



Scale: 5" / 100'  
Measured Depth Log

**Well Name** B-Farm LD 18-388HC

**Location** Sec 7-T1S-R67W

**State** COLORADO

**Country** USA

**API Number** 05 001 10099 0000

**Geographic Region** DJ BASIN

**Spud Date** 12/27/2017

**County** ADAMS

**Rig Number** PRECISION 460

**AFE #** 18DC0005

**Field** WATTENBERG

**Drilling Completed** 1/7/2018

**Ground Elevation** 5124.6'

**K.B. Elevation** 5144.6'

**Logged Interval** 6000' MD To 18510' MD

**Total Depth** 18510' MD

**Formation** CODELL

**Type of Drilling Fluid** OIL BASED MUD

## Operator

**Company** Great Western Oil and Gas

**Address** 1801 Broadway, Ste 500  
Denver, CO 80202



## Geologist










**Name** Joey Luce & Gabriel Rubio





**Company** Terra Guidance

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



## Color Coding








	Oil		Condensate		Gas
	Note		Core		Pressure
	Error		Water		Seal





<b>Oil Show</b>	 ORGANIC
	 PINPOINT
 DEAD	 VUGGY

## Engineering

 QUESTIONABLE	
 SPOTTED STAINING	 BIT






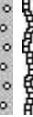
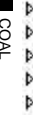


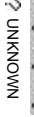
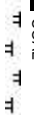

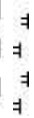

















## Porosity

 E EARTHY	 CONNECTION (LEFT)
 F FENESTRAL	 CONNECTION (RIGHT)
 F FRACTURE	 CONNECTION GAP
	 CORE - LOST





















































 INTERCRYSTALLINE	 CORE - RECOVERY
 INTEROOLITIC	 DST INTERVAL

 MOLDIC	 FAULT
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## Rock Types

 Shaly Sandston	 SILTSTONE	 DOLOMITE	 BRECCIA
 SANDSTONE	 BENTONITE	 CHERT	 TILL
 LIMESTONE	 CEMENT	 COAL	 TUFF
 Chalk	 UNKNOWN	 MARLSTONE	 IGNEOUS
 Marl	 ANHYDRITE	 CLAYSTONE	 METAMORPHIC
 SHALE	 GYPSUM	 SHALE GRAY	 CALCAREOUS SHALE
 Silty Shale	 SALT	 SHALE COLORED	
 Shaly Siltstone	 SIDERITE or LIMONITE	 CONGLOMERATE	

## Accessories

<b>F FOSSIL</b>	 ARGILLACEOUS	 GLAUCONITE	
 GASTROPOD	 ARGILLITE GRAIN	 GYPSIFEROUS	
 ALGAE	 B BENTONITE	 HEAVY MINERAL	 ANHYDRITE STRINGER
 AMPHIPORA	 BITUMENOUS SUBSTANCE	 K KAOLIN	 BENTONITE STRINGER
 BELEMNITE	 BRECCIA FRAGMENTS	 M MARLSTONE	 COAL STRINGER
 BIOCLASTIC	 C CALCAREOUS	 M MINERAL CRYSTALS	 DOLOMITE STRINGER
 BRACHIOPOD	 CARBONACEOUS FLAKES	 N NODULES	 GYPSUM STRINGER
 BRYOZOA	 CHTDK	 P PHOSPHATE PELLETS	 LIMESTONE STRINGER
 CEPHALOPOD	 CHTLT	 P PYRITE	 MARLSTONE (CALC) STRG
 CORAL	 COAL - THIN BEDS	 S SALT CAST	 MARLSTONE (DOL) STRG
 CRINOID	 D DOLOMITIC	 S SANDY	 SANDSTONE STRINGER
 ECHINOID	 F FELDSPAR	 S SILICEOUS	 SHALE STRINGER
 FISH	 F FERRUGINOUS PELLET	 S SILTY	 SILTSTONE STRINGER
 FORAMINIFERA	 F FERRUGINOUS	 T TUFFACEOUS	

## Stringer


 ANHYDRITE STRINGER	
 BENTONITE STRINGER	
 COAL STRINGER	
 DOLOMITE STRINGER	
 GYPSUM STRINGER	
 LIMESTONE STRINGER	
 MARLSTONE (CALC) STRG	
 MARLSTONE (DOL) STRG	
 SANDSTONE STRINGER	
 SHALE STRINGER	
 SILTSTONE STRINGER	

Other Symbols

 FORMATION TOP

L LITHOGRAPHIC

Rounding

 GAS SHOW

MX MICROXLN

 MINDEPTH MN DEPTH


A ANGULAR

MS MUDSTONE

 NORMAL FAULT

R ROUNDED

PS PACKSTONE

 OIL SHOW

S SUBANG

WS WACKSTONE

 OVERTURNED STRATA

S SUBRND


Sorting

 REVERSE FAULT

Textures

 SIDEWALL CORE (LEFT)

M MODERATE

 SIDEWALL CORE (RIGHT) BS BOUNDSTONE P POOR

 SLIDE


C CHALKY

W WELL

 SURVEY

CX CRYPTOXLN


CALCARIUOS SHALE

 TRIP GAS

E EARTHY

 WIRELINE TESTED - LEFT FX FINELYXLN

CALCARIOUS SHALE

 WIRELINE TESTED - RT BS GRAINSTONE

TERRA GUIDANCE  
BEGAN LOGGING @ 20:56 MST 01/02/2018  
BLOODHOUND GAS CHROMATOGRAPH #5122  
100' Sample Collection

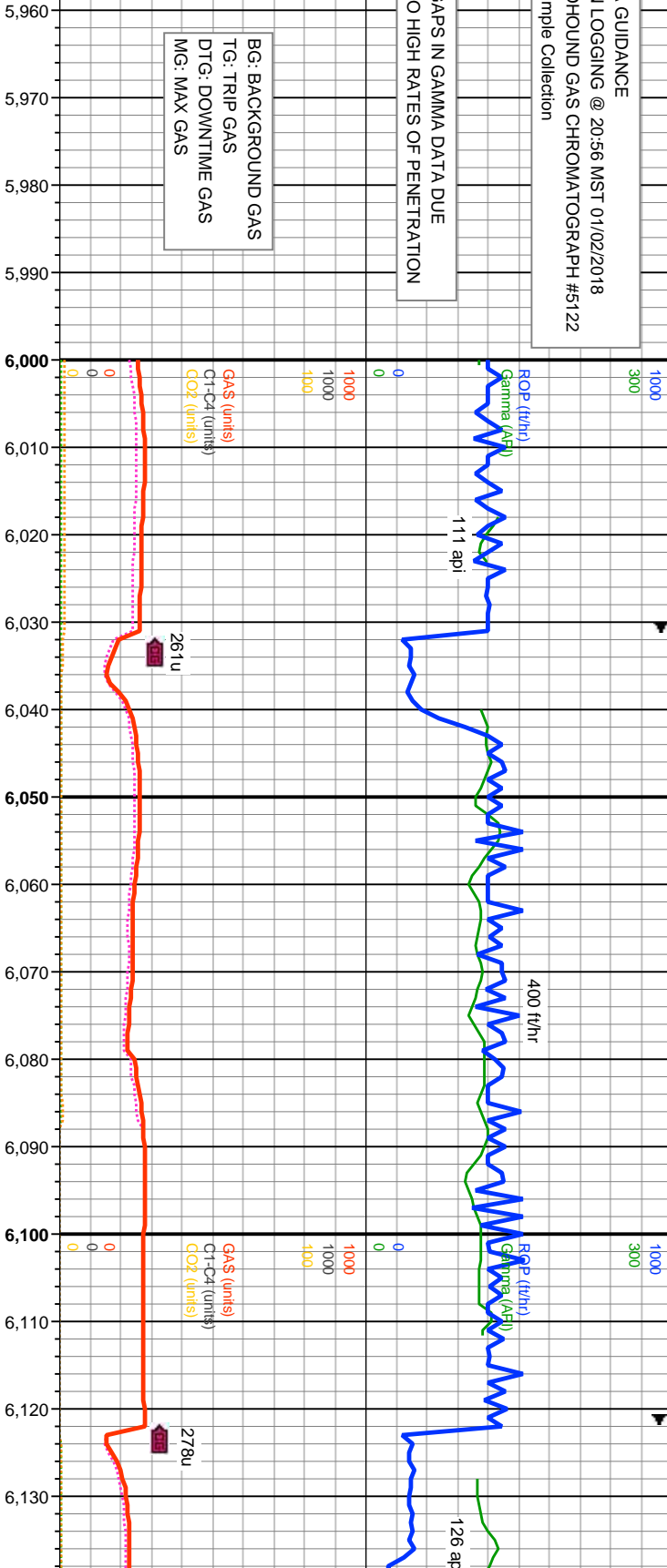
ROP  
ROP  
Gamma

GAPS IN GAMMA DATA DUE  
TO HIGH RATES OF PENETRATION

BG: BACKGROUND GAS  
TG: TRIP GAS  
DTG: DOWNTIME GAS  
MG: MAX GAS

GAS  
C1  
C2  
C3  
C4  
CO2

Depth



Images



% Lithology

TVD Scale  
5900' - 9000'

Bit #: 1  
Type: HCC ATD505X  
Size: 8.5"  
Depth In: 1,720'  
Depth Out: 9,515'  
Hours: 33.26 hrs  
Avg Ft/Hr: 234.37 /hr  
Jets: 5x15  
S/N: 5278842

MD: 6,002'  
INC: 20.97°  
AZM: 18.78°  
TVD: 5,903.53'  
VS: -522.62'

MD: 6,091'  
INC: 20.98°  
AZM: 16.28°  
TVD: 5,986.63'  
VS: -552.64'

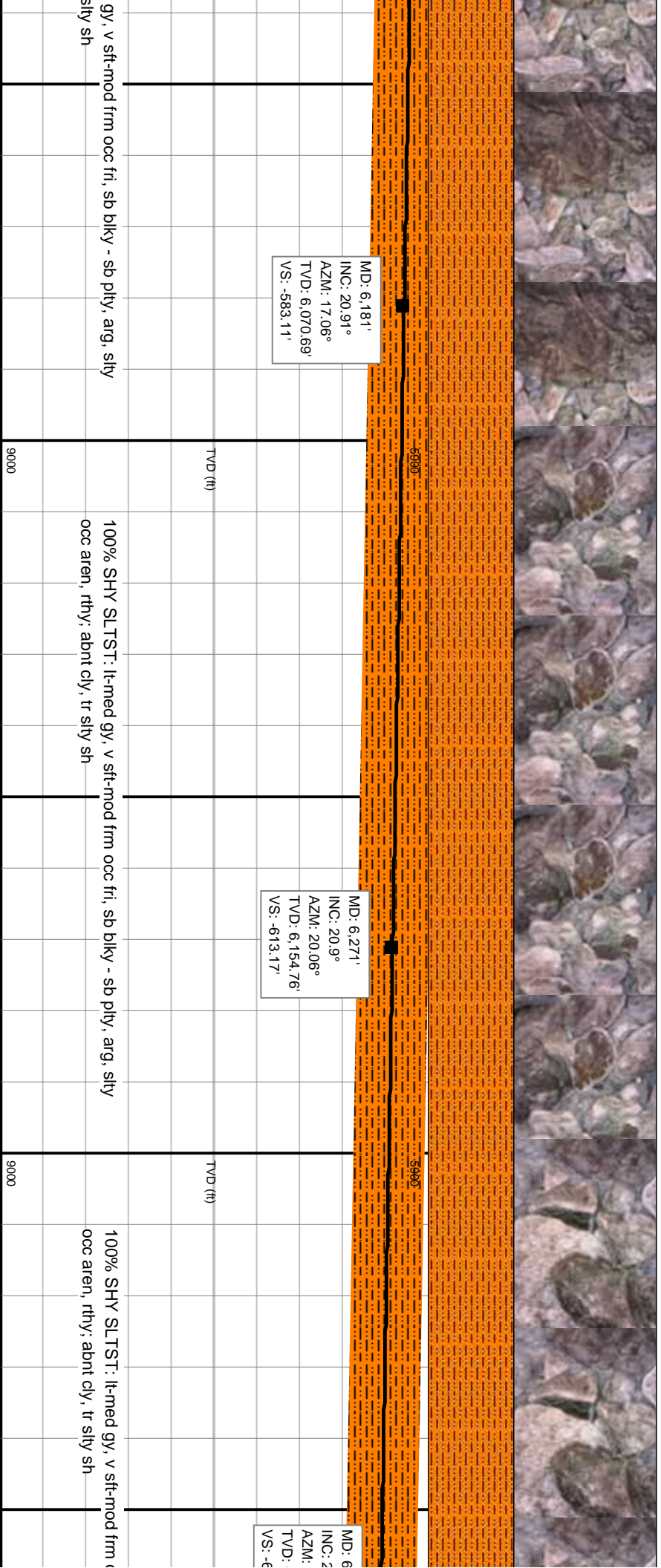
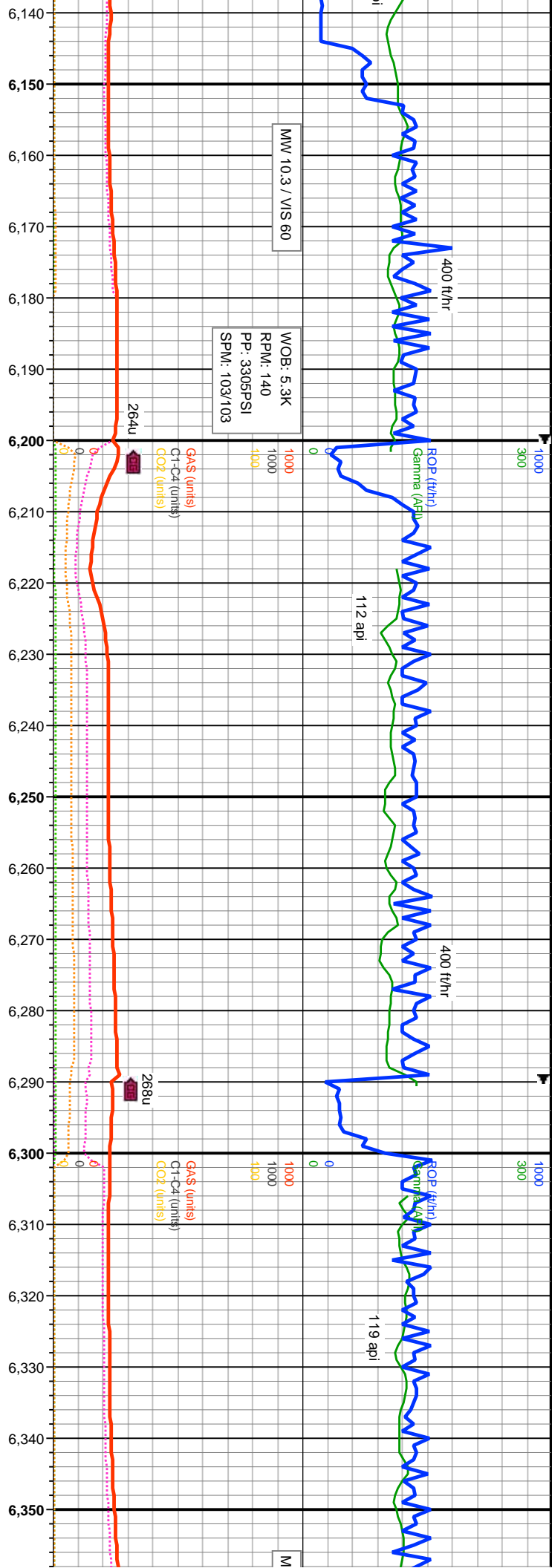
Well Bore  
TVD

TVD (ft)

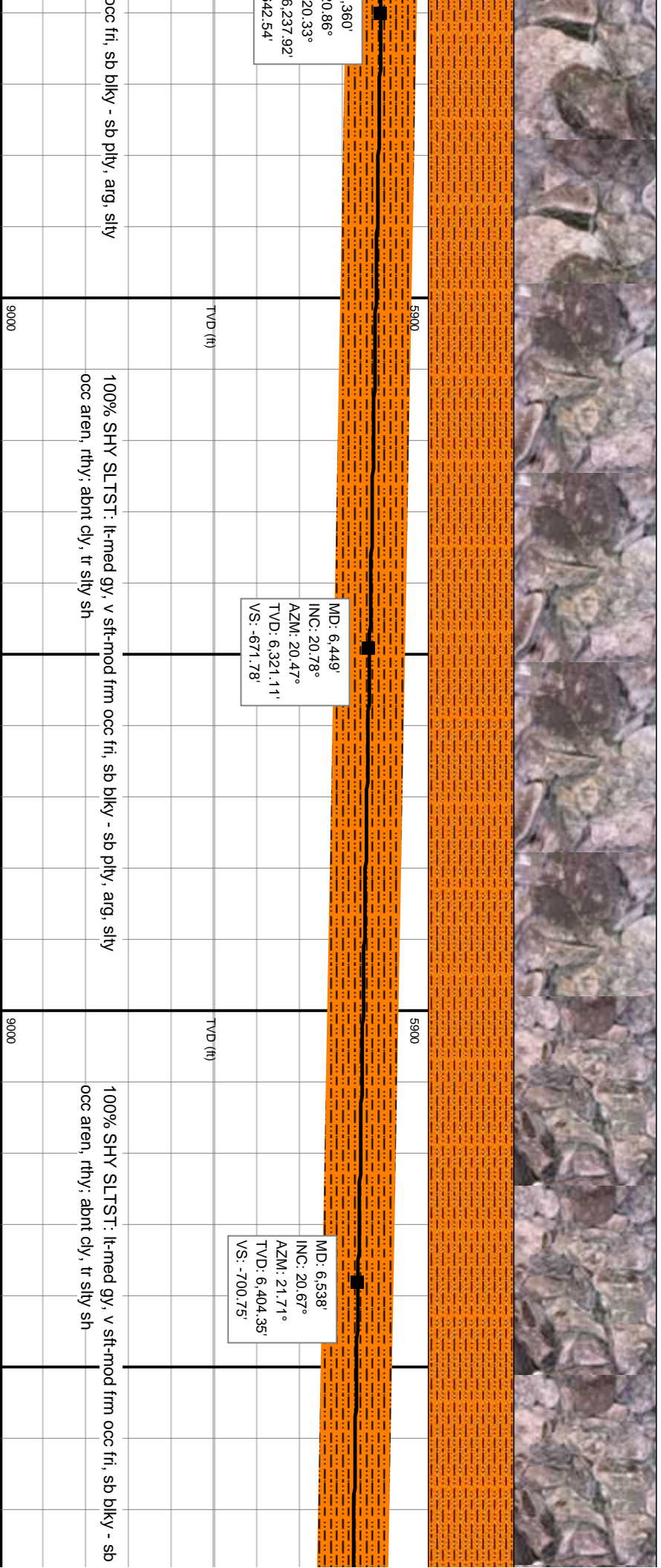
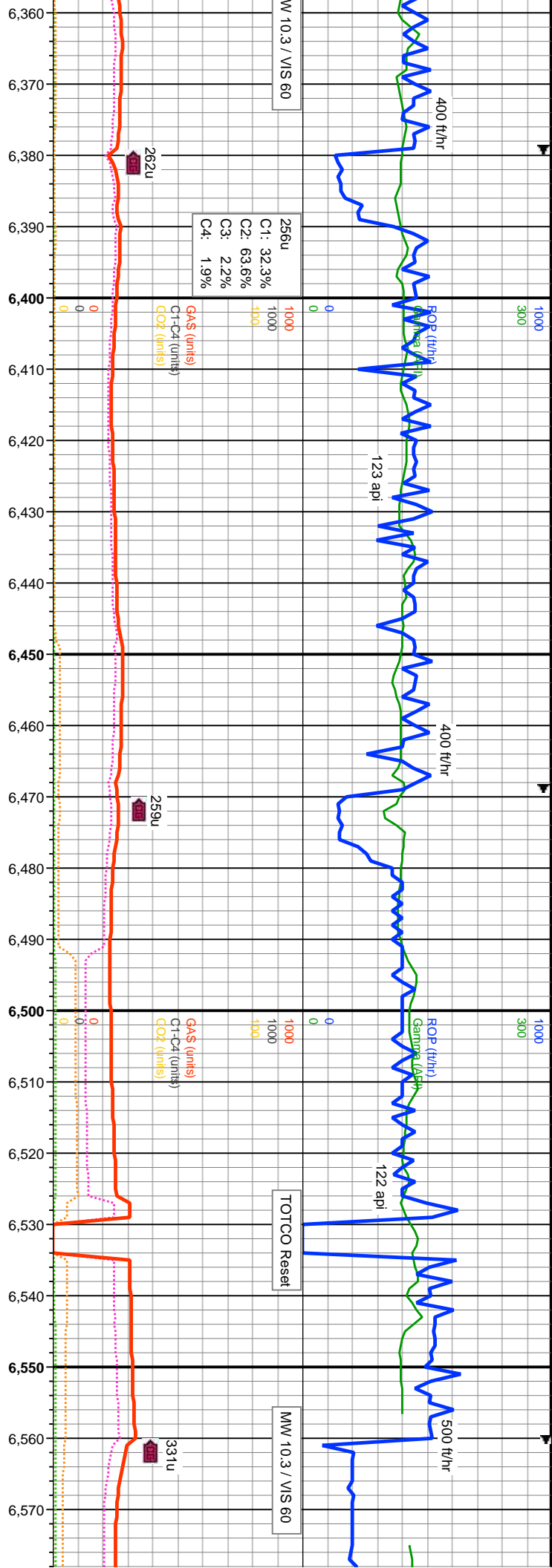
TVD (ft)

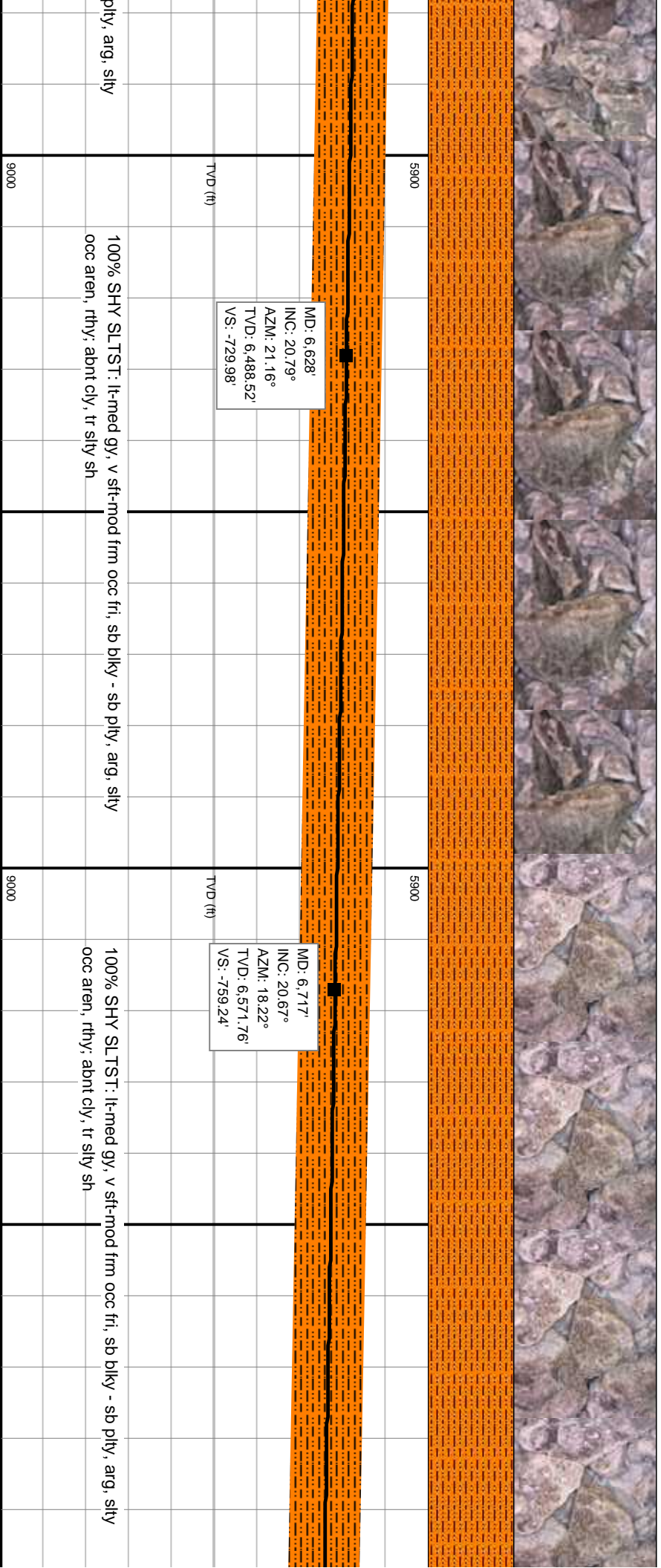
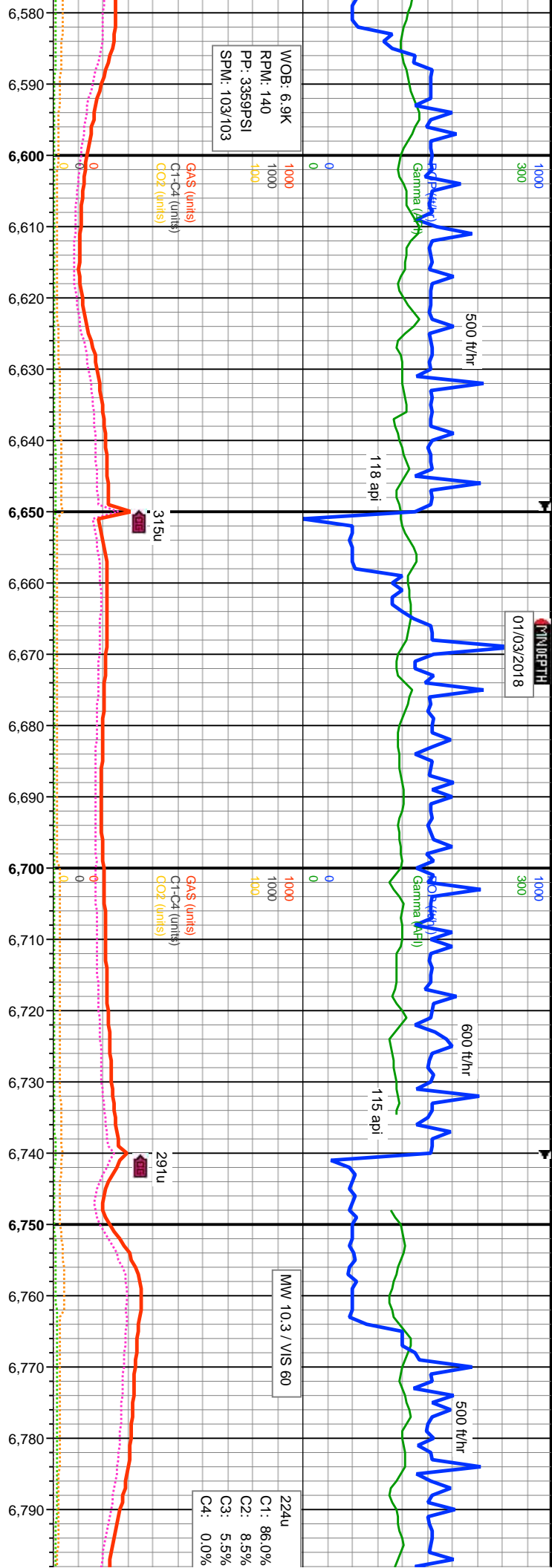
100% SHY SLTST: lt-med gy, v sft-mod frm occ fri, sb blkv - sb plty, arg, silty  
occ aren, rthy, abnt cly, tr silty sh

100% SHY SLTST: lt-med  
occ aren, rthy, abnt cly, tr s

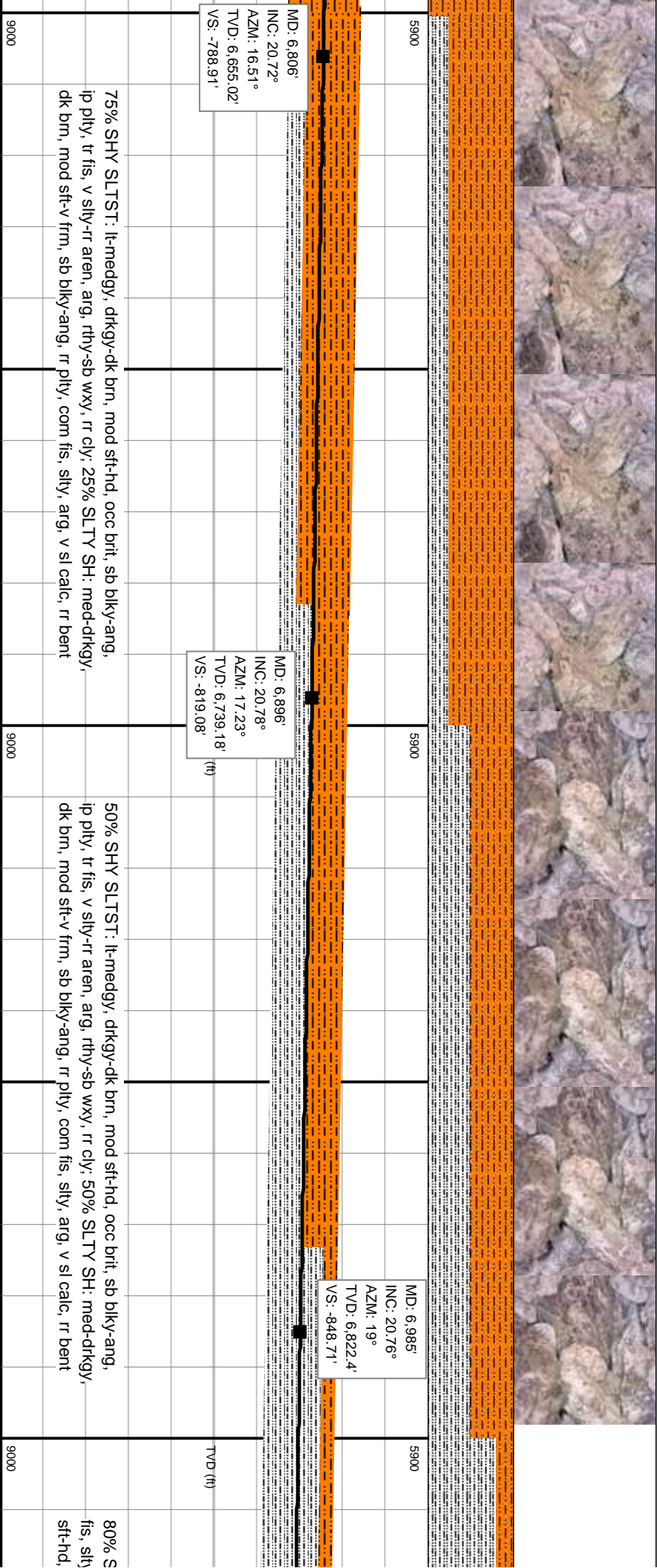
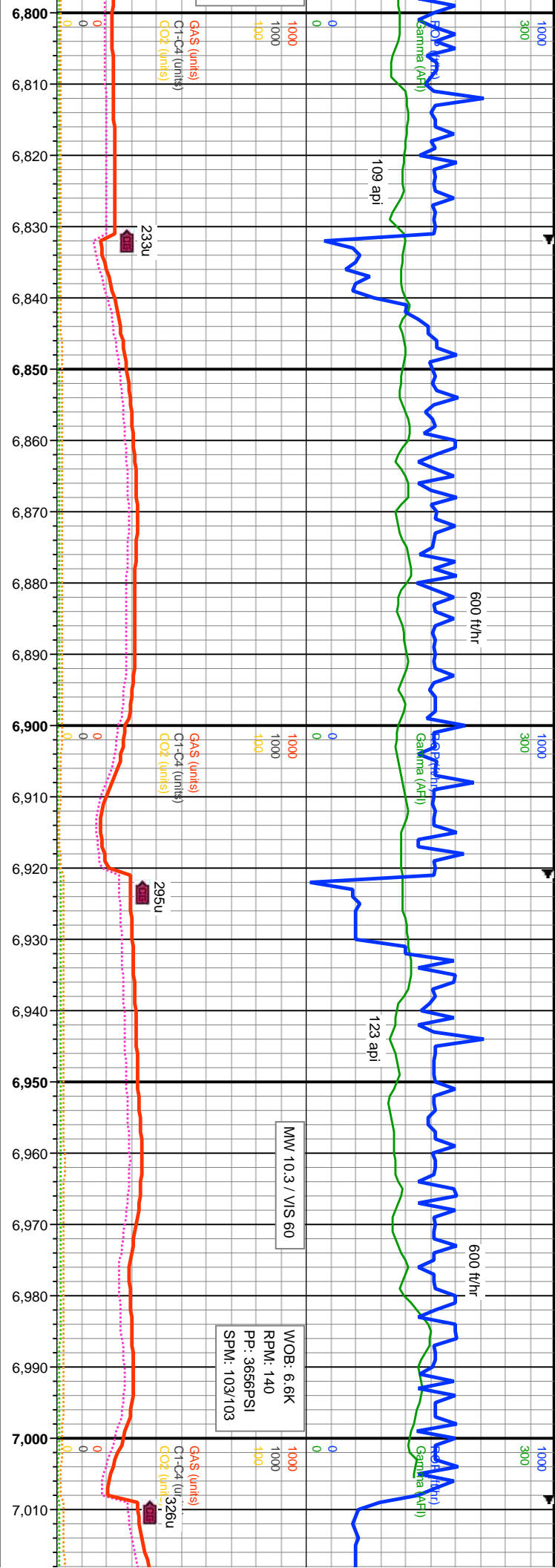












