

**Scale: 6" / 100'**  
**Measured Depth Log**

Jonathan Broussard Wellsite Geo

Color Coding

Oil

Note

Error

Condensate

Core

Water

Gas

Pressure

Seal

Rock Types

UNKNOWN

ANHYDRITE

BENTONITE

BRECCIA

CHALK

CEMENT

CHEERT

CLAY CHOKE SANC

CLAYSTONE

COAL

CONGLOMERATE

DOLOMITE

DOLOMITIC LIMESTONE

GRANITE

GYPSPUM

IGNEOUS

SIDERITE or LIMONITE

LIMESTONE

MARLSTONE

METAMORPHIC

NO SAMPLE

SALT

SANDSTONE

SALT-PEPPER SANC

SHALE

SHALE COLORED

SHALE GRAY

SHALY SANDSTONE

SHALY SILTSTONE

SILTY SHALE

SILTSTONE

TILL

TUFF

WELDED TUFF

Accessories

GASTROPOD

INOCERAMUS

OOLITE

OSTRACOD

PELECYPOD

PELLET

PISULITE

PLANT REMAINS

PLANT SPORES

SCAPHOPOD

STROMATOPOROID

ARGILLITE GRAIN

BENTONITE

BITUMENOUS SUBSTANCE

BRECCIA FRAGMENTS

CALCAREOUS

CARBONACEOUS FLAKES

CHTDK

CHTLT

COAL - THIN BEDS

DOLOMITIC

FELDSPAR

FERRUGINOUS PELLET

HEAVY MINERAL

KAOOLIN

MARCASITE

MARLSTONE

MICACEOUS

MINERAL CRYSTALS

NOODULES

PHOSPHATE PELLETS

PYRITE

SALT CAST

SANDY

SIDERITE

SHALY STRINGER

BENTONITE STRINGER

COAL STRINGER

DOLOMITTE STRINGER

GYPSPUM STRINGER

LIMESTONE STRINGER

MARLSTONE (CALC) STRG

MARLSTONE (DOL) STRG

SANDSTONE STRINGER

SHALE STRINGER

SILTSTONE STRINGER

FISH

FORAMINIFERA

FOSSIL

ANHYDRITIC

ARGILLACEOUS

FERRUGINOUS

GLAUCONITE

GYPSEFEROUS

SILICEOUS

SILTY

TUFFACEOUS

ATER  
PRODUCTION

Oil S

DEAD

EVEN

QUES

SPOT

Poros

E EART

FENES

F FRACT

INTER

INTER

MOLD

ORGAN

Other Symbols

P PINPOINT	DST INTERVAL	WIRELINE TESTED - LEFT	E EARTHY
VUGGY	FAULT	WIRELINE TESTED - RT	FX FINEL.YXLN

Engineering

FORMATION TOP	DRILL STEM TEST	GS GRAINSTONE
GAS SHOW	MINDEPTH MN DEPTH	L LITHOGRAPHIC

BIT	OIL SHOW	MX MICROXLN
CONNECTION (UP)	MINDEPTH MN DEPTH UP	MS MUDSTONE

Rounding

CONNECTION (DOWN)	ANGULAR	PS PACKSTONE
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sity

CONNECTION GAS	NORMAL FAULT	R ROUNDED	WS WACKESTONE
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CONNECTION GAS (LEFT)	OVERTURNED STRATA	S SUBANG
TRIP GAS	REVERSE FAULT	P SUBRND

Sorting

TRIP GAS (LEFT)	CASING	M MODERATE
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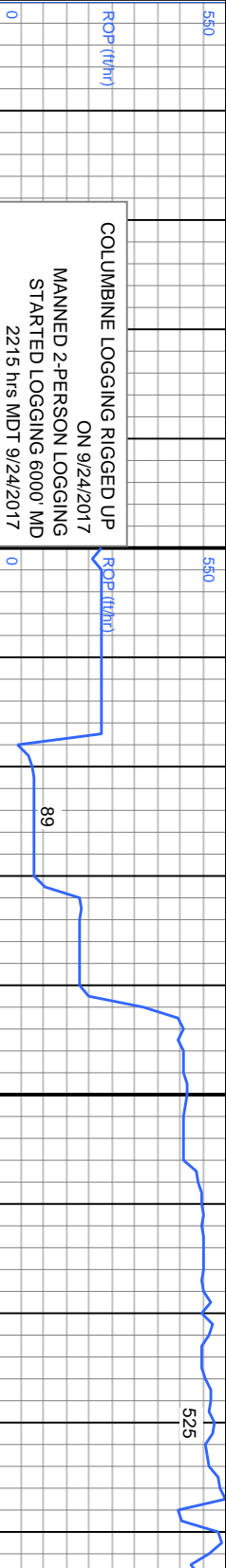
Textures

DOWN TIME GAS	SIDEWALL CORE (LEFT)	P POOR
DOWN TIME GAS (LEFT)	SIDEWALL CORE (RIGHT)	W WELL

CORE - LOST	SLIDE	C CHALKY
CORE - RECOVERED	SURVEY	CX CRYPTOXLN

Slide/Rotate

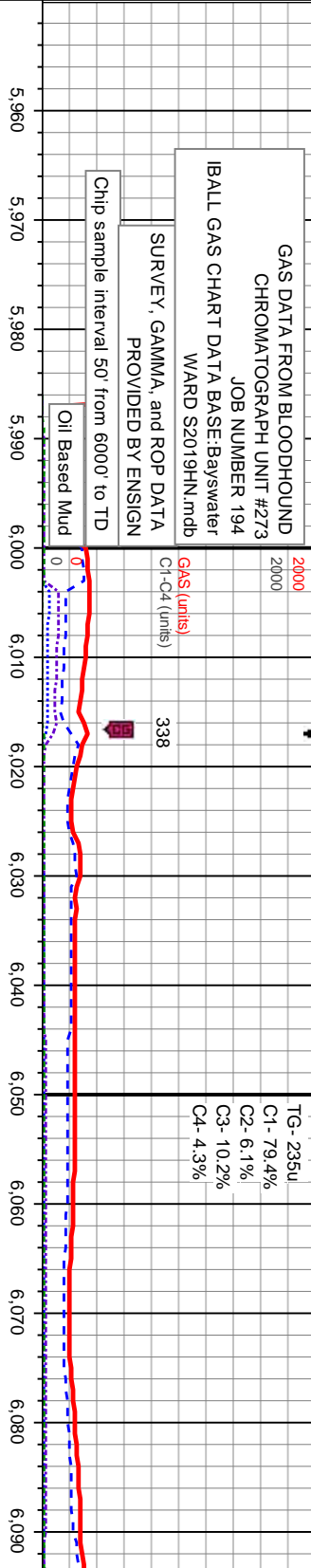
ROP  
ROP (t/min)



COLUMBINE LOGGING RIGGED UP  
ON 9/24/2017  
MANNED 2-PERSON LOGGING  
STARTED LOGGING 6000' MD  
2215 hrs MDT 9/24/2017

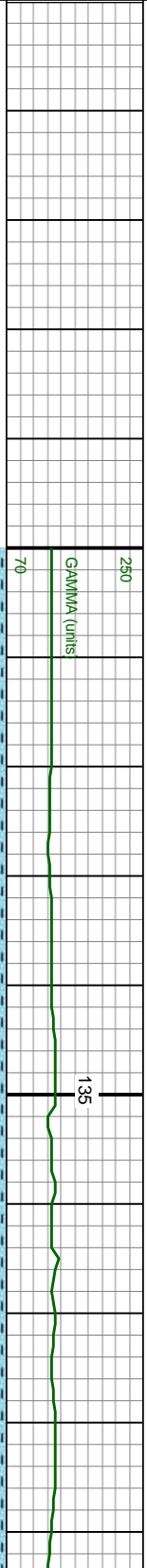
Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4



