



Scale: 5" / 100'
Measured Depth Log

Well Name Schneider HD 11-219HNX

Location Section 7, T4N, R66W

State COLORADO

Country USA

API Number 051234641200

Geographic Region DJ BASIN

County WELD

Rig Number PRECISION 466

AFE # 19DC0226

Field WATTENBERG

Ground Elevation 4735.0'

K.B. Elevation 4755.0'

Logged Interval 6000' MD To 17,405' MD

Total Depth 17,405' MD

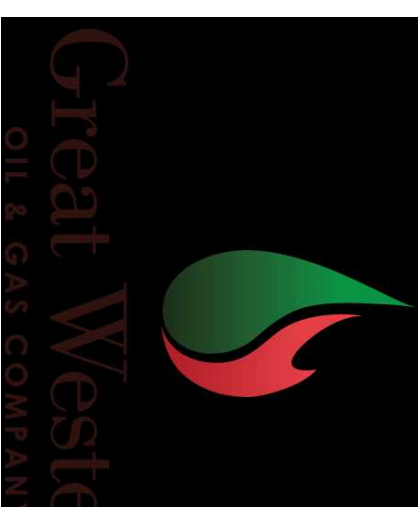
Formation NIOBRARA A CHALK

Type of Drilling Fluid OIL BASED MUD

Operator

Company Great Western Operating Company, LLC

Address 1001 17th Street, Suite 2000
Denver, CO 80202



Geologist

Name Kennedy Oginga, Zach Souvail

Company Terra Guidance

Address 67 W. Floyd Ave. Ste 105
Englewood, CO 80110
(970) 260-5408



Other

MUDLOG START DATE 10/01/2019

MUDLOG END DATE 10/04/2019

Oil Show

ORGANIC

PINPOINT

DEAD

VUGGY

EVEN

QUESTIONABLE

Engineering

SPOTTED STAINING BIT

CASING

Porosity

CONNECTION (LEFT)

E EARTHY

CONNECTION (RIGHT)

F FENESTRAL

CONNECTION GAS

F FRACTURE

CORE - LOST

X INTERCRYSTALLINE

CORE - RECOVERED
































INTERROOLITIC

DST INTERVAL

























































MOLDIC

FAULT

Rock Types

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

Accessories

 GASTROPOD	 B BENTONITE	 K KAOLIN	 COAL STRINGER
 OOLITE	 BITUMENOUS SUBSTANCE	 M MARLSTONE	 DOLOMITE STRINGER
 ALGAE	 BRECCIA FRAGMENTS	 MINERAL CRYSTALS	 GYPSUM STRINGER
 AMPHIPORA	 CALCAREOUS	 NODULES	 LIMESTONE STRINGER
 BELEMNITE	 CARBONACEOUS FLAKES	 PHOSPHATE PELLETS	 MARLSTONE (CALC) STRG
 BIOCLASTIC	 PISOLUTE	 PYRITE	 MARLSTONE (DOL) STRG
 BRACHIOPOD	 PLANT REMAINS	 CHERT	 SANDSTONE STRINGER
 BRYOZOA	 PLANT SPORES	 COAL - THIN BEDS	 SHALE STRINGER
 CEPHALOPOD	 SCAPHOPOD	 DOLOMITIC	 SILTSTONE STRINGER
 CORAL	 STROMATOPOROID	 FELDSPAR	 SILTY
 CRINOID	 FERRUGINOUS PELLET	 TUFFACEOUS	 CHALK
 ECHINOID	 FERRUGINOUS		
 FISH	 ANHYDRITIC		
 FORAMINIFERA	 ARGILLACEOUS	 GYPSIFEROUS	 ANHYDRITE STRINGER
 F FOSSIL	 ARGILLITE GRAIN	 HEAVY MINERAL	 BENTONITE STRINGER

Minerals

Stringer

Other Symbols

FORMATION TOP L LITHOGRAPHIC

Rounding

GAS SHOW M \times MICROXLN

MINDEPTH MN DEPTH Δ ANGULAR M Σ MUDDSTONE

∇ NORMAL FAULT R ROUNDED P Σ PACKSTONE

OIL SHOW \boxminus SUBANG W Σ WACKESTONE

\cdot OVERTURNED STRATA P SUBRND

Sorting

∇ REVERSE FAULT

Textures

\S SIDEWALL CORE (LEFT) M MODERATE

\cdot SIDEWALL CORE (RIGHT) B Σ BOUNDSTONE P POOR

SLIDE \odot CHALKY W WELL

SURVEY $\odot\times$ CRYPTOXLN

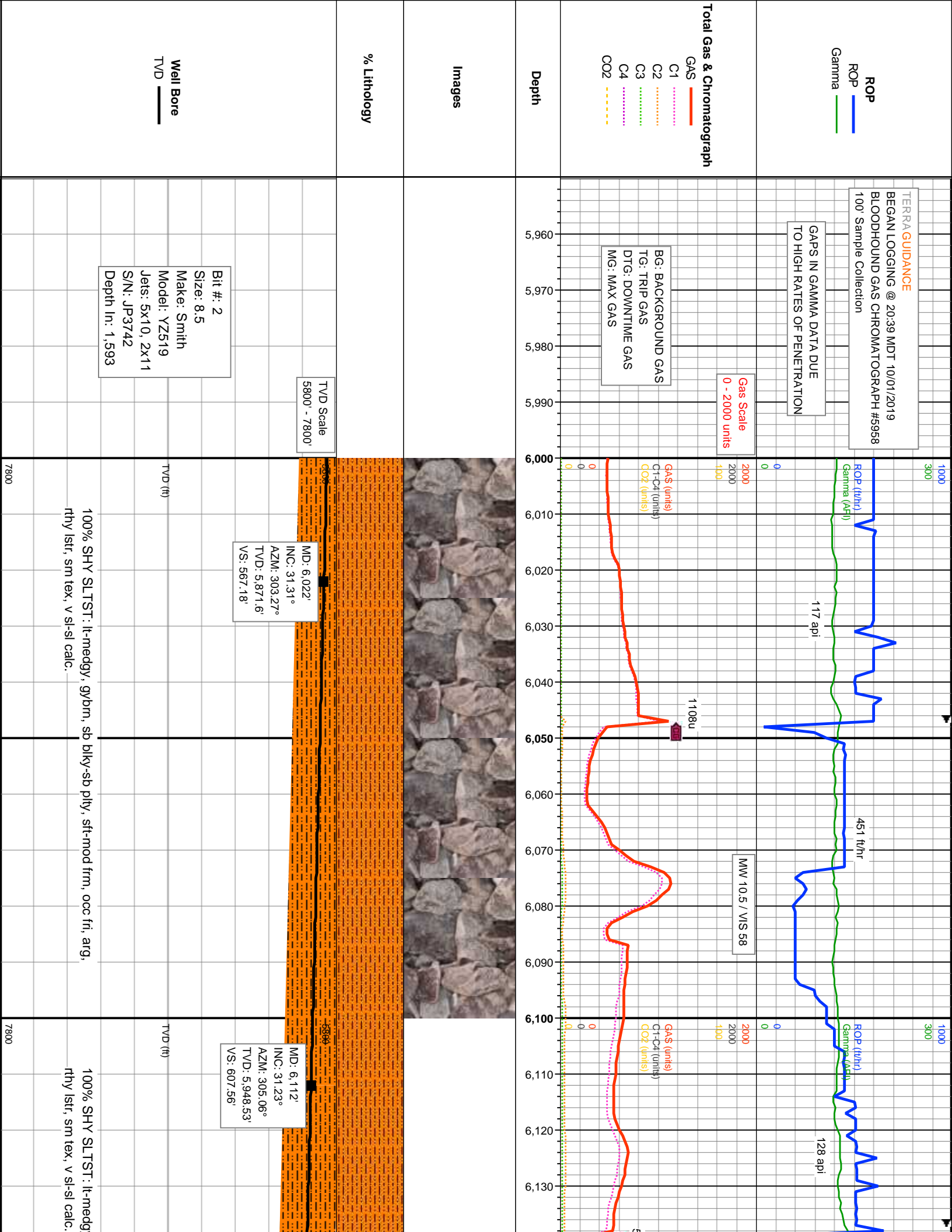
CALCARIUOS SHALE

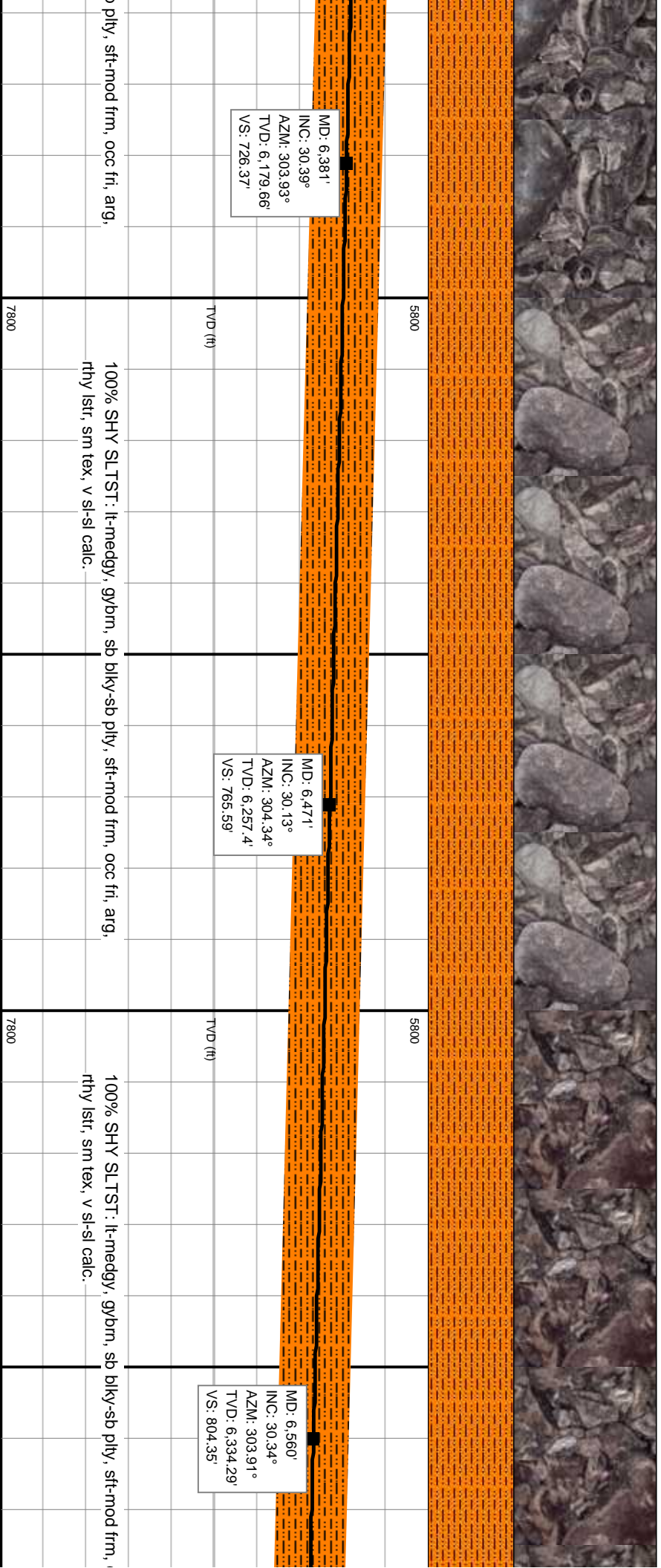
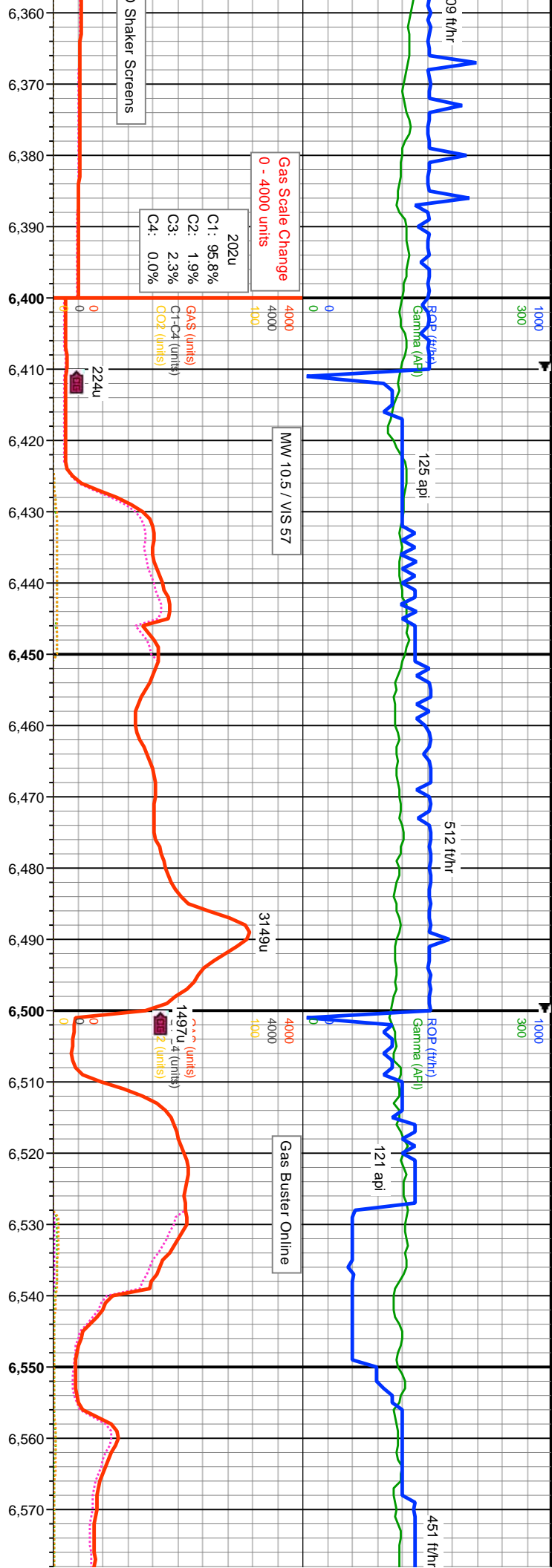
TRIP GAS E EARTHY

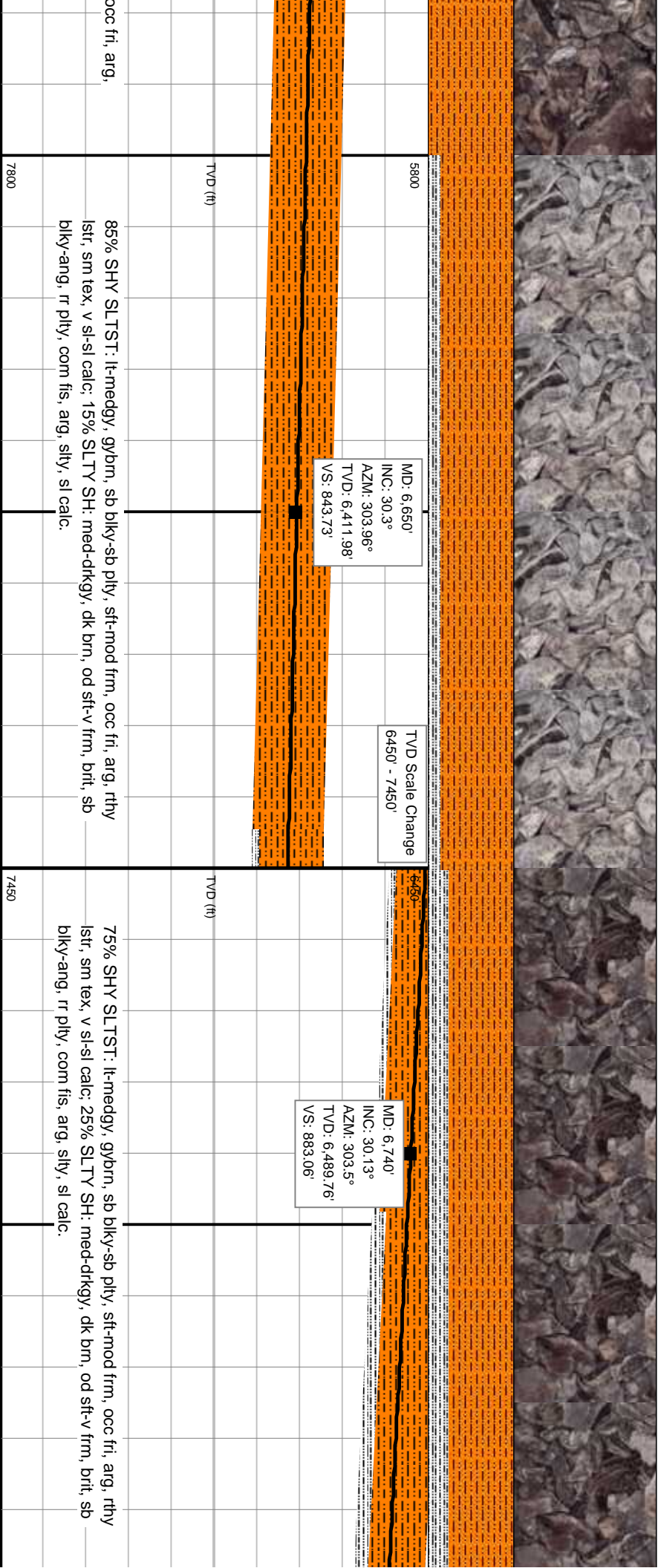
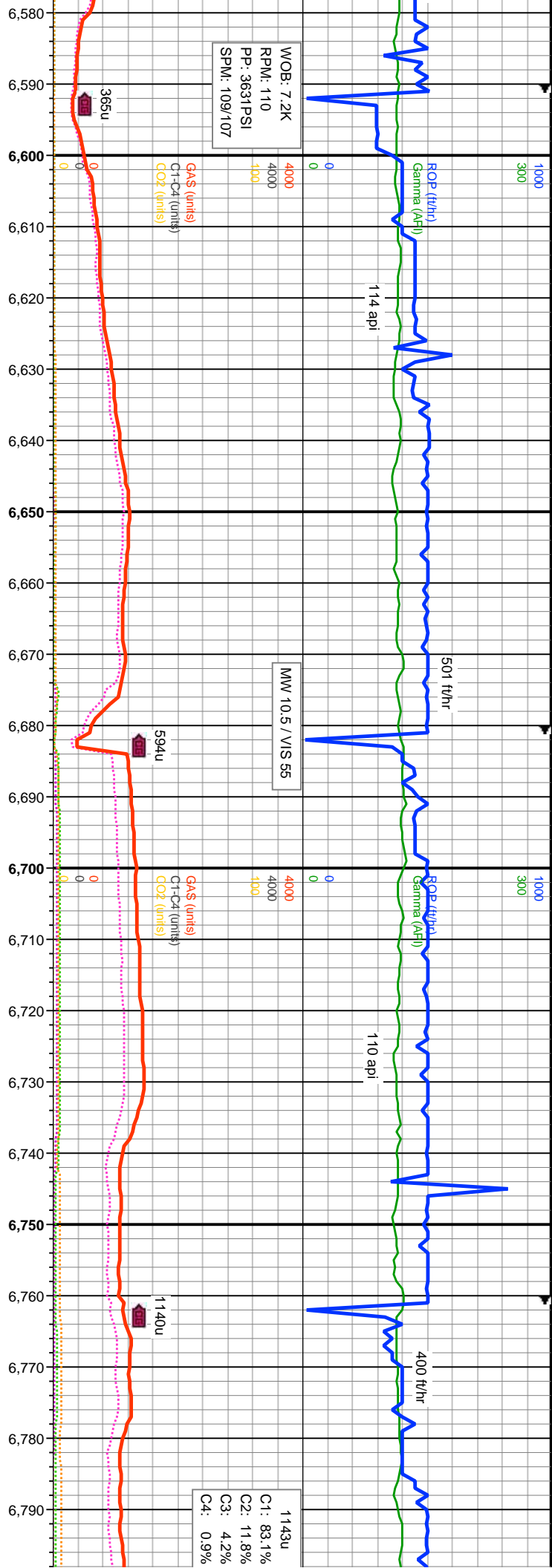
\rfloor WIRELINE TESTED - LEFT F \times FINELYXLN

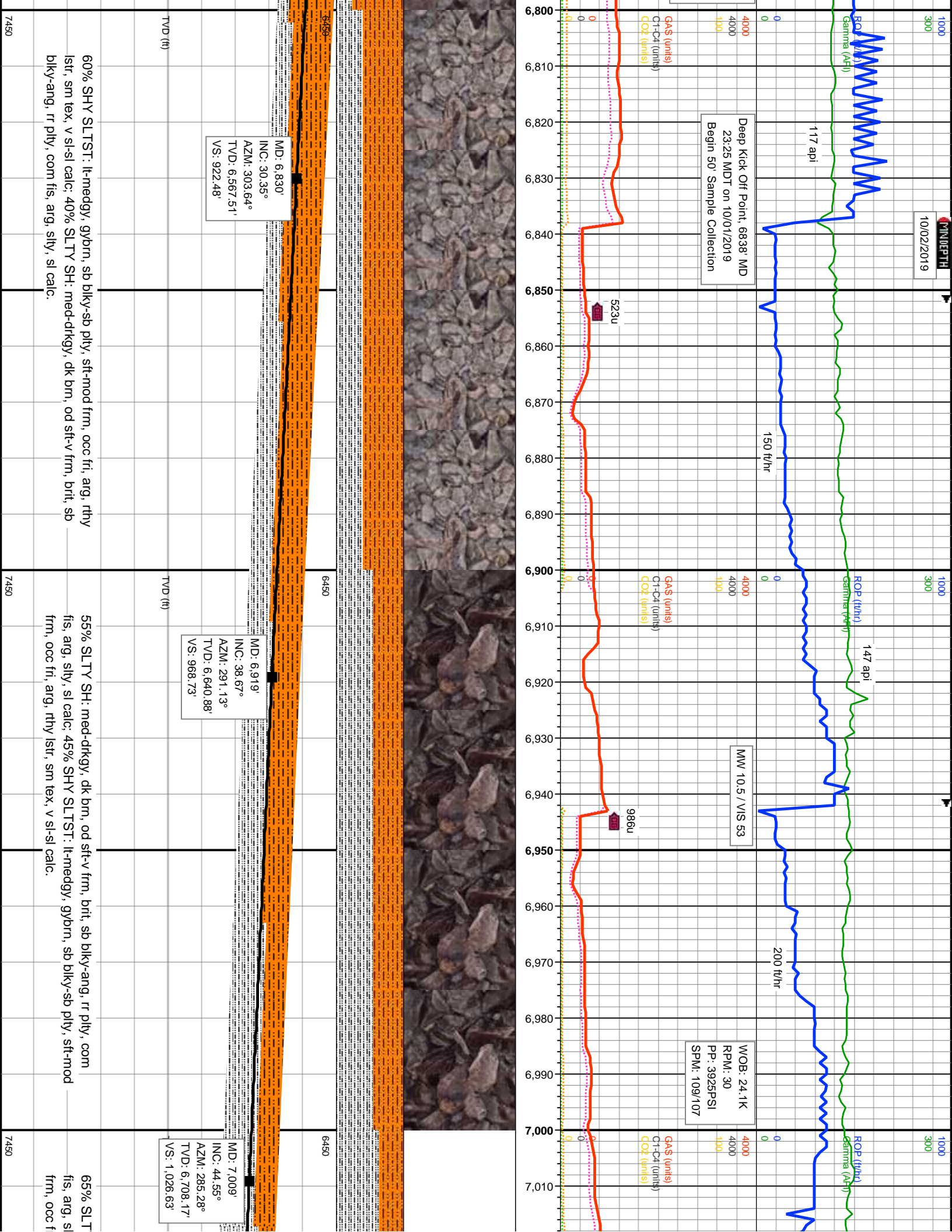
CALCARIOUS SHALE

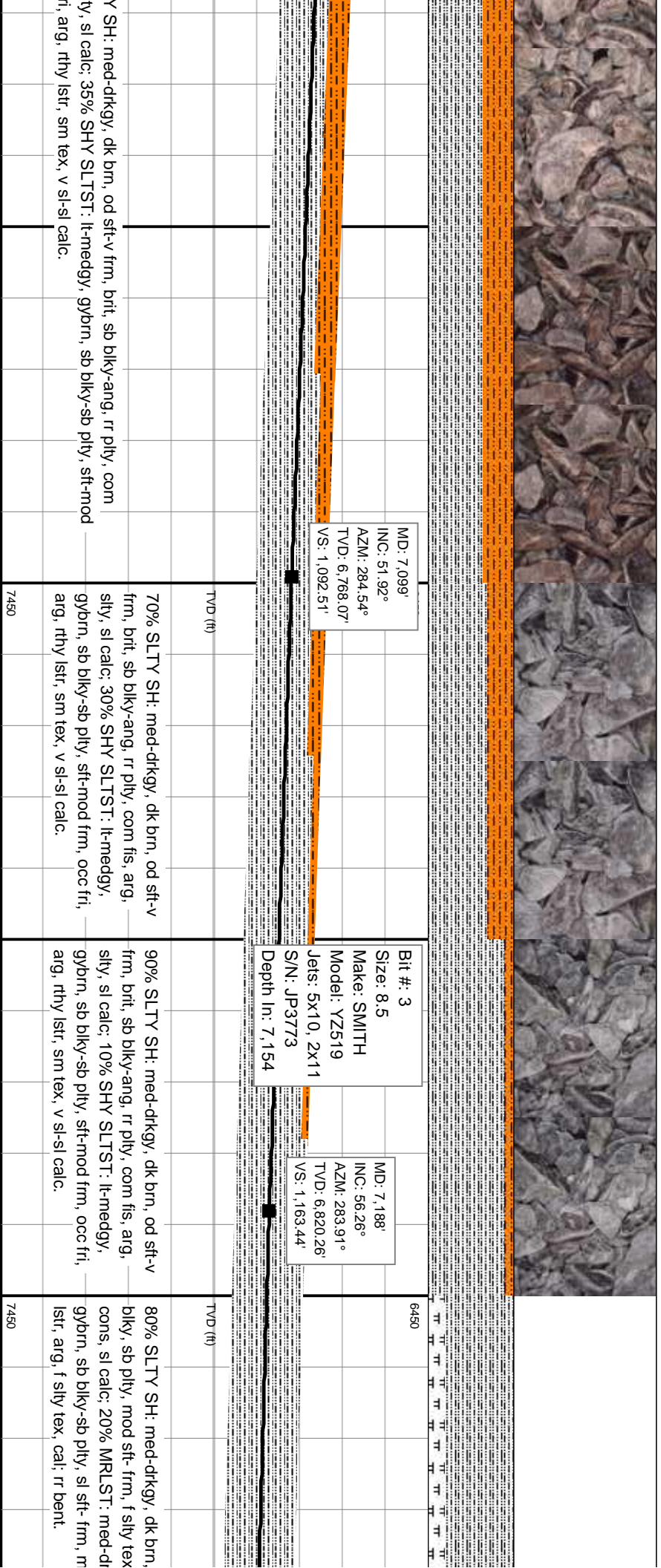
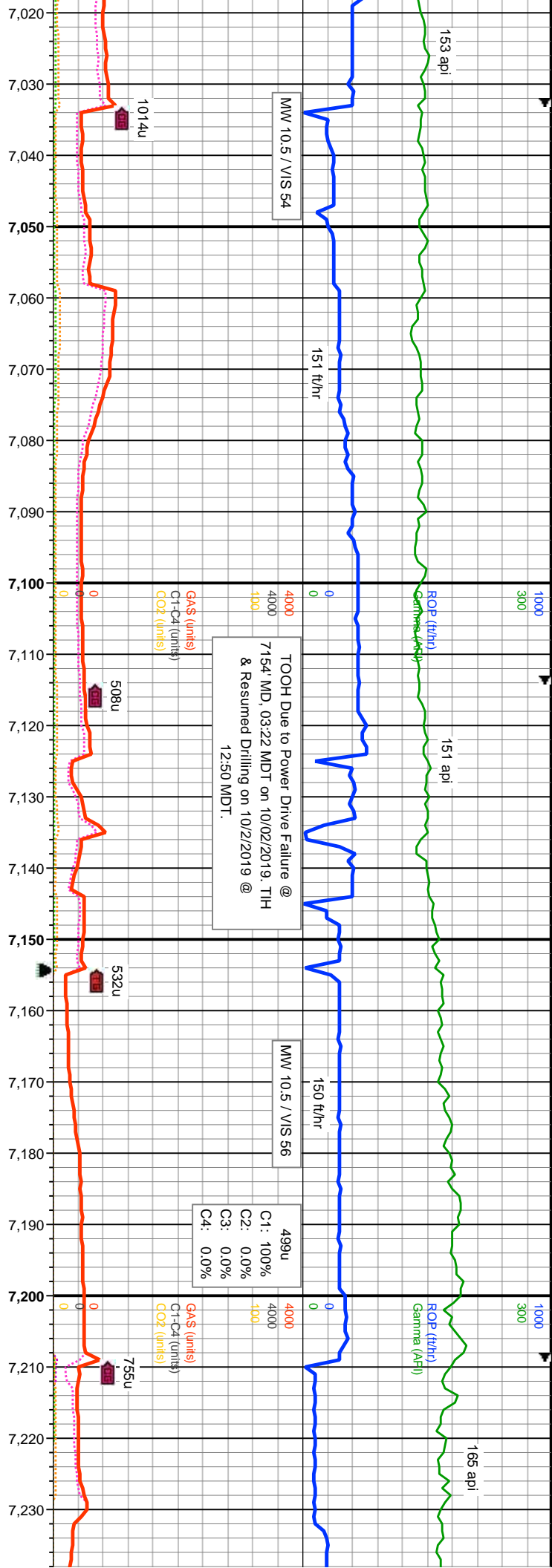
\vee WIRELINE TESTED - RT G Σ GRAINSTONE

