

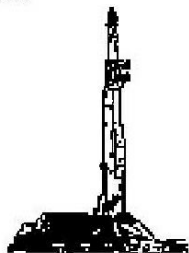
**GOOLSBY BROTHERS**  
and associates, inc.

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: GITTLEIN 3C-28HZ

Location: Section 33 T2N R65W, Weld County, CO.

License Number: API: 05-123-36231-0000 /AFE: 2075257

Spud Date: September 30, 2013

Surface Coordinates: 207 FSL 2087 FWL Sec. 33 T2N R65W

Lat: 40.088394 Long: -104.670816

Bottom Hole Coordinates: Proj 2180 FSL 2310 FWL Sec 28 T2N R65W

Lat: 40.108259 Long: -104.670095

Ground Elevation (ft): 4,911

Logged Interval (ft): 6,700 To: 14,456

Formation: Codell

Type of Drilling Fluid: LSND (Polymer-Water)

K.B. Elevation (ft): 4,936

Total Depth (ft): 14,456

Region: Wattenberg

Drilling Completed: October 9, 2013

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

**OPERATOR**

Company: Anadarko Petroleum Corporation

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

Denver, CO 80202

CO Geologist, Tom Birmingham.

**GEOLOGIST**

Name: Marek Ciesnik/Tekabe Gedamu

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 Gamma:

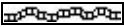





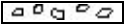

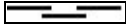









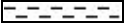


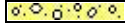

## Casing

9 5/8" Surface Casing (IPSCO 36# J55) set @ 1,336'.  
 7" Intermediate Casing (IPSCO 26# P110) set @ 7364.21'.  
 4 1/2" Production Liner set @ 14,446'

## Comments

- 1) Drilling Contractor: H&P 311  
 Pumps 1 & 2: Gardner Denver PZ 11 6" x 11" (.0914 bbl/stk)  
 Rig Manager: Jack Truett, James Baggett.  
 Drillers: Michael Munroe, Christopher Moore, Kenneth Jones, Christopher Beckstead.
- 2) Company Men: Doug Blair, David Wells
- 3) Mud Company: Halliburton, James Steen
- 4) Directional Drilling: Scientific Drilling  
 Directional Drillers: John Noakes, Ian Ensell  
 MWD: Joshua Denning, Mohamed Sharkar.
- 5) Gas Equipment: Mudlogging Systems Inc.  
 by Terra Services  
 Redbox # ML-362

## ROCK TYPES

	Bent		Coal		Slt sh		Arg ss		Mrlst		Marly limestone
	Brec		Anhydrite		Carb sh		Ss (f gr+)		Mrlst/sh (intbdd)		Arg limestone
	Cht		Shale		Carb sh_		Sltst		Dol		Chalk
	Clyst		Sh (col)		Ss		Congl		Lmst		

## 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  
 Ls  
 Chlk  
 Mrst  
 Ss strg  
 Sltst strg

### TEXTURE

Boundst  
 Chalky  
 Cryxln  
 Earthy  
 Finexln  
 Grainst  
 Lithogr  
 Microxln  
 Mudst  
 Packst  
 Wackest

## OTHER SYMBOLS

### SAMPLE SHOWS

Even  
 Near even  
 Spotted/patchy  
 Very spotty

Questionable  
 Dead

### POROSITY TYPE

Earthy

Fenest  
 Fracture  
 Inter  
 Moldic  
 Organic

Pinpoint  
 Vuggy

### ROUNDING

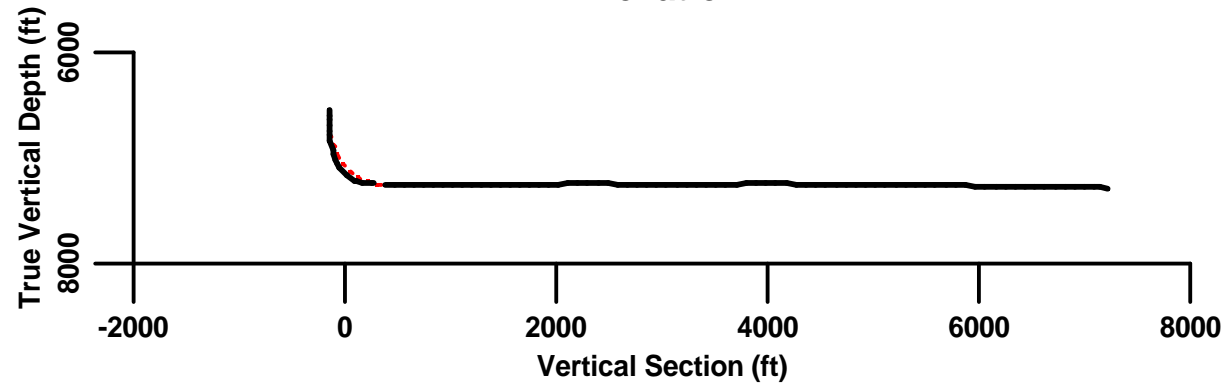
Rounded

Subrnd  
 Subang  
 Angular

### SORTING

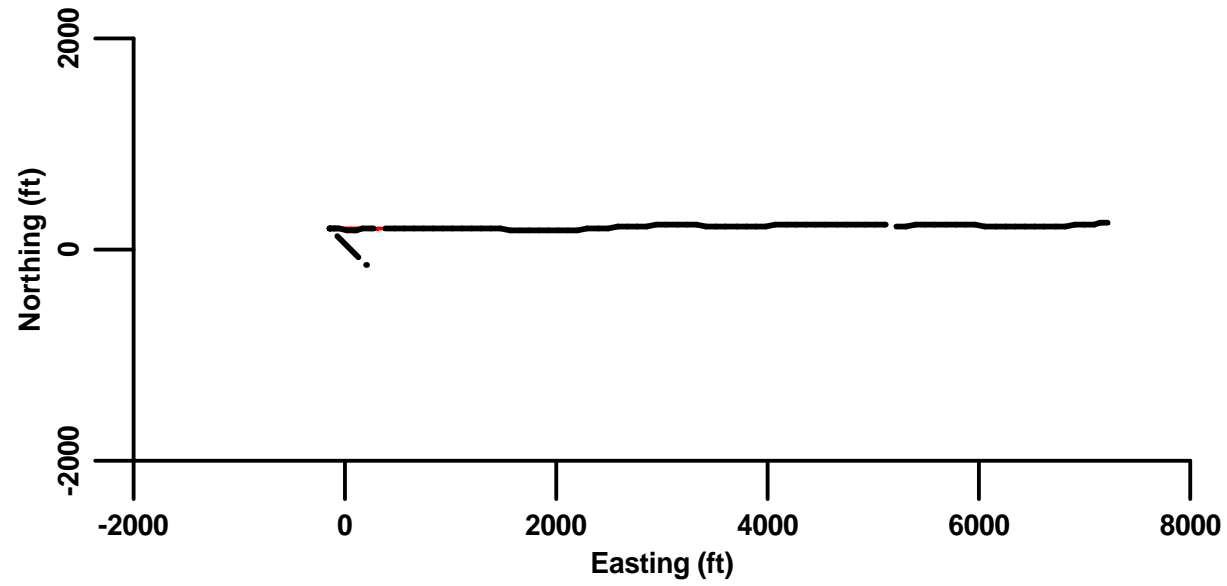
Well  
 Moderate  
 Poor

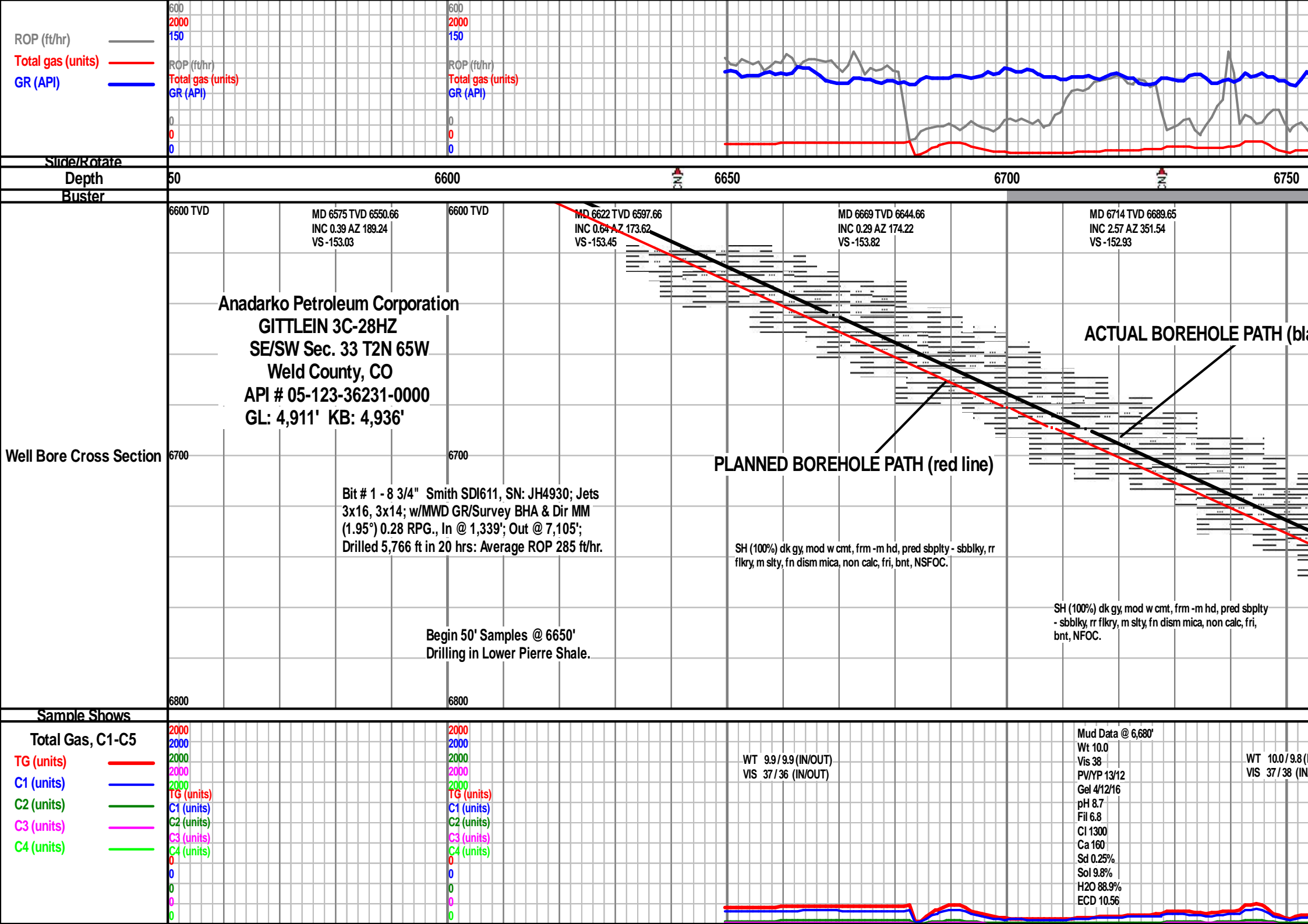
## Elevation

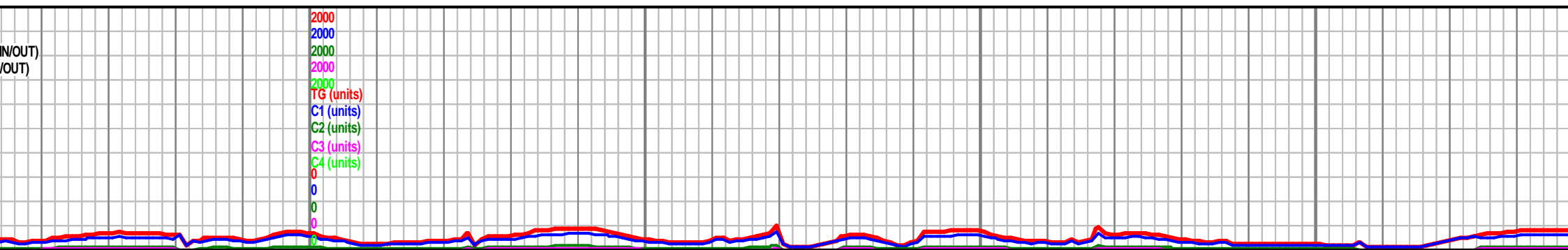
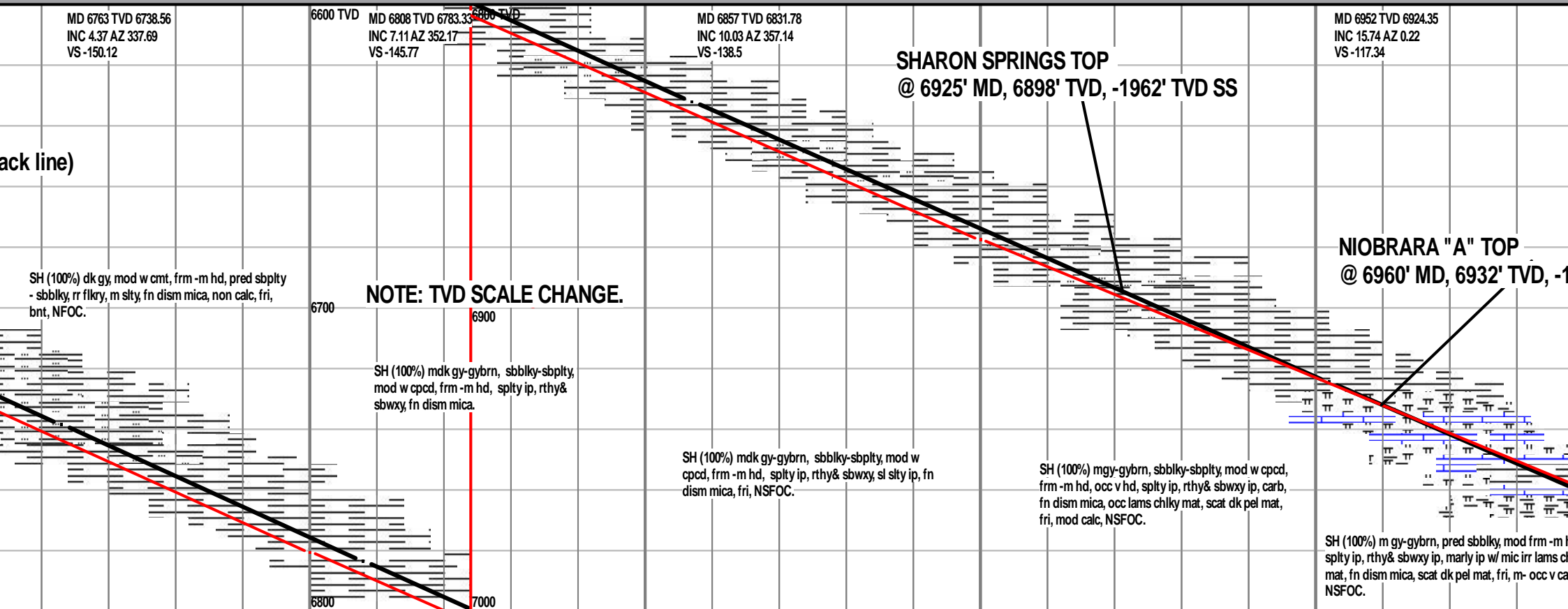
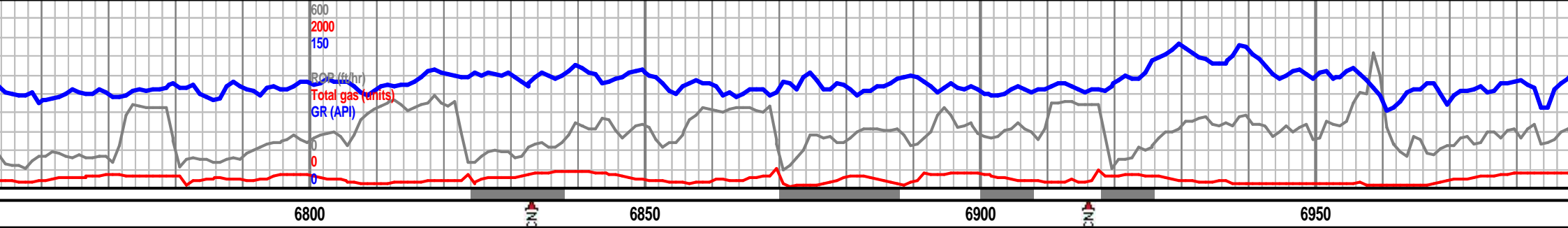


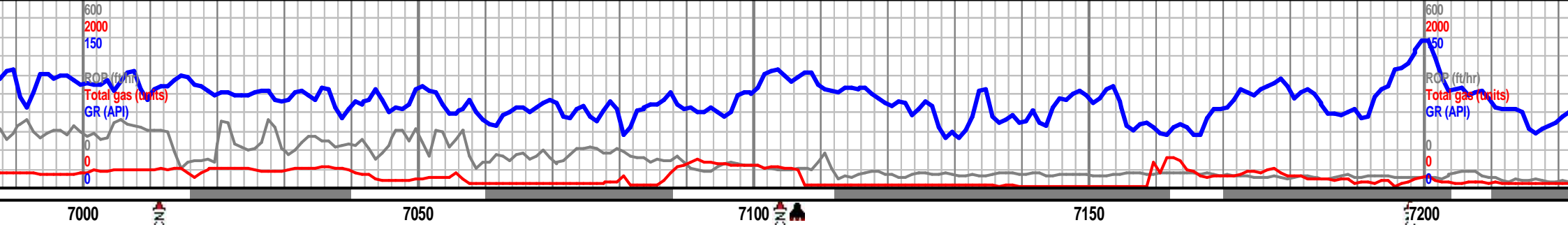


# Plan









MD 6997 TVD 6967.31  
INC 18.88 AZ 357.04  
VS -103.96

7000 TVD

MD 7046 TVD 7013.37  
INC 20.95 AZ 354.37  
VS -87.32

MD 7093 TVD 7056.61  
INC 25.15 AZ 351.1  
VS -69.09

MD 7140 TVD 7097.86  
INC 32.04 AZ 353.79  
VS -46.8

7000 TVD

**NIOBRARA "B" TOP**  
@ 7038' MD, 7006' TVD, -2070' TVD SS.

996' TVD SS.

6900

Scale Change  
7100

SH (60%) m gy, sbplty, mod frm -m hd, splty ip, carb,  
rthy& sbwxy ip, fn dism mica, fri, non calc, NSFOC.  
CHALK (40%) mgy-gybrn, sbplty/sbblky, m hd to m sft,  
mrlly, w/ scat dk pel mat, mod calc, NSFOC.

**NIOBRARA "C" CHALK**  
@ 7128' MD, 7088' TVD, -2152' TVD SS.

CHALK (80%) mgy-gybrn, sbplty/sbblky, m hd to m  
sft, mrlly, rough text, par unident foss v calc, no  
flor/cut, slow & wk resid wh rng. SH (20%) m gy,  
sbplty, mod frm -m hd, splty ip, carb, rthy& sbwxy  
ip, fn dism mica, fri, non calc,

Bit # 2 - 8 3/4" Baker Tri-cone, SN: 5220897; Jets 3x22;  
w/MWD GR/Survey BHA & Dir MM (2.77°), In @ 7,105'; Out @  
7,400'; Drilled 295 ft in 13.4 hrs: Average ROP 22 ft/hr.

