



Scale: 5" / 100'
Measured Depth Log

Well Name Ottesen LE 09-368HN Mudlog

Location SECTION 33, T1N, R66W

State COLORAD

County WELD

Country UNITED STATES

Rig Number PRECISION 460

API Number 051234433000

AFE # 18DC0204

Geographic Region DJ BASIN

Field WATTENBERG

Ground Elevation 5076.5'

K.B. Elevation 5096.5'

Logged Interval 6000' MD To 17745' MD

Total Depth 17745' MD

Formation NIOBRARA B 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 Joey Luce, Zac Olds, Mark Sowinski

Company Terra Guidance

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



Accessories

NITE	K KAOLIN	COAL STRINGER
INOUS SUBSTANCE	TT MARLSTONE	DOLOMITE STRINGER
IA FRAGMENTS	MINERAL CRYSTALS	GYPSUM STRINGER
NEOUS	MODULES	LMESTONE STRINGER
ANCEOUS FLAKES	PHOSPHATE PELLETS	TT MARLSTONE (CALC) STRG
	P PYRITE	TT MARLSTONE (DOL) STRG
THIN BEDS	SALT CAST	SANDSTONE STRINGER
	SANDY	SHALE STRINGER
ITIC	SILICEOUS	SILTSTONE STRINGER
AR	SILTY	CALC SHALE
IGINOUS PELLET	TUFFACEOUS	CHALK
GINOUS		
ONITE		
FEROUS		
MINERAL		

Stringer

ANHYDRITE STRINGER
BENTONITE STRINGER

Other Symbols

FORMATION TOP	L LITHOGRAPHIC
GAS SHOW	MX MICROXLN
DEPTH MN DEPTH	A ANGULAR
ORMAL FAULT	R ROUNDED
OIL SHOW	B SUBANG
OVERTURNED STRATA	P SUBRND
REVERSE FAULT	
SIDEWALL CORE (LEFT)	
SIDEWALL CORE (RIGHT)	
LIDE	CHALKY
	CRYPTOXLN
SURVEY	E EARTHY
TRIP GAS	
WIRELINE TESTED - LEFT	FX FINELYXLN
WIRELINE TESTED - RT	GS GRAINSTONE

Rounding

MN DEPTH	M MUDSTONE
ORMAL FAULT	P PACKSTONE
OIL SHOW	W WACKESTONE

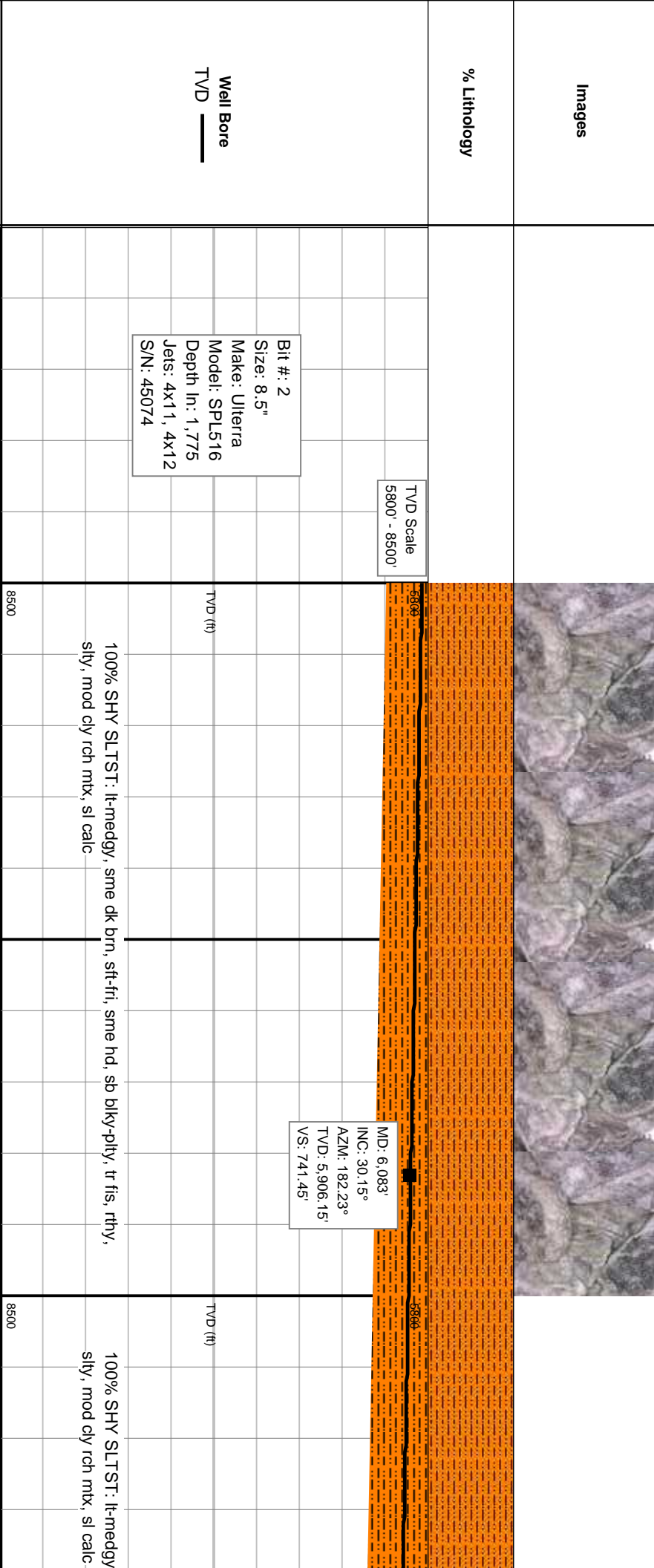
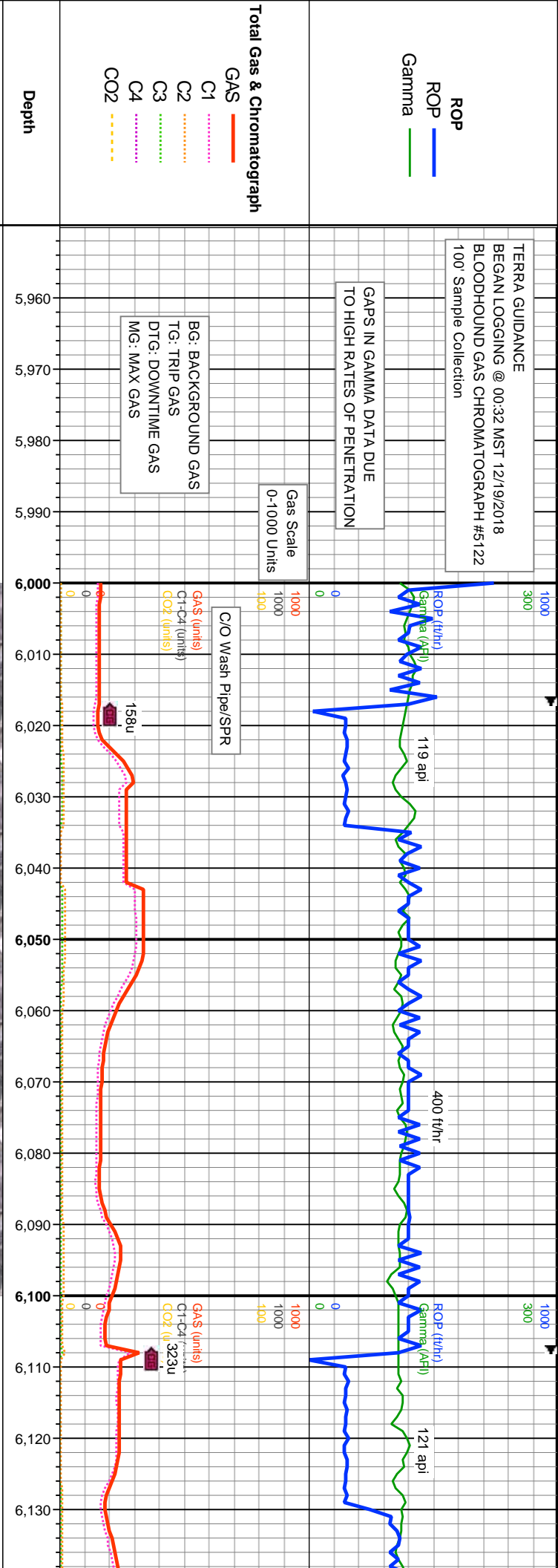
Sorting

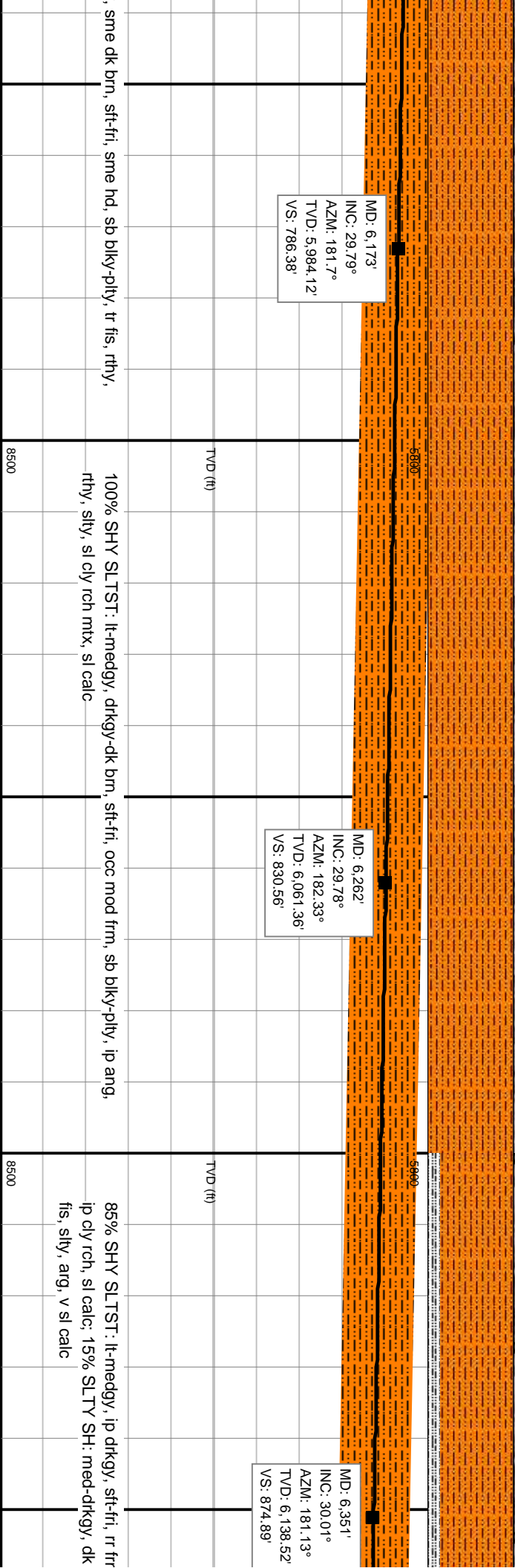
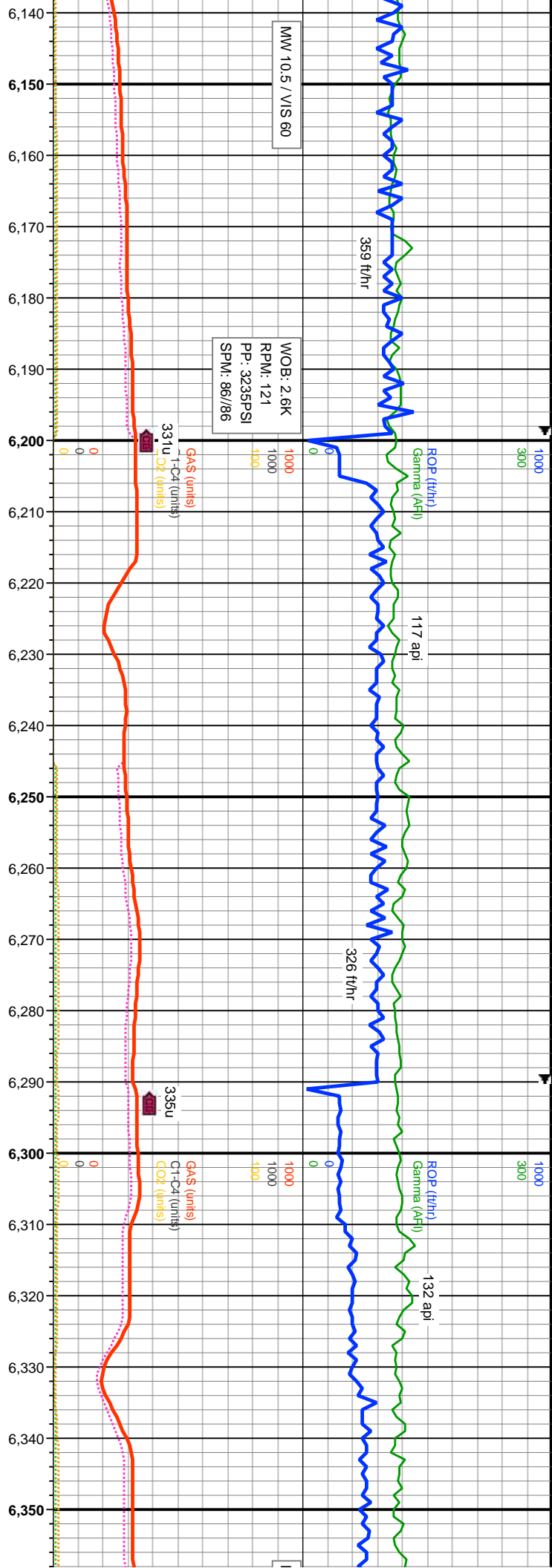
REVERSE FAULT	M MODERATE
SIDEWALL CORE (LEFT)	P POOR
SIDEWALL CORE (RIGHT)	W WELL

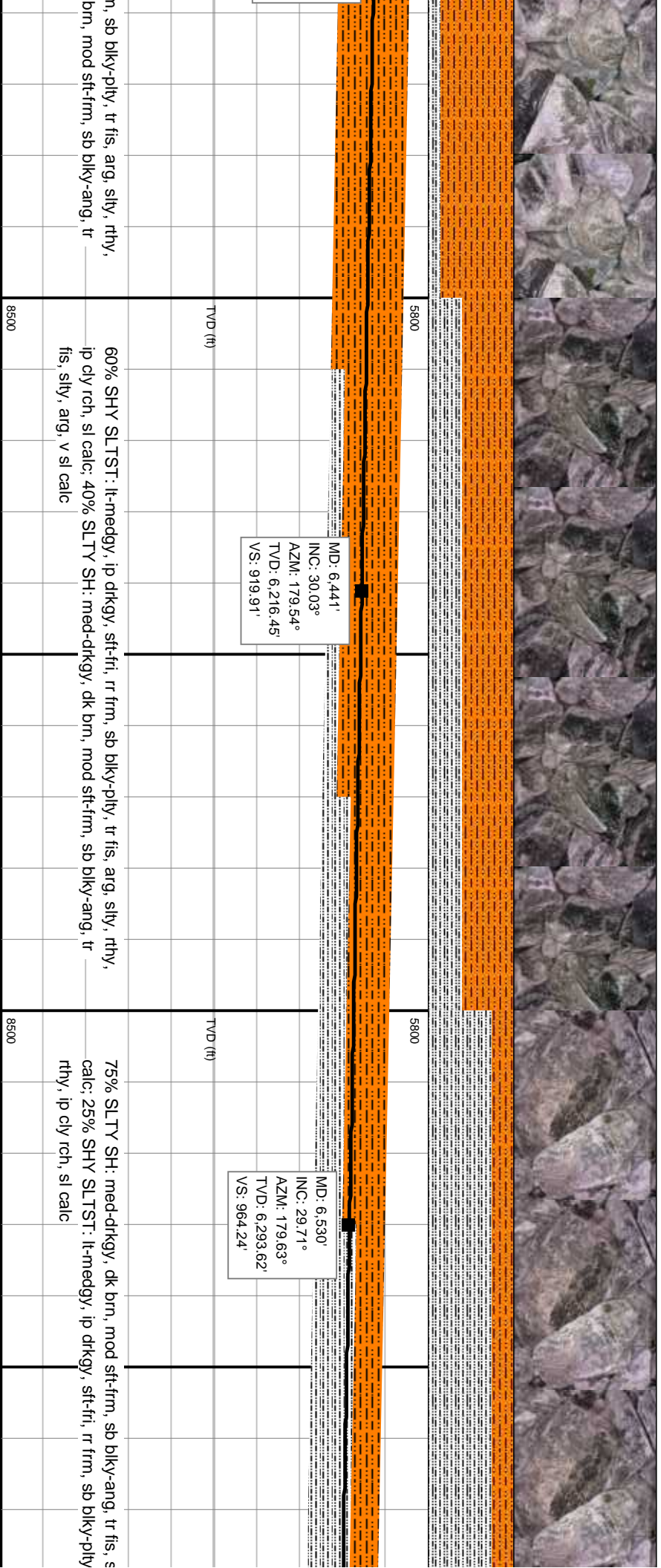
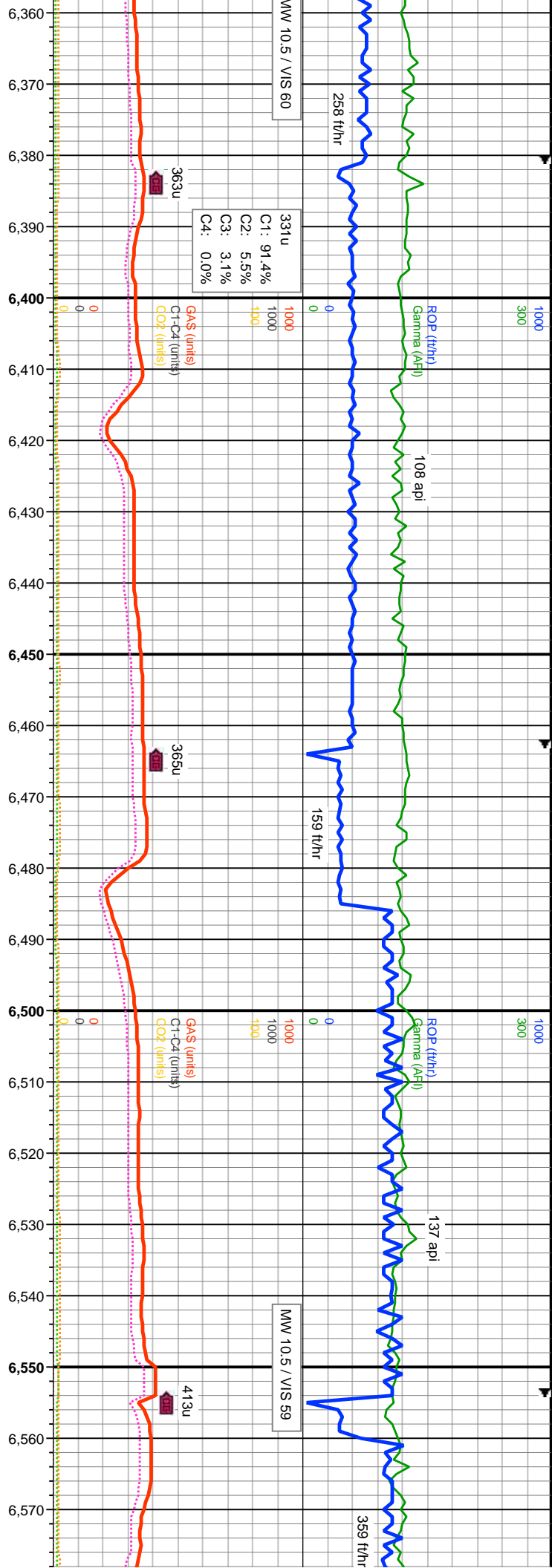
Textures