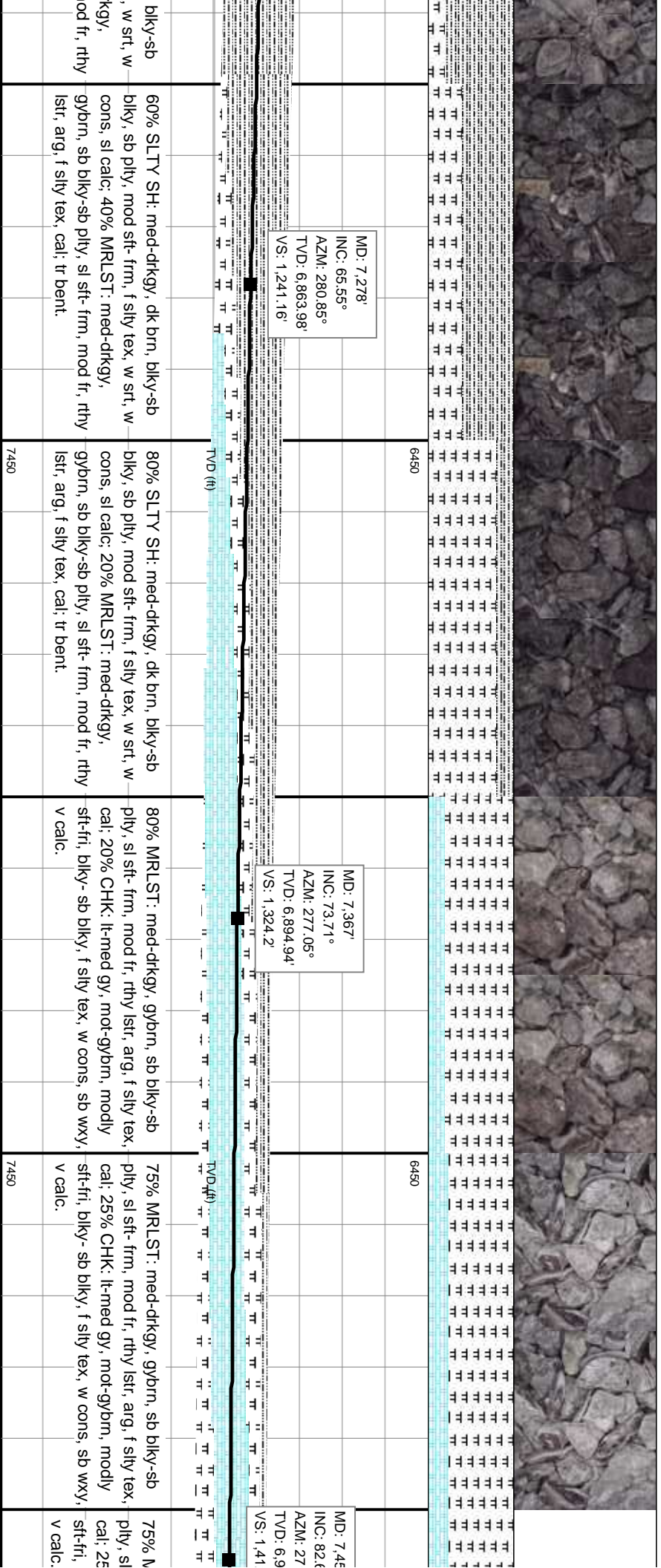
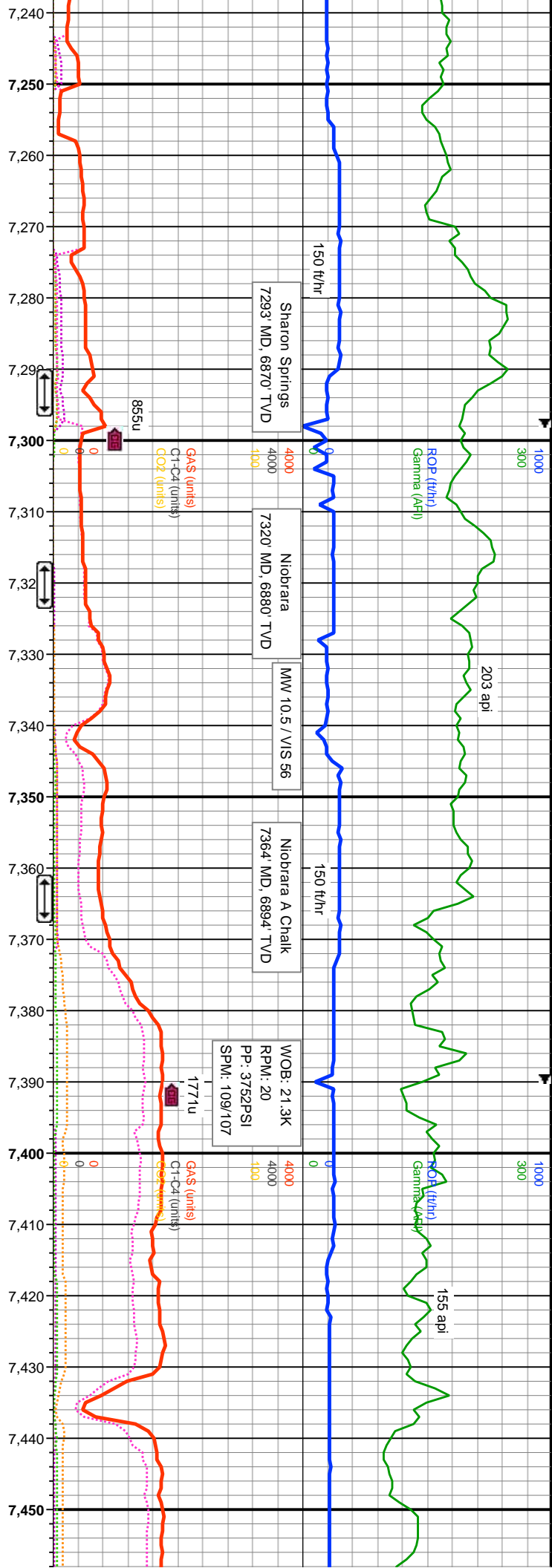


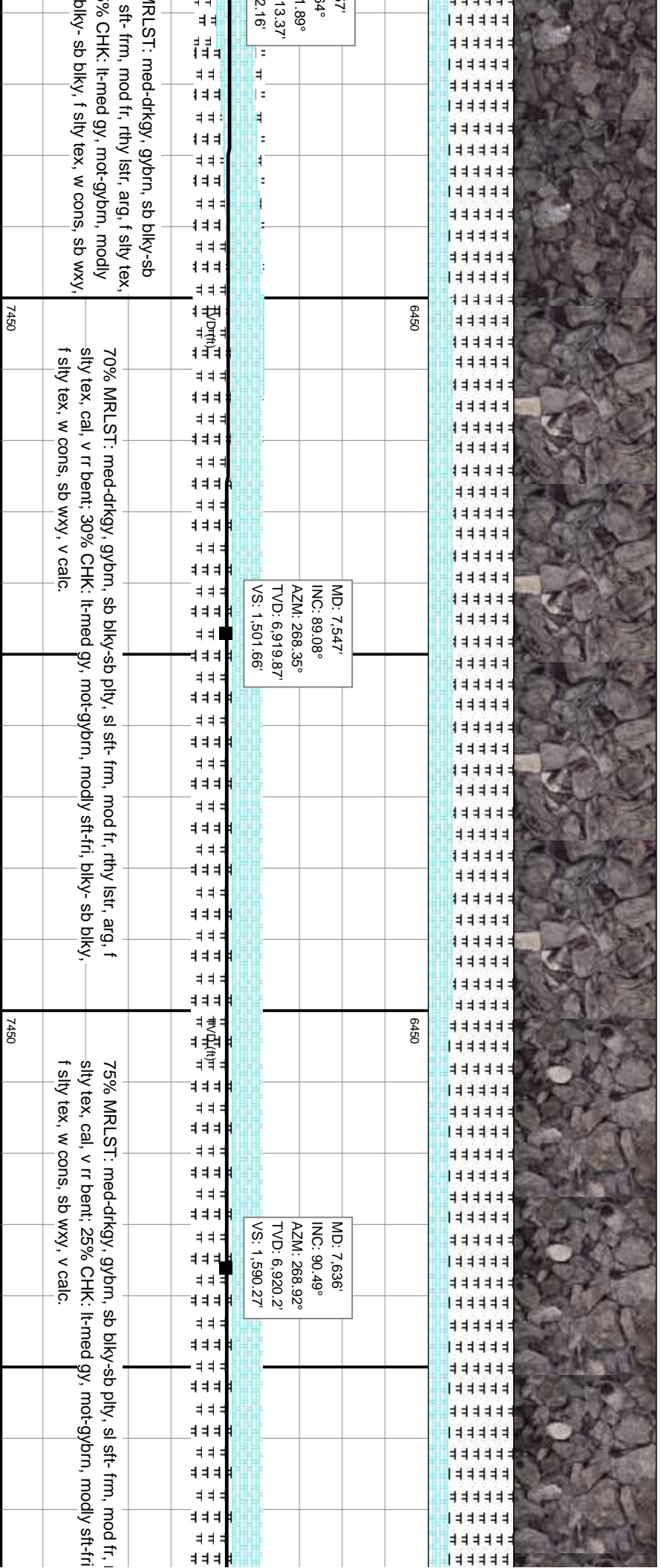
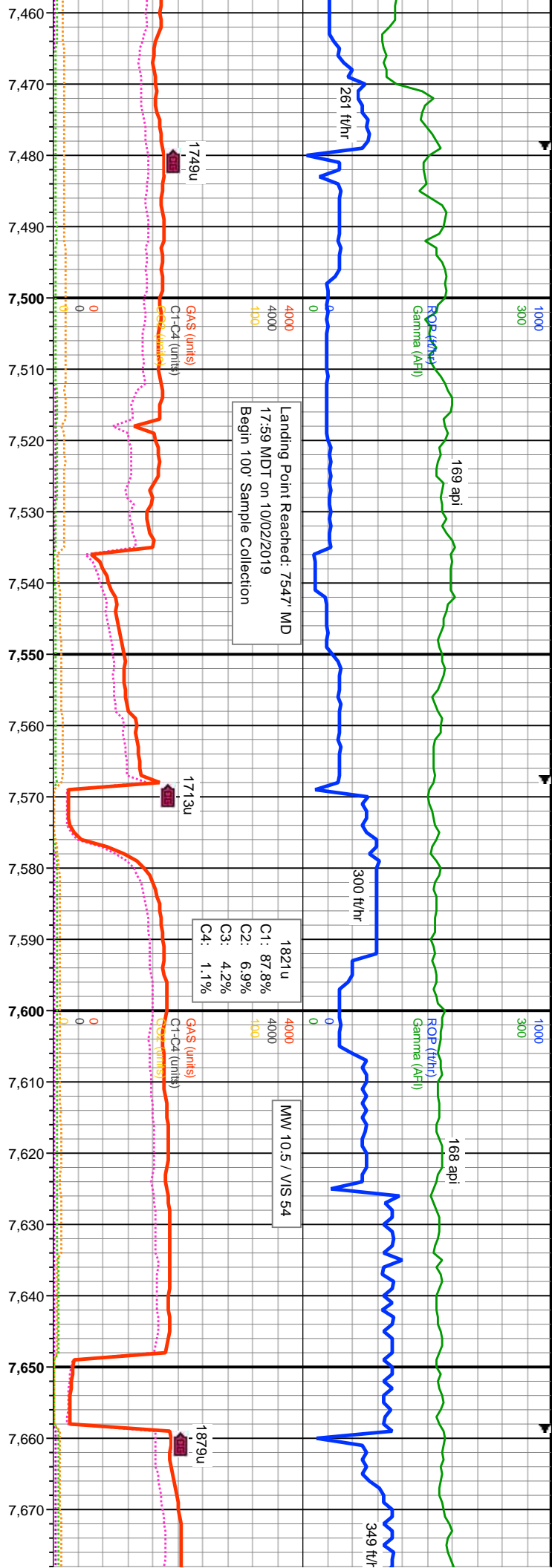


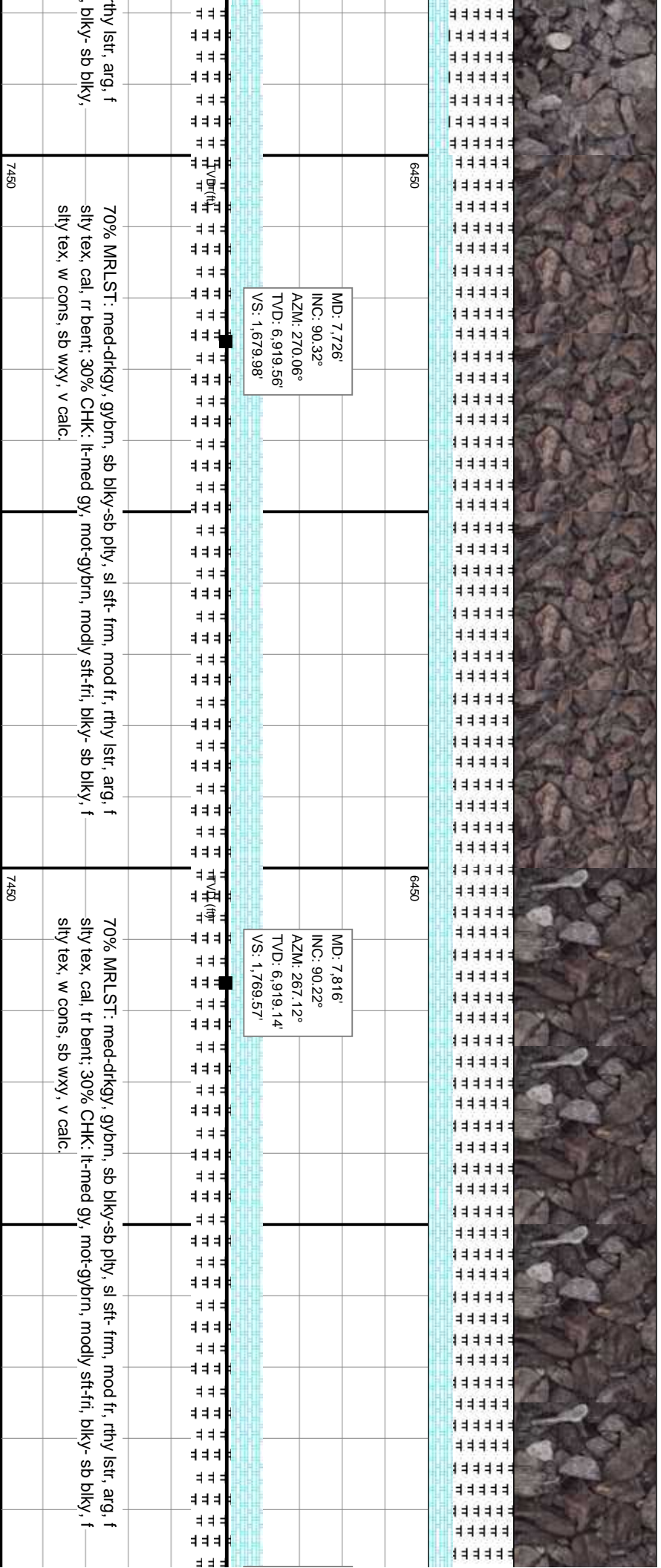
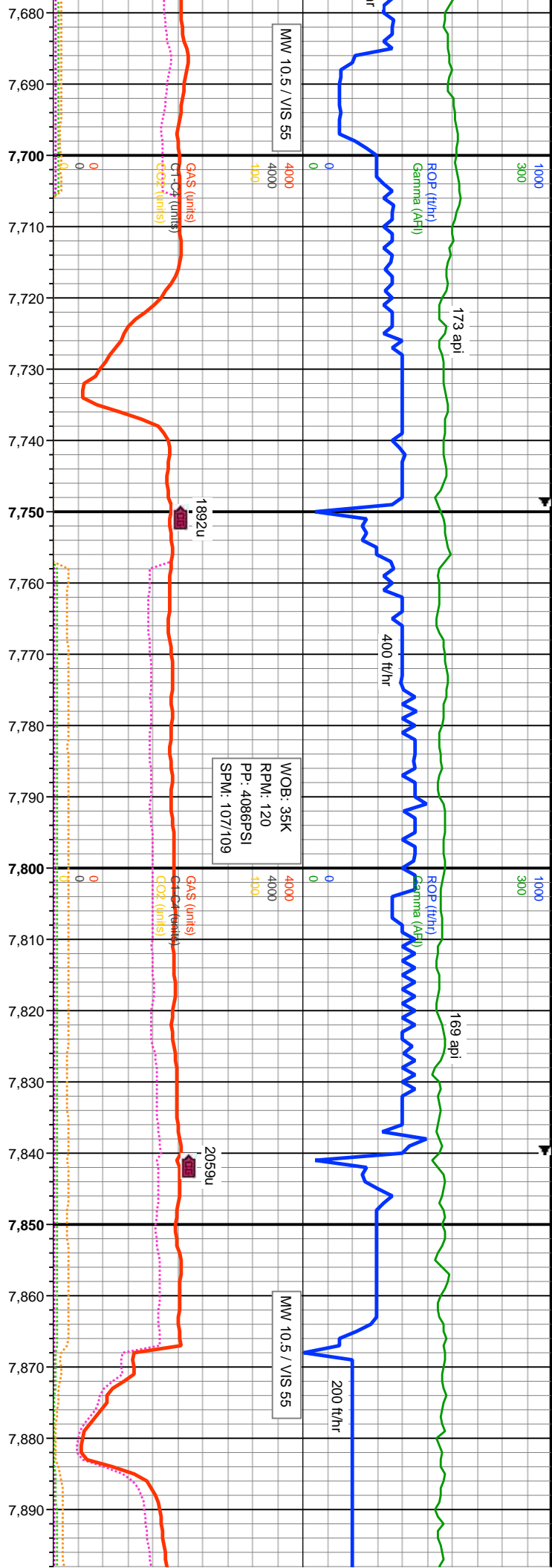


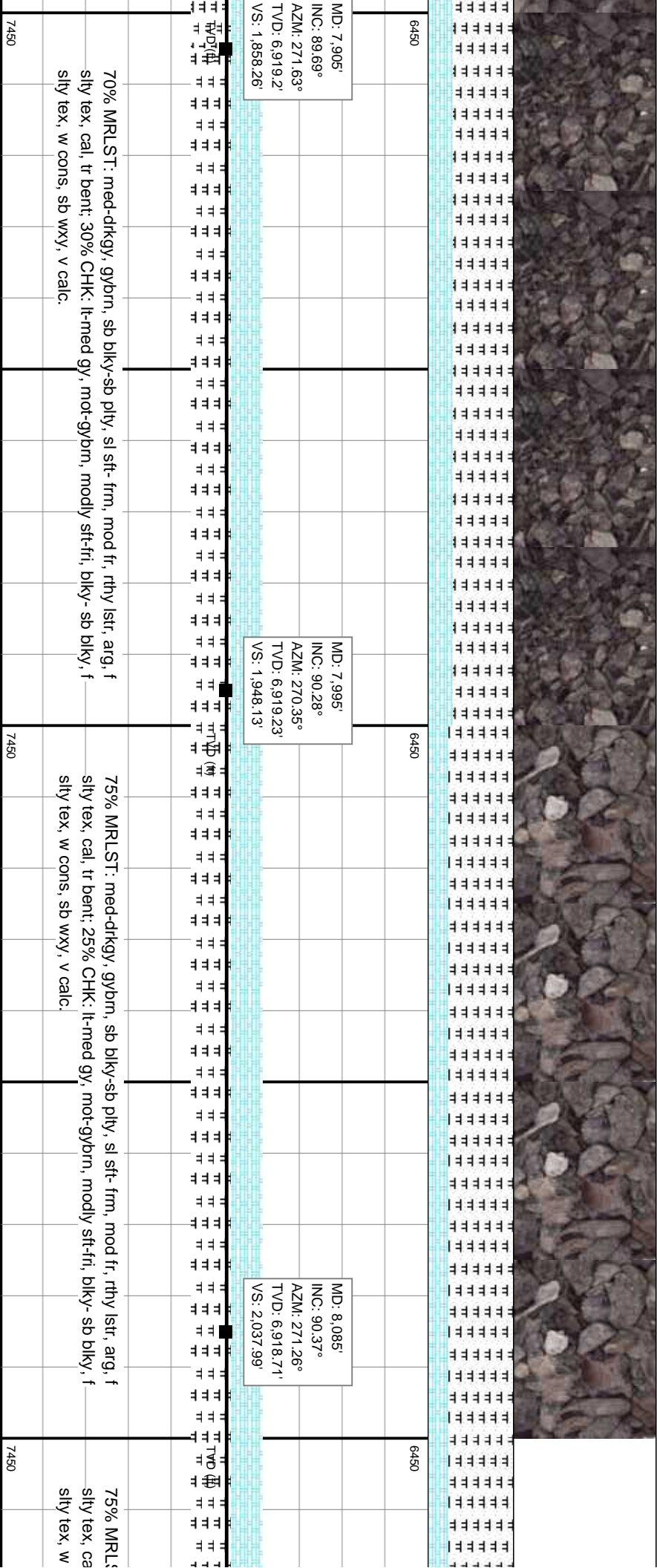
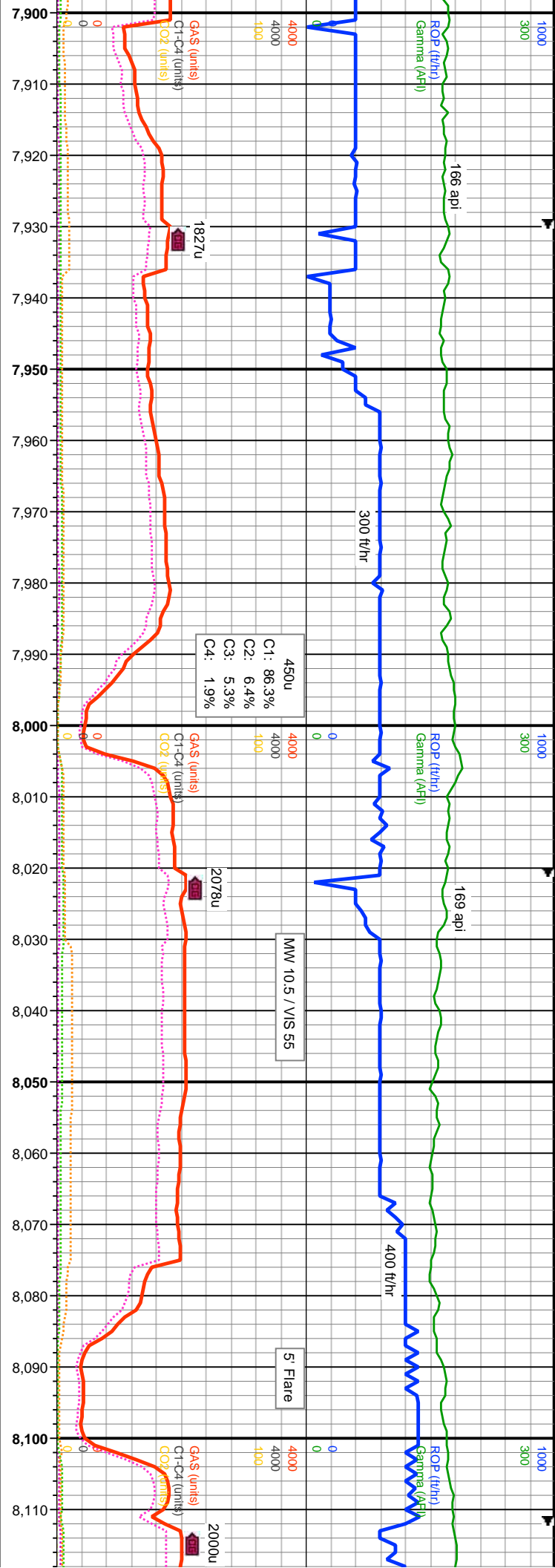


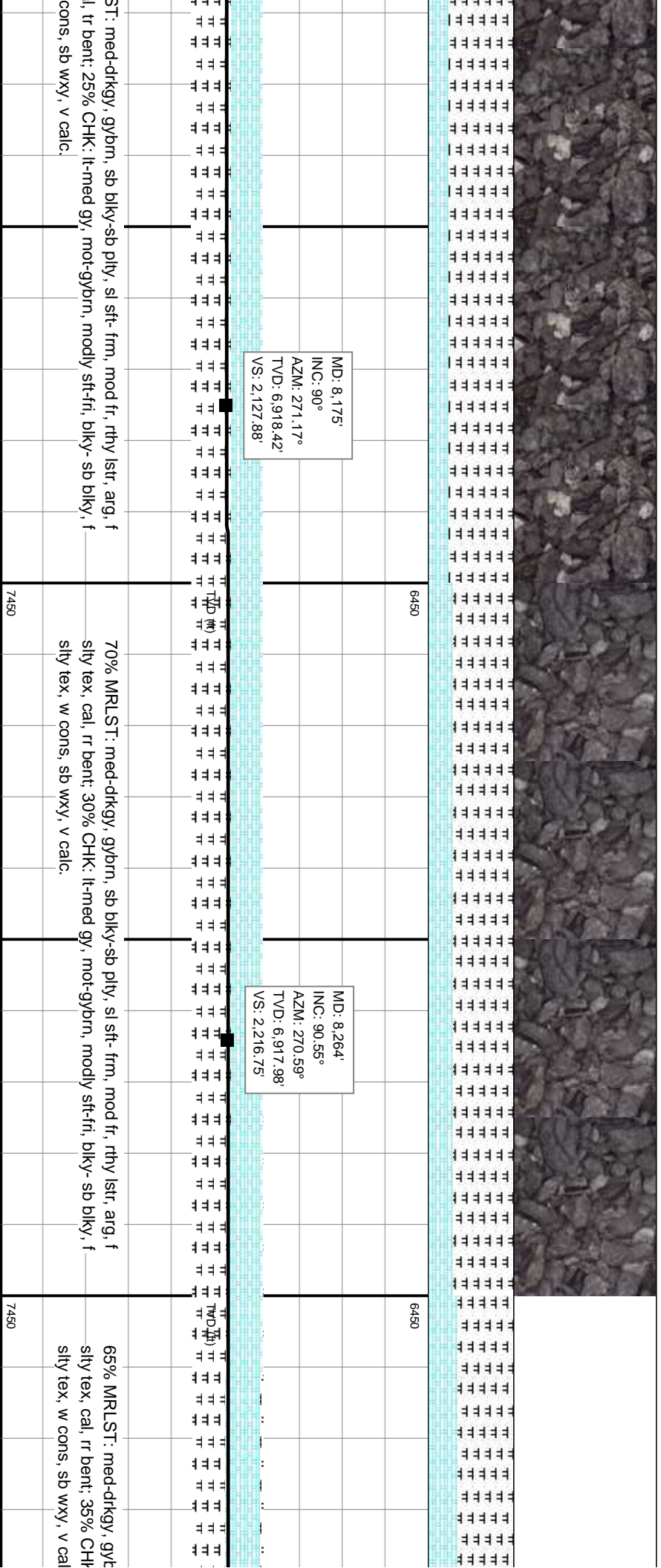
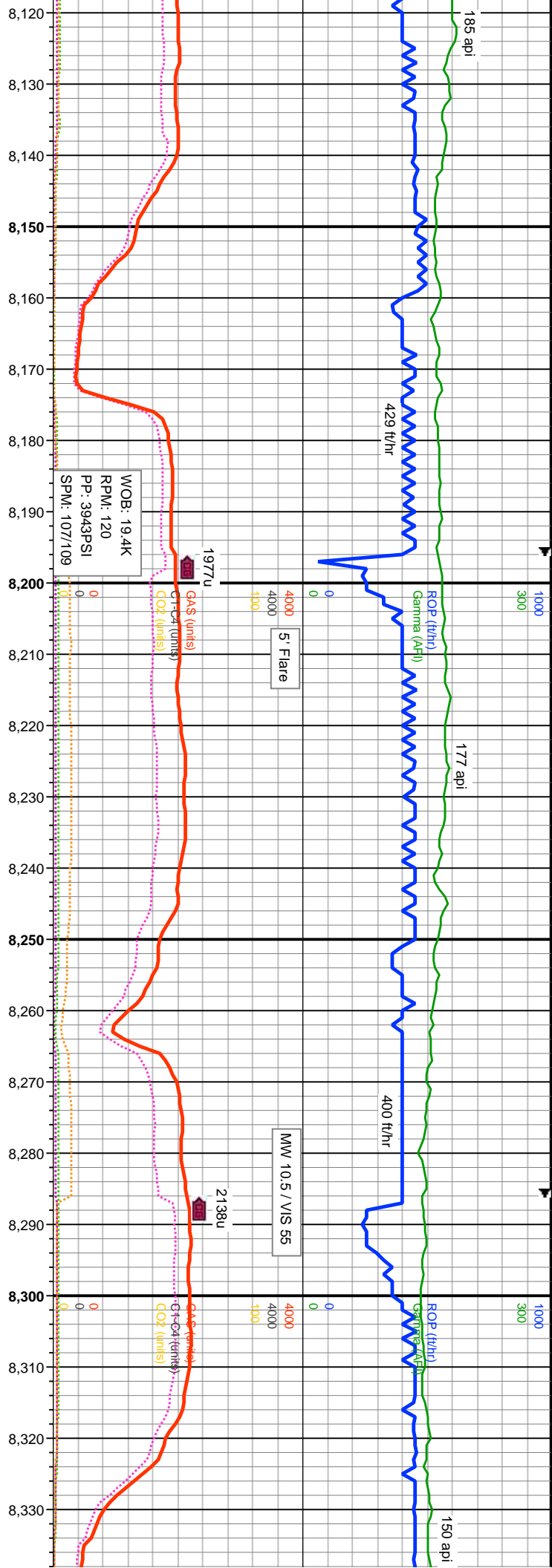


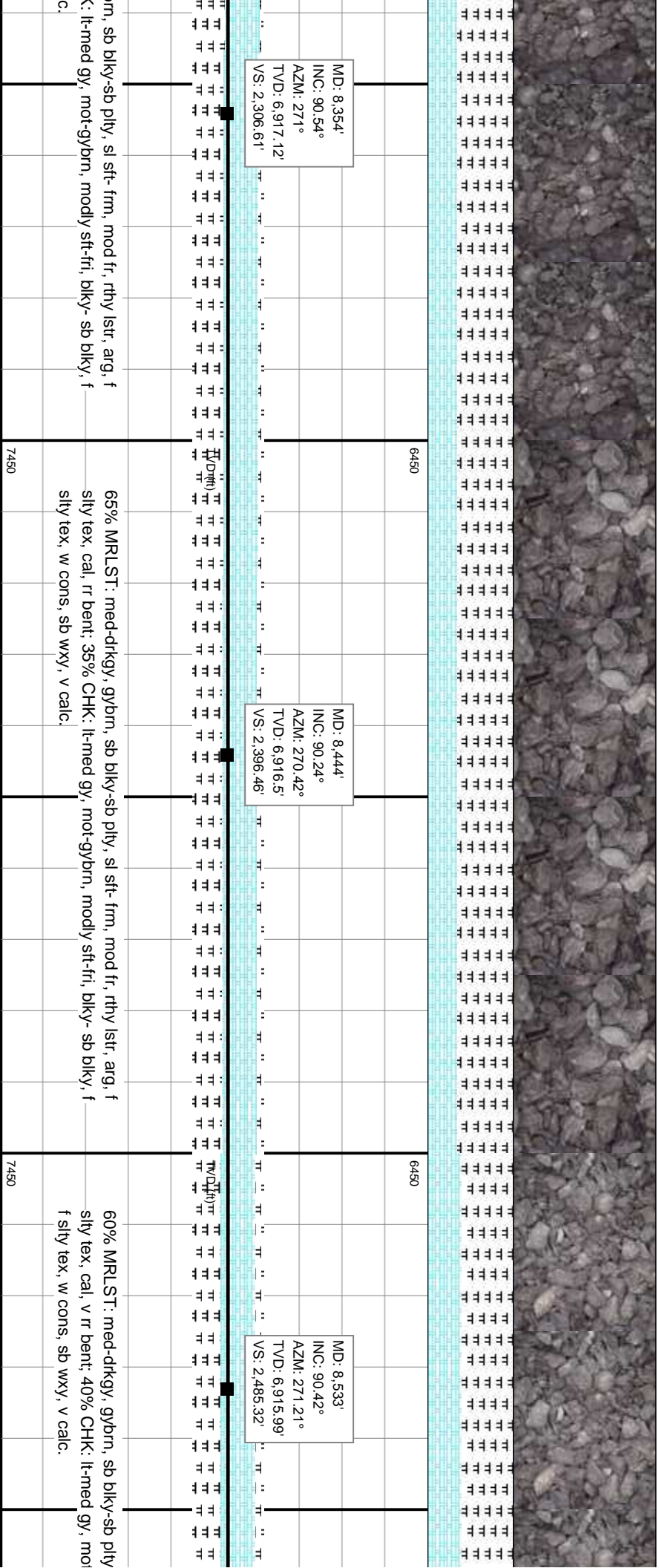
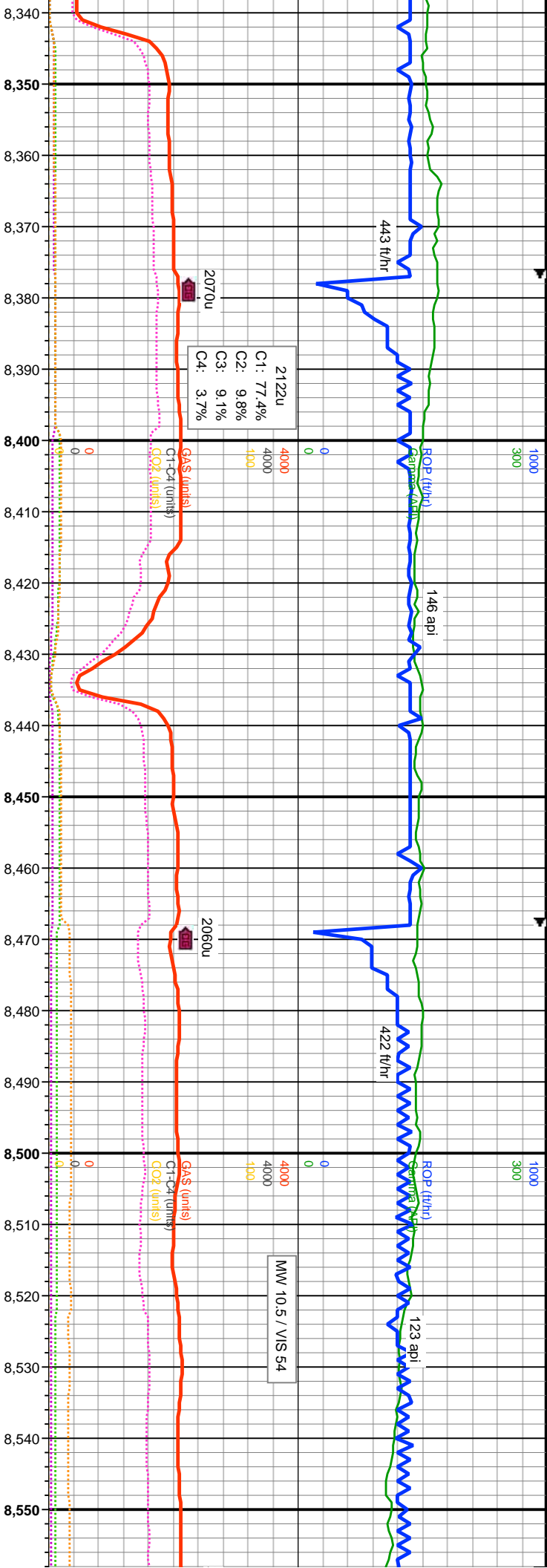


