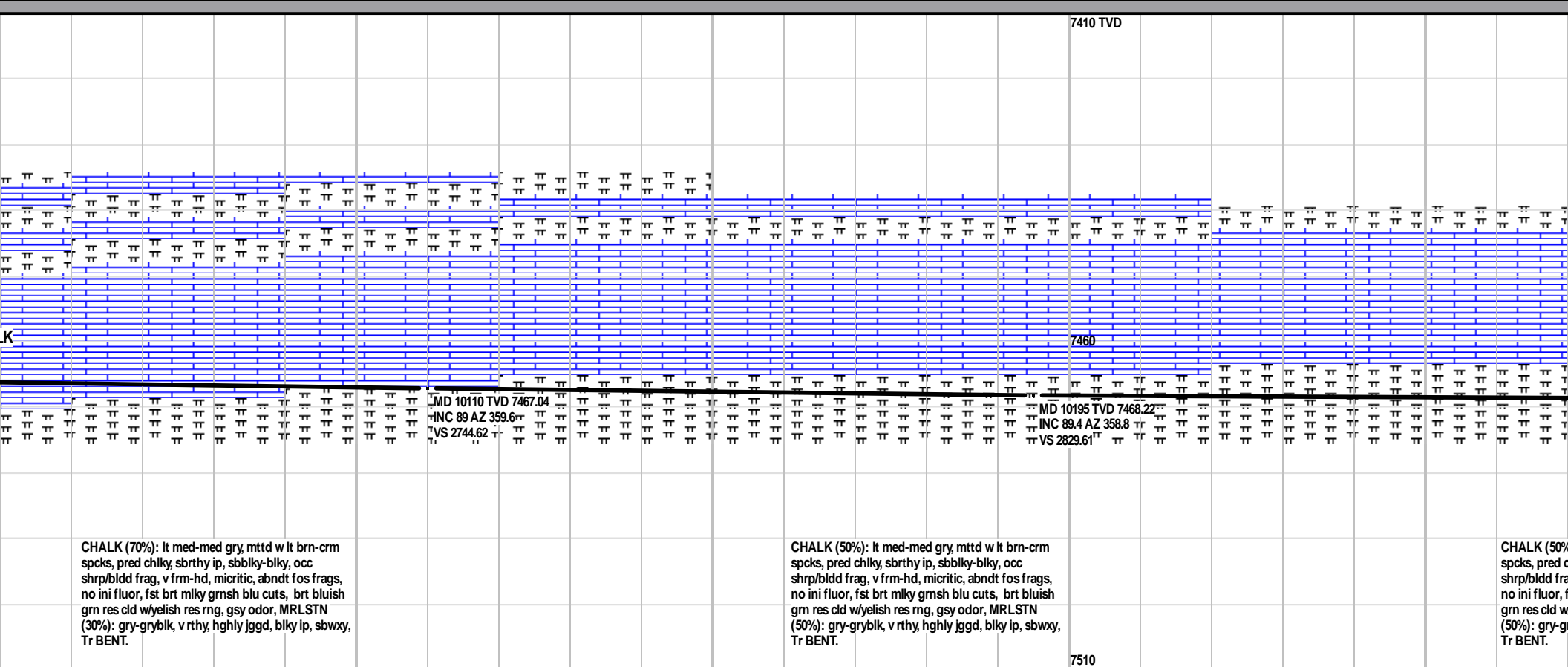
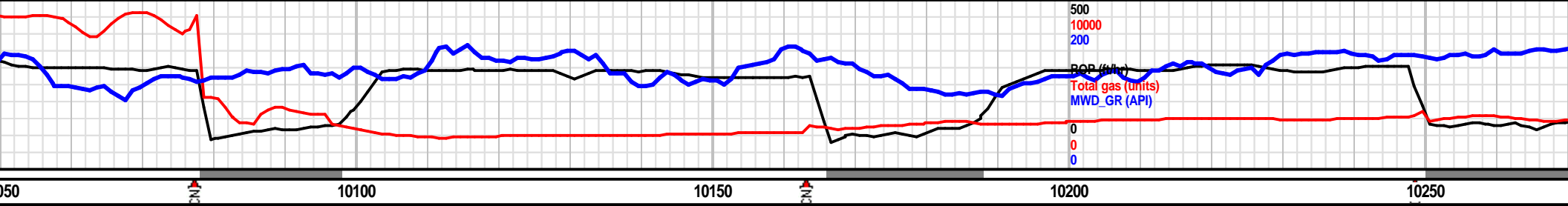








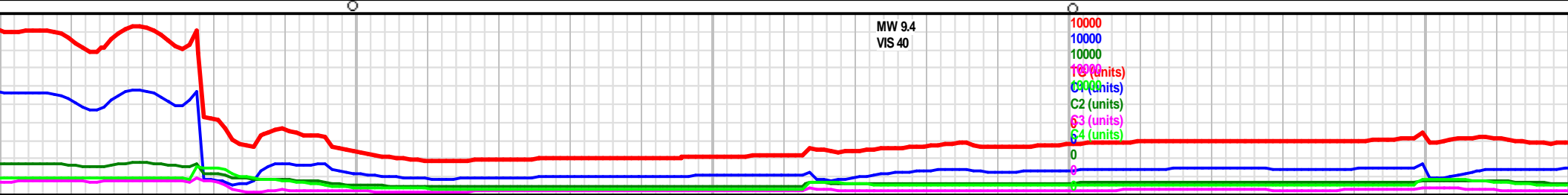
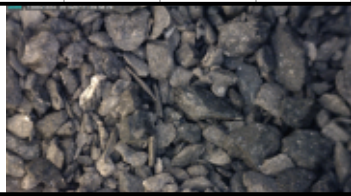


