



Scale: 5" / 100'
Measured Depth Log

Well Name Raindance 20-319HN

Location NENE SEC 30 T6N R67W

State COLORADO

County WELD

Country USA

Rig Number PRECISION 460

API Number 05-123-44989-0000

AFE # 17DC0066

Geographic Region DJ BASIN

Field WATTENBERG

Spud Date 7/20/2017

Drilling Completed 8/15/2017

Ground Elevation 4788'

K.B. Elevation 4808.4'

Logged Interval 6000 To 12518'

Total Depth 12550'

Formation NIOBRARA C 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 Mark Sowinski & Alec Walker

Company Terra Guidance

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



Color Coding

Oil

Note

Error

Condensate

Core

Water

Gas

Pressure

Seal

Rock Types

LIMESTONE

Chalk

Marl

SHALE

Silty Shale

Shaly Siltstone

SILTSTONE

Shaly Sandston

SANDSTONE

BENTONITE

CEMENT

UNKNOWN

ANHYDRITE

GYPSUM

SALT

SIDERITE or LIMONITE

DOLOMITE

CHERT

COAL

MARLSTONE

CLAYSTONE

SHALE GRAY

SHALE COLORED

CONGLOMERATE

BRECCIA

TILL

TUFF

IGNEOUS

METAMORPHIC

Accessories

F FOSSIL

GASTROPOD

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISOLUTE

PLANT REMAINS

SCAPHOPOD

STROMATOPOROID

FISH

FORAMINIFERA

ARGILLACEOUS

ARGILLITE GRAIN

B BENTONITE

BITUMINOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

FERRUGINOUS

GLAUCONITE

GYPSIFEROUS

HEAVY MINERAL

KAOLIN

MARLSTONE

MINERAL CRYSTALS

NODULES

PHOSPHATE PELLETS

PYRITE

SALT CAST

SANDY

SILICEOUS

SILTY

TUFFACEOUS

ANHYDRITE STRINGER

BENTONITE STRINGER

COAL STRINGER

DOLOMITE STRINGER

GYPSUM STRINGER

LIMESTONE STRINGER

MARLSTONE (CALC) STRG

MARLSTONE (DOL) STRG

SANDSTONE STRINGER

SHALE STRINGER

SILTSTONE STRINGER

Other Sy

ORGANIC

P PINPOINT

GAS SH

DEAD

VUGGY

MINDEPTH

EVEN

NORMA

QUESTIONABLE

OIL SH

SPOTTED STAINING

BIT

OVERTURN

CASING

REVERS

Porosity

CONNECTION (LEFT)

SIDEWALL

E EARTHY

CONNECTION (RIGHT)

SIDEWALL

FENESTRAL

CONNECTION GAS

SLIDE

F FRACTURE

CORE - LOST

SURV

INTERCRYSTALLINE

CORE - RECOVERED

TRIP

INTEROOLITIC

DST INTERVAL

WIRELINE

MOLDIC

FAULT

WIRELINE

ymbols

FORMATION TOP L LITHOGRAPHIC

Rounding

LOW MX MICROXLN

MIN DEPTH AN ANGULAR MS MUDSTONE

FL FAULT R ROUNDED PS PACKSTONE

DW SUBANG WS WACKESTONE

TURNED STRATA R SUBRND

Sorting

SE FAULT

Textures

ALL CORE (LEFT) M MODERATE

ALL CORE (RIGHT) BS BOUNDSTONE P POOR

C CHALKY W WELL

CX CRYPTOXLN

KEY E EARTHY

NE TESTED - LEFT FX FINELYXLN

NE TESTED - RT GS GRAINSTONE

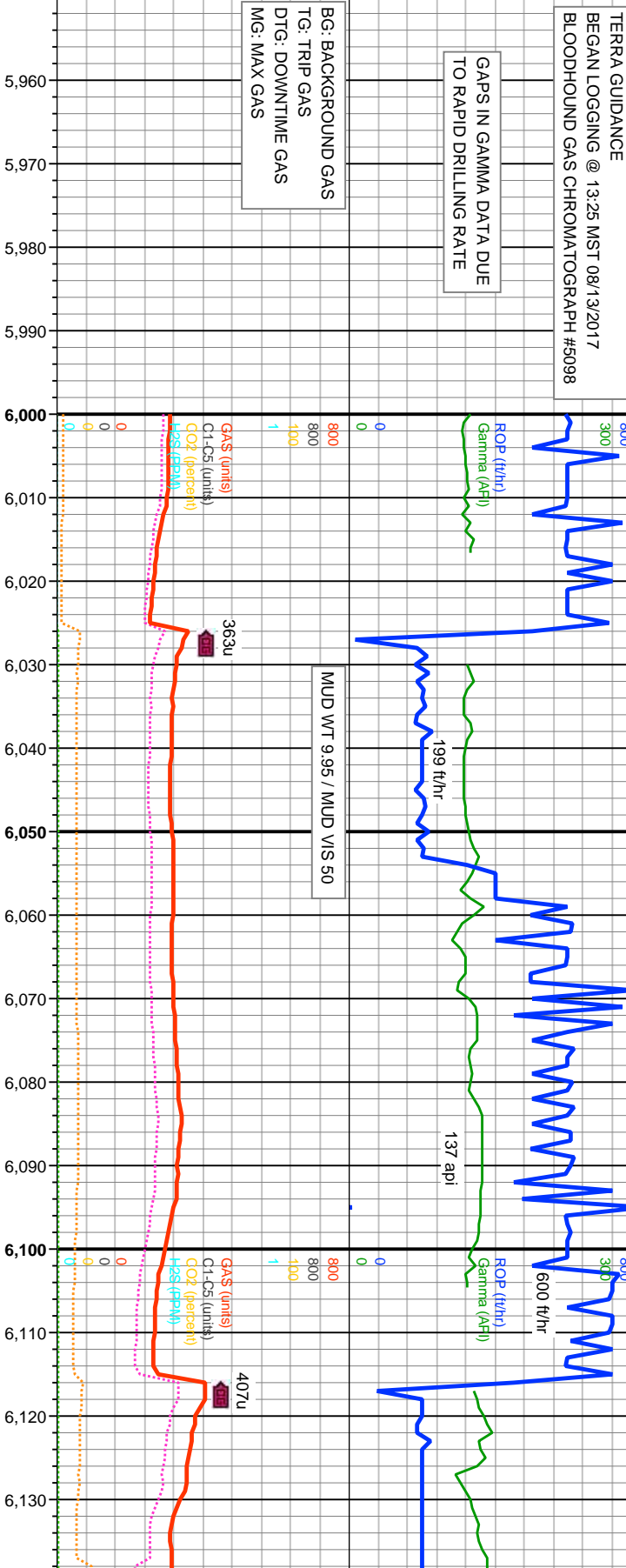
TERRA GUIDANCE
BEGAN LOGGING @ 13:25 MST 08/13/2017
BLOODHOUND GAS CHROMATOGRAPH #5098

ROP
ROP
Gamma

GAPS IN GAMMA DATA DUE
TO RAPID DRILLING RATE

Total Gas & Chromatograph
GAS
C1
C2
C3
C4
C5
CO2
H2S

Depth



Images



% Lithology

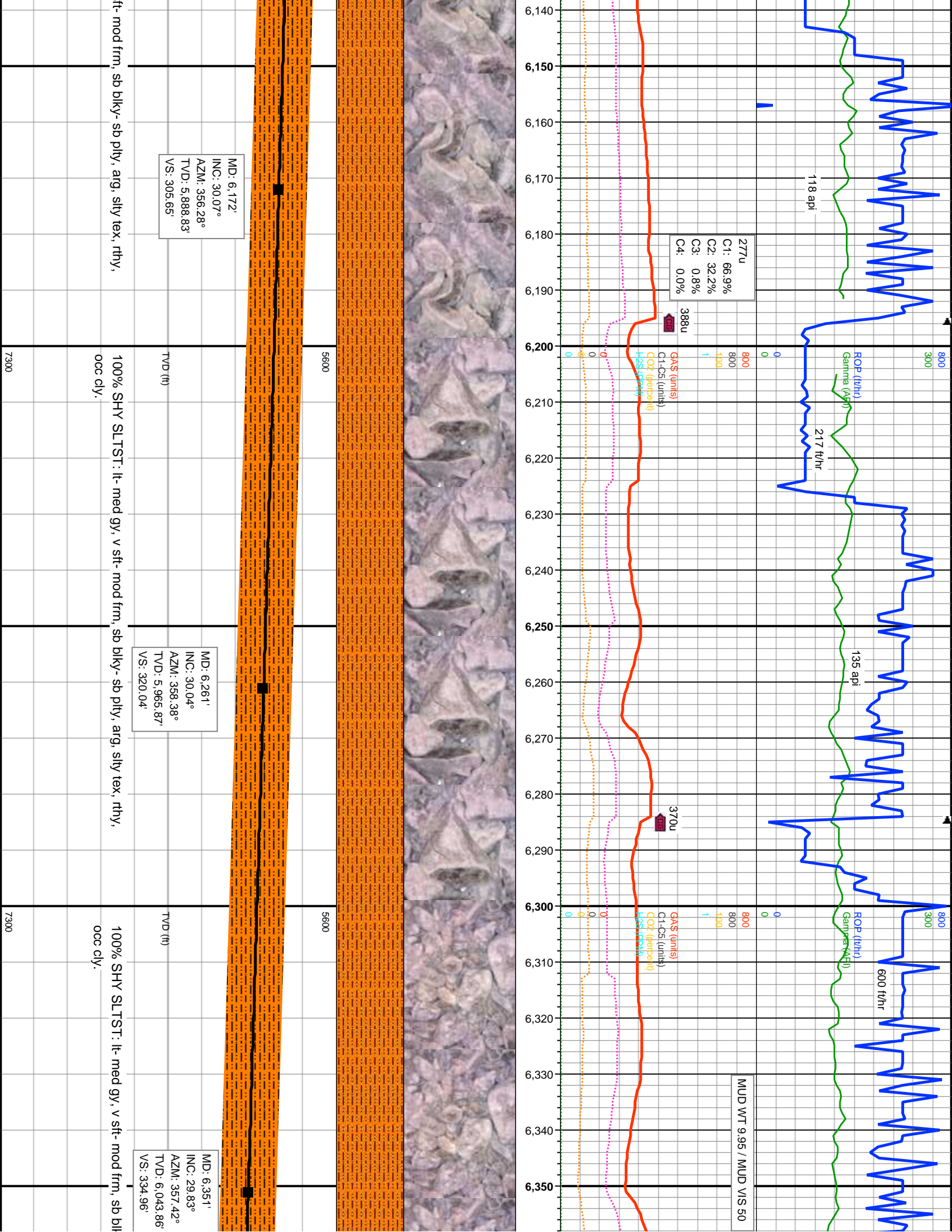
MD: 5,993'
INC: 30.08°
AZM: 350.35°
TVD: 5,733.64'
VS: 283.55°

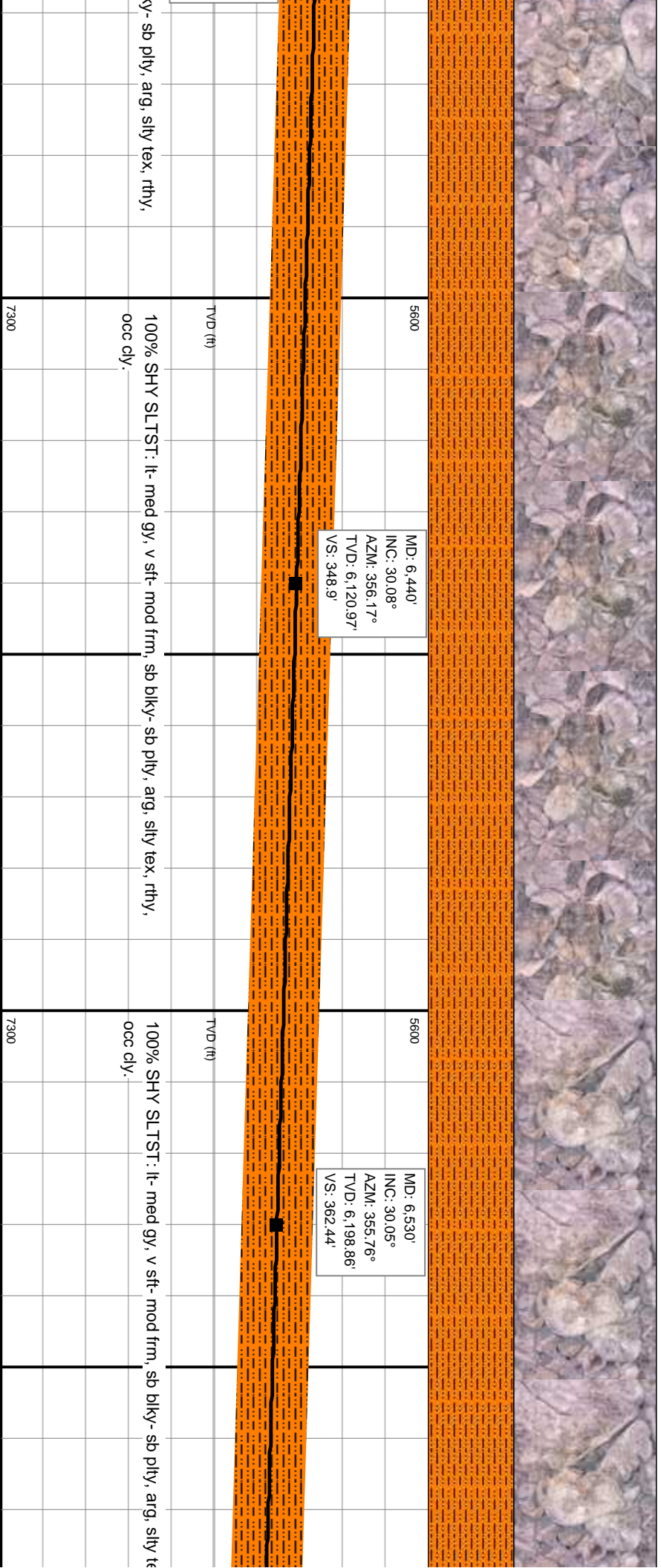
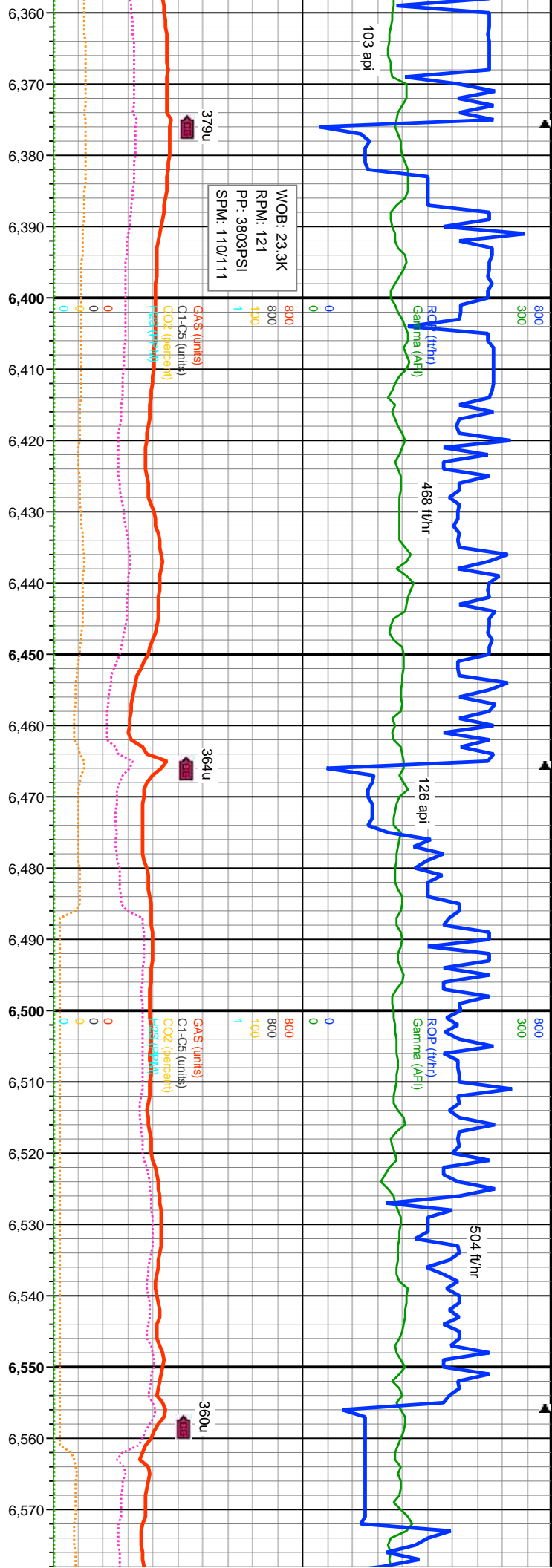
MD: 6,083'
INC: 29.72°
AZM: 352.4°
TVD: 5,811.67'
VS: 293.54°

