

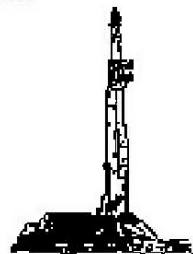
**GOOLSBY BROTHERS**  
and associates, inc.

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: Benson Farms 13N-23HZ

API: 05123393410000

Location: Section 23, T3N, R68W

License Number:

Spud Date: July 29, 2014

Surface Coordinates: SESE Sec 23 T3N R68W; 647' FSL, 72' FEL

LAT: 40° 20'60.56 N; LONG: 104° 96'08.98 W

Bottom Hole Coordinates: SESW Sec 23 T3N R67W; 510' FSL; 50' FWL

Ground Elevation (ft): 4960'

Logged Interval (ft): 6650'

To: 12599'

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

Type of Drilling Fluid: Water & Poly to 5000', LSND 5000'-12599'

K.B. Elevation (ft): 4976'

Total Depth (ft): 12599' DMTD

Region: Wattenberg, DJ Basin

Drilling Completed: August 3, 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: Larry Goolsby 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 6000' - 12599'

## Casing

9 5/8" Surface Casing set @ 1109' MD

7" Intermediate Casing set @ 7601' MD

4 1/2" Production Liner hung 8/04/2014, landed @ 12583' MD

## Comments

1) Drilling Contractor: Xtreme Drilling, Rig # 23

Toolpusher: Chad Ruehlen

2) Company Man: James Gober & Albert Byran

MWD GR: Baker Hughes, Pulse Tool

Drillers: xxxxxxxxxxxxxxxx


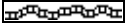
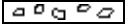

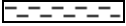
4) Mud Comapny : Halliburton






Engineer: Roger Guthrie



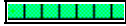


3) Directional Drilling: Baker Hughes






MWD: xxxxxxxxxxxxxxxx


## 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  
 Sltty 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  
 Wackst

## OTHER SYMBOLS

### OIL SHOWS

Even  
 Spotted  
 Ques  
 Dead  
 Vspotty

near even

### POROSITY TYPE

Earthy  
 Fenest  
 Fracture

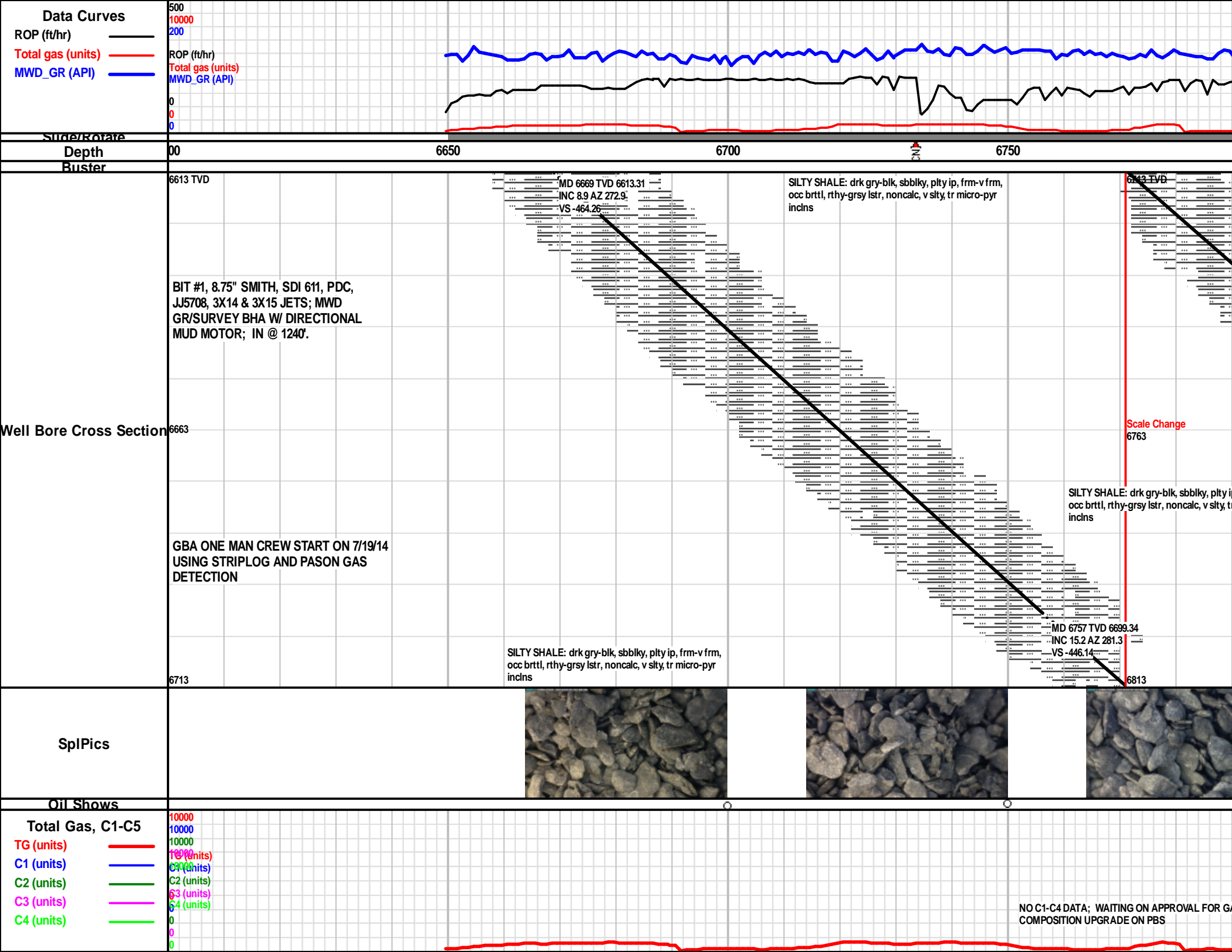
Inter  
 Moldic  
 Organic  
 Pinpoint  
 Vuggy

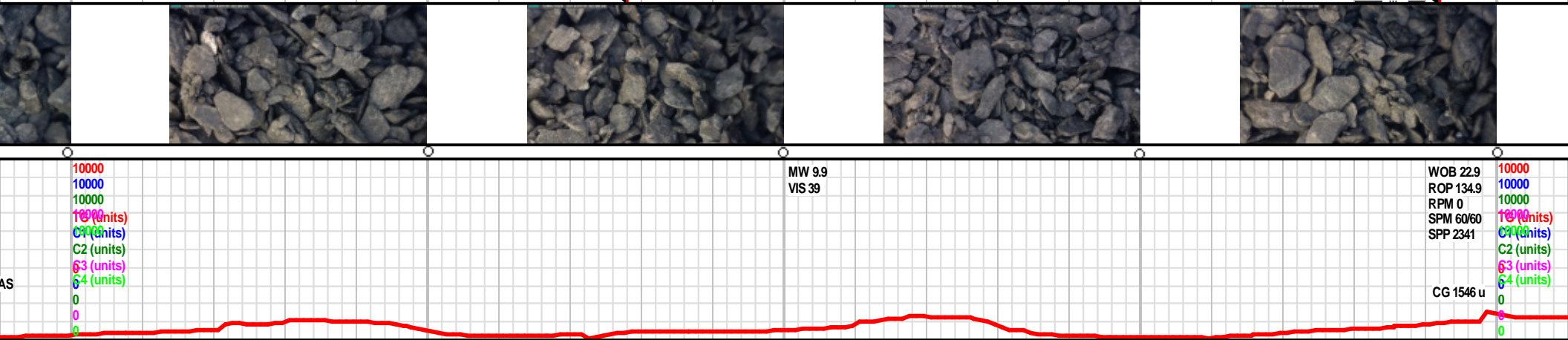
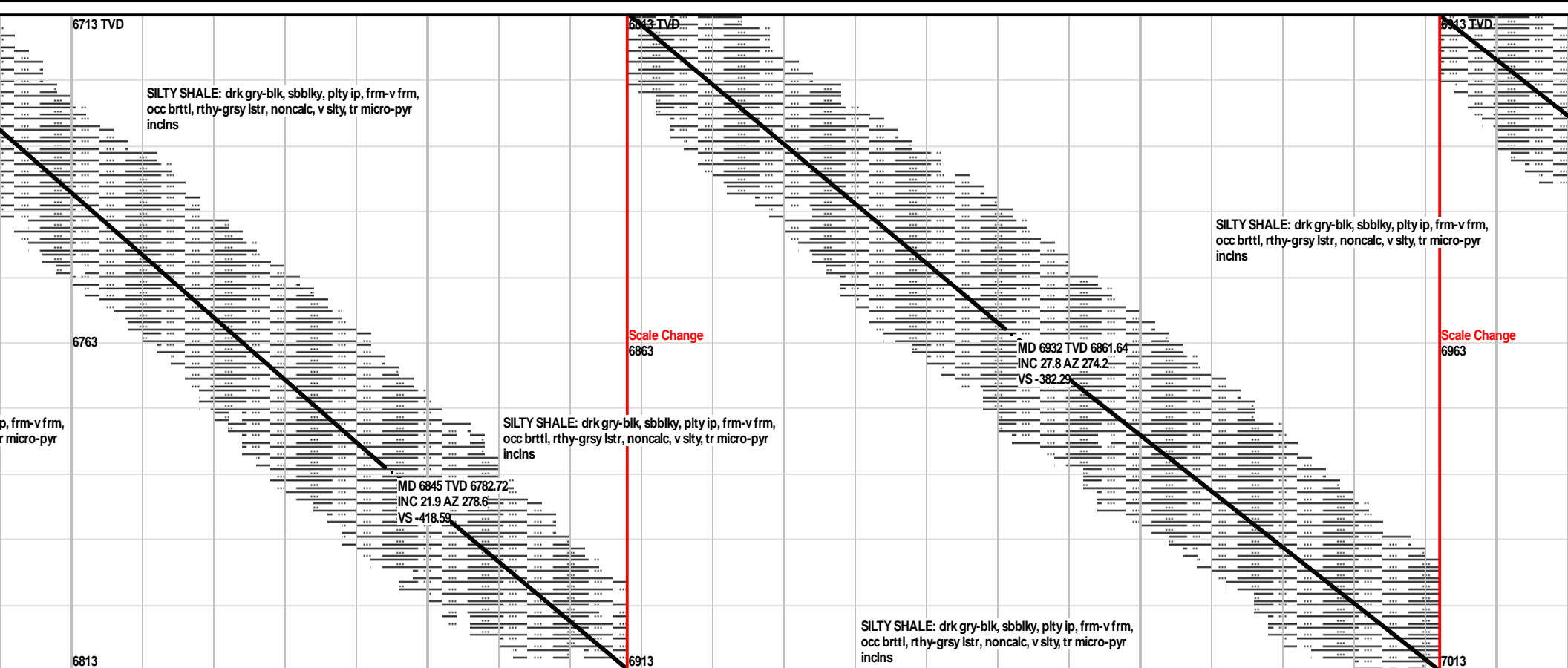
### ROUNDING