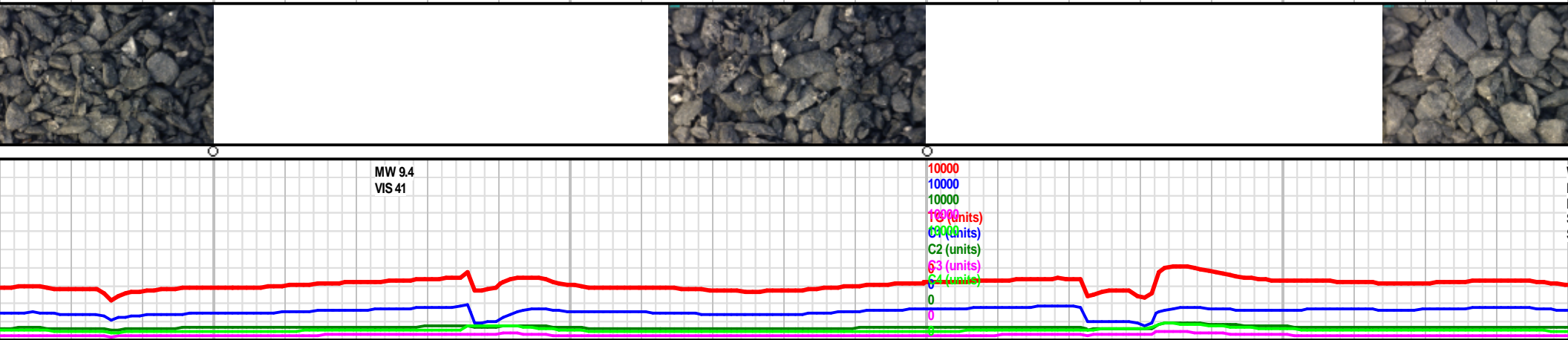
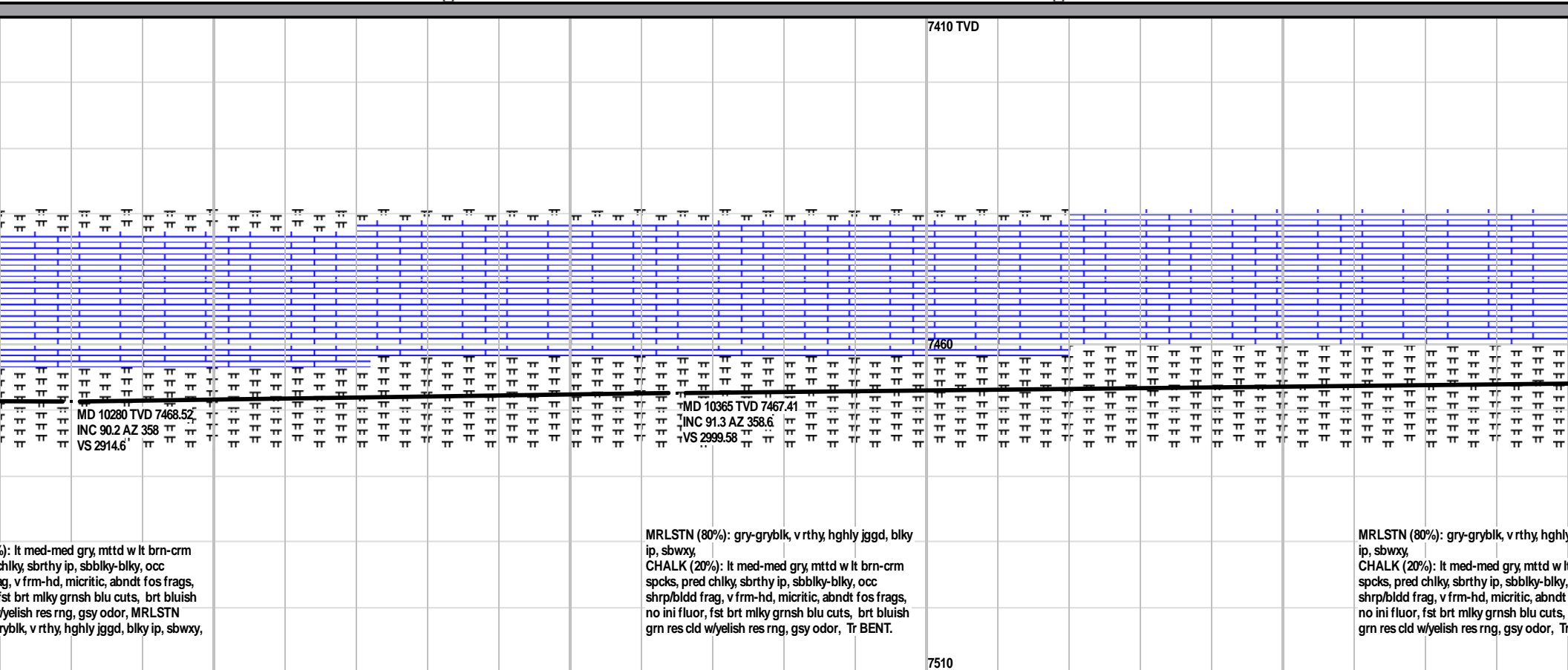