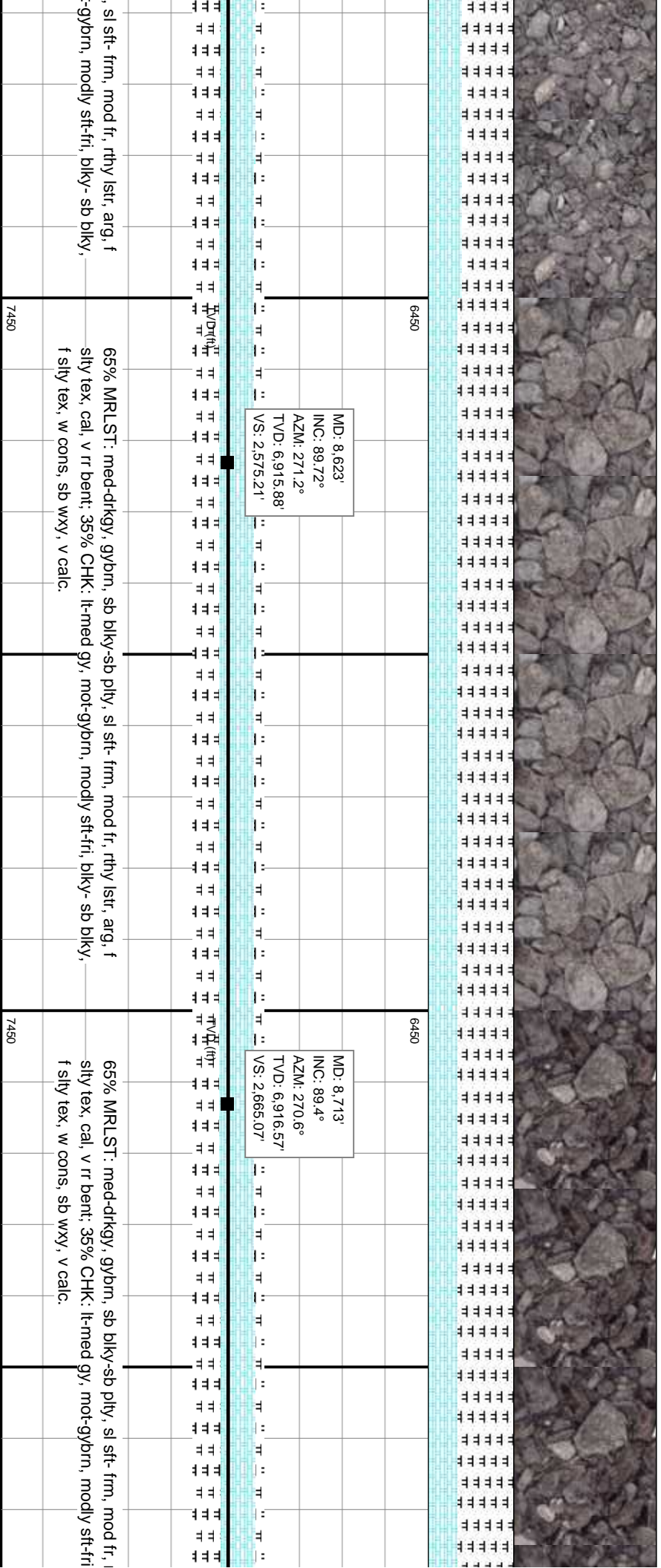
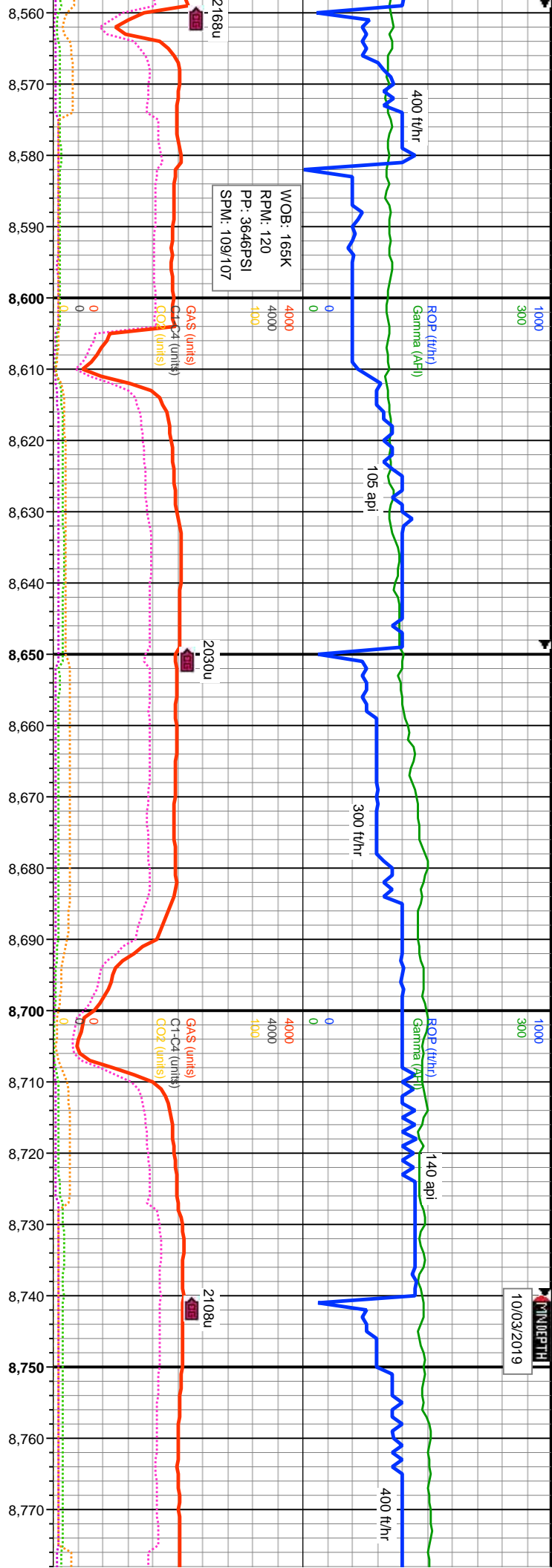


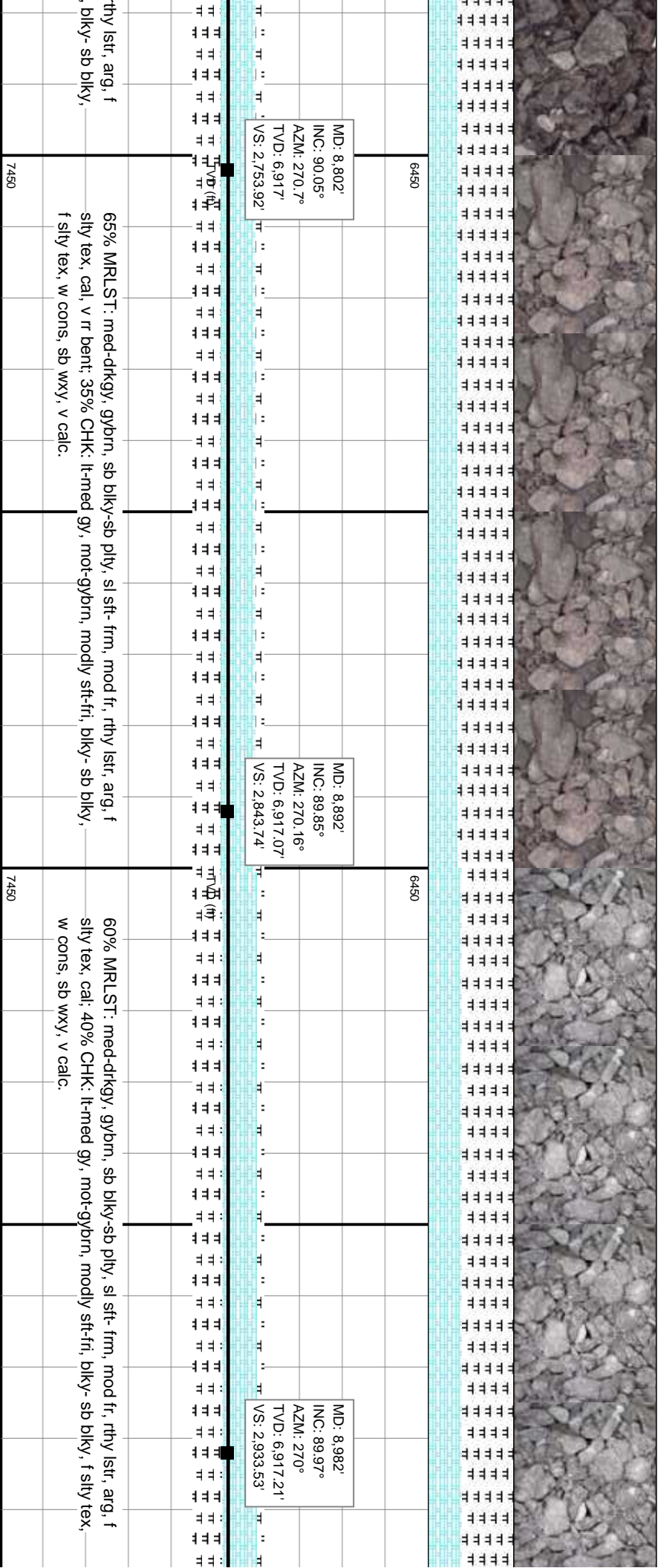
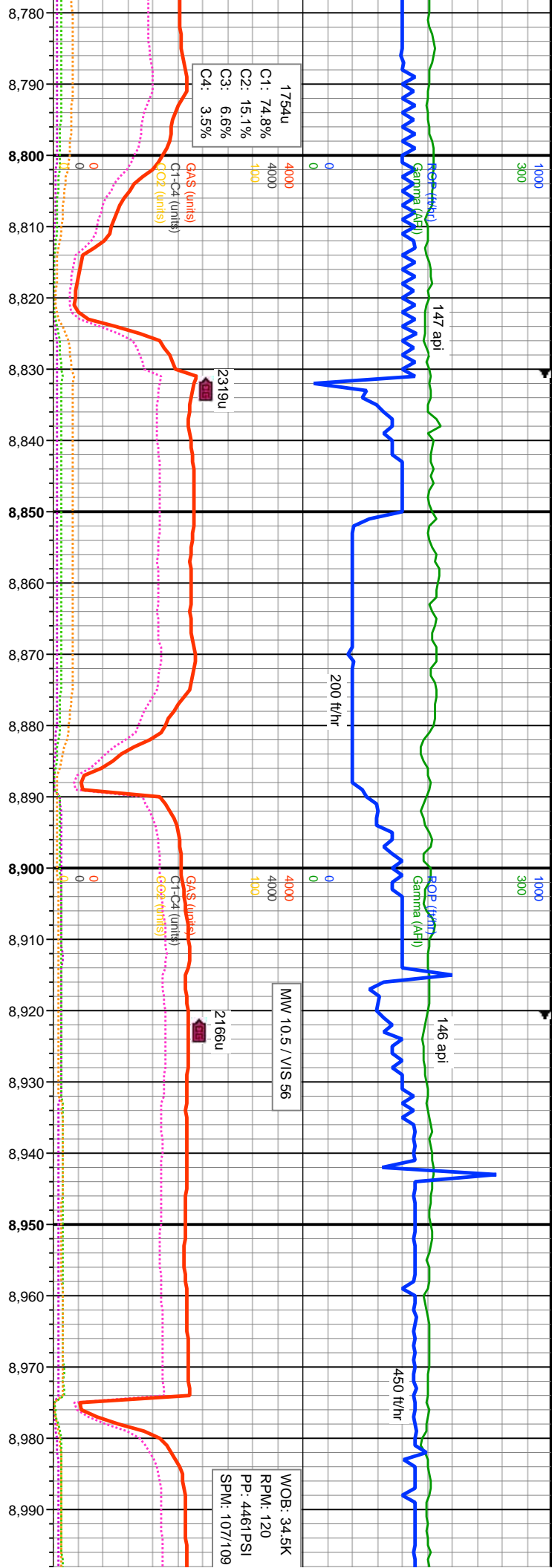


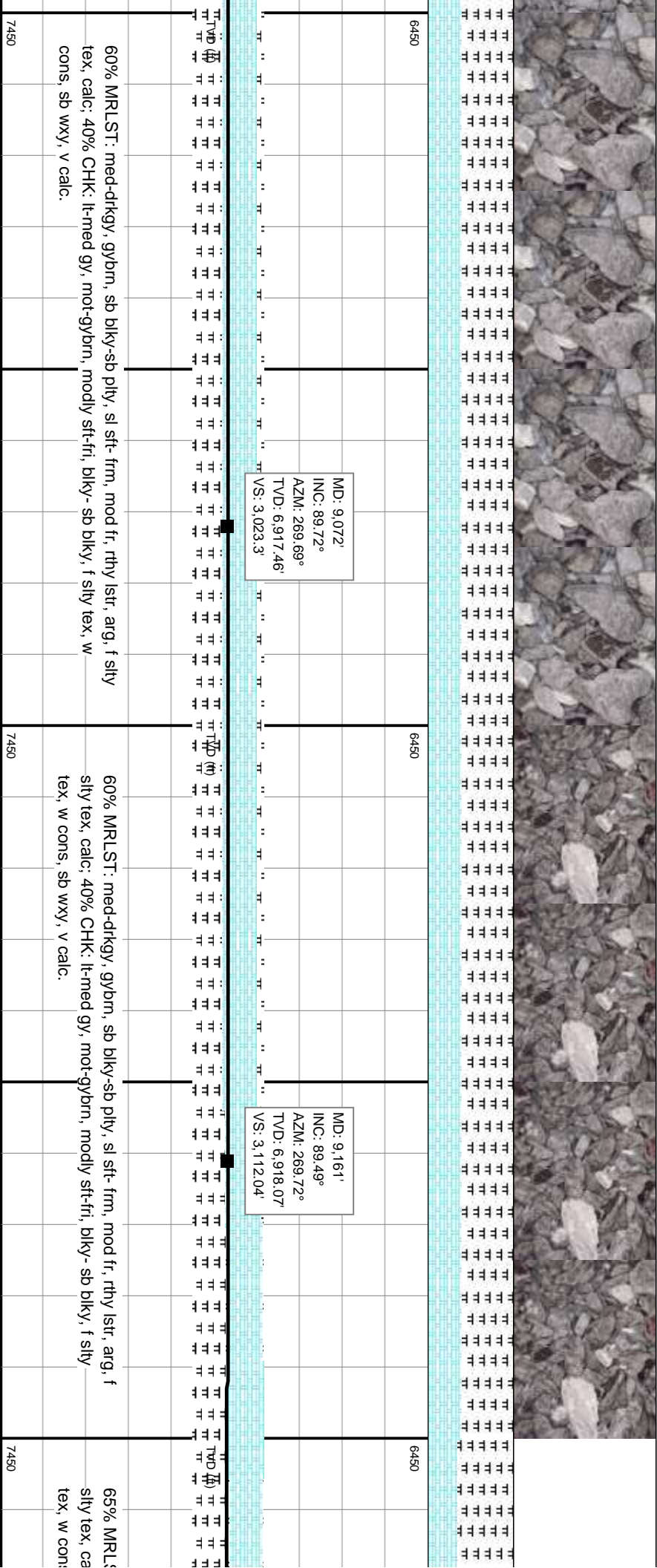
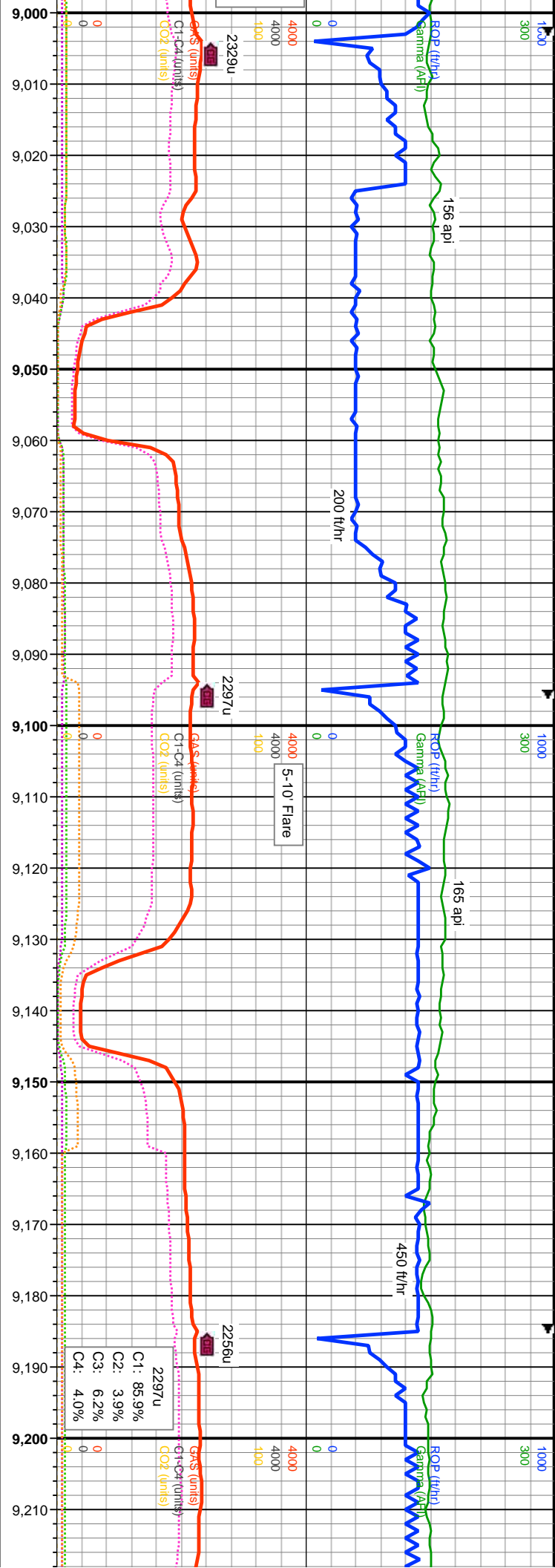


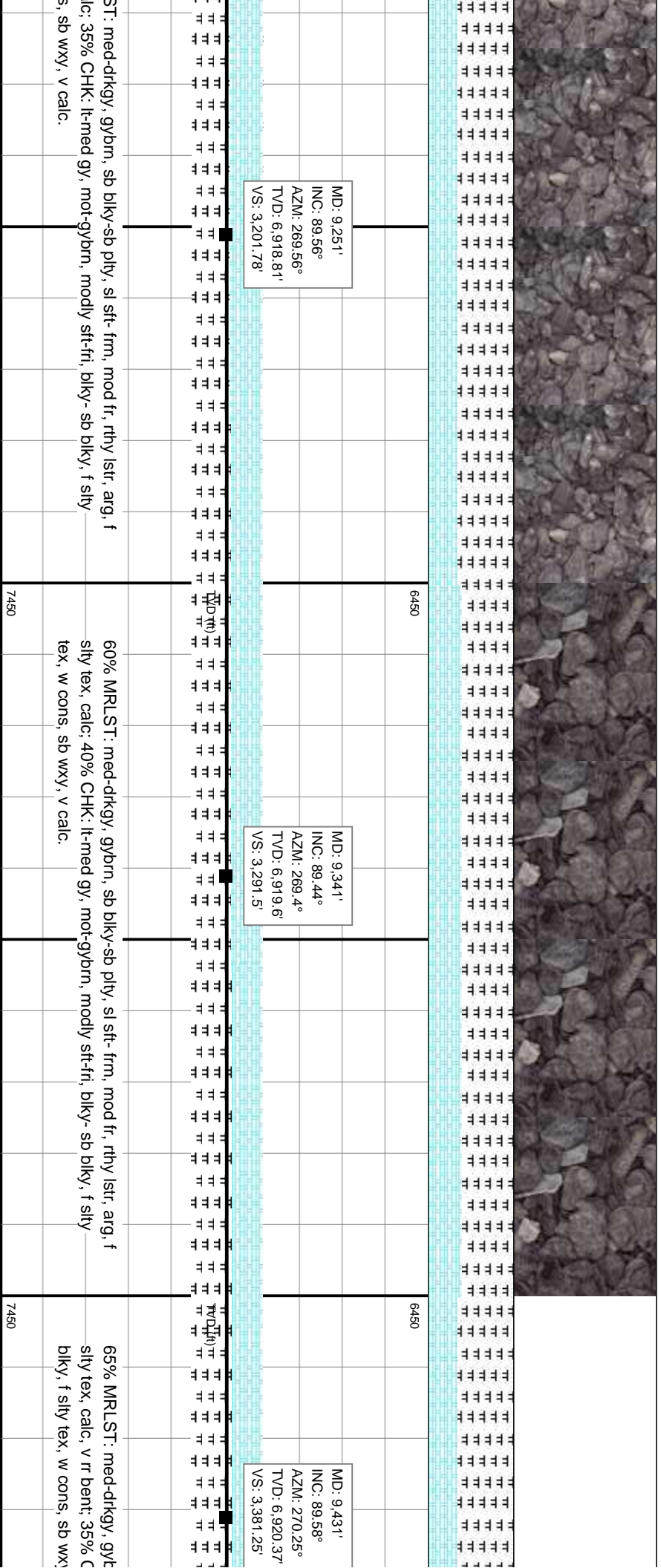
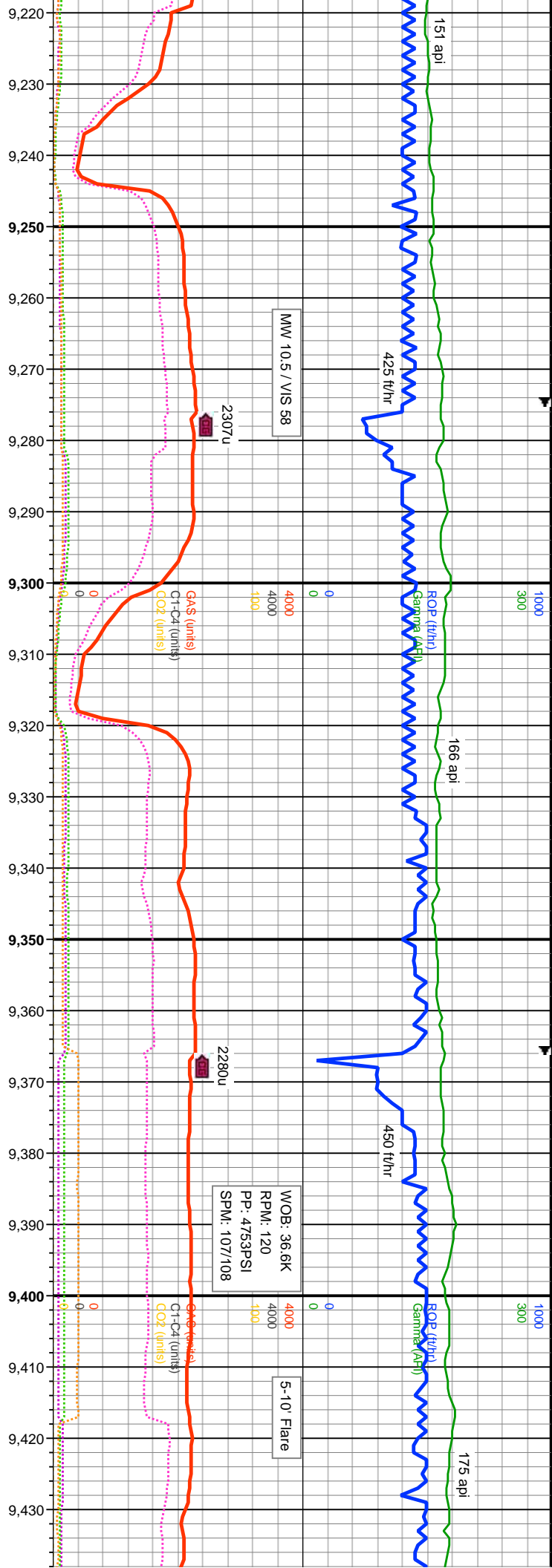


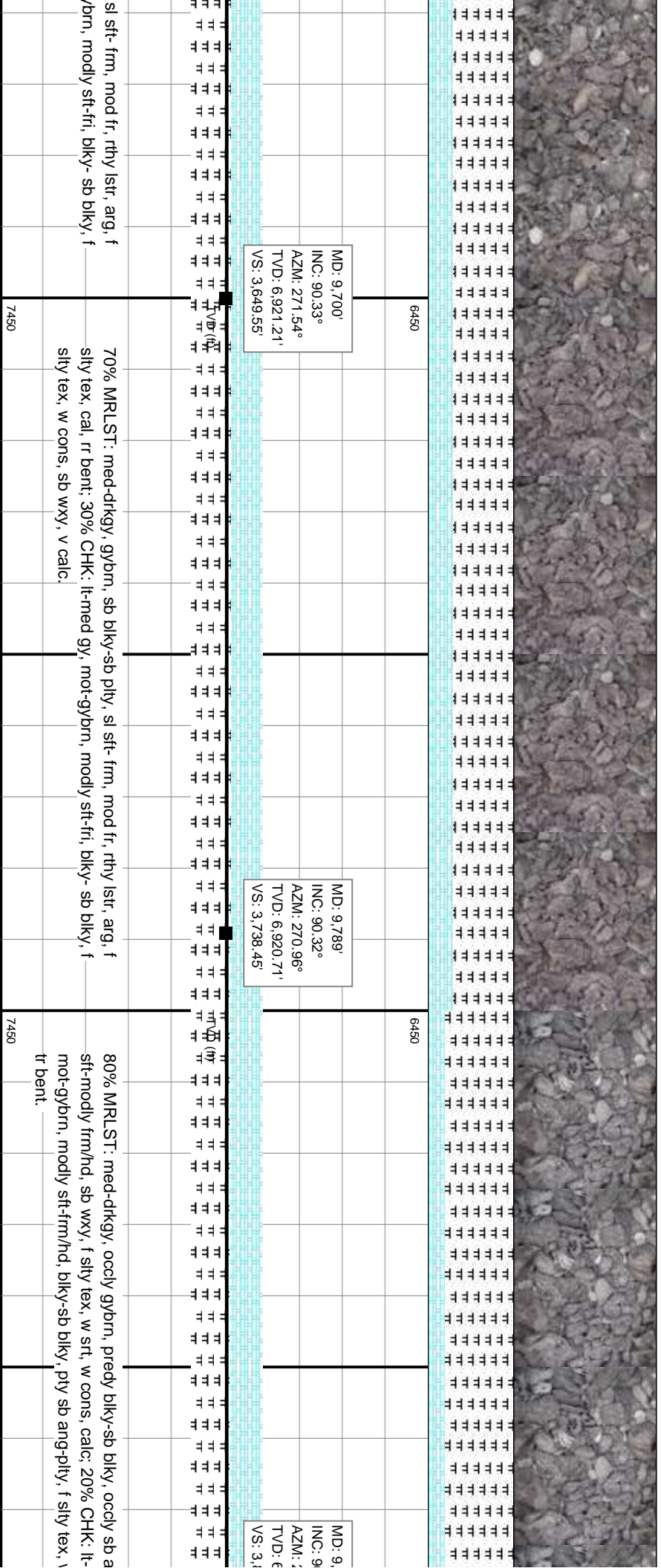
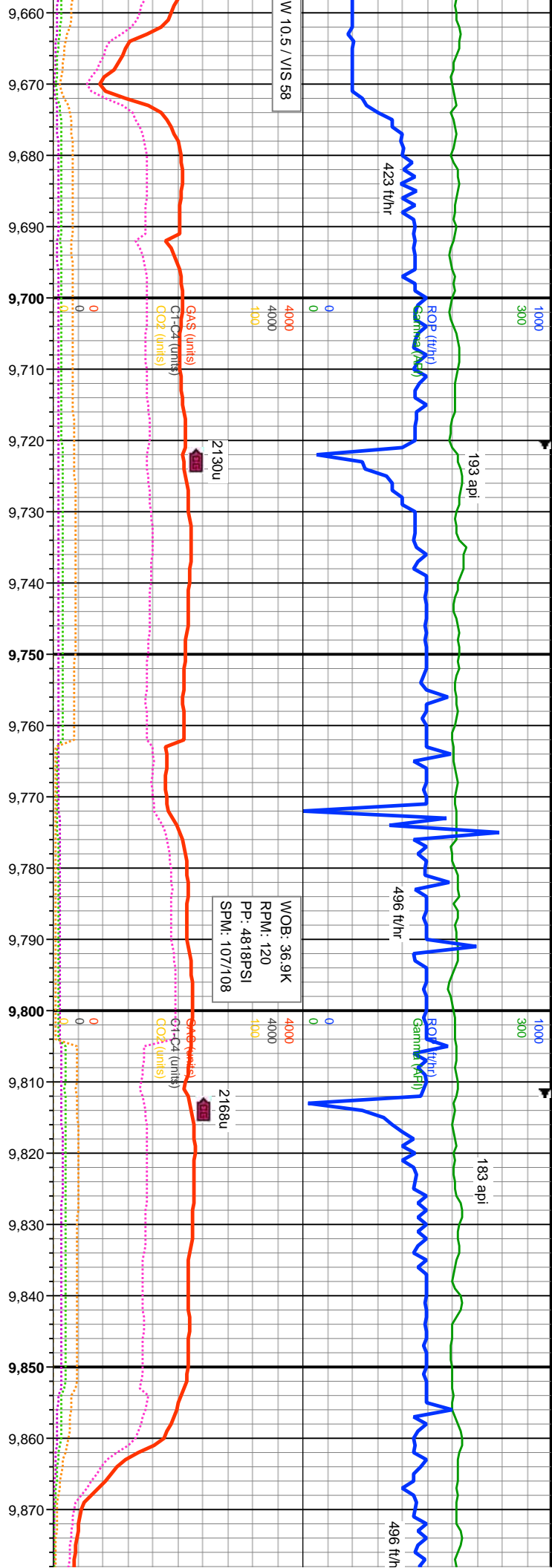


