



Scale: 20' / 100'
Measured Depth Log

Well Name Ritchey 26-1-22HC

Location NW/4 NW/4 26-1N-66W

State COLORADO

County WELD

Country UNITED STATES

Rig Number PRECISION 460

API Number 05-123-44745-000C

AFE # 05-123-44767

Geographic Region DJ BASIN

Field WATTENBERG

Spud Date 6/30/2017

Drilling Completed 7/12/2017

Surface Coordinates NW/4 NW/4 26-1N-66W

Bottom Hole Coordinates SW/4 SW/4 26-1N-66W

Ground Elevation 5154'

K.B. Elevation 5174'

Logged Interval 6000 **To** 12563'

Total Depth 12563'

Formation CODELL

Type of Drilling Fluid OBM

Operator

Company Great Western Oil and Gas

Address 215 W Oak St #1000,
Fort Collins, CO 80521



Geologist

Name Gabriel Rubio, Mark Sowinski

Company Terra Guidance

Address 1298 O Road
Loma CO 81524
(970) 260-5408



Zone Color Coding

Oil

Note

Error

Condensate

Core

Water

Gas

Pressure

Seal

Rock Types

LIMESTONE

Chalk

Marl

SHALE

Silty Shale

Shaly Siltstone

SILTSTONE

Shaly Sandston

SANDSTONE

BENTONITE

CEMENT

UNKNOWN

ANHYDRITE

GYPSUM

SALT

SIDERITE or LIMONITE

DOLOMITE

CHERT

COAL

MARLSTONE

CLAYSTONE

SHALE GRAY

SHALE COLORED

CONGLOMERATE

BRECCIA

TILL

TUFF

IGNEOUS

METAMORPHIC

Accessories

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLUTE

PLANT REMAINS

SCAPHOPOD

STROMATOPOROID

ECHINOID

FISH

FORAMINIFERA

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMINOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL

KAOLIN

MARLSTONE

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLETS

PYRITE

SALT CAST

SANDY

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 Sy

ORGANIC

P PINPOINT

DEAD

VUGGY

EVEN

QUESTIONABLE

SPOTTED STAINING

BIT

CASING

REVERS

OVERT

Engineering

OIL SH

NORMA

FAULT

WIRELIN

TRIP

WIRELIN

CORE - RECOVERED

SLIDE

SURV

SIDERITE or LIMONITE

CONGLOMERATE

DST INTERVAL

WIRELIN

TRIP

WIRELIN

MOLDIC

FAULT

WIRELIN

TRIP

WIRELIN

Oil Show

Porosity

E EARTHY

FENESTRAL

F FRACTURE

INTERCRYSTALLINE

INTEROOLITIC

MOLDIC

CONNECTION (LEFT)

CONNECTION (RIGHT)

CONNECTION GAS

SLIDE

SURV

SIDERITE or LIMONITE

CONGLOMERATE

DST INTERVAL

WIRELIN

TRIP

WIRELIN

MOLDIC

FAULT

WIRELIN

TRIP

WIRELIN

ymbols

FORMATION TOP L LITHOGRAPHIC

Rounding

LOW MX MICROXLN

MIN DEPTH AN ANGULAR MS MUDSTONE

FL FAULT R ROUNDED PS PACKSTONE

DW SUBANG WS WACKESTONE

URNED STRATA R SUBRND

Sorting

SE FAULT

Textures

ALL CORE (LEFT) M MODERATE

ALL CORE (RIGHT) BS BOUNDSTONE P POOR

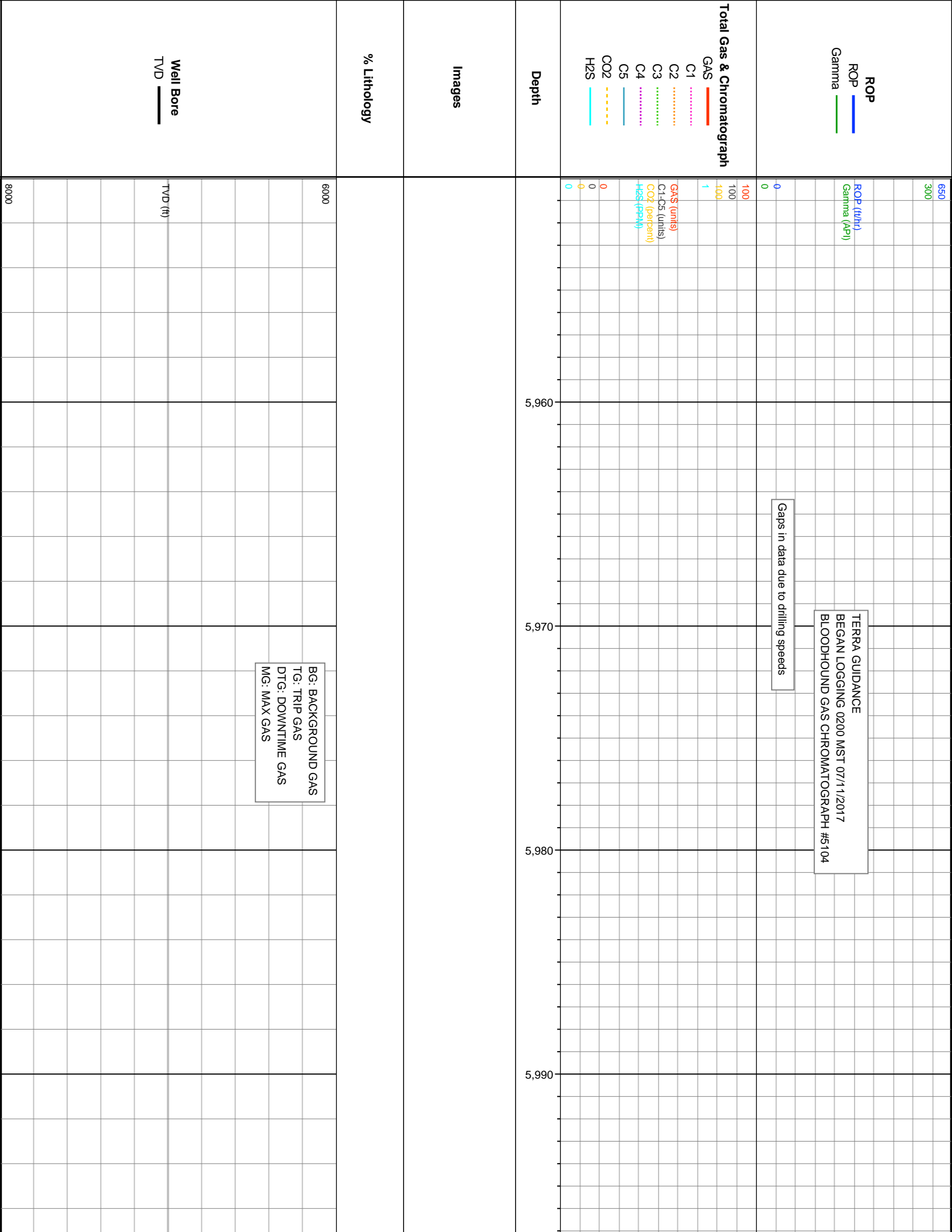
C CHALKY W WELL

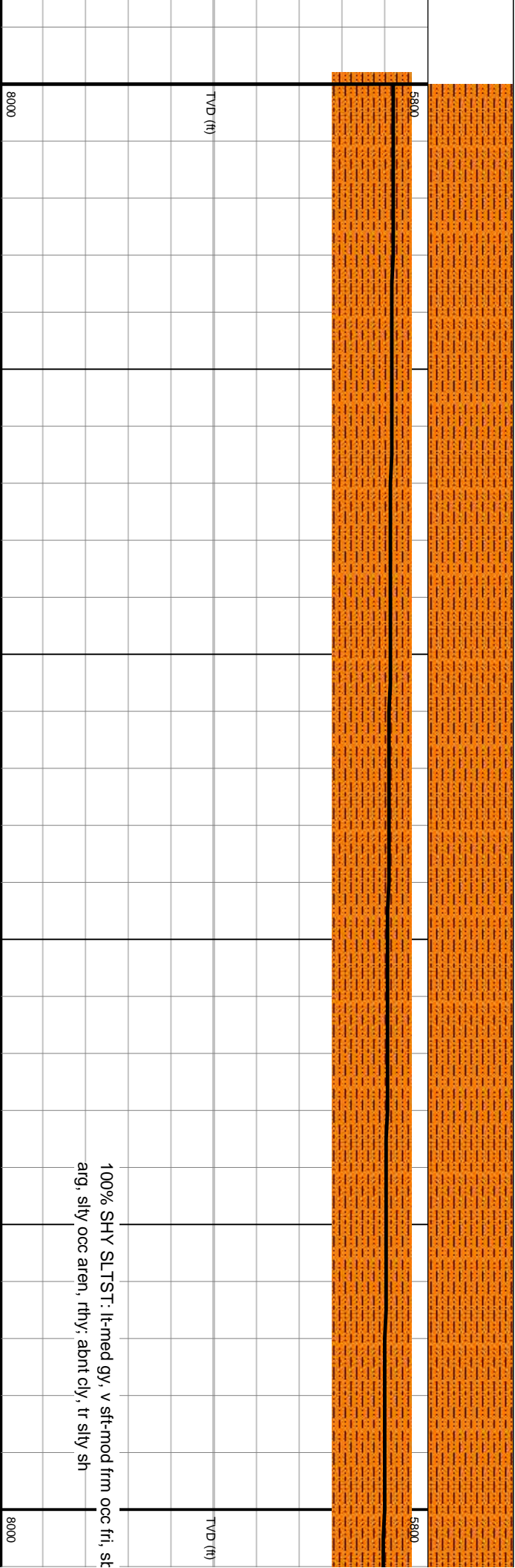
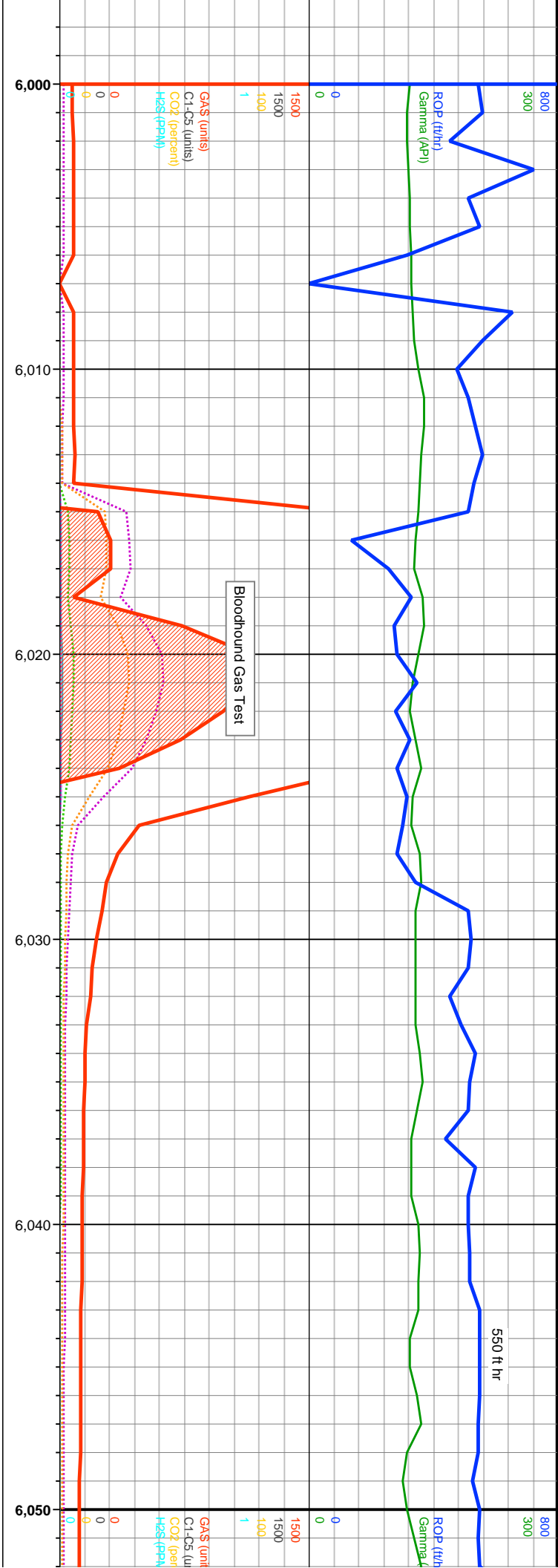
KEY CX CRYPTOXLN

3AS E EARTHY

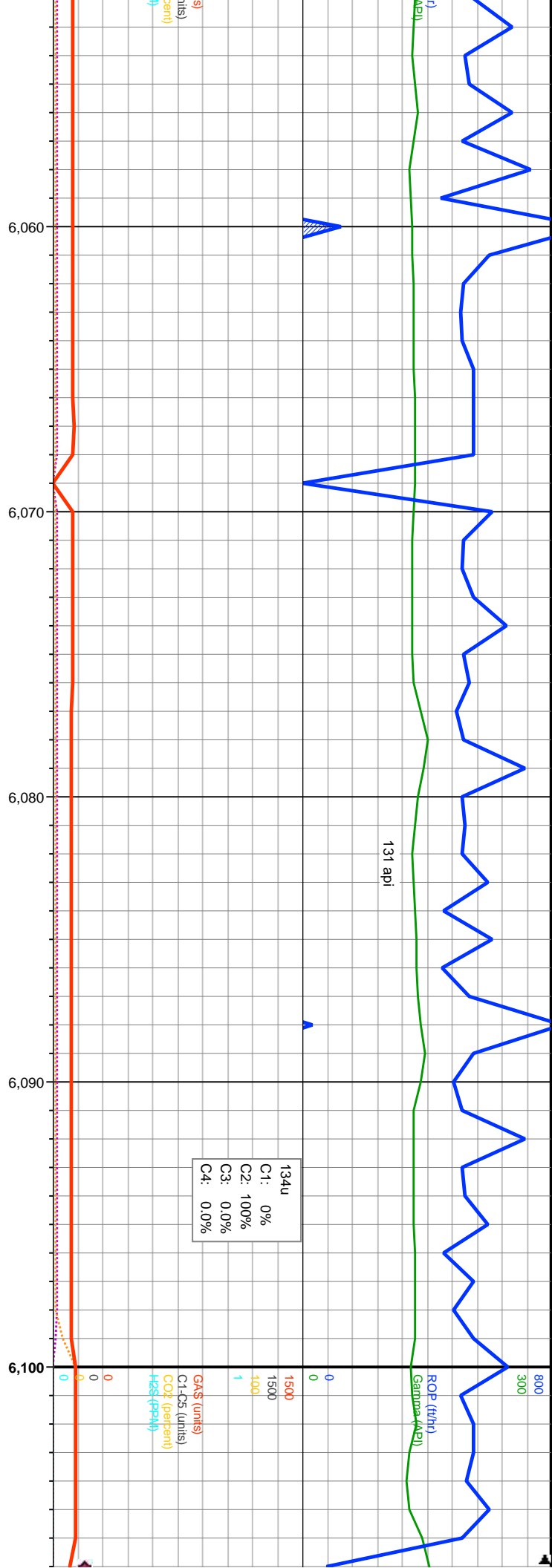
NE TESTED - LEFT FX FINELYXLN

NE TESTED - RT GS GRAINSTONE

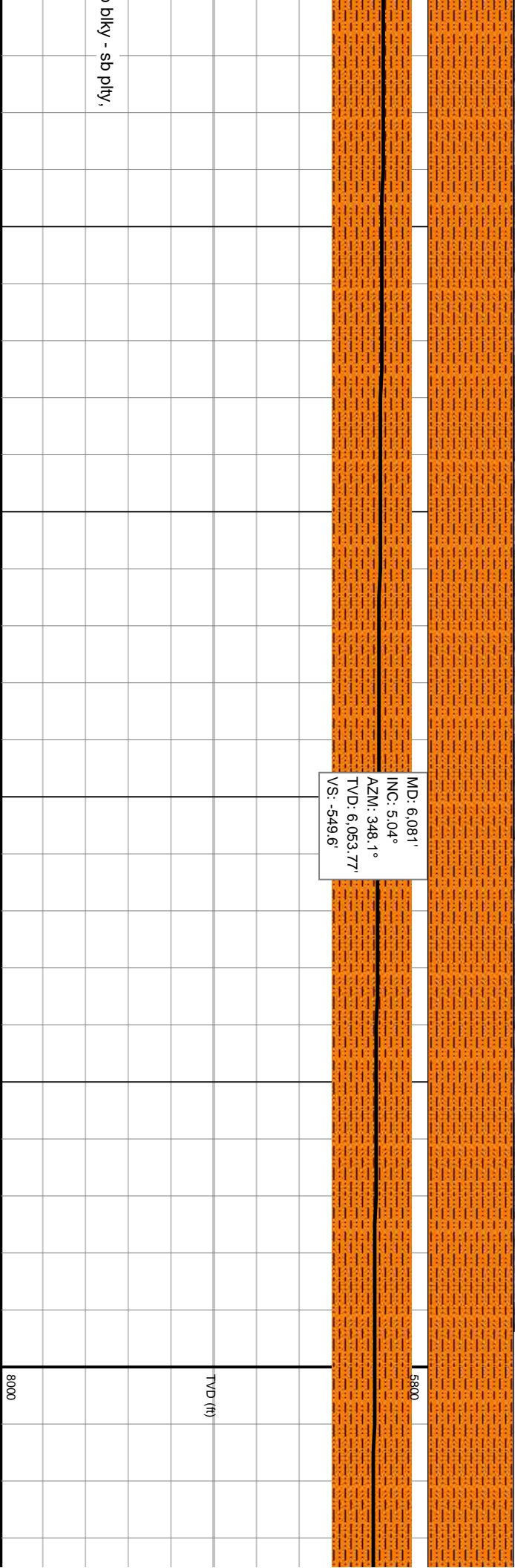




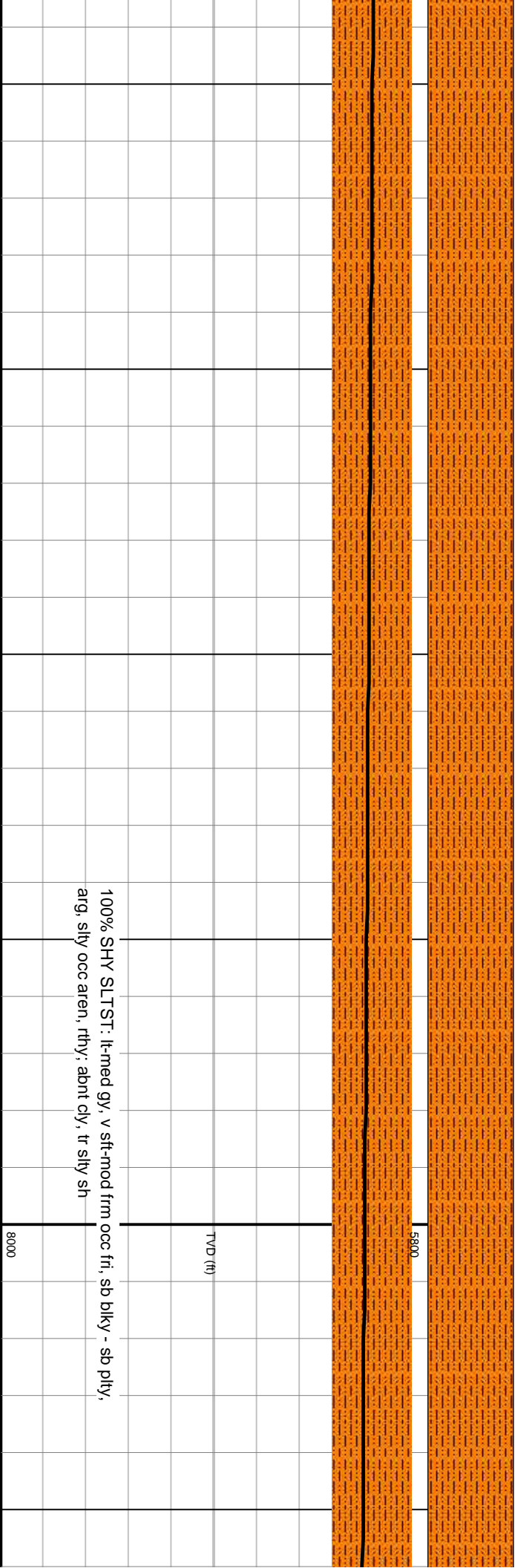
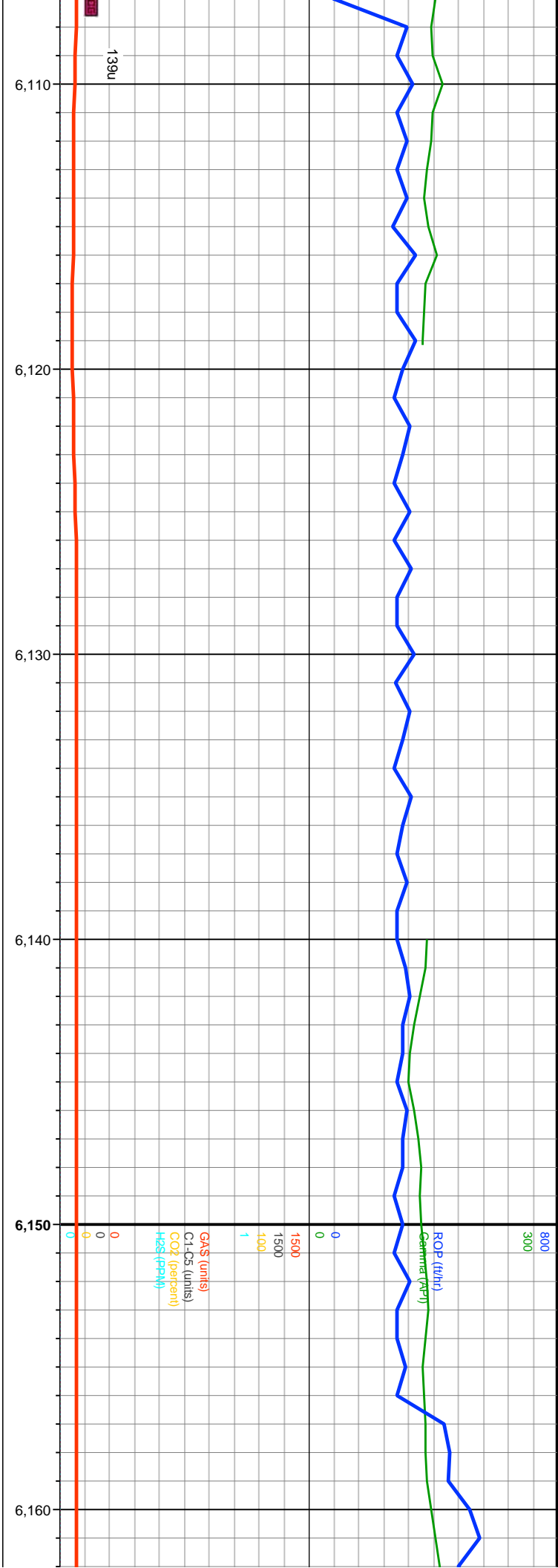
100% SHY SLTST: lt-med gy, v sft-mod frm occ fri, st
arg, silty occ aren, rthy, abnt cty, tr silty sh

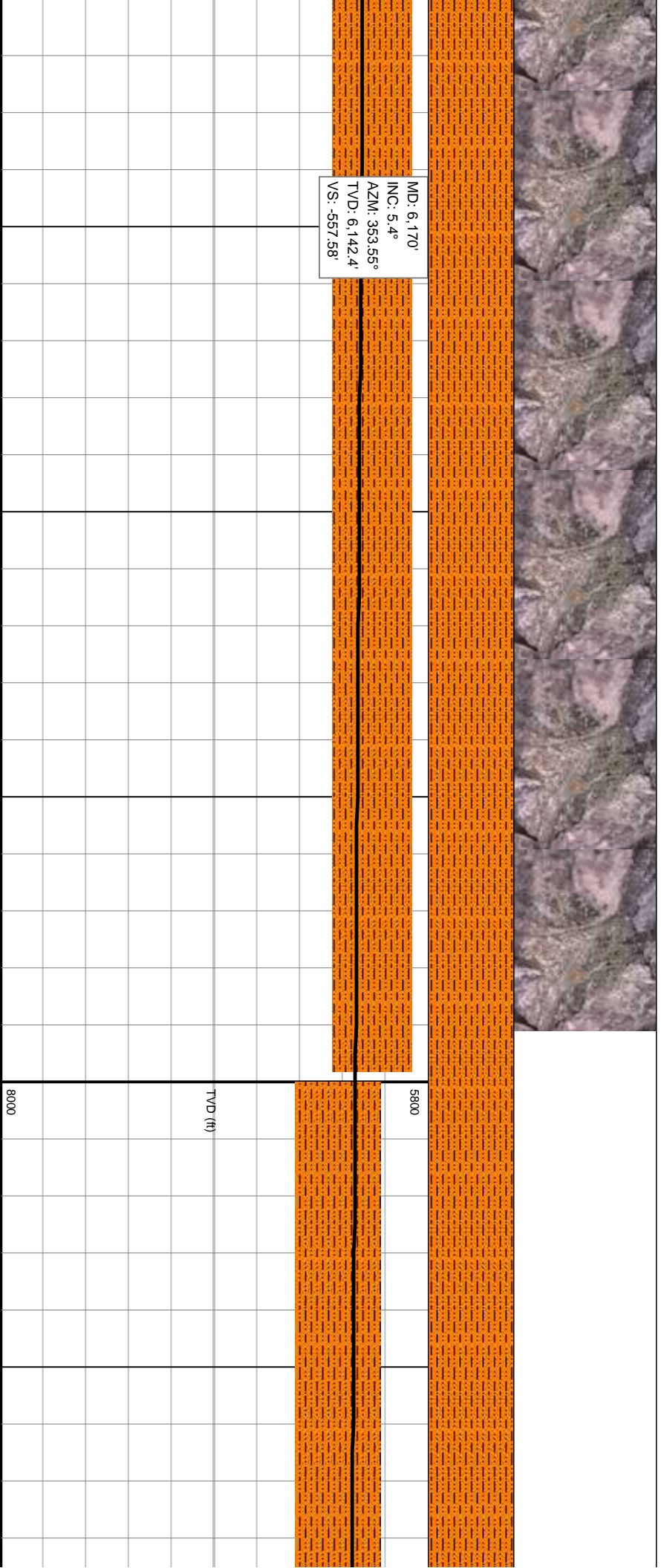
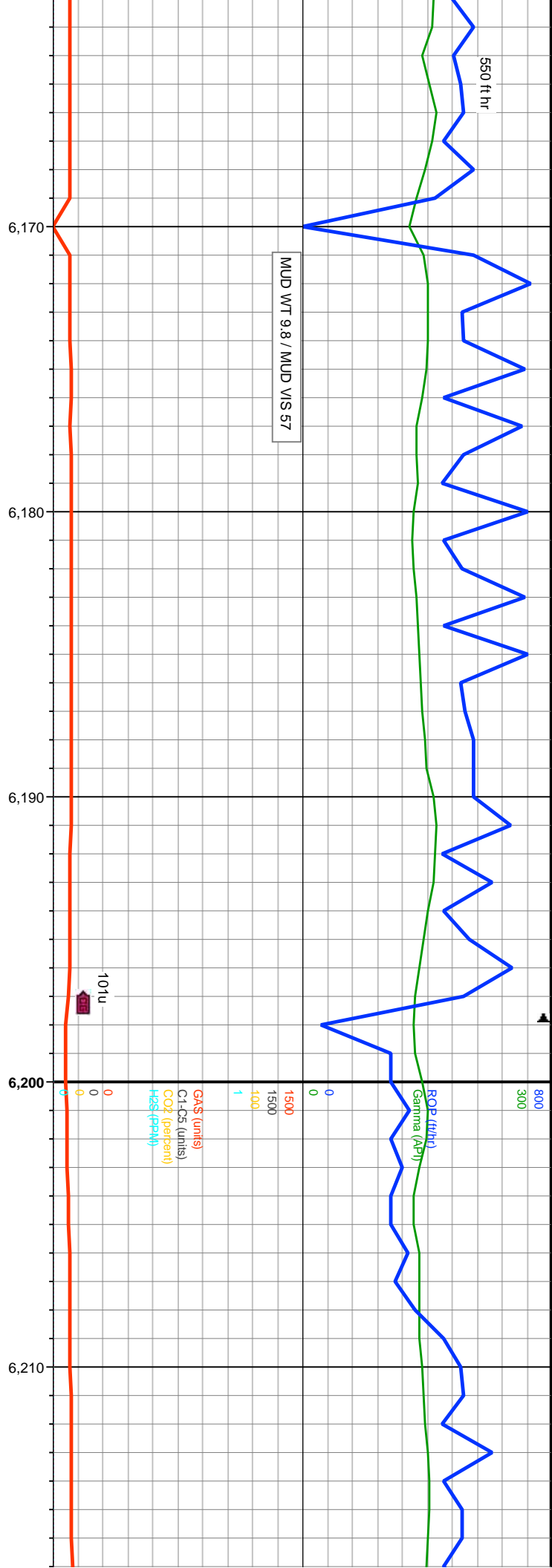


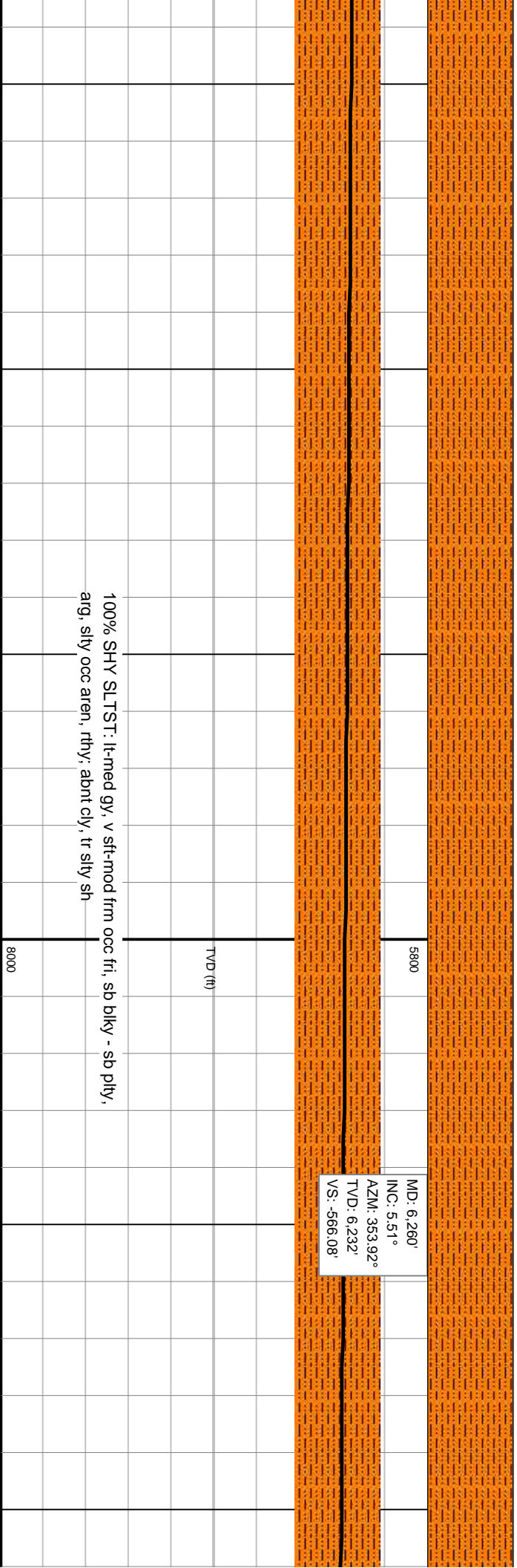
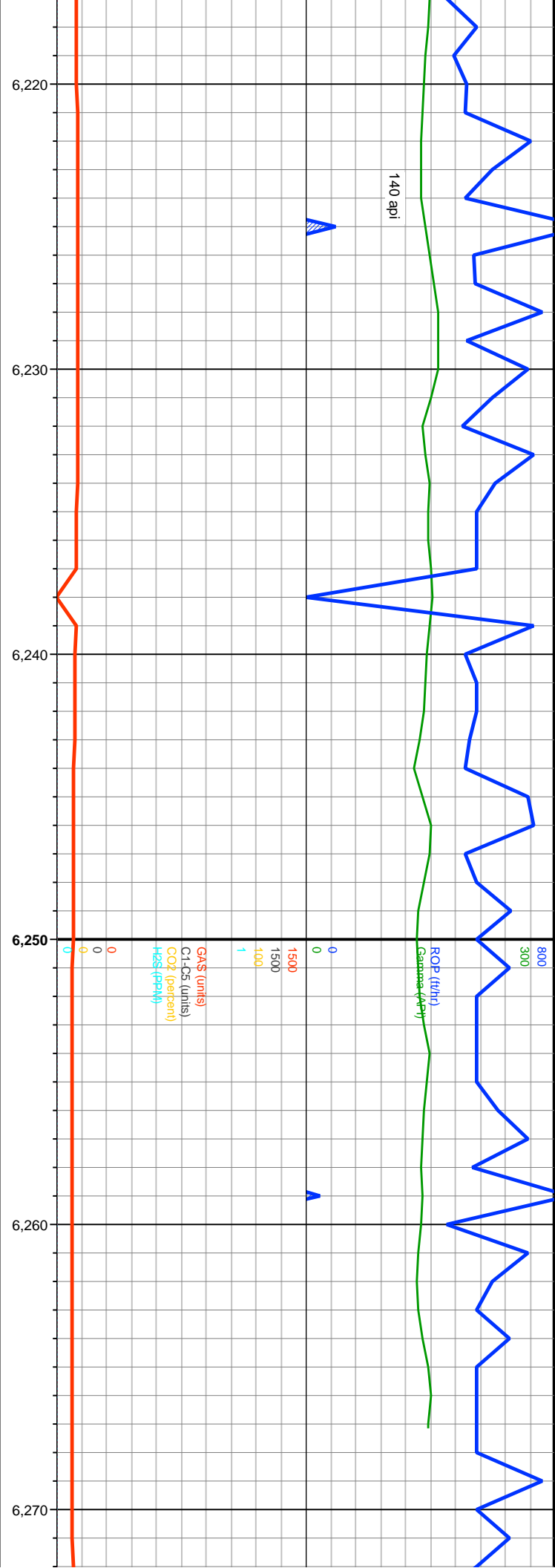
MD: 6.081'
INC: 5.04°
AZM: 348.1°
TVD: 6.053.77'
VS: -549.6'



bkly - sb plty.

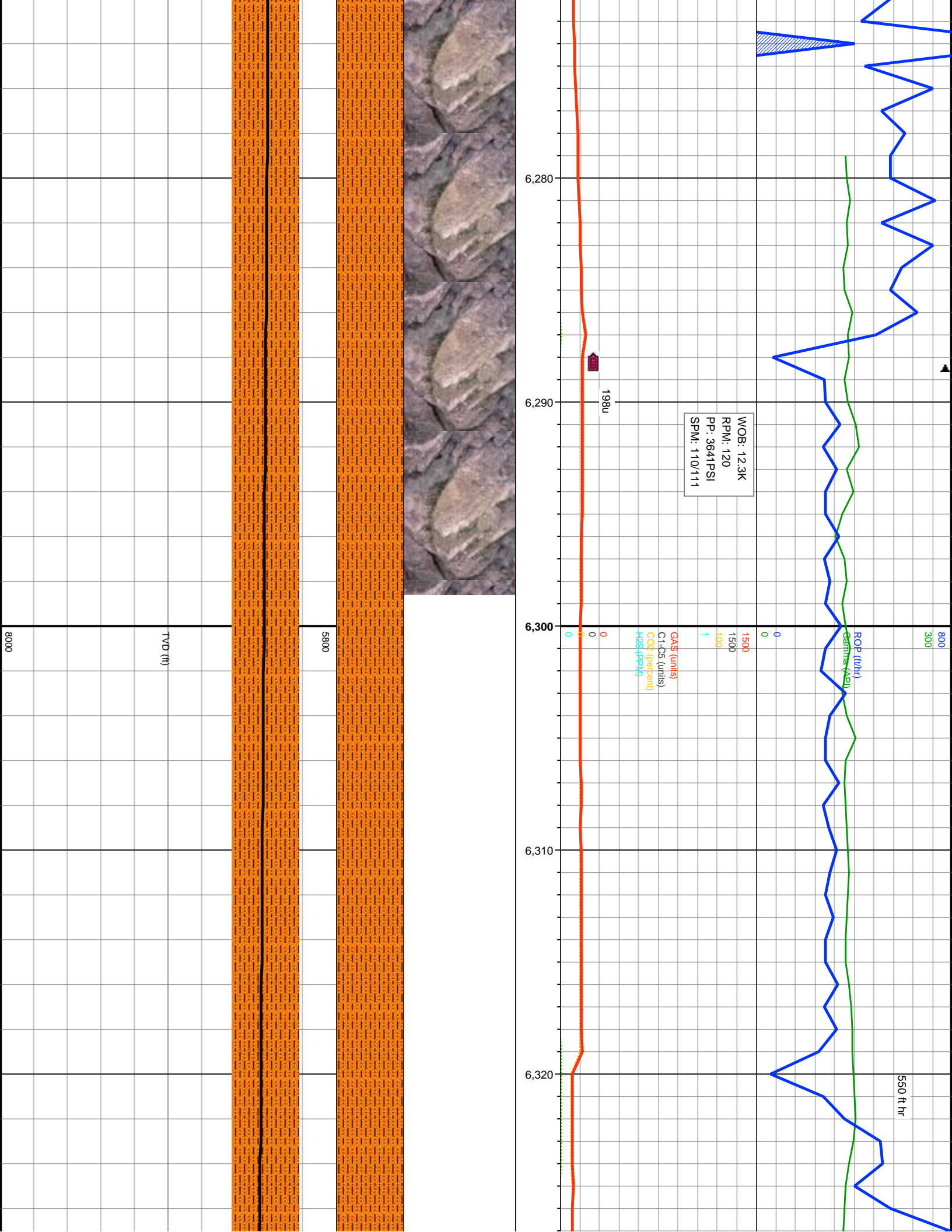


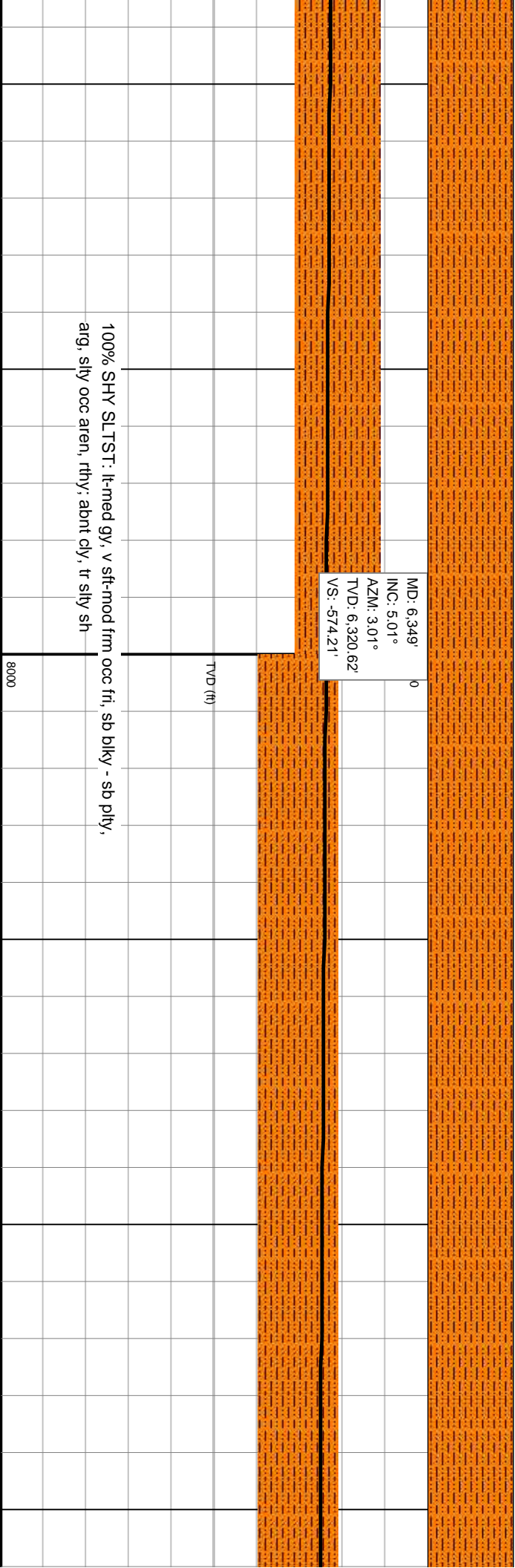
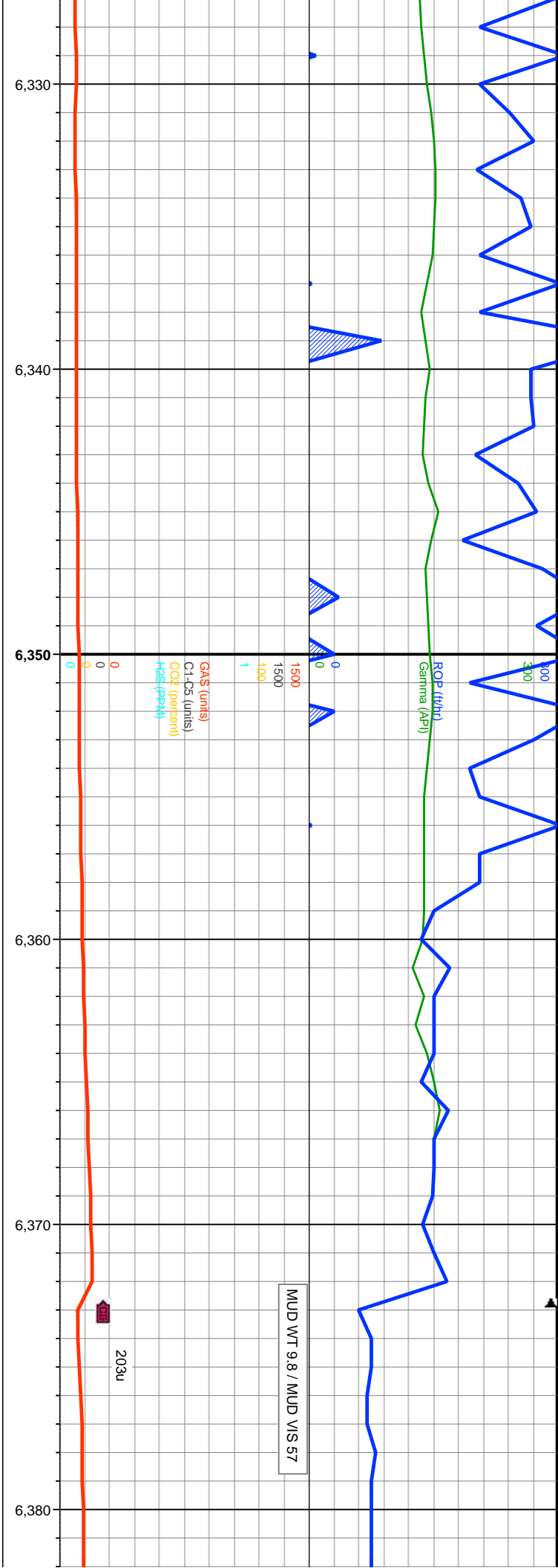


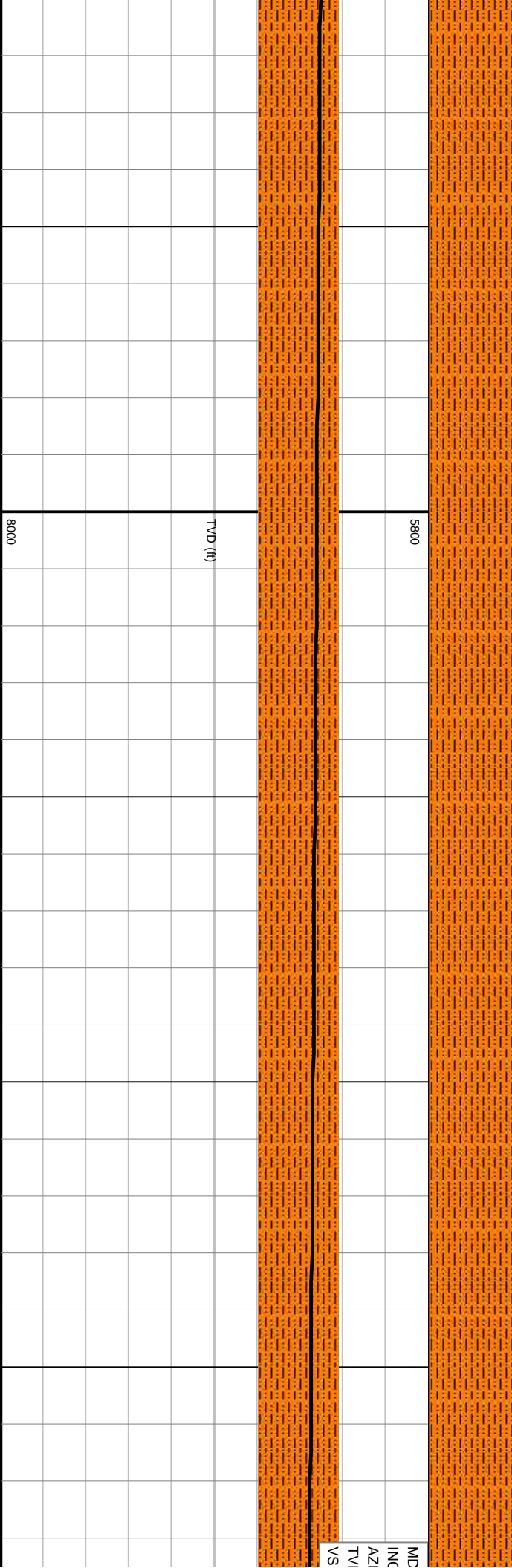
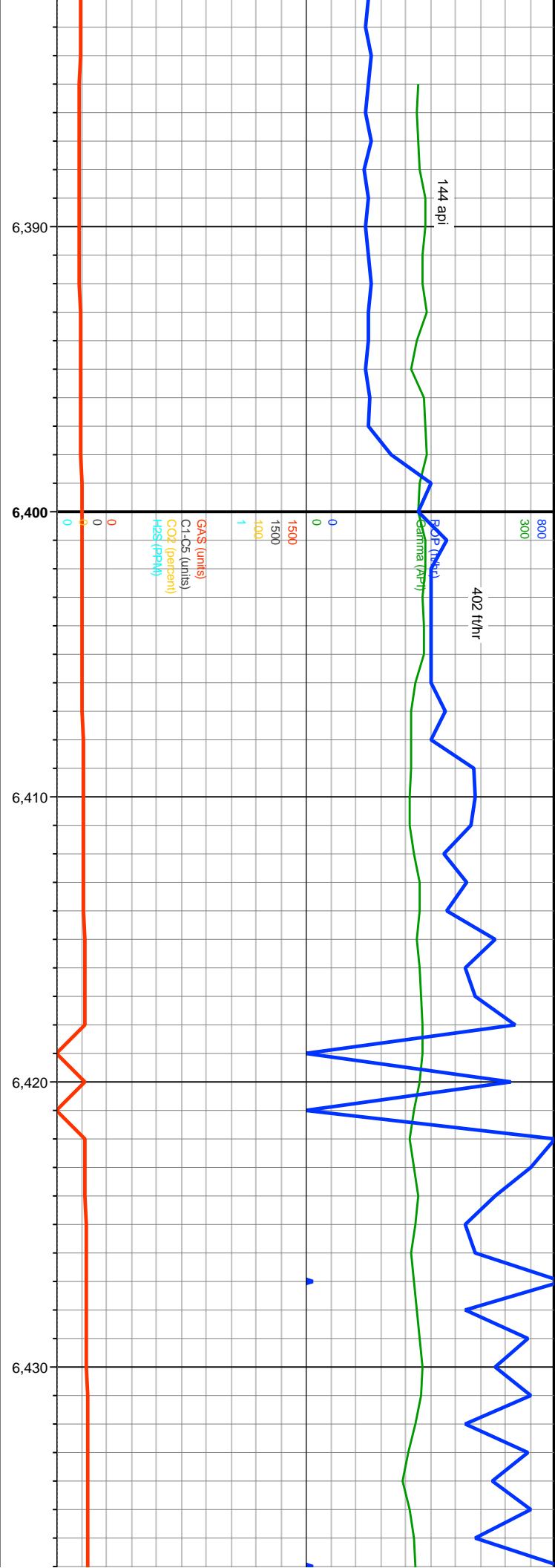


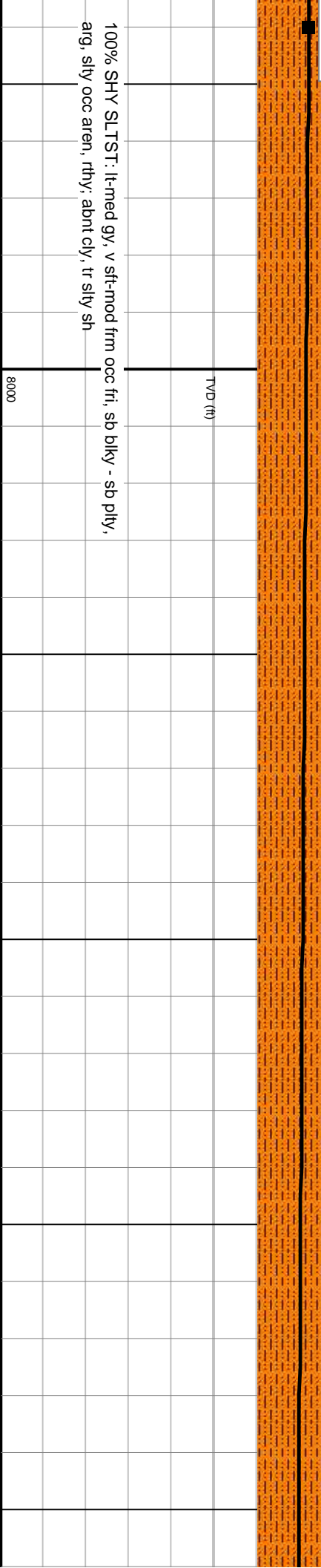
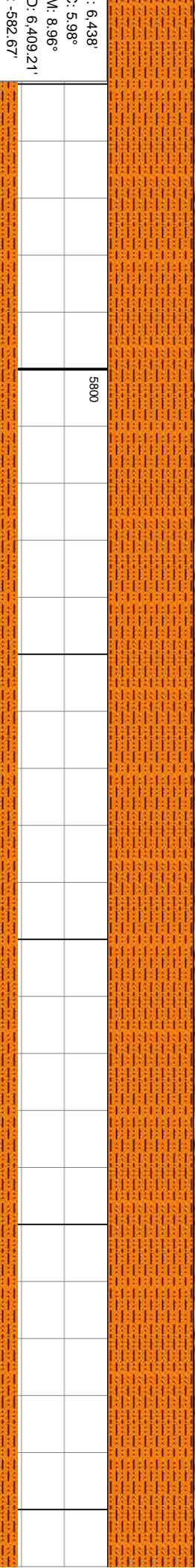
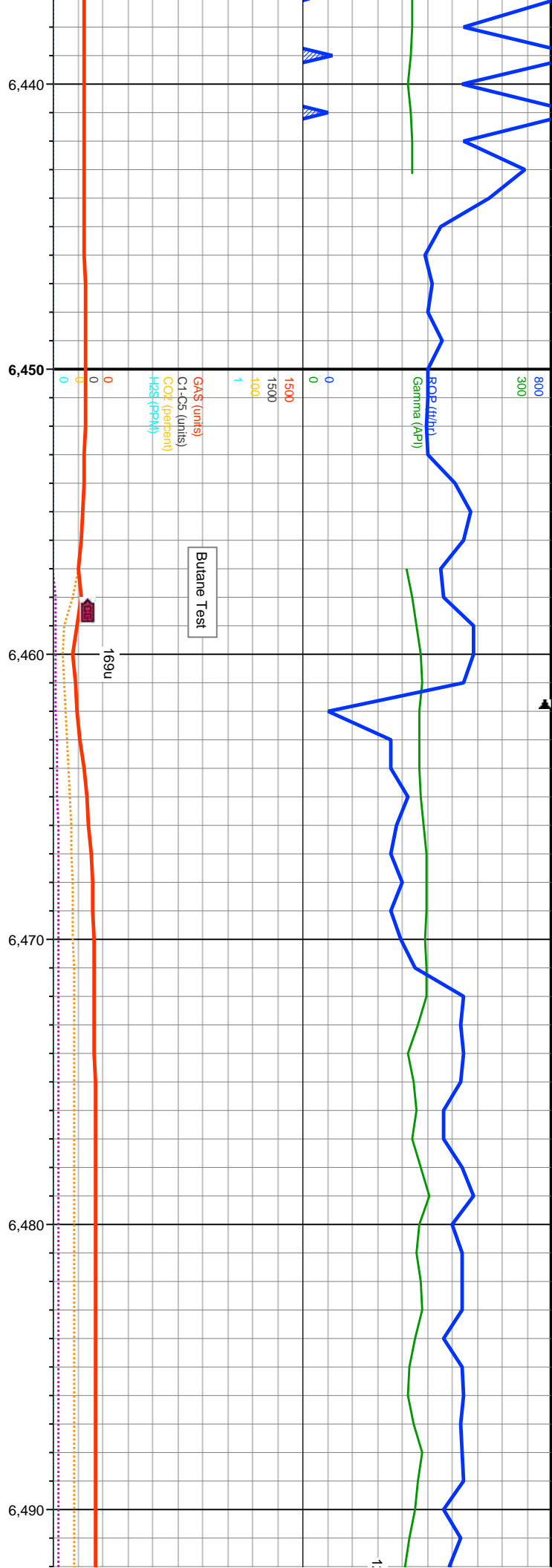
100% SHY SLTST: lt-med gy, v sft-mod frm occ fri, sb blkyl - sb plty,
arg, silty occ aren, rthy, abnt cly, tr silty sh

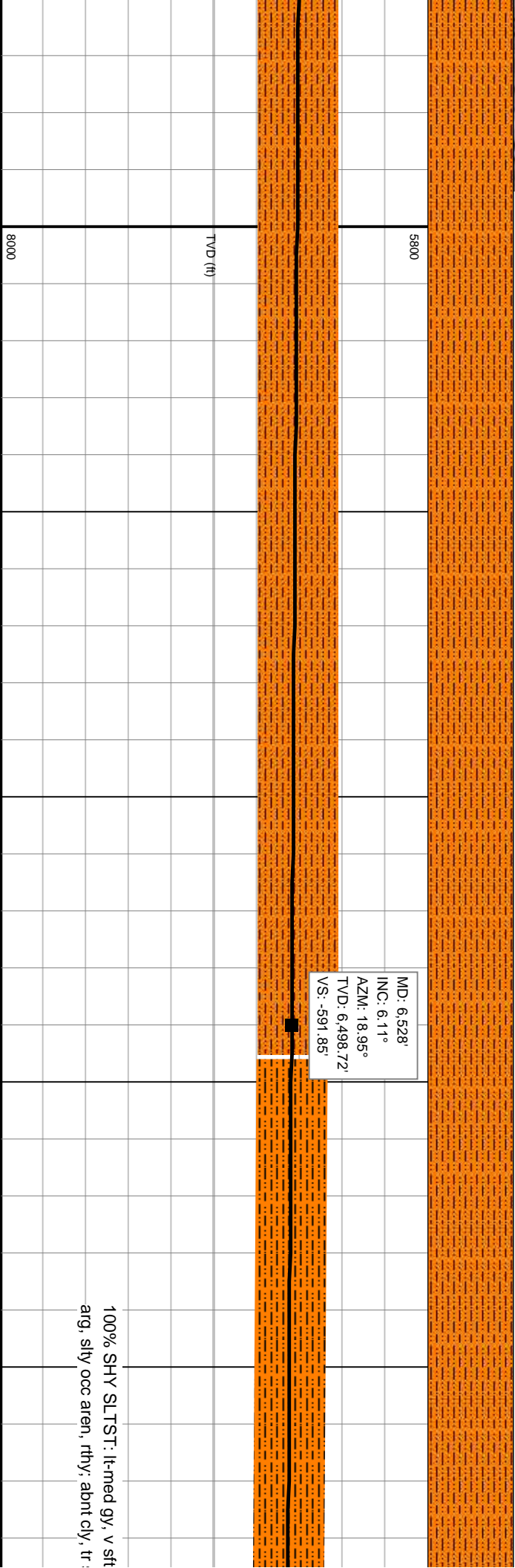
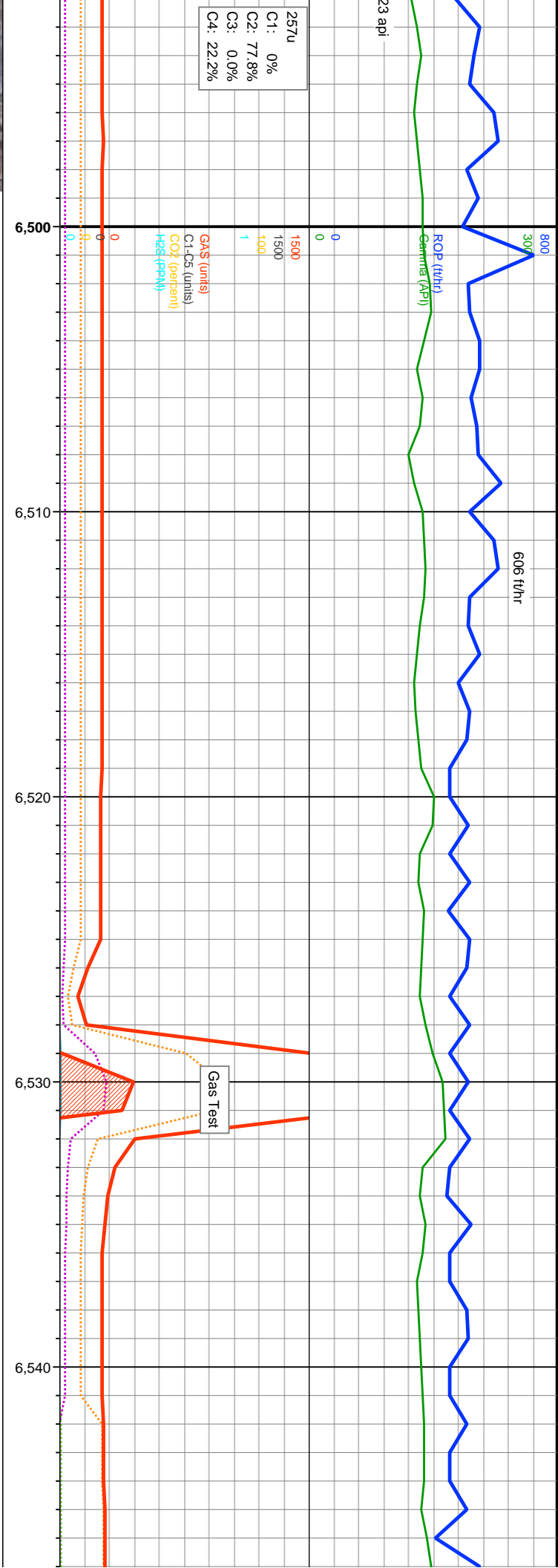
MD: 6,260'
INC: 5.51°
AZM: 353.92°
TVD: 6,232'
VS: -566.08'

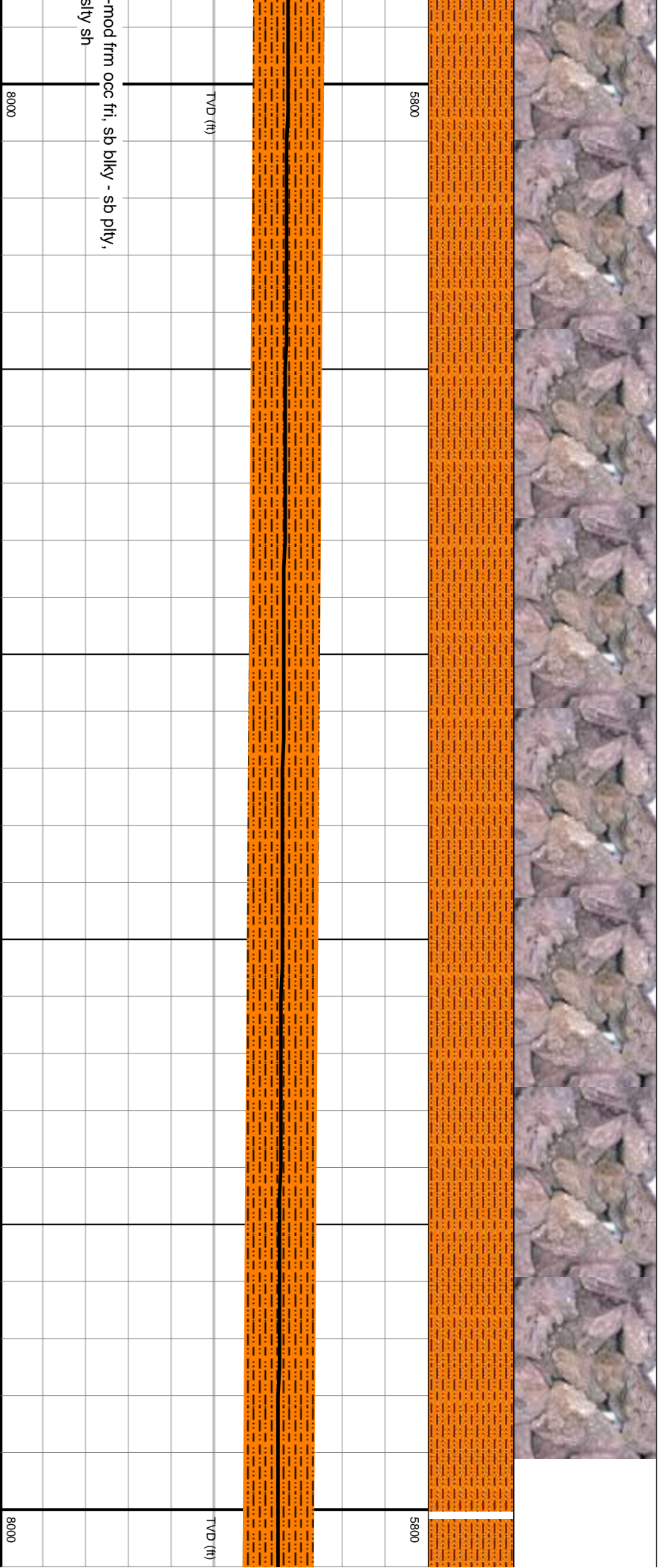
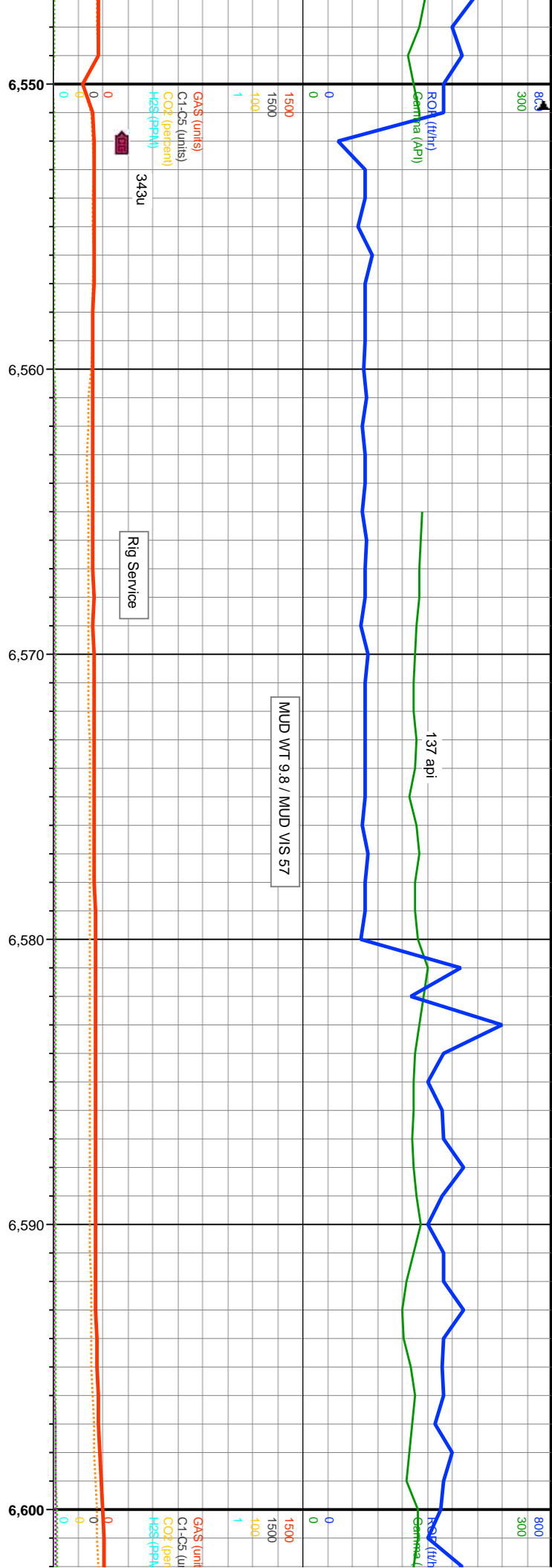


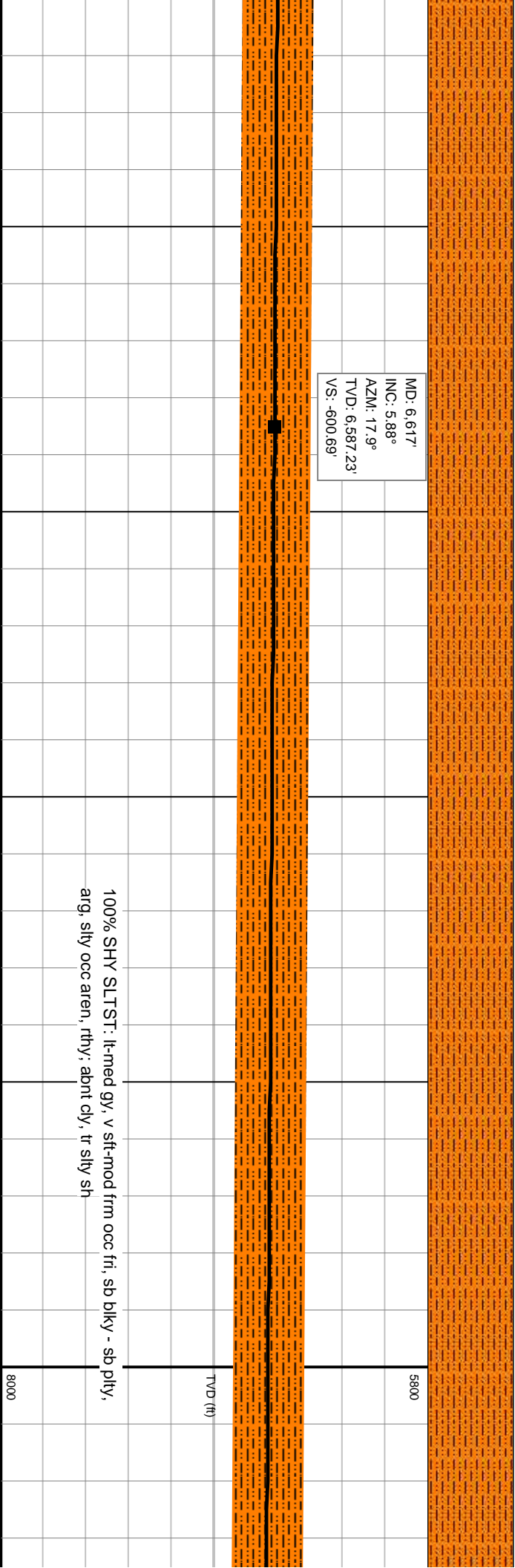
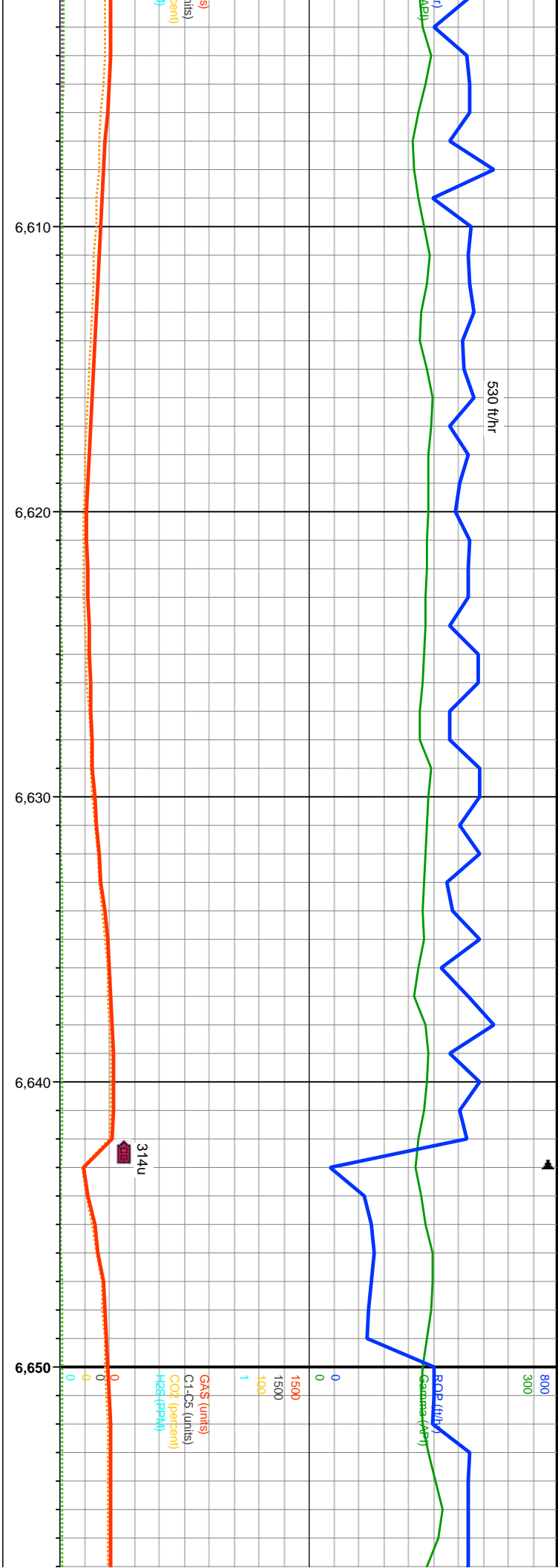


