



Scale: 5" / 100'
Measured Depth Log

Well Name Schaefer LD 13-033HN

Location SECTION 24, T1S, R67W

State COLORADO

County ADAMS

Country UNITED STATES

Rig Number PRECISION 460

API Number 050011025300

AFE # 19DC0001

Geographic Region DJ BASIN

Field WATTENBERG

Ground Elevation 5021.4'

K.B. Elevation 5041.4'

Logged Interval 6000' MD To 18044'

Total Depth 18044'

Formation NIOBRARA C 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

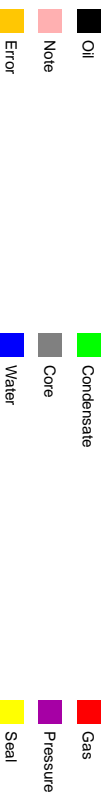


Other

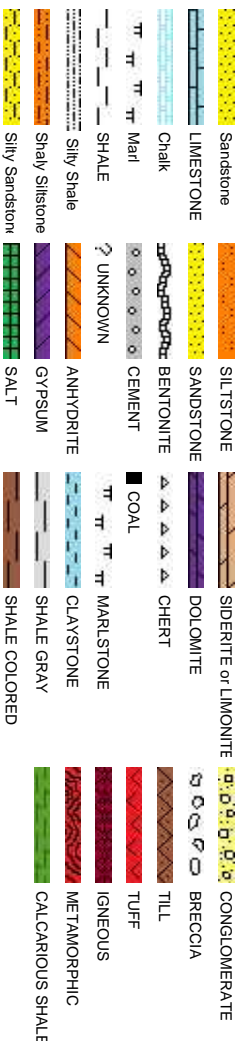
MUDLOG START DATE 02/04/2019

MUDDLOG END DATE 02/07/2019

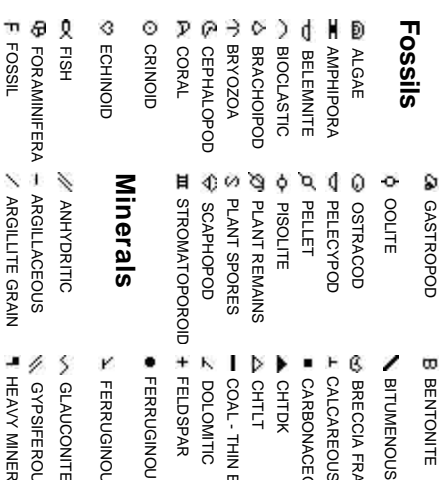
Color Coding



Rock Types



Fossils



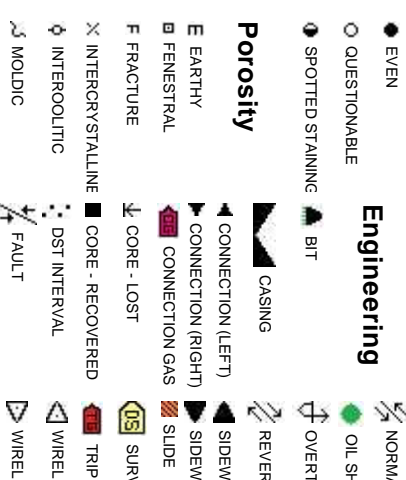
Minerals



Oil Show



Engineering



Porosity



Other



Accessories

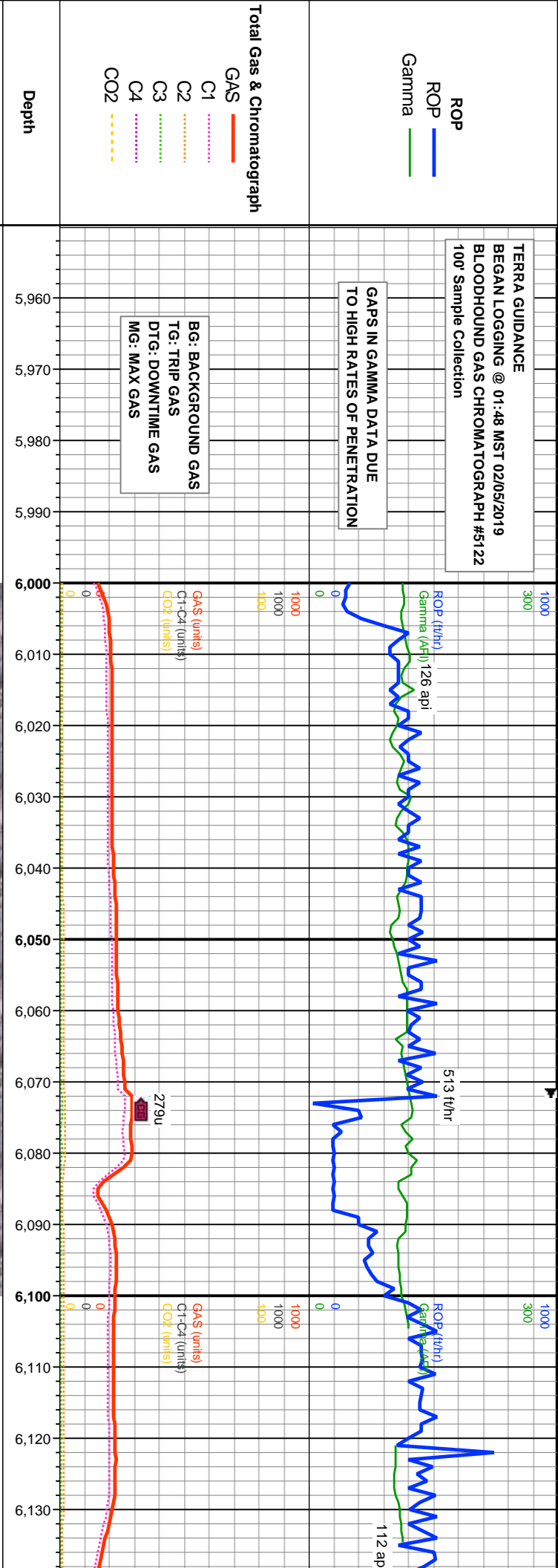
K KAOLIN	— COAL STRINGER
SUBSTANCE T MARLSTONE	— DOLOMITE STRINGER
MINERAL CRYSTALS	— GYPSUM STRINGER
NODULES	— LIMESTONE STRINGER
PHOSPHATE PELLETS	TT MARLSTONE (CALO) STRG
PYRITE	TT MARLSTONE (DOL) STRG
SALT CAST	— SANDSTONE STRINGER
SANDY	— SHALE STRINGER
SILICEOUS	— SILTSTONE STRINGER
SILTY	— CALC SHALE
TUFFACEOUS	CHALK

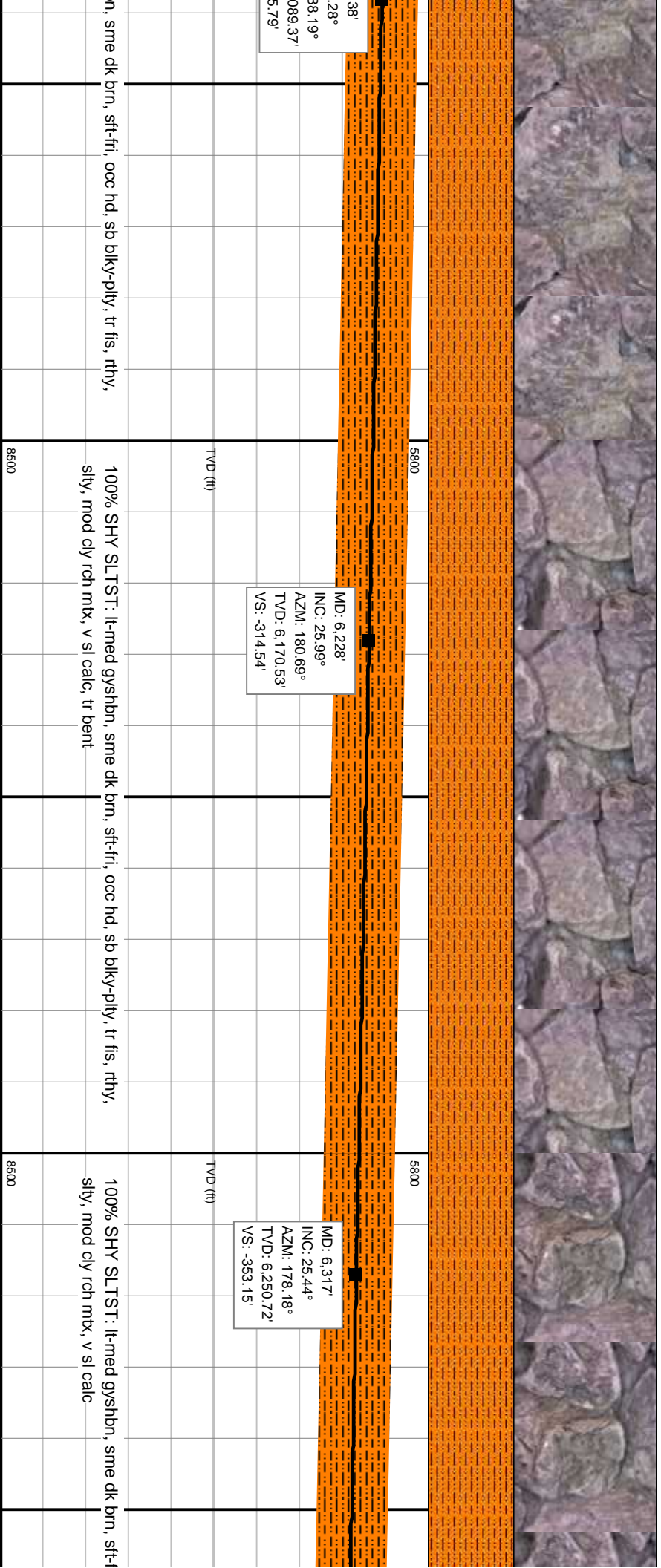
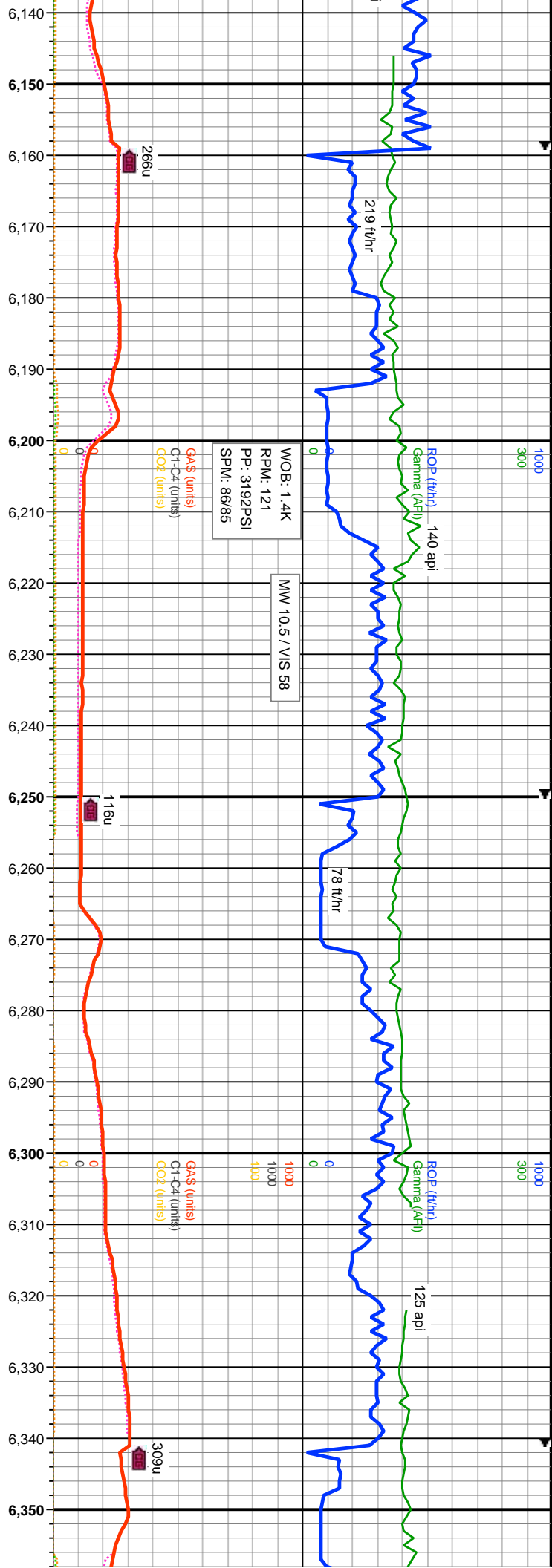
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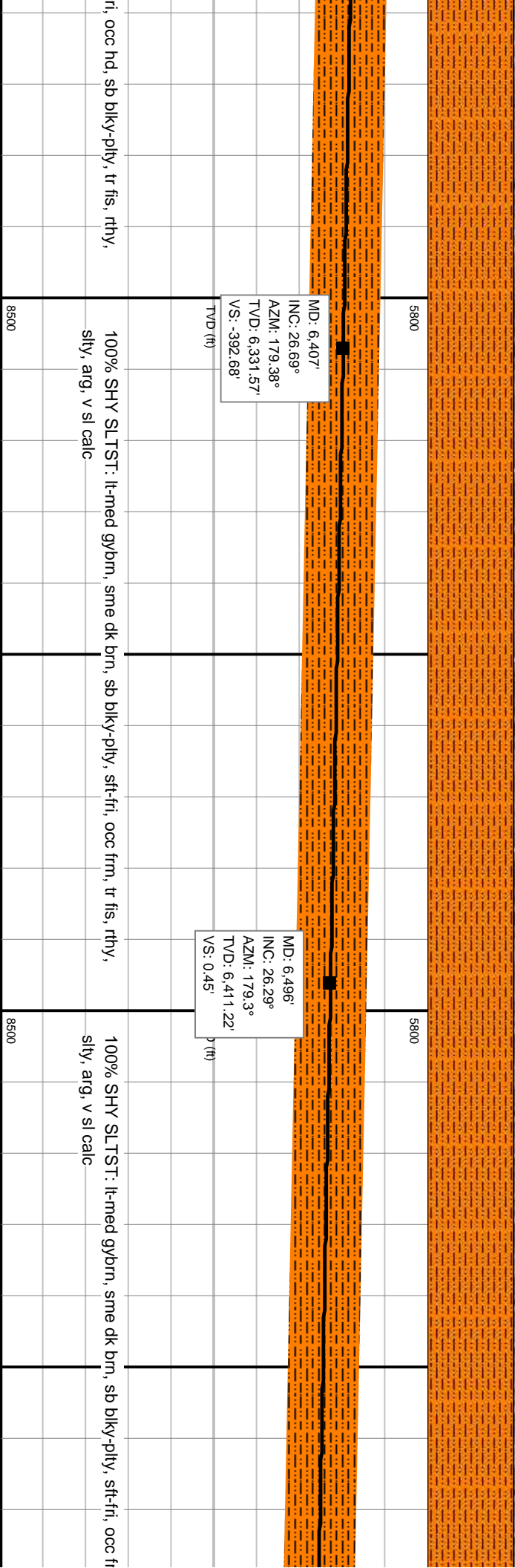
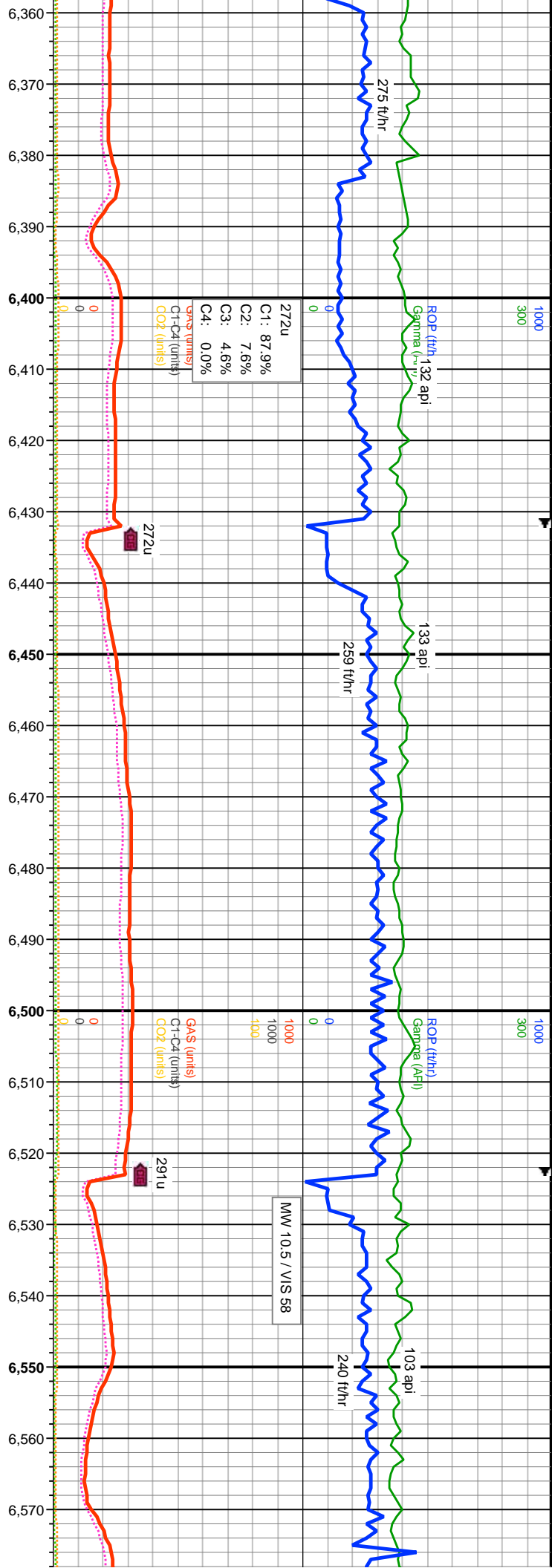
ANHYDRITE STRINGER
BENTONITE STRINGER

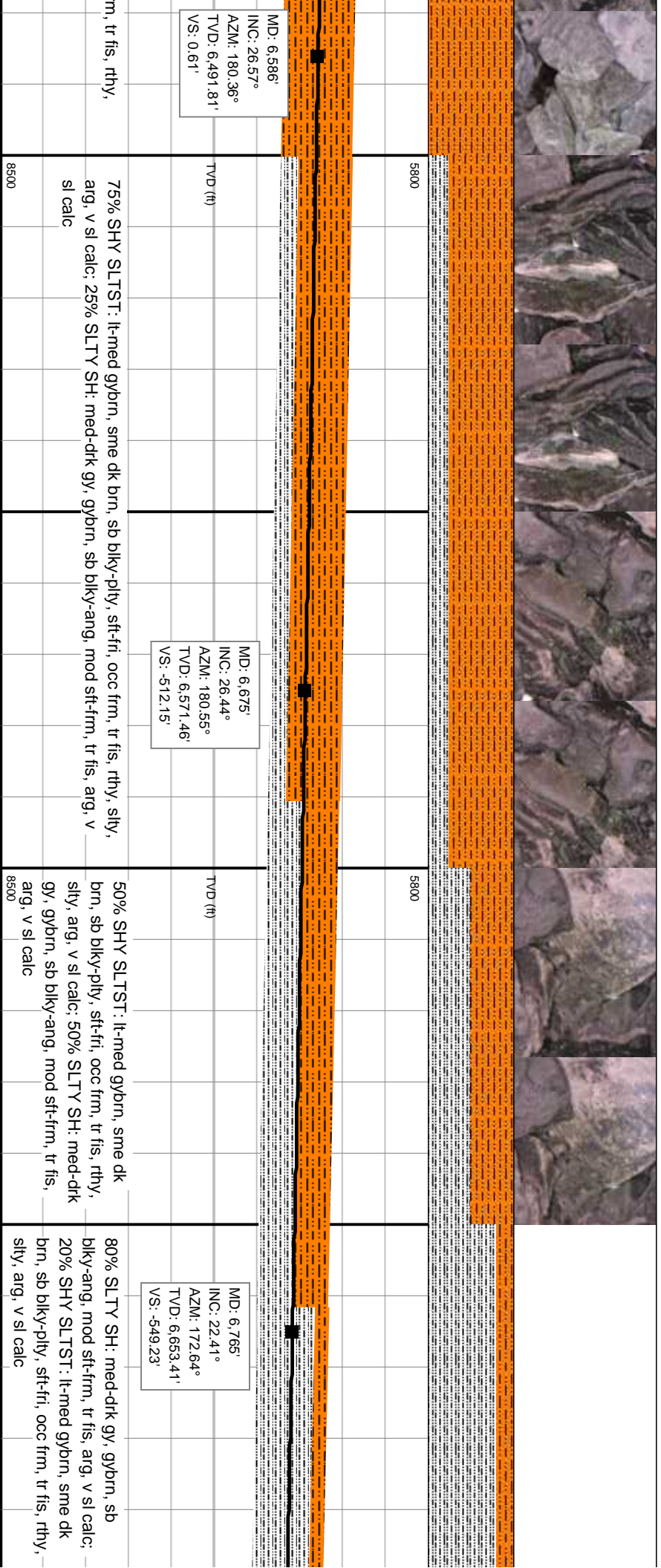
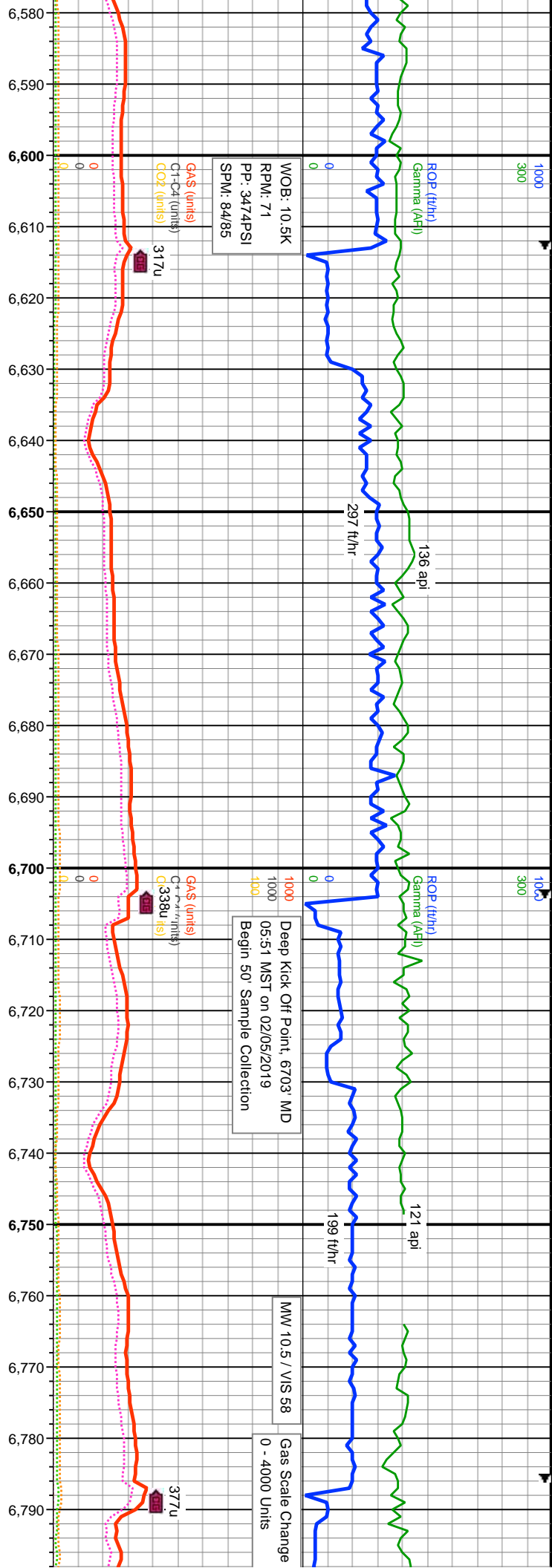
Other Symbols

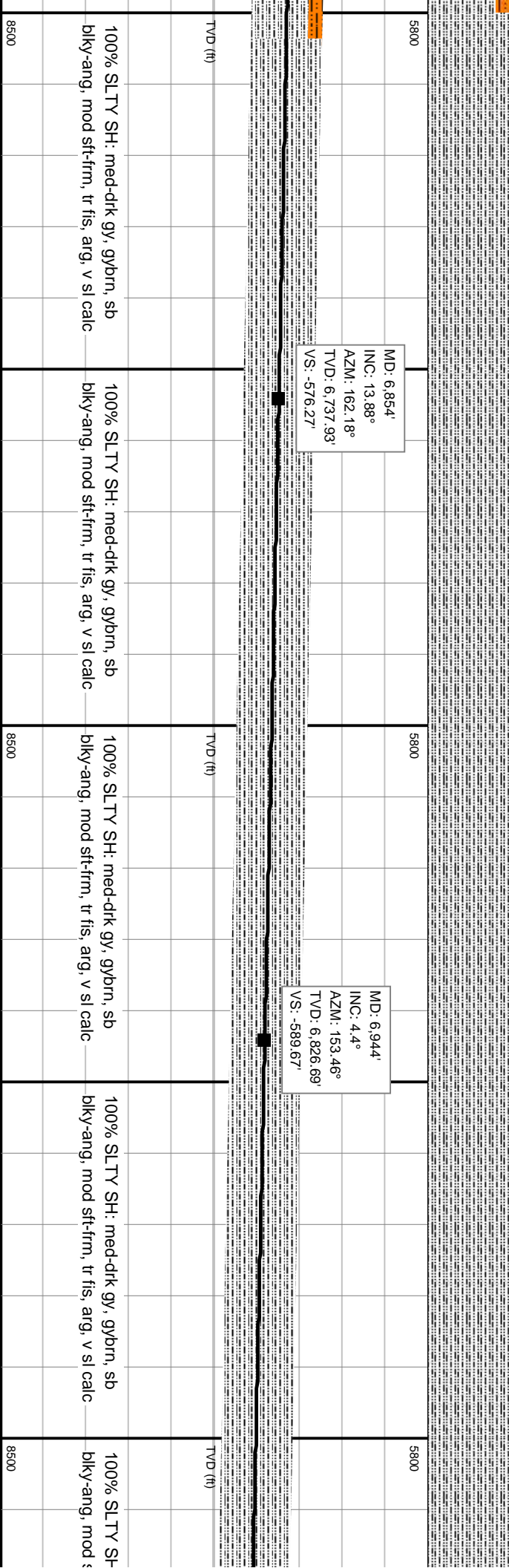
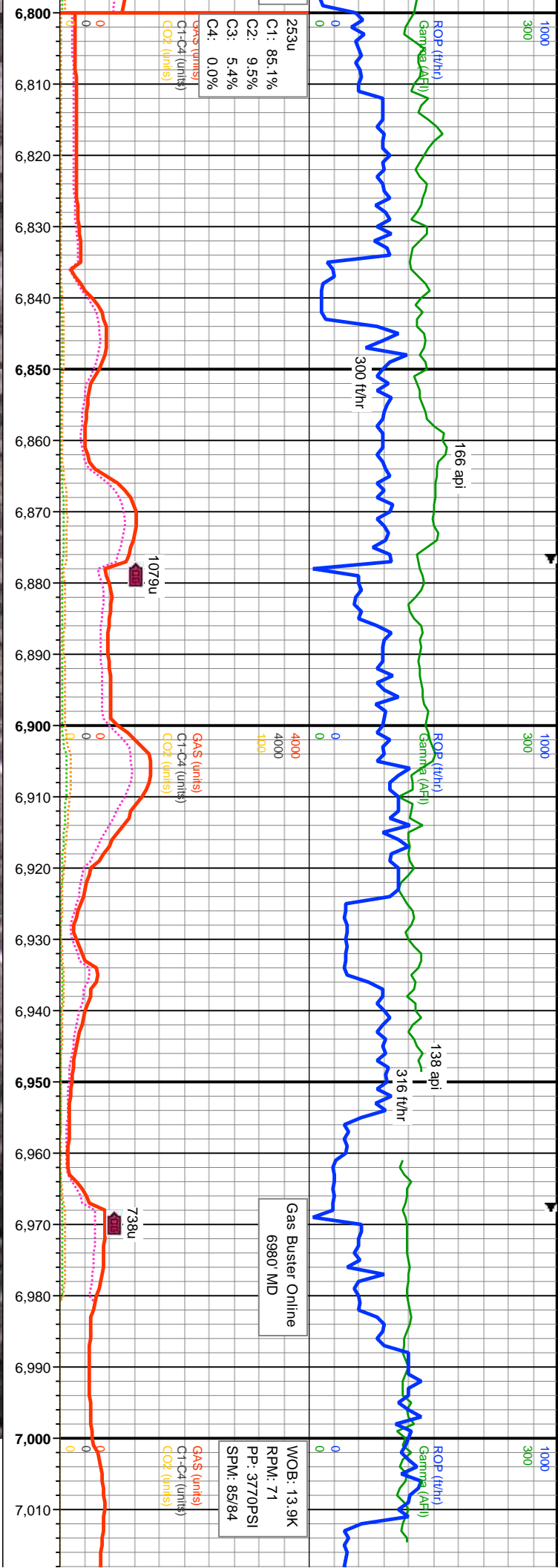
FORMATION TOP	L LITHOGRAPHIC
HOW	MX MICROXLN
MIN DEPTH	A ANGULAR
AL FAULT	R ROUNDED
HOW	B SUBANG
TURNED STRATA	n SUBRND
SE FAULT	
ALL CORE (LEFT)	M MODERATE
ALL CORE (RIGHT)	P POOR
CHALKY	W WELL
CRYPTOXLN	
E EARTHY	
FINE TESTED - LEFT	FX FINELYXLN
FINE TESTED - RT	GS GRAINSTONE
	CALCARIOUS SHALE

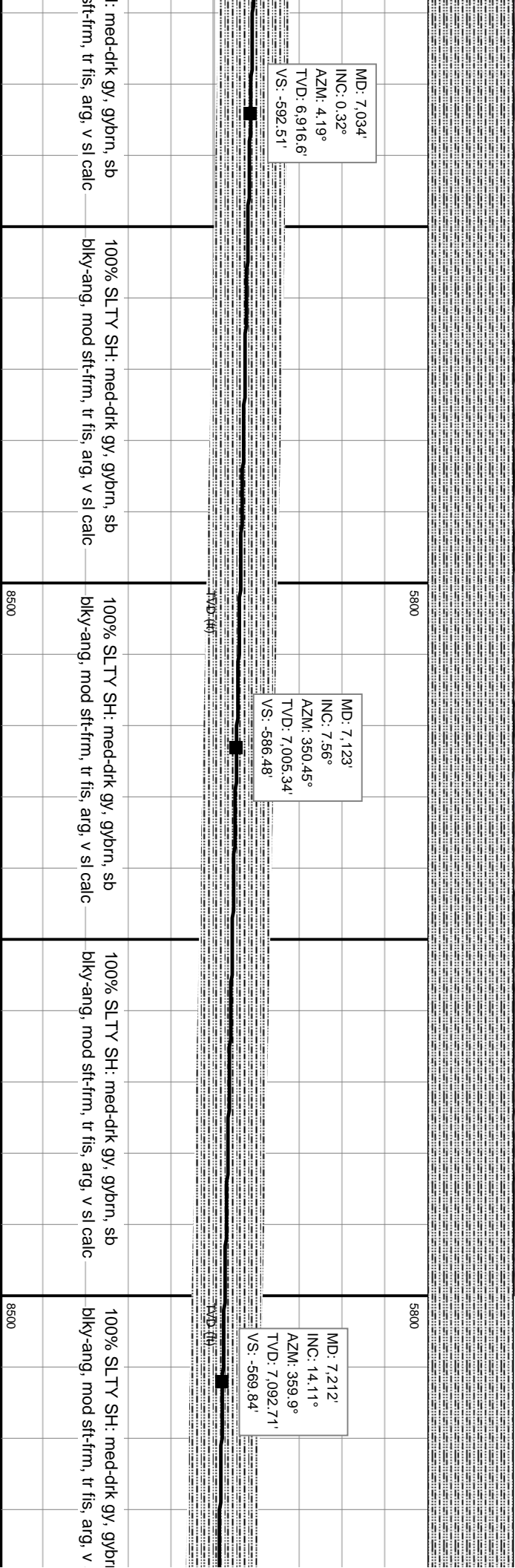
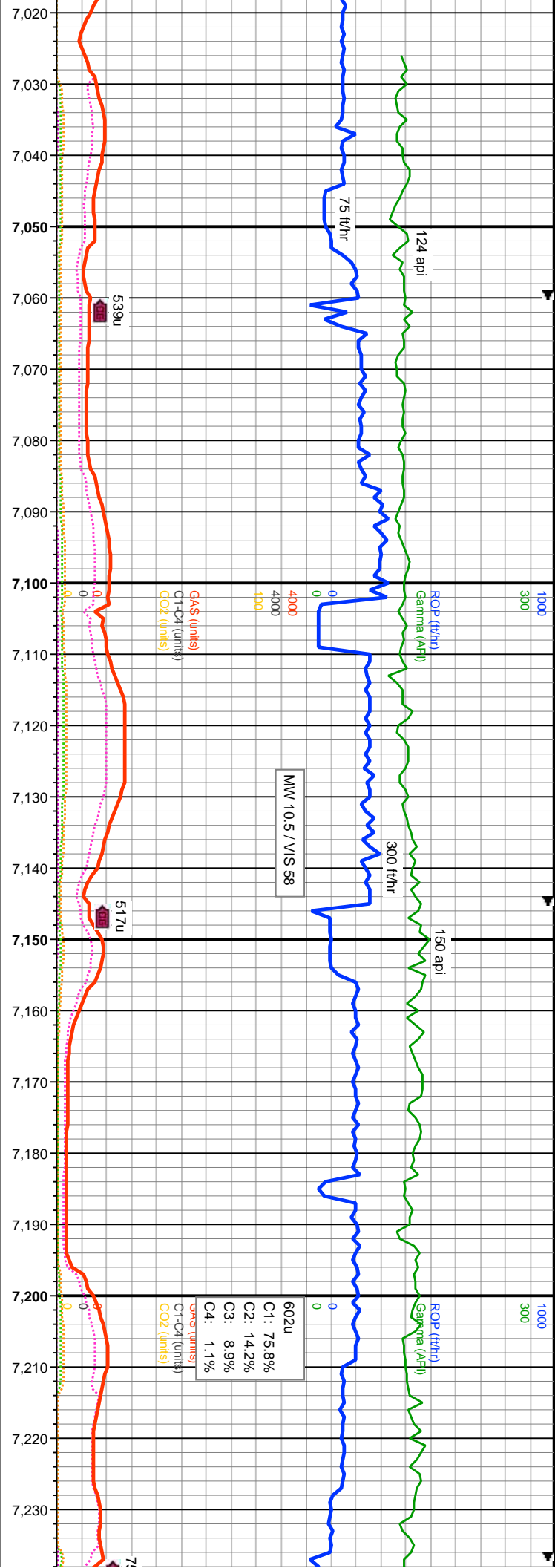