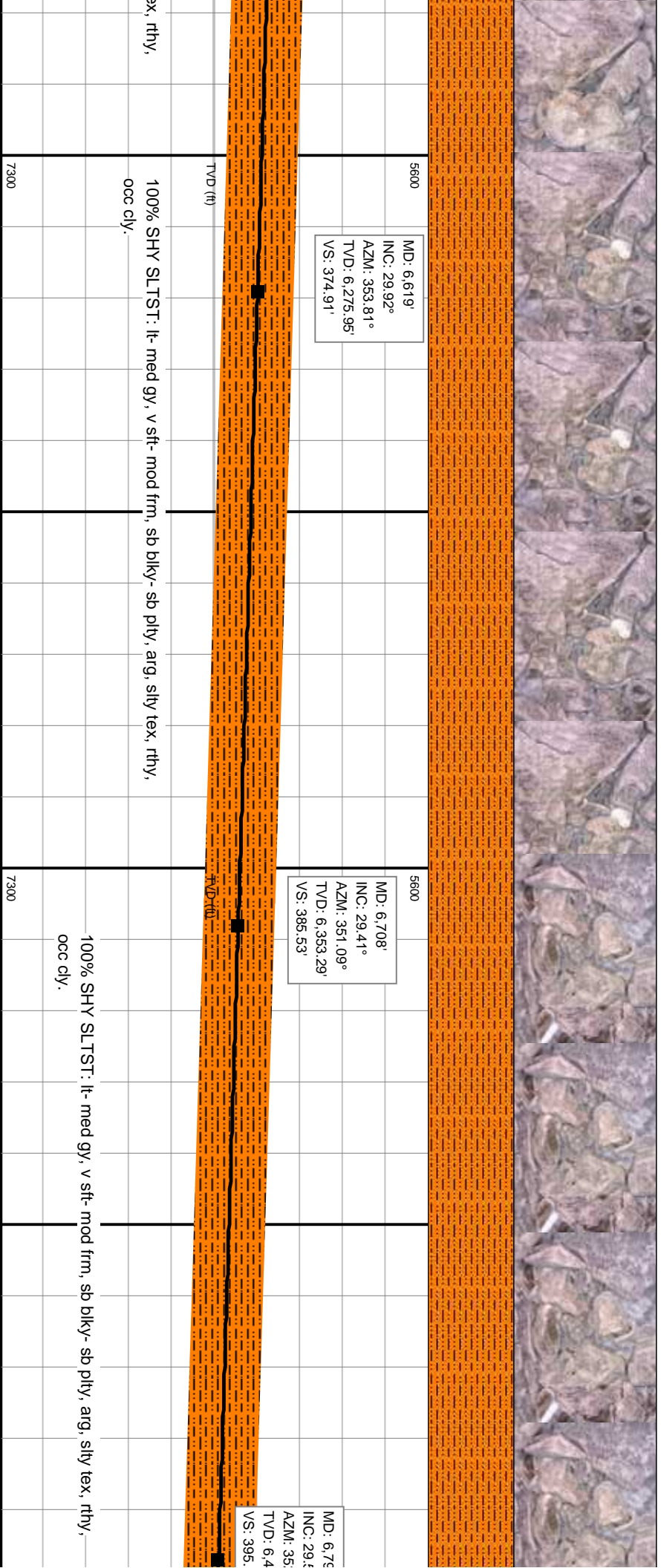
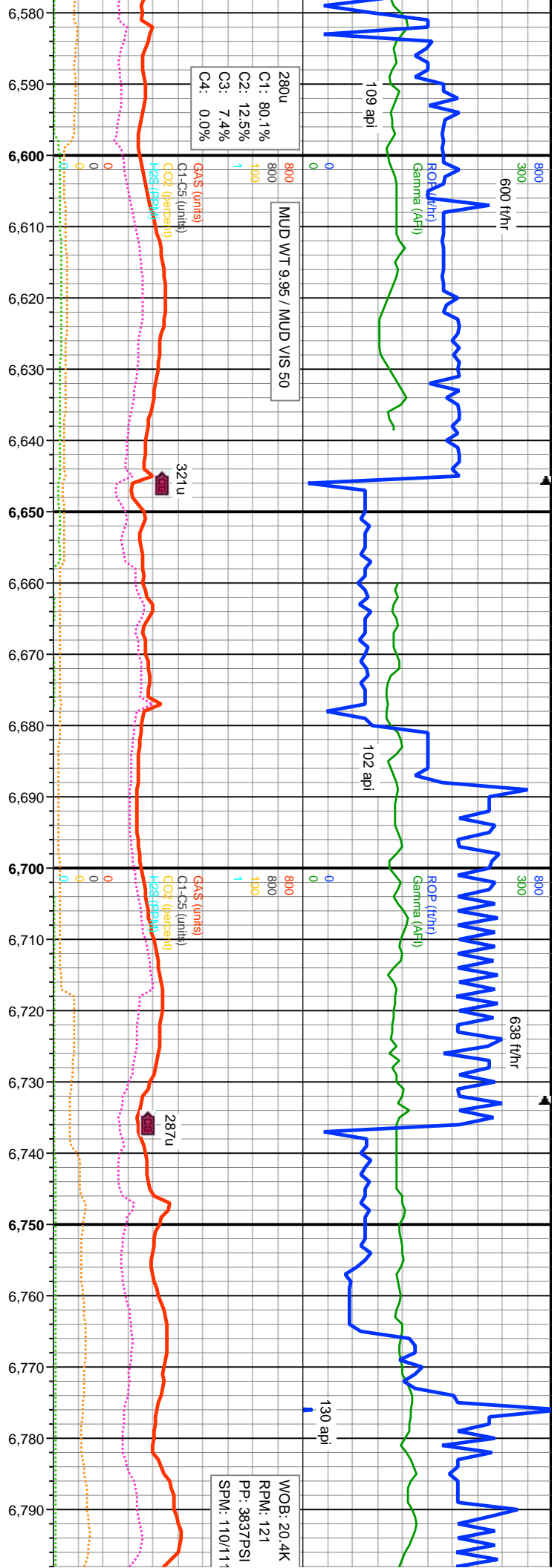
Well Bore
TVD

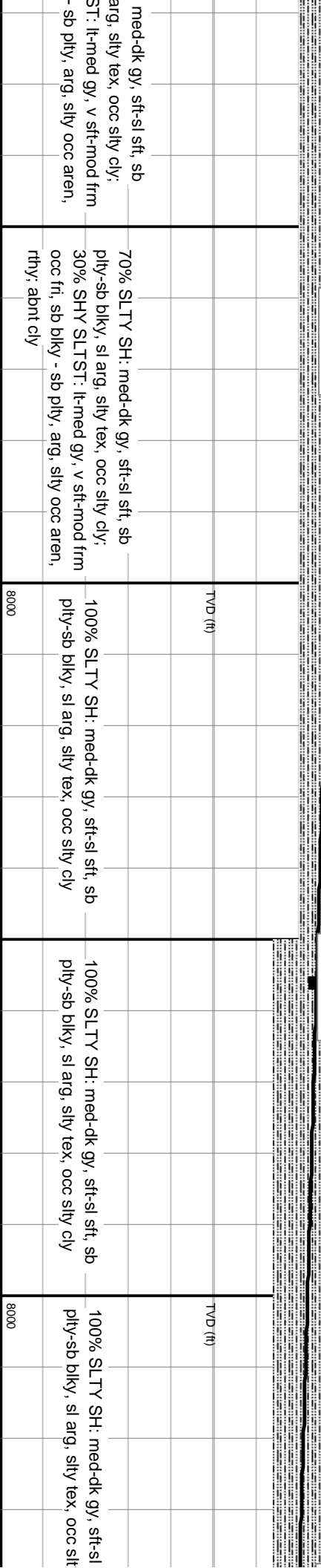
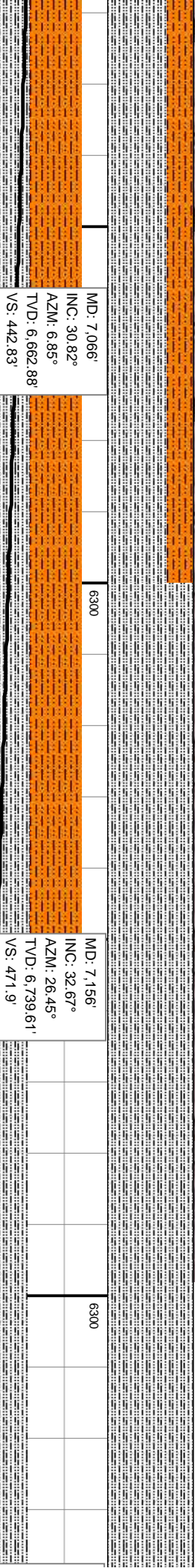
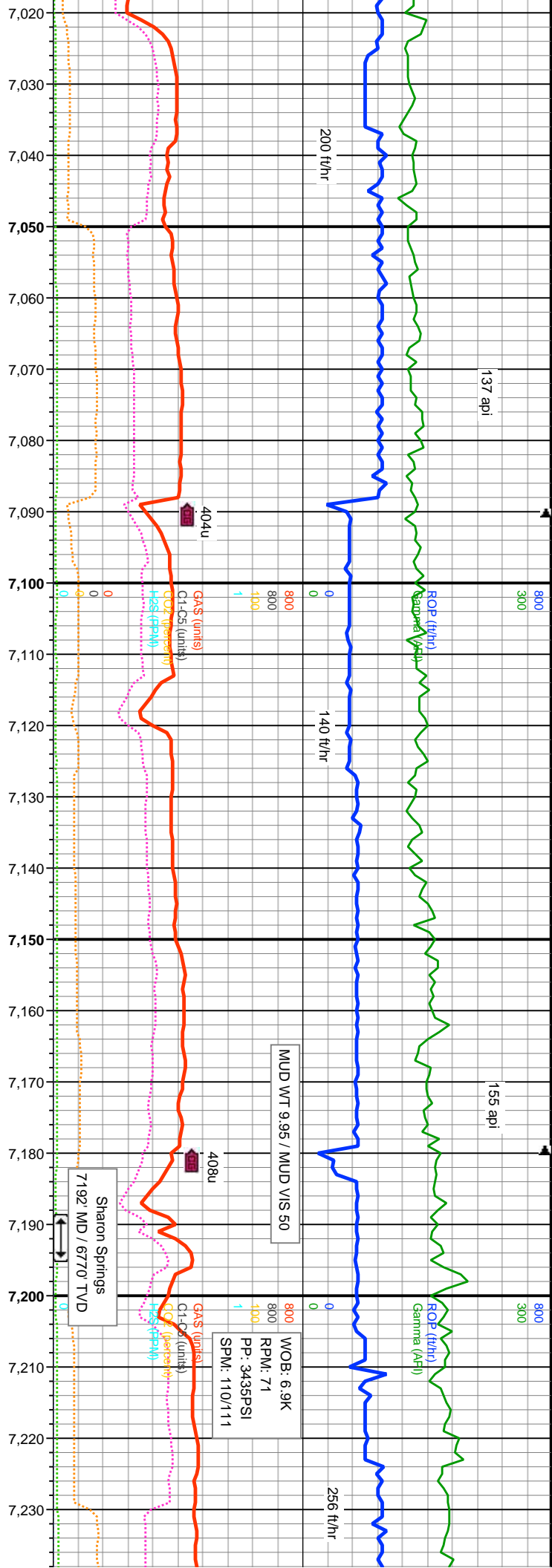
100% SHY SLTST: lt- med gy, v sft- mod frm, sb blk- sb plty, arg, silty tex, rthy, occ cly.

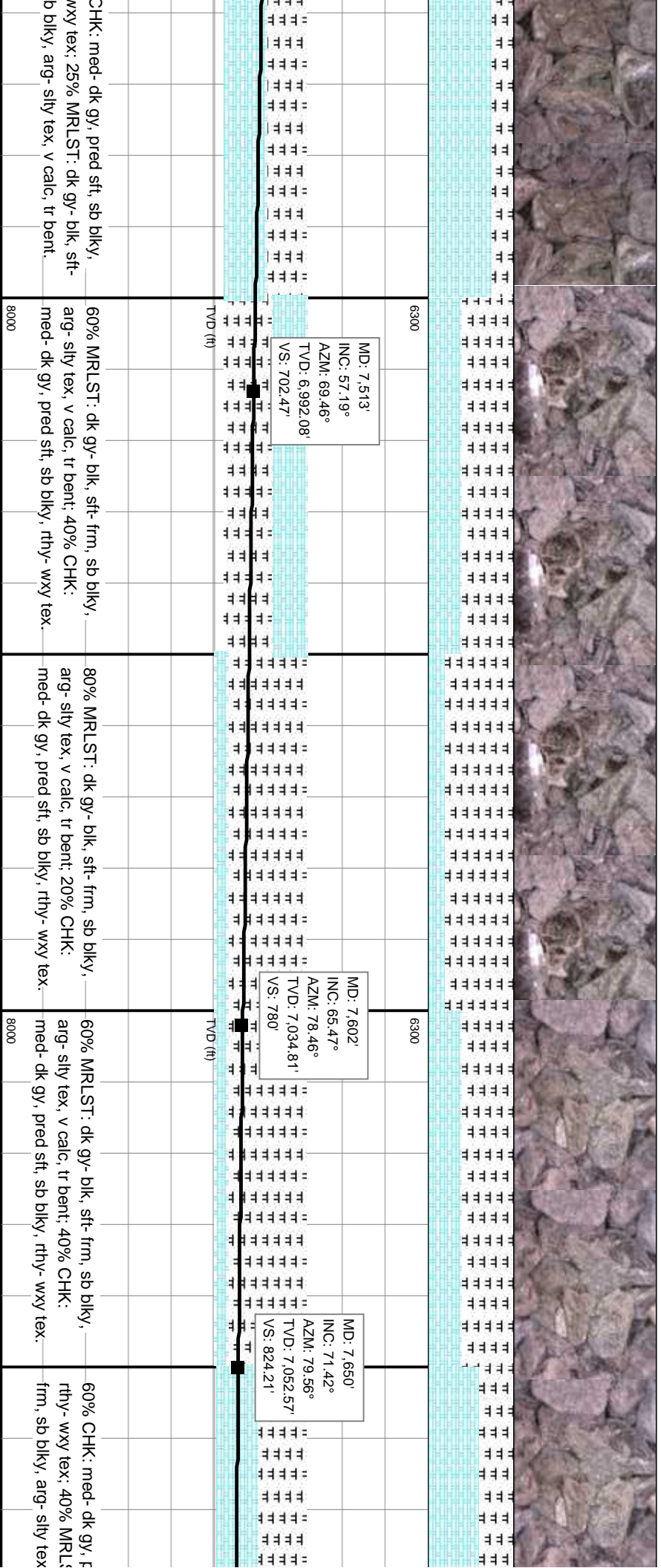
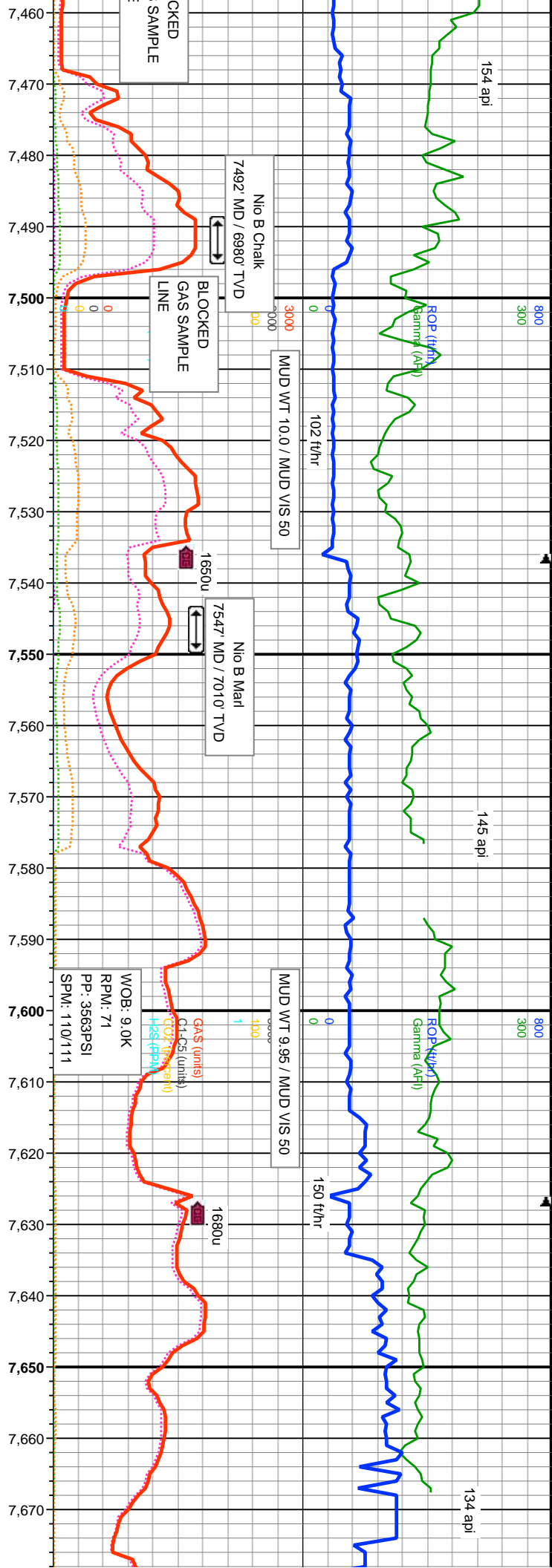
100% SHY SLTST: lt- med gy, v sft- mod frm, sb blk- sb plty, arg, silty tex, rthy, occ cly.