Depth Labels

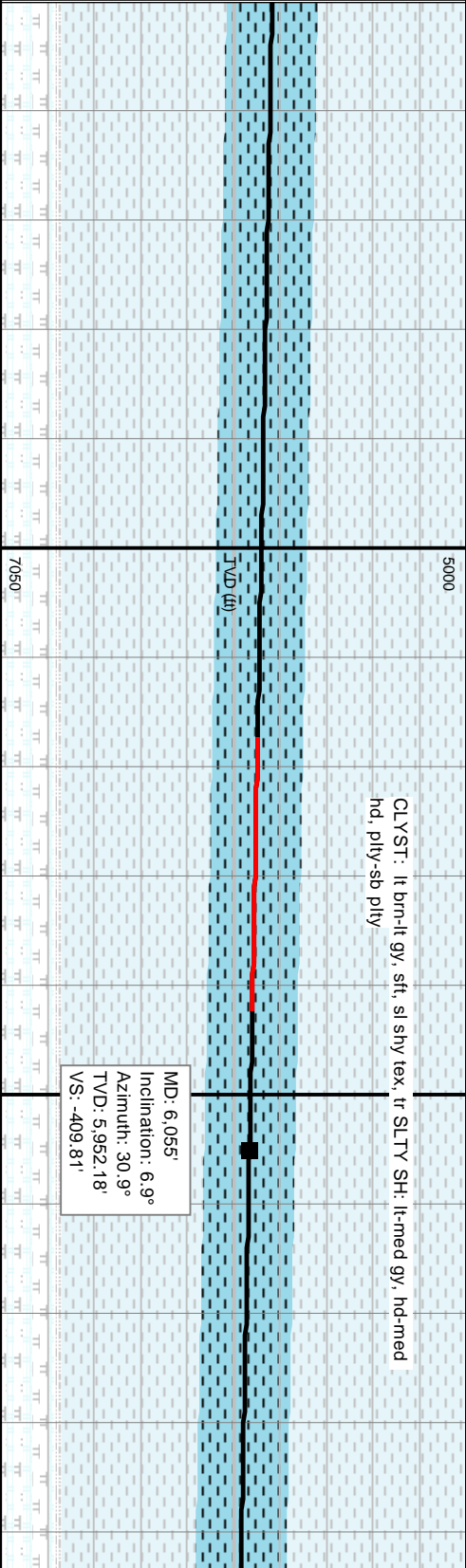
Gamma  
GAMMA



% Lith

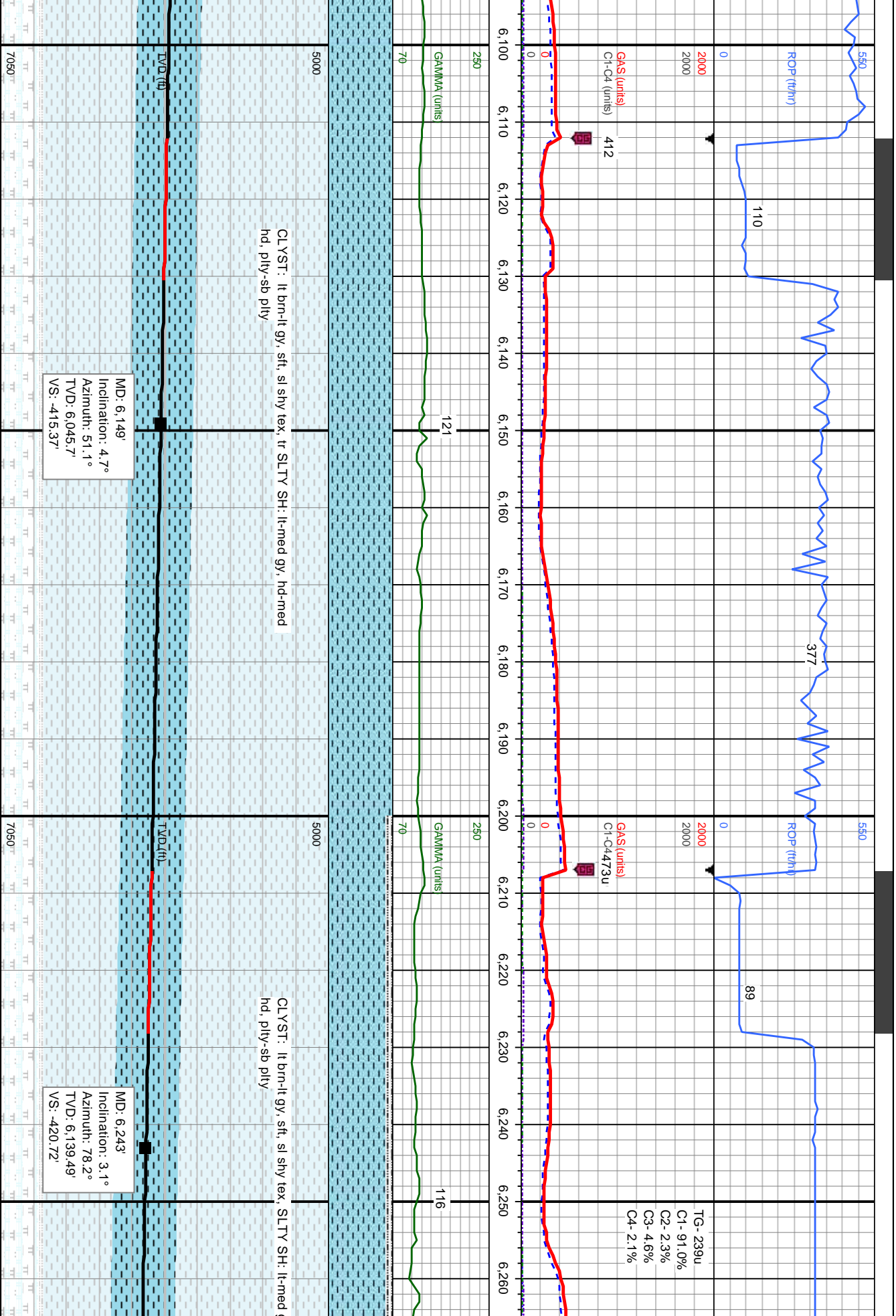


Well Bore  
TVD

