



Scale: 5" / 100'
Measured Depth Log

Well Name B-Farm LD 18-389HN

Location SECTION 7, T1S, R67W

State COLORADO

County ADAMS

Country USA

Rig Number PRECISION 466

API Number 050011026200

AFE # 19DC0009

Geographic Region DJ BASIN

Field WATTENBERG

Ground Elevation 5124.5'

K.B. Elevation 5144.5'

Logged Interval 6000' MD To 18310' MD

Total Depth 18310' MD

Formation NIOBRARA B2 CHALK

Type of Drilling Fluid OIL BASED MUD

Operator

Company Great Western Oil and Gas

Address 1801 Broadway, Ste 500
Denver, CO 80202



Geologist

Name Gabriel Rubio, Zach Souvall, Wyatt Wicks

Company Terra Guidance

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

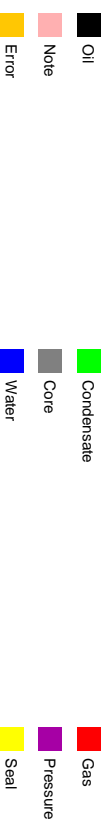


Other

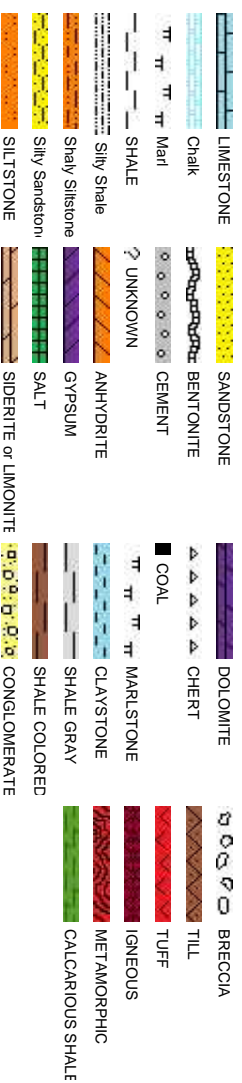
Mudlog Start Date 03/09/2019

Mudlog End Date 03/12/2019

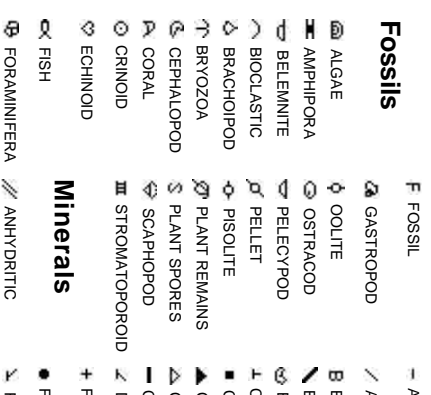
Color Coding



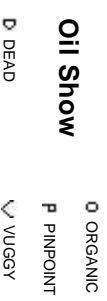
Rock Types



Fossils



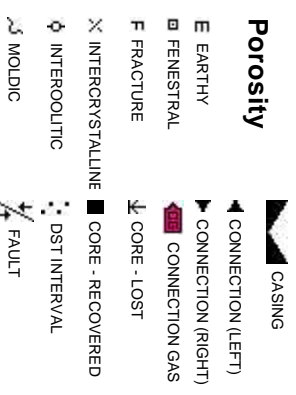
Minerals



Oil Show



Porosity



Accessories

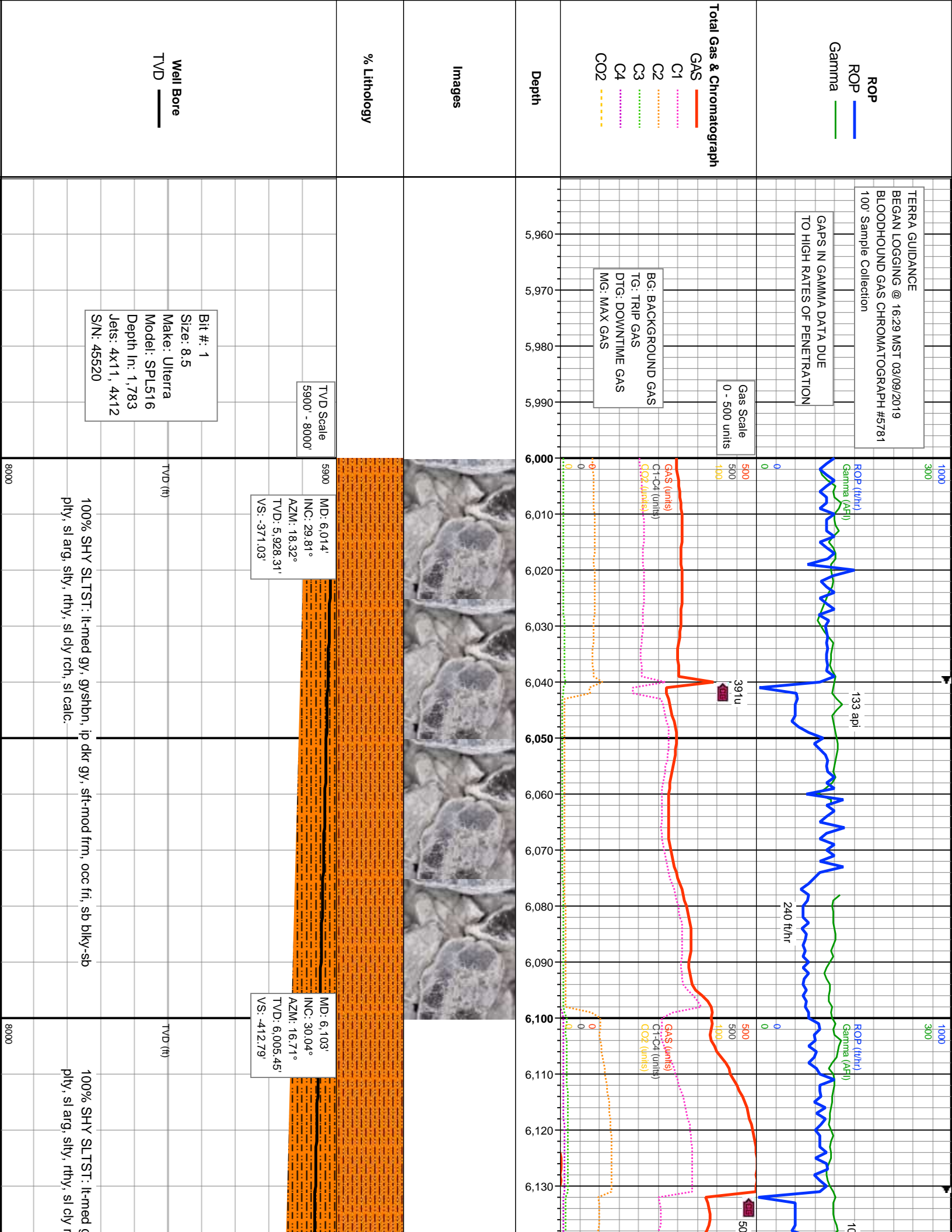
RGILLACEOUS	GLAUCONITE
RGILLITE GRAIN	GYPSIFEROUS
MENTONITE	HEAVY MINERAL
ITUMENOUS SUBSTANCE	KAOLIN
ARECCIA FRAGMENTS	MARLSTONE
ALCAREOUS	MINERAL CRYSTALS
CARBONACEOUS FLAKES	NODULES
HTDK	PHOSPHATE PELLETS
HTLT	PYRITE
COAL - THIN BEDS	SALT CAST
DOLOMITIC	SANDY
ELDSPAR	SILICEOUS
ERRUGINOUS PELLET	SILTY
ERRUGINOUS	TUFFACEOUS
	SILTSTONE STRINGER

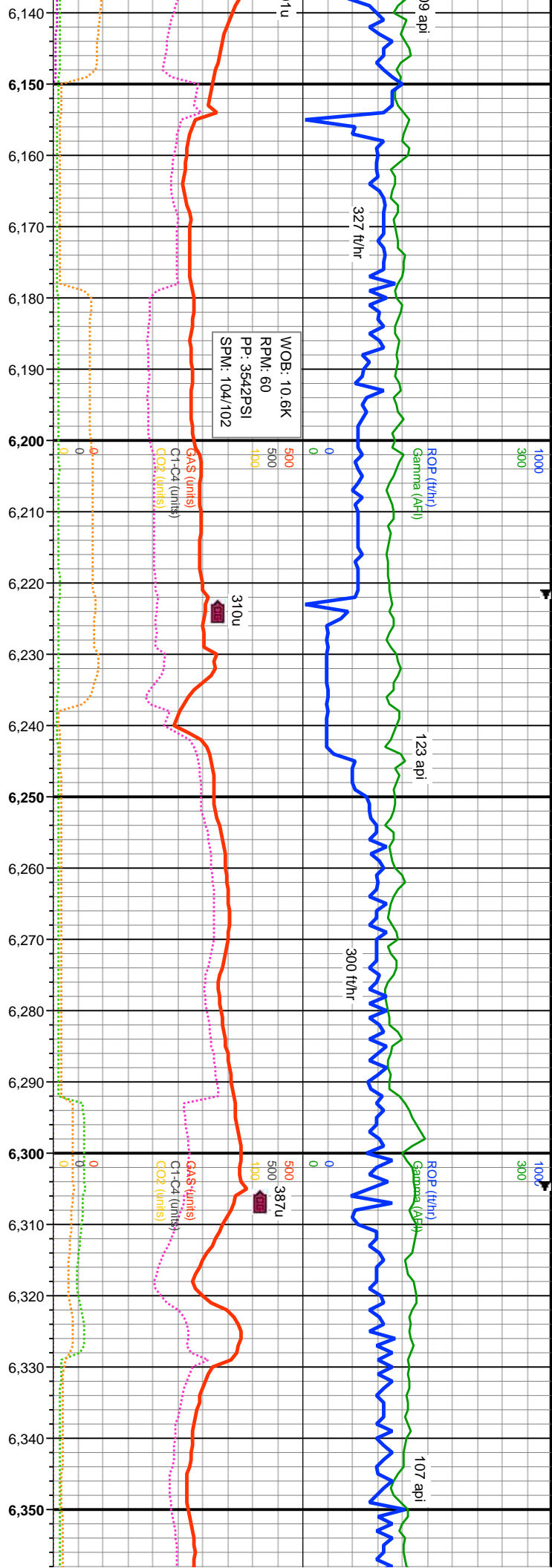
Stringer

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

Other Symbols

FORMATION TOP	L LITHOGRAPHIC
GAS SHOW	MICROXLN
MINDEPTH	MIN DEPTH
MINDEPTH	ANGULAR
NORMAL FAULT	ROUNDED
OIL SHOW	SUBANG
OVERTURNED STRATA	SUBRND
REVERSE FAULT	
SIDEWALL CORE (LEFT)	Textures
SIDEWALL CORE (RIGHT)	BOUNDSTONE
SLIDE	CHALKY
SURVEY	CRYPTOXLN
TRIP GAS	E EARTHY
WIRELINE TESTED - LEFT	FINELYXLN
WIRELINE TESTED - RT	GRAINSTONE
	CALCARIOUS SHALE
	CALCARIOUS SHALE

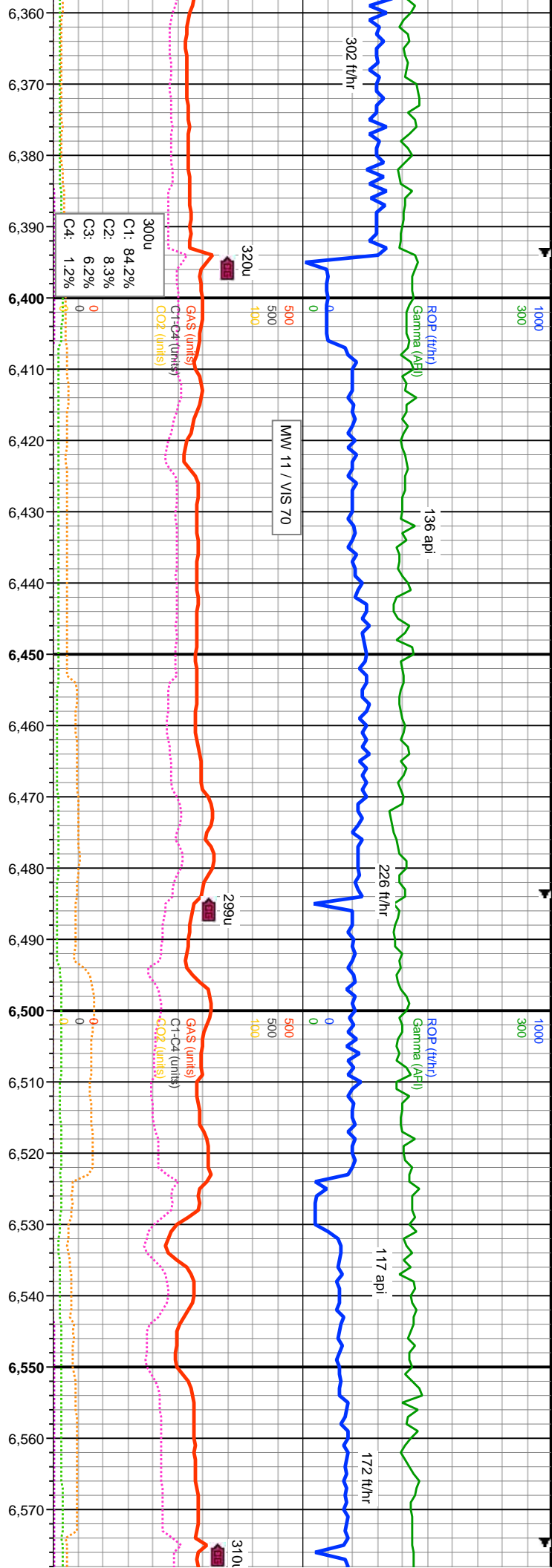




MD: 6,193'
INC: 29.51°
AZM: 18.12°
TVD: 6,083.57'
VS: -454.86'

MD: 6,283'
INC: 30.08°
AZM: 21.1°
TVD: 6,161.68'
VS: -496.33'

gy, gysbhn, ip dkr gy, sft-mod frm, occ fri, sb blk-y-sb	100% SHY SLTST: lt-med gy, gysbhn, ip dkr gy, sft-mod frm, occ fri, sb blk-y-sb	100% SHY SLTST: lt-med gy, gysbhn, ip dkr gy, sft-mod frm, occ fri, sb blk-y-sb
ch, sl calc.	ply, sl arg, silty, rthy, sl cly rch, sl calc.	ply, sl arg, silty, rthy, sl cly rch, sl calc.
8000	8000	8000



MD: 6,373'
INC: 29.47°
AZM: 25.28°
TVD: 6,239.8'
VS: -636.66'

MD: 6,462'
INC: 30.21°
AZM: 25.44°
TVD: 6,317'
VS: -575.88'

MD: 6,552'
INC: 30.16°
AZM: 21.34°
TVD: 6,394.81'
VS: -616.63'

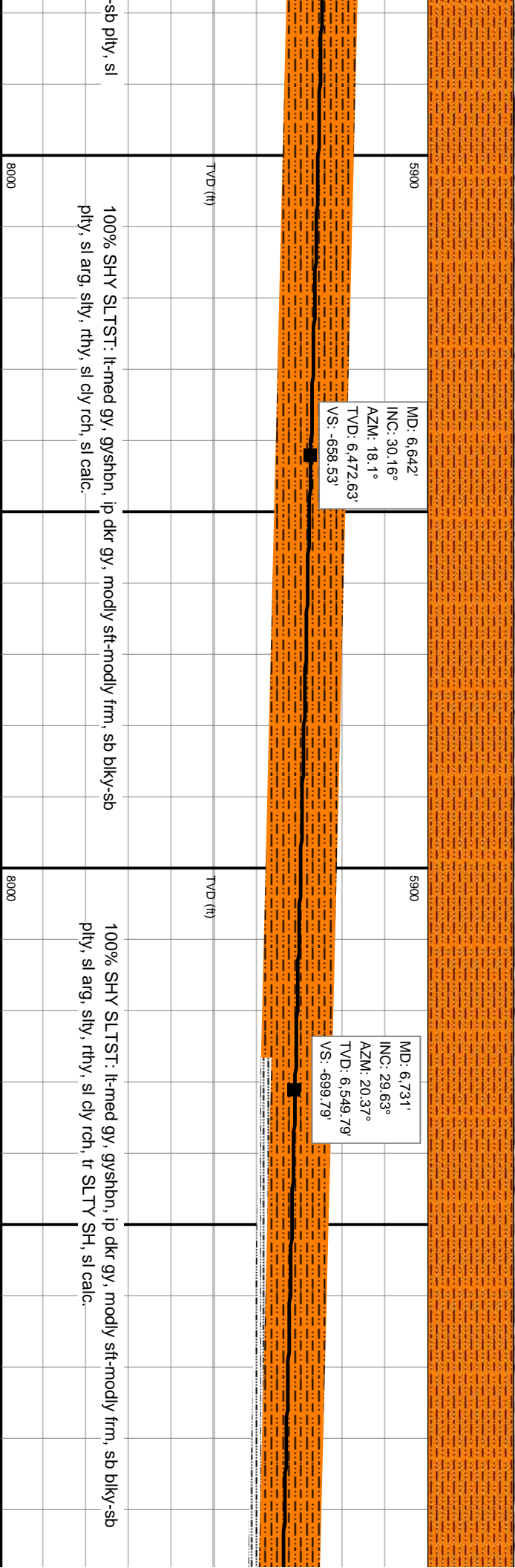
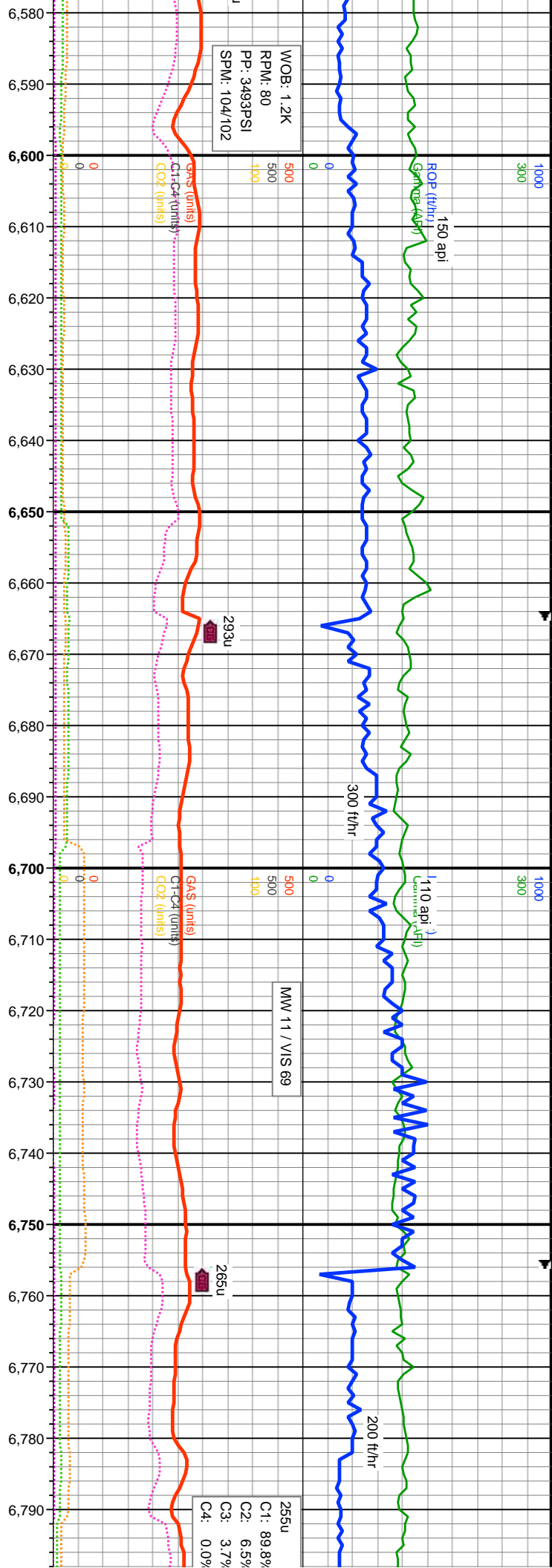
TVD (ft)

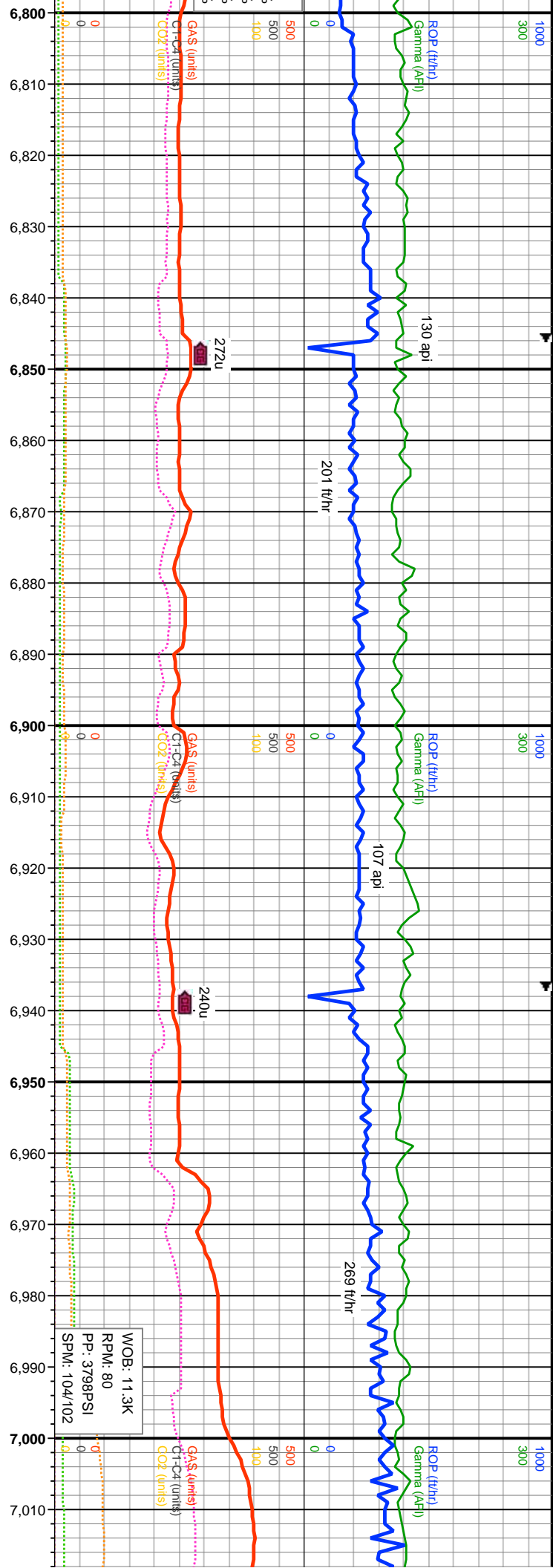
TVD (ft)

sft-mod frm, occ fri, sb blkly-sb

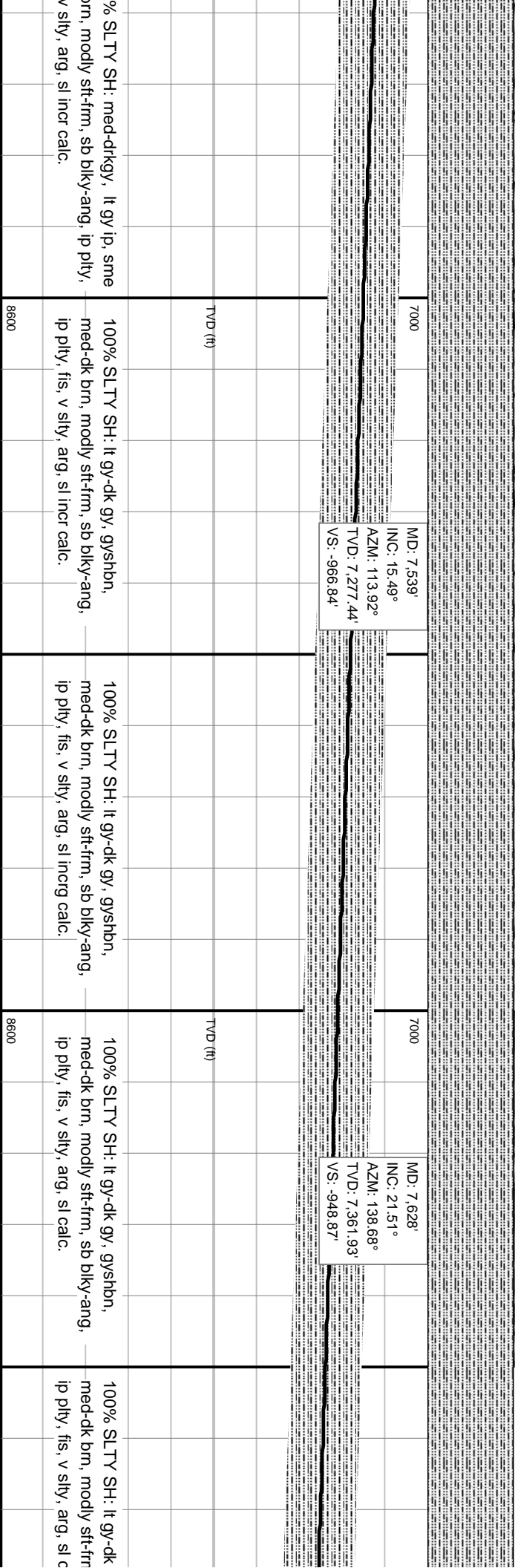
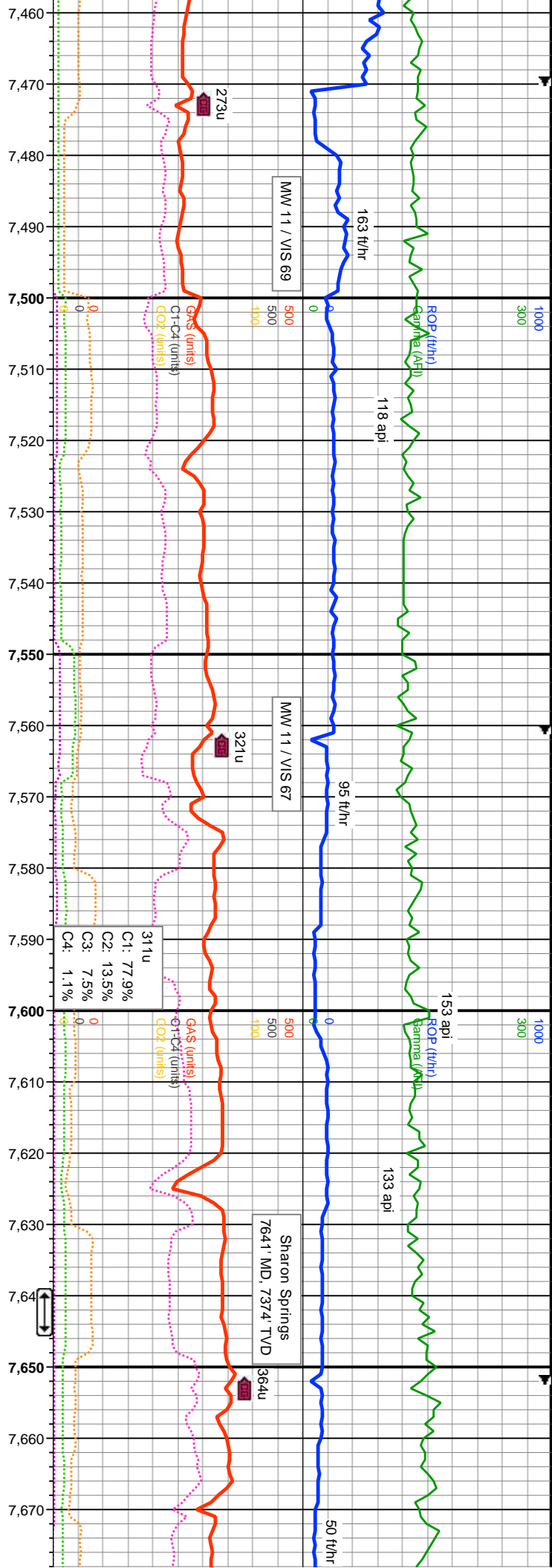
100% SHY SLTST: lt-med gy, gysbhn, ip dkr gy, sft-mod frm, occ fri, sb blkly-sb
pity, sl arg, slty, rthy, sl cly rch, sl calc.