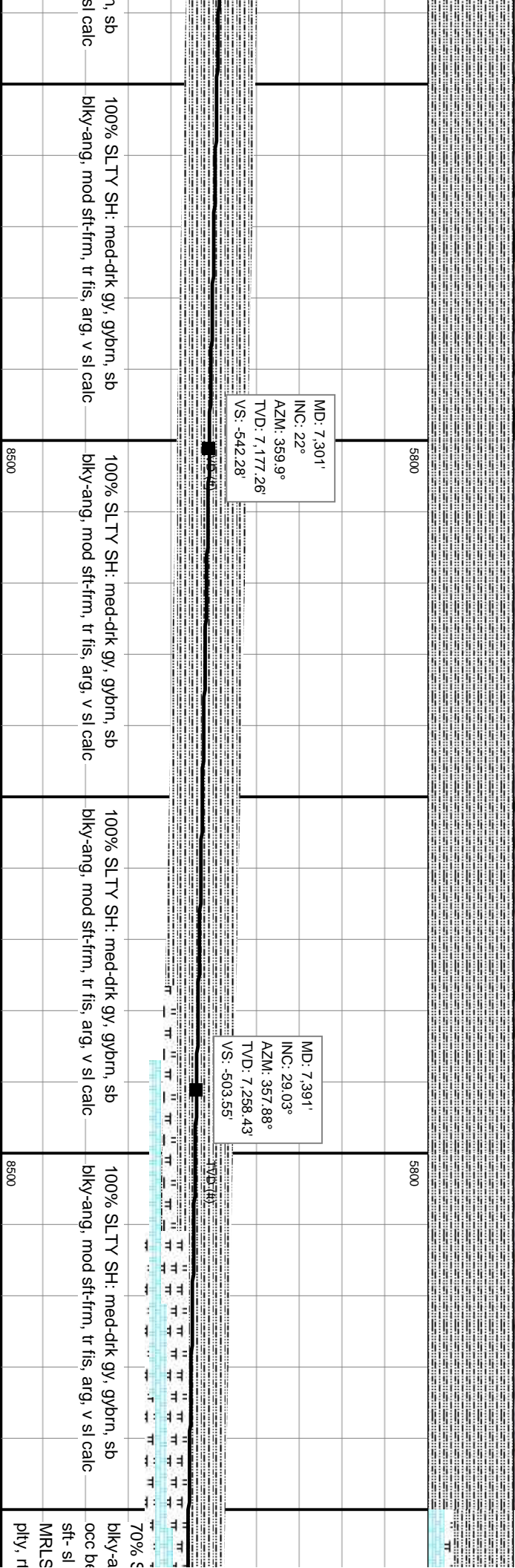
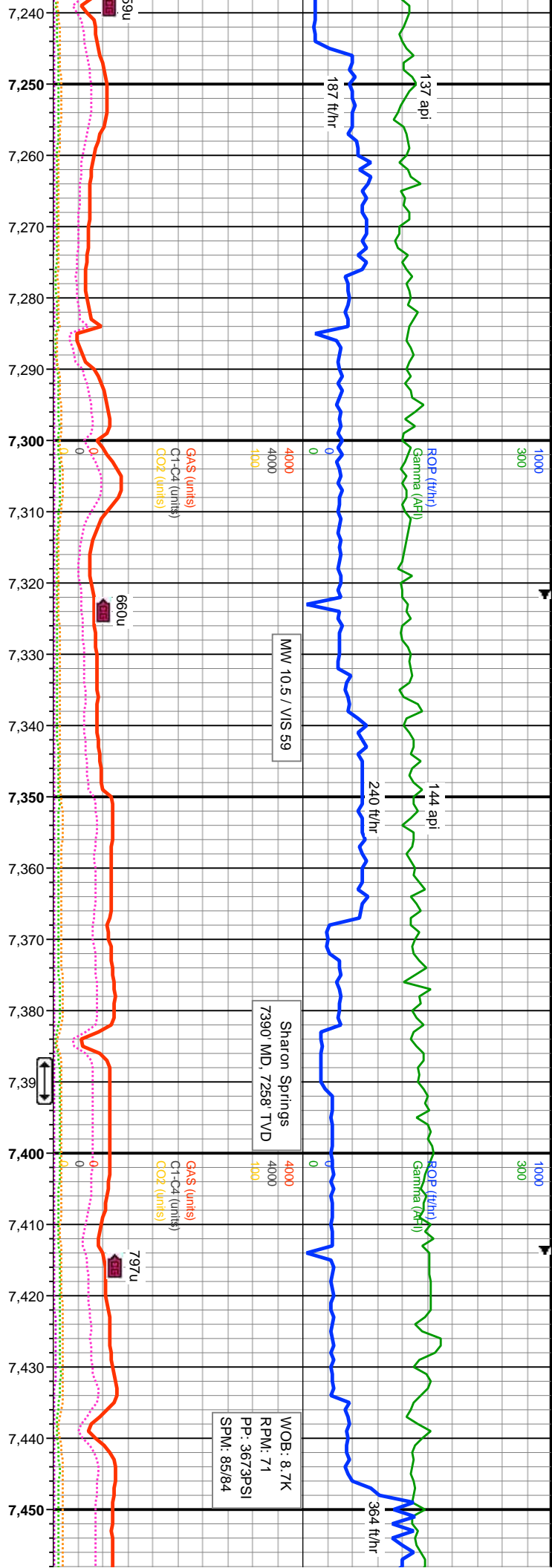


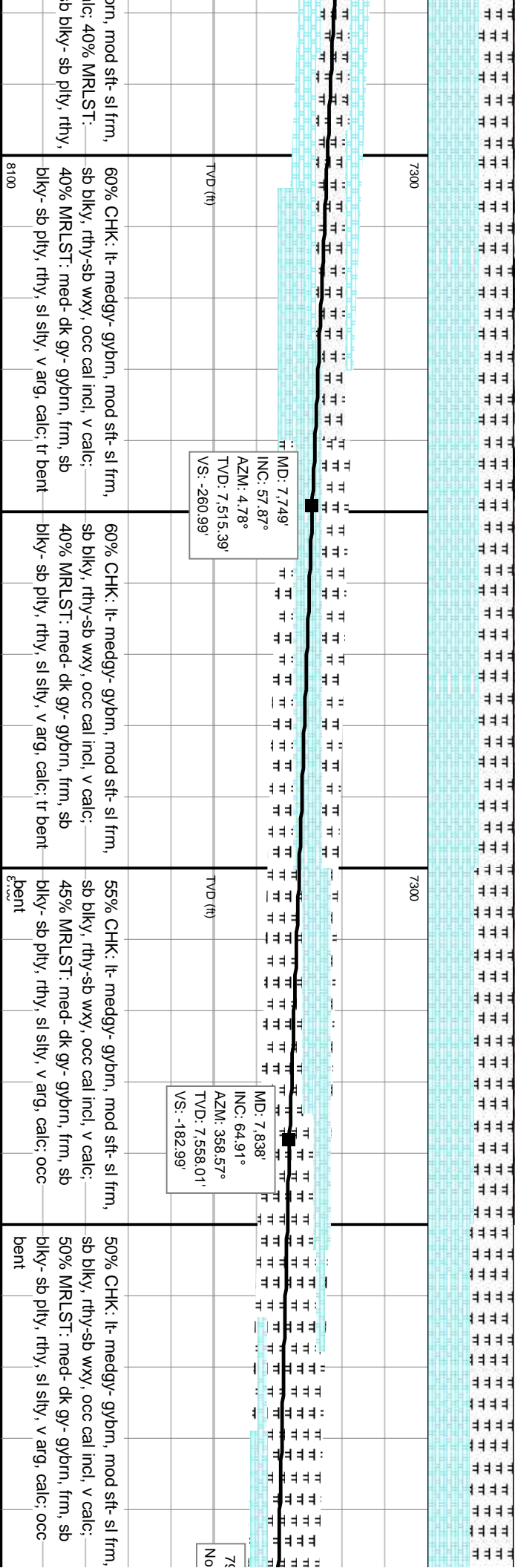
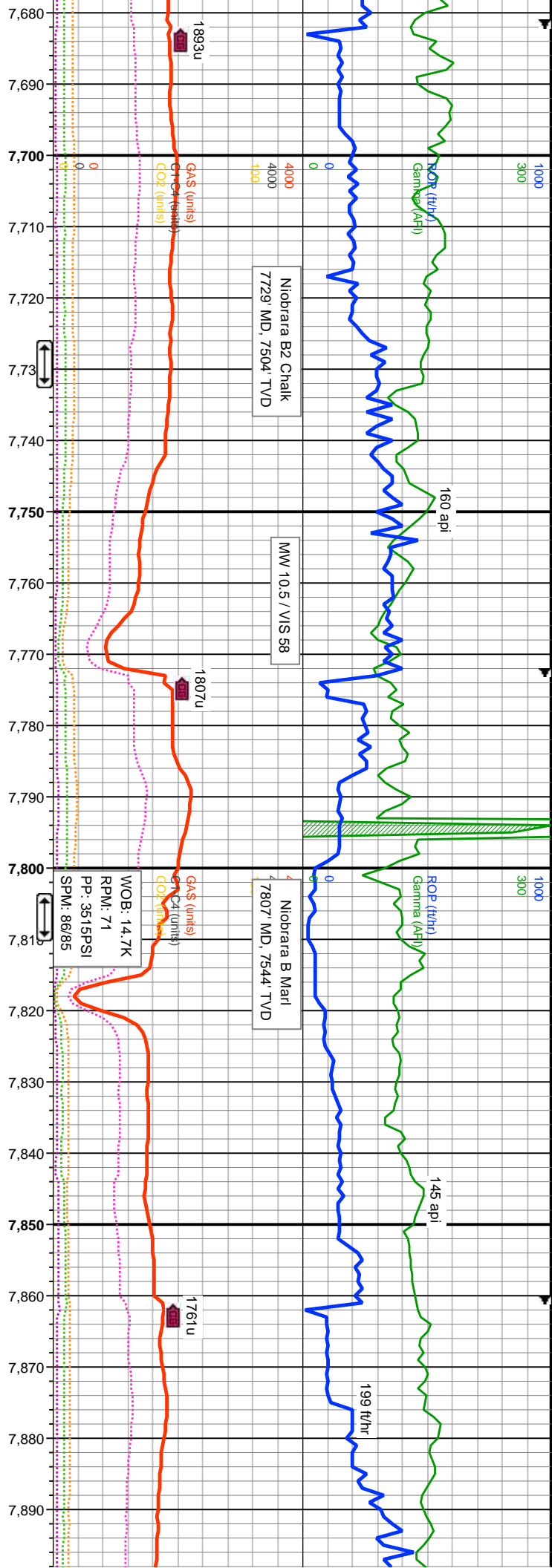


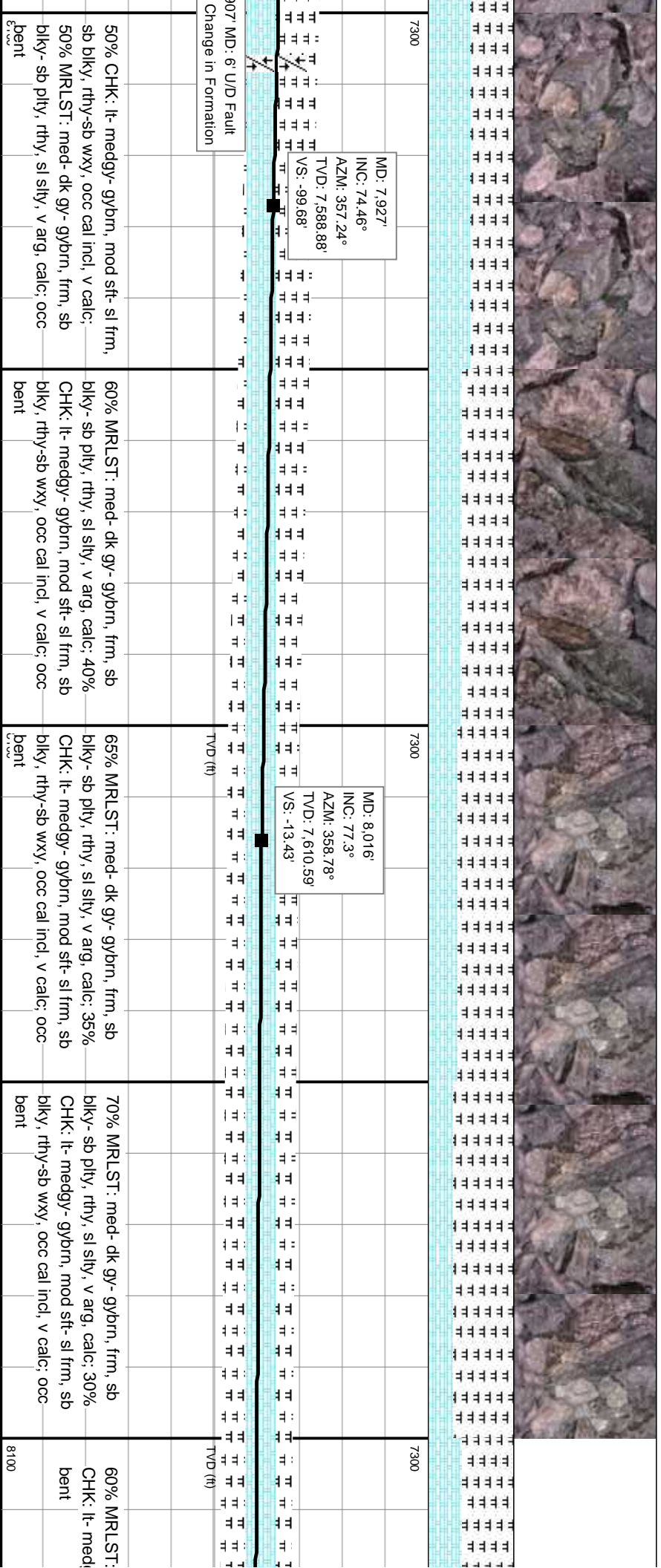
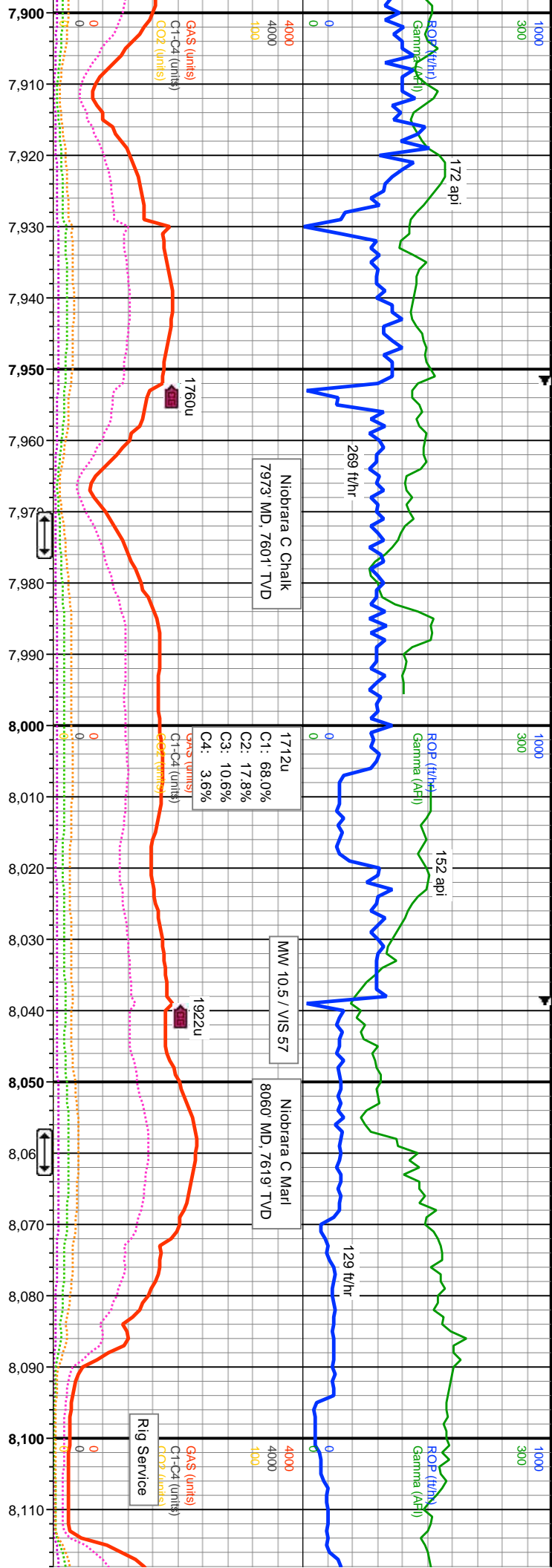


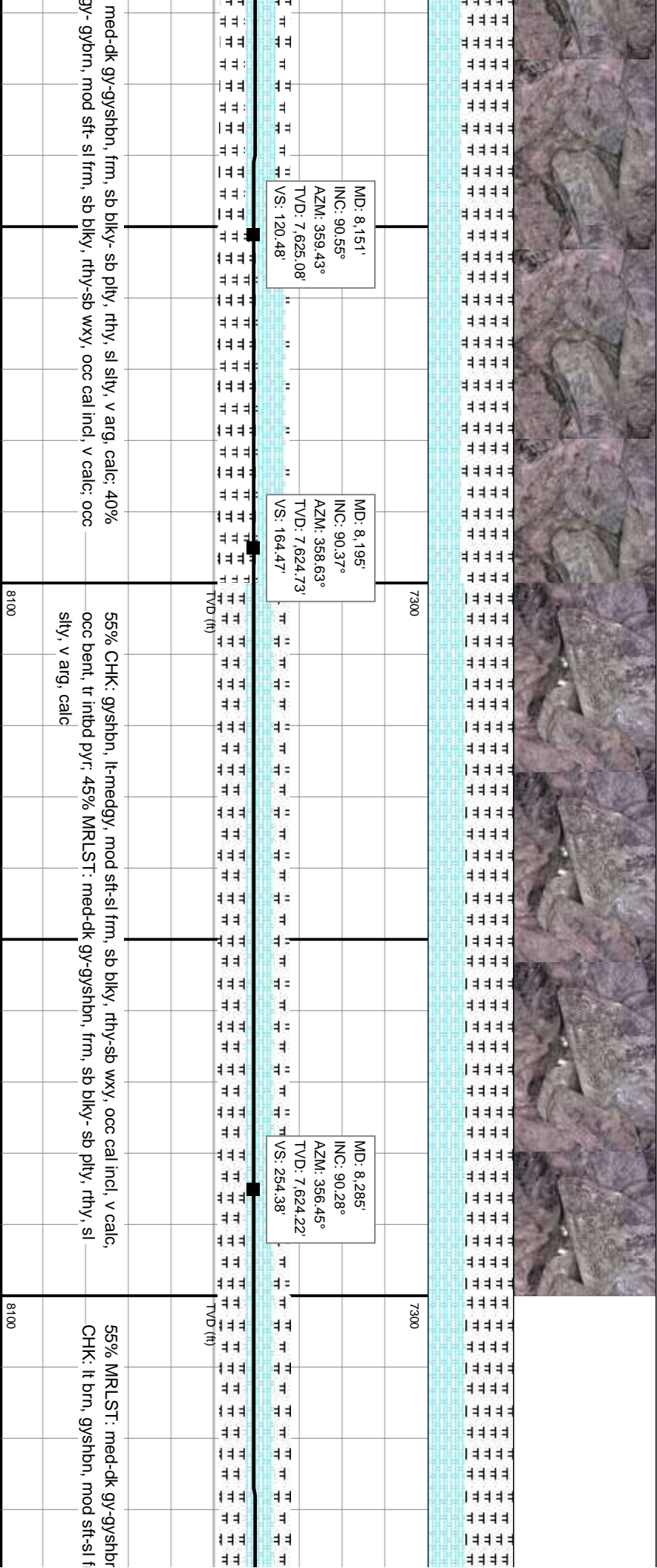
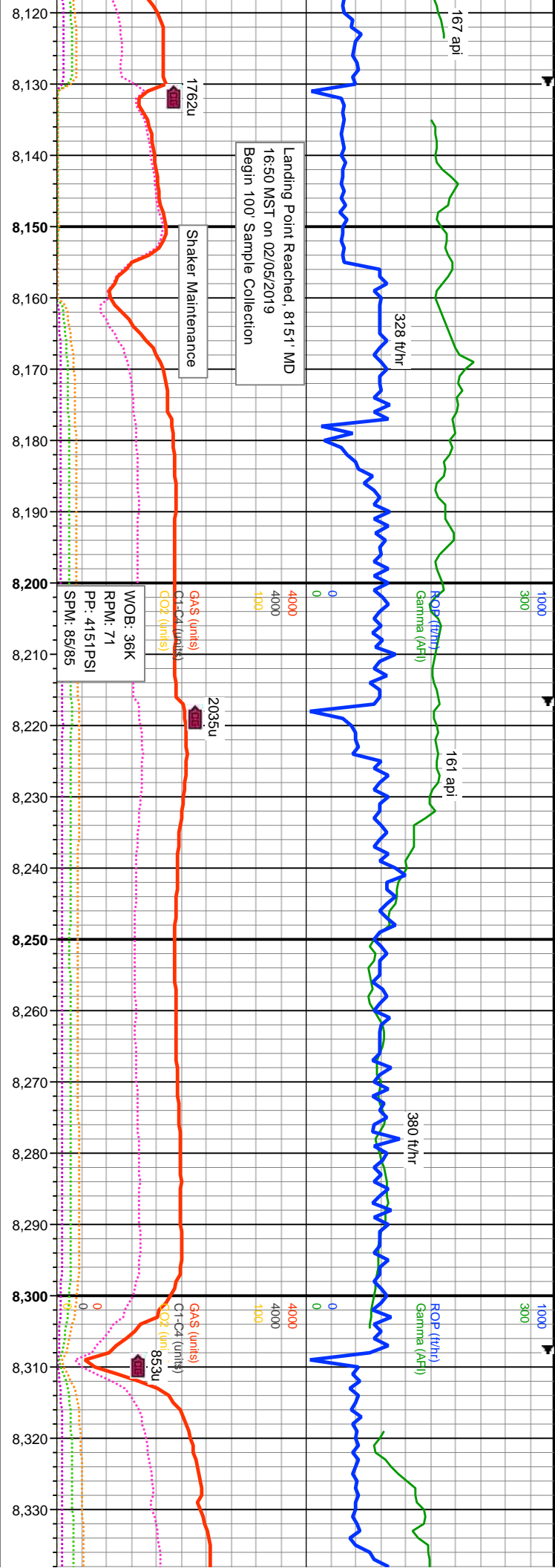


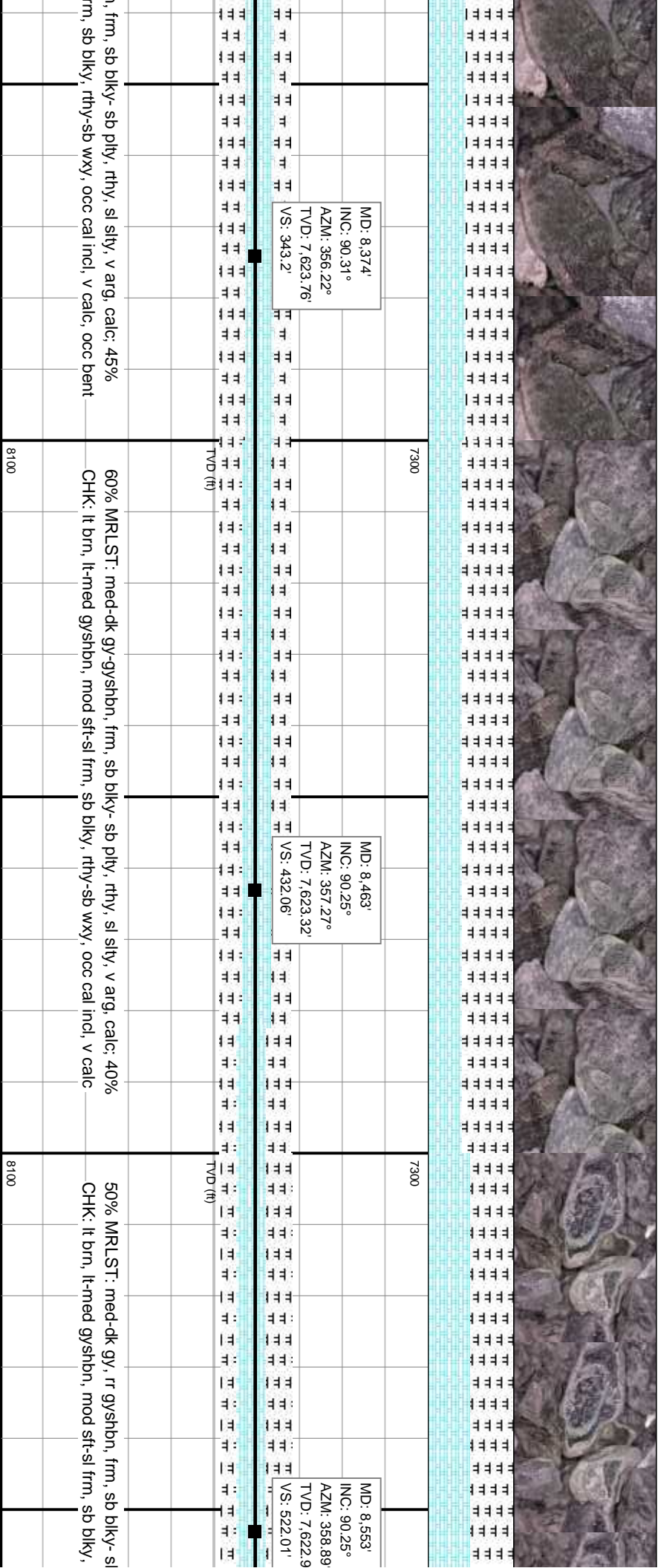
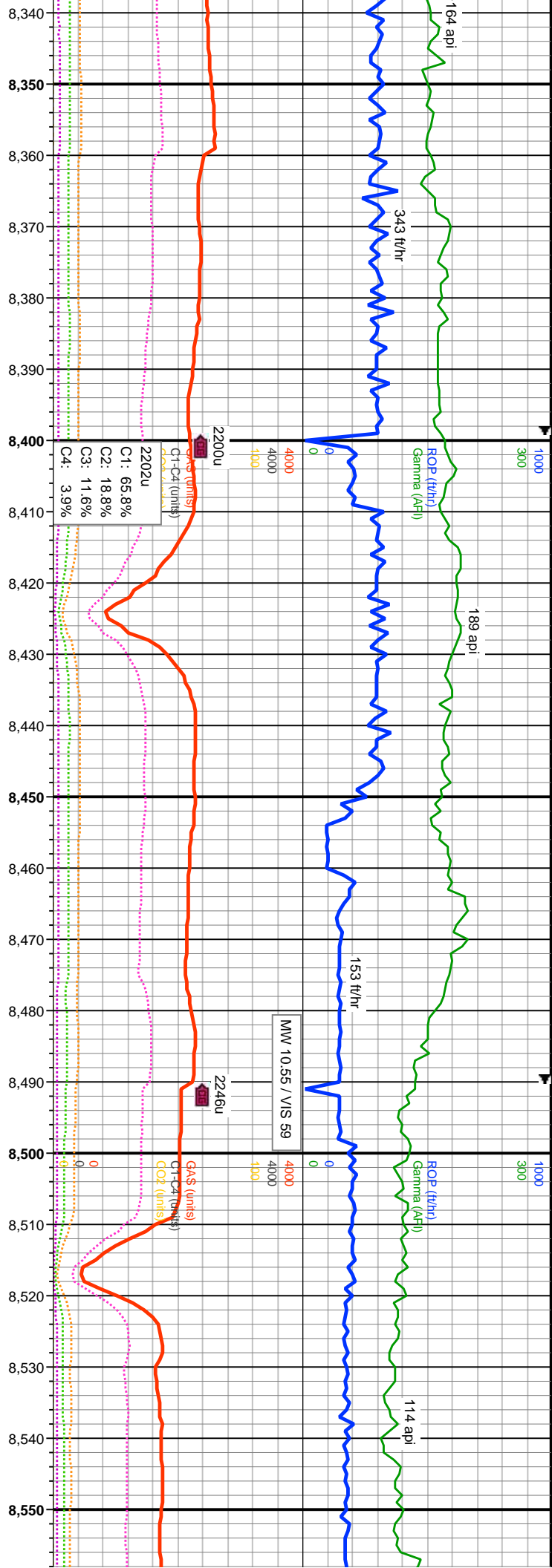


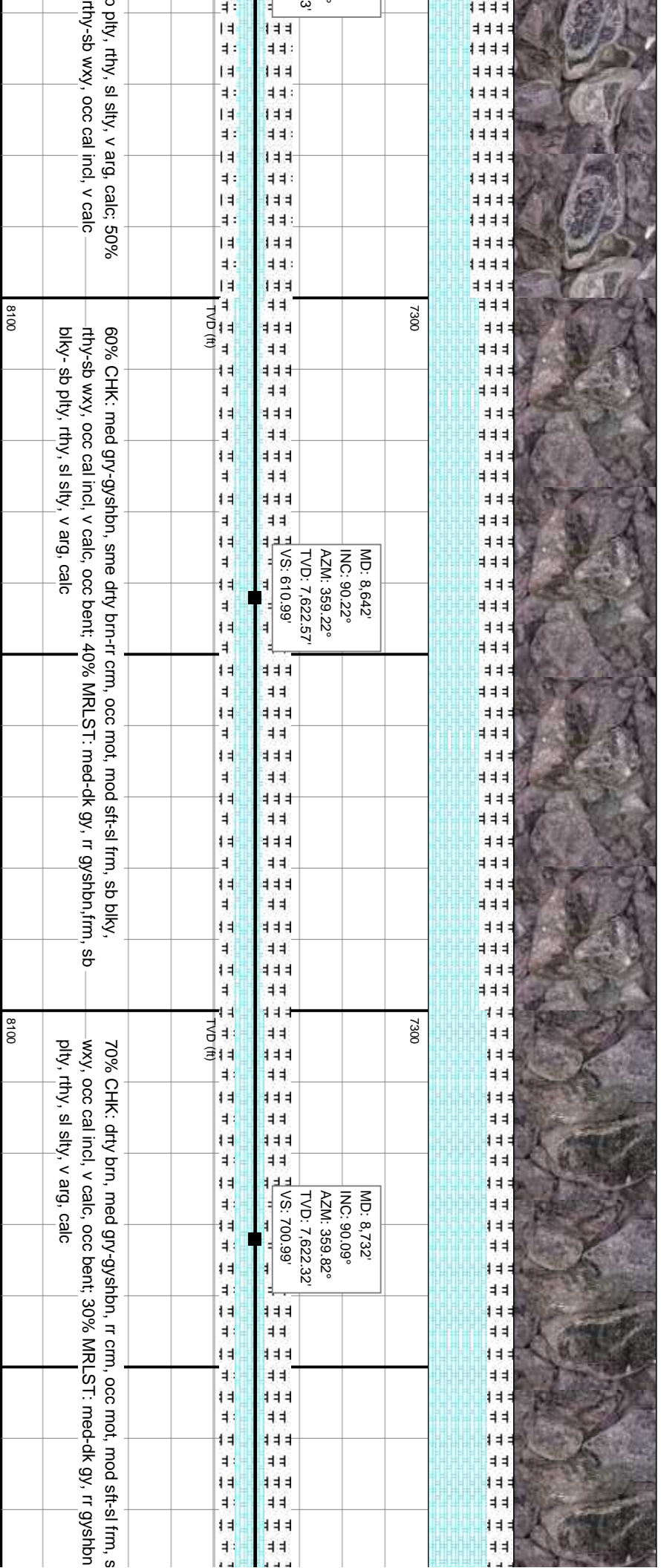
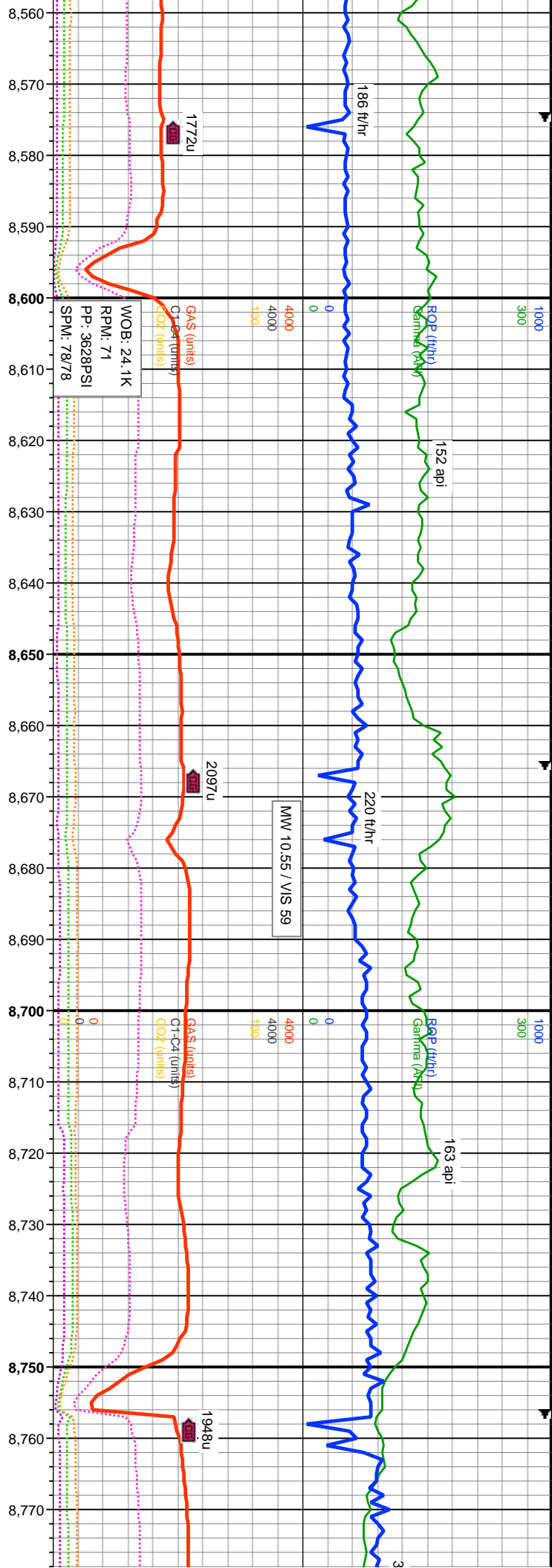