MD: 6.806'  
INC: 20.72°  
AZM: 16.51°  
TVD: 6.655.02'  
VS: -788.91'

MD: 6.896'  
INC: 20.78°  
AZM: 17.23°  
TVD: 6.739.18' (ft)  
VS: -819.08'

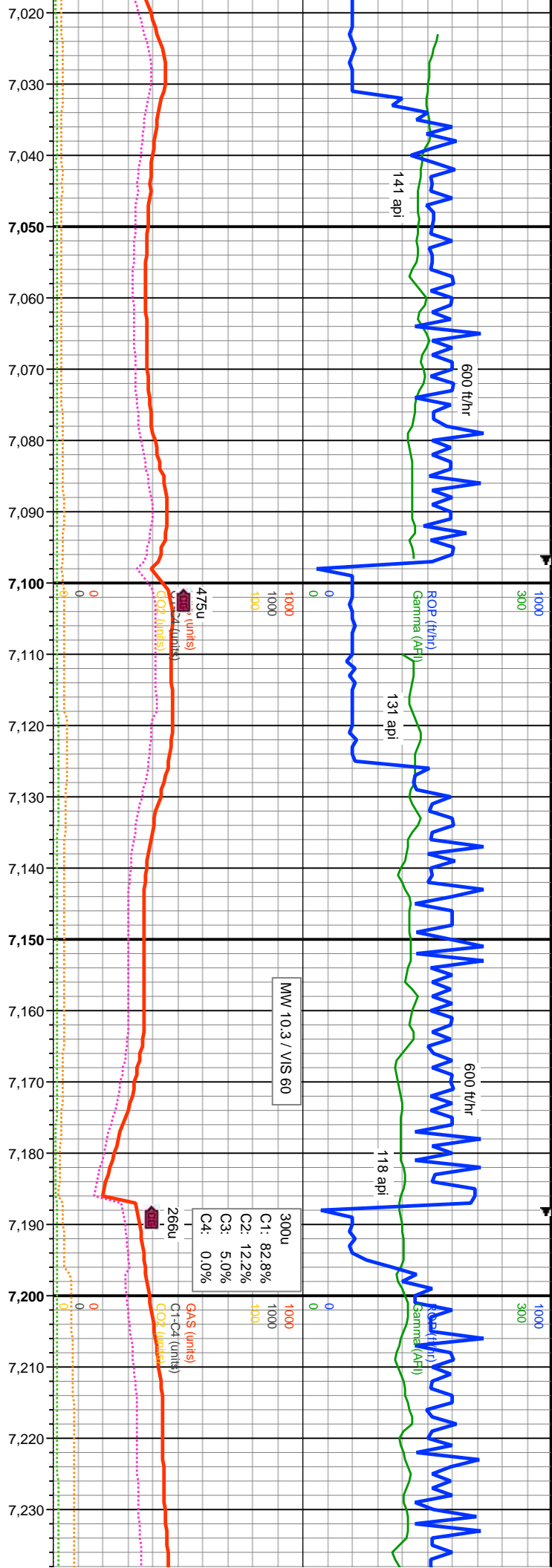
MD: 6.985'  
INC: 20.76°  
AZM: 19°  
TVD: 6.822.4'  
VS: -848.71'

75% SHY SLTST: lt-medgy, dkgy-dk brn, mod sft-hd, occ brt, sb blk-ang, ip plty, tr fis, v silty-tr aren, arg, rthy-sb wxy, rr cly; 25% SLTY SH: med-dkgy, dk brn, mod sft-v frm, sb blk-ang, rr plty, com fis, slty, arg, v sl calc, rr bent

50% SHY SLTST: lt-medgy, dkgy-dk brn, mod sft-hd, occ brt, sb blk-ang, ip plty, tr fis, v silty-tr aren, arg, rthy-sb wxy, rr cly; 50% SLTY SH: med-dkgy, dk brn, mod sft-v frm, sb blk-ang, rr plty, com fis, slty, arg, v sl calc, rr bent

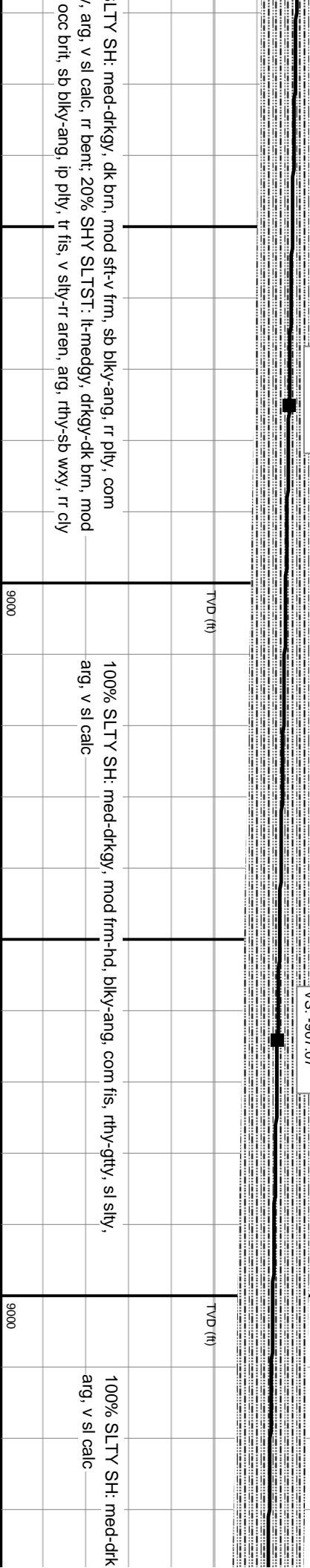
80% S  
fis, slty  
sft-hd,

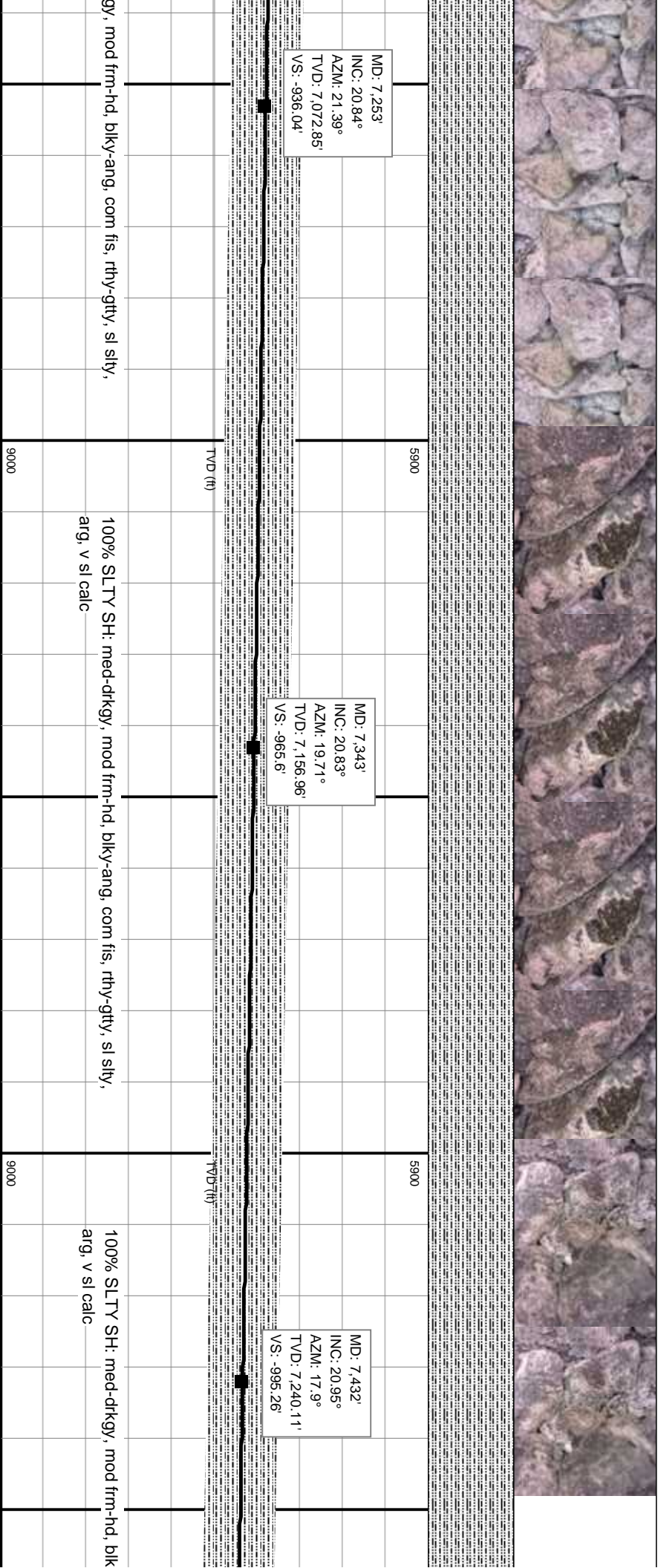
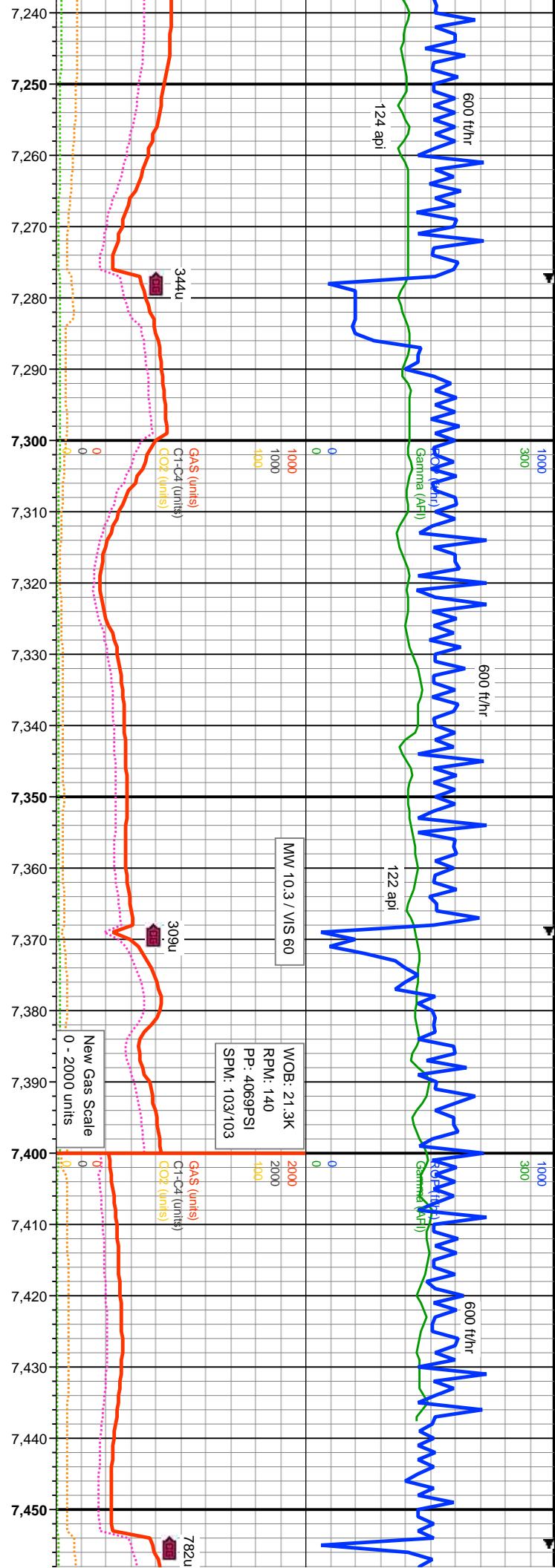




MD: 7,075'  
INC: 20.85°  
AZM: 22.34°  
TVD: 6,906.53'  
VS: -878.19'

MD: 7,164'  
INC: 20.91°  
AZM: 22.54°  
TVD: 6,989.69'  
VS: -907.07'

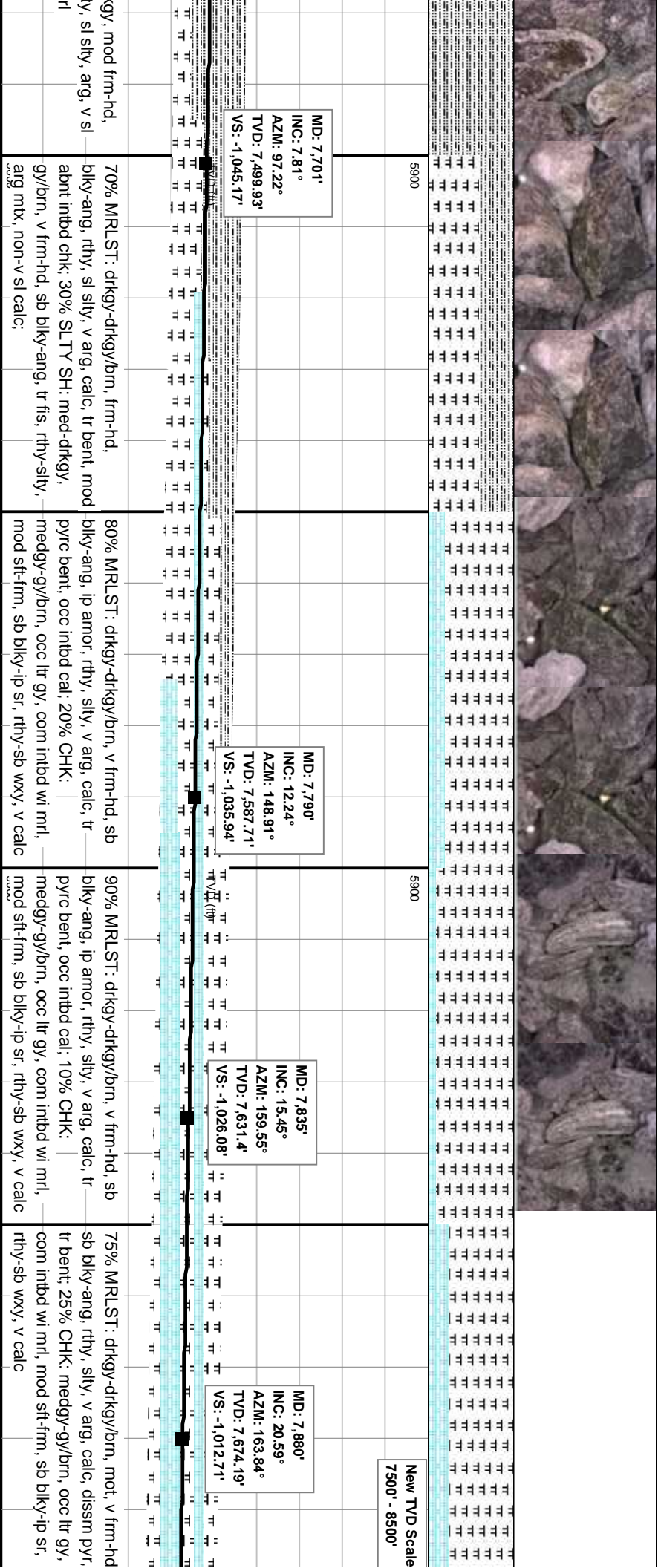
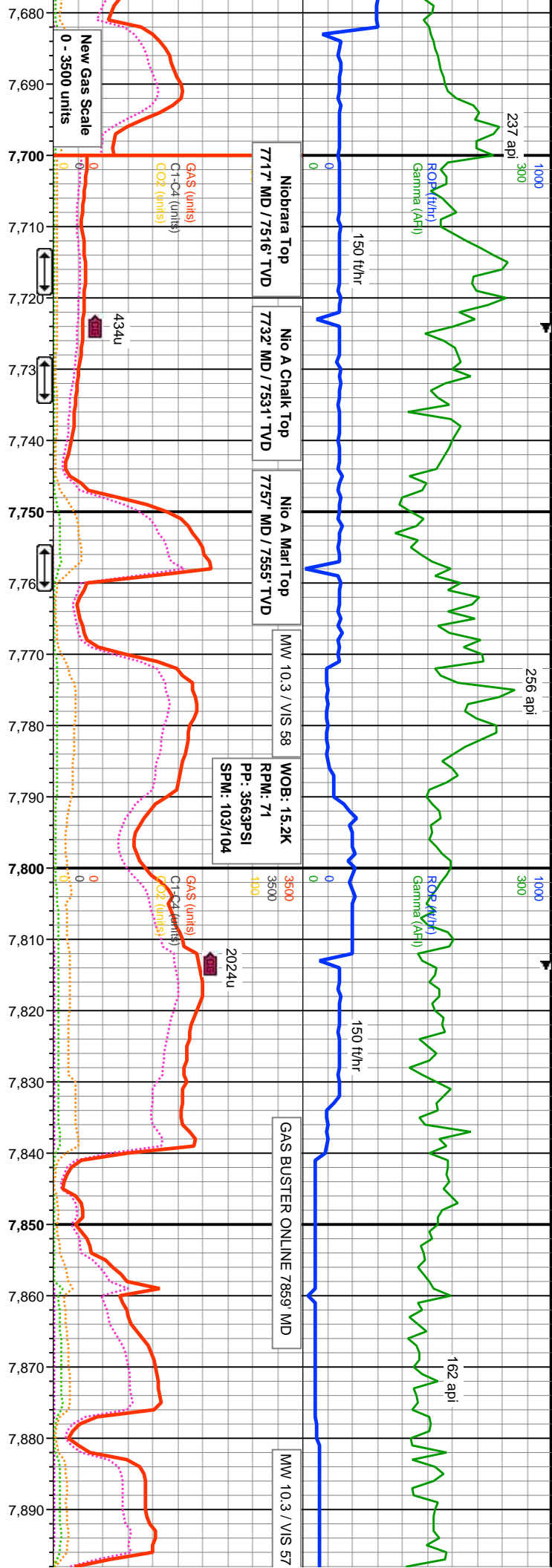


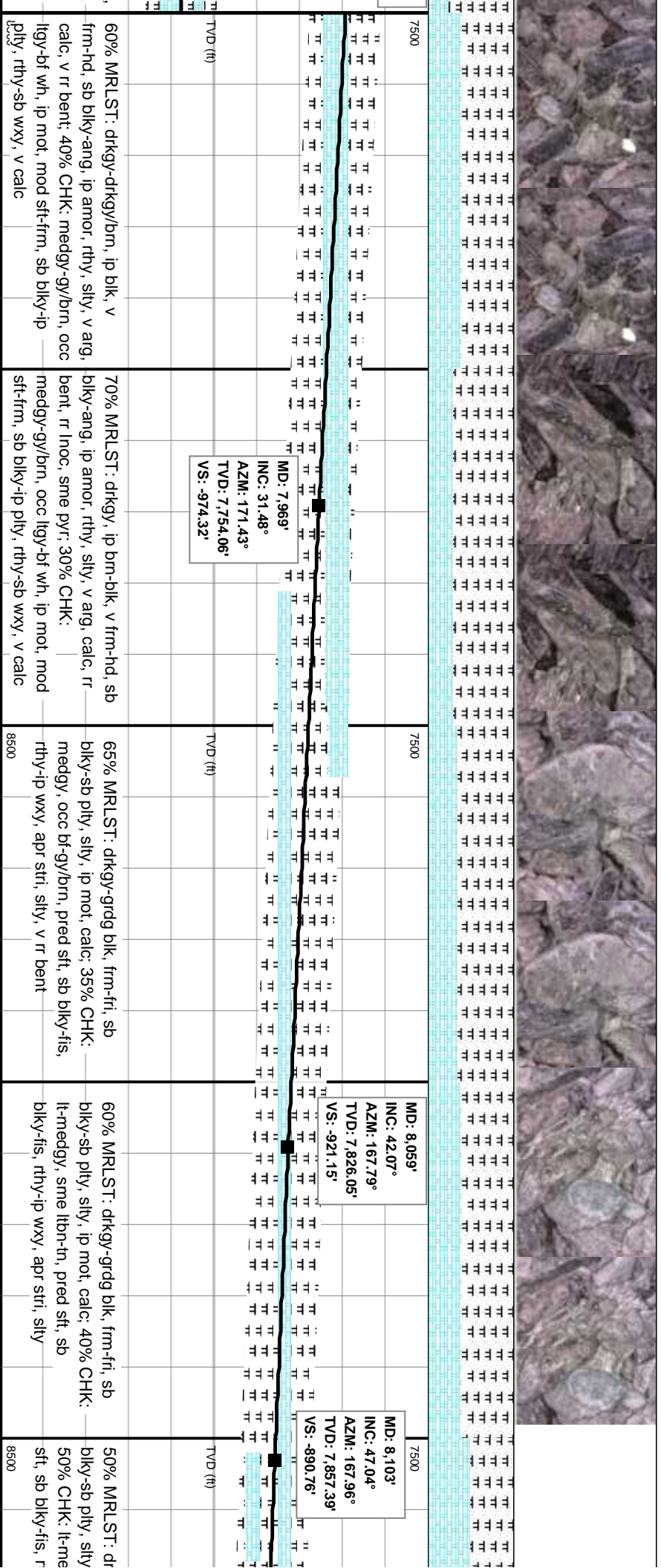
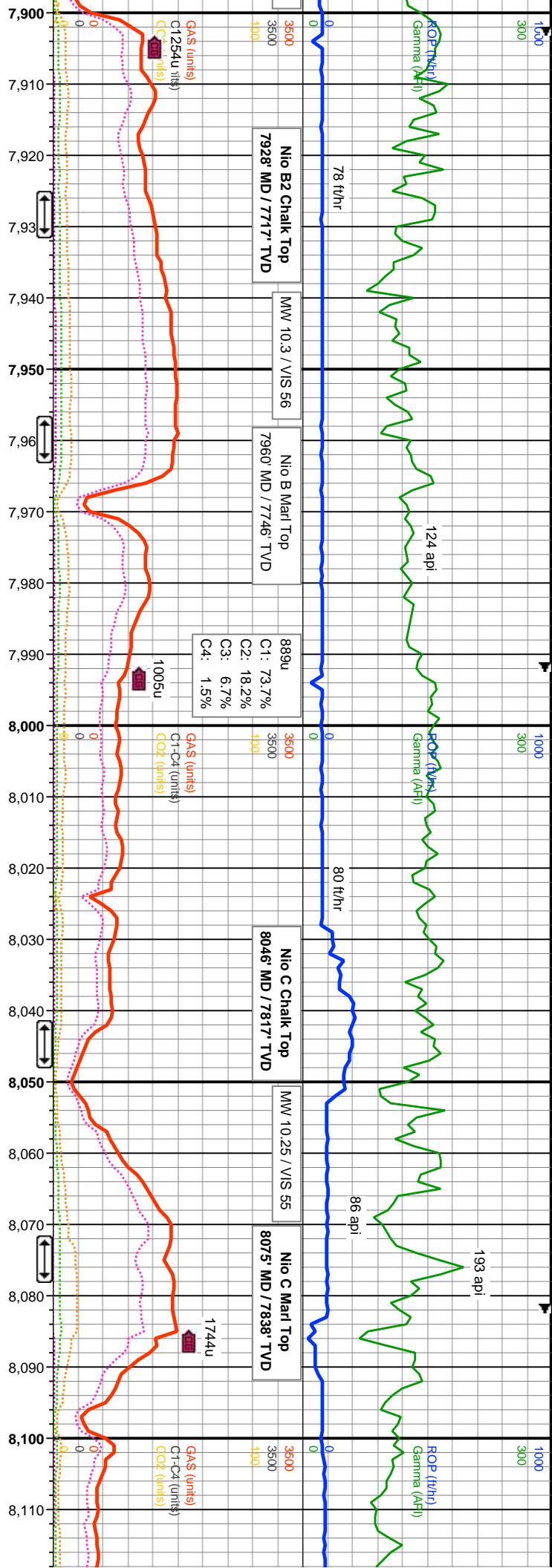




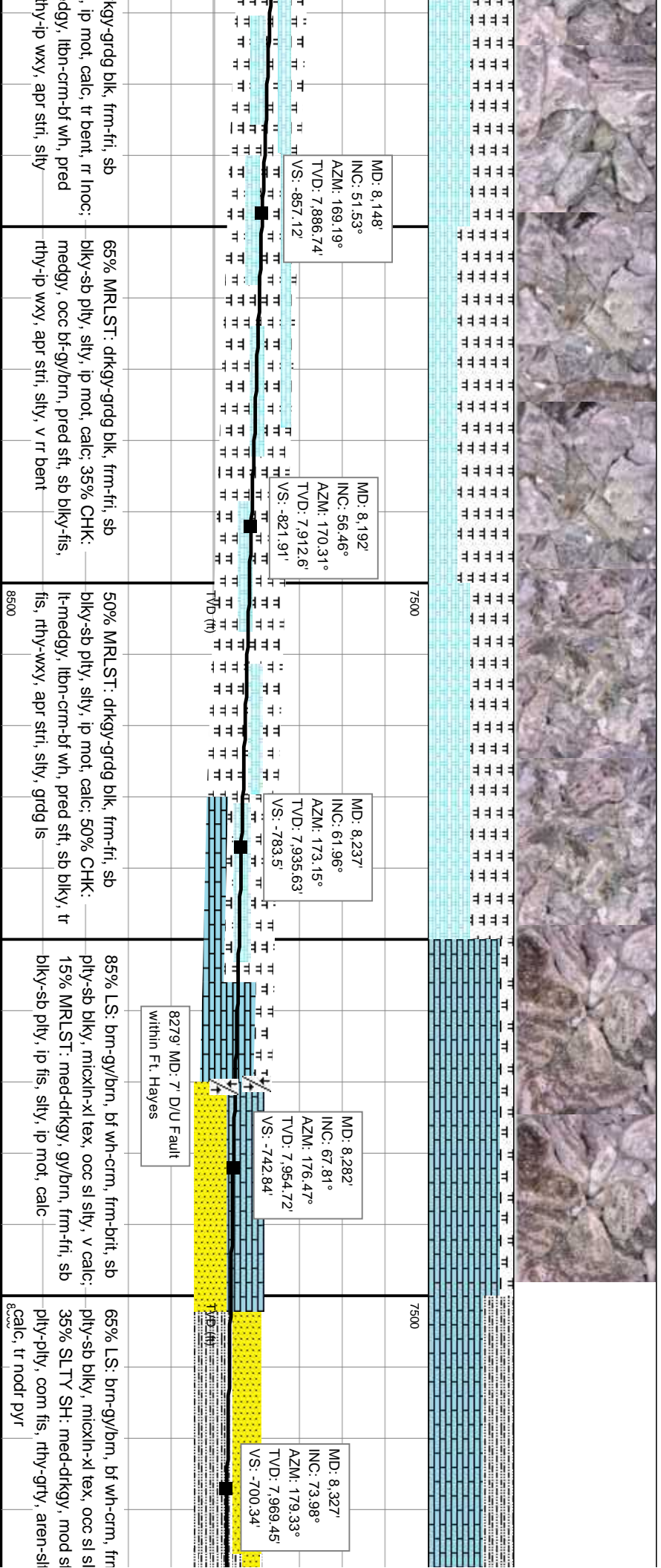
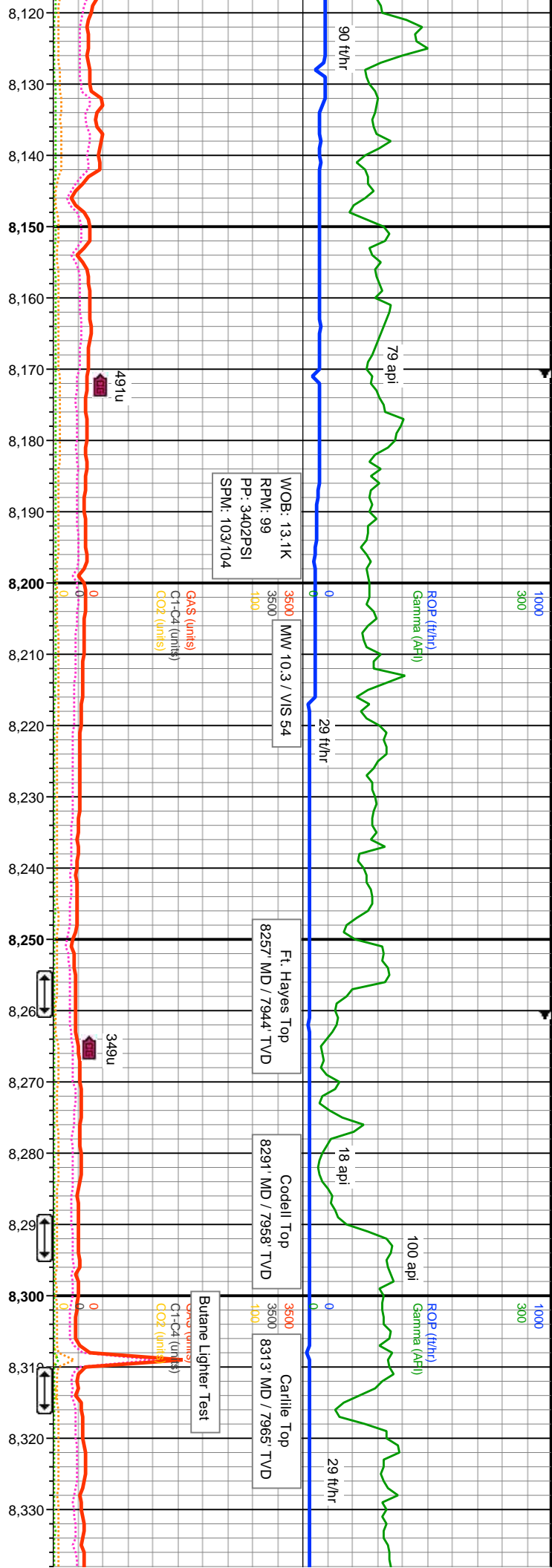