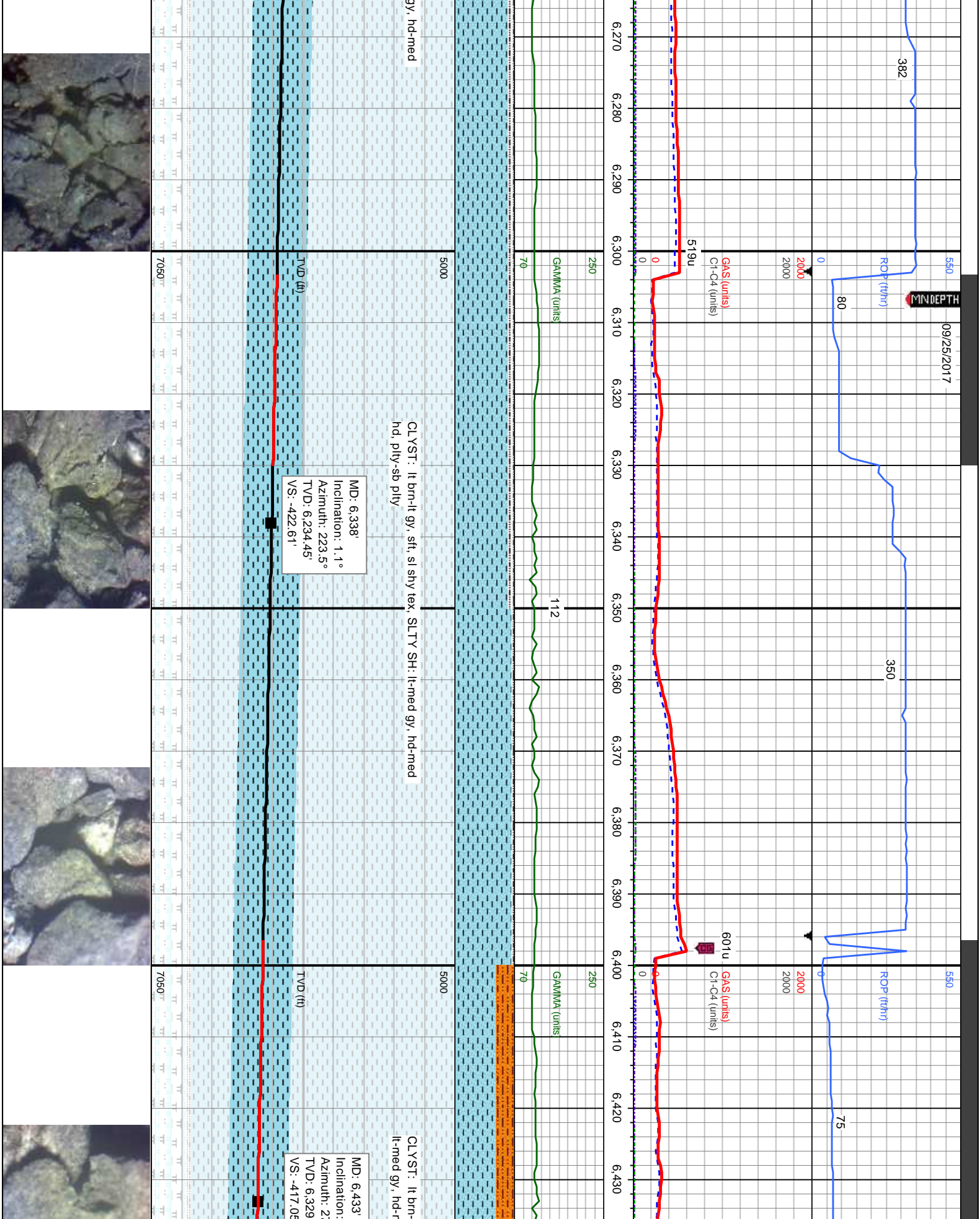


Images

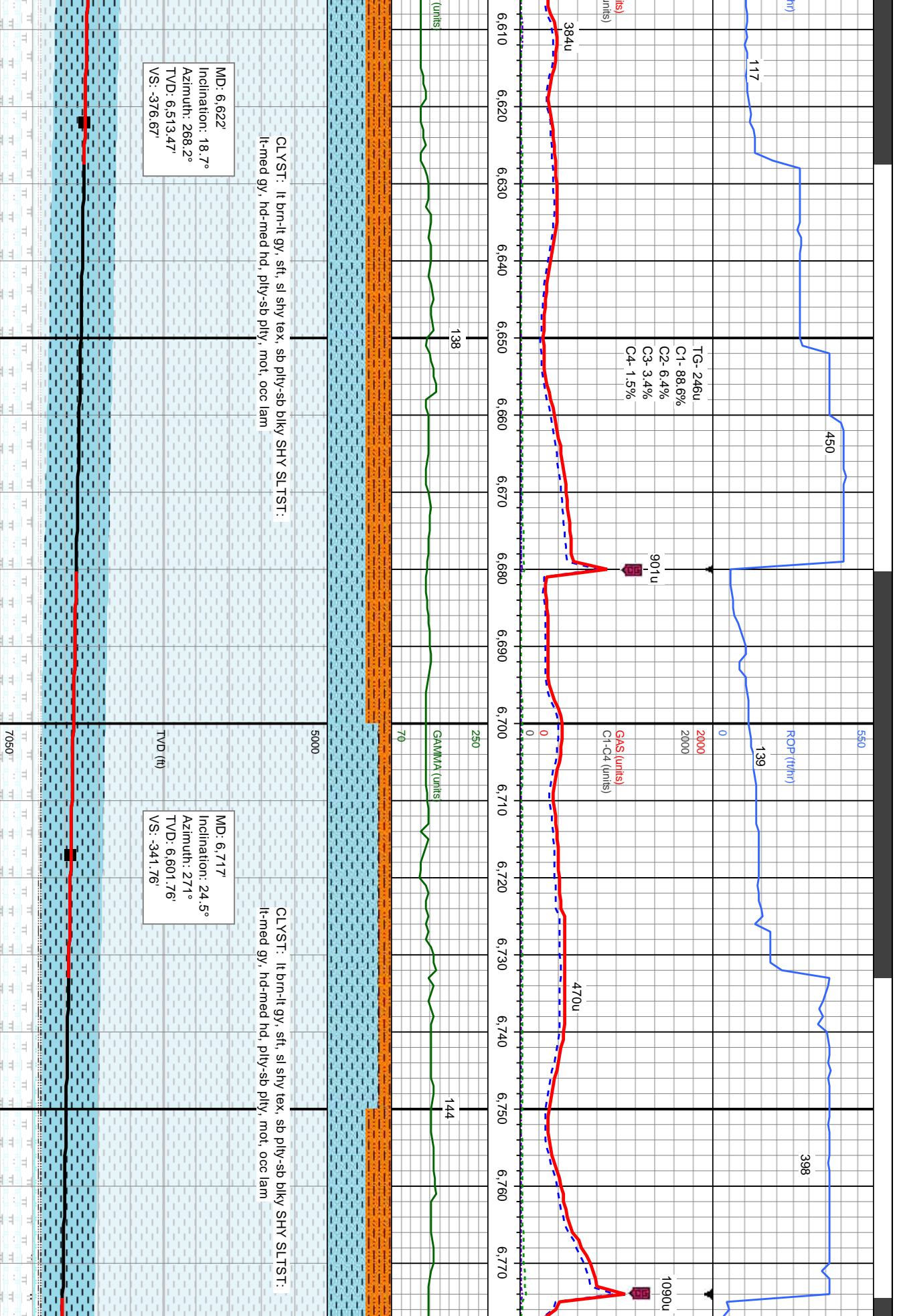




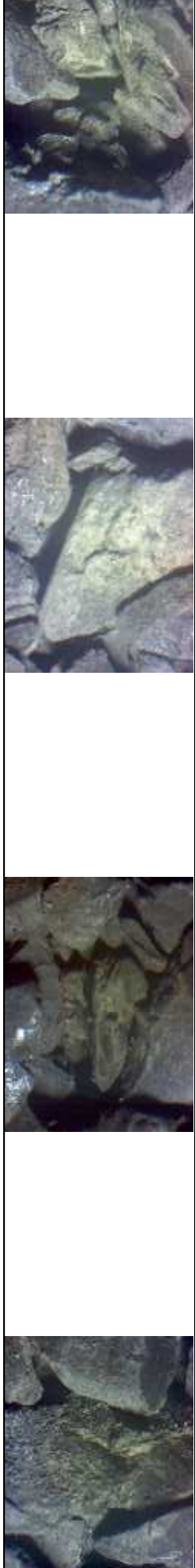
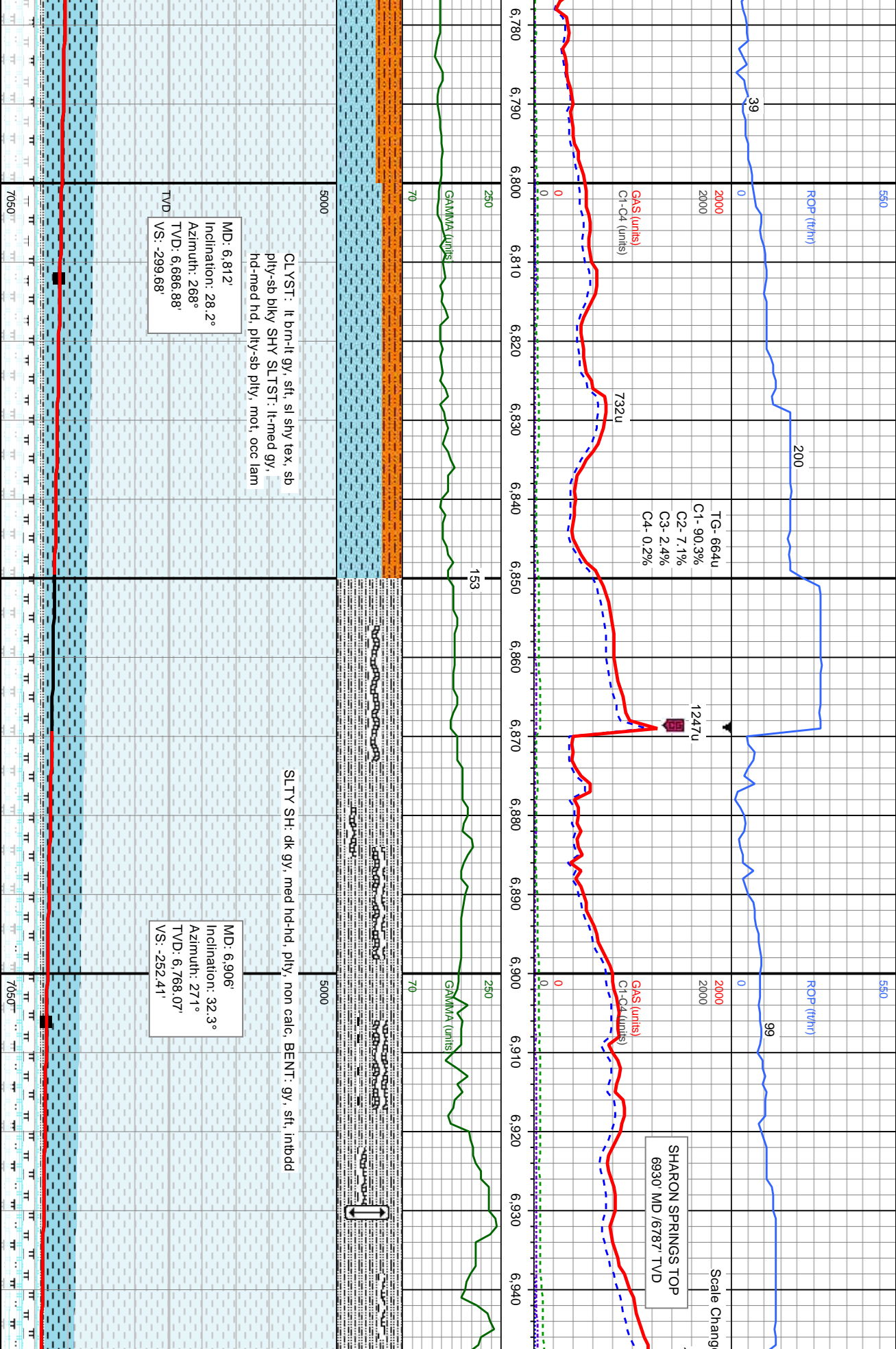