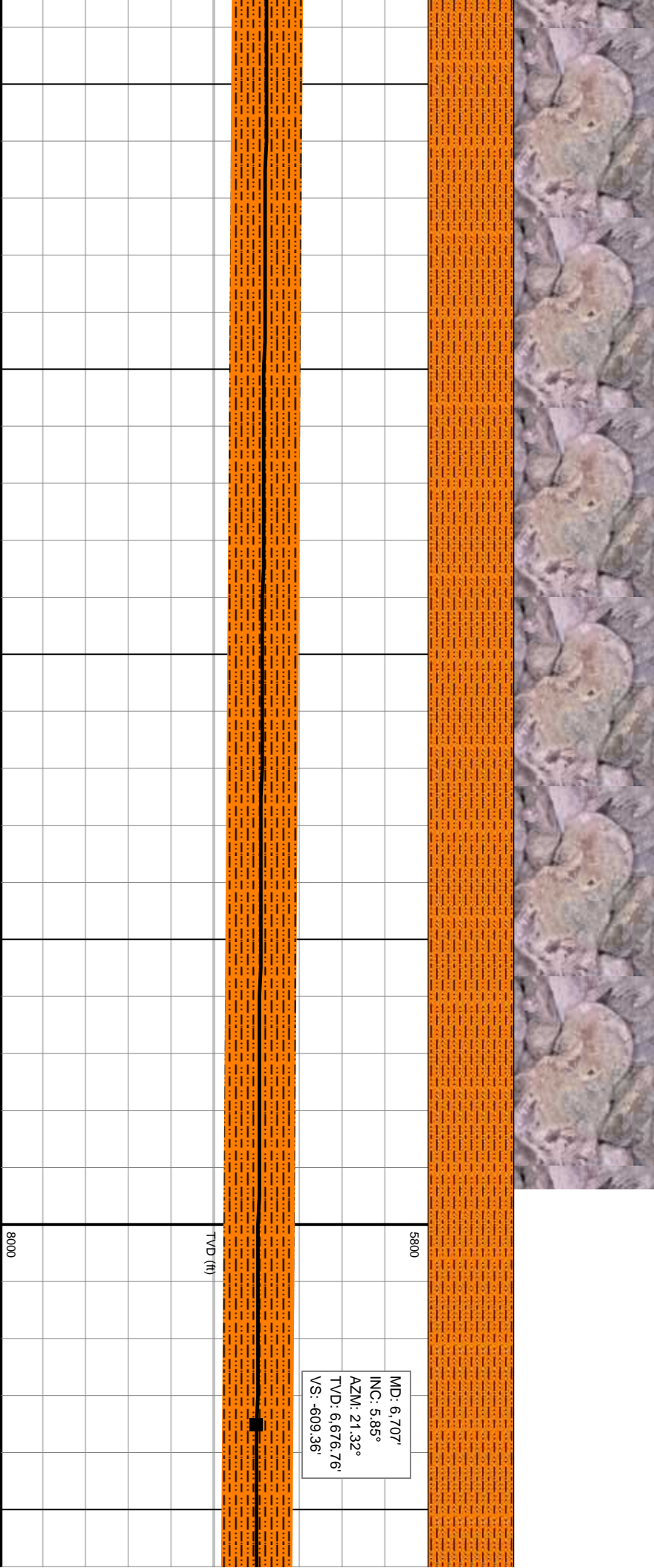
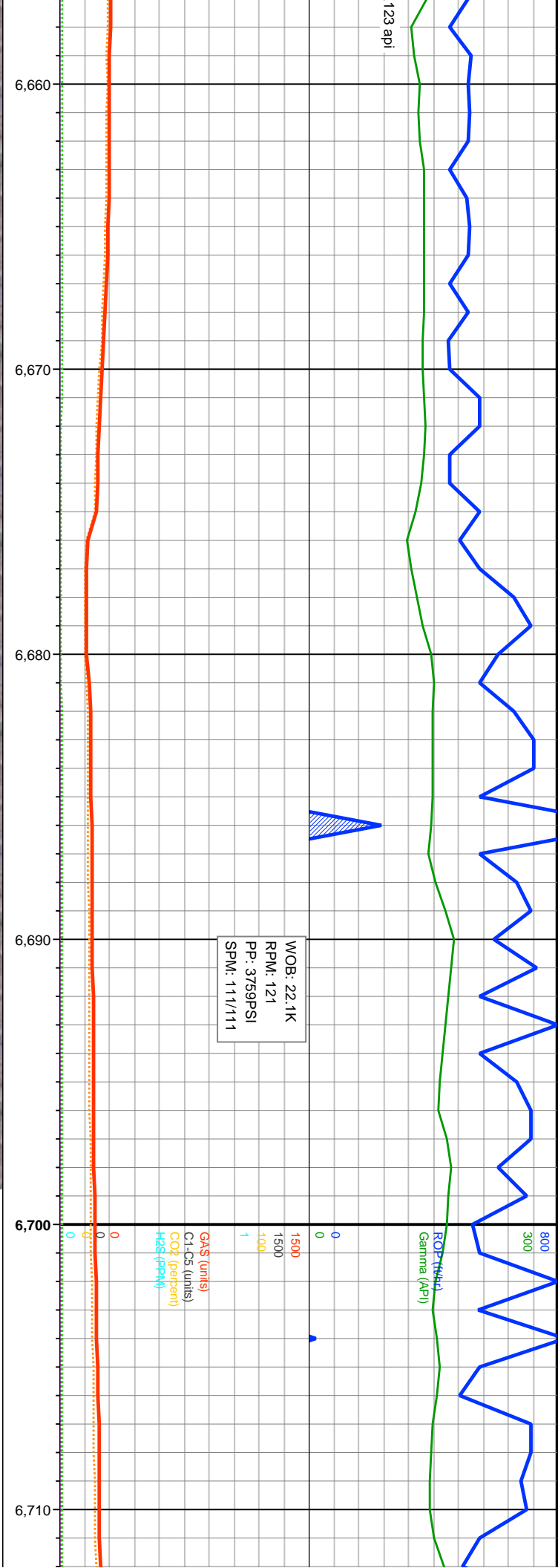


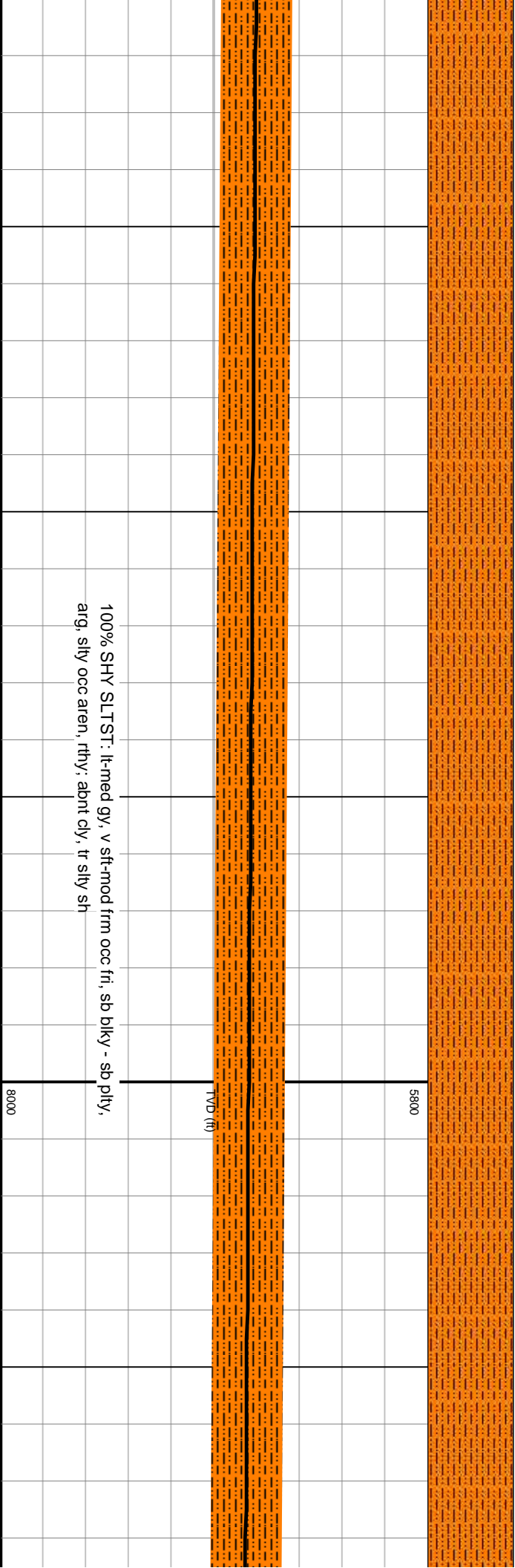
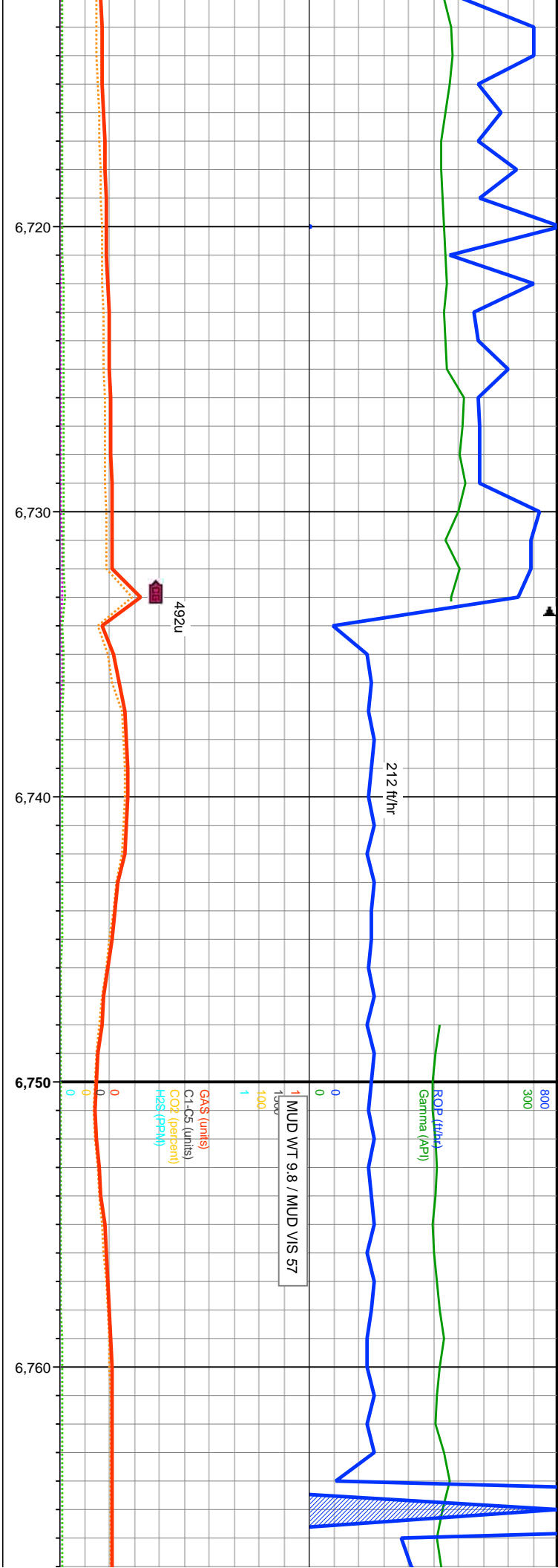


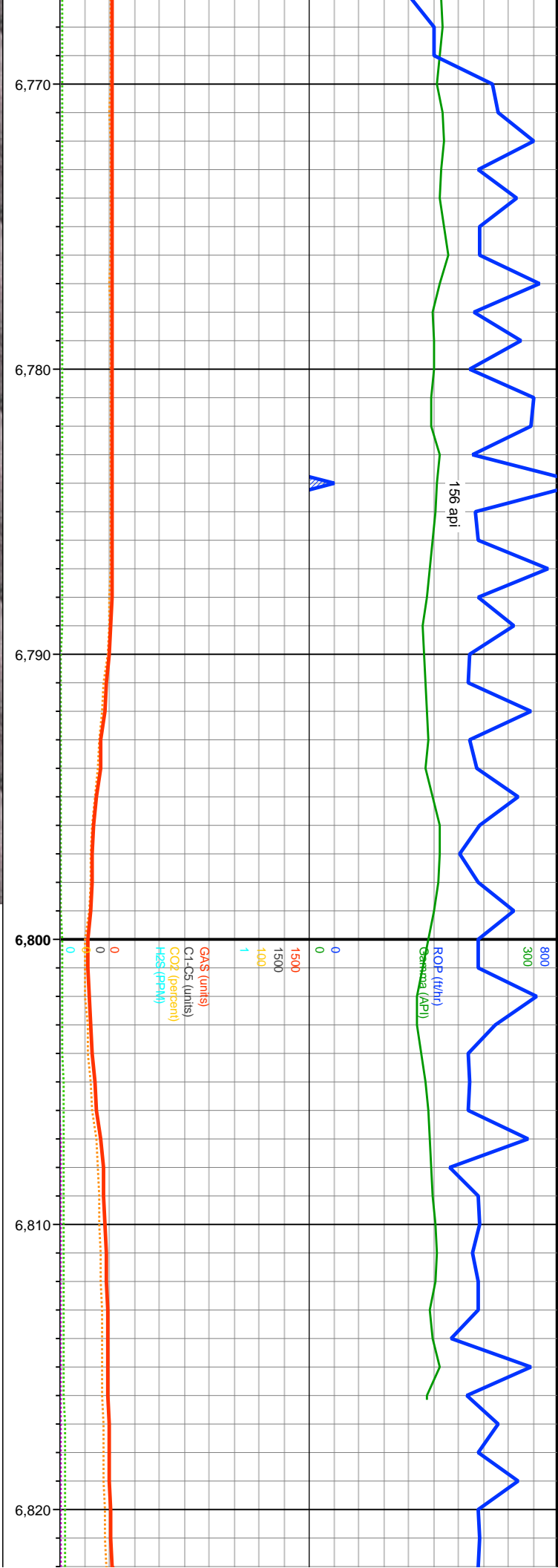




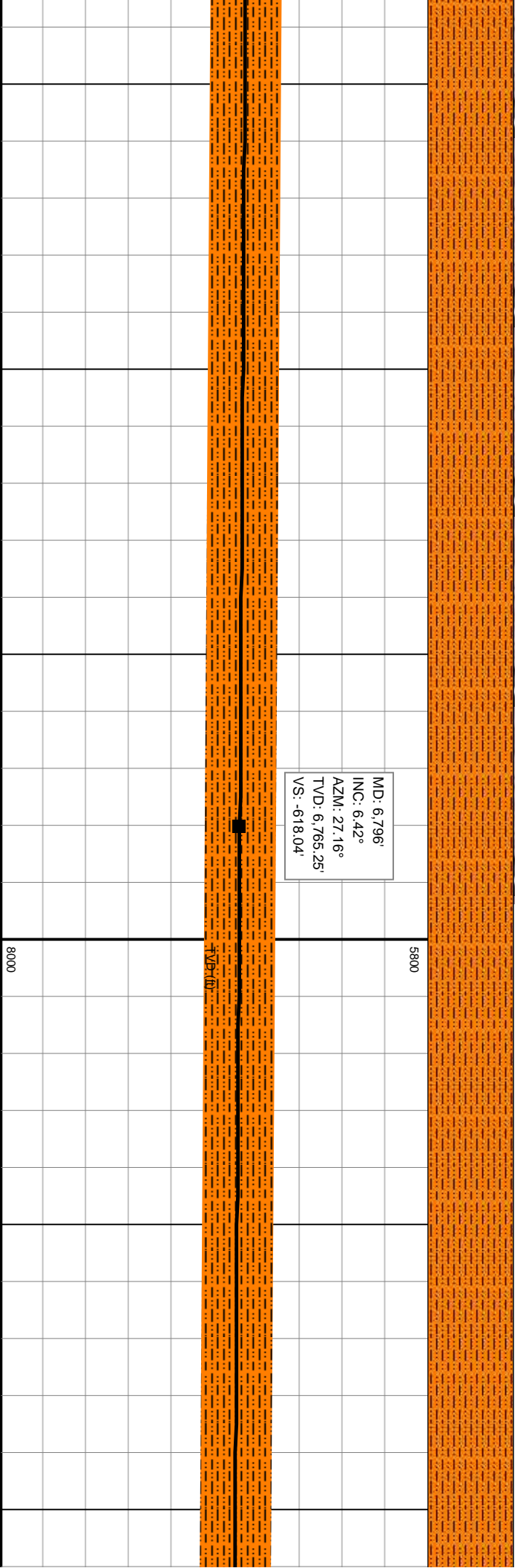


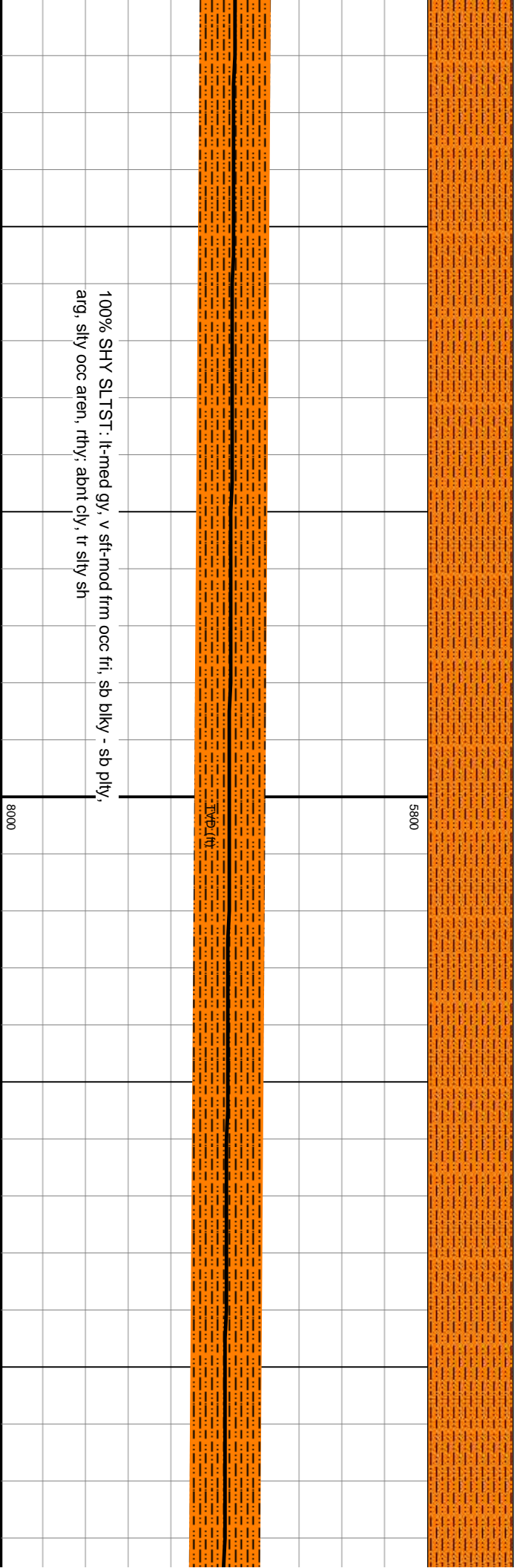
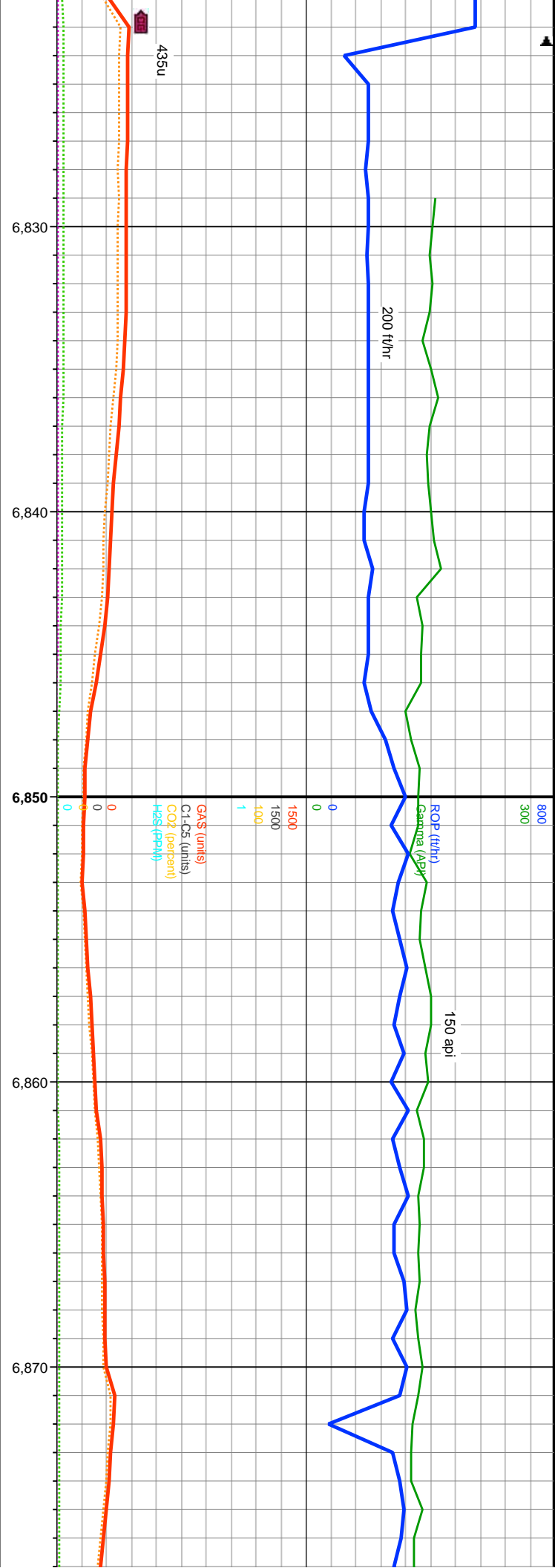


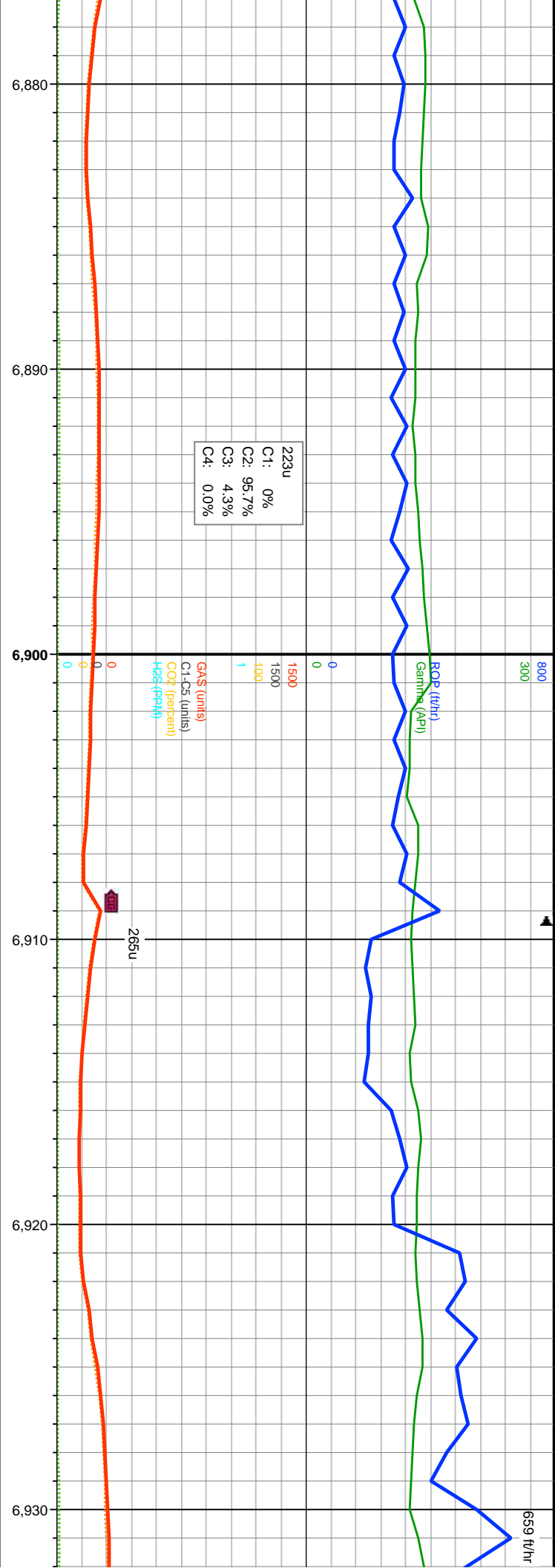




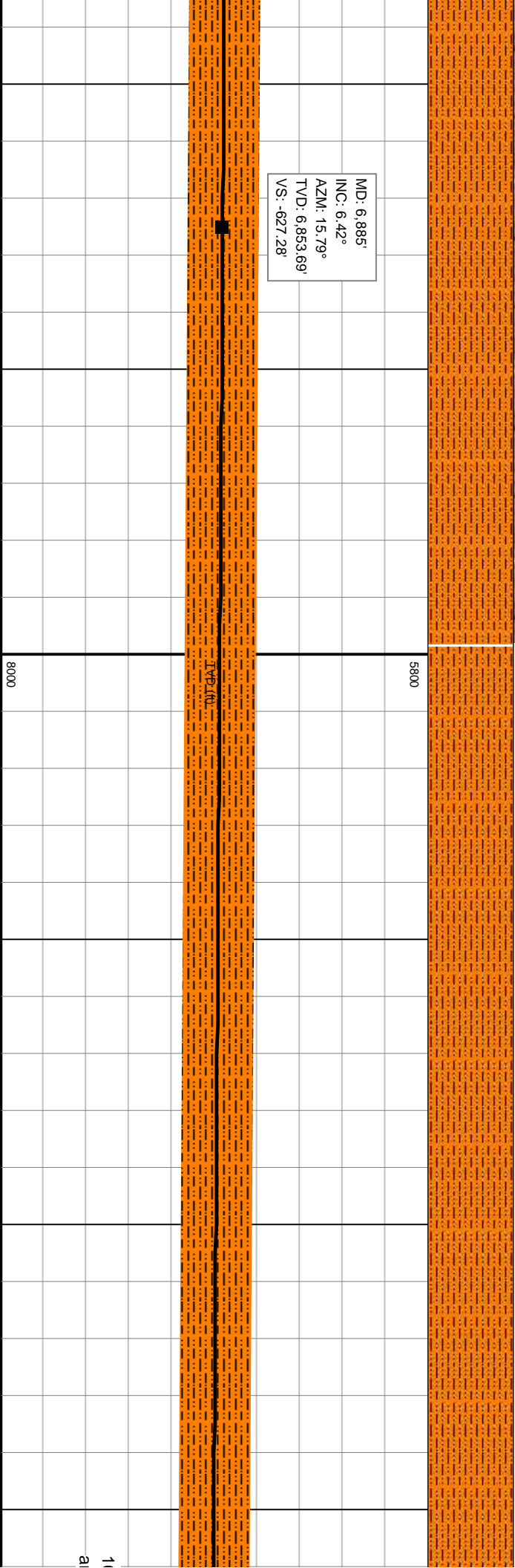
MD: 6,796'
INC: 6.42°
AZM: 27.16°
TVD: 6,765.25'
VS: -618.04'

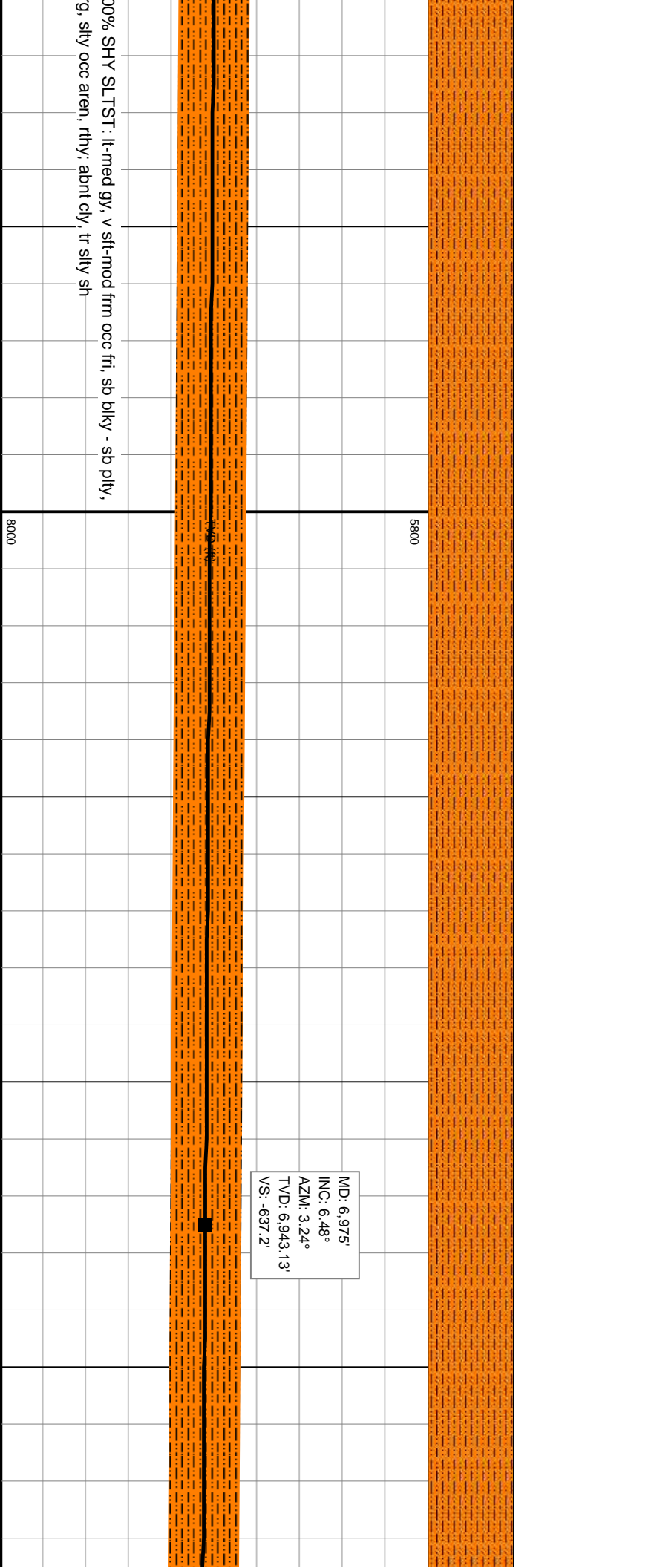
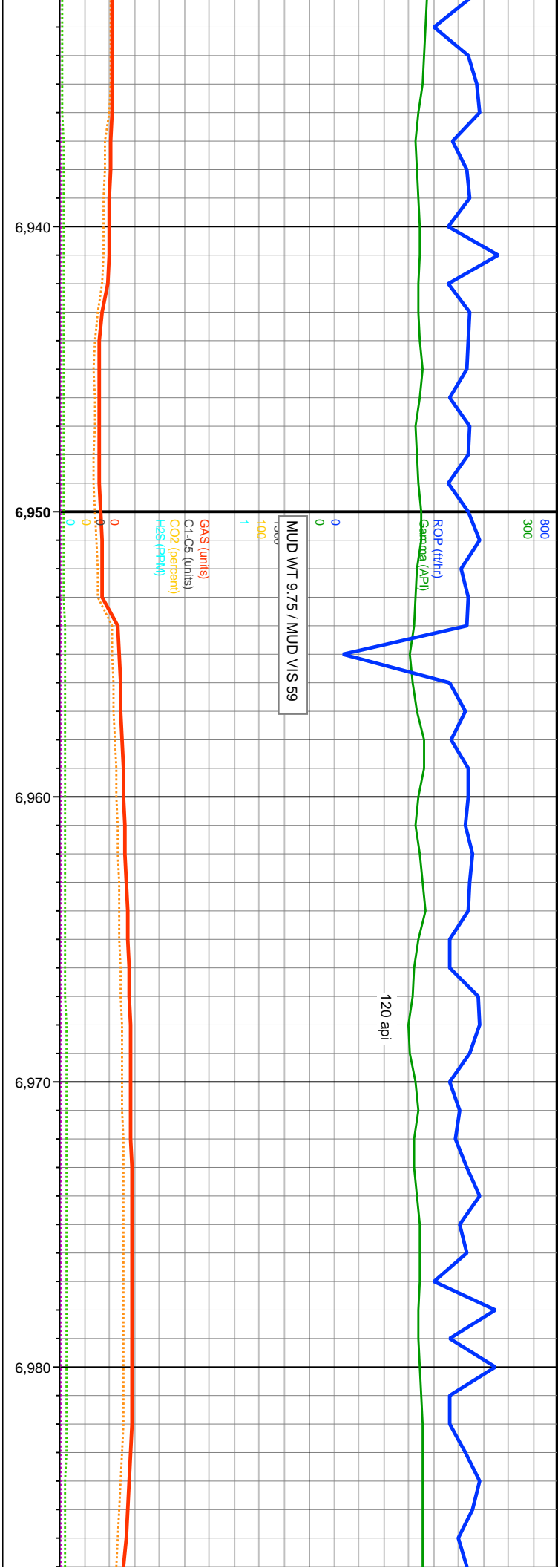


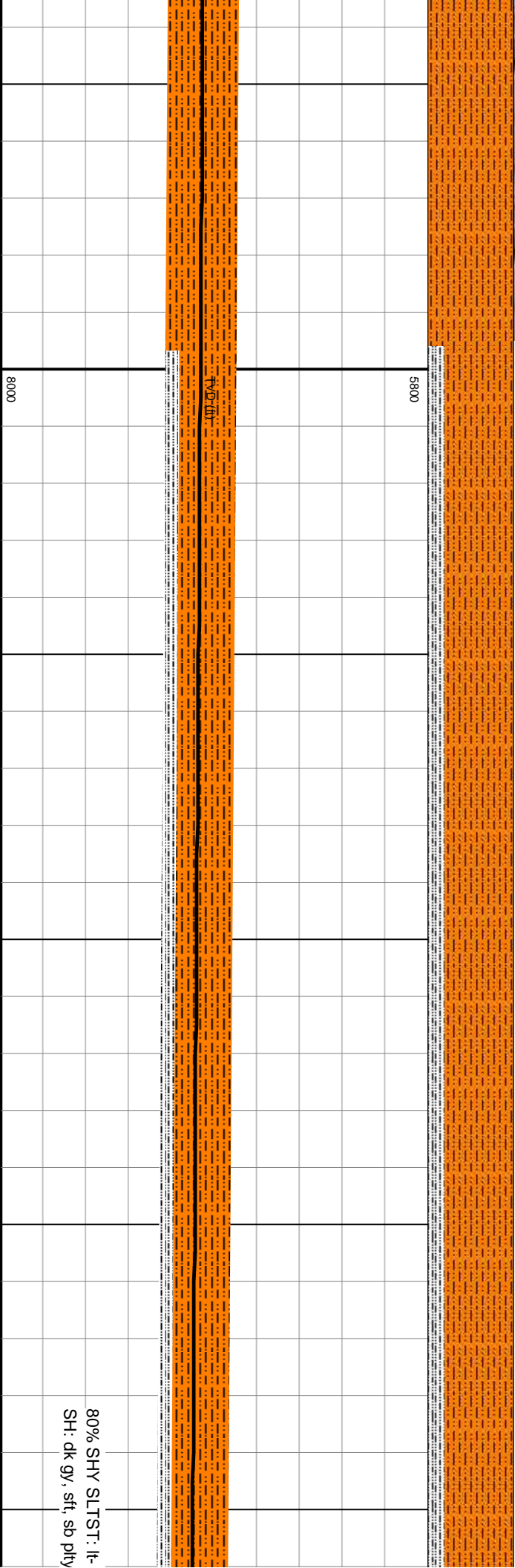
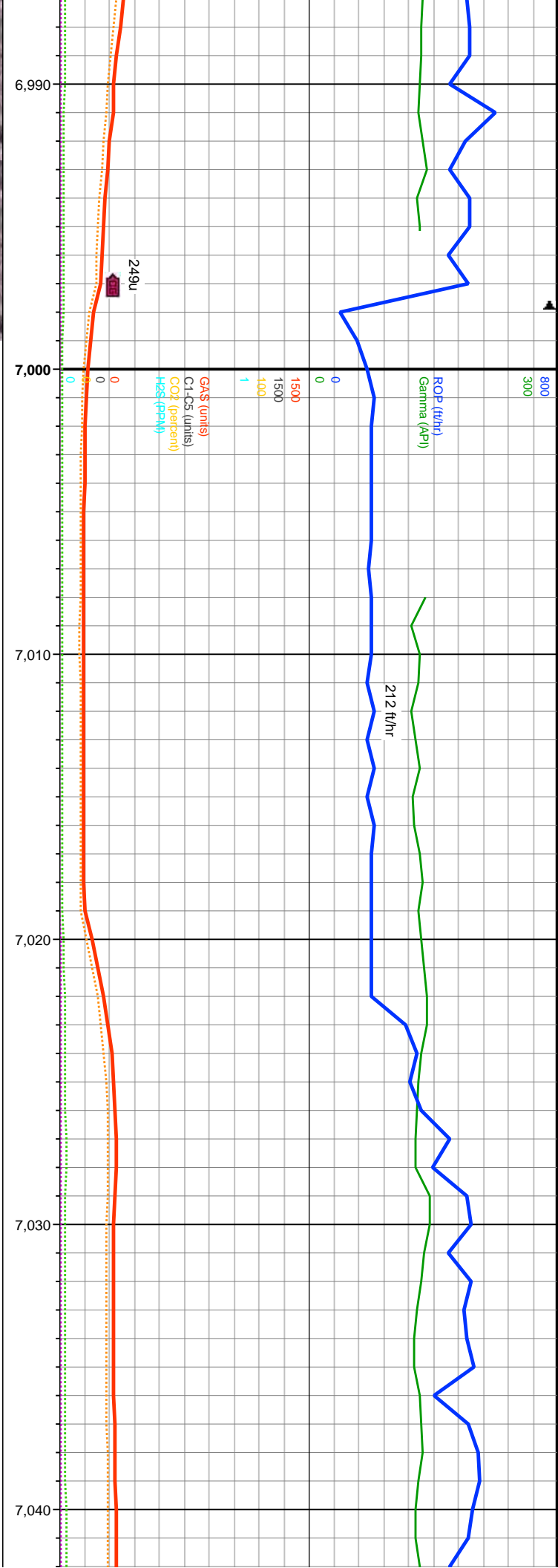


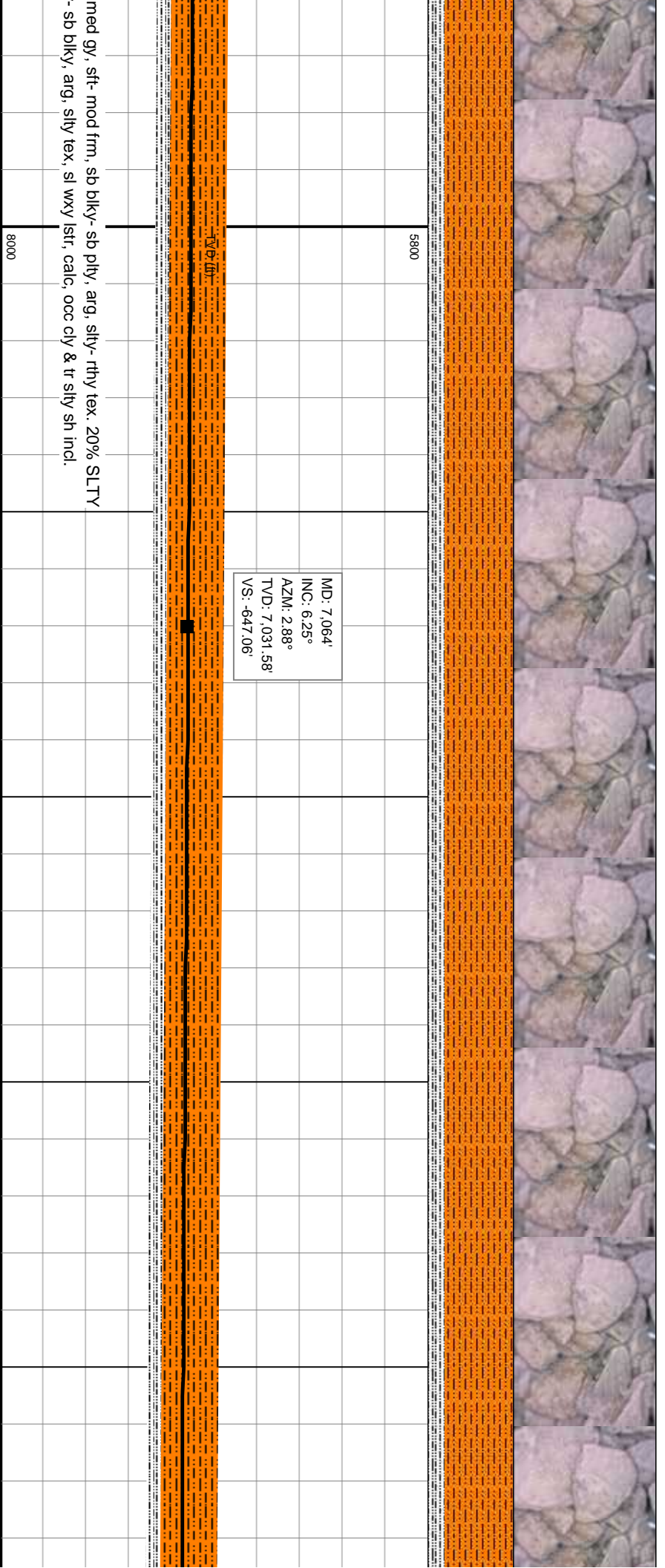
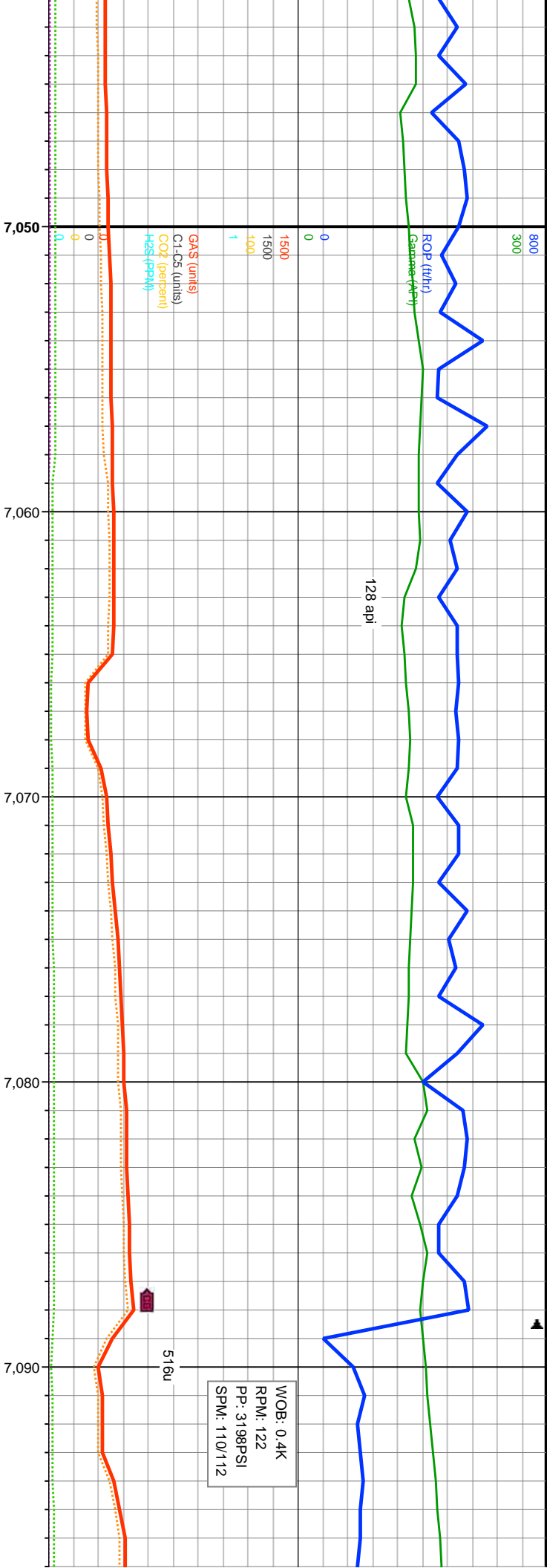


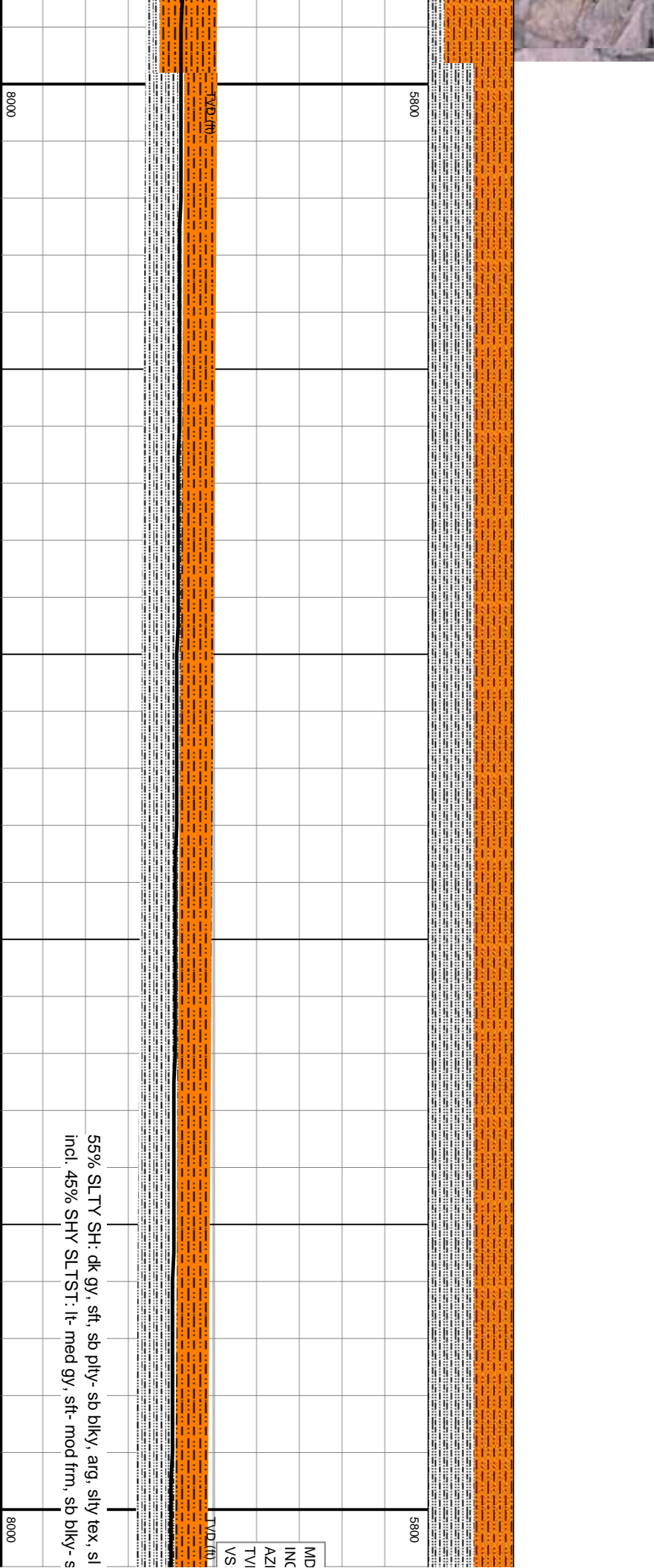
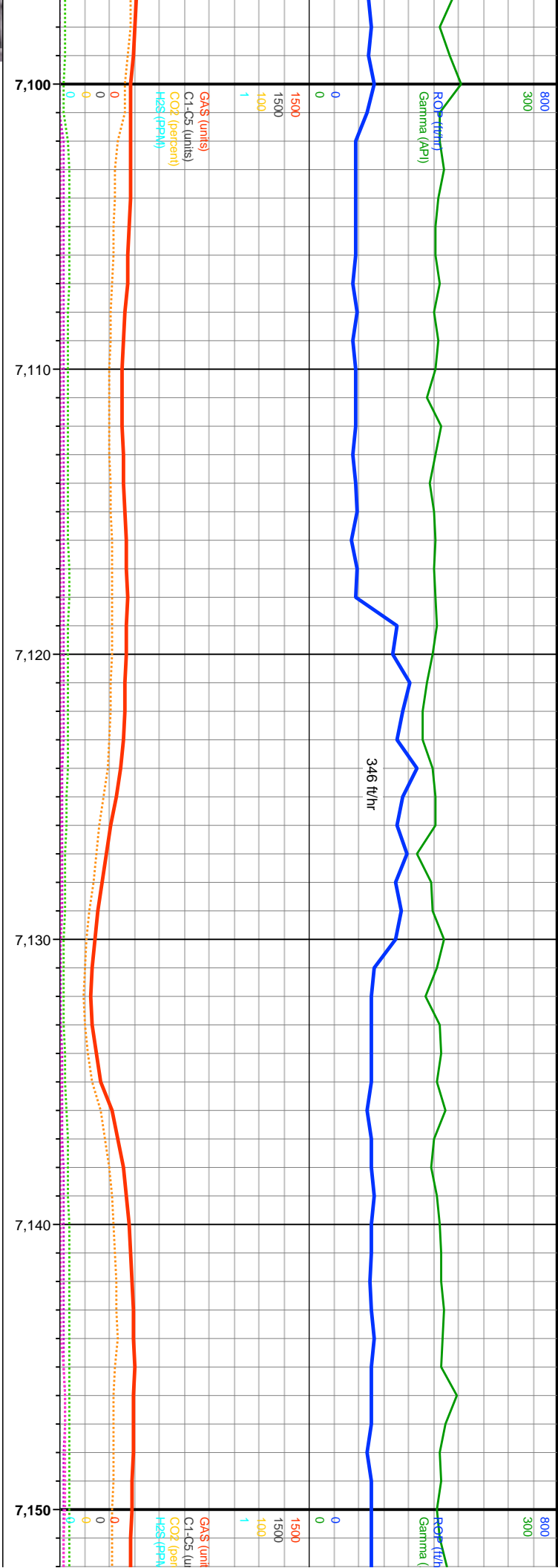
MD: 6.885'
INC: 6.42°
AZM: 15.79°
TVD: 6.853.69'
VS: -627.28'

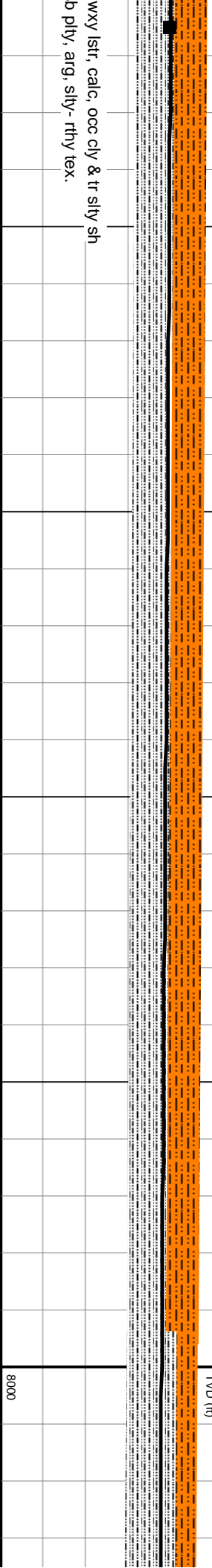
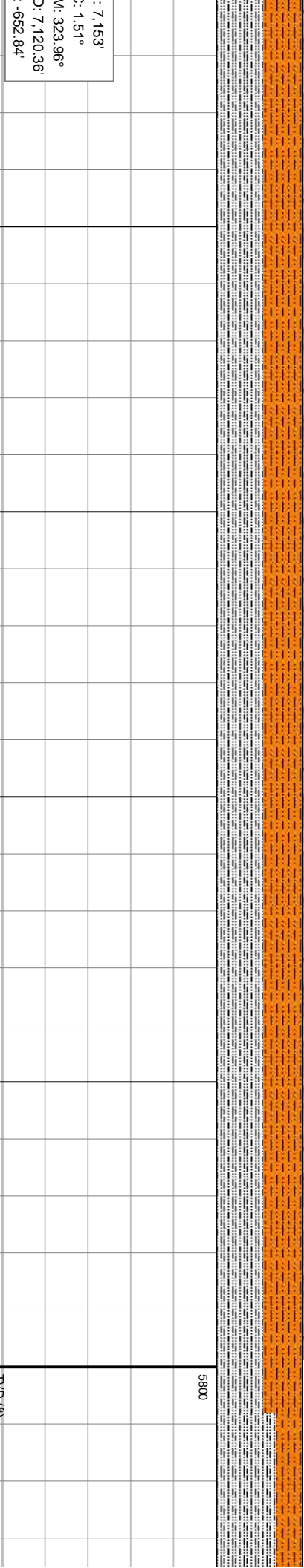
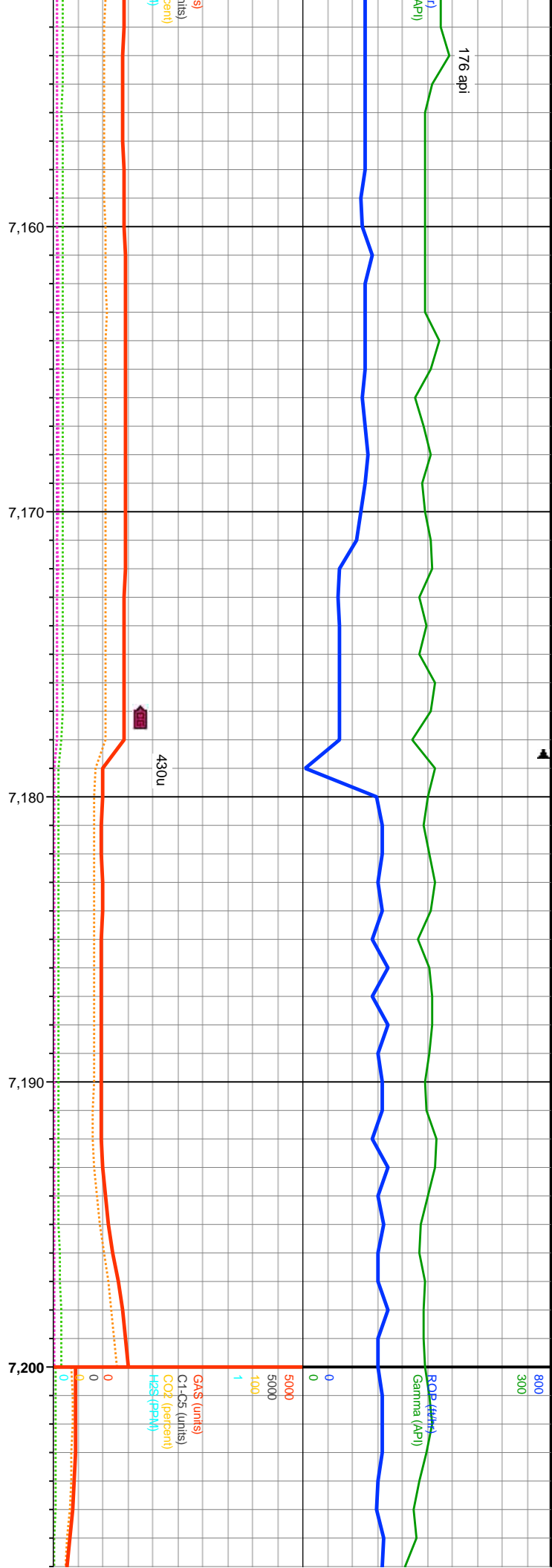


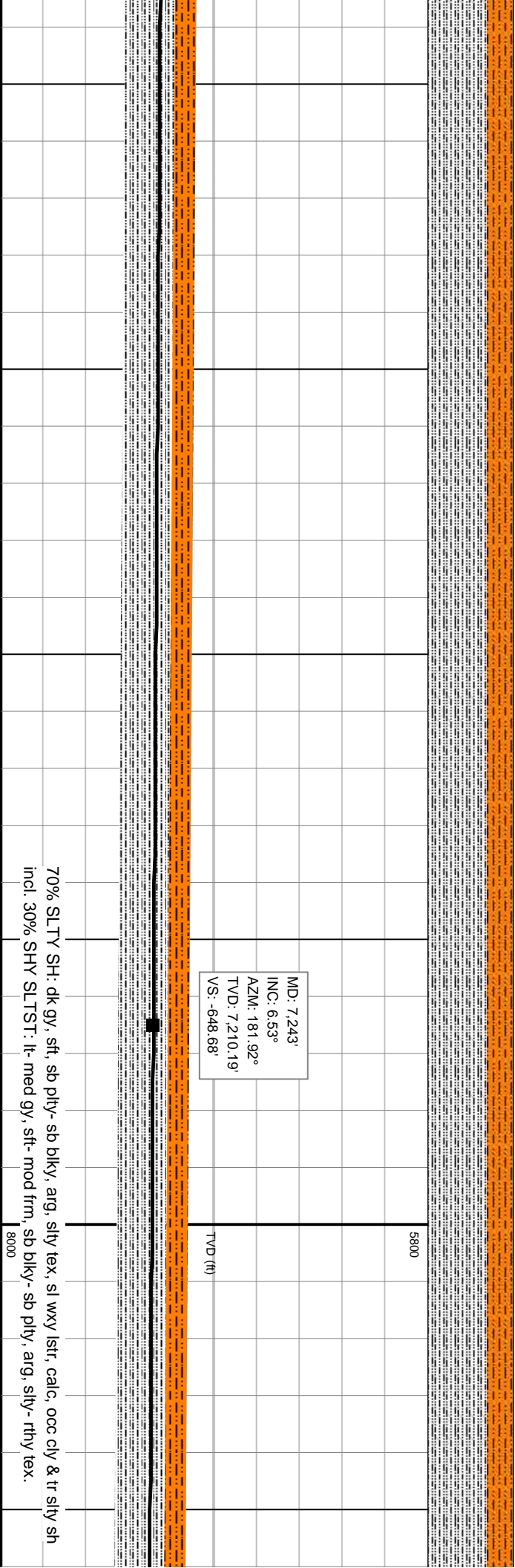
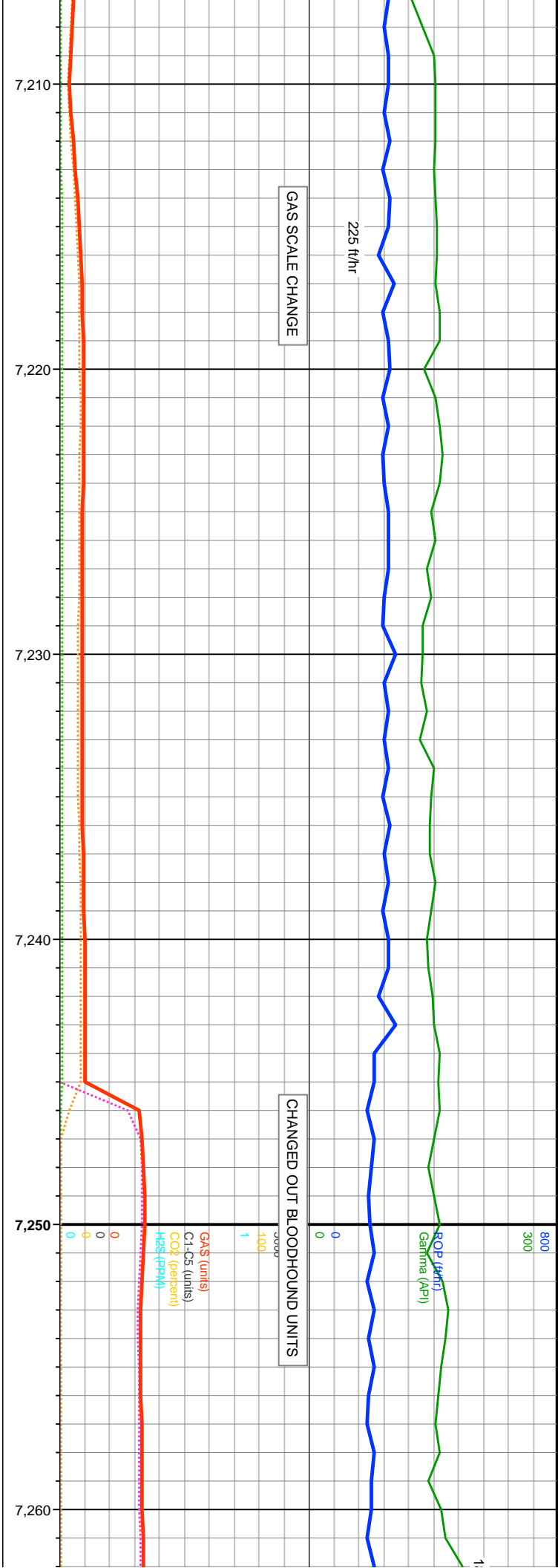


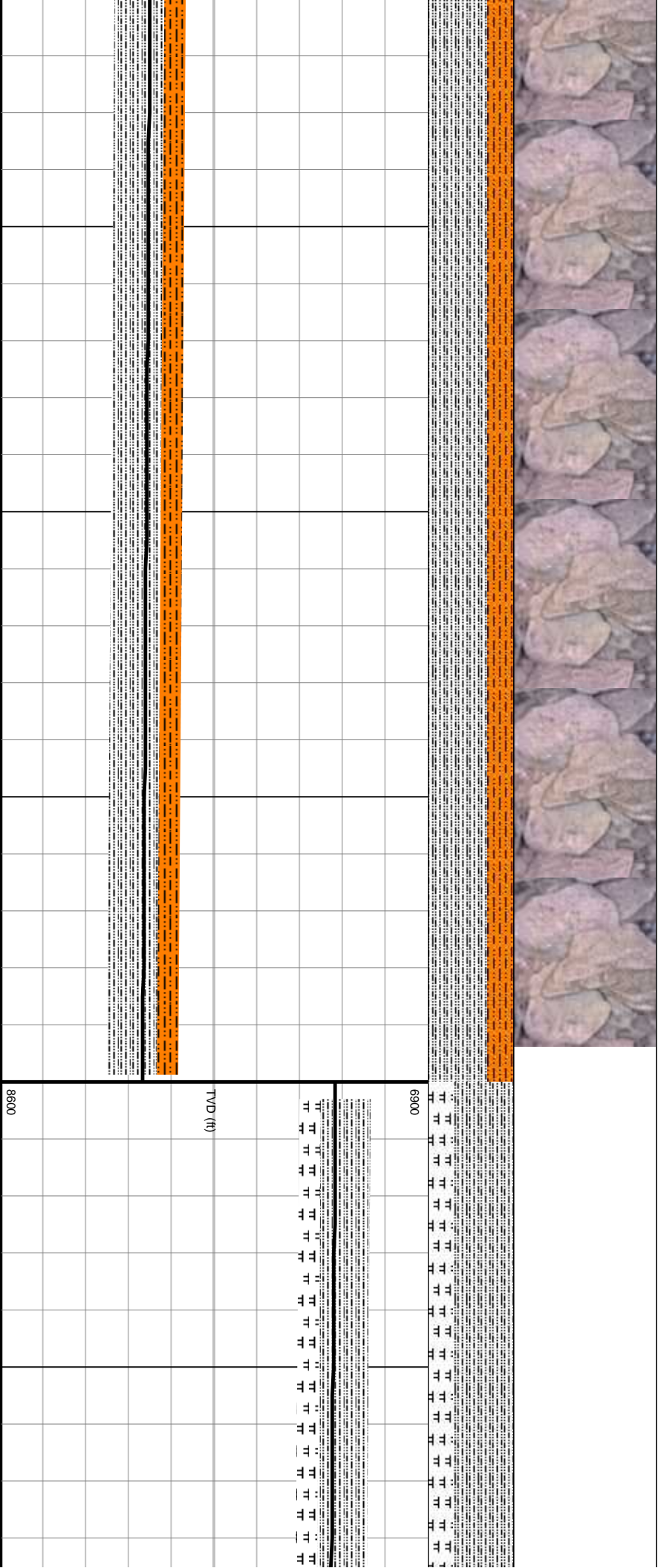
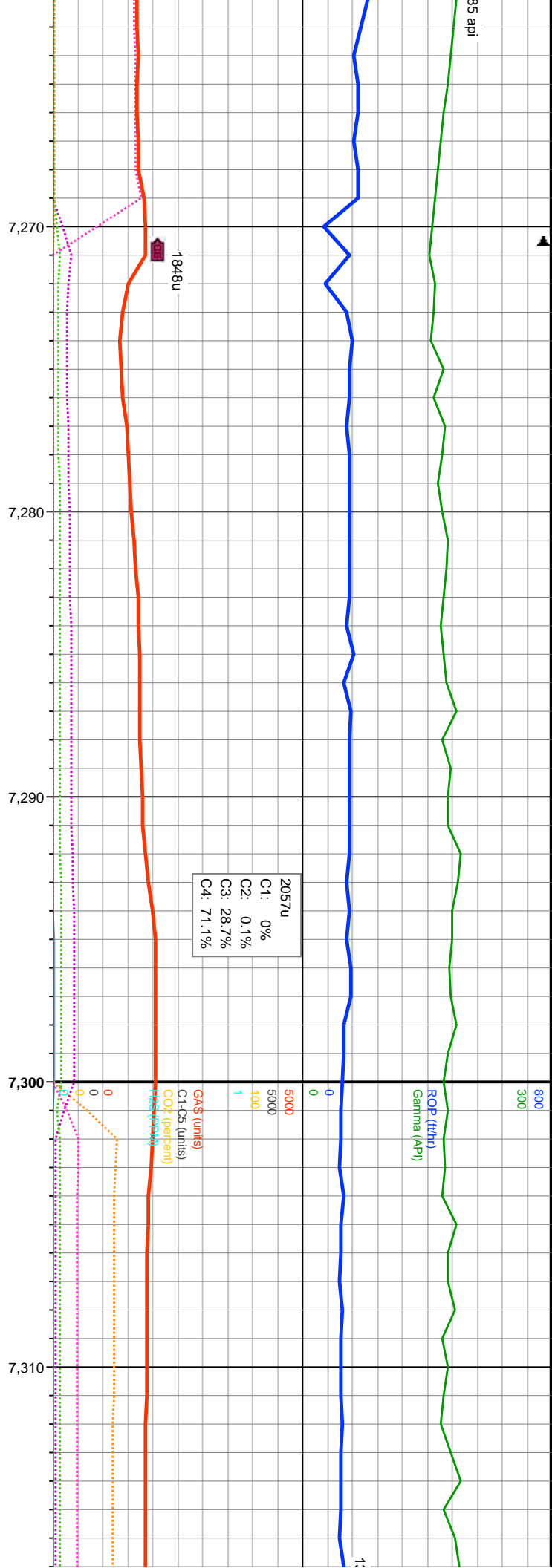


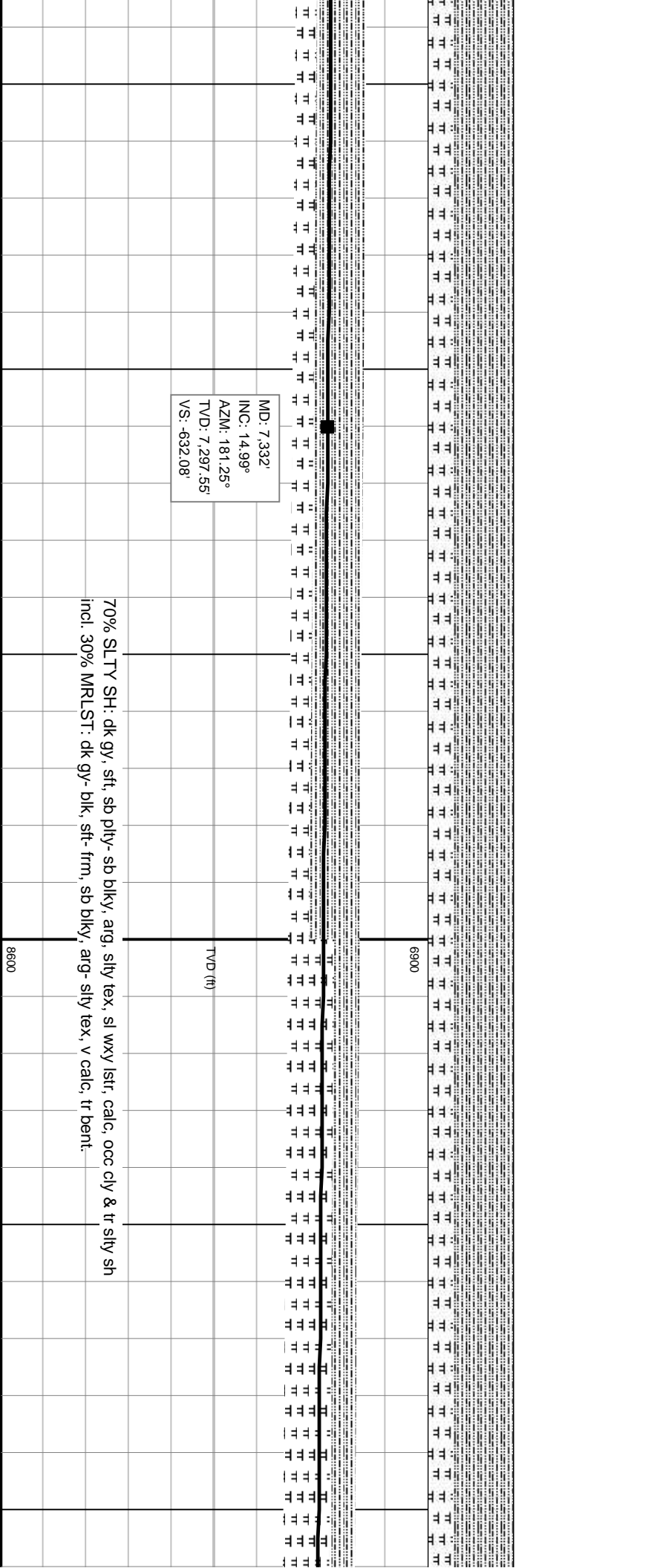
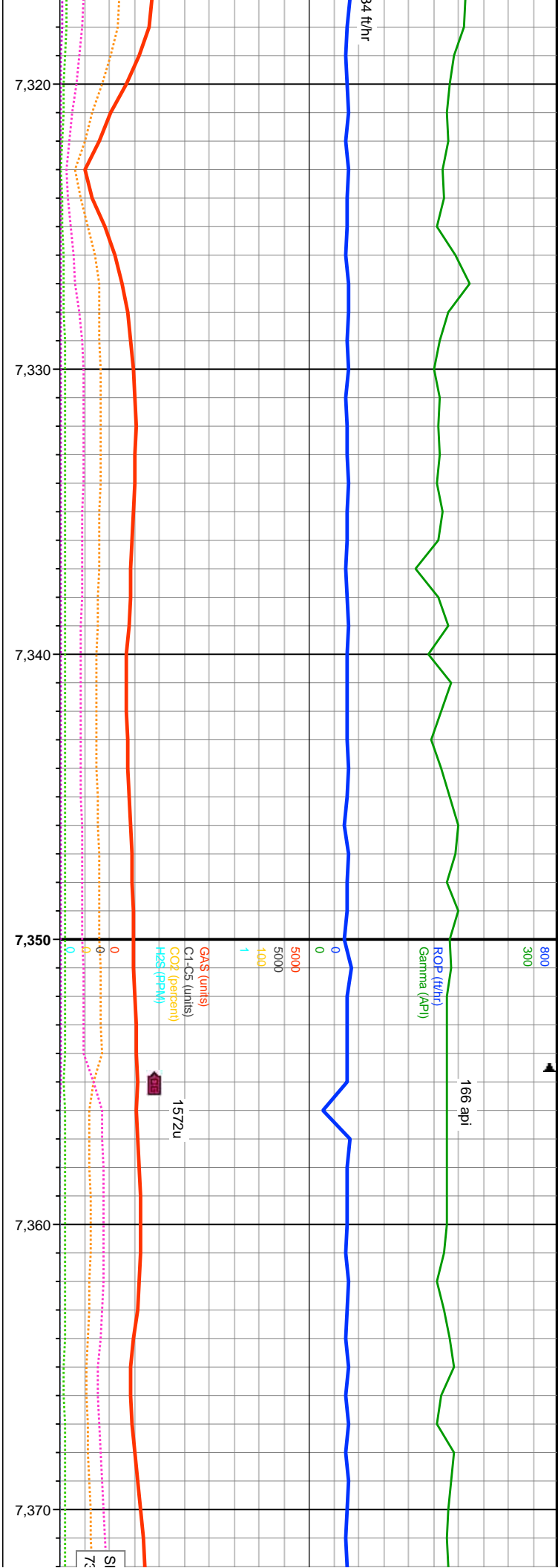






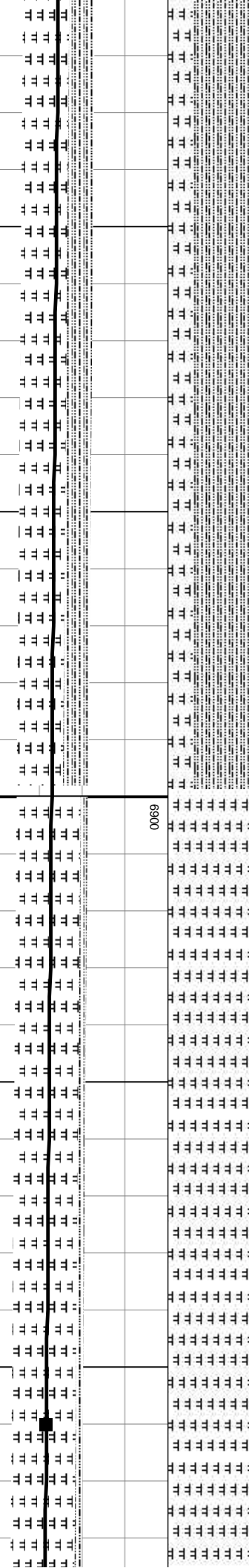
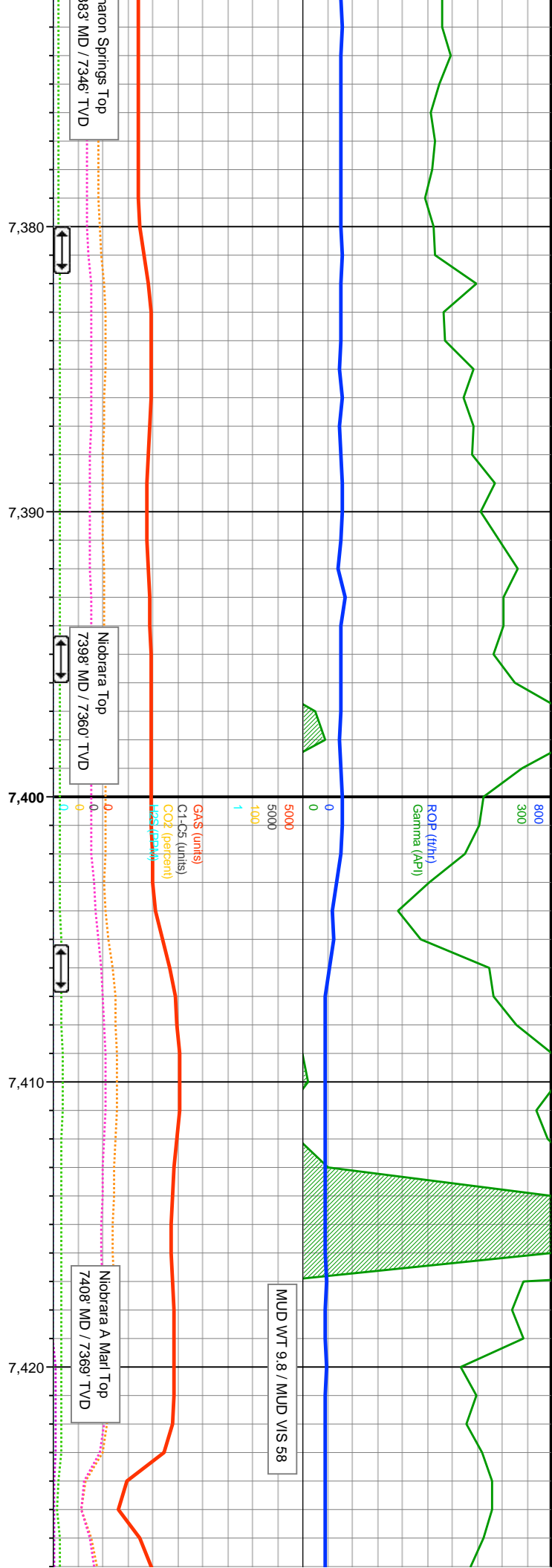