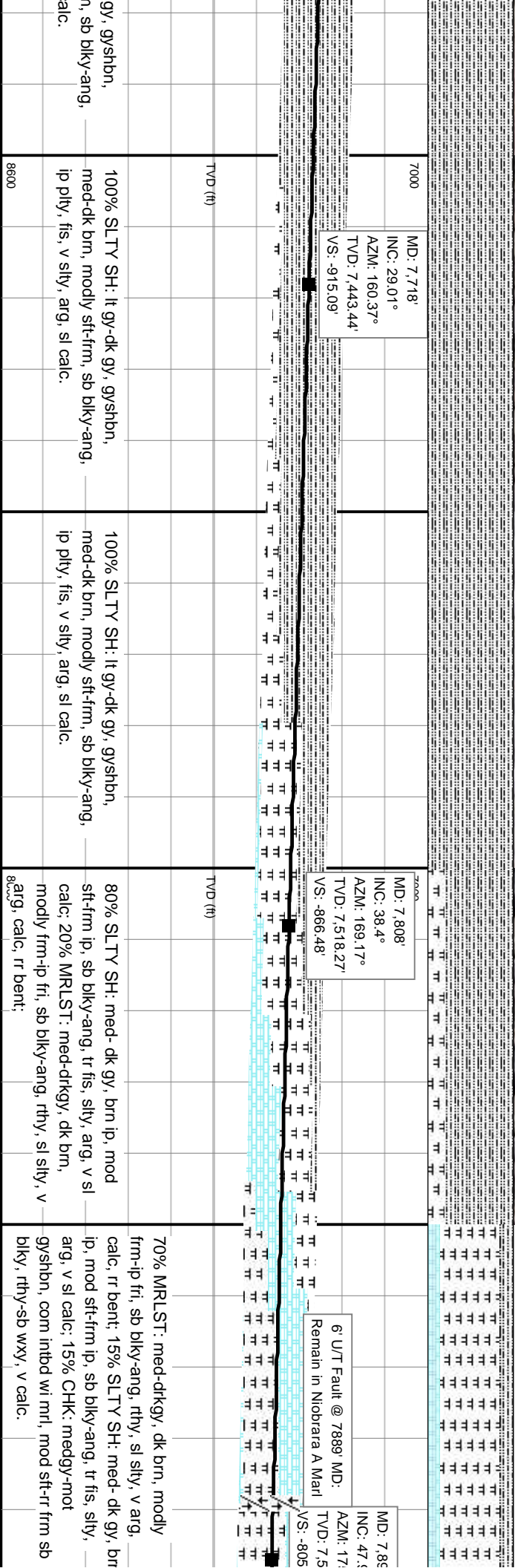
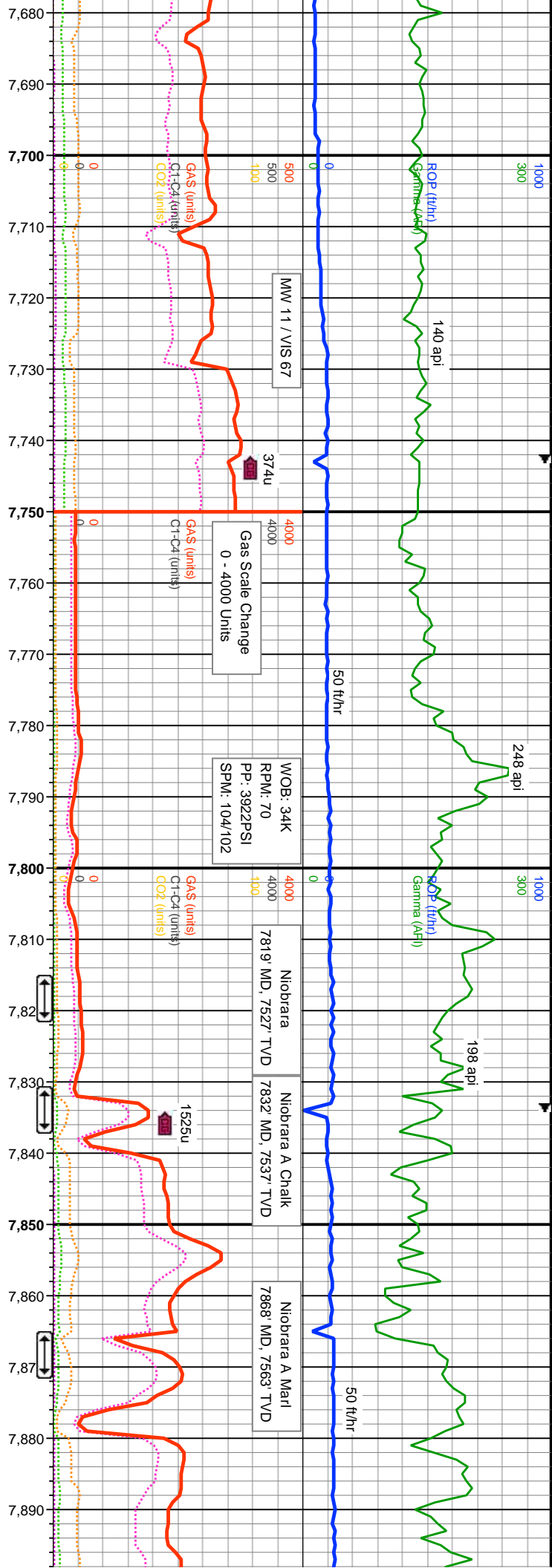
100% SHY SLTST: lt-med gy, gysbhn, ip dkr gy, sft-mod frm, sb blkly
arg, slty, rthy, sl cly rch, sl calc.

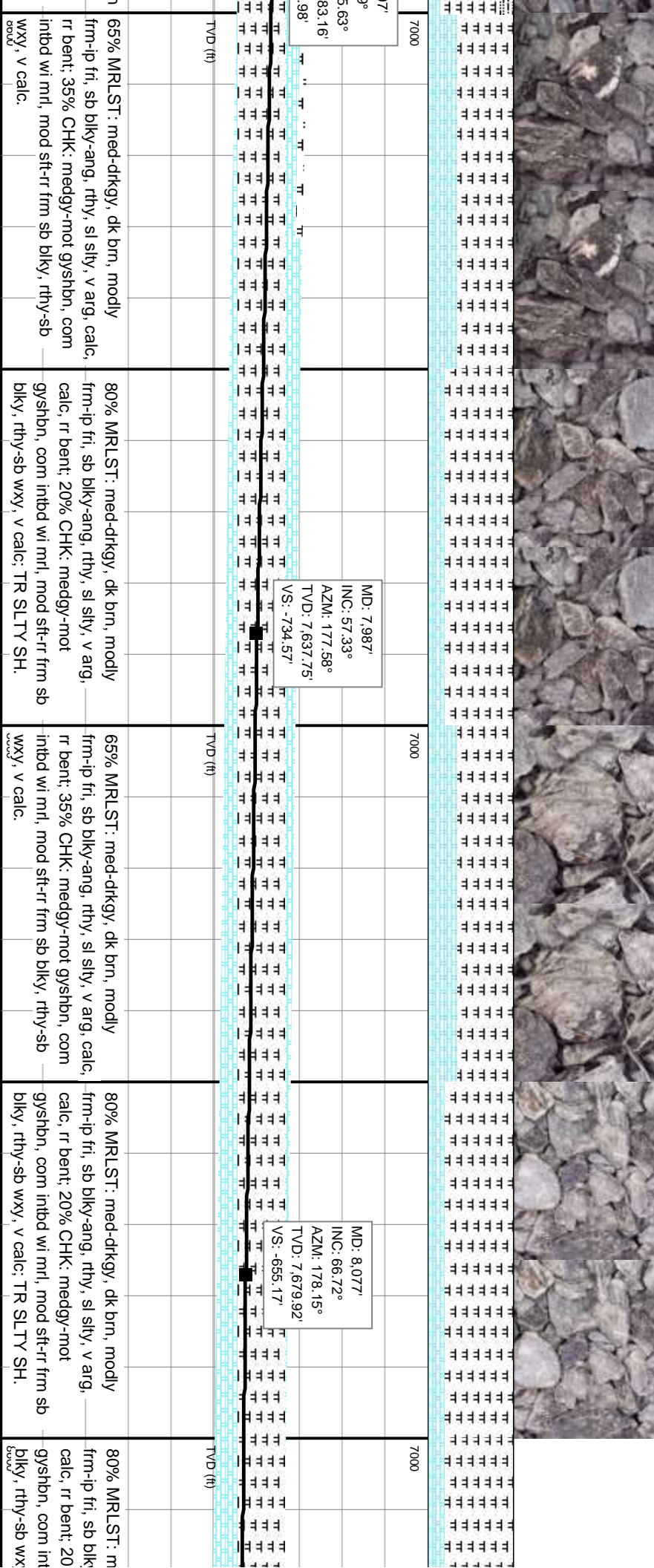
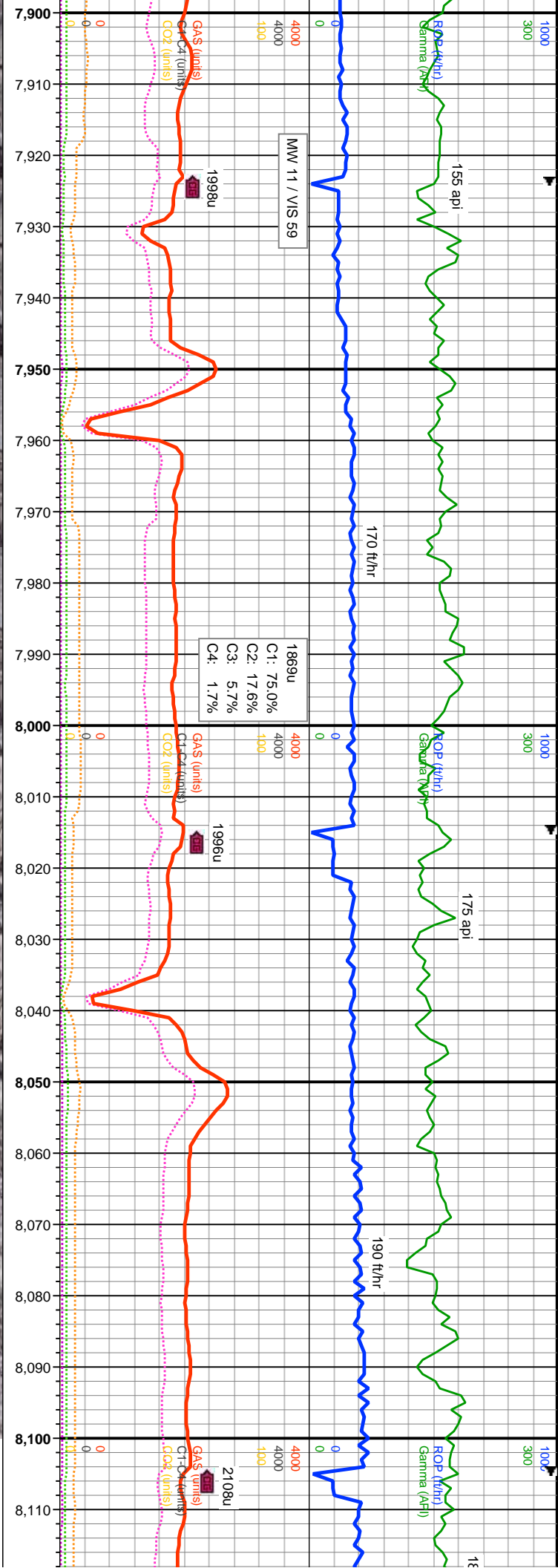


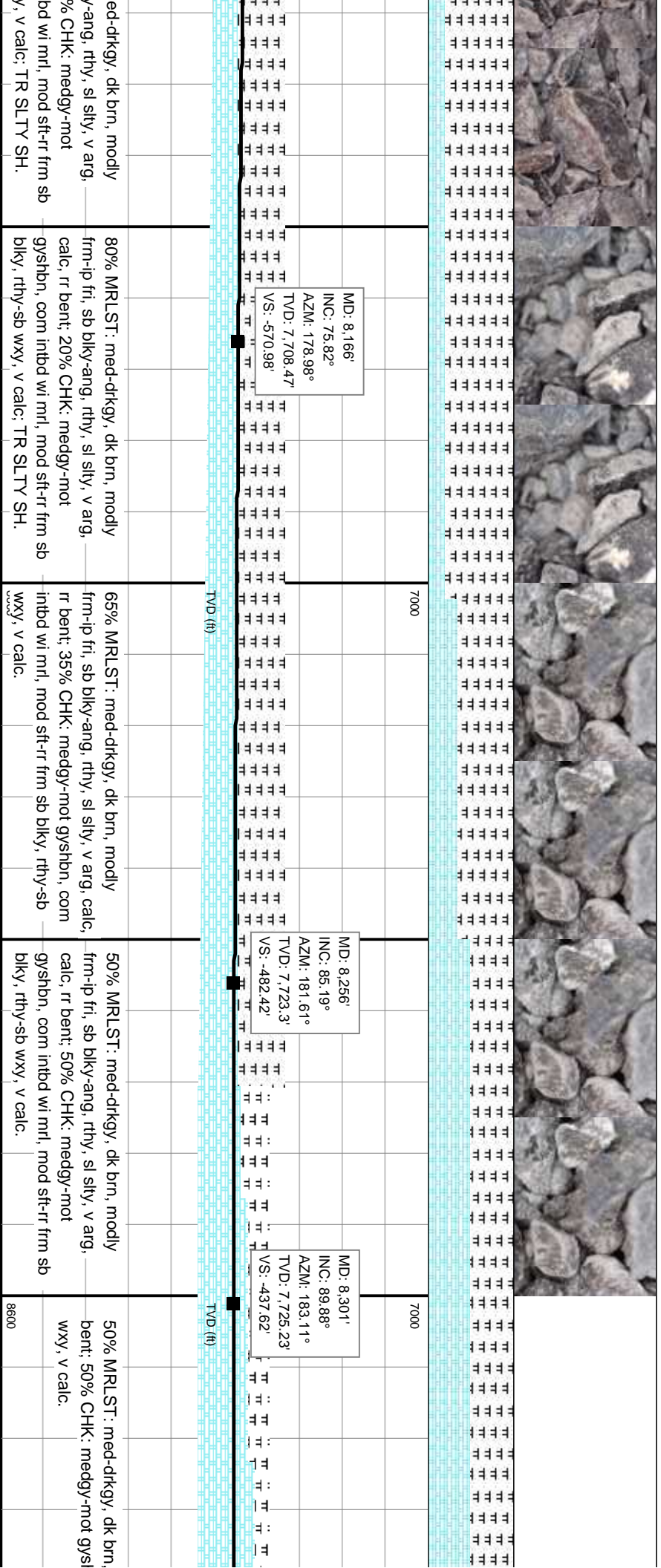
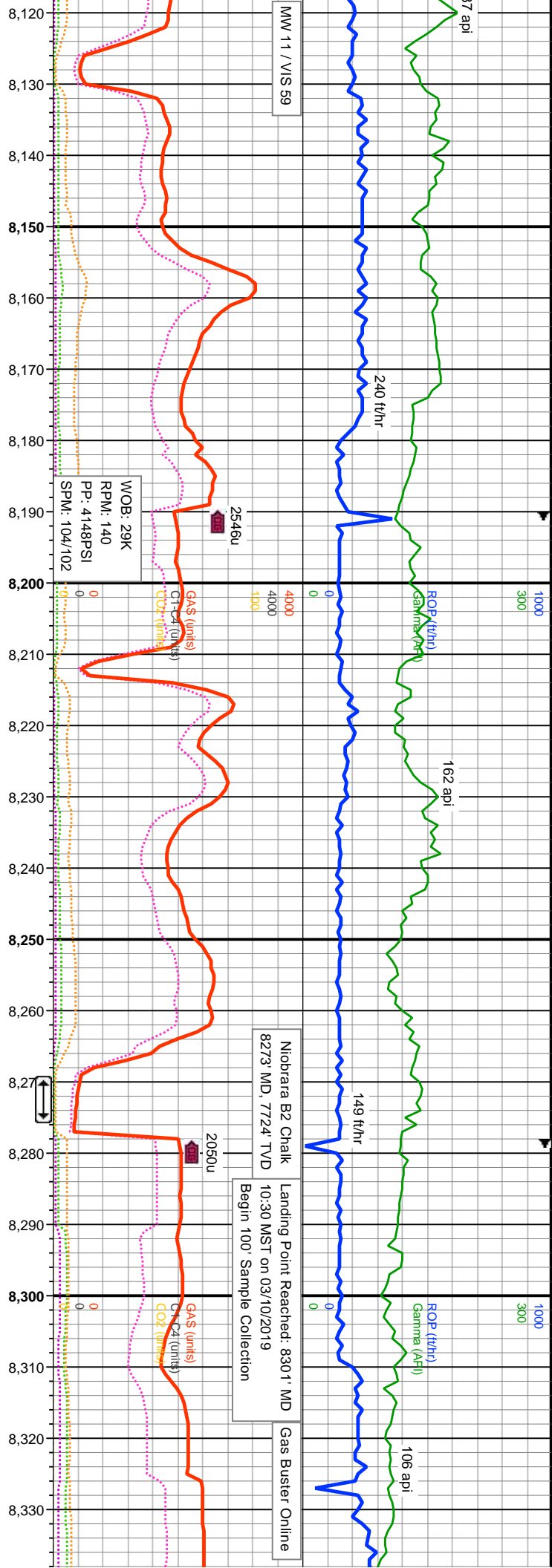


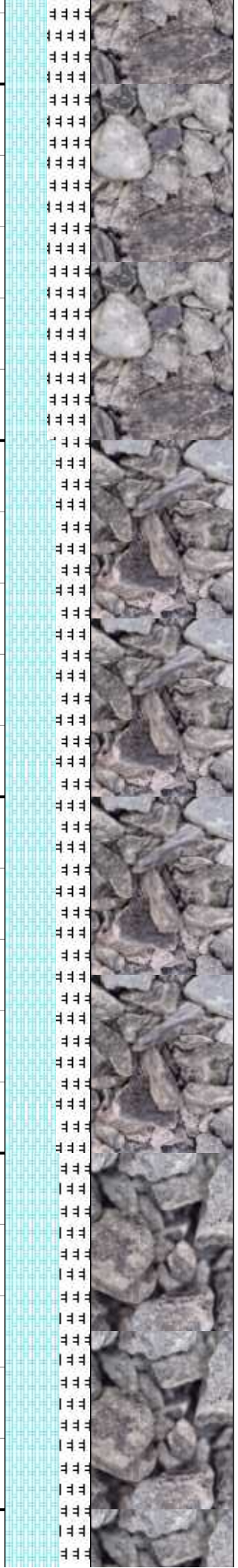
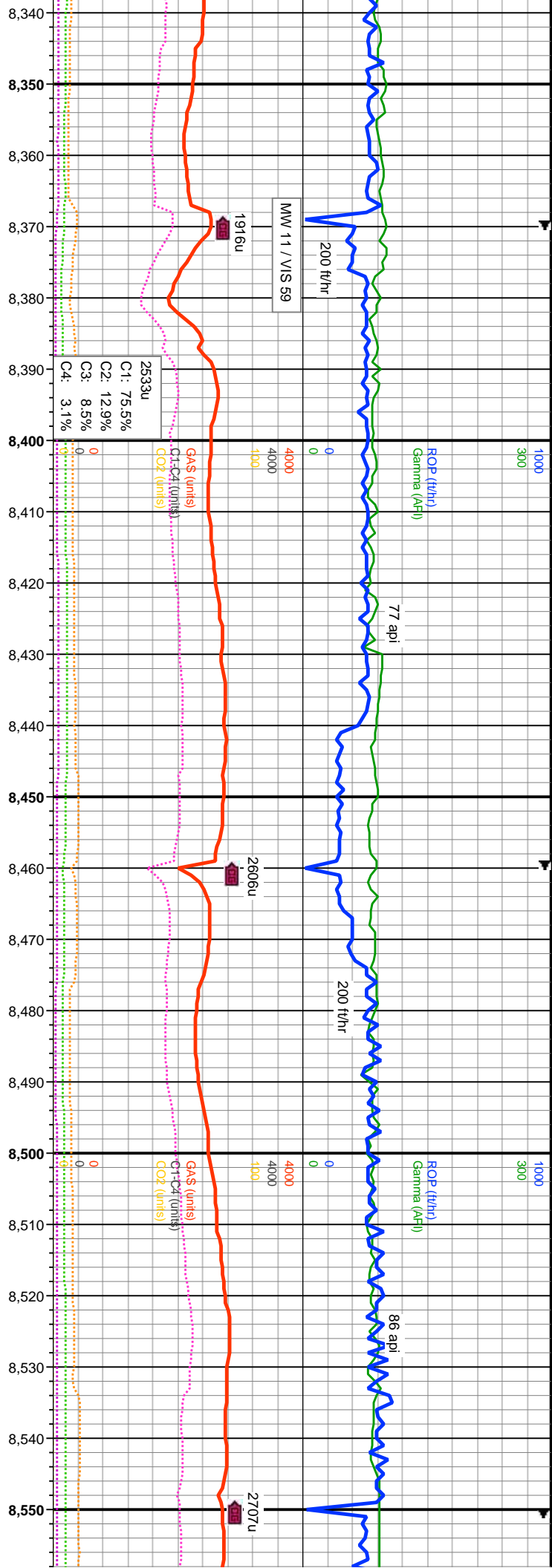
<p>MD: 6.821' INC: 30.09° AZM: 22.76° TVD: 6.627.84' VS: -740.75'</p>	<p>MD: 6.911' INC: 30.21° AZM: 20.58° TVD: 6.705.67' VS: -782.05'</p>	<p>MD: 7.000' INC: 30.25° AZM: 19.73° TVD: 6.782.57' VS: -823.46'</p>
<p>85% SHY SLTST: lt-med gy, gysbhn, ip dkr gy, modly sft-modly frm, sb blk-y-sb ply, sl arg, silty, rthy, sl cly rch, sl calc; 15% SLTY SH: med-dkgy, sme dk bm, modly sft-frm, sb blk-y-ang, sme ply, fis, v silty, arg, sl calc.</p>	<p>80% SHY SLTST: lt-med gy, gysbhn, ip dkr gy, modly sft-modly frm, sb blk-y-sb ply, sl arg, silty, rthy, sl cly rch, sl calc; 20% SLTY SH: med-dkgy, sme dk bm, modly sft-frm, sb blk-y-ang, sme ply, fis, v silty, arg, sl calc.</p>	<p>60% SHY ply, sl arg modly sft-f</p>





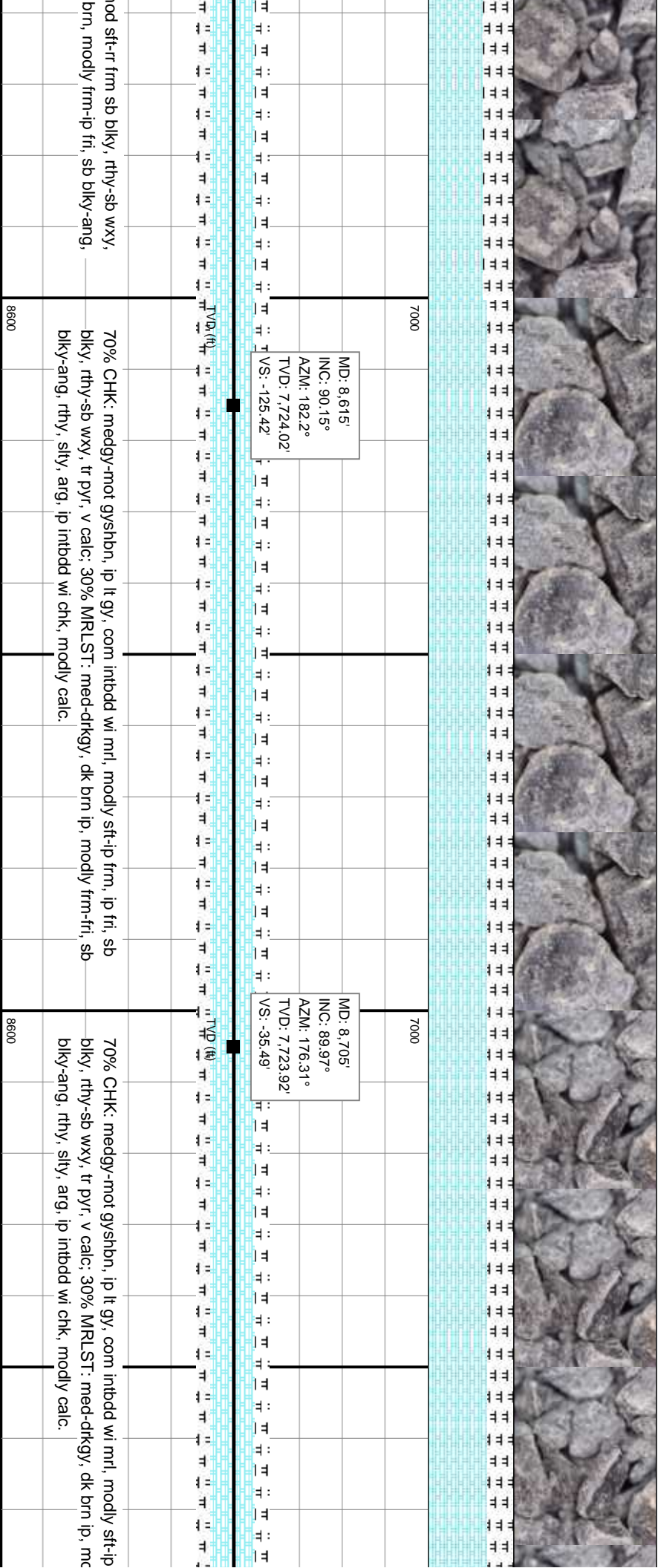
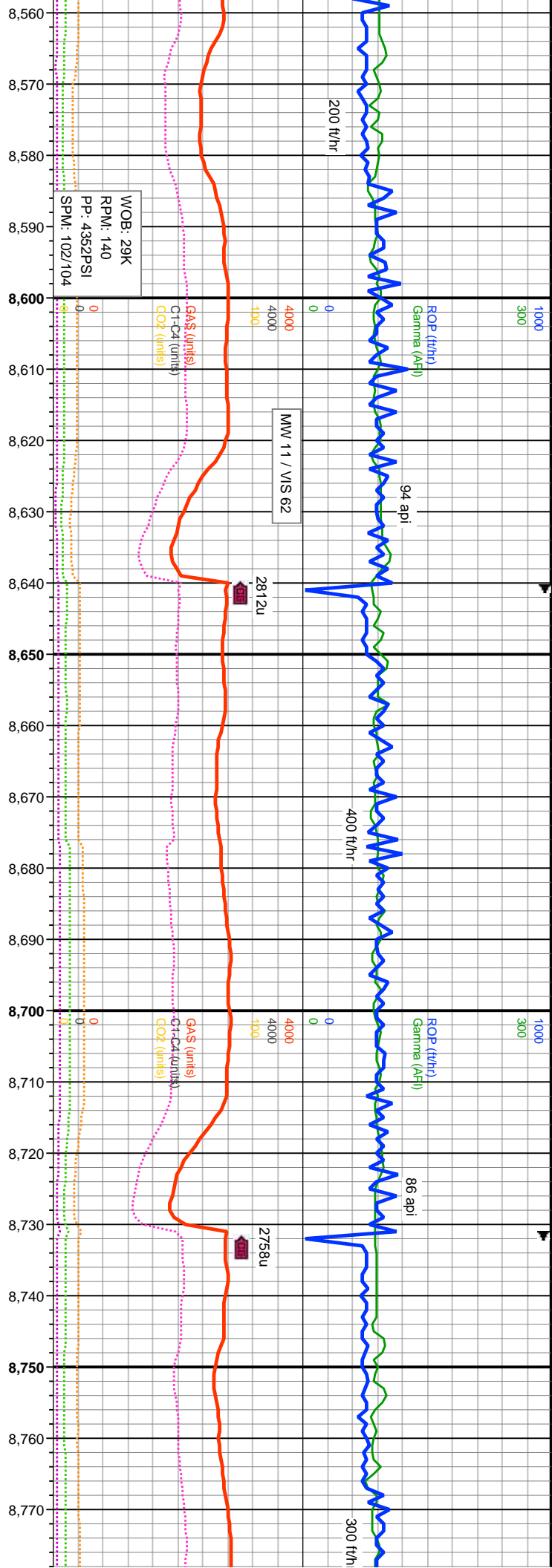


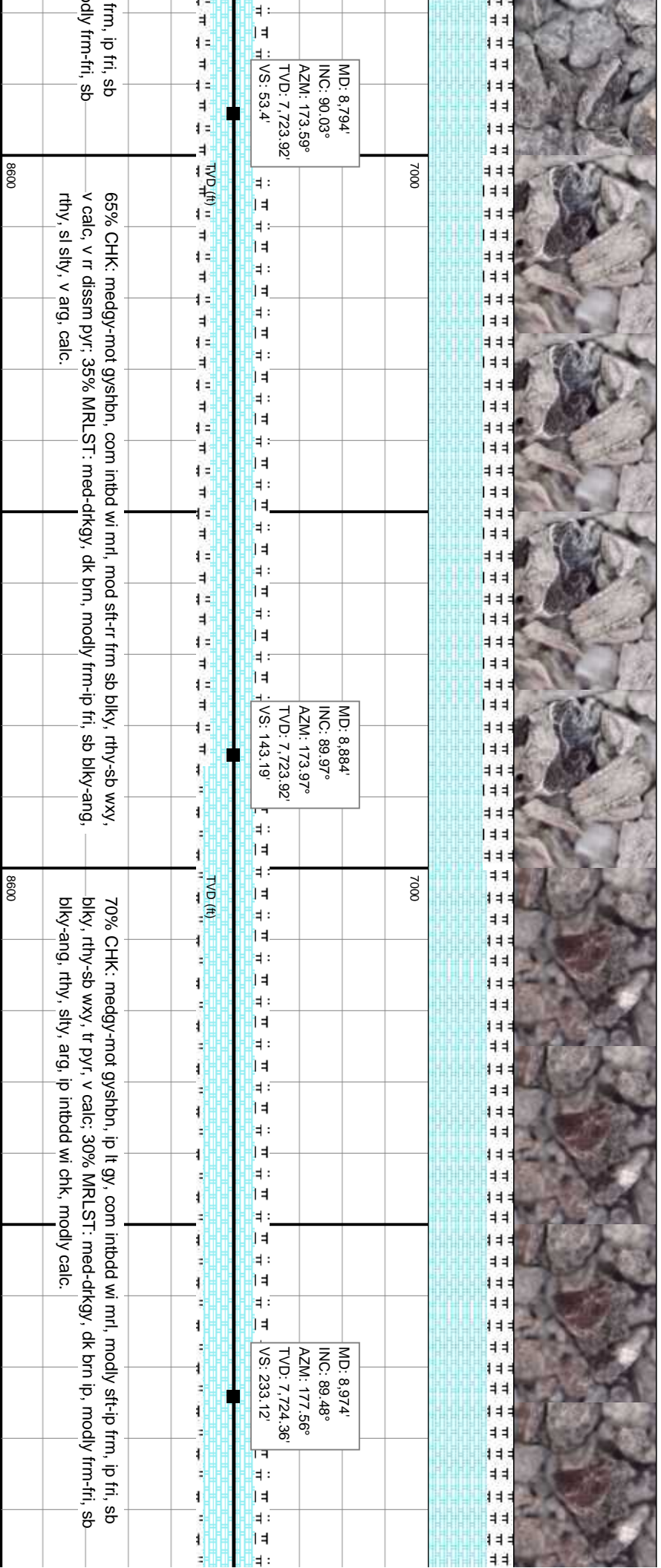
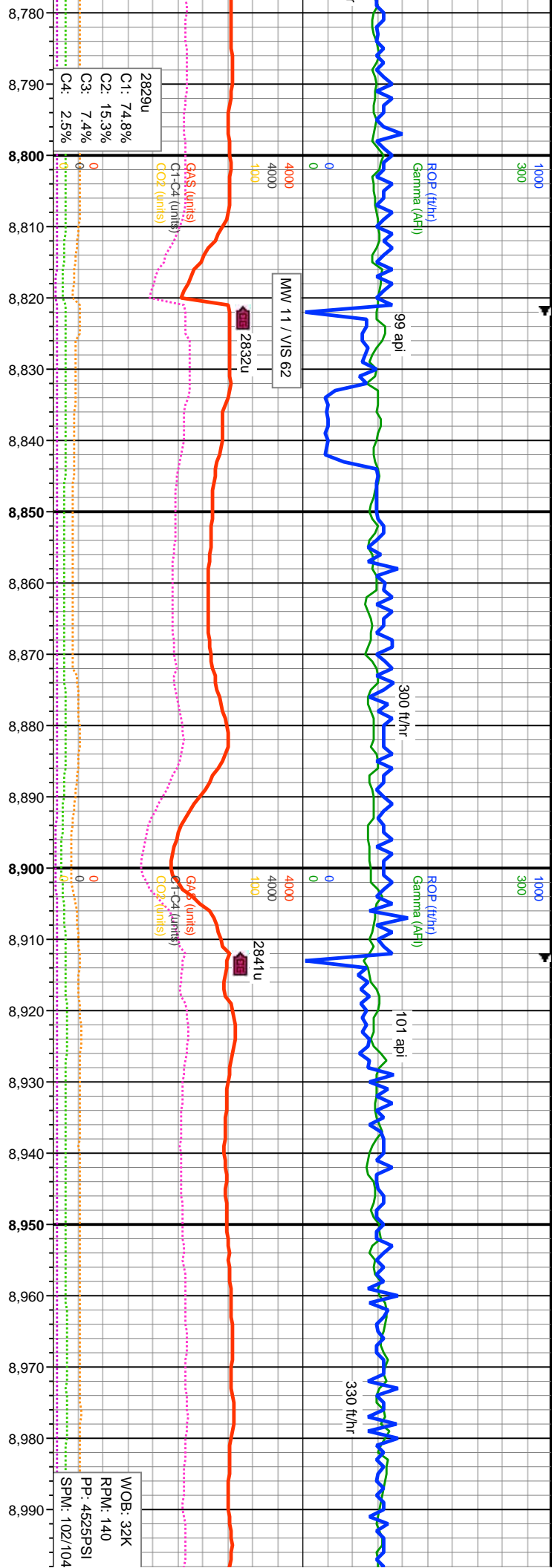