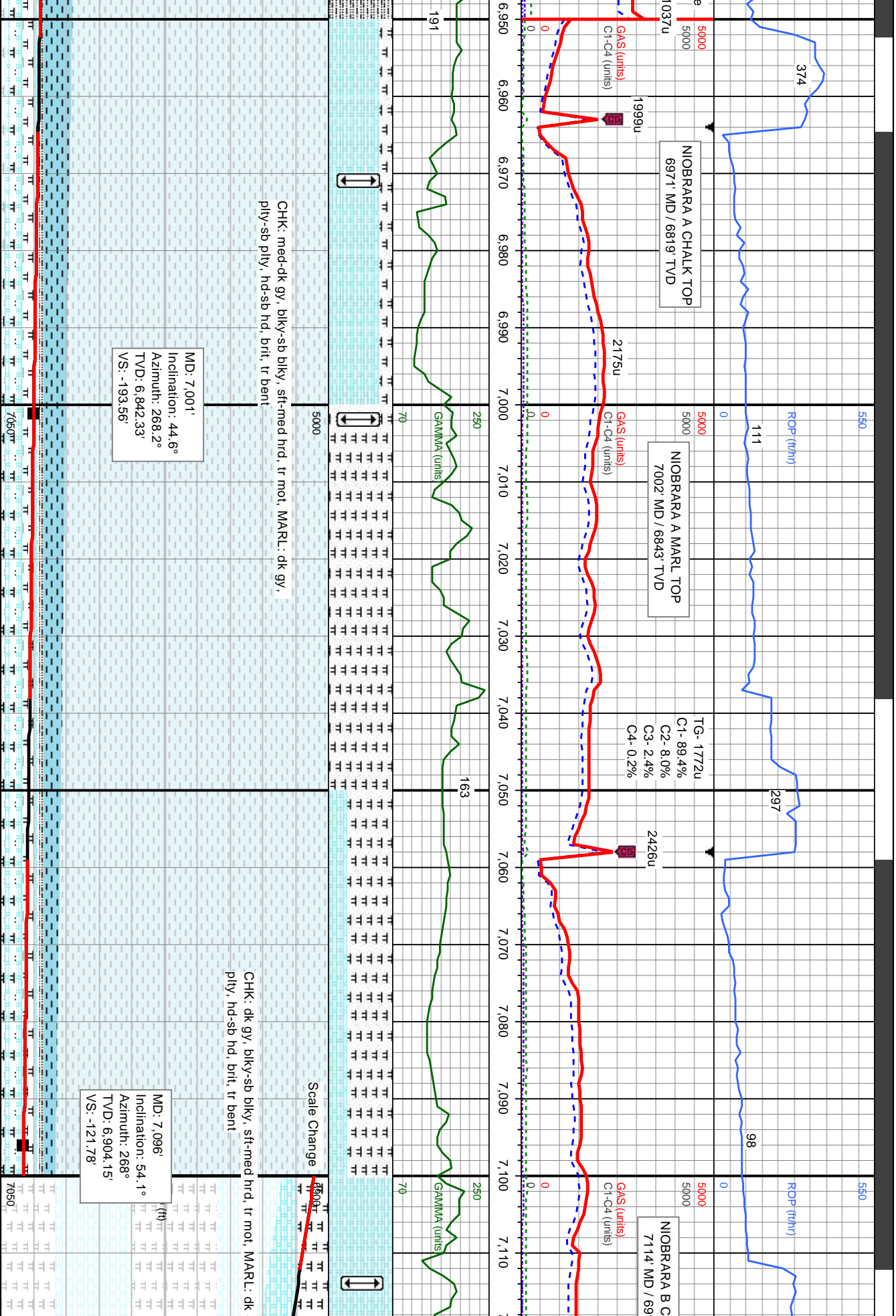


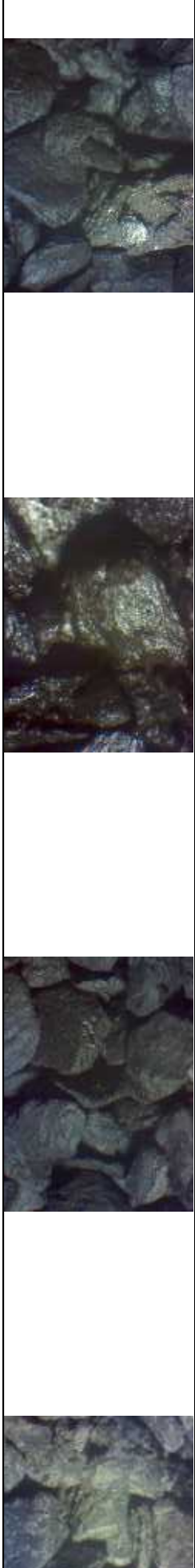
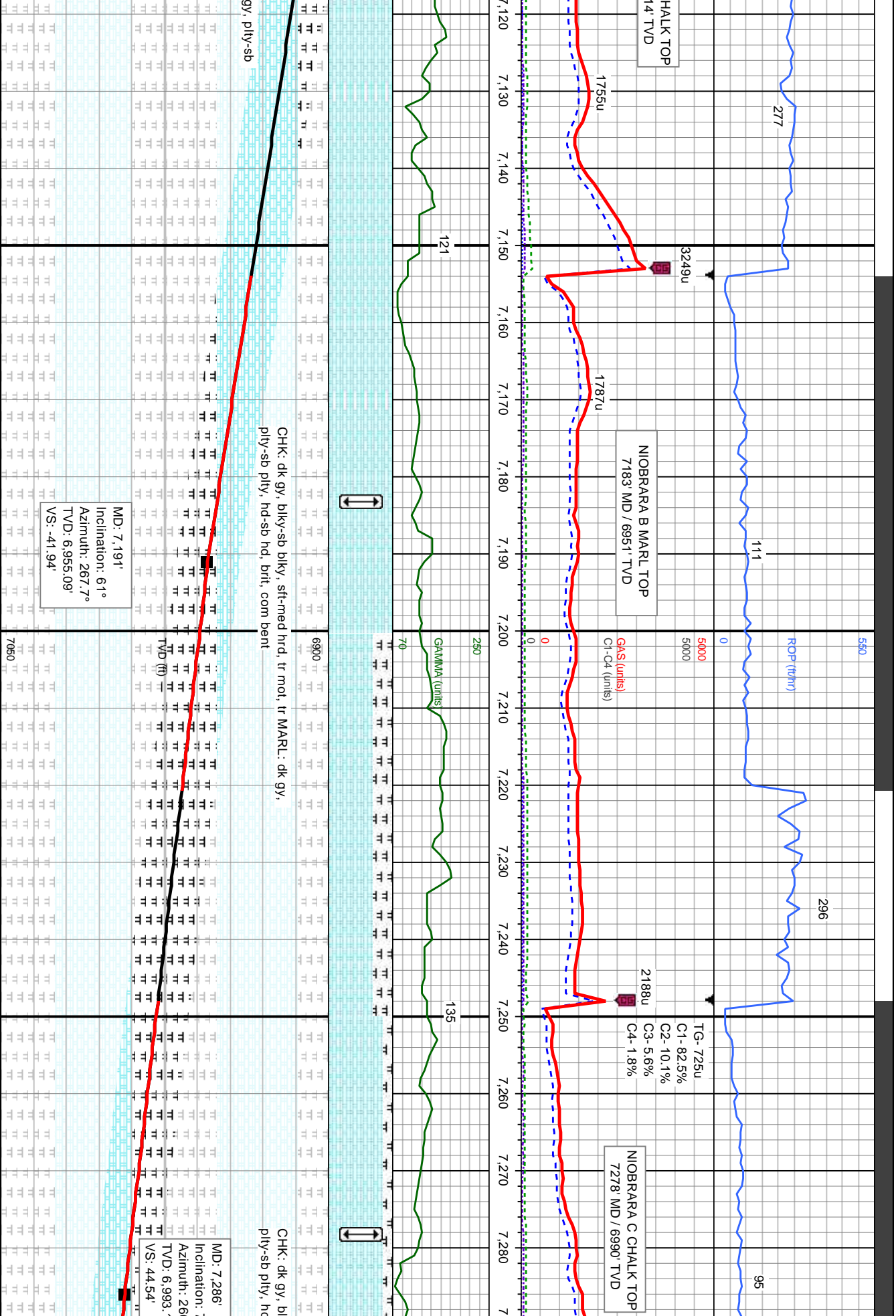