Rounded  
 Subrnd  
 Subang  
 Angular

### SORTING

Well  
 Moderate  
 Poor

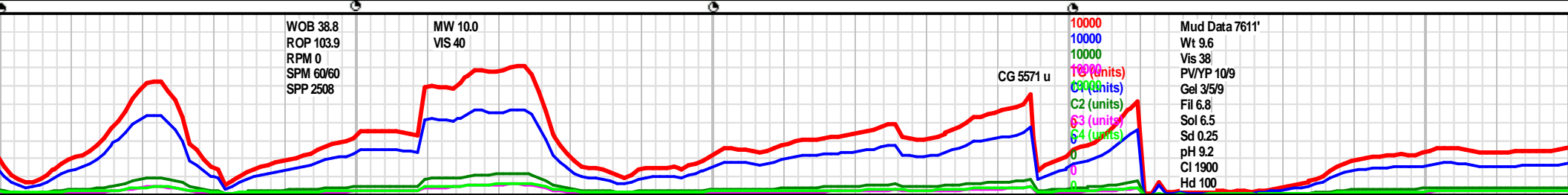
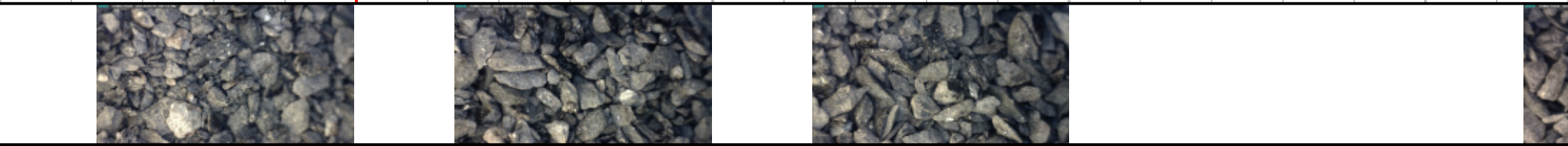
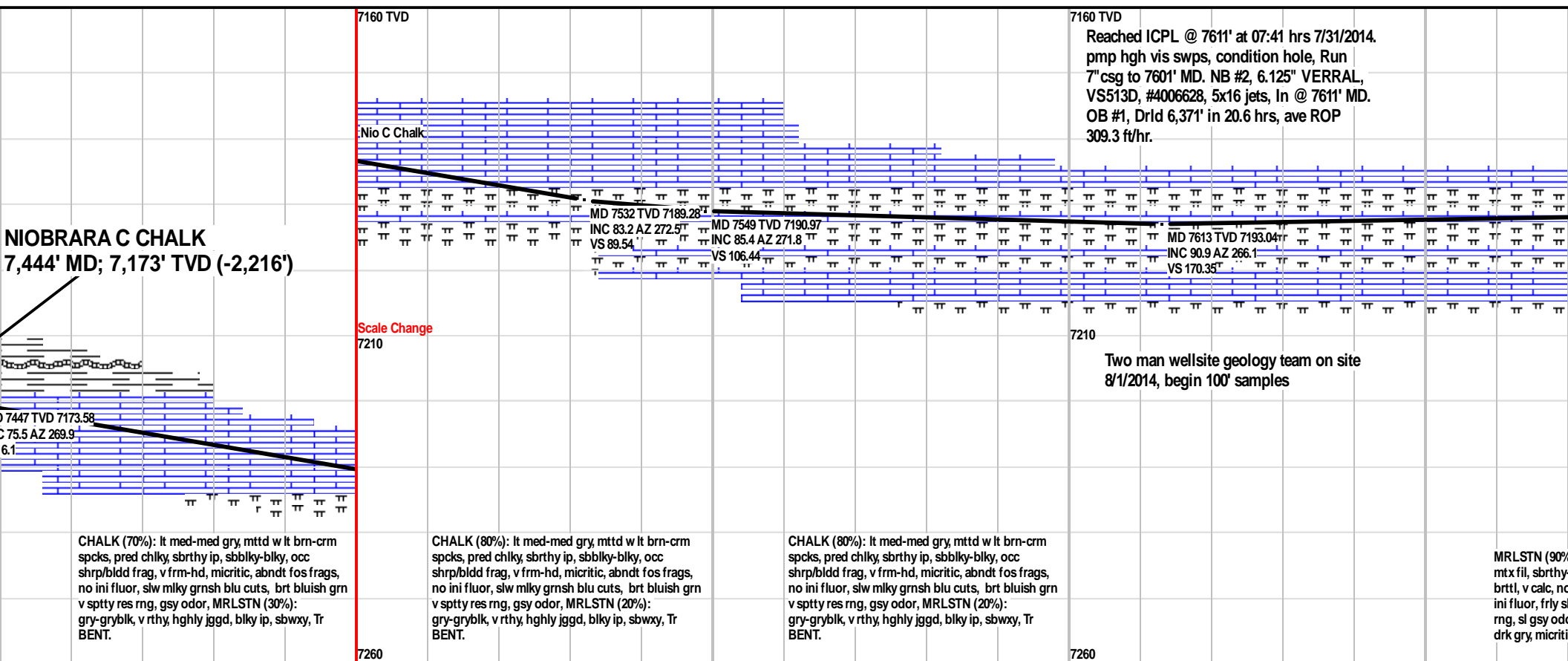
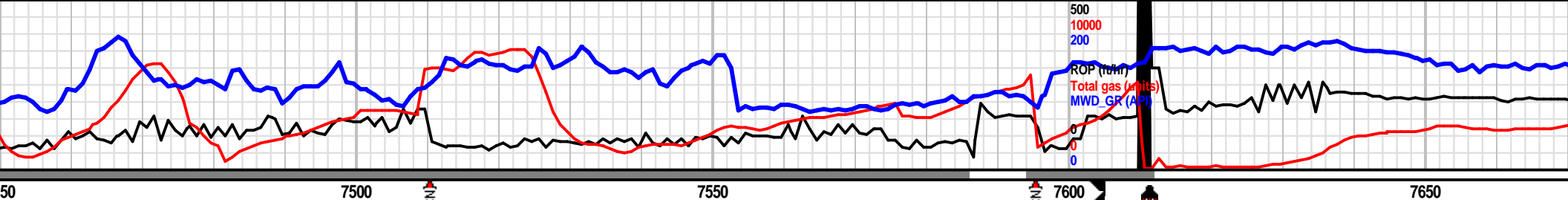