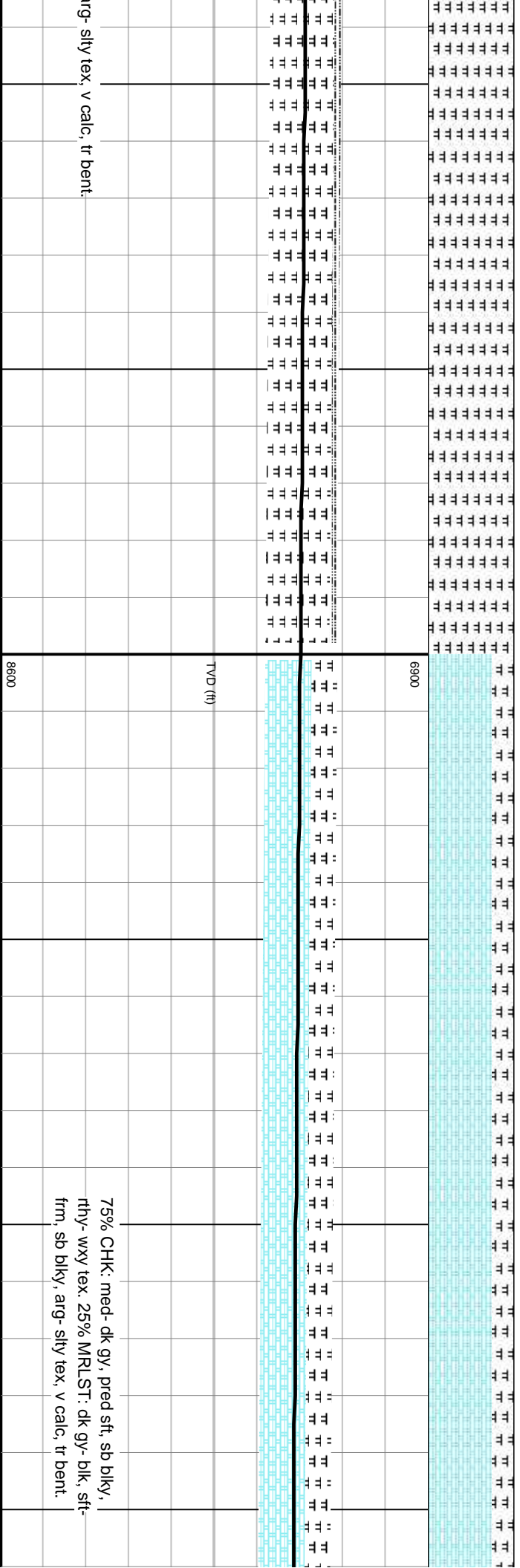
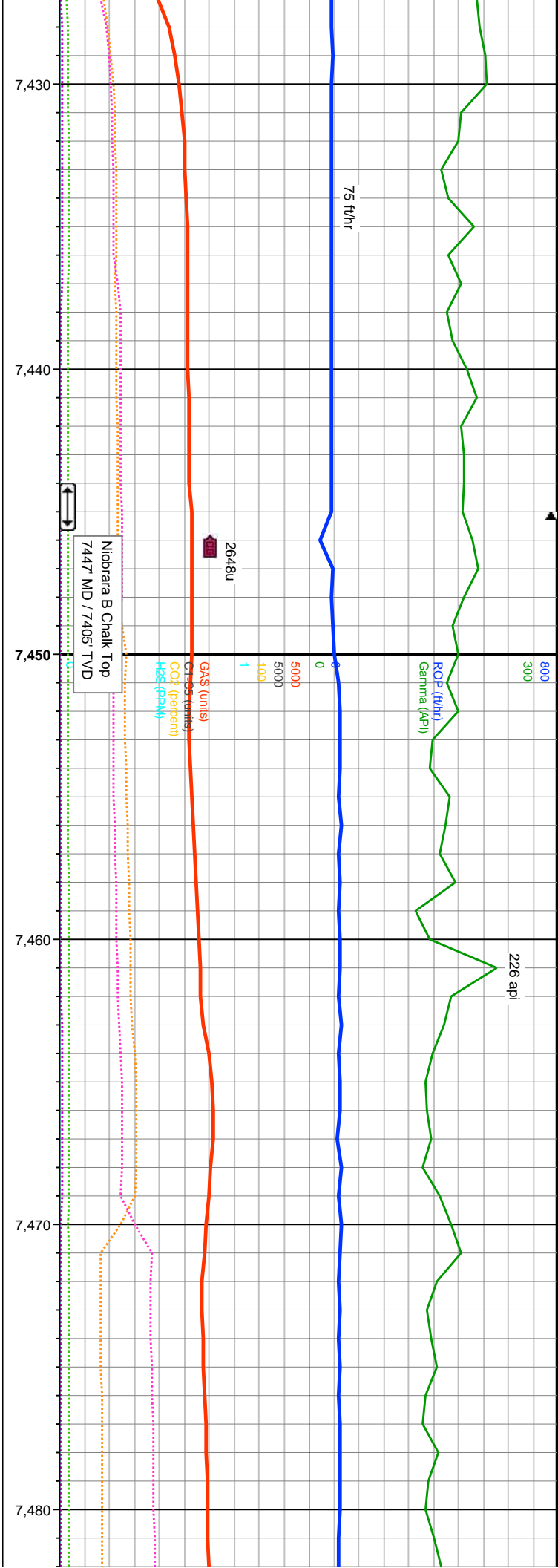
MD: 7.332'
INC: 14.99°
AZM: 181.25°
TVD: 7.297.55'
VS: -632.08'

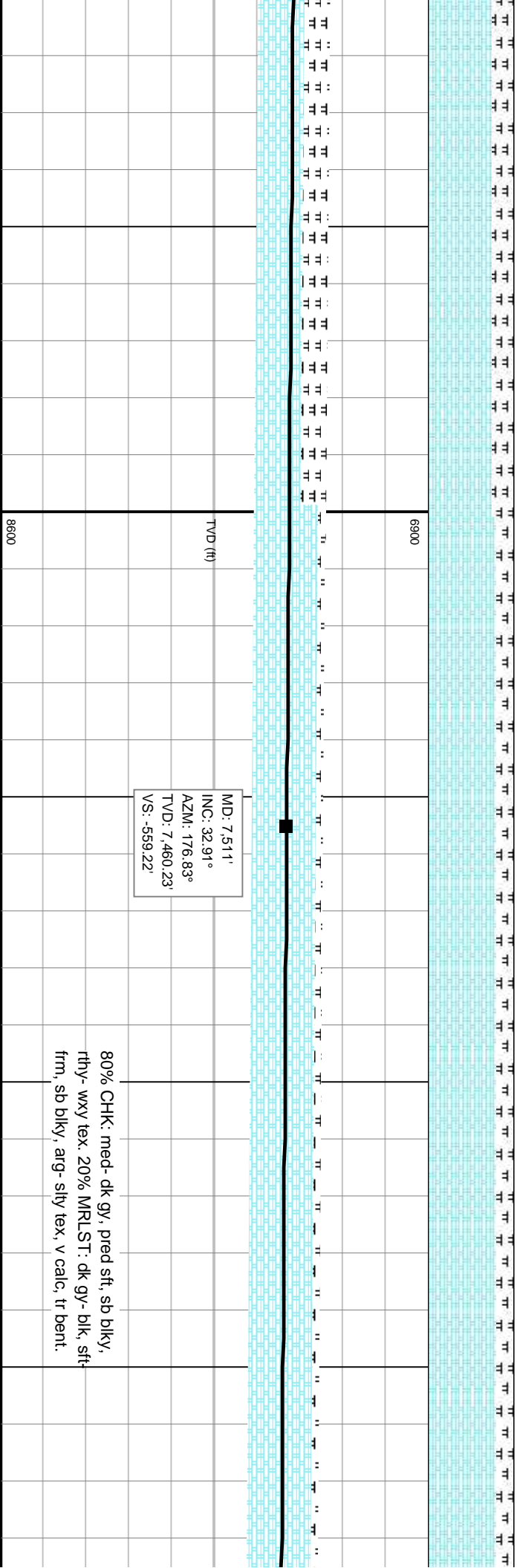
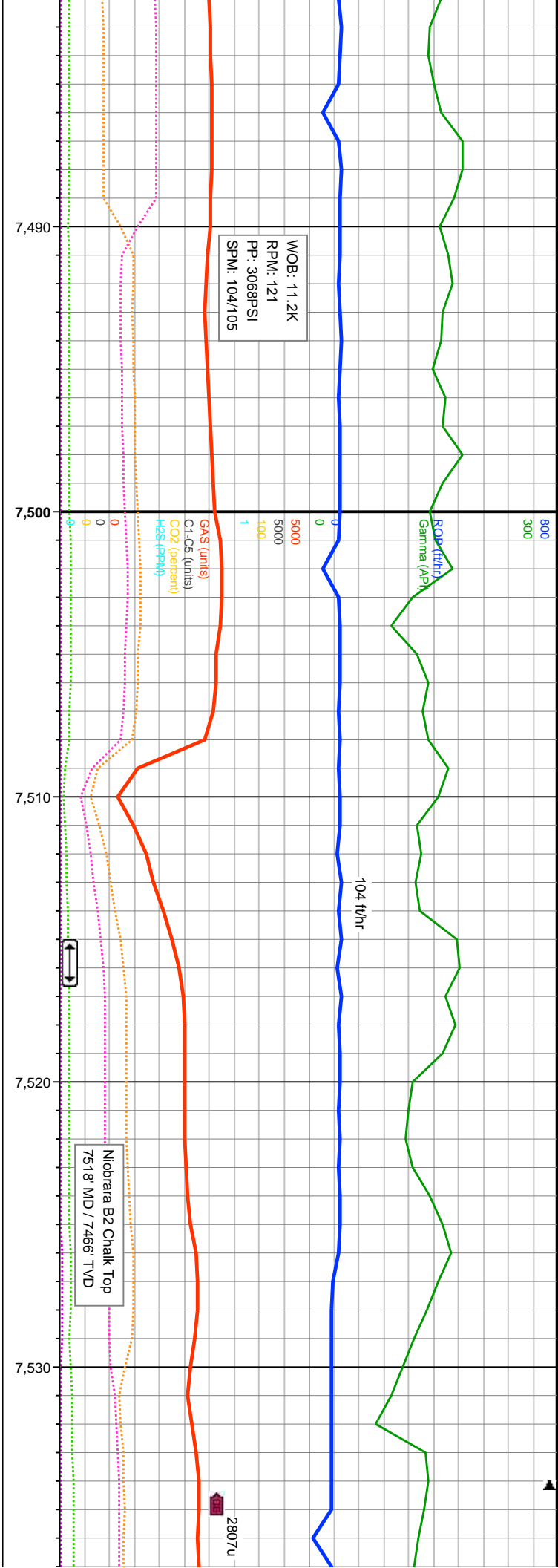
70% SLTY SH: dk gy, sft, sb pty- sb blk, arg, silty tex, sl wxy lsrt, calc, occ cly & tr silty sh
incl. 30% MRLST: dk gy- blk, sft- frm, sb blk, arg- silty tex, v calc, tr bent.

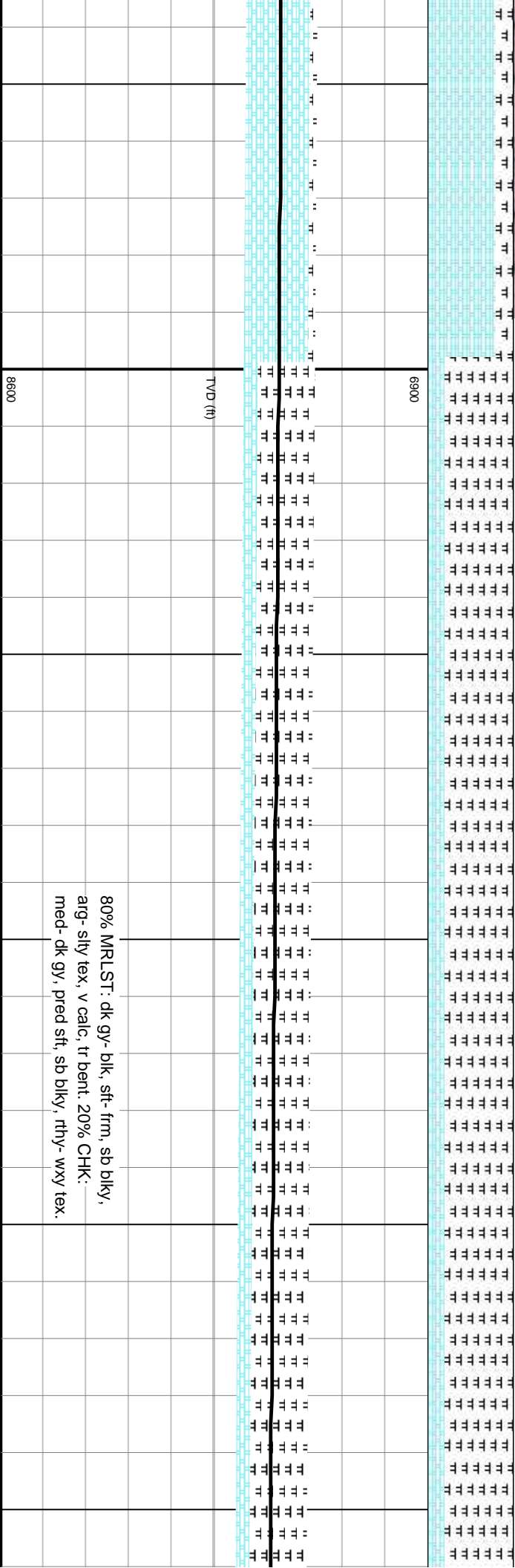
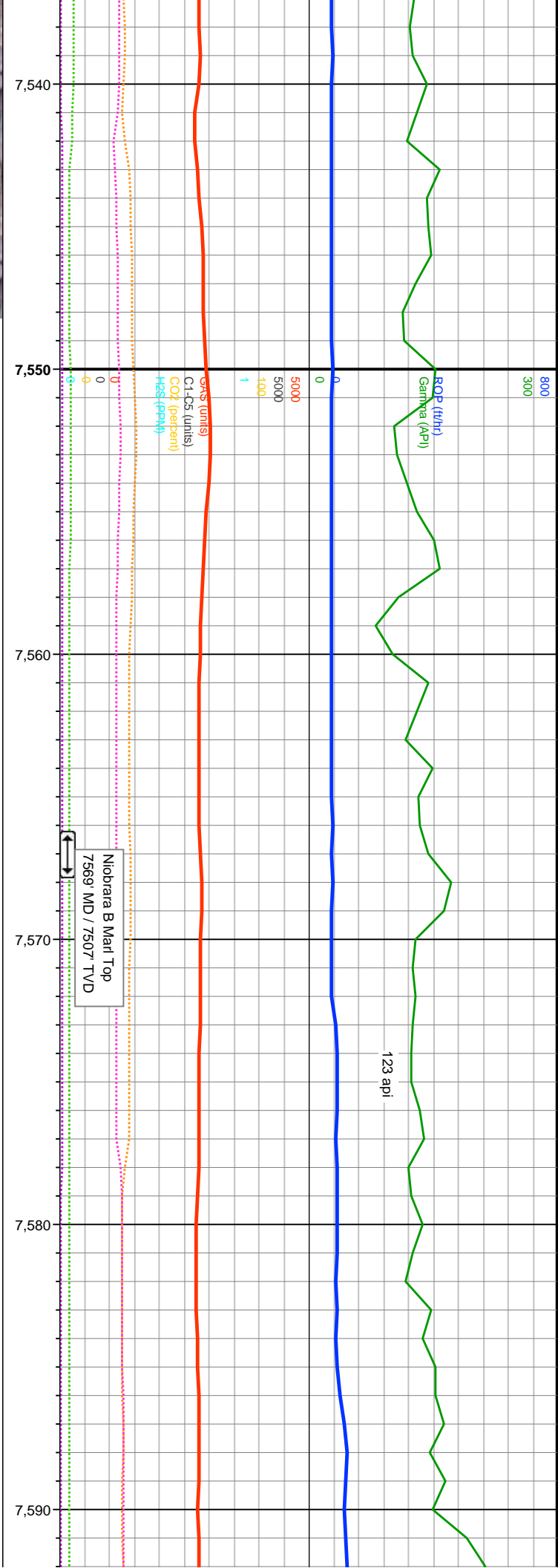


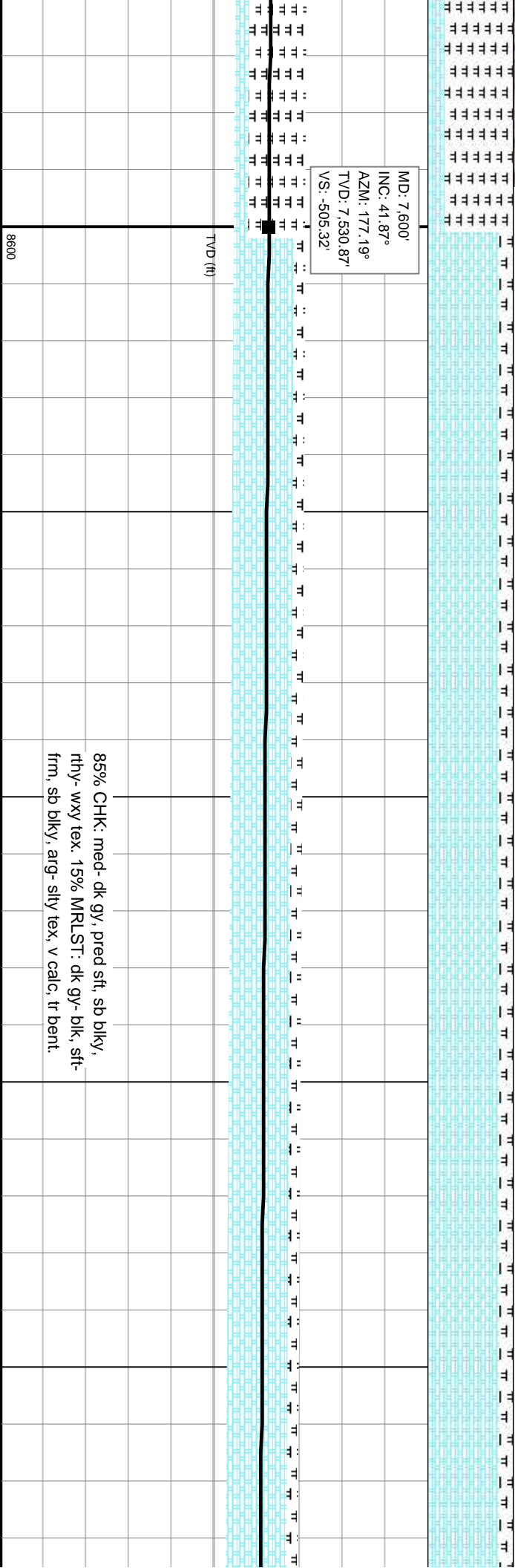
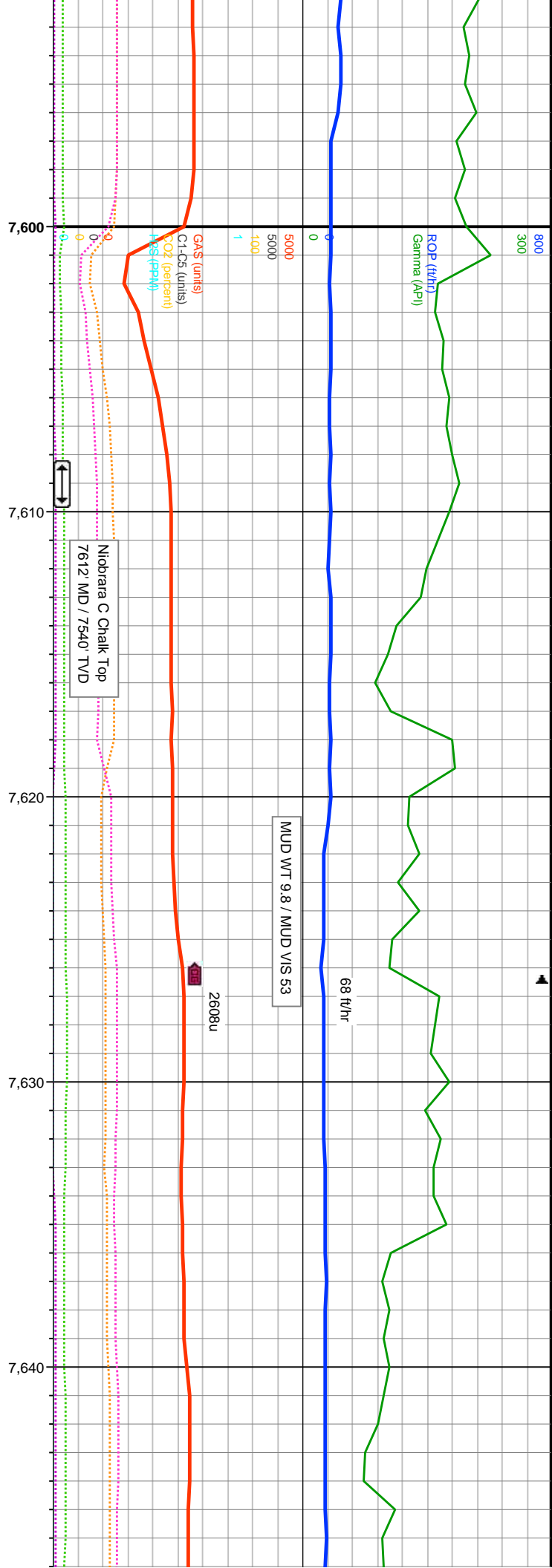
MD: 7,422'
INC: 24.38°
AZM: 179.41°
TVD: 7,382.19'
VS: -601.8'

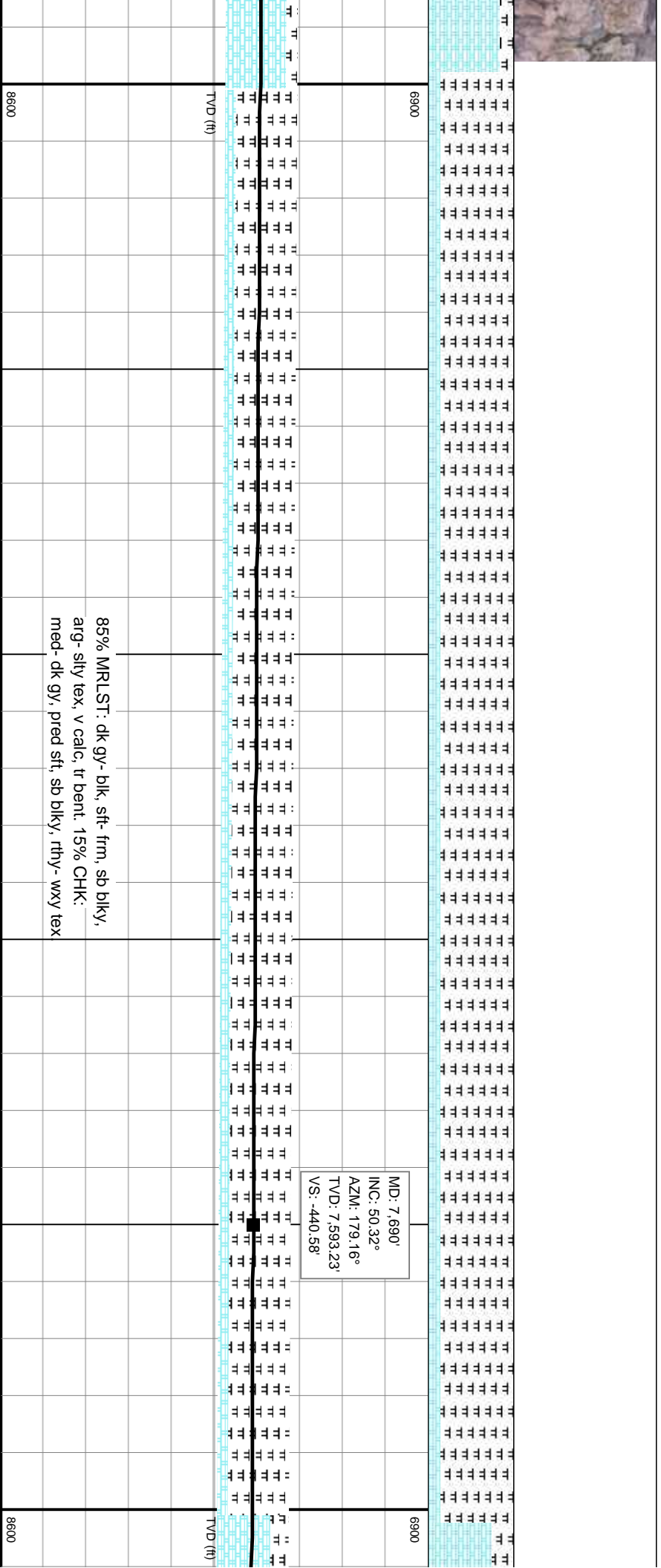
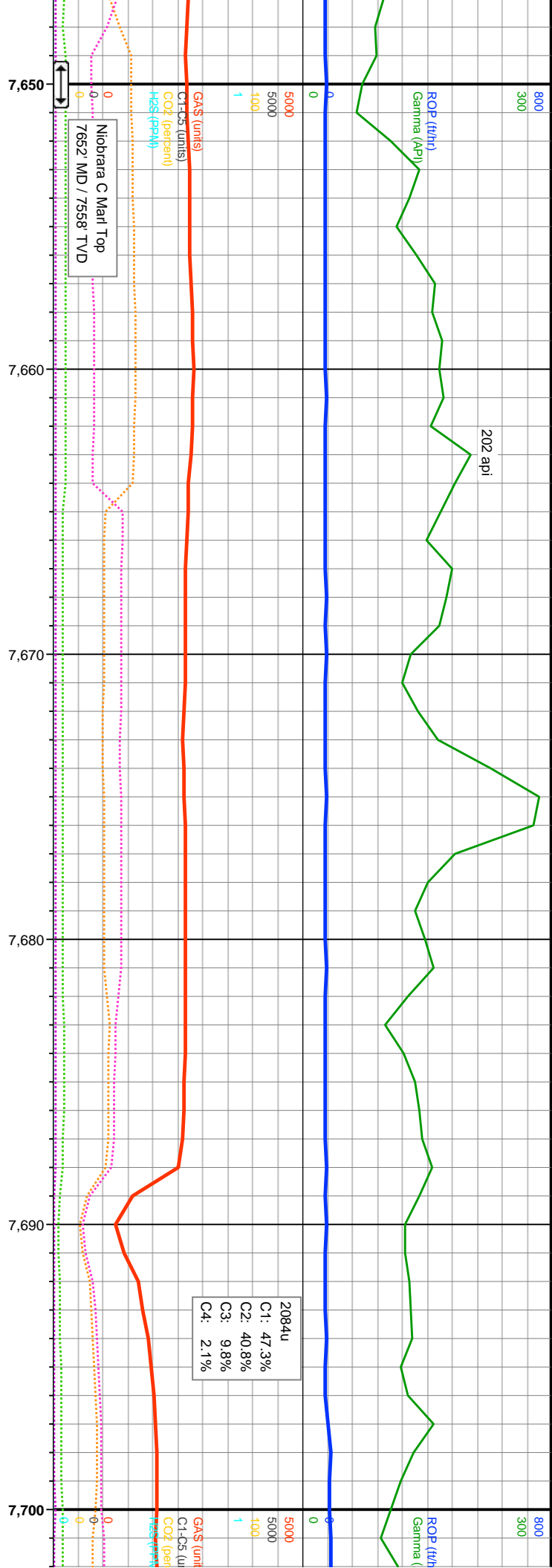
100% MRLST: dk gy- blk, sft- frm, sb blk, e

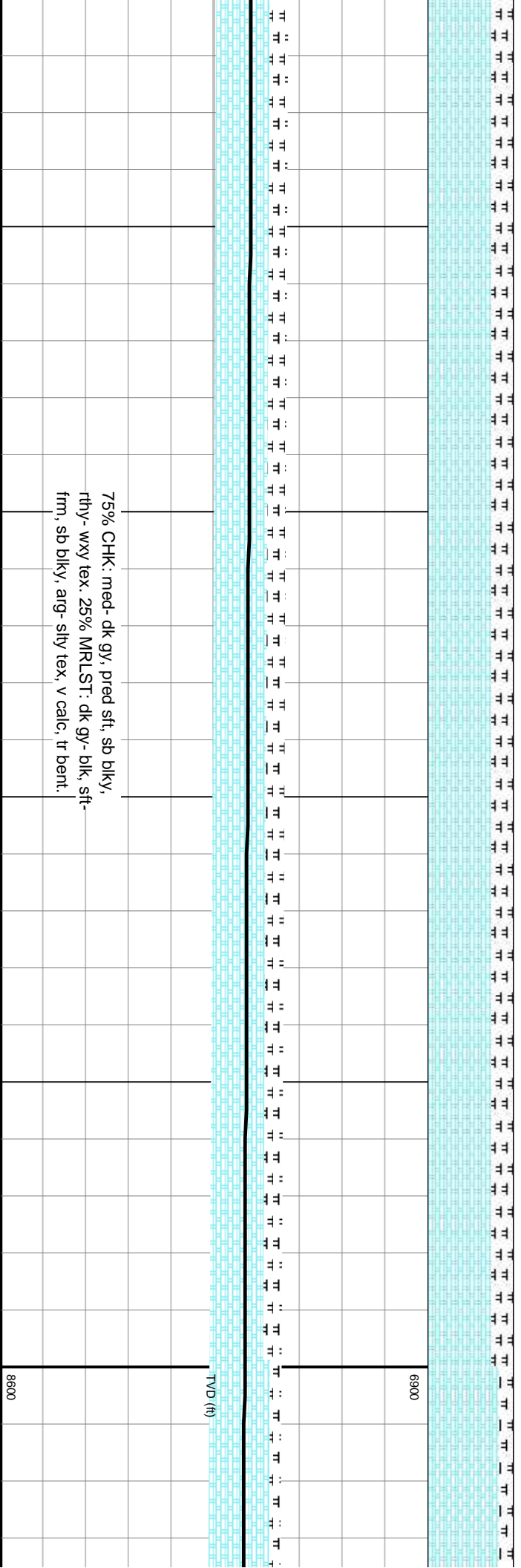
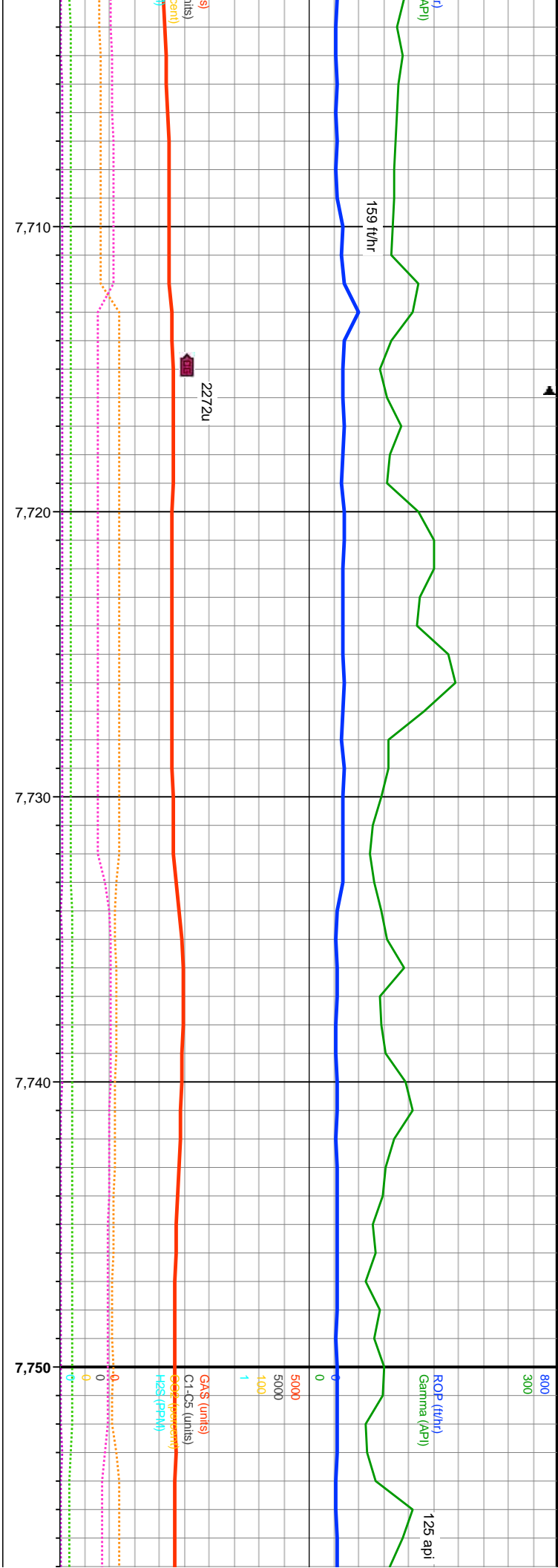




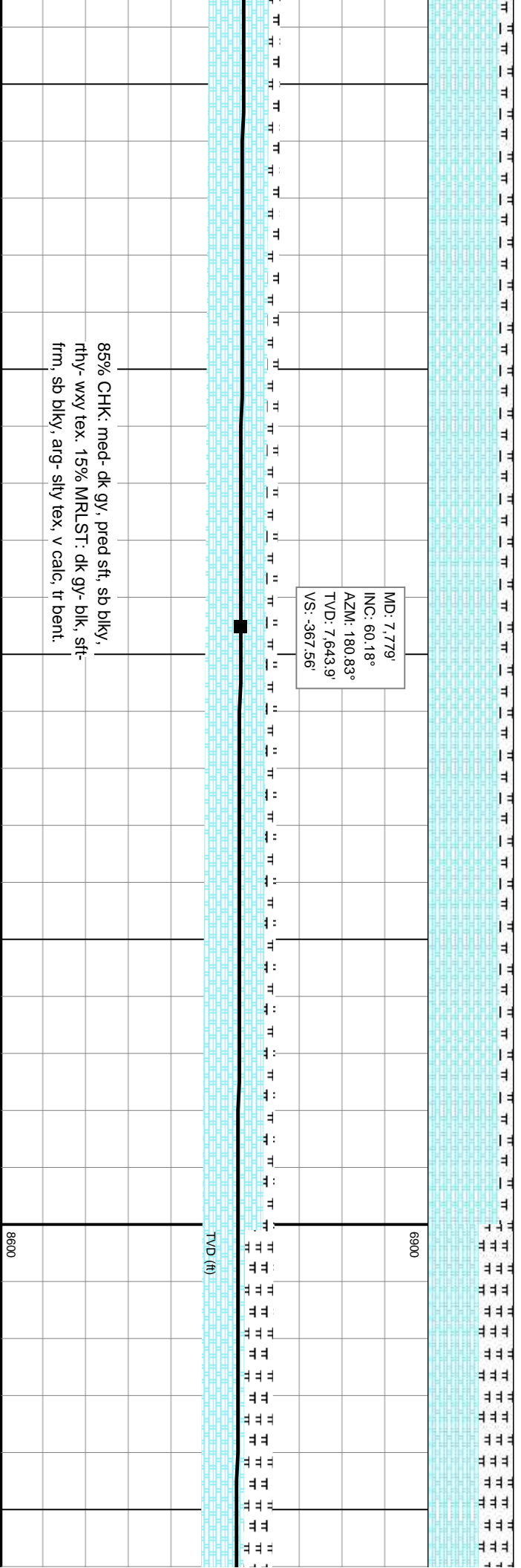
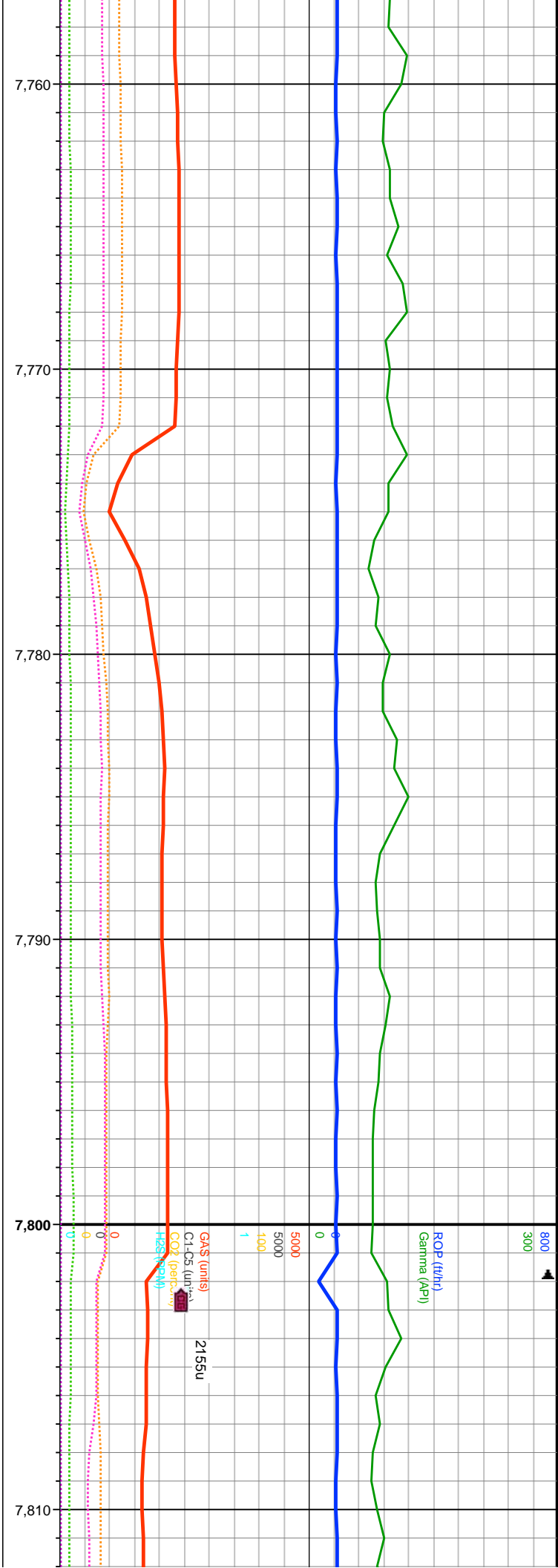


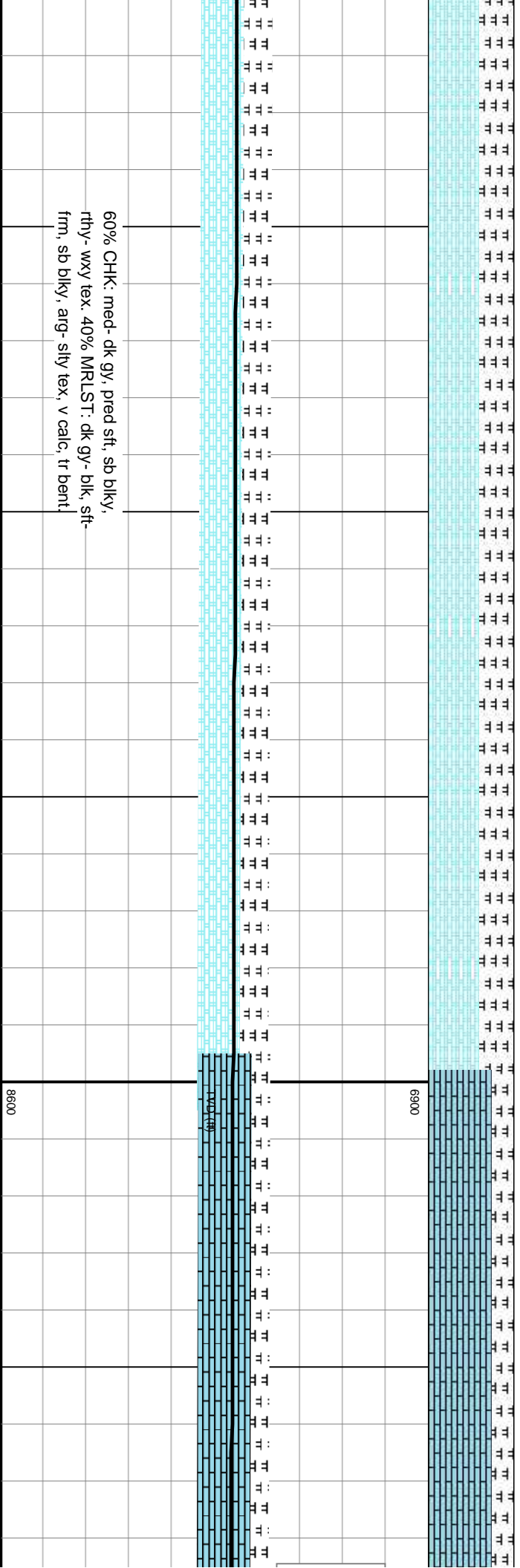
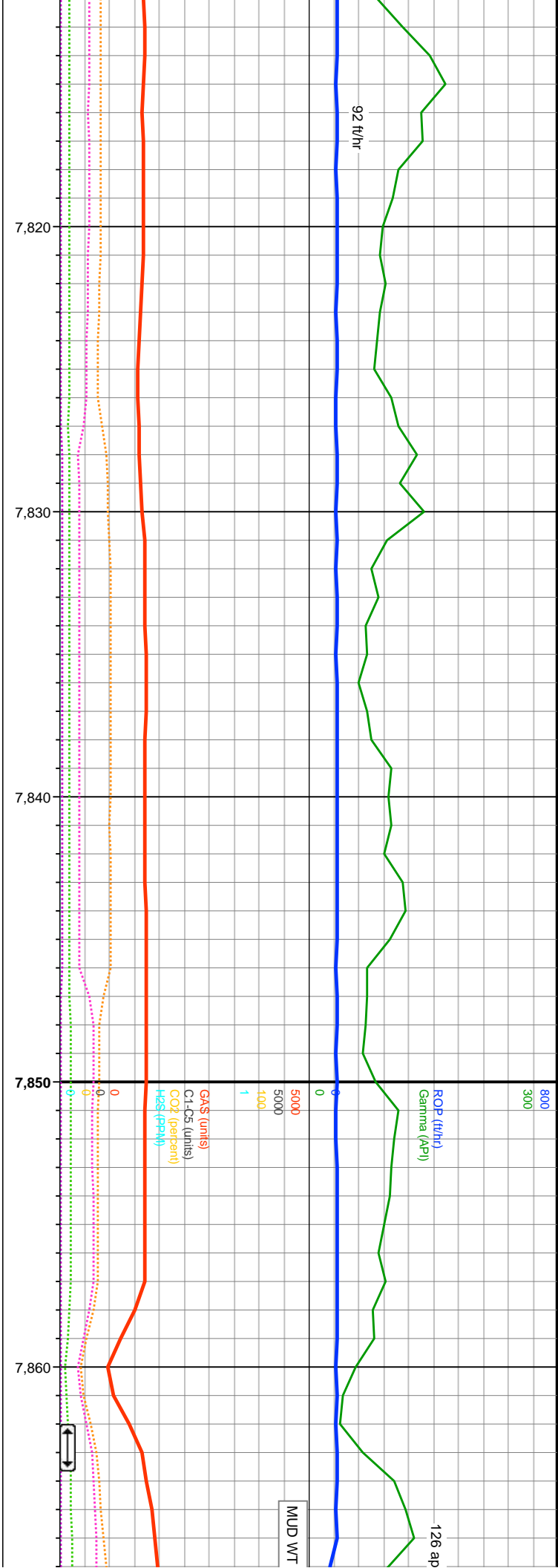




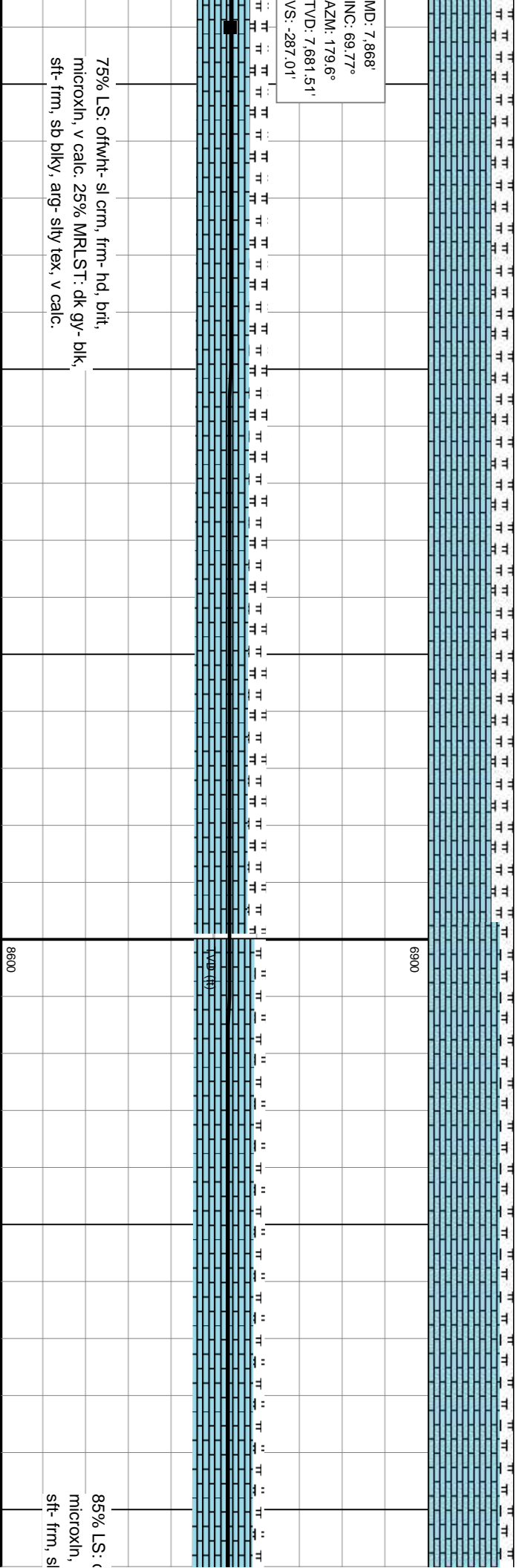
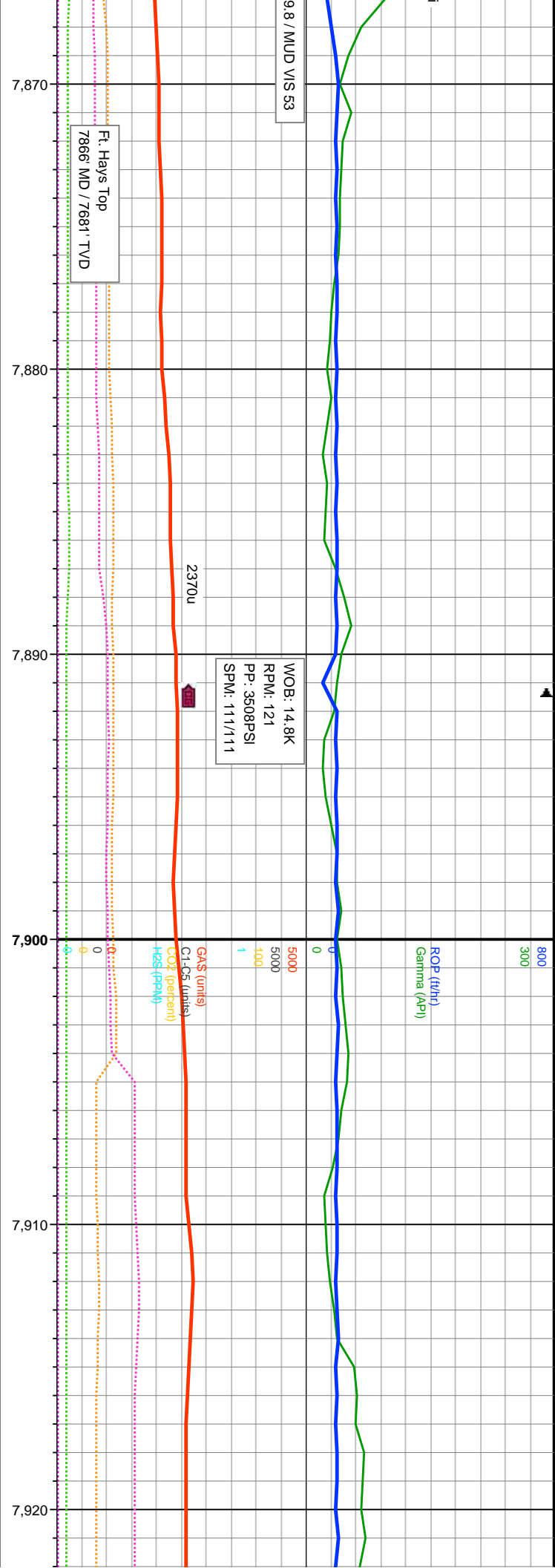


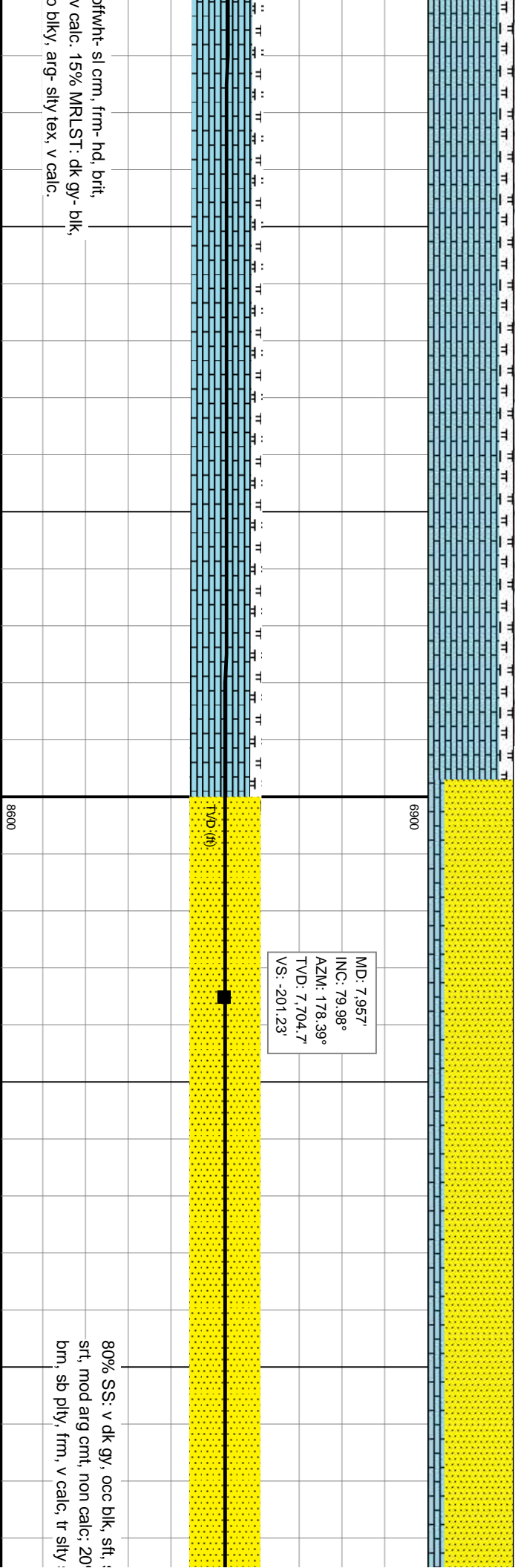
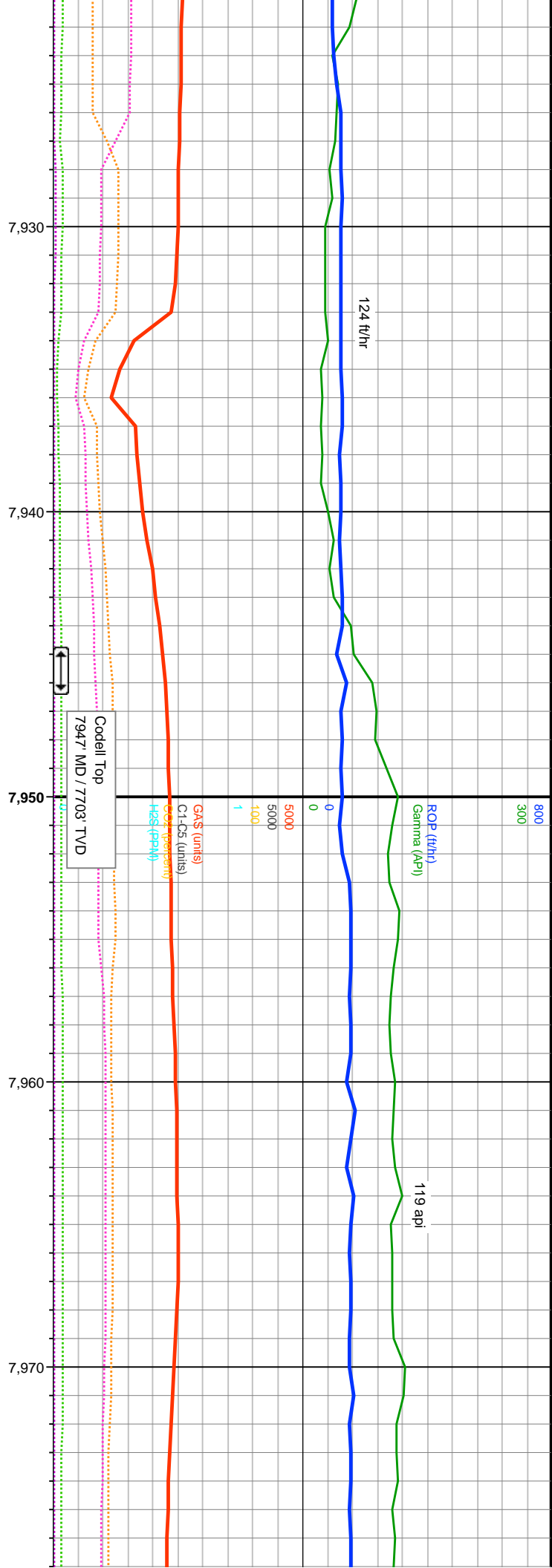
75% CHK: med-dk gy, pred sft, sb blk,
rthy- wxy tex. 25% MRLST: dk gy- blk, sft-
fm, sb blk, arg- sly tex, v calc, tr bent.

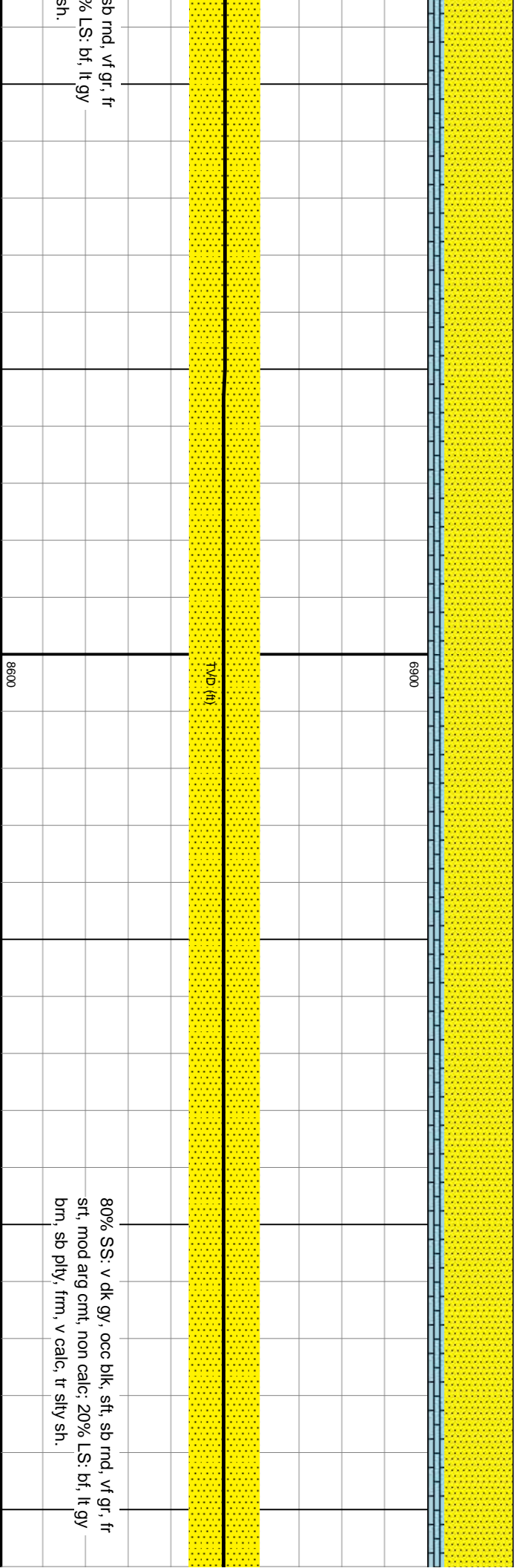


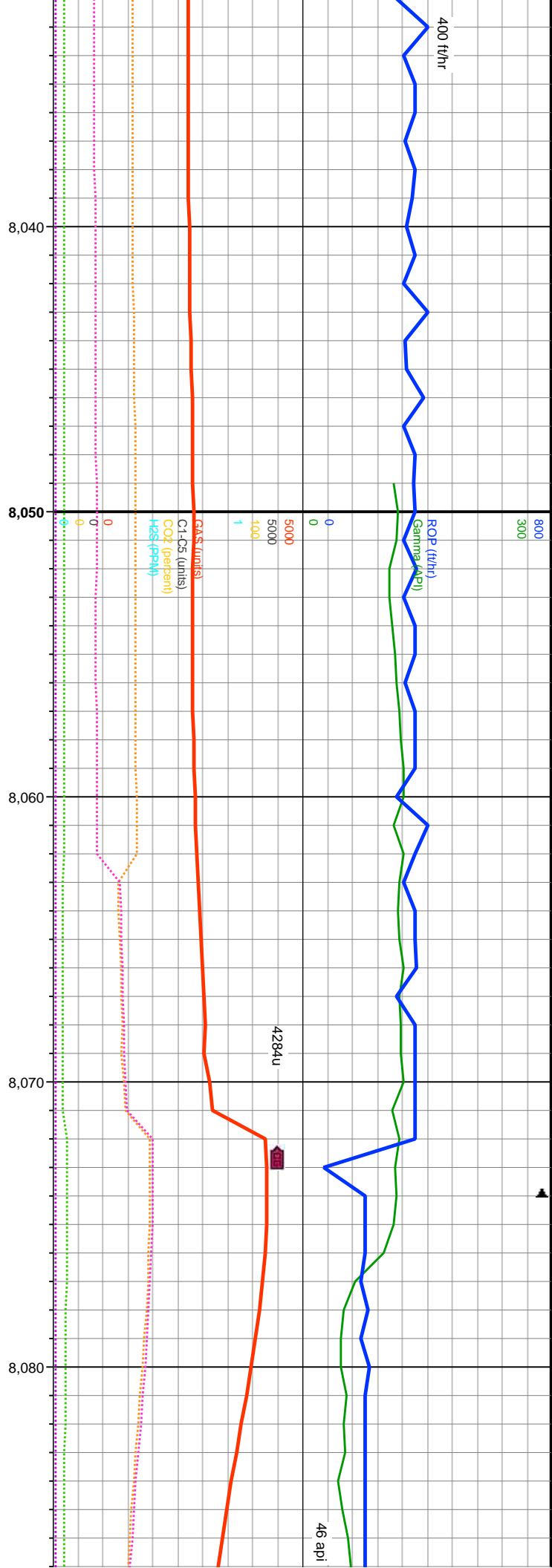


60% CHK: med- dk gy, pred sft, sb blk, rthy- wxy tex. 40% MRLST: dk gy- blk, sft- frm, sb blk, arg- sily tex, v calc, tr bent

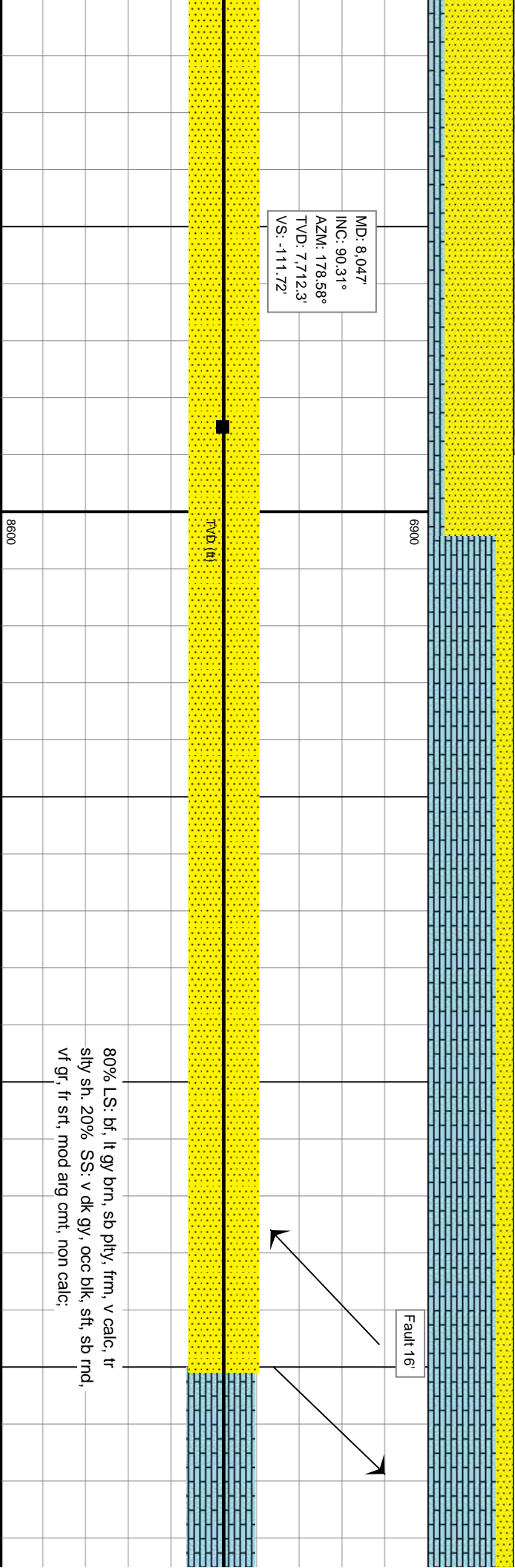


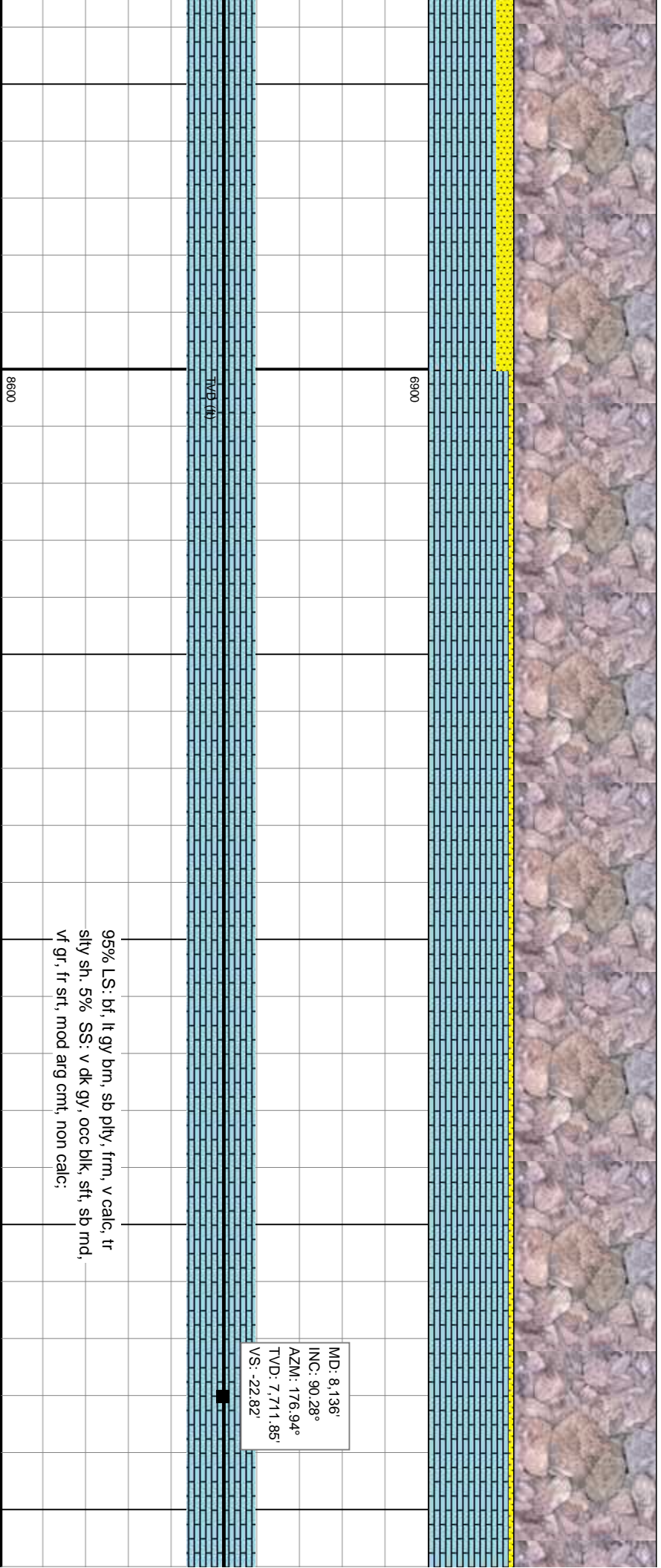
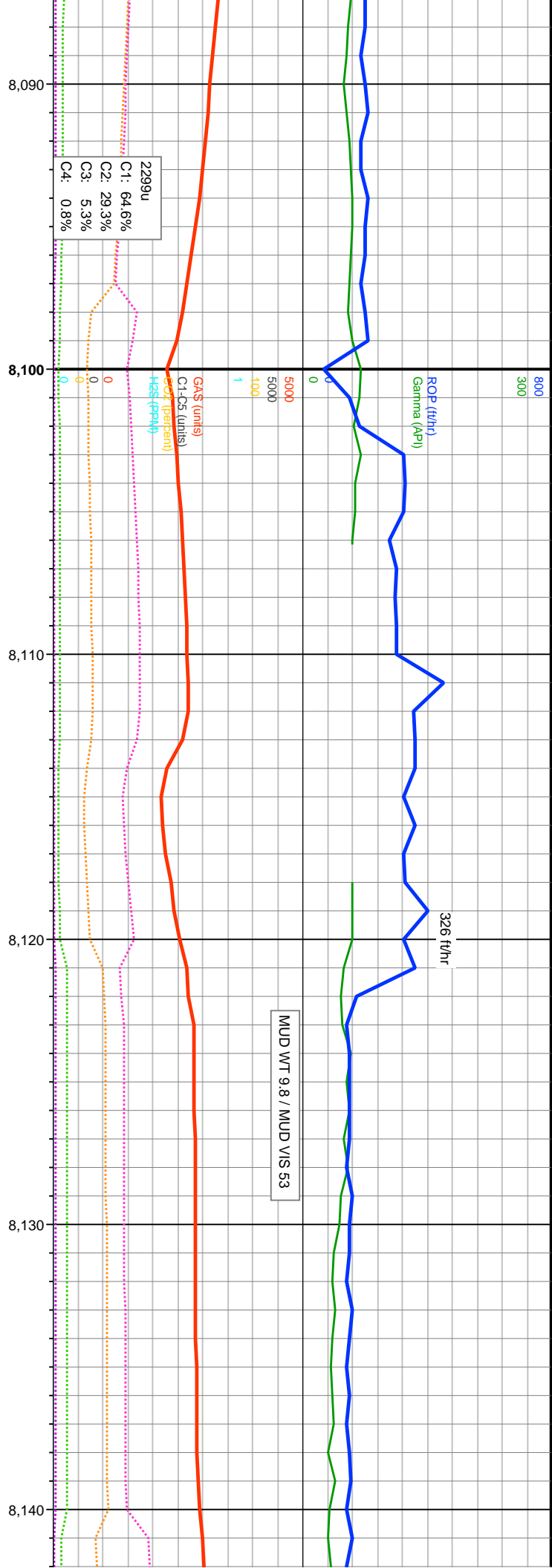


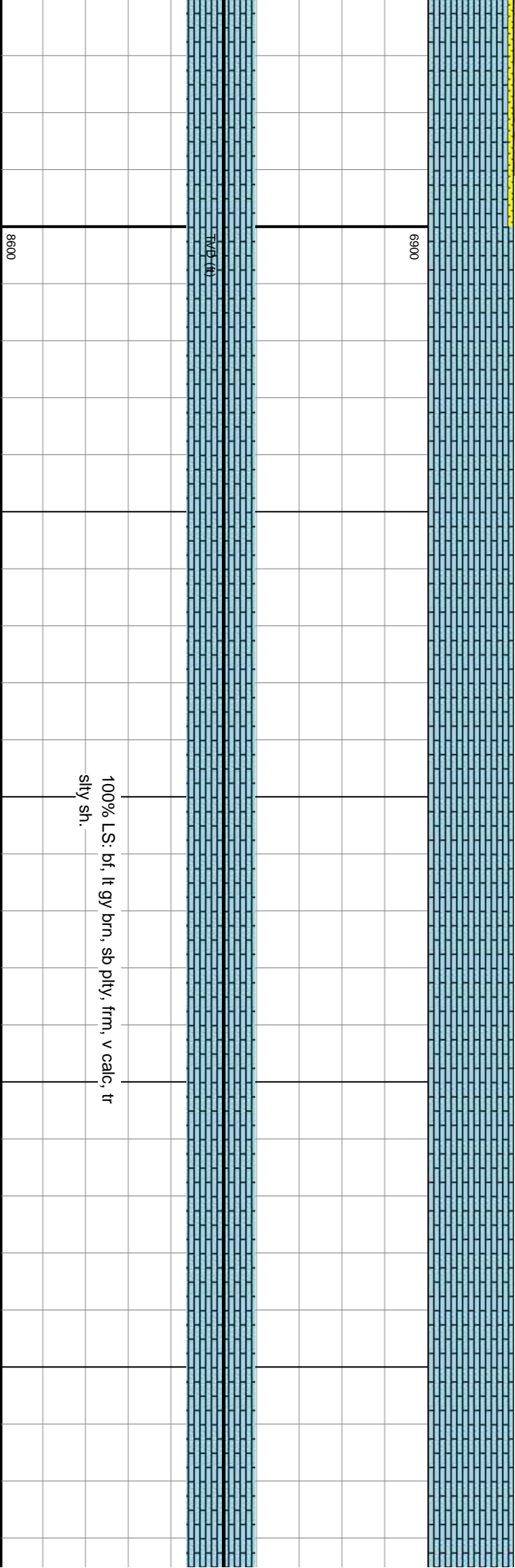
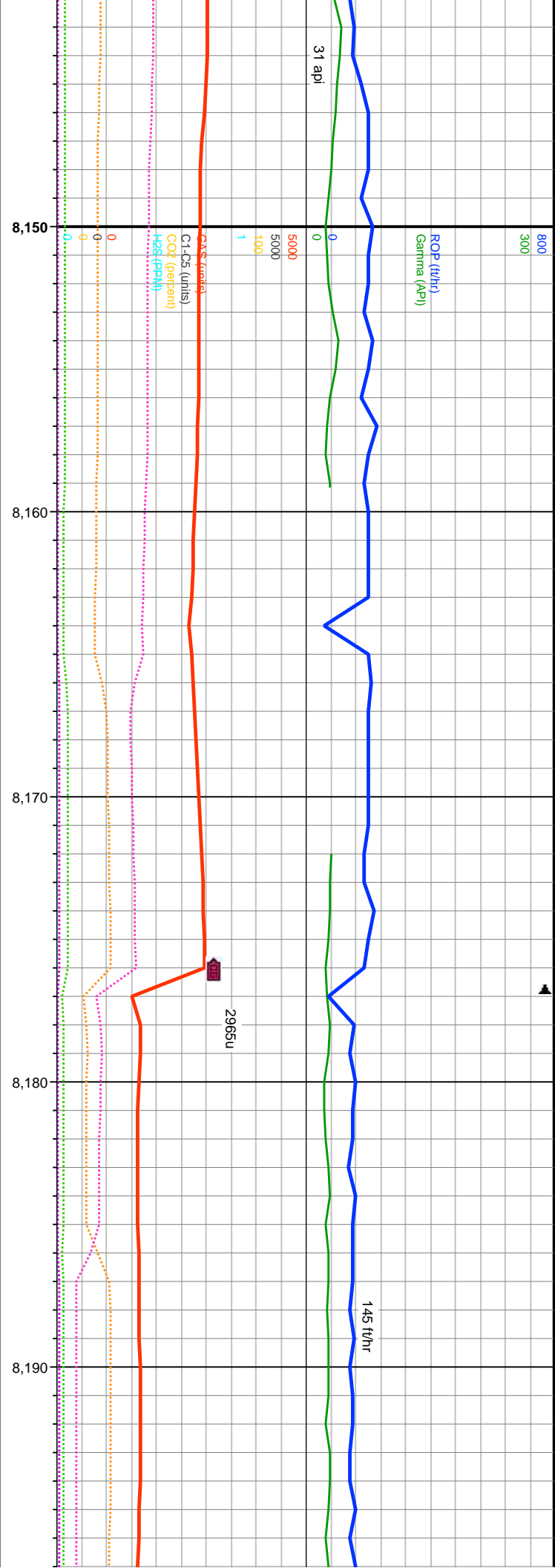




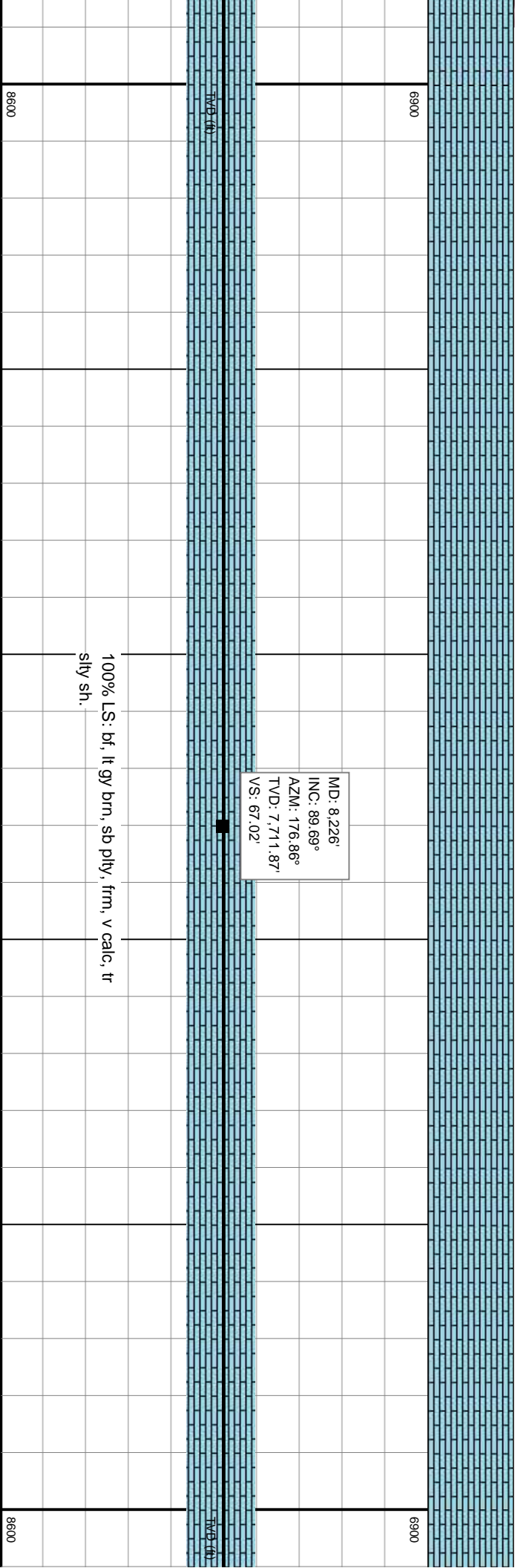
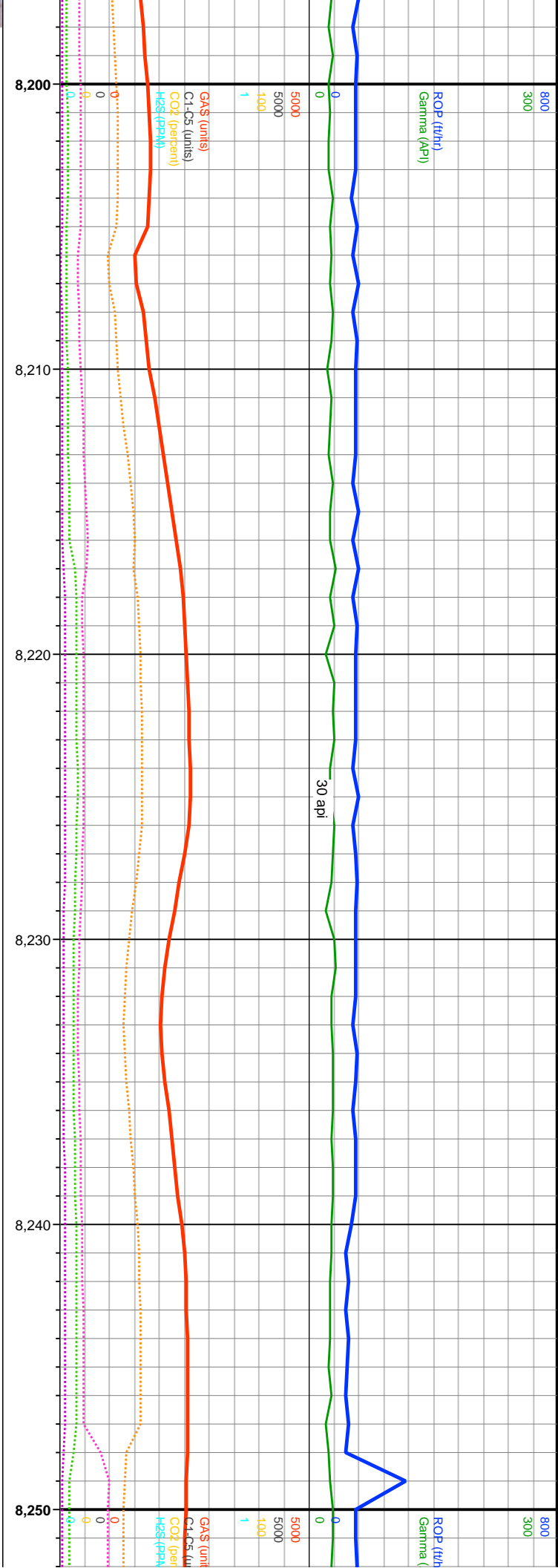
MD: 8.047'
INC: 90.31°
AZM: 178.58°
TVD: 7,712.3'
VS: -111.72'

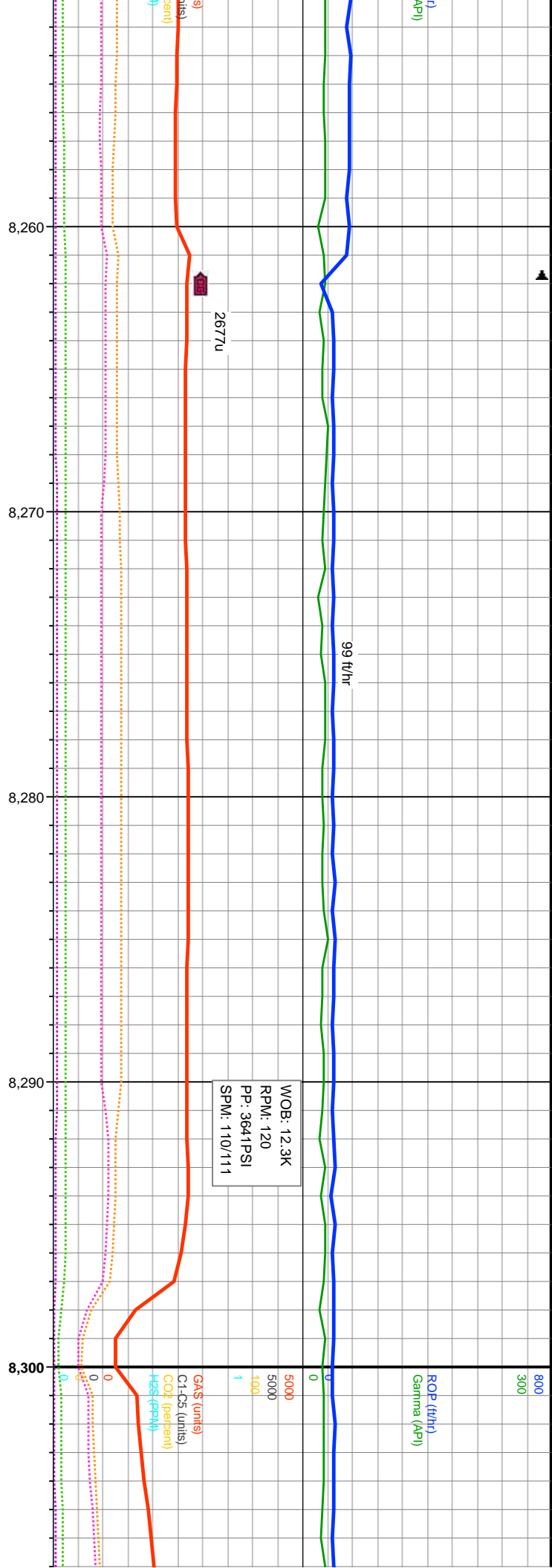




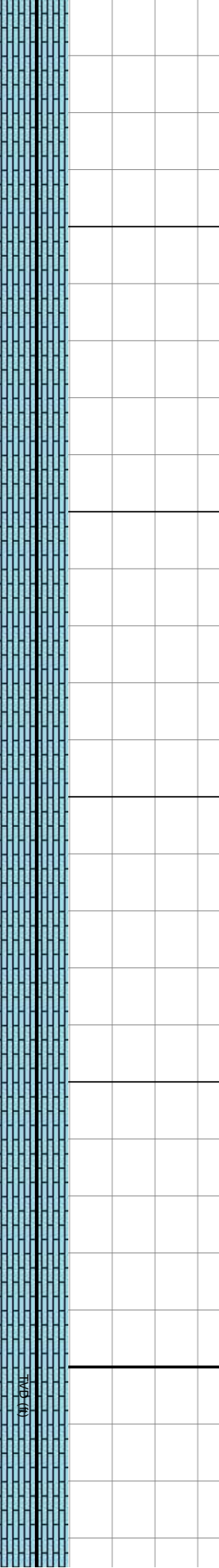


100% LS: bf, lt gy brn, sb plty, frm, v calc, tr
sily sh.





