



Scale: 5" / 100'
Measured Depth Log

Well Name Ward R-20-19HN

Location Sec 20 T6N R66W

State Colorado

County Weld

Country US

Rig Number True 38

API Number 05-123-43662

AFE # 43662

Geographic Region Bracewell

Field Wattenberg

Spud Date 6/30/2017

Surface Coordinates 349 FSL 213 FEL Sec 20, T6N R66W

Bottom Hole Coordinates 1452 FSL 470 FWL Sec 19, T6N R66W

Ground Elevation 4728

K.B. Elevation 4753

Logged Interval 6000

Formation Niobrara B

Type of Drilling Fluid OBM

Operator

Company Bayswater Exploration & Production, LLC.

Address 730 17th St.
Denver, CO 80202



Geologist

Name Mark E. Brown

Company Bayswater Exploration & Production, LLC.

Address 730 17th St.
Denver, CO 80202

Other

Columbine Logging Computer 6-A

Bloodhound Unit 273

Mark Weiderspon Lead Wellsite Geologist

Jonathan Broussard Wellsite Geologist

Zone Color Coding

- Oil
- Note
- Error
- Condensate
- Core
- Water
- Gas
- Pressure
- Seal

Rock Types

- UNKNOWN
- ANHYDRITE
- BENTONITE
- BRECCIA
- CHALK
- CEMENT
- CHERT
- CLAY CHOKESAND
- CLAYSTONE
- COAL
- CONGLOMERATE
- DOLOMITE
- DOLOMITIC LIMESTONE
- GRANITE
- GYPSUM
- IGNEOUS
- SIDERITE or LIMONITE
- LIMESTONE
- MARLSTONE
- METAMORPHIC
- NO SAMPLE
- SAND
- SANDSTONE
- SALT-PEPPER SAND
- SHALE
- SHALE COLORED
- SHALE GRAY
- SHALY SANDSTONE
- SHALY SILTSTONE
- SILTY SHALE
- SILTSTONE
- TILL
- TUFF
- WELDED TUFF

Accessories

- GASTROPOD
- INOCERAMUS
- OOLITE
- OSTRACOD
- PELECYPOD
- PELLET
- PISOLITE
- PLANT REMAINS
- PLANT SPORES
- SCAPHOPOD
- STROMATOPOROID
- ARGILLITE GRAIN
- BENTONITE
- BITUMENOUS SUBSTANCE
- BRECCIA FRAGMENTS
- CALCAREOUS
- CARBONACEOUS FLAKES
- CHERT
- CHERT
- COAL - THIN BEDS
- DOLOMITIC
- FELDSPAR
- FERRUGINOUS PELLET
- FERRUGINOUS
- GLAUCONITIC
- GYPSIFEROUS
- HEAVY MINERAL
- KAOLIN
- MARCASITE
- MARLSTONE
- MICACEOUS
- MINERAL CRYSTALS
- NODULES
- PHOSPHATE PELLETS
- PYRITE
- SALT CAST
- SANDY
- SIDERITE
- SILTY
- TUFFACEOUS
- Fossil
- FISH
- FORAMINIFERA
- ARGILLACEOUS
- Stringer
- ANHYDRITE STRINGER
- BENTONITE STRINGER
- COAL STRINGER
- DOLOMITE STRINGER
- GYPSUM STRINGER
- LIMESTONE STRINGER
- MARLSTONE (CALC) STRG
- MARLSTONE STRINGER
- SHALE STRINGER
- SILTSTONE STRINGER

Oil Show

- PINPOINT
- VUGGY



Engineering

- DEAD
- EVEN
- QUESTIONABLE
- BIT
- SPOTTED STAINING
- CONNECTION (UP)

Porosity

- CONNECTION (DOWN)
- CONNECTION GAS (LEFT)
- TRIPART GAS
- FRACTURE
- TRIPART GAS (LEFT)
- INTERCRYSTALLINE
- DOWN TIME GAS
- INTERCRYSTALLINE
- DOWN TIME GAS (LEFT)
- MOLDIC
- CORE - LOST
- ORGANIC
- CORE - RECOVERED

ther Symbols

 DST INTERVAL  WIRELINE TESTED - LEFT **E** EARTHY

 FAULT  WIRELINE TESTED - RT **FX** FINELYXLN

 FORMATION TOP  DRILL STEM TEST **GS** GRAINSTONE

 GAS SHOW  **MINDEPTH** MN DEPTH **L** LITHOGRAPHIC


 OIL SHOW **MX** MICROXLN


 **MNDEPTH** MN DEPTH UP **MS** MUDSTONE

Rounding

 **MNDEPTH** MN DEPTH (DOWN) **AS** ANGULAR **PS** PACKSTONE

 NORMAL FAULT **R** ROUNDED **WS** WACKESTONE

 OVERTURNED STRATA **B** SUBANG **US** SUBURND

 REVERSE FAULT **R** SUBRND

Sorting

 CASING **M** MODERATE

Textures

 SIDEWALL CORE (LEFT) **P** POOR

 SIDEWALL CORE (RIGHT) **BS** BOUNDSTONE **W** WELL

 SLIDE **C** CHALKY

 **BS** SURVEY **CX** CRYPTOXLN

Slide/Rotate

ROP —

	COLUMBINE LOGGING RIGGED UP ON 10/03/2017 MANNED 2-PERSON LOGGING STARTED LOGGING 6000 MD 2220 hrs MDT 10/03/2017	
Survey, Gamma, ROP Data provided by Baker Hughes Rotary Steerable		

ROP (ft/hr)

\dot{Q}_P (l/hr)

Total Gas & Chromatograph

GAS DATA FROM BLOODHOUND
CHROMATOGRAPH UNIT #273
JOB NUMBER 195
IBALL GAS CHART DATA BASE
Bayswater WARD R2019HN.mdb

GAS (units)
C1-C4 (units)

TG- 4450	
C1- 83.0%	
C2- 4.8%	
C3- 8.3%	
C4- 3.9%	

GAS (units)
C1-C4 (units)