CHALK (50%) ltgy-gybrn, mod sft, sbblky, clyey,  
lse/dism pyr intbd, mod arg, carb/sl calc foss frag  
intbd, rthy. MRLST/SH (50%) dkgy-gy, mod sft-occ  
mod frm, sbplty-sbblky, arg, carb spks intbd, occ mic  
var/lam, occ foss frags. No flor, sl mlky/strmg cut w bri  
gn/yel resid rng.

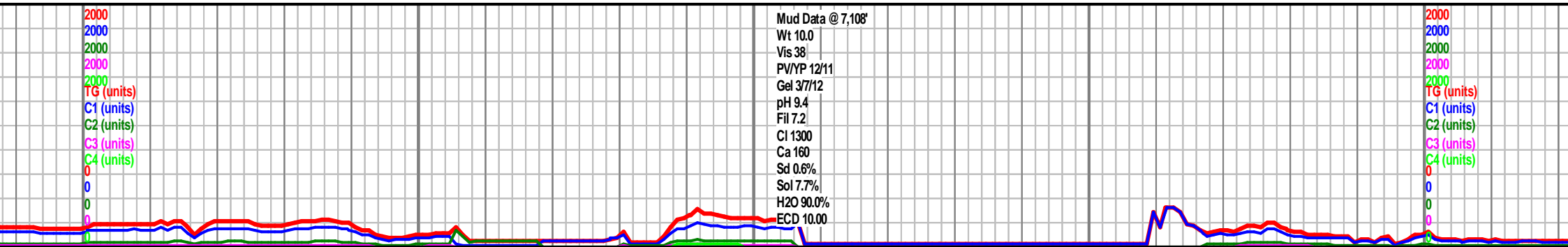
MRLST/SH (90%) dkgy-gyblk, mod frm-mod sft,  
sbblky-sbplty, mod slty/arg, mod ltgy-gybrn chk, carb  
spks/dism pyr/mica intbd, sl mic var, occ foss frags. No  
flor, sl mlky cut w bl/gn resid rng.

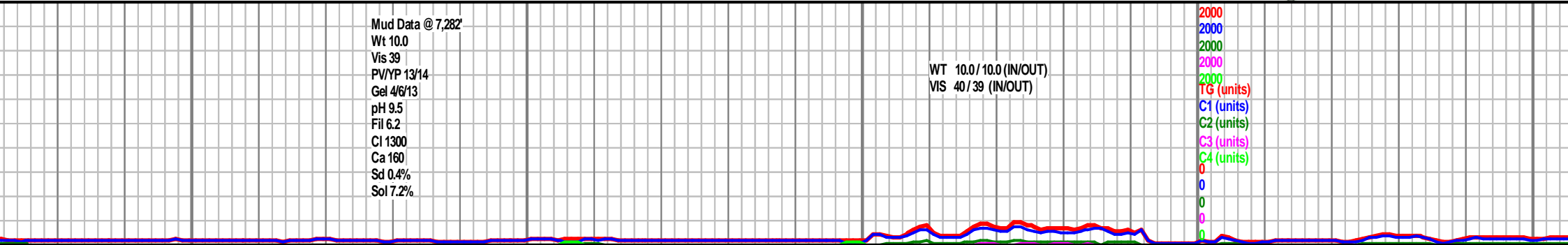
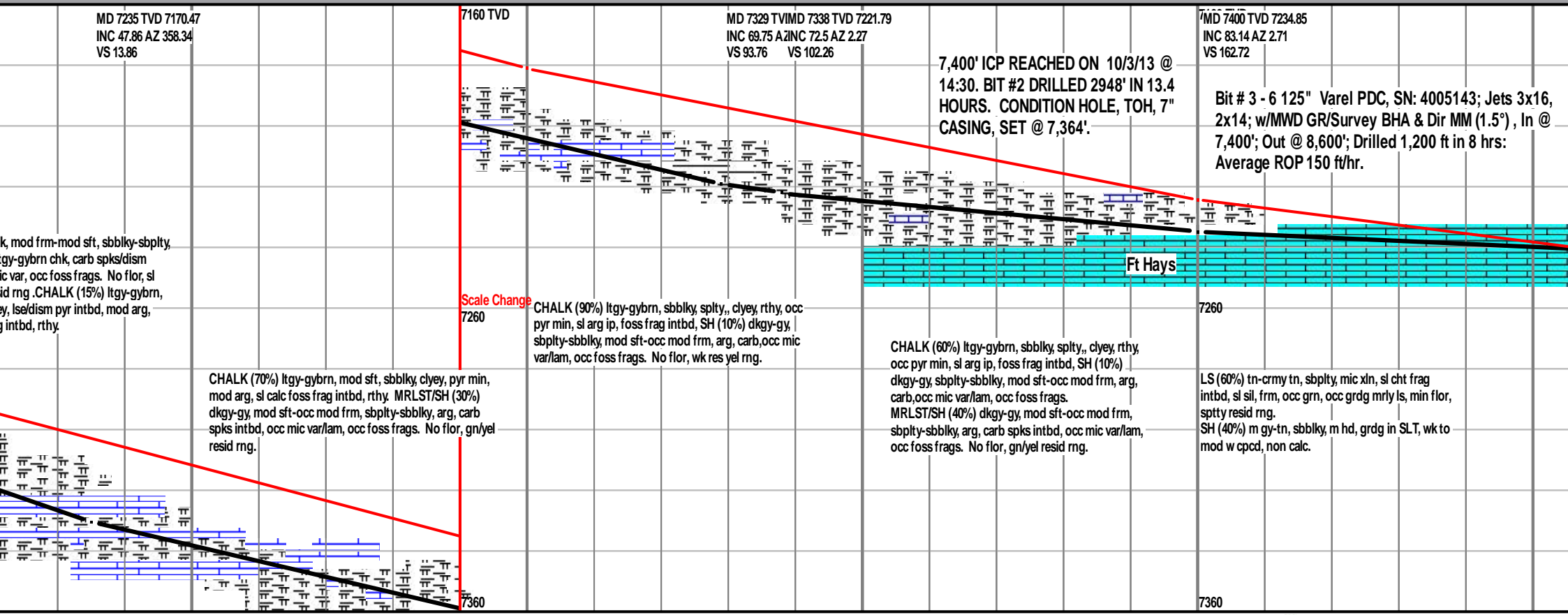
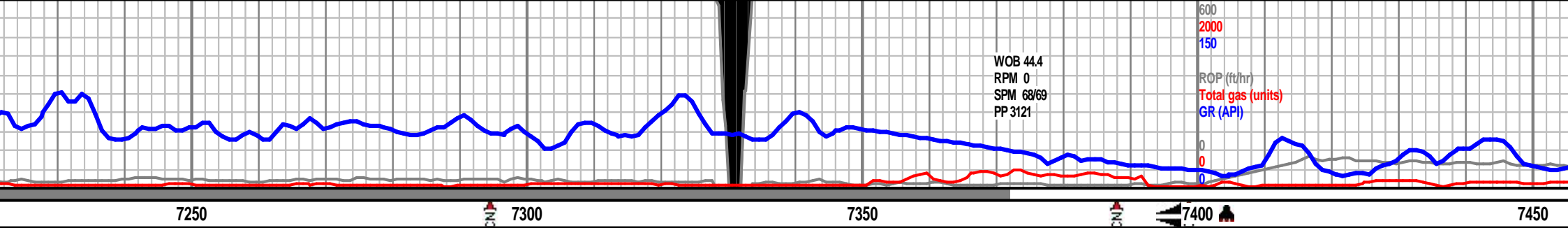
SH (90%) dkgy-gyblk  
mod slty/arg, mod ltgy-gybrn chk, carb  
spks/dism pyr/mica intbd, sl mic var, occ foss frags. No  
flor, sl mlky cut w bl/gn resid rng.

7100

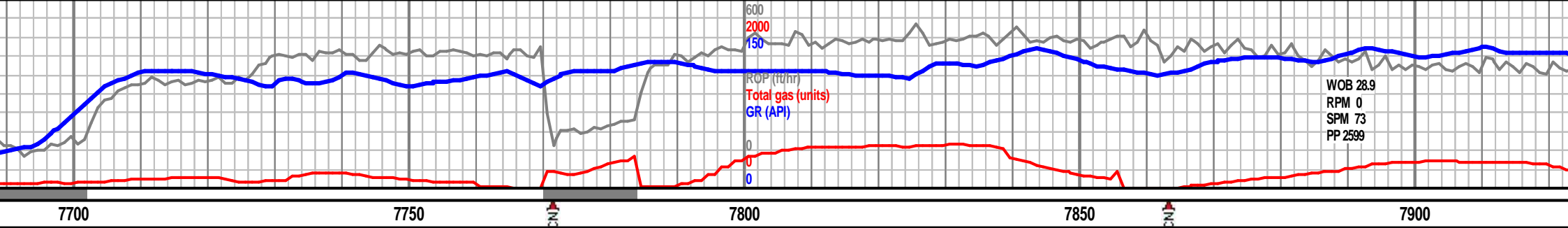
7200

Mud Data @ 7,108'  
Wt 10.0  
Vis 38  
PV/YP 12/11  
Gel 3/7/12  
pH 9.4  
Fil 7.2  
Cl 1300  
Ca 160  
Sd 0.6%  
Sol 7.7%  
H2O 90.0%  
ECD 10.00





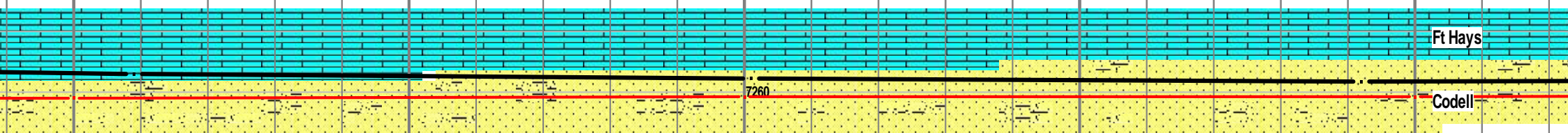




MD 7709 TVD 7253.85  
INC 88.53 AZ 0.43  
VS 470.82

MD 7801 TVD 7255.57  
INC 89.33 AZ 359.71  
VS 562.8

MD 7892 TVD 7256.37  
INC 89.66 AZ 359.17  
VS 653.8



mic xln, m hd/ind, frags  
cc grn, min flor, SS  
f gr, sbang, m srt, slty  
calc, est vis por 8%.wk

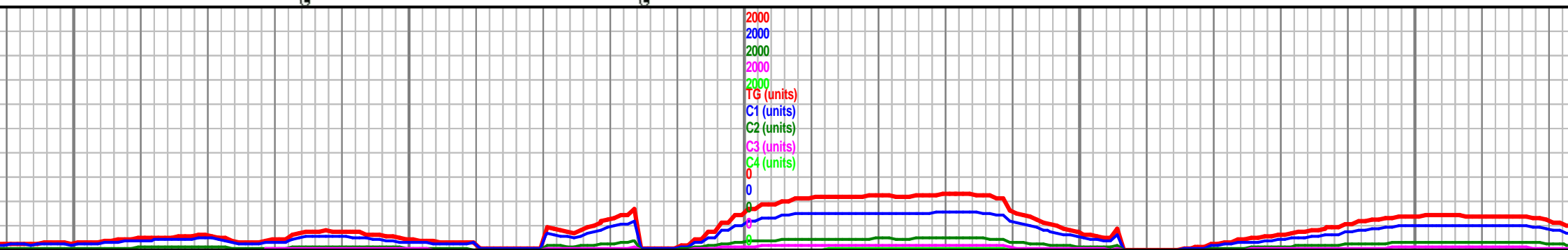
LS (60%) tn-crmy tn, sbplty, mic xln, m hd/ind, frags  
unident foss, sl slty ip, frm, occ grn, min flor, SS  
(40%) lt-m-dk gy, qtzse, lvf-uvf gr, sbang, m srt, slty  
ip wh cly cmt, fri, m-v hd, non calc, est vis por 8%.wk  
yel flor, wk strmg yel cut.

SS (80%) lt-m-dk gy, qtzse, lvf-uvf gr, sbang, m srt,  
slty ip wh cly cmt, fri, m-v hd, non calc, est vis por  
8%.wk yel flor, wk strmg yel cut. LS (20%) As above.

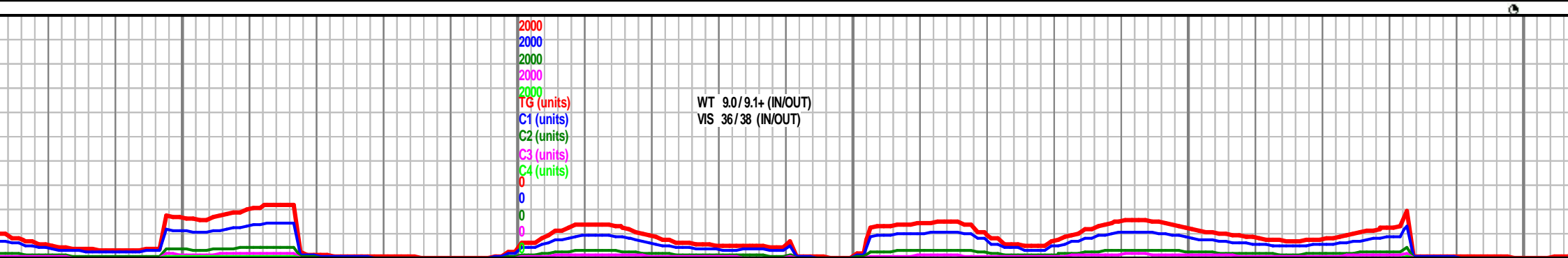
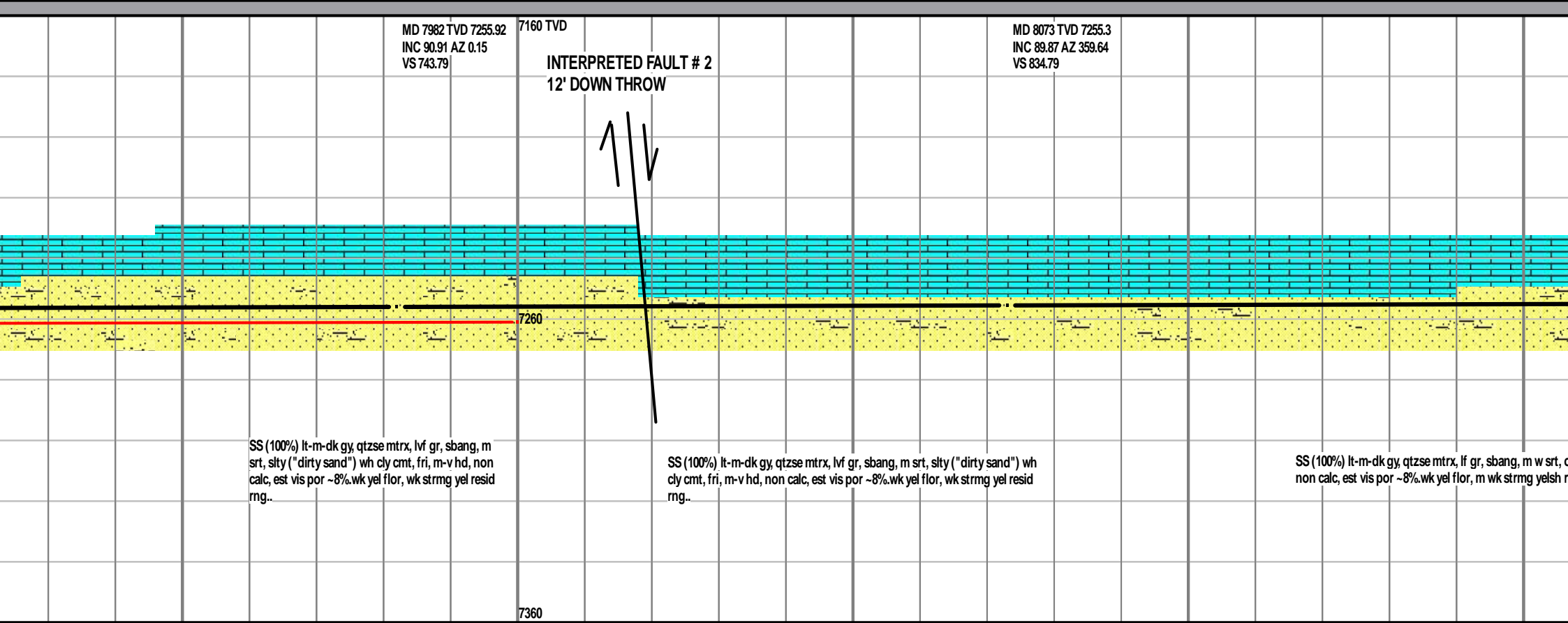
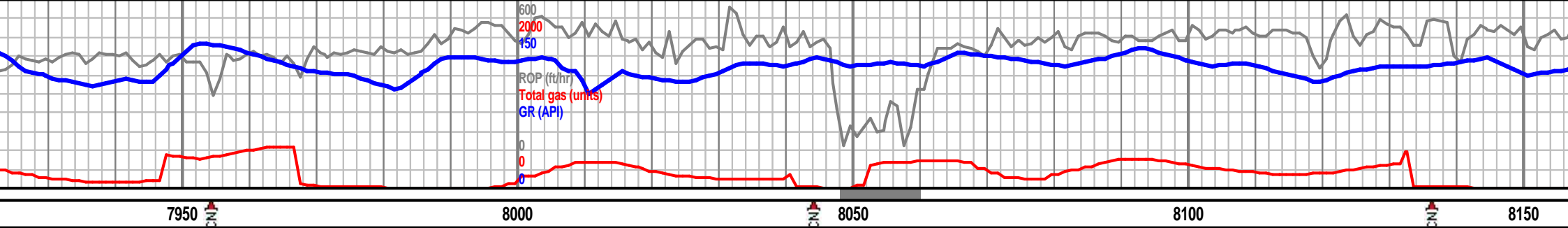
SS (100%) lt-m-dk gy, qtzse, lvf-uvf gr, sbang, m srt,  
slty ip wh cly cmt, fri, m-v hd, non calc, est vis por  
8%.wk yel flor, wk strmg yel cut.