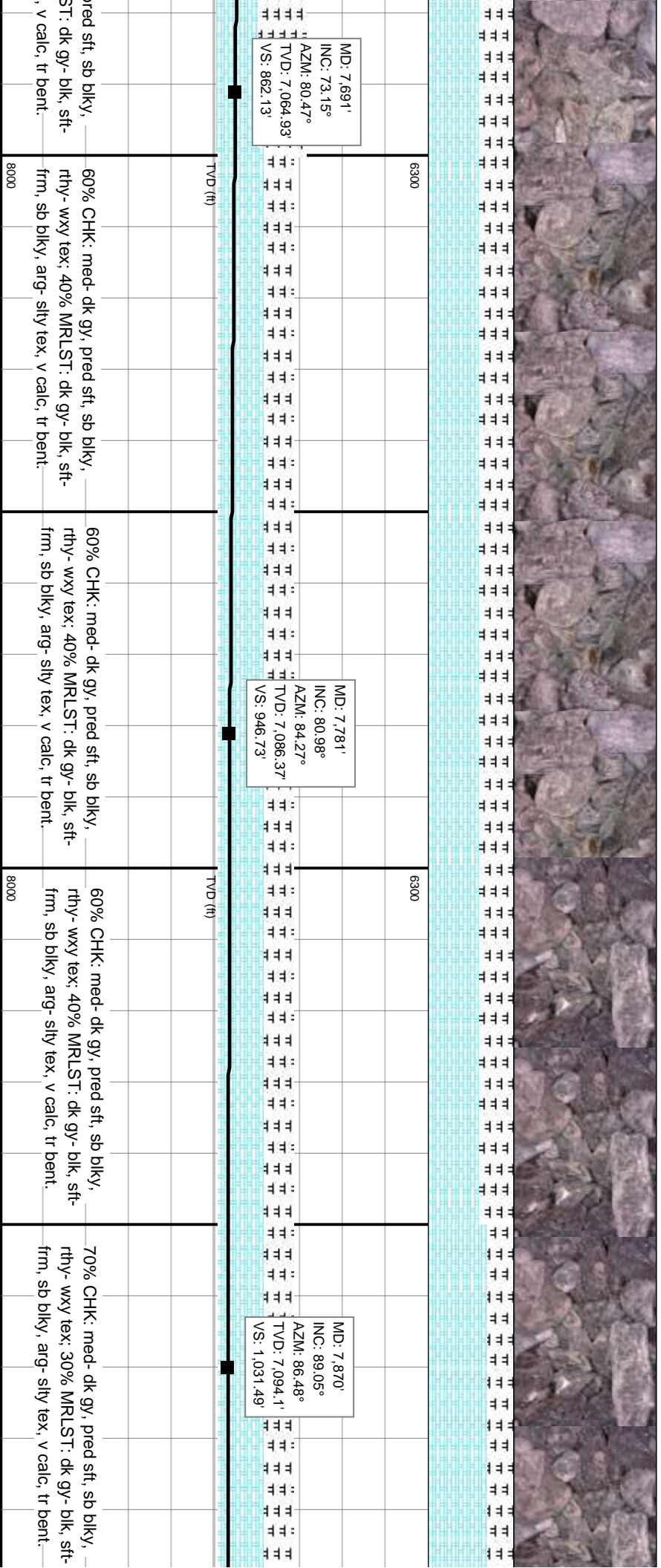
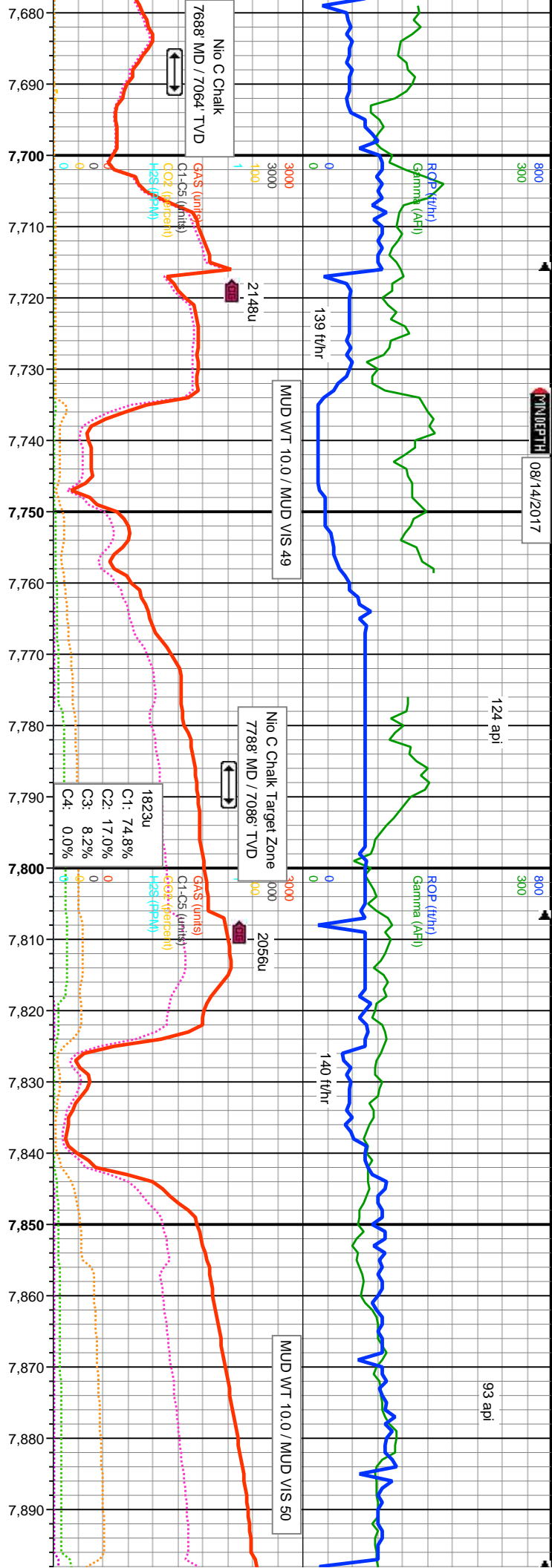


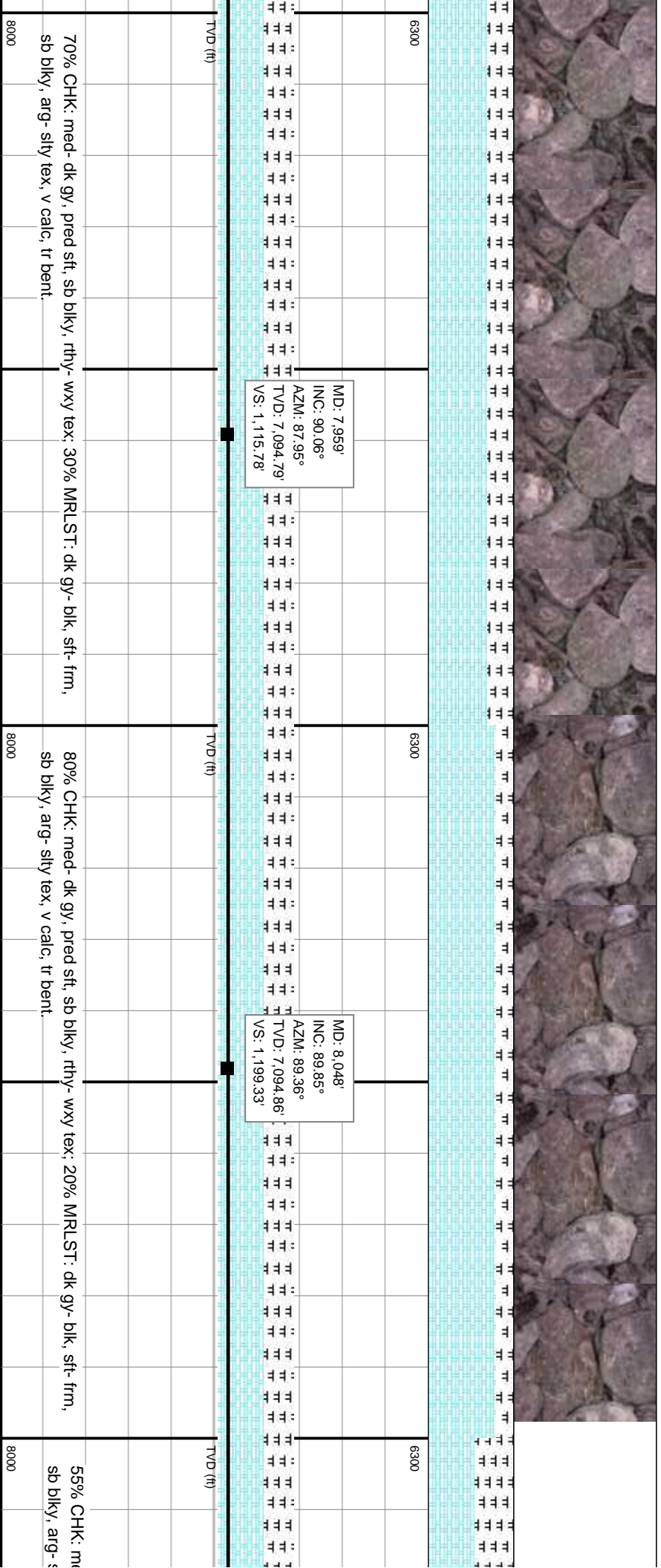
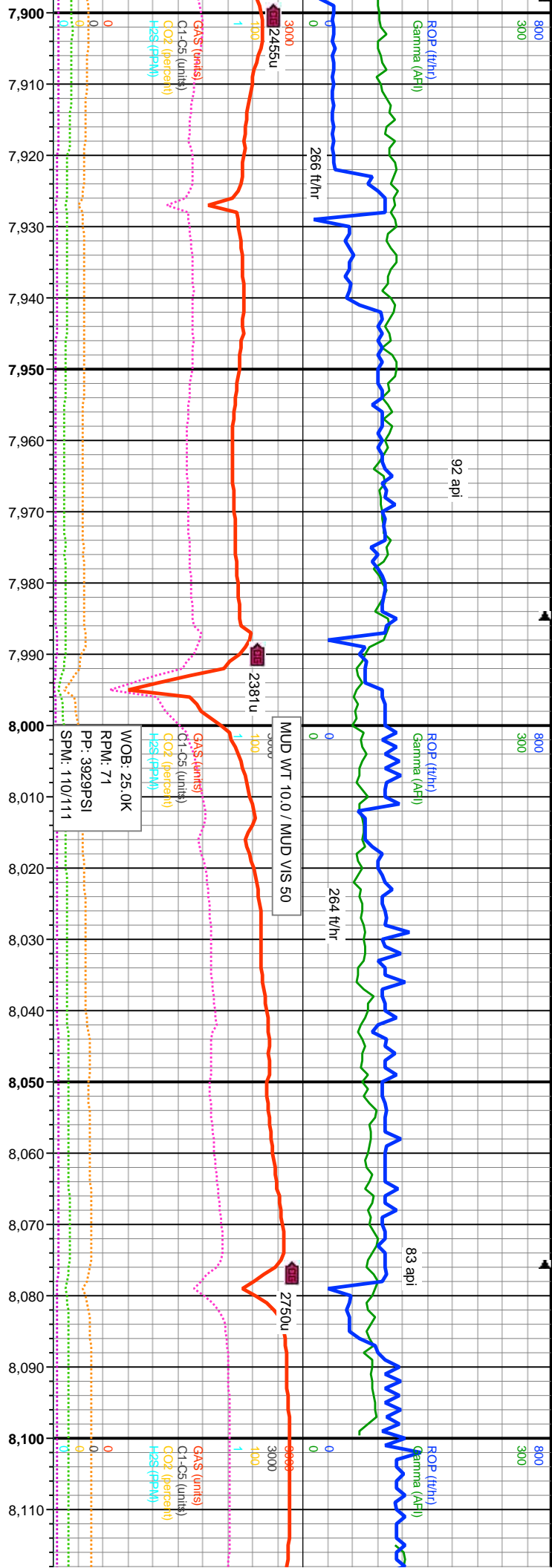


