



Scale: 5" / 100'
Measured Depth Log

Well Name B-Farm LD 18-034HN

Location SEC 7 T1S R67W

State COLORADO

Country USA

API Number 05-001-10095-0000

Geographic Region DJ BASIN

Spud Date 1/1/2018

County ADAMS

Rig Number PRECISION 460

AFE # 18DC0006

Field WATTENBERG

Drilling Completed 1/19/2018

Ground Elevation 5124.6'

K.B. Elevation 5144.6'

Logged Interval 6000' MD To 13687' MD

Total Depth 13687' 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

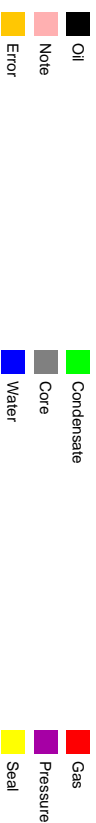
Name Joey Luce and Tim Bright

Company Terra Guidance

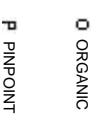
Address 1298 O Road
Loma CO 81524
(970) 260-5408



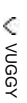
Color Coding



Oil Show



DEAD



EVEN

QUESTIONABLE

SPOTTED STAINING



Engineering



CASING



CONNECTION (LEFT)



CONNECTION (RIGHT)

FENESTRAL



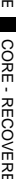
CONNECTION G

FRACTURE



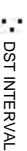
CORE - LOST

INTERCRYSTALLINE



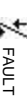
CORE - RECOVERED

INTEROOLITIC



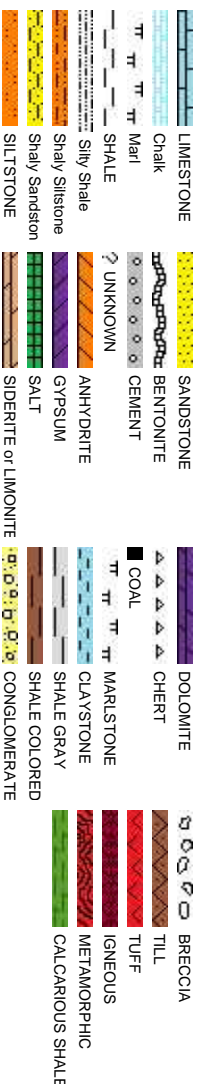
DST INTERVAL

MOLDIC



FAULT

Rock Types



Porosity

E EARTHY

FENESTRAL

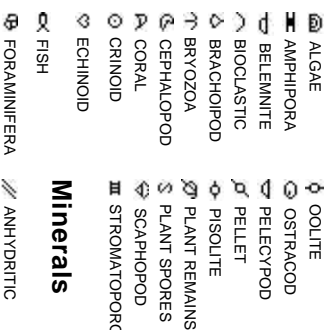
FRACTURE

INTERCRYSTALLINE

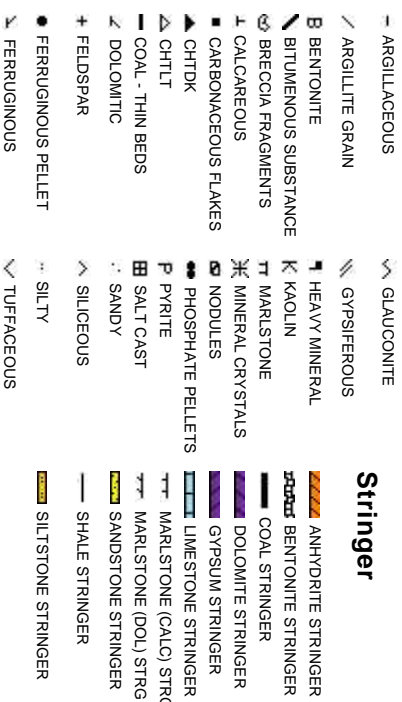
INTEROOLITIC

MOLDIC

Fossils



Minerals




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

B 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


CALCARIUS SHALE

 TRIP GAS

E EARTHY

 WIRELINE TESTED - LEFT FX FINELYXLN

CALCARIOUS SHALE

 WIRELINE TESTED - RT BS GRAINSTONE

TERRA GUIDANCE
BEGAN LOGGING @ 20:58 MST 01/16/2018
BLOODHOUND GAS CHROMATOGRAPH #5741
100' Sample Collection

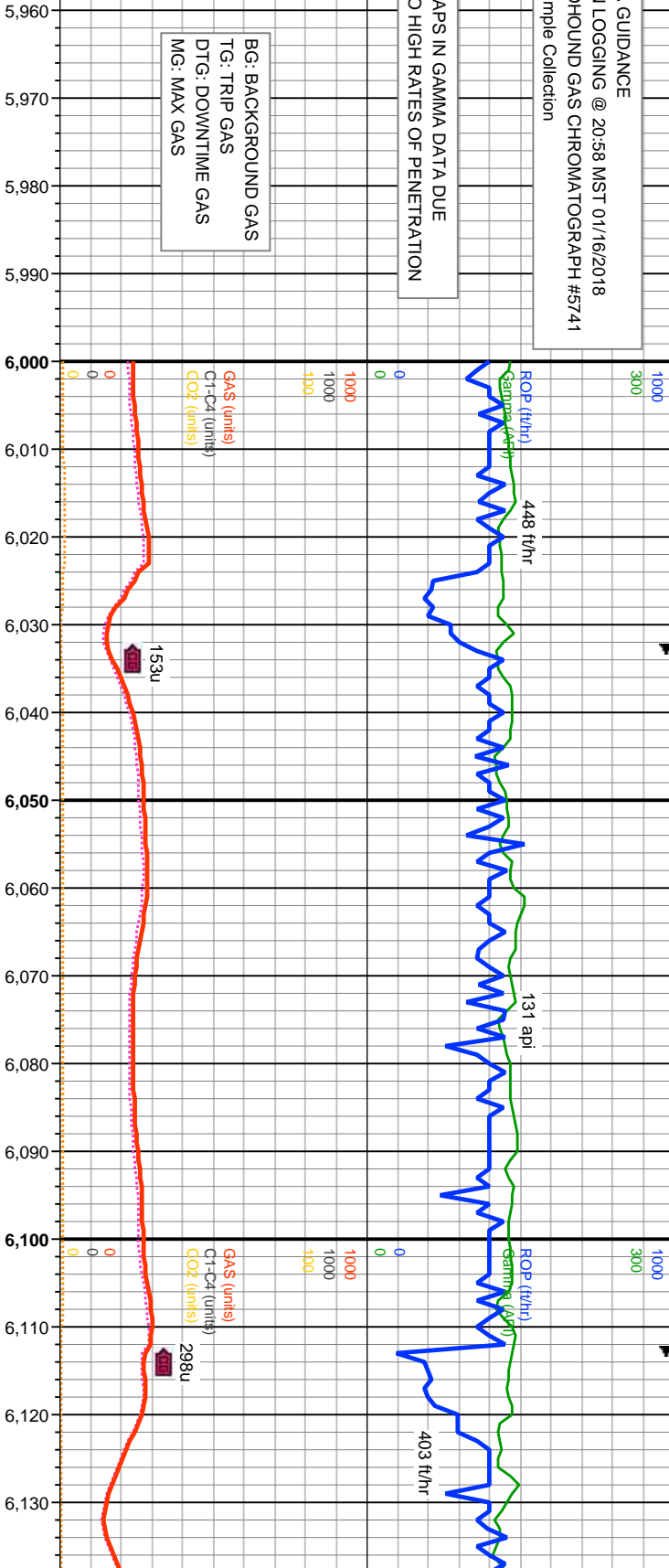
ROP
ROP
Gamma

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

Well Bore
TVD

Bit #: 2
Type: Ulterra SPL516
Size: 8.5"
Depth In: 1,719'
Jets: 5x12,3x11
S/N: 38873

TVD Scale
5500' - 9000'

MD: 6,000'
INC: 29.85°
AZM: 53.44°
TVD: 5,785.43'
VS: -306.74'

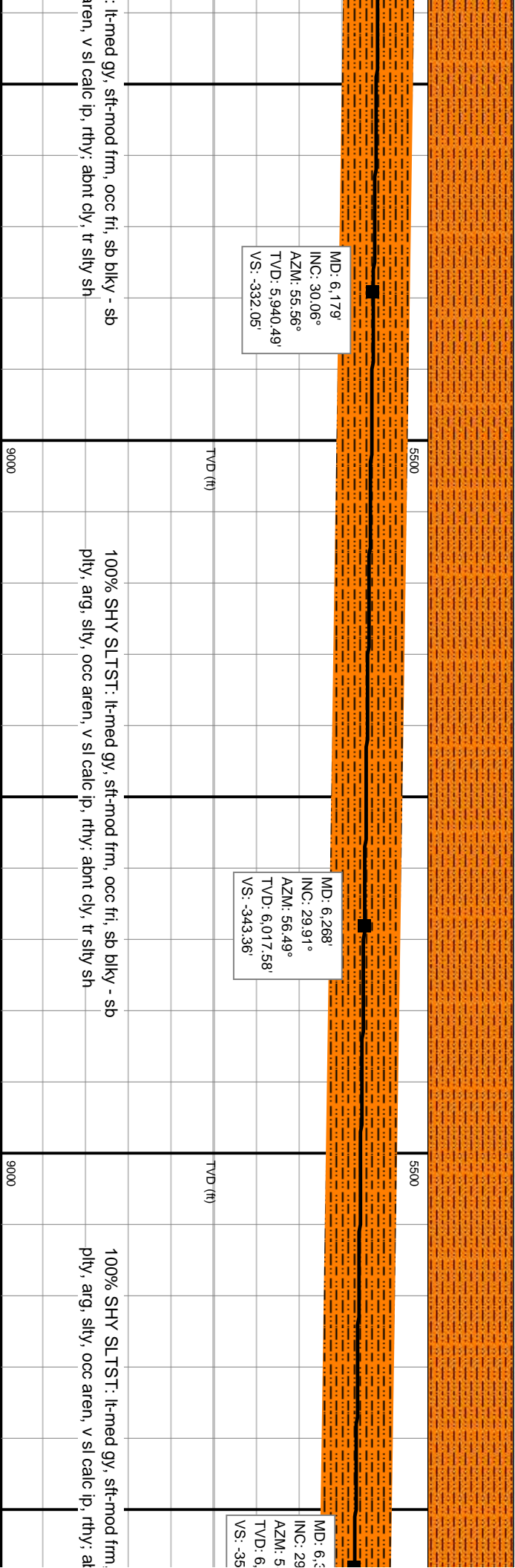
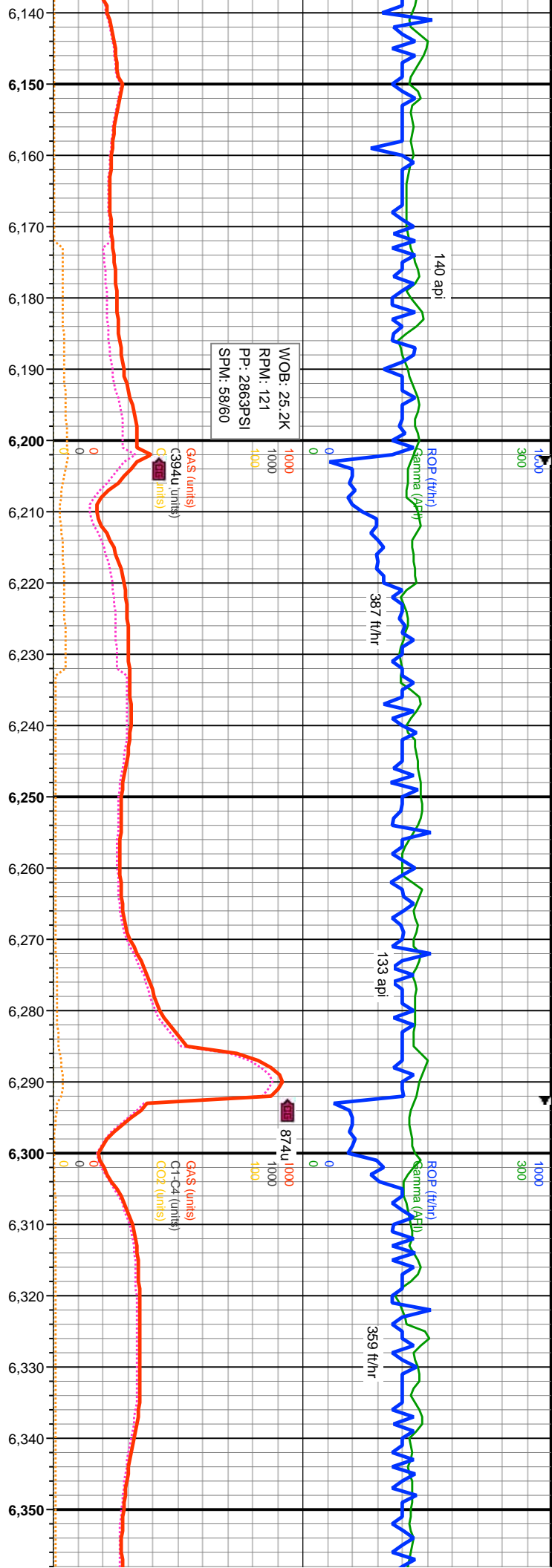
TVD (ft)

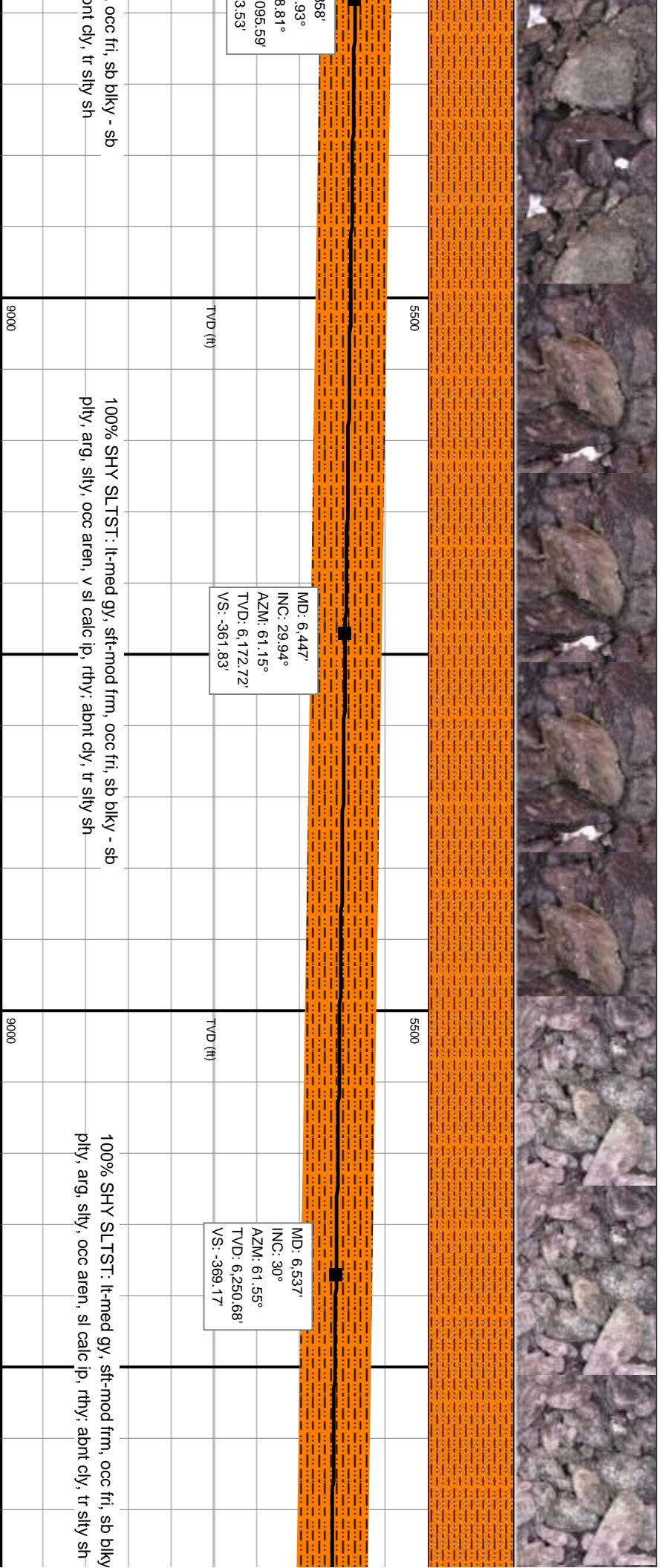
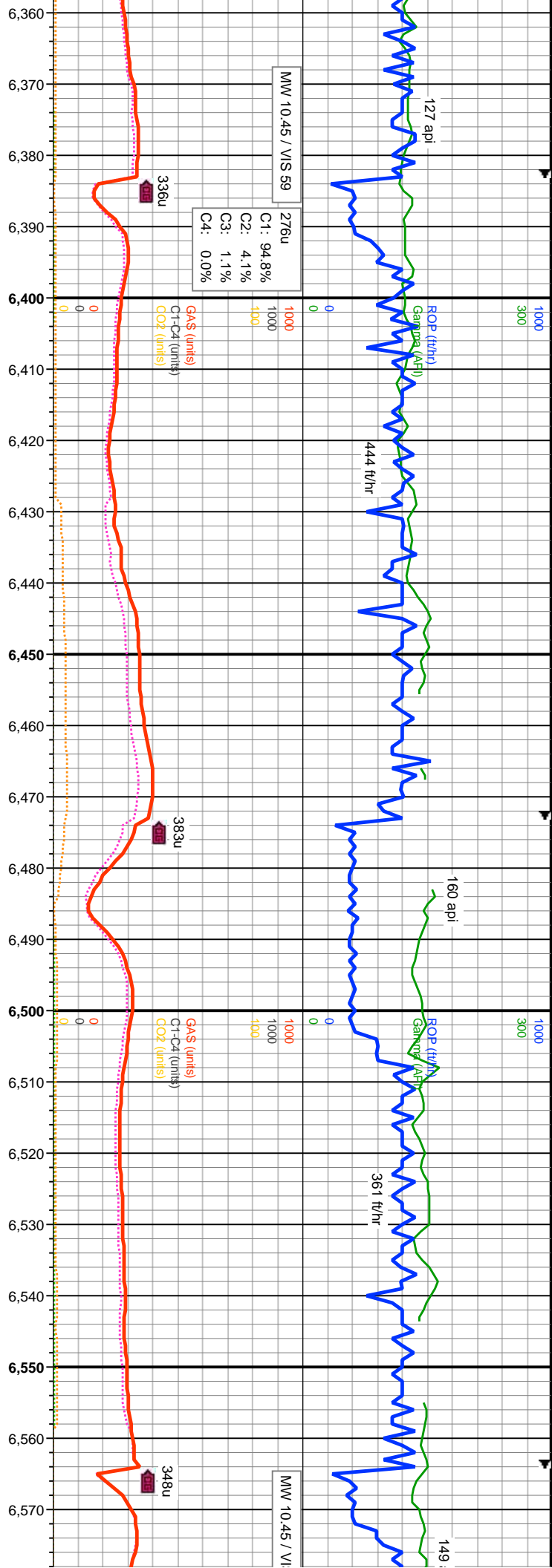
100% SHY SLTST: lt-med gy, sft-mod frm, occ fri, sb blkly - sb
ply, arg, silty, occ aren, v sl calc ip, rthy, abnt cly, tr silty sh