SS (100%) lt-m-dk gy, qtzse, lvf gr, sbang, m srt, slty  
wh cly cmt, fri, m-v hd, non calc, est vis por 5-8%.wk  
yel flor,

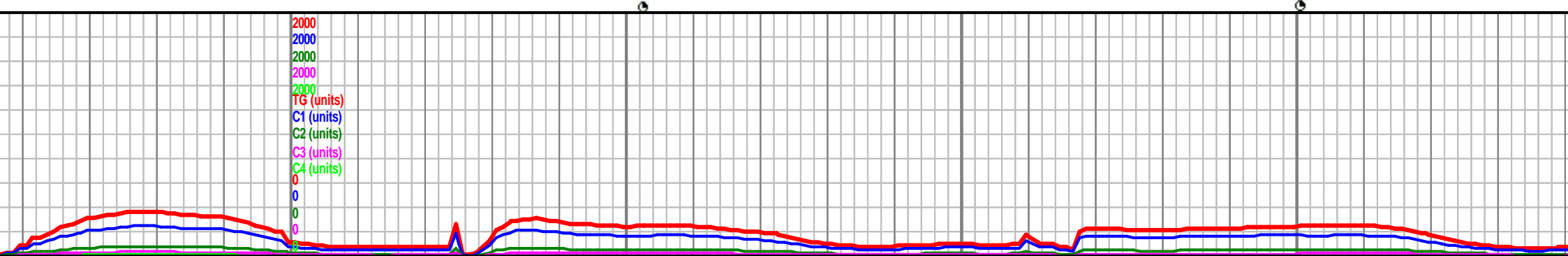
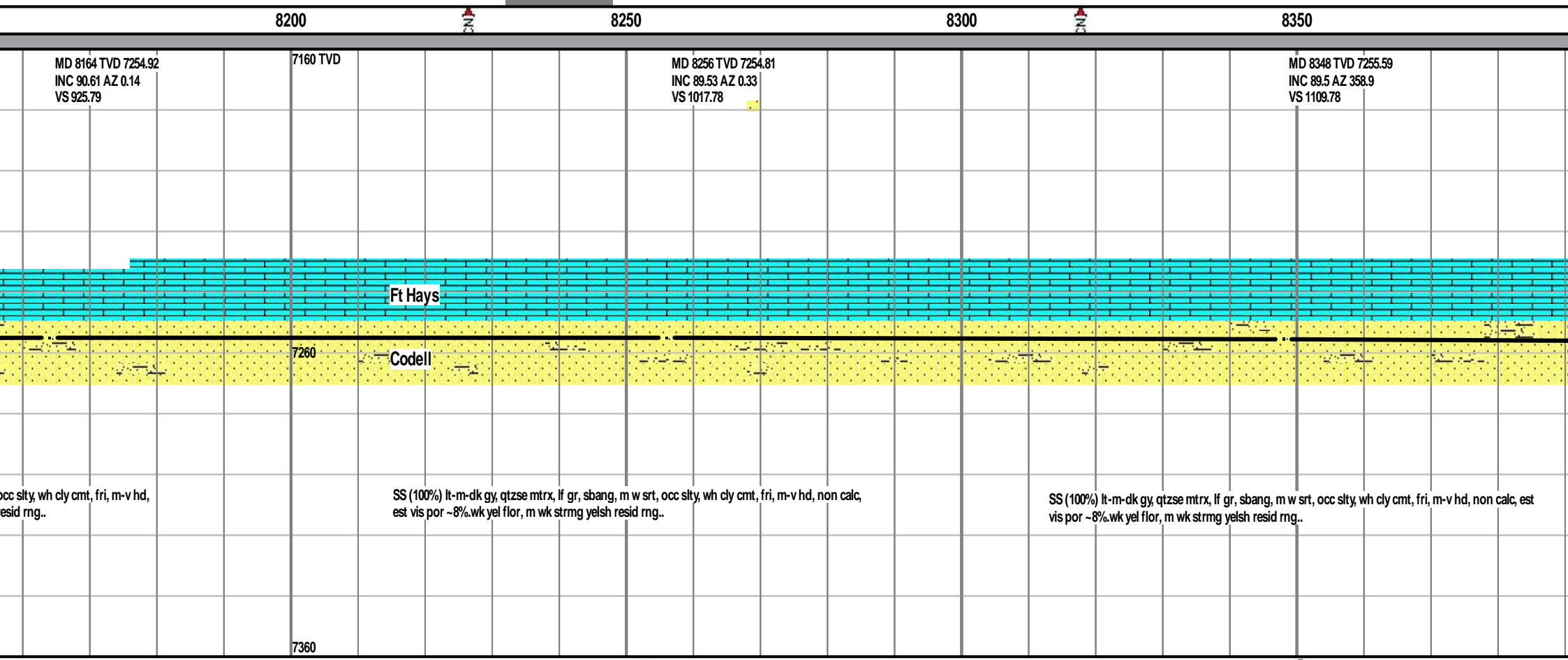
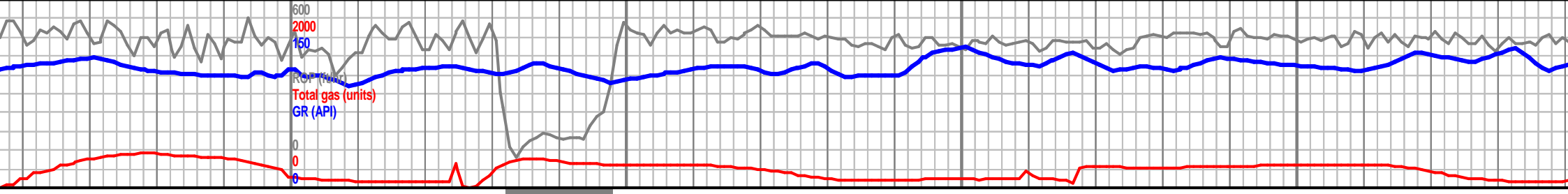
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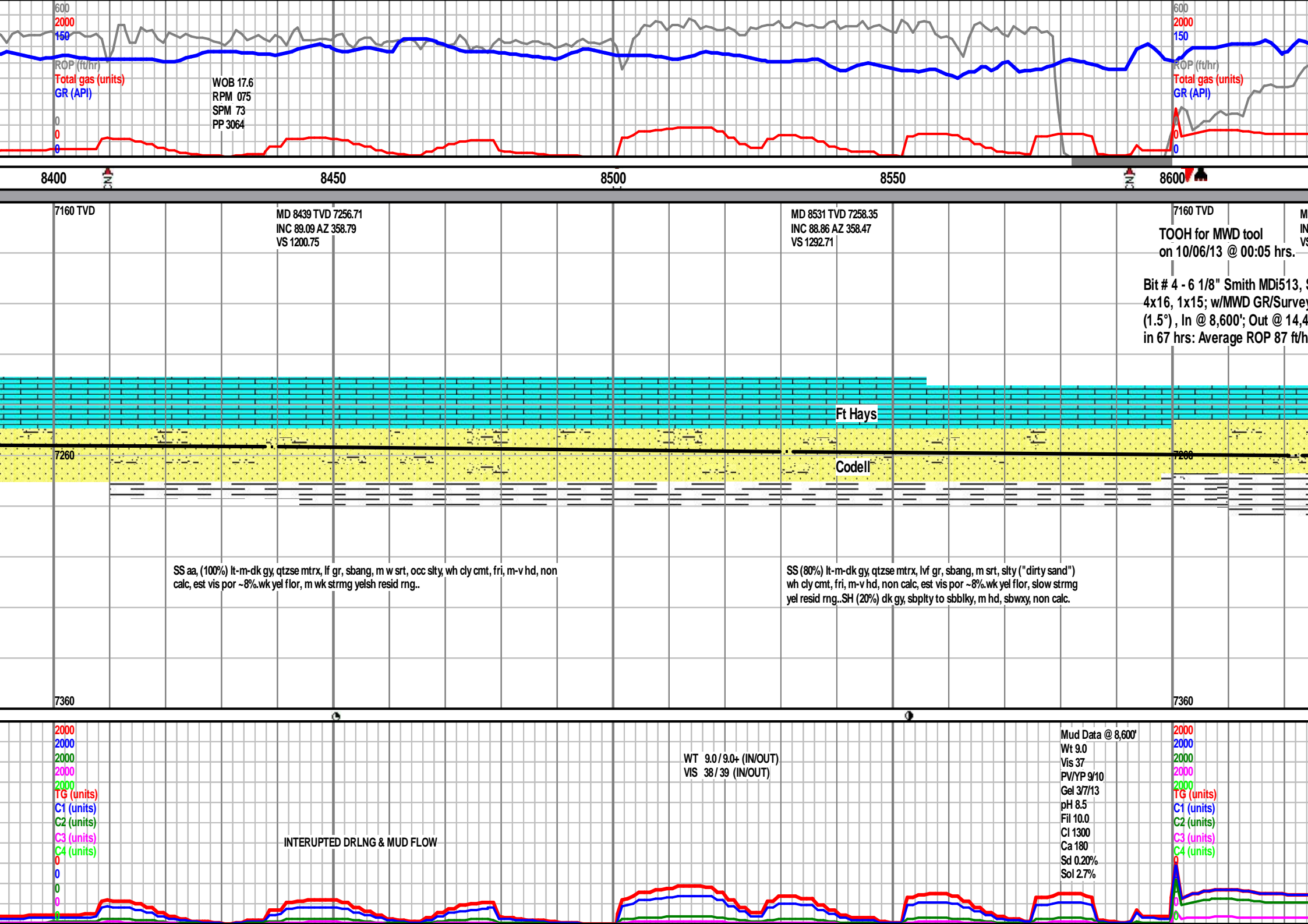


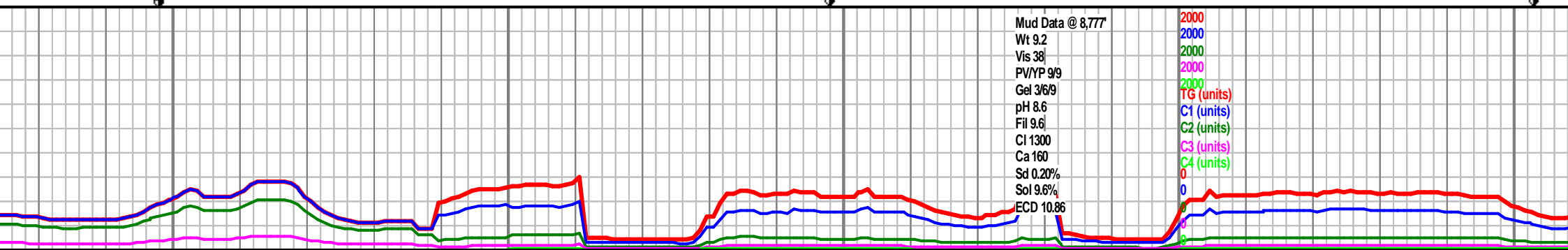
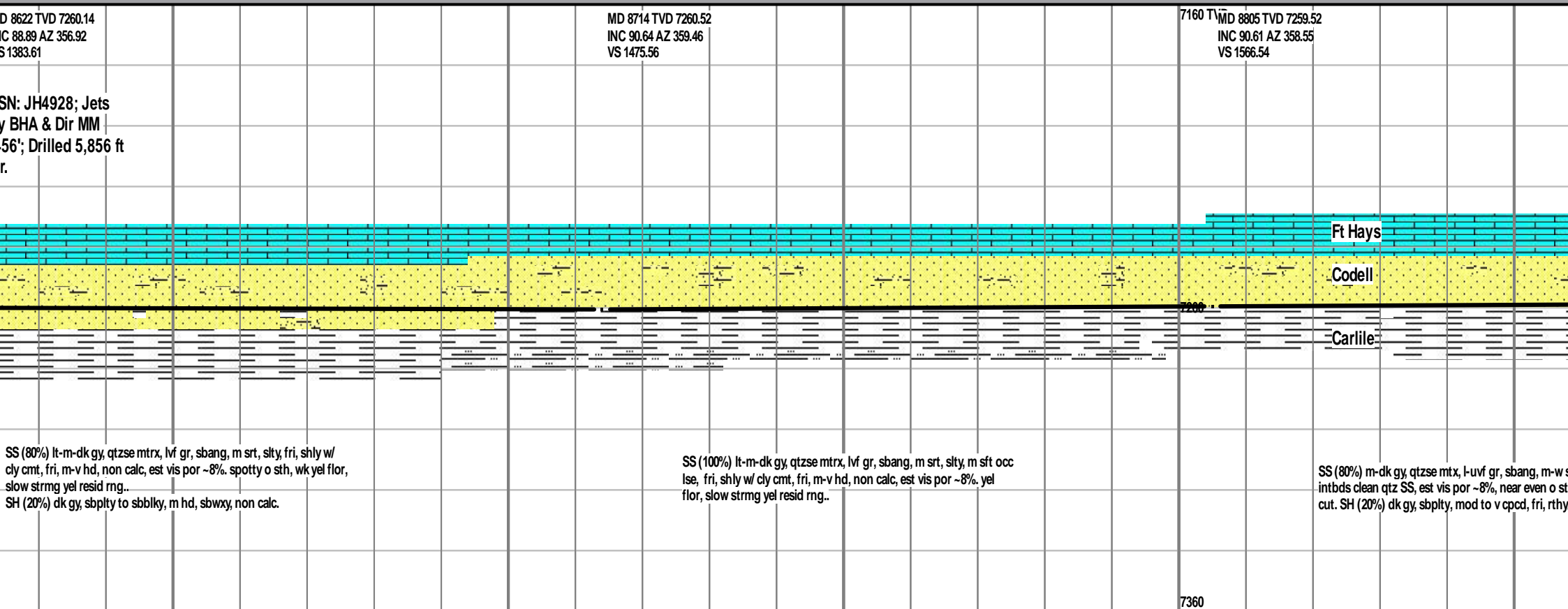
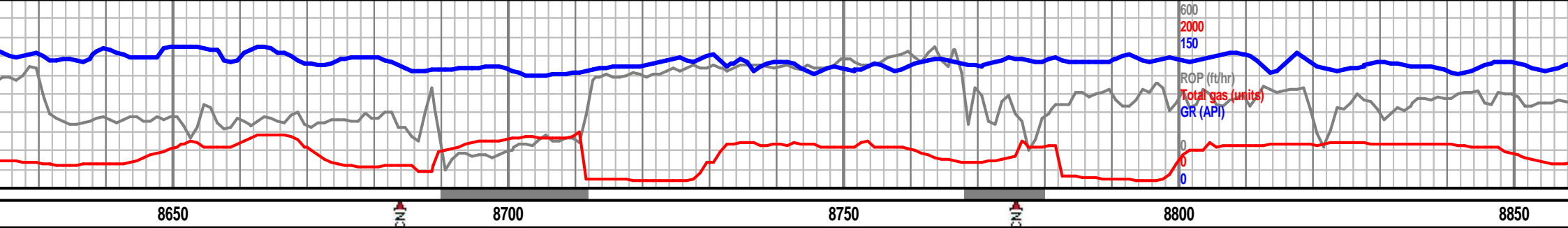


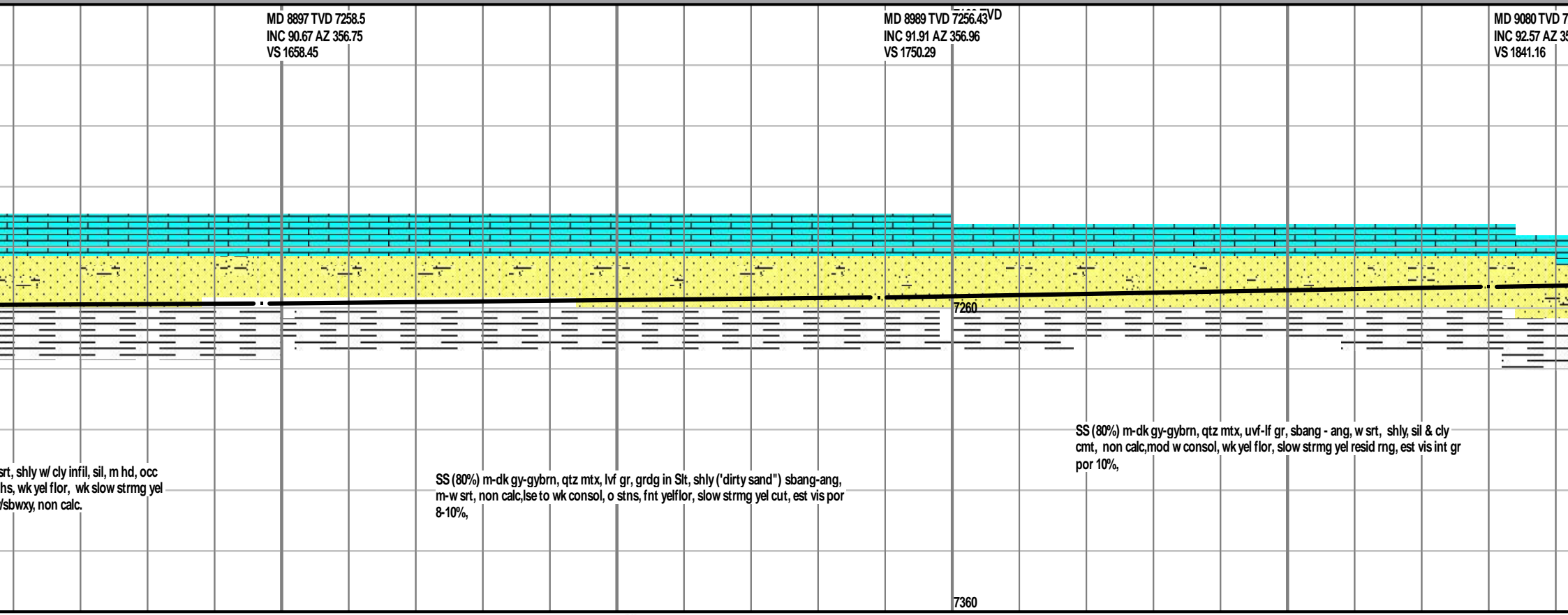
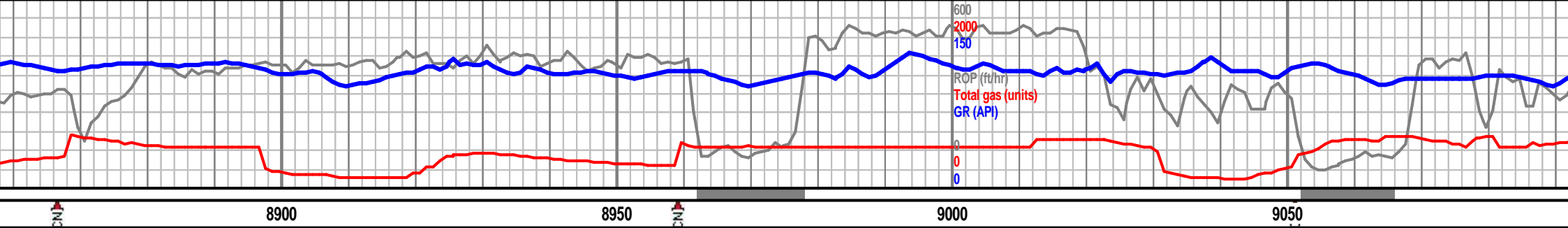








