

COMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name HOWARD 30C-29HZ

Location SEC.32-T1N-R67W

State COLORADO

County WELD

Country USA

Rig Number PRECISION 595

API Number 05123379110000

AFE # 2089193

Region DJ BASIN

Field WATTENBERG

Spud Date 7/16/2014

Drilling Completed 7/26/2014

Surface Coordinates 2287 FNL & 390 FWL

Bottom Hole Coordinates 1 FNL & 135 FWL

Ground Elevation 5006'

K.B. Elevation 5032'

Logged Interval 7200' To 15596'

Total Depth 15596'

Formation CODELL

Type of Drilling Fluid LSND/PHNA

Operator

Company ANADARKO PETROLEUM INC

Address

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

Geologist

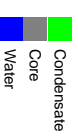
Name TRAVIS GREGORY and EARL DETRA

Company COLUMBINE LOGGING INC

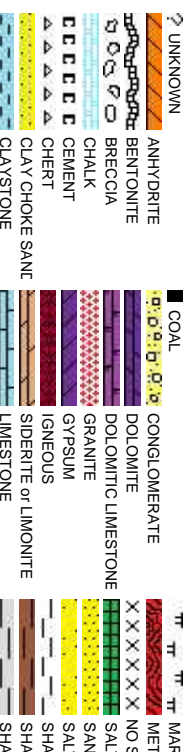
Address 2385 S. Lipan St.

Denver, CO 80223

Zone Color Coding



Rock Types



Accessories

Fossils

- GASTROPOD
- INOCERAMUS
- OOOLITE
- OSTRACOD
- BELEMNITE
- BIOCLASTIC
- BRACHIOPOD
- BRYOZOA
- CEPHALOPOD
- CORAL
- CRINOID
- ECHINOID
- FISH
- FORAMINIFERA
- FOSSIL

Minerals

- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHITL
- CHITL
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS
- GLAUCONITE
- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARCASITE
- MARLSTONE
- MICACEOUS
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SIDERITE
- SILICEOUS
- SILTY
- TUFFACEOUS

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
- VUGGY
- DEAD
- EVEN
- QUESTIONABLE
- BIT
- SPOTTED STAINING
- CONNECTION (UP)

Engineering

- DST INTERVAL
- FAULT
- FORMATION TOP
- GAS SHOW
- OIL SHOW
- MN DEPTH UP

Rounding

- WIRELINE TESTED - LEFT
- E EARTHY
- WIRELINE TESTED - RT
- FINELYXLN
- DRILL STEM TEST
- MN DEPTH
- LITHOGRAPHIC
- MICROXLN
- MUDSTONE

Porosity

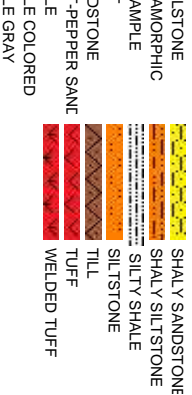
- CONNECTION (DOWN)
- CONNECTION GAS
- CONNECTION GAS (LEFT)
- TRIP GAS
- TRIP GAS (LEFT)
- INTERCRYSTALLINE
- DOWN TIME GAS
- DOWN TIME GAS (LEFT)
- CORE - LOST
- CORE - RECOVERED

Textures

- ANGULAR
- ROUNDED
- SUBANG
- SUBRND
- SIDEWALL CORE (LEFT)
- SIDEWALL CORE (RIGHT)
- SLIDE
- BOUNDSTONE
- CHALKY
- CRYPTOXLN
- POOR
- WELL
- MODERATE

Sorting

- WACKESTONE



Slide/Rotate

ROP

ROP

GAMMA

Columbine Logging One Person
Rigged Up 18:00rs 07/19/2014
Logging Started @
22:50hrs on 07/19/2014
at 7300' MD

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

Bit Data

Total Gas & Chromatograph

GAS

Bit #: 1
Type: TDA06S
Size: 8.75
Depth In: 1,011.
Depth Out: 8,161.
Jets: 6x14
S/N: 7041418

Depth Labels

% Lith

7100

Begin in Sussex

MD: 7,253
TVD: 7,210.1
Inclination: 9.43
Azimuth: 11.98
VS: -475.27

MD: 7,298
TVD: 7,254.27
Inclination: 12.55
Azimuth: 14.75
VS: -466.94

MD: 7,343
TVD: 7,297.88
Inclination: 15.85
Azimuth: 12.3
VS: -456.21

MD: 7,388
TVD: 7,344
Inclination:
Azimuth:
VS: -442.6

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, pily - sb pily, sb wxy tex, arg - silty mtx, non calc, rr slst: mod difse, mod stmg, bri bl wh mky cut, n stn or od

SLTY SH: med - dk gy, blk, frm, brit, pily - sb pily, sb wxy tex, arg - silty mtx, non calc, rr slst: mod difse, mod stmg, bri bl wh mky cut, n stn or od

SLTY SH: med - dk gy, blk, frm, brit, pily, sb wxy tex, arg - silty mtx, non ca slst: mod difse, mod stmg, bri bl wh n stn or od

Oil Show

E
G
M
F
T
ST

Images



7/20/2014 7401 MD

MINDEPTH

7401 MD

148

ROP (ft/hr)

223

350

400

450

500

550

600

650

700

750

800

850

900

950

1000

1050

1100

1150

1200

1250

1300

1350

1400

1450

1500

1550

1600

1650

1700

1750

1800

1850

1900

1950

2000

2050

2100

2150

2200

2250

2300

2350

2400

2450

2500

2550

2600

2650

2700

2750

2800

2850

2900

2950

3000

3050

3100

3150

3200

3250

3300

3350

3400

3450

3500

3550

3600

3650

3700

3750

3800

3850

3900

3950

4000

4050

4100

4150

4200

4250

4300

4350

4400

4450

4500

4550

4600

4650

4700

4750

4800

4850

4900

4950

5000

5050

5100

5150

5200

5250

5300

5350

5400

5450

5500

5550

5600

5650

5700

5750

5800

5850

5900

5950

6000

6050

6100

6150

6200

6250

6300

6350

6400

6450

6500

6550

6600

6650

6700

6750

6800

6850

6900

6950

7000

7050

7100

7150

7200

7250

7300

7350

7400

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7500

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7950

8000

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8100

8150

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8900

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9000

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9100

9150

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9250

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9400

9450

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10000

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10250

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10350

10400

10450

10500

10550

10600

10650

10700

10750

10800

10850

10900

10950

11000

11050

11100

11150

11200

11250

11300

11350

11400

11450

11500

11550

11600

11650

11700

11750

11800

11850

11900

11950

12000

12050

12100

12150

12200

12250

12300

12350

12400

12450

12500

12550

12600

12650

12700

12750

12800

12850

12900

12950

13000

13050

13100

13150

13200

13250

13300

13350

13400

13450

13500

13550

13600

13650

13700

13750

13800

13850

13900

13950

14000

14050

14100

14150

14200

14250

14300

14350

14400

14450

14500

14550

14600

14650

14700

14750

14800

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15150

15200

15250

15300

15350

15400

15450

15500

15550

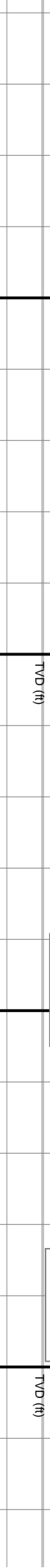
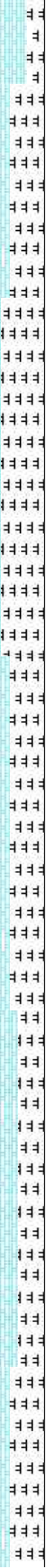
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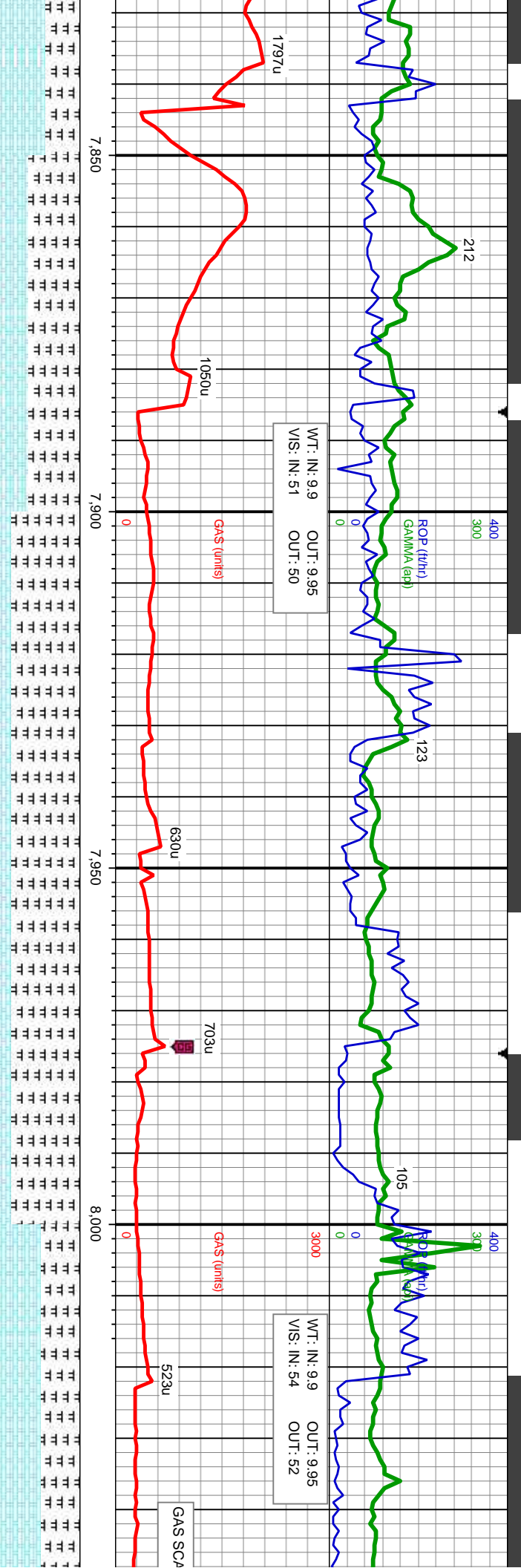
15650

15700

15750

15800





MD: 7.837
TVD: 7.685.91
Inclination: 56.62
Azimuth: 2.53
VS: -167.05

MD: 7.881
TVD: 7.708.66
Inclination: 61.1
Azimuth: 1.65
VS: -129.43

MD: 7.926
TVD: 7.729
Inclination: 65.15
Azimuth: 359.85
VS: -89.3

MD: 7.971
TVD: 7.746.78
Inclination: 68.3
Azimuth: 359.61
VS: -47.97

MD: 8.016
TVD: 7.762.67
Inclination: 70.33
Azimuth: 0.2
VS: -5.87

at dk gy, v frm, brit,
gr tex, MRLST: med - dk
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit,
sb blkly, rthy tex, arg calc mix, occ dissn pyf,
occ bent; occ bri yel - orng mnrl flor, fast difse,
simg, mod bri bl wh mky cut, n sin or od

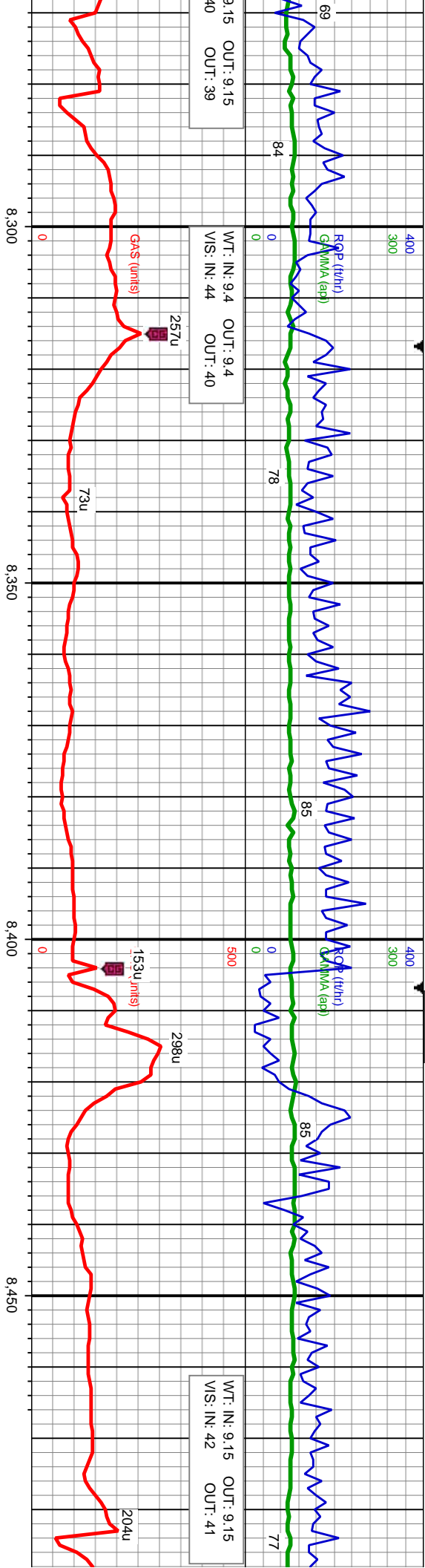
MRLST: med - dk gy, mot dk gy ip, mod frm, brit,
gr tex, sb ply - sb blkly, arg - sily mix, v calc;
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit,
sb blkly, rthy tex, arg calc mix, occ dissn pyf,
occ bent; occ bri yel - orng mnrl flor, fast difse,
simg, mod bri bl wh mky cut, n sin or od

MRLST: med - dk gy, mot dk gy ip, mod frm, brit,
gr tex, sb ply - sb blkly, arg - sily mix, v calc;
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit,
sb blkly, rthy tex, arg calc mix, occ dissn pyf,
occ bent; occ bri yel - orng mnrl flor, fast difse,
simg, mod bri bl wh mky cut, n sin or od

MRLST: med - dk gy, mot dk gy ip, mod frm, brit,
gr tex, sb ply - sb blkly, arg - sily mix, v calc;
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit,
sb blkly, rthy tex, arg calc mix, occ dissn pyf,
occ bent; occ bri yel - orng mnrl flor, fast difse,
simg, mod bri bl wh mky cut, n sin or od

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit,
sb blkly, rthy tex, arg calc mix; MRLST: med - dk
gy, mot dk gy ip, mod frm, brit, gr tex, sb ply -
sb blkly, arg - sily mix, v calc, occ dissn pyf,
occ bent; occ bri yel - orng mnrl flor, fast difse,
simg, mod bri bl wh mky cut, n sin or od