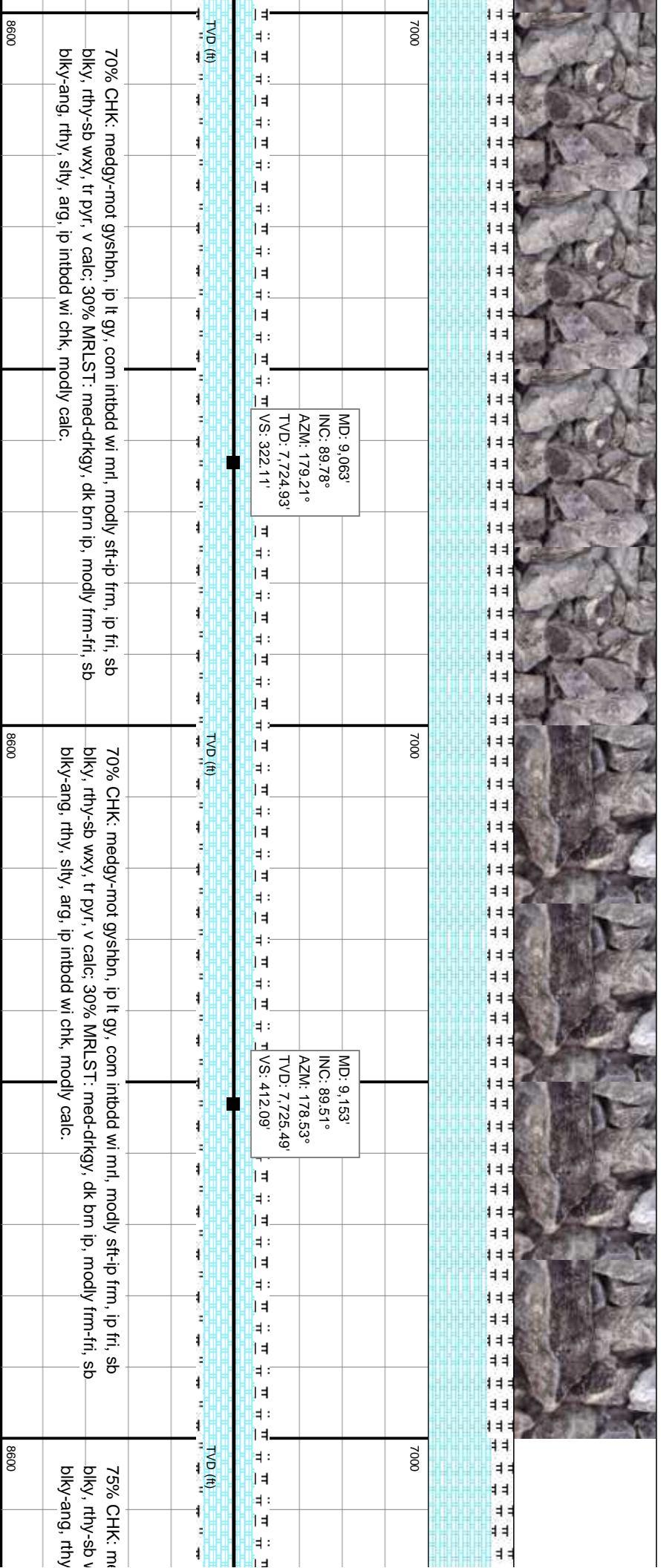
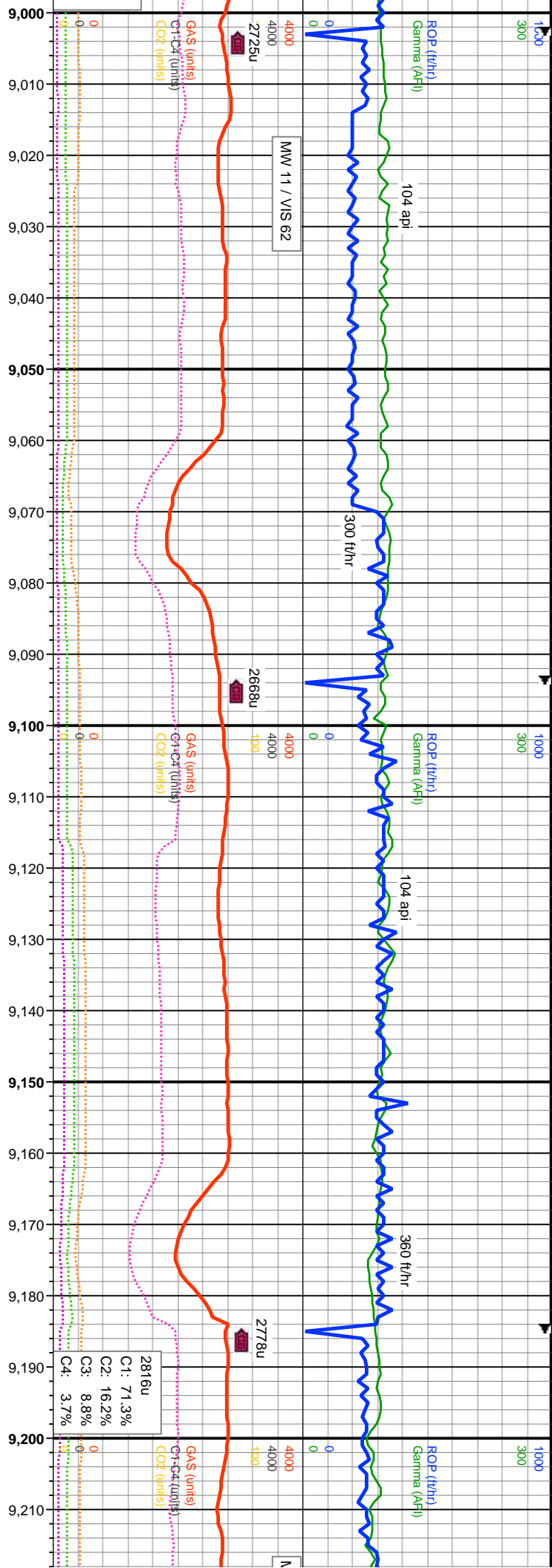


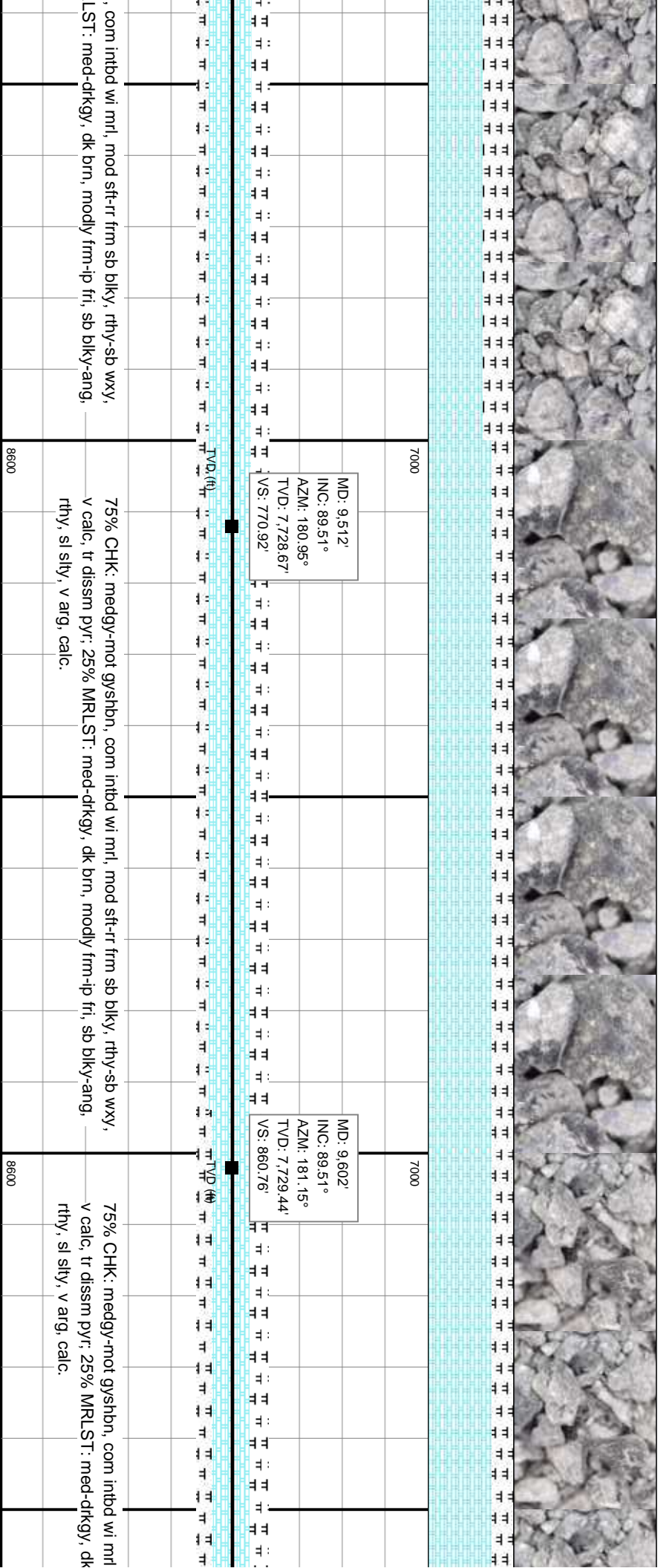
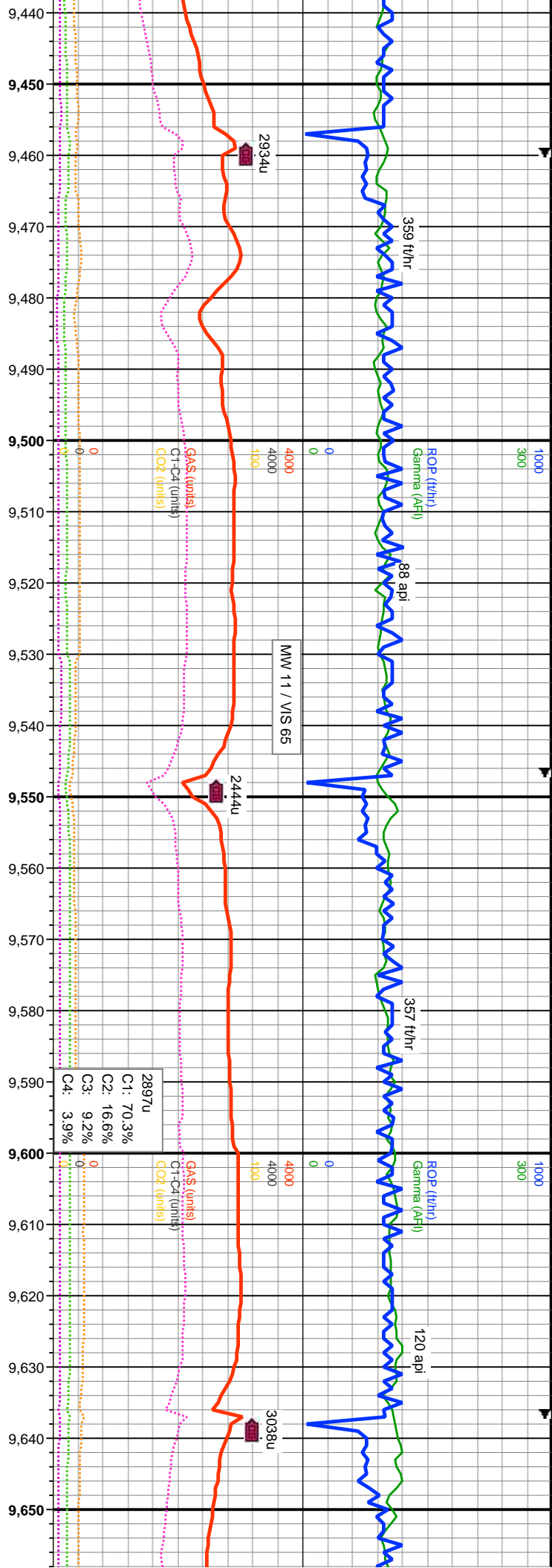
MD: 8,346' INC: 90.03° AZM: 183.38° TVD: 7,725.27' VS: -392.83'	MD: 8,436' INC: 90.71° AZM: 183.75° TVD: 7,724.69' VS: -303.31'	MD: 8,525' INC: 90° AZM: 185.07° TVD: 7,724.14' VS: -214.92'
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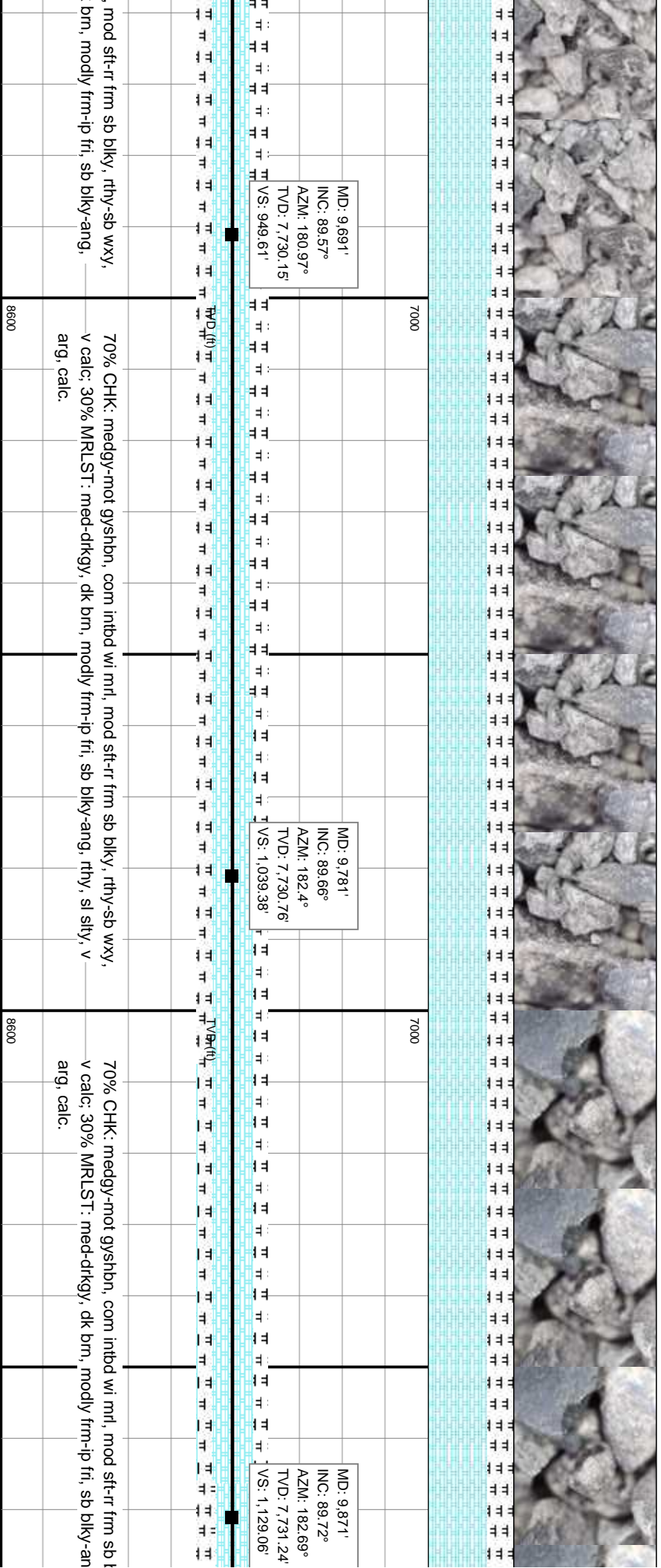
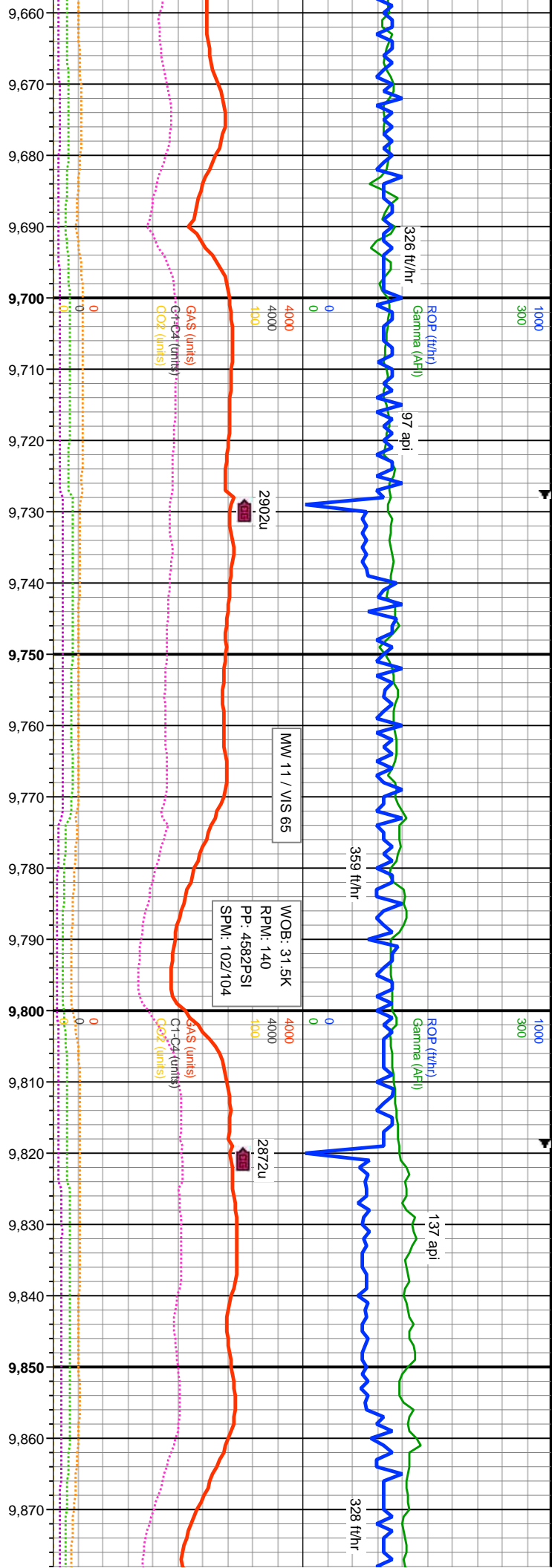
modly frm-ip fri, sb blk-y-ang, rthy, sl slty, v arg, calc, rr bn, com intbd wi mrl, mod sft-rr frm sb blk-y, rthy-sb	60% CHK: medgy-mot gysbhn, com intbd wi mrl, mod sft-rr frm sb blk-y, rthy-sb wxy, v calc, v rr dissm pyr; 40% MRLST: med-dfkg, dk brn, modly frm-ip fri, sb blk-y-ang, rthy, sl slty, v arg, calc, rr bent.	65% CHK: medgy-mot gysbhn, com intbd wi mrl, r v calc, v rr dissm pyr; 35% MRLST: med-dfkg, dk rthy, sl slty, v arg, calc.
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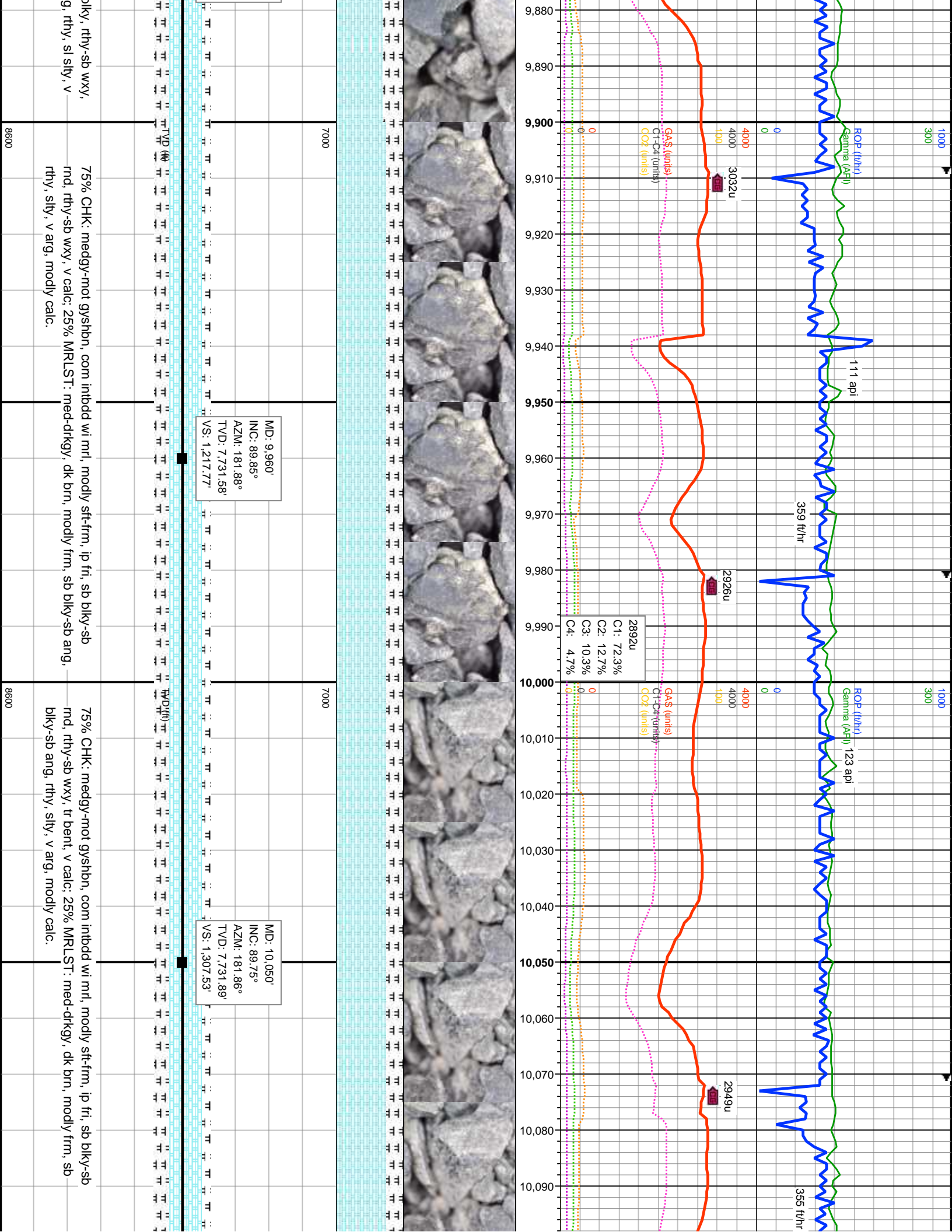


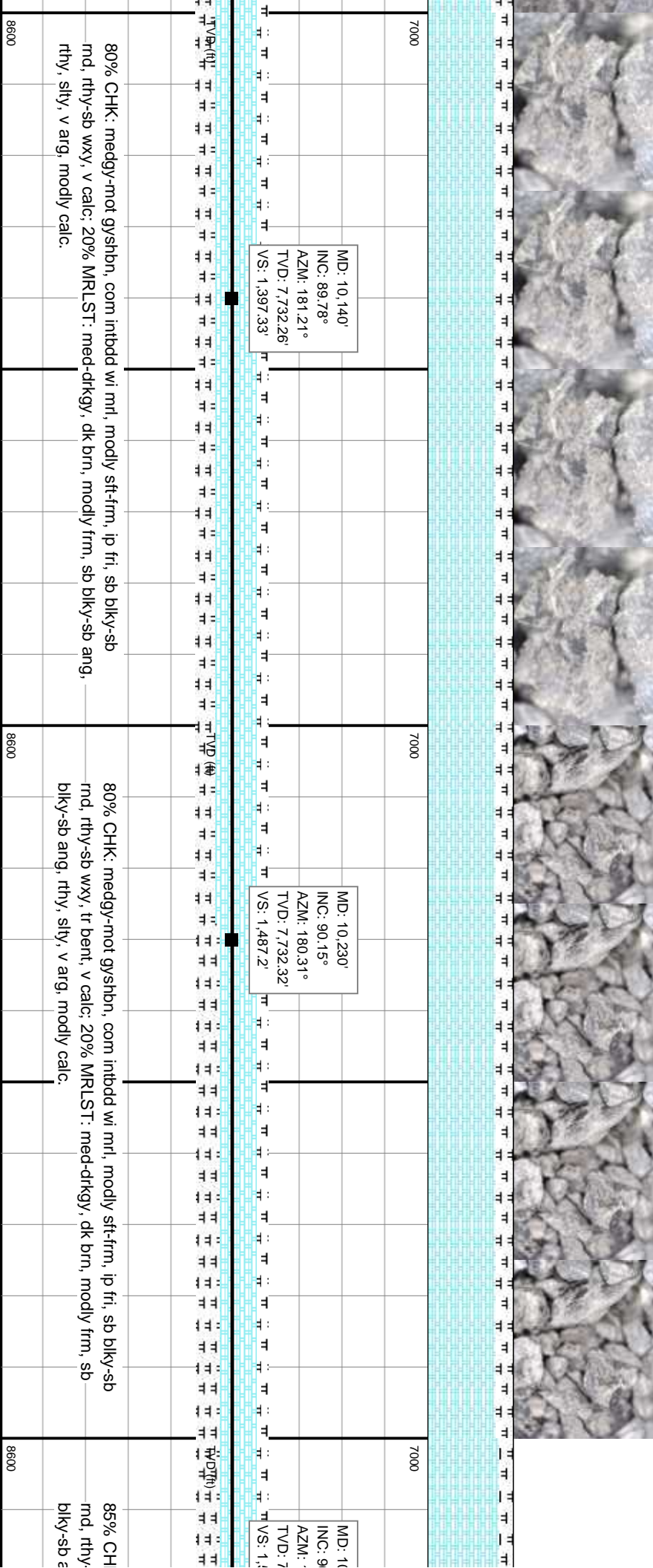
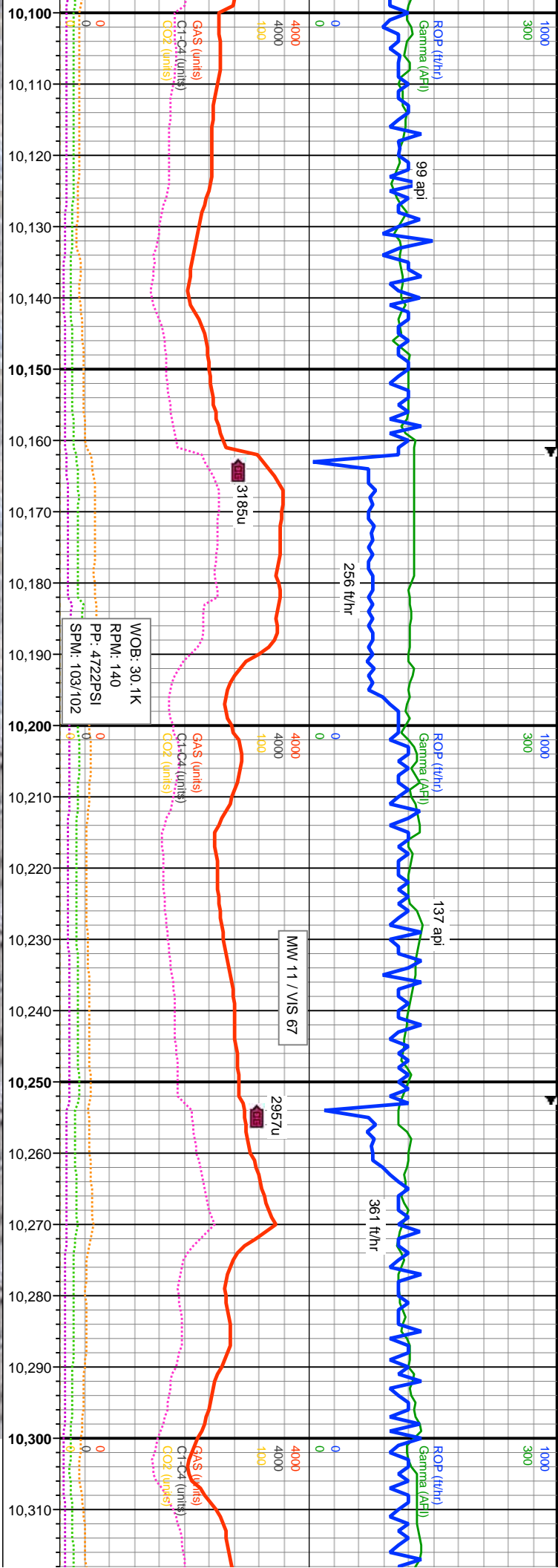