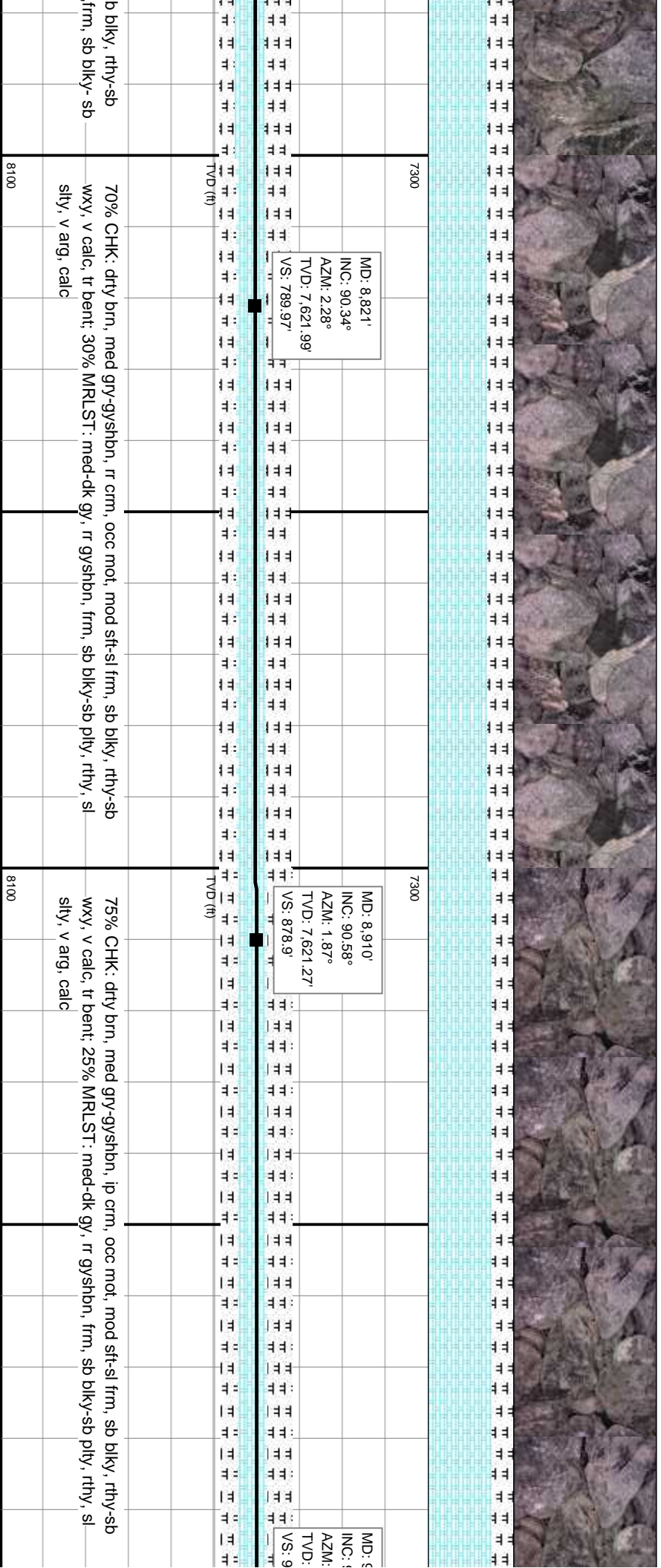
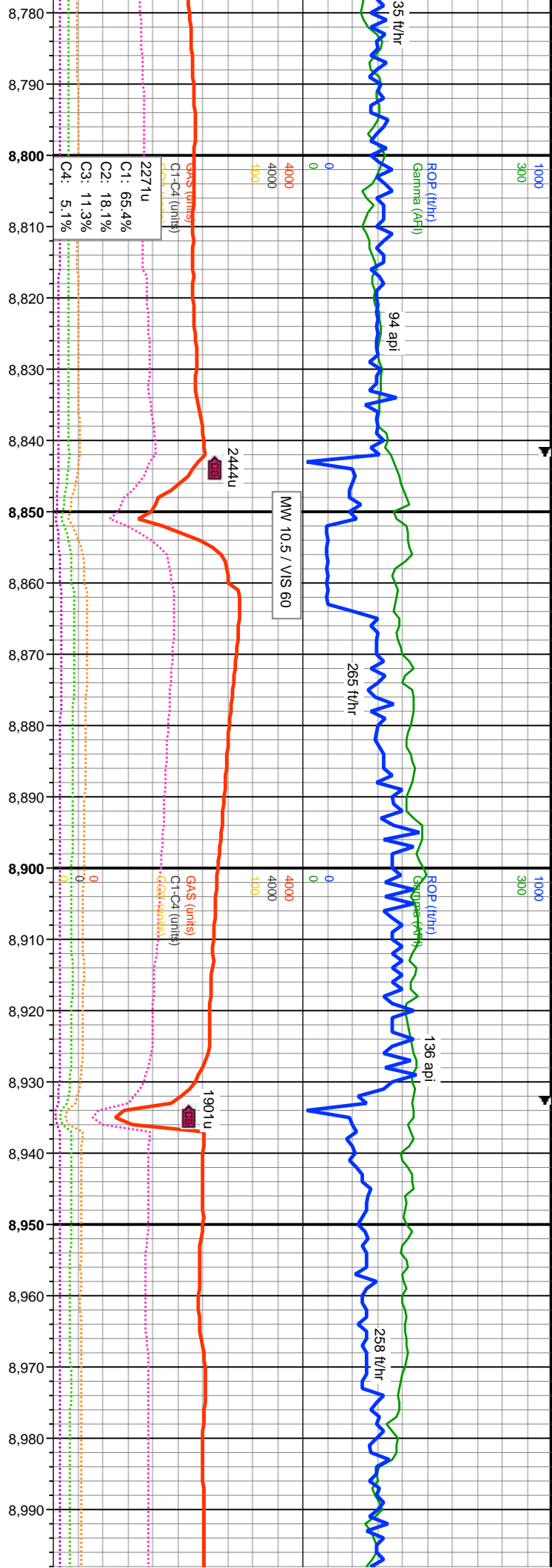


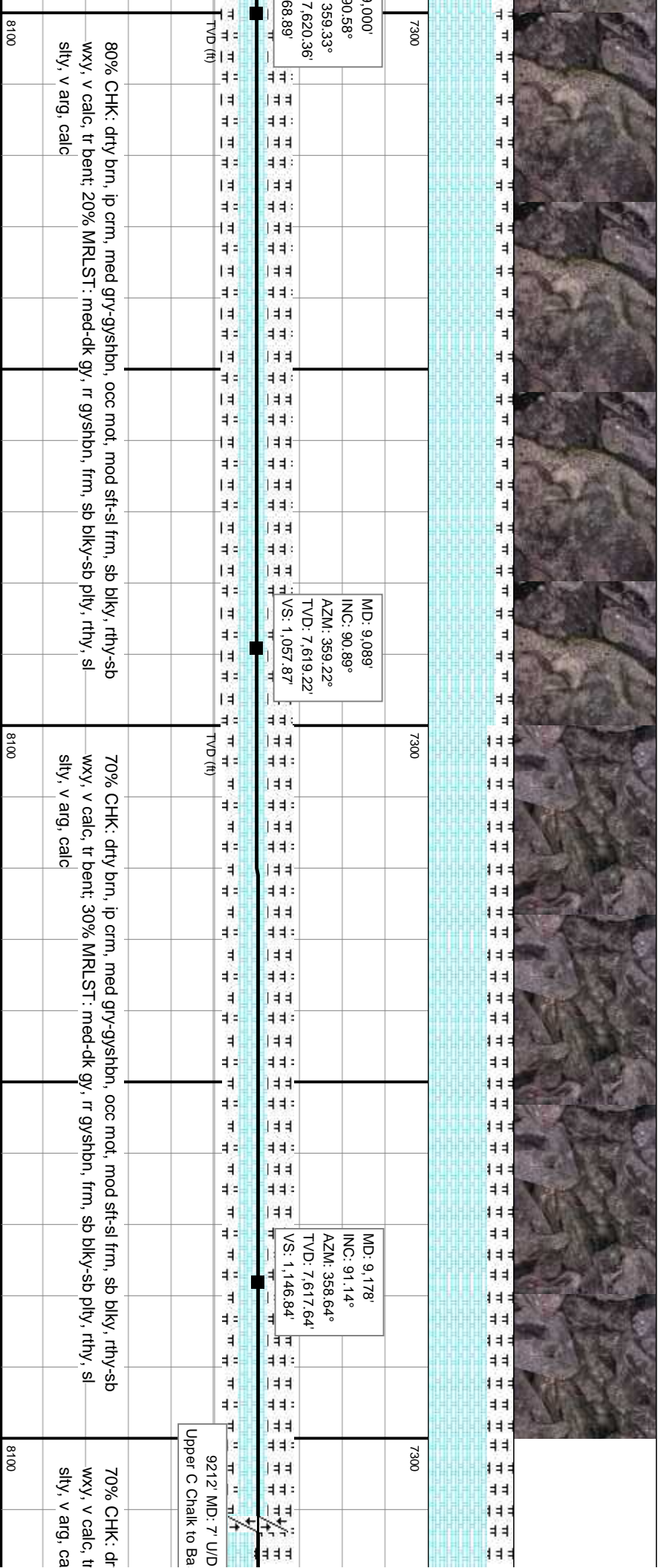
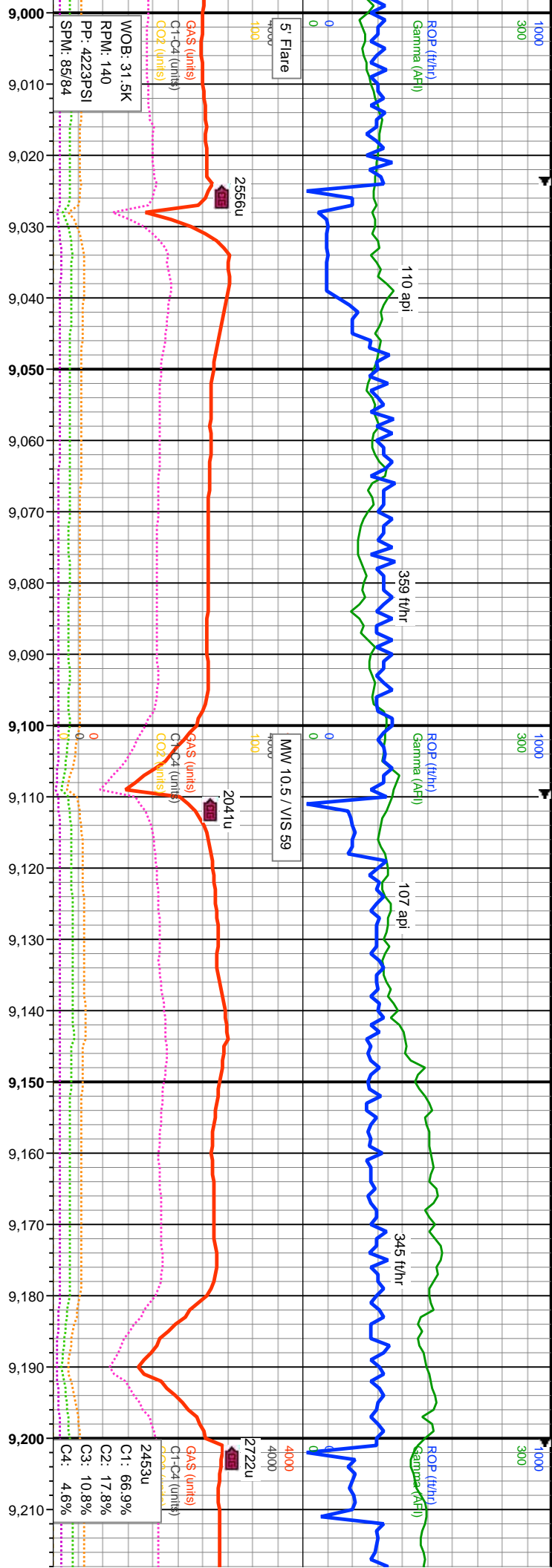


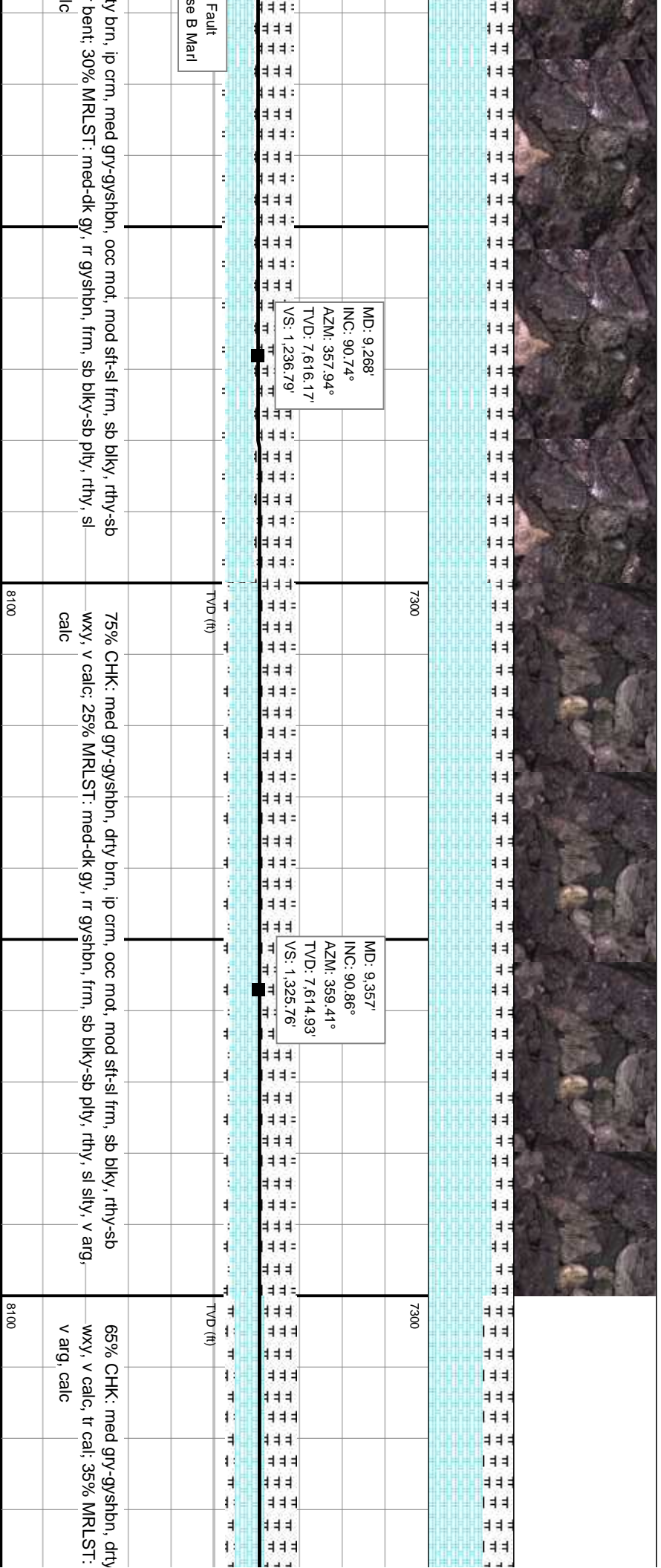
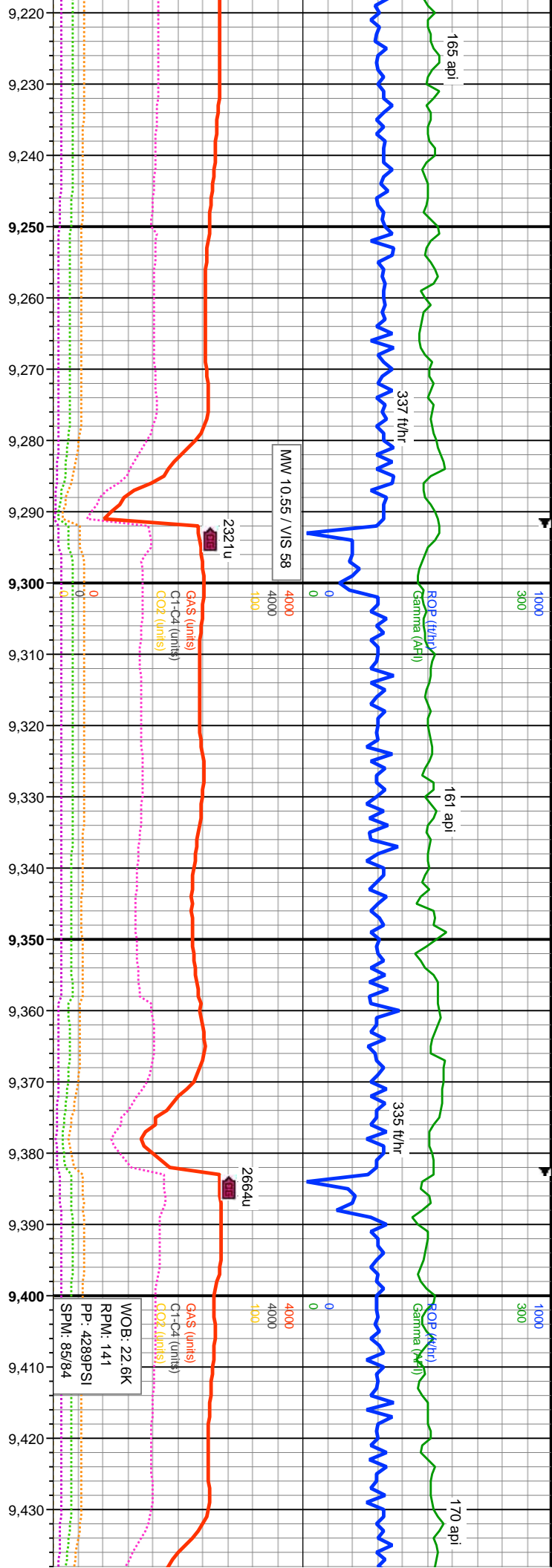


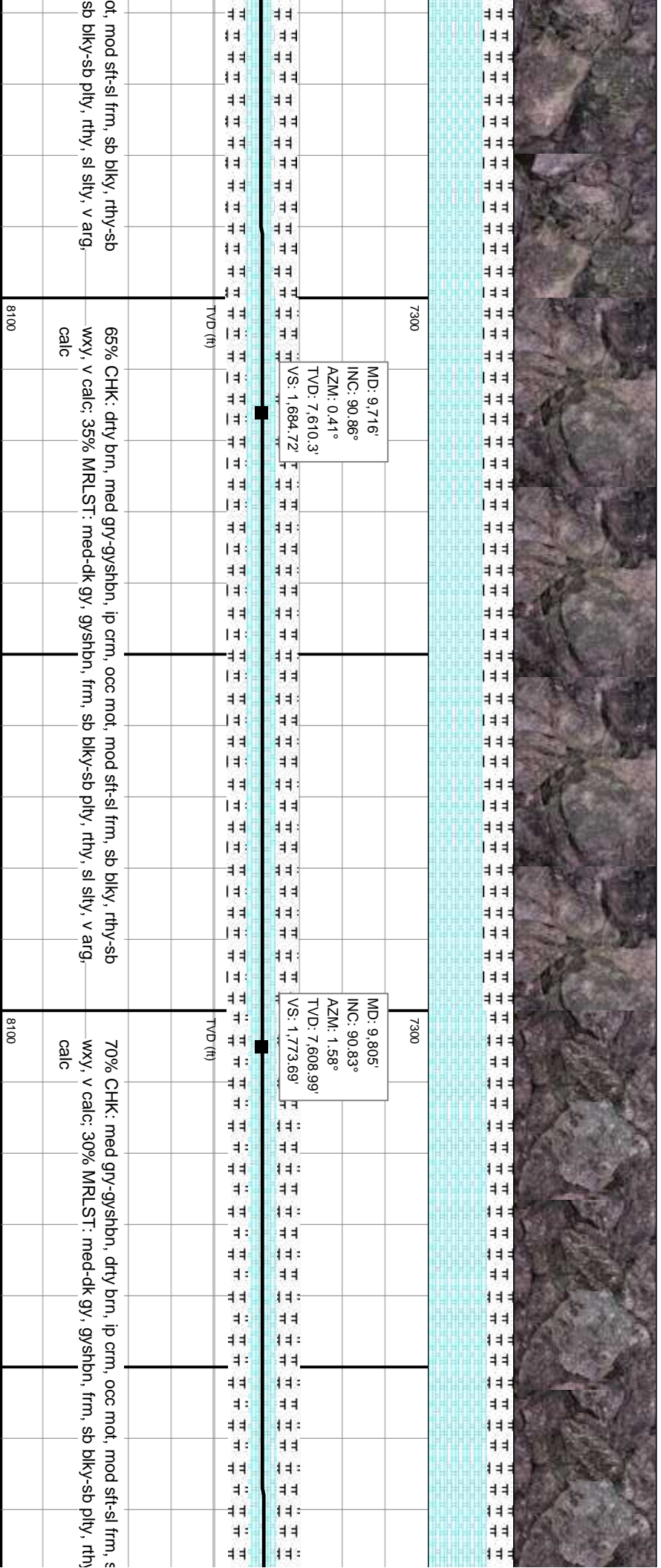
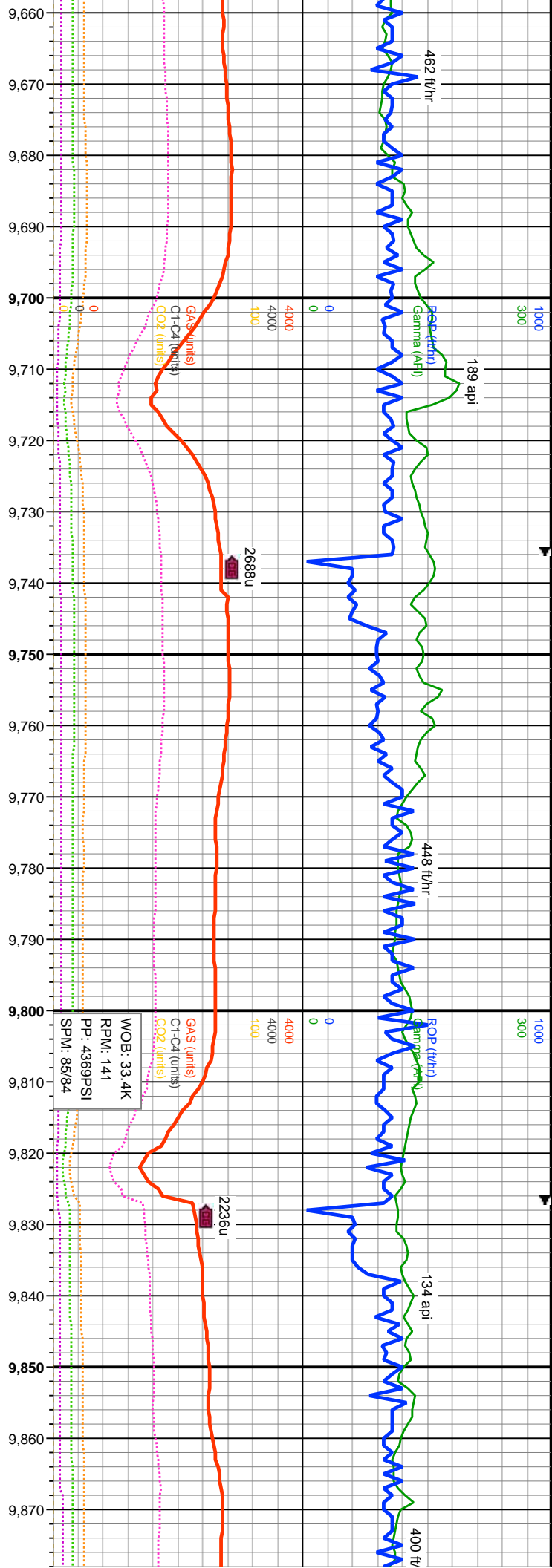


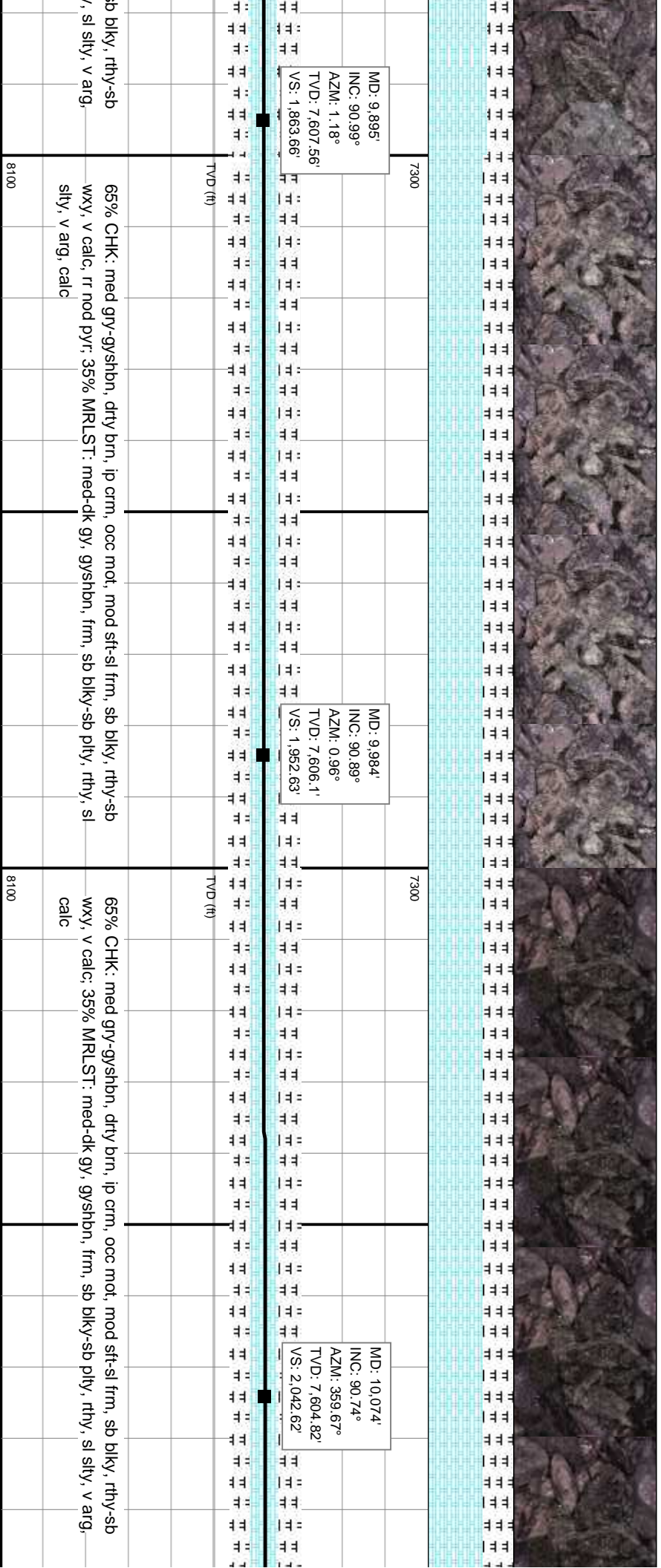
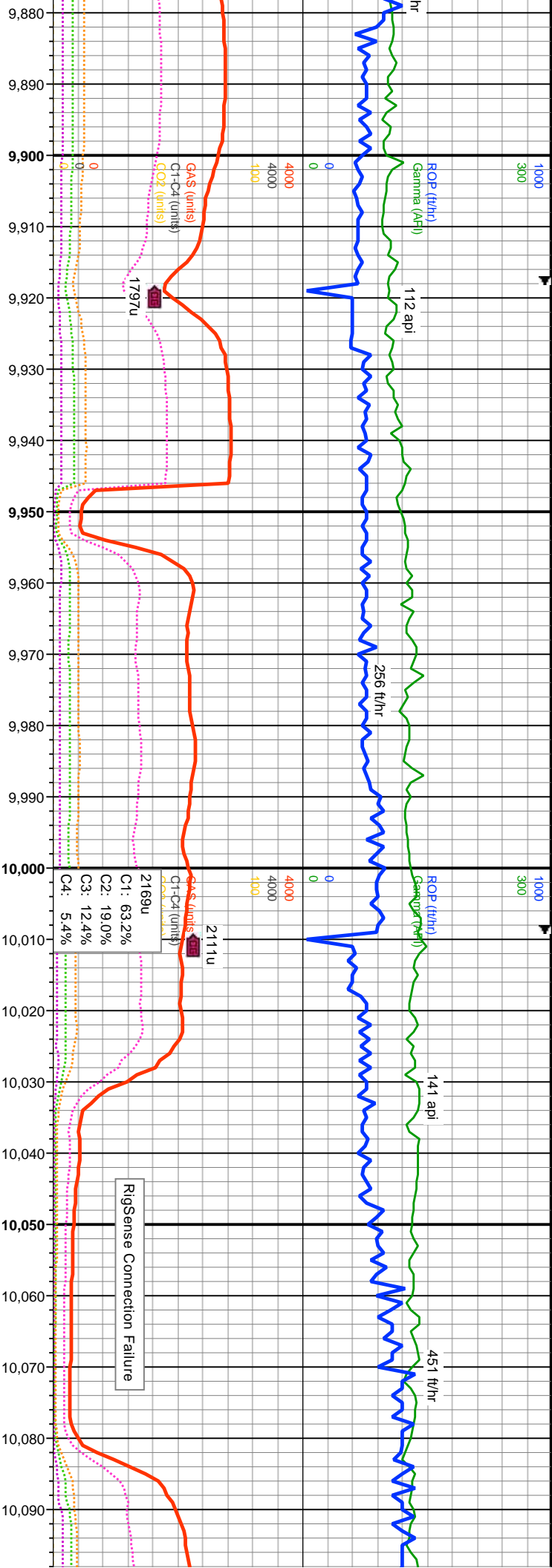


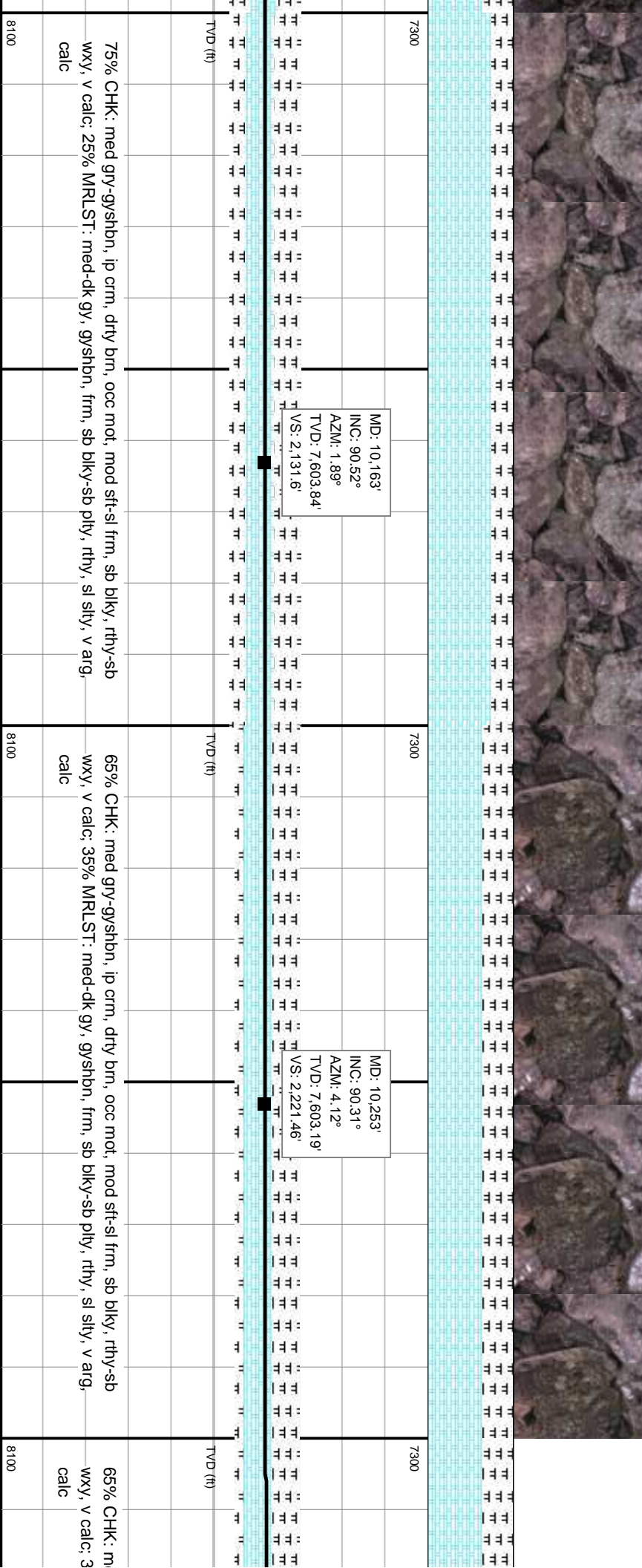
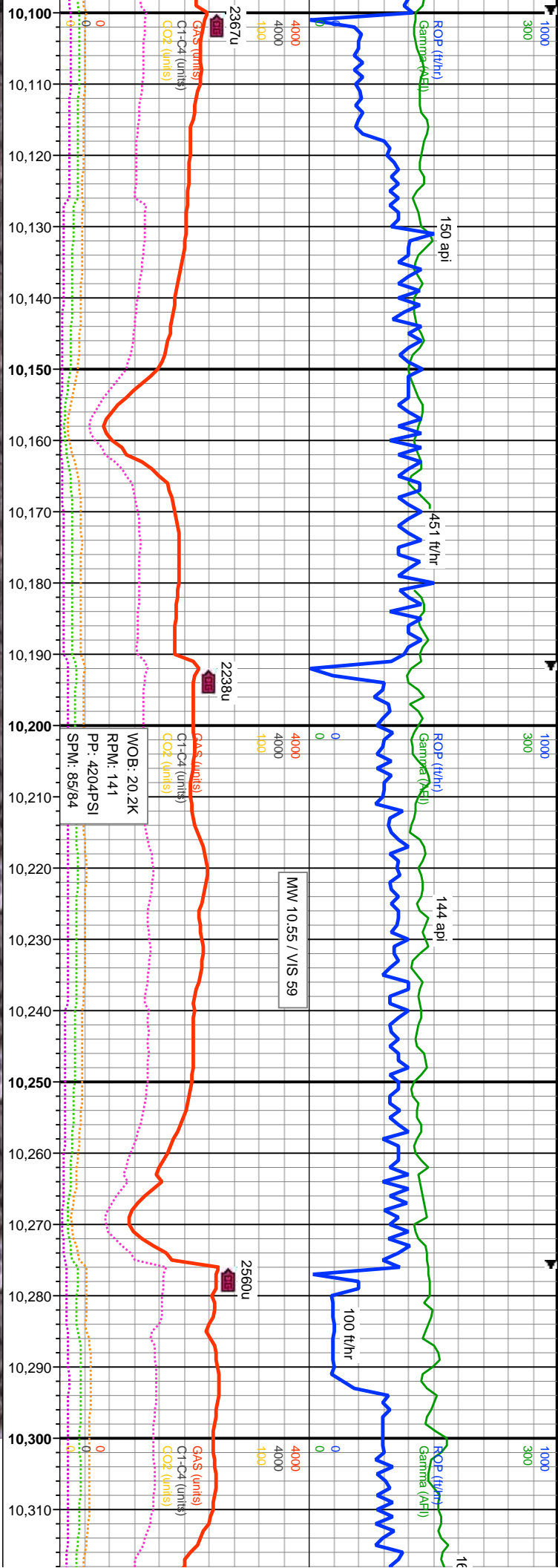