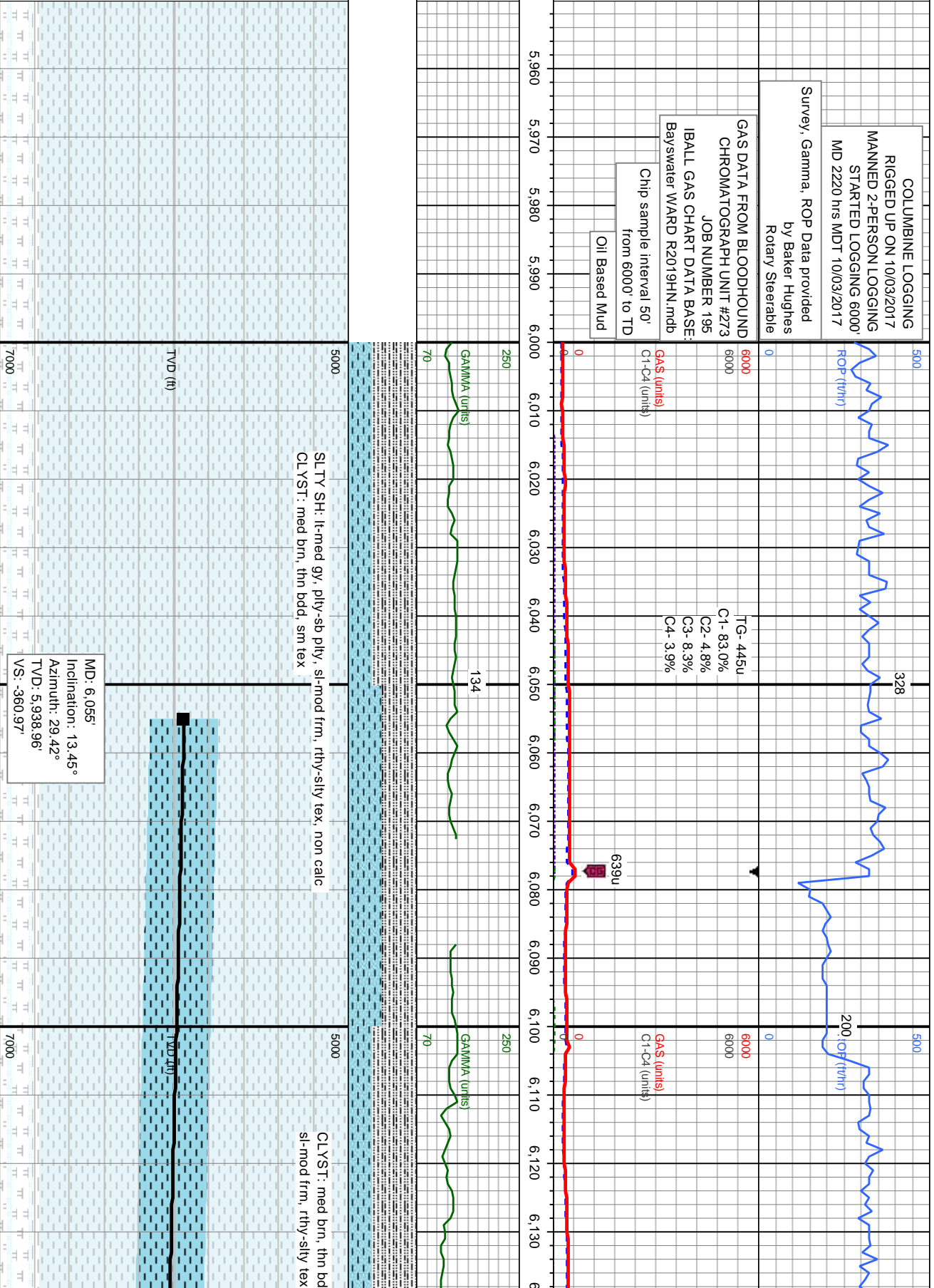
Depth Labels

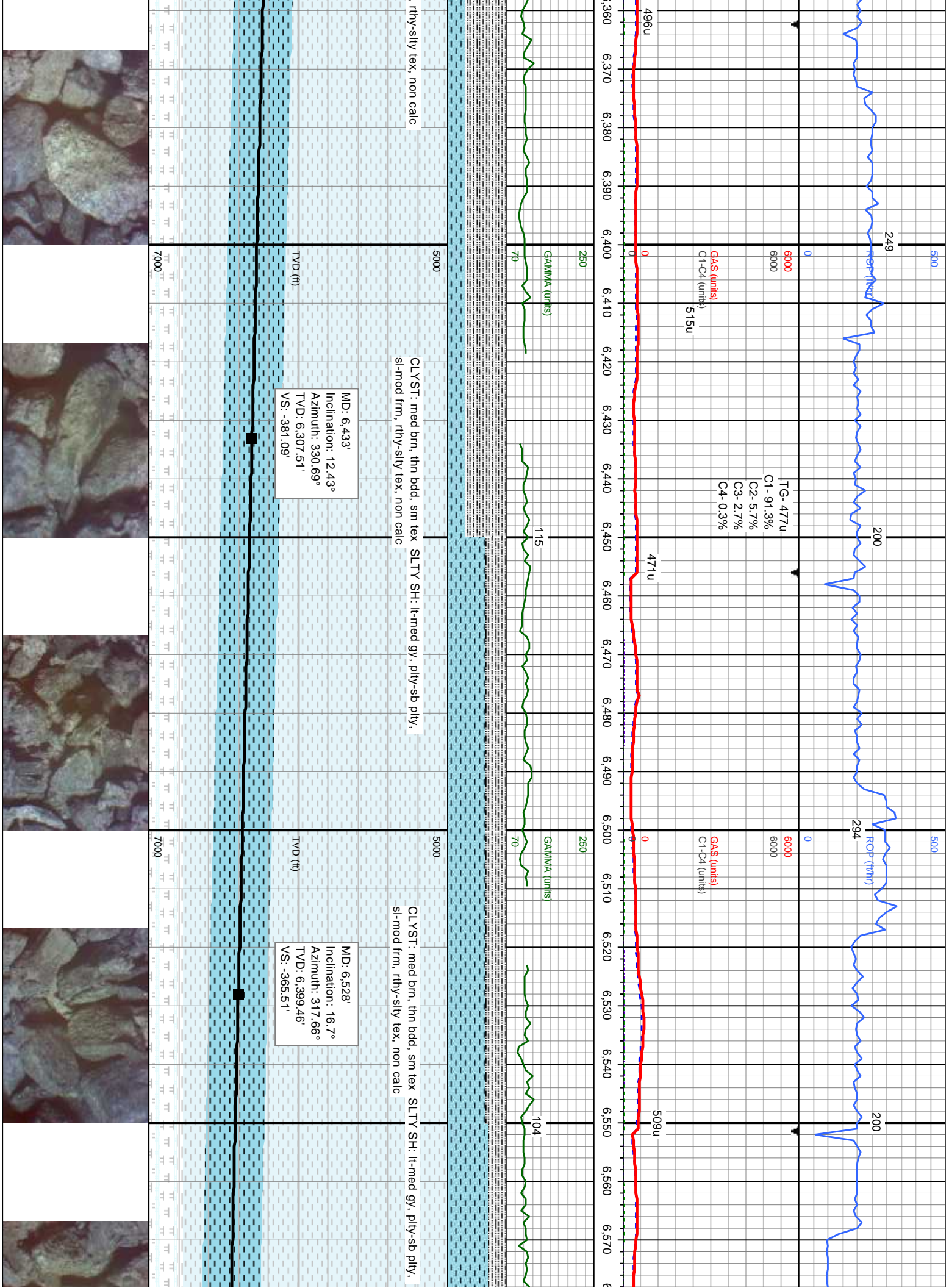
Gamma
GAMMA —

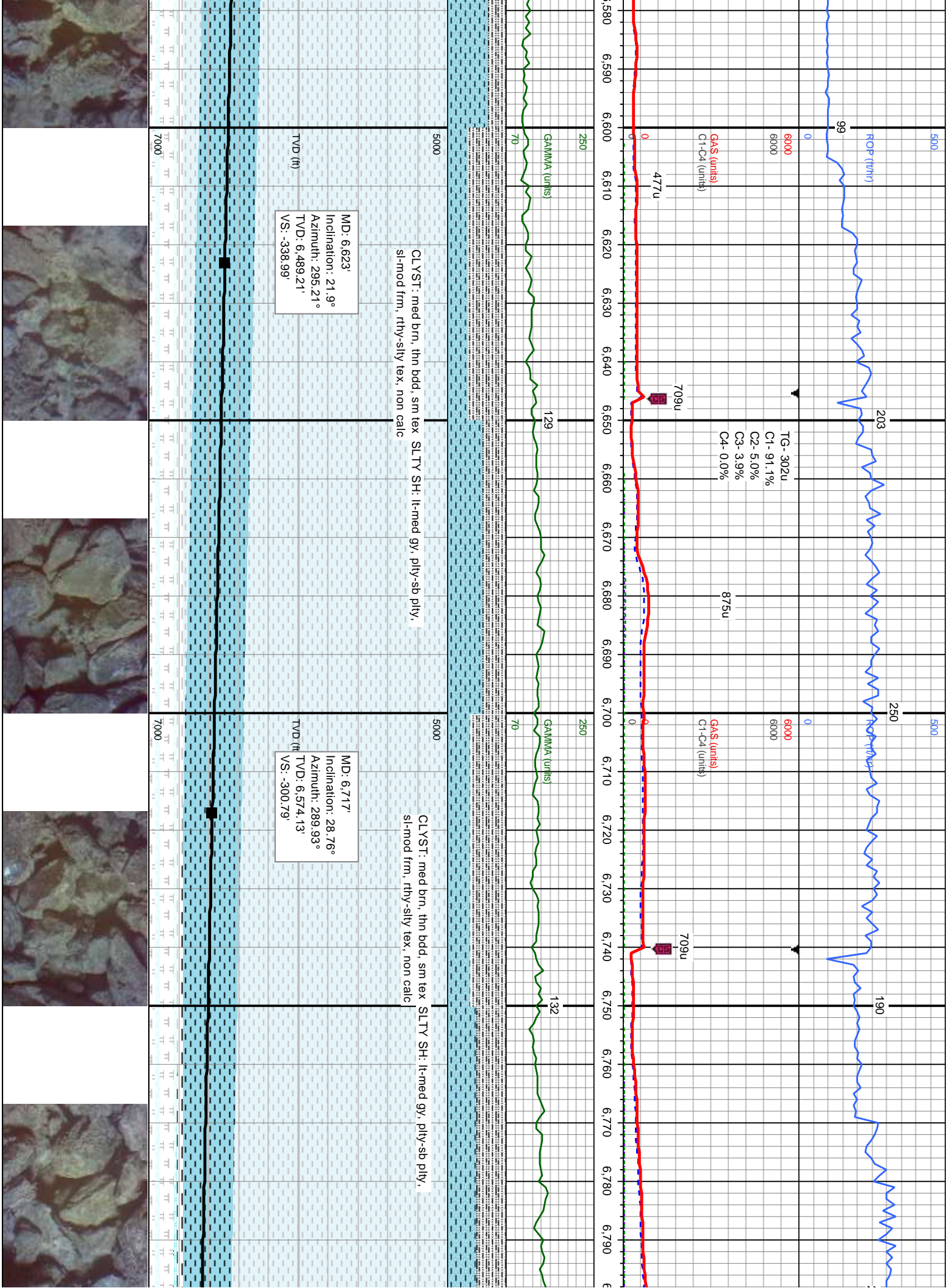
% Lith

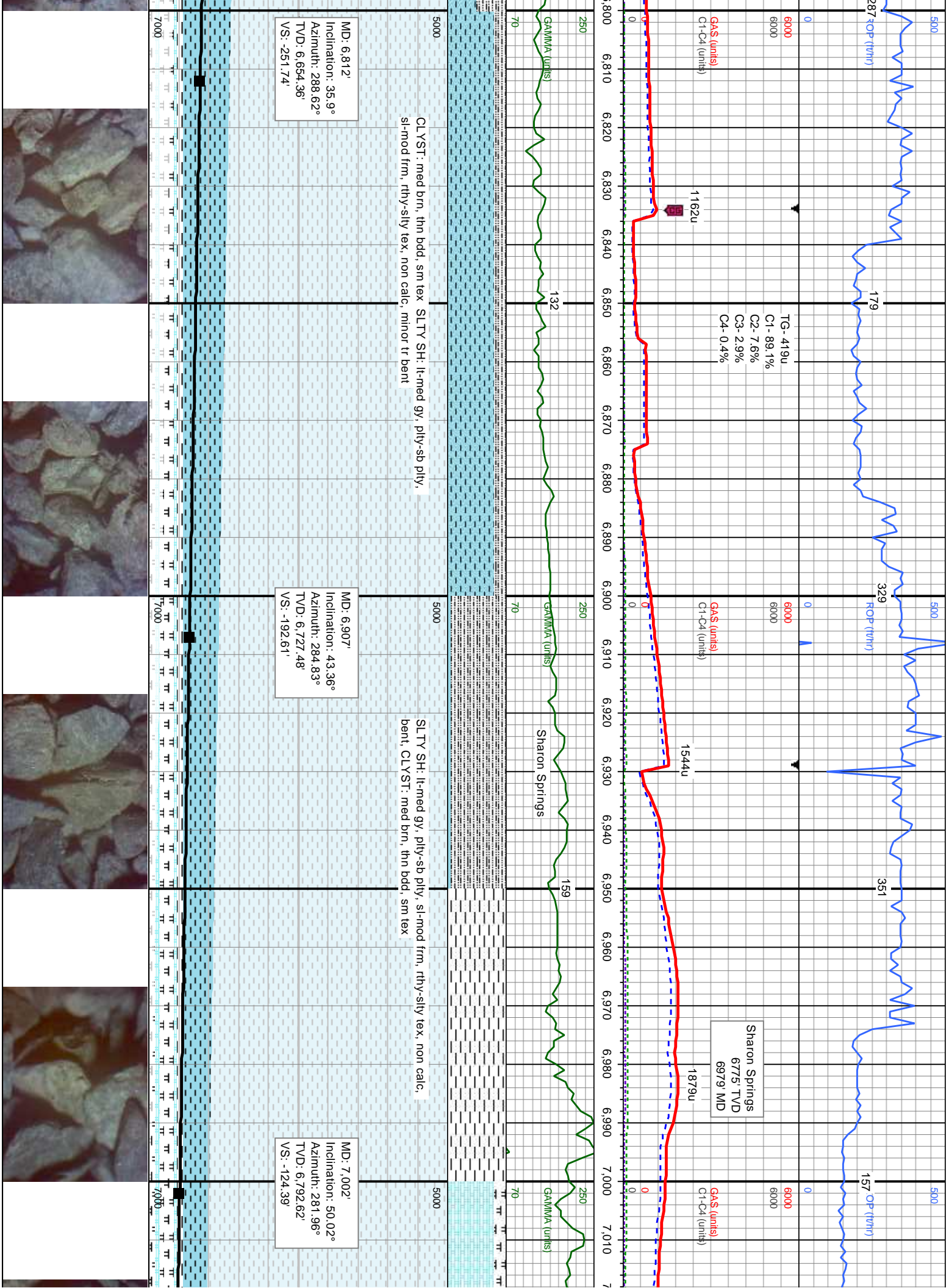
Well Bore
TV D —

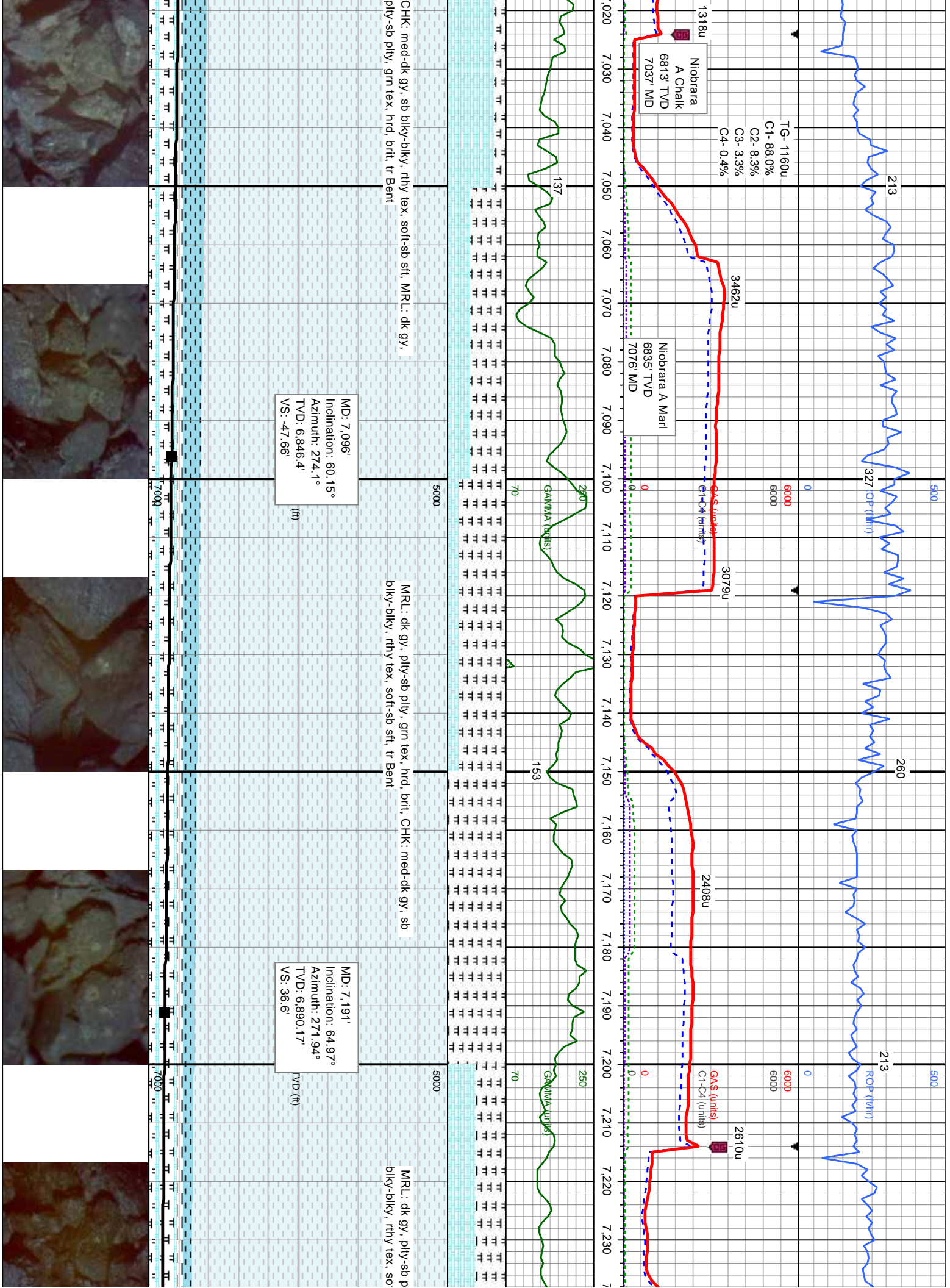
Images

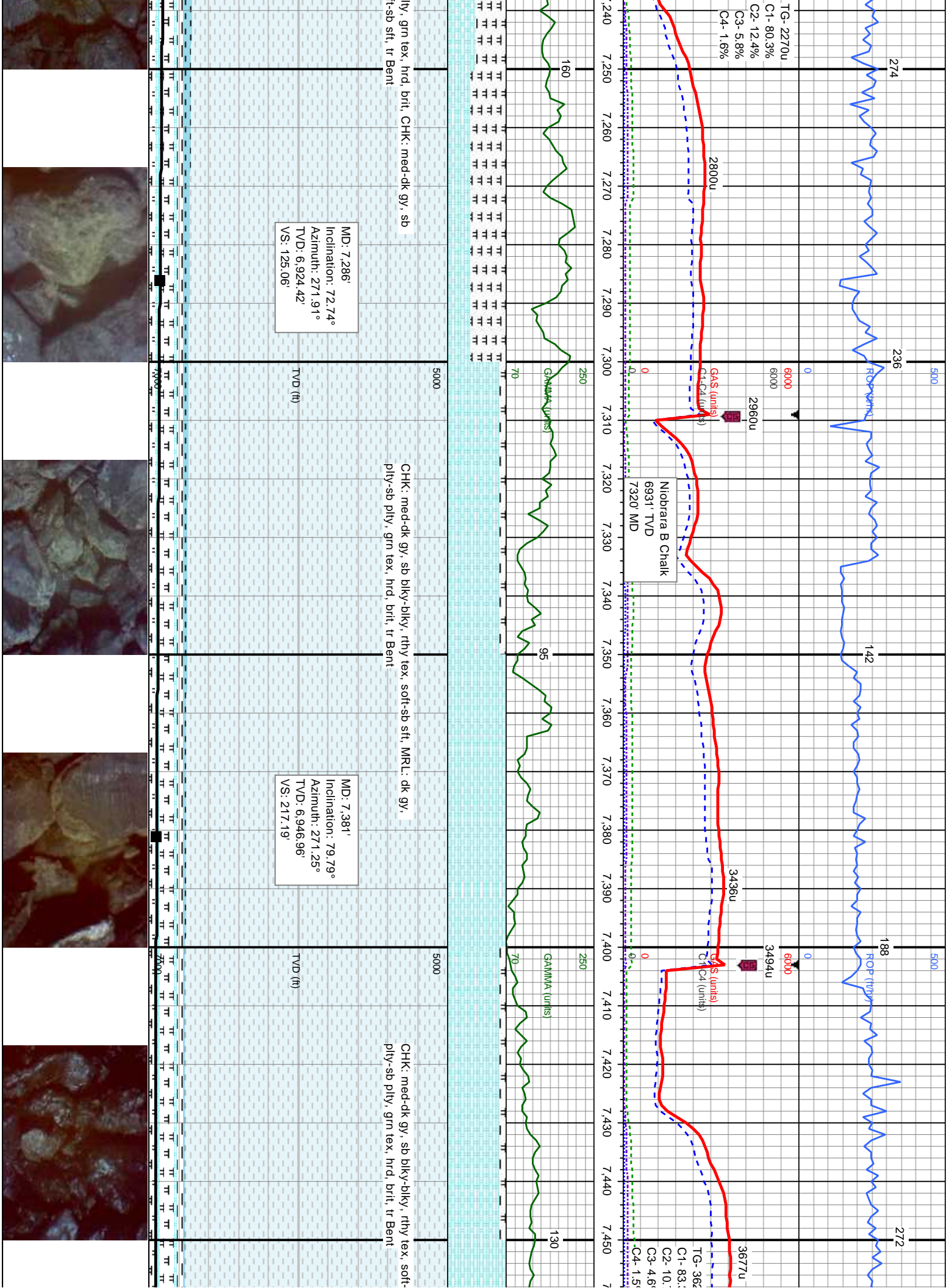


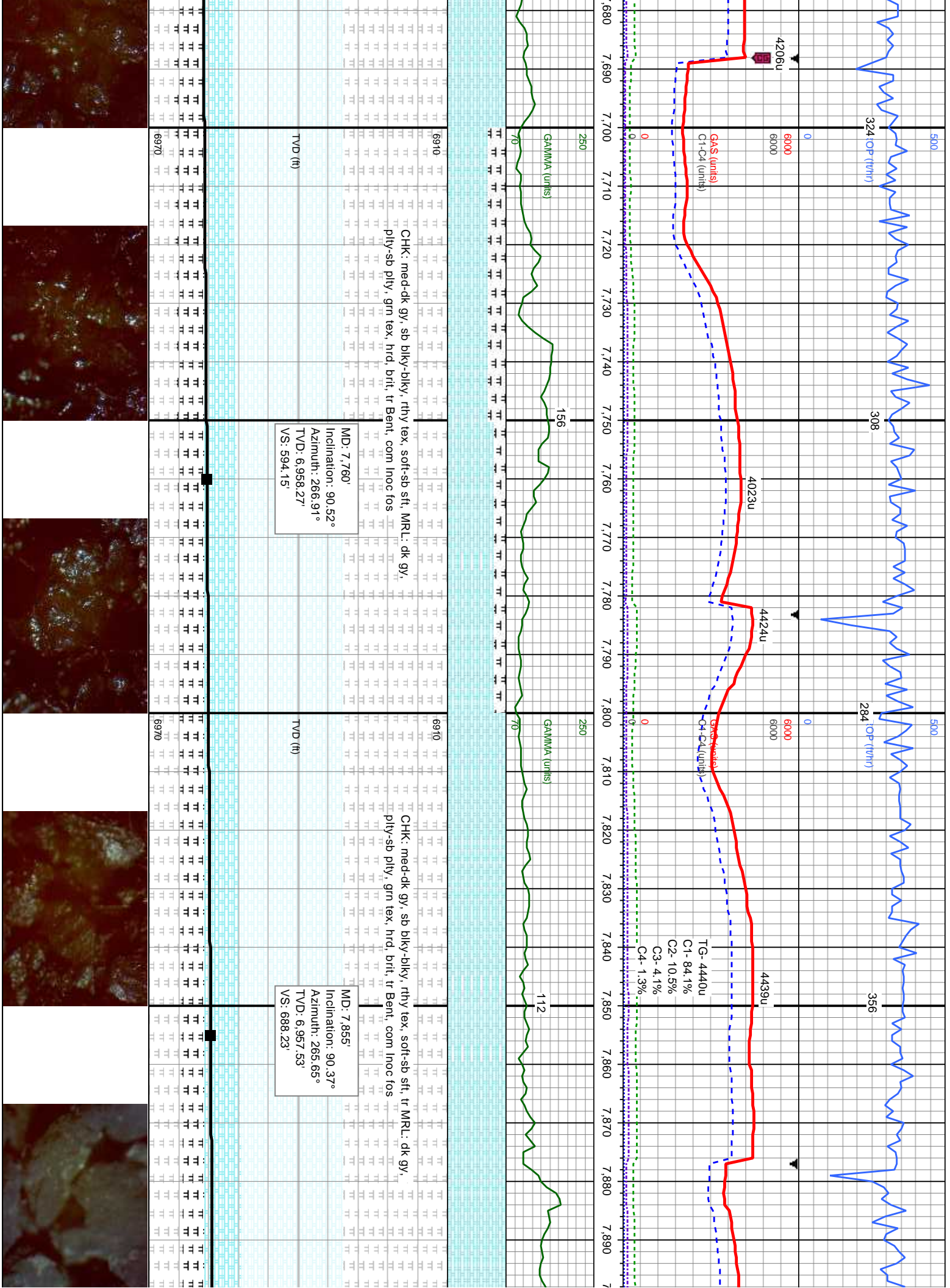


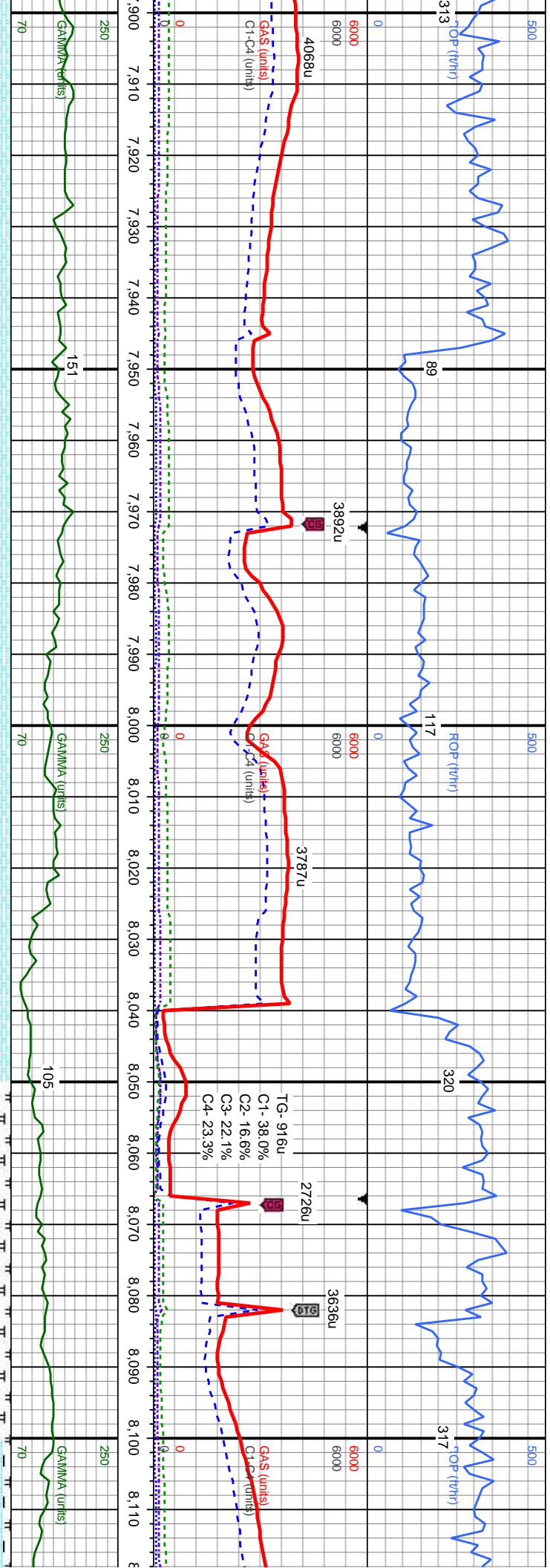






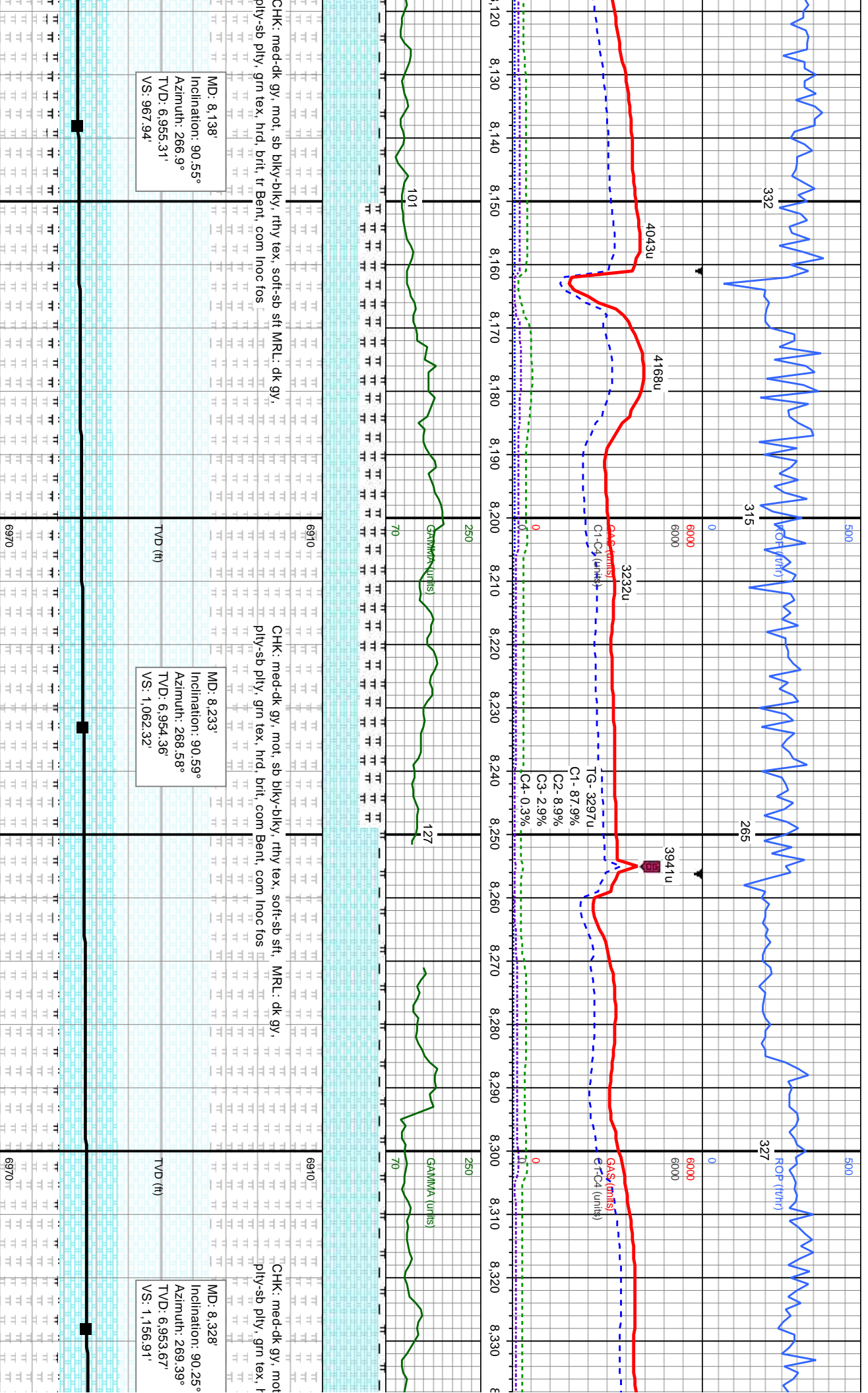


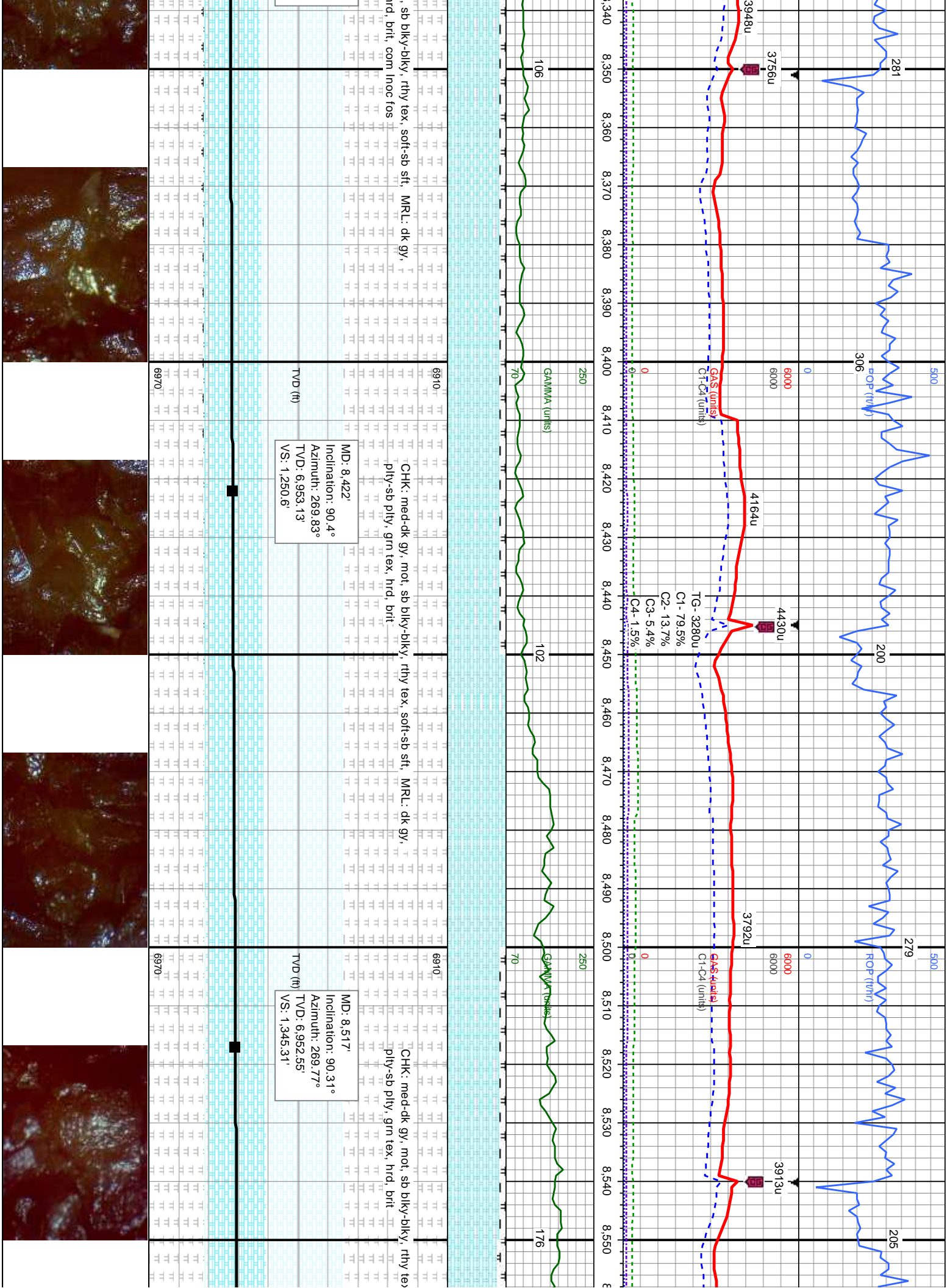


