

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name Burton K25-67-1HN

Location Sec. 25 T4N R66W

State Colorado

County Weld

Country USA

Rig Number PD 829

Region DJ Basin

Field Wattenberg

Spud Date 11/18/2014

Surface Coordinates 2305 FNL ; 265 FWL
40.28389 ; -104.73394

Bottom Hole Coordinates 1556 FNL ; 535 FEL
40.28637 ; -104.69852

Ground Elevation 4775'

K.B. Elevation 4791'

Logged Interval 674' **To** 6437'

Formation Niobrara C chalk

Type of Drilling Fluid FW LSND

Operator

Company Noble Energy Inc

Address 1625 Broadway, Suite 2200
Denver, CO 80202

Geologist

Name Holly Duncan

Company Noble Energy, Inc.

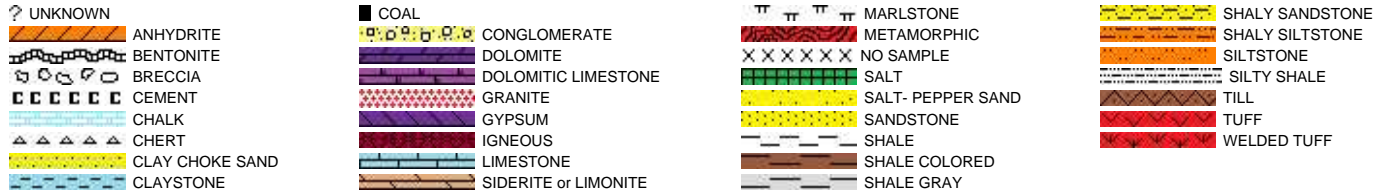
Address 1625 Broadway, Suite 2200
Denver, CO 80202

Other

Well Site Geologists

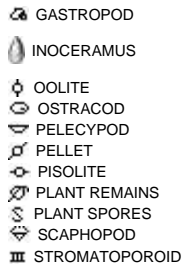
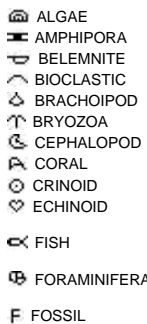
Ryan Shilling
Ted Stockwell

Rock Types

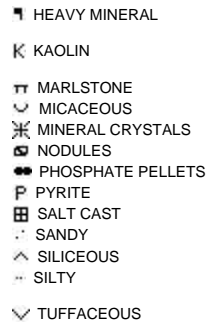
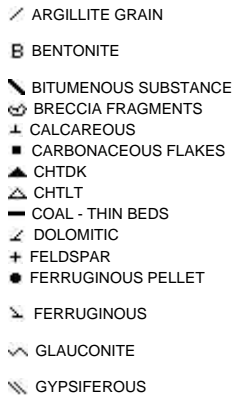
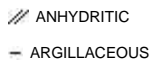


Accessories

Fossils



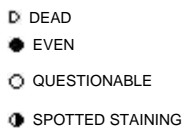
Minerals



Stringer

Other Symbols

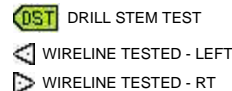
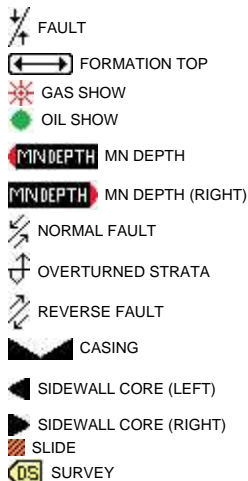
Oil Show



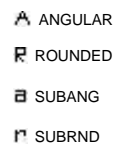
Porosity



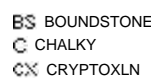
Engineering



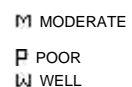
Rounding

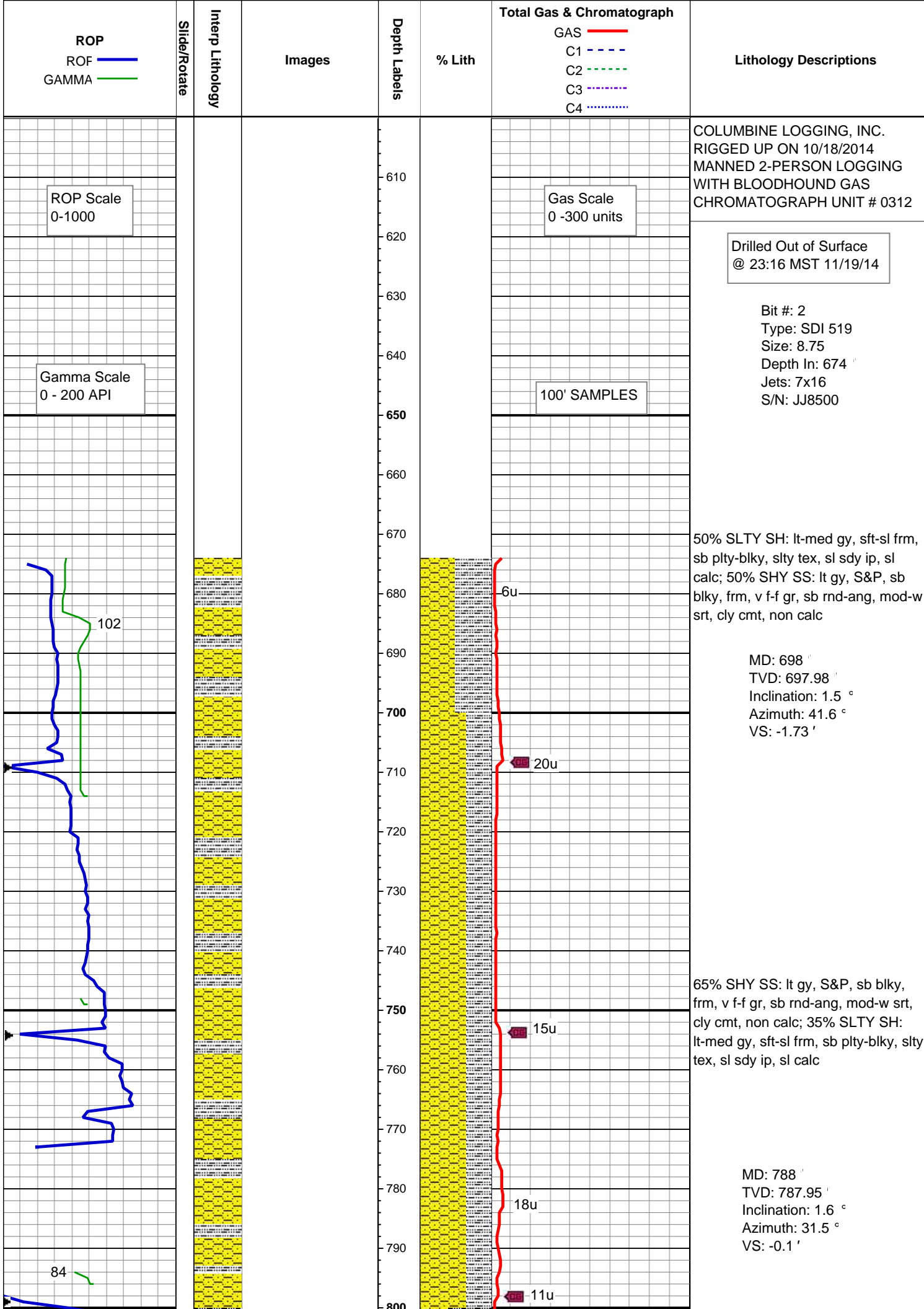


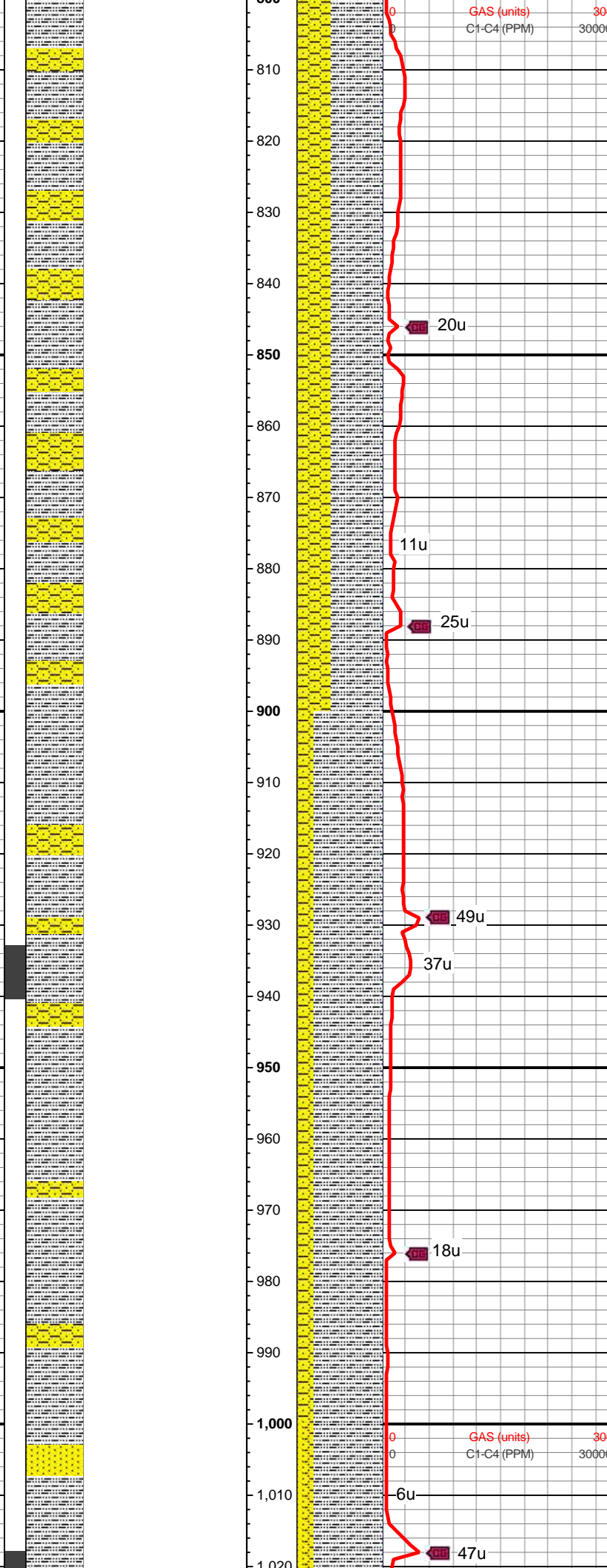
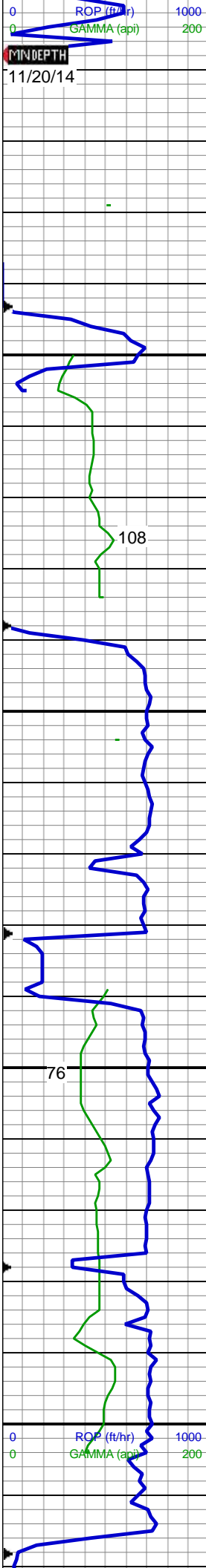
Textures



Sorting





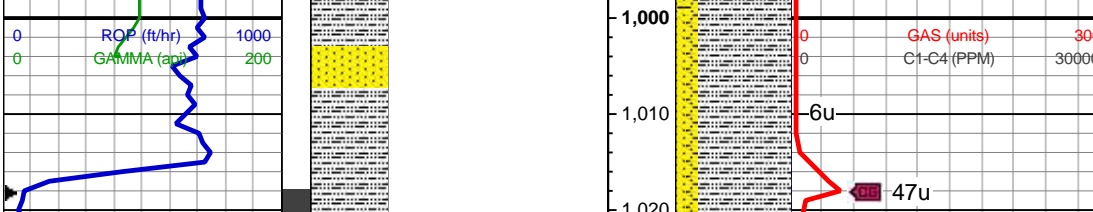


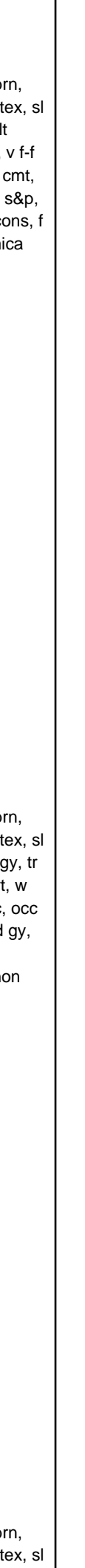
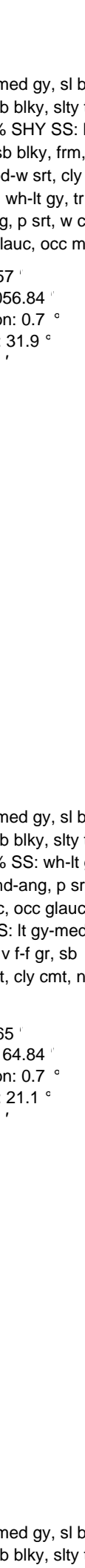
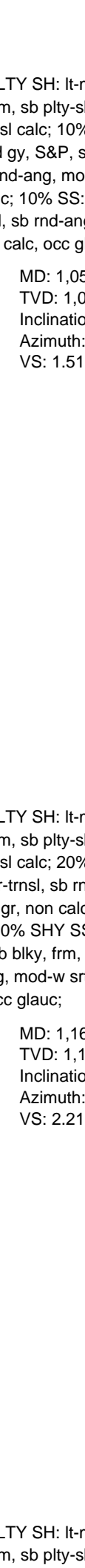
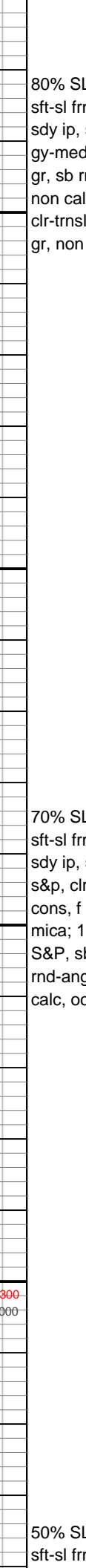
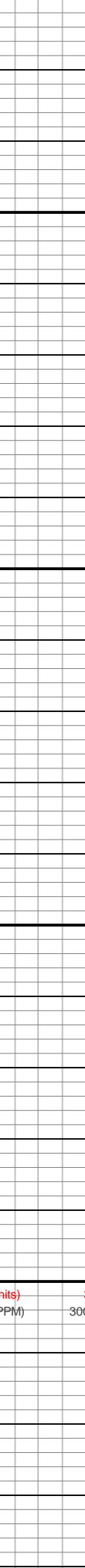
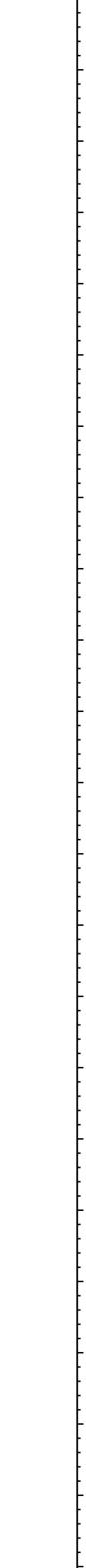
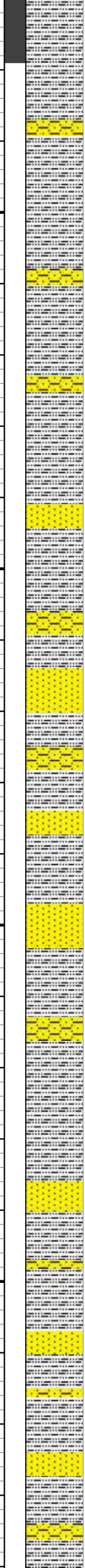
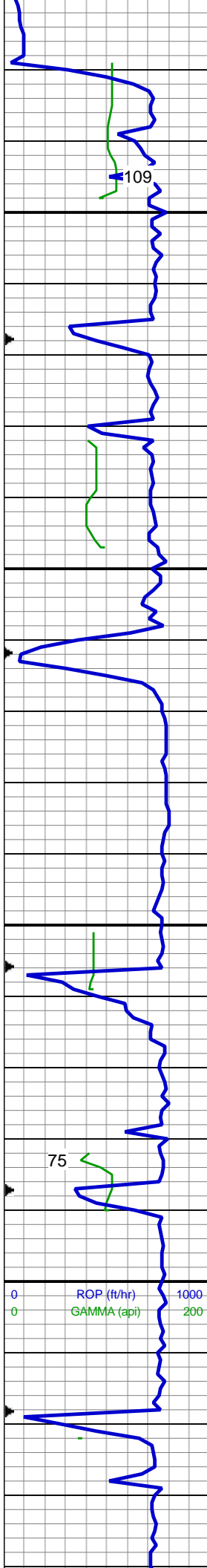
60% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blk, slty tex, sl sdy ip, sl calc; 40% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 877 '
TVD: 876.91 '
Inclination: 1.5 °
Azimuth: 32.9 °
VS: 1.38 '

80% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blk, slty tex, sl sdy ip, sl calc; 20% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 967 '
TVD: 966.87 '
Inclination: 2.2 °
Azimuth: 338.5 °
VS: 1.65 '





80% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blk, slty tex, sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc; 10% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc, occ glauc, occ mica

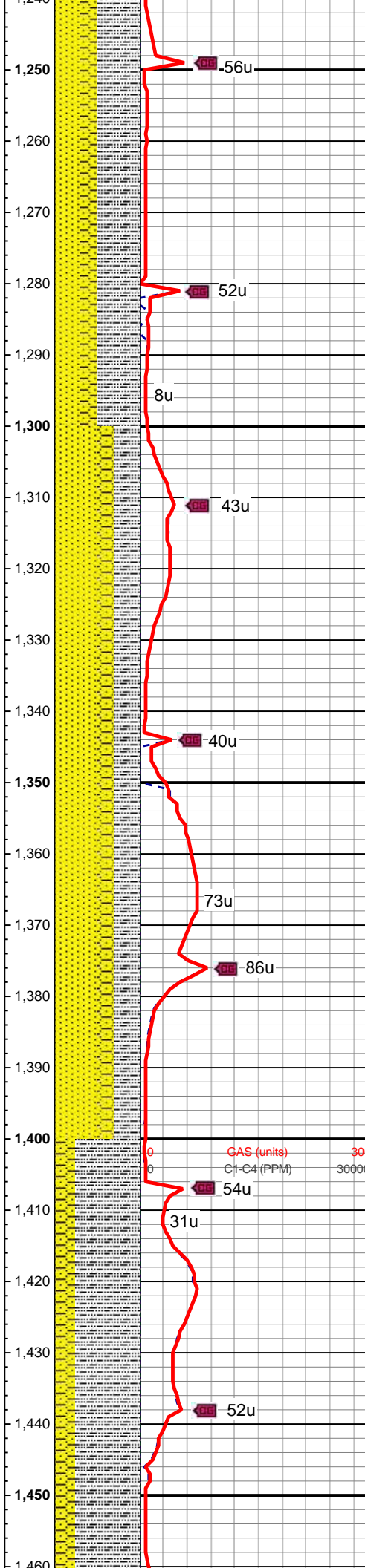
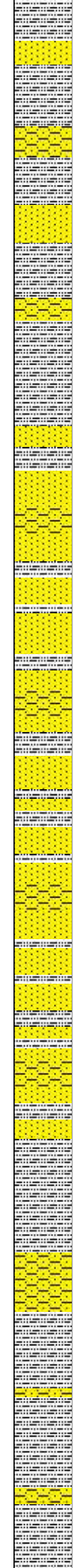
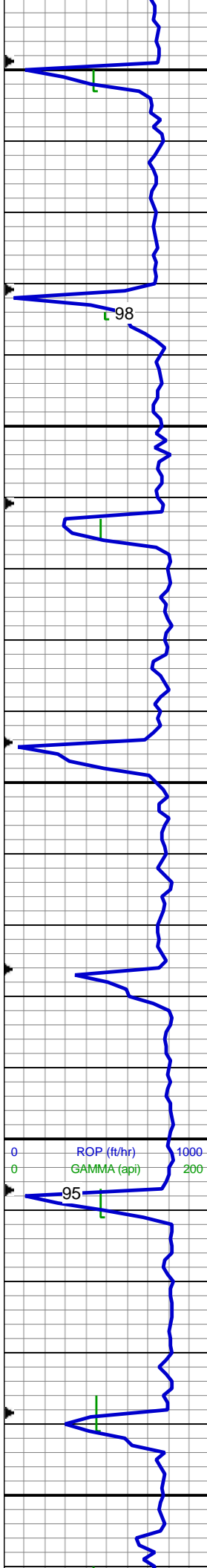
MD: 1,057 '
TVD: 1,056.84 '
Inclination: 0.7 °
Azimuth: 31.9 °
VS: 1.51 '

70% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blk, slty tex, sl sdy ip, sl calc; 20% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc, occ glauc, occ mica; 10% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, occ glauc;

MD: 1,165 '
TVD: 1,164.84 '
Inclination: 0.7 °
Azimuth: 21.1 °
VS: 2.21 '

GAS (units) 300
C1-C4 (PPM) 30000

50% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blk, slty tex, sl



sdyp ip, sl calc; 30% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc, occ glauc, occ mica; 20% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, occ glauc

MD: 1,260 '
TVD: 1,259.83 '
Inclination: 0.5 °
Azimuth: 38.1 °
VS: 2.76 '

WT: 8.4 / VIS: 27

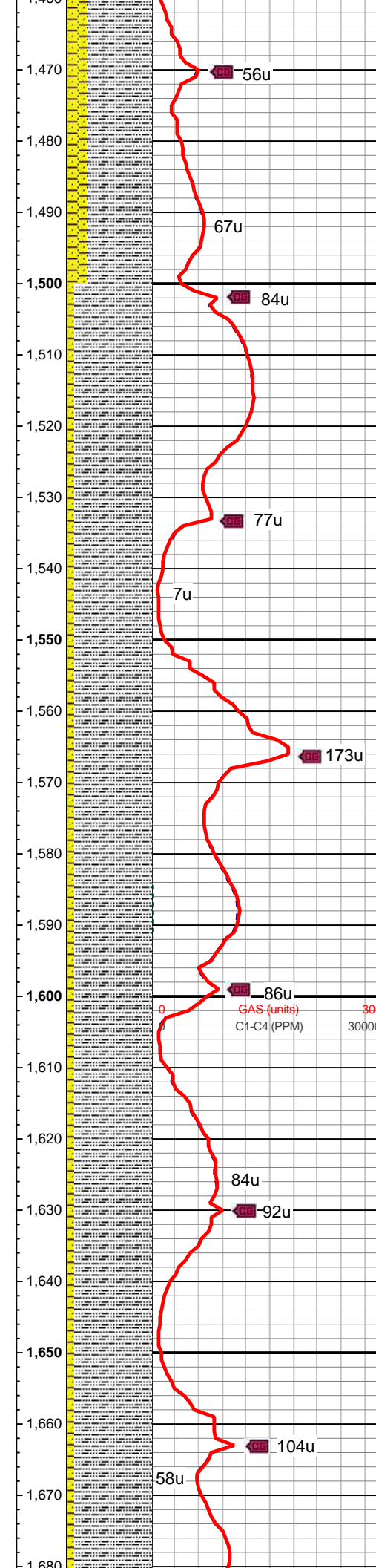
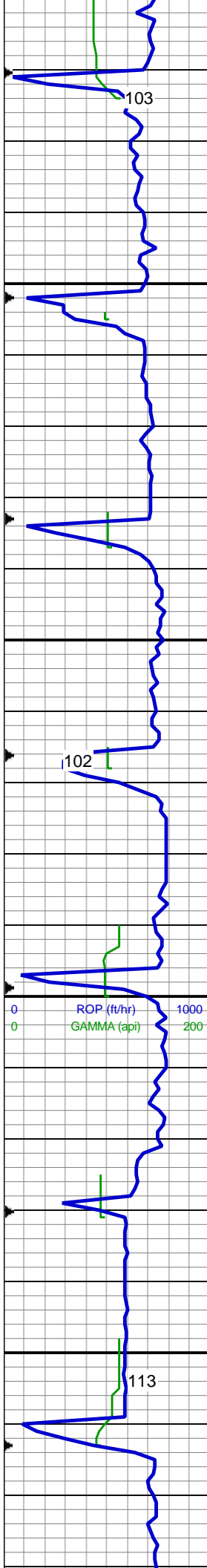
50% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc, occ glauc, occ mica; 30% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blk, slty tex, sl sdyp ip, sl calc; 20% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, occ glauc

MD: 1,355 '
TVD: 1,354.82 '
Inclination: 0.8 °
Azimuth: 19.5 °
VS: 3.33 '

GAS (units) 300
C1-C4 (PPM) 30000

MD: 1,449 '
TVD: 1,448.82 '
Inclination: 0.6 °
Azimuth: 33.9 °
VS: 3.93 '

75% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blk, slty tex, tr sl sdyp ip, sl calc; 20% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

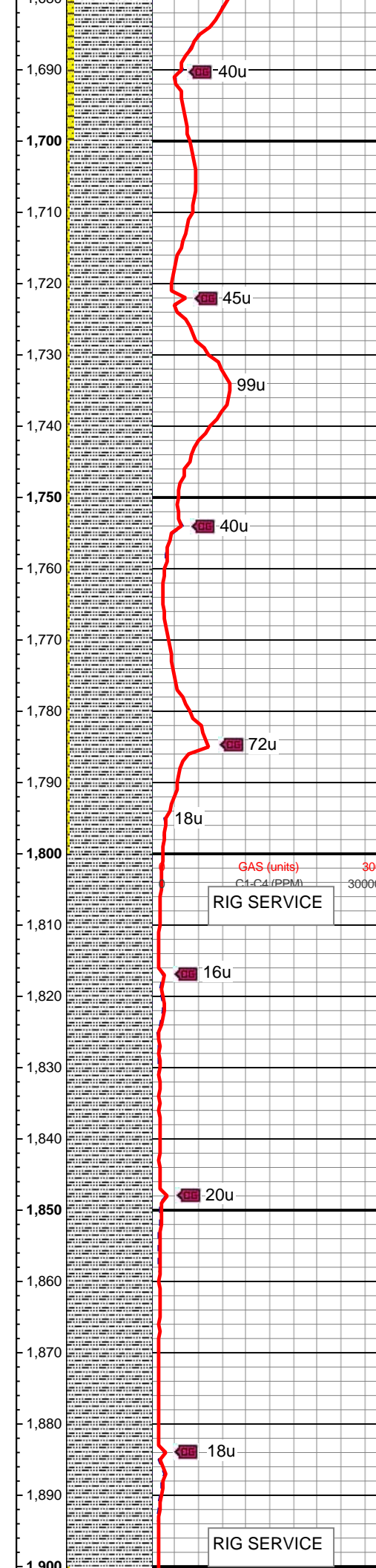
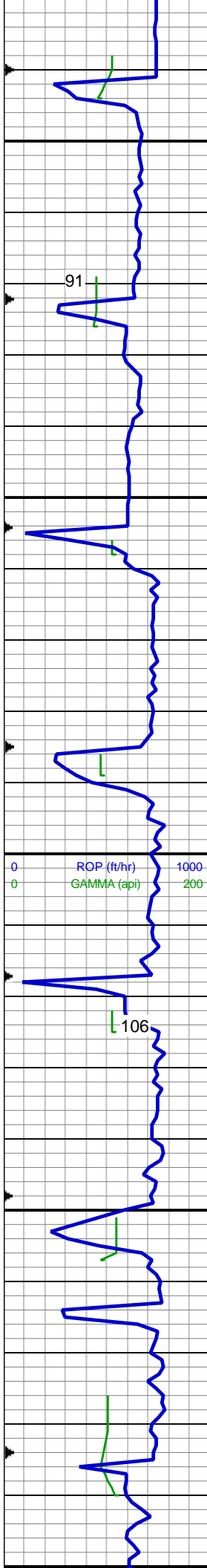


MD: 1,544 '
TVD: 1,543.81 '
Inclination: 0.7 °
Azimuth: 42.2 °
VS: 4.67 '

90% SLTY SH: lt-med gy, sft-sl frm, sb pty-sb blkly, slty tex, tr sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, tr wh ss

MD: 1,639 '
TVD: 1,638.81 '
Inclination: 0.4 °
Azimuth: 13.1 °
VS: 5.21 '

90% SLTY SH: lt-med gy, sft-sl frm, sb pty-sb blkly, slty tex, tr sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, tr wh ss

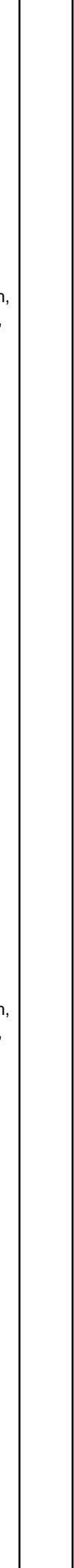
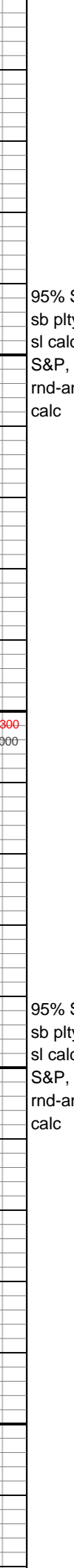
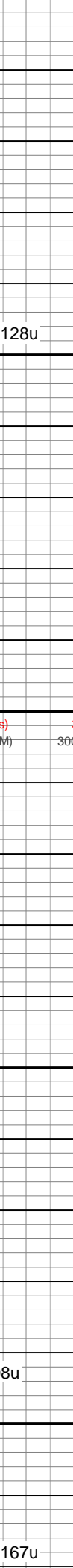
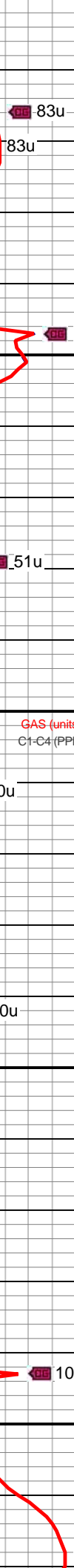
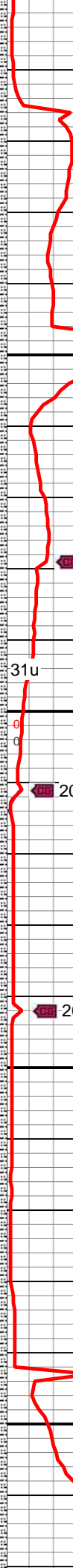
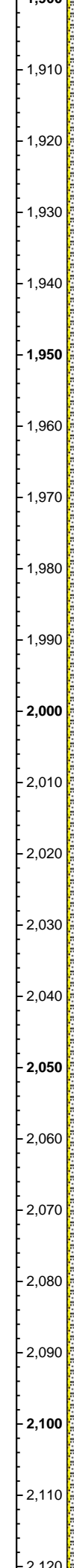
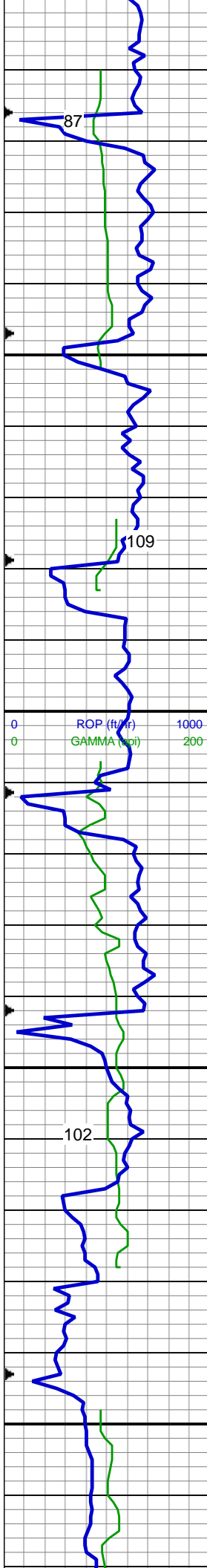


