

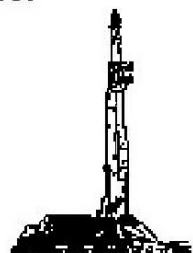
GOOLSBY BROTHERS
and associates, inc.

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



Geological Wellsite
Supervision

www.goolsbybrothers.com



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

Well Name: Griffiths 36C-20HZ

Location: Section 17, T1N, R67W, Weld County, CO.

License Number: API#0512336622

Spud Date: 7 July 2013

Surface Coordinates: 964' FNL 2,171 FWL NE NW Sec 17 T1N R67W

Lat: 40° 03' 20.51" Long: -104° 54' 58.43"

Bottom Hole Coordinates: 491' FSL & 2,762' FWL SE SW Sec 20 T1N R67W

Lat: 40° 01' 50.59" Long: -104° 55' 00.73"

Ground Elevation (ft): 5060'

K.B. Elevation (ft): 5076'

Logged Interval (ft): 7050'

To: 16774

Total Depth (ft): 16774

Formation: Lower Pierre Shale, Niobrara Chalks, Ft Hays, Codell

Type of Drilling Fluid: WBM thru curve and Invert (synthetic OBM in lateral)

Region: Wattenberg
Drilling Completed: 21 July 2013

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

OPERATOR

Company: Anadarko/Kerr-McGee Oil & Gas Onshore LP

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

Denver, CO 80202

CO Geologist, Tom Birmingham

GEOLOGIST

Name: Jack R. Rogers, W. H. McCroskey III

Company: Goolsby Brothers & Assoc. (GBA), Inc. (www.goolsbybrothers.com)

Address: 575 Union Blvd.

Suite 208,

Lakewood CO. 80228

E-logs

MWD GR: 7050'-16774'
MWD Resistivity: 8080'-16774'





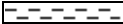
Casing






9 5/8" Surface Casing set @ 1042'
7" Intermediate Casing set @ 8068'
4 1/2" Production Liner to be set to 116761' TD






Comments






- 1) Drilling Contractor: Xtreme Drilling, Rig # 22
Rig Manager: Mike Headley / Tyler Humphrey
- 2) Company Man: Dave Cornett / Hal Curlett/
Scott Hancock / Luke Rains
- 3) Well Site Geologists: Goolsby Brothers & Assoc. :
Jack Rogers / W.H. McCrosky
- 4) Mud Company : AES Drilling Fluids,
Mud Engineer: Michael Cook/Sam Evans
- 5) Directional Drilling: Sperry / Halliburton
Drillers: Randy Bernatow,
MWD: Clay Wass / Caleb Jones
- 6) Gas Equipment: Mudlogging Systems Inc.
by Terra Services
Redbox # ML-173 & # ML-058 w/ Ratcliff 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
	Slty sh

ACCESSORIES

MINERAL

Anhy
 Arggrn
 Arg
 Bent
 Bit
 Breclfrag
 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

OTHER SYMBOLS

OIL SHOWS

Even
 Spotted
 Ques
 Dead
 Vspotty

near even

POROSITY TYPE

Earthy
 Fenest
 Fracture

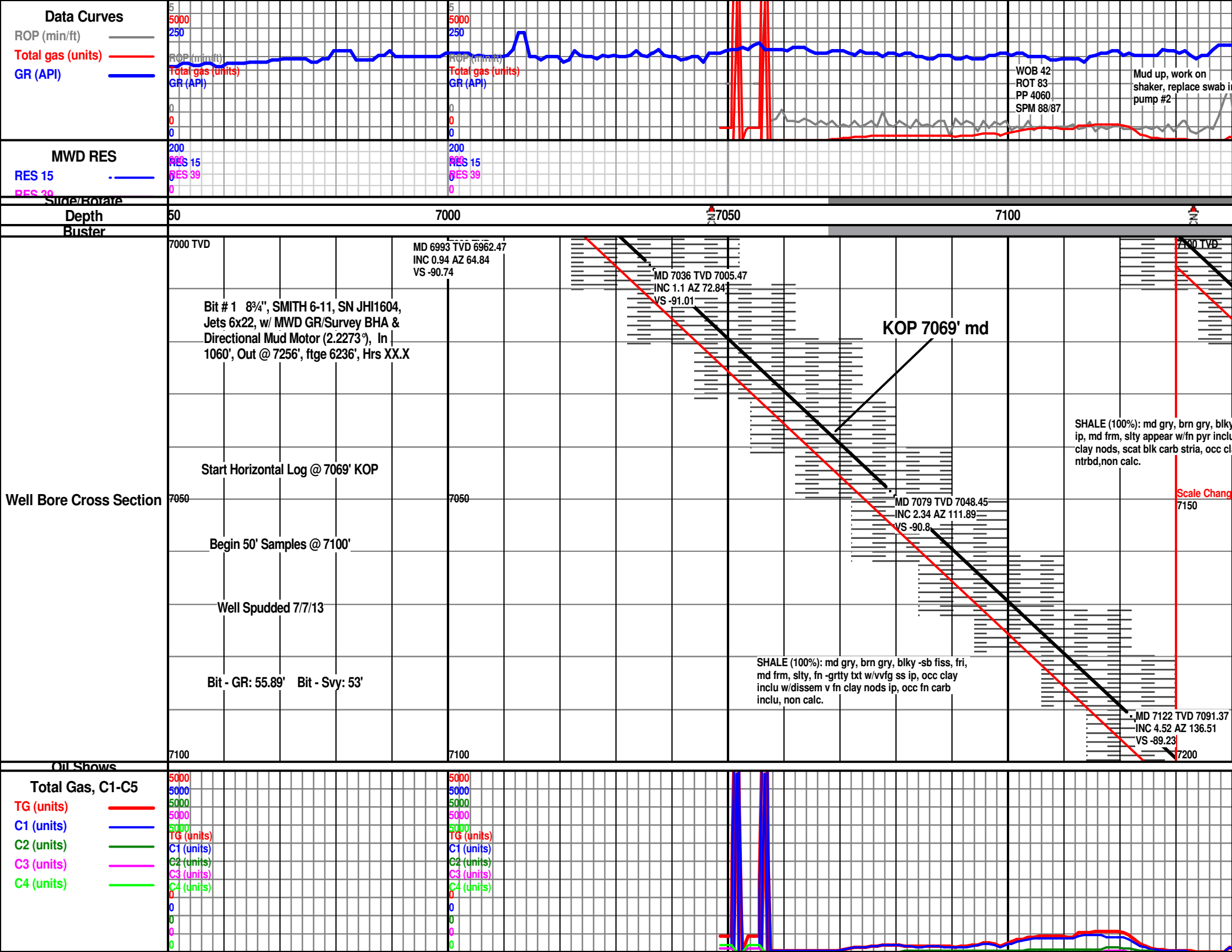
Inter
 Moldic
 Organic
 Pinpoint
 Vuggy

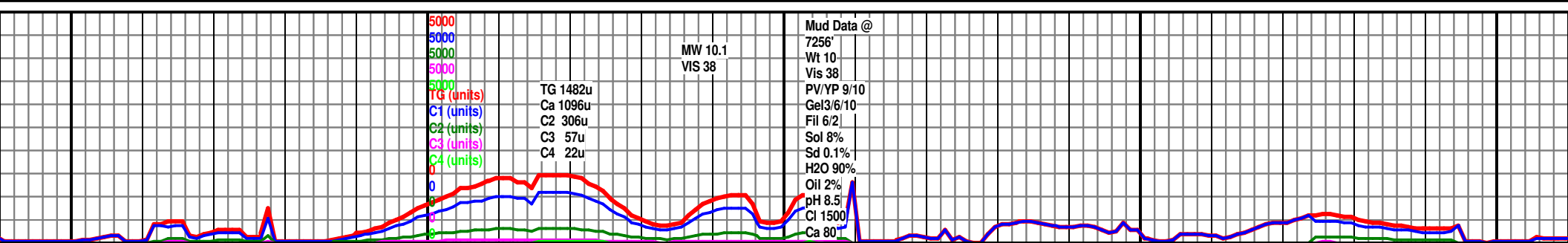
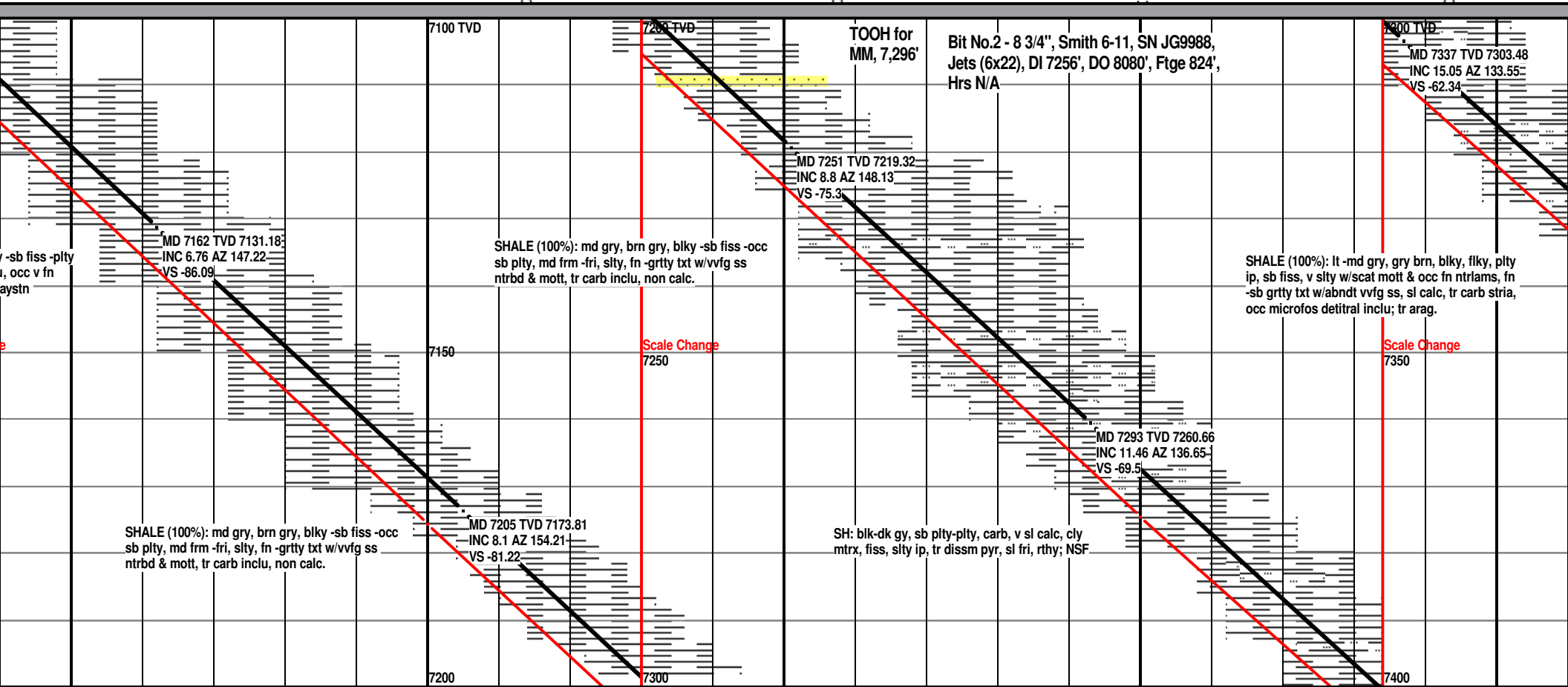
ROUNDING

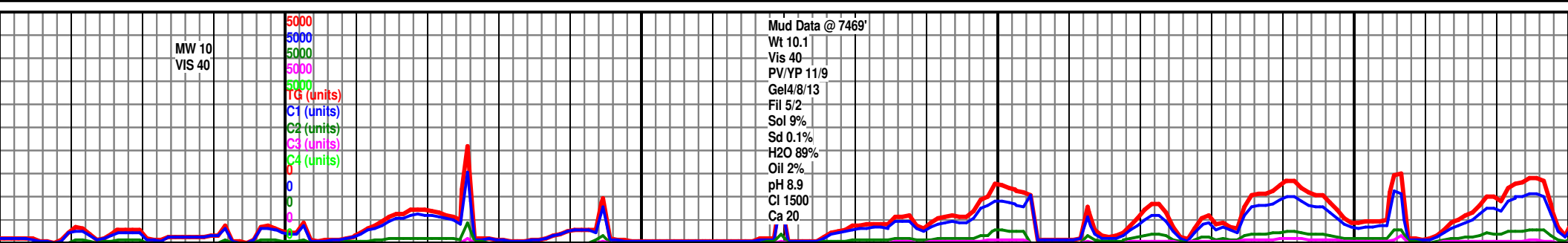
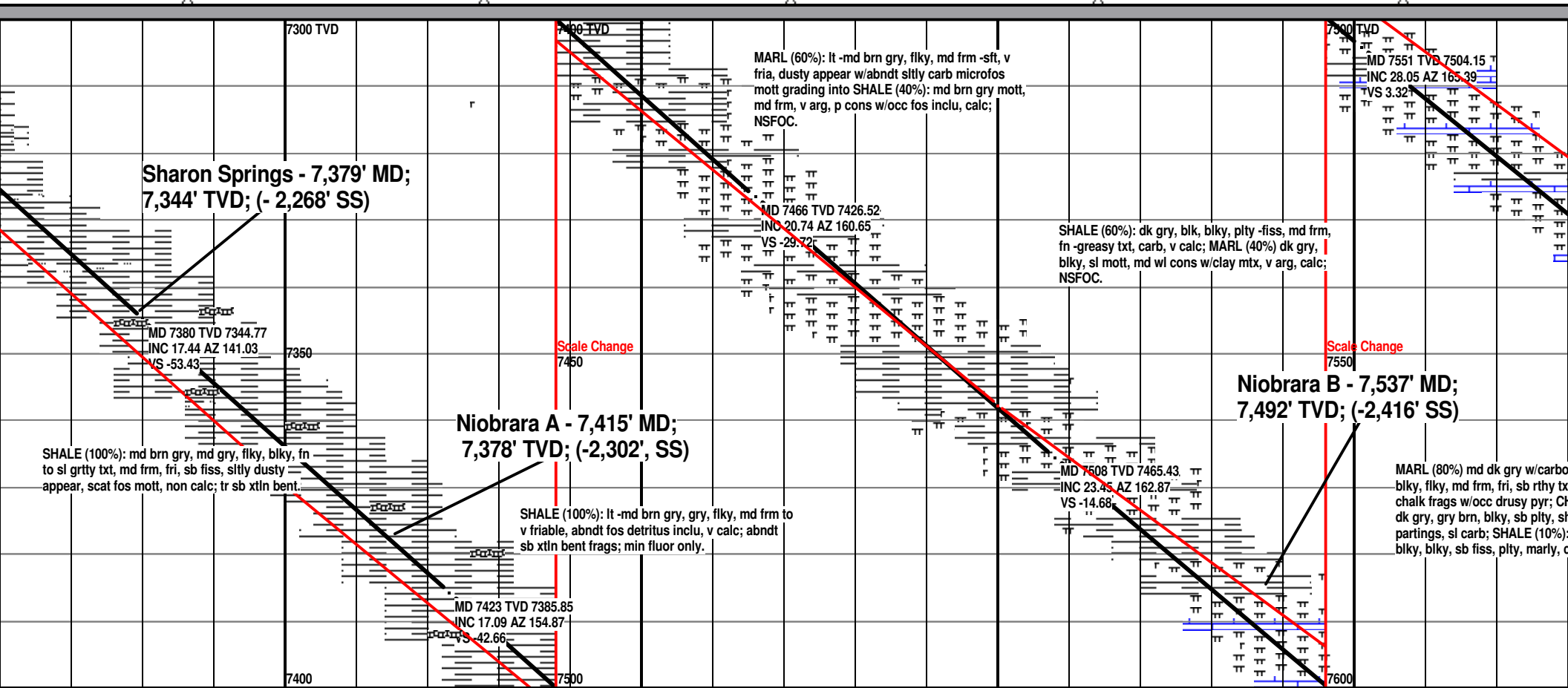
Rounded
 Subrnd
 Subang
 Angular

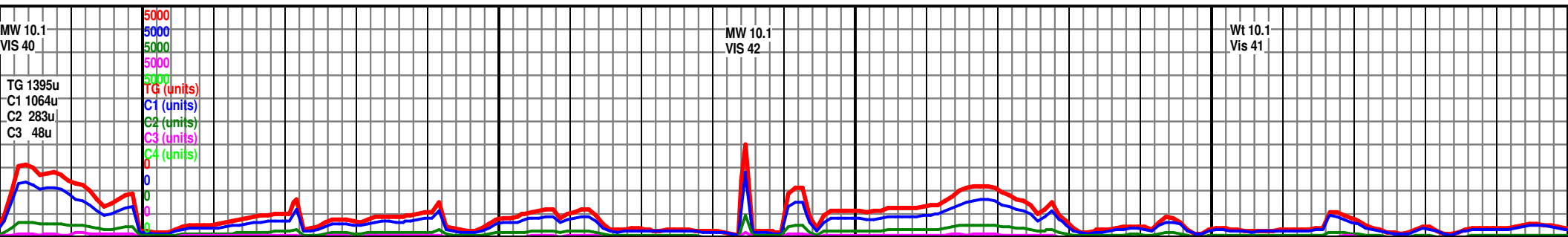
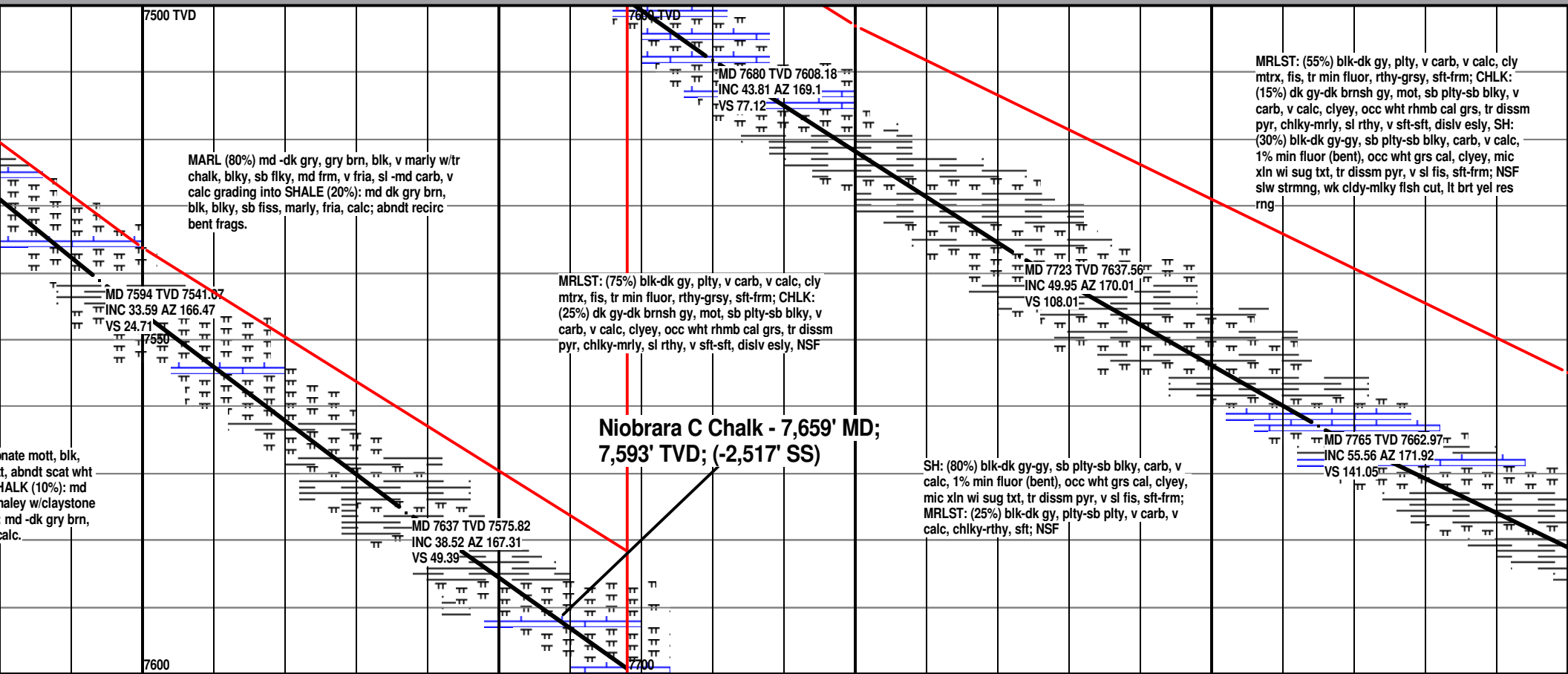
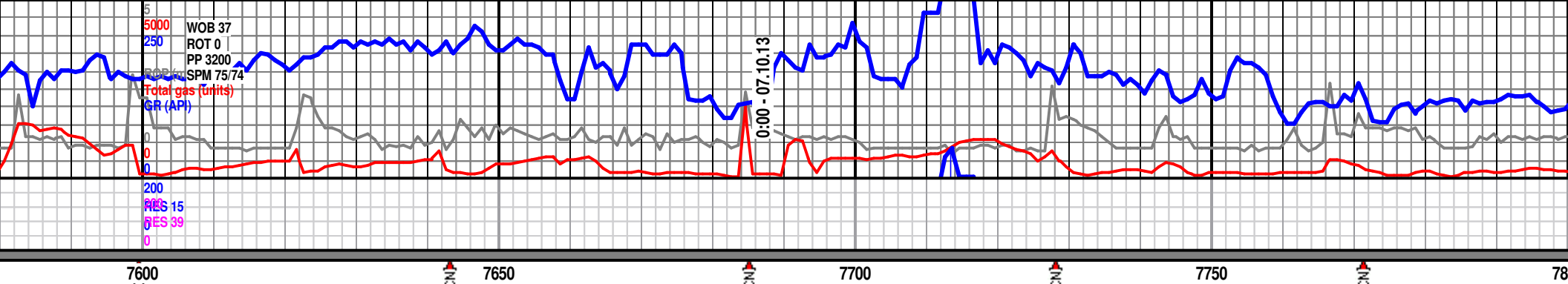
SORTING

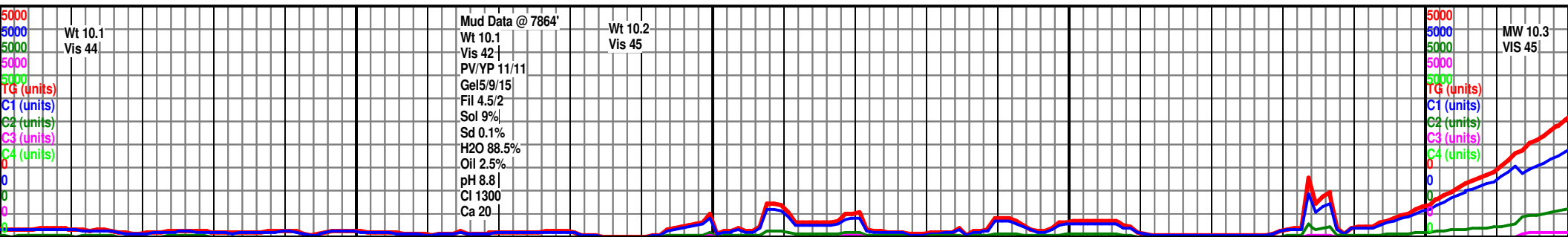
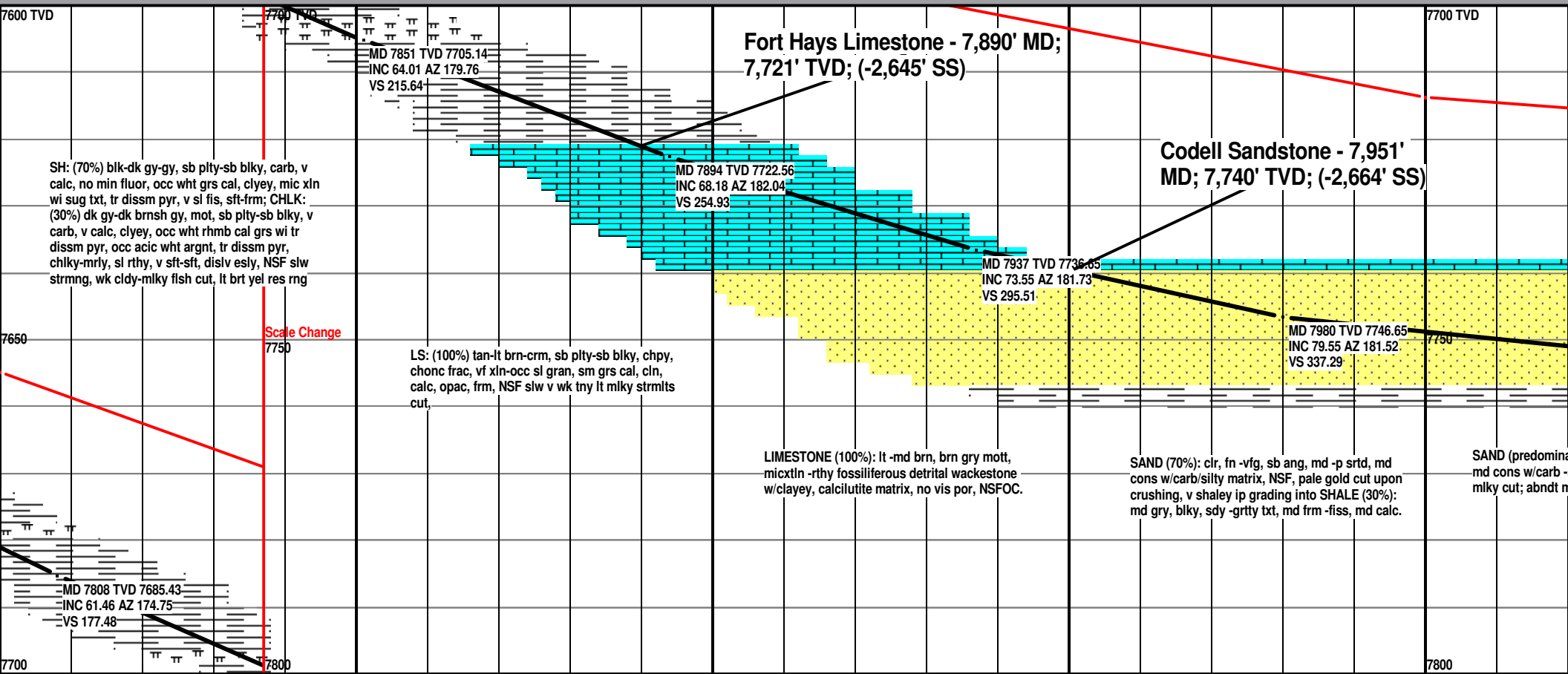
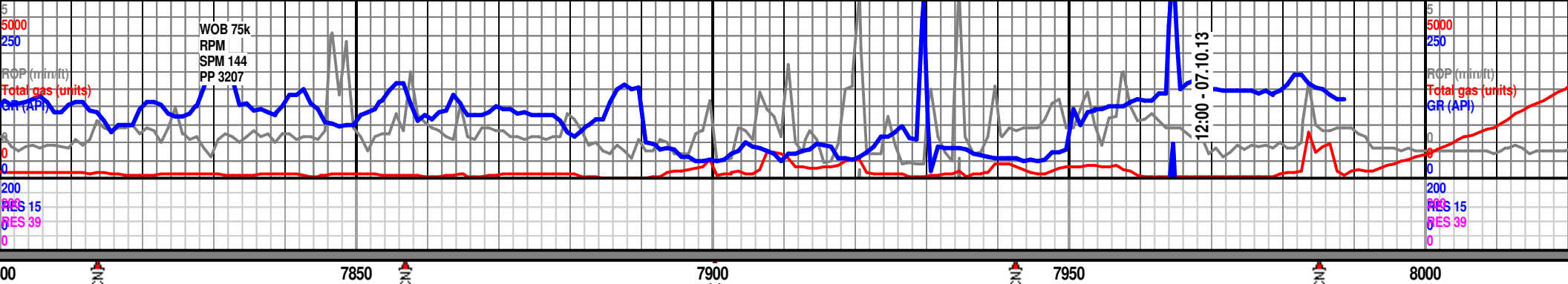
Well
 Moderate
 Poor