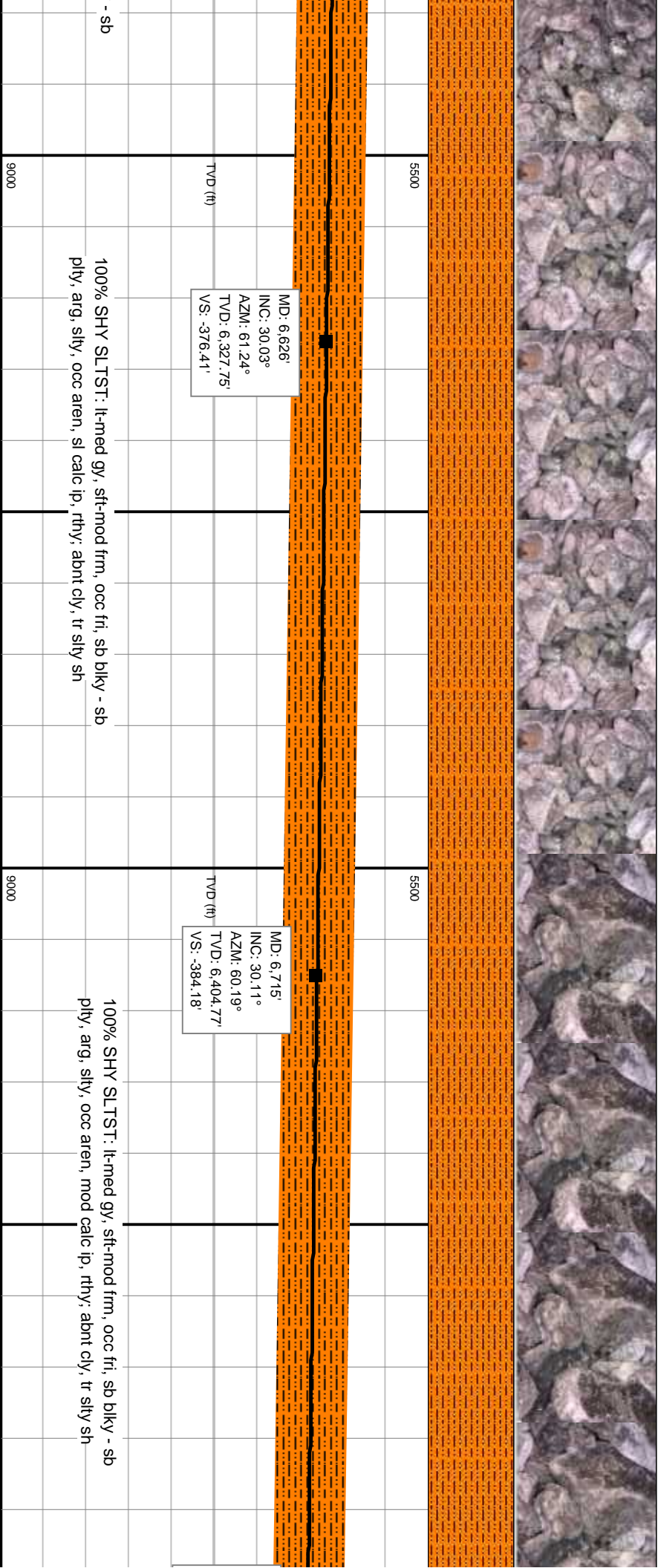
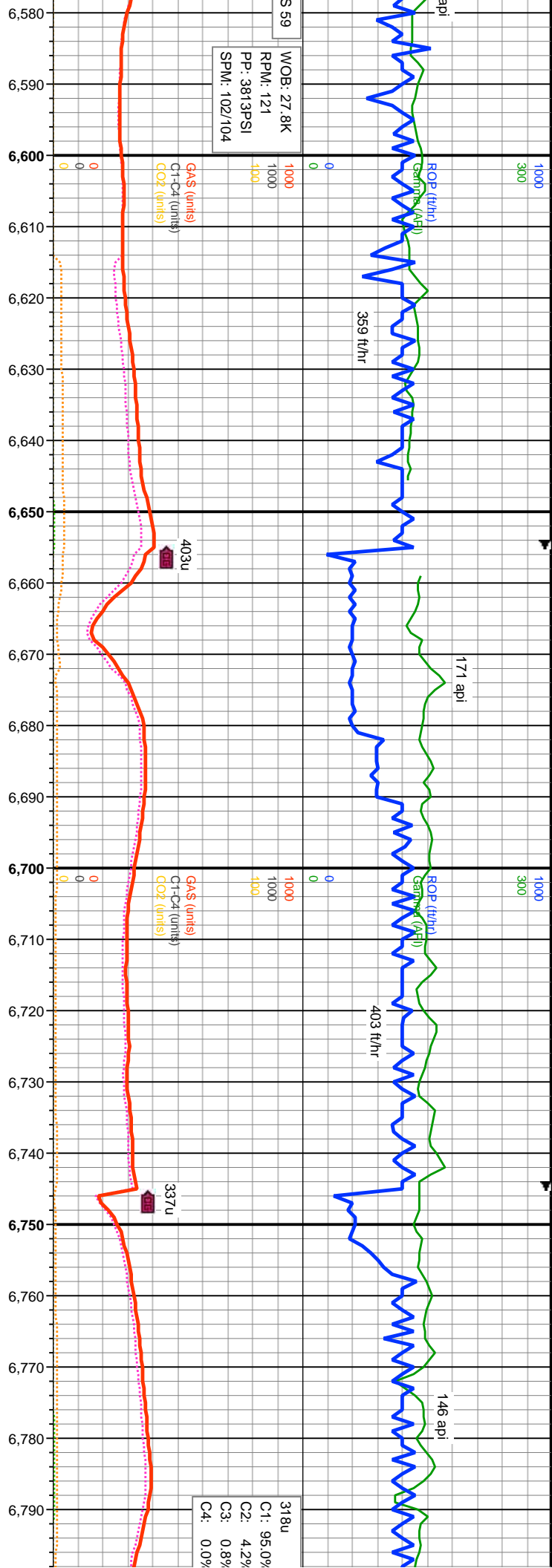
MD: 6,090'
INC: 29.99°
AZM: 54.12°
TVD: 5,863.44'
VS: -319.85'

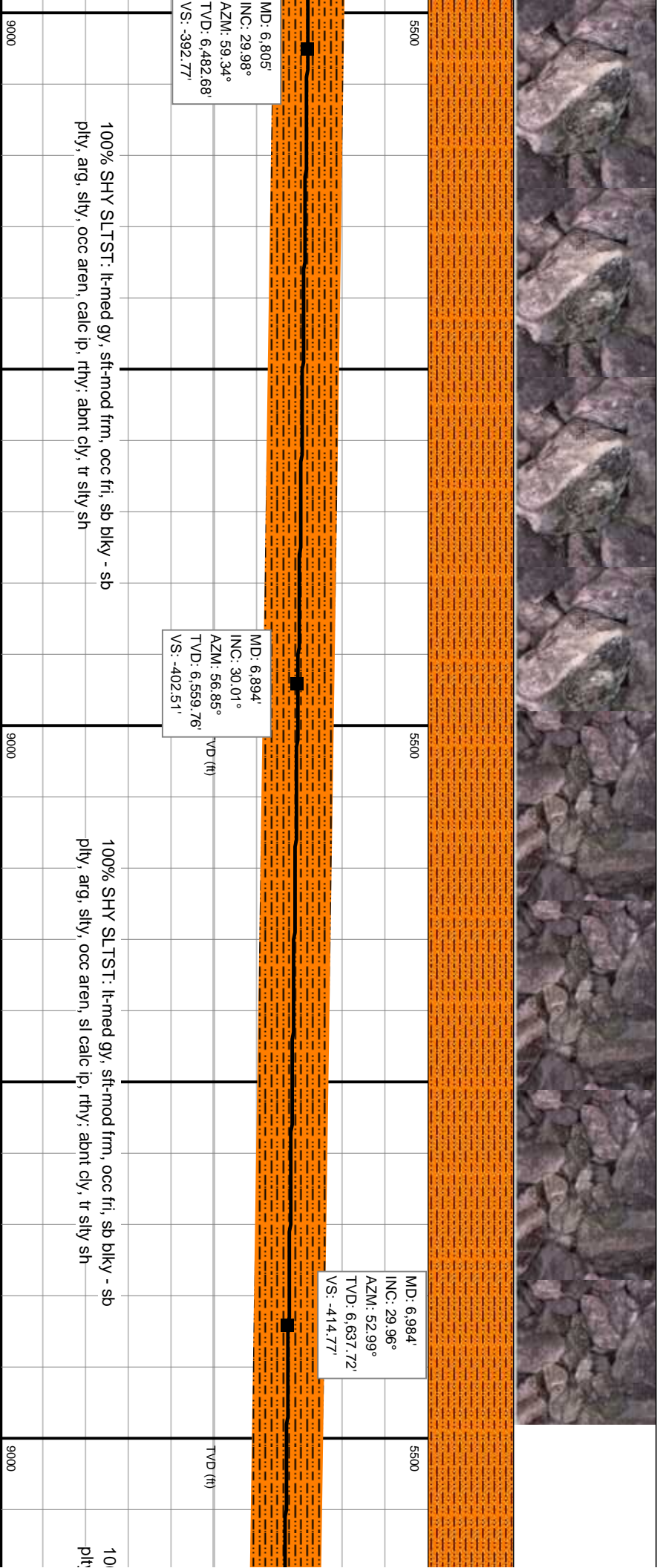
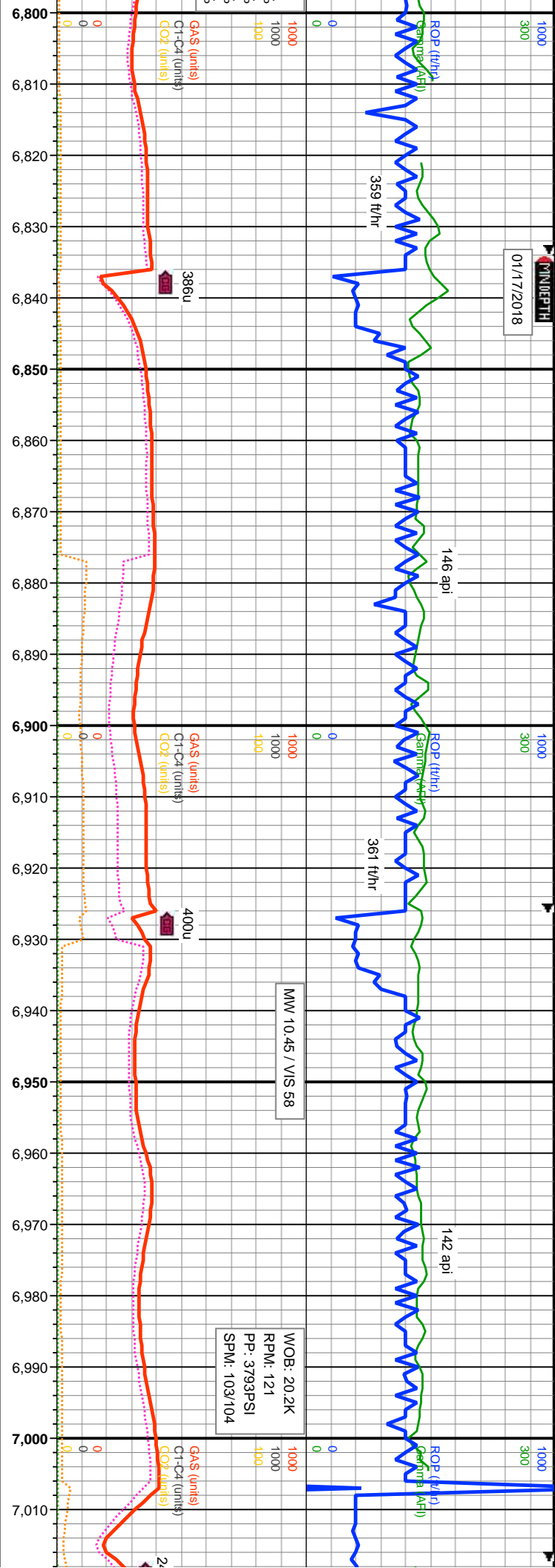
TVD (ft)

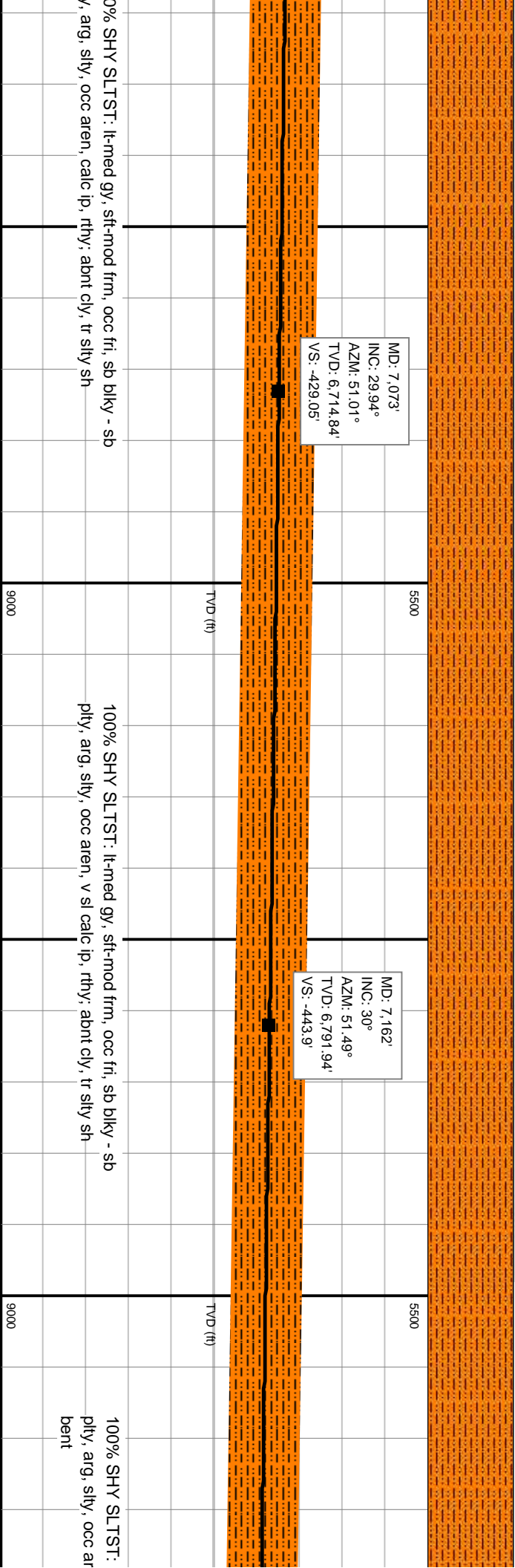
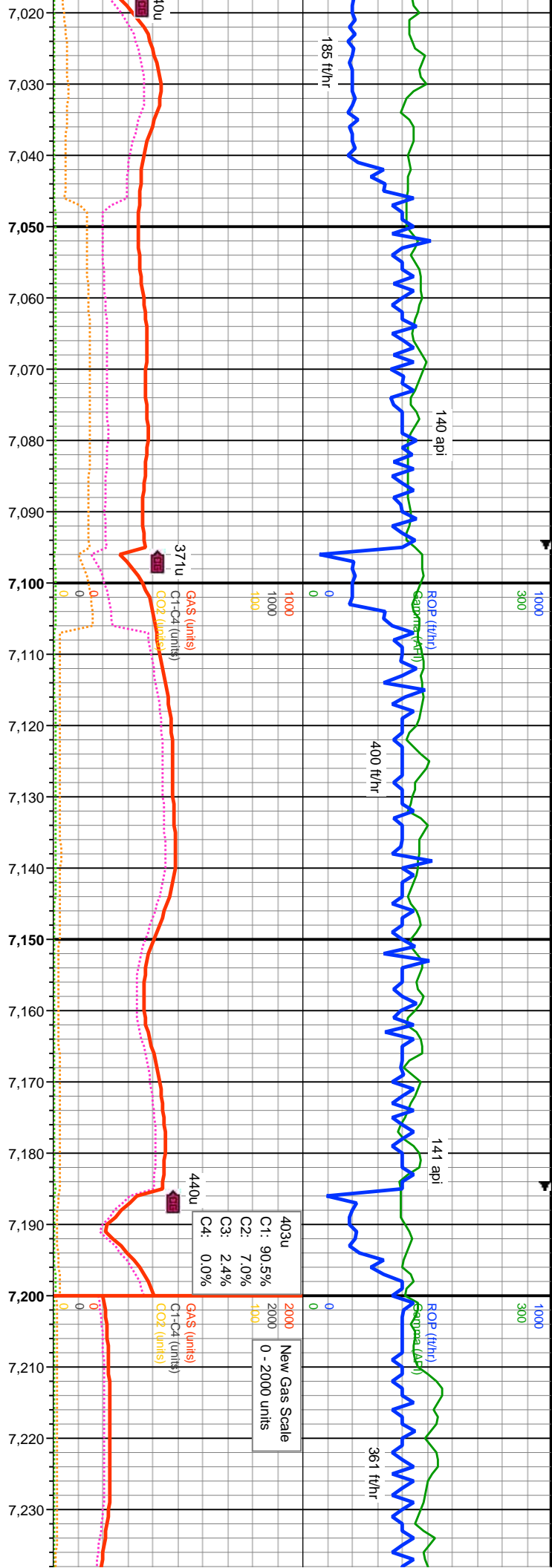
100% SHY SLTST: lt-med gy, sft-mod frm, occ fri, sb blkly - sb
ply, arg, silty, occ aren, v sl calc ip, rthy, abnt cly, tr silty sh

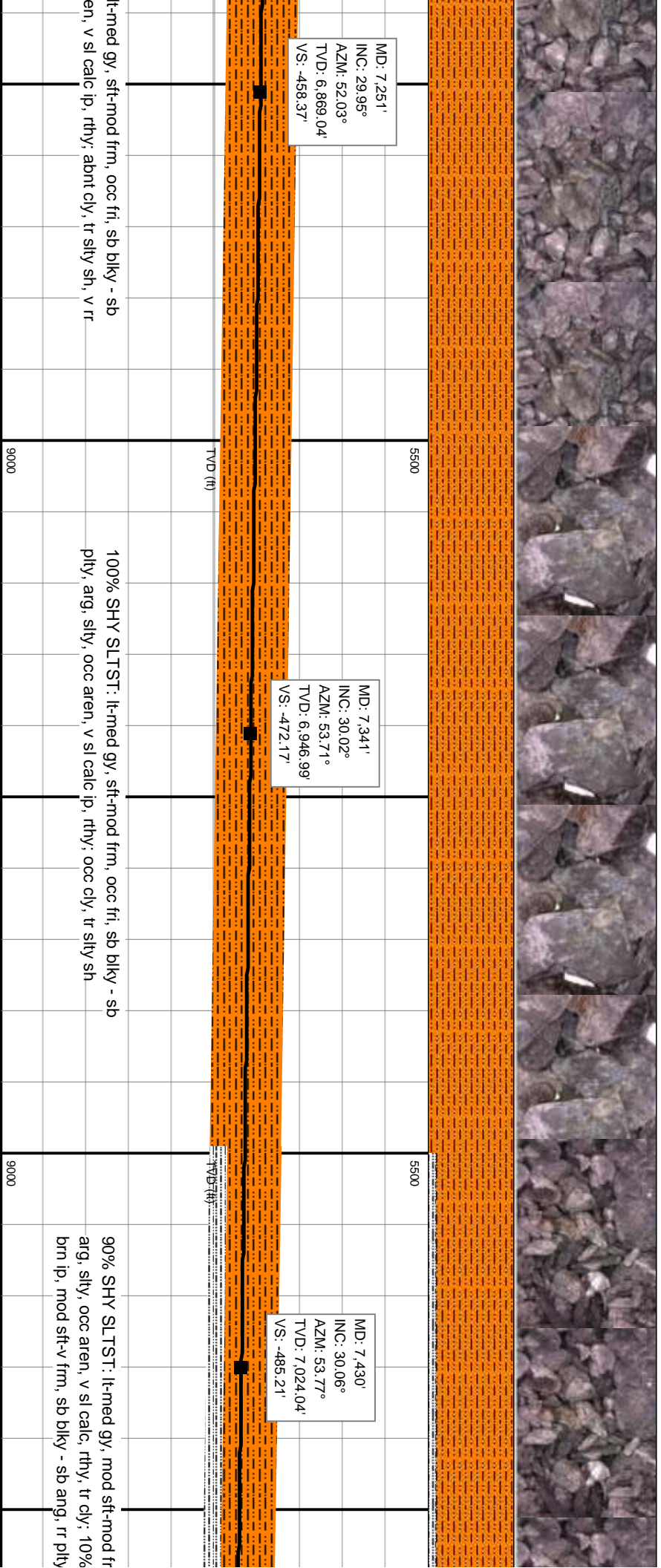
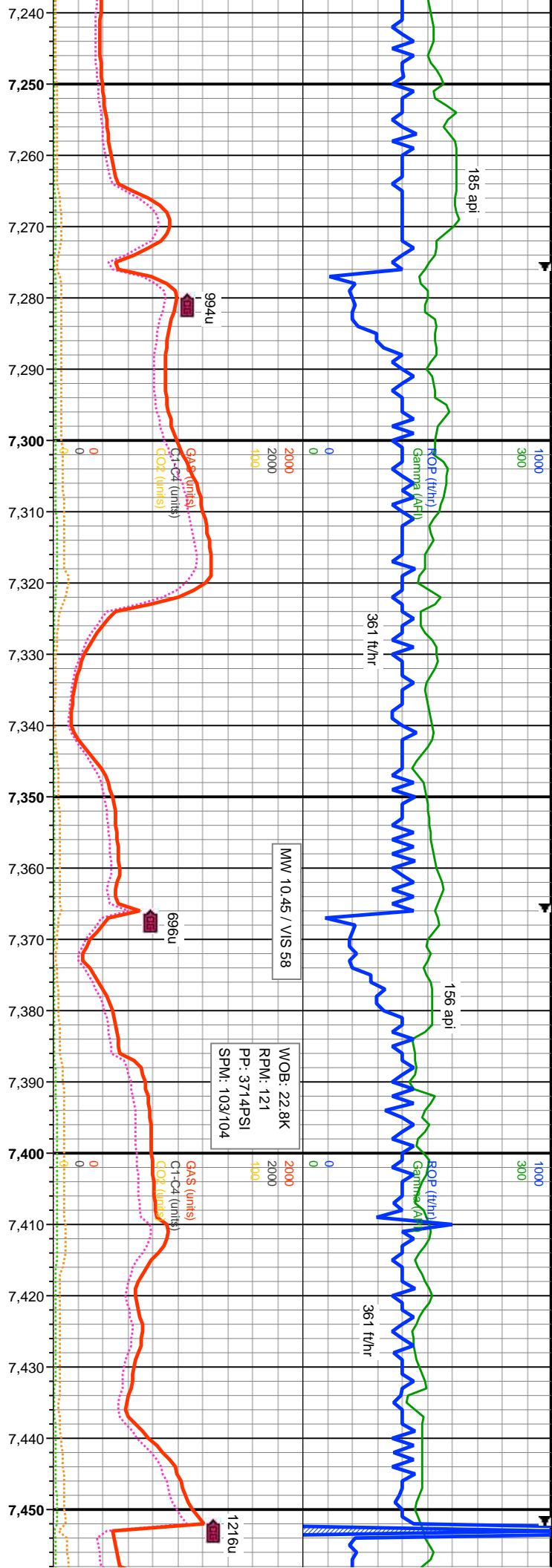