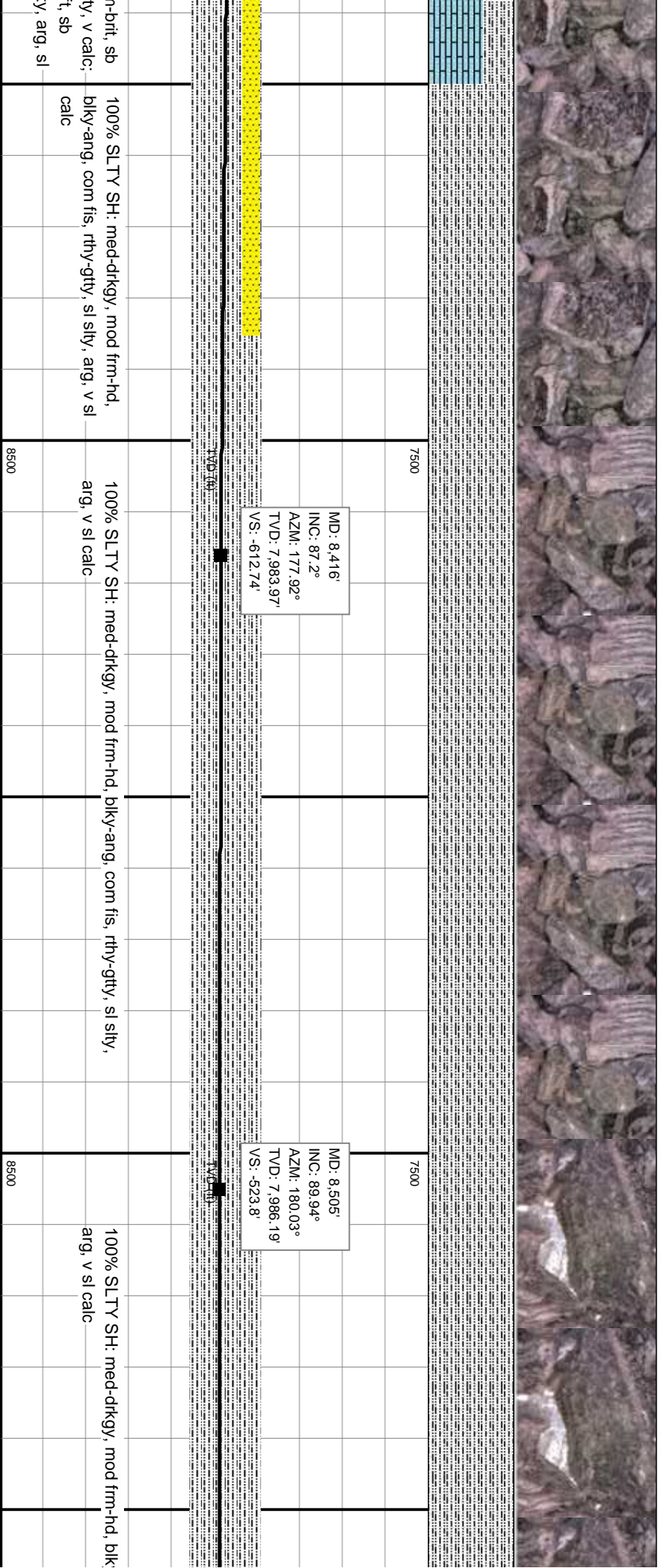
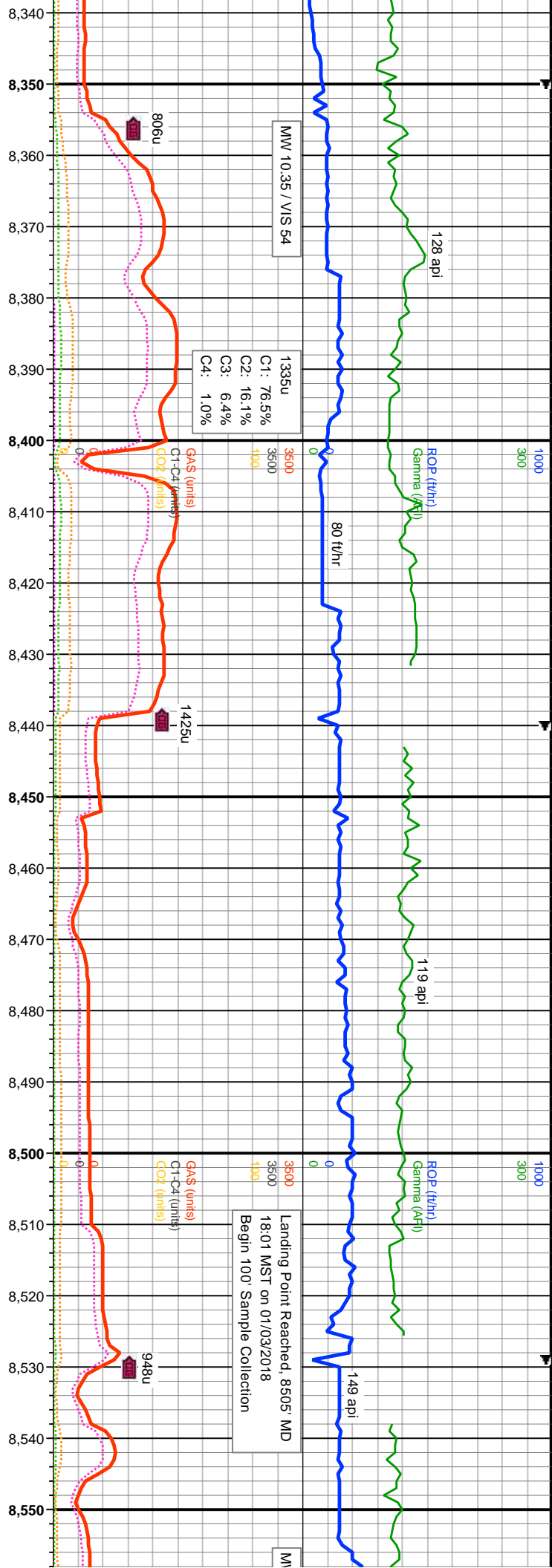


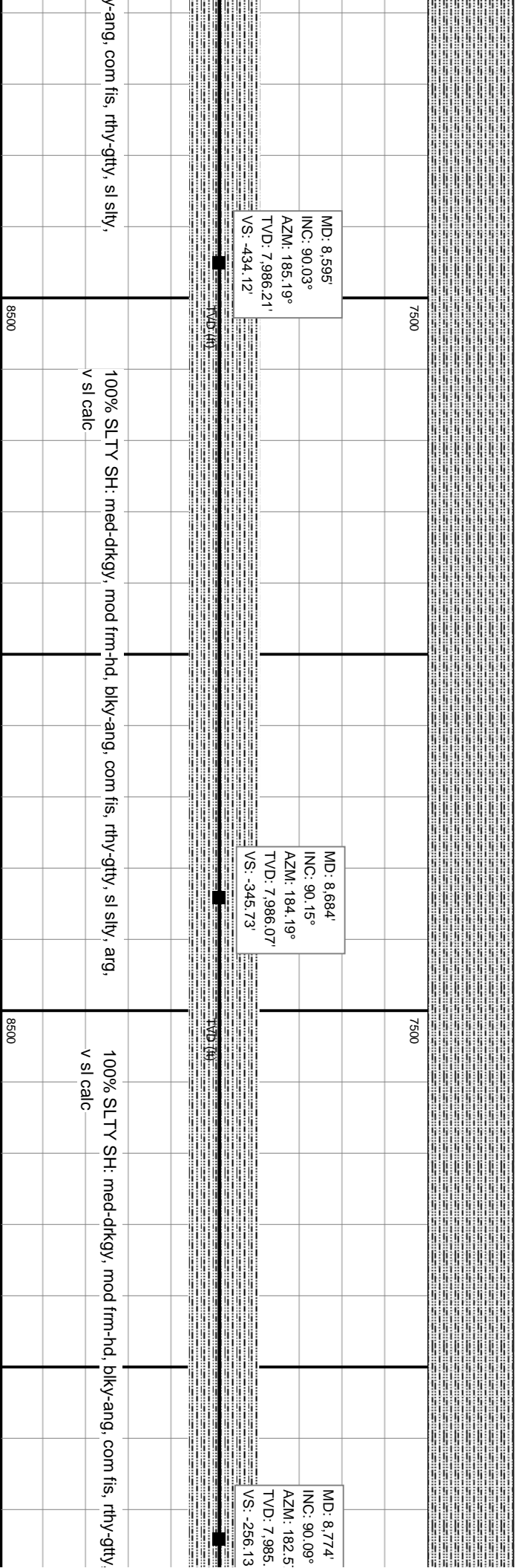
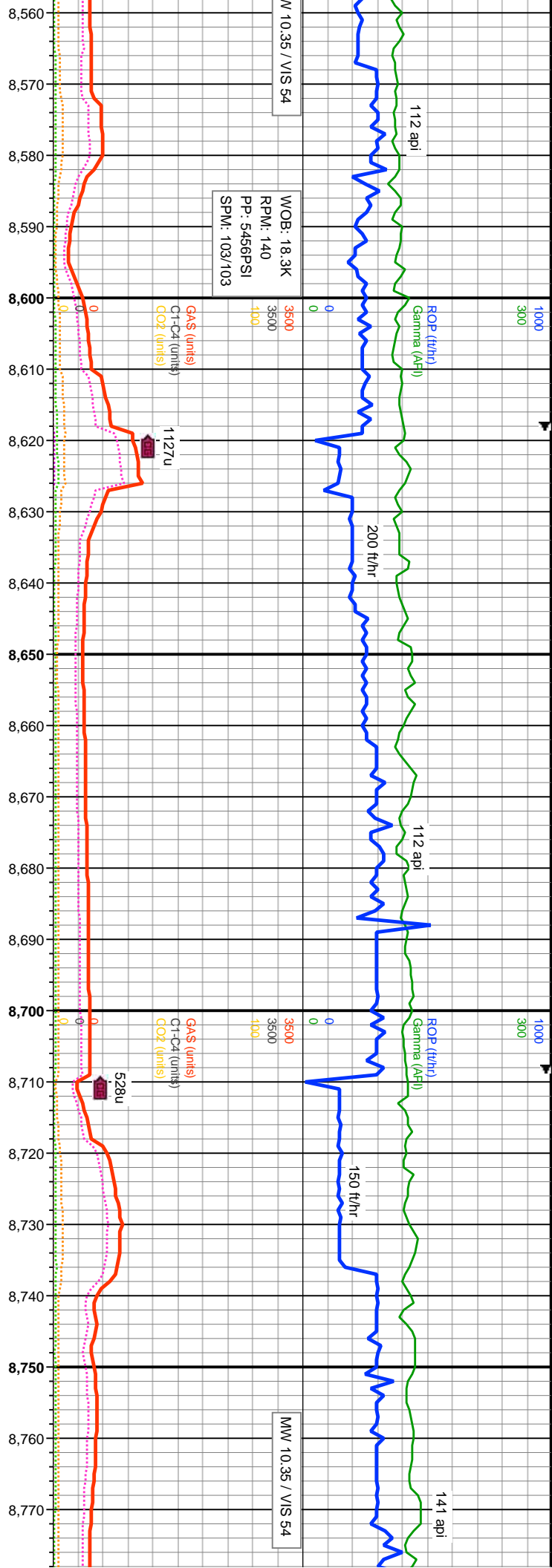




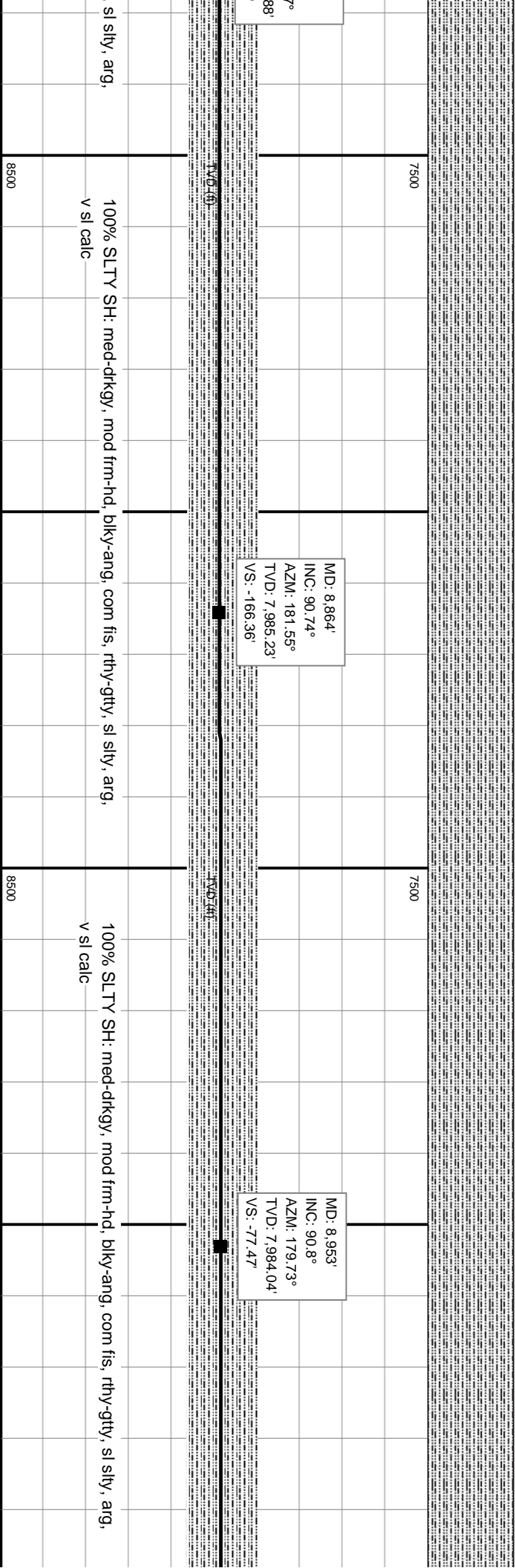
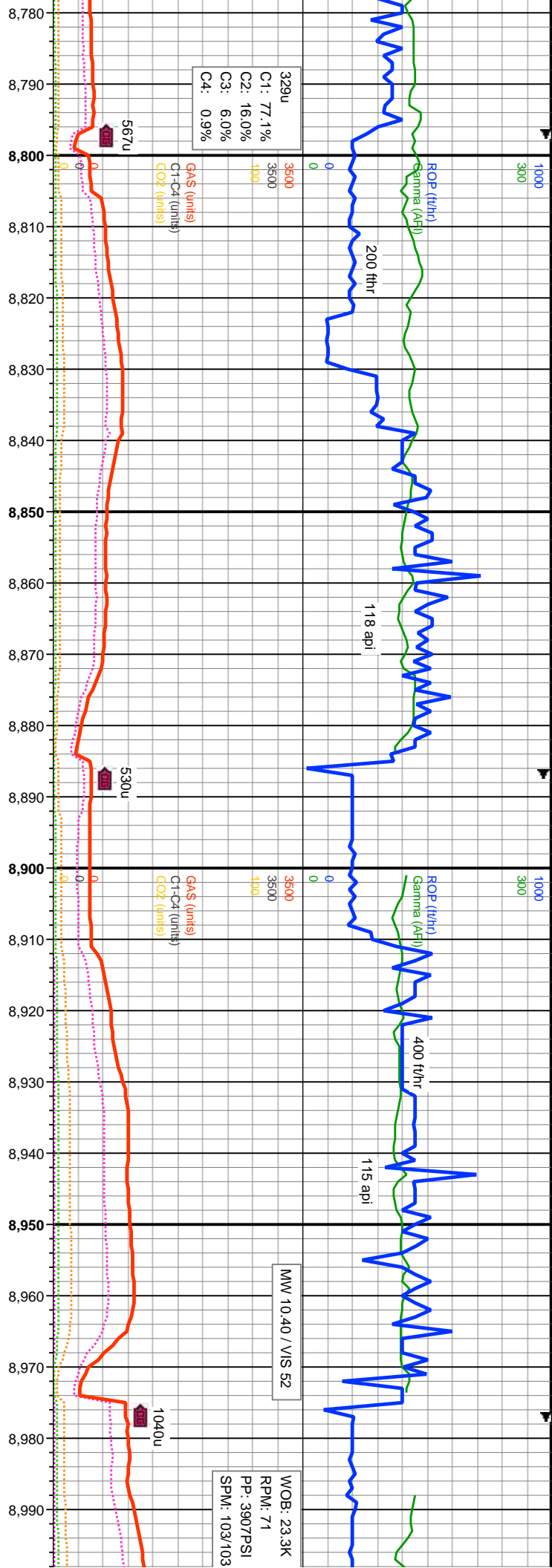




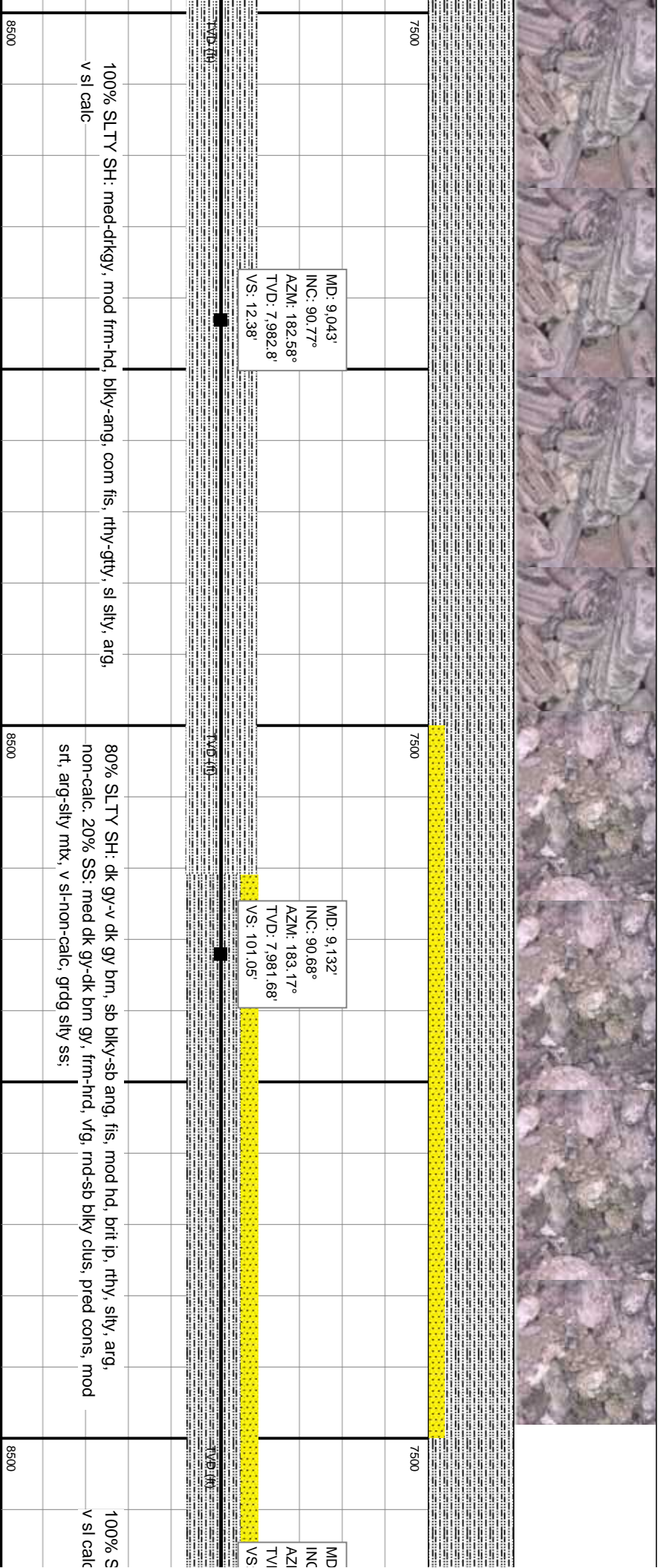
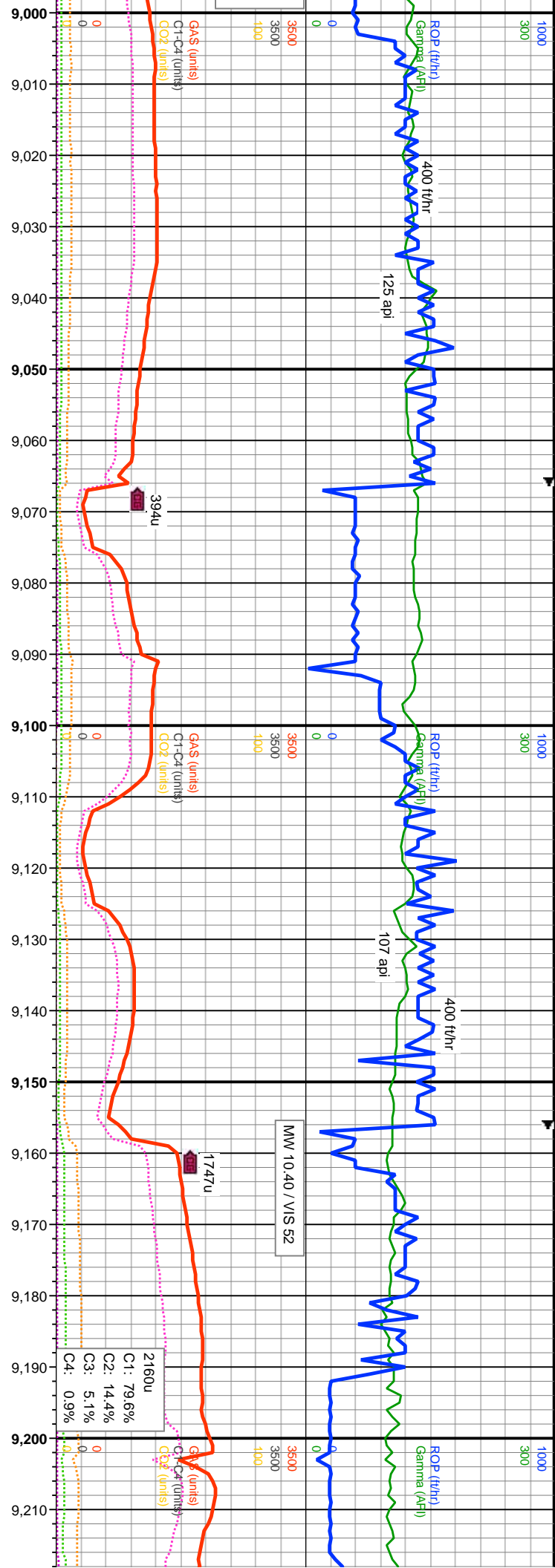


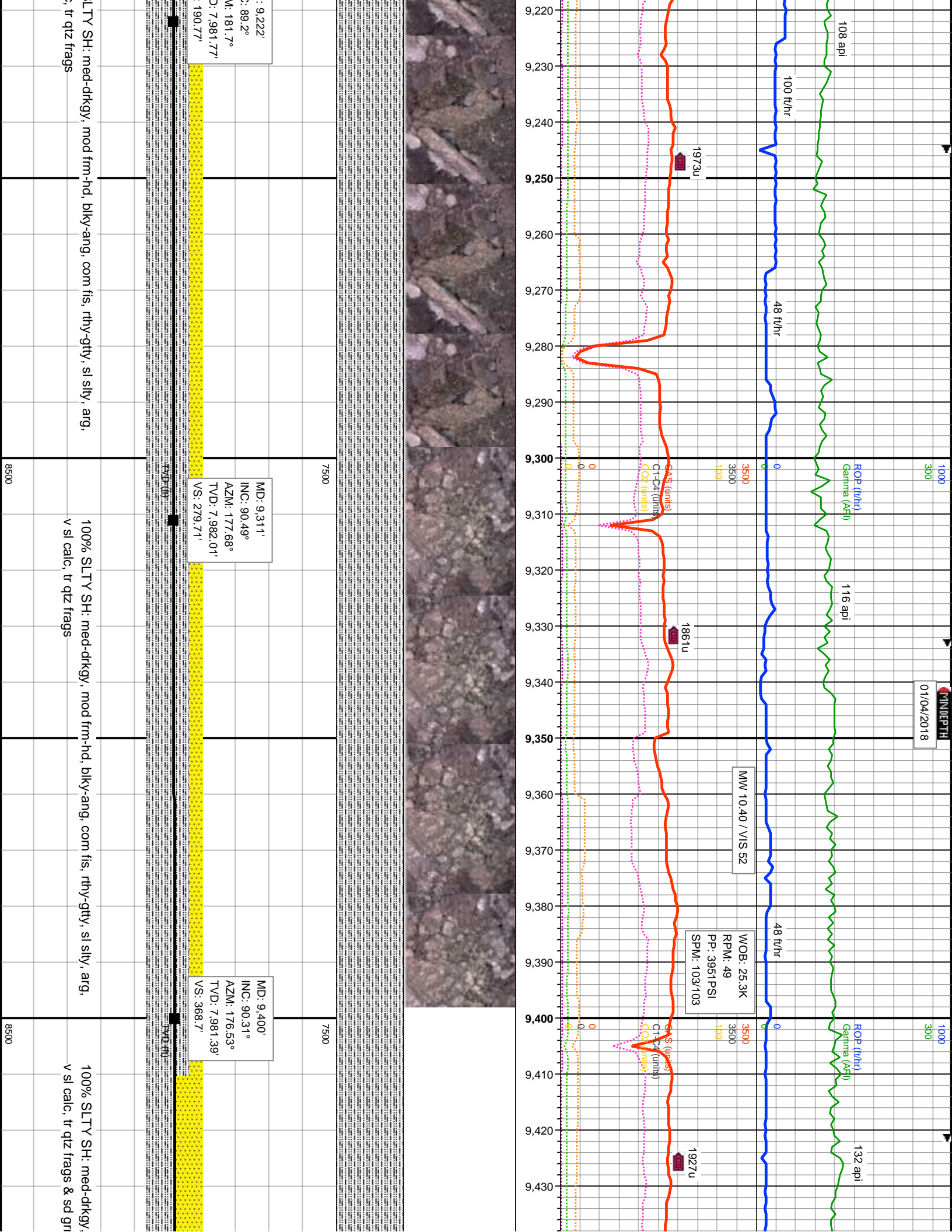




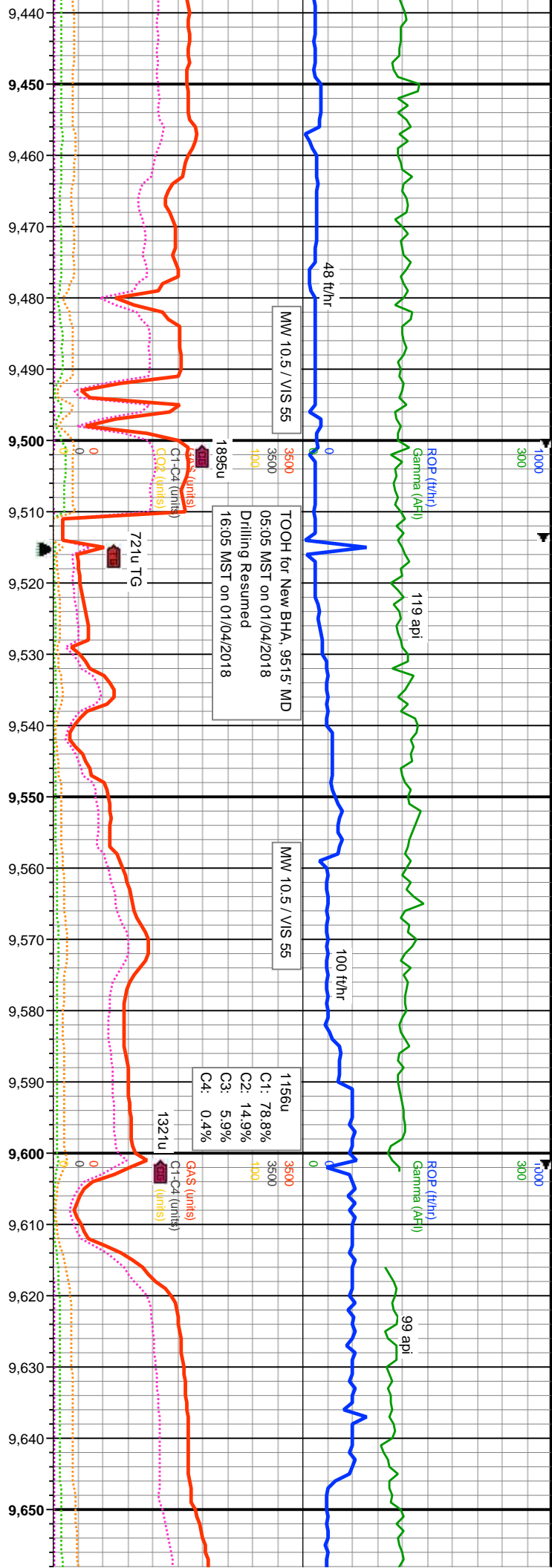








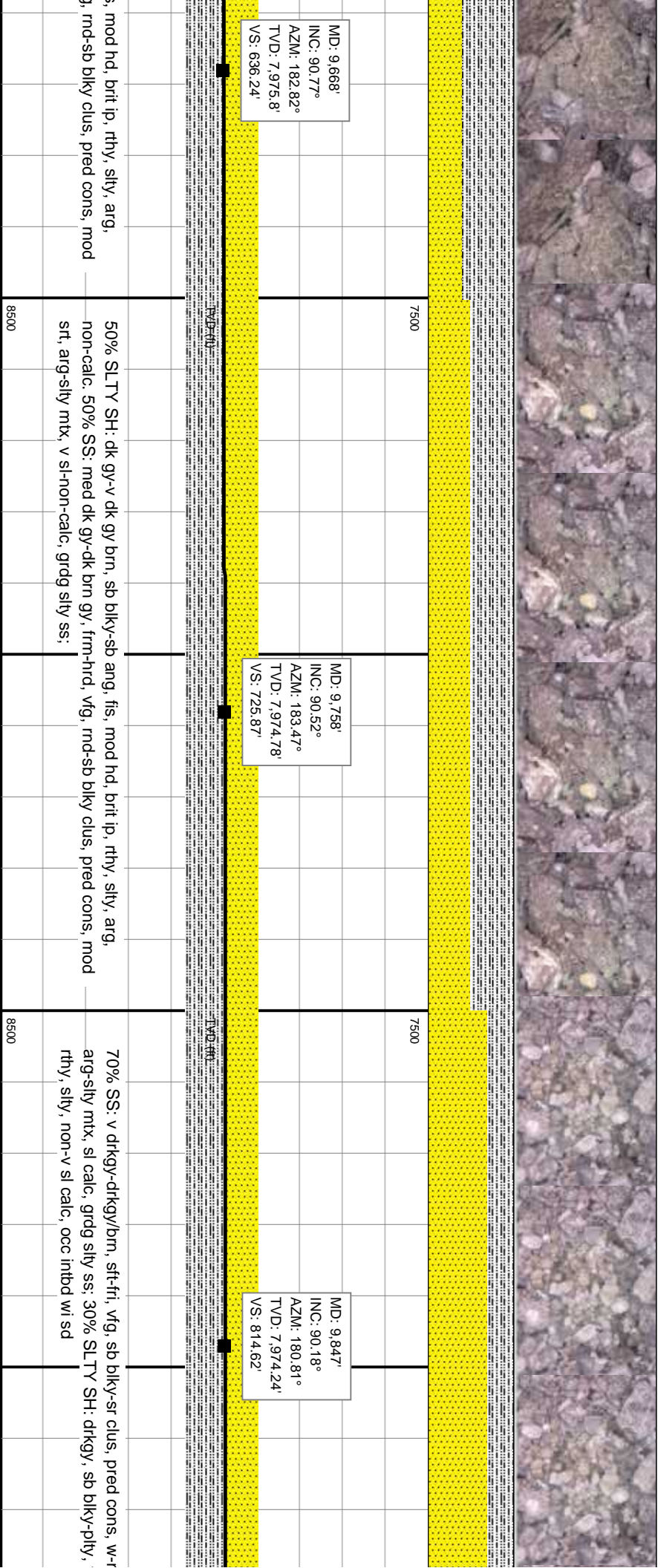
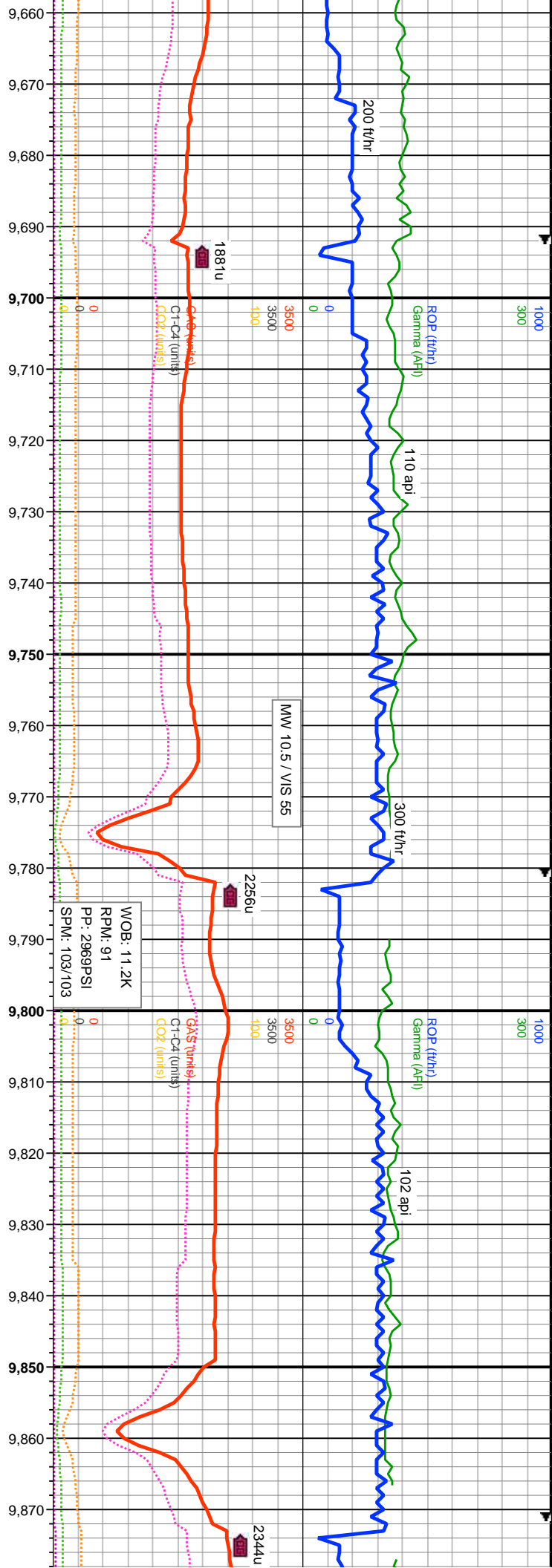