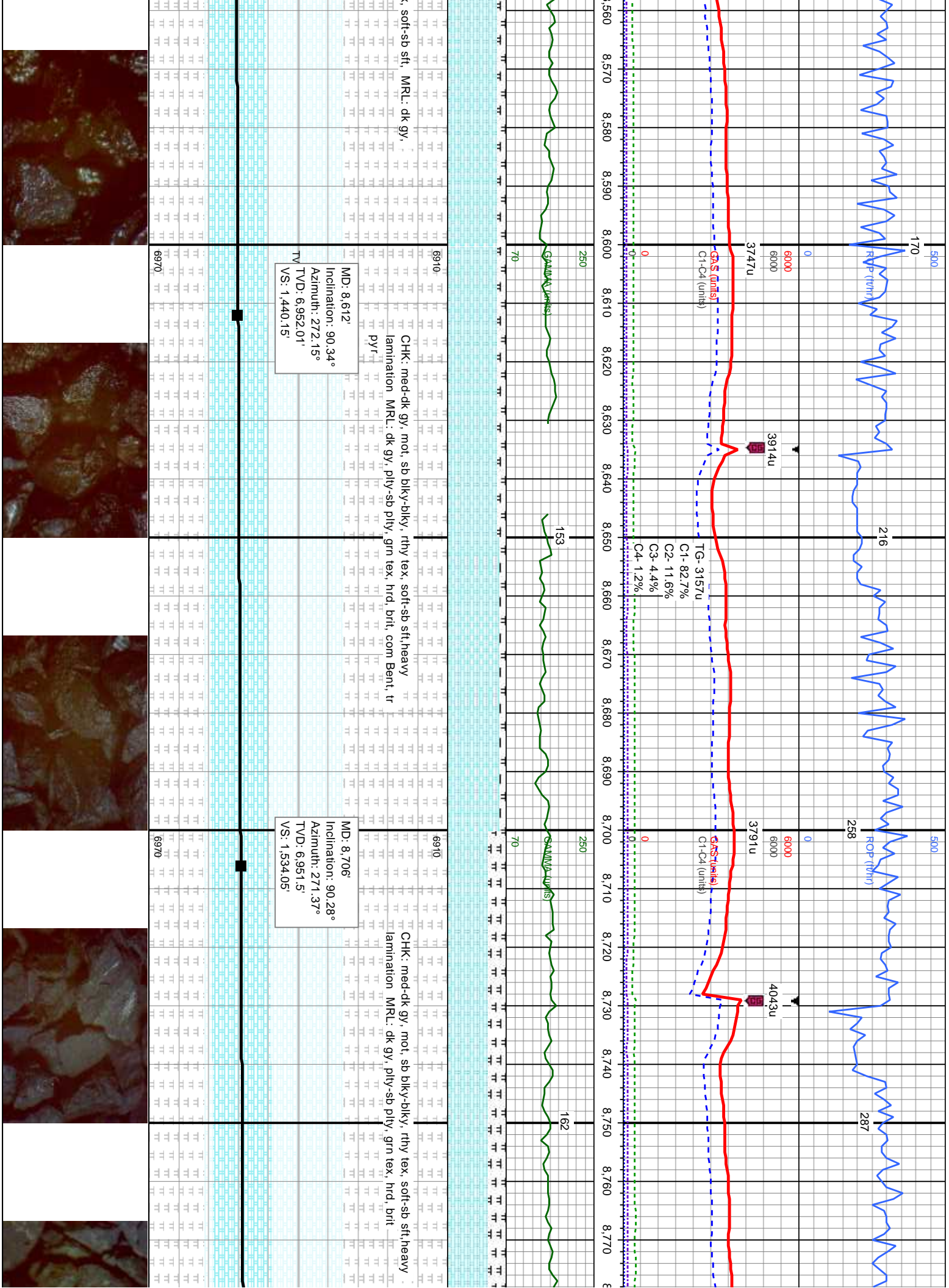


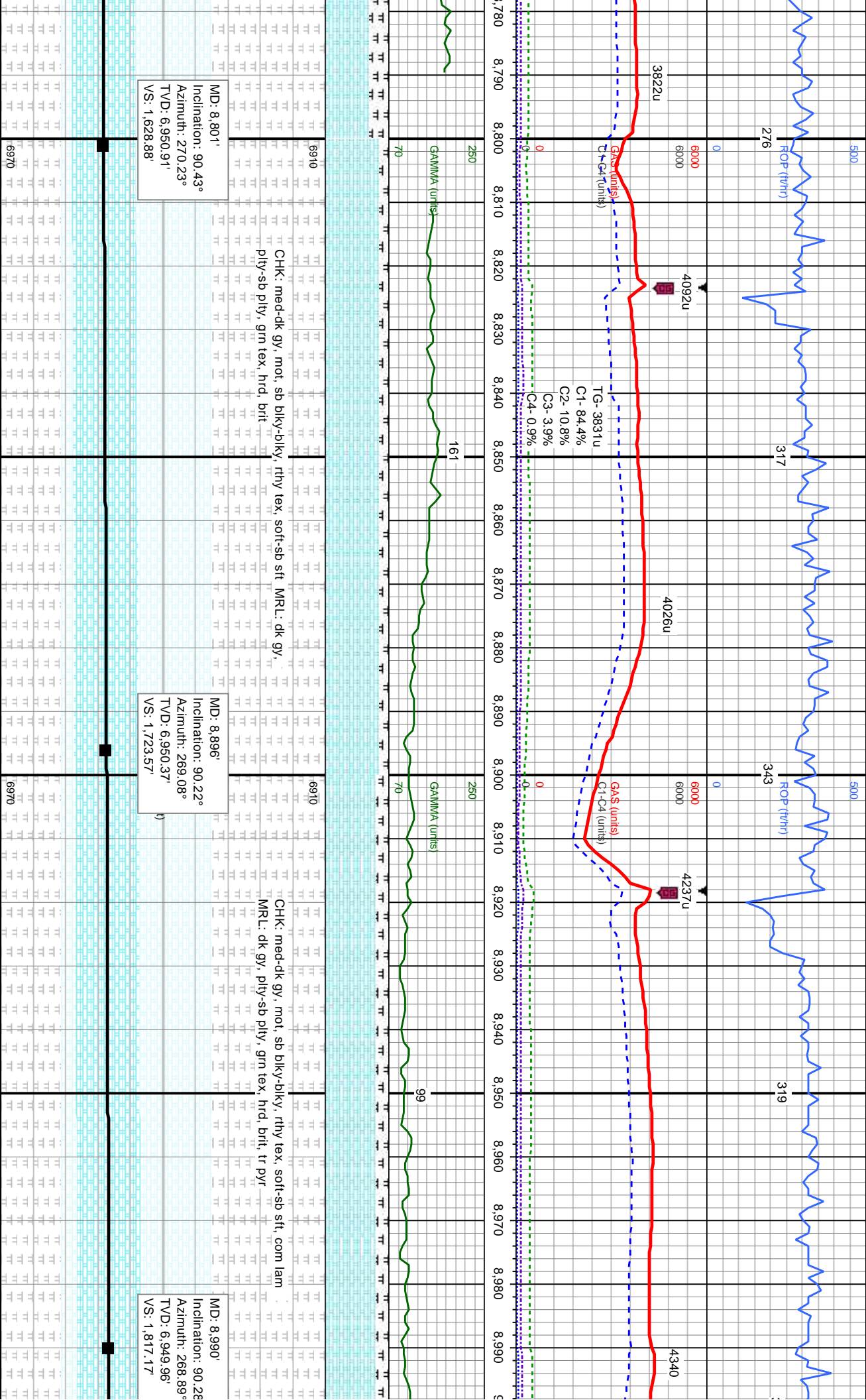
6910	CHK: med-dk gy, mot, sb blkly-bkly, rthy tex, soft-sb sft, tr MRL: dk gy, ply-sb ply, grn tex, hrd, brlt, tr Bent, com Inoc fos	MD: 7.949' Inclination: 90.4° Azimuth: 264.56° TVD: 6.956.9' VS: 781.03'	6970
6910	CHK: med-dk gy, mot, sb blkly-bkly, rthy tex, soft-sb sft, MRL: dk gy, ply-sb ply, grn tex, hrd, brlt, tr Bent, com Inoc fos	MD: 8.043' Inclination: 90.49° Azimuth: 265.82° TVD: 6.956.17' VS: 873.85'	6970