MD: 1,734 '
TVD: 1,733.81 '
Inclination: 0.2 °
Azimuth: 235.6 °
VS: 5.17 '

95% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blk, slty tex, tr sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, v tr ss

MD: 1,829 '
TVD: 1,828.81 '
Inclination: 0.4 °
Azimuth: 325 °
VS: 4.86 '

100% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blk, slty tex, tr sl sdy ip, sl calc, tr wh ss, tr shy ss



MD: 1,924 '
TVD: 1,923.8 '
Inclination: 0.2 °
Azimuth: 301.3 °
VS: 4.57 '

95% SLTY SH: lt-med gy, sft-sl frm,
sb plty-sb blkly, slty tex, tr sl sdy ip,
sl calc; 5% SHY SS: lt gy-med gy,
S&P, sb blkly, frm, v f-f gr, sb
rnd-ang, mod-w srt, cly cmt, non
calc

MD: 2,038 '
TVD: 2,037.8 '
Inclination: 0 °
Azimuth: 318.4 °
VS: 4.41 '

95% SLTY SH: lt-med gy, sft-sl frm,
sb plty-sb blkly, slty tex, tr sl sdy ip,
sl calc; 5% SHY SS: lt gy-med gy,
S&P, sb blkly, frm, v f-f gr, sb
rnd-ang, mod-w srt, cly cmt, non
calc

83u

83u

128u

51u

31u

20u

20u

108u

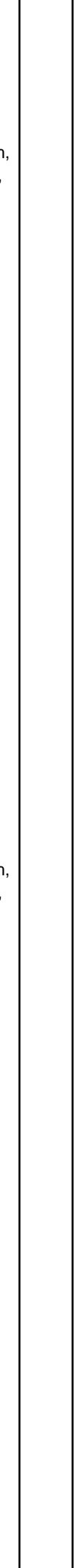
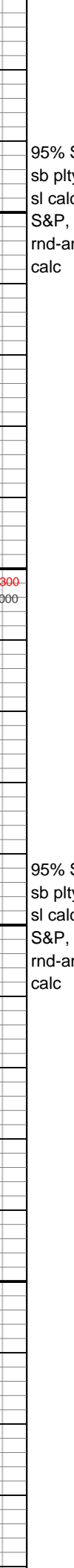
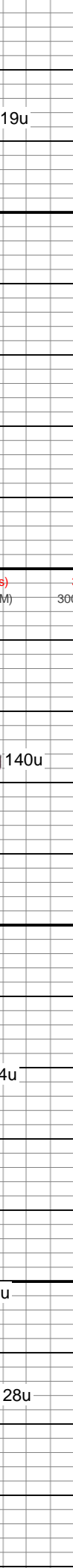
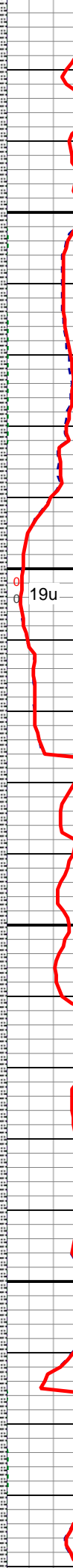
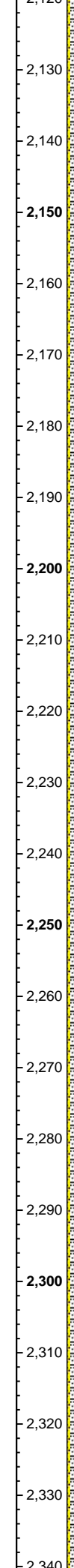
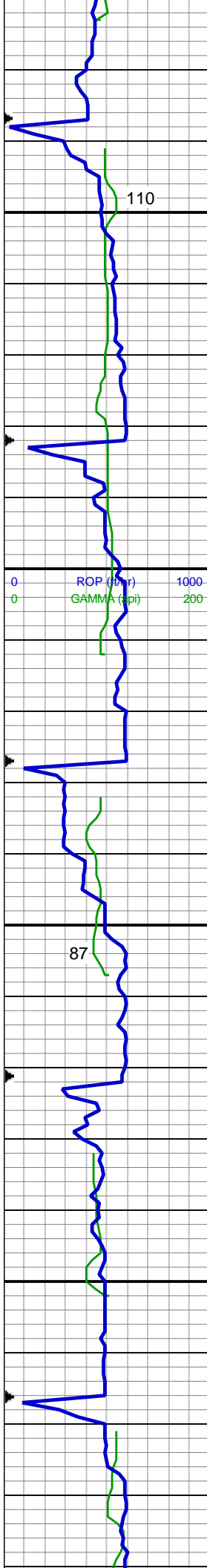
167u

GAS (units)

C1-C4 (PPM)

300

30000



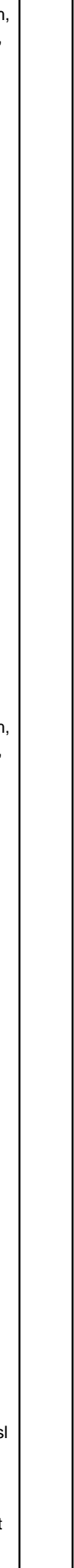
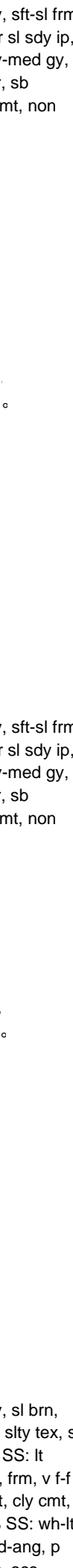
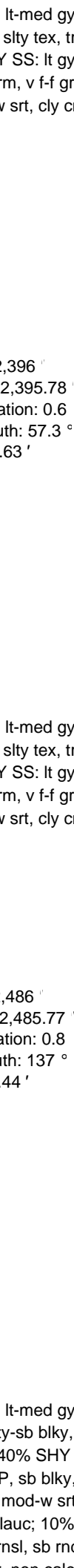
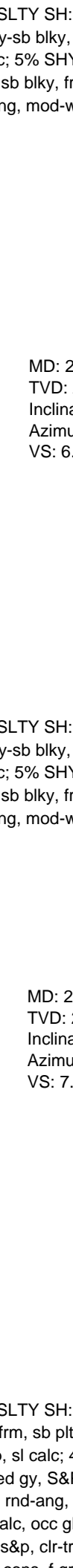
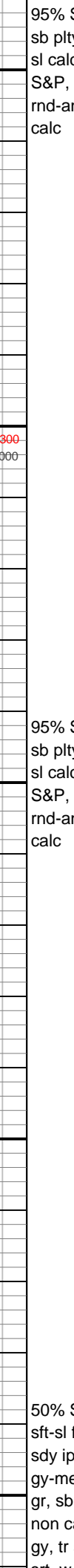
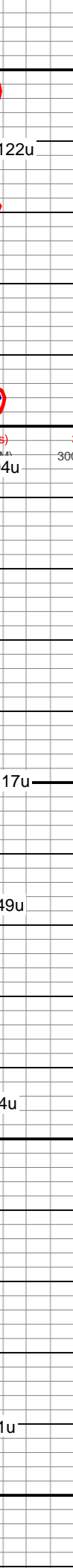
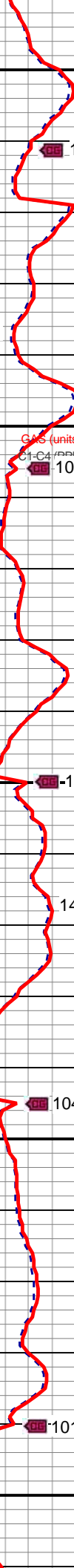
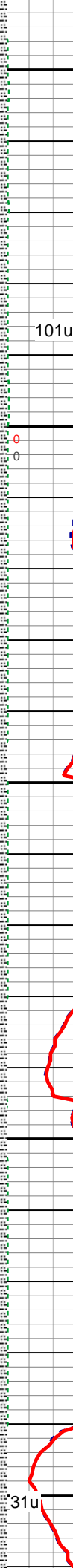
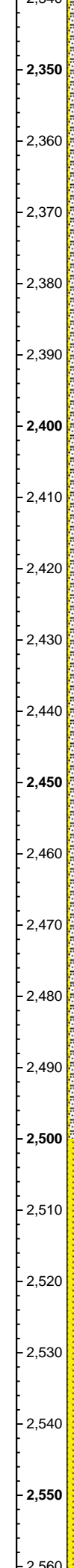
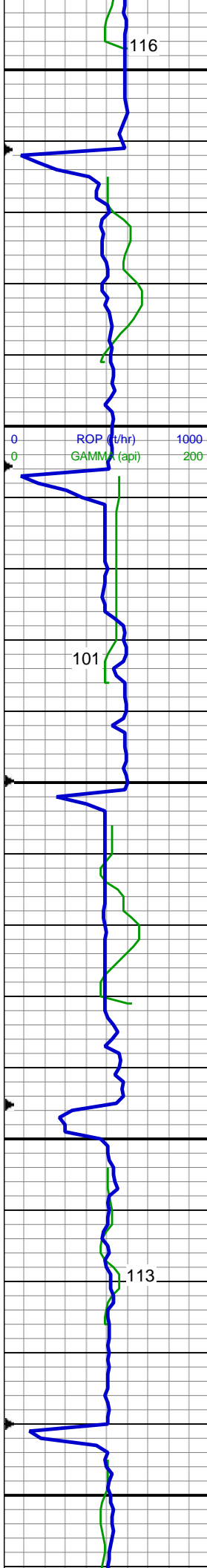
MD: 2,127'
TVD: 2,126.8'
Inclination: 0.7 °
Azimuth: 43.1 °
VS: 4.82'

95% SLTY SH: lt-med gy, sft-sl frm, sb pty-sb blkly, slty tex, tr sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 2,217'
TVD: 2,216.79'
Inclination: 1 °
Azimuth: 7.3 °
VS: 5.41'

95% SLTY SH: lt-med gy, sft-sl frm, sb pty-sb blkly, slty tex, tr sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 2,307'
TVD: 2,306.78'
Inclination: 0.7 °
Azimuth: 29.5 °
VS: 5.91'



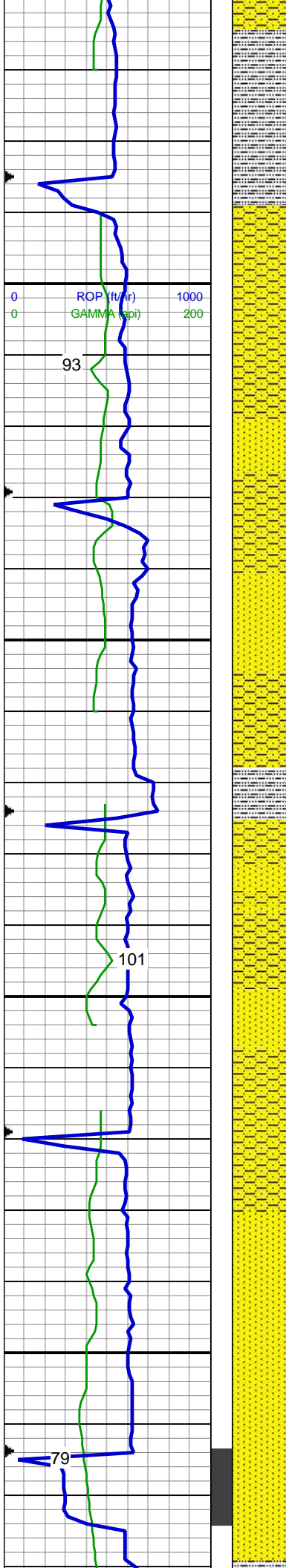
95% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 2,396 '
TVD: 2,395.78 '
Inclination: 0.6 °
Azimuth: 57.3 °
VS: 6.63 '

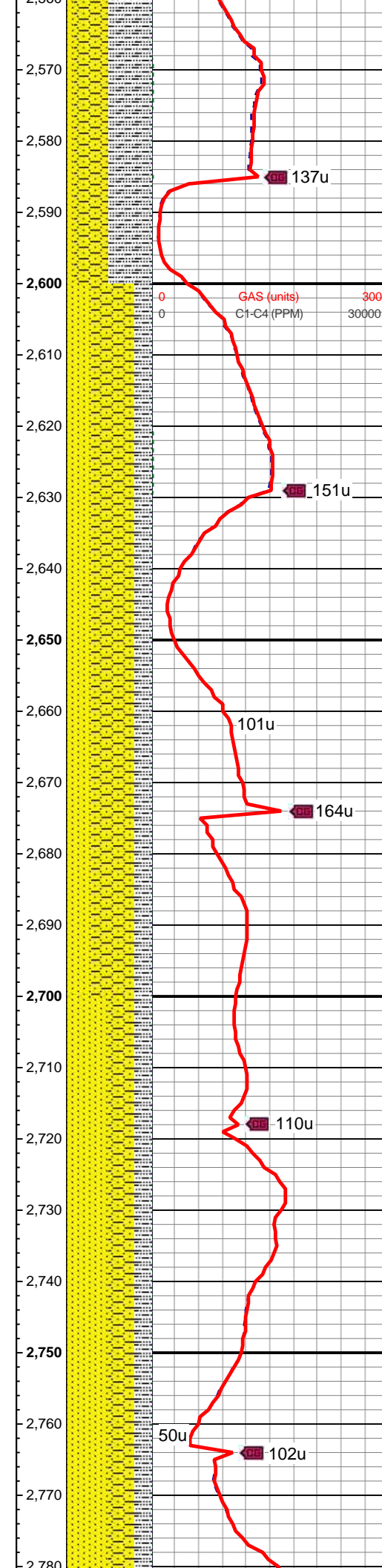
95% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 2,486 '
TVD: 2,485.77 '
Inclination: 0.8 °
Azimuth: 137 °
VS: 7.44 '

50% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc; 40% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, occ glauc; 10% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p



