

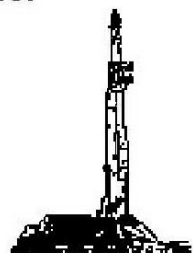
**GOOLSBY BROTHERS**  
and associates, inc.

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 1C-5HZ

API: 05123391920000

Location: Section 8, T1N, R67W

License Number:

Spud Date: June 8, 2014

Surface Coordinates: NENE Sec 8 T1N R67W; 500' FNL, 1260' FEL

LAT: 40° 07'14.21 N LONG: 104° 90'96.18 W

Bottom Hole Coordinates: NENE Sec 5 T1N R67W; 458' FNL; 652' FEL

Ground Elevation (ft): 5009'

Logged Interval (ft): 7400'

To: 12856'

Formation: Pierre Shales/Sands, Niobrara, Fort Hays, Codell Sandstone (Target)

Type of Drilling Fluid: Water & Poly to 6000', LSND 6000'-12856'

K.B. Elevation (ft): 5025'

Total Depth (ft): 12856' DMTD

Region: Wattenberg, DJ Basin

Drilling Completed: June 19, 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 & 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 7100' - 12816'

## Casing

9 5/8" Surface Casing set @ 1,279' MD


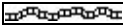
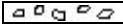


7" Intermediate Casing set @ 8,009' MD



4 1/2" Production Liner hung 06/20/2014, landed @ 12,846' MD


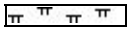

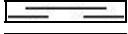

## Comments






- 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

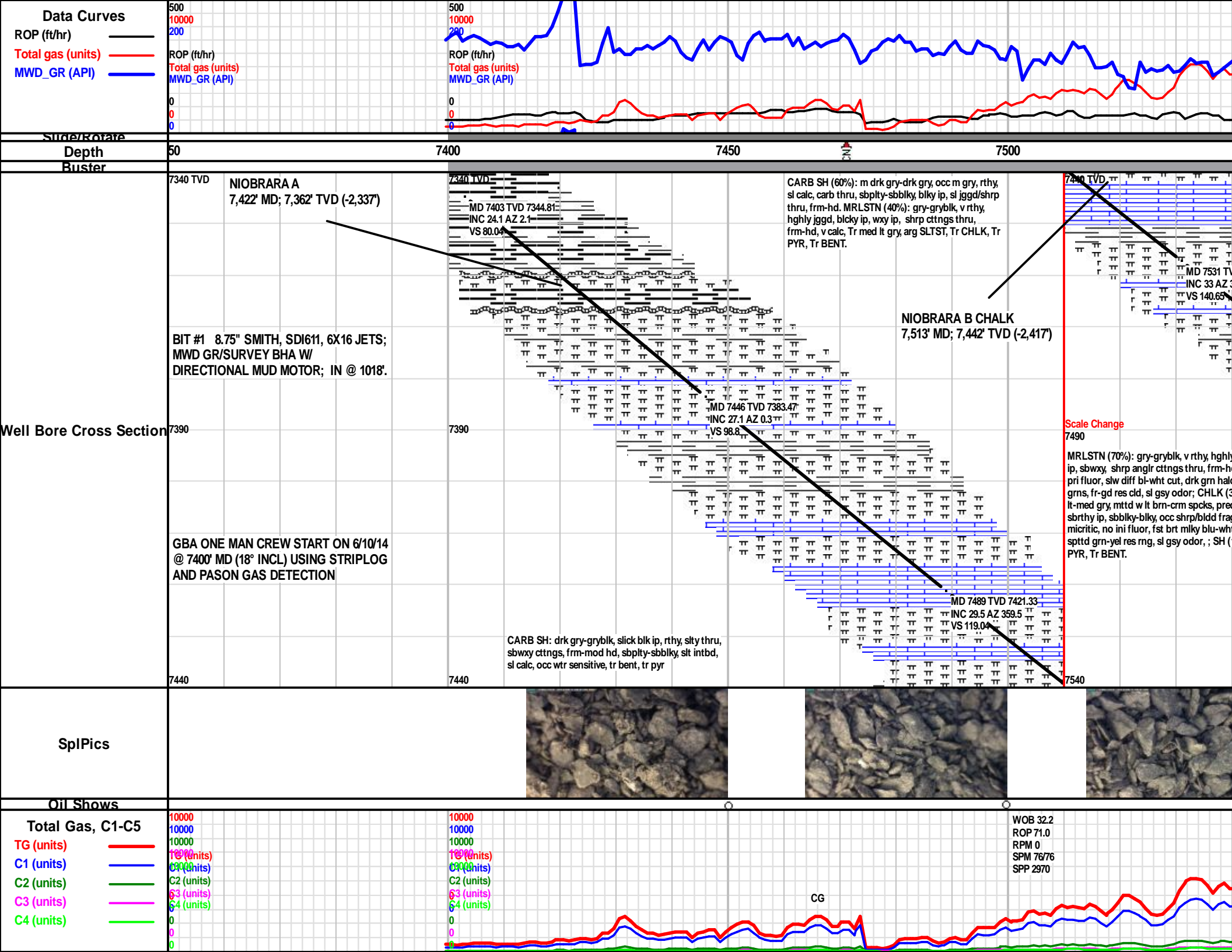
- Inter
- Moldic
- Organic
- Pinpoint
- Vuggy

### ROUNDING

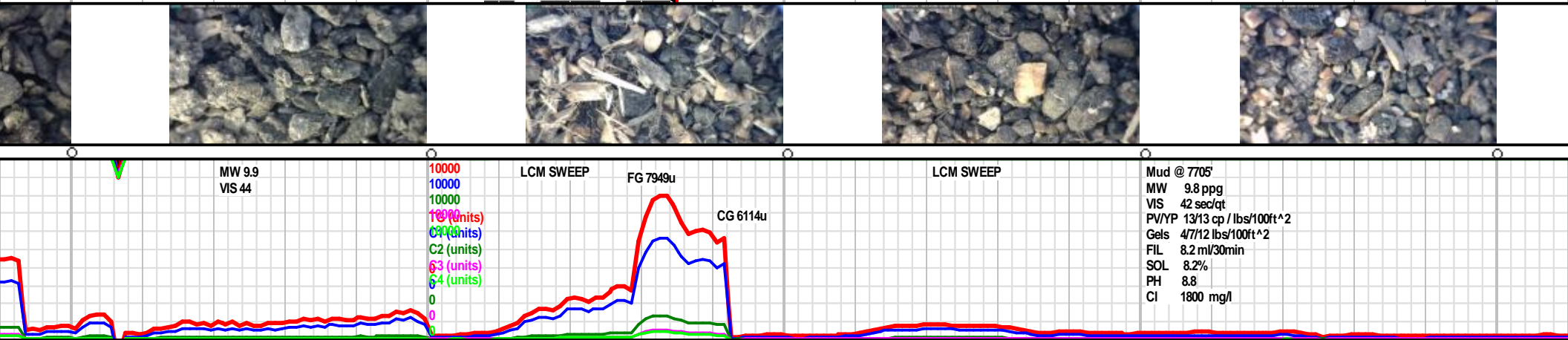
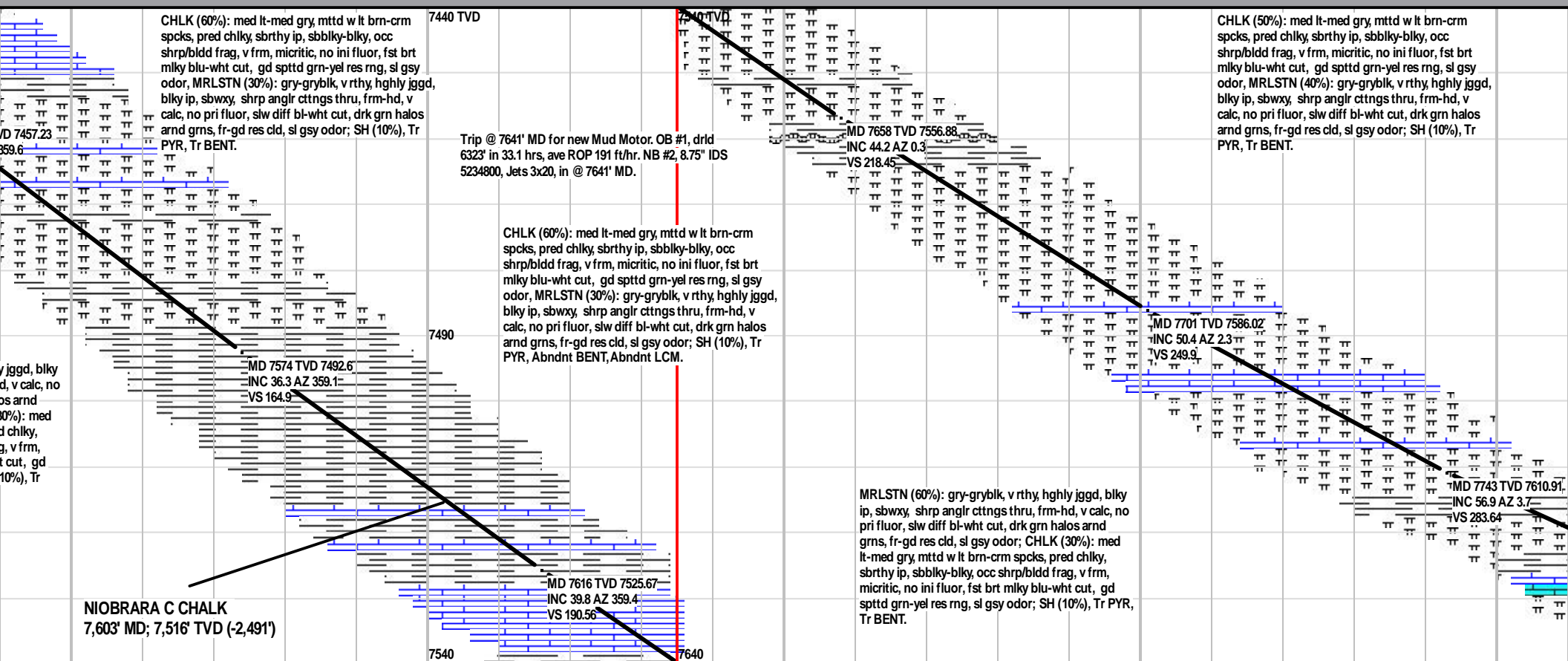
- Rounded
- Subrnd
- Subang
- Angular

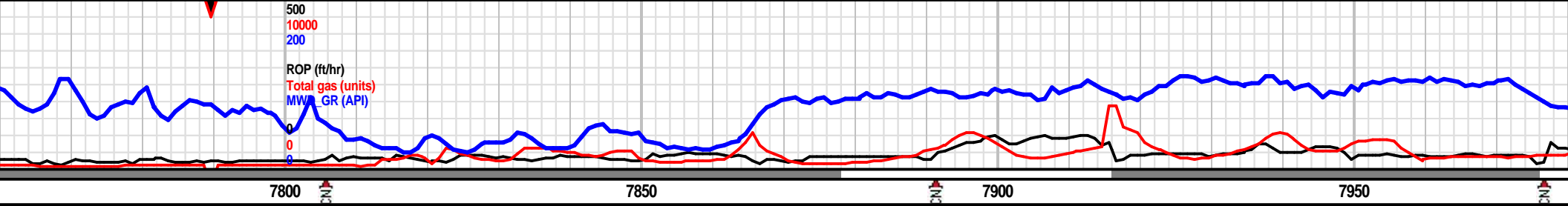
### SORTING

- Well
- Moderate
- Poor









FT HAYS LIMESTONE  
7,805' MD; 7,640' TVD (-2,615')

MRLSTN (60%): gry-gryblk, v rthy, hghly jggd, blkly ip, sbwxy, shrp anglr ctngs thru, frm-hd, v calc, no pri fluor, slw diff bl-wht cut, drk grn halos arnd grns, fr-gd res cld, sl gsy odor; CHLK (30%): med lt-med gry, mttld w lt brn-crm spcks, pred chlky, sbtrhy ip, sbblky-blky, occ shrp/bldd frag, v frm, micritic, no ini fluor, fst brt mlky blu-wht cut, gd spptd grn-yel res rng, sl gsy odor; SH (10%), Tr PYR, Tr BENT.