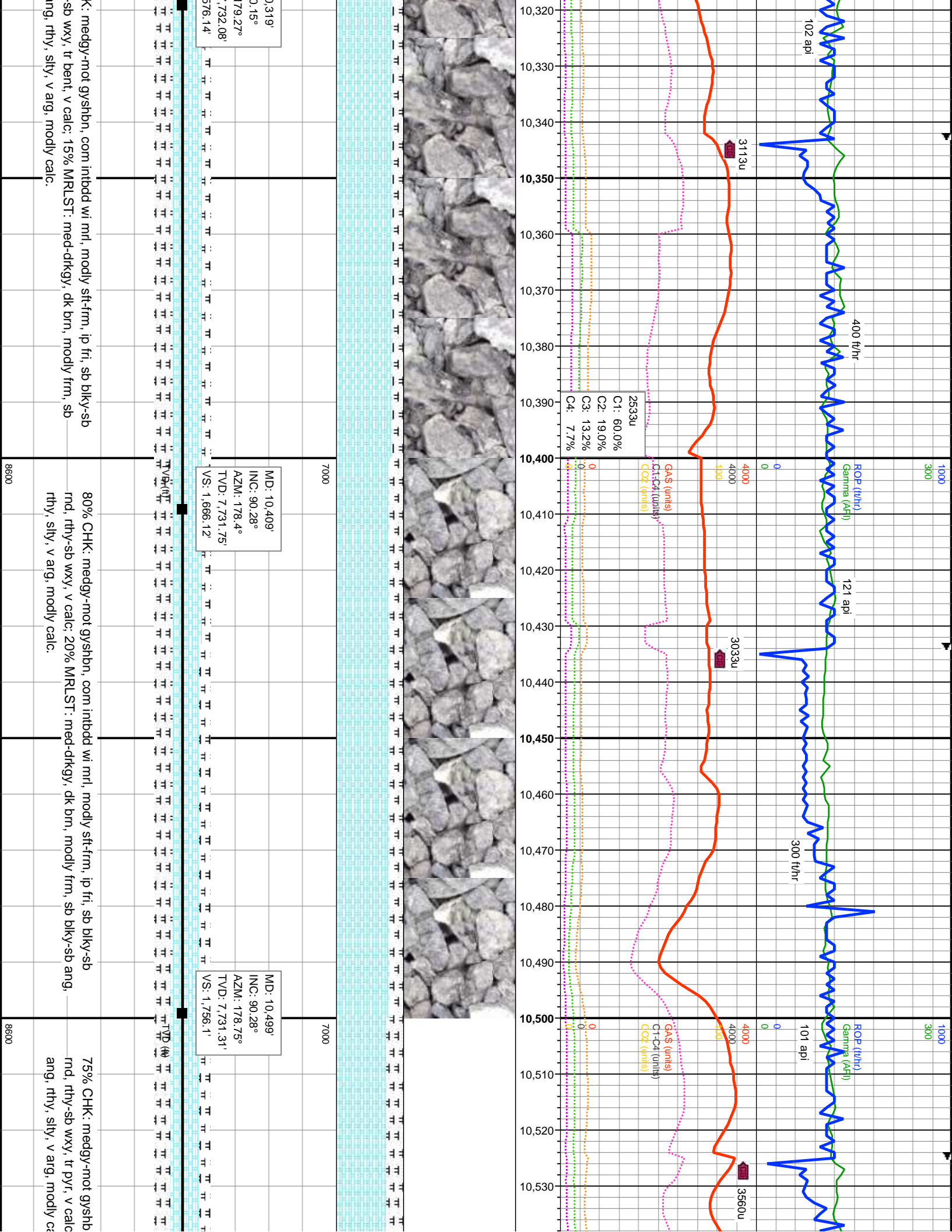


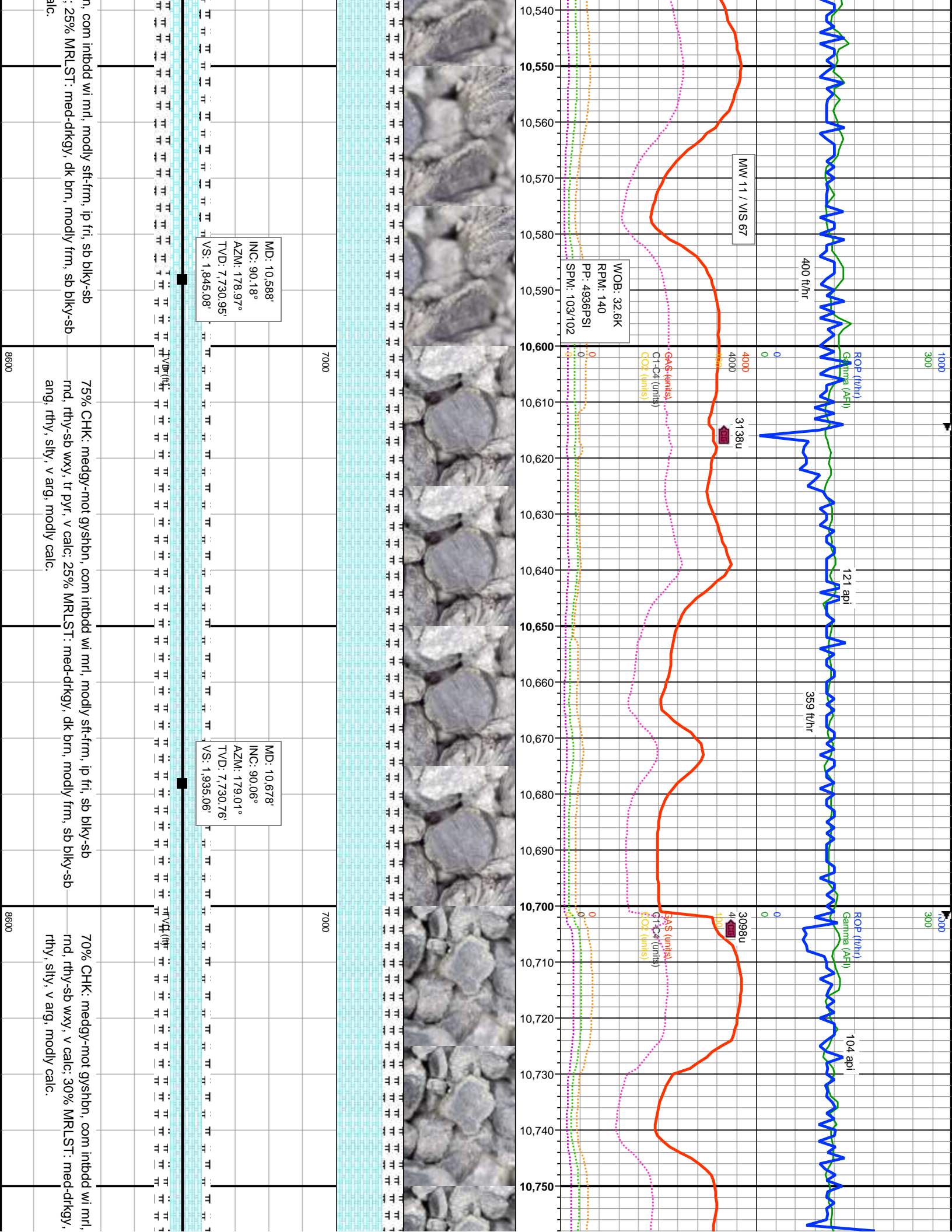


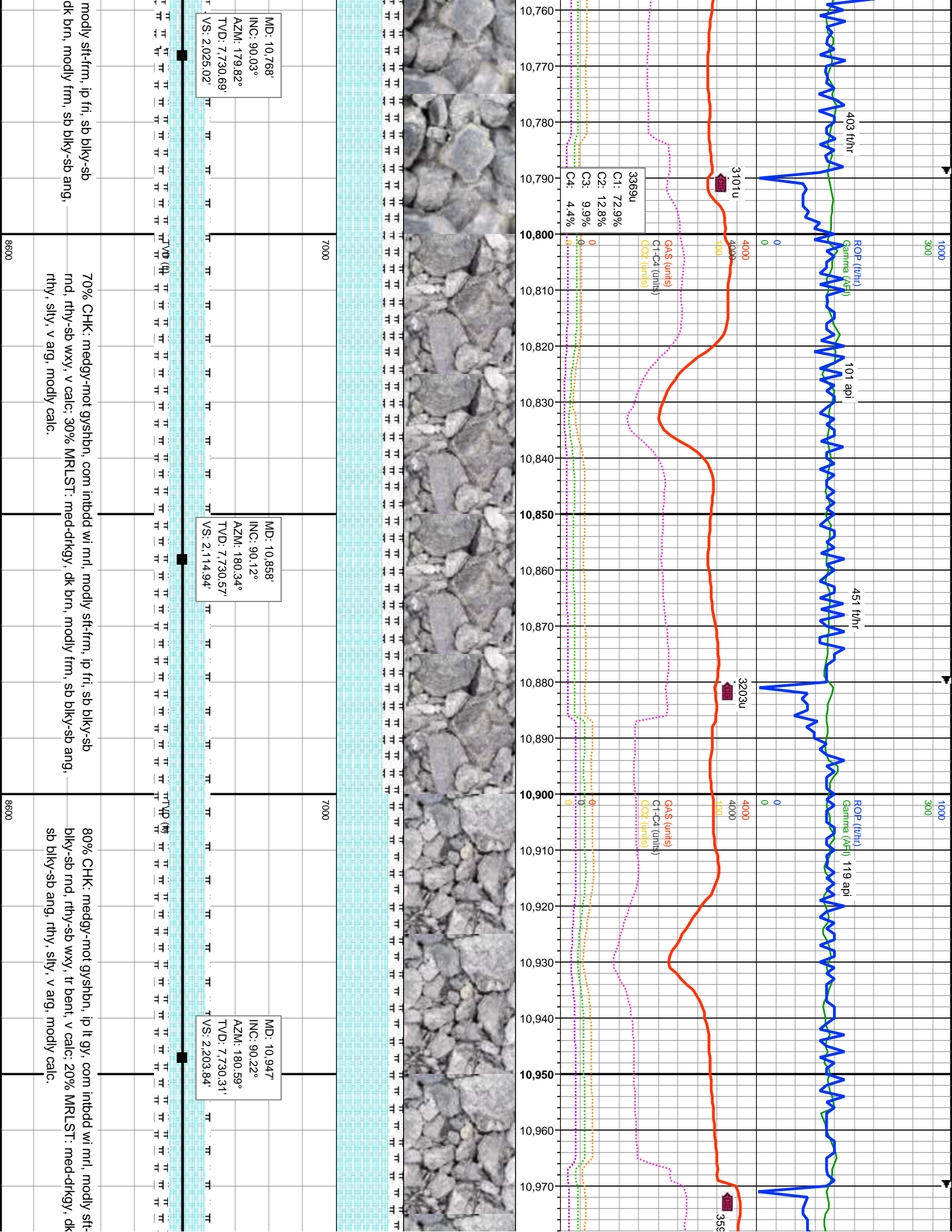


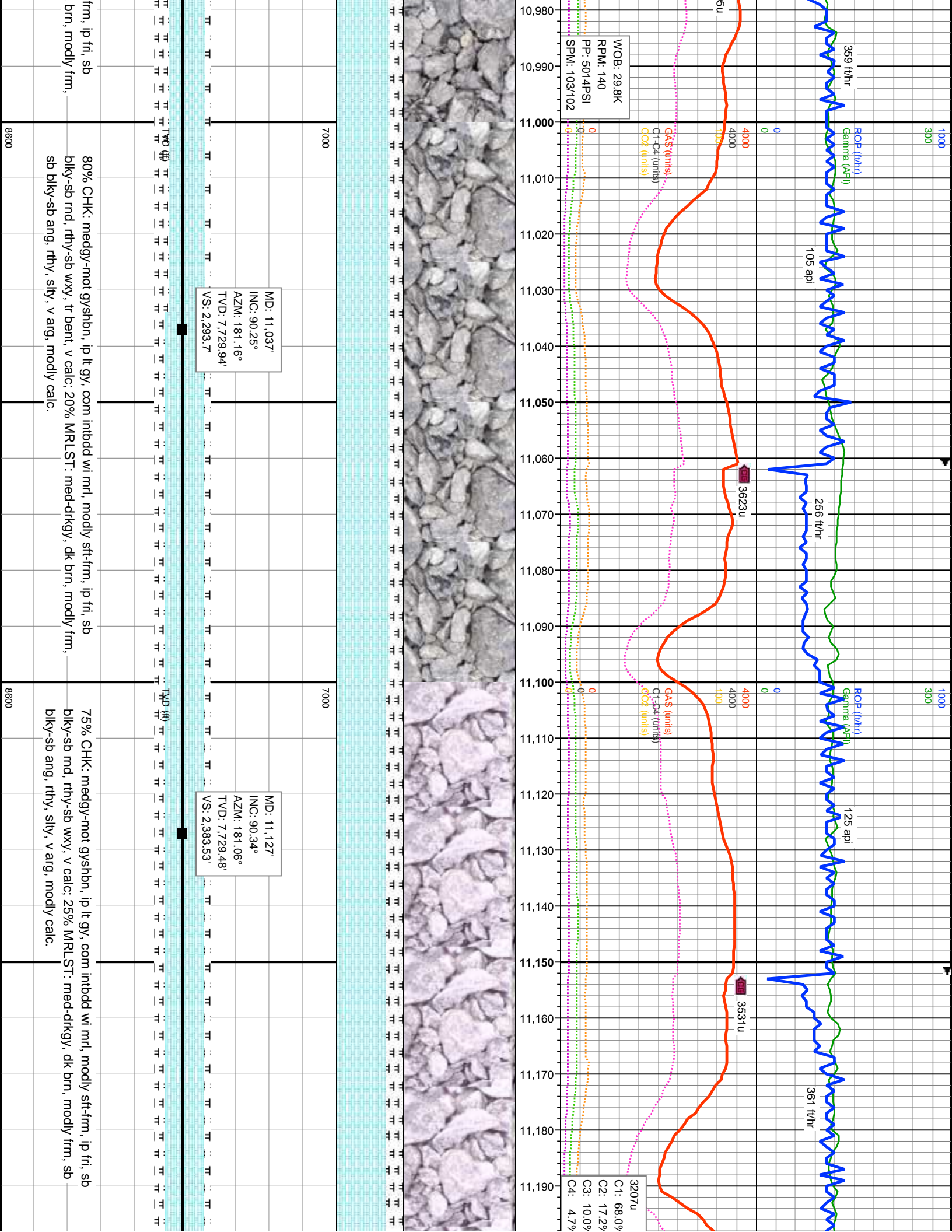


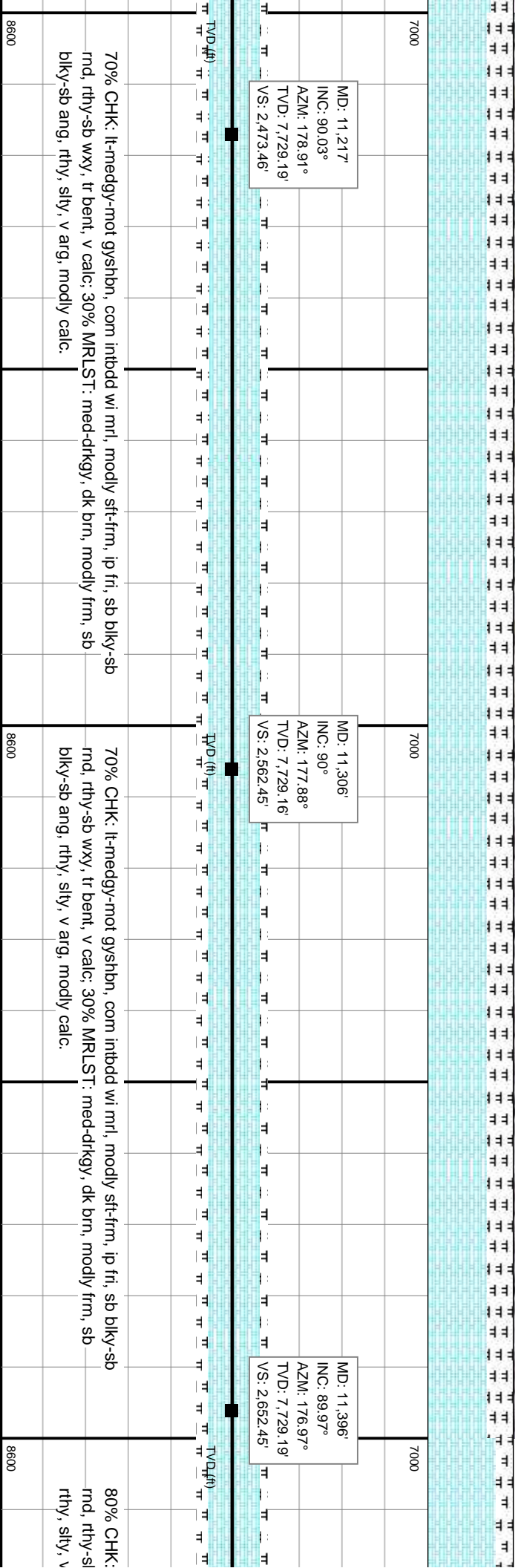
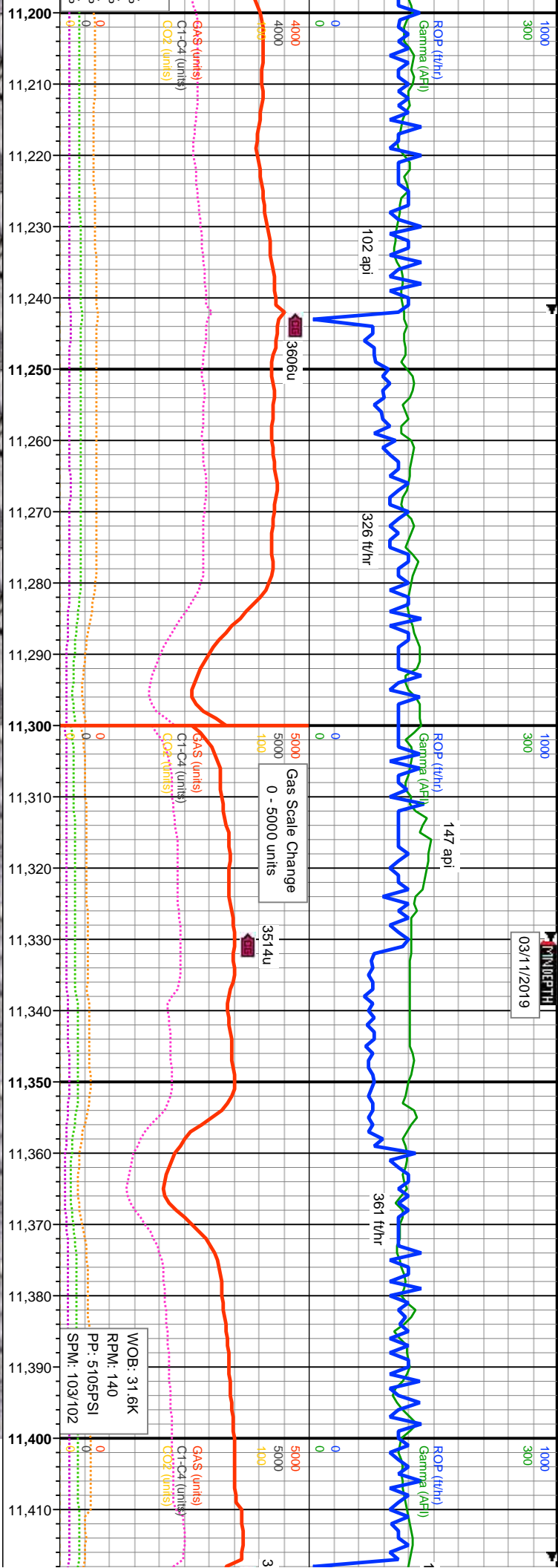


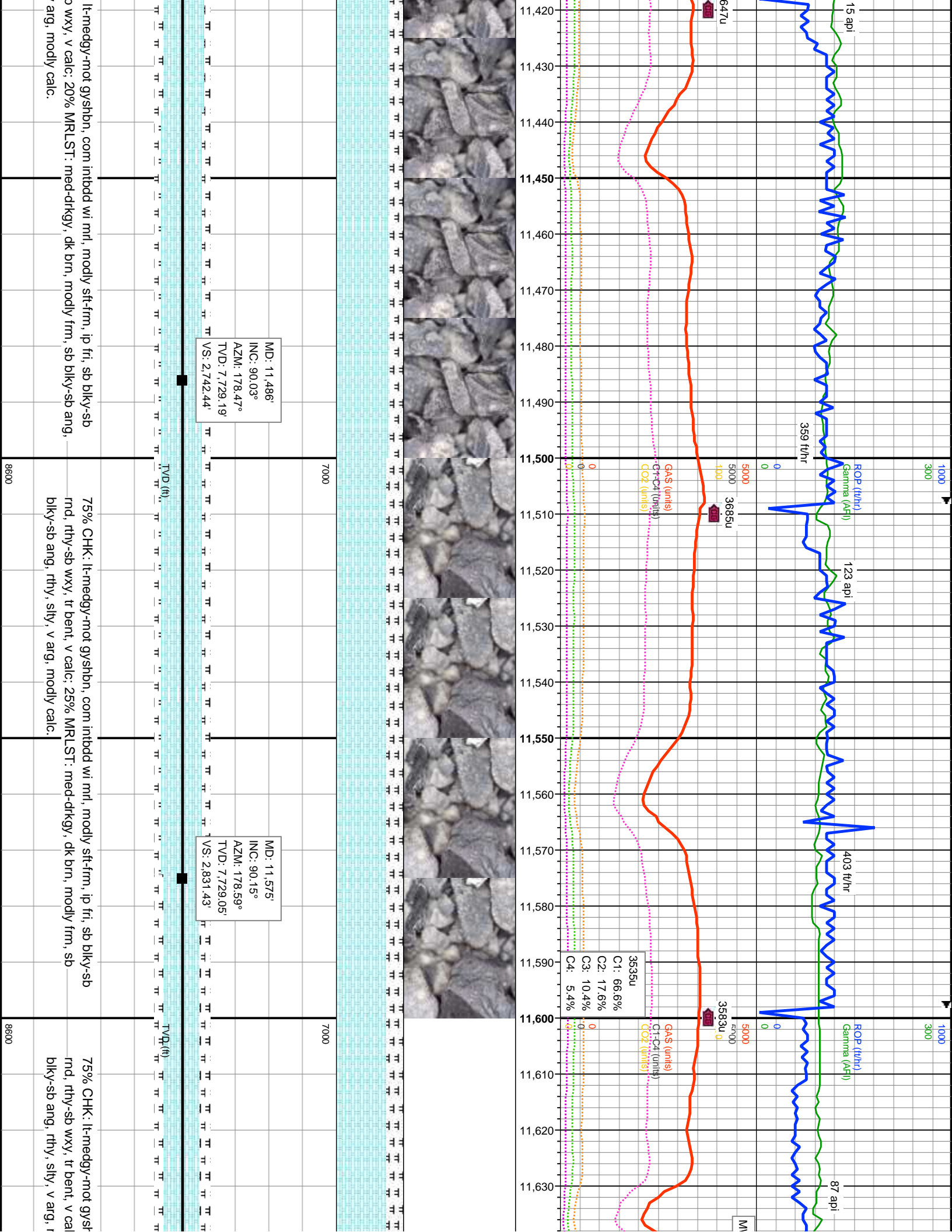


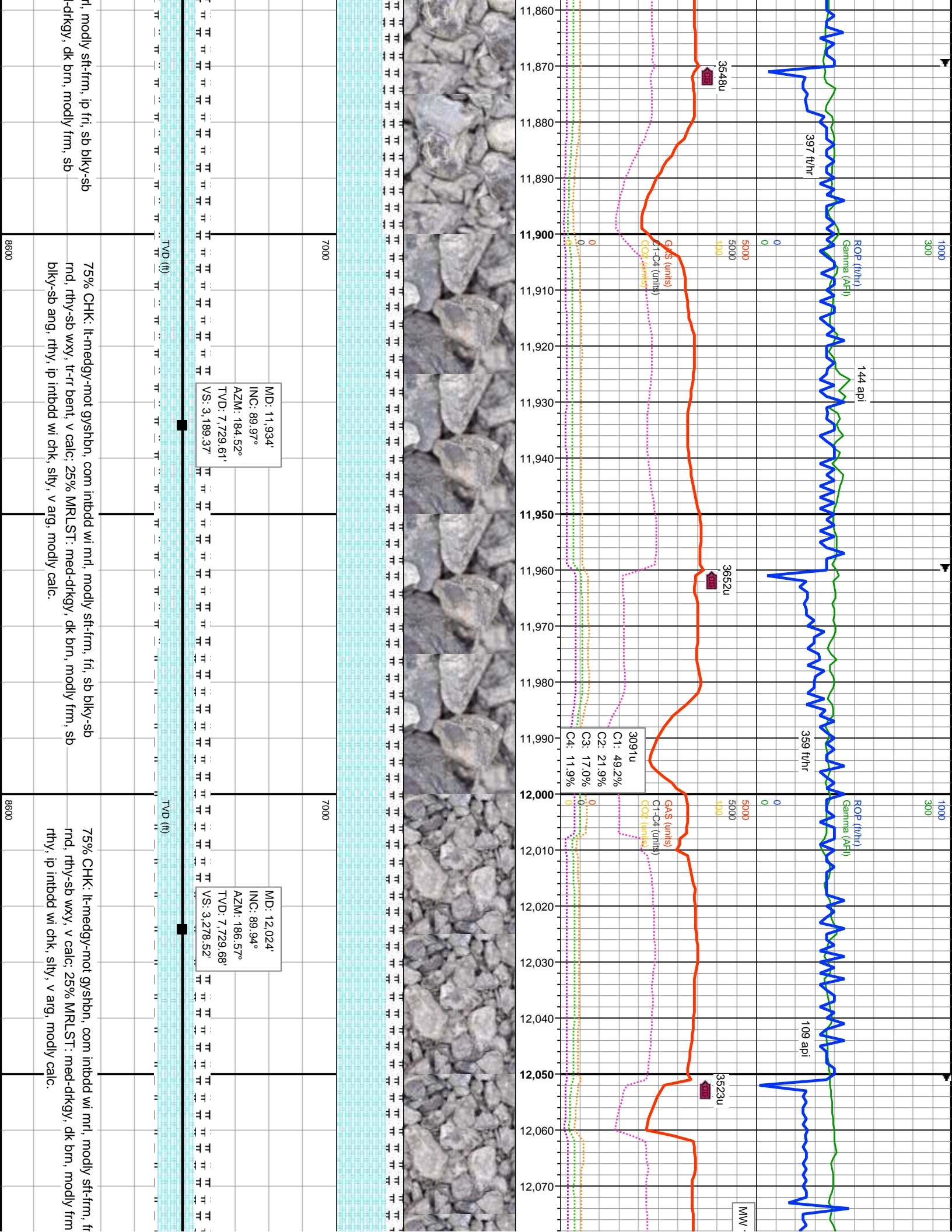


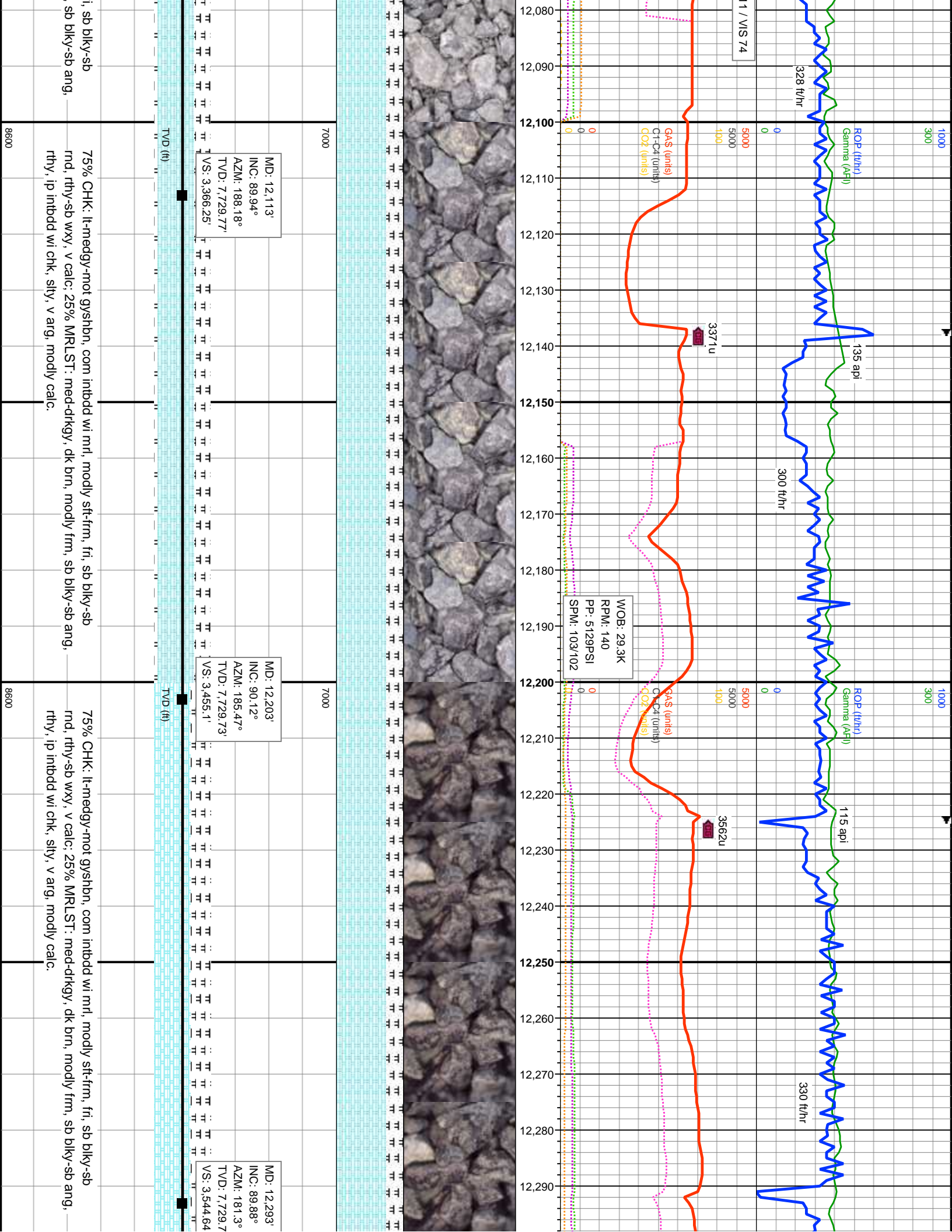


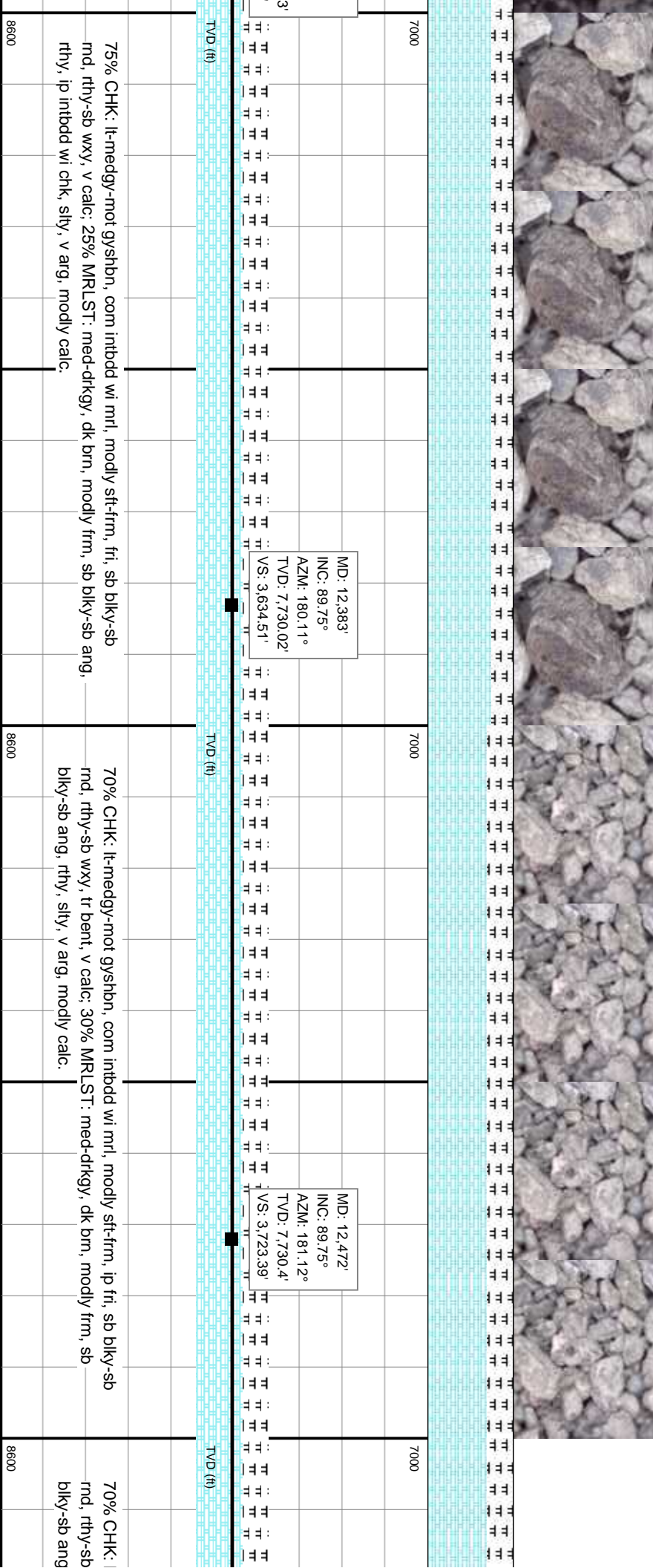
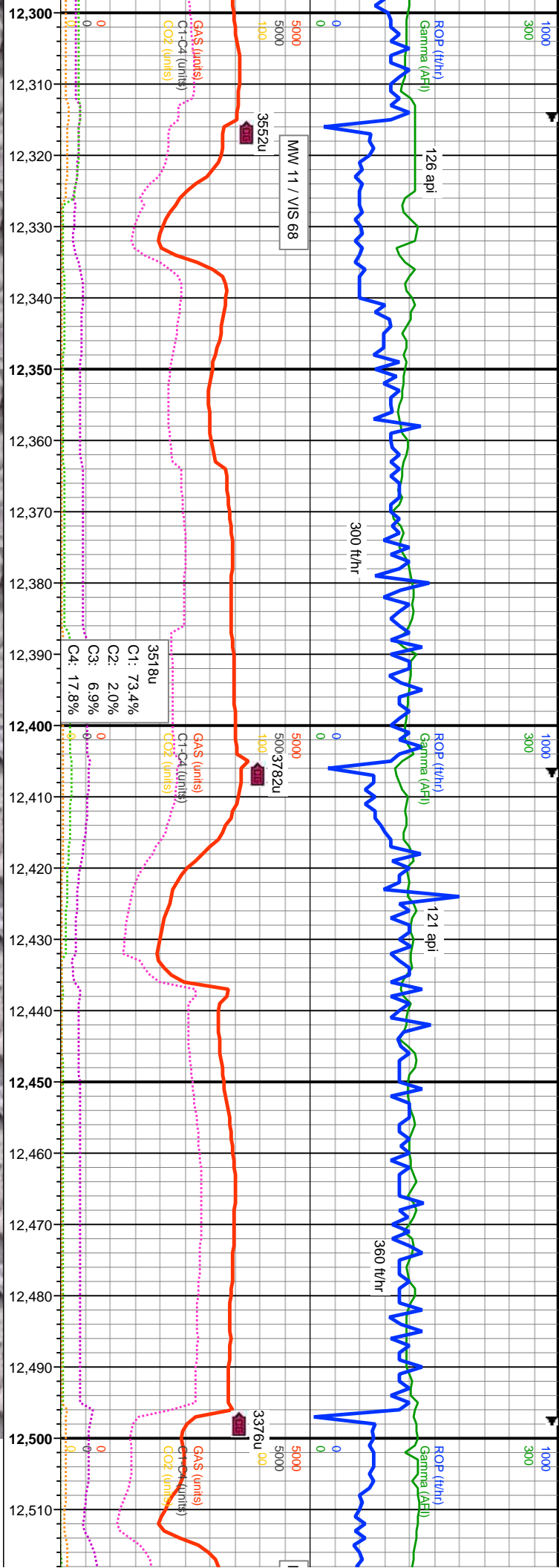