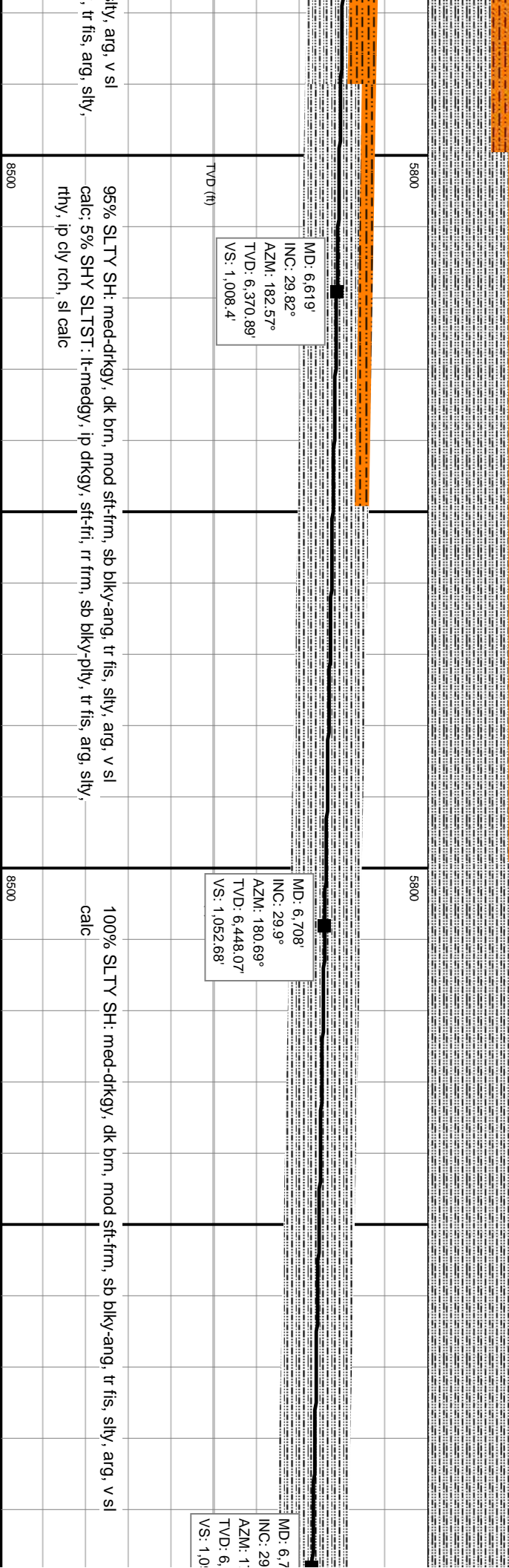
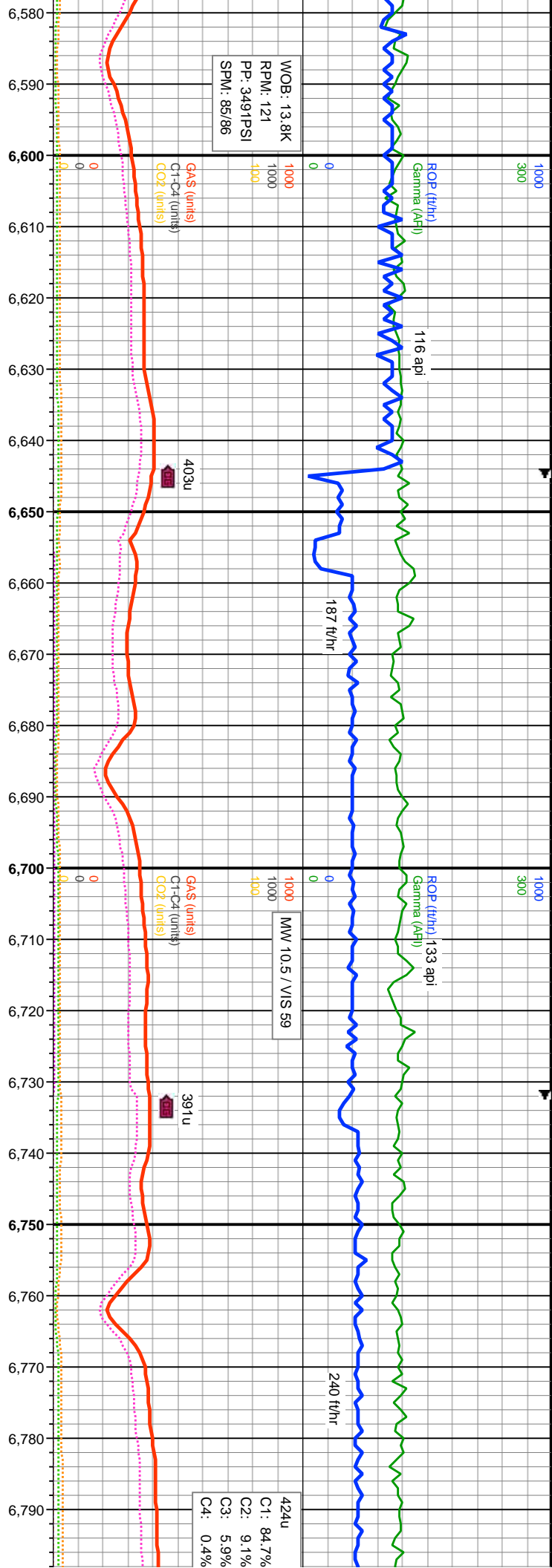
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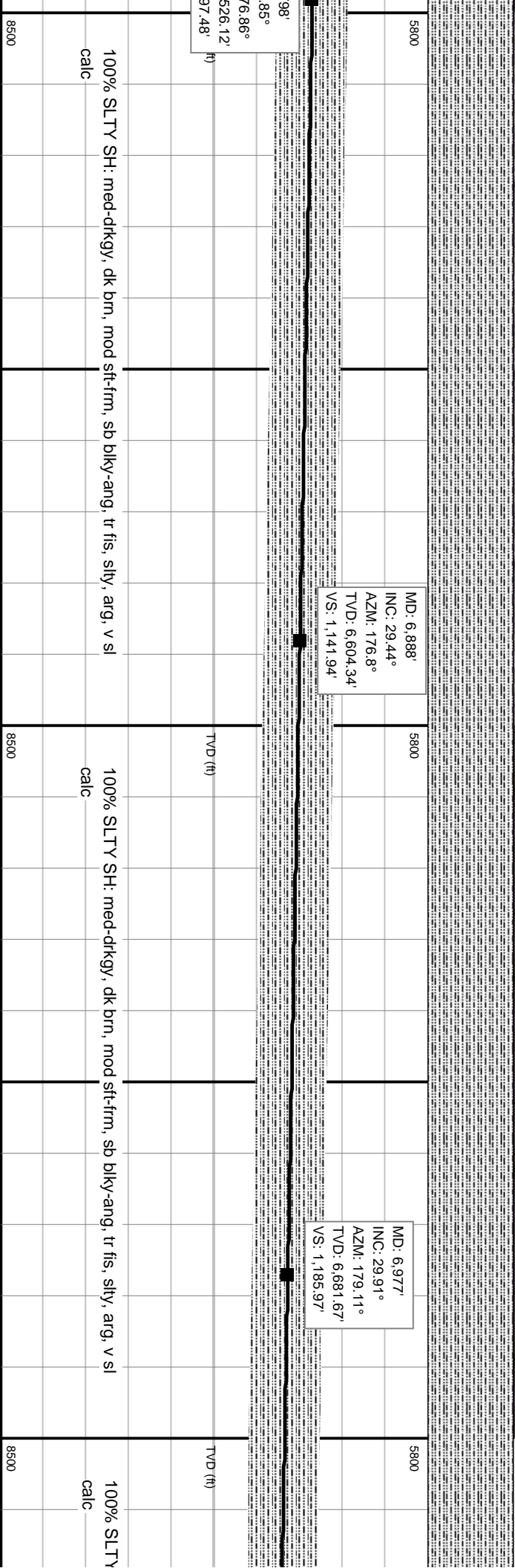
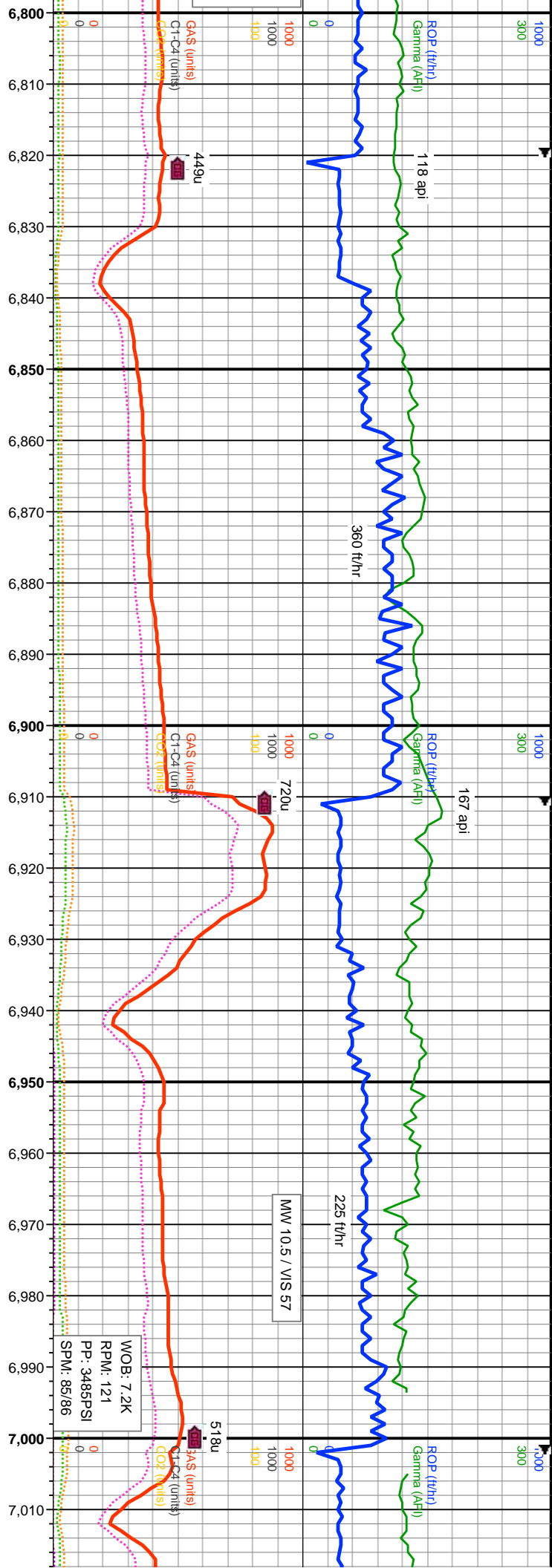
CALCARIOUS SHALE

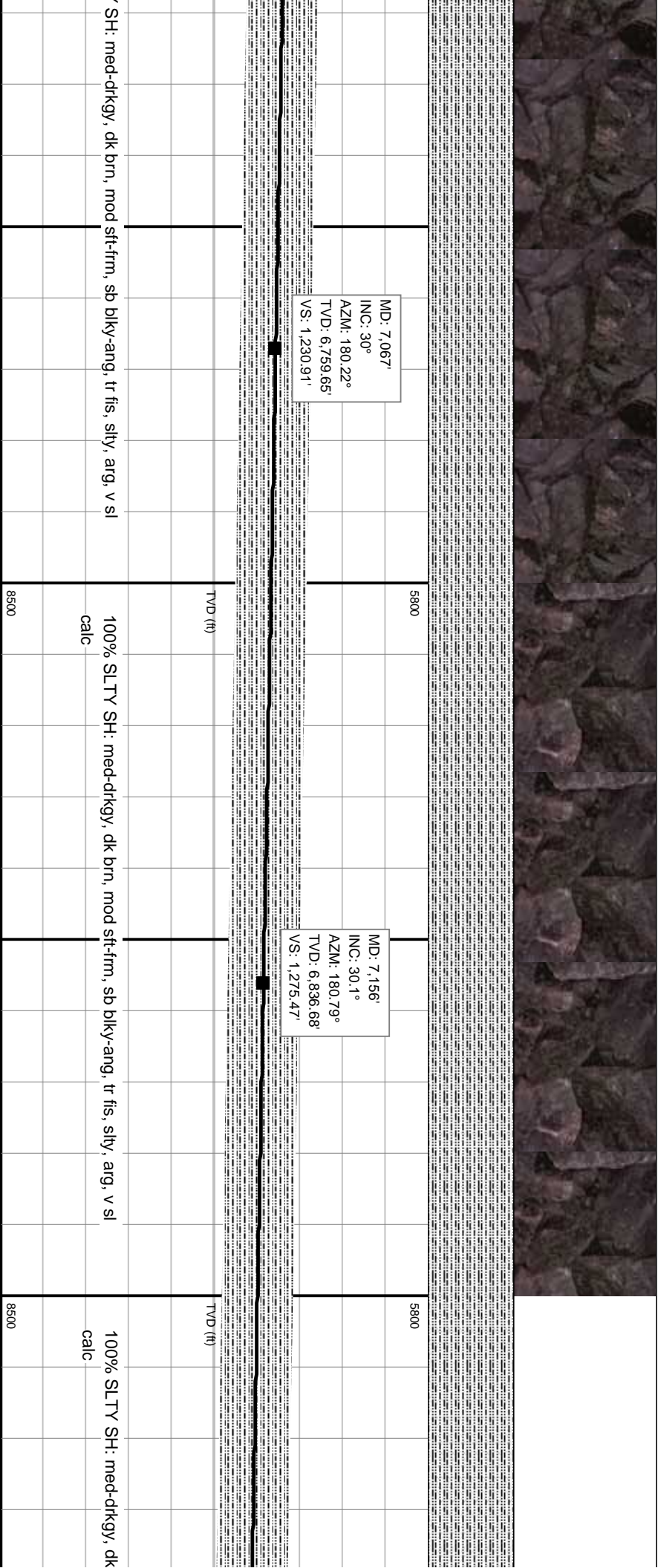
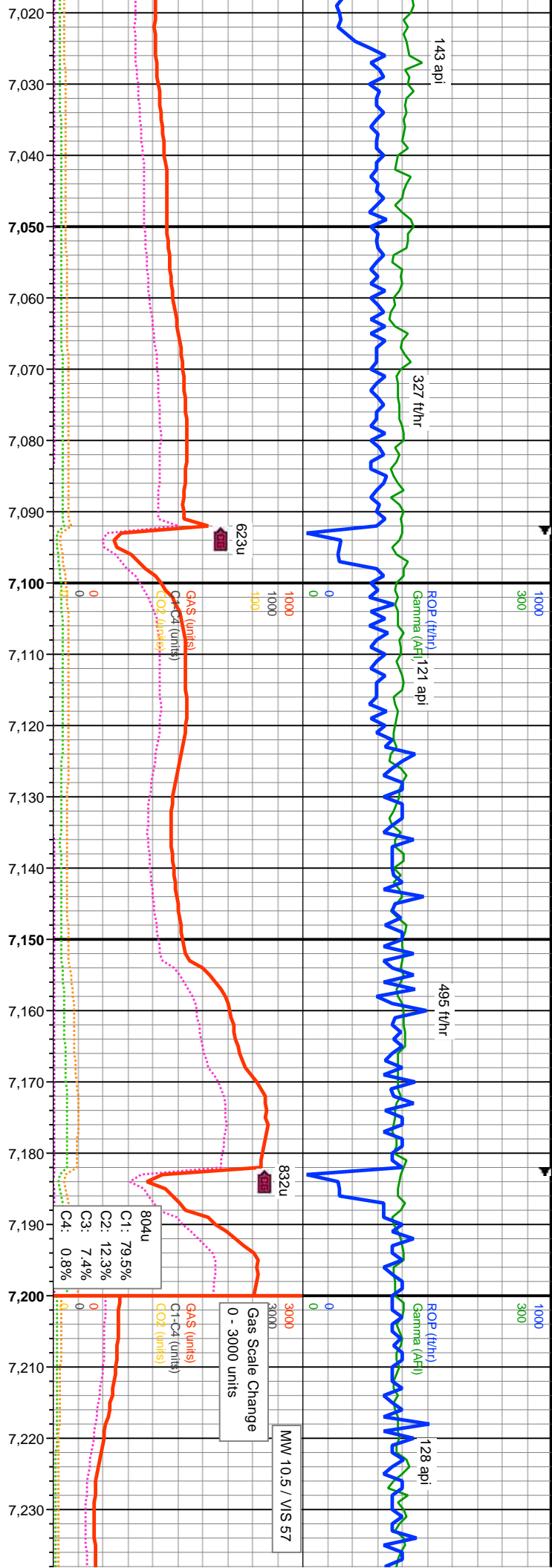


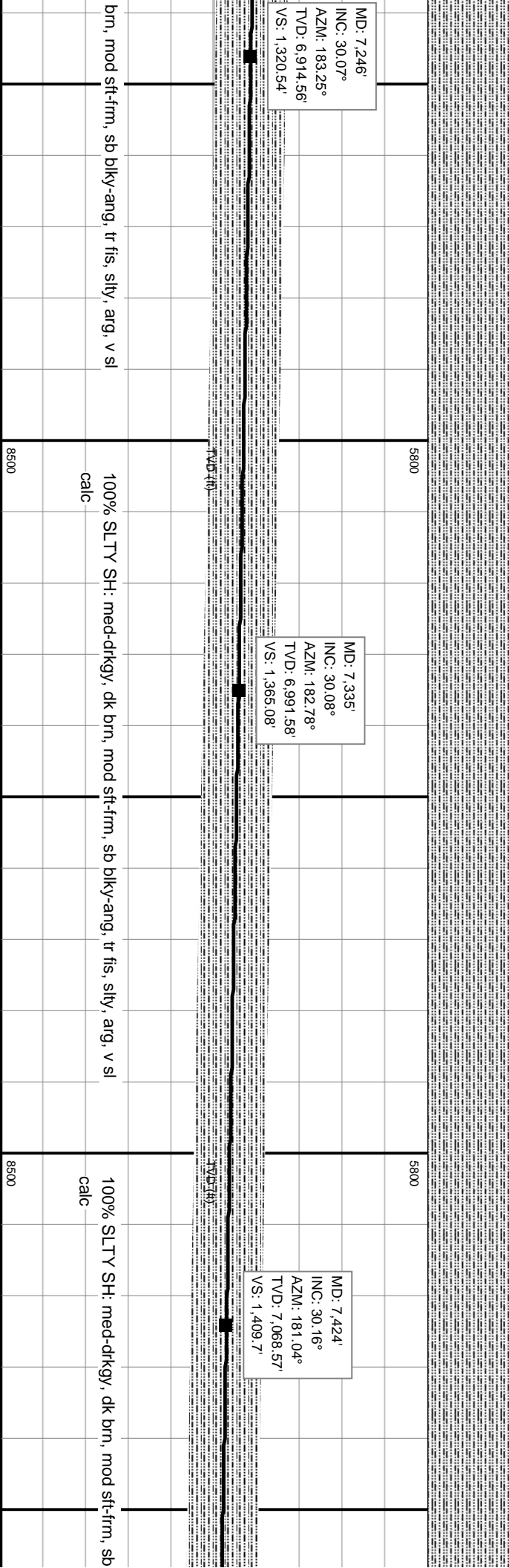
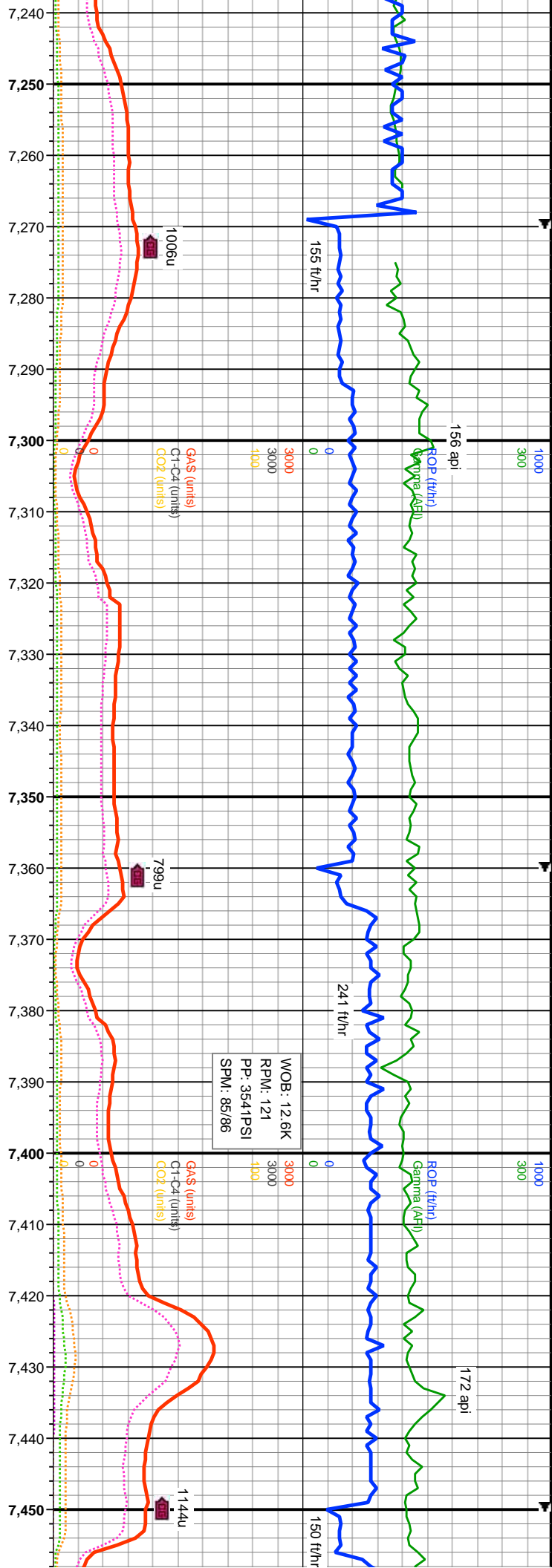