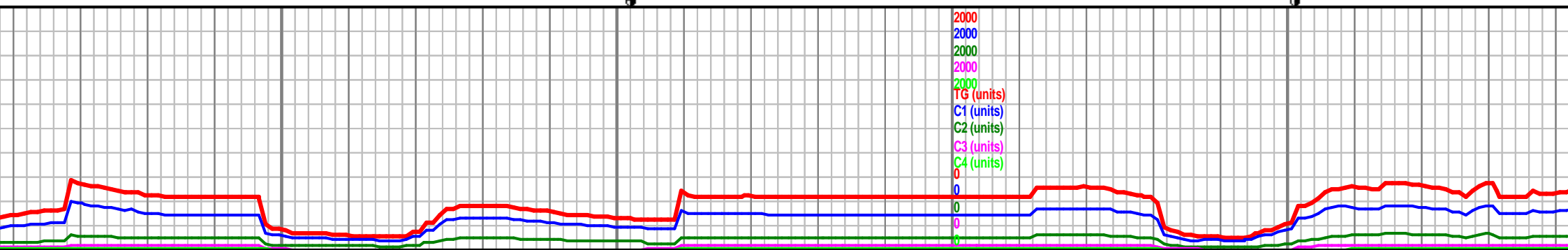


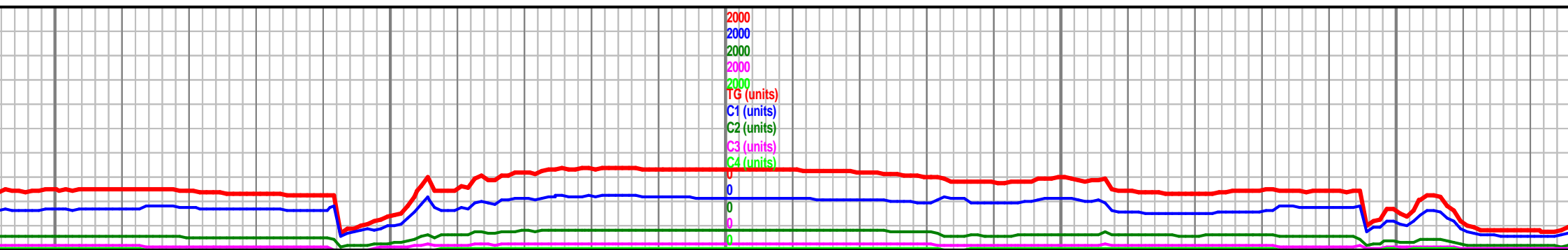
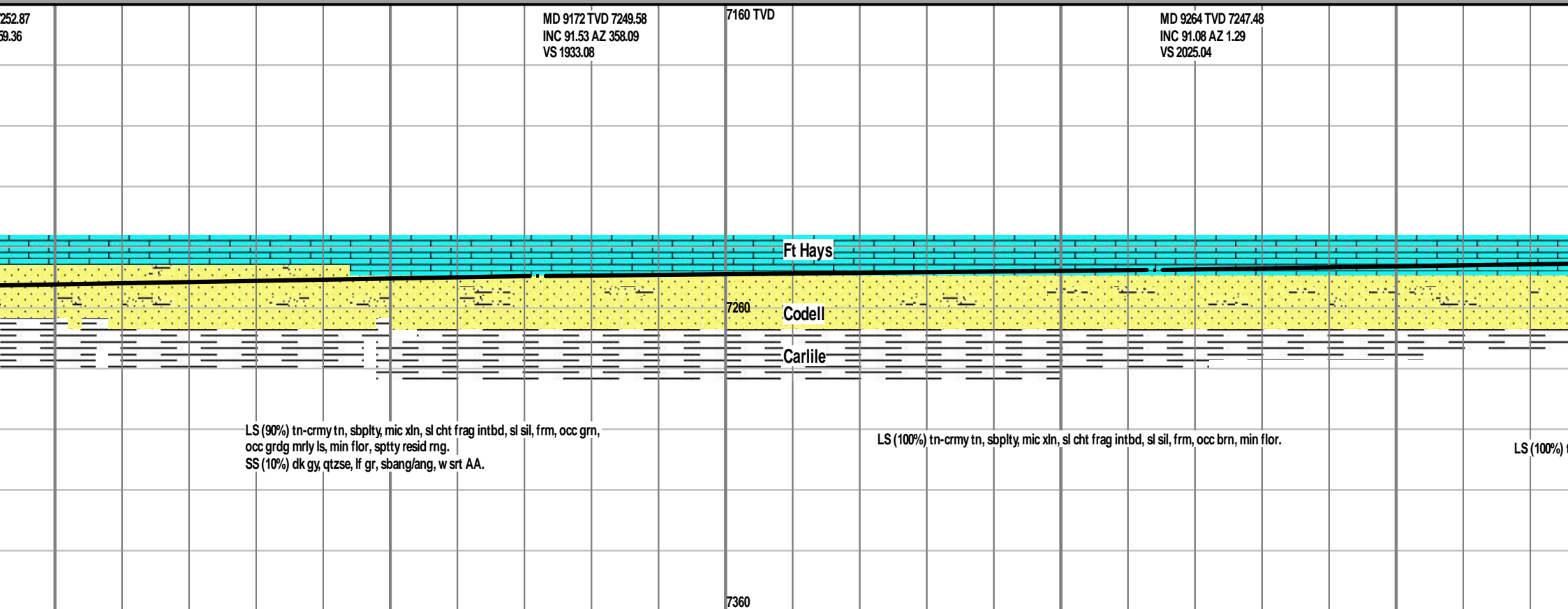
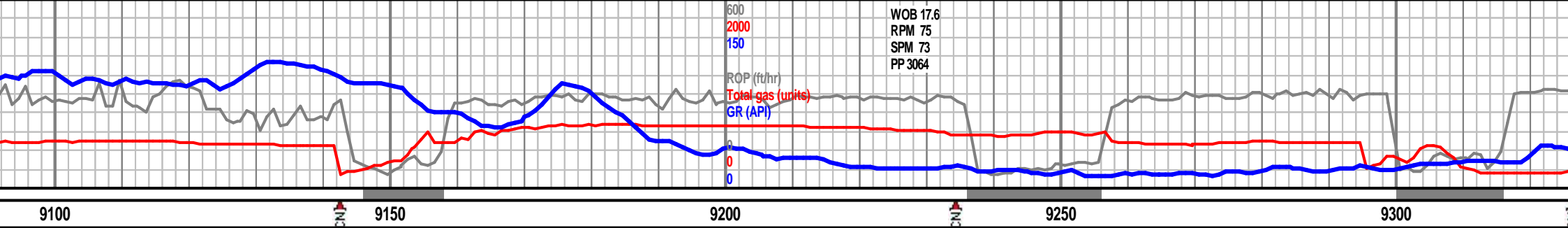


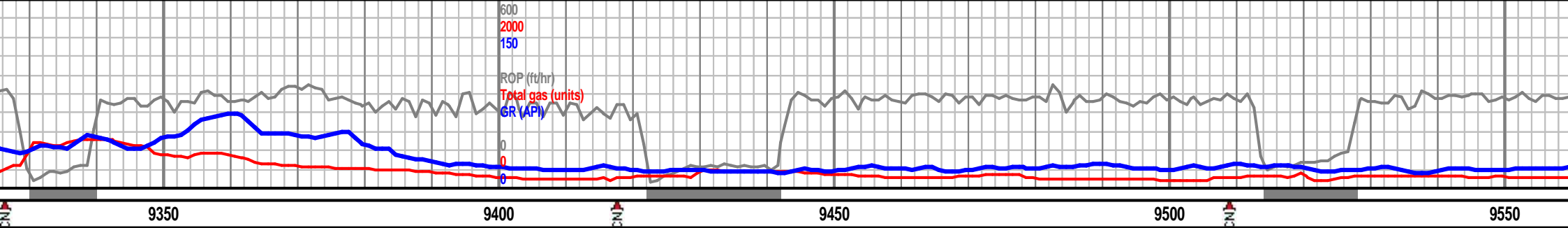
srt, shly w/ cly infil, sil, m hd, occ  
hs, wk yel flor, wk slow strmg yel  
/sbwxy, non calc.

SS (80%) m-dk gy-gybrn, qtz mtx, lvf gr, grdg in Slt, shly ("dirty sand") sbang-ang,  
m-w srt, non calc, lse to wk consol, o stns, fnt yelflor, slow strmg yel cut, est vis por  
8-10%,

SS (80%) m-dk gy-gybrn, qtz mtx, uvf-lf gr, sbang - ang, w srt, shly, sil & cly  
cmt, non calc, mod w consol, wk yel flor, slow strmg yel resid rng, est vis int gr  
por 10%,





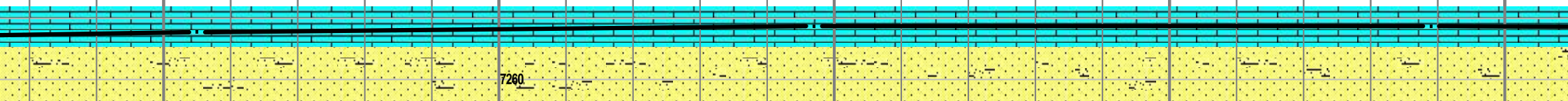


MD 9355 TVD 7244.71  
INC 92.41 AZ 3.29  
VS 2115.92

7160 TVD

MD 9447 TVD 7242.48  
INC 90.37 AZ 4.18  
VS 2207.69

MD 9539 TVD 7242.64  
INC 89.43 AZ 3.85  
VS 2299.46



tn-crmy tn, sbplty, mic xln, m hd, sl cht frag intbd, sl sil, frm, occ brn, min flor.

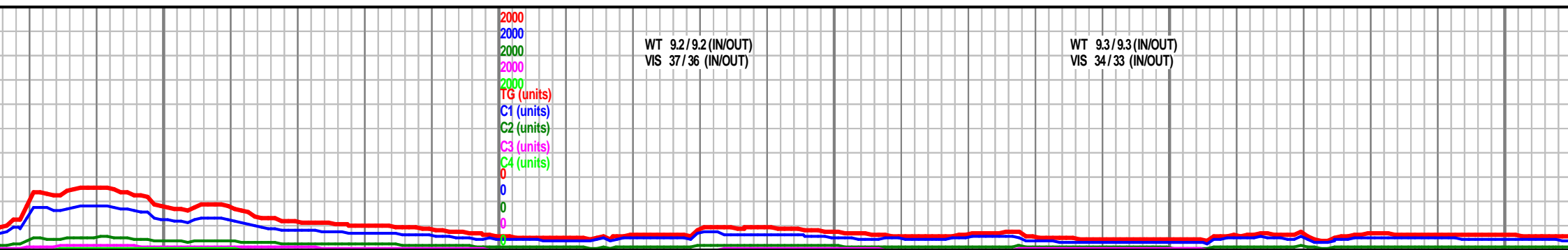
LS (100%) tn-crmy tn, sbplty, mic xln, m hd - hd, sl cht frag intbd, sl sil, frm, occ brn, min flor.

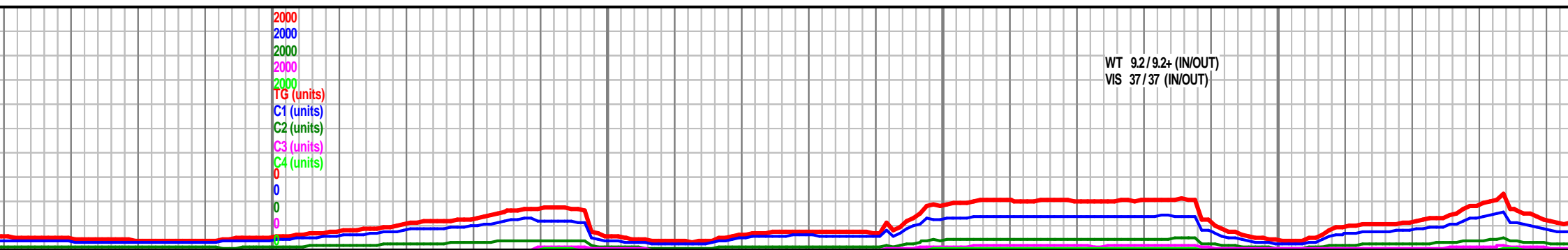
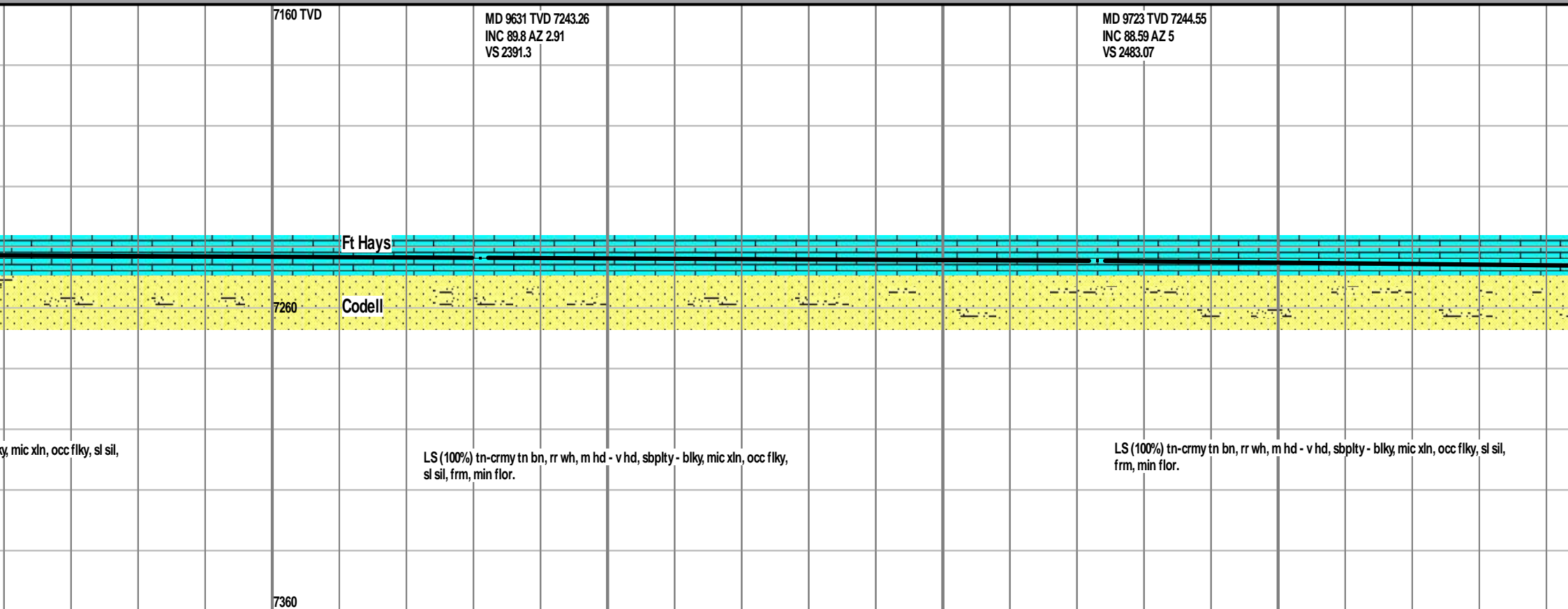
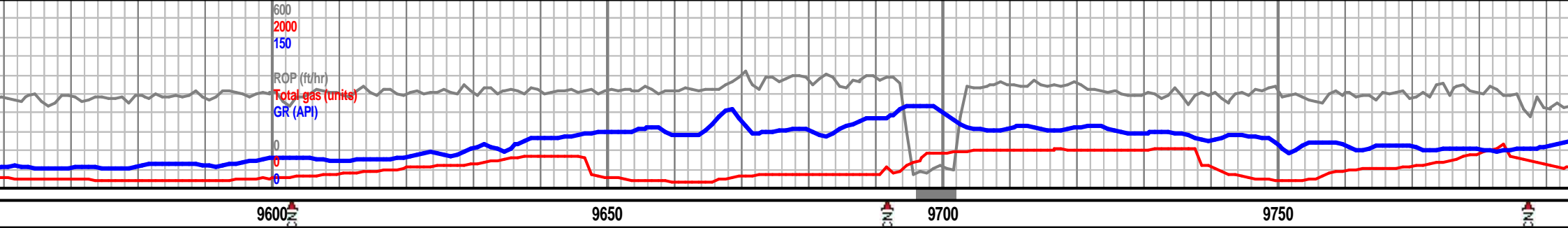
LS (100%) tn-crmy tn bn, rr wh, m hd - v hd, sbplty - blk frm, min flor.