MD: 8,353
TVD: 7,807.16
Inclination: 90.21
Azimuth: 2.76
VS: 325.55

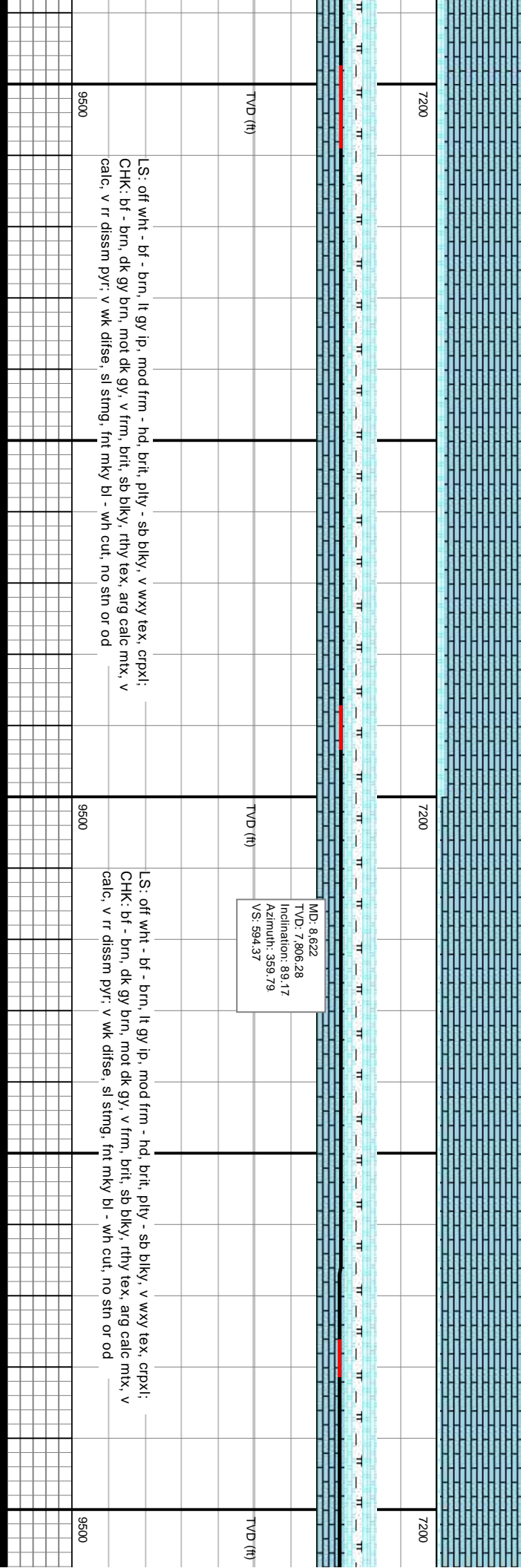
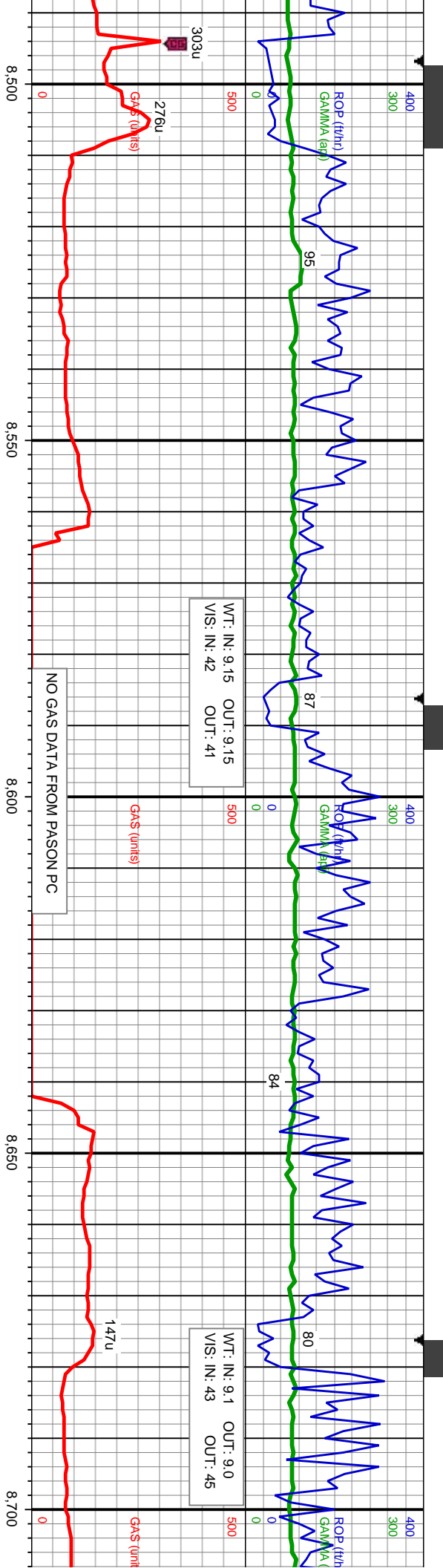
MD: 8,443
TVD: 7,806.32
Inclination: 90.86
Azimuth: 2.48
VS: 415.44

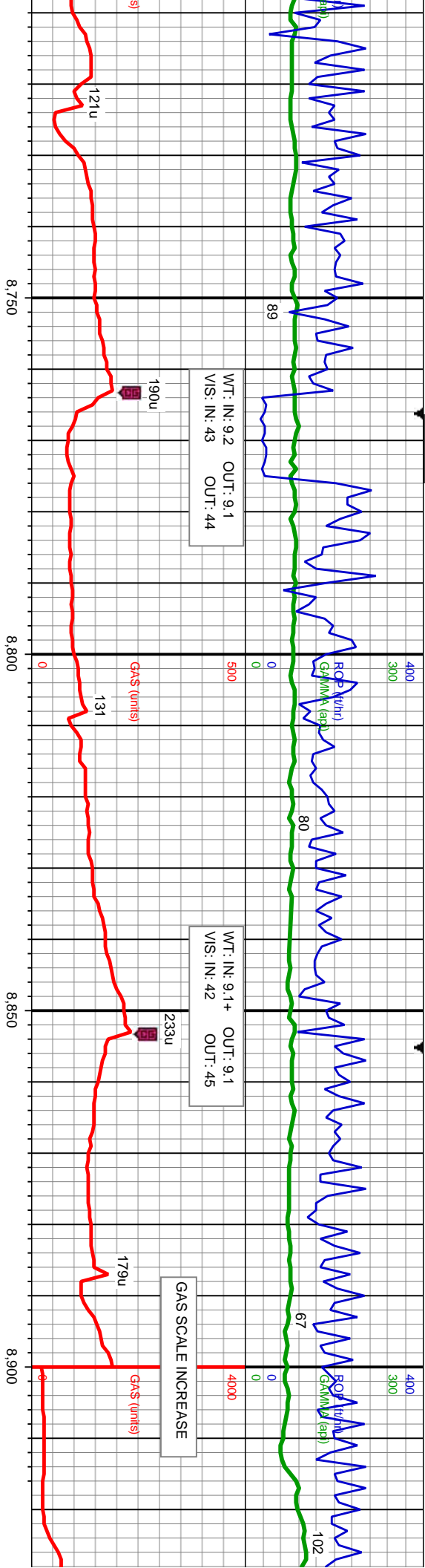
md-sb md, v wxy tex, crpt, sb blk, rthy tex, or od

LS: offwh - crm, bf - brn, mod frm - hd, brit, ply - sb blk, md-sb md, v wxy tex, sl silty ip, crpxl: v wk difse, sl stmg, frt mky bl - wh cut, no sin or od

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crpxl: CHK: bf - brn, dk gy brn, mod dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v calc, v rr dissim pyr, v wk difse, sl stmg, frt mky bl - wh cut, no sin or od







MD: 8,802
TVD: 7,806.95
Inclination: 90.4
Azimuth: 357.42
VS: 774.31

MD: 8,892
TVD: 7,806.35
Inclination: 90.37
Azimuth: 357.61
VS: 864.23

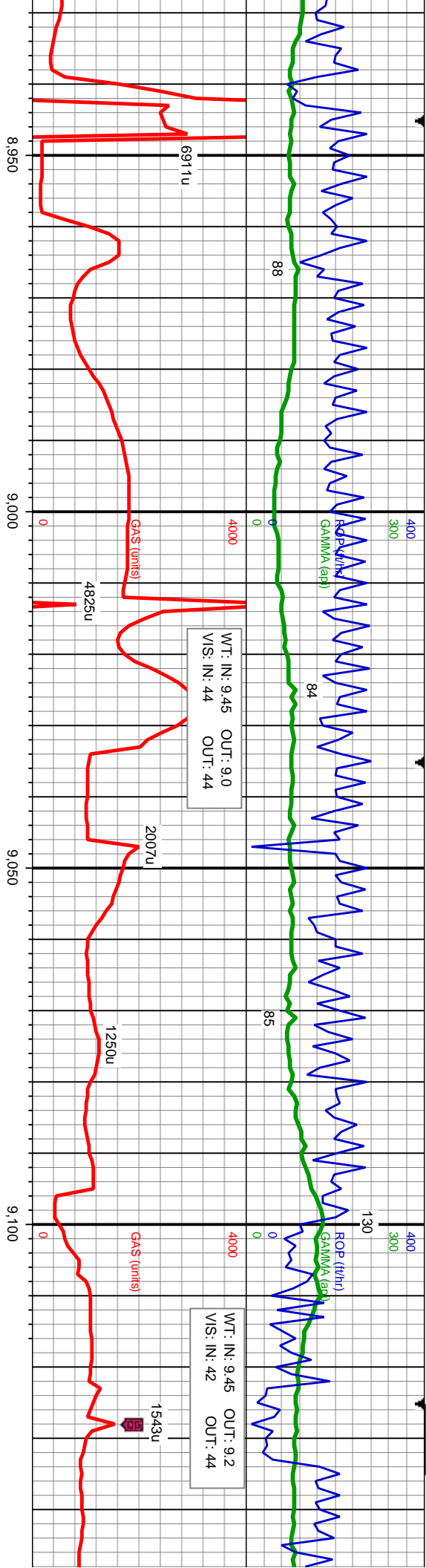
TVD (ft)

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, pily - sb blk, v wxy tex, crpx;
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v
calc, v rr dissim pyr; v wk difse, sl stmg, fnt mky bl - wh cut, no sin or od

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, pily - sb blk, v wxy tex, crpx;
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v
calc, v rr dissim pyr; v wk difse, sl stmg, fnt mky bl - wh cut, no sin or od

CHK: bf - brn, dk
calc, v rr dissim pyr;
v wxy tex, crpx;





MD: 8.982
TVD: 7.806.08
Inclination: 89.97
Azimuth: 358.08
VS: 954.18

TVD (ft)

7200

7200

TVD (ft)

gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mt, v
LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk,
wk difse, sl stmg, fnt mky bl - wh cut, no stn or od

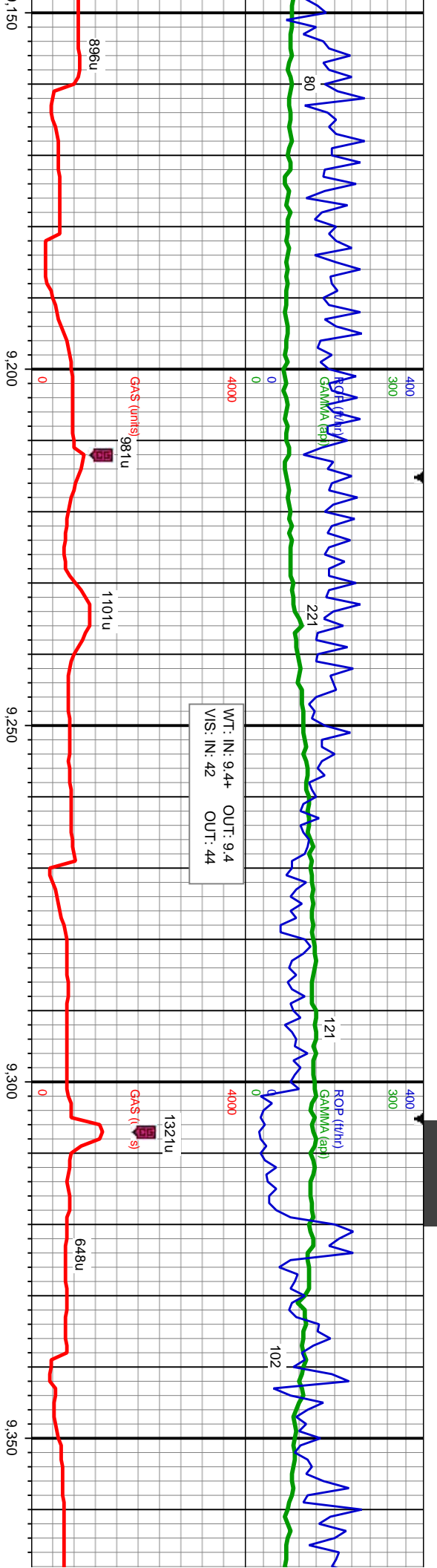
9500

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mt, v
calc, v rr dissim pyr, v wk difse, sl stmg, fnt mky bl - wh cut, no sin or od

9500

CHK: bf - brn, dk gy brn, mot dk gy, v frm
calc, v rr dissim pyr, LS: off wht - bf - brn
v wxy tex, cpxl; v wk difse, sl stmg, fnt





MD: 9.161
TVD: 7,805.94
Inclination: 90.12
Azimuth: 358.13
VS: 1.133.09

TVD (ft)

m, brit, sb blkly, rthy tex, arg calc mtx, v
l, lt gy lp, mod frm - hd, brit, ply - sb blkly,
mky bl - wh cut, no sin or od

9500

CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blkly, rthy tex, arg calc mtx, v
calc, v rr dissn pyr; LS: off wht - bf - brn, lt gy lp, mod frm - hd, brit, ply - sb blkly,
v wxy tex, crpxl; v wk difse, sl sting, fnt mky bl - wh cut, no sin or od

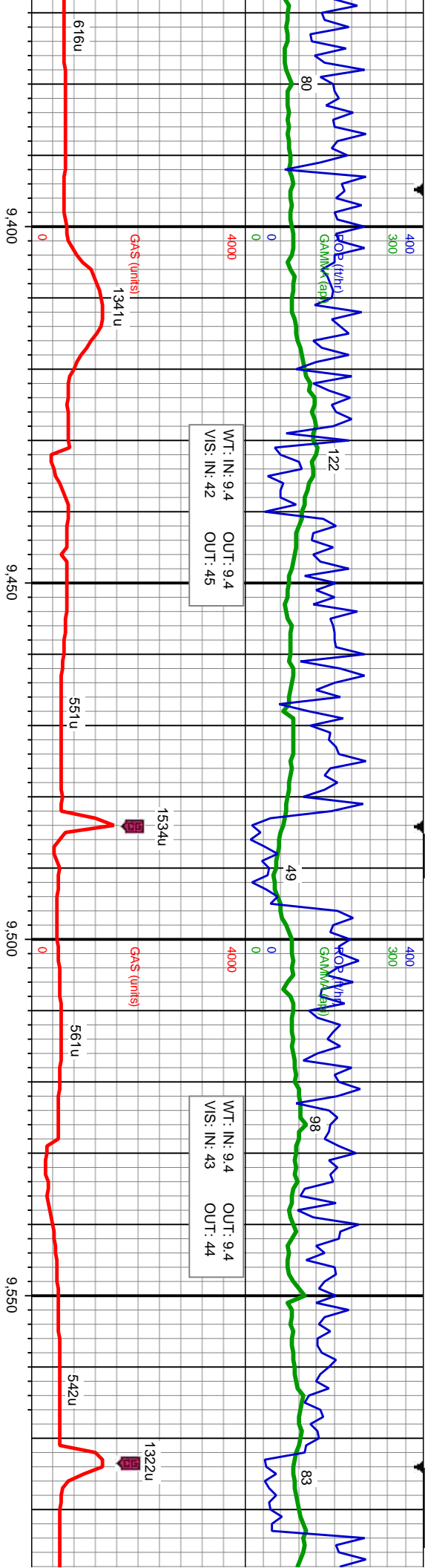
TVD (ft)