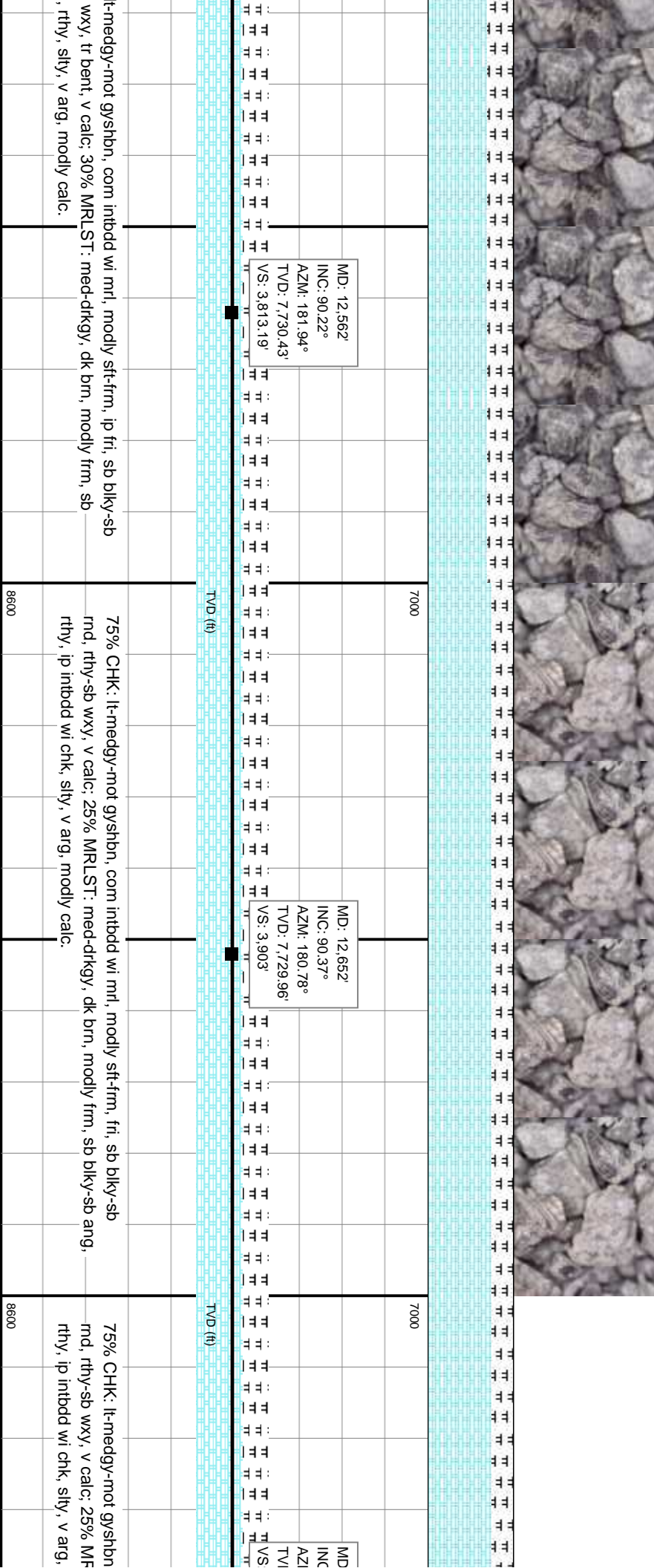
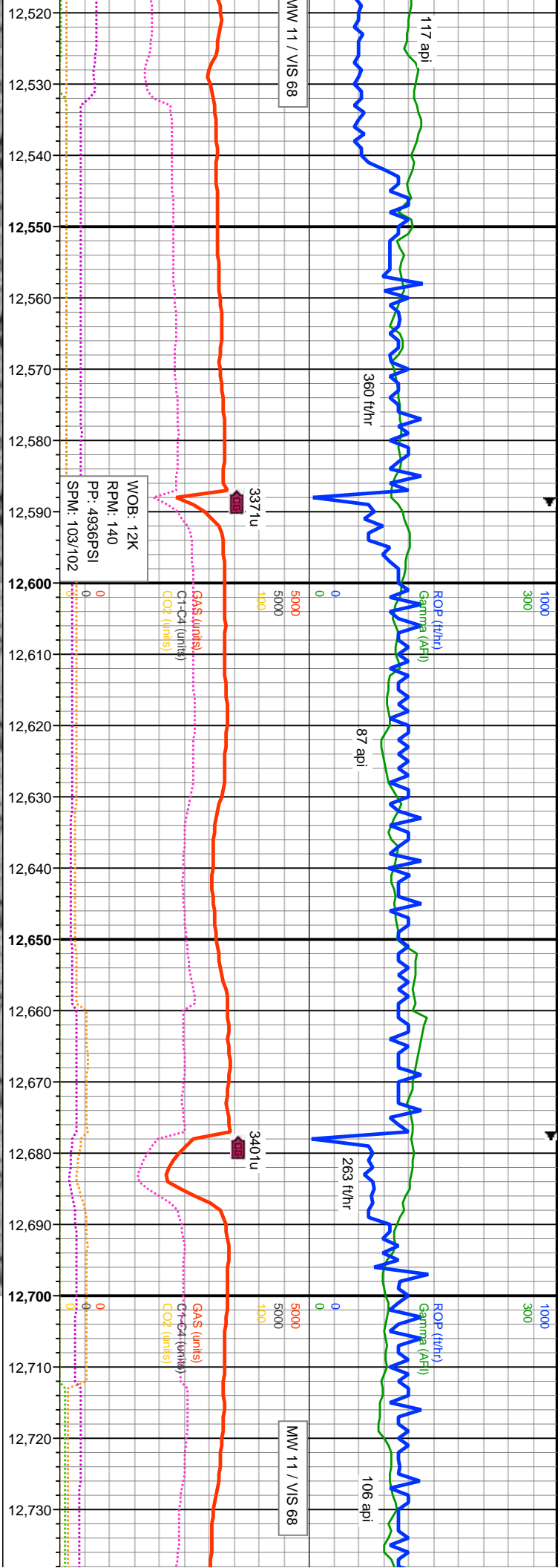


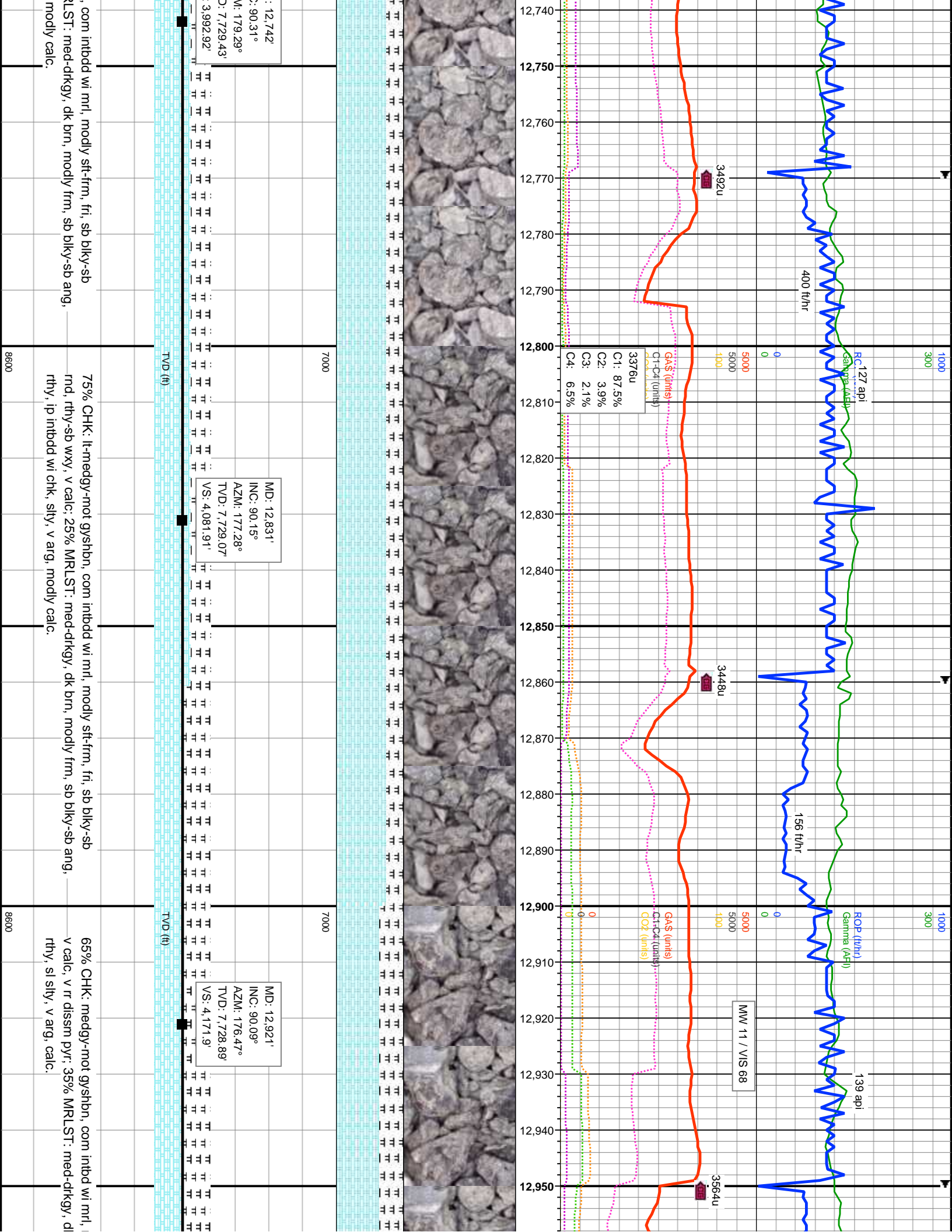


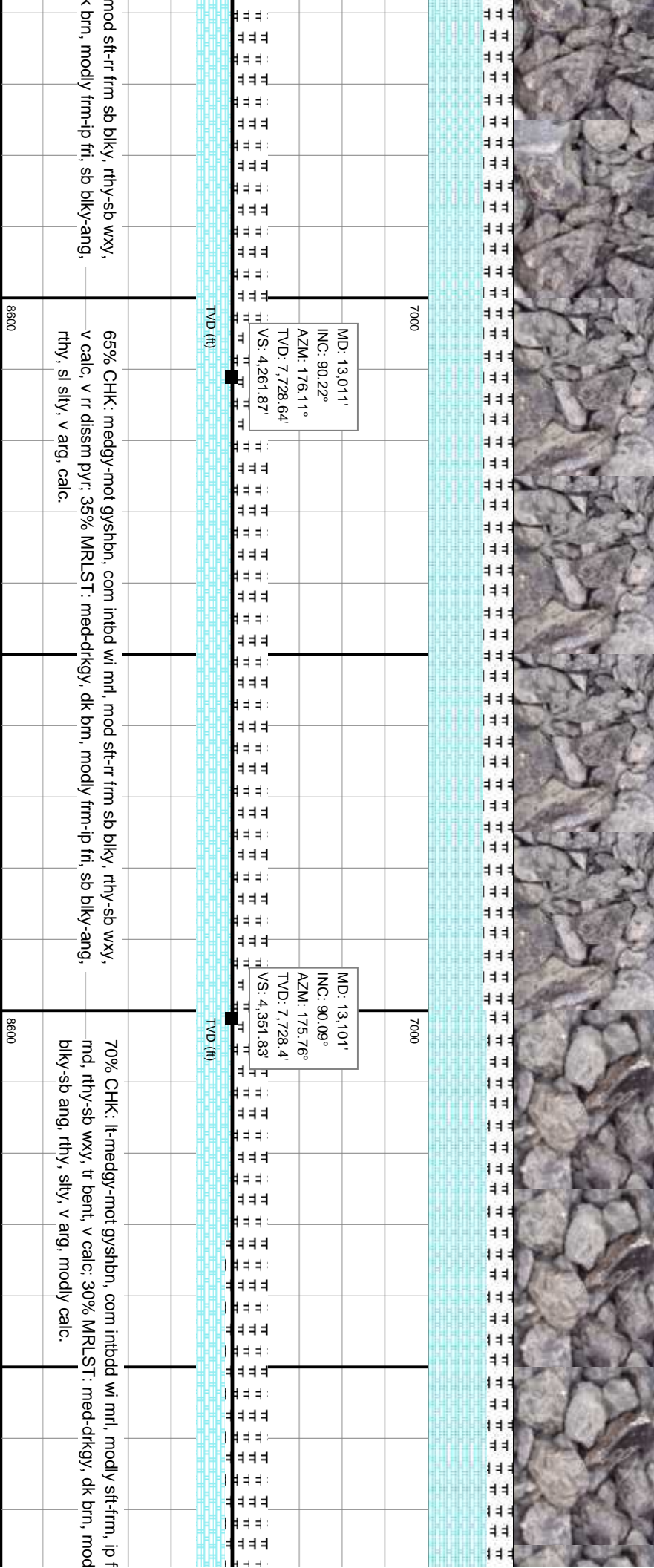
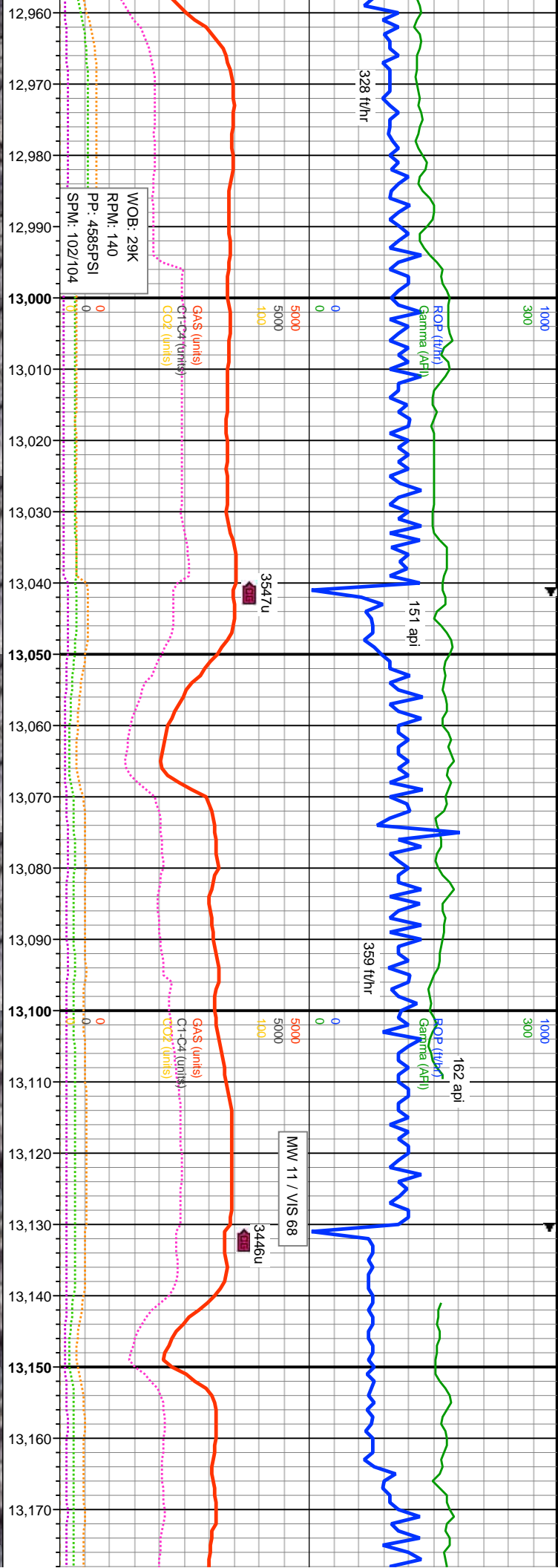


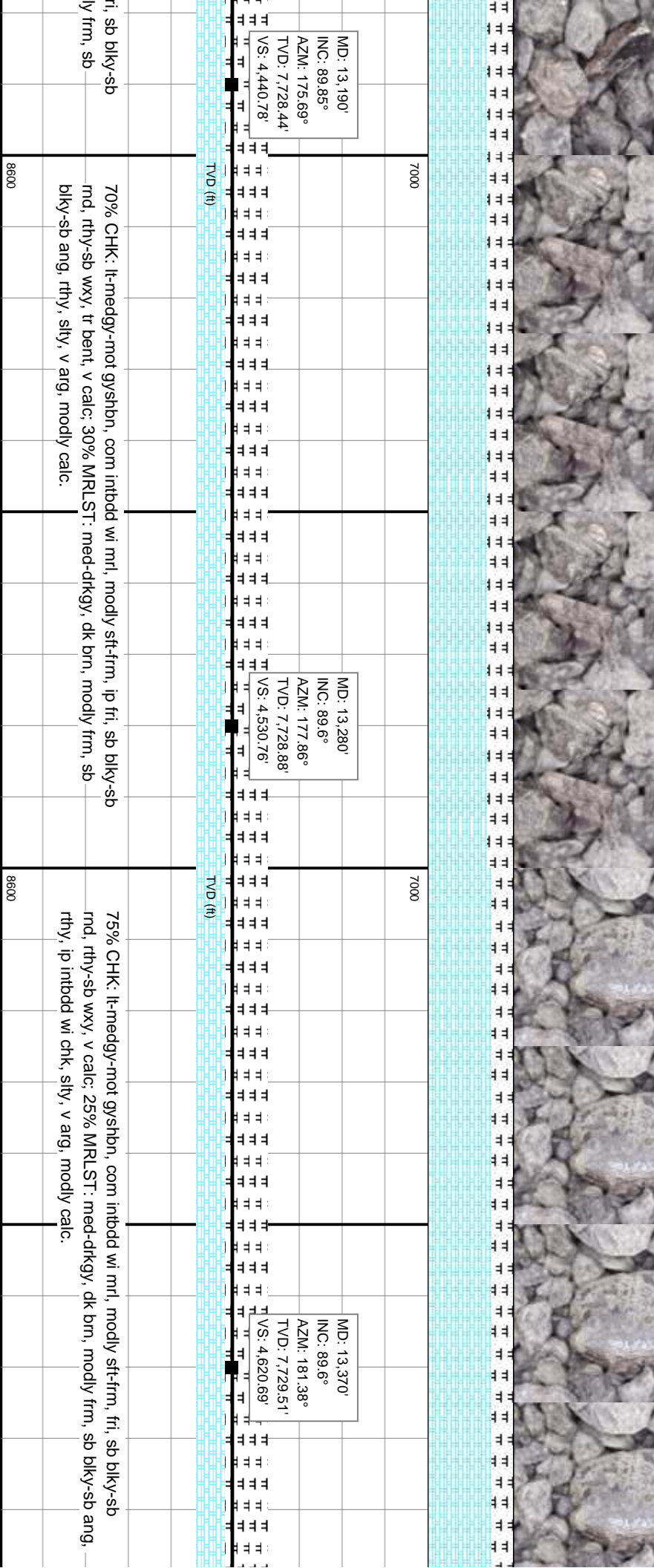
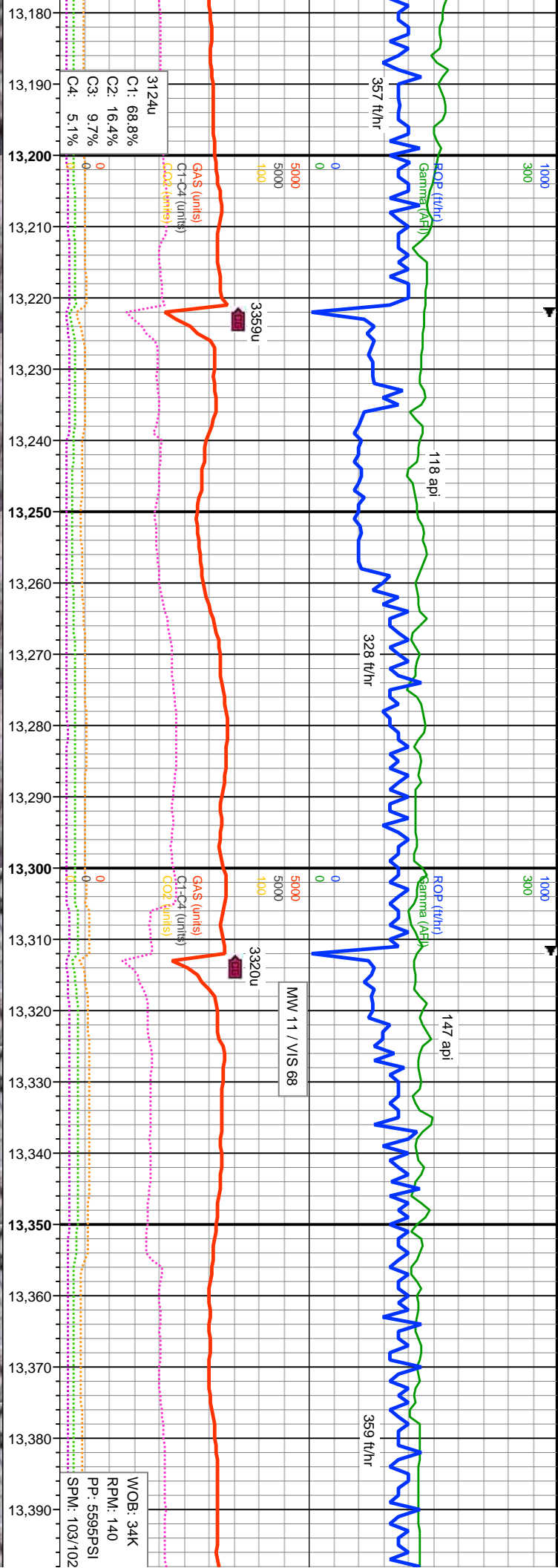


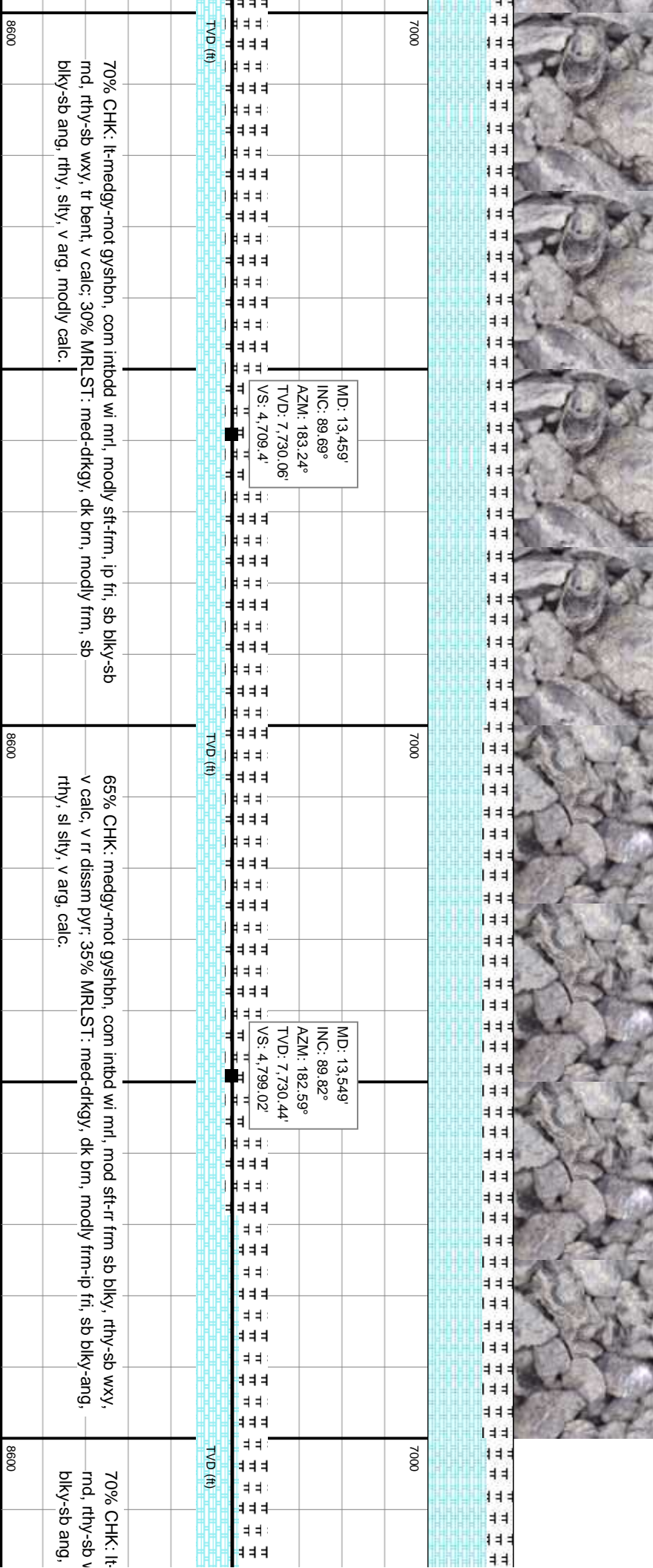
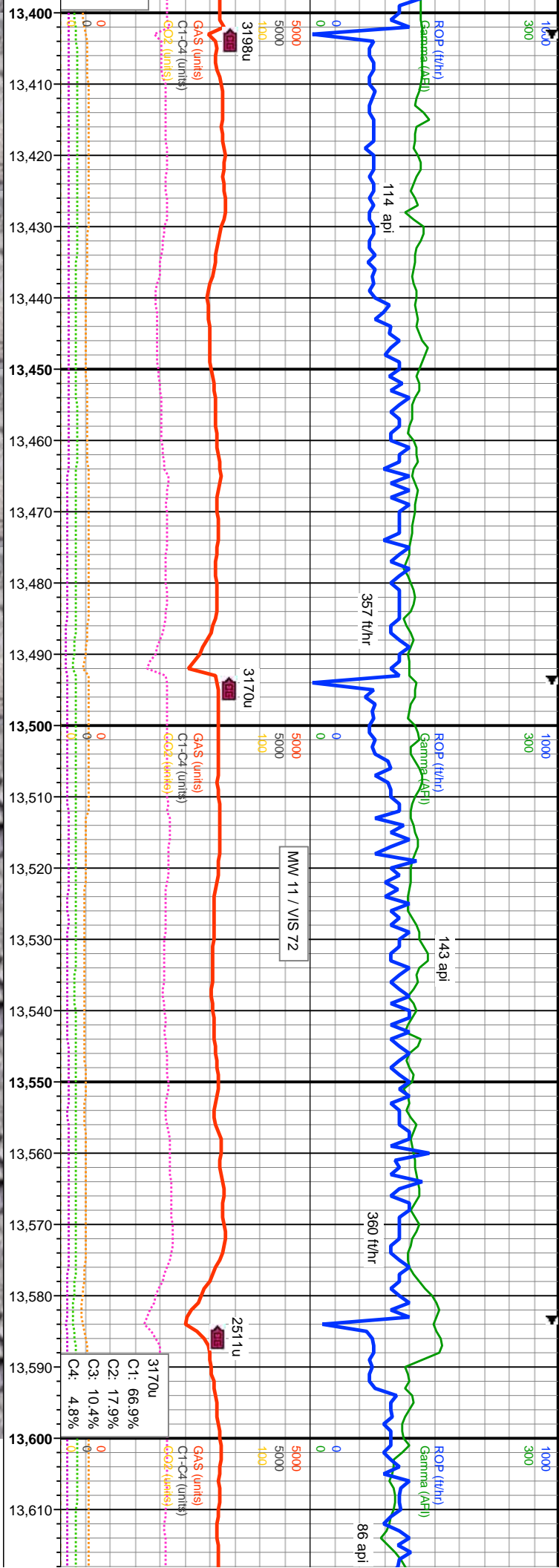