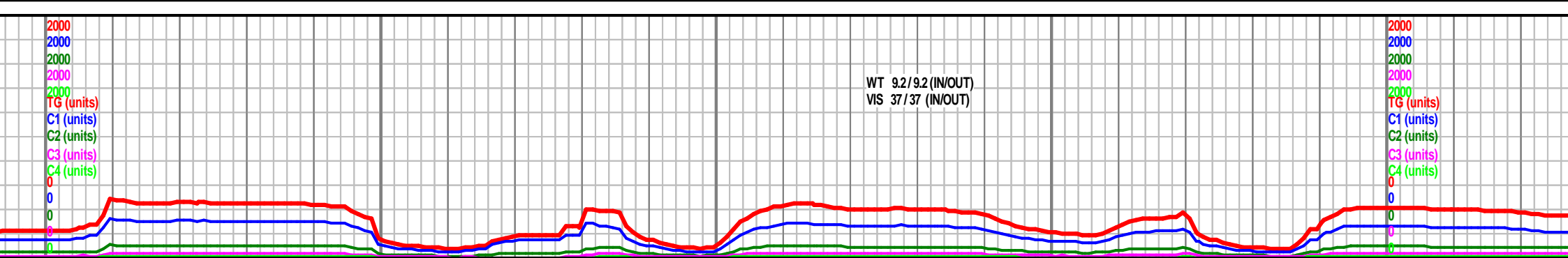
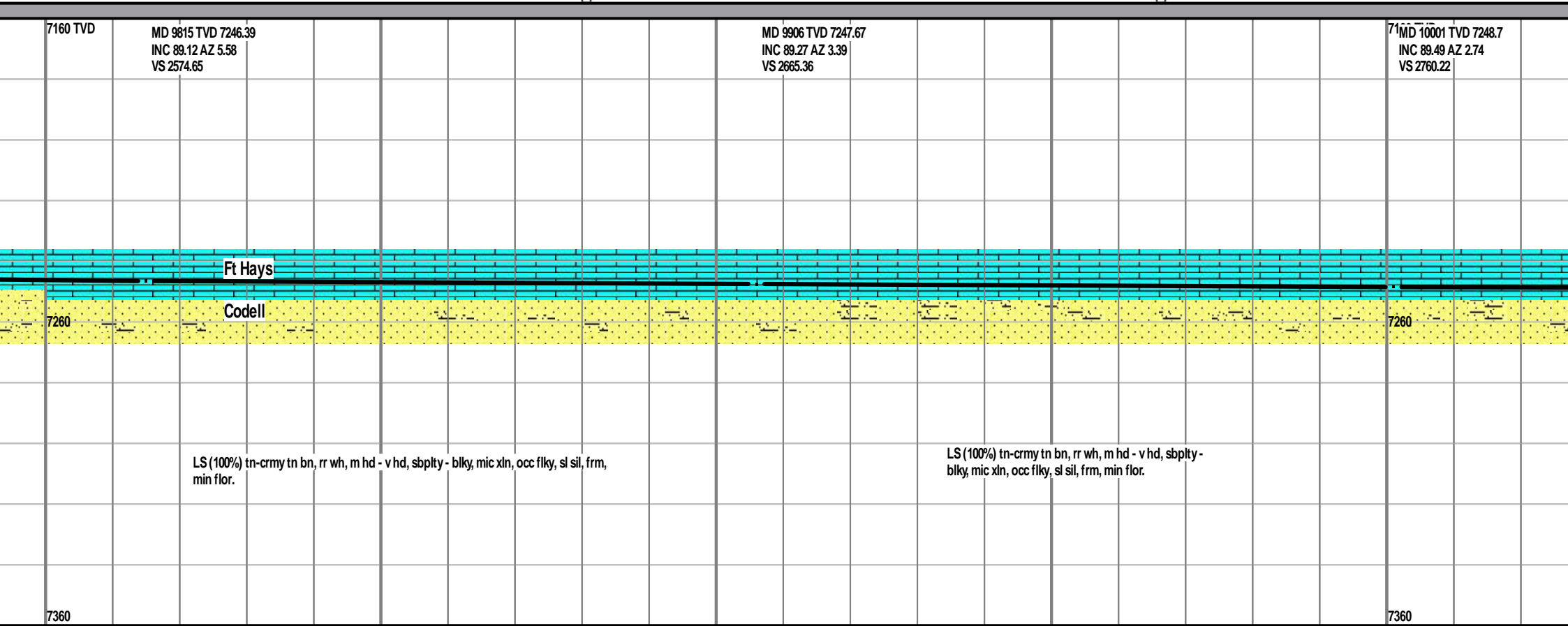
7360

WT 9.2/9.2 (IN/OUT)  
VIS 37/36 (IN/OUT)

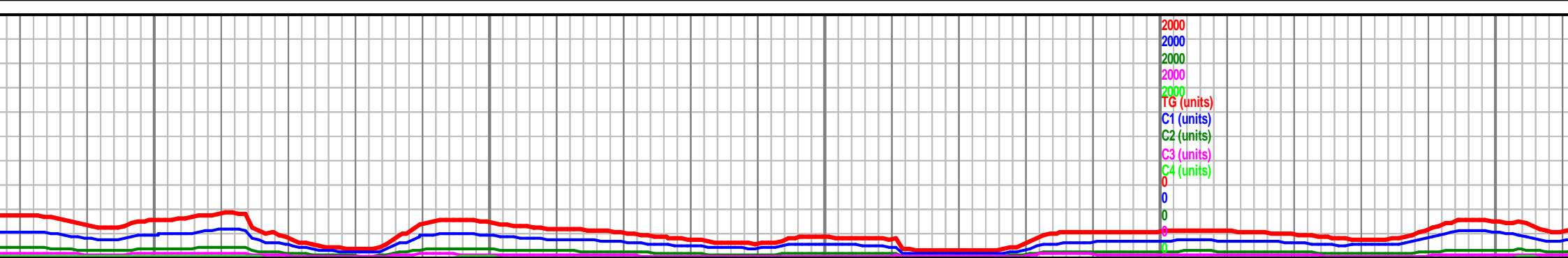
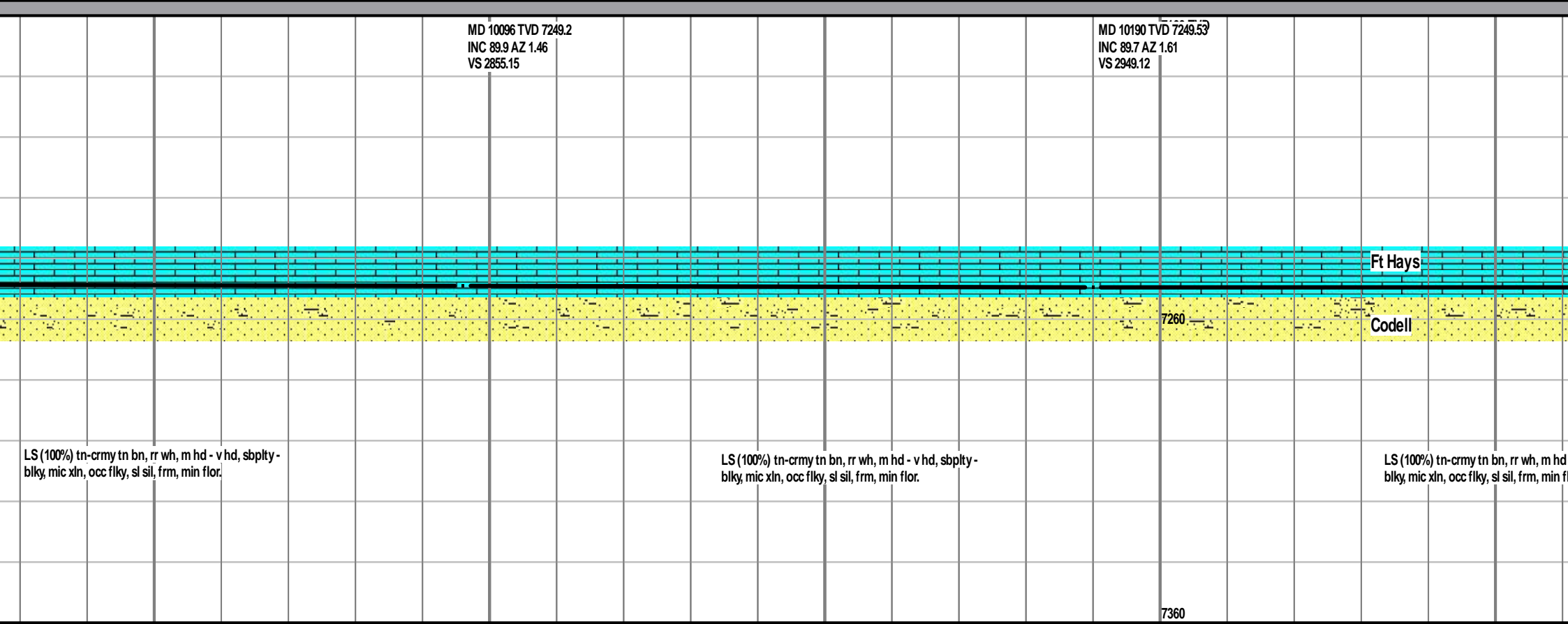
WT 9.3/9.3 (IN/OUT)  
VIS 34/33 (IN/OUT)

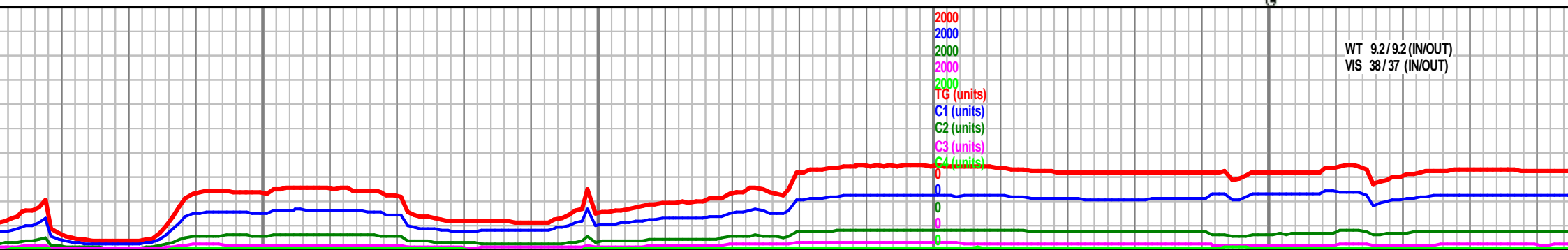
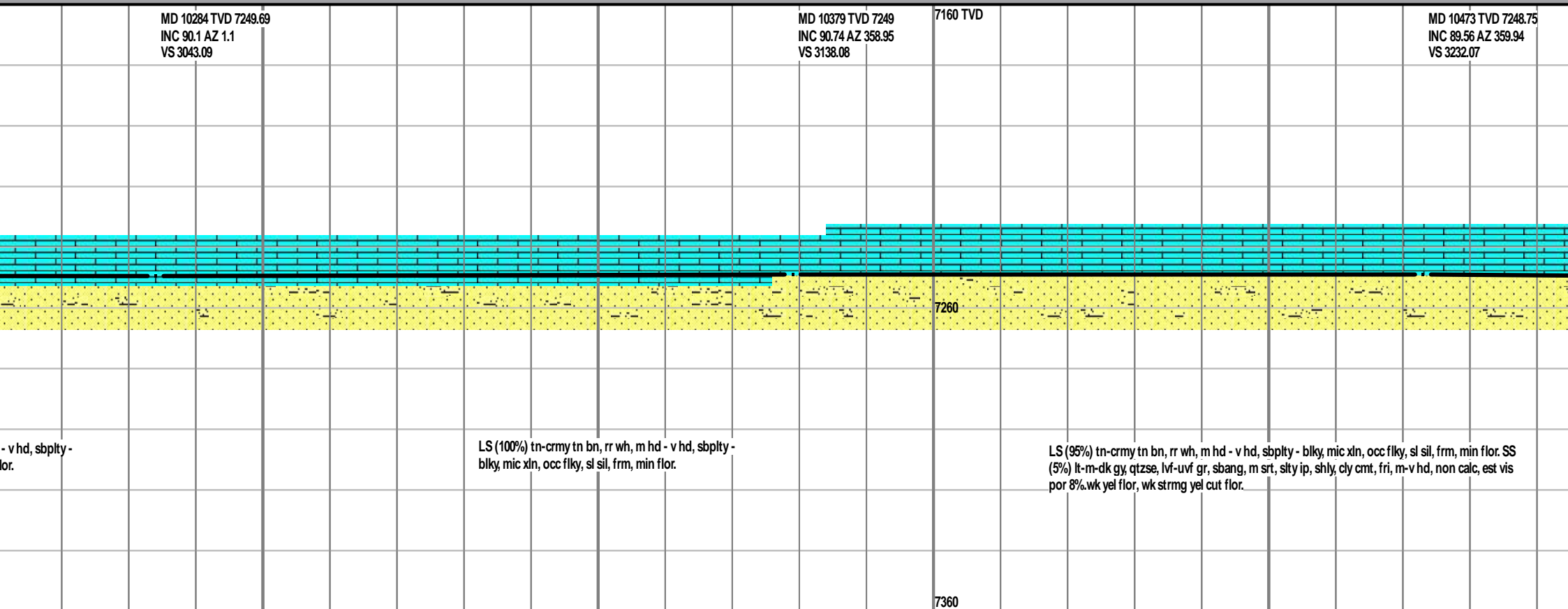
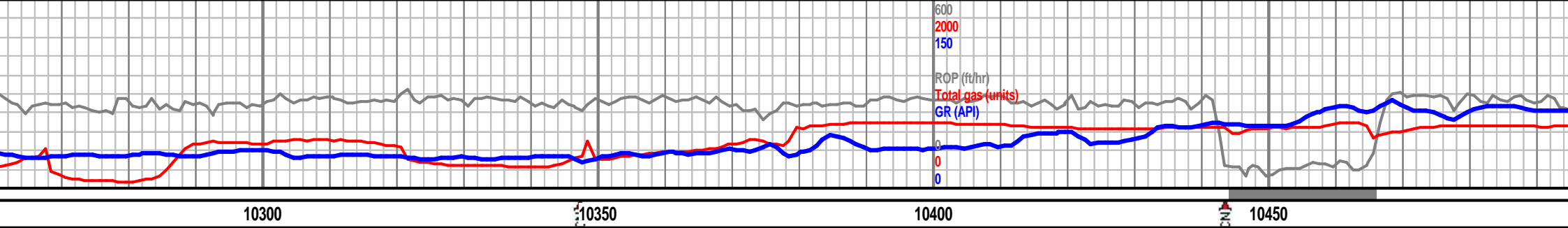


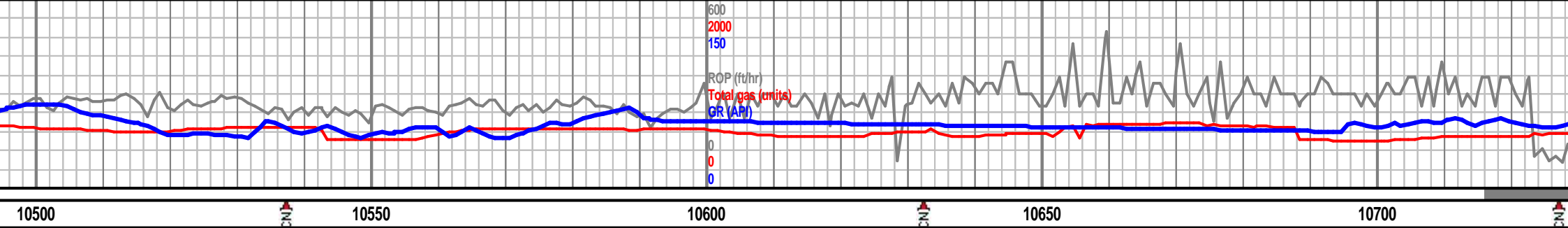








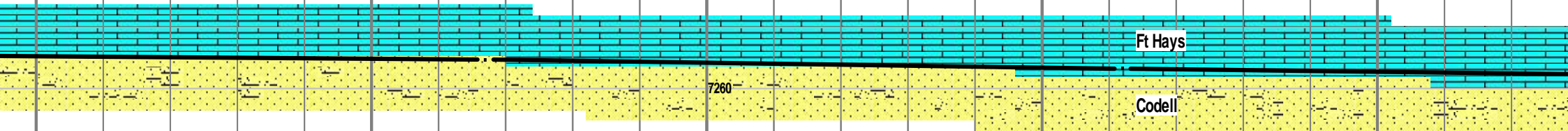




MD 10567 TVD 7250.27  
INC 88.59 AZ 359.32  
VS 3326.06

7160 TVD

MD 10662 TVD 7253.72  
INC 87.24 AZ 356.6  
VS 3420.92



LS (95%) tn-crmy tn bn, rr wh, m hd - v hd, sbplty - blk, mic xln, occ flky, sl sil, frm, min flor.SS (5%) lt-m-dk gy, qtzse, lvf-uvf gr, sbang, p srt, slty ip, cly cmt, shly, fri, m-v hd, non calc, est vis por 8%.wk yel flor, wk strmg yel cut flor.

LS (95%) tn-crmy tn bn, rr wh, m hd - v hd, sbplty - blk, mic xln, occ flky, sl sil, frm, min flor.SS (5%) lt-m-dk gy, qtzse, lvf-uvf gr, sbang, m srt, slty ip, shly, cly cmt, fri, m-v hd, non calc, est vis por 8%.wk yel flor, wk strmg yel cut flor

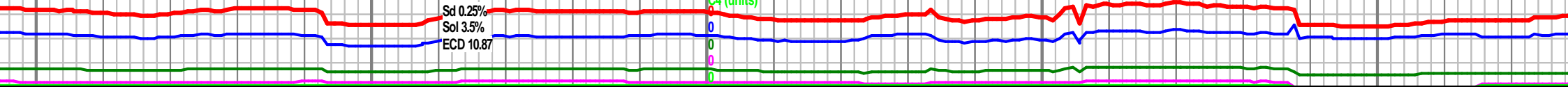
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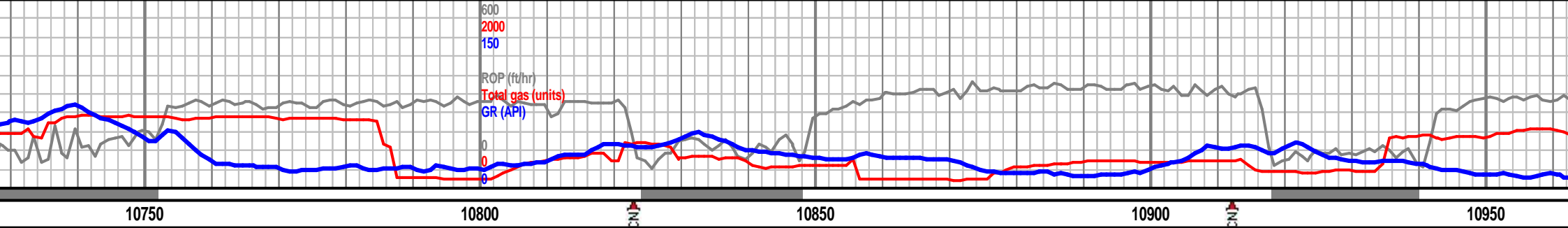
Mud Data @ 10,561'

Wt 9.2  
Vis 38  
PV/YP 12/12  
Gel 3/7/11  
pH 9.4  
Fil 5.2  
Cl 1300  
Ca 180  
Sd 0.25%  
Sol 3.5%  
ECD 10.87

2000  
2000  
2000  
2000  
2000  
TG (units)  
C1 (units)  
C2 (units)  
C3 (units)  
C4 (units)

WT 9.2/9.2 (IN/OUT)  
VIS 39/38 (IN/OUT)