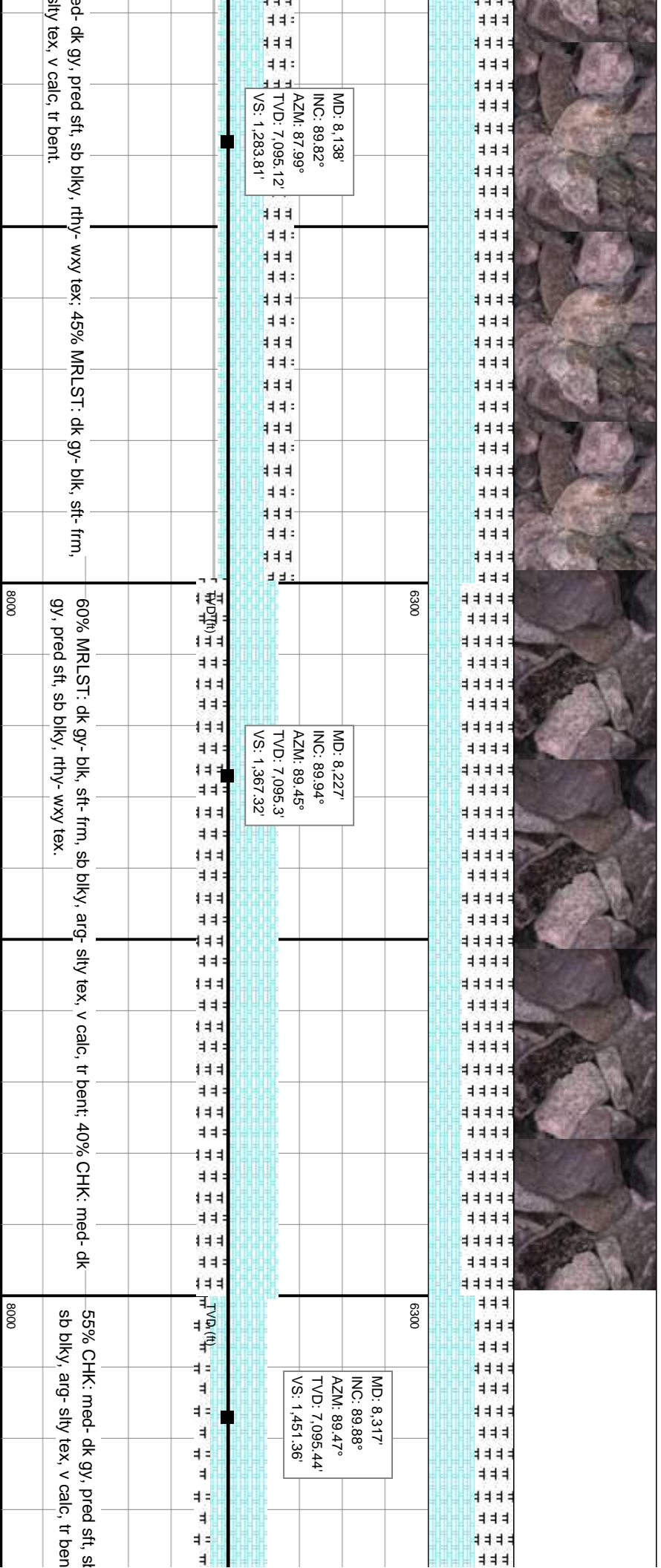
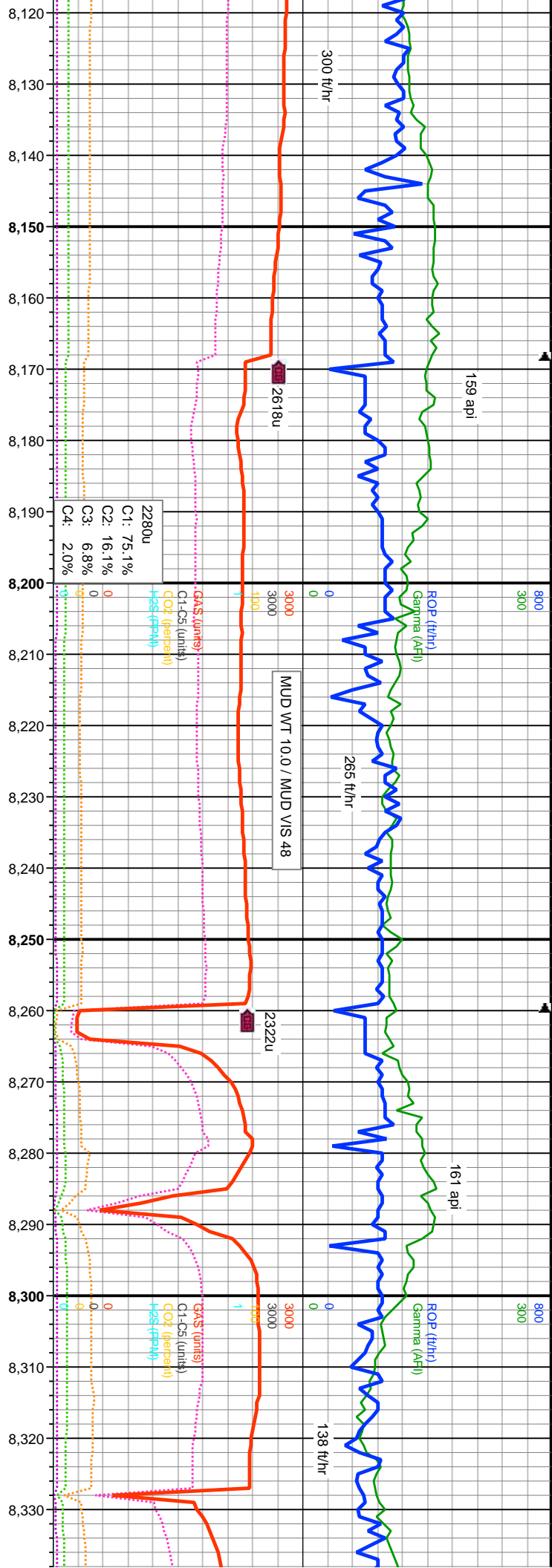


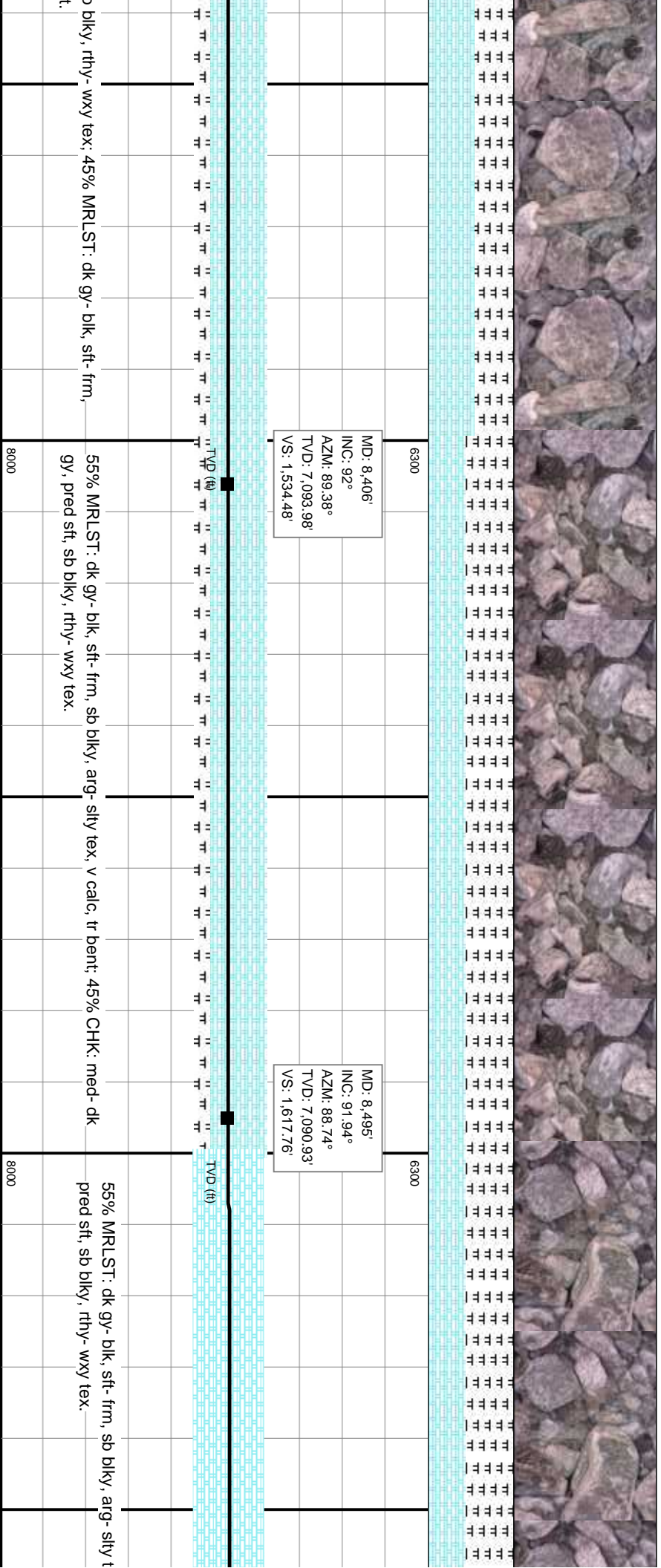
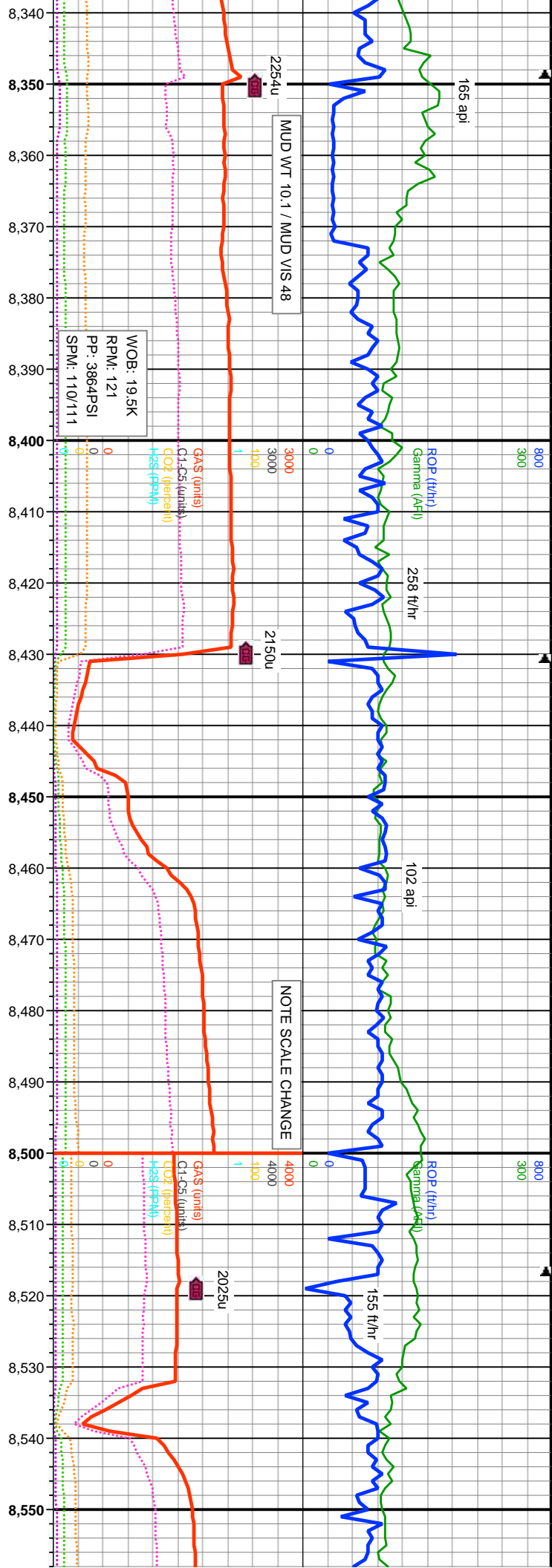


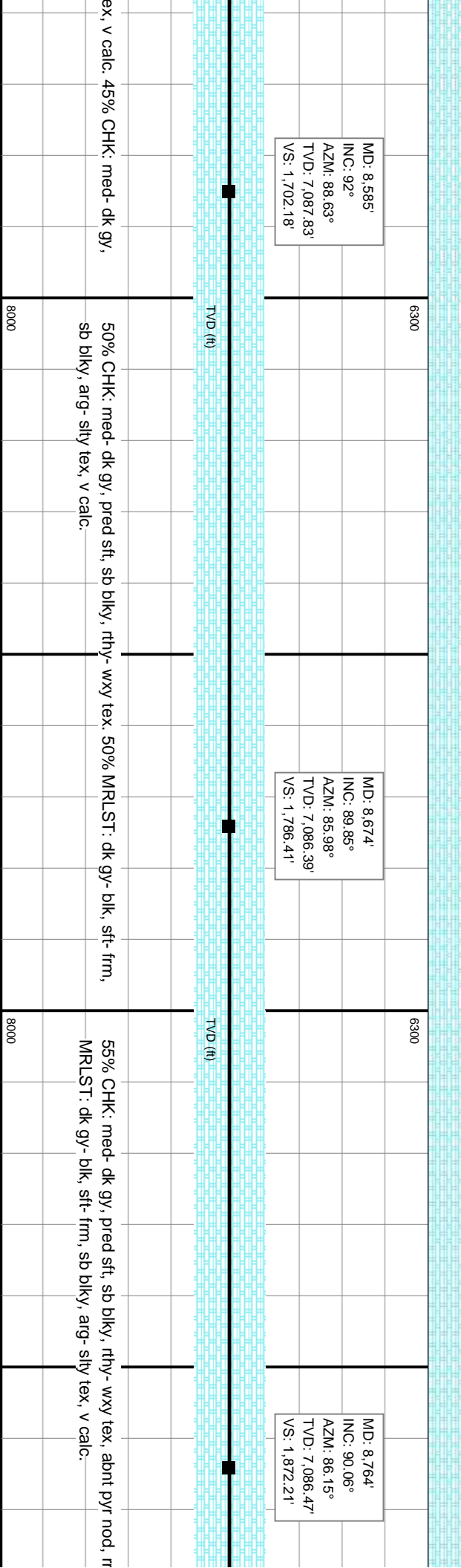
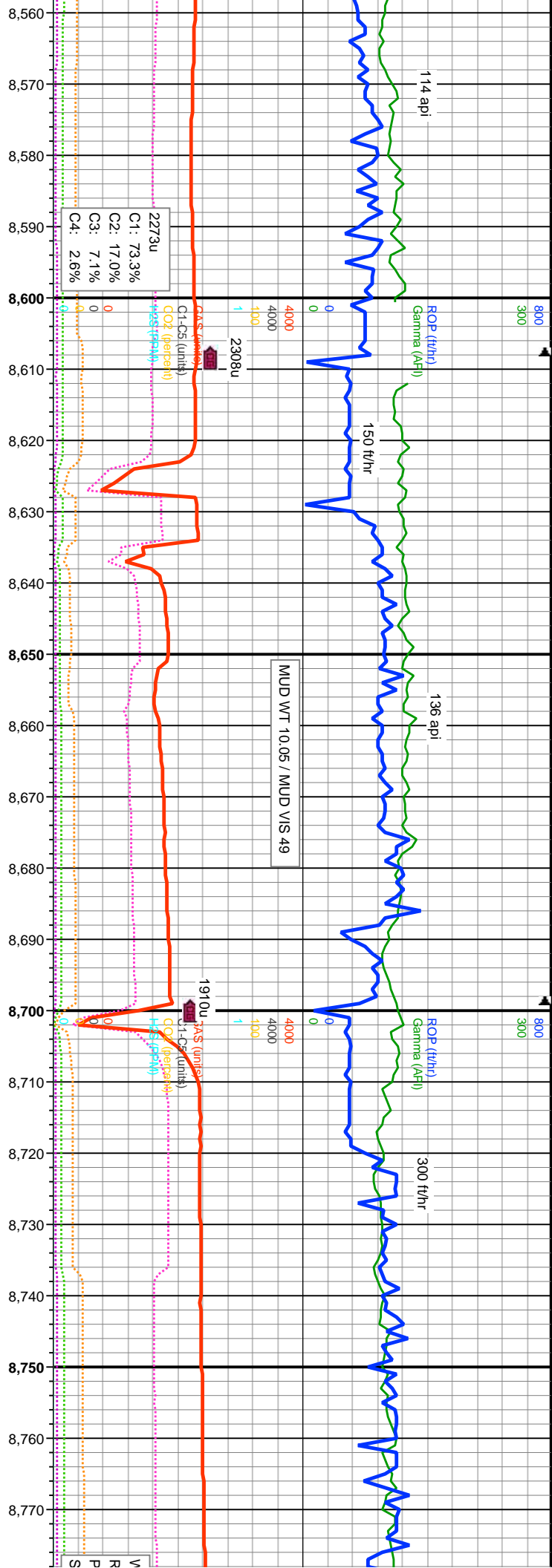