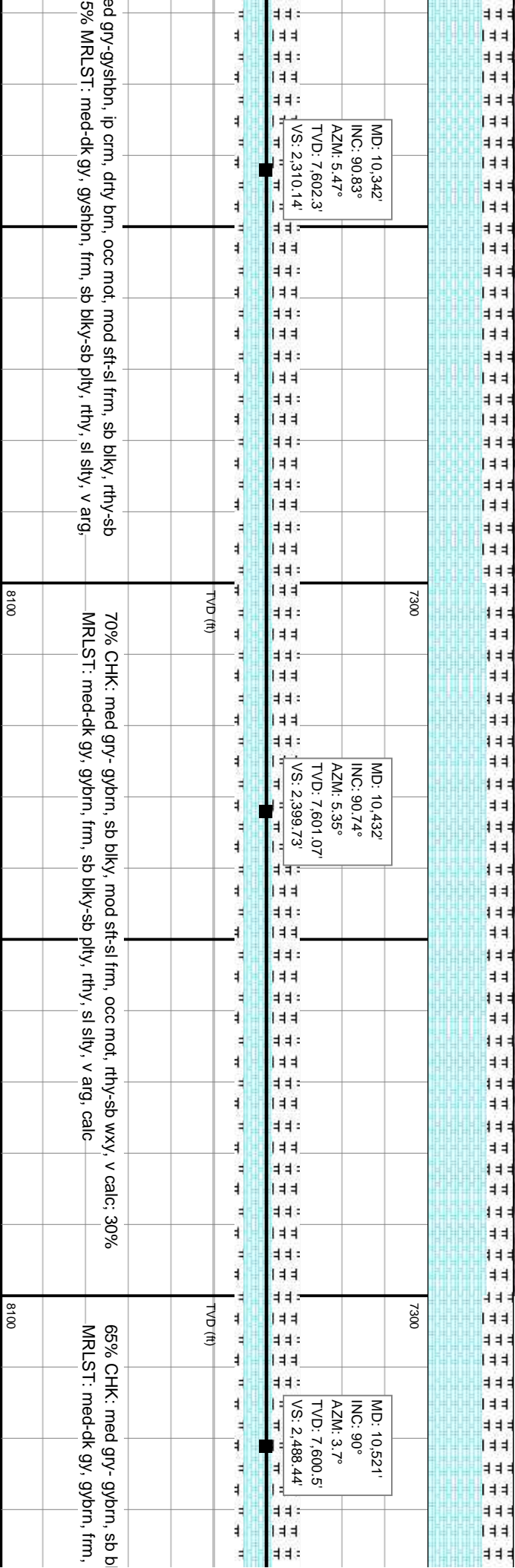
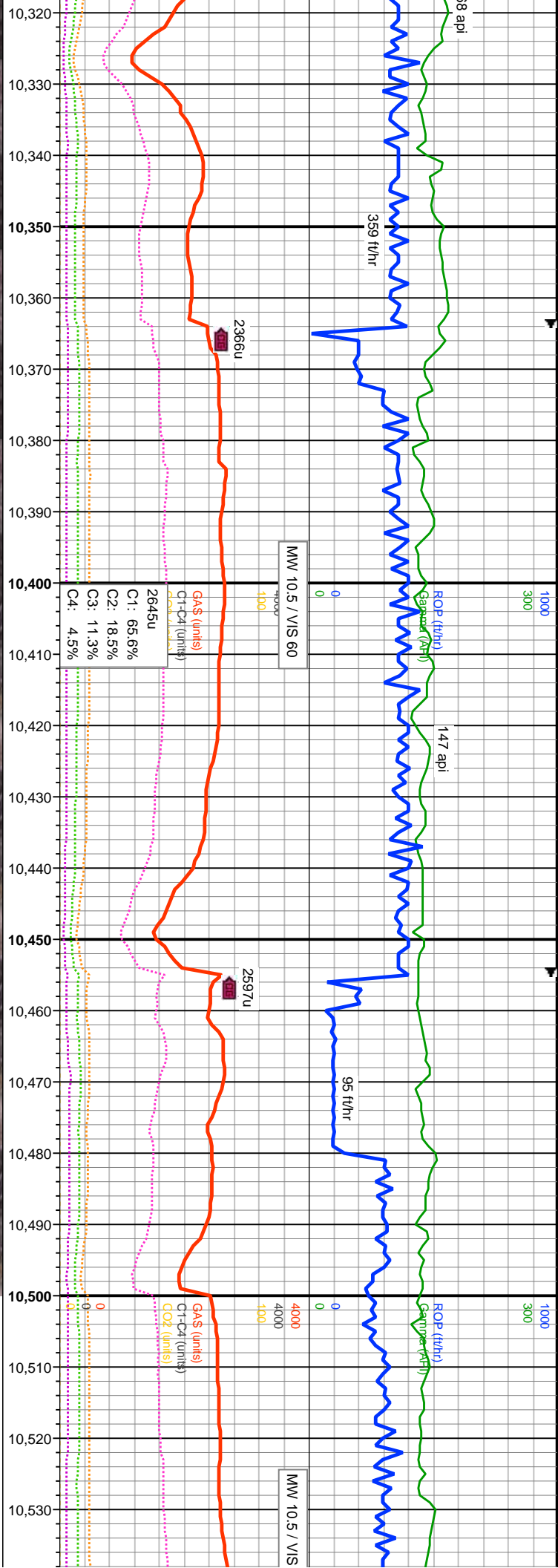


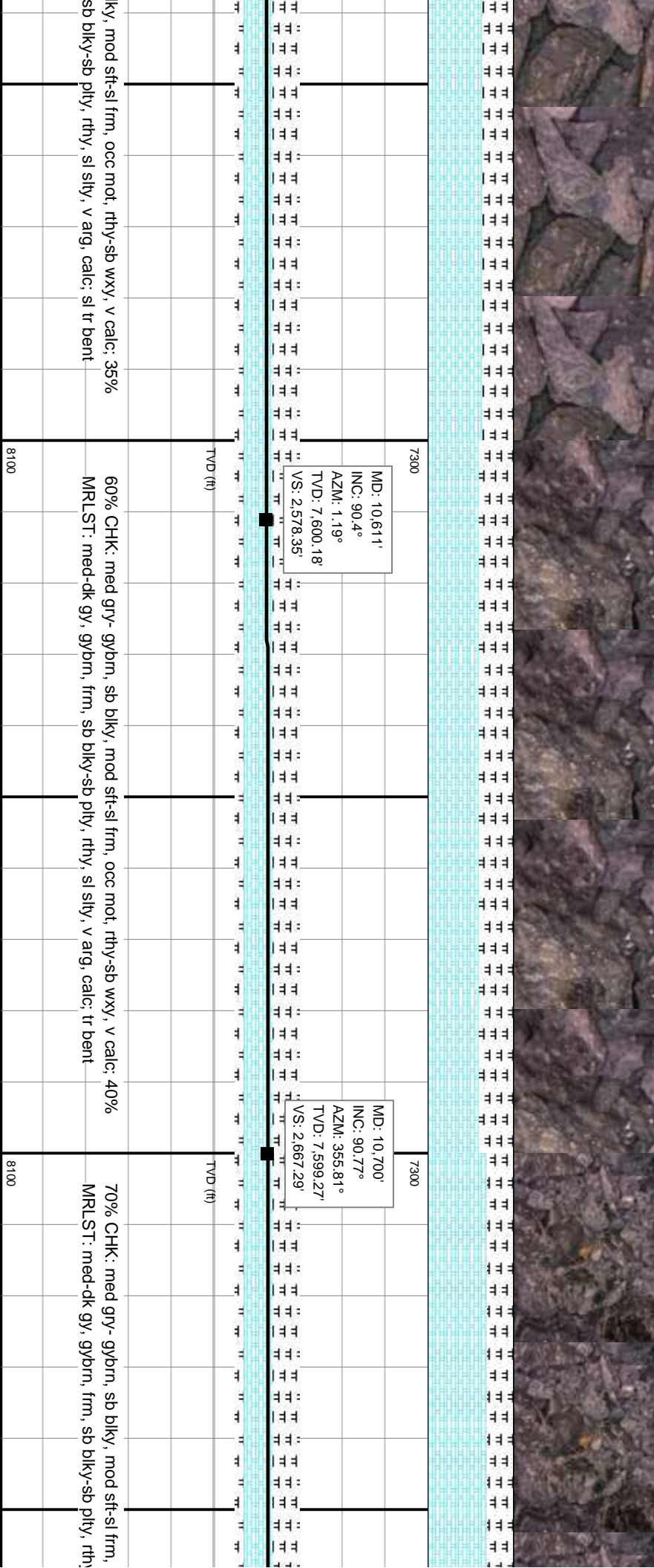
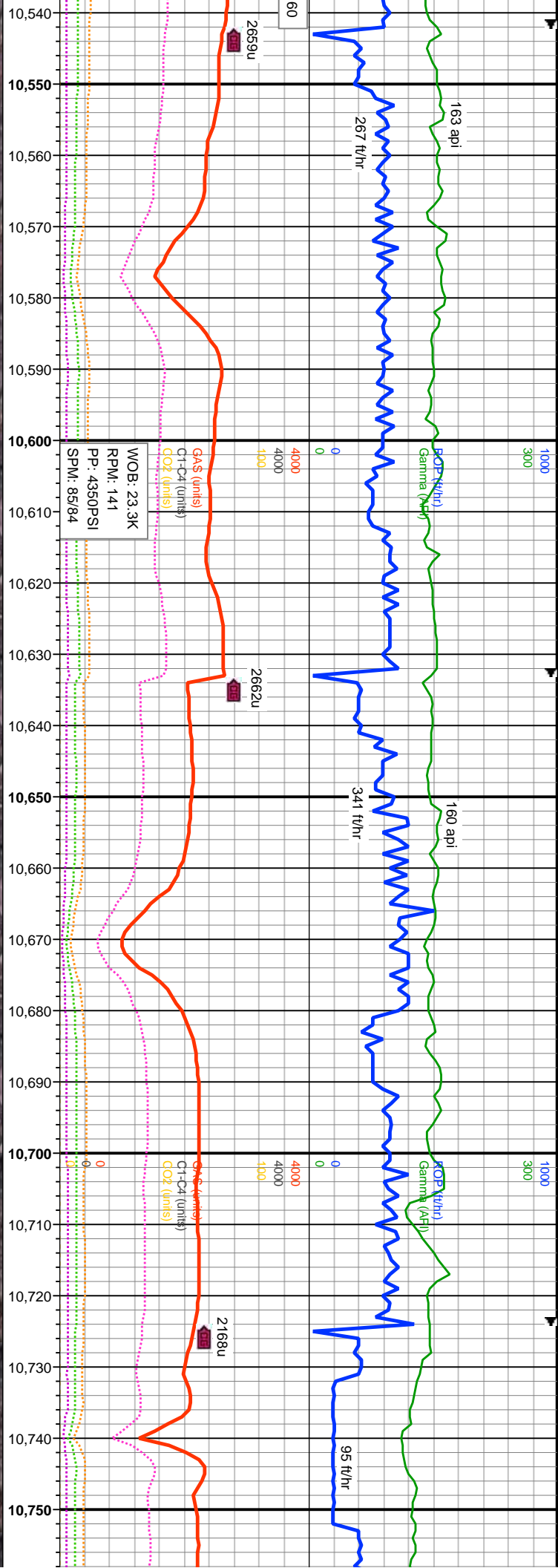








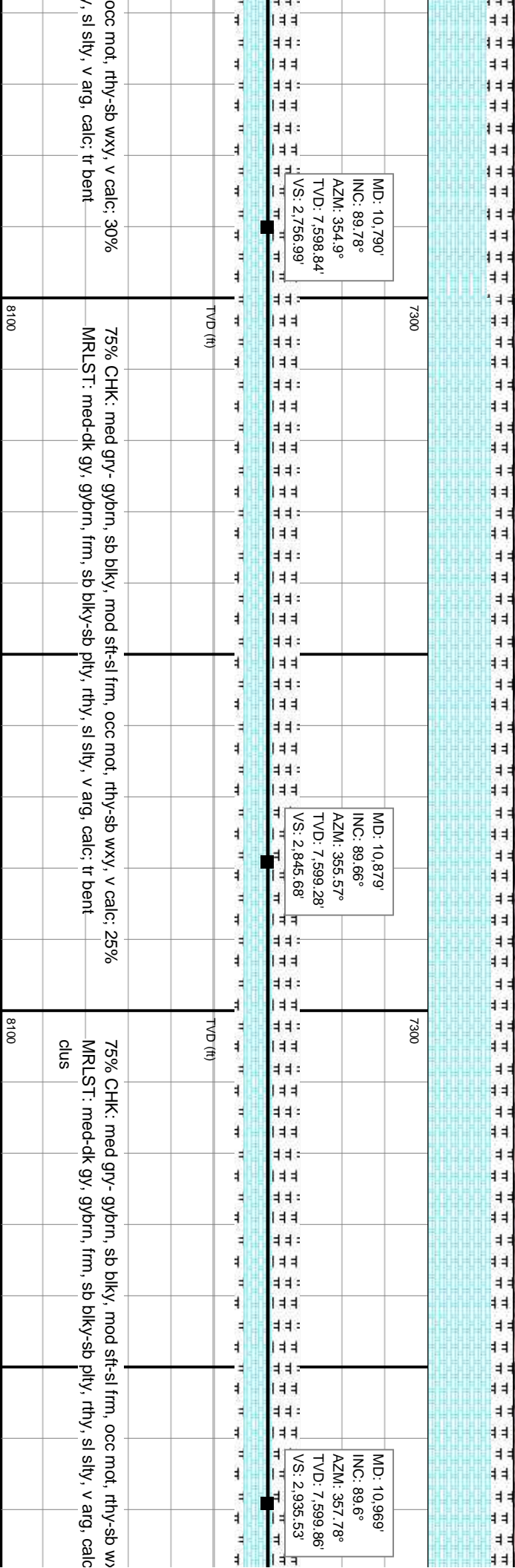
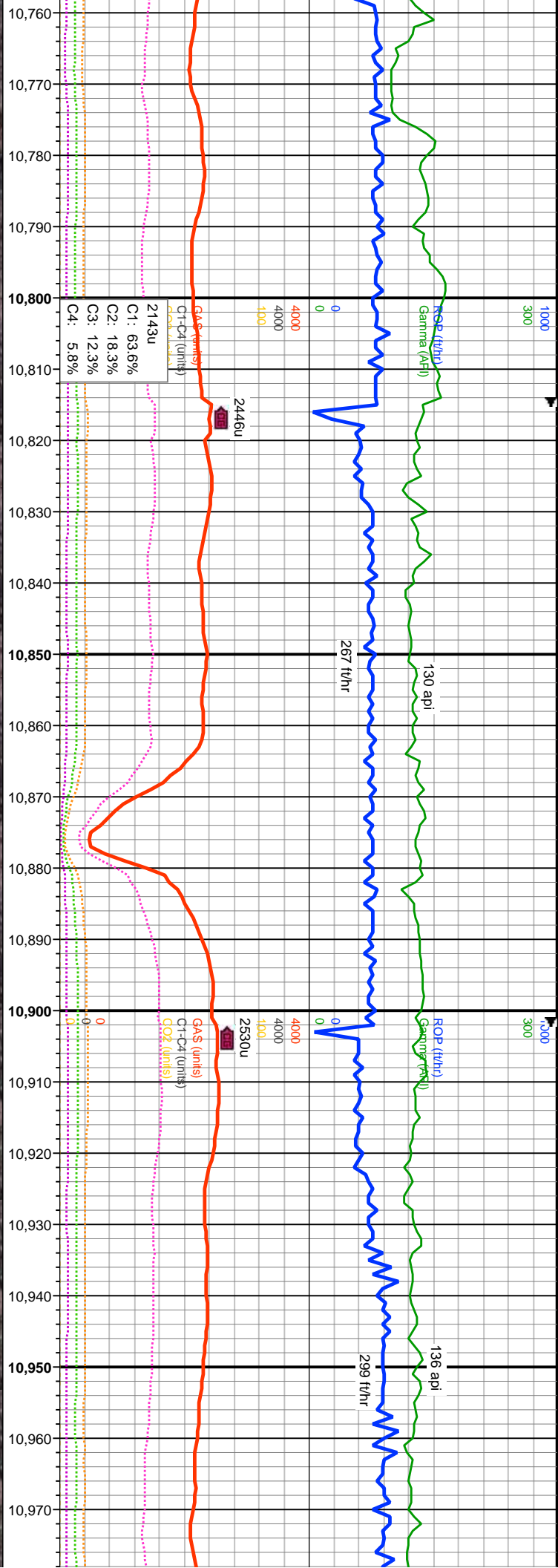


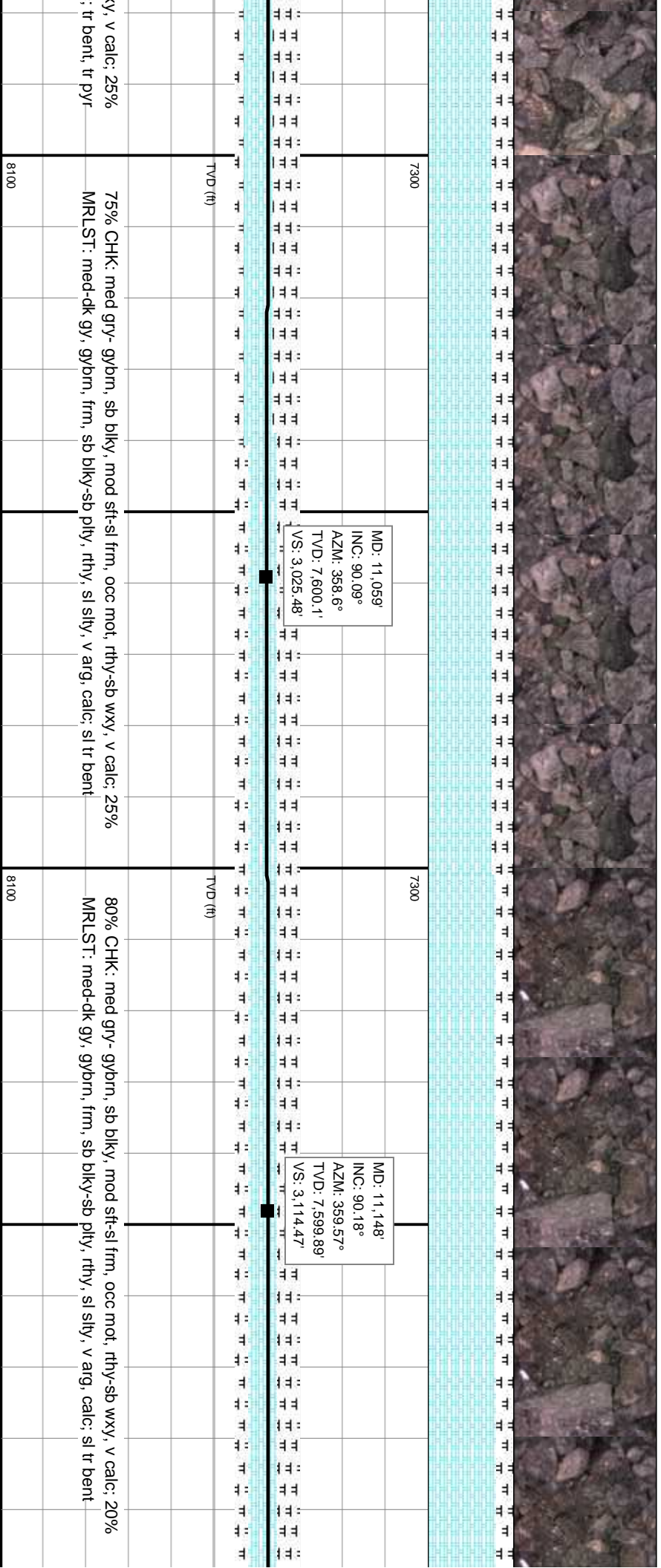
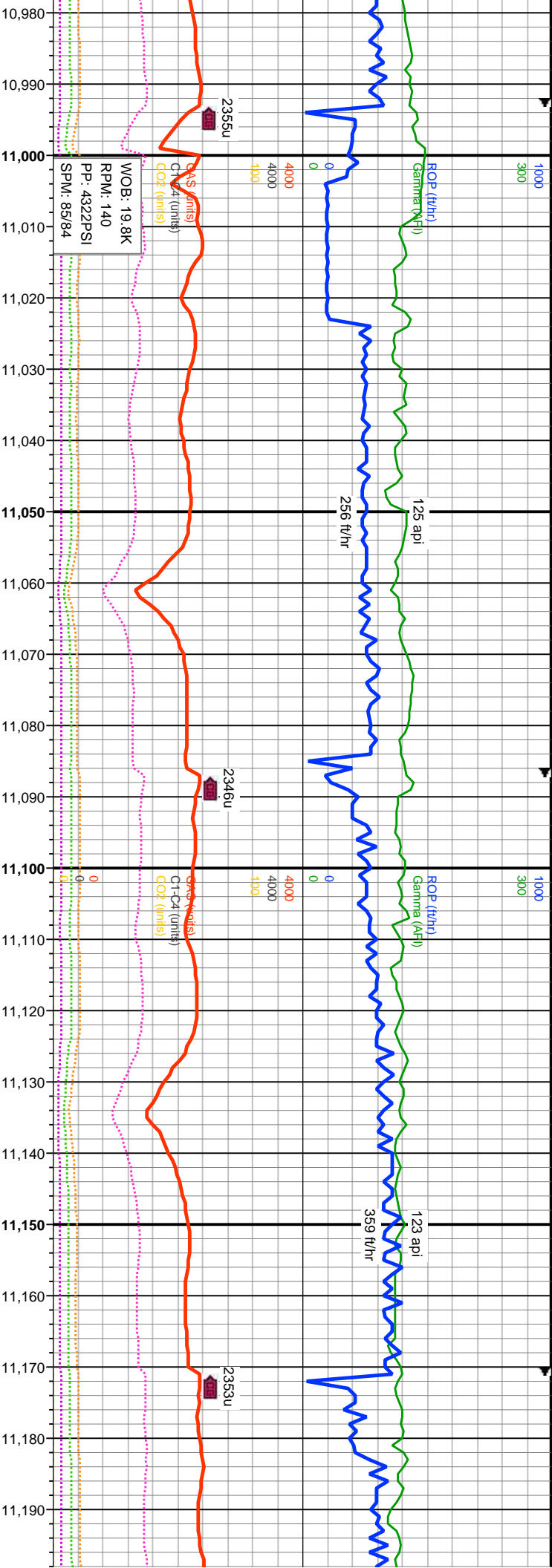


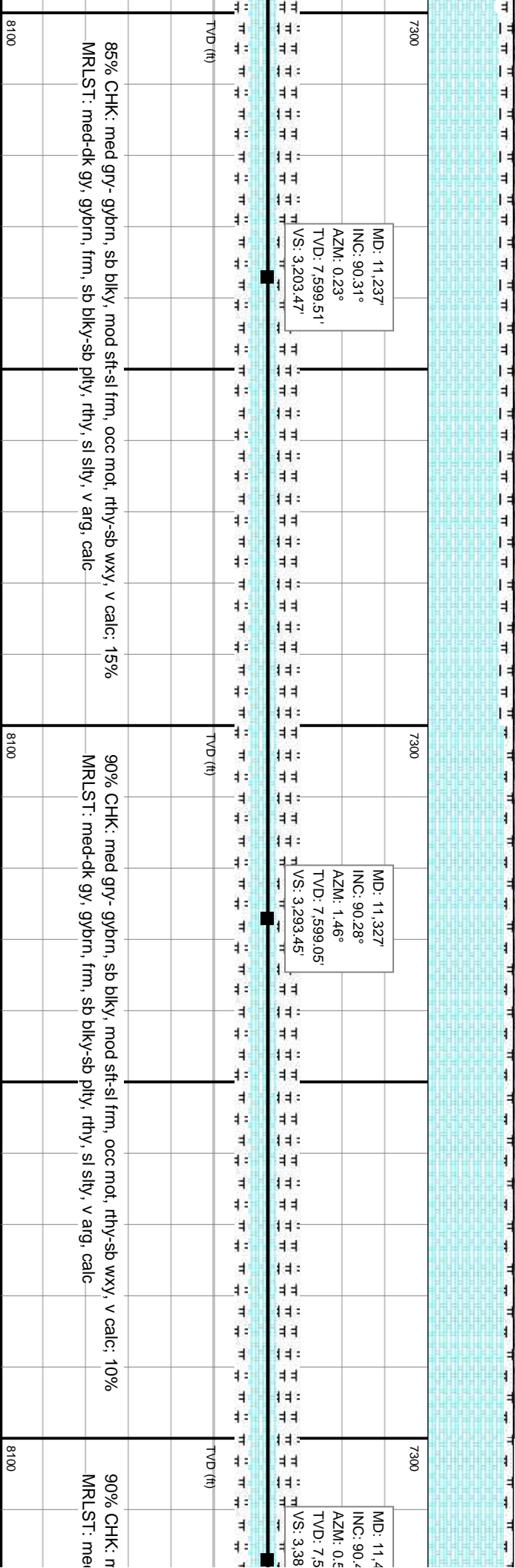
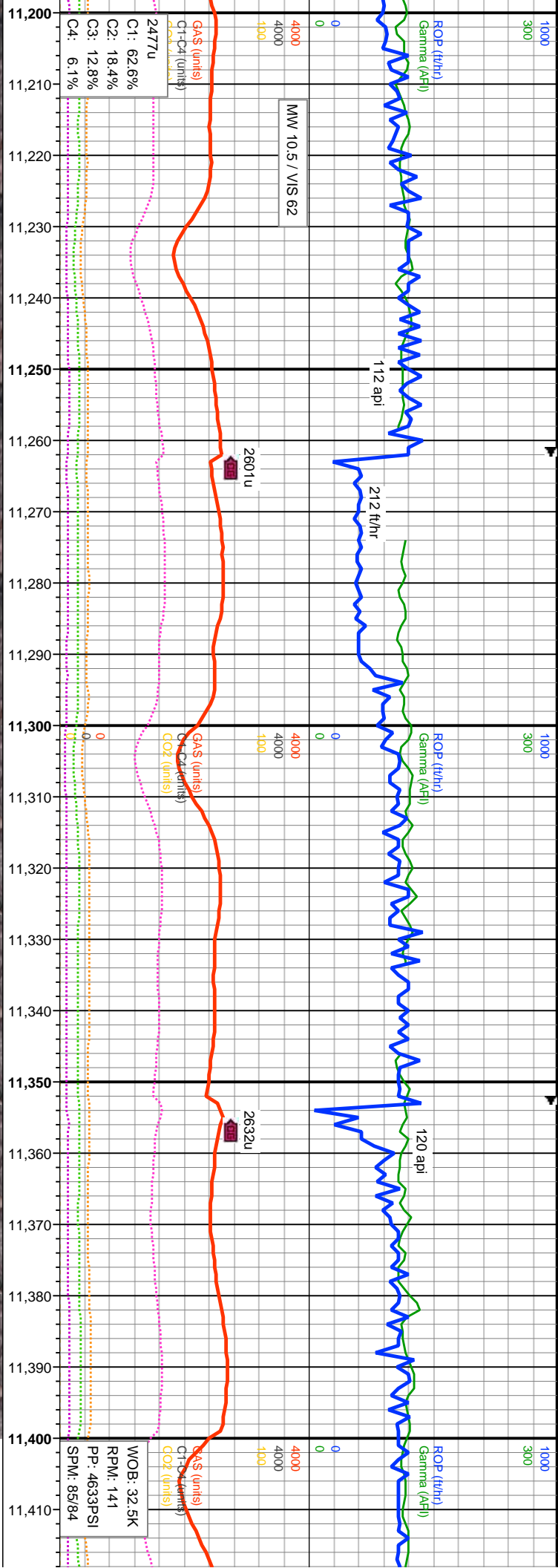
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sb blkly-sb plty, rthy, sl slty, v arg, calc; sl tr bent

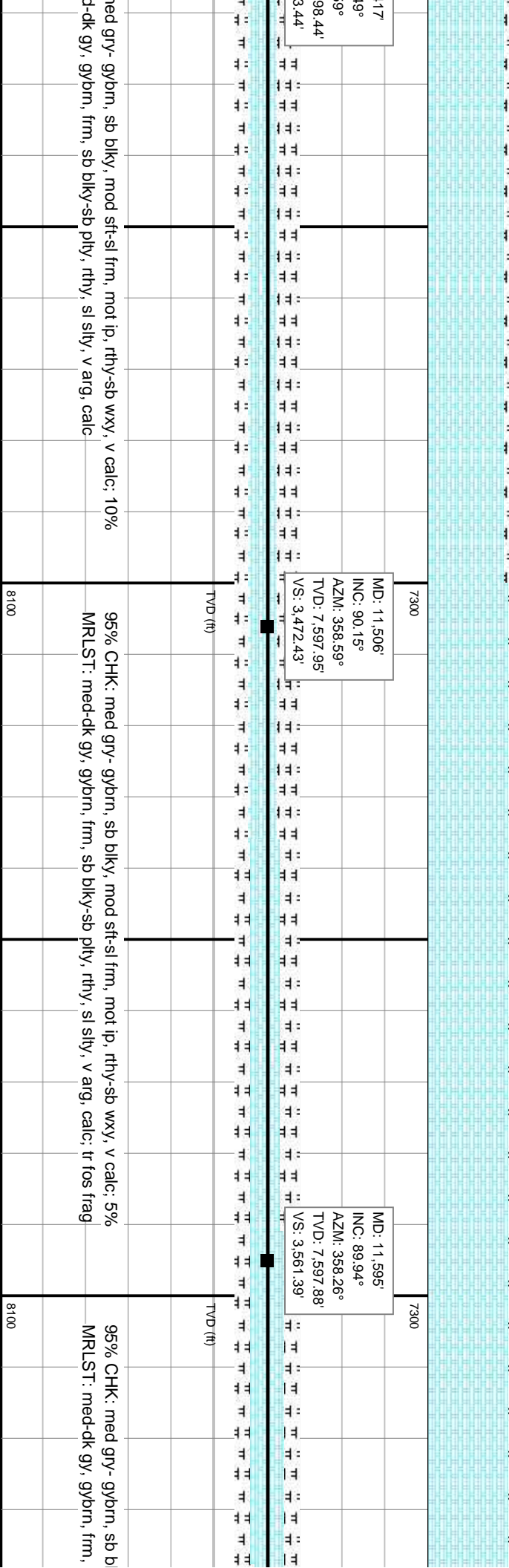
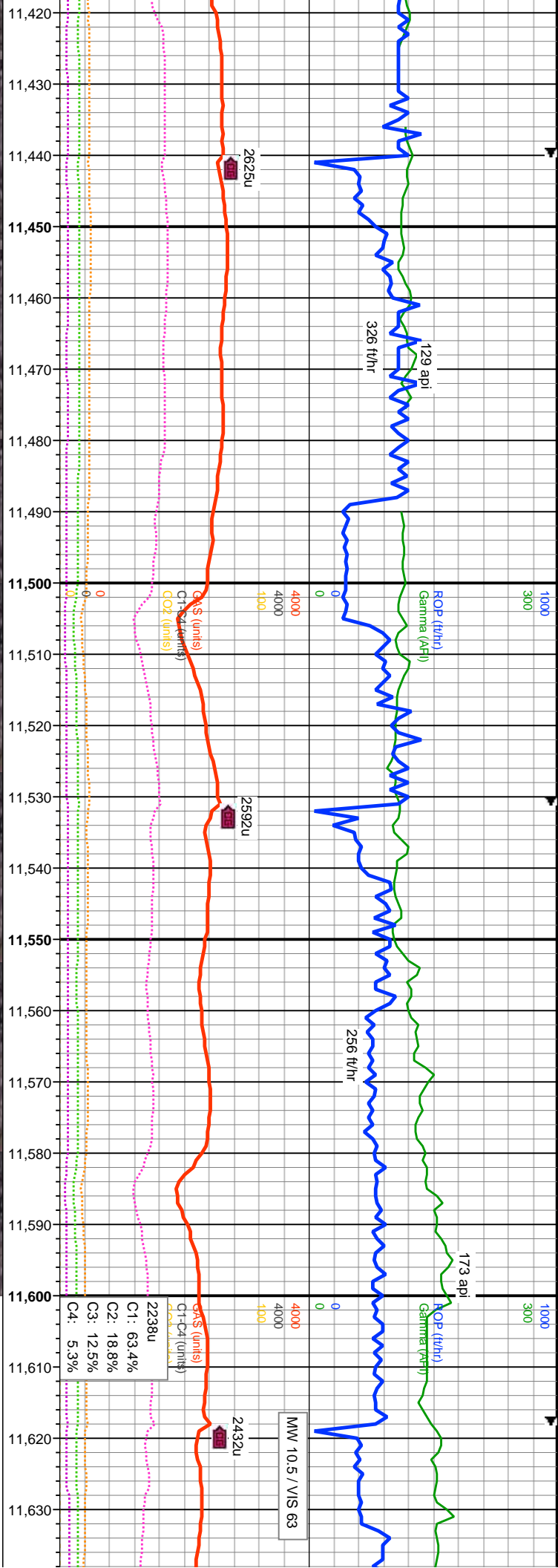
60% CHK: med gry- gybrn, sb blkly, mod sft-sl frm, occ mot, rthy-sb wxy, v calc; 40%
MRLST: med-dk gy, gybrn, frm, sb blkly-sb plty, rthy, sl slty, v arg, calc; tr bent

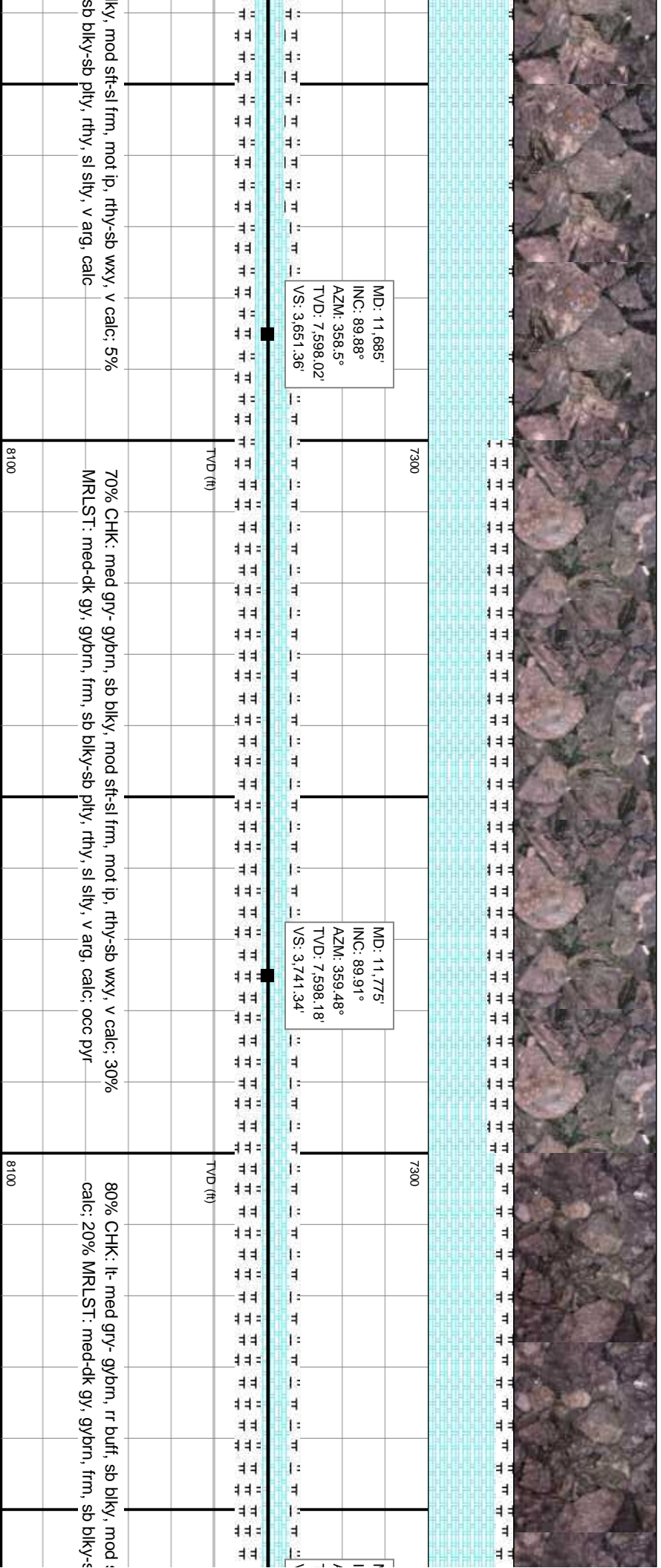
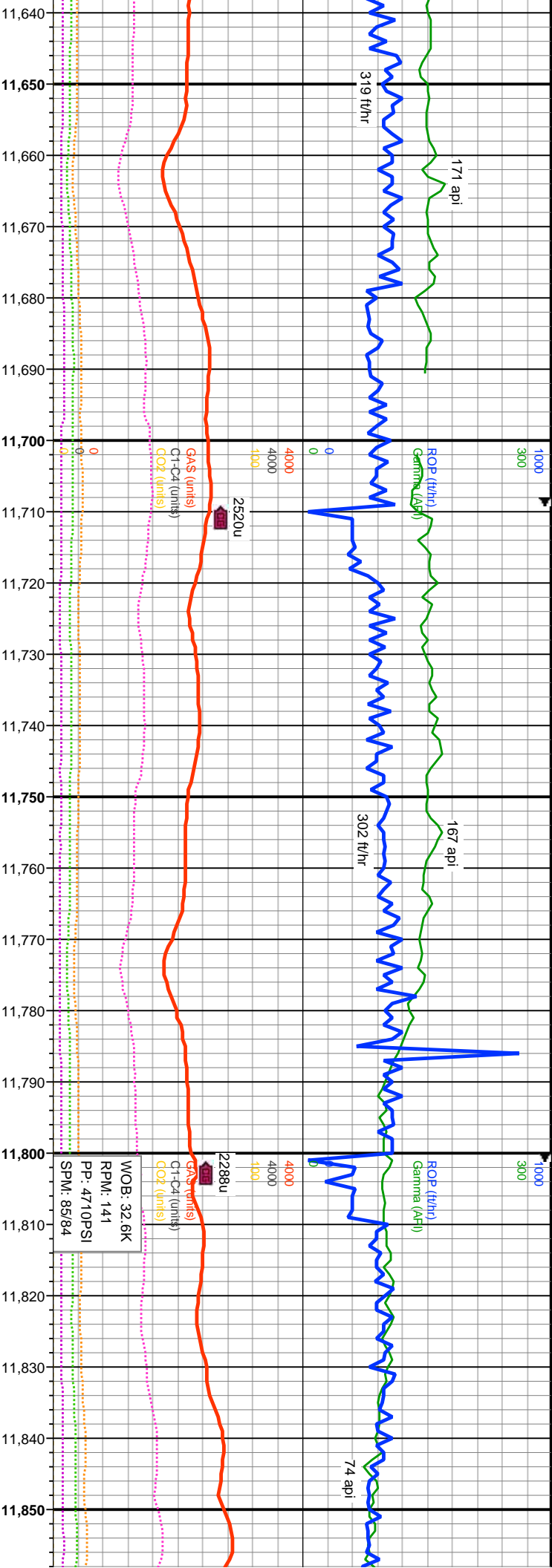
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MRLST: med-dk gy, gybrn, frm, sb blkly-sb plty, rthy,