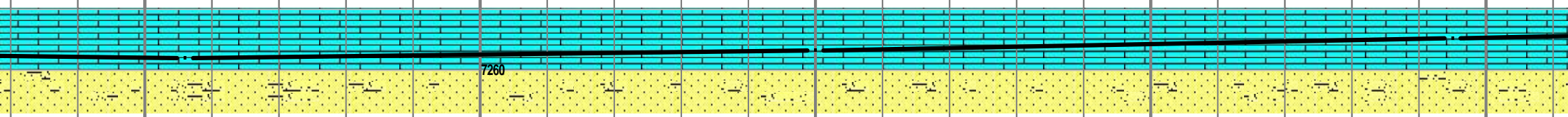


MD 10756 TVD 7255.77  
INC 90.27 AZ 355.42  
VS 3514.66

7160 TVD

MD 10850 TVD 7253.5  
INC 92.49 AZ 356.97  
VS 3608.42

MD 10945 TVD 7249.3  
INC 92.58 AZ 0.35  
VS 3703.29



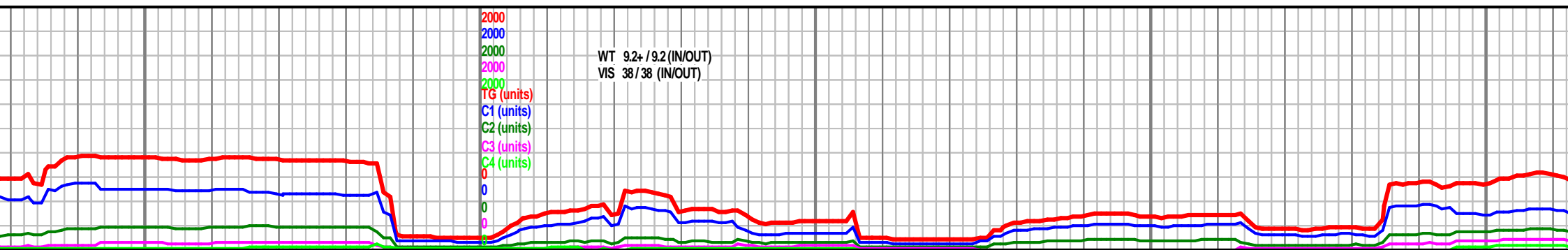
7260

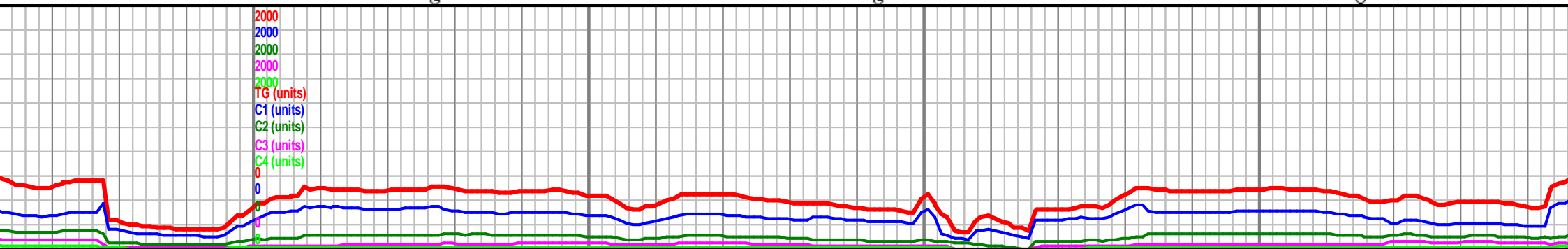
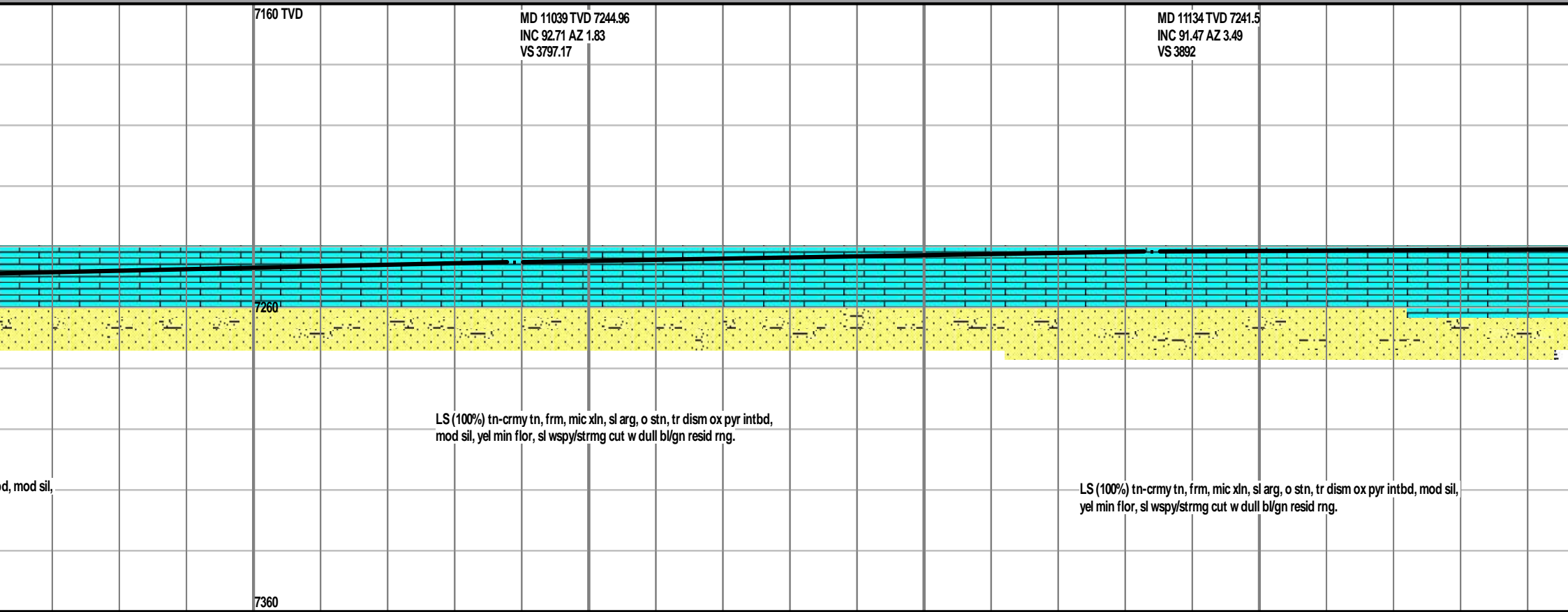
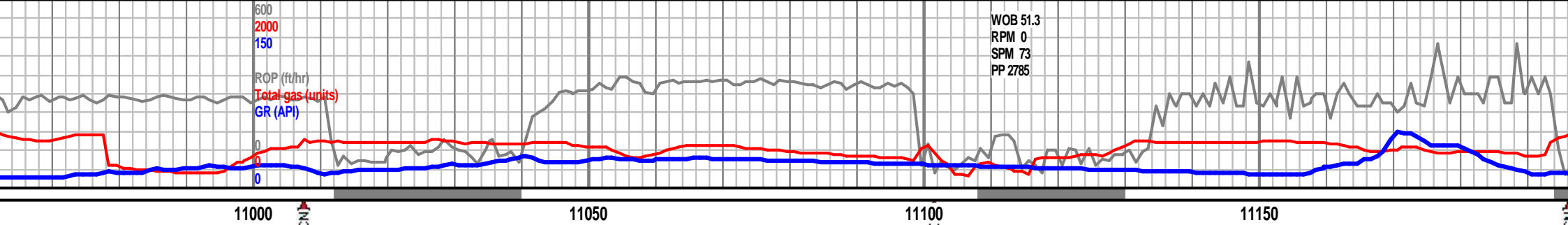
LS (100%) tn-crmy tn, frm, mic xln, sl arg, o stn, tr  
dism ox pyr intbd, mod sil, yel min flor, sl  
wspy/strmg cut w dull bl/gn resid rng.

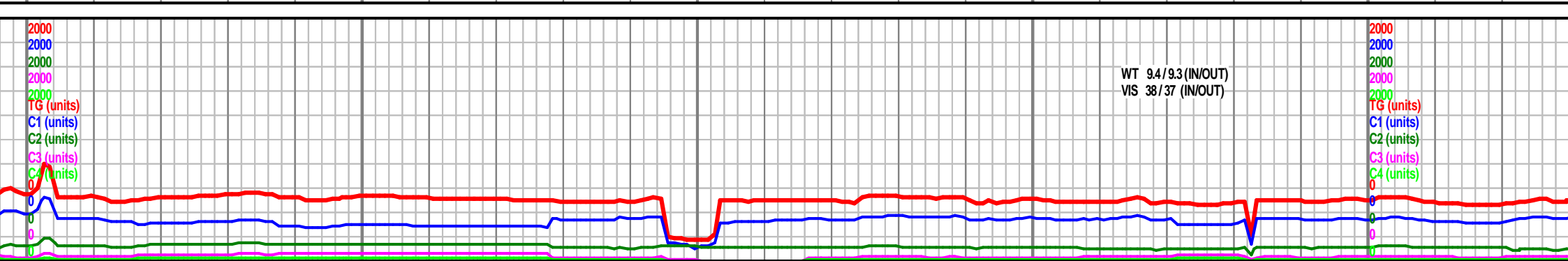
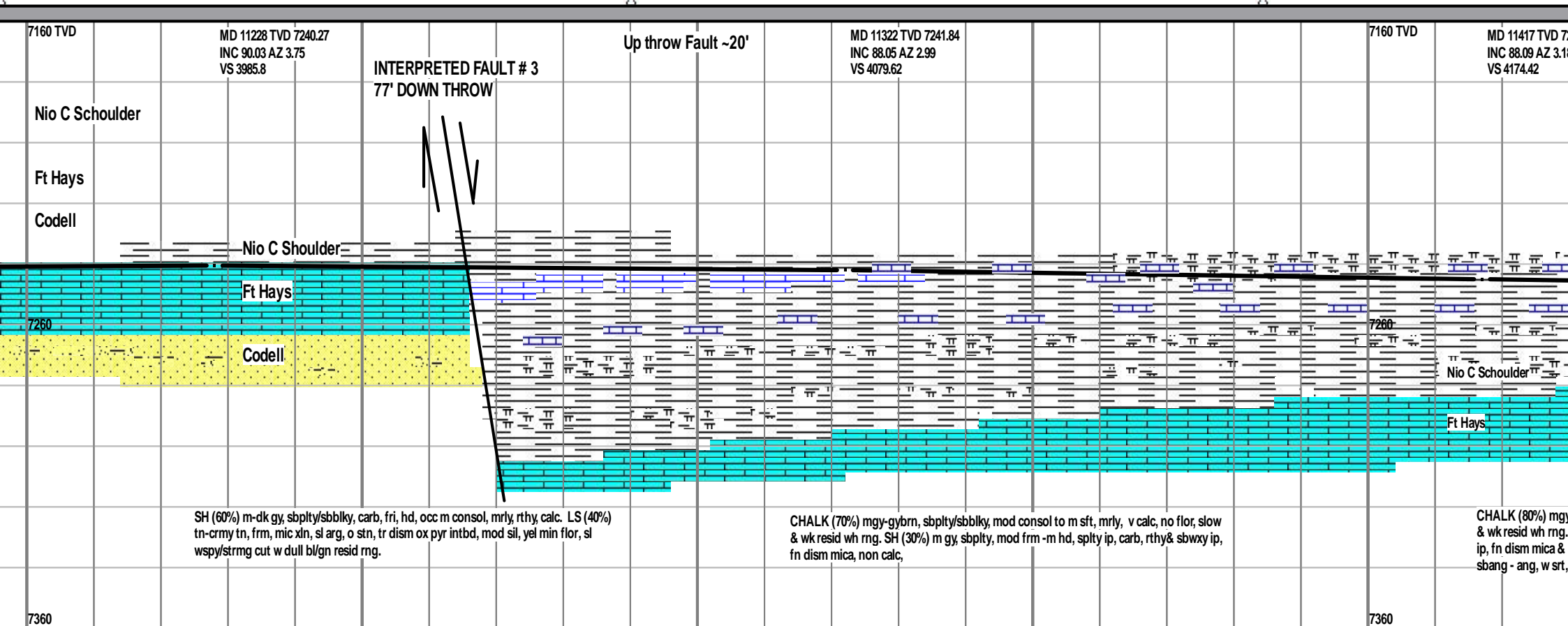
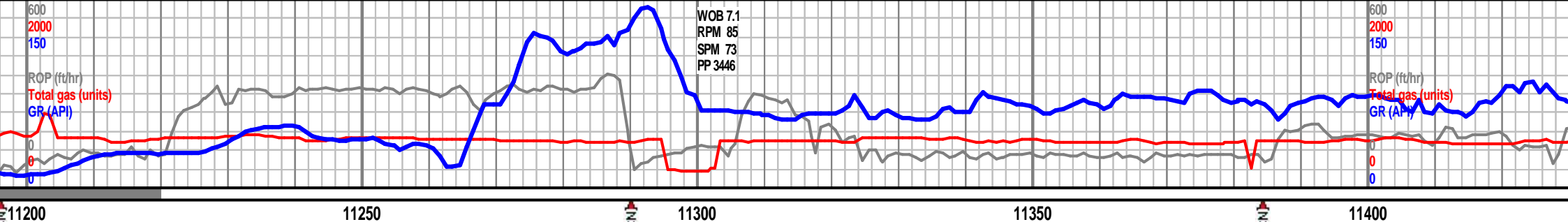
LS (100%) tn-crmy tn, frm, mic xln, sl arg, o stn, tr  
dism ox pyr intbd, mod sil, yel min flor, sl wspy/strmg cut w dull bl/gn resid  
rng.

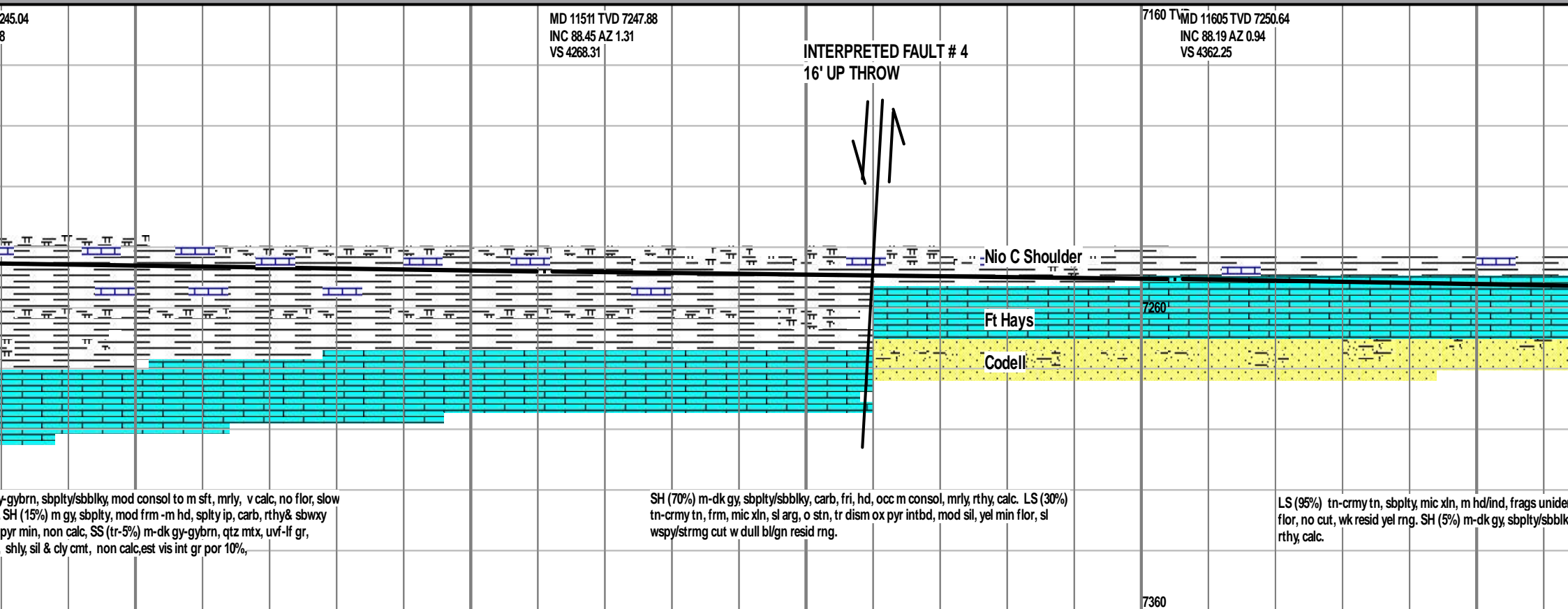
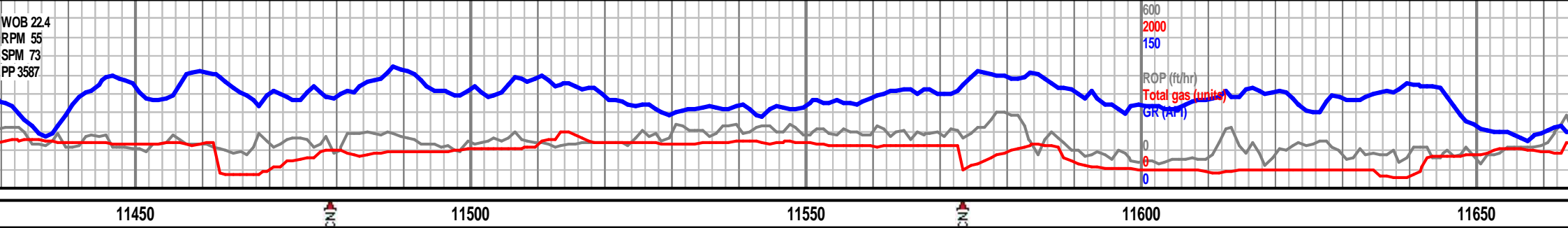
LS (100%) tn-crmy tn, frm, mic xln, sl arg, o stn, tr  
dism ox pyr intbd, mod sil, yel min flor, sl wspy/strmg cut w dull bl/gn resid rng.