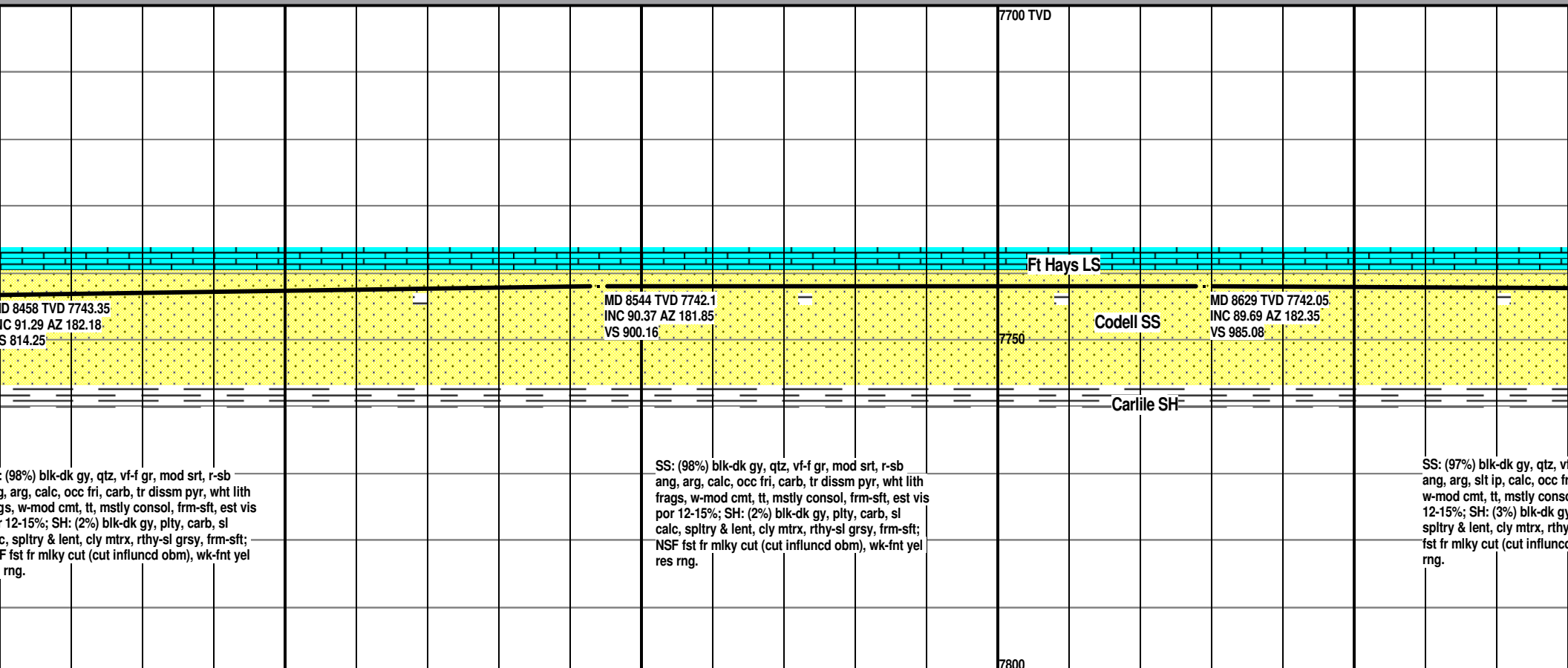
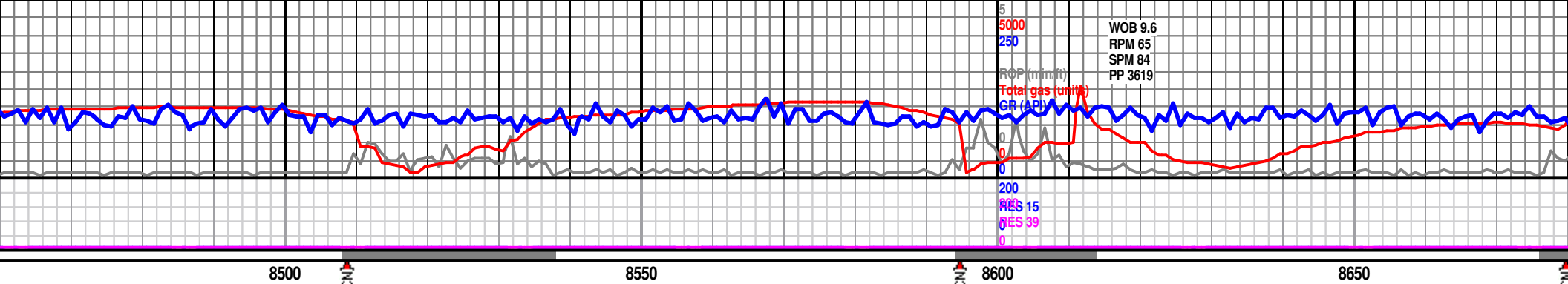








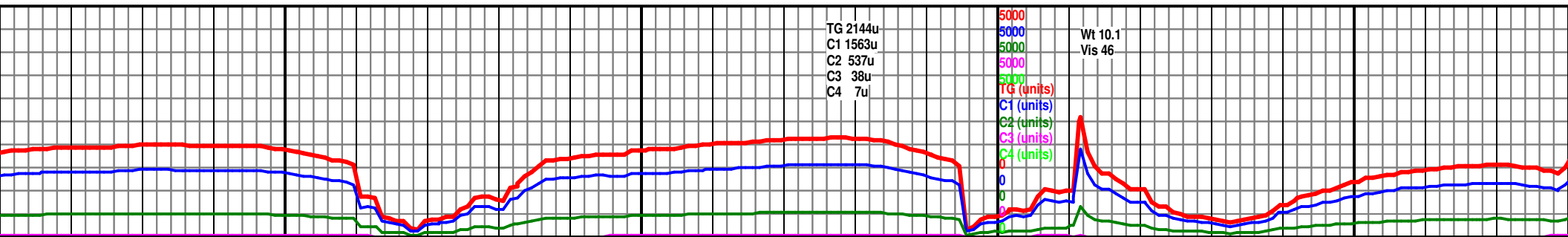


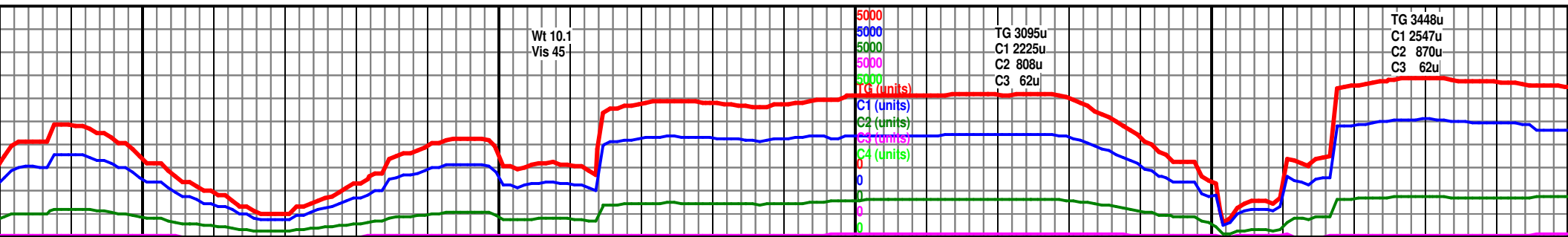
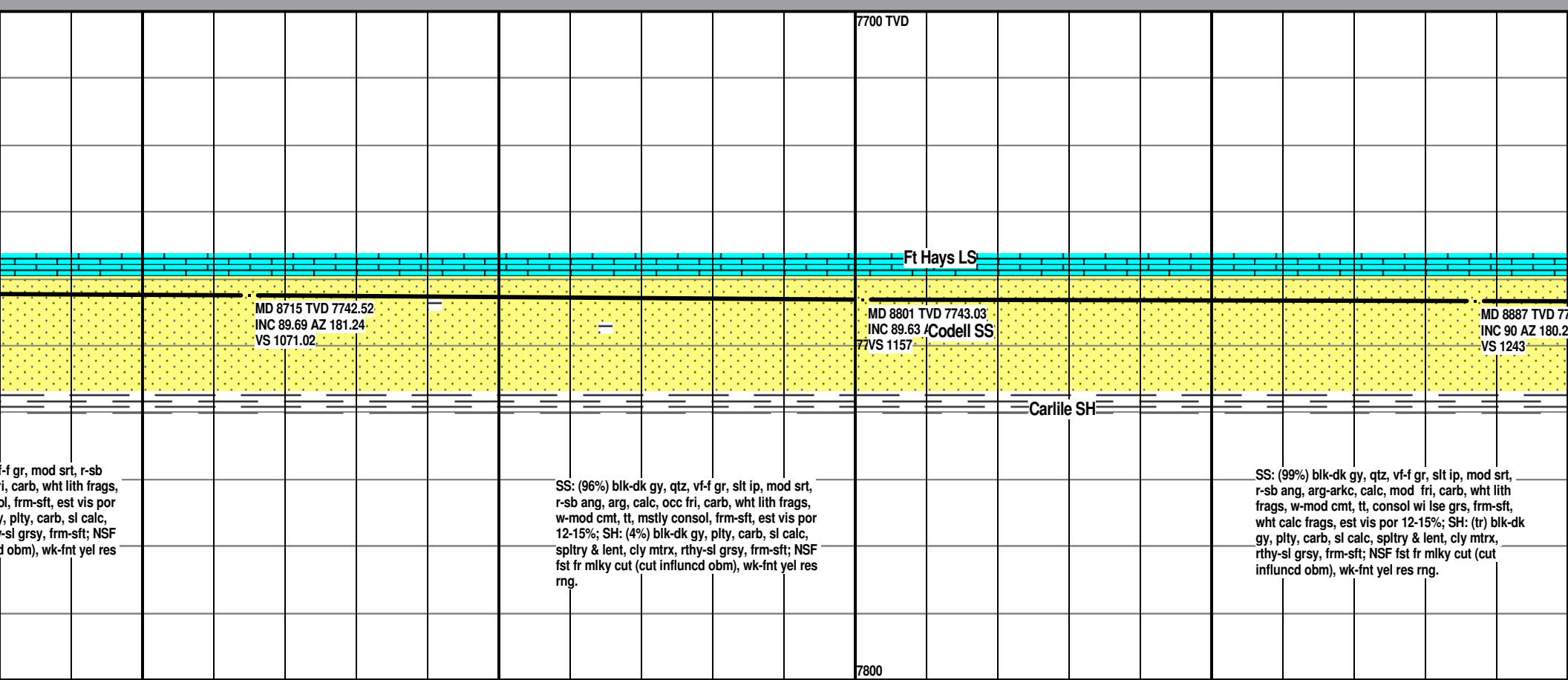
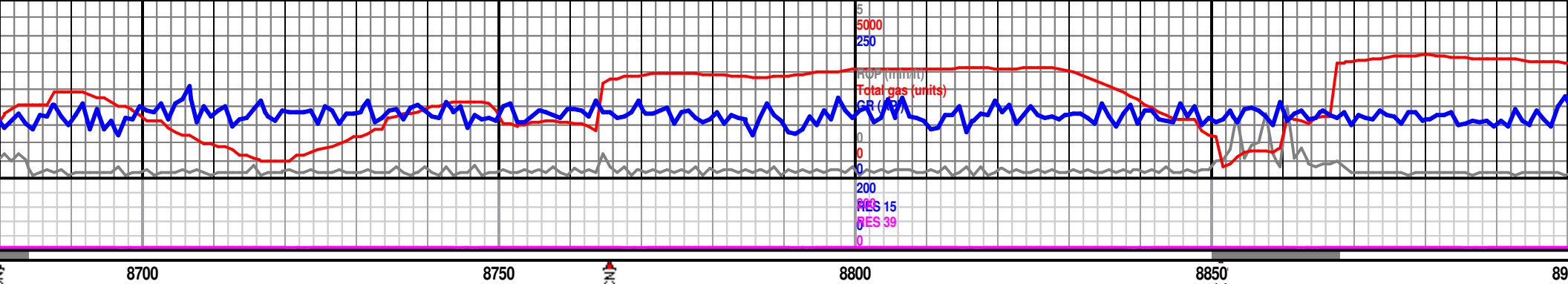


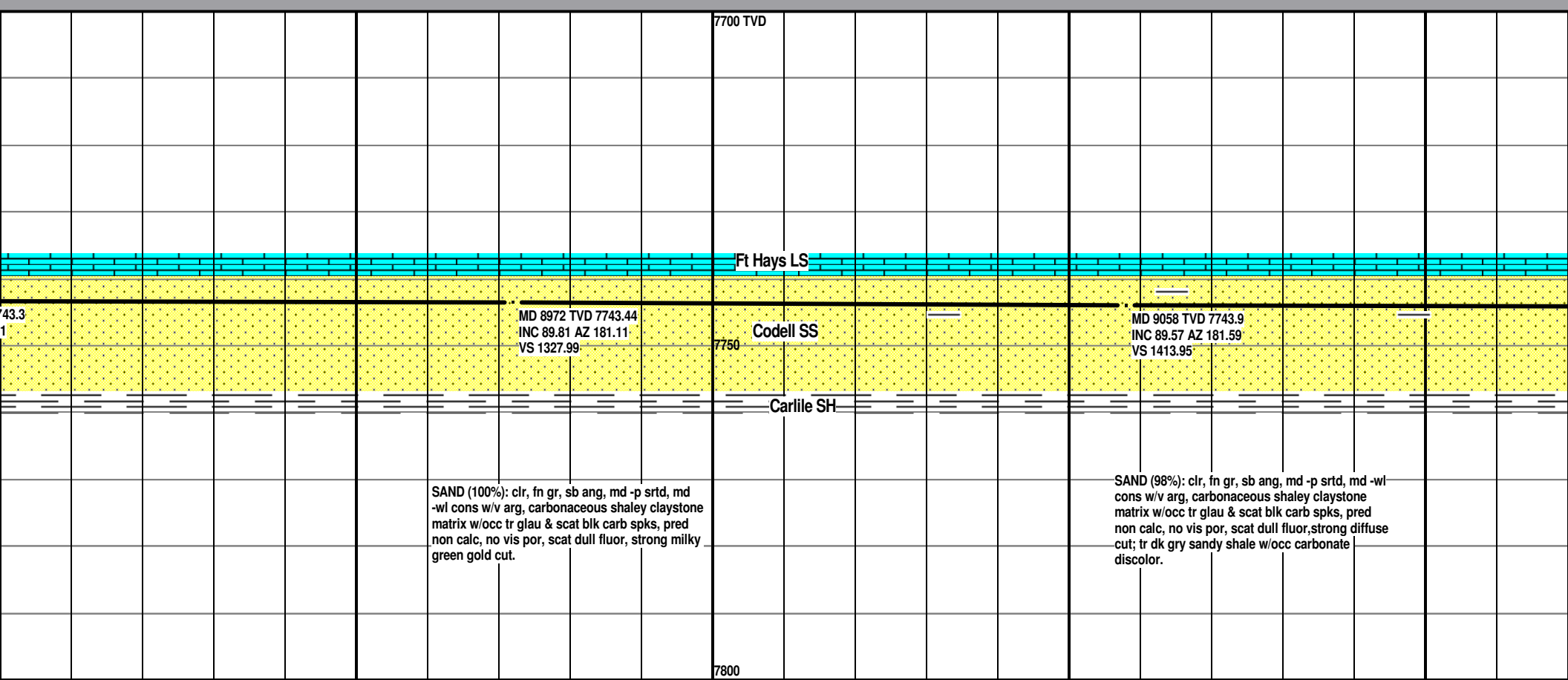
(98%) blk-dk gy, qtz, vf-f gr, mod srt, r-sb
ang, arg, calc, occ fri, carb, tr dissim pyr, wht lith
frags, w-mod cmt, tt, mstly consol, frm-sft, est vis
por 12-15%; SH: (2%) blk-dk gy, plty, carb, sl
calc, spltry & lent, cly mtrx, rthy-sl grsy, frm-sft;
F fst fr milky cut (cut influncd obm), wk-fnt yel
rng.

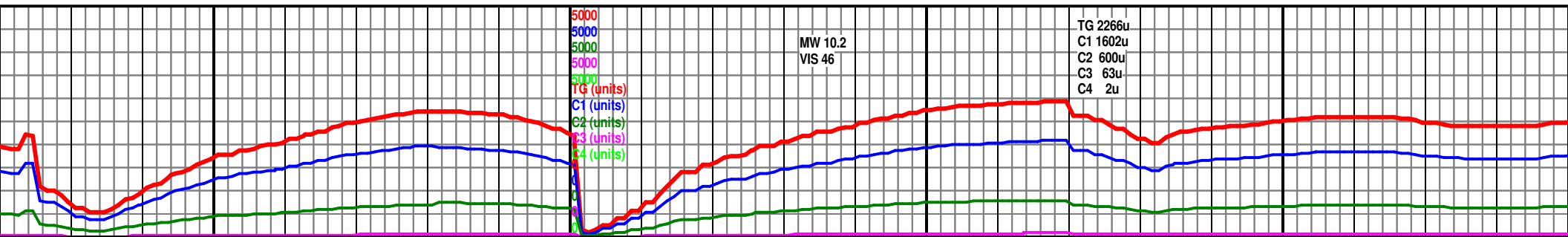
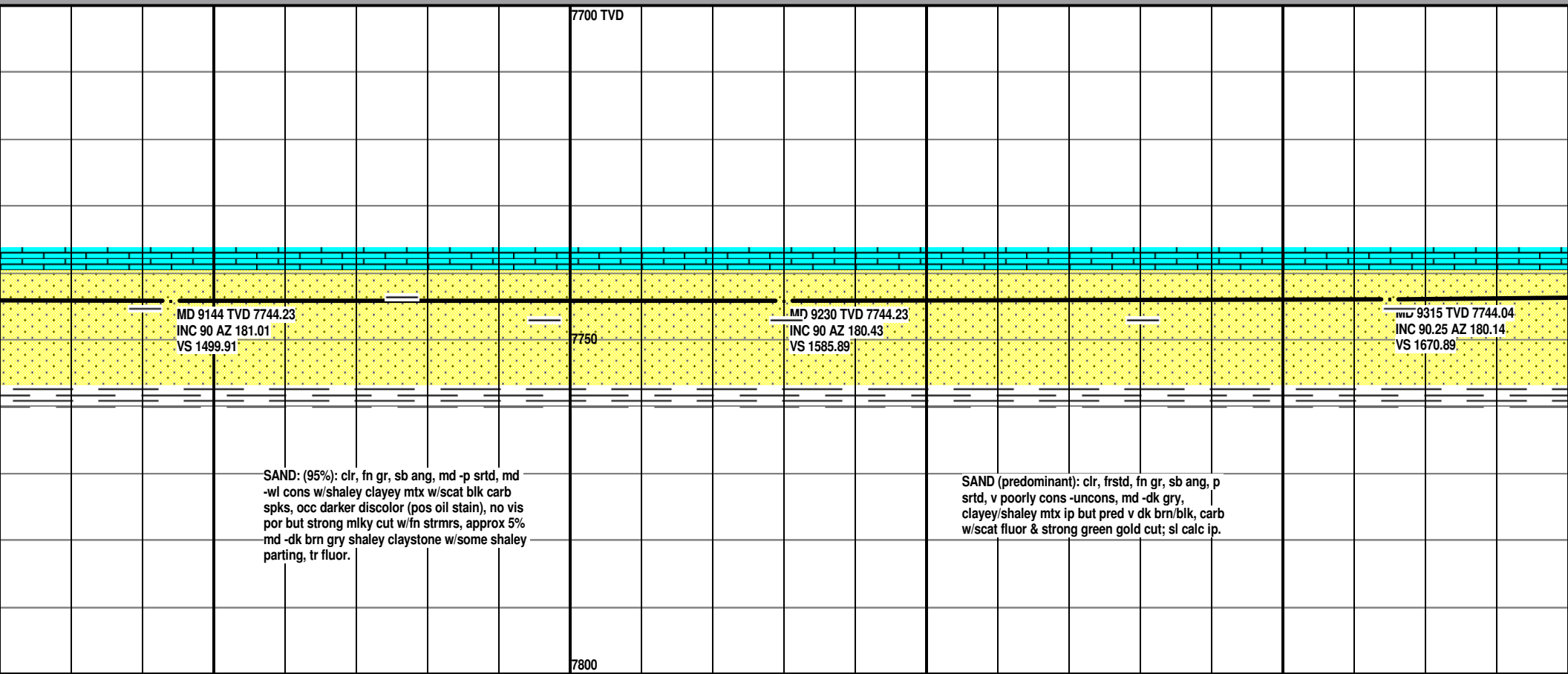
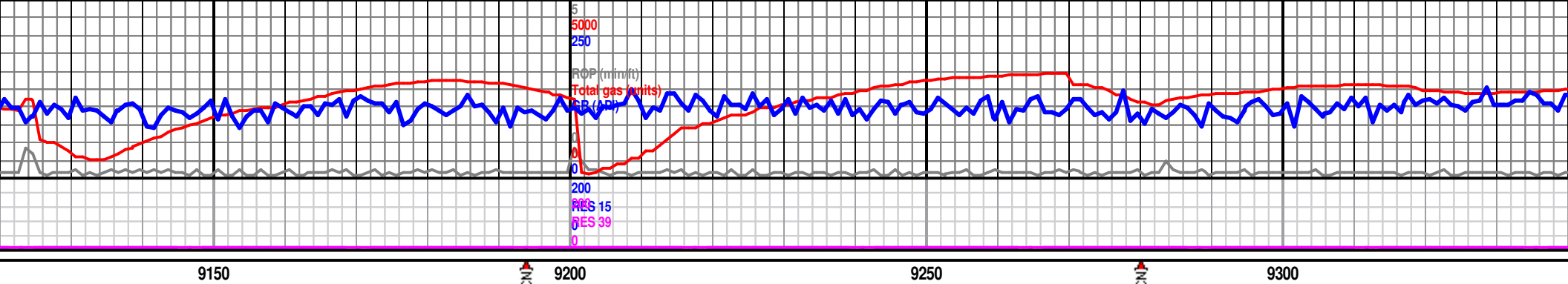
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ang, arg, calc, occ fri, carb, tr dissim pyr, wht lith
frags, w-mod cmt, tt, mstly consol, frm-sft, est vis
por 12-15%; SH: (2%) blk-dk gy, plty, carb, sl
calc, spltry & lent, cly mtrx, rthy-sl grsy, frm-sft;
NSF fst fr milky cut (cut influncd obm), wk-fnt yel
res rng.

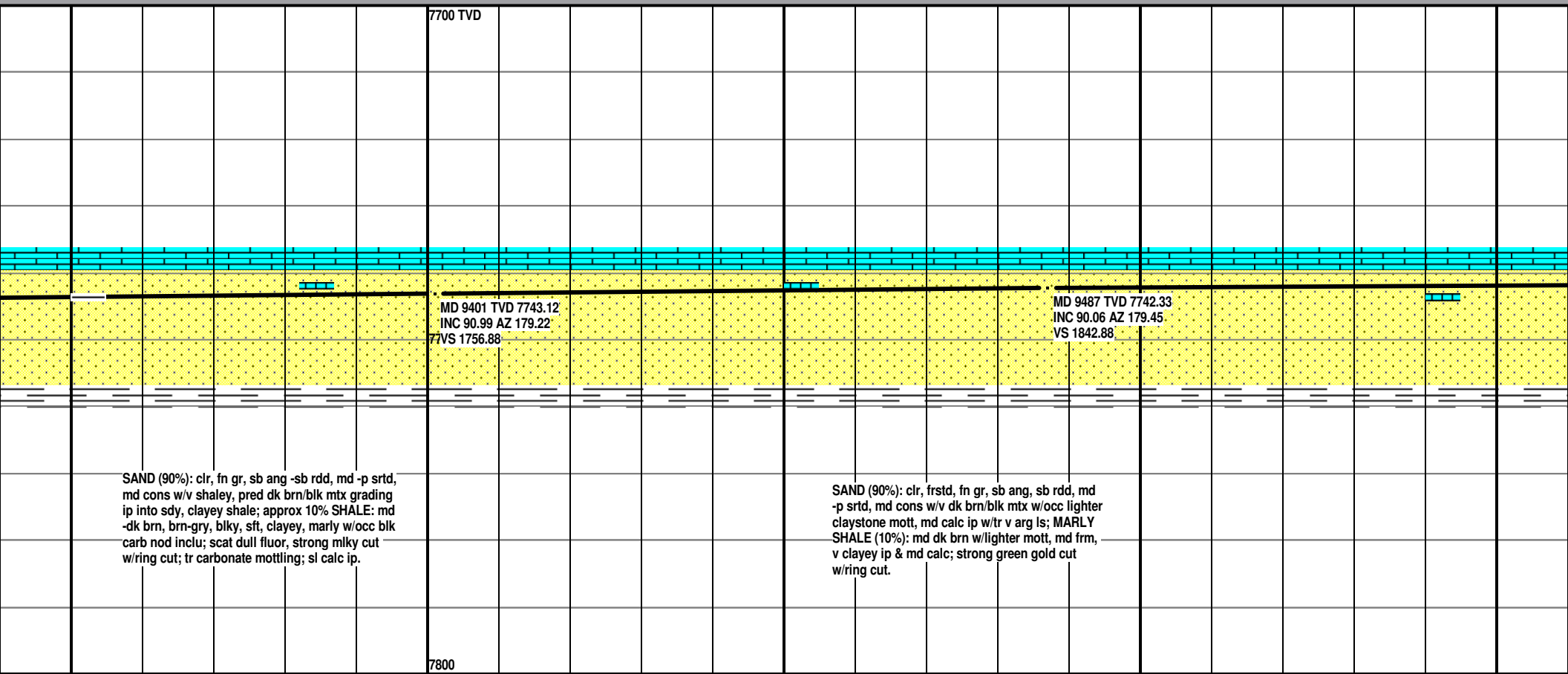
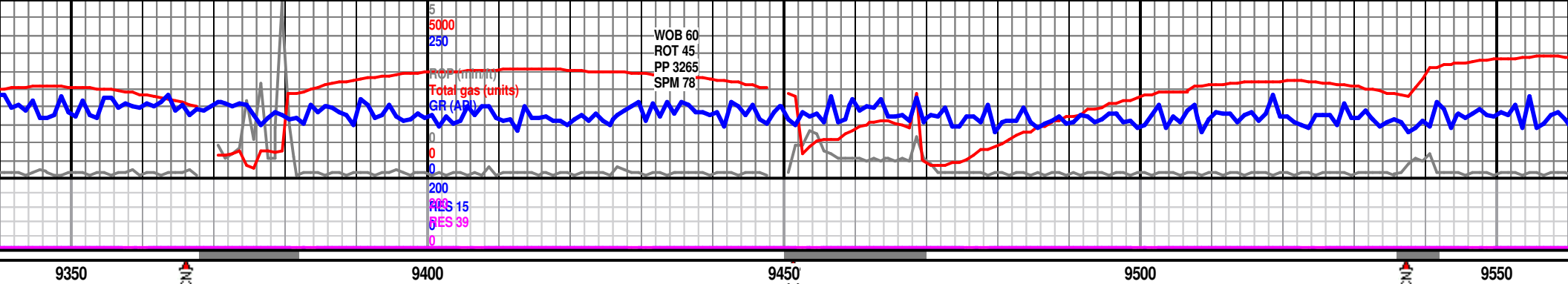
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ang, arg, calc, occ fri, carb, tr dissim pyr, wht lith
frags, w-mod cmt, tt, mstly consol, frm-sft, est vis
por 12-15%; SH: (3%) blk-dk gy, plty, carb, sl
calc, spltry & lent, cly mtrx, rthy-sl grsy, frm-sft;
F fst fr milky cut (cut influncd obm), wk-fnt yel
res rng.