ROP (ft/hr) 1000
GAMMA (api) 200



GAS (units) 300
C1-C4 (PPM) 30000

srt, w cons, f gr, non calc, occ
glauc, occ mica

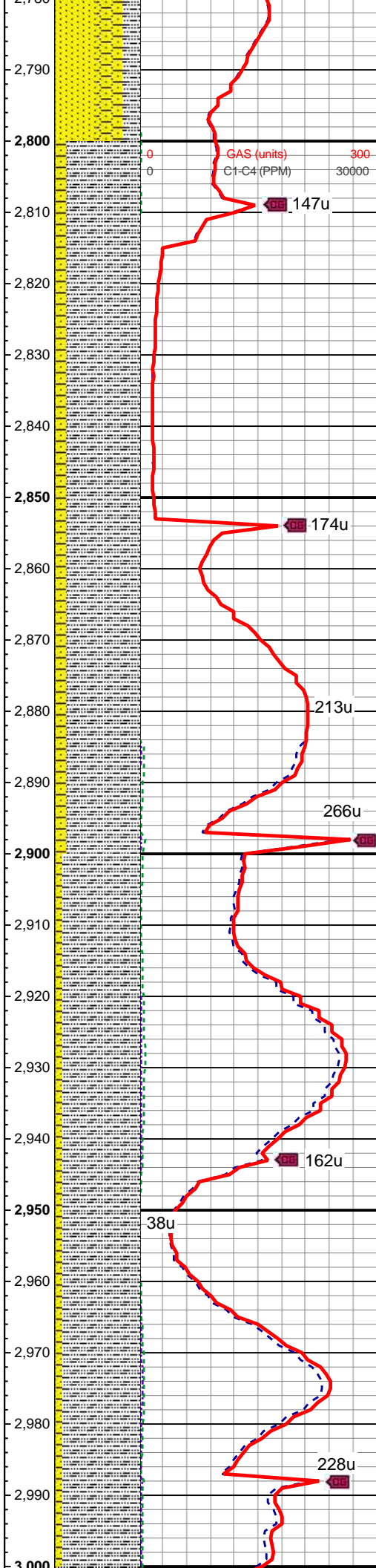
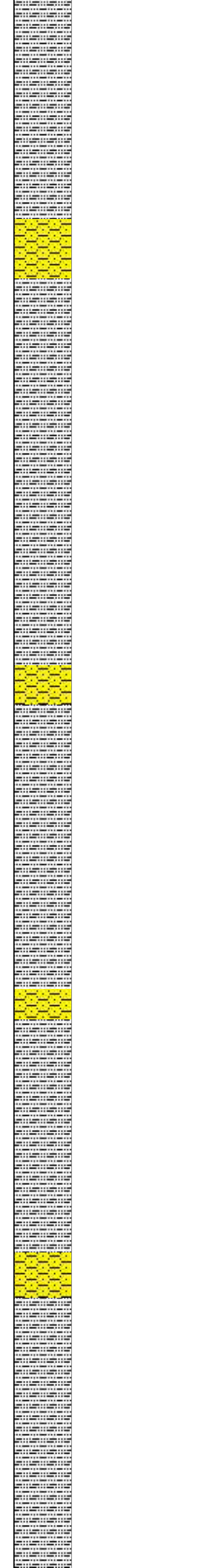
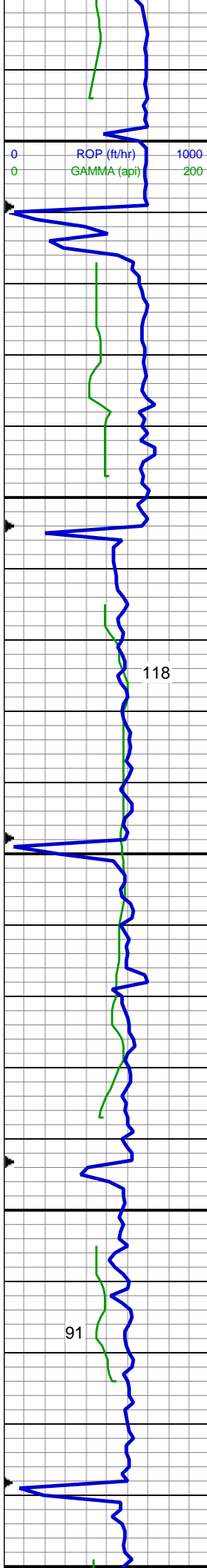
MD: 2,575 '
TVD: 2,574.76 '
Inclination: 0.9 °
Azimuth: 167.8 °
VS: 7.89 '

50% SHY SS: lt gy-med gy, S&P, sb
blky, frm, v f-f gr, sb rnd-ang, mod-w
srt, cly cmt, non calc, occ glauc;
30% SS: wh-lt gy, tr s&p, clr-trnsl,
sb rnd-ang, p srt, w cons, f gr, non
calc, occ glauc, occ mica; 20%
SLTY SH: lt-med gy, sl brn, sft-sl
frm, sb plty-sb blky, slty tex, sl sdy
ip, sl calc

MD: 2,665 '
TVD: 2,664.75 '
Inclination: 0.9 °
Azimuth: 161 °
VS: 8.13 '

50% SS: wh-lt gy, tr s&p, clr-trnsl,
sb rnd-ang, p srt, w cons, f gr, non
calc, occ glauc, occ mica; 30% SHY
SS: lt gy-med gy, S&P, sb blky, frm,
v f-f gr, sb rnd-ang, mod-w srt, cly
cmt, non calc, occ glauc; 20% SLTY
SH: lt-med gy, sl brn, sft-sl frm, sb
plty-sb blky, slty tex, sl sdy ip, sl calc

MD: 2,755 '
TVD: 2,754.74 '
Inclination: 0.7 °
Azimuth: 159.1 °



VS: 8.44 '

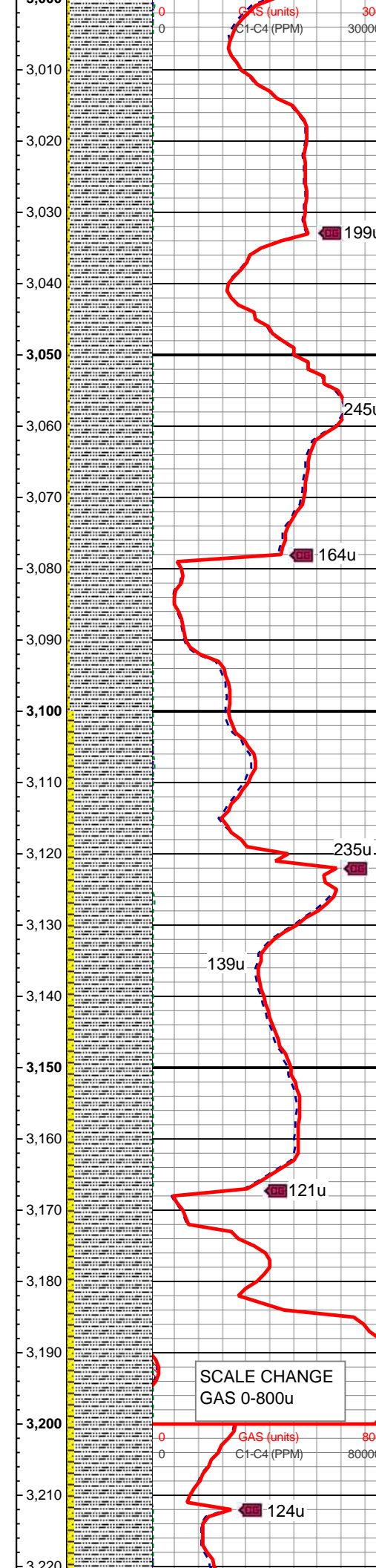
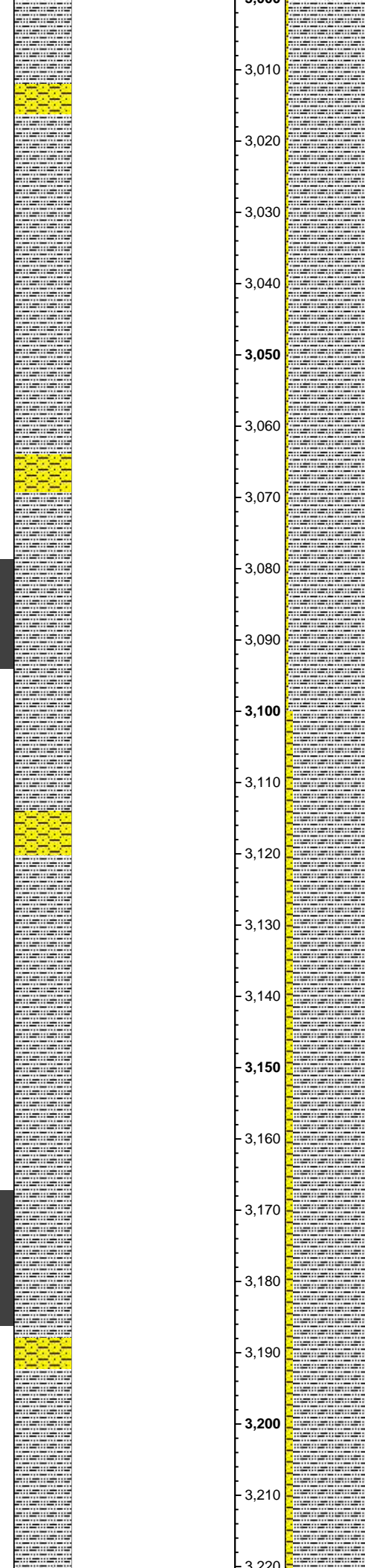
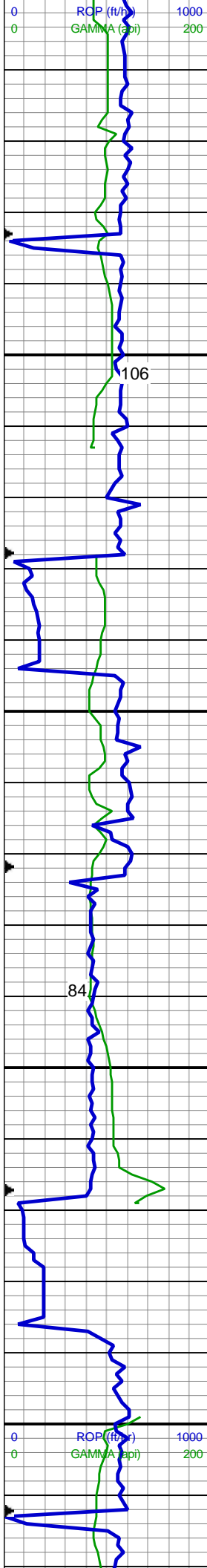
WT: 9.0 / VIS: 27

MD: 2,844 '
TVD: 2,843.74 '
Inclination: 0.6 °
Azimuth: 181.3 °
VS: 8.52 '

85% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 15% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, v tr ss

MD: 2,934 '
TVD: 2,933.73 '
Inclination: 0.4 °
Azimuth: 234.9 °
VS: 8.19 '

90% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, v tr ss



MD: 3,024 '
TVD: 3,023.73 '
Inclination: 0.7 °
Azimuth: 277.5 °
VS: 7.38 '

WT: 8.9 / VIS: 27

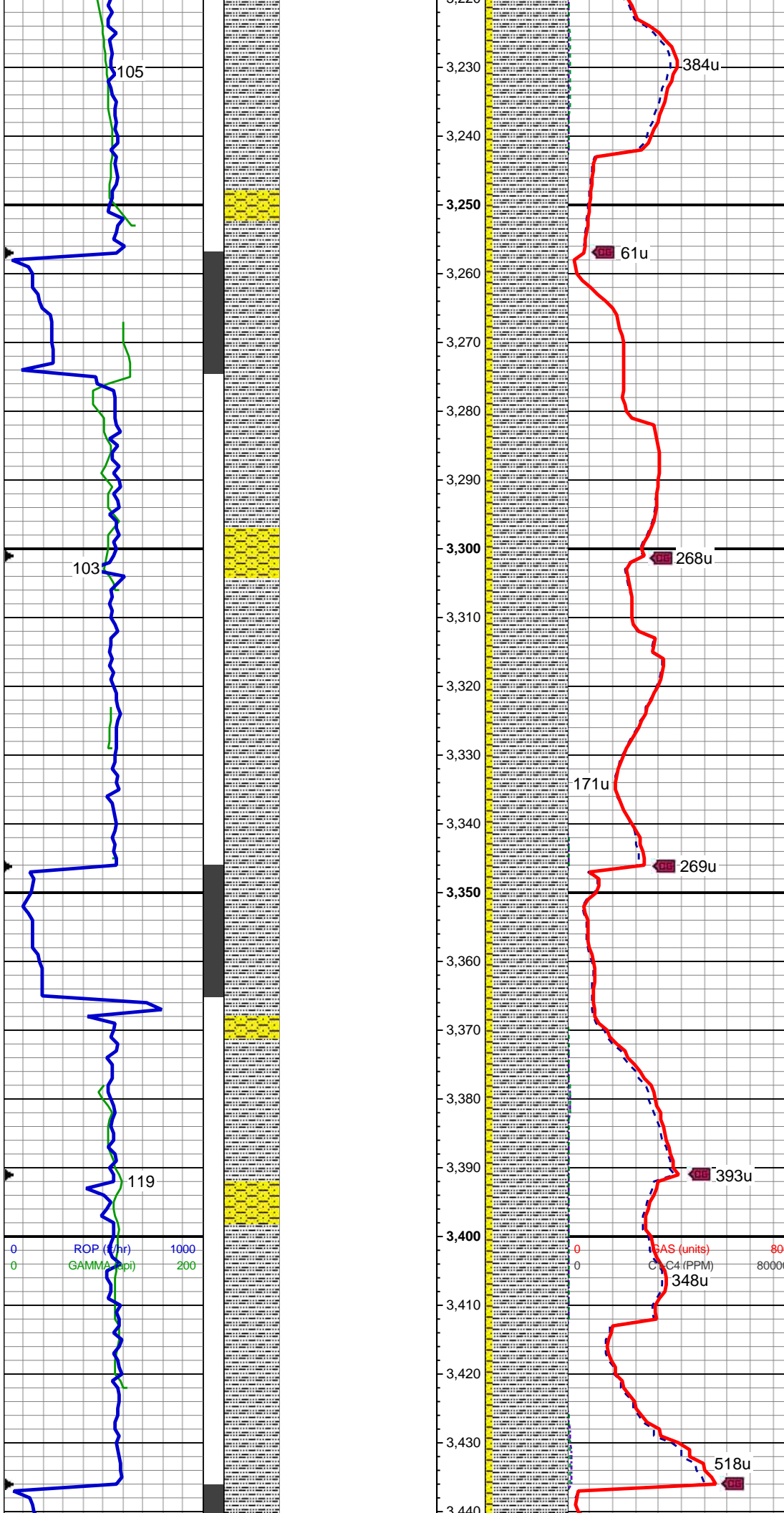
95% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, v tr ss

MD: 3,113 '
TVD: 3,112.72 '
Inclination: 1.3 °
Azimuth: 26.3 °
VS: 7.39 '

90% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, v tr ss

MD: 3,203 '
TVD: 3,202.64 '
Inclination: 3.3 °
Azimuth: 19.8 °
VS: 9.05 '

SCALE CHANGE
GAS 0-800u



90% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, v tr ss

MD: 3,292 '
TVD: 3,291.43 '
Inclination: 4.6 °
Azimuth: 20.2 °
VS: 11.71 '