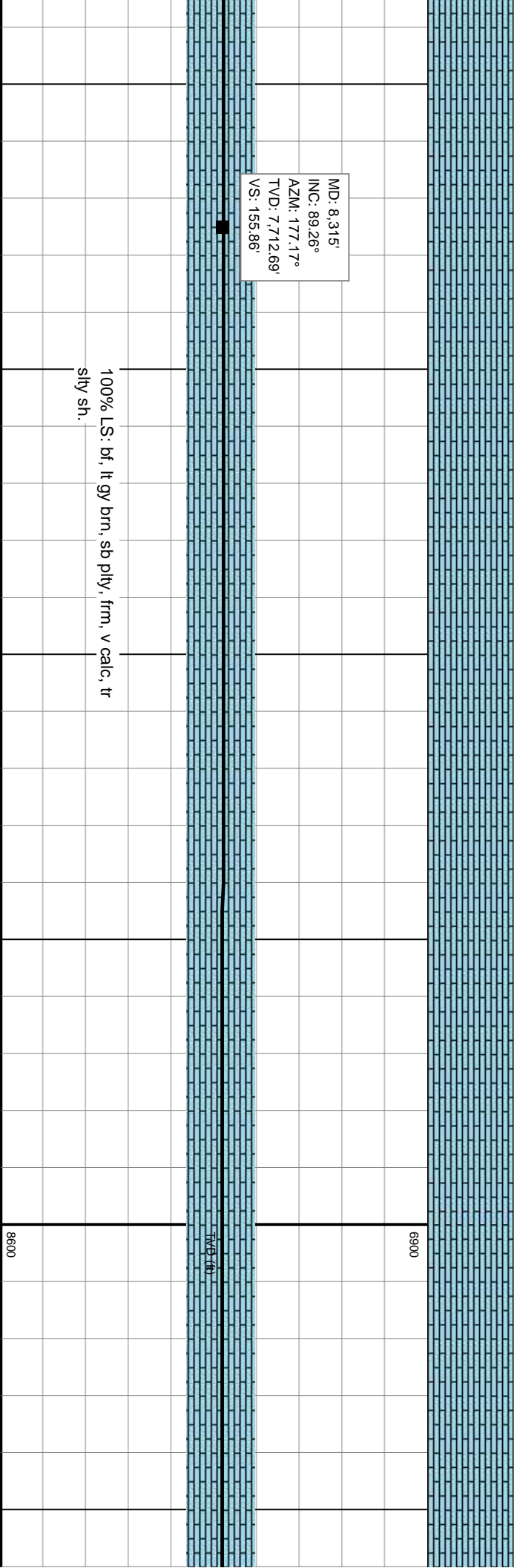
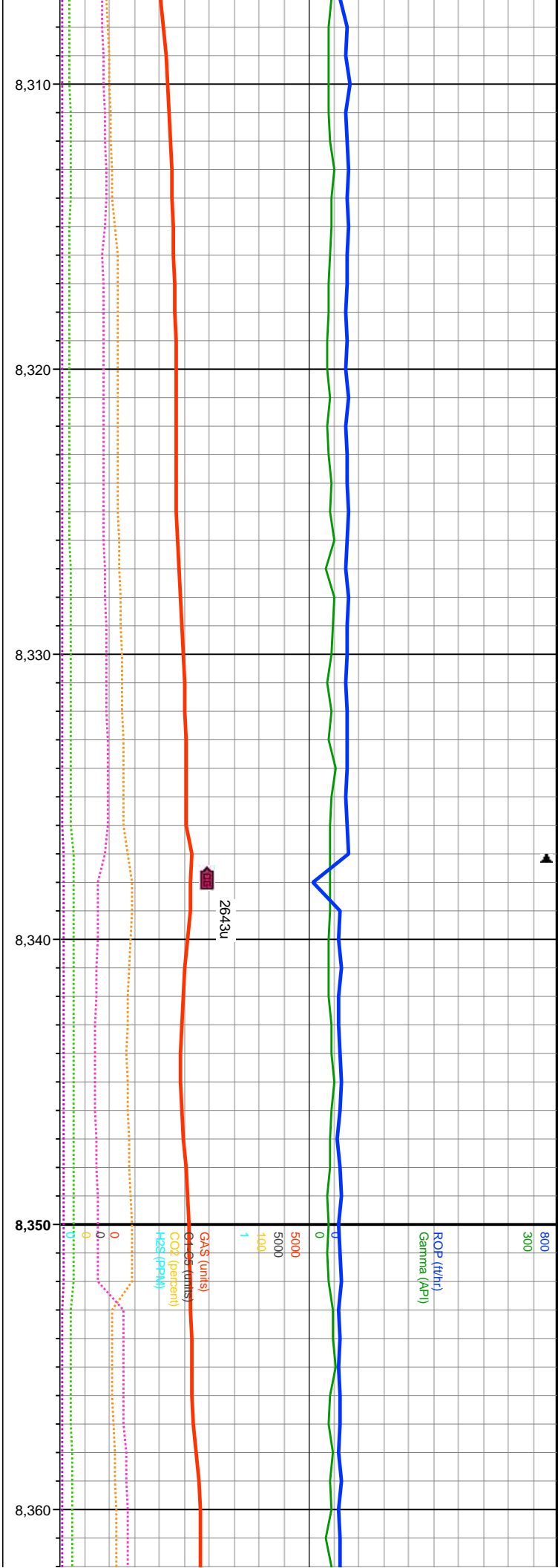
6900

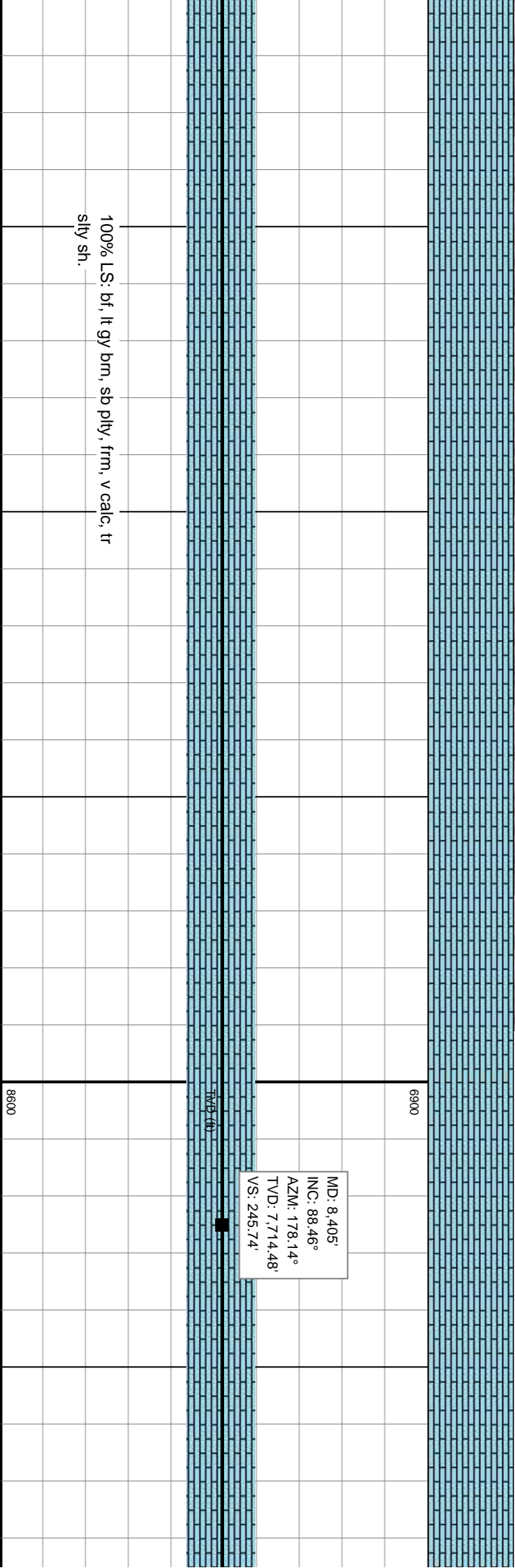
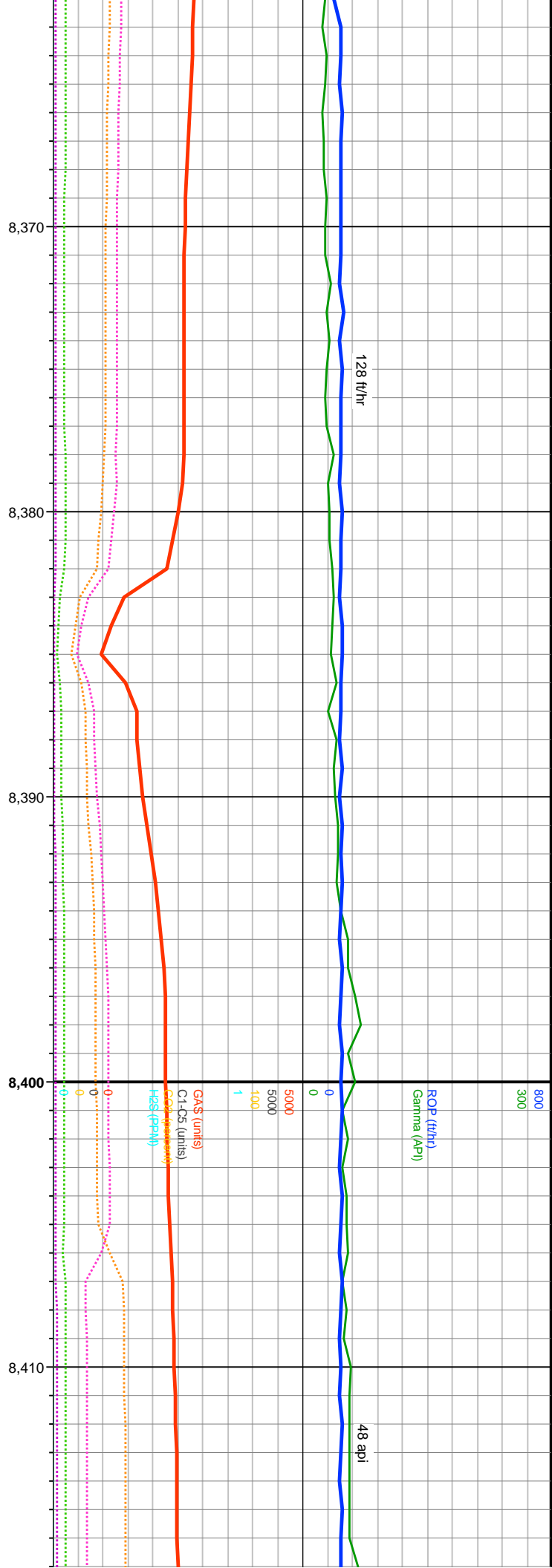


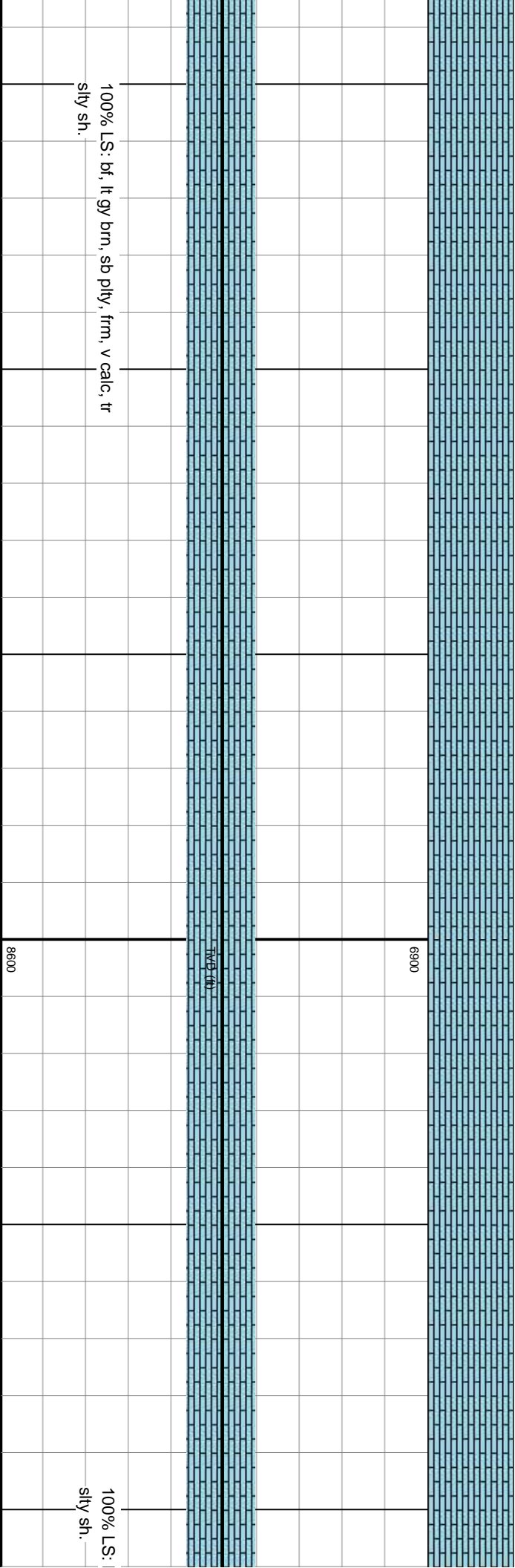
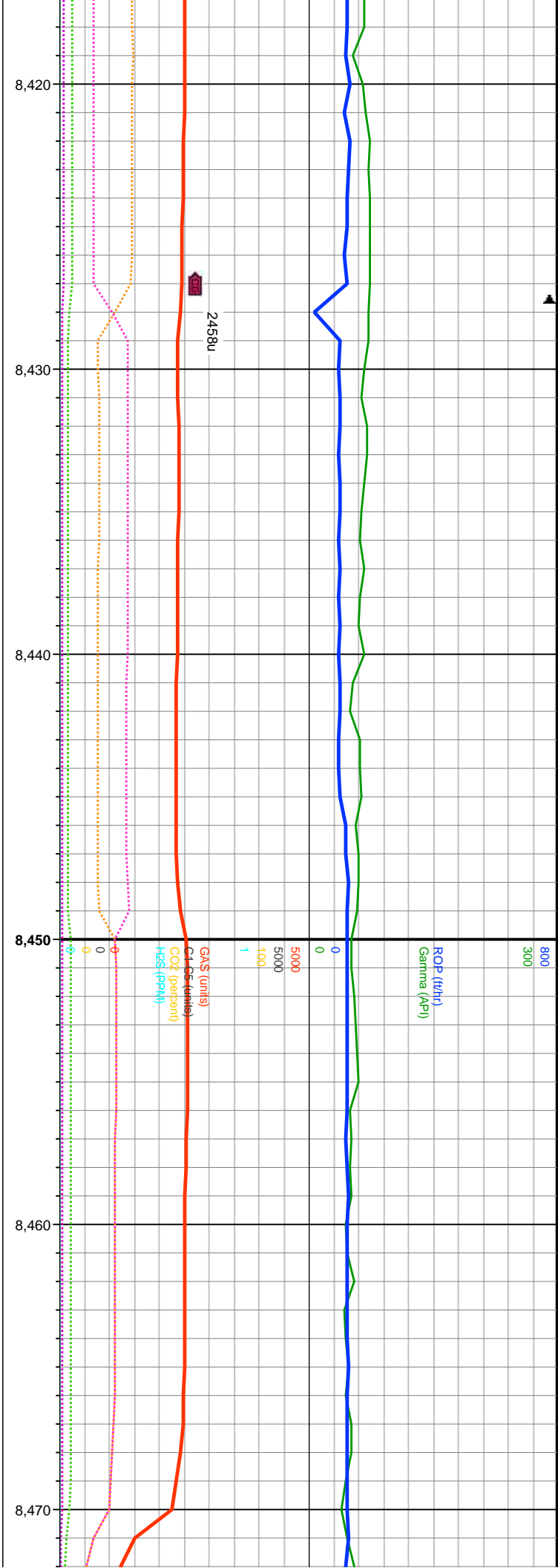
1000

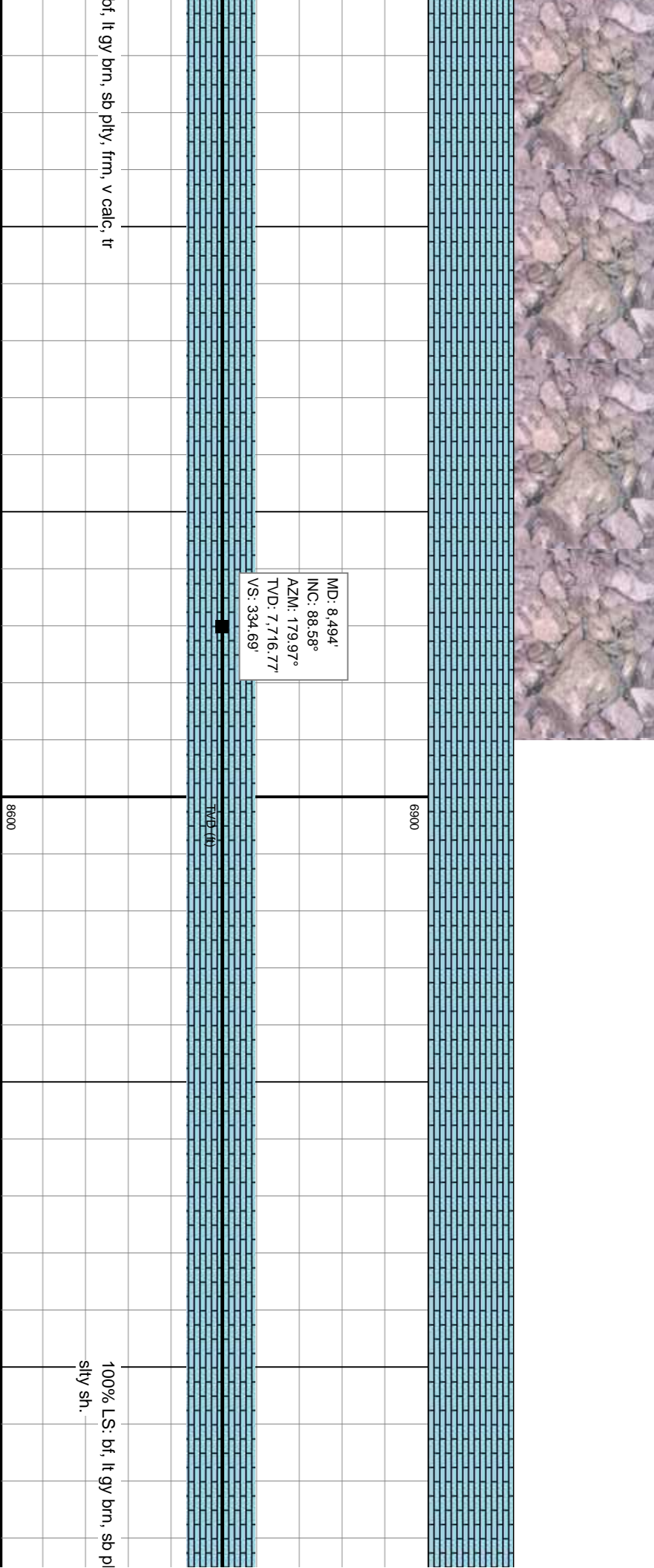
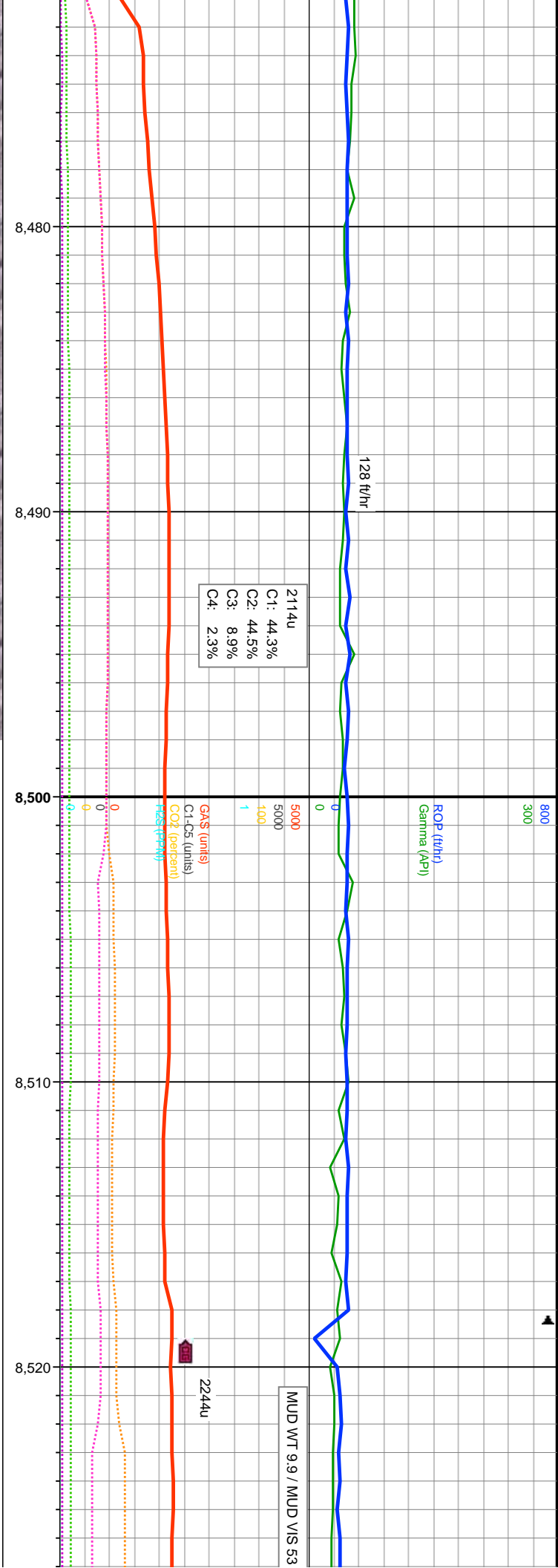
100% LS: bf, lt gy brn, sb pty, frm, v calc, tr
silty sh.

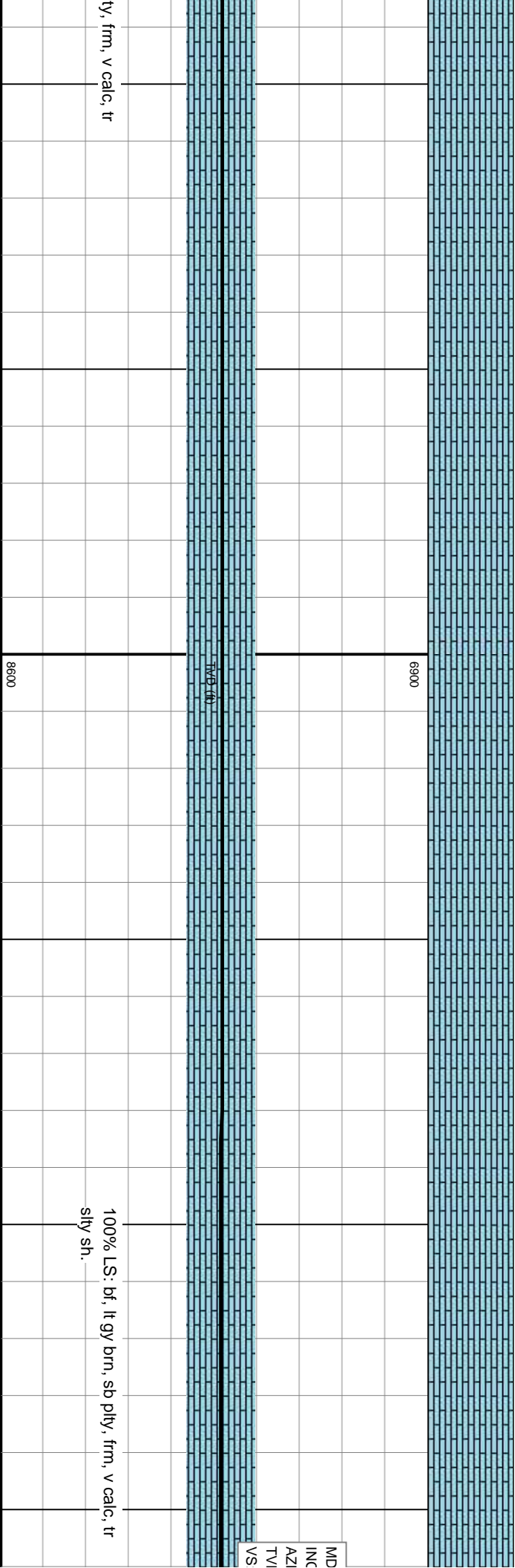
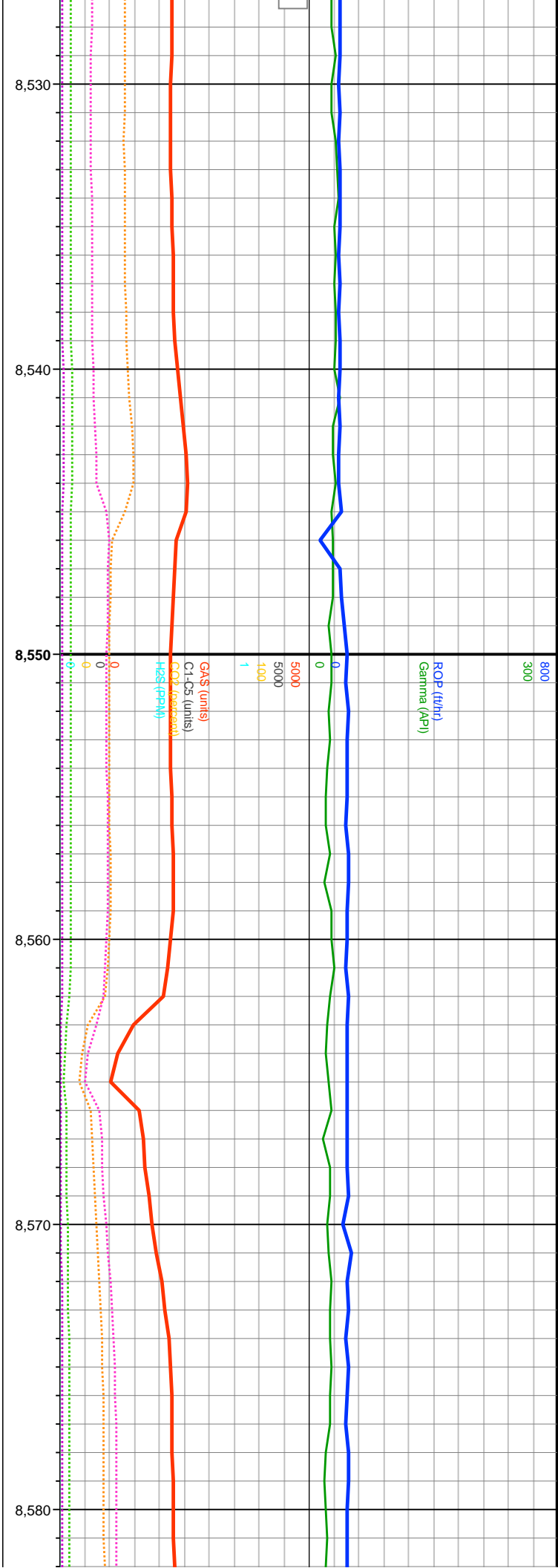
8600

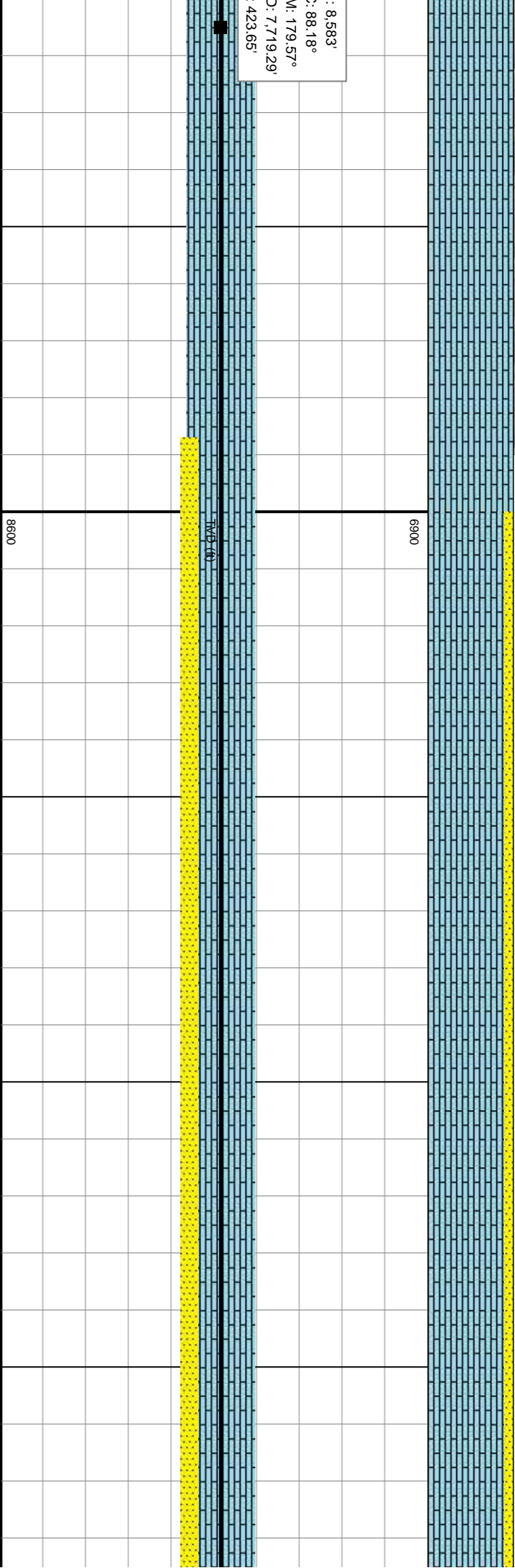
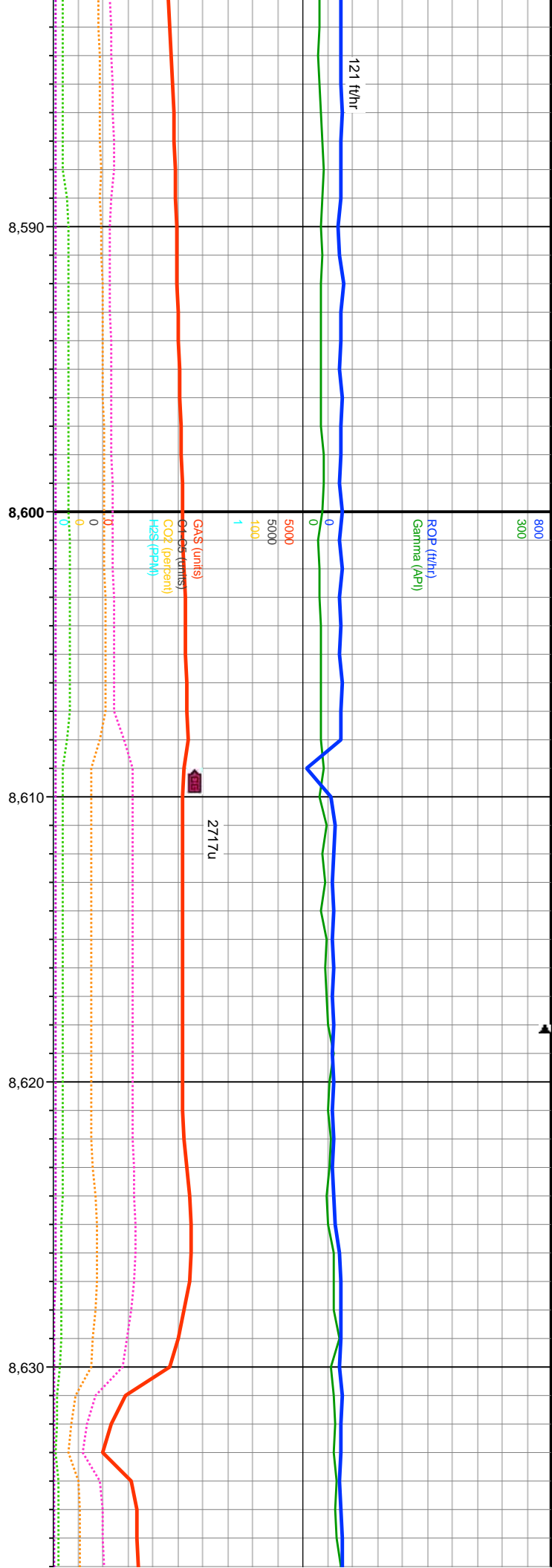


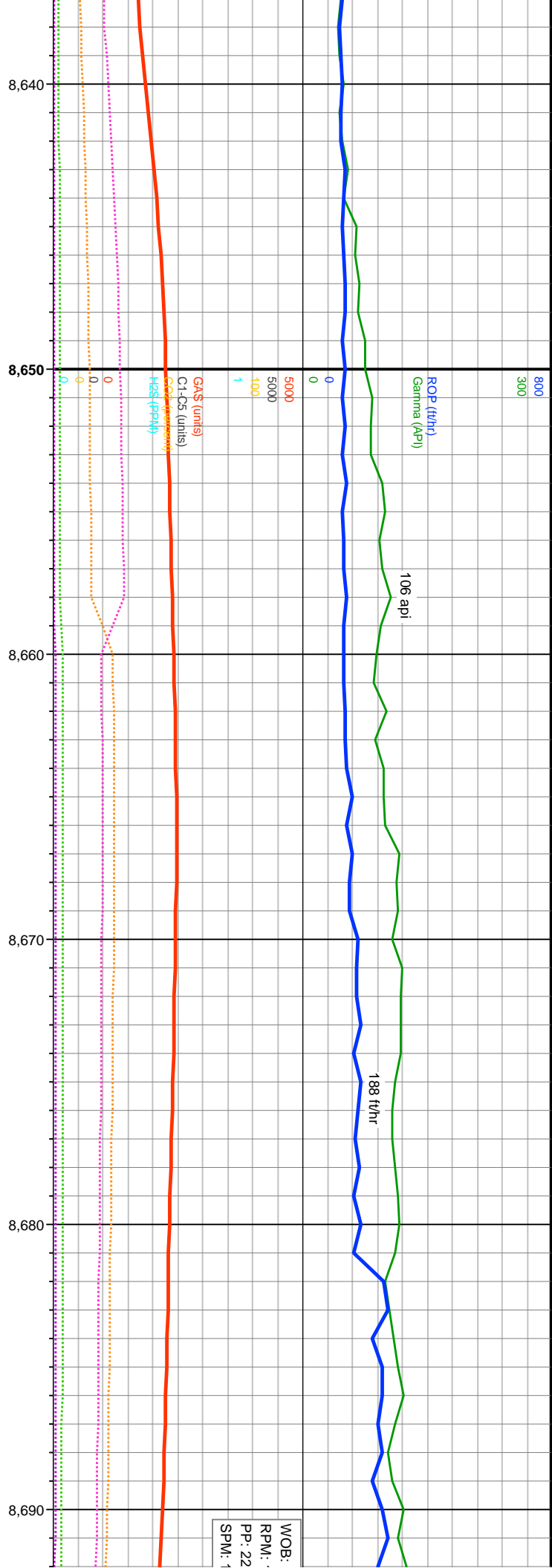




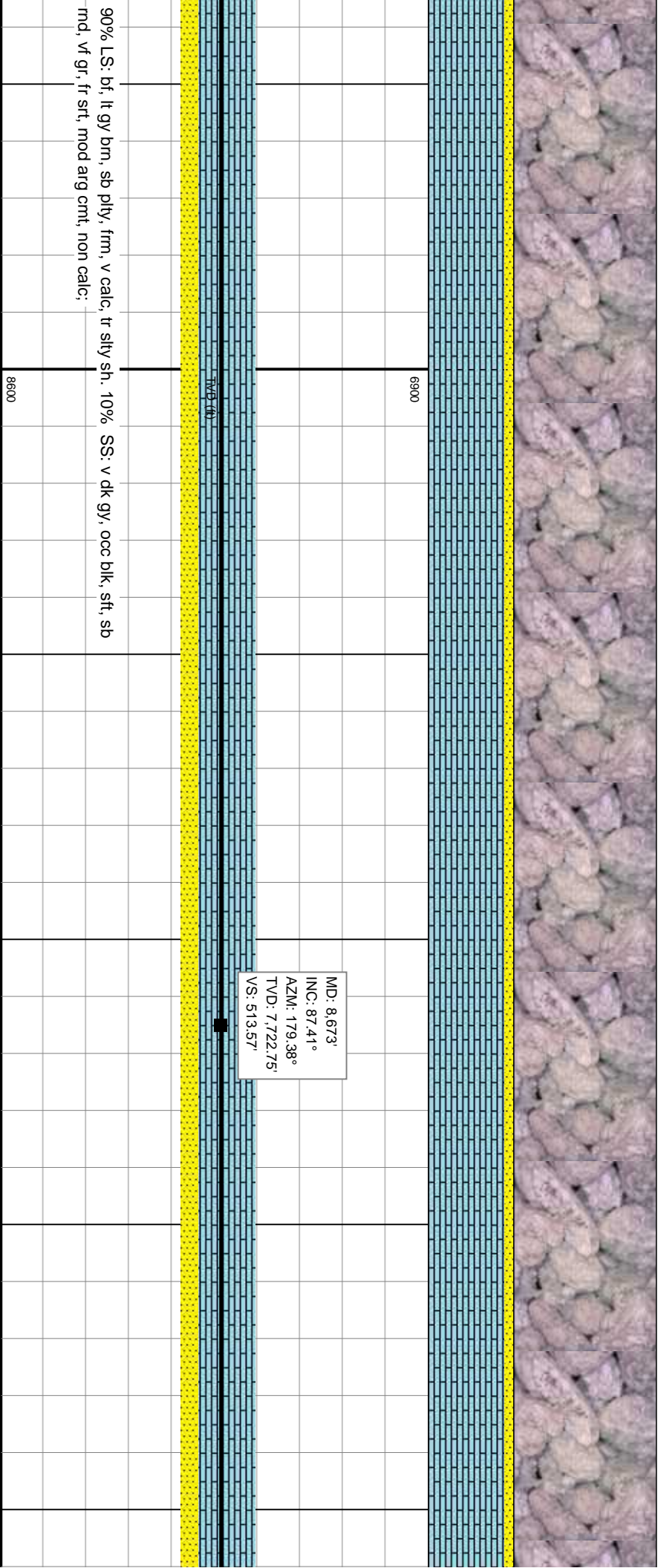




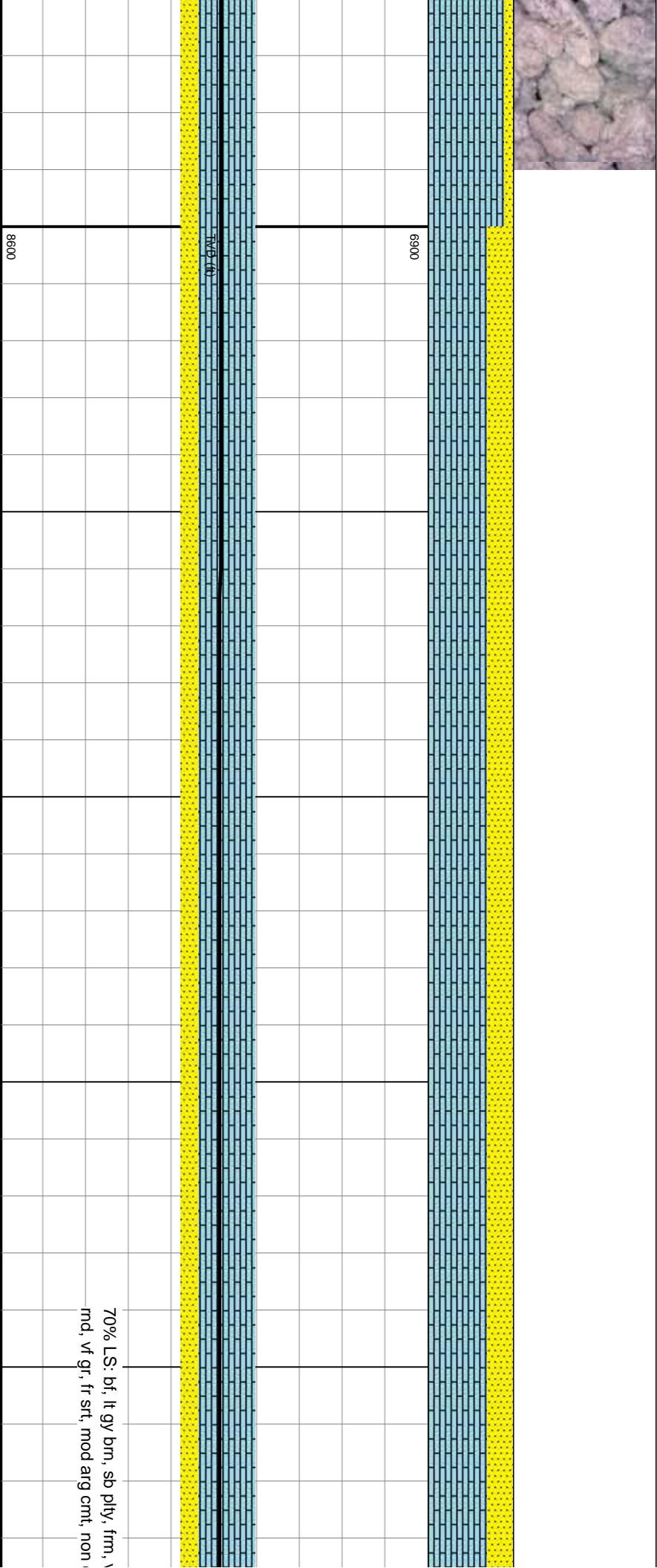
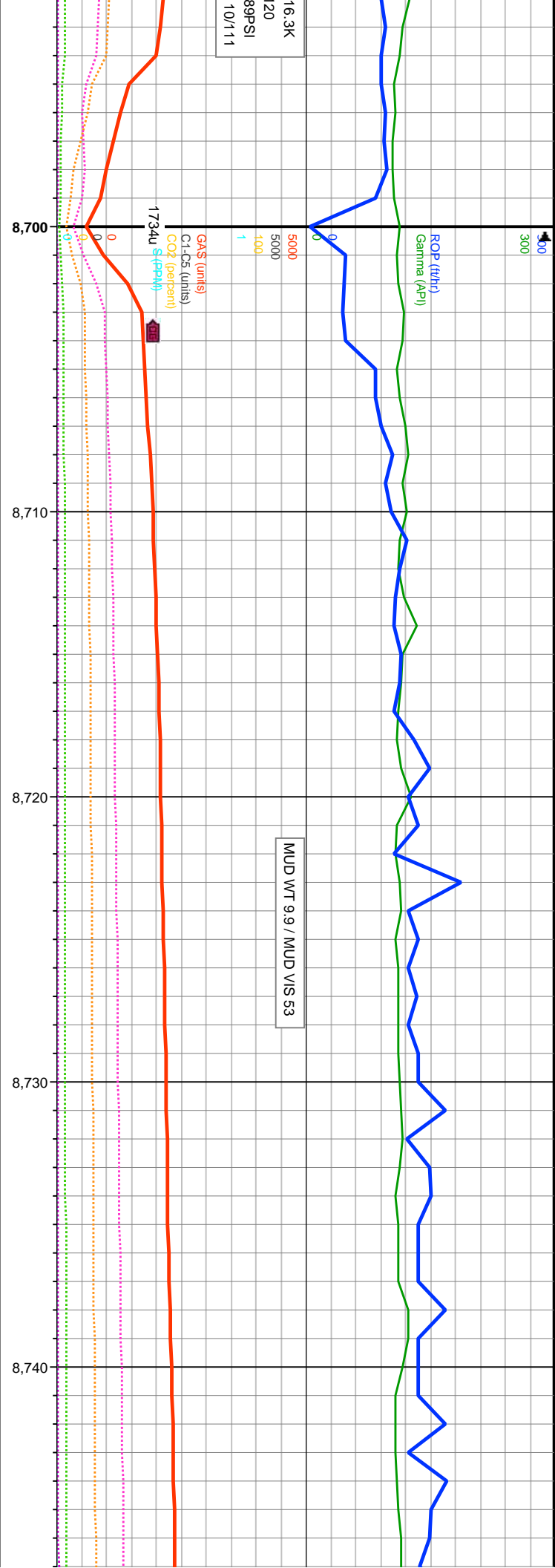


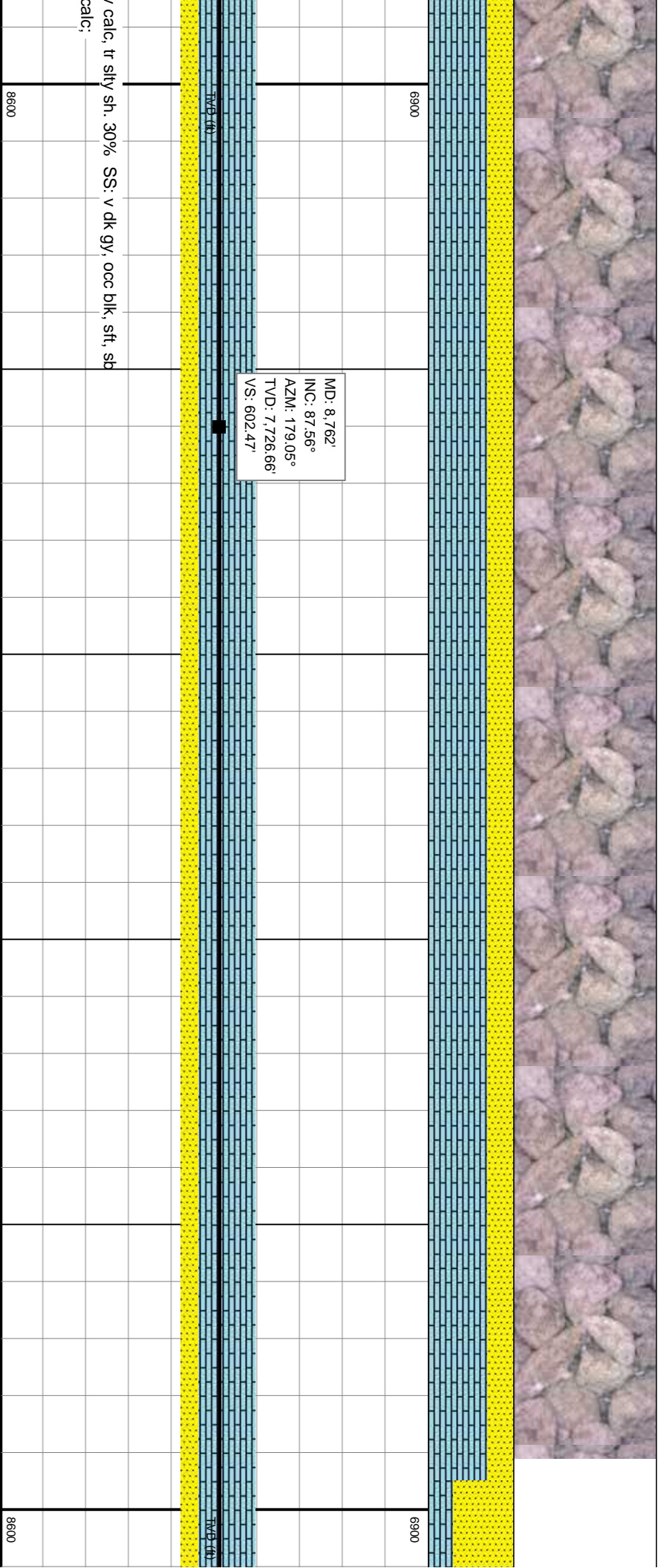
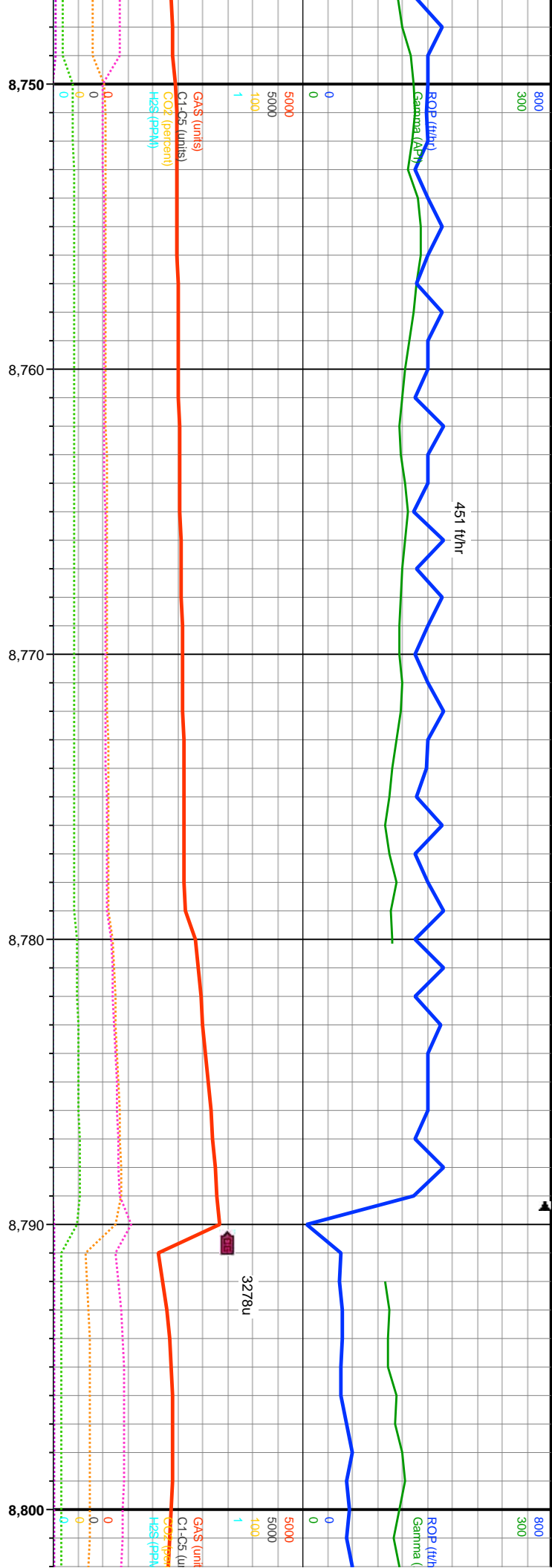


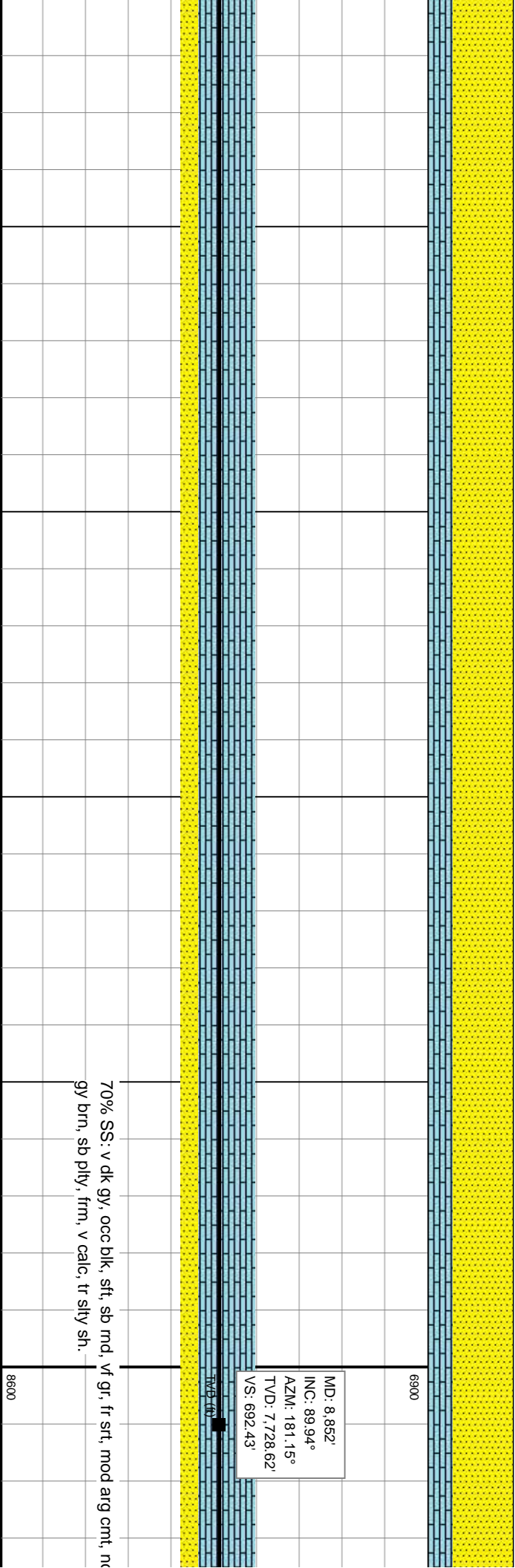
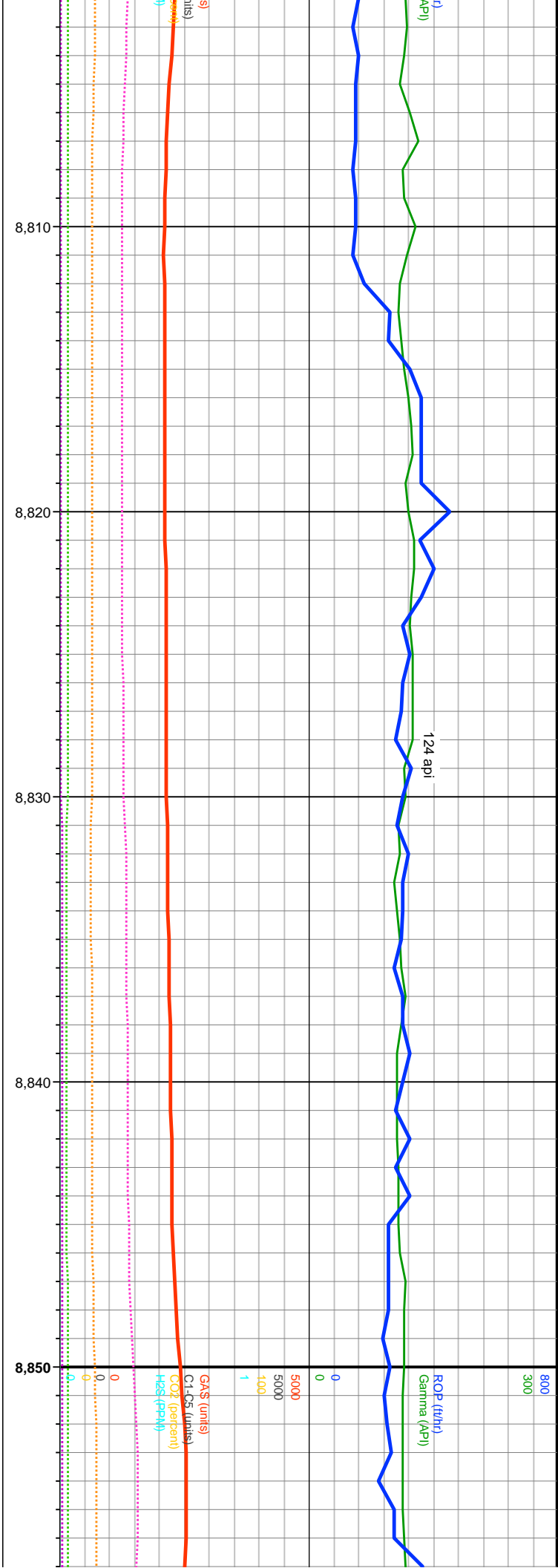
WOB:
RPM:
PP: 22
SPM: 1

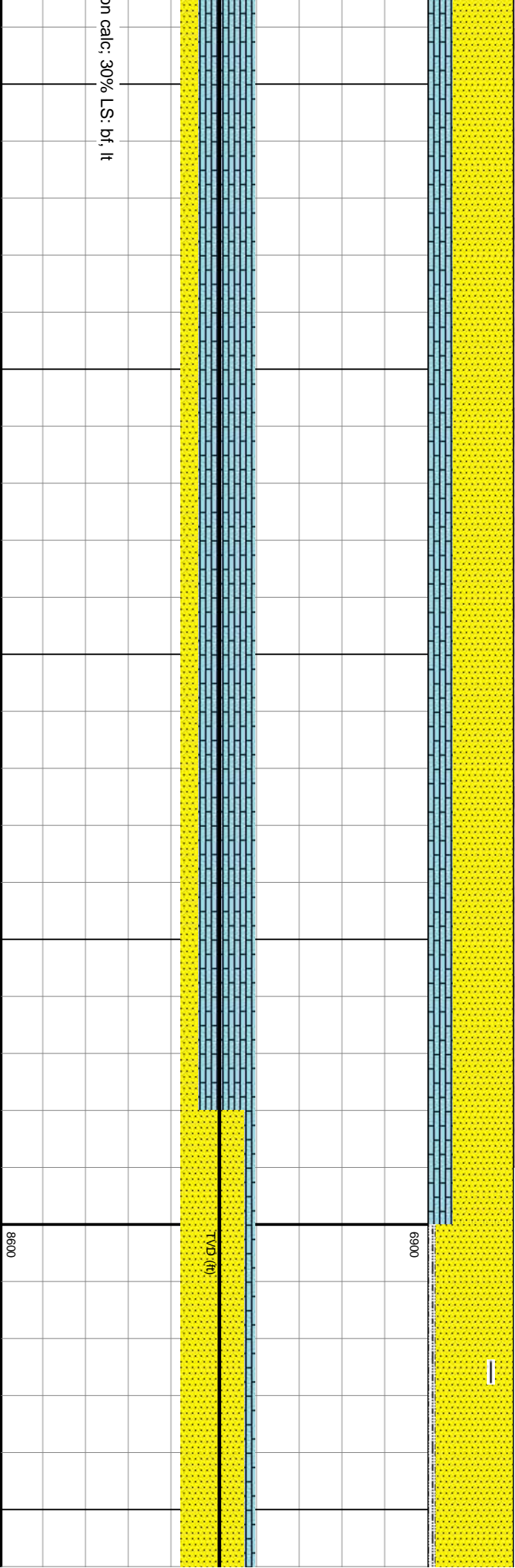
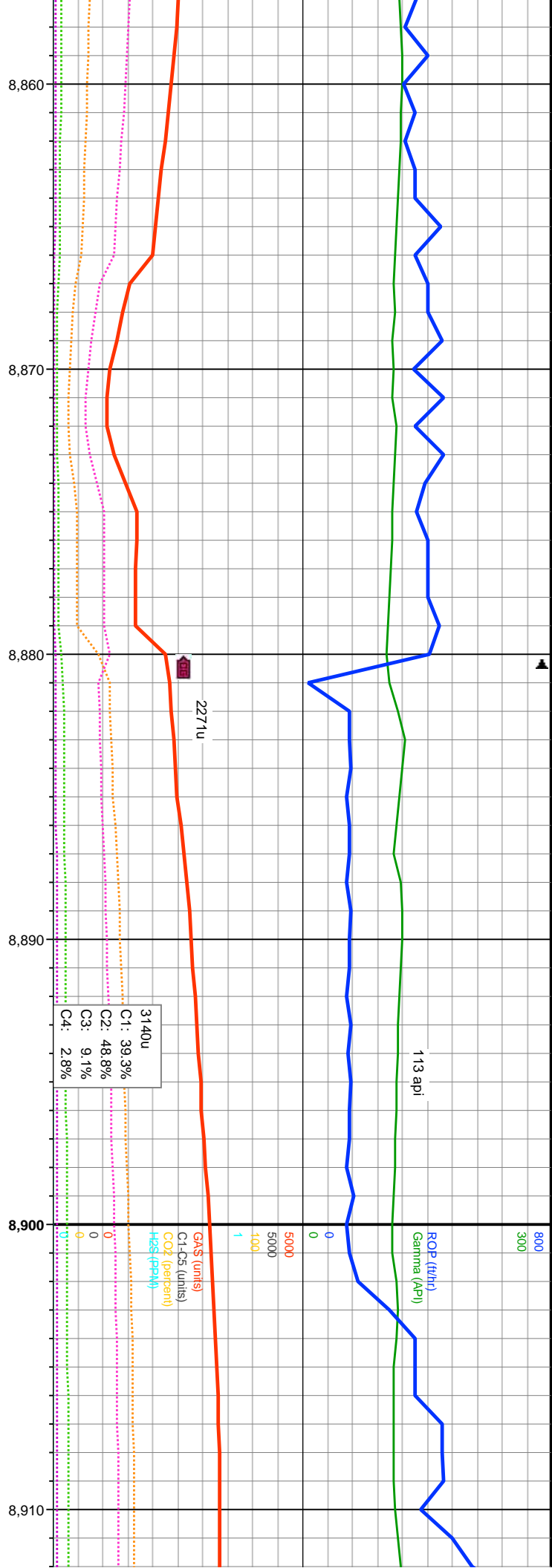


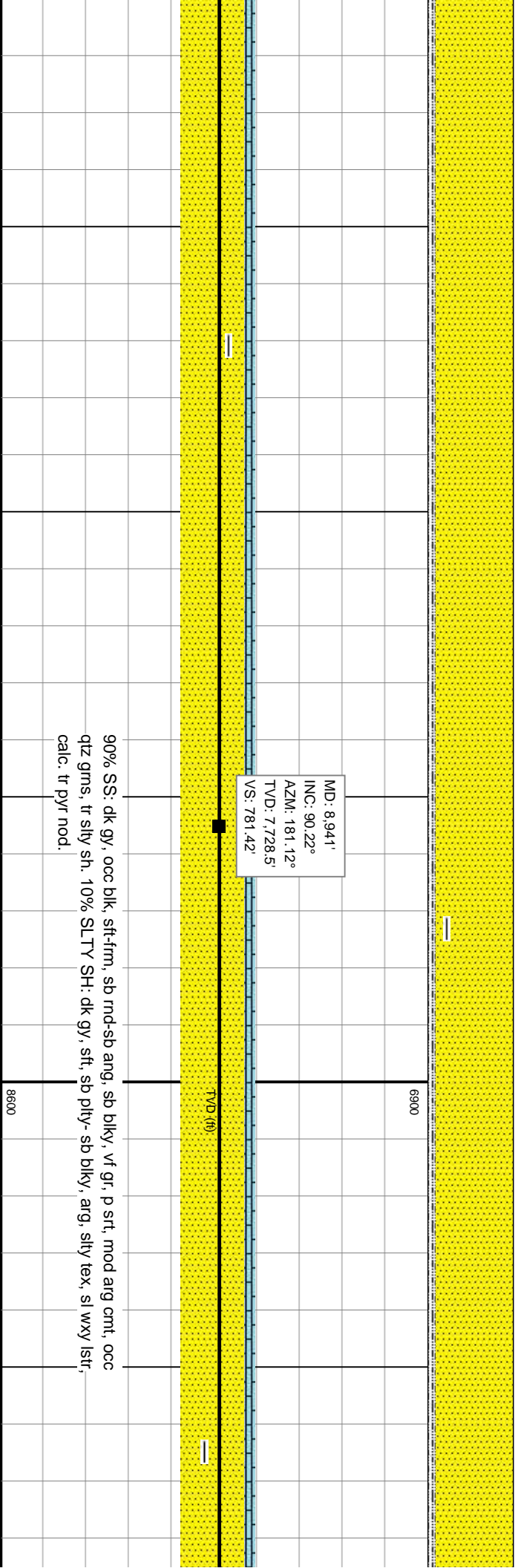
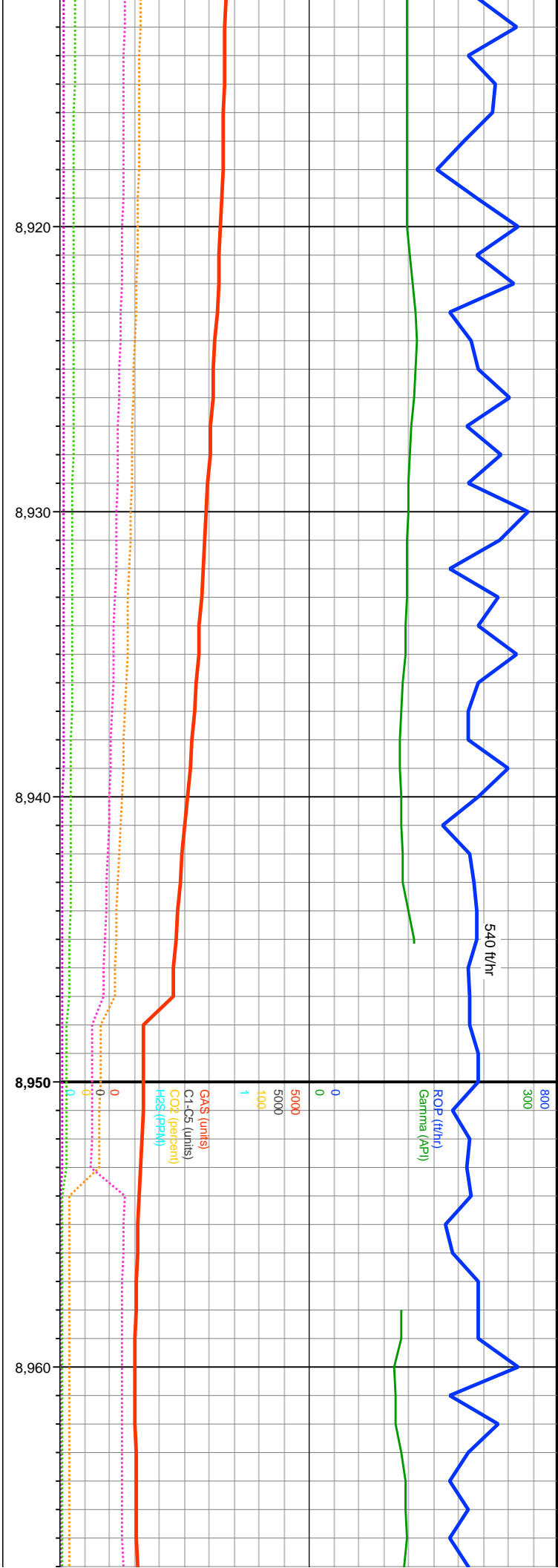
90% LS: bf, lt gy brn, sb plty, frm, v calc, tr sily sh. 10% SS: v dk gy, occ blk, sft, sb
md, vf gr, fr srt, mod arg cnt, non calc;