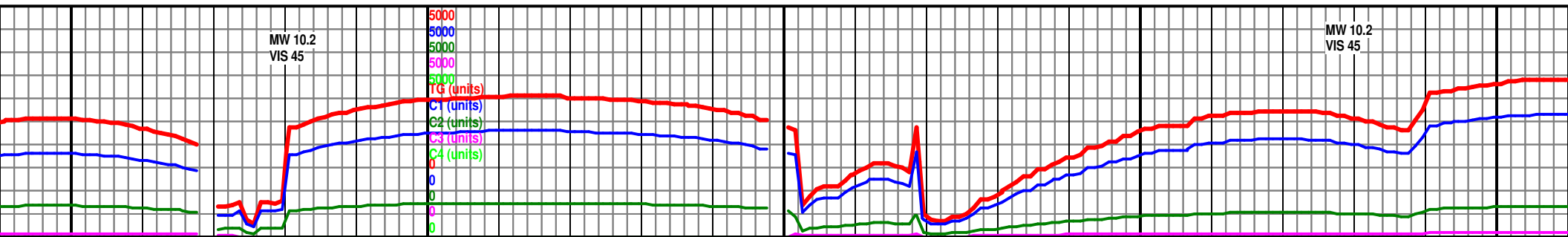


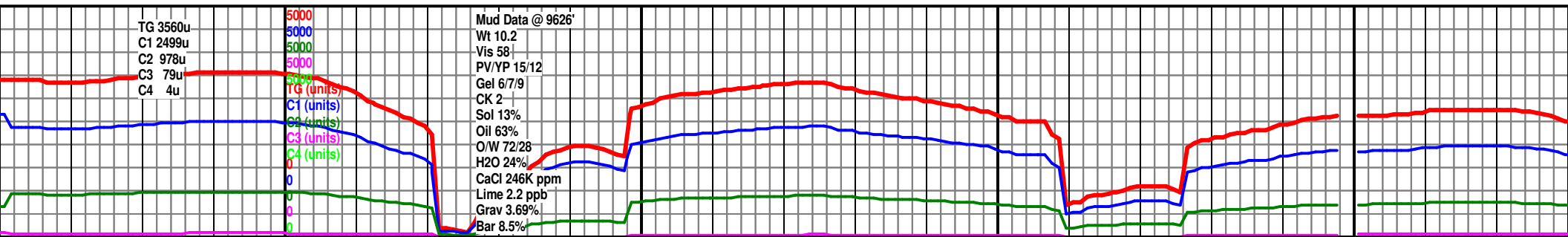
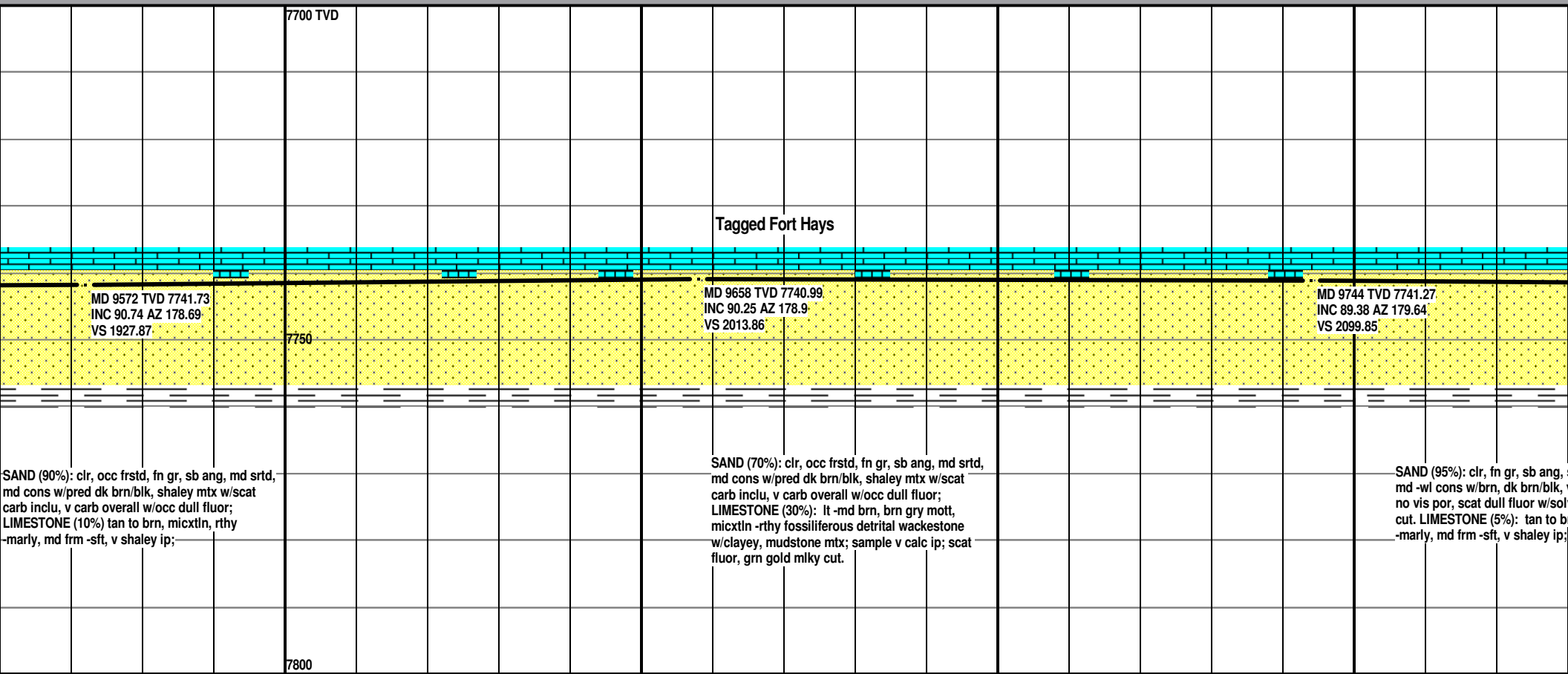
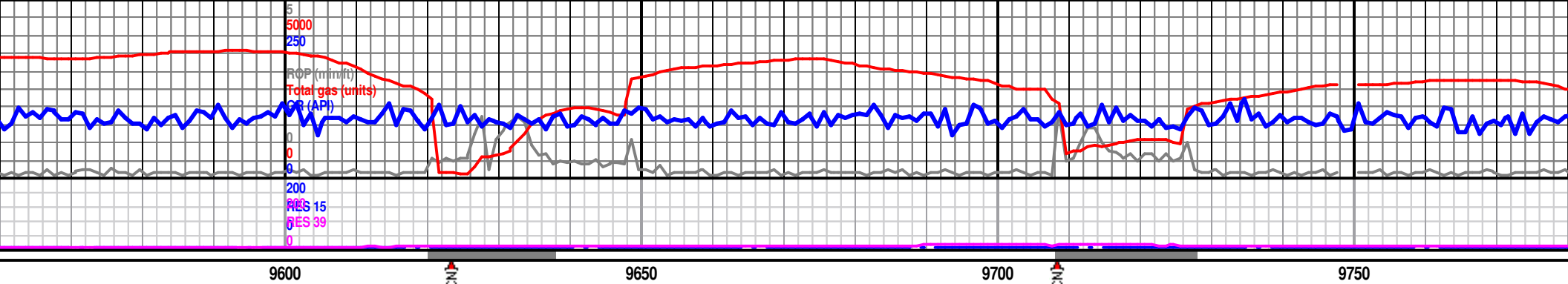


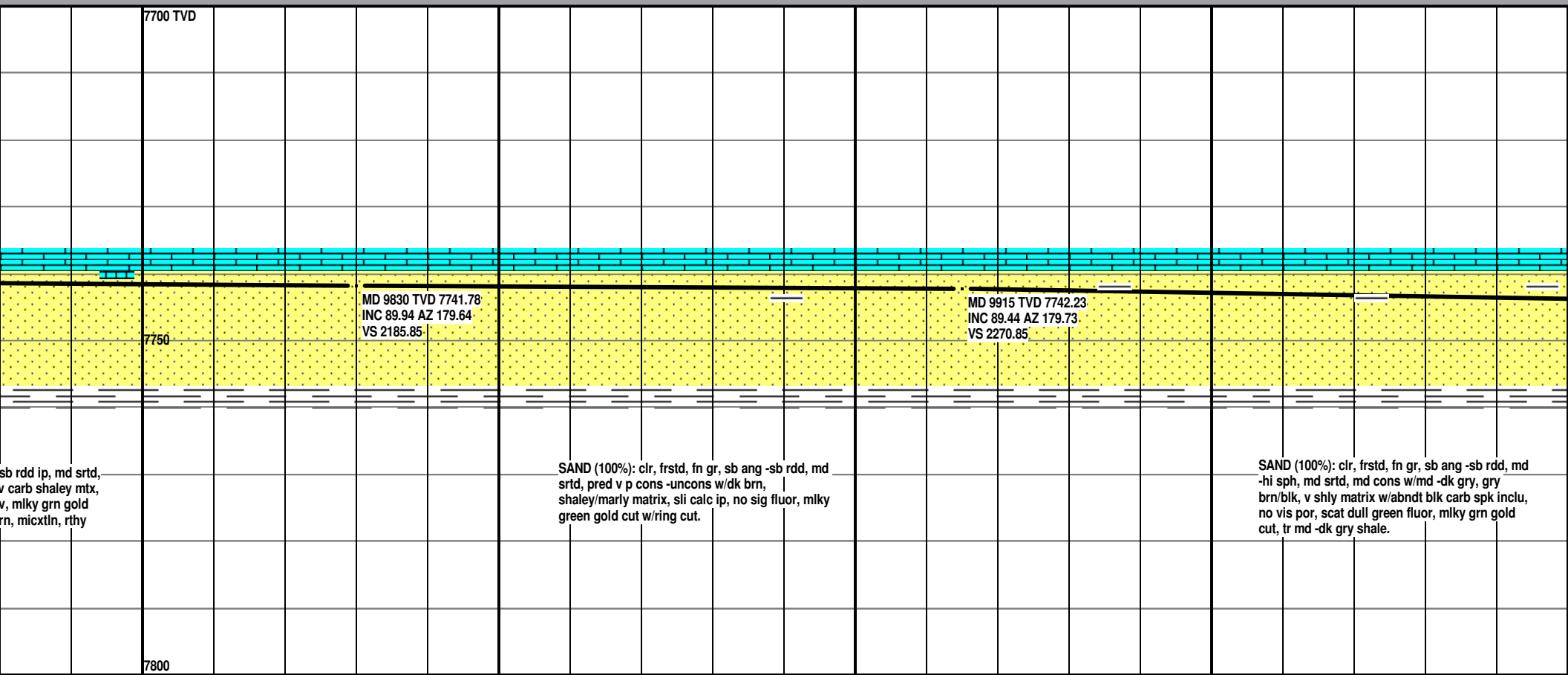


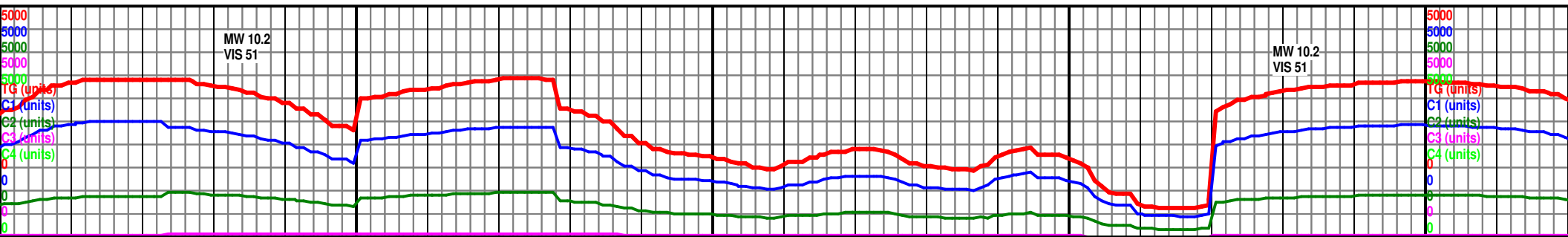
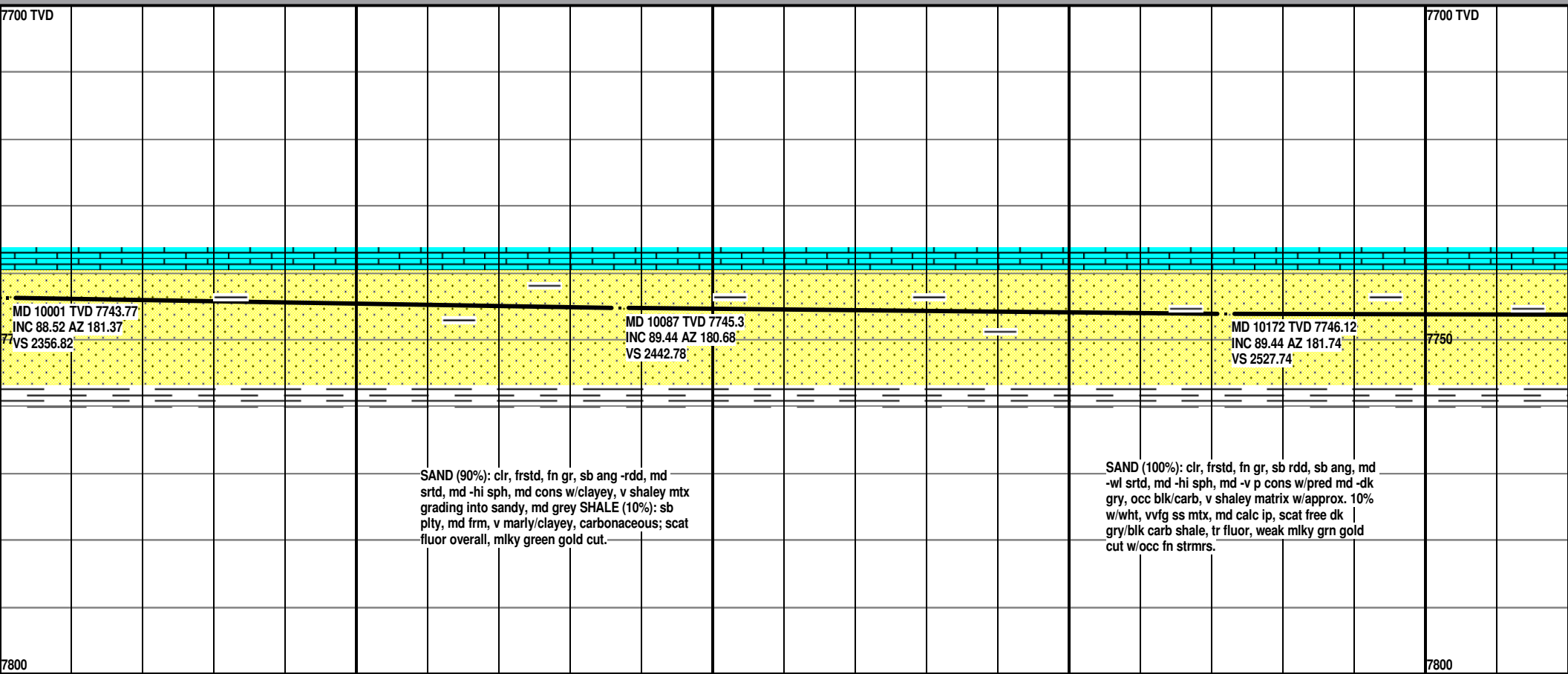
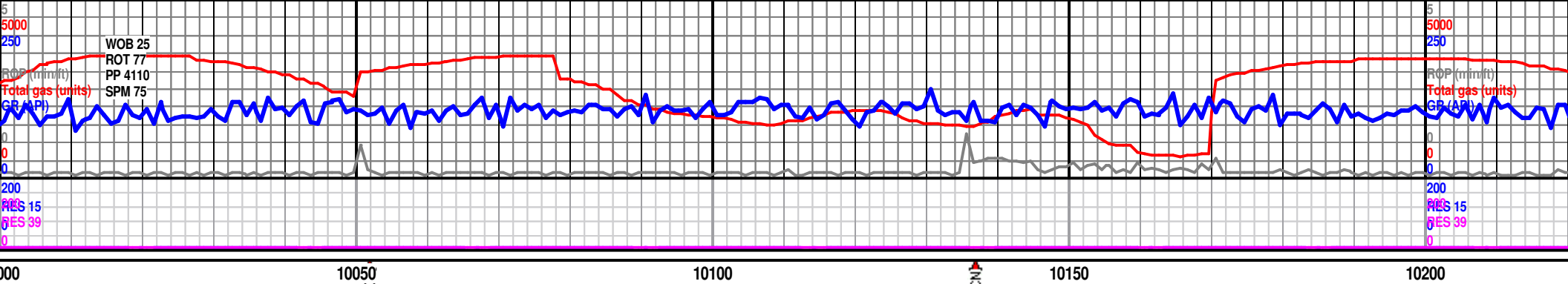
SAND (90%): clr, fn gr, sb ang -sb rdd, md -p srt, md cons w/v shaley, pred dk brn/blk mtx grading ip into sdy, clayey shale; approx 10% SHALE: md -dk brn, brn-gry, blk, sft, clayey, marly w/occ blk carb nod inclu; scat dull fluor, strong milky cut w/ring cut; tr carbonate mottling; sl calc ip.

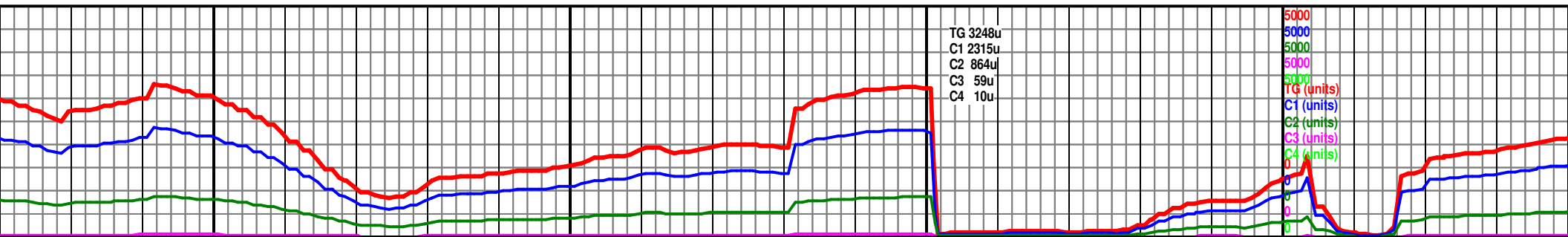
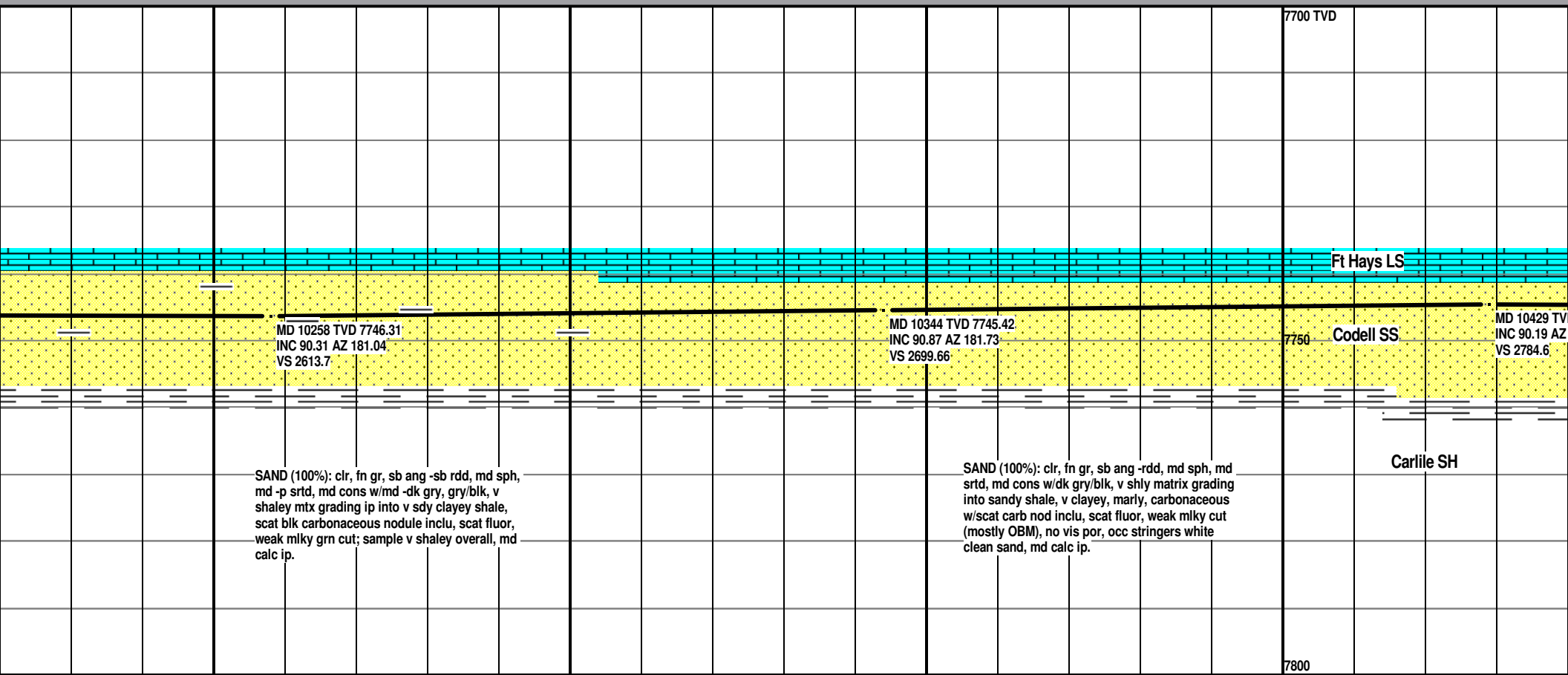
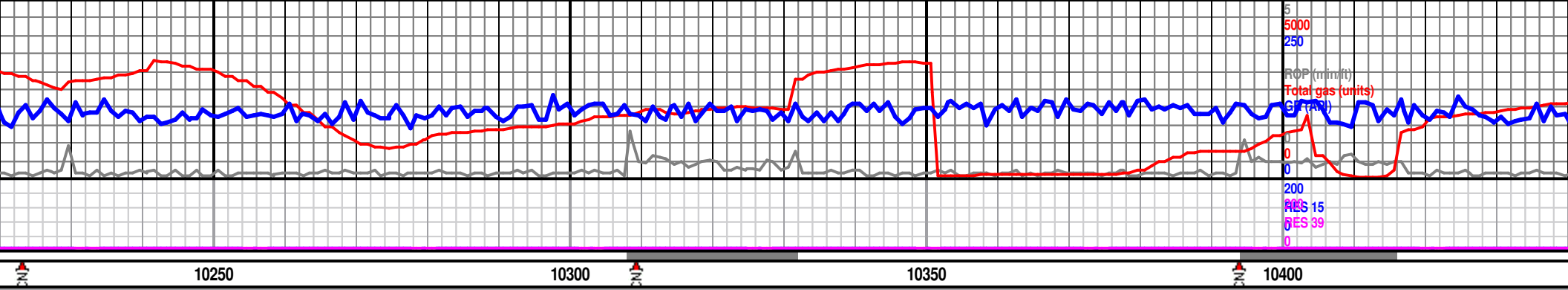
SAND (90%): clr, frstd, fn gr, sb ang, sb rdd, md -p srt, md cons w/v dk brn/blk mtx w/occ lighter claystone mott, md calc ip w/tr v arg ls; MARLY SHALE (10%): md dk brn w/lighter mott, md frm, v clayey ip & md calc; strong green gold cut w/ring cut.

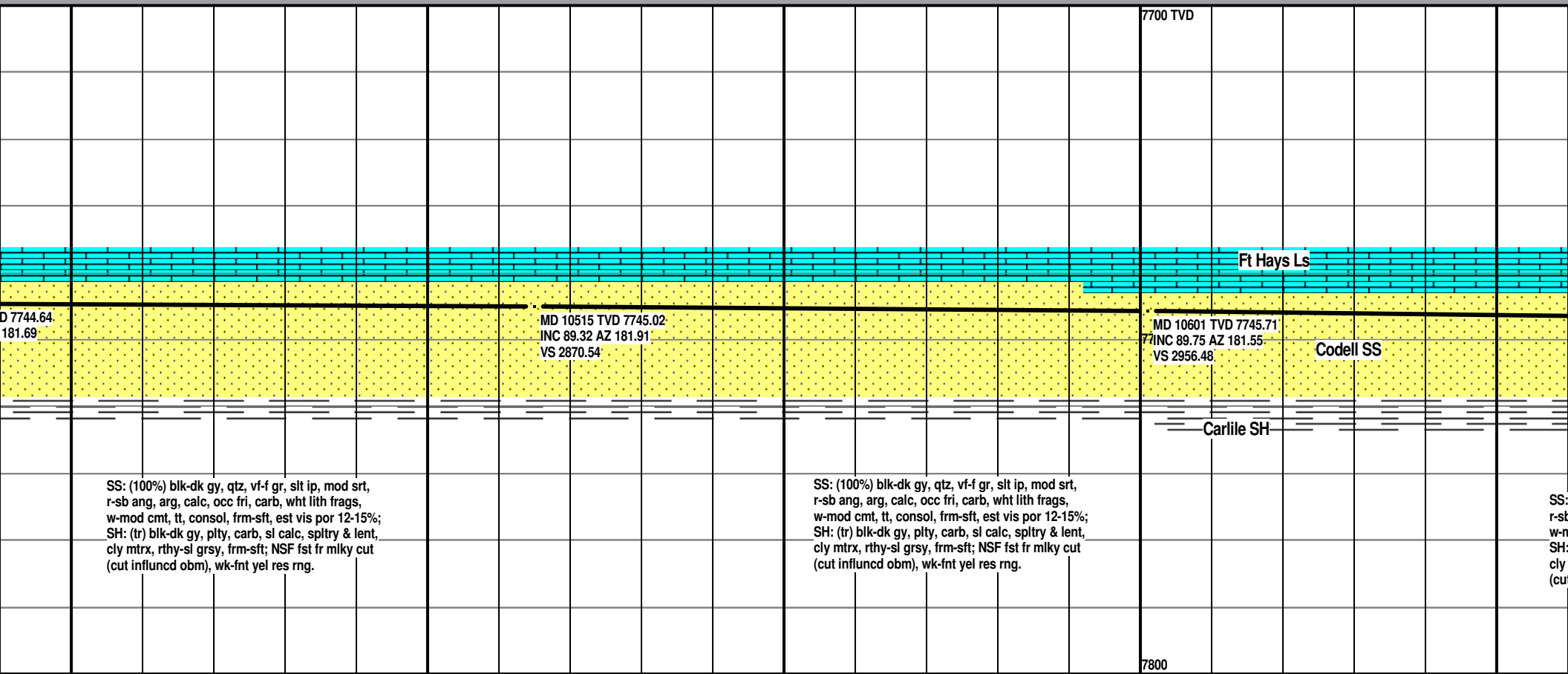
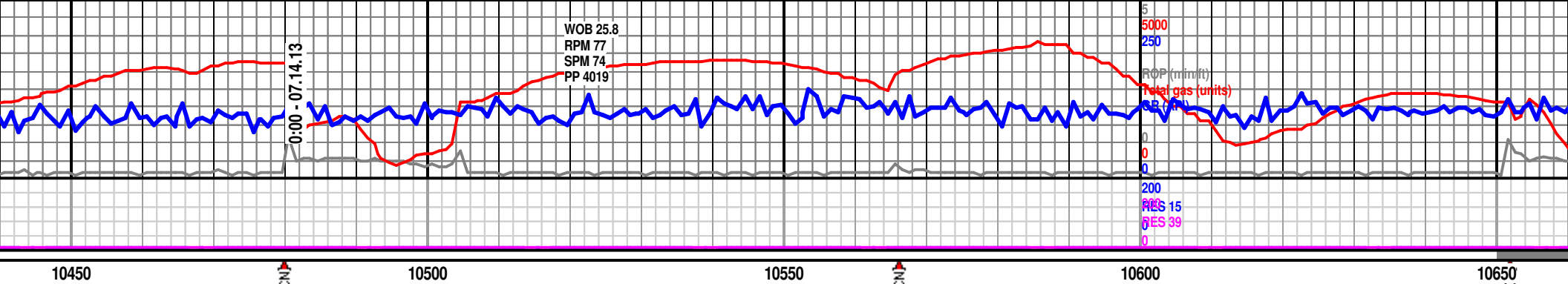








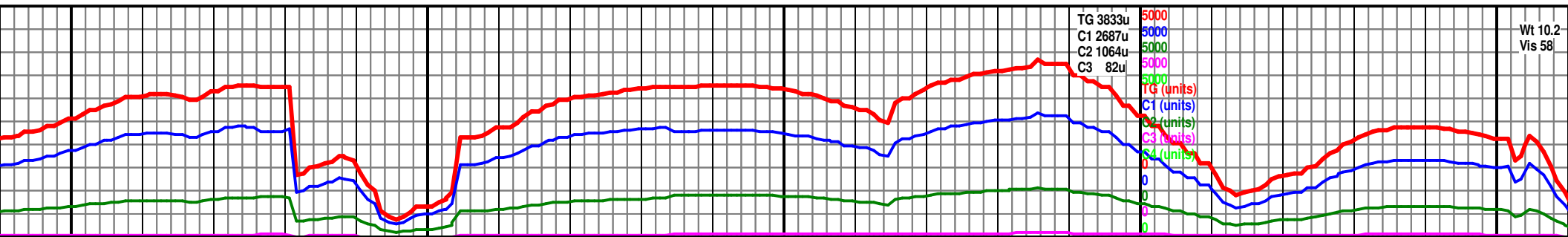


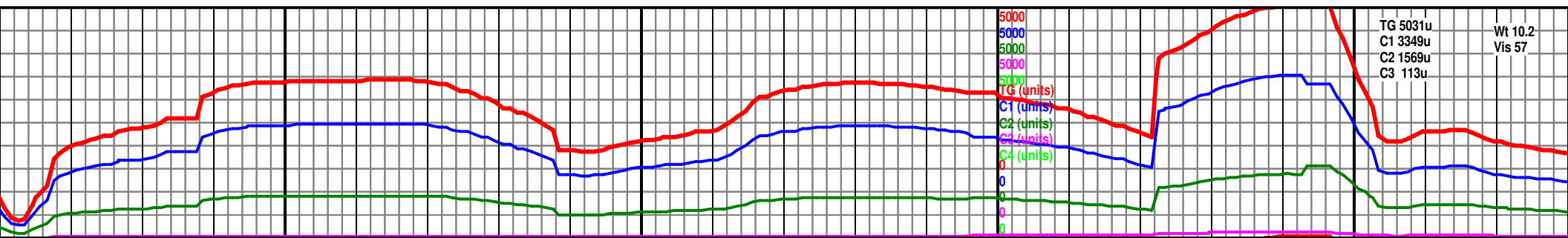
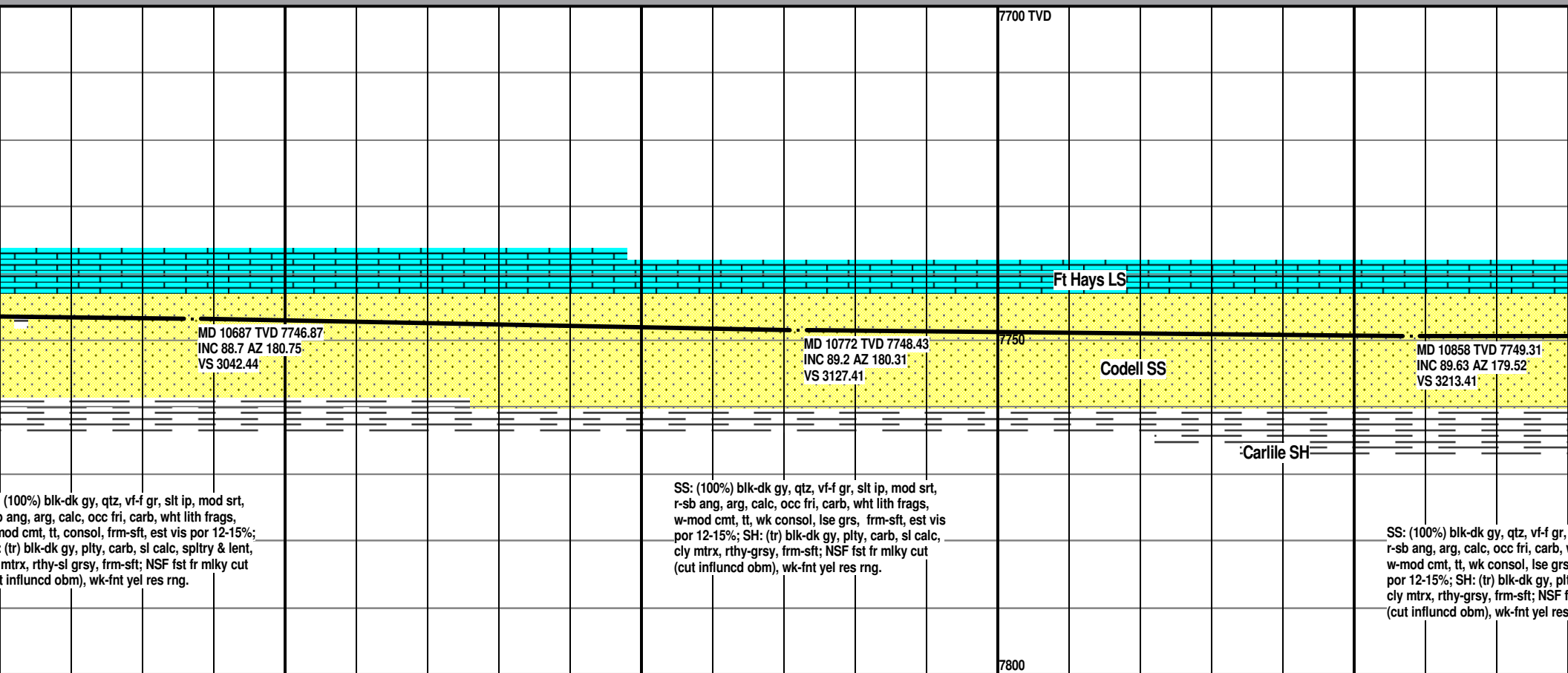
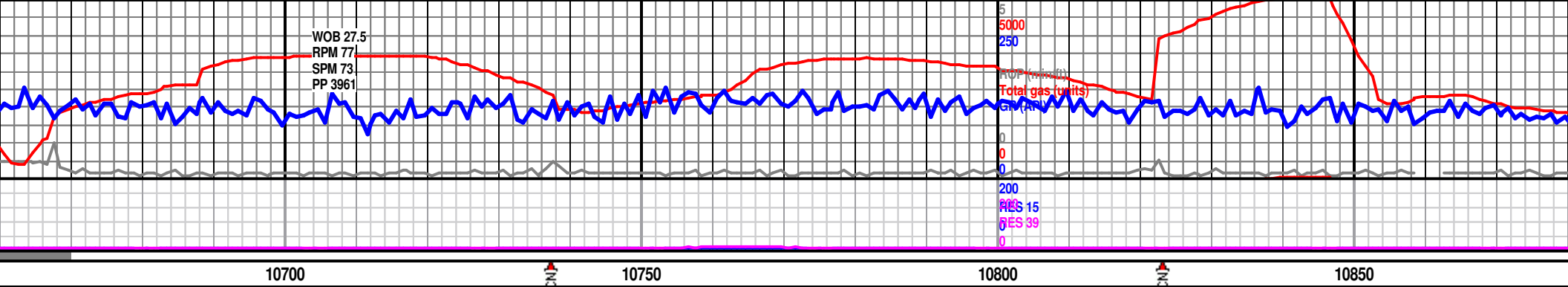