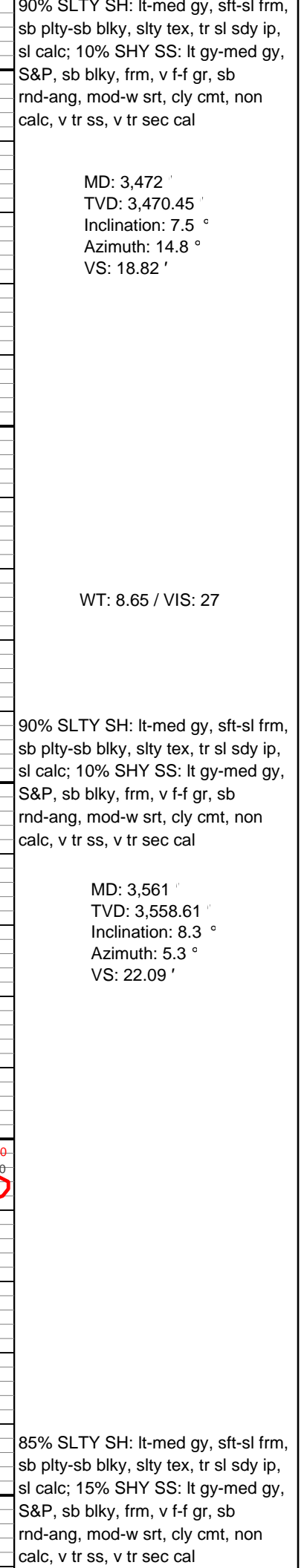
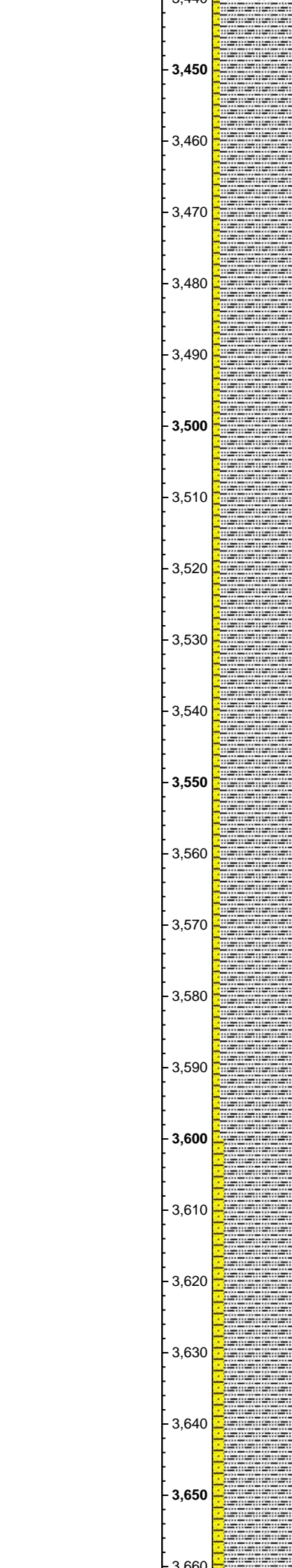
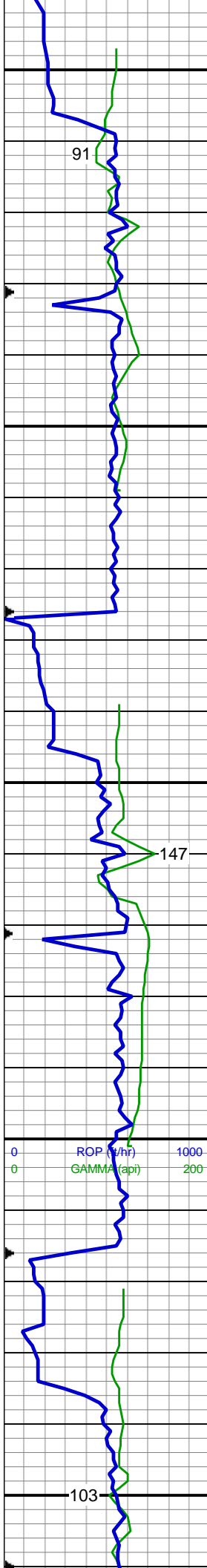
90% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, tr sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, v tr ss, v tr sec cal

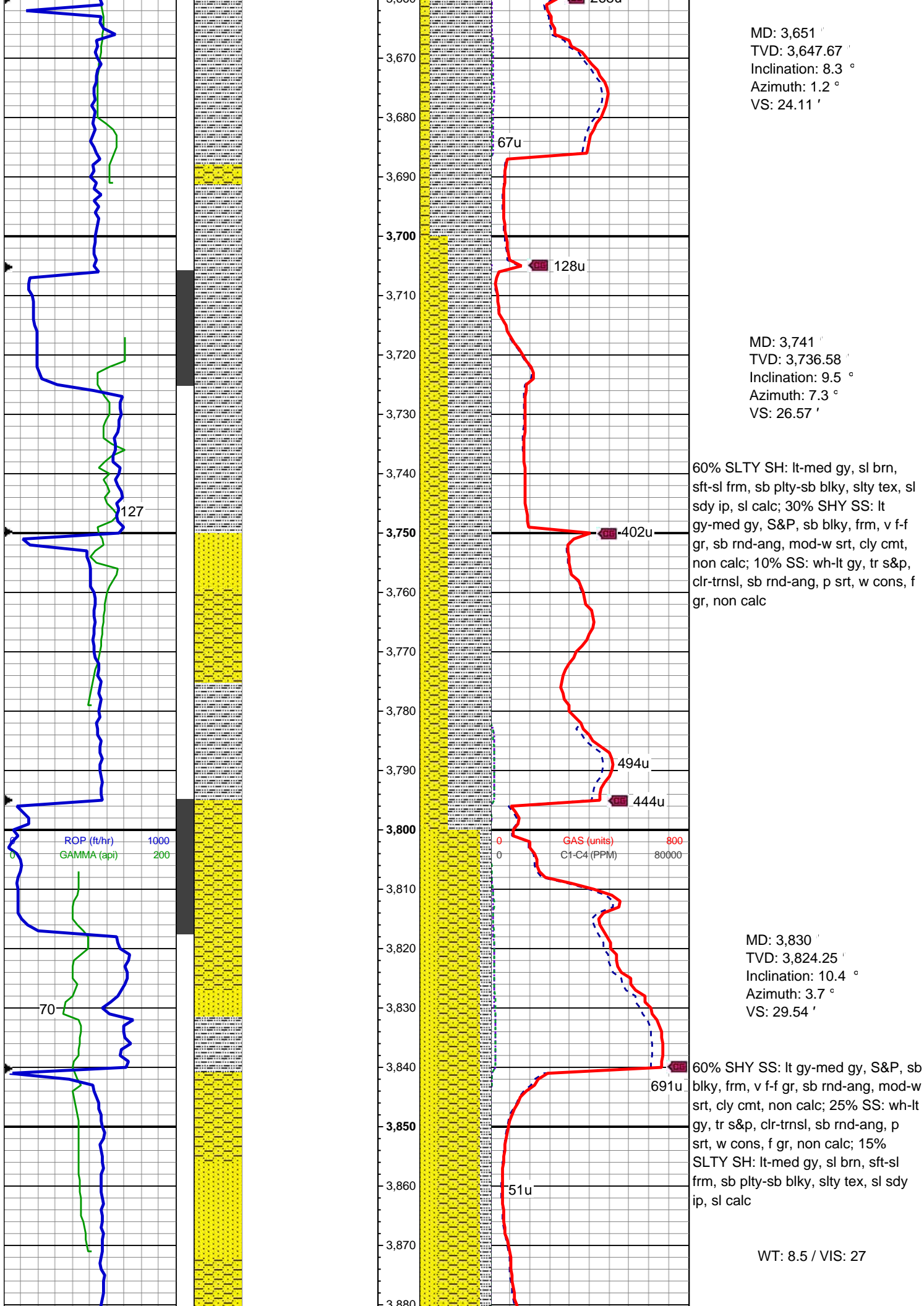
WT: 8.65 / VIS: 27

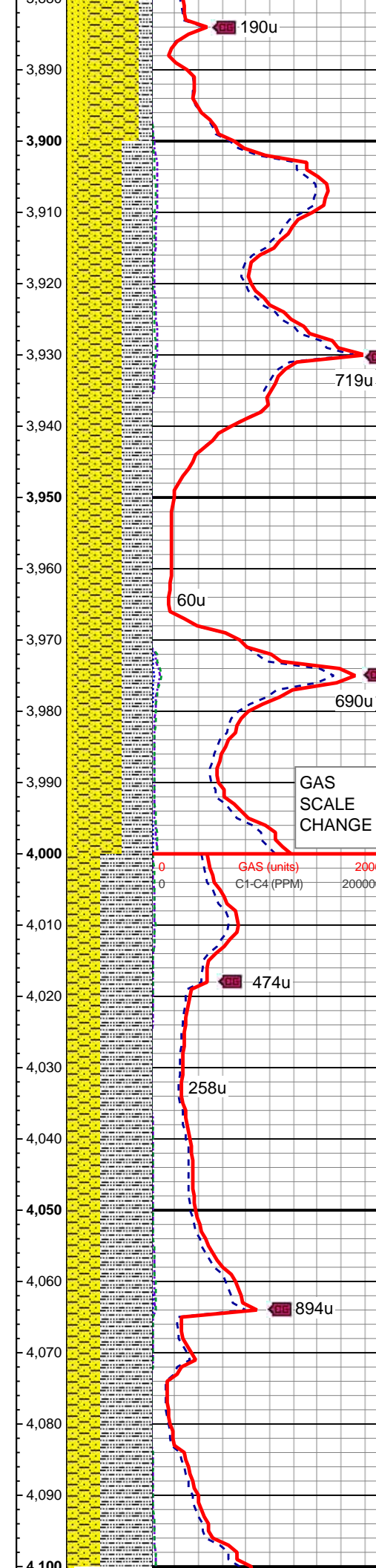
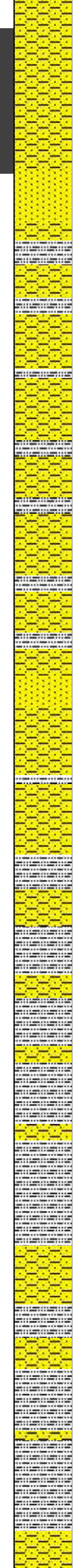
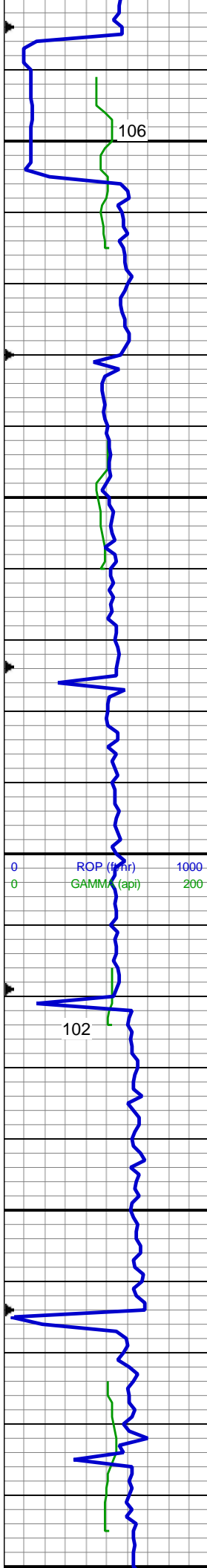
MD: 3,382 '
TVD: 3,381.06 '
Inclination: 5.8 °
Azimuth: 16.7 °
VS: 15.03 '

0 1000 200
ROP (ft/hr)
GAMMA (api)

0 800 80000
GAS (units)
C4 (PPM)







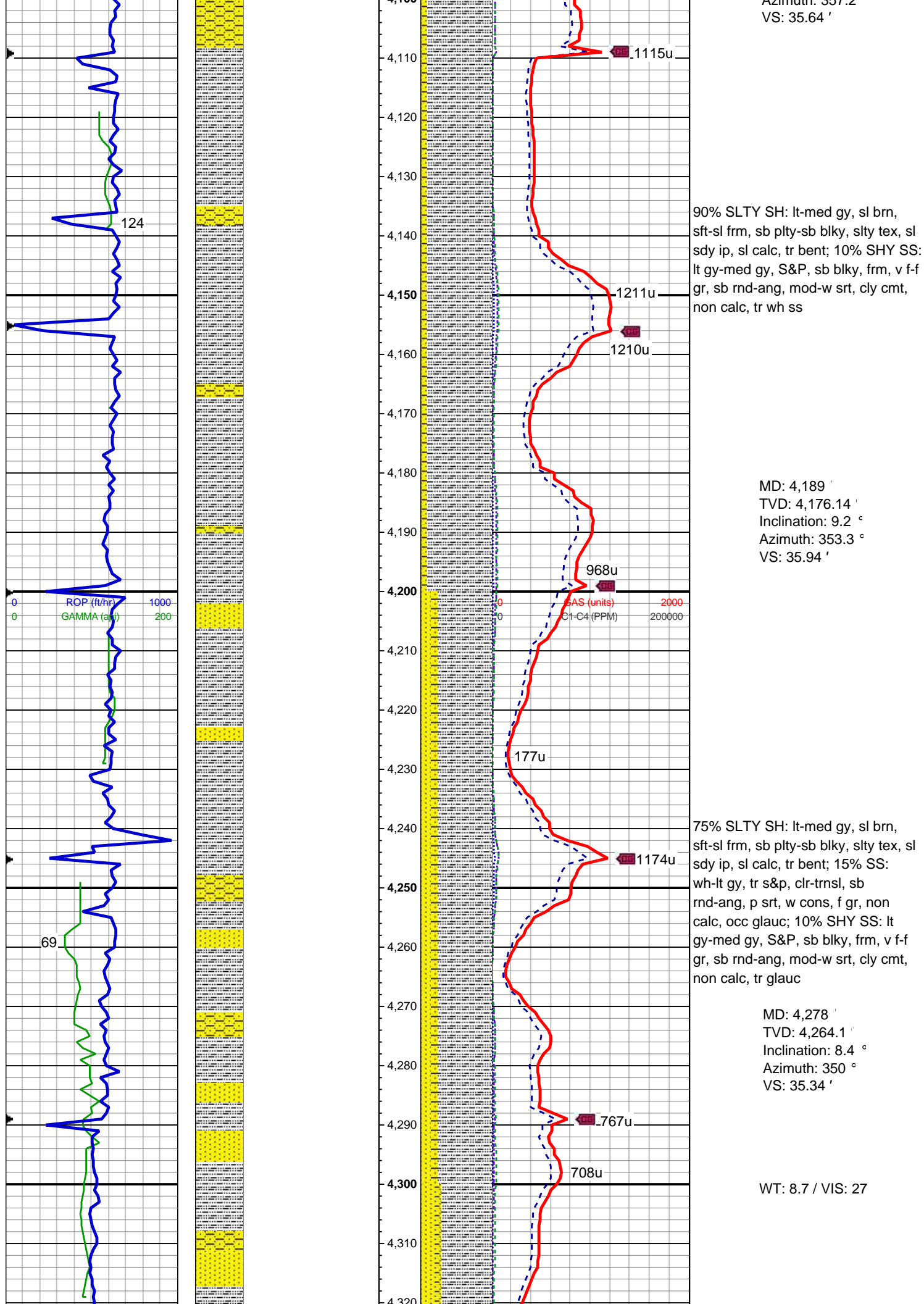
MD: 3,920 '
TVD: 3,912.44 '
Inclination: 12.6 °
Azimuth: 359.3 °
VS: 31.74 '

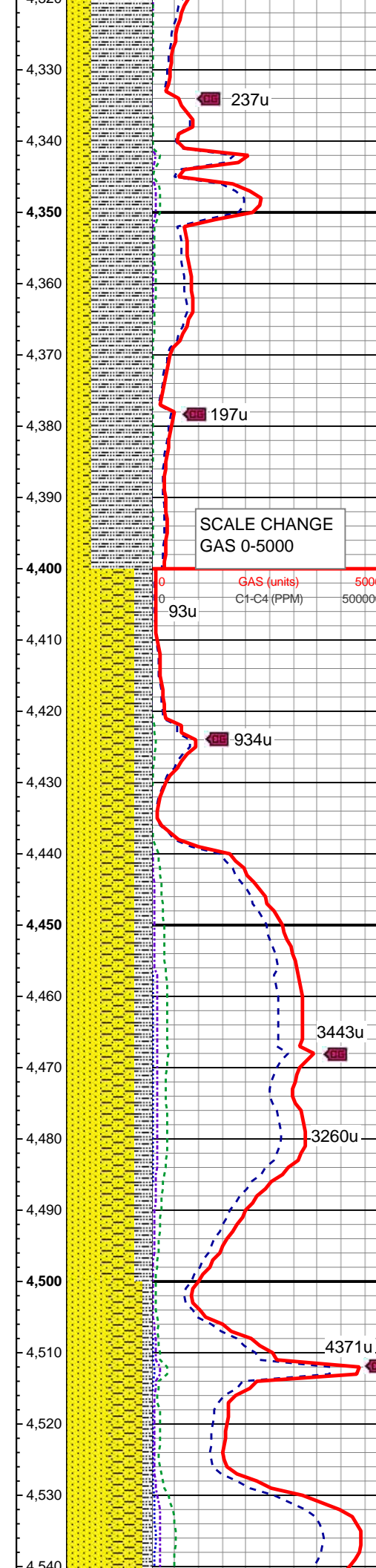
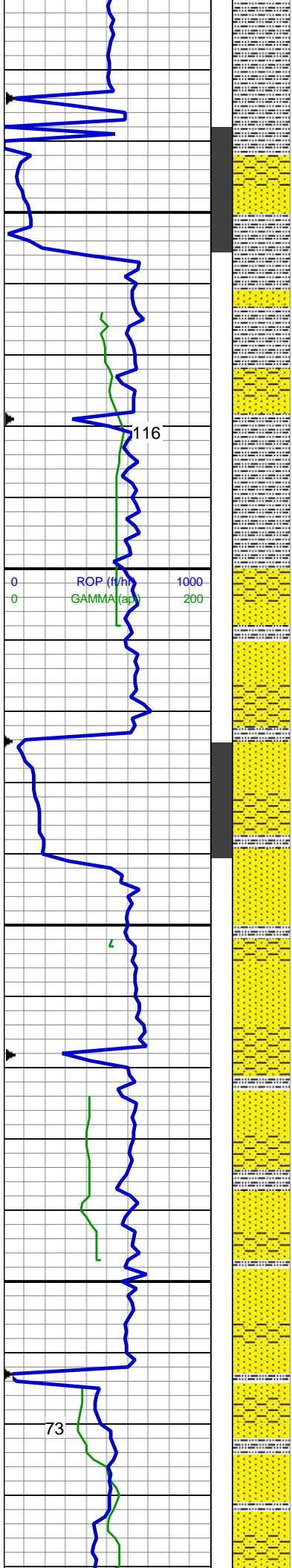
55% SHY SS: lt gy-med gy, S&P, sb blky, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc; 35% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blky, slty tex, sl sdy ip, sl calc; 10% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc

MD: 4,010 '
TVD: 4,000.3 '
Inclination: 12.4 °
Azimuth: 2.1 °
VS: 33.91 '

60% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blky, slty tex, sl sdy ip, sl calc, tr bent; 40% SHY SS: lt gy-med gy, S&P, sb blky, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, occ wh ss

MD: 4,099 '
TVD: 4,087.5 '
Inclination: 10.7 °
Azimuth: 357.2 °





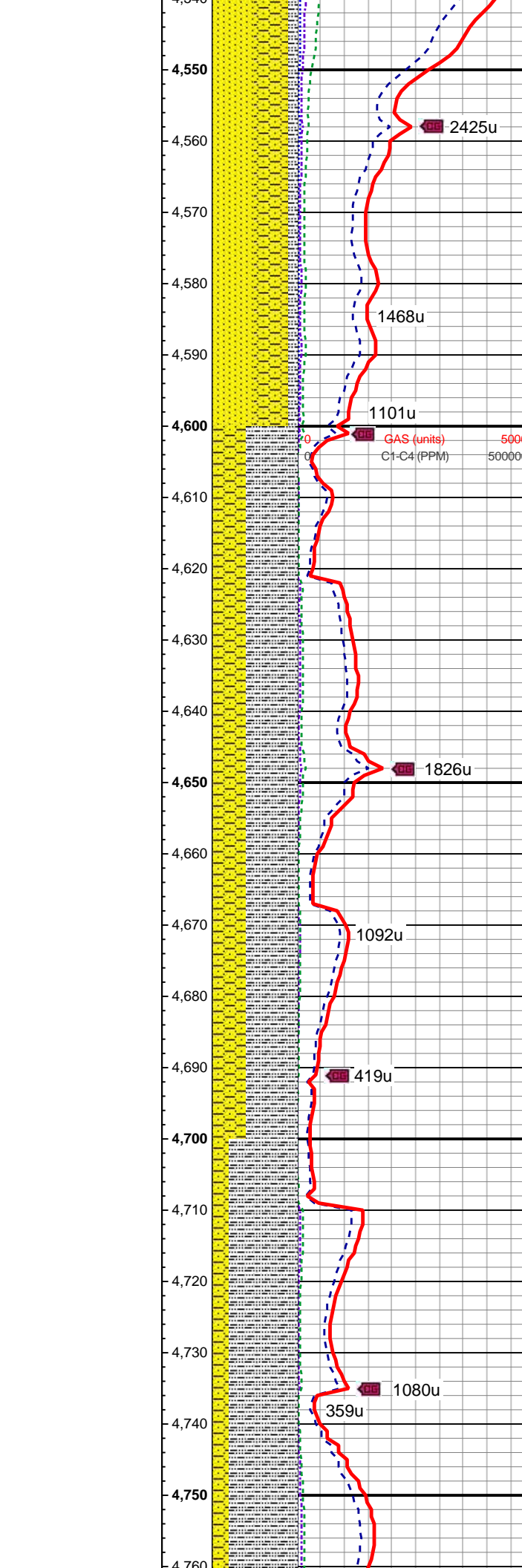
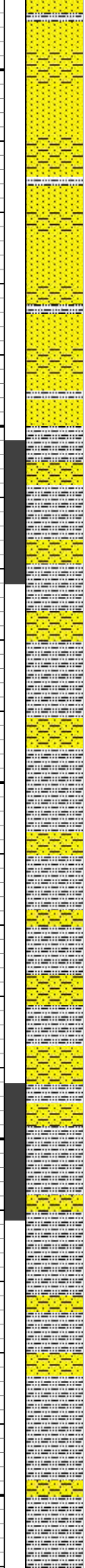
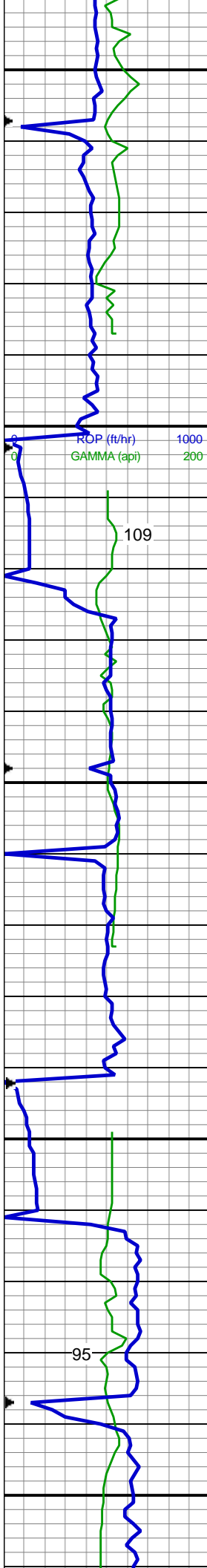
75% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc, tr bent; 15% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc, occ glauc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, tr glauc

MD: 4,368 '
TVD: 4,353.1 '
Inclination: 8.7 °
Azimuth: 351.7 °
VS: 34.54 '

40% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc, occ glauc; 40% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, tr glauc, 20% SLTY SH: lt-med gy, sl brn, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc, tr bent

MD: 4,458 '
TVD: 4,442 '
Inclination: 9.2 °
Azimuth: 359.3 °
VS: 34.87 '

50% SS: wh-lt gy, tr s&p, clr-trnsl, sb rnd-ang, p srt, w cons, f gr, non calc, occ glauc; 40% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, tr glauc; 10% SLTY SH:



lt-med gy, sl brn, sft-sl frm, sb
pty-sb blkly, slty tex, sl sdy ip, sl calc

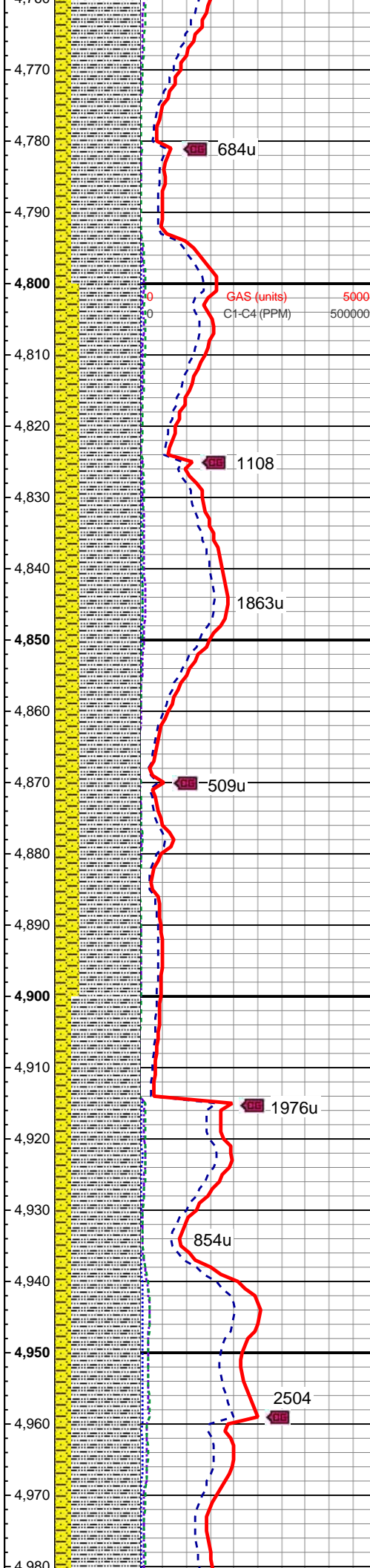
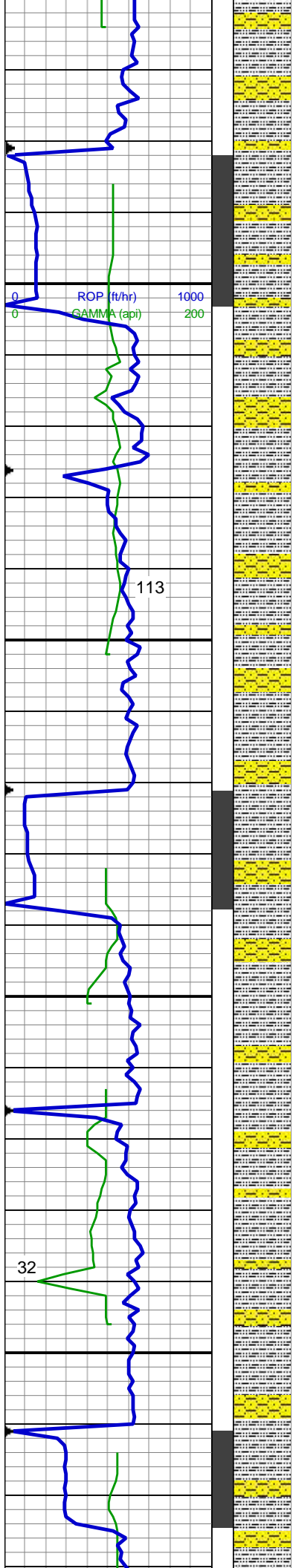
MD: 4,547 '
TVD: 4,529.94 '
Inclination: 8.5 °
Azimuth: 356.7 °
VS: 35.77 '

MD: 4,637 '
TVD: 4,618.86 '
Inclination: 9.3 °
Azimuth: 357.3 °
VS: 36.44 '

60% SLTY SH: lt-med gy, sft-sl frm,
sb pty-sb blkly, slty tex, sl sdy ip, sl
calc; 40% SHY SS: lt gy-med gy,
S&P, sb blkly, frm, v f-f gr, sb
rnd-ang, mod-w srt, cly cmt, non
calc, tr glauc

MD: 4,726 '
TVD: 4,706.63 '
Inclination: 9.8 °
Azimuth: 359 °
VS: 37.44 '

75% SLTY SH: lt-med gy, sft-sl frm,
sb pty-sb blkly, slty tex, sl sdy ip, sl
calc; 25% SHY SS: lt gy-med gy,
S&P, sb blkly, frm, v f-f gr, sb
rnd-ang, mod-w srt, cly cmt, non
calc, tr glauc

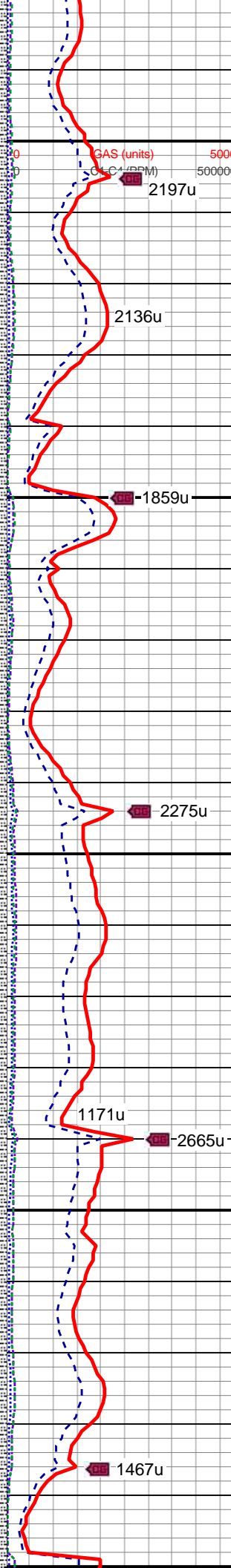
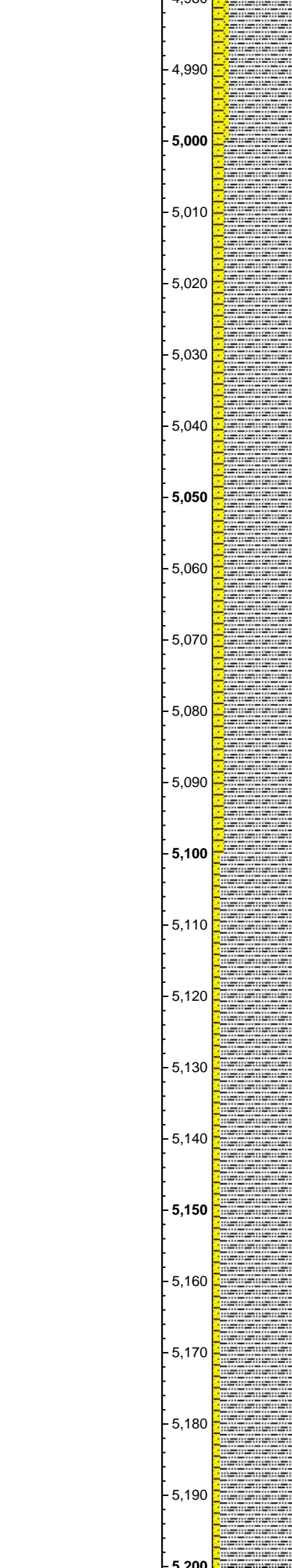
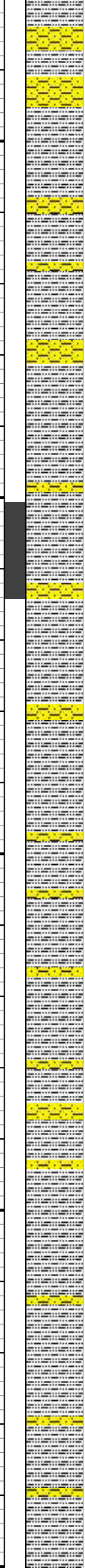
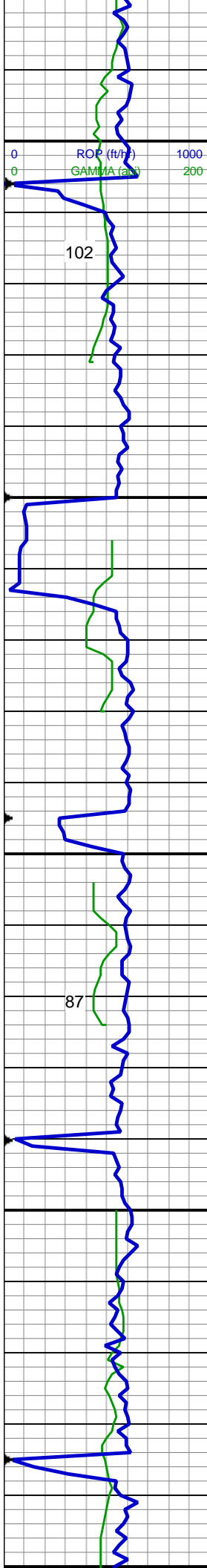


MD: 4,816 '
TVD: 4,795.1 '
Inclination: 11.3 °
Azimuth: 359.5 °
VS: 38.88 '

70% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc; 30% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, scat ss

MD: 4,905 '
TVD: 4,882.36 '
Inclination: 11.4 °
Azimuth: 1.6 °
VS: 40.8 '

80% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc; 20% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc, occ ss



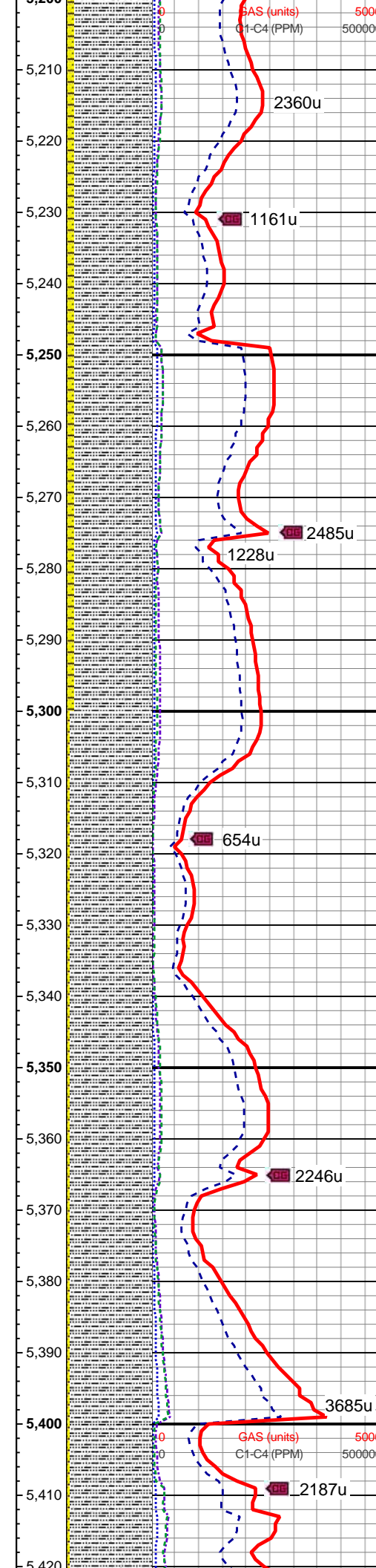
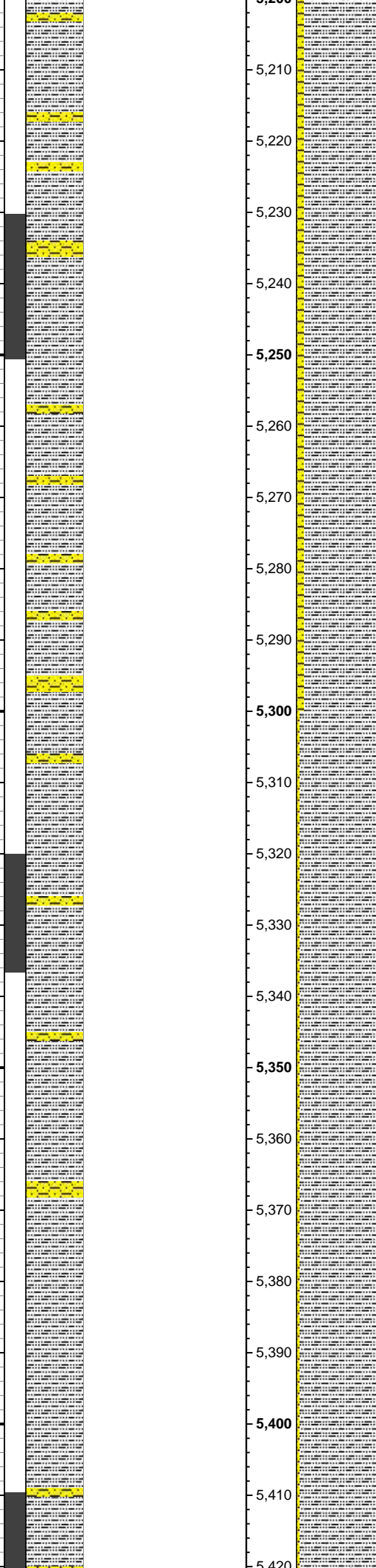
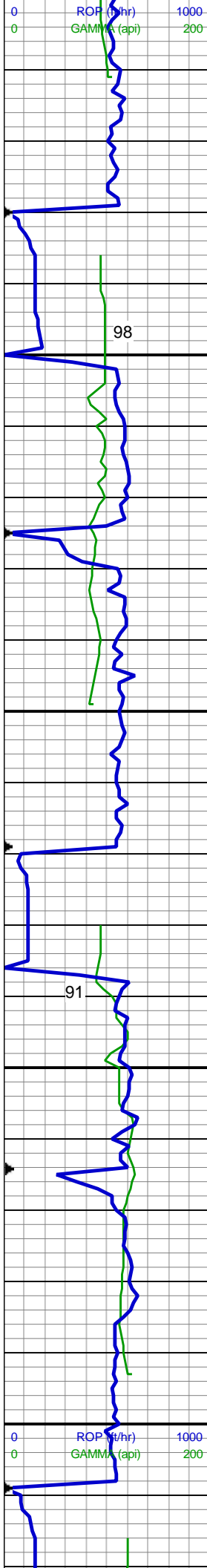
MD: 4,995 '
TVD: 4,970.74 '
Inclination: 10.4 °
Azimuth: 357.8 °
VS: 42.43 '
WT: 8.6 / VIS: 27

85% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blk, slty tex, sl sdy ip, sl calc; 15% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 5,084 '
TVD: 5,058.36 '
Inclination: 9.8 °
Azimuth: 351.1 °
VS: 42.51 '

90% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blk, slty tex, sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blk, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 5,174 '
TVD: 5,147.25 '
Inclination: 8.2 °
Azimuth: 347.4 °
VS: 41.32 '



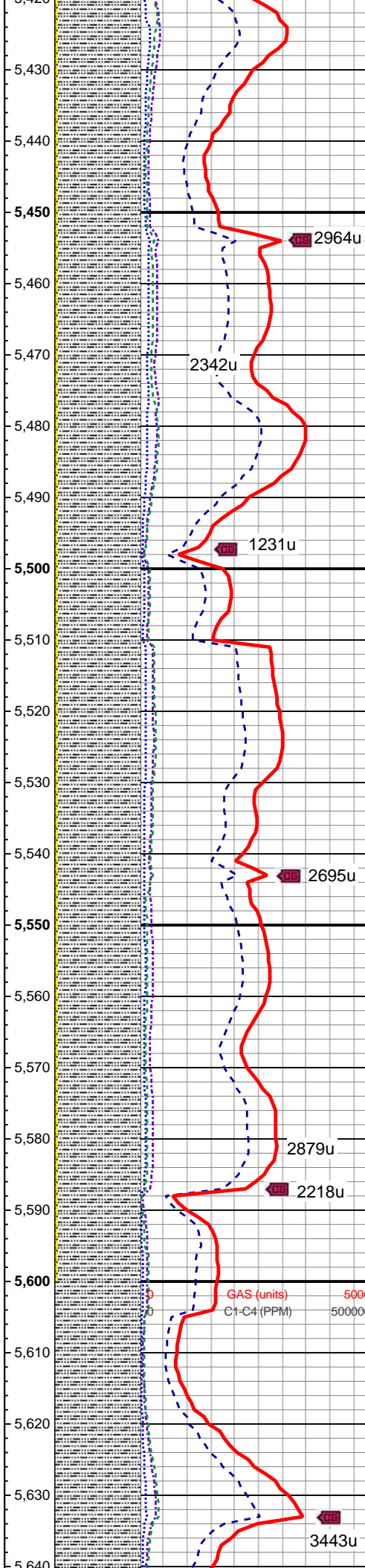
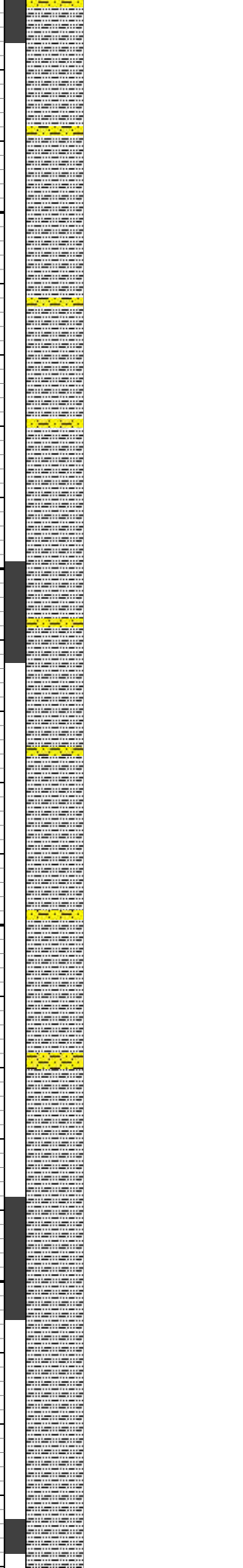
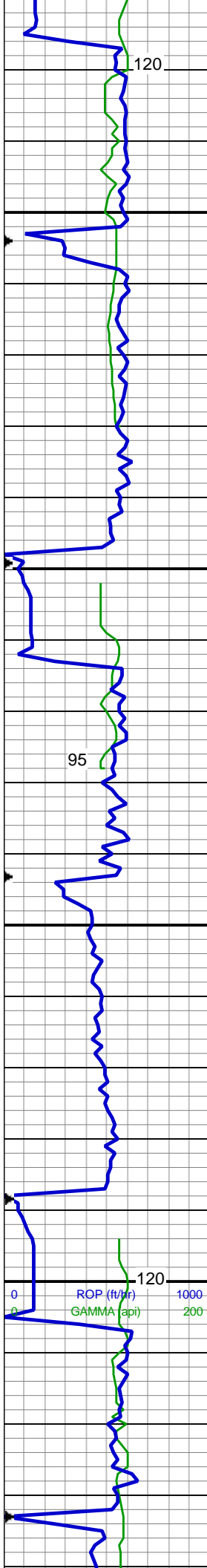
90% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc; 10% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 5,264 '
TVD: 5,236.19 '
Inclination: 9.4 °
Azimuth: 354.1 °
VS: 40.53 '

WT: 8.6 / VIS: 27

95% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 5,353 '
TVD: 5,323.95 '
Inclination: 9.8 °
Azimuth: 354.6 °
VS: 40.55 '



MD: 5,443 '
TVD: 5,412.61 '
Inclination: 10 °
Azimuth: 355.8 °
VS: 40.8 '

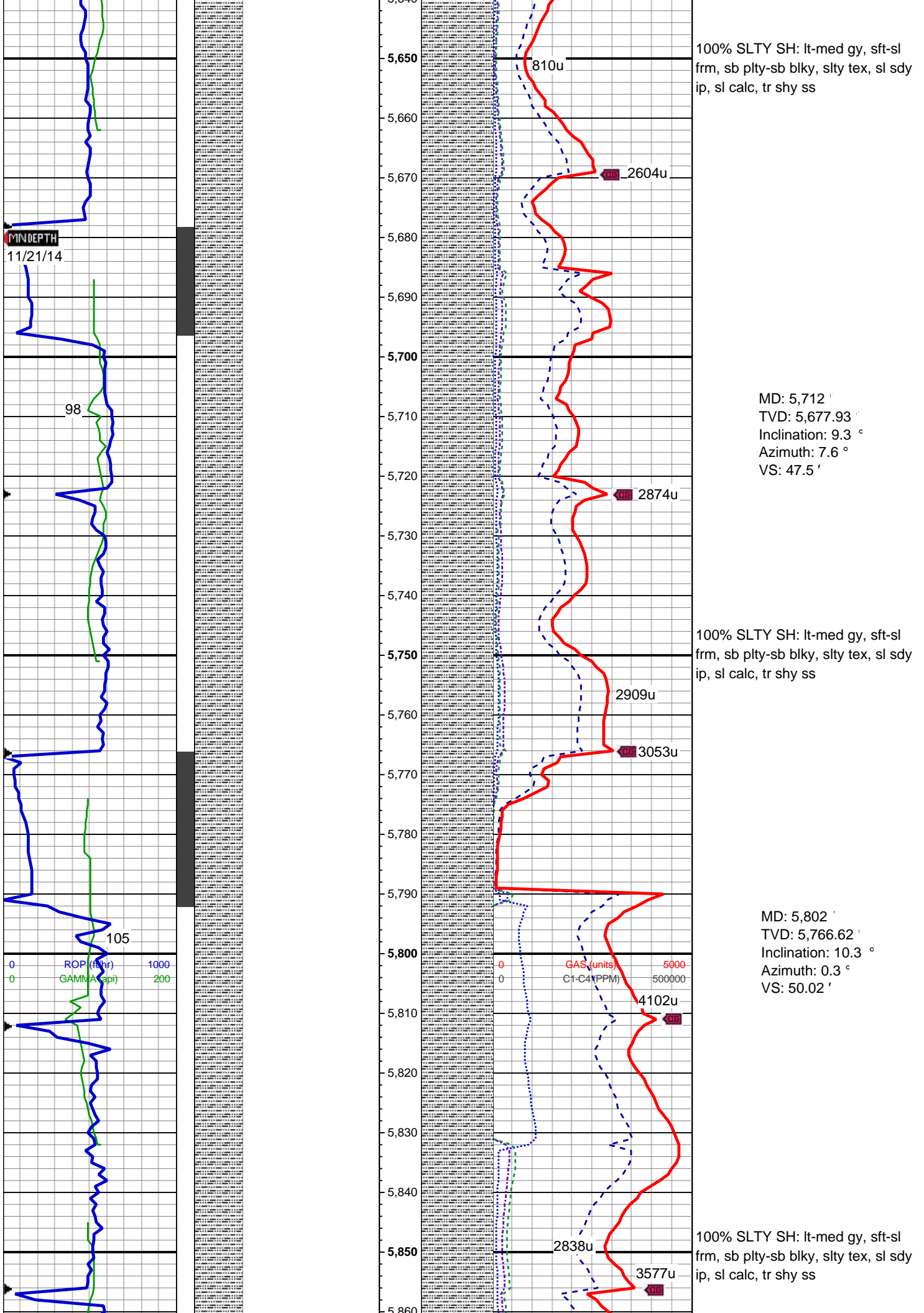
95% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 5,533 '
TVD: 5,501.32 '
Inclination: 9.4 °
Azimuth: 3.5 °
VS: 42.19 '

95% SLTY SH: lt-med gy, sft-sl frm, sb plty-sb blkly, slty tex, sl sdy ip, sl calc; 5% SHY SS: lt gy-med gy, S&P, sb blkly, frm, v f-f gr, sb rnd-ang, mod-w srt, cly cmt, non calc

MD: 5,622 '
TVD: 5,589.13 '
Inclination: 9.4 °
Azimuth: 4 °
VS: 44.58 '

WT: 8.65 / VIS: 27



MINDEPTH
11/21/14

98

105

0 ROP (ft/hr) 1000
0 GAMMA (api) 200

0 GAS (units) 5000
0 C1-C4 (PPM) 500000

100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdyp,
ip, sl calc, tr shy ss

MD: 5,712 '
TVD: 5,677.93 '
Inclination: 9.3 °
Azimuth: 7.6 °
VS: 47.5 '

100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdyp,
ip, sl calc, tr shy ss

MD: 5,802 '
TVD: 5,766.62 '
Inclination: 10.3 °
Azimuth: 0.3 °
VS: 50.02 '

100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdyp,
ip, sl calc, tr shy ss