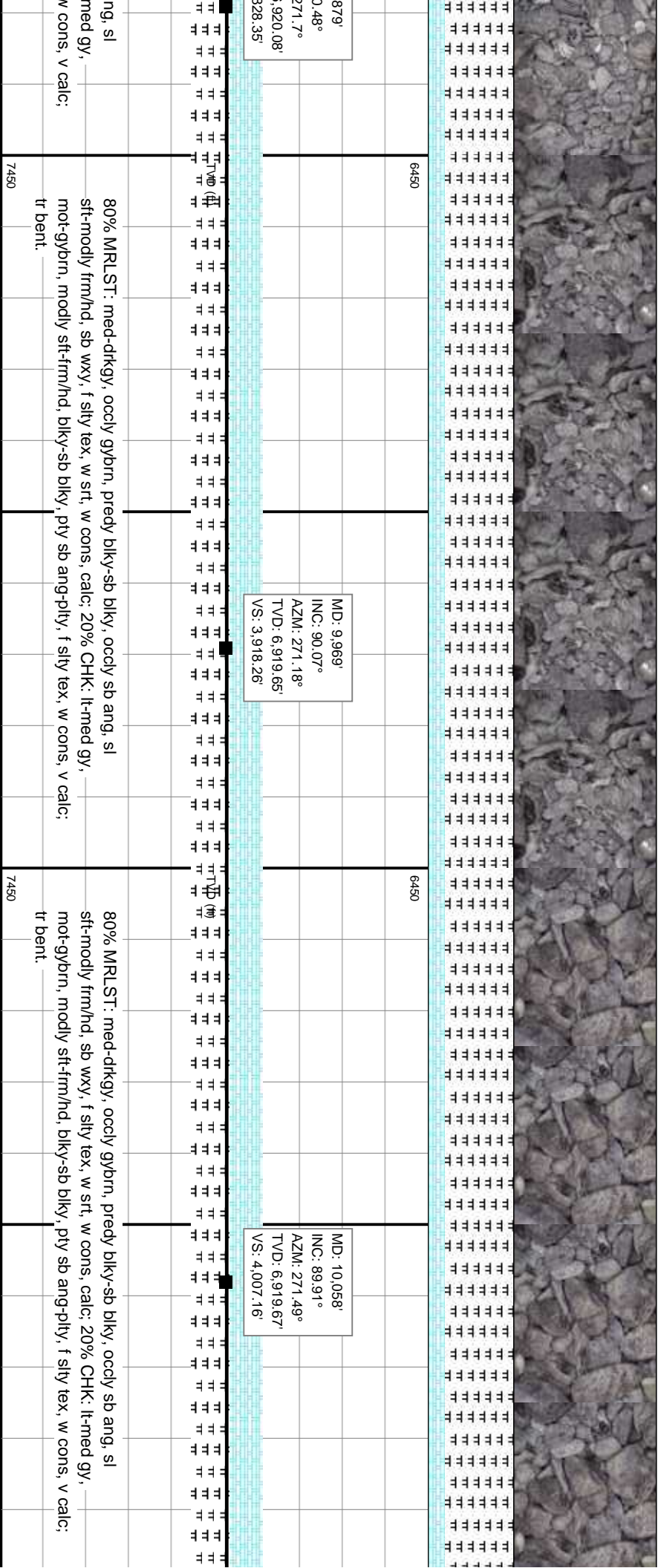
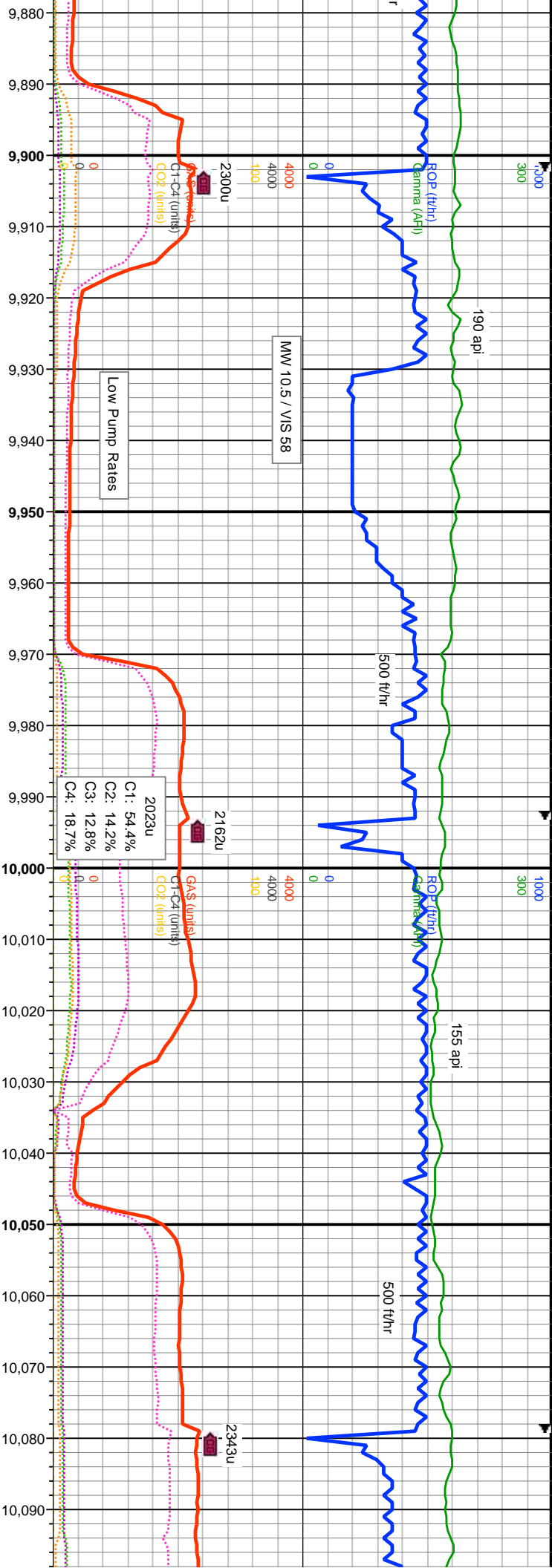


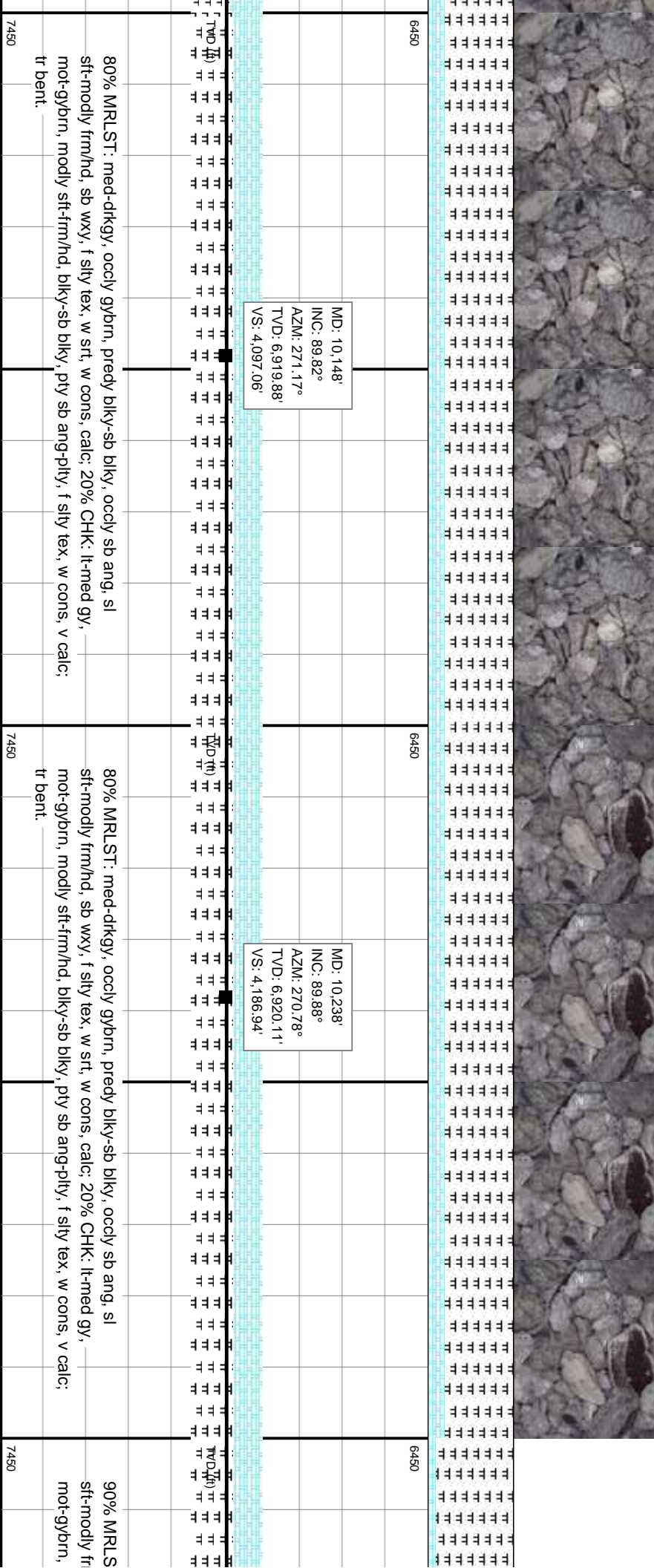
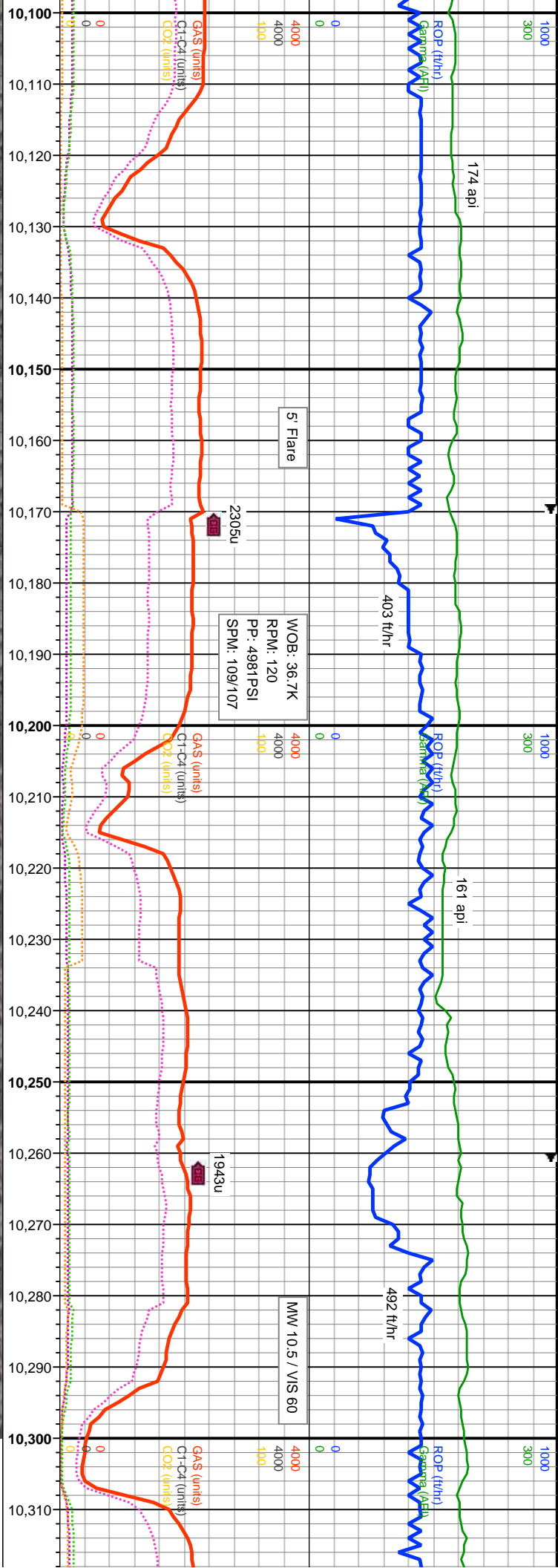


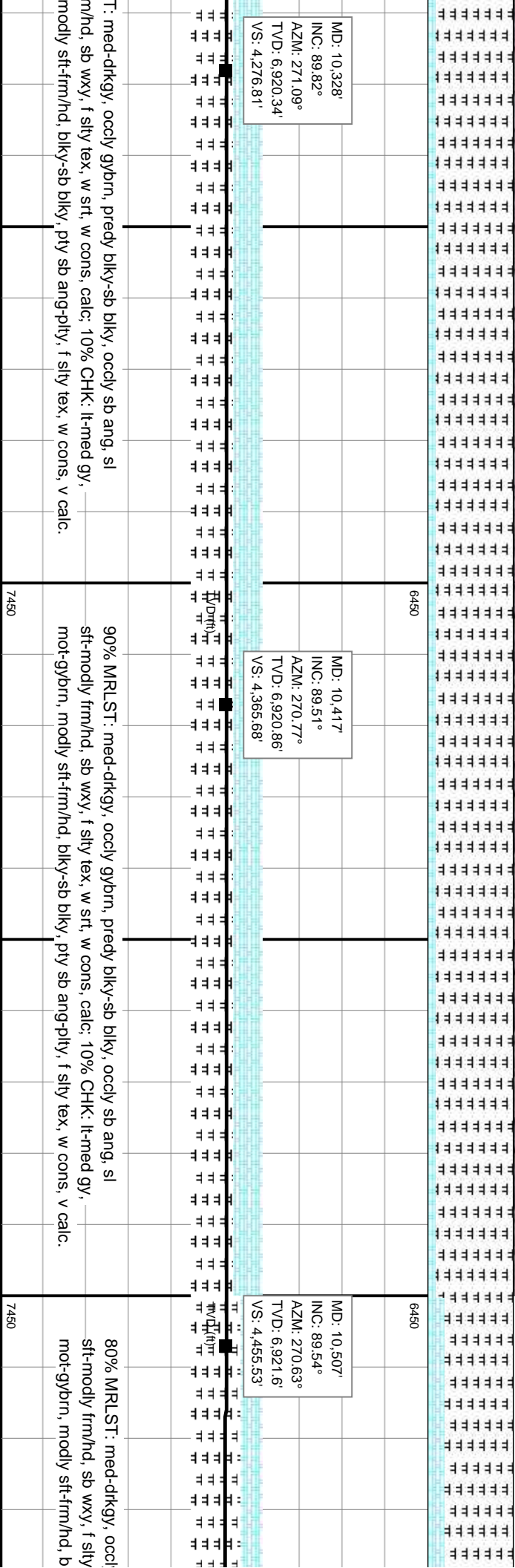
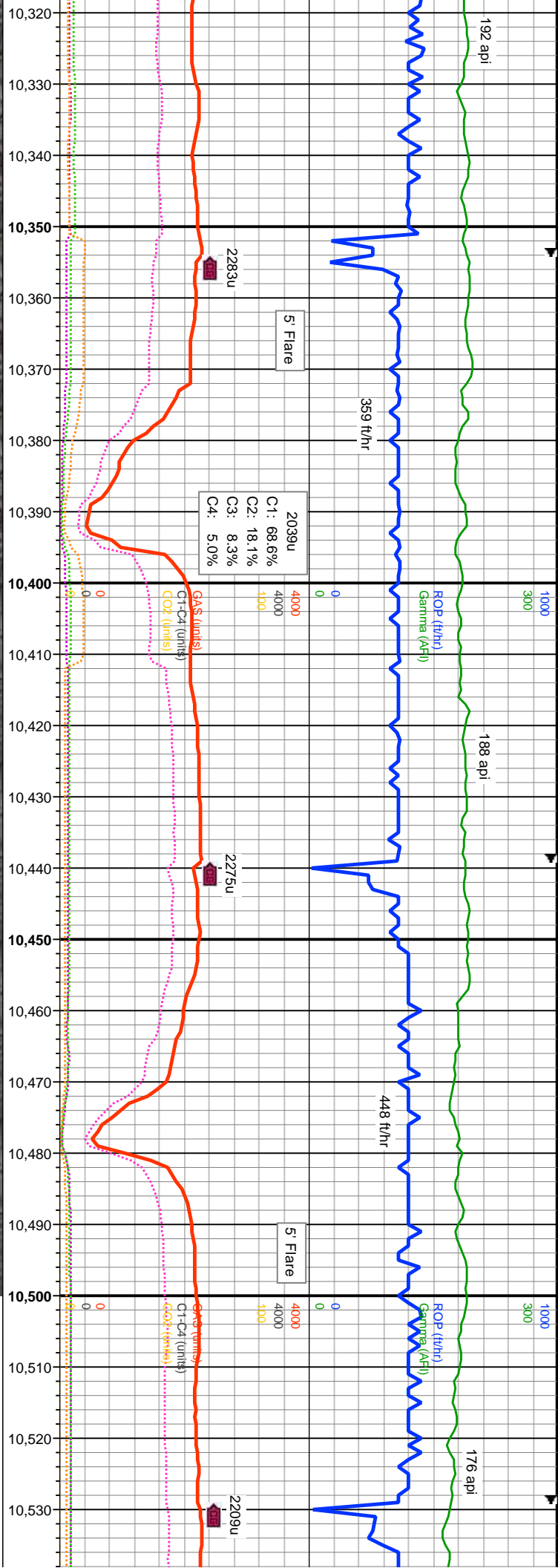


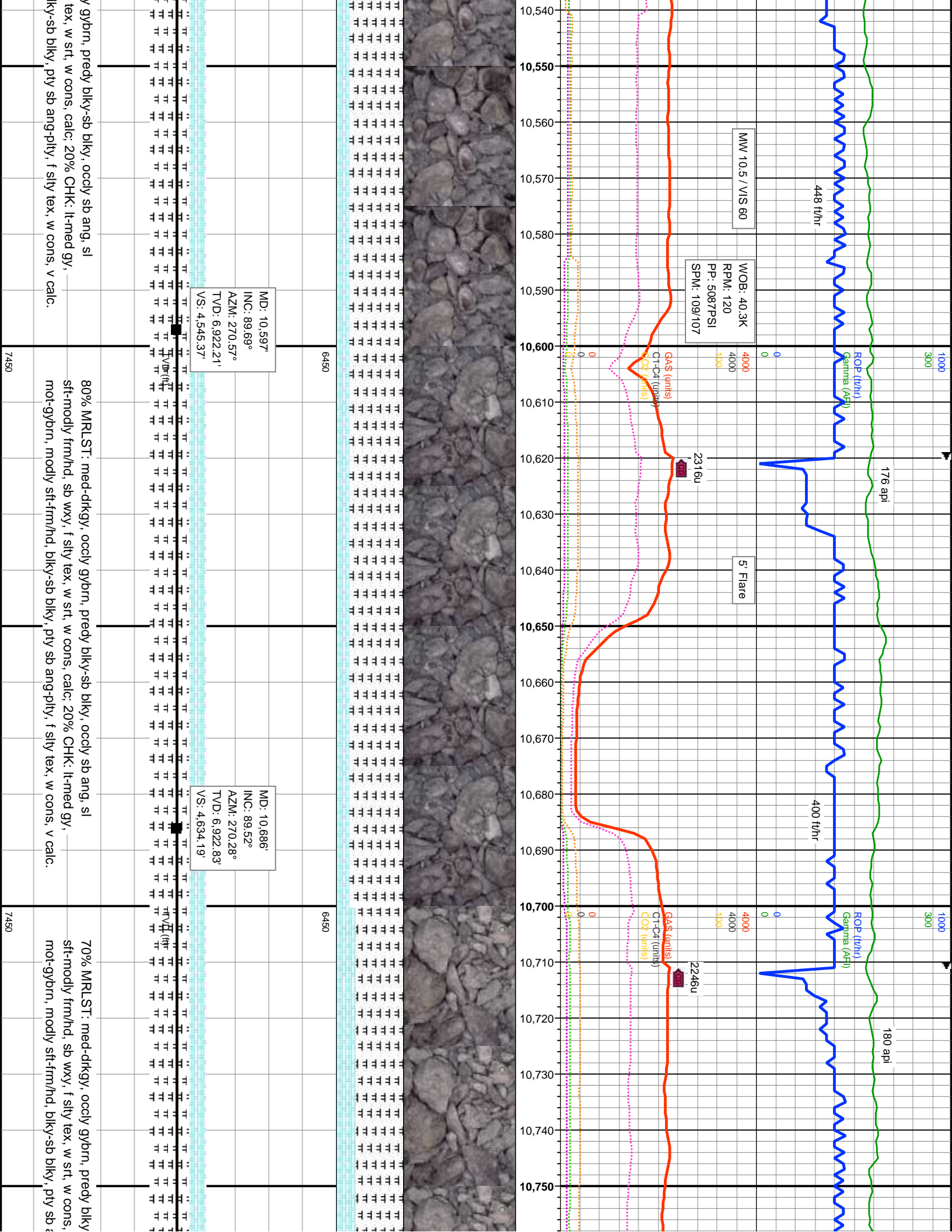


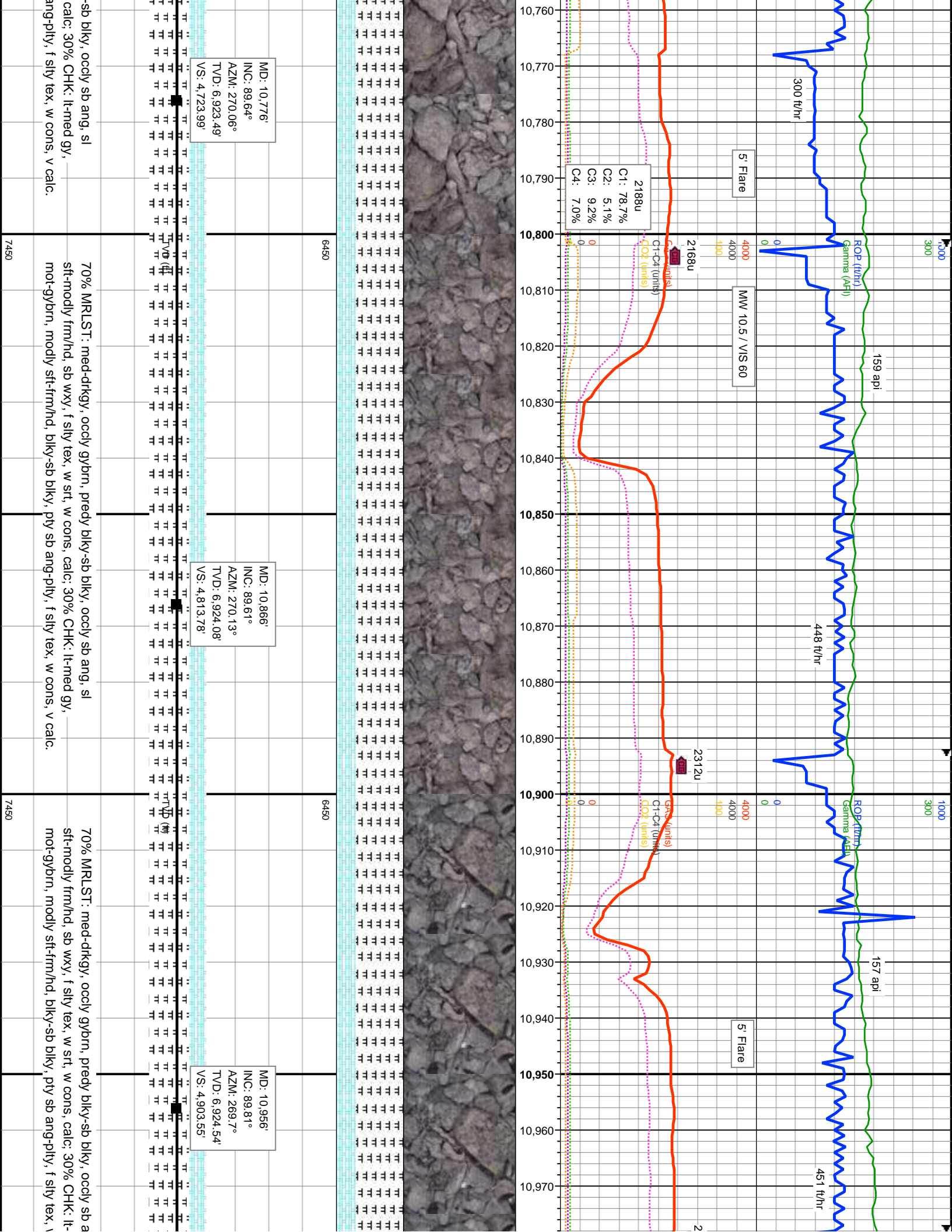


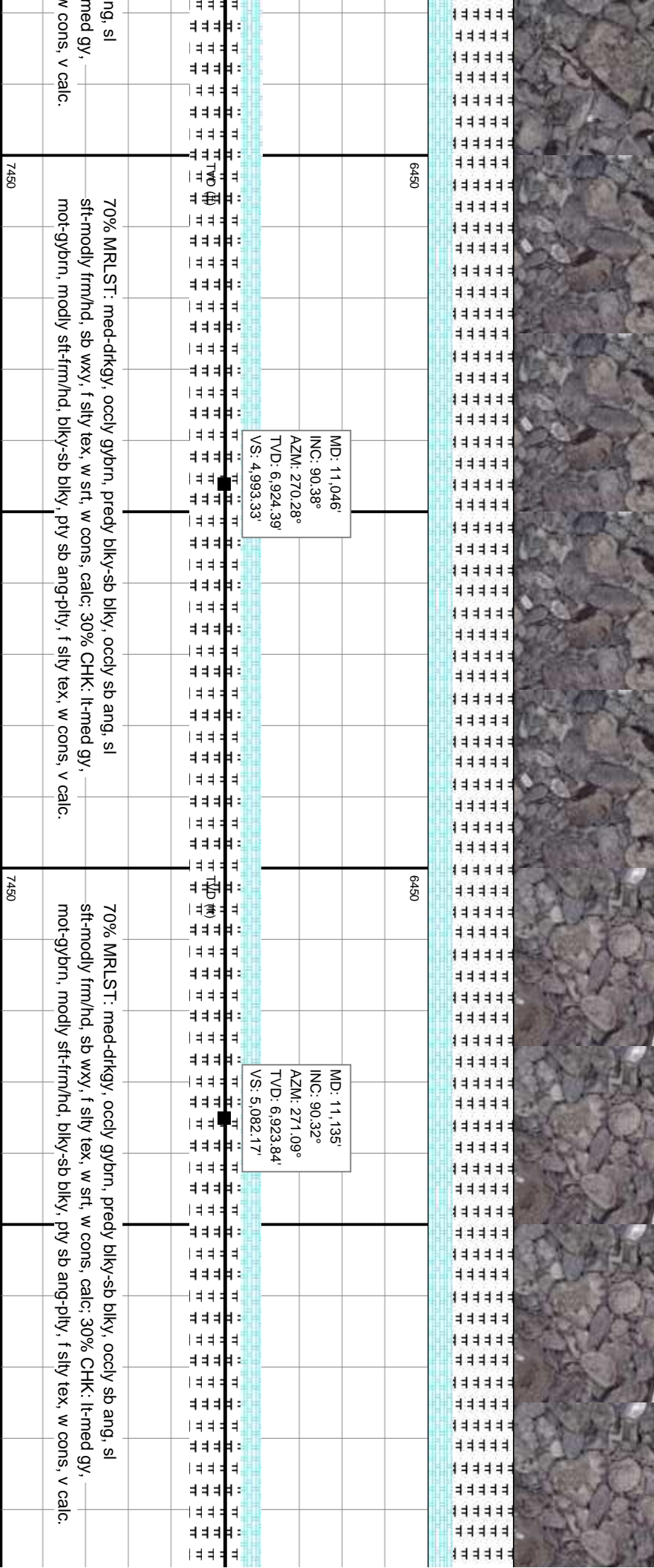


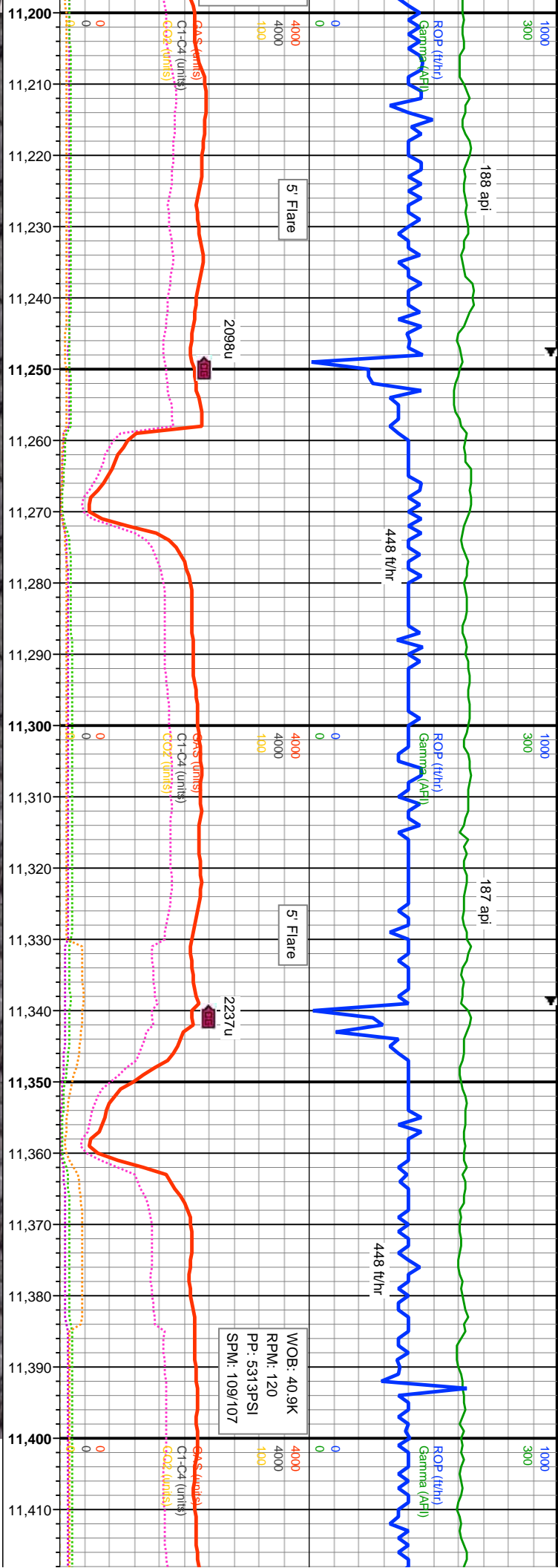




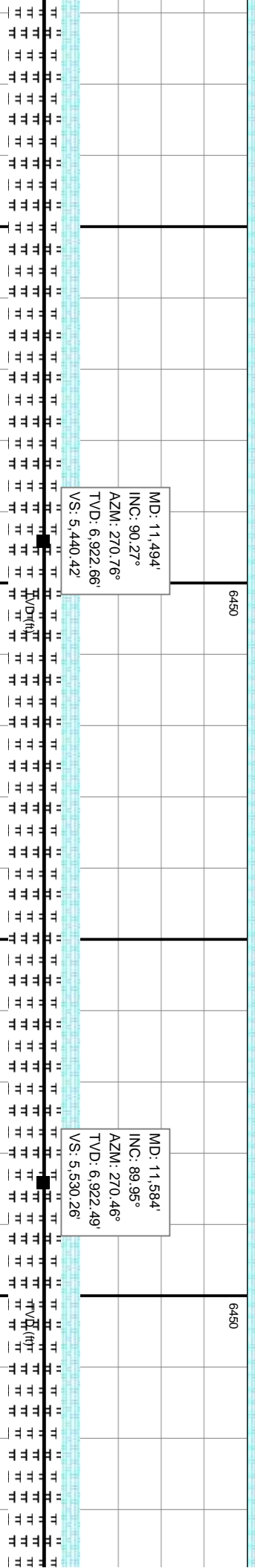
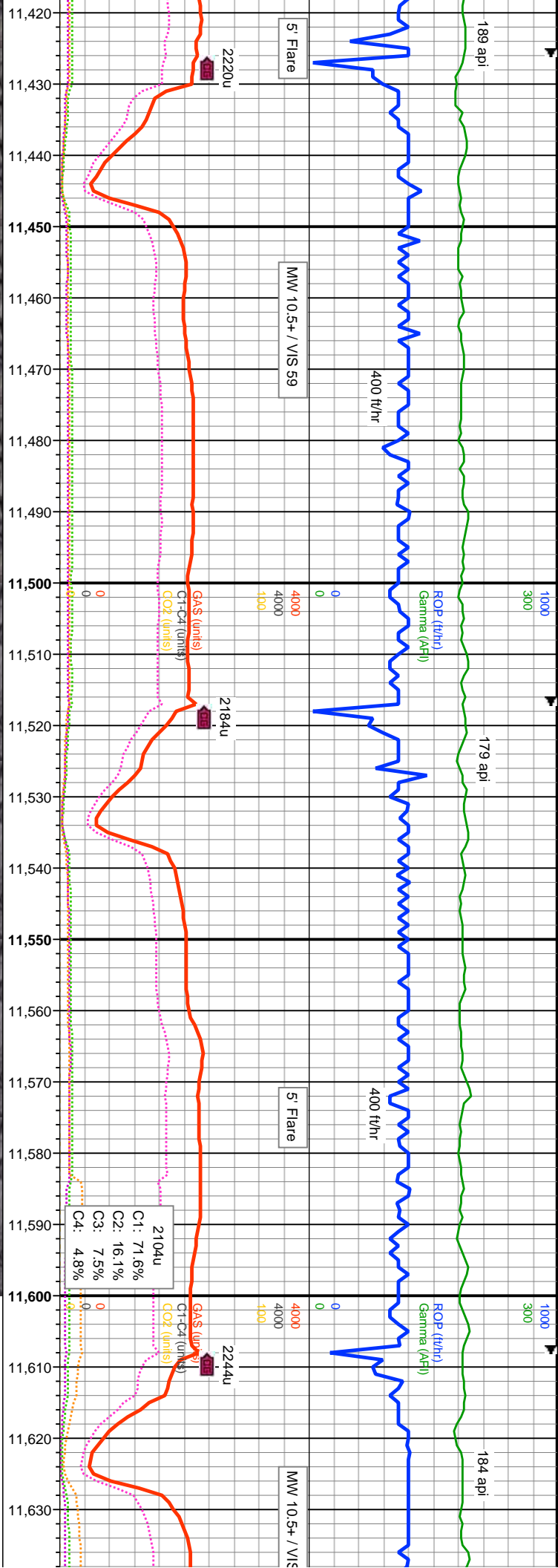








6450		MD: 11,225' INC: 90.16° AZM: 269.92° TVD: 6,923.47' VS: 5.172'	80% MRLST: med-dtgy, occly gybrn, predy blkly-sb blkly, occly sb ang, sl sft-modly frm/hd, sb wxy, f silty tex, w srt, w cons, calc; 20% CHK: lt-med gy, mot-gybrn, modly sft-frm/hd, blkly-sb blkly, pty sb ang-pty, f silty tex, w cons, v calc; tr pyr vn incl in mrl mtix.	7450
6450		MD: 11,315' INC: 89.98° AZM: 269.95° TVD: 6,923.36' VS: 5.261.78'	80% MRLST: med-dtgy, occly gybrn, predy blkly-sb blkly, occly sb ang, sl sft-modly frm/hd, sb wxy, f silty tex, w srt, w cons, calc; 20% CHK: lt-med gy, mot-gybrn, modly sft-frm/hd, blkly-sb blkly, pty sb ang-pty, f silty tex, w cons, v calc; tr pyr vn incl in mrl mtix.	7450
6450		MD: 11,404' INC: 90.32° AZM: 270.41° TVD: 6,923.12' VS: 5.350.58'	80% MRLS sft-modly fr mot-gybrn,	7450



T: med-dkgy, occly gybrn, predy blkly-sb blkly, occly sb ang, sl
m/hd, sb wxy, f silty tex, w srt, w cons, calc, 20% CHK. lt-med gy,
modly sft-fm/hd, blkly-sb blkly, pty sb ang-pty, f silty tex, w cons, v calc.