MD: 7,251'
INC: 29.95°
AZM: 52.03°
TVD: 6,869.04'
VS: -458.37'

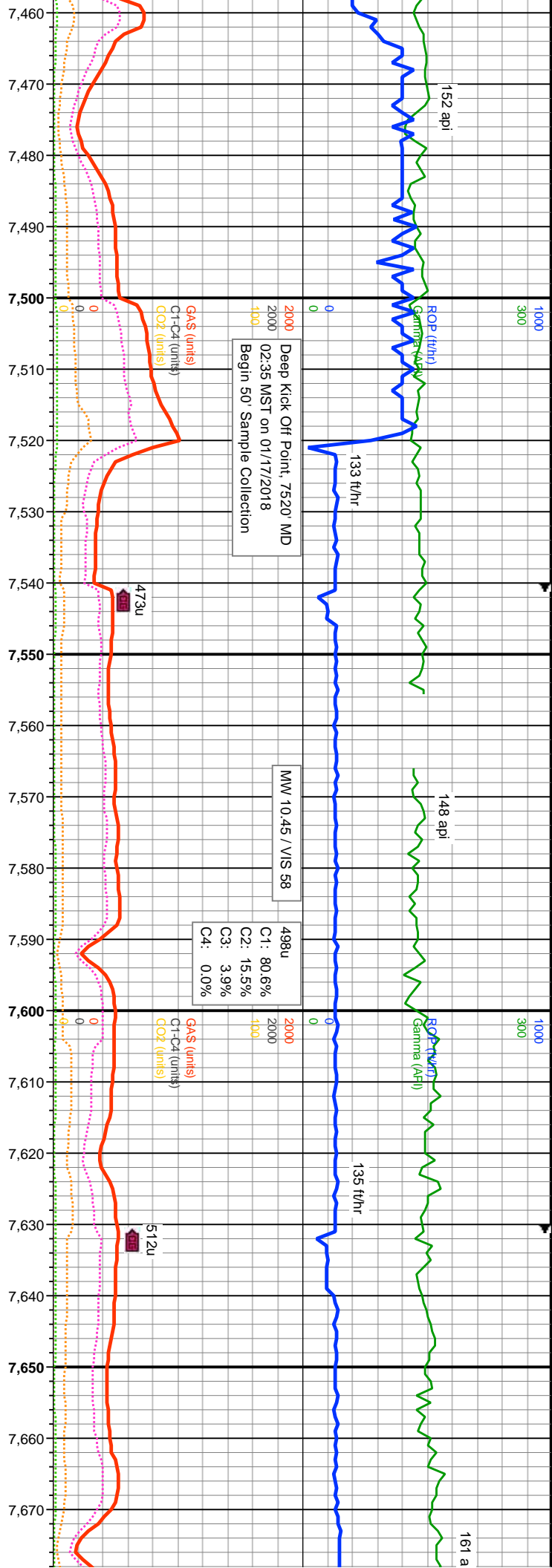
MD: 7,341'
INC: 30.02°
AZM: 53.71°
TVD: 6,946.99'
VS: -472.17'

MD: 7,430'
INC: 30.06°
AZM: 53.77°
TVD: 7,024.04'
VS: -485.21'

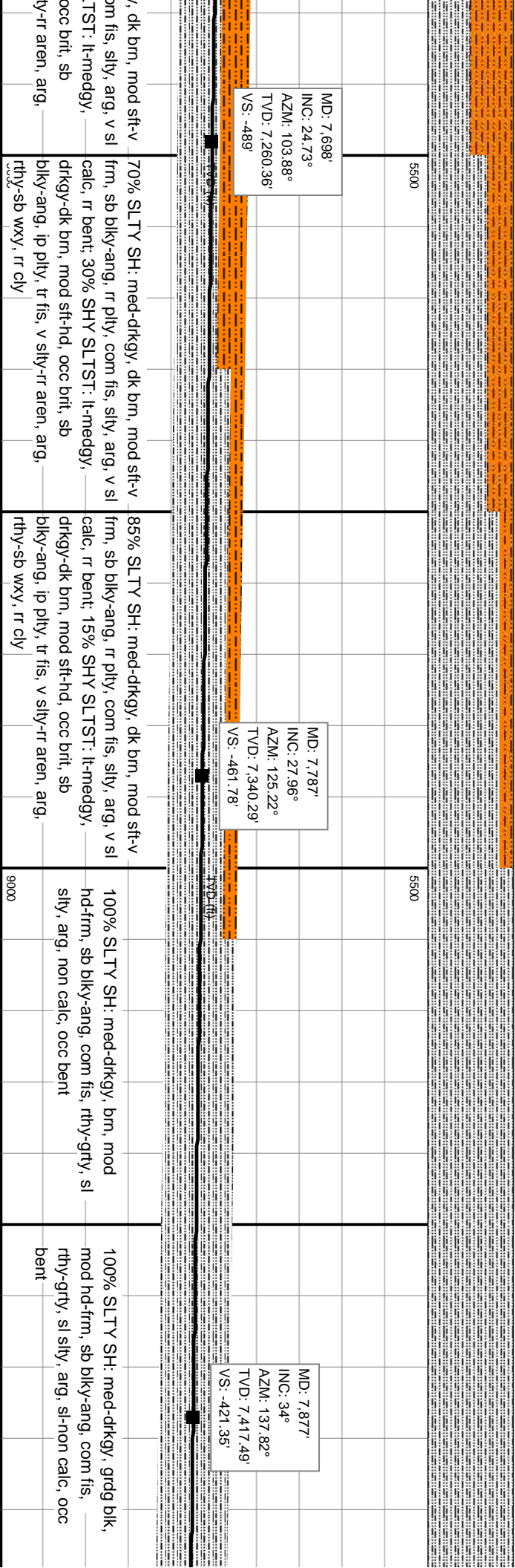
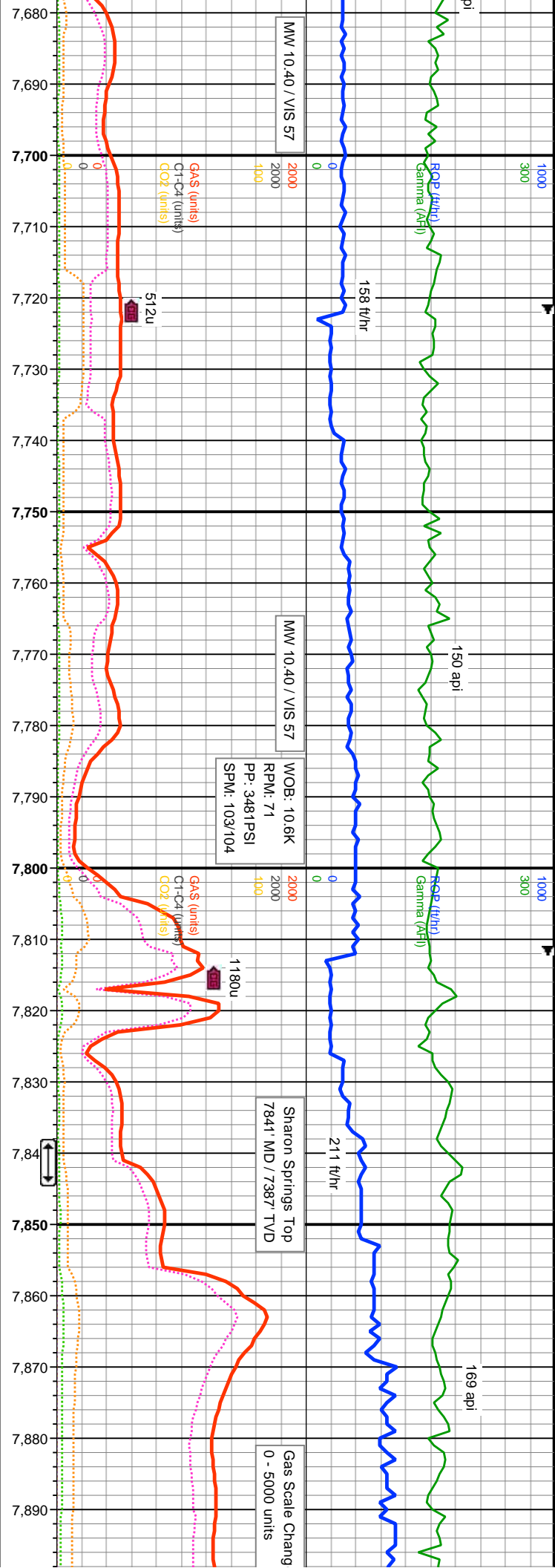
lt-med gy, sft-mod frm, occ fri, sb blkly - sb
en, v sl calc ip, rthy, abnt cly, tr silty sh, v rr

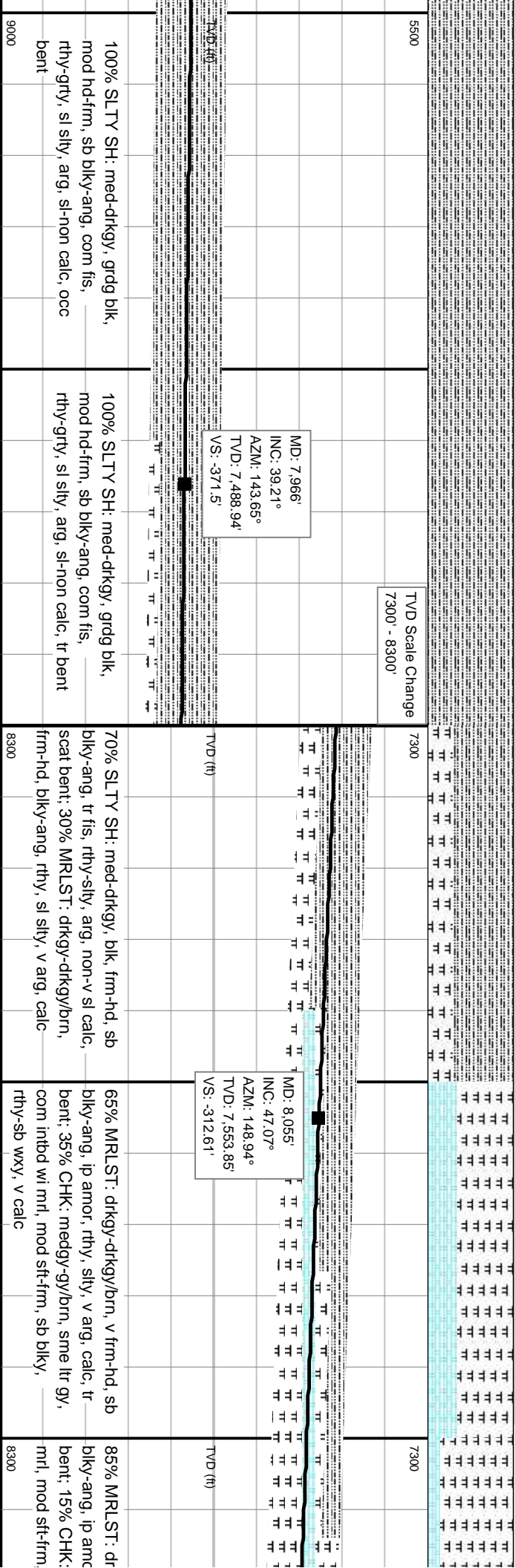
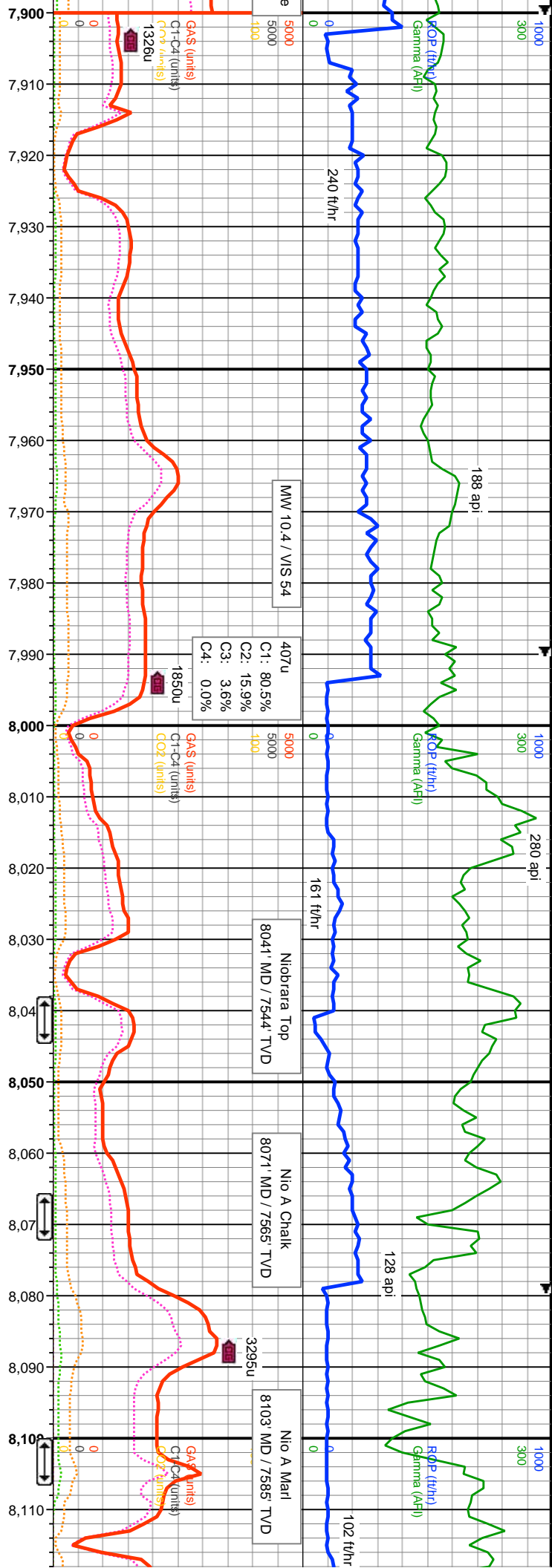
100% SHY SLTST: lt-med gy, sft-mod frm, occ fri, sb blkly - sb
ply, arg, silty, occ aren, v sl calc ip, rthy, occ cly, tr silty sh

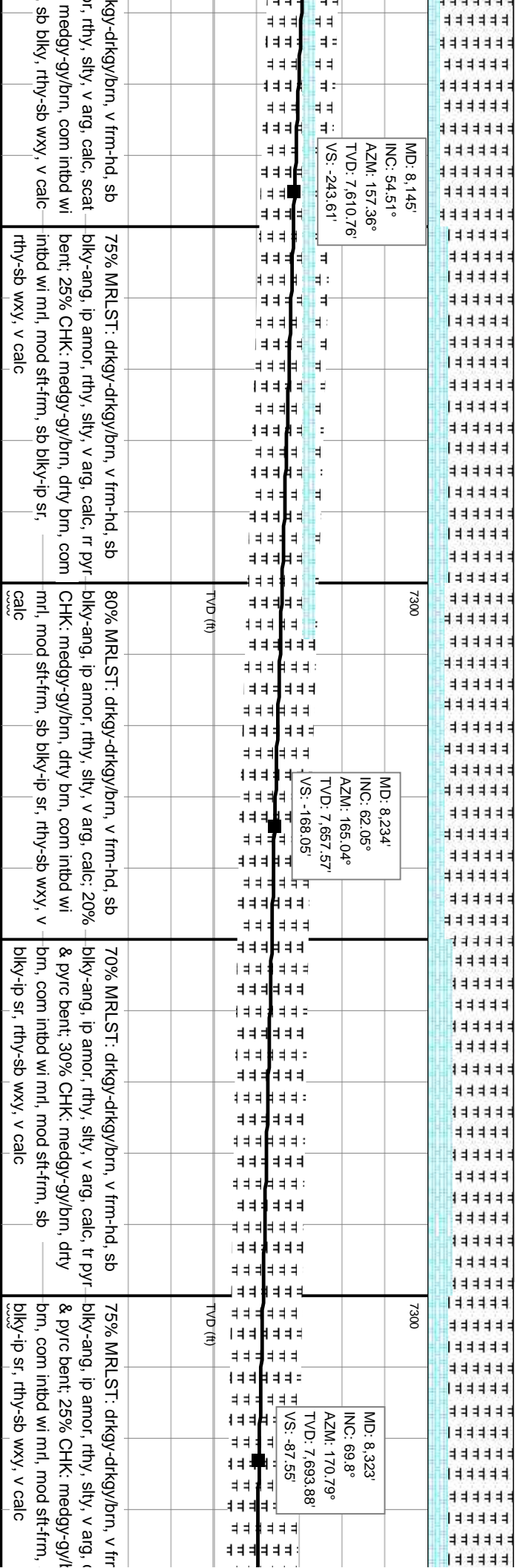
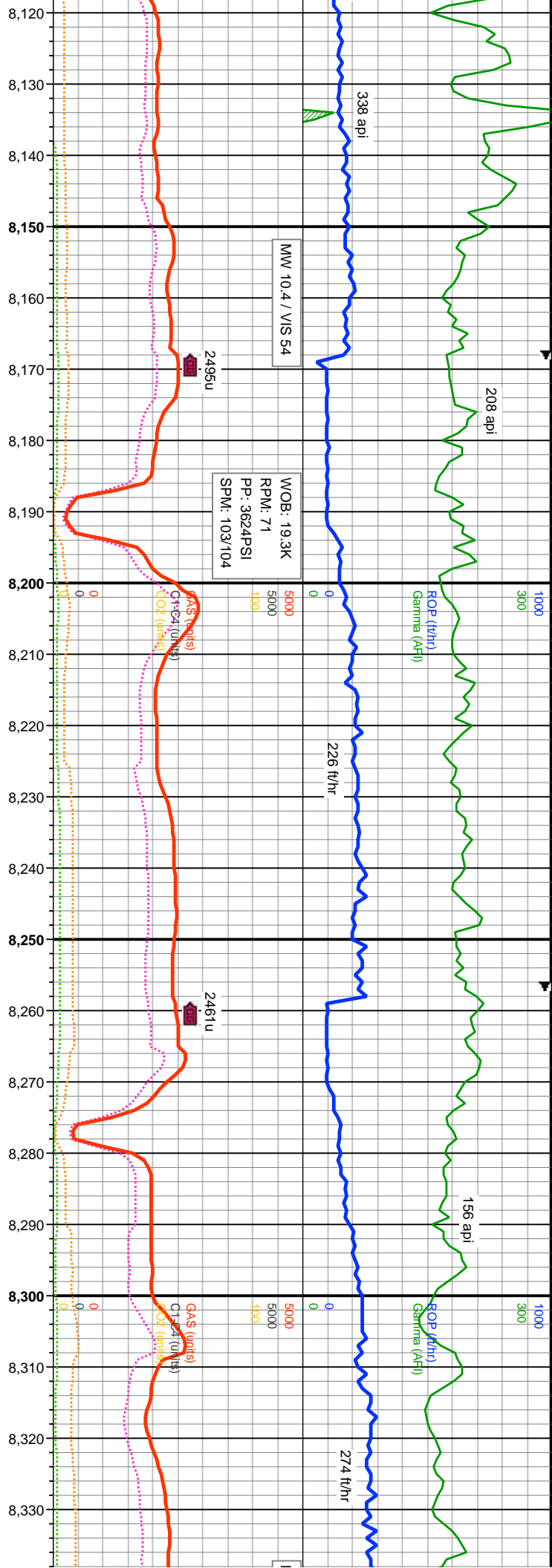
90% SHY SLTST: lt-med gy, mod sft-mod fr
arg, silty, occ aren, v sl calc, rthy, tr cly; 10%
brn ip, mod sft-v frm, sb blkly - sb ang, rr ply