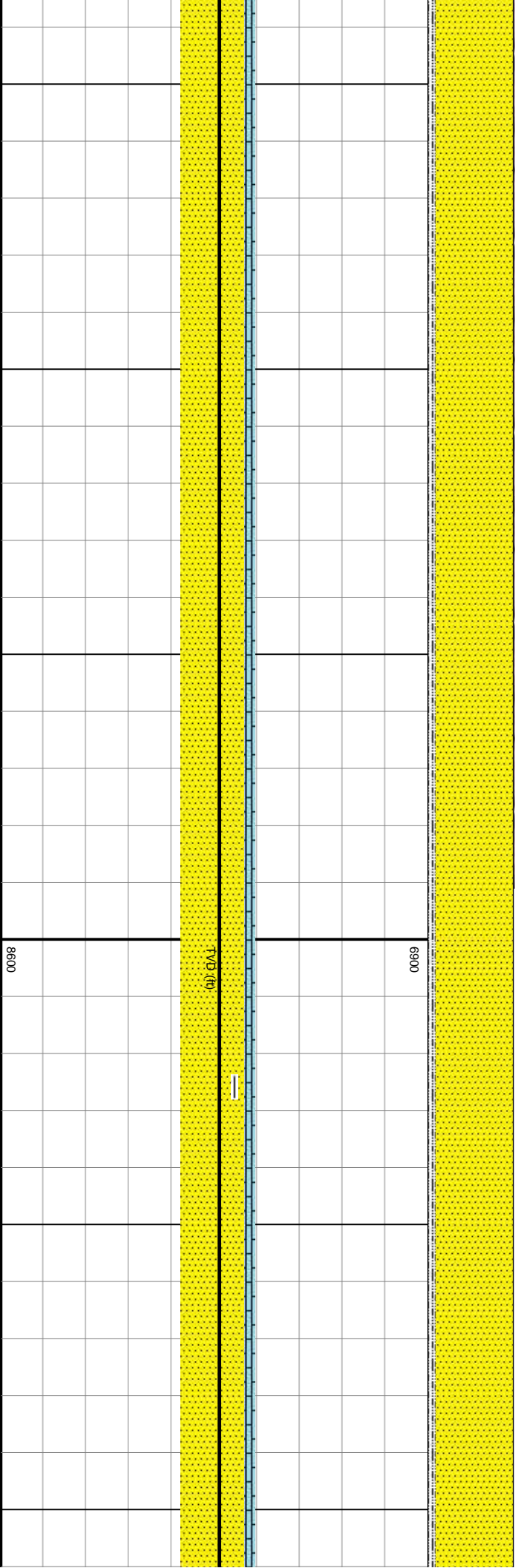
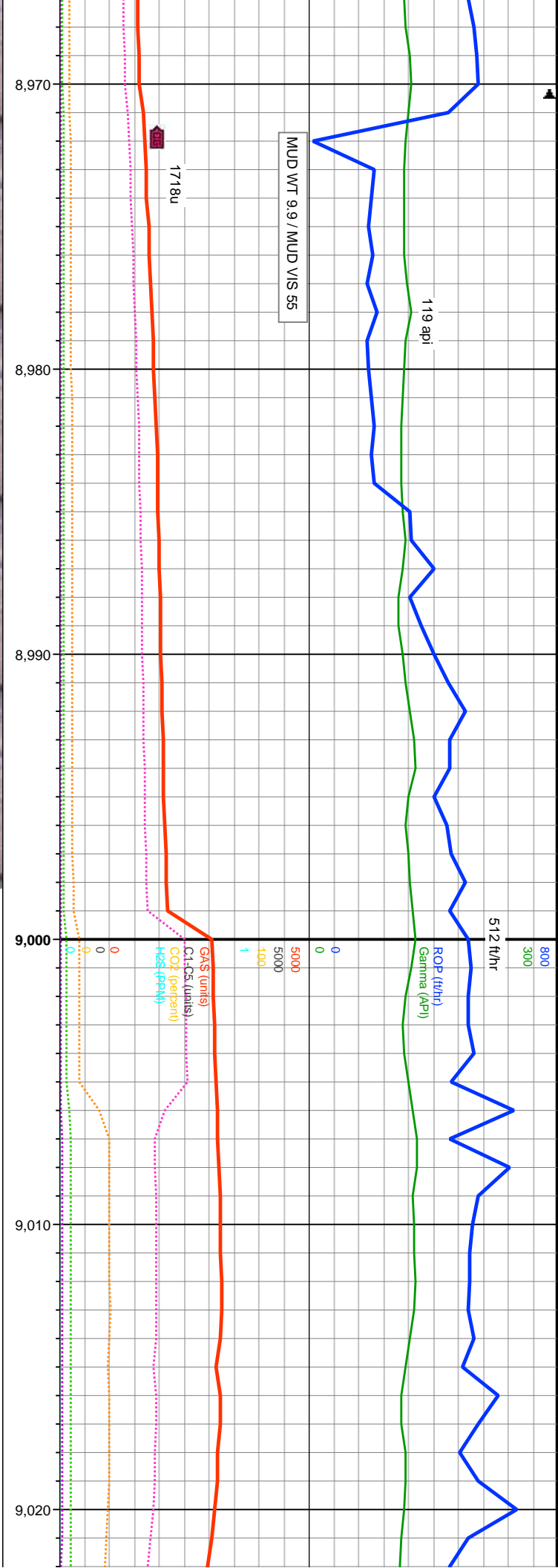


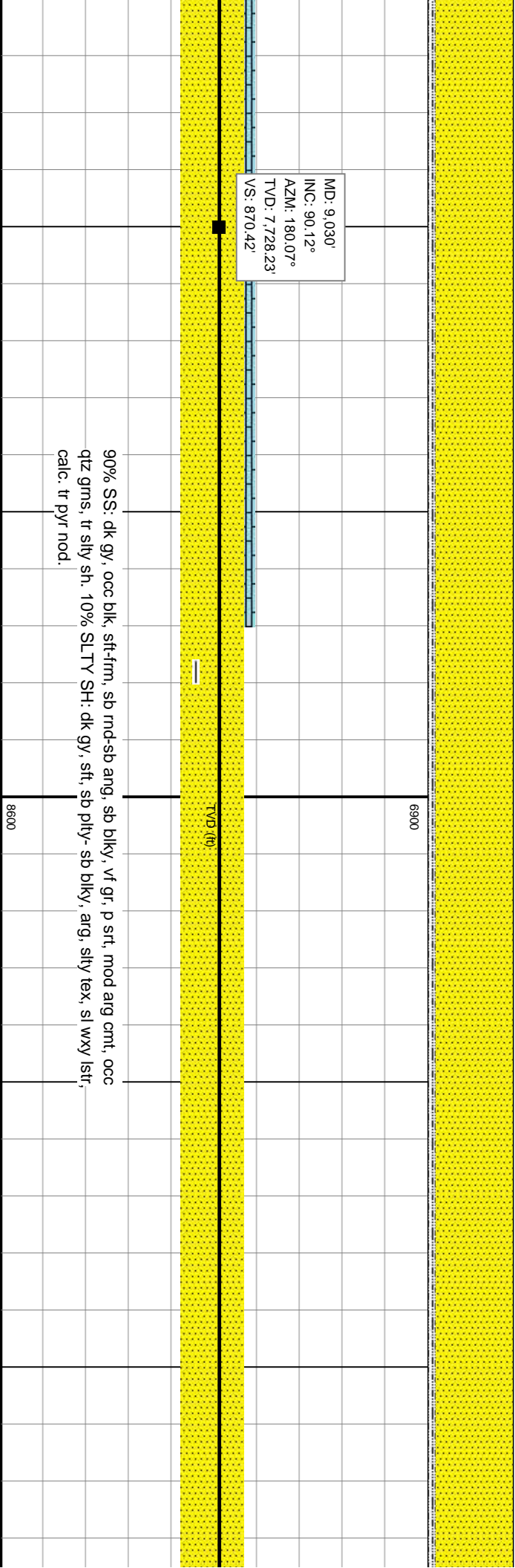
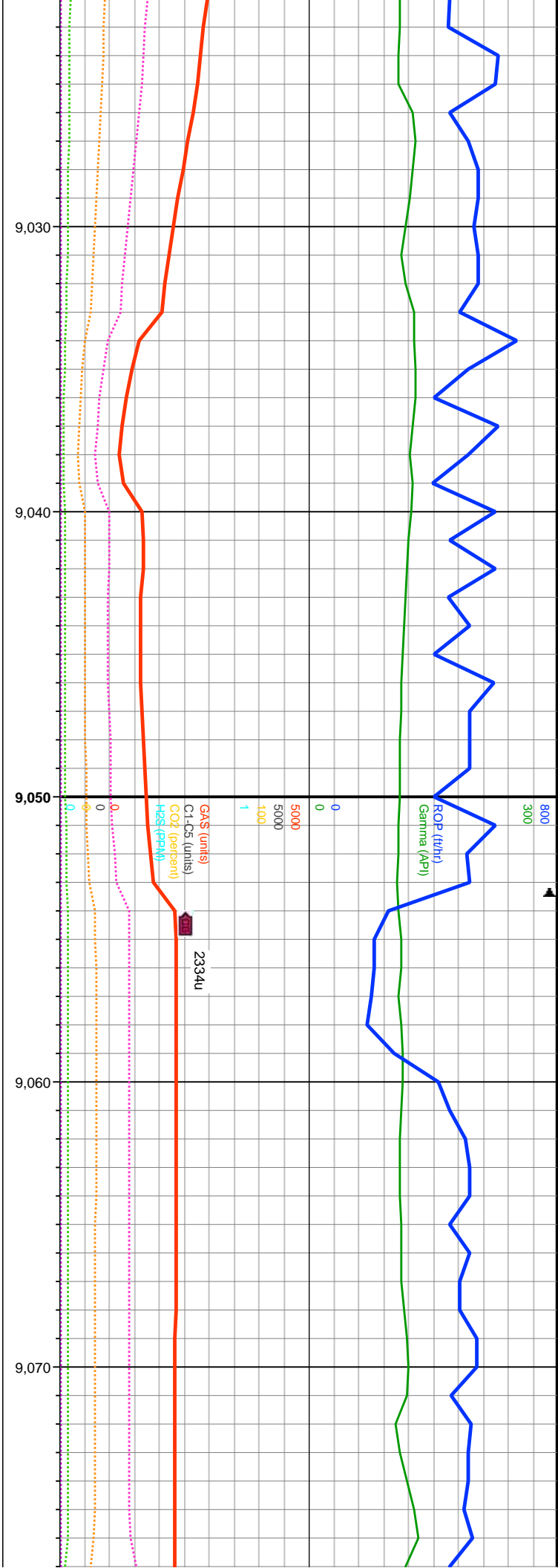


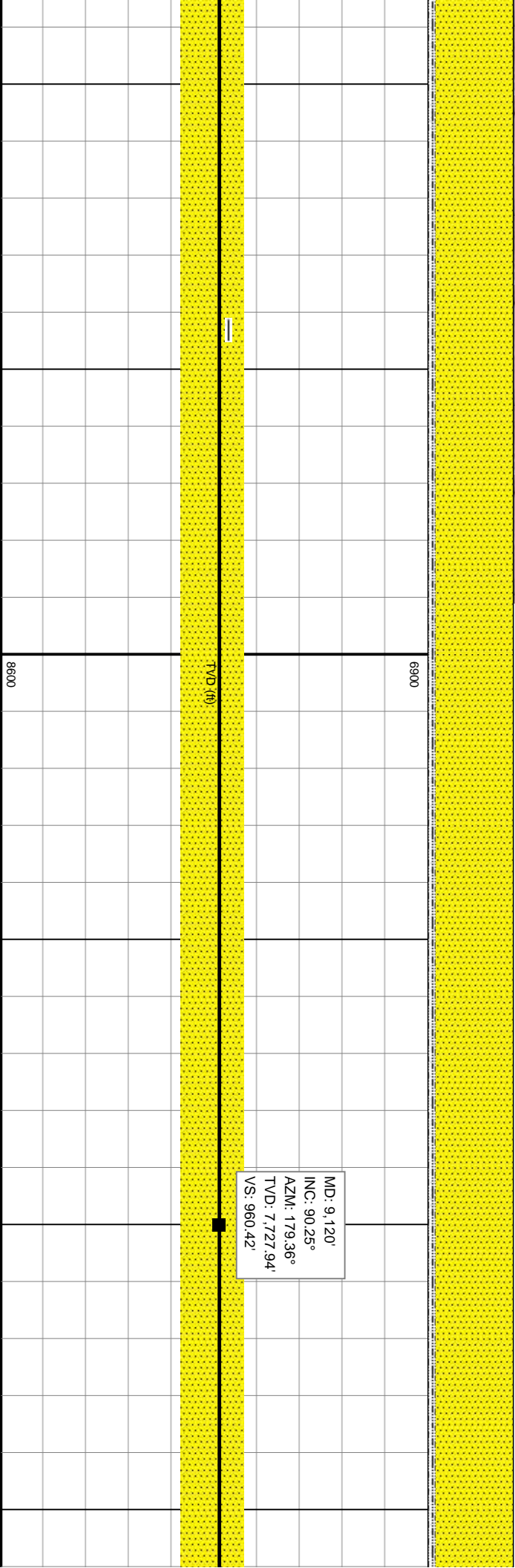
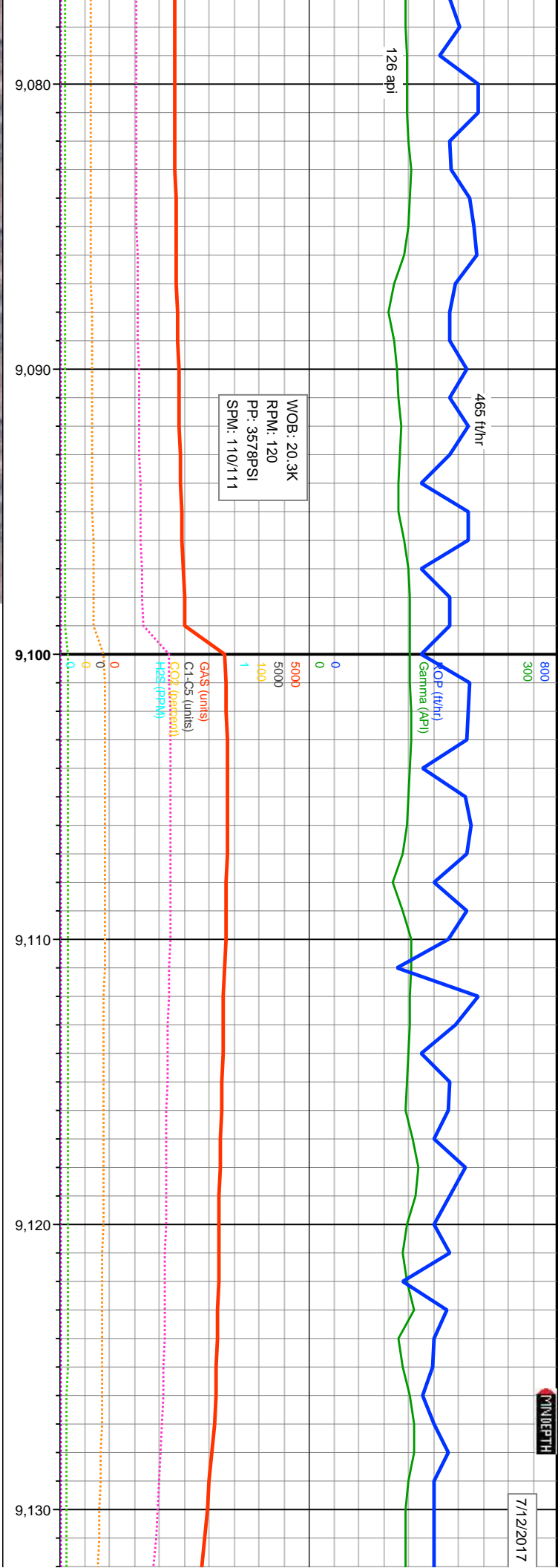


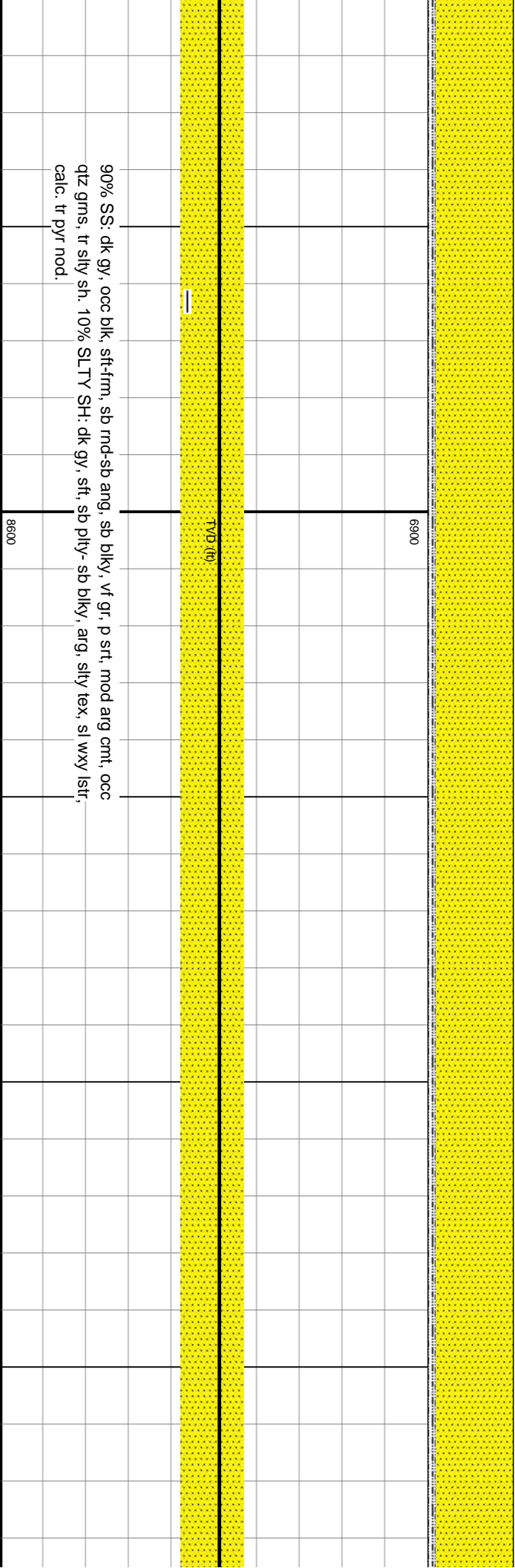
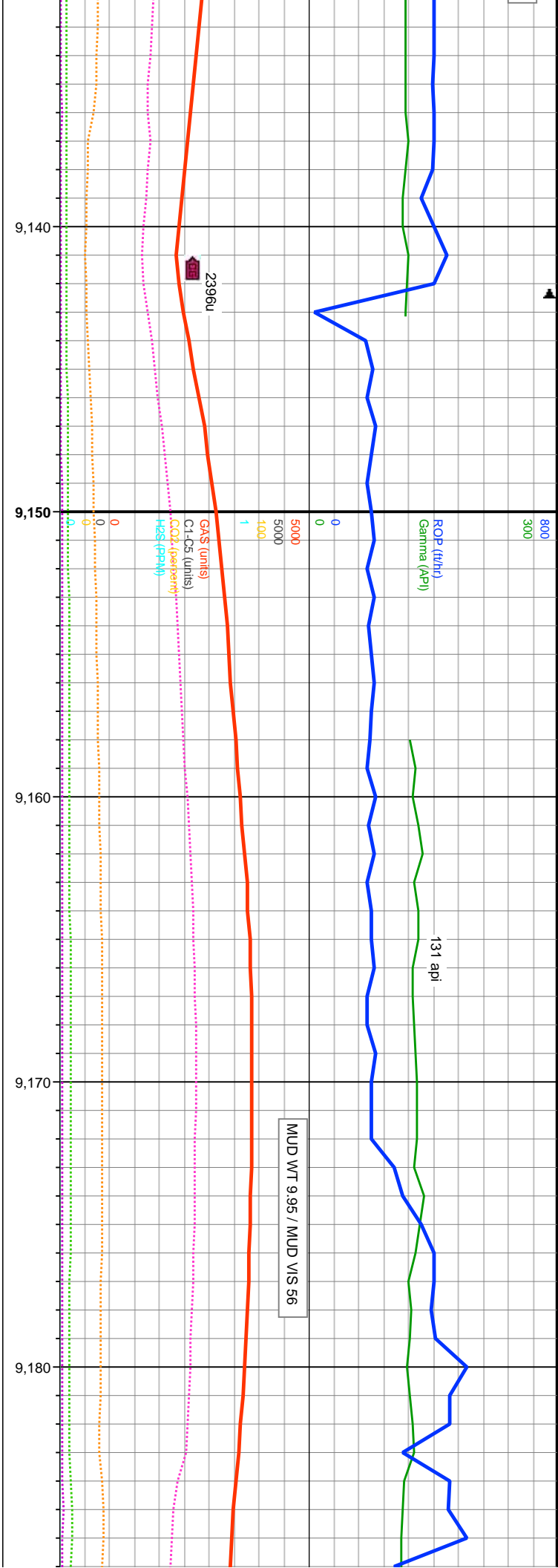


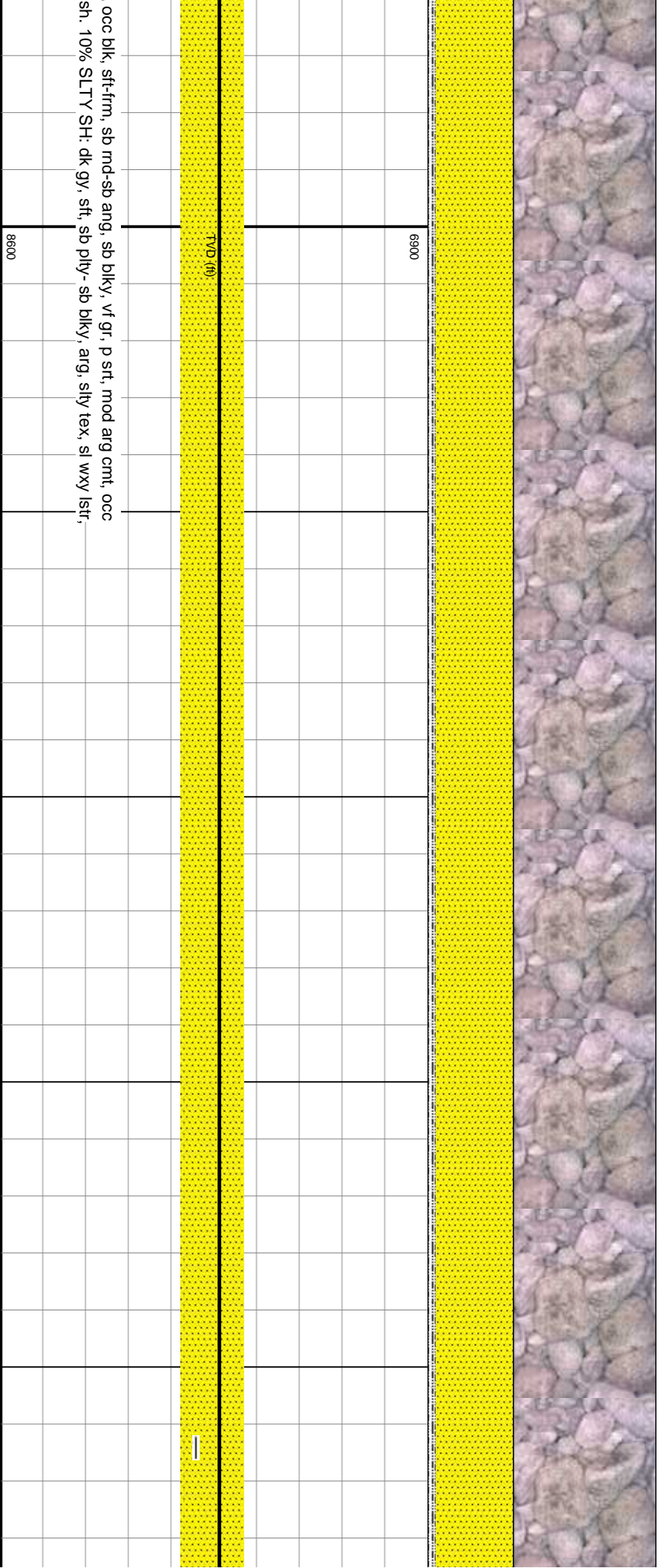
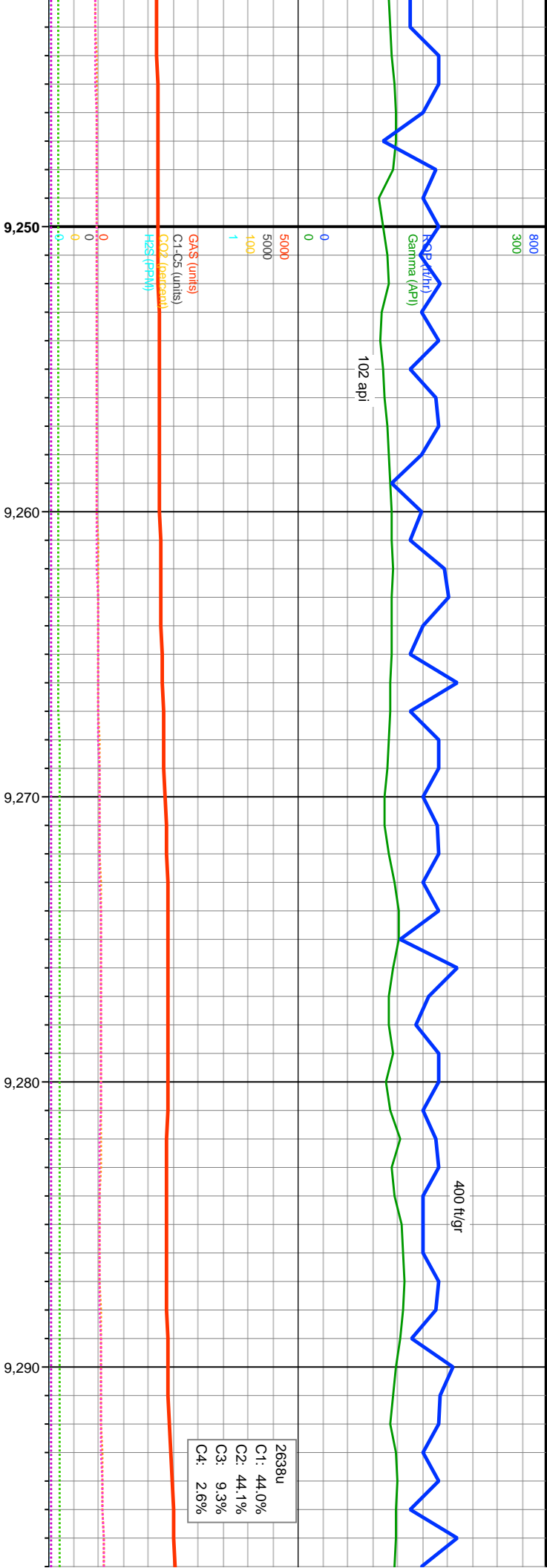




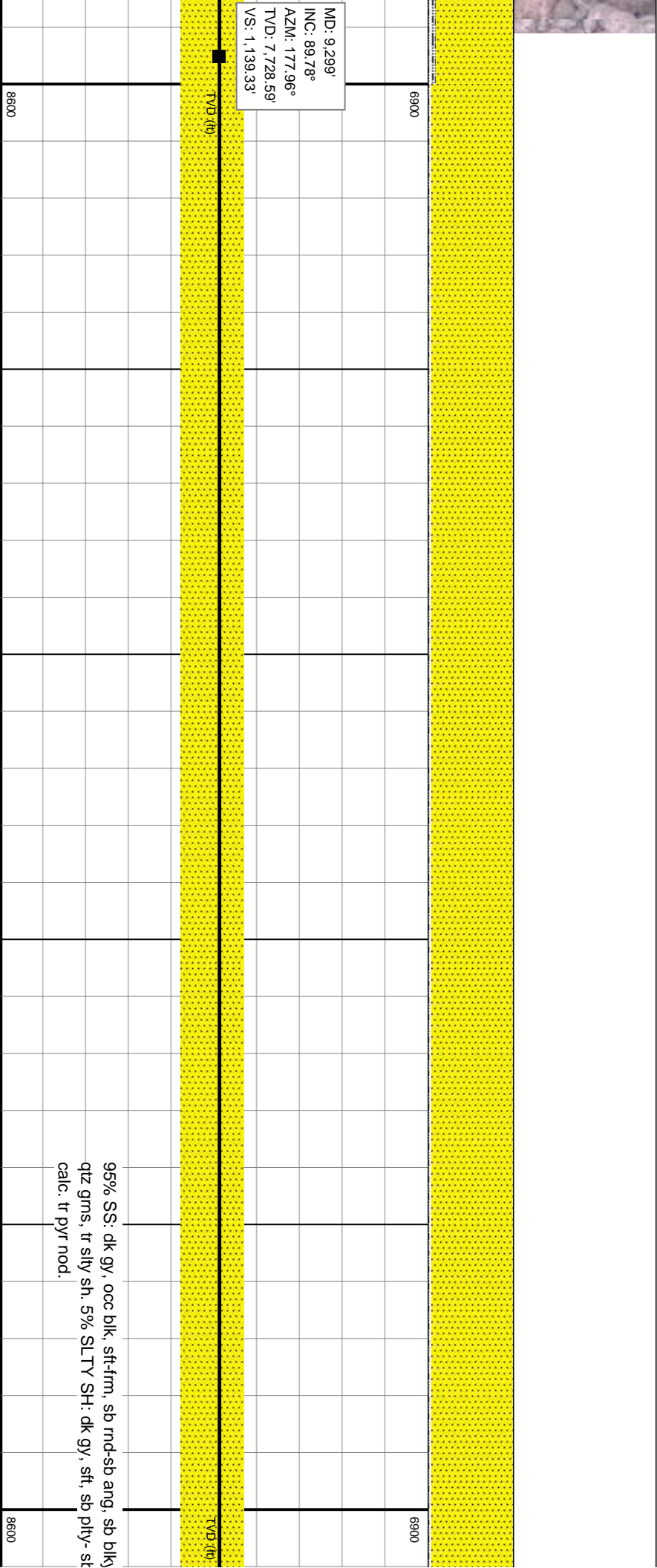
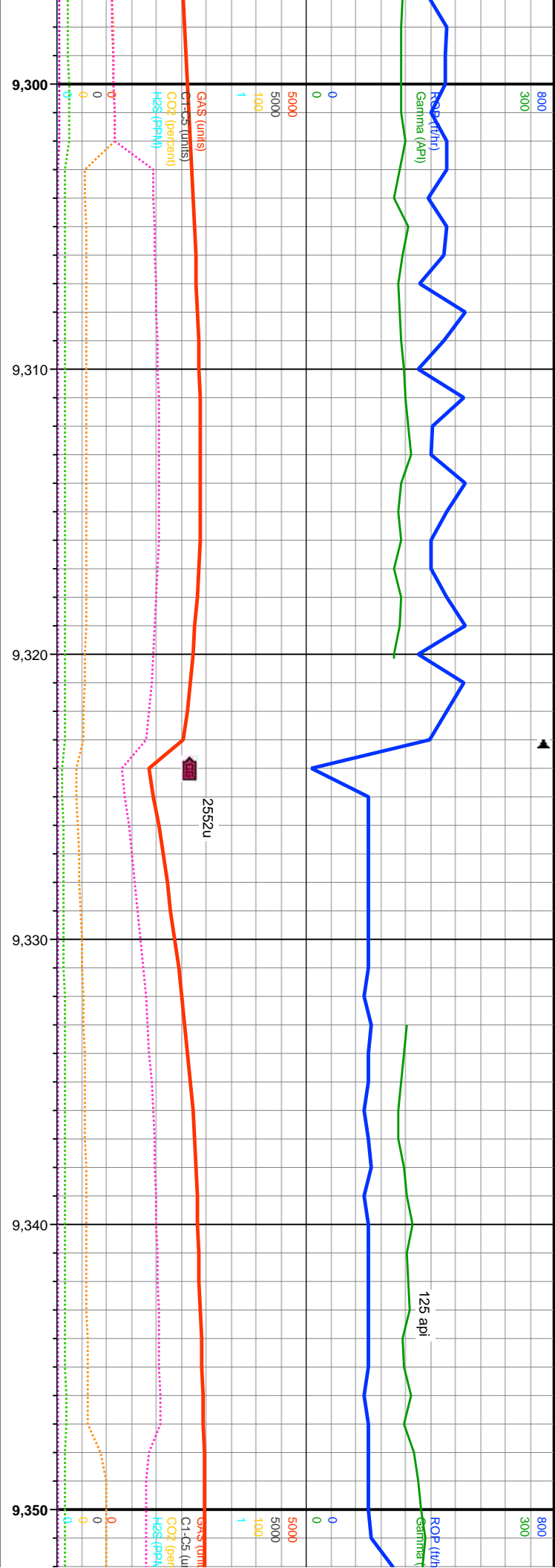


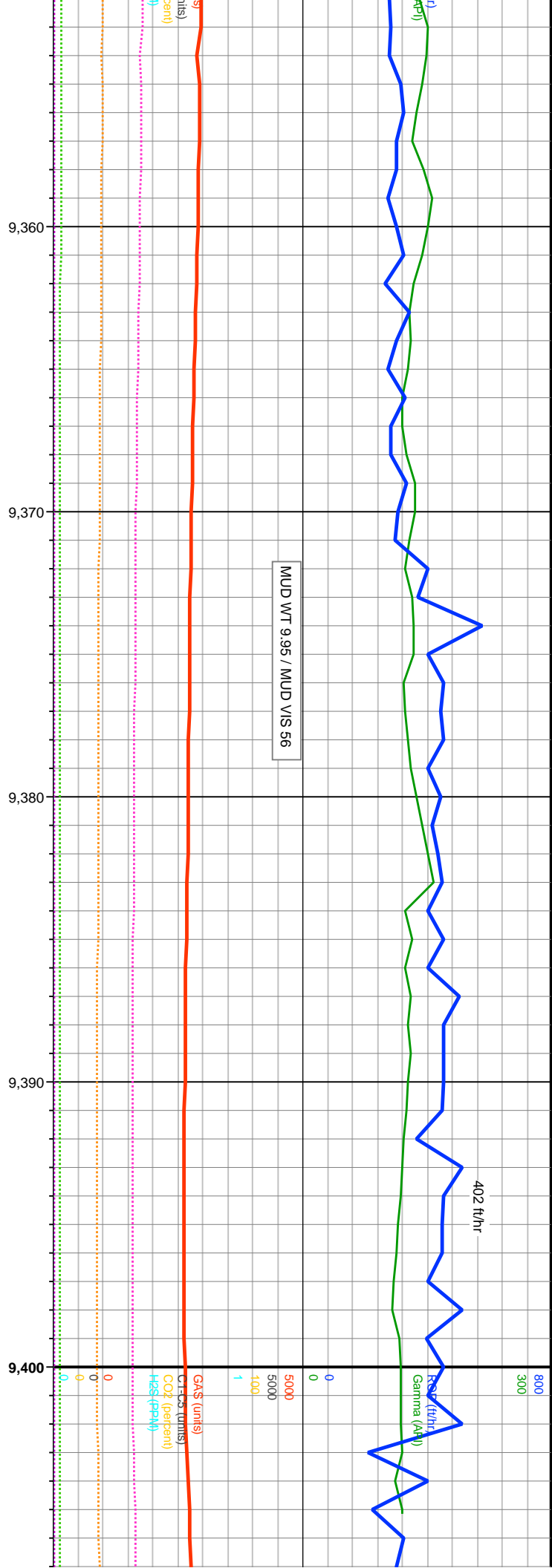




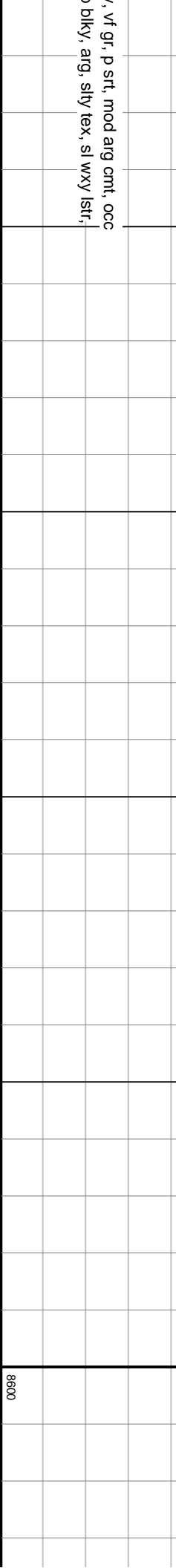
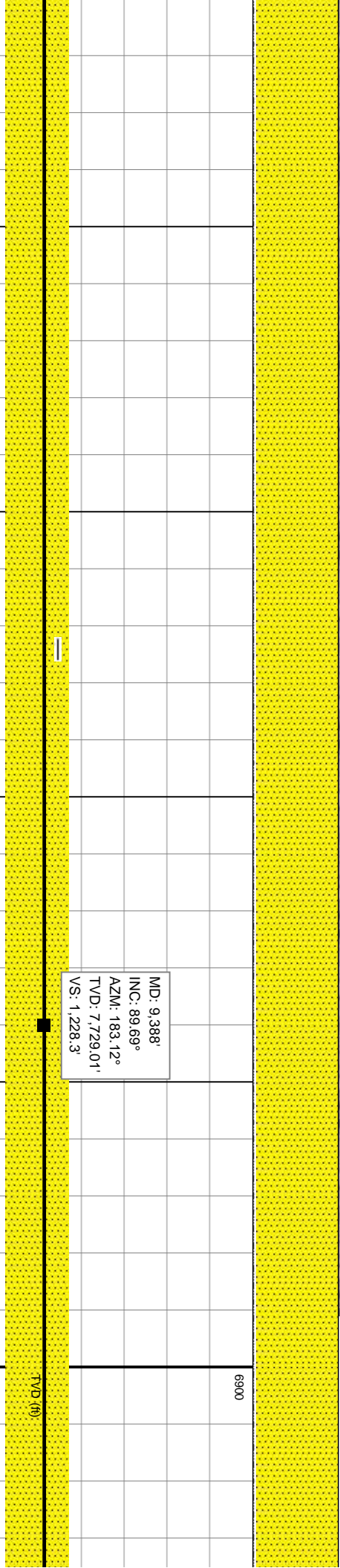


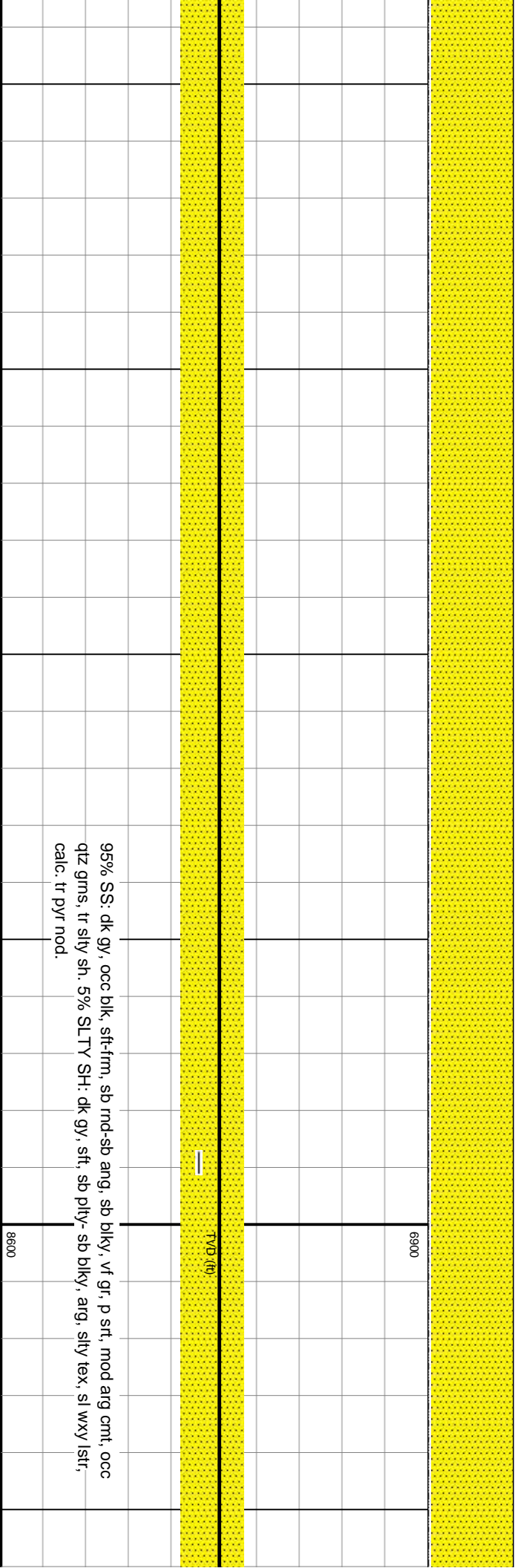
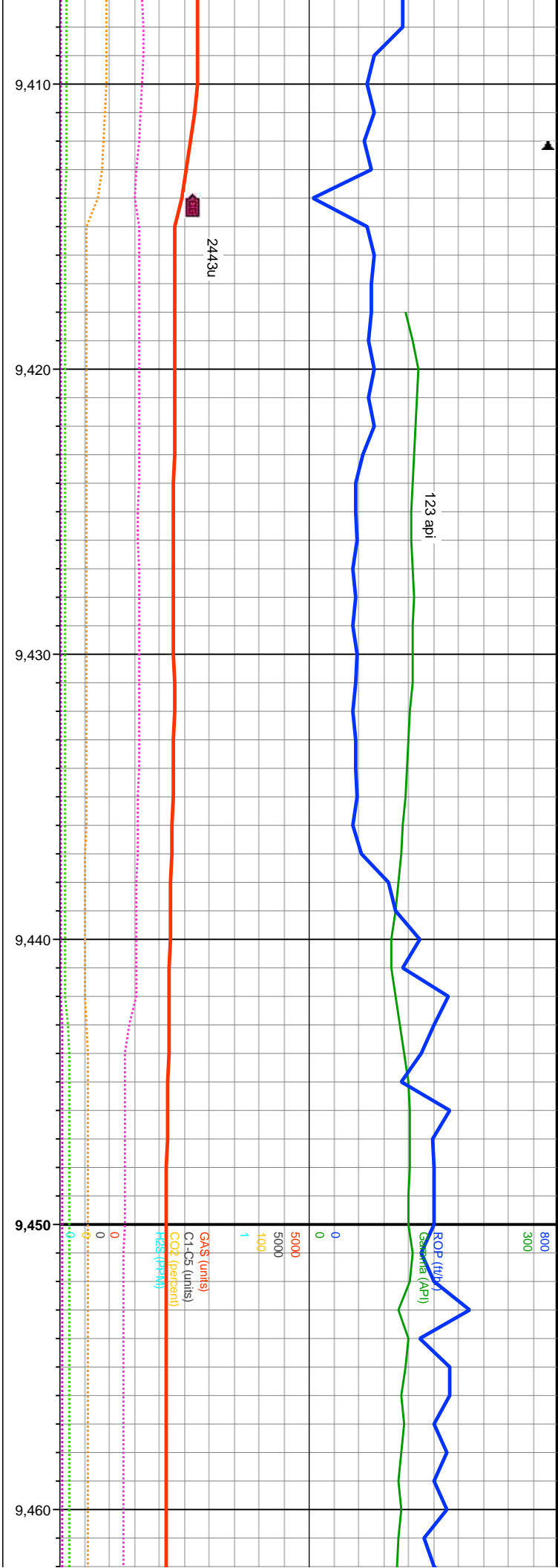
occ blk, sft-frn, sb md-sb ang, sb blk, vf gr, p srt, mod arg cnt, occ
sh. 10% SLTY SH: dk gy, sft, sb ply- sb blk, arg, sily tex, sl wxy istr,

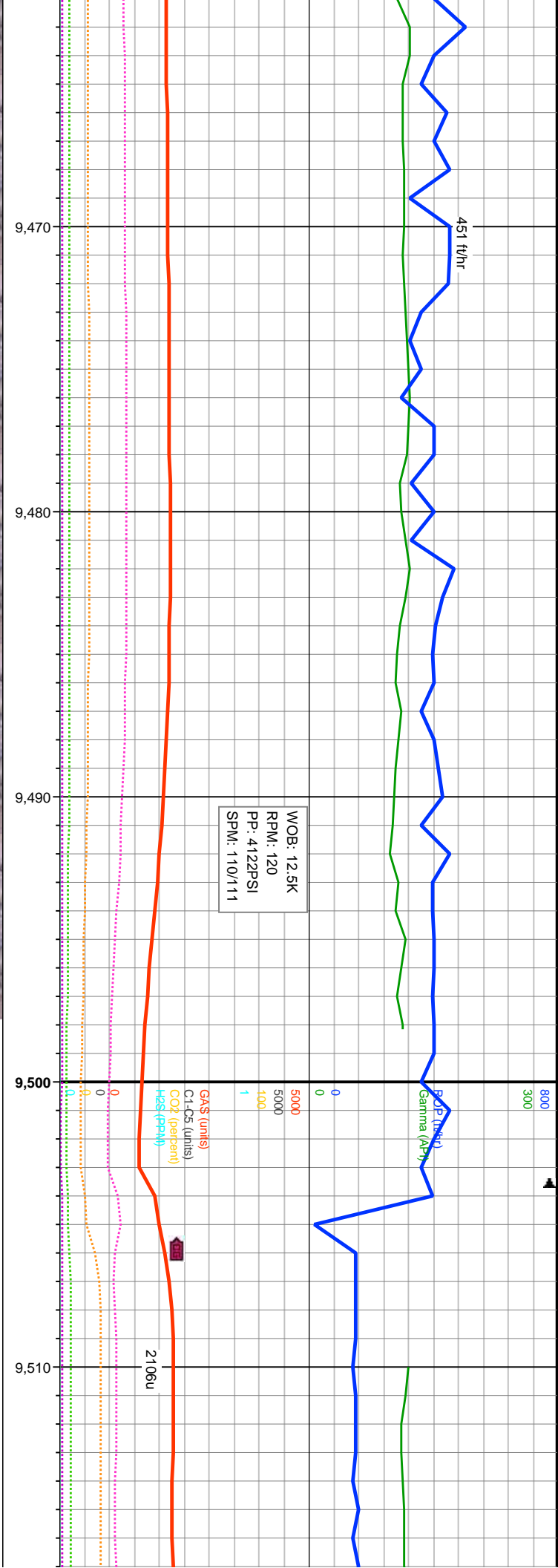




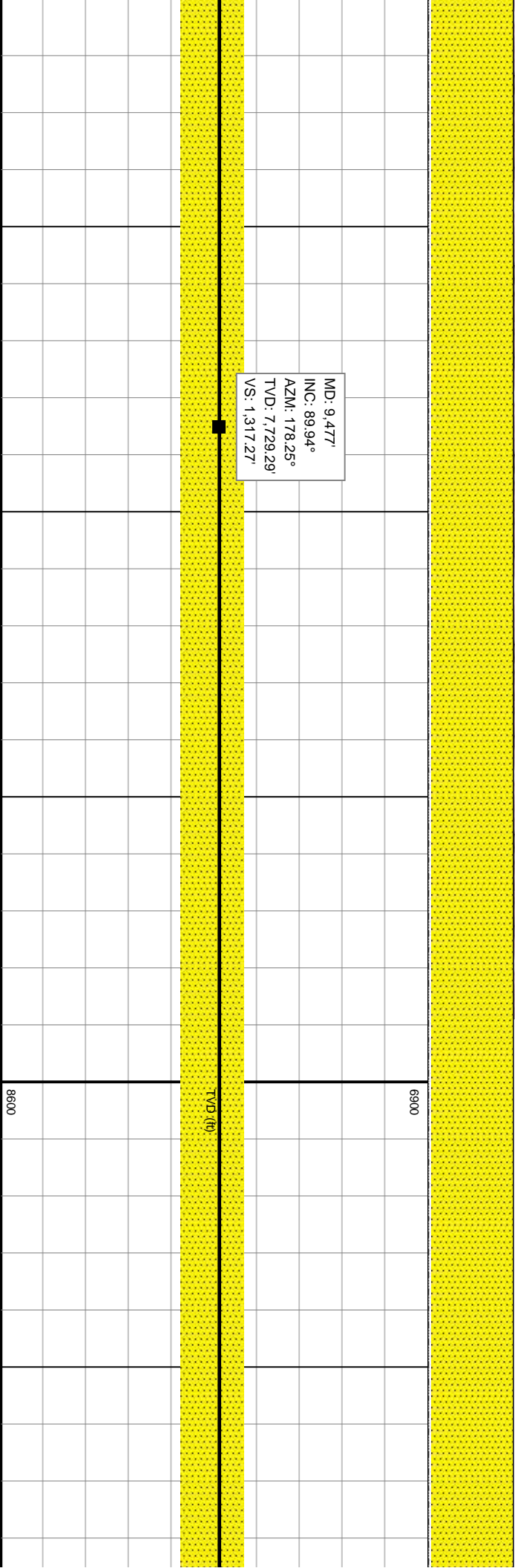
MD: 9,388'
INC: 89.69°
AZM: 183.12°
TVD: 7,729.01'
VS: 1,228.3'

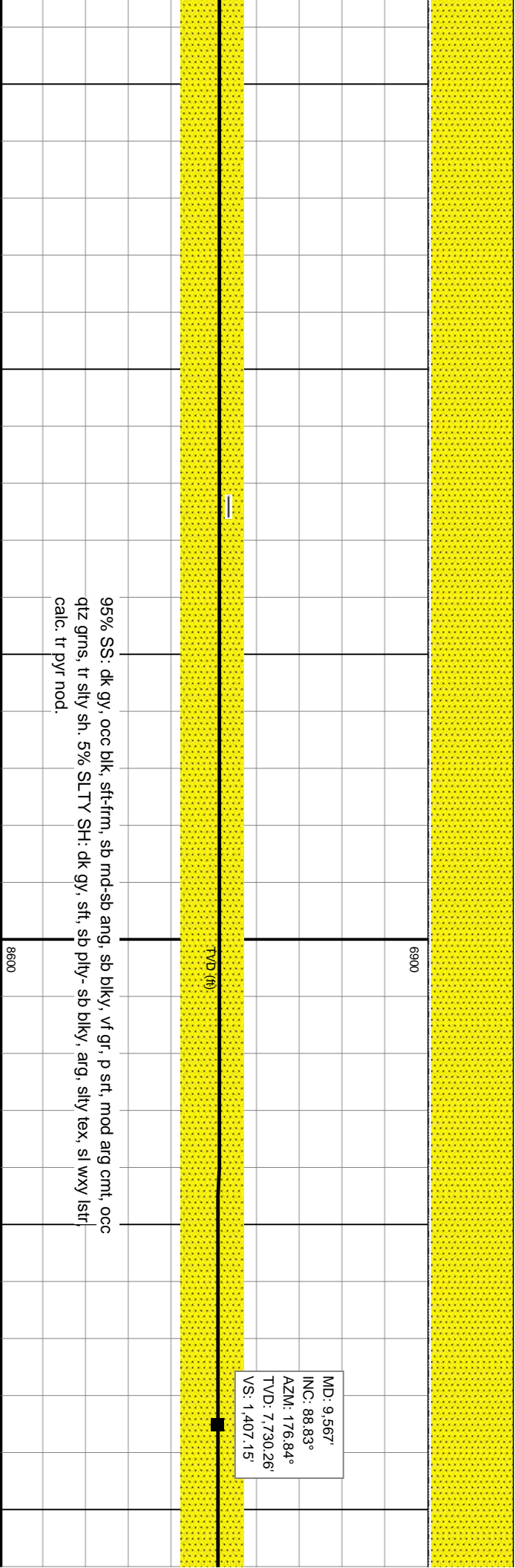
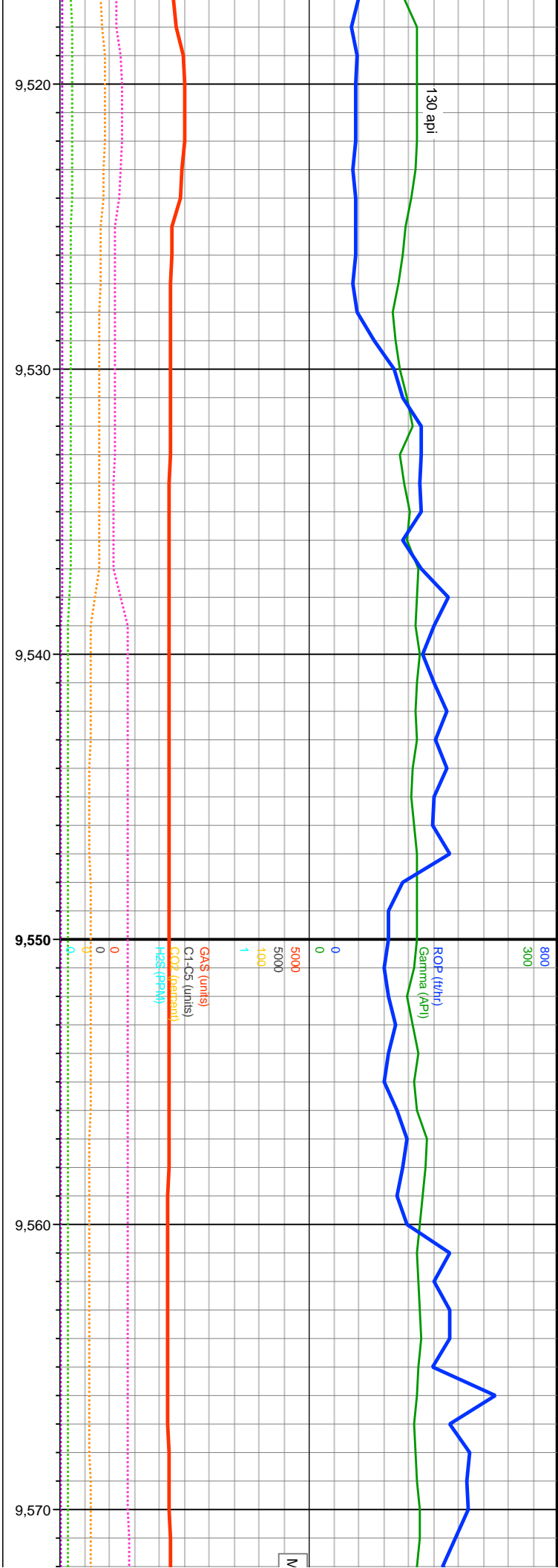


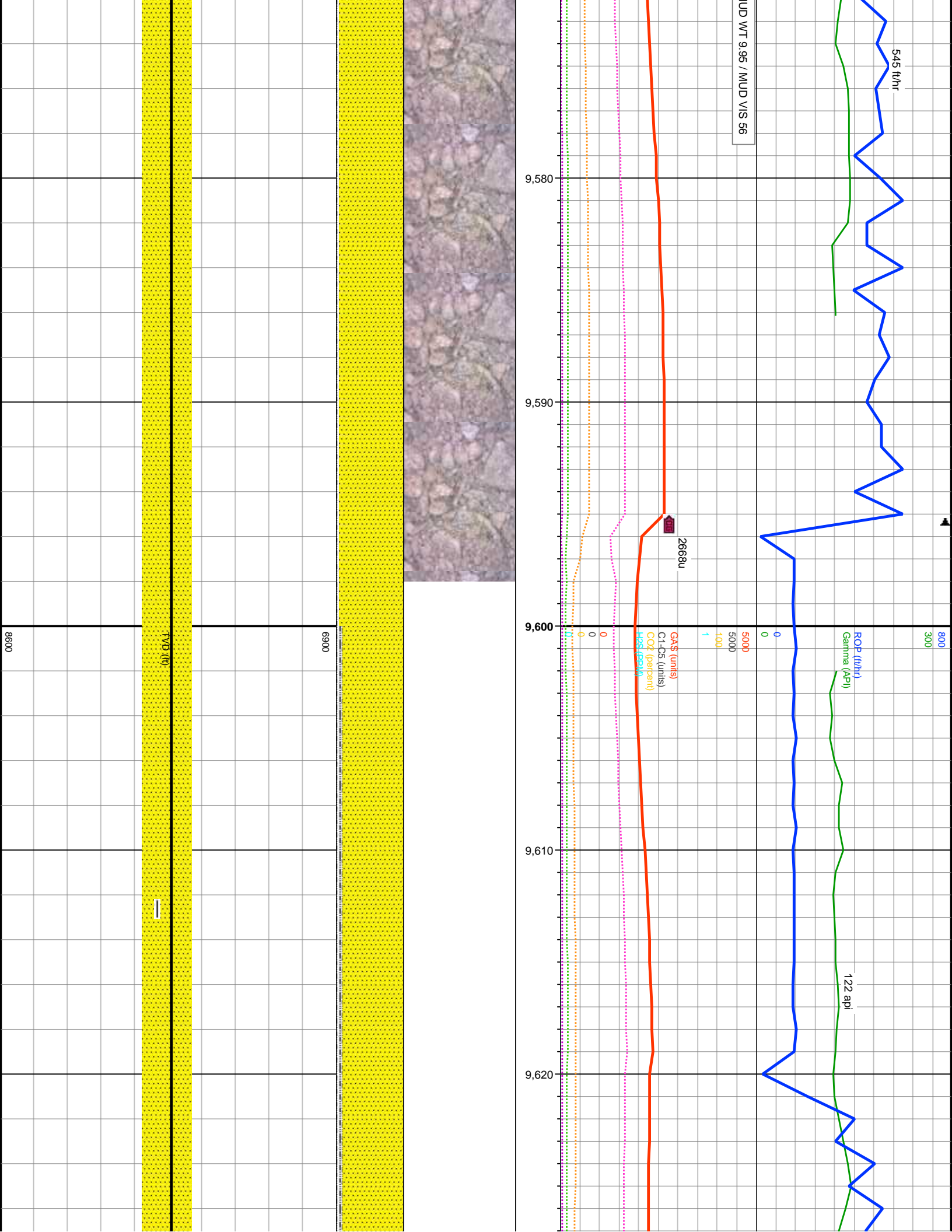


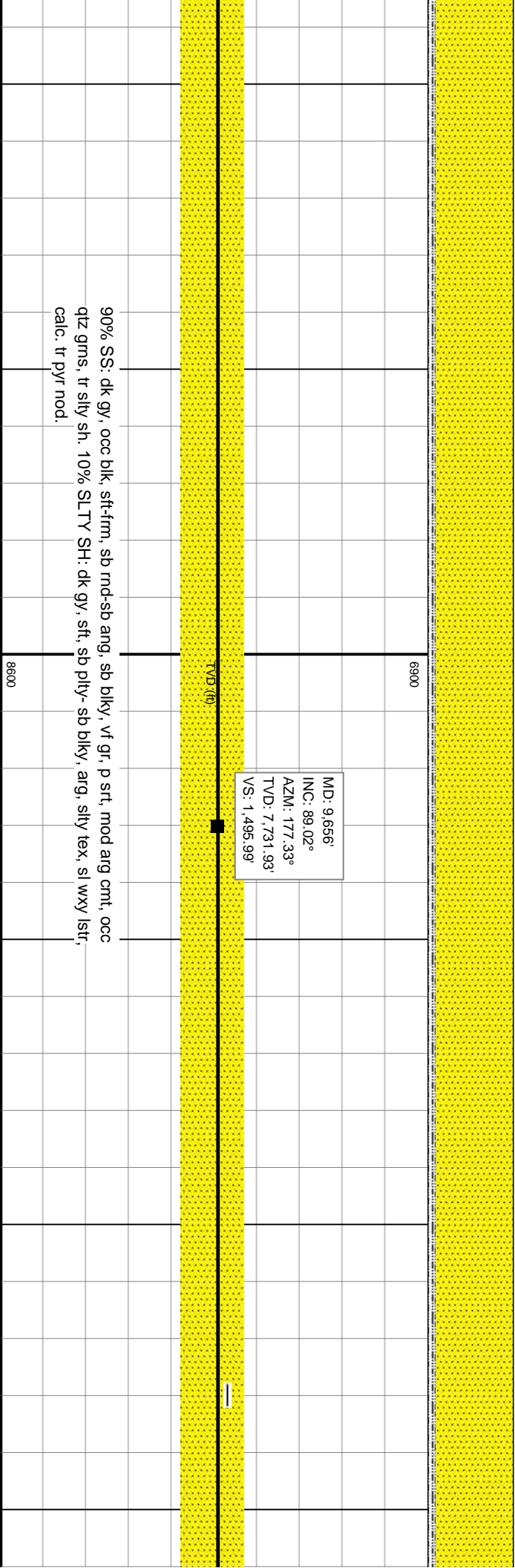
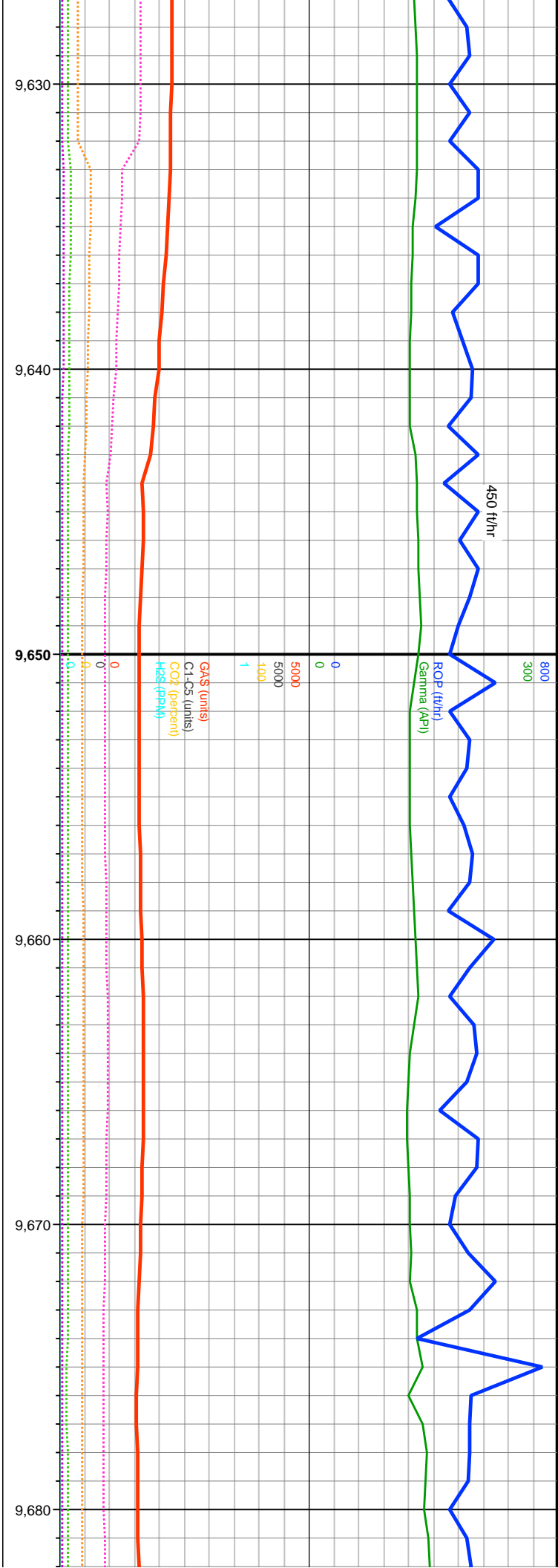


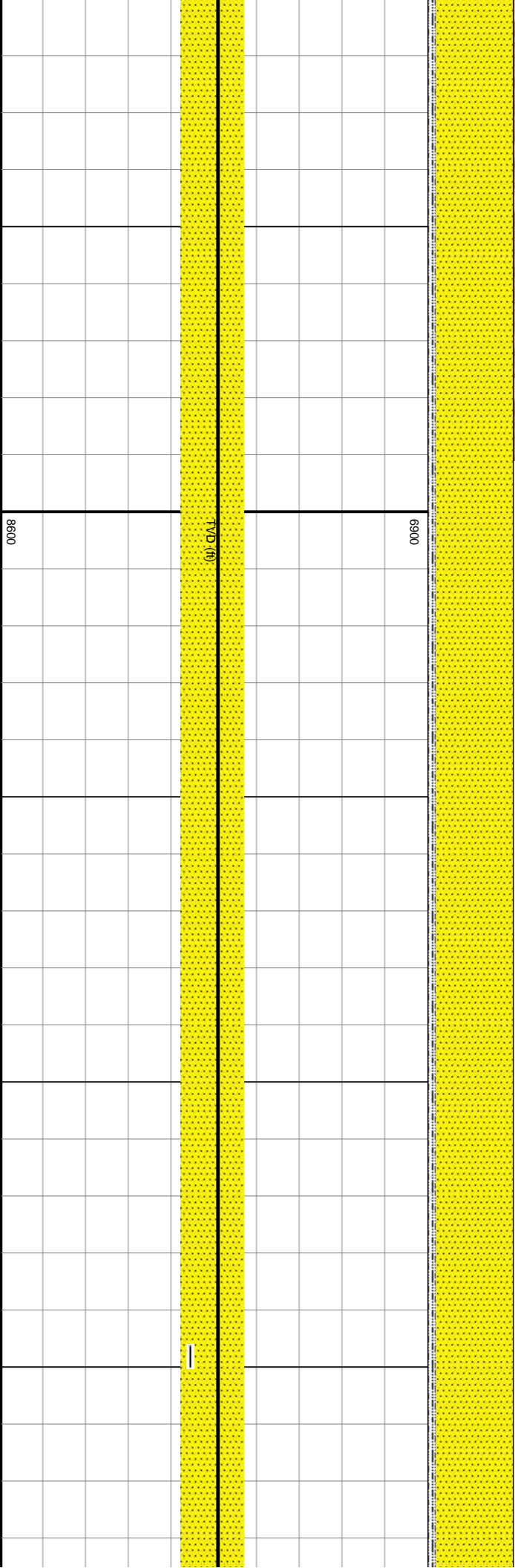
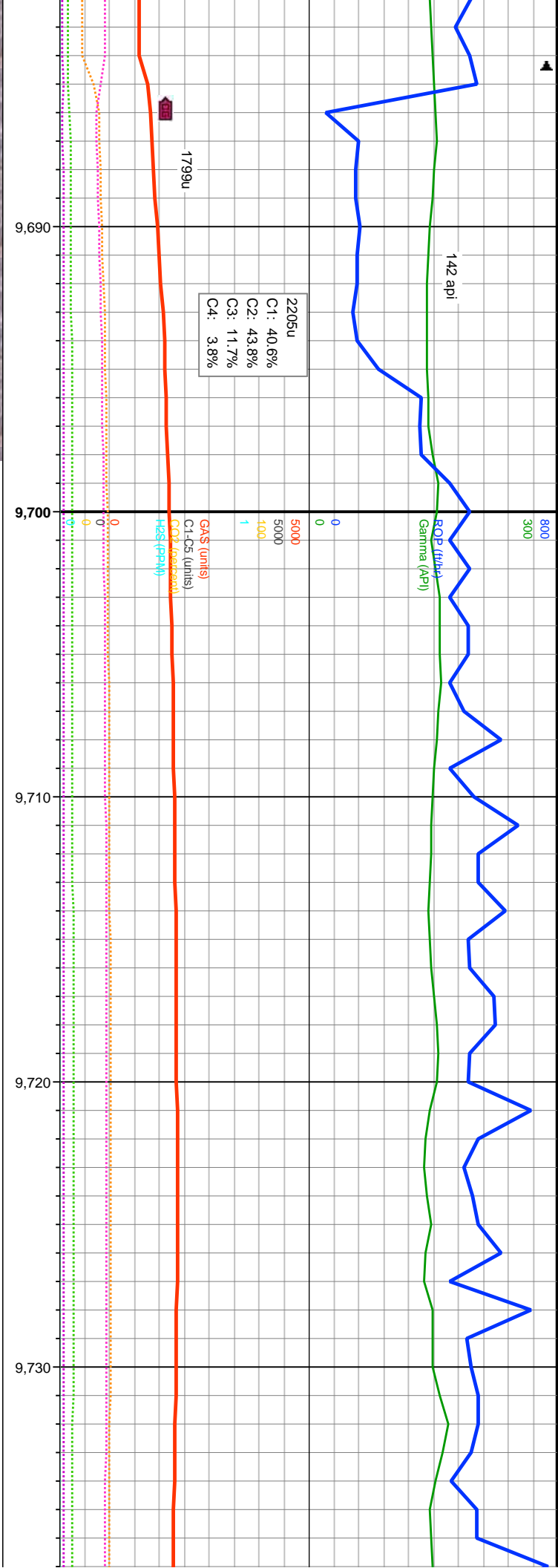
MD: 9.477'
INC: 89.94°
AZM: 178.25°
TVD: 7.729.29'
VS: 1.317.27'