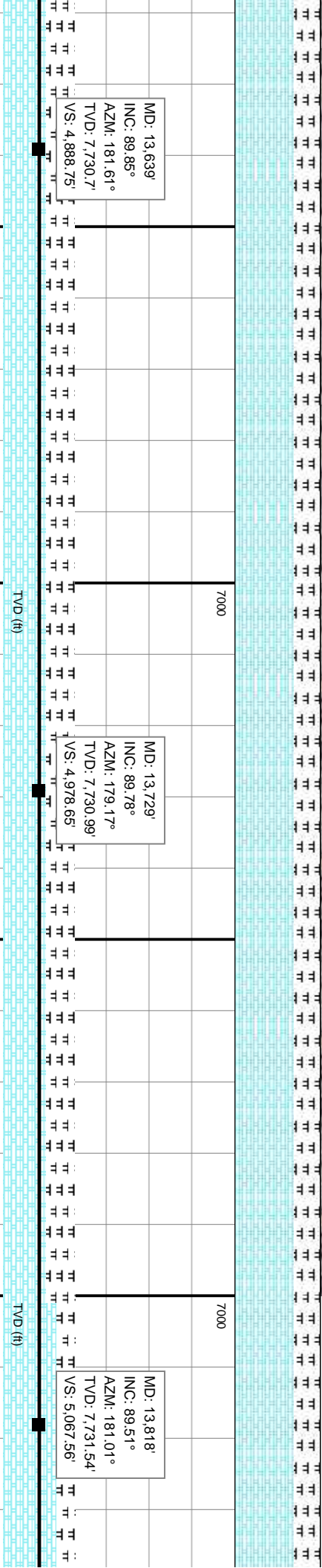
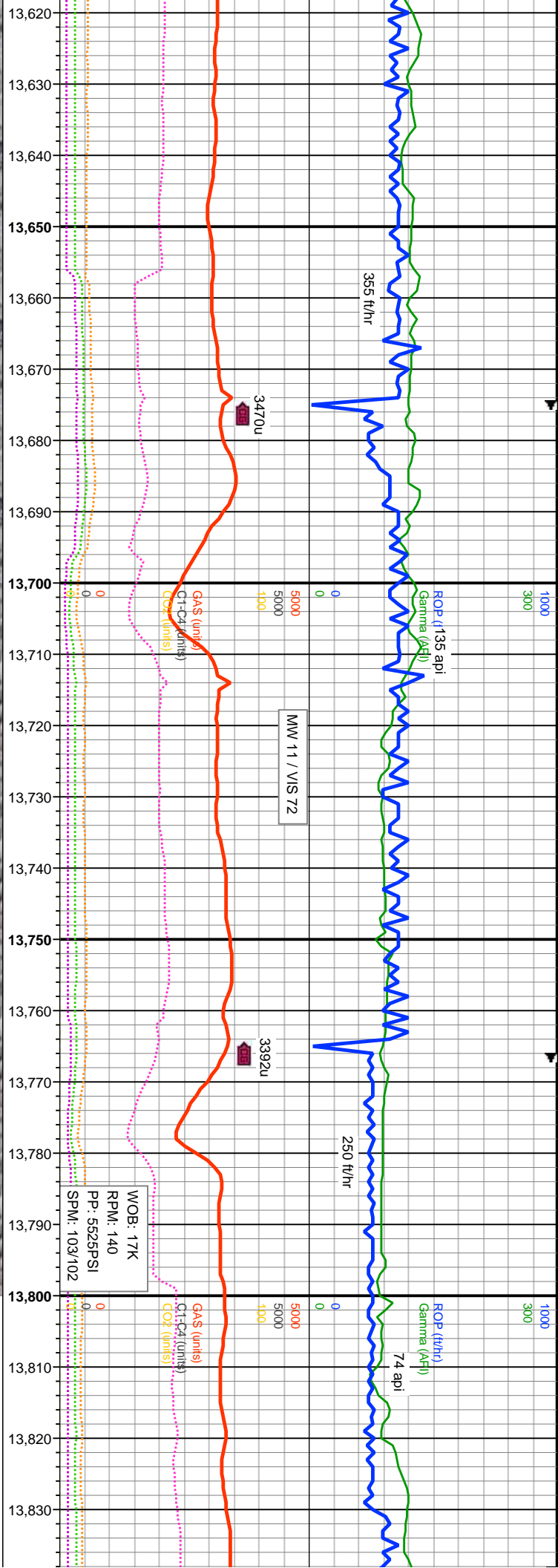








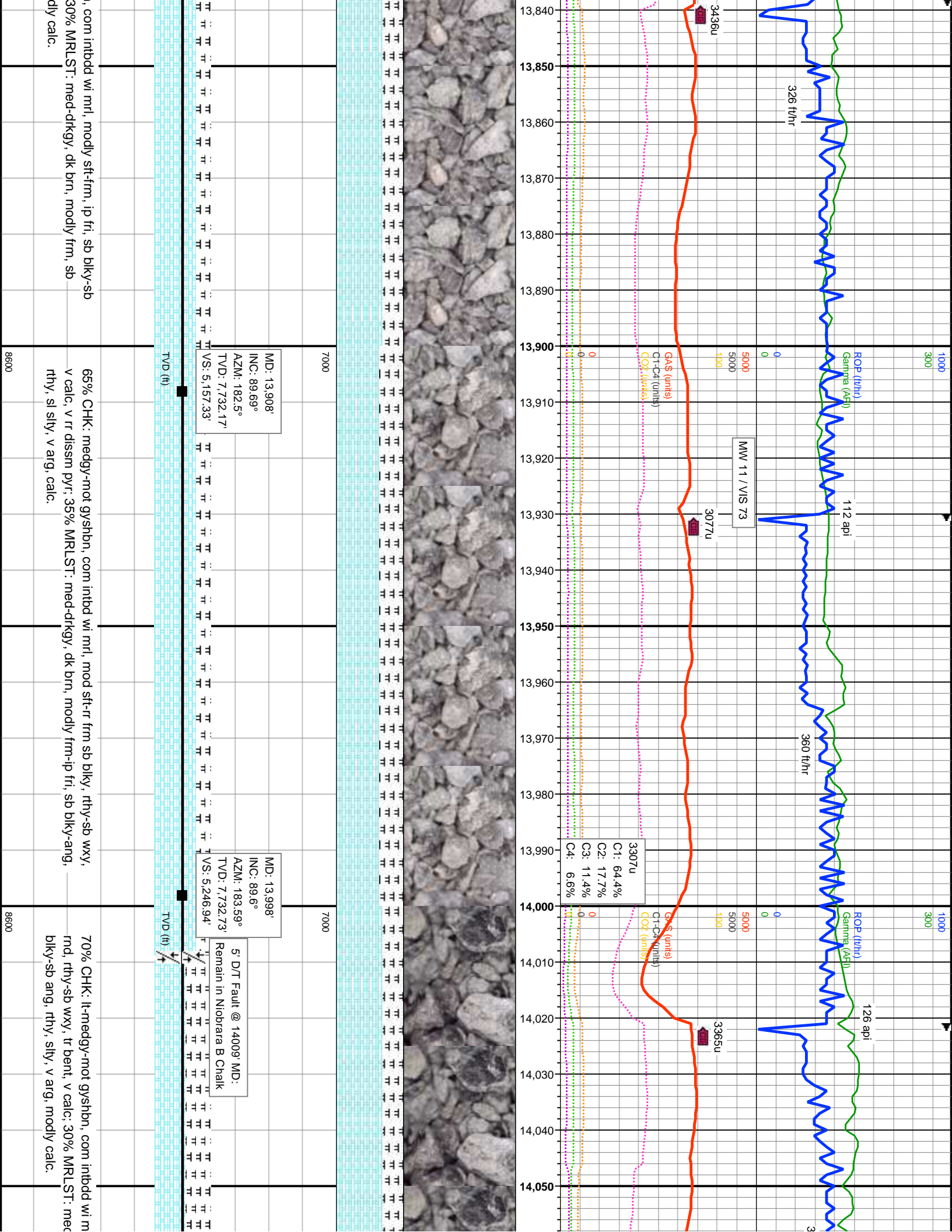


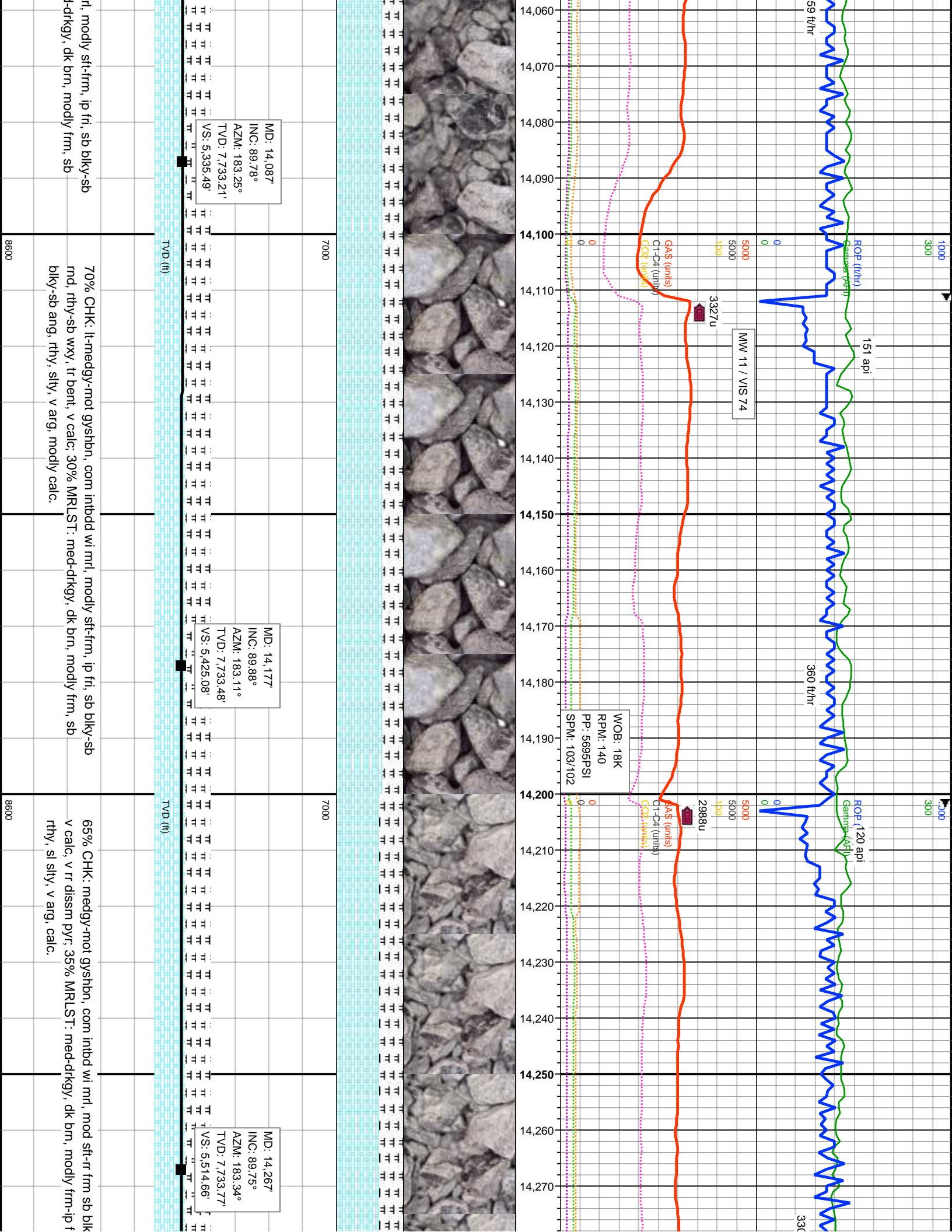


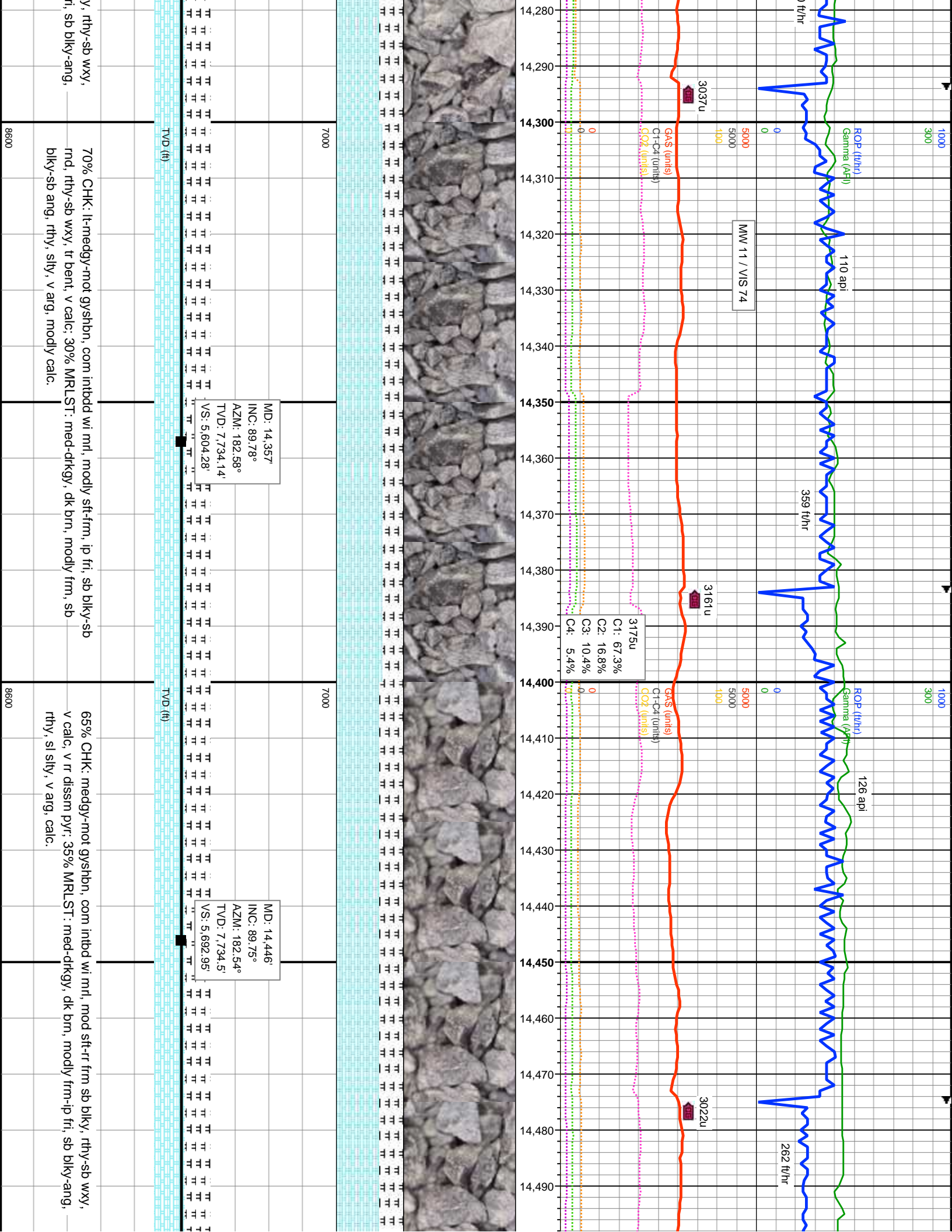
medgy-mot gysbhn, com intbdd wi mrl, modly sft-fm, ip fri, sb blkly-sb
vxy, tr bent, v calc, 30% MRLST: med-dfkg, dk brn, modly frm, sb
rthy, slty, v arg, modly calc.

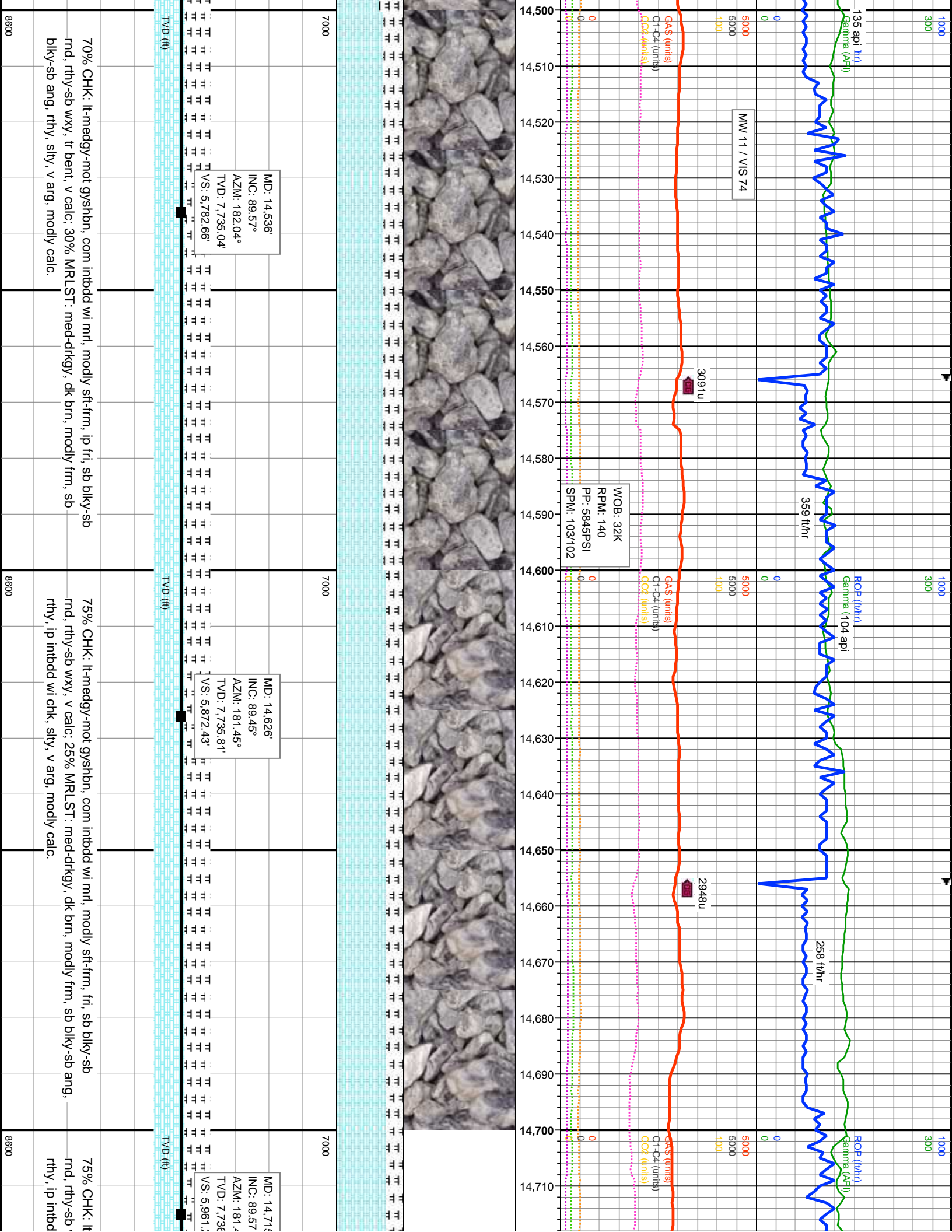
70% CHK: medgy-mot gysbhn, com intbd wi mrl, mod sft-rr frm sb blkly, rthy-sb wxy,
v calc, v rr dissim pyr, 30% MRLST: med-dfkg, dk brn, modly frm-ip fri, sb blkly-ang,
rthy, sl slty, v arg, calc.

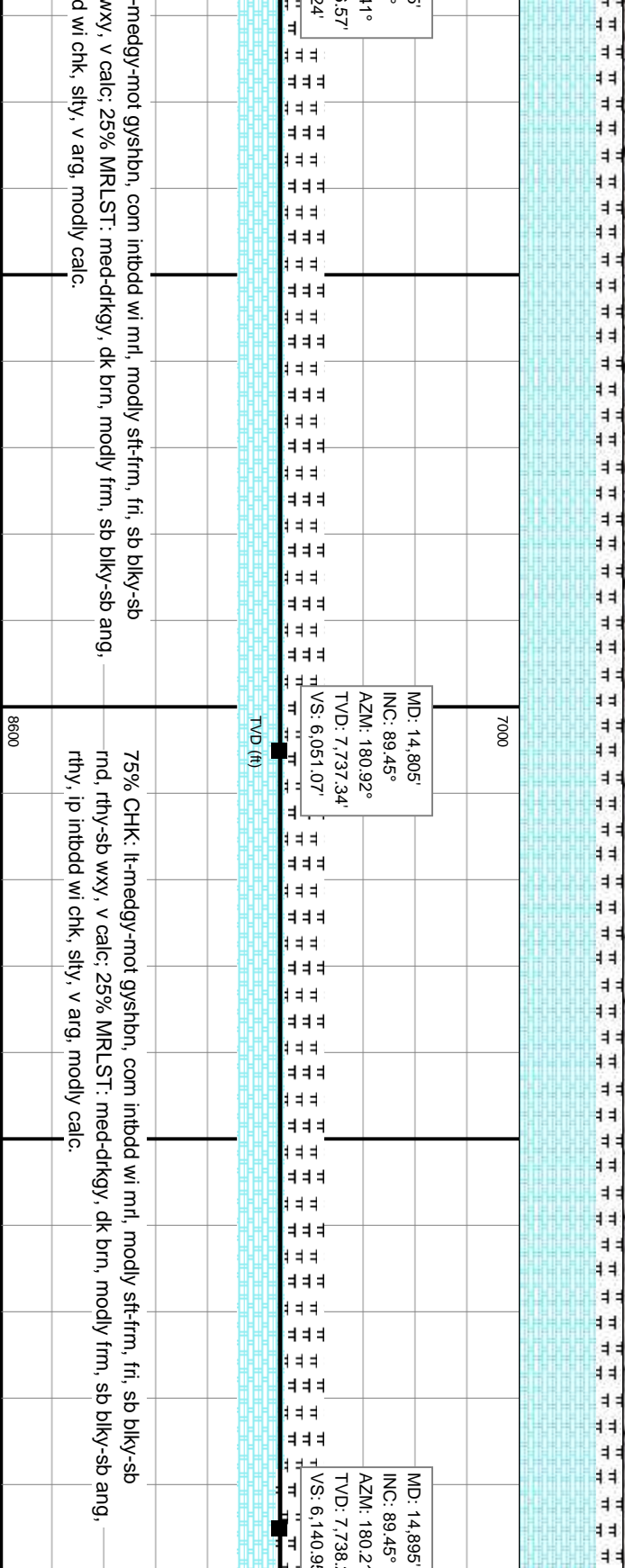
70% CHK: lt-medgy-mot gysbhn
mnd, rthy-sb wxy, tr bent, v calc,
blkly-sb ang, rthy, slty, v arg, mo

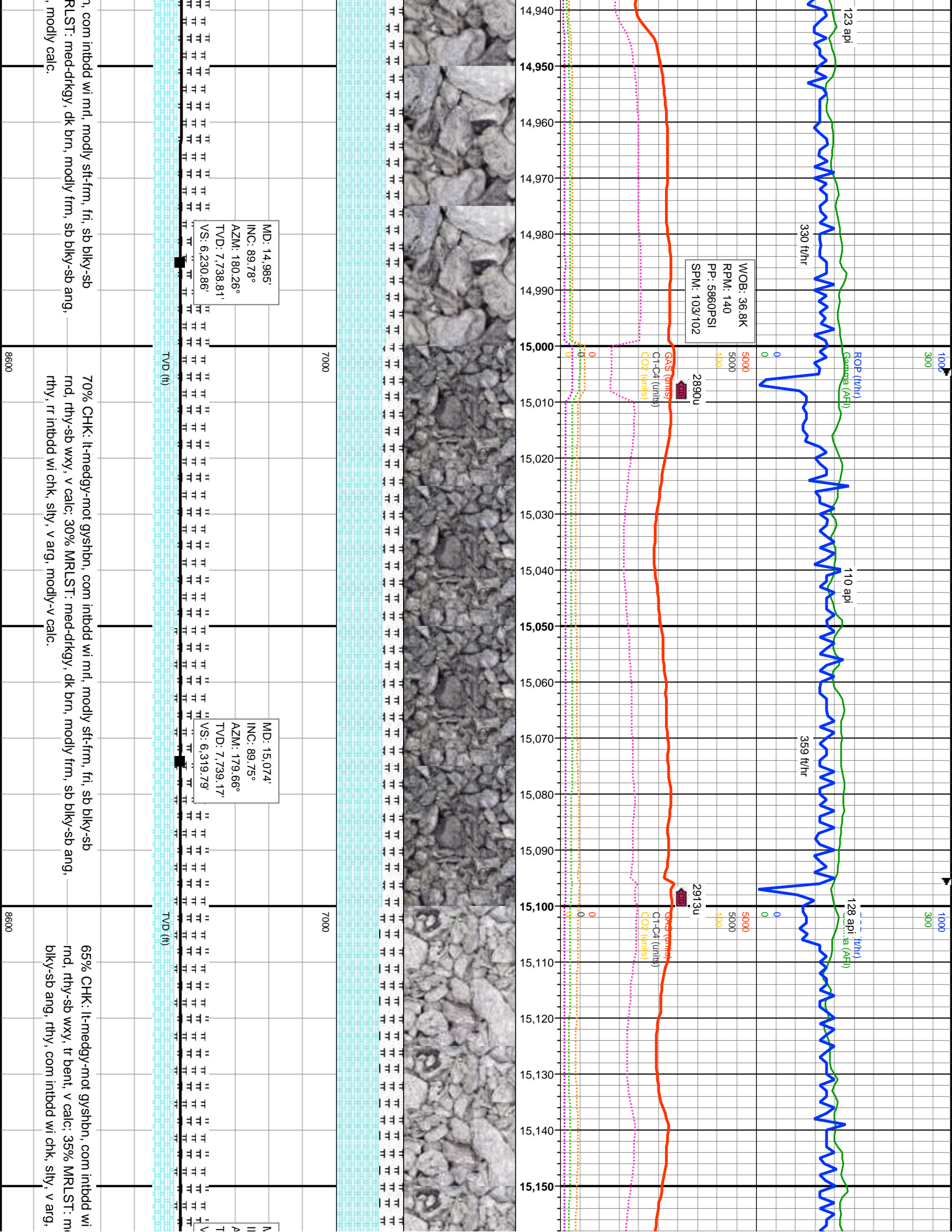


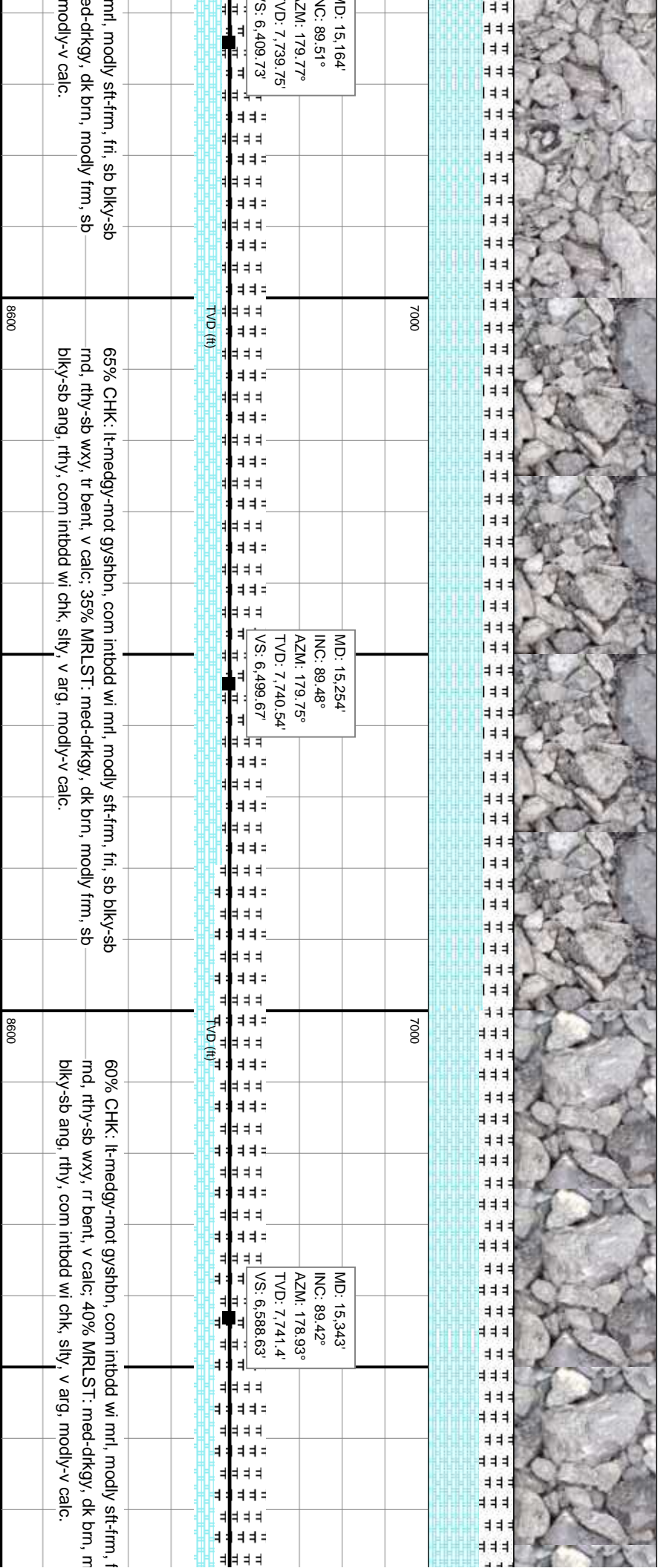
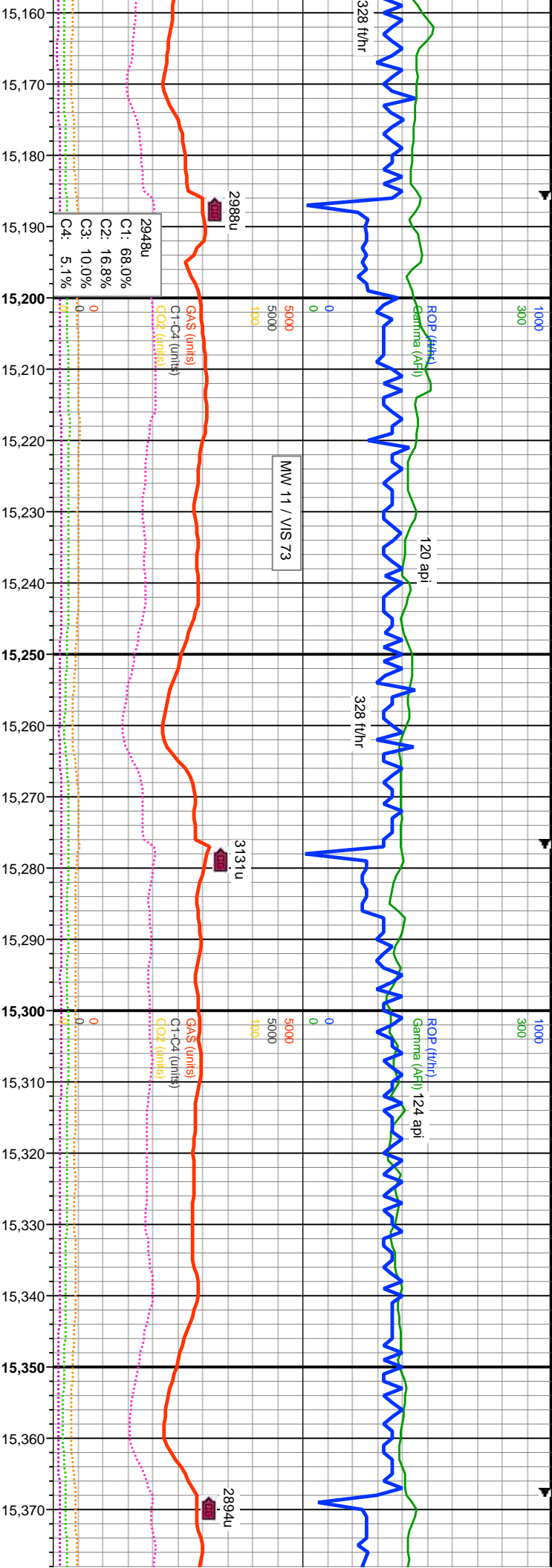