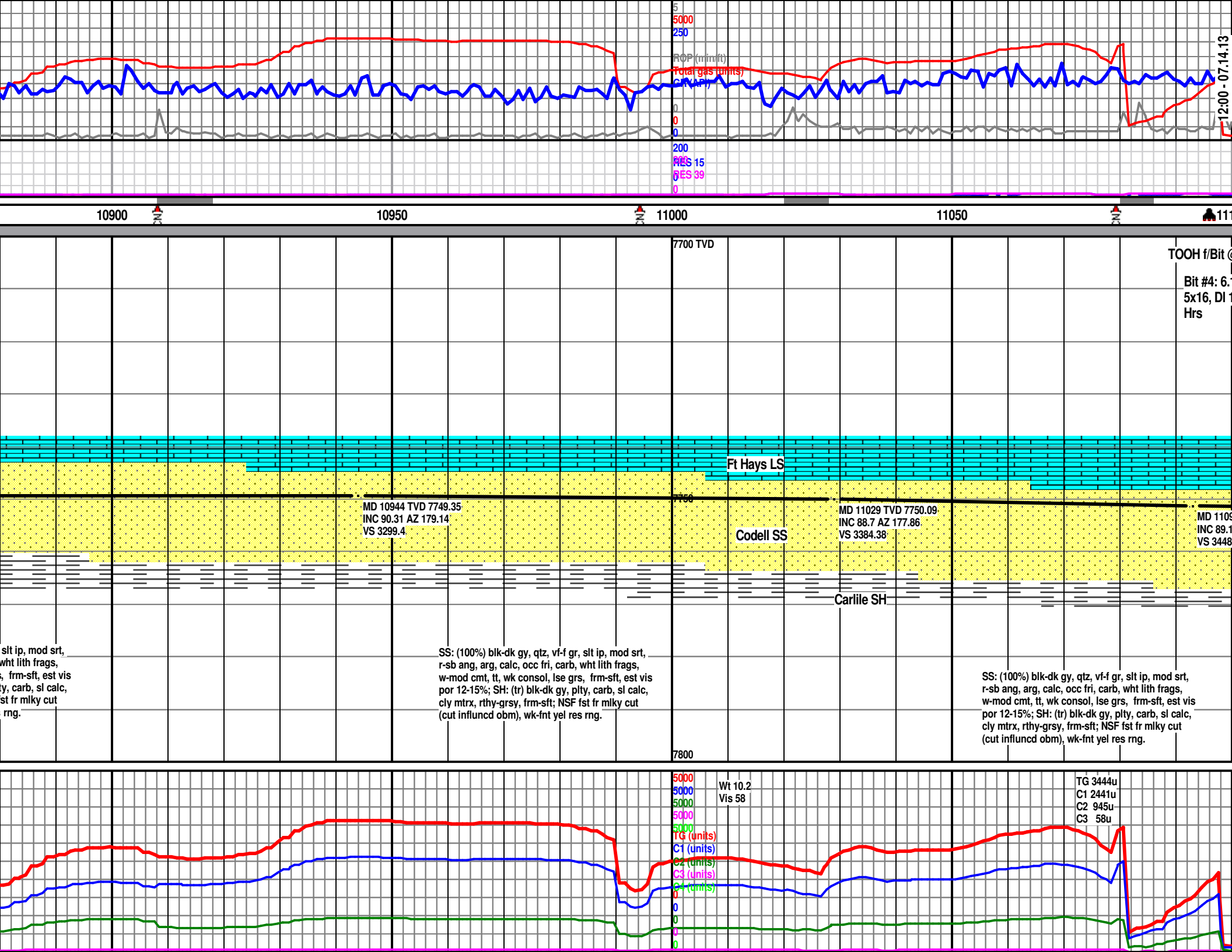
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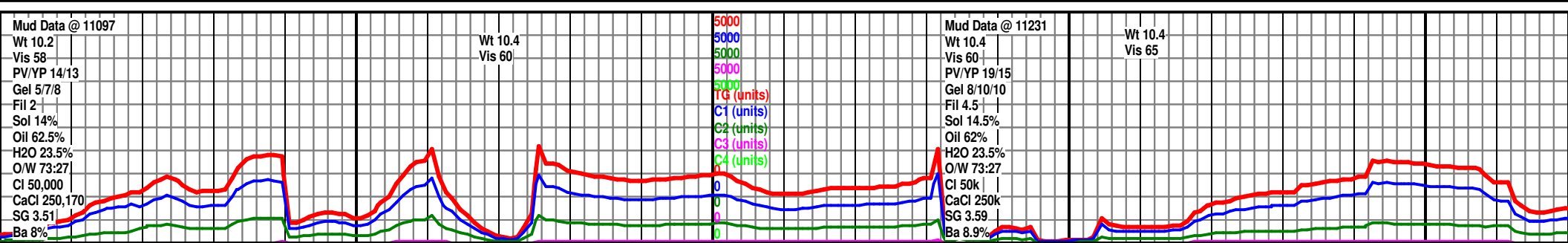
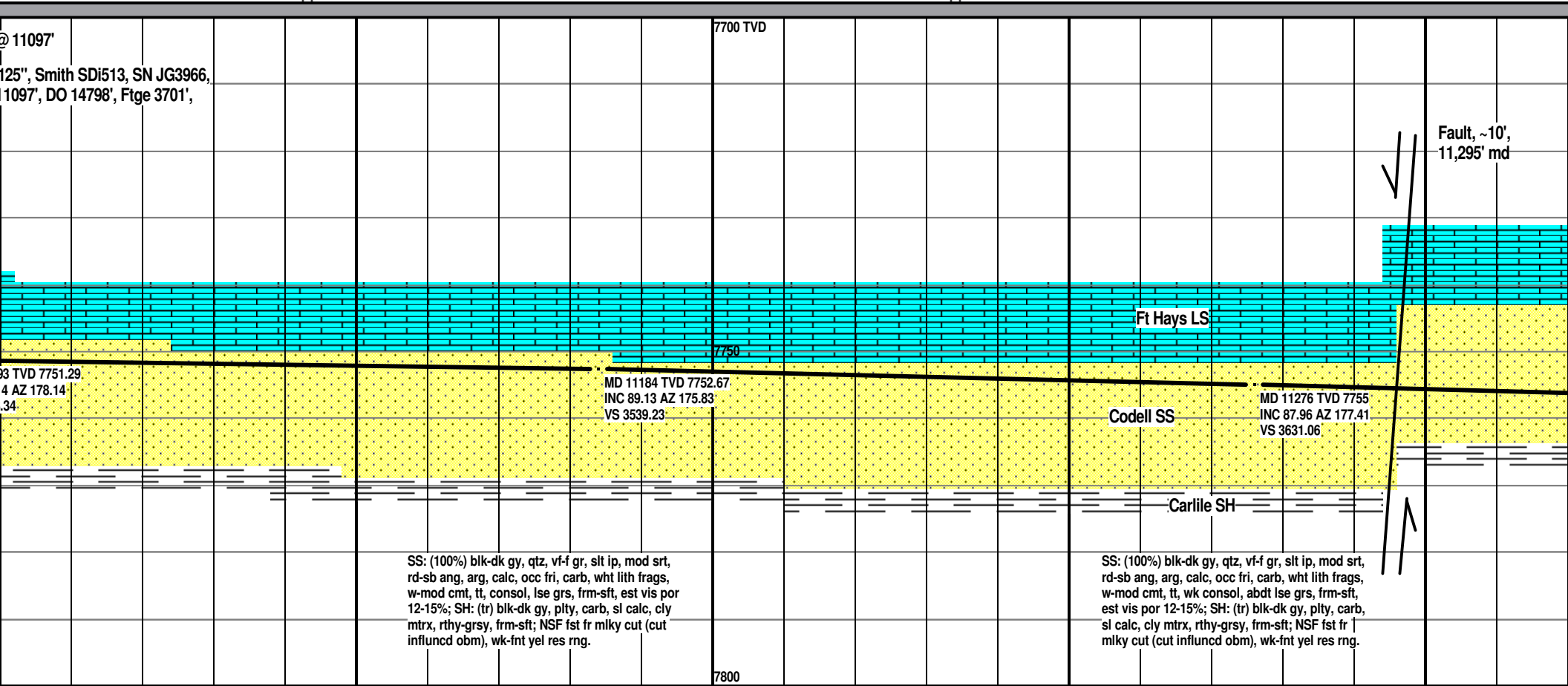
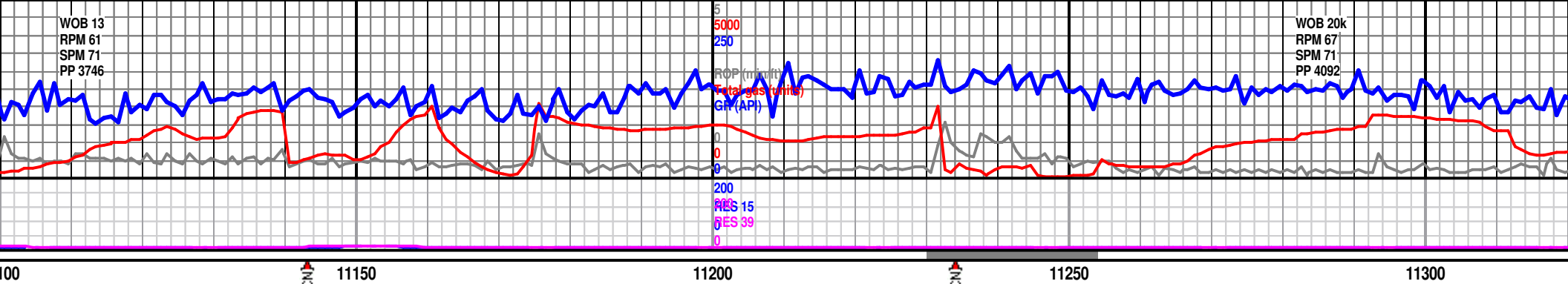
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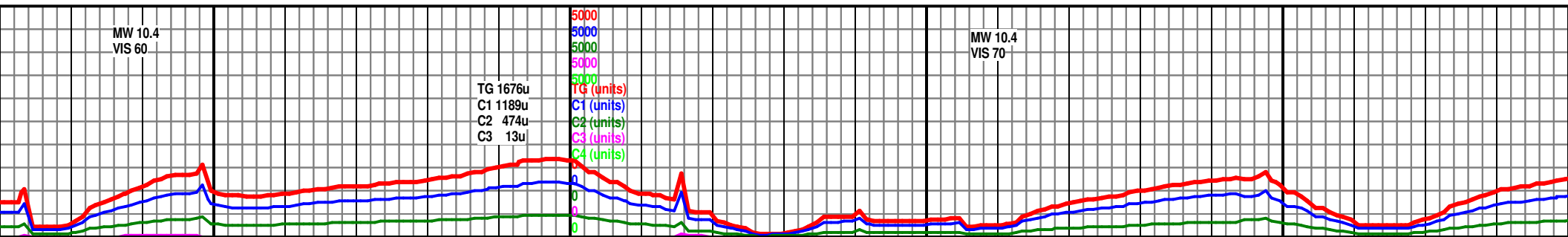
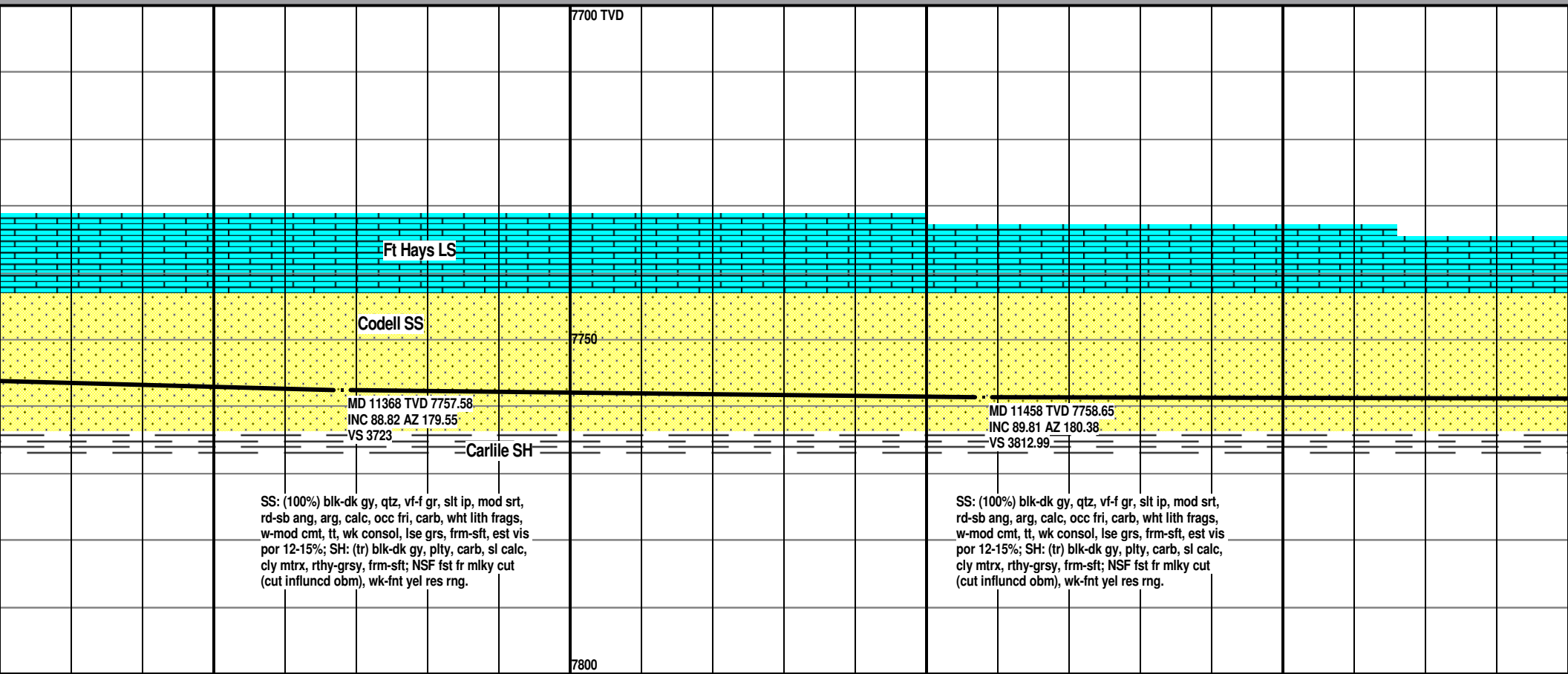
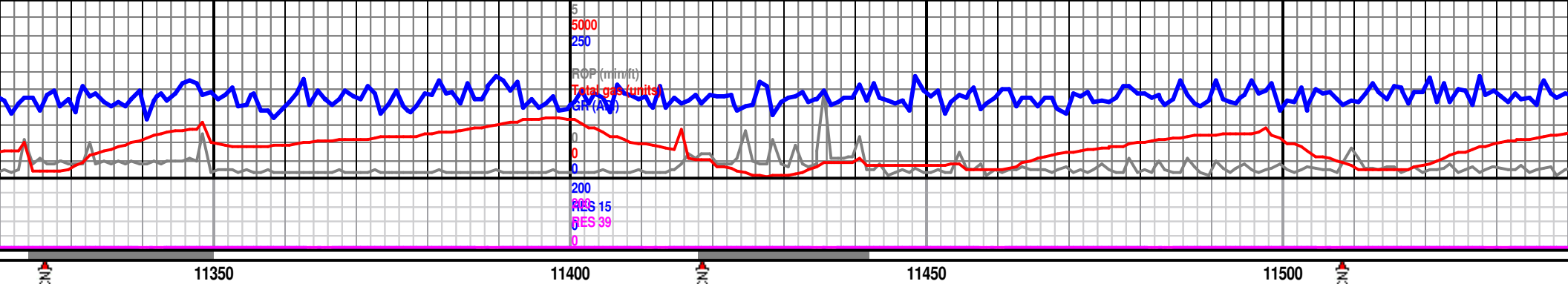
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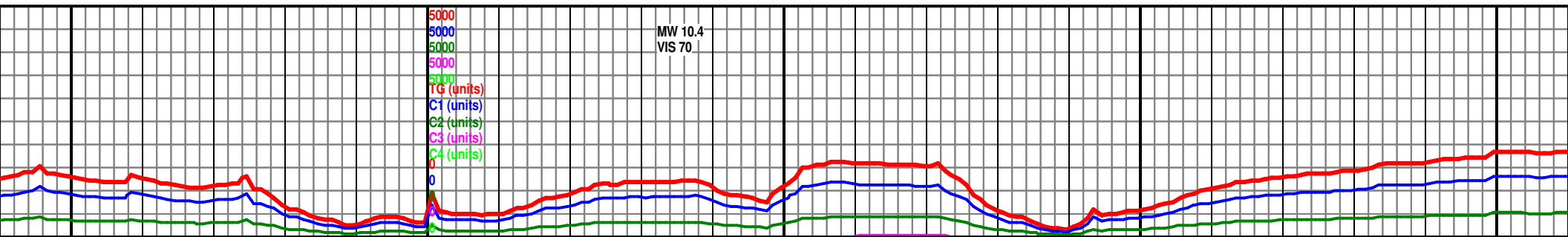
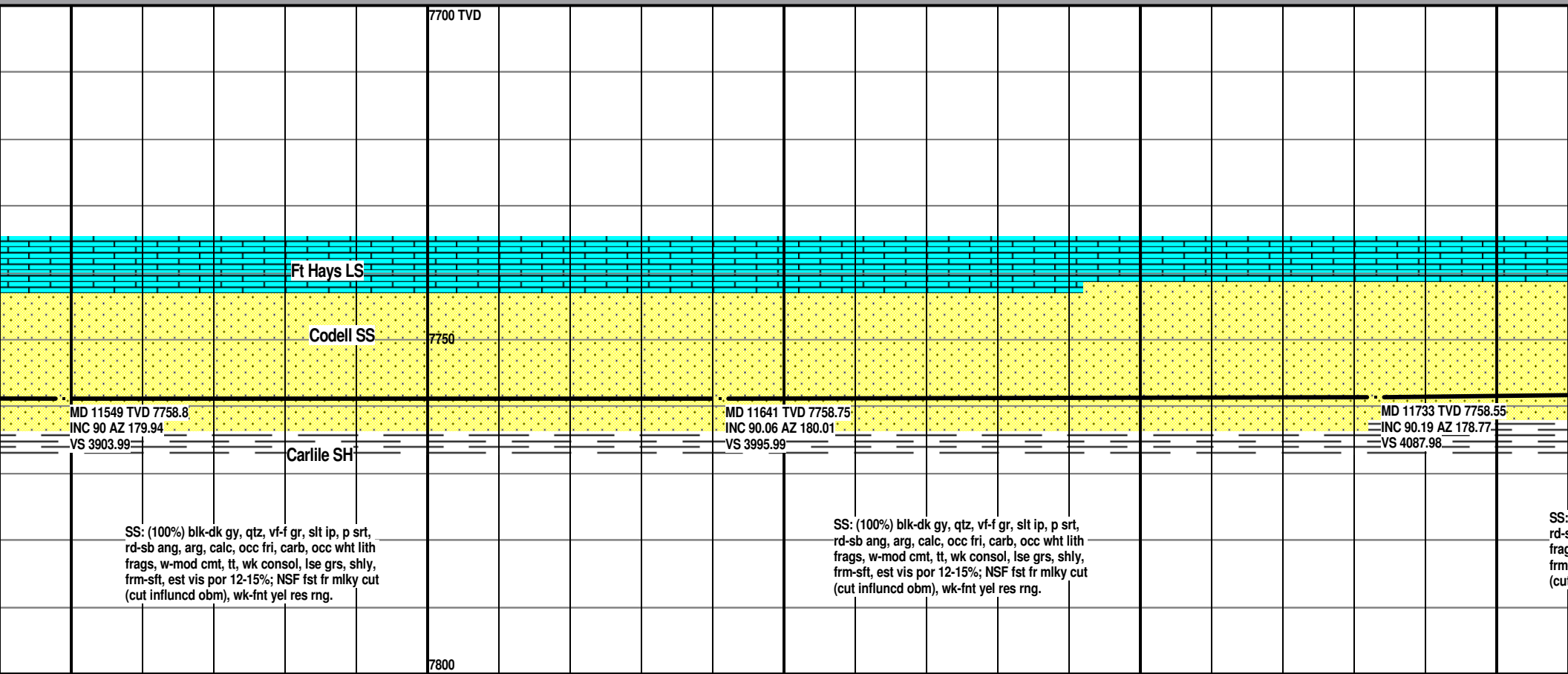
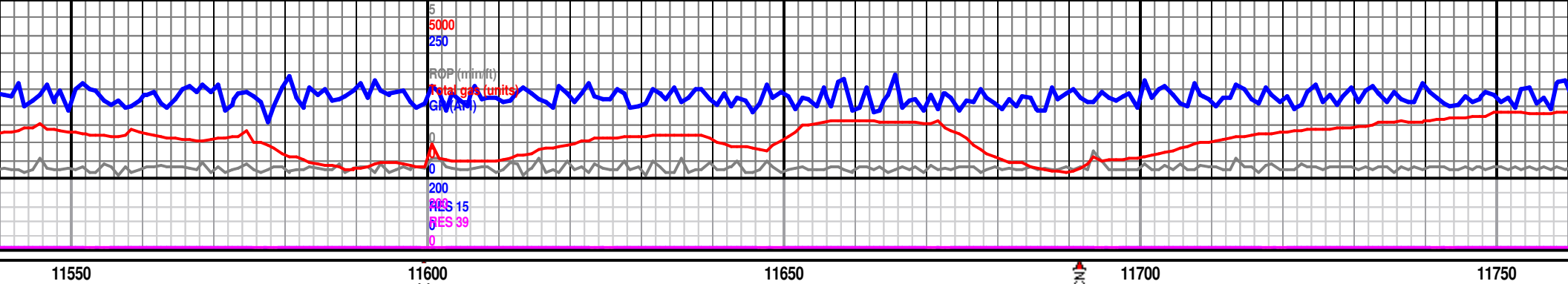


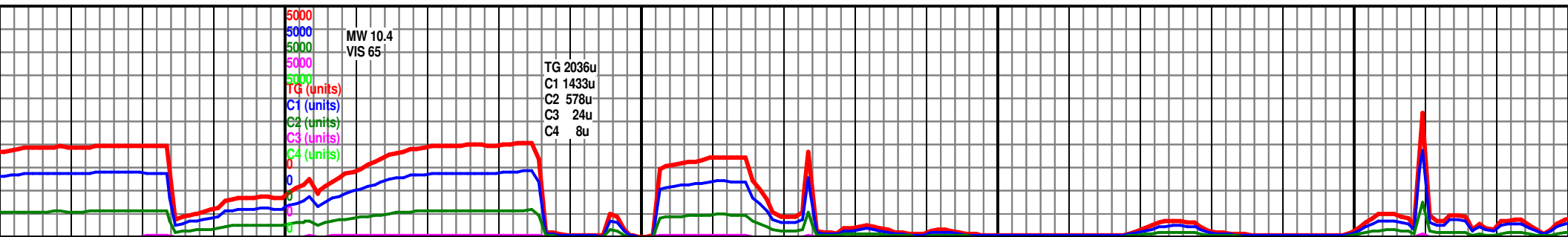
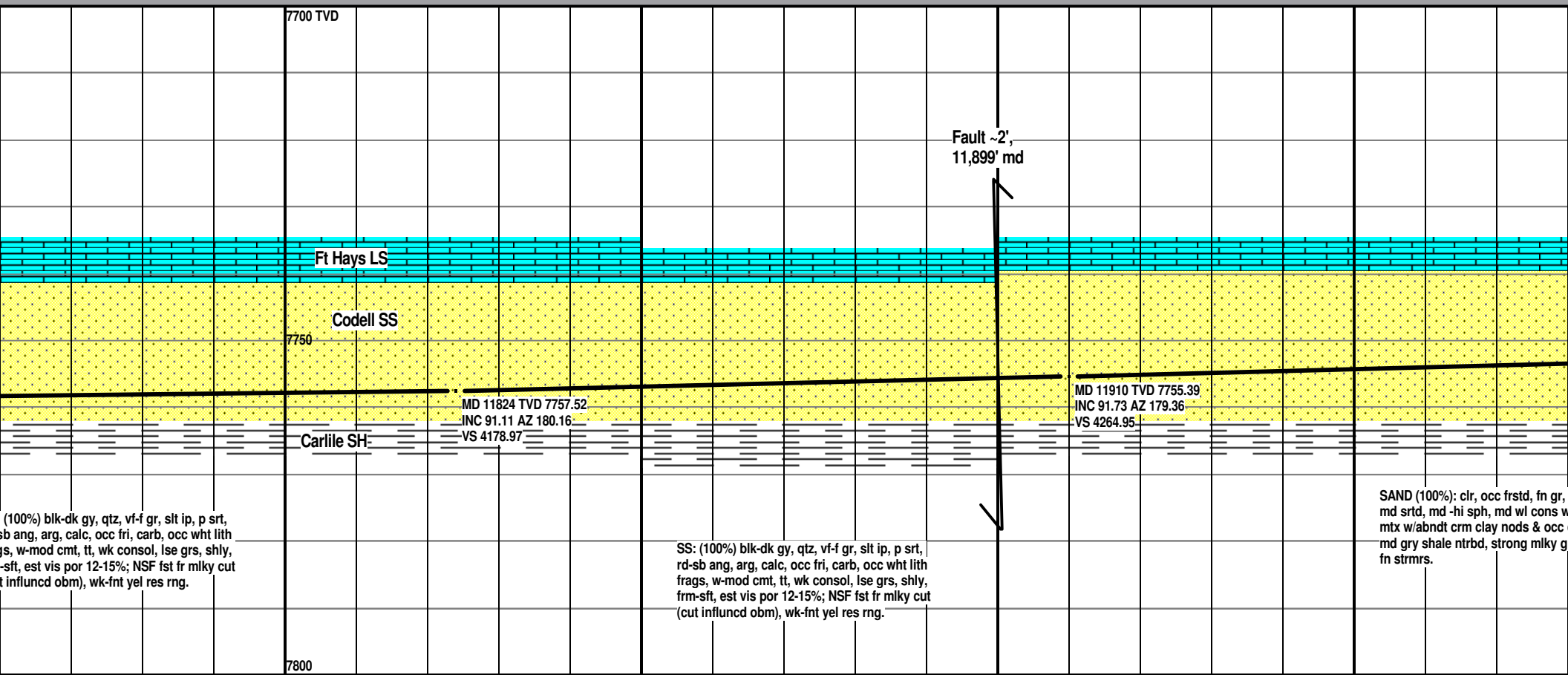
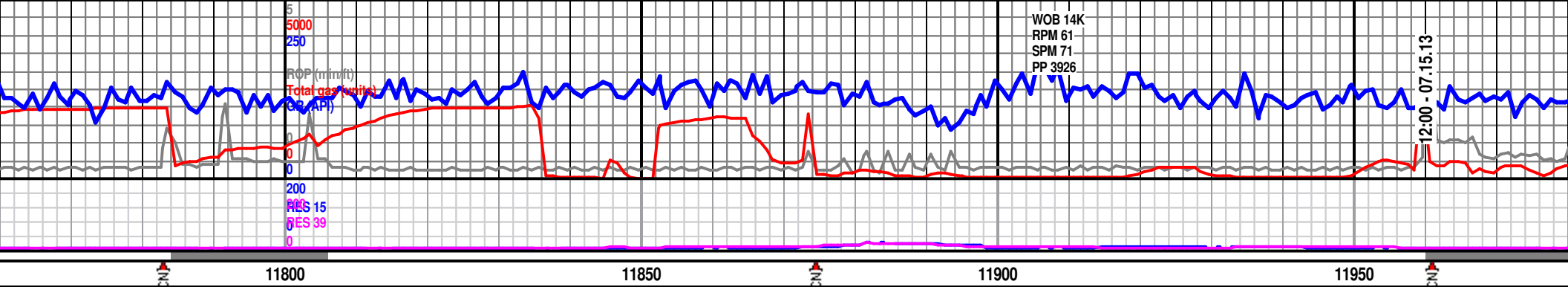