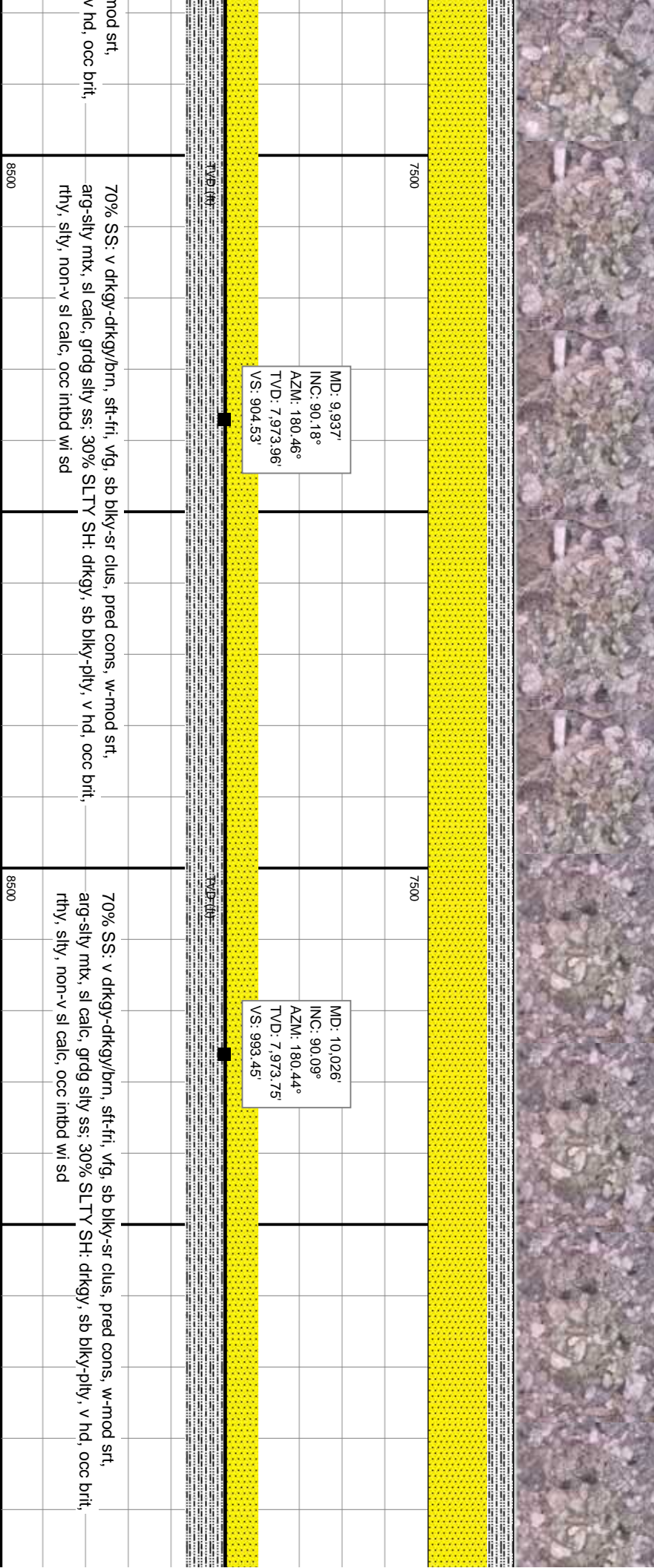
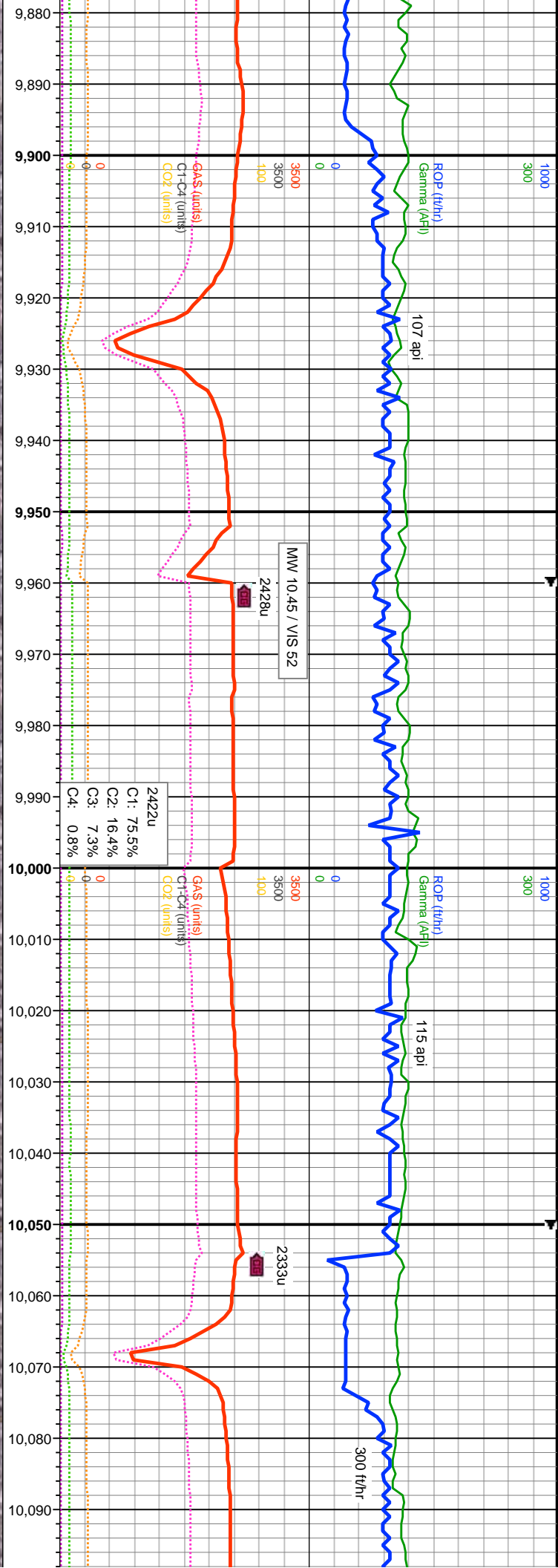


7500	Bit #: 2 Type: HCC ATD506X Size: 8.5" Depth In: 9,515' Depth Out: 18,510' Hours: 26.97 hrs Avg Ft/Hr: 291.66 '/hr Jets: 6x15 S/N: 7163093	MD: 9,490' INC: 91.54° AZM: 172.85° TVD: 7,979.94' VS: 458.52'
7500		MD: 9,579' INC: 91.51° AZM: 178.94° TVD: 7,977.57' VS: 547.39'

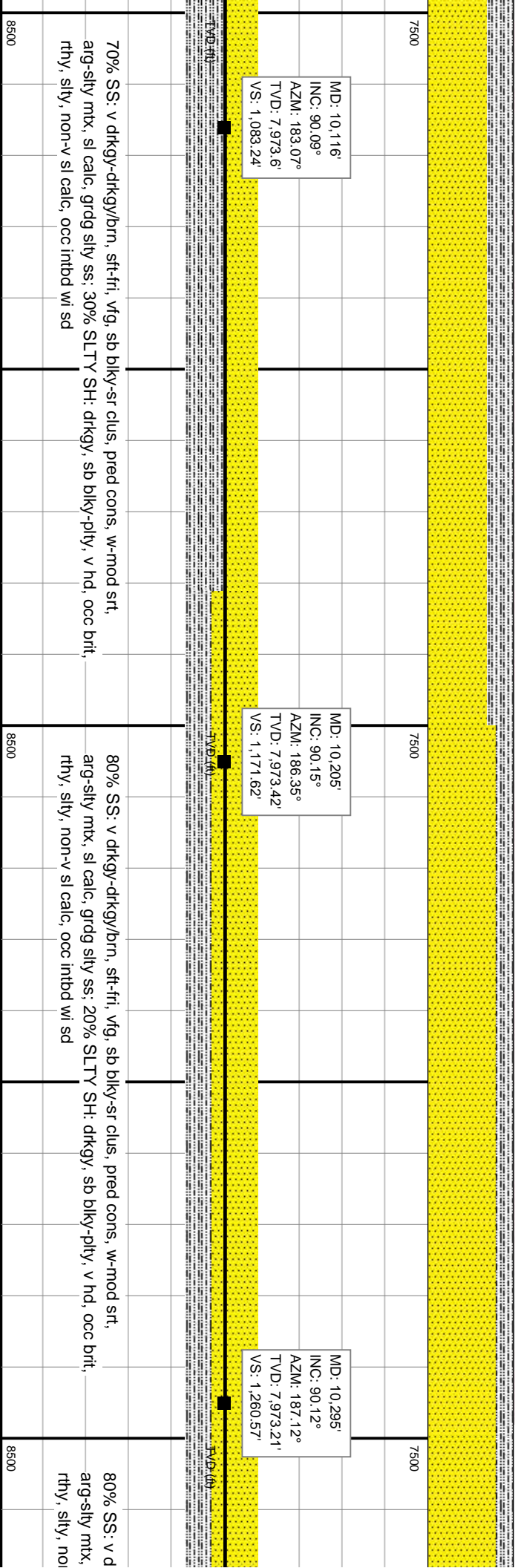
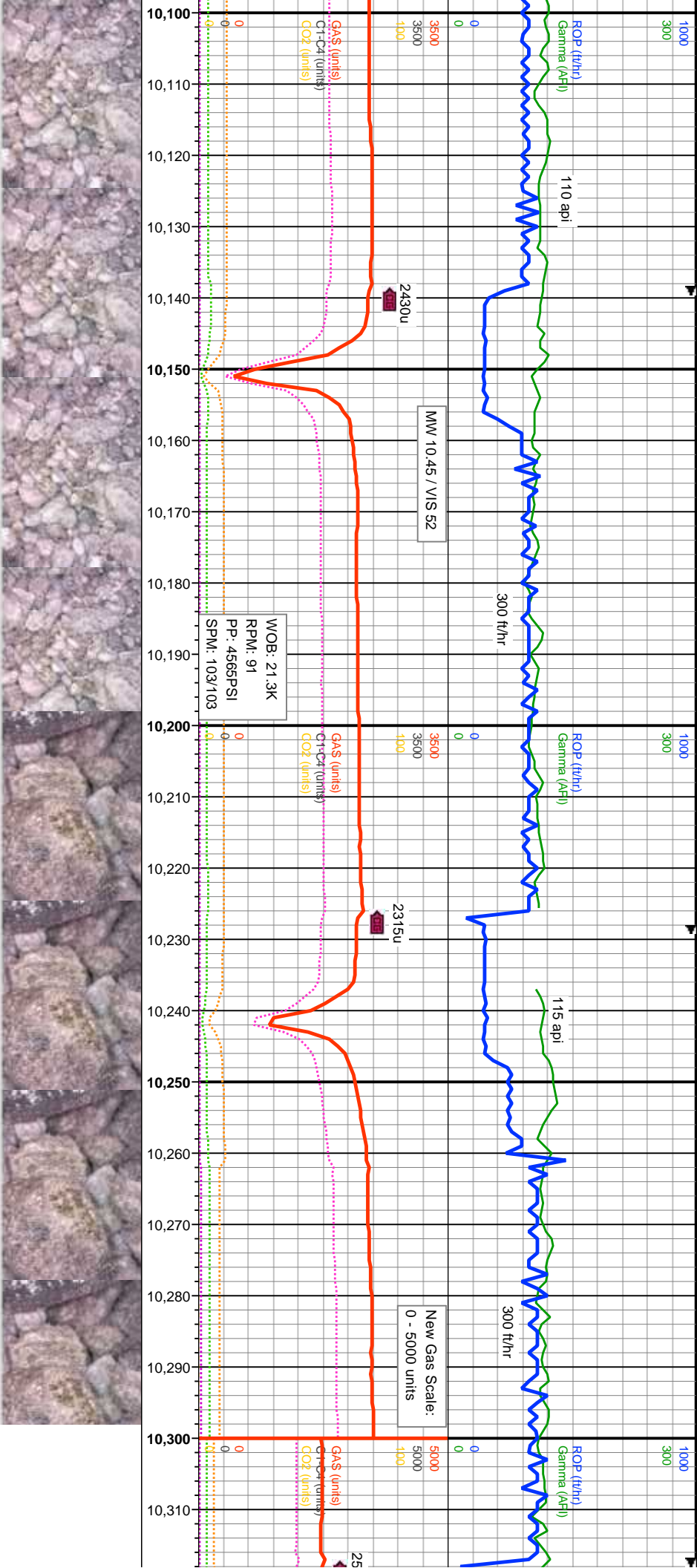
8500	mod frm-hd, blk-y-ang, com fis, rthy-grty, sl silty, arg,	80% SLTY SH: dk gy-v dk gy brn, sb blk-y-sb ang, fis, mod hd, brt lp, rthy, silty, arg, non-calc. 20% SS: med dk gy-dk brn gy, frm-hrd, vfg, rnd-sb blk-y clus, pred cons, mod srt, arg-silty mx, v sl-non-calc, grdg silty ss;
8500		60% SLTY SH: dk gy-v dk gy brn, sb blk-y-sb ang, fis, non-calc. 40% SS: med dk gy-dk brn gy, frm-hrd, vfg, srt, arg-silty mx, v sl-non-calc, grdg silty ss;



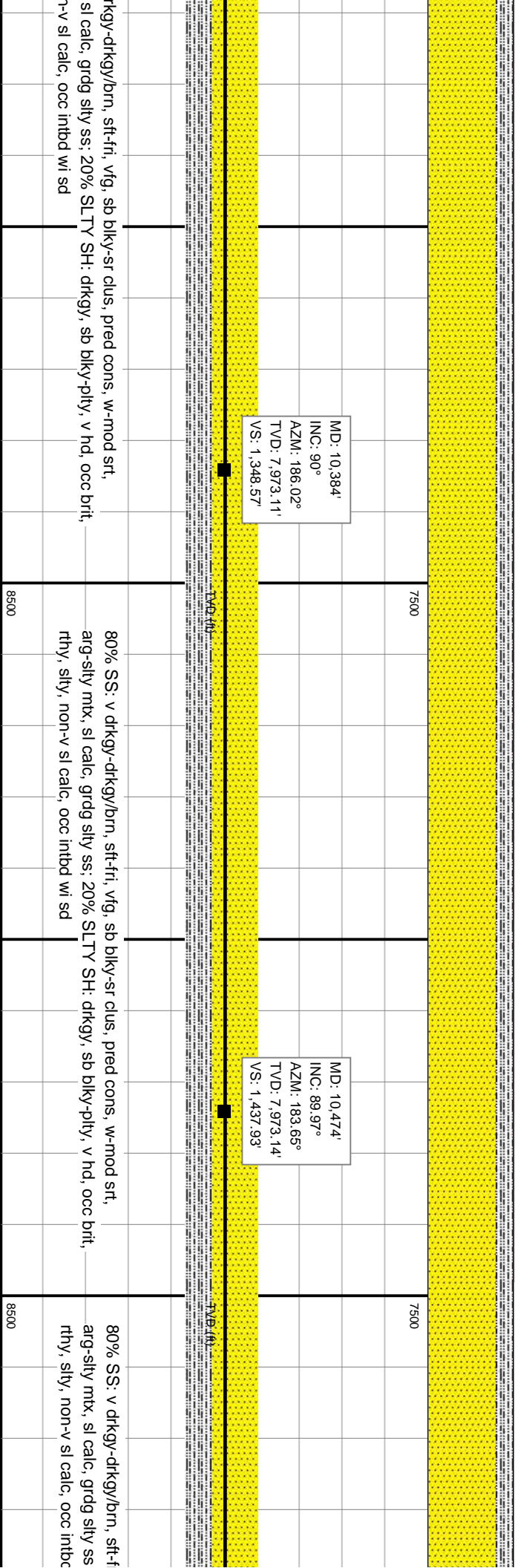
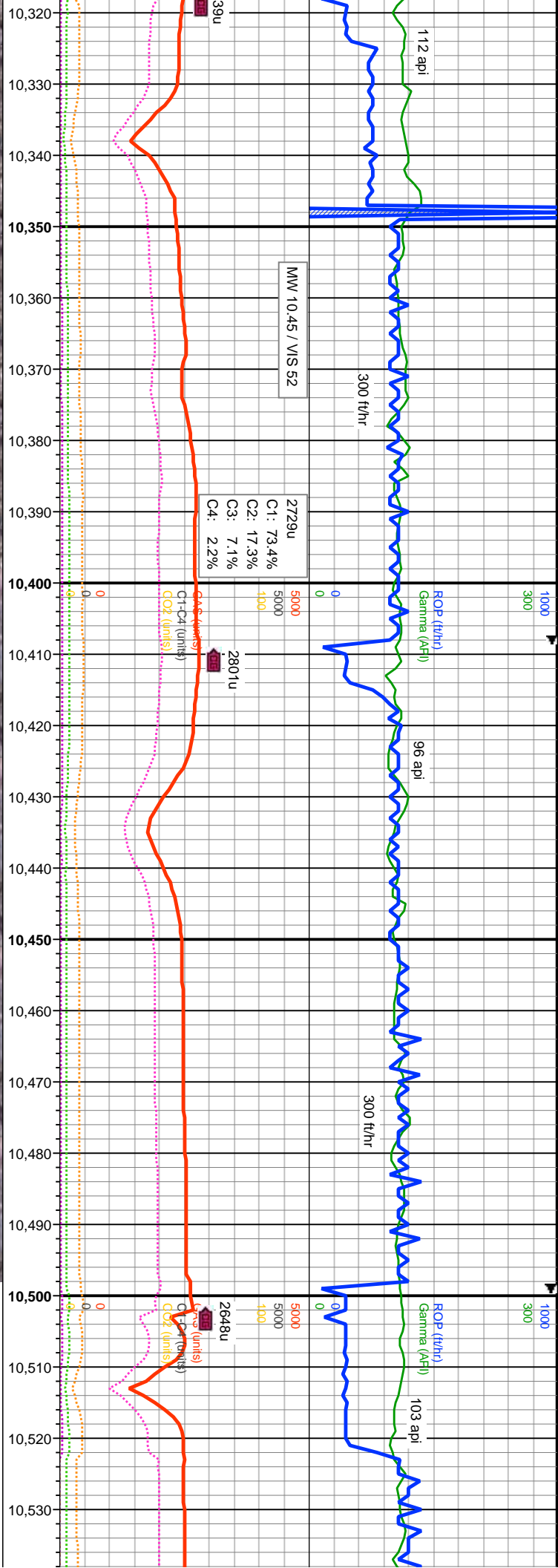


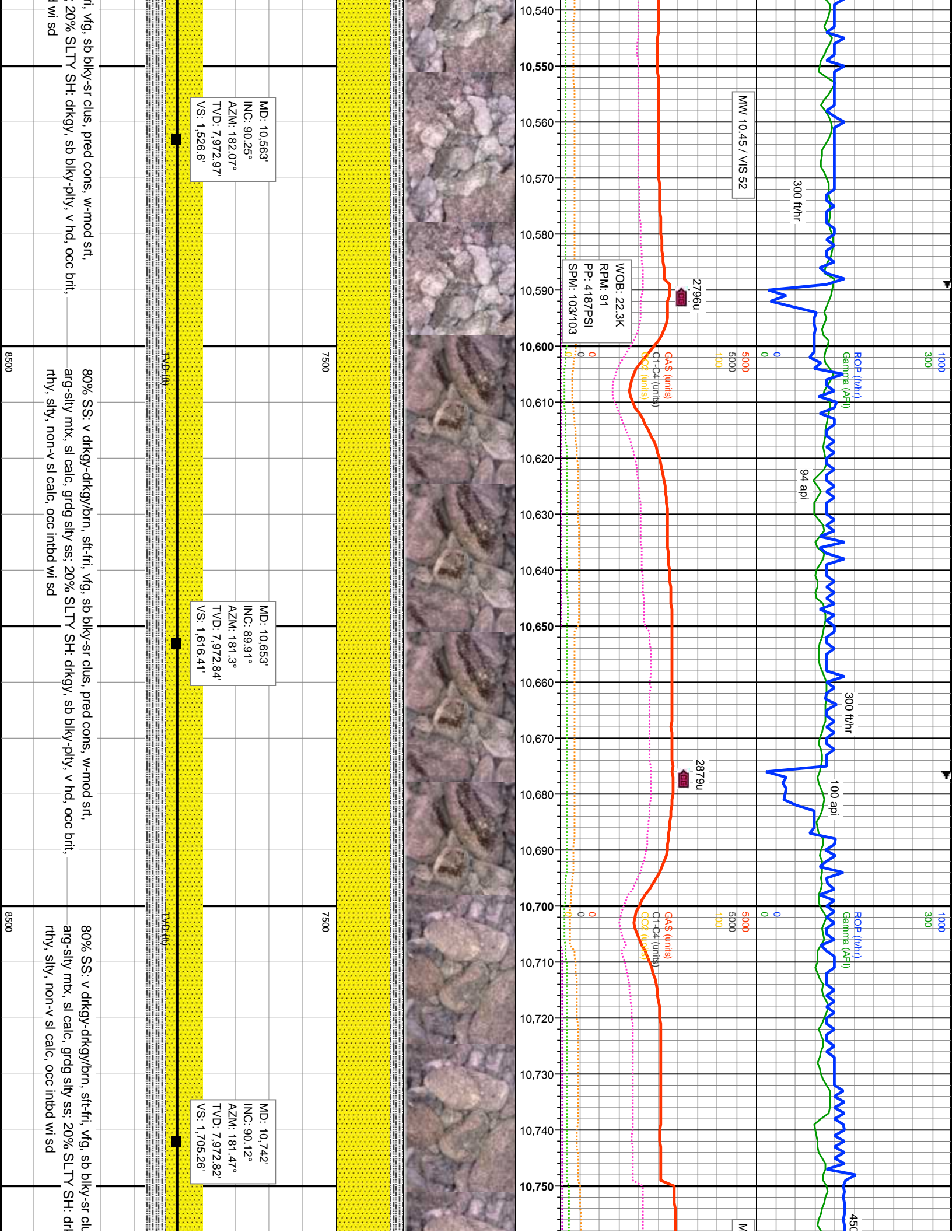




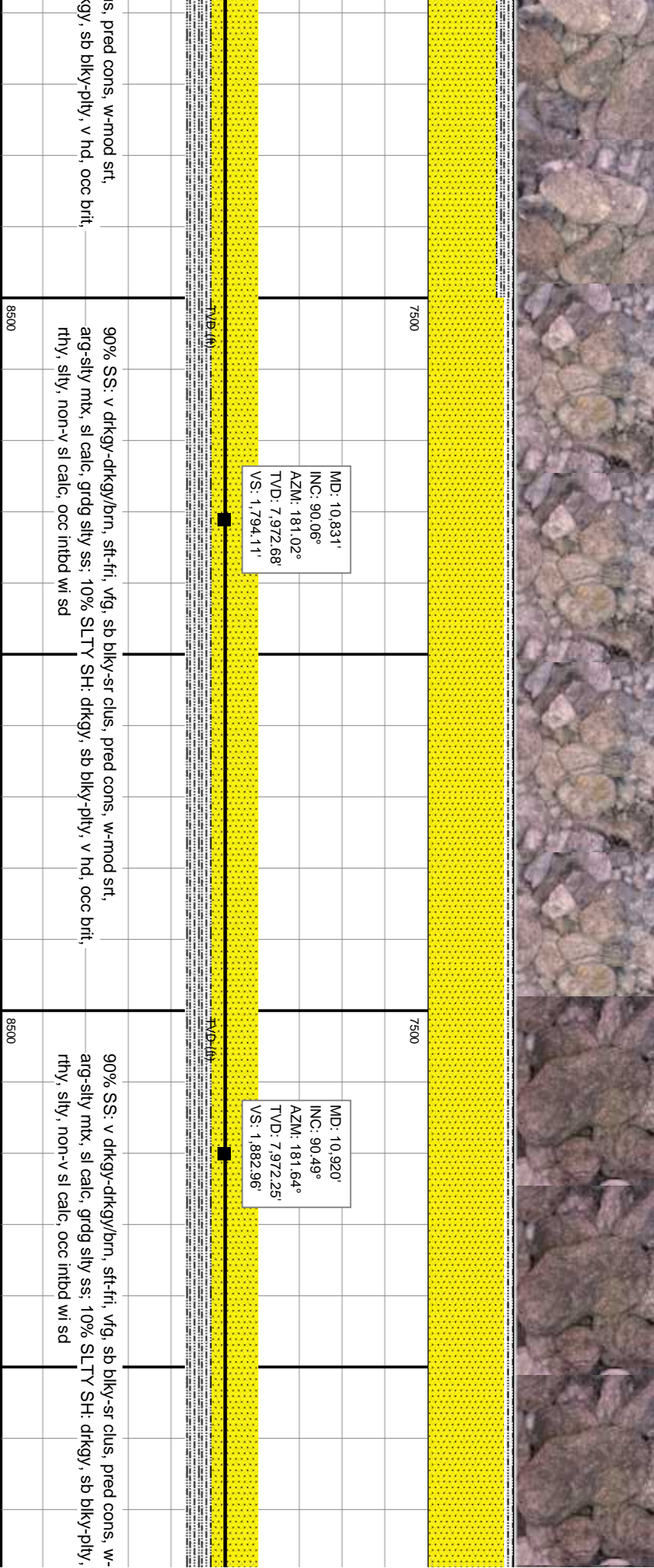
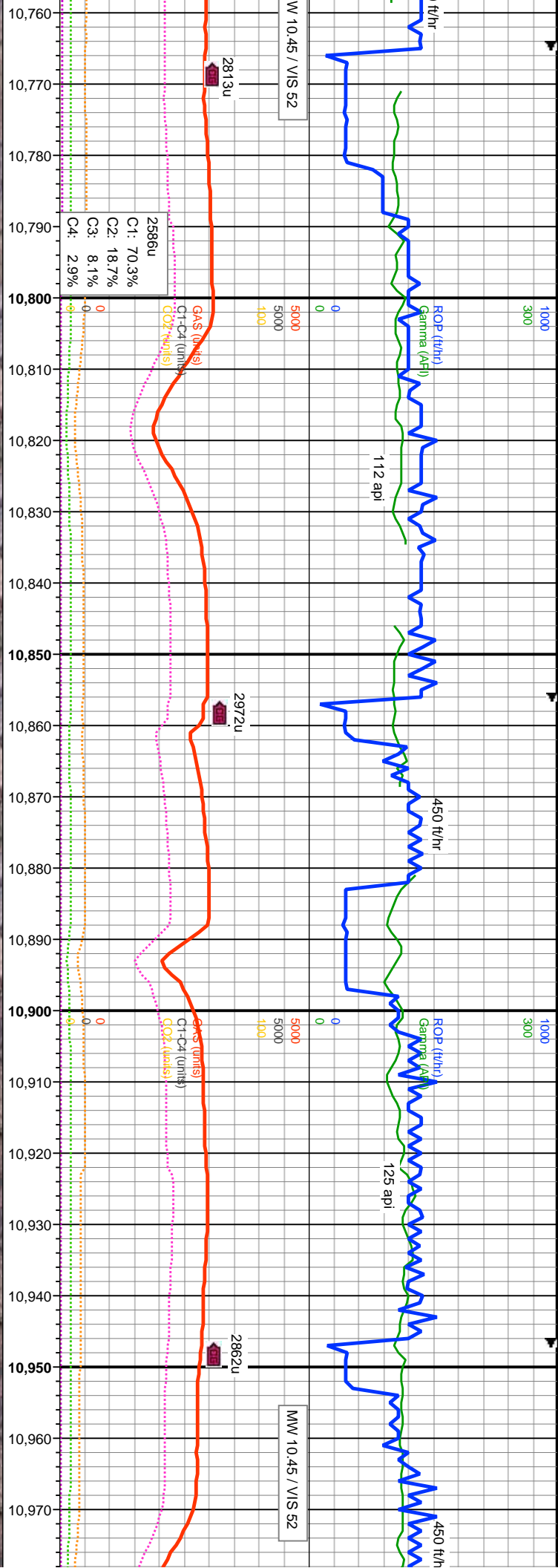




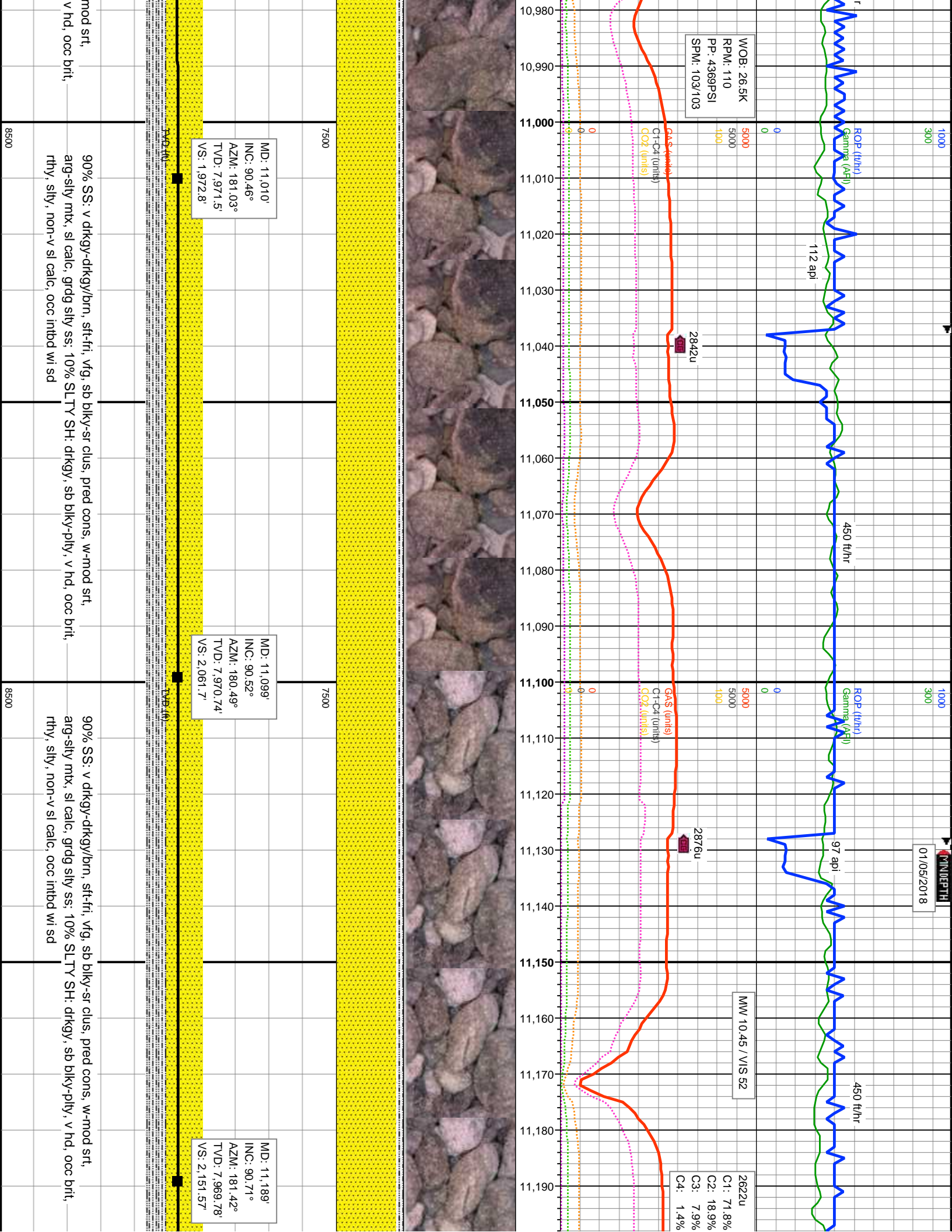


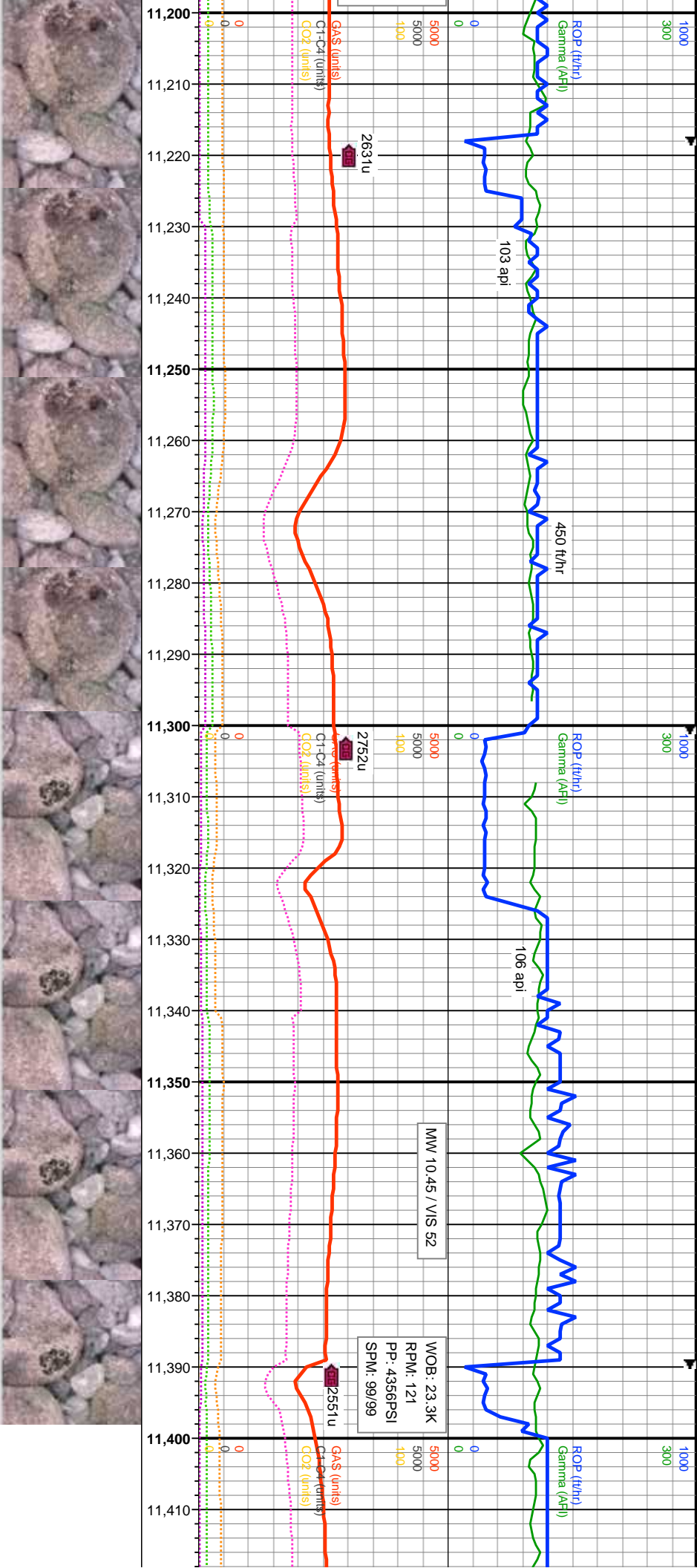












MD: 11,278'  
INC: 90.37°  
AZM: 181.4°  
TVD: 7,968.94'  
VS: 2,240.41'