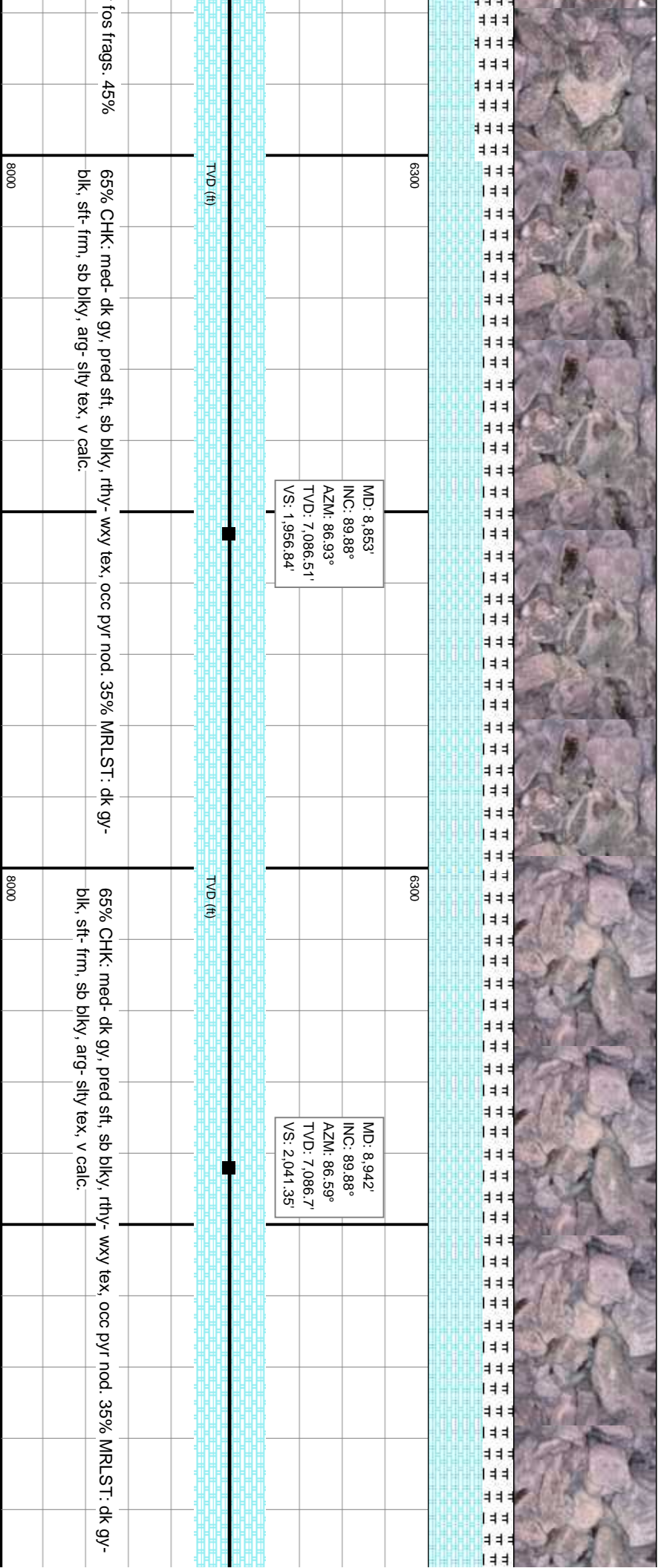
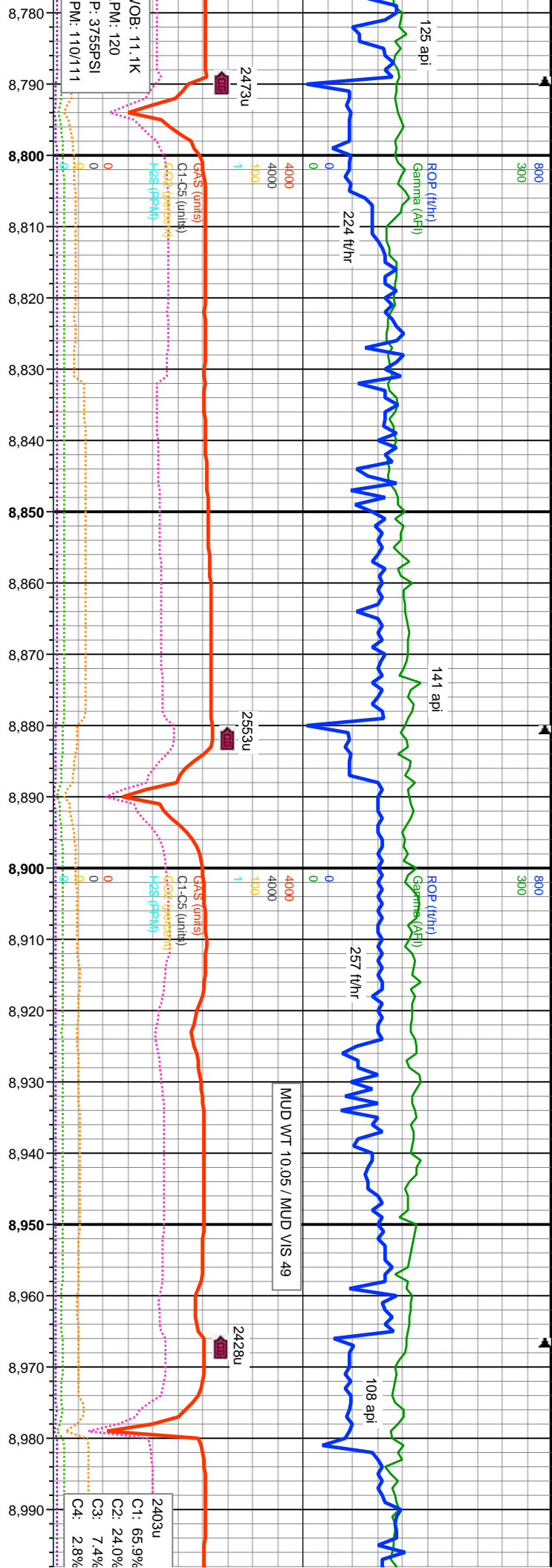


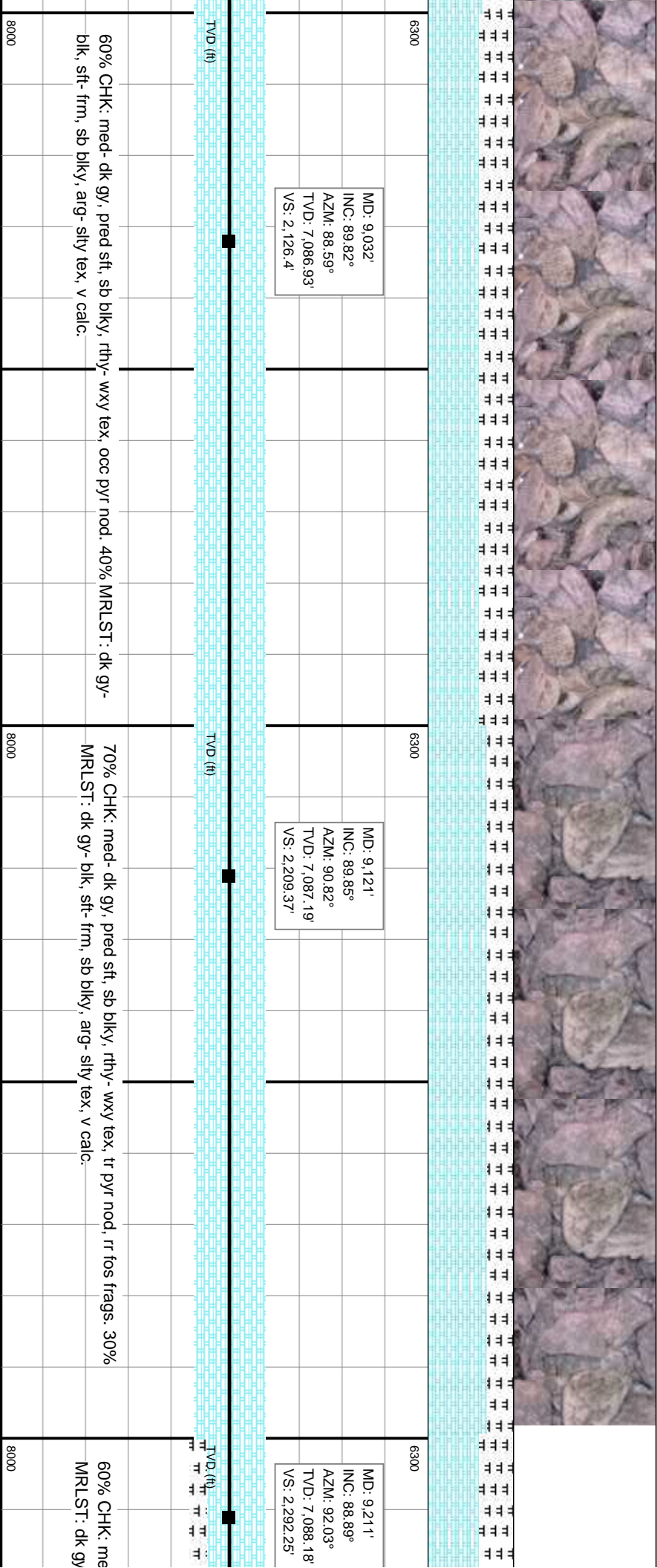
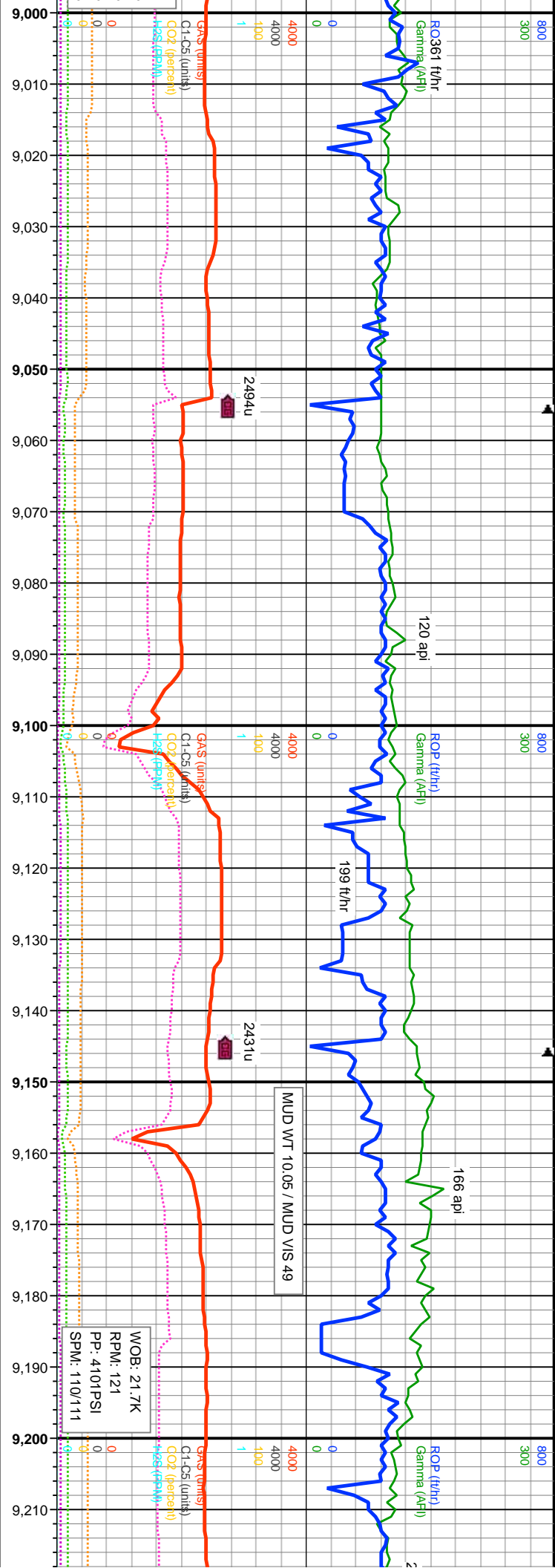


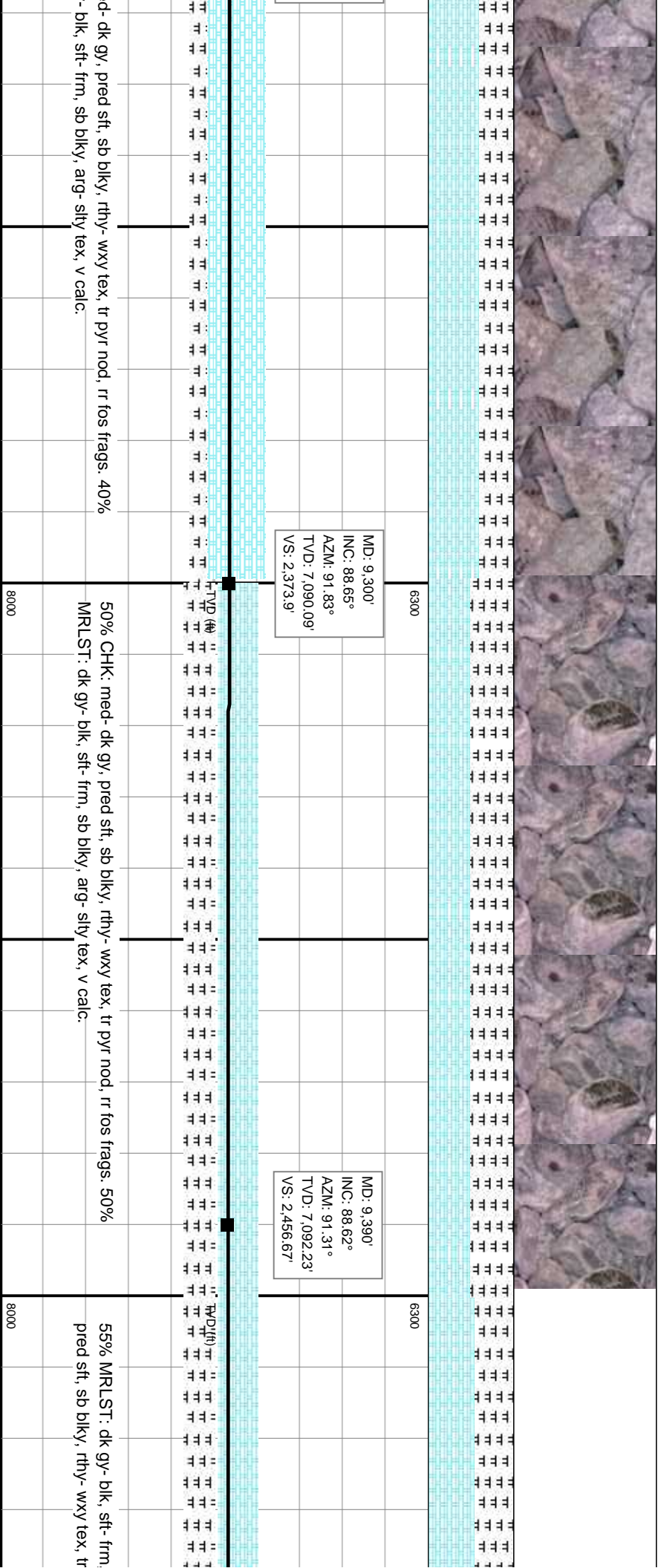
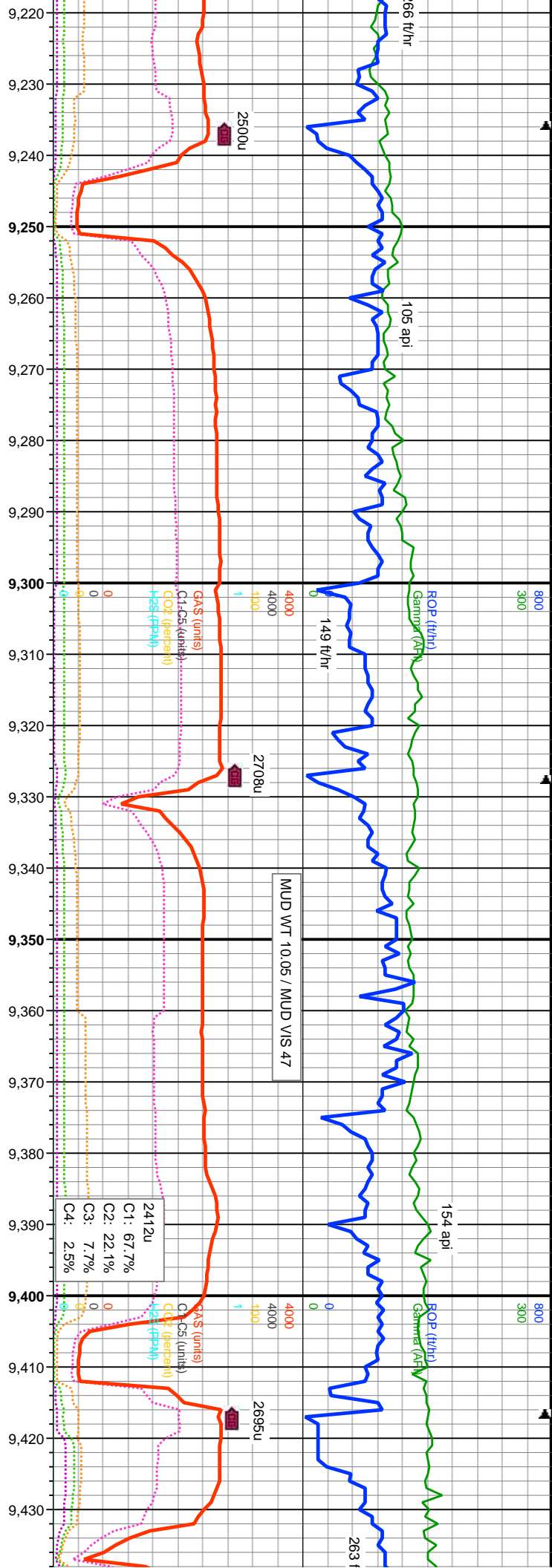