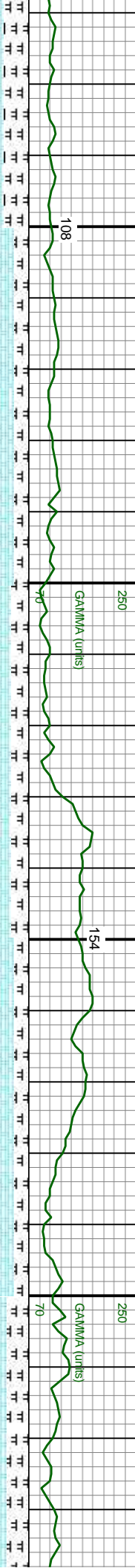


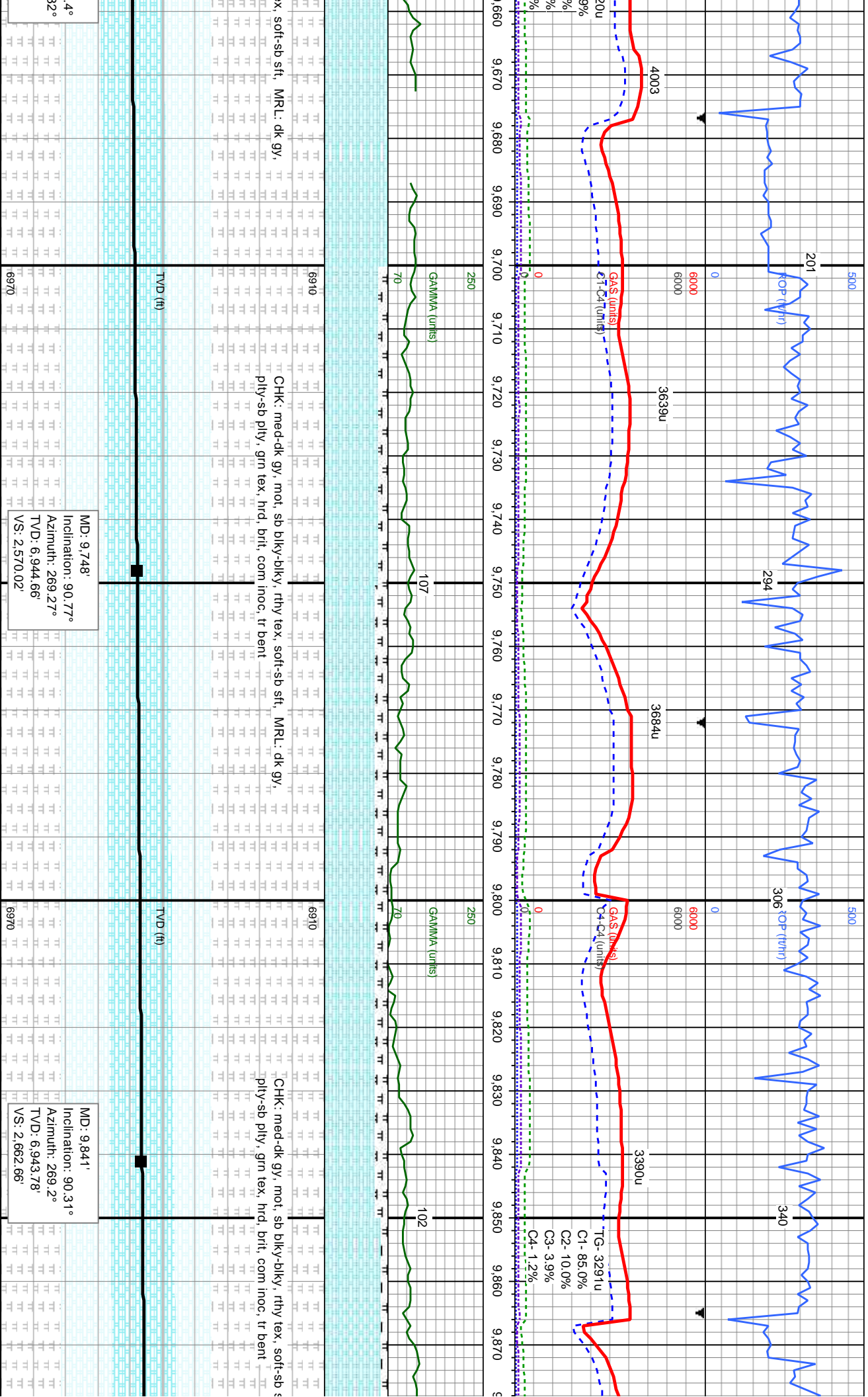


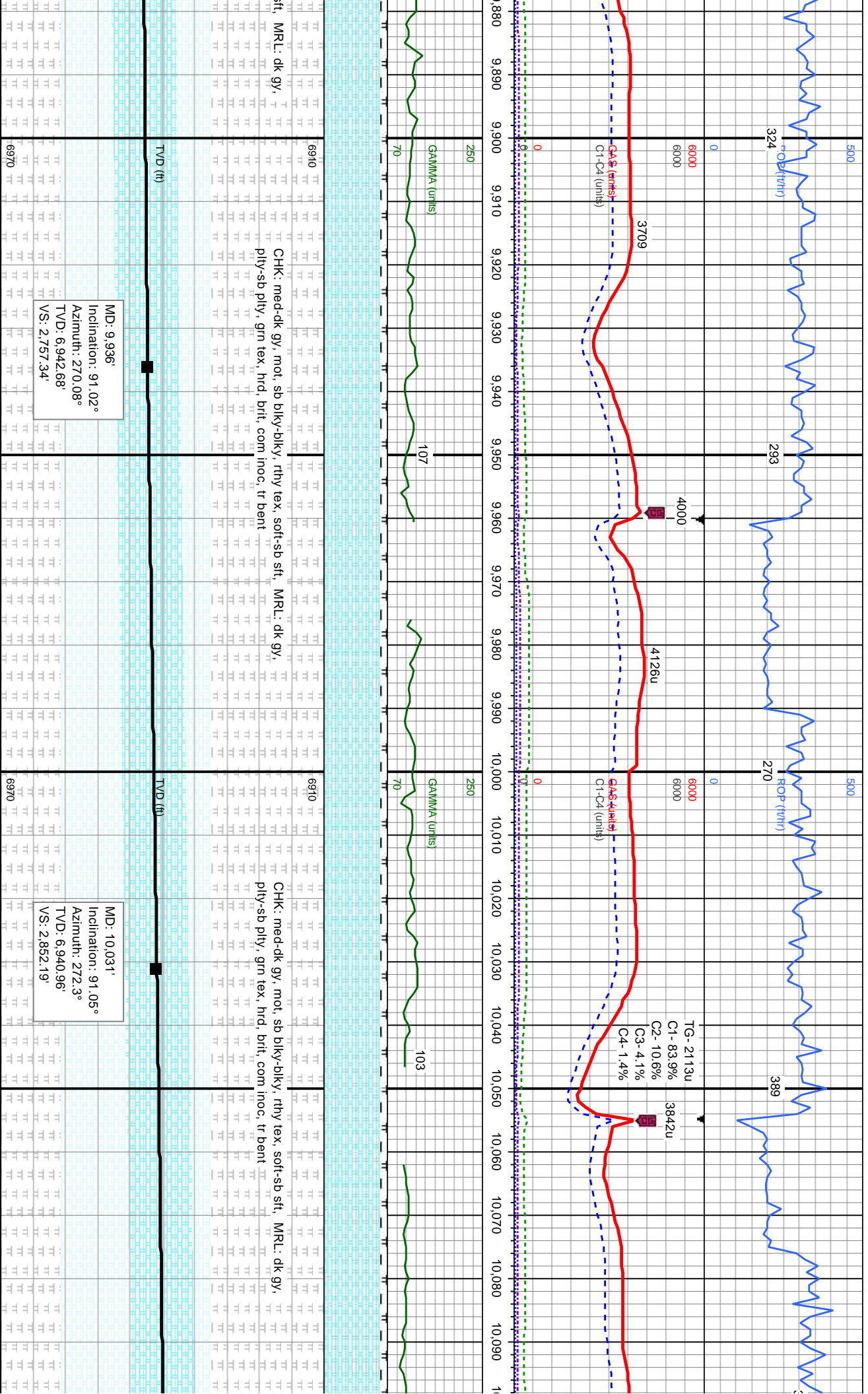








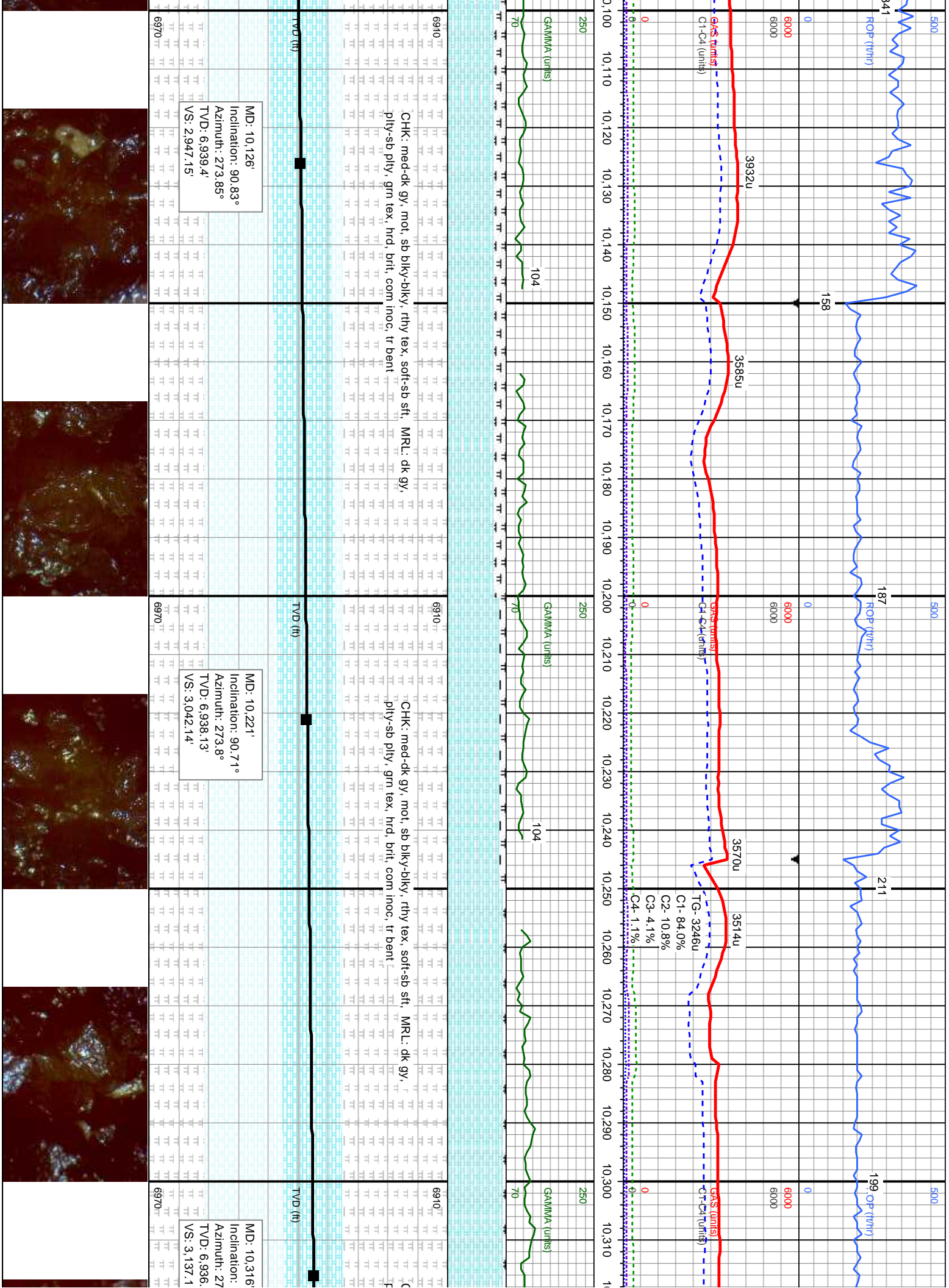


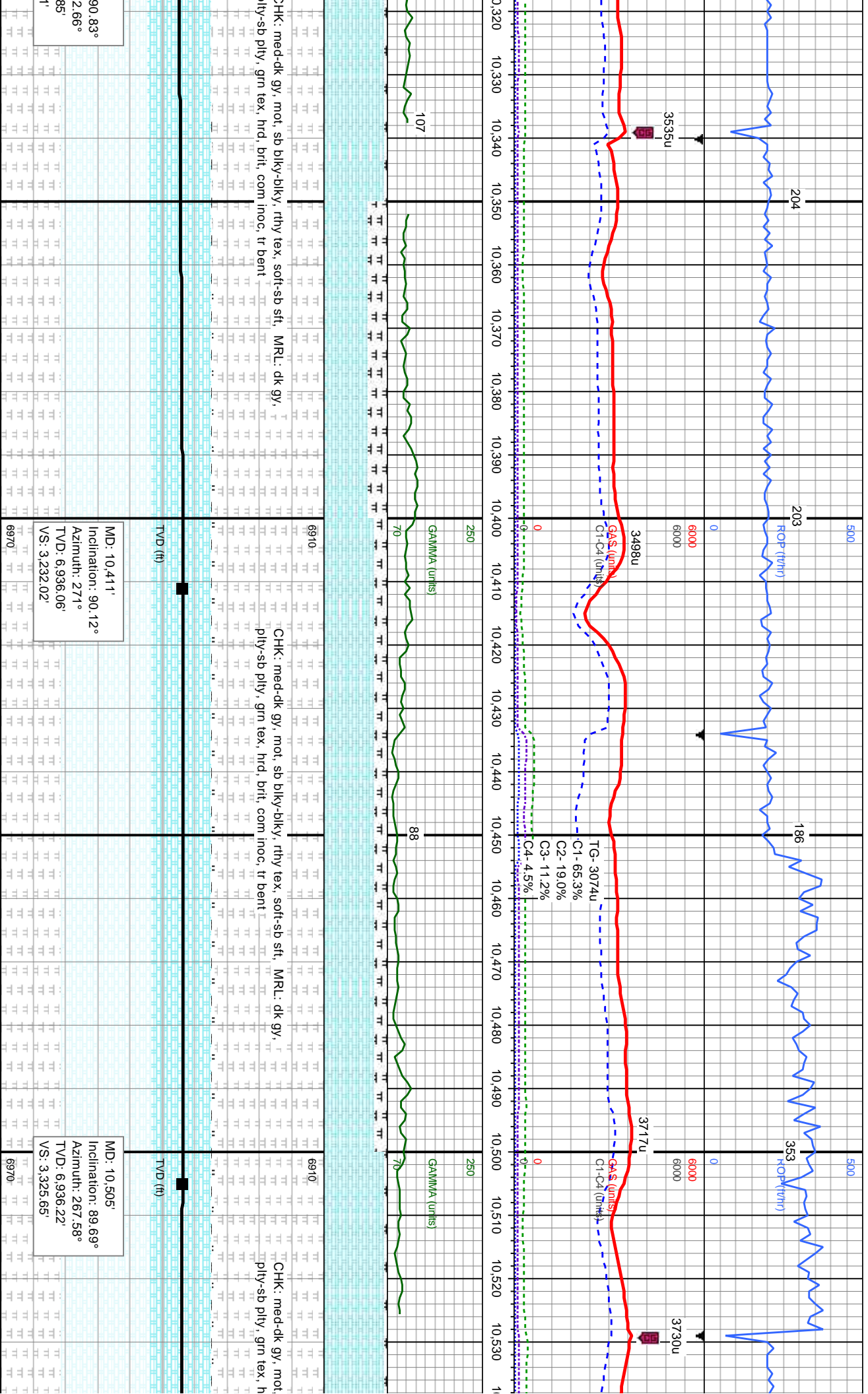


MD: 9.936'
Inclination: 91.02°
Azimuth: 270.08°
TVD: 6,942.68'
VS: 2.757.34'

MD: 10.031'
Inclination: 91.05°
Azimuth: 272.3°
TVD: 6,940.96'
VS: 2.852.19'