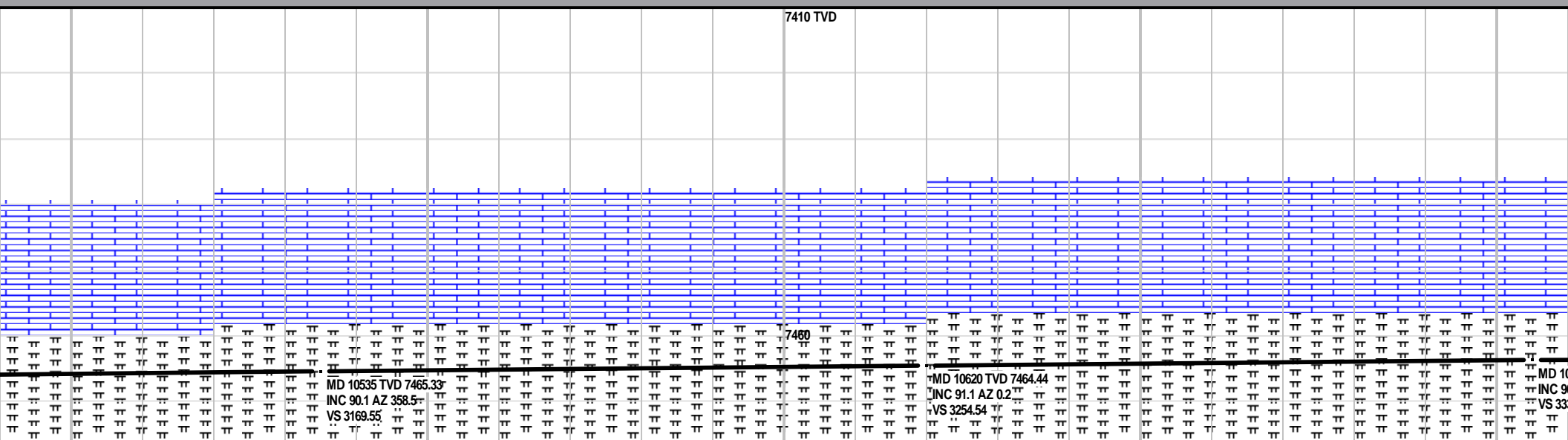
CHALK (70%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlky, sbrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, MRLSTN (30%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy, Tr BENT.

CHALK (50%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlky, sbrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, MRLSTN (50%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy, Tr BENT.

CHALK (50%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlky, sbrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, MRLSTN (50%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy, Tr BENT.







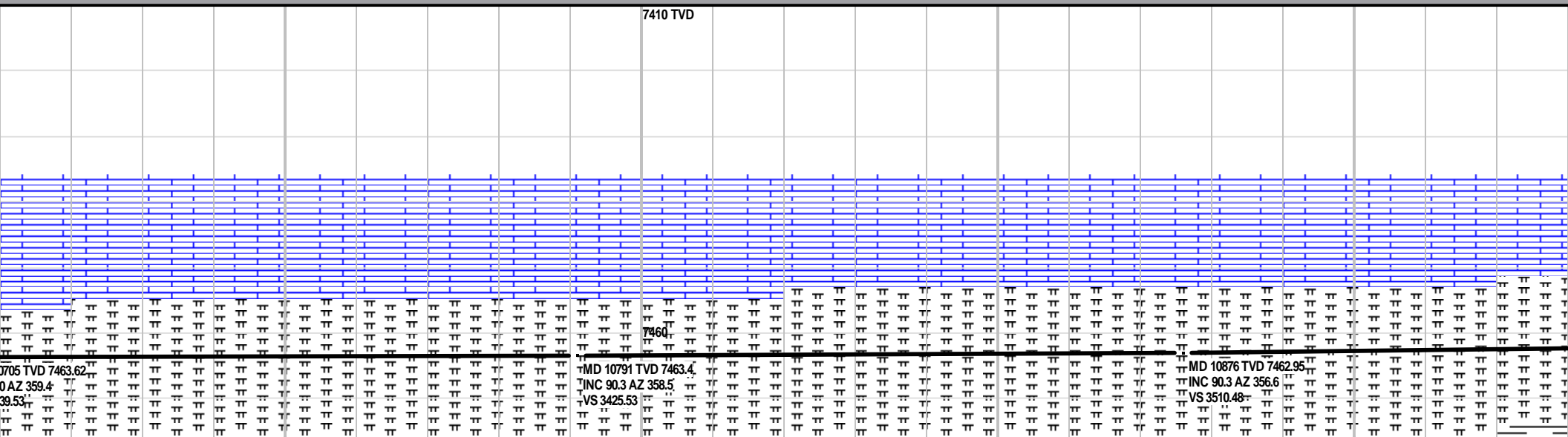
MRLSTN (80%): gry-gryblyk, v rthy, ghgly jggd, blyky ip, sbwxy,  
CHALK (20%): lt med-med gry, mttwd lt brn-crm spck, pred chlyk, sborthy ip, sbblyk-blyk, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini folow, fst brt mlyk grnsh blu cuts, brt bluish grn res clud w/yelish res rna, qsy odor. Tr BENT.

MRLSTN (70%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxly,  
CHALK (30%): lt med-med gry, mttđ w lt brn-crm  
spcks, pred chlkly, sborthy ip, sbblkly-blkly, occ  
shrp/bldd frag, v frm-hd, micritic, abndt fos frags,  
no ini fluor, fst bl mlky grna blk cuts, brt bluish  
grm res cld w/yelish res rna. qsy odor. Tr BENT.