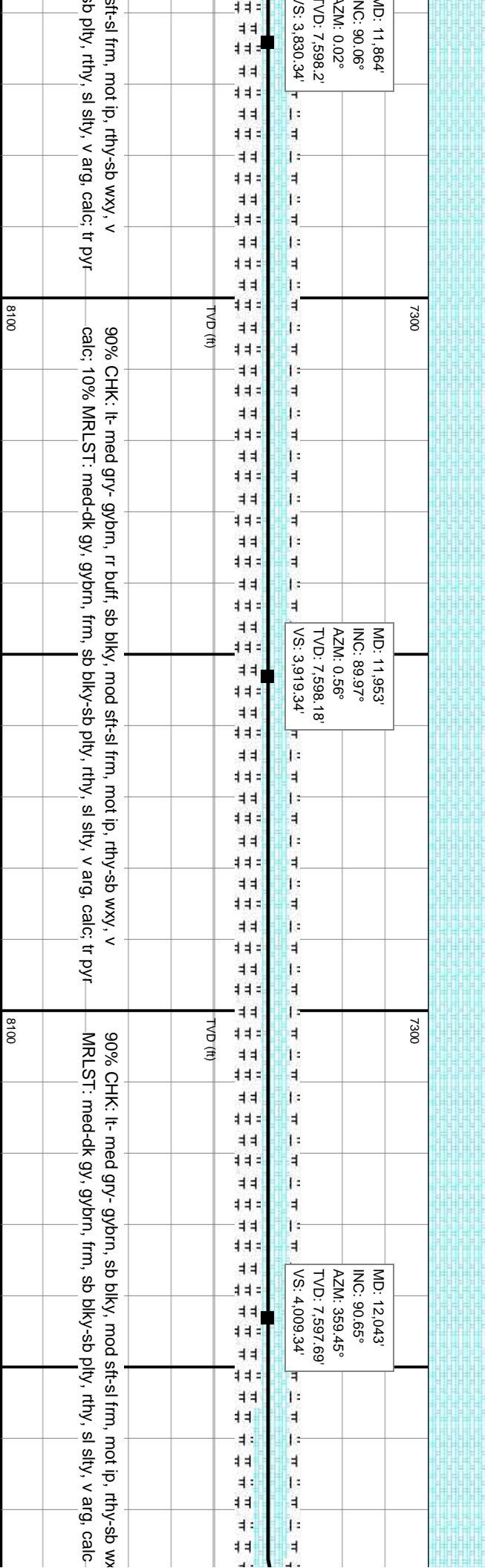


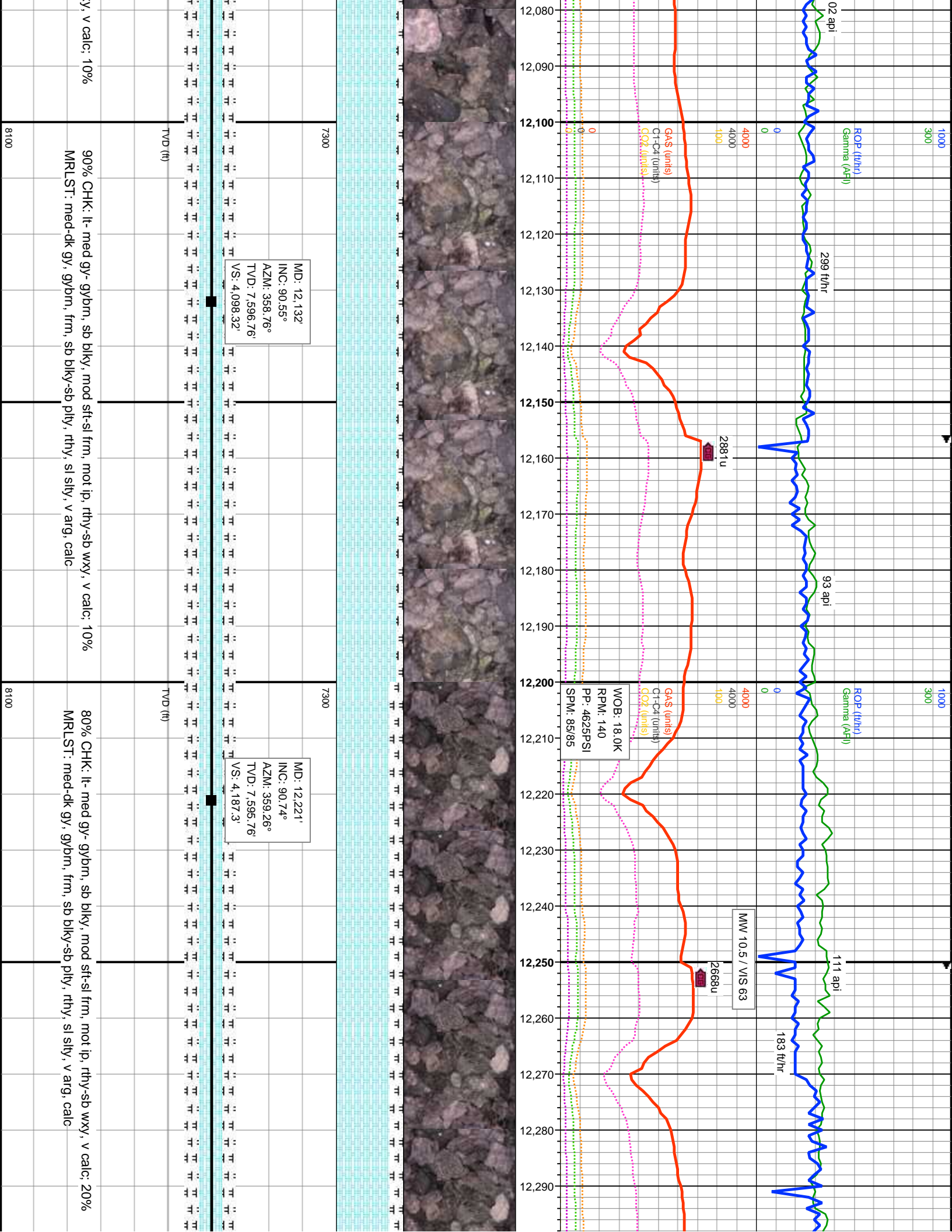


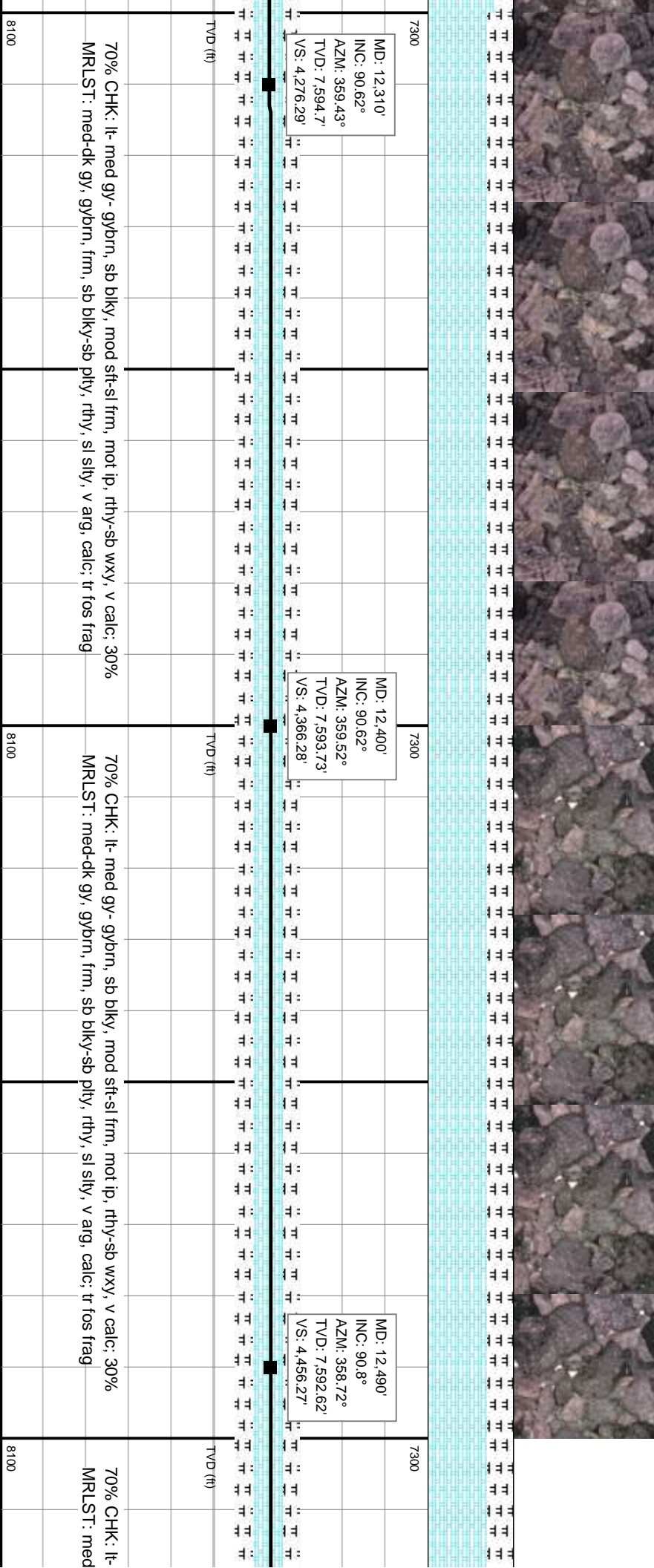
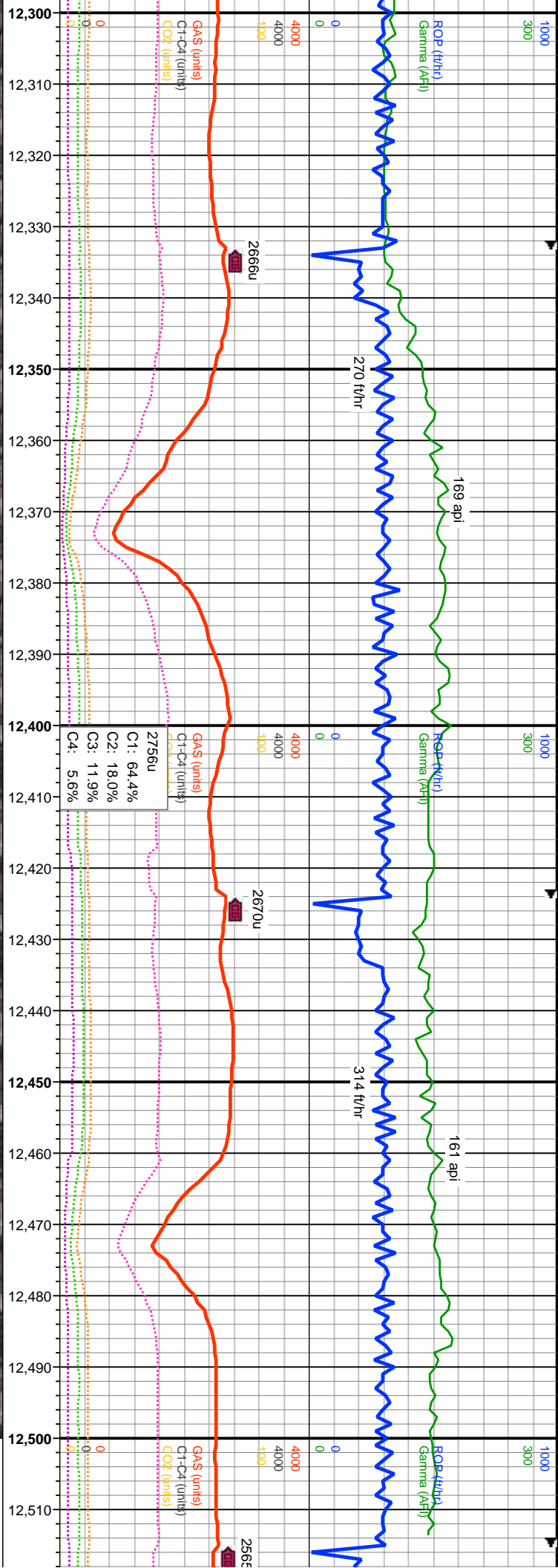


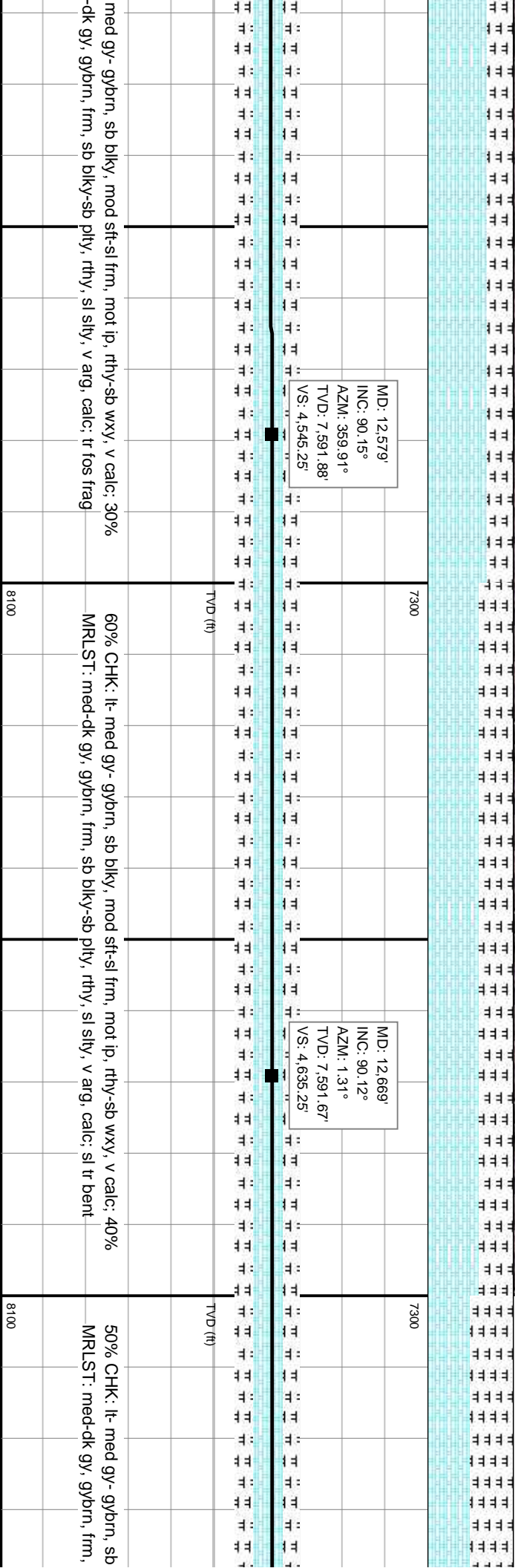
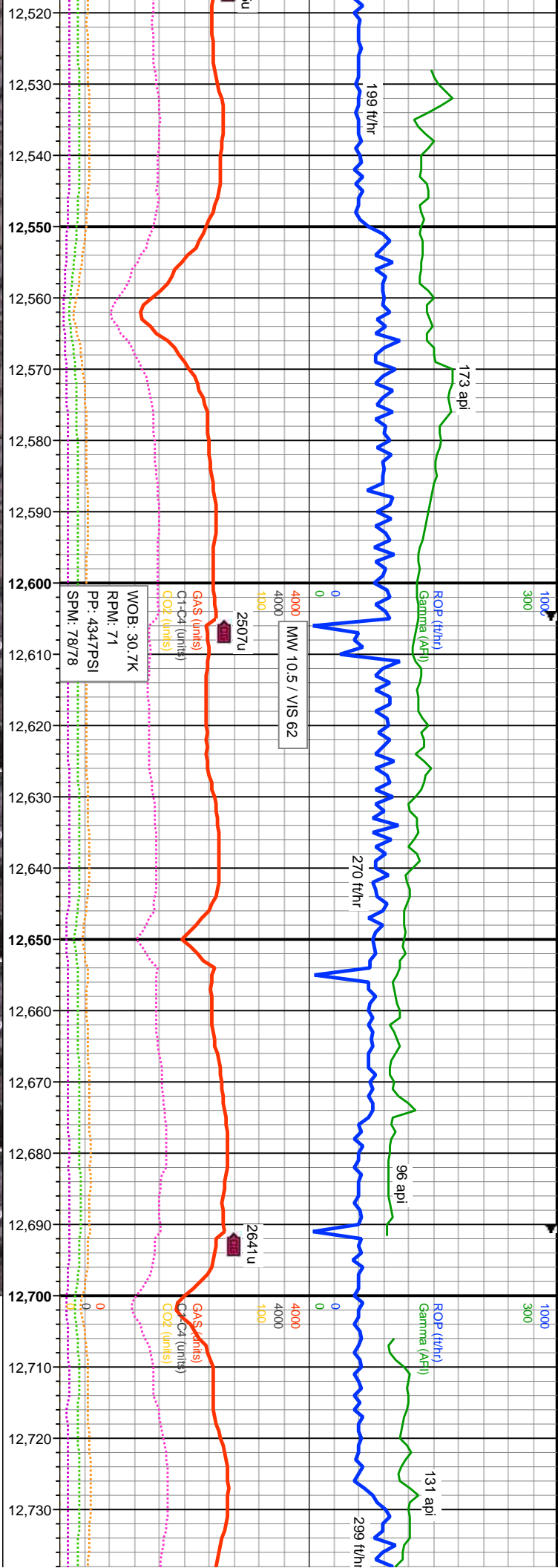


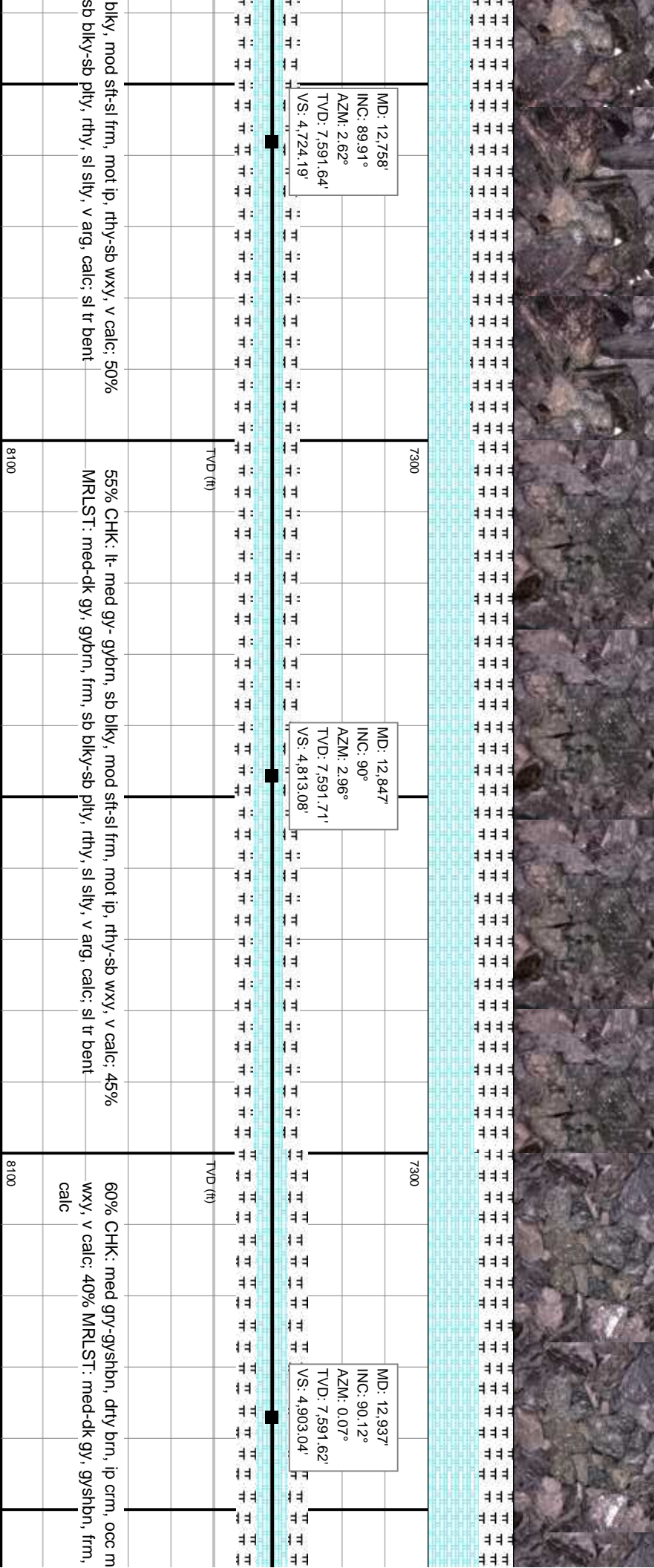
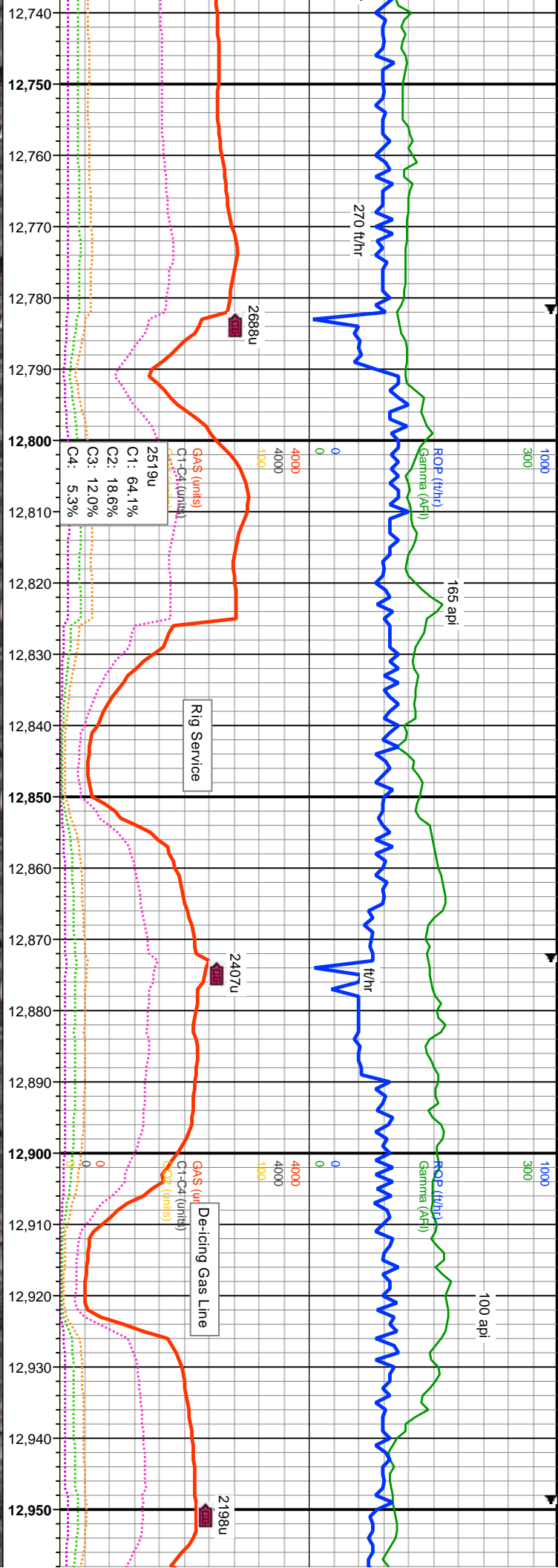


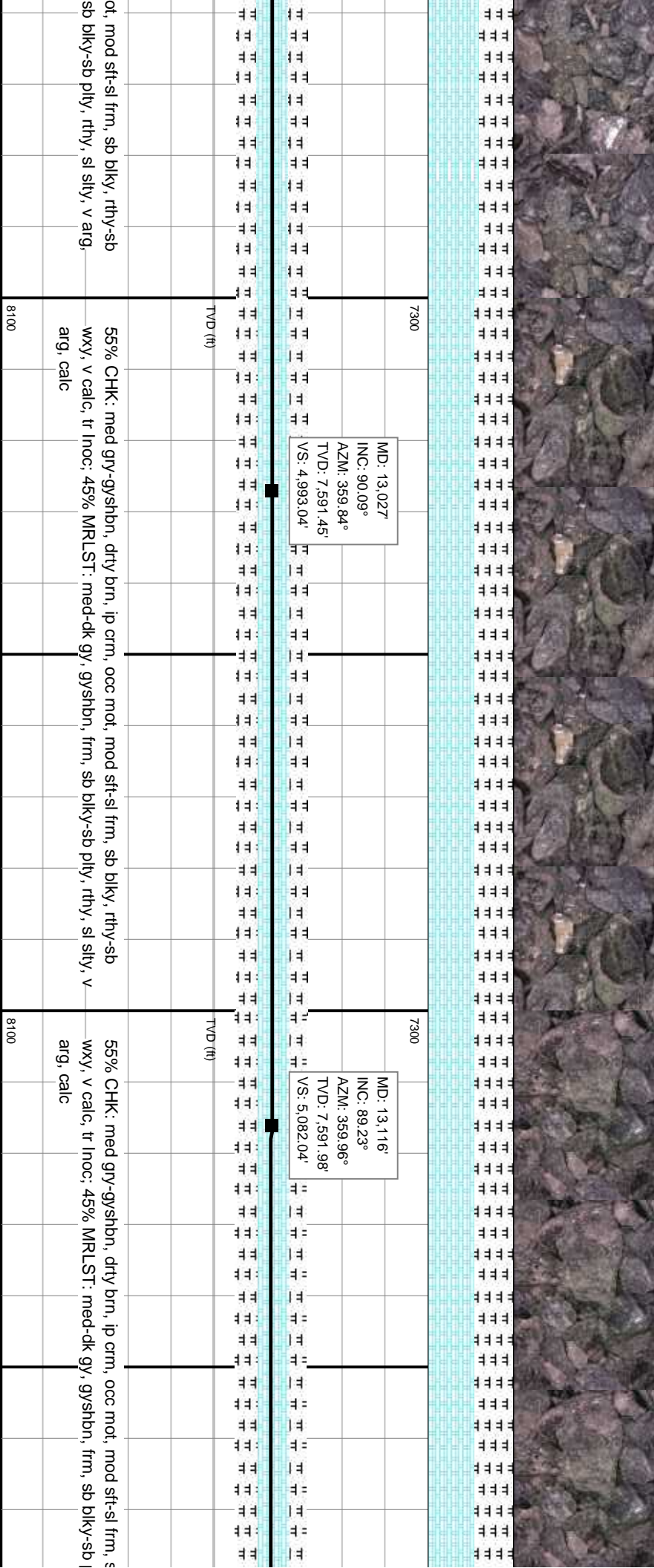
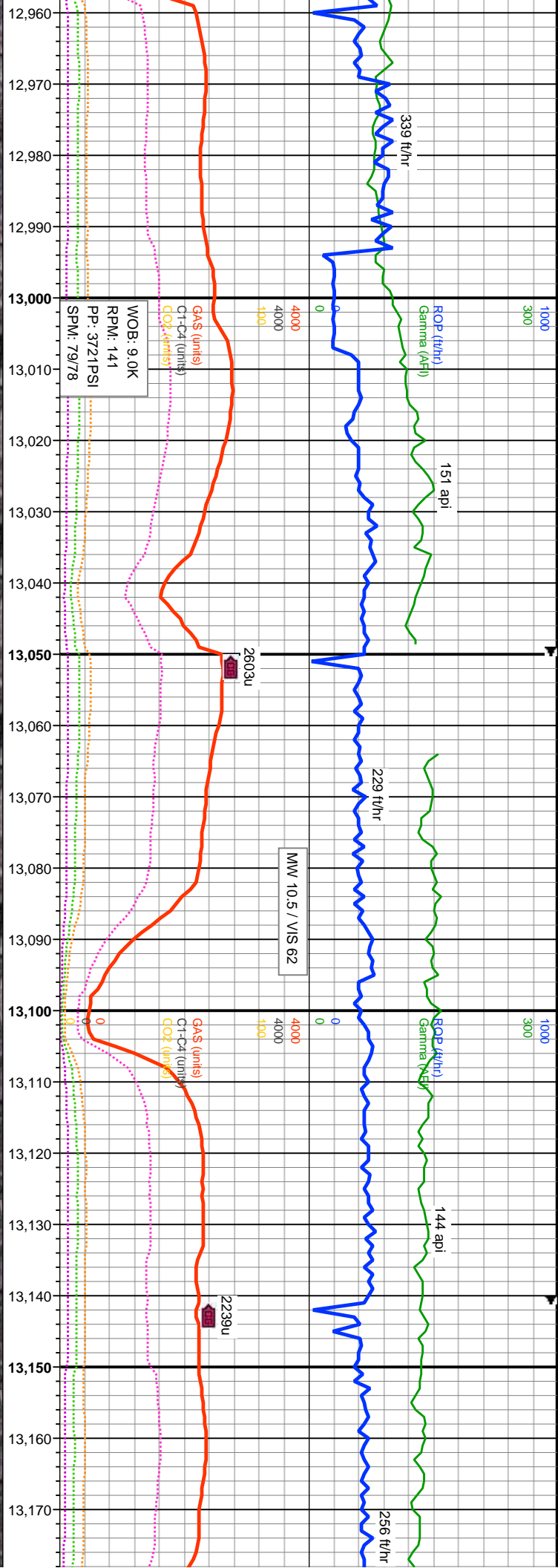


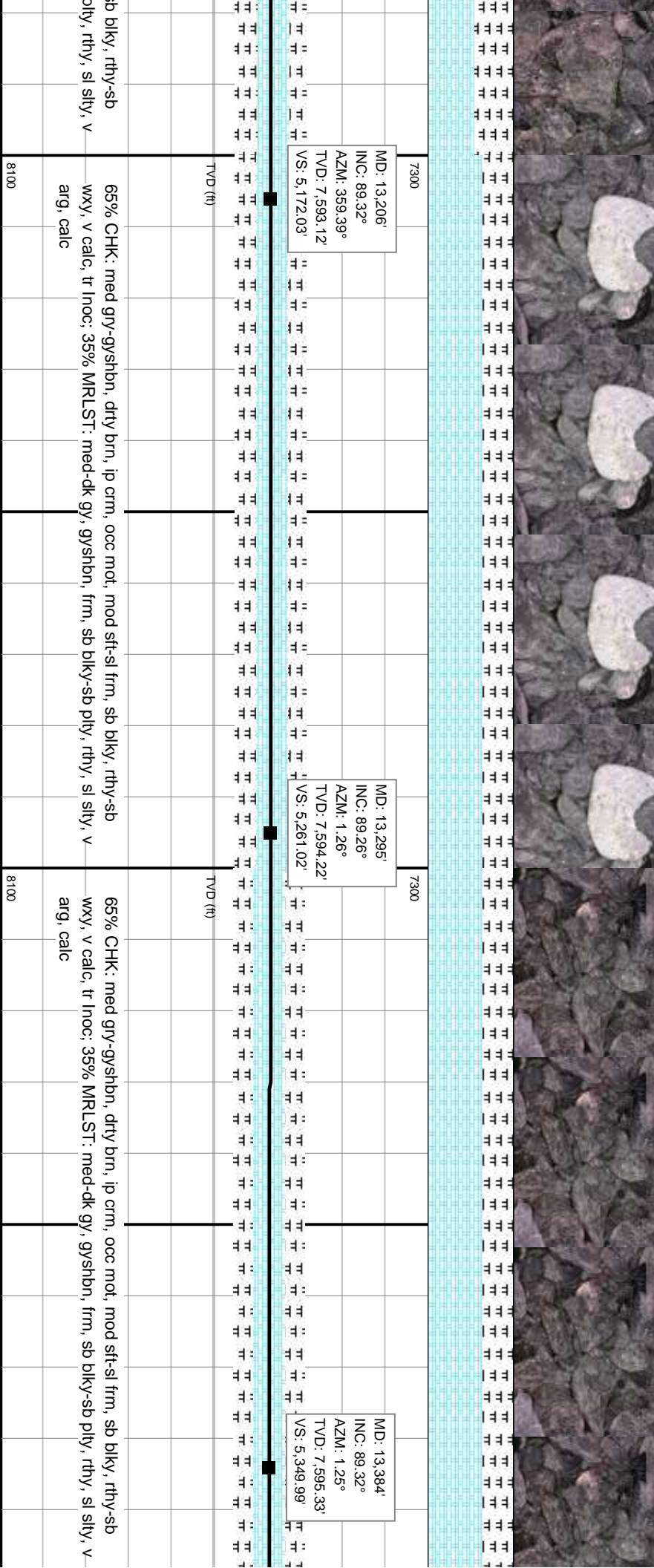
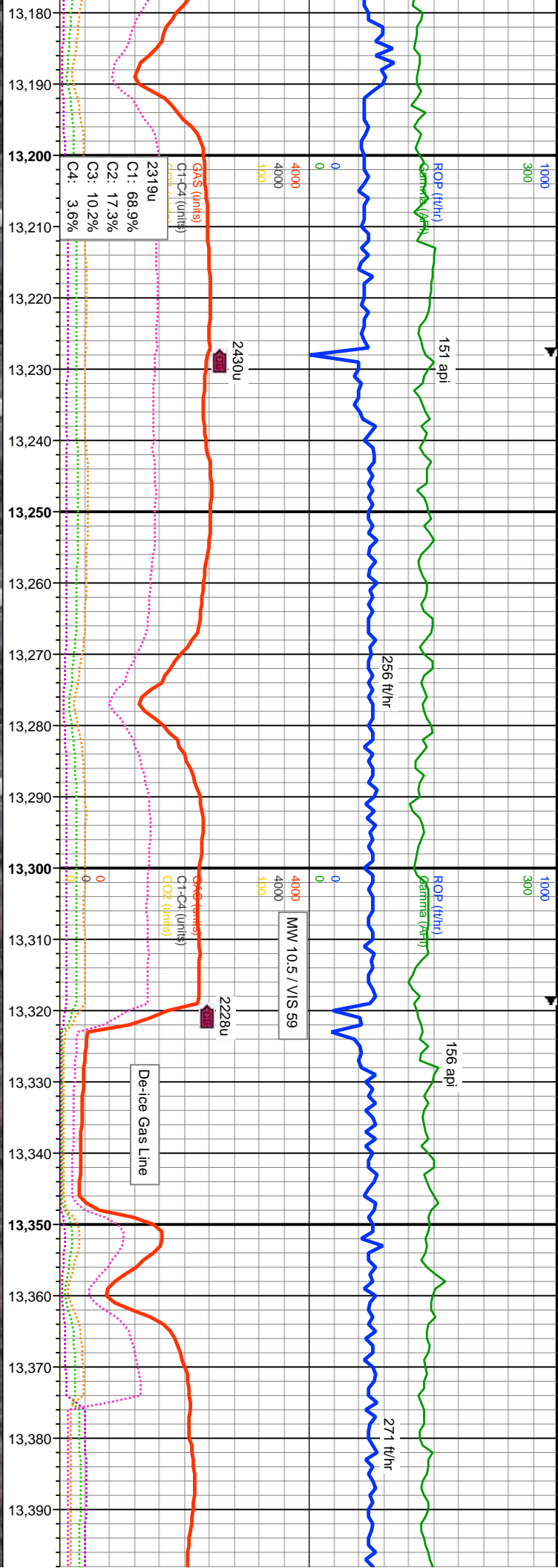