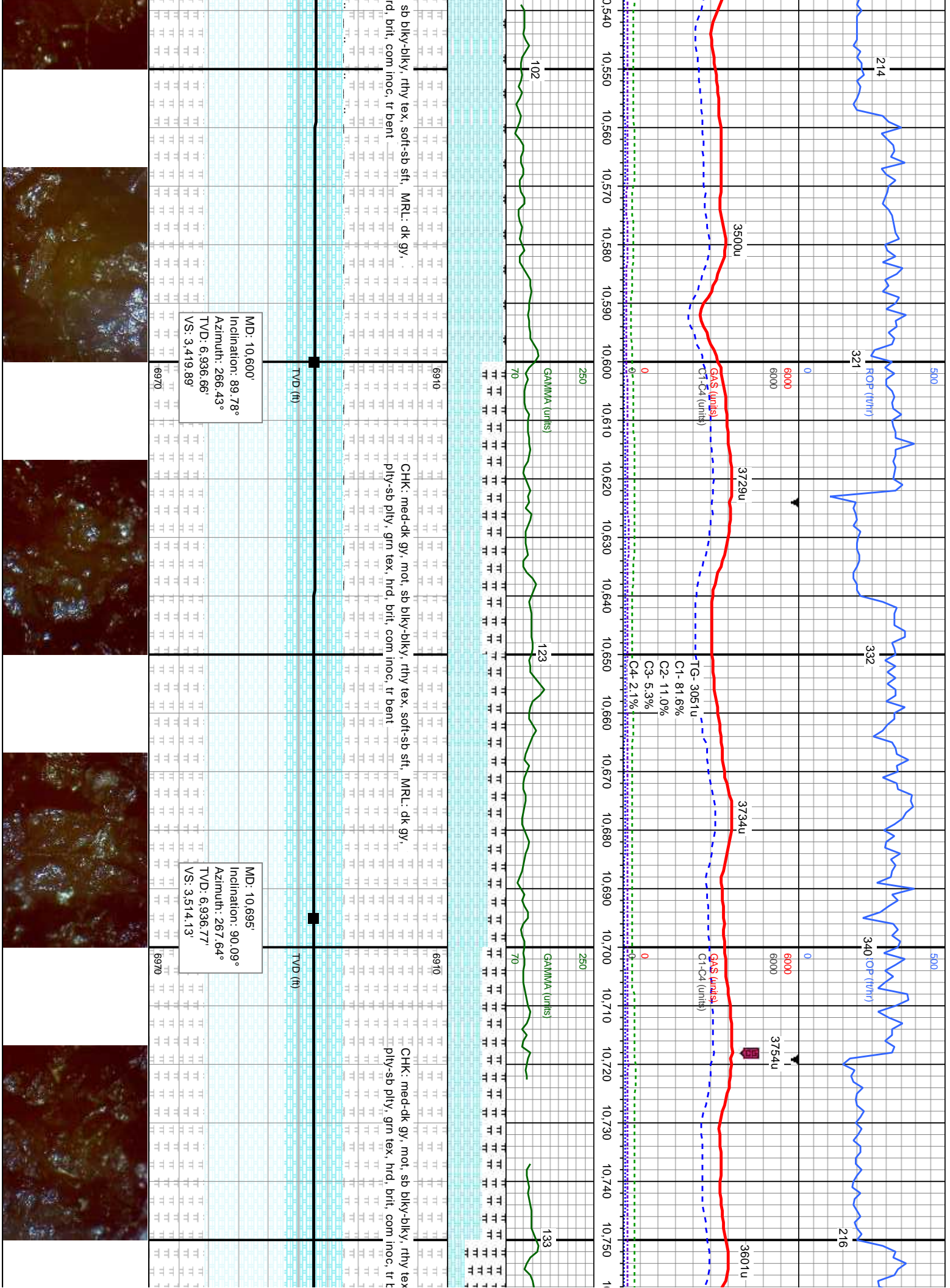


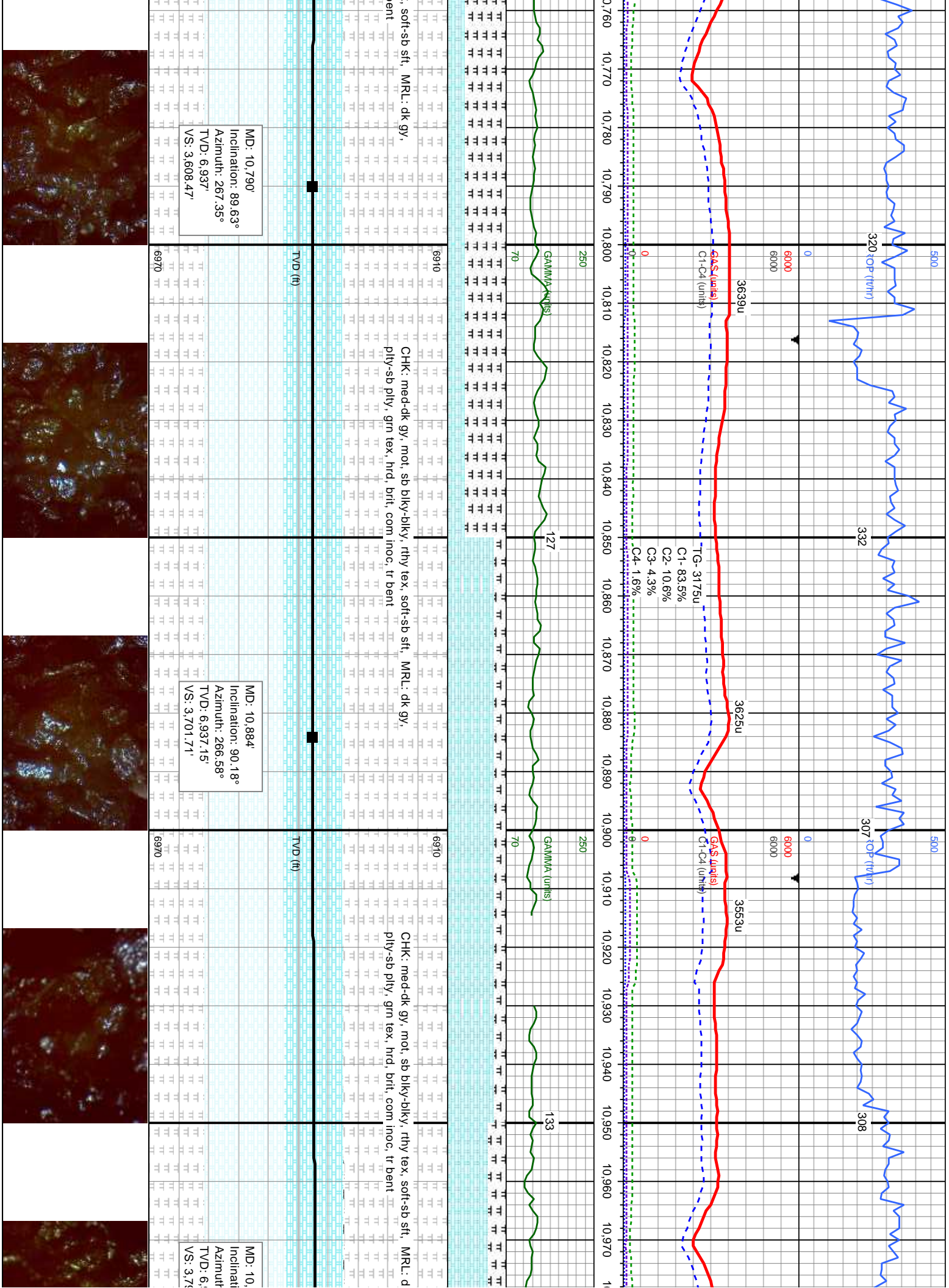
90.83°
2.66°
86°

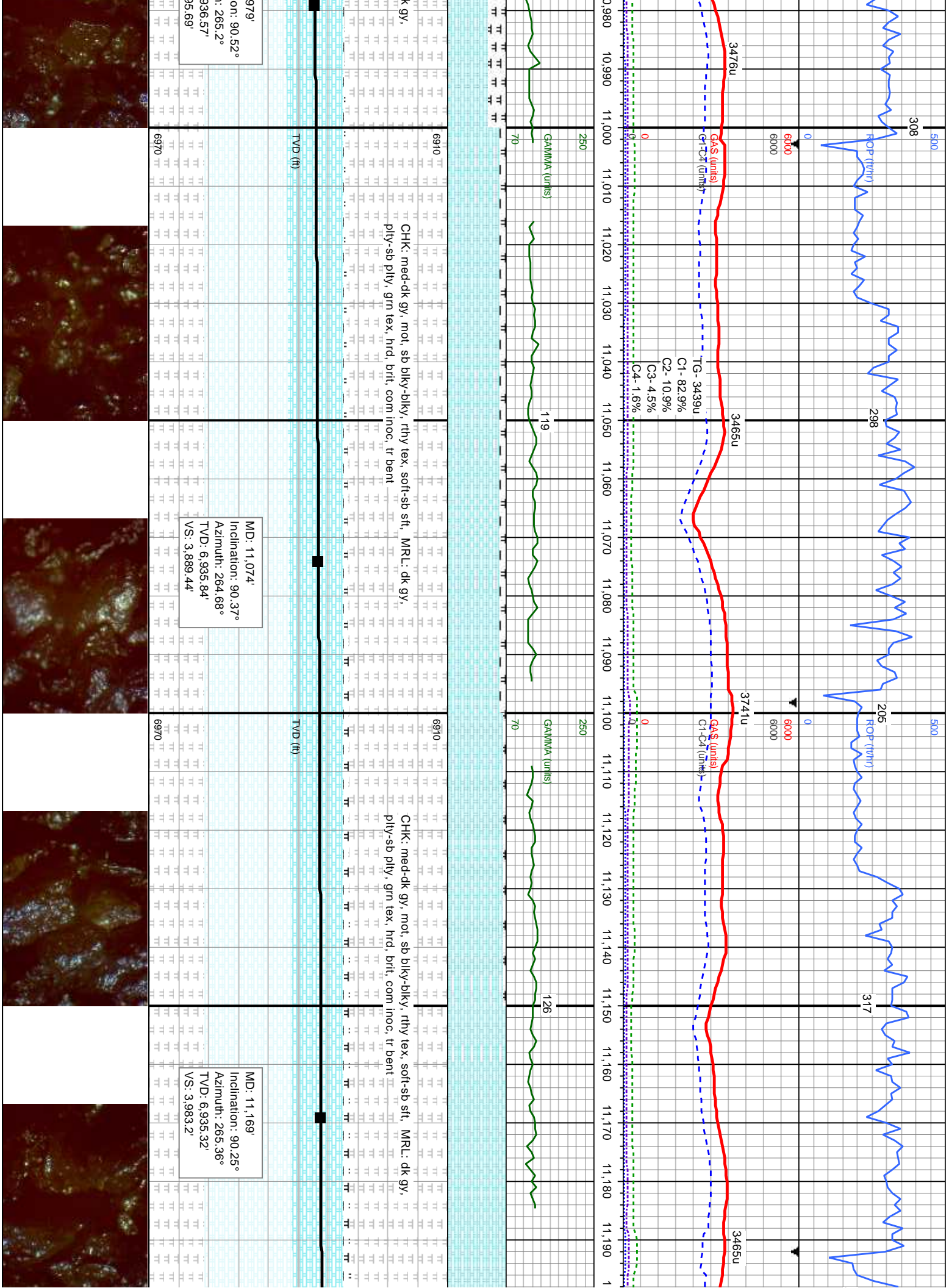
MD: 10.411'
Inclination: 90.12°
Azimuth: 271°
TVD: 6.936.06'
VS: 3.232.02'

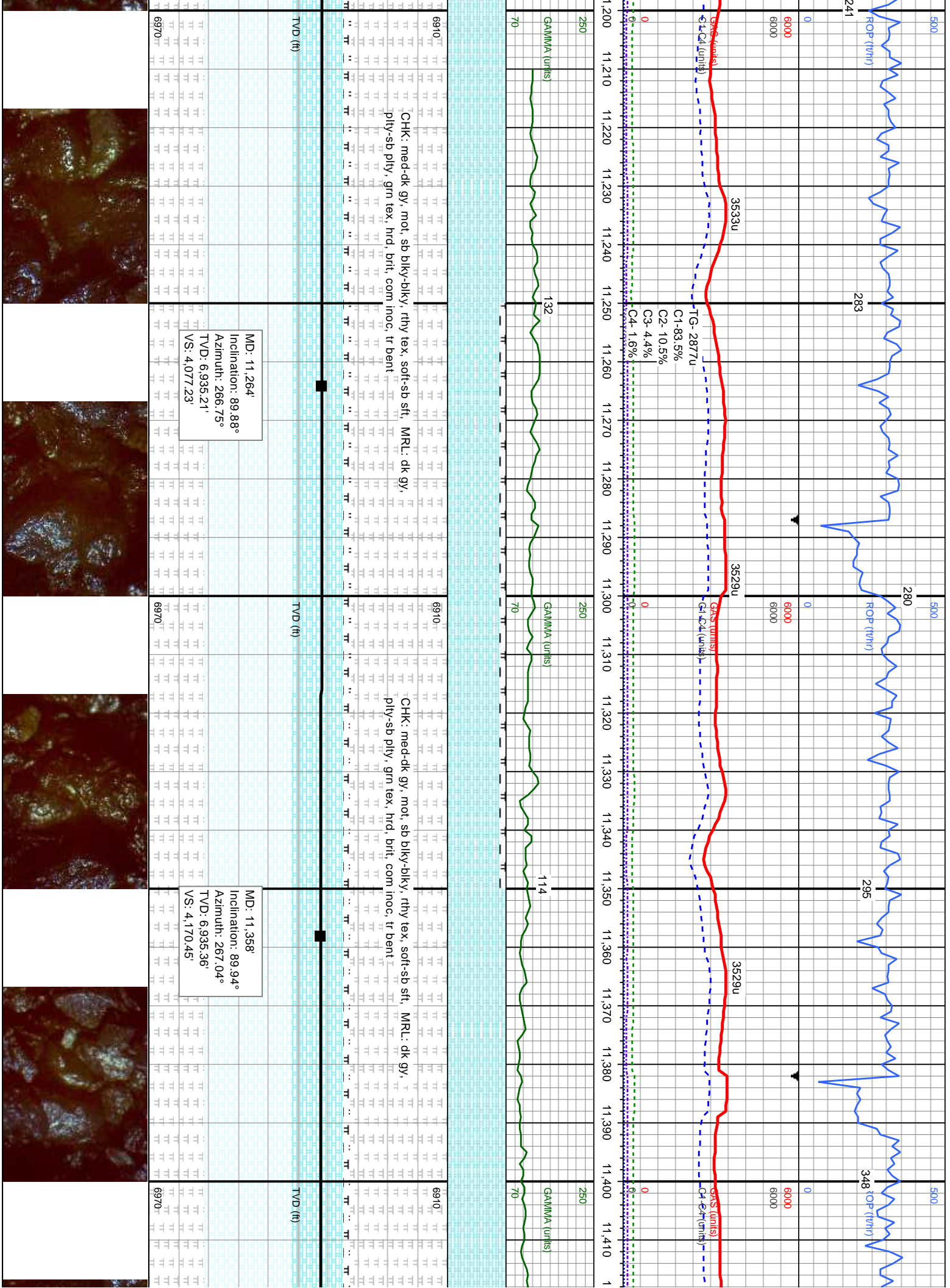
MD: 10.505'
Inclination: 89.69°
Azimuth: 267.58°
TVD: 6.936.22'
VS: 3.325.65'

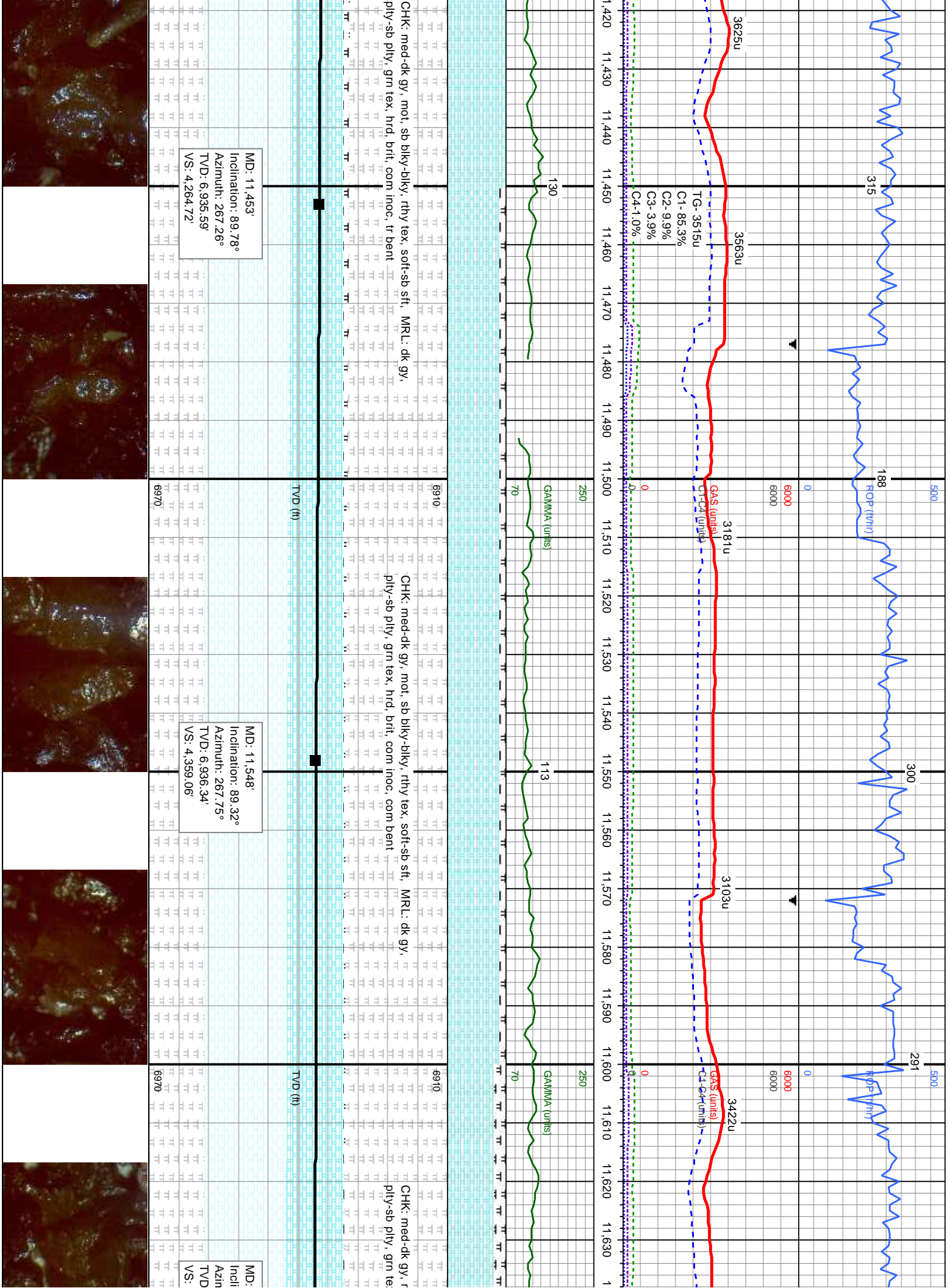


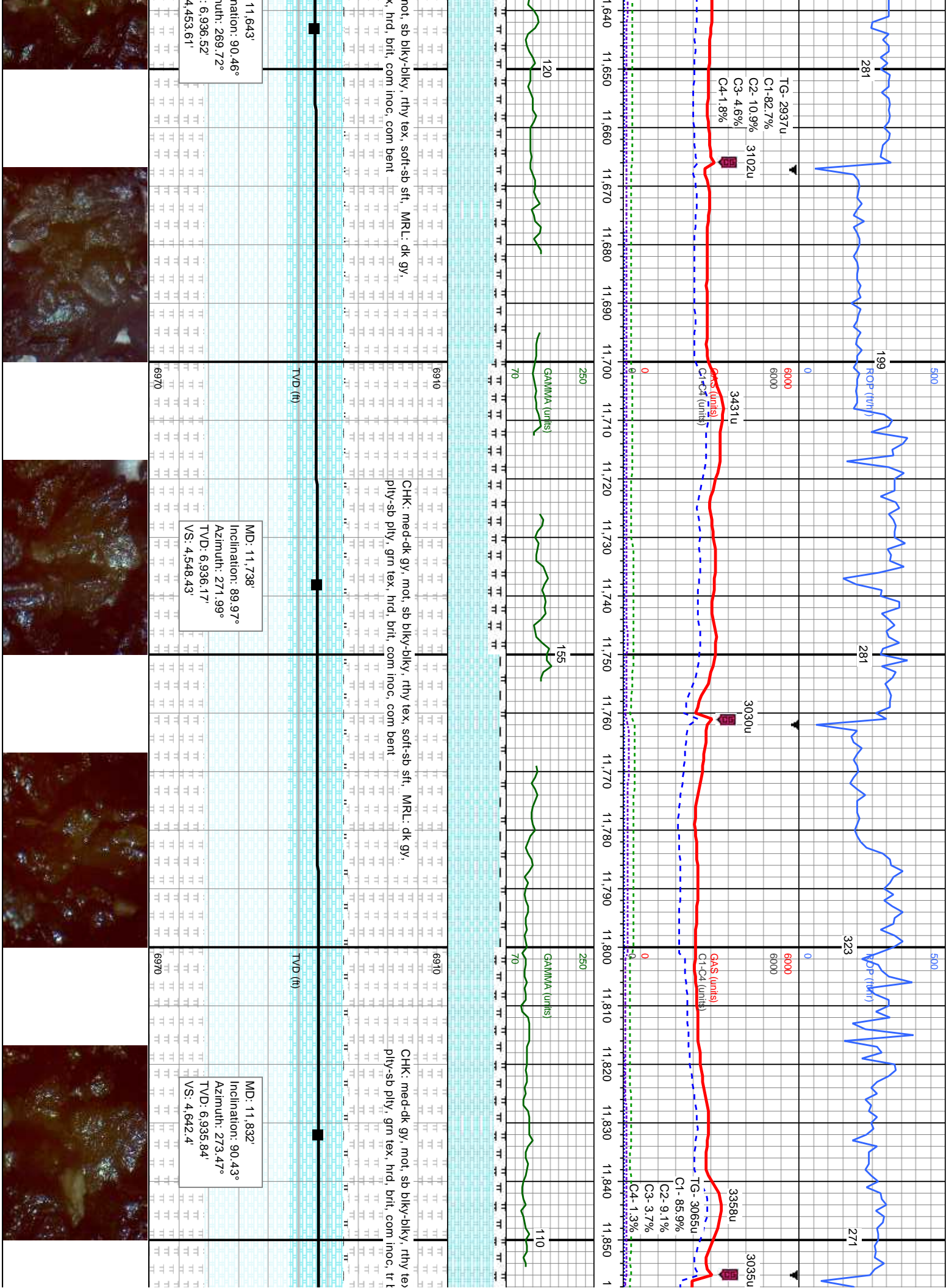


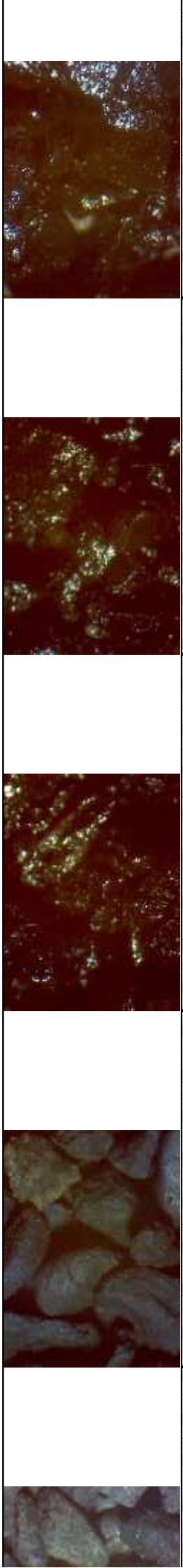
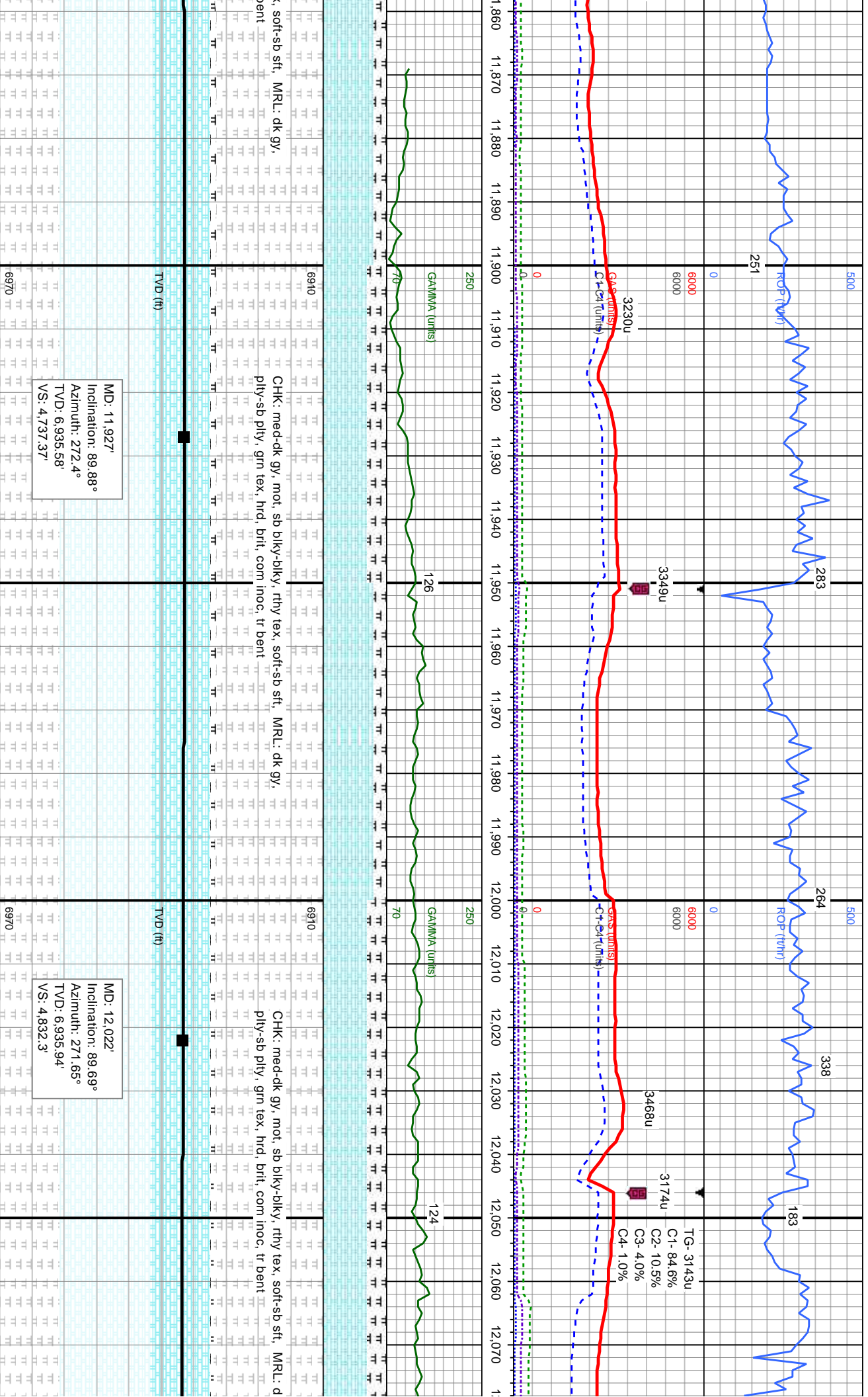