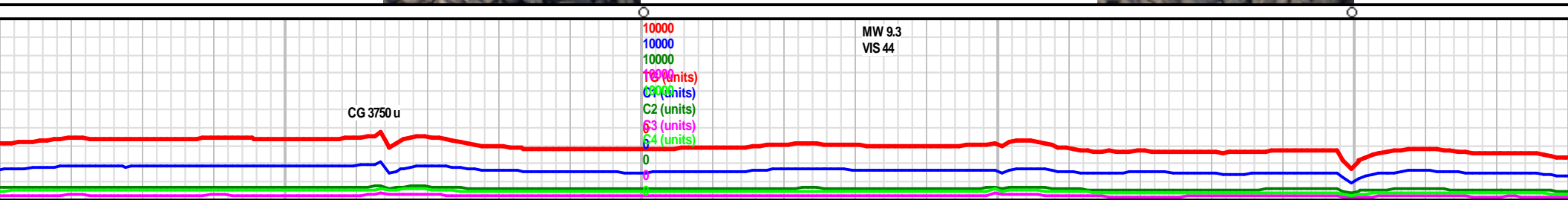


CG 3950 u

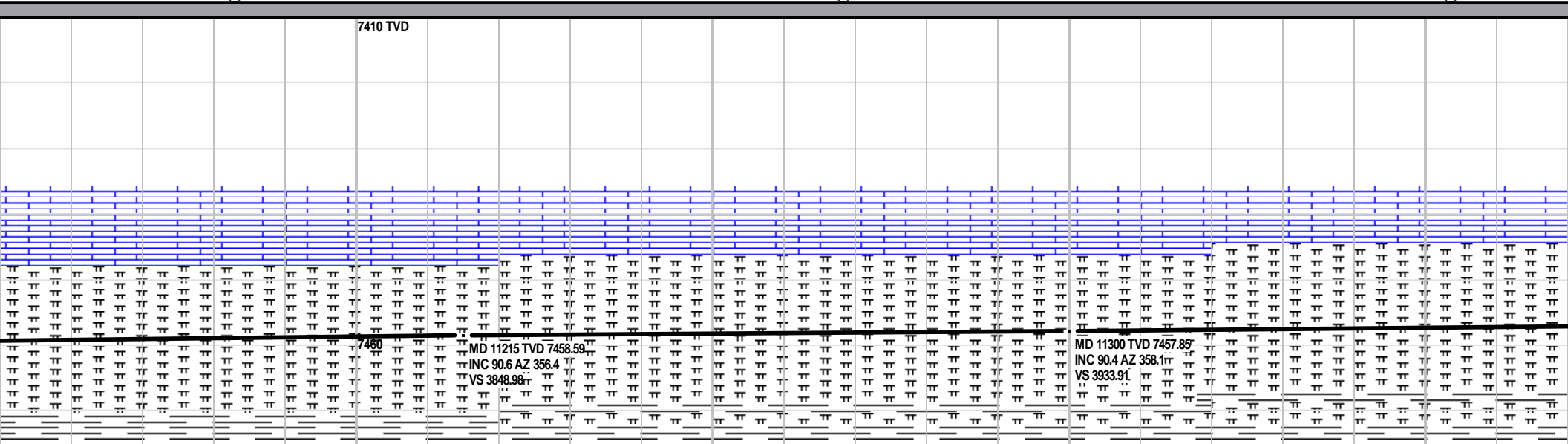




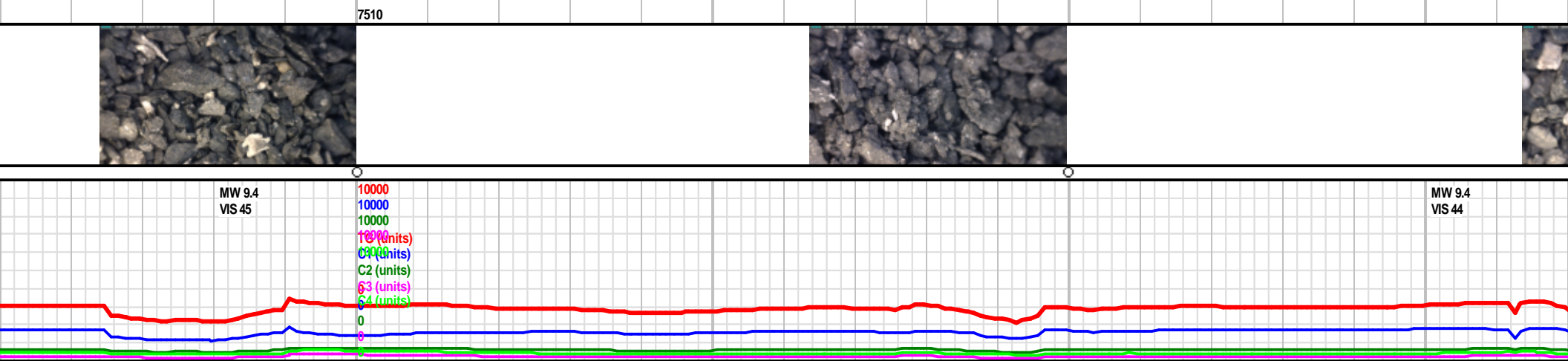
MRLSTN (80%): gry-gryblyk, v rthy, hghly jggd, blyk  
ip, sbwxy,  
CHALK (20%): lt med-med gry, mtt d w lt brn-crm  
spcks, pred chlyk, sborthy ip, sbblyk-blyk, occ  
shrp/bldd frag, v frm-hd, micritic, abndt fos frags,  
no ini fluor, fshl br mlyk grna blu cuts, br bluish  
grn res cl d wylt res rna. qsv odor. TR BENT.