9500

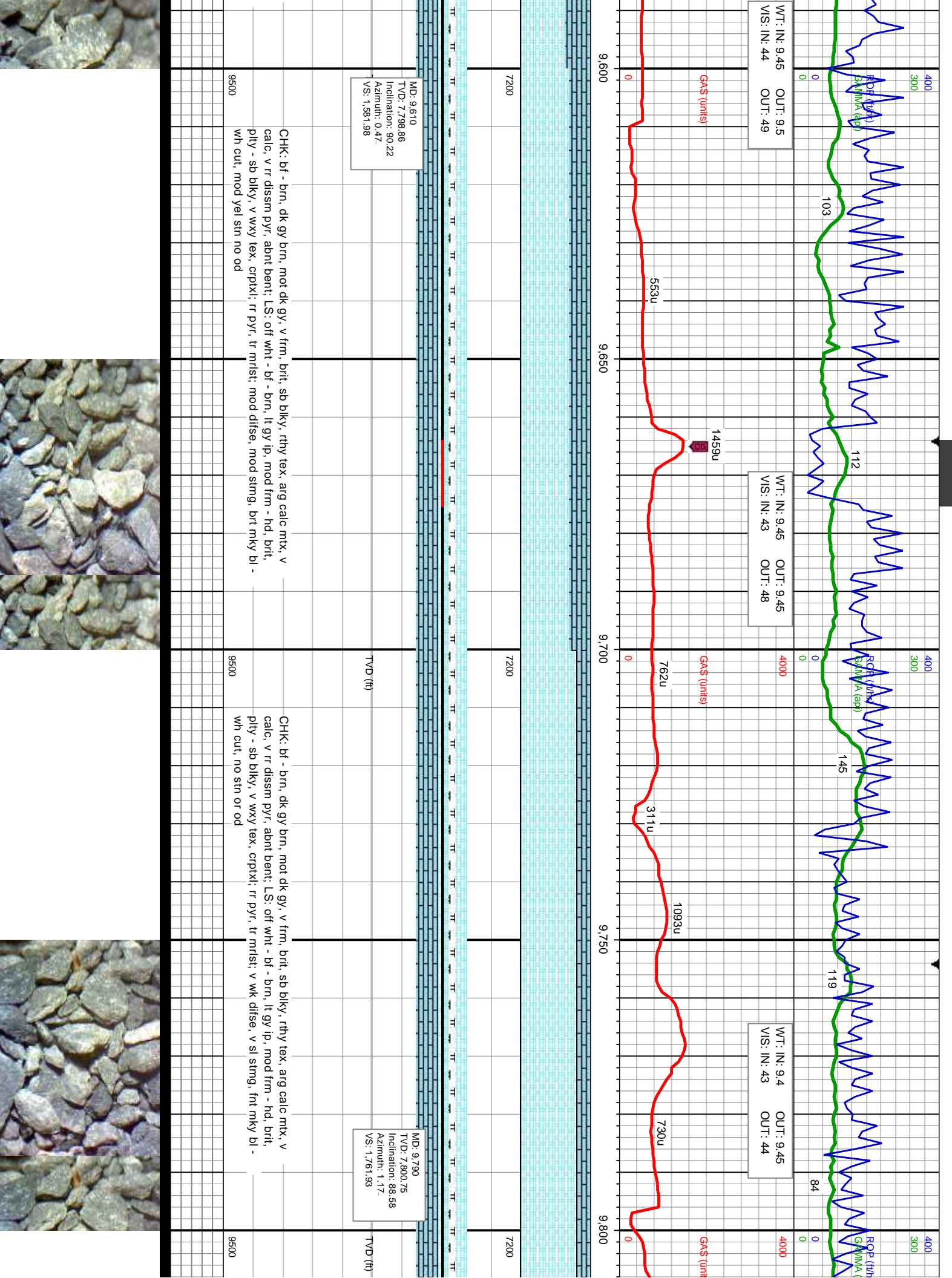
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TVD: 7,804.05
Inclination: 91.08
Azimuth: 359.34
VS: 1.313.04

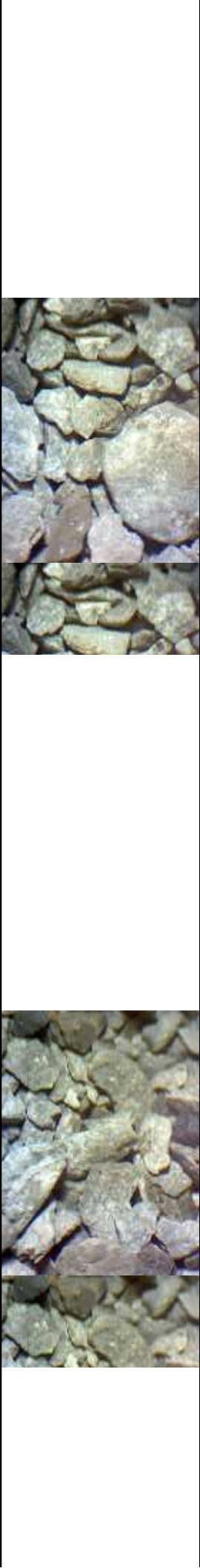
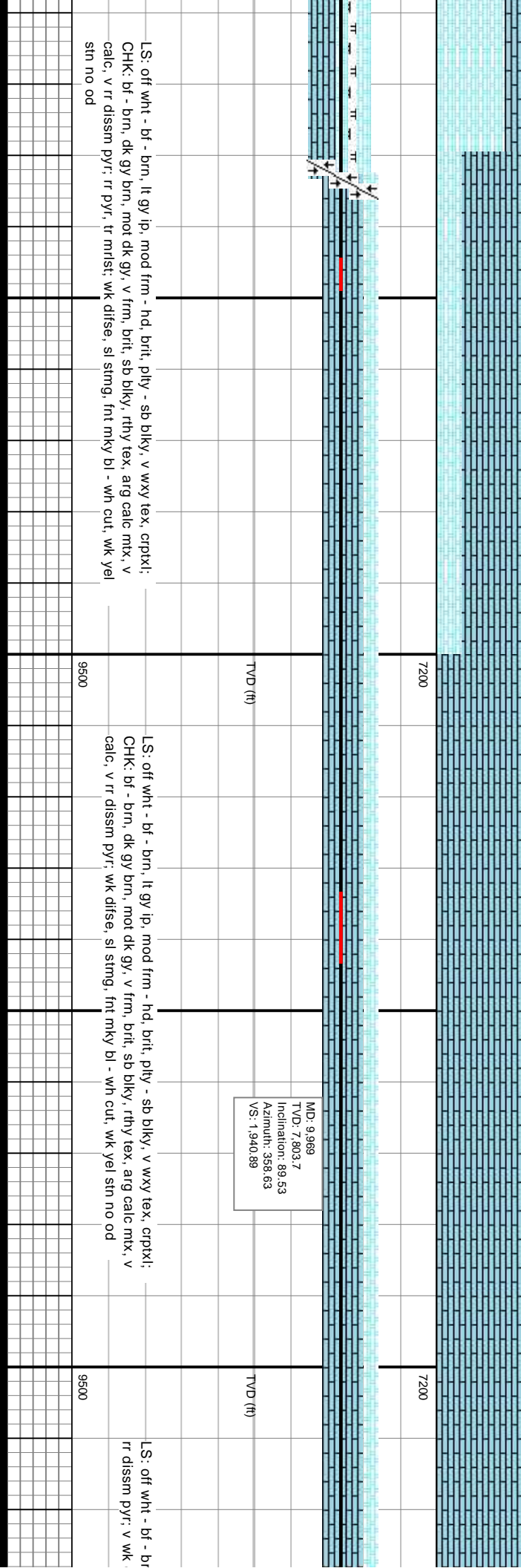
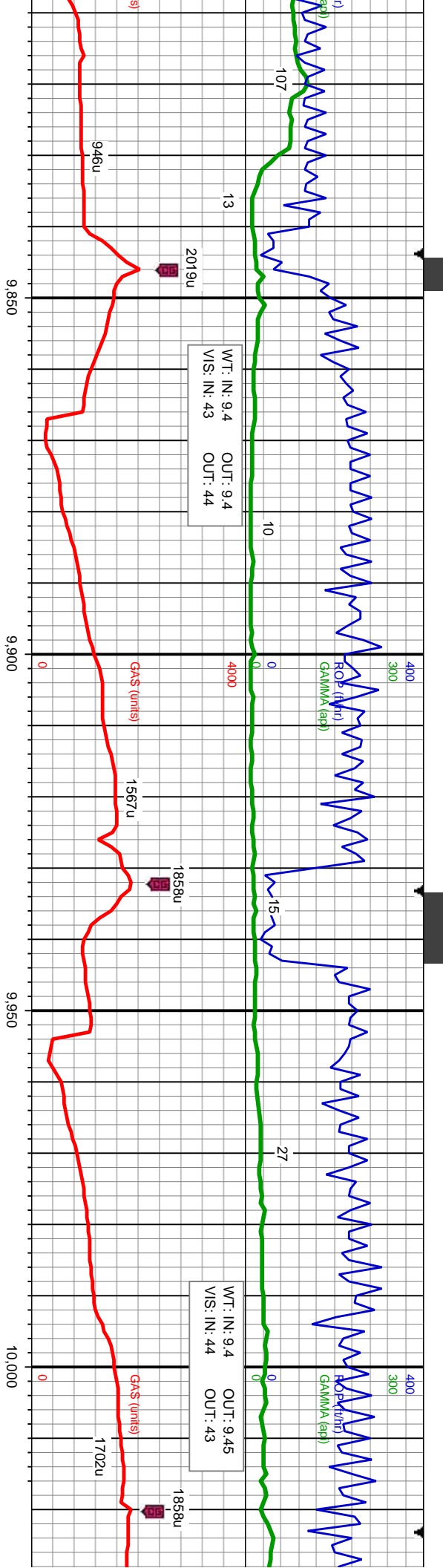
CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blkly, rthy
calc, v rr dissn pyr; abnt bent; LS: off wht - bf - brn, lt gy lp,
ply - sb blkly, v wxy tex, crpxl; abnt bri yel-orgn min flwr; mc
mod mky bl - wh cut, no sin or od

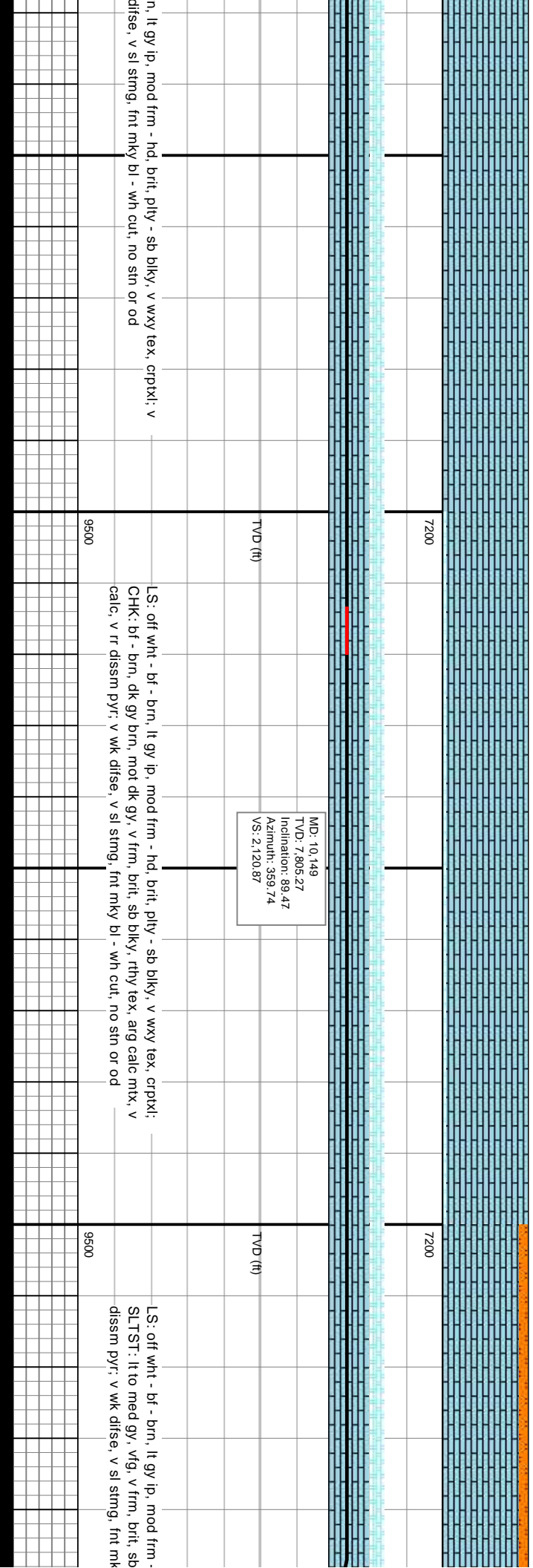
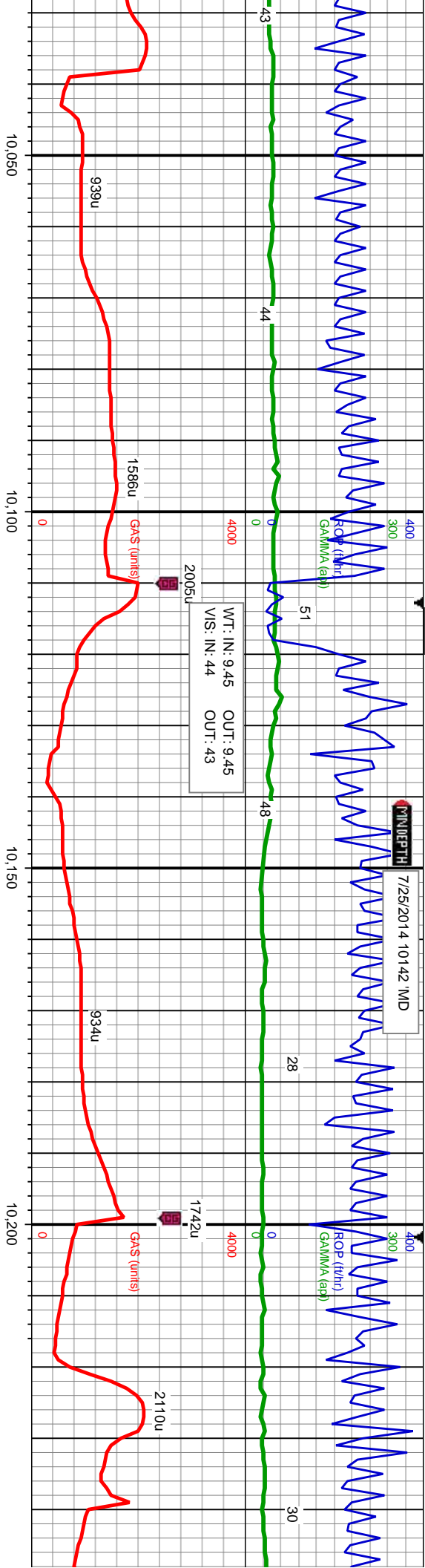