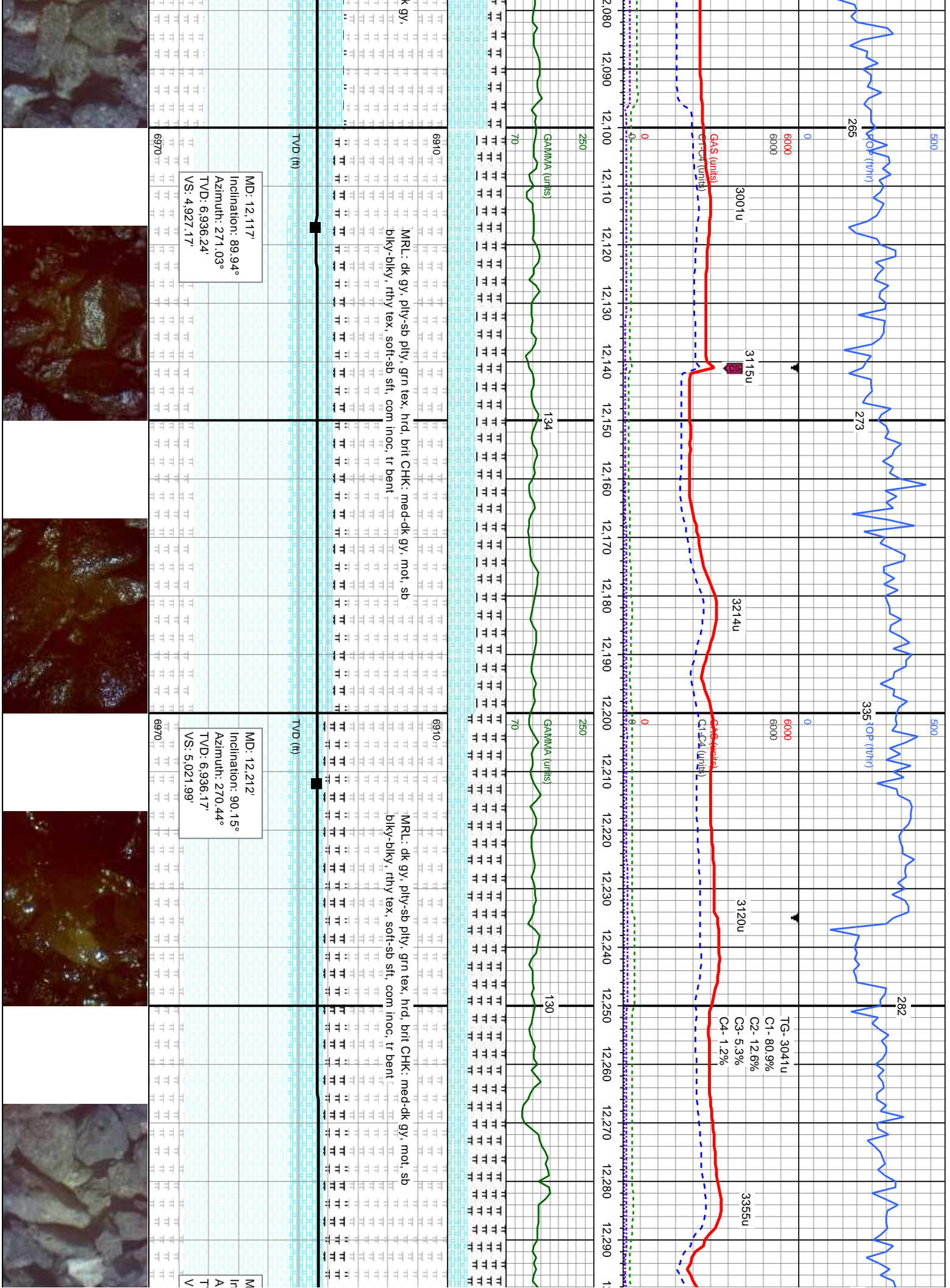


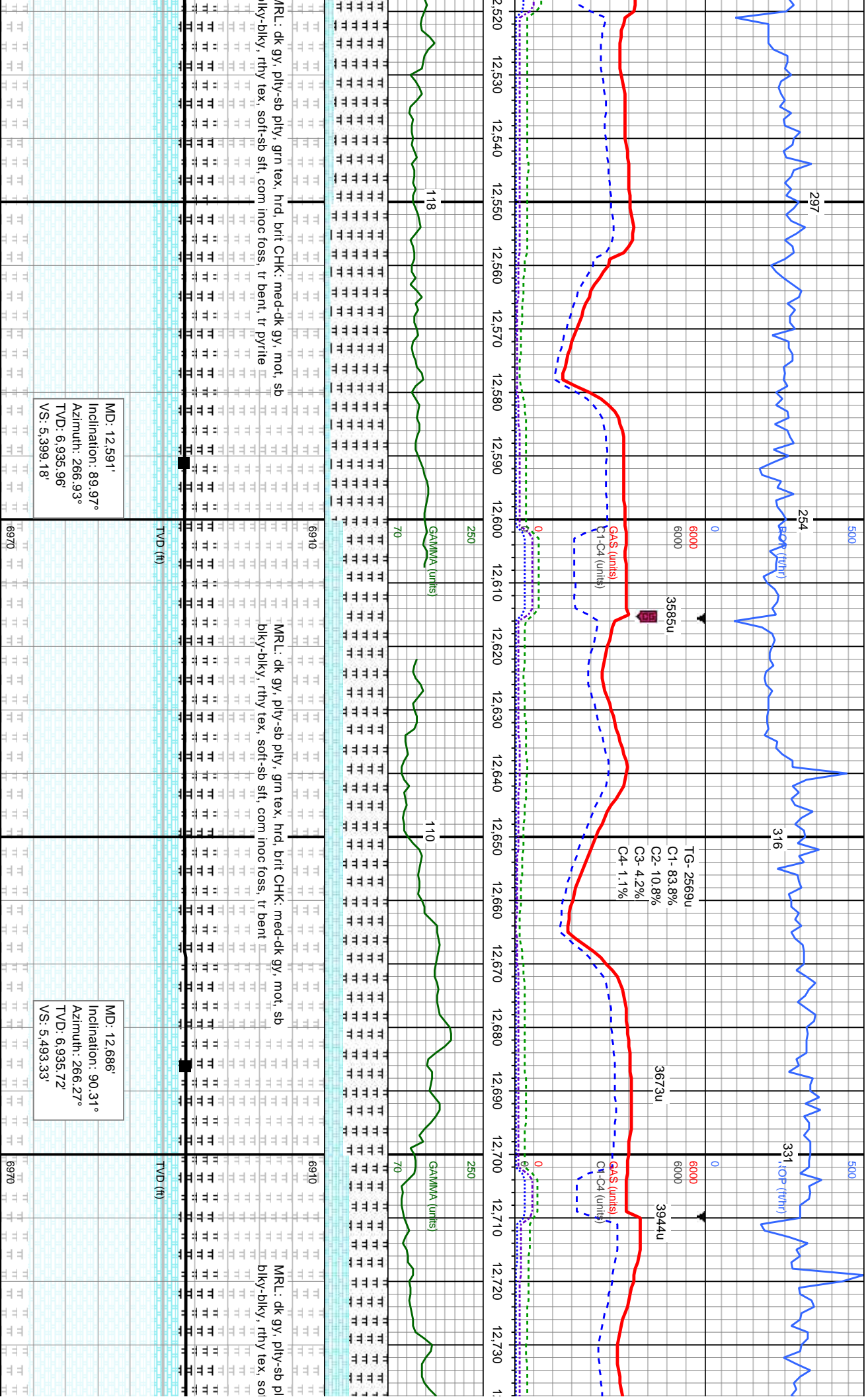


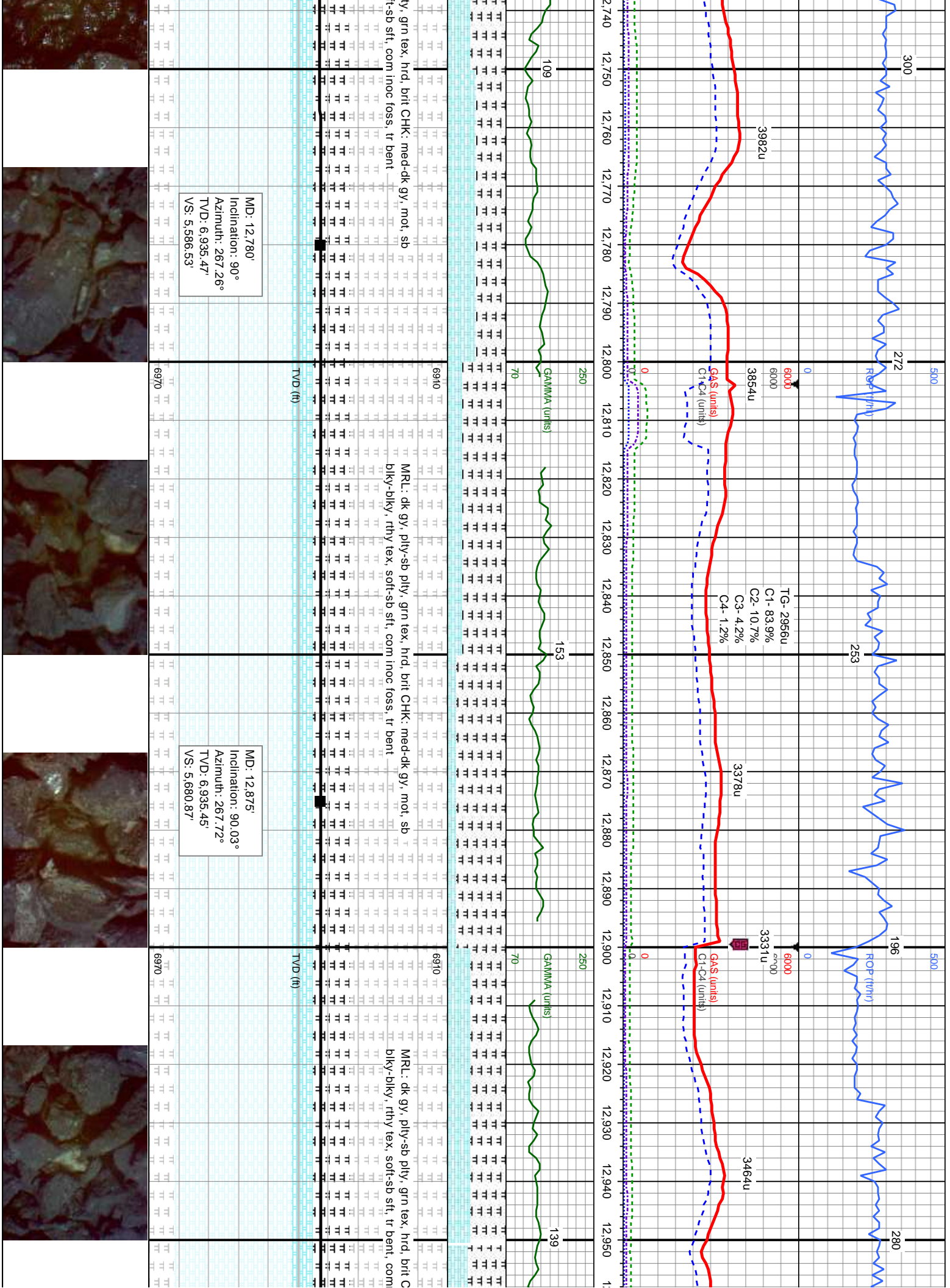


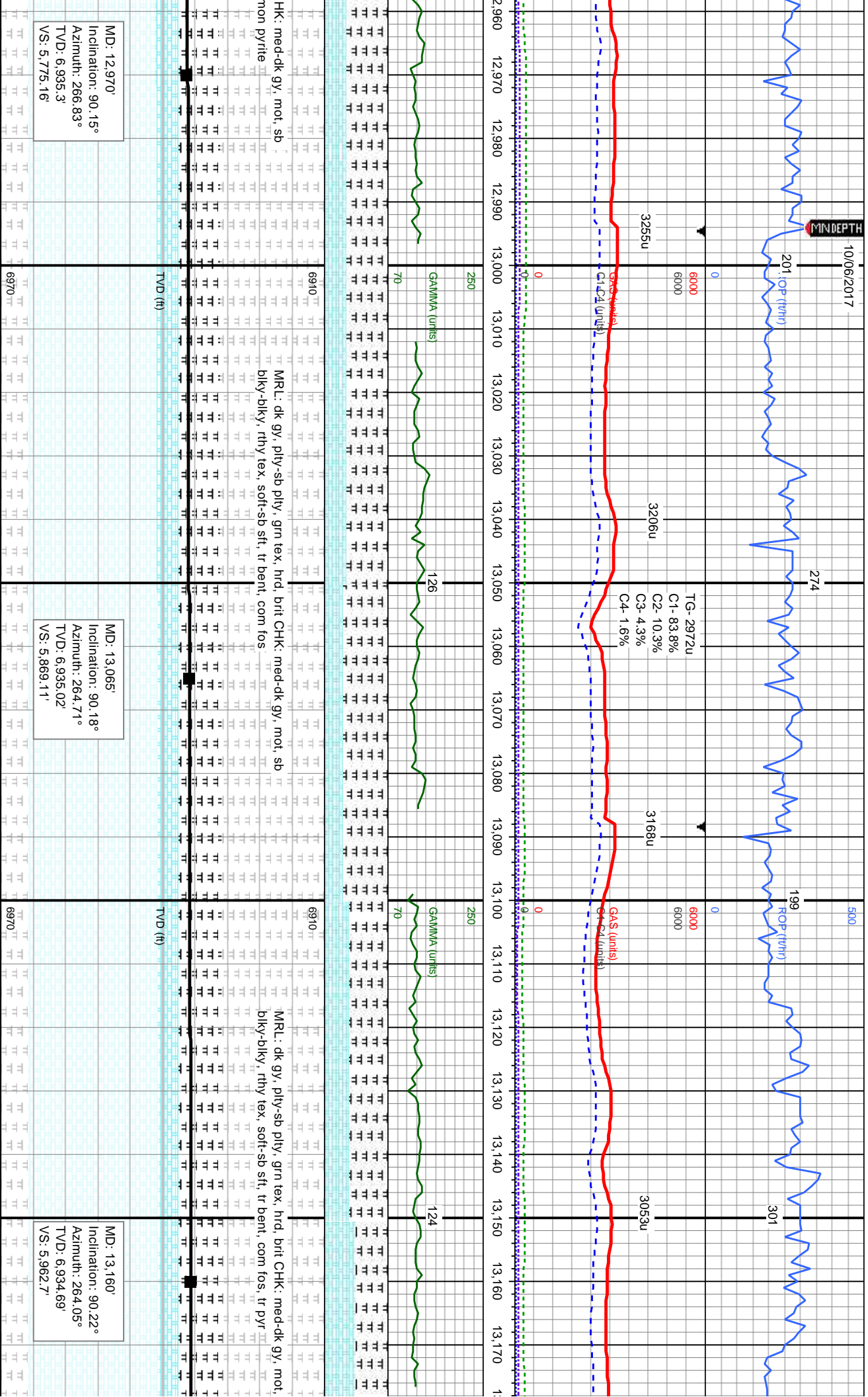








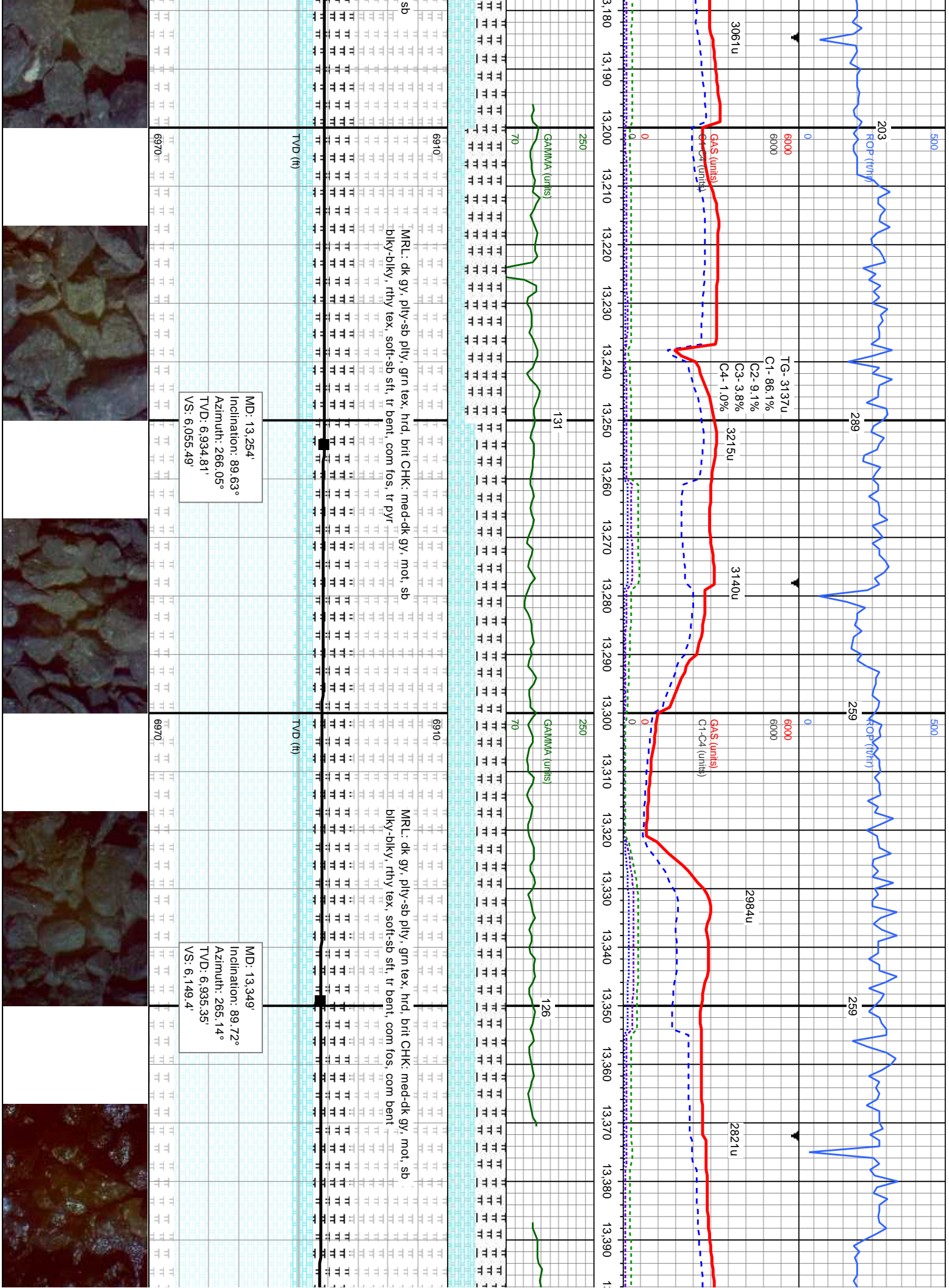


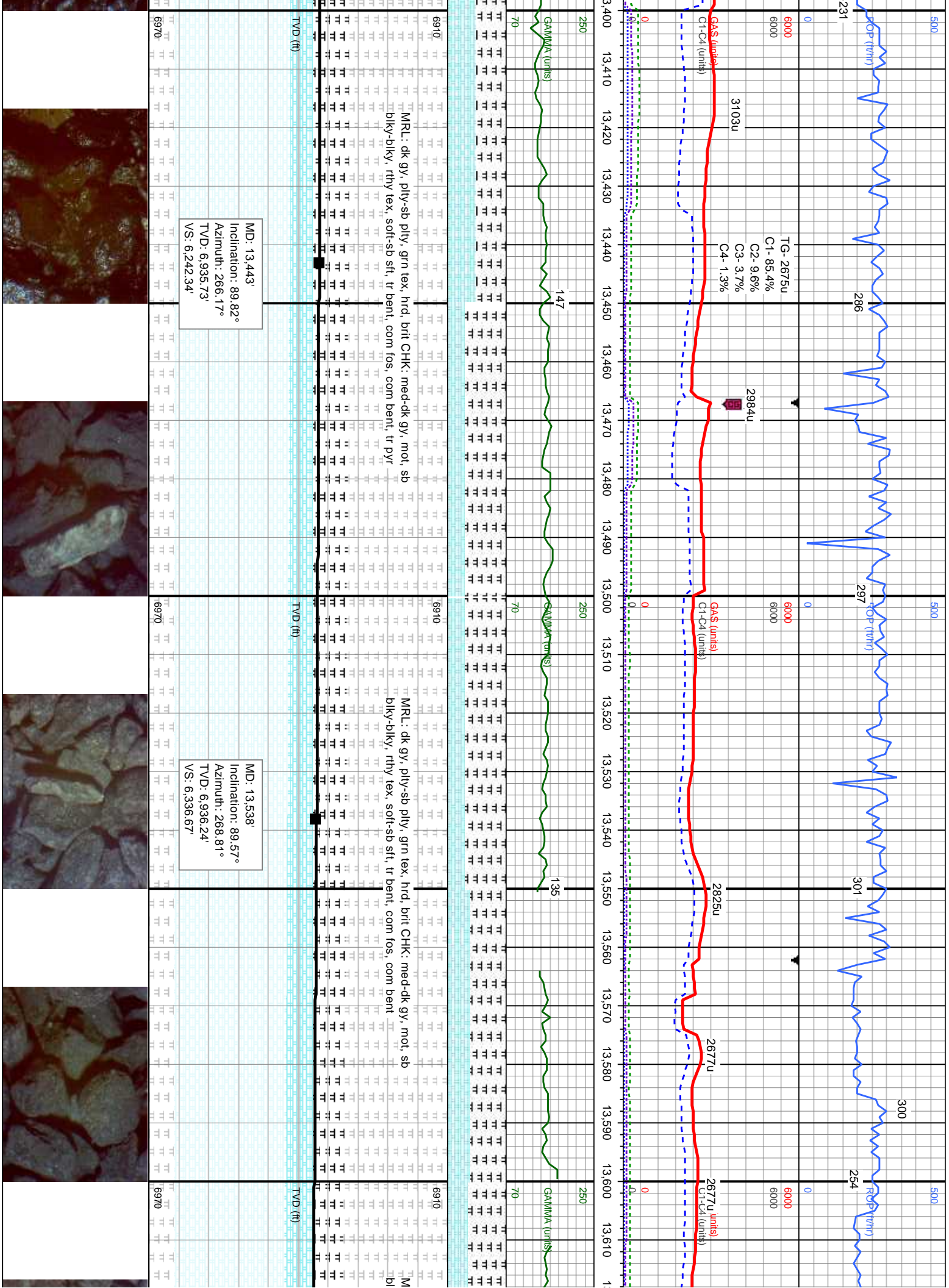


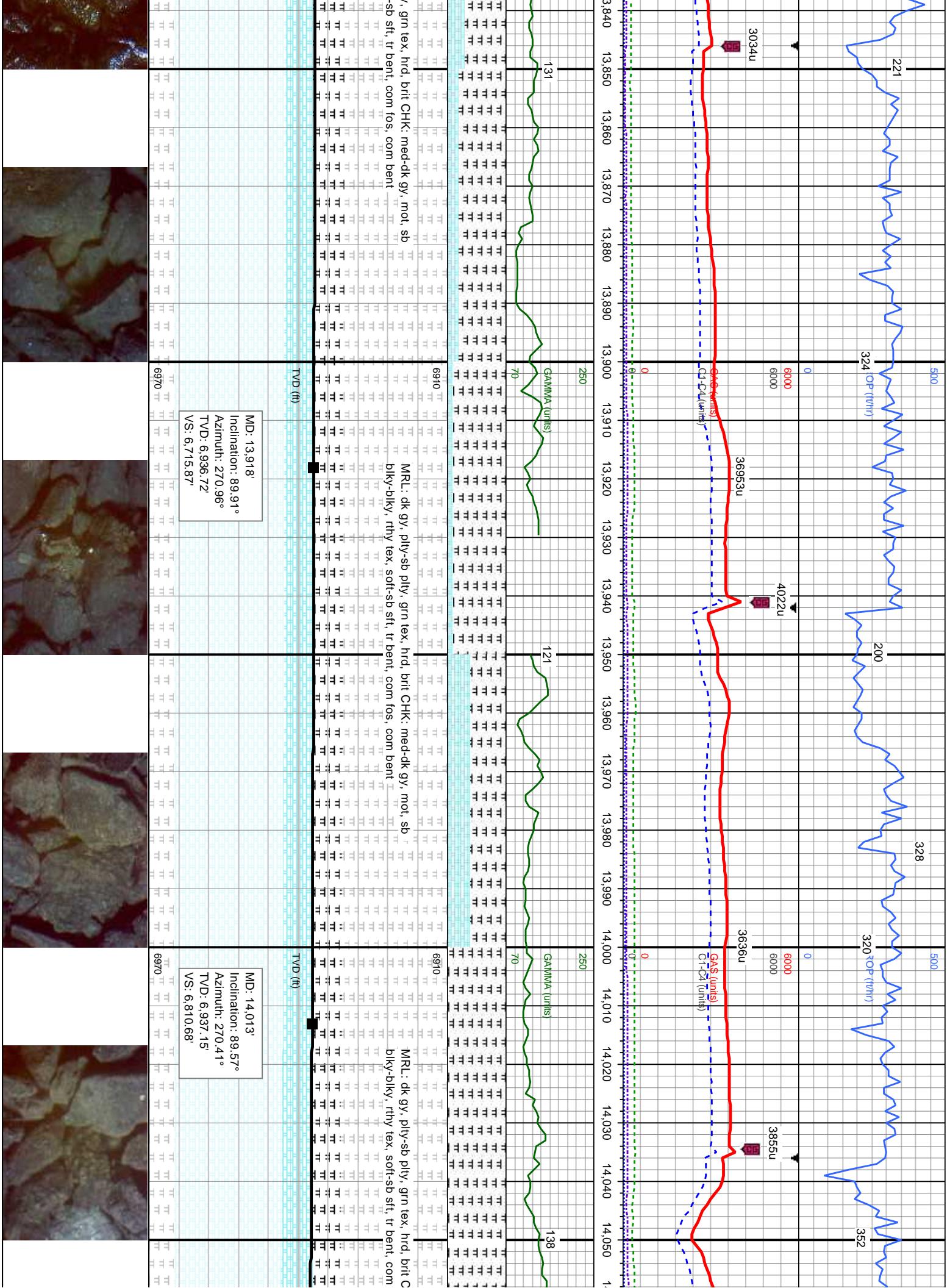