Scale Change  
7690

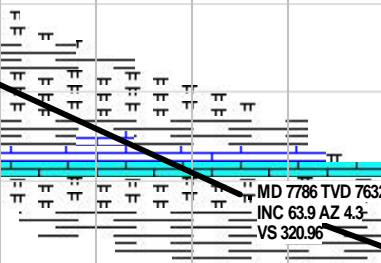
CODELL SANDSTONE  
7,865' MD; 7,661' TVD (-2,636')

LS (80%): lt gry to wht, blkly, rthy, occ shly, crypto-micro xln w/occ lt brn ntrbd, occ fos bndstn, shly ip, fiss ip, clayey, v slt, no ini flo, wk mlky blu-grn cut, wk spptd grn-yel res rng, MRLSTN (10%), SH (10%), Tr PYR.

LS (50%): lt gry to wht, blkly, rthy, occ shly, crypto-micro xln w/occ lt brn ntrbd, occ fos bndstn, shly ip, fiss ip, clayey, v slt, no ini flo, wk mlky blu-grn cut, wk spptd grn-yel res rng, MRLSTN (40%), SH (10%), Tr PYR.

SANDSTONE (80%): lt-med to drk tanish gry, pred vf grns, sbnd-ang, mod srt, pr-mod cly cmttd, fri ip, hghly arg fild mttx, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spptd res grnsh blu cld, gsy odor, LMSTN (10%), MRLSTN (10%), Tr Bent.

SANDSTONE (80%): lt-med to drk tanish gry, pred vf grns, sbnd-ang, mod srt, pr-mod cly cmttd, fri ip, hghly arg fild mttx, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spptd res grnsh blu cld, gsy odor, LMSTN (10%), MRLSTN (10%), Tr Bent.



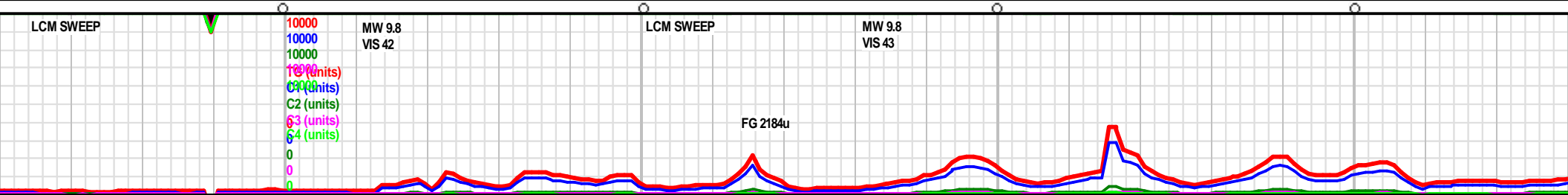
LCM SWEEP

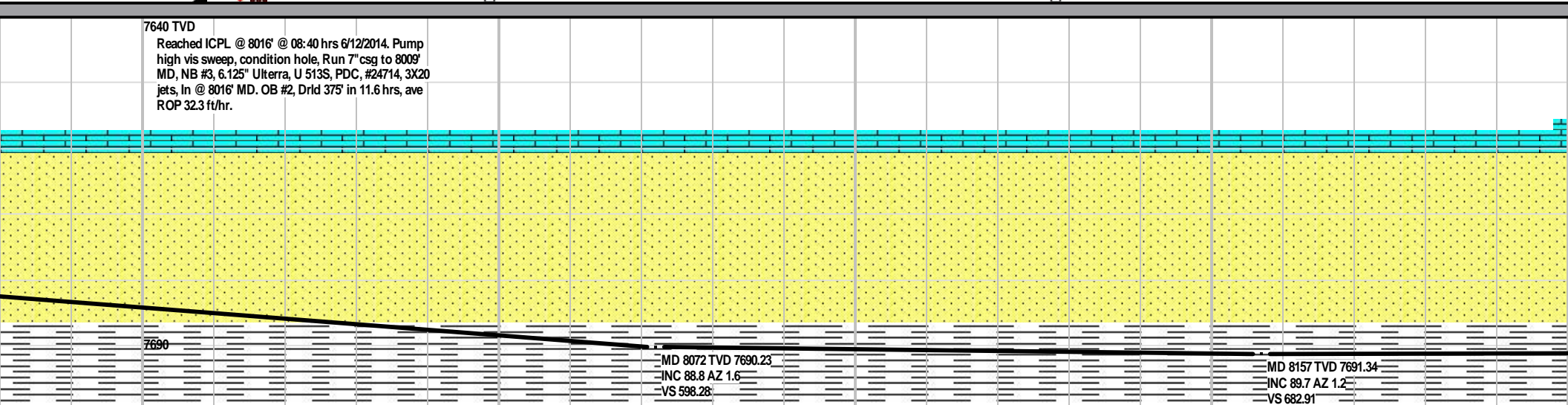
MW 9.8  
VIS 42

LCM SWEEP

MW 9.8  
VIS 43

FG 2184u





**Begin Catching 100' Samples at 8000' MD**

est 8% vis por, no ini  
ts, wk strm yel, spttd res  
MSTN (10%), MRLSTN

**SHALE (90%):** m drk gry-drk gry, occ m gry, rthy, sbplty-sbbly, blkly ip, sl jggd/shrp thru, frm-hd, no ini flour fst mlky grnish yel cut, gd res blu cld, SS (10%), Tr CMT

**SHALE (90%):** m drk gry-drk gry, occ m gry, rthy, sbplty-sbblky, blk ip, sl jggd/shrp thru, frm-hd, ini flour fst mlky grnsh yel cut, gd res blu cld, SS (10%), Tr CMT



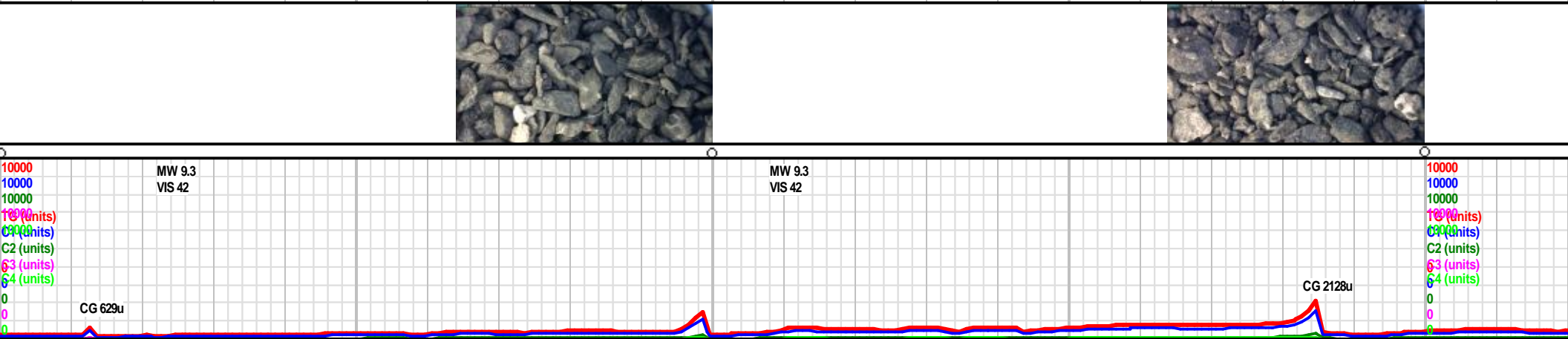
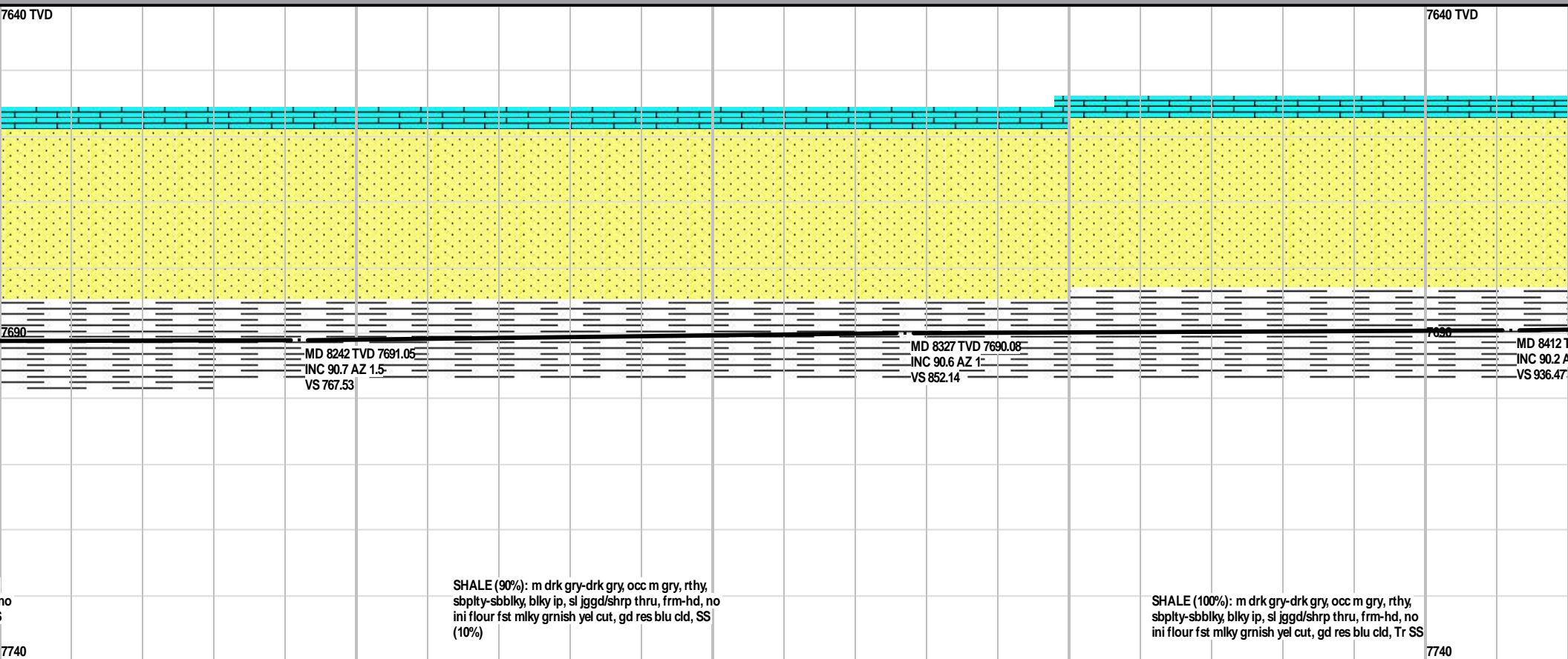
MW 9.8	10000
VIS 44	10000
	10000
	10000 (units)
	10000 (units)
	C2 (units)
	63 (units)
	64 (units)