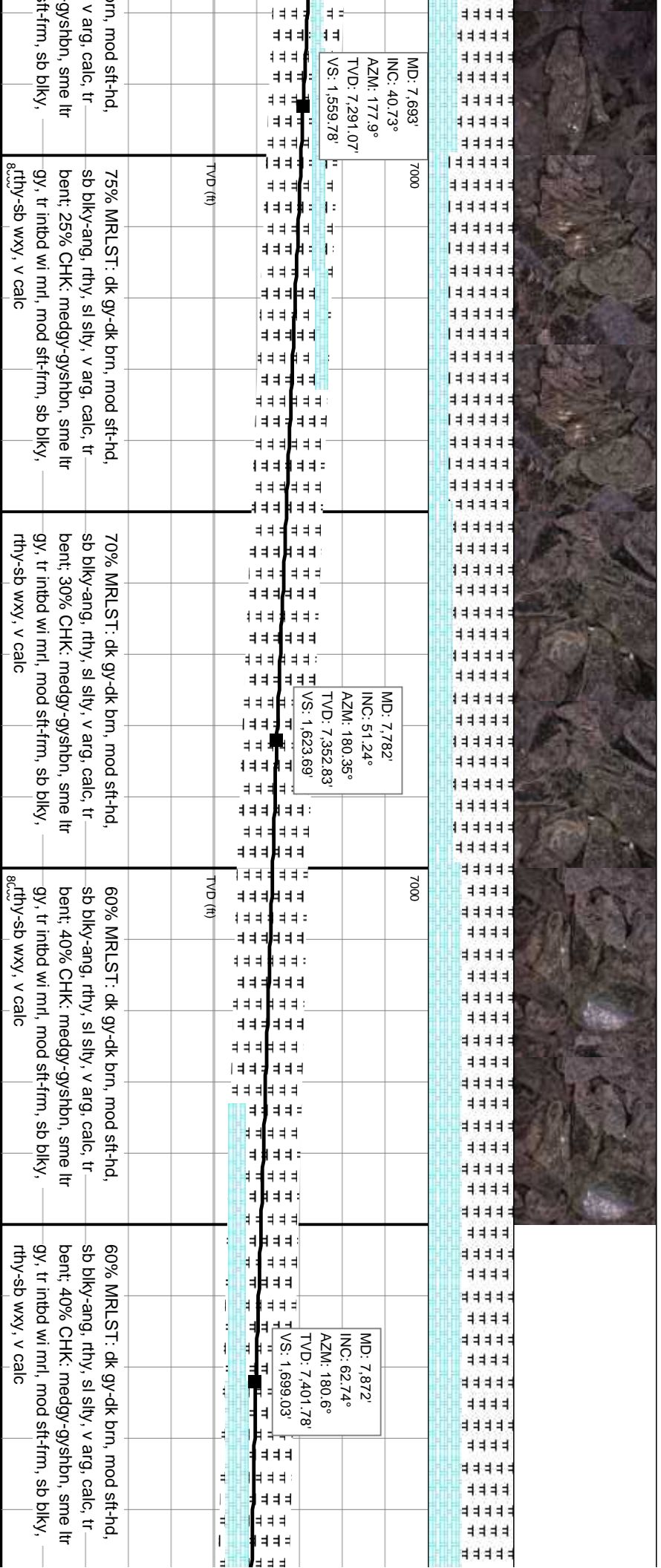
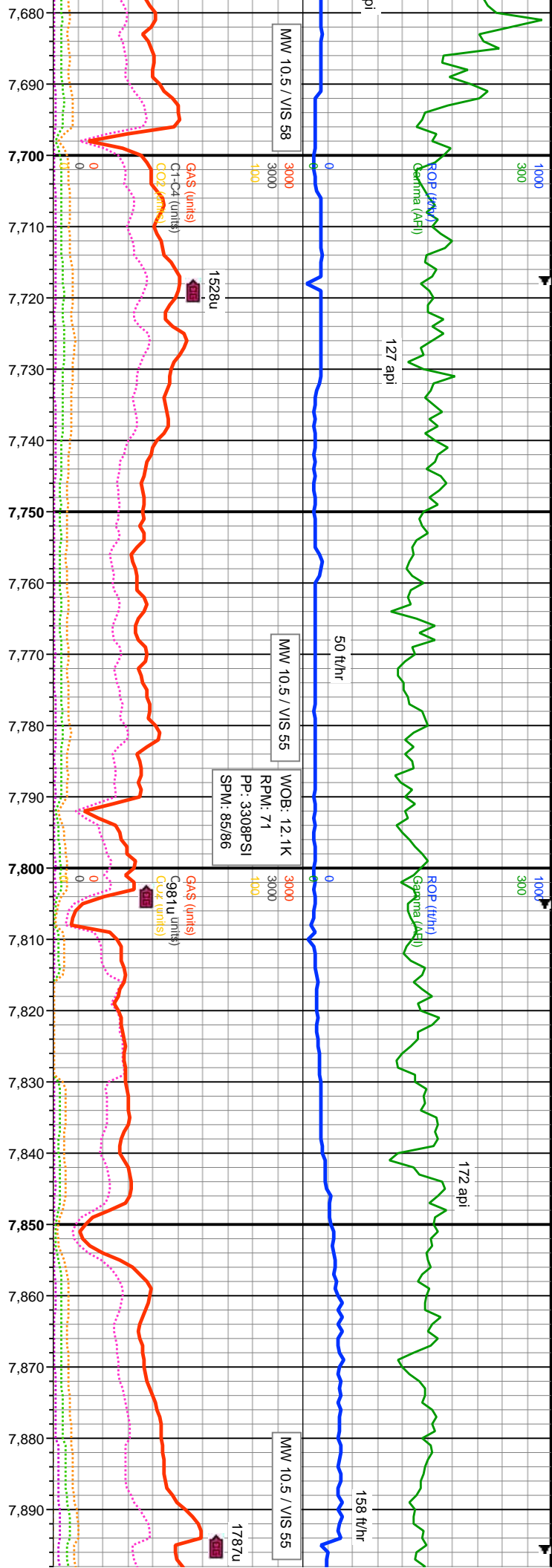




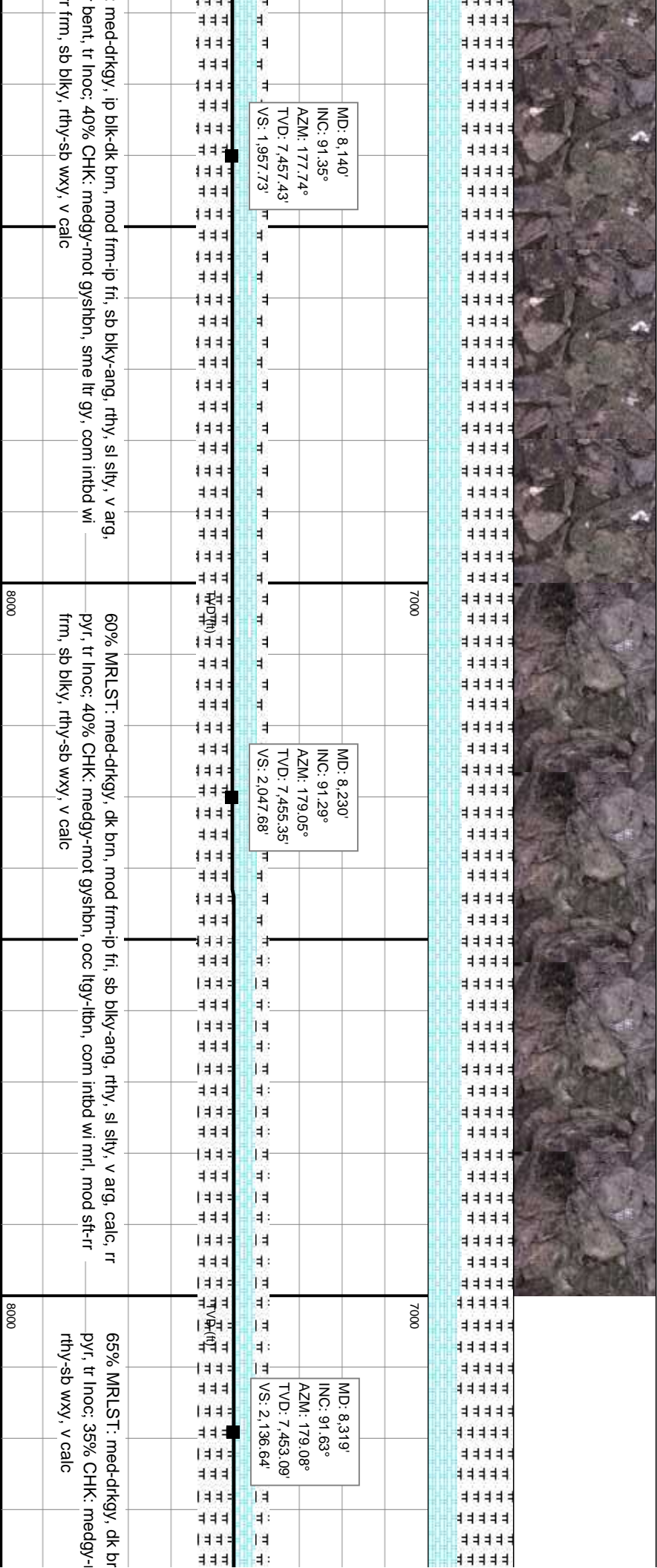
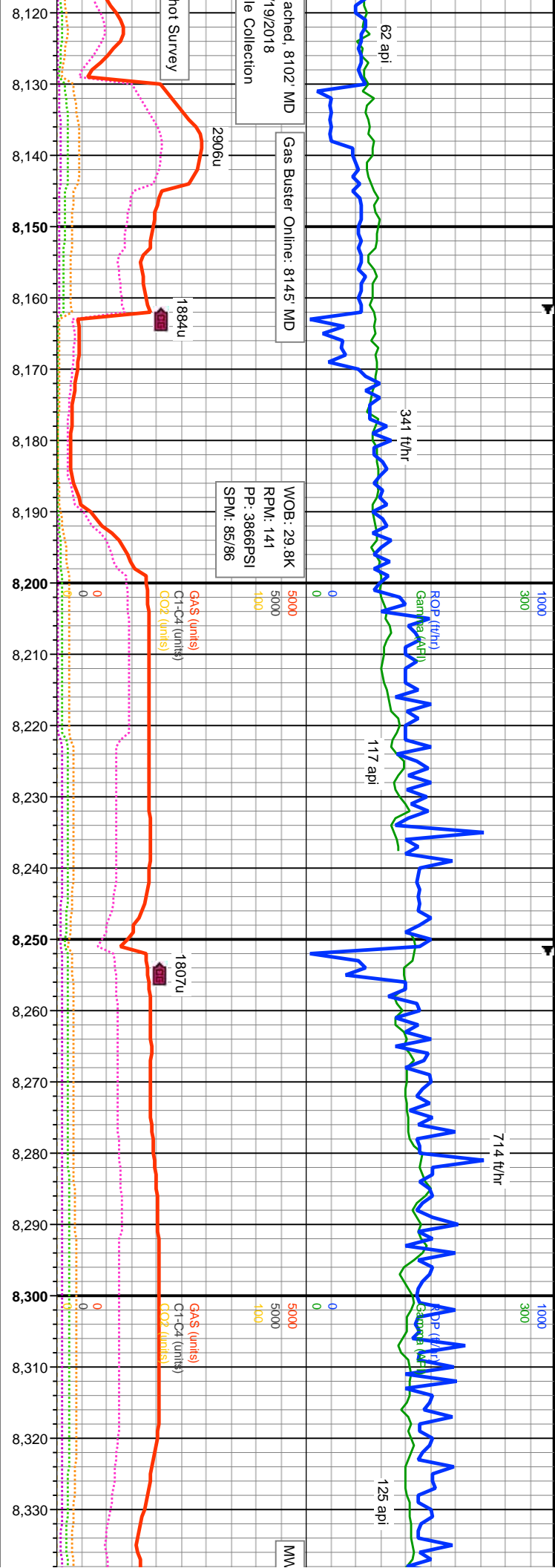


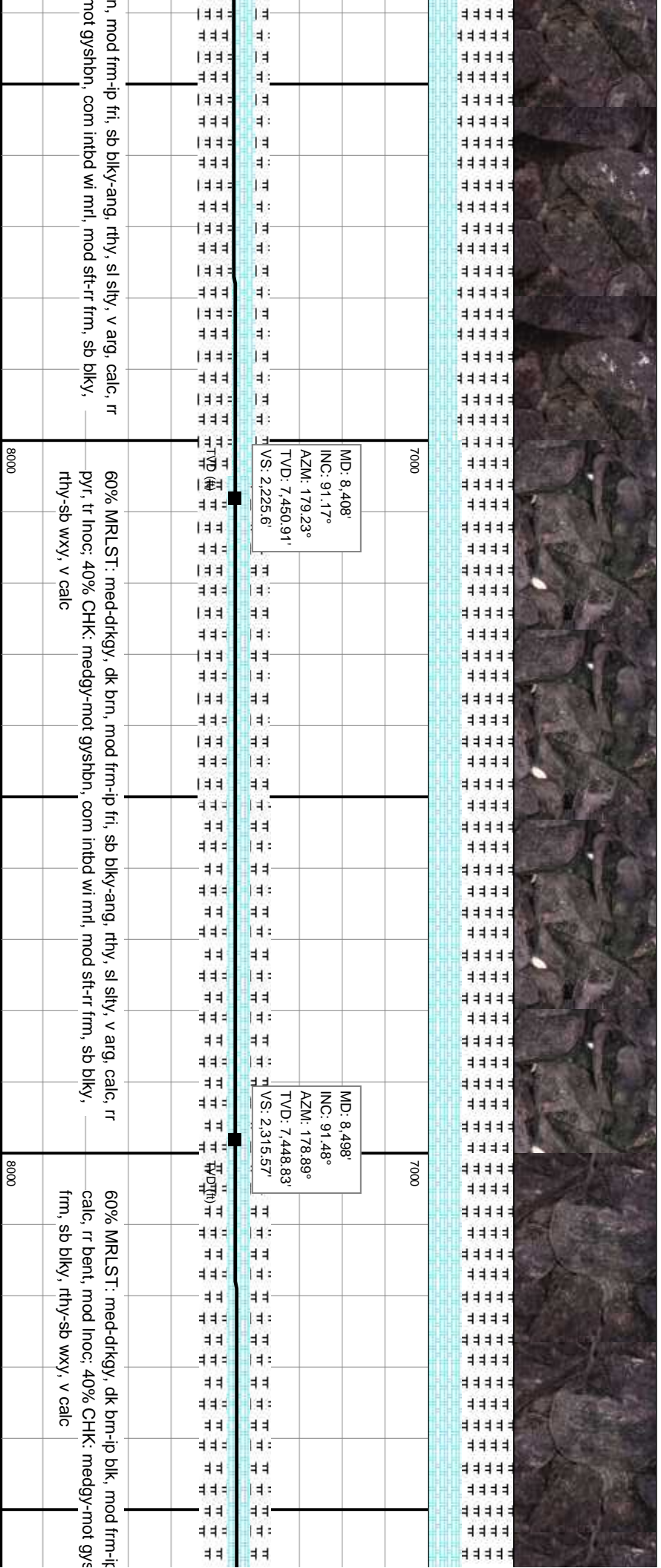
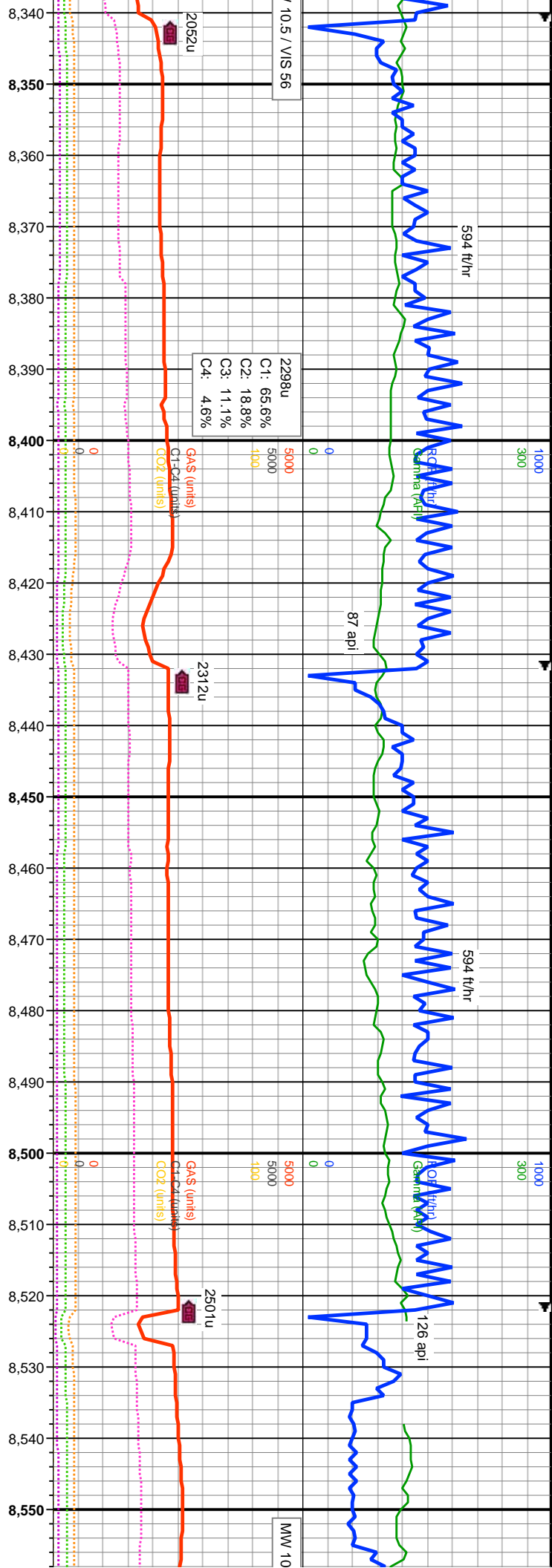


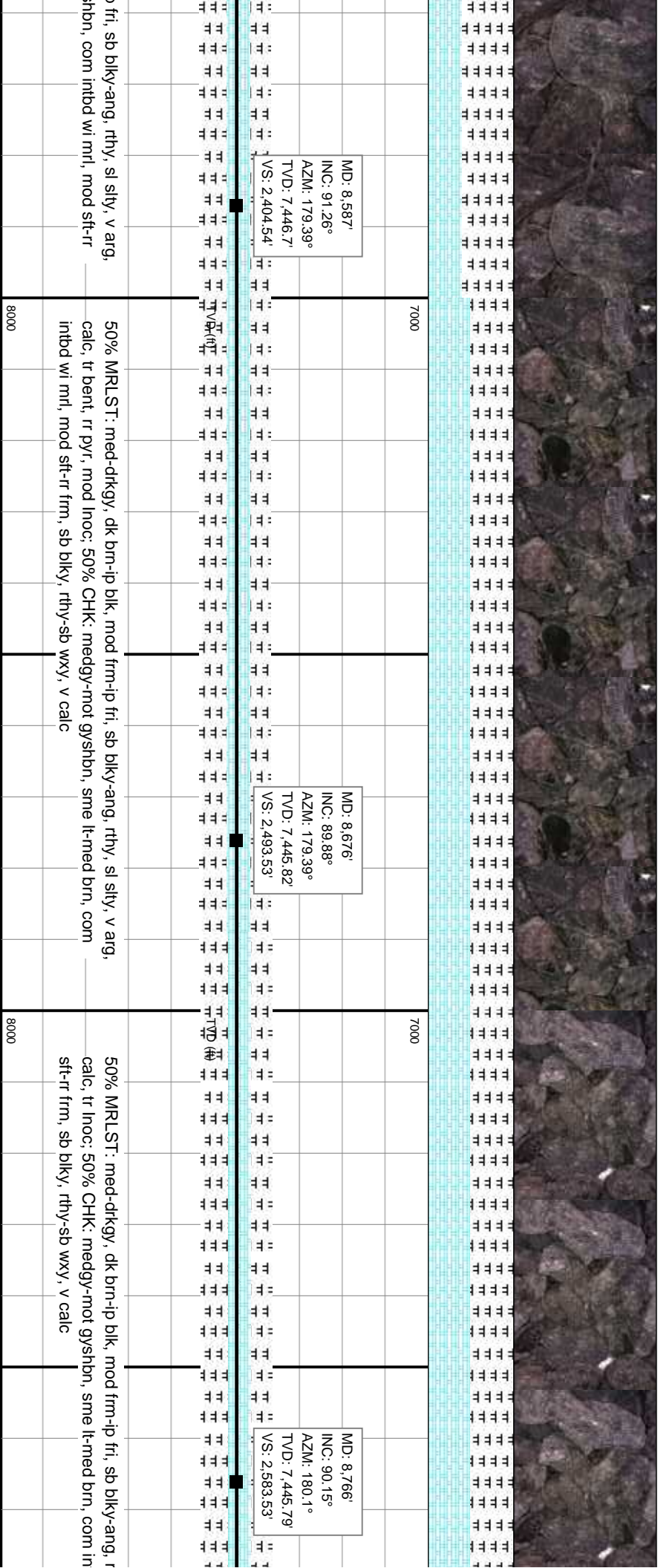
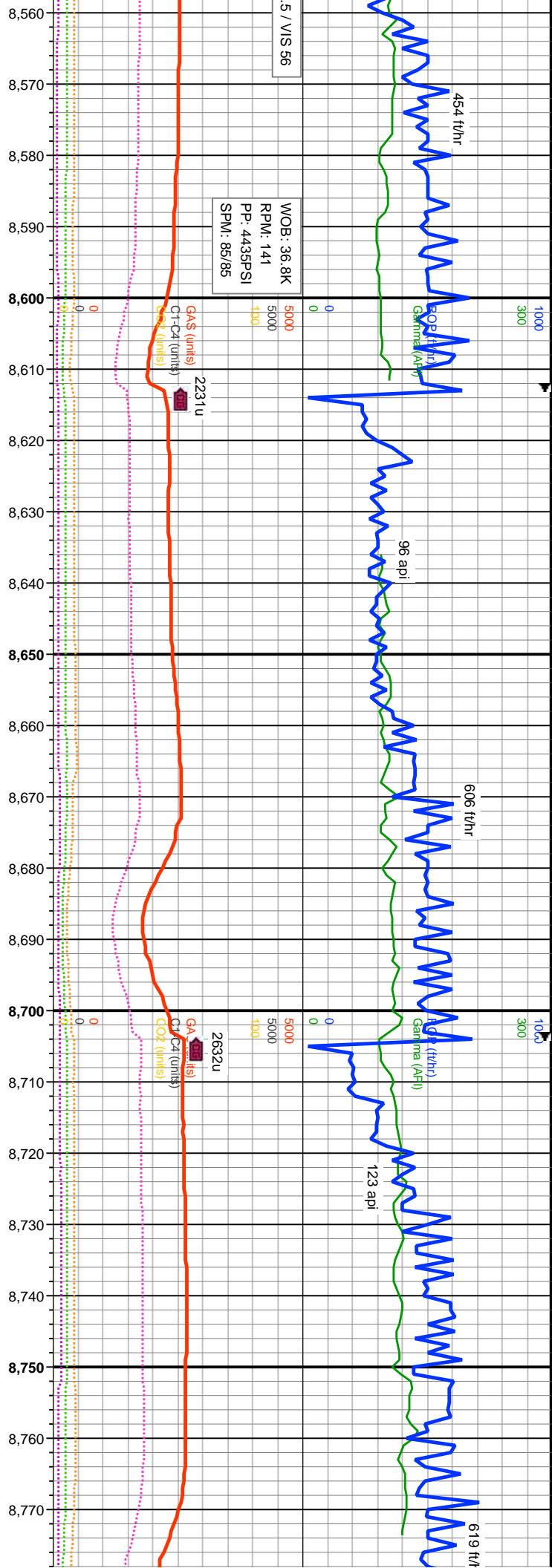