MD: 12,970'
Inclination: 90.15°
Azimuth: 266.83°
TVD: 6,935.3'
VS: 5,775.16'

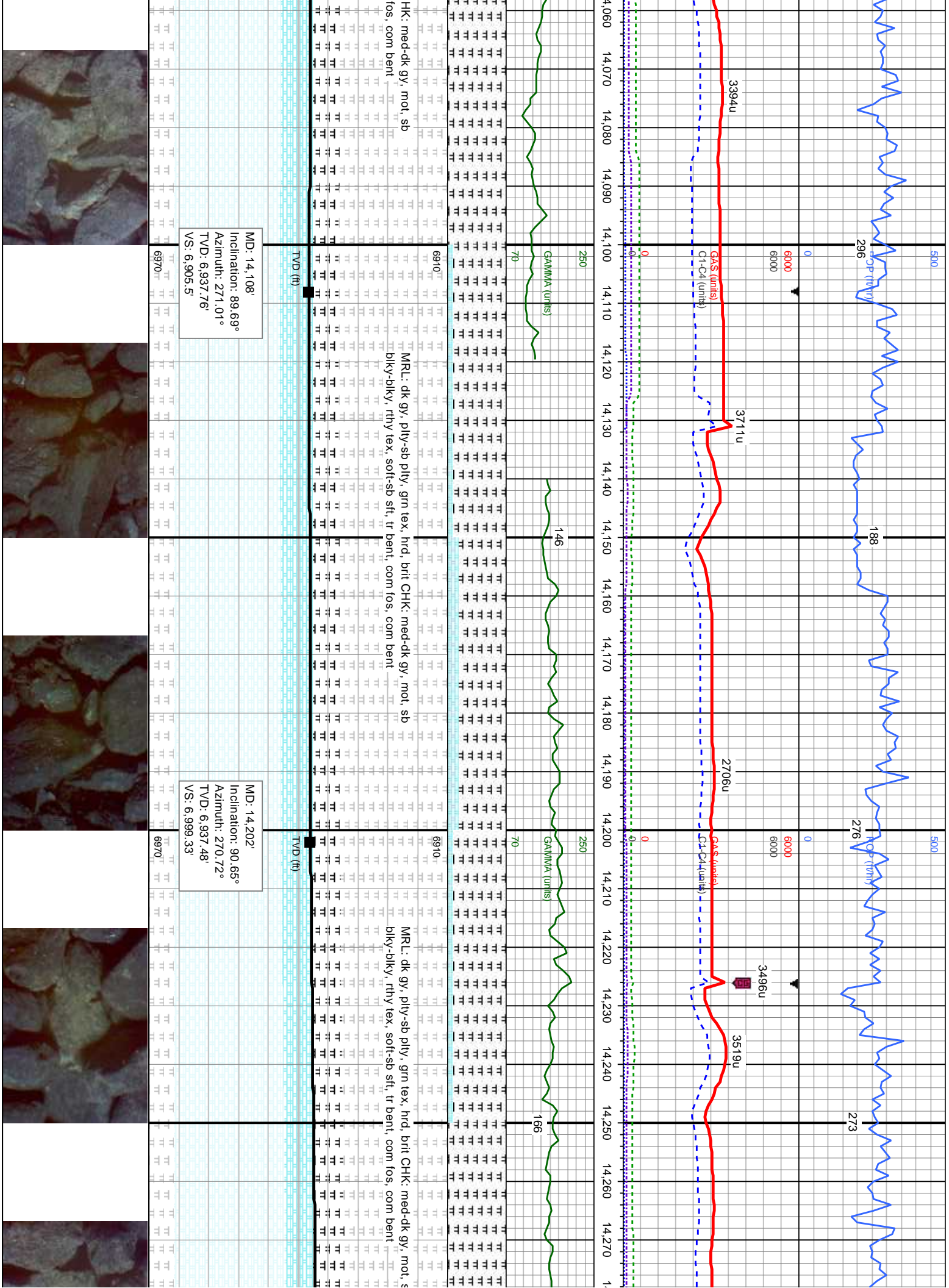
MD: 13,065'
Inclination: 90.18°
Azimuth: 264.71°
TVD: 6,935.02'
VS: 5,869.11'

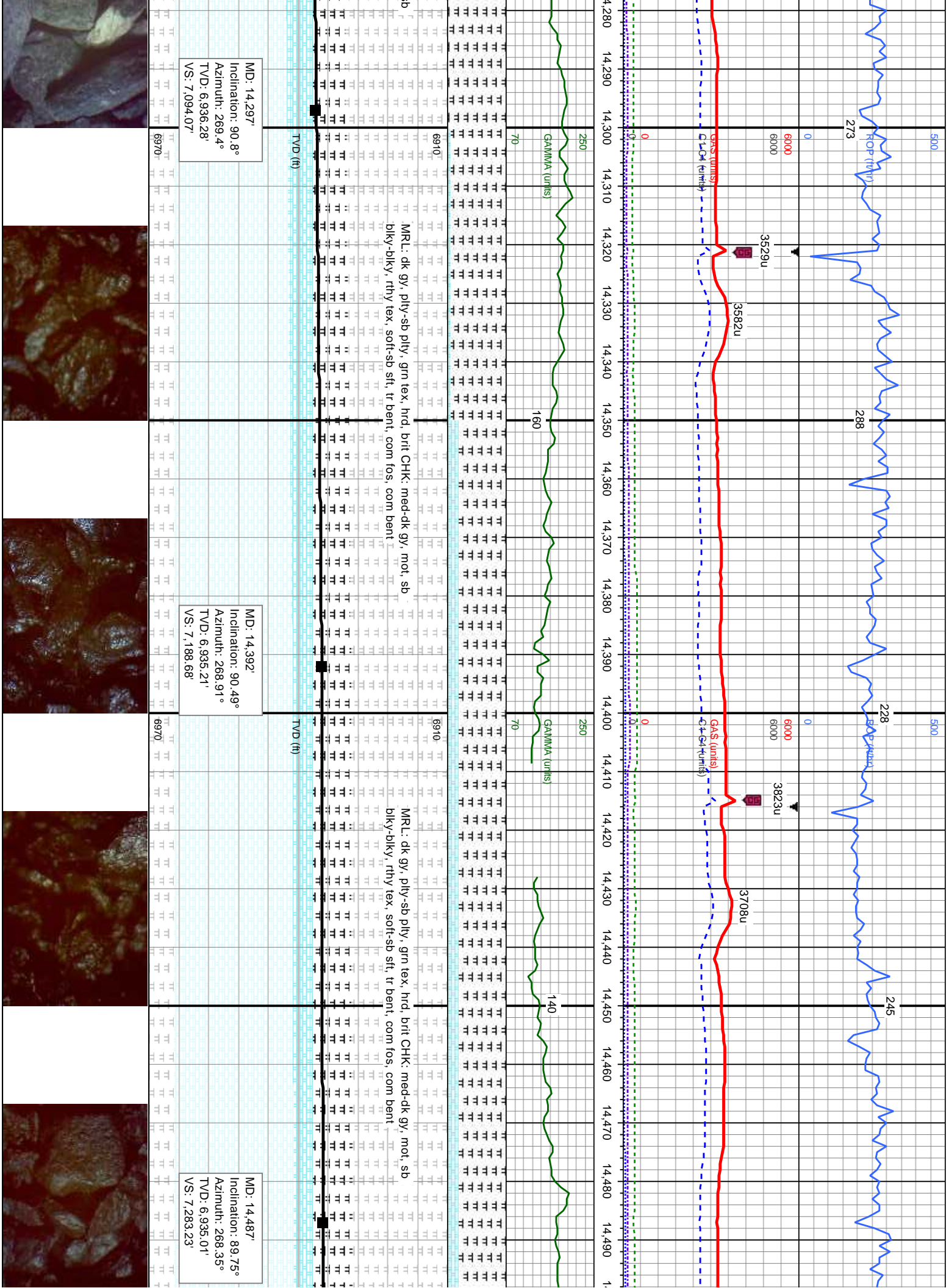
MD: 13,160'
Inclination: 90.22°
Azimuth: 264.05°
TVD: 6,934.69'
VS: 5,962.7'