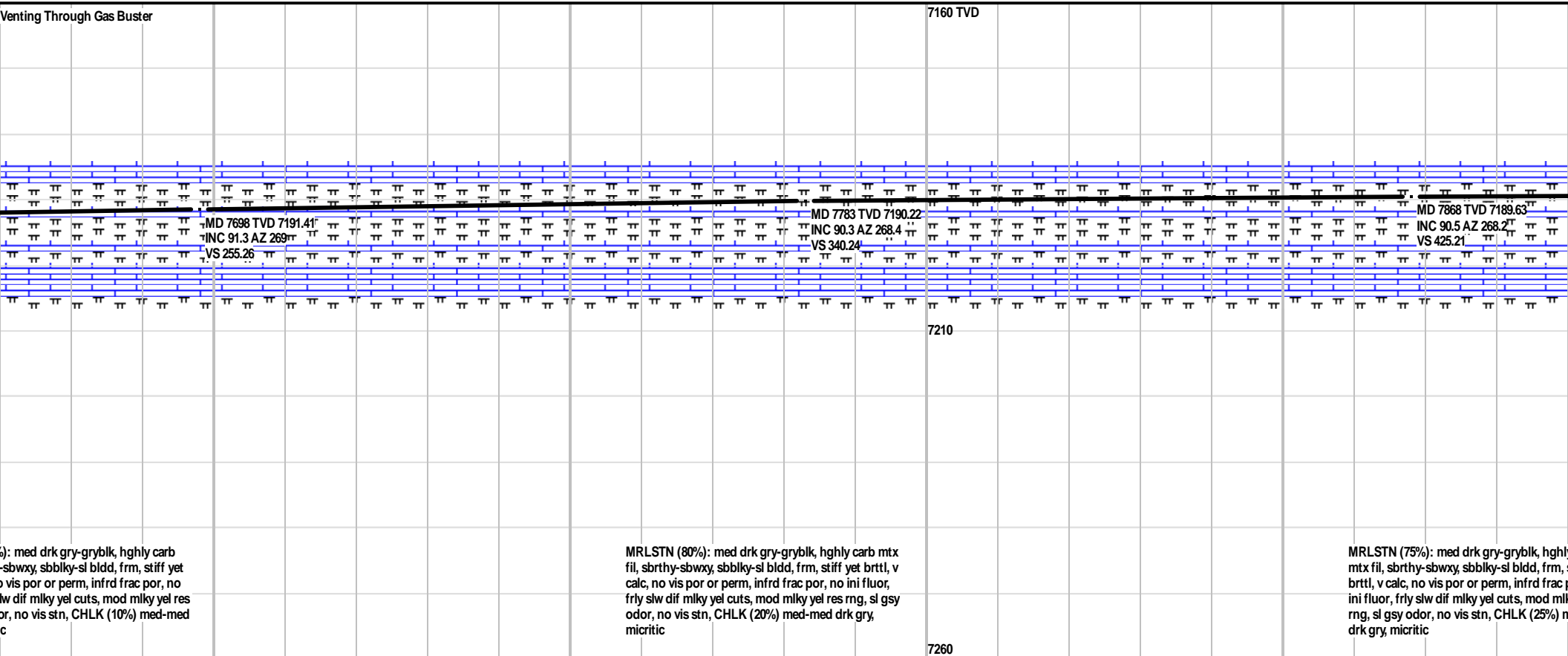


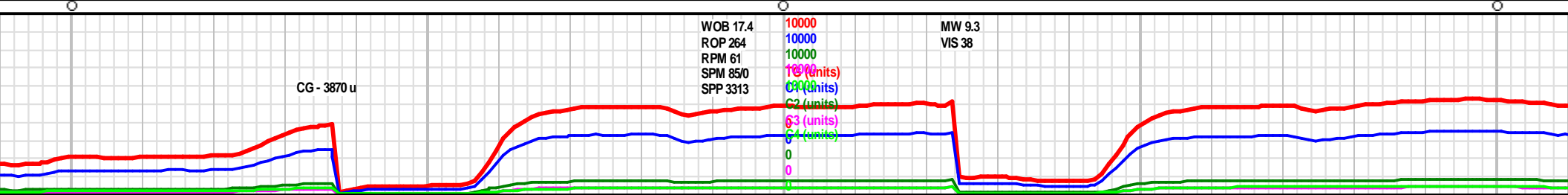
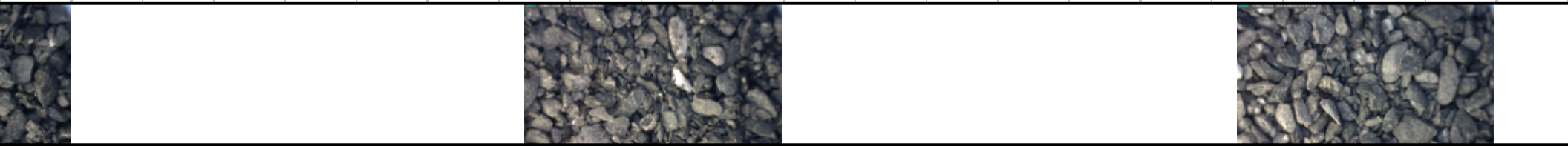
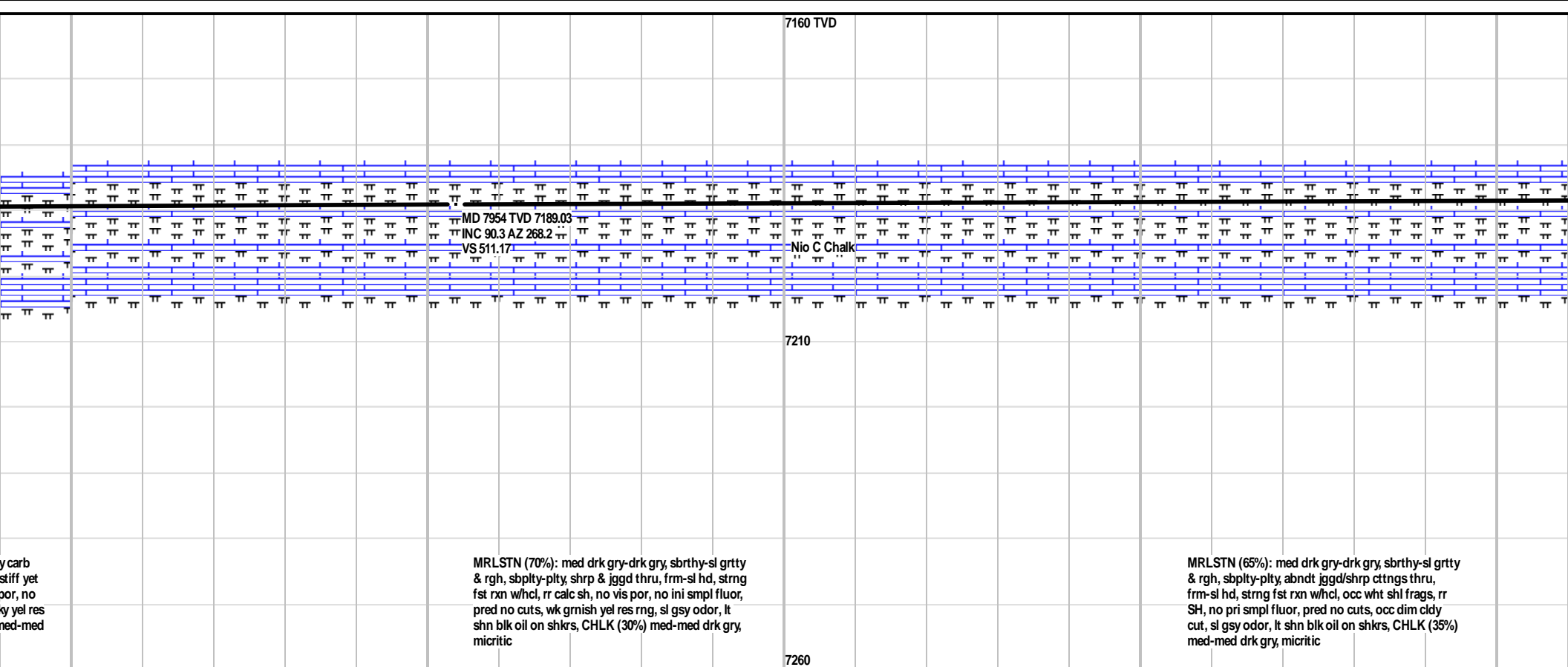
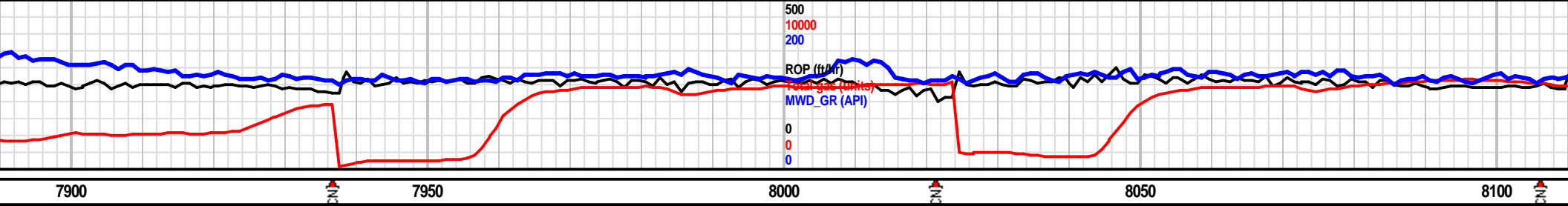


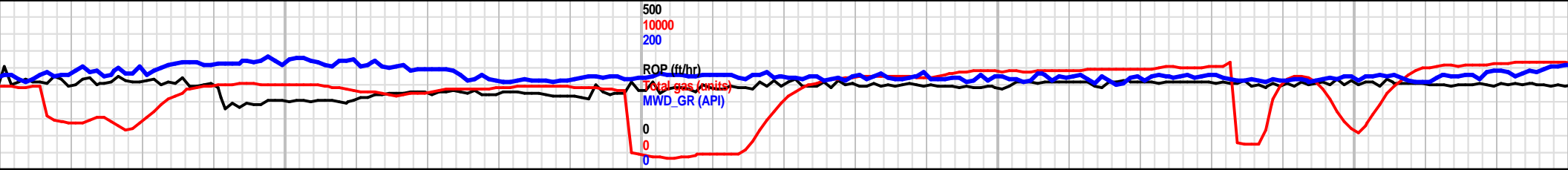






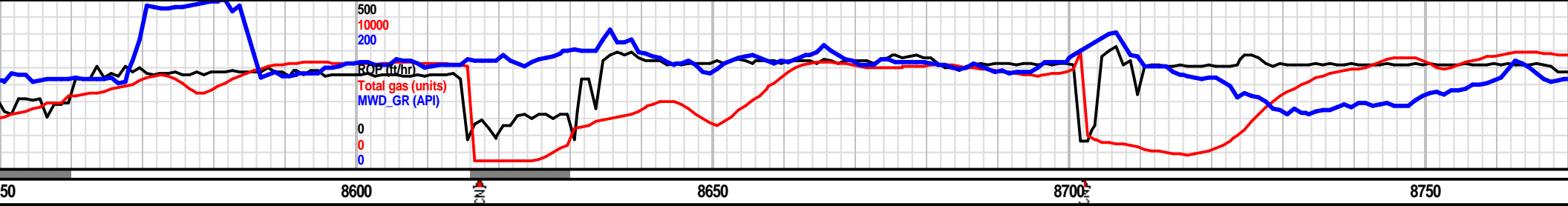




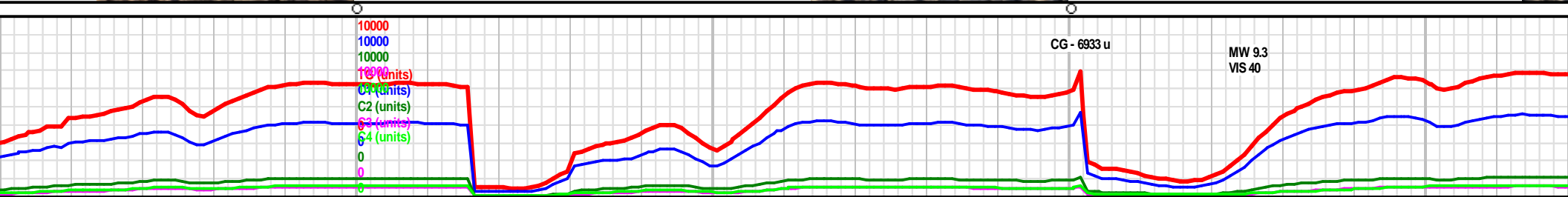


8150										8200										8250										8300									
8/2/14										7160 TVD										Venting Through Gas Buster																			
MD 8124 TVD 7188.43																														MD 8294 TVD 7187.84									
INC 90.1 AZ 267.2																														INC 90.3 AZ 267.5									
VS 681.06																														VS 850.91									



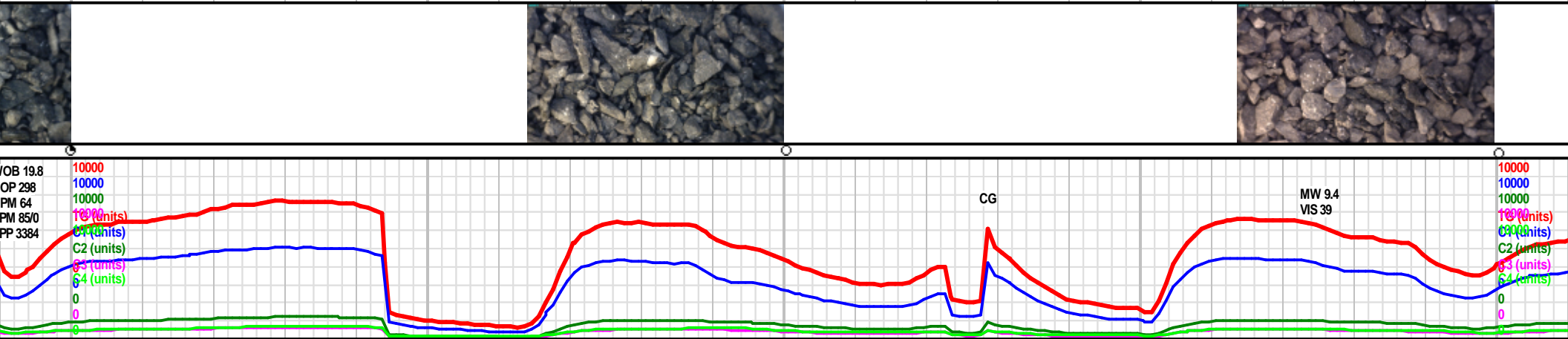
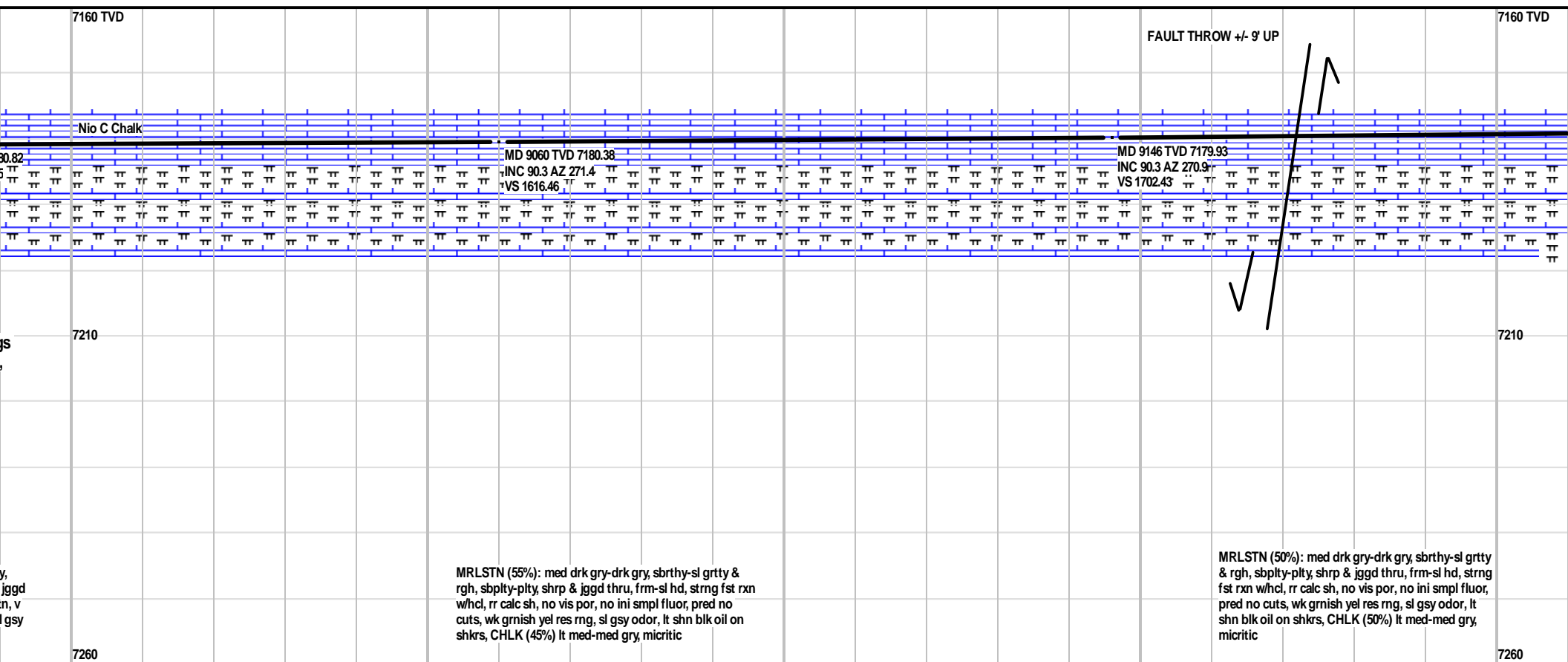