WOB 39.3  
ROP 36.8  
RPM 0  
SPM 71/71  
SPP 3134

LCM SWEEP

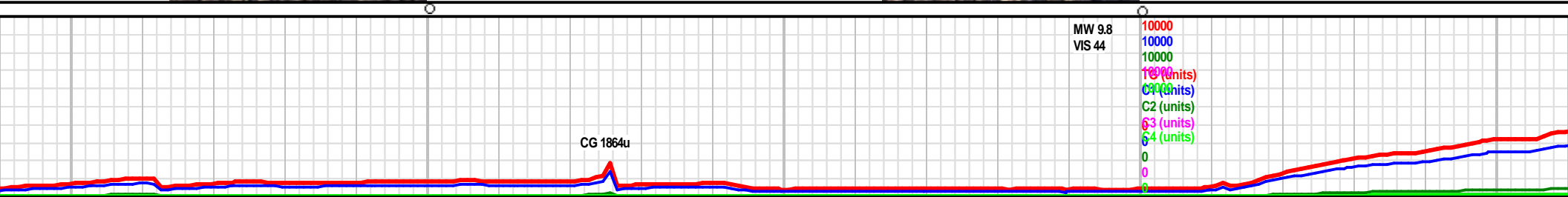
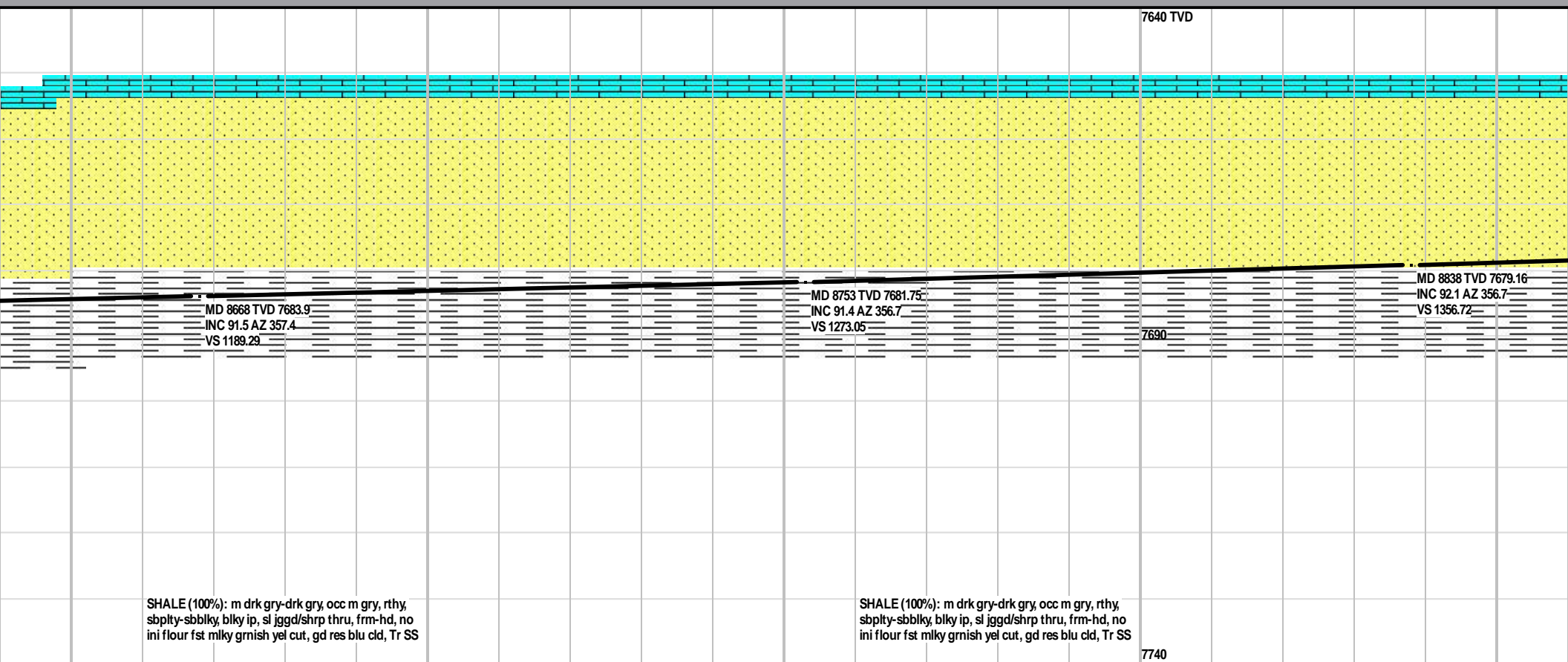
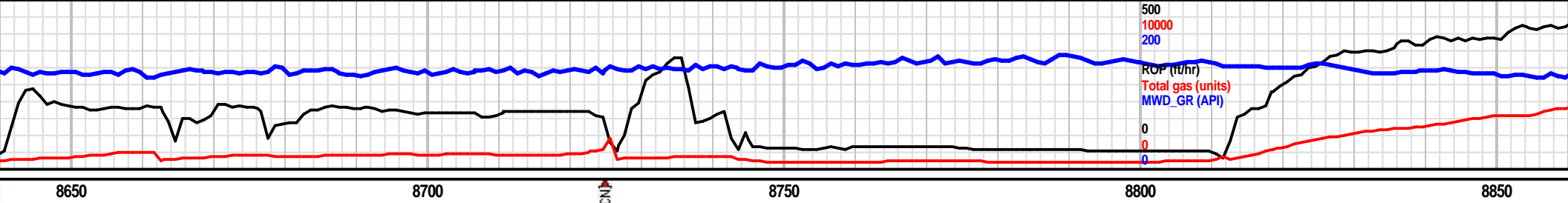
MW 9.4  
VIS 41

CG

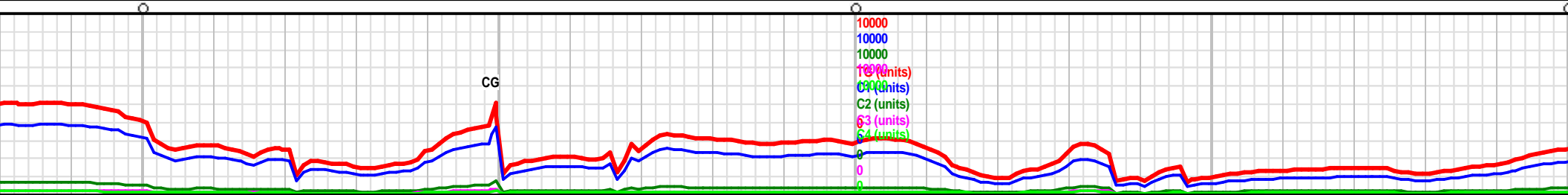
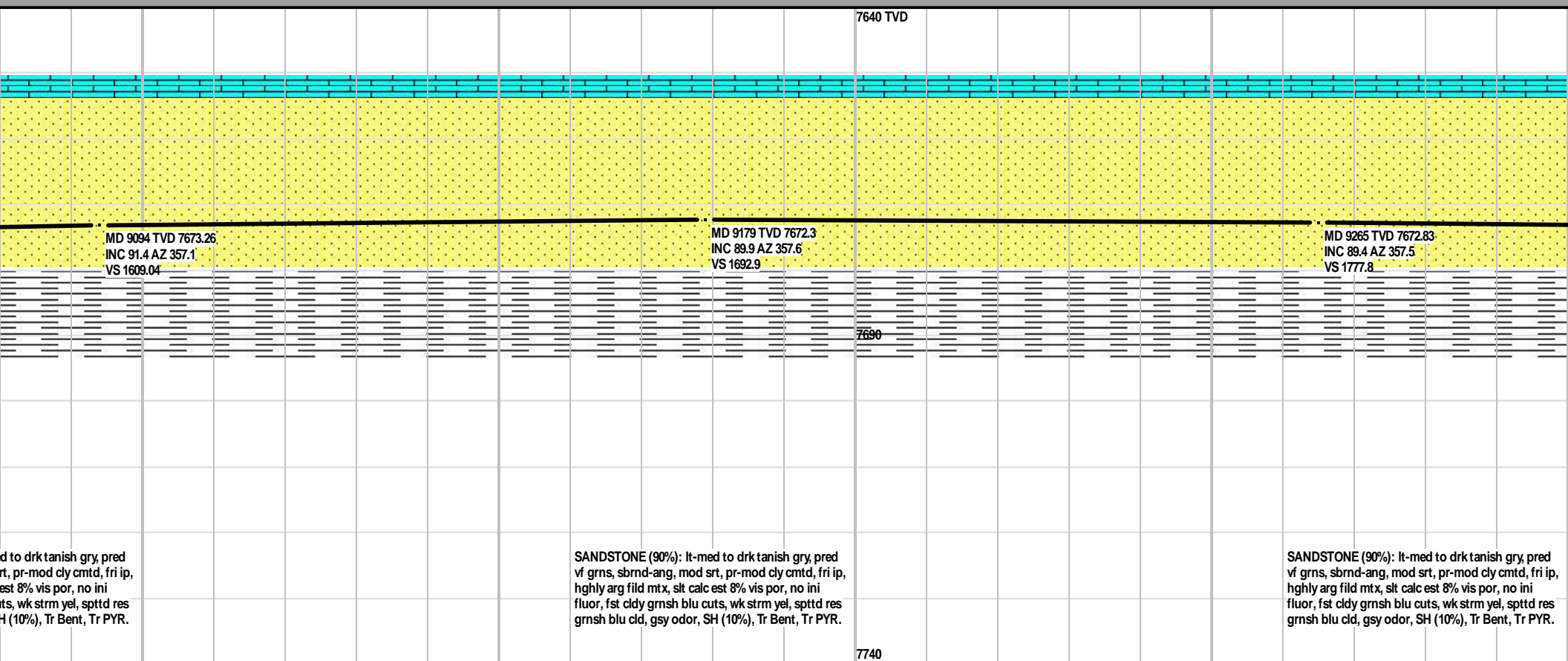
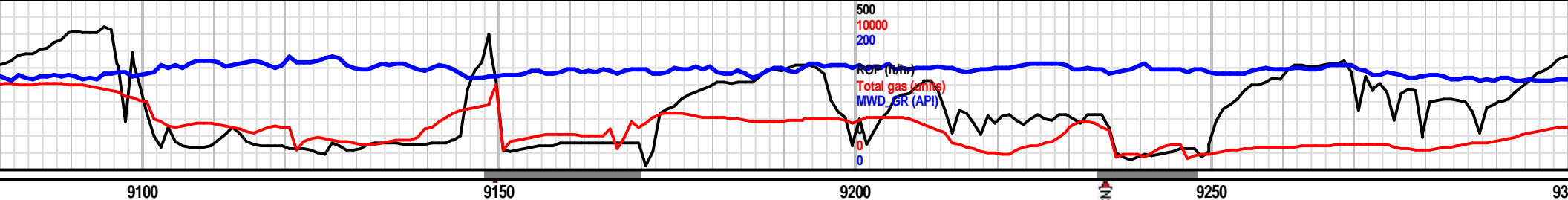




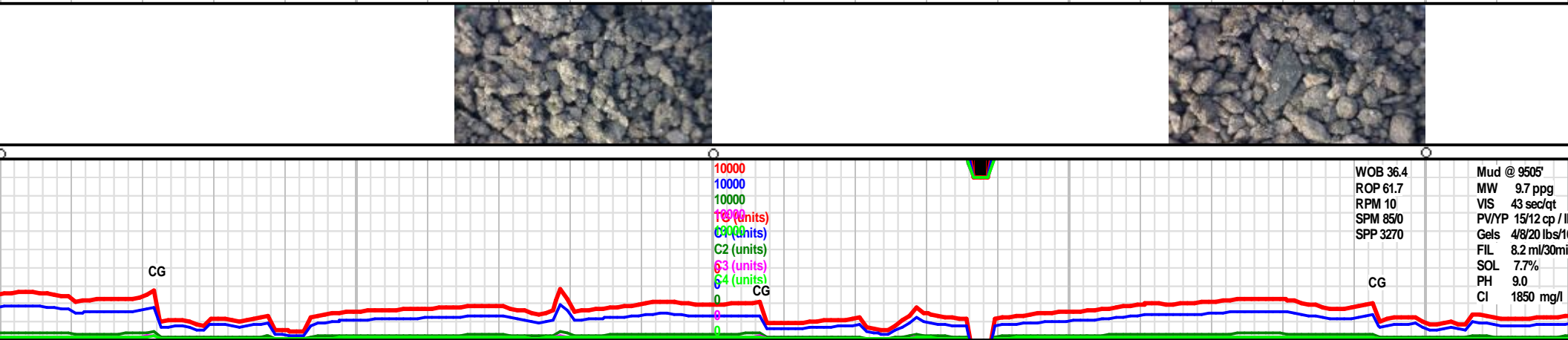
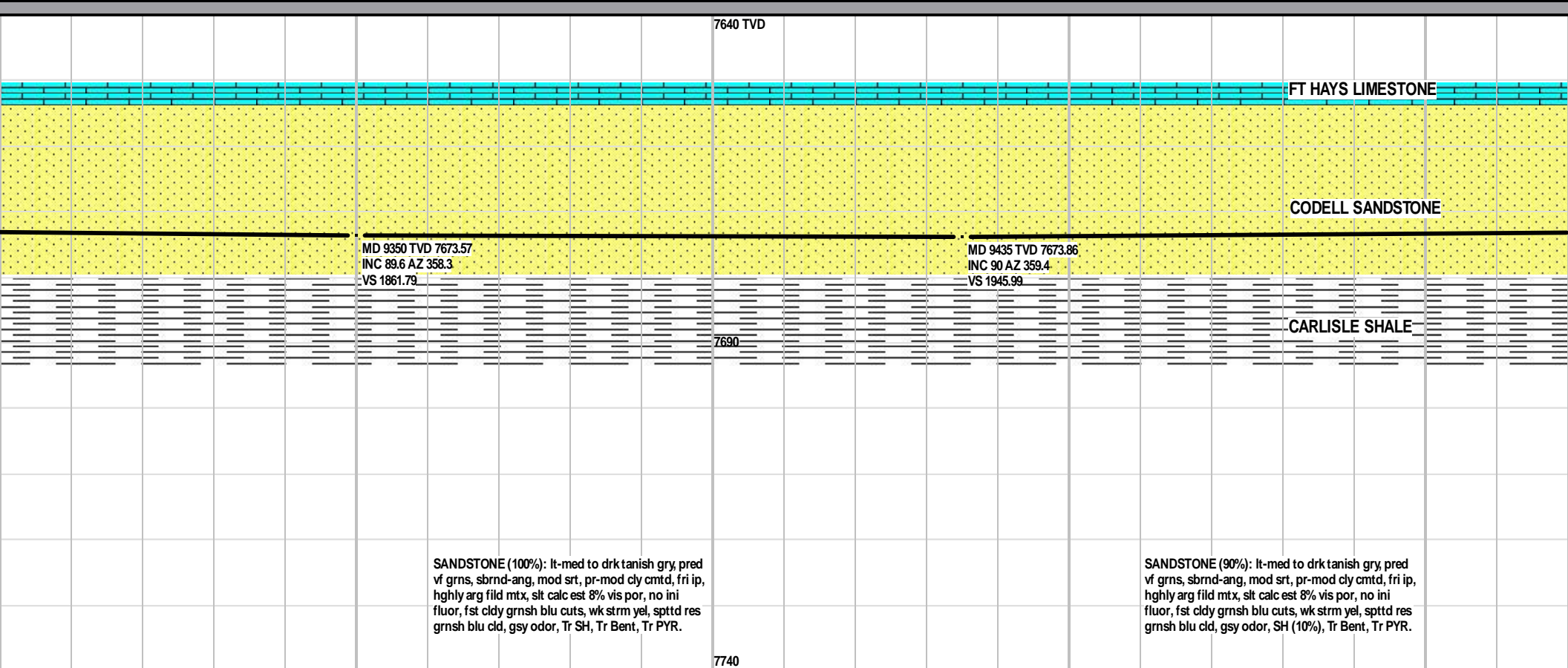