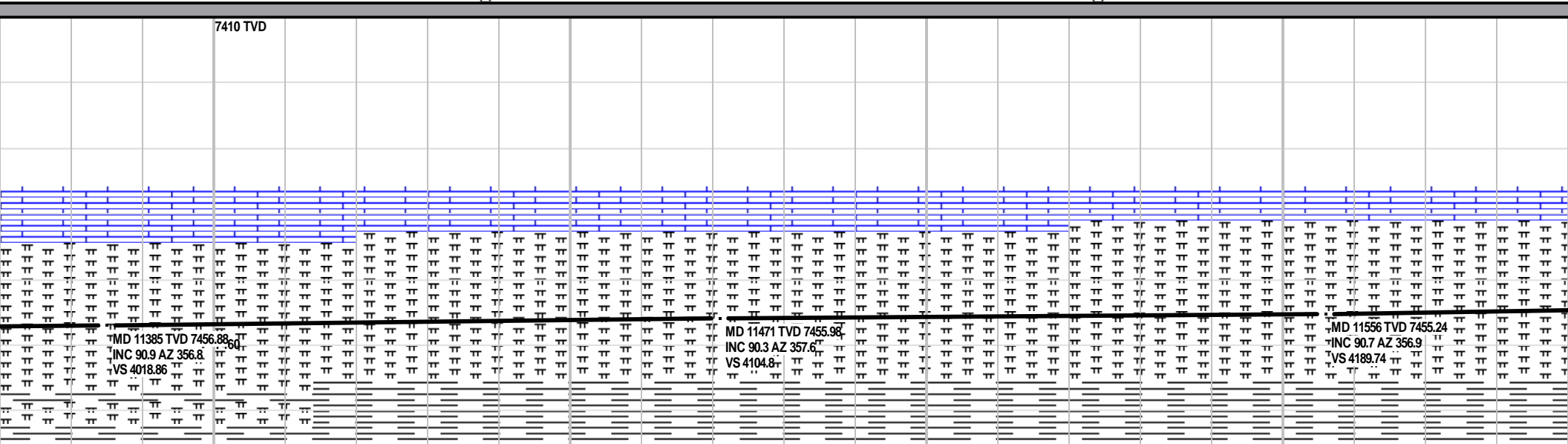






MRLSTN (60  
ip, sbwxy,  
CHALK (40%  
spcks, pred  
shrp/bldd fr  
no ini fluor,  
grn res cld w

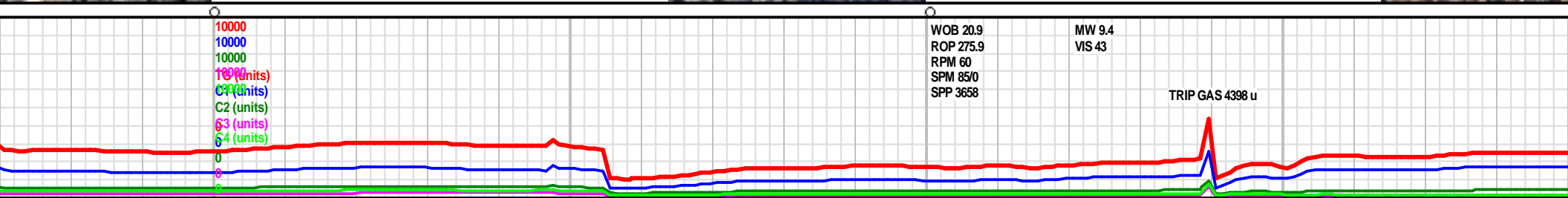
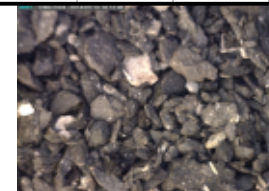
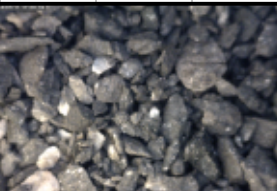


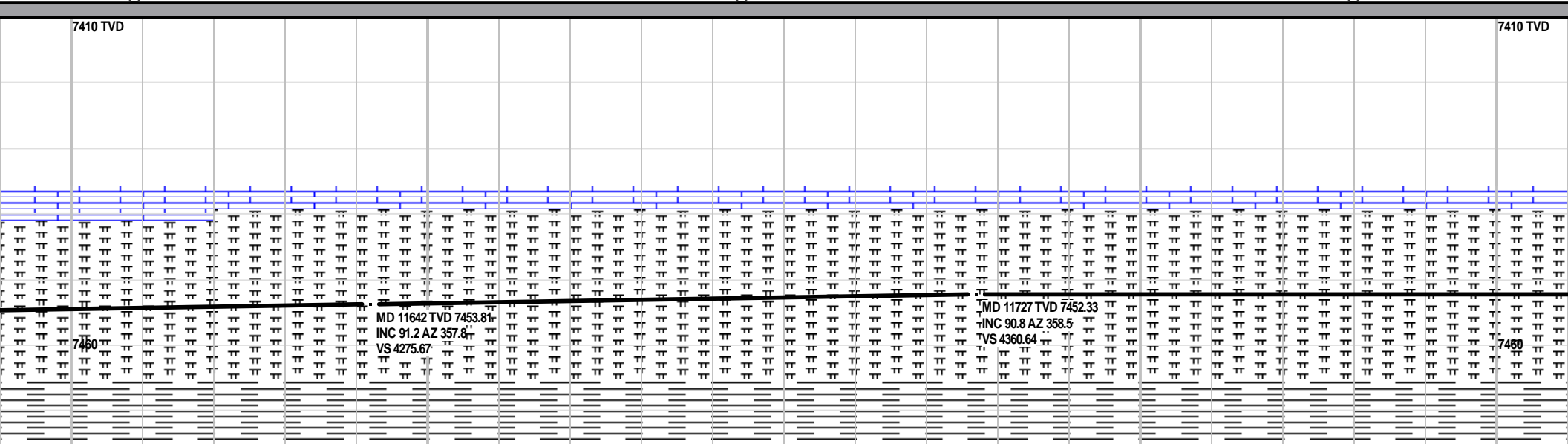


%) : lt med-med gry, mtted w lt brn-crm  
chlkly, sborthy ip, sbblky-blky, occ  
ag, v frm-hd, micritic, abndt fos frags,  
fst brt mlky grnsh blu cuts, brt bluish  
w/yelish res rng, gsy odor, Tr BENT.