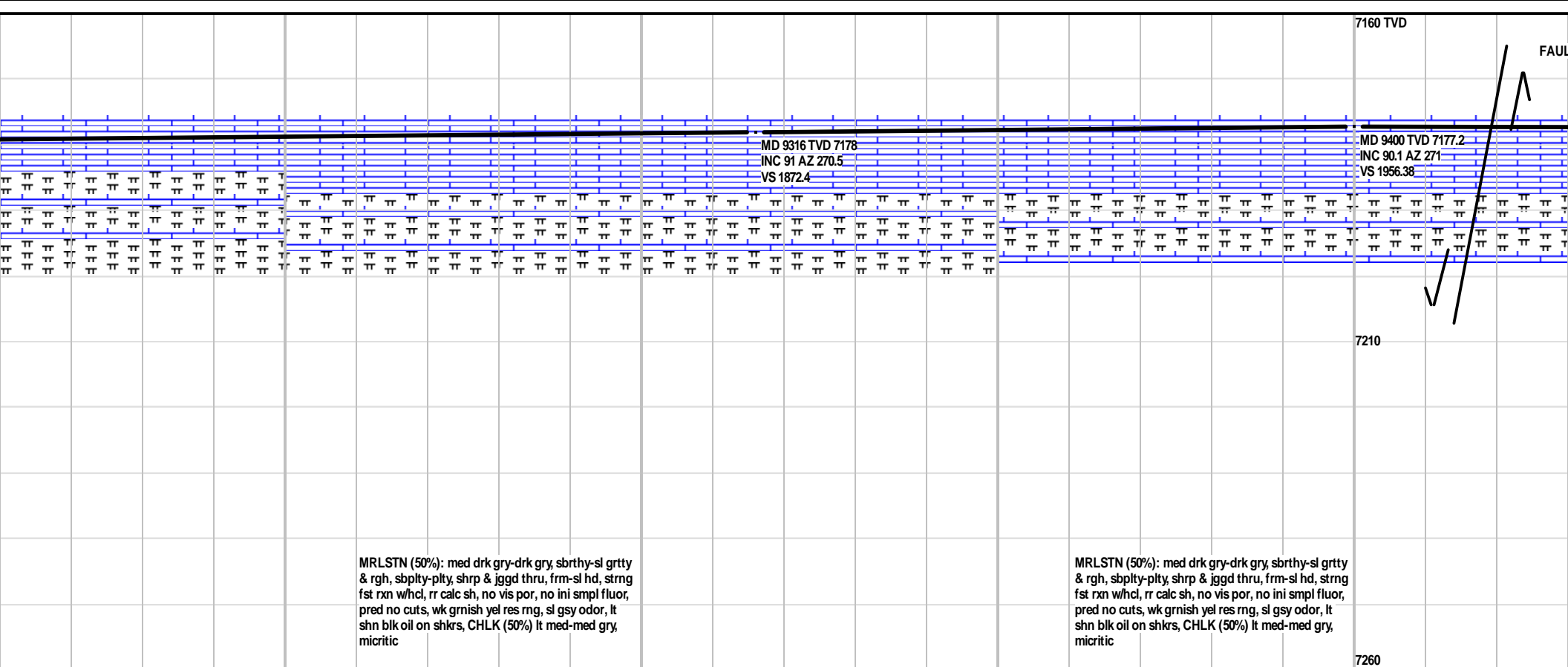
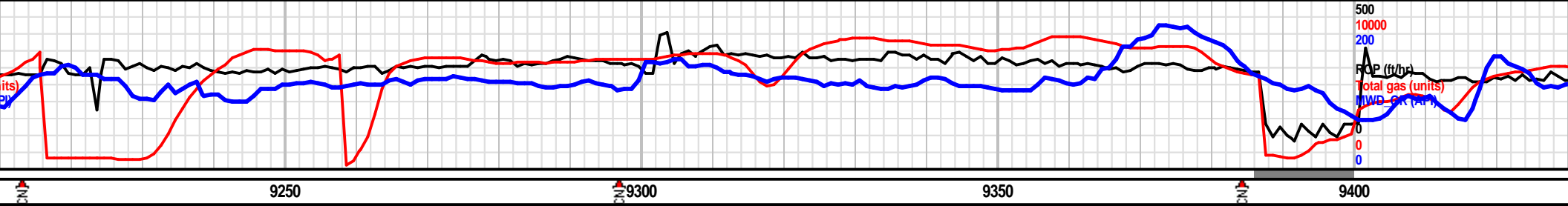
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<p>MRLSTN (70%): med drk gry-drk gry, sbrthy-sl grtty &amp; rgh, sbpity-pty, shrp &amp; jggd thru, frm-sl hd, strng fst rxn whcl, rr calc sh, no vis por, no ini smpl fluor, pred no cuts, wk grnish yel res rng, sl gsy odor, lt shn blk oil on shkrs, CHLK (30%) lt med-med gry, micritic</p>	<p>7210</p>	<p>MRLSTN (75%): med drk gry-gryblk, highly carb mtx fil, sbrthy-sbwxy, sbblky-sl bldd, frm, stiff yet brttl, v calc, no vis por or perm, infrd frac por, no ini fluor, frly slw dif mlky yel cuts, mod mlky yel res rng, sl gsy odor, no vis stn, CHLK (25%) lt med-med gry, micritic</p>			<p>ARG CHLK (80%): brn mcro spts, pred sbblky-sbpity, pty l mic por, rr v dim ne grn cuts, sl petf od shkrs, MARL (20%)</p>	
	<p>7260</p>					





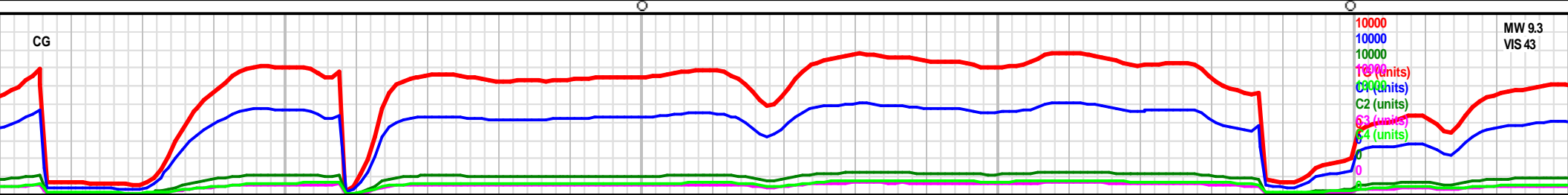


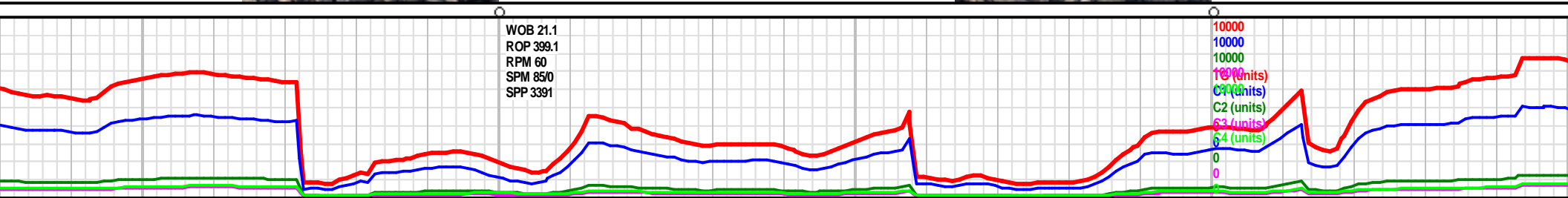
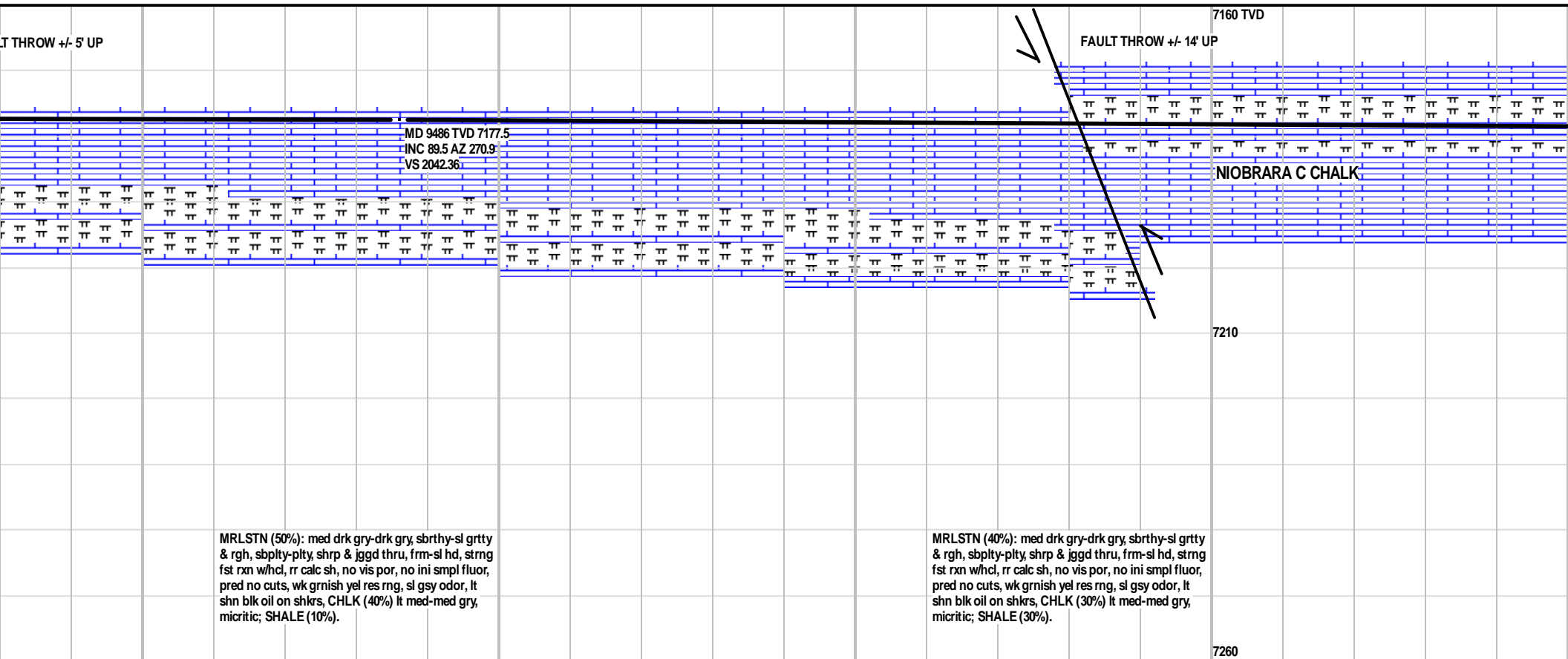