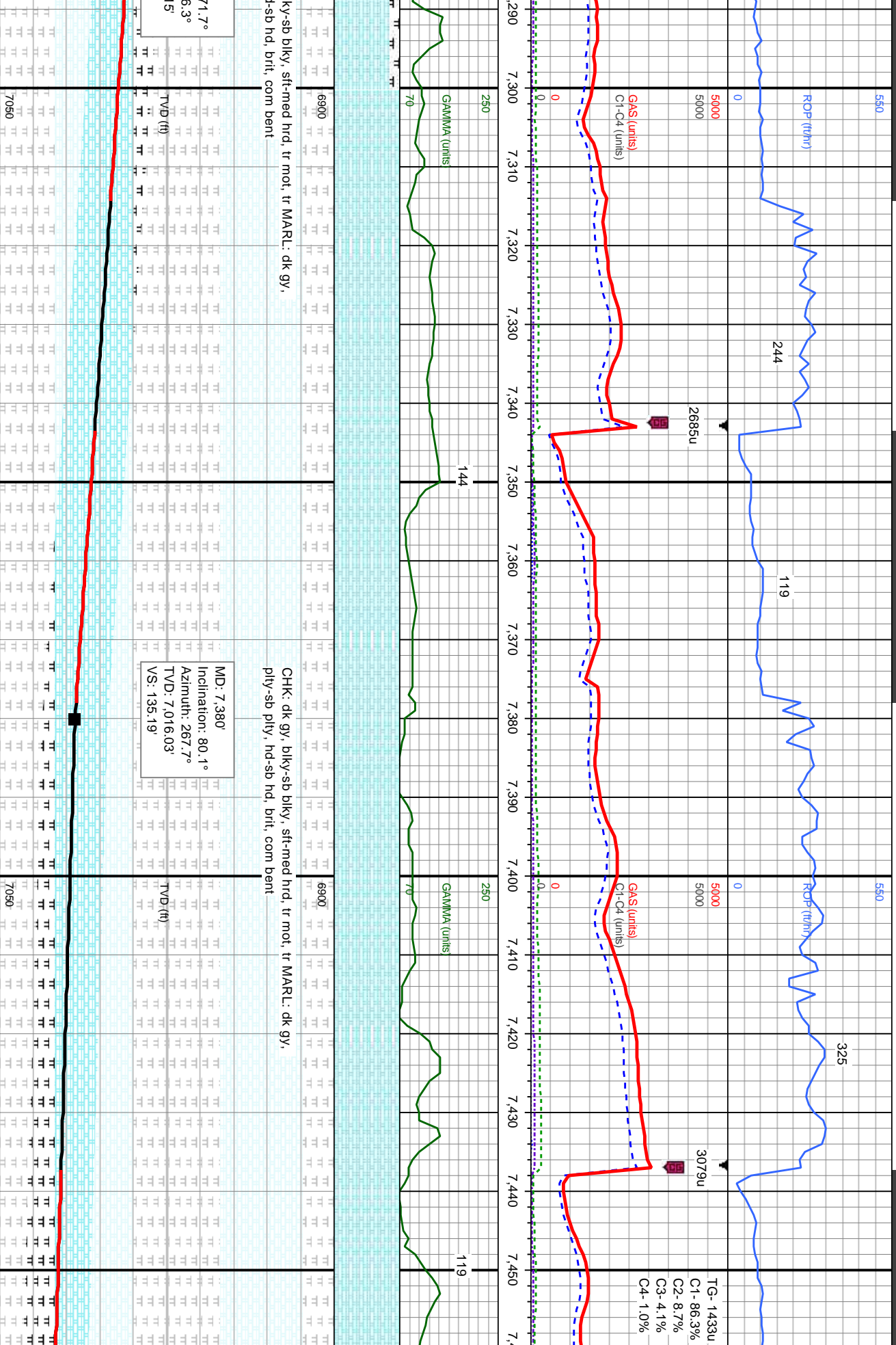












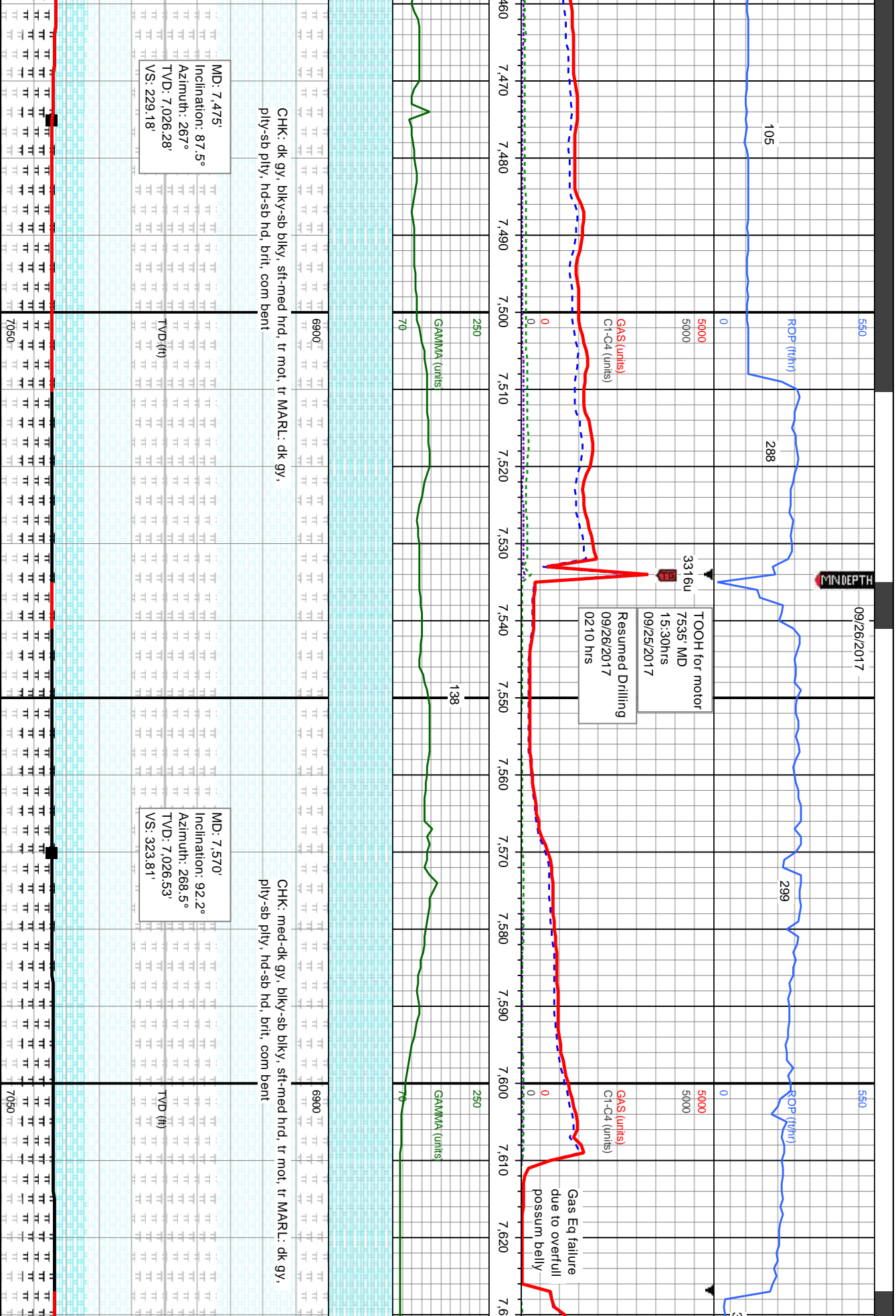
ky-sb blk, sft-med hrd, tr mot, tr MARL: dk gy,  
-sb hd, brit, com bent

CHK: dk gy, blk-y-sb blk-y, sft-med hrd, tr mot, tr MARL: dk gy, ply-sb ply, hd-sb hd, brit, com bent

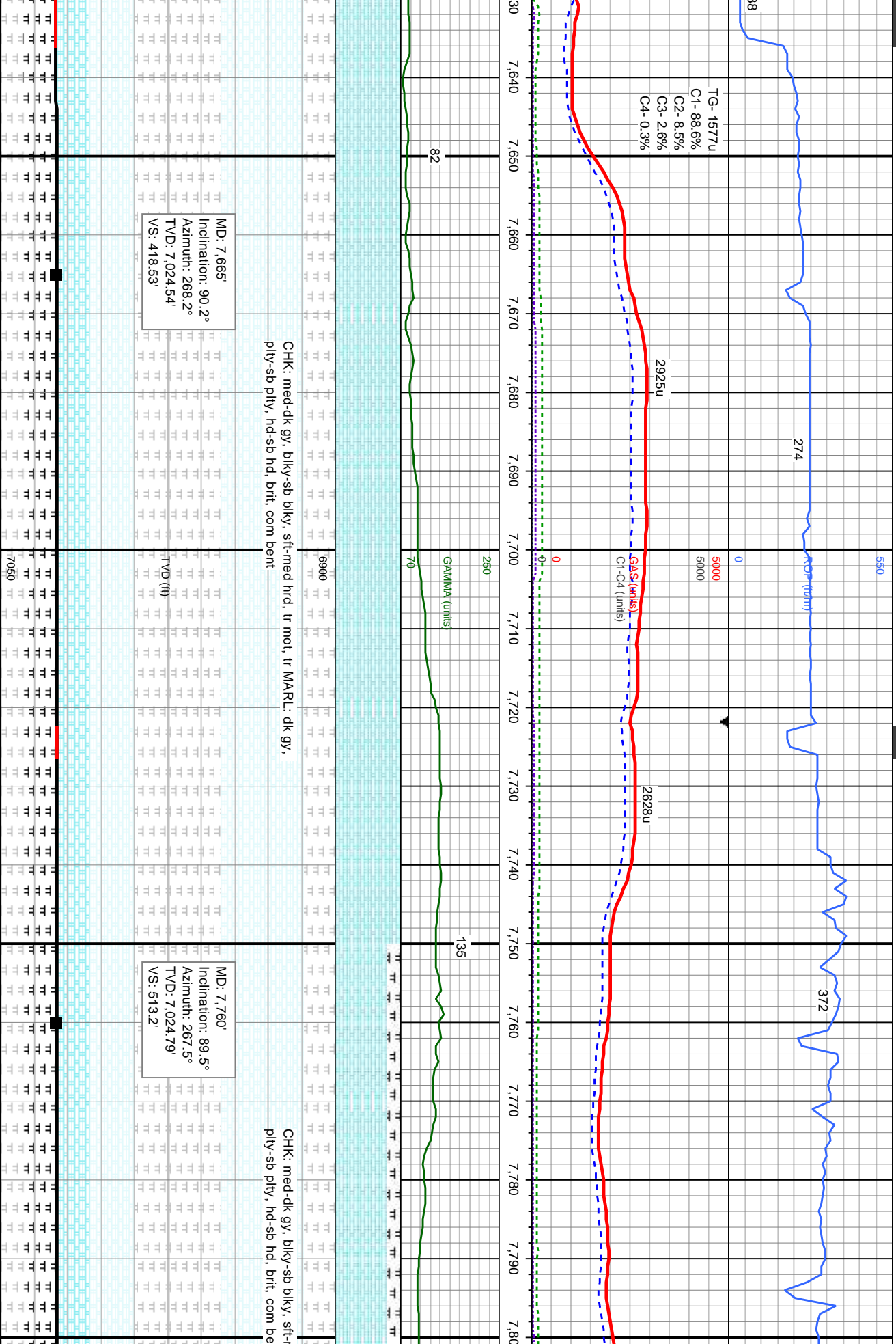
71.7°  
6.3°  
15'