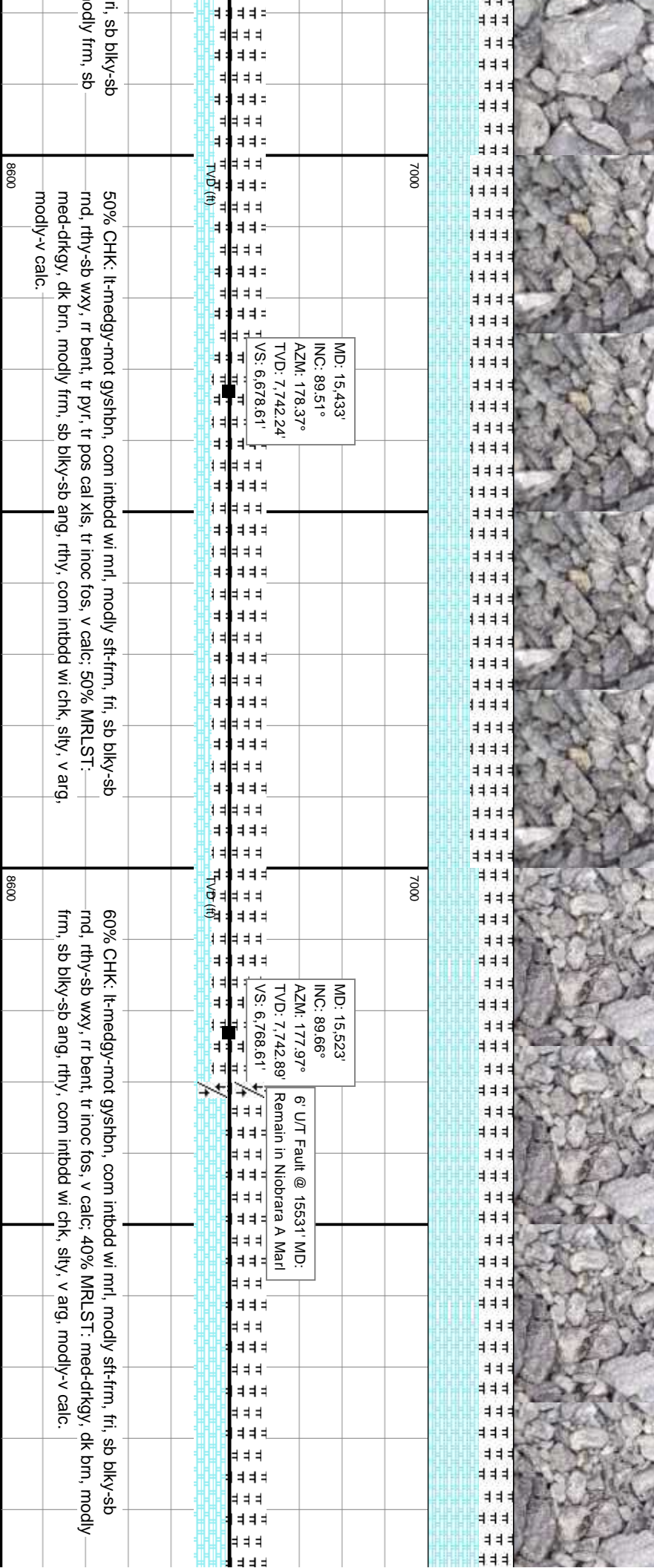
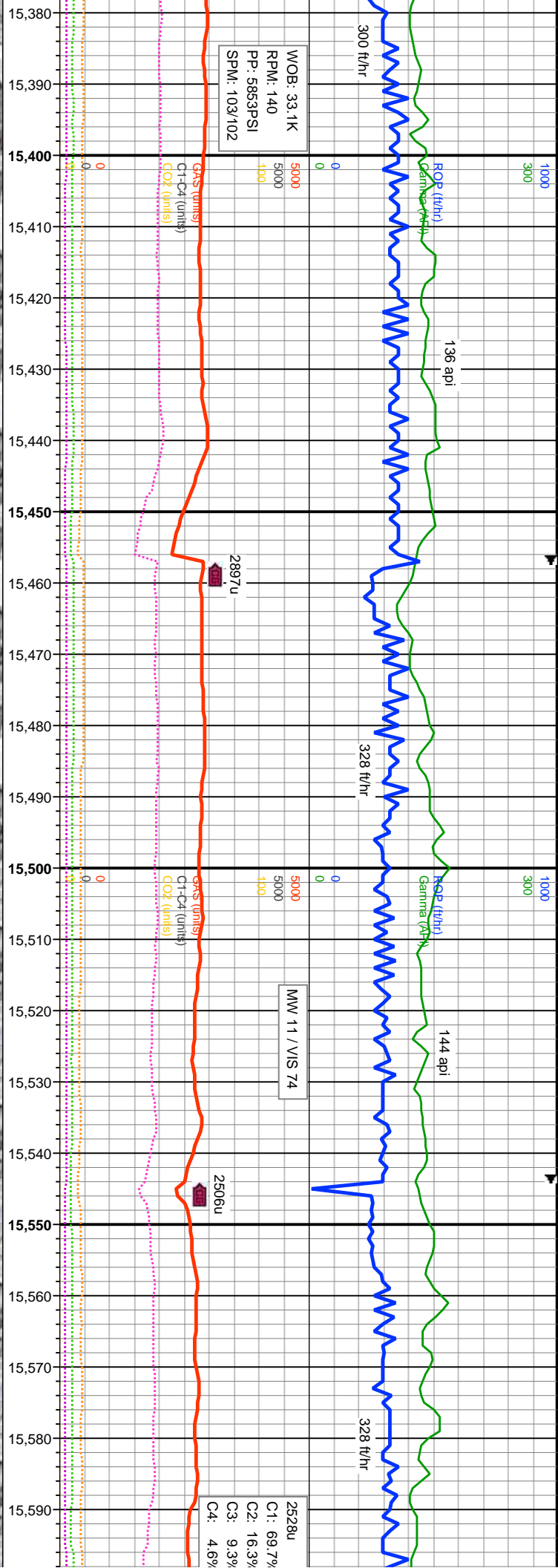


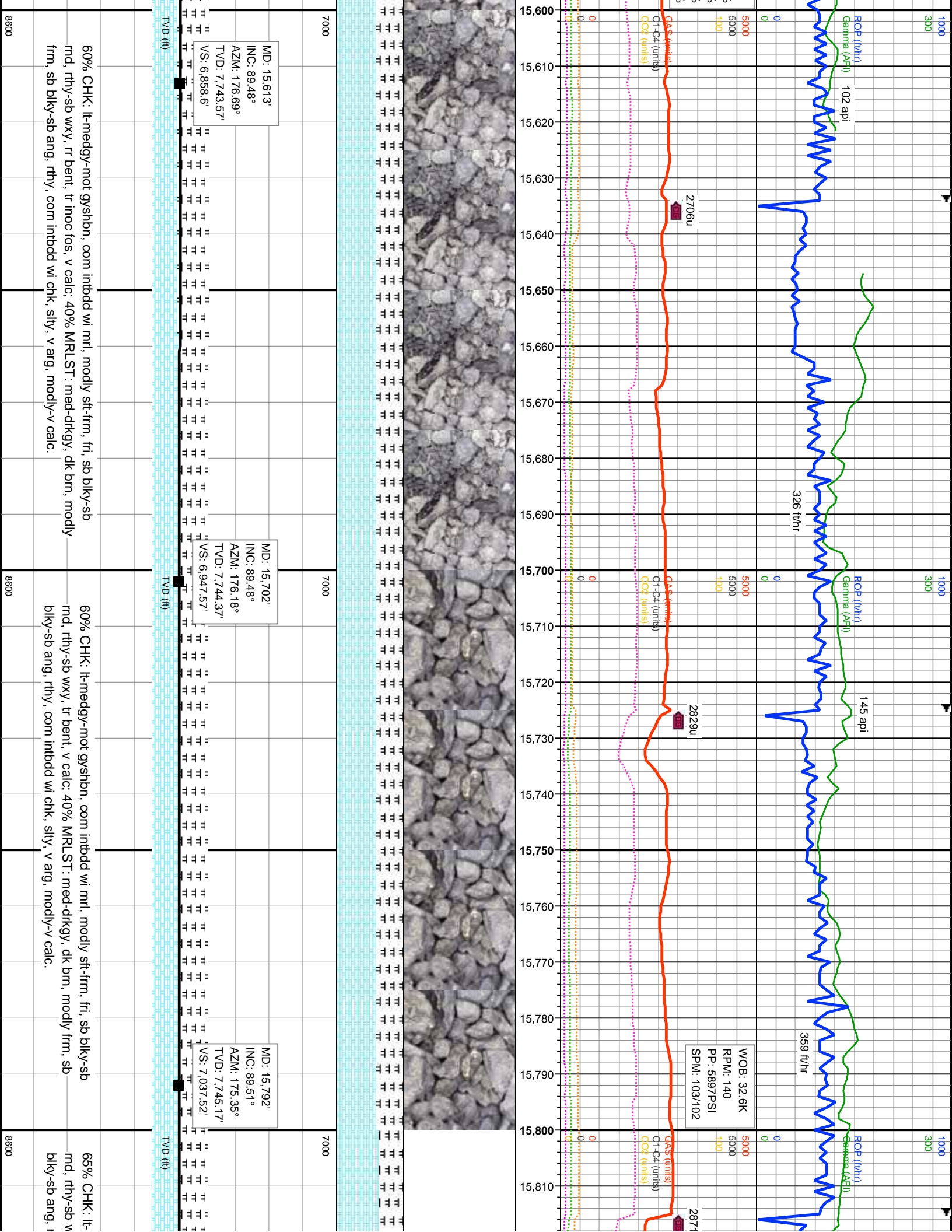


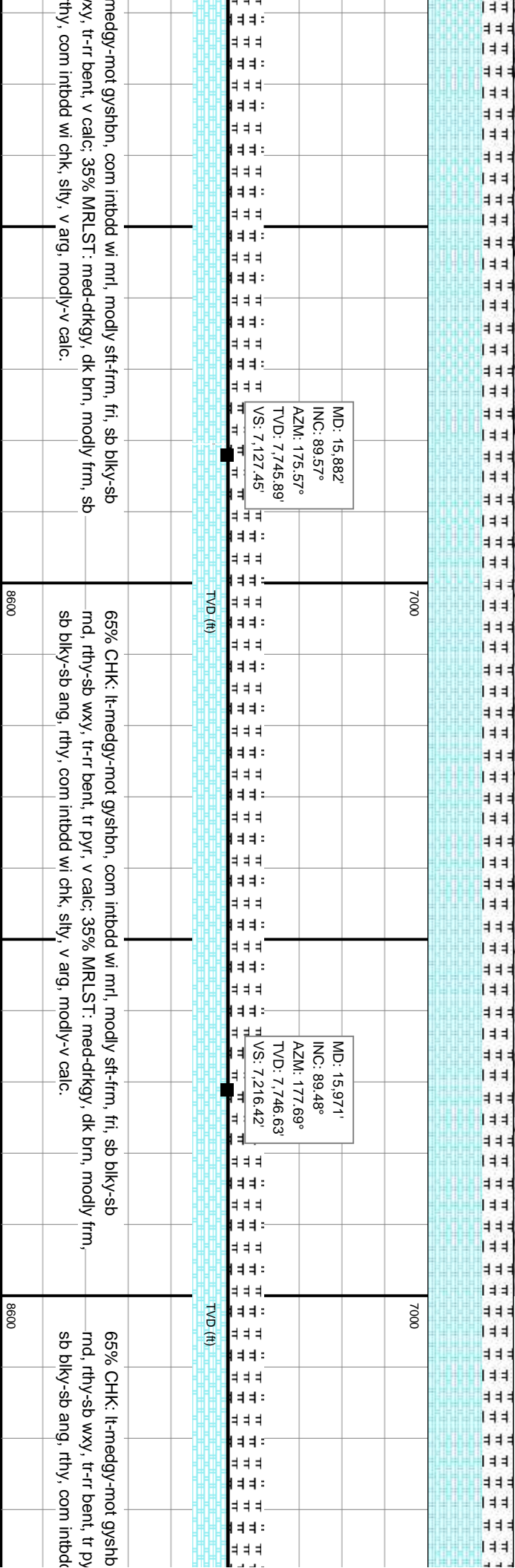
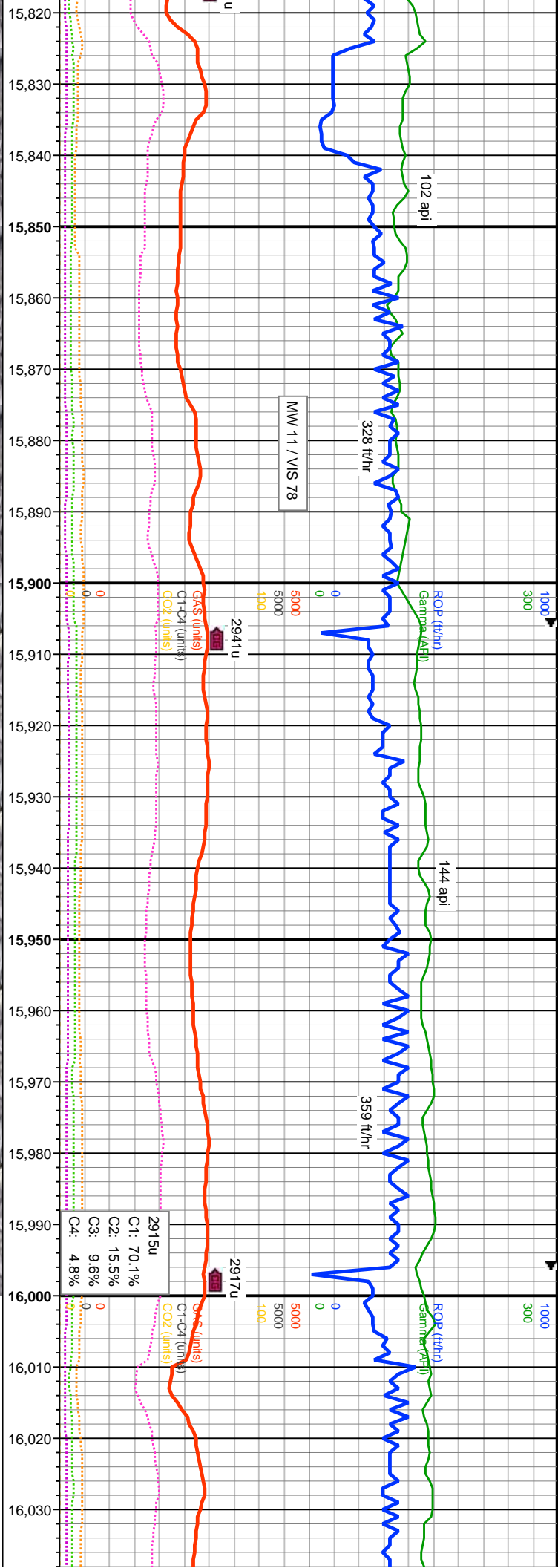


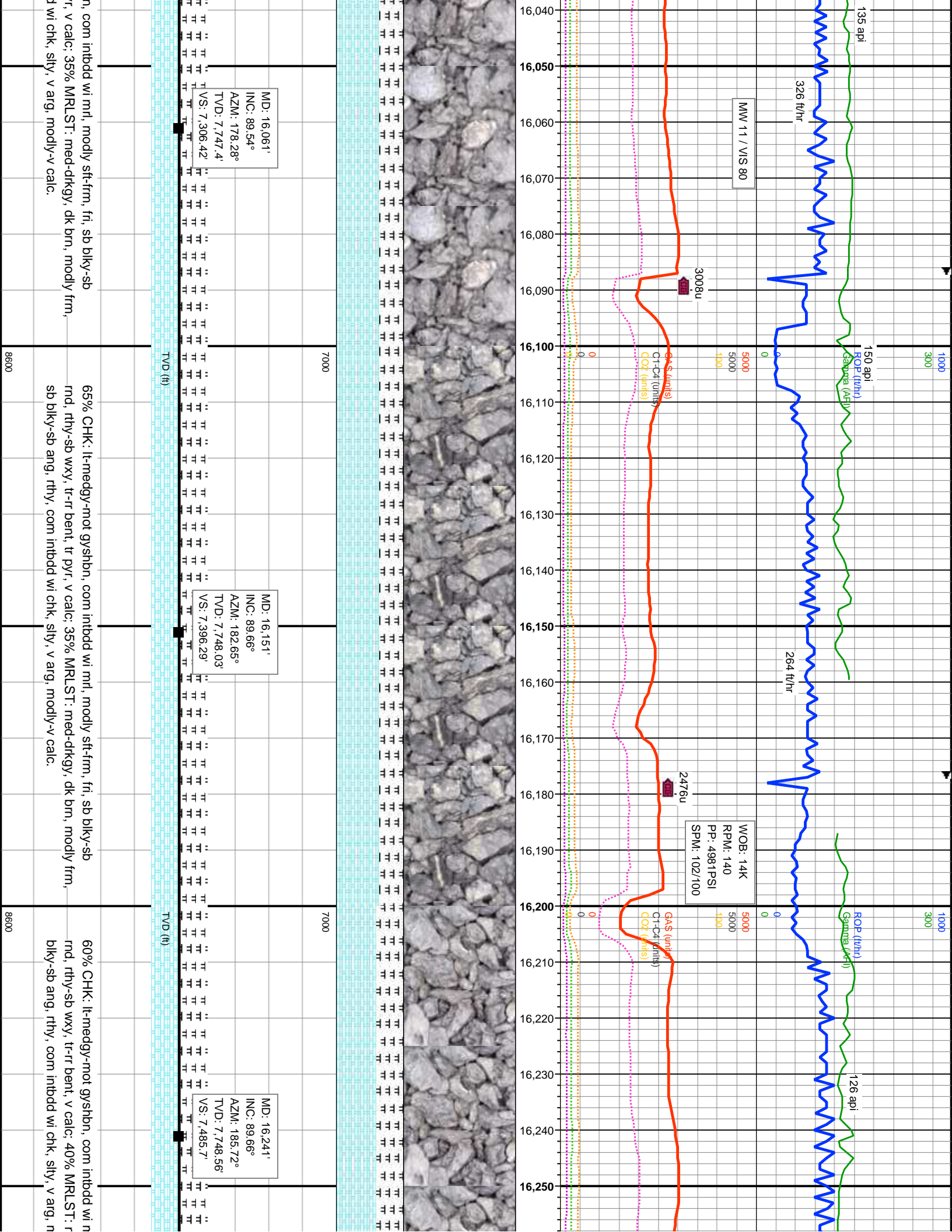


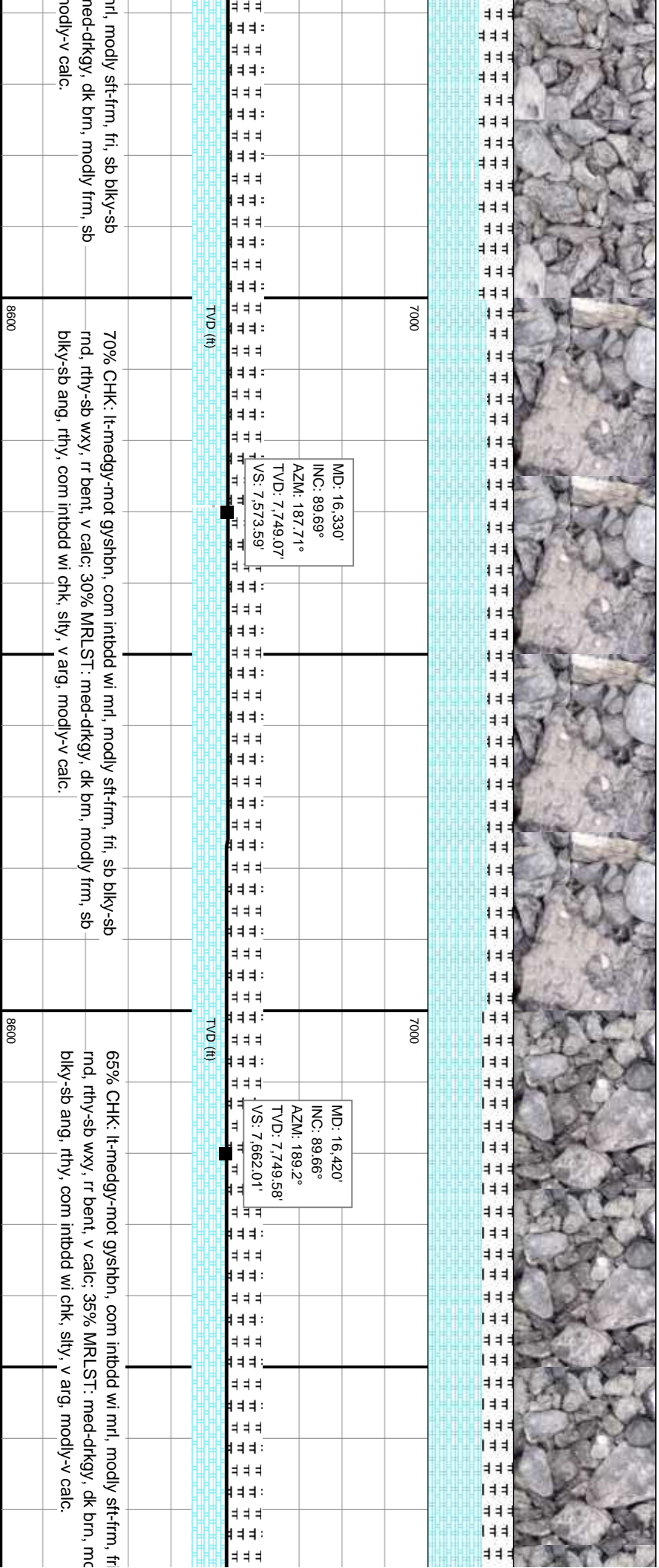
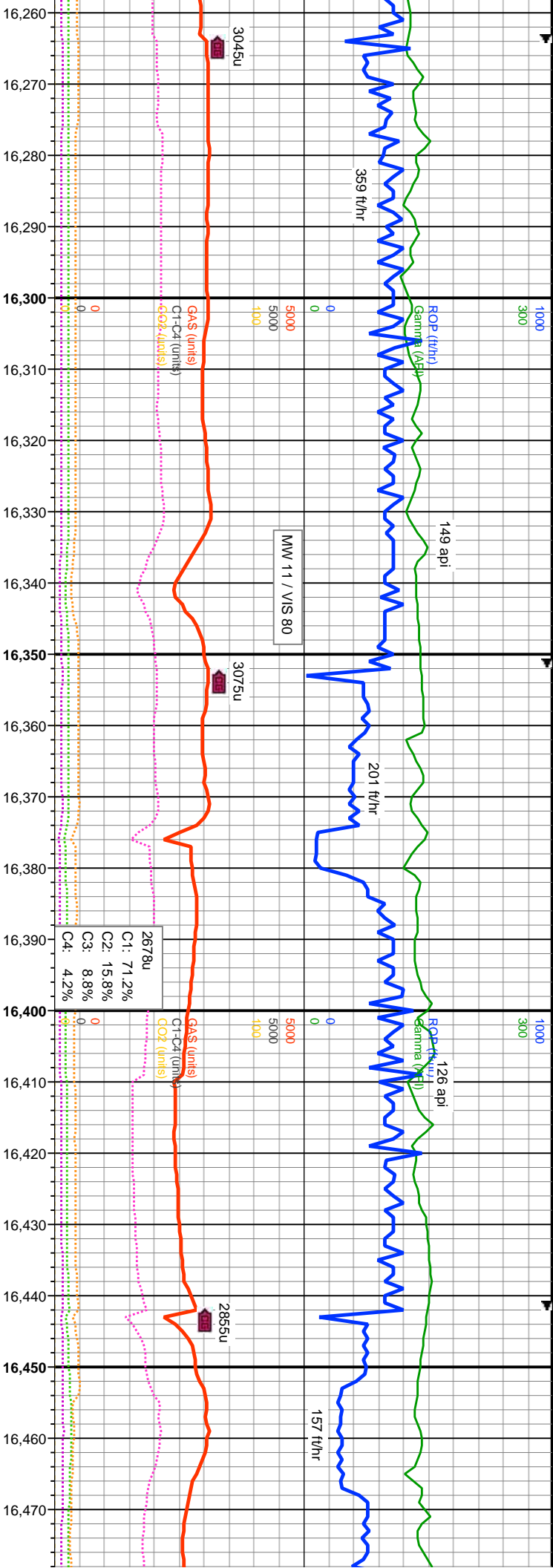