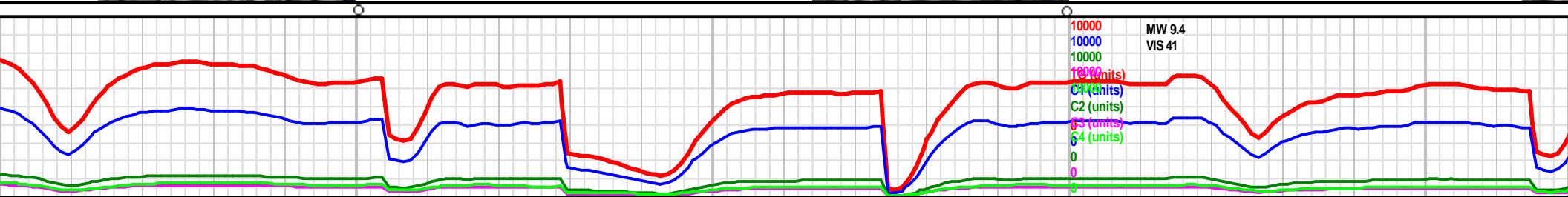
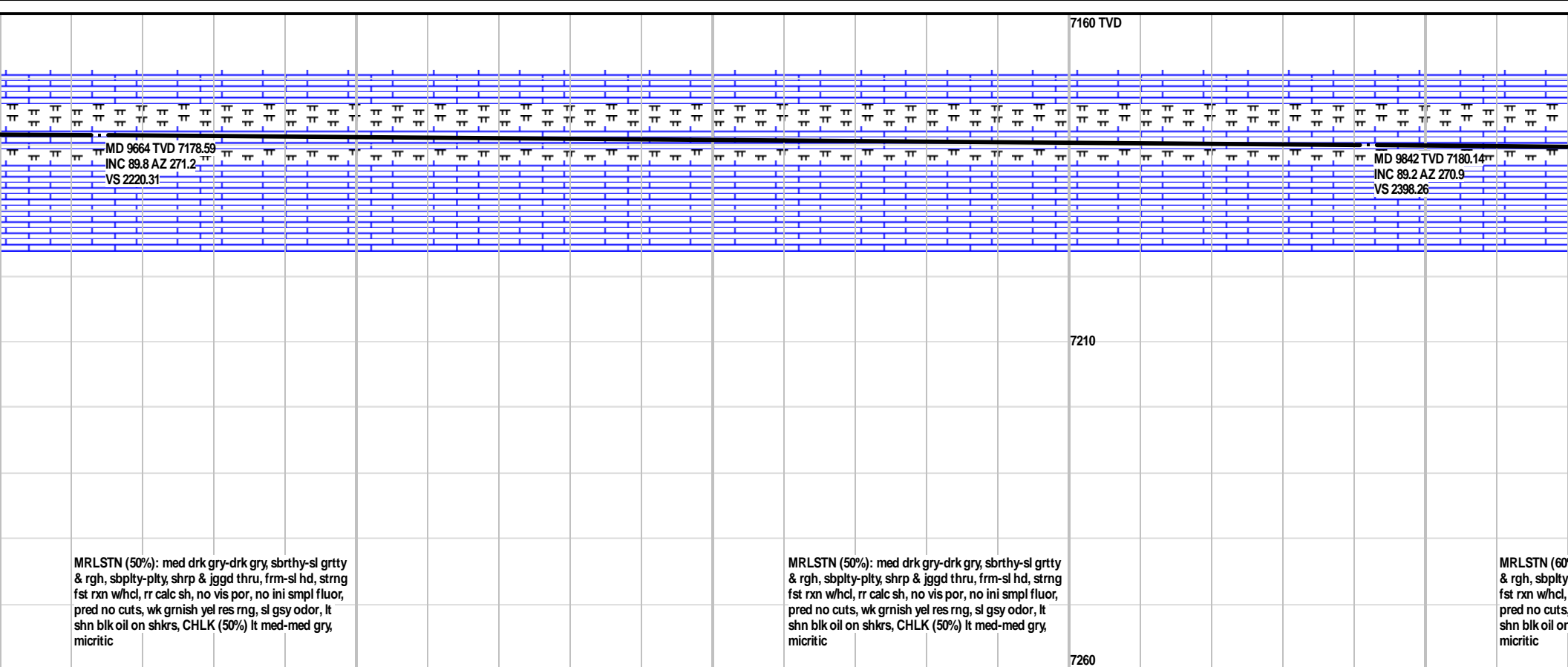
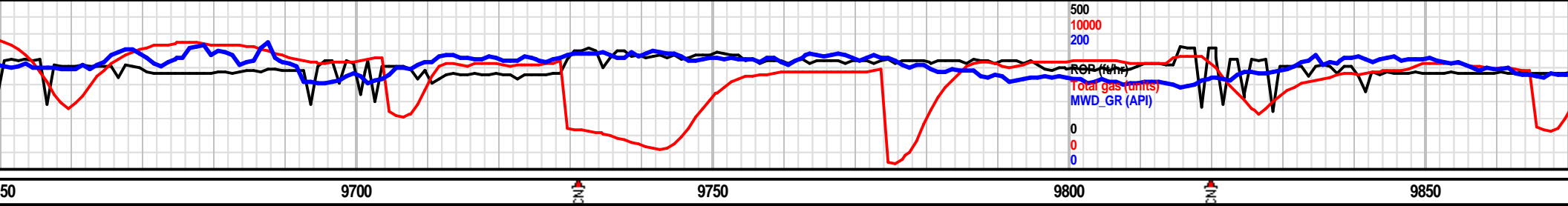


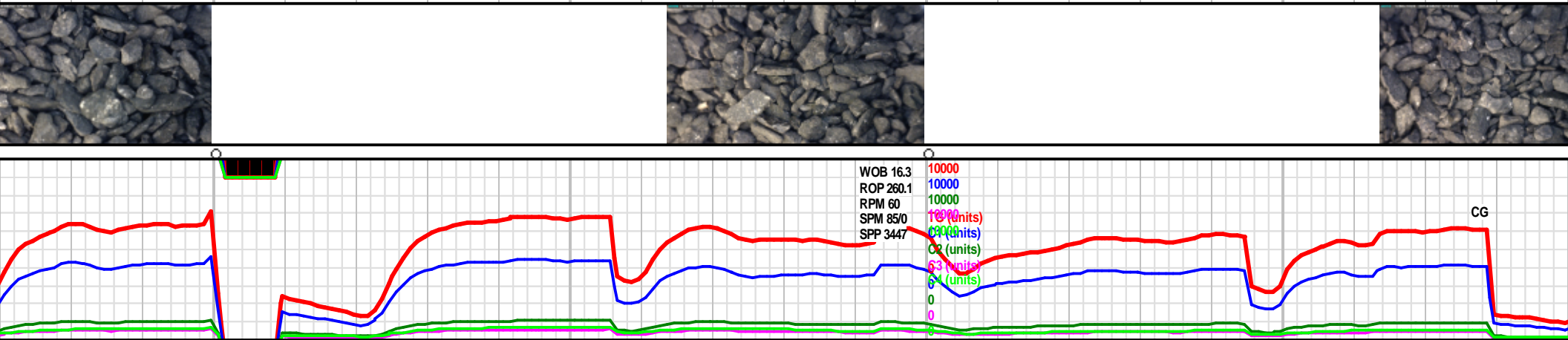
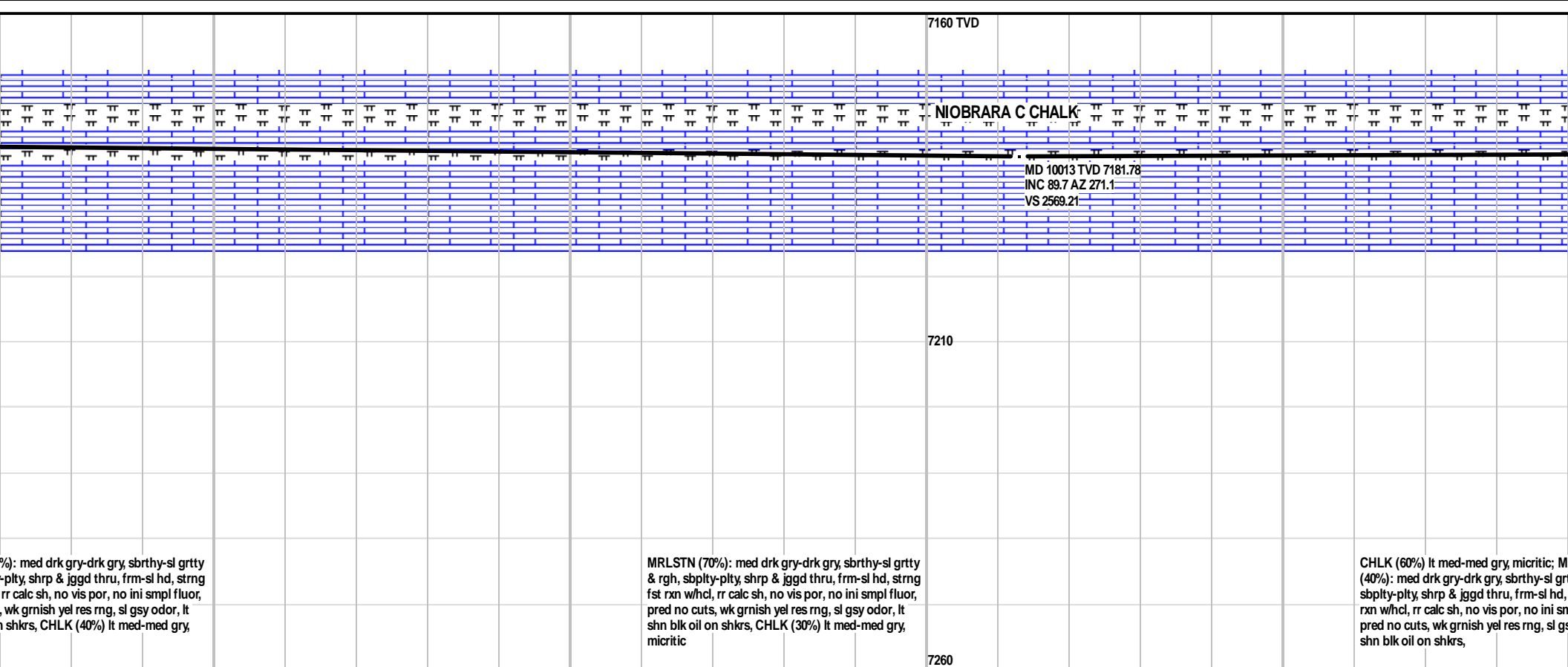
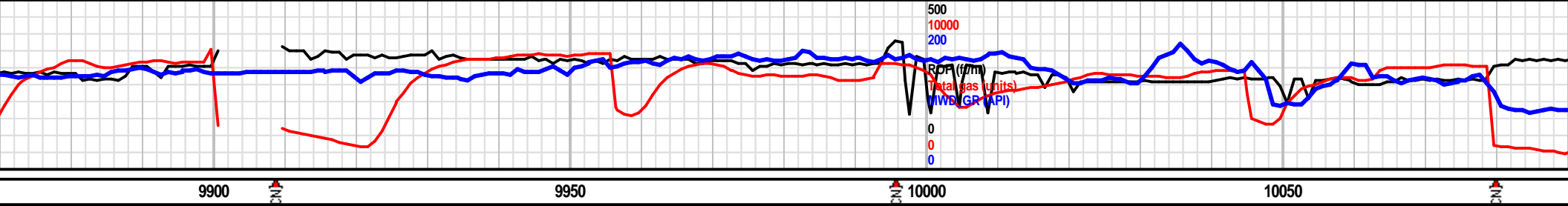
MRLSTN (50%): med drk gry-drk gry, sbrthy-sl grtty & rgh, sbply-pty, shrp & jggd thru, frm-sl hd, strng fst rxn whcl, rr calc sh, no vis por, no ini smpl fluor, pred no cuts, wk grnish yel res rng, sl gsy odor, lt shn blk oil on shkrs, CHLK (50%) lt med-med gry, micritic