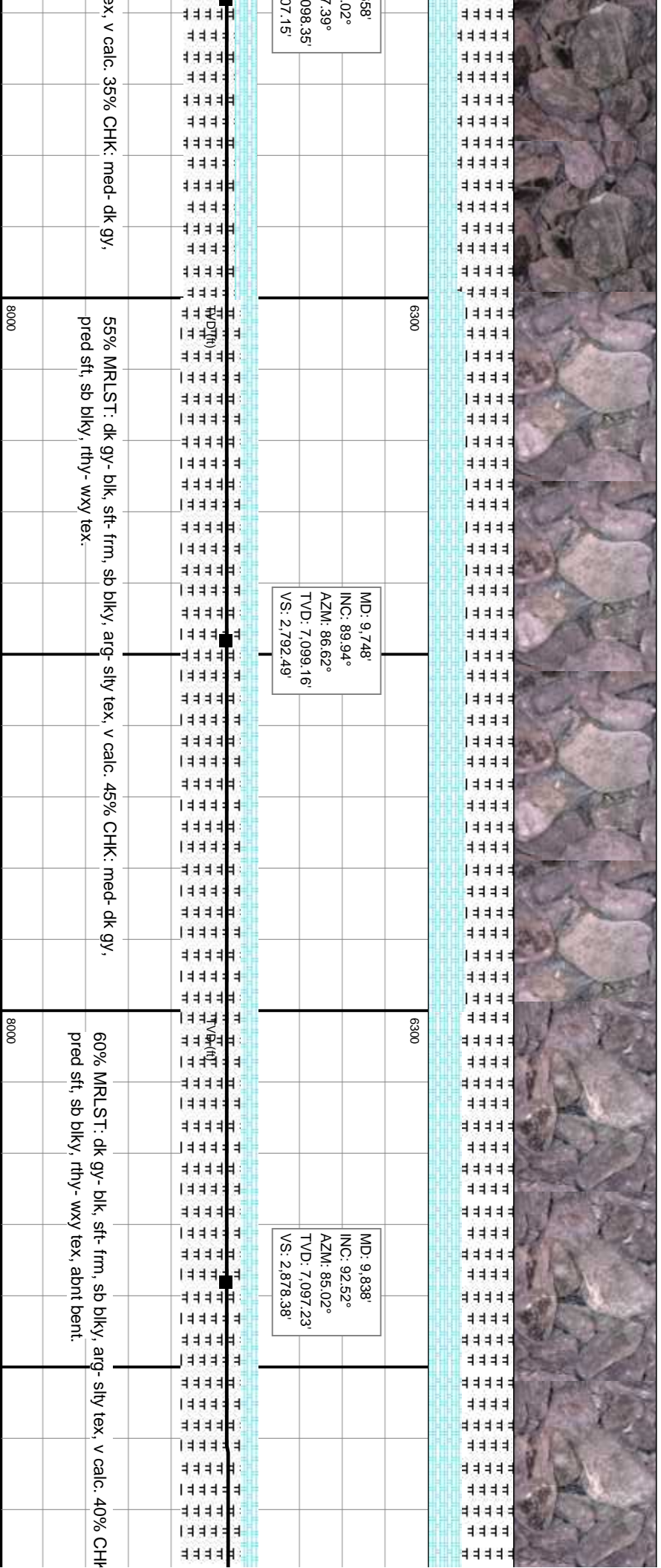
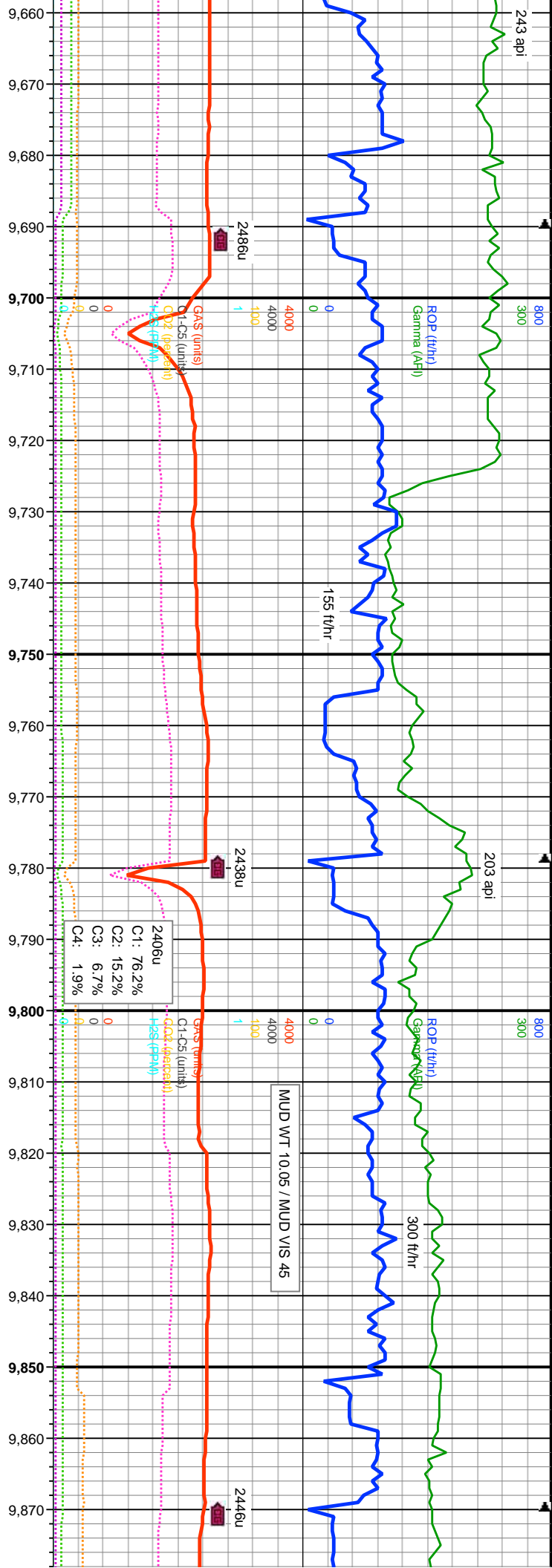


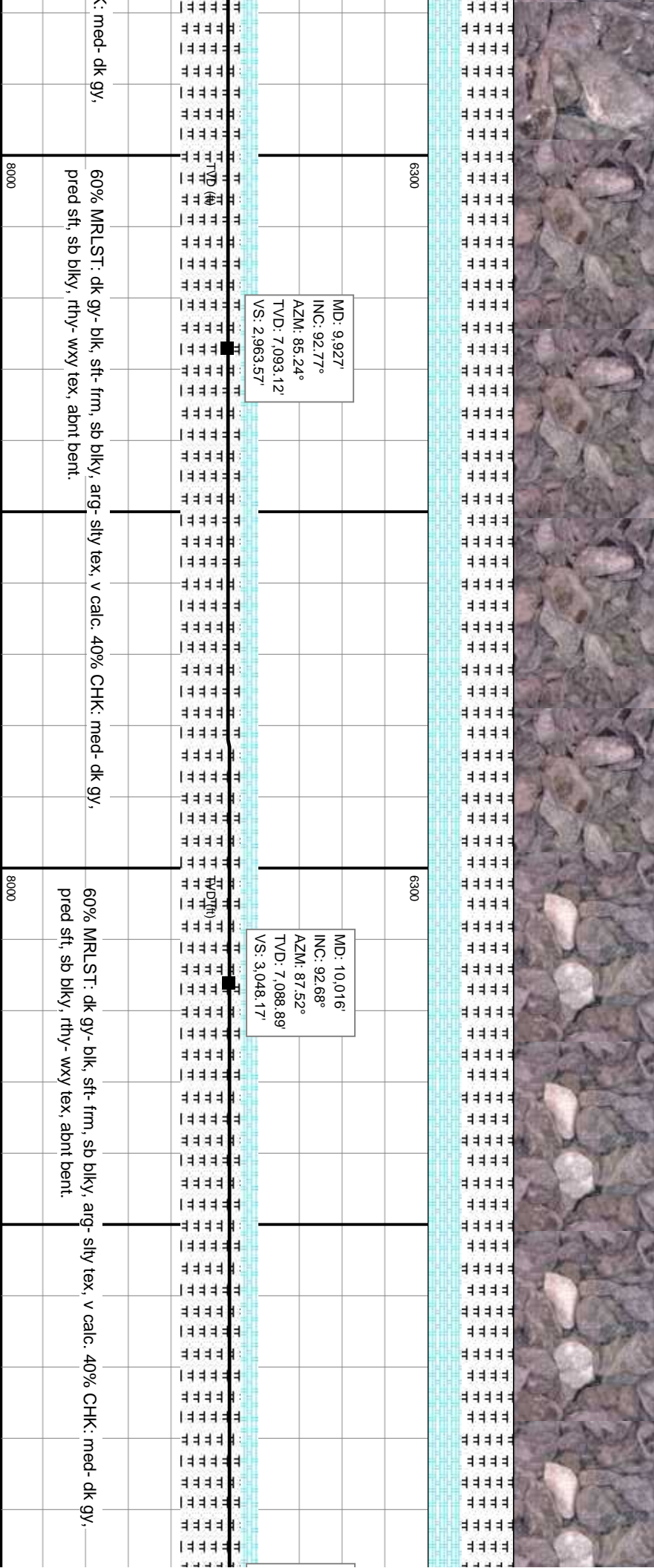
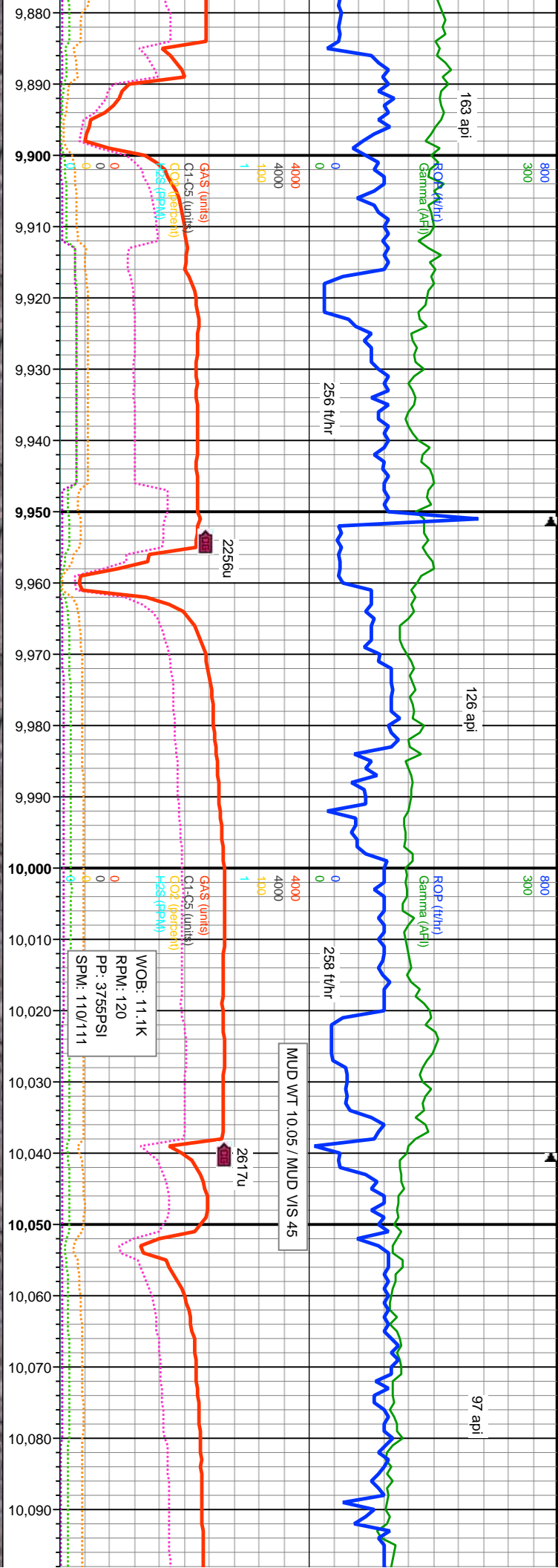