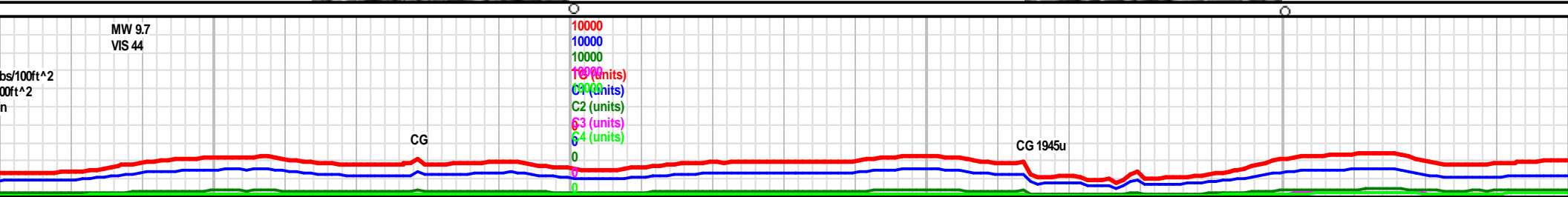
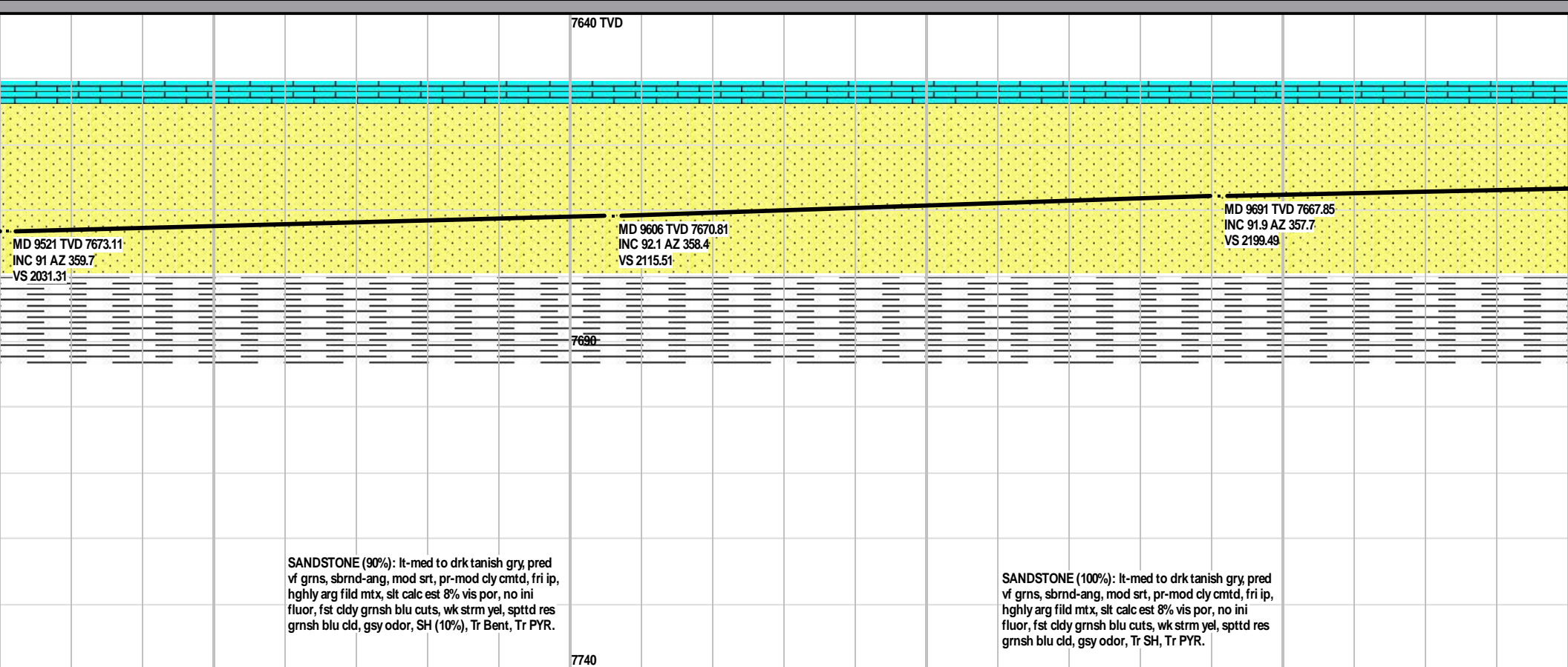
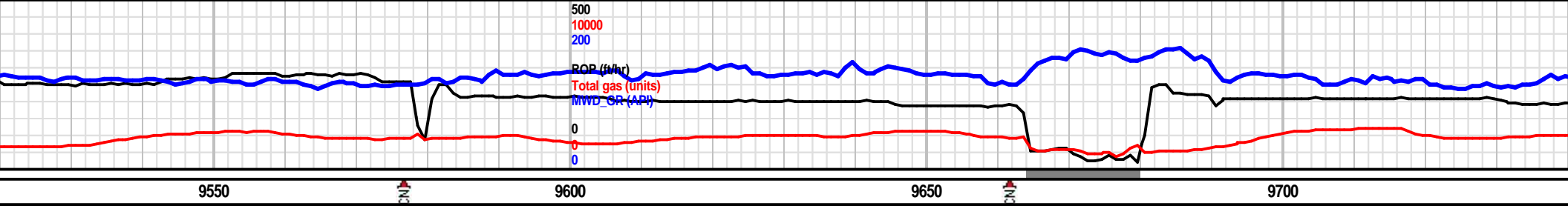




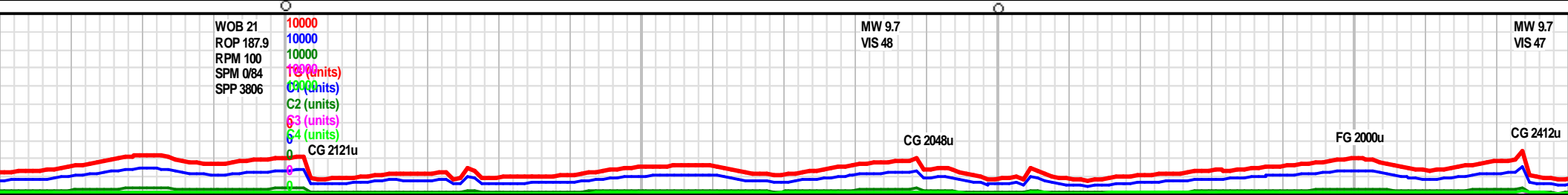
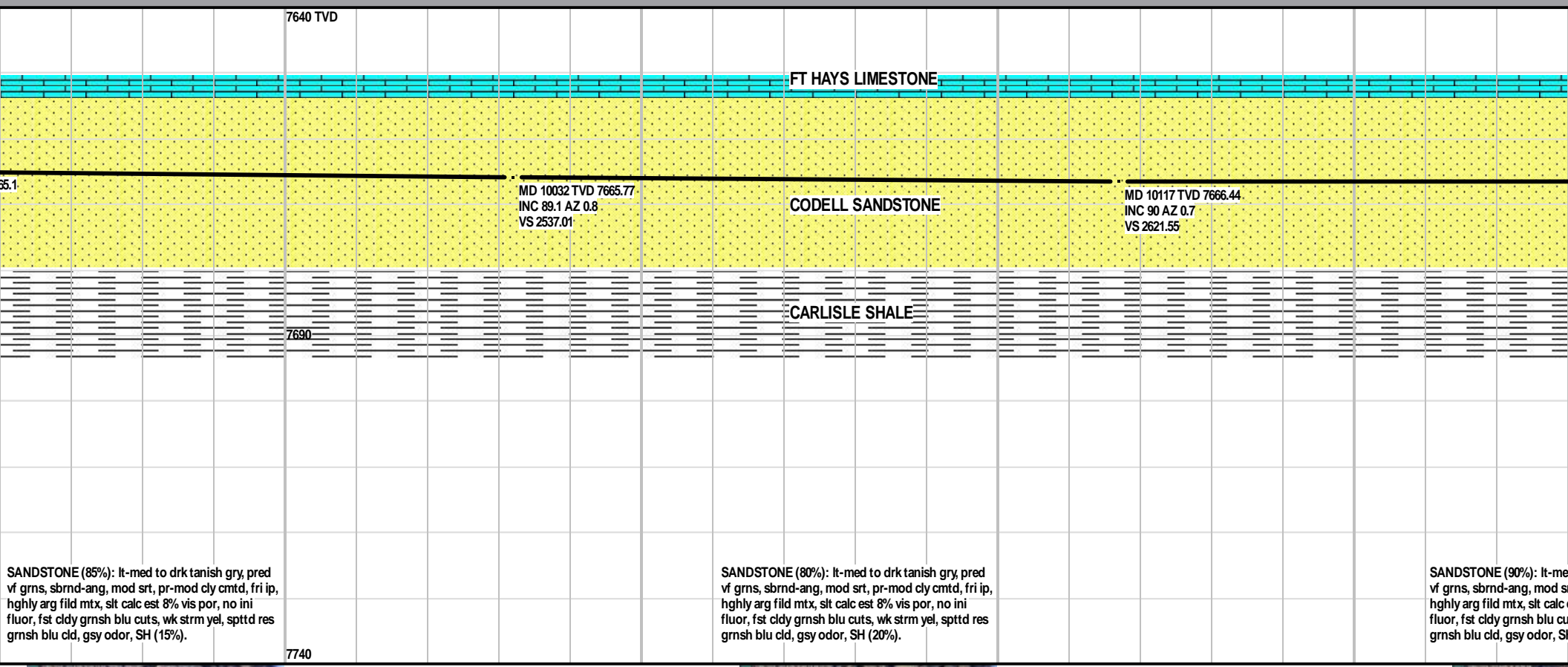
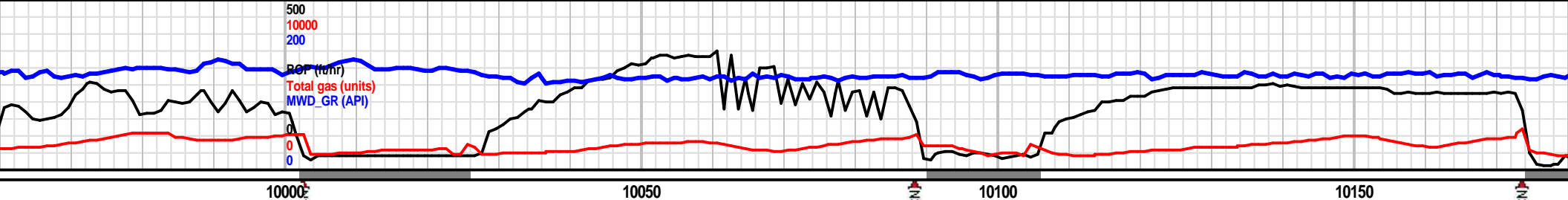