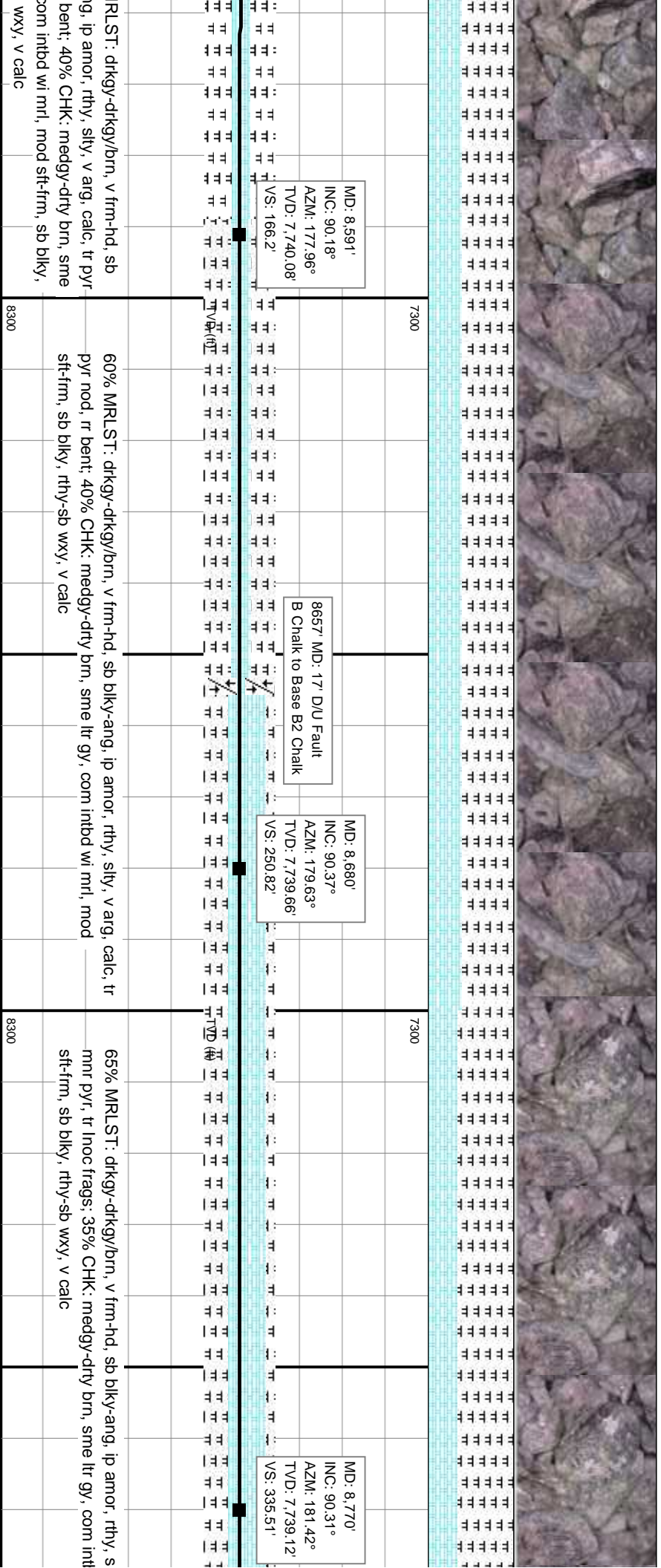
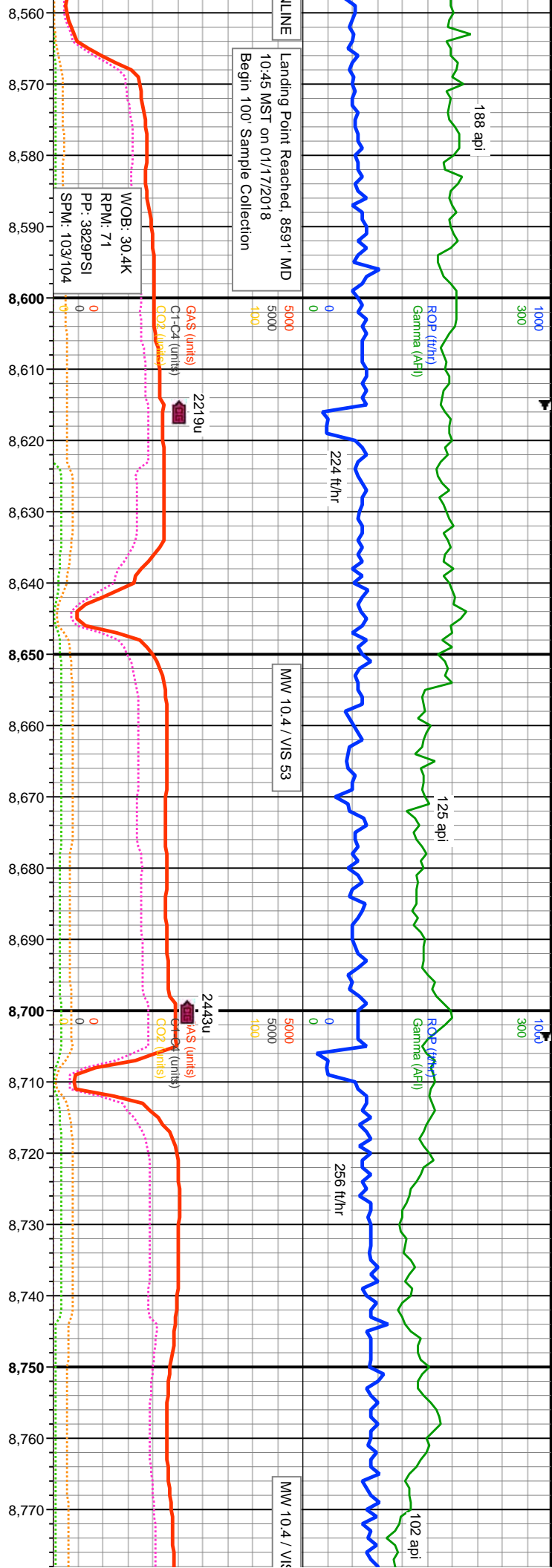


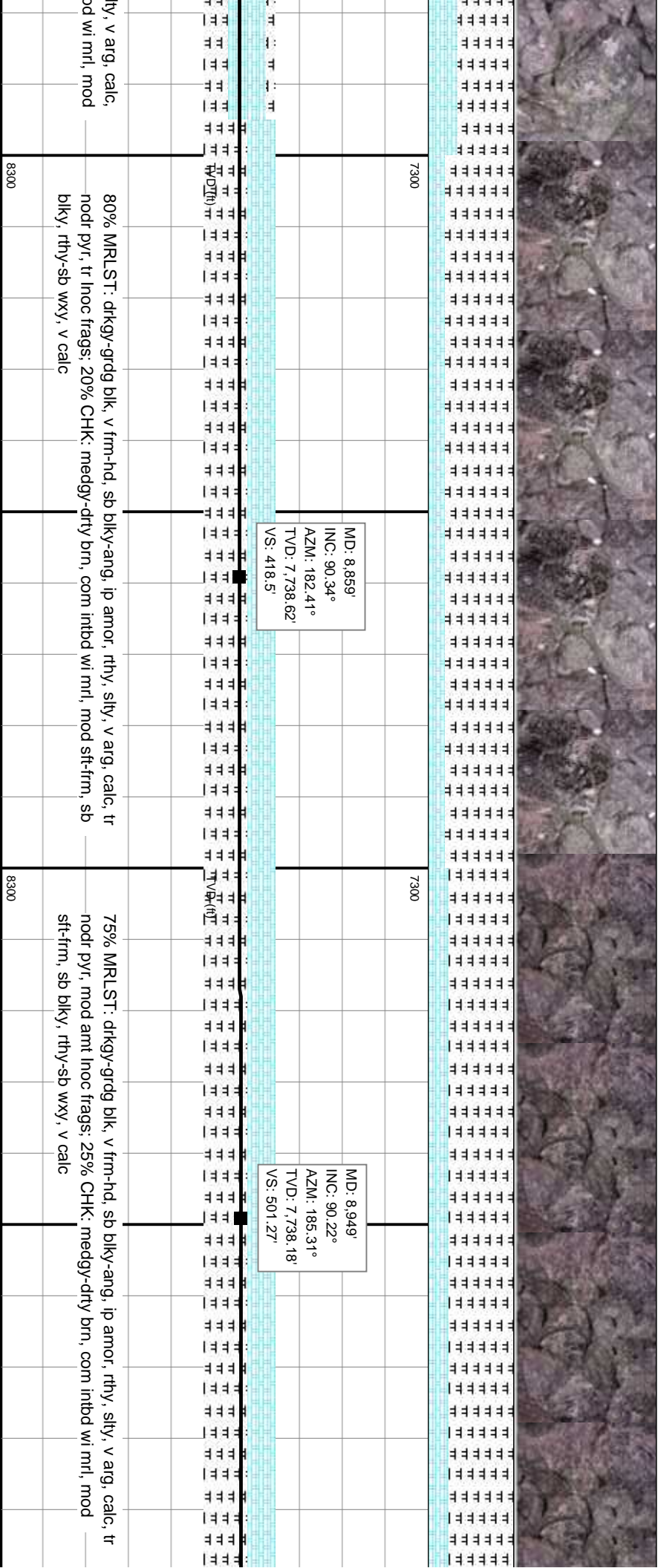
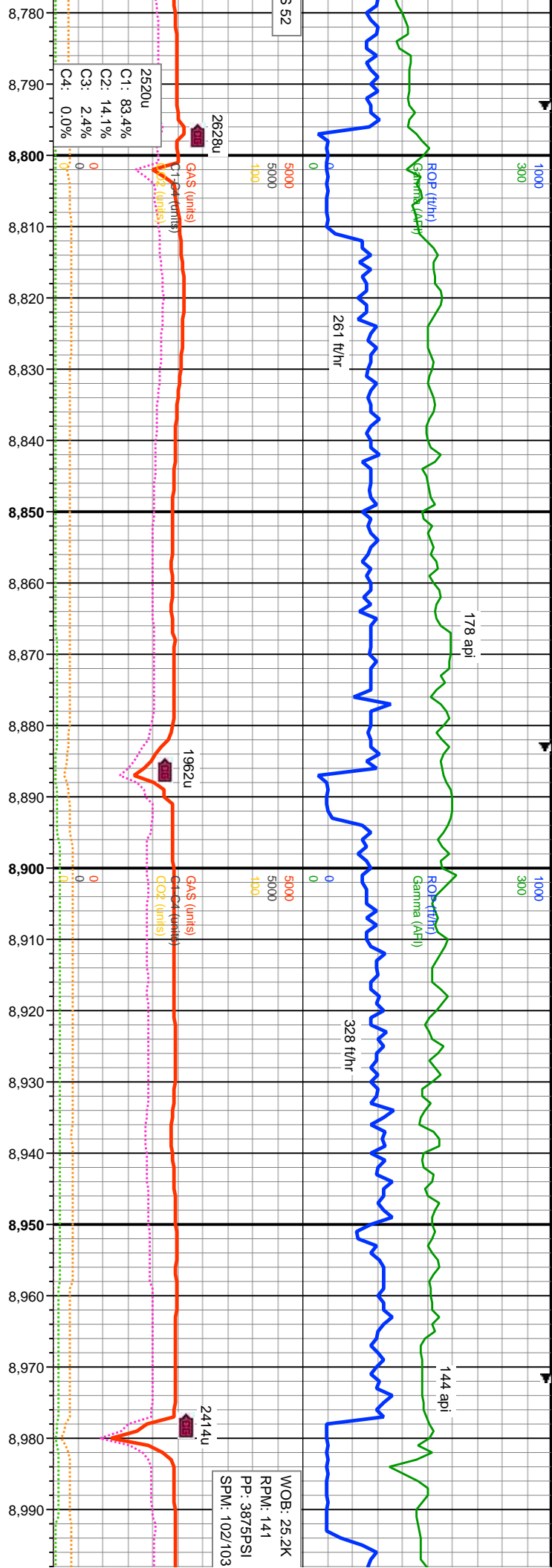
90% SHY SLTST: lt-med gy, mod sft-mod frm, occ fri, sb blkly - sb pily, arg, silty, occ aren, v sl calc, rthy, tr cly: 10% SLTY SH: med-drkgy, dk brn ip, mod sft-v frm, sb blkly - sb ang, rr pily, com fis, silty, arg, v sl calc	MD: 7.519' INC: 29.97° AZM: 54.94° TVD: 7.101, 1' VS: -497.77'	80% SHY SLTST: lt-med gy, mod sft-mod frm, occ fri, sb blkly - sb pily, arg, silty, occ aren, v sl calc, rthy, tr cly: 20% SLTY SH: med-drkgy, dk brn ip, mod sft-v frm, sb blkly - sb ang, rr pily, com fis, silty, arg, v sl calc	70% SHY SLTST: lt-medgy, mod sft-mod frm, occ fri, sb blkly-sb pily, arg, silty, occ aren, v sl calc, rthy, tr cly: 30% SLTY SH: med-drkgy, dk drkgy-dk brn, mod sft-hd, blkly-ang, ip pily, tr fis, v sl calc, rthy-sb wxy, rr cly
90% SHY SLTST: lt-med gy, mod sft-mod frm, occ fri, sb blkly - sb pily, arg, silty, occ aren, v sl calc, rthy, tr cly: 10% SLTY SH: med-drkgy, dk brn ip, mod sft-v frm, sb blkly - sb ang, rr pily, com fis, silty, arg, v sl calc	MD: 7.608' INC: 27.62° AZM: 76.98° TVD: 7.179, 31' VS: -501.6'	80% SHY SLTST: lt-med gy, mod sft-mod frm, occ fri, sb blkly - sb pily, arg, silty, occ aren, v sl calc, rthy, tr cly: 20% SLTY SH: med-drkgy, dk brn ip, mod sft-v frm, sb blkly - sb ang, rr pily, com fis, silty, arg, v sl calc	70% SHY SLTST: lt-medgy, mod sft-mod frm, occ fri, sb blkly-sb pily, arg, silty, occ aren, v sl calc, rthy, tr cly: 30% SLTY SH: med-drkgy, dk drkgy-dk brn, mod sft-hd, blkly-ang, ip pily, tr fis, v sl calc, rthy-sb wxy, rr cly

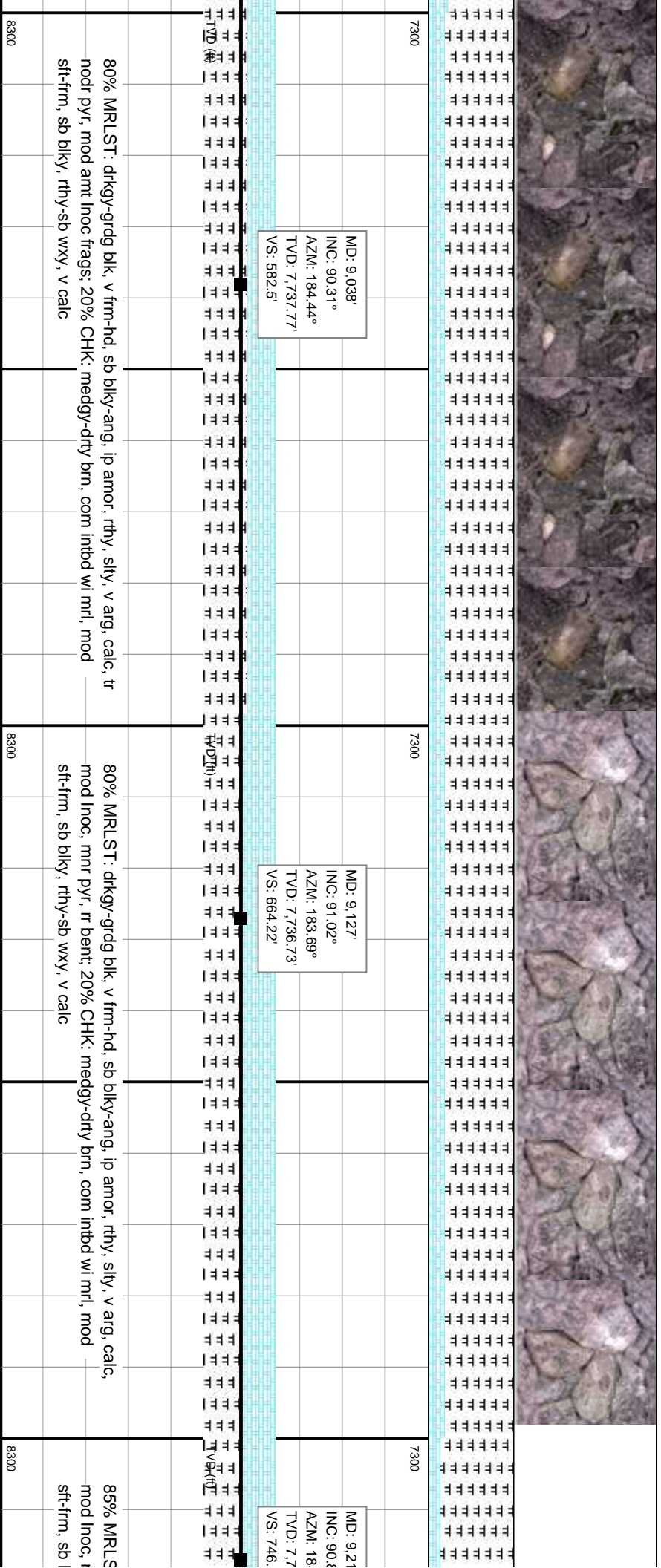
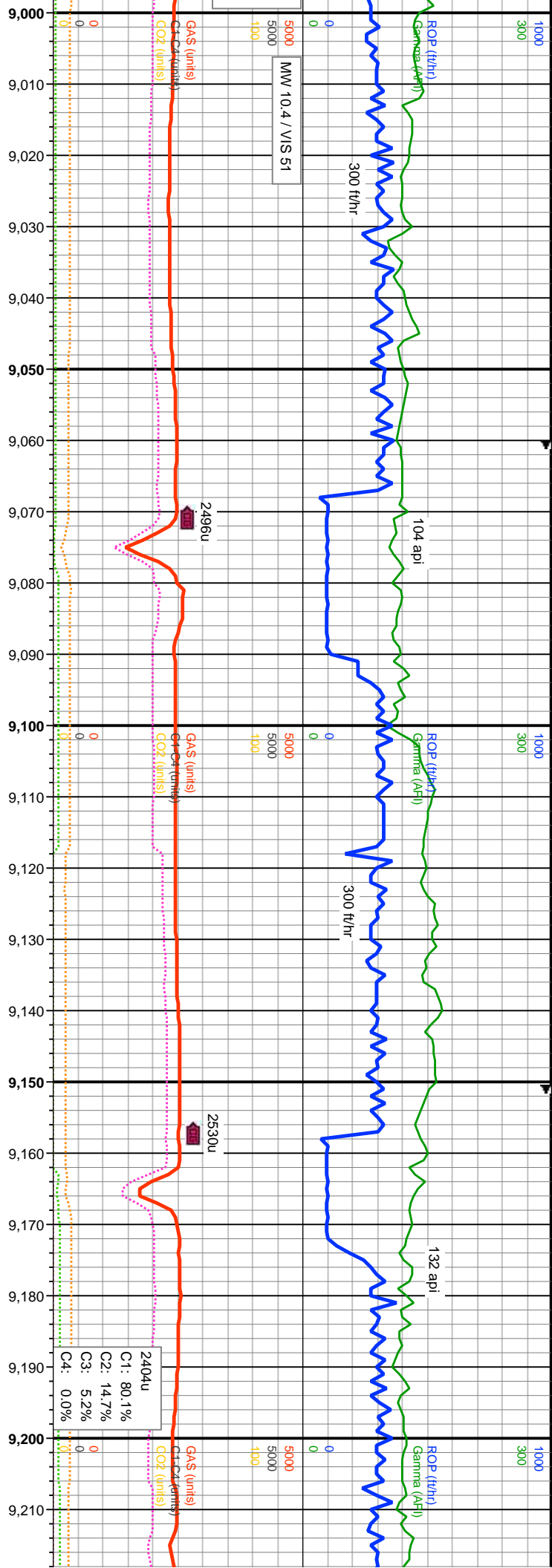