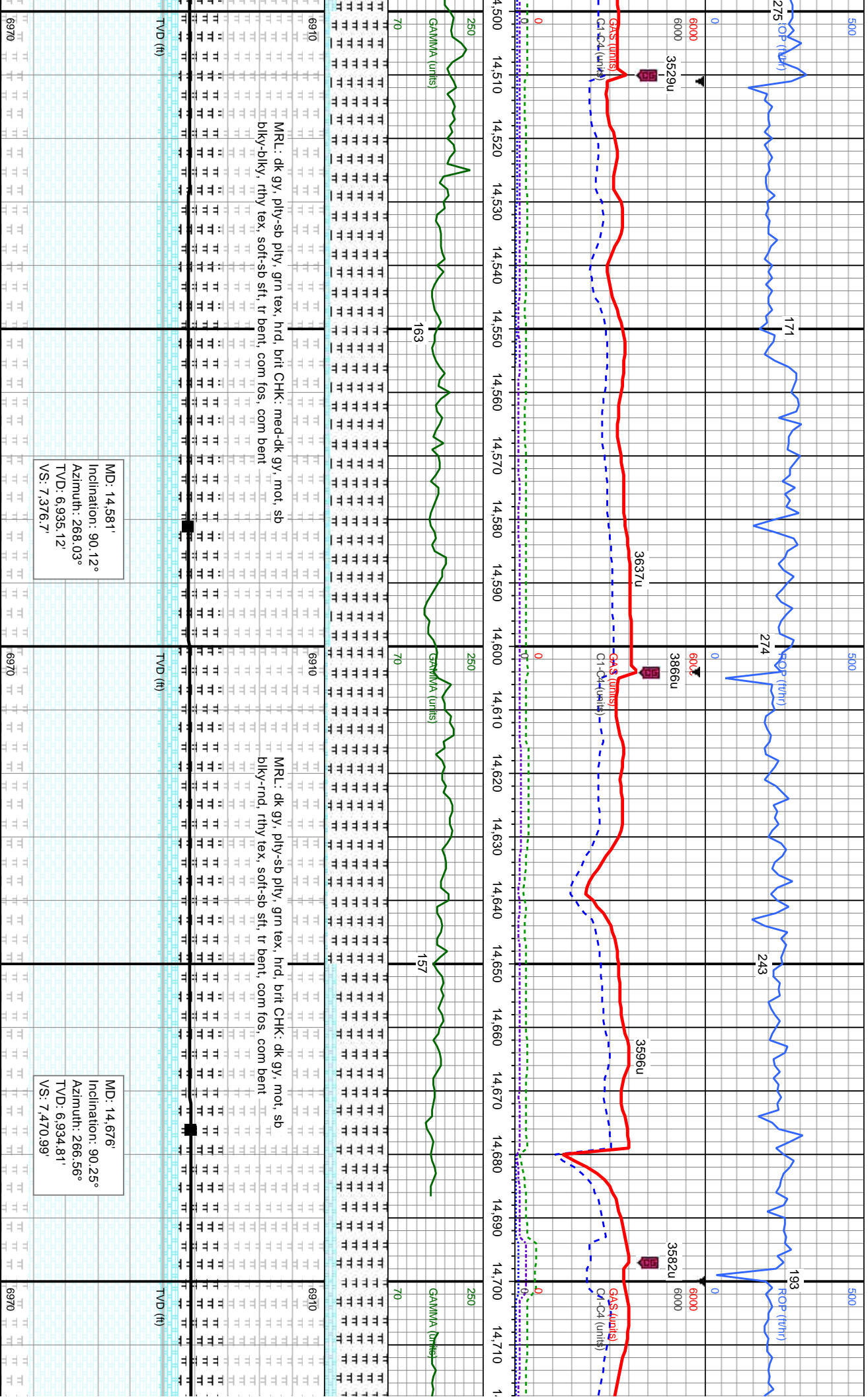


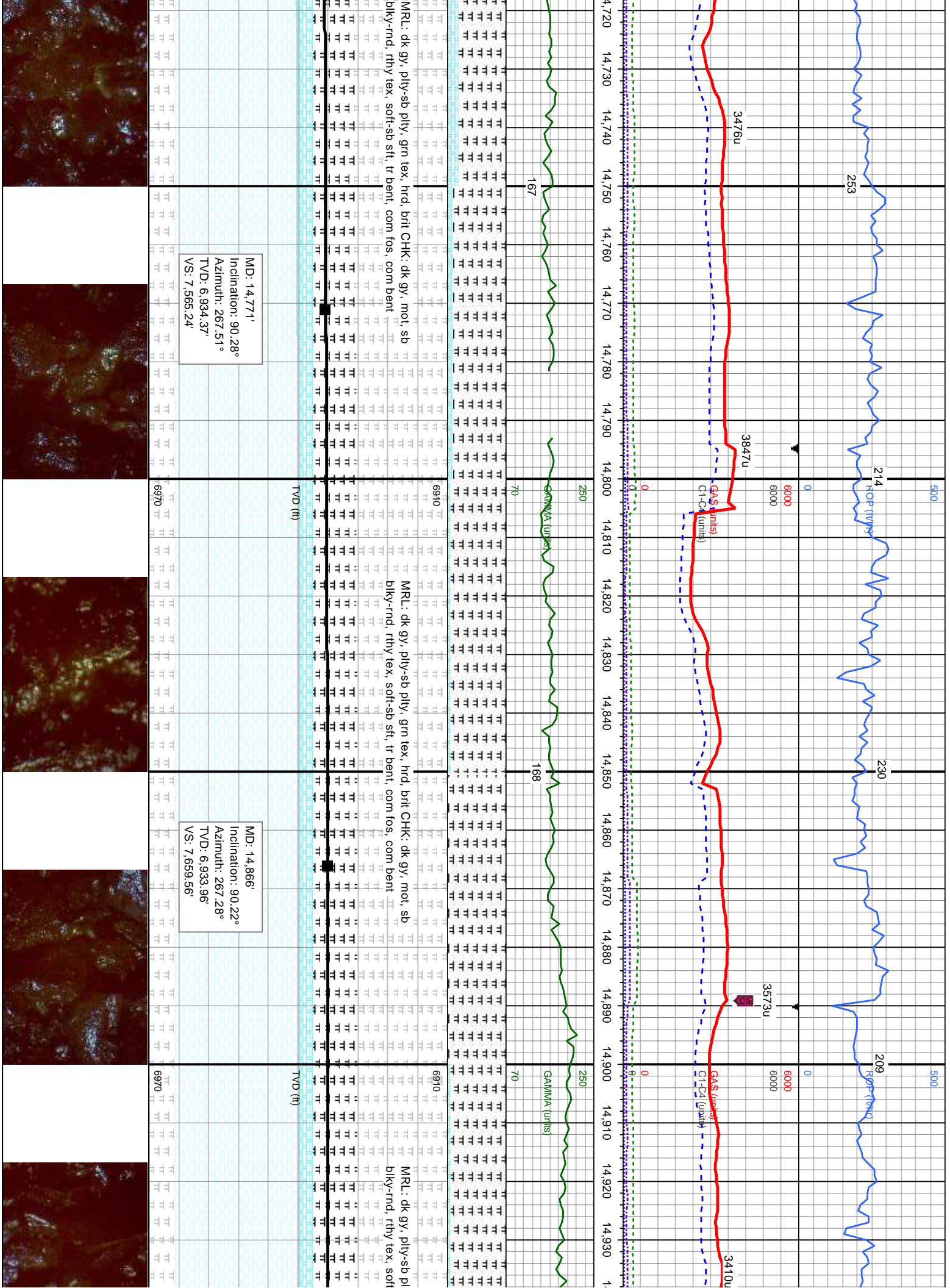


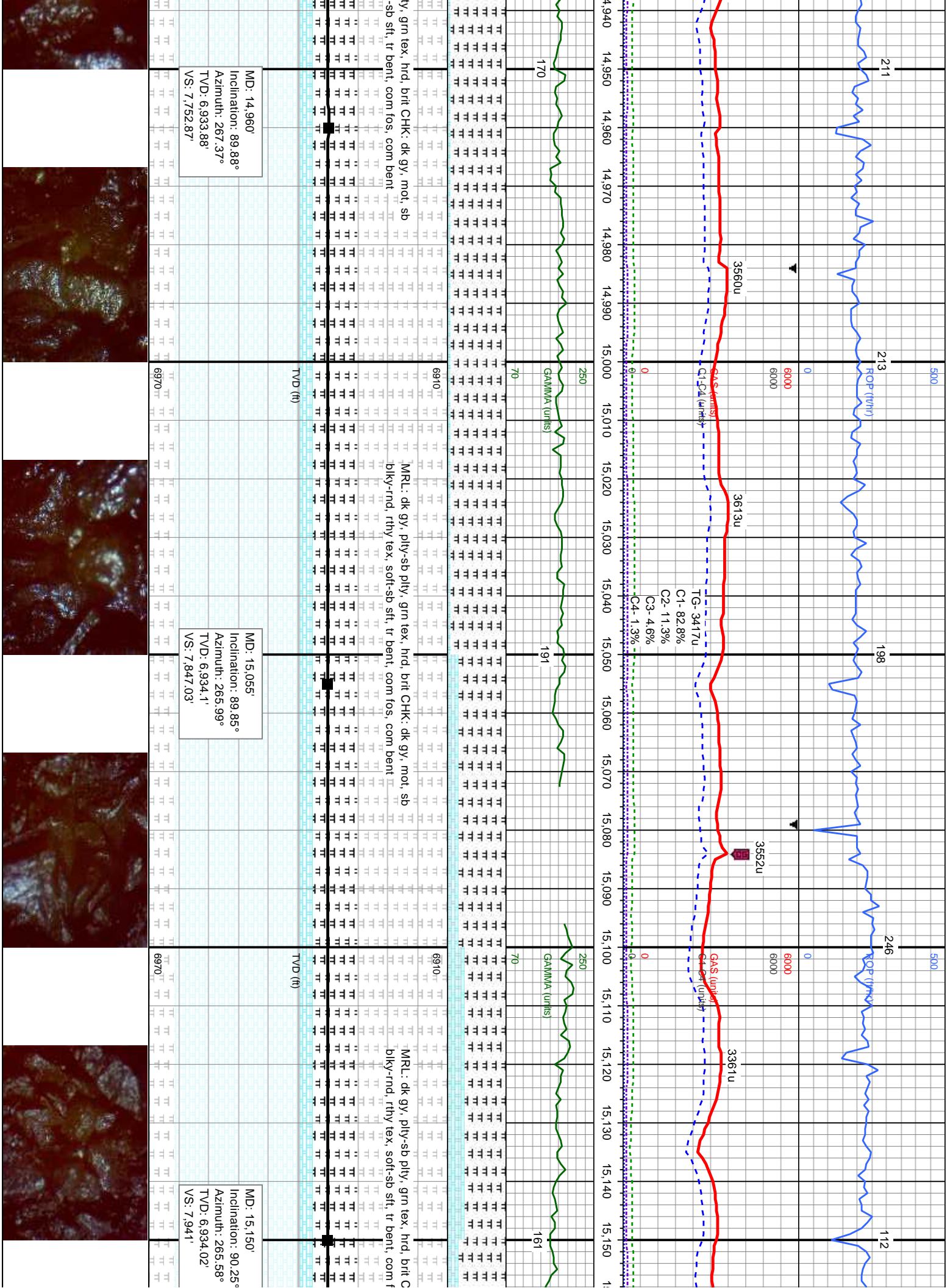


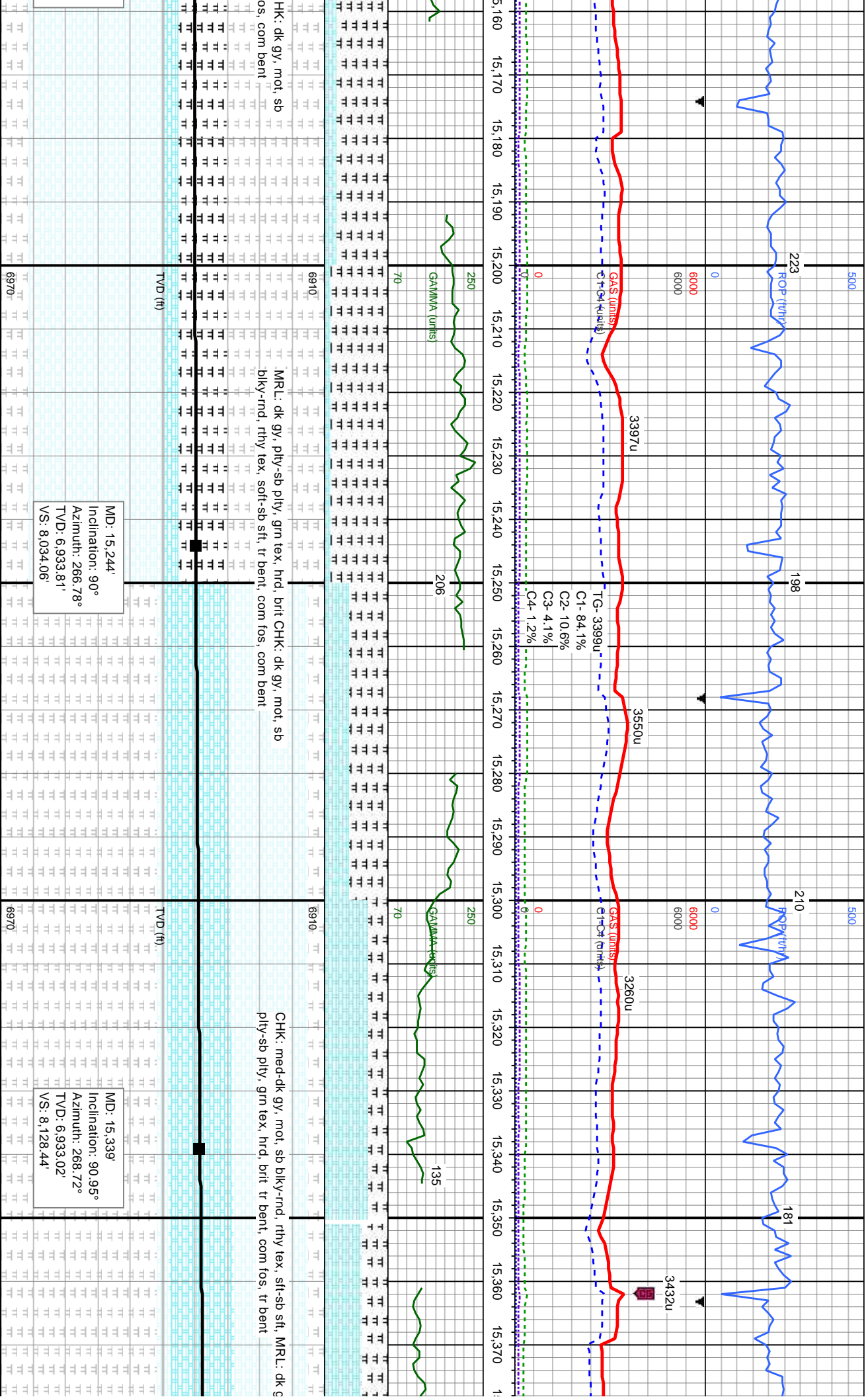


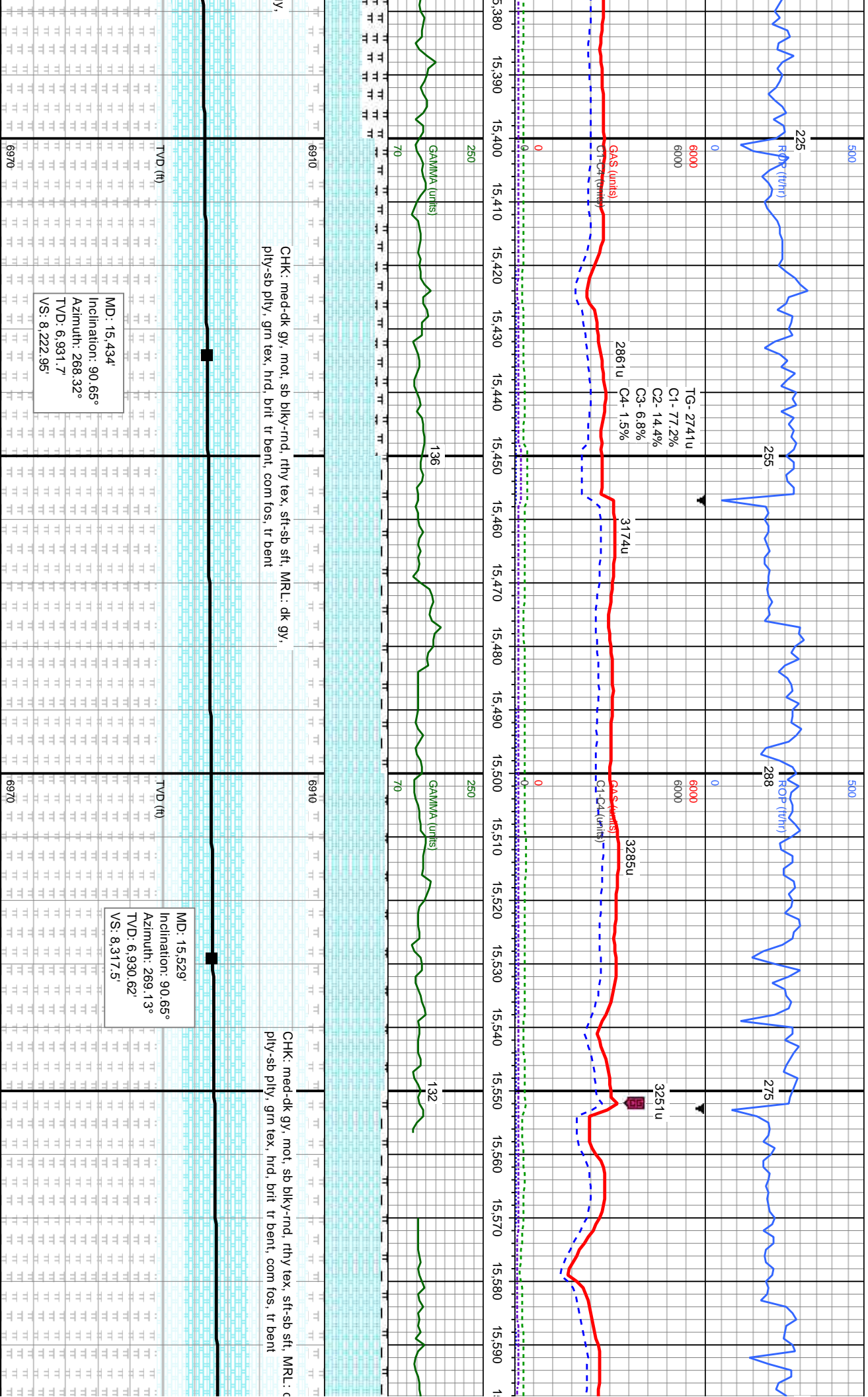












CHK: med-dk gy, mot, sb blk-y-rnd, rhy tex, sft-sb sft, MRL: dk gy,
ply-sb ply, gm tex, hrd, brit tr bent, com fos, tr bent

CHK: med-dk gy, mot, sb blk-y-rnd, rhy tex, sft-sb sft, MRL: c
ply-sb ply, gm tex, hrd, brit tr bent, com fos, tr bent