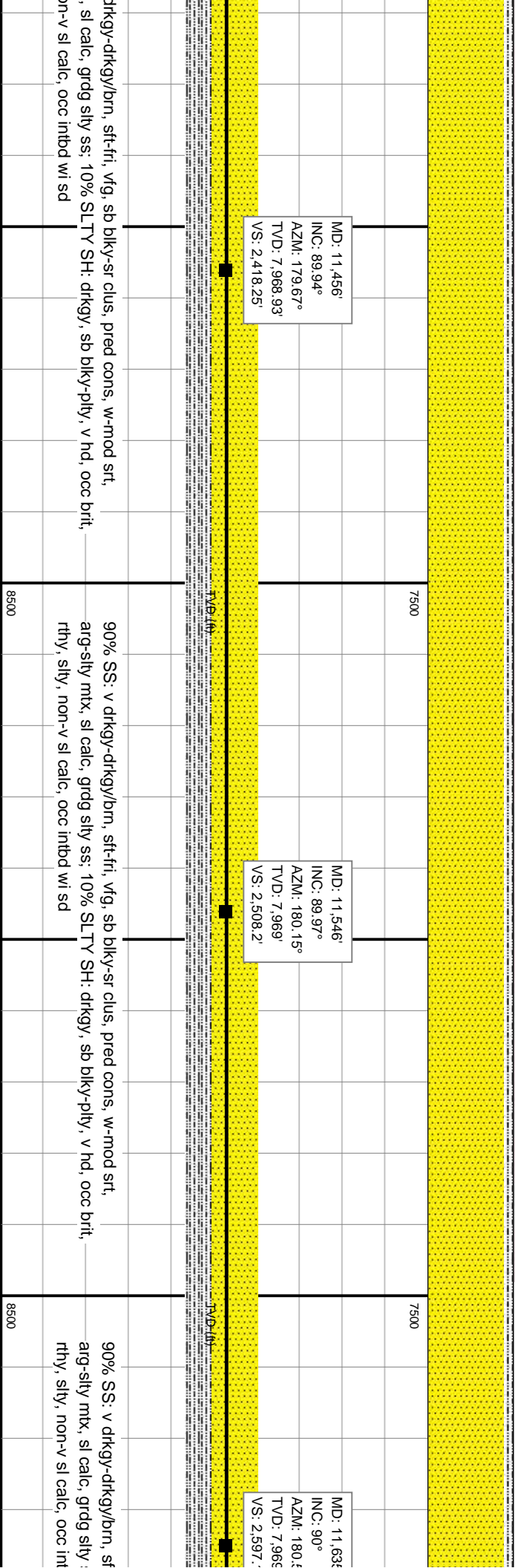
MD: 11,367'  
INC: 89.85°  
AZM: 180.14°  
TVD: 7,968.77'  
VS: 2,329.3'

90% SS: v drkgy-drkgy/bm, sft-fri, vfg, sb blkv-sr clus, pred cons, w-mod srt, arg-sily mttx, sl calc, grdg sily ss; 10% SLTY SH: drkgy, sb blkv-plty, v hd, occ brti, rthy, sily, non-v sl calc, occ inbnd wi sd

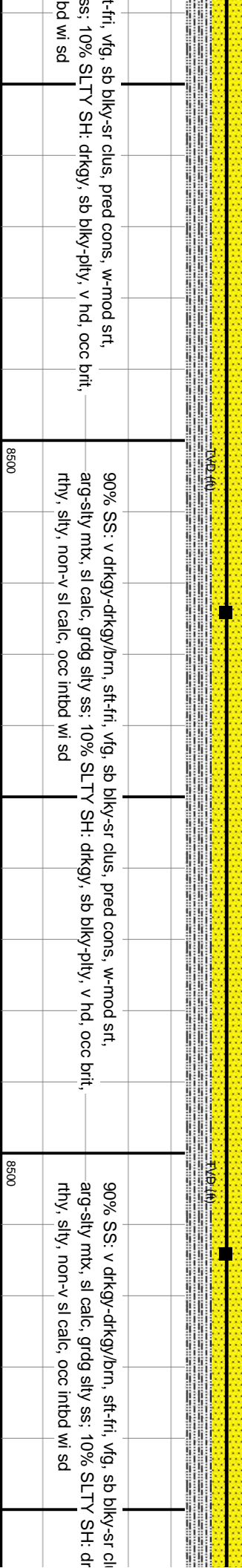
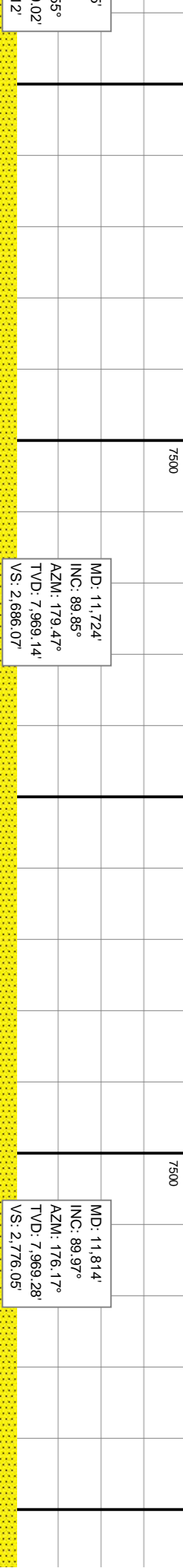
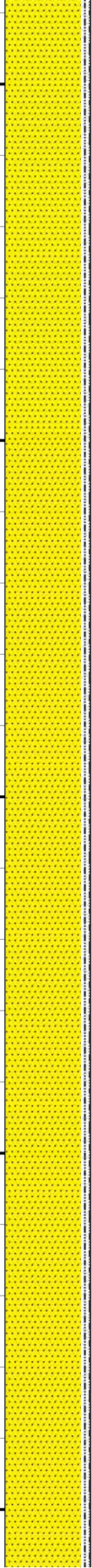
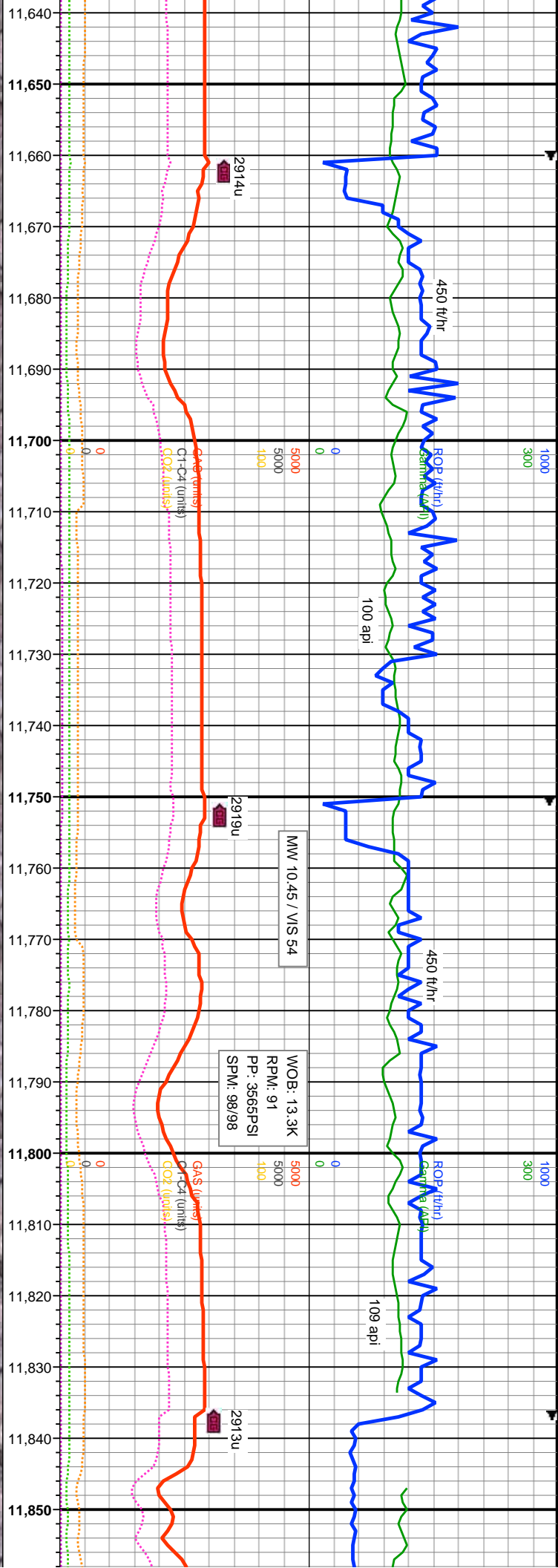
90% SS: v drkgy-drkgy/bm, sft-fri, vfg, sb blkv-sr clus, pred cons, w-mod srt, arg-sily mttx, sl calc, grdg sily ss; 10% SLTY SH: drkgy, sb blkv-plty, v hd, occ brti, rthy, sily, non-v sl calc, occ inbnd wi sd

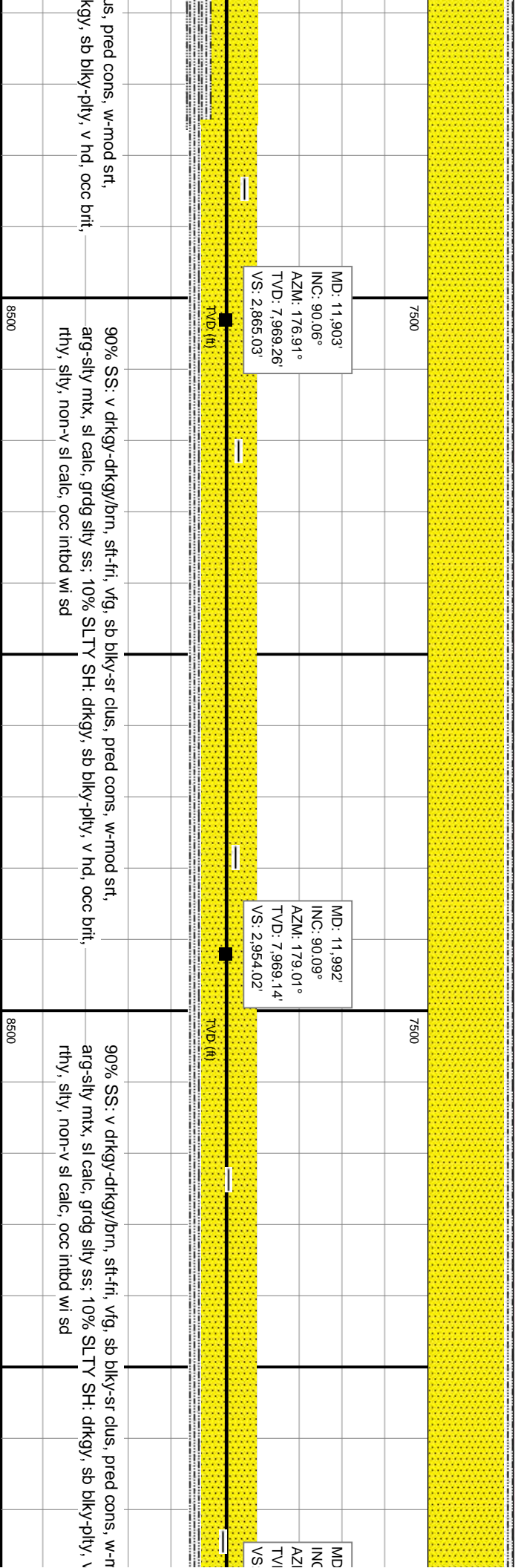
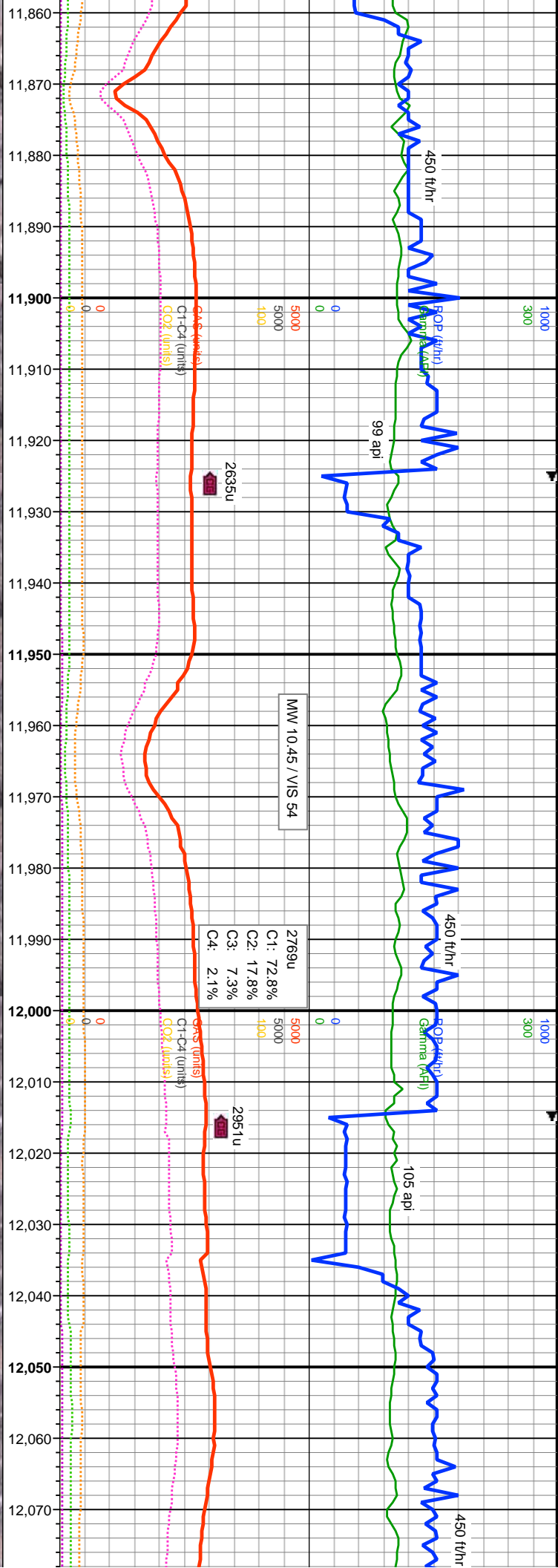
90% SS: v drkgy-drkgy/bm, sft-fri, vfg, sb blkv-sr clus, pred cons, w-mod srt, arg-sily mttx, sl calc, grdg sily ss; 10% SLTY SH: drkgy, sb blkv-plty, v hd, occ brti, rthy, sily, non-v sl calc, occ inbnd wi sd



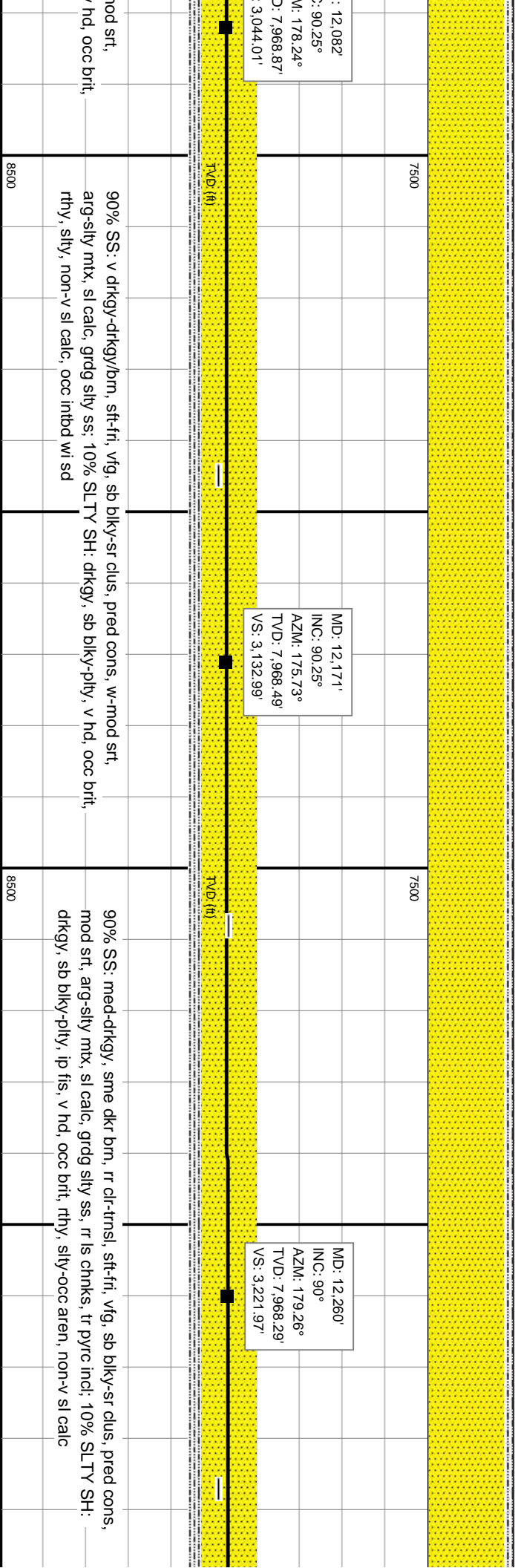
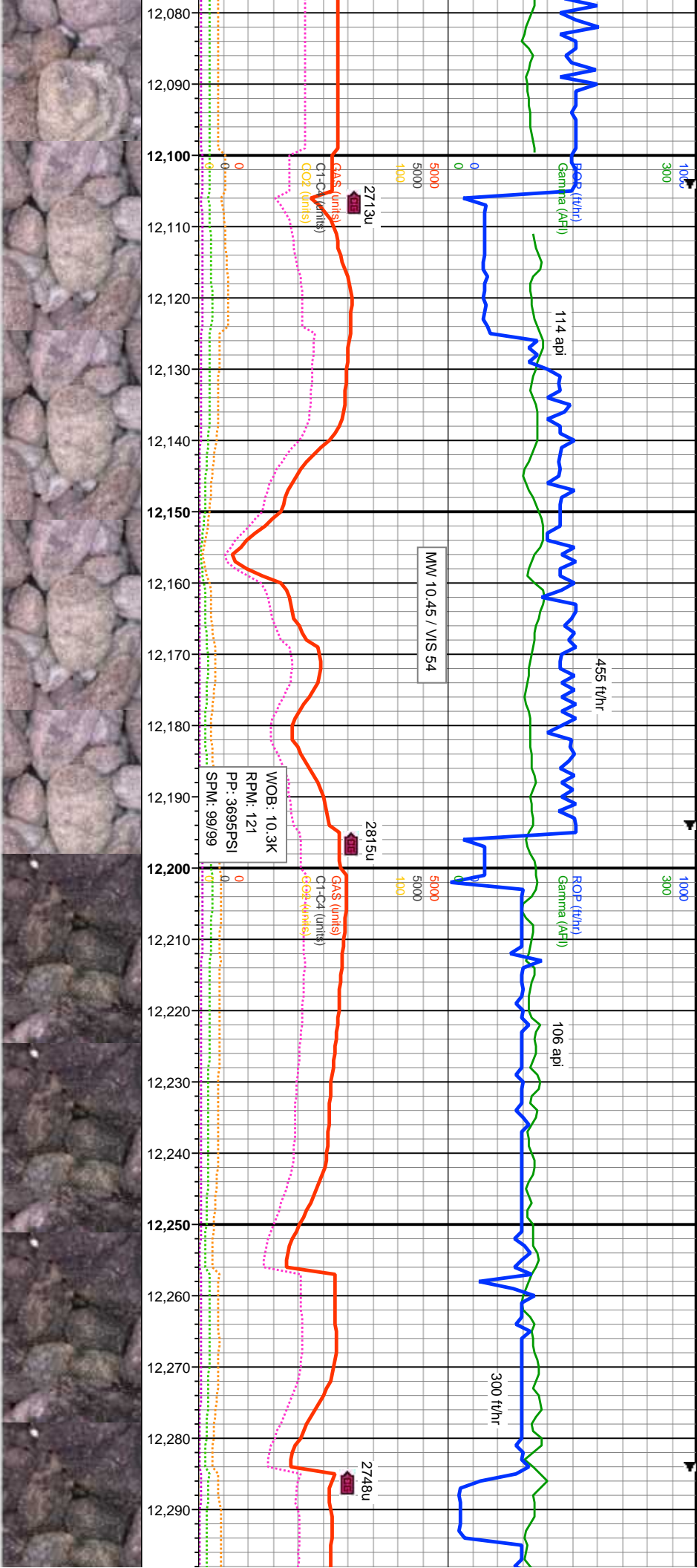


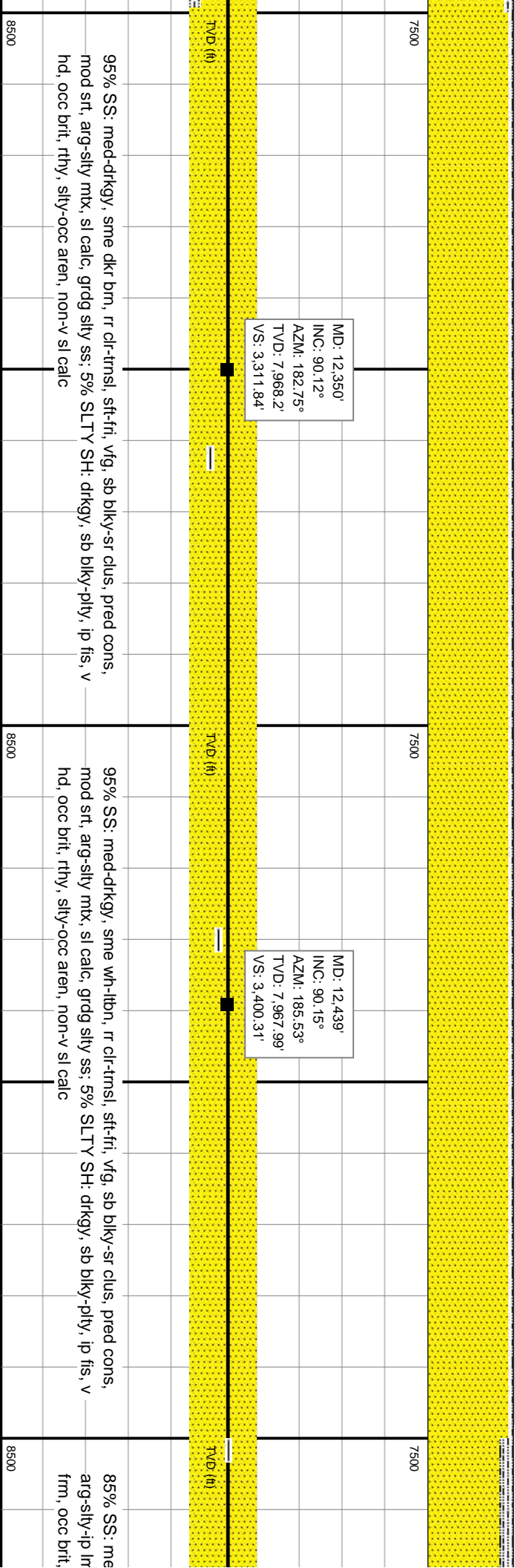
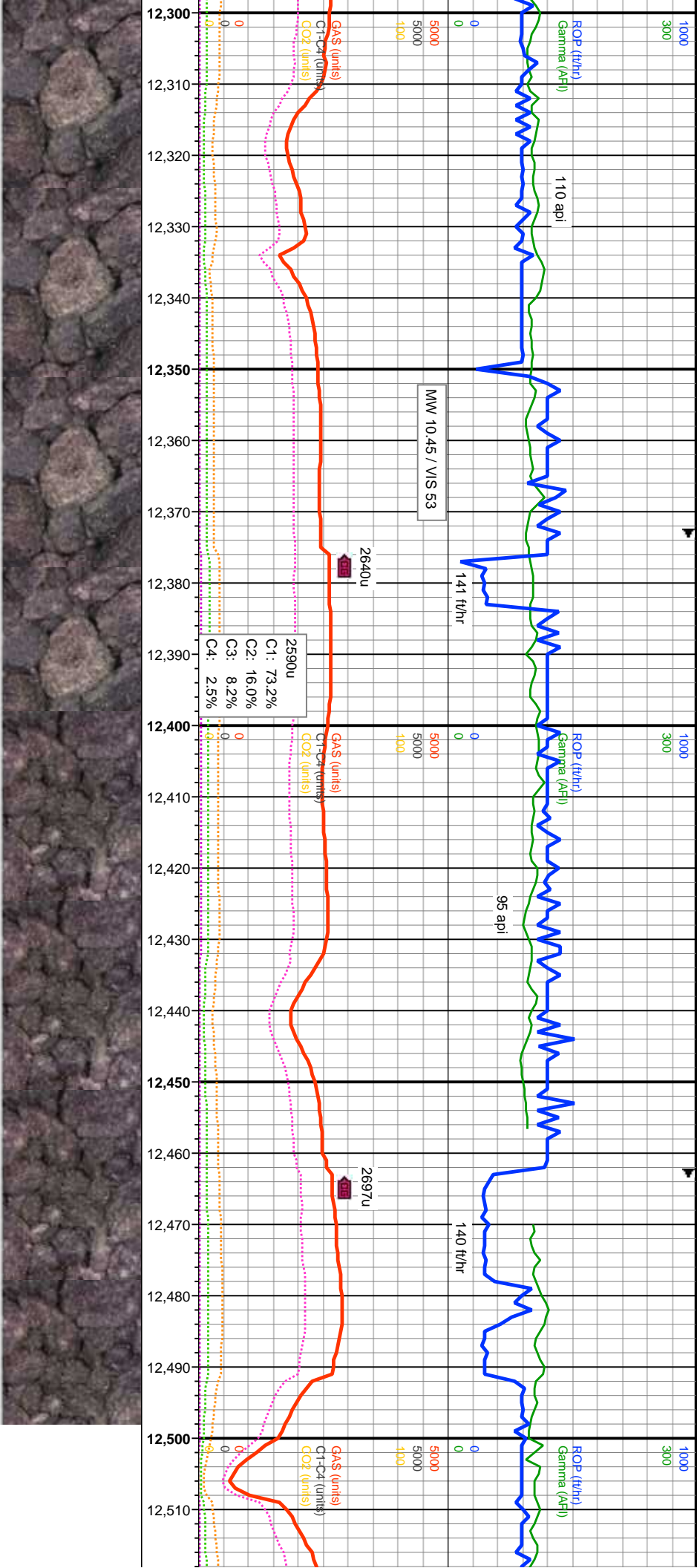




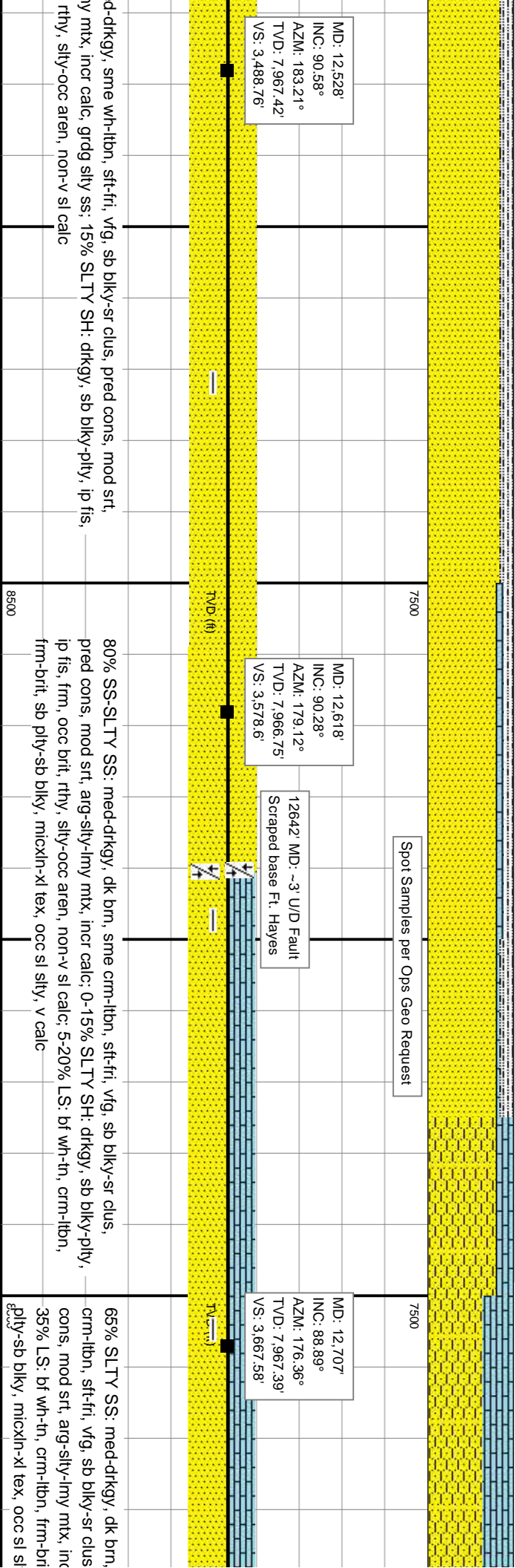
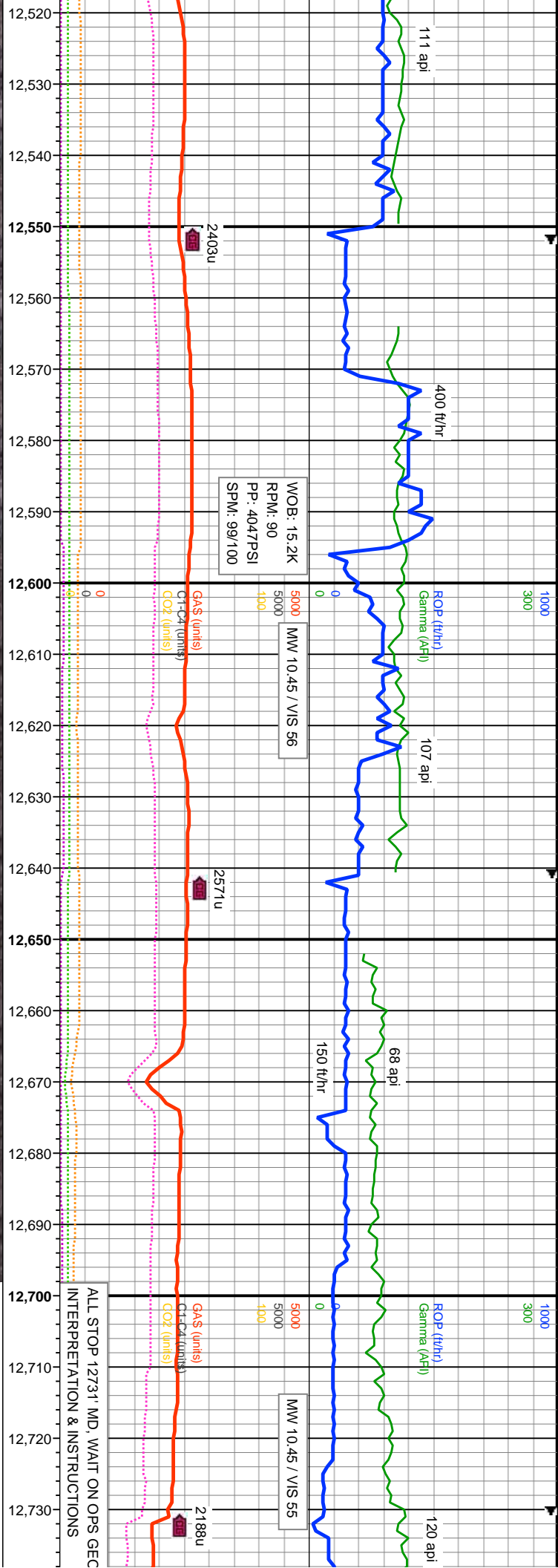