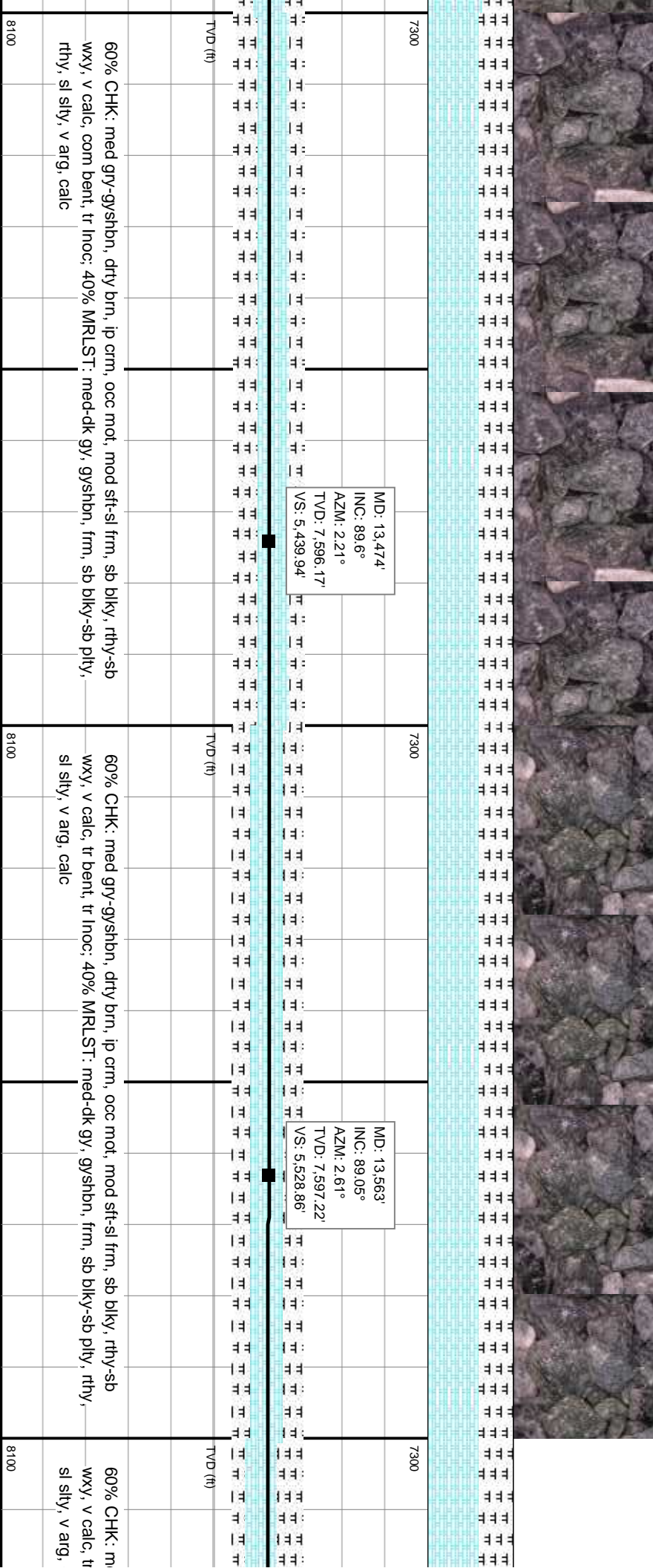
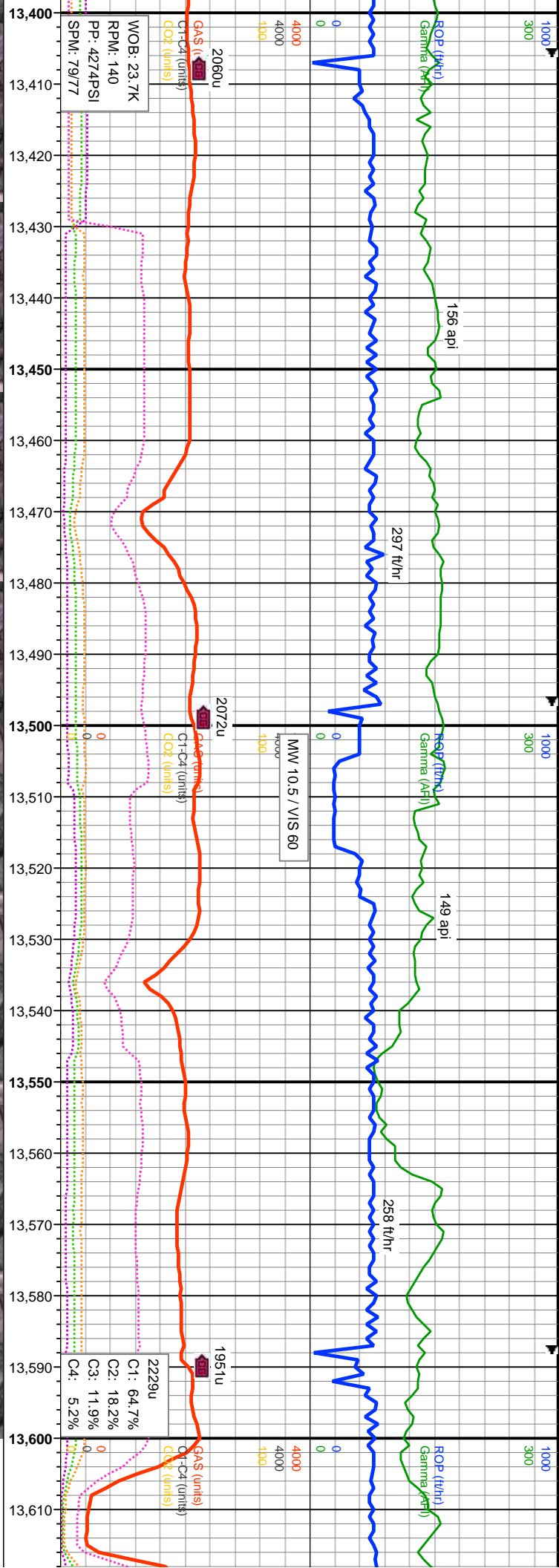


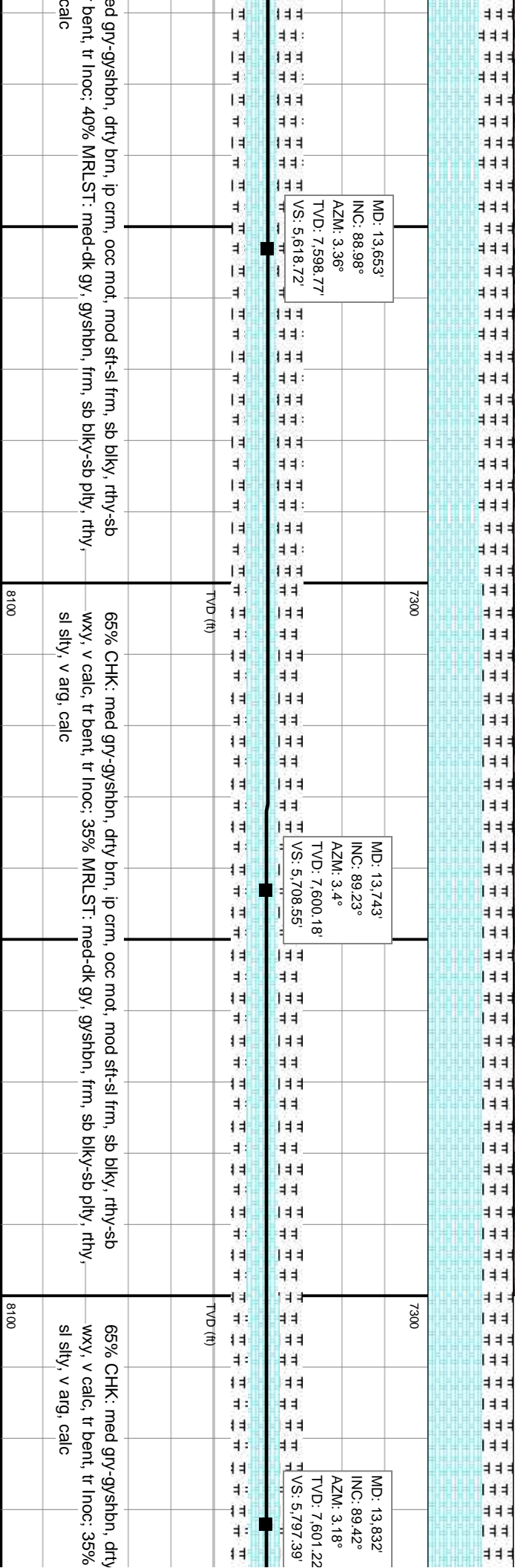
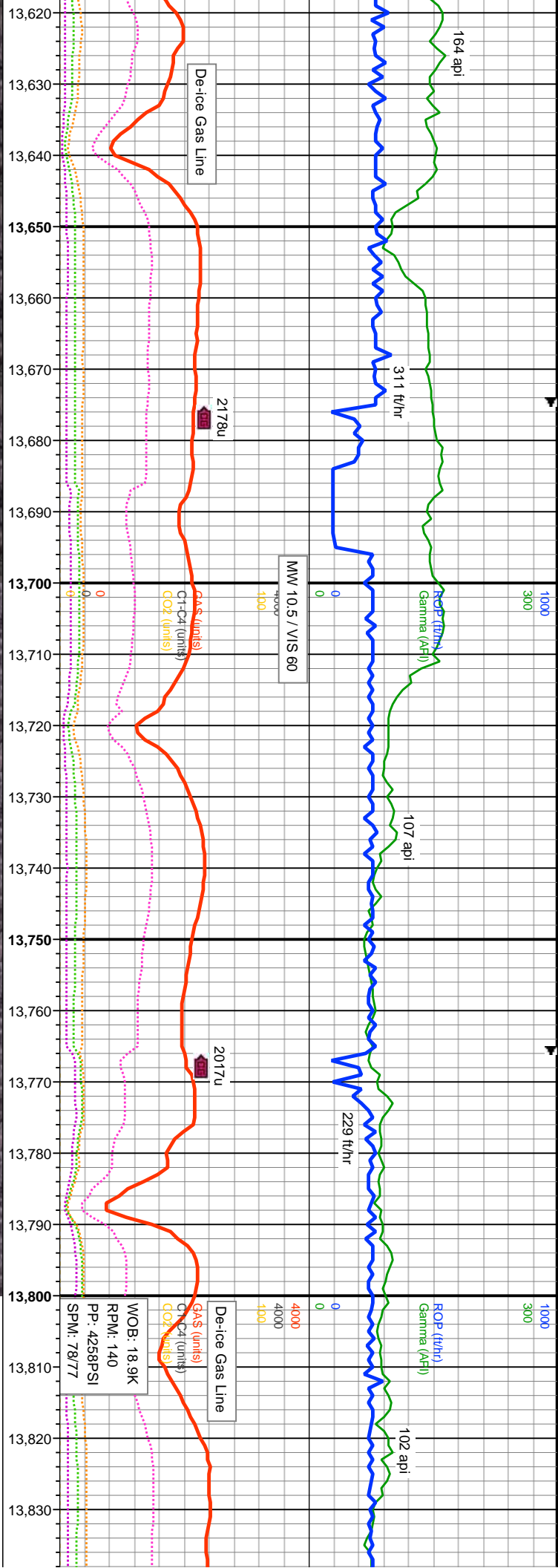


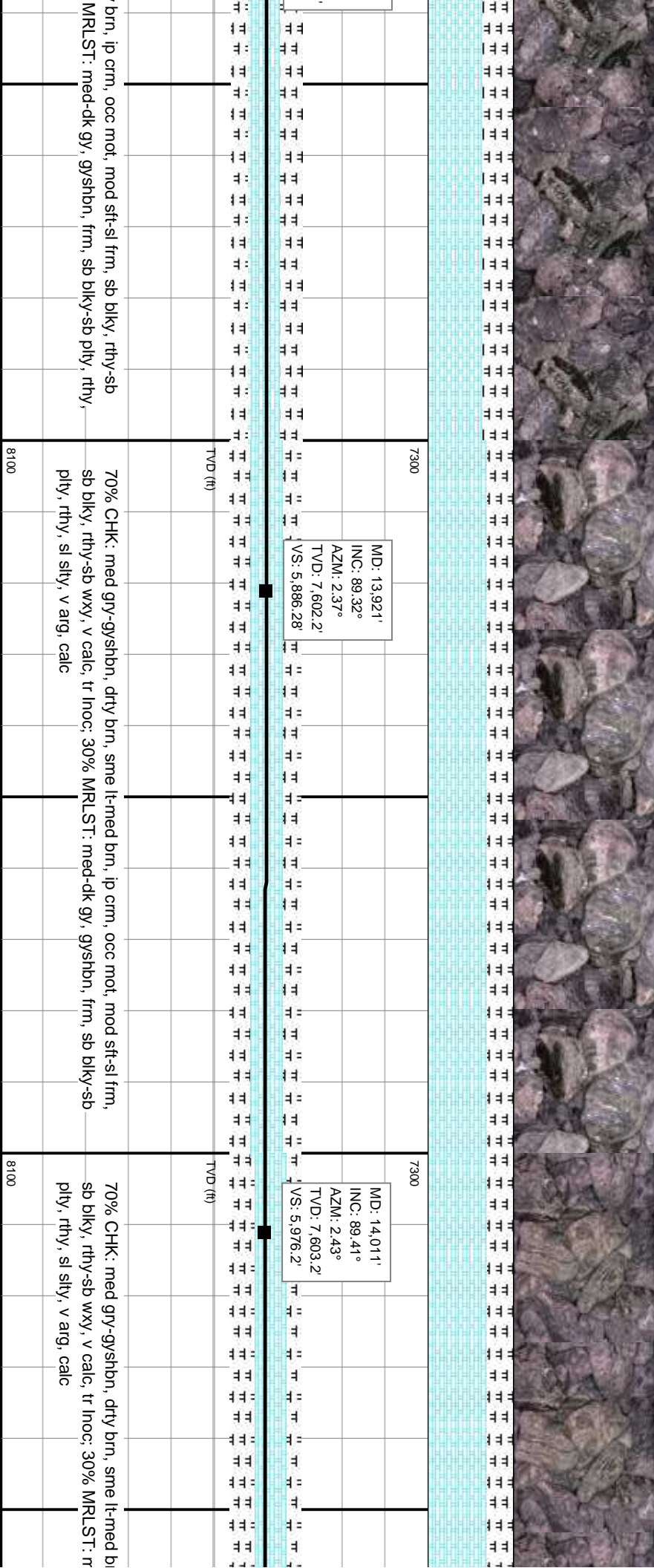
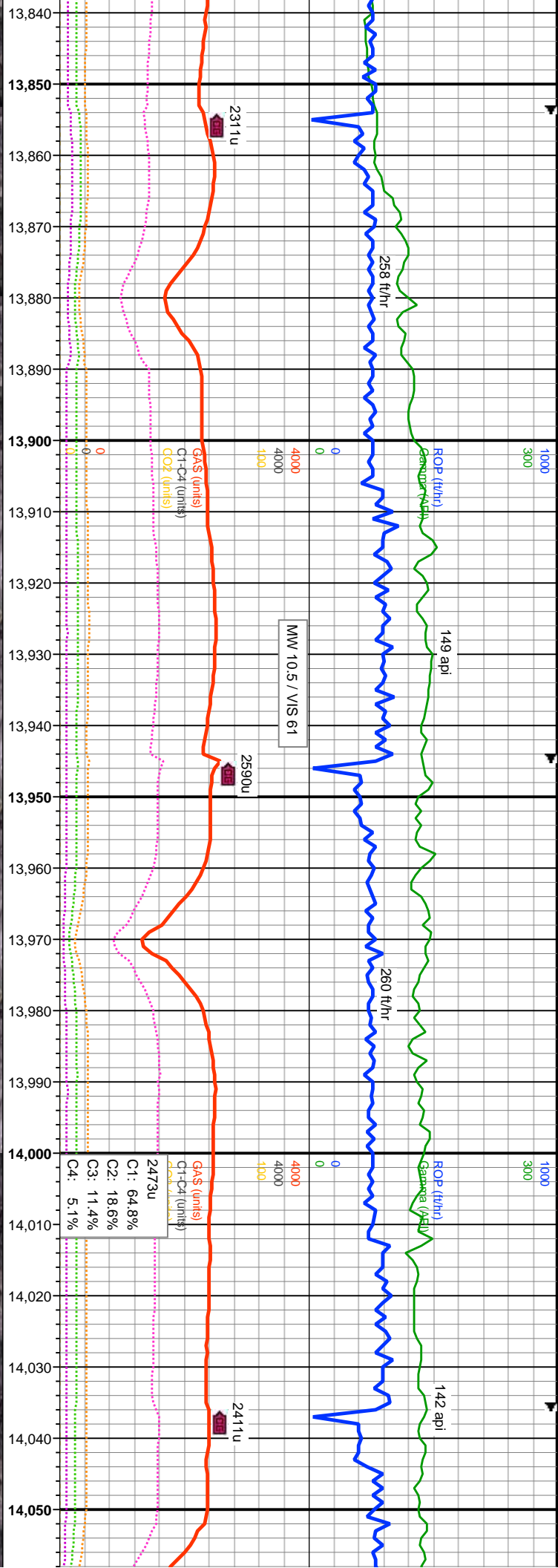


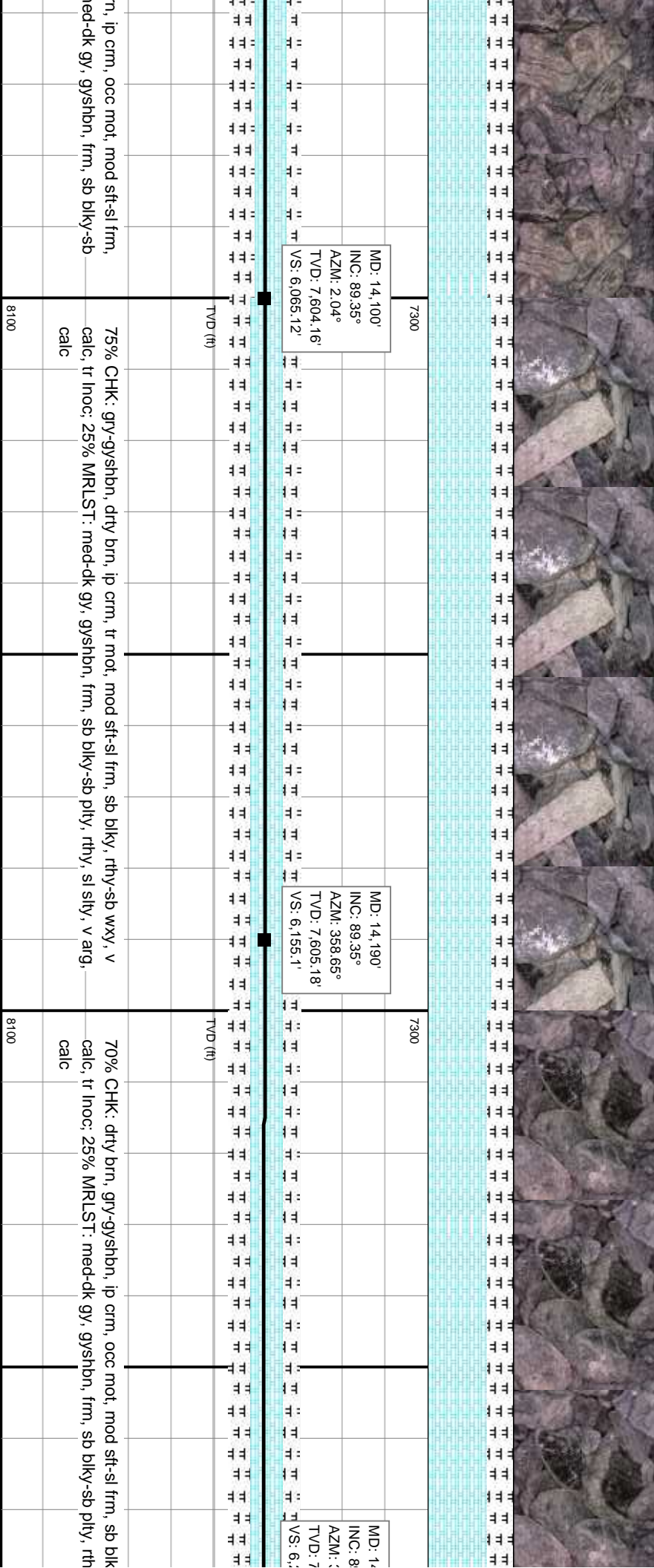
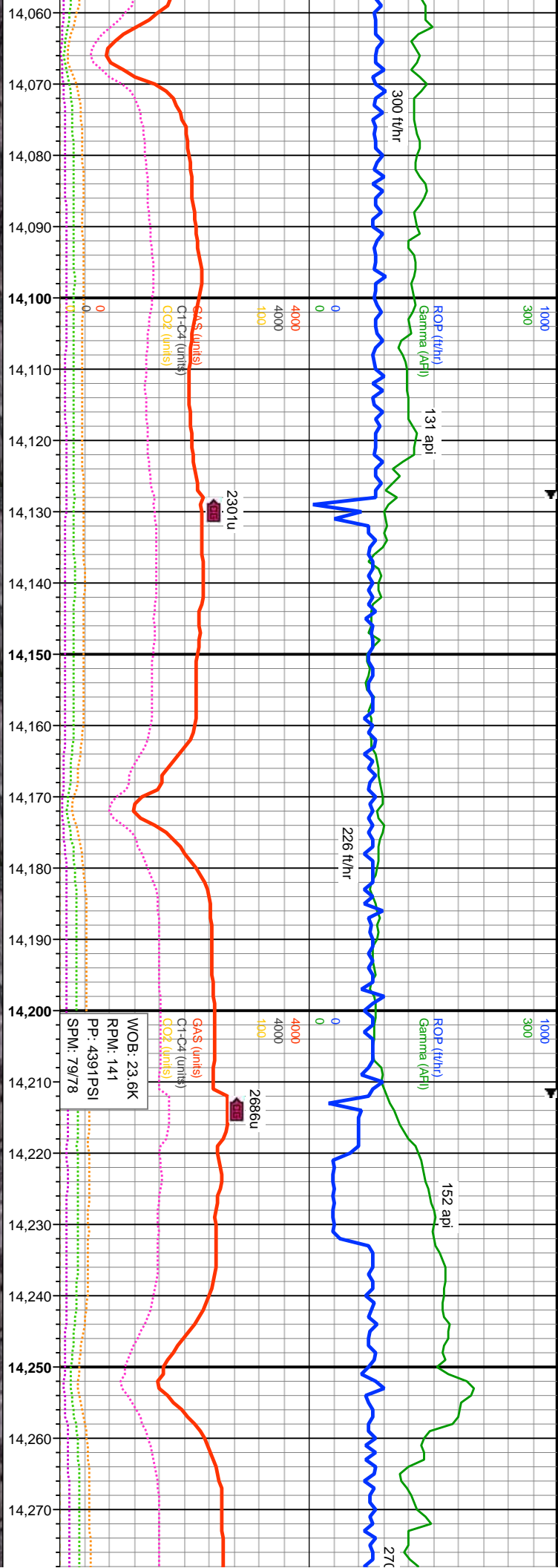


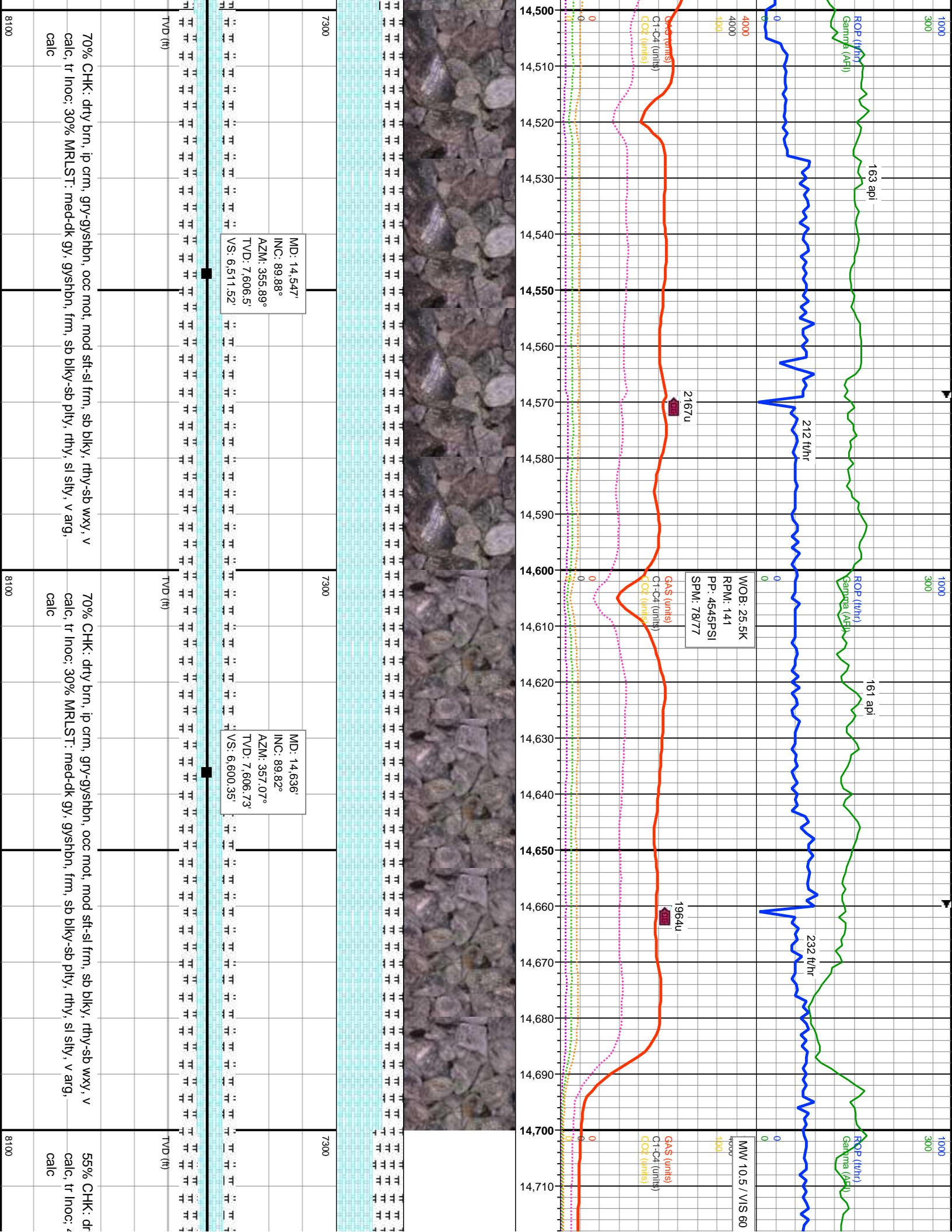


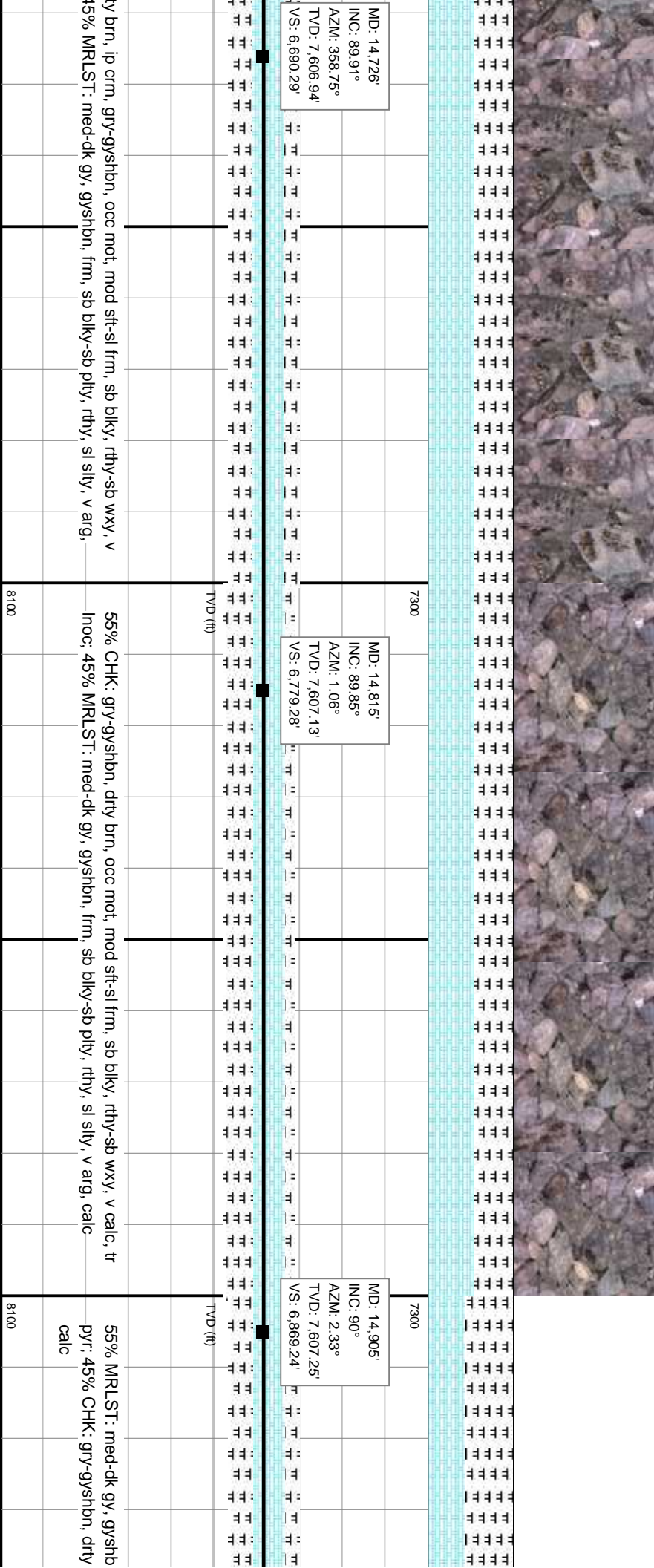
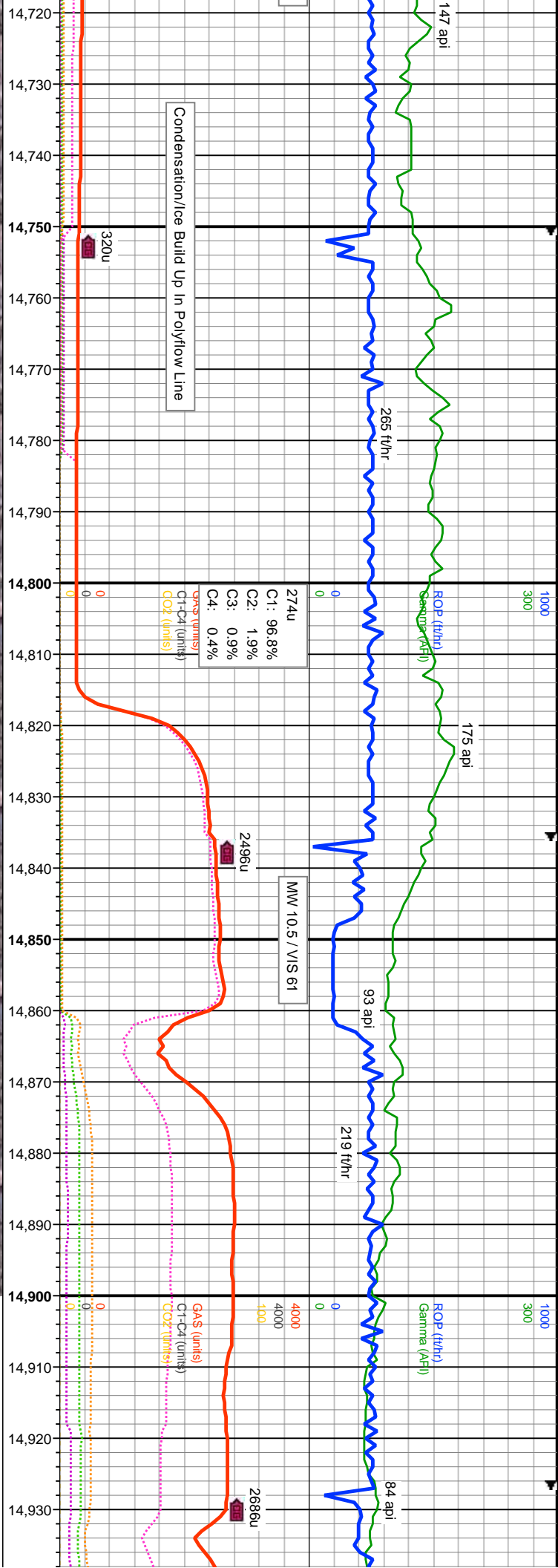