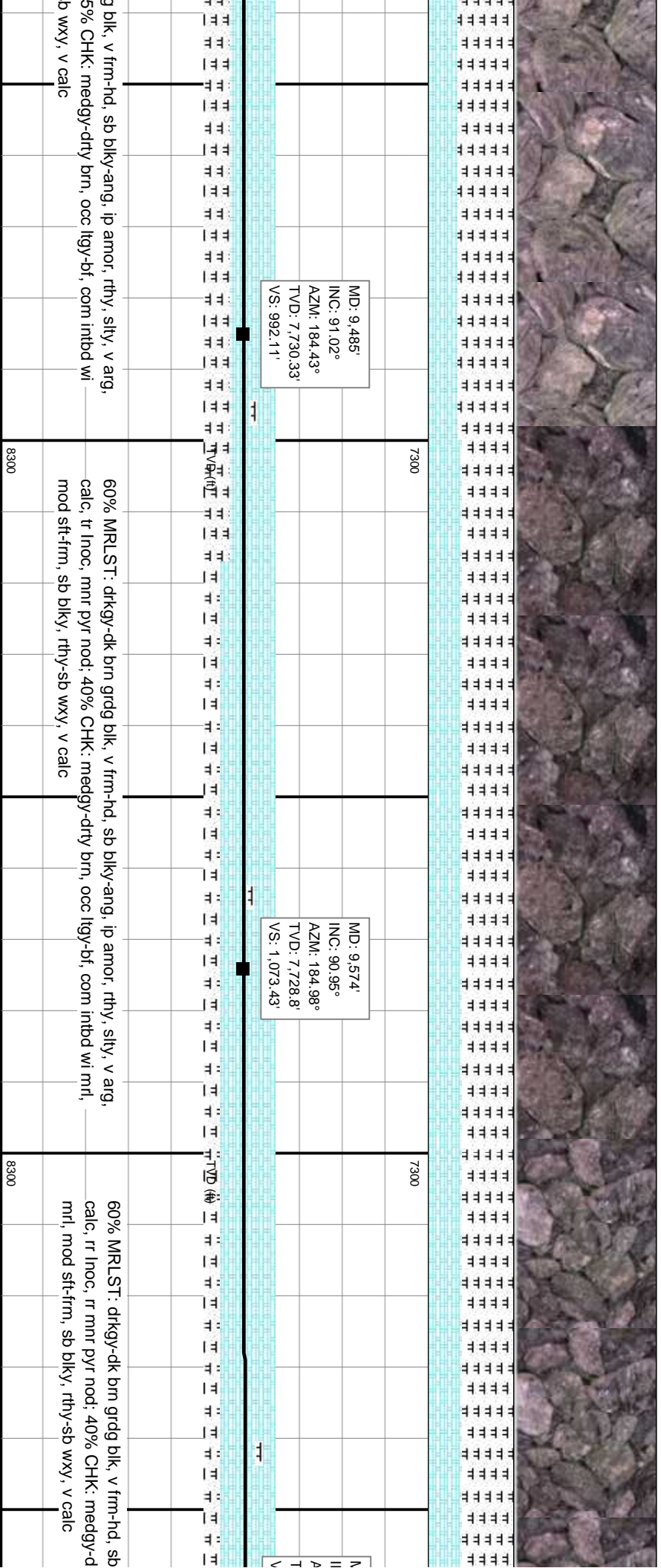
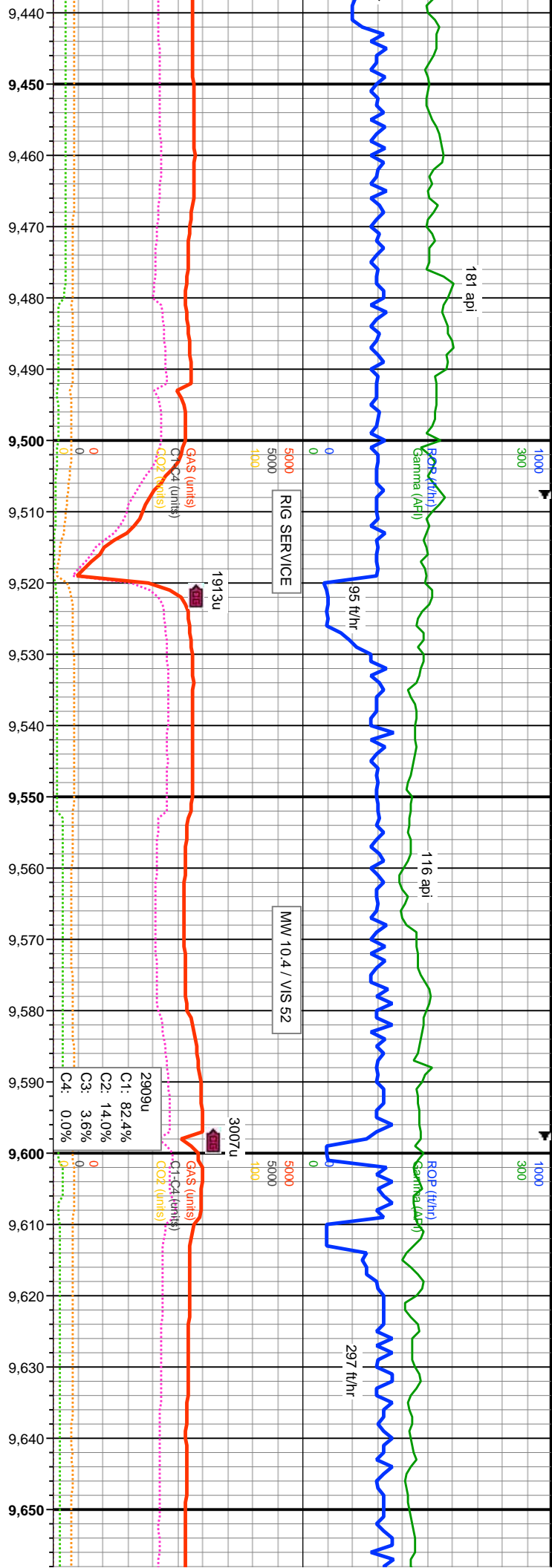


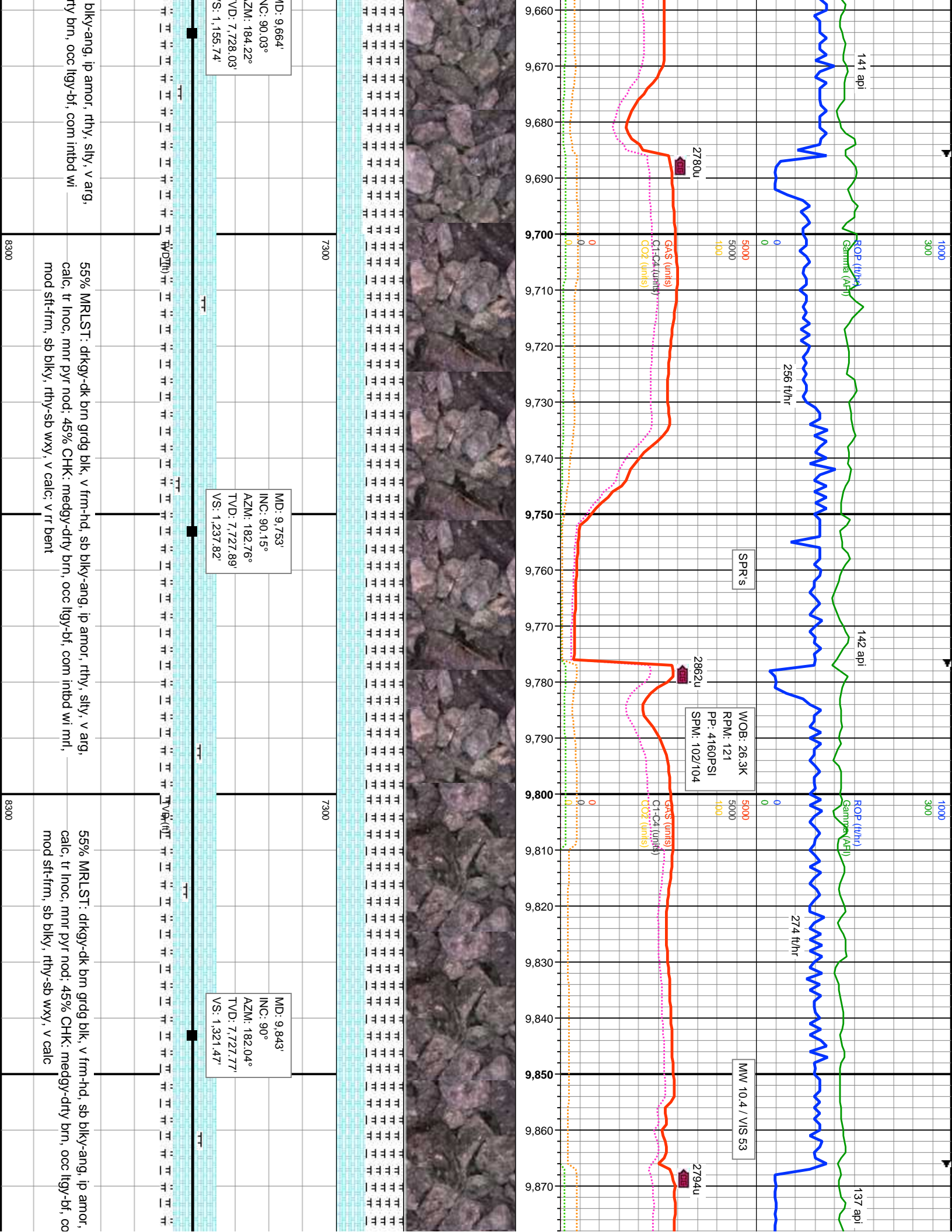


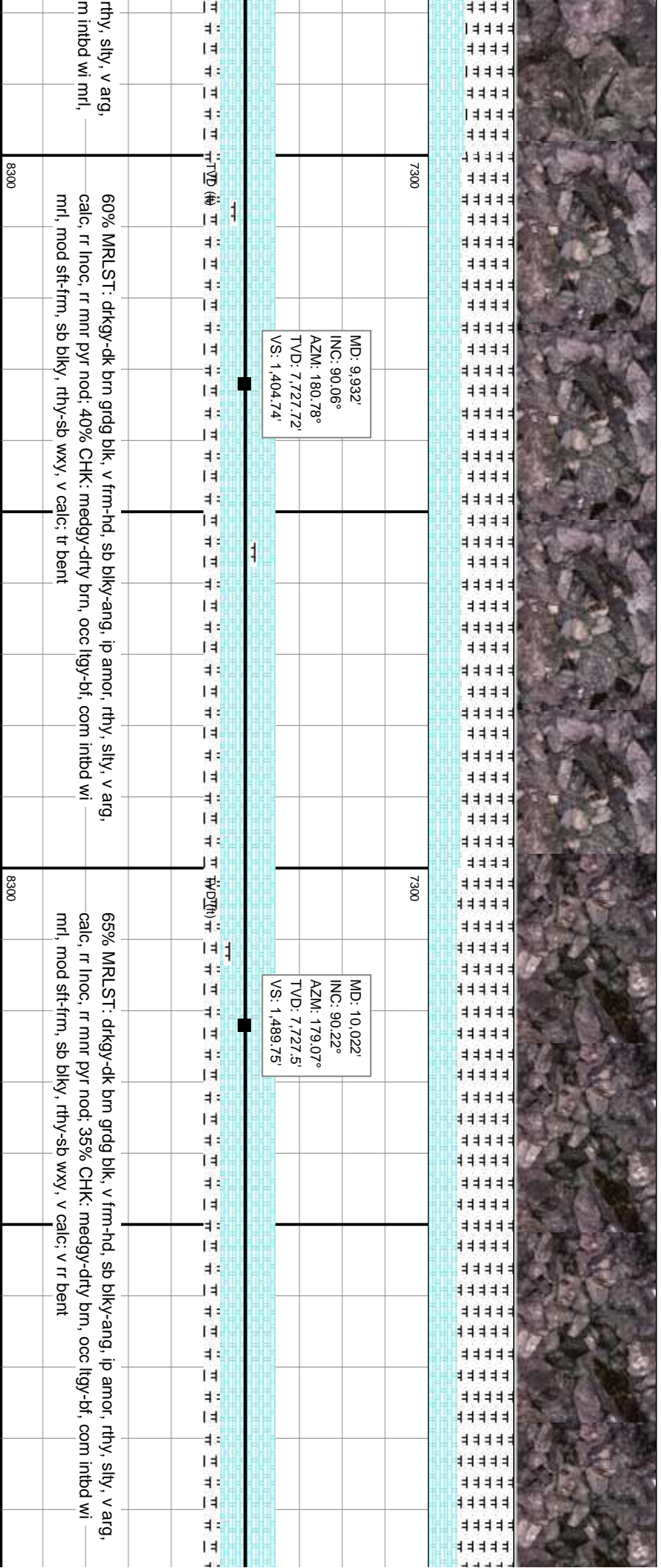
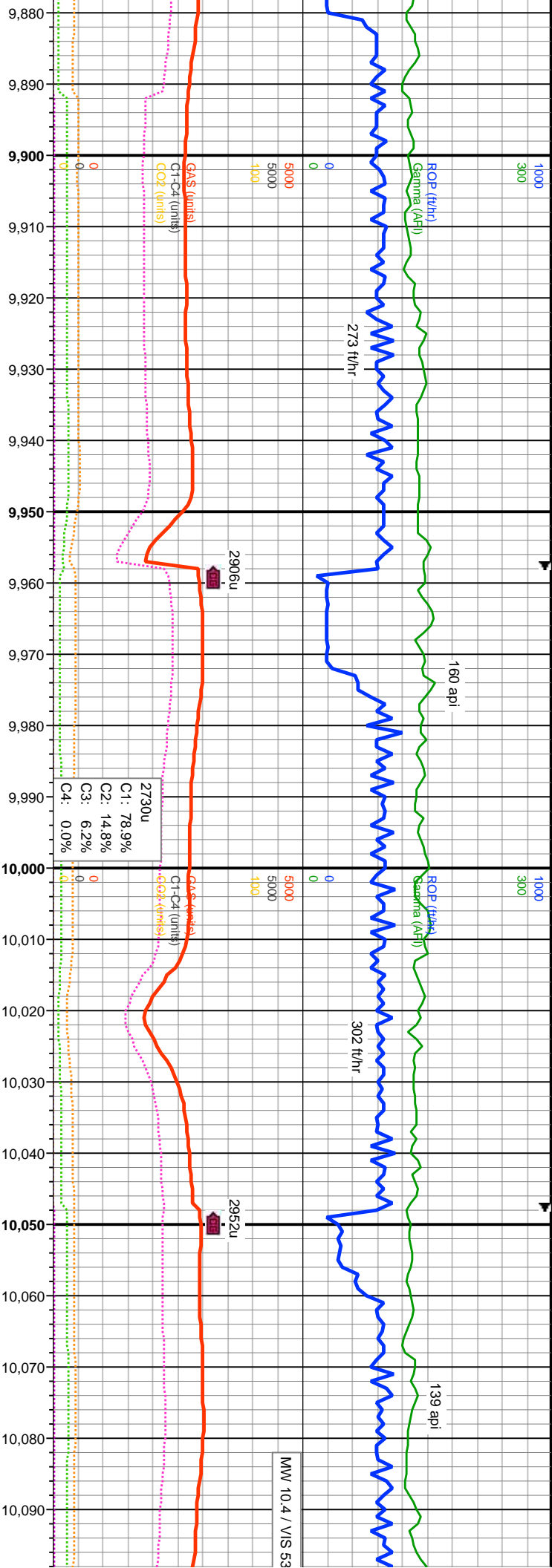


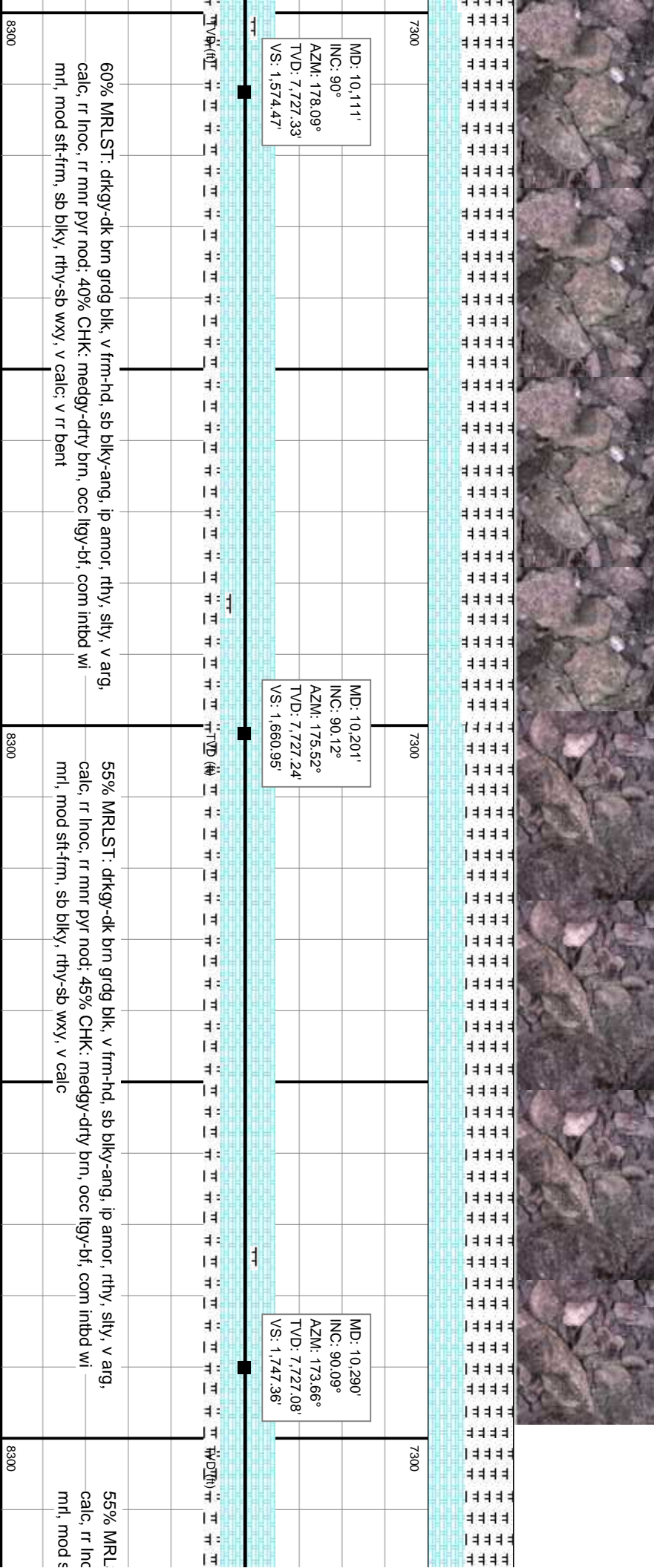
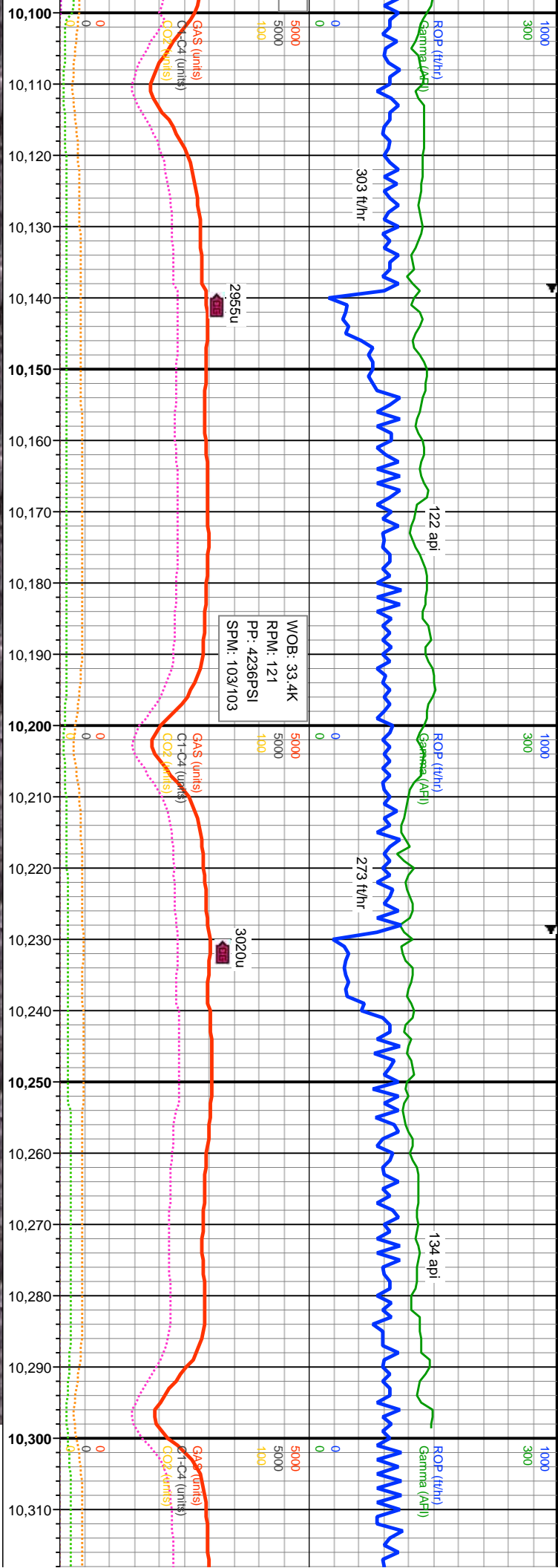