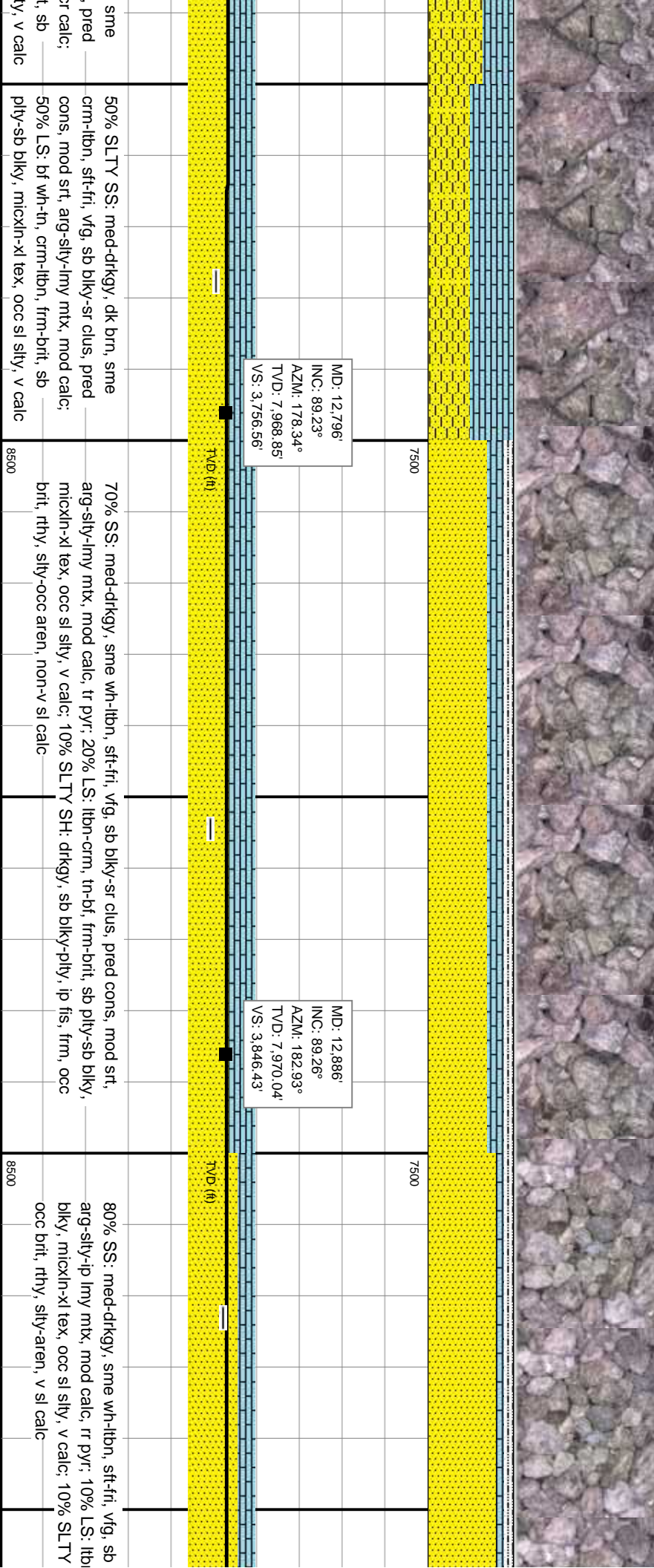
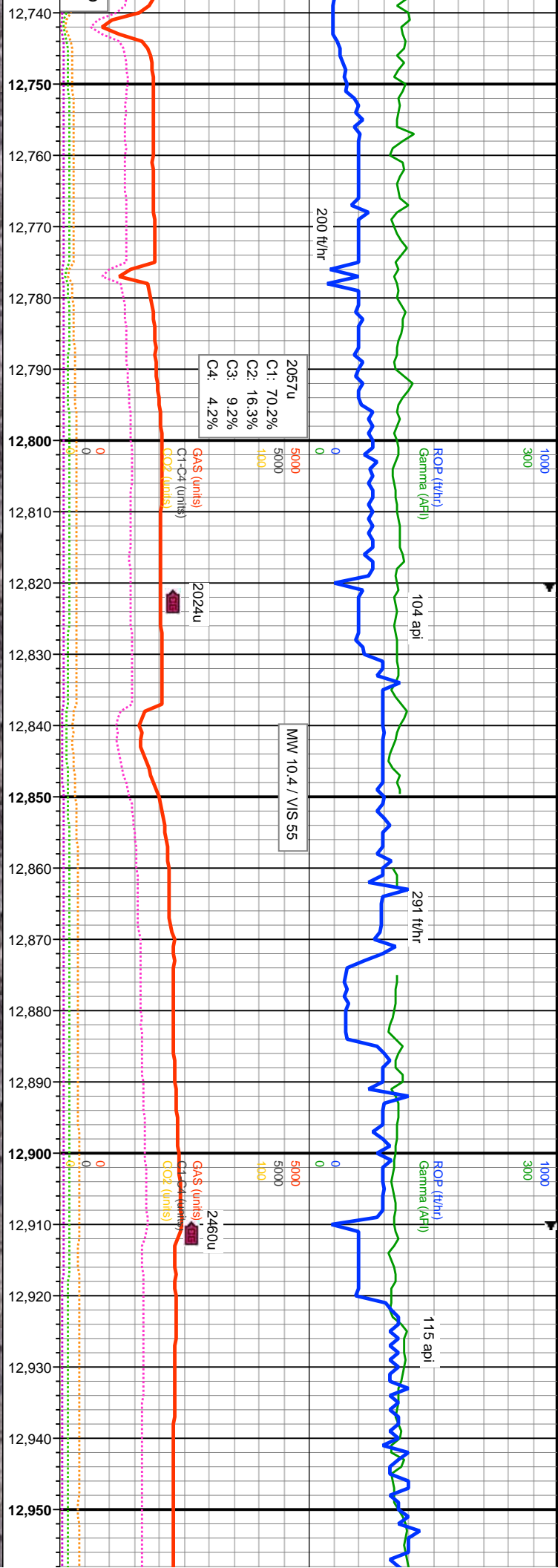




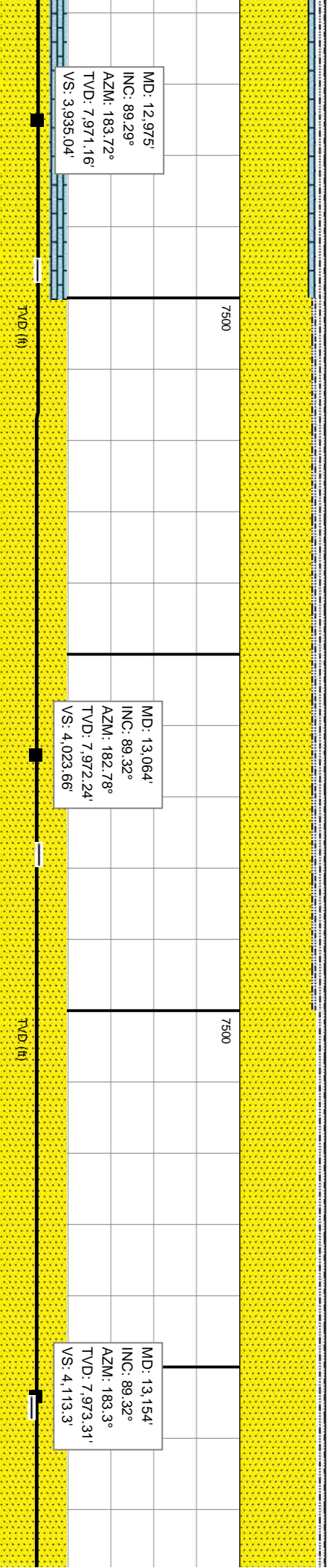
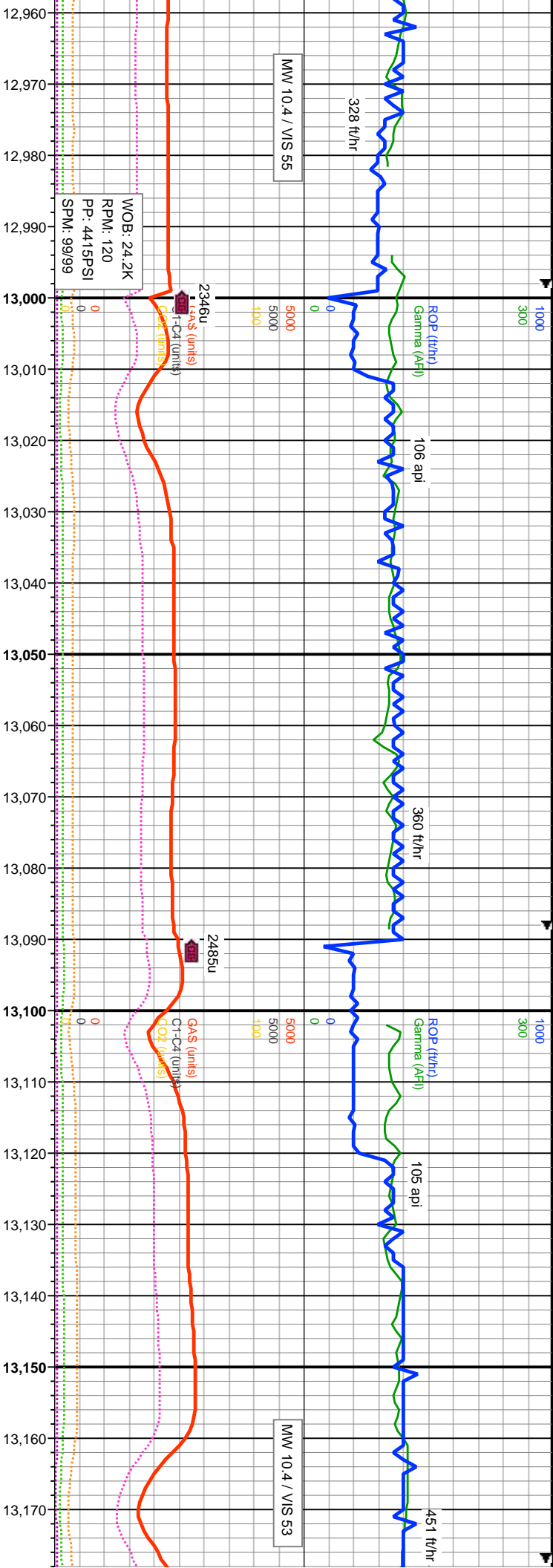








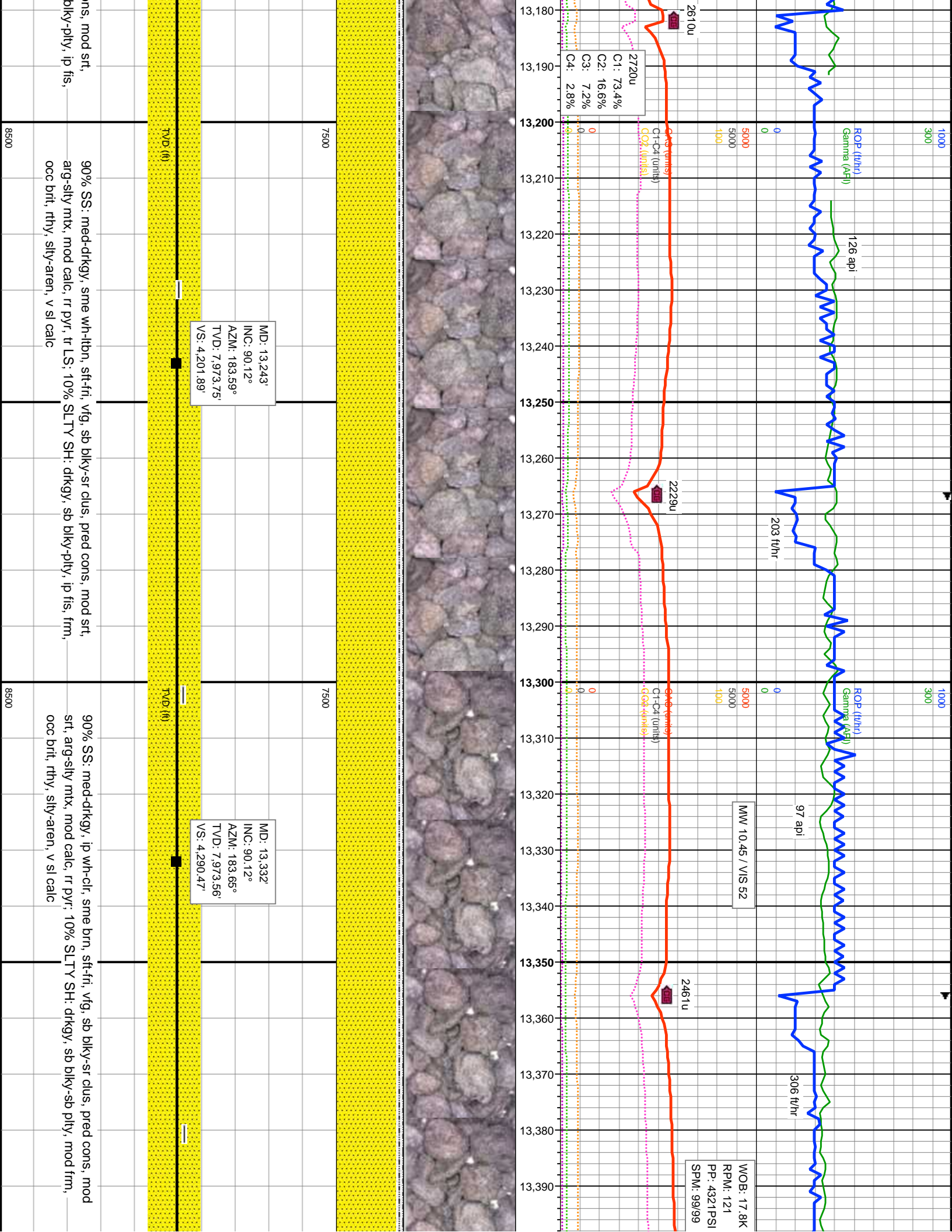




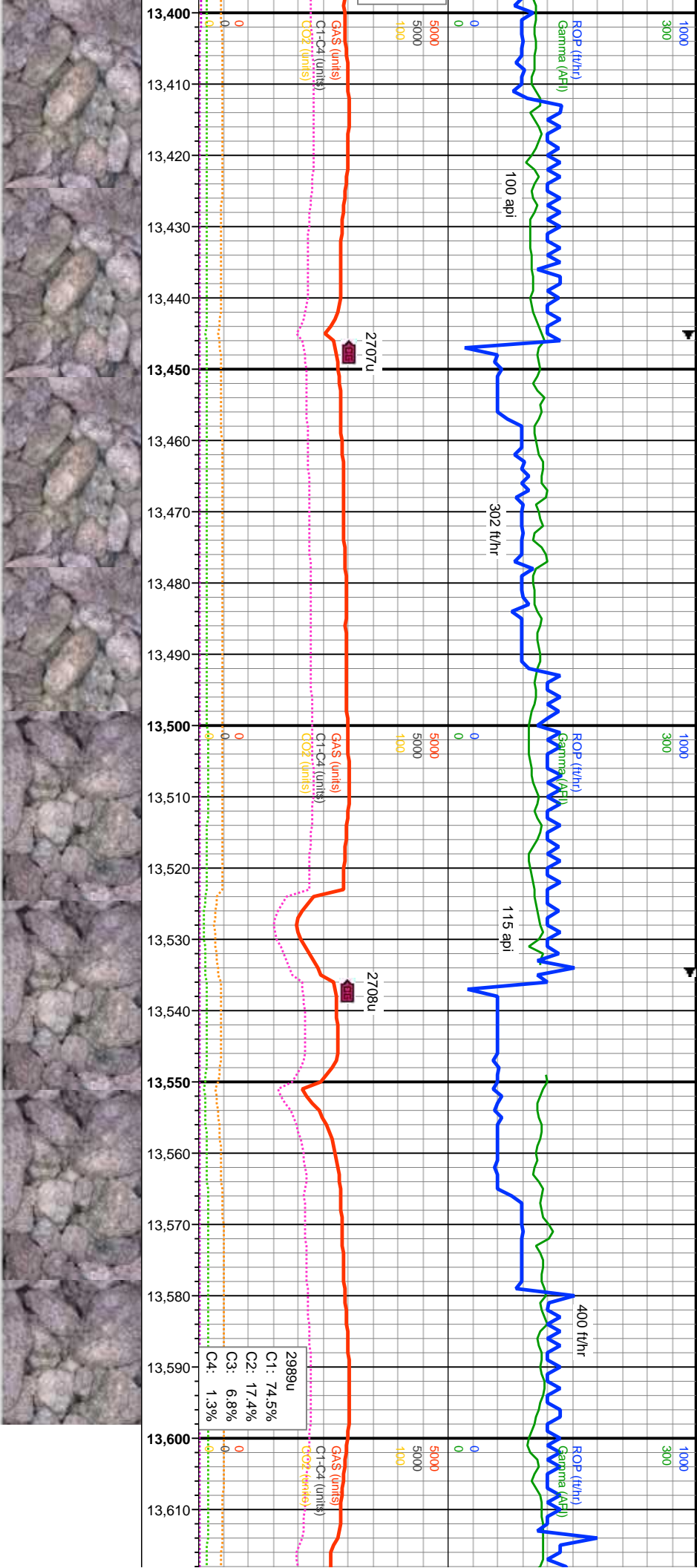
blky-sr clus, pred cons, mod srt,  
-n-crm, tn-bf, frm-brit, sb ply-sb —  
SH: drkgy, sb blky-pty, ip fis, frm,

85% SS: med-dkgy, sme wh-lbn, stf-frj, vfg, sb blk-y-sr clus, pred cons, mod stf, arg-slt-y-ip lmy mx, mod calc, r pyr, tr LS; 15% SLTY SH: dkgy, sb blk-y-pty, ip fis, frm, occ brt, rthy, slty-aren, v sl calc

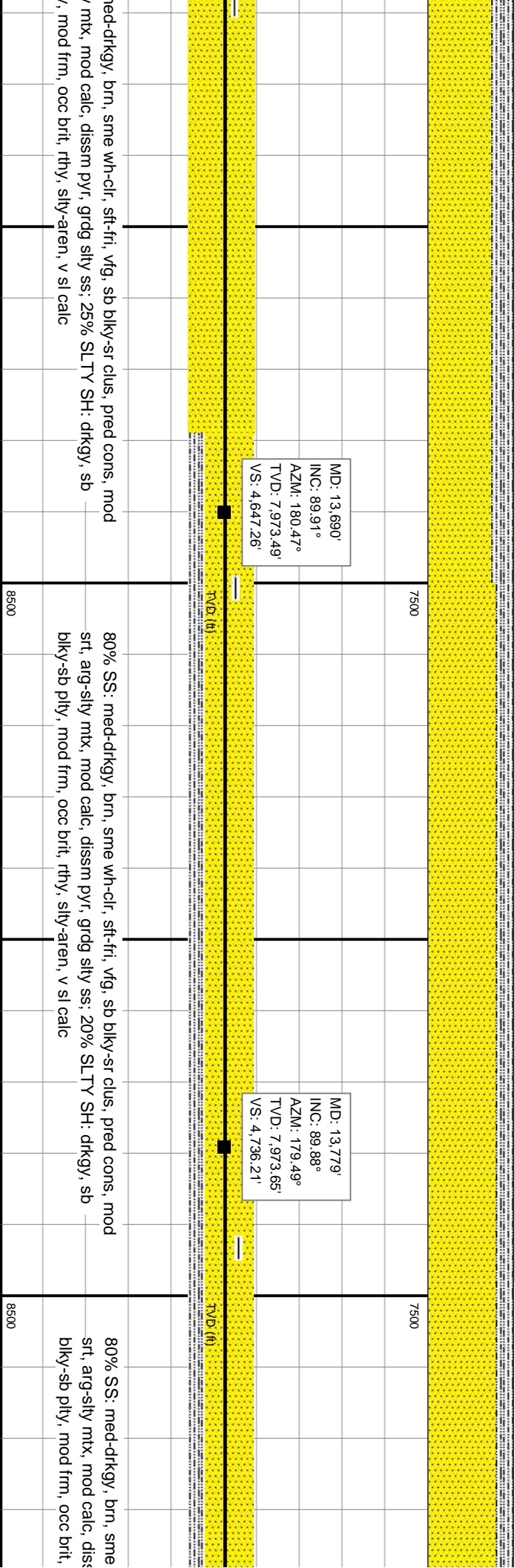
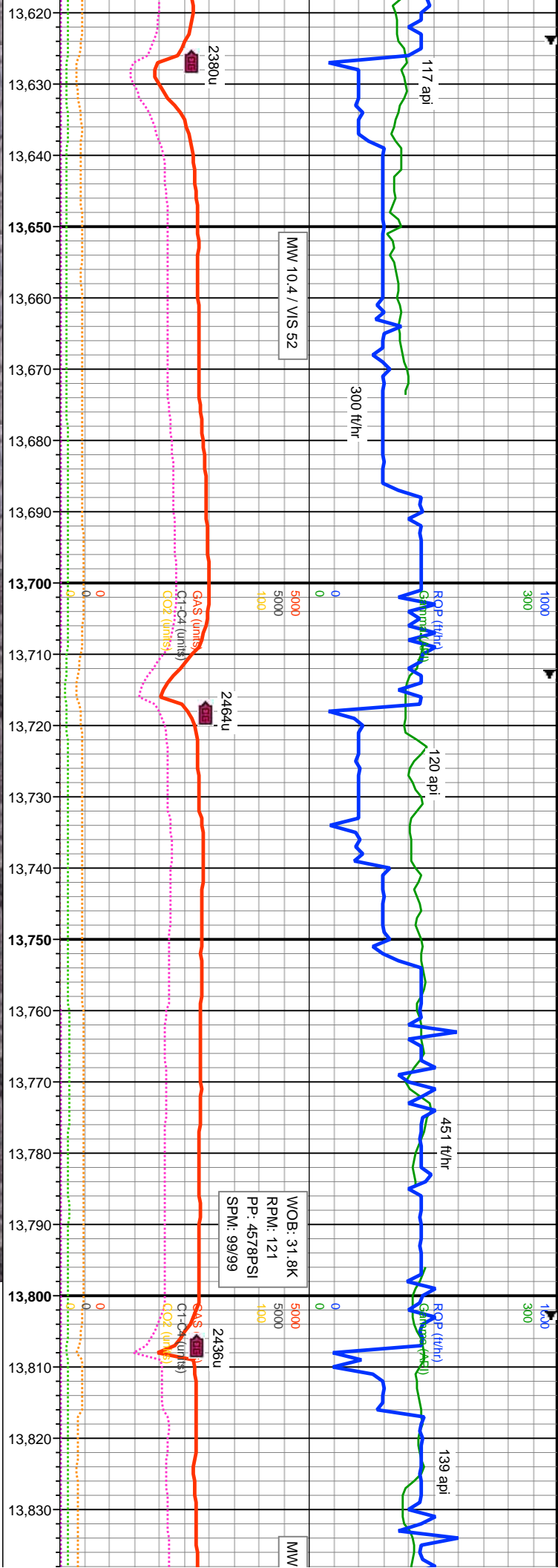
90% SS: med-dtkgy, sme wh-ttth, sft-fri, vfg, sb bky-sr clus, pried cccl, arg-sily-ip lmy mtx, mod calc,  $\pi$  pyr, tr LS; 10% SLTY SH: dtkgy, sb frm, occ brt, rthy, sly-aren, v sl calc



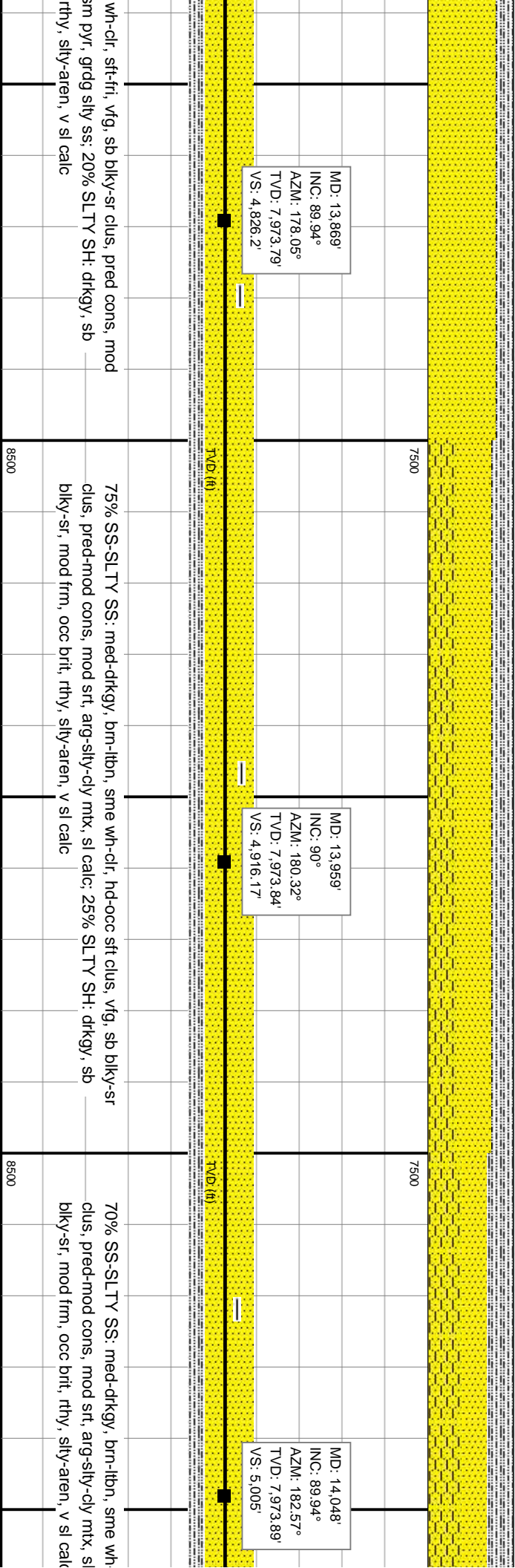
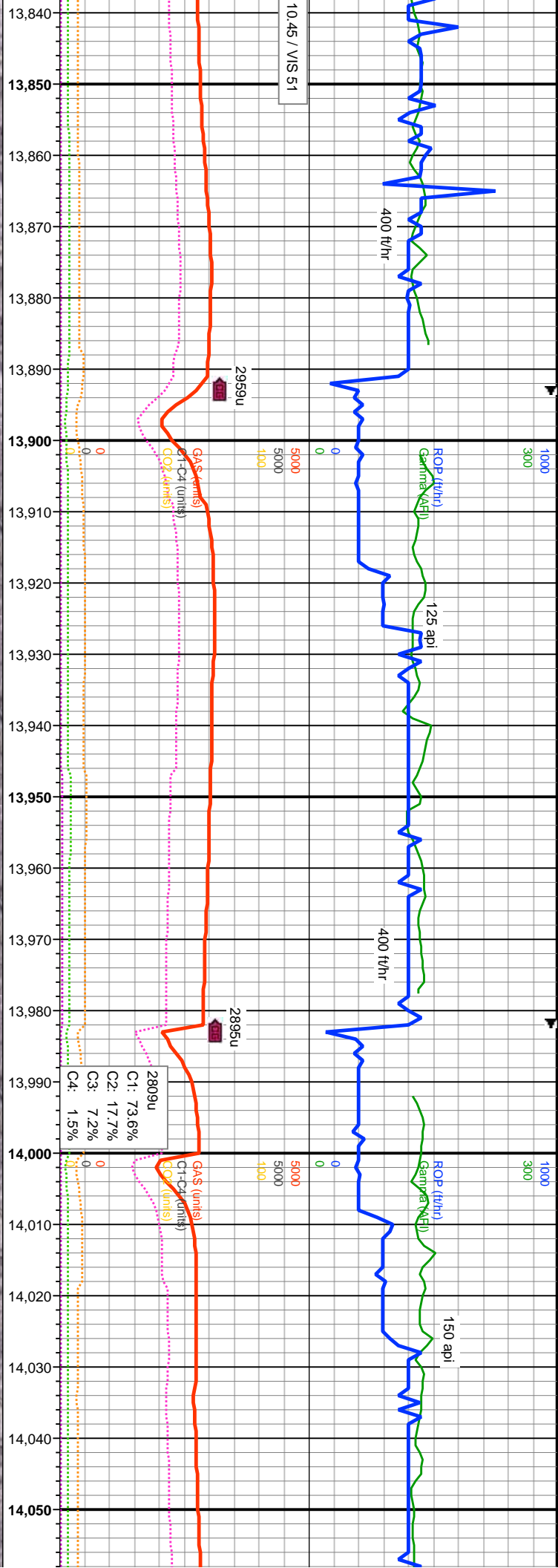


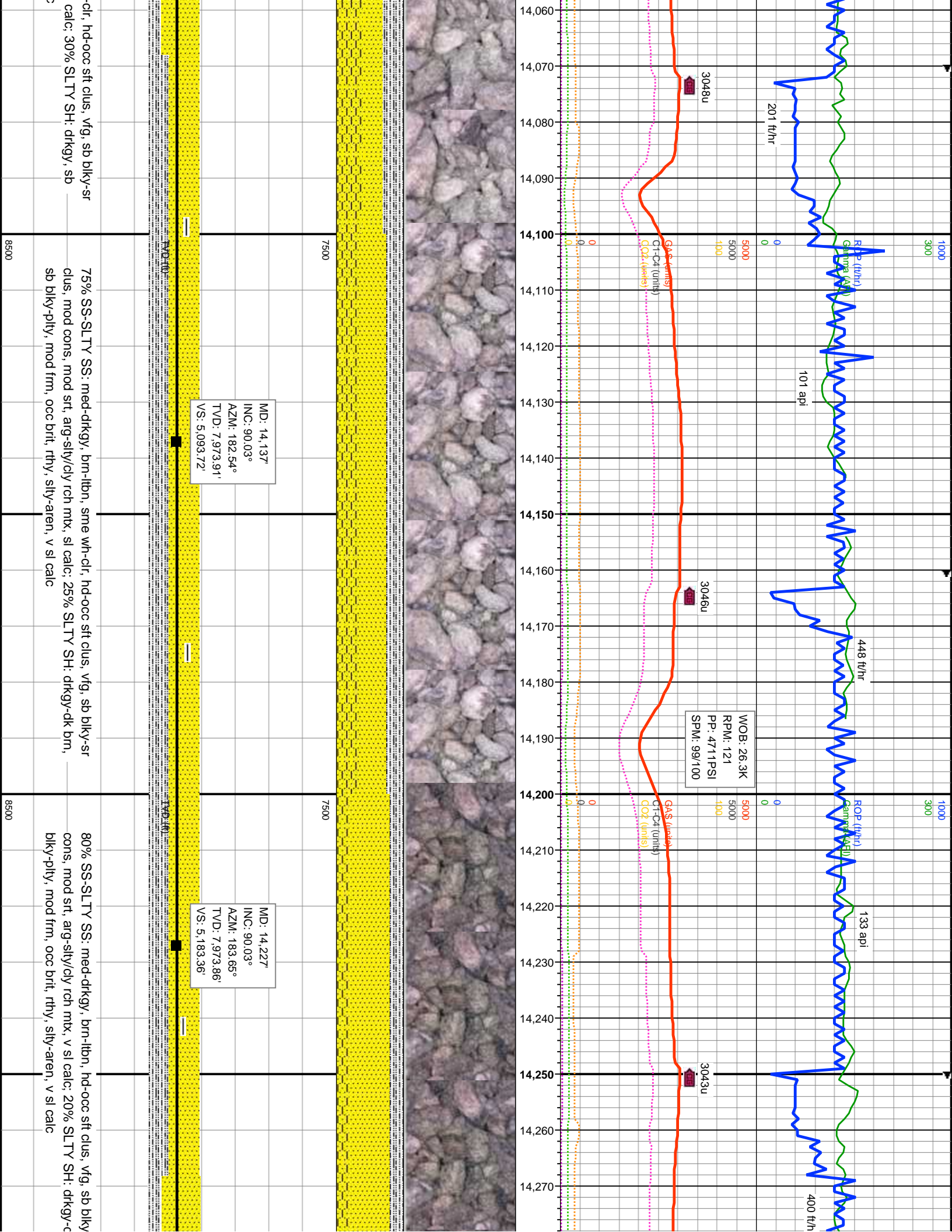


MD: 13,422' INC: 90.06° AZM: 182.95° TVD: 7,973.42' VS: 4,380.08'		MD: 13,511' INC: 90.12° AZM: 183.34° TVD: 7,973.28' VS: 4,468.72'		MD: 13,600' INC: 89.85° AZM: 182.09° TVD: 7,973.3' VS: 4,557.41'	
85% SS: med-dkgy, lp wh-clr, sme brn, sft-fri, vfg, sb blk-y-sr clus, pred cons, mod srt, arg-sily mtx, mod calc, rr pyr; 15% SLTY SH: dkgy, sb blk-y-sb plty, mod frm, occ brit, rthy, sily-aren, v sl calc		90% SS: med-dkgy, brn, sme wh-clr, sft-fri, vfg, sb blk-y-sr clus, pred cons, mod srt, arg-sily mtx, mod calc, dissn pyr; 10% SLTY SH: dkgy, sb blk-y-sb plty, mod frm, occ brit, rthy, sily-aren, v sl calc		75% SS: r... srt, arg-sily blk-y-sb plty	