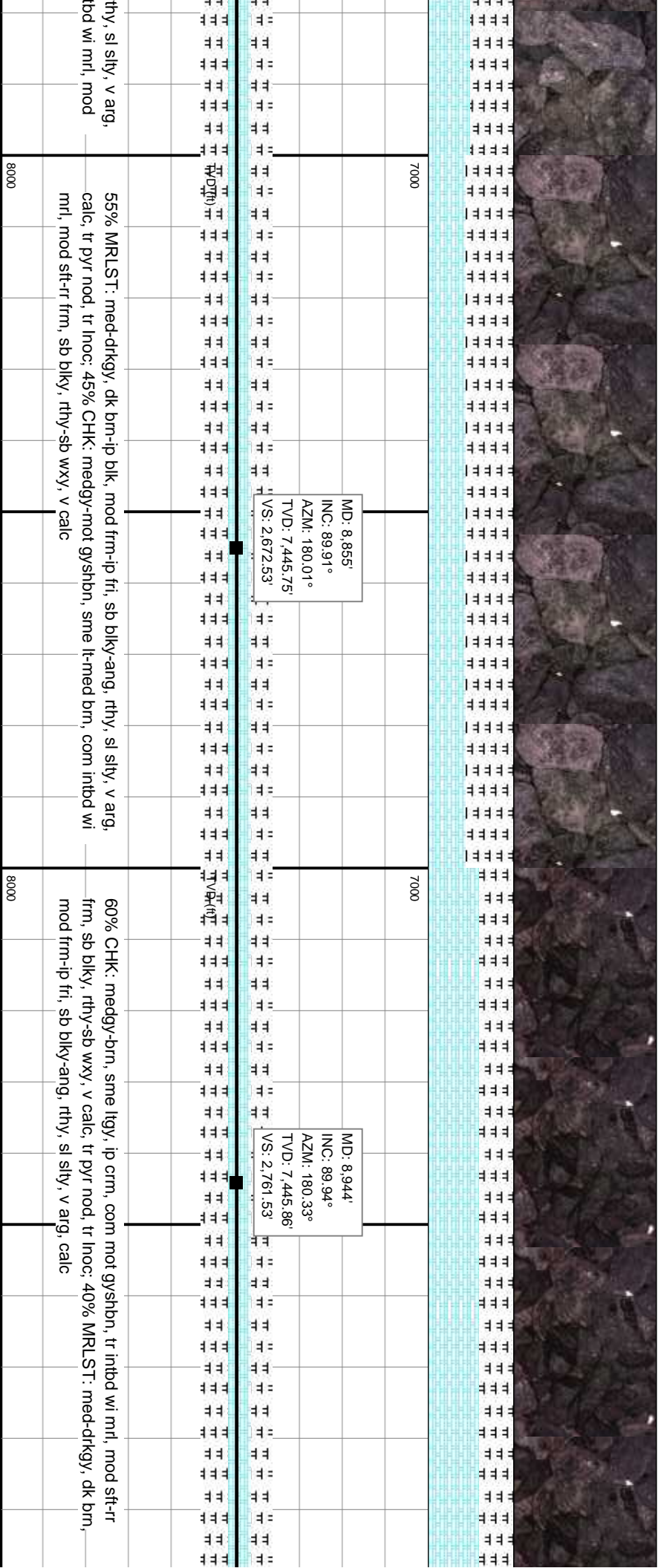
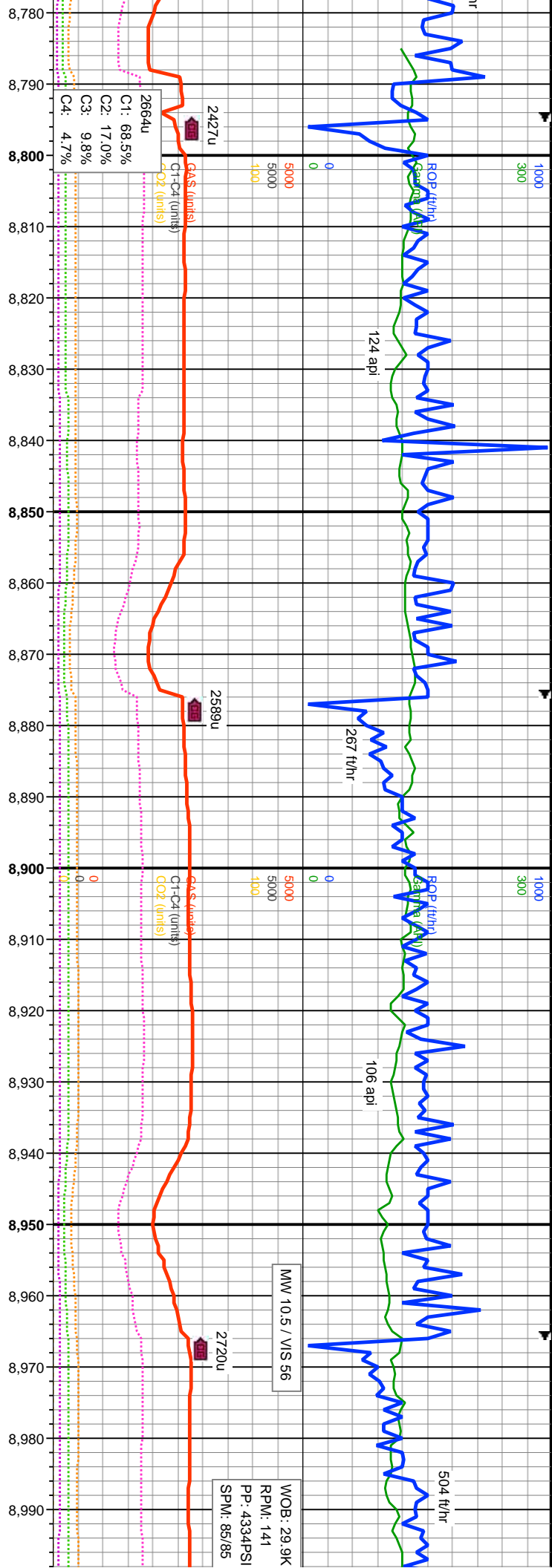


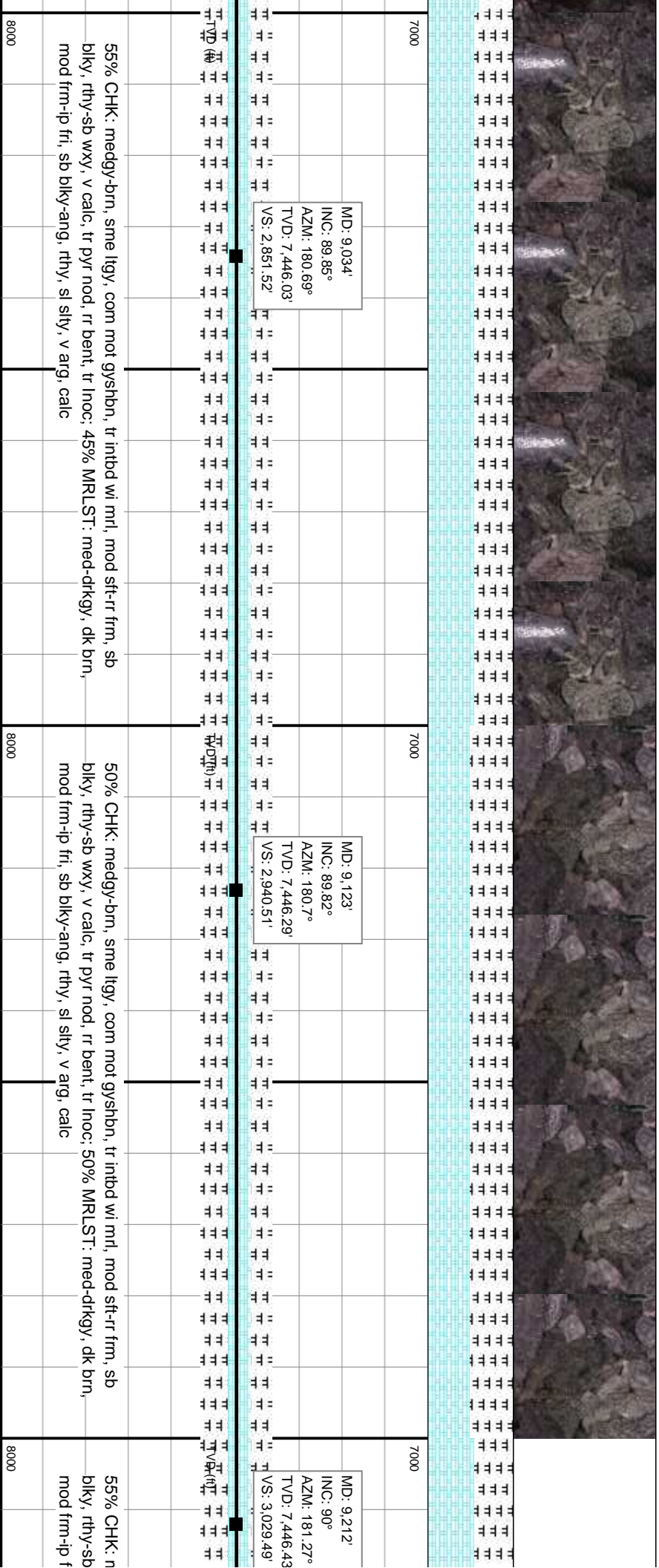
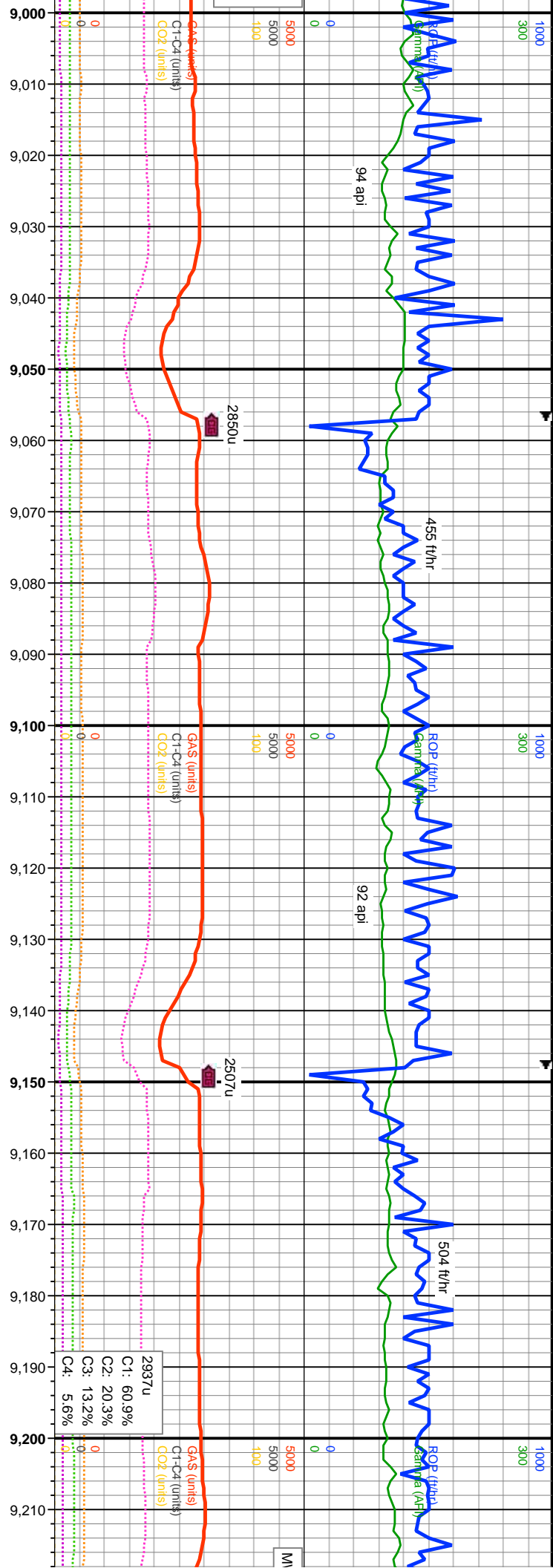


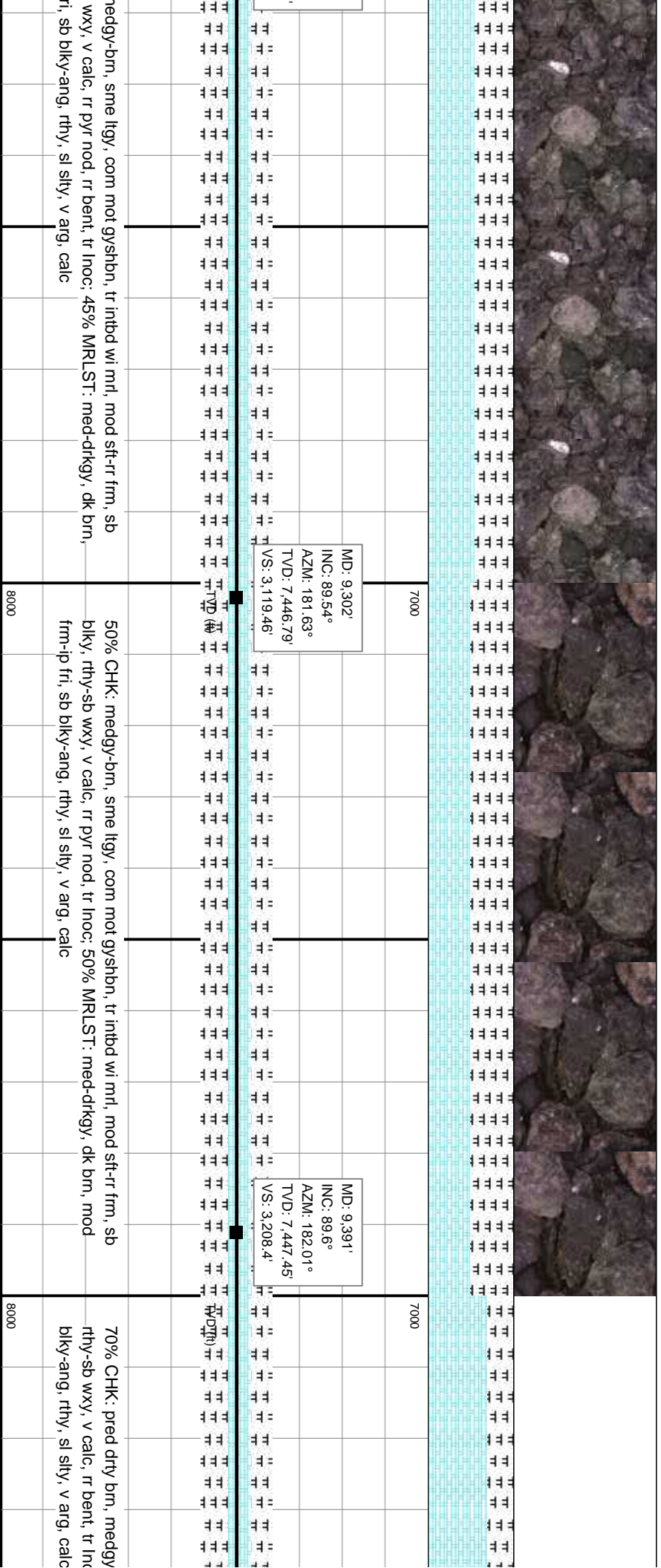
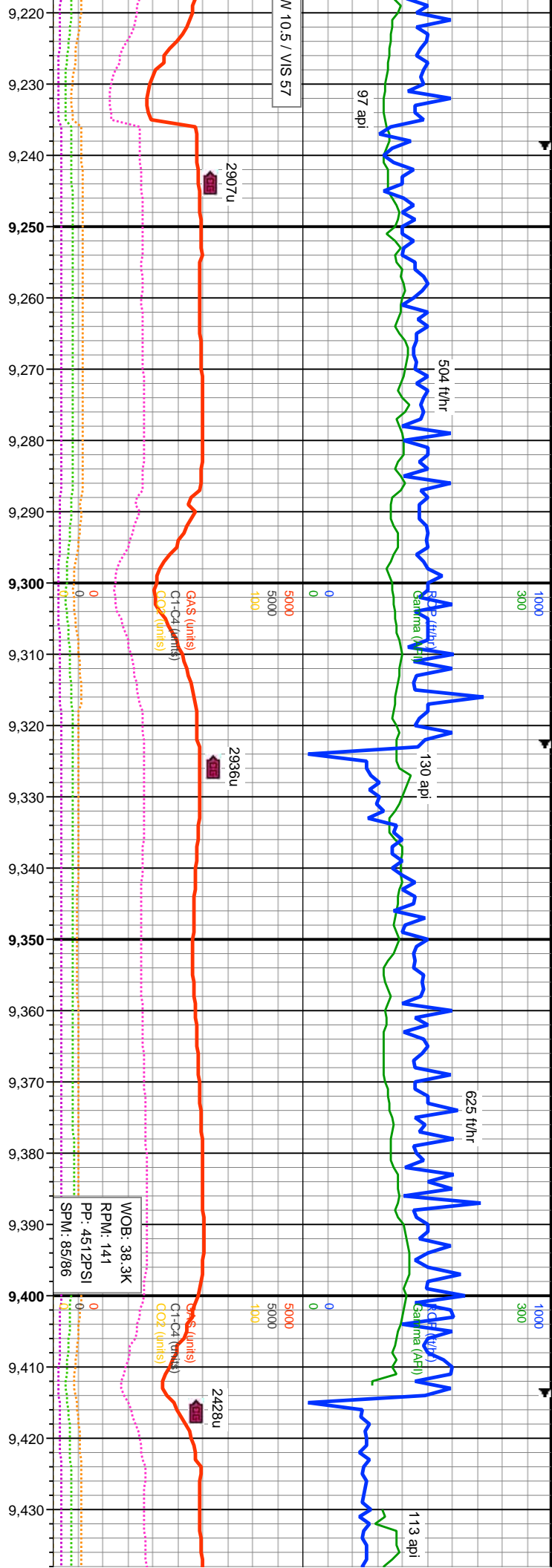


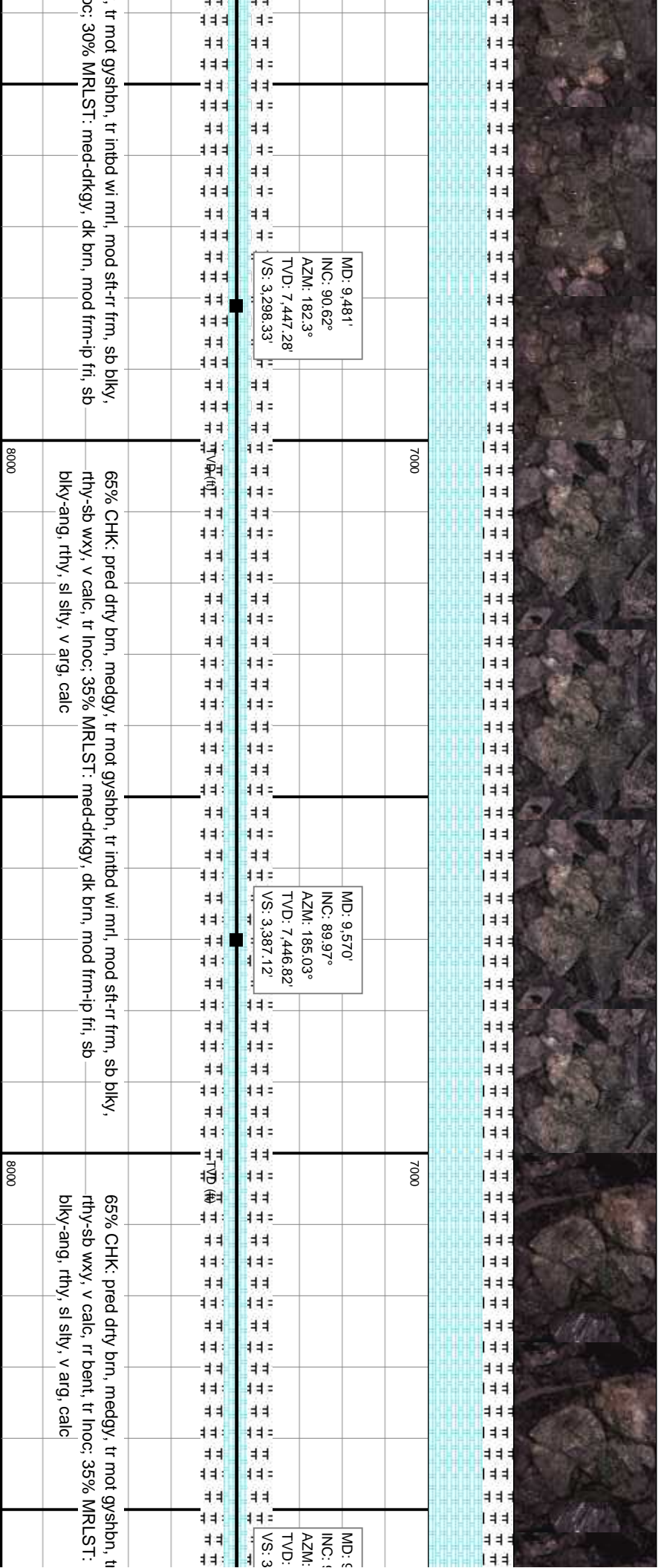
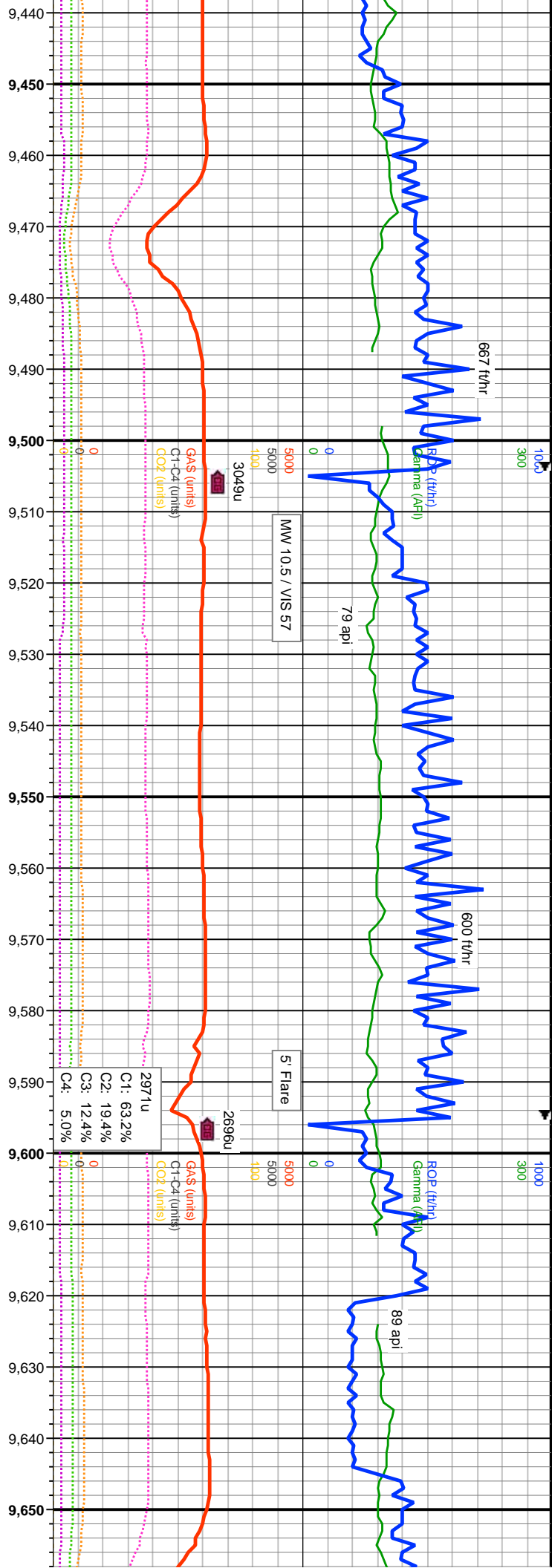