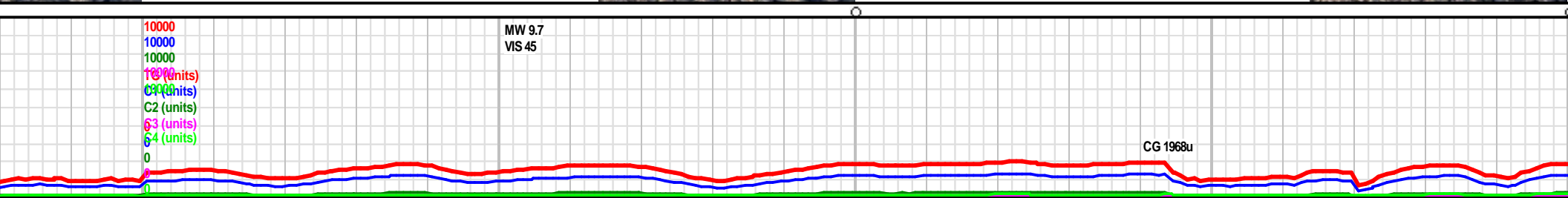
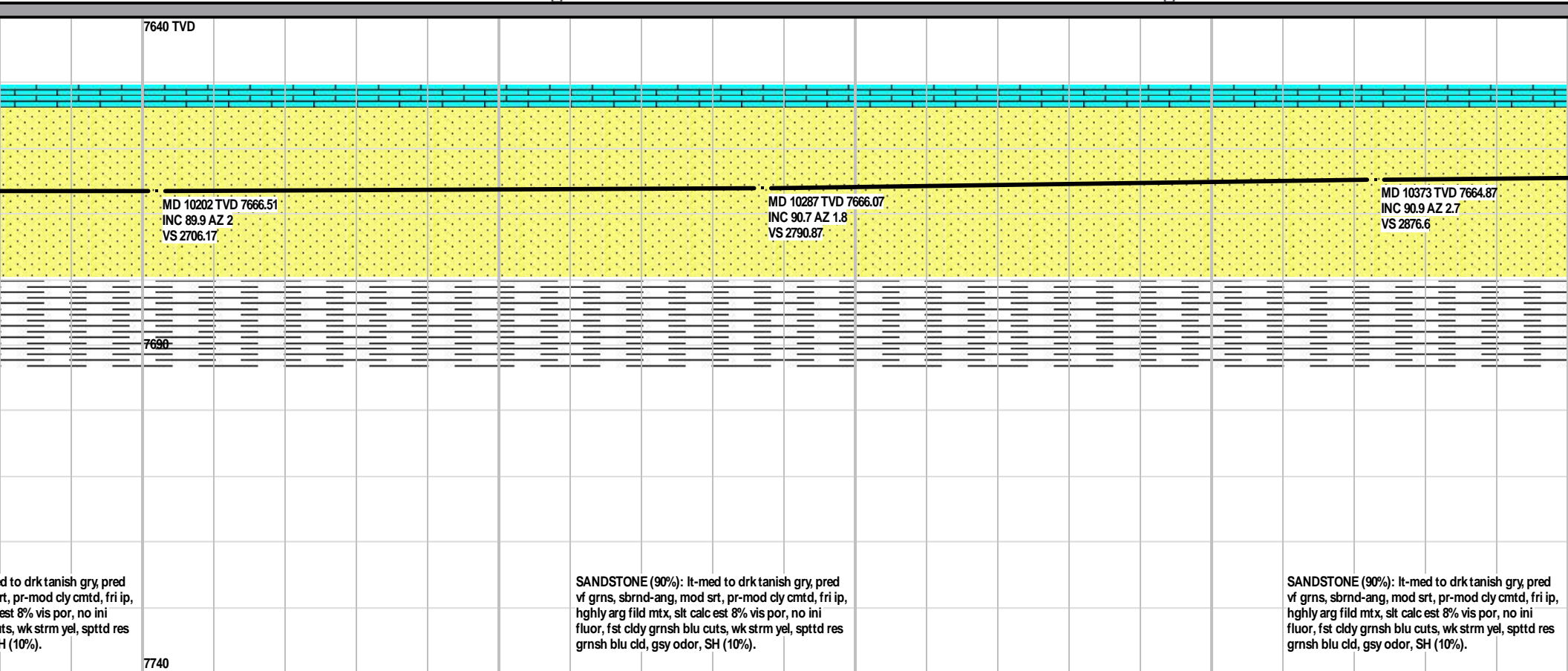


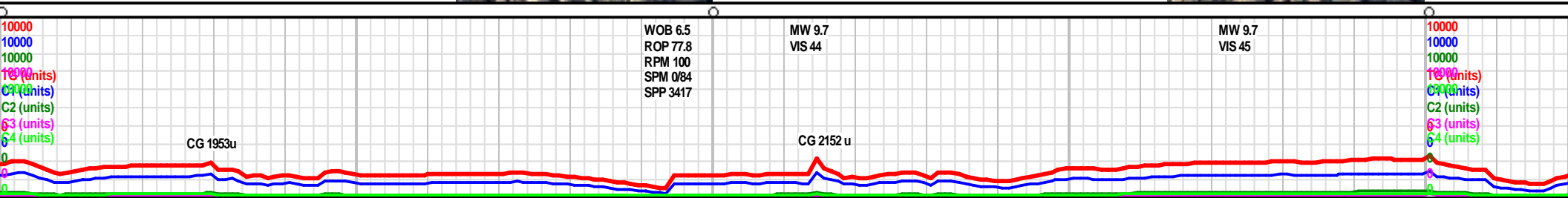
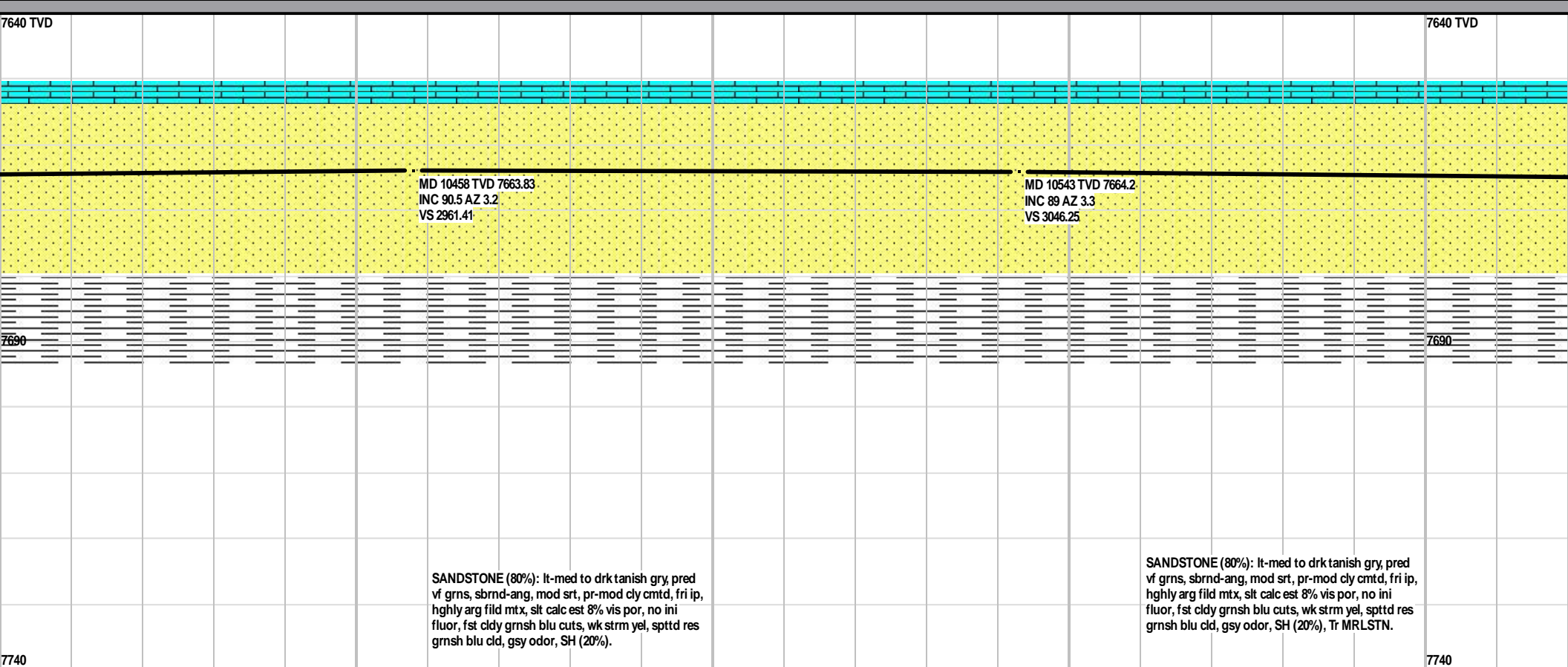
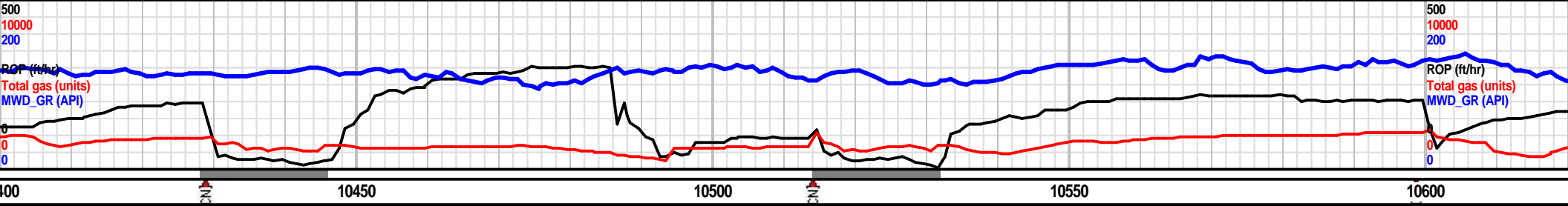




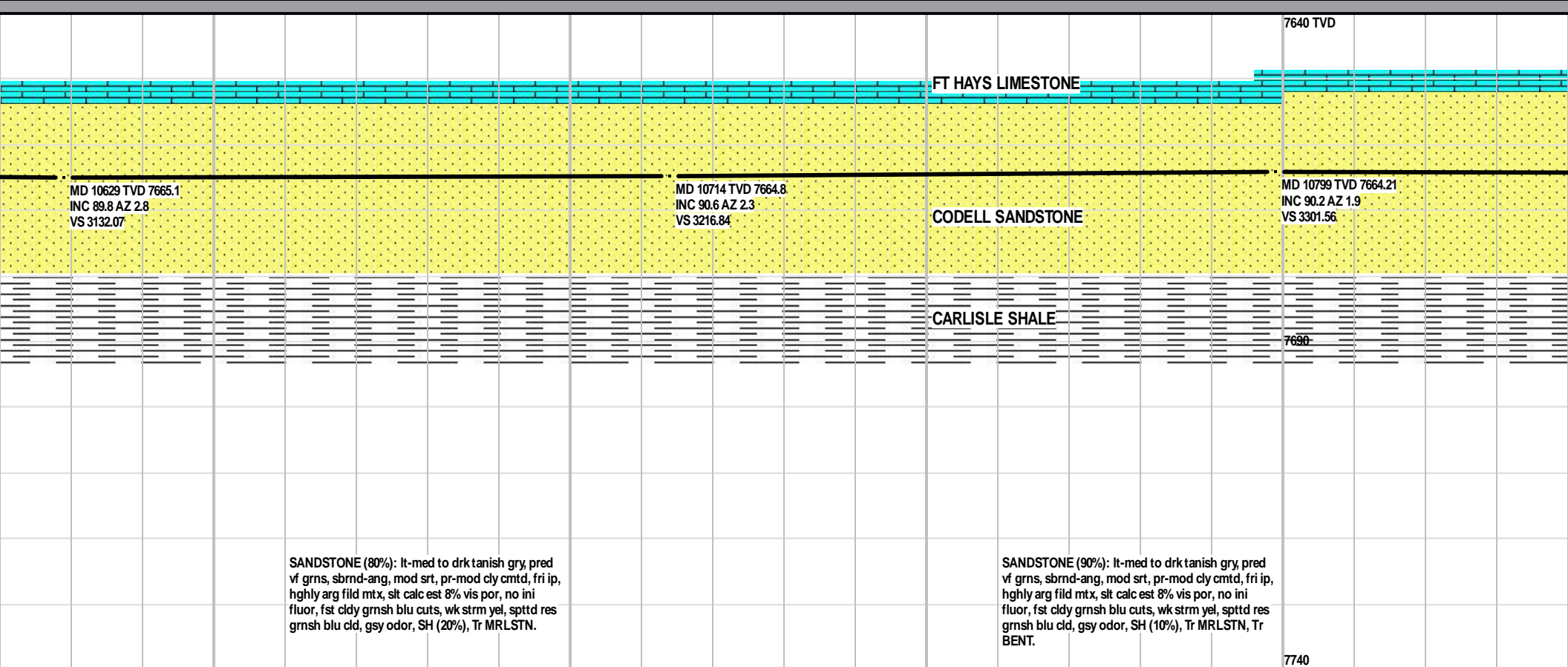
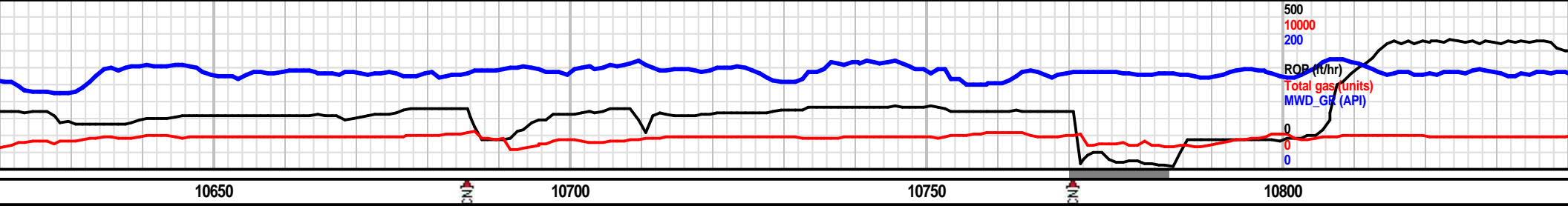