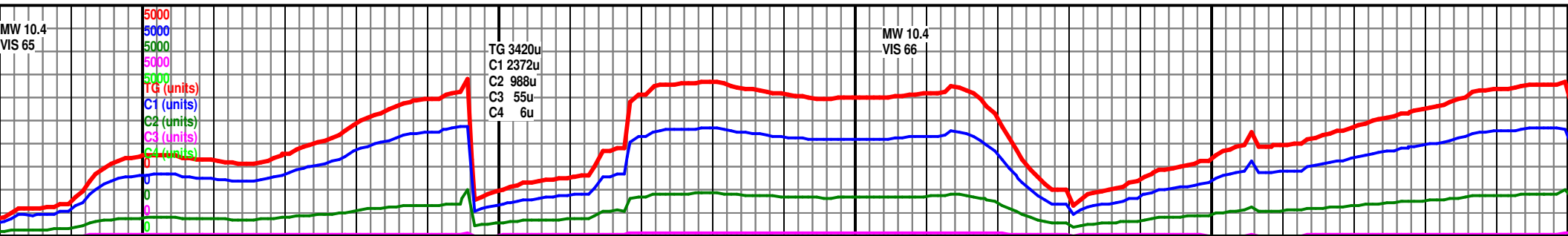
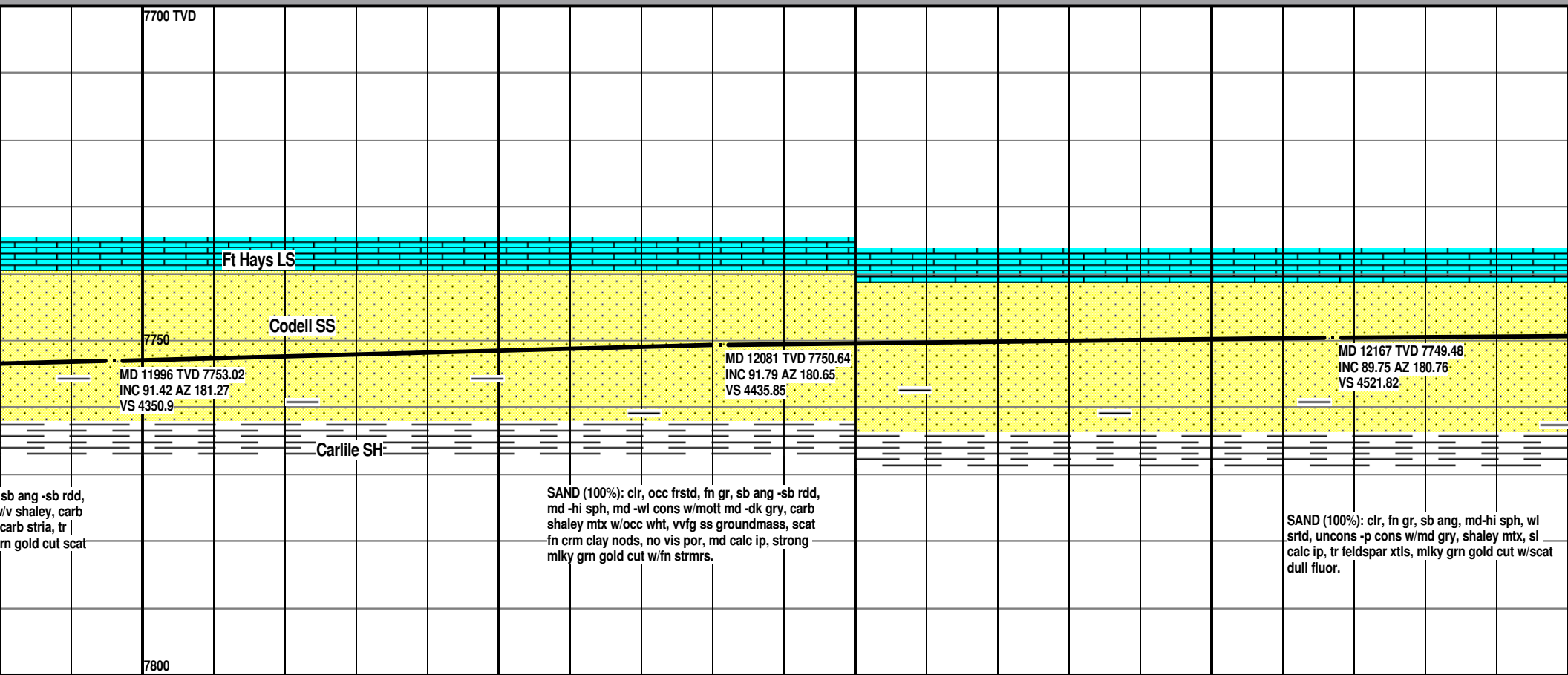
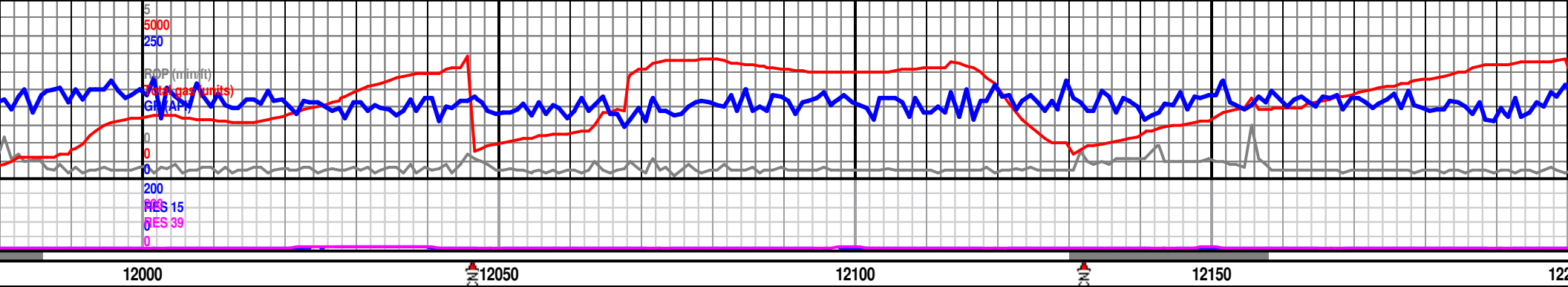


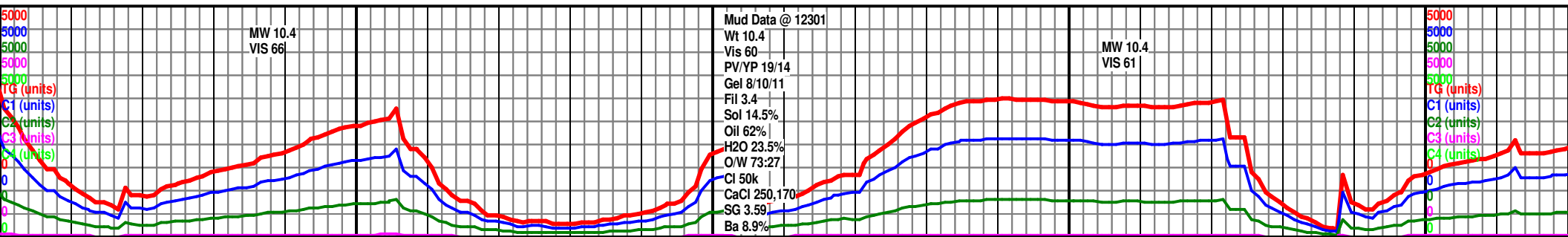
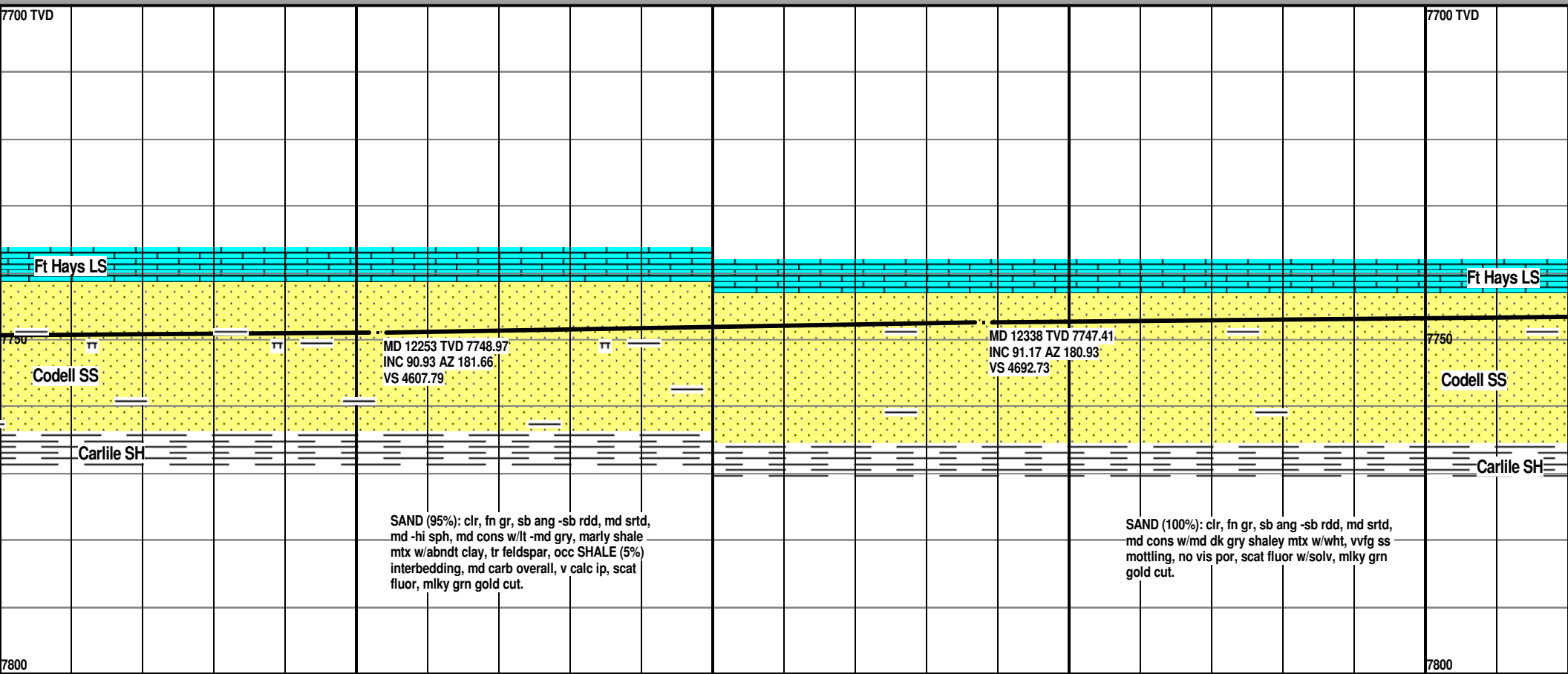
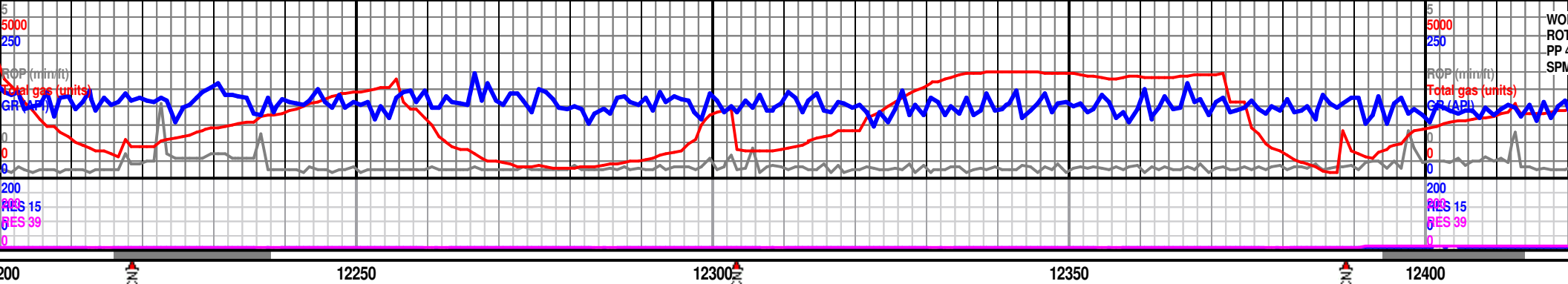


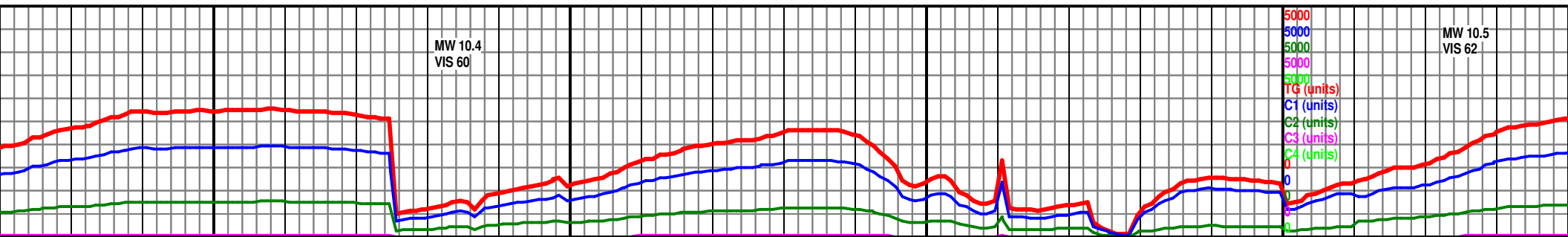
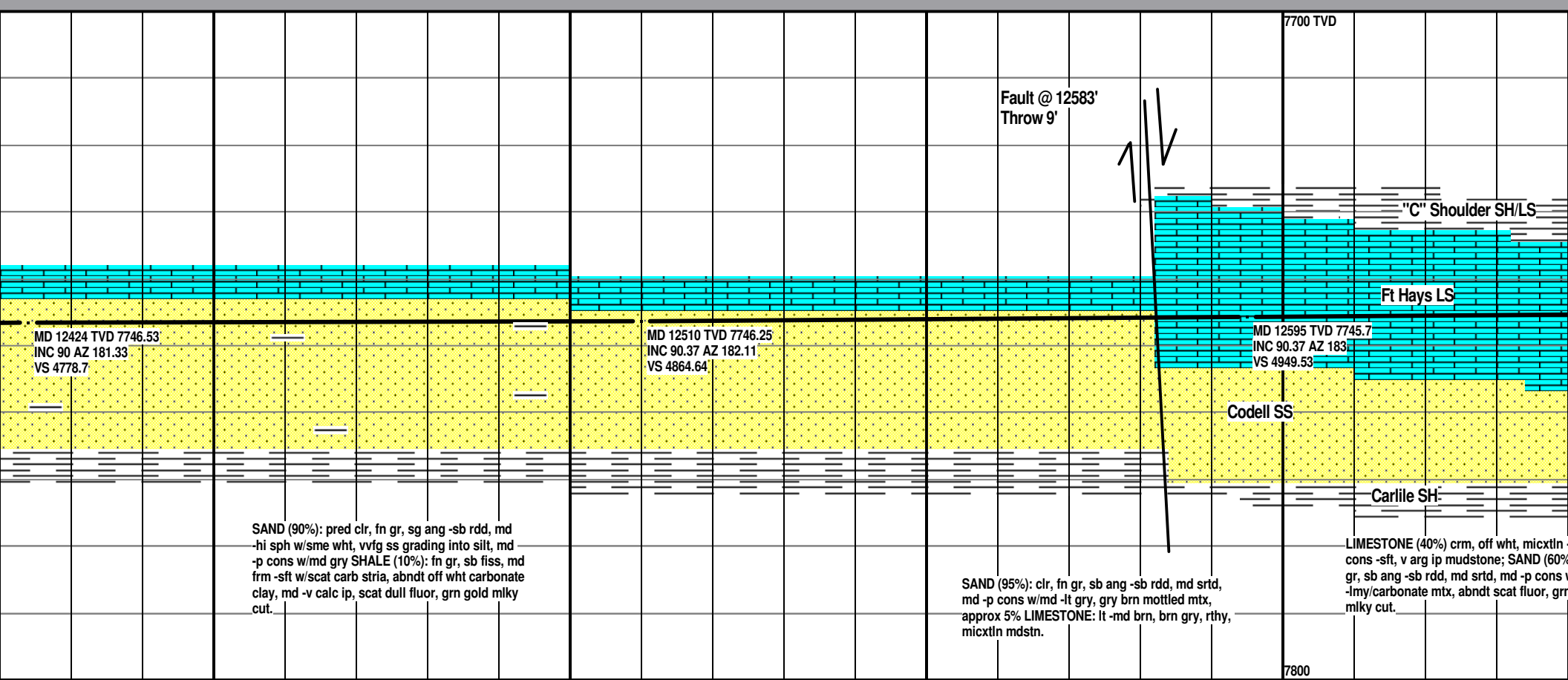
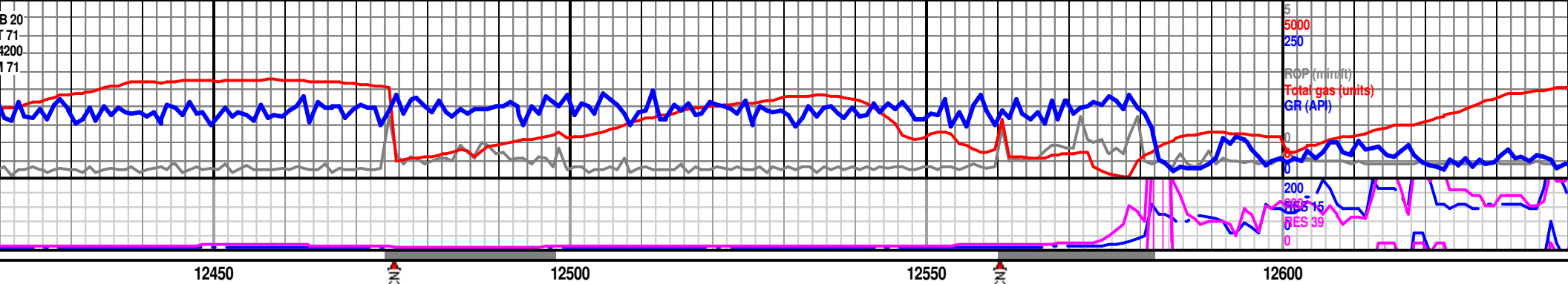


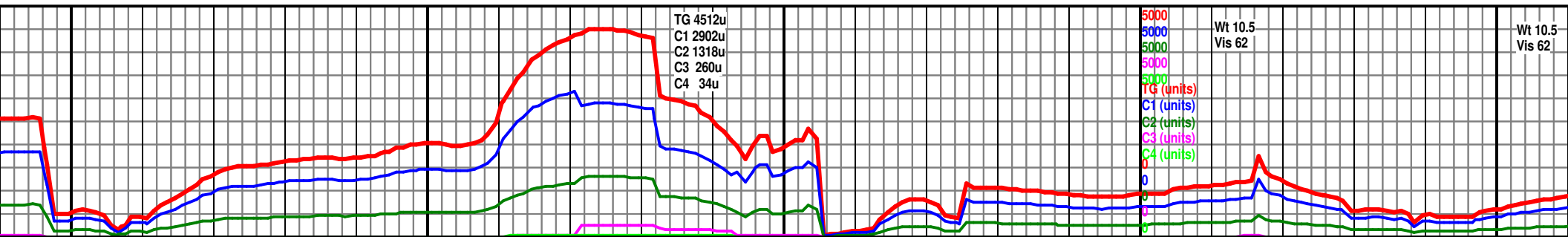
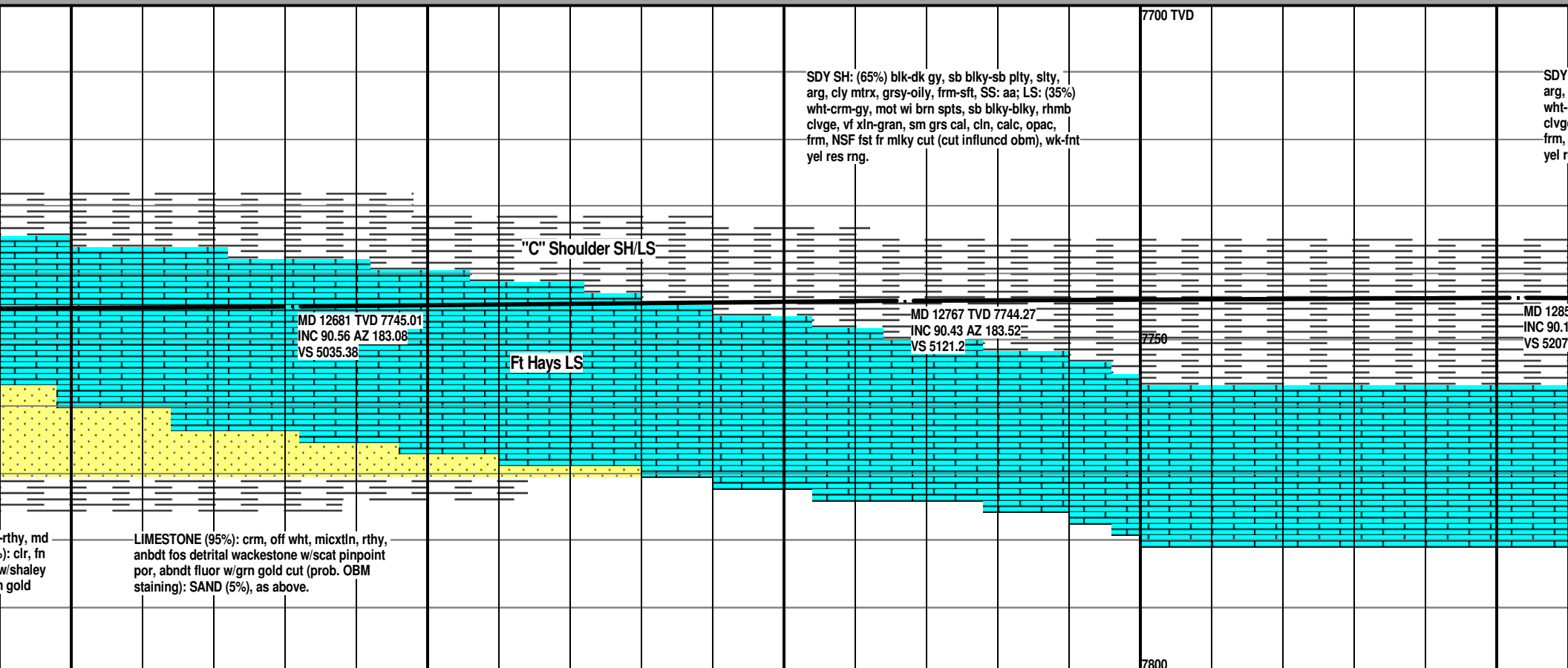
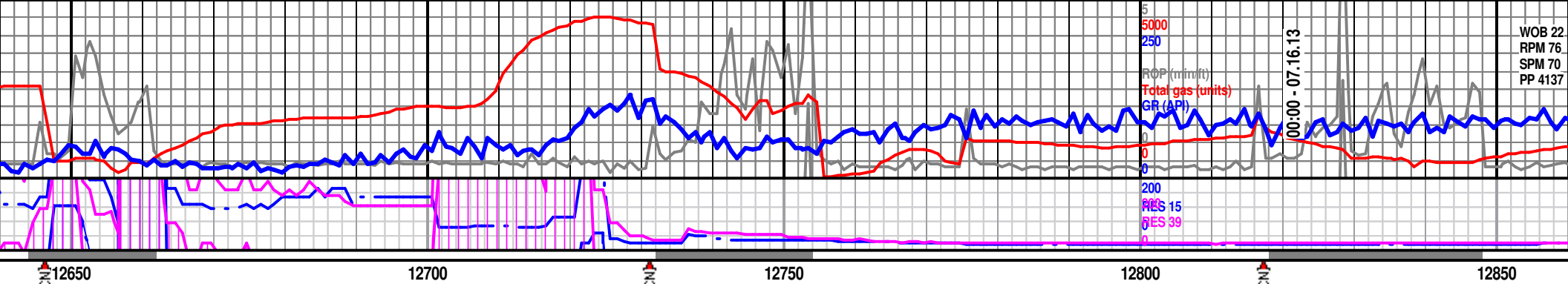


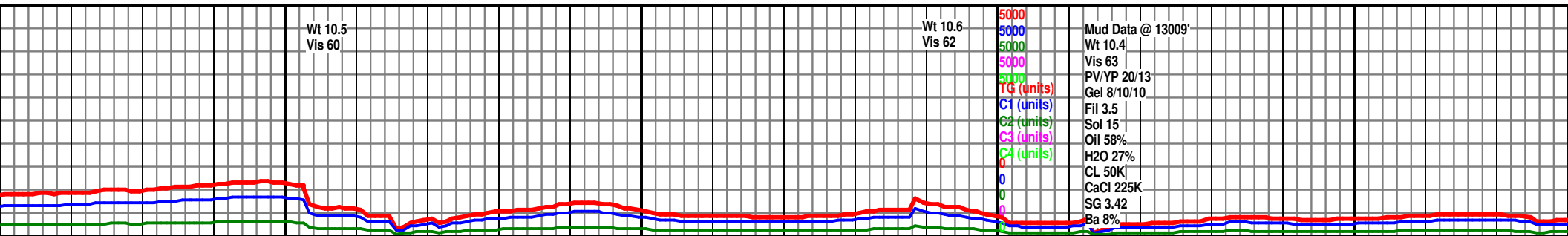
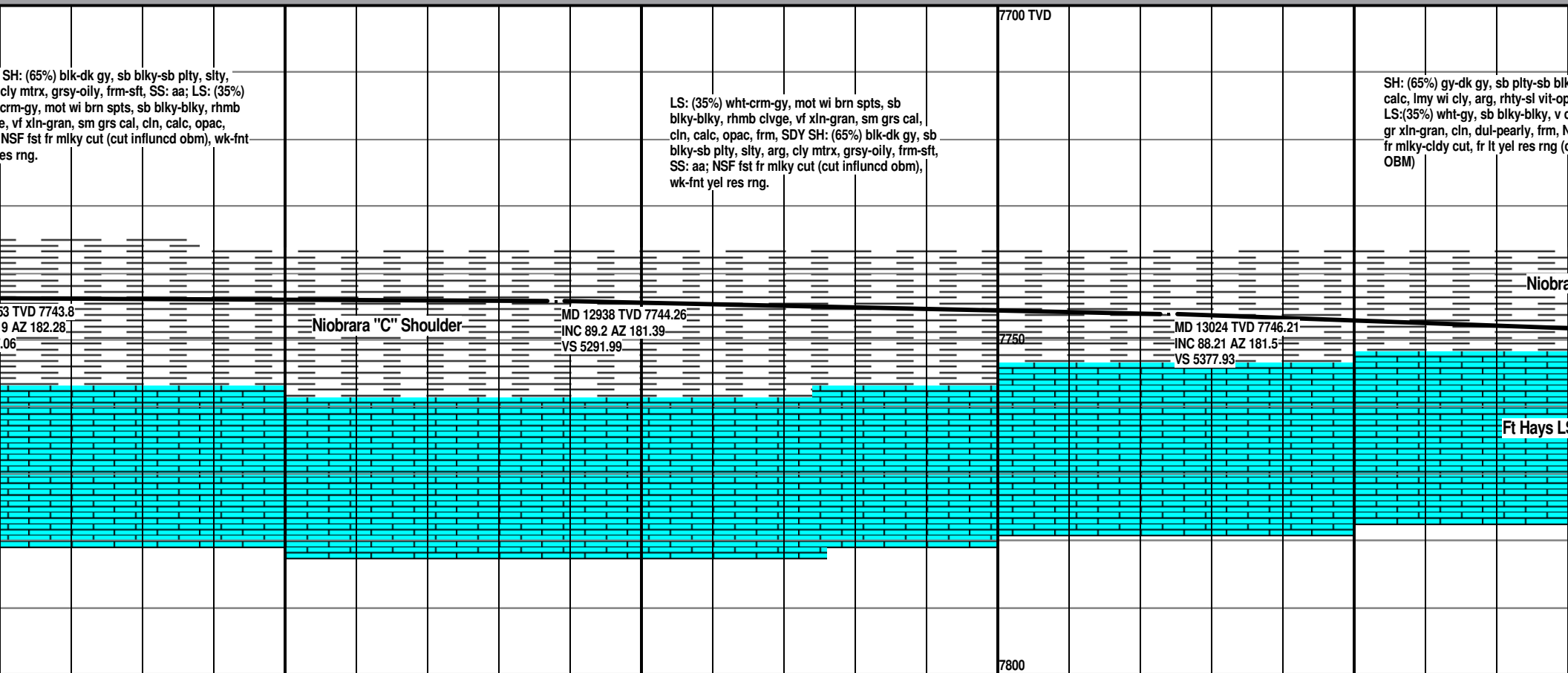
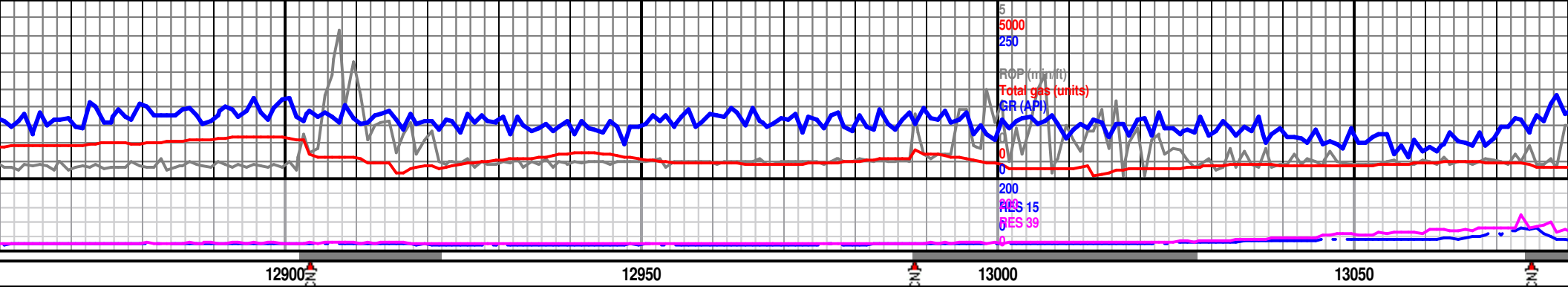