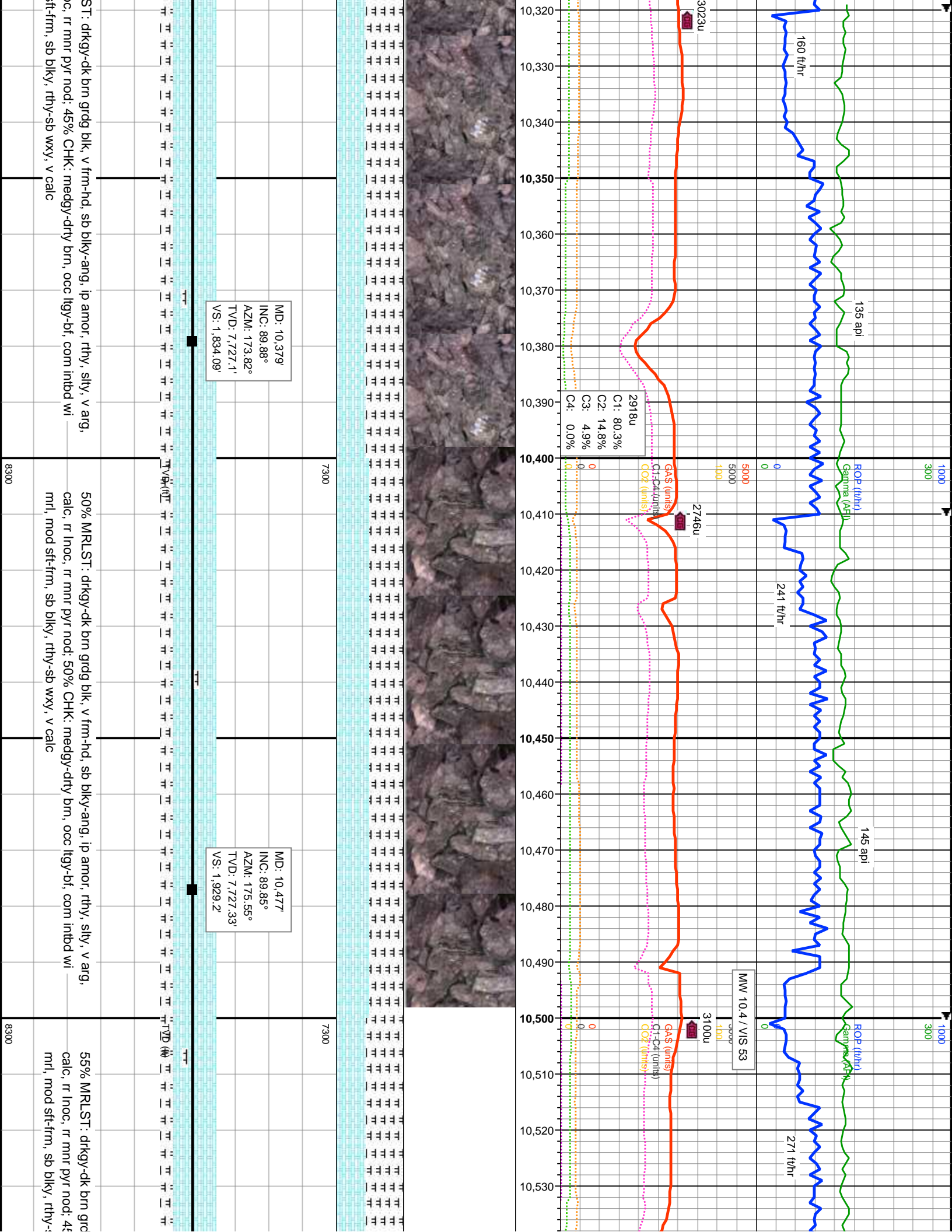


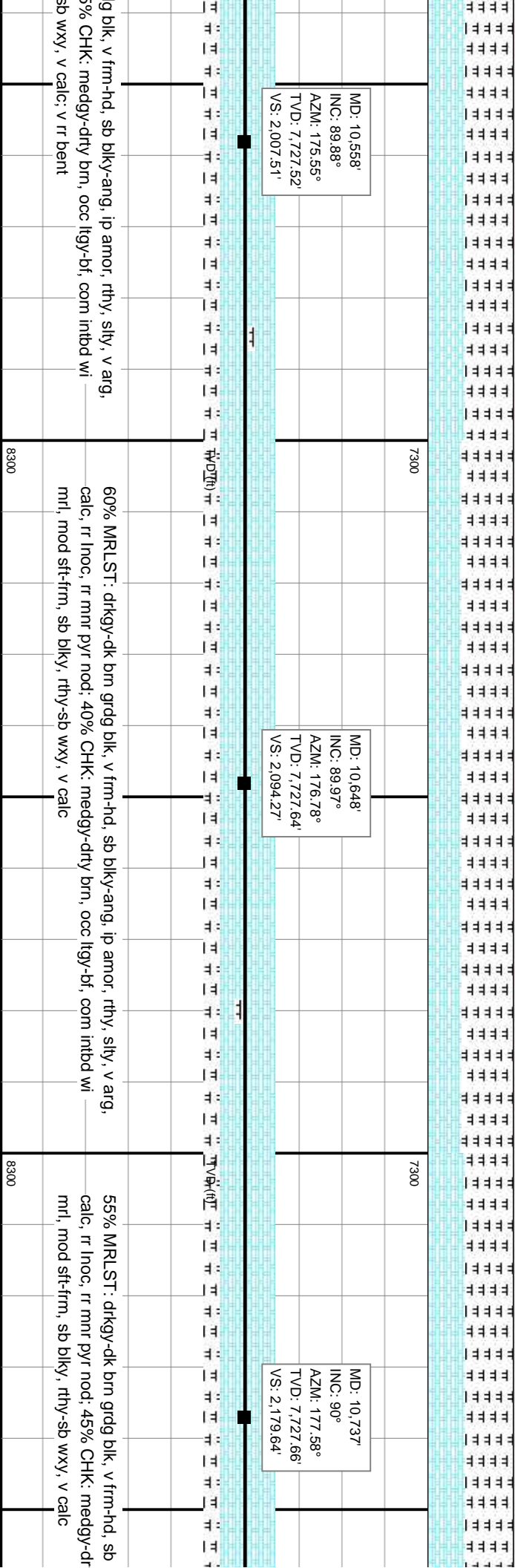


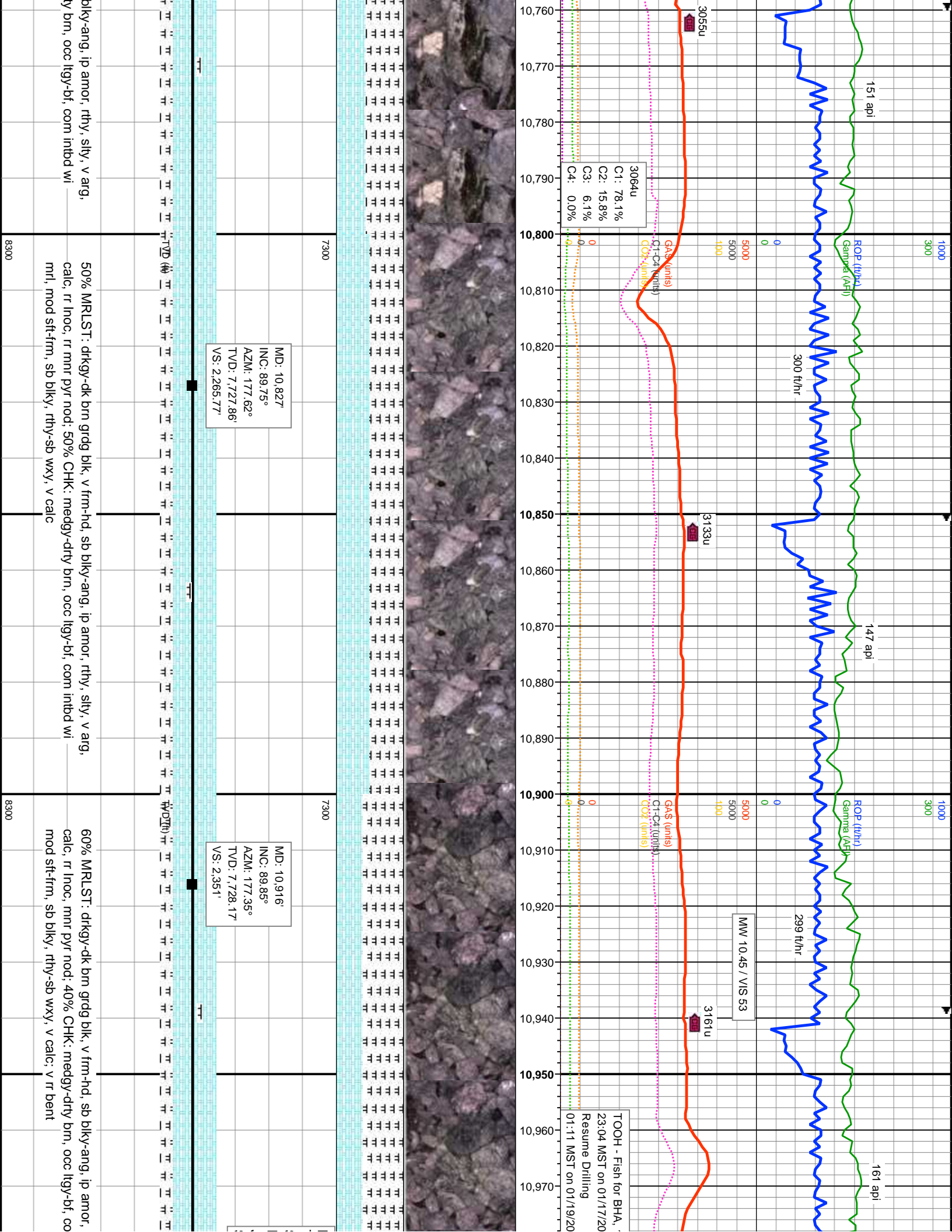
60% MRLST: dkgy-dk brn grgd blk, v frm-hd, sb blk-y-ang, ip amor, rthy, stly, v arg, calc, rr inoc, rr mnr pyr nod, 40% CHK: medgy-dtry brn, occ llyg-bf, com intbd wi mrl, mod sft-frm, sb blk-y, rthy-sb wxy, v calc, v rr bent

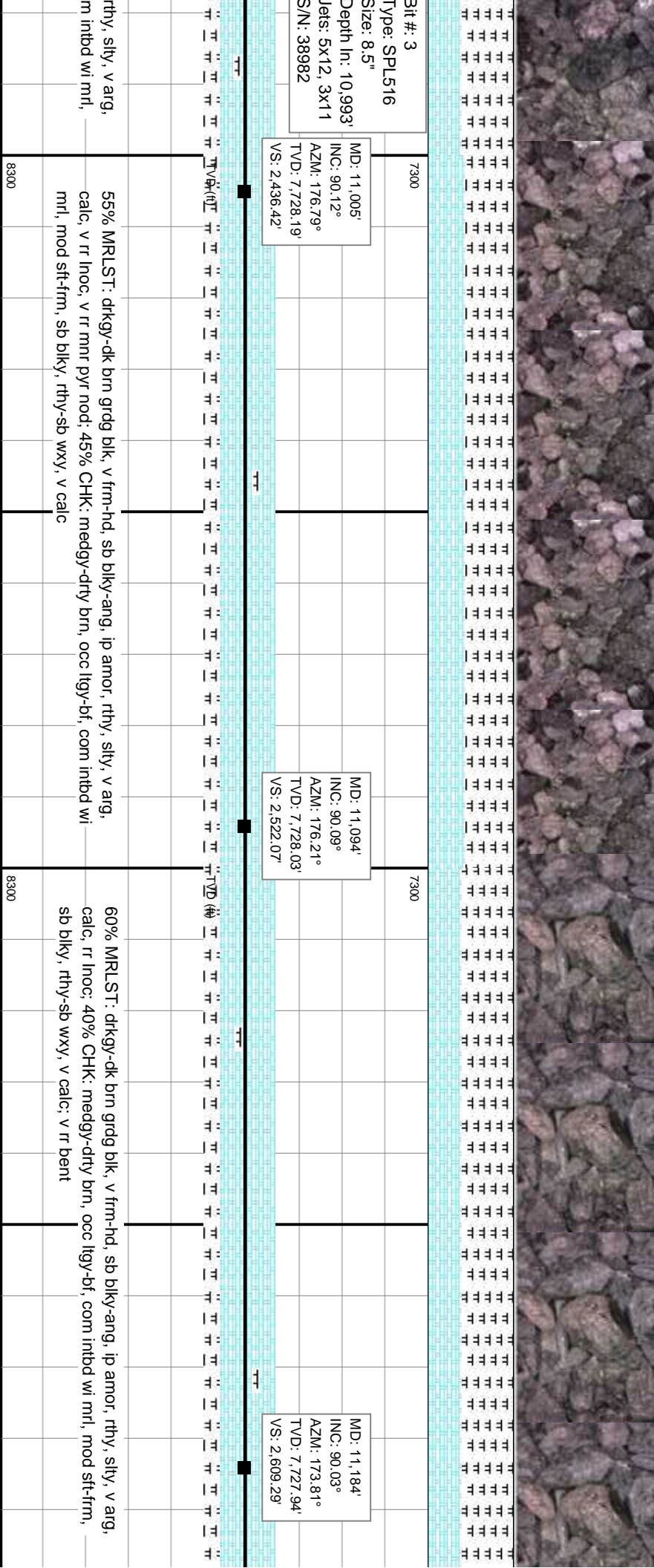
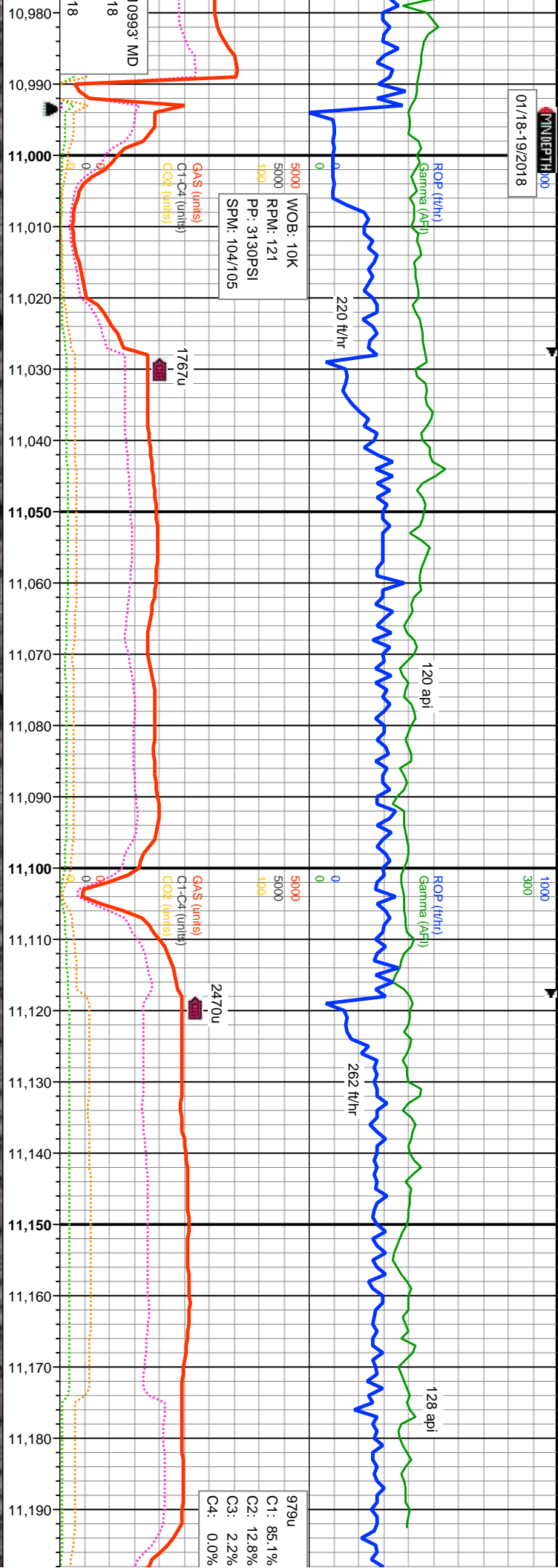
55% MRLST: dkgy-dk brn grgd blk, v frm-hd, sb blk-y-ang, ip amor, rthy, stly, v arg, calc, rr inoc, rr mnr pyr nod, 45% CHK: medgy-dtry brn, occ llyg-bf, com intbd wi mrl, mod sft-frm, sb blk-y, rthy-sb wxy, v calc

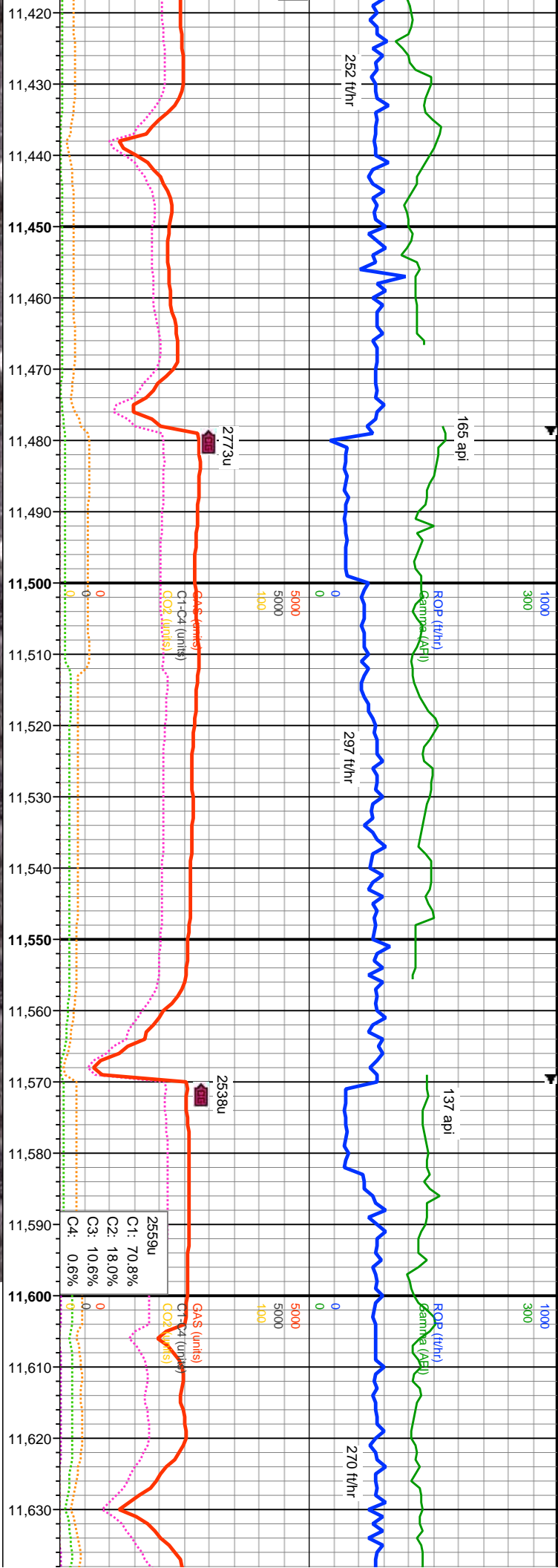
55% MRLST: dkgy-dk brn grgd blk, v frm-hd, sb blk-y-ang, ip amor, rthy, stly, v arg, calc, rr inoc, rr mnr pyr nod, 45% CHK: medgy-dtry brn, occ llyg-bf, com intbd wi mrl, mod sft-frm, sb blk-y, rthy-sb wxy, v calc