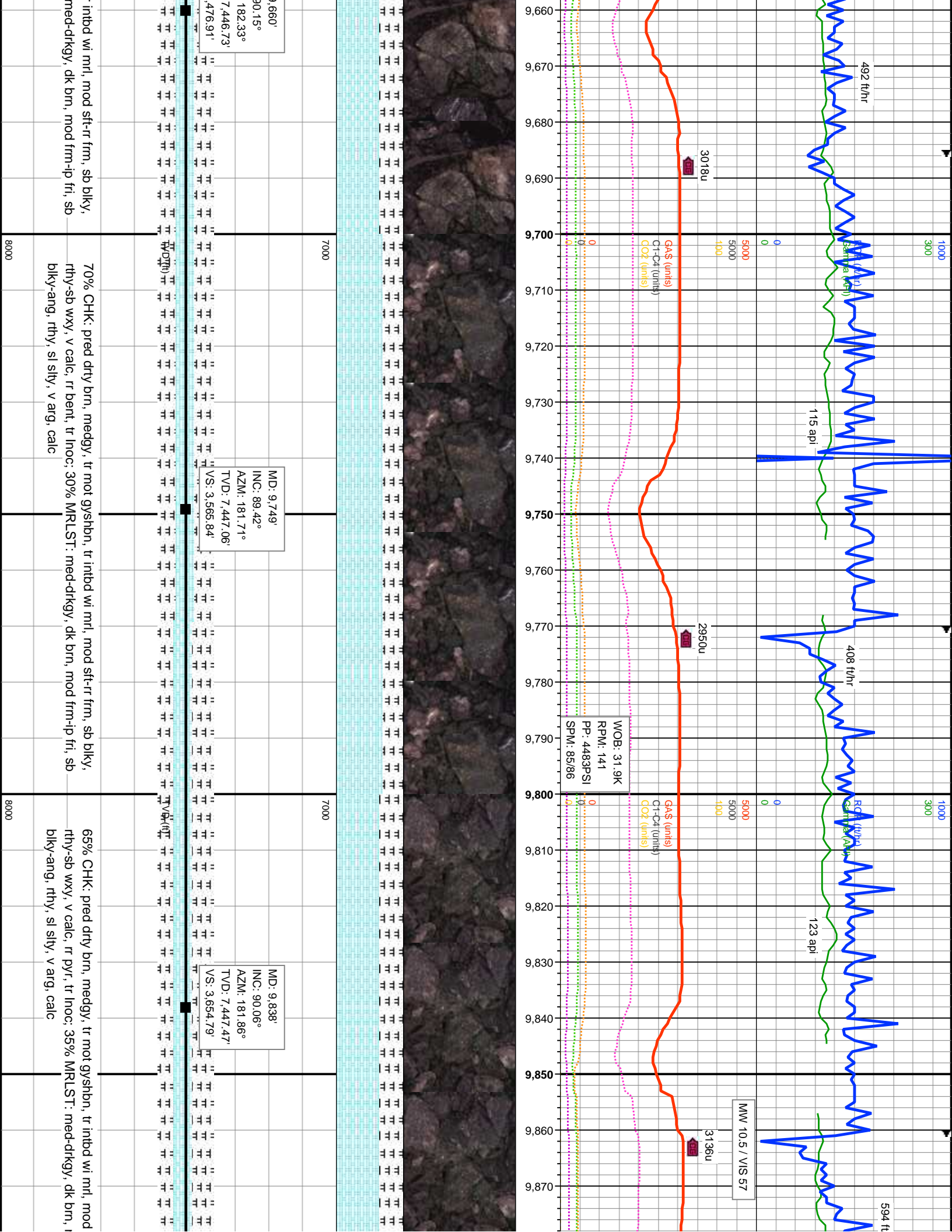


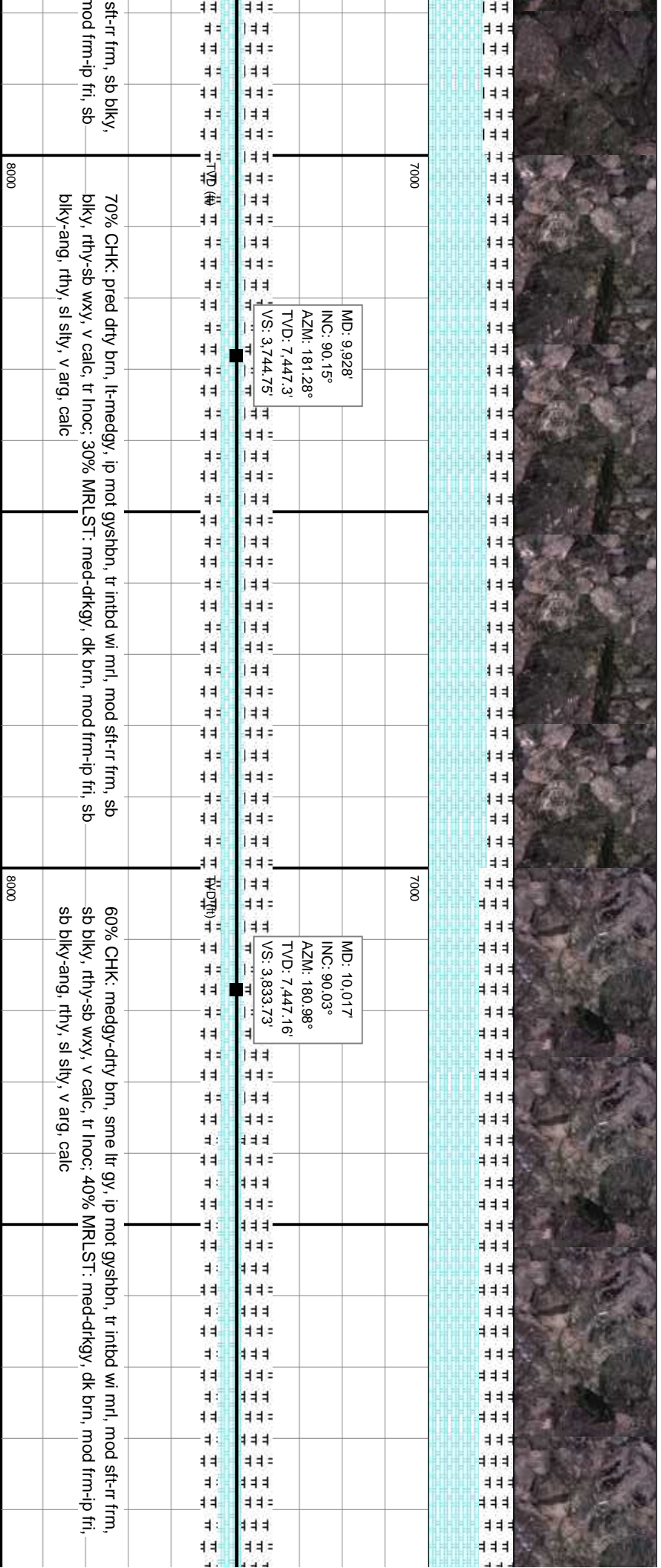
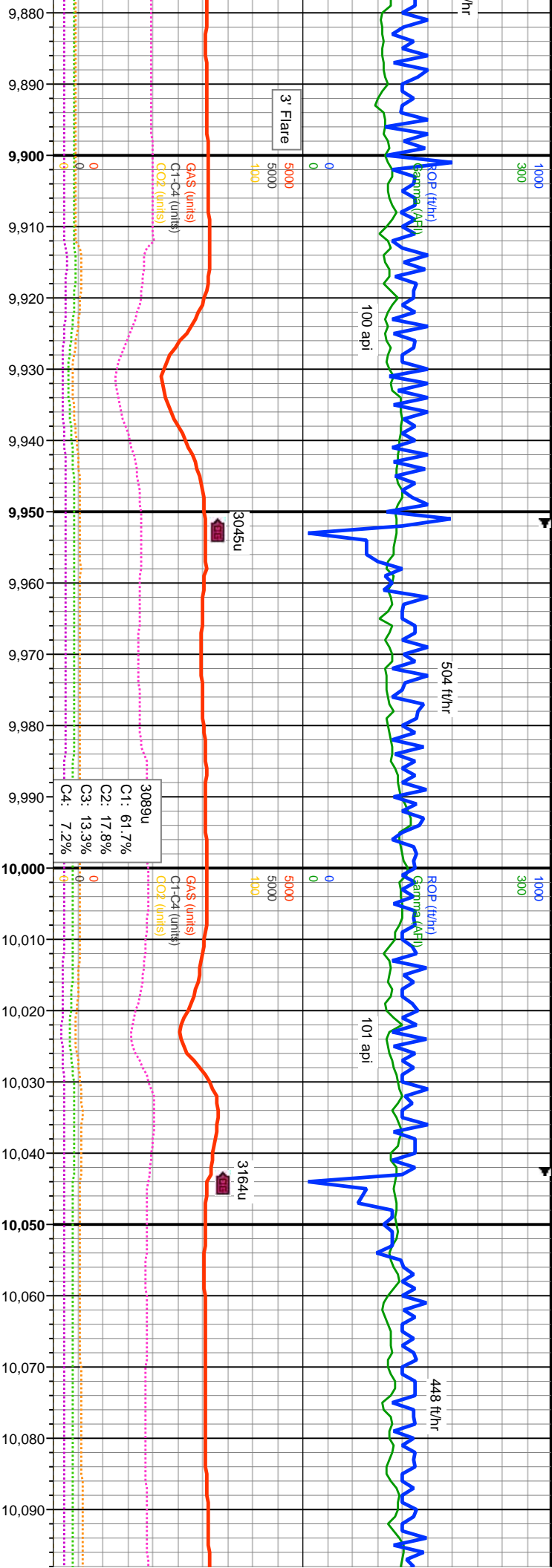


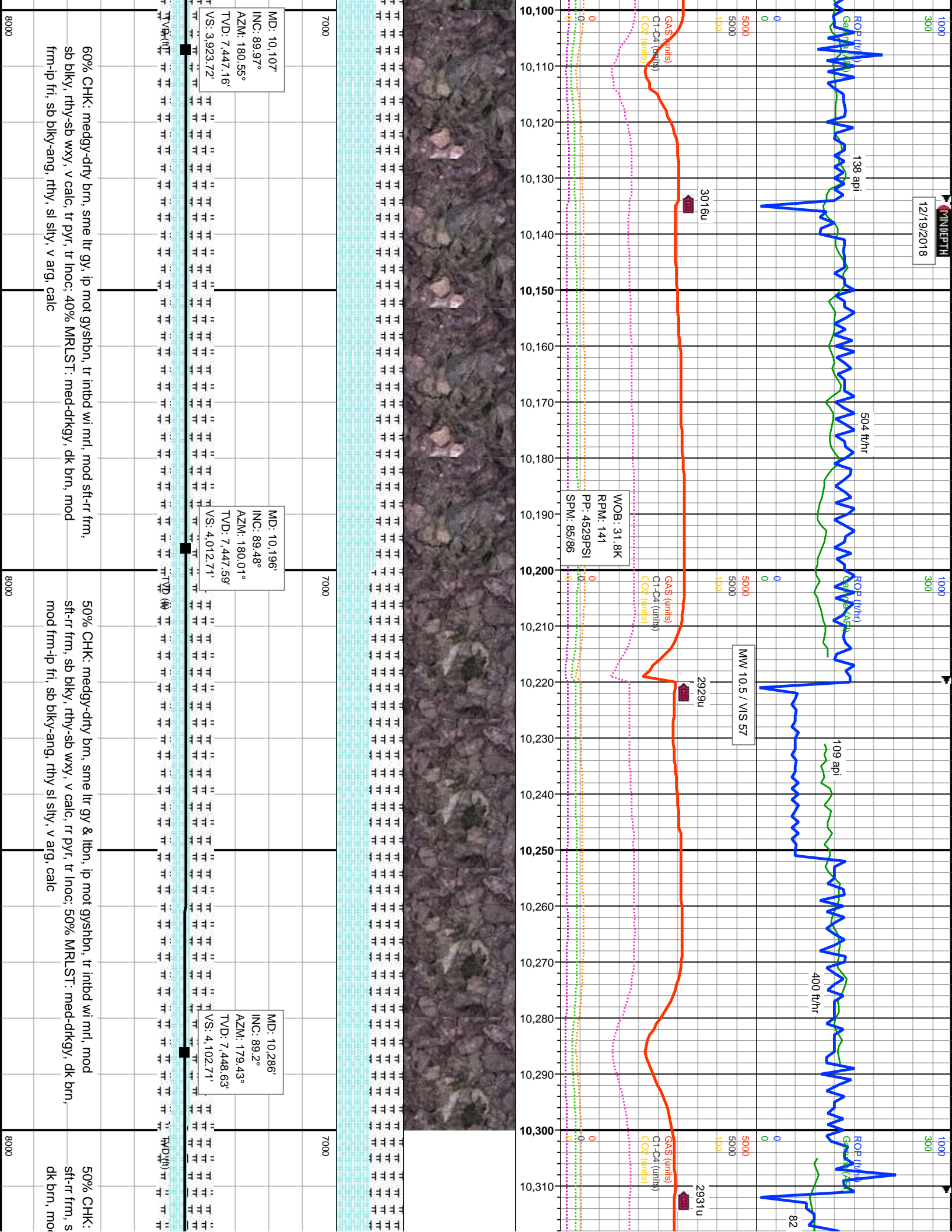


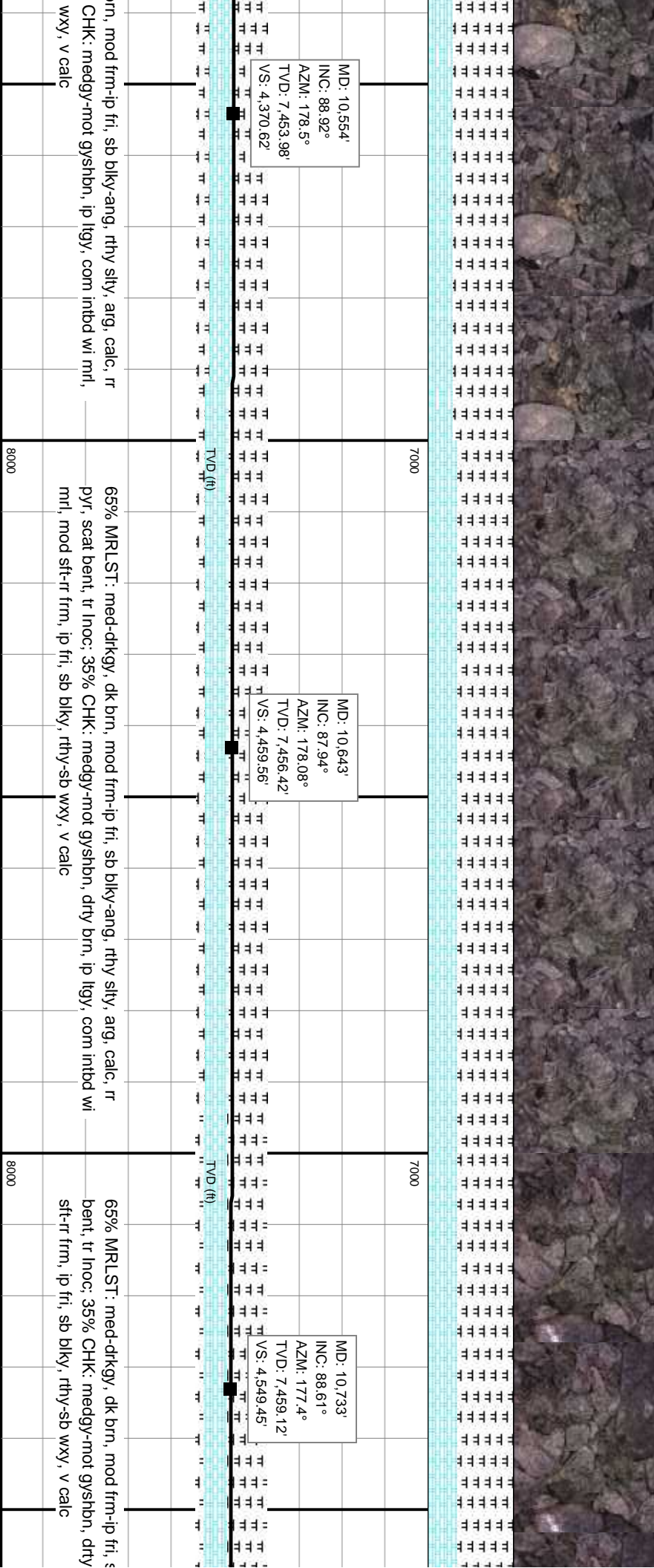
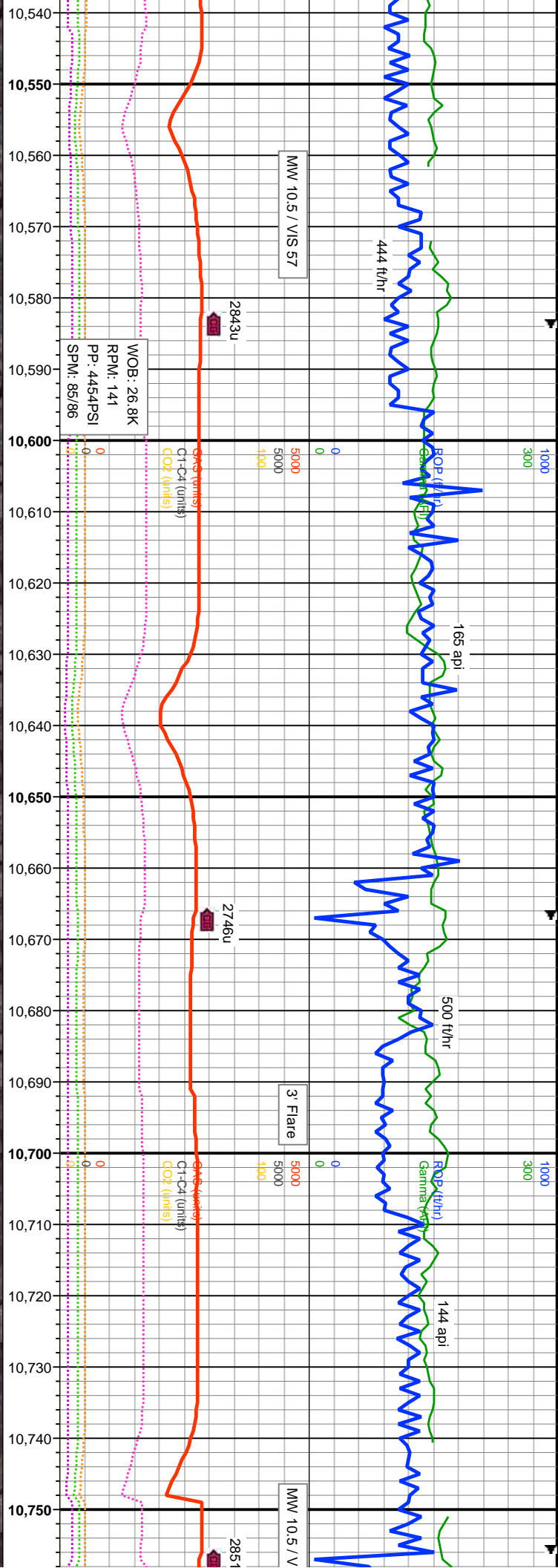