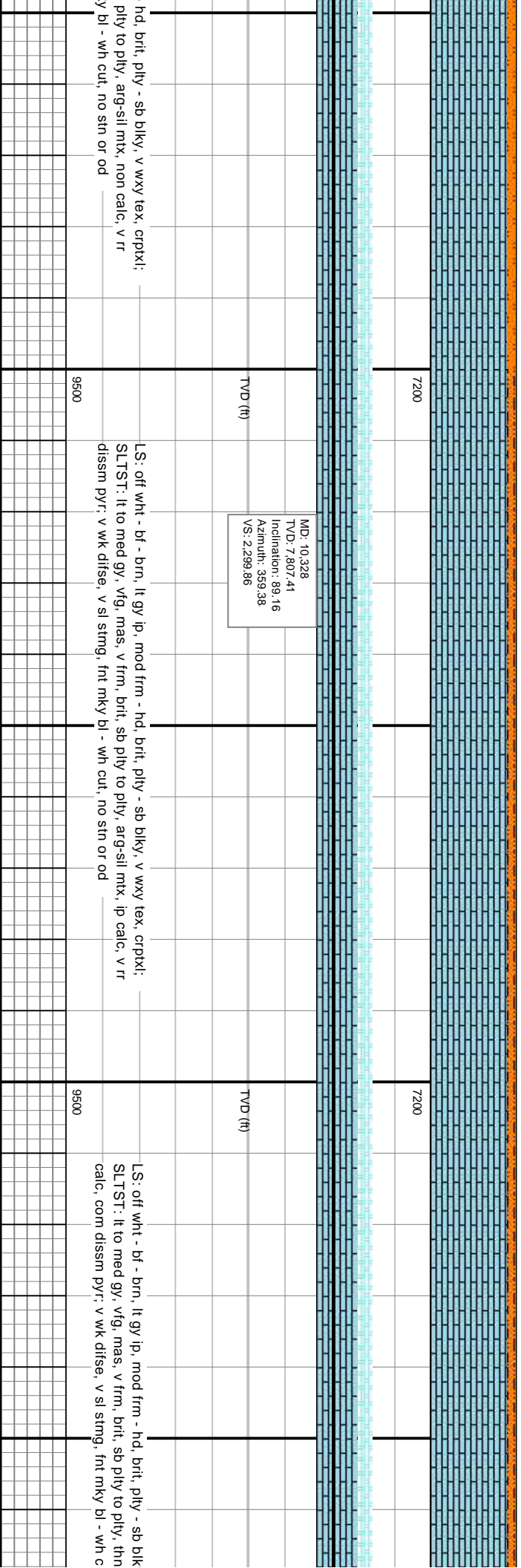
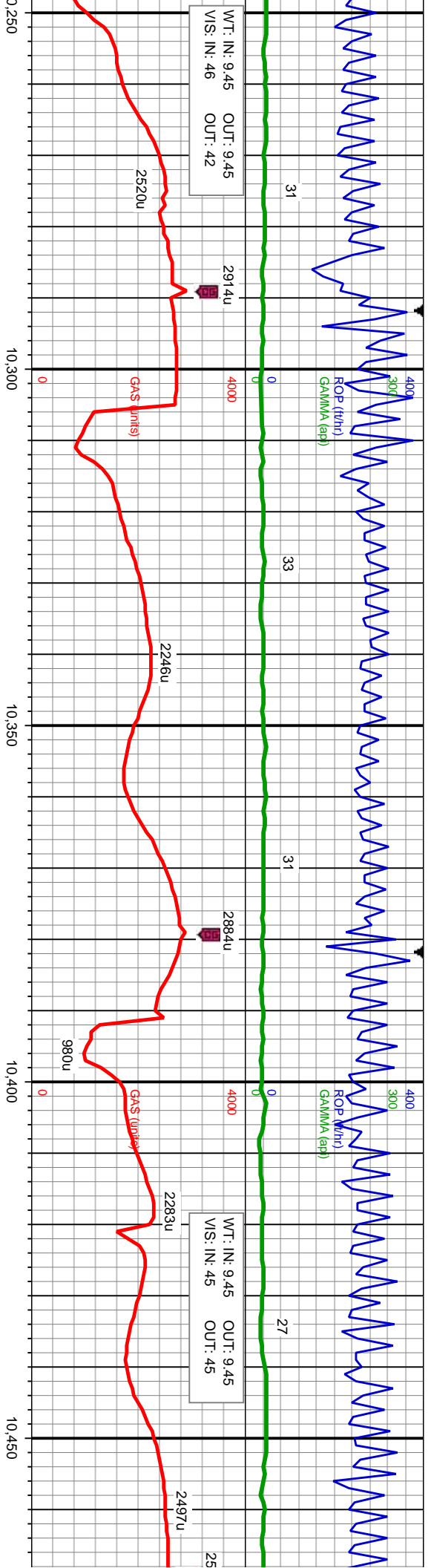
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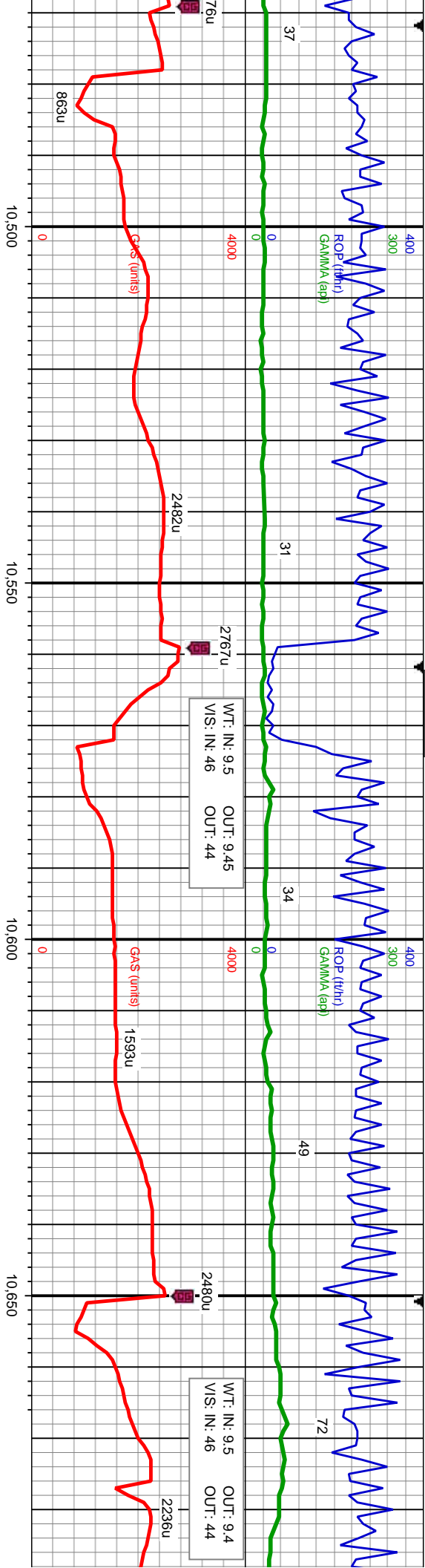






<p>It gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crptk; v difse, v sl stmg, fnt mky bl - wh cut, no sin or od</p>	<p>L.S.: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crptk; CHK: bf - brn, dk gy brn, mot dk gy, v frm, brit, sb blk, rthy tex, arg calc mix, v calc, v rr dissim pyr, v wk difse, v sl stmg, fnt mky bl - wh cut, no sin or od</p>	<p>L.S.: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crptk; SLTST: lt to med gy, vfg, v frm, brit, sb dissim pyr, v wk difse, v sl stmg, fnt mk</p>
<p>9500</p>	<p>9500</p>	<p>9500</p>





WT: IN: 9.5 OUT: 9.45
VIS: IN: 46 OUT: 44

WT: IN: 9.5 OUT: 9.4
VIS: IN: 46 OUT: 44

MD: 10,508
TVD: 7,810.19
Inclination: 89.07
Azimuth: 358.86
VS: 2,479.82

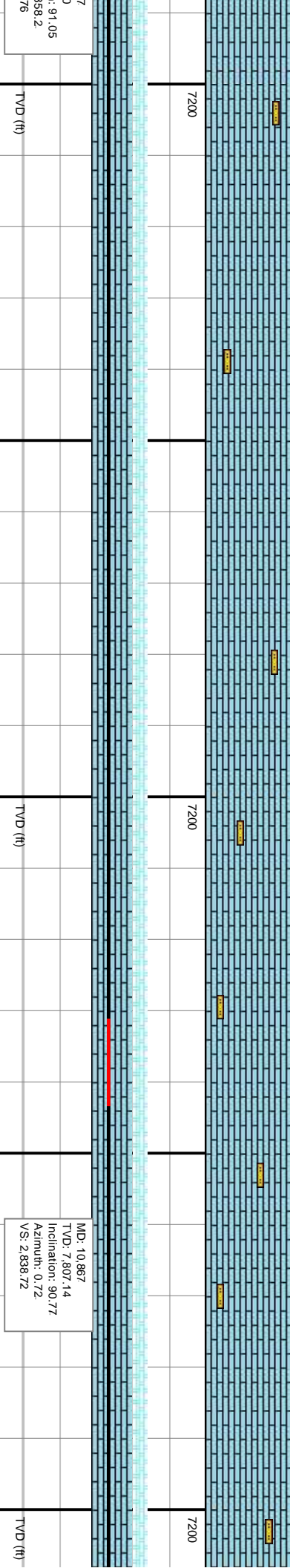
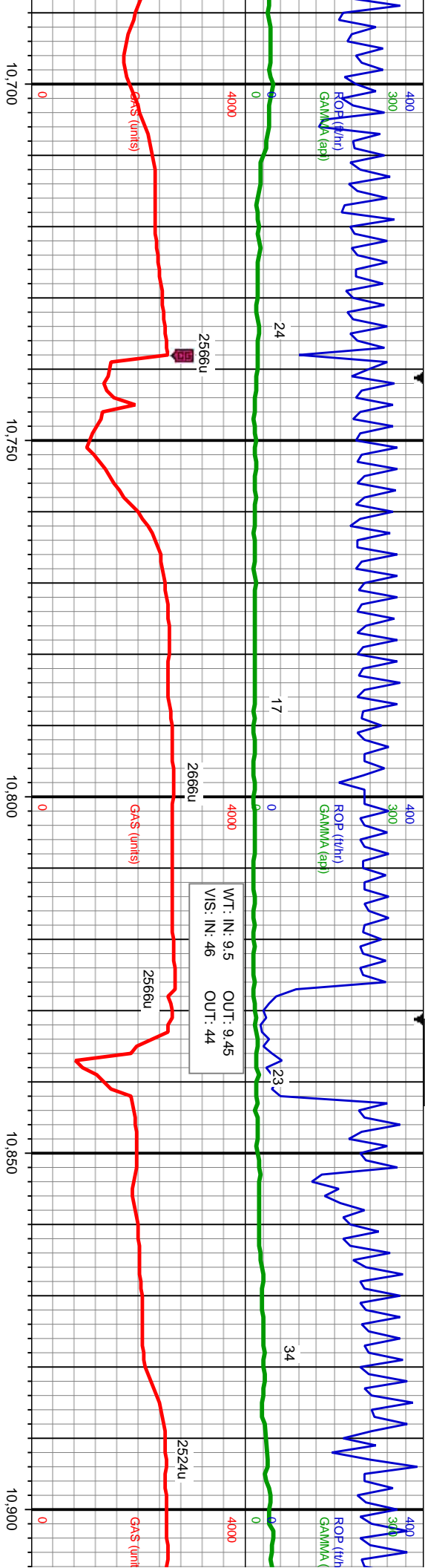
TVD (ft)

MD: 10,68
TVD: 7,81
Inclination:
Azimuth: :
VS: 2,658.

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crptk: tr
slst med to dk gy, vfg, mas, v frm, brit, sb ply to ply, thin lam arg-sil mtx, ip calc,
com dissim pyr, mod fast disse, mod slow stmg, fnt mky bl - wh cut, no stn or od

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy
tex, crptk: tr slst med to dk gy to blk, vfg, mas to lam, v frm, brit,
sb ply to ply, thin lam arg-sil mtx, ip calc, com dissim pyr, mod fast
disse, mod slow stmg, fnt mky bl - wh cut, no stn or od

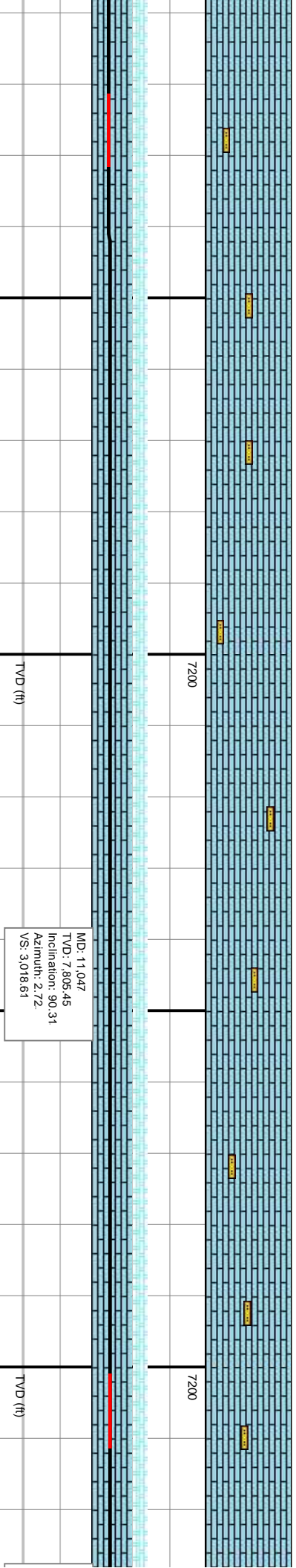
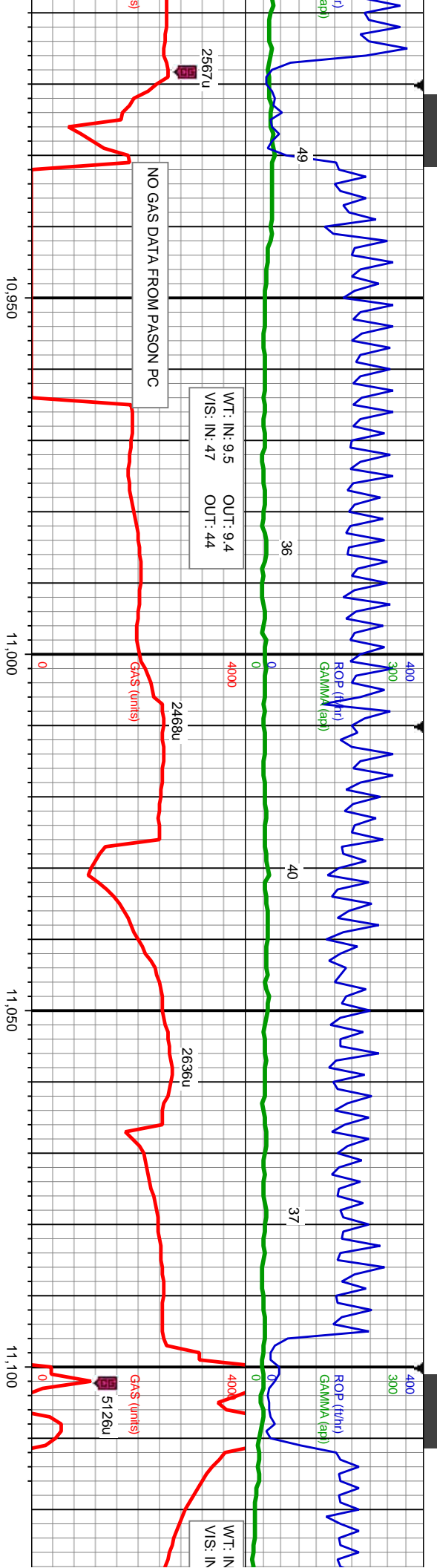




LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy
tex, crptxl: tr slst med to dk gy, occ blk, vfg, mas to lam, v frm,
brit, sb ply to ply, thin lam arg-sil mix, sl calc, com dissim pyr, mod
fast difse, mod slow sting, fnt mky bl - wh cut, no sin or od

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy
tex, crptxl: tr slst med to dk gy, occ blk, vfg, mas to lam, v frm, brit,
sb ply to ply, thin lam arg-sil mix, sl calc, com dissim pyr, mod fast
difse, mod slow sting, fnt mky bl - wh cut, no sin or od