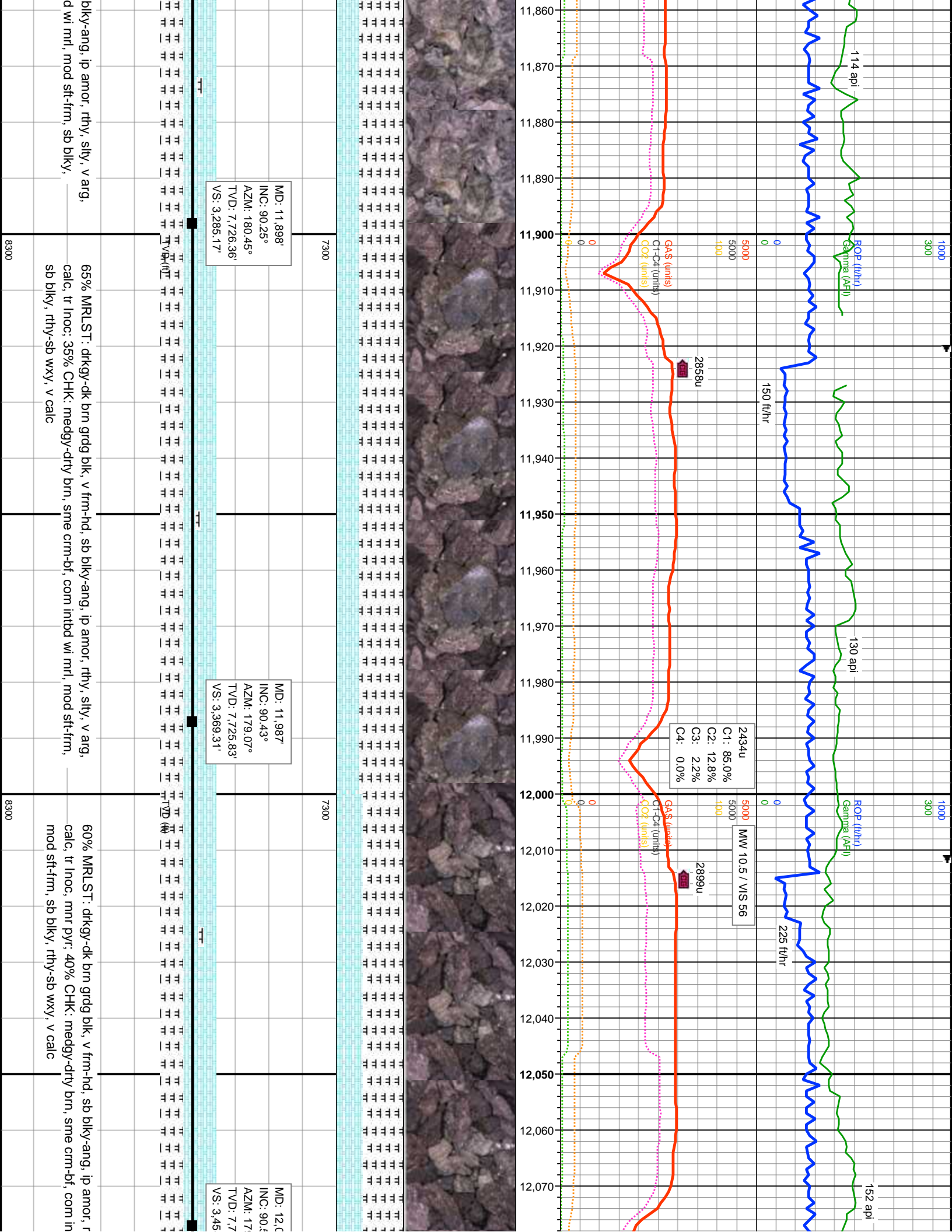


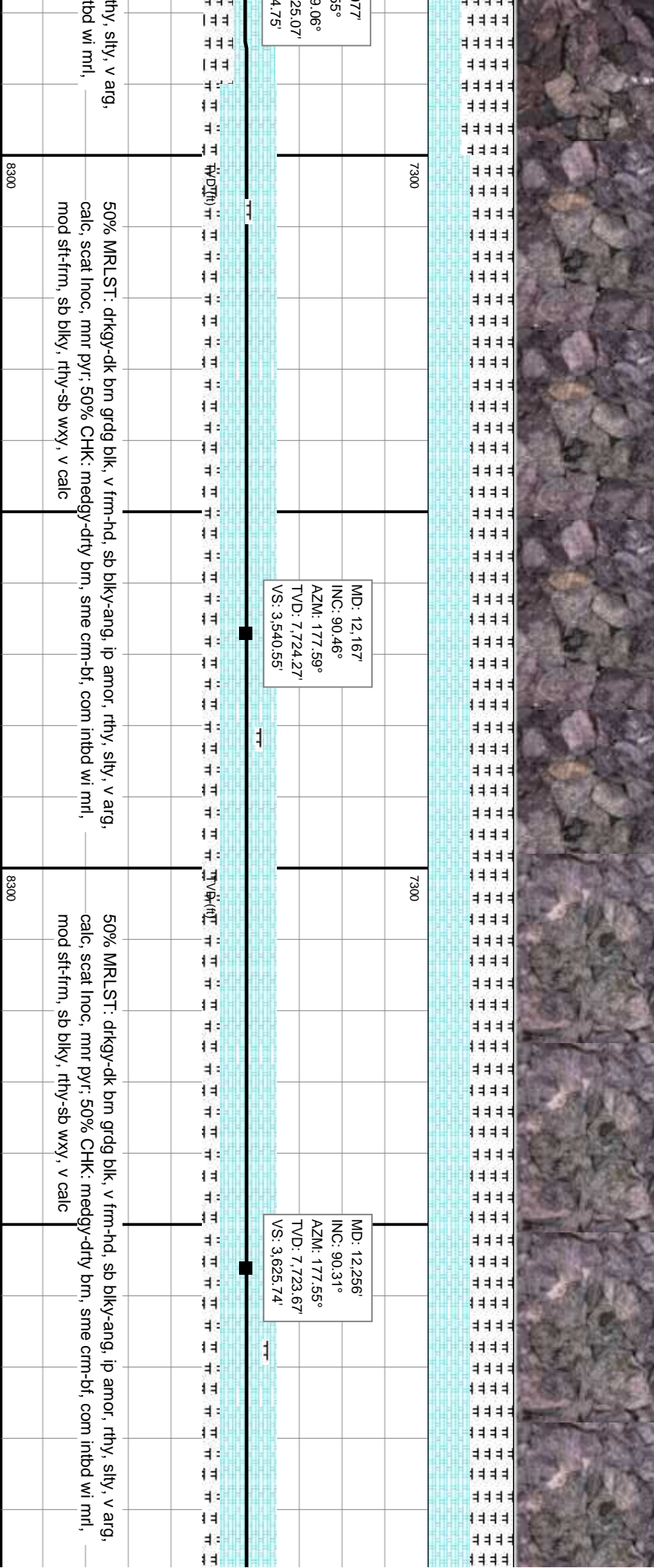
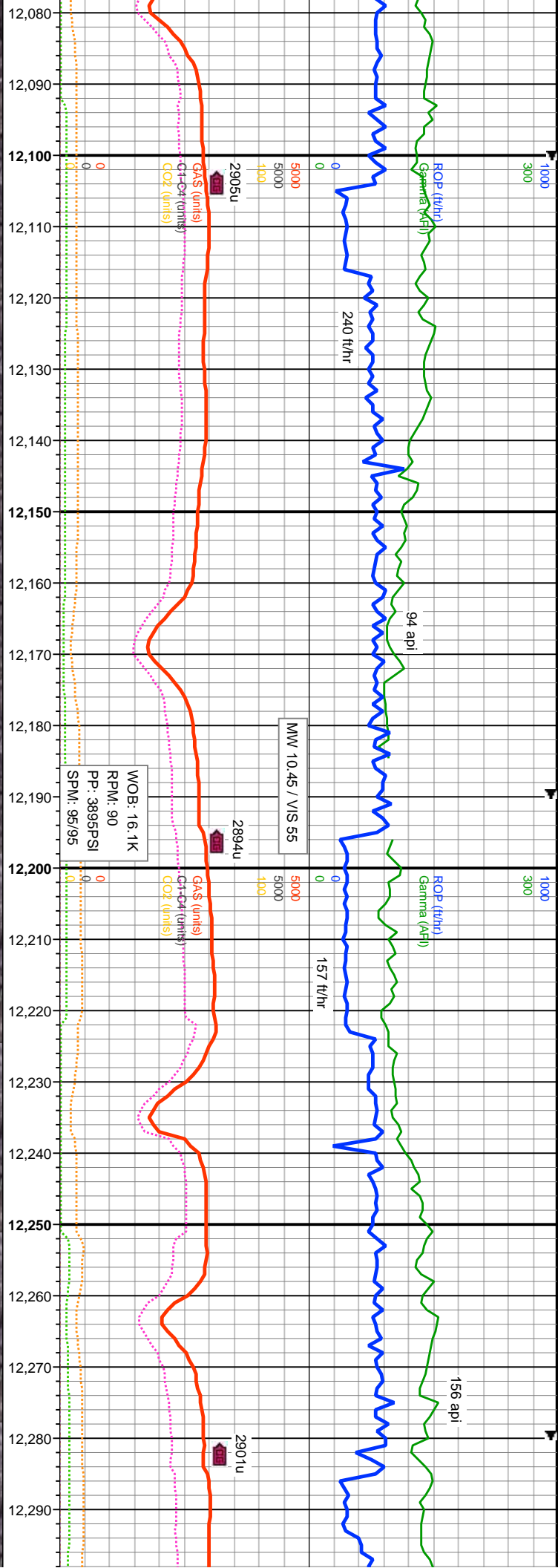
MD: 11,451'
INC: 89.88°
AZM: 181.61°
TVD: 7,727.62'
VS: 2.867.17'

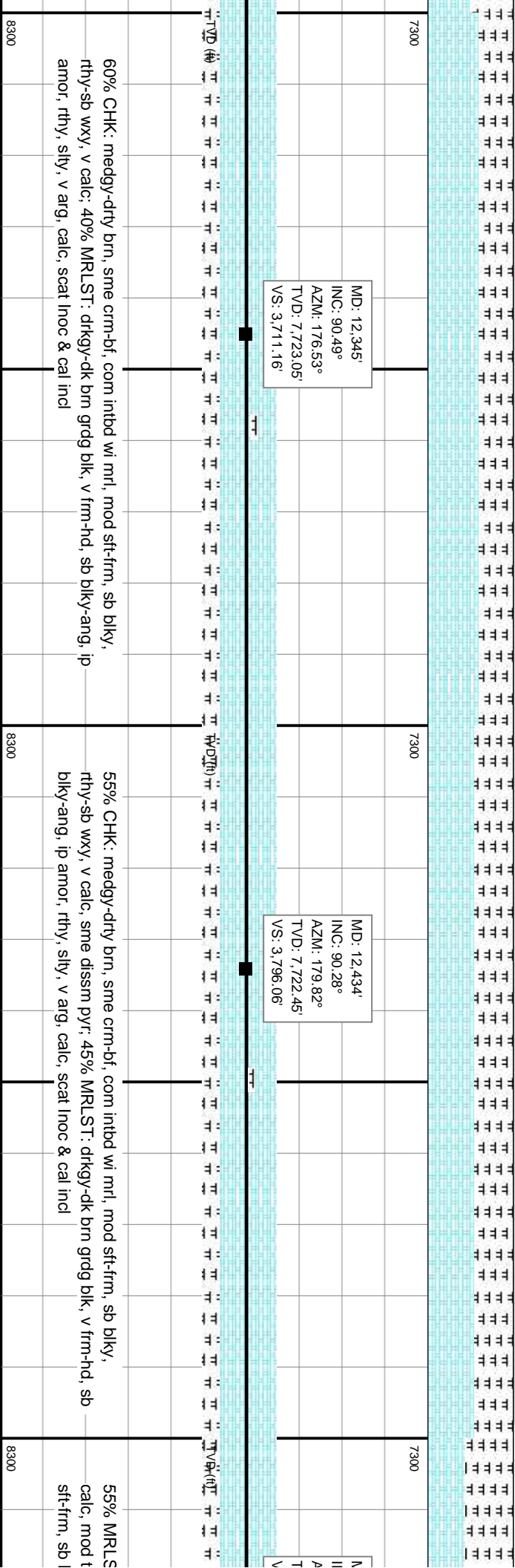
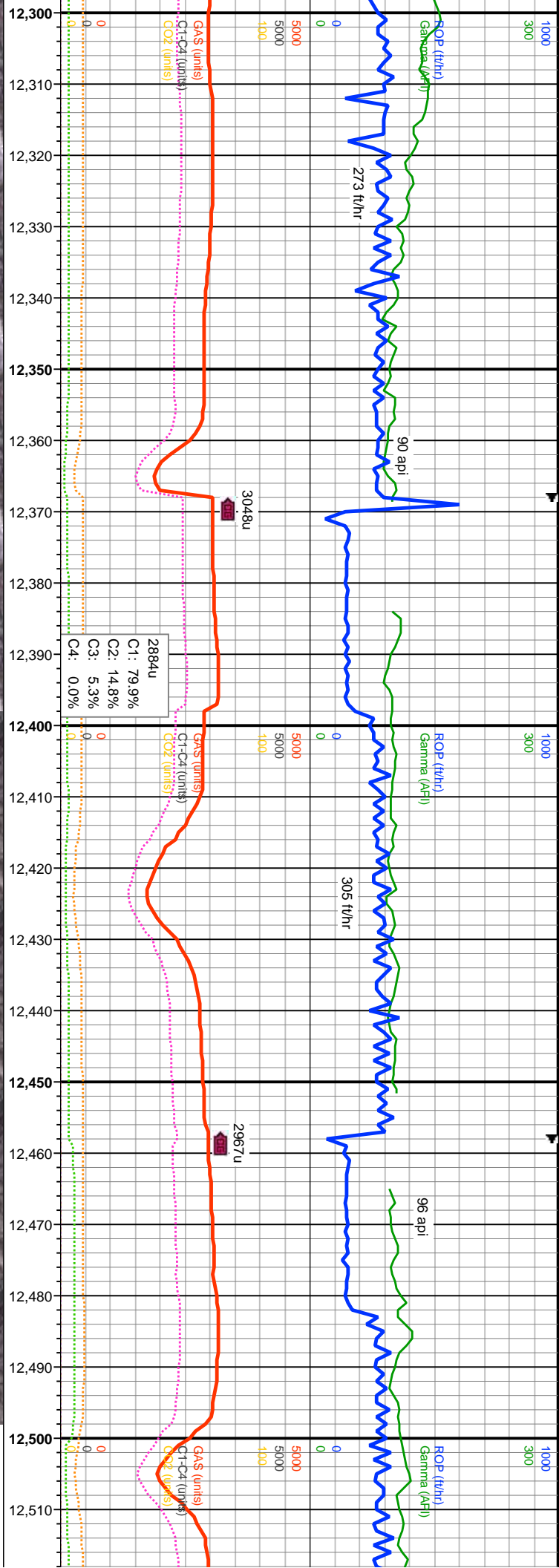
MD: 11,541'
INC: 90.09°
AZM: 183.8°
TVD: 7,727.64'
VS: 2.950.64'

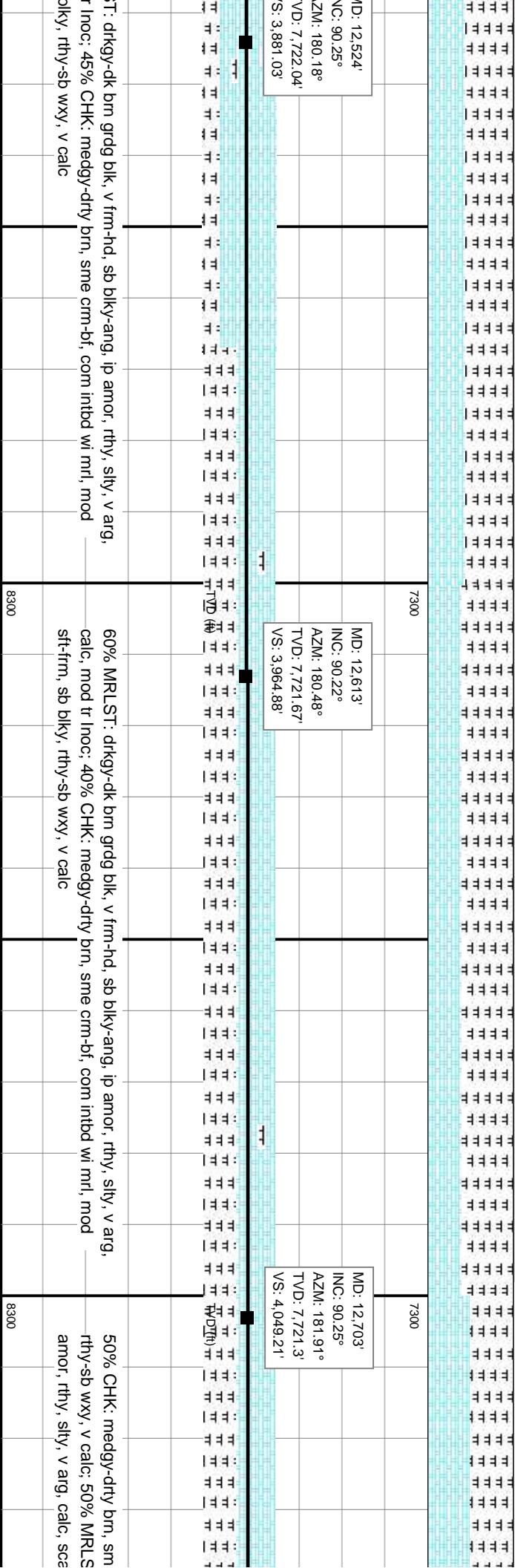
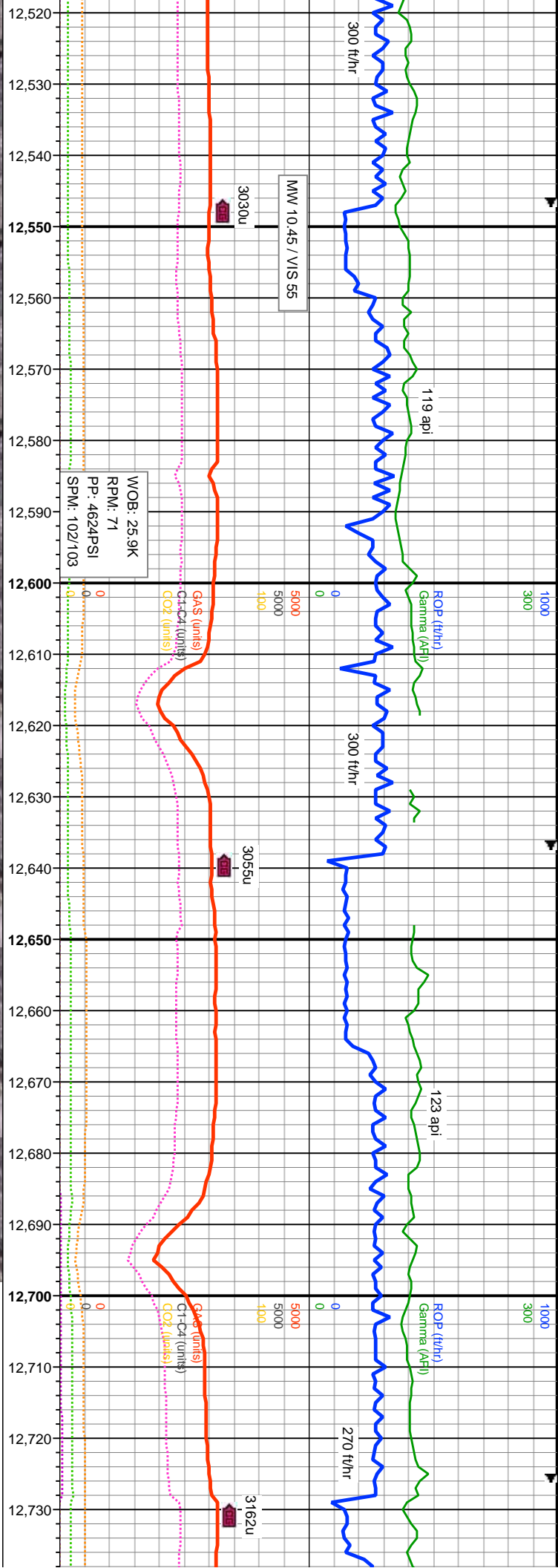
MD: 11,630'
INC: 90.28°
AZM: 182.56°
TVD: 7,727.35'
VS: 3.032.91'

