



Scale: 5" / 100'  
Measured Depth Log

Well Name    Oscar Y10-77-1HC

Location    NESW SEC10 T2N R64W

State    COLORADO

Country    USA

API Number    05-123-38197

Region    DENVER-JULESBURG BASIN

Spud Date    4/1/2014

Surface Coordinates    2380' FSL, 2018' FWL

Lat/Long: 40.15224/-104.53986

County    WELD

Rig Number    PRECISION 828

AFE #    138751

Field    WATTENBERG

Drilling Completed    4/12/2014

Ground Elevation    4929'

K.B. Elevation    4945'

Logged Interval    6400'    To    14740'

Total Depth    14740'

Formation    Teepes Buttes, Sharon Springs, Niobrara (Smoky Hills, Fort Hays), Codell

Type of Drilling Fluid    LSND

Company    NOBLE ENERGY INC

Address    1625 Broadway  
Denver, CO 80202

Name    EVAN HOWELL

Company    NOBLE ENERGY INC

Address    1625 Broadway  
Denver, CO 80202

Wellsite Geologists:    GARY MYER

WELLSITE

LOG CONT



Operator

INC.

Geologist

INC.

Other

RS, ELIZABETH VAN DIEPEN

GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.

INUES FROM FILE: Oscar Y10-77-1HC Vert.mplot

Rock Types

TT TT TT  
MARLSTONE  
SANDSTONE

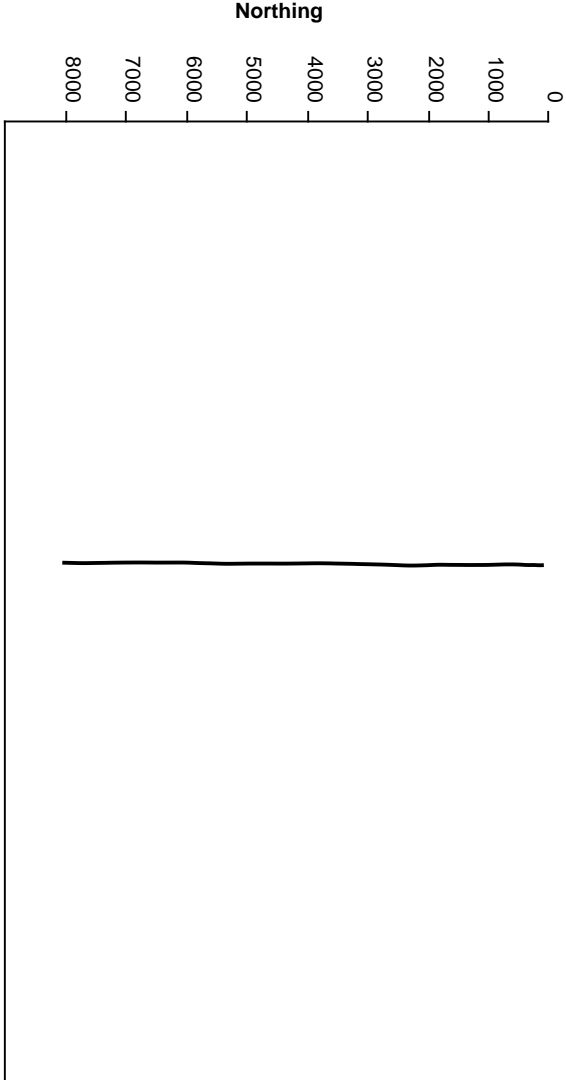
SILTY SHALE

Other Symbols

Engineering

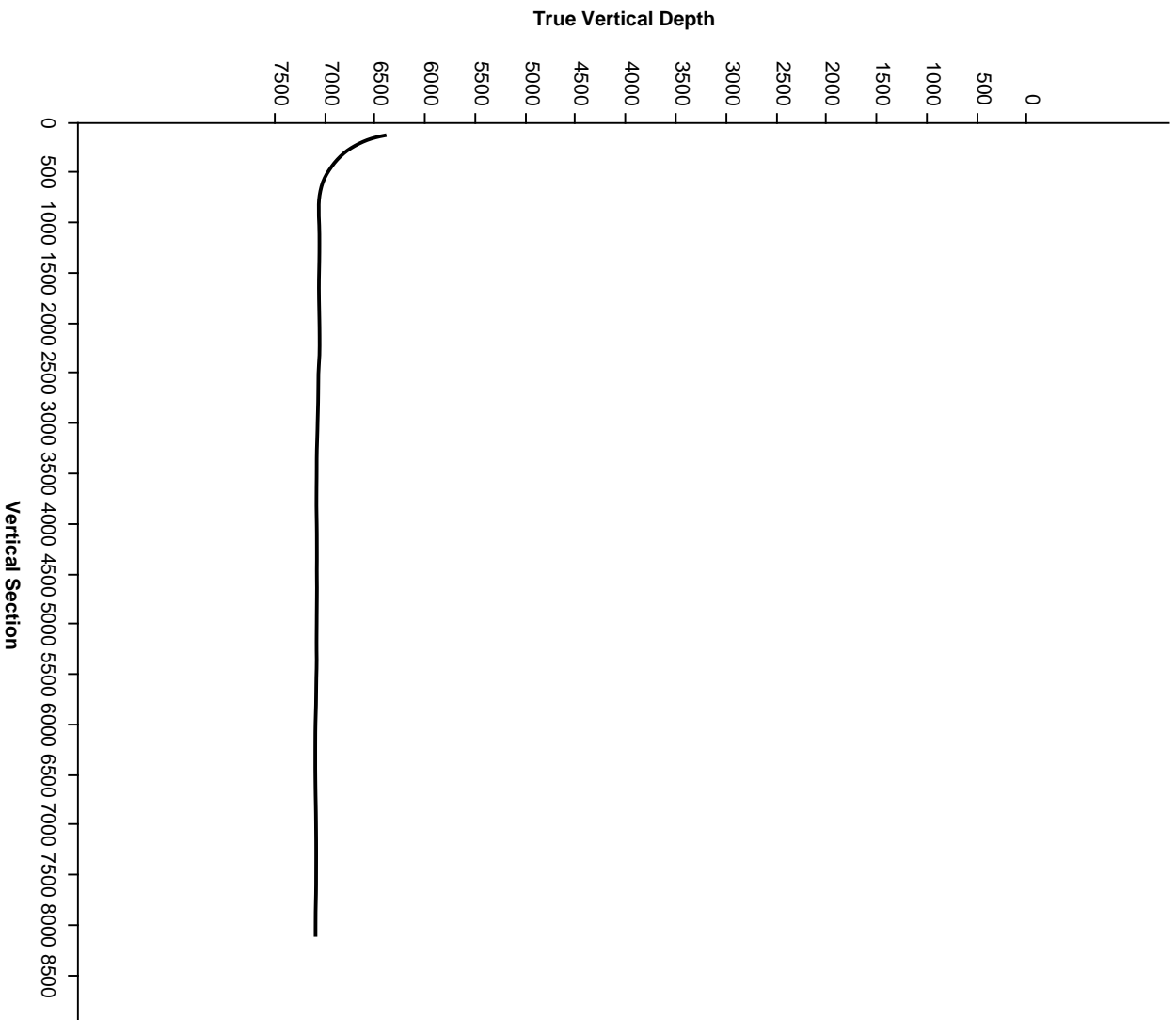
- BIT
- CONNECTION (DOWN)
- CONNECTION GAS
- TRIP GAS
- FAULT
- NORMAL FAULT
- CASING
- MINDEPTH MN DEPTH

Survey Plan



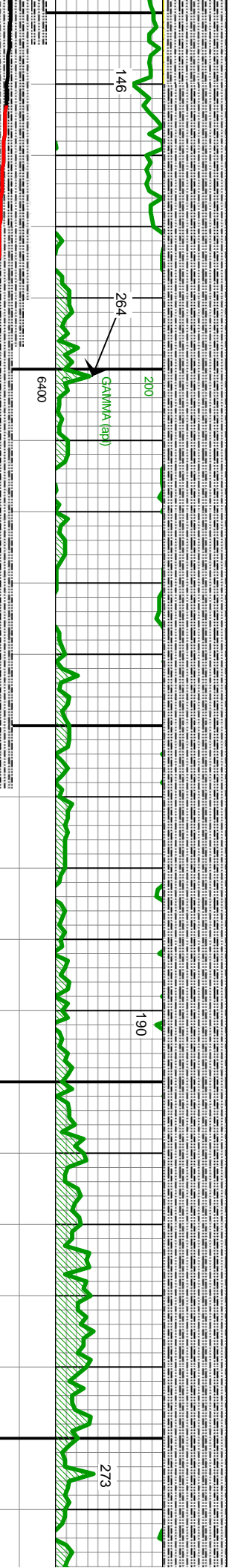
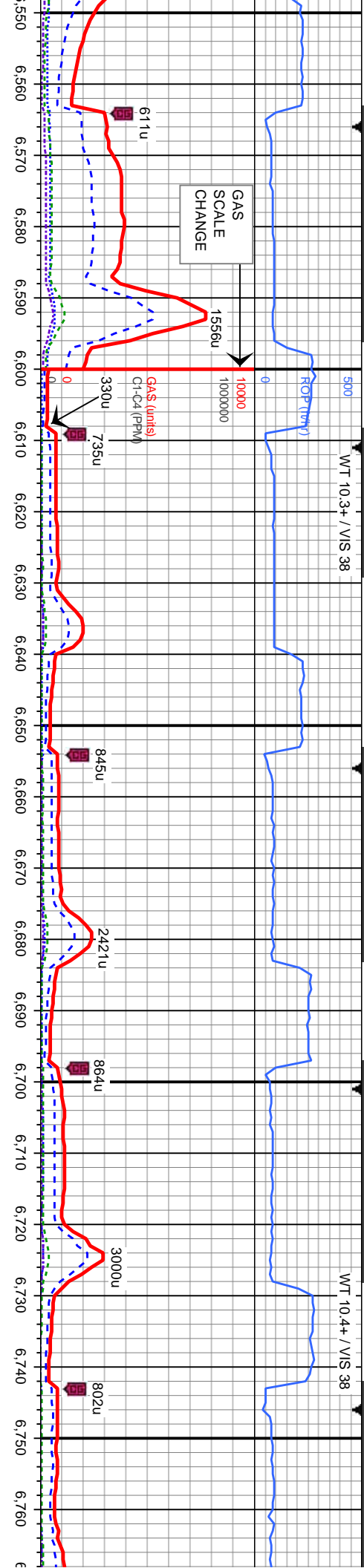
Easting

# Survey Elevation







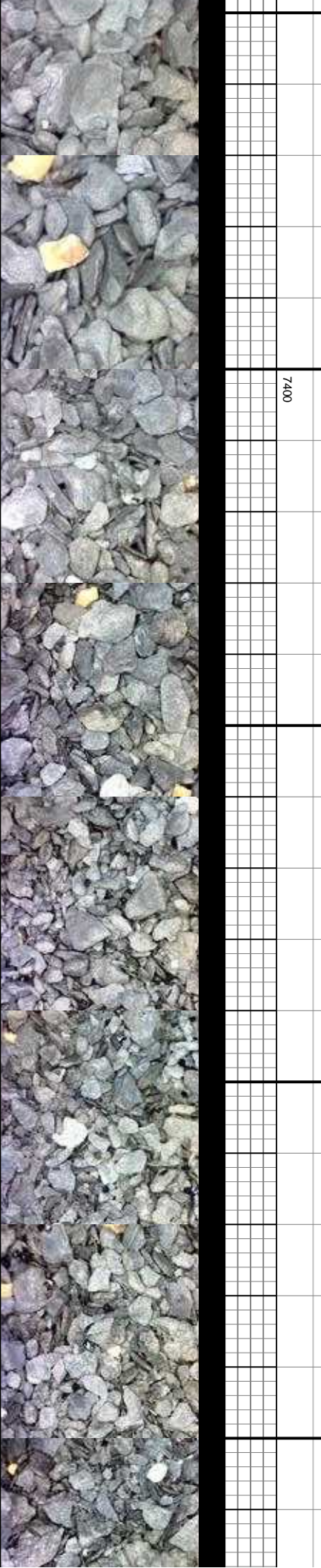


MD: 6.596 TVD: 6.567.53 INC: 20.4 AZM: 359	TVD (ft)	MD: 6.641 TVD: 6.609.24 INC: 23.6 AZM: 358.3	MD: 6.686 TVD: 6.650.01 INC: 26.5 AZM: 356.7	MD: 6.731 TVD: 6.689.83 INC: 29 AZM: 356.7
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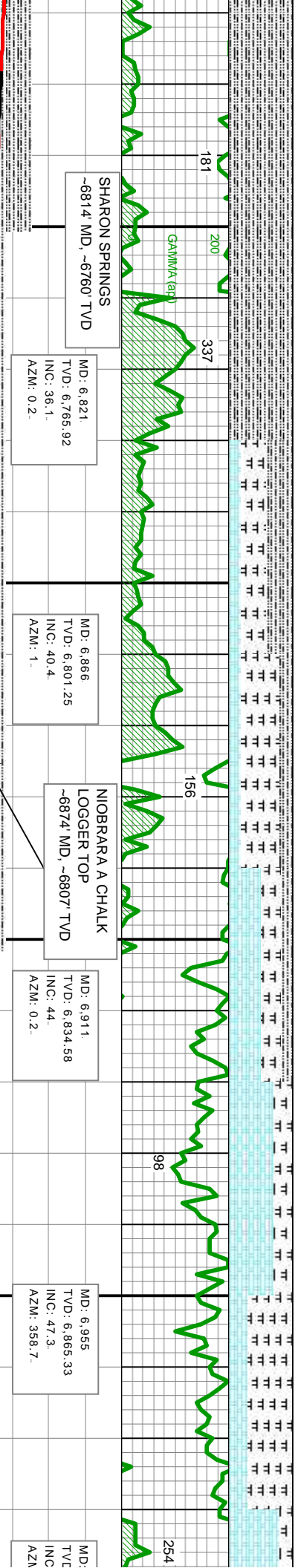
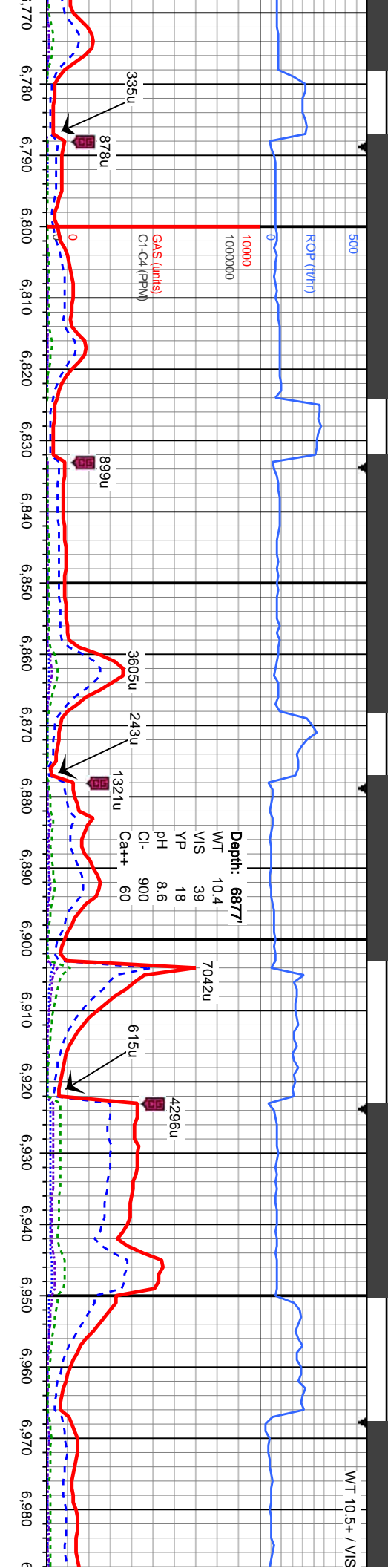
SLTY SH: pred dk gy, sme mgy, sb blkly to sb ply, occ ply, sft to sl frm, arg, sl calc ip, tr sdy, sl tr bent

SLTY SH: pred dk gy, sme mgy, gybrn, sbblkly to sbply, occ ply, sft to sl frm, arg, sl calc ip, tr ss, tr bent

SLTY SH: pred dk gy, sme mgy, gybrn, sbblkly to sbply, occ ply, sft to sl frm, arg, sl calc ip, tr ss, occ calc frag, occ (6770'







SHARON SPRINGS  
~6814' MD, ~6760' TVD

MD: 6.821  
TVD: 6.765.92  
INC: 36.1  
AZM: 0.2

MD: 6.866  
TVD: 6.801.25  
INC: 40.4  
AZM: 1

NIOBRARA A CHALK  
LOGGER TOP  
~6874' MD, ~6807' TVD

MD: 6.911  
TVD: 6.834.58  
INC: 44  
AZM: 0.2

MD: 6.776  
TVD: 6.728.62  
INC: 31.9  
AZM: 358.6

TVD (ft)

SLTY SH: pred dk gy, sme mgy, sbblky to ply, sft to mod frm, arg, sl calc ip, occ mod calc, occ (6830') to scat (6960') bent

MRL: med to dk gy, sft to mod frm, sb blkly to sb ply, rthy lst, arg, org/calc mt, v calc  
CHK: pred med gy, v to mod sft, stri tex, sl arg, pred sb blkly, rthy lst, v calc