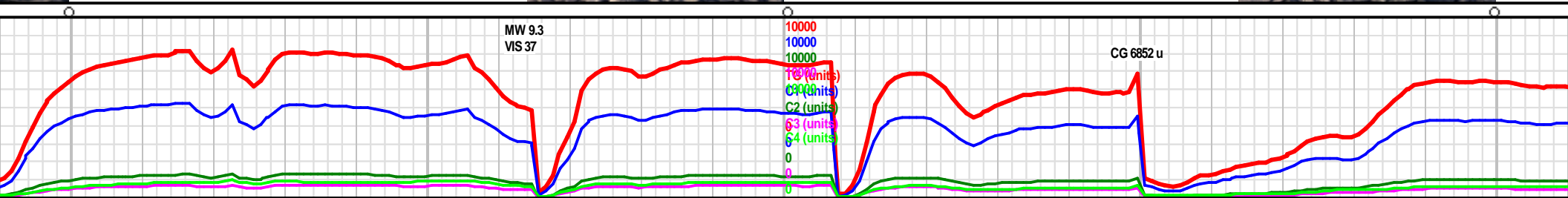
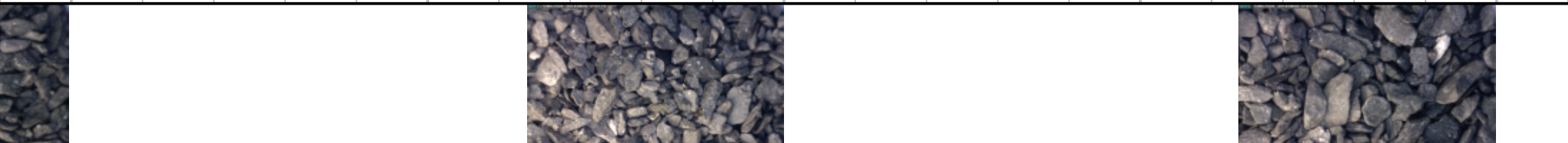
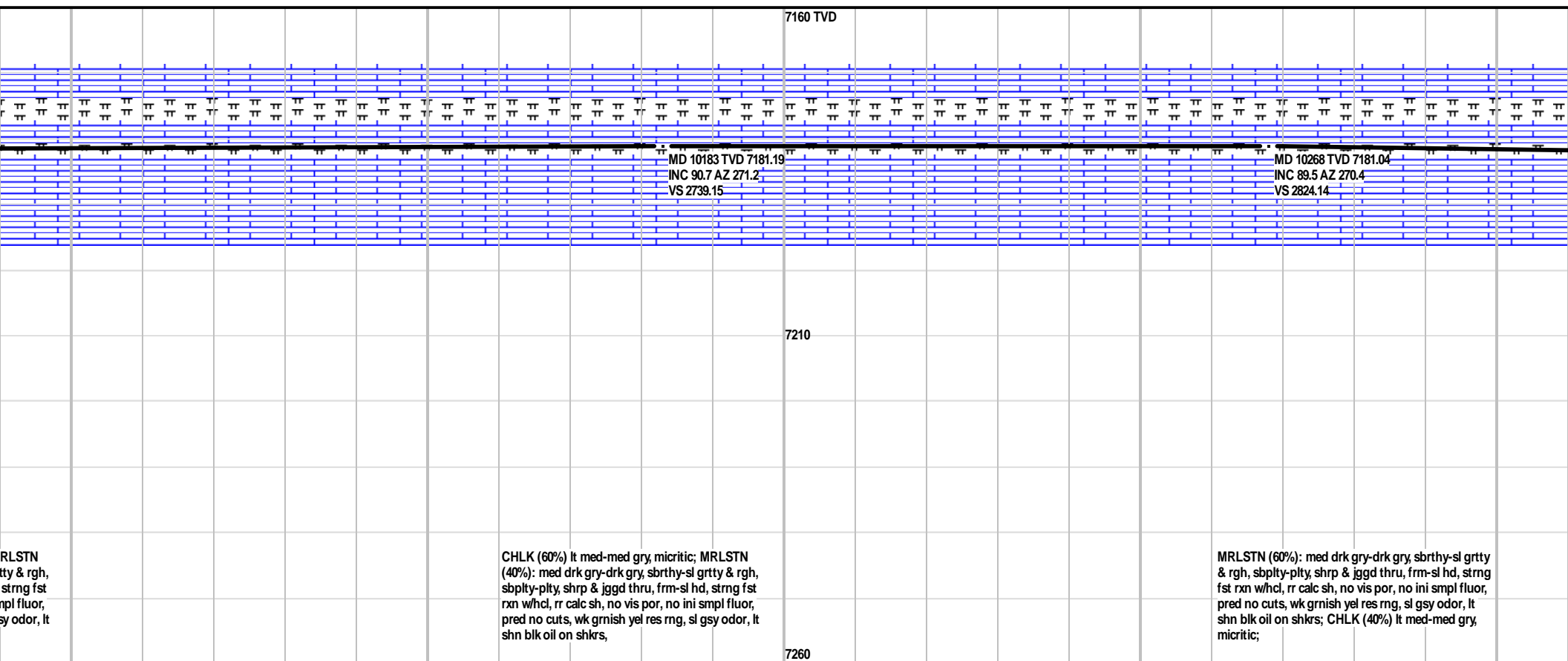
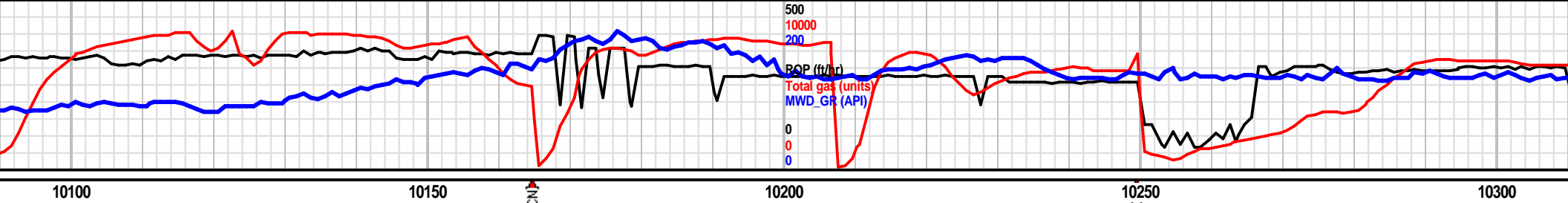
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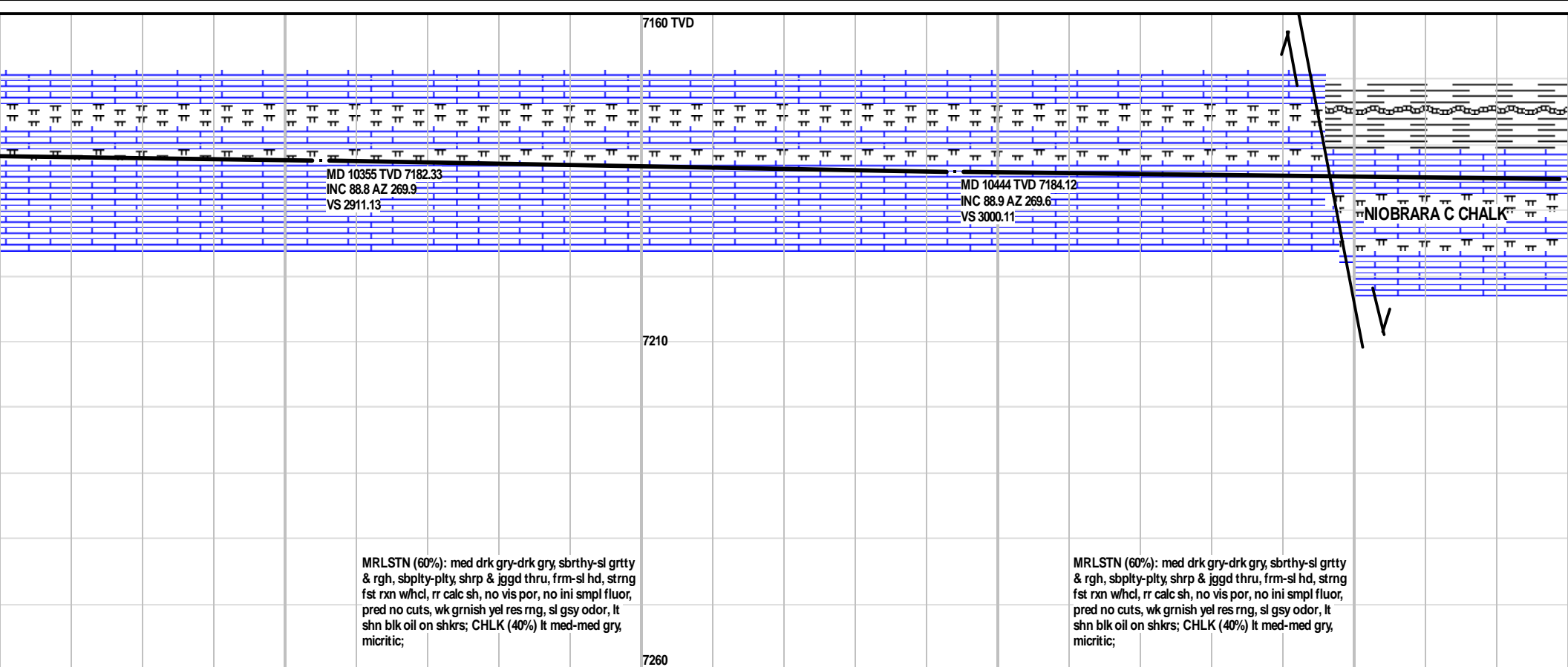
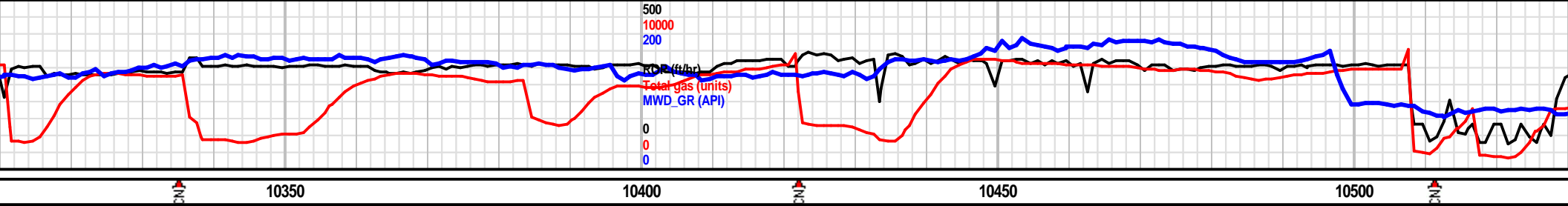