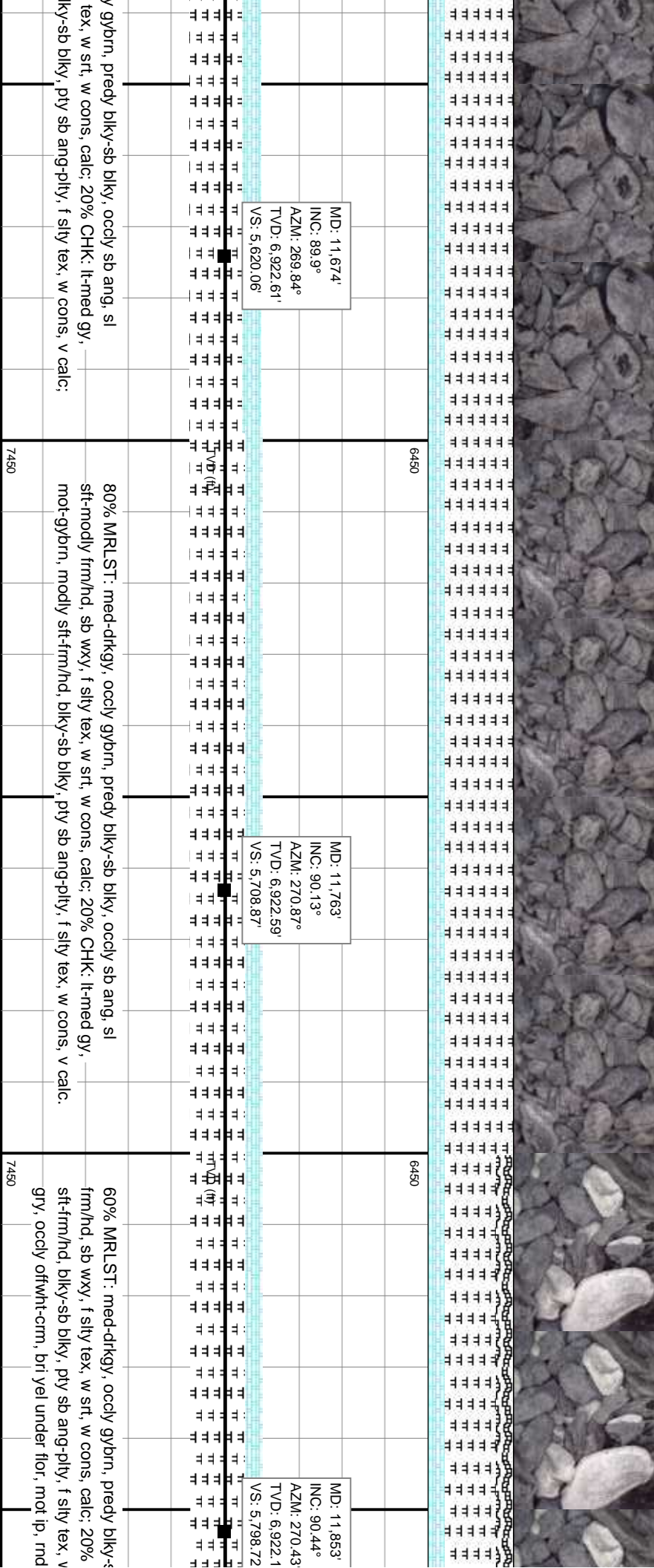
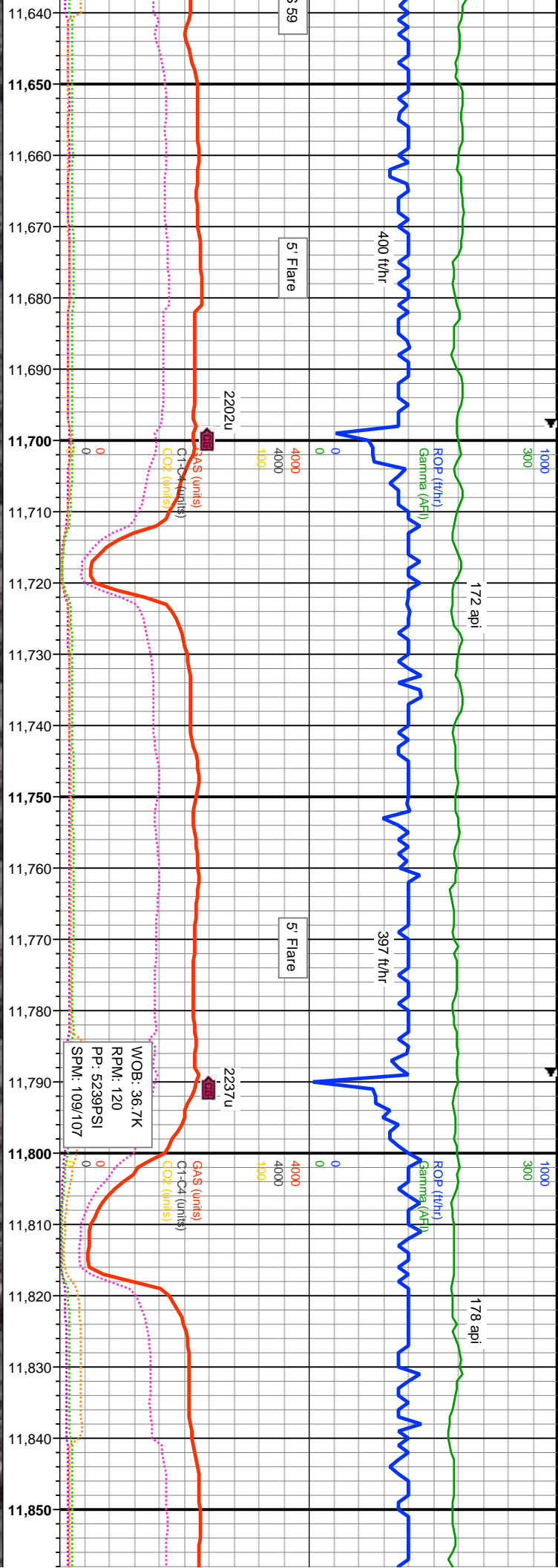
MD: 11,494'
INC: 90.27°
AZM: 270.76°
TVD: 6,922.66'
VS: 5,440.42'

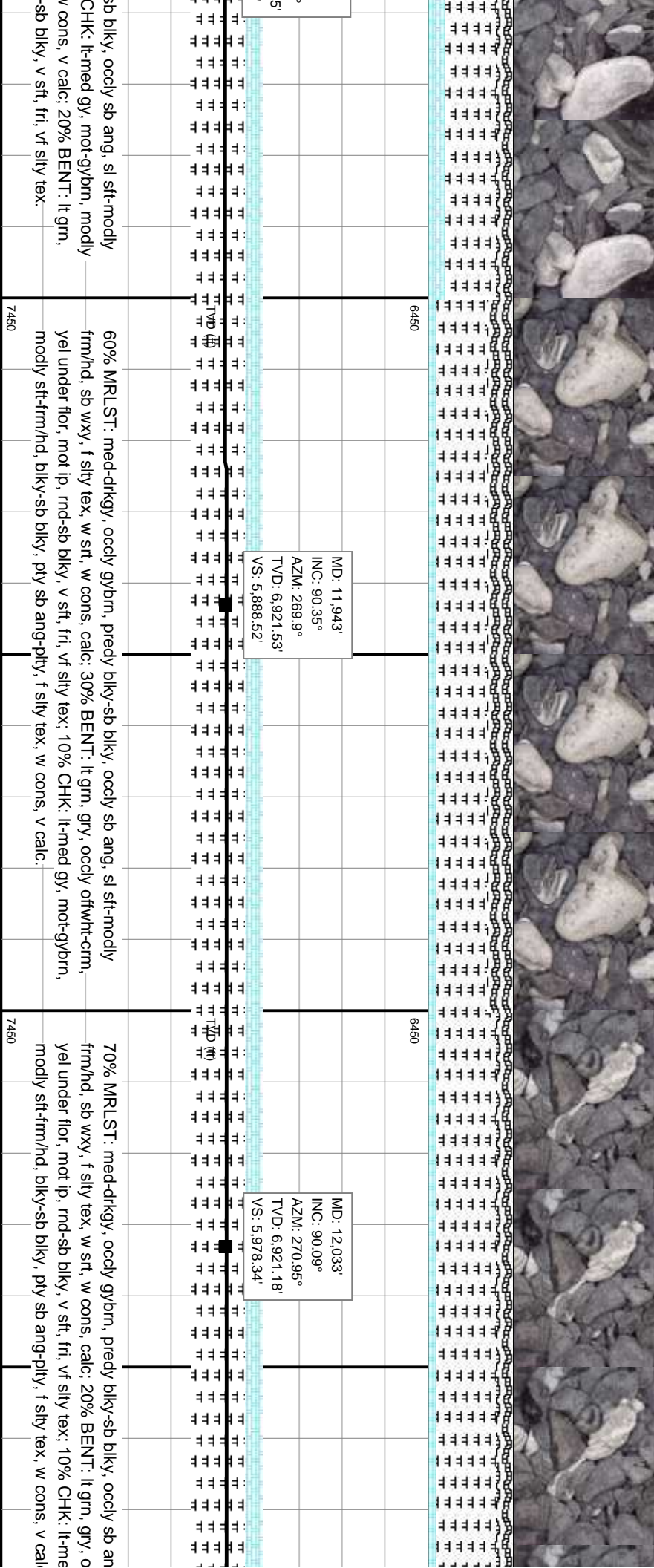
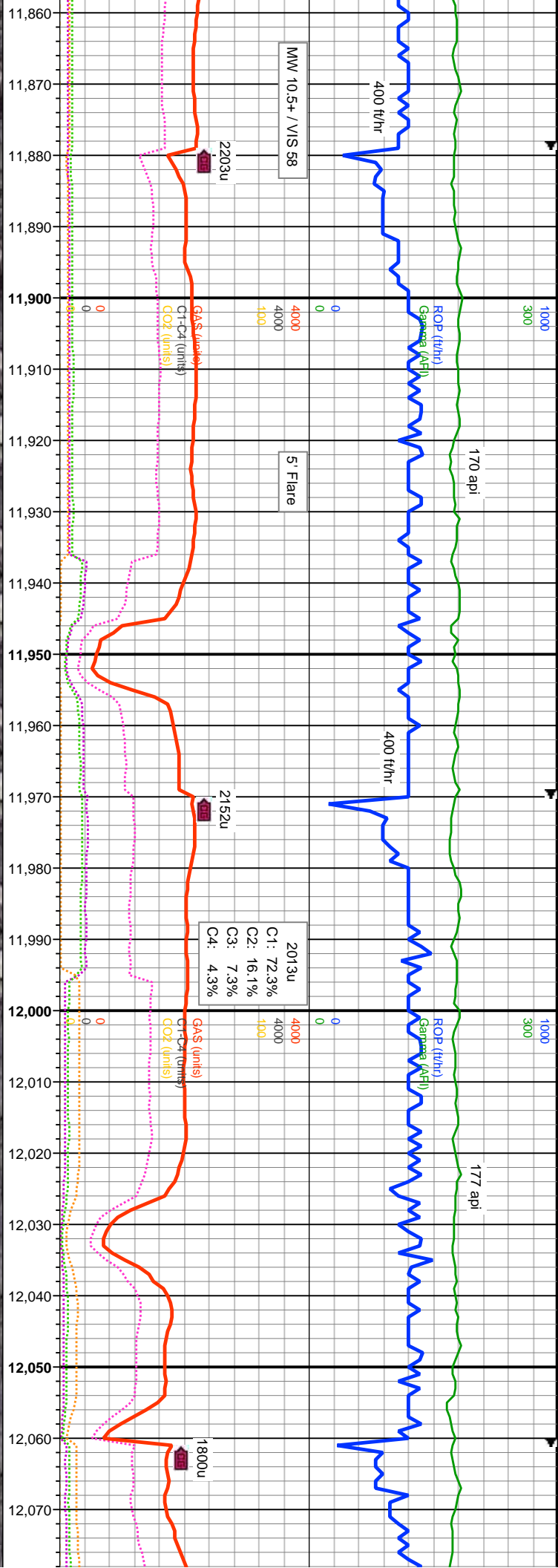
MD: 11,584'
INC: 89.95°
AZM: 270.46°
TVD: 6,922.49'
VS: 5,530.26'

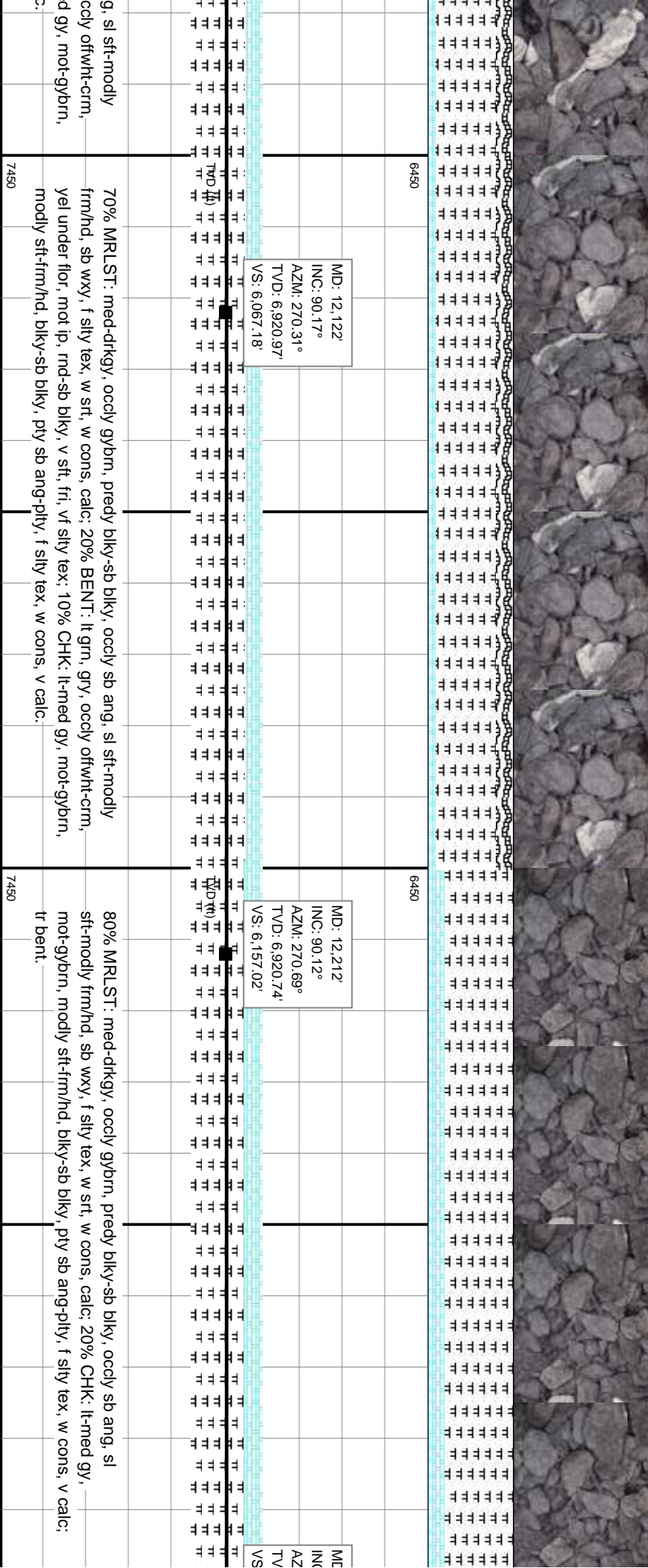
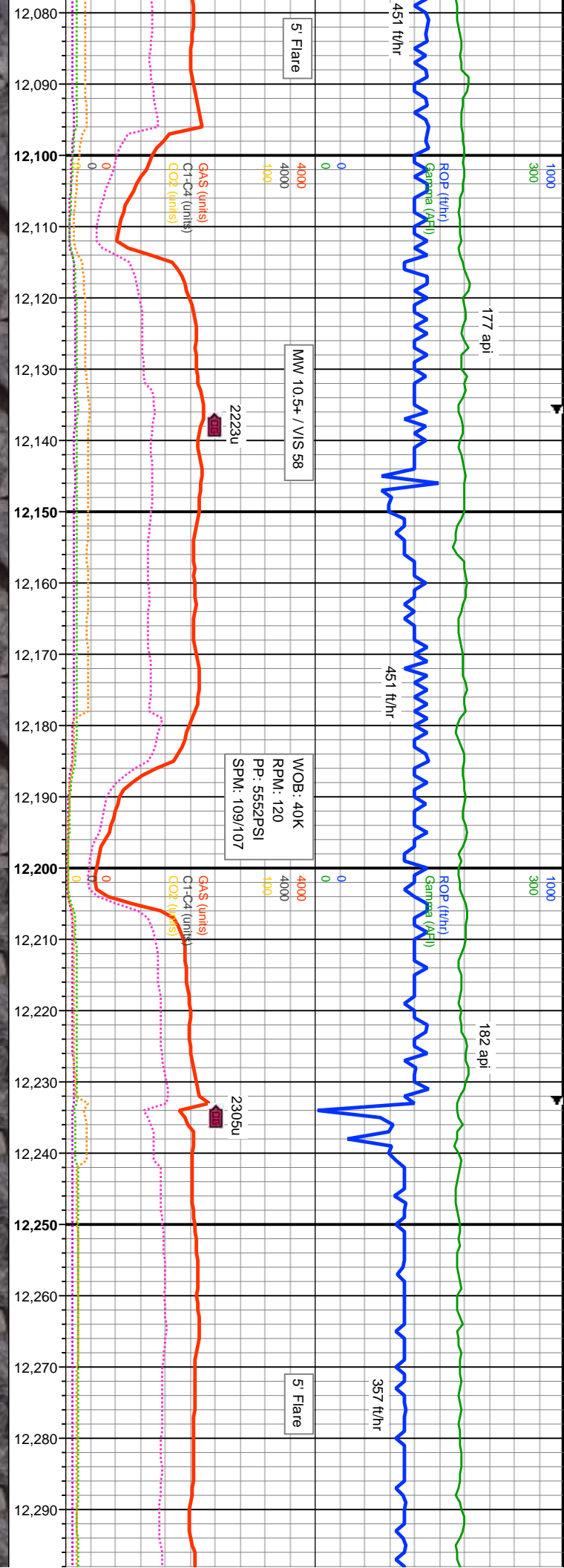
80% MRLST: med-dkgy, occly gybrn, predy blkly-sb blkly, occly sb ang, sl
sft-modly frm/hd, sb wxy, f silty tex, w srt, w cons, calc, 20% CHK. lt-med gy,
mot-gybrn, modly sft-fm/hd, blkly-sb blkly, pty sb ang-pty, f silty tex, w cons, v calc.

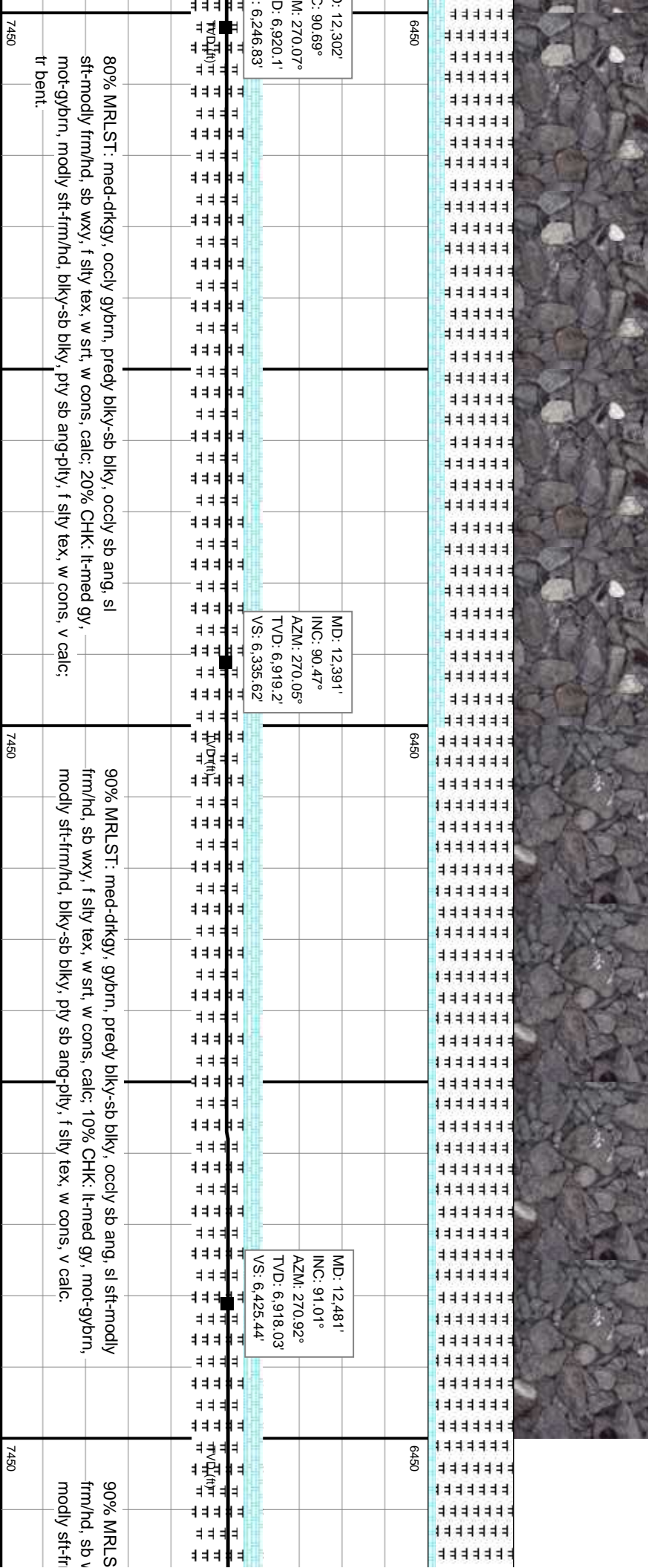
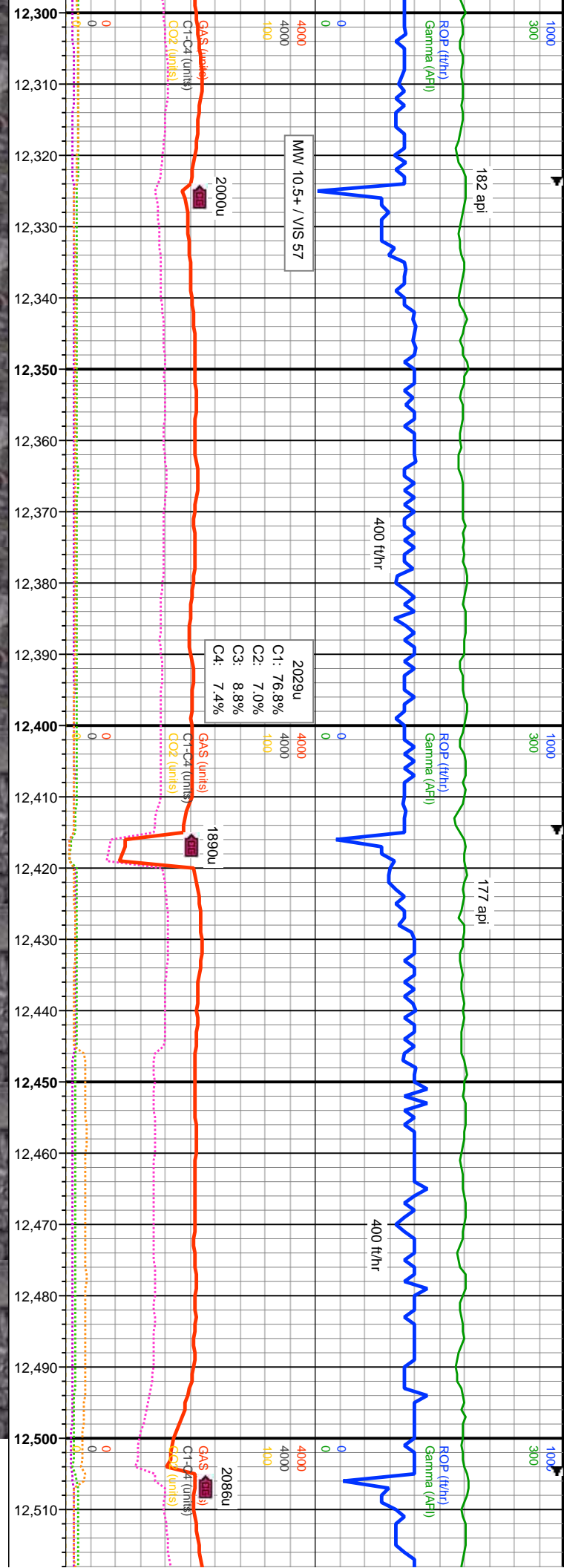
80% MRLST: med-dkgy, occly gybrn, predy blkly-sb blkly, occly sb ang, sl
sft-modly frm/hd, sb wxy, f silty tex, w srt, w cons, calc, 20% CHK. lt-med gy,
mot-gybrn, modly sft-fm/hd, blkly-sb blkly, pty sb ang-pty, f silty tex, w cons, v calc.

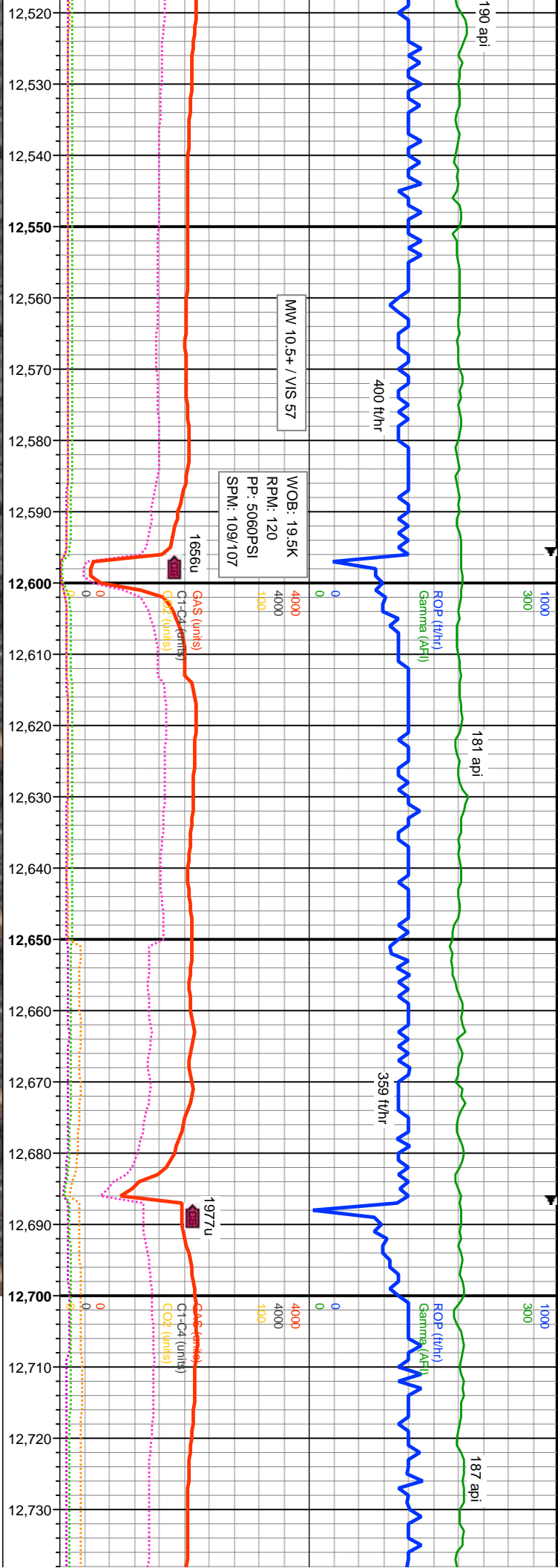
tr pyr nod incl in mrl mtx.