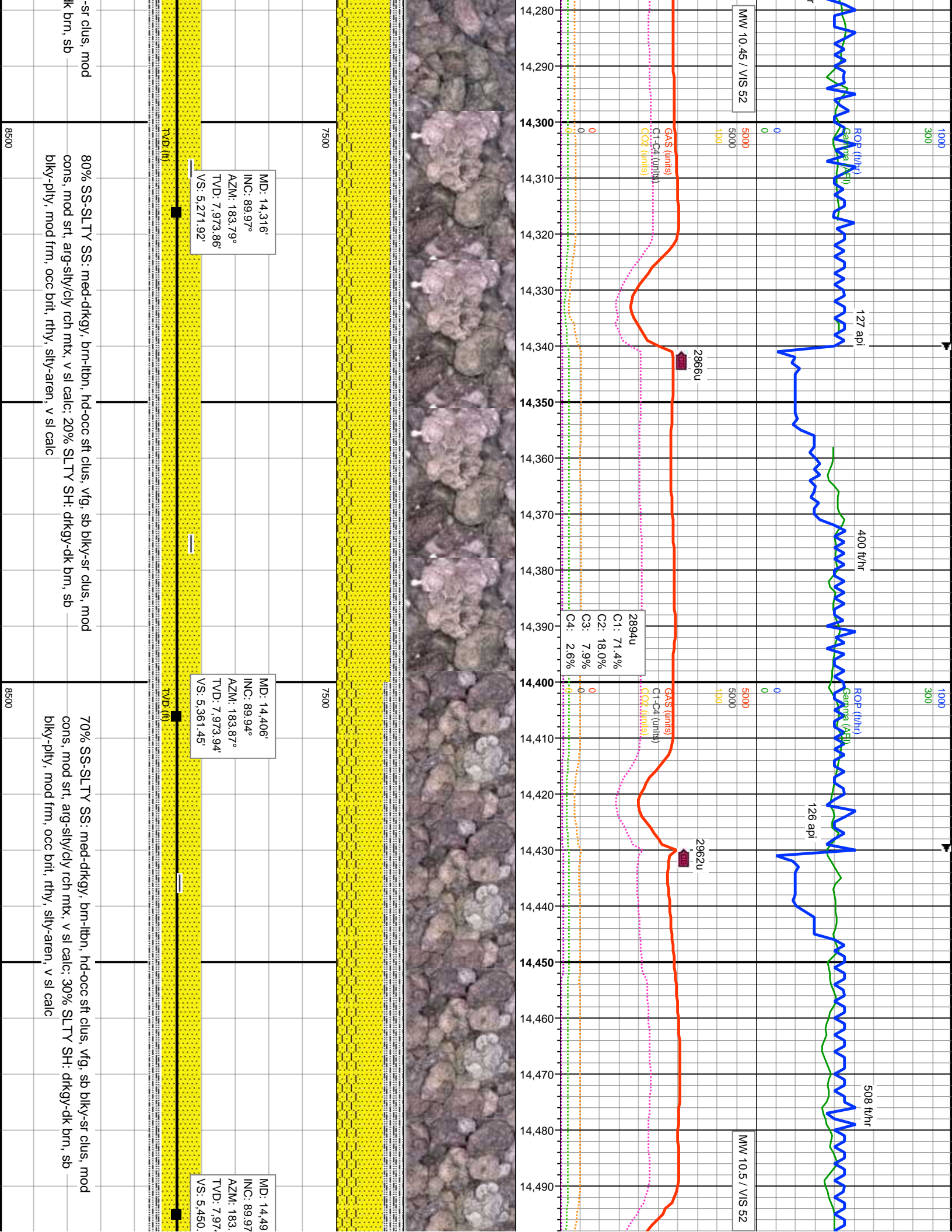


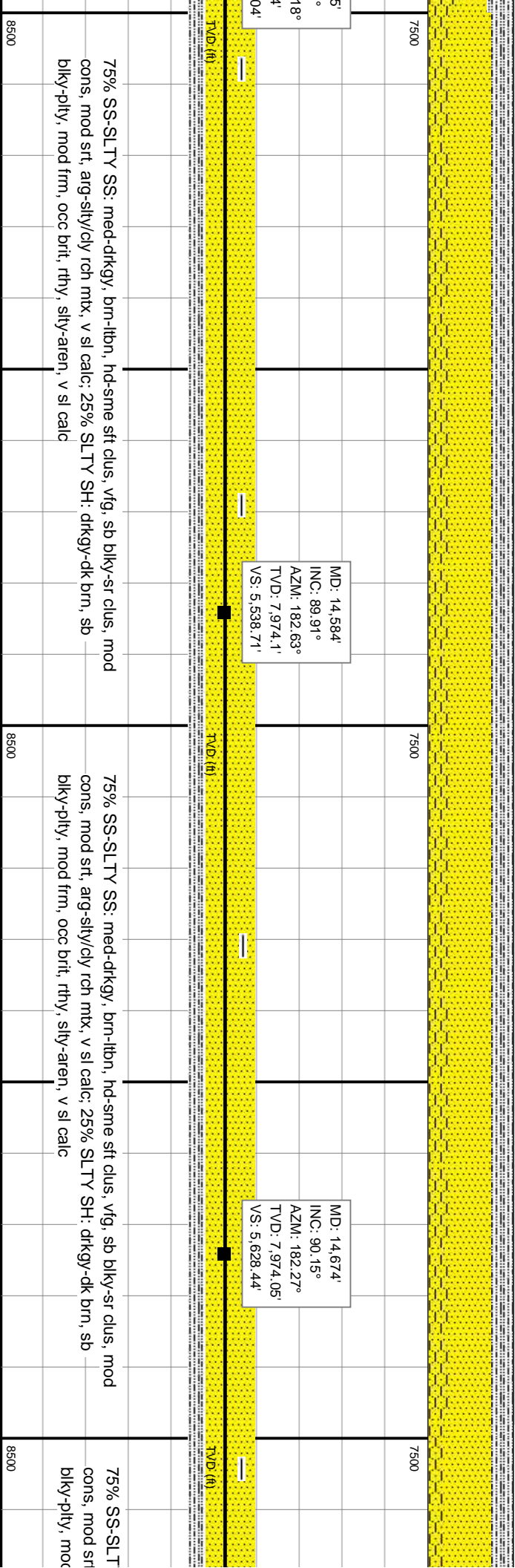
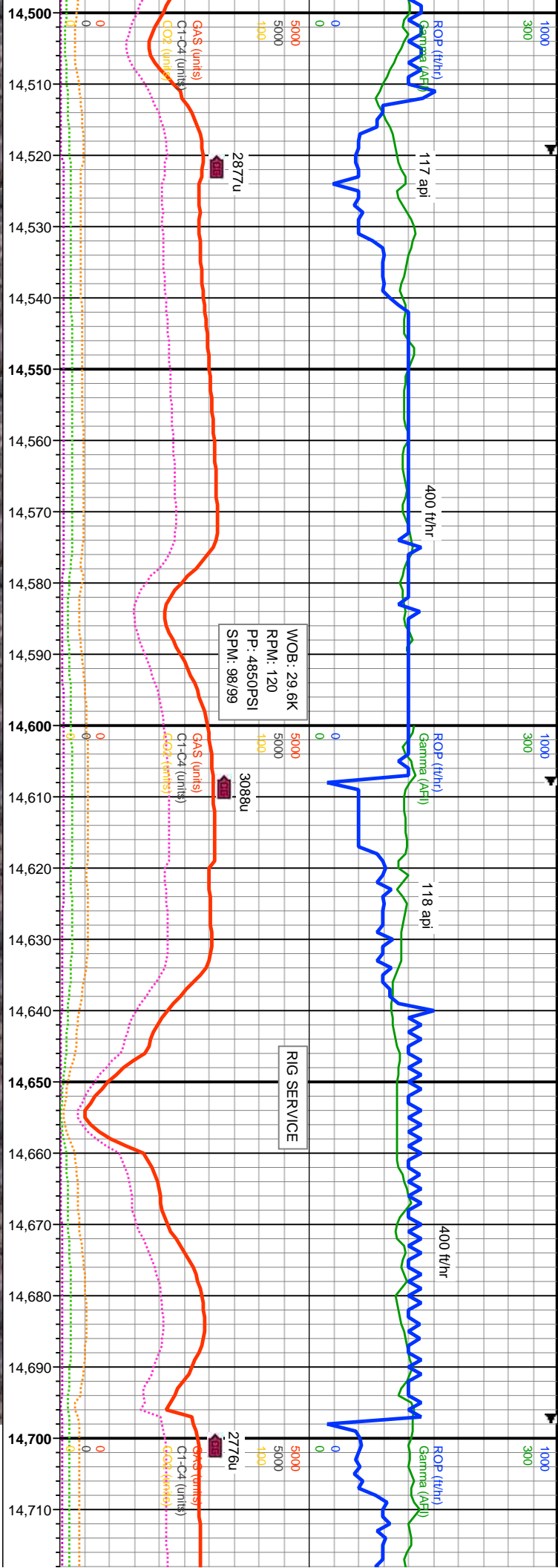










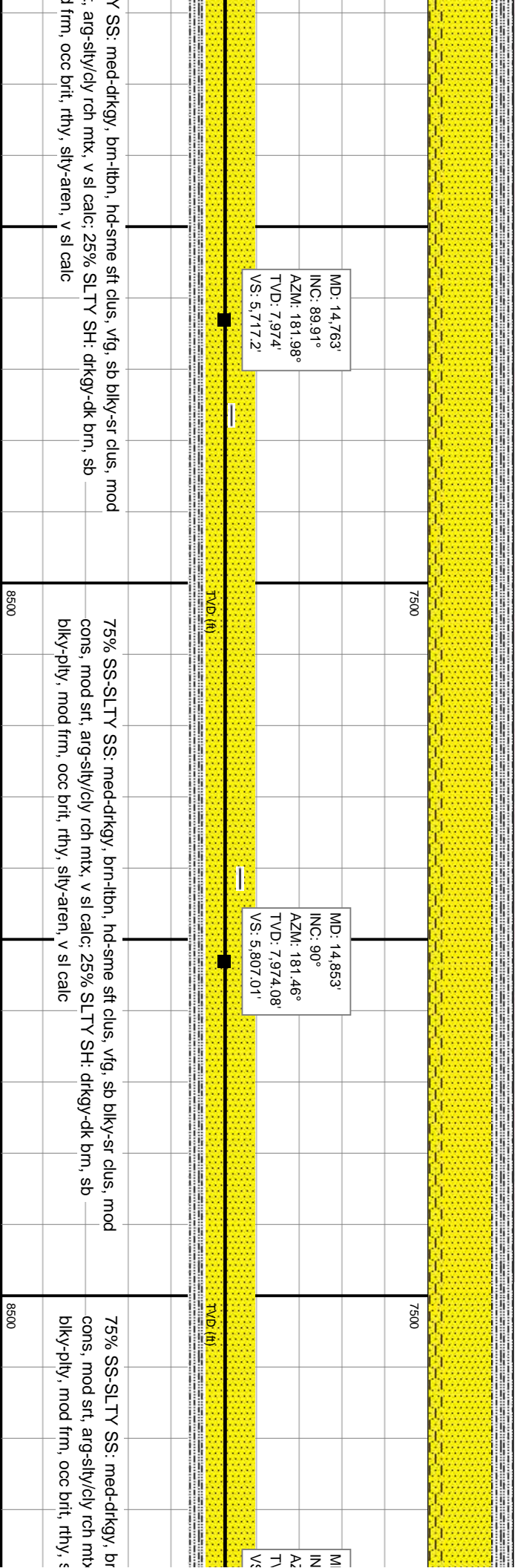
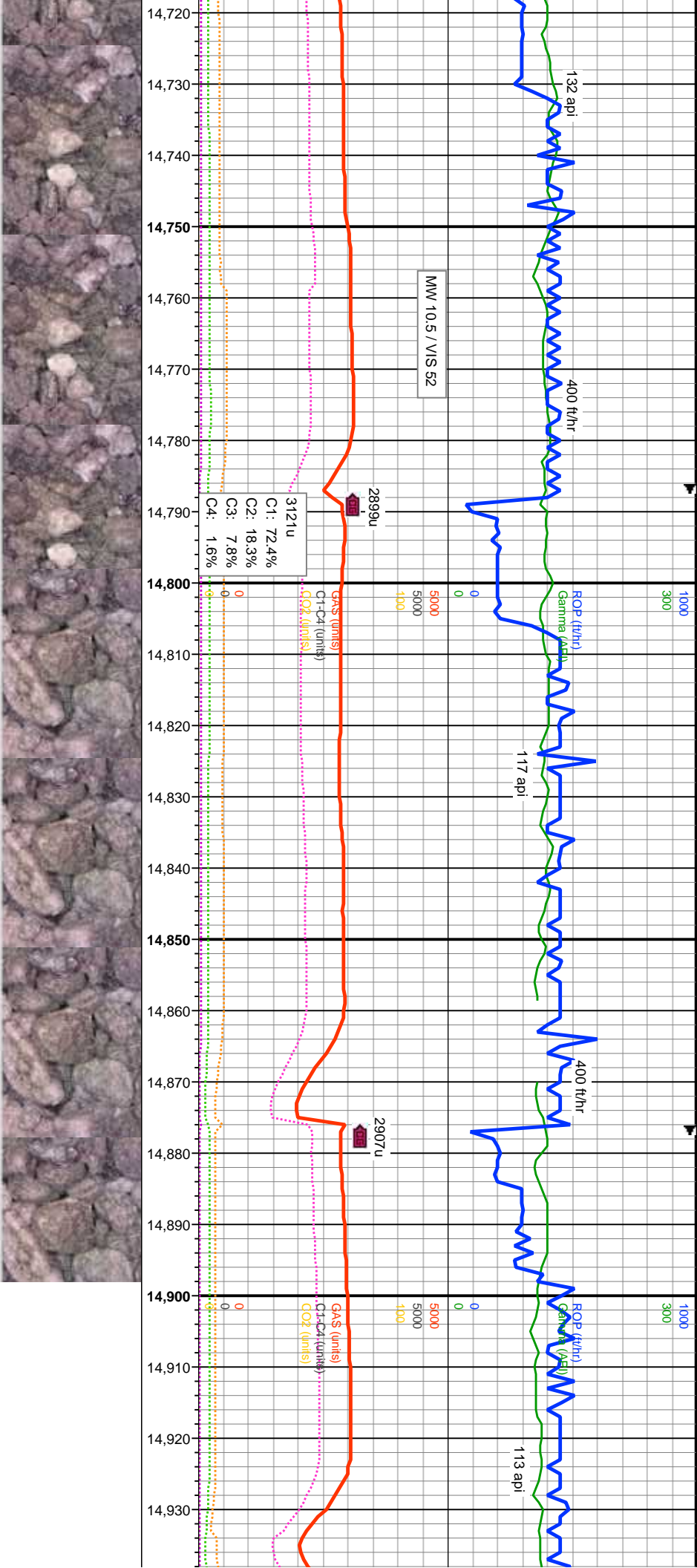


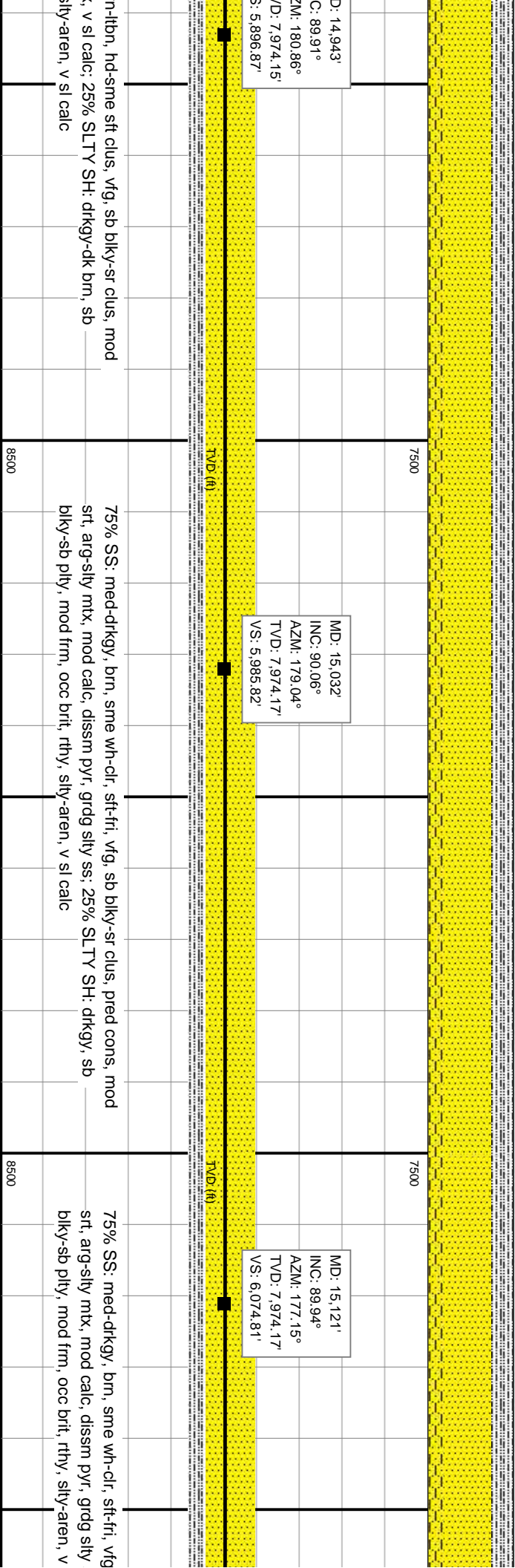
75% SS-SLTY SS: med-dkgy, brn-lbn, hd-sme sft clus, vfg, sb blk-y-sr clus, mod cons, mod srt, arg-sily/clay rich mtz, v sl calc; 25% SLTY SH: dkgy-dk brn, sb blk-y-plty, mod frm, occ brt, rthy, sily-aren, v sl calc

75% SS-SLTY SS: med-dkgy, brn-lbn, hd-sme sft clus, vfg, sb blk-y-sr clus, mod cons, mod srt, arg-sily/clay rich mtz, v sl calc; 25% SLTY SH: dkgy-dk brn, sb blk-y-plty, mod frm, occ brt, rthy, sily-aren, v sl calc

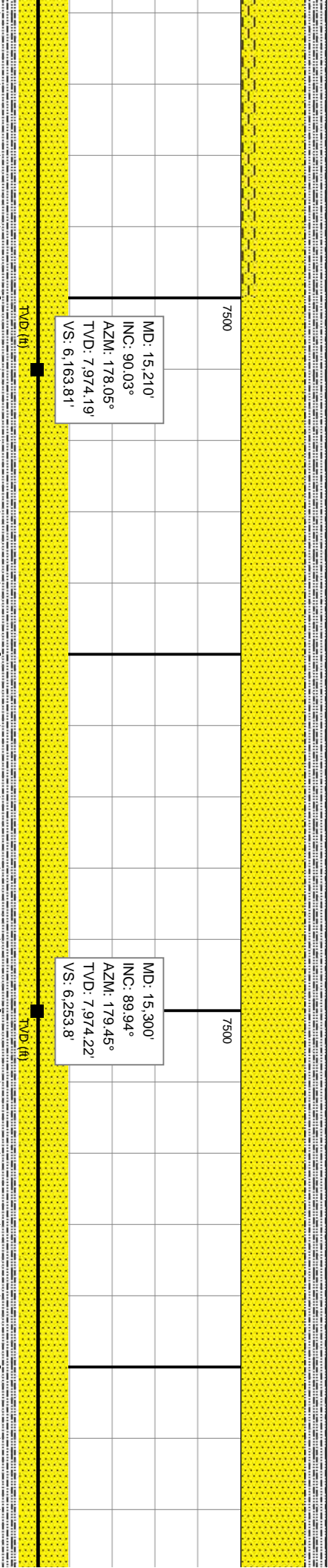
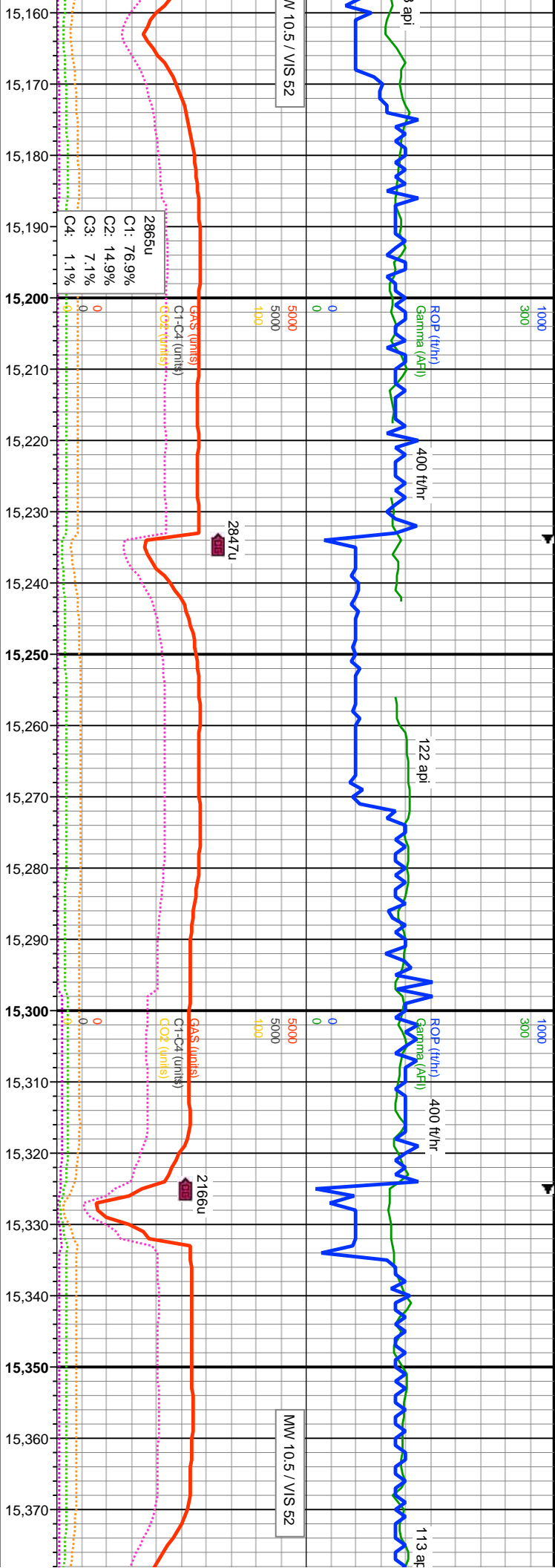
75% SS-SLTY SS: med-dkgy, brn-lbn, hd-sme sft clus, vfg, sb blk-y-sr clus, mod cons, mod srt, arg-sily/clay rich mtz, v sl calc; 25% SLTY SH: dkgy-dk brn, sb blk-y-plty, mod frm, occ brt, rthy, sily-aren, v sl calc







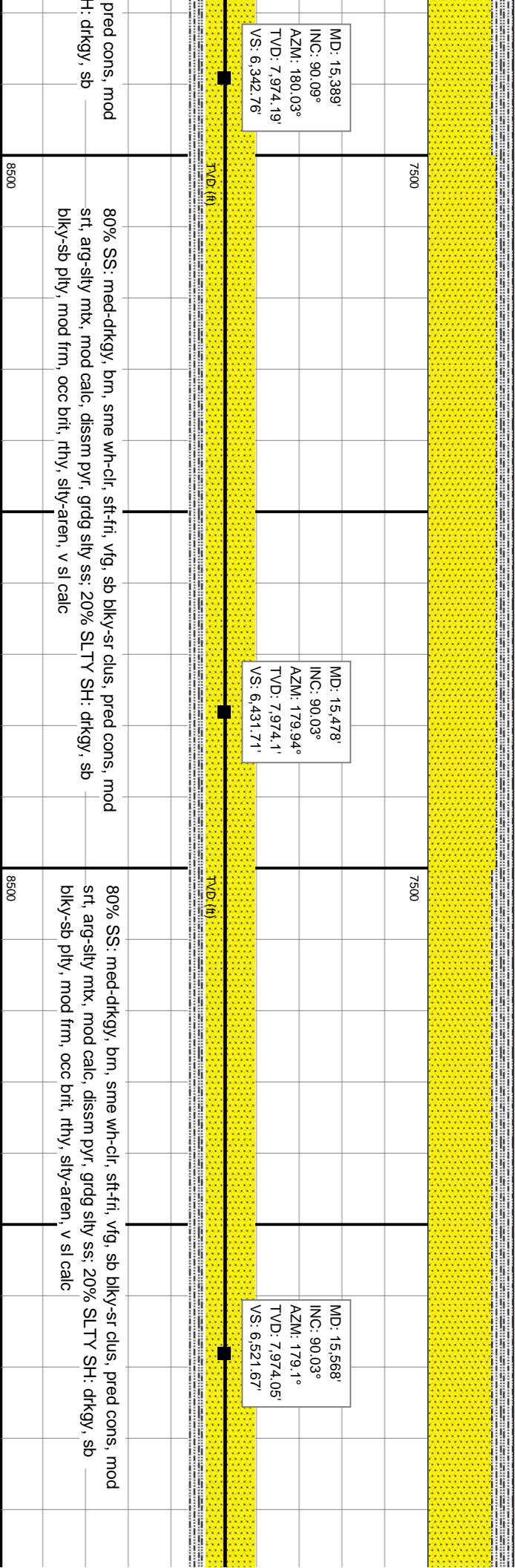
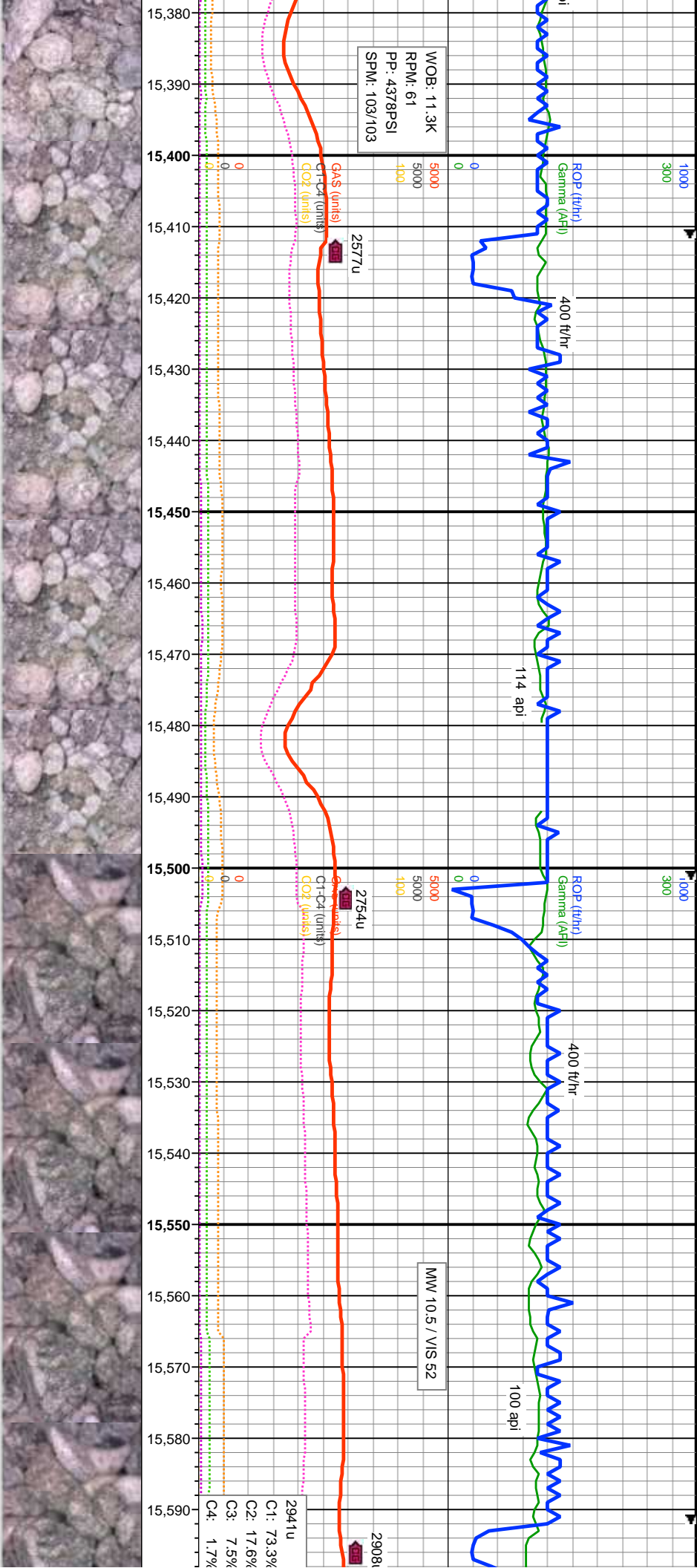




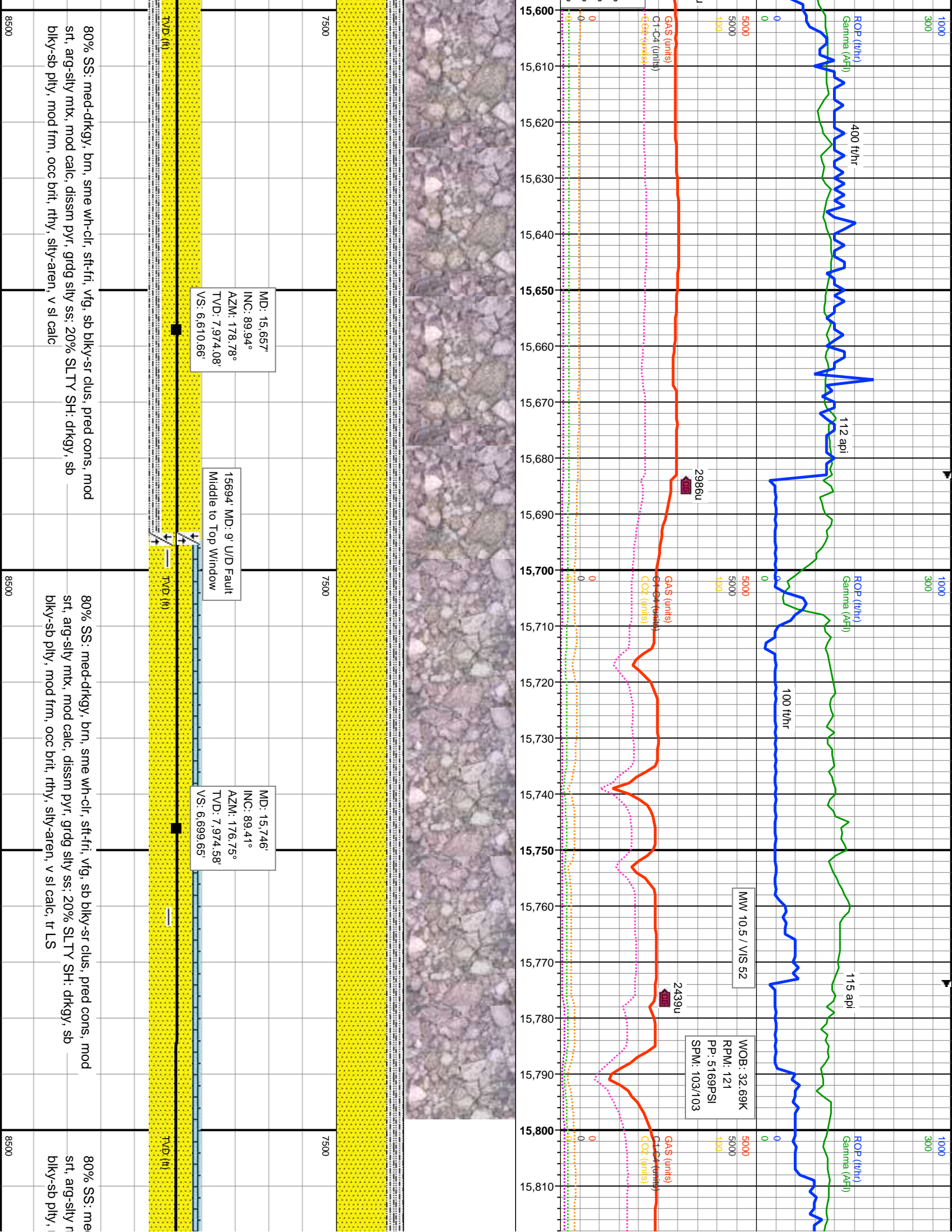
sb biky-sr clus, pred cons, mod  
ss; 25% SLTY SH: drkgy, sb  
sl calc