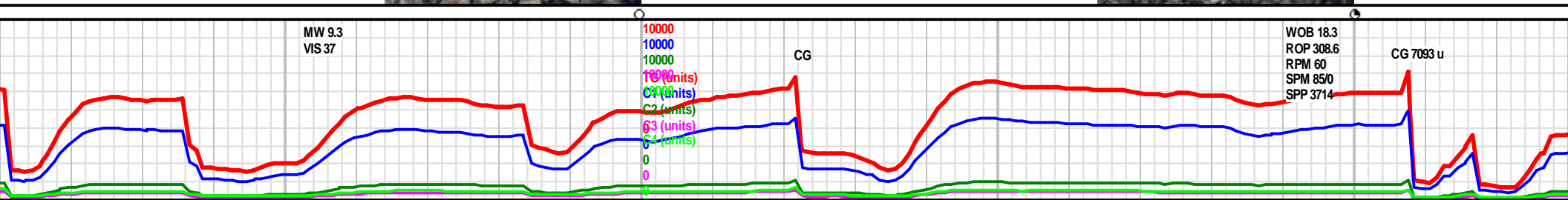


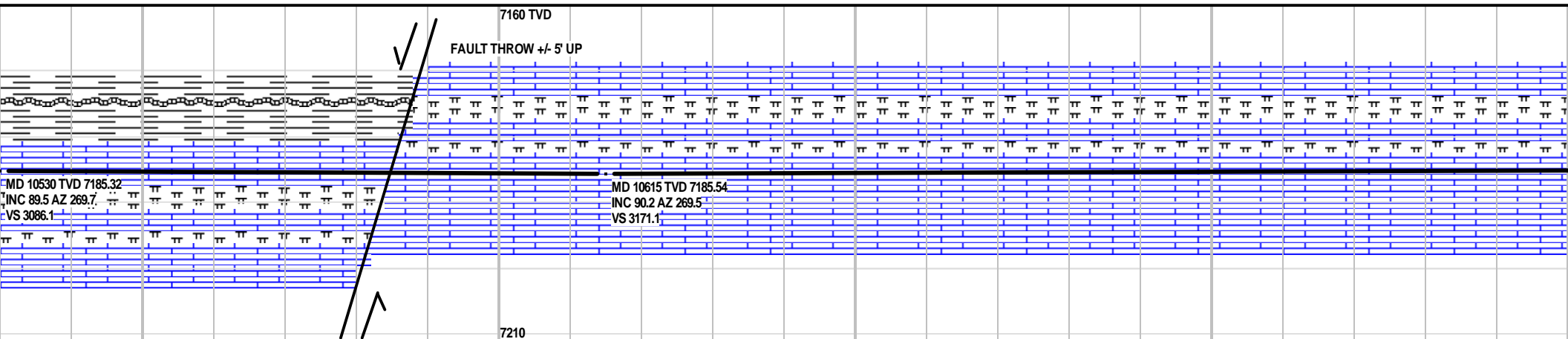
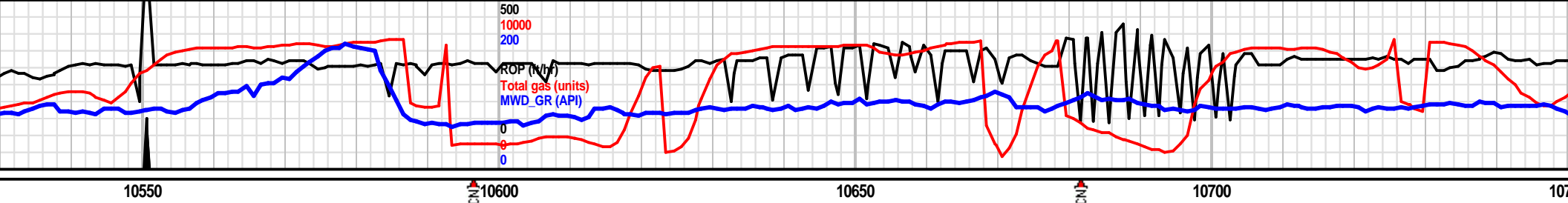




MRLSTN (60%): med drk gry-drk gry, sbtrhy-sl grtty & rgh, sbplty-plty, shrp & jggd thru, frm-sl hd, strng fst rxn whcl, rr calc sh, no vis por, no ini smpl fluor, pred no cuts, wk grnish yel res rng, sl gsy odor, lt shn blk oil on shkrs; CHLK (40%) lt med-med gry, micritic;

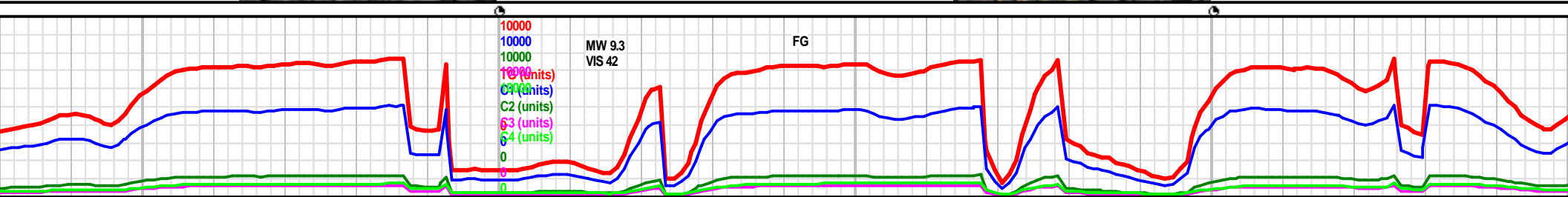
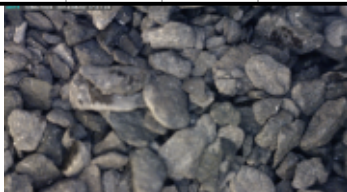
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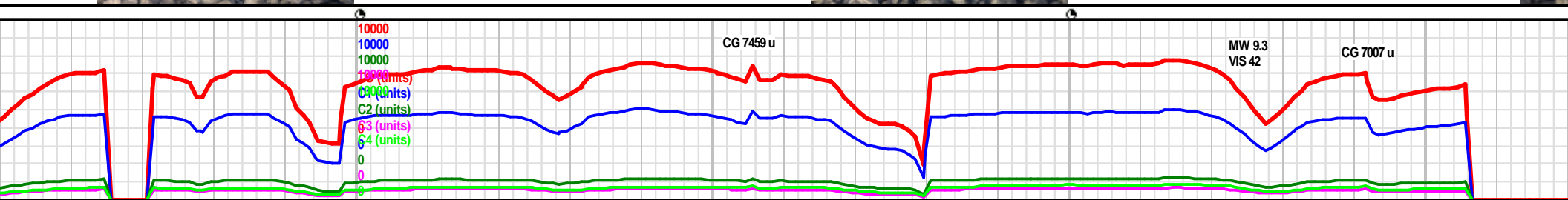
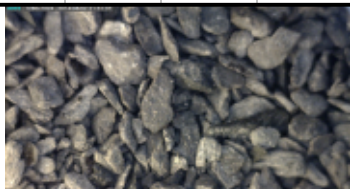
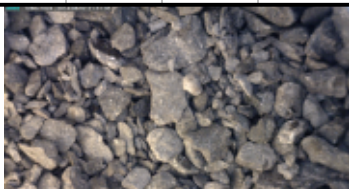
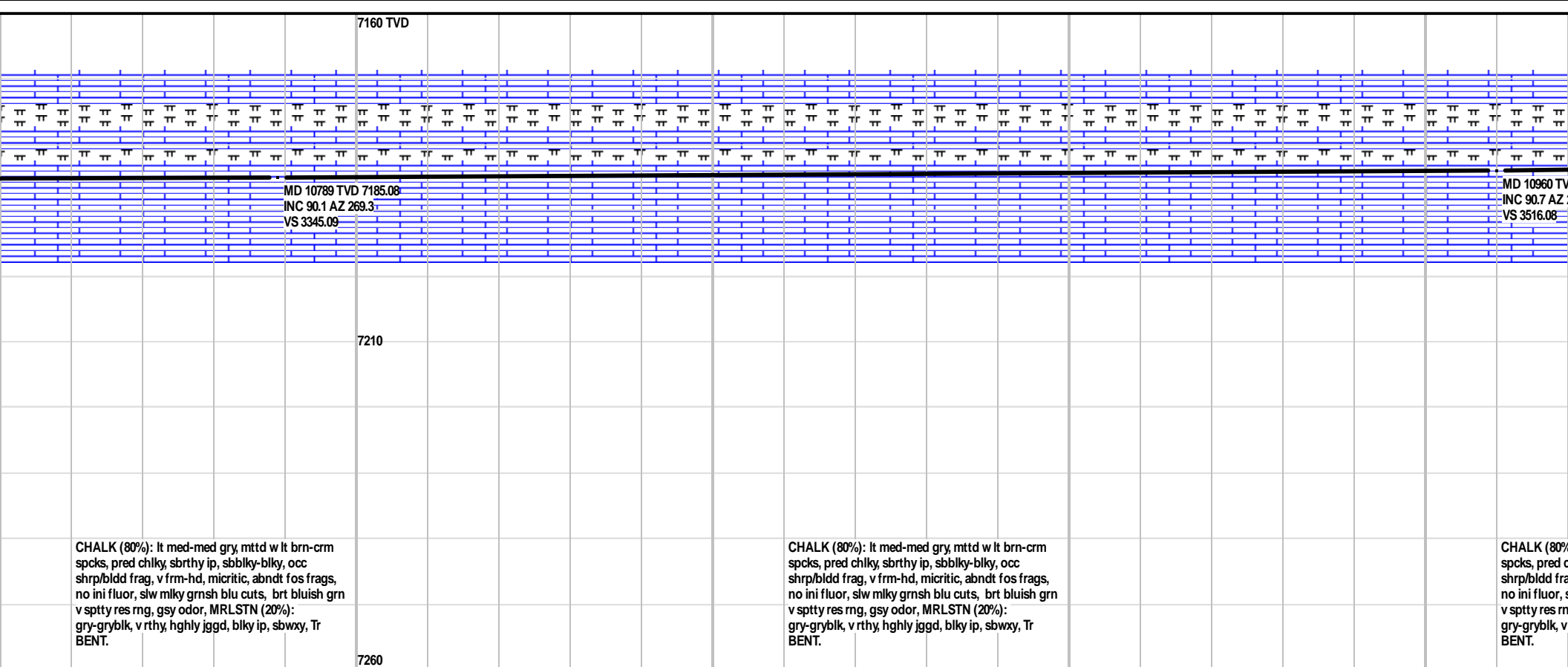
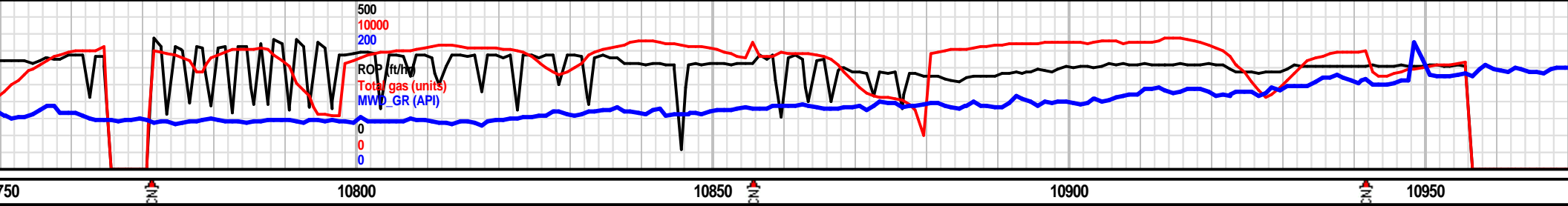


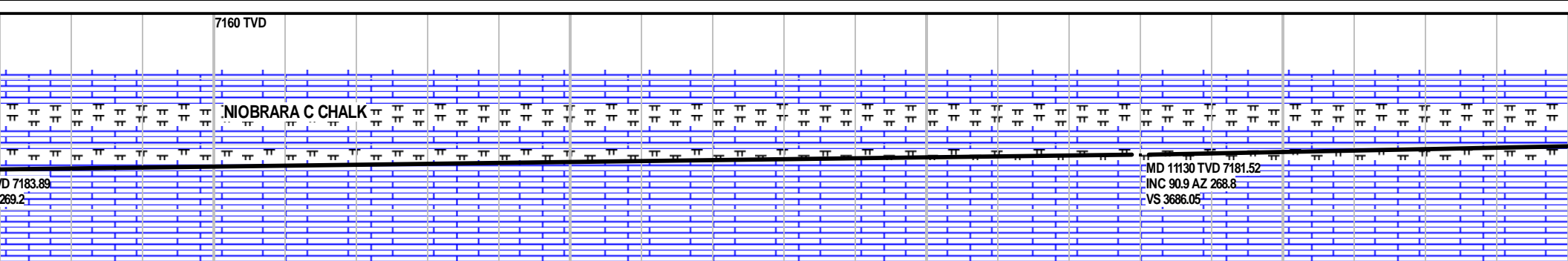
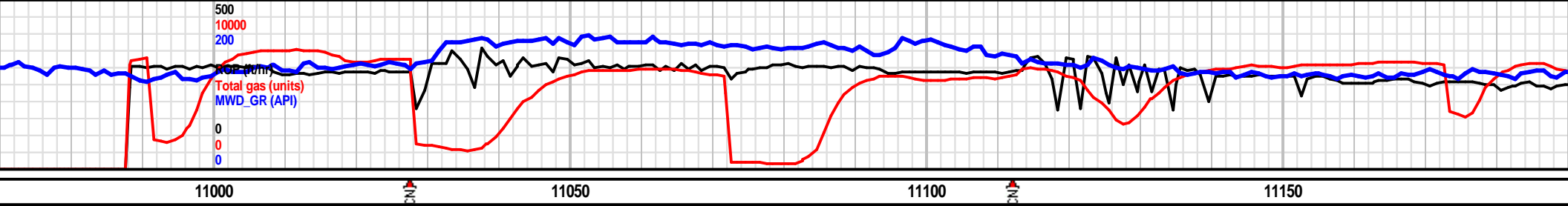


CHALK (80%): lt med-med gry, mtted w lt brn-crm spcks, pred chiky, sbrthy ip, sbbiky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, slw mlky grnsh blu cuts, brt bluish grn v sppty res rng, gsy odor, MRLSTN (20%): gry-gryblk, v rthy, ghgly jggd, blk ip, sbwxy, Tr BENT.