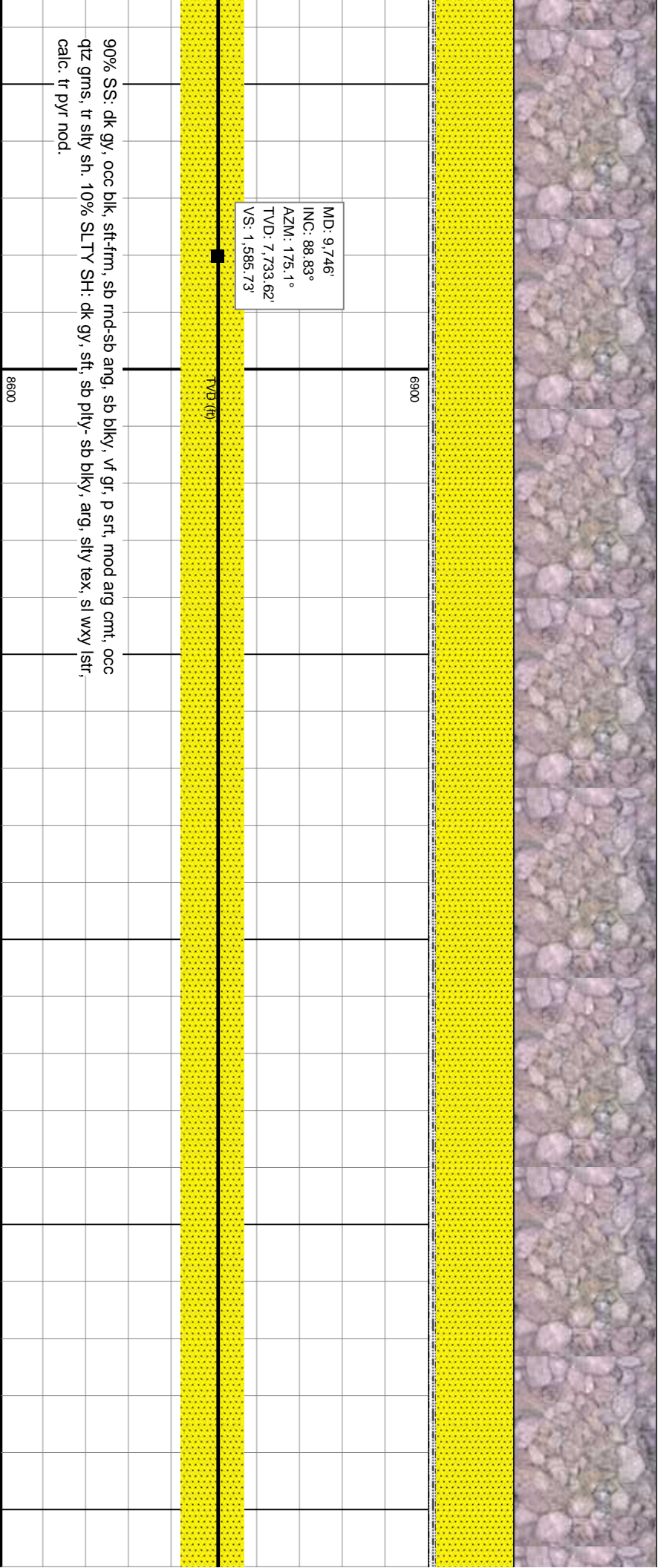
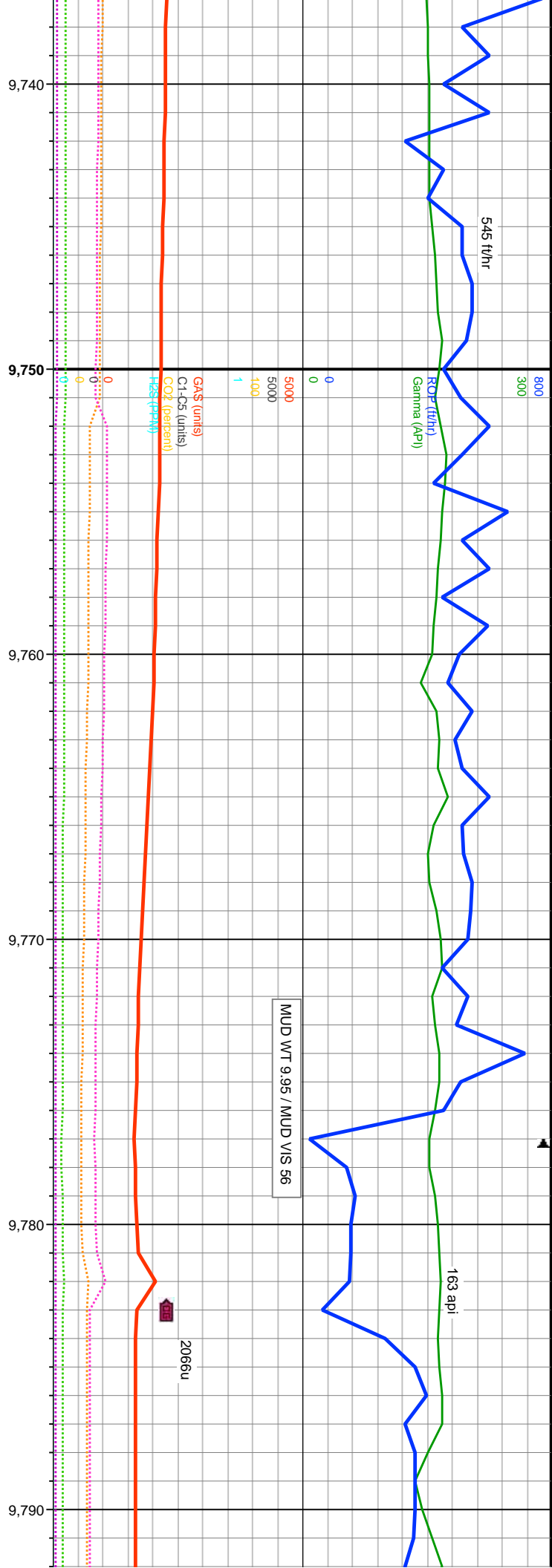


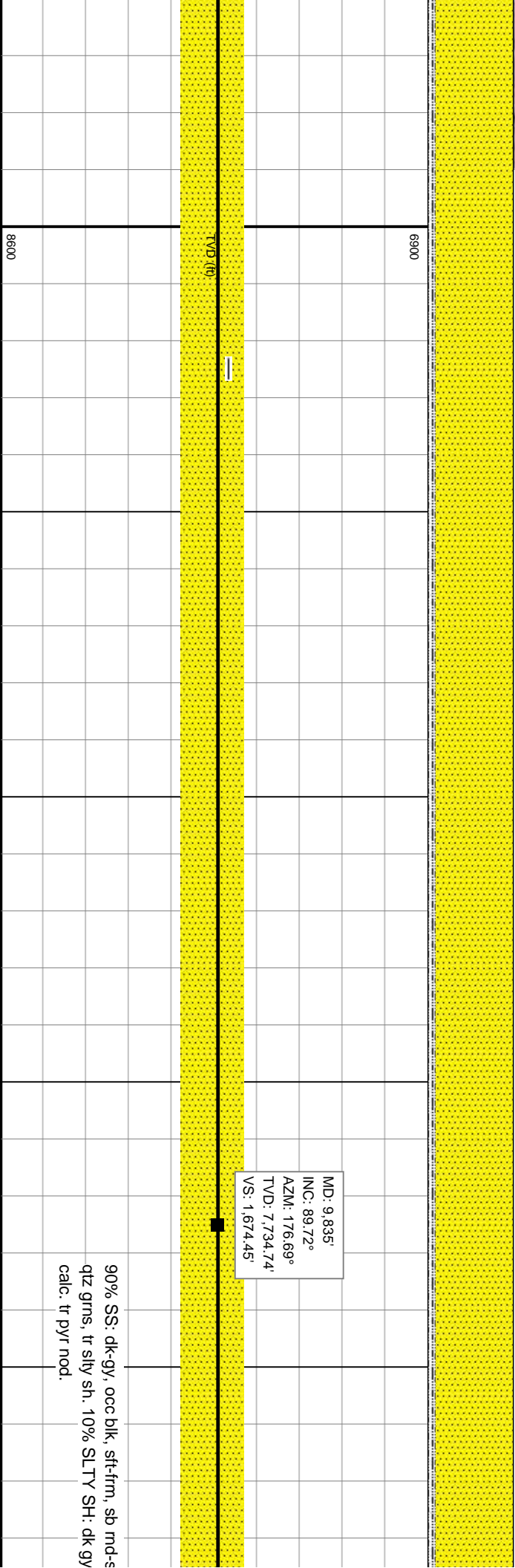
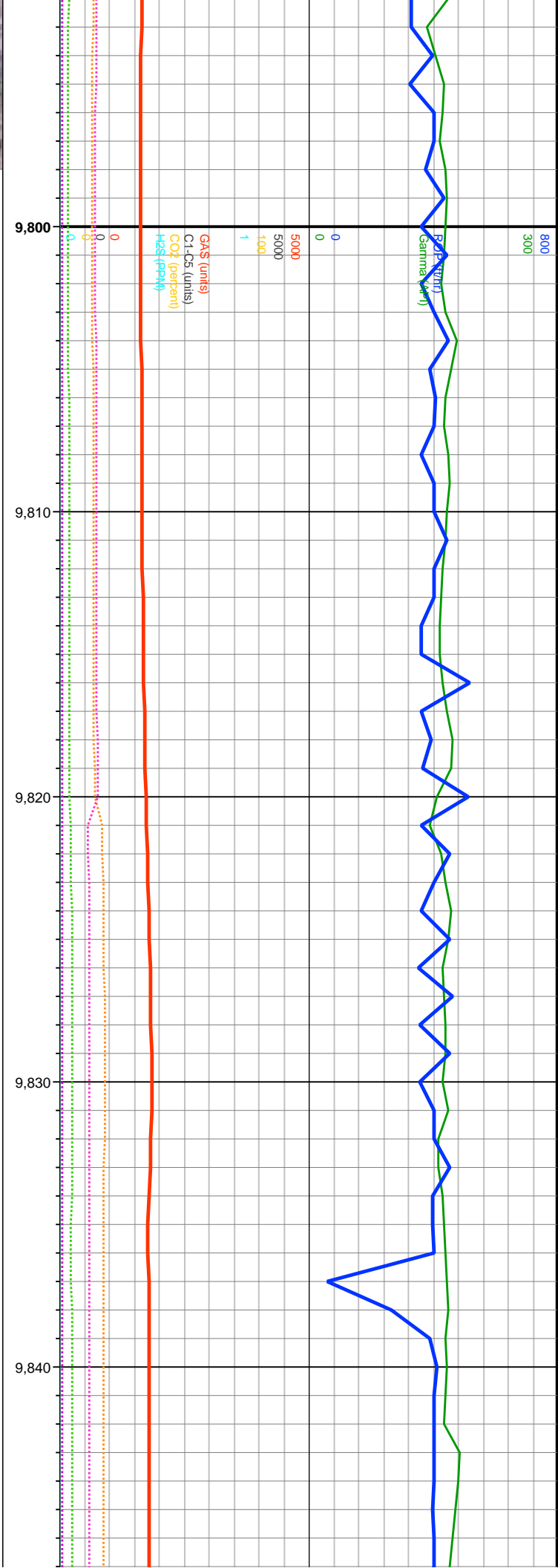


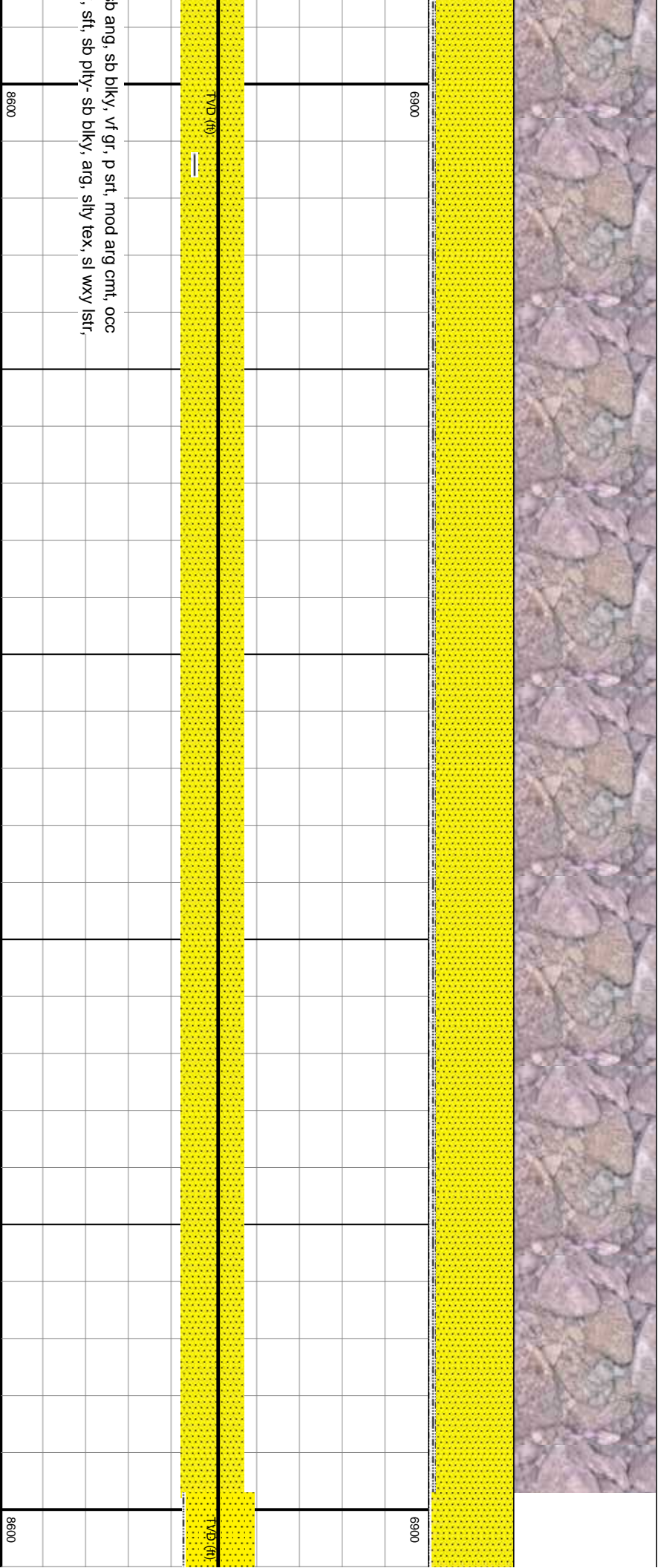
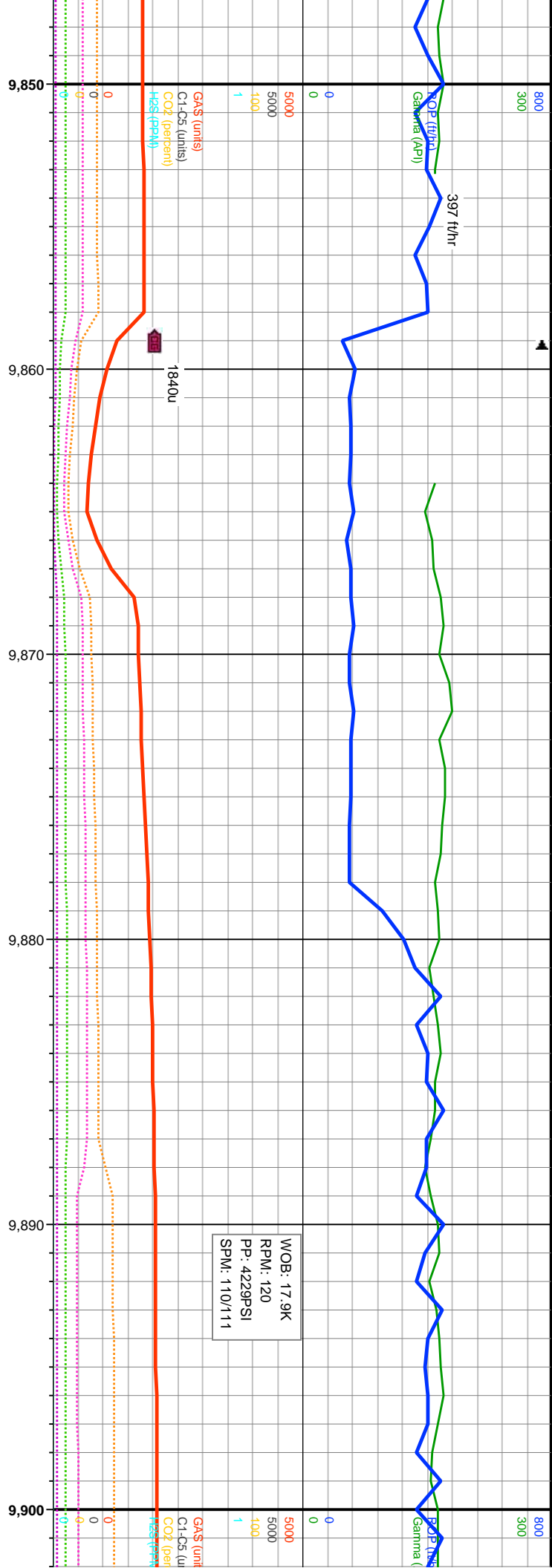


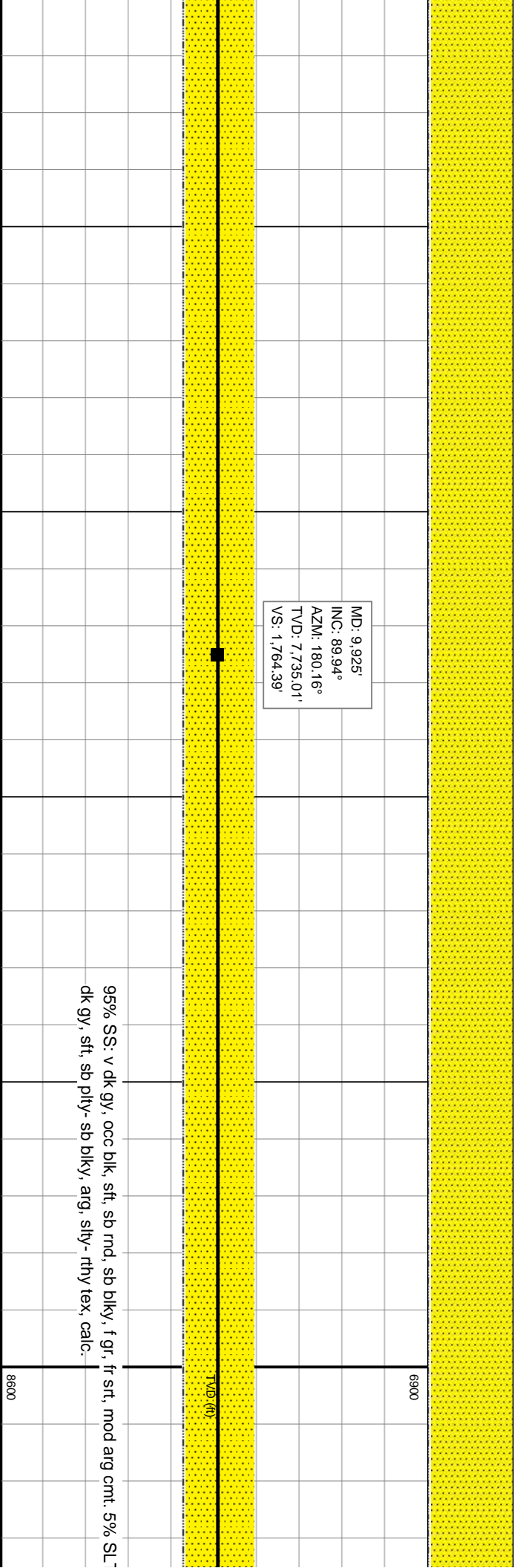
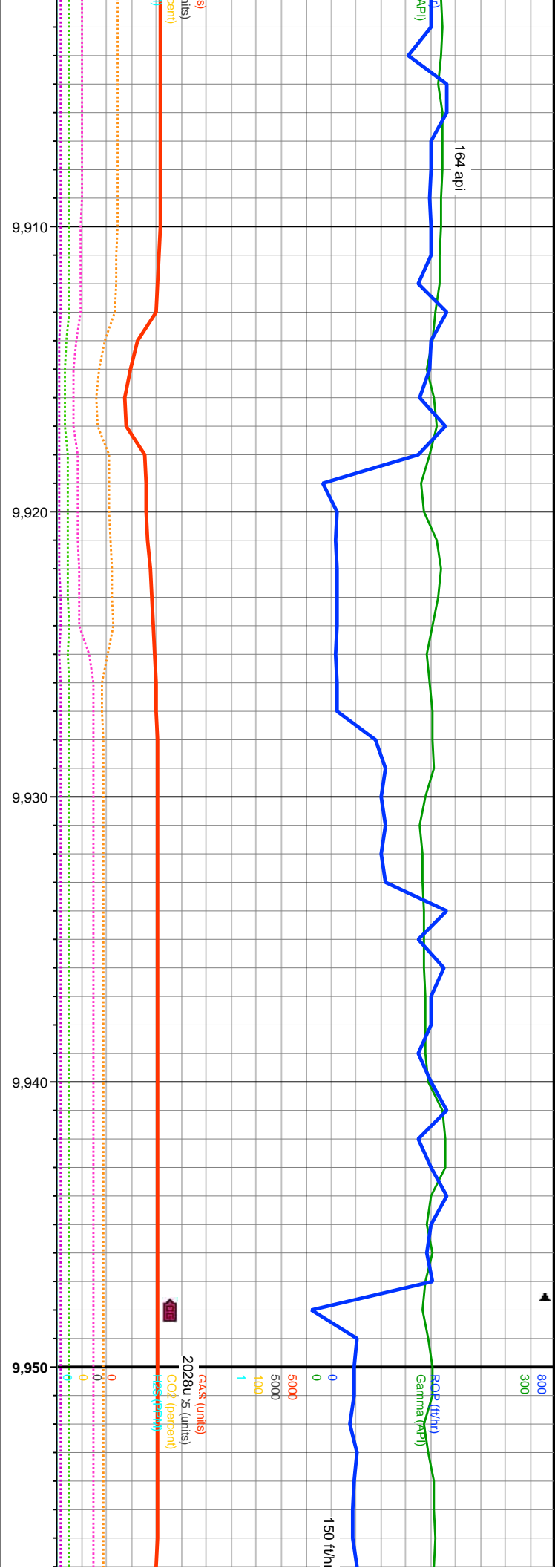


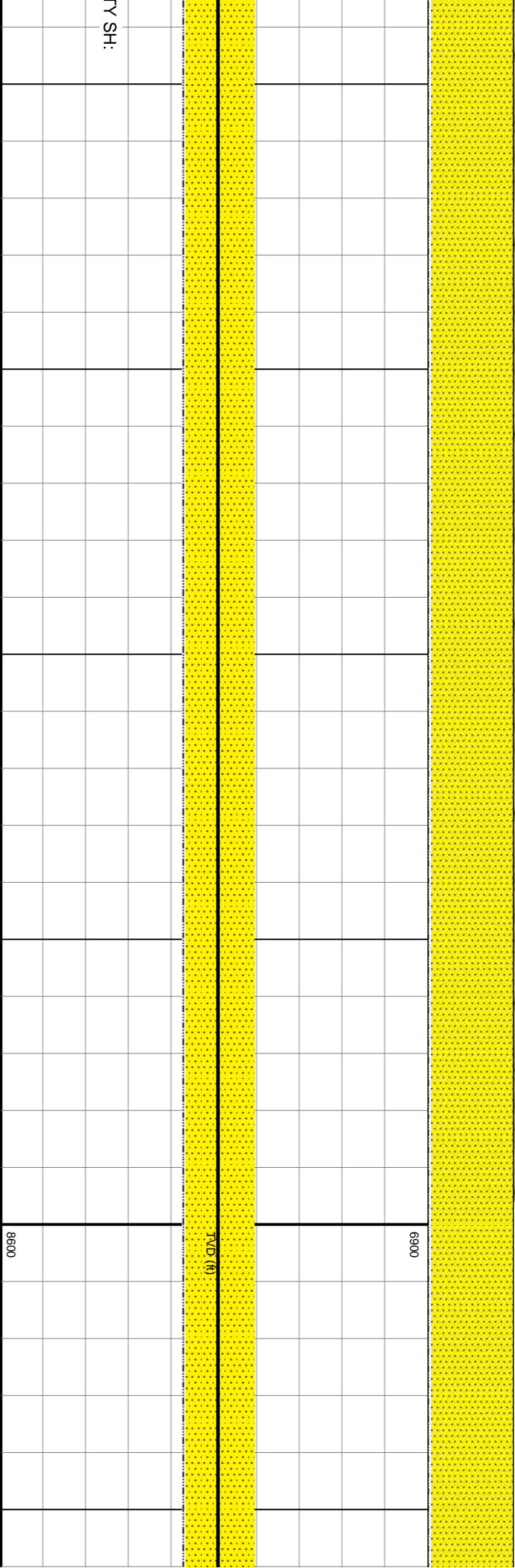
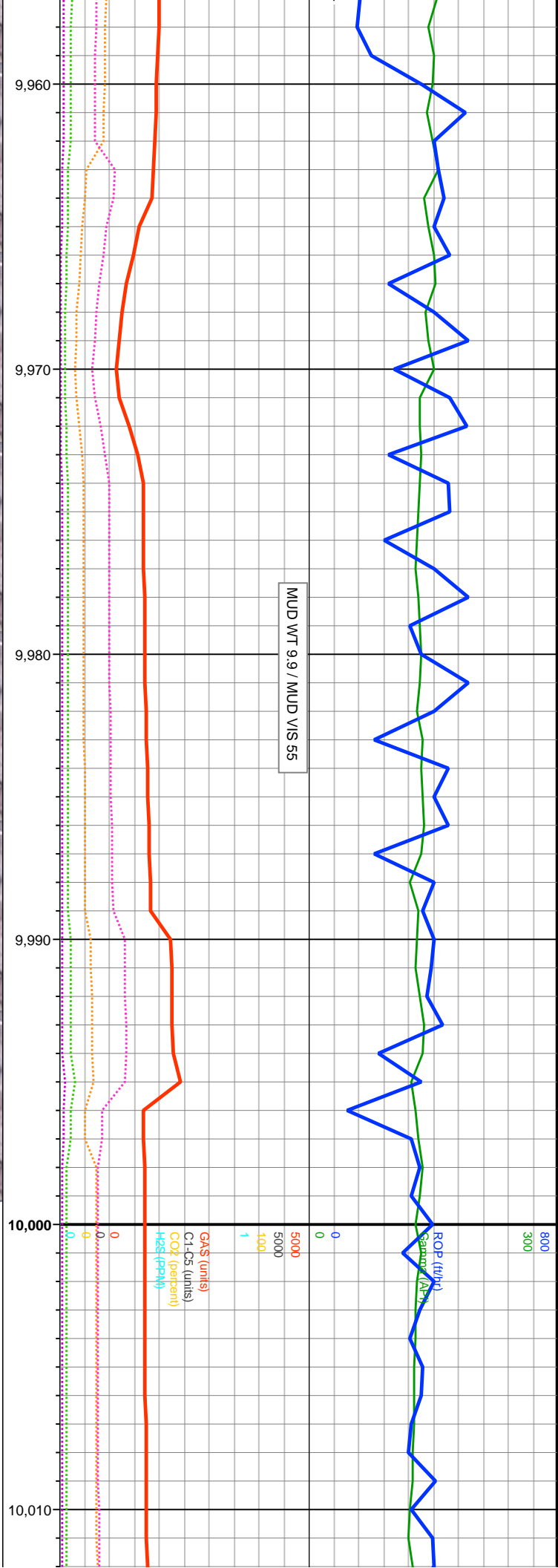










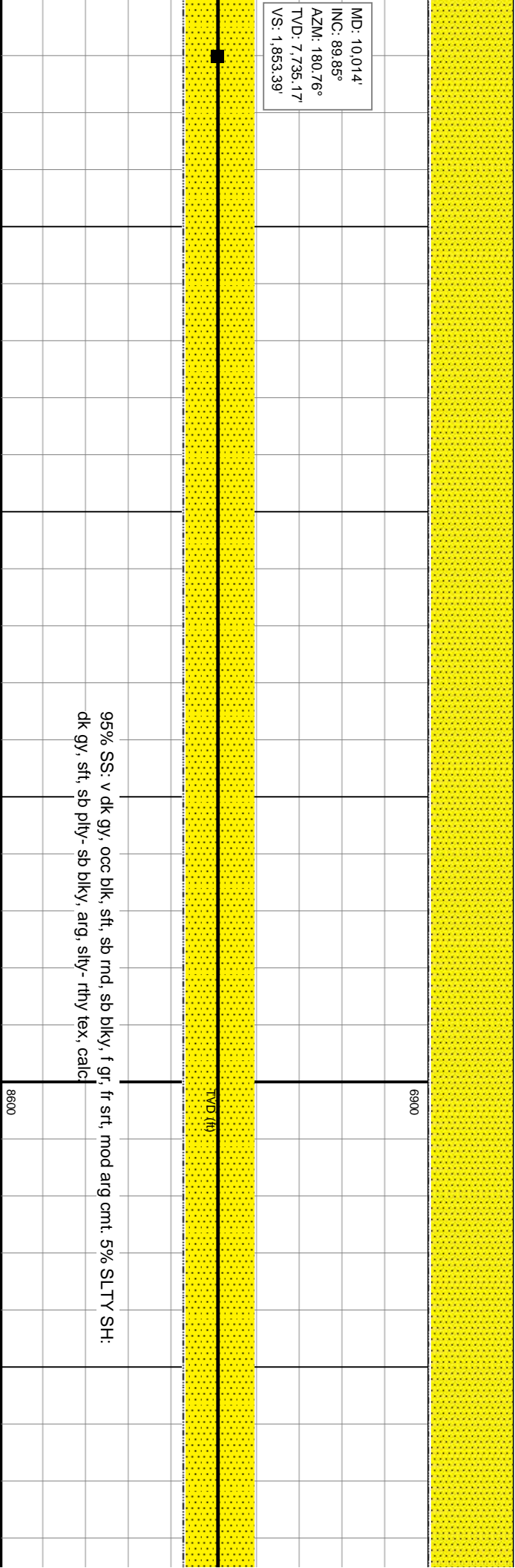


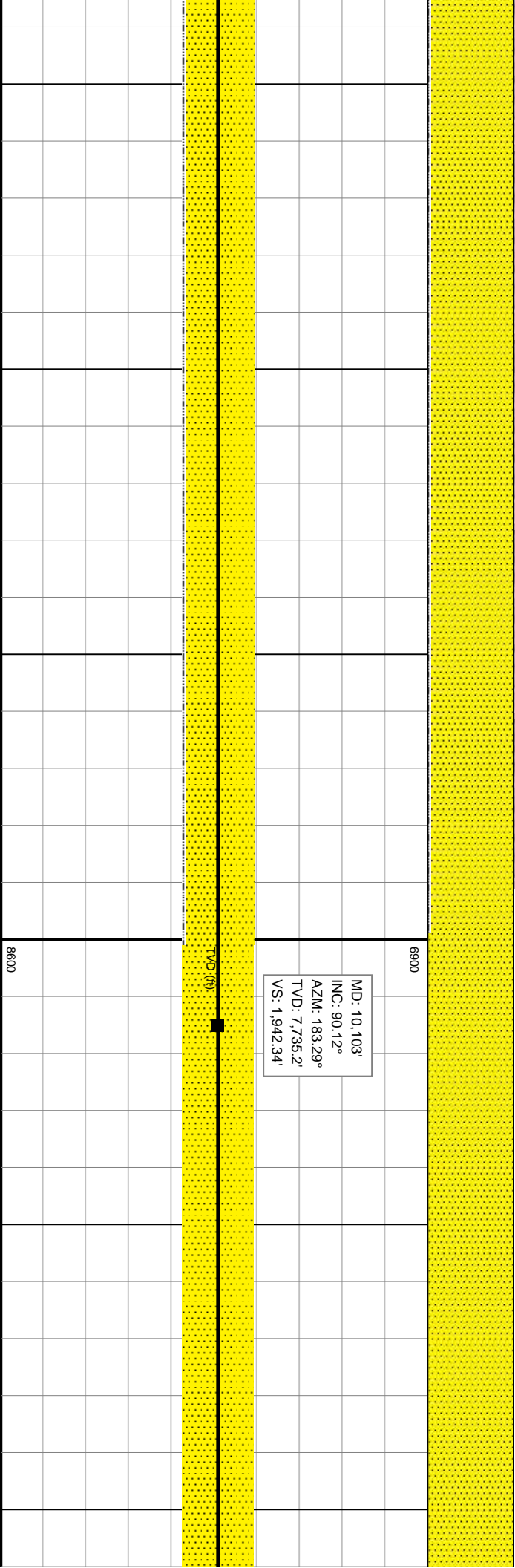
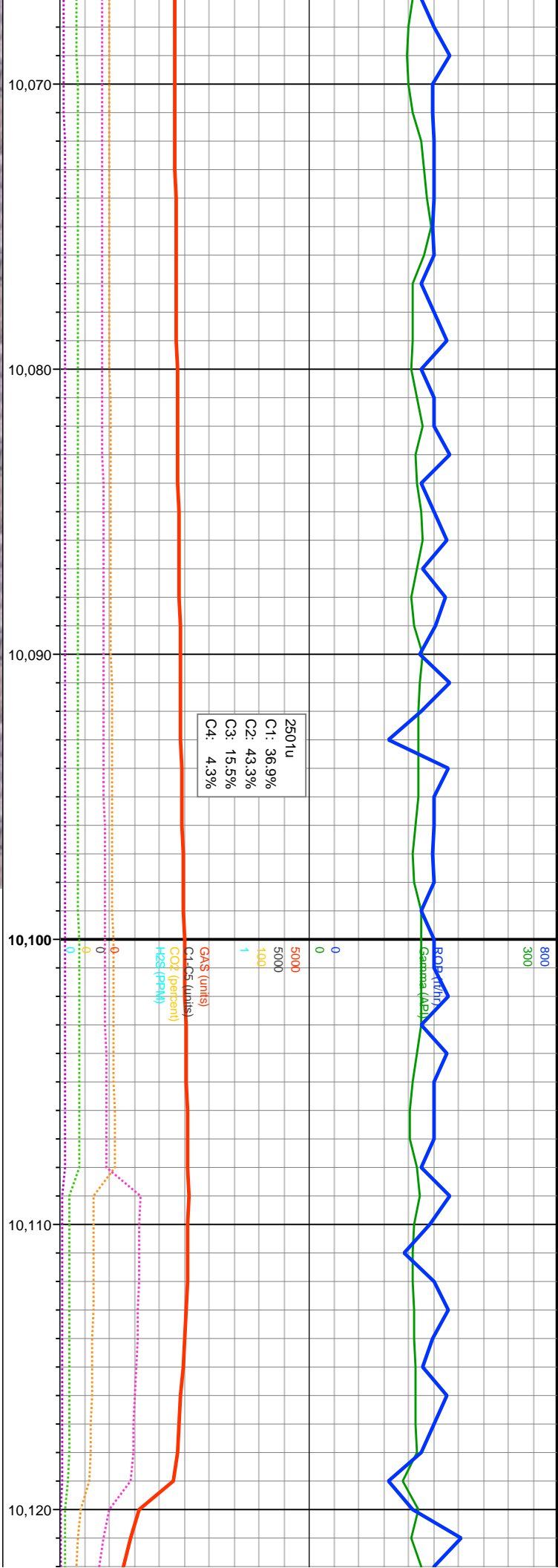
Y SH:

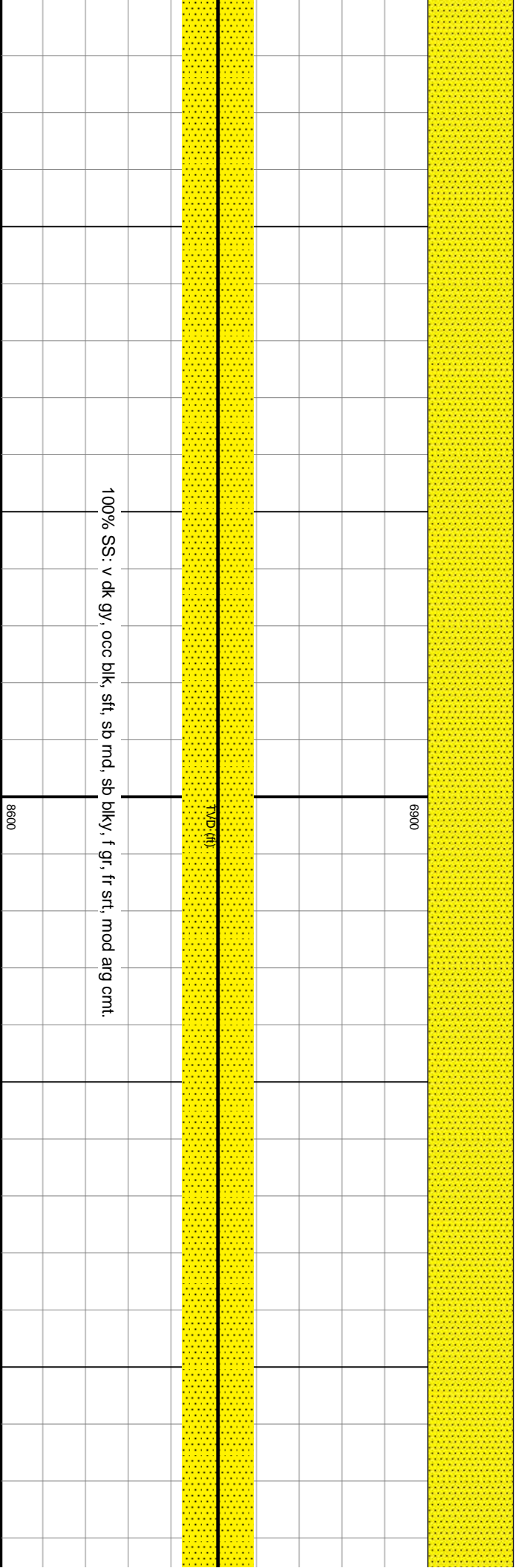
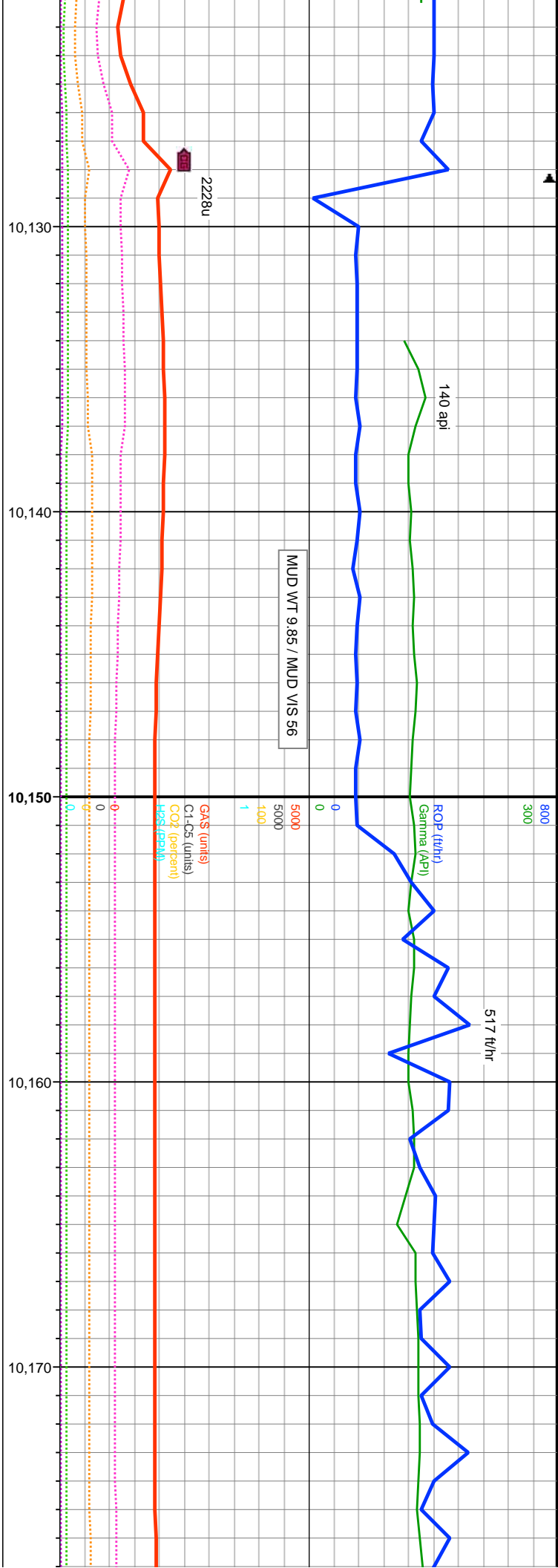
800
300
0
5000
5000
100
1
GAS (units)
C1-C5 (units)
CO2 (percent)
H2S (ppm)
ROP (ft/h)
MUD WT 9.9 / MUD VIS 55
TVD (ft)
6900
8600

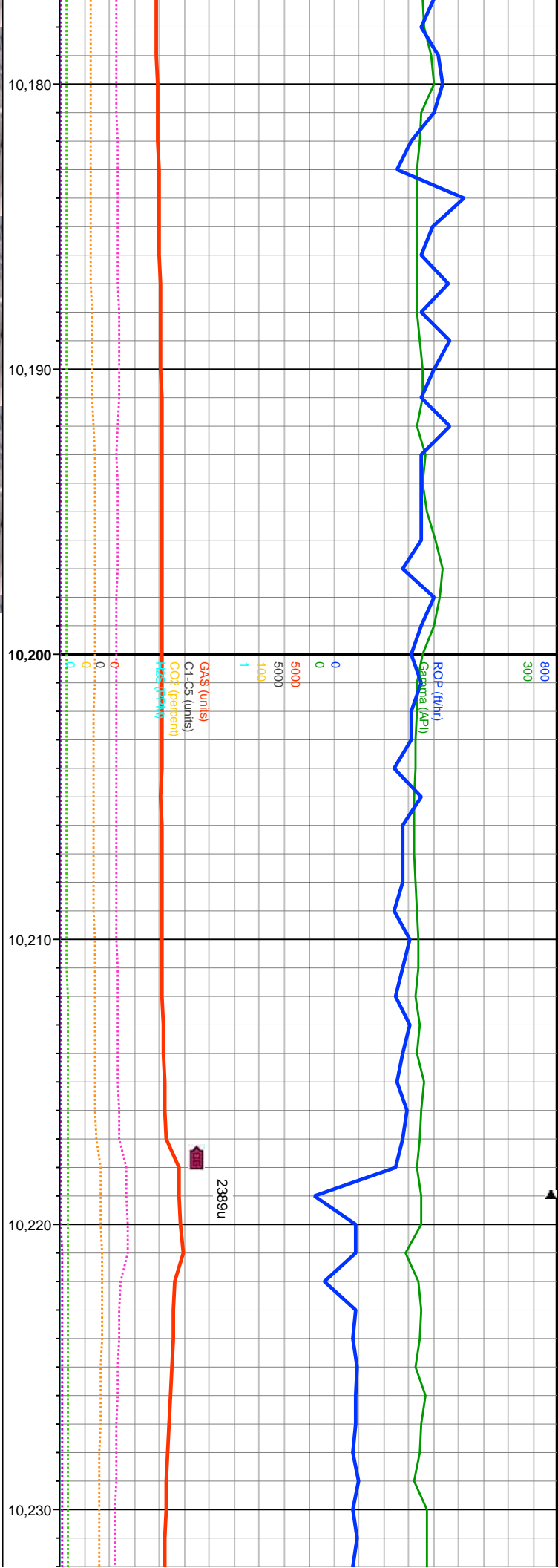


MD: 10,014'
INC: 89.85°
AZM: 180.76°
TVD: 7,735.17'
VS: 1,853.39'

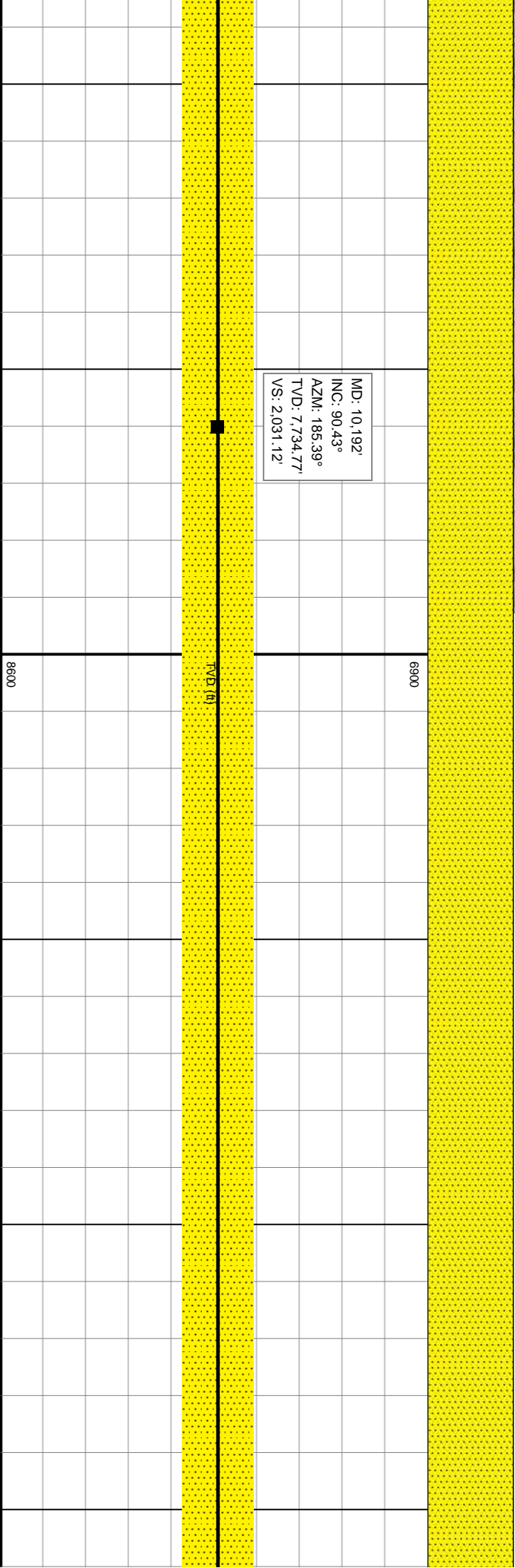


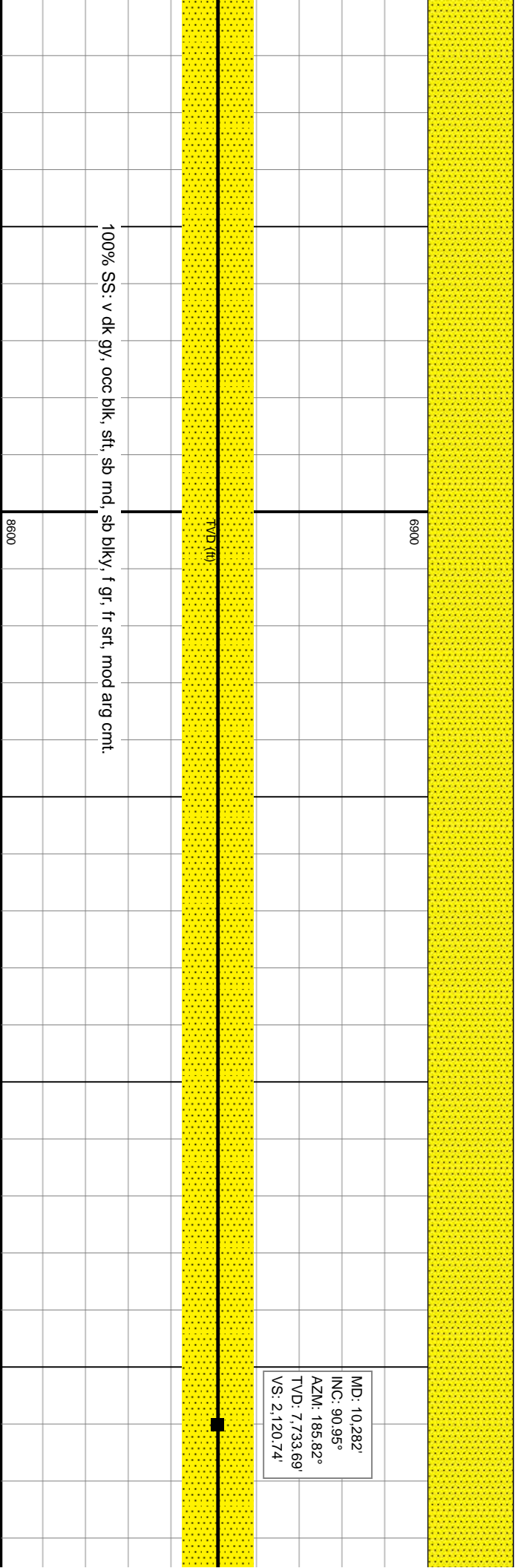
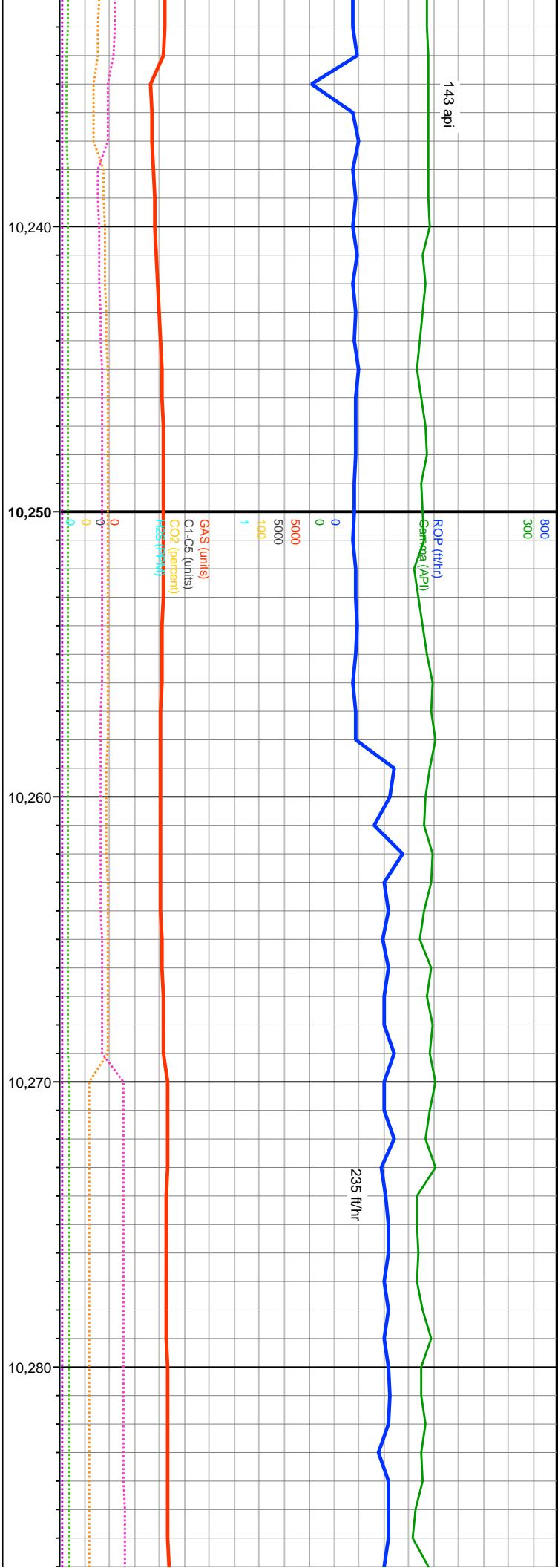


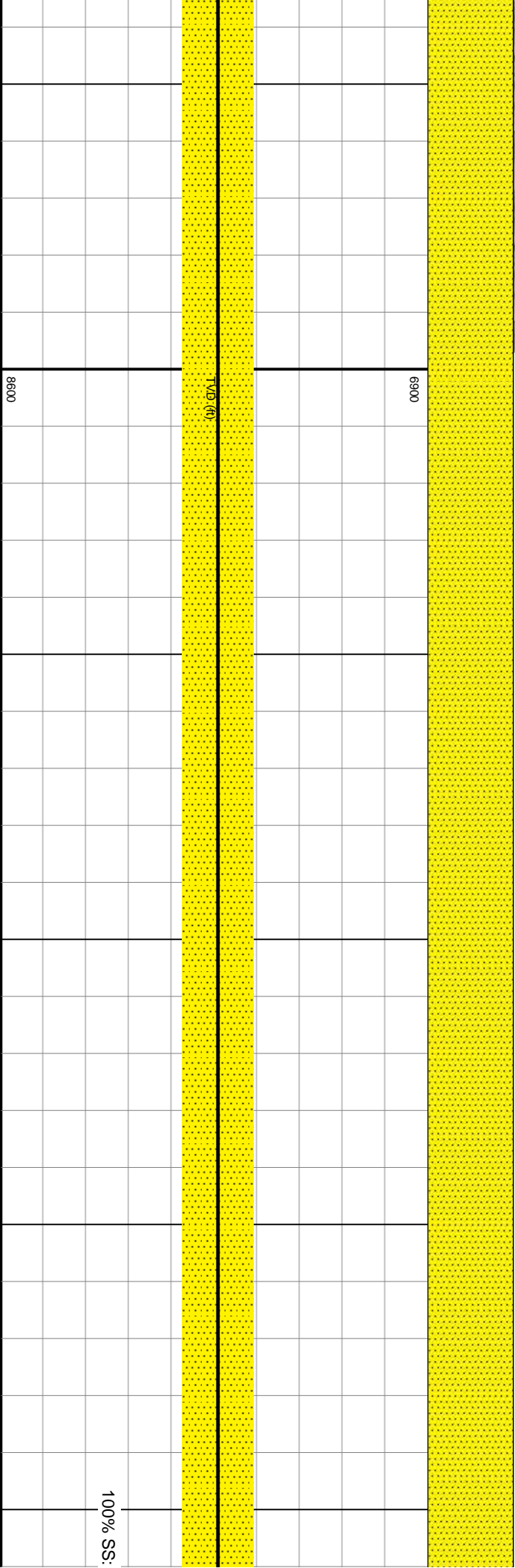
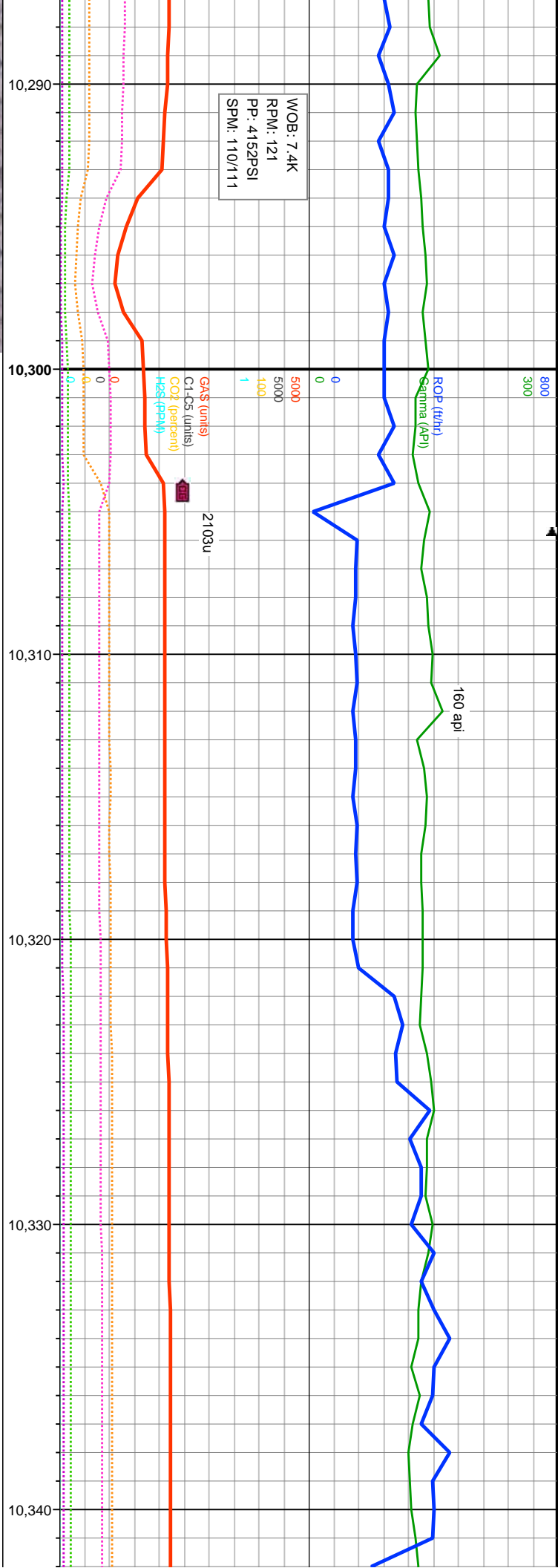


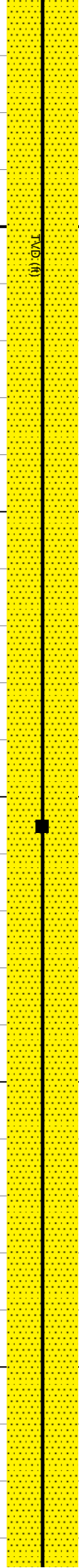
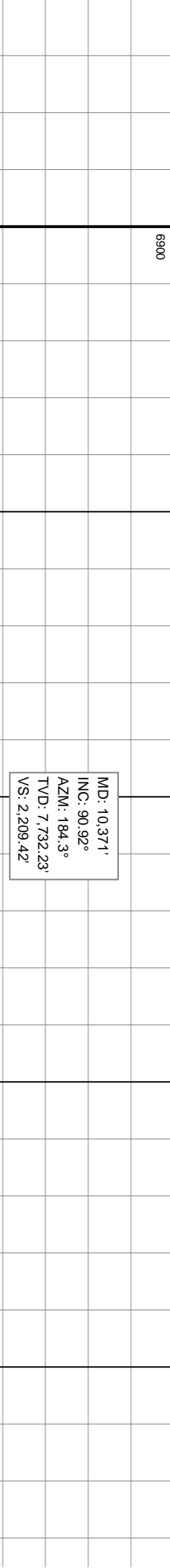
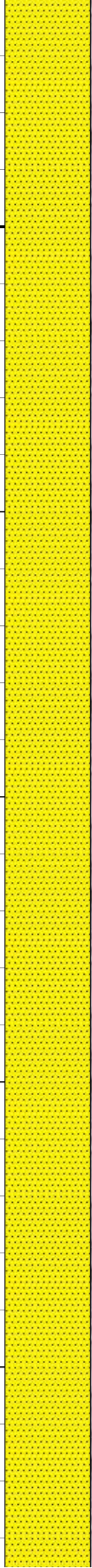
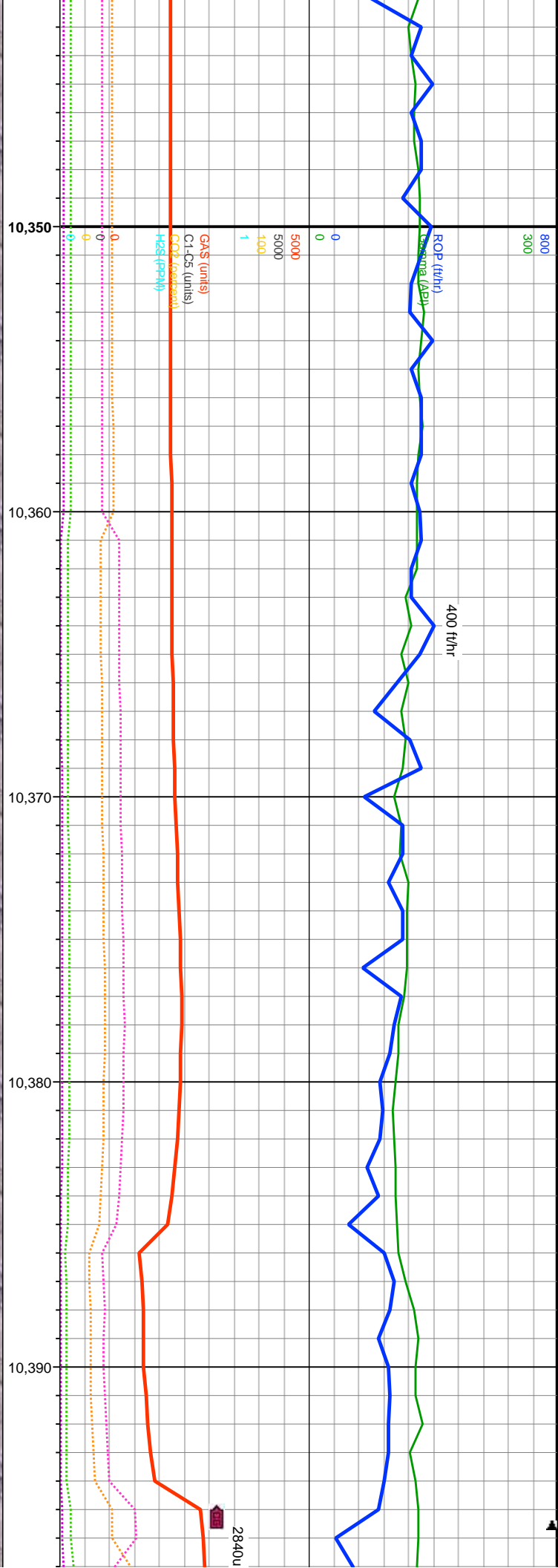


MD: 10.192'
INC: 90.43°
AZM: 185.39°
TVD: 7,734.77'
VS: 2,031.12'



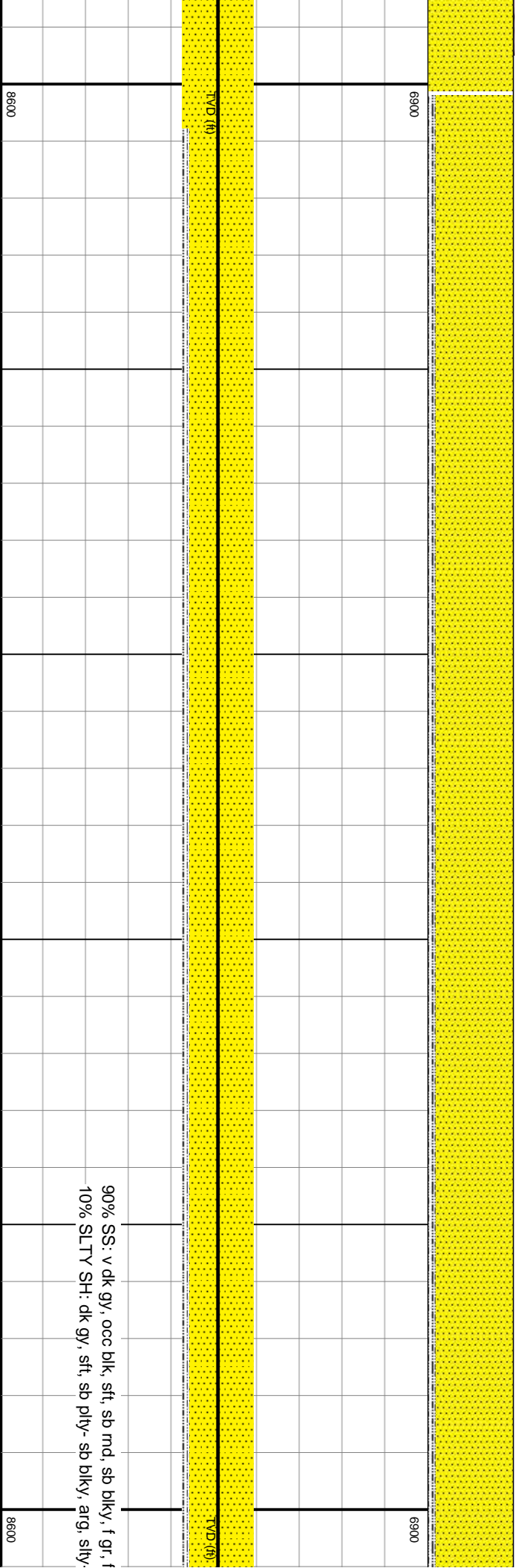
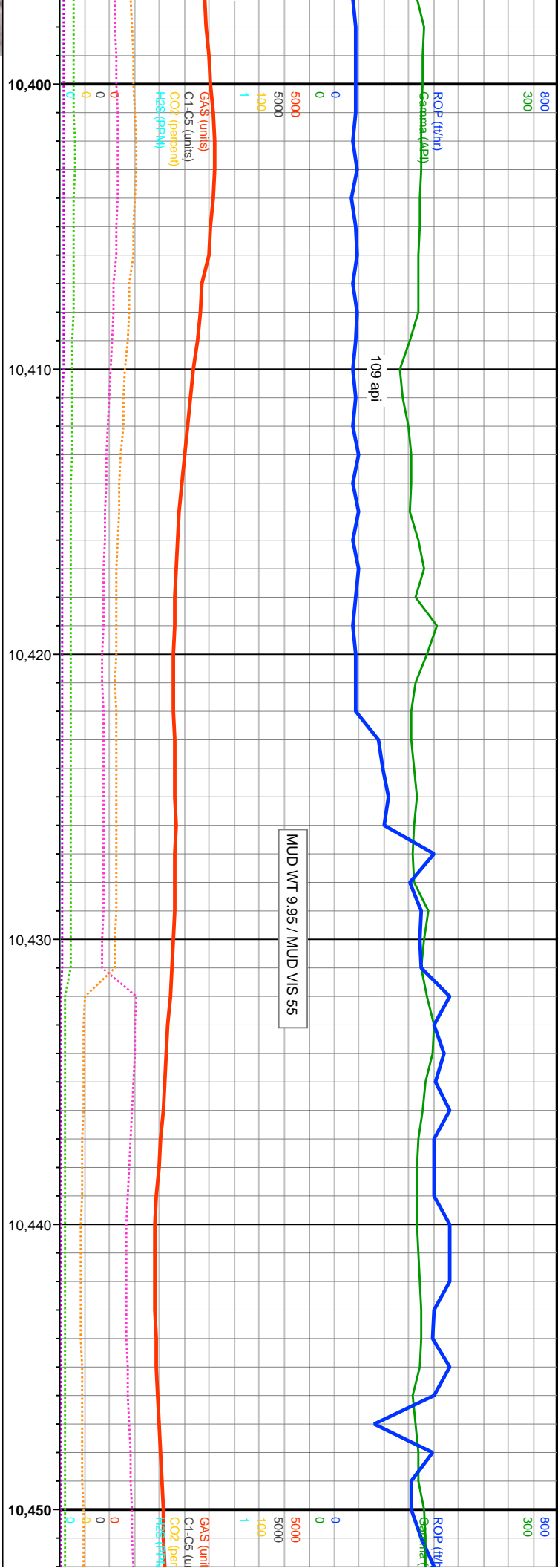


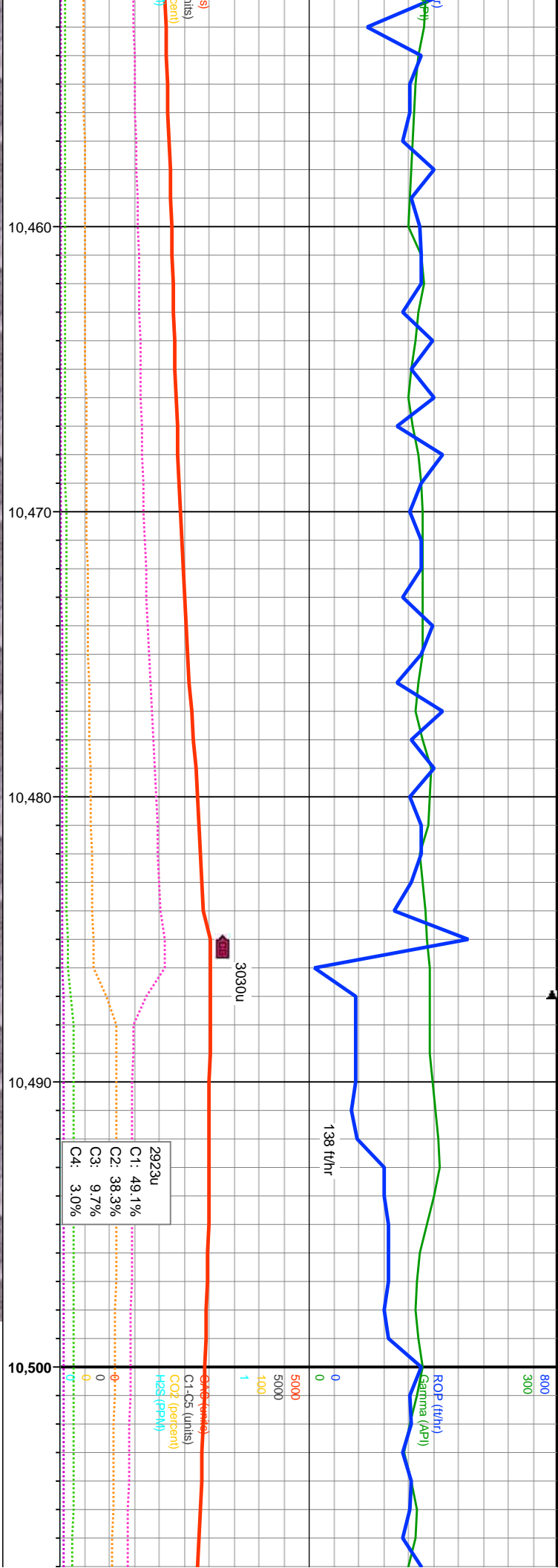




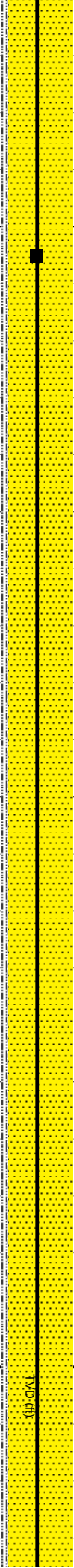
vd dk gy, occ blk, sft, sb md, sb blk, f gr, fr srt, mod arg cnt.