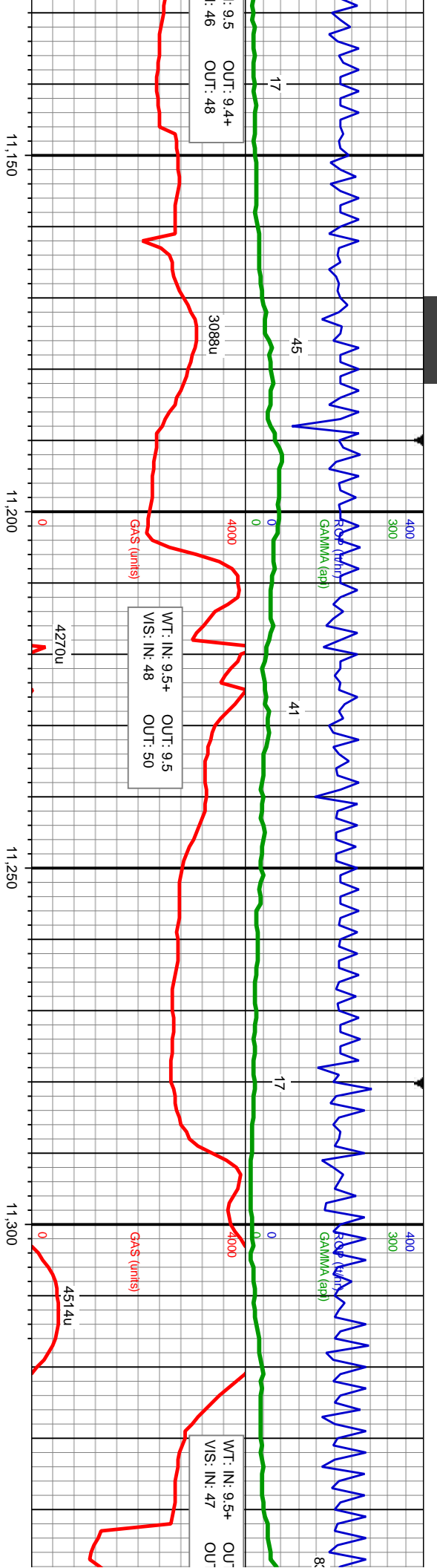


LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crptxl; tr slist med to dk gy, occ blk, vfg, mas to lam, v frm, brit, sb ply to ply, thn lam arg-sil mix, sl calc, com dissim pyr; mod wk difse, slow string, fnt mky bl - wh cut, no sin or od

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crptxl; tr slist med to dk gy, occ blk, vfg, mas to lam, v frm, brit, sb ply to ply, thn lam arg-sil mix, sl calc, com dissim pyr; mod fast difse, mod slow string, fnt mky bl - wh cut, no sin or od

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, v wxy tex, crptxl; tr slist med to dk gy, occ blk, vfg, mas to lam, v frm, brit, sb ply to ply, thn lam arg-sil mix, sl calc, com dissim pyr; mod fast difse, mod slow string, fnt mky bl - wh cut, no sin or od





WT: 9.5+
VIS: 46
OUT: 48

WT: 9.5+
VIS: 48
OUT: 50

WT: 9.5+
VIS: 47
OUT: 48

MD: 11,136
TVD: 7,806.38
Inclination: 88.49
Azimuth: 2.32
VS: 3.107.5

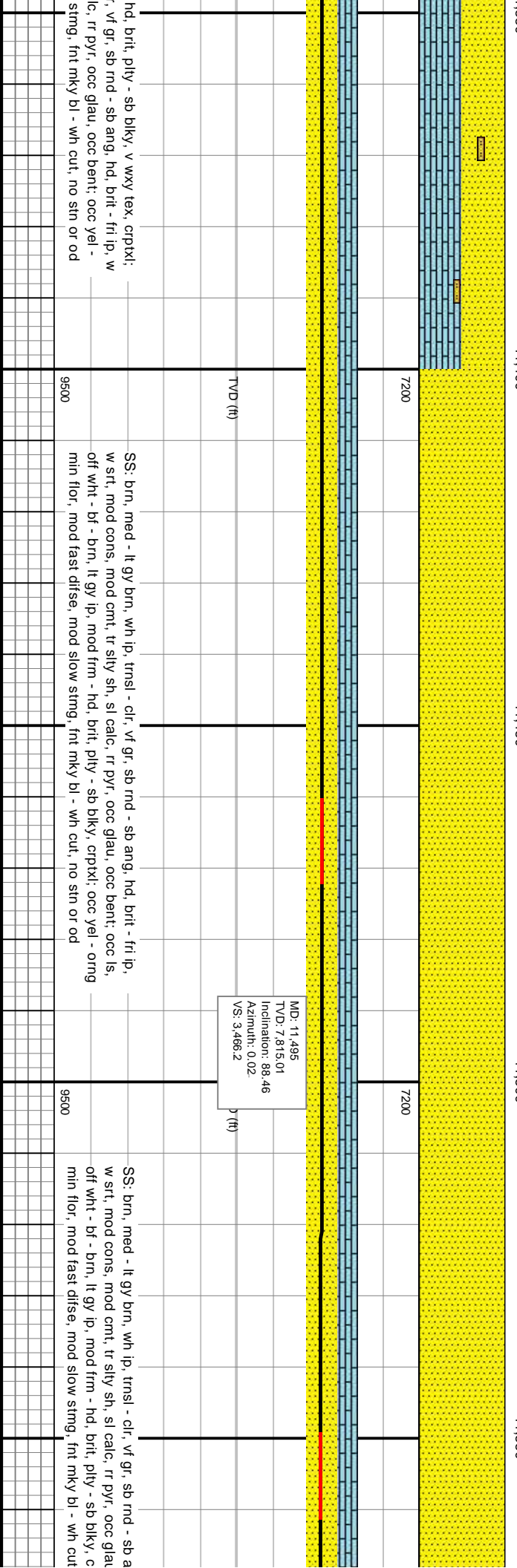
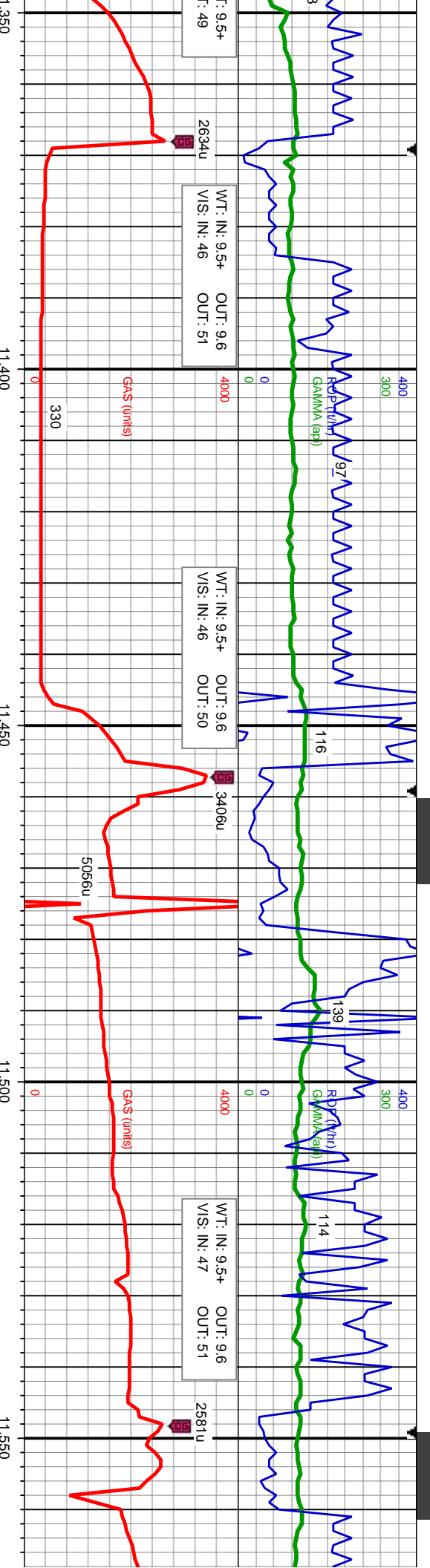
MD: 11,316
TVD: 7,810.68
Inclination: 88.77
Azimuth: 2.1
VS: 3.287.3

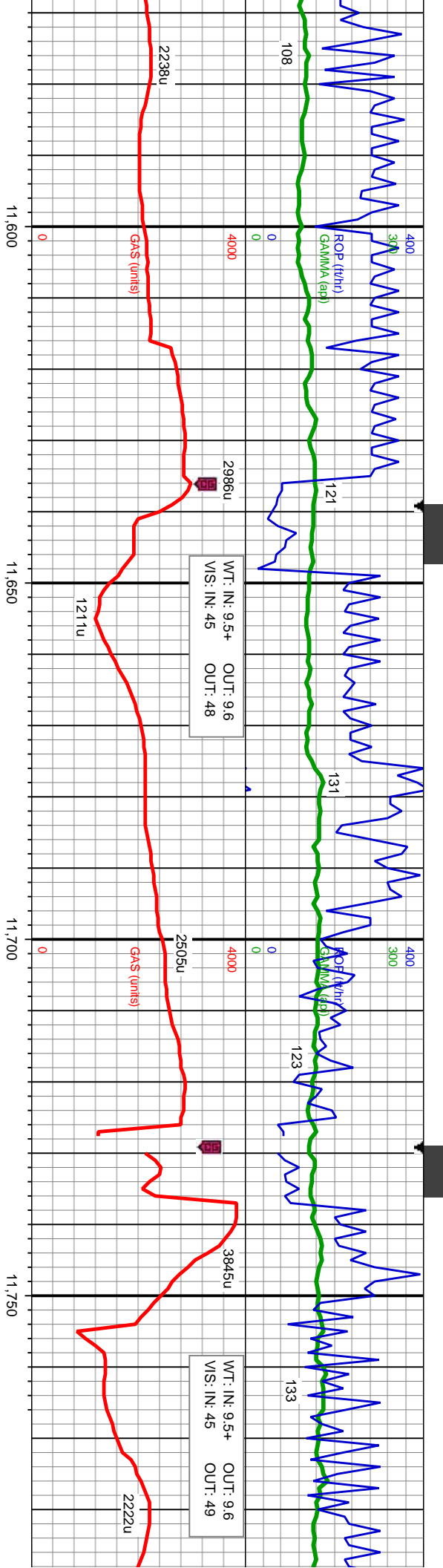
bf - brn, lt gy ip, mod frm - hd, brit, pty - sb blk, v wxy
r slst med to dk gy, occ blk, vfg, mas to lam, v frm,
to pty, thn lam arg-sil mtx, sl calc, com dissim pyr, mod
mod slow stmg, fnt mky bl - wh cut, no stn or od

LS: off wht - bf - brn, lt gy ip, mod frm - hd, brit, pty - sb blk, v
wxy tex, cpxl; tr slst med to dk gy, occ blk, vfg, mas to lam, v
frm, brit, sb pty to pty, thn lam arg-sil mtx, sl calc, com dissim
pyr; mod wk dfse, slow stmg, fnt mky bl - wh cut, no stn or od

LS: off wht - bf - brn, lt gy ip, mod frm -
SS: brn, med - lt gy brn, wh ip, trns - cl
str, mod cons, mod cnt, tr slty sh, sl ca
orng min flr, mod fast dfse, mod slow







WT: IN: 9.5+ OUT: 9.6
VS: IN: 45 OUT: 48

WT: IN: 9.5+ OUT: 9.6
VS: IN: 45 OUT: 49

MD: 11.585
TVD: 7,816.41
Inclination: 89.75
Azimuth: 359.97
VS: 3,556.18

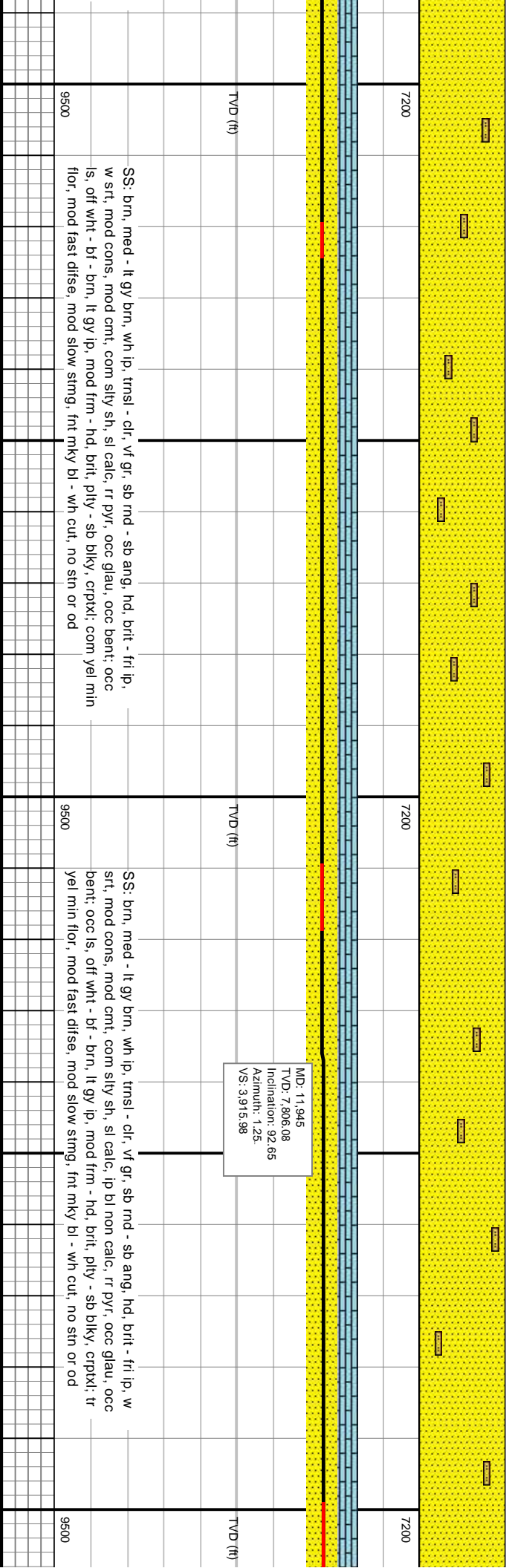
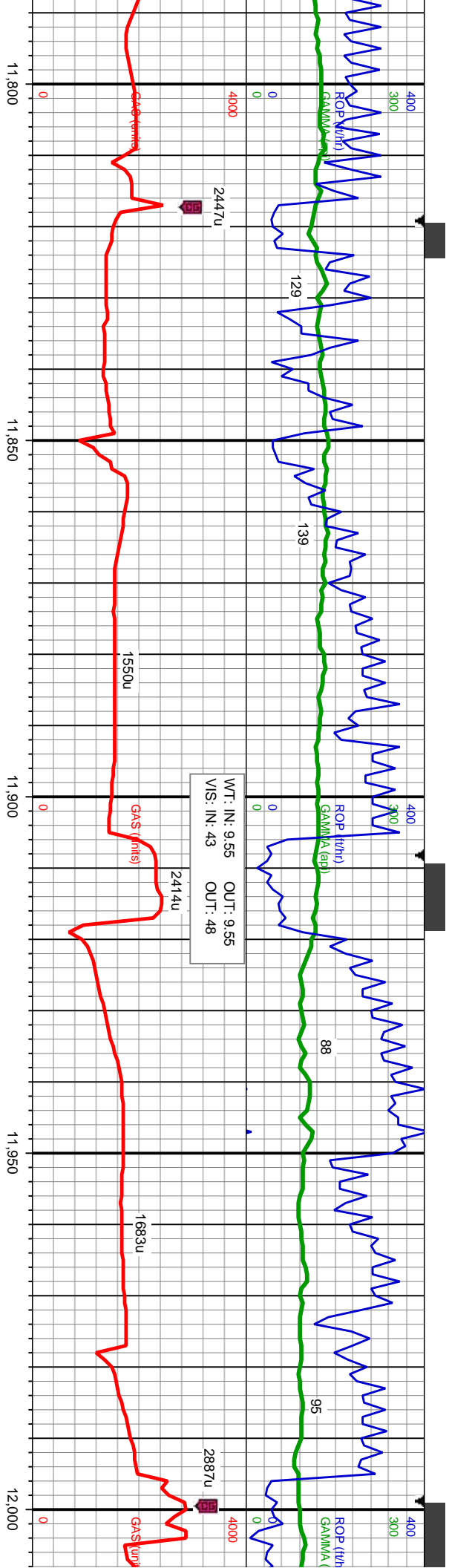
MD: 11.765
TVD: 7,813.52
Inclination: 92.09
Azimuth: 359.3
VS: 3,736.15