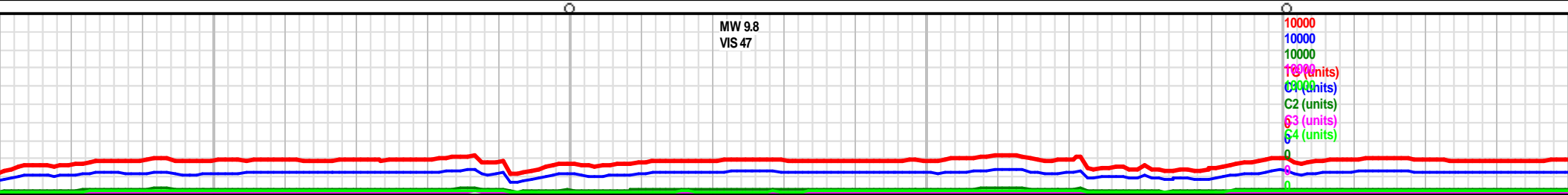






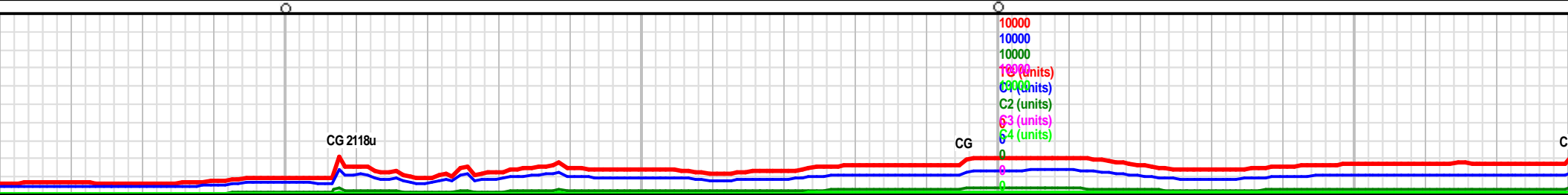
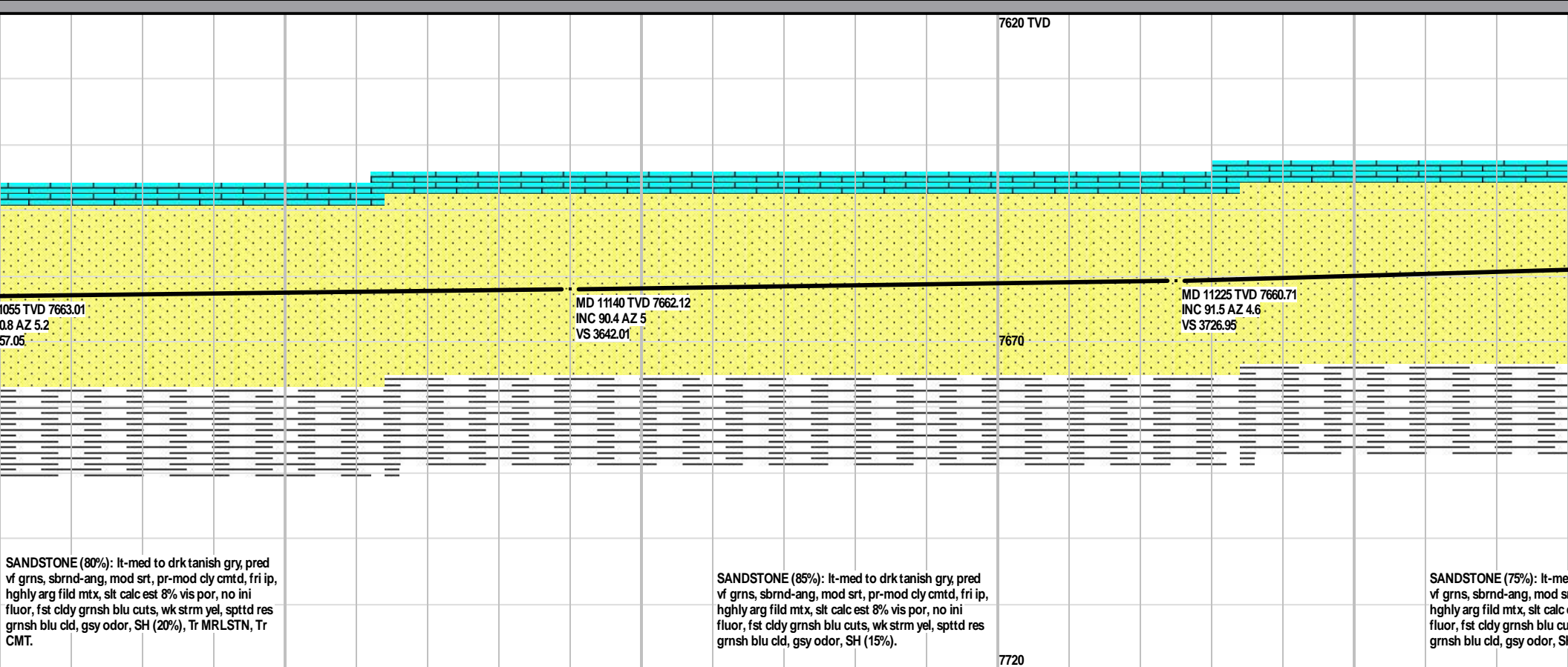
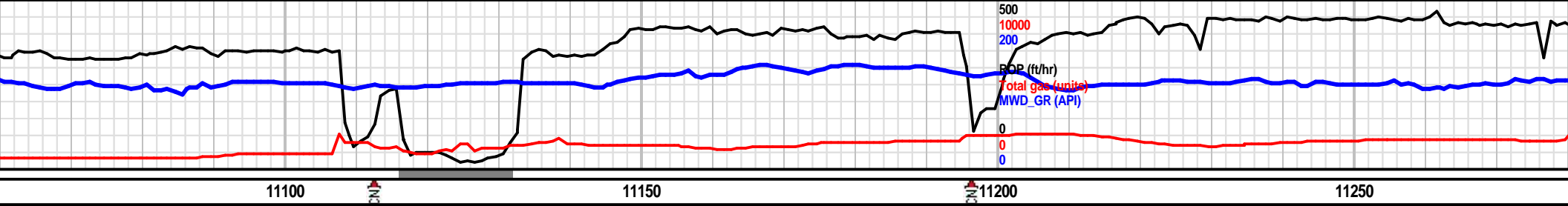
SANDSTONE (80%): lt-med to drk tanish gry, pred vf grns, sbrnd-ang, mod srt, pr-mod cly cmted, fri ip, hghly arg fld mttx, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spttd res grnsh blu cld, gsy odor, SH (20%), Tr MRLSTN.

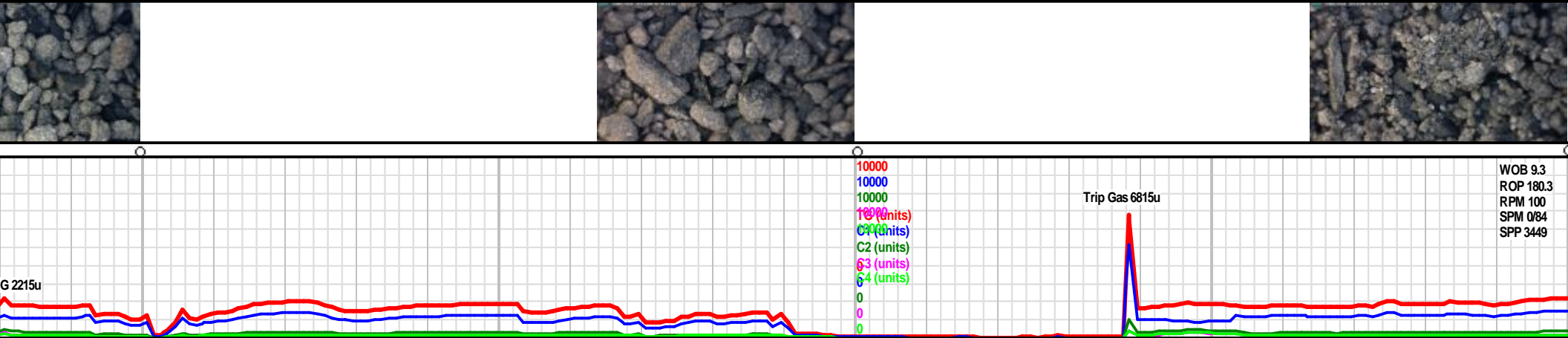
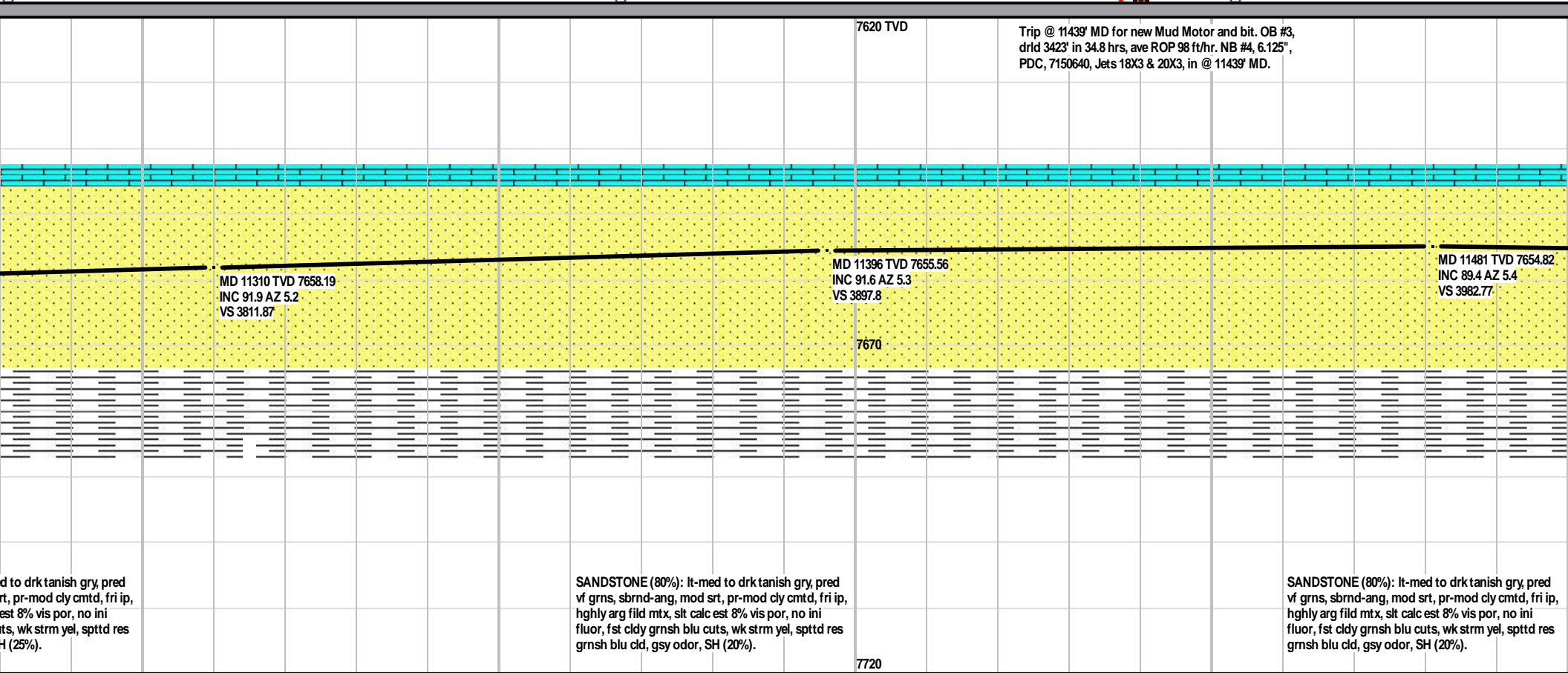
SANDSTONE (90%): lt-med to drk tanish gry, pred vf grns, sbrnd-ang, mod srt, pr-mod cly cmted, fri ip, hghly arg fld mttx, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spttd res grnsh blu cld, gsy odor, SH (10%), Tr MRLSTN, Tr BENT.