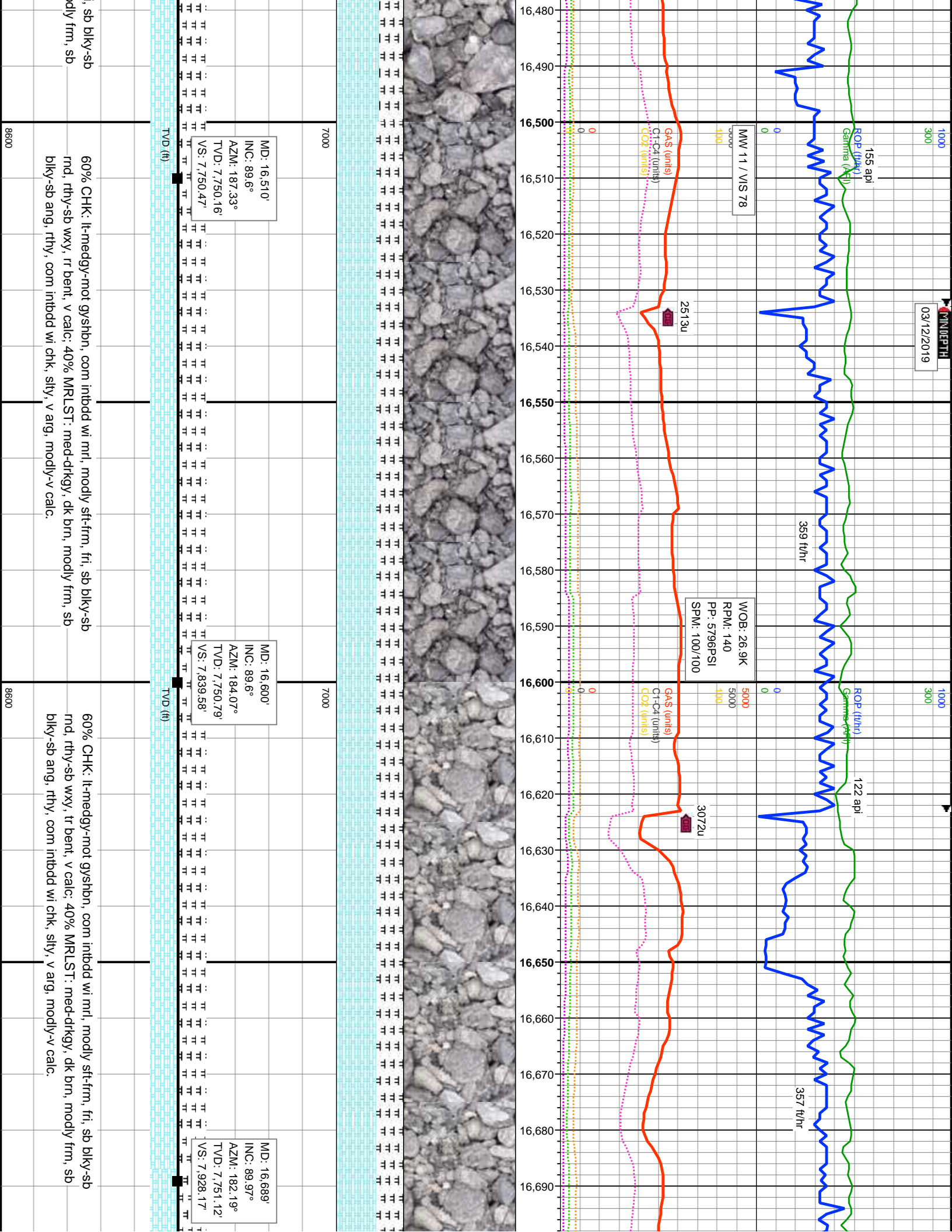


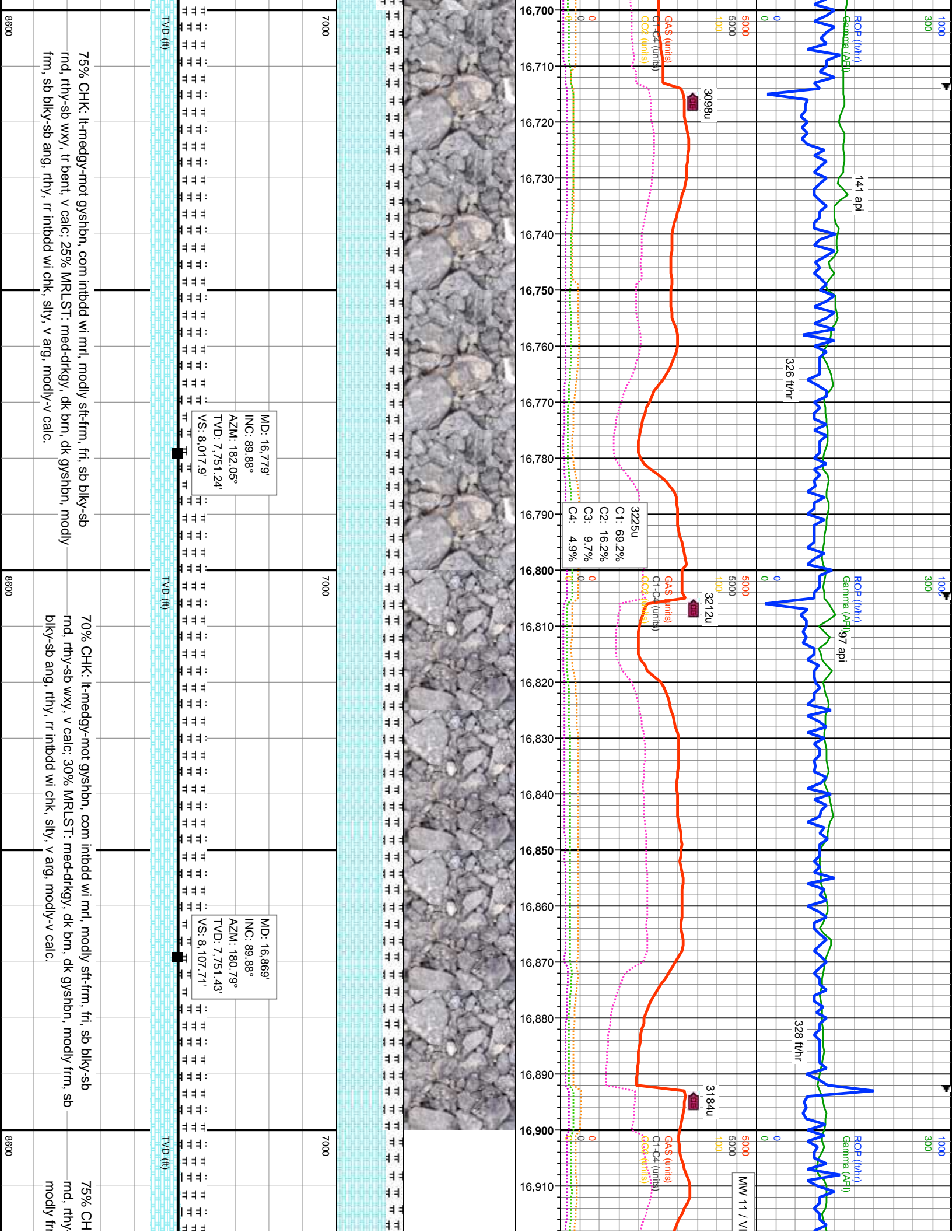


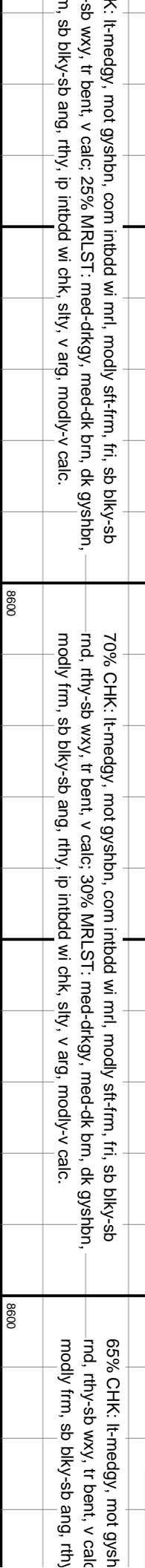
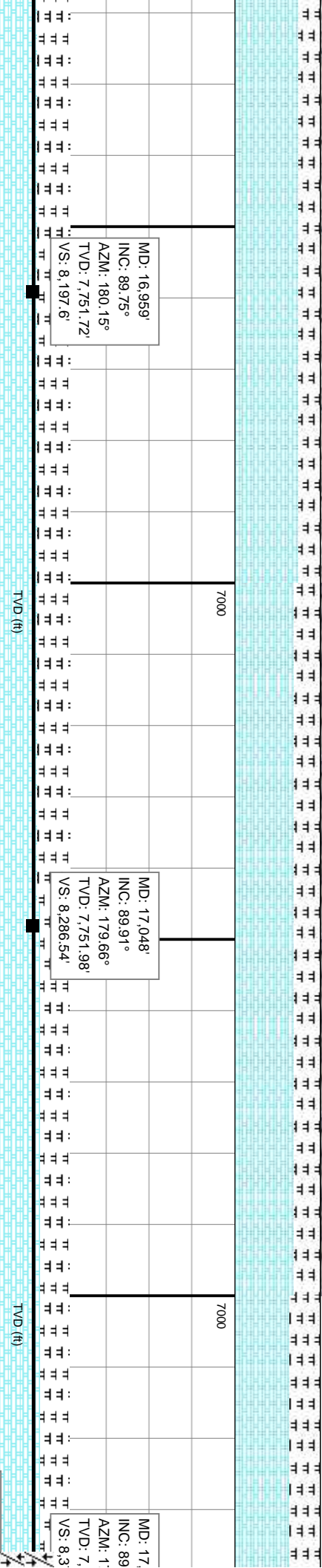
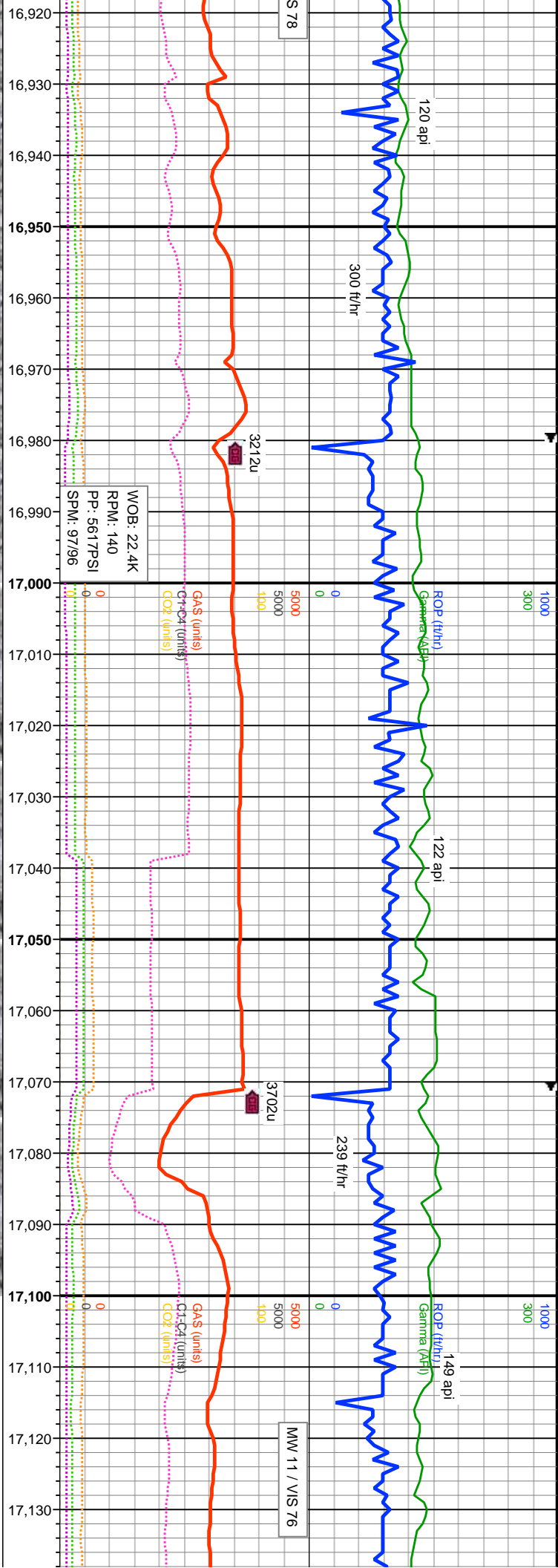


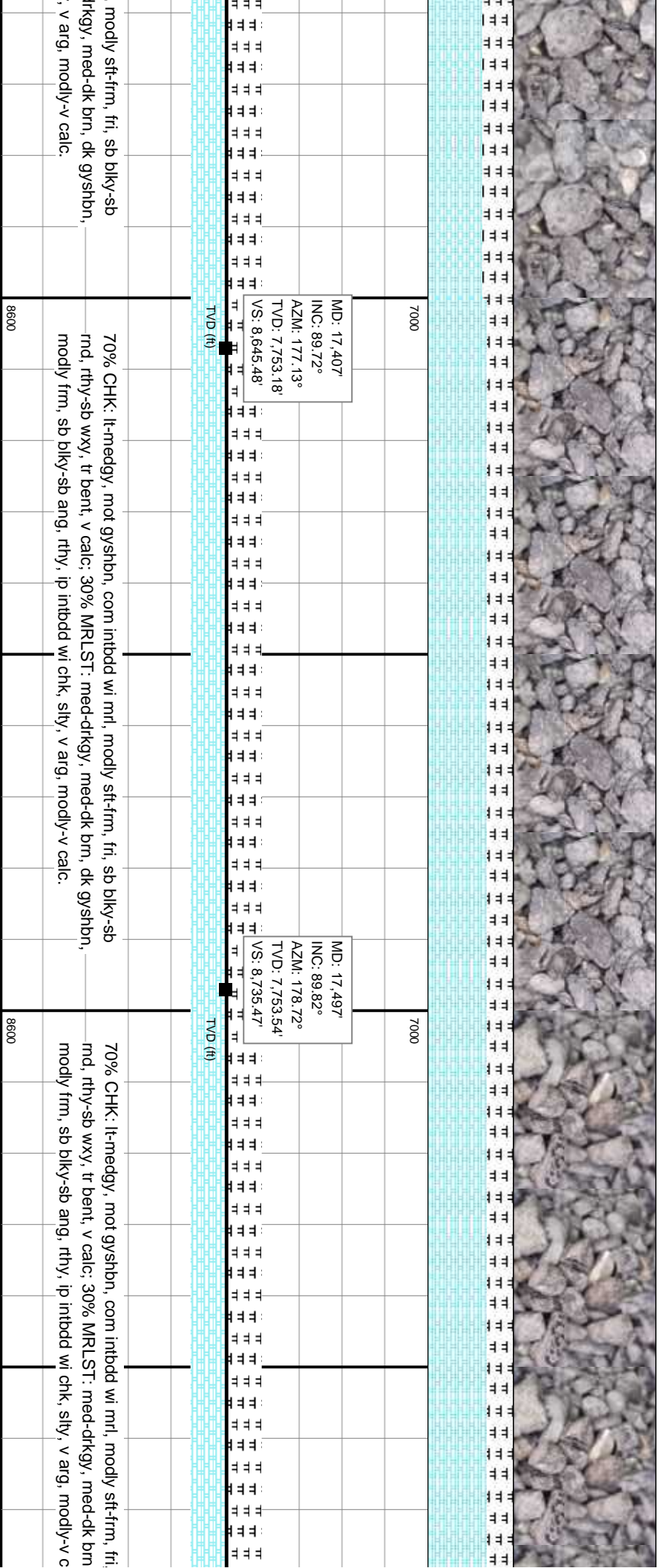
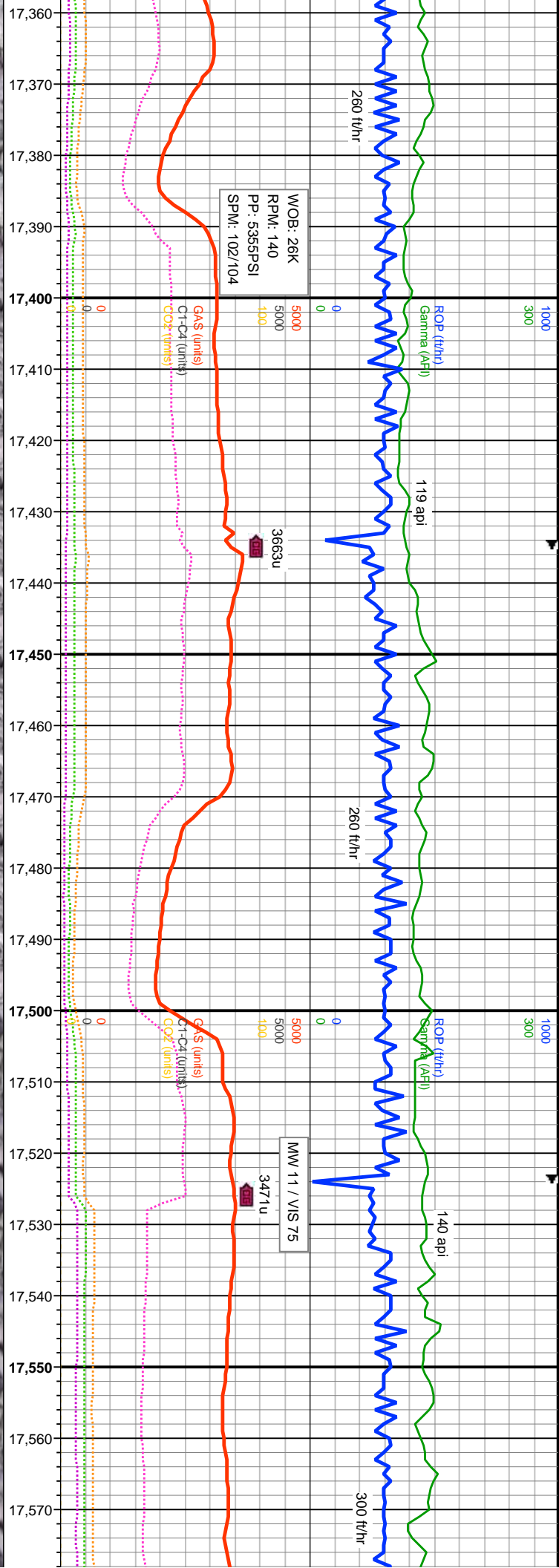


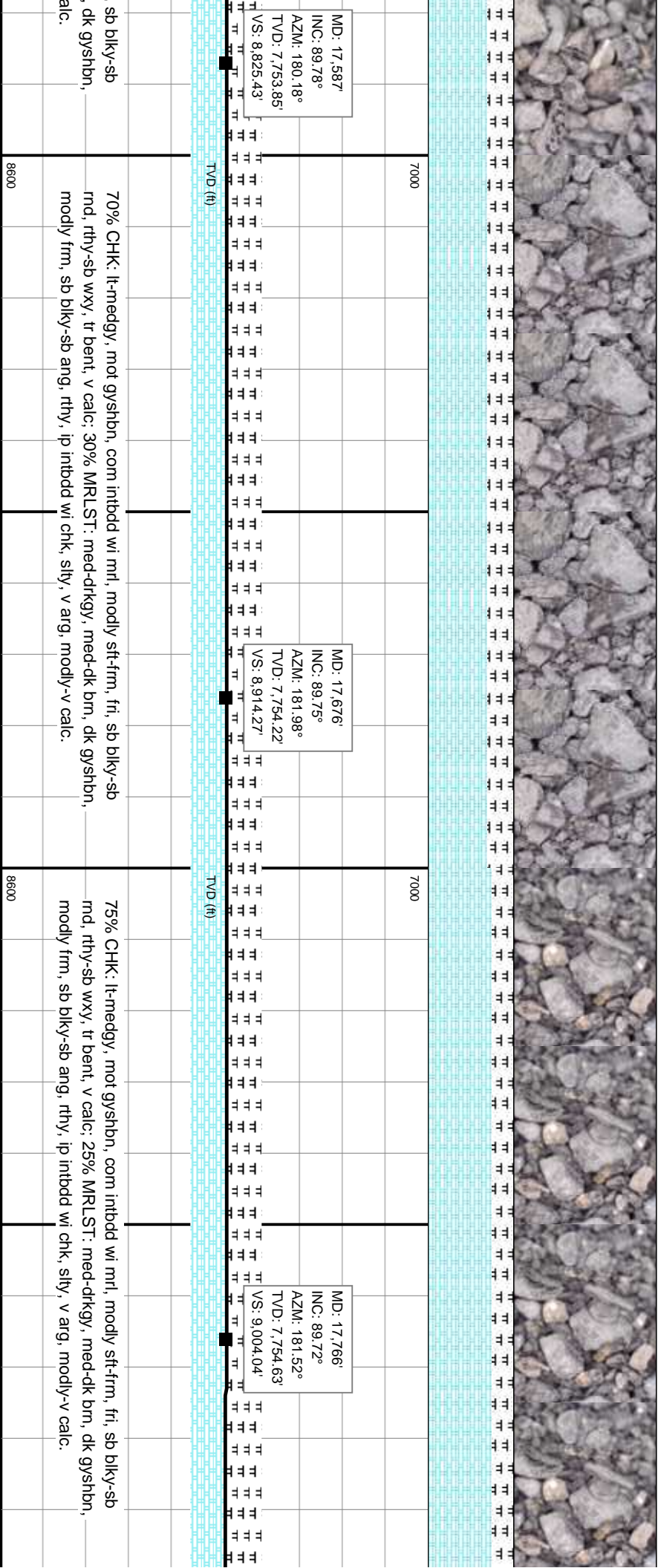
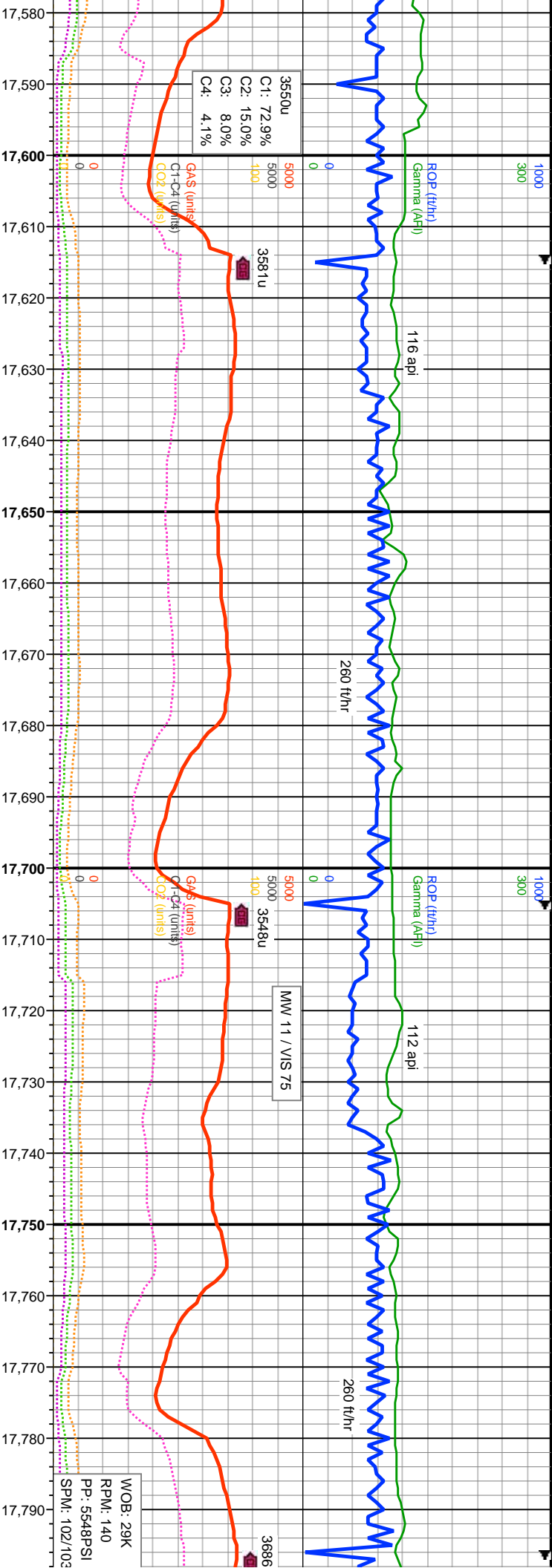


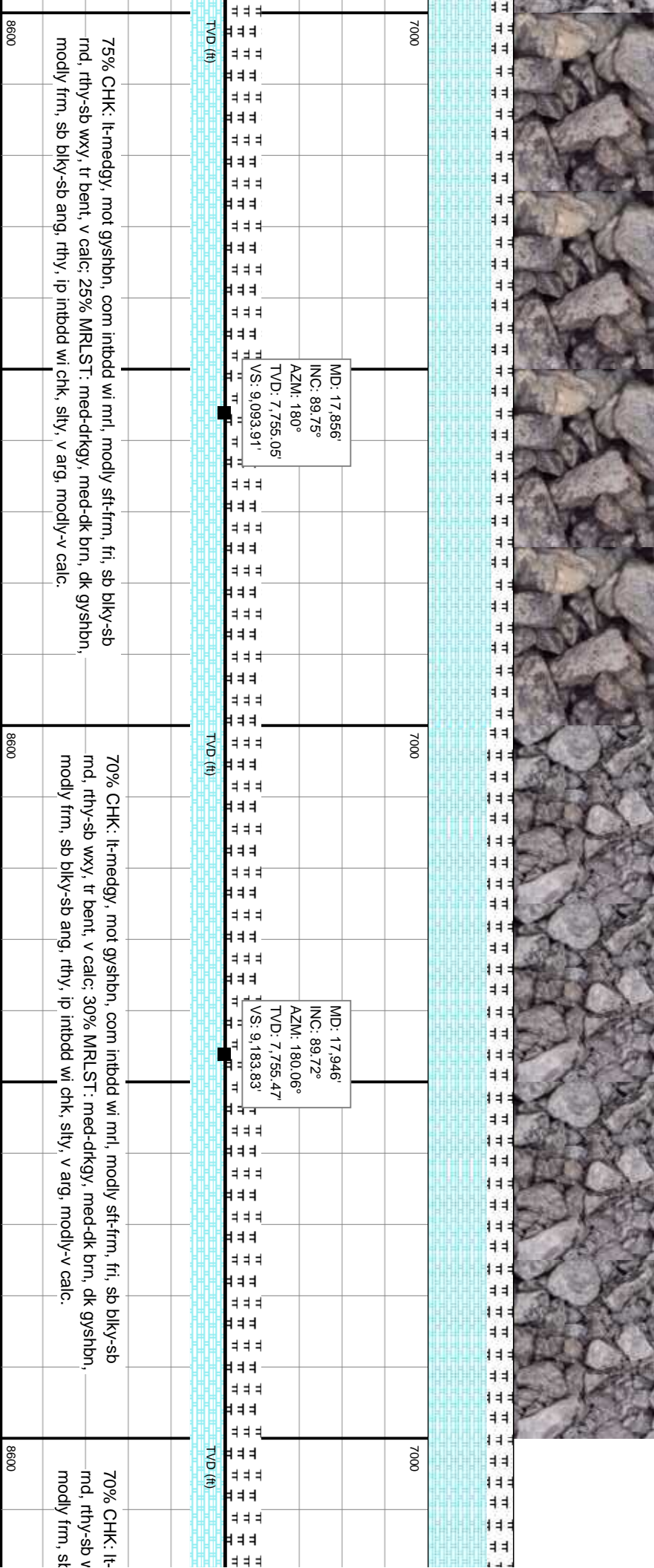
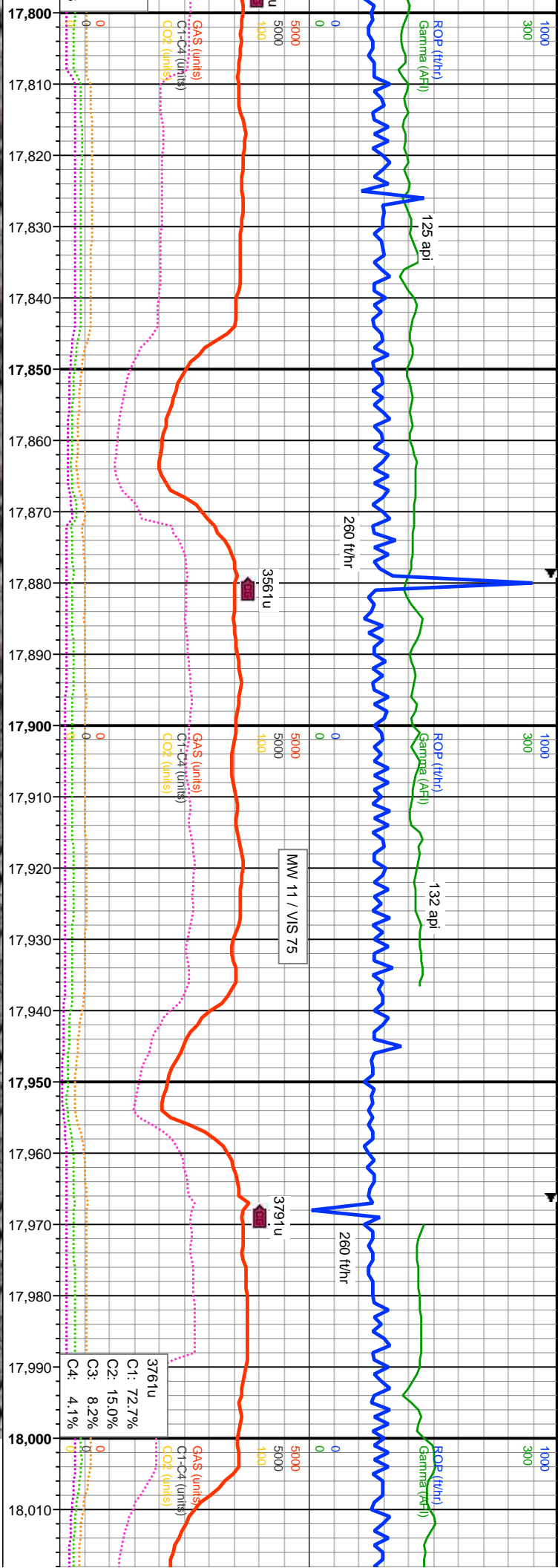


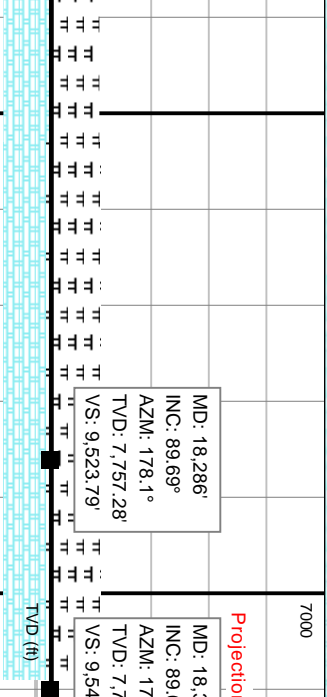
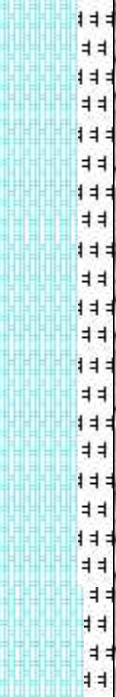
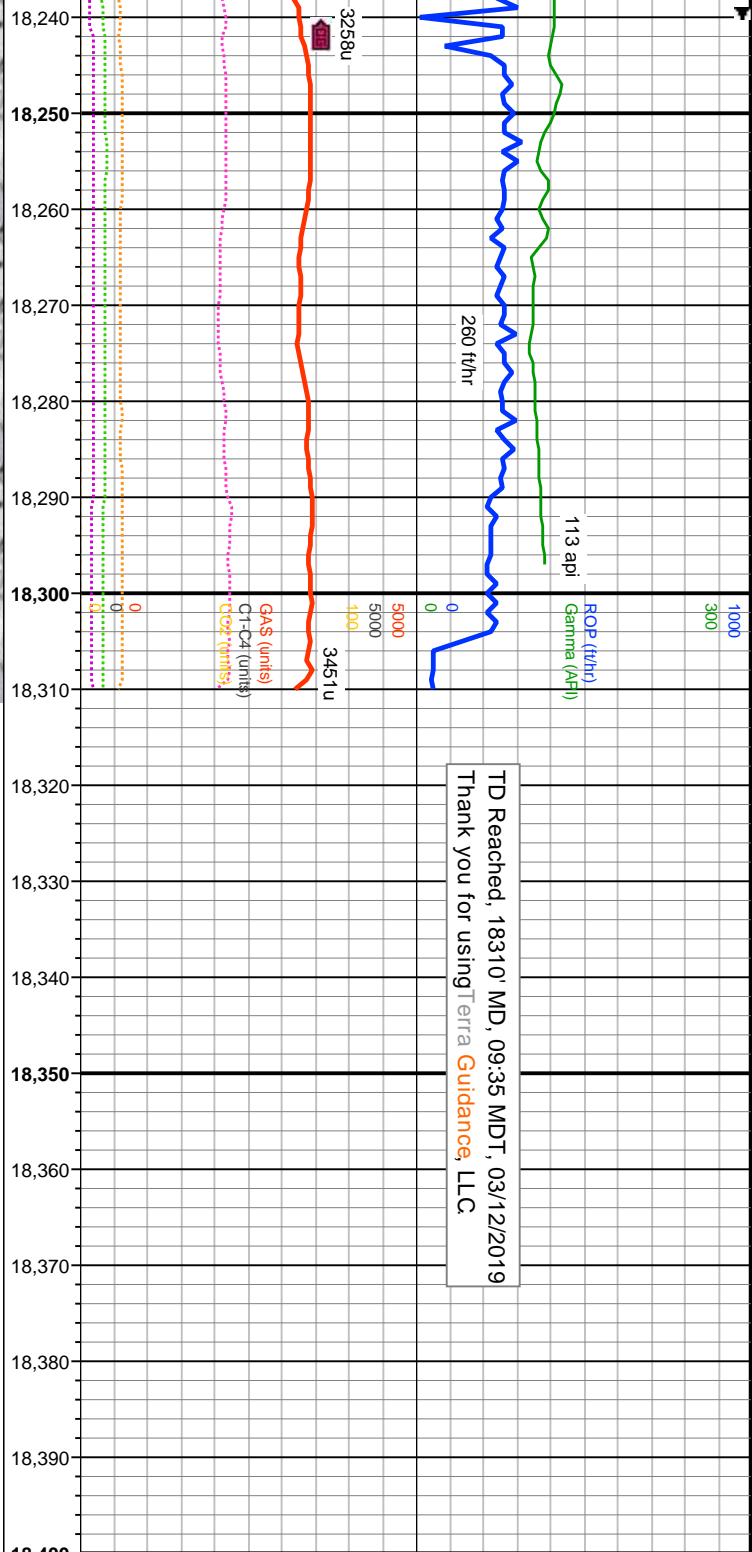












Projection to Bit	
MD: 18,286'	MD: 18,310'
INC: 89.69°	INC: 89.69°
AZM: 178.1°	AZM: 178.1°
TVD: 7,757.28'	TVD: 7,757.41'
VS: 9,523.79'	VS: 9,547.79'

FM Name	Excursion Depths
Sharon Springs	7641' MD
Niobrara	7819' MD
Ft Hays	
Codell	
Carlile	
Greenhorn	

Bottoms Up Sample

on, com intbdd wi mrl, modly sft-fm, fri, sb blkly-sb
30% MRLST: med-dkgy, med-dk brn, dk gysbhn,
ip intbdd wi chk, silty, v arg, modly-v calc.

75% CHK: lt-medgy, mot gysbhn, com intbdd wi mrl, modly sft-fm, fri, sb blkly-sb
rnd, rthy-sb wxy, tr bent, v calc; 25% MRLST: med-dkgy, med-dk brn, dk gysbhn,
modly frm, sb blkly-sb ang, rthy, ip intbdd wi chk, silty, v arg, modly-v calc.

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