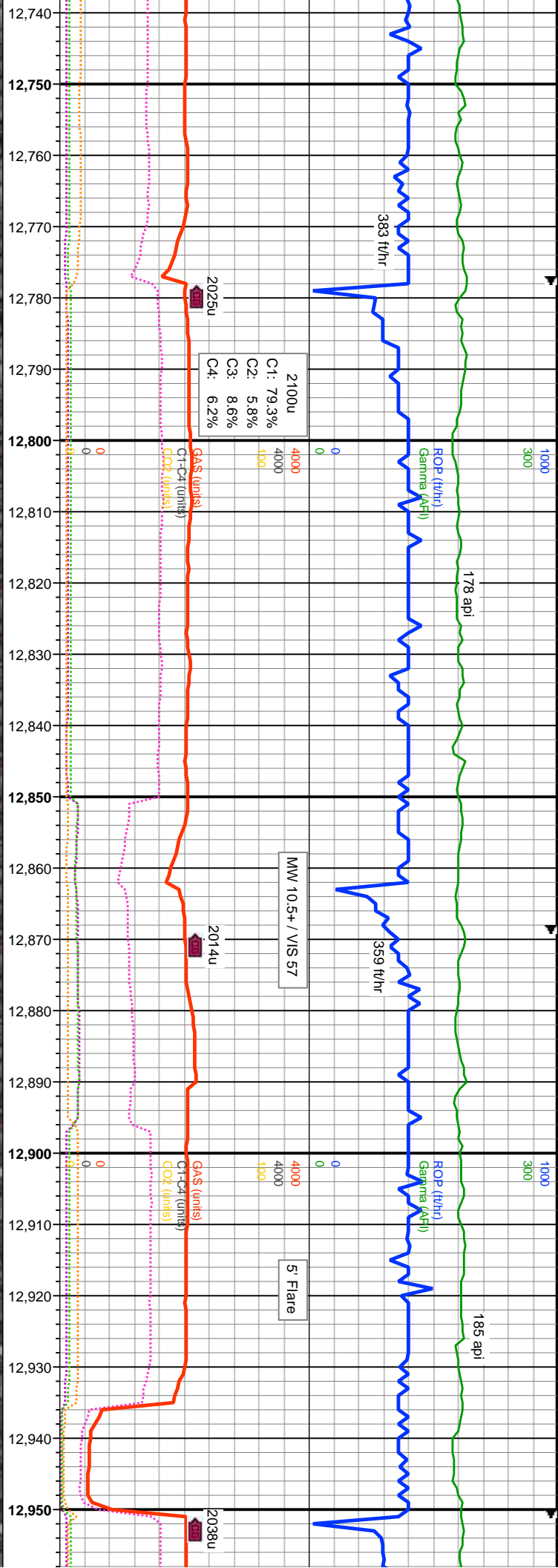








T: med-dkgy, gybrn, predy blk-sb blk, ocdy sb ang, sl sft-mody wxy, f silty tex, w srt, w cons, calc: 10% CHK: lt-med gy, mot-gybrn, m/hd, blk-sb blk, ply sb ang-pty, f silty tex, w cons, v calc.	6450	MD: 12.660' INC: 90.57° AZM: 270.12° TVD: 6.915.88' VS: 6.604.1'	75% MRLST: med-dkgy, gybrn frm/hd, sb wxy, f silty tex, w srt, mot-gybrn, modly sft-frm/hd, bl
T: med-dkgy, gybrn, predy blk-sb blk, ocdy sb ang, sl sft-mody wxy, f silty tex, w srt, w cons, calc: 10% CHK: lt-med gy, mot-gybrn, m/hd, blk-sb blk, ply sb ang-pty, f silty tex, w cons, v calc.	7450	6450	7450



MD: 12,750'
INC: 90.37°
AZM: 270.03°
TVD: 6,915.14'
VS: 6,693.89'

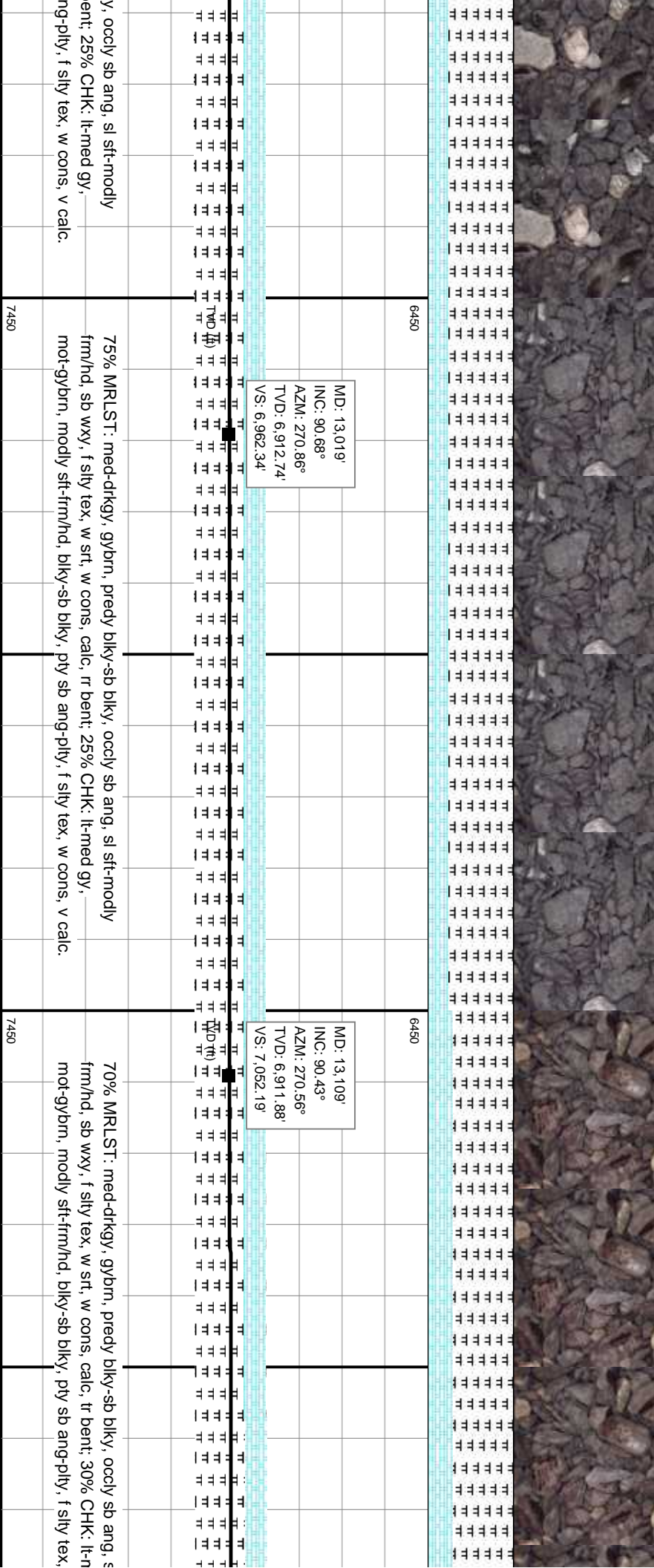
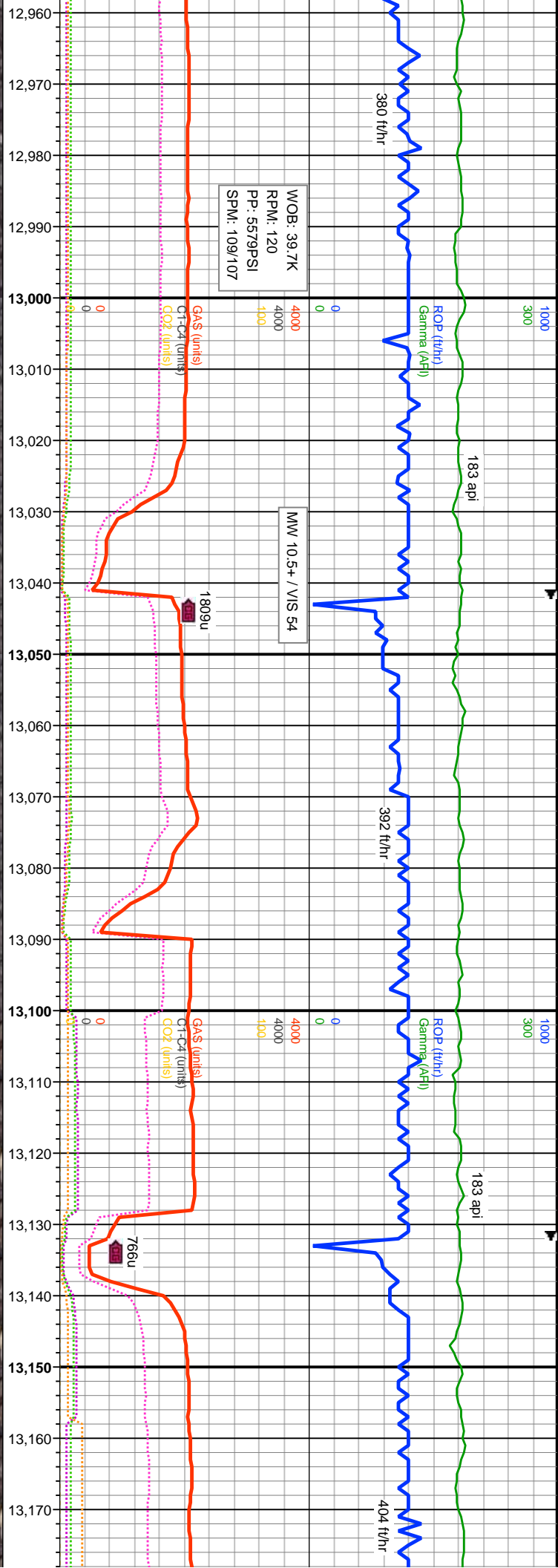
MD: 12,840'
INC: 90.6°
AZM: 269.82°
TVD: 6,914.38'
VS: 6,783.66'

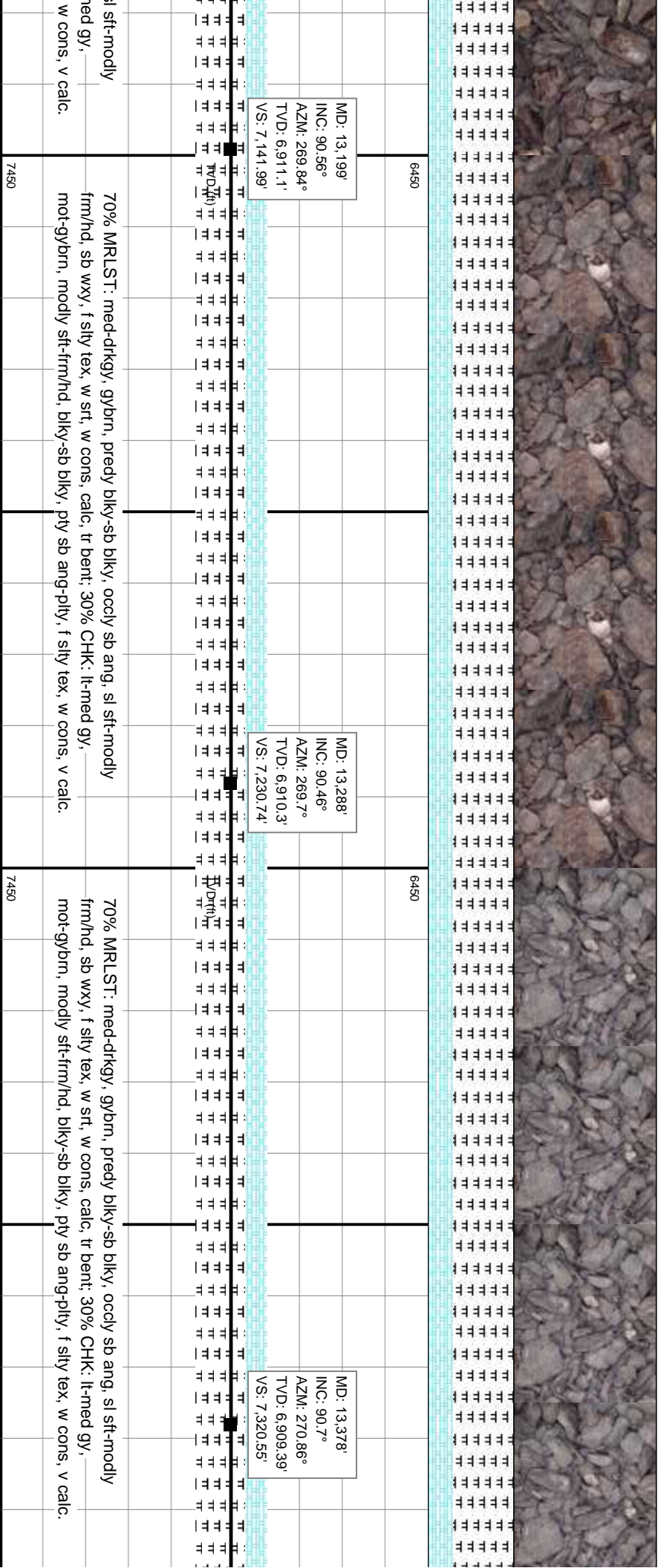
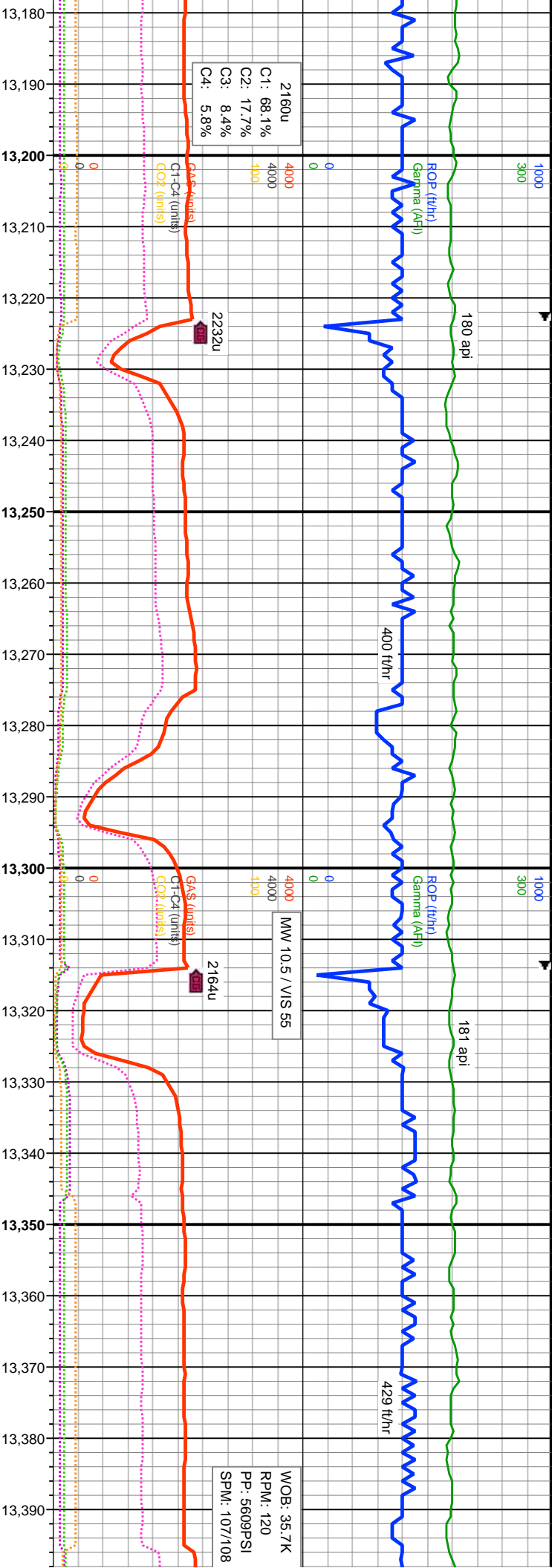
MD: 12,929'
INC: 90.41°
AZM: 270.98°
TVD: 6,913.6'
VS: 6,872.48'

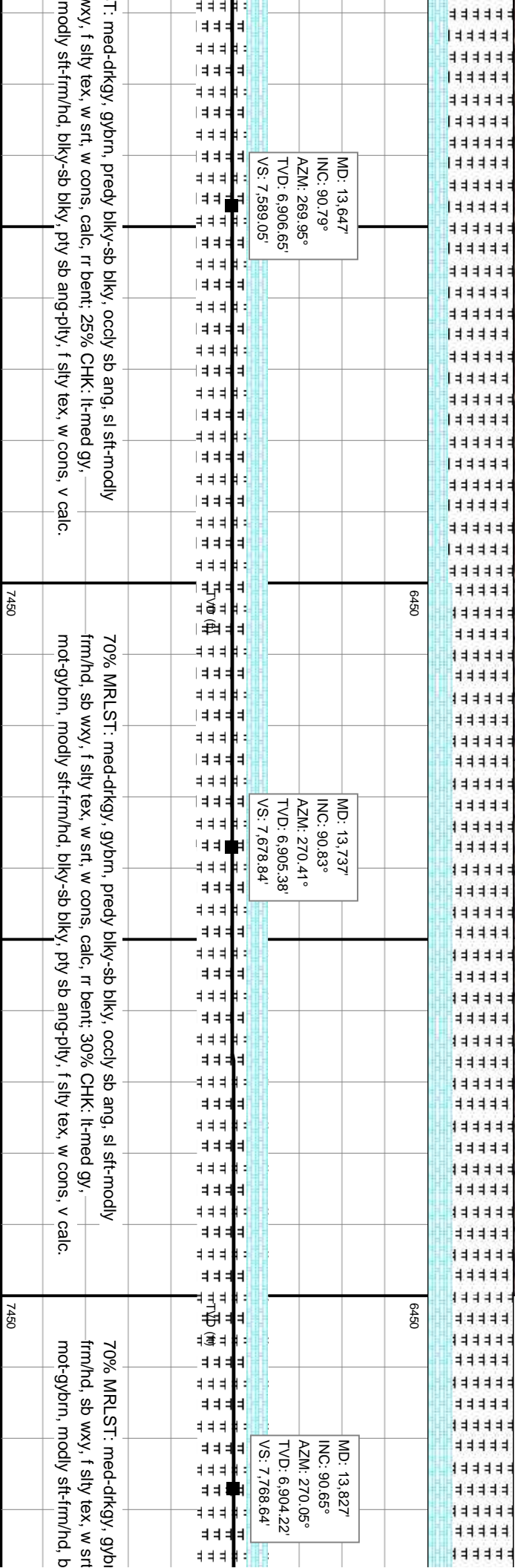
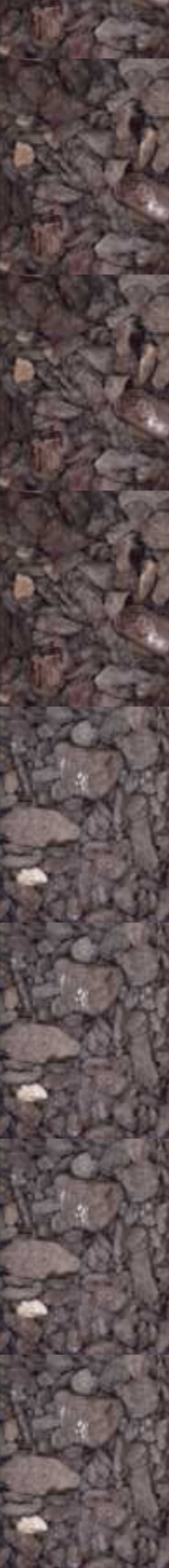
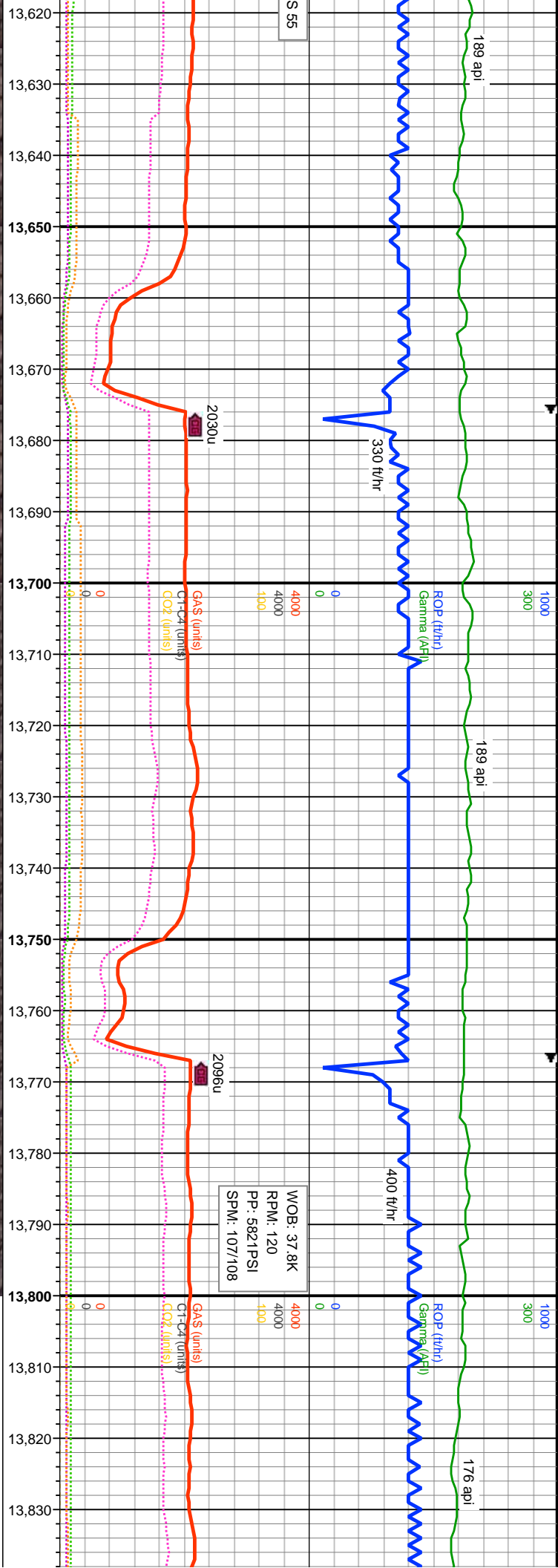
predy blyk-sb blyk, oocly sb ang, sl sft-modly
w cons, calc, v rr bent; 25% CHK: lt-med gy,
ly-sb blyk, ply sb ang-ply, f silty tex, w cons, v calc.

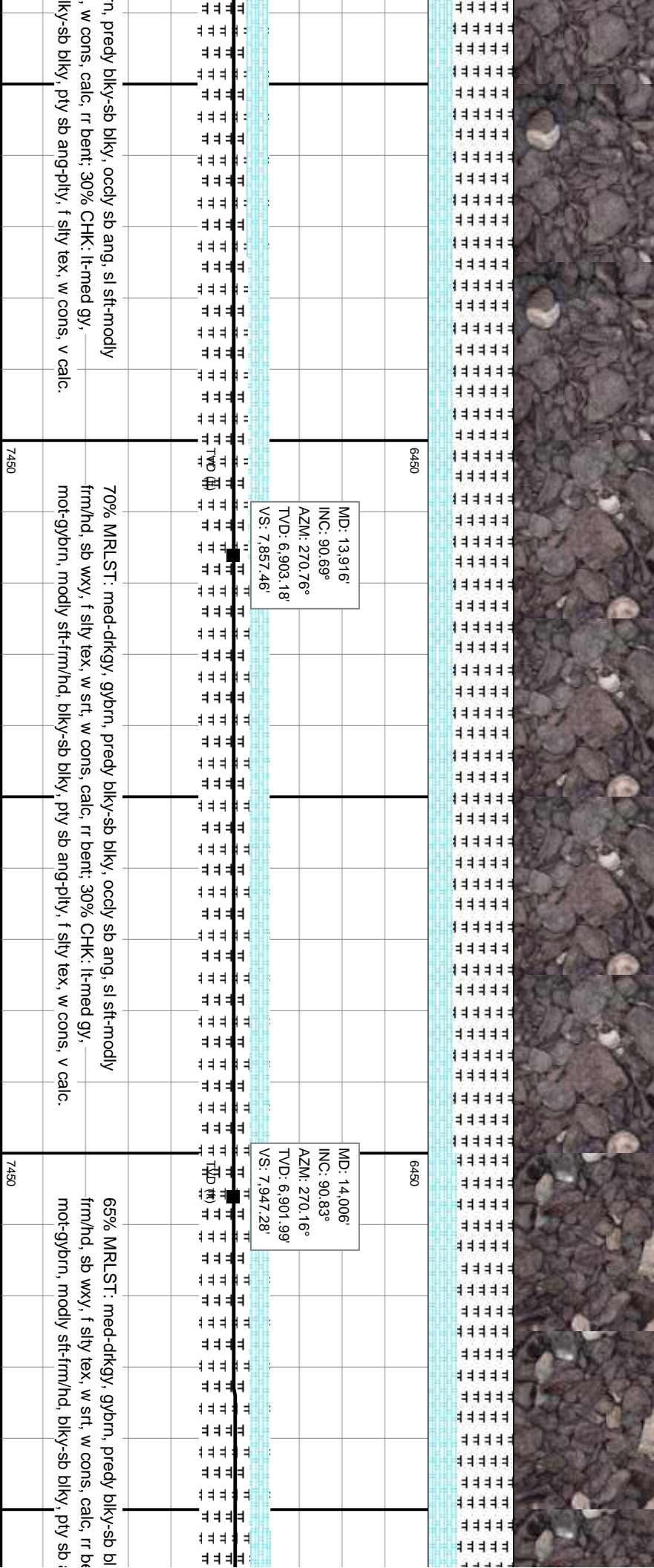
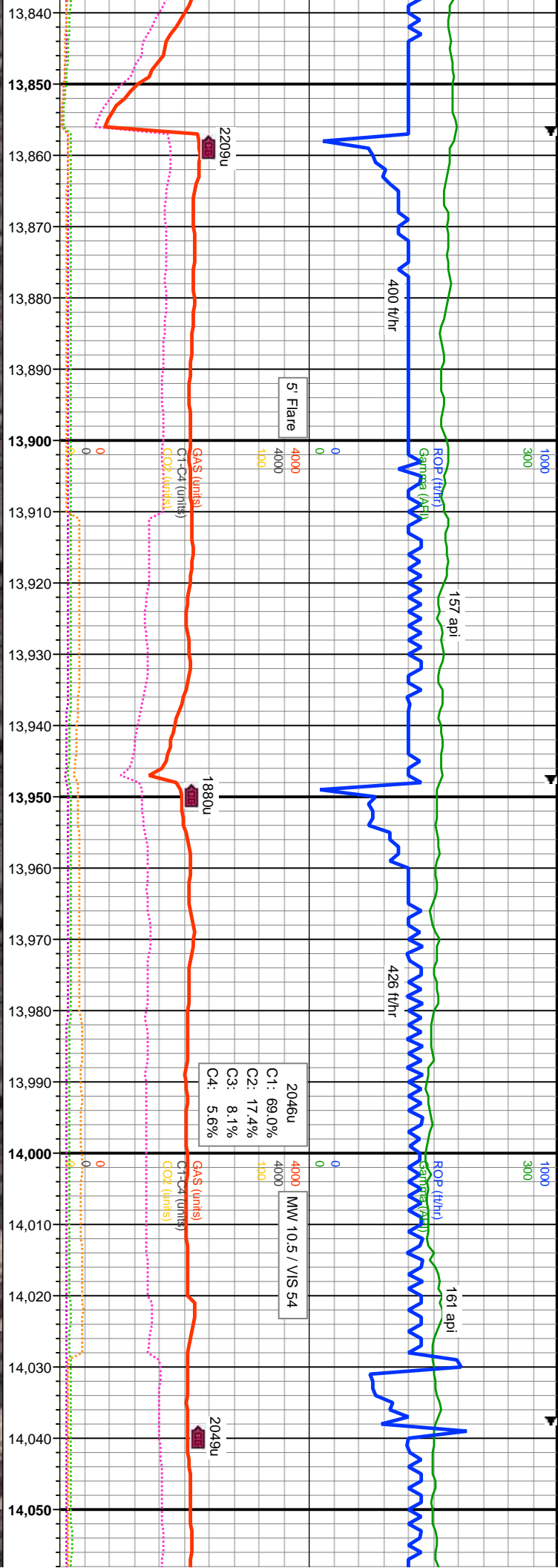
75% MRLST: med-drkgy, gybrn, predy blyk-sb blyk, oocly sb ang, sl sft-modly
frm/hd, sb wxy, f silty tex, w srt, w cons, calc, v rr bent; 25% CHK: lt-med gy,
mot-gybrn, modly sft-frm/hd, blyk-sb blyk, ply sb ang-ply, f silty tex, w cons, v calc.

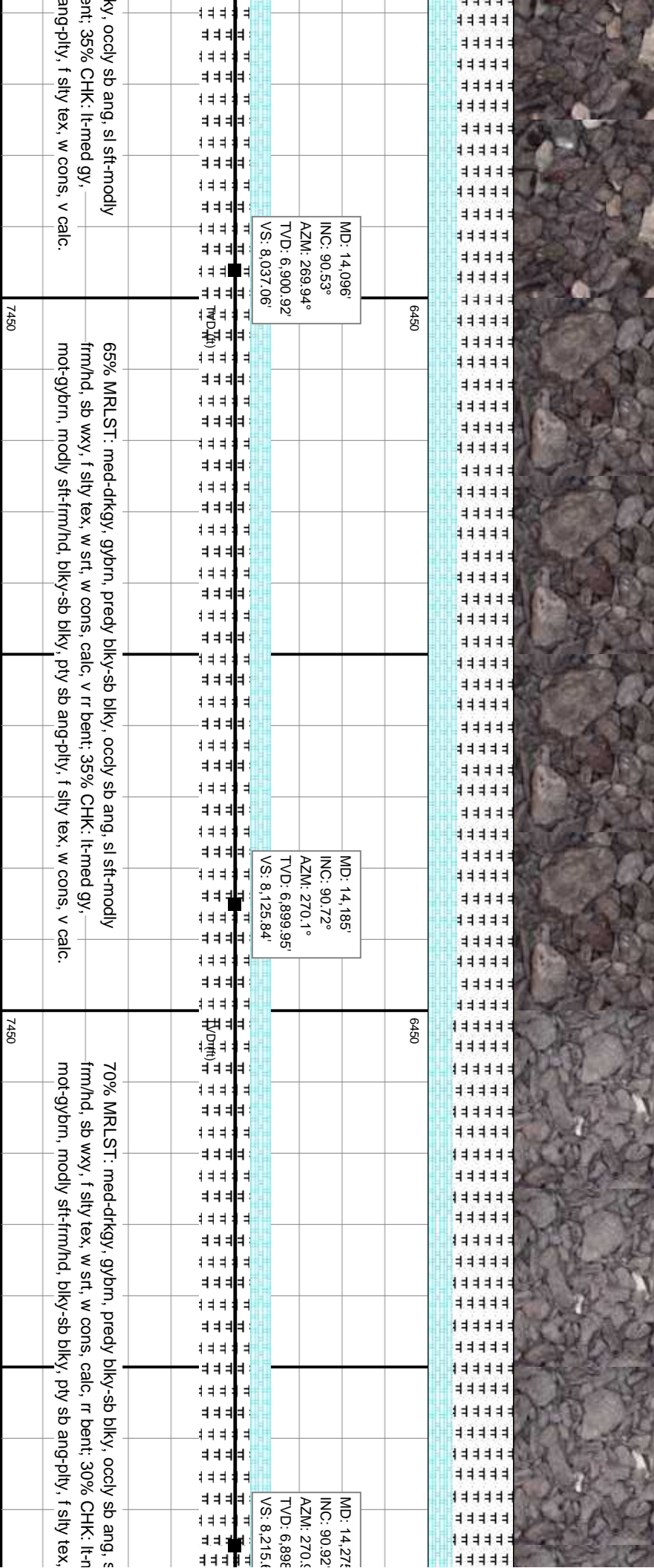
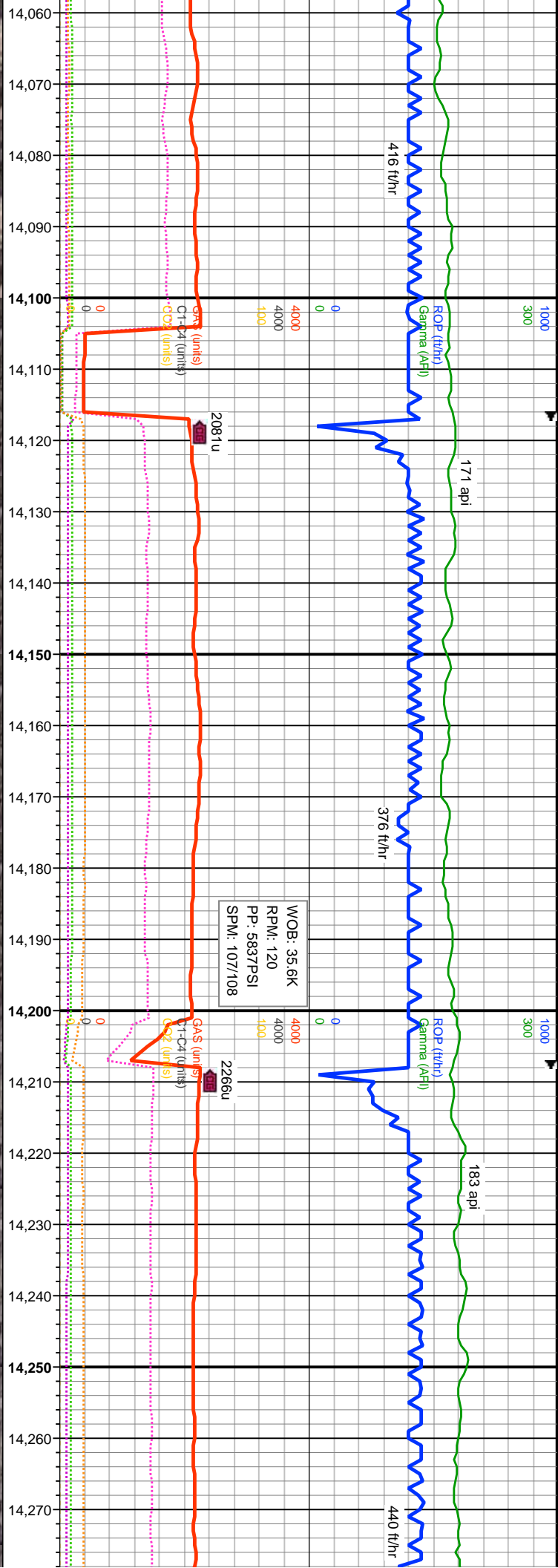
75% MRLST: med-drkgy, gybrn, predy blyk-sb blyk
frm/hd, sb wxy, f silty tex, w srt, w cons, calc, v rr b
mot-gybrn, modly sft-frm/hd, blyk-sb blyk, ply sb a