MRLSTN (60%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy,  
CHALK (40%): lt med-med gry, mtt d w lt brn-crm  
spcks, prdd chlky, sb rthy ip, sbblkly-blky, occ  
shrp/bldd frg, v frm-hld, micritic, abndt fss frags,  
no ini fluor, fst brt mlky grnsh blu cuts, brt bluish  
grn res clod w/yelish res rng, gsy odor, Tr BENT.

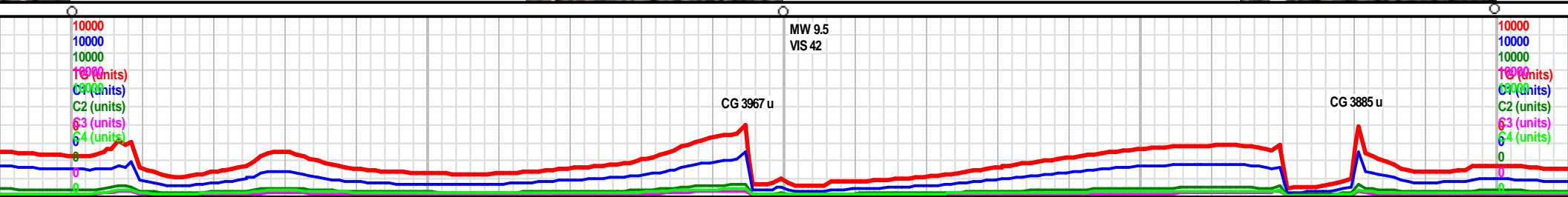
MRLSTN (60%): gry-gryblk, v rthy, hghl  
ip, sbwxy,  
CHALK (40%): lt med-med gry, mtt d w l  
spcks, pred chiky, sb rthy ip, sbblky-blky,  
shrp/bldd frag, v frm-hld, micritic, abndt  
no ini flog, fst brt mky grmsh blu clts,  
grn res cld w/yelish res rng, gsy odor, T

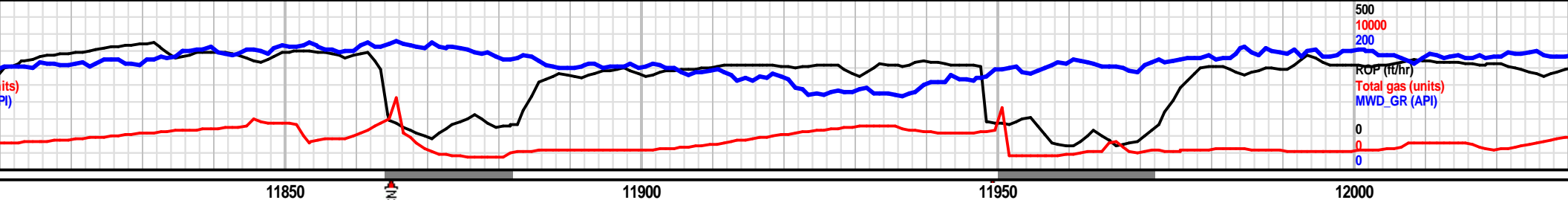




MRLSTN (70%): gry-gryblyk, v rthy, ghlyl jggd, blyk  
ip, sbwxy,  
CHALK (30%): lt med-med gry, mtt d lt brn-crm  
spcks, pred chly, sbrrthy ip, sbblky-blyk, occ  
shrp/bldd frg, v frm-hd, mcrith, abndt fos frags,  
no ini fluor, fst br mlyk grnsh blu cuts, brt bluish  
grn res clid wyylshl res rng, gsy odor, Tr BENT.

MRLSTN (80%): gry-gryblk, v rthy, hghly jggd, blky ip, sbwxy,  
CHALK (20%): lt med-med gry, mtt d w lt brn-crm spcks, pred chlky, sbtrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fss frags, no ini fluor, fsh brrt mky grnsh blu cuts, bot bluish grm res cld wylst res rlng, gsy odors, Tr BENT.

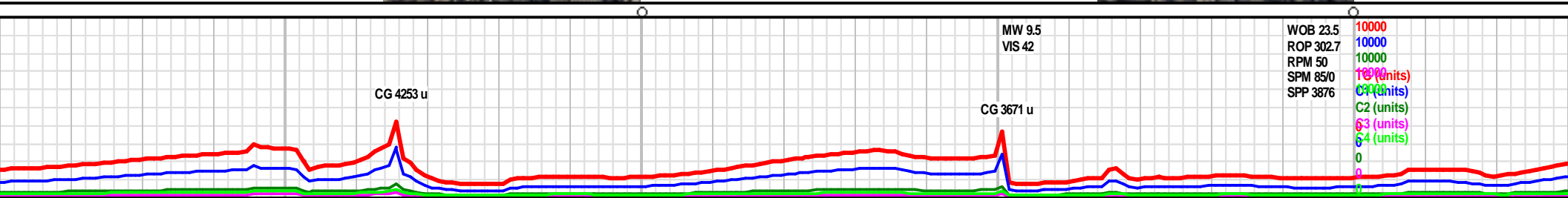
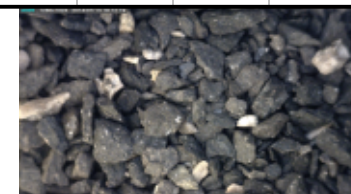
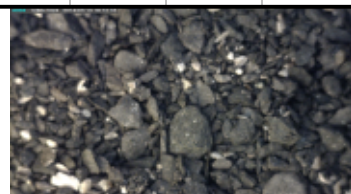