WT: 8.9 / VIS: 30

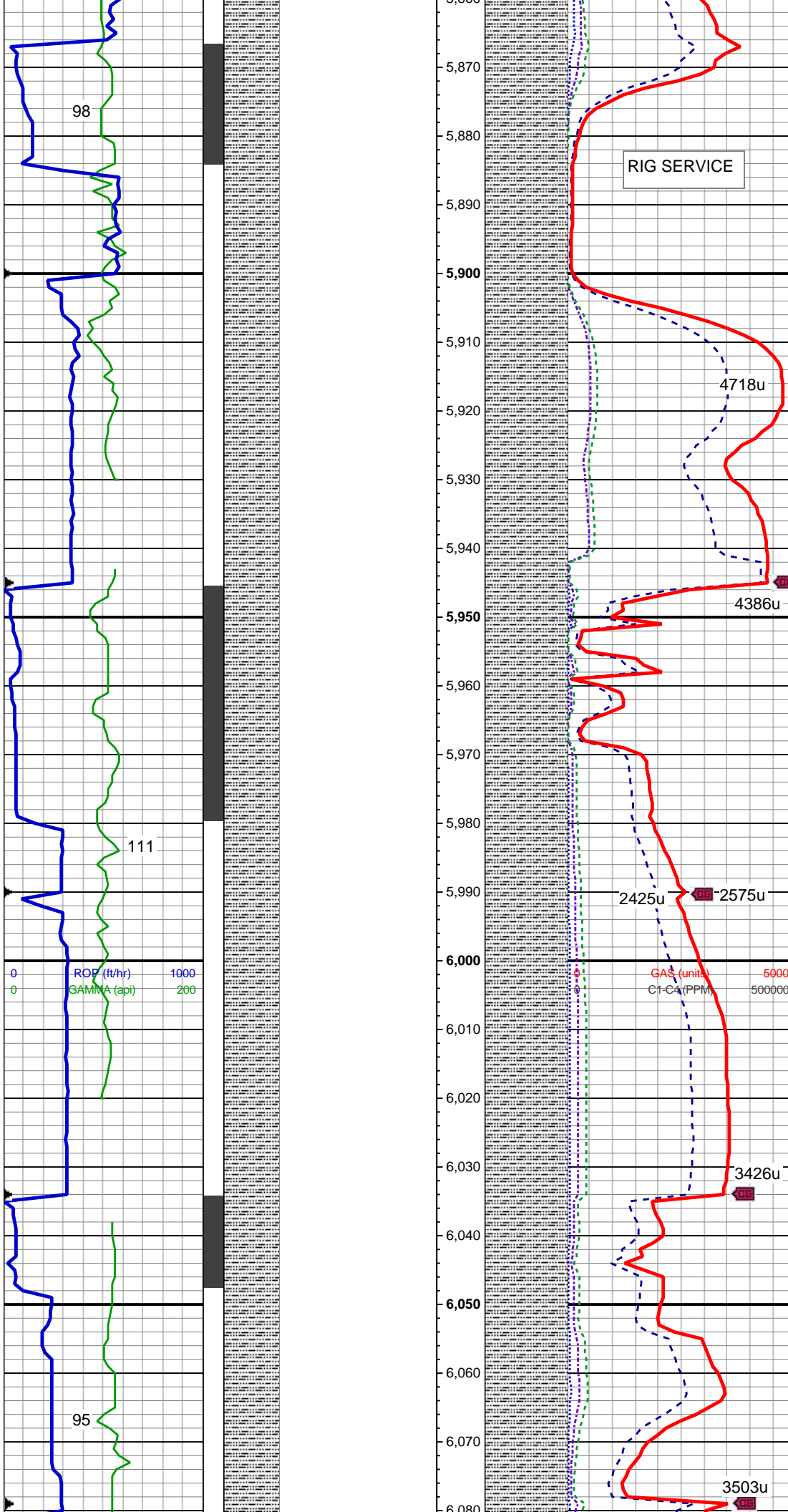
MD: 5,891 '
TVD: 5,854.16 '
Inclination: 10.5 °
Azimuth: 6.2 °
VS: 52.54 '

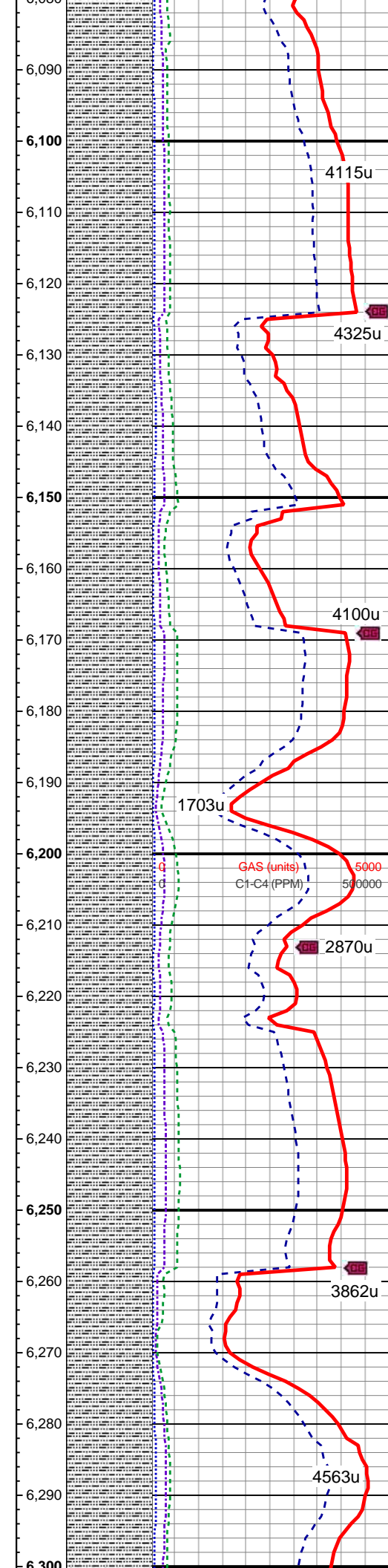
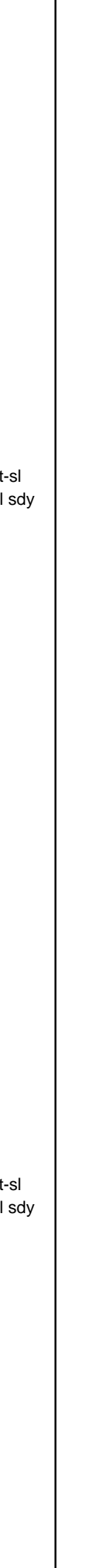
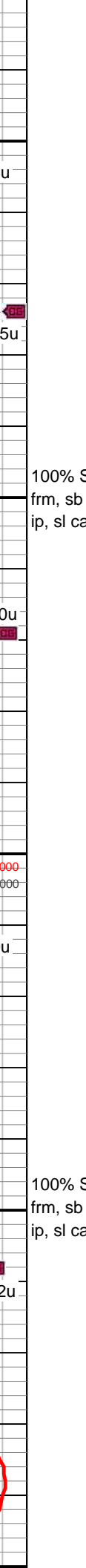
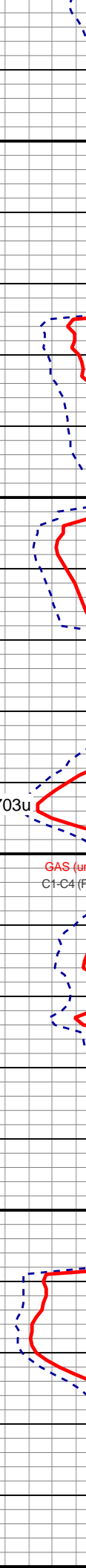
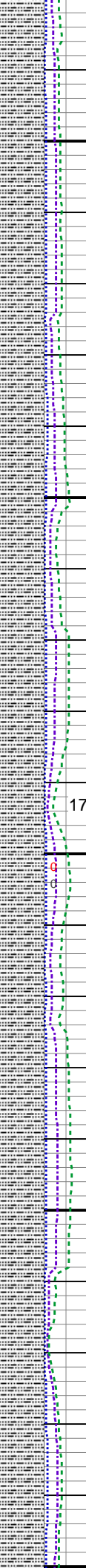
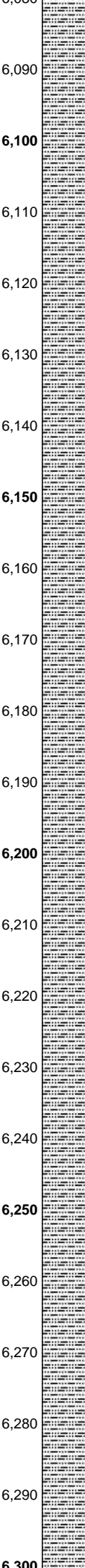
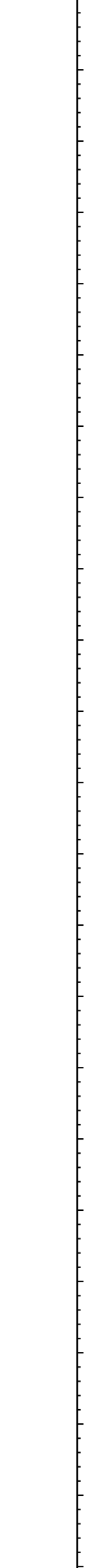
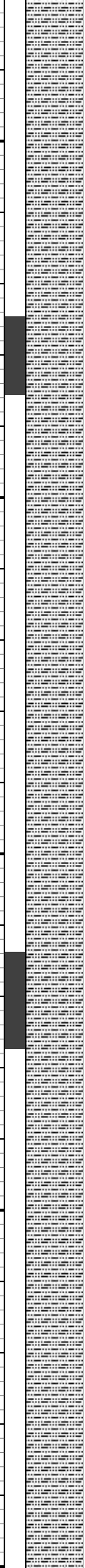
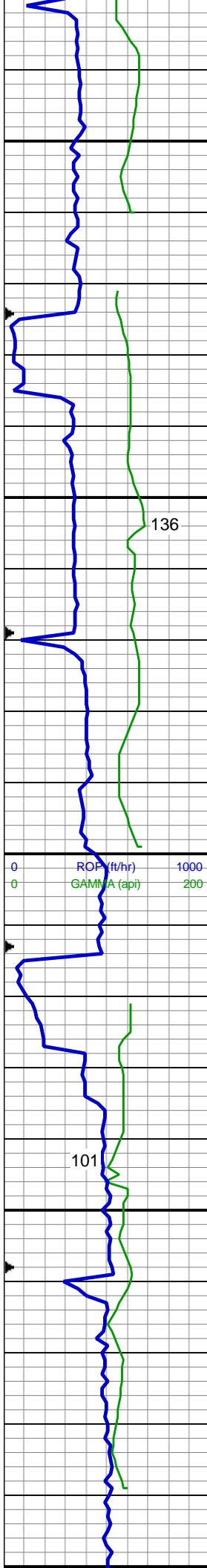
100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdy
ip, sl calc, tr shy ss

MD: 5,981 '
TVD: 5,942.52 '
Inclination: 11.4 °
Azimuth: 1.1 °
VS: 55.29 '

100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdy
ip, sl calc, tr shy ss

MD: 6,070 '
TVD: 6,029.74 '
Inclination: 11.6 °
Azimuth: 356.7 °
VS: 56.71 '





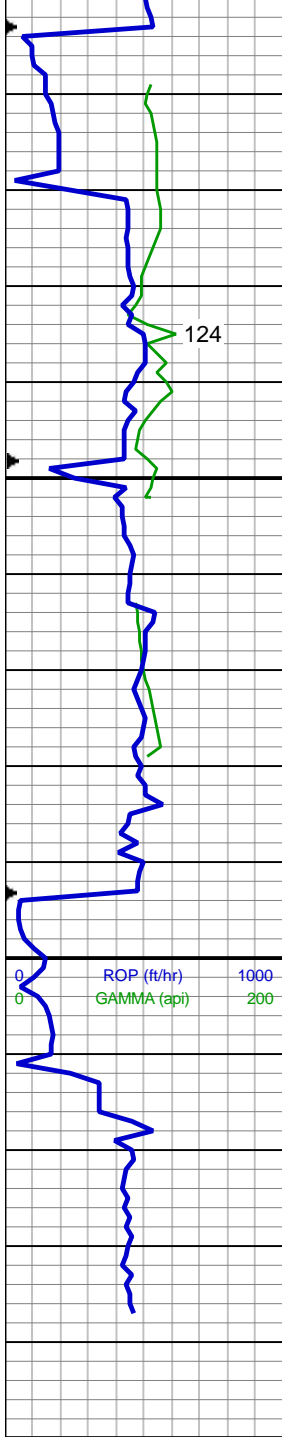
100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdy
ip, sl calc, tr shy ss

MD: 6,160 '
TVD: 6,117.99 '
Inclination: 11 °
Azimuth: 358 °
VS: 57.66 '

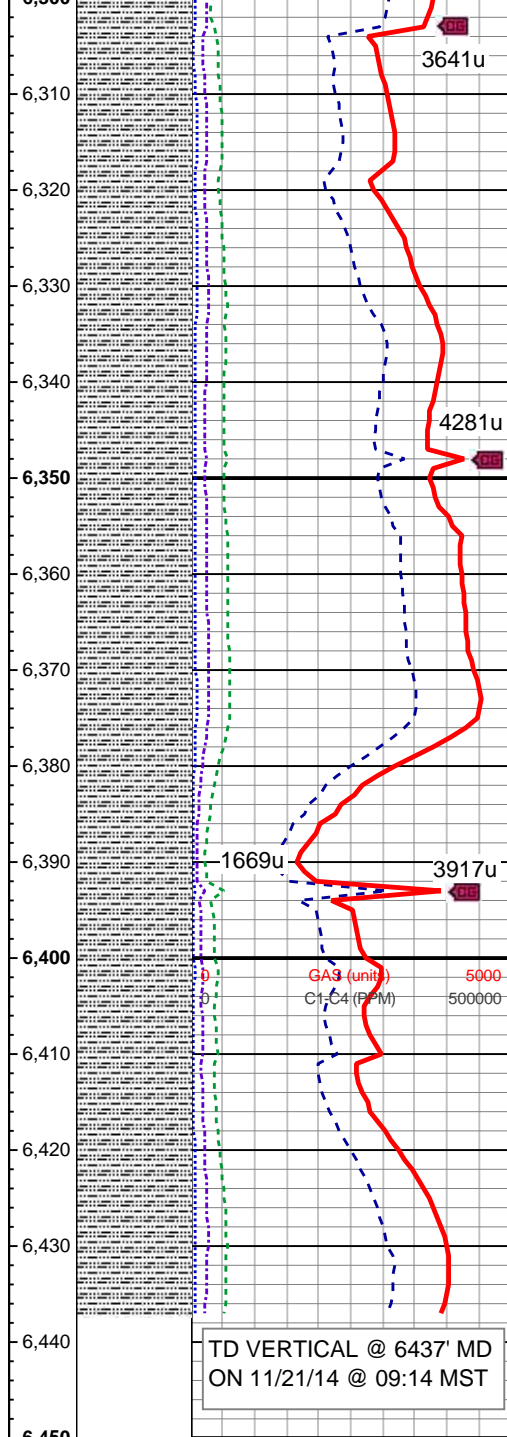
WT: 9.1 / VIS: 34

100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdy
ip, sl calc, tr shy ss

MD: 6,250 '
TVD: 6,206.56 '
Inclination: 9.5 °
Azimuth: 2 °
VS: 59.21 '



6,350
6,310
6,320
6,330
6,340
6,350
6,360
6,370
6,380
6,390
6,400
6,410
6,420
6,430
6,440
6,450



WT: 9.3 / VIS: 34

MD: 6,340 '
TVD: 6,295.02 '
Inclination: 11.7 °
Azimuth: 353.6 °
VS: 60.11 '

100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdy
ip, sl calc, tr shy ss

MD: 6,429 '
TVD: 6,381.94 '
Inclination: 13.1 °
Azimuth: 356.6 °
VS: 60.41 '

WT: 9.4 / VIS: 33

100% SLTY SH: lt-med gy, sft-sl
frm, sb plty-sb blkly, slty tex, sl sdy
ip, sl calc, tr shy ss

Thank you for using
Columbine Logging, Inc.

Log Continues on Burton State
K25-67-1HN_Horz

TD VERTICAL @ 6437' MD
ON 11/21/14 @ 09:14 MST