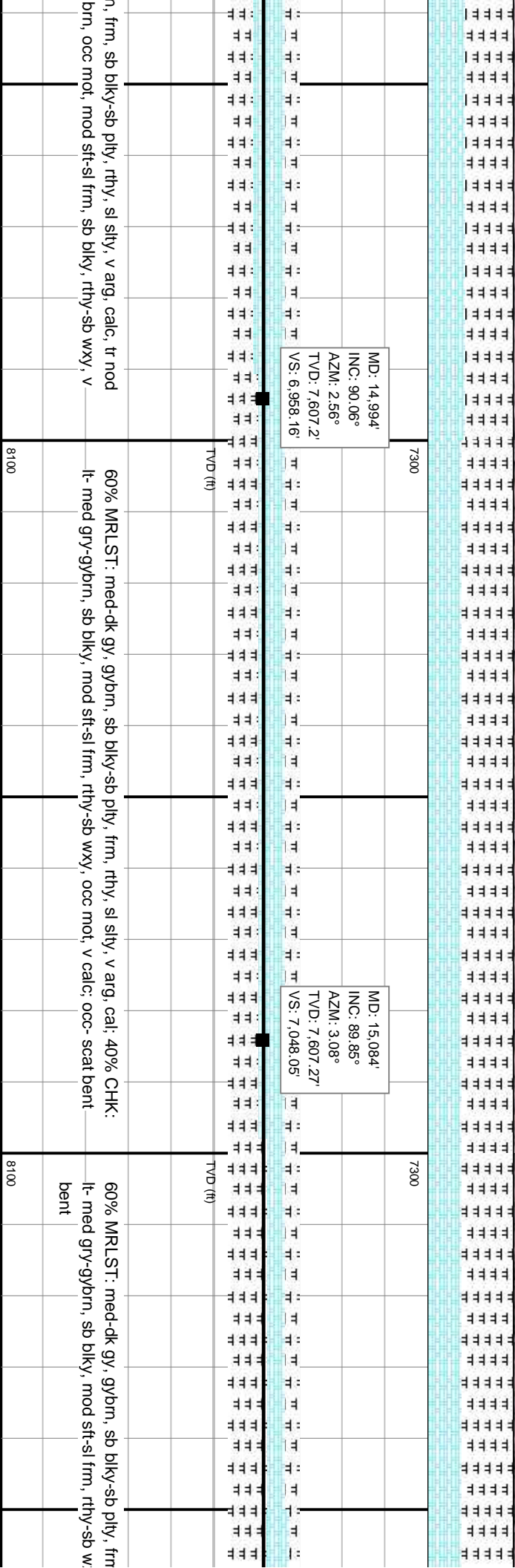
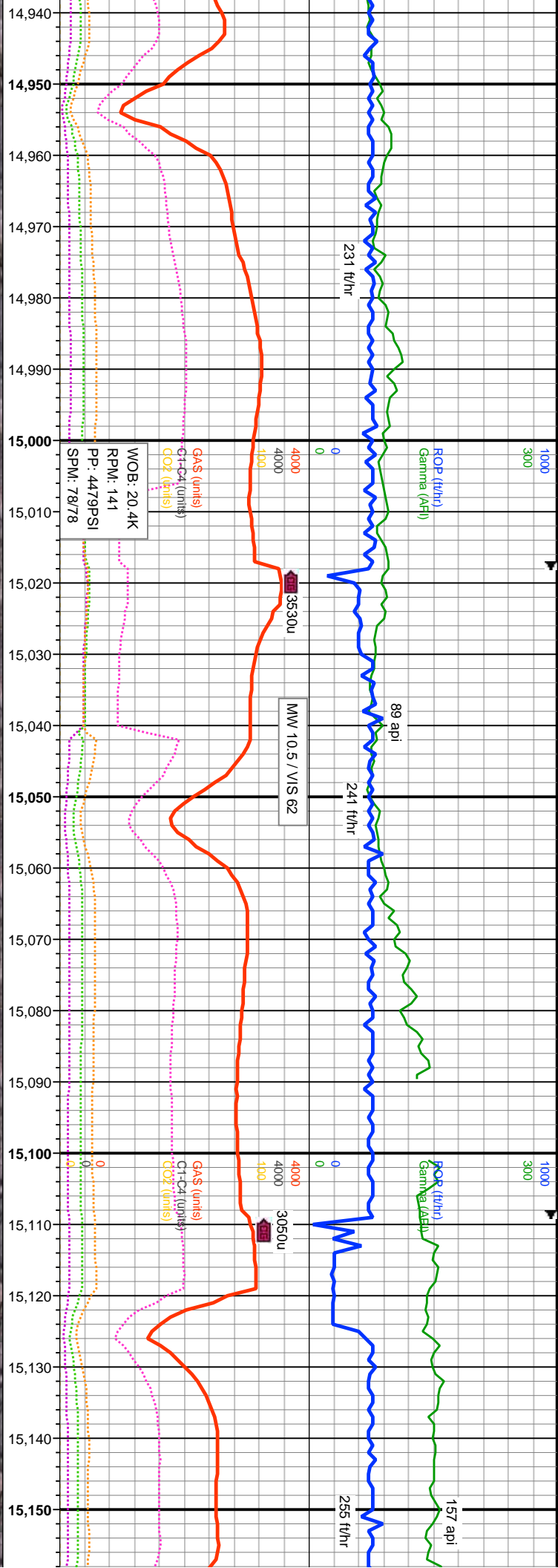


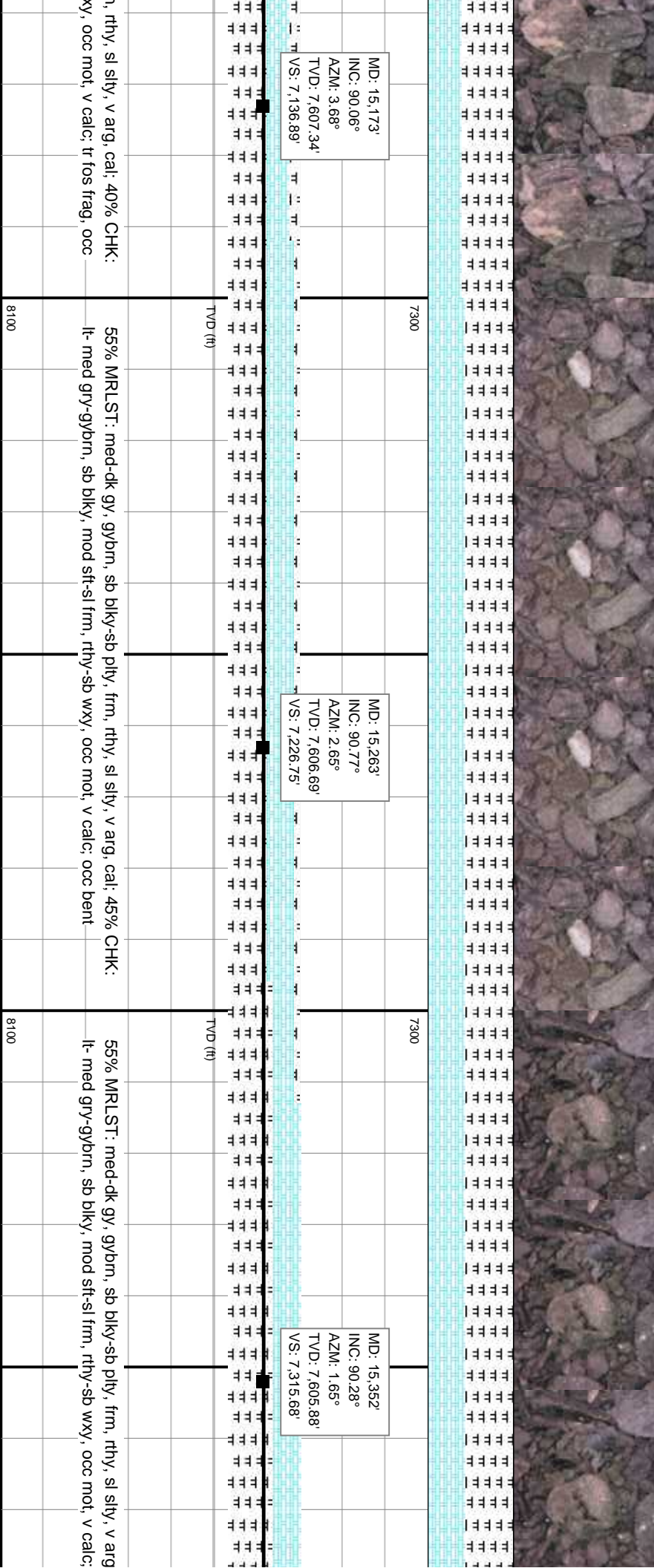
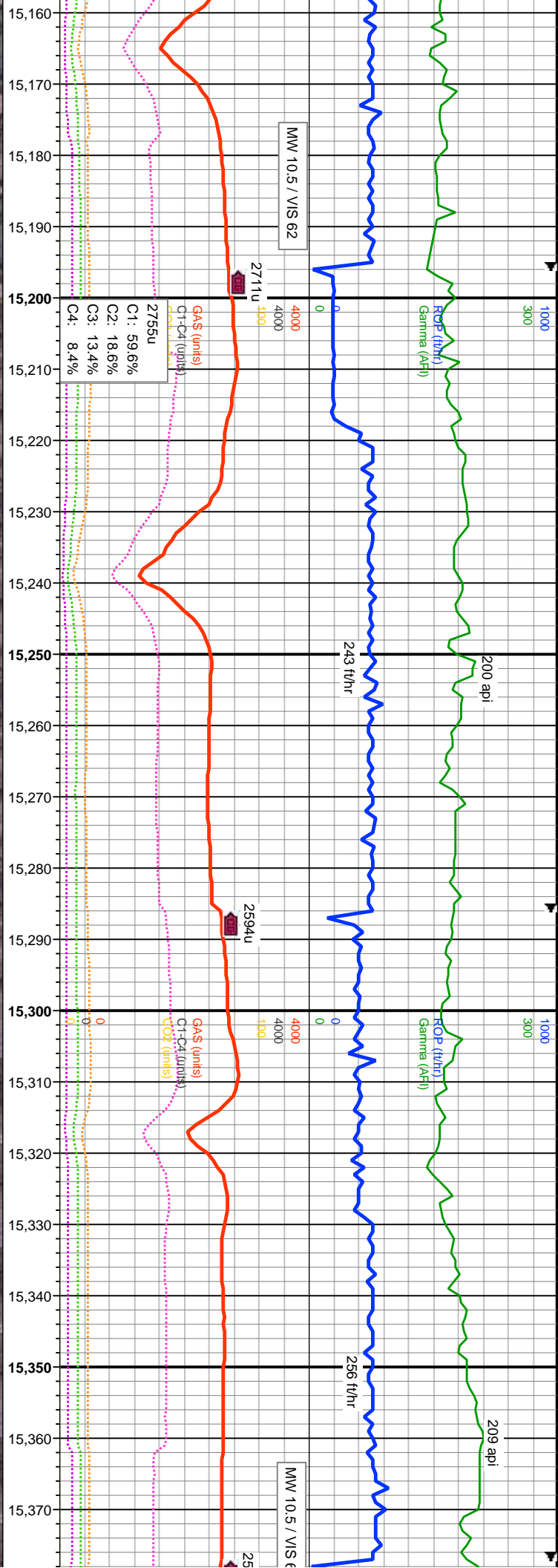


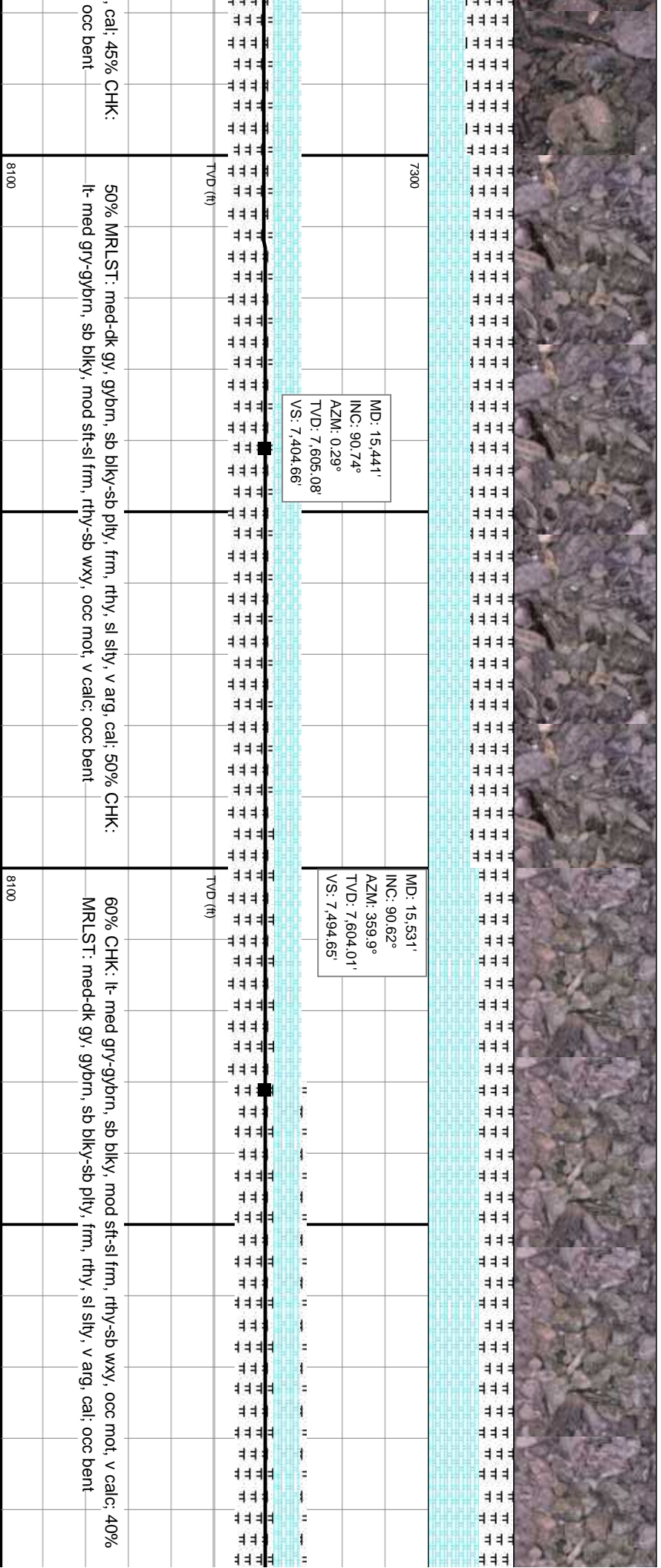
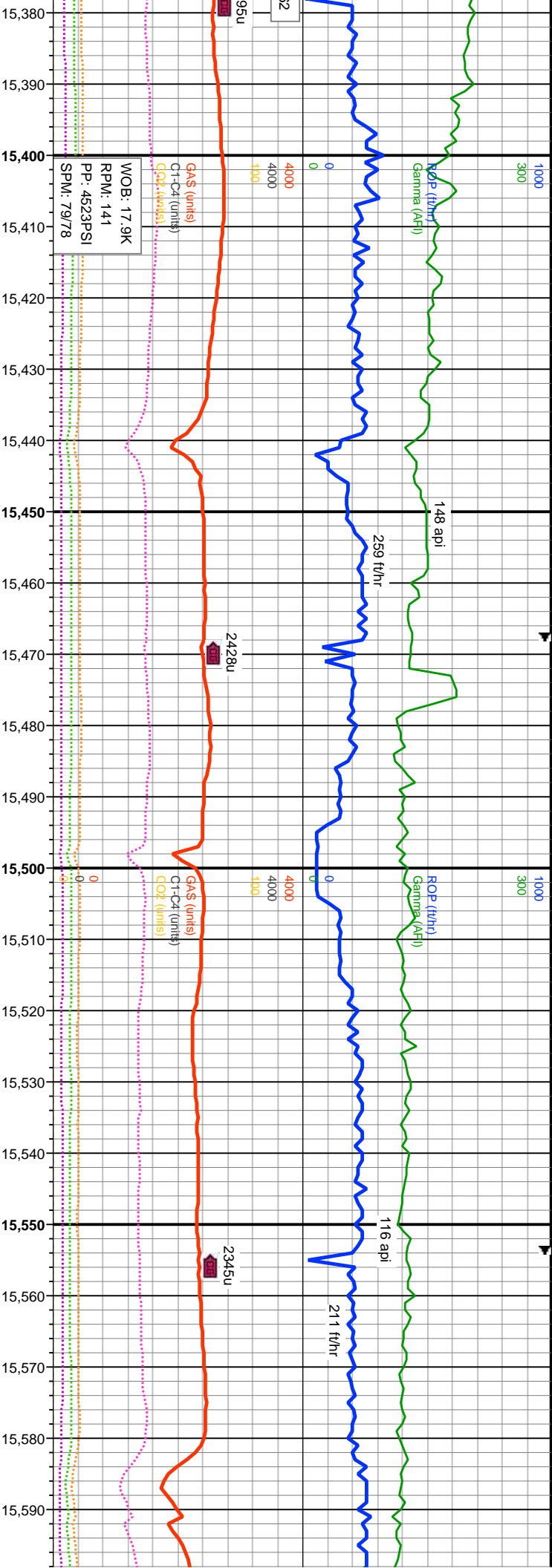


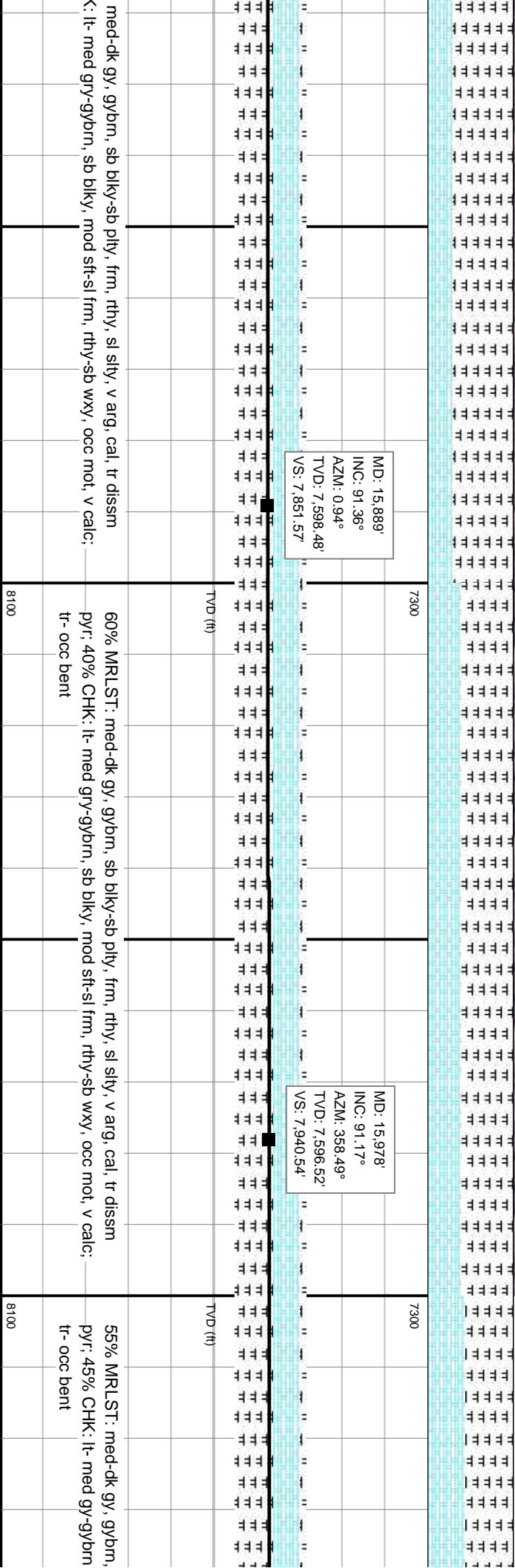
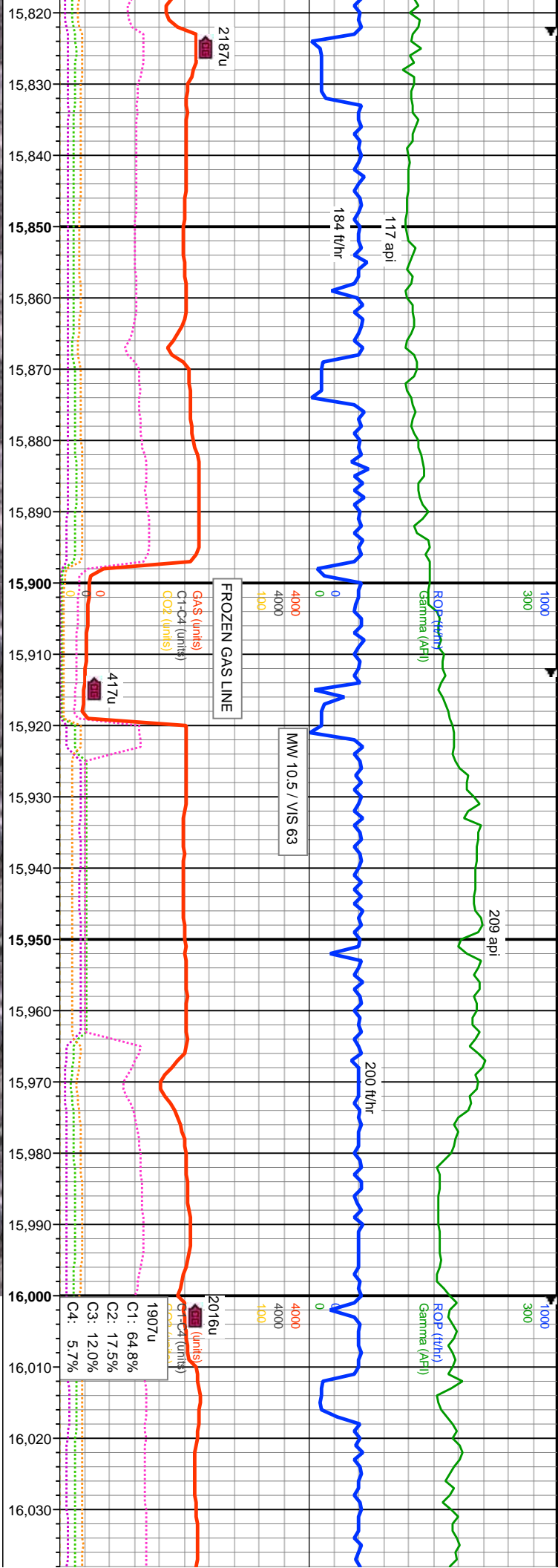


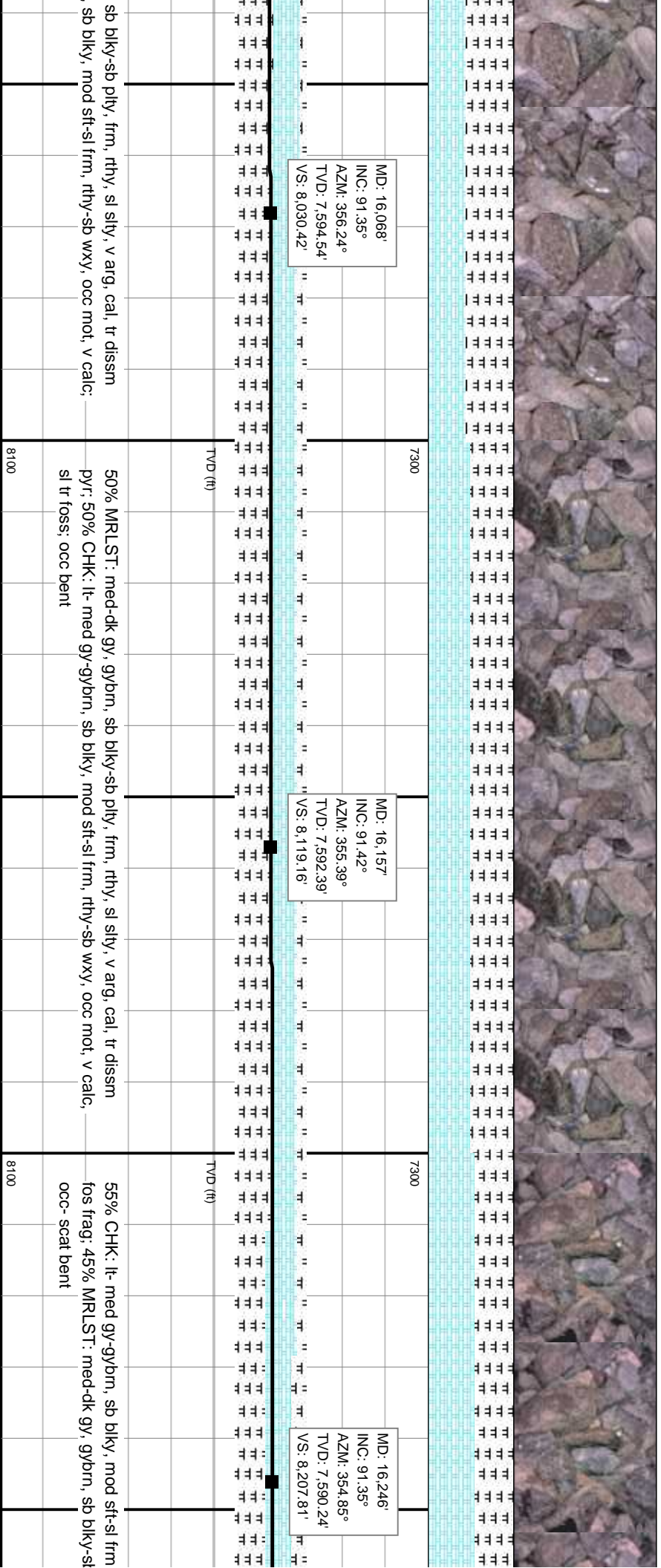
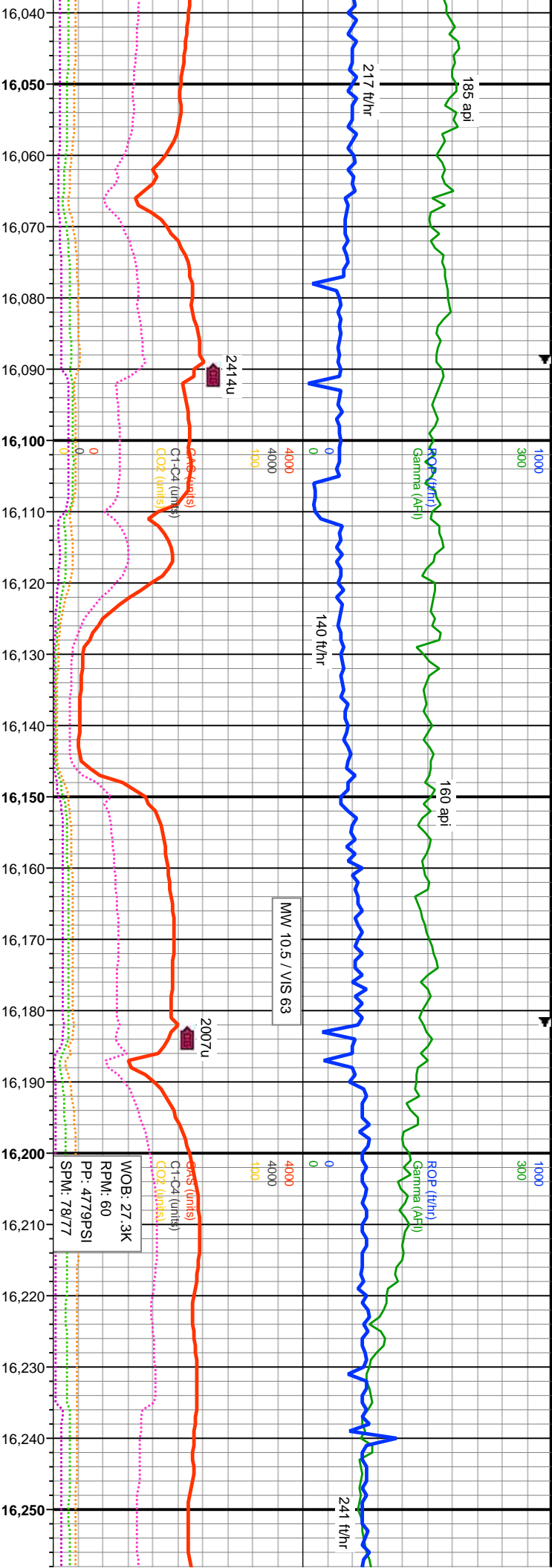