NIOBRARA B CHALK  
LOGGER TOP  
~6903' MD, ~6829' TVD

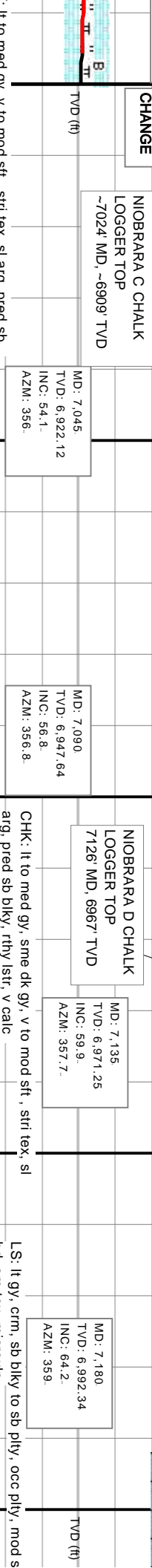
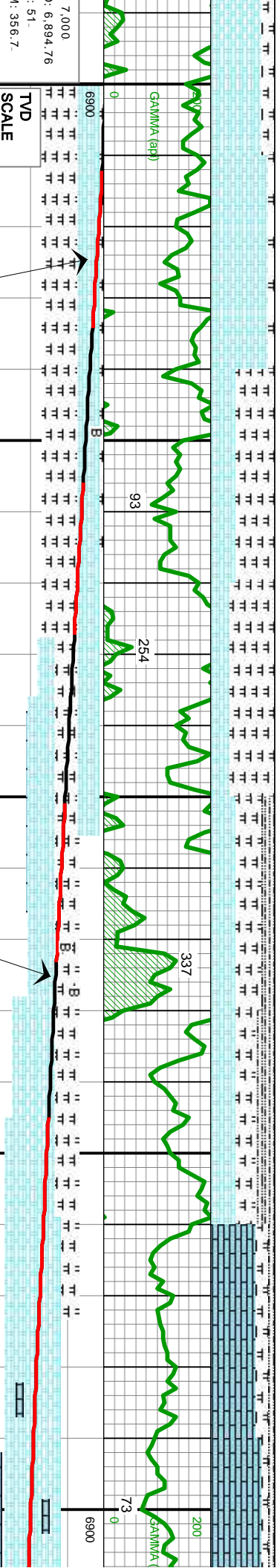
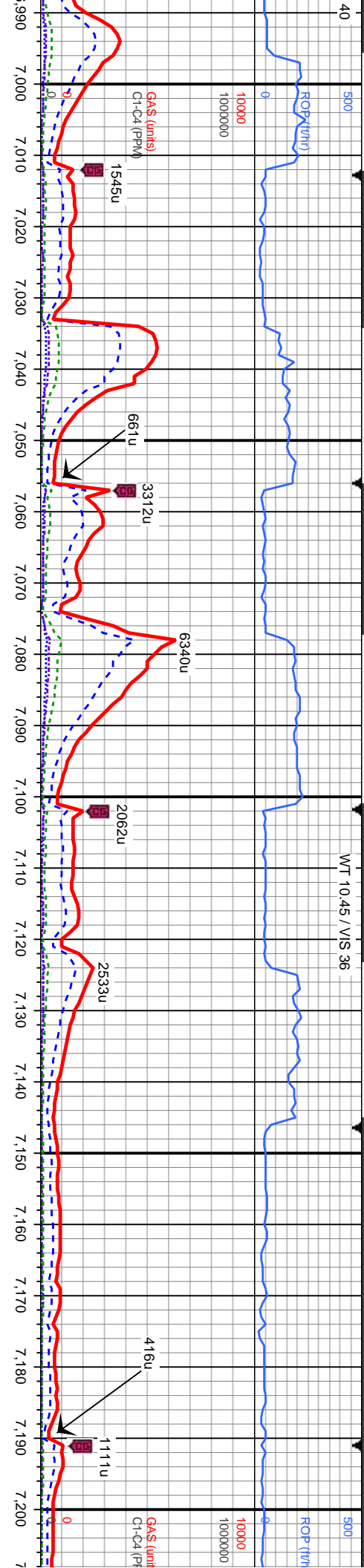
CHK: lt to med gy, v to mod sft, stri tex, sl arg, pred sb blkly, rthy lst, v calc  
MRL: med to dk gy, sft to mod frm, sb blkly to sb ply, rthy lst, arg, org/calc mt, v calc, scat cal, tr py'r, scat (6950') to occ (6980') bent

MD: 6.955  
TVD: 6.865.33  
INC: 47.3  
AZM: 358.7

CHK: blkly  
MRL: rthy







CHK: It to med gy, sme dk gy, v to mod sft, stri tex, sl arg, pred sb biky, rthy lstr, v calc

MRL: med to dk gy, sft to mod frm, sb biky to sb ply, rthy lstr, arg, org/calc mt, v calc, occ cal, tr pyr, scat (7100) cal, tr bent

LS: It gy, crm, sb biky to sb ply, occ ply, mod s

hd, sm tex, microxin

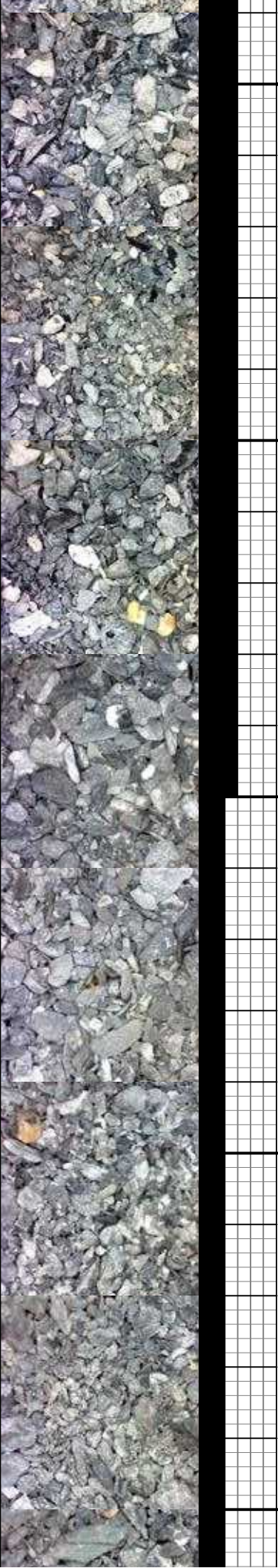
MRL: med to dk gy, sft to mod frm, sb biky to sb

rthy lstr, arg, org/calc mt, v calc, occ chk

SLTY SH: dk gy, sme mgy, sb biky to ply, sft to l

arg, non calc, scat (7190) to occ (7220) bent, tr

7400





4/6/14

WT 10.5+ / VIS 38

ROP (twh)

Depth: 7267'

WT 10.6  
VIS 37  
YP 14  
PH 9.1  
Cl- 1050  
Ca++ 60

508u

1087u

415u

301u

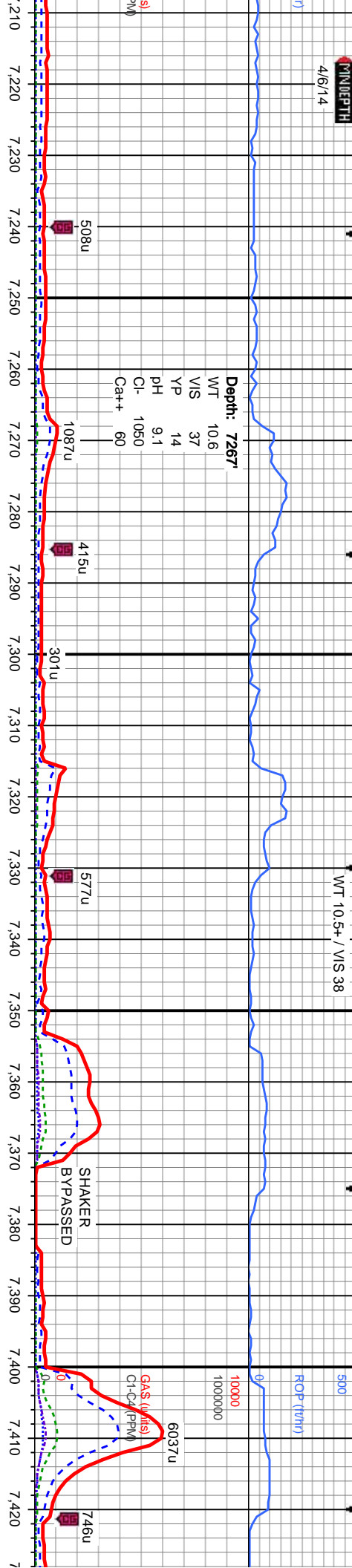
577u

SHAKER  
BYPASSED

GA\$ (units)  
Cl-C2 (PPM)

6037u

746u



161

54

146

20

TVD  
SCALE  
CHANGE

MD: 7.225  
TVD: 7.009.88  
INC: 69.9.  
AZM: 359.

MD: 7.270  
TVD: 7.023.52  
INC: 74.8.  
AZM: 359.8.

MD: 7.315  
TVD: 7.034.06  
INC: 78.1.  
AZM: 359.6.

FORT HAYS  
LOGGER TOP  
7322 MD, 7035' TVD

MD: 7.360  
TVD: 7.042.11  
INC: 81.3.  
AZM: 0.8.

MD: 7.405  
TVD: 7.047.51  
INC: 84.9.  
AZM: 1.3.

ft to mod  
LS: It to med gy, sb biky to sb ply, ooc ply, mod sft to mod hd, sm tex, microxin  
MR: med to dk gy, sft to mod frm, sb biky to sb ply, rthy lstr, arg, orgcalc mix, v calc, scat chk (7250), tr pyr, ooc (7250) to tr (7280) bent

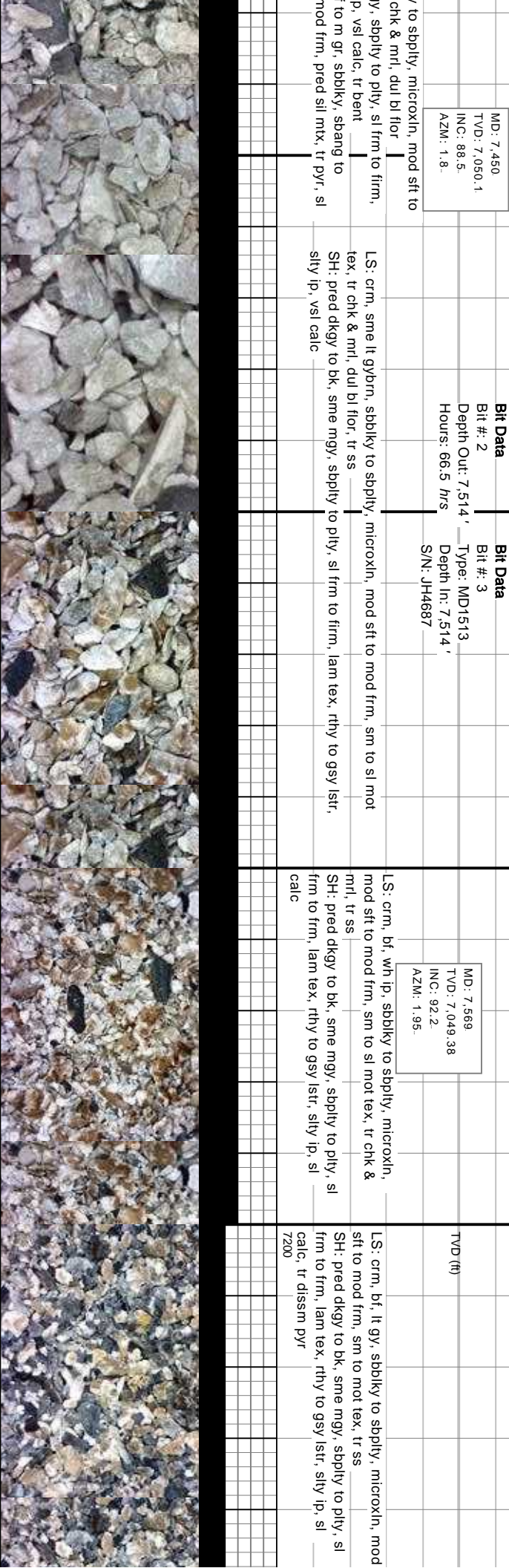
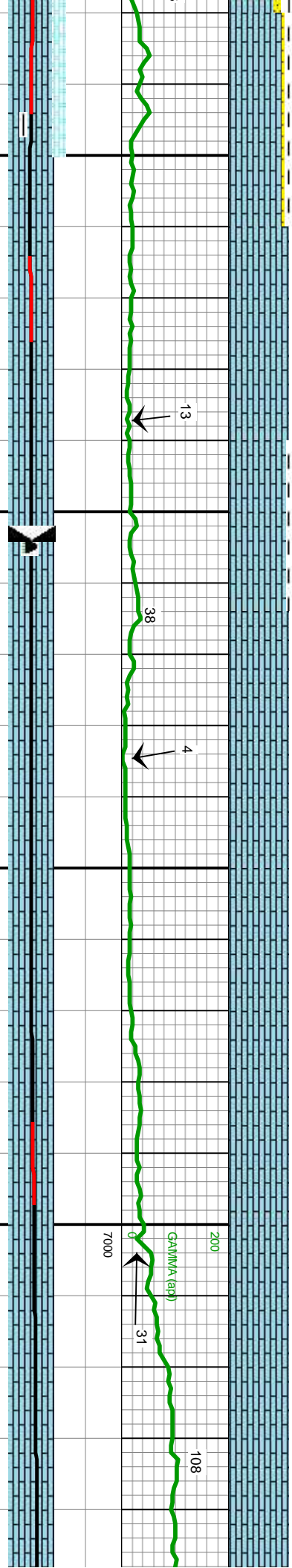
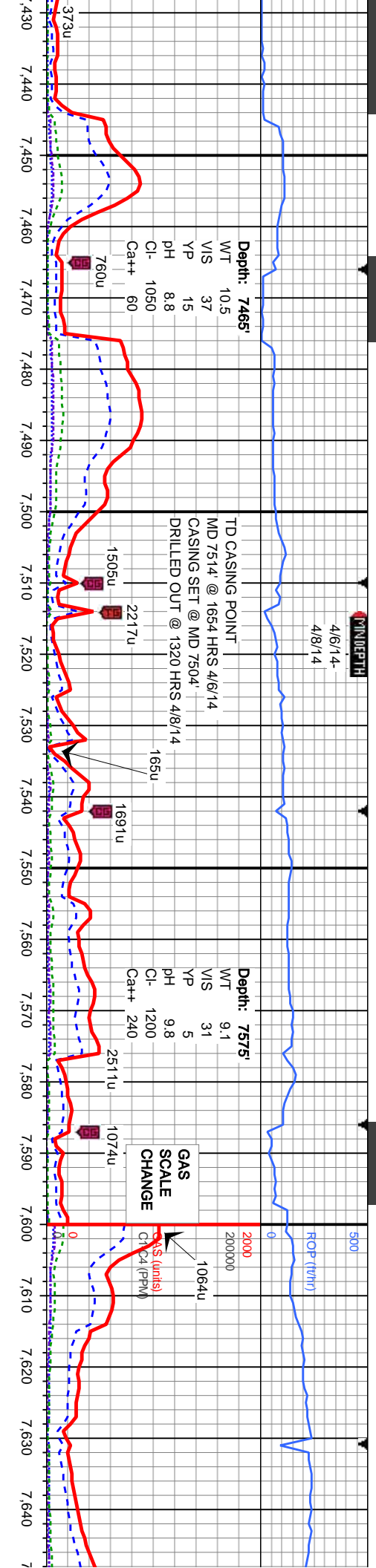
LS: pred crm, sme lly, sbiky to sbply, microxin, mod sft to mod frm, sm to sl mot tex, ooc mrl, tr mica, tr ss, dul bl flr  
SH: dk gy, sme mgy, gybrn, sbply to ply, sl frm to frm, lam tex, rthy to gsy lstr, sily ip, mod calc, ooc bent

LS: crm, sme lt gybrn, sbiky to sbply, microxin, mod sft to mod frm, sm to sl mot tex, tr chk & mrl, dul bl flr  
SH: m to dkgy, sbply to ply, sl frm to frm, lam tex, rthy to gsy lstr, sily ip, vsi calc, tr bent, tr lly f gr ss

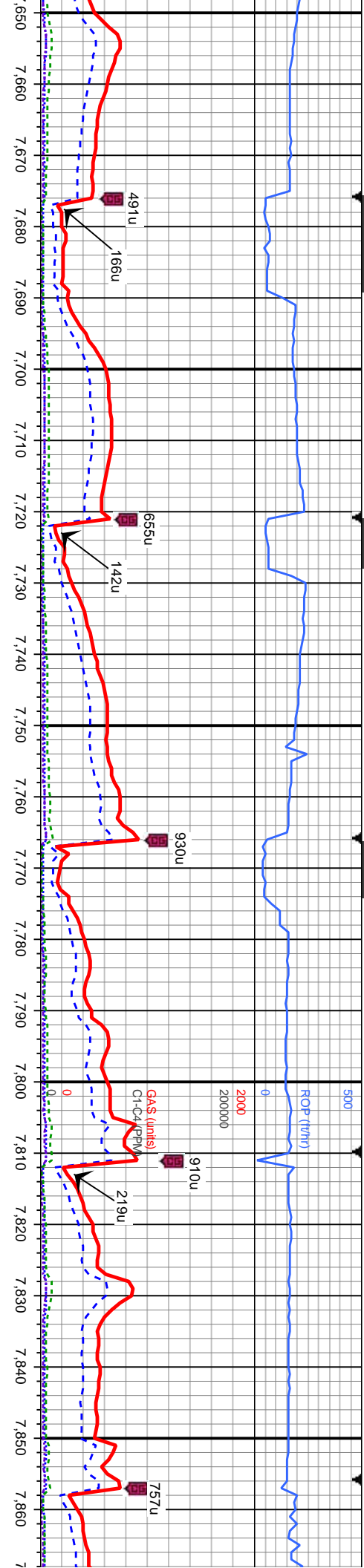
LS: crm, sme lt gybrn, sbiky to sbply, microxin, mod sft to mod frm, sm to sl mot tex, tr  
SH: pred dkgy to bk, sme mgy lam tex, rthy to gsy lstr, sily i SS: lly, pred trns, ooc clr, v shndr gr, mod srt, mod cnt, calc 7200