7360





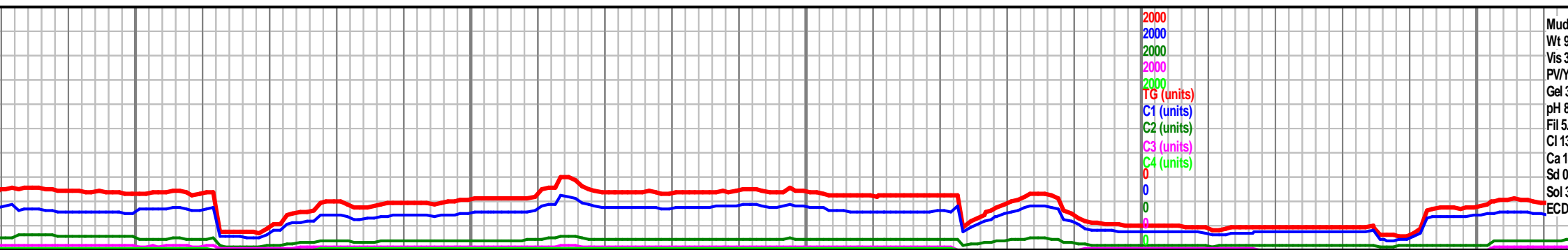




-gybrn, sbplty/sbblky, mod consol to m sft, mrlty, v calc, no flor, slow  
SH (15%) m gy, sbplty, mod frm -m hd, splty ip, carb, rthy& sbwxy  
pyr min, non calc, SS (tr-5%) m-dk gy-gybrn, qtz mtx, uvf-lf gr,  
shly, sil & cly cmt, non calc, est vis int gr por 10%,

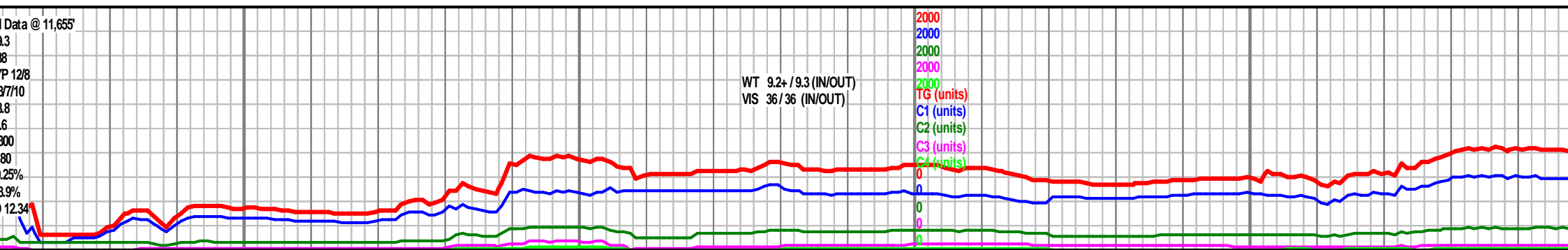
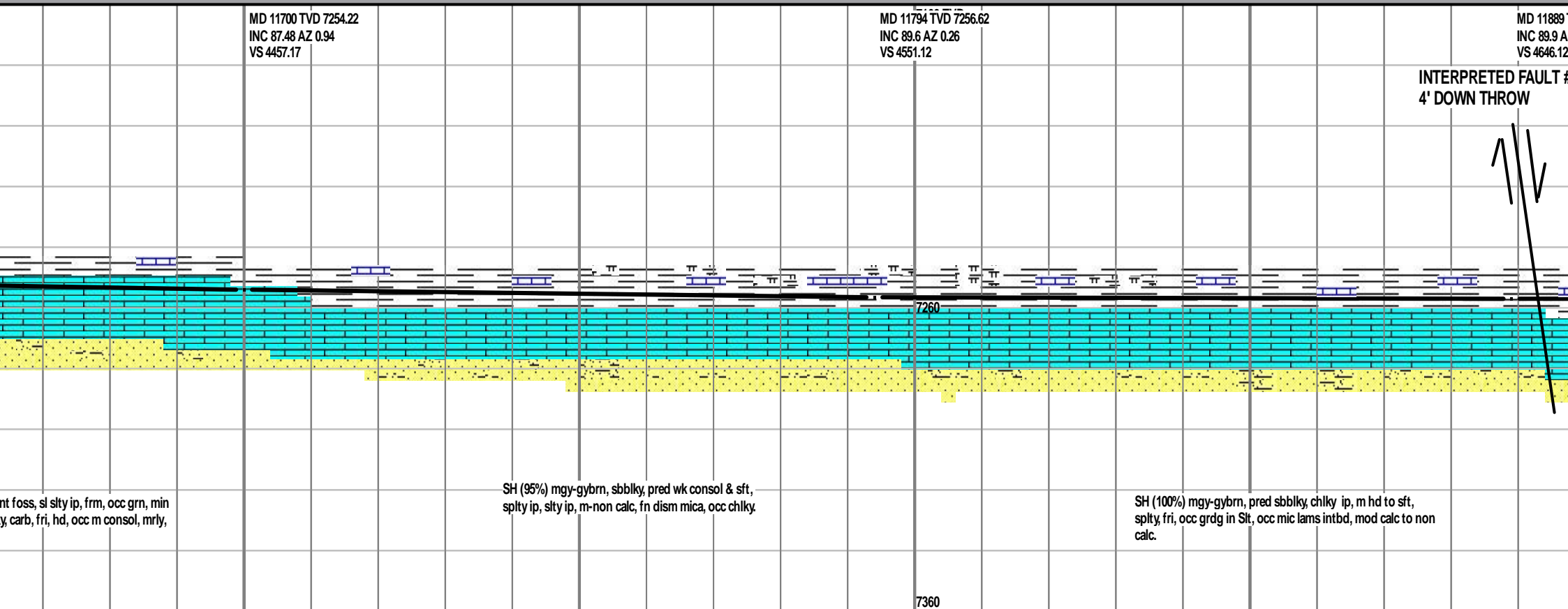
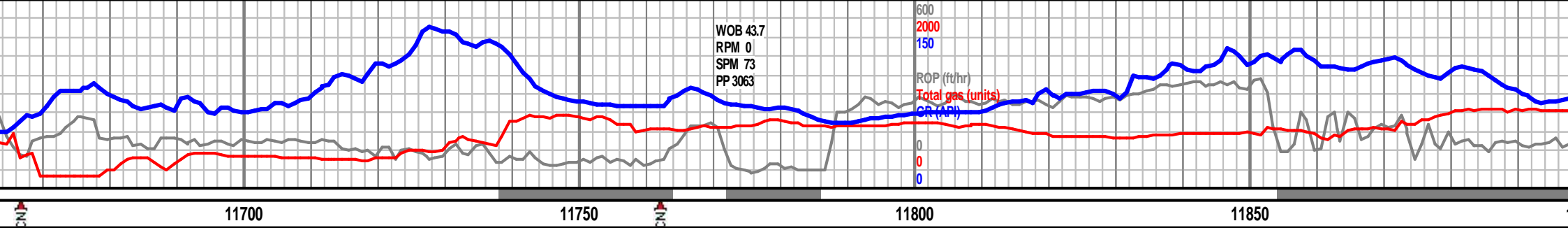
SH (70%) m-dk gy, sbplty/sbblky, carb, fri, hd, occ m consol, mrlty, rthy, calc. LS (30%)  
tn-crmy tn, frm, mic xln, sl arg, o stn, tr dism ox pyr intbd, mod sil, yel min flor, sl  
wspy/strmg cut w dull bl/gn resid rng.

LS (95%) tn-crmy tn, sbplty, mic xln, m hd/ind, frags under  
flor, no cut, wk resid yel rng. SH (5%) m-dk gy, sbplty/sbblky  
rthy, calc.

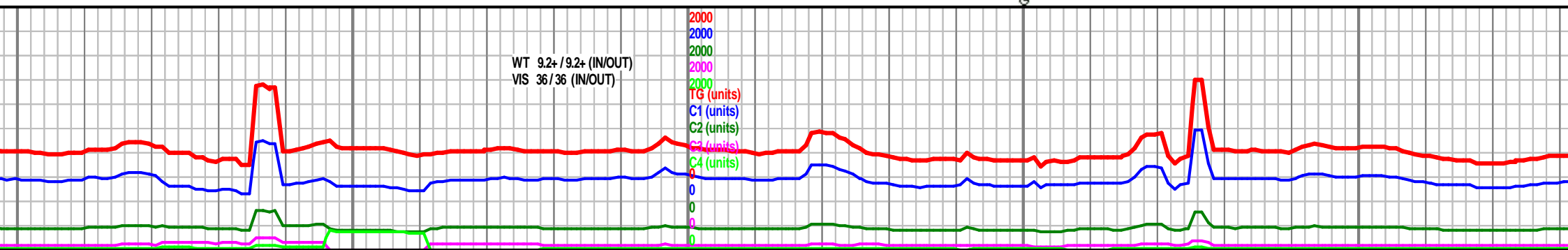
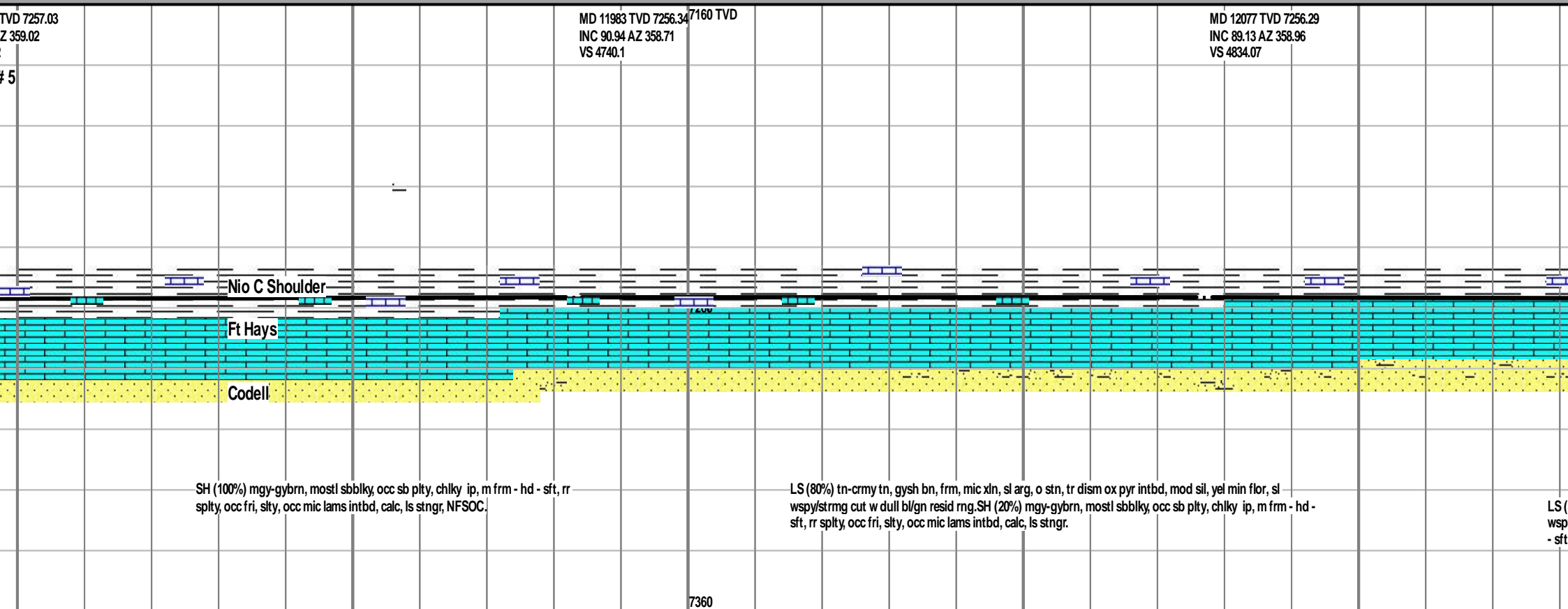
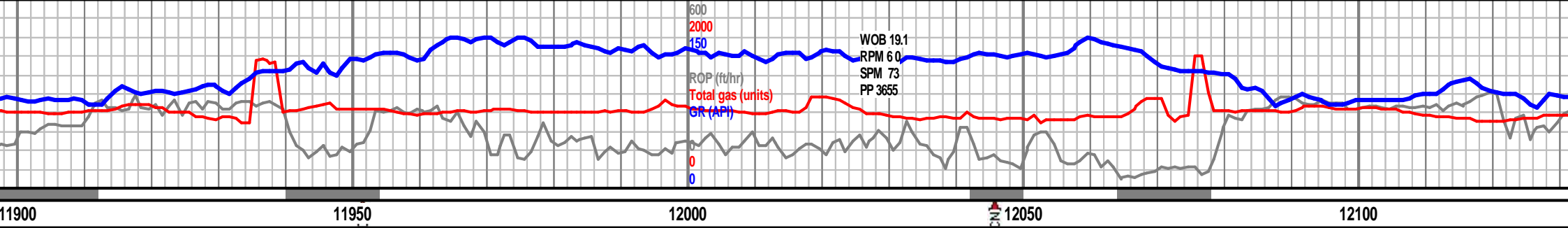


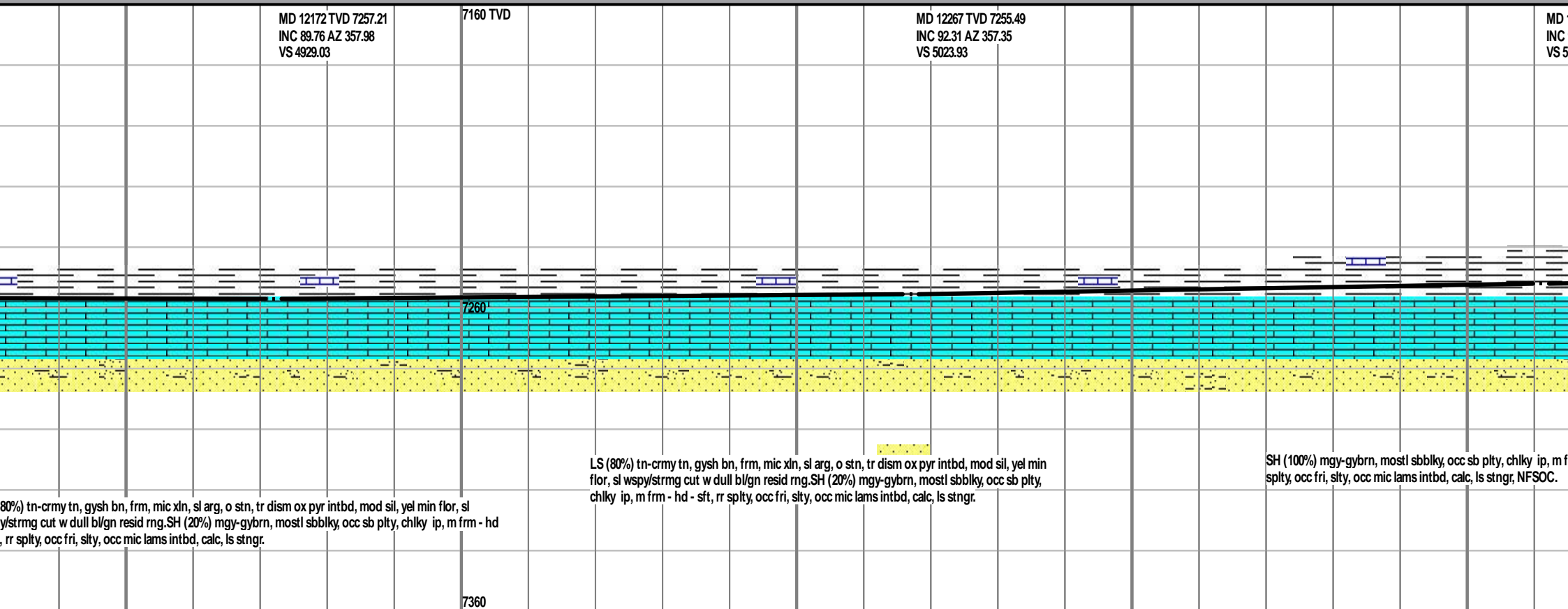
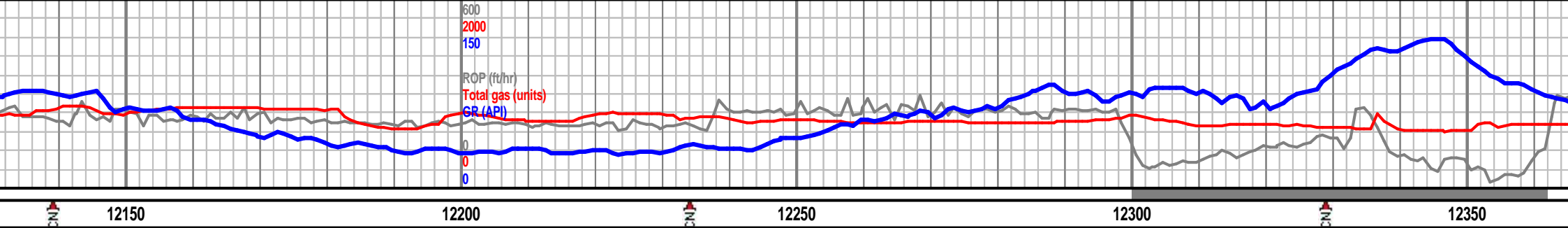
Mud  
Wt 9  
Vis 3  
PV/Y  
Gel 3  
pH 8  
Fil 5  
Cl 13  
Ca 1  
Sd 0  
Sol 3  
ECD







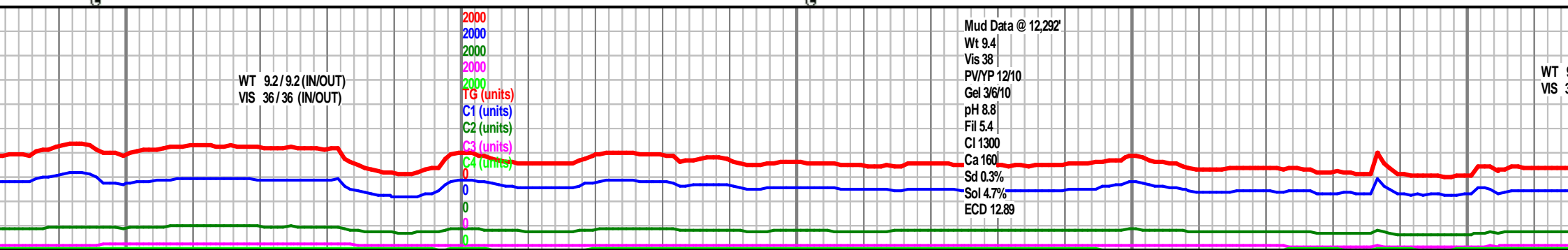


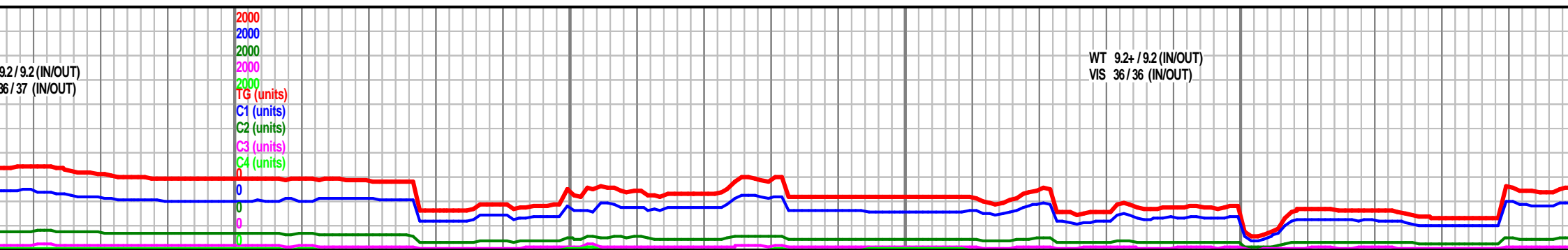
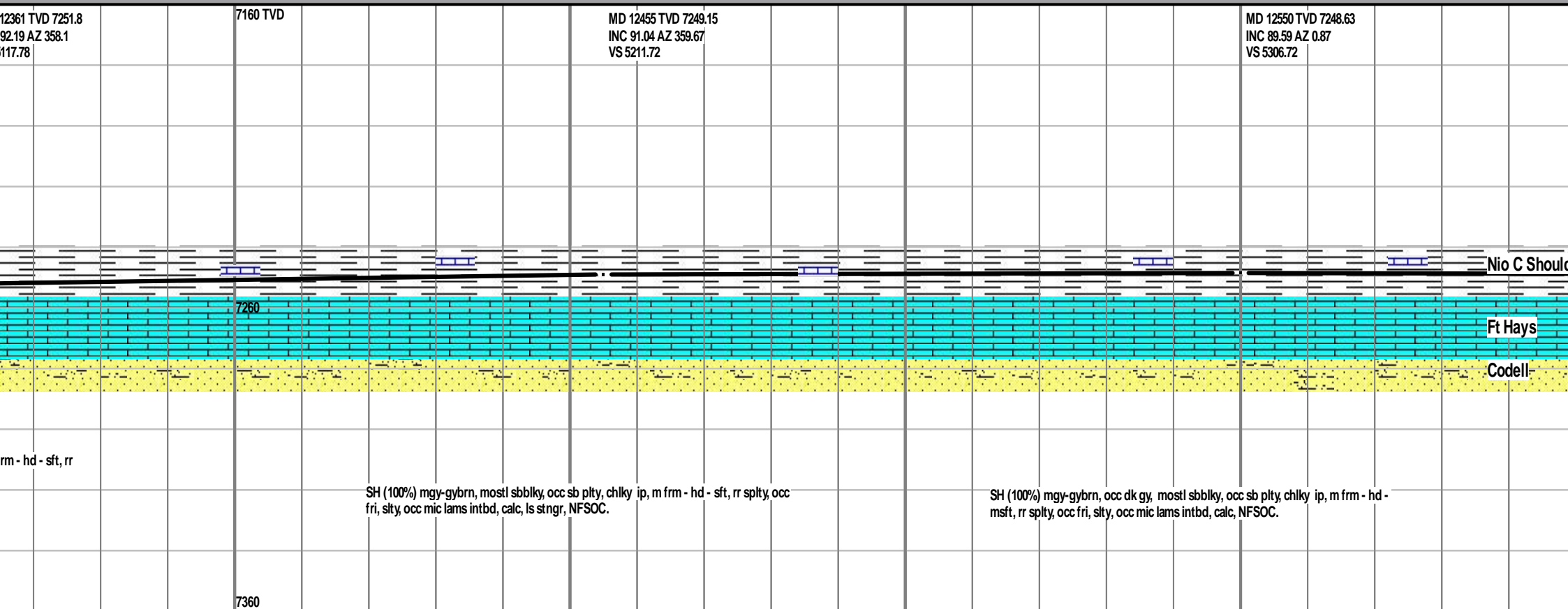
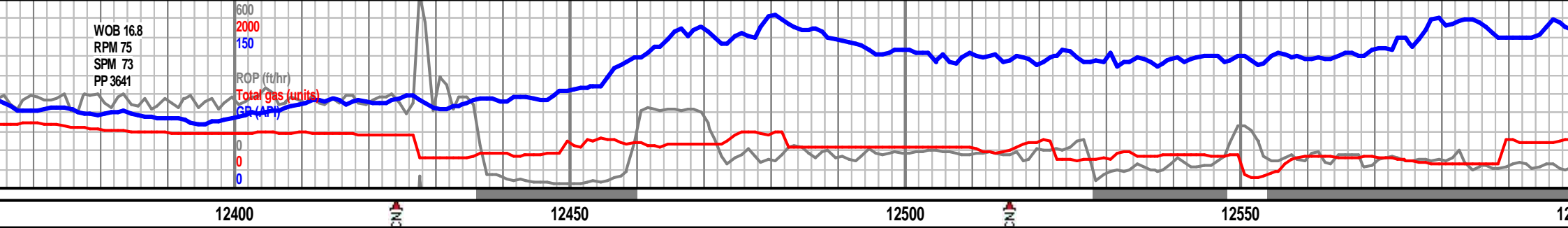