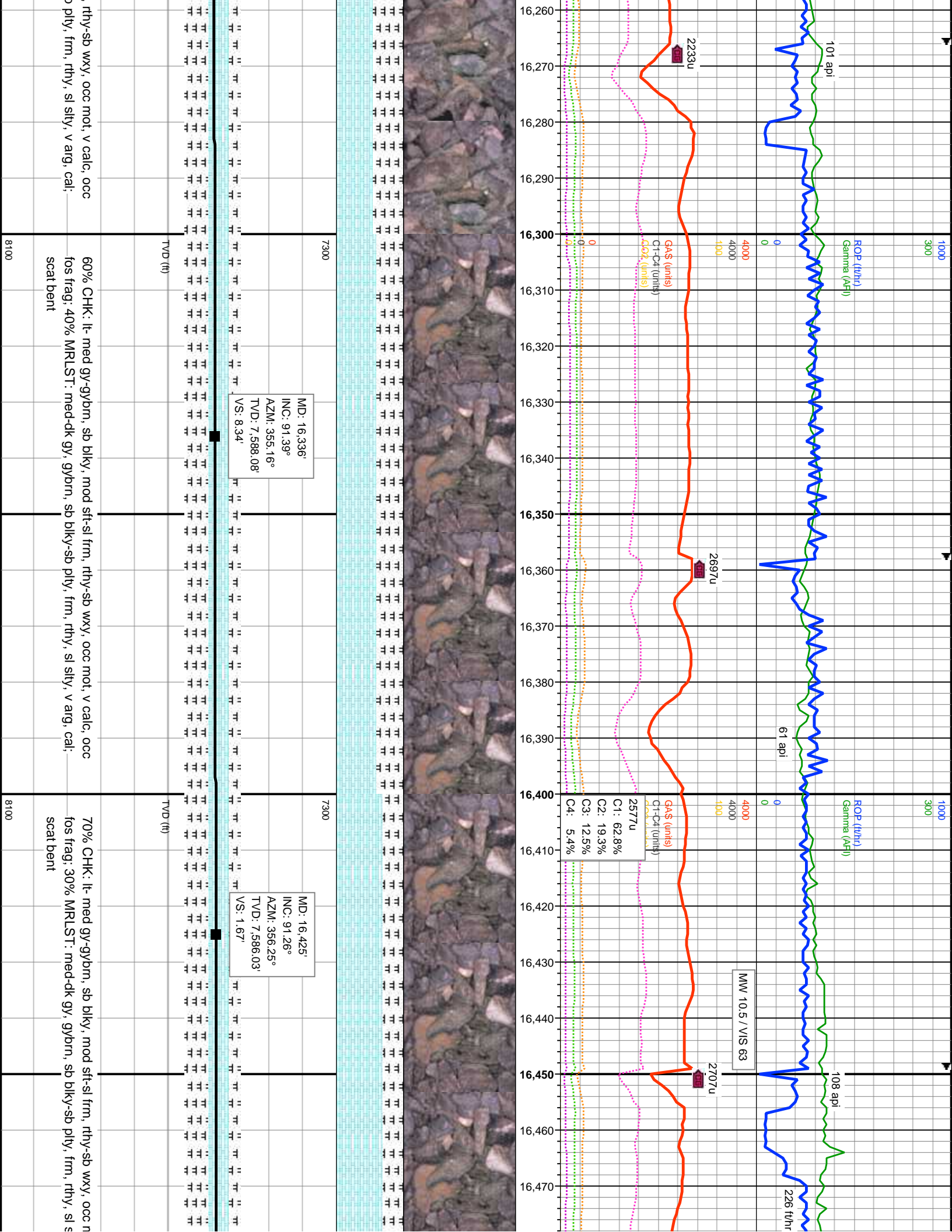


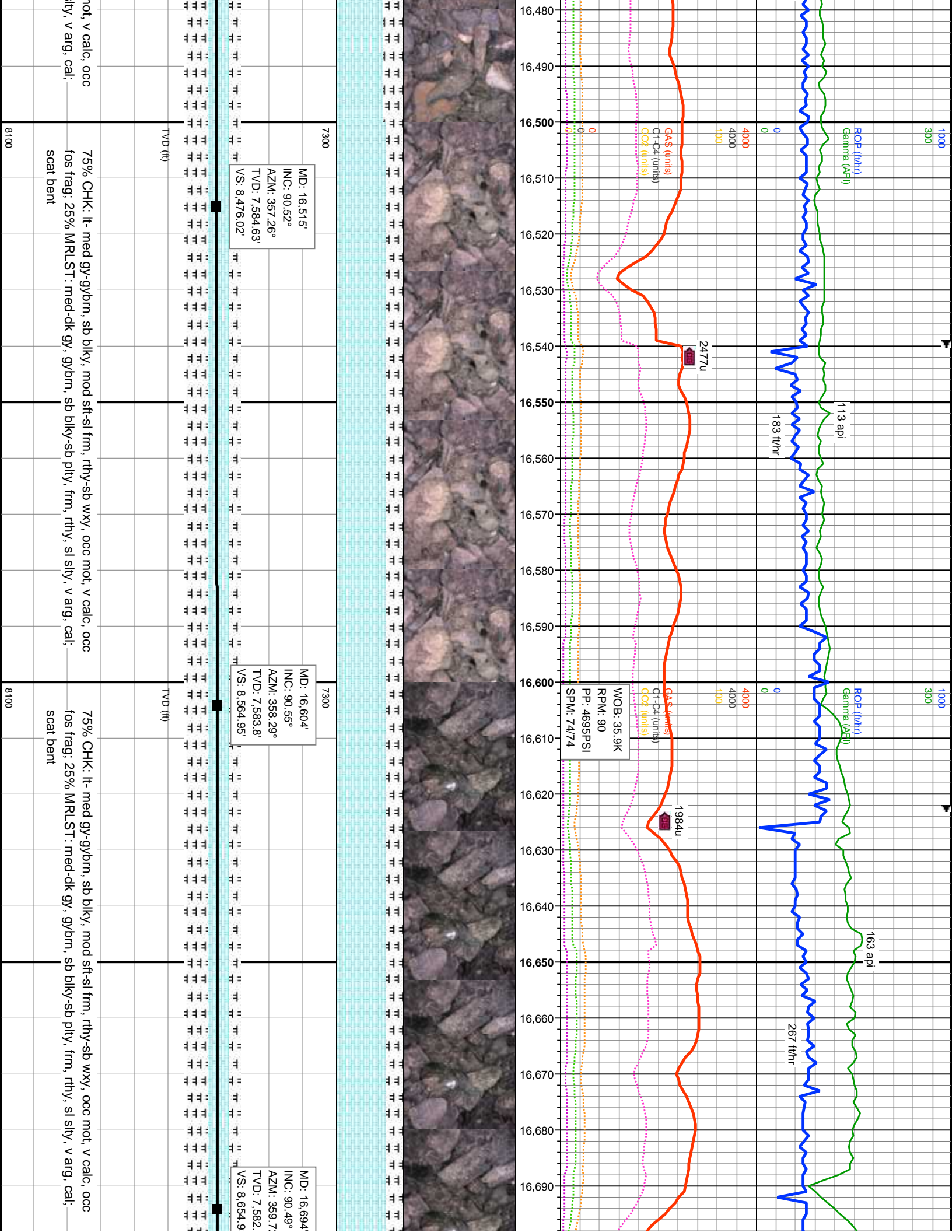


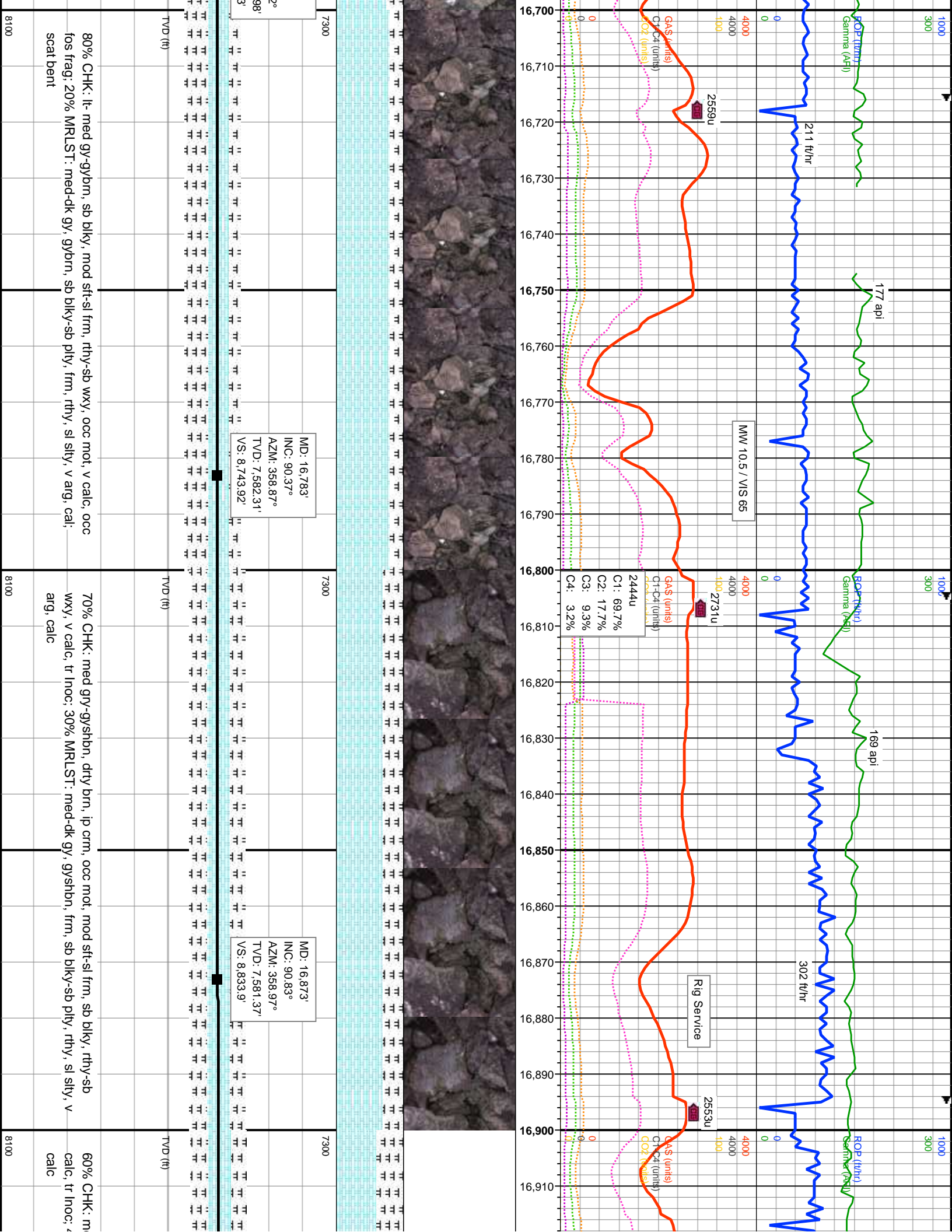


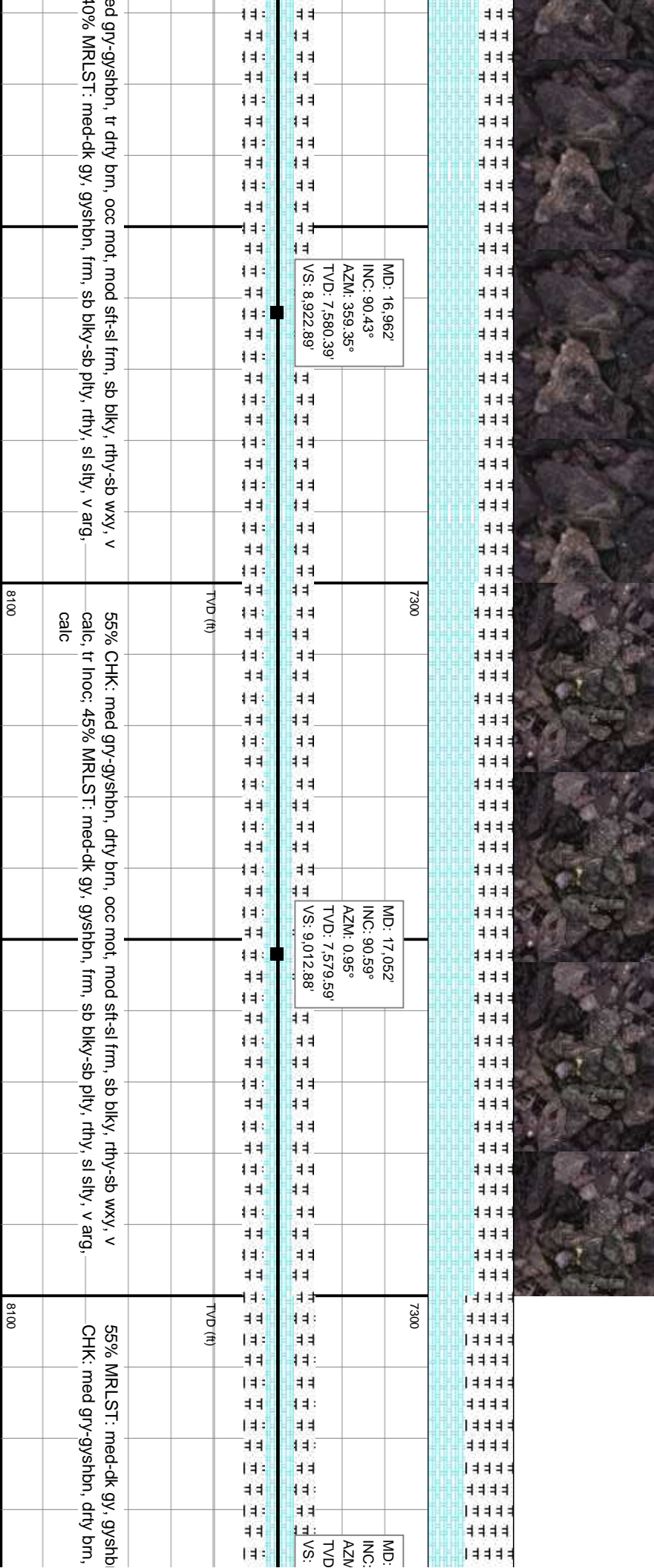
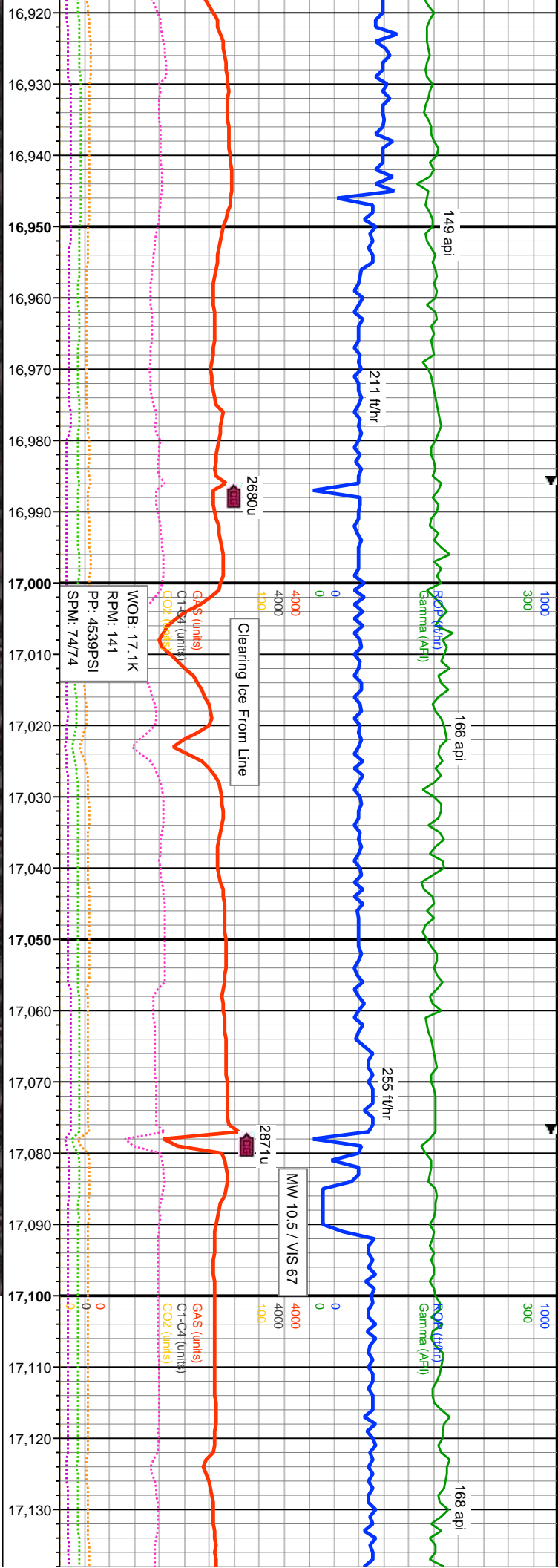


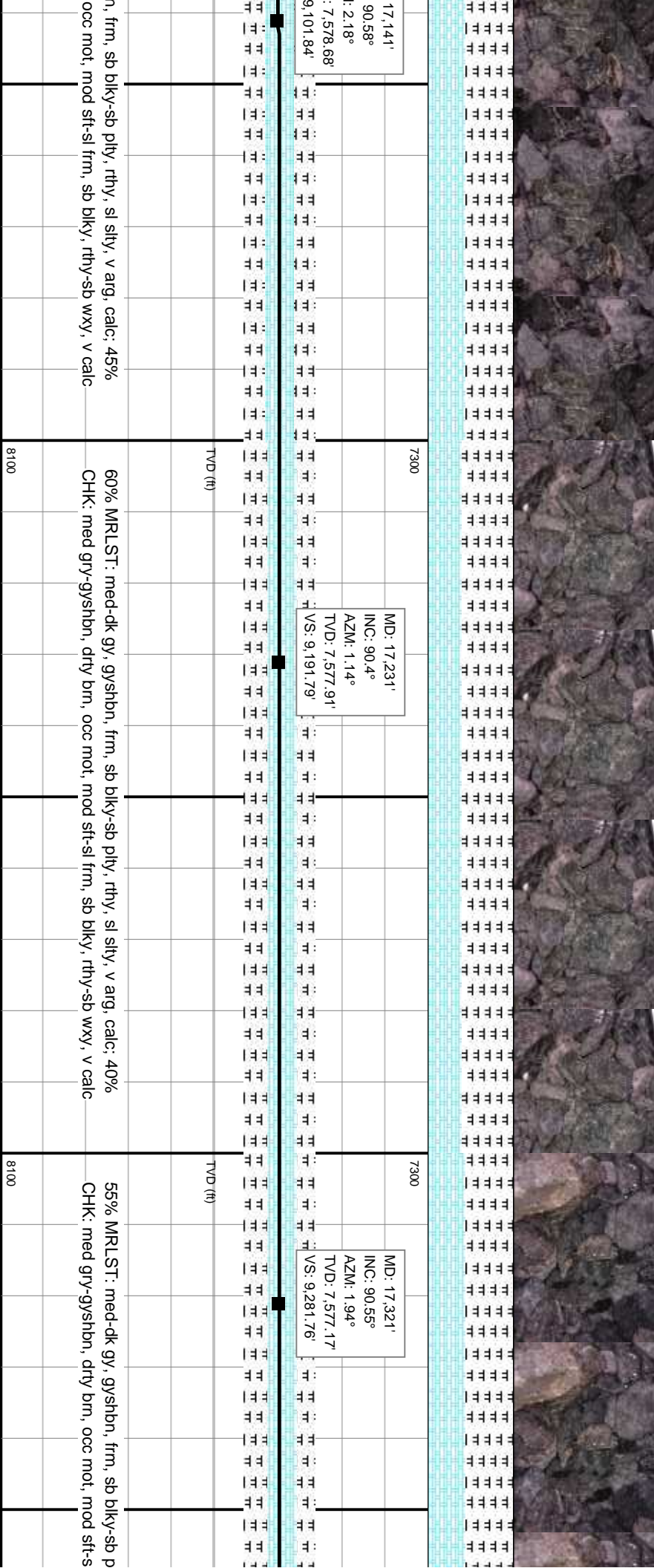
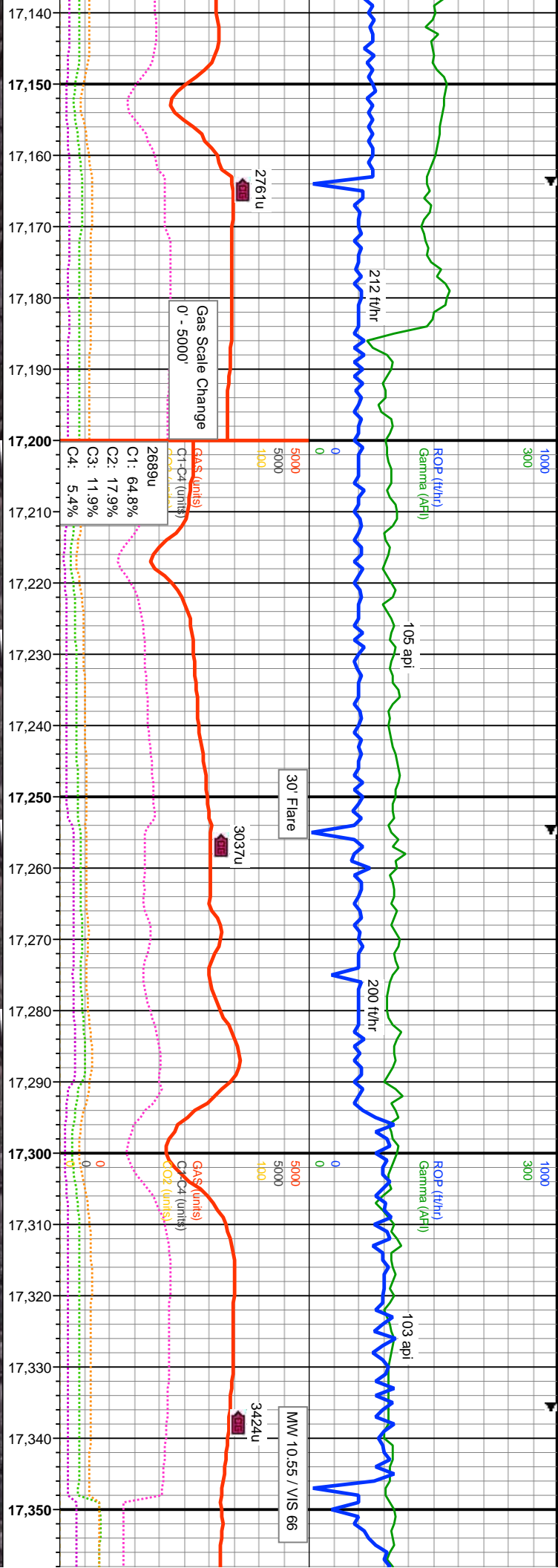


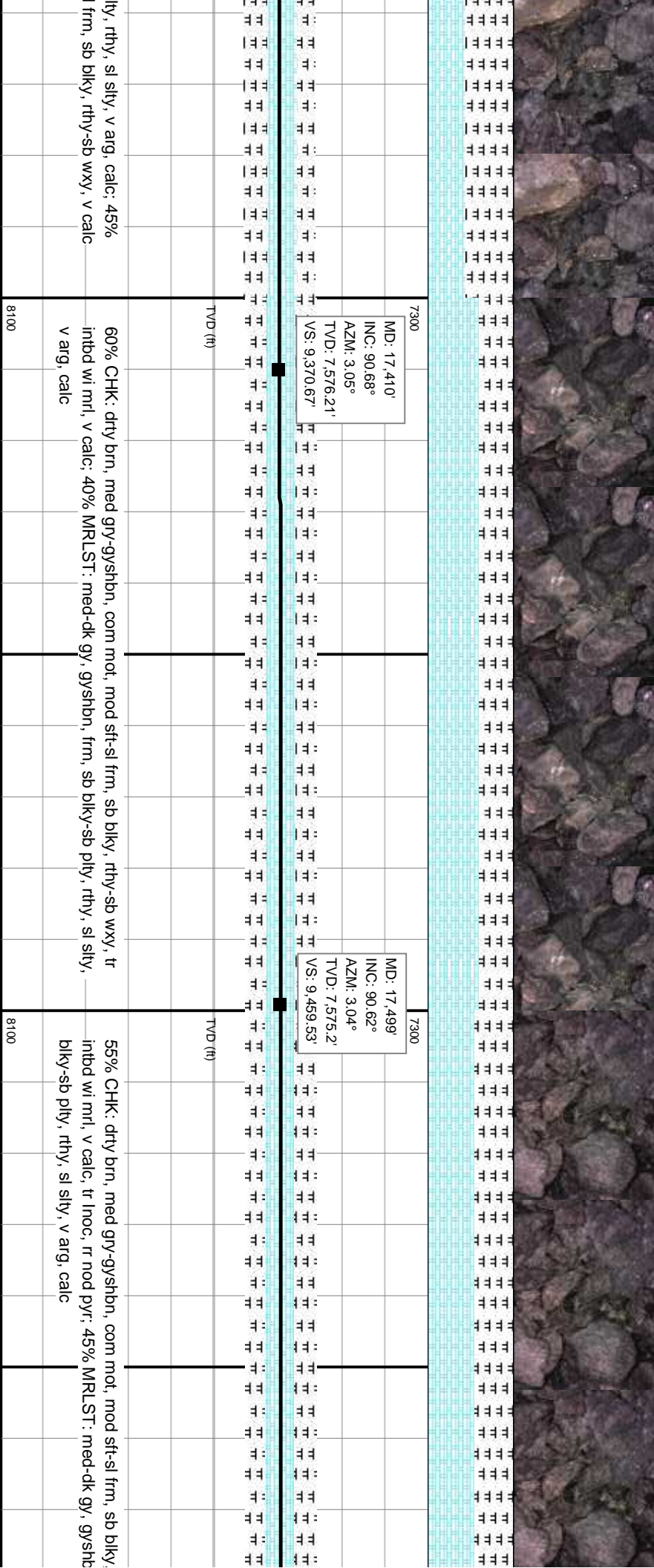
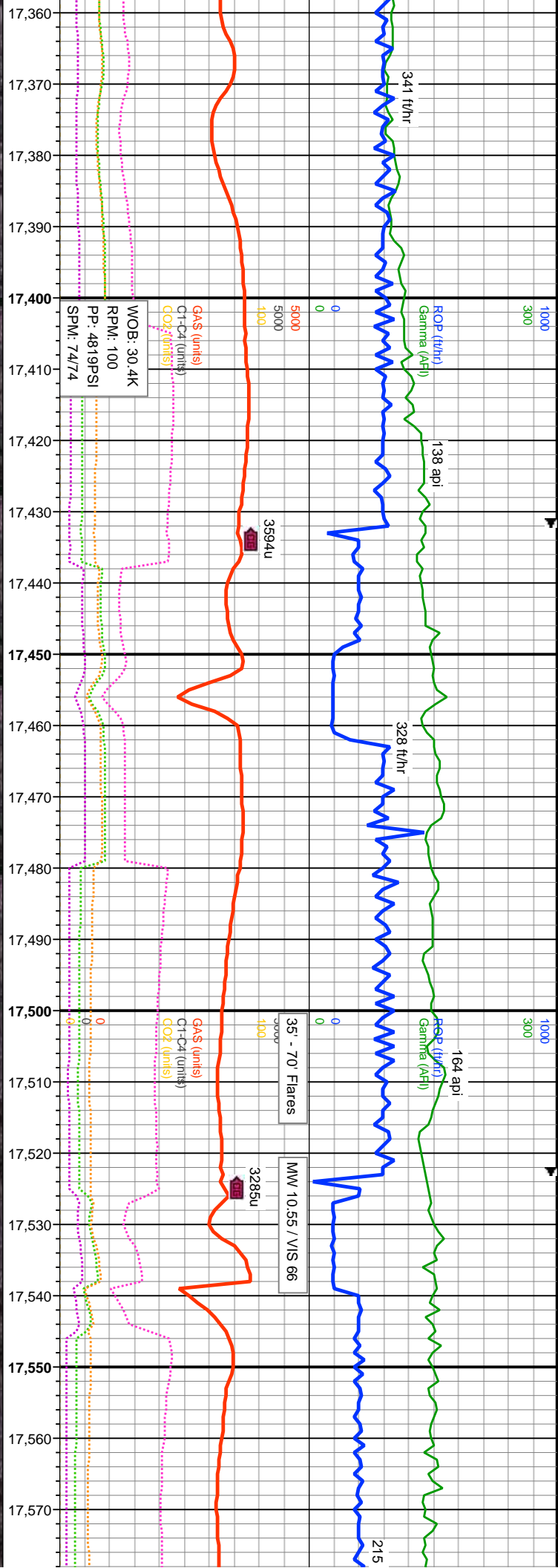


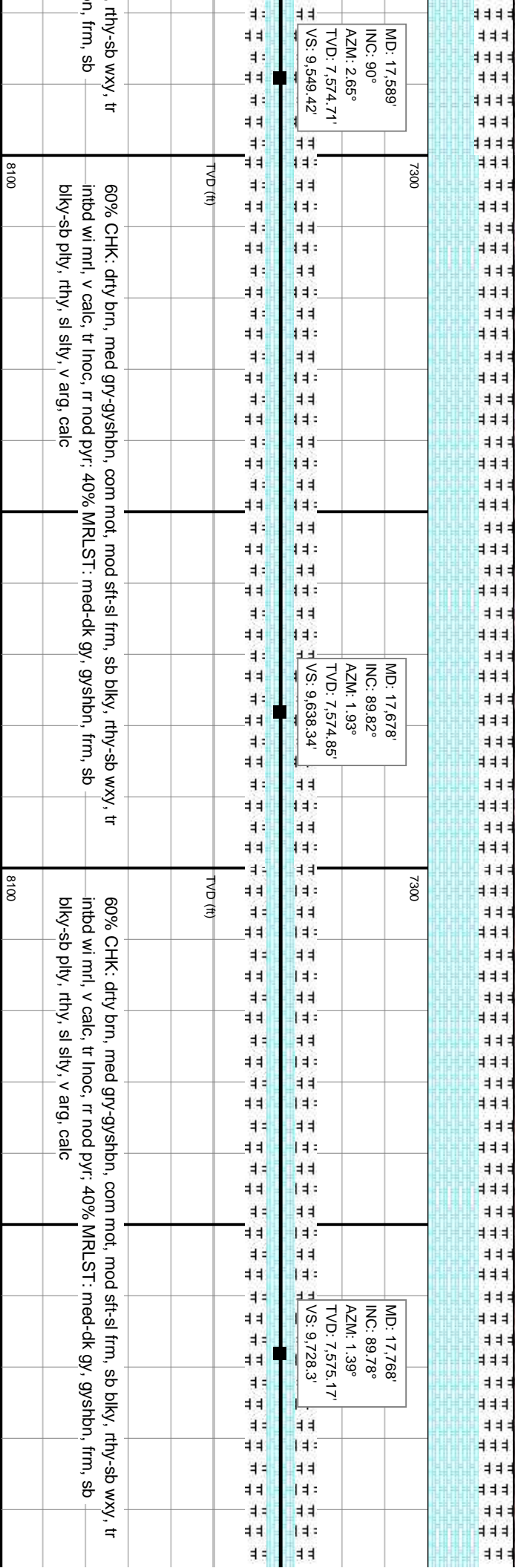
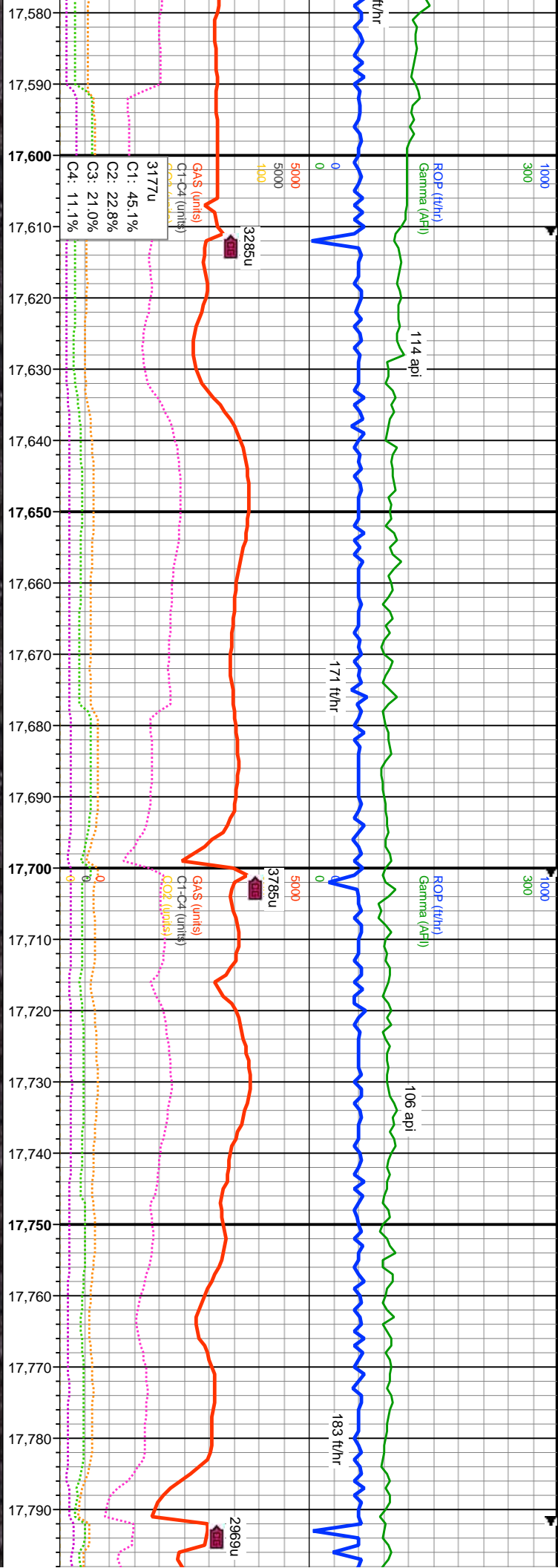


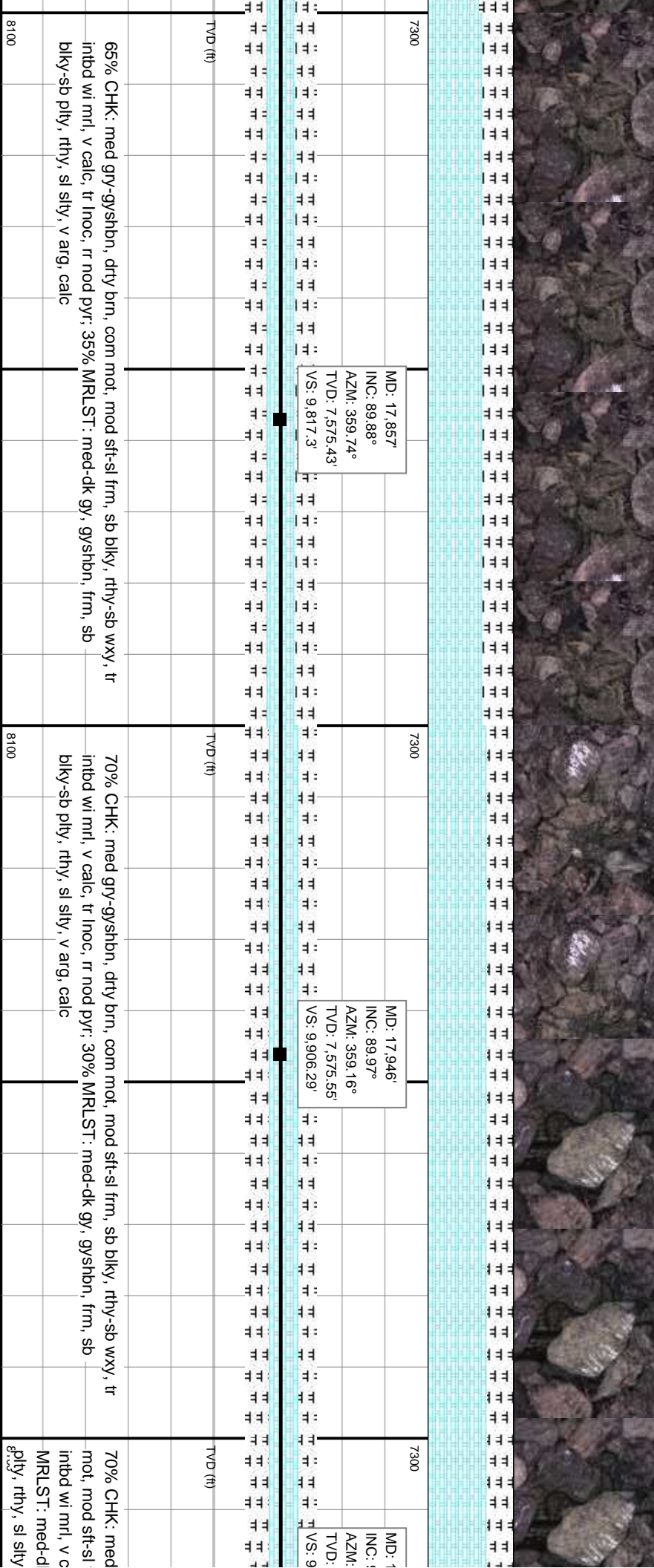
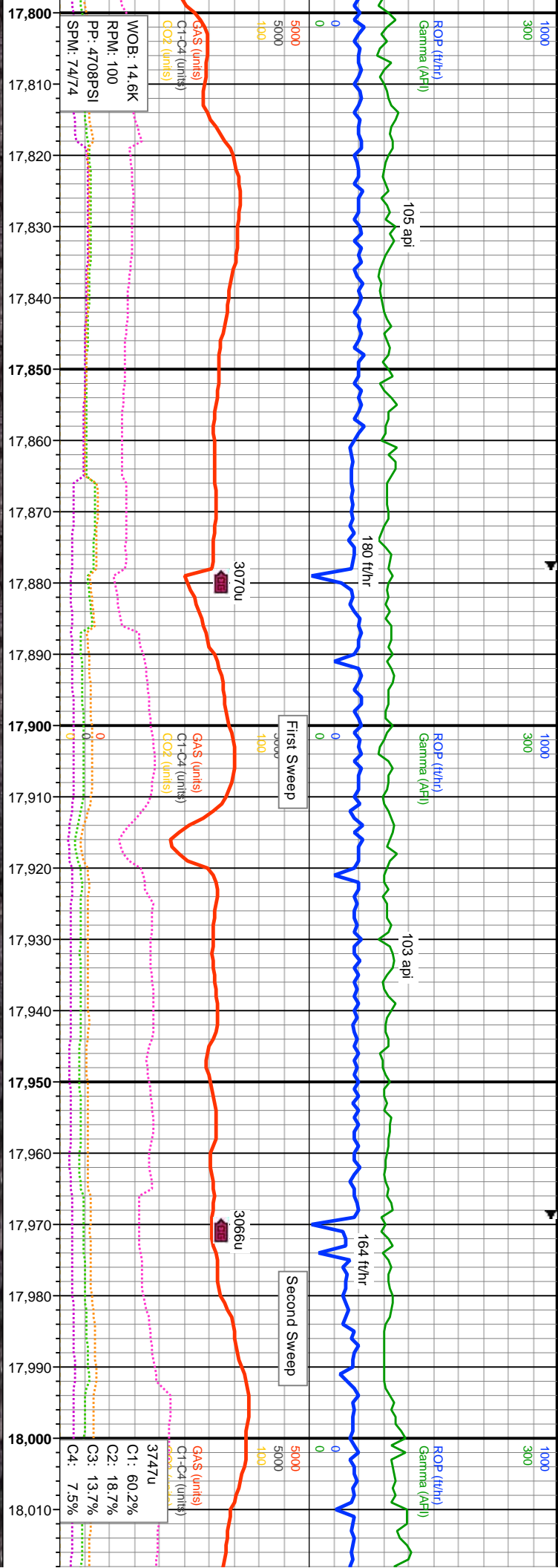


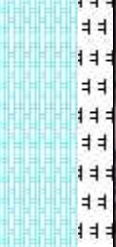
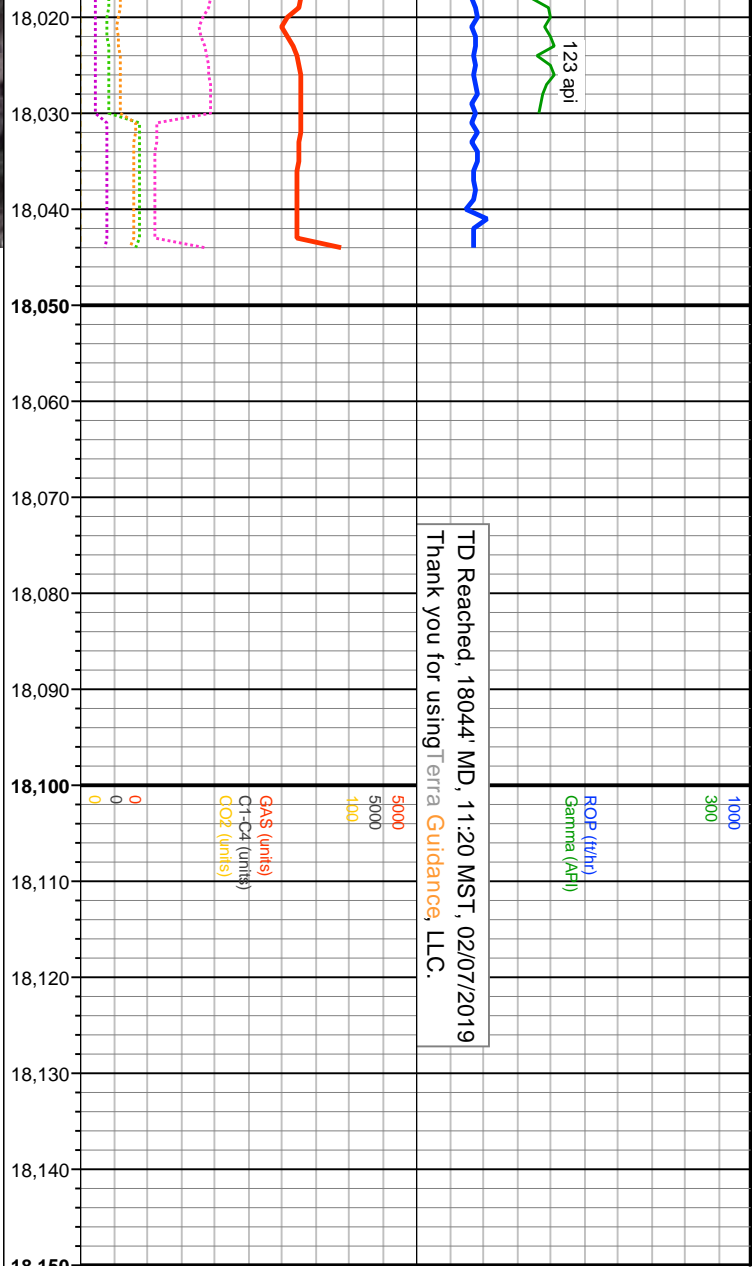






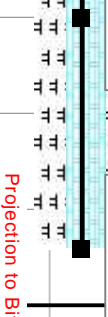






8.020'
90.03°
358.85°
7.575.55'
.980.28'

MD: 18,044'
INC: 90.03°
AZM: 358.85°
TVD: 7,575.54'
VS: 10,004.28'



FM Name	Excursion Depths ('MD)
Sharon Springs	7390
Niobrara	7476

gy-gyshbn, dty brn, com
frm, sb blk, rthy-sb wxy, tr
alc, tr lno, rr nod pyr, 30%
k gy, gysbhn, frm, sb blk-sb
v arg, calc

7300

8100