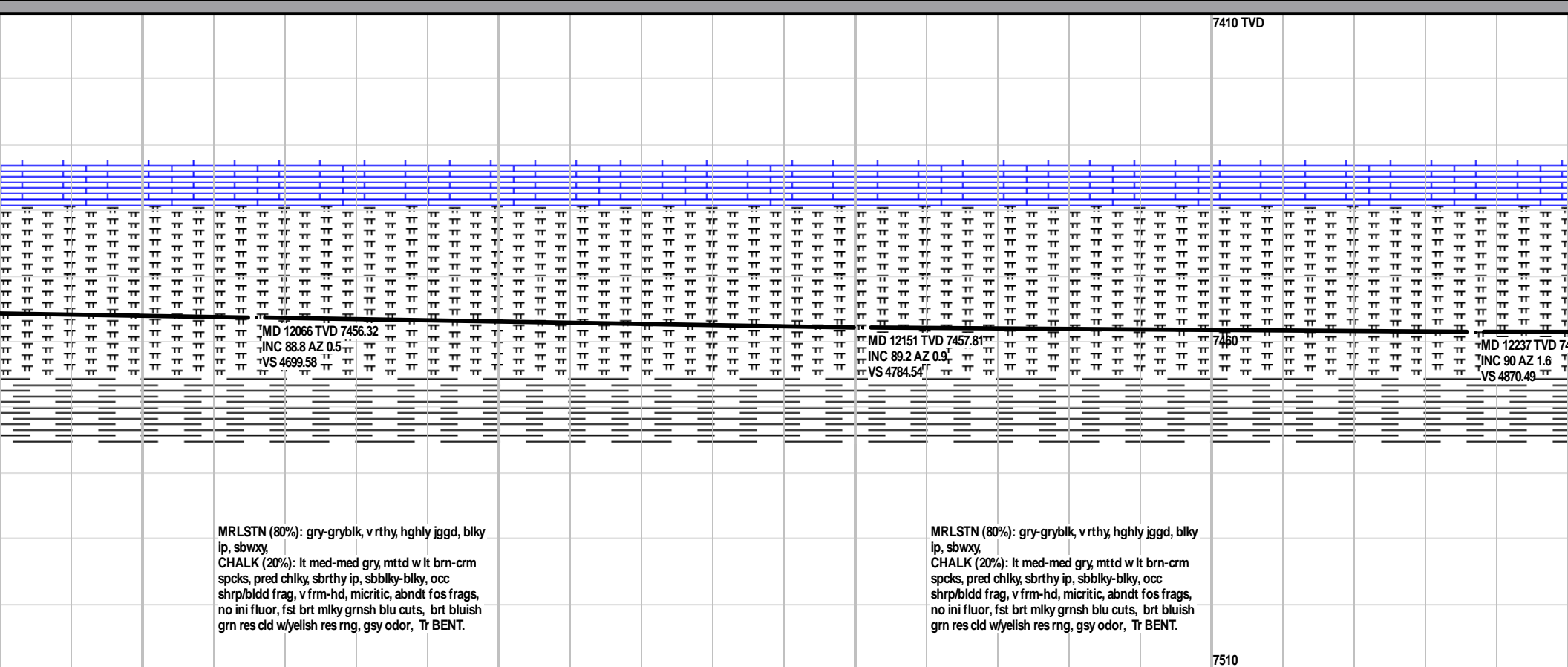
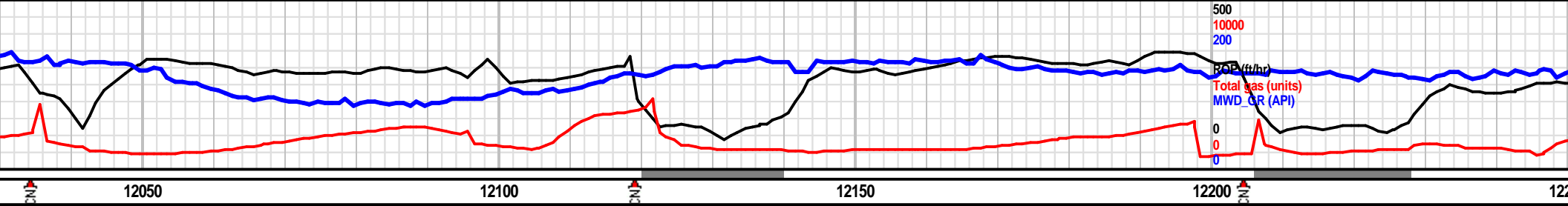
MD 11812 TVD 7452.18'									
INC 89.4 AZ 358.7									
VS 4445.63'									
MD 11896 TVD 7453.36'									
INC 89 AZ 359.5									
VS 4529.62'									
MD 11981 TVD 7454.76'									
INC 89.1 AZ 0.3									
VS 4614.61'									

MRLSTN (80%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy,  
CHALK (20%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlkly, sbrthy ip, sbbly-blky, occ shrp/bidd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, Tr BENT.

MRLSTN (60%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy,  
CHALK (40%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlkly, sbrthy ip, sbbly-blky, occ shrp/bidd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, Tr BENT.