8600

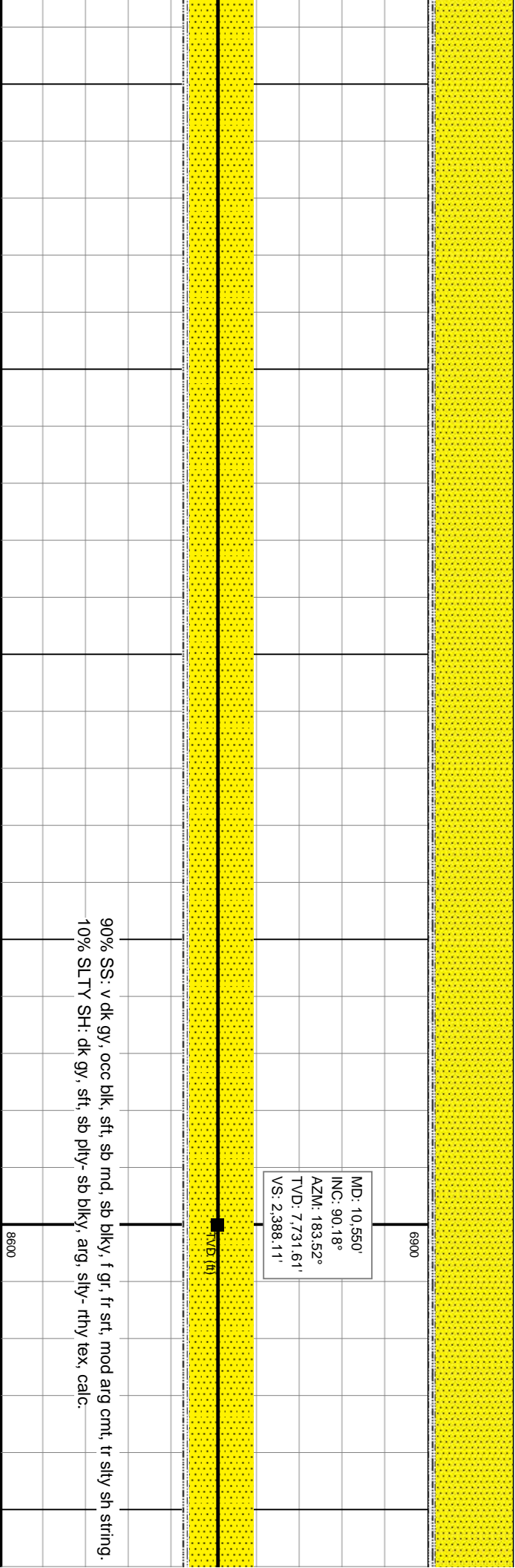
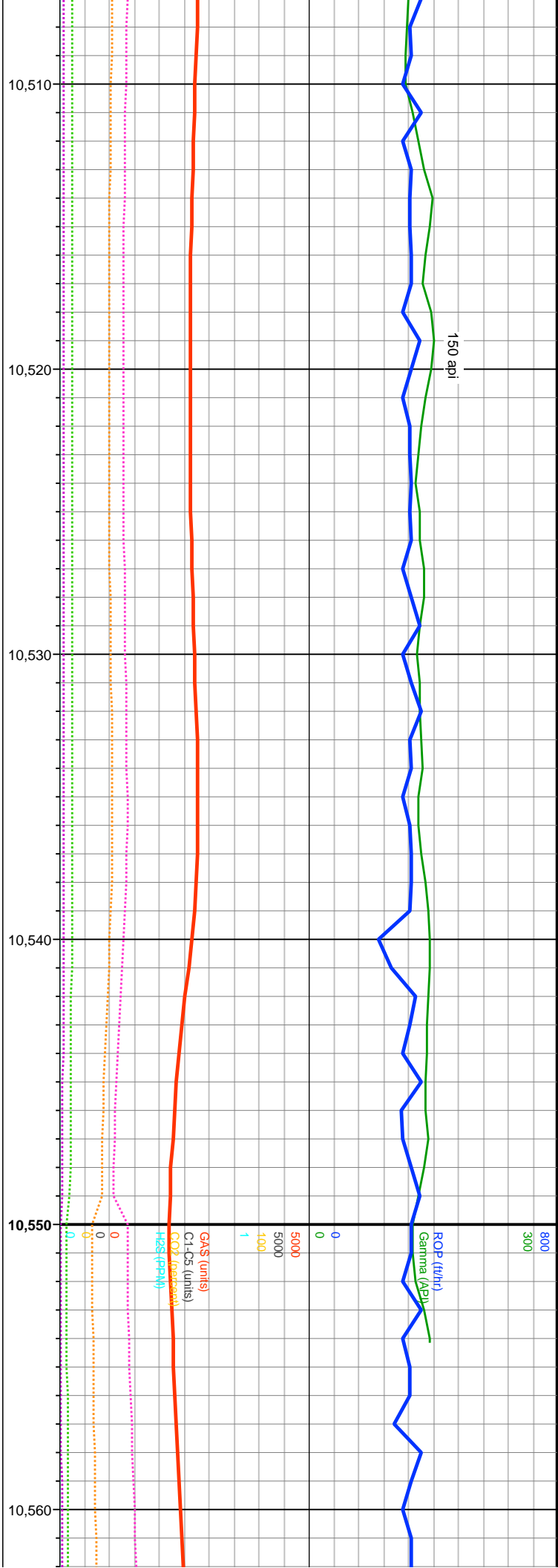




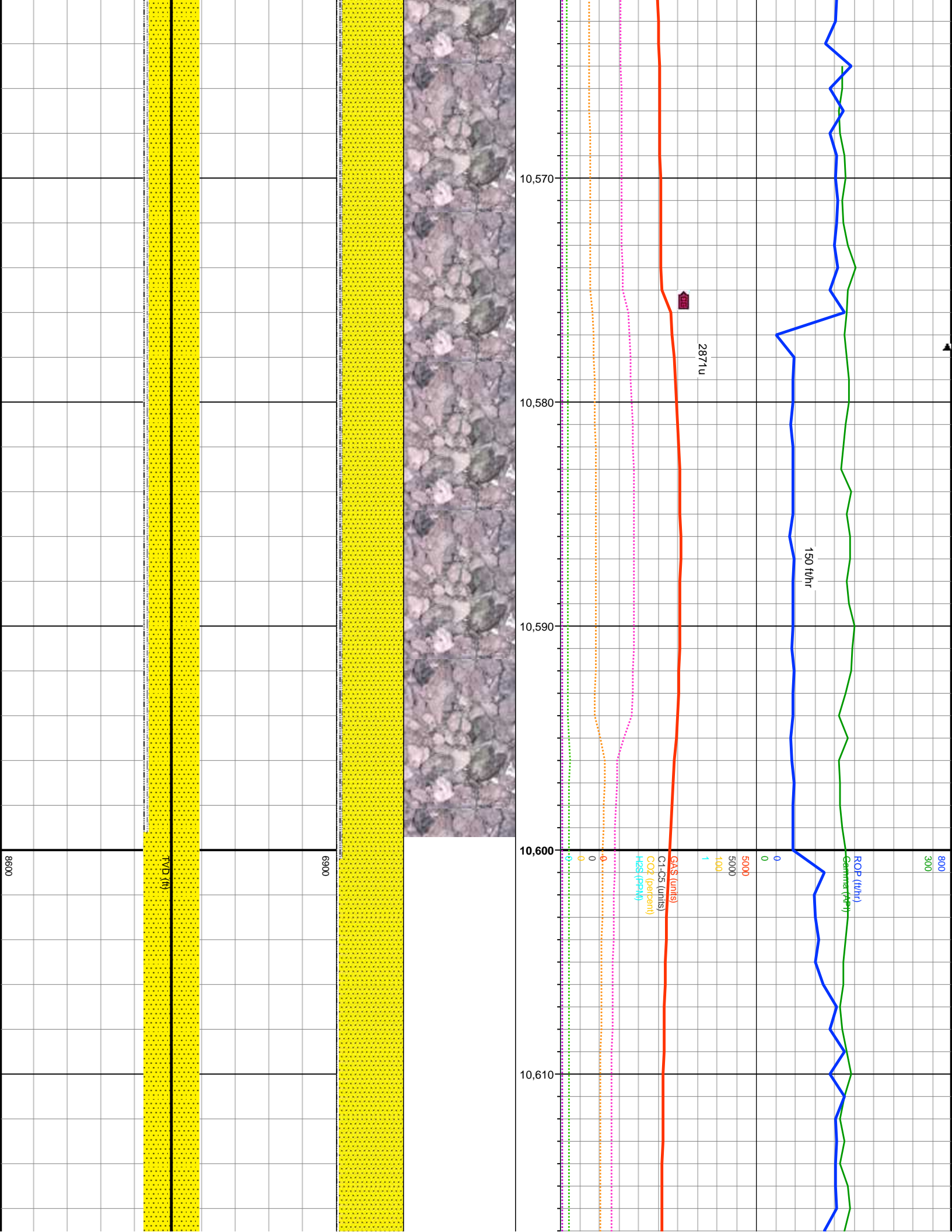
MD: 10,461'
INC: 89.85°
AZM: 183.54°
TVD: 7,731.63'
VS: 2,299.24'

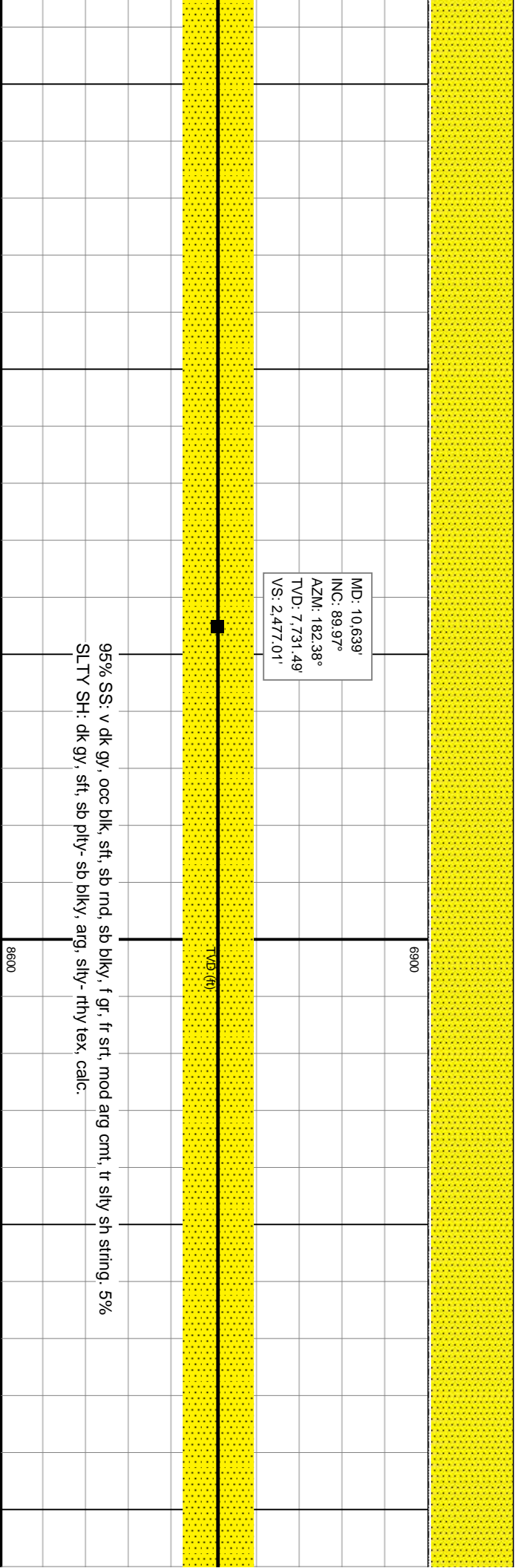
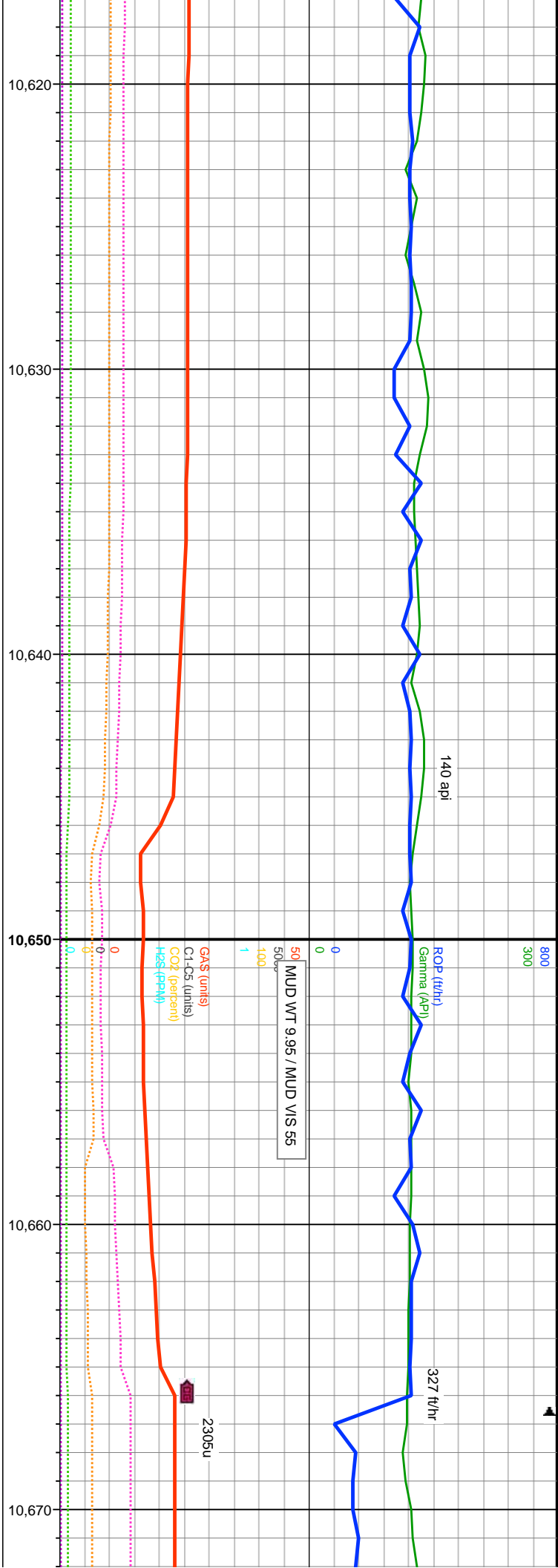


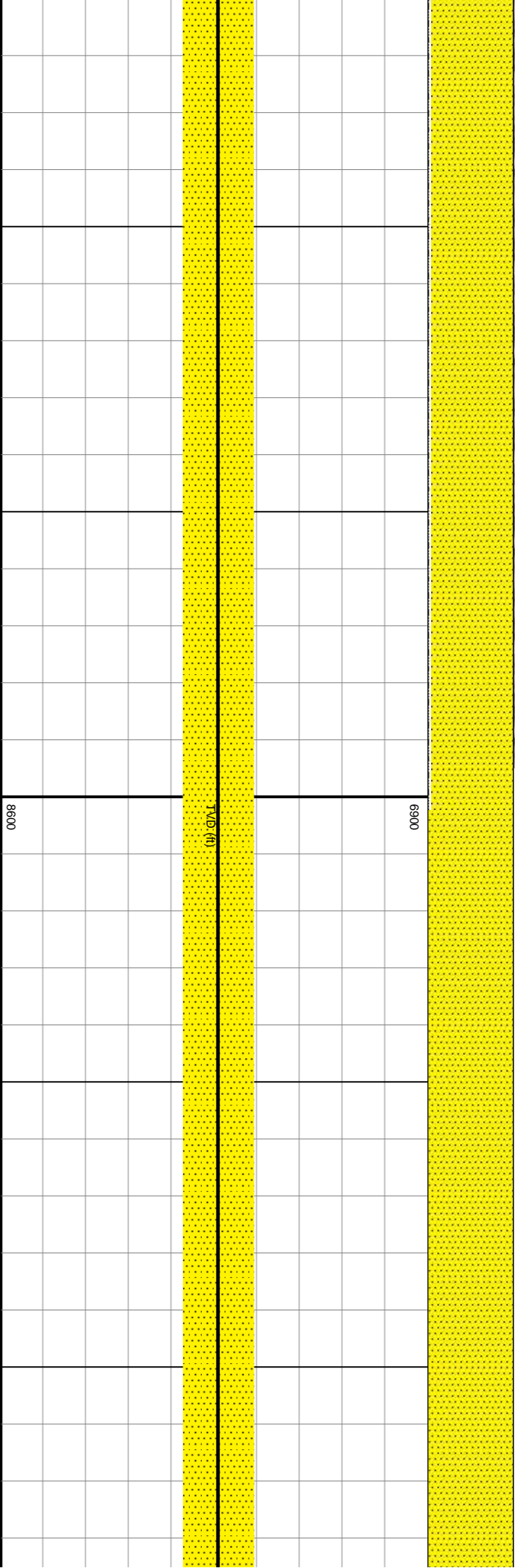
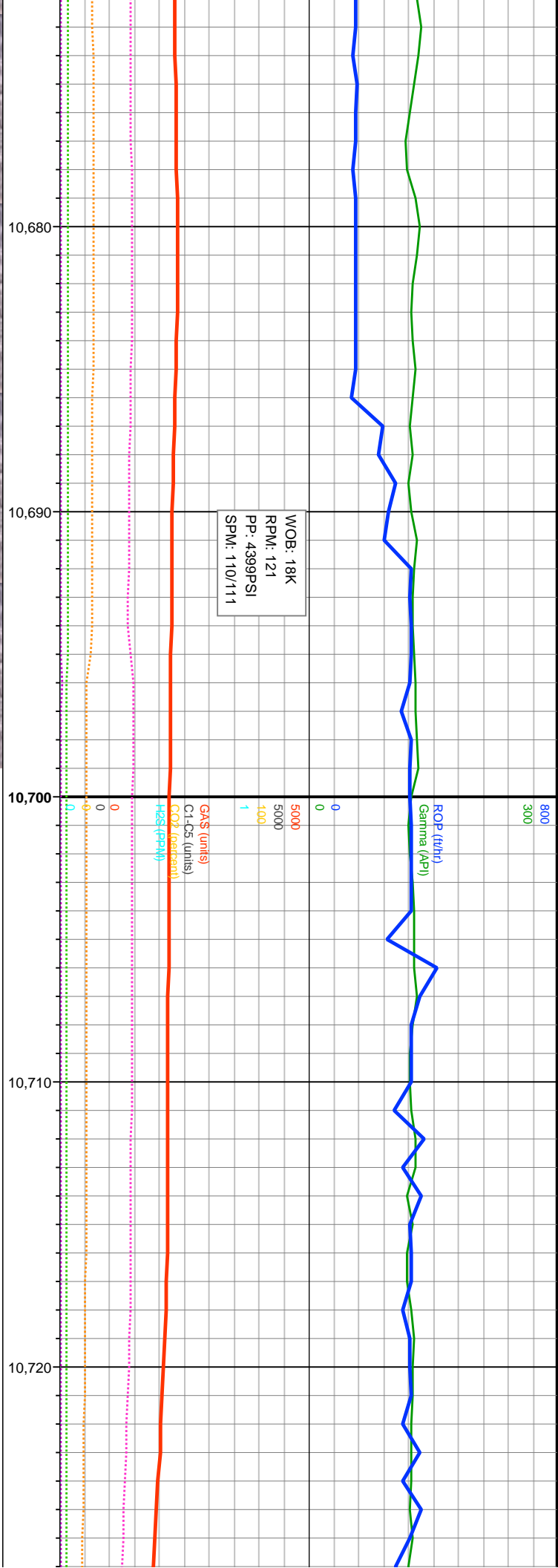
r srt, mod arg cnt, tr slty sh string.
rthy tex, calc.

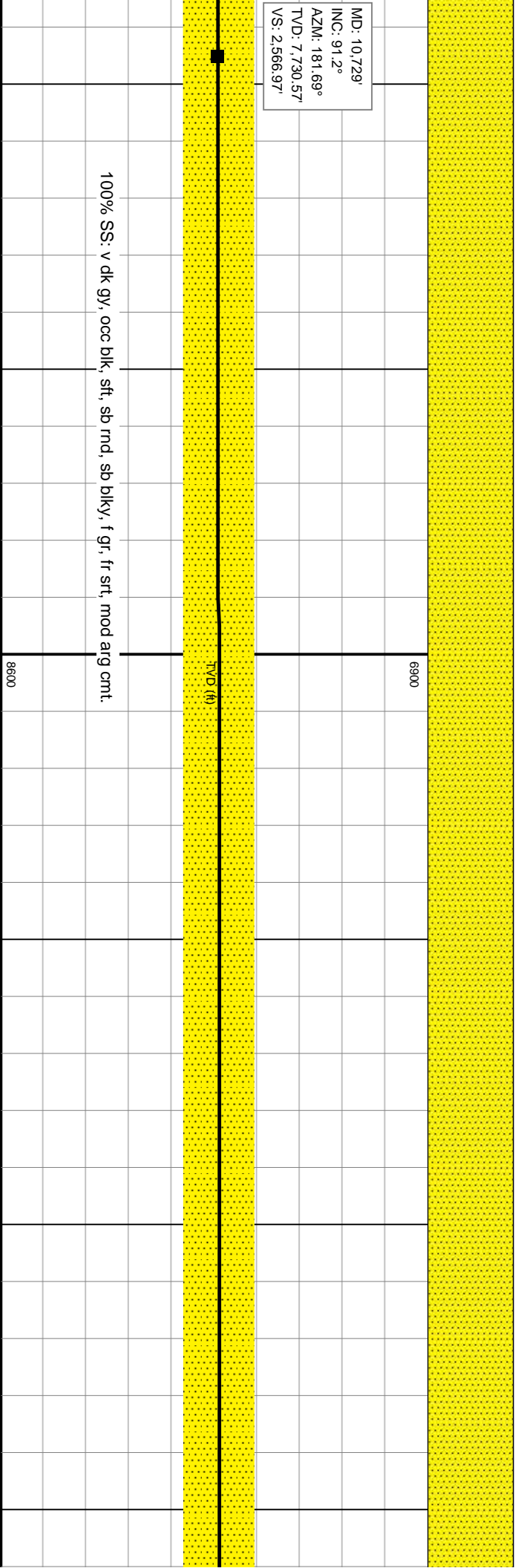


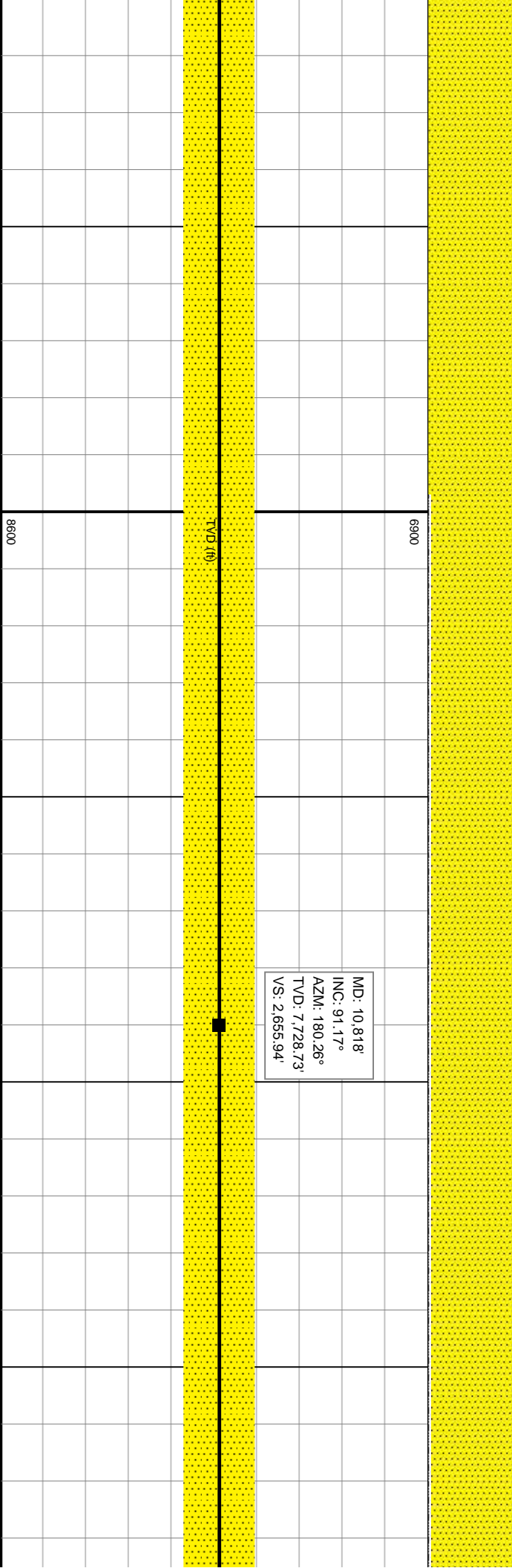
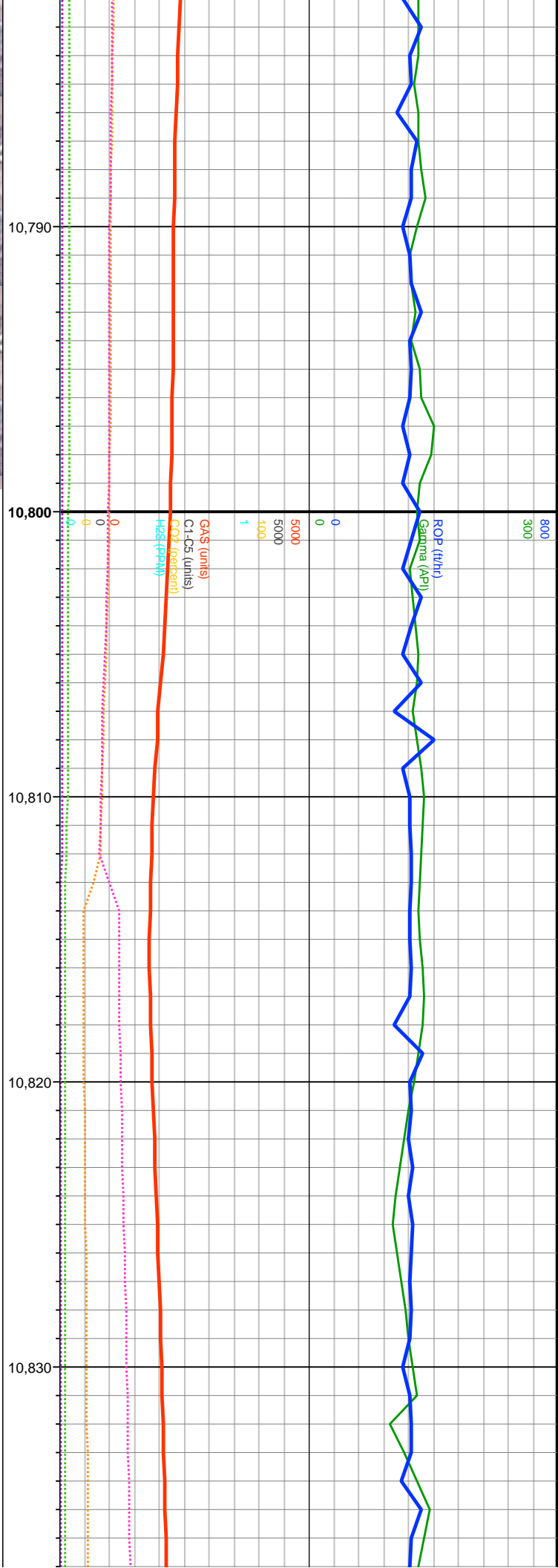
90% SS: v dk gy, occ blk, sft, sb md, sb blk, f gr, fr srt, mod arg cnt, tr silty sh string.
10% SLTY SH: dk gy, sft, sb ply- sb blk, arg, silty- rthy tex, calc.

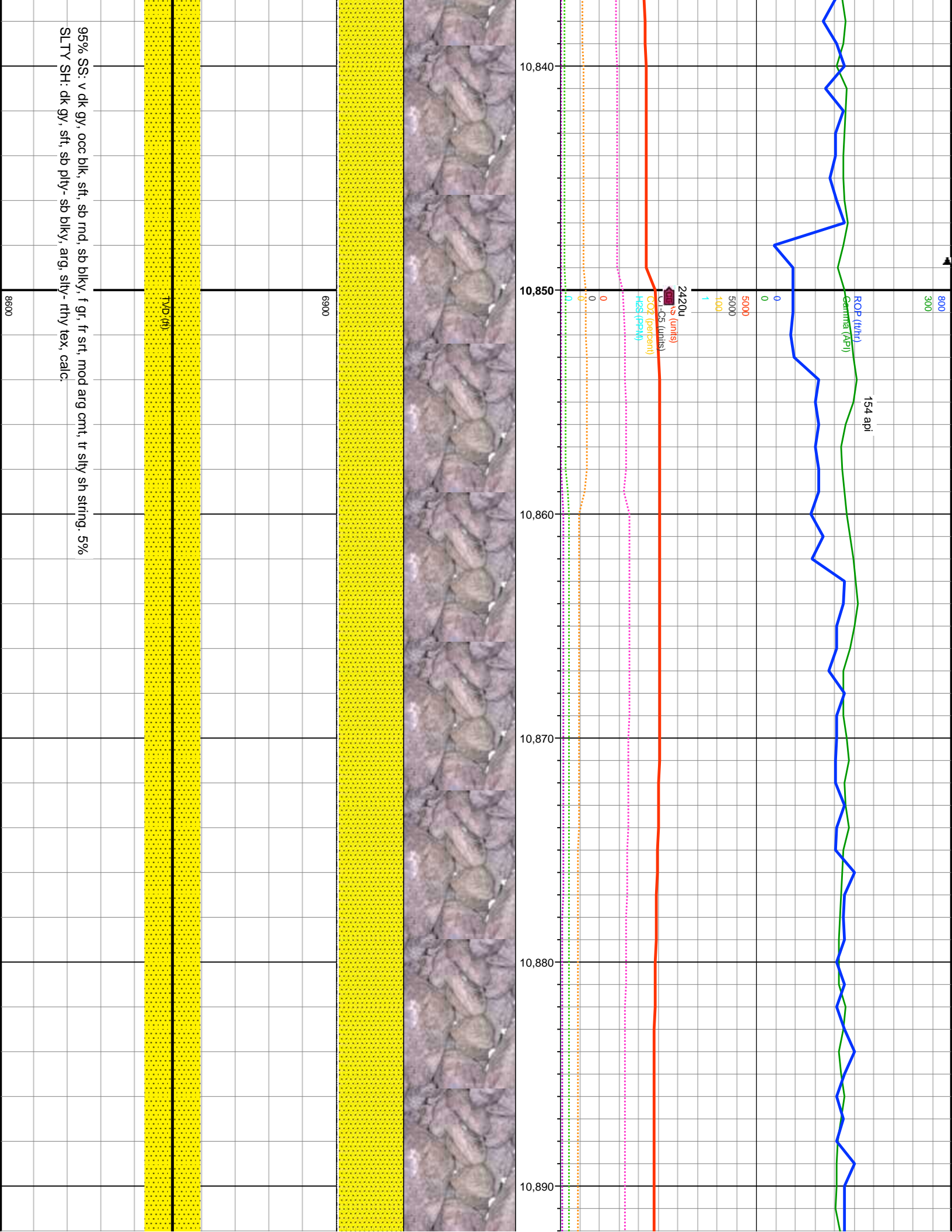


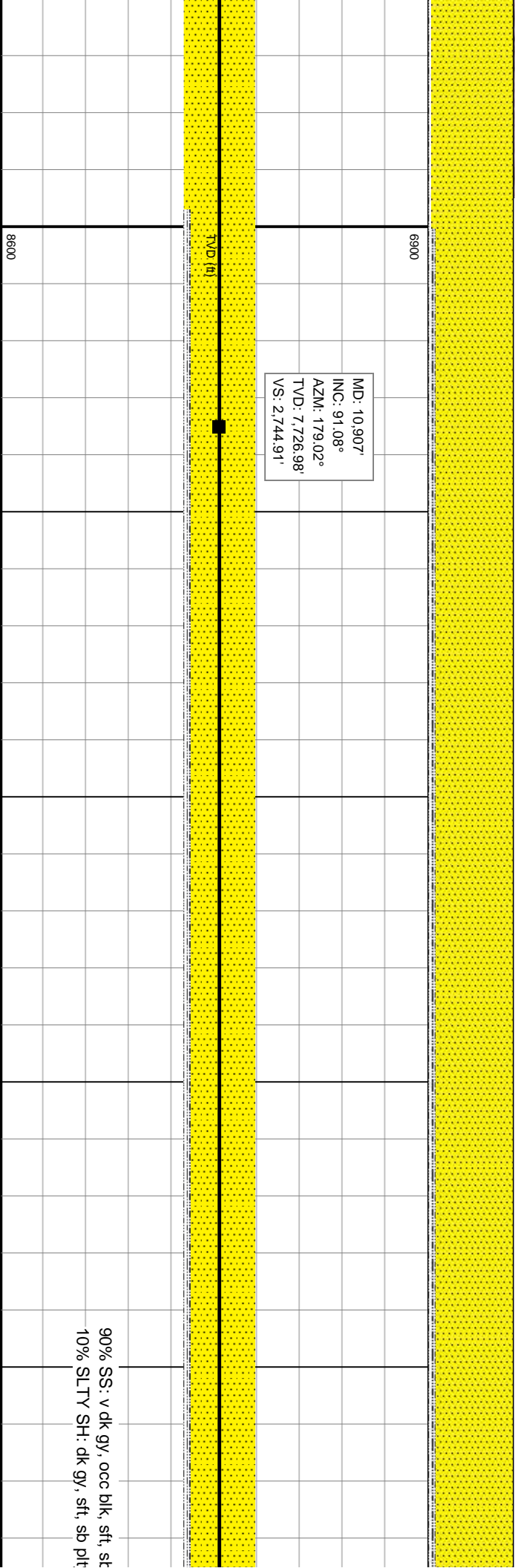
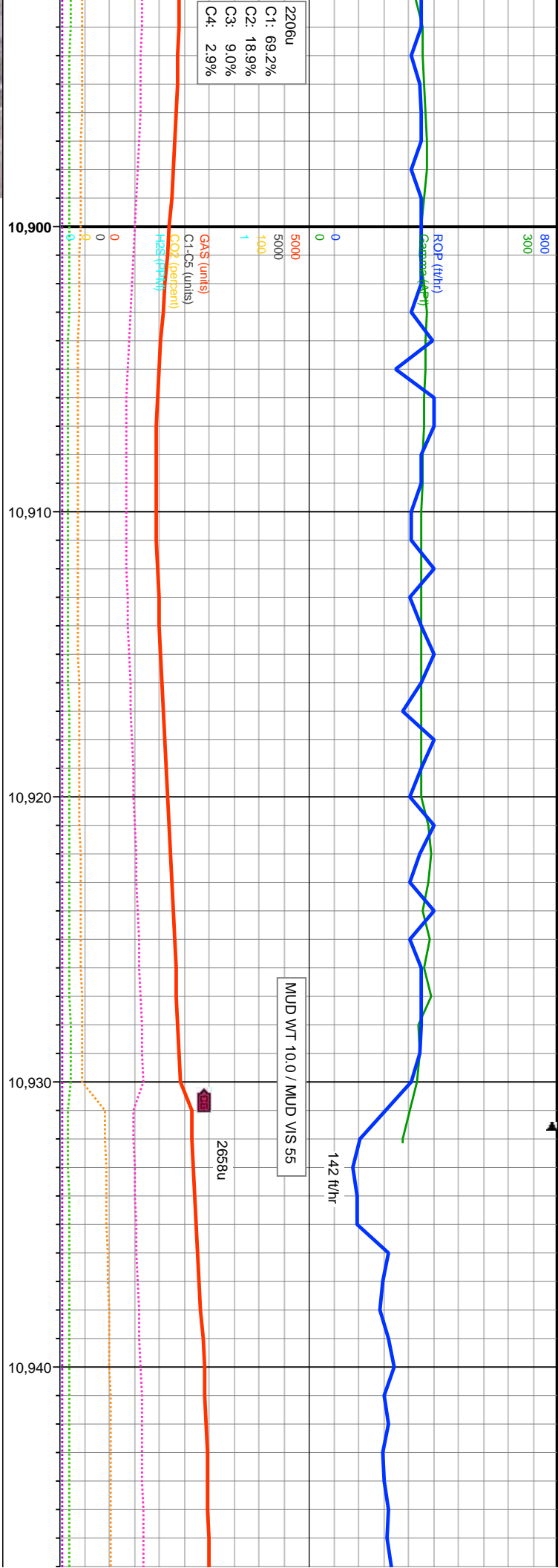






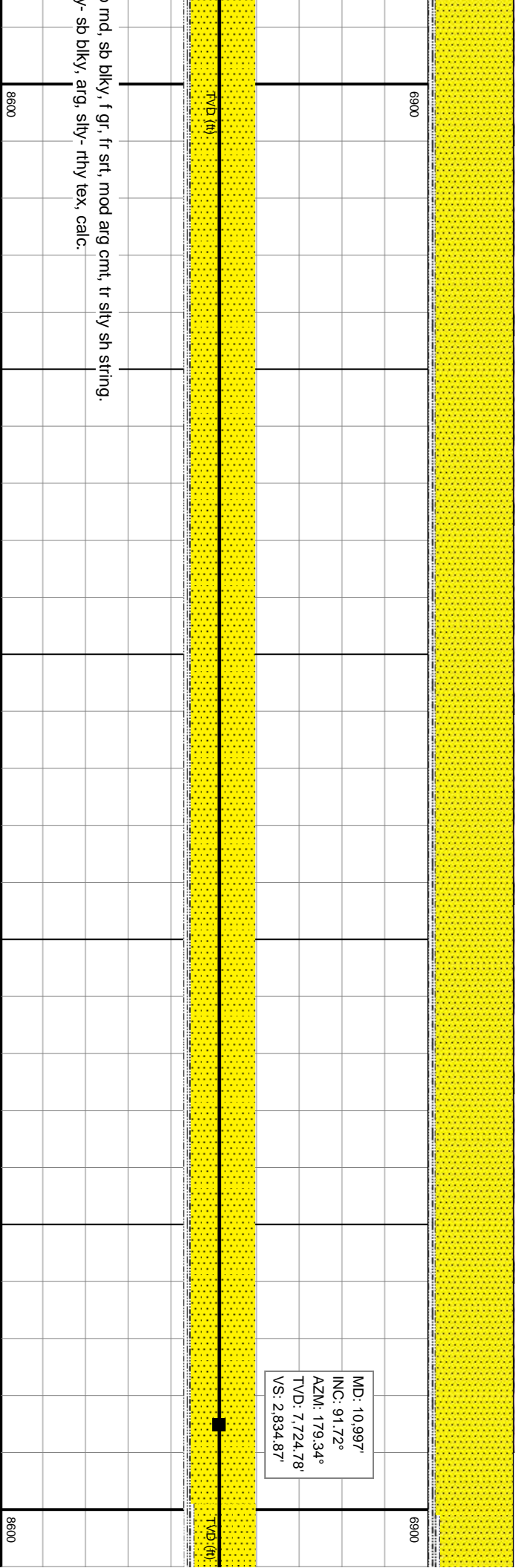
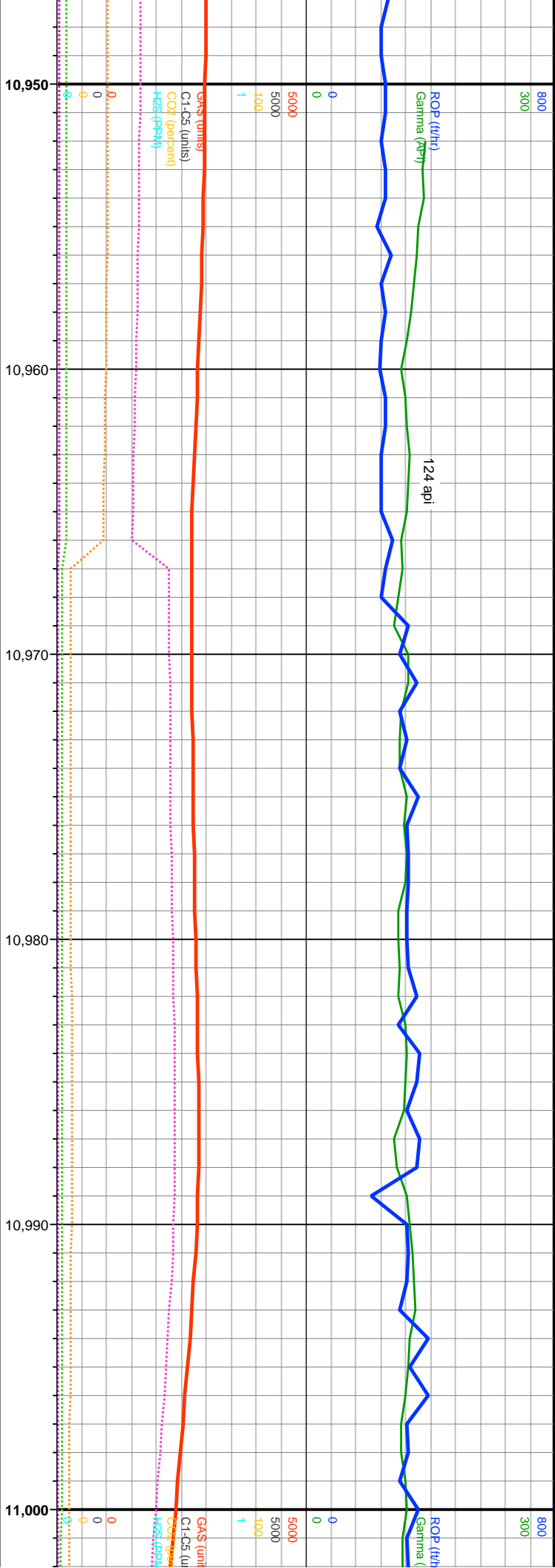


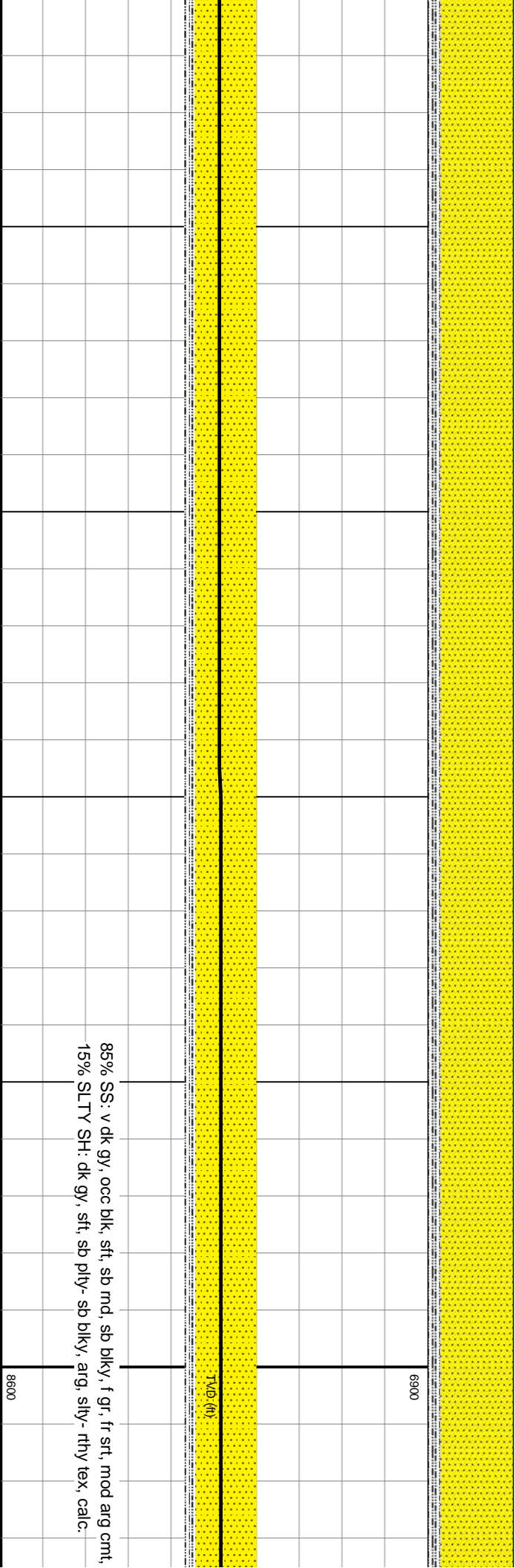
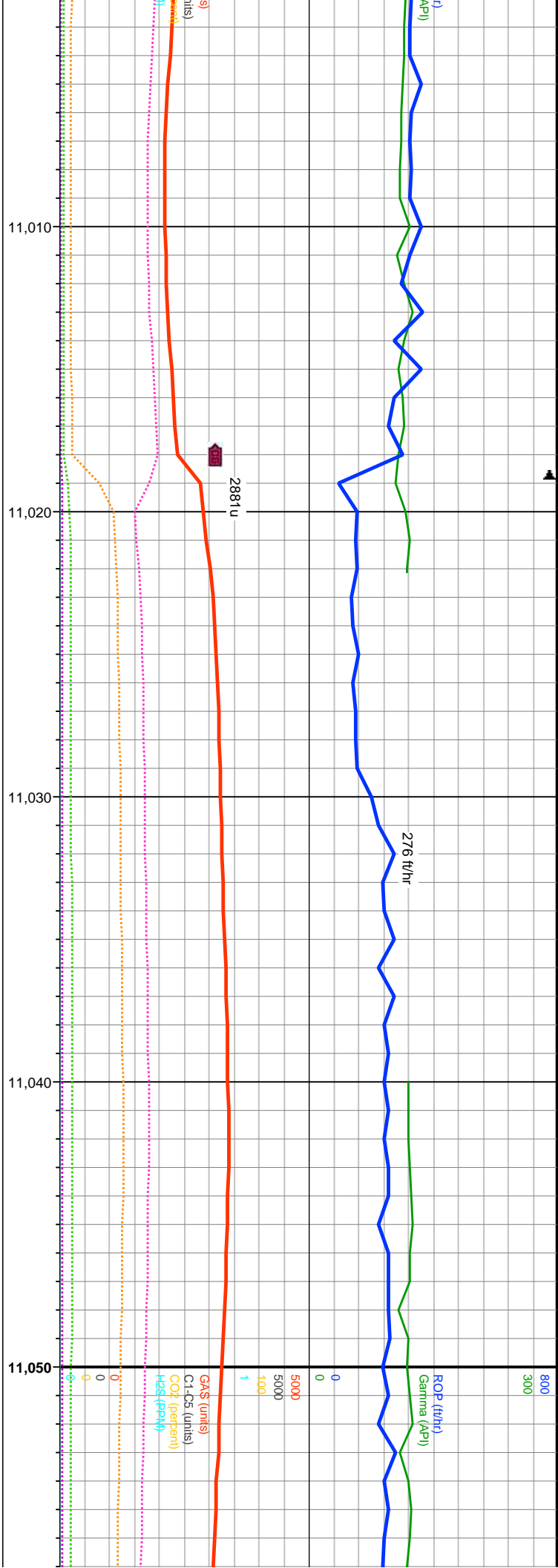


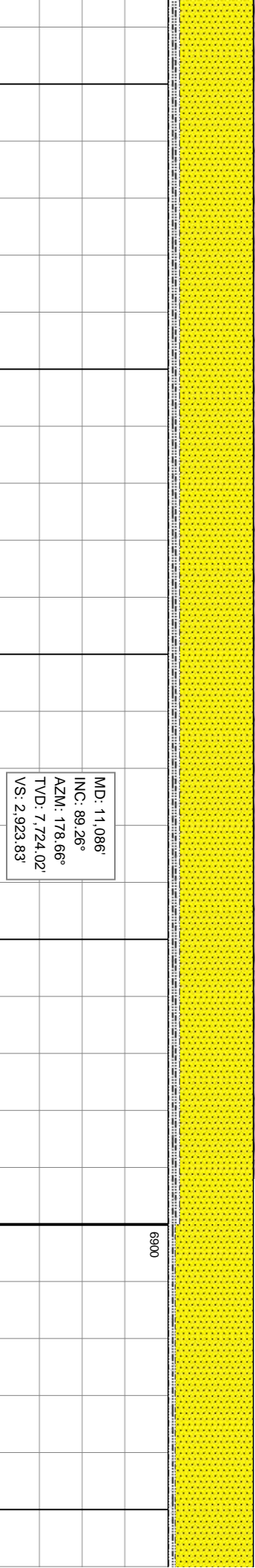
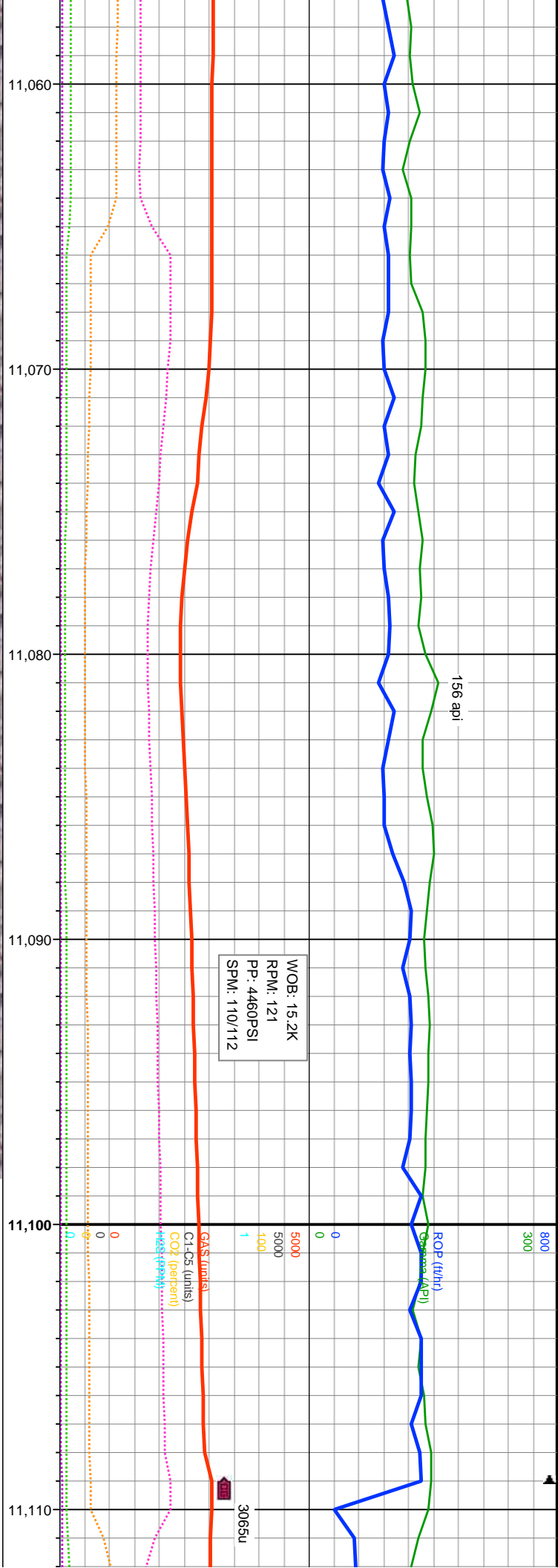


MD: 10.907'
INC: 91.08°
AZM: 179.02°
TVD: 7,726.98'
VS: 2,744.91'

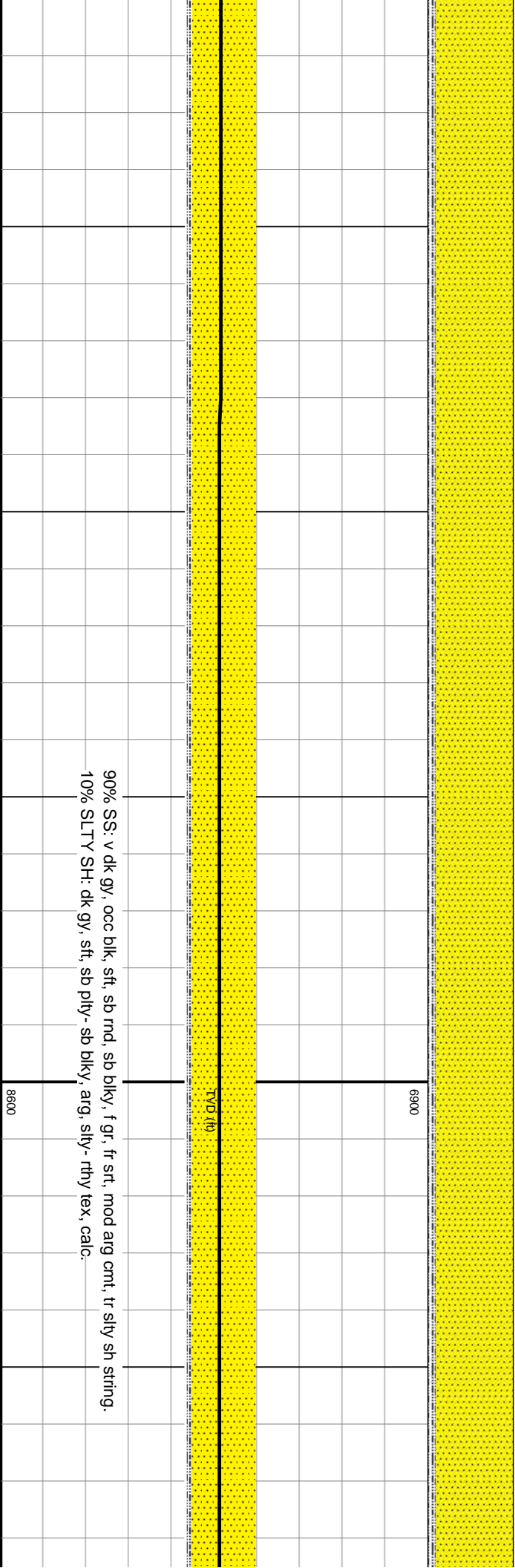
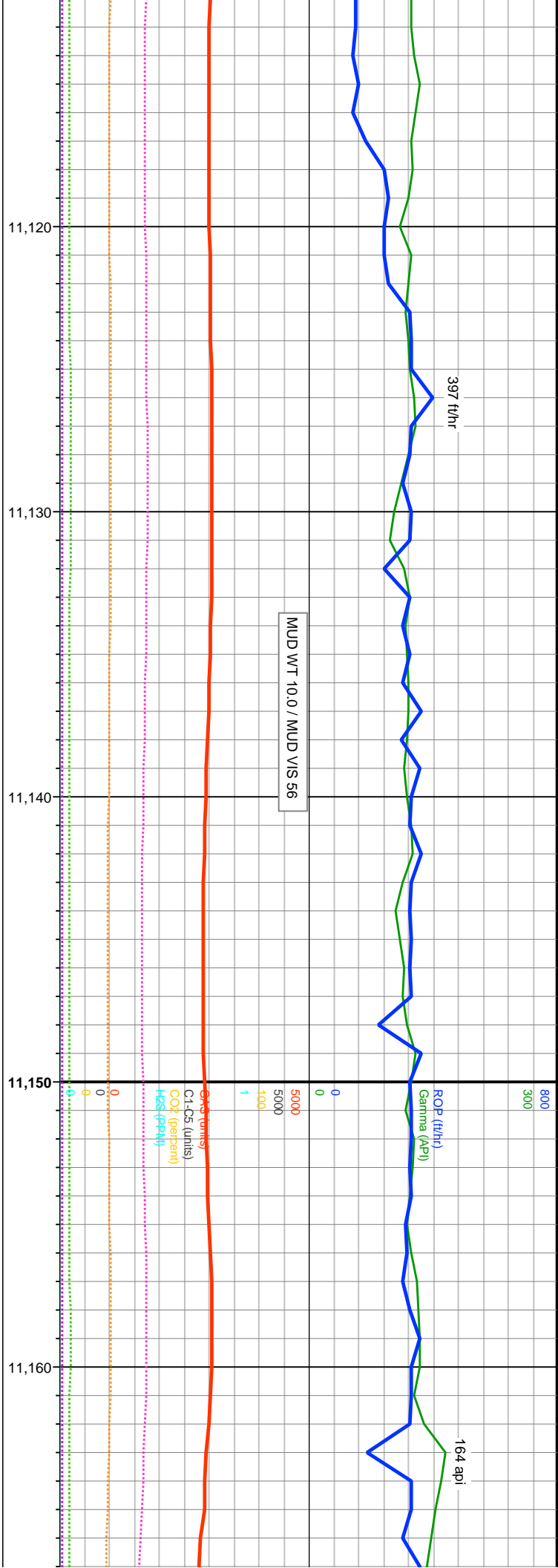
90% SS: v dk gy, occ blk, sft, st
10% SLTY SH: dk gy, sft, sb pit

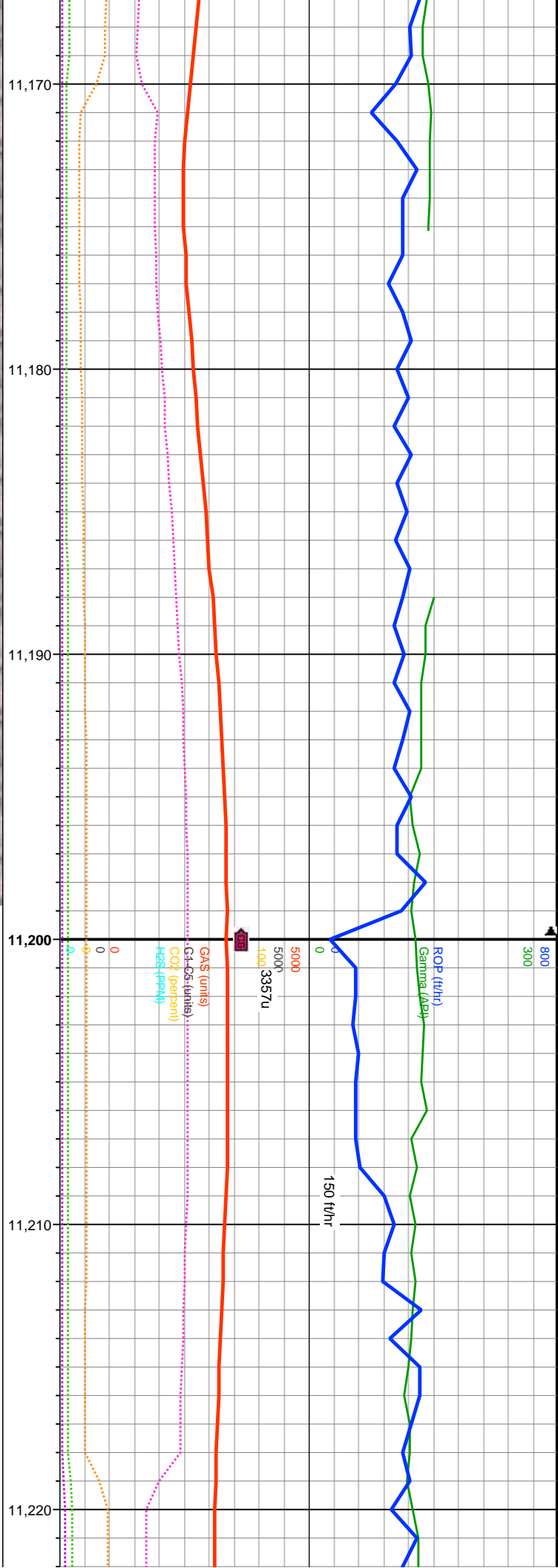




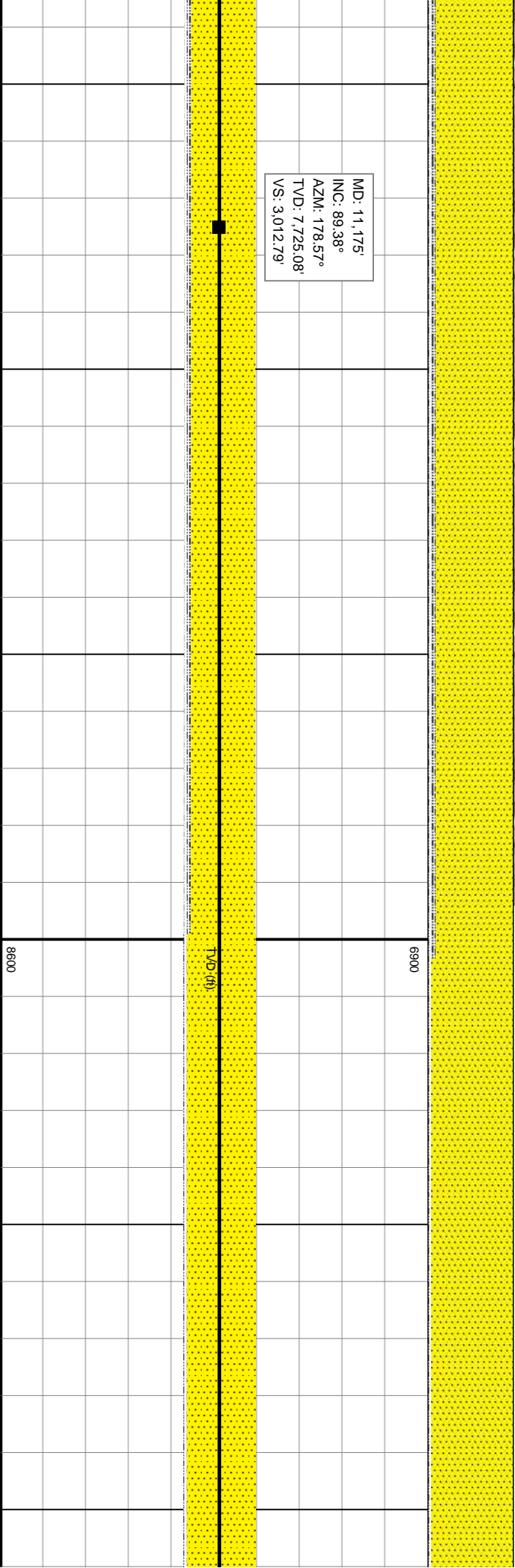


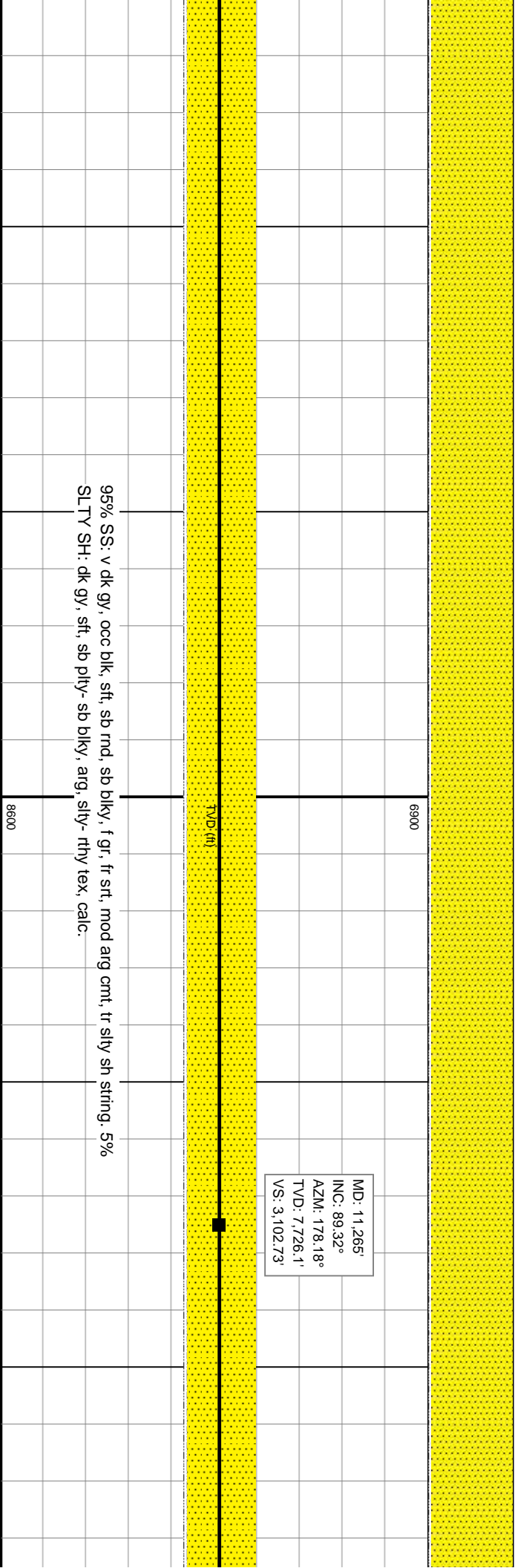
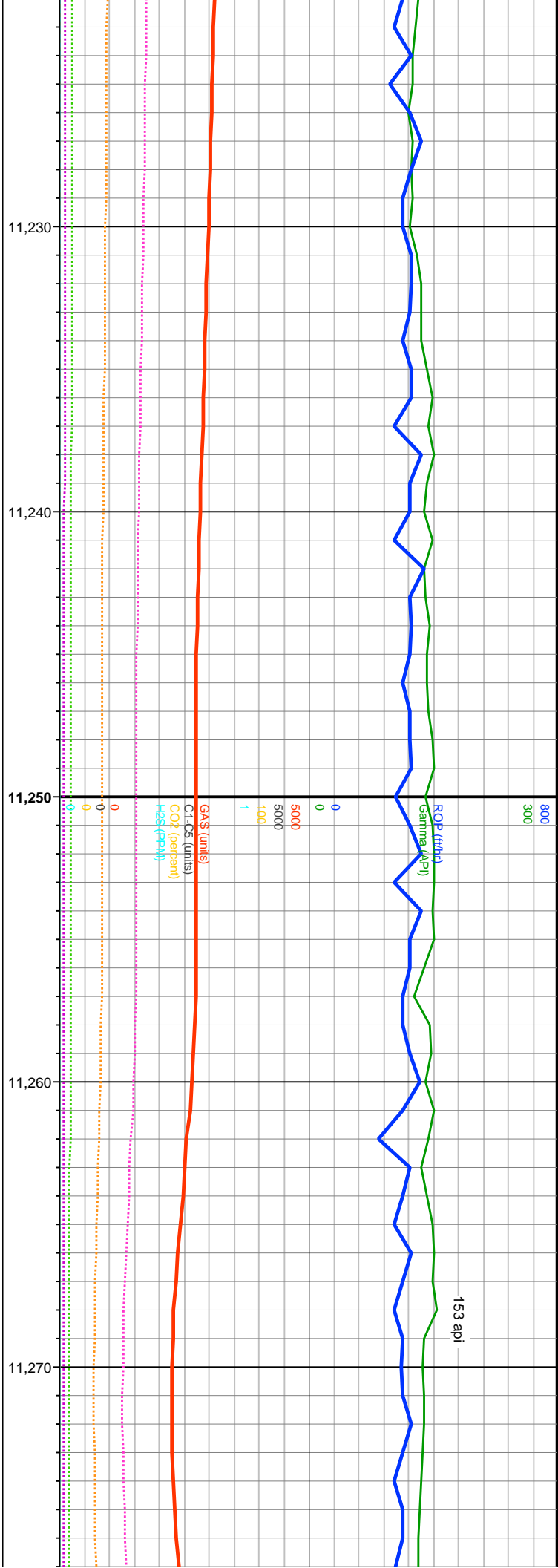
tr sity sh string.





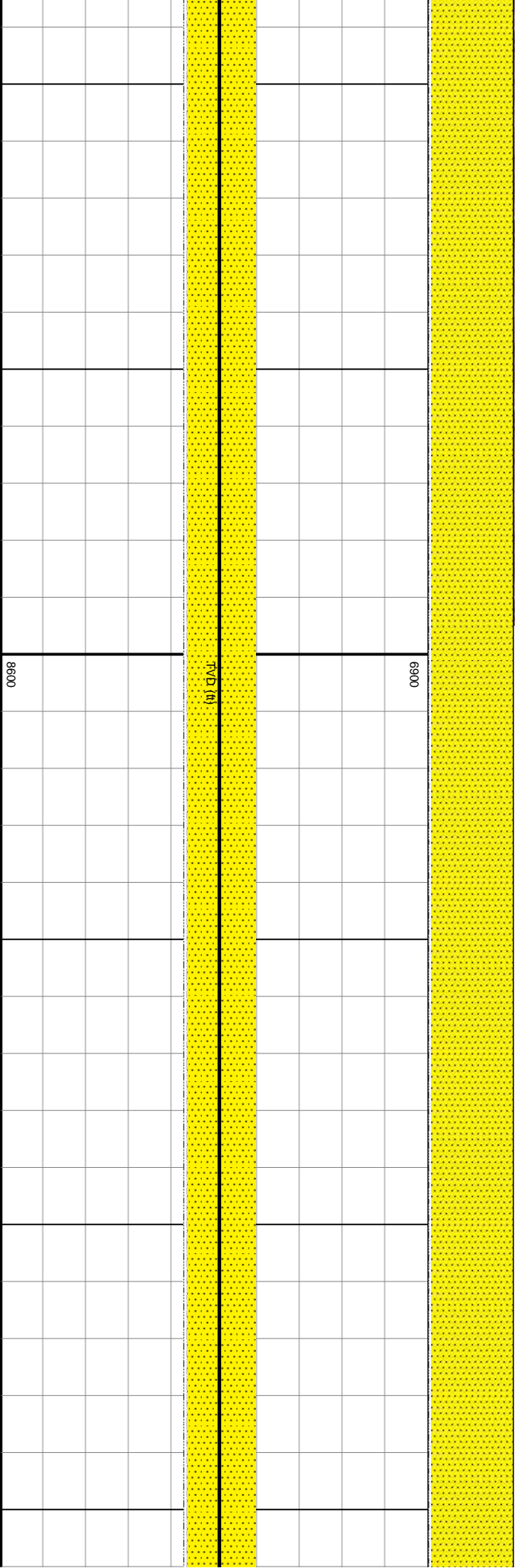
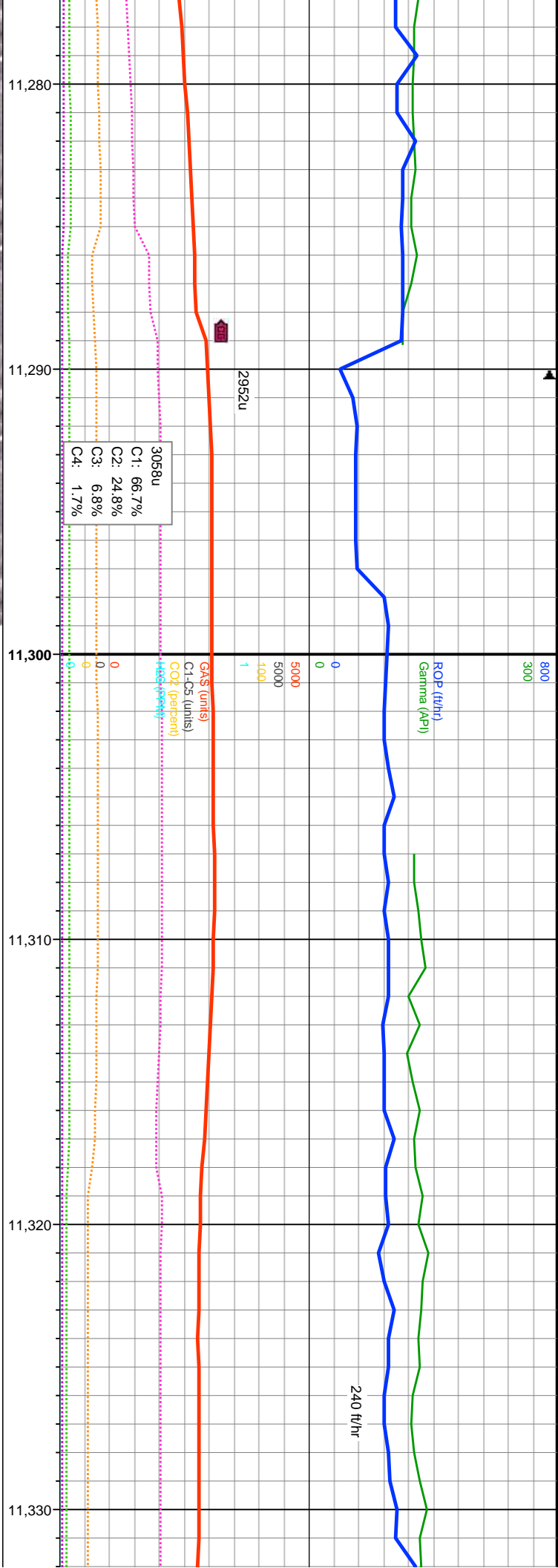
MD: 11,175'
INC: 89.38°
AZM: 178.57°
TVD: 7,725.08'
VS: 3,012.79'

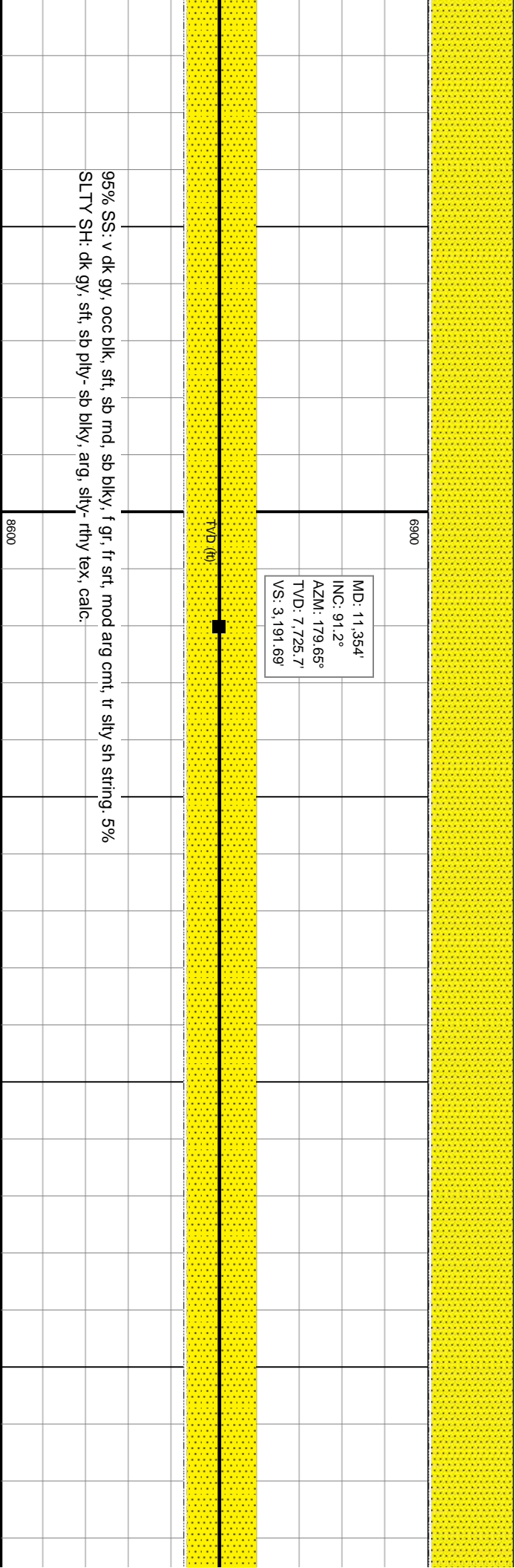
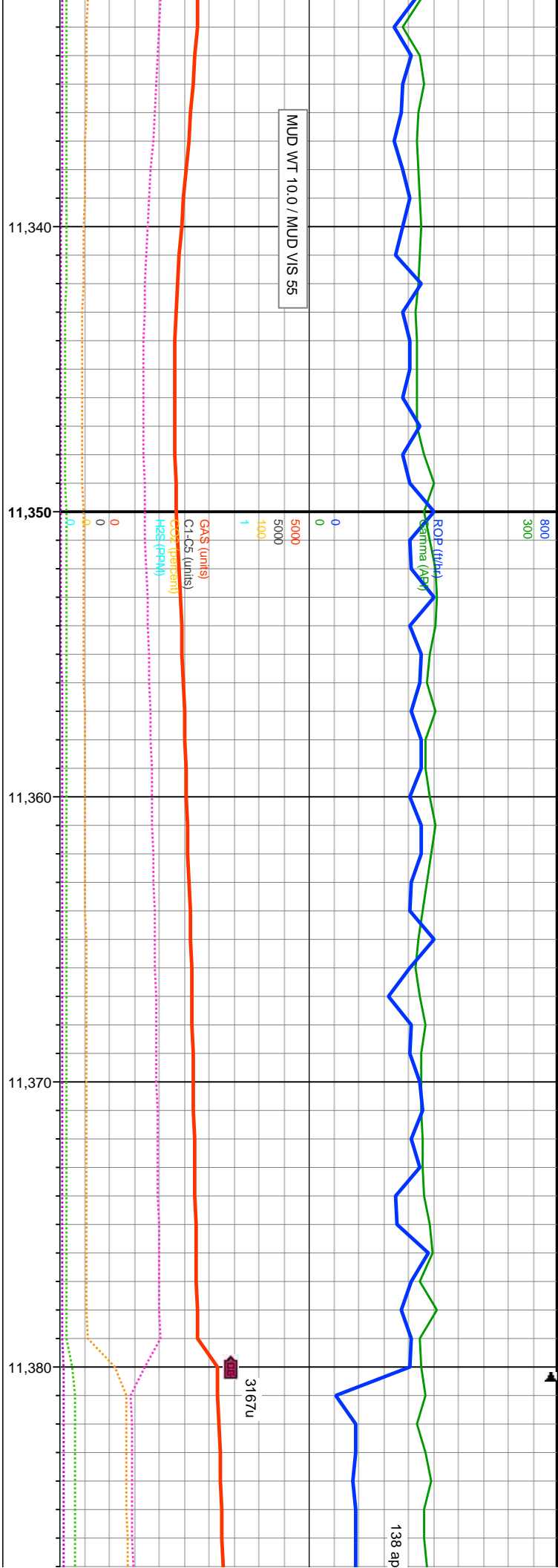