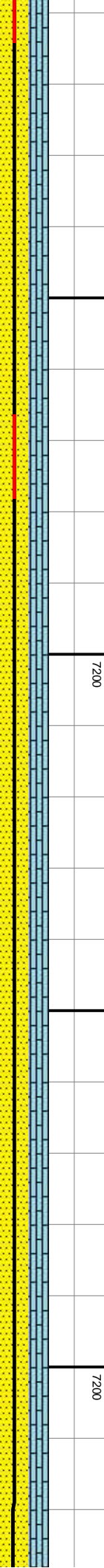
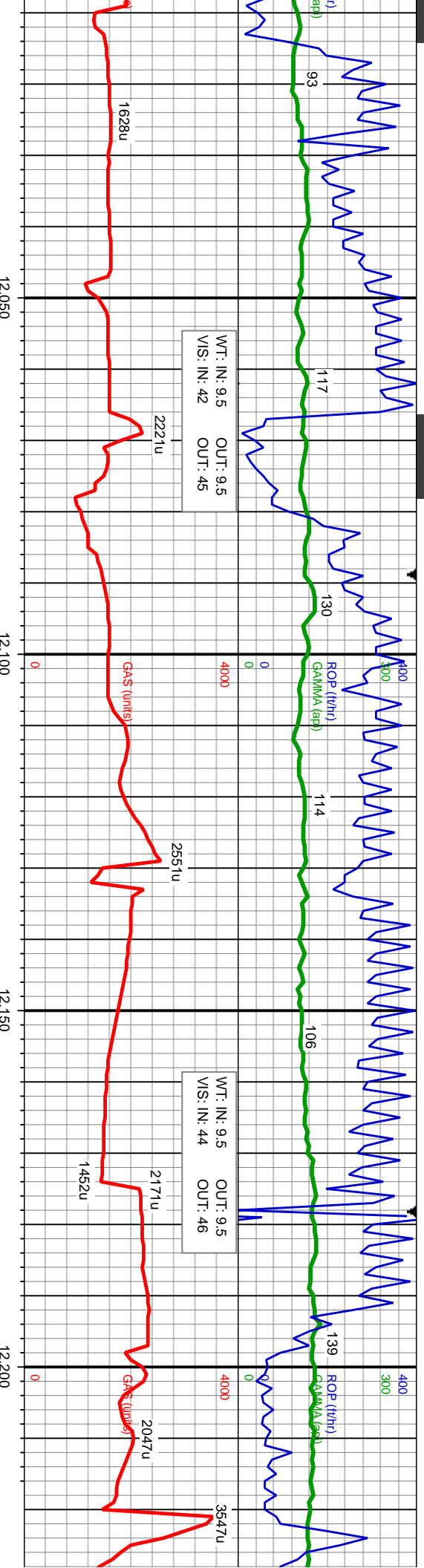
ng, hd, brit - fri ip, w srt, mod cons, mod cmt, tr sily sh, sl calc, rr pyr, occ glau, occ bent; occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, cpptx; occ yel - orng min flor, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no stn or od

SS: brn, med - lt gy brn, wh ip, trns - clr, vf gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, tr sily sh, sl calc, rr pyr, occ glau, occ bent; occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, cpptx; occ yel - orng min flor, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no stn or od

SS: brn, med - lt gy brn, wh ip, trns - clr, vf gr, sb rnd - sb ang, hd, brit - fri ip, w srt, mod cons, mod cmt, tr sily sh, sl calc, rr pyr, occ glau, occ bent; occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, ply - sb blk, cpptx; occ yel - orng min flor, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no stn or od







MD: 12.124
TVD: 7,803.97
Inclination: 88.7
Azimuth: 1.29
VS: 4,094.88

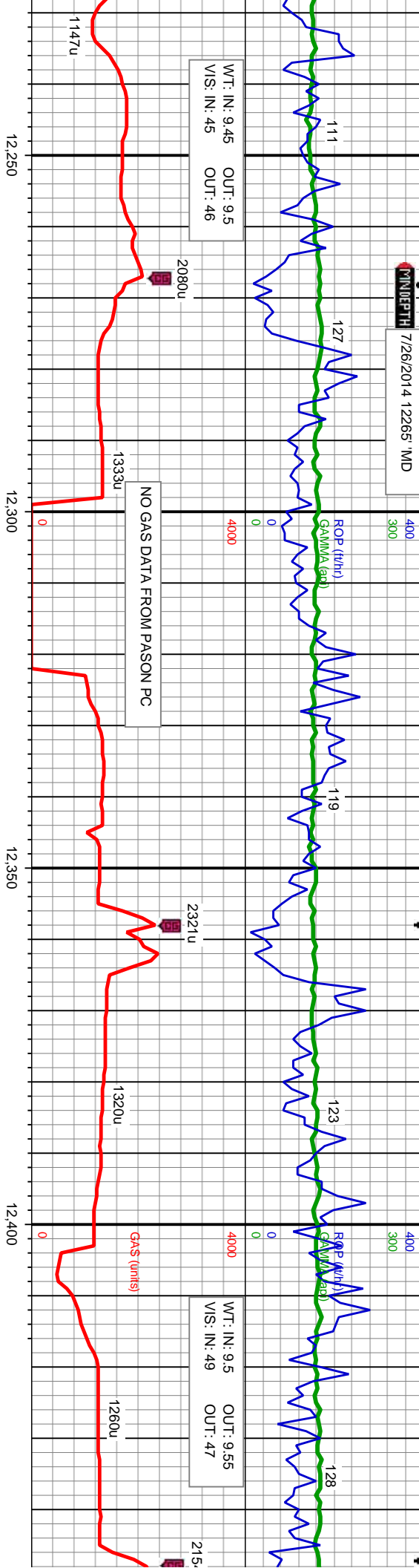
SS: brn, med - lt gy brn, wh ip, trnsI - clt, f-vf gr, sb md - sb ang ip pily, hd, brit - fri
ip, w srt, mod cons, mod cmt, com silty sh, sl calc, ip bl non calc, rr pyr, occ glau,
occ bent, occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, pily - sb blkly, cpixt;
com yel min flor, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no stn or od

SS: brn, med - lt gy brn, wh ip, trnsI - clt, f-vf gr, sb md - sb ang ip pily, hd, brit - fri ip,
w srt, mod cons, mod cmt, com str silty sh, sl calc, ip bl non calc, rr pyr, occ glau, occ
bent, occ ls, off wht - bf - brn, lt gy ip, mod frm - hd, brit, pily - sb blkly, cpixt; com yel
min flor, mod fast difse, mod slow stmg, fnt mky bl - wh cut, no sin or od

SS: brn, med - lt gy
w srt, mod cons, mc
sb blkly, sb fls, gt te
min flor, mod fast d



DATE: 7/26/2014 12:26:51 MD



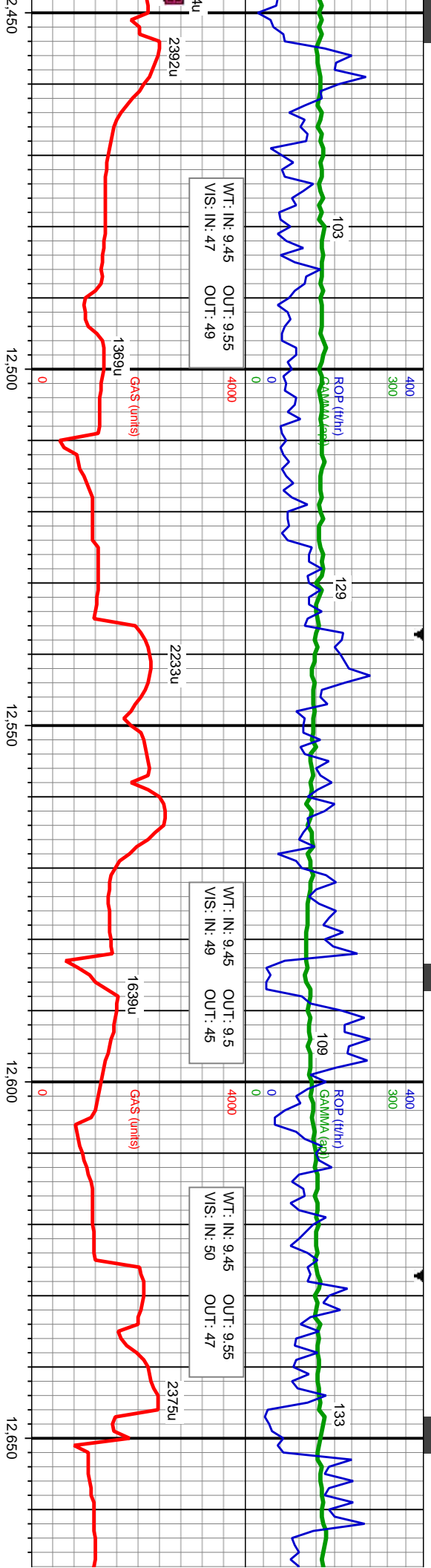
MD: 12,304
TVD: 7,808.64
Inclination: 88.33
Azimuth: 0.09
VS: 4.274.79

wh ip, trnsi - clt, f-vf gr, sb rnd - sb ang ip pily, hd, brit - fri ip, mod cal cmt: SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb pily - k, arg - sily mty, occ ss, v calc thru, tr dissim pyr, tr bent; tr yel fse, mod slow sting, frnt mky bl - wh cut, no sin or od

SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb pily, sb fis, gt tex, arg - sily mty, occ ss, v calc thru, tr dissim pyr; SS: brn, med - lt gy, wh ip, trnsi - clt, f-vf gr, sb rnd - sb ang ip pily, hd, brit - fri ip, w srt, mod cons, mod cal cmt; rr pyr; tr bent, occ glau, tr bent; tr yel min flor, mod wk difse, slow sting, frnt mky bl - wh cut, no sin or od

SLTY SH: dk gy - blk, sdy ip, mod - sl frm, occ ss, v calc thru, tr dissim pyr; SS: brn, l sb ang ip pily, hd, brit - fri ip, w srt, mod c bent; tr yel min flor, mod wk difse, slow st





MD: 12.484
TVD: 7.810
Inclination: 90.8
Azimuth: 359.41
VS: 4.454.77

TVD (ft)

TVD (ft)

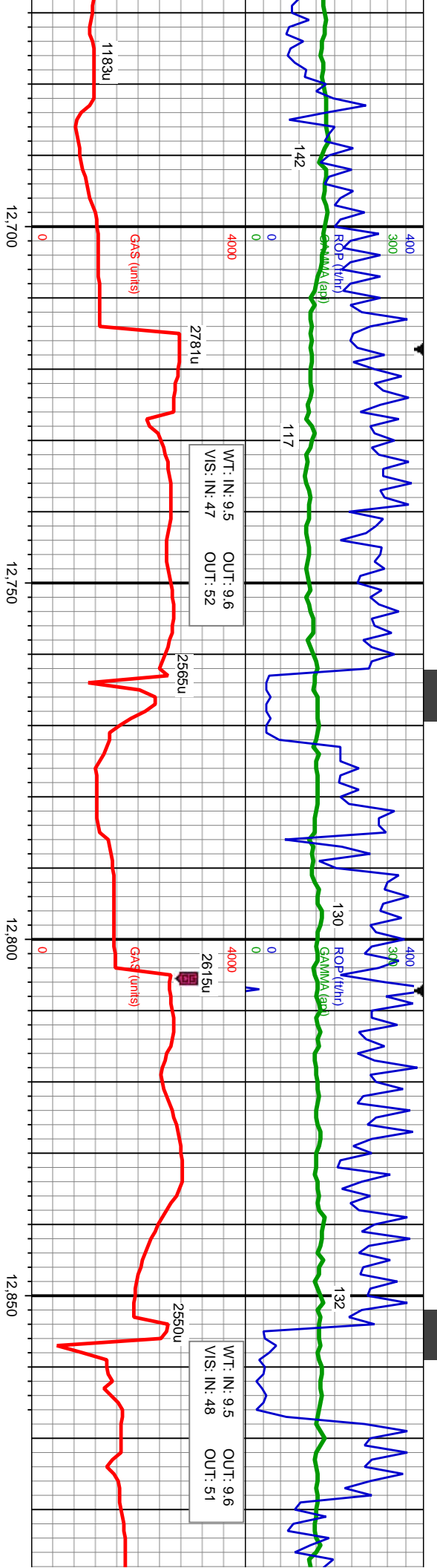
MD: 12.663
TVD: 7.805.93
Inclination: 91.
Azimuth: 359.2
VS: 4.633.72

sb ply - sb blk, sb fis, gt tex, arg - silty mix,
med - lt gy, wh ip, trnsf - clt, f-vf gr, sb rnd -
ons, mod cal cnt, tr pyr, tr bent, occ glau, tr
mg, fnt mky bl - wh cut, no sin or od

SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb ply - sb blk, sb
fis, gt tex, arg - silty mix, occ ss, v calc thru, tr diss pyr,
mod wk difse, slow stmg, fnt mky bl - wh cut, no sin or od

SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb ply
fis, gt tex, arg - silty mix, occ ss, v calc thru, tr di
mod wk difse, slow stmg, fnt mky bl - wh cut, no





7200

7200

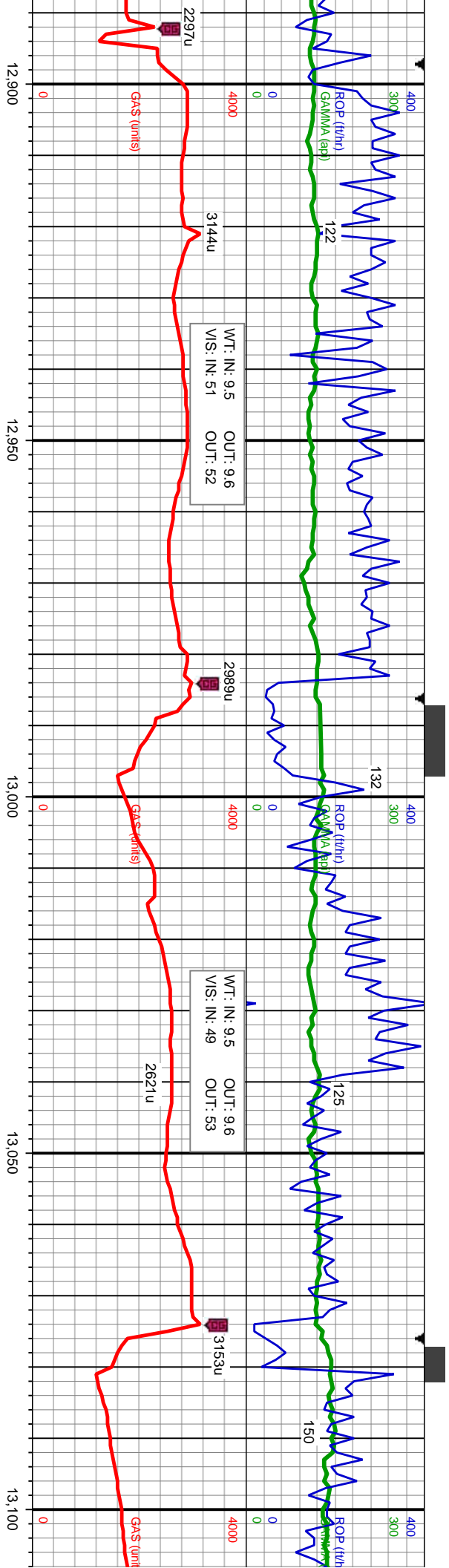
TVD (ft)