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







7160 TVD

NIOBRARA C CHALK

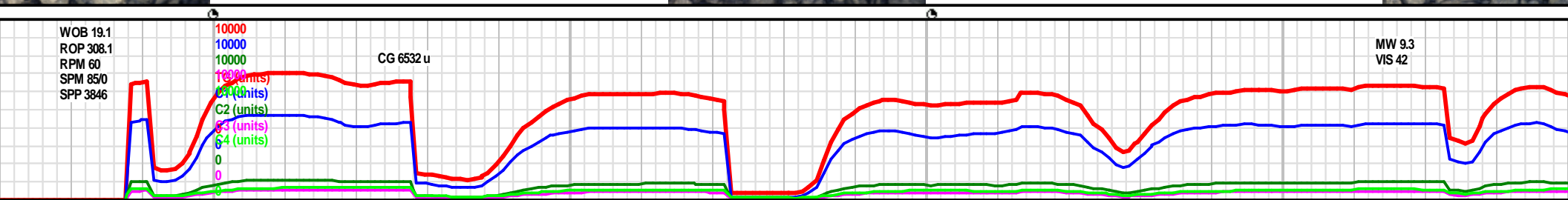
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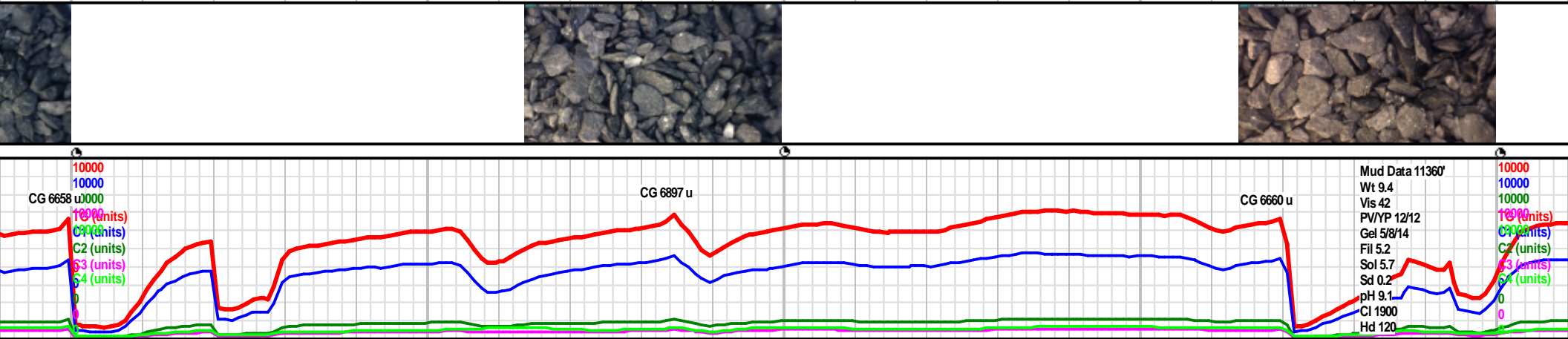
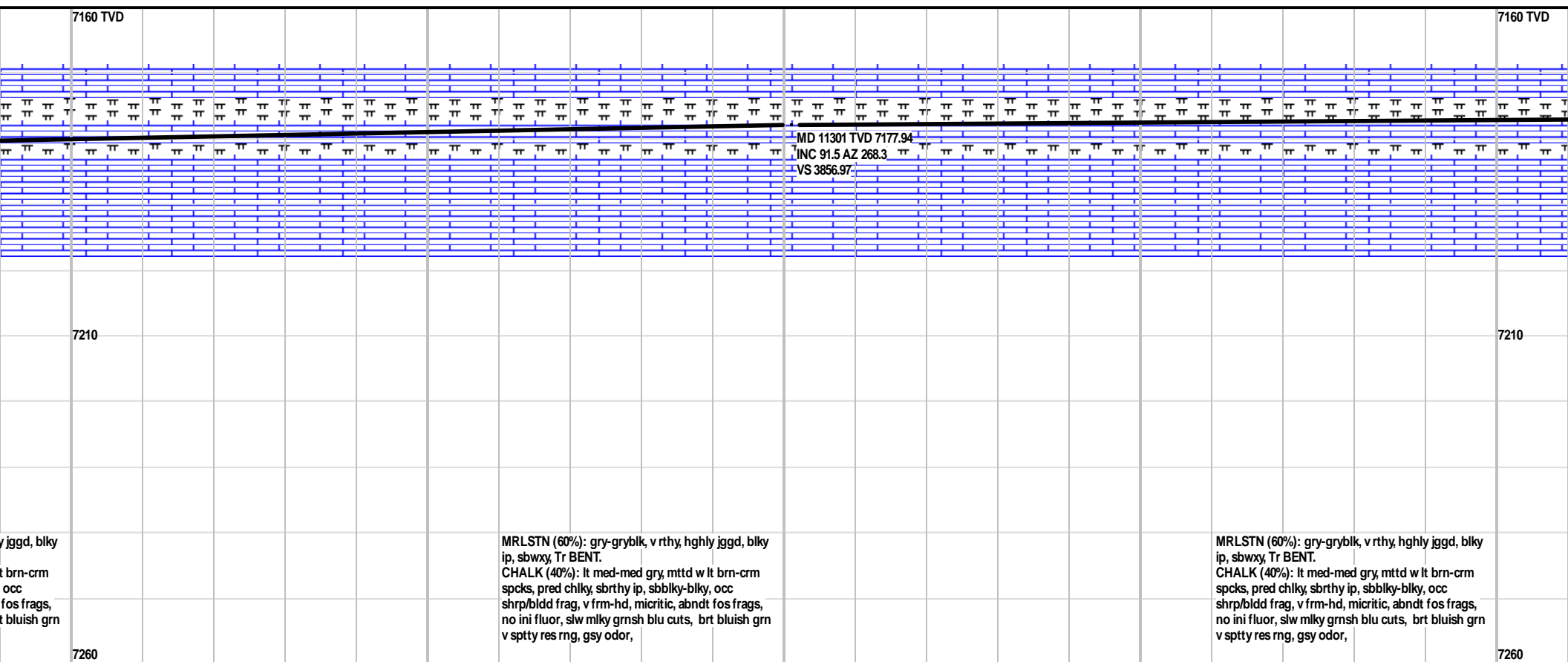
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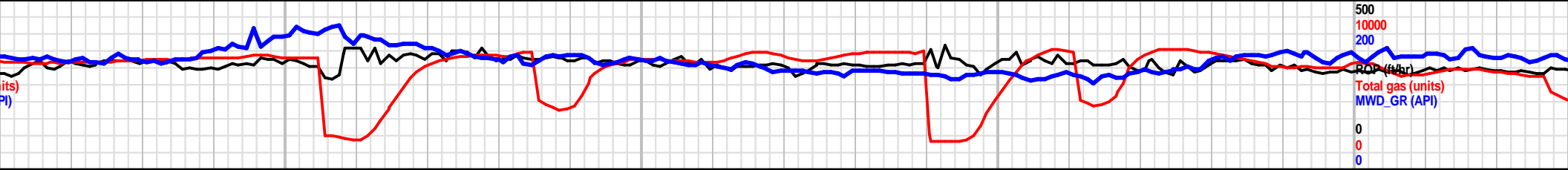
MD 11130 TVD 7181.52  
INC 90.9 AZ 268.8  
VS 3686.05

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CHALK (20%): lt med-med gry, mttdd w lt brn-crm spcks, pred chlky, sbtrthy ip, sbblky-blky, occ shrp/bldd frag, v frm-hd, micritic, abndt fos frags, no ini fluor, slw mlky grnsh blu cuts, brt bluish grn v spty res rng, gsy odor,

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







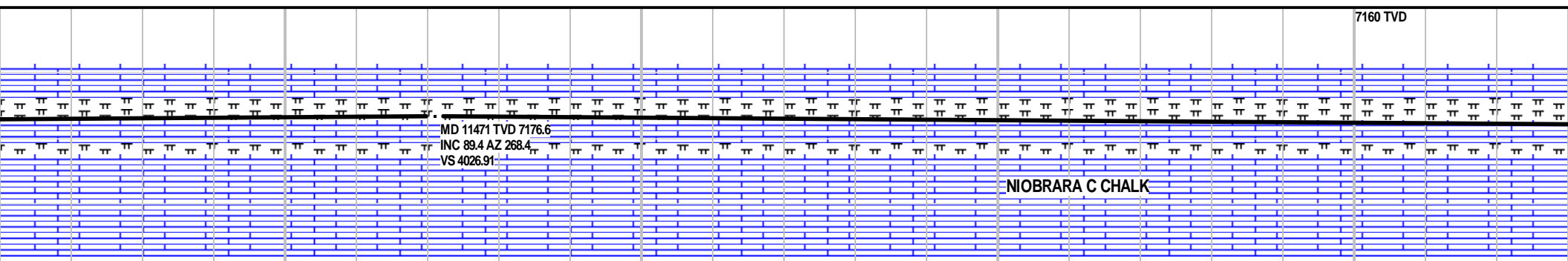
11450

11500

11550

11600

11600



7160 TVD

7210

MRLSTN (65%): med drk gry-drk gry, sbrthy-sl grtty & rgh, sbplty-plty, shrp & jggd thru, frm-sl hd, strng fst rxn whcl, rr calc sh, no vis por, no ini smpl fluor, pred no cuts, wk grnish yel res rng, sl gsy odor, lt shn blk oil on shkrs, CHLK (35%) lt med-med gry, micritic

MRLSTN (75%): med drk gry-drk gry, sbrthy-sl grtty & rgh, sbplty-plty, shrp & jggd thru, frm-sl hd, strng fst rxn whcl, rr calc sh, no vis por, no ini smpl fluor, pred no cuts, wk grnish yel res rng, sl gsy odor, lt shn blk oil on shkrs; CHLK (25%) lt med-med gry, micritic

7260



MW 9.4  
VIS 42

WOB 20.1  
ROP 319.8  
RPM 60  
SPM 85/0  
SPP 4025

10000  
10000  
10000  
10000 (units)  
C1 (units)  
C2 (units)  
C3 (units)  
C4 (units)  
0  
0  
0