MD: 7.659  
TVD: 7,045.84  
INC: 92.3  
AZM: 1.16

LS: crm, bf, pred lt gy, sbbkly to sbply,  
microxin, mod sft to mod frm, sm to mot tex, qtz  
incl, tr ss  
SLTY SH: pred mgy, sme dkgy to bk, sbply to  
ply, sl frm to frm, lam tex, rthy to gsy lstr, slty,  
sl calc, tr pyr

MD: 7.749  
TVD: 7,043.8  
INC: 90.3  
AZM: 359.92

LS: crm, bf, pred lt gy, sbbkly to sbply,  
microxin, mod sft to mod frm, sm to mot tex, qtz  
incl  
SLTY SH: pred mgy, sme dkgy to bk, sbply to  
ply, sl frm to frm, lam tex, rthy to gsy lstr, slty, sl  
calc, tr pyr

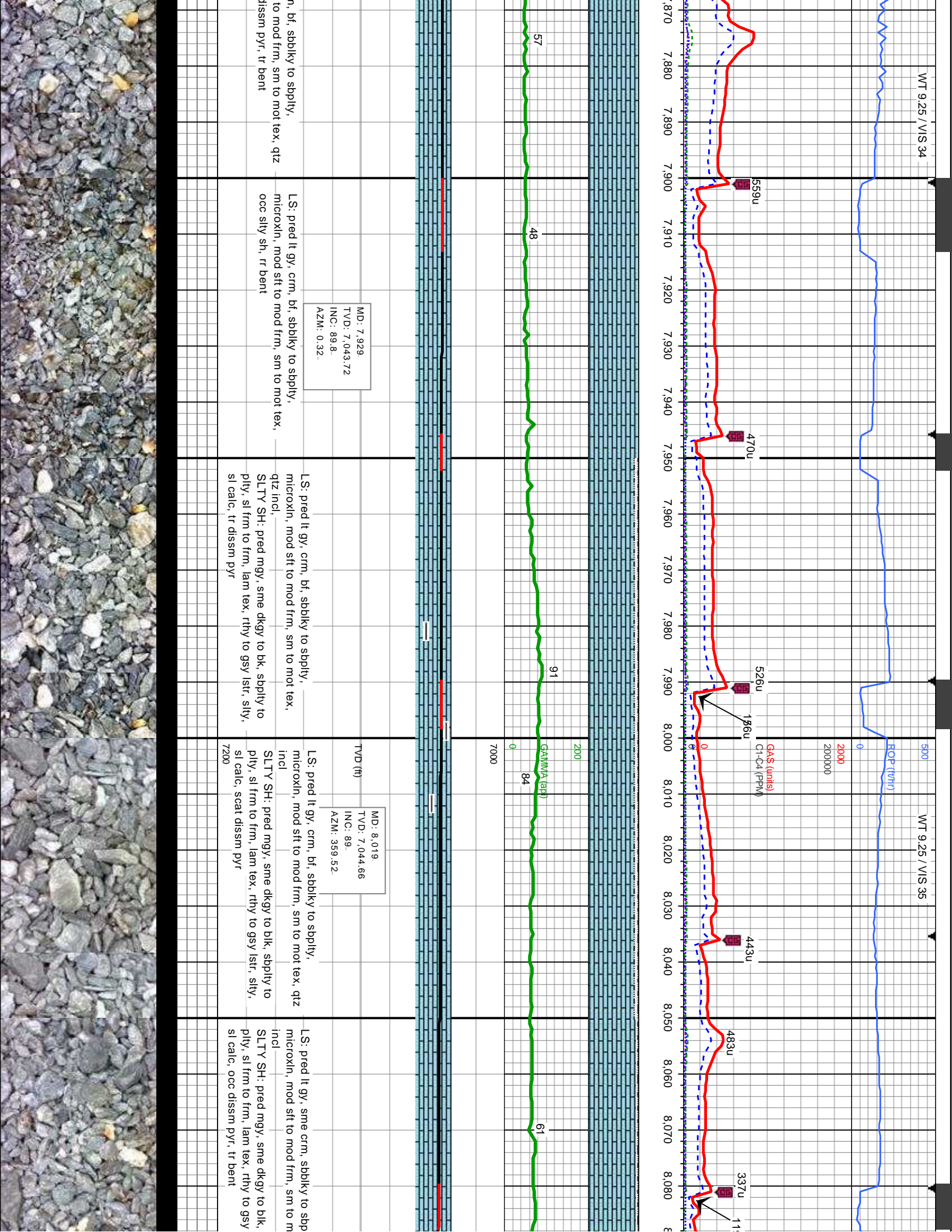
LS: pred lt gy, crm, bf, sbbkly to sbply,  
microxin, mod sft to mod frm, sm to mot tex, qtz  
incl  
SLTY SH: pred mgy, sme dkgy to bk, sbply to  
ply, sl frm to frm, lam tex, rthy to gsy lstr, slty,  
sl calc, tr diss pyr, occ bent

MD: 7.839  
TVD: 7,043.57  
INC: 90  
AZM: 0.16

LS: pred lt gy, crm, bf, sbbkly to sbply, microxin,  
mod sft to mod frm, sm to mot tex, qtz incl, tr slty  
sh, tr diss pyr

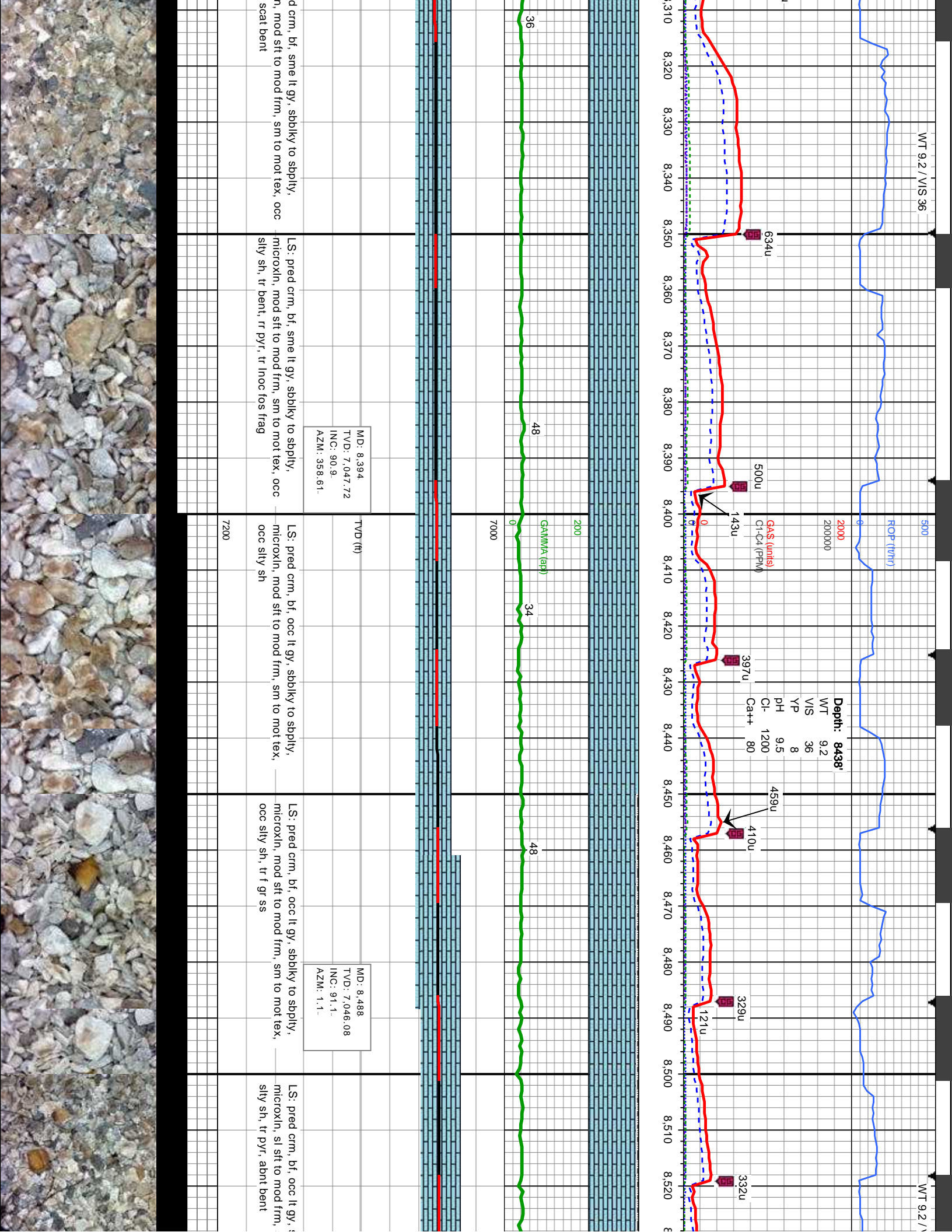
LS: pred lt gy, crm, bf, sbbkly to sbply, microxin,  
mod sft to mod frm, sm to mot tex, qtz incl, tr slty sh, tr c



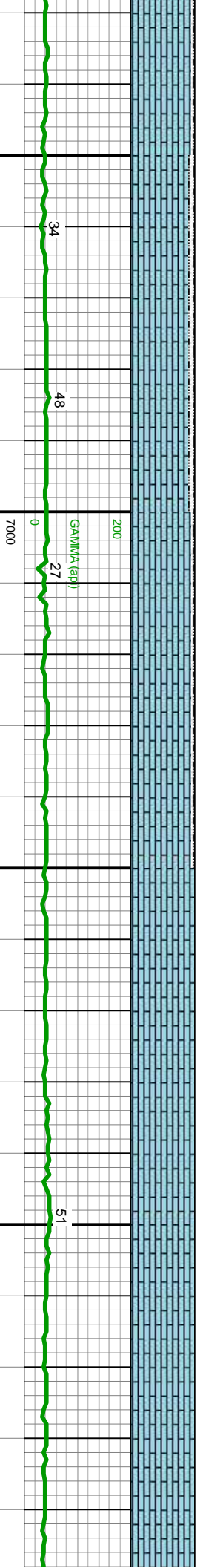
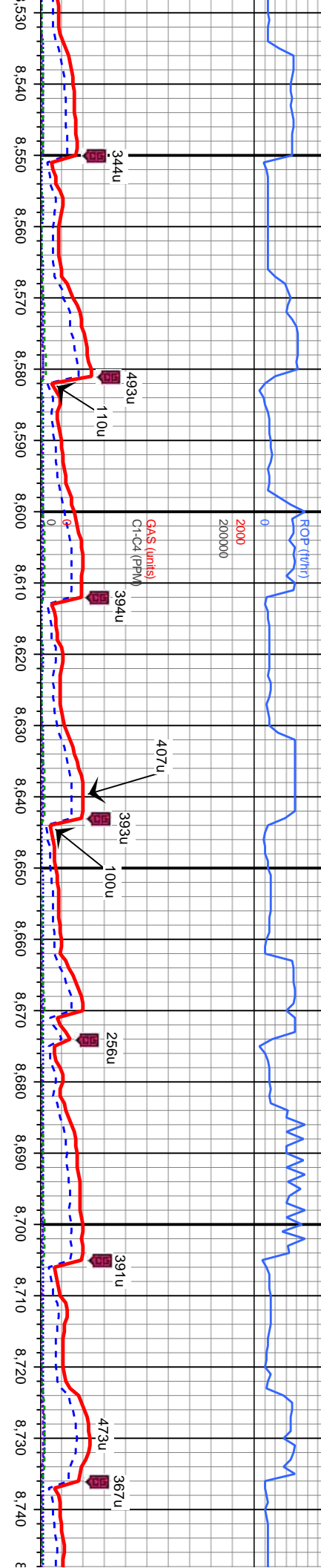