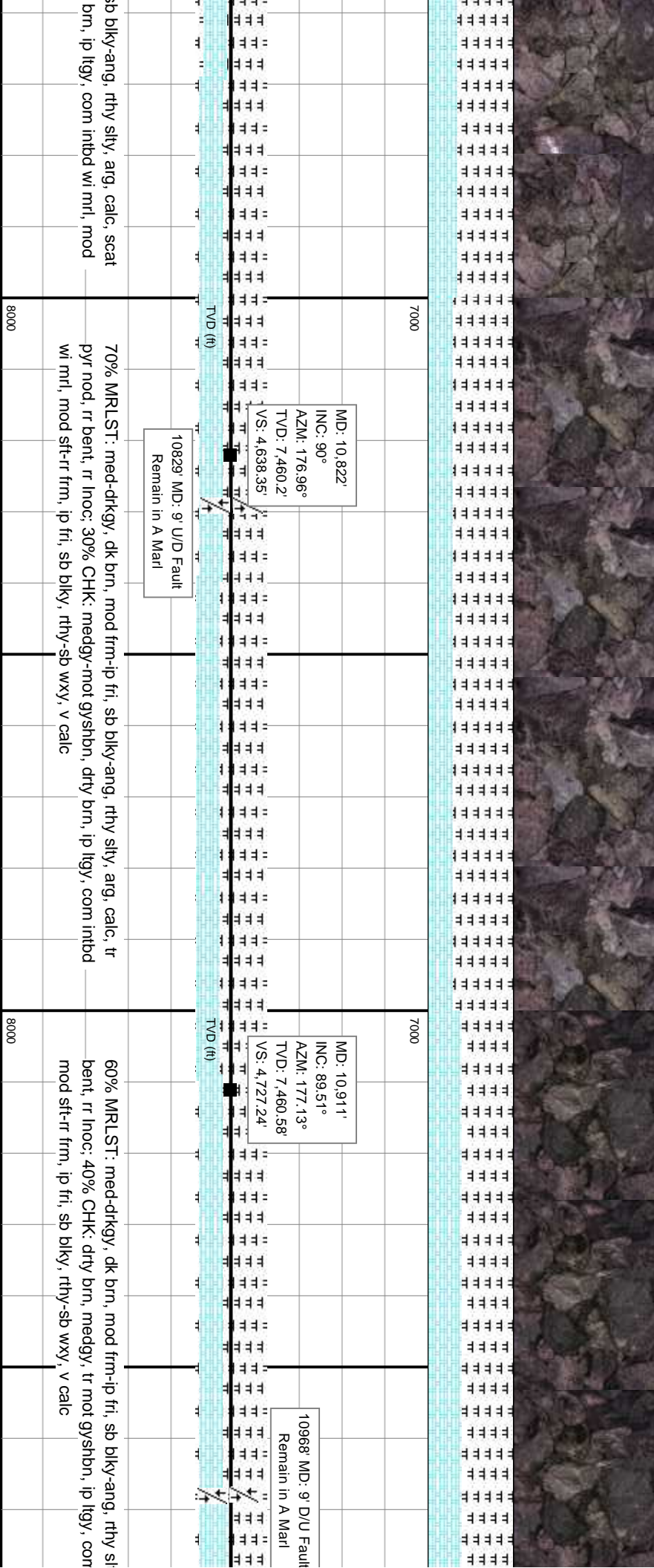
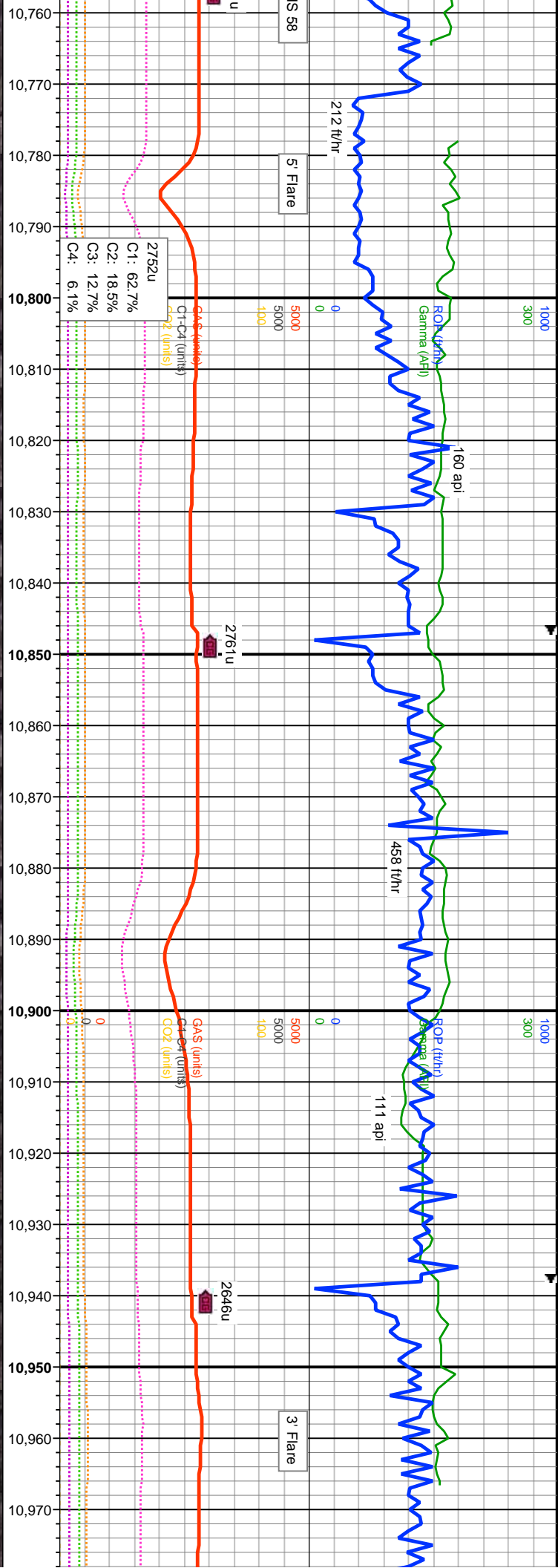


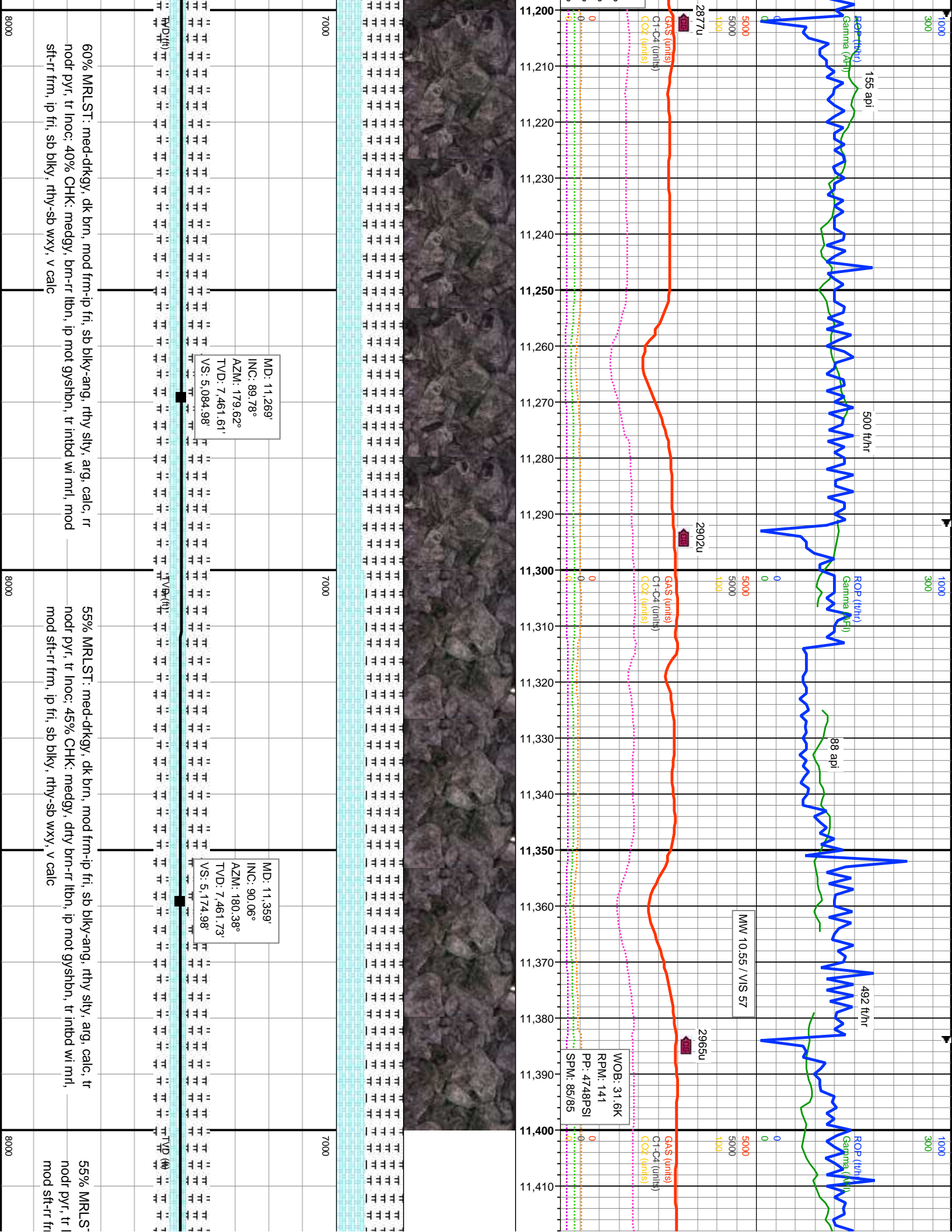


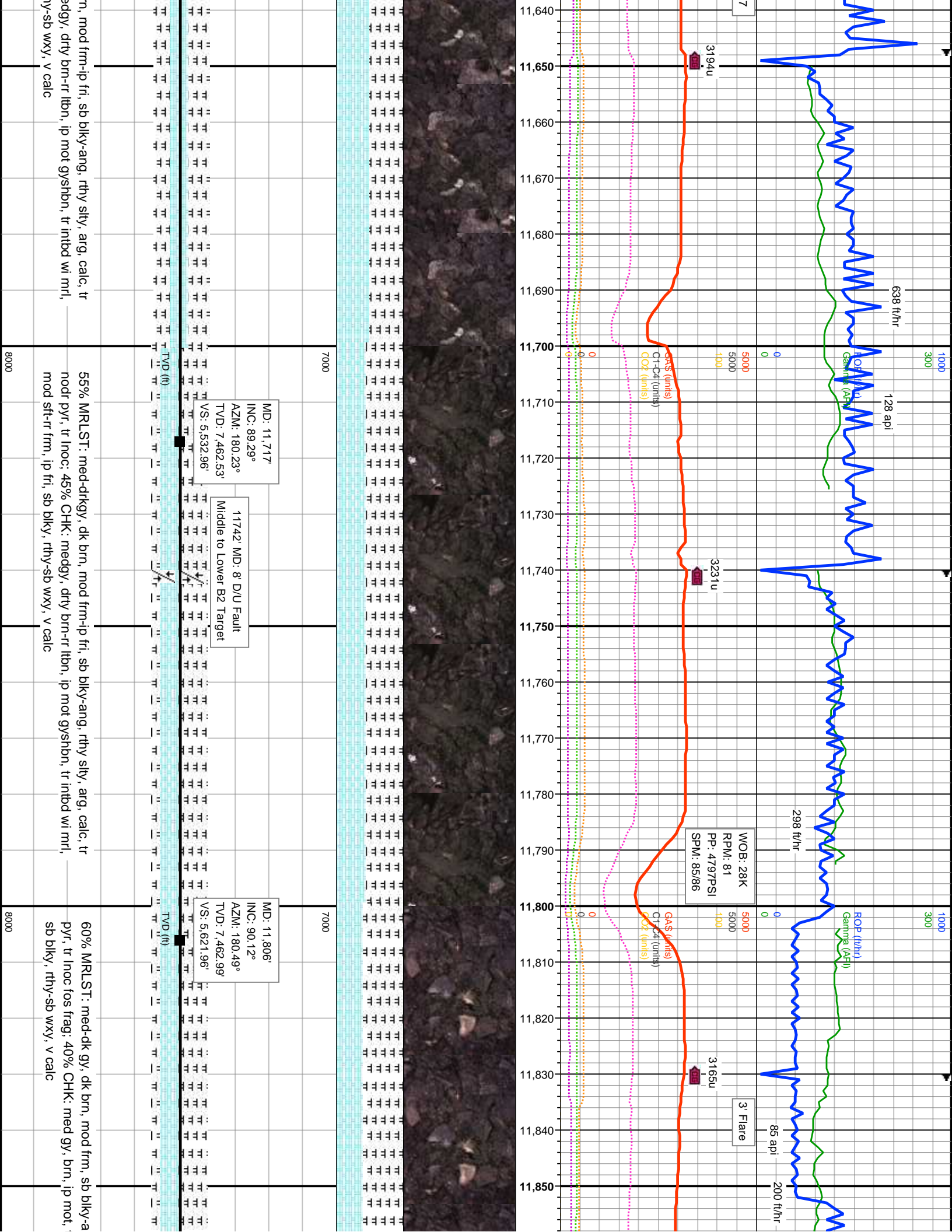


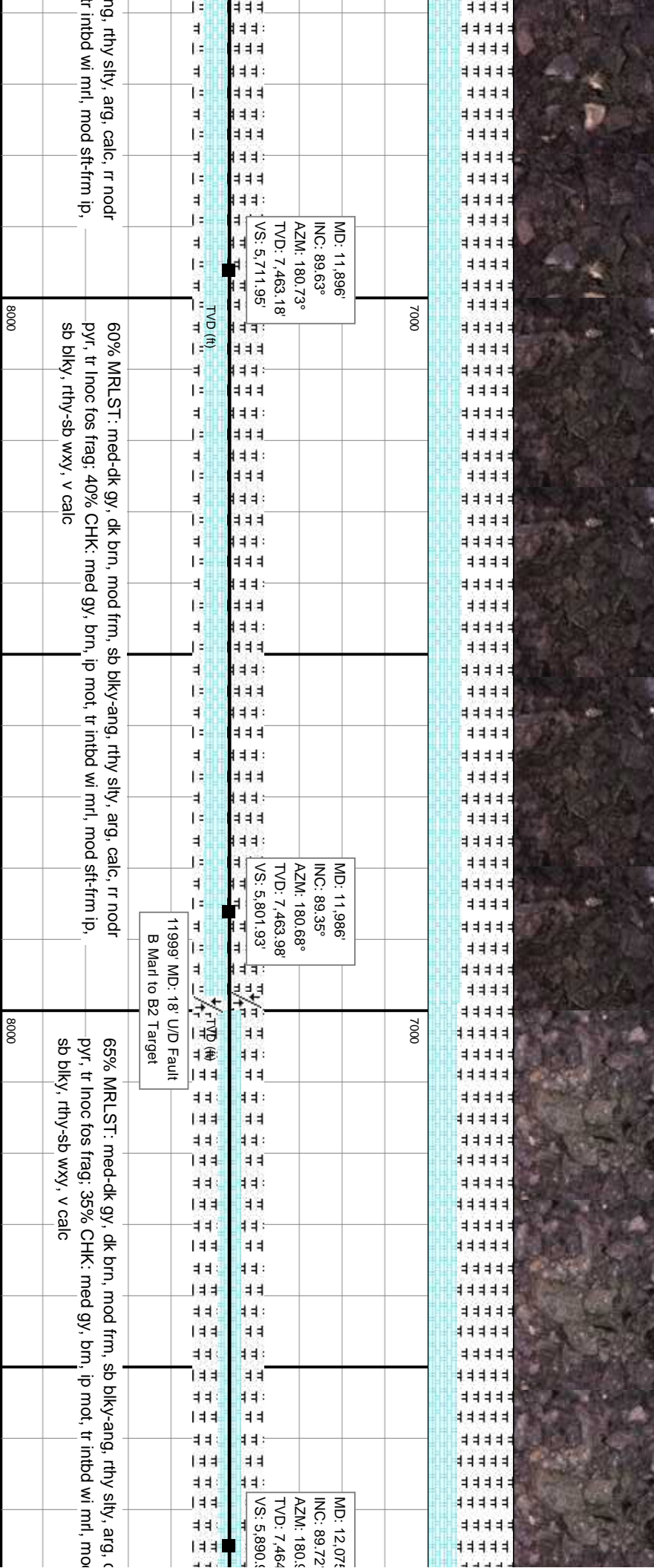
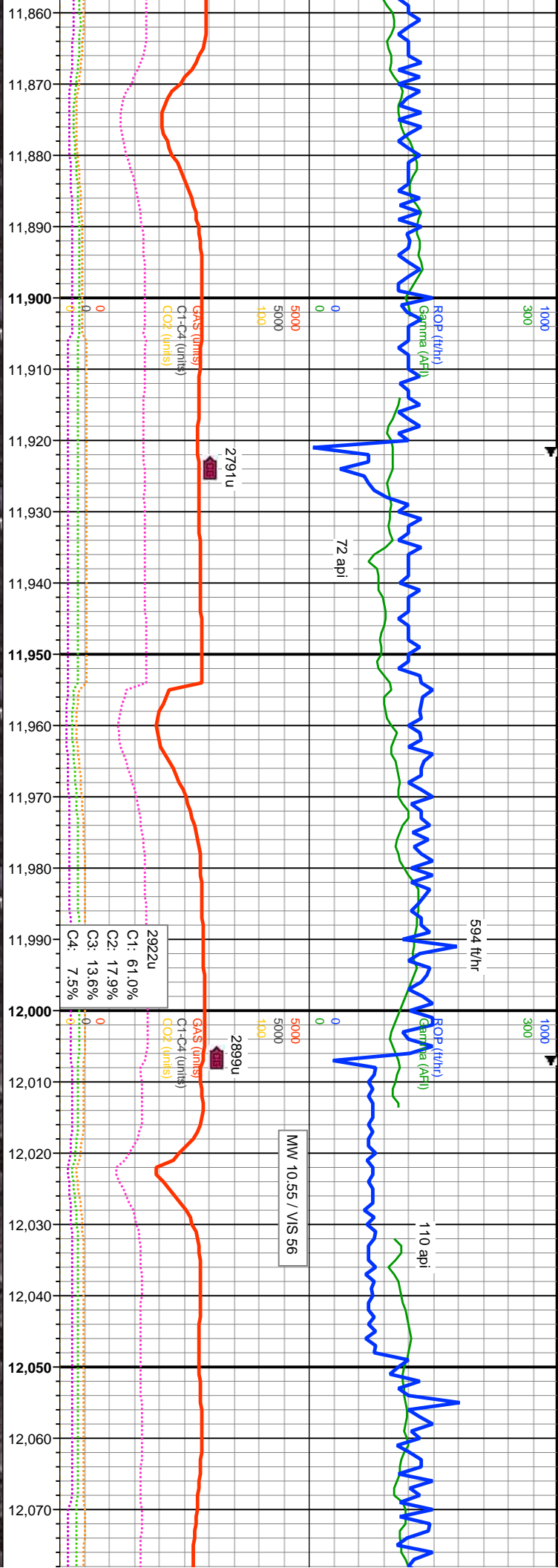


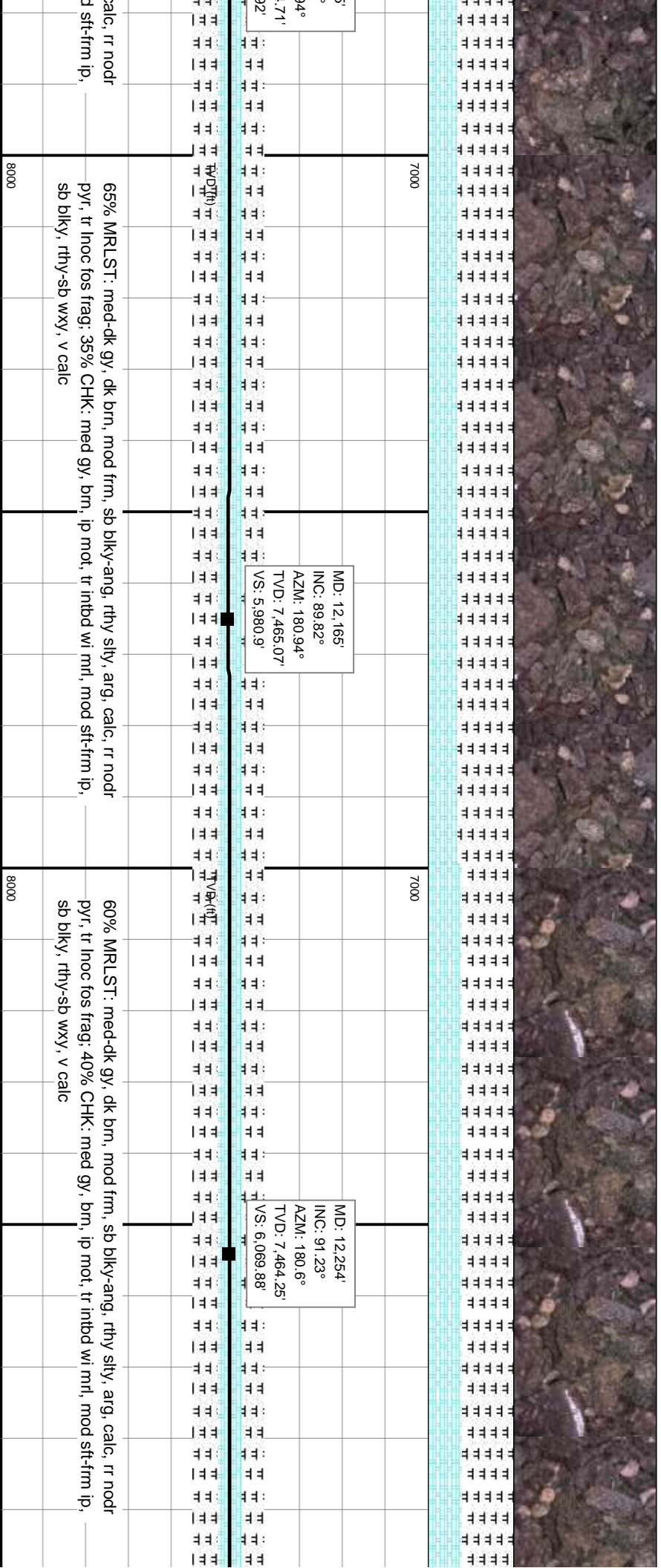
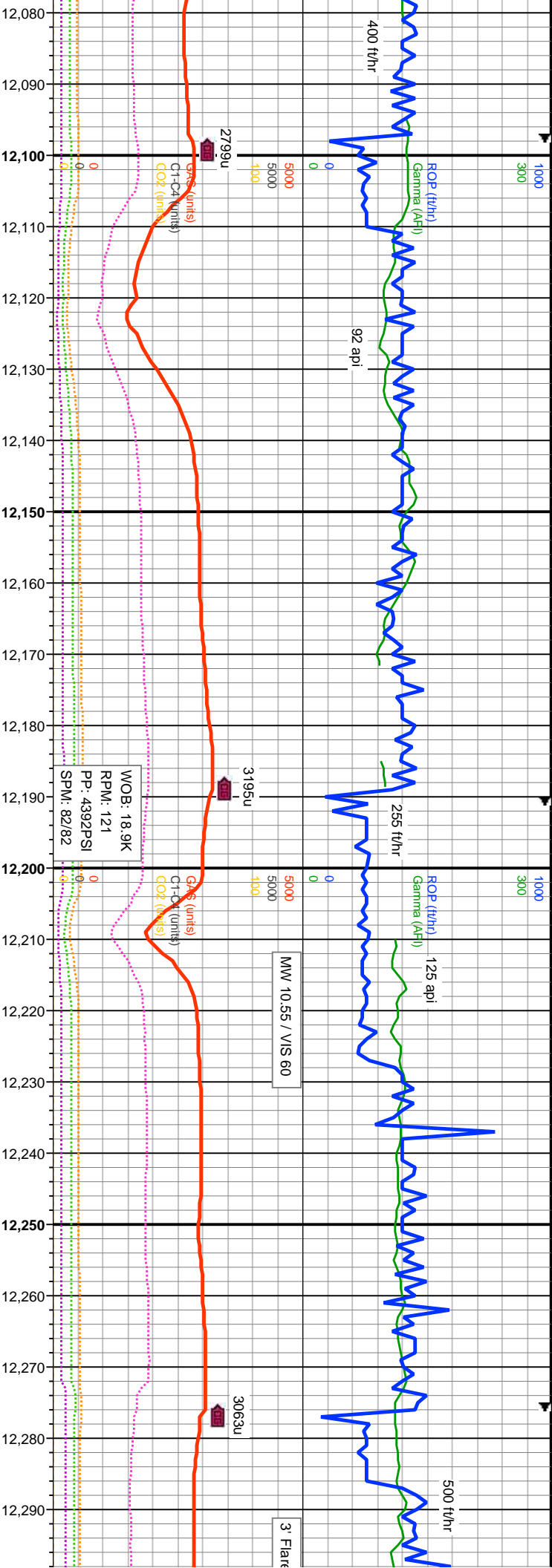