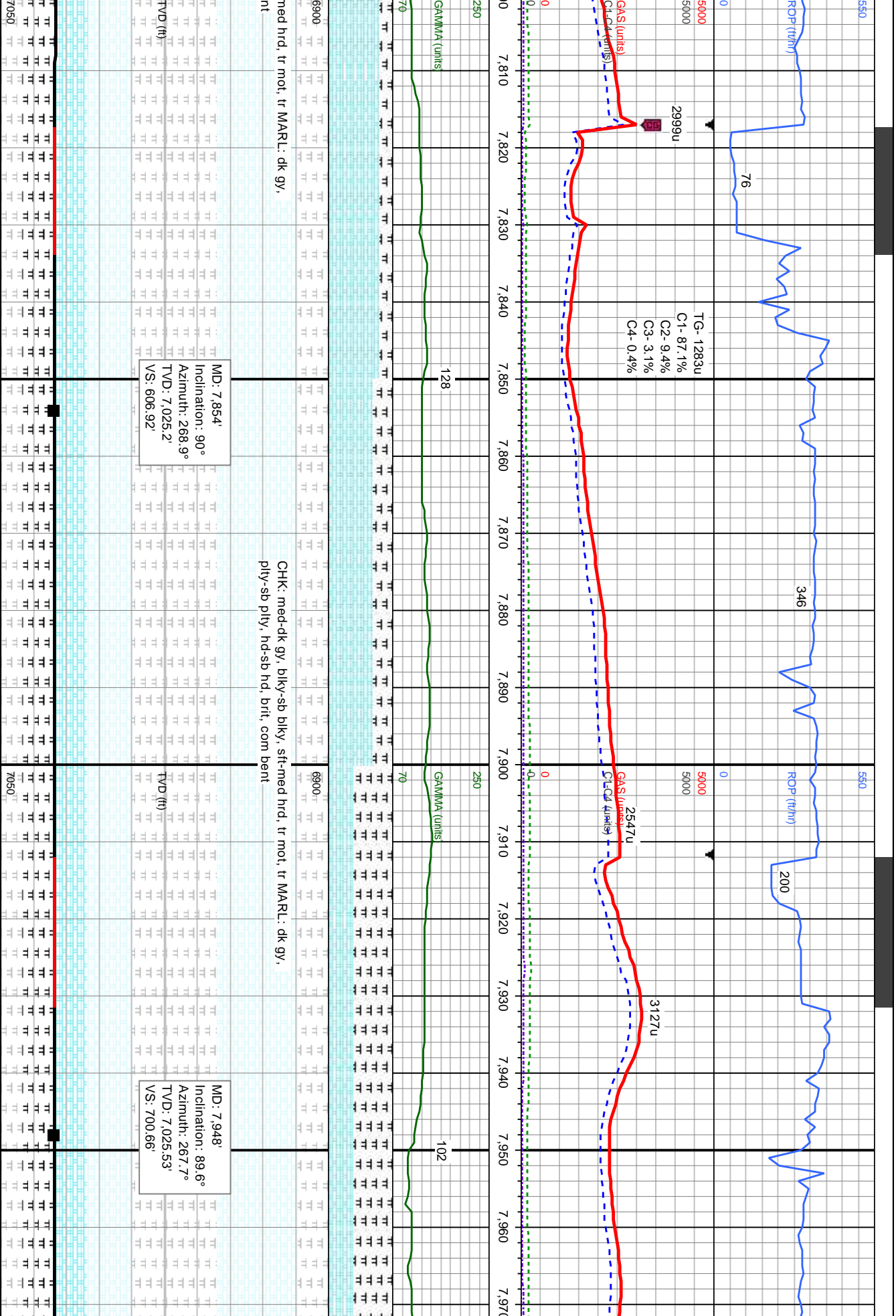
MD: 7,380'  
Inclination: 80.1°  
Azimuth: 267.7°  
TVD: 7,016.03'  
VS: 135.19'