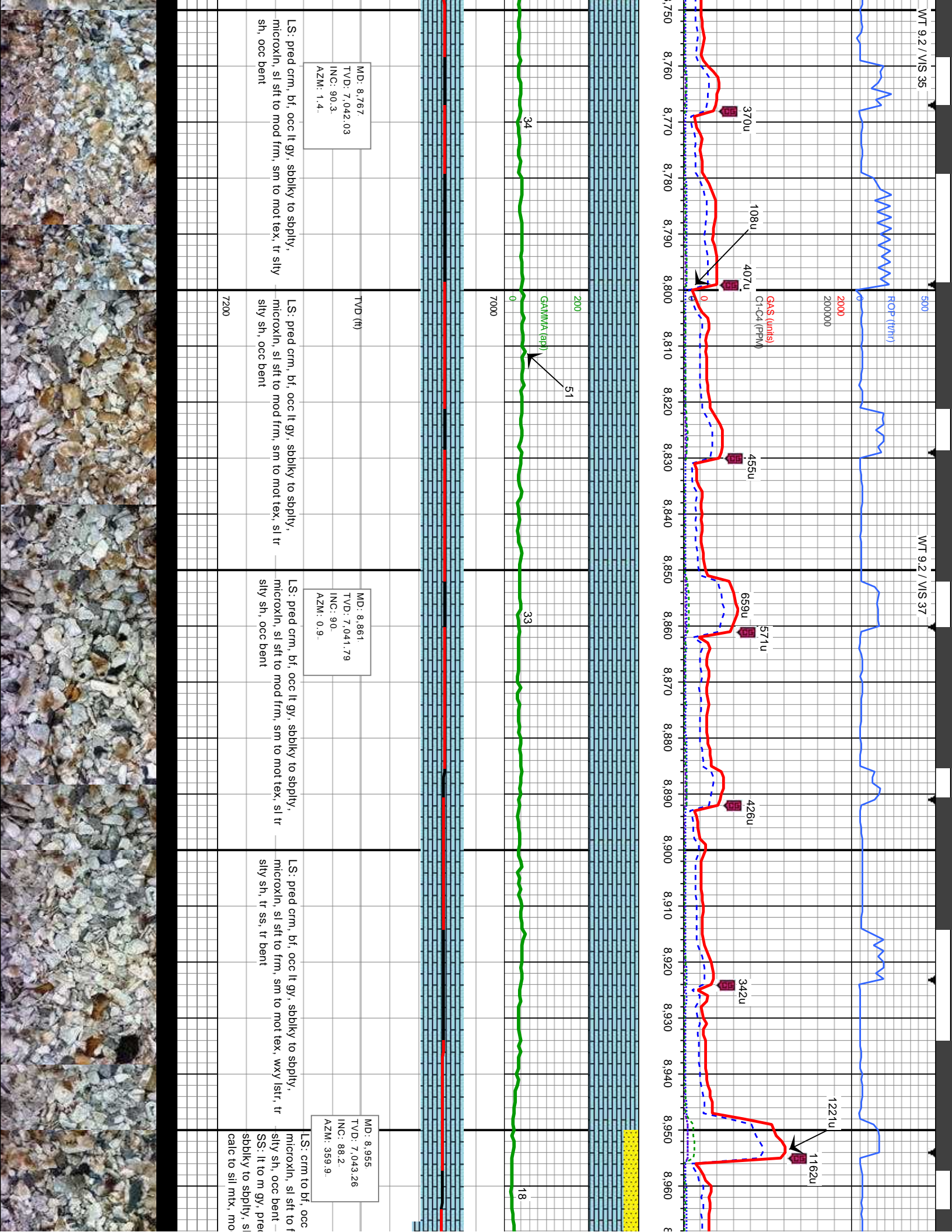




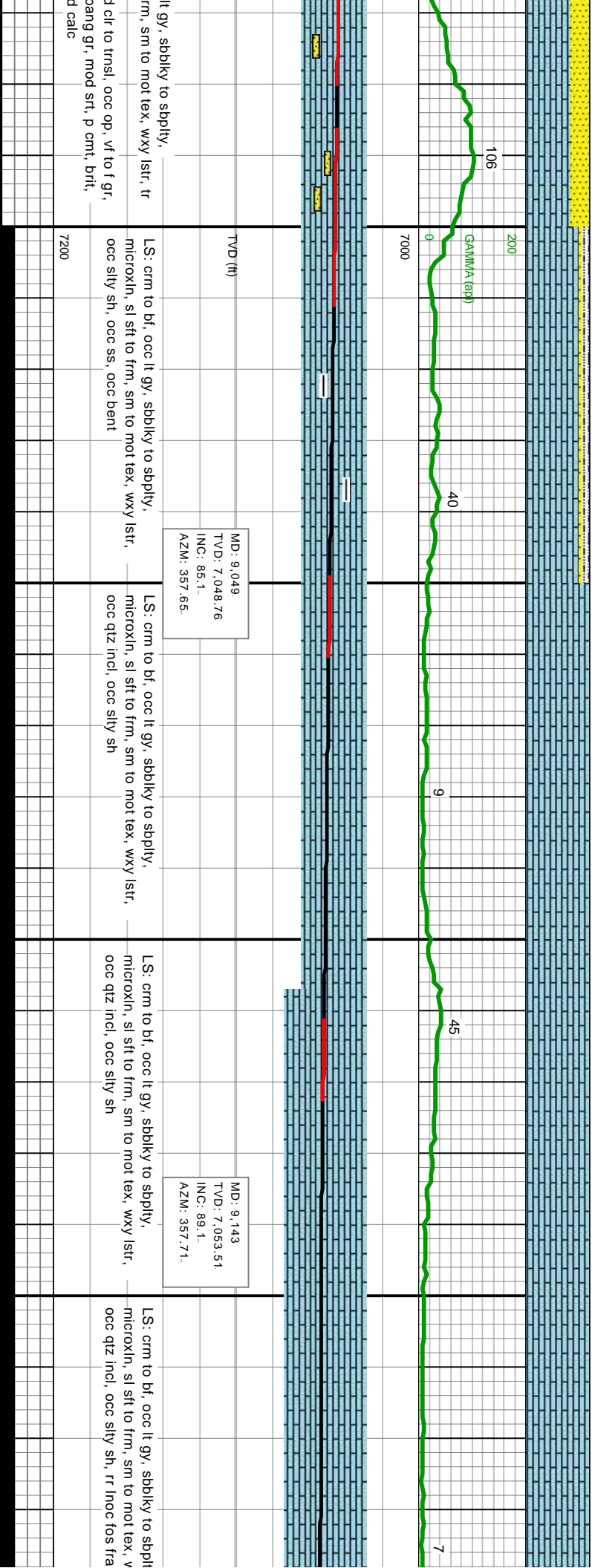
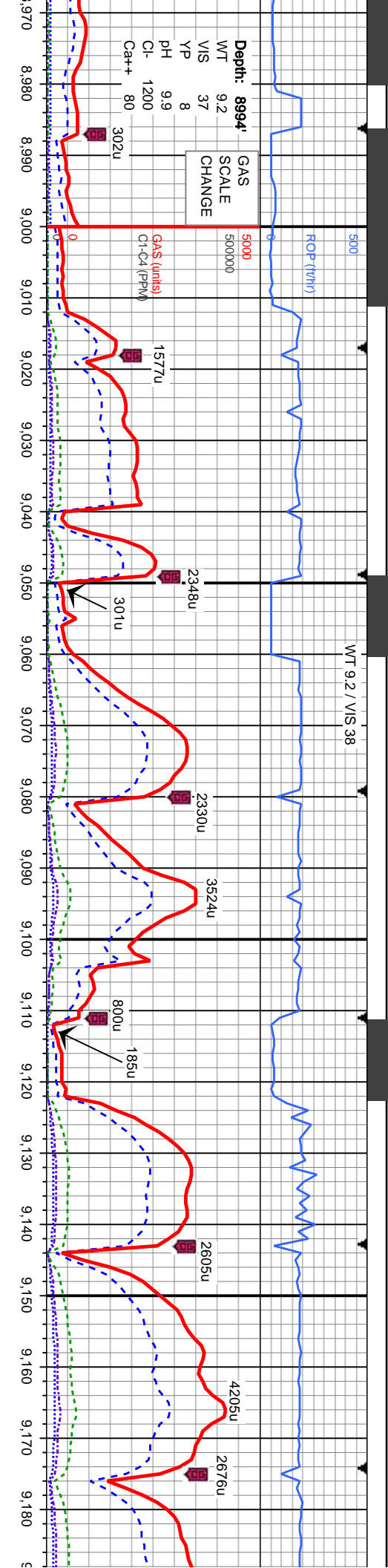
MD: 8.581 TVD: 7.044.3 INC: 91.1 AZM: 3.4		TVD (ft)		MD: 8.673 TVD: 7.042.85 INC: 90.7 AZM: 2.2	
LS: pred crm, bf, occ lt gy, sbblky to spply, microxin, sl sft to mod frm, sm to mot tex, occ silty sh, tr pyr, abnt bent		LS: pred crm, bf, occ lt gy, sbblky to spply, microxin, sl sft to mod frm, sm to mot tex, occ silty sh, tr bent		LS: pred crm, bf, occ lt gy, sbblky to spply, microxin, sl sft to mod frm, sm to mot tex, occ silty sh, tr bent	
		7200			



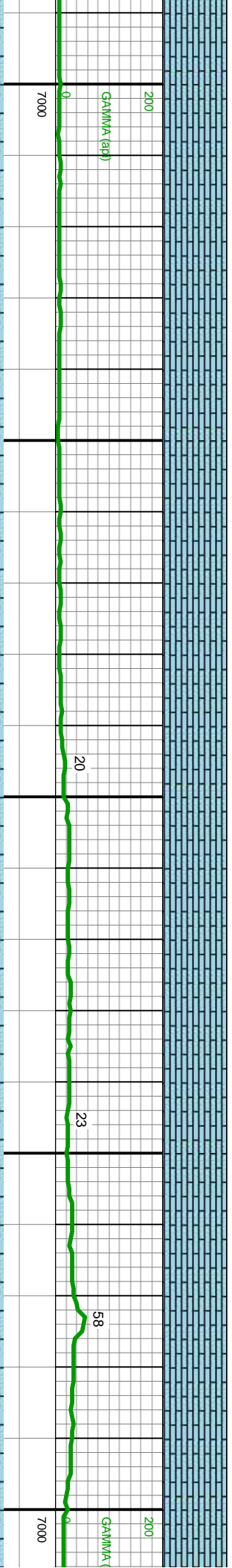
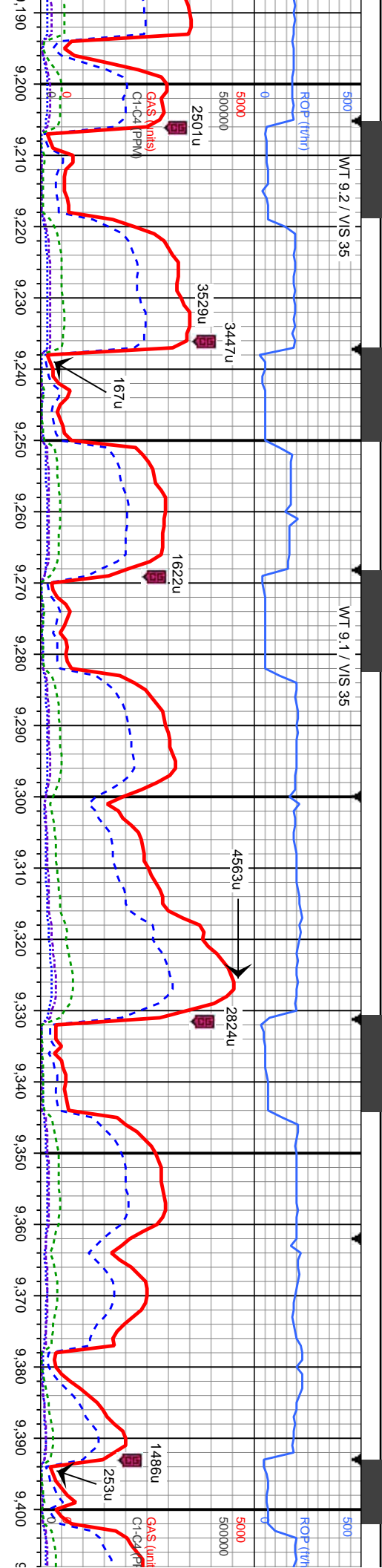








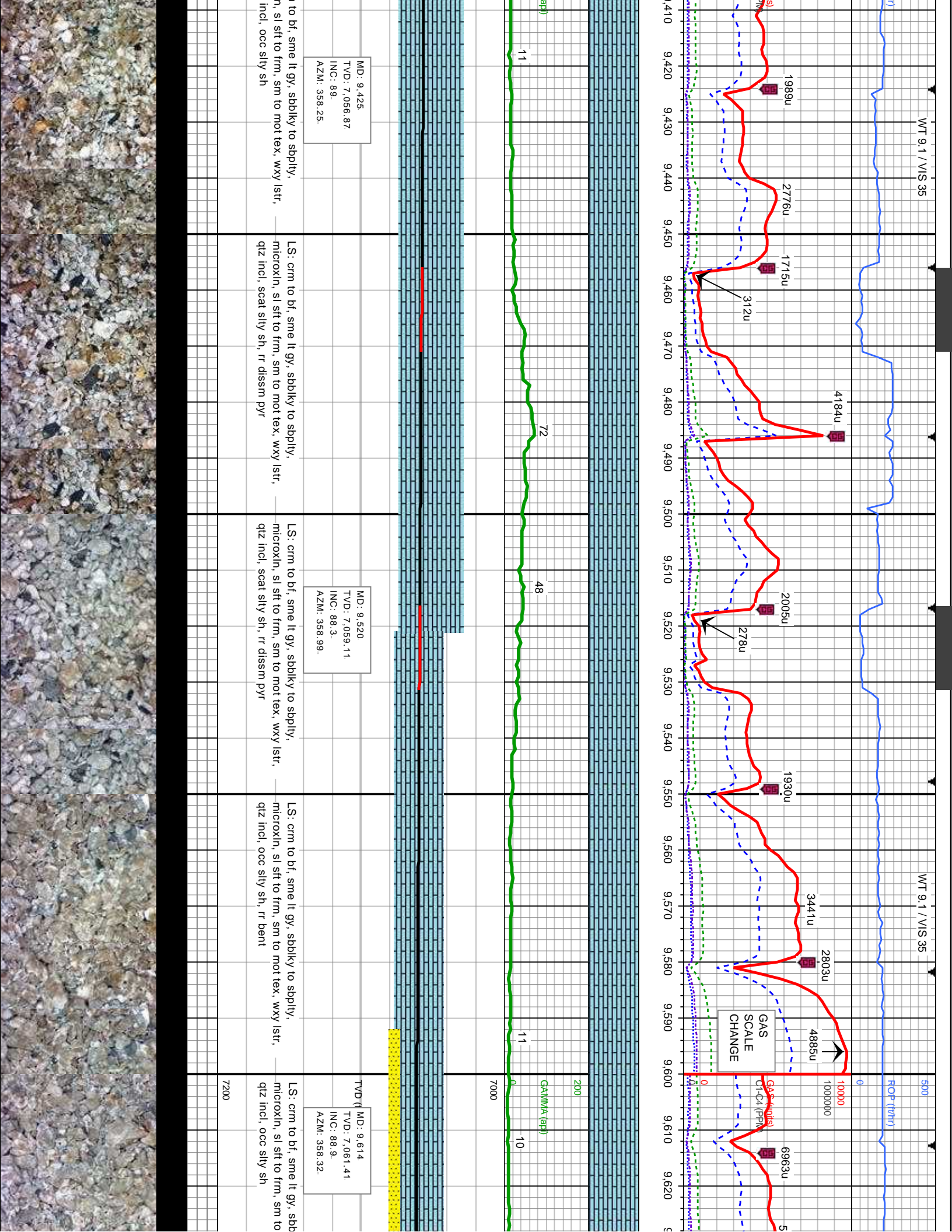




TVD (ft)	MD: 9.238 TVD: 7.054.5 INC: 89.7. AZM: 357.26	LS: crm to bf, ooc lt gy, sbblky to spbly, microxln, sl sft to frm, sm to mot tex, wxy lstr, ooc qtz incl, tr silty sh, rr bent	LS: crm to bf, ooc lt gy, sbblky to spbly, microxln, sl sft to frm, sm to mot tex, wxy lstr, ooc qtz incl, tr silty sh, rr bent	LS: crm to bf, lt gy, sbblky to spbly, microxln, sl sft to frm, sm to mot tex, wxy lstr, ooc qtz incl, ooc silty sh, rr bent	LS: crm to bf, sme lt gy, sbblky to spbly, microxln, sl sft to frm, sm to mot tex, wxy lstr, ooc qtz incl, scat silty sh, rr bent	TVD (ft)



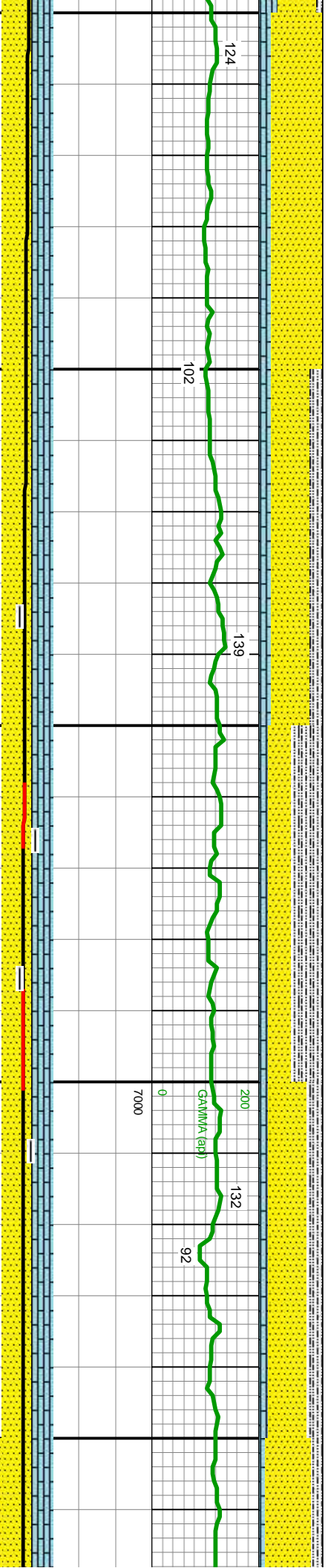
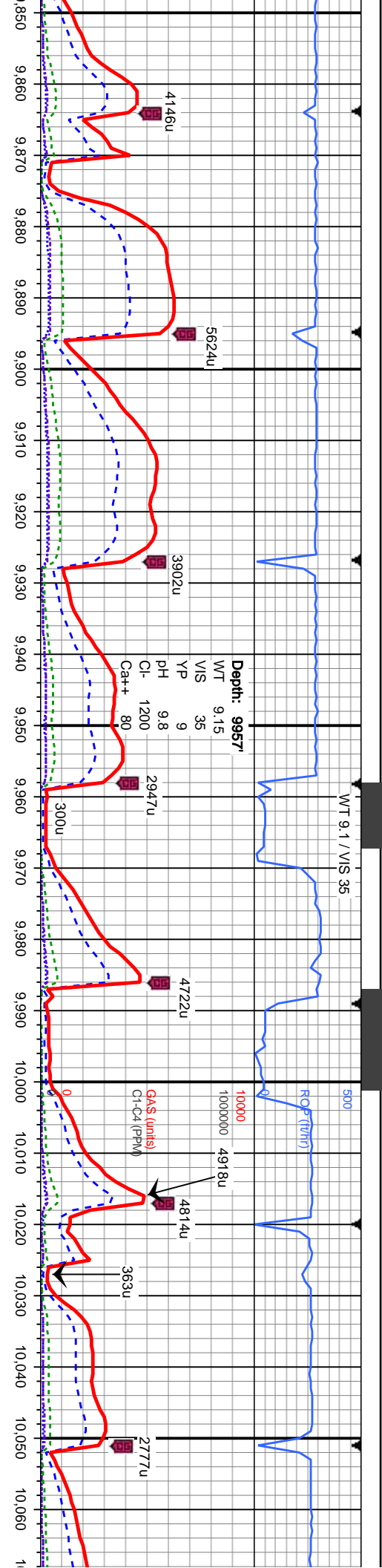








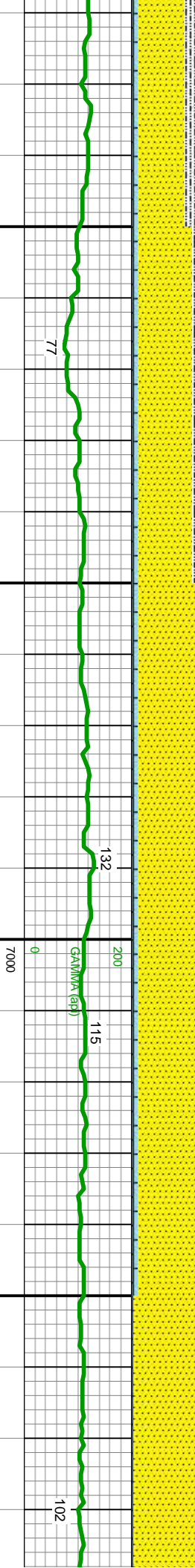
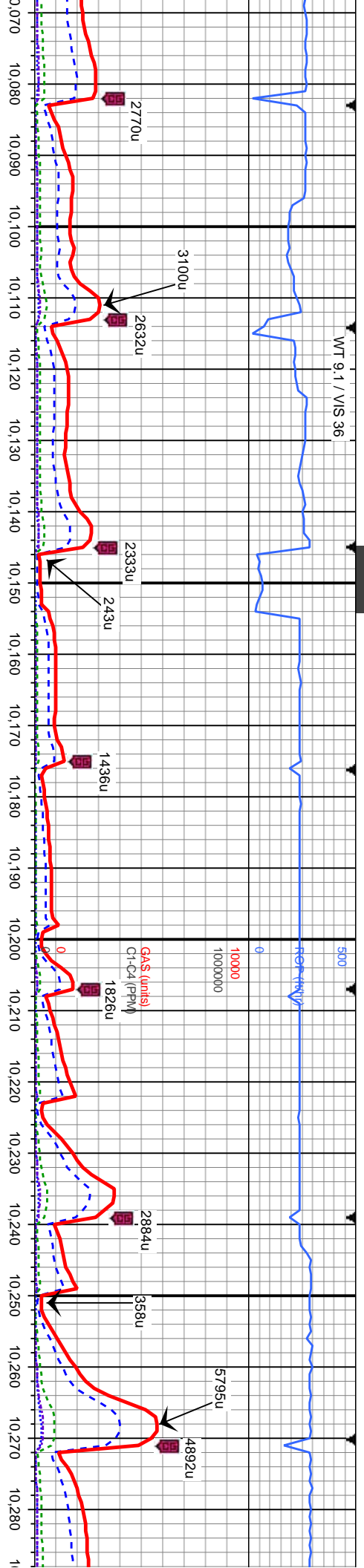