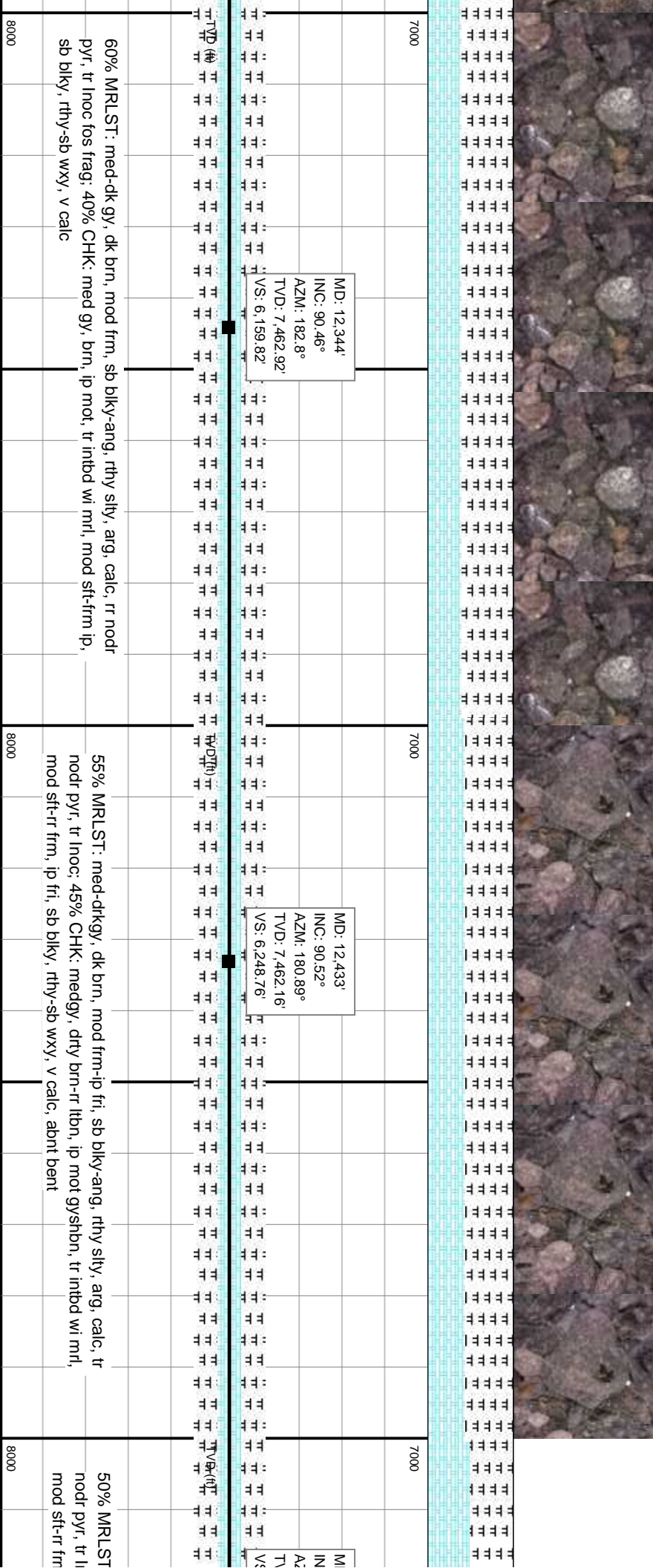
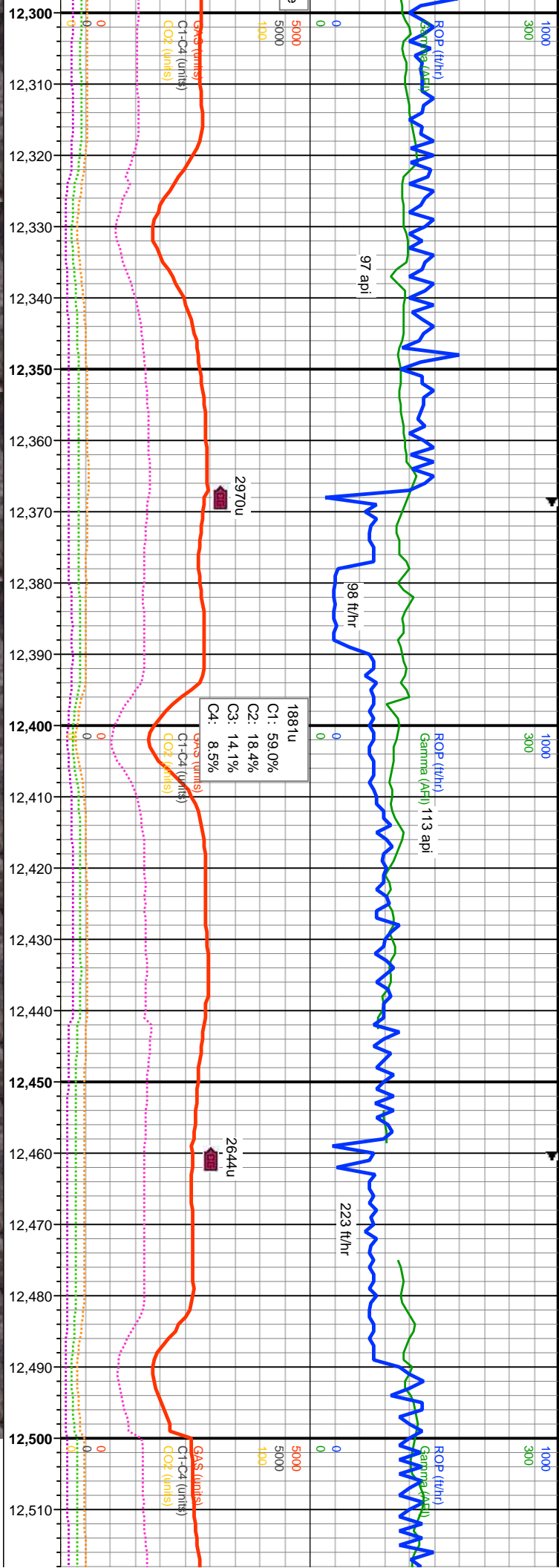


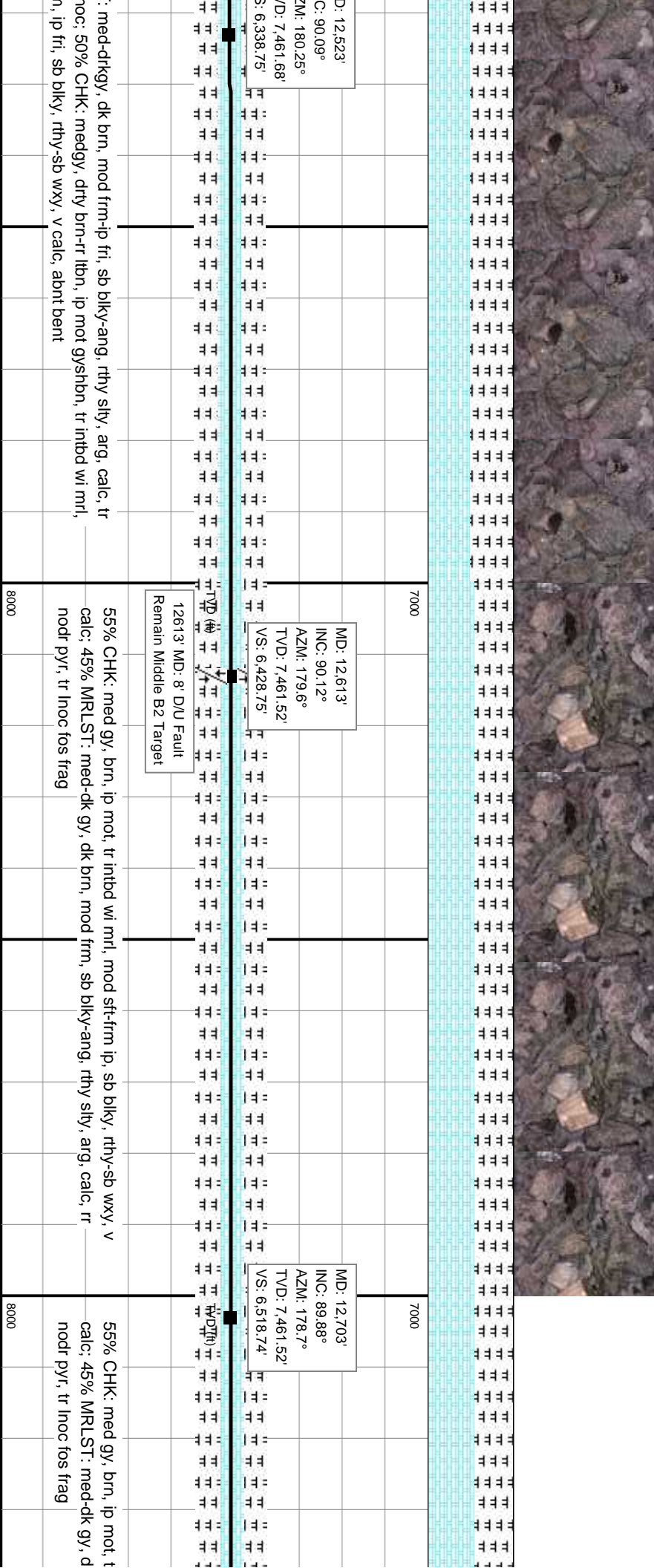
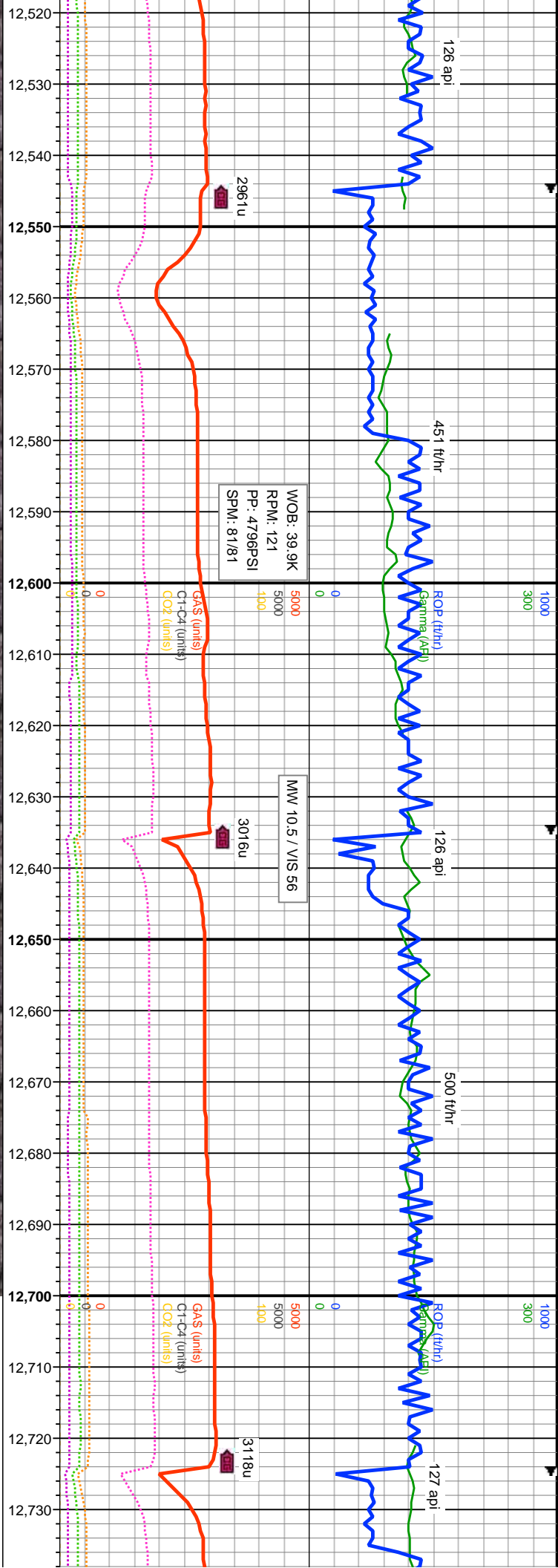


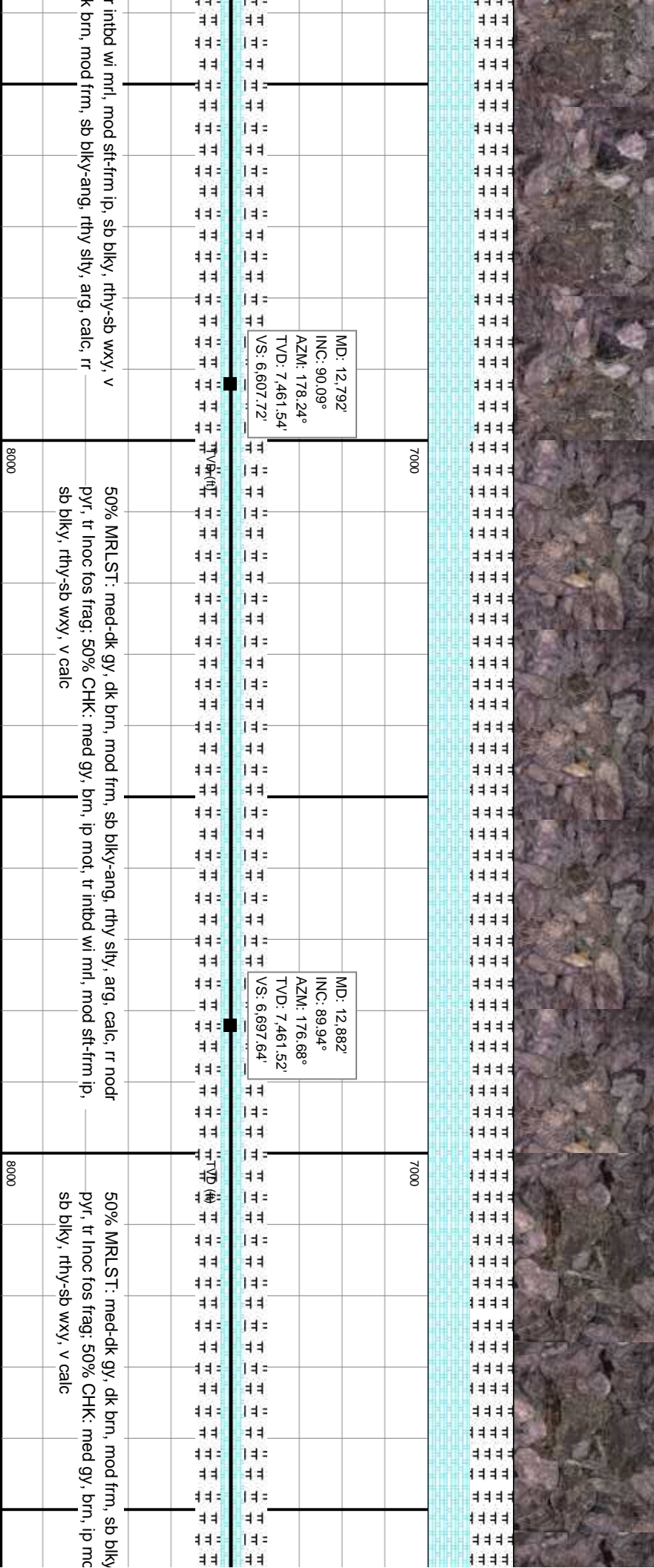
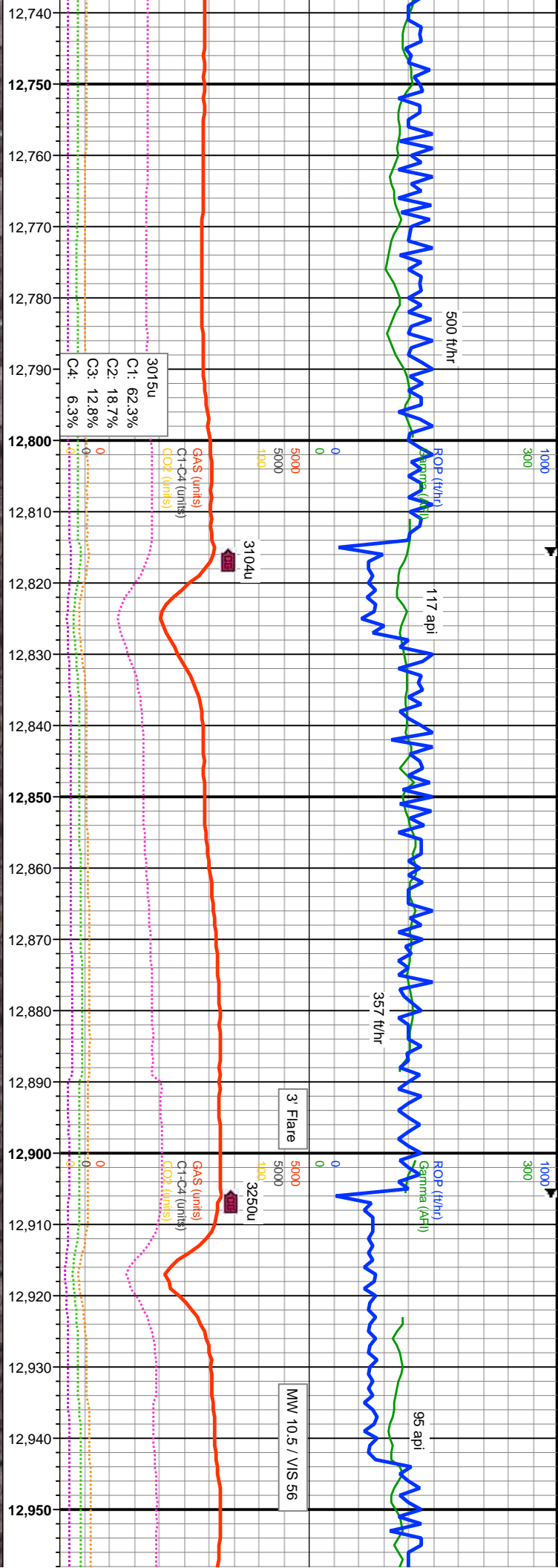