MD: 12,798
TVD: 7,802.35
Inclination: 91.23
Azimuth: 358.04
VS: 4.768.64

SS: brn, med - lt gy, wh ip, trnsi - cl, f-vf gr, sb rnd - sb ang ip ply, hd, brit - fr ip, w srt, mod cons, mod cal cnt; SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb ply - sb blk, sb fis, gt tex, arg - stly mt, occ ss, v calc thru, tr dissn pyr; rr pyr; tr bent, occ glau, tr bent; tr yel min flr, mod wk difse, slow sting, frt mky bl - wh cut, no sin or od

SS: brn, med - lt gy, wh ip, trnsi - cl, f-vf gr, sb rnd - sb ang ip ply, hd, brit - fr ip, w srt, mod cons, mod cal cnt; SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb ply - sb blk, sb fis, gt tex, arg - stly mt, occ ss, v calc thru, tr dissn pyr; rr pyr; tr bent, occ glau, tr bent; tr yel min flr, mod fast difse, mod slow sting, frt mky bl - wh cut, no sin or od





7200

7200

7200

MD: 12.933
TVD: 7,801.96
Inclination: 89.1
Azimuth: 359.3
VS: 4.903.6

MD: 13.023
TVD: 7,802.51
Inclination: 90.19
Azimuth: 358.79
VS: 4.993.58

MD: 13.023
TVD: 7,802.51
Inclination: 90.19
Azimuth: 358.79
VS: 4.993.58

TVD (ft)

TVD (ft)

TVD (ft)

SS: brn, med - lt gy, wh ip, tnsl - clr, f-vf gr, sb md - sb ang ip plty, hd, brit - fri ip, w srt, mod cons, mod cal cm; SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb plty - sb blk, sb fls, gt tex, arg - sily mtk, occ ss, sl calc thru, tr dissn pyr; rr pyr; tr bent, occ glau, tr bent; tr yel min flr, mod fast difse, mod fast stmg, mod bri mky bl - wh cut, no sin or od

SS: brn, med - lt gy, wh ip, tnsl - clr, f-vf gr, sb md - sb ang ip plty, hd, brit - fri ip, w srt, mod cons, mod cal cm; SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb plty - sb blk, sb fls, gt tex, arg - sily mtk, occ ss, sl calc thru, tr dissn pyr; rr pyr; tr bent, occ glau, tr bent; tr yel min flr, mod fast difse, mod fast stmg, mod bri mky bl - wh cut, no sin or od

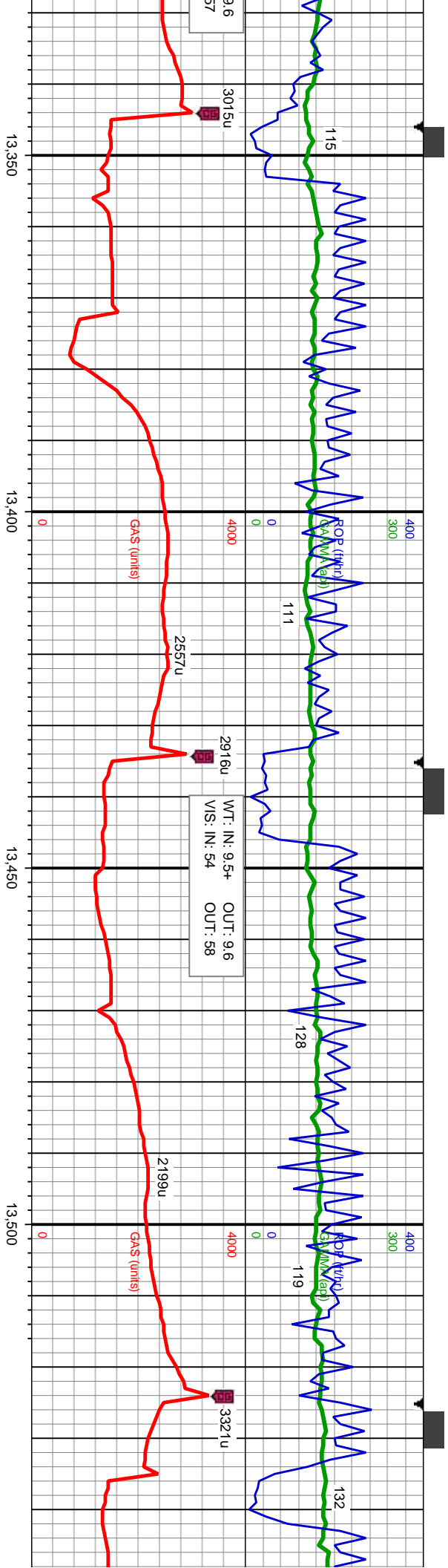
SS: brn, med - lt gy, wh ip, tnsl - clr, f-vf gr, sb md - sb ang ip plty, hd, brit - fri ip, w srt, mod cons, mod cal cm; SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb plty - sb blk, sb fls, gt tex, arg - sily mtk, occ ss, sl calc thru, tr dissn pyr; rr pyr; tr bent, occ glau, tr bent; tr yel min flr, mod fast difse, mod fast stmg, mod bri mky bl - wh cut, no sin or od

9500

9500

9500



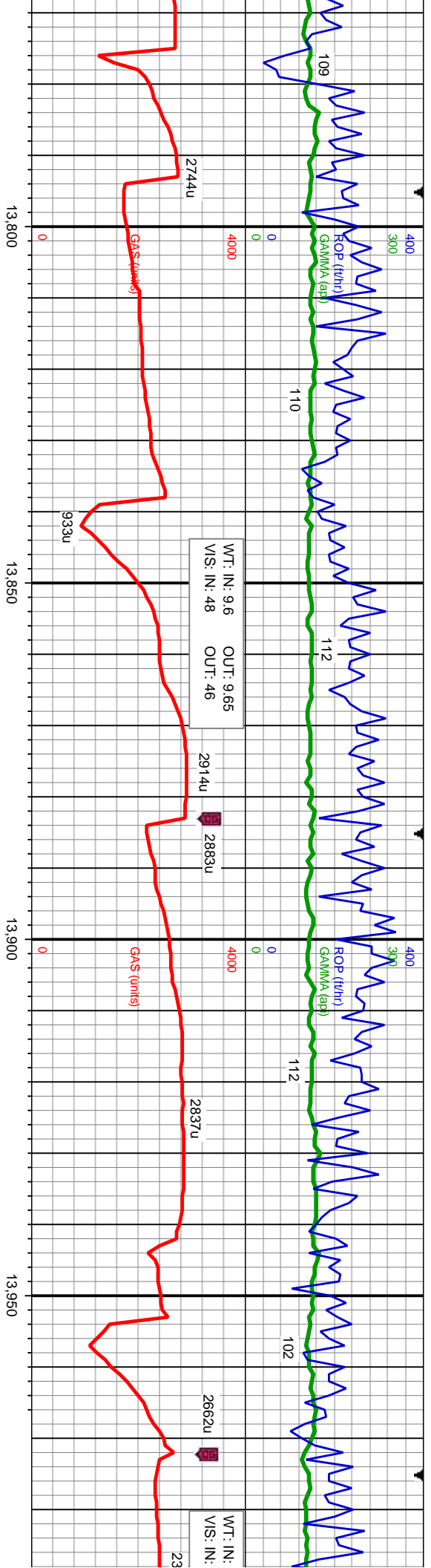


ip, trnsi - clr, f-vf gr, sb rnd - sb ang ip ply, hd, brit - fri ip, w srt, ip, trnsi - clr, f-vf gr, sb rnd - sb ang ip ply, hd, brit - fri ip, w srt, SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb ply - sb blk, sb x, occ ss, sl calc thru, tr dissn pyr, rr pyr, tr bent, occ glau, tr mod fast difse, mod fast stmg, mod bri mky bl - wh cut, no stn or od

SS: brn, med - lt gy, wh ip, trnsi - clr, f-vf gr, sb rnd - sb ang ip ply, hd, brit - fri ip, w srt, mod cons, mod cal cmt, SLTY SH: dk gy - blk, sdy ip, mod - sl frm, sb ply - sb blk, sb fls, gt tex, arg - sily mt, occ ss, sl calc thru, tr dissn pyr, rr pyr, tr bent, occ glau, tr bent, tr yel min flr, mod fast difse, mod fast stmg, mod bri mky bl - wh cut, no stn or od

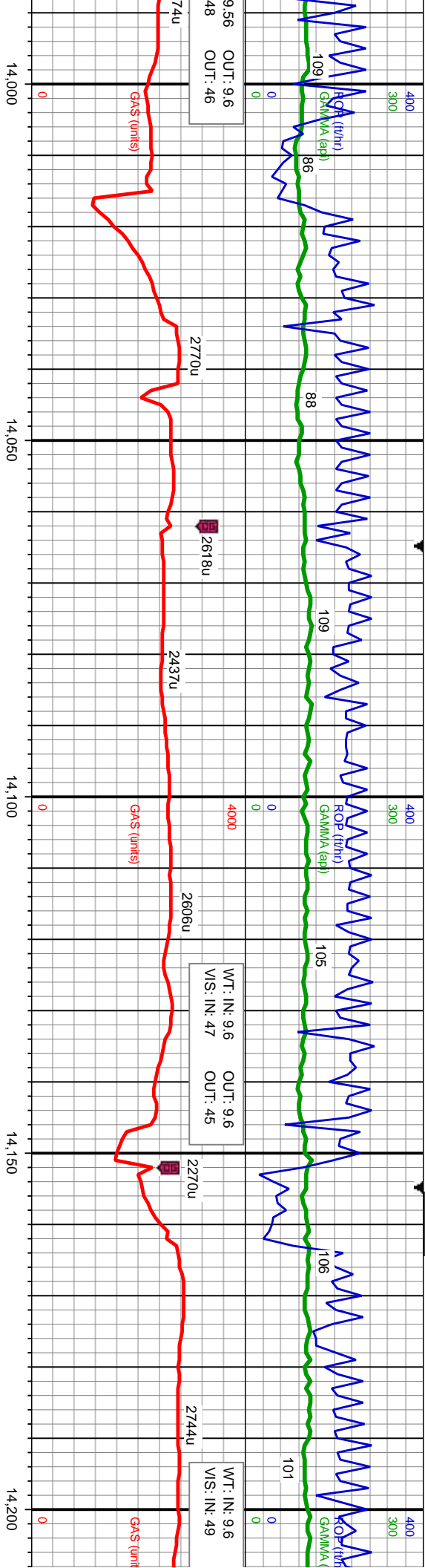
SS: brn, med - lt gy, wh ip, trnsi - clr, f-vf ip, w srt, mod cons, mod cal cmt, sl calc yel min flr, mod fast difse, mod fast st





7200		7200	
SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clr, f-vf gr, sb rnd - sb ang ip pily, hd, brit - fri ip, w srt, mod cons, mod cal cmt, ip arg, sl calc thru, rr dissim pyr, rr bent, occ glau: rr yel min flor, mod fast difse, mod fast sting, mod bri mky bl - wh cut, no stn or od		SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clr, f-vf gr, sb rnd - sb ang ip pily, hd, brit - fri ip, w srt, mod cons, mod cal cmt, ip arg, sl calc thru, rr dissim pyr, rr bent, occ glau: rr yel min flor, mod fast difse, mod fast sting, mod bri mky bl - wh cut, no stn or od	
TVD (ft)		TVD (ft)	
MD: 13.831 TVD: 7.793.7 Inclination: 90.32 Azimuth: 359.33 VS: 5.801.19			
9500		9500	





9.56 OUT: 9.6
48 OUT: 46

WT: IN: 9.6 OUT: 9.6
VS: IN: 47 OUT: 45

WT: IN: 9.6
VS: IN: 49

MD: 14.011
TVD: 7.791.77
Inclination: 90.86
Azimuth: 358.64
VS: 5.981.16
TVD

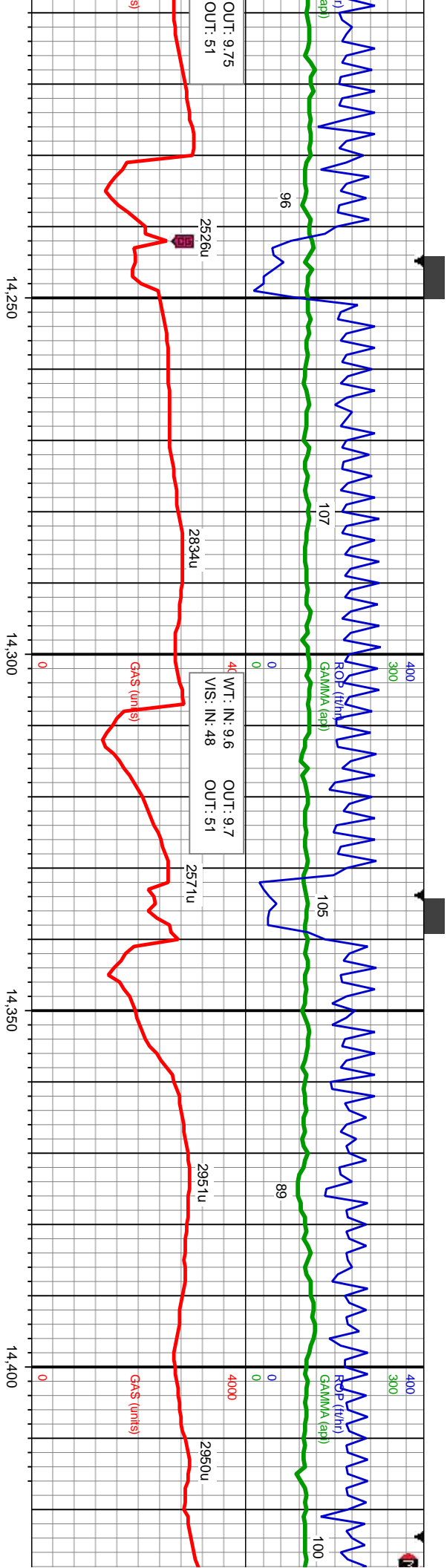
TVD (ft)

MD: 14.190
TVD: 7.789.18
Inclination: 90.8
Azimuth: 0.02
VS: 6.160.12
TVD (ft)

SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clt, f-vf gr, sb rnd - sb
ang ip pily, hd, brlt - fri ip, w srt, mod cons, mod cal cmt, ip arg,
sl calc thru, rr dissn pyr, rr bent, occ glau; rr yel min flor, mod
fast difse, mod fast stmg, mod bri mky bl - wh cut, no sin or od

SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clt, f-vf gr, sb rnd - sb
ang ip pily, ip flky, hd, brlt - fri ip, w srt, mod cons, mod cal cmt, ip
arg, sl calc thru, rr dissn pyr, rr bent, occ glau; rr yel min flor, mod
fast difse, mod fast stmg, mod bri mky bl - wh cut, no sin or od





SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clr, f-vf gr, sb rnd - sb ang ip plty, hd, brlt - fri ip, w srt, mod cons, mod cal cmt, ip arg, sl calc thru, rr dissim pyr, rr bent, occ glau; rr yel min flor, mod fast difse, mod fast sting, mod bri mky bl - wh cut, no sin or od

SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clr, f-vf gr, sb rnd - sb ang ip plty, hd, brlt - fri ip, w srt, mod cons, mod cal cmt, ip arg, sl calc thru, rr dissim pyr, tr bent, occ glau; tr yel min flor, mod fast difse, mod fast sting, mod bri mky bl - wh cut, no sin or od