MD: 9.896 TVD: 7.069.2 INC: 88.6 AZM: 358.39	SS: pred lt to m gy to gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod to p srt, p cmt, brt, calc to sil mtx, mod calc	SS: pred lt to m gy to gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod to p srt, p cmt, brt, calc to sil mtx, mod calc	SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cmt, calc to silic mtx, brt, sl calc, apr o stns	SS: pred mgy, sm sbblky to blk, spe silic mtx, brt, sl calc
MD: 9.989 TVD: 7.070.74 INC: 89.5 AZM: 359.3	LS: crm to bf, sbblky to sbply, microxln, sl sft to frm, sm to mot tex, wxy lstr, tr inoc fos frag	LS: crm to bf, sbblky to sbply, microxln, sl sft to frm, sm to mot tex, wxy lstr, tr inoc fos frag	SLTY SH: med to dk gy, sbblky to ply, sft to mod frm, arg, sl calc, occ bent, abnt is	SLTY SH: med to dk gy, sbblky to ply, sft to mod frm, arg, sl calc, occ bent, abnt is
MD: 9.896 TVD: 7.069.2 INC: 88.6 AZM: 358.39	SS: pred lt to m gy to gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod to p srt, p cmt, brt, calc to sil mtx, mod calc	SS: pred lt to m gy to gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod to p srt, p cmt, brt, calc to sil mtx, mod calc	SLTY SH: med to dk gy, sbblky to ply, sft to mod frm, arg, sl calc, occ bent, abnt is	SLTY SH: med to dk gy, sbblky to ply, sft to mod frm, arg, sl calc, occ bent, abnt is







MD: 10.083  
TVD: 7,070.99  
INC: 90.2  
AZM: 358.8

MD: 10.177  
TVD: 7,071.56  
INC: 89.1  
AZM: 358.9

MD: 10.270  
TVD: 7,072.54  
INC: 89.7  
AZM: 358.5

SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cnt, calc to silic mx, brit, apr o sn, tr fos frag, occ silty sh, abnt ls

SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cnt, calc to silic mx, brit, sl calc, apr o sn, tr fos frag, occ silty sh, abnt ls

SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cnt, calc to silic mx, brit, sl calc, apr o sn, tr pyr, occ silty sh, abnt ls

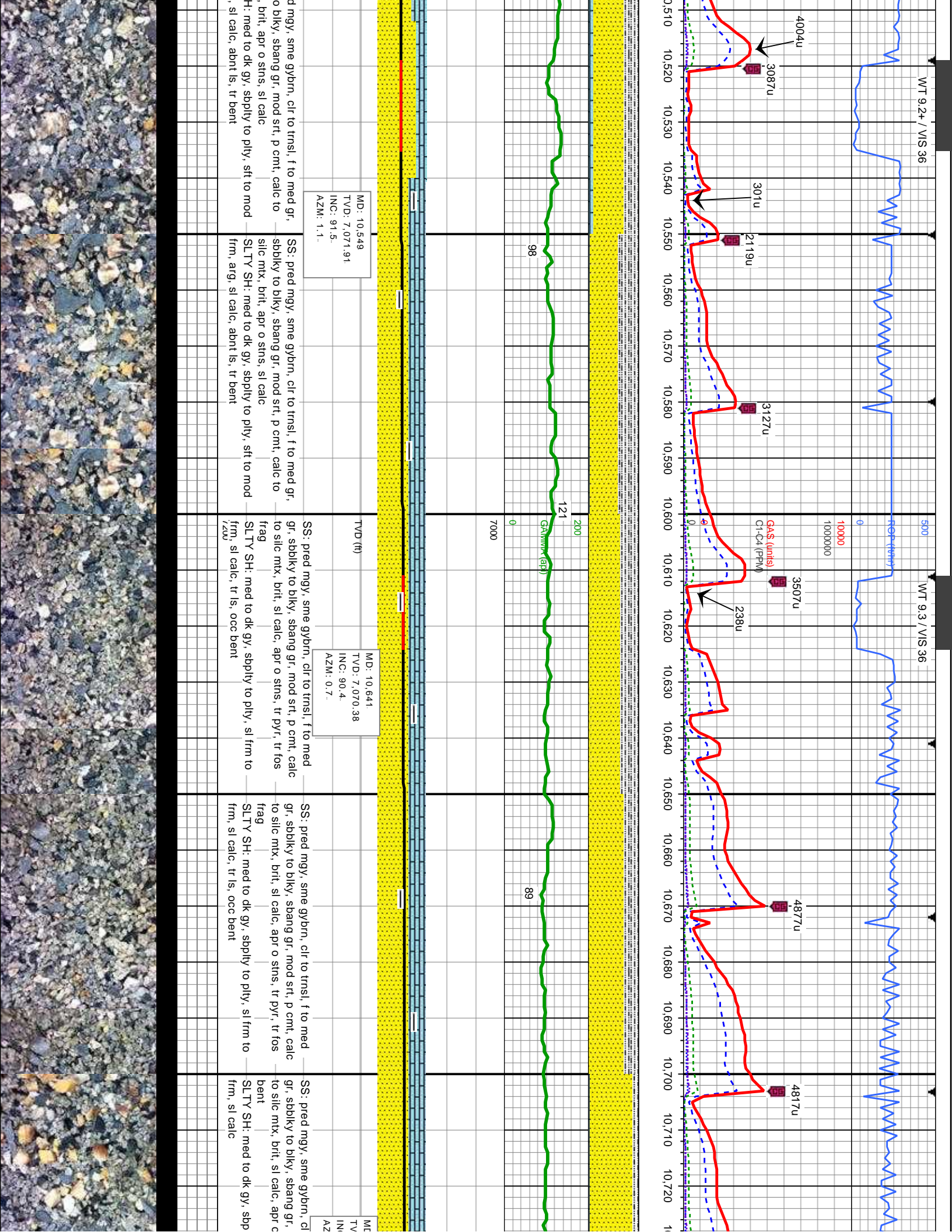
SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cnt, calc to silic mx, brit, sl calc, apr o sn, tr fos frag, occ silty sh, abnt ls



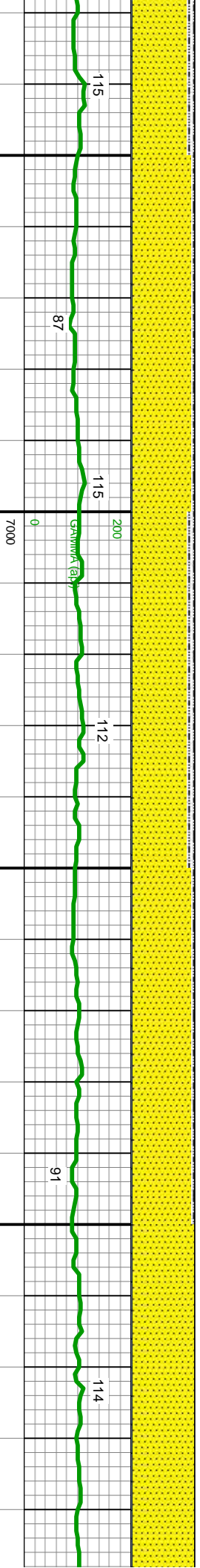
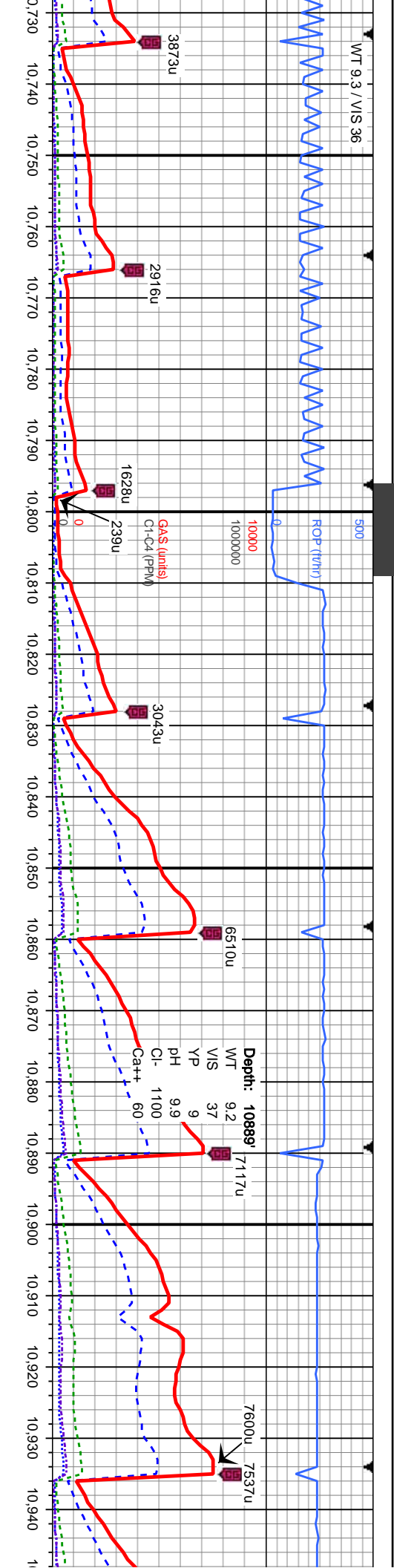










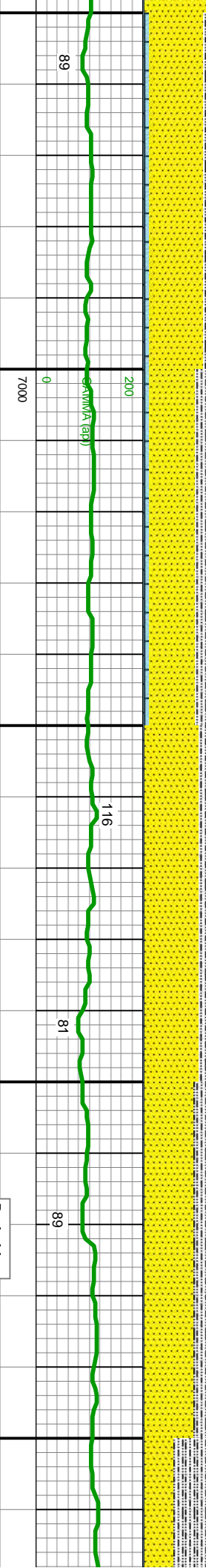
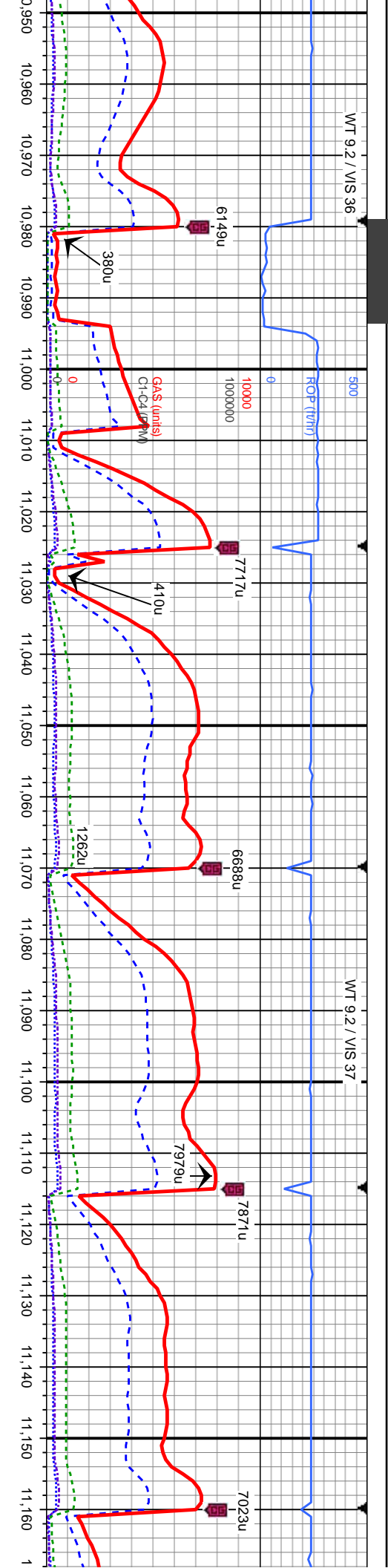


MD: 10.734 D: 7.069.49 C: 90.7 M: 0.5	TVD (ft) MD: 10.827 TVD: 7.069.16 INC: 89.7 AZM: 0.8	MD: 10.917 TVD: 7.068.93 INC: 90.6 AZM: 0.7
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to trnsl, f to med mod srt, p cmt, calc stns, occ ls, occ	SS: pred mgy, sme gybrn, clr to trnsl, f to med gr, sbblky to blkly, sbang gr, mod srt, p cmt, calc to silc mtx, brit, sl calc, apr o stns, occ ls, abnt sily sh, occ bent	SS: pred mgy, sme gybrn, clr to trnsl, f to med gr, sbblky to blkly, sbang gr, mod srt, p cmt, calc to silc mtx, brit, sl calc, apr o stns, occ ls, occ sily sh, tr bent	SS: pred mgy, sme gybrn, clr to trnsl, f to med gr, sbblky to blkly, sbang gr, mod srt, p cmt, calc to silc mtx, brit, sl calc, apr o stns, occ ls, occ sily sh, occ bent
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Probable  
Fault

MD: 11.007  
TVD: 7,069.01  
INC: 89.3  
AZM: 0.06.

MD: 11.097  
TVD: 7,069.64  
INC: 89.9  
AZM: 0.03.

SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbbiky to blk, sbang gr, mod srt, p cmt, calc to silic mtx, brit, sl calc, apr o stns, scat ls, scat silty sh, scat bent

SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbbiky to blk, sbang gr, mod srt, p cmt, calc to silic mtx, brit, sl calc, apr o stns  
SLTY SH: med to dk gy, sbply to pty, sl frm to frm, sl calc, scat ls, occ bent

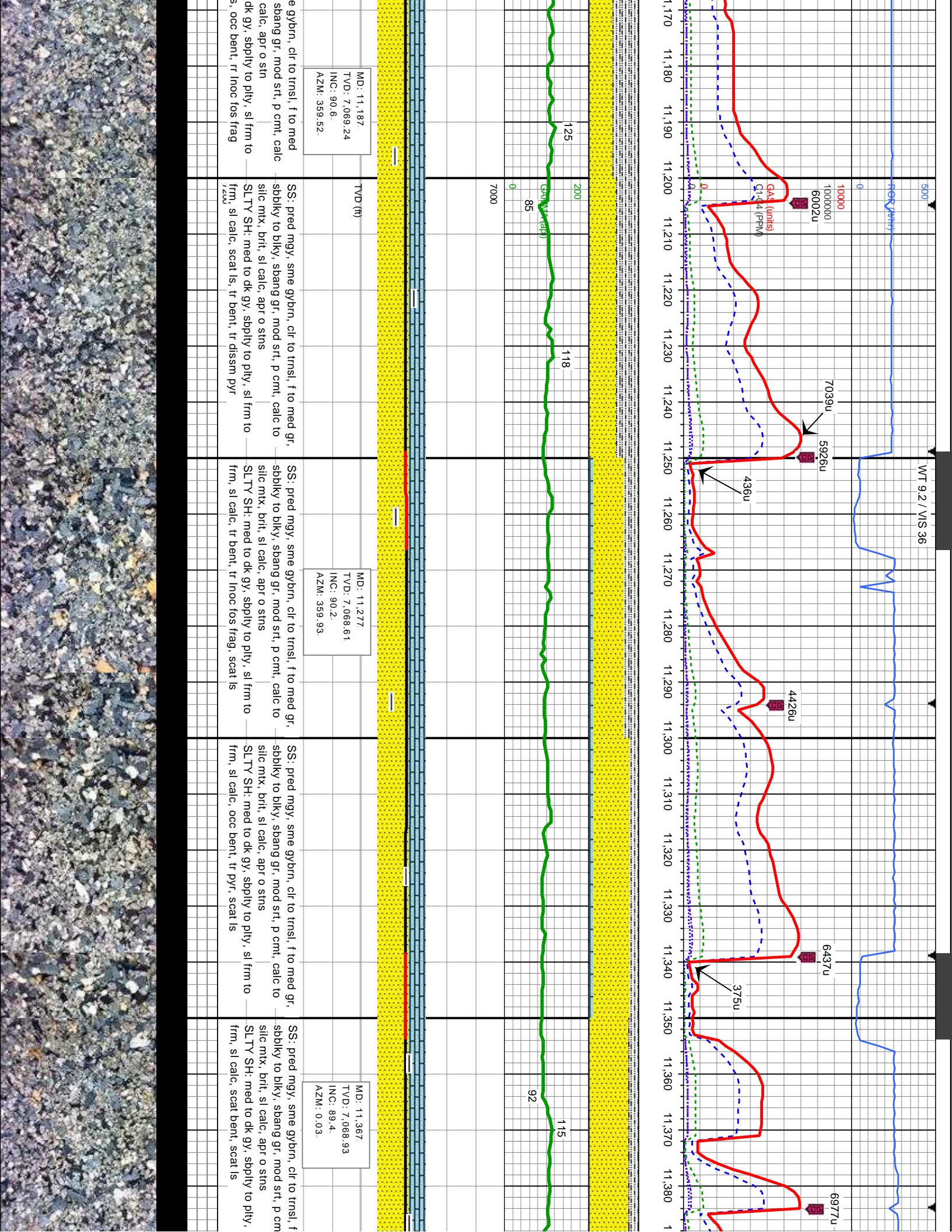
SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbbiky to blk, sbang gr, mod srt, p cmt, calc to silic mtx, brit, sl calc, apr o stns, scat ls, scat silty sh, occ bent

SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbbiky to blk, sbang gr, mod srt, p cmt, calc to silic mtx, brit, sl calc, apr o stns  
SLTY SH: med to dk gy, sbply to pty, sl frm to frm, sl calc, scat ls, tr bent, occ inoc fos frag

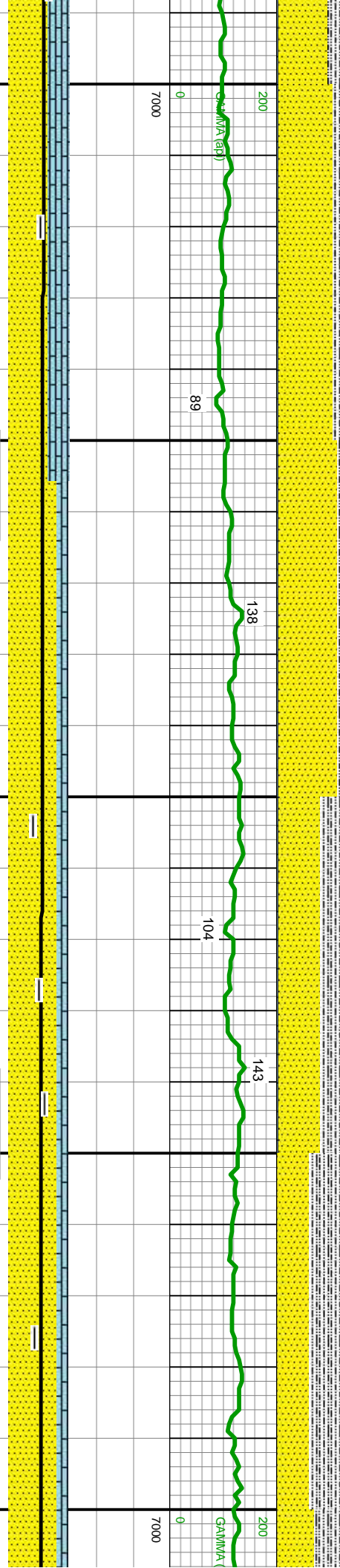
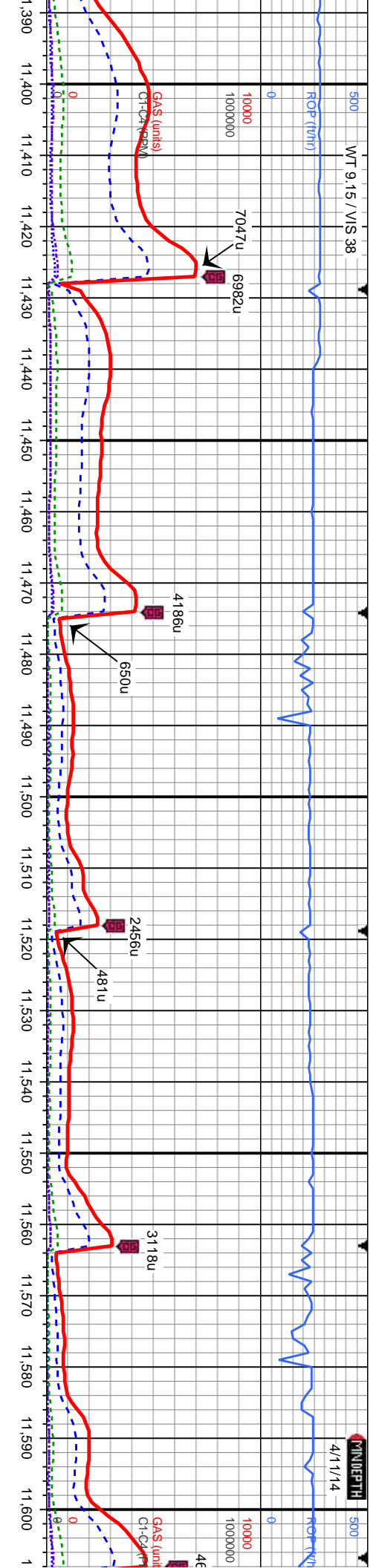
SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbbiky to blk, sbang gr, mod srt, p cmt, calc to silic mtx, brit, sl calc, apr o stns, scat ls, scat silty sh, occ bent







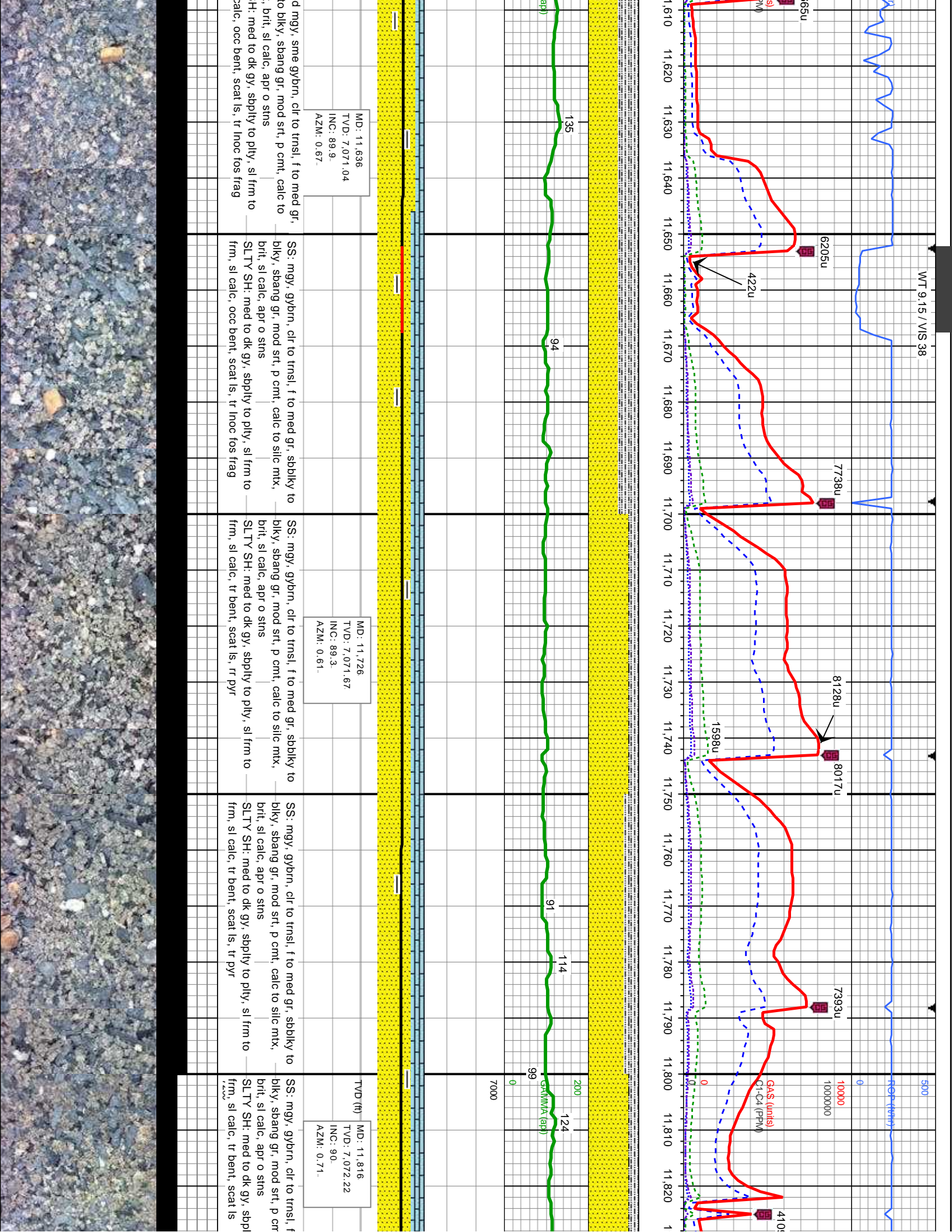




TVD (ft)	MD: 11,456 TVD: 7,069.78 INC: 89.5 AZM: 0.28.	MD: 11,546 TVD: 7,070.57 INC: 89.5 AZM: 359.73.	TVD (ft)
SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cmt, calc to silc mtx, brit, sl calc, apr o sns, scat silty sh, occ bent, scat ls, occ inoc fos frag	SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cmt, calc to silc mtx, brit, sl calc, apr o sns, scat silty sh, scat bent, scat ls, occ inoc fos frag	SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cmt, calc to silc mtx, brit, sl calc, apr o sns SLTY SH: med to dk gy, sbply to ply, sl frm to frm, sl calc, scat bent, scat ls, tr inoc fos frag	SS: pred mgy, sme gybrn, clr to trns, f to med gr, sbblky to blk, sbang gr, mod srt, p cmt, calc to silc mtx, brit, sl calc, apr o sns SLTY SH: med to dk gy, sbply to ply, sl frm to frm, sl calc, occ bent, scat ls
7200			7200



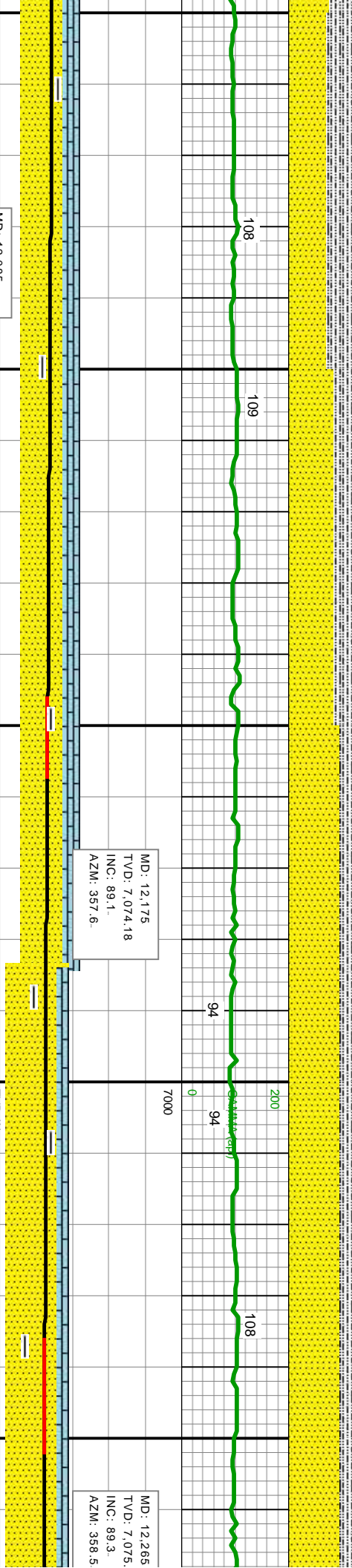
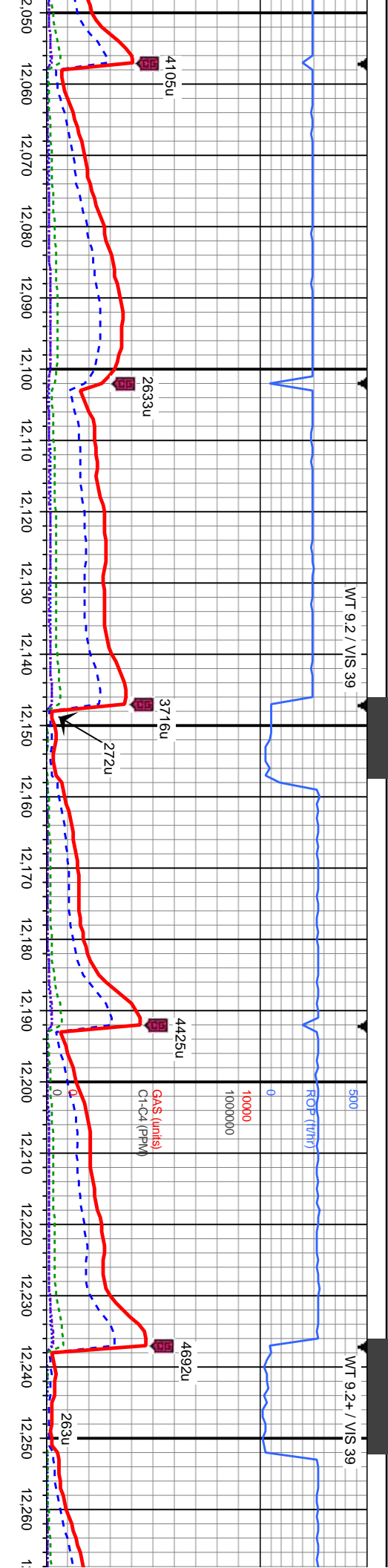












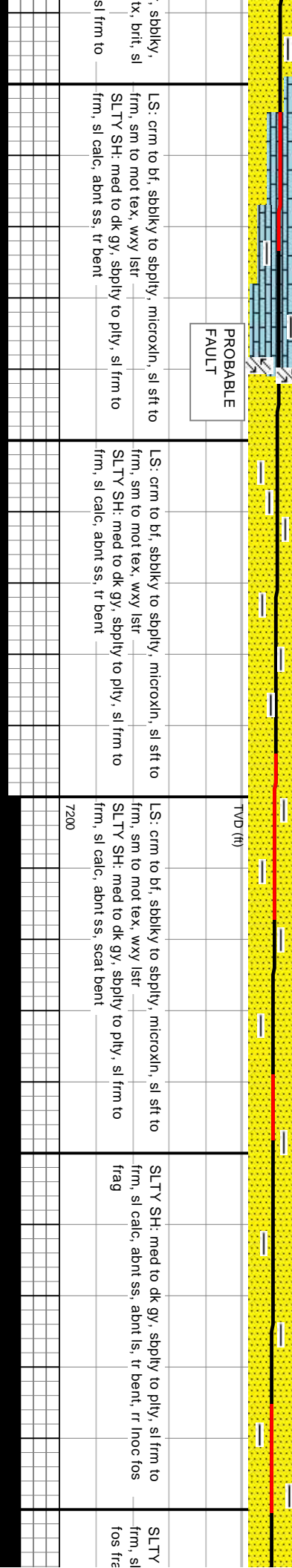
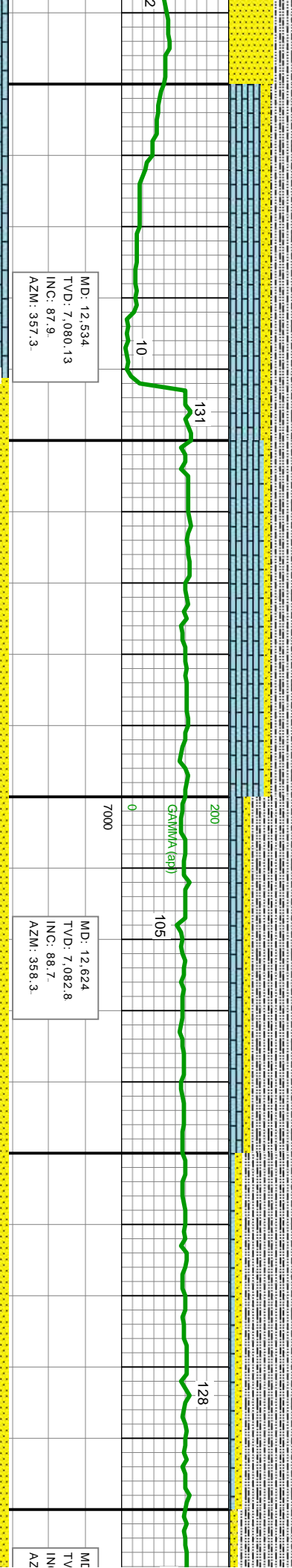
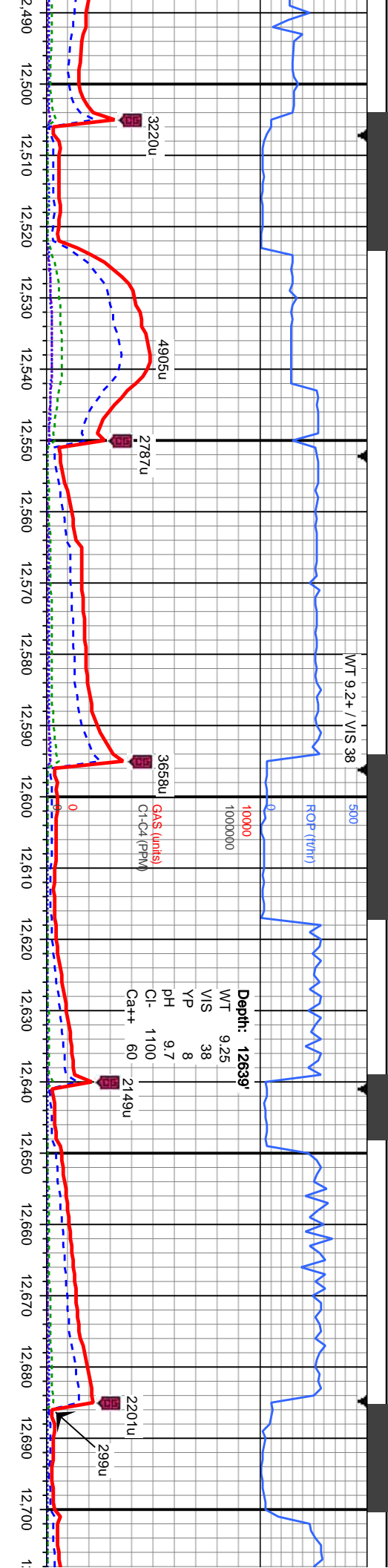
SS: mgy, gybrn, clr to trnsi, f to med gr, sbblky to blky, sbang gr, mod srt, p cnt, calc to silic mix, brt, sl calc, apr o sins	SS: mgy, gybrn, clr to trnsi, f to med gr, sbblky to blky, sbang gr, mod srt, p cnt, calc to silic mix, brt, sl calc, apr o sins	SS: mgy, gybrn, clr to trnsi, f to med gr, sbblky to blky, sbang gr, mod srt, p cnt, calc to silic mix, brt, sl calc, apr o sins	SS: mgy, gybrn, c
SLTY SH: med to dk gy, sbply to pily, sl frm to frm, sl calc, tr fos frag, occ bent, tr ls	SLTY SH: med to dk gy, sbply to pily, sl frm to frm, sl calc, tr fos frag, tr bent, tr ls	SLTY SH: med to dk gy, sbply to pily, sl frm to frm, sl calc, tr fos frag, tr bent, tr ls	SLTY SH: med to



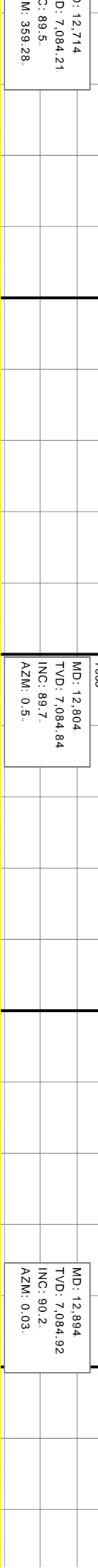
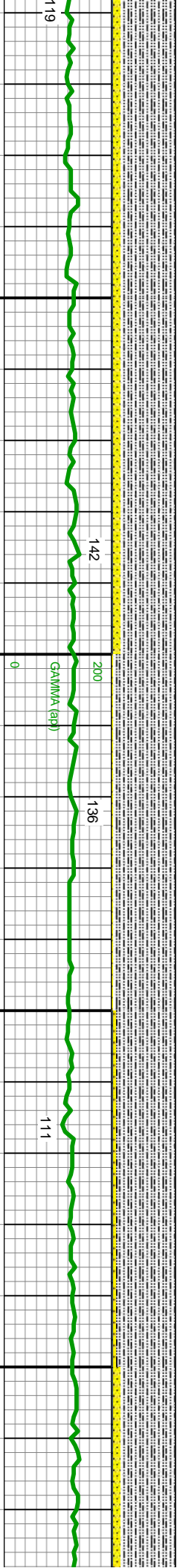
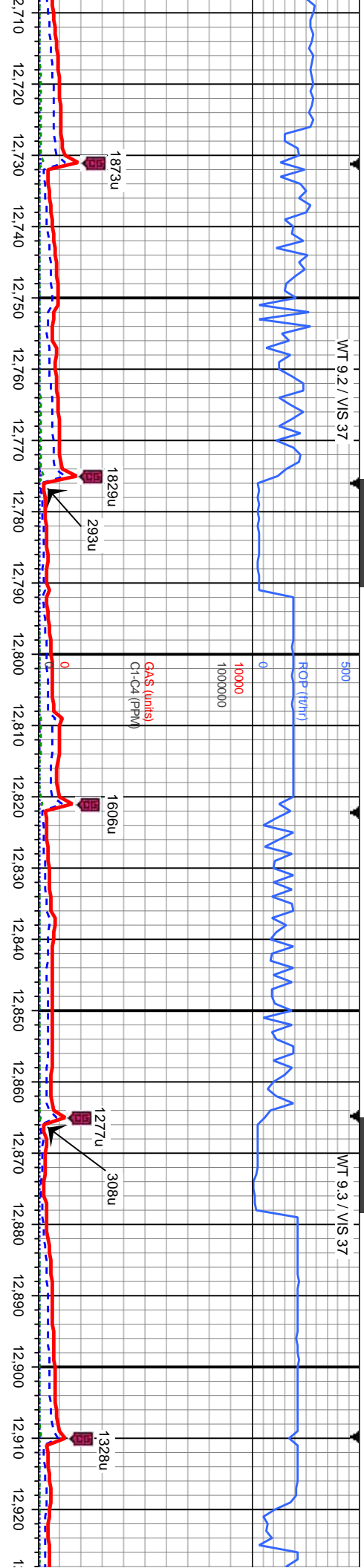








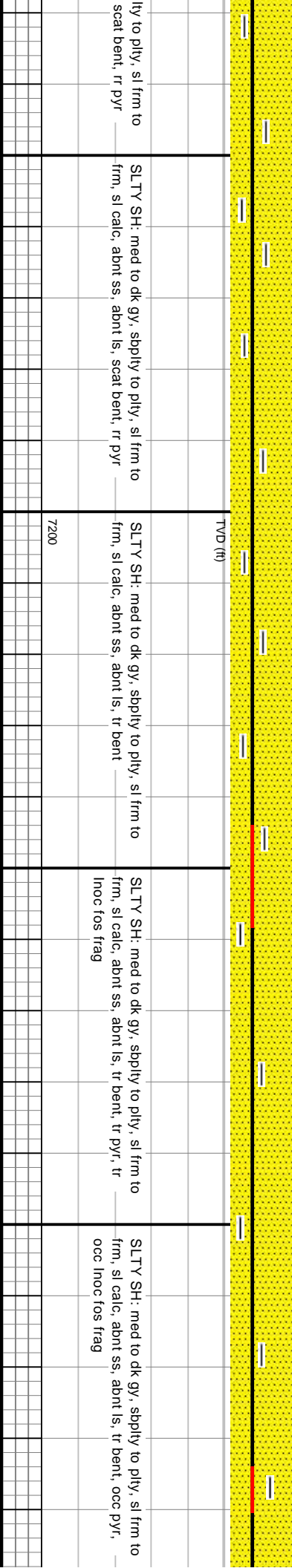
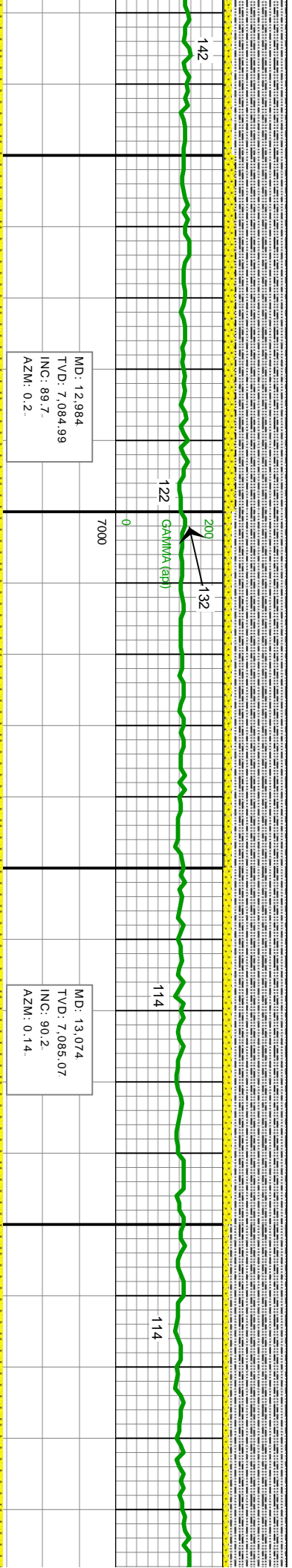
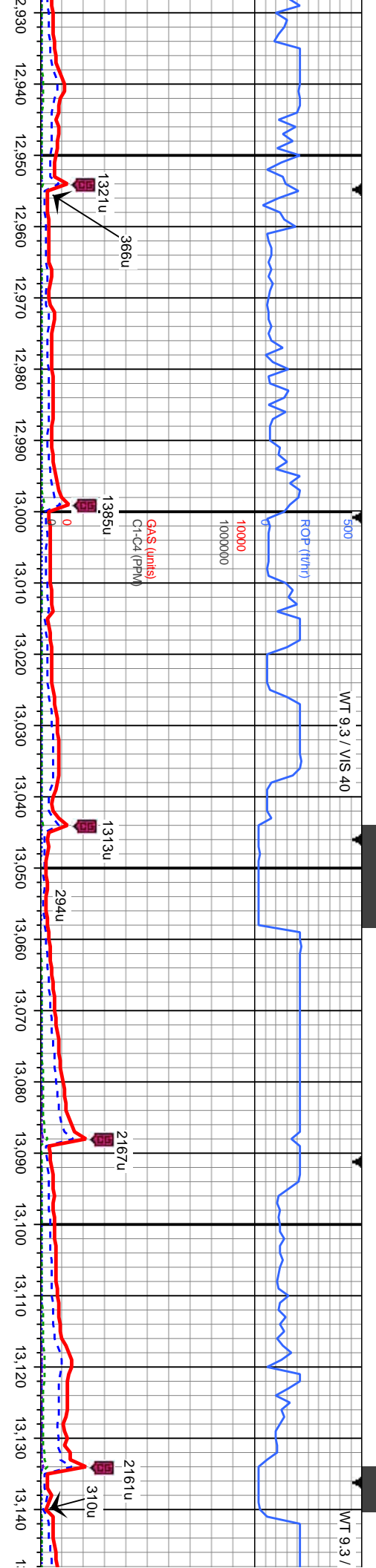




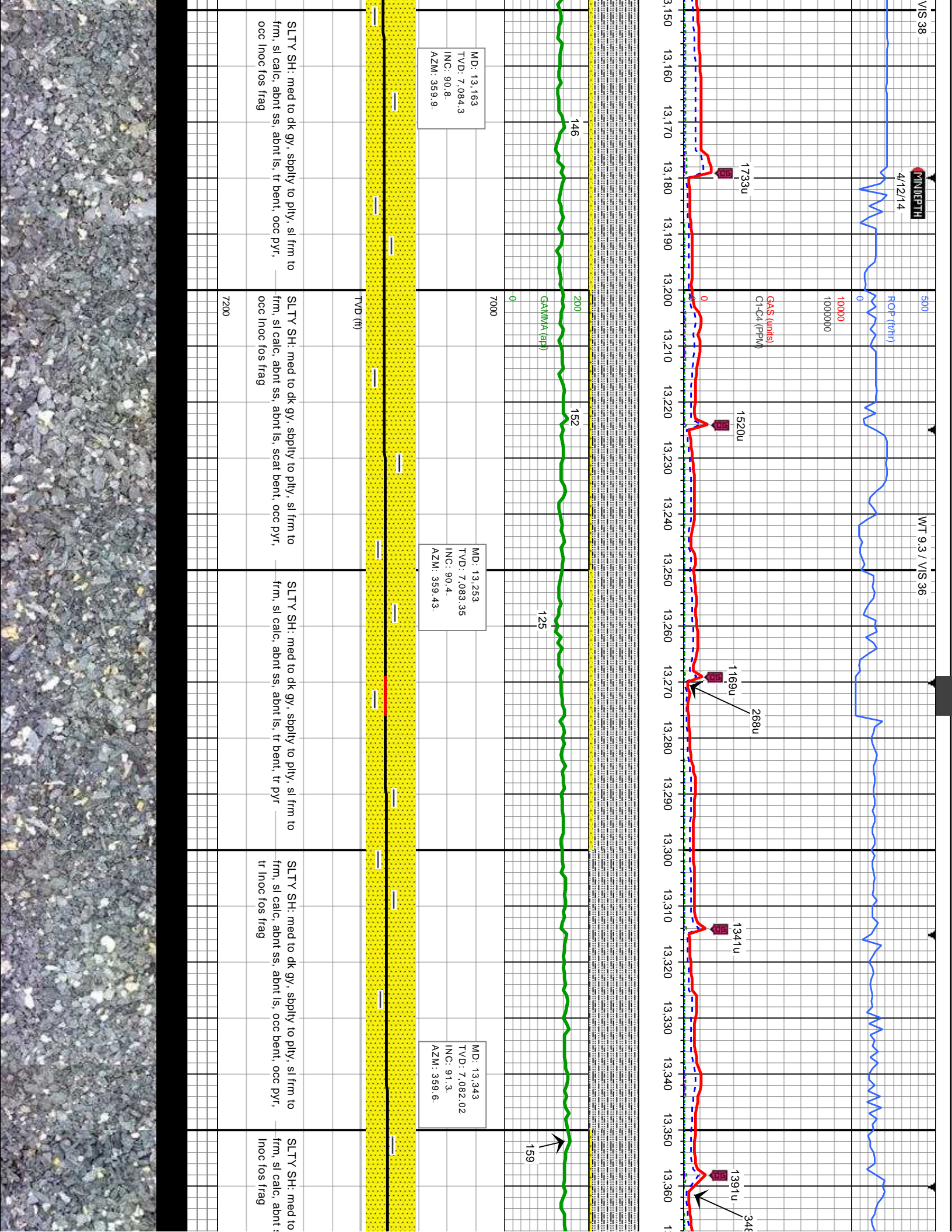
SH: med to dk gy, sbply to pily, sl frm to calc, abnt ss, abnt ls, tr bent, tr inoc	SLTY SH: med to dk gy, sbply to pily, sl frm to frm, sl calc, abnt ss, abnt ls, occ bent, tr pyr	SLTY SH: med to dk gy, sbply to pily, sl frm to frm, sl calc, abnt ss, abnt ls, scat bent, tr inoc fos frag	SLTY SH: med to dk gy, sbply to pily, sl frm to frm, sl calc, abnt ss, abnt ls, tr bent, tr inoc fos frag, tr pyr	SLTY SH: med to dk gy, sbply to pily, sl frm to frm, sl calc, abnt ss, abnt ls, tr bent, tr inoc fos frag, tr pyr
7200	7200	7200	7200	7200







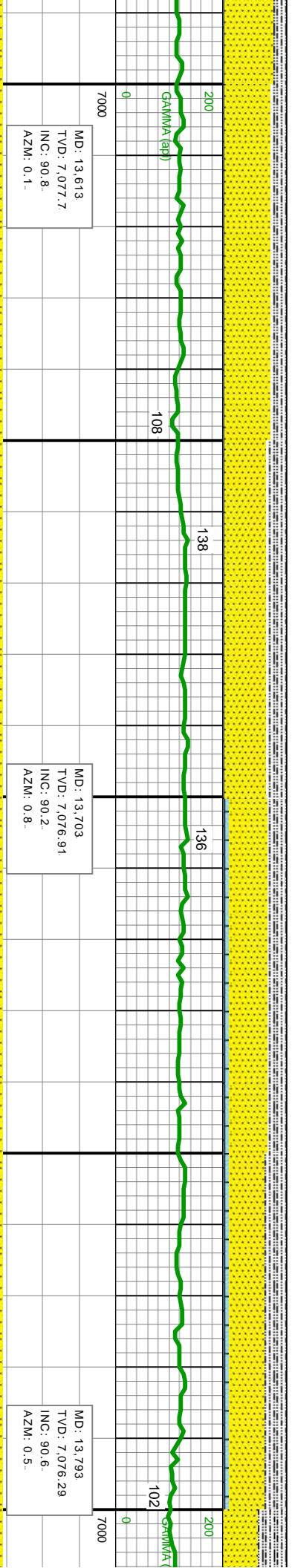
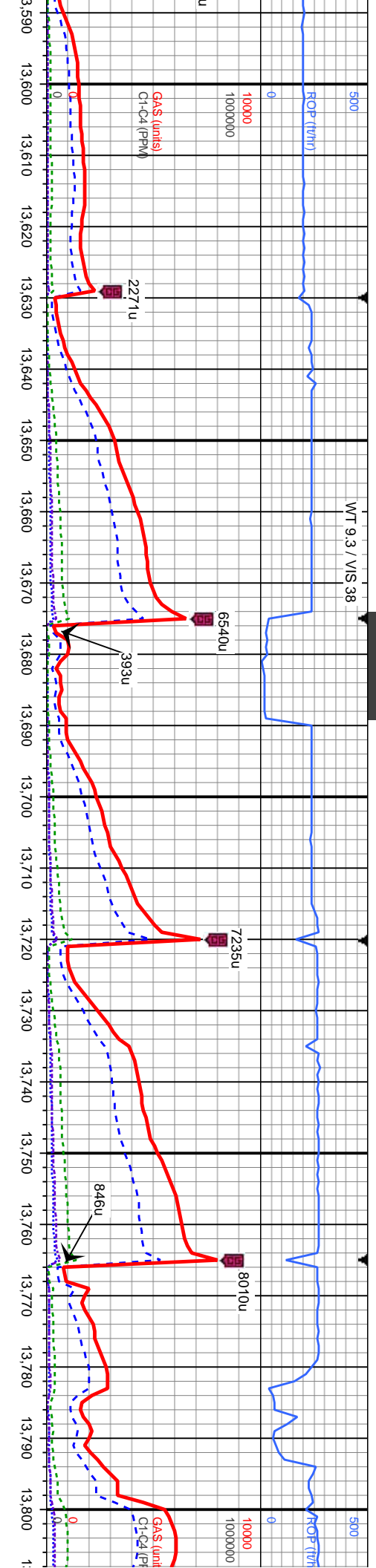