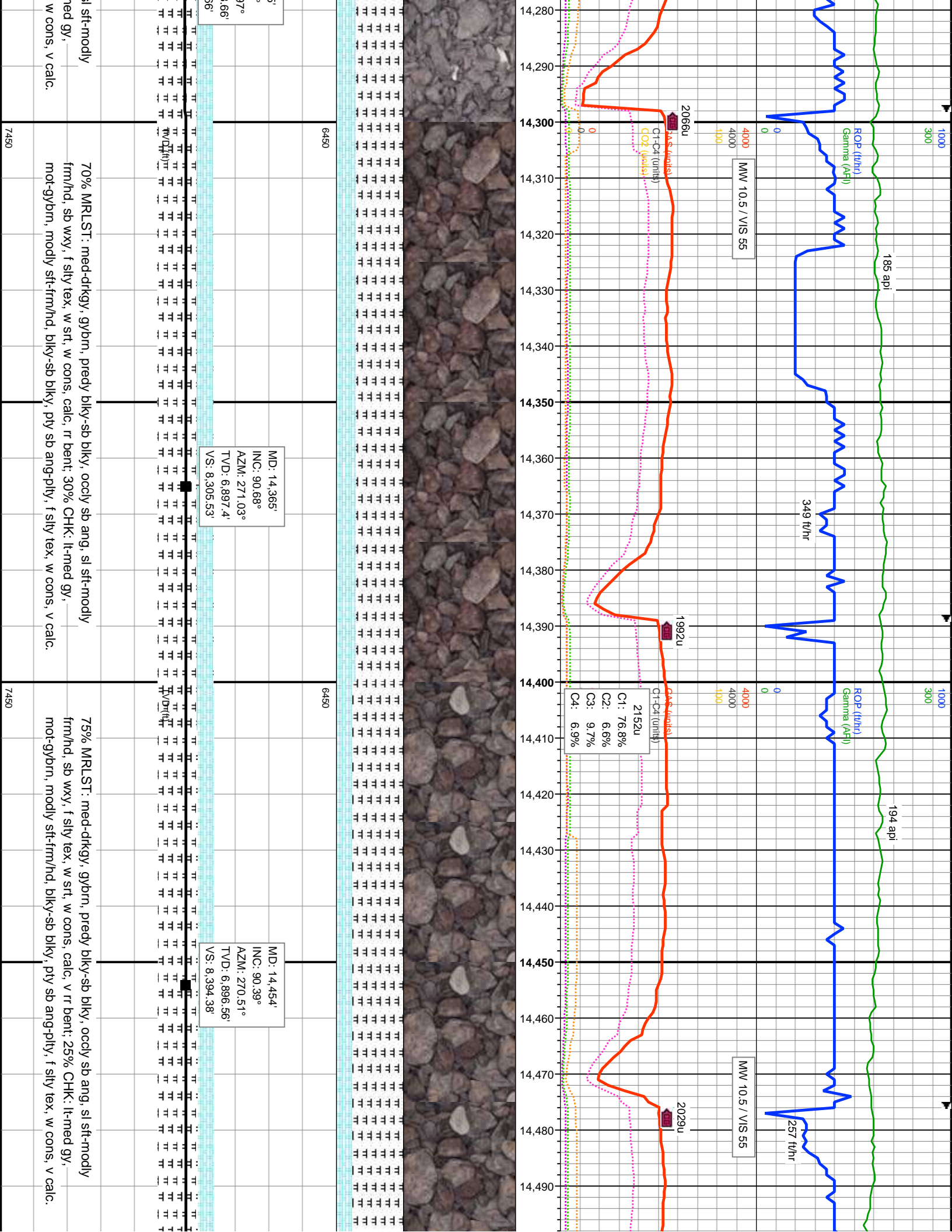


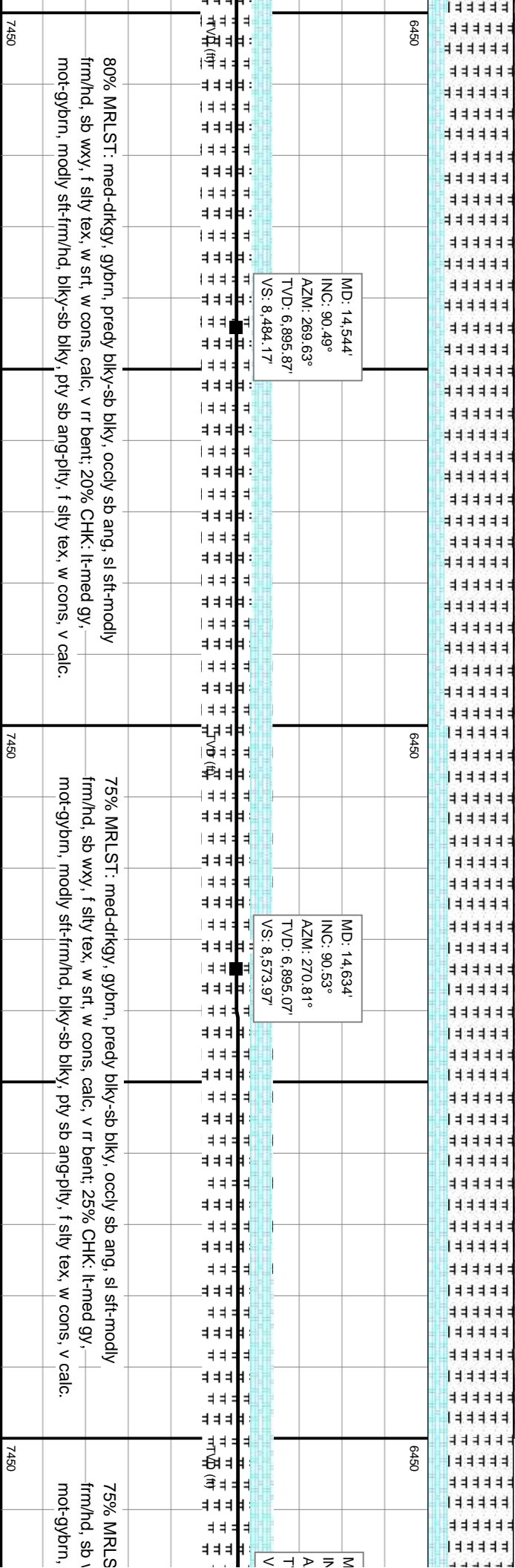
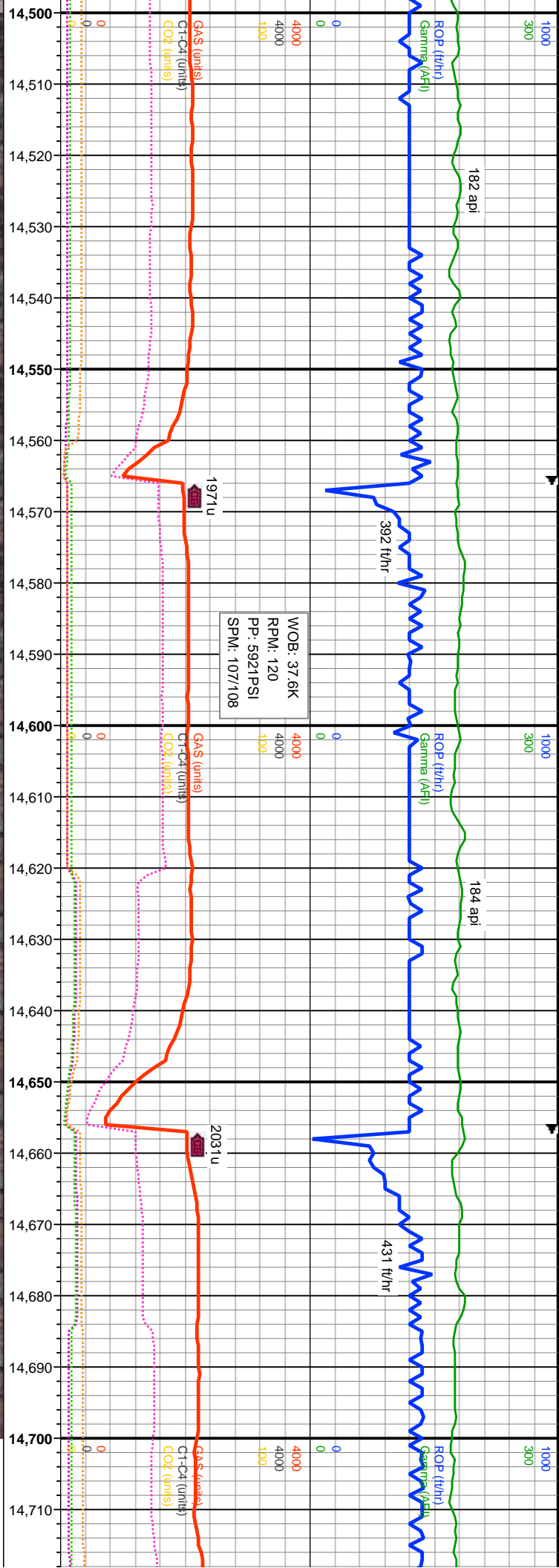


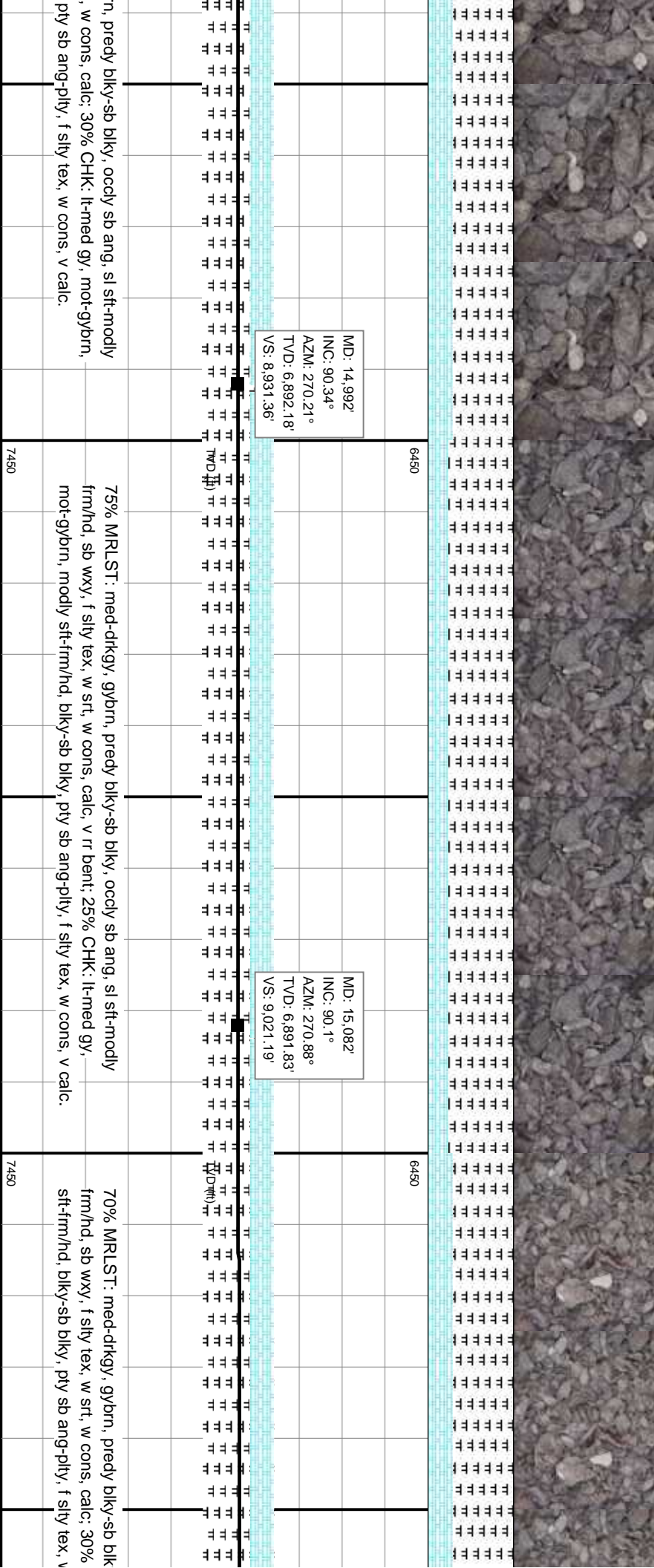
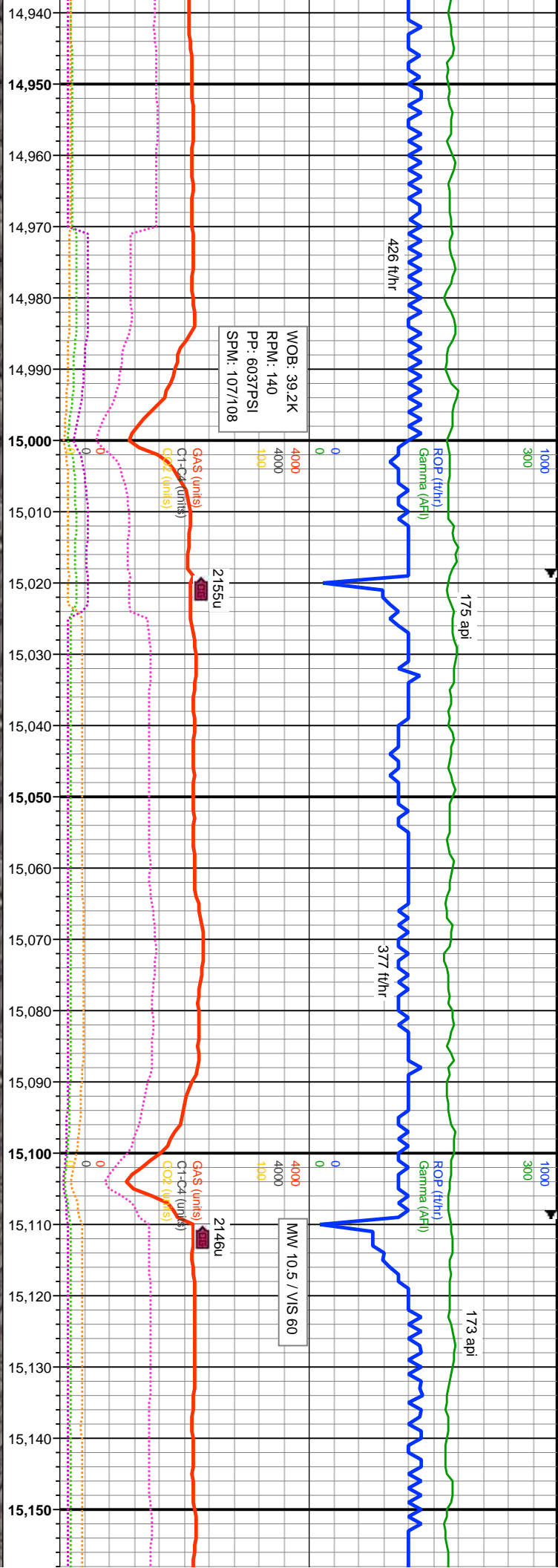


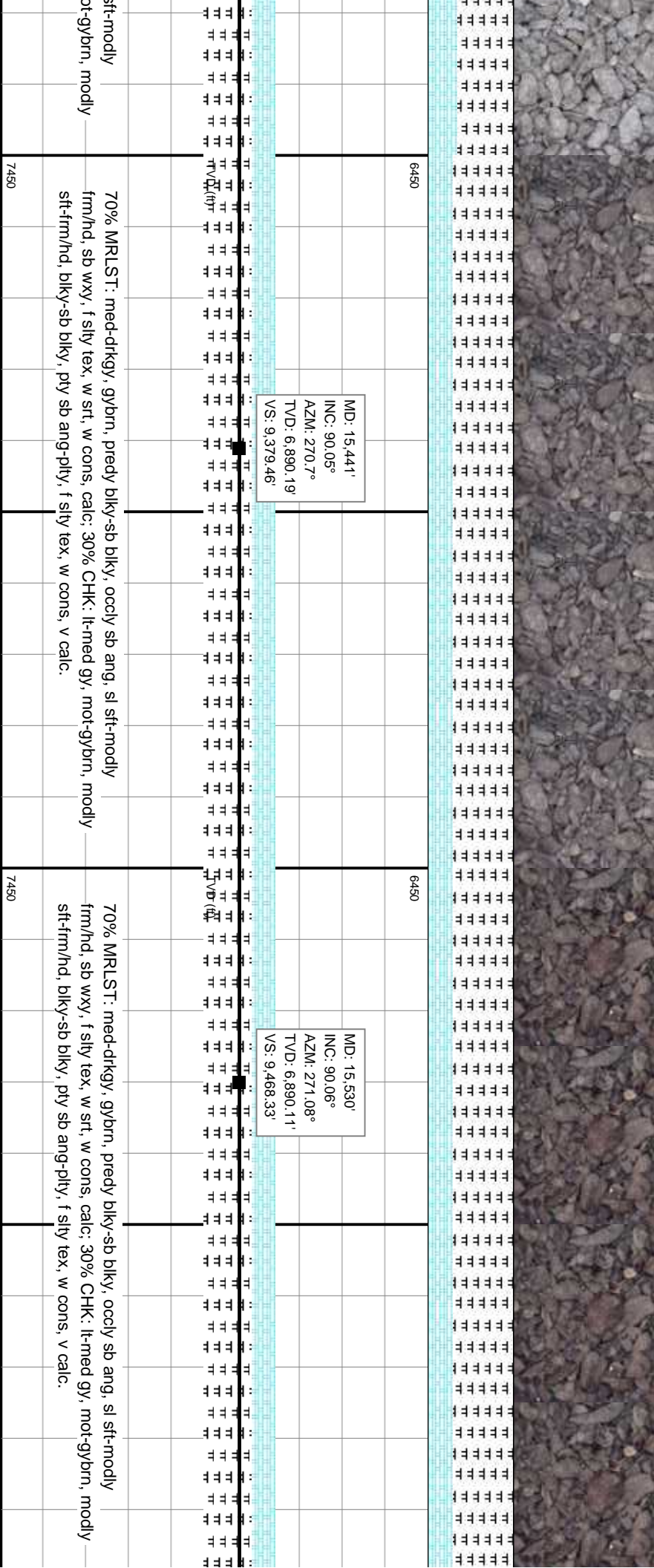
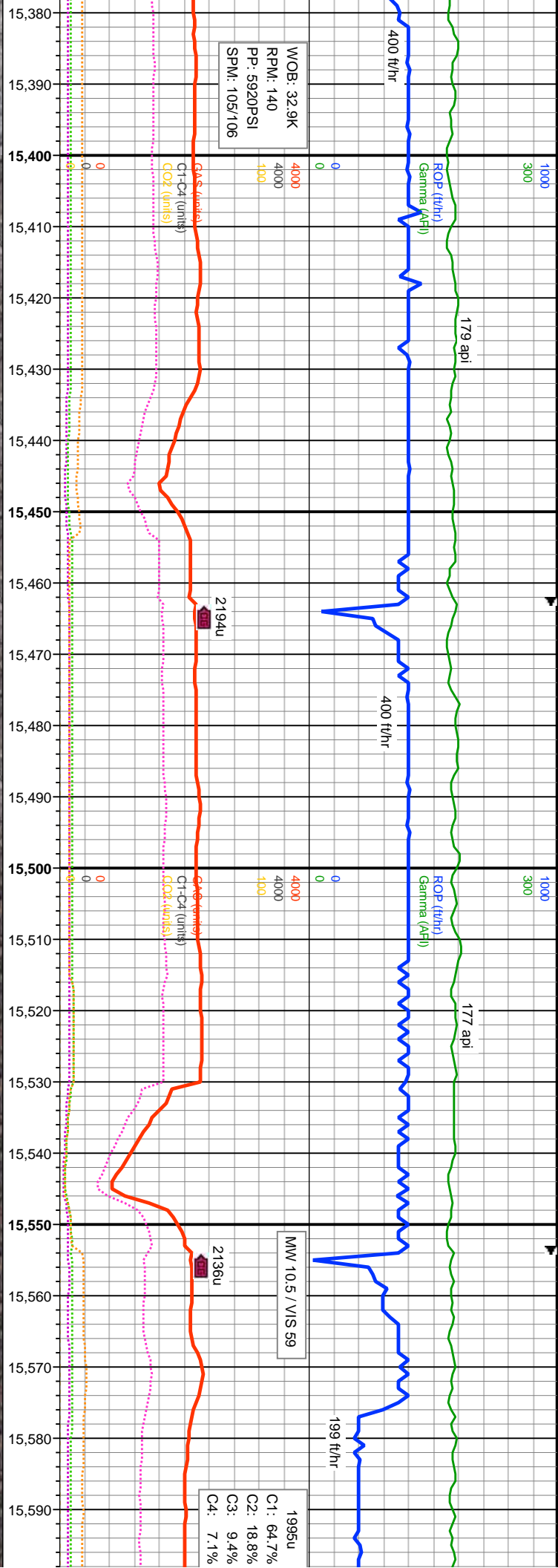


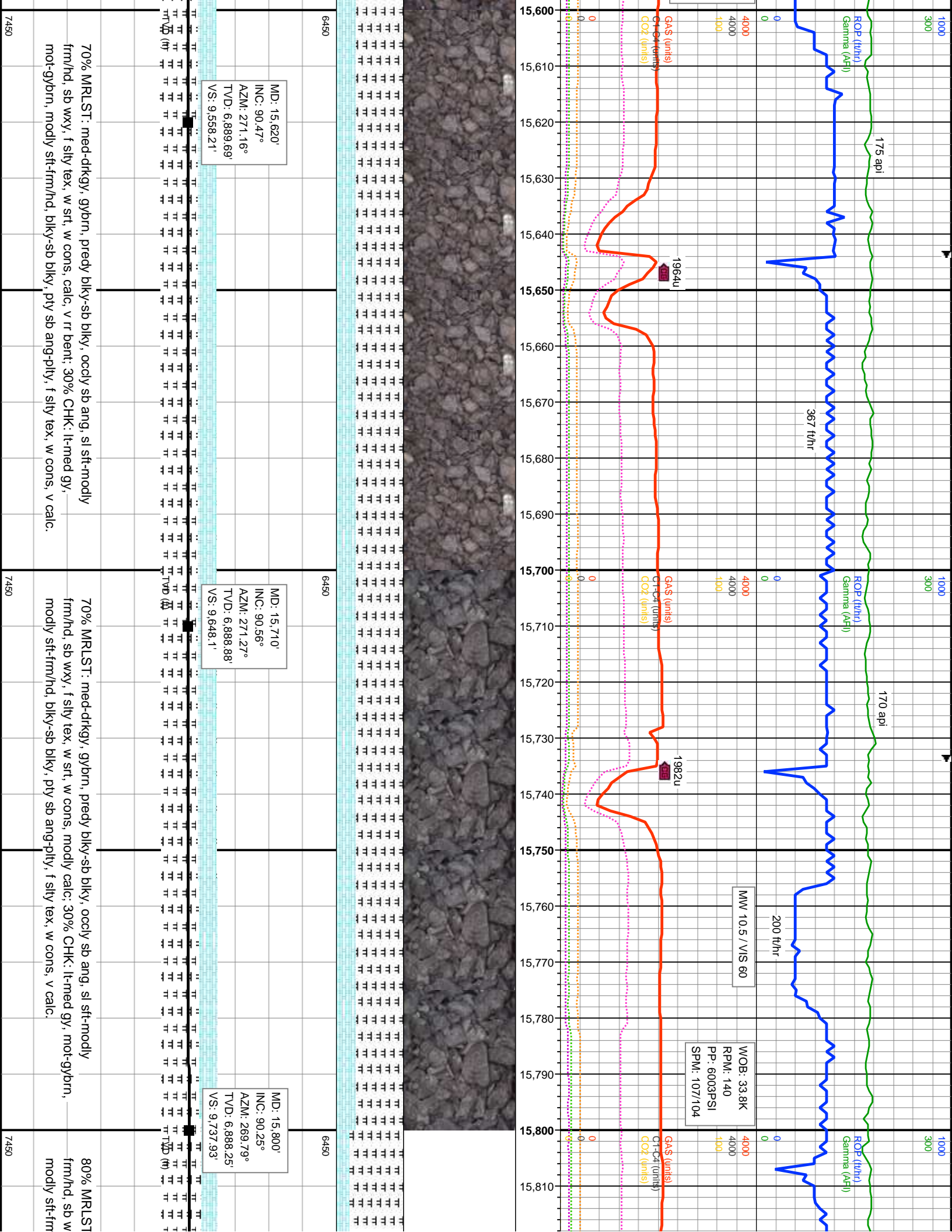


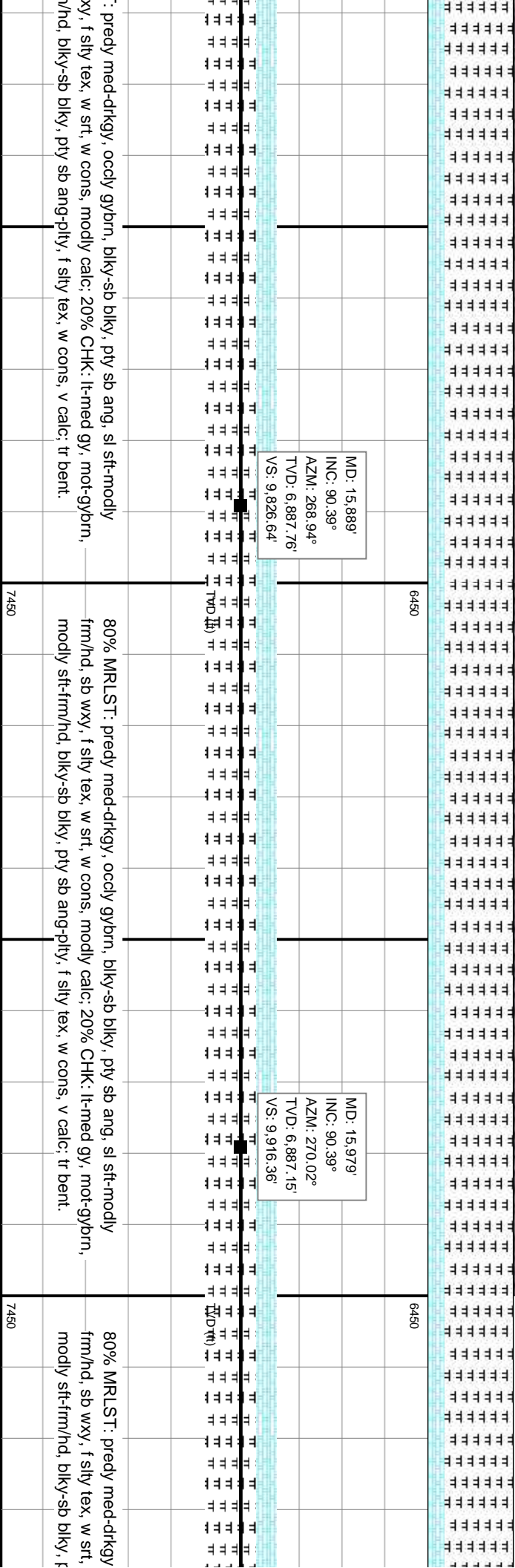
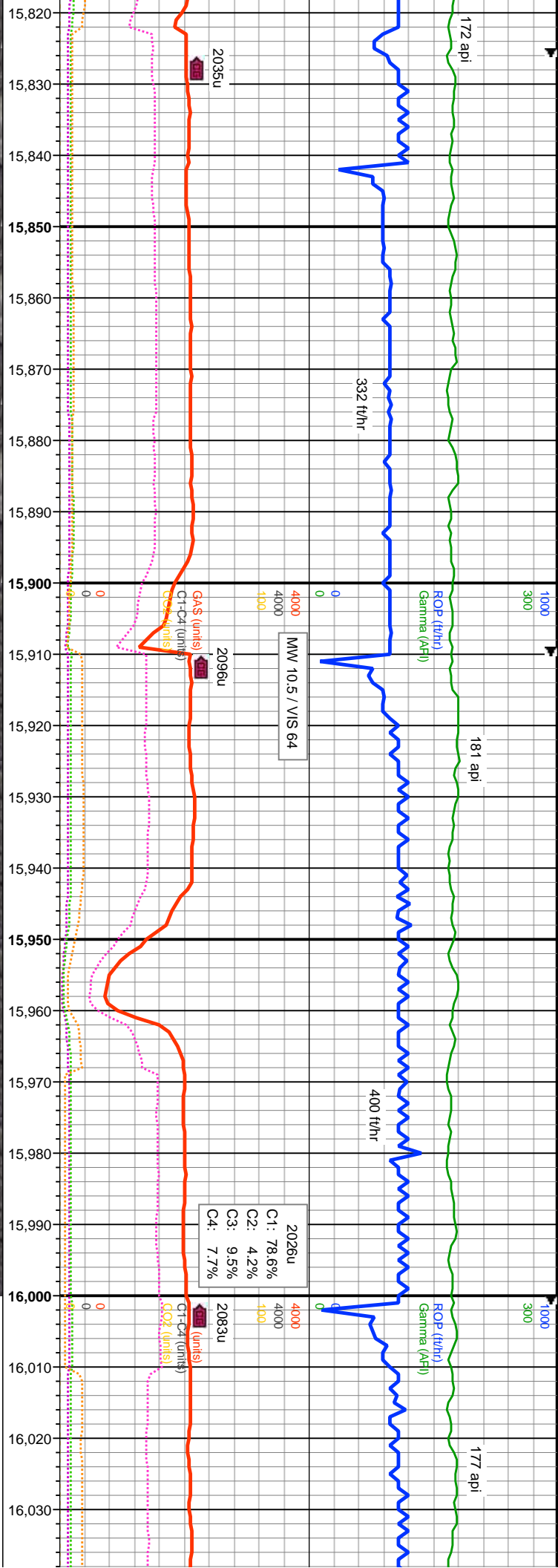