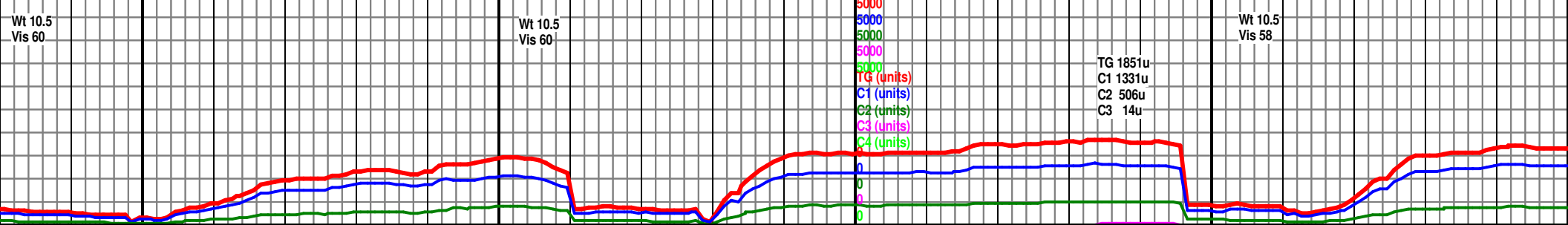
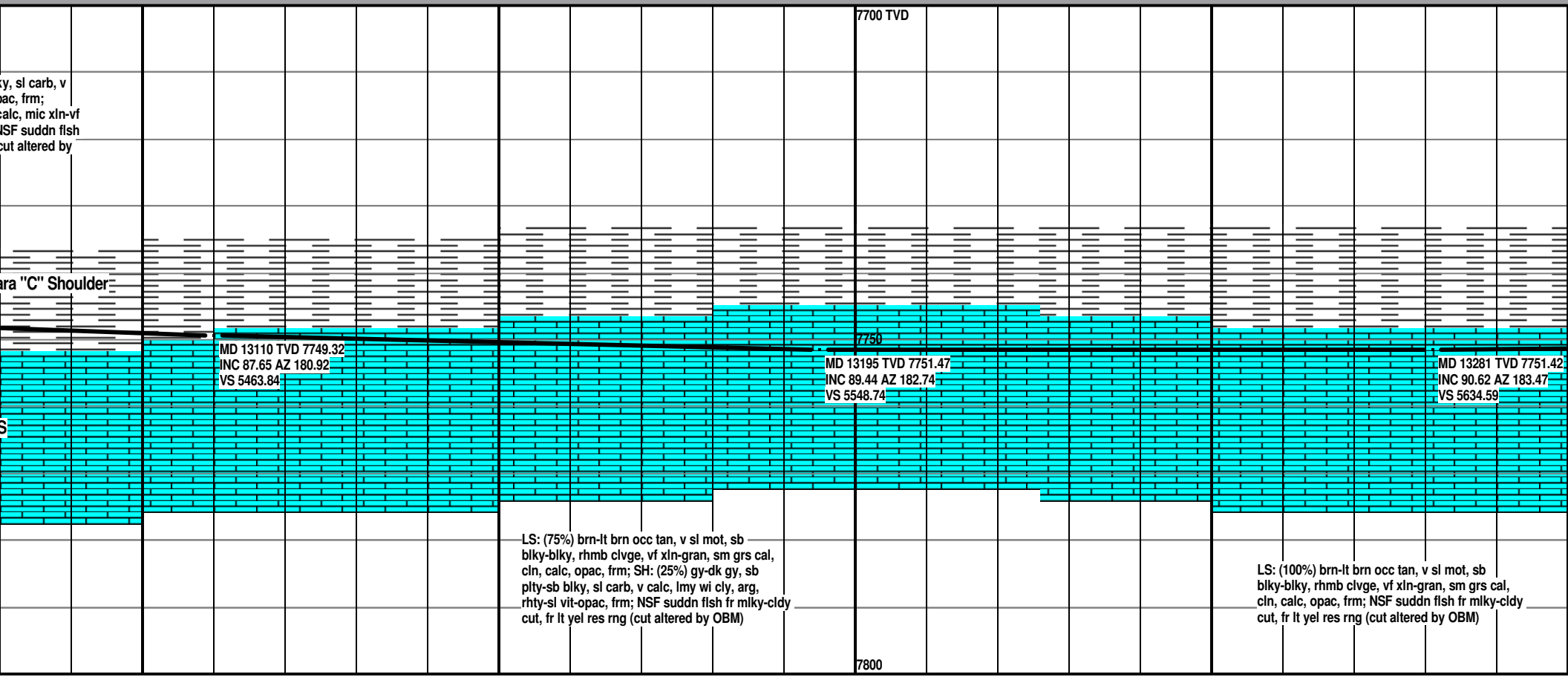
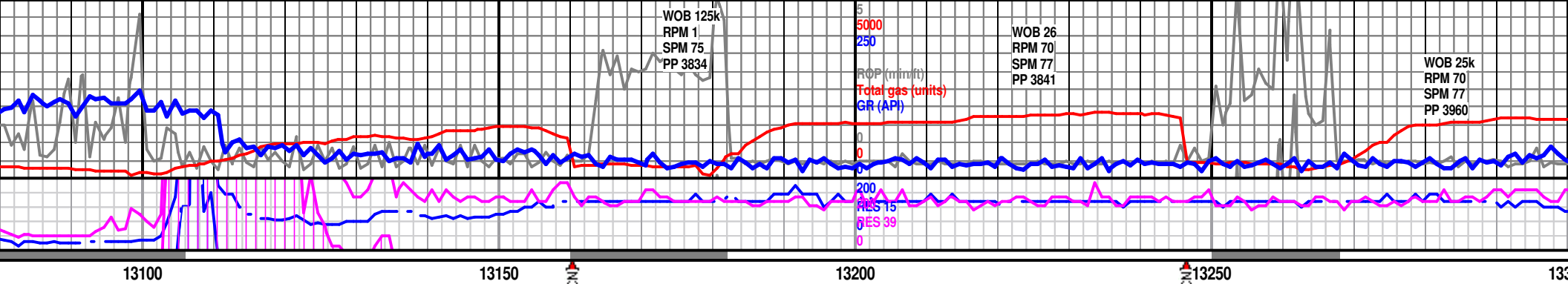


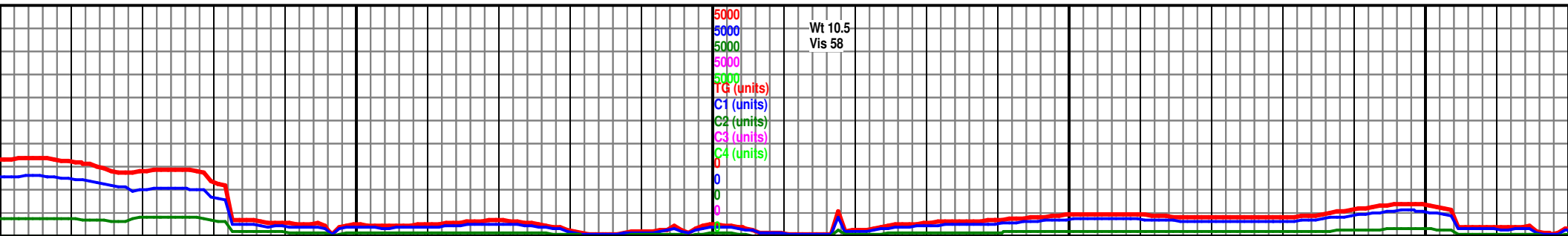
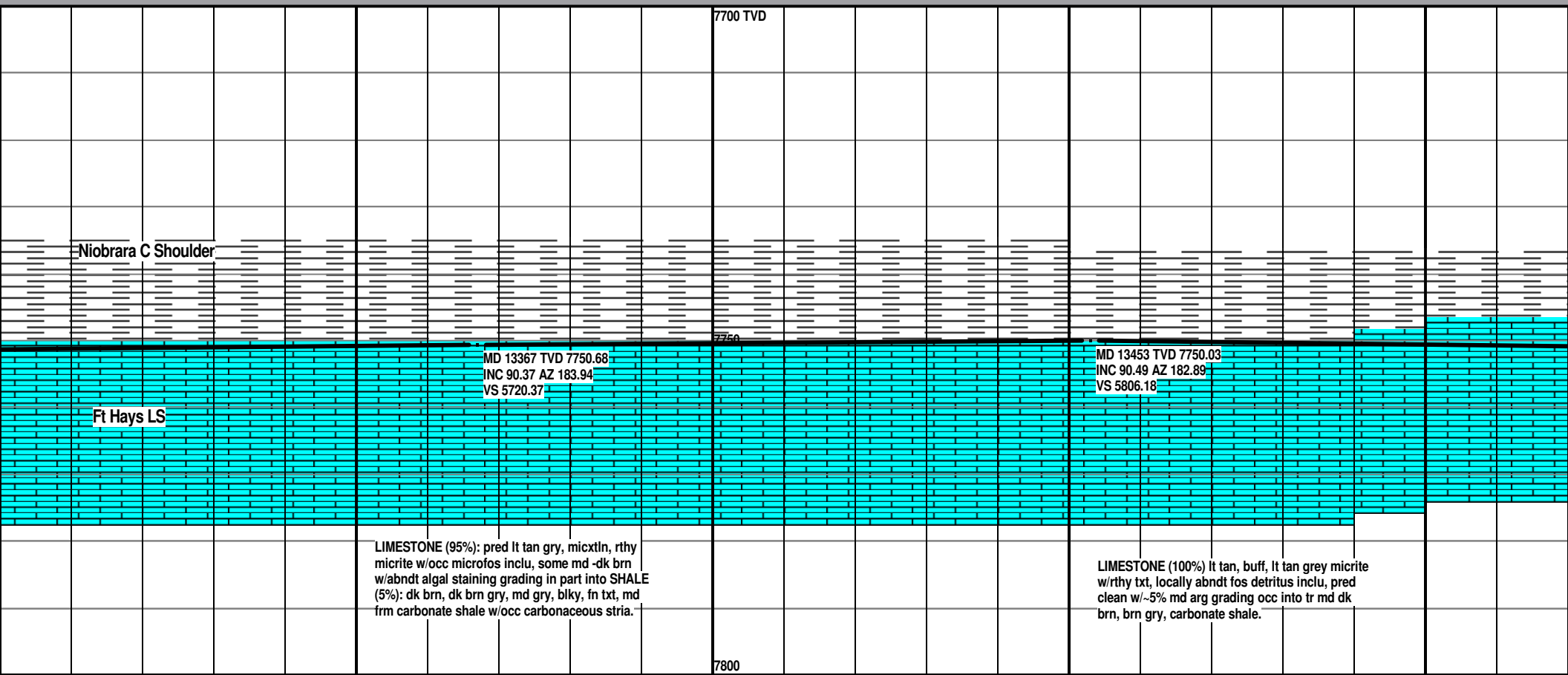
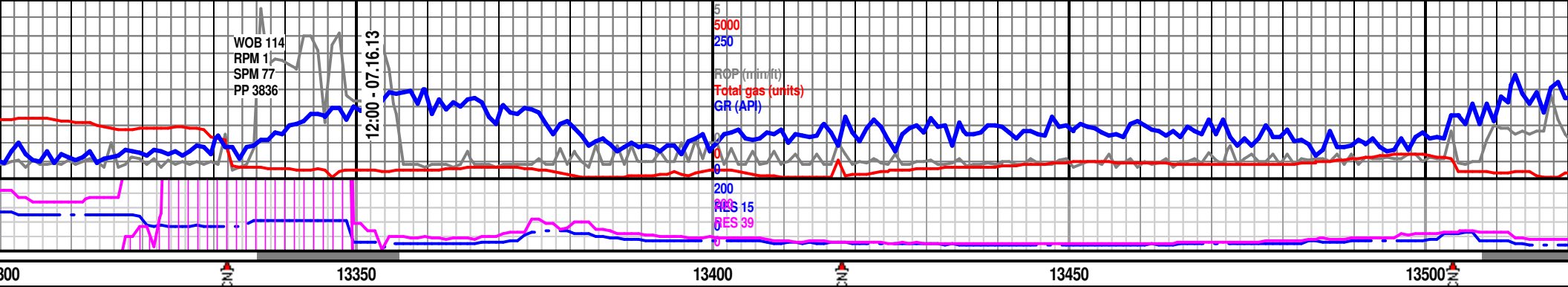


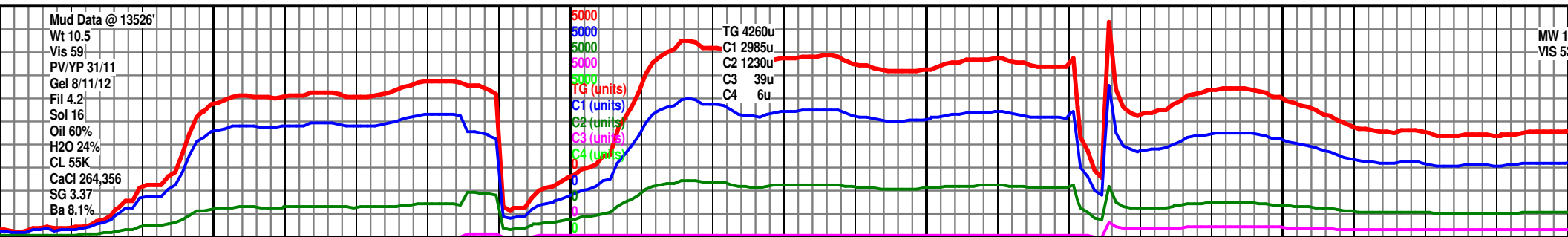
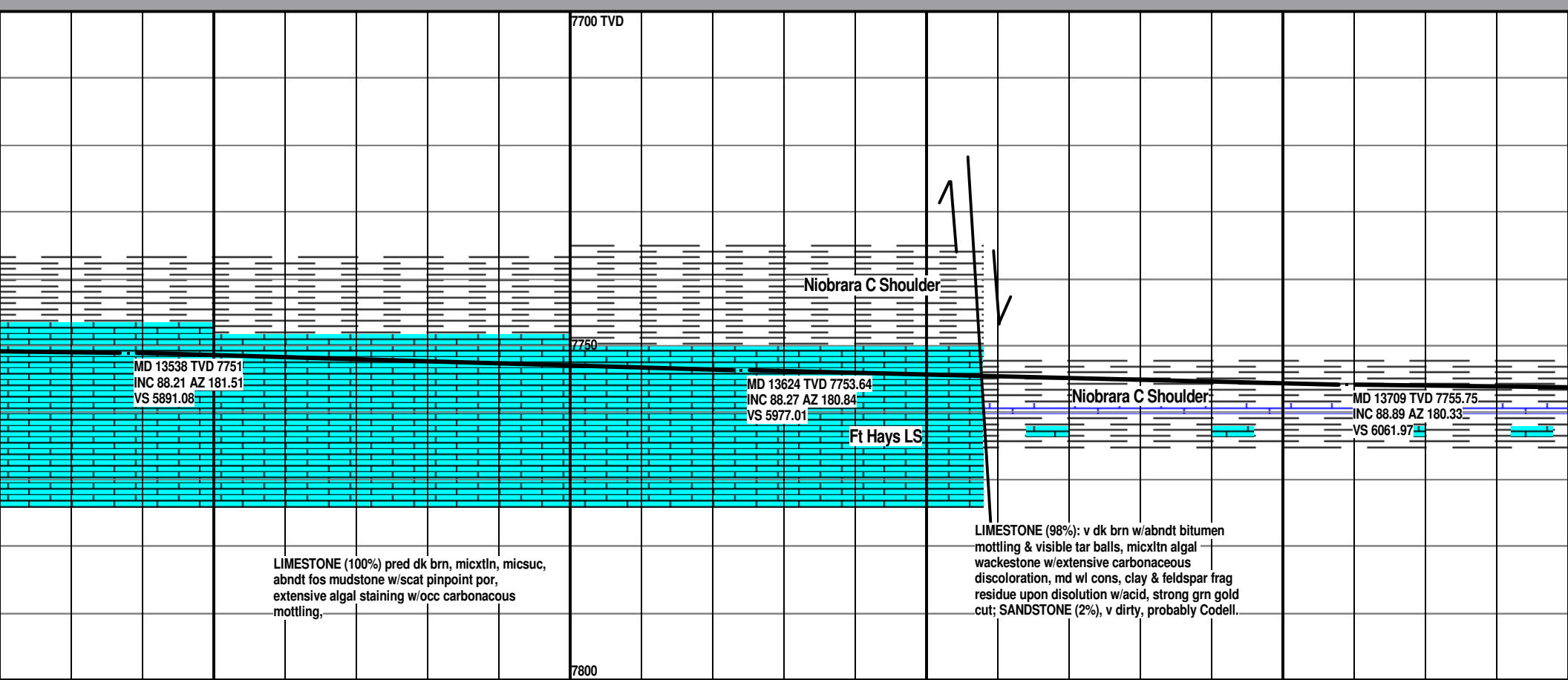
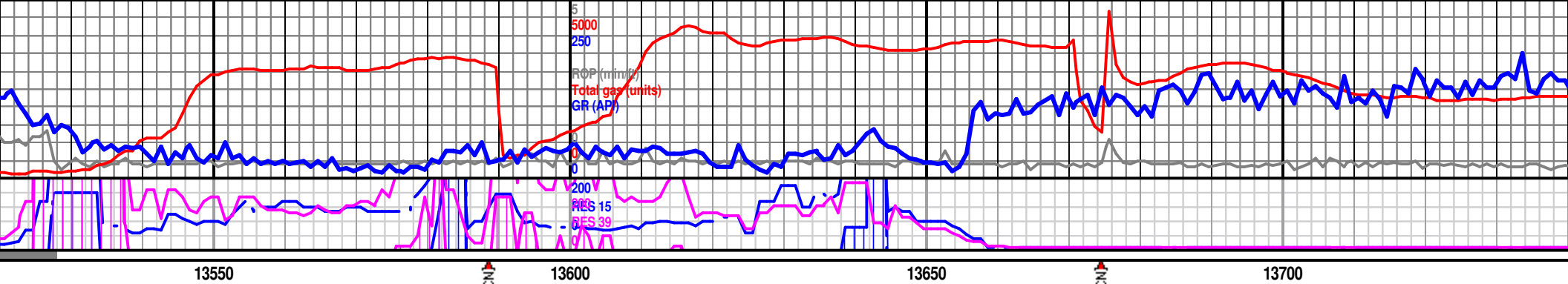


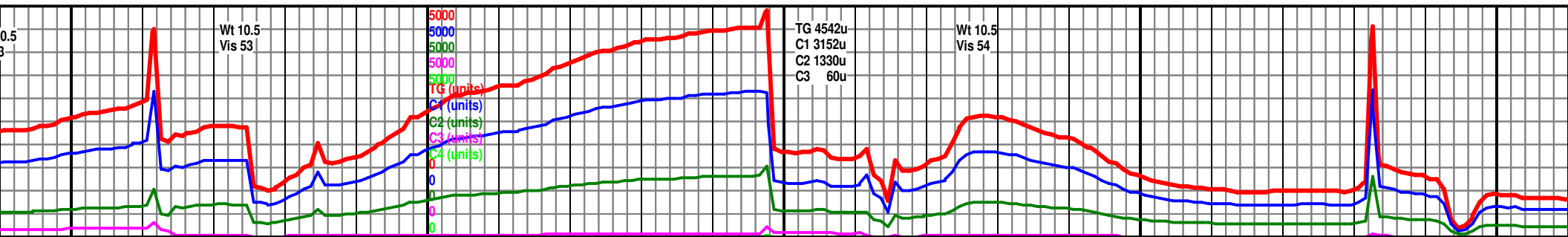
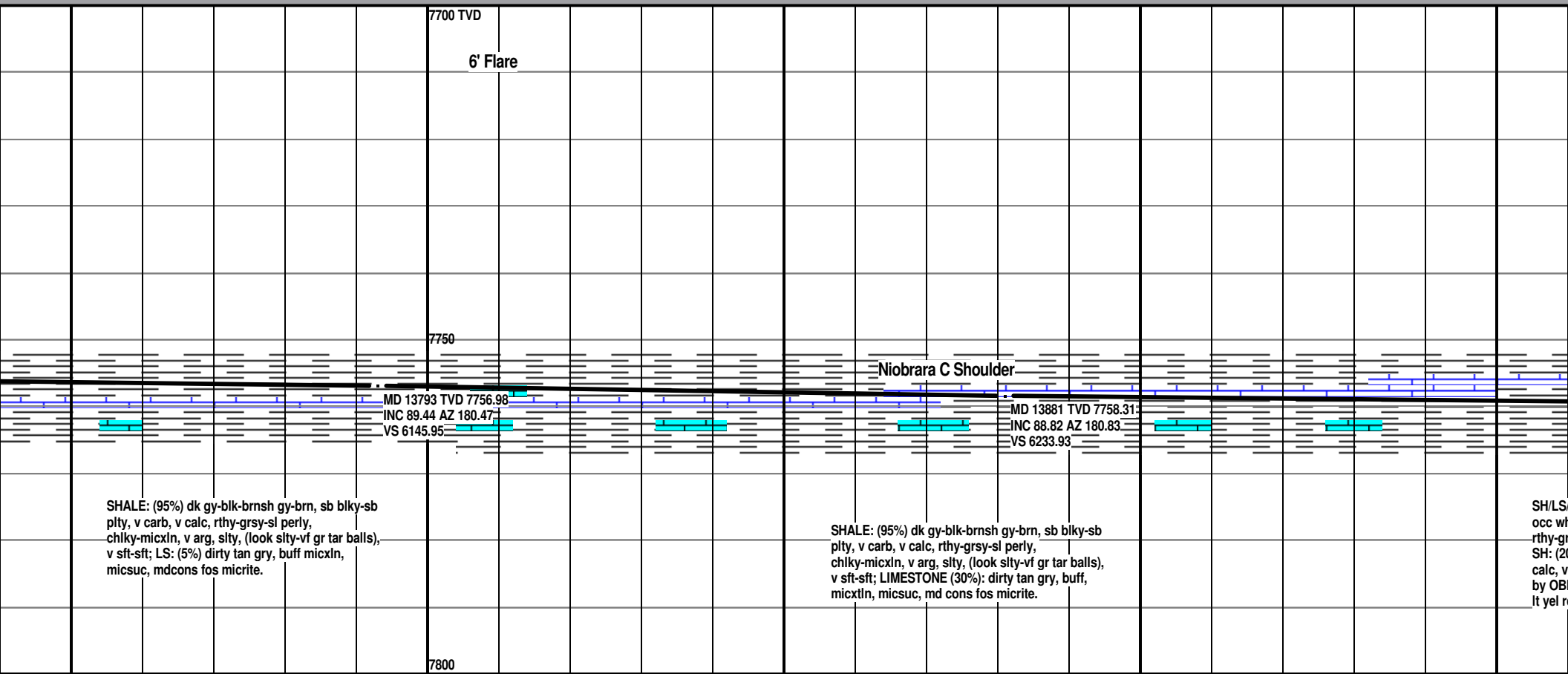
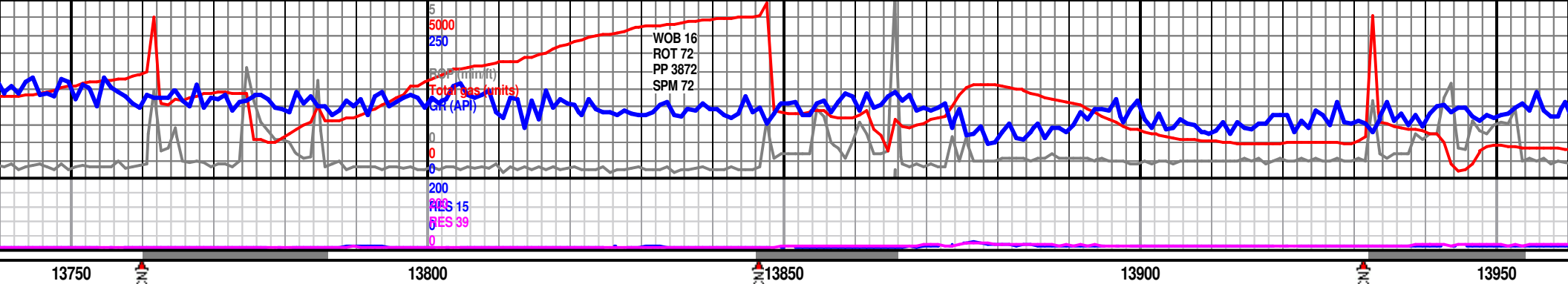


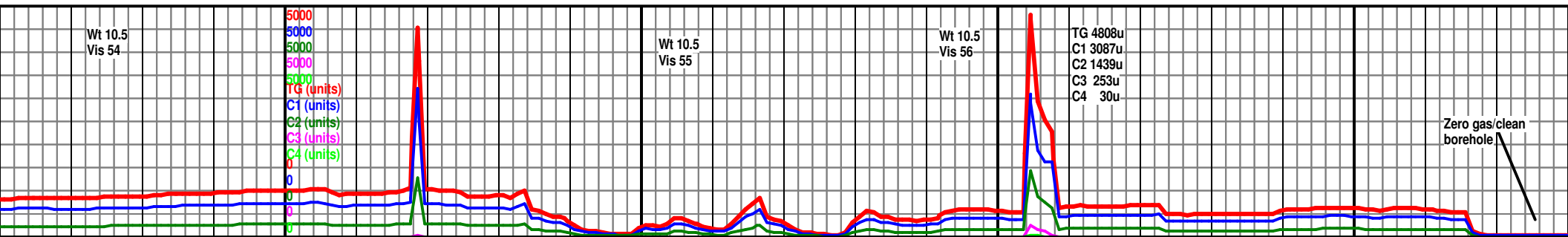
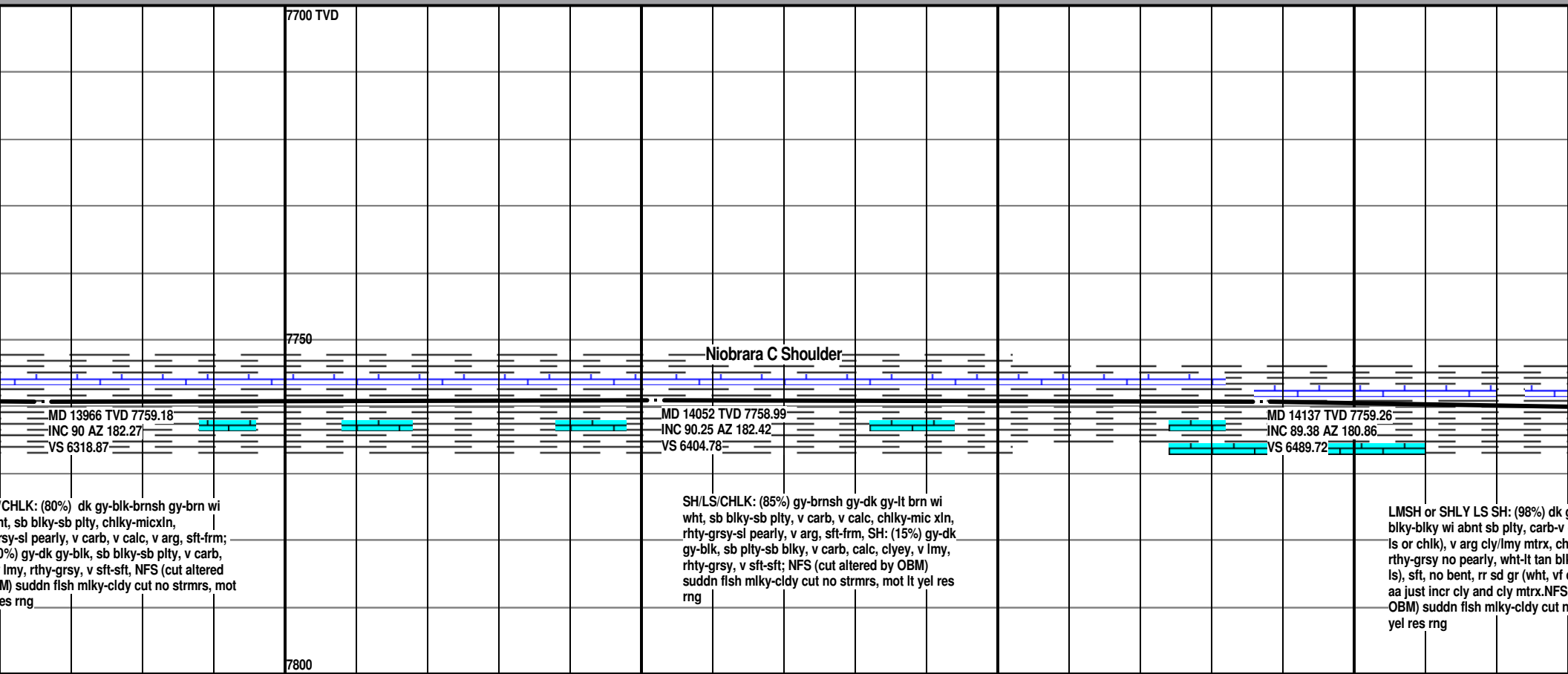
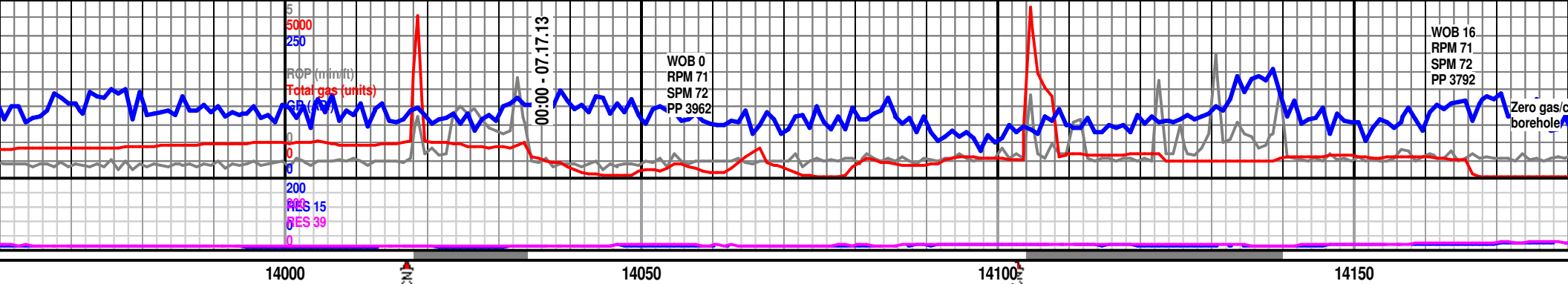