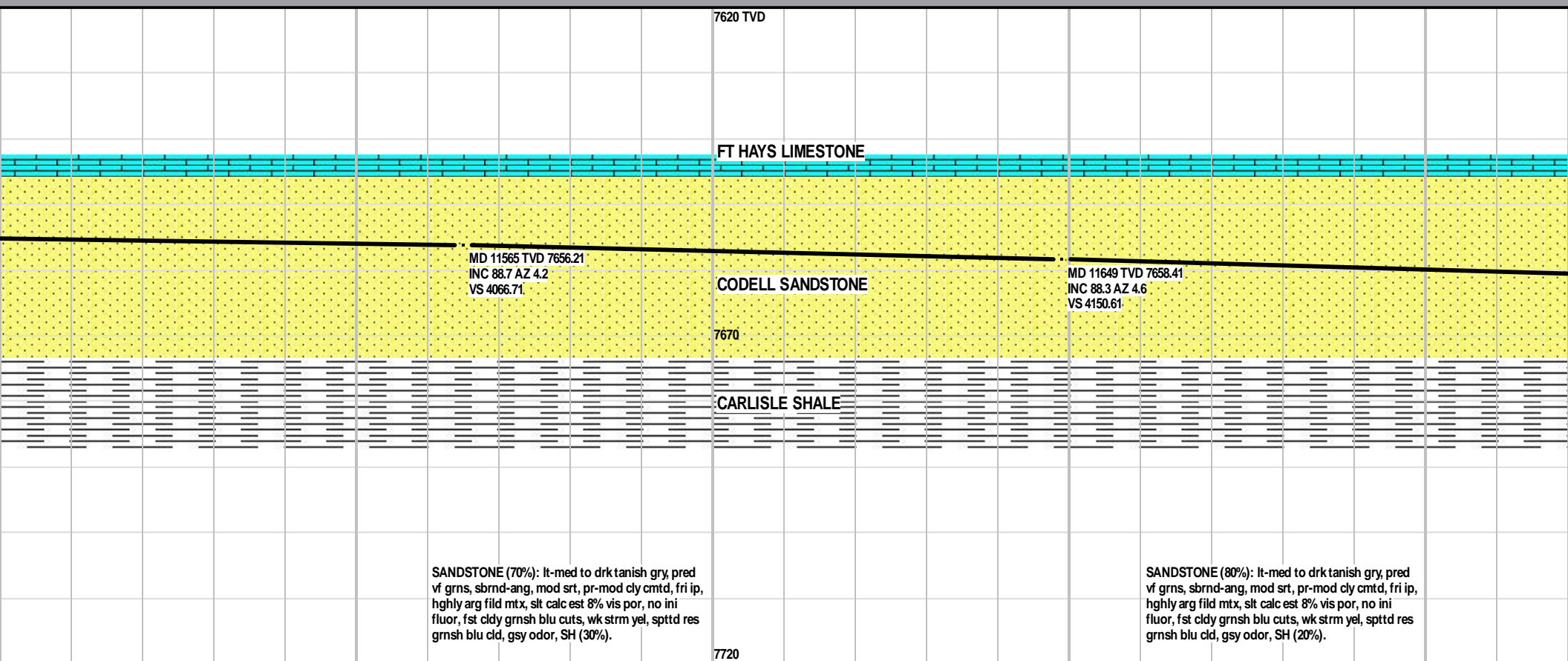
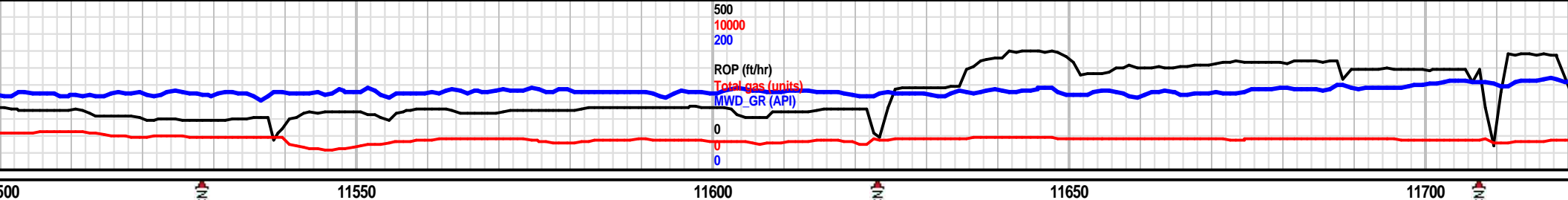






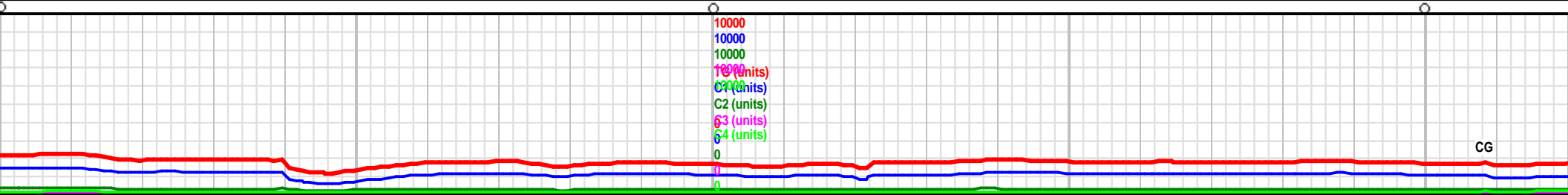


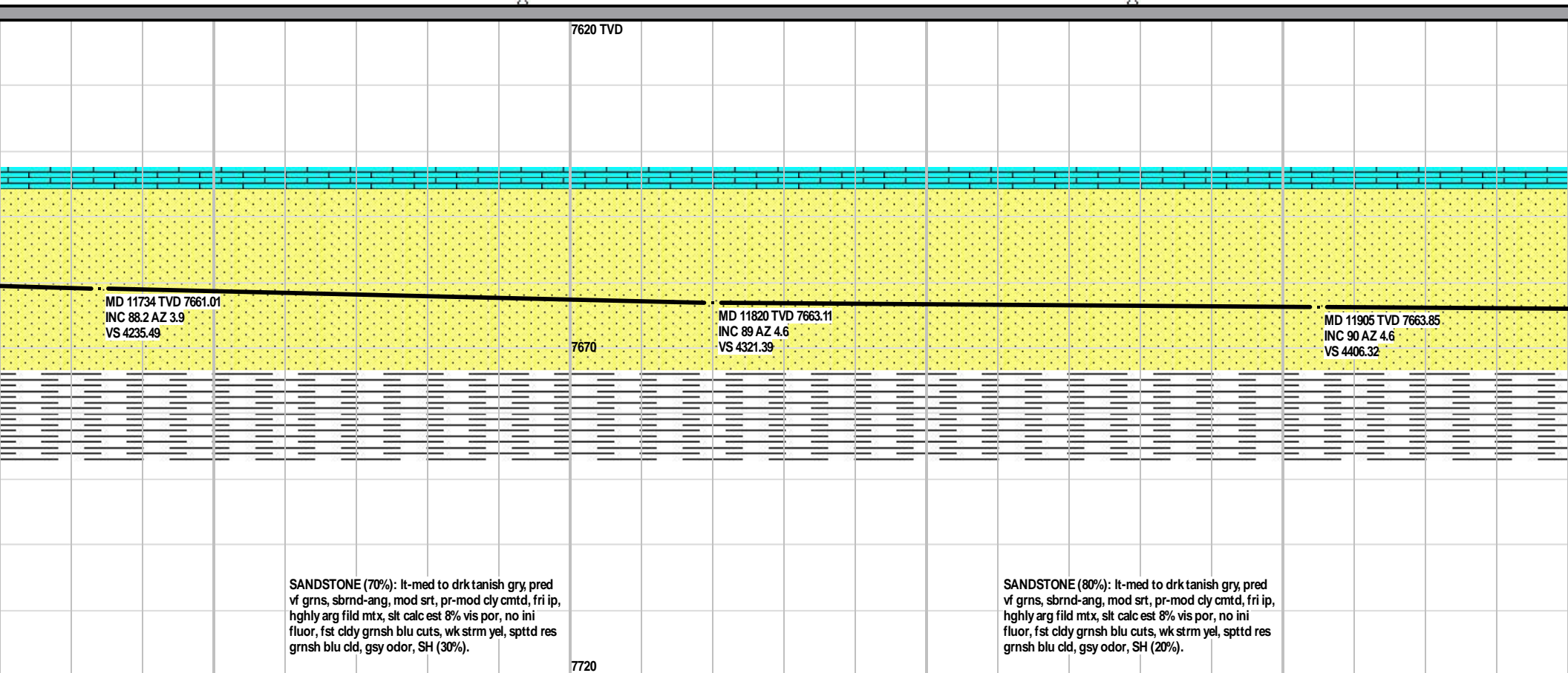
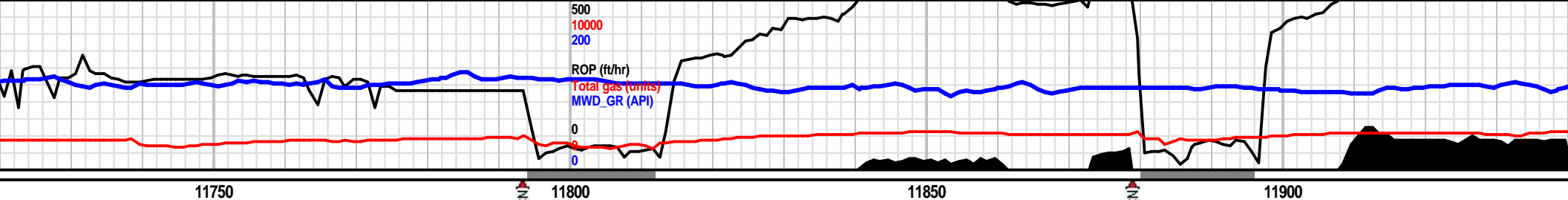




SANDSTONE (70%): lt-med to drk tanish gry, pred vf grns, sbrnd-ang, mod srt, pr-mod cly cmtd, fri ip, hghly arg fild mtz, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spttd res grnsh blu cld, gsy odor, SH (30%).

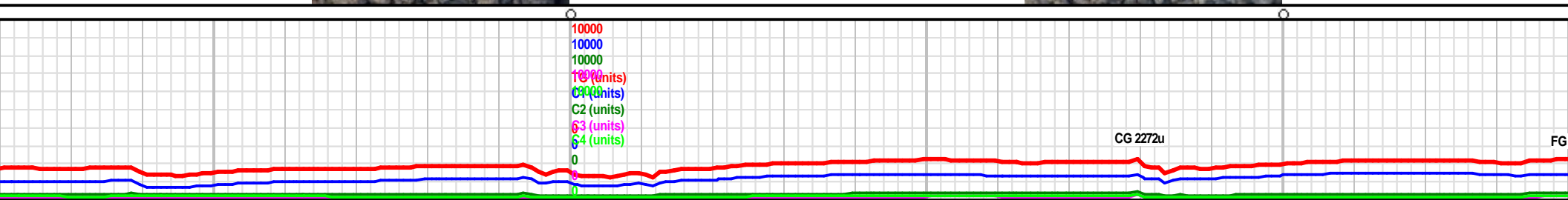
SANDSTONE (80%): lt-med to drk tanish gry, pred vf grns, sbrnd-ang, mod srt, pr-mod cly cmtd, fri ip, hghly arg fild mtz, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spttd res grnsh blu cld, gsy odor, SH (20%).