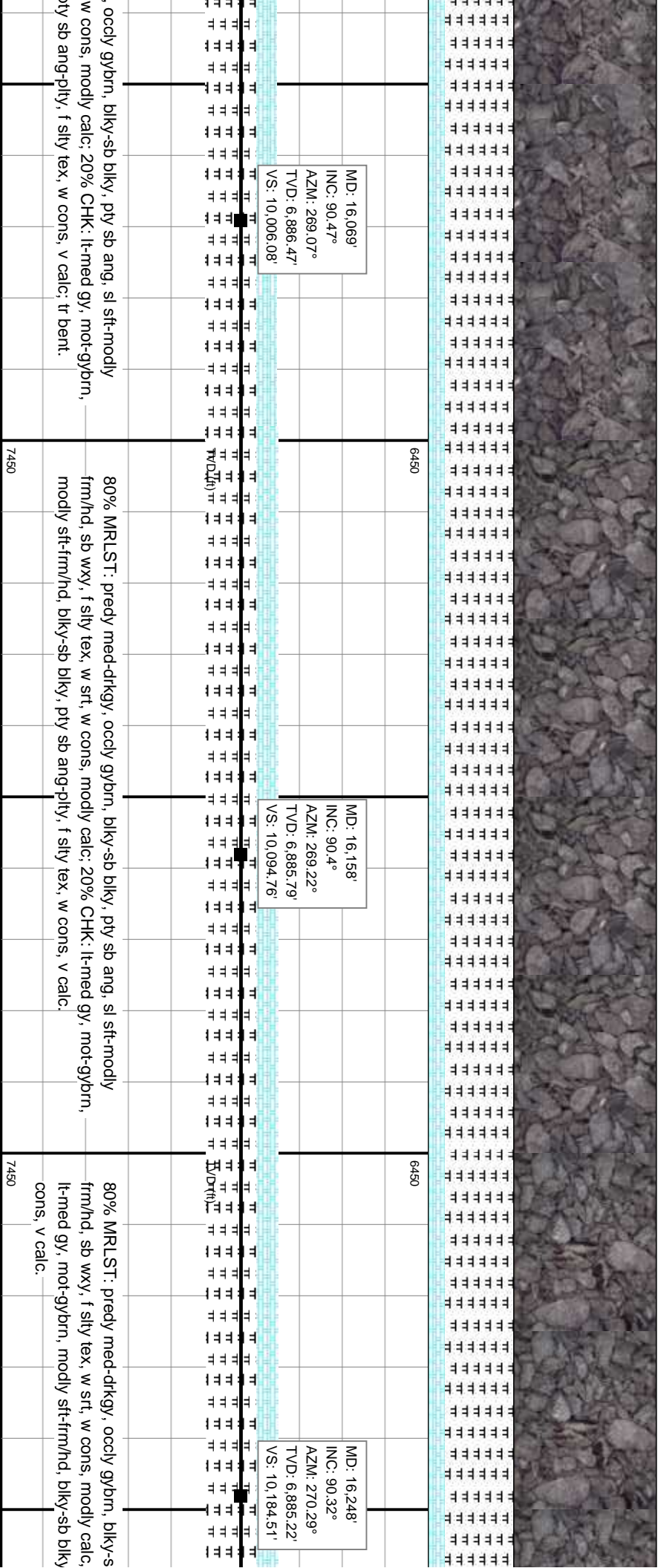
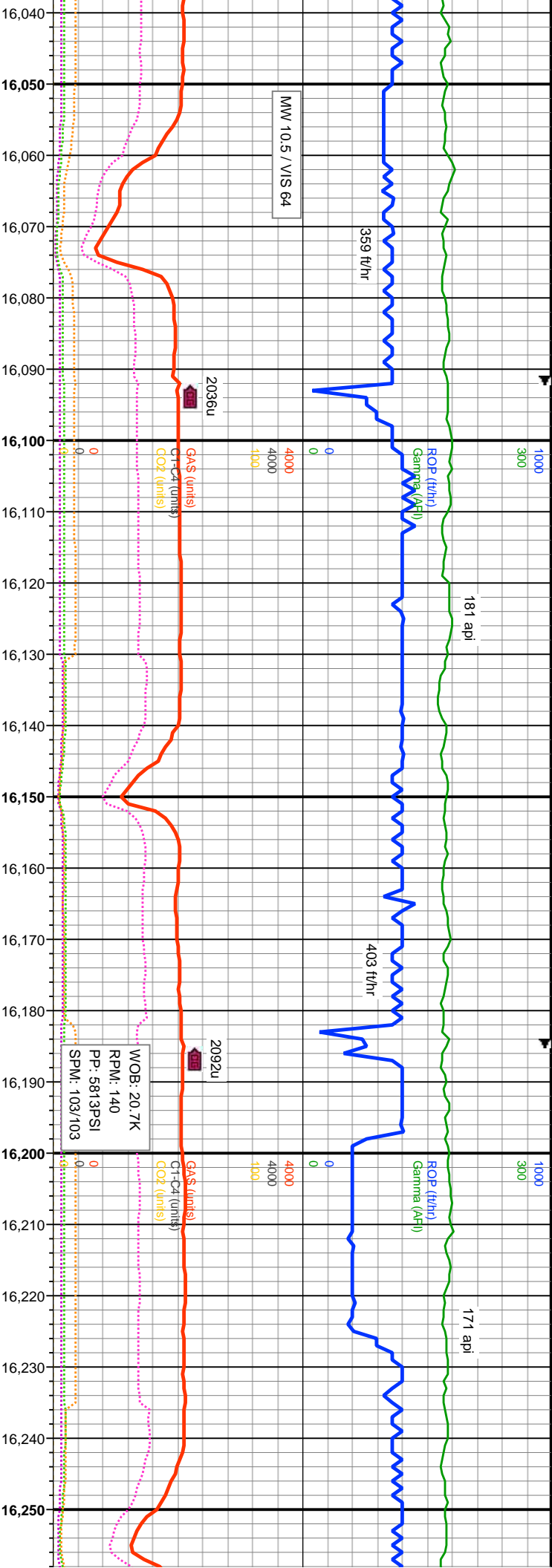


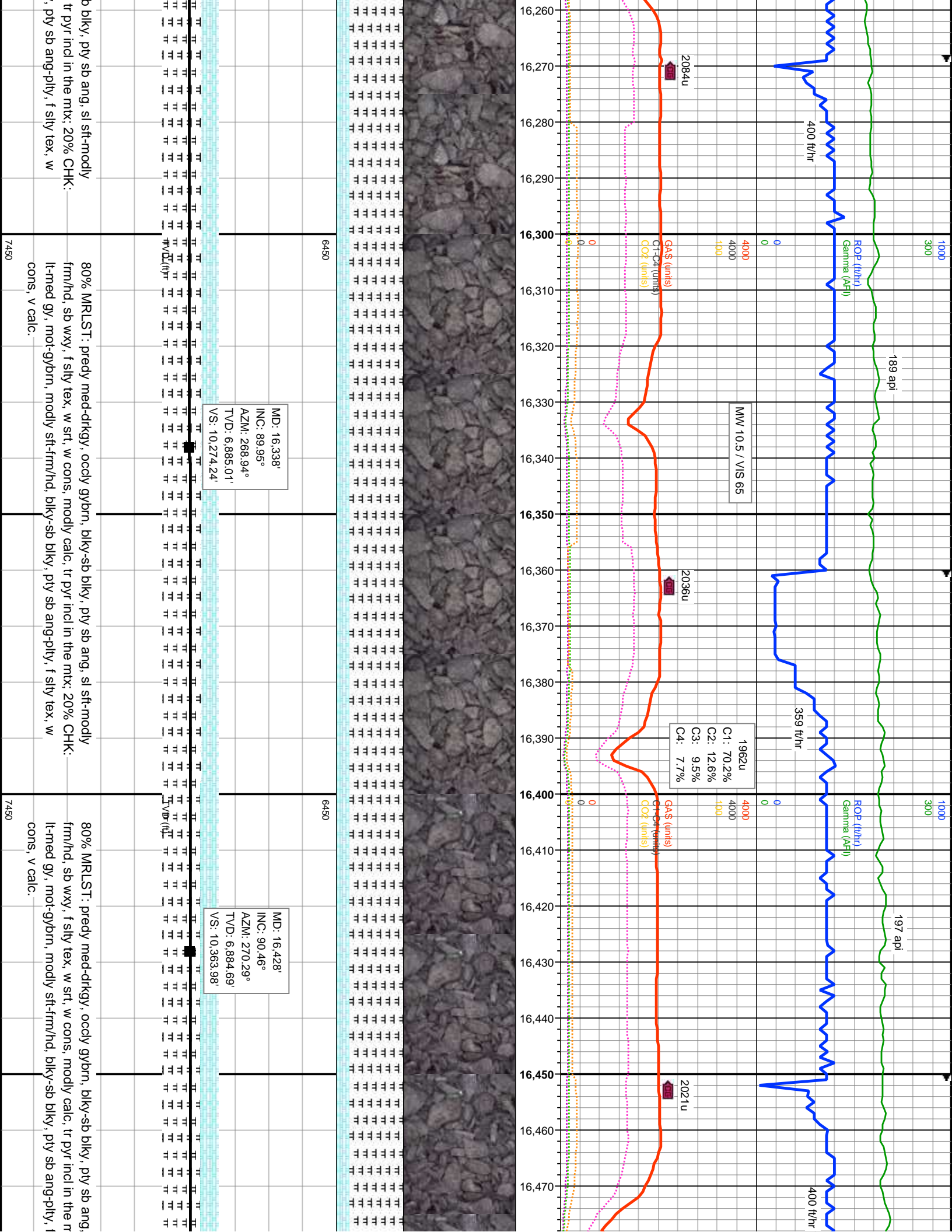


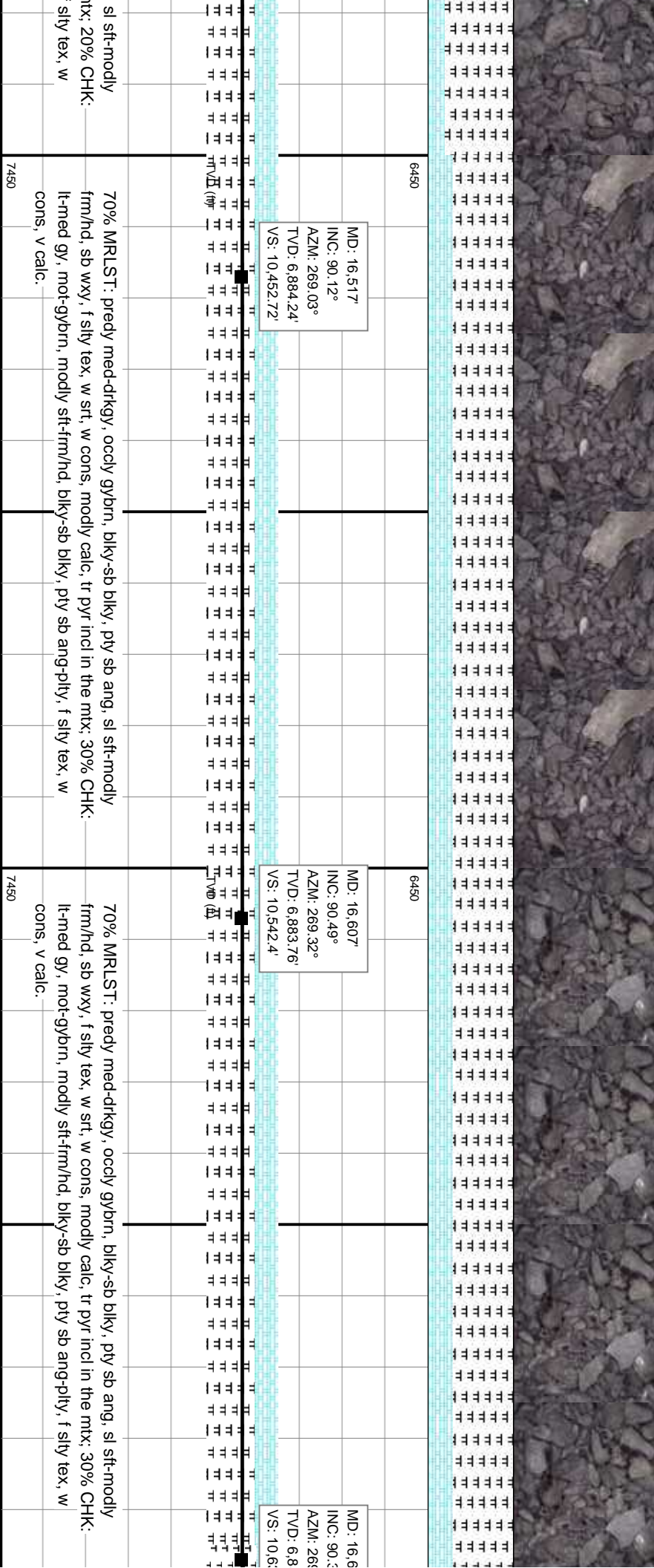
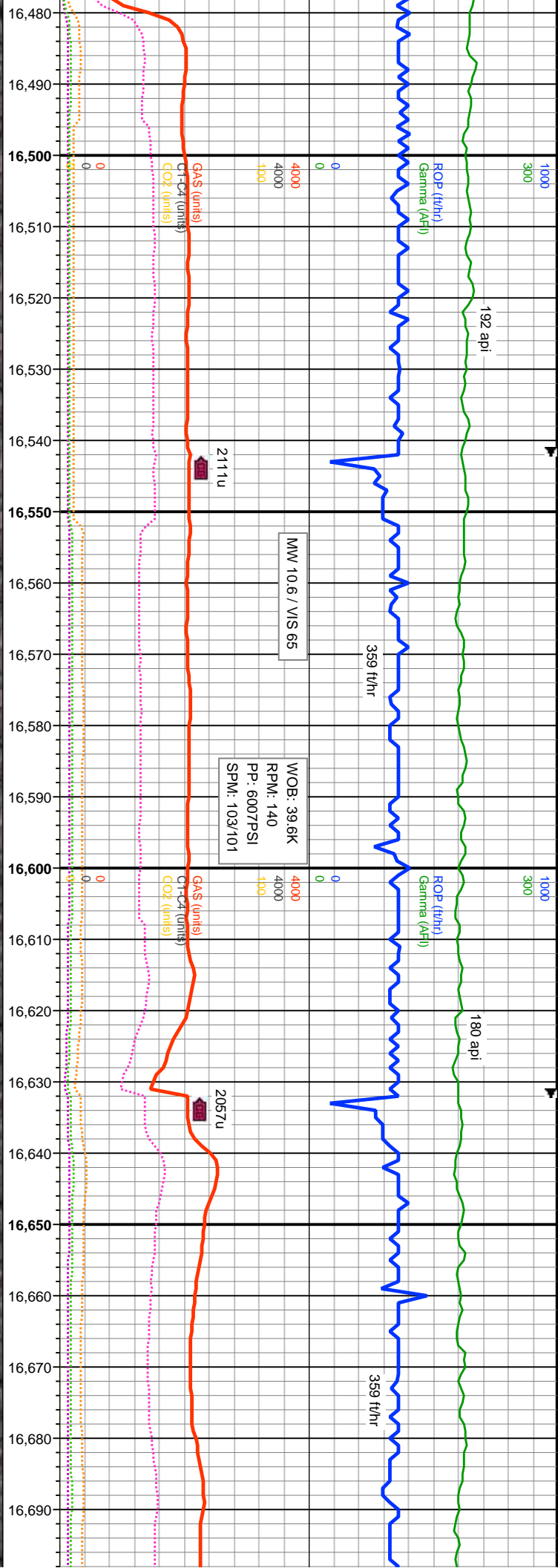


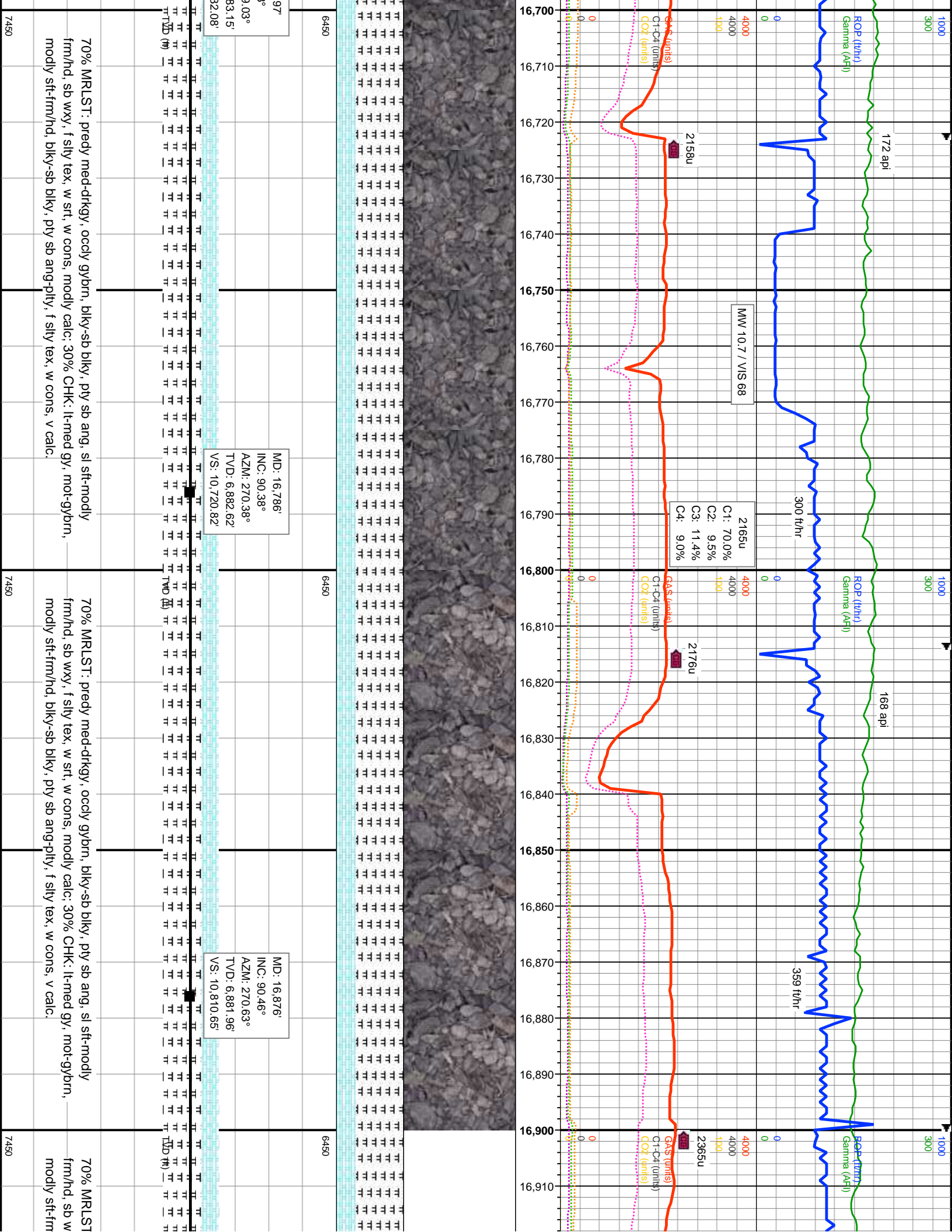


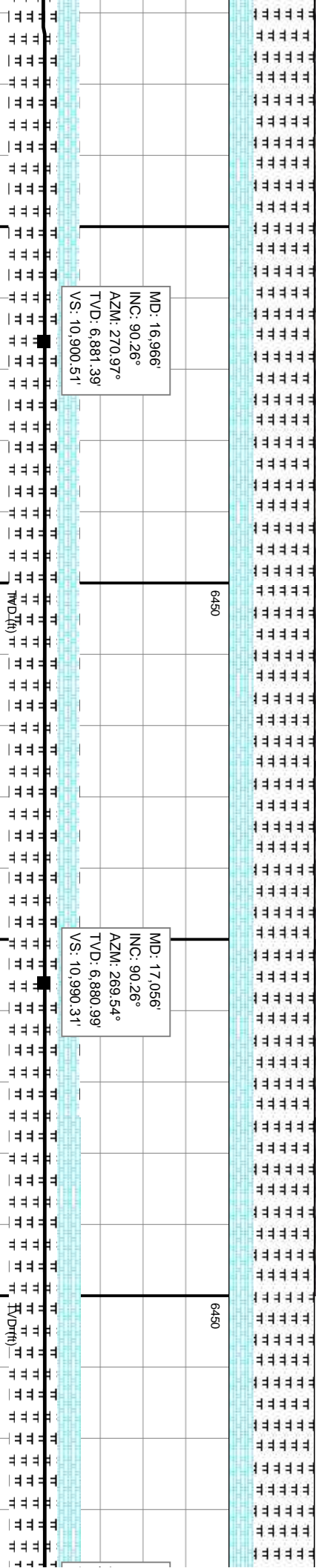
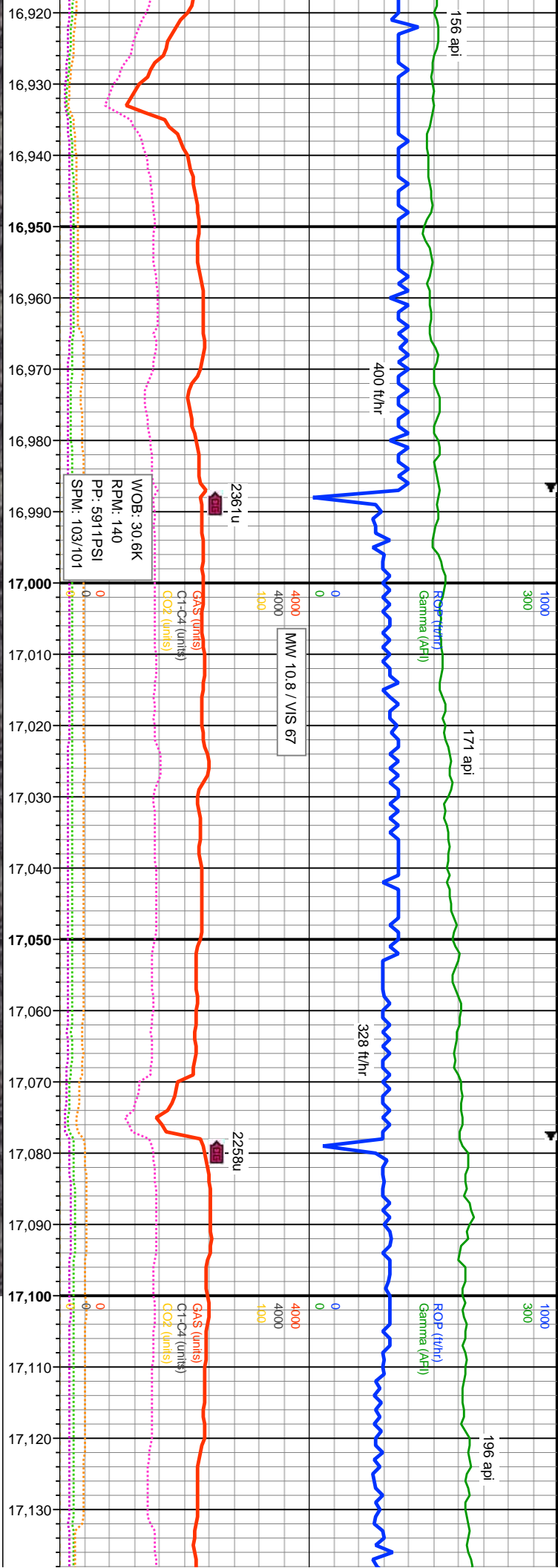










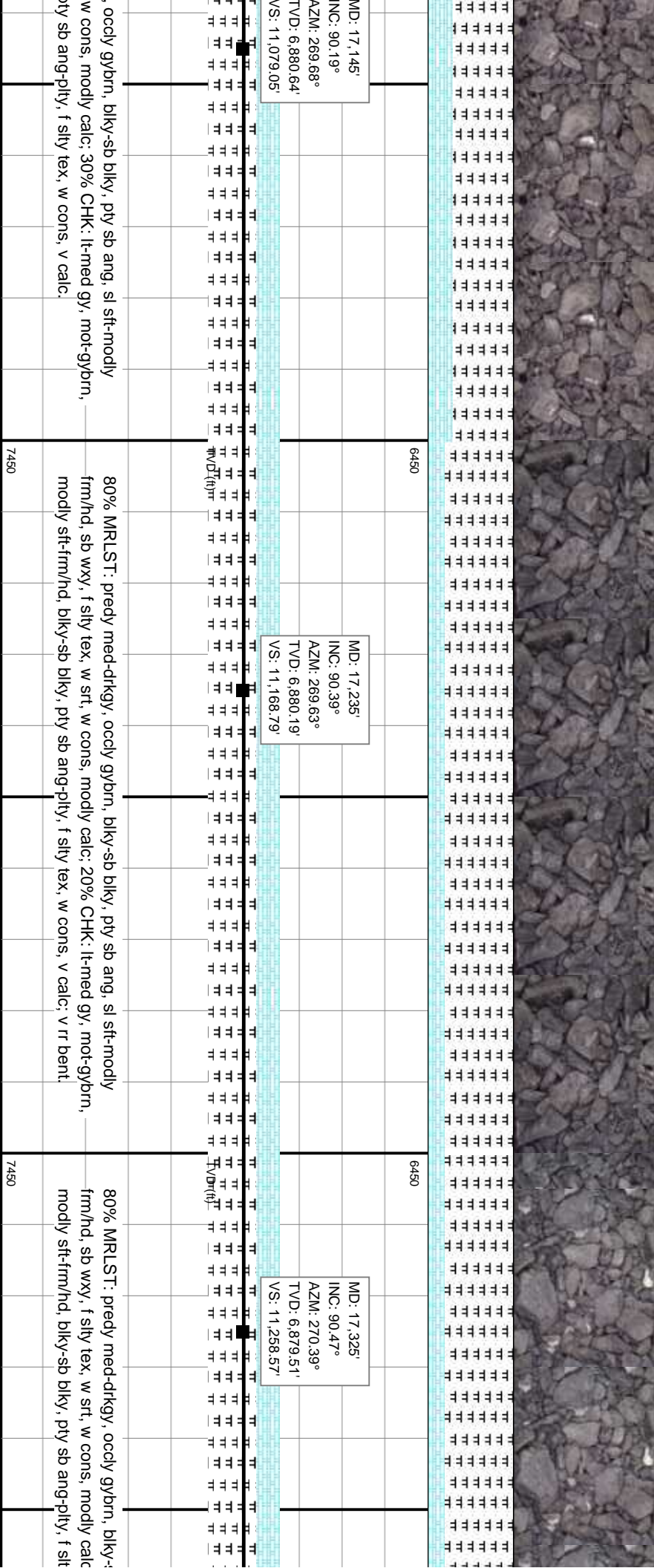
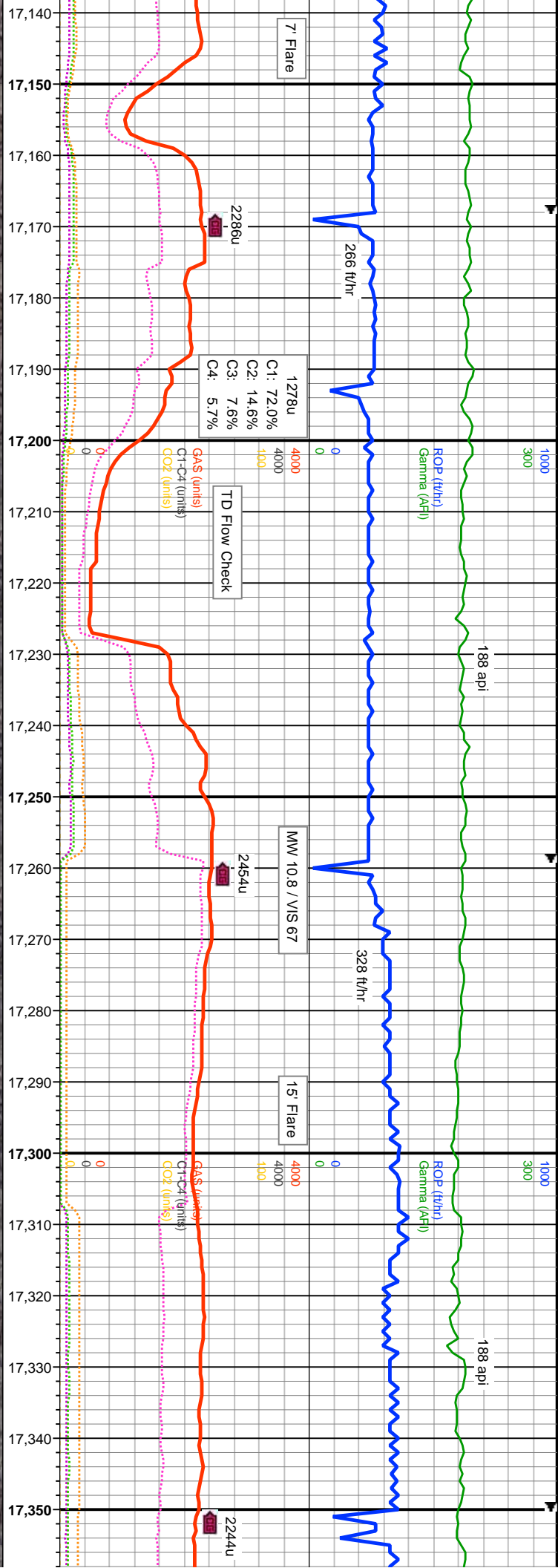


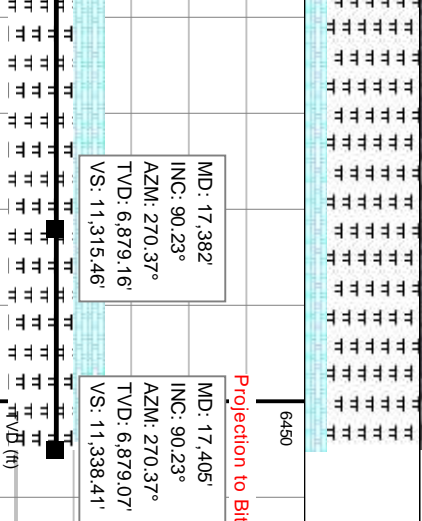
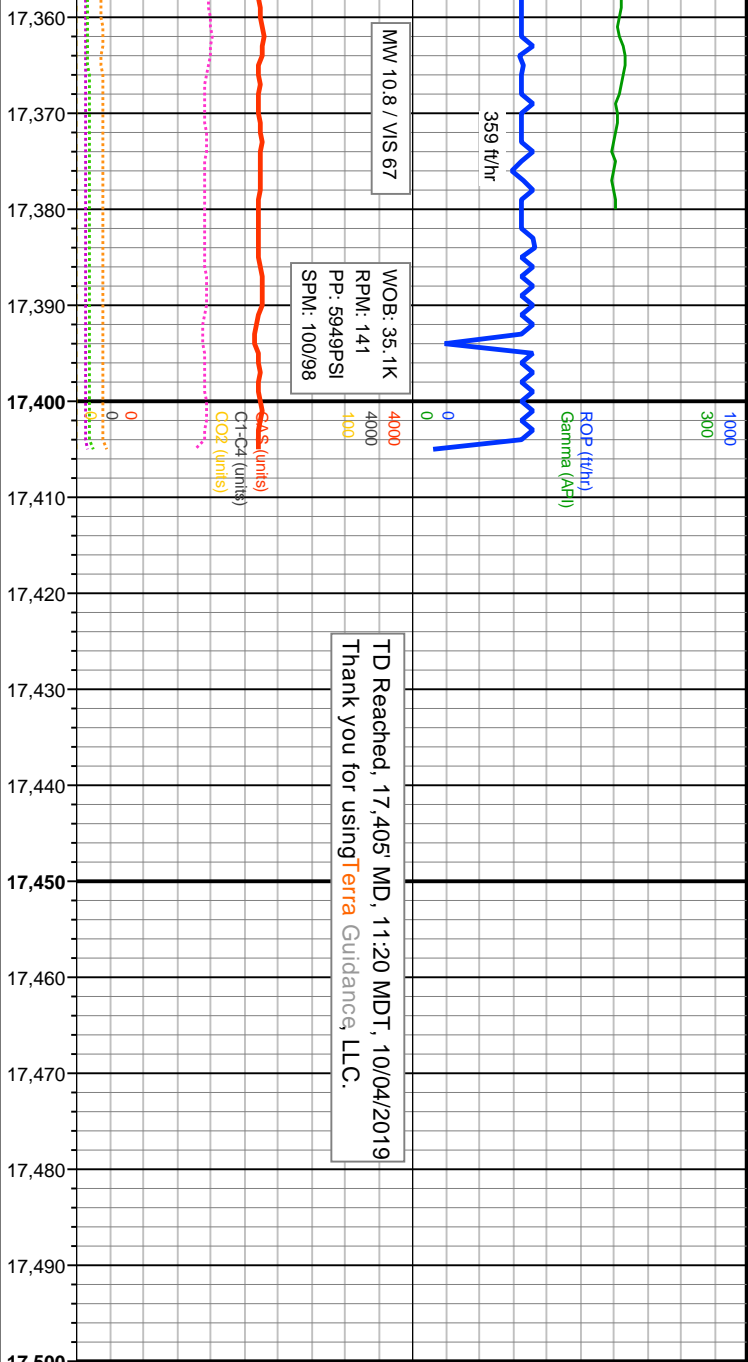
MD: 16,966'
INC: 90.26°
AZM: 270.97°
TVD: 6,881.39'
VS: 10,900.51'

MD: 17,056'
INC: 90.26°
AZM: 269.54°
TVD: 6,880.99'
VS: 10,990.31'

70% MRSLT: predy med-drkgy, occly gybrn, blkly-sb blkly, pty sb ang, sl sft-modly
frm/hd, sb wxy, f silty tex, w srt, w cons, modly calc; 30% CHK: lt-med gy, mot-gybrn,
modly sft-frm/hd, blkly-sb blkly, pty sb ang-pty, f silty tex, w cons, v calc.

70% MRSLT: predy med-drkgy, occly gybrn, blkly-sb blkly, pty sb ang, sl sft-modly
frm/hd, sb wxy, f silty tex, w srt, w cons, modly calc; 30% CHK: lt-med gy, mot-gybrn,
modly sft-frm/hd, blkly-sb blkly, pty sb ang-pty, f silty tex, w cons, v calc.





FM Name	Excursion Depths ('MD)			
Sharon Springs	7293			
Niobrara	7320			
Ft Hays				
Codell				
Carlile				
Greenhorn				

ssb bilky, pty sb ang, sl sft-modly
; 20% CHK: It-med gy, mot-gybrn,
v tex, w cons, v calc; v rr bent.