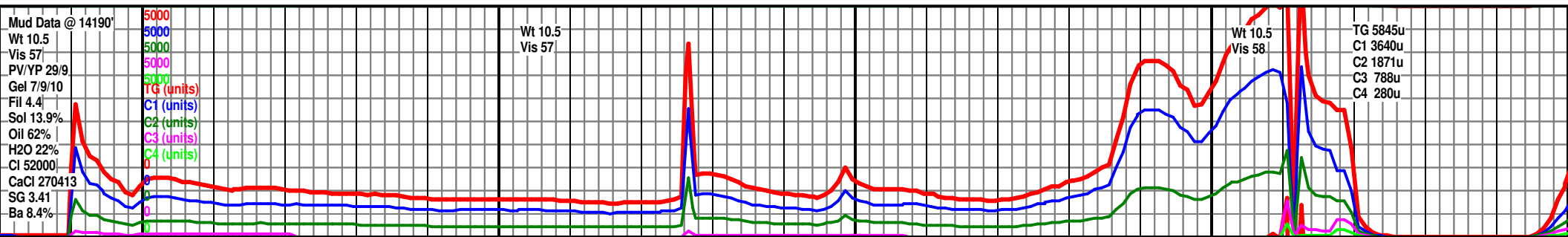
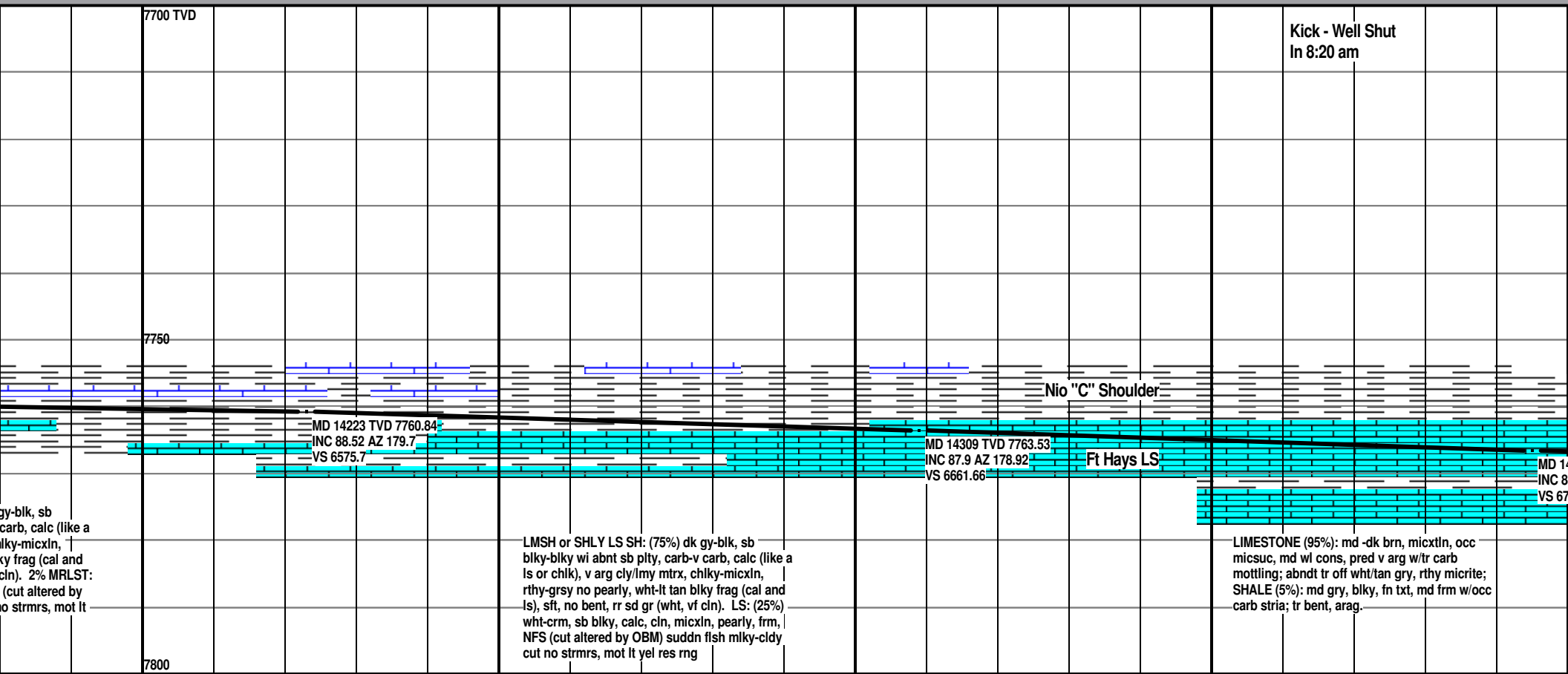
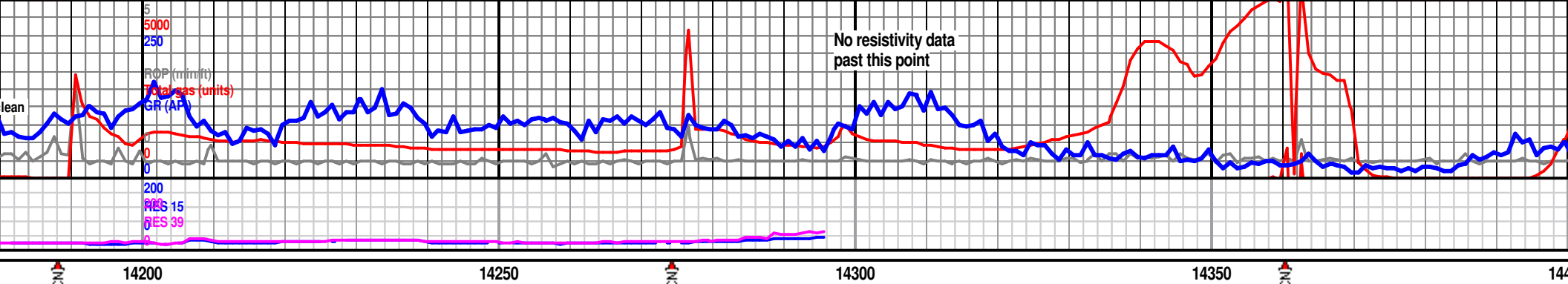


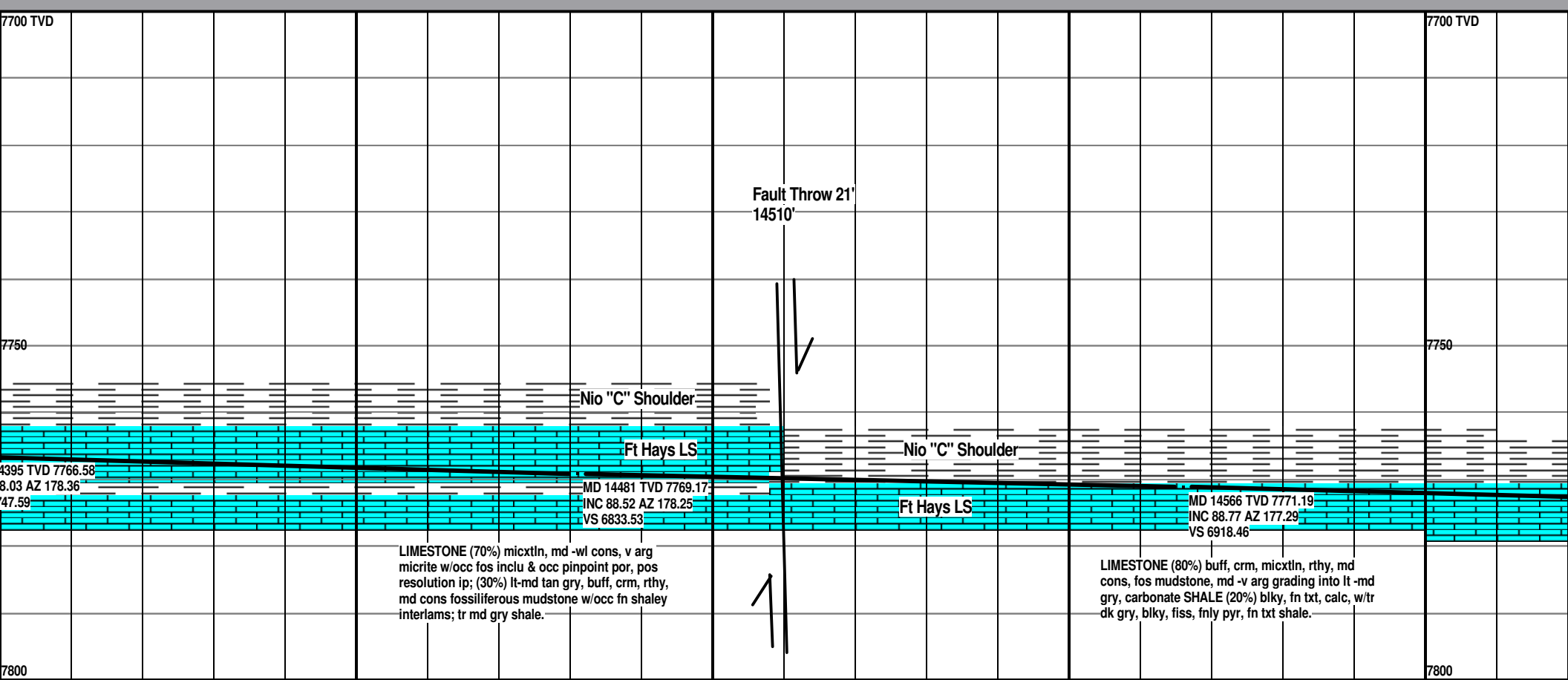
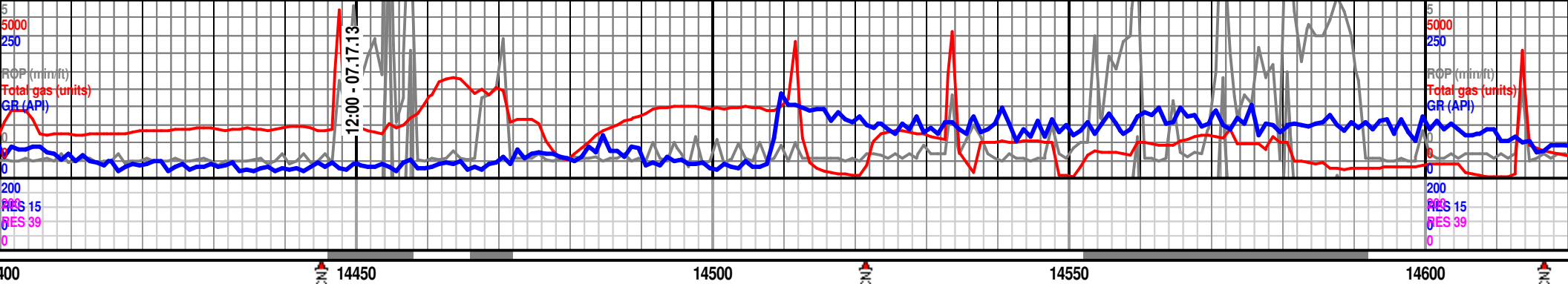






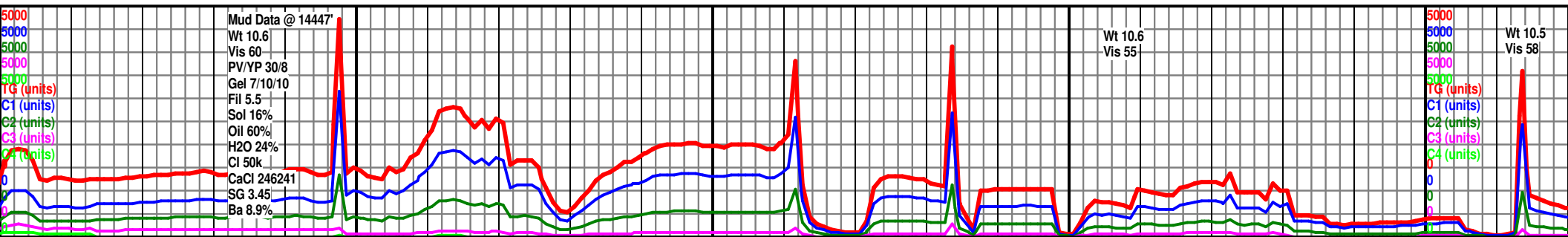


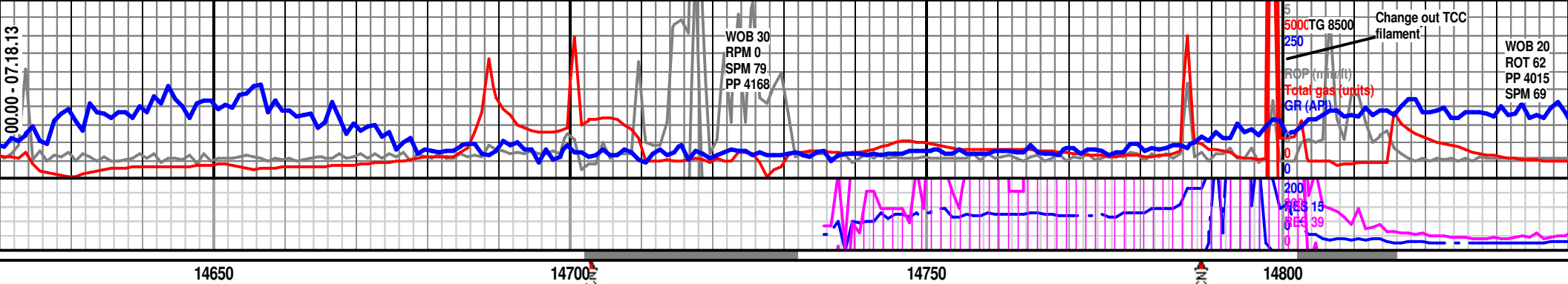




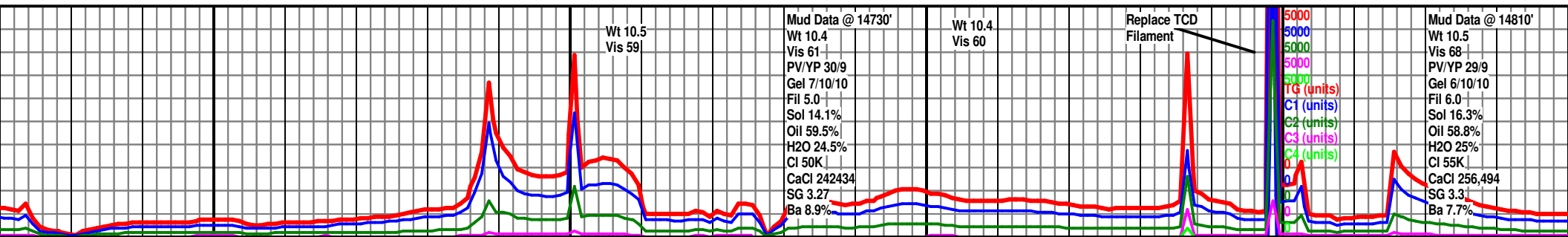
LIMESTONE (70%) micxtln, md -wl cons, v arg micrite w/occ fos inclu & occ pinpoint por, pos resolution ip; (30%) lt-md tan gry, buff, crm, rthy, md cons fossiliferous mudstone w/occ fn shaley interlams; tr md gry shale.

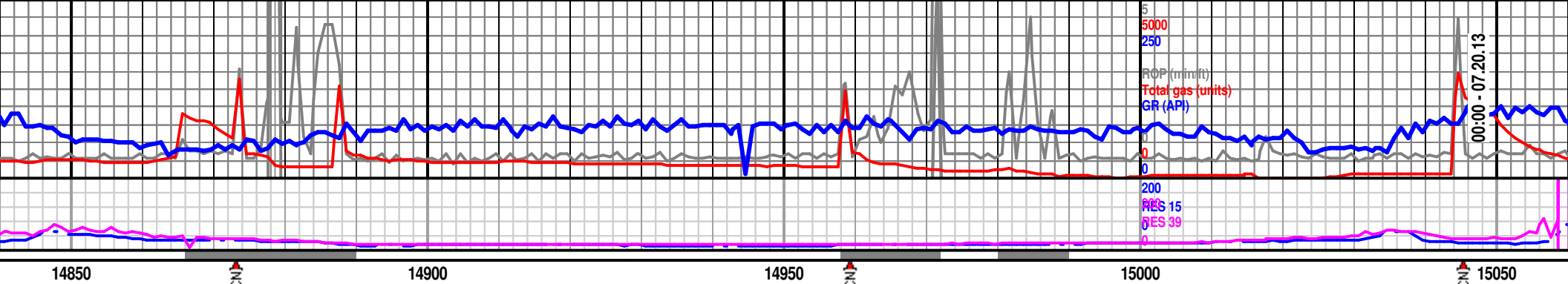
LIMESTONE (80%) buff, crm, micxtln, rthy, md cons, fos mudstone, md -v arg grading into lt -md gry, carbonate SHALE (20%) blk, fn txt, calc, w/tr dk gry, blk, fiss, fnly pyr, fn txt shale.



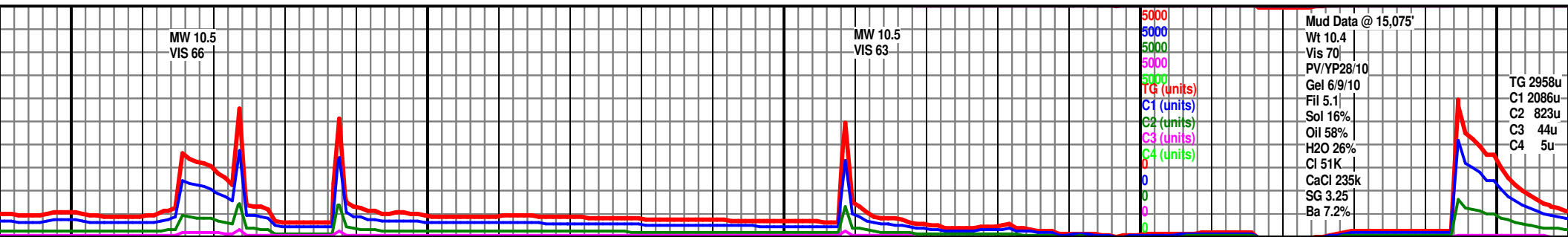


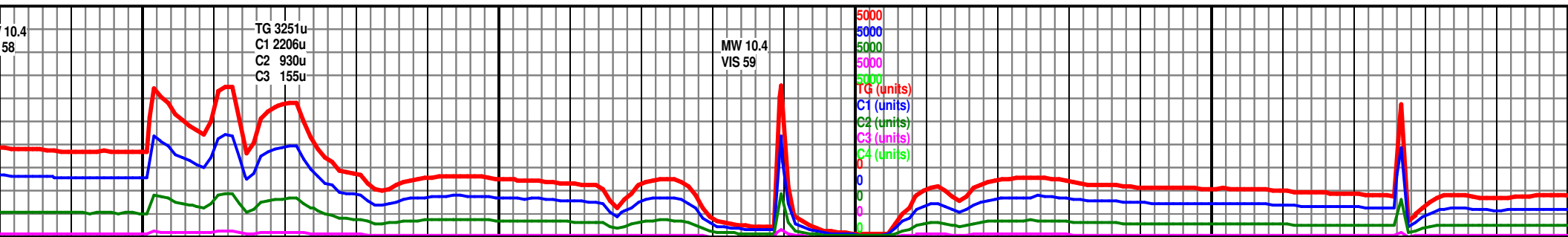
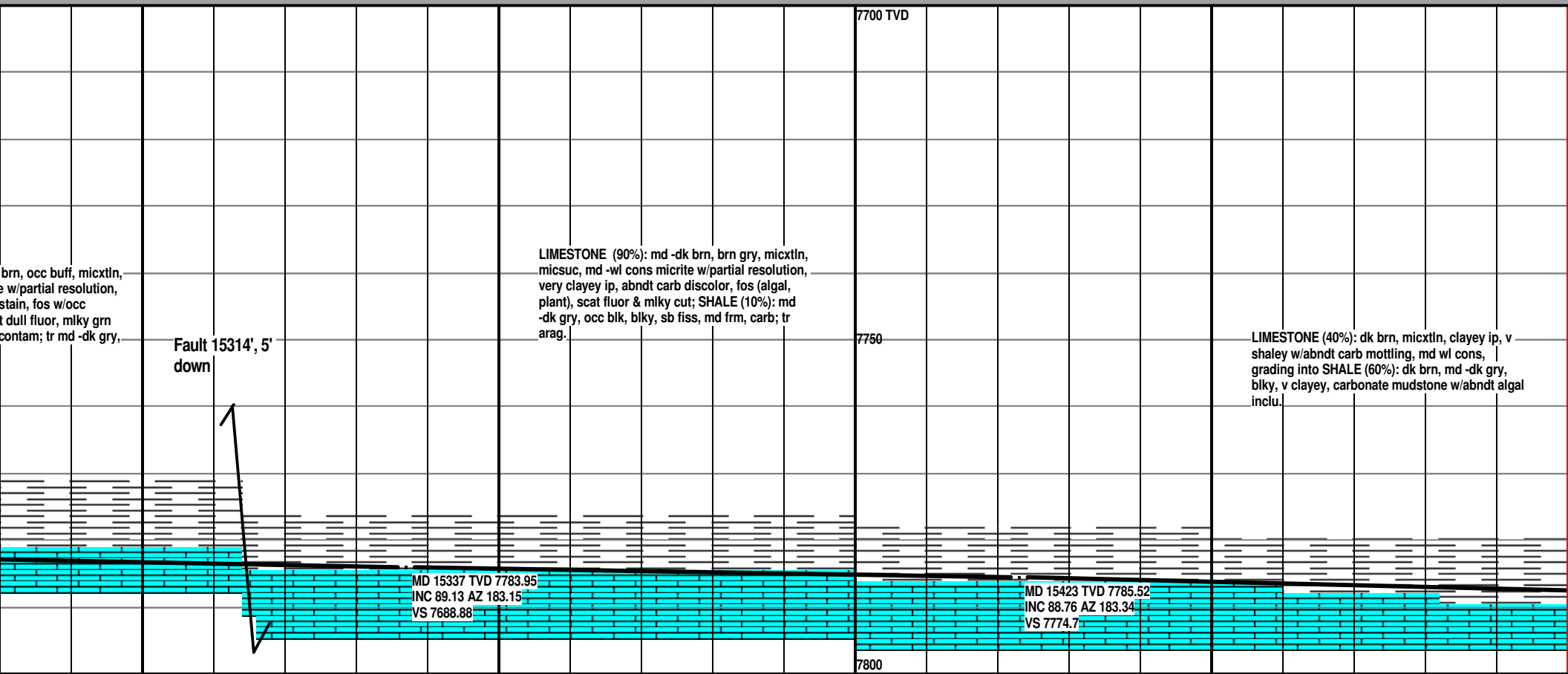
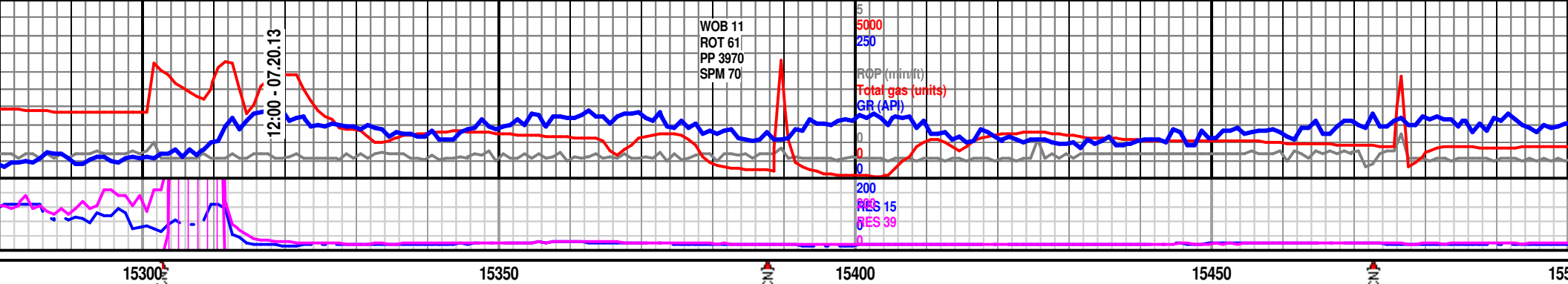
14650									
14700									
14750									
14800									
7700 TVD									
TOOH f/bit @ 14798' - 07.18-13									
Bit #5: 6.125", Varel VM5136, SN 4005165, 5x18, DI 14798', DO 16774', Ftge 1976', hrs 25.3									
LS: (100%) brn-tan-gysh brn, sb blkly-bkly wi abnt chpy & flky frag, v calc, occ wht & brn calc, mict, micxln, prly-admtn-vit, frm; NFS (cut altered by OBM) suddn flsh mlky-cldy cut no strmr, mot lt yel res rng									
7750									
Nio "C" Shoulder:									
Ft Hays LS									
MD 14652 TVD 7773.46 INC 88.21 AZ 177.81 VS 7004.37									
LS: (75%) wht-crm-gy-brn, sb plty-sb blkly, flky-chpy ip, v calc, micxln, occ mict, arg ip, admtn-prly, sft-frm; SH: (25%) gy-gysh brn, sb plty, carb, calc, clyey, mrlly, rthy-grsy, sft-frm; NFS (cut altered by OBM) suddn flsh mlky-cldy cut no strmr, mot lt yel res rng									
MD 14738 TVD 7774.95 INC 89.81 AZ 177.76 VS 7090.31									
MD 14823 TVD 7774.6 INC 90.56 AZ 178.8 VS 7175.28									
7800									