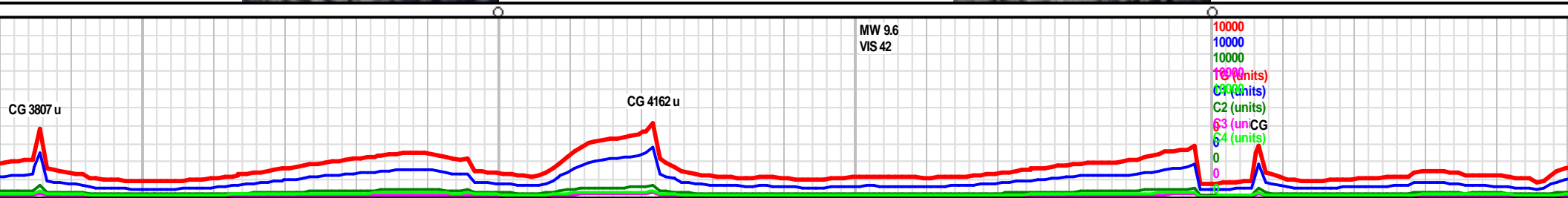
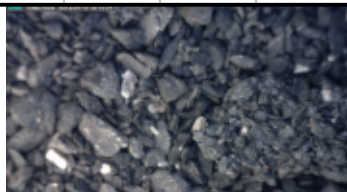


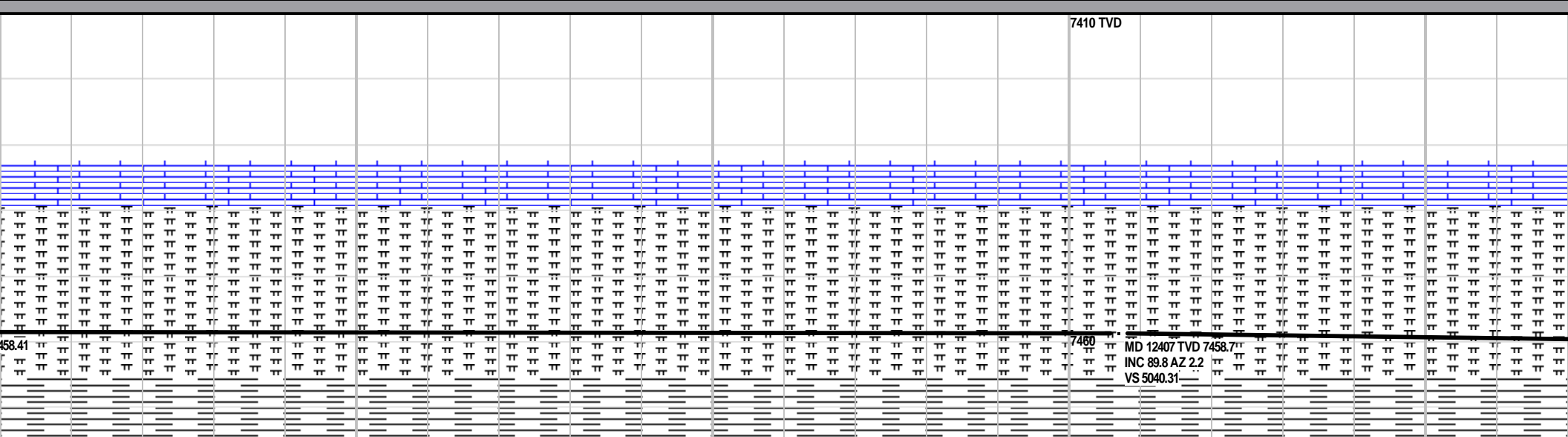
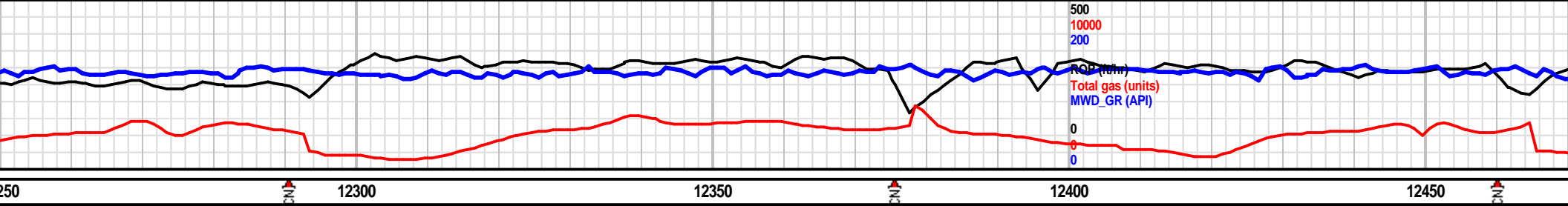




MRLSTN (80%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy,  
CHALK (20%): lt med-med gry, mttdd w lt brn-crm spcks, pred chiky, sbtrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, Tr BENT.

MRLSTN (80%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy,  
CHALK (20%): lt med-med gry, mttdd w lt brn-crm spcks, pred chiky, sbtrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, Tr BENT.





458.41

MRLSTN (90%): gry-gryblk, v rthy, hgily jggd, blkly ip, sbwxy,  
CHALK (10%): lt med-med gry, mtttd w lt brn-crm spcks, pred chiky, sbrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, Tr BENT.

7410 TVD

7450

MD 12407 TVD 7458.7  
INC 89.8 AZ 2.2  
VS 5040.31

7510

MRLSTN (90%): gry-gryblk, v rthy, hgily jggd, blkly ip, sbwxy,  
CHALK (10%): lt med-med gry, mtttd w lt brn-crm spcks, pred chiky, sbrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, Tr BENT.

MRLSTN (80%): gry-gryblk, v rthy, hgily jggd, blkly ip, sbwxy,  
CHALK (20%): lt med-med gry, mtttd w lt brn-crm spcks, pred chiky, sbrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, fst brt mlky grnsh blu cuts, brt bluish grn res cld w/yelish res rng, gsy odor, Tr BENT.