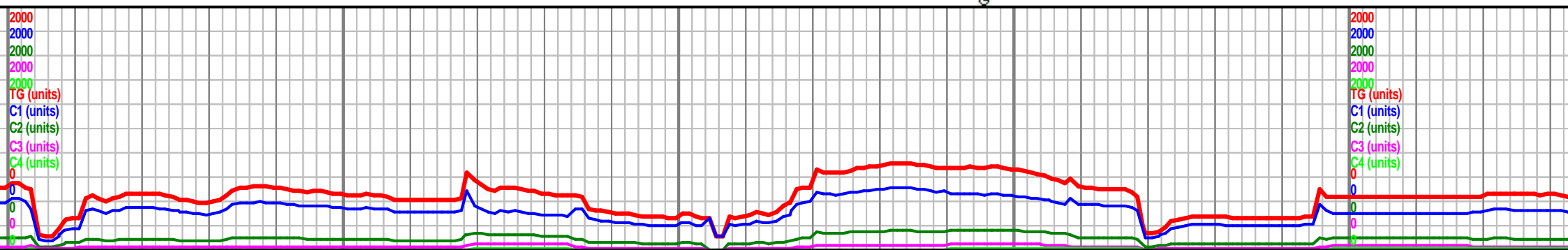
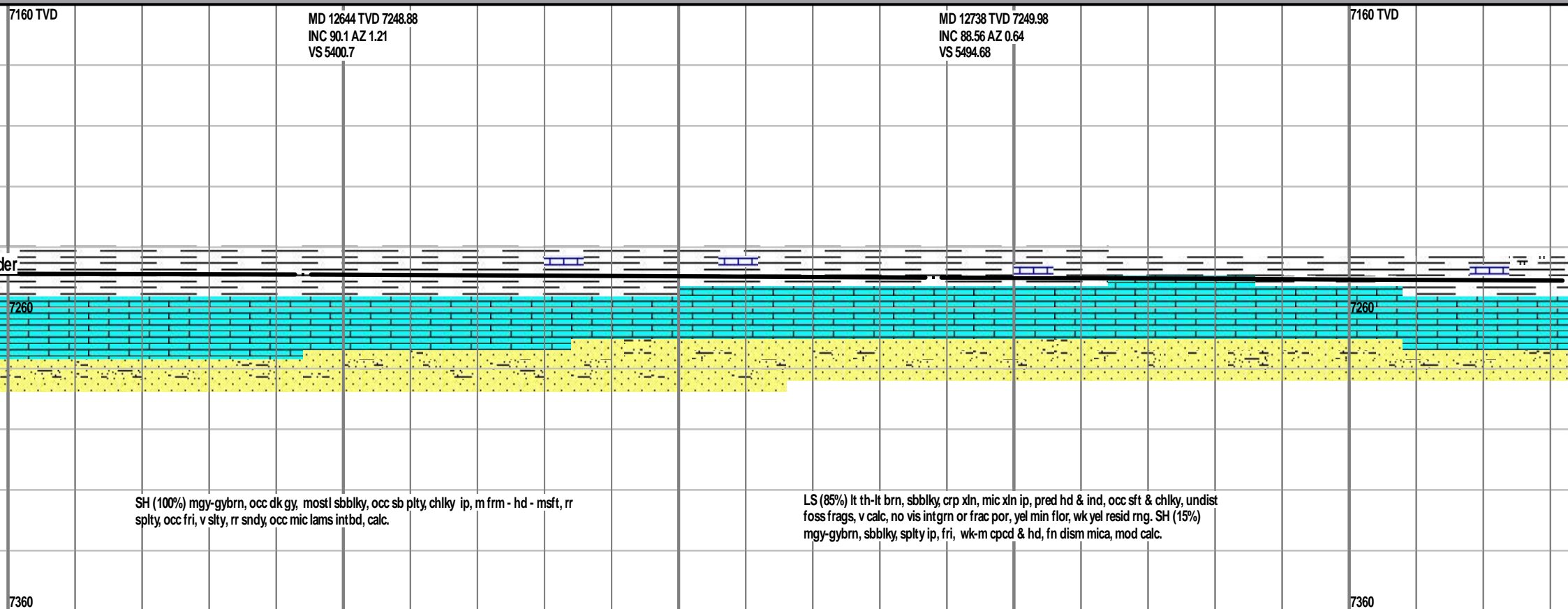
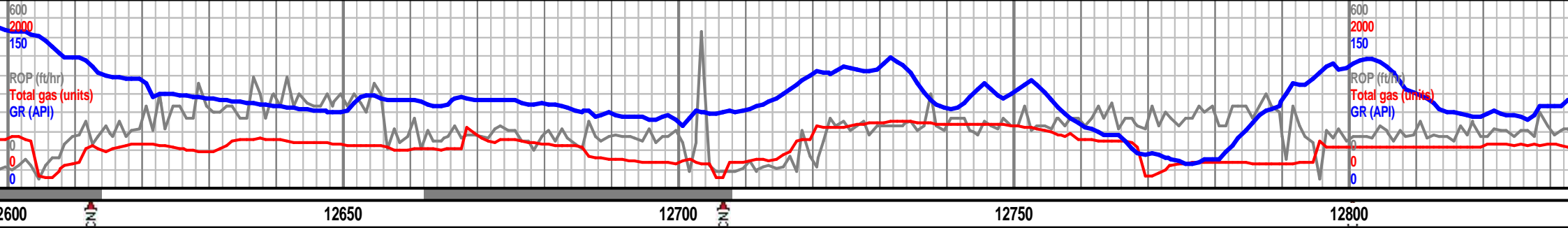
LS (80%) tn-crmy tn, gysh bn, frm, mic xln, sl arg, o stn, tr dism ox pyr intbd, mod sil, yel min flr, sl  
flor, sl wspylstrmg cut w dull bl/gn resid rng.SH (20%) mgy-gybrn, mostl sbbly, occ sb plty, chly ip, m f  
rr splty, occ fri, slty, occ mic lams intbd, calc, ls stngr.

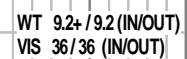
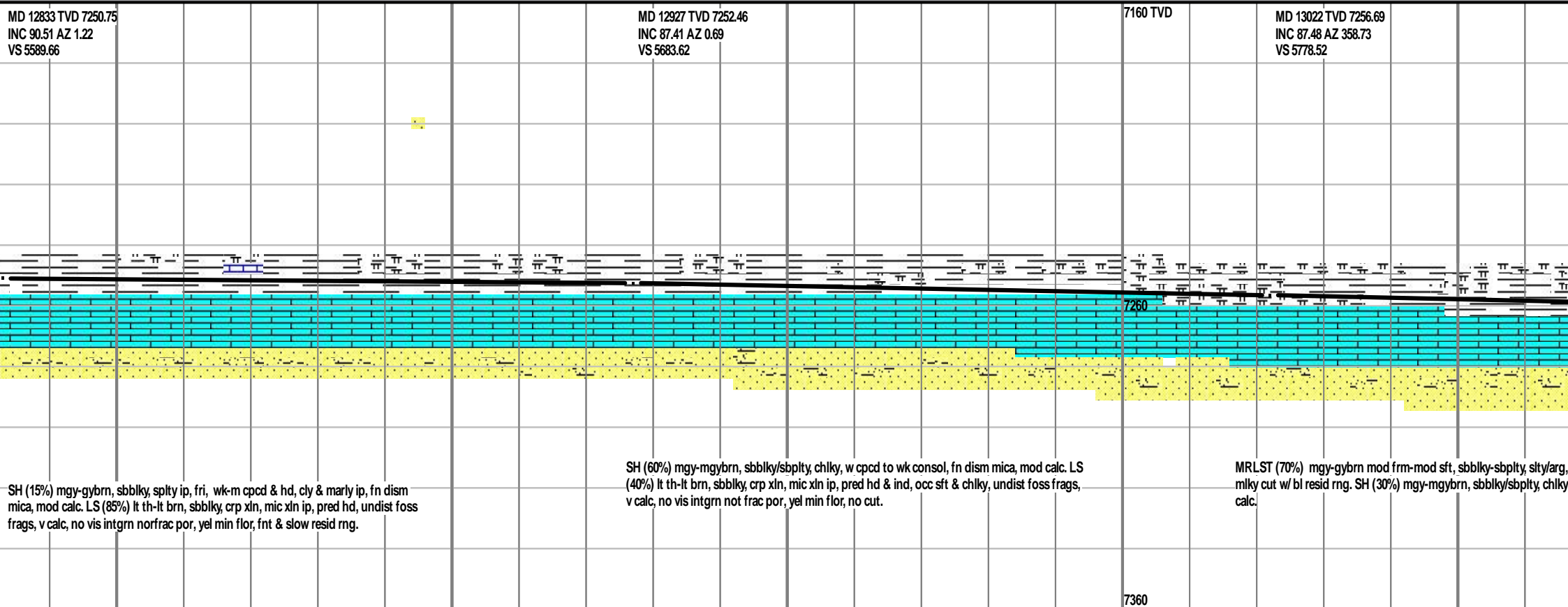
LS (80%) tn-crmy tn, gysh bn, frm, mic xln, sl arg, o stn, tr dism ox pyr intbd, mod sil, yel min  
flor, sl wspylstrmg cut w dull bl/gn resid rng.SH (20%) mgy-gybrn, mostl sbbly, occ sb plty,  
chly ip, m frm - hd - sft, rr splty, occ fri, slty, occ mic lams intbd, calc, ls stngr.

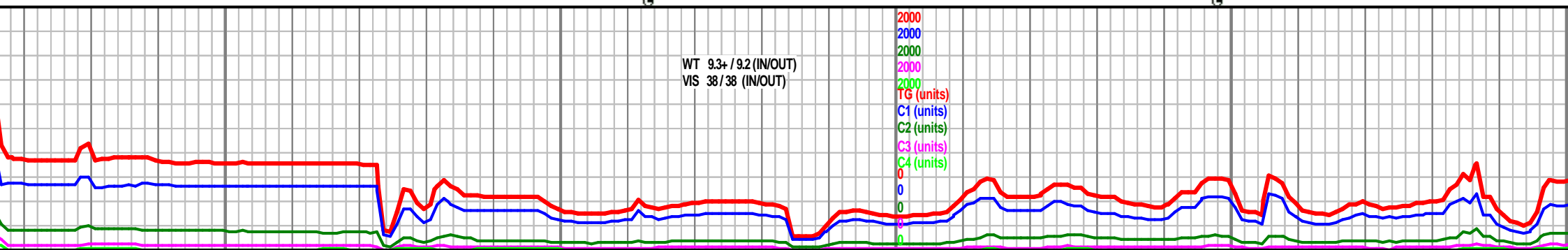
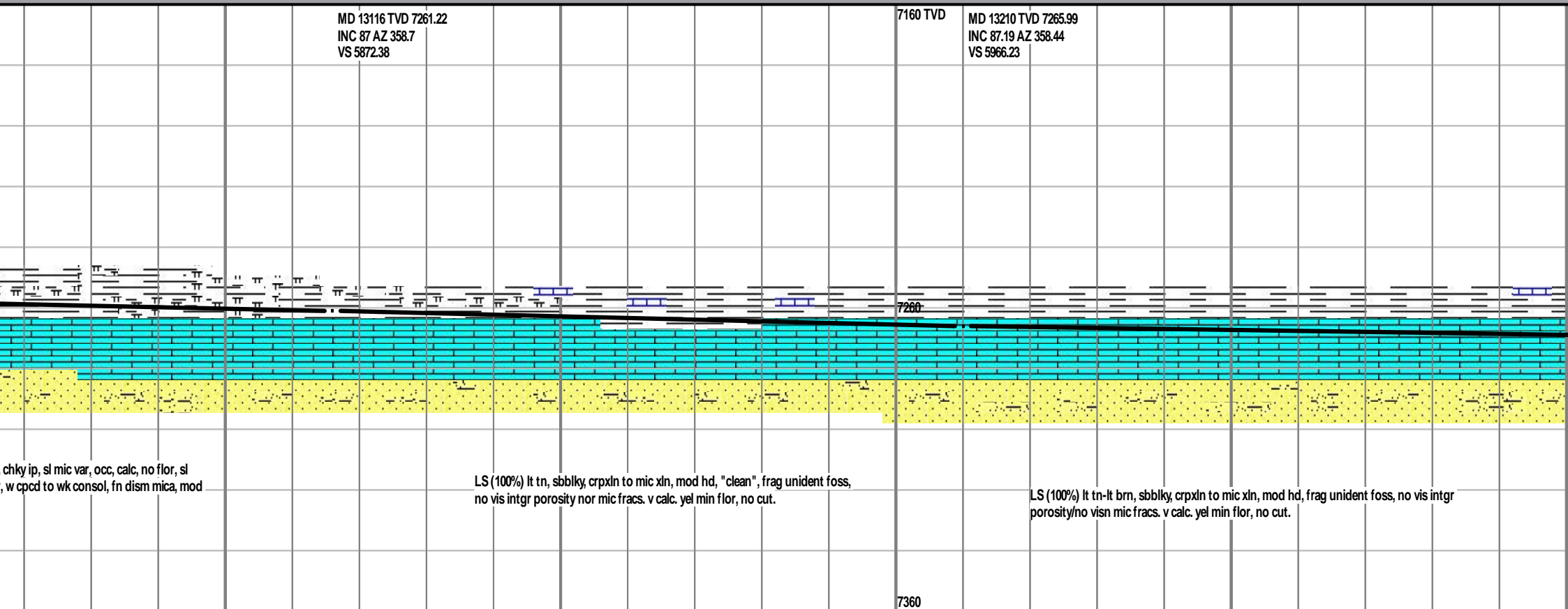
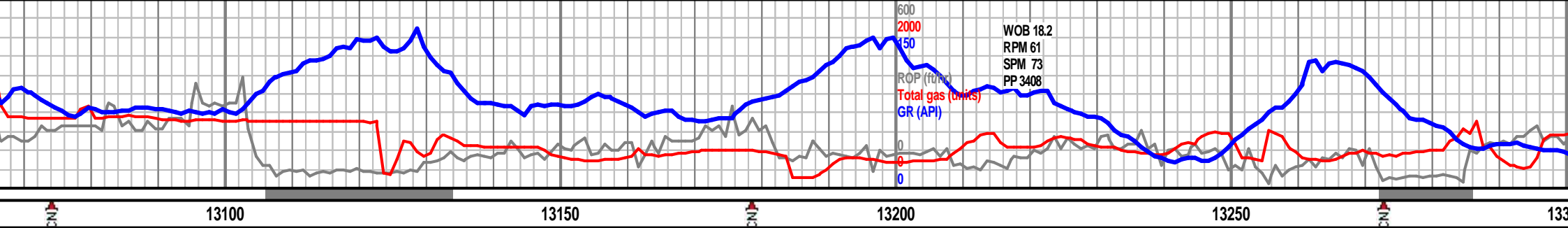
SH (100%) mgy-gybrn, mostl sbbly, occ sb plty, chly ip, m f  
splty, occ fri, slty, occ mic lams intbd, calc, ls stngr, NFSOC.

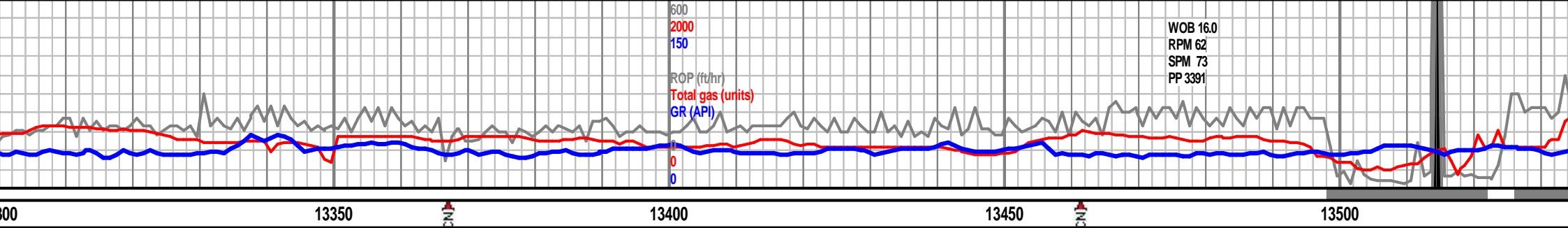












MD 13305 TVD 7269.06  
INC 89.1 AZ 357.92  
VS 6061.13

MD 13399 TVD 7270.16  
INC 89.56 AZ 357.4  
VS 6155.05

MD 13494 TVD 7269.91  
INC 90.74 AZ 356.27  
VS 6249.9