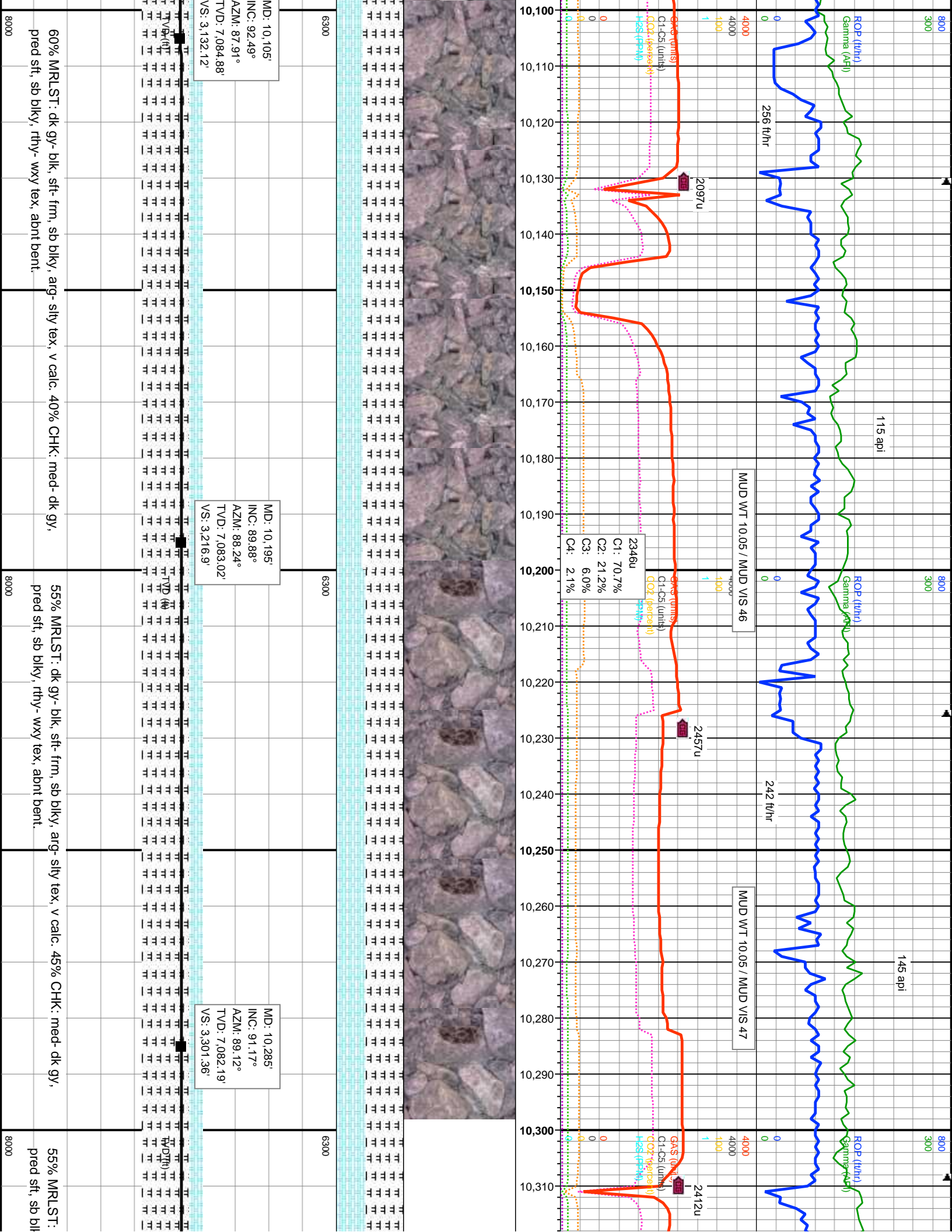


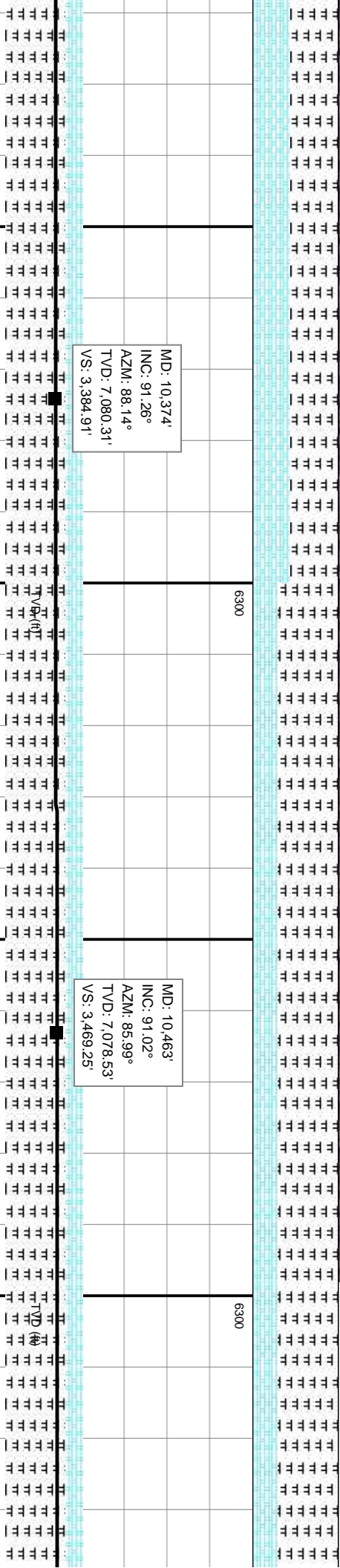
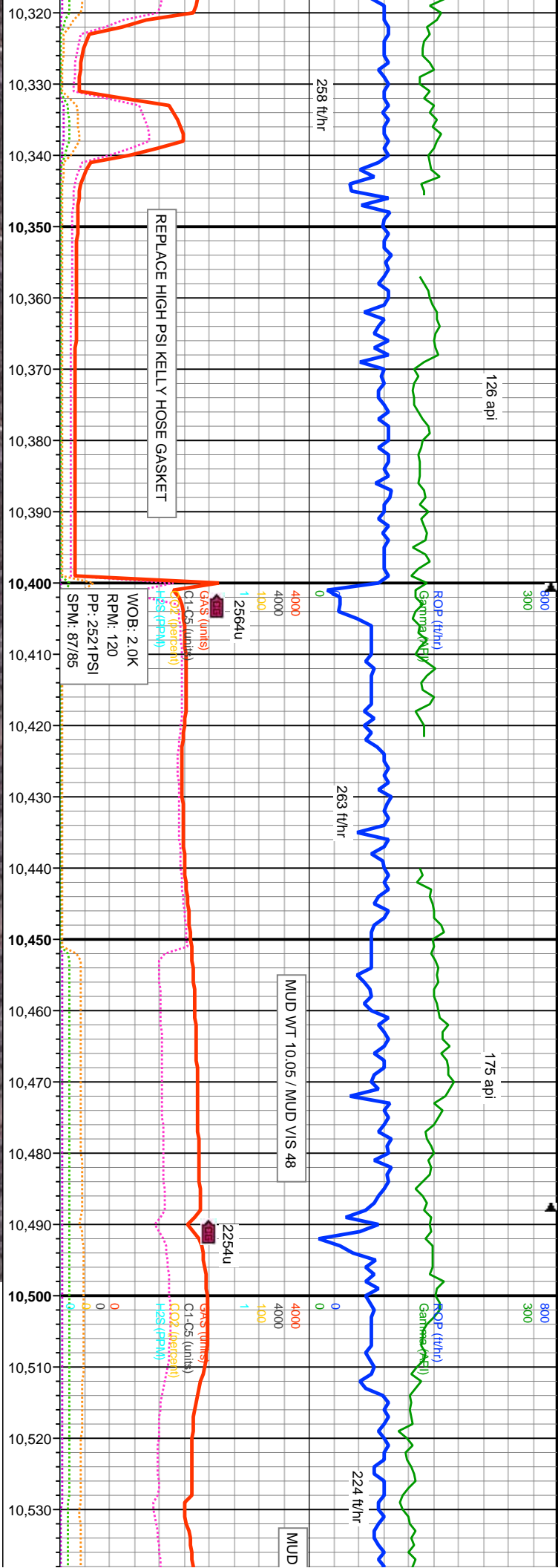










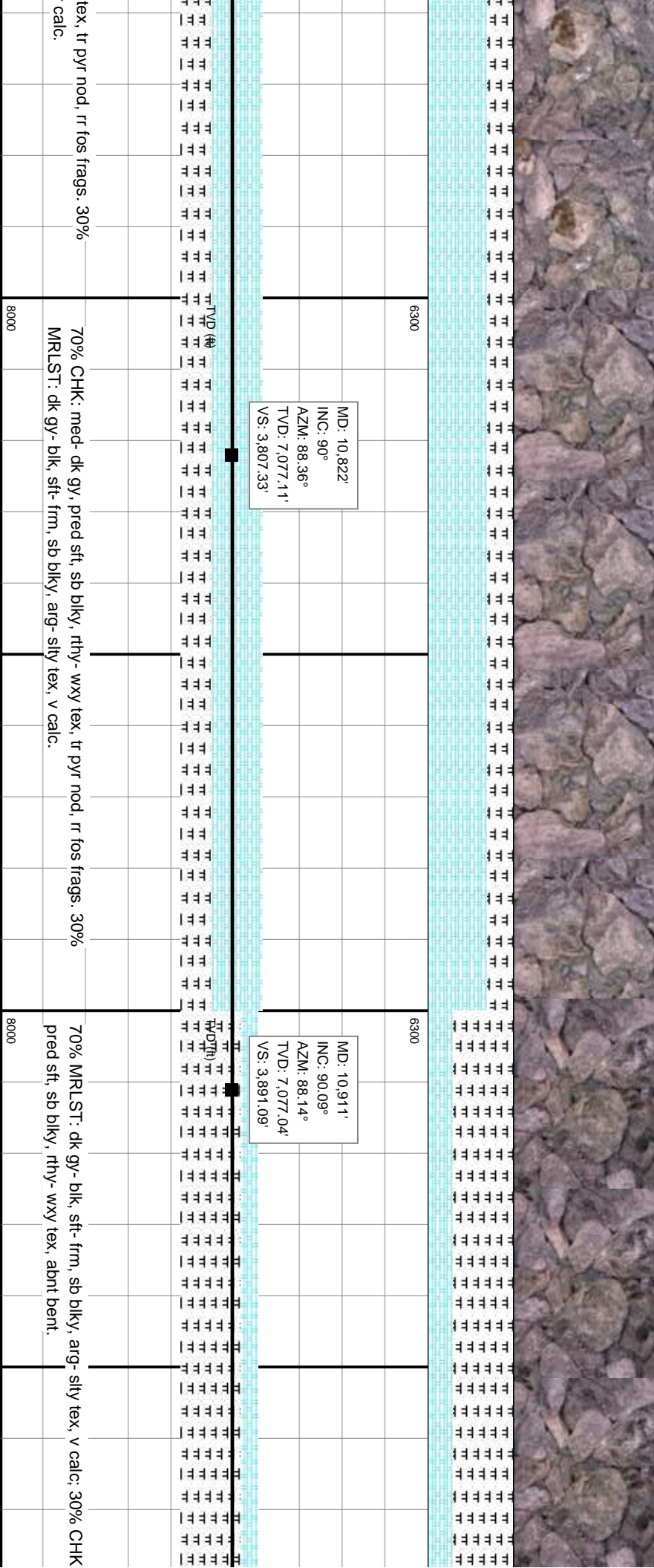
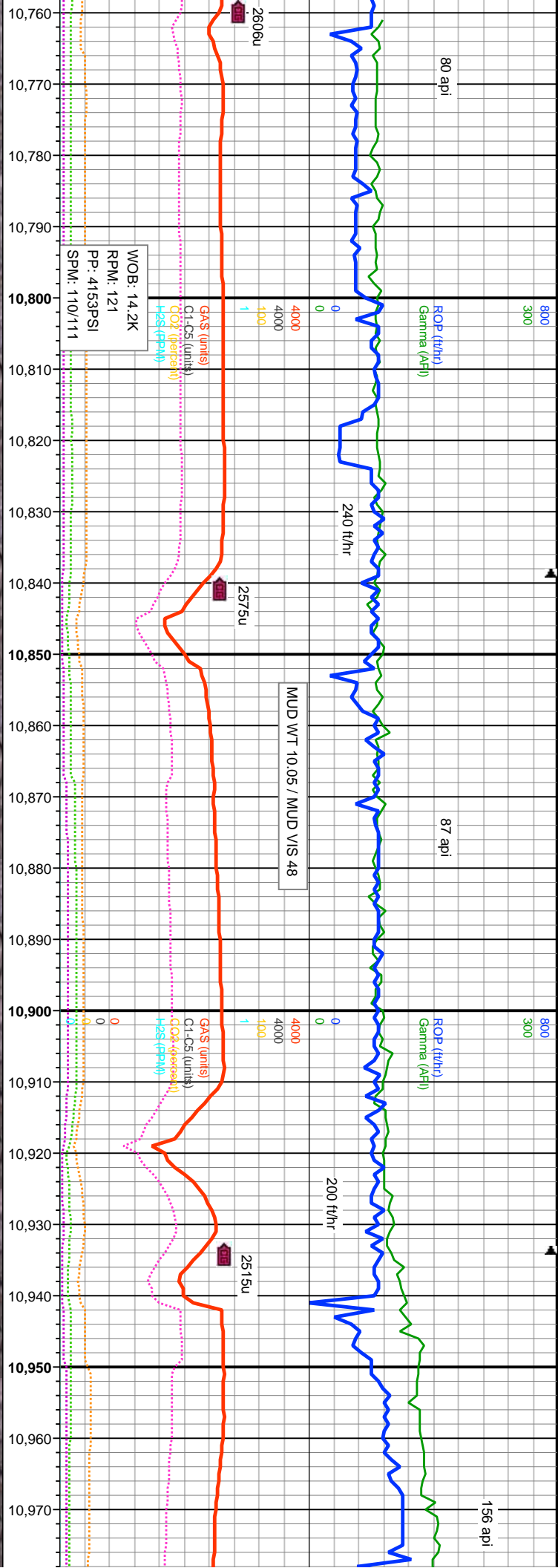


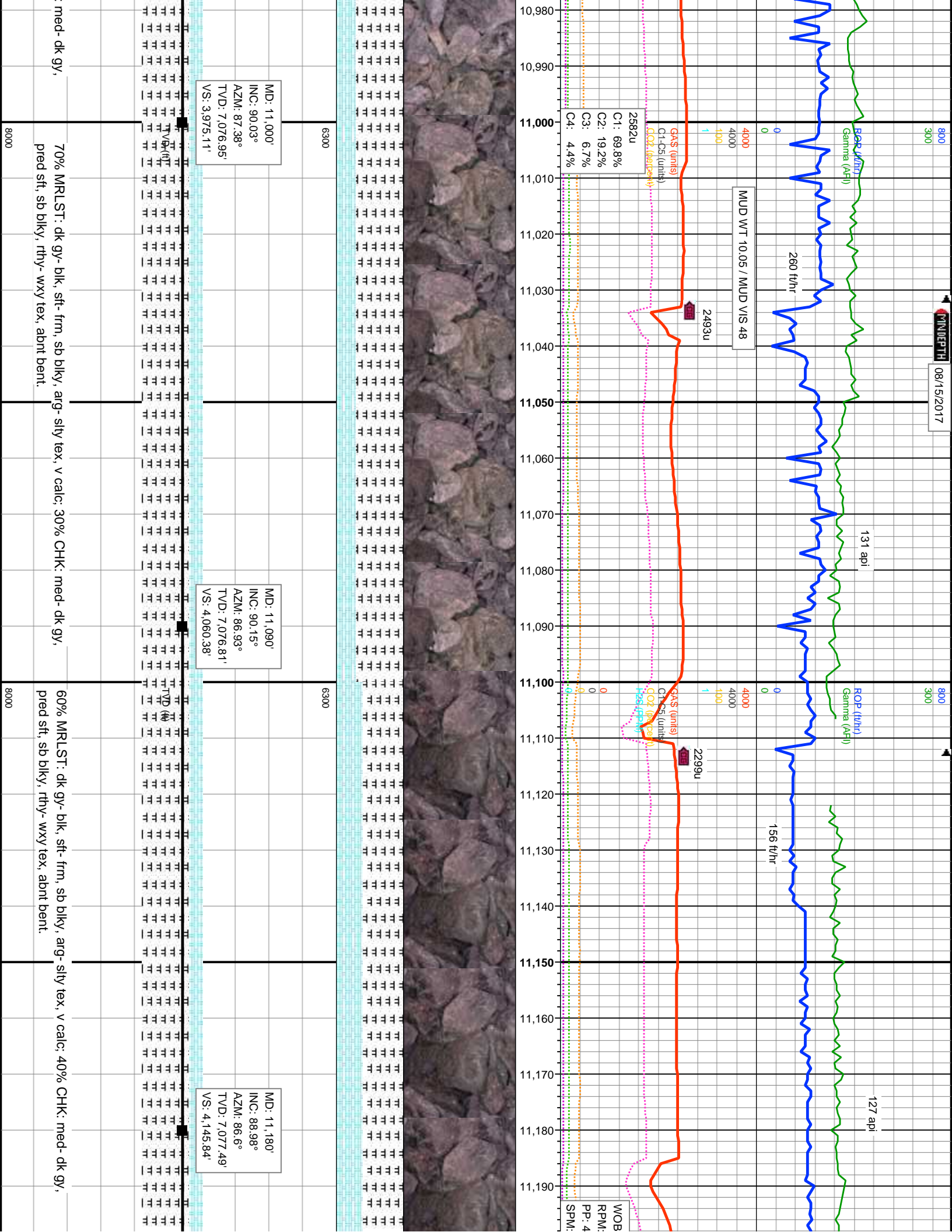
dk gy- blk, sft- frm, sb blk, arg- sily tex, v calc, 45% CHK: med- dk gy,
y, rthy- wxy tex, abnt bent.

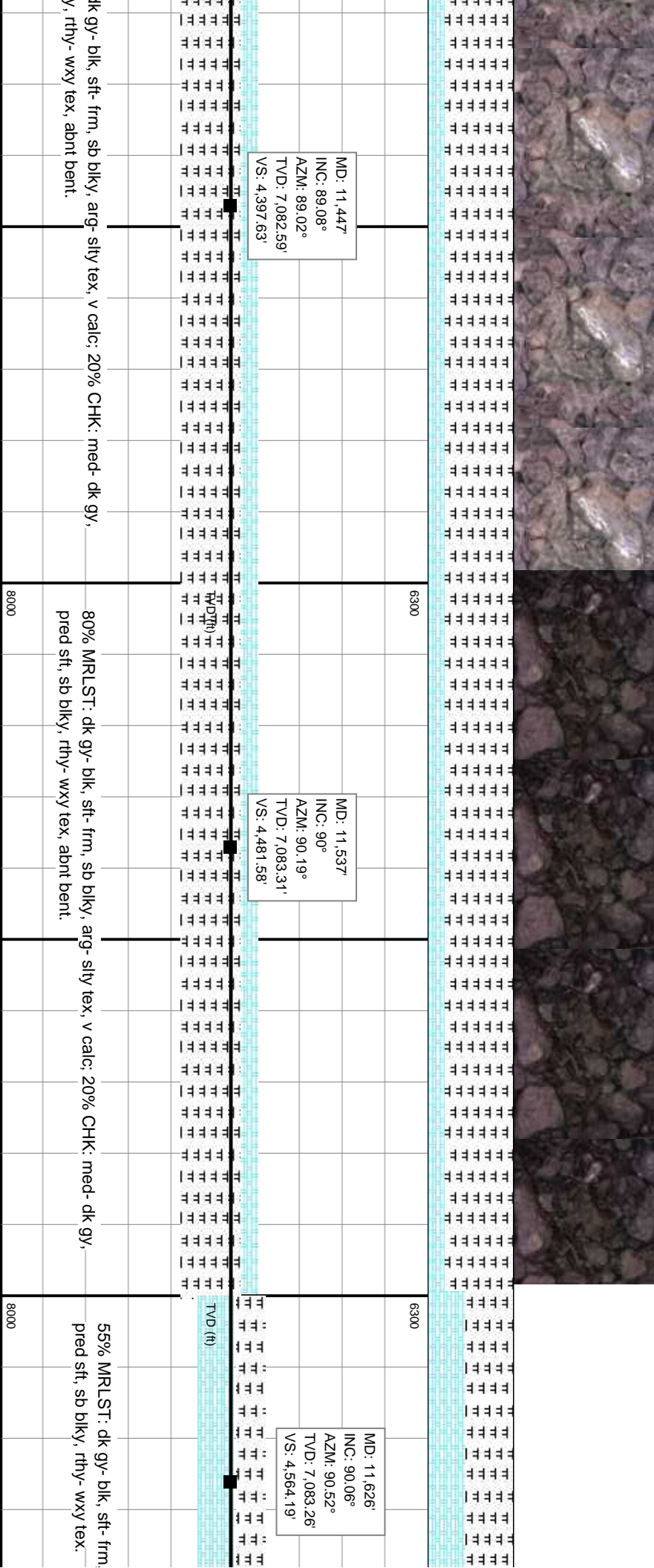
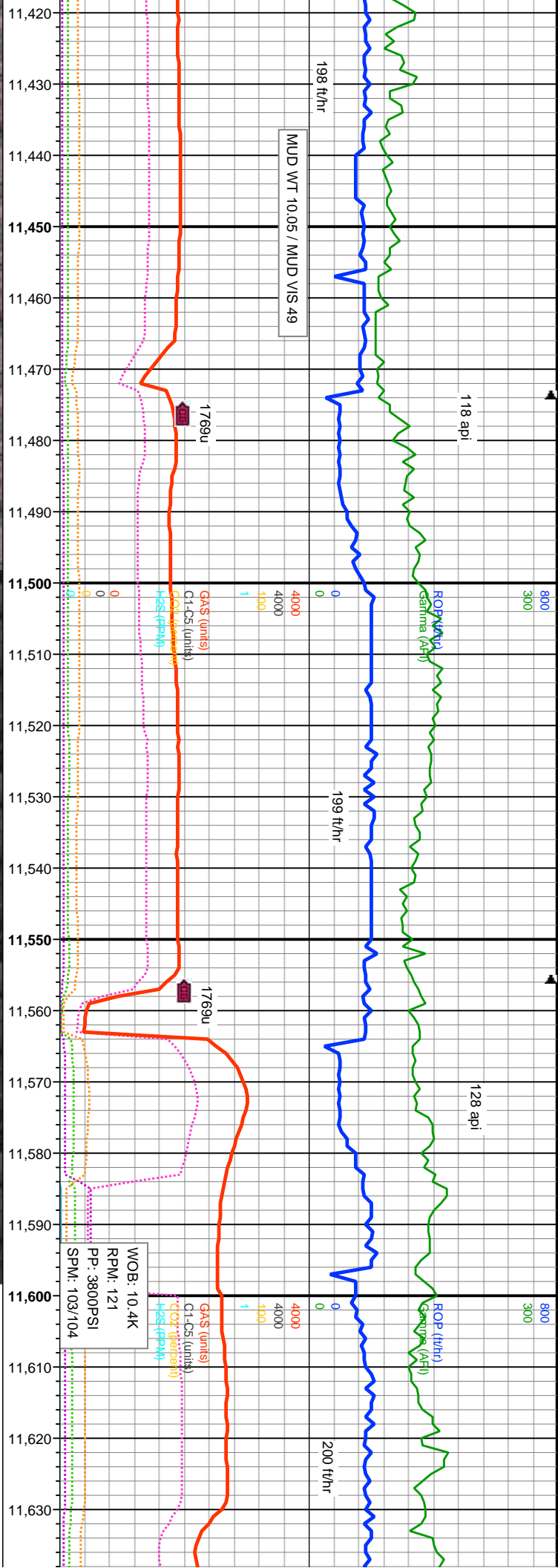
70% MRLST: dk gy- blk, sft- frm, sb blk, arg- sily tex, v calc, tr pyr, tr foss frag, 30%
CHK: med- dk gy, pred sft, sb blk, rthy- wxy tex, abnt bent.