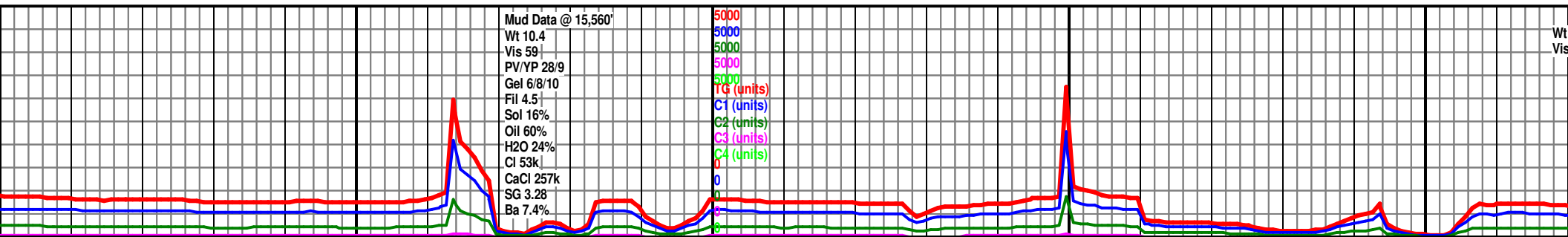
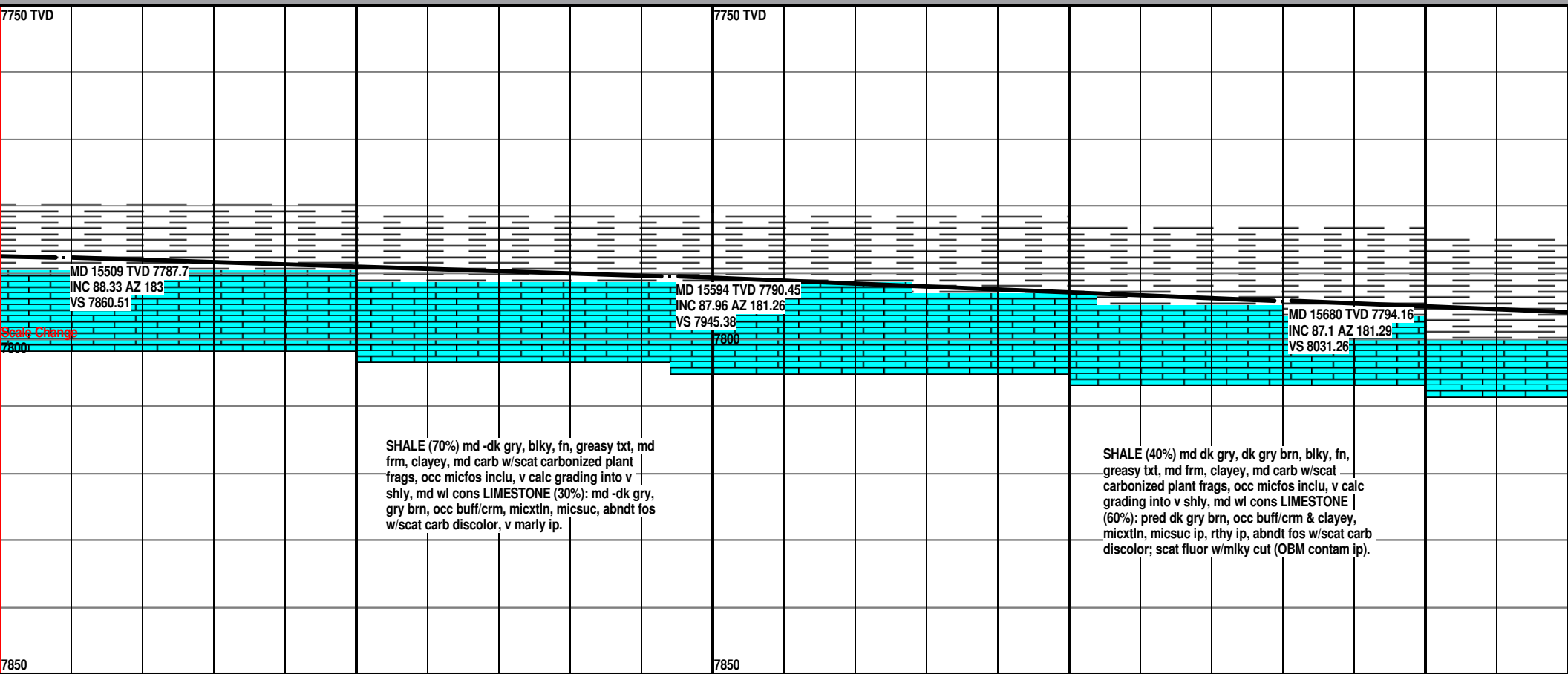
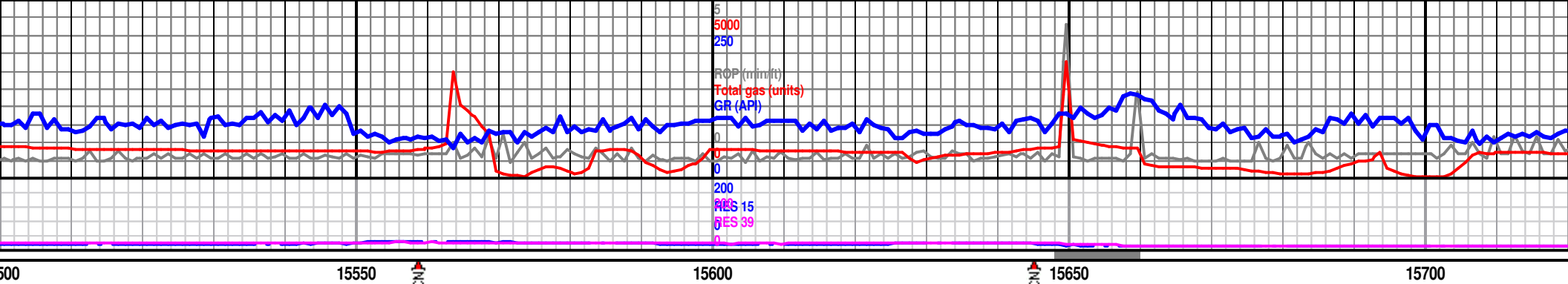


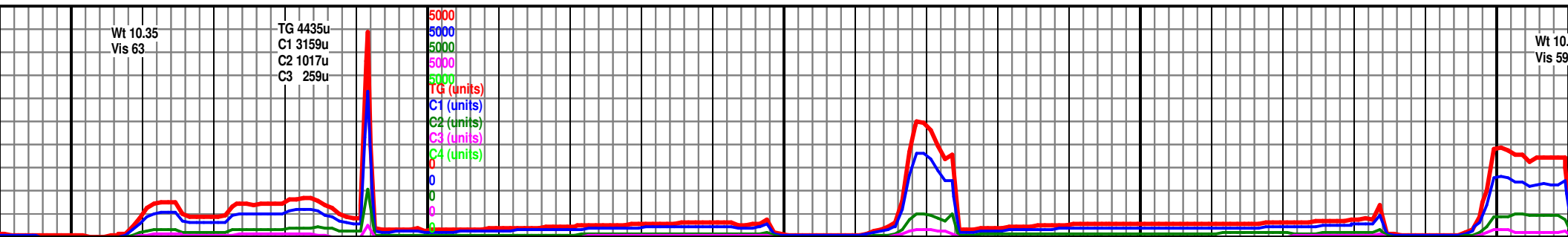
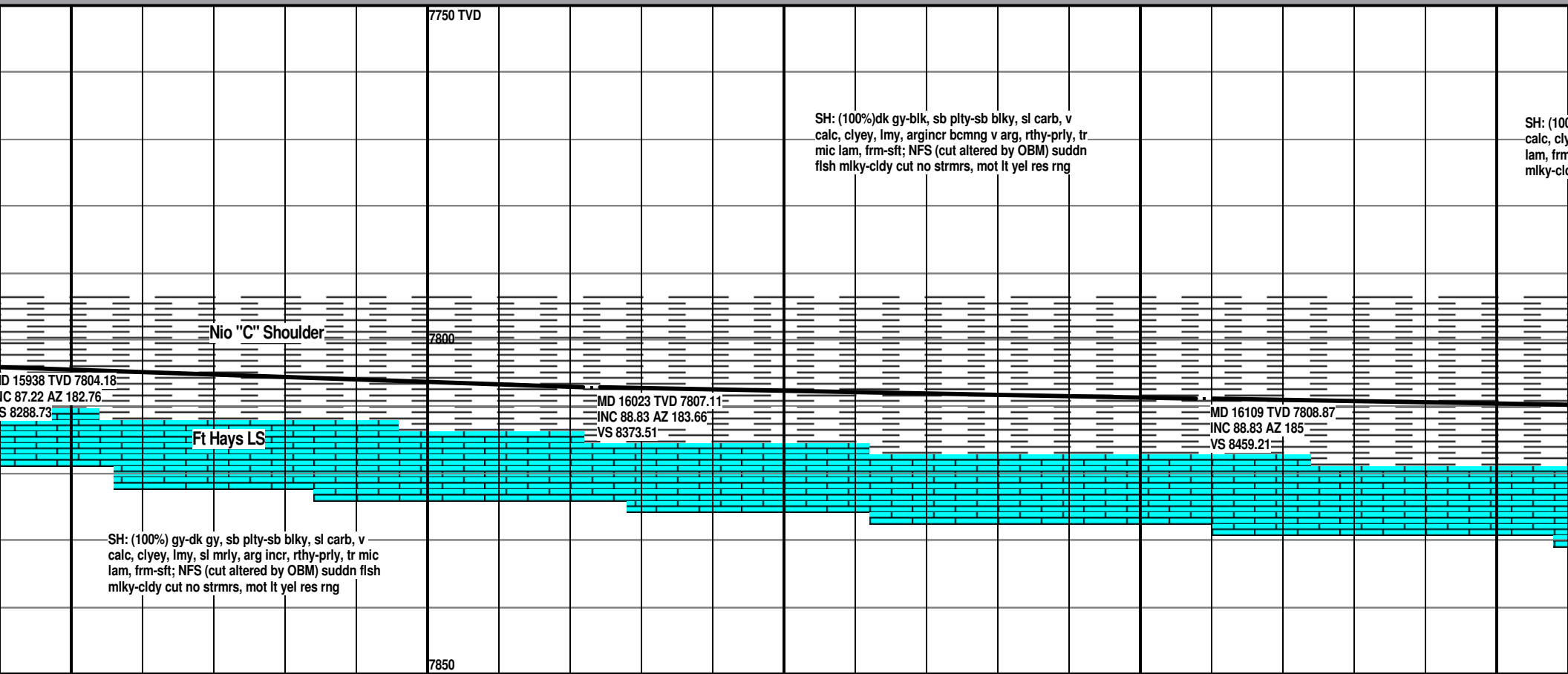
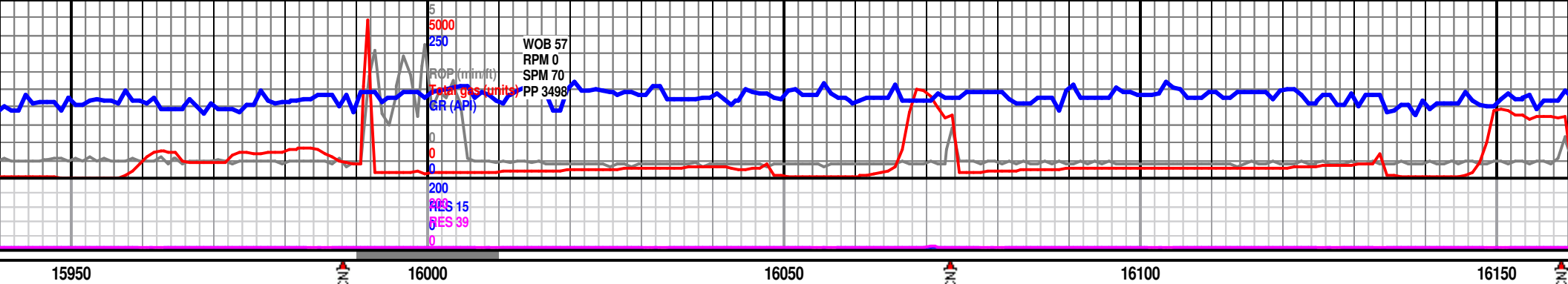


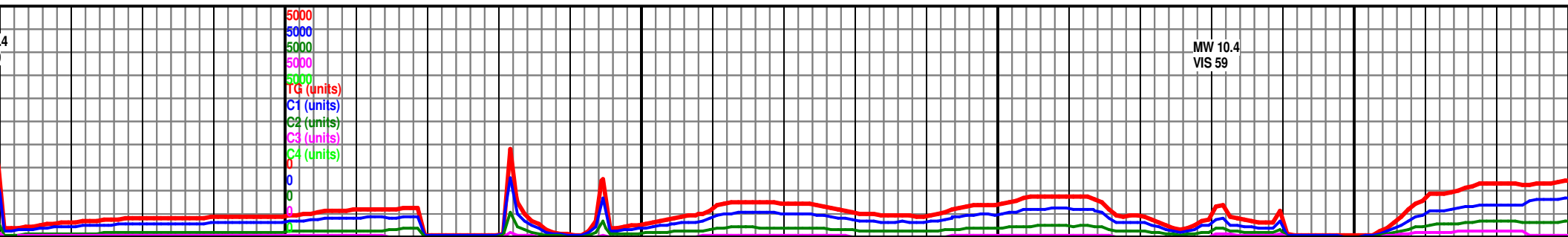
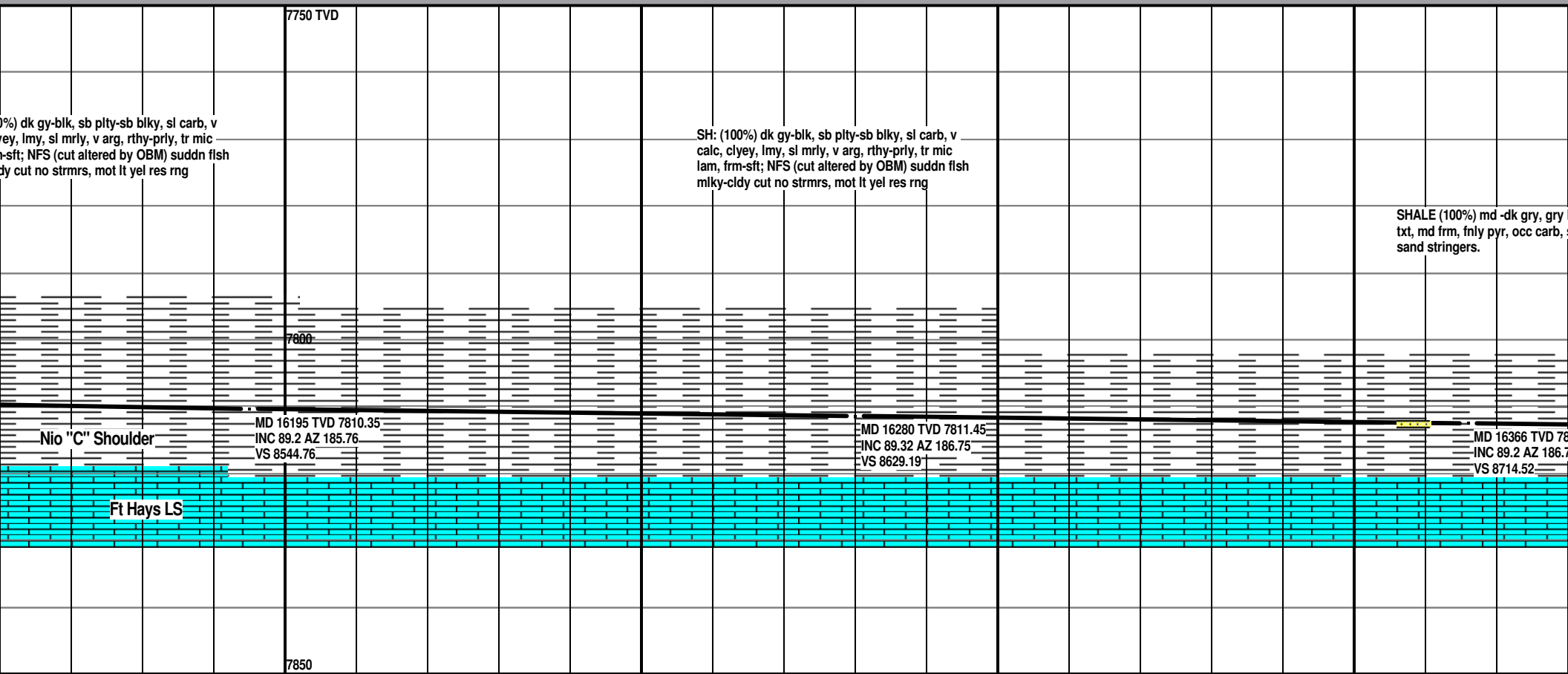
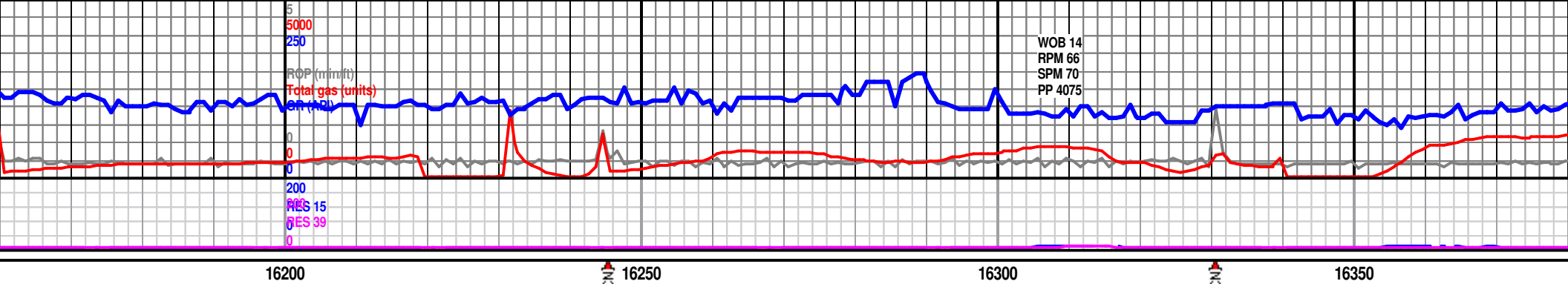
Check Flow, No										7700 TVD									
LIMESTONE (95%) crm, buff, lt -md brn mottled, microxtln, rthy txt fossiliferous mudstone w/tr pinpoint por, occ lt stain, scat fluor w/mlky grn gold cut, v arg ip grading into md -dk gry, gry brn, blk SHALE (5%) w/occ carb stria.																			
SH: (80%) gy-dk gy, sb plty-sb blk, sl carb, v calc, clayey, lmy, sl mrly, rthy-prly, tr mic lam, frm-sft; LS (20%) wht-gy, sb plty-sb blk, calc, sl arg-arg, clayey ip, micxln. wht rhmb cal, prly-vit, frm; NFS (cut altered by OBM) suddn fish mlky-cldy cut no strmr, mot lt yel res rng										7750									
SH: (70%) calc, cl, frm-sft; arg-arg, frm; NFS mlky-cl																			
MD 14909 TVD 7774.21 INC 90.06 AZ 180.65 VS 7261.27										MD 14995 TVD 7775.42 INC 88.33 AZ 181.15 VS 7347.24									
Nio "C" Shoulder										Ft Hays LS									
										7800									

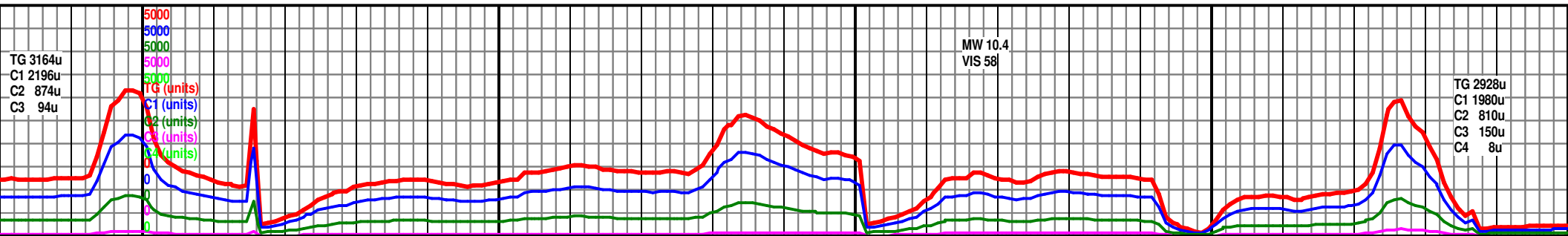
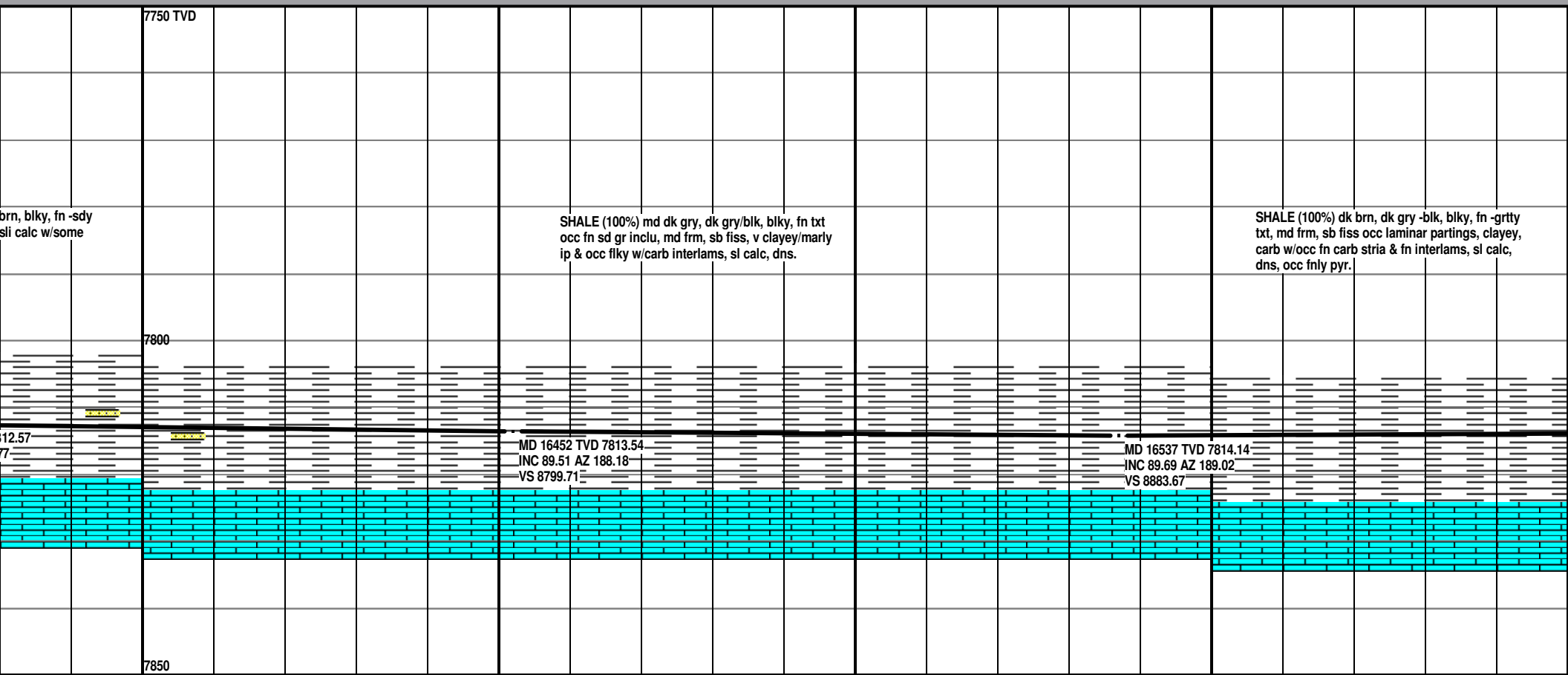
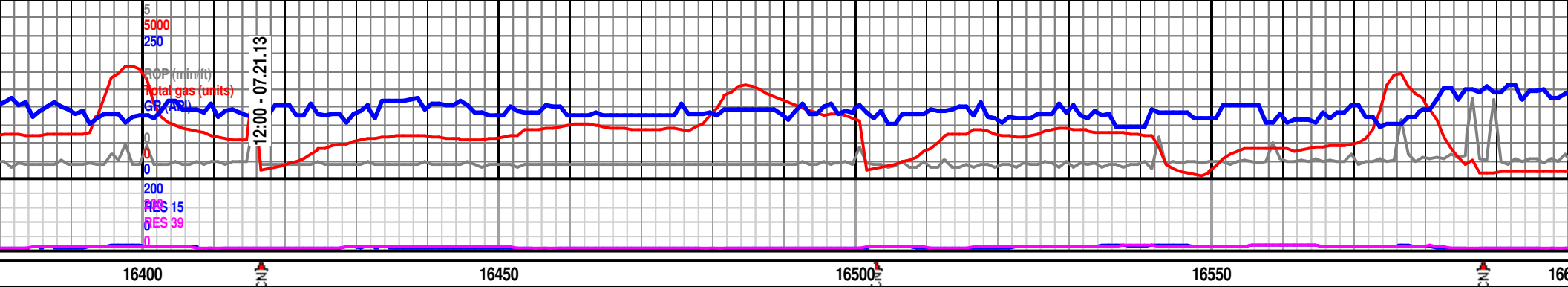


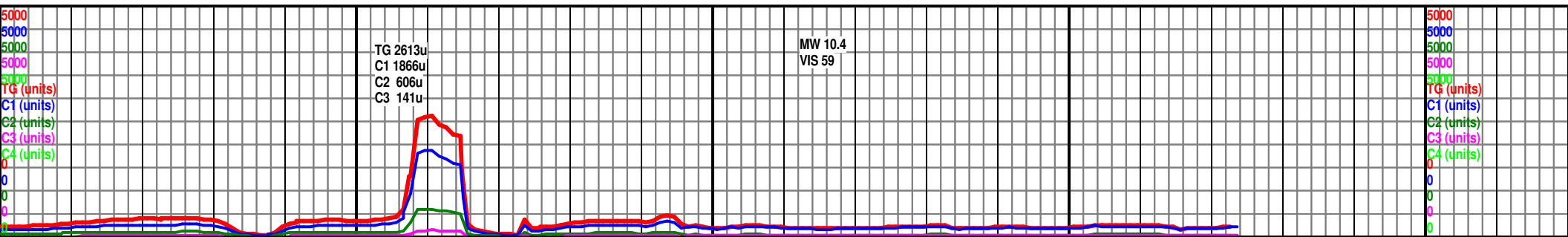
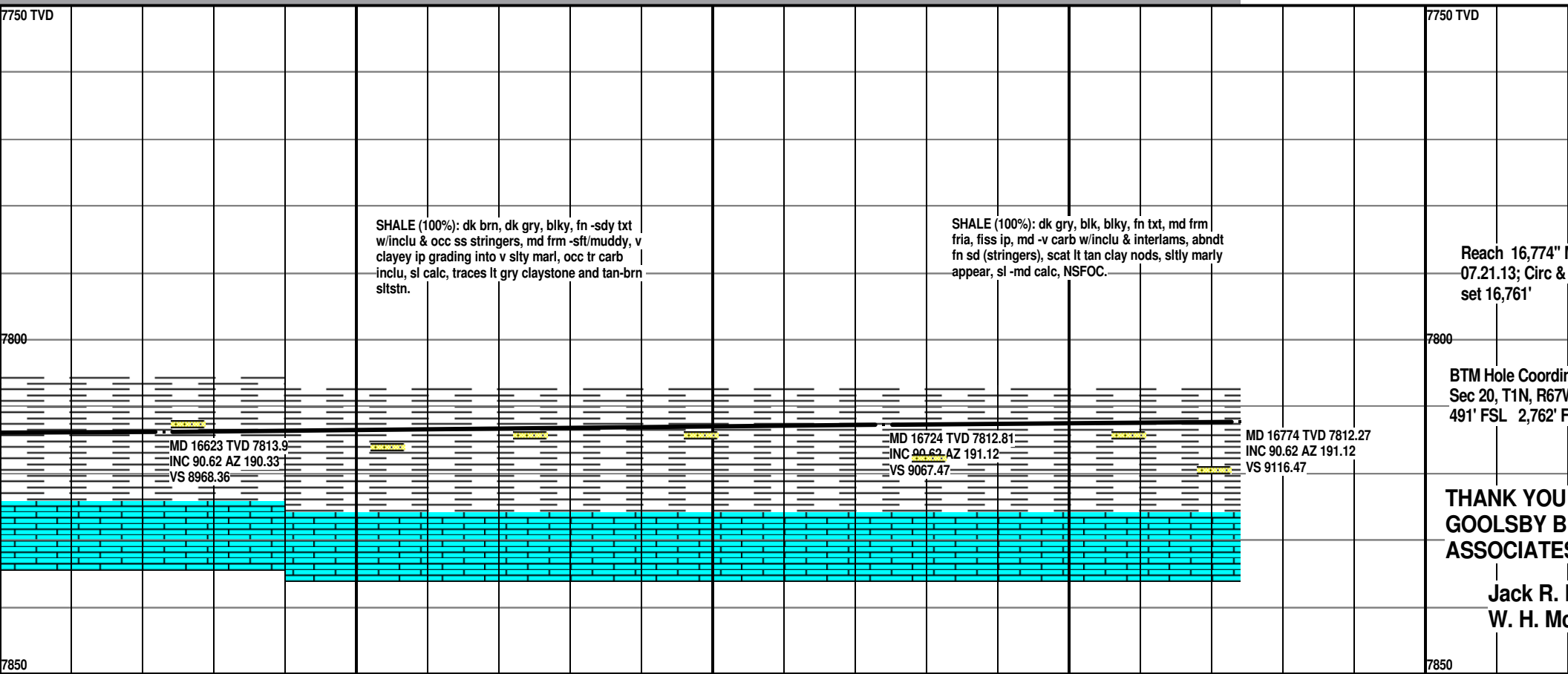
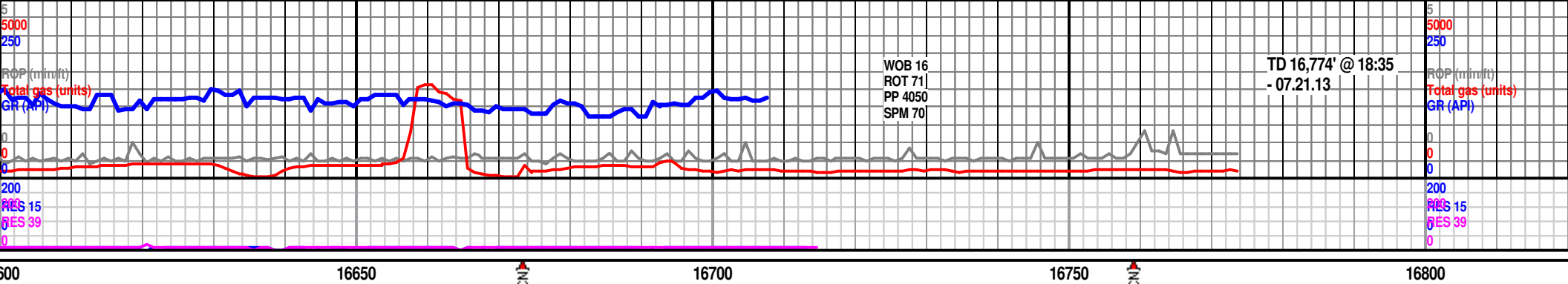










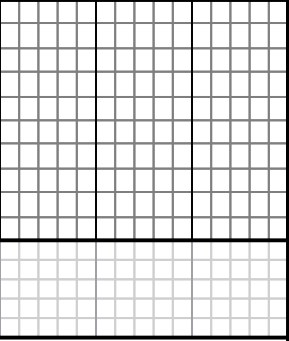


Reach 16,774' @ 07.21.13; Circ & set 16,761'

BTM Hole Coordination
Sec 20, T1N, R67W
491' FSL 2,762' F

THANK YOU
GOOLSBY BROS
ASSOCIATES

Jack R. ...
W. H. Mc ...



16

MD TD @ 18:35 Hrs - Cond; TOH f/ 4.5" Liner		
ates W WL		
FOR CHOOSING ROTHERS & S Rogers Croskey, III		