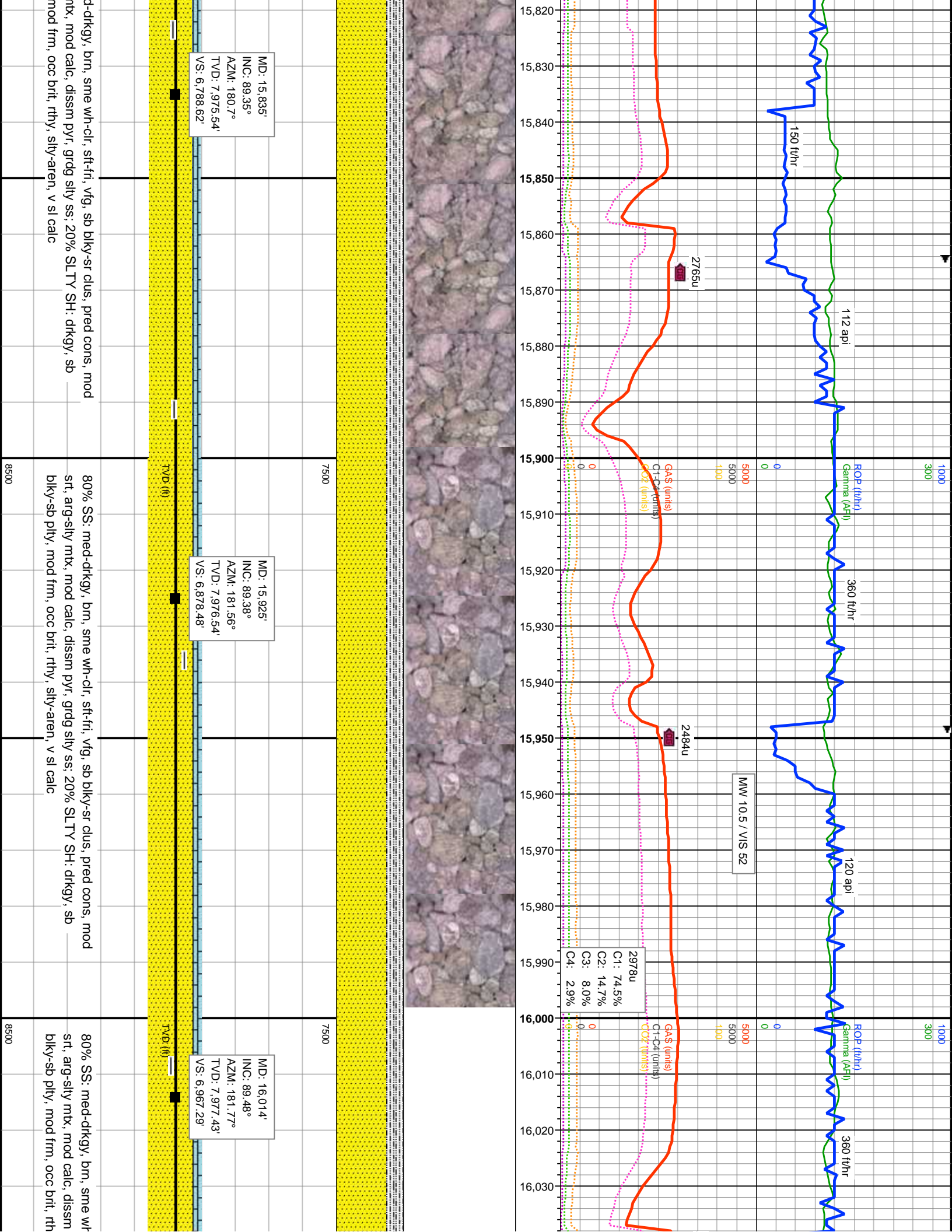
75% SS, med-dtkgy, brn, sme wh-clr, stt-frn, vfg, sb blyx-sr clus, pried cons, mod  
srt, arg-sltly mx, mod calc, dissim pyr, grdg slty ss; 25% SLTY SH, dtkgy, sb  
blyx-sb pily, mod frm, occ brt, rthy, slty-aren, v sl calc

75% SS: med-dkrgy, brn, sme wh-clr, sft-frt, vfg, sb bkly-sr clus, st, arg-sltly mtx, mod calc, dissim pyr, grdgy slty ss; 25% SLTY S bkly-sb pily, mod frm, occ brit, rthy, slty-aren, v sl calc

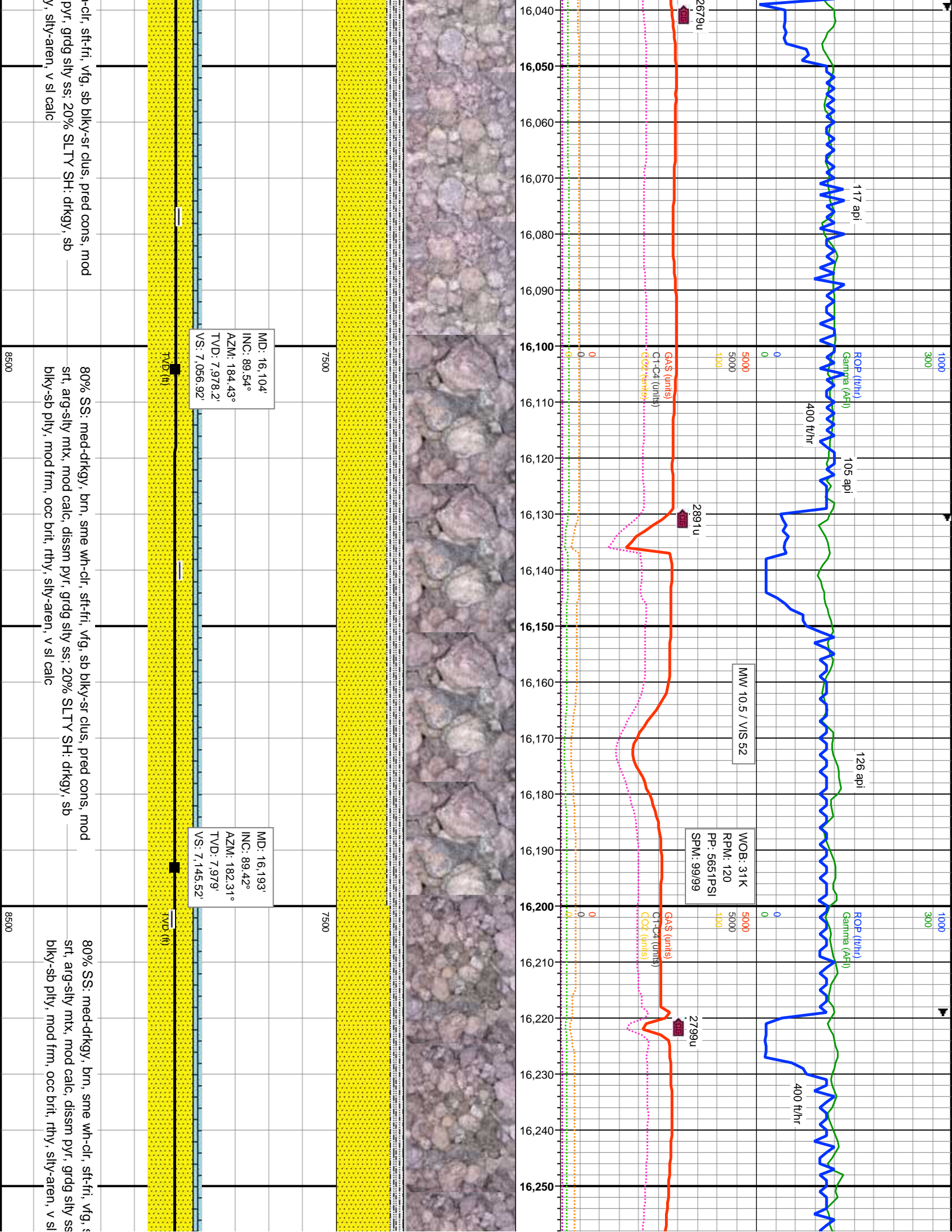






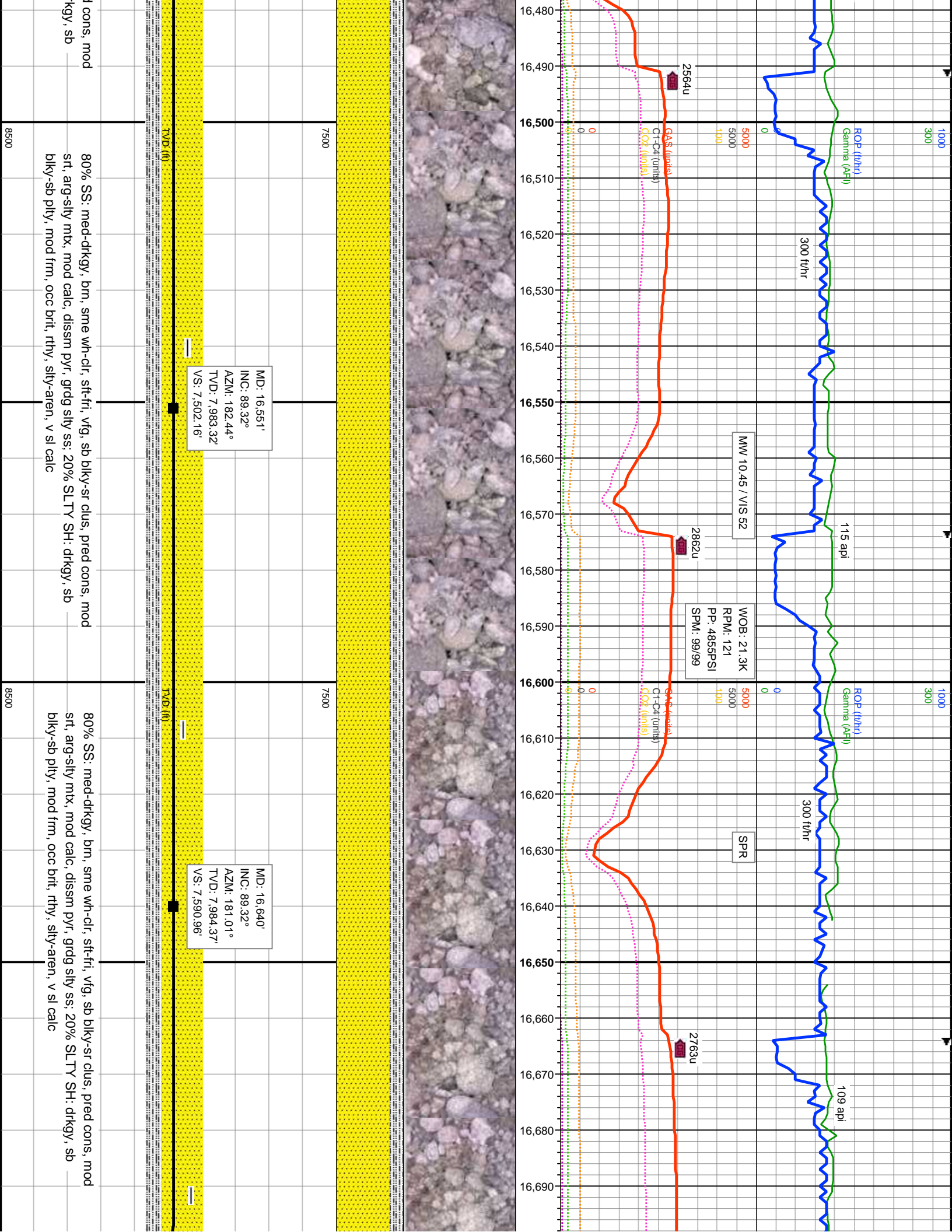


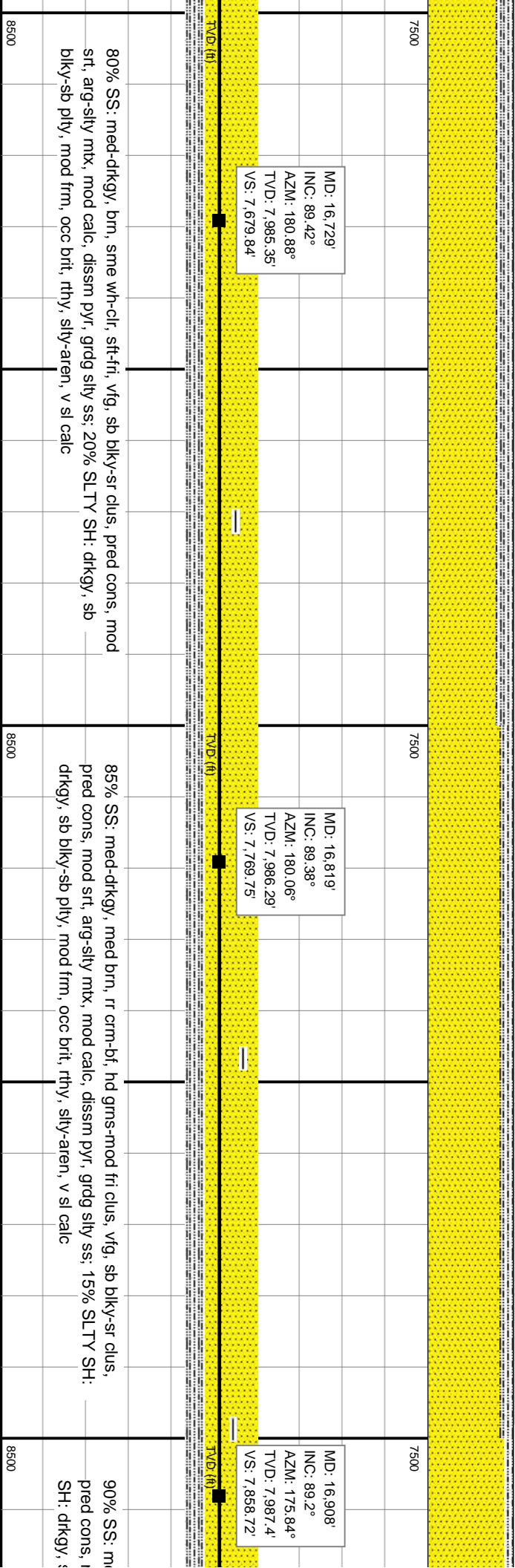
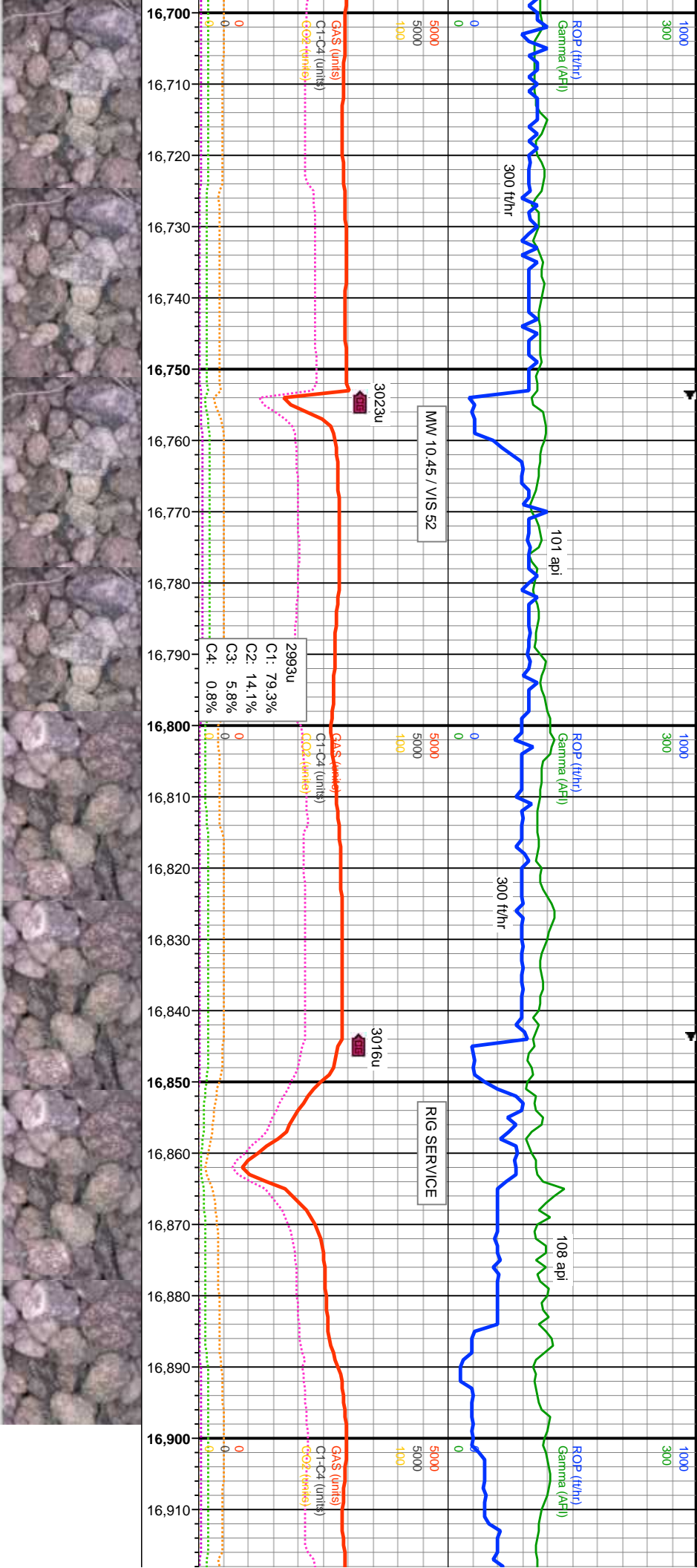




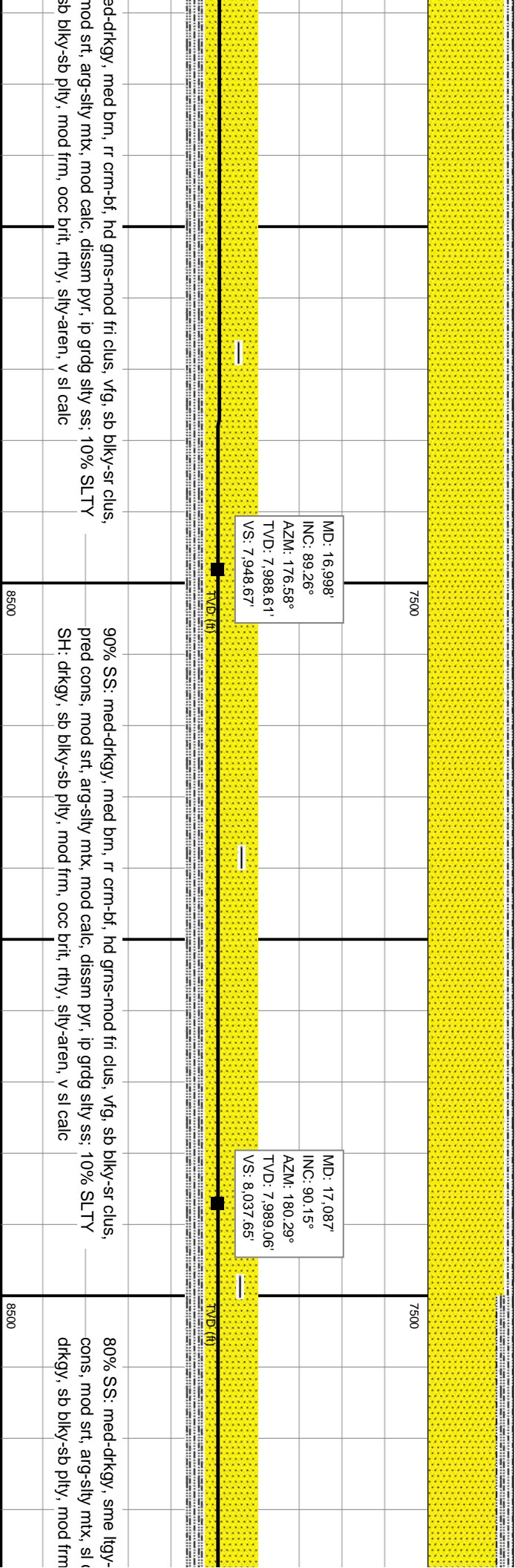
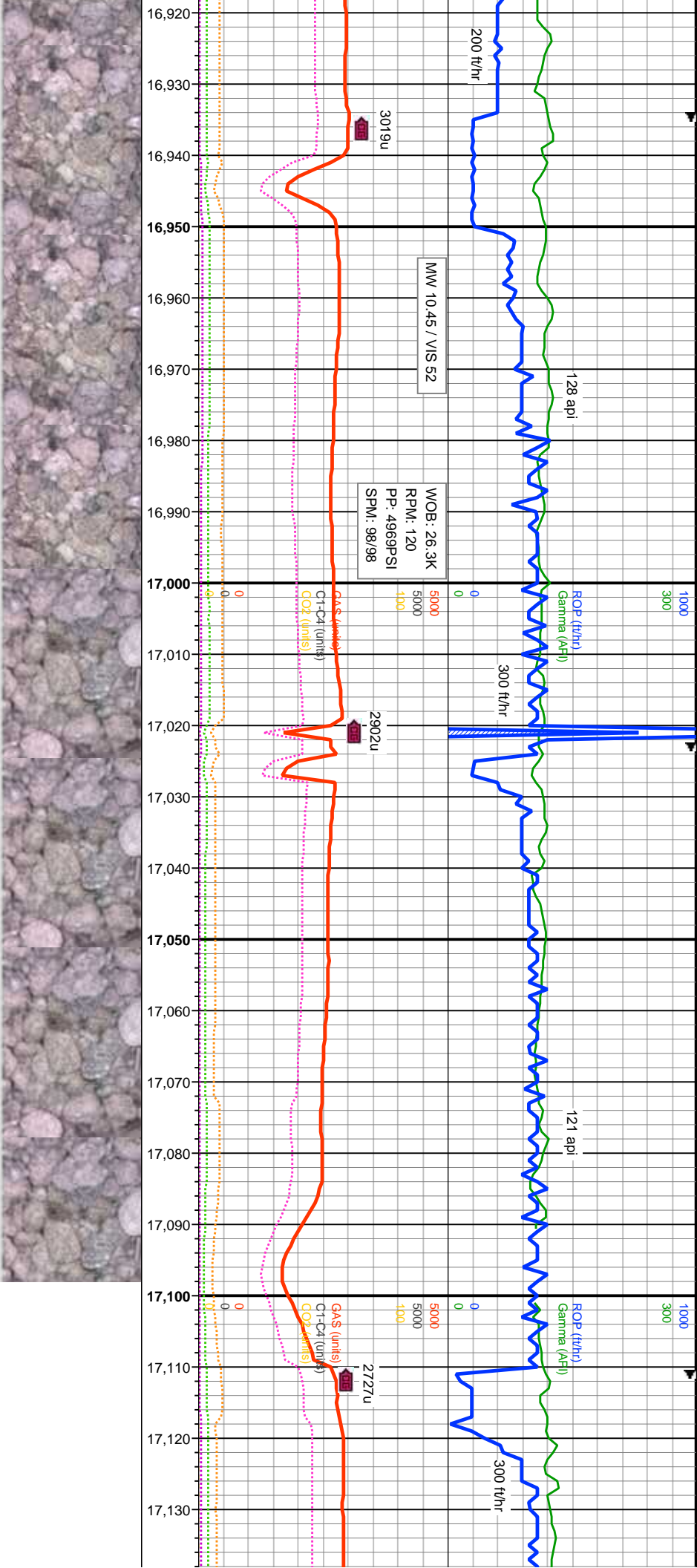


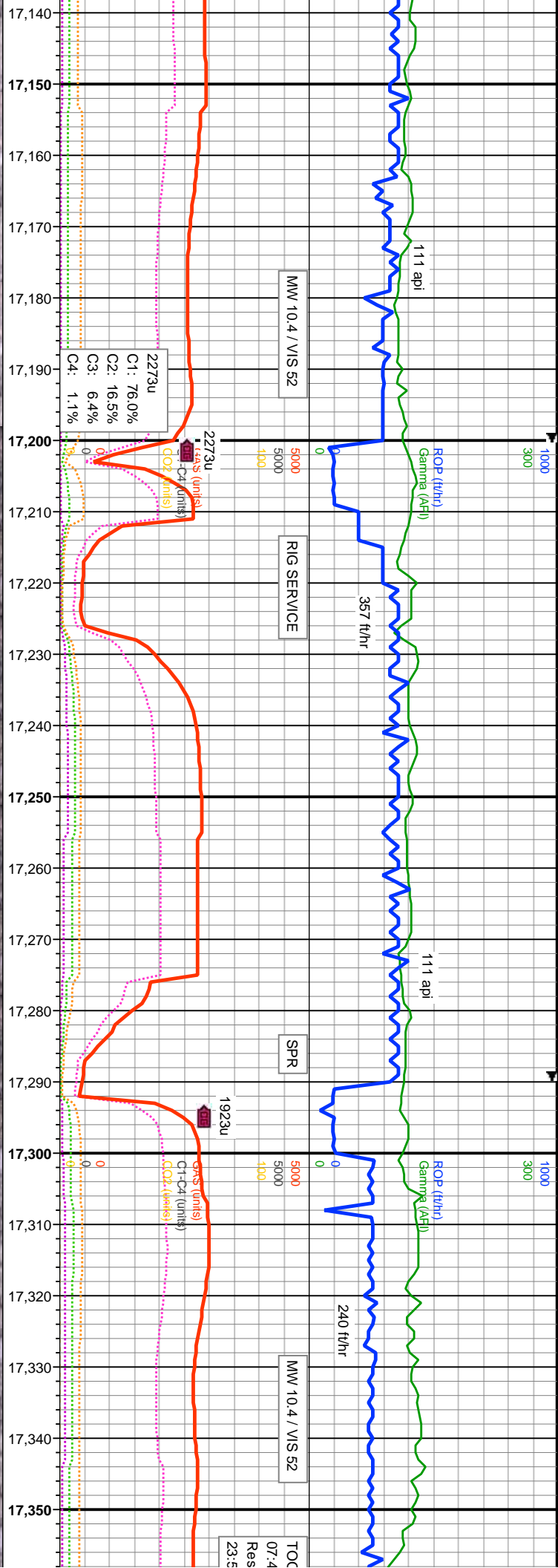












MD: 17,176'  
INC: 89.42°  
AZM: 182.85°  
TVD: 7,989.4'  
VS: 8,126.46'

MD: 17,266'  
INC: 89.88°  
AZM: 183.8°  
TVD: 7,989.95'  
VS: 8,216.07'

MD: 17,355'  
INC: 89.29°  
AZM: 184.4°  
TVD: 7,990.4'  
VS: 8,304.46'

brn, hd grns-mod fri clus, vfg, sb blkly-sr clus, pred  
calc, dissim pyr, ip grdg silty ss, 20% SLTY SH:  
occ brit, rthy, silty-aren, v sl calc

85% SS: med-dkgy, sme ltgy-brn, hd grns-mod fri clus, vfg, sb blkly-sr clus, pred  
cons, mod srt, arg-sily mtz, sl calc, dissim pyr, ip grdg silty ss, 15% SLTY SH:  
dkgy, sb blkly-sb pty, mod frm, occ brit, rthy, silty-aren, v sl calc

85% SS: med-dkgy, sme ltgy-brn, hd grns-mod fri clus, vfg, sb blkly-sr clus, pred  
cons, mod srt, arg-sily mtz, sl calc, dissim pyr, ip grdg silty ss, 15% SLTY SH:  
dkgy, sb blkly-sb pty, mod frm, occ brit, rthy, silty-aren, v sl calc

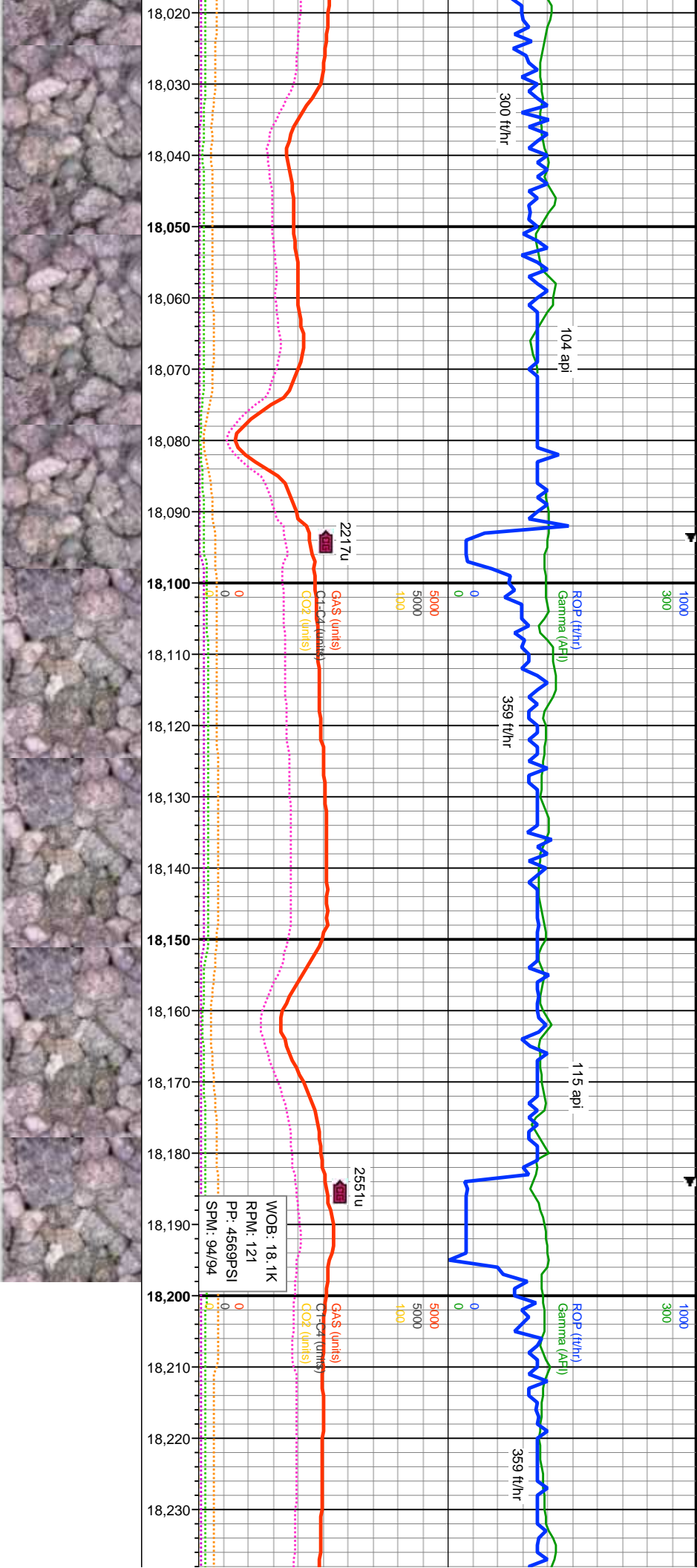












MD: 18,071'  
INC: 89.35°  
AZM: 177.7°  
TVD: 7,997.71'  
VS: 9,020.06'

MD: 18,161'  
INC: 89.38°  
AZM: 180.65°  
TVD: 7,998.71'  
VS: 9,110.03'

med-dkgy, sme ltgy-brn, hd gms-mod fri clus, vfg, sb blk-y-sr clus, pred  
t, arg-sily mtx, sl calc, dissim pyr, ip gridg sily ss, 10% SLTY SH:  
y-sb ply, mod frm, occ brit, rthy, sily-aren, v sl calc

85% SS: med-dkgy, sme ltgy-wh, brn, hd-occ sft clus, vfg, sb blk-y-sr clus, pred  
cons, mod srt, arg-sily mtx, v sl calc, dissim pyr, 15% SLTY SH: drkgy, sb blk-y-sb  
ply, mod frm, occ brit, rthy, sily-aren, v sl calc

85% SS: med-dkgy, sme ltgy-  
cons, mod srt, arg-sily mtx, v s  
ply, mod frm, occ brit, rthy, slt