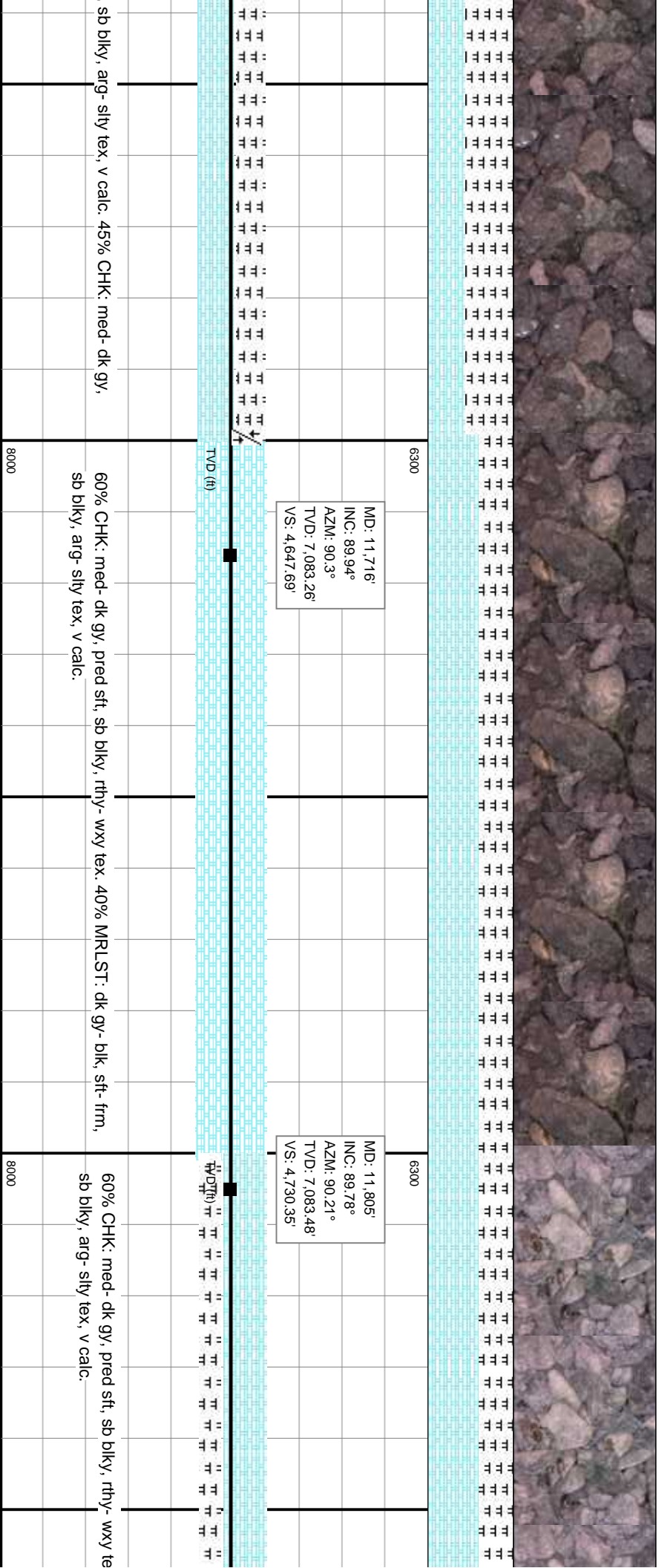
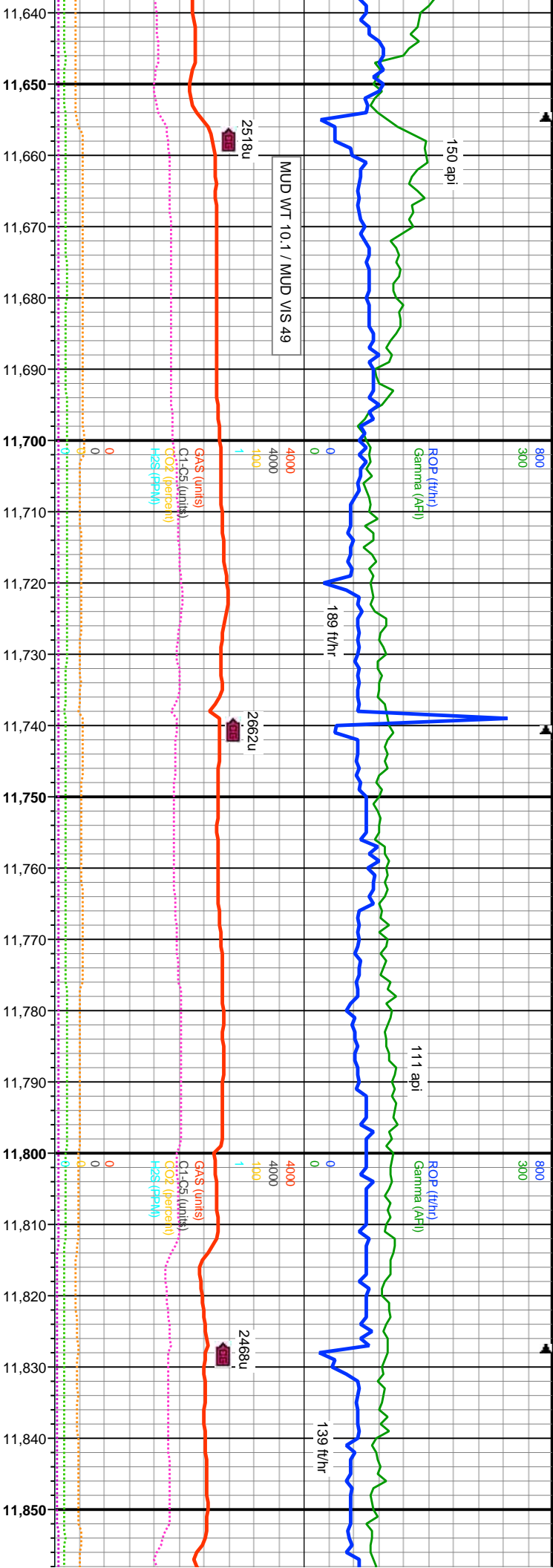
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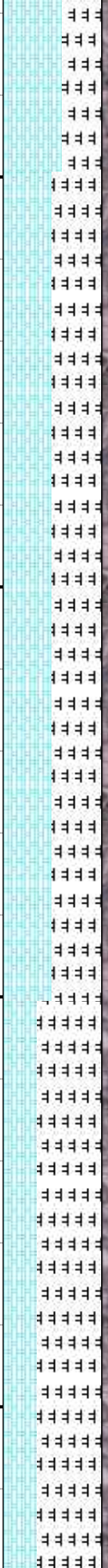
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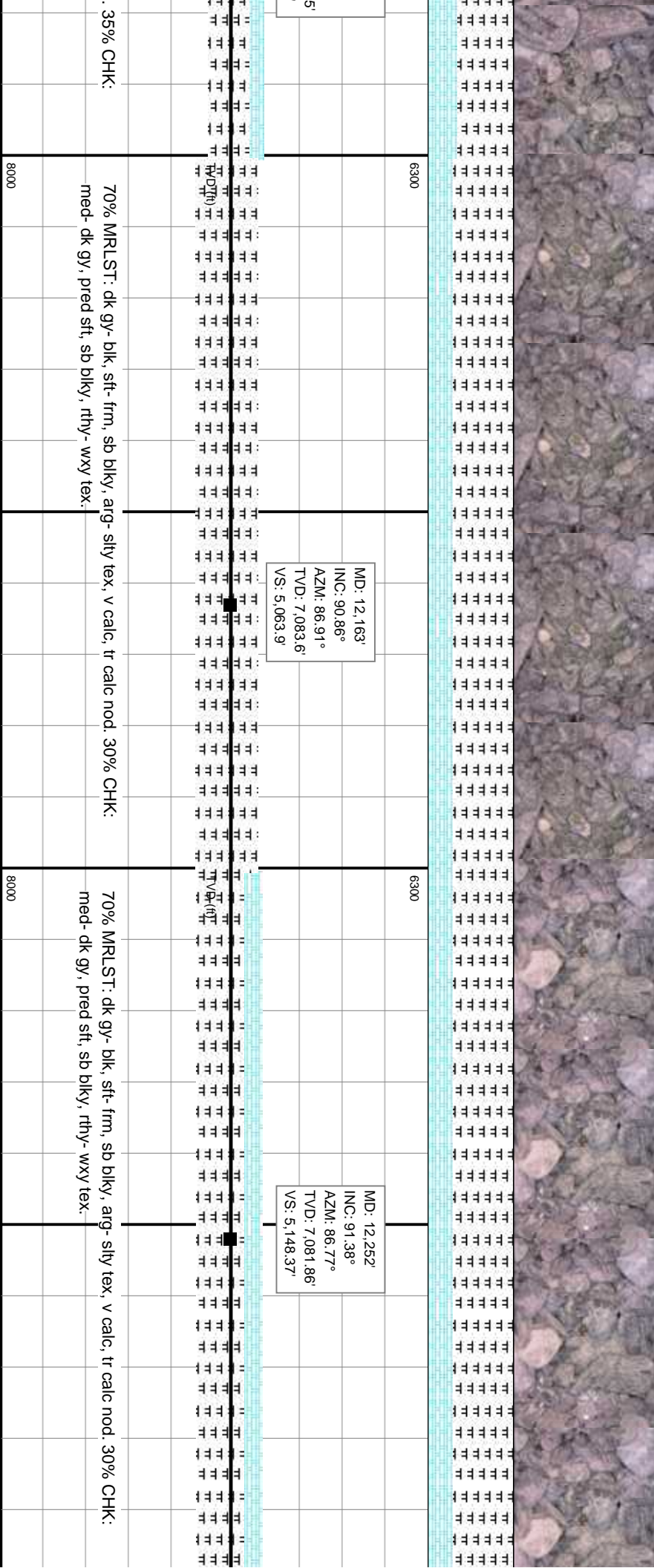
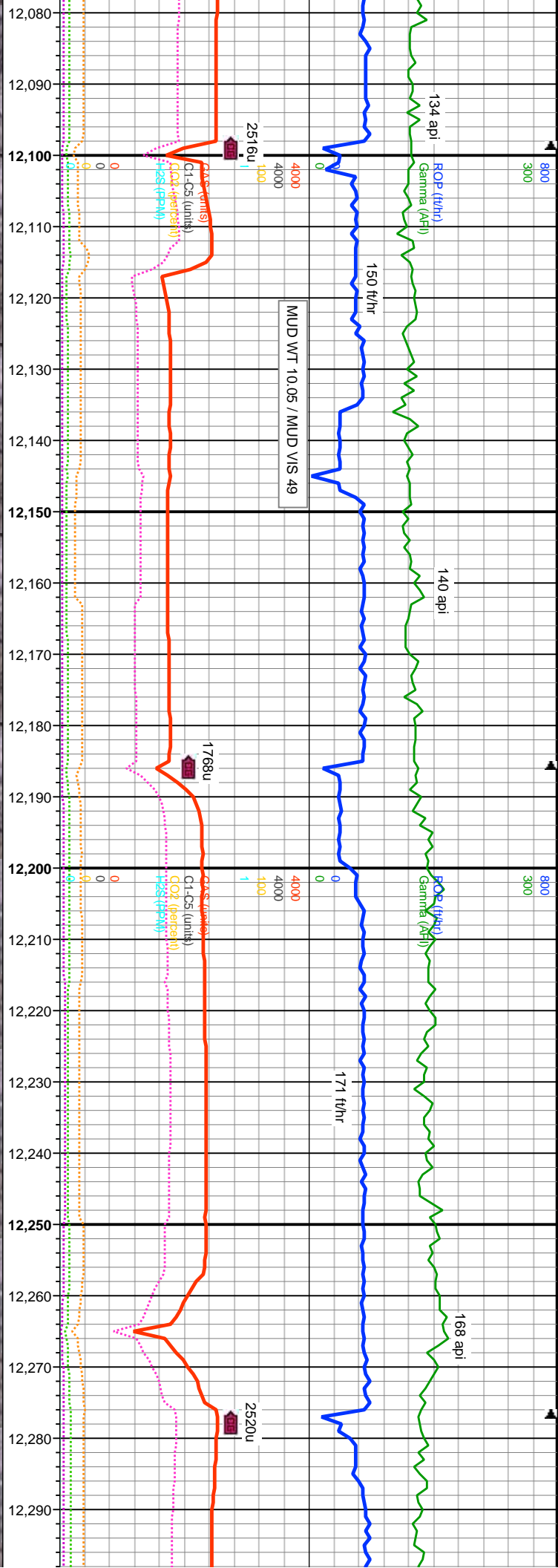






MD: 12,073'
INC: 89.97°
AZM: 89.66°
TVD: 7,084.2
VS: 4,979.23

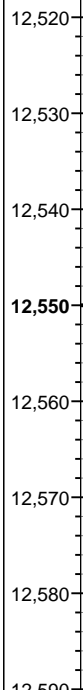
65% MRLST: dk gy- blk, sft- frm, sb blk, arg- slty tex, v calc, tr calc nod
med- dk gy, pred sft, sb blk, rthy- wxy tex.



35% CHK: 70% MRLST: dk gy- blk, sft- frm, sb blk, arg- sily tex, v calc, tr calc nod. 30% CHK: med- dk gy, pred sft, sb blk, rthy- wxy tex.

RAINANCE FD 20-319HN WELLBORE
REACHED TD AT 12518' MD AT 11:00
hrs MST on 08/15/2017

THANK YOU FOR USING TERRA GUIDANCE



ion to Bit

518'
.57°
5.34°
074.86'
00.92'

blky,