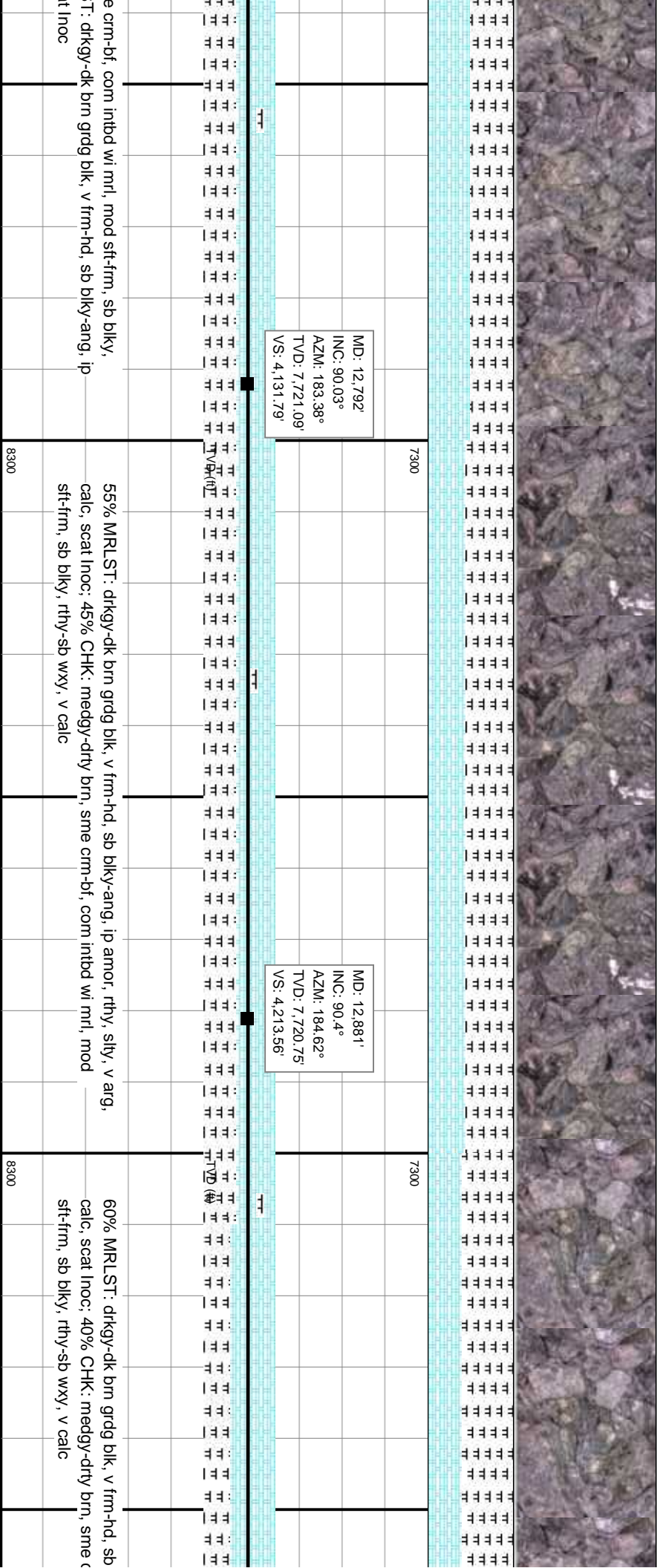
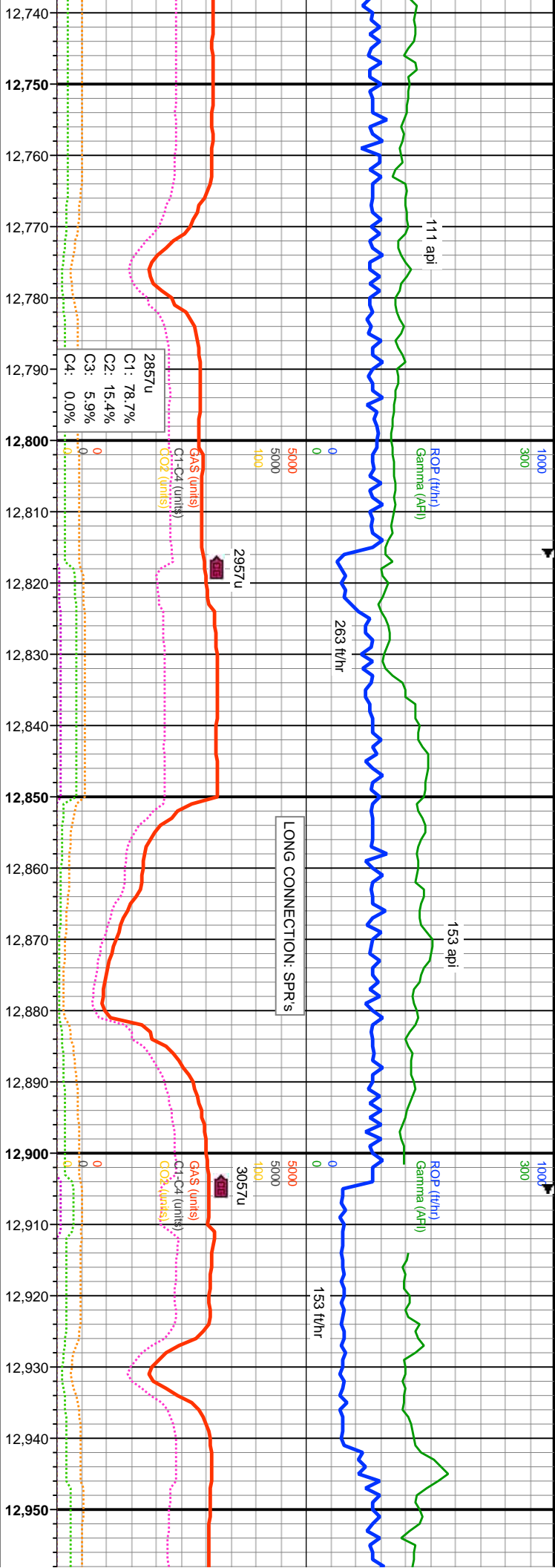
ST: drkgy-dk brn grdy blk, v frm-hd, sb blk-y-ang, ip amor, rthy, slty, v arg, calc, tr inoc, tr cal in fracs; 35% CHK: medgy-dfry brn, com intbd wi mrl, mod sft-frm, y-sb wxy, v calc; v rr bent	7300	8300
65% MRLST: drkgy-dk brn grdy blk, v frm-hd, sb blk-y-ang, ip amor, rthy, slty, v arg, calc, tr inoc, tr cal in fracs; 35% CHK: medgy-dfry brn, com intbd wi mrl, mod sft-frm, sb blk-y, rthy-sb wxy, v calc	7300	8300
70% MRLST: drkgy-dk brn grdy blk, v frm-hd, sb blk-y-ang, ip amor, rthy, slty, v arg, calc, tr inoc, tr cal in fracs; 30% CHK: medgy-dfry brn, com intbd wi mrl, mod sft-frm, sb blk-y, rthy-sb wxy, v calc	7300	8300

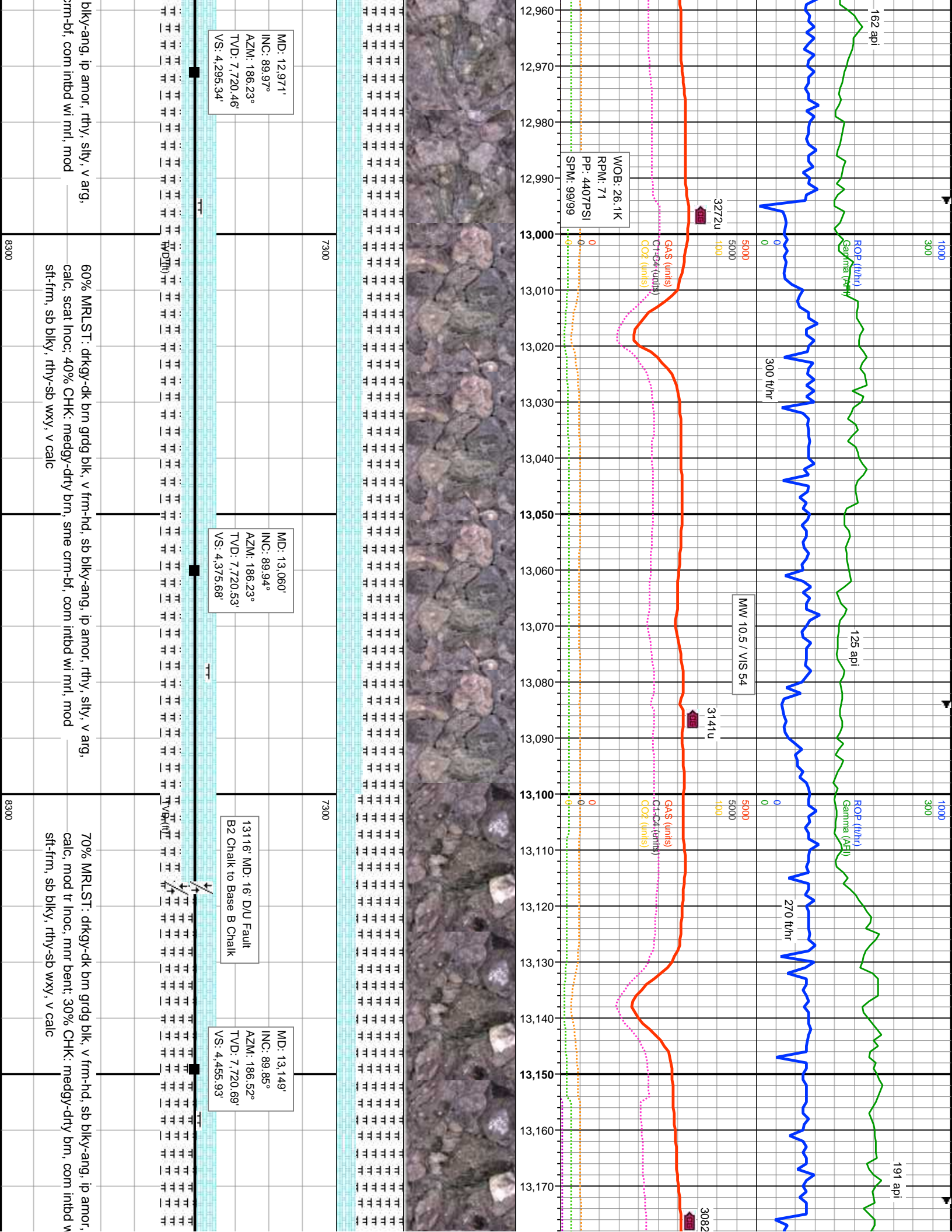


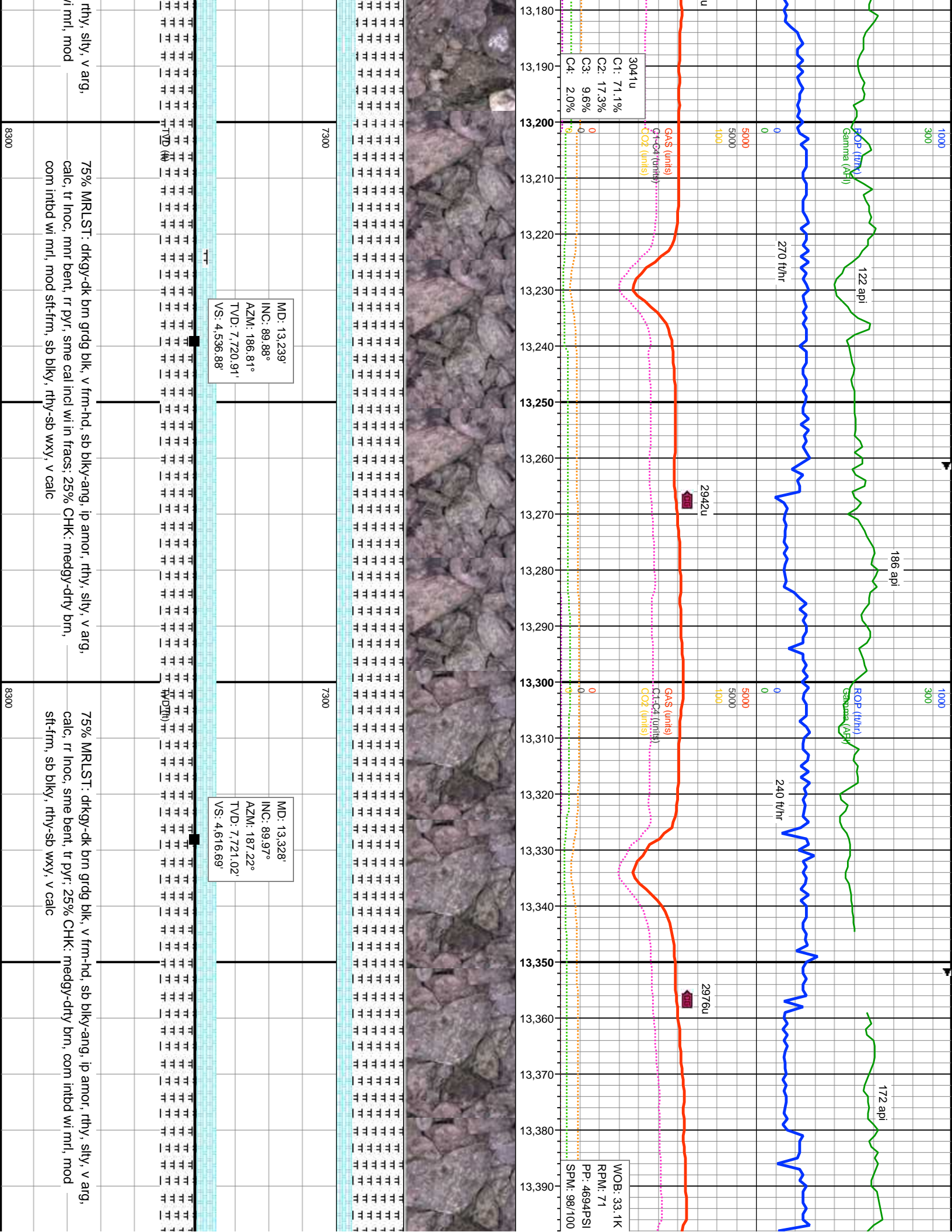


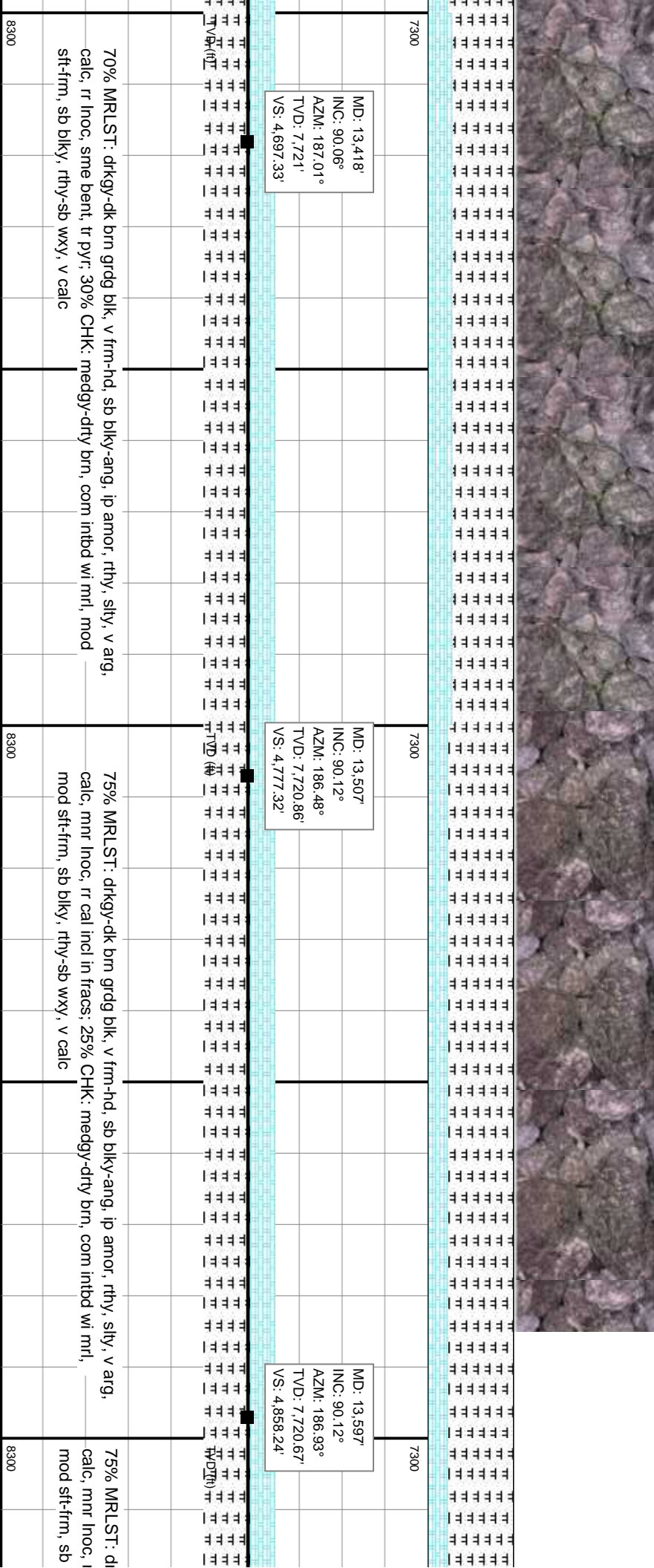
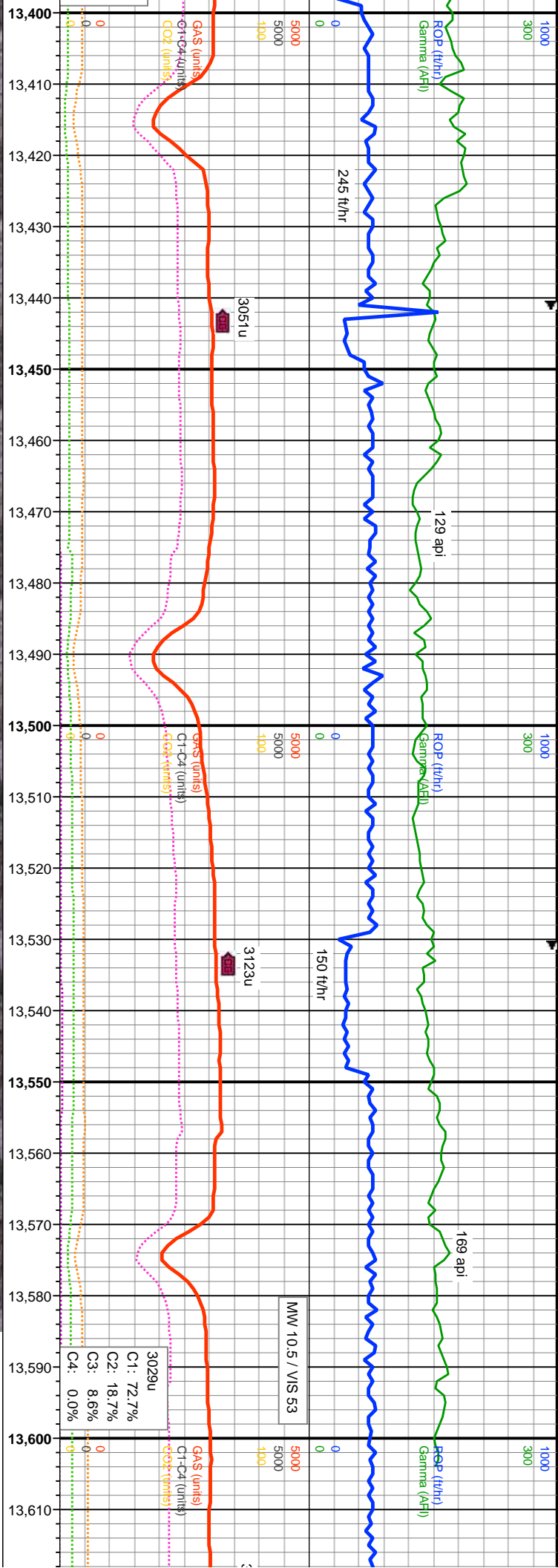


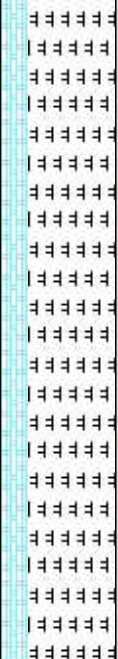
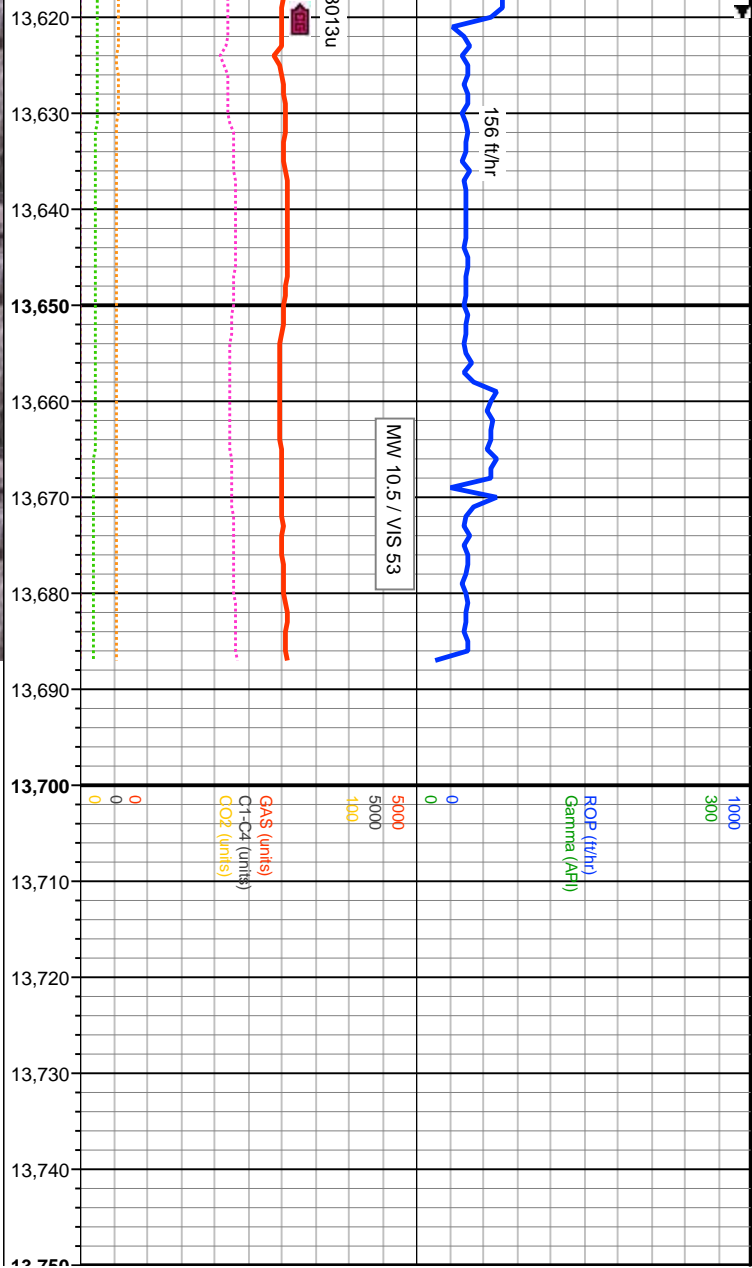












Projection to Bit

MD: 13,663'
INC: 90.12°
AZM: 186.2°
TVD: 7,720.53'
VS: 4,917.66'

MD: 13,687'
INC: 90.12°
AZM: 186.2°
TVD: 7,720.48'
VS: 4,939.33'

TD Reached, 13687' MD, 15:52 MST, 01/19/2018
Thank you for using Terra Guidance, LLC.

TVD (ft)

ky-dk brn grdg blk, v frm-hd, sb blk-y-ang, ip amor, rthy, silty, v arg,
r cal incl in fracs; 25% CHK: medgy-drtly brn, com intbd w/ mrl,
biky, rthy-sb wxy, v calc

7300

8300