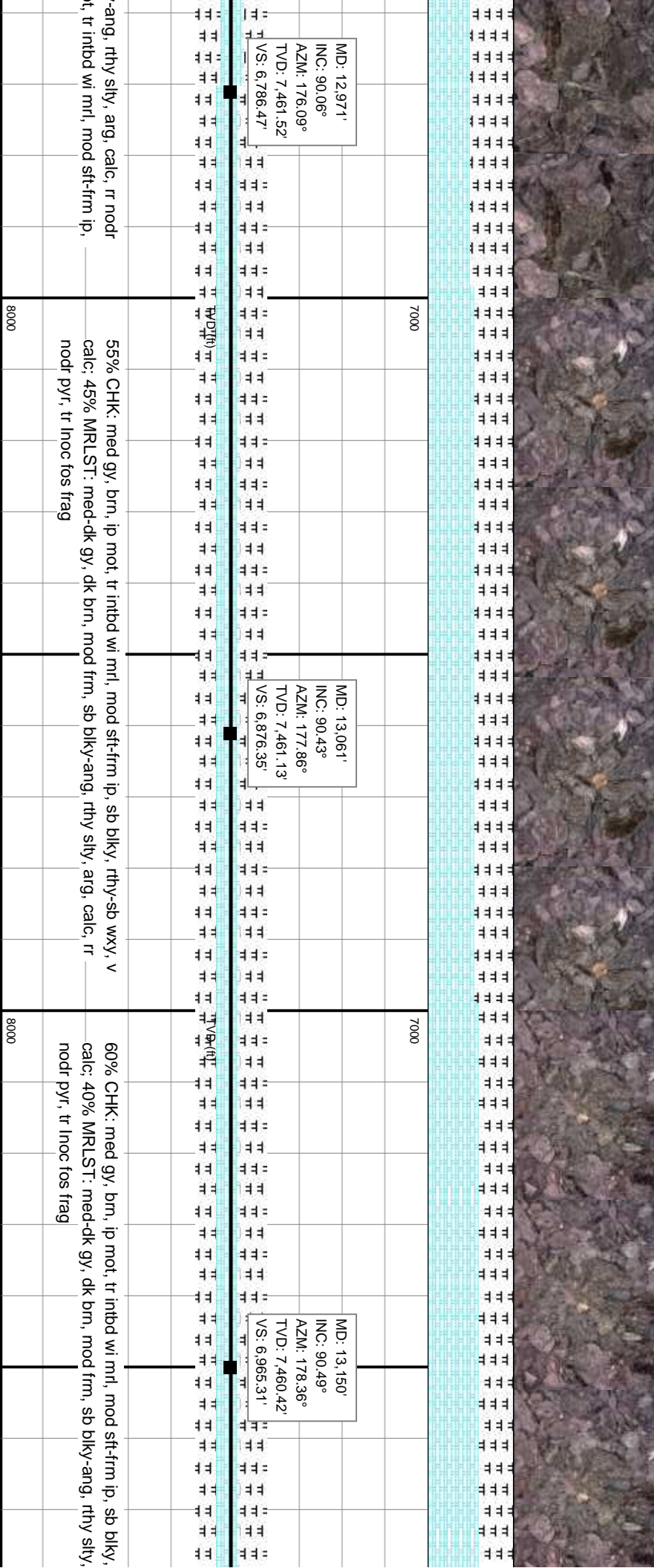
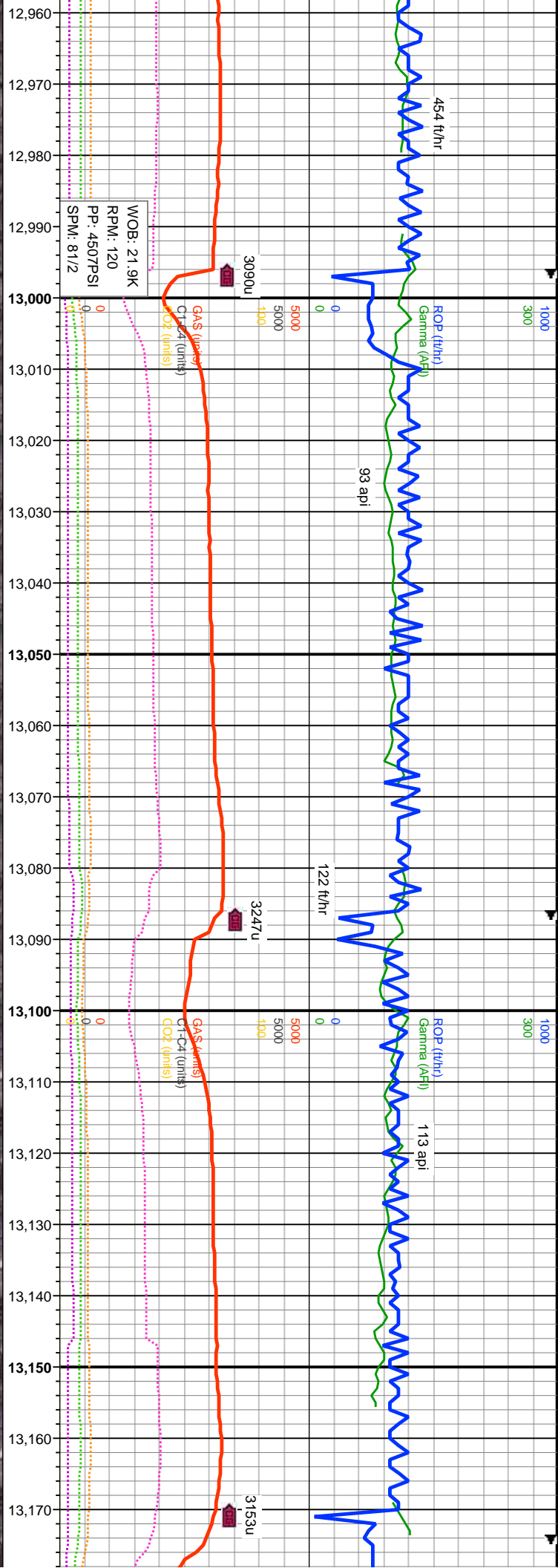


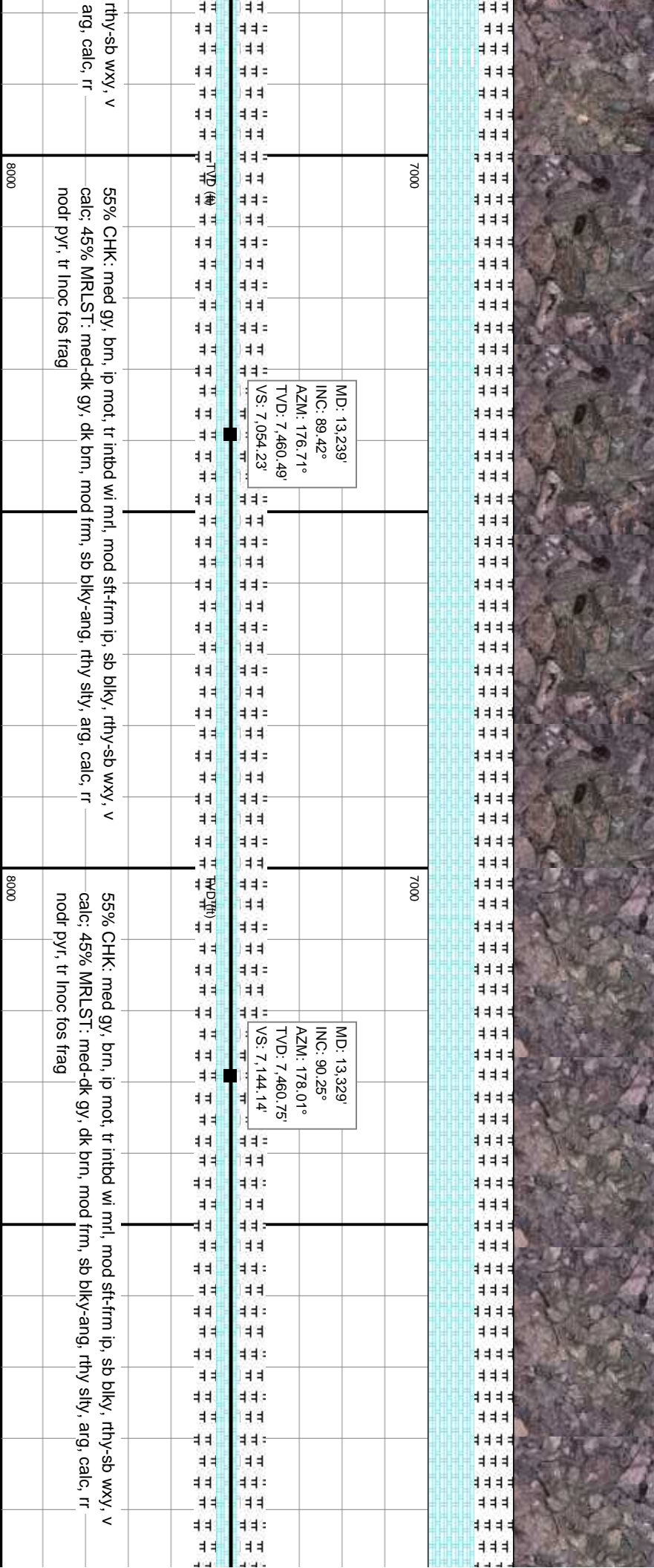
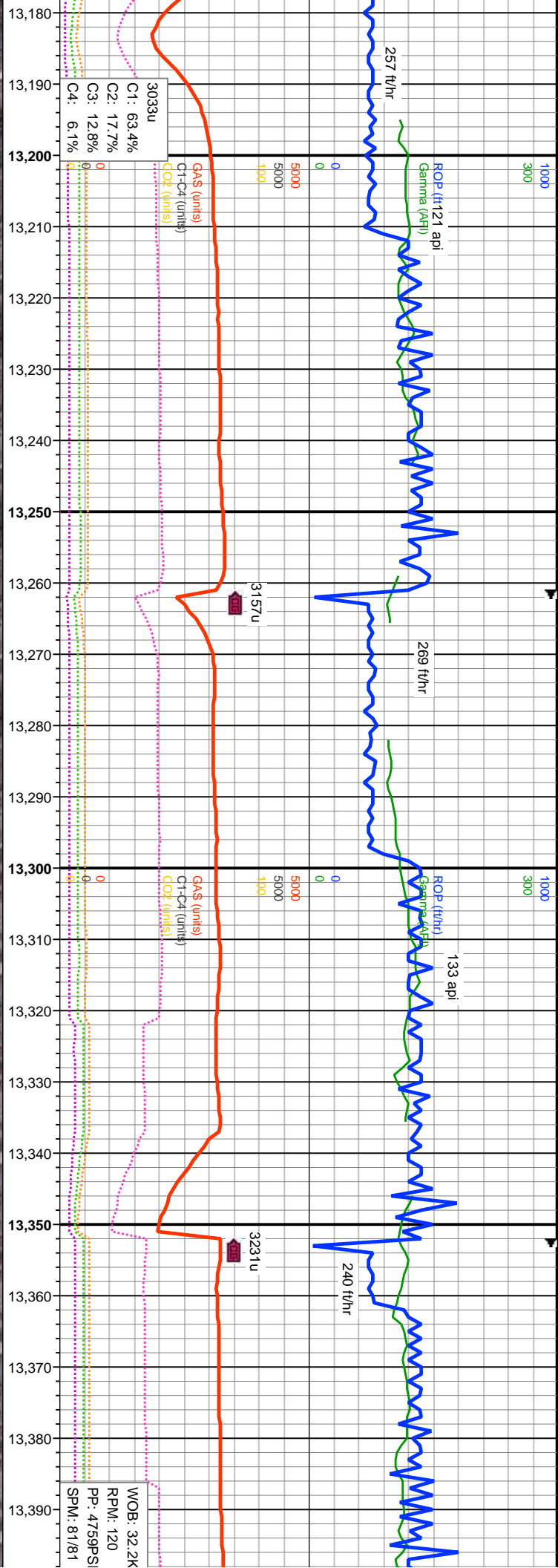




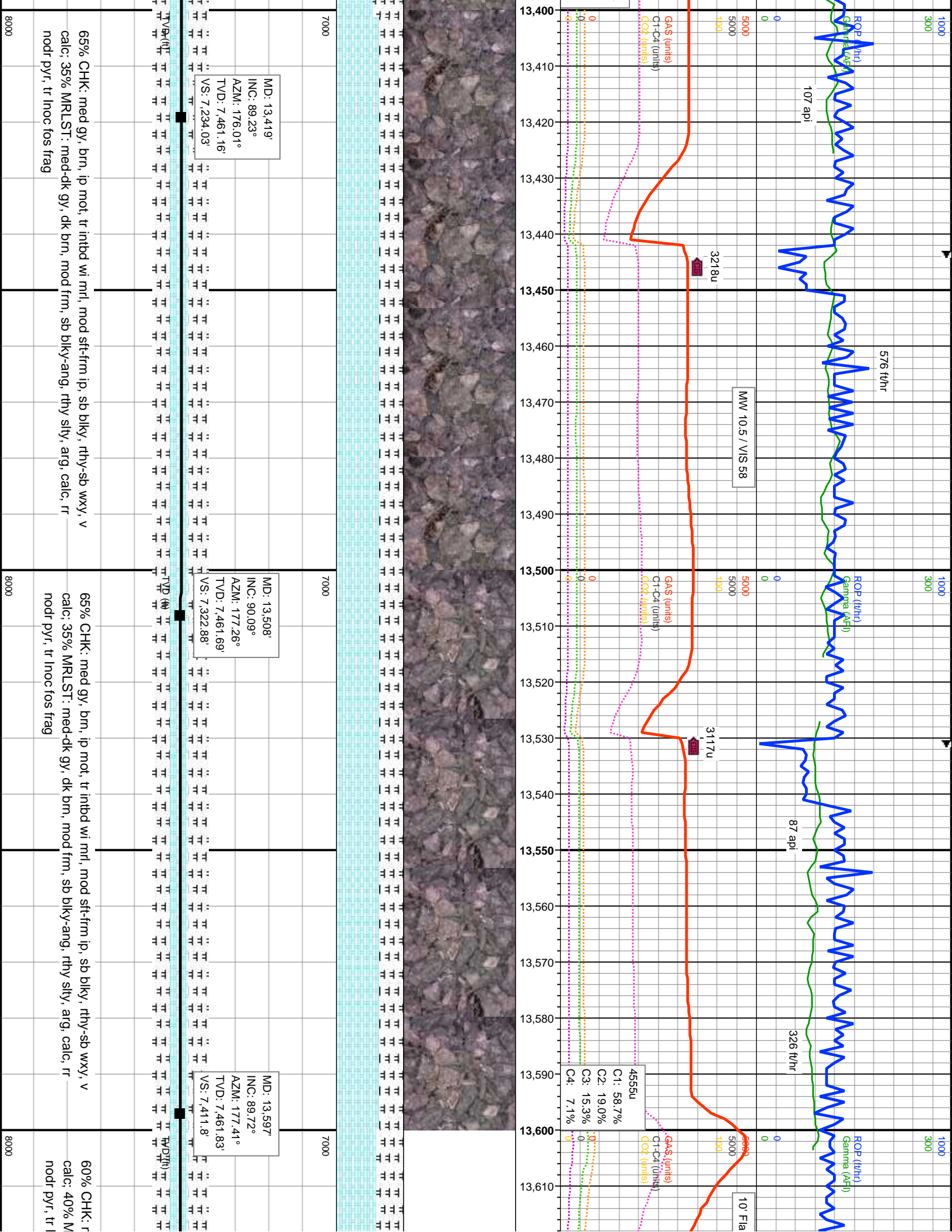


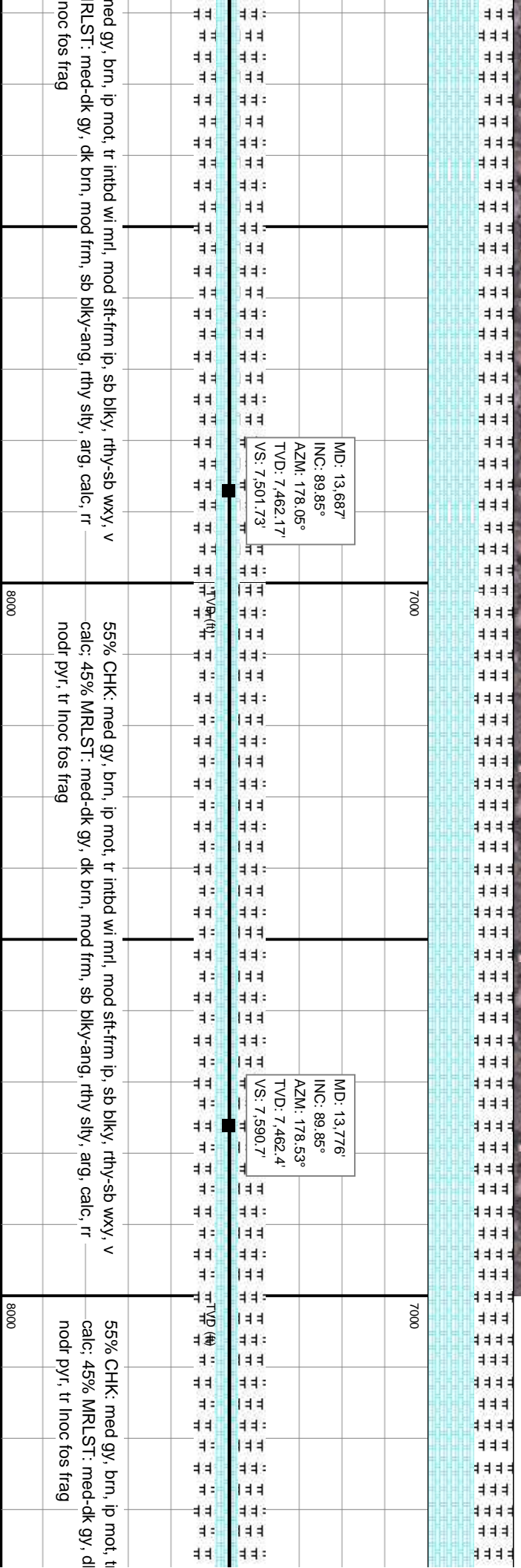
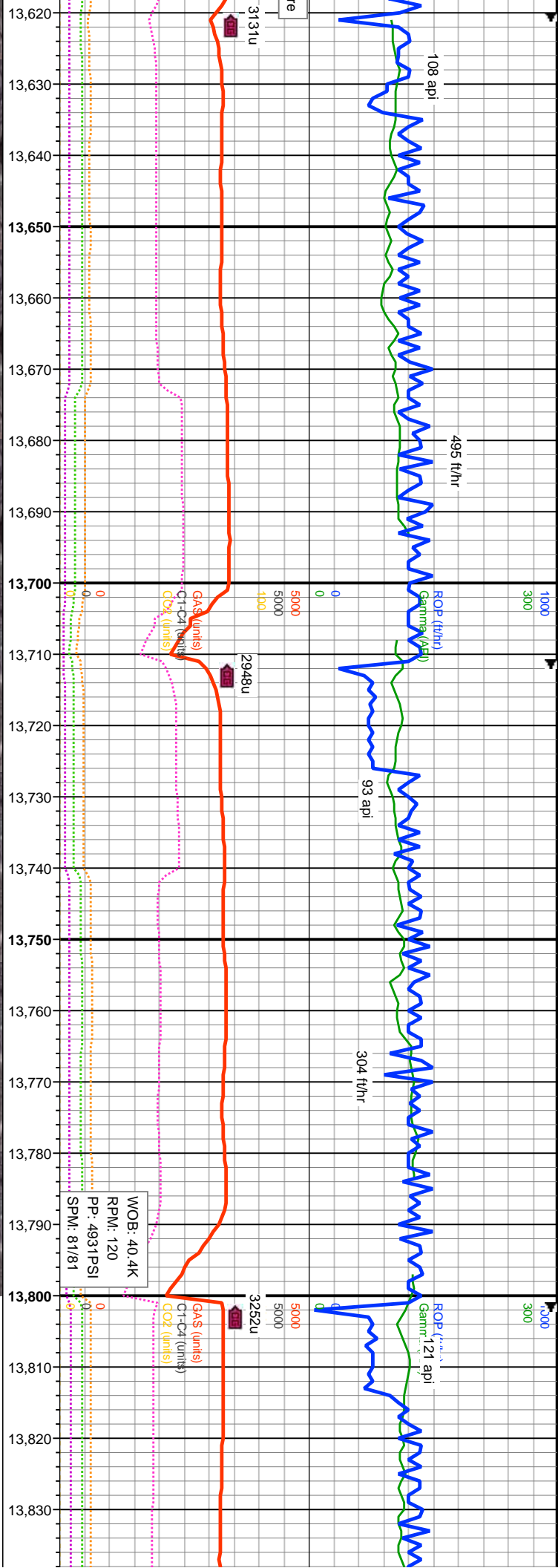


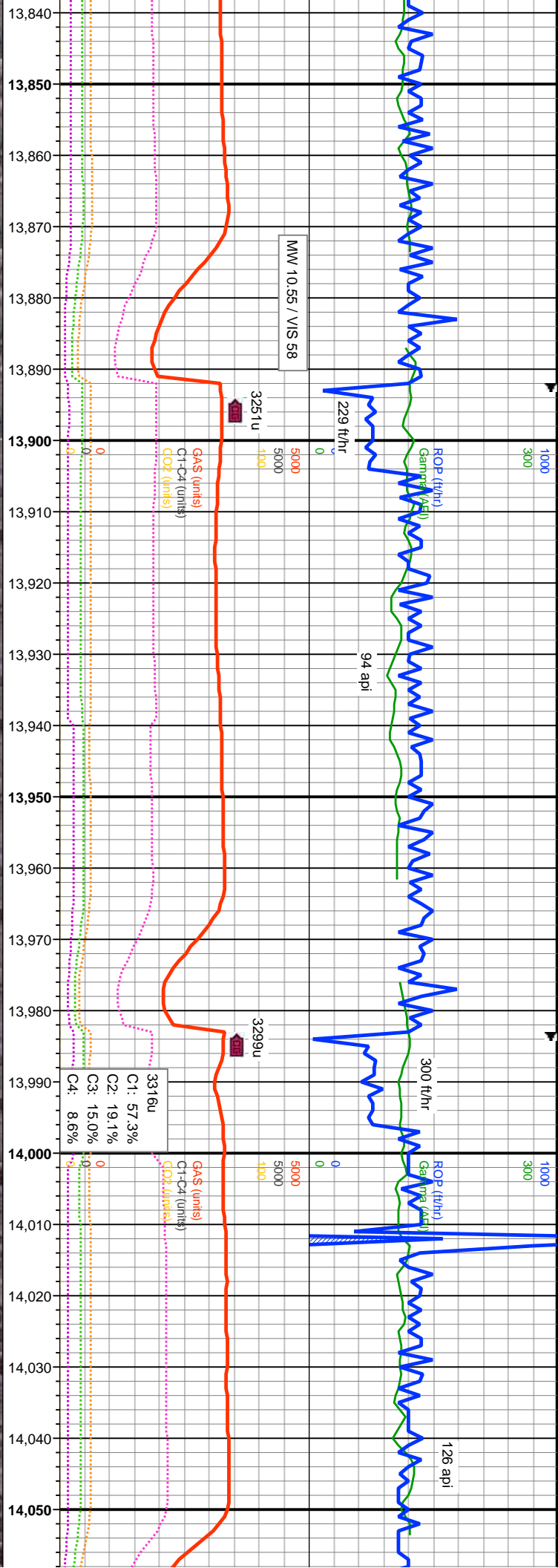




thy-sb wxy, v
arg, calc, rr
55% CHK: med gy, brn, ip mot, tr intbd wi mrl, mod st-frm ip, sb blk, rthy-sb wxy, v
calc, 45% MRLST: med-dk gy, dk brn, mod frm, sb blk-ang, rthy slty, arg, calc, rr
nodr pyr, tr inoc fos frag
55% CHK: med gy, brn, ip mot, tr intbd wi mrl, mod st-frm ip, sb blk, rthy-sb wxy, v
calc, 45% MRLST: med-dk gy, dk brn, mod frm, sb blk-ang, rthy slty, arg, calc, rr
nodr pyr, tr inoc fos frag







MMW 10.55 / VIS 58

3251u

Gas (units)
C1-C4 (units)
C1-C4 (units)
C1-C4 (units)

3299u

3316u
C1: 57.3%
C2: 19.1%
C3: 15.0%
C4: 8.6%

Gas (units)
C1-C4 (units)
C1-C4 (units)
C1-C4 (units)

MD: 13,866'
INC: 89.78°
AZM: 178.76°
TVD: 7,462.69'
VS: 7,660.68'

MD: 13,955'
INC: 89.63°
AZM: 178.59°
TVD: 7,463.15'
VS: 7,769.66'

MD: 14,045'
INC: 89.75°
AZM: 179.19°
TVD: 7,463.64'
VS: 7,859.65'