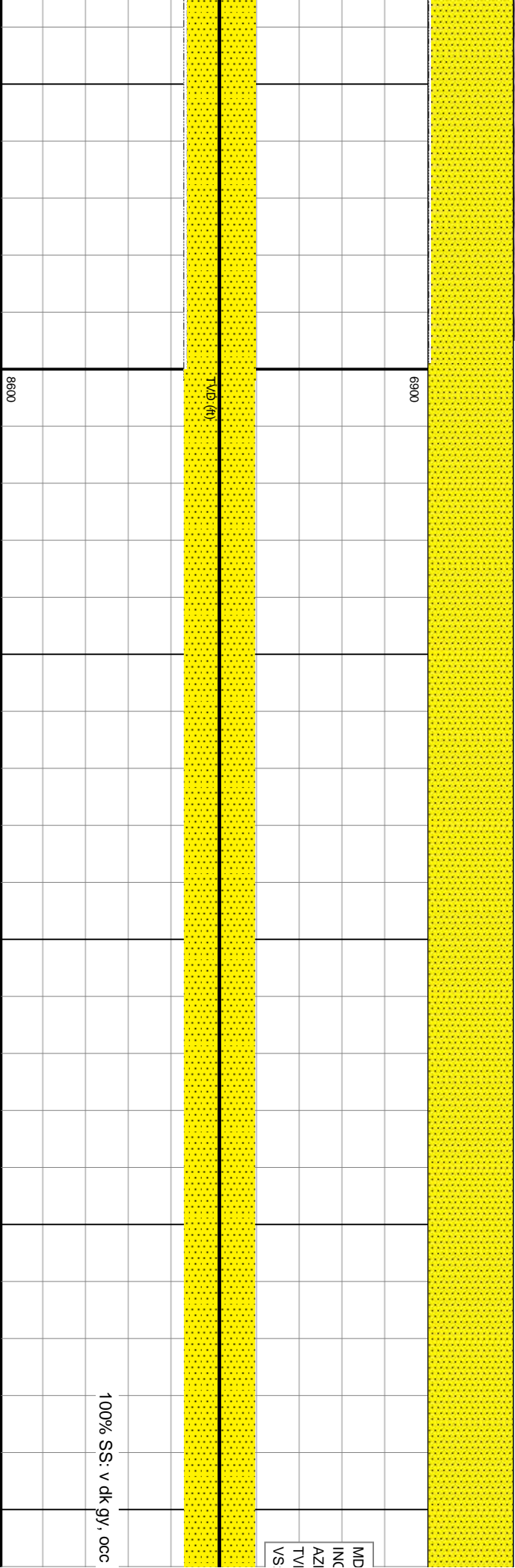
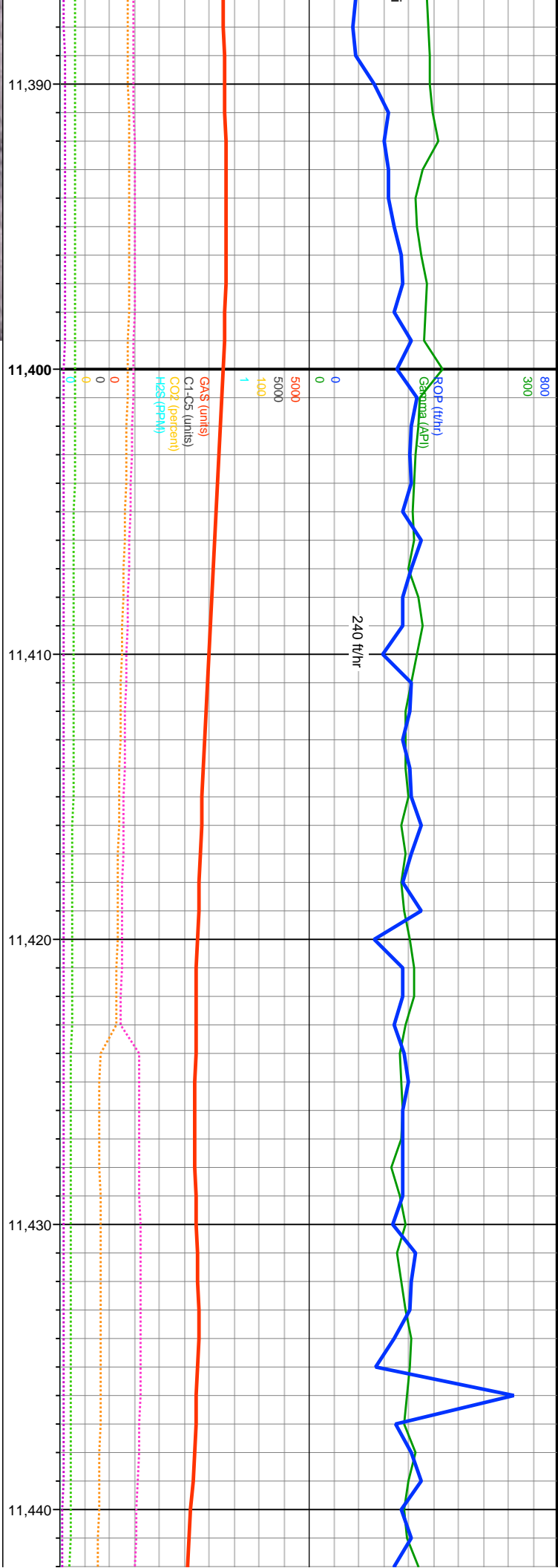


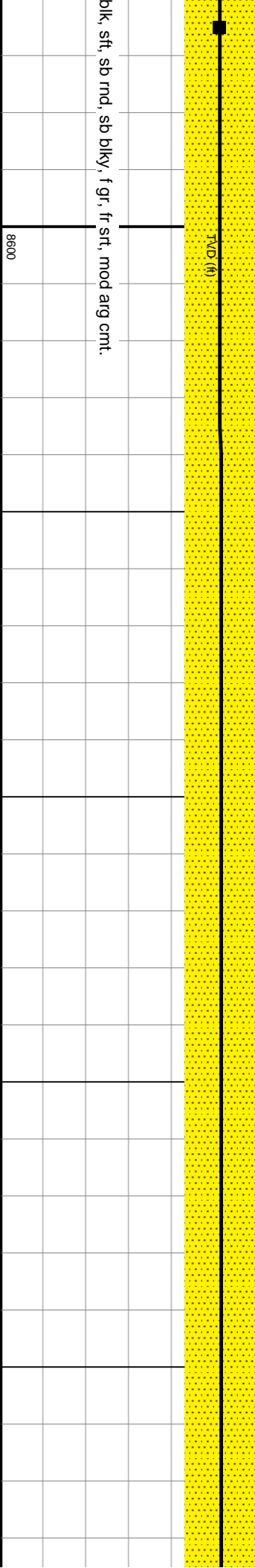
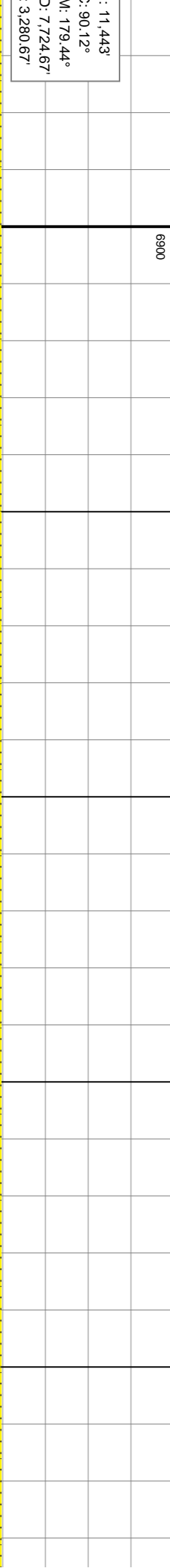
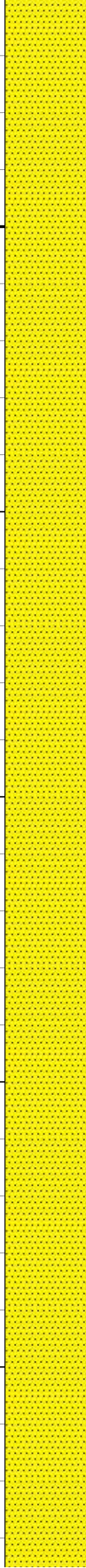
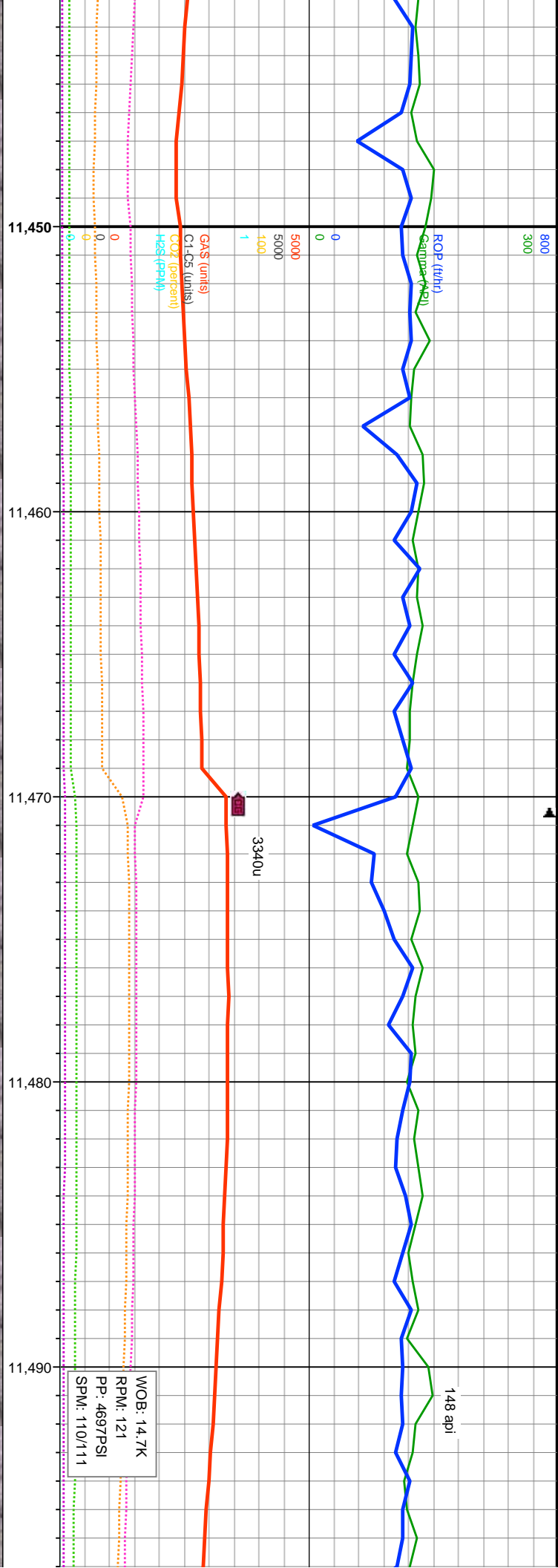
MD: 11,265'
INC: 89.32°
AZM: 178.18°
TVD: 7,726.1'
VS: 3,102.73'

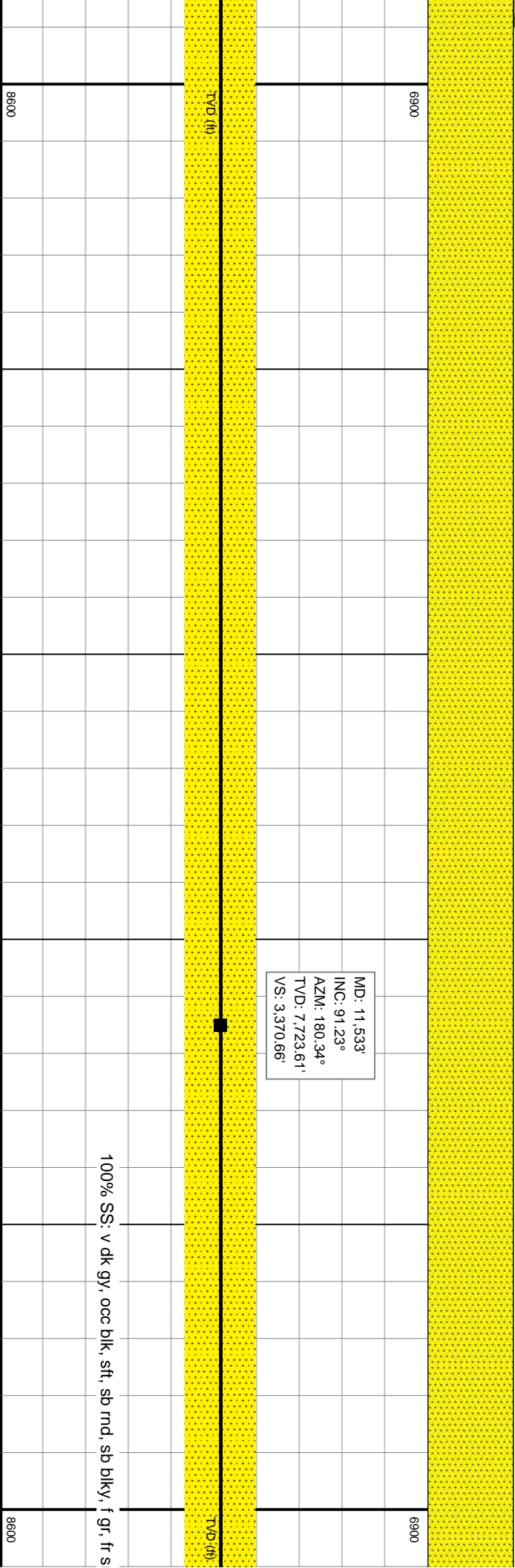
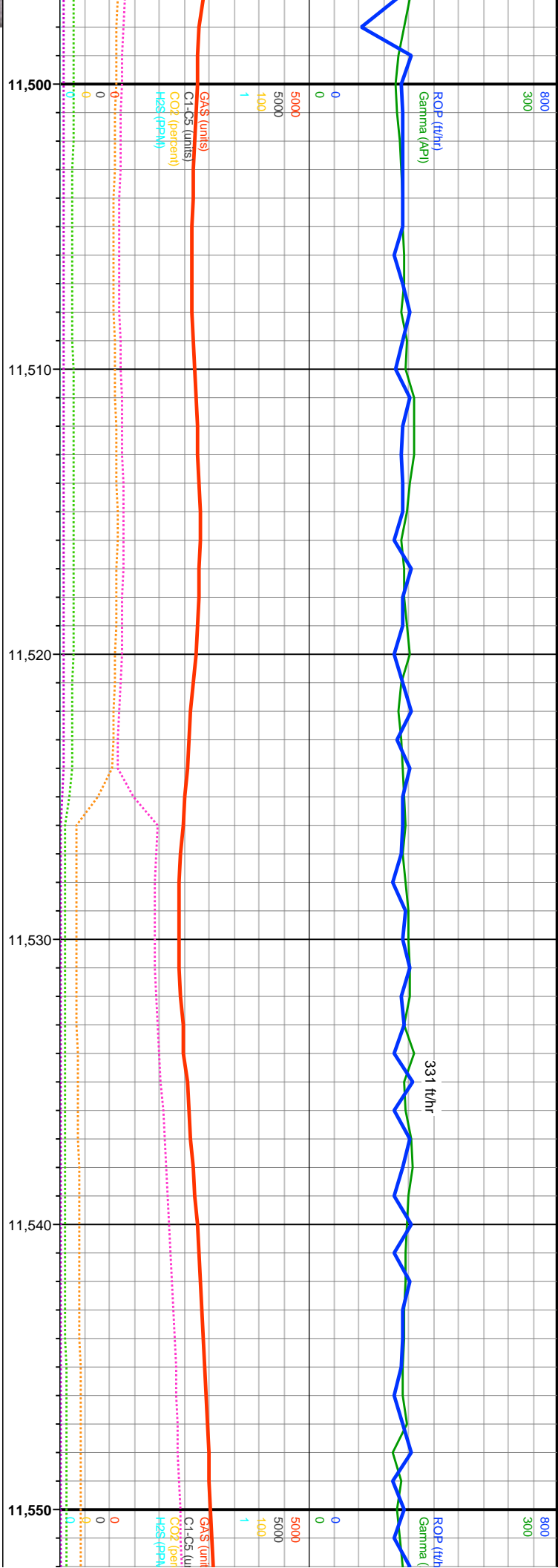
95% SS: v dk gy, occ blk, sft, sb rnd, sb blk, f gr, fr srt, mod arg cmt, tr slty sh string, 5%
SLTY SH: dk gy, sft, sb pty- sb blk, arg, slty- rthy tex, calc.

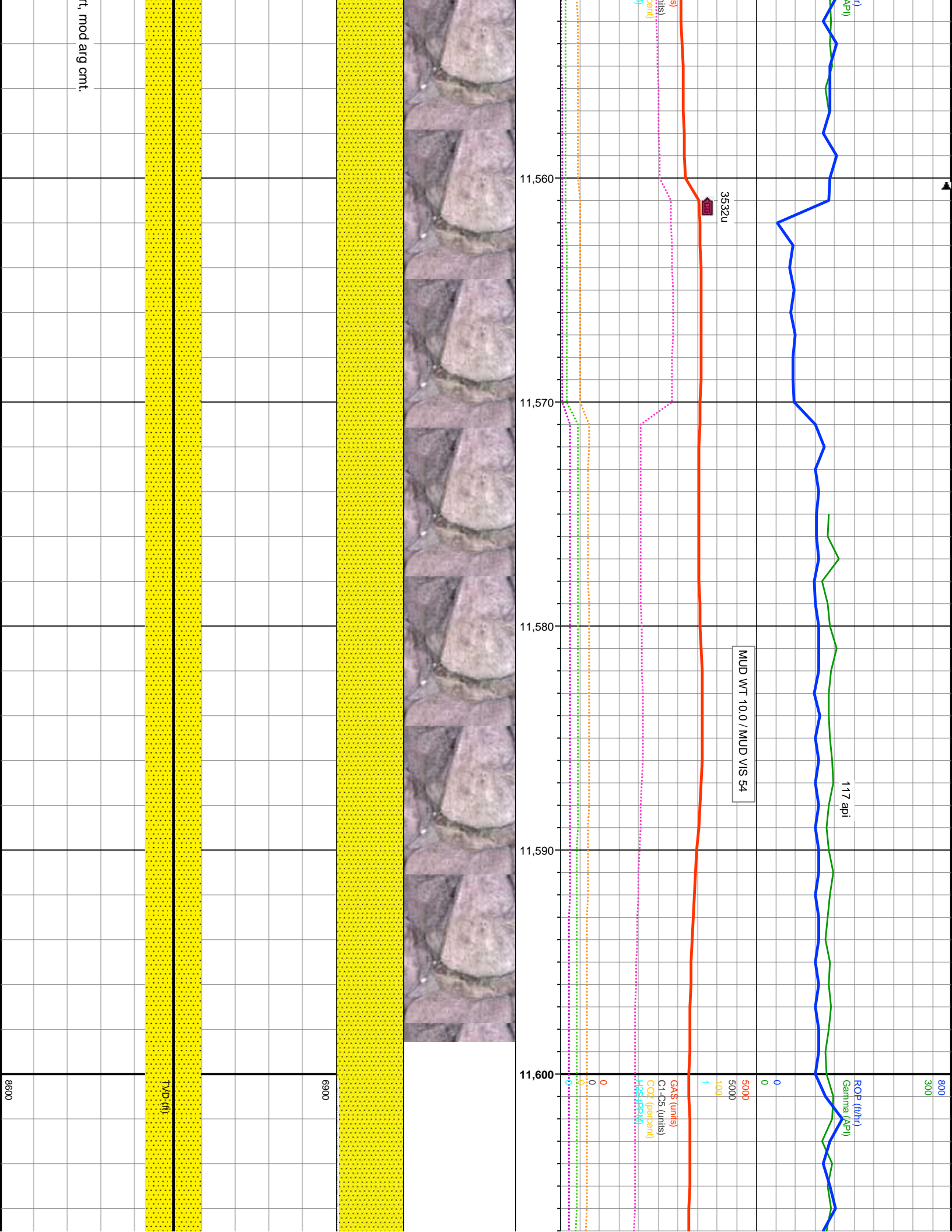


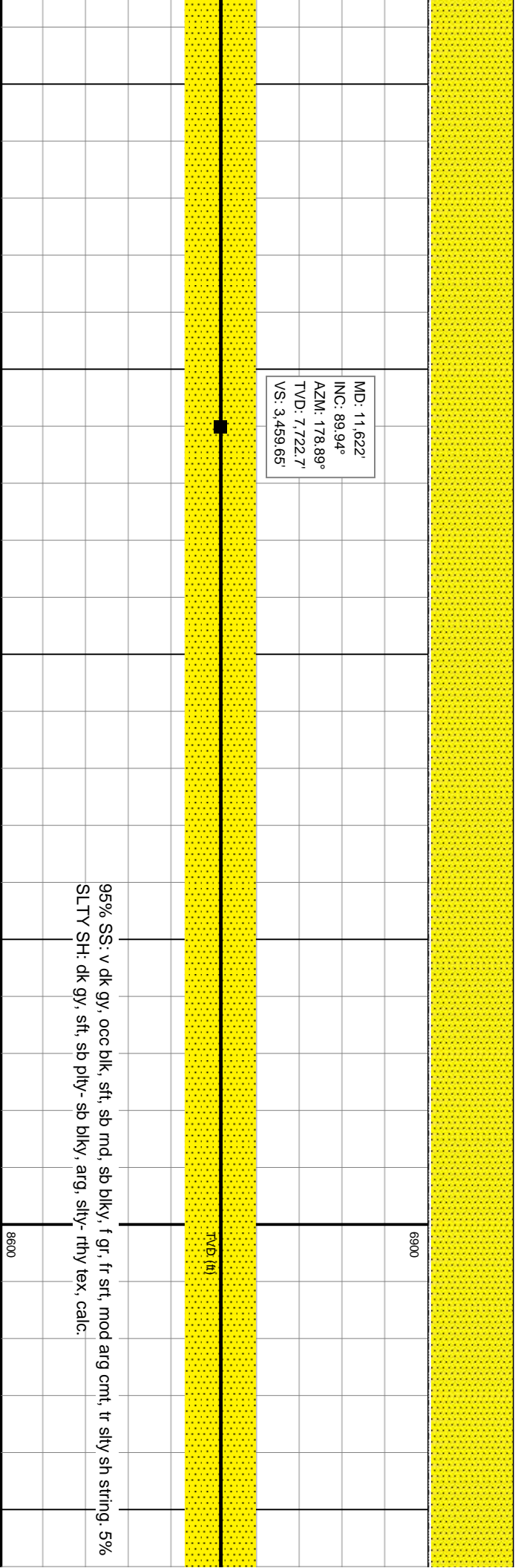
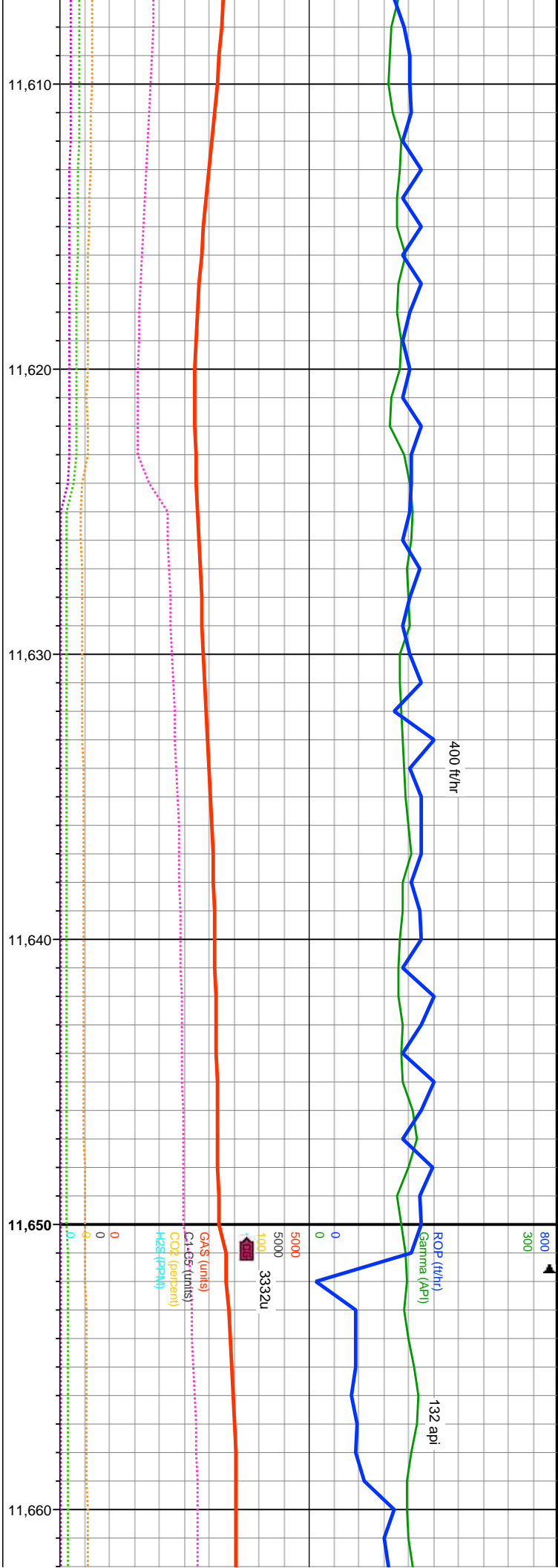


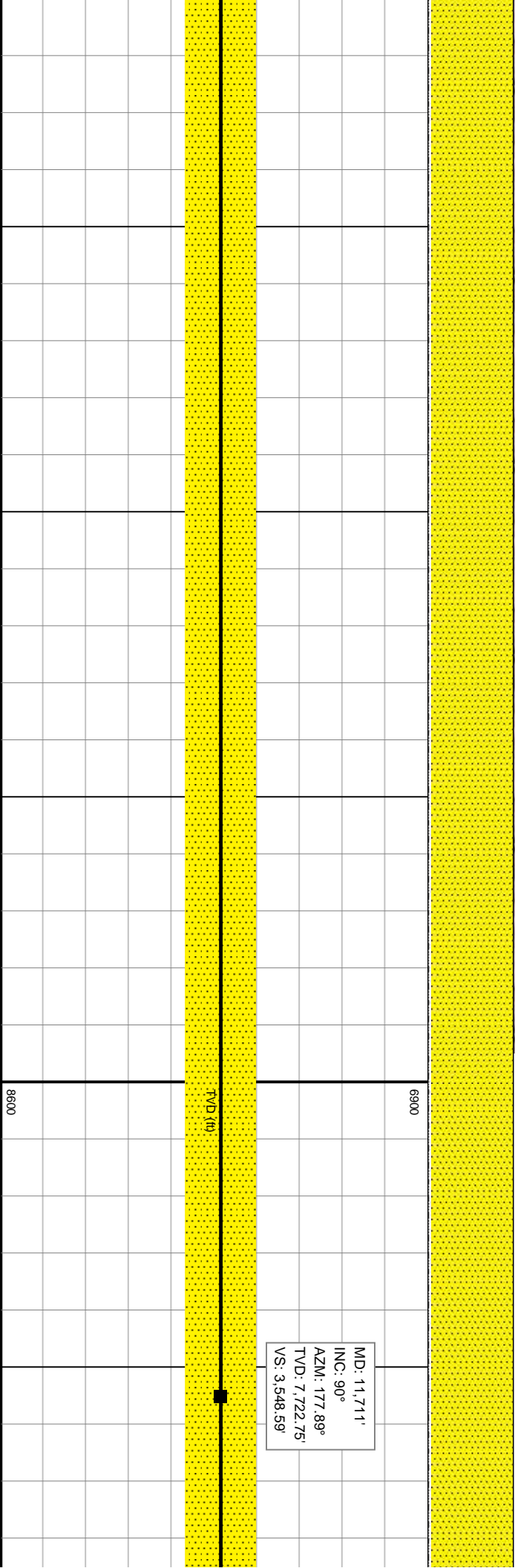
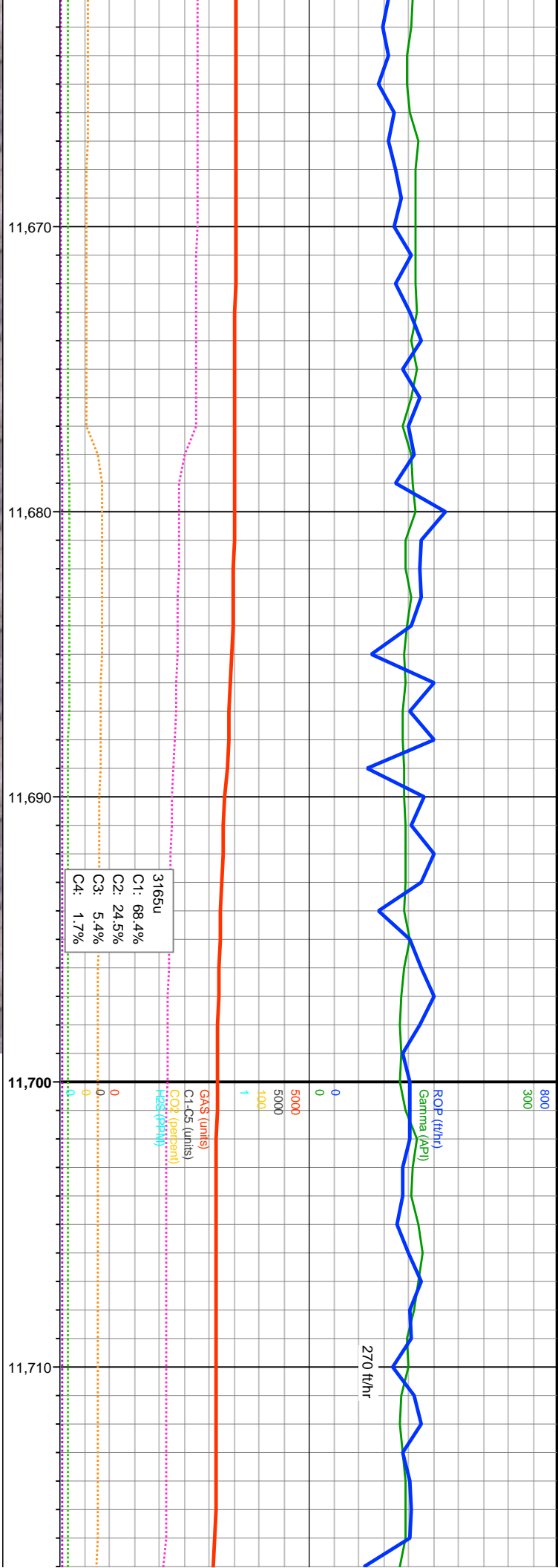


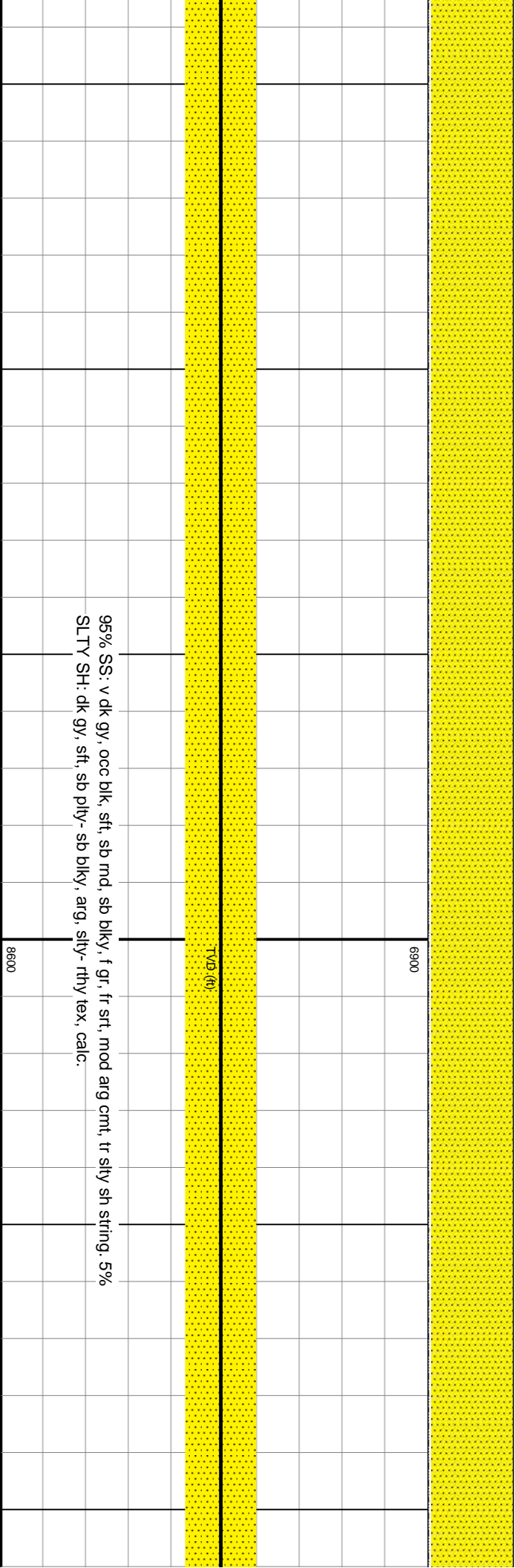
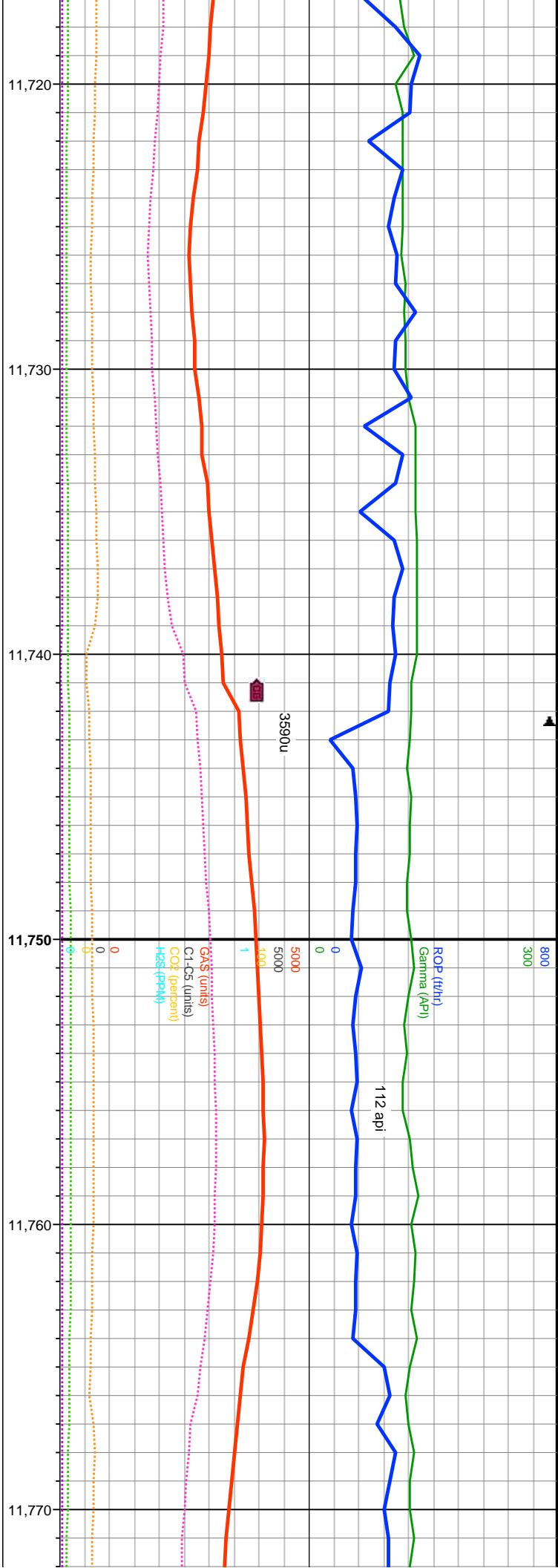




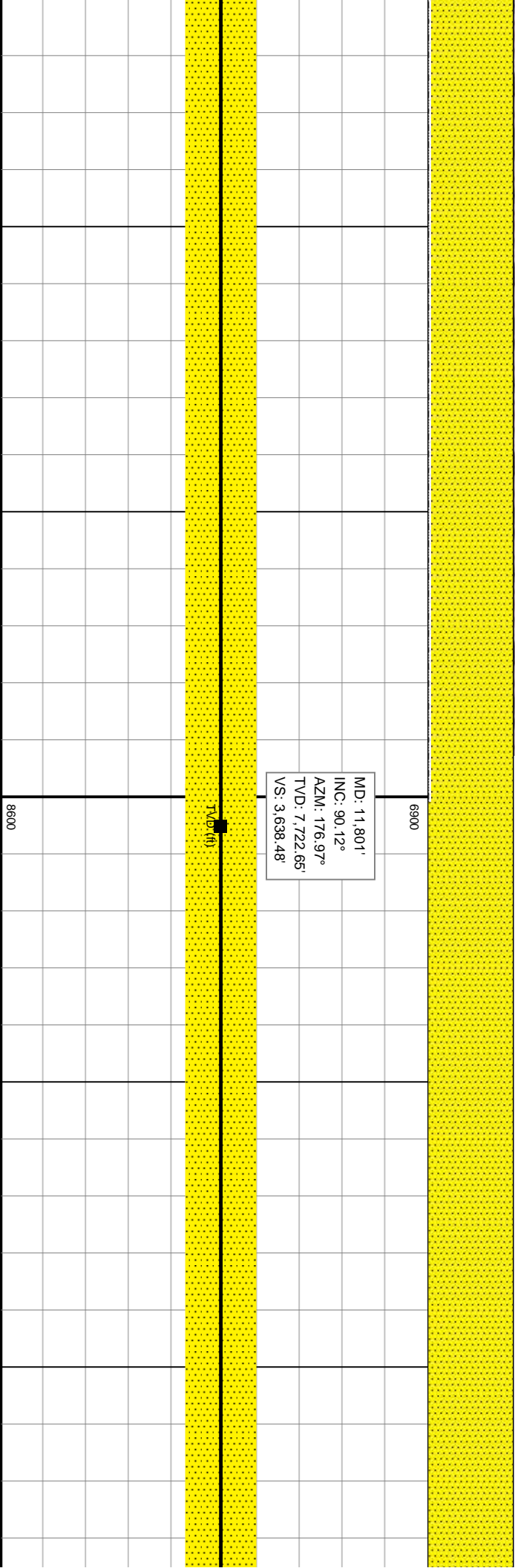
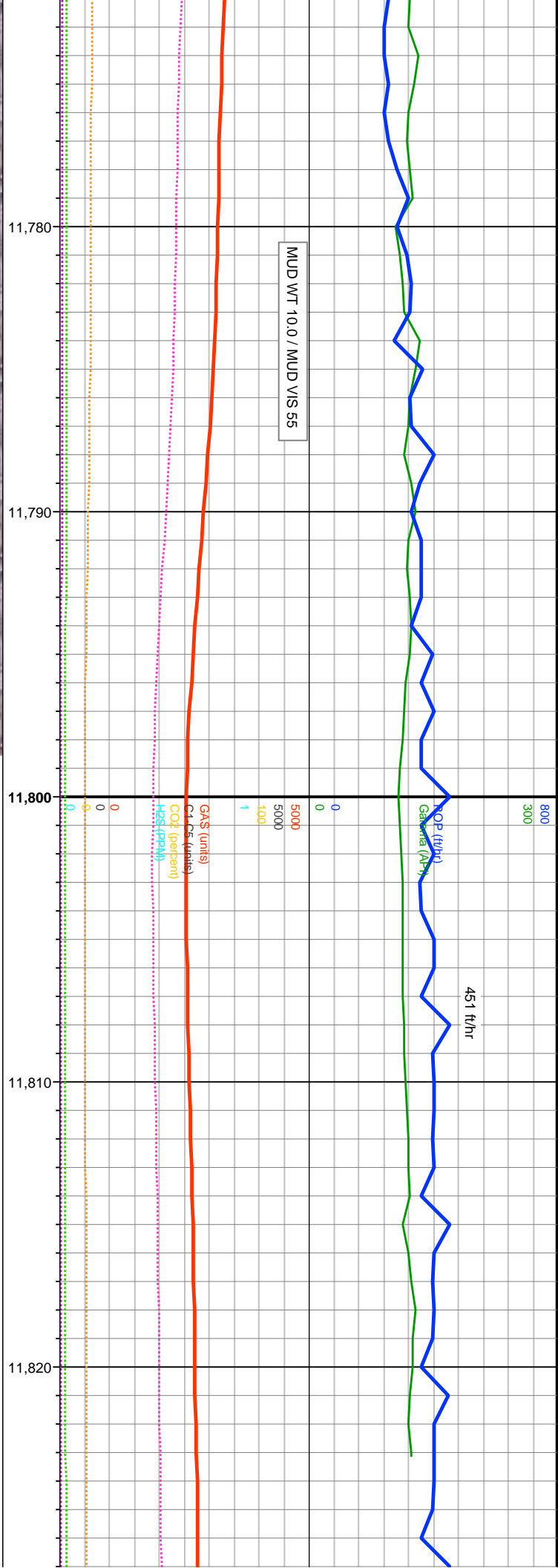


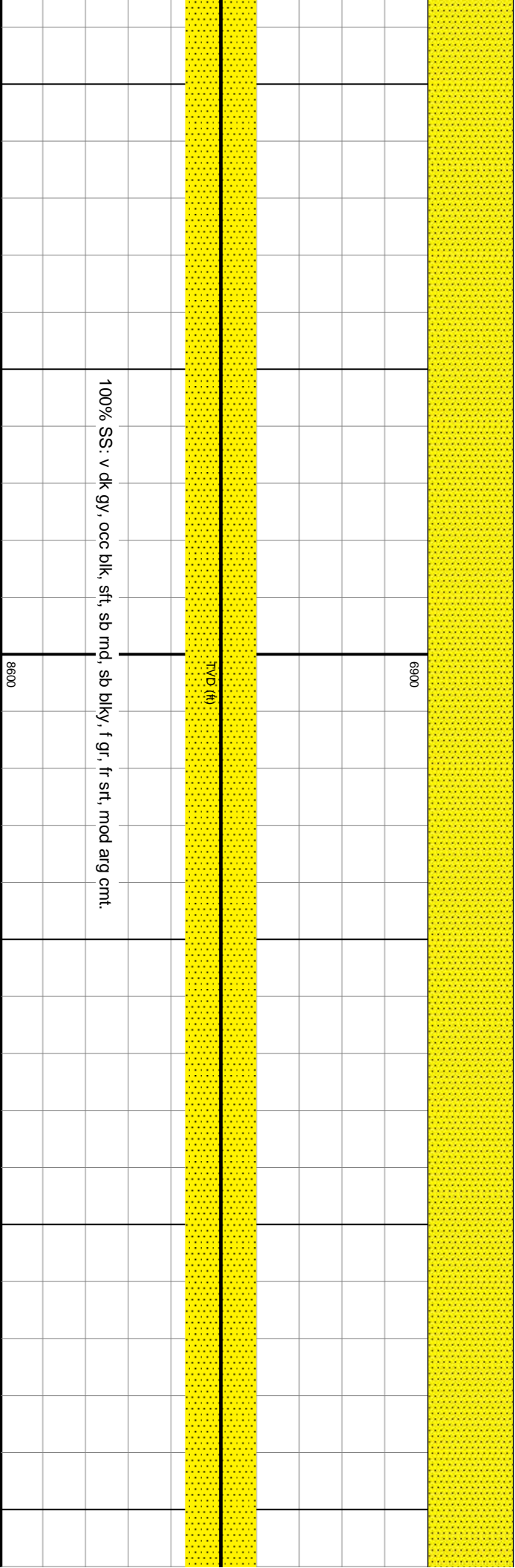
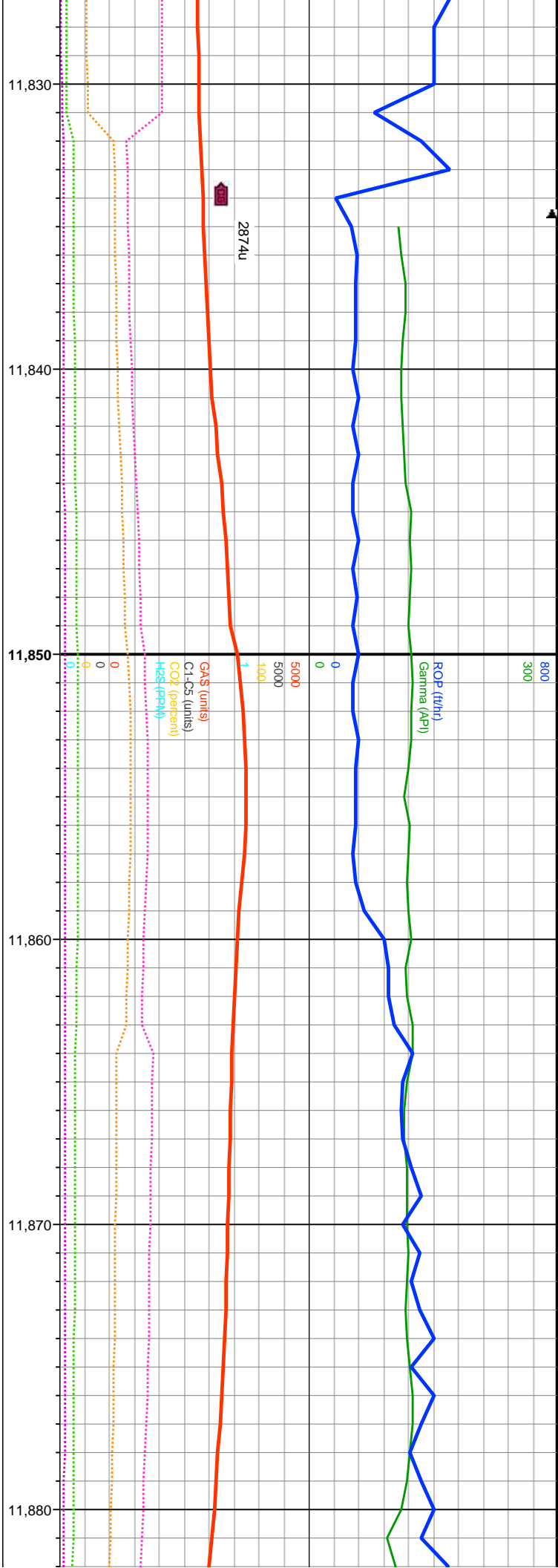


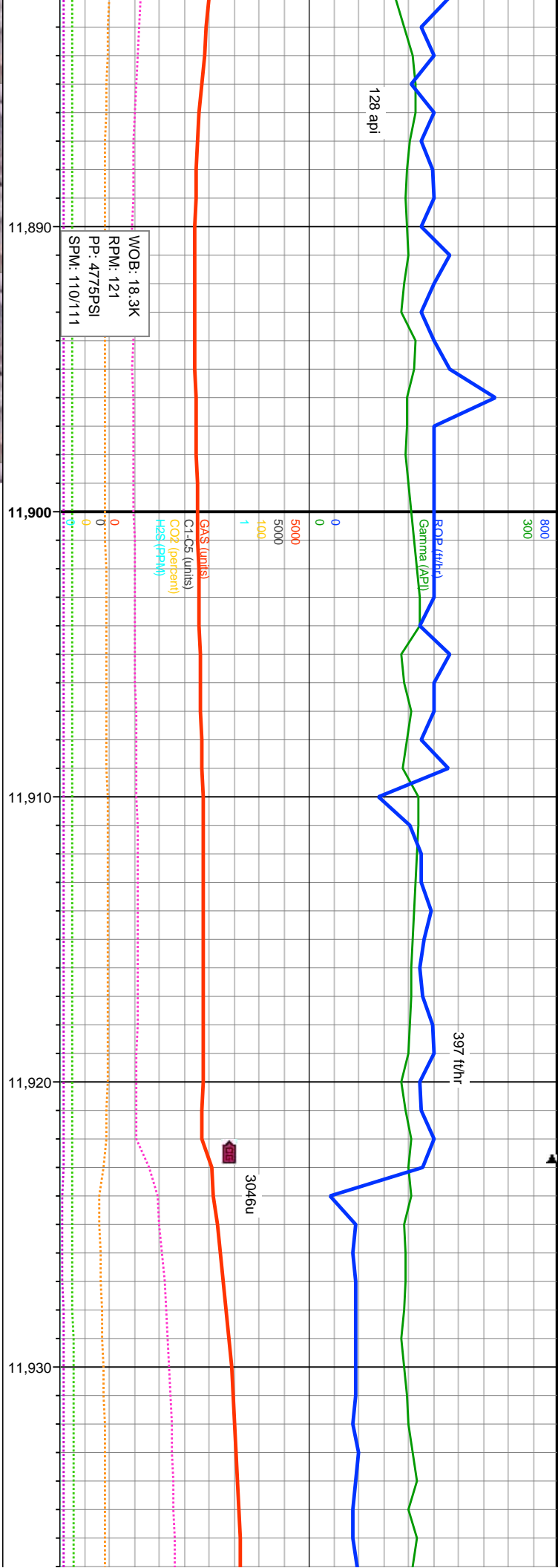




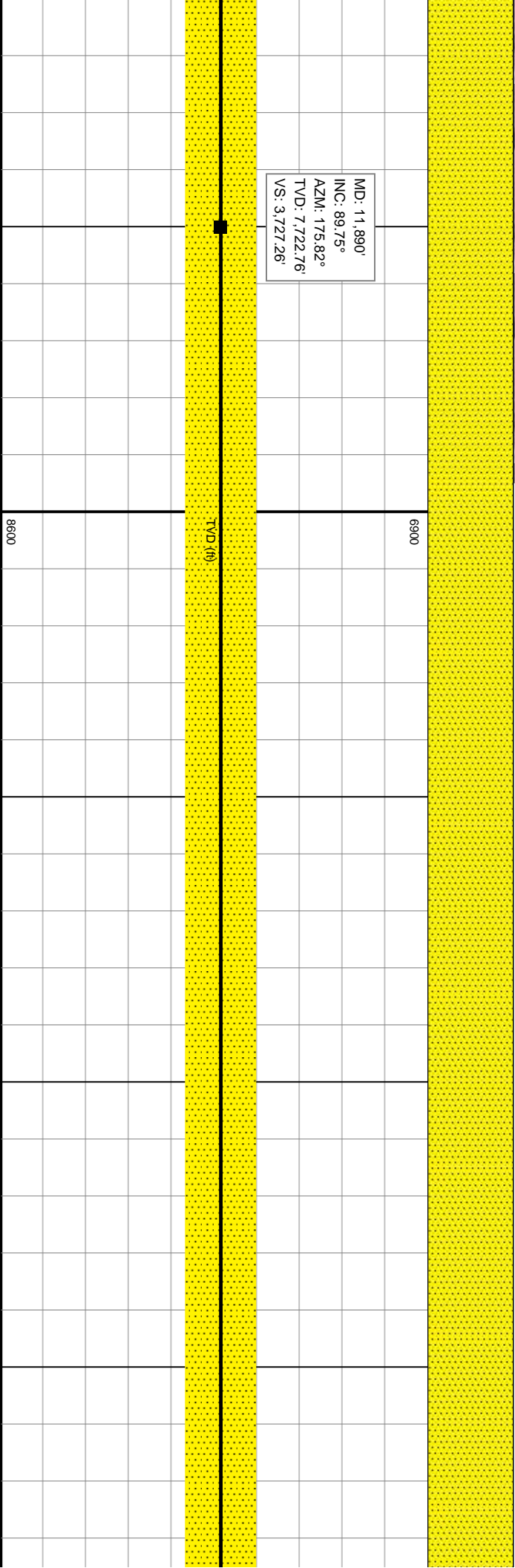
95% SS: v dk gy, occ blk, sft, sb md, sb blk, f gr, fr srt, mod arg cmt, tr silty sh string. 5%
SLTY SH: dk gy, sft, sb pty- sb blk, arg, silty- rthy tex, calc.

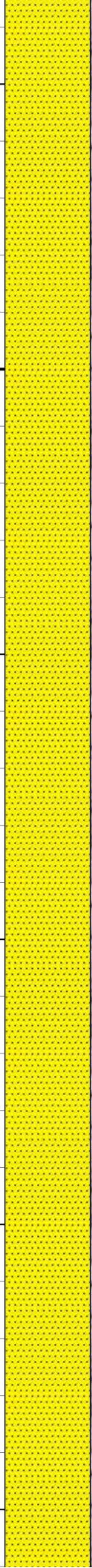
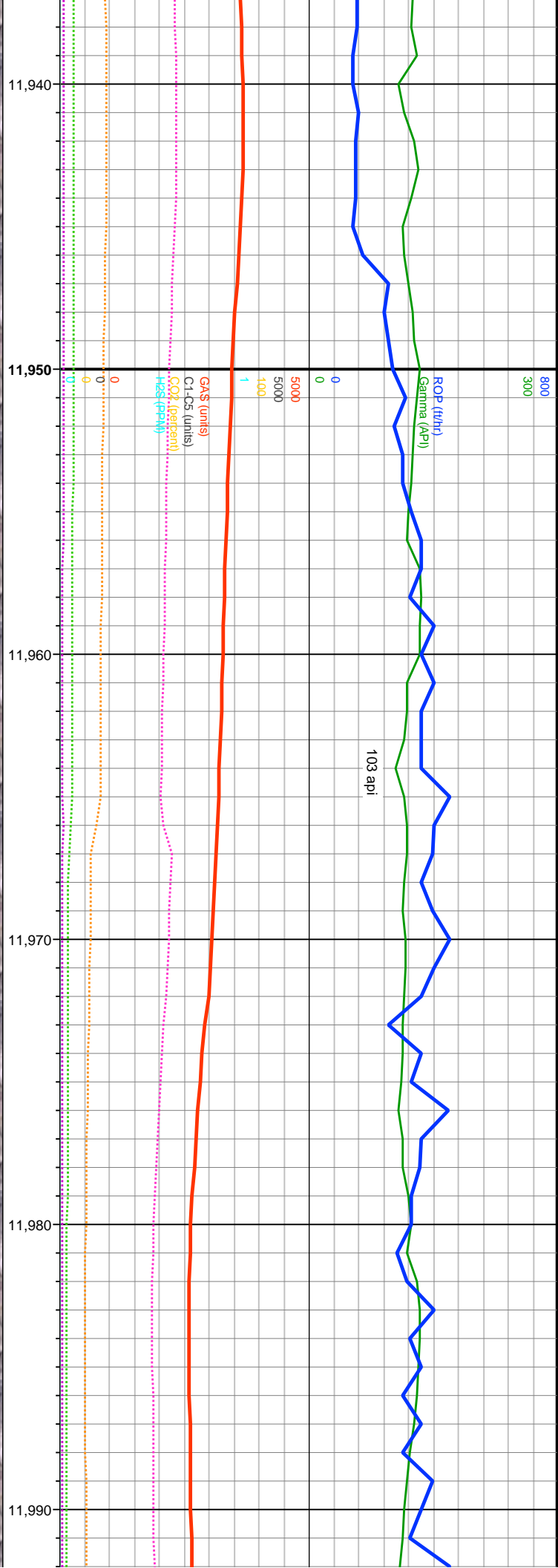






MD: 11,890'
INC: 89.75°
AZM: 175.82°
TVD: 7,722.76'
VS: 3,727.26'



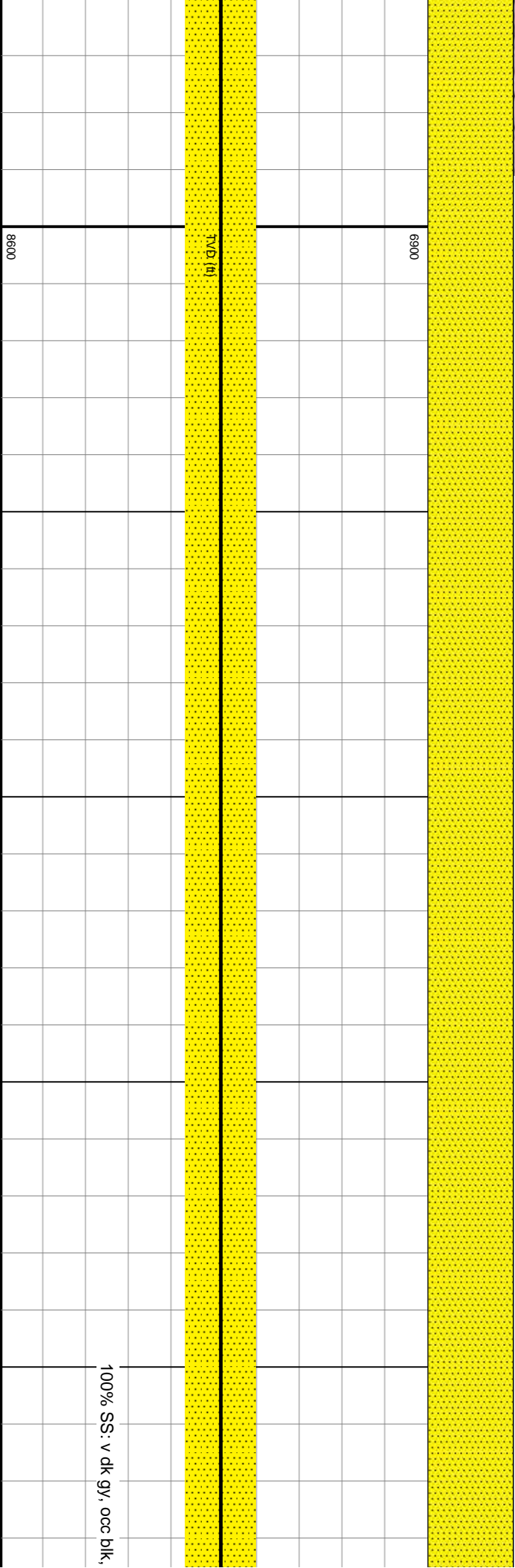
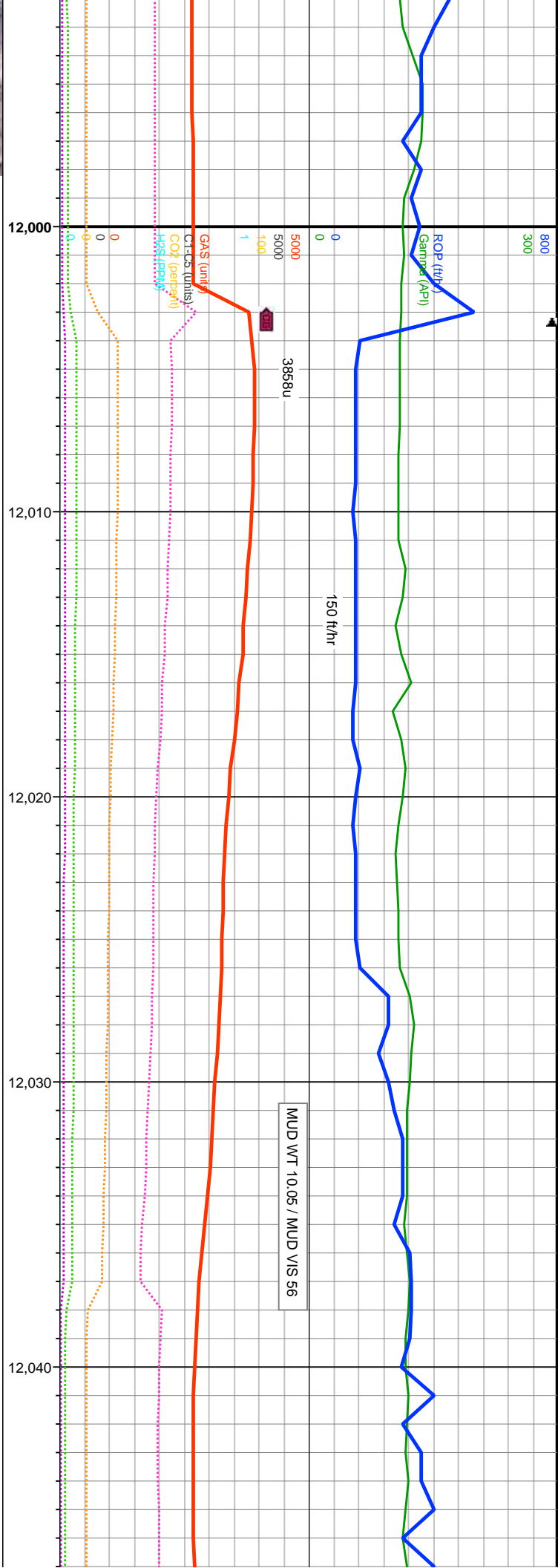


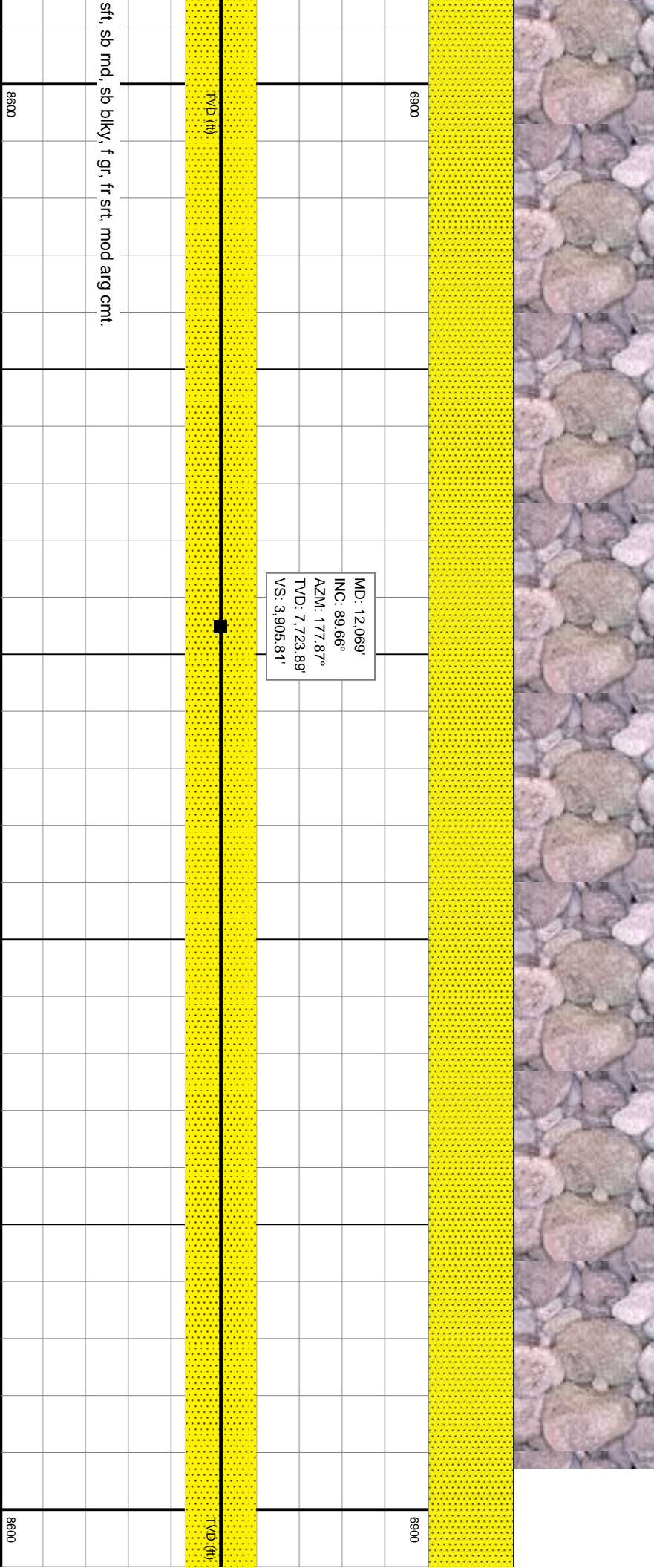
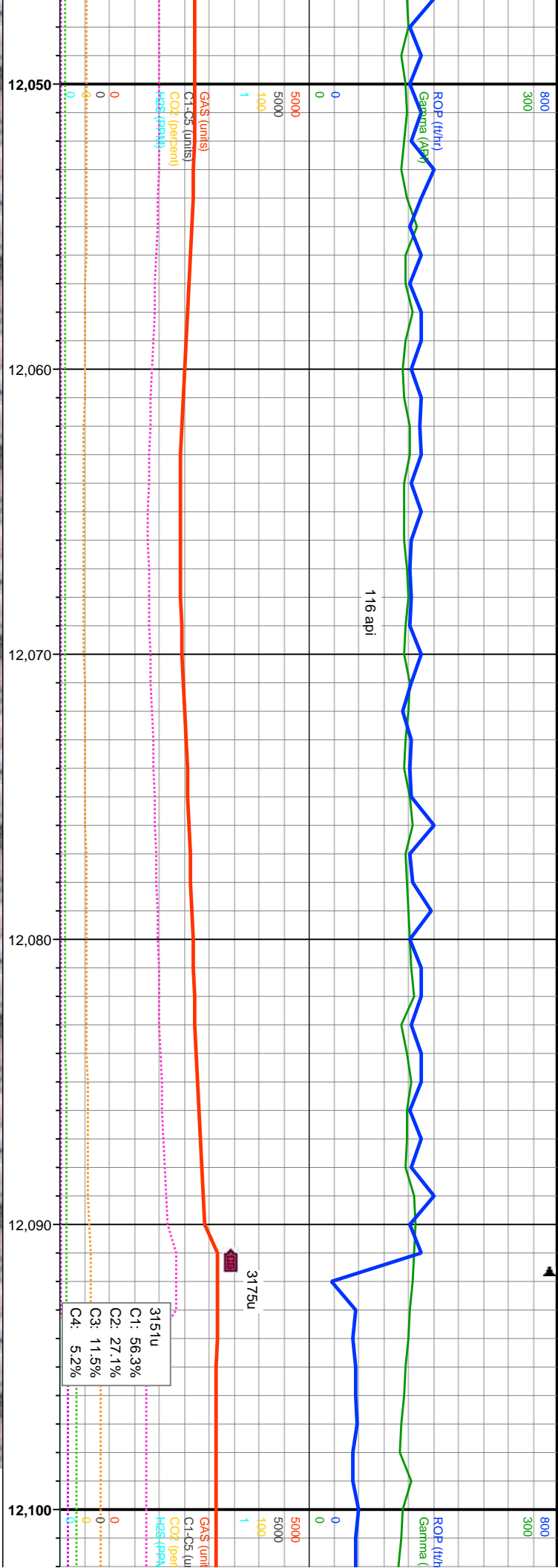
MD: 11,979'
INC: 89.57°
AZM: 175.8°
TVD: 7,723.28'
VS: 3,815.98'

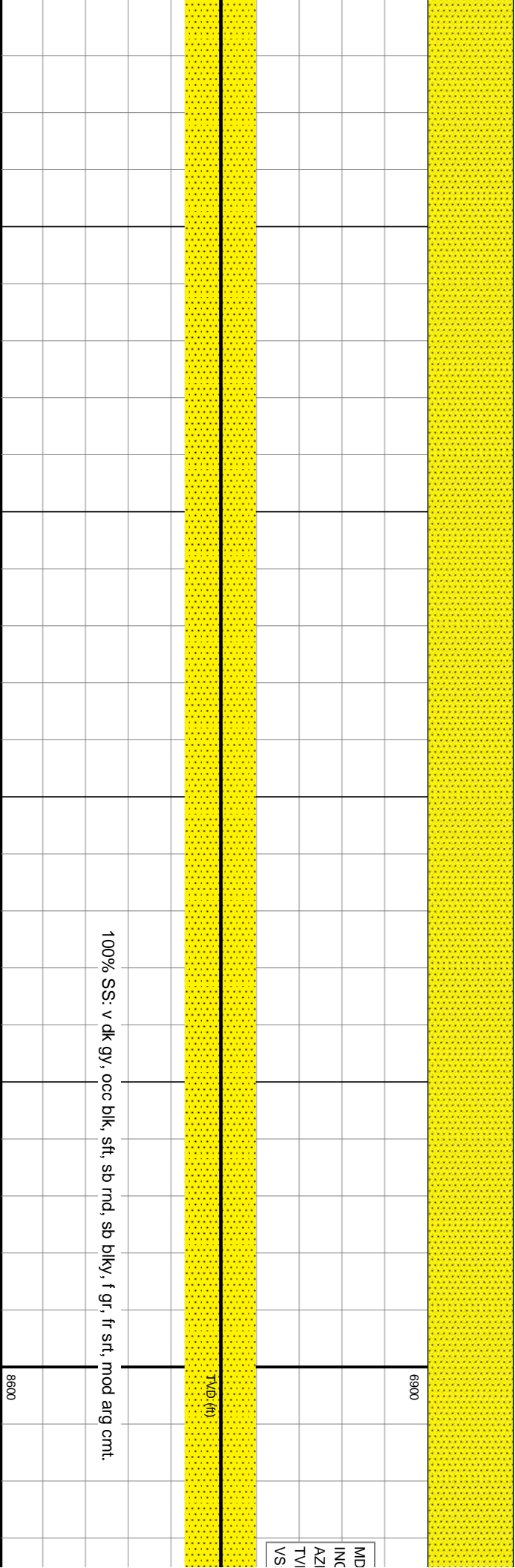
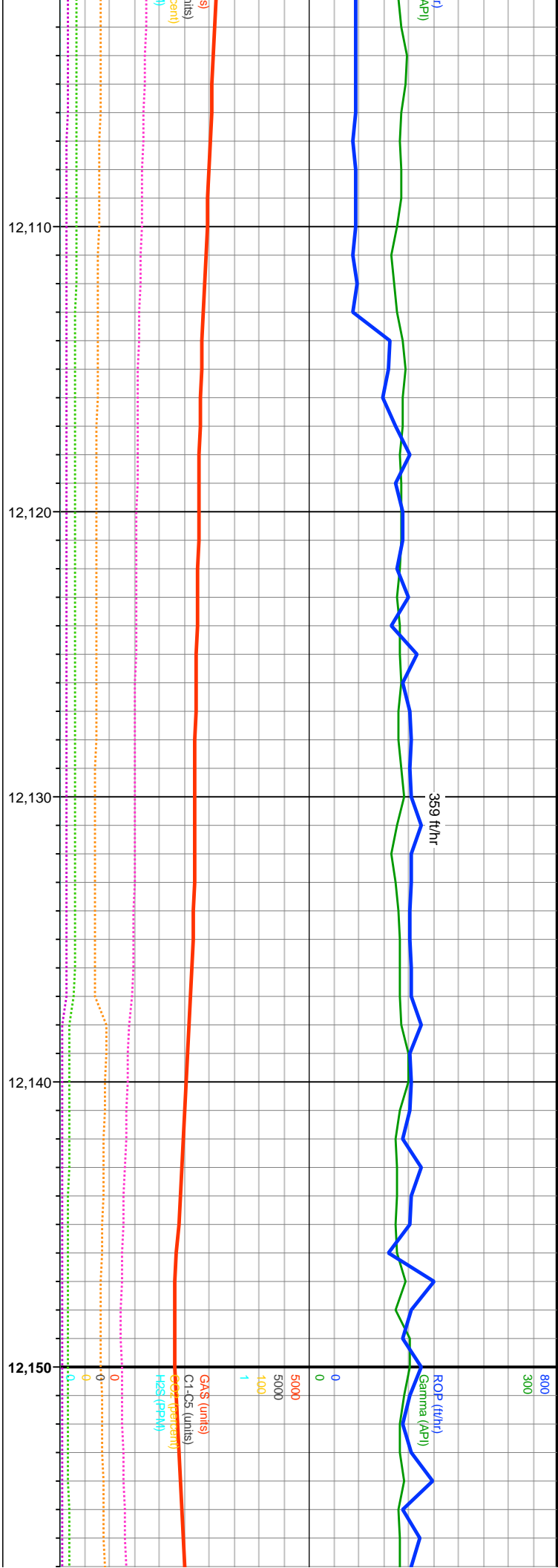
TVD (ft)

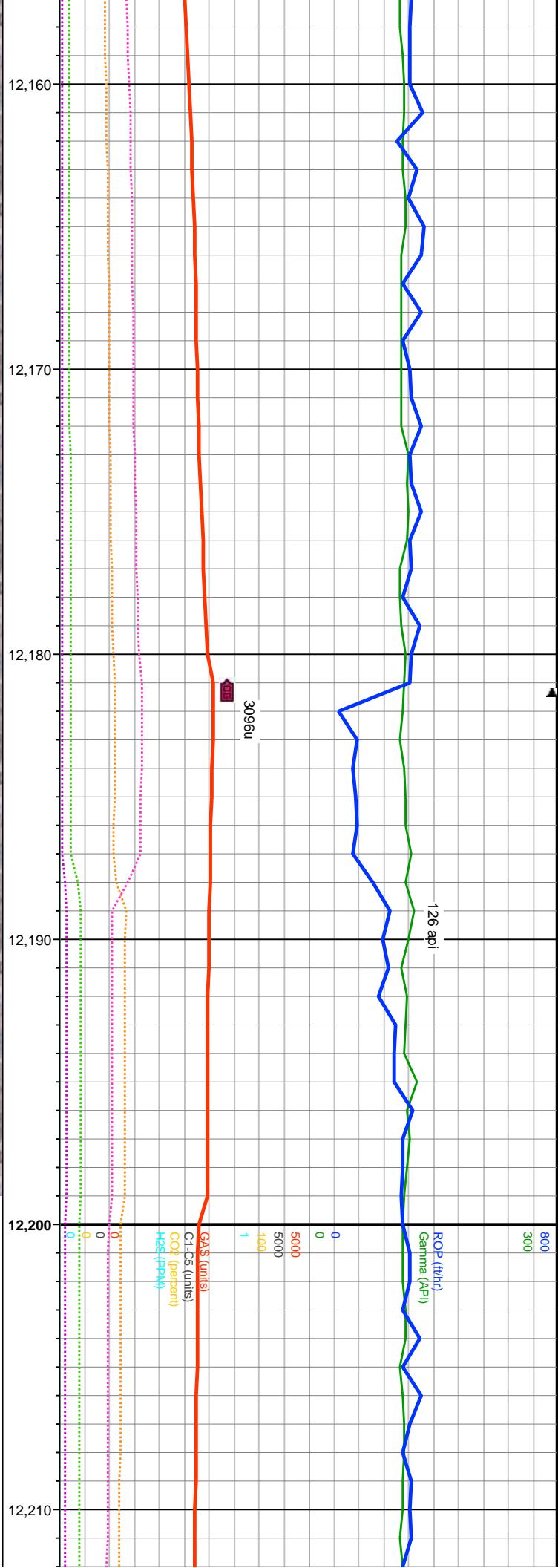
100% SS: v dk gy, occ blk, sft, sb md, sb blk, f gr, fr srt, mod arg cnt.

8600









12,158'
89.78°
M: 179.14°
D: 7.724.32'
3,994.76'