TG- 1433u
C1- 86.3%
C2- 8.7%
C3- 4.1%
C4- 1.0%





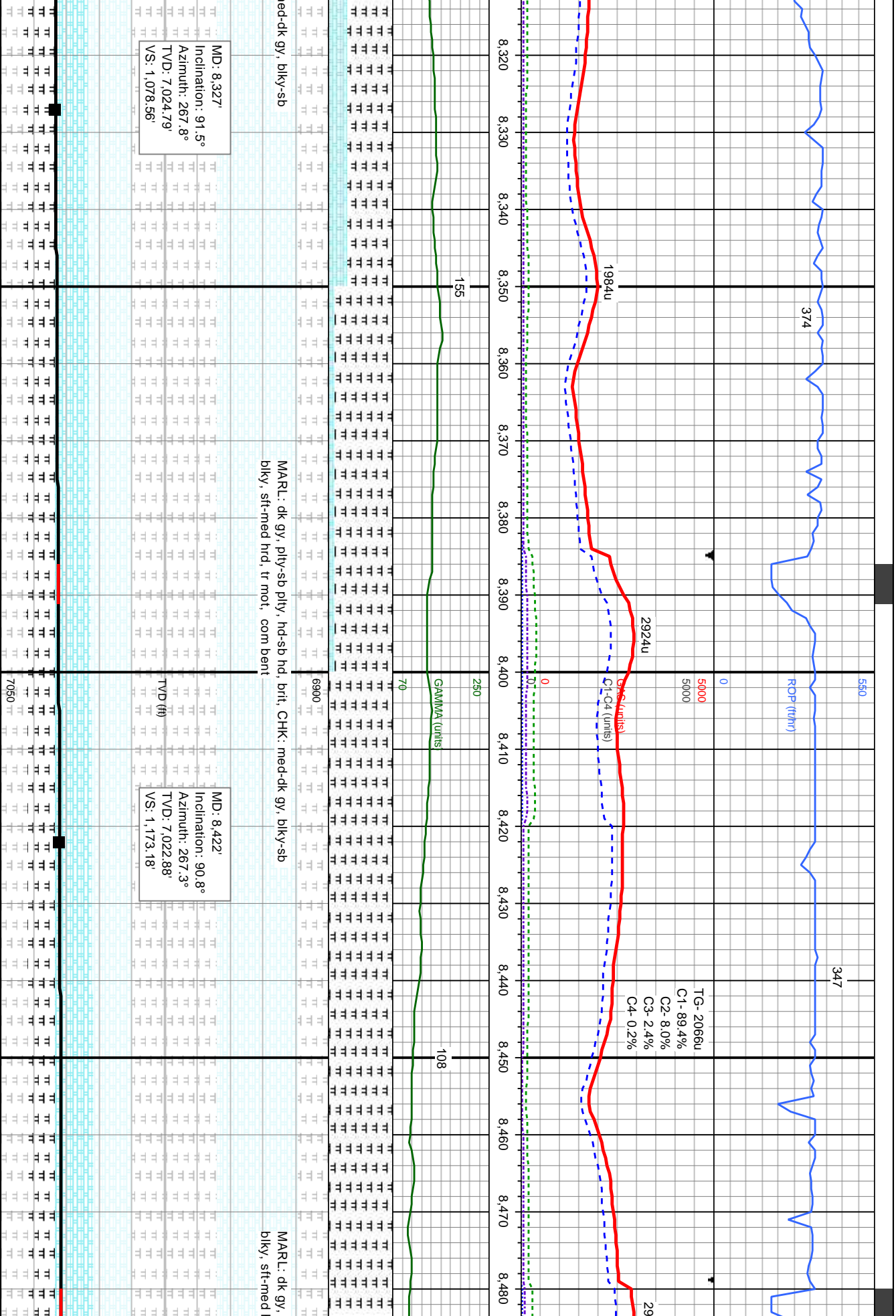




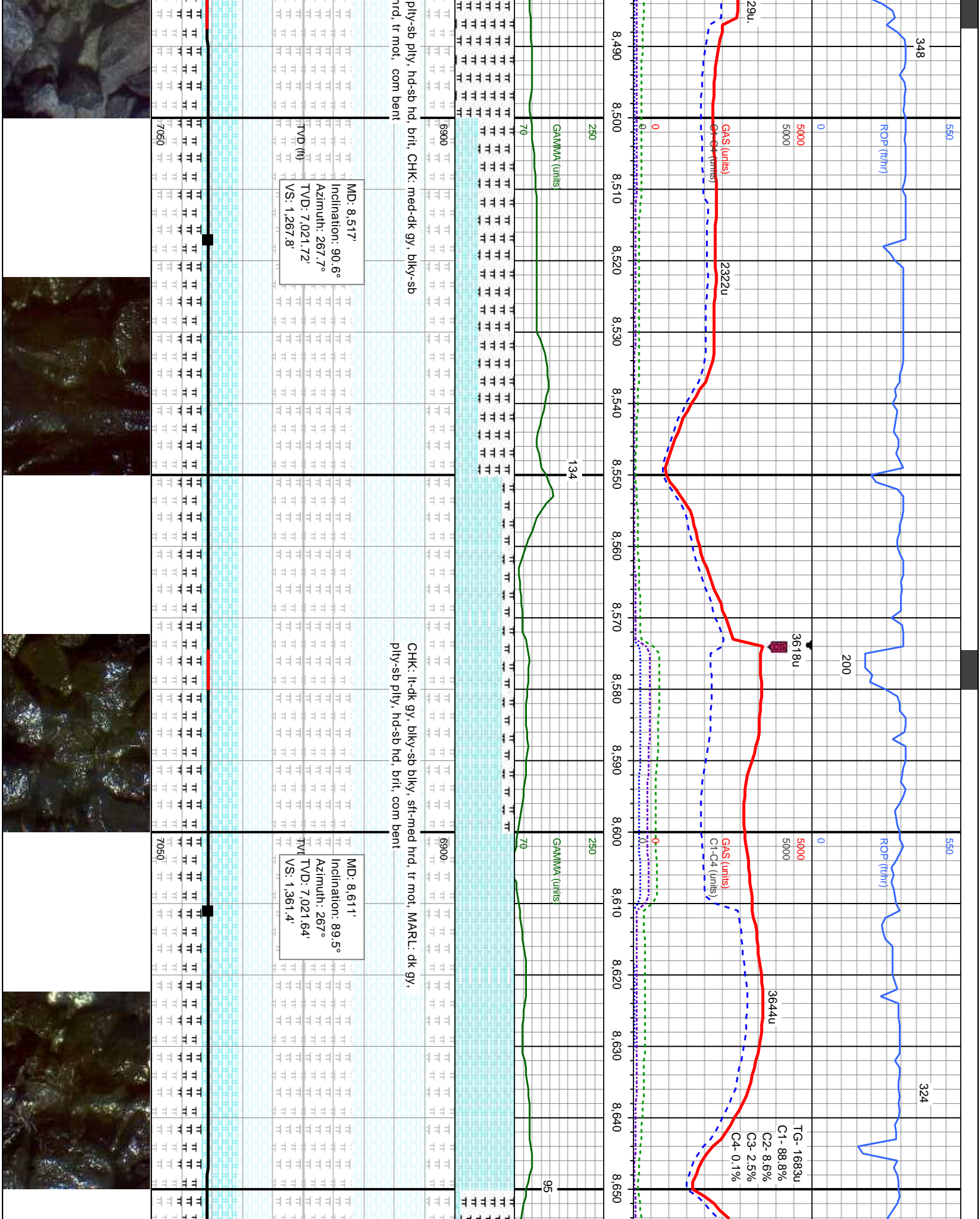