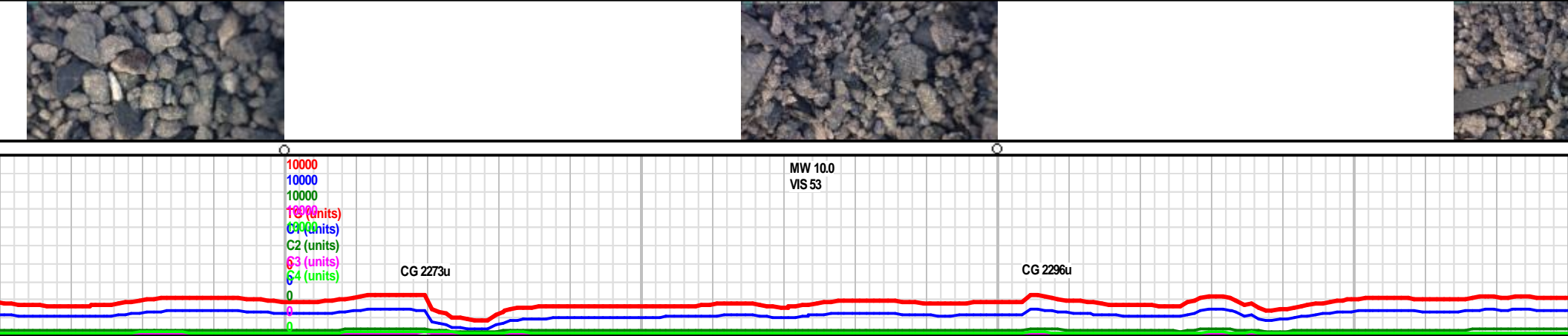
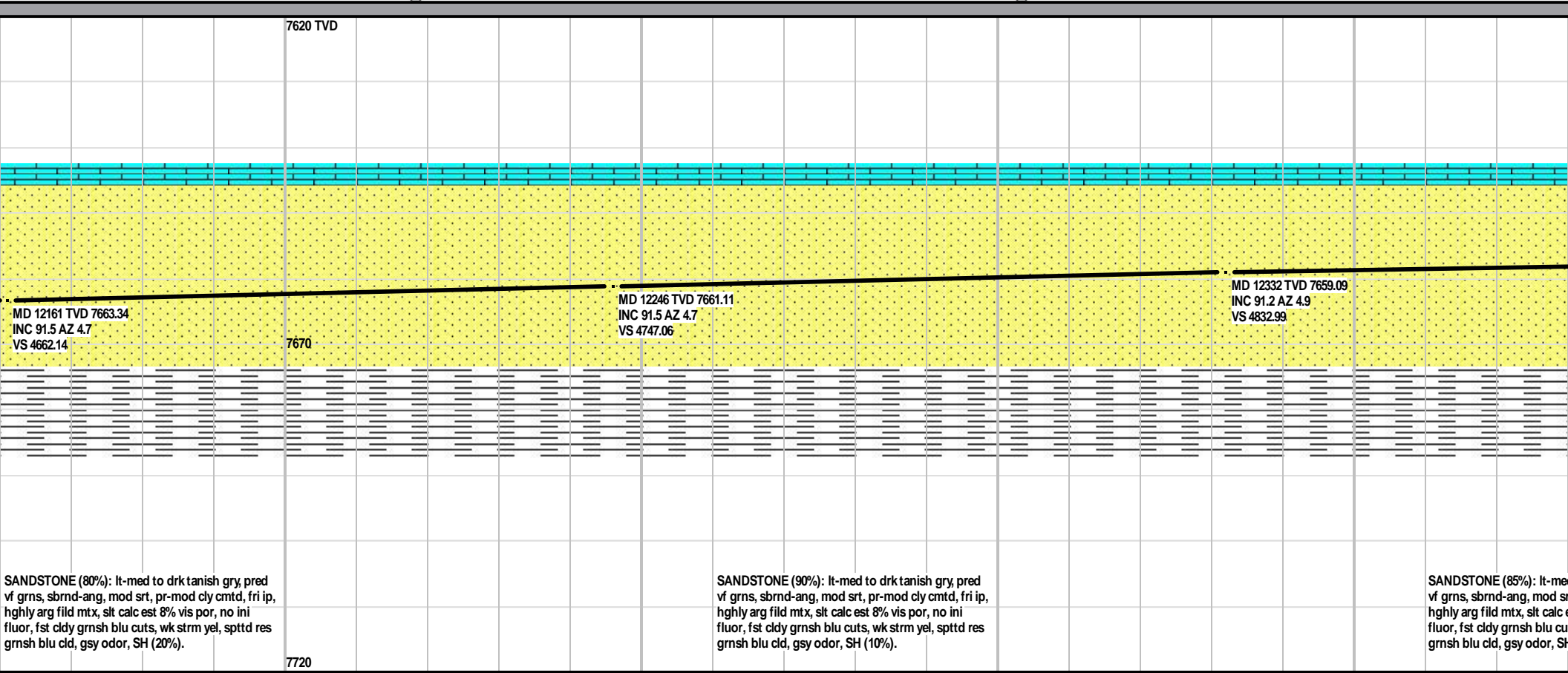


SANDSTONE (70%): lt-med to drk tanish gry, pred vf grns, sbrnd-ang, mod srt, pr-mod cly cmtd, fri ip, hghly arg fld mtz, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spttd res grnsh blu cld, gsy odor, SH (30%).

SANDSTONE (80%): lt-med to drk tanish gry, pred vf grns, sbrnd-ang, mod srt, pr-mod cly cmtd, fri ip, hghly arg fld mtz, slt calc est 8% vis por, no ini fluor, fst cldy grnsh blu cuts, wk strm yel, spttd res grnsh blu cld, gsy odor, SH (20%).

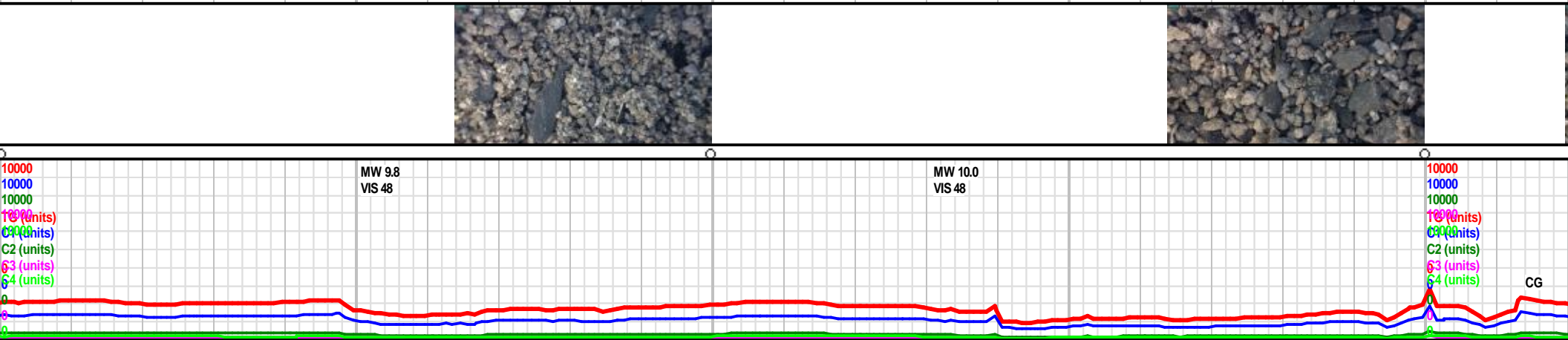
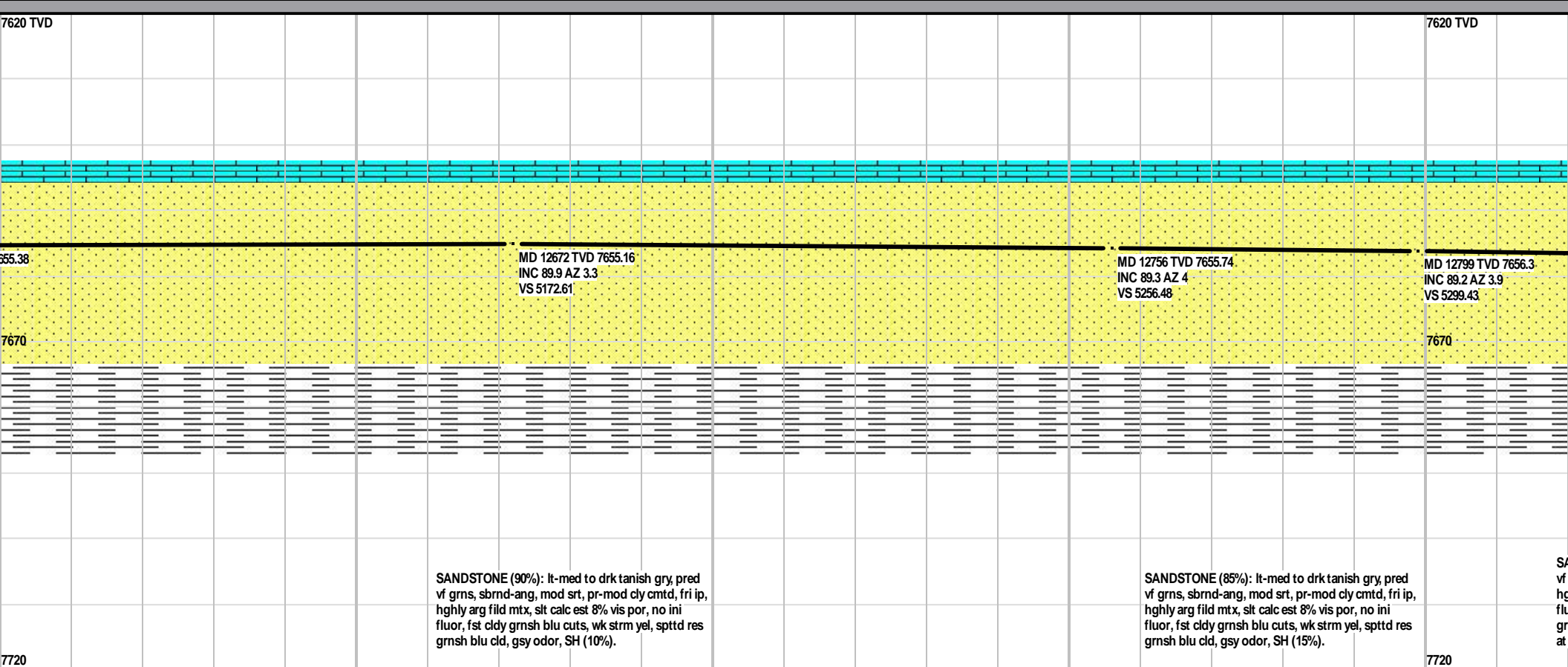














12850

12900

12950

13

TD @ 12,856' MD, REACHED ON JUNE 19, 2014 @  
01:50 HRS, CIRCULATE BOTTOMS UP, BIT #4  
DRILLED 1,417' IN 10.1 HRS, AVG ROP 154 ft/hr.  
WIPER TRIP TO SHOE, TRIP OUT OF HOLE FOR  
4 1/2" LINER, SET @ 12,846' MD ON JUNE 20, 2014.

Projected to Bit

MD 12856 TVD 7657.1  
INC 89.2 AZ 3.9  
VS 5356.35

## FORMATION TOPS

Sharon Springs	7,356' MD (7,301' TVD)
Niobrara A	7,422' MD (7,362' TVD)
Niobrara B Chalk	7,513' MD (7,442' TVD)
Niobrara C Chalk	7,603' MD (7,516' TVD)
Fort Hays LS	7,805' MD (7,640' TVD)
Codell SS	7,865' MD (7,661' TVD)
DMTD	12,856' MD
Production Liner	12,846' MD

ANDSTONE (90%): lt-med to drk tanish gry, pred  
grms, sbrnd-ang, mod srt, pr-mod cly cmttd, fri ip,  
ghly arg fld mtz, slit calc est 8% vis por, no ini  
ior, fst cldy grnsh blu cuts, wk strrm yel, spttd res  
nsh blu cld, gsy odor, SH (10%), sample collected  
BU 12856' MD

Thank You  
Goolsby Brothers & Assoc.  
Blake Stacey & Shelton Davis

MW 10.0  
VIS 47

WOB 13.0  
ROP 149.3  
RPM 100  
SPM 85/0  
SPP 3757