



Scale: 5' / 100'
Measured Depth Log

Well Name HOWARD 29C-29HZ

Location SEC.32-T1N-R67W

State COLORADO

County WELD

Country USA

Rig Number PRECISION 595

API Number 05123379090000

AFE # 2089193

Region DJ BASIN

Field WATTENBERG

Spud Date 8/1/2014

Drilling Completed 8/21/2014

Surface Coordinates 2287 FNL & 450 FWL

Bottom Hole Coordinates 1 FNL & 135 FWL

Ground Elevation 5005'

K.B. Elevation 5031'

Logged Interval 7200' To 15599

Total Depth 15599'

Formation CODELL

Type of Drilling Fluid LSND/PHNA

Operator

Company ANADARKO PETROLEUM INC

Address Granite Tower
1099 18th St. #1800
Denver, CO 80202

Geologist

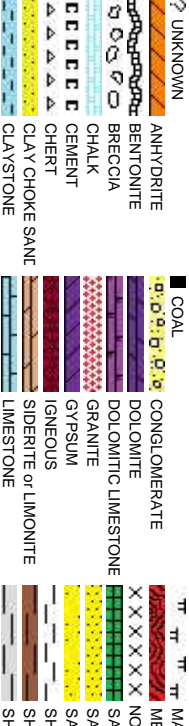
Name TRAVIS GREGORY and TRACY LAWSON

Company COLUMBINE LOGGING INC
Address 2385 S. Lipan St.
Denver, CO 80223

Zone Color Coding



Rock Types

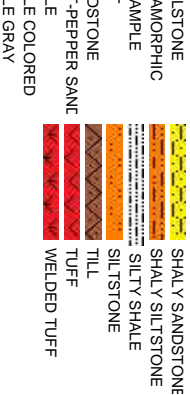


Accessories

Fossils	
GASTROPOD	ARGILLITE GRAIN
INDOCERAMUS	HEAVY MINERAL
OOLITE	KAOLIN
OSTRACOD	MARCASITE
BELEMNITE	MARLSTONE
BIOCLASTIC	MICACEOUS
BRACHIOPOD	MINERAL CRYSTALS
PISOLITE	NODULES
PLANT REMAINS	PHOSPHATE PELLETS
PLANT SPORES	PYRITE
CORAL	SALT CAST
CRINOID	SANDY
ECHINOID	SIDERITE
Minerals	
FISH	FERRUGINOUS
FORAMINIFERA	SILICEOUS
FOSSIL	SILTY
ANHYDRITIC	TUFFACEOUS
ARGILLACEOUS	
Stringer	
ANHYDRITE STRINGER	
BENTONITE STRINGER	
COAL STRINGER	
DOLOMITE STRINGER	
GYPSUM STRINGER	
LIMESTONE STRINGER	
MARLSTONE (CALC) STRG	
MARLSTONE (DOL) STRG	
SANDSTONE STRINGER	
SHALE STRINGER	
SILTSTONE STRINGER	

Other Symbols

Oil Show	
PINPOINT	WIRELINE TESTED - LEFT
VUGGY	WIRELINE TESTED - RT
Engineering	
DEAD	FORMATION TOP
EVEN	GAS SHOW
QUESTIONABLE	OIL SHOW
BIT	DRILL STEM TEST
SPOTTED STAINING	MN DEPTH
CONNECTION (UP)	LITHOGRAPHIC
CONNECTION (DOWN)	MICROXLN
Porosity	
CONNECTION GAS	MUDSTONE
EARLY	PACKSTONE
FENESTRAL	WACKESTONE
TRIP GAS	
TRIP GAS (LEFT)	
Rounding	
FRACTURE	ANGULAR
INTERCRYSTALLINE	ROUNDED
INTEROOLITIC	SUBANG
MOLDIC	SUBRND
ORGANIC	
CORE - RECOVERED	
Textures	
DOWN TIME GAS	SIDEWALL CORE (LEFT)
DOWN TIME GAS (LEFT)	SIDEWALL CORE (RIGHT)
CORE - LOST	SLIDE
SURVEY	BOUNDSTONE
	CHALKY
	CRYPTOXLN
Sorting	
	POOR
	WELL
	MODERATE



Slide/Rotate

ROP
ROF
GAMMA

Columbine Logging Two Person
Rigged Up 21:45rs 08/12/2014
Logging Started @
01:39hrs on 08/13/2014
at 7200' MD

ROP & GAS DATA PROVIDED BY PASON
- GAMMA & SURVEY DATA PROVIDED BY BAKER HUGHES

Total Gas & Chromatograph
GAS

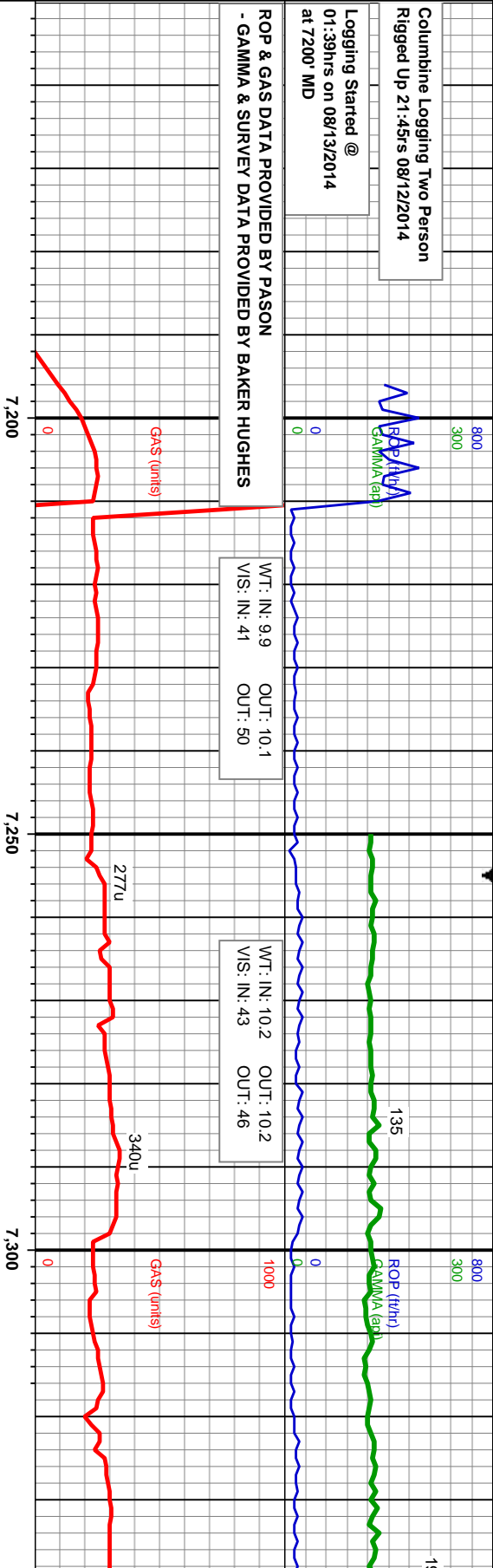
Depth Labels

% Lith

Well Bore
TVD

Oil Show

Images



Begin in Sussex

Acetone was used as the cutting agent with the dimple filled to the rim
The ratings are based on 7 descriptors:
None, Slight trace, Trace, Fair, Moderate, Good, and Excellent. The descriptor used is based on the loggers observations and best judgement of brilliance, color and longevity of the cut.

SLTY SH: med - dk gy, blk, frm, brit, pty - sb pty, sb wxy tex, arg - silty mx, non calc, rr slst; mod dlse, mod sting, bri bl wh mky cut, n sin or od

SLTY SH: med - dk gy, blk, frm, brit, pty - sb pty, sb wxy tex, arg - silty mx, non calc, rr slst; mod dlse, mod sting, bri bl wh mky cut, n sin or od

SLTY SH: med - dk gy, blk, frm, brit, pty - sb pty, sb wxy tex, arg - silty mx, non calc, rr slst; mod dlse, mod sting, bri bl wh mky cut, n sin or od

EGMTST

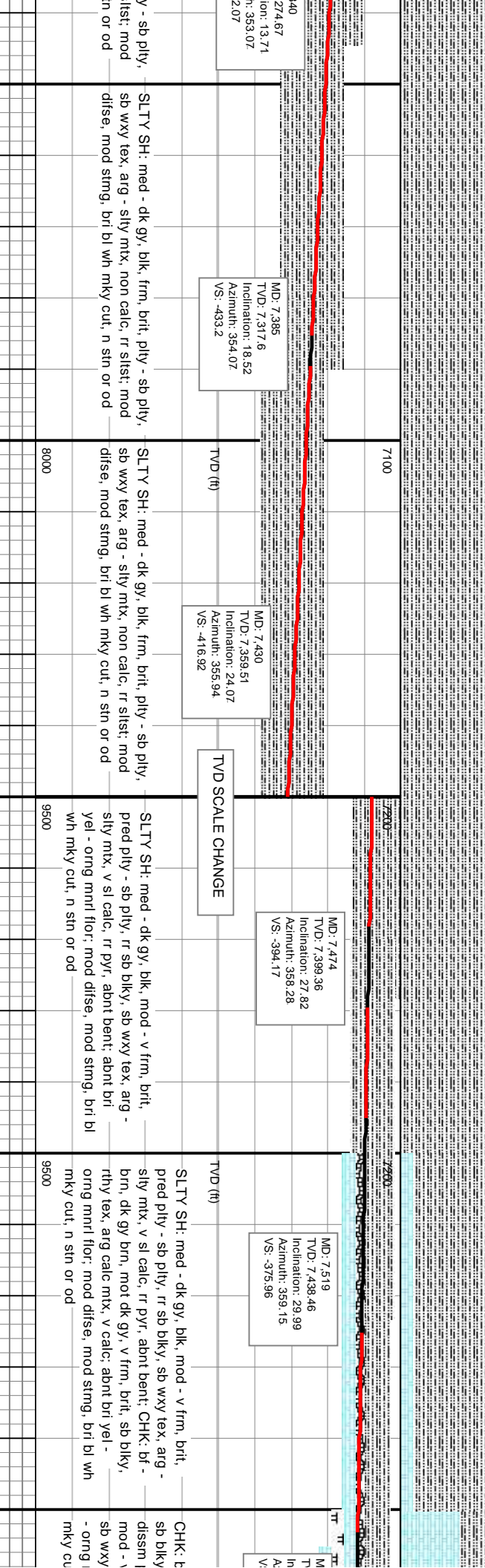
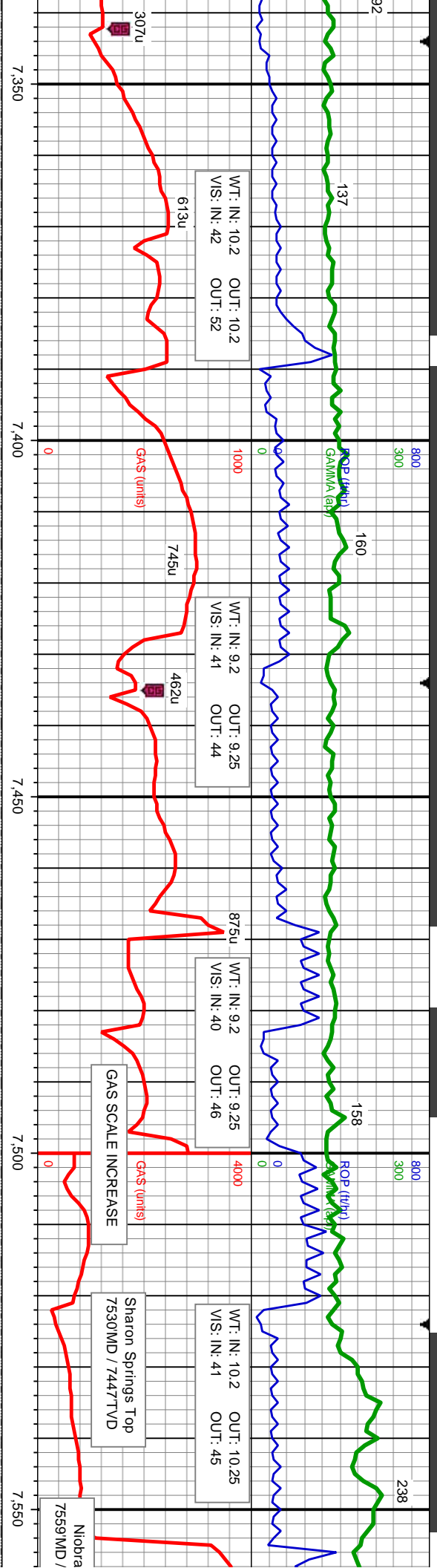


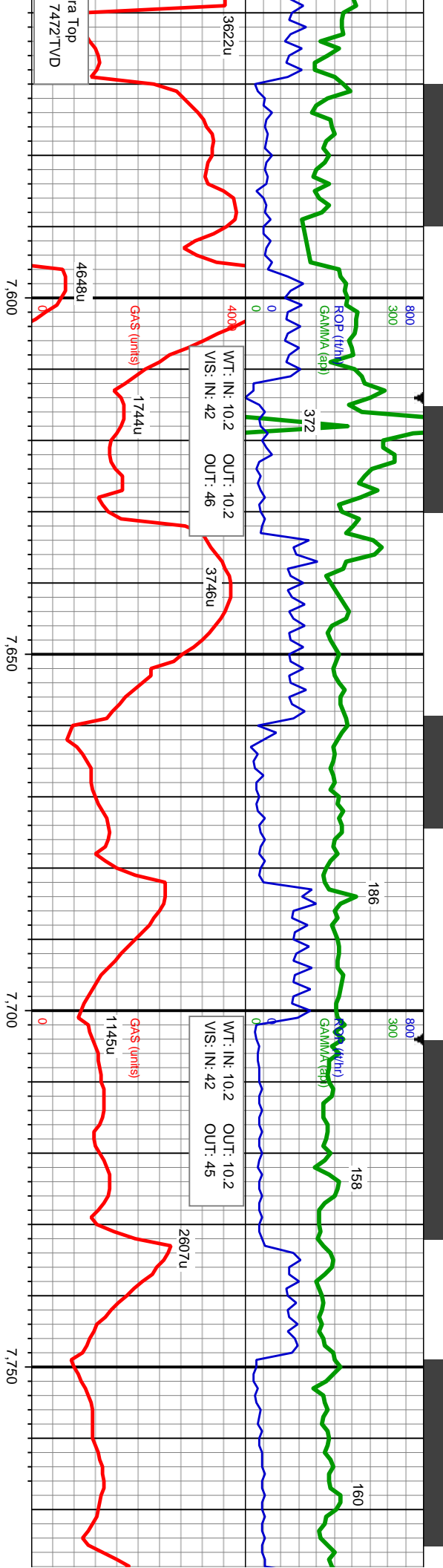
MD: 7.205
TVD: 7,140.76
Inclination: 0.94
Azimuth: 1.7
VS: -462.62

MD: 7.250
TVD: 7,185.69
Inclination: 4.98
Azimuth: 350.58
VS: -460.32

MD: 7.295
TVD: 7,230.32
Inclination: 9.64
Azimuth: 352.51
VS: -454.65

MD: 7.3
TVD: 7
Inclination
Azimuth
VS: -44





D: 7.564
D/D: 7.476.54
Inclination: 34.53
Azimuth: 358.58
S: -351.93

MD: 7.609
TVD: 7.512.81
Inclination: 37.9
Azimuth: 357.42
VS: -325.38

MD: 7.654
TVD: 7.547.87
Inclination: 39.7
Azimuth: 356.76
VS: -297.22

MD: 7.699
TVD: 7.582
Inclination: 41.66
Azimuth: 358.32
VS: -267.91

MD: 7.744
TVD: 7.614.6
Inclination: 45.46
Azimuth: 359.03
VS: -235.45

f - brn, dk gy brn, mot dk gy, v frm, brit, rthy tex, arg calc mix, v calc, occ pyr, abnt bent; SLTY SH: med - dk gy, blk, frm, brit, pried ply - sb ply, rr sb blk, blk, arg - silty mix, v sl calc; abnt bri yel mnt flr, mod dlse, mod stmg, bl wh

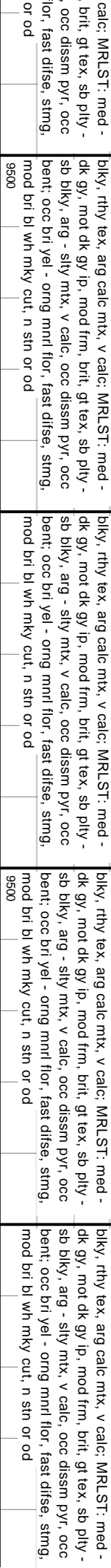
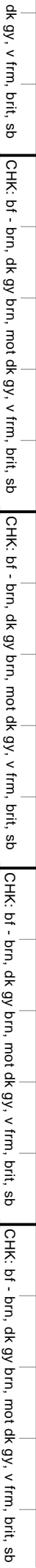
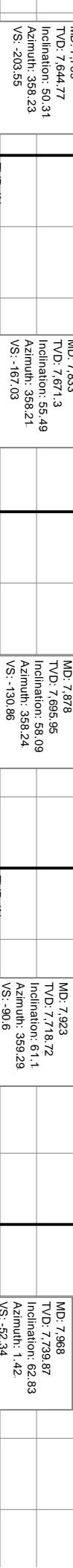
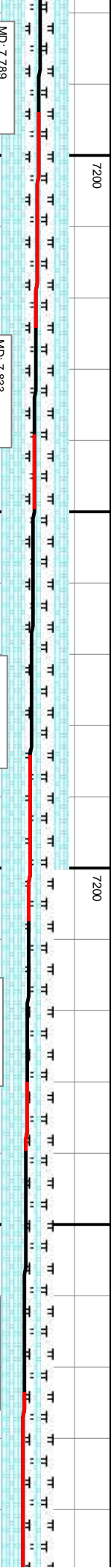
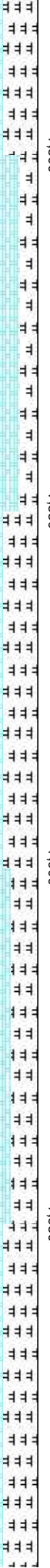
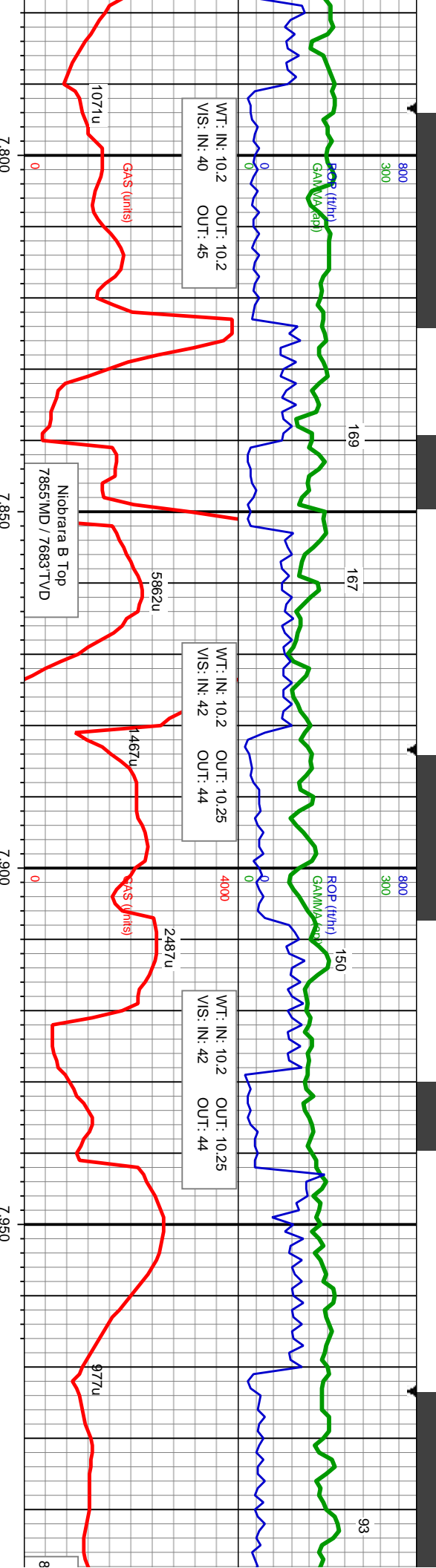
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v calc, occ dissn pyr, abnt bent; abnt bri yel - org mnt flr, mod dlse, mod stmg, bl wh mky cut, n sin or od

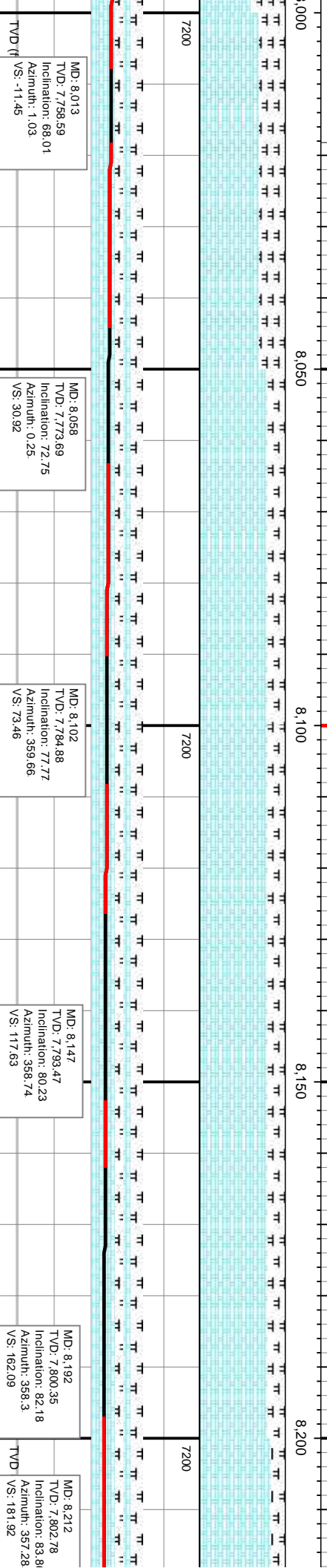
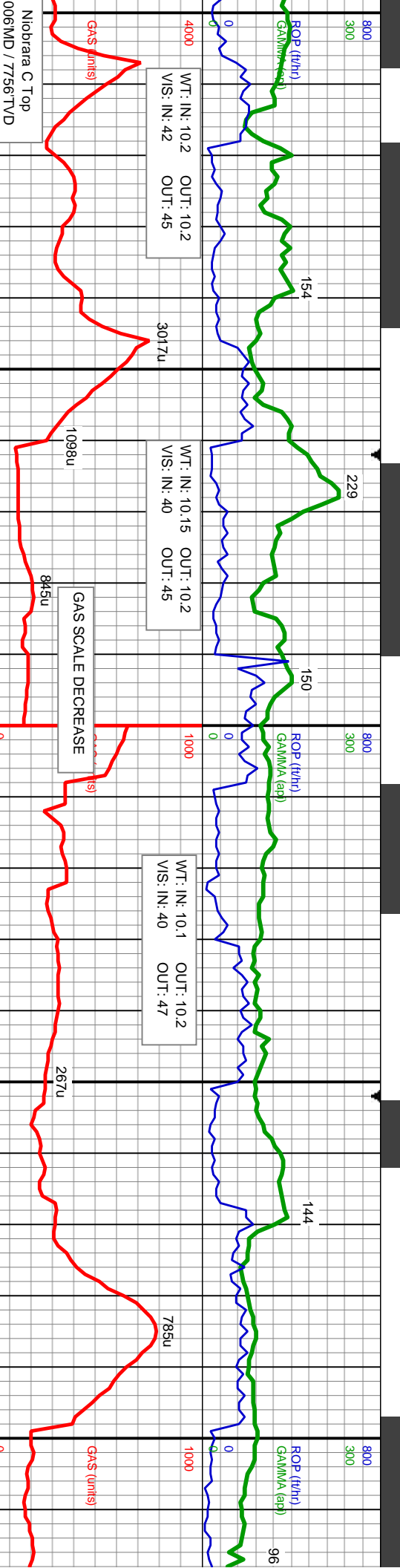
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v calc; MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mix, v calc, occ dissn pyr, occ bent; occ bri yel - org mnt flr, fast dlse, stmg, mod bri bl wh mky cut, n sin or od

MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mix, v calc, occ dissn pyr, occ bent; CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v calc; occ bri yel - org mnt flr, fast dlse, stmg, mod bri bl wh mky cut, n sin or od

CHK: bf - brn, dk gy brn, mot blk, rthy tex, arg calc mix, v dk gy, mot dk gy ip, mod frm sb blk, arg - silty mix, v calc bent; occ bri yel - org mnt flr mod bri bl wh mky cut, n sin





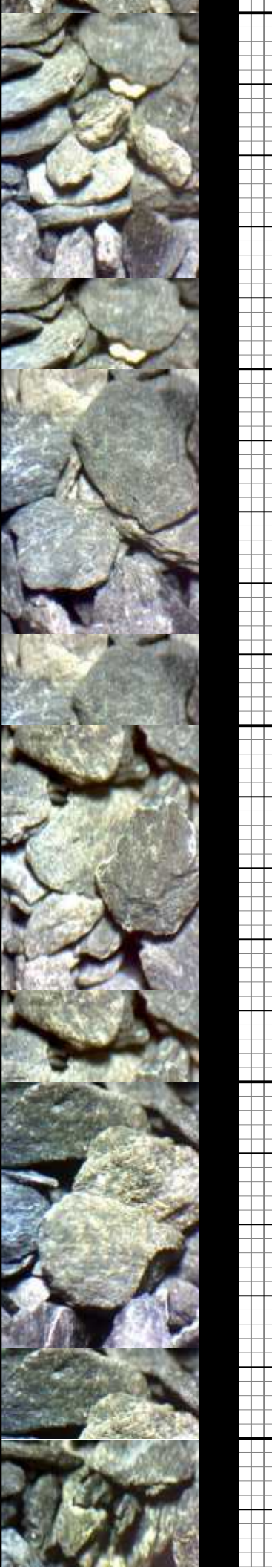


CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mtx, v calc, occ dissim pyr, occ bent; occ bri yel - org mml flr, fast disse, string, mod bri bl wh mky cut, n stn or od

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mtx, v calc, occ dissim pyr, occ bent; occ bri yel - org mml flr, fast disse, string, mod bri bl wh mky cut, n stn or od

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mtx, v calc, occ dissim pyr, occ bent; occ bri yel - org mml flr, fast disse, string, mod bri bl wh mky cut, n stn or od

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mtx, v calc, occ dissim pyr, occ bent; occ bri yel - org mml flr, fast disse, string, mod bri bl wh mky cut, n stn or od



8/14/2014 8262 MD
8/15/2014 8262 MD

800
300

200

800
200

800
200

8262 MD

88

ROP (ft/hr)
GAMMA (api)

86

83

GAMMA (api)

ROP (ft/hr)
GAMMA (api)

TD Intermediate @ 8262 MD
@ 22:38hrs on 08/13/2014

WT: IN: 9.25 OUT: 9.1
VIS: IN: 46 OUT: 42

Start drilling the Lateral
@ 21:45 hrs on 08/15/2014

GAS (units)

199u

8,250

8,300

8,350

8,400

185u

GAS (units)

7200

7200

TVDD (ft)

MD: 8,344
TVDD: 7,811.02
Inclination: 88.98
Azimuth: 356.44
VS: 313.44

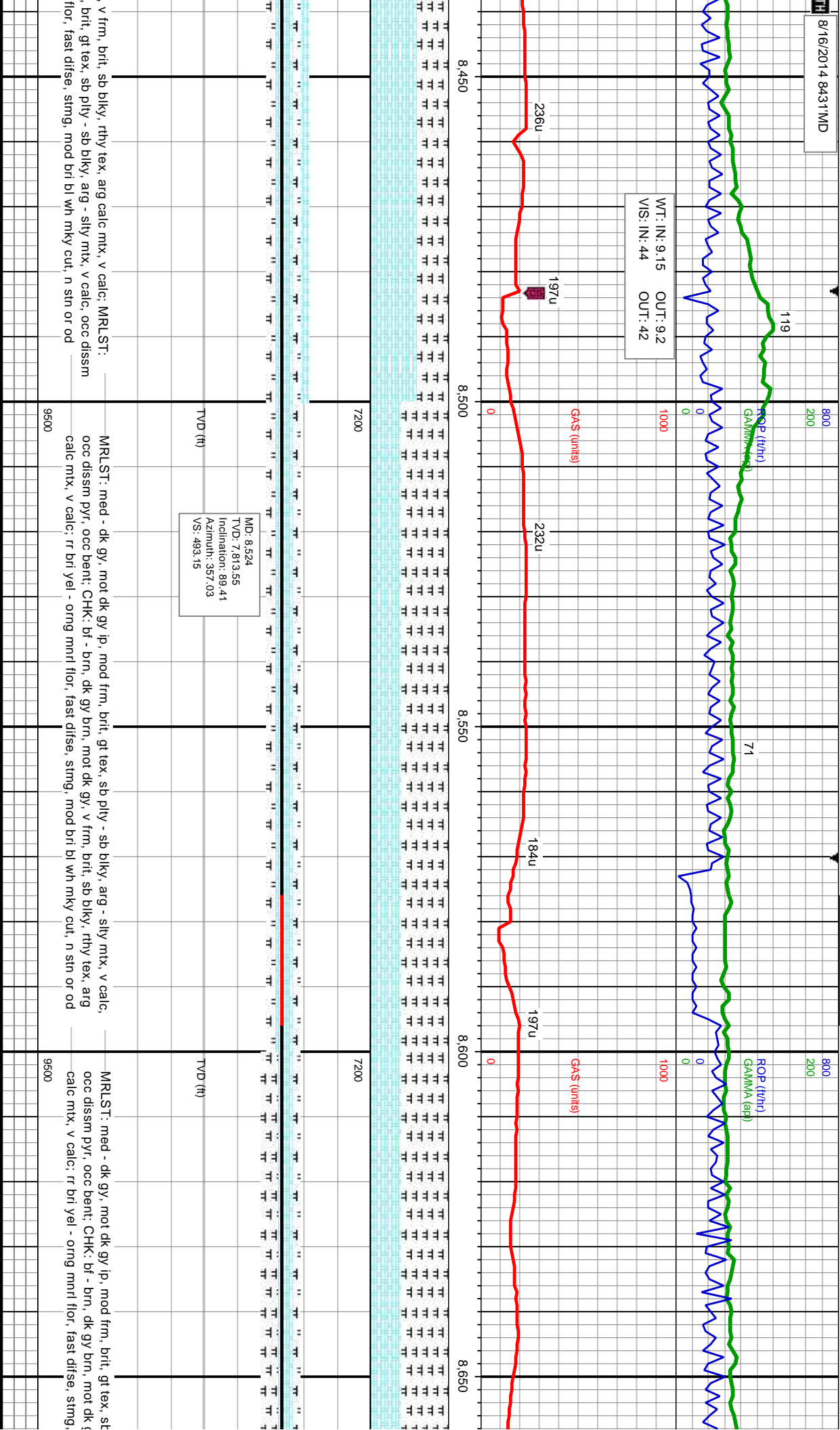
TVDD (ft)

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb
frm, brit, sb blk, rthy tex, arg calc
mtx, v calc; MRLST: med - dk gy, mot
dk gy ip, mod frm, brit, gt tex, sb ply -
sb blk, arg - sly mt, v calc, occ
dissm pyr, occ bent; occ bri yel -
ormg mnl flr, fast dfse, stmg, mod
bri bl wh mky cut, n stn or od

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mt, v calc; MRLST: med
- dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - sly mt, v calc, occ
dissm pyr, occ bent; rr bri yel - orm, mnl flr, fast dfse, stmg, mod bri bl wh mky cut, n stn or od

CHK: bf - brn, dk gy brn, mot dk gy
med - dk gy, mot dk gy ip, mod frm
pyr, occ bent; rr bri yel - orm mnl





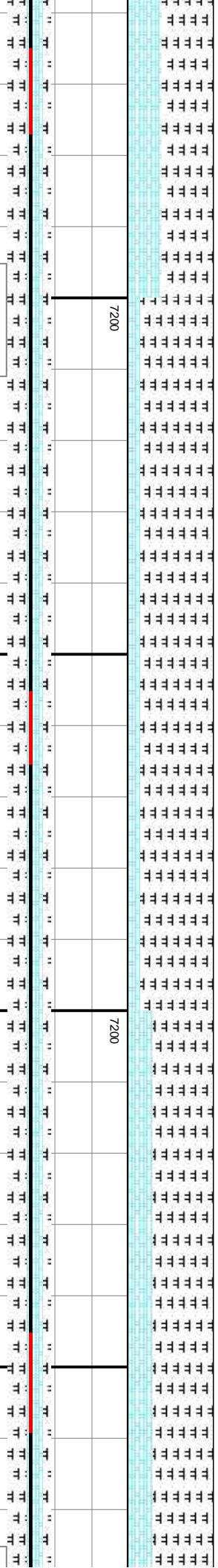
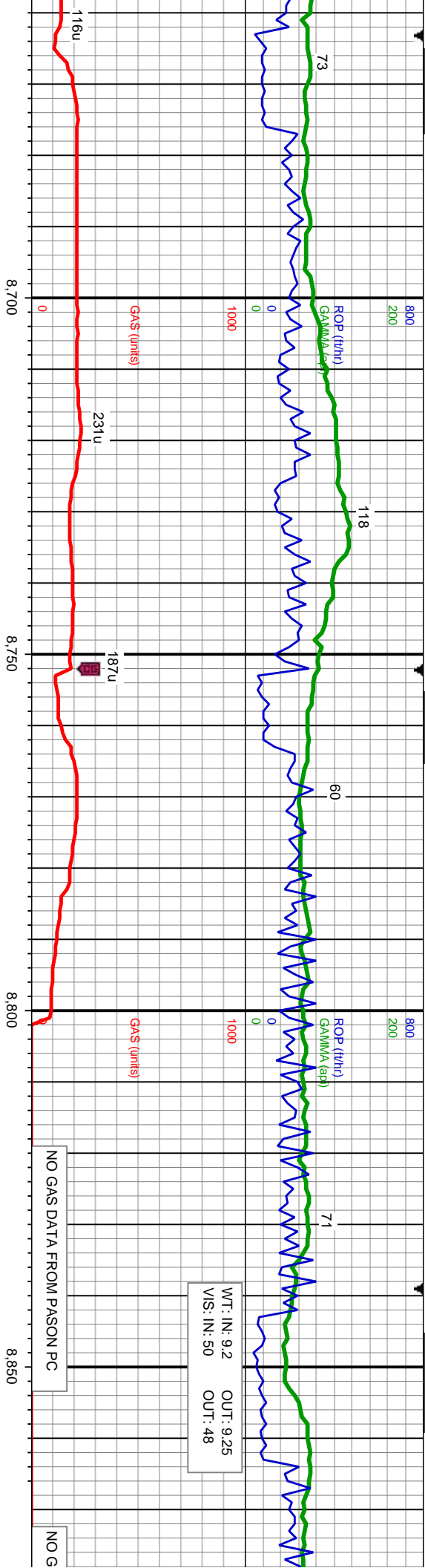
v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; MRLST: brit, gt tex, sb ply - sb blk, arg - silty mtx, v calc, occ dissm flor, fast difse, stmg, mod bri bl wh mky cut, n sin or od

MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb blk, arg - silty mtx, v calc, occ dissm pyr, occ bent; CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; rr bri yel - orng mnrl flor, fast difse, stmg, mod bri bl wh mky cut, n sin or od

MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, st

MD: 8.524
TVD: 7.813.55
Inclination: 89.41
Azimuth: 357.03
VS: 493.15





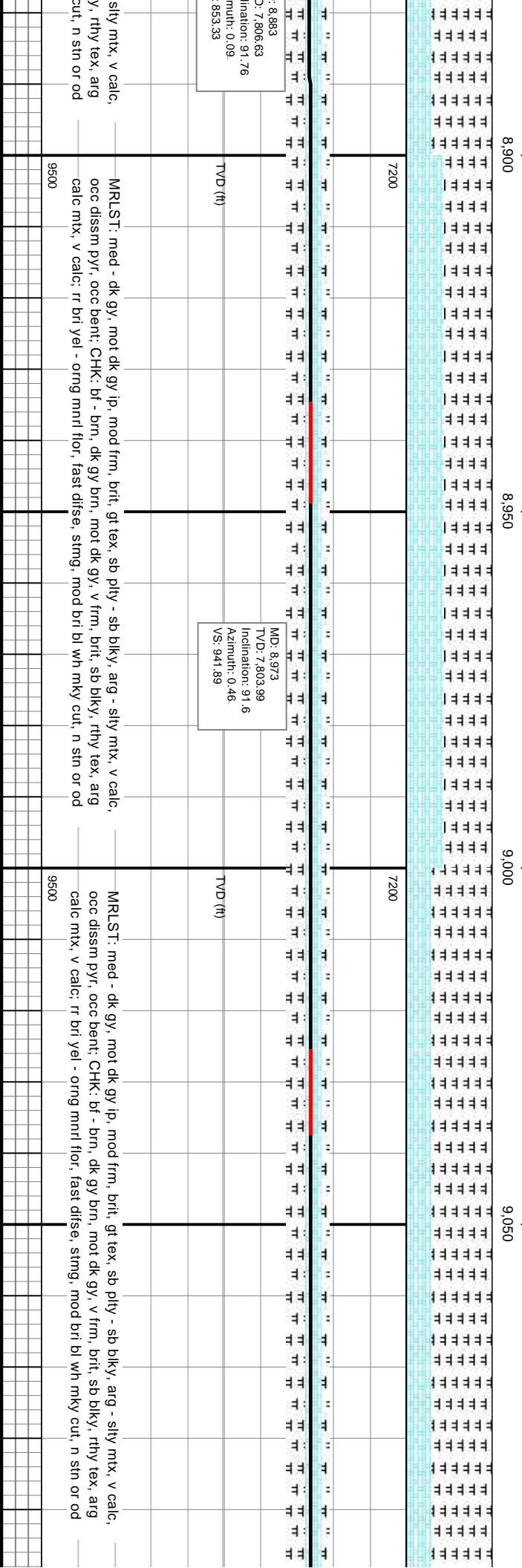
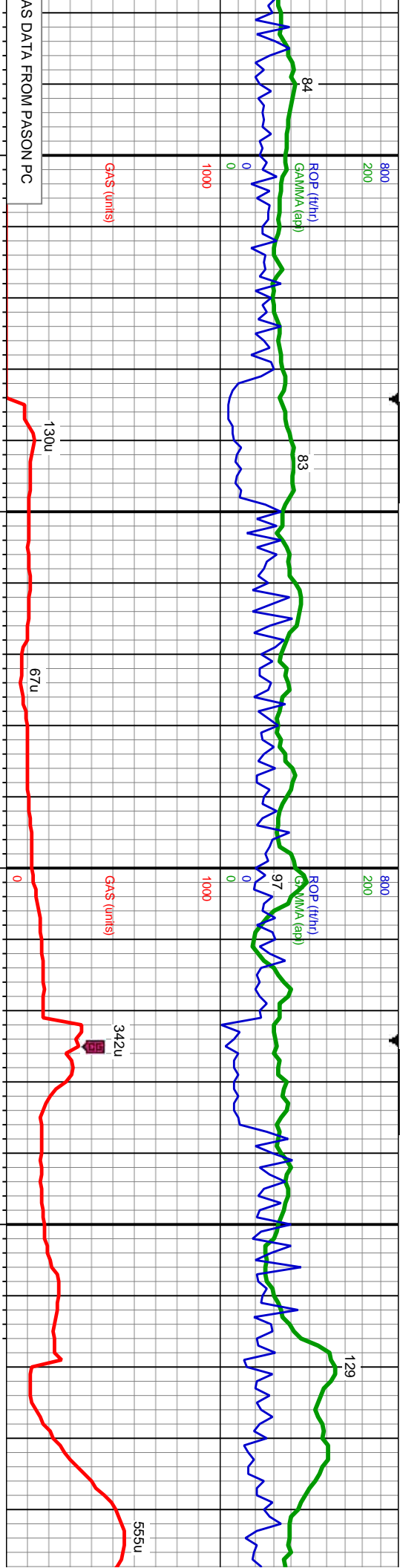
MD: 8,703
TVD: 7,811.94
Inclination: 91.62
Azimuth: 358.76
VS: 672.02

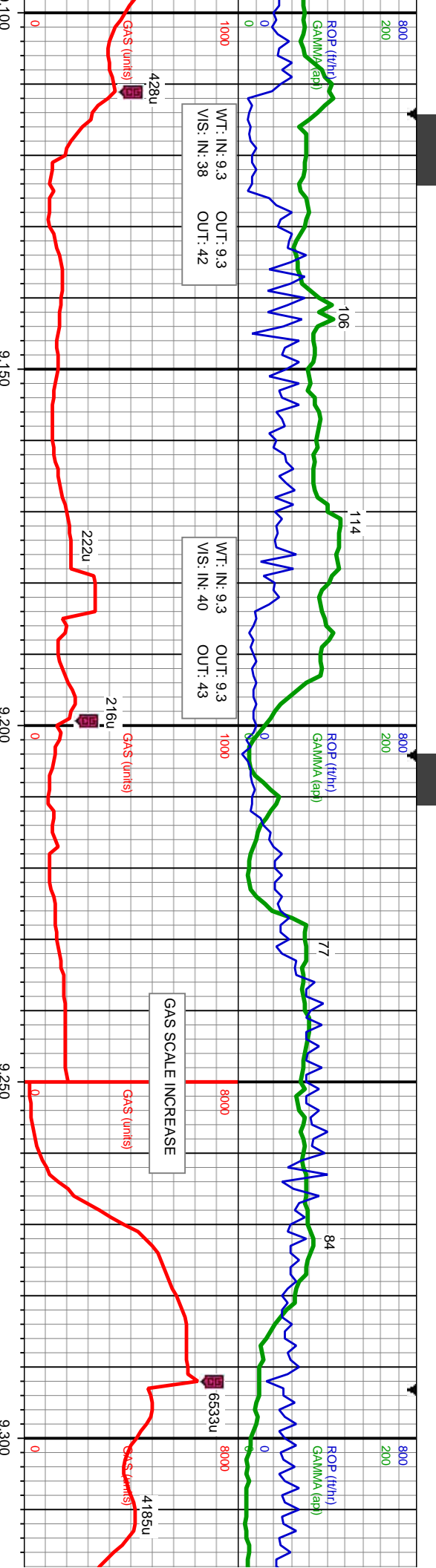
MD: 8,703
TVD: 7,811.94
Inclination: 91.62
Azimuth: 358.76
VS: 672.02

ply - sb blk, arg - silty mix, v calc, arg, v frm, brit, sb blk, rthy tex, arg mod bri bl wh mky cut, n stn or od

MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mix, v calc, occ dissim pyr, occ bent; CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v calc; rr bri yel - org mni flr, fast disse, sting, mod bri bl wh mky cut, n stn or od

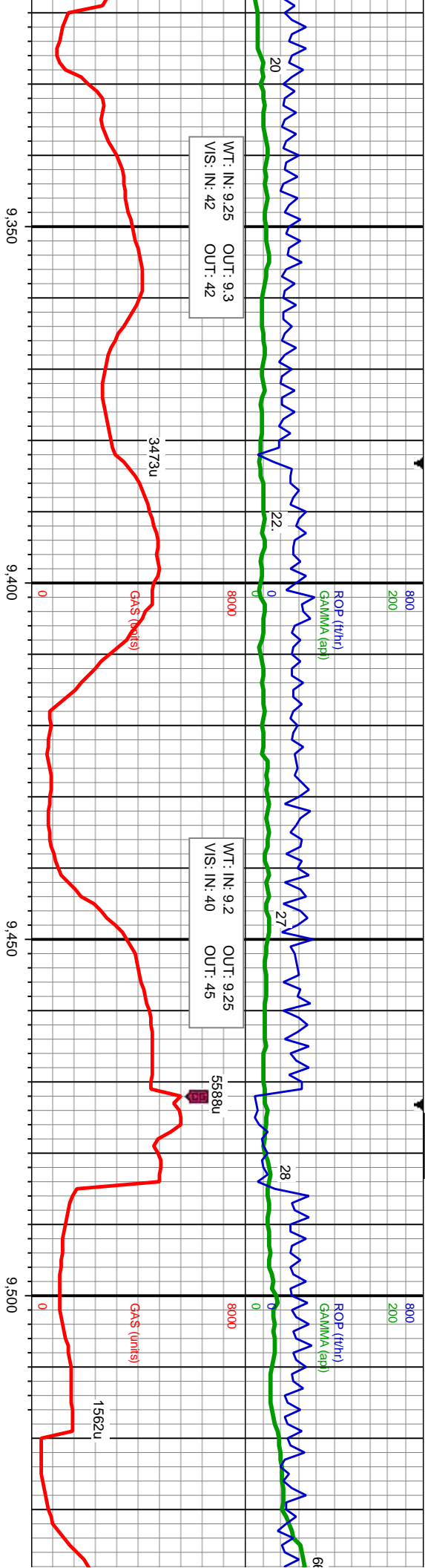






MD: 9.152 TVD: 7,800.38 Inclination: 90.71 Azimuth: 0.93 VS: 1,120.84		MD: 9.242 TVD: 7,799.99 Inclination: 89.79 Azimuth: 2.15 VS: 1,210.79	
TVD (ft)		TVD (ft)	
MRJST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb pty - sb blk, arg - silty mtx, v calc, occ dissim pyr, occ bent; CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; rr bri yel - org mnr flr, fast dfse, sting, mod bri bl wh mky cut, n sin or od		CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mtx, v calc; SS: brn, med - lt gy brn, wh ip, trnsi - clr gr, vt gr, tt clus, sb rnd - sb ang, hd, brit - fr ip, w srl, mod cons, mod cmt, tr silty sh, sl calc; MRJST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb pty - sb blk, arg - silty mtx, v calc, occ dissim pyr, occ bent; rr bri yel - org mnr flr, fast dfse, sting, mod bri bl wh mky cut, n sin or od	
9500		9500	





WT: IN: 9.25 OUT: 9.3
VIS: IN: 42 OUT: 42

WT: IN: 9.2 OUT: 9.25
VIS: IN: 40 OUT: 45

MD: 9.332
TVD: 7,800.56
Inclination: 89.48
Azimuth: 1.57
VS: 1,300.74

MD: 9.422
TVD: 7,801.89
Inclination: 88.83
Azimuth: 1.41
VS: 1,390.69

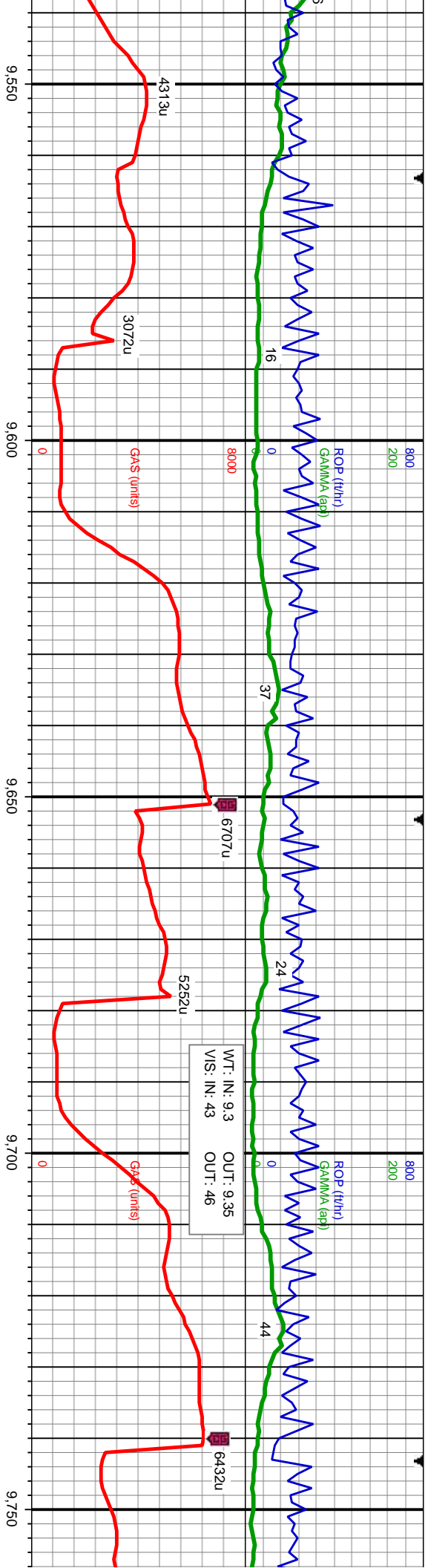
MD: 9.512
TVD: 7,803.01
Inclination: 89.75
Azimuth: 0.89
VS: 1,480.66

twht - crm, bf - brn, mod frm - hd, brit, ply - sb blk, rmd-sb rmd, v wxy
stly ip, crpxl; tr ss; v wk difse, sl sting, fnt mky bl - wh cut, no sin or od

LS: offtwht - crm, bf - brn, mod frm - hd, brit, ply - sb blk, rmd-sb rmd, v wxy
tex, sl stly ip, crpxl; v wk difse, sl sting, fnt mky bl - wh cut, no sin or od

LS: offtwht - crm, bf - brn, mod frm - hd, brit, ply - sb blk, rmd-sb rmd, v wxy
tex, sl stly ip, crpxl; v wk difse, sl sting, fnt mky bl - wh cut, no sin or od





MD: 9,601
TVD: 7,803.49
Inclination: 89.63
Azimuth: 359.71
VS: 1,569.85

MD: 9,691
TVD: 7,804.02
Inclination: 89.69
Azimuth: 359.91
VS: 1,659.85

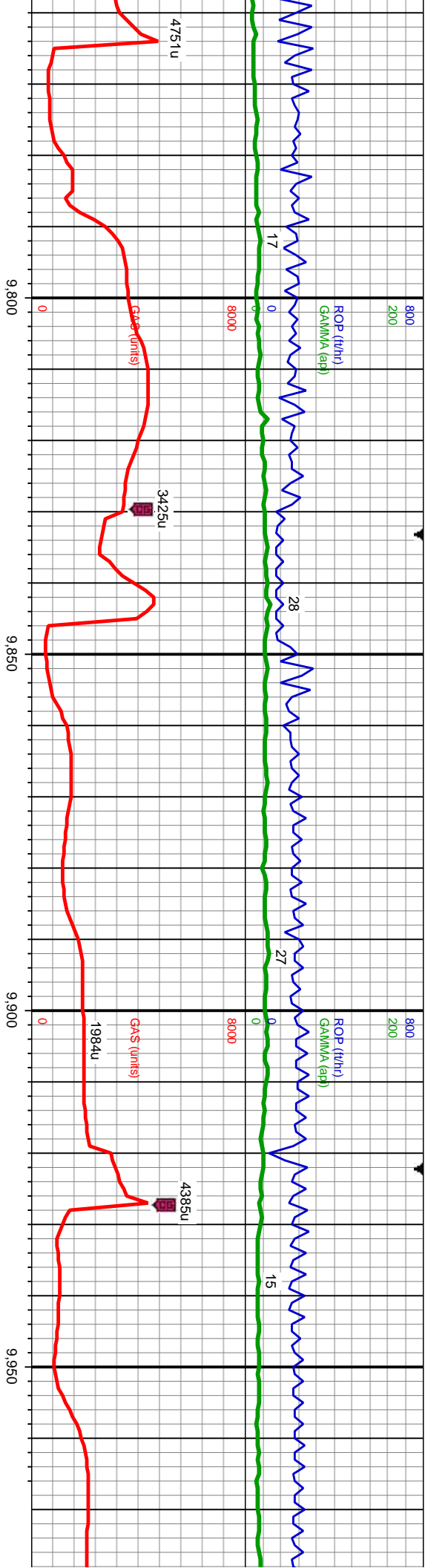
TVD (ft)

mod frm - hd, brit, ply - sb blk, md-sb md, v wxy
lise, sl sting, fnt mky bl - wh cut, no str or od

LS: oflwhl - crm, bf - brn, mod frm - hd, brit, ply - sb blk, md-sb md, v wxy
tex, sl slty ip, crpxl; v wk dlise, sl sting, fnt mky bl - wh cut, no str or od

LS: oflwhl - crm, bf - brn, mod frm - hd, brit, ply
tex, sl slty ip, crpxl; v wk dlise, sl sting, fnt mky





MD: 9,781
TVD: 7,804.58
Inclination: 89.6
Azimuth: 0.28
VS: 1,749.65

TVD (ft)

y - sb blkly, rnd-sb rnd, v wxy
bl - wh cut, no str or od

9500

LS: ofwht - crm, bf - brn, mod frm - hd, brit, ply - sb blkly, rnd-sb rnd, v wxy
tex, sl stly ip, crpxl; v wk dñse, sl sting, fnt mky bl - wh cut, no str or od

MD: 9,871
TVD: 7,805.74
Inclination: 88.92
Azimuth: 359.87
VS: 1,839.64

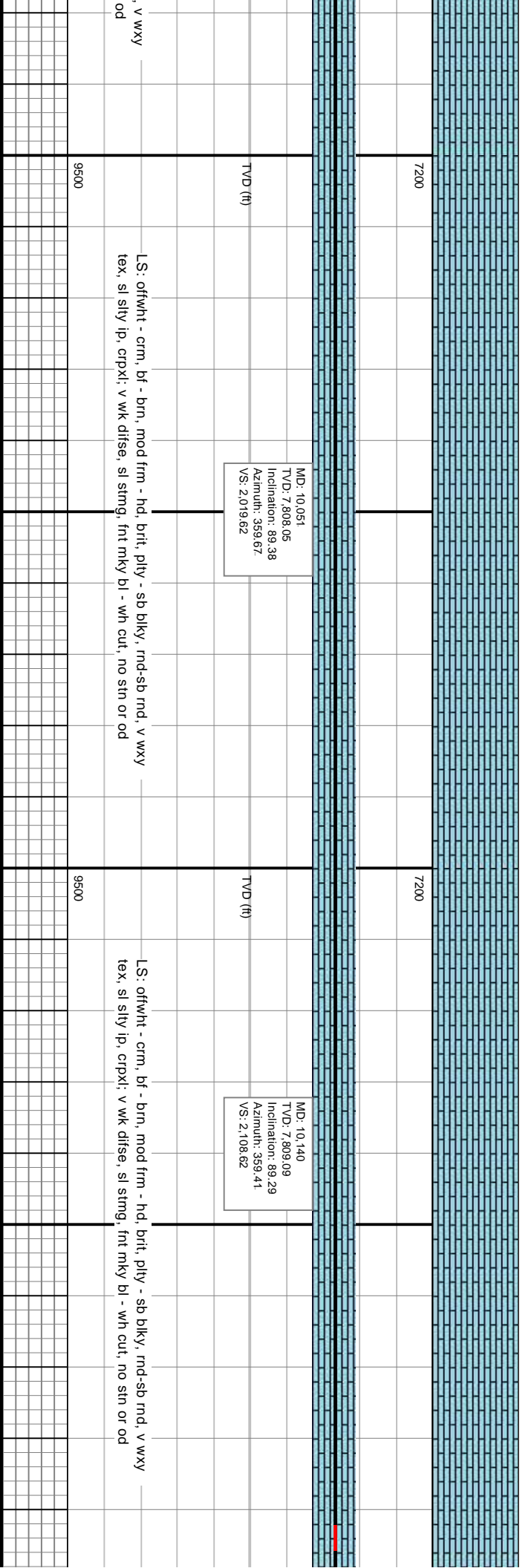
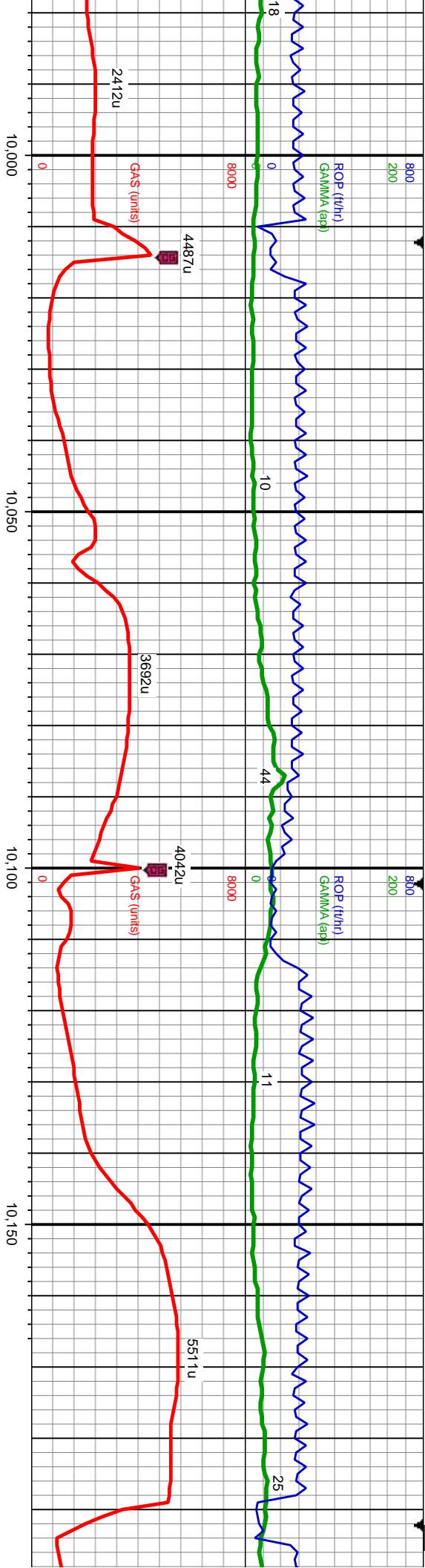
TVD (ft)

9500

LS: ofwht - crm, bf - brn, mod frm - hd, brit, ply - sb blkly, rnd-sb rnd
tex, sl stly ip, crpxl; v wk dñse, sl sting, fnt mky bl - wh cut, no str or

MD: 9,961
TVD: 7,807.08
Inclination: 89.38
Azimuth: 359.63
VS: 1,929.63

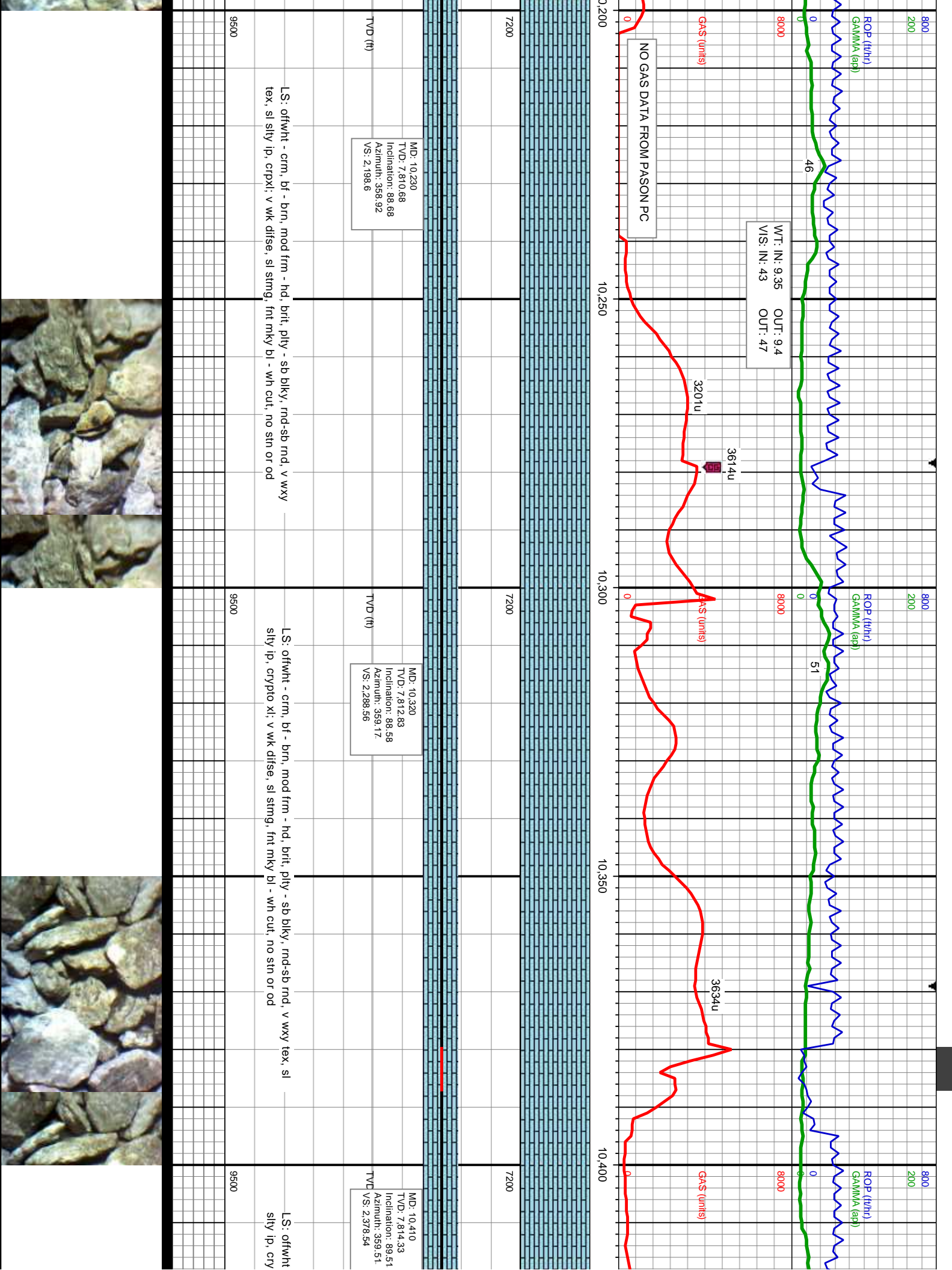


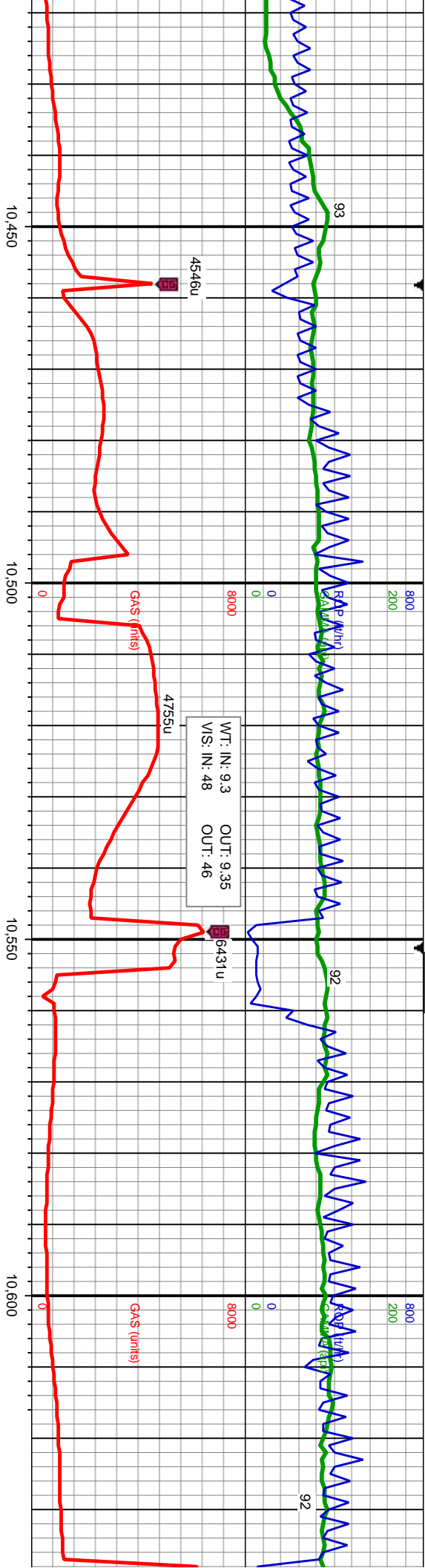


MD: 10,051
TVD: 7,808.05
Inclination: 89.38
Azimuth: 359.67
VS: 2.019.62

MD: 10,140
TVD: 7,809.09
Inclination: 89.29
Azimuth: 359.41
VS: 2.108.62







MD: 10,500
TVD: 7,815.51
Inclination: 88.99
Azimuth: 359.23
VS: 2,468.53

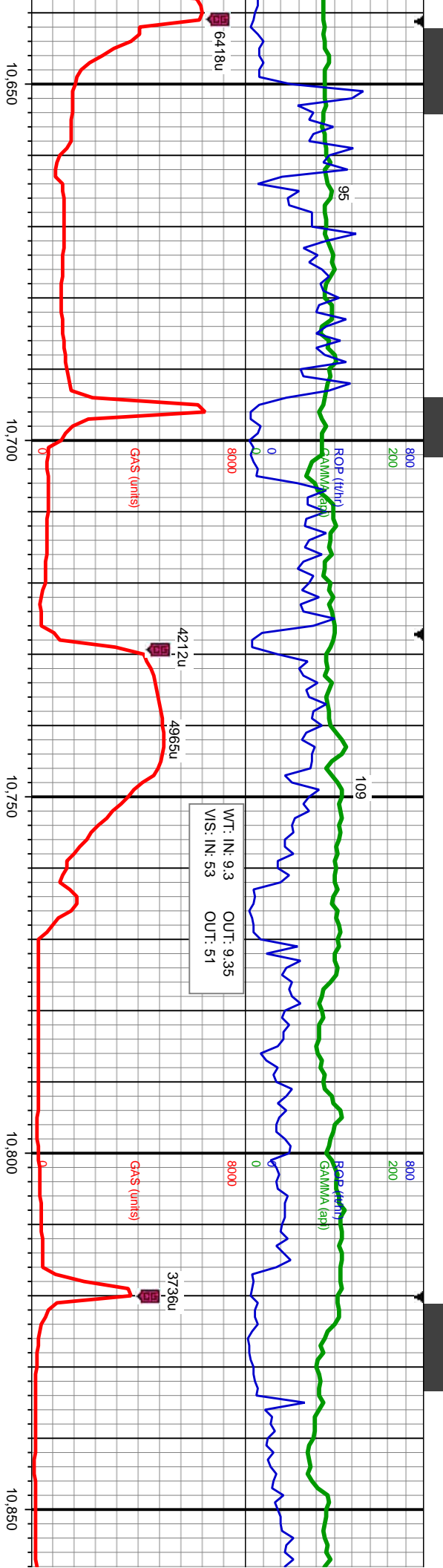
MD: 10,590
TVD: 7,816.81
Inclination: 89.35
Azimuth: 359.47
VS: 2,558.52

TVD (ft)

SS: brn, med - lt gy brn, wh ip, trns - cl, vt gr, sb rd - sb ang, hd, brit - fri ip, w srl, mod cons, mod cnt, sl calc, rr pyr, occ glau, occ bent; SLTY SH: tr: occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, pily - sb blkly, cpxl; LS: offwht - crm, bf - brn, mod frm - hd, brit, pily - sb blkly, rmd-sb rd, v wxy tex, sl stly ip, cyprio xl; occ yel - org min flr, mod fast difse, mod slow slmg, frt mky bl - wh cut, no sin or od

SS: brn, med - lt gy brn, wh ip, trns - cl, vt gr, sb rd - sb ang, hd, brit - fri ip, w srl, mod cons, mod cnt, sl calc, rr pyr, occ glau, occ bent; SLTY SH: tr: occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, pily - sb blkly, cpxl; LS: offwht - crm, bf - brn, mod frm - hd, brit, pily - sb blkly, rmd-sb rd, v wxy tex, sl stly ip, cyprio xl; occ yel - org min flr, mod fast difse, mod slow slmg, frt mky bl - wh cut, no sin or od





MD: 10.679
TVD: 7,817.03
Inclination: 90.37
Azimuth: 359.45
VS: 2.647.52

TVD (ft)

MD: 10.769
TVD: 7,815.96
Inclination: 90.99
Azimuth: 357.2
VS: 2.737.47

TVD (ft)

MD: 10.8
TVD: 7.8
Inclination:
Azimuth:
VS: 2.82

tnsl - clr, v! gr, sb rnd - sb ang, hd, brit - fri ip, w srt, pyr, occ glau, occ bent; SLTY SH: tr; occ ls, off wht - brit, pily - sb blk, crptk; LS: offwht - crn, bf - brn, y, rnd-sb rnd, v wxy tex, sl sily ip, crypto xl; occ yel - mod slow string, frt mky bl - wh cut, no sin or od

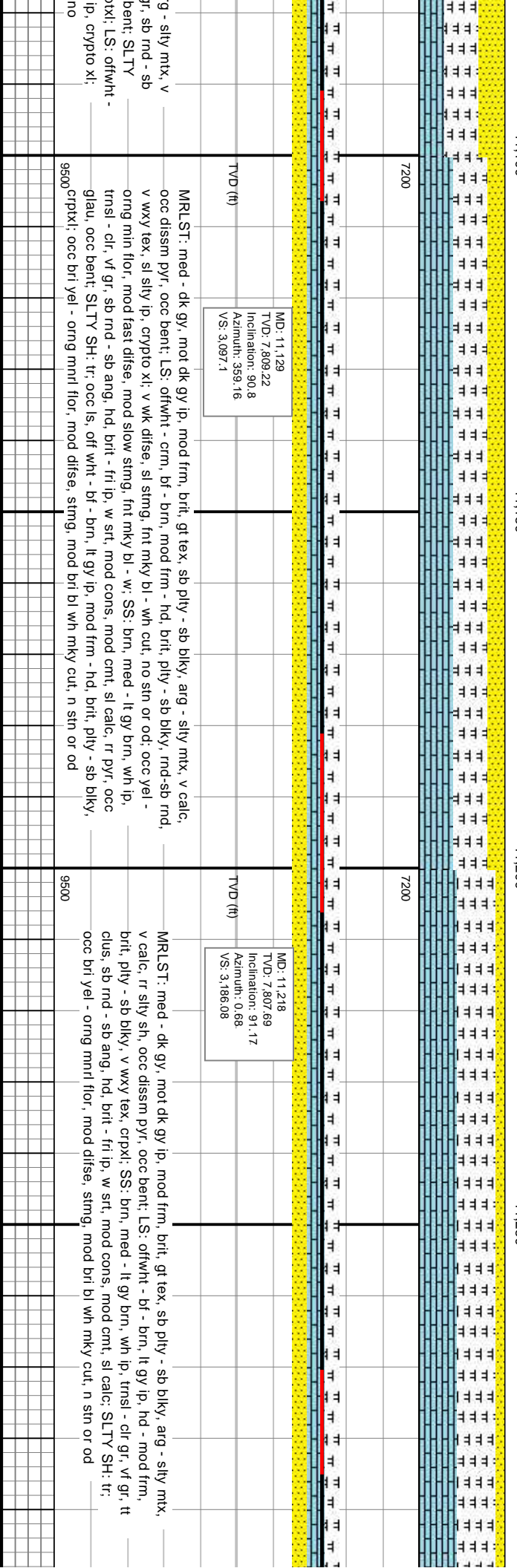
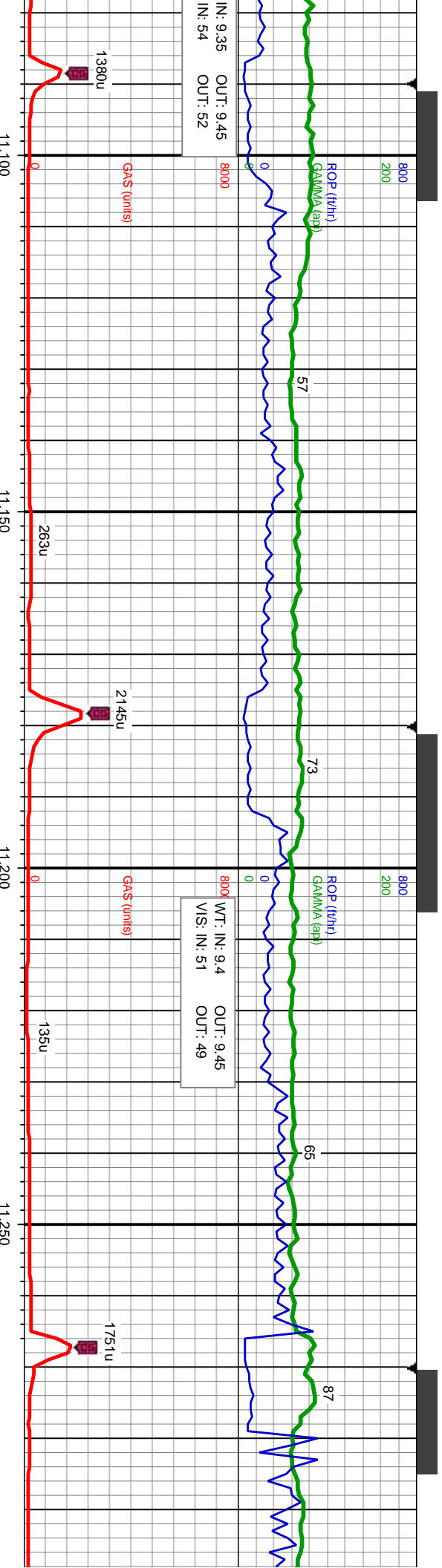
9500

SS: brn, med - lt gy brn, wh ip, tnsl - clr, v! gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, sl calc, rr pyr, occ glau, occ bent; SLTY SH: tr; occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, pily - sb blk, crptk; occ yel - orng min flor, mod fast difse, mod slow string, frt mky bl - wh cut, no sin or od

9500

SS: brn, med - lt gy brn, wh ip, tnsl - clr, v! gr, sb rnd - s mod cmt, sl calc, rr pyr, occ glau, occ bent; SLTY SH: tr; frm - hd, brit, pily - sb blk, crptk; LS: offwht - crn, bf - k rnd-sb rnd, v wxy tex, sl sily ip, crypto xl; occ yel - orng string, frt mky bl - wh cut, no sin or od

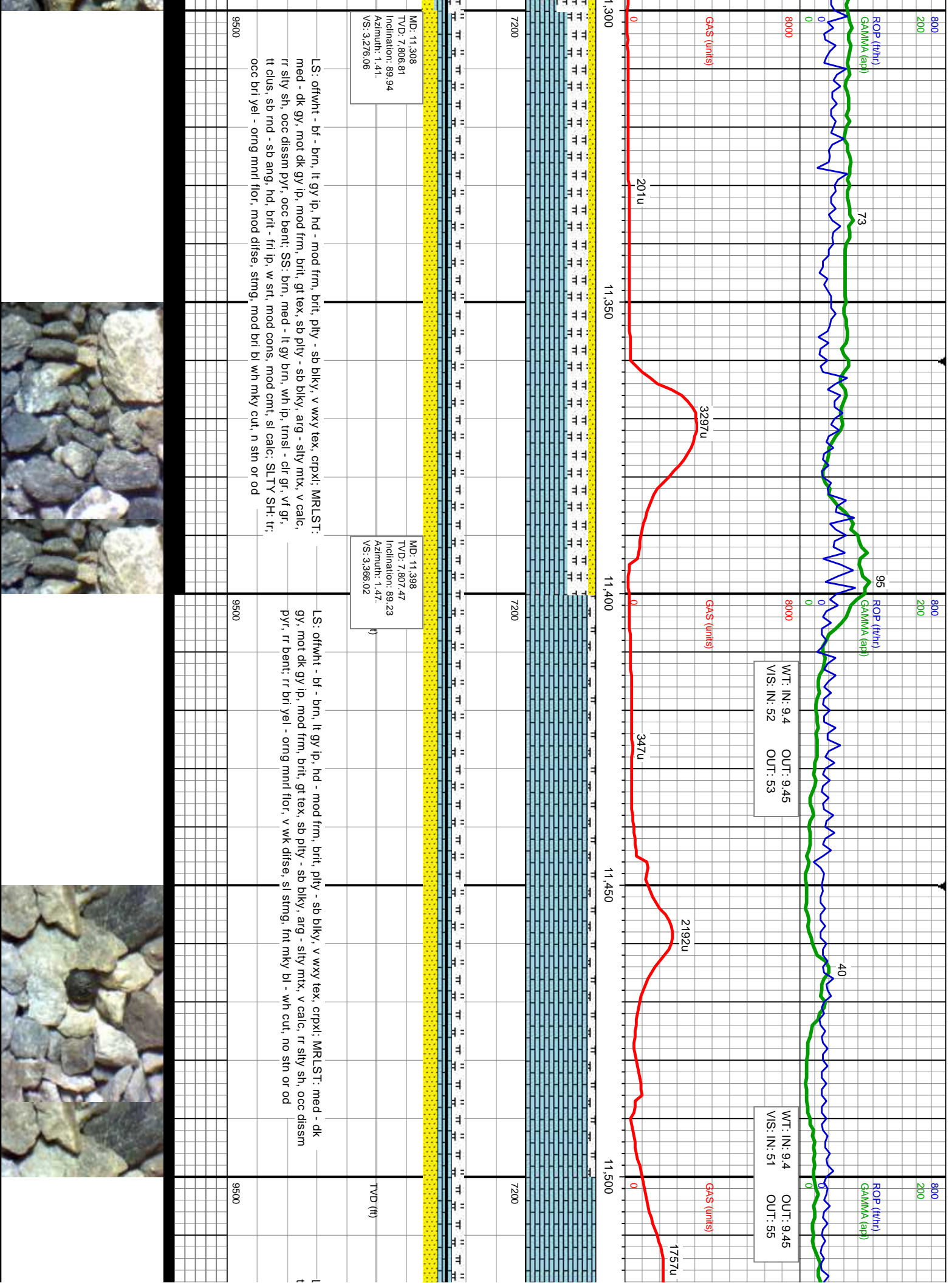


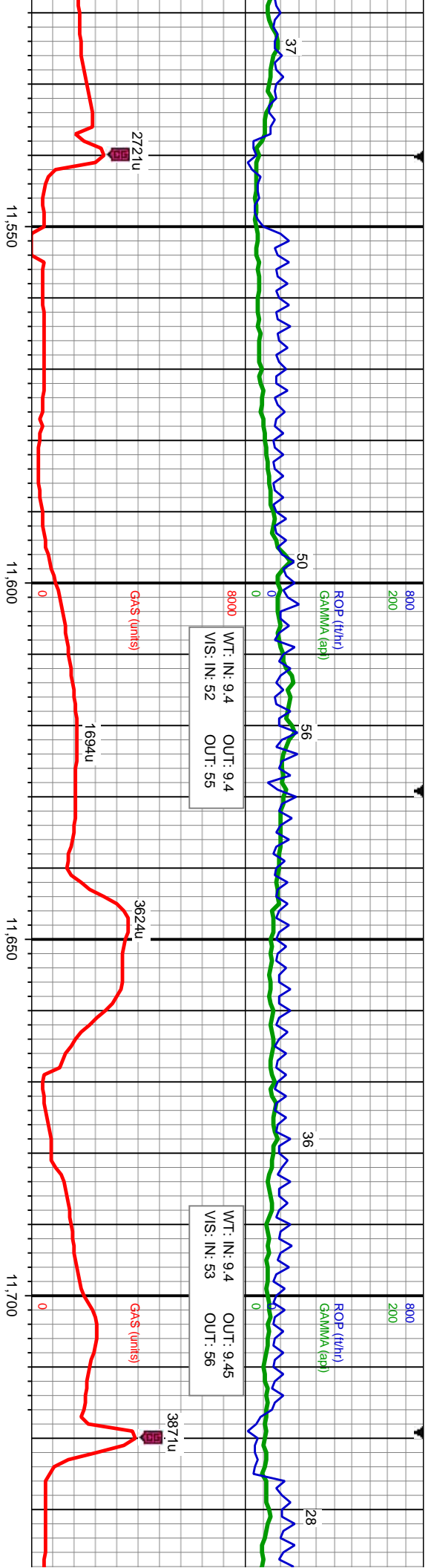


MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mtx, v calc, ooc dissim pyr, ooc bent; LS: offwht - crm, bf - brn, mod frm - hd, brit, ply - sb blk, rnd-sb rnd, v wxy tex, sl silty ip, crypto xl; v wk disse, sl sting, fnt mky bl - w: SS: brn, med - lt gy brn, wh ip, orng min flor, mod fast disse, mod slow string, fnt mky bl - w: SS: brn, med - lt gy brn, wh ip, trnsf - clt, v! gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, sl calc, rr pyr, ooc glau, ooc bent; SLTY SH: tr, ooc ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, ip, crypto xl; no

MRLST: med - dk gy, mot dk gy ip, mod frm, brit, gt tex, sb ply - sb blk, arg - silty mtx, v calc, rr silty sh, ooc dissim pyr, ooc bent; LS: offwht - bf - brn, lt gy ip, hd - mod frm, brit, ply - sb blk, v wxy tex, crpxl; SS: brn, med - lt gy brn, wh ip, trnsf - clt gr, v! gr, tt clus, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, sl calc; SLTY SH: tr; ooc bri yel - orng mnrl flor, mod disse, sting, mod bri bl wh mky cut, n sin or od



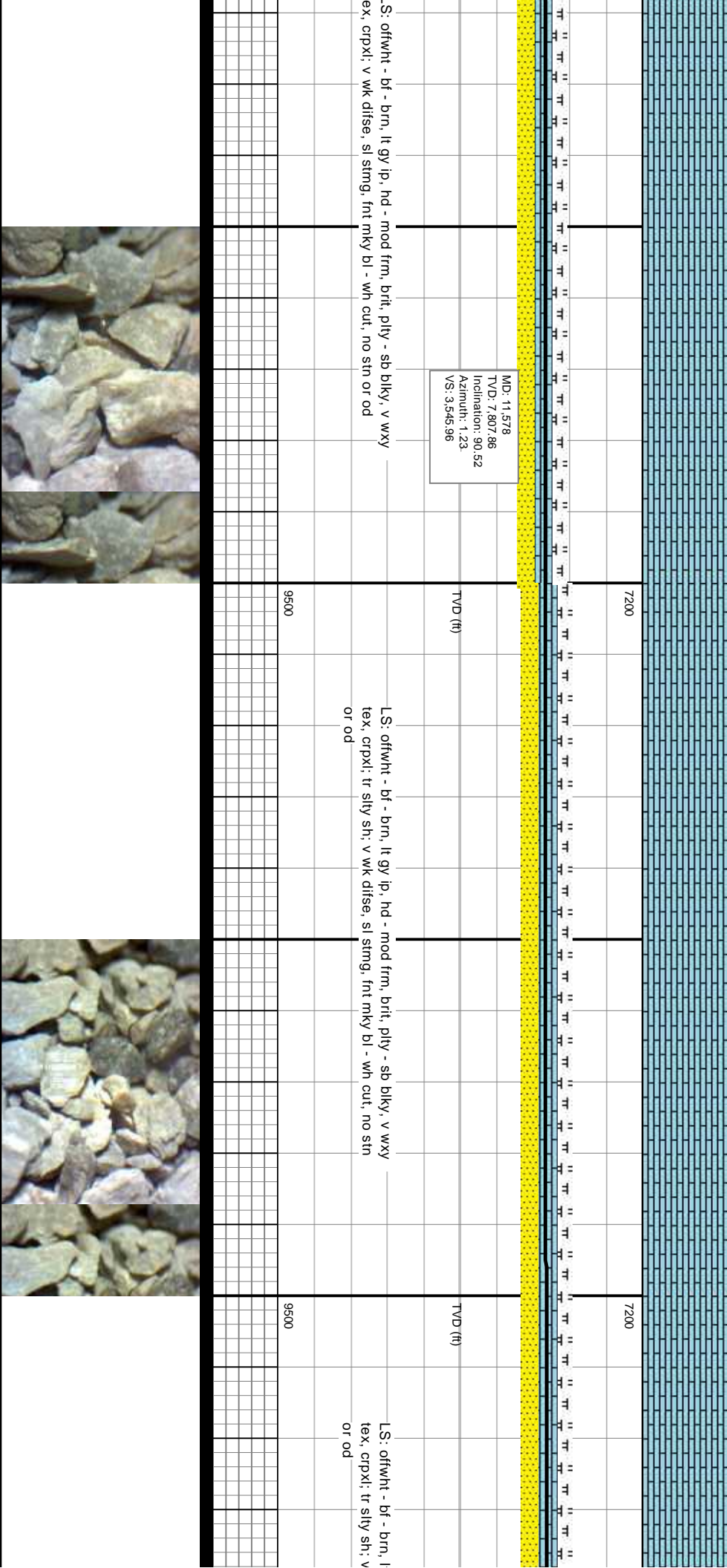


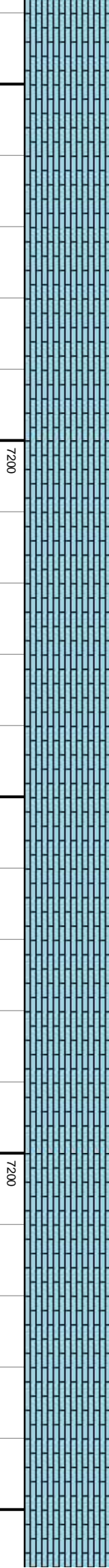
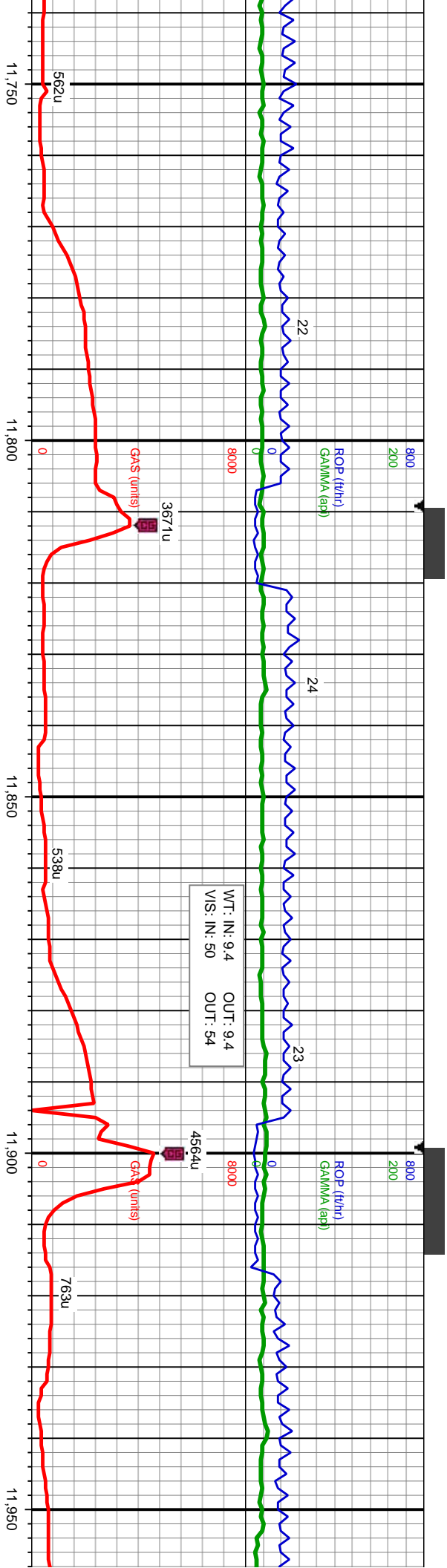


S: oftwht - bf - brn, lt gy ip, hd - mod frm, brit, pily - sb blk, v wxy
tex, crpxl: v wk difse, sl stmg, frnt mky bl - wh cut, no sin or od

L.S: oftwht - bf - brn, lt gy ip, hd - mod frm, brit, pily - sb blk, v wxy
tex, crpxl: tr silty sh; v wk difse, sl stmg, frnt mky bl - wh cut, no str
or od

L.S: oftwht - bf - brn, l
tex, crpxl: tr silty sh; v
or od





MD: 11,757
TVD: 7,805.7
Inclination: 90.86
Azimuth: 2.29
VS: 3.724.84

TVD (ft)

gy ip, hd - mod frm, brit, pily - sb blk, v wxy
wk difse, sl stmg, fnt mky bl - wh cut, no sin

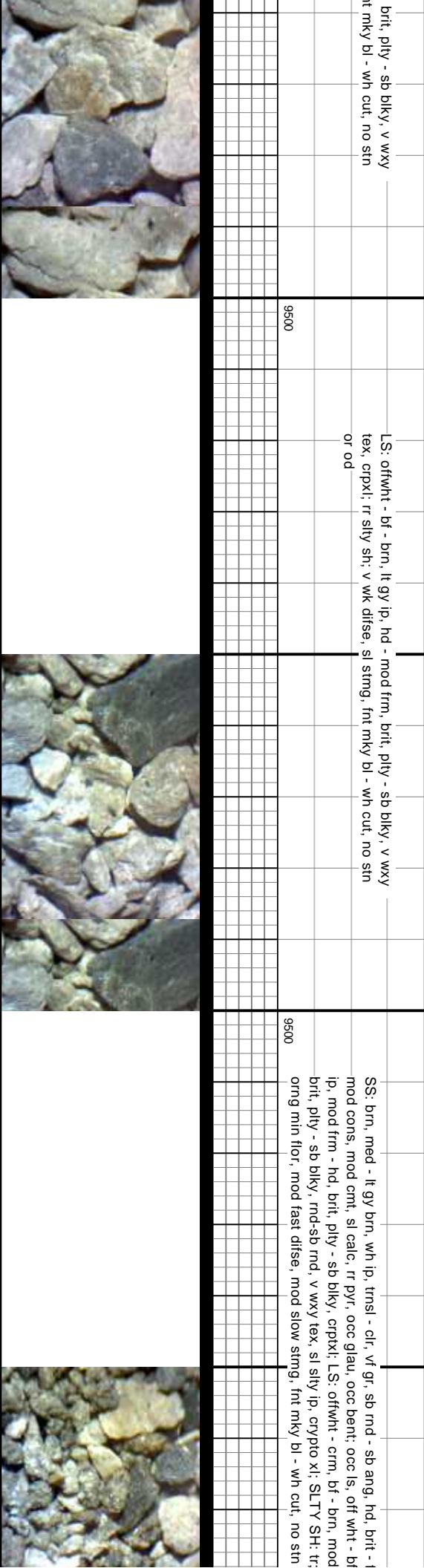
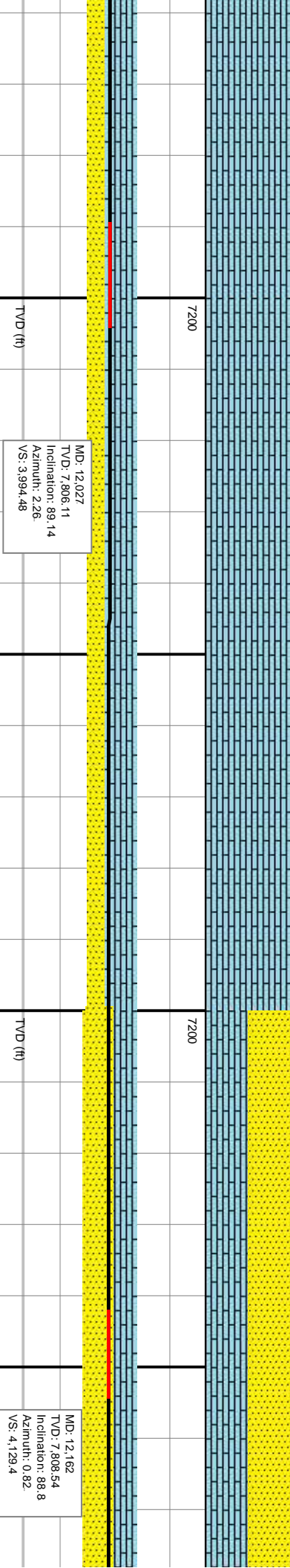
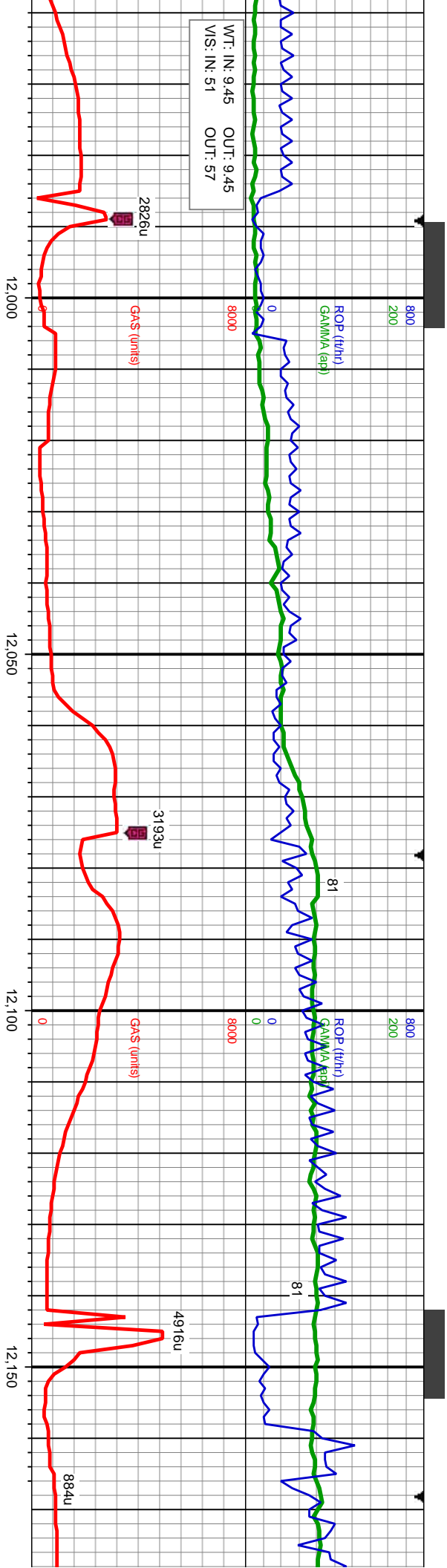
L.S.: offwht - bf - brn, lt gy ip, hd - mod frm, brit, pily - sb blk, v wxy
tex, crpxl; rr silty sh; v wk difse, sl stmg, fnt mky bl - wh cut, no sin
or od

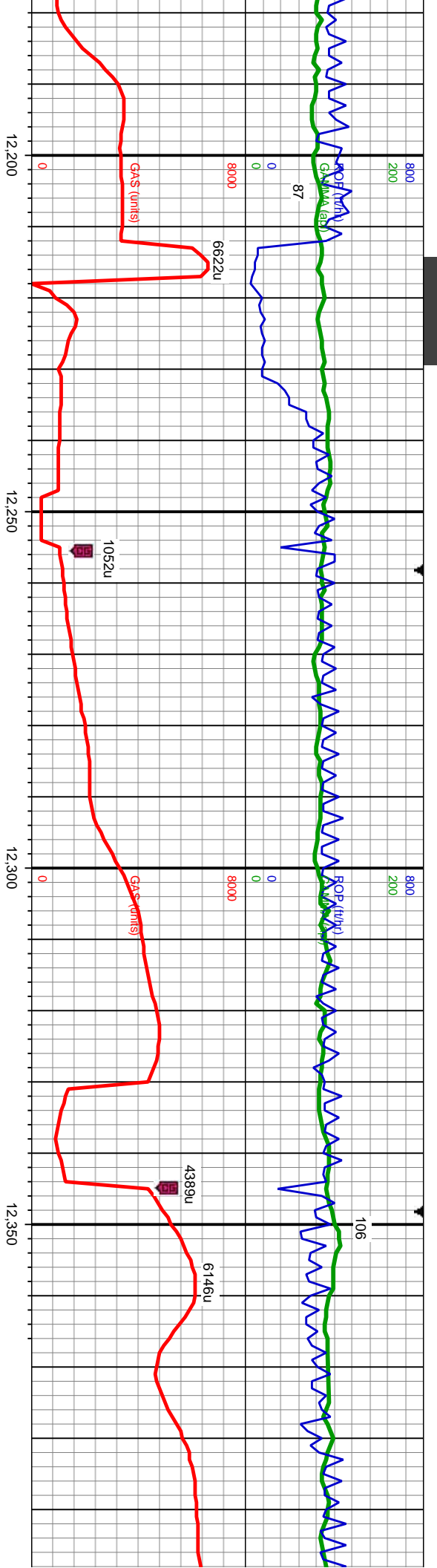
TVD (ft)

MD: 11,937
TVD: 7,805.07
Inclination: 89.54
Azimuth: 3.23
VS: 3.904.6

L.S.: offwht - bf - brn, lt gy ip, hd - mod frm,
tex, crpxl; rr silty sh; v wk difse, sl stmg, fr







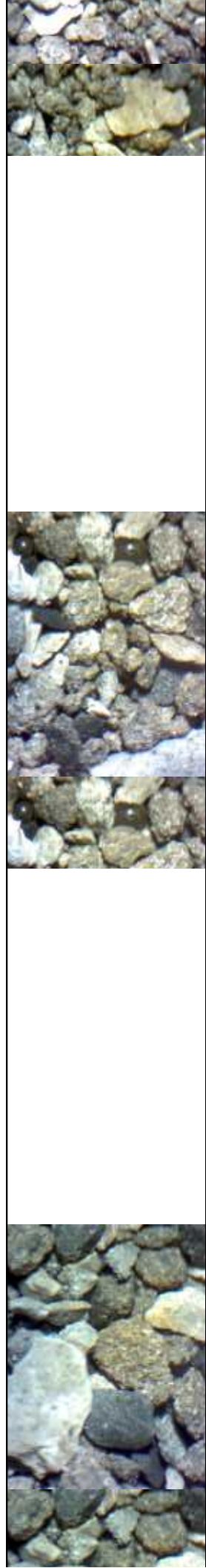
ri ip, w srt,
- brn, lt gy
f rm - hd,
occ yel -
or od

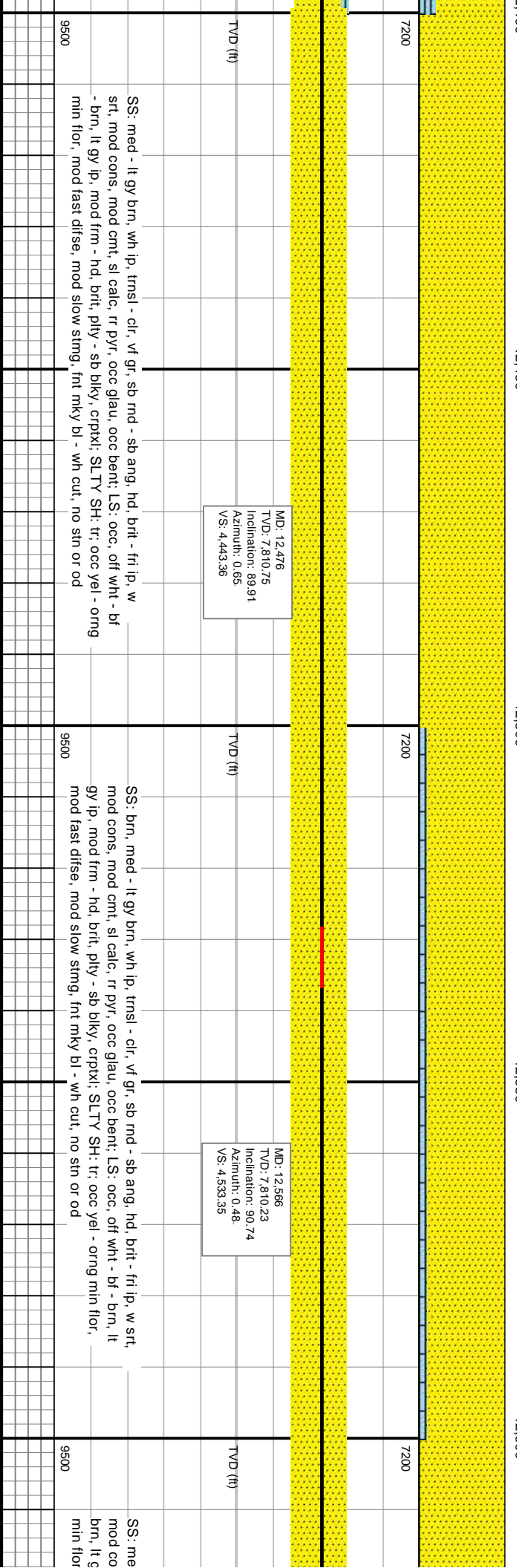
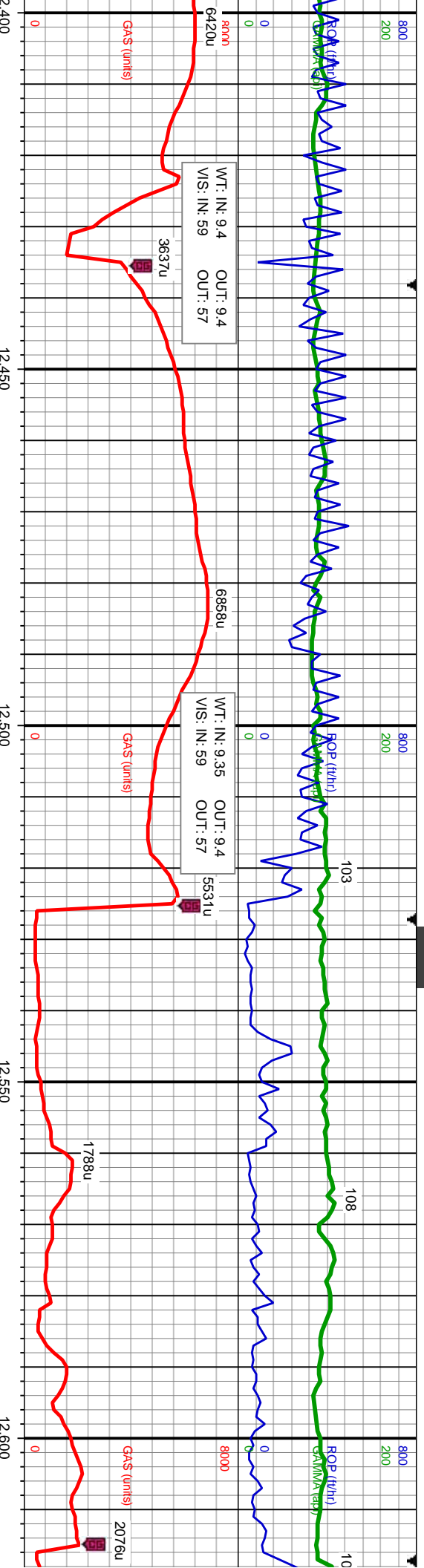
SS: brn, med - lt gy brn, wh ip, trnsi - clr, v' gr, sb rnd - sb ang, hd, brit - fri ip, w srt,
mod cons, mod cmt, sl calc, rr pyr, occ glau, occ bent; occ ls, off wht - bf - brn, lt gy
ip, mod frm - hd, brit, pily - sb blk, crptk; LS: offwht - crn, bf - brn, mod frm - hd,
brit, pily - sb blk, md-sb rnd, v wxy tex, sl silty ip, crypto xi; SLTY SH: tr, occ yel -
orng min flr, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no stn or od

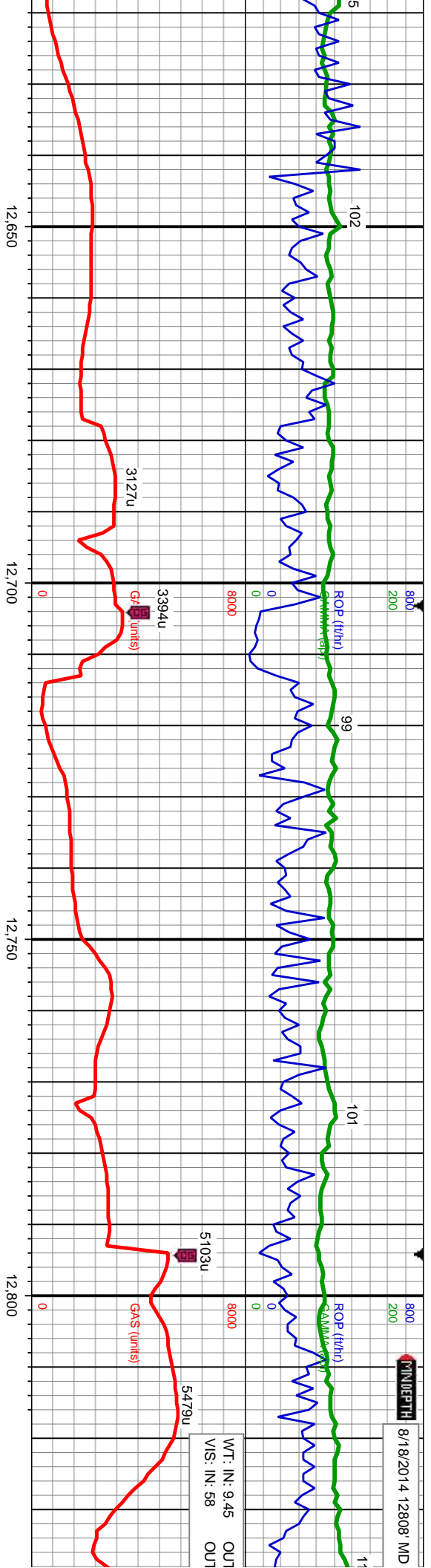
SS: brn, med - lt gy brn, wh ip, trnsi - clr, v' gr, sb rnd - sb ang, hd, brit - fri ip, w srt,
mod cons, mod cmt, sl calc, rr pyr, occ glau, occ bent; occ ls, off wht - bf - brn, lt gy
ip, mod frm - hd, brit, pily - sb blk, crptk; LS: offwht - crn, bf - brn, mod frm - hd,
brit, pily - sb blk, md-sb rnd, v wxy tex, sl silty ip, crypto xi; SLTY SH: tr, occ yel -
orng min flr, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no stn or od

MD: 12,296
TVD: 7,810.12
Inclination: 89.85
Azimuth: 0.4
VS: 4,263.38
(ft)

MD: 12,386
TVD: 7,810.45
Inclination: 89.72
Azimuth: 0.57
VS: 4,353.37
(ft)







WT: IN: 9.45 OUI
VS: IN: 58 OUI

MD: 12.655
TVD: 7,809.06
Inclination: 90.72
Azimuth: 1.14
VS: 4.622.33

TVD (ft)

MD: 12.745
TVD: 7,808.72
Inclination: 89.66
Azimuth: 0.06
VS: 4.712.32

TVD (ft)

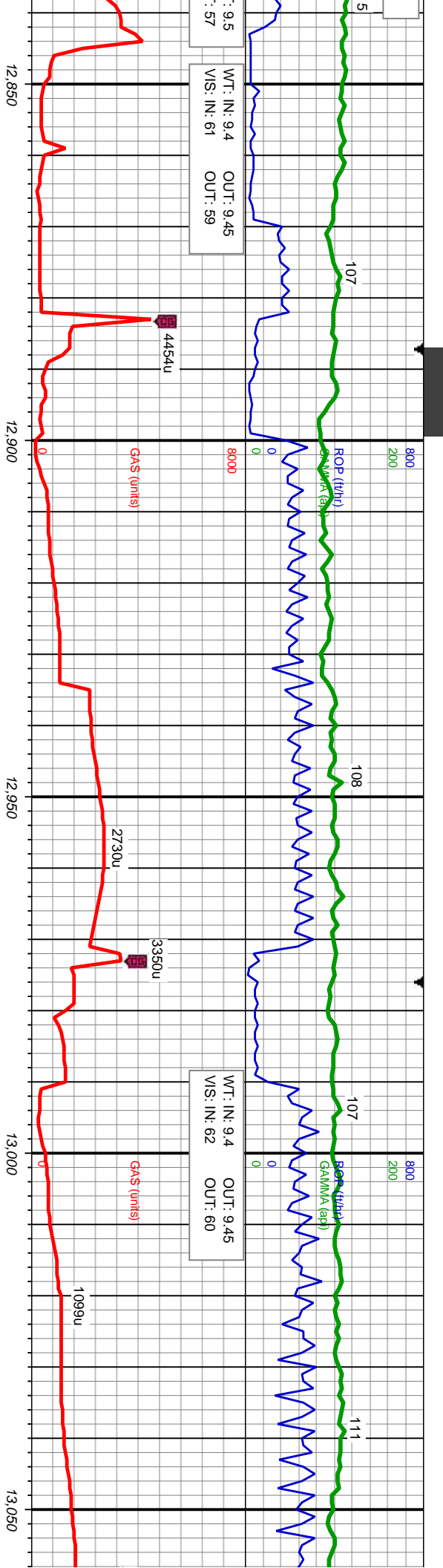
MD: 12.835
TVD: 7,809.97
Inclination: 88
Azimuth: 359
VS: 4.802.31

ld - lt gy brn, wh ip, trnsi - clr, vf gr, sb rnd - sb ang, hd, brit - fri ip, w srt, srt, mod cmt, sl calc, rr pyr, occ glau, occ bent; LS: occ, off wht - bf - y ip, mod frm - hd, brit, ply - sb blk, crptx; SLTY SH: tr, occ yel - orng mod fast difse, mod slow stmg, fnt mky bl - wh cut, no sin or od

SS: med - lt gy brn, wh ip, trnsi - clr, vf gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, sl calc, rr pyr, occ glau, occ bent; LS: occ, off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, crptx; SLTY SH: tr, occ yel - orng mln flr, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no sin or od

SS: med - lt gy brn, wh ip, trnsi - clr, vf gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, sl calc, rr pyr, occ glau, occ bent; LS: occ, off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, crptx; SLTY SH: tr, occ yel - orng mln flr, mod fast difse





WT: IN: 9.4 OUT: 9.45
VIS: IN: 61 OUT: 59

WT: IN: 9.4 OUT: 9.45
VIS: IN: 62 OUT: 60

.76
777

MD: 12.923
TVD: 7,811.83
Inclination: 88.86
Azimuth: 358.84
VS: 4.892.29

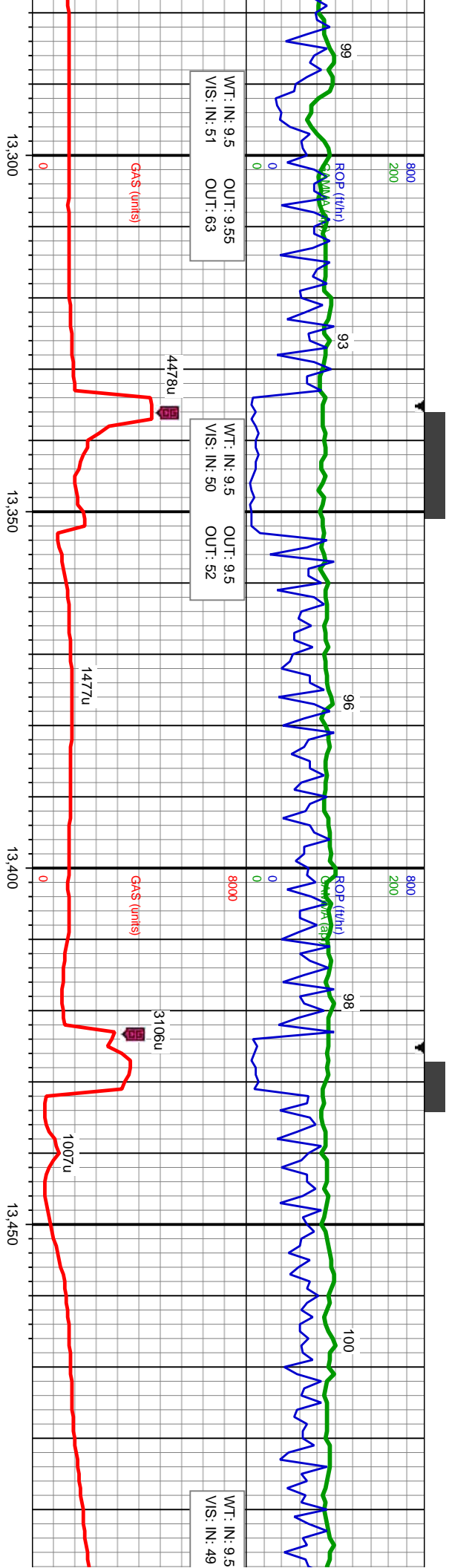
MD: 13.015
TVD: 7,813.62
Inclination: 88.86
Azimuth: 358.23
VS: 4.962.24

nsi - clr, vt gr, sb md - sb ang, hd, brit - fri ip, w
calc, rr pyr, occ glau, occ bent, LS: occ, off wht - bf
brit ply - sb bkly, crptxl, SLTY SH: tr; occ yel -
3, mod slow stmg, fnt mky bl - wh cut, no str or od

SS: med - lt gy brn, wh ip, trnsi - clr, vt gr, sb md - sb ang, hd, brit - fri ip, w
srt, mod cons, mod cmt, sl calc, rr pyr, occ glau, tr bent, LS: occ, off wht - bf -
brn, lt gy ip, mod frm - hd, brit, ply - sb bkly, crptxl, SLTY SH: tr; tr yel - orng
min flur, mod fast disse, mod fast stmg, mod br mky bl - wh cut, no str or od

SS: med - lt gy brn, wh ip, trnsi - clr, vt gr, sb
ip, w srt, mod cons, mod cmt, sl calc, rr pyr, c
mod fast disse, mod fast stmg, mod br mky b





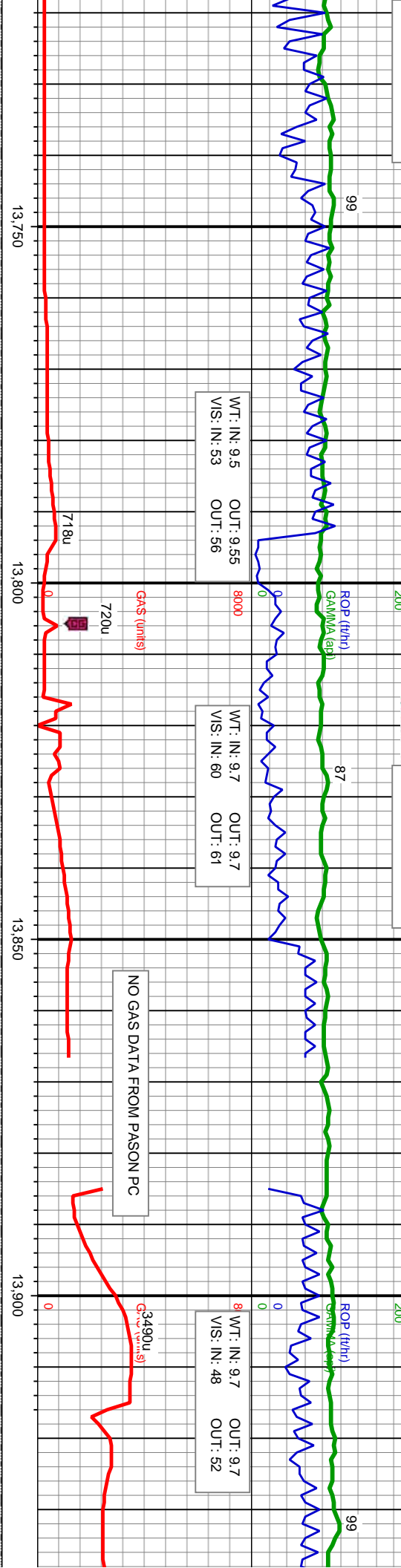
D: 13.284
VD: 7.808.29
Inclination: 92.13
Azimuth: 358.48
S: 5.251.1

MD: 13.374
TVD: 7.806.26
Inclination: 90.46
Azimuth: 359.4
VS: 5.341.06

MD: 13.464
TVD: 7.806.21
Inclination: 89.6
Azimuth: 359.61
VS: 5.431.06

SS: med - lt gy brn, wh ip, trnsf - clt, vif gr, sb rnd - sb ang, hd, brlt - fri ip, w srl, mod cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: tr, mod fast difse, mod fast stmg, mod bri mky bl - wh cut, no sin or od





MD: 13,743
TVD: 7,808.52
Inclination: 89.14
Azimuth: 359.35
VS: 5,710.05

TVD (ft)

MD: 13,922
TVD: 7,808.47
Inclination: 90.89
Azimuth: 0.03
VS: 5,889.04

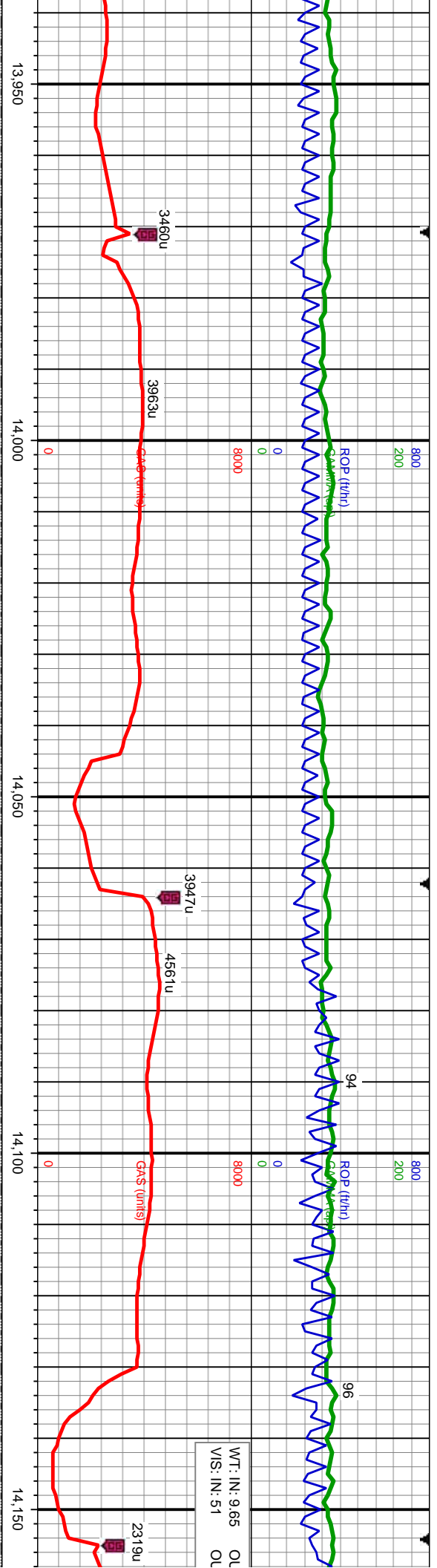
TVD (ft)

- lt gy brn, wh ip, trnsi - clt, v' gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod
d cmt, sl calc, rr pyr, ooc glau; SLTY SH: med - dk gy, blk, mod - v frm, brit,
- sb pily, sb wxy tex, arg - slty mix, sl calc, com dissn pyr; mod fast difse,
stmg, mod bri mky bl - wh cut, no sin or od

SS: med - lt gy brn, wh ip, trnsi - clt, v' gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod
cons, mod cmt, sl calc, rr pyr, ooc glau; SLTY SH: med - dk gy, blk, mod - v frm, brit,
pied pily - sb pily, sb wxy tex, arg - slty mix, sl calc, com dissn pyr; LS: offtwht - bf -
brn, lt gy ip, hd - mod frm, brit, pily - sb blkx, v wxy tex, crypto xl; mod fast difse, mod
fast stmg, mod bri mky bl - wh cut, no sin or od

SS: med - lt gy brn, wh ip, trns
cons, mod cmt, sl calc, rr pyr,
pied pily - sb pily, sb wxy tex
mod fast stmg, mod bri mky b





WT: IN: 9.65 O/U
VIS: IN: 51 O/U

MD: 14.102
TVD: 7,806.05
Inclination: 90.65
Azimuth: 1.05
VS: 6.069.01

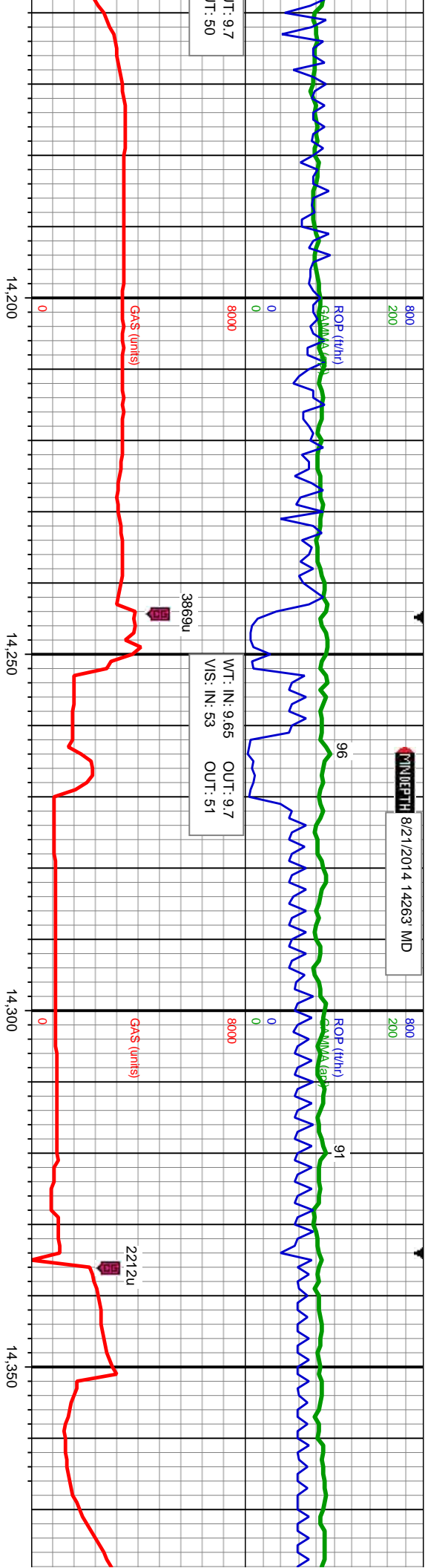
sl - clt, vf gr, sb md - sb ang, hd, brit - fri ip, w srt, mod
occ glau; SLTY SH: med - dk gy, blk, mod - v frm, brit,
arg - silty mix, sl calc, com dissim pyr; mod fast disse,
l - wh cut, no sin or od

SS: med - lt gy brn, wh ip, trns l - clt, vf gr, sb md - sb ang, hd, brit - fri ip, w srt, mod
cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: med - dk gy, blk, mod - v frm, brit,
pred ply - sb ply, sb wxy tex, arg - silty mix, sl calc, com dissim pyr; mod fast disse,
mod fast sting, mod bri mky bl - wh cut, no sin or od

SS: med - lt gy brn, wh ip, trns l - clt, vf gr, sb md -
cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: l
pred ply - sb ply, sb wxy tex, arg - silty mix, sl calc
mod fast sting, mod bri mky bl - wh cut, no sin or c



MD 8/21/2014 14263



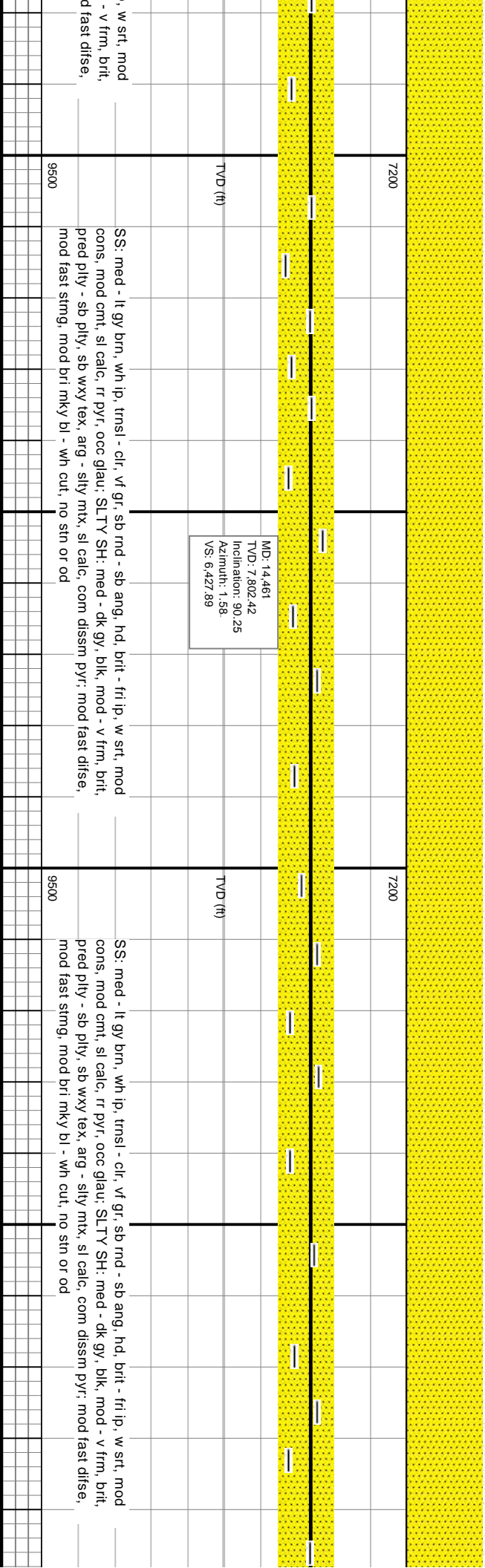
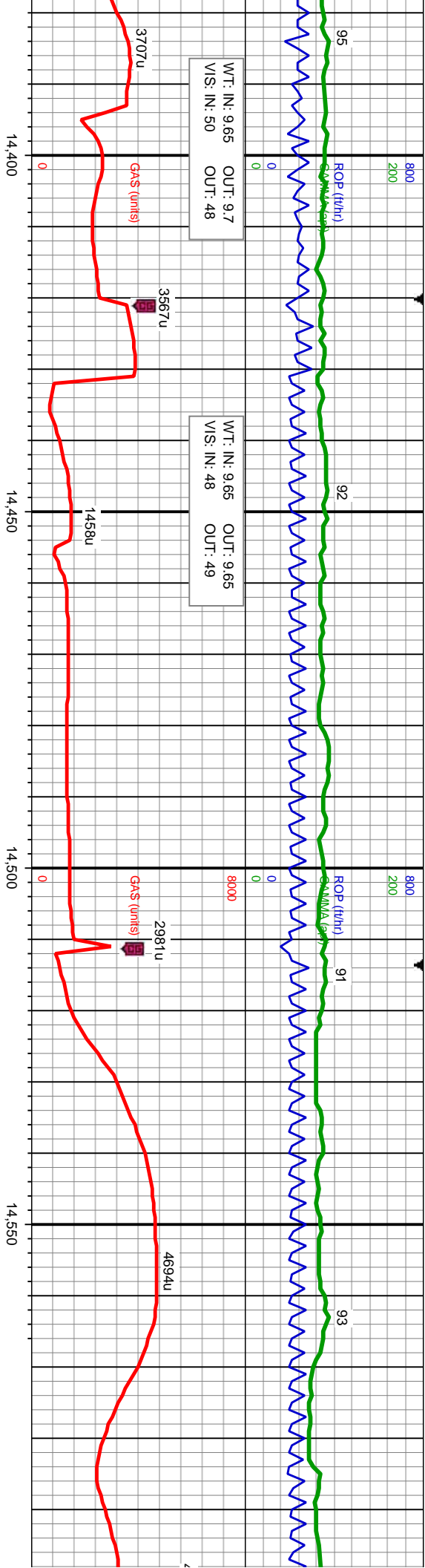
MD: 14.281
TVD: 7.803.93
Inclination: 90.71
Azimuth: 1.07
VS: 6.247.95

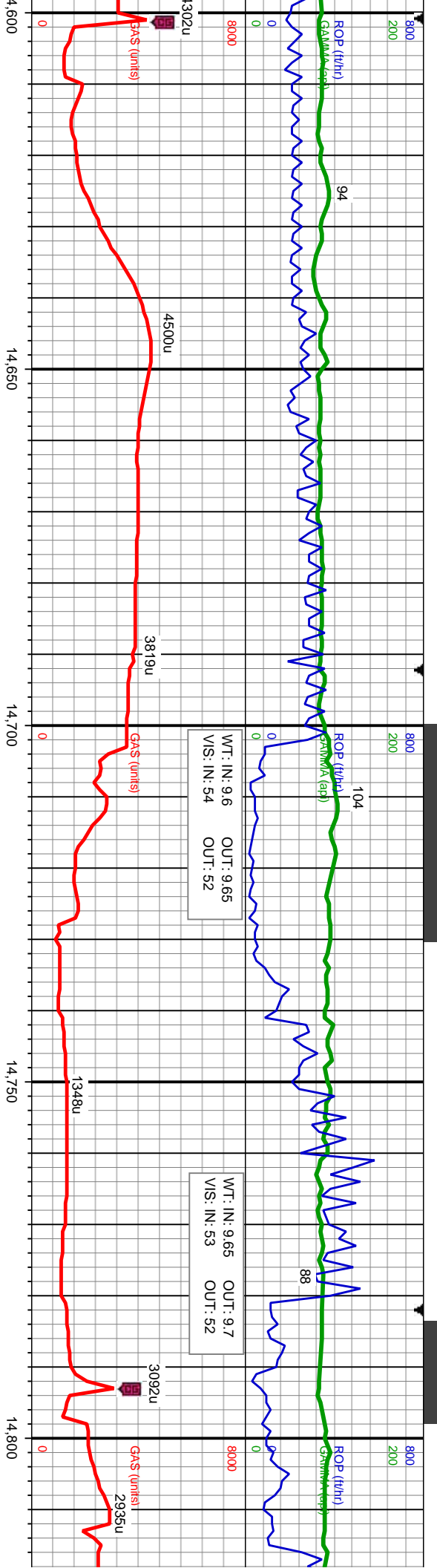
SS: ang, hd, brit - fri ip, w srt, mod
med - dk gy, blk, mod - v frm, brit,
com dissim pyr; mod fast difse,
od

SS: med - lt gy brn, wh ip, trns - cl, v f gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod
cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: med - dk gy, blk, mod - v frm, brit,
pred pily - sb pily, sb wxy tex, arg - silty mix, sl calc, com dissim pyr; mod fast difse,
mod fast string, mod bri mky bl - wh cut, no sin or od

SS: med - lt gy brn, wh ip, trns - cl, v f gr, sb rnd - sb ang, hd, brit - fri ip
cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: med - dk gy, blk, mod
pred pily - sb pily, sb wxy tex, arg - silty mix, sl calc, com dissim pyr; mod
mod fast string, mod bri mky bl - wh cut, no sin or od