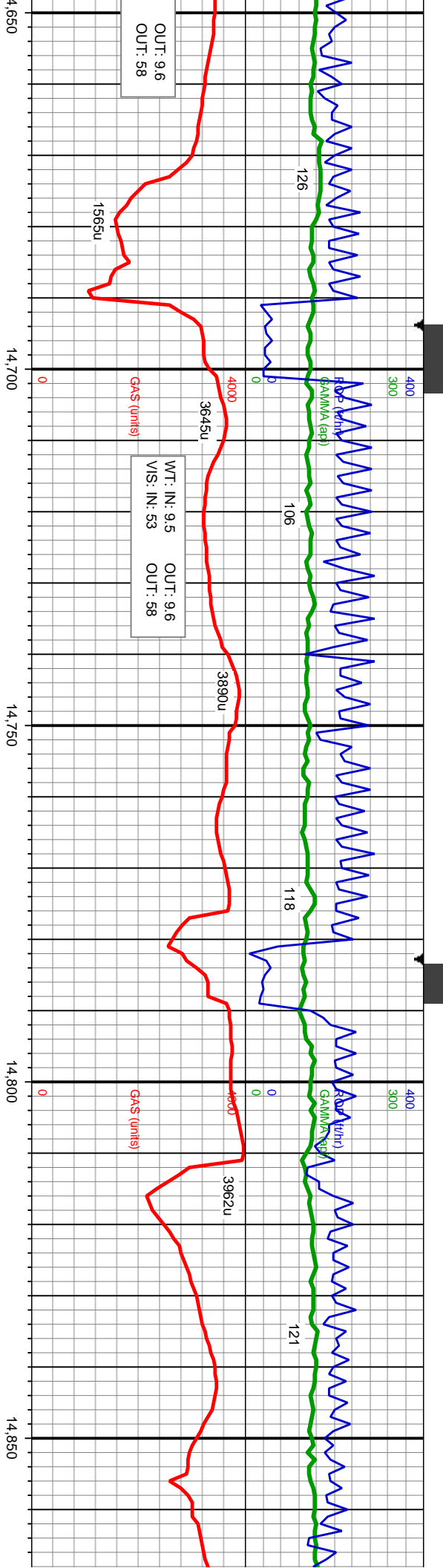
SS: brn, me ang ip plty, calc thru, rr difse, mod



TVD (ft)

MD: 14,370
TVD: 7,790.11
Inclination: 88.61
Azimuth: 359.84
VS: 6,340.11

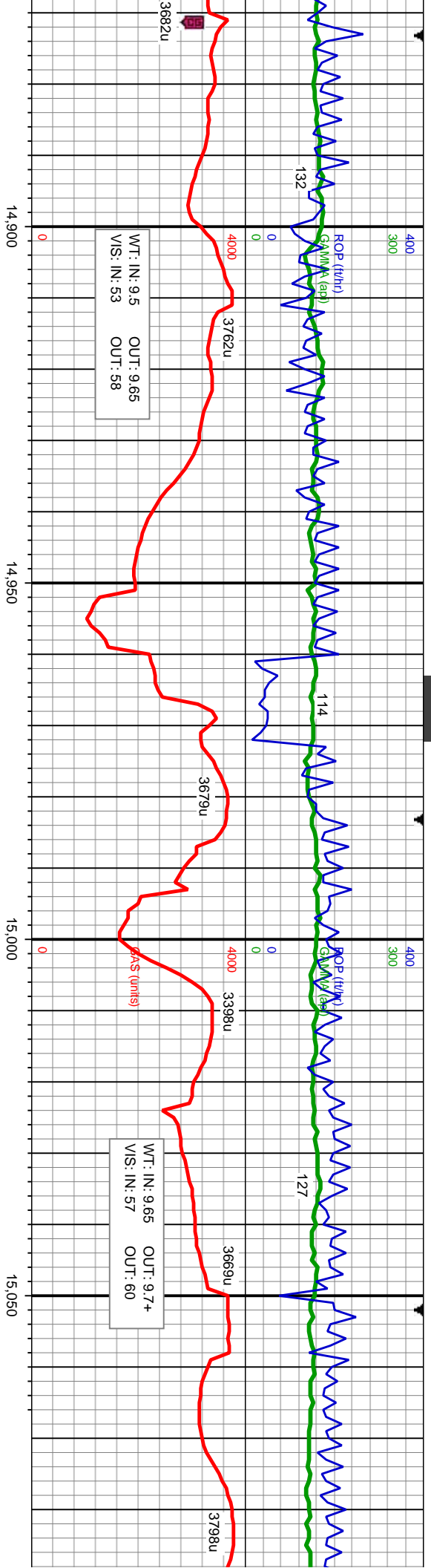
TVD (ft)



v ip, trnsl - clr, f-vf gr, sb rnd - sb
mod cons, mod cal cmt, ip arg, sl
, occ glau; v rr yel min flr, mod
br mky bl - wh cut, no sin or od

SS: brn, med - lt gy, wh ip, dk gy ip, trnsl - clr, f-vf gr, sb rnd - sb
ang ip ply, hd, brt - frt ip, w srl, mod cons, mod cal cmt, ip arg, sl
calc thru, rr dissn pyr, v rr bent, occ glau; v rr yel min flr, mod
fast difse, mod fast sting, mod br mky bl - wh cut, no sin or od





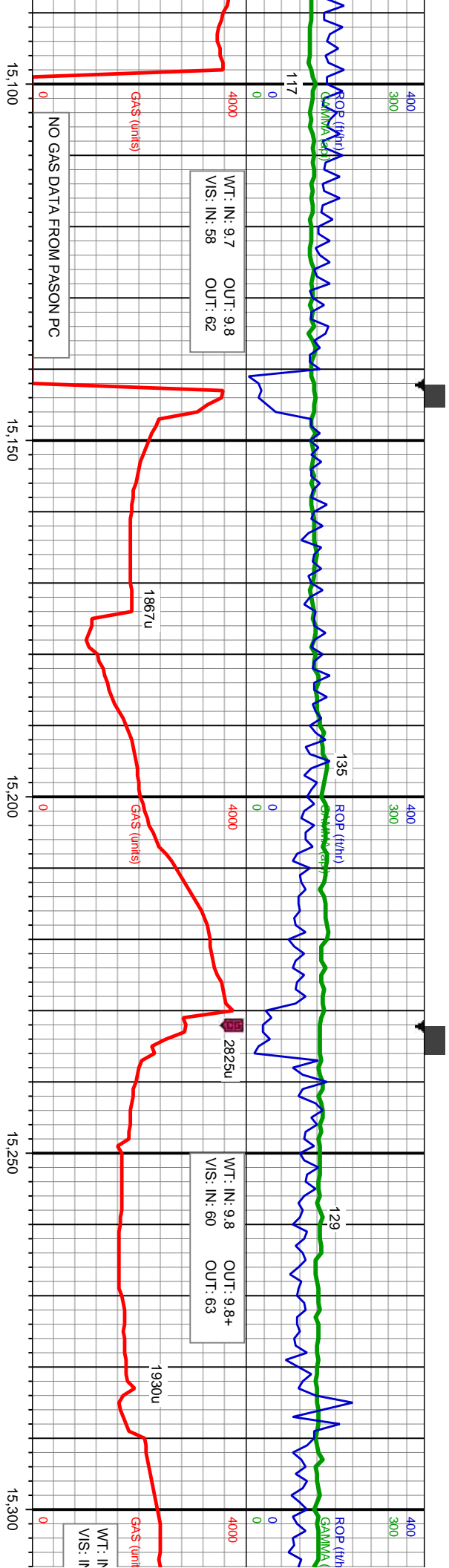
MD: 14,909
TVD: 7,788.74
Inclination: 91.42
Azimuth: 0.46
VS: 6.879

MD: 14,999
TVD: 7,787.67
Inclination: 89.94
Azimuth: 359.46
VS: 6.968.99

SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clr, f-vf gr, sb rnd - sb
ang ip plty, hd, brt - fri ip, w srt, mod cons, mod cal cmf, ip arg, sl
calc thru, rr dissn pyr, v rr bent, occ glau: v rr yel min flor, mod
fast dfise, mod fast stmg, mod bri mky bl - wh cut, no sin or od

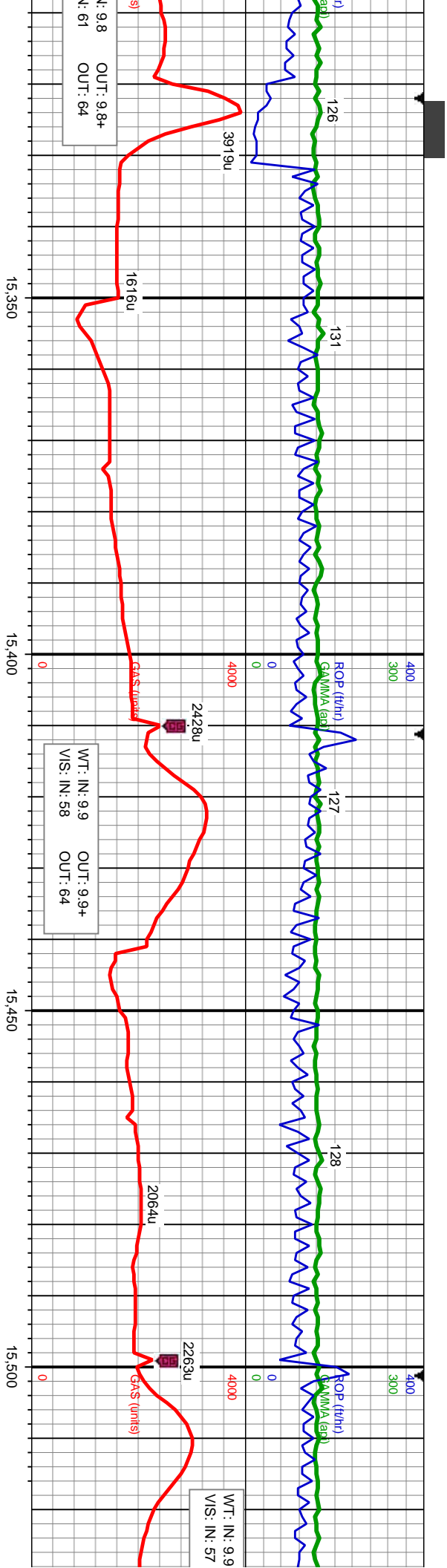
SS: brn, med - lt gy, wh ip, dk gy ip, trnsi - clr, f-vf gr, sb rnd - sb
ang ip plty, hd, brt - fri ip, w srt, mod cons, mod cal cmf, ip arg, sl
calc thru, rr dissn pyr, v rr bent, occ glau: v rr yel min flor, mod
fast dfise, mod fast stmg, mod bri mky bl - wh cut, no sin or od





7200						7200			
MD: 15,178 TVD: 7,787.33 Inclination: 90.28 Azimuth: 359.35 VS: 7,147.98									
TVD (ft)						TVD (ft)			





IN: 9.8 OUT: 9.8+
VIS: 61 OUT: 64

WT: IN: 9.9 OUT: 9.9+
VIS: IN: 58 OUT: 64

WT: IN: 9.9
VIS: IN: 57

MD: 15,358
TVD: 7,787.75
Inclination: 89.45
Azimuth: 359.63
VS: 7,327.98

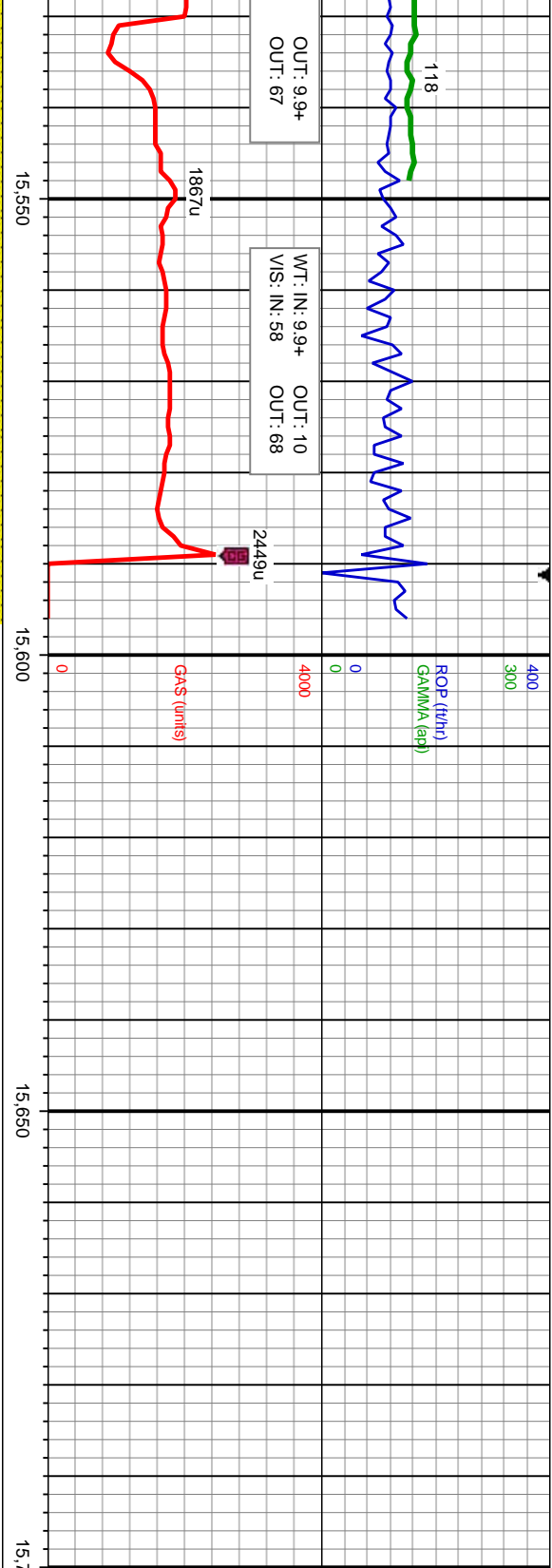
MD: 15,448
TVD: 7,788.28
Inclination: 89.88
Azimuth: 0.34
VS: 7,417.97

SS: brn, med - lt gy, wh ip, dk gy ip, trnsl - clr, f-vf gr, sb rnd - sb
ang ip plty, hd, brit - fri ip, w srt, mod cons, mod cal cnt, ip arg, sl
calc thru, tr dissn pyr, v tr bent, occ glau: v tr yel min flor, mod
fast difse, mod fast sting, mod bri mky bl - wh cut, no sin or od

SS: brn, med - lt gy, wh ip, dk gy ip, trnsl - clr, f-vf gr, sb rnd - sb
ang ip plty, hd, brit - fri ip, w srt, mod cons, mod cal cnt, ip arg, sl
calc thru, tr dissn pyr, v tr bent, occ glau: v tr yel min flor, mod
fast difse, mod fast sting, mod bri mky bl - wh cut, no sin or od

SS: brn, me
ang ip plty,
calc thru, tr
fast difse, r





PROJECTION TO BIT		REACHED TD FOR LATERAL AT 15,596' MD AT 13:16 hrs MST ON 7/27/2014	
THANK YOU FOR USING COLUMBINE LOGGING INC.			
MD: 15,542 TVD: 7,788.61 Inclination: 89.72 Azimuth: 0.77 VS: 7,511.97		MD: 15,596 TVD: 7,788.87 Inclination: 89.72 Azimuth: 0.77 VS: 7,565.96	
d - lt gy, wh ip, dk gy ip, trnsi - clr, f-vf gr, sb rnd - sb hd, brt - fri ip, w srt, mod cons, mod cal cnt, lp arg, sl dissm pyr, v rr bent, occ glau; v rr yel mln flor, mod mod fast stmg, mod bri mky bl - wh cut, no sin or od			
7200		9500	