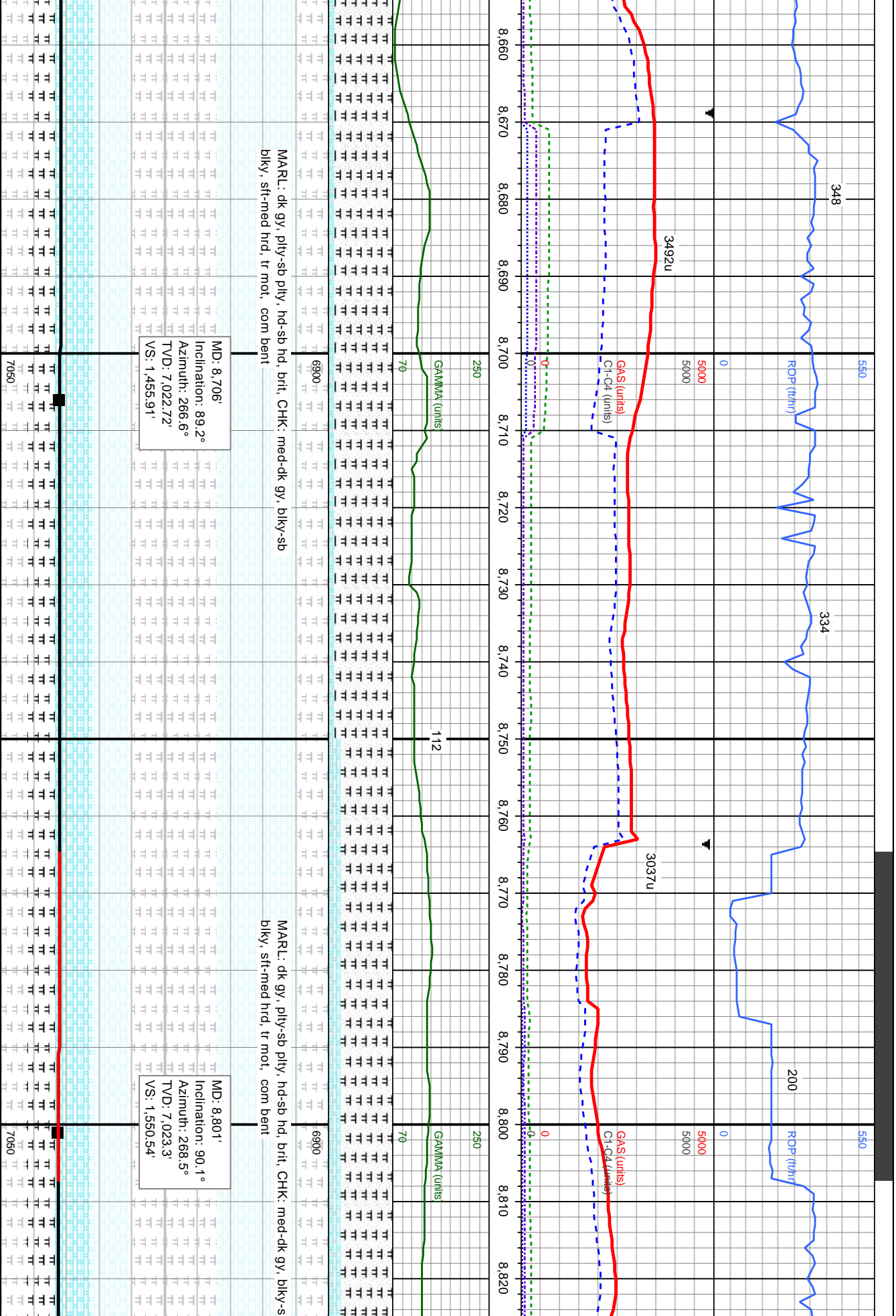


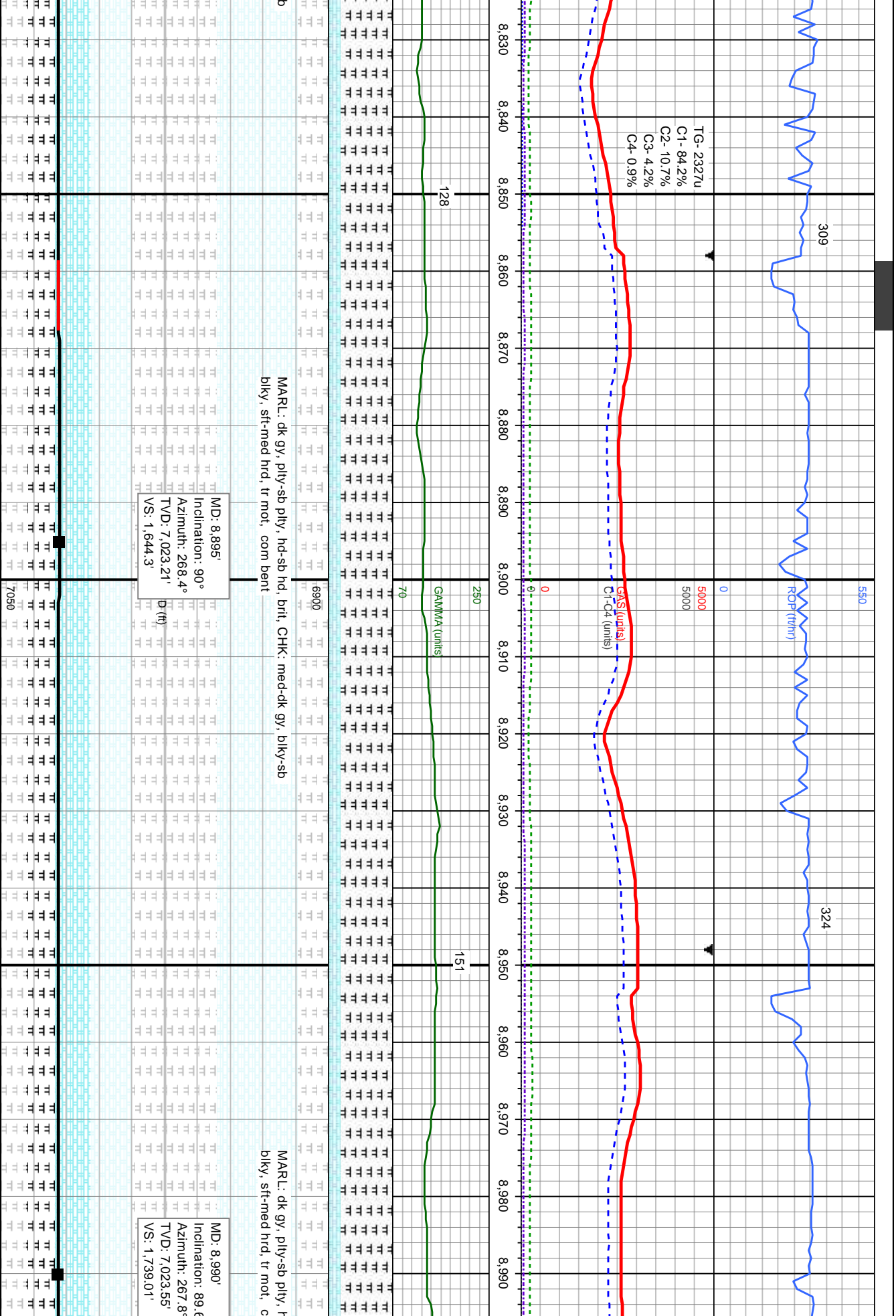




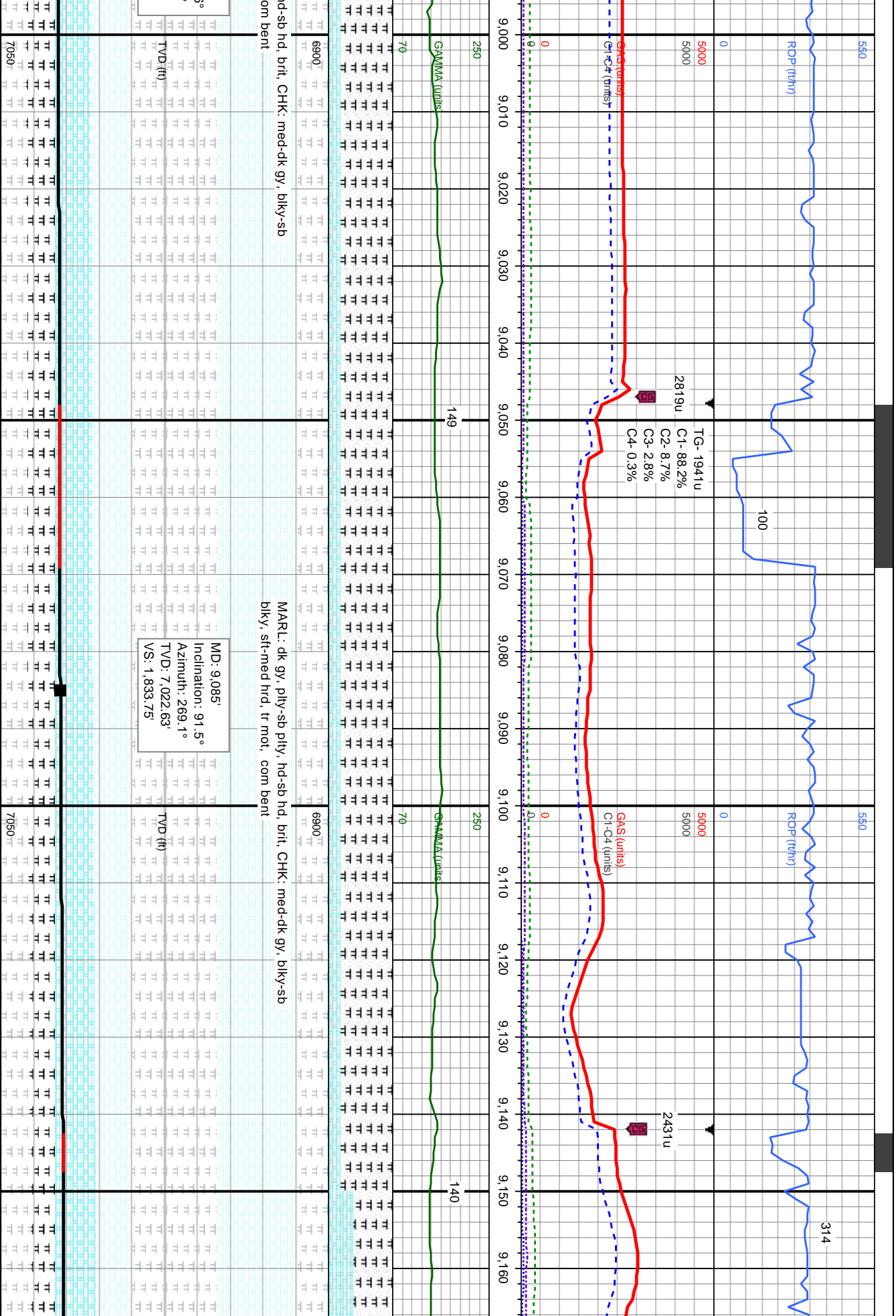


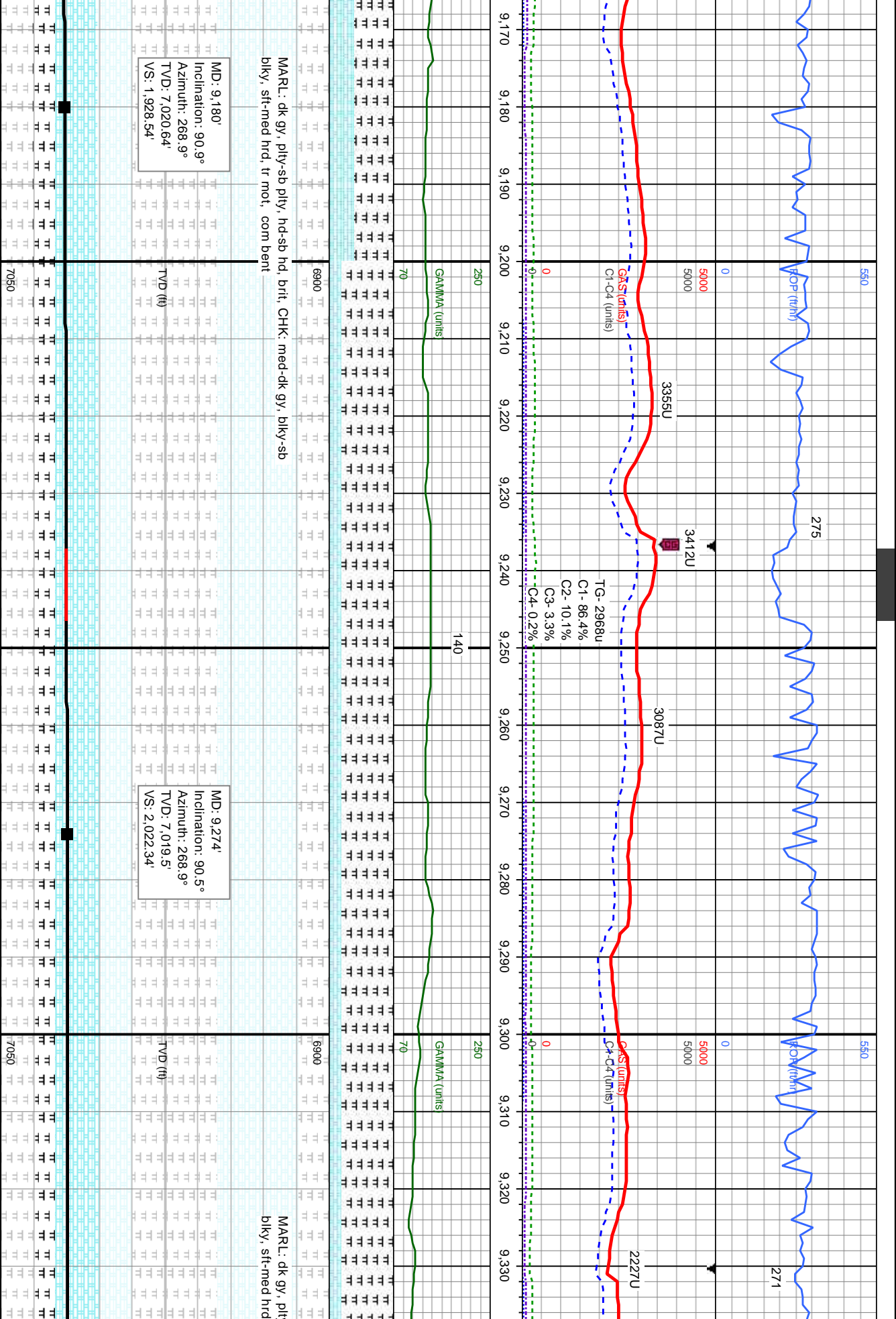