MD: 14.641
TVD: 7.802.12
Inclination: 89.94
Azimuth: 2.16
VS: 6.607.78

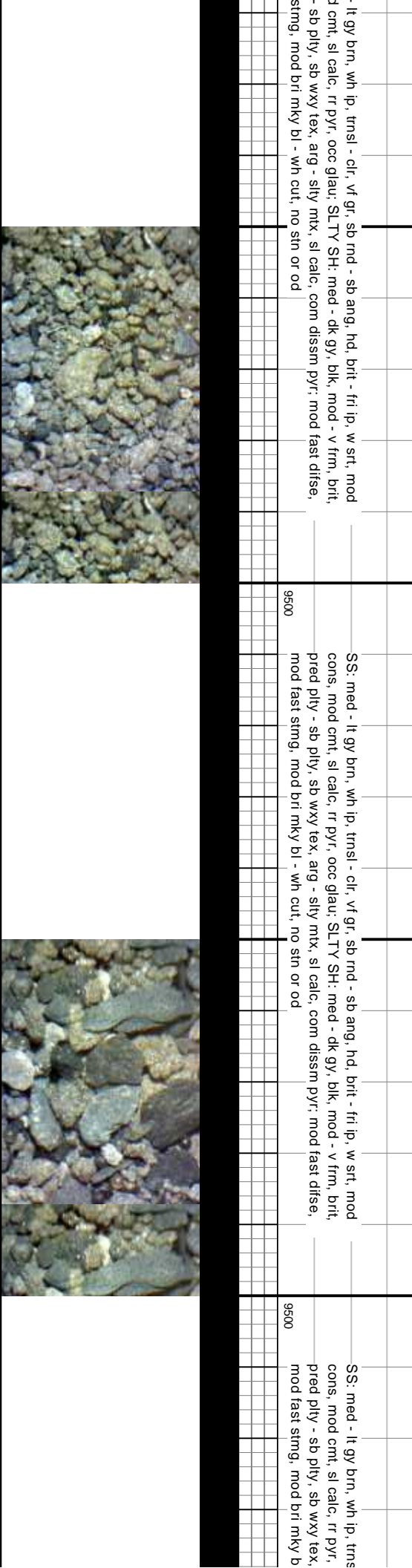
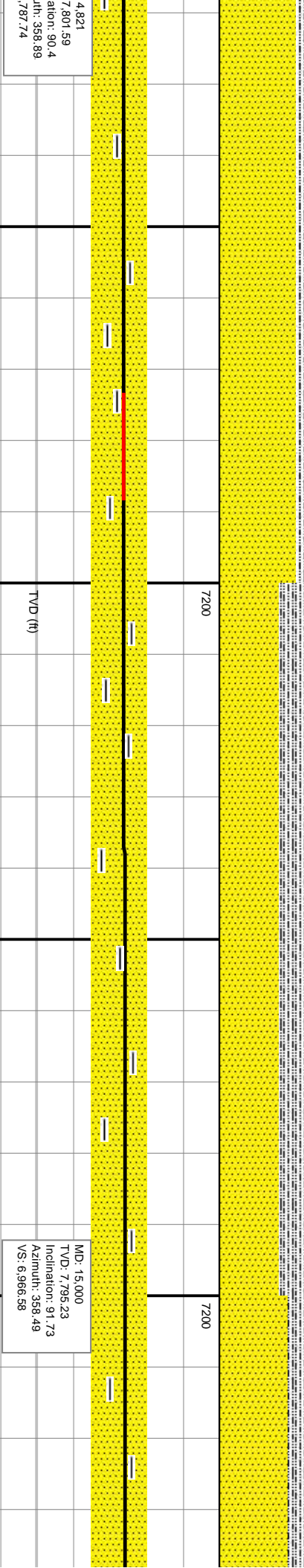
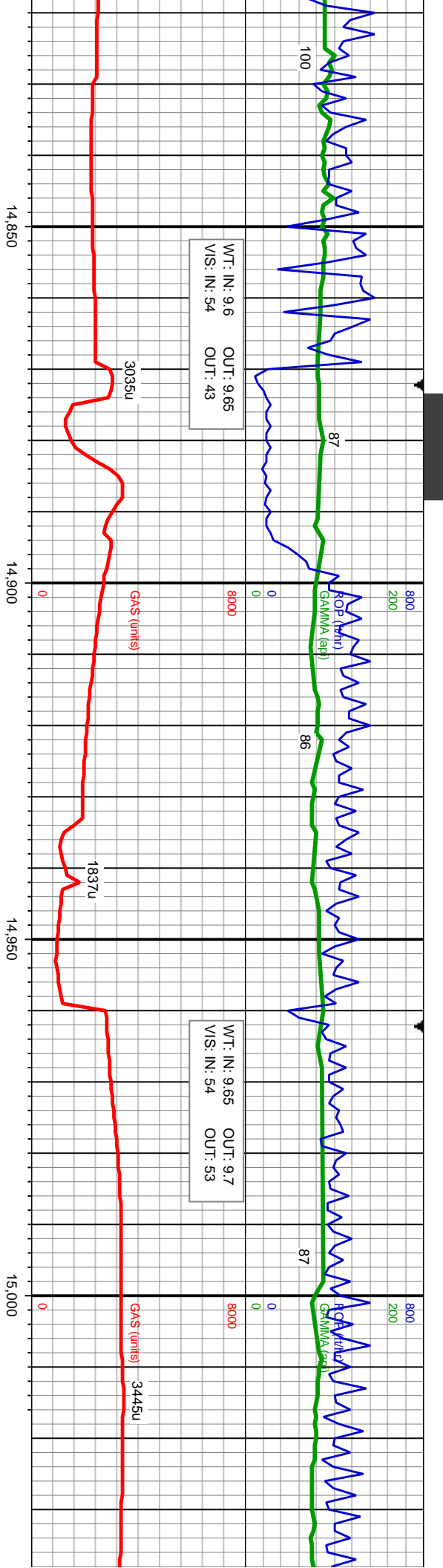
MD: 1
TVD: 7.802.12
Inclination: 89.94
Azimuth: 2.16
VS: 6.607.78

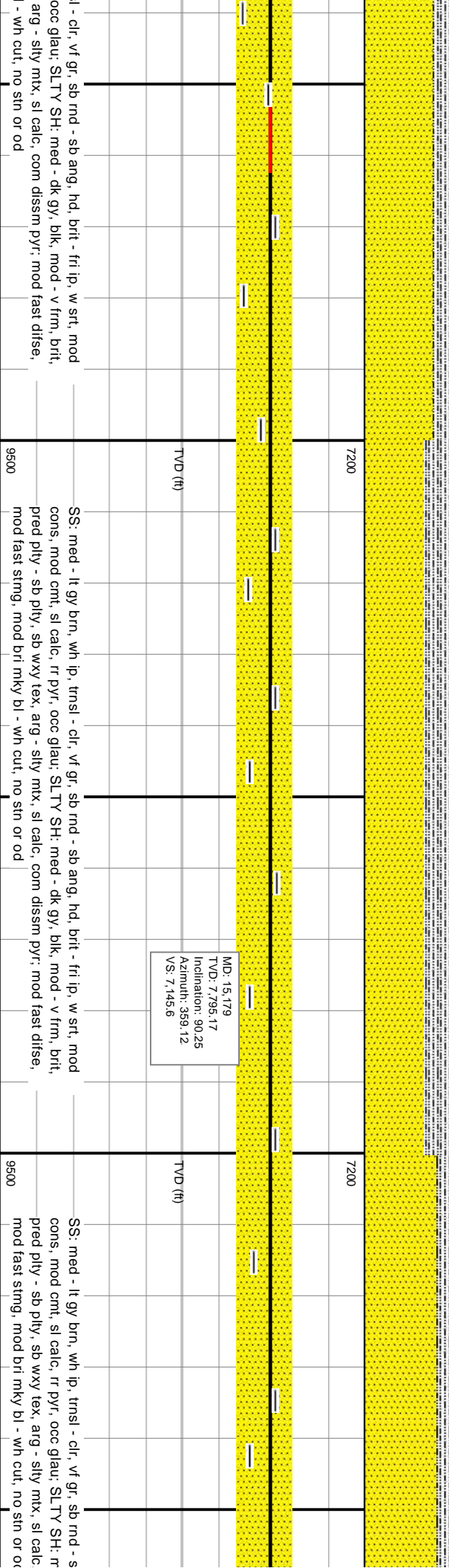
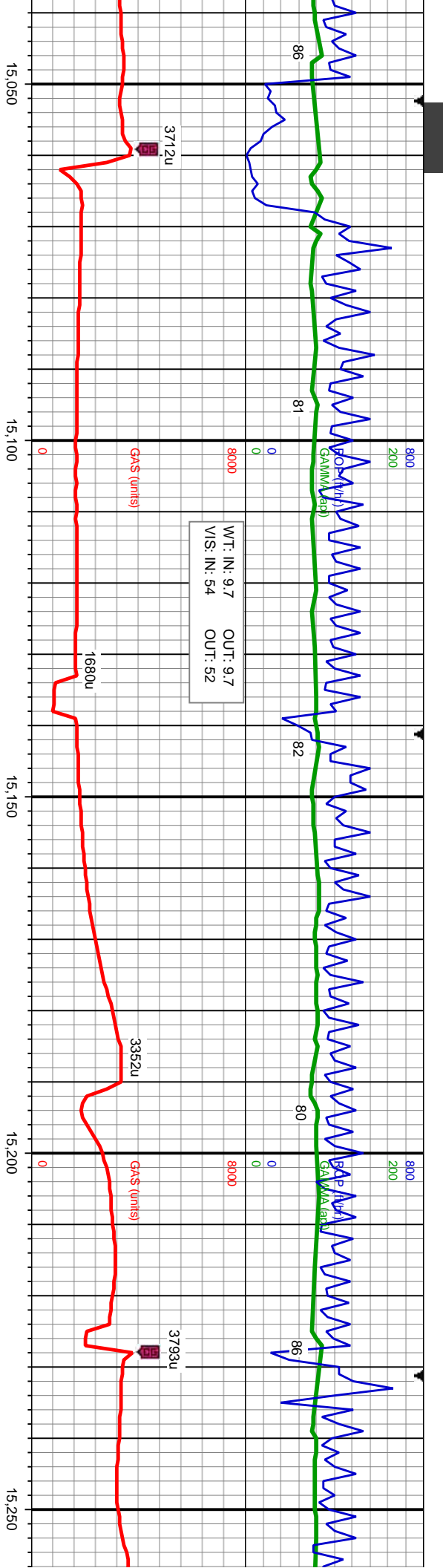
SS: med - lt gy brn, wh ip, trnsi - clr, vf gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: med - dk gy, blk, mod - v frm, brit, pred ply - sb ply, sb wxy tex, arg - slty mtx, sl calc, com dissn pyr; mod fast difse, mod fast sting, mod bri mky bl - wh cut, no stn or od

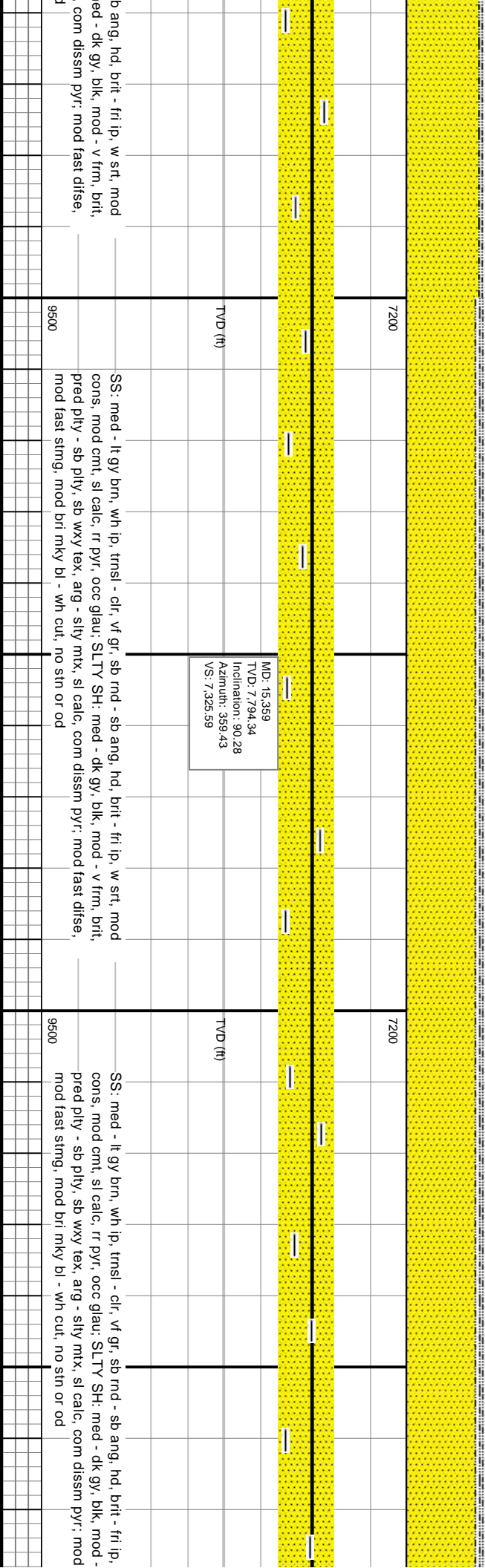
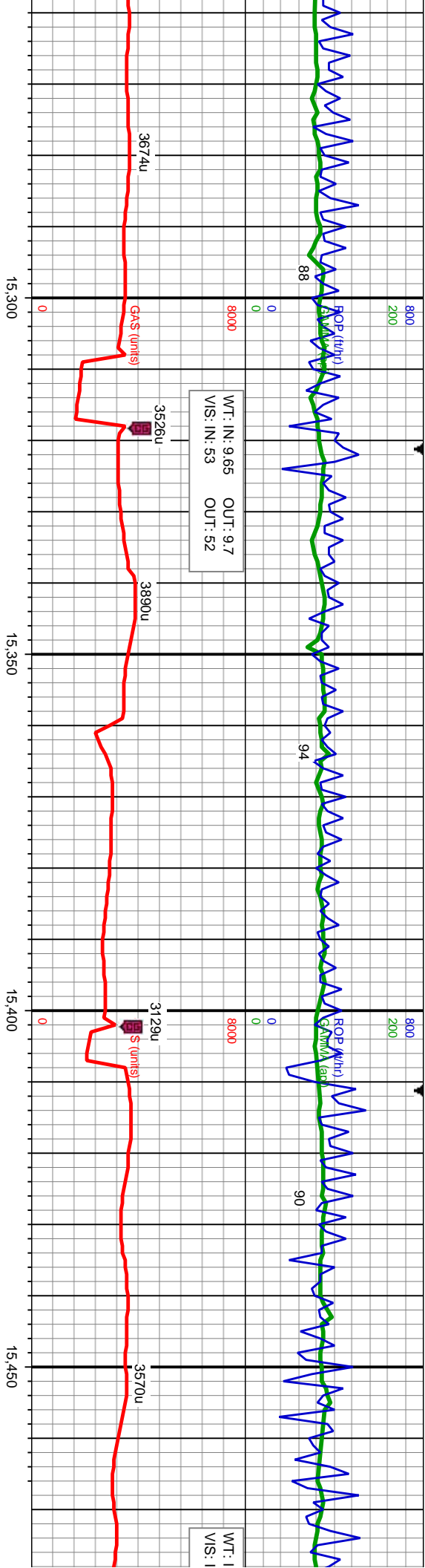
SS: med - lt gy brn, wh ip, trnsi - clr, vf gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: med - dk gy, blk, mod - v frm, brit, pred ply - sb ply, sb wxy tex, arg - slty mtx, sl calc, com dissn pyr; mod fast difse, mod fast sting, mod bri mky bl - wh cut, no stn or od

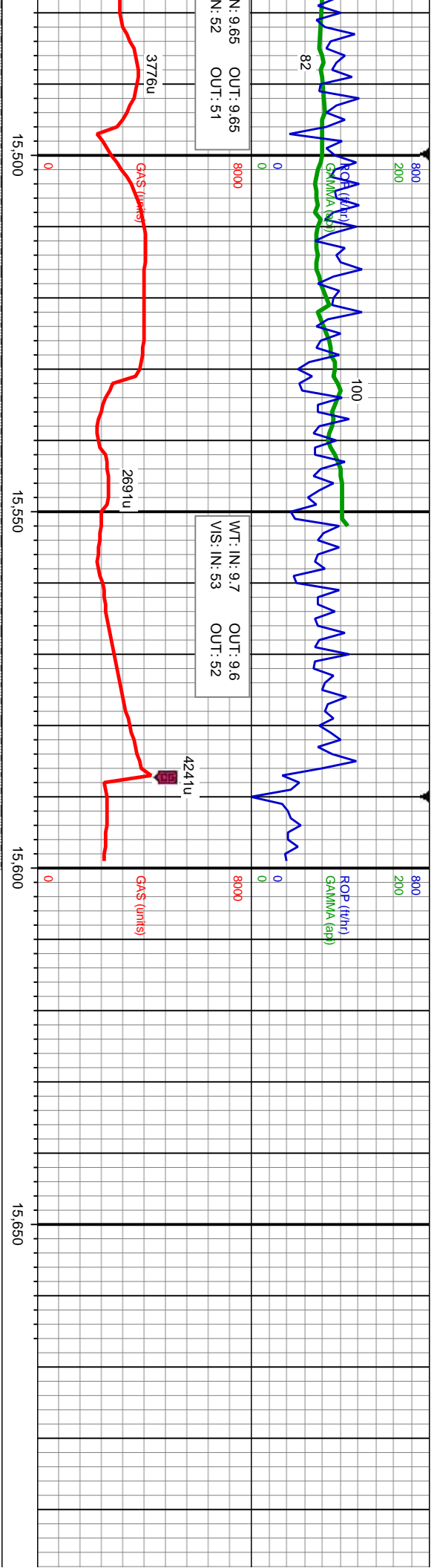
SS: med
cons, mod
pred ply
mod fast





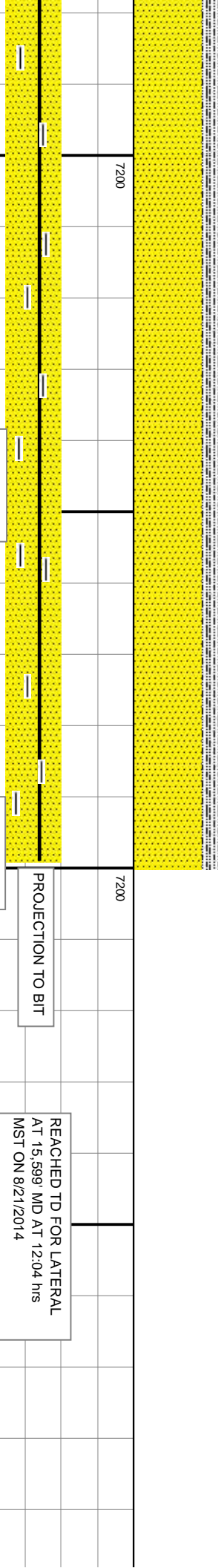






N: 9.65 OUT: 9.65
N: 52 OUT: 51

WT: IN: 9.7 OUT: 9.6
VIS: IN: 53 OUT: 52



MD: 15,547
TVD: 7,792.81
Inclination: 90.65
Azimuth: 359.19
VS: 7.513.58

MD: 15,599
TVD: 7,792.22
Inclination: 90.65
Azimuth: 359.19
VS: 7.565.56

REACHED TD FOR LATERAL
AT 15,599 MD AT 12:04 hrs
MST ON 8/21/2014

THANK YOU FOR USING COLUMBINE LOGGING INC.

w srt, mod
v frm, brlt,
fast difse,
SS: med - lt gy brn, wh ip, trnsi - clr, vf gr, sb rnd - sb ang, hd, brlt - fri ip, w srt, mod
cons, mod cmt, sl calc, rr pyr, occ glau; SLTY SH: med - dk gy, blk, mod - v frm, brlt,
pred ply - sb ply, sb wxy tex, arg - slty mtz, sl calc, com diss pyr, mod fast difse,
mod fast stmg, mod bri mky bl - wh cut, no stn or od