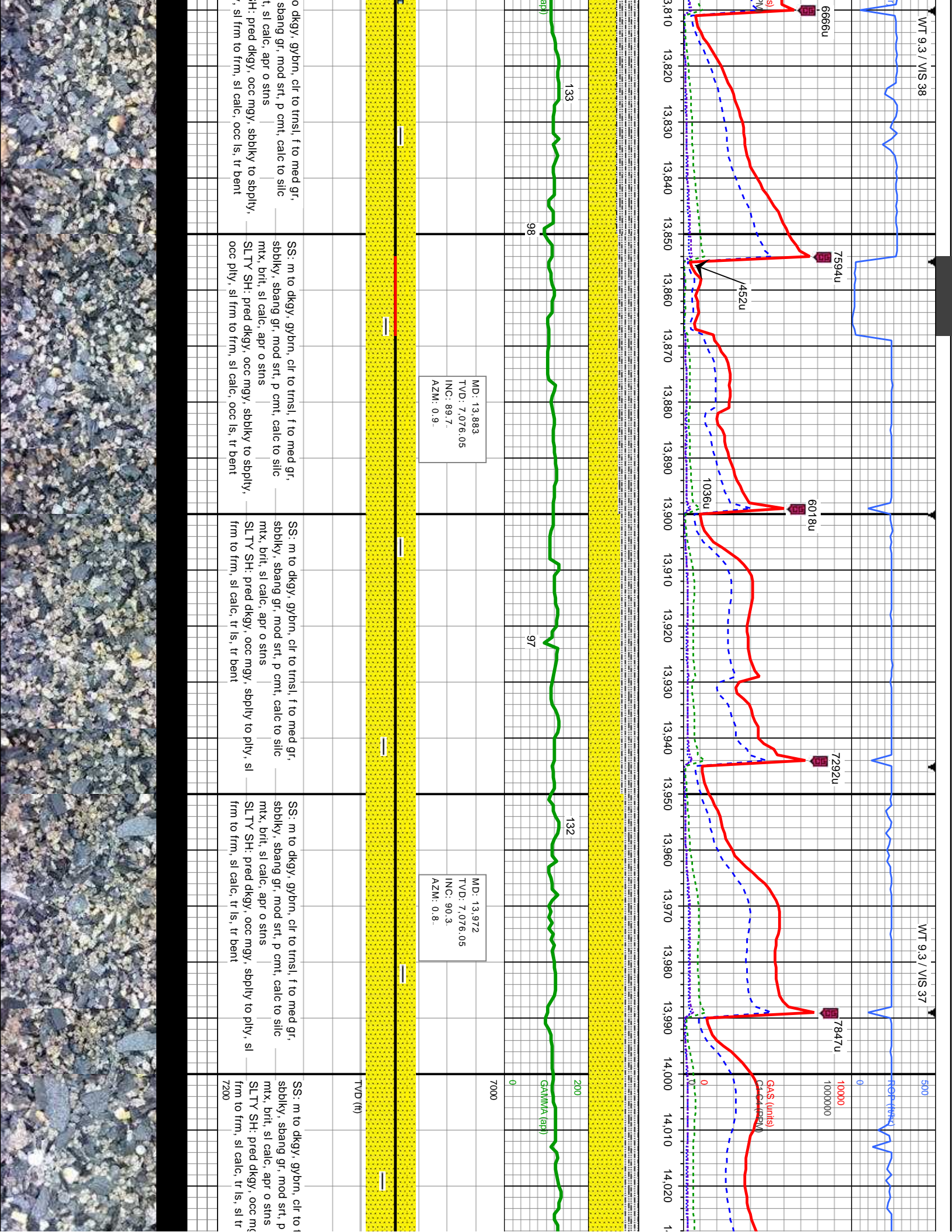




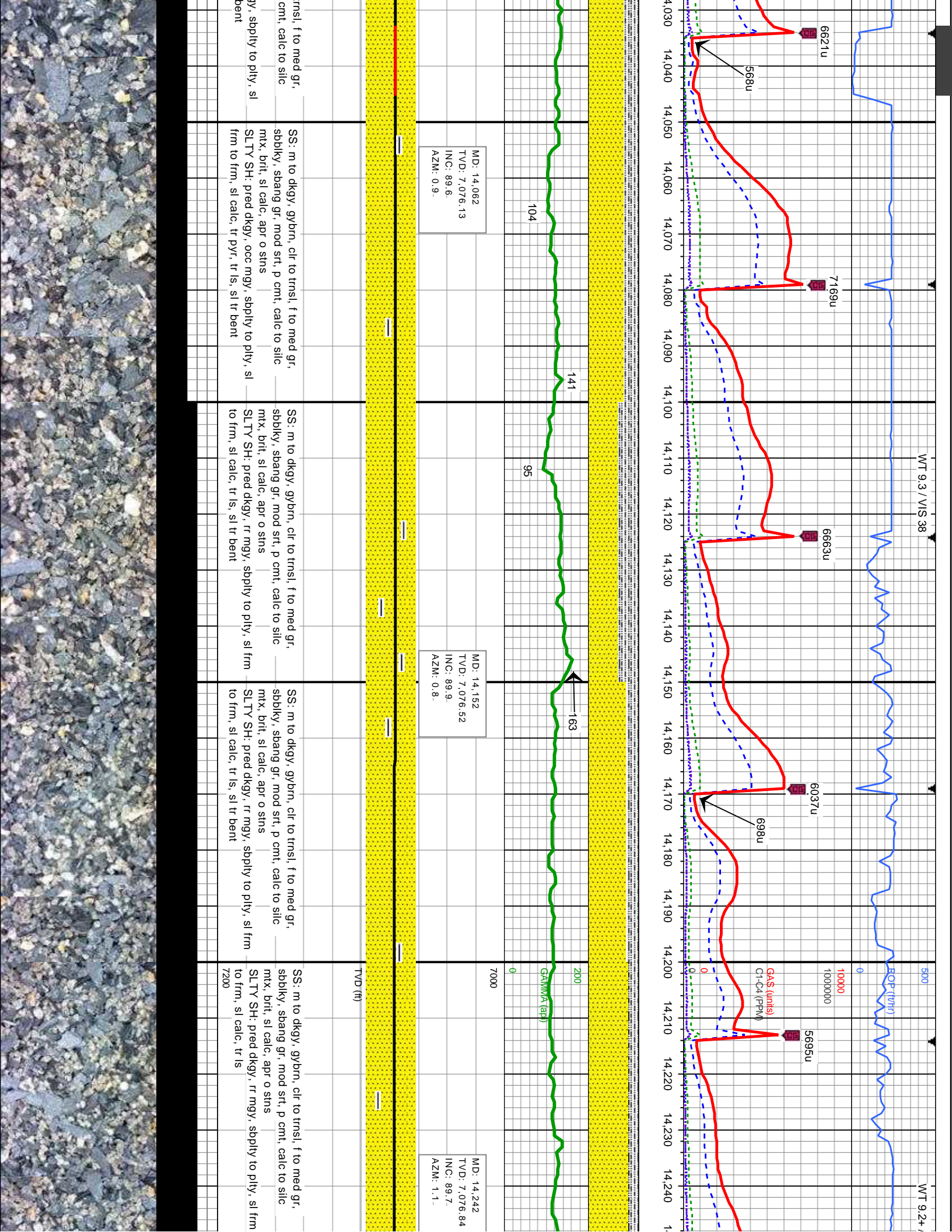
SS: m to dkgy, gybrn, clr to trnsi, f to med gr, sbblky, sbang gr, mod srt, p cmt, calc to silic mtx, brit, abnt ise qtz grns, sl calc, apr o snrs, tr fos frag	SS: m to dkgy, gybrn, clr to trnsi, f to med gr, sbblky, sbang gr, mod srt, p cmt, calc to silic mtx, brit, abnt ise qtz grns, sl calc, apr o snrs, tr fos frag	SS: m to dkgy, gybrn, clr to trnsi, f to med gr, sbblky, sbang gr, mod srt, p cmt, calc to silic mtx, brit, sl calc, tr pyr, apr o snrs	SS: m to dkgy, gybrn, clr to trnsi, f to med gr, sbblky, sbang gr, mod srt, p cmt, calc to silic mtx, brit, sl calc, tr pyr, apr o snrs
SLTY SH: pred dkgy, occ mgy, sbblky to sbply, occ ply, sl frm to frm, sl calc, occ ls, occ bent	SLTY SH: pred dkgy, occ mgy, sbblky to sbply, occ ply, sl frm to frm, sl calc, occ ls, occ bent	SLTY SH: pred dkgy, occ mgy, sbblky to sbply, occ ply, sl frm to frm, sl calc, abnt ls, occ bent	SLTY SH: pred dkgy, occ mgy, sbblky to sbply, occ ply, sl frm to frm, sl calc, abnt ls, occ bent
7200			7200



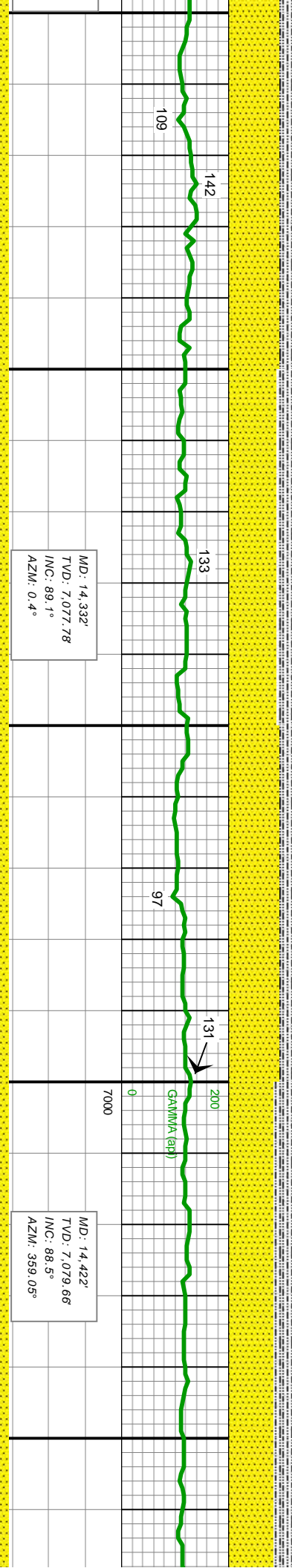
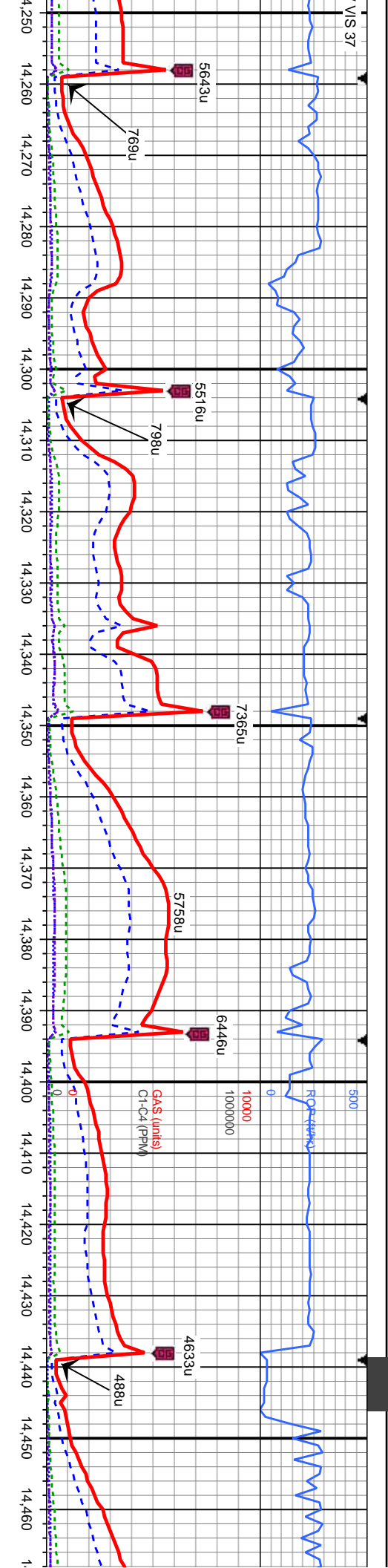












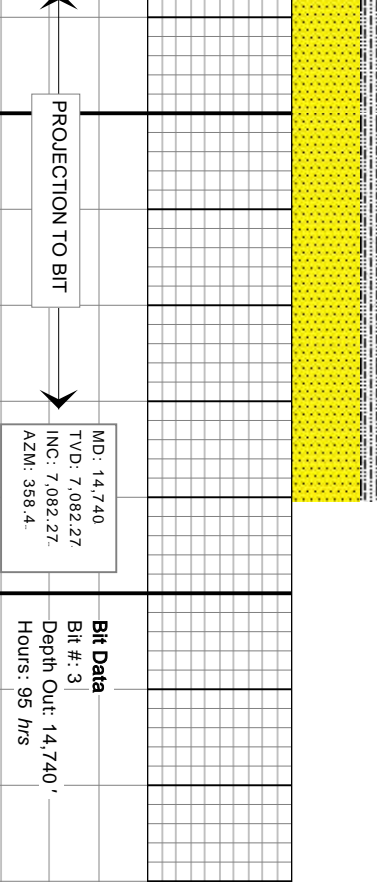
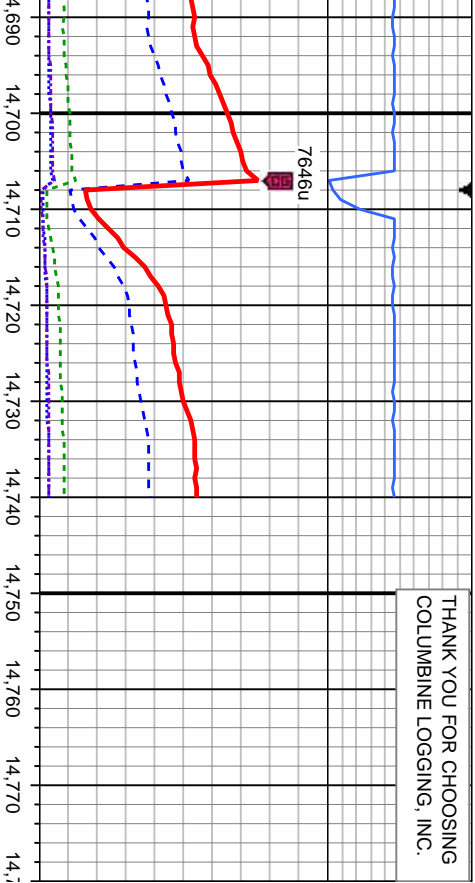
SS: m to dkgy, gybrn, clr to trns, f to med gr, sbbiky, sbang gr, mod srt, p cnt, calc to silc mtx, brit, sl calc, apr o sns SLTY SH: pred dkgy, rr mgy, sbply to ply, sl frm to frm, sl calc, tr ls	SS: m to dkgy, gybrn, clr to trns, f to med gr, sbbiky, sbang gr, mod srt, p cnt, calc to silc mtx, brit, sl calc, apr o sns SLTY SH: pred dkgy, rr mgy, sbply to ply, sl frm to frm, sl calc, tr ls, sl tr bent	SS: m to dkgy, gybrn, clr to trns, f to med gr, sbbiky, sbang gr, mod srt, p cnt, calc to silc mtx, brit, sl calc, apr o sns SLTY SH: pred dkgy, rr mgy, sbply to ply, sl frm to frm, sl calc, tr ls, sl tr bent	SS: m to dkgy, gybrn, clr to trns, f to med gr, sbbiky, sbang gr, mod srt, p cnt, calc to silc mtx, brit, sl calc, apr o sns SLTY SH: pred dkgy, sme mgy, sbply to ply, sl frm to frm, sl calc, scat ls, occ bent	SS: m to dkgy, gybrn, clr to trns, f to med gr, sbbiky, sbang gr, mod srt, p cnt, calc to silc mtx, brit, sl calc, apr o sns SLTY SH: pred dkgy, sme mgy, sbply to ply, sl frm to frm, sl calc, scat ls, occ bent
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PROJECTION TO BIT

MD: 14,740  
TVD: 7,082.27  
INC: 7,082.27  
AZM: 358.4

Bit Data  
Bit #: 3  
Depth Out: 14,740'  
Hours: 95 hrs

TD: 14740' MD  
@ 1854 HRS 4/12/14

SS: m to dkgy, gybrn, cl to trns, f to med gr, sbbkly, sbang gr, mod srt, p cmt, calc to silc  
ed gr, o silc  
mix, brit, sl calc, apr o sins  
SLTY SH: pred dkgy, sme mgy, sbply to plty, sl  
o plty, sl  
frm to frm, sl calc, scat ls, scat bent, tr lnc fos  
frag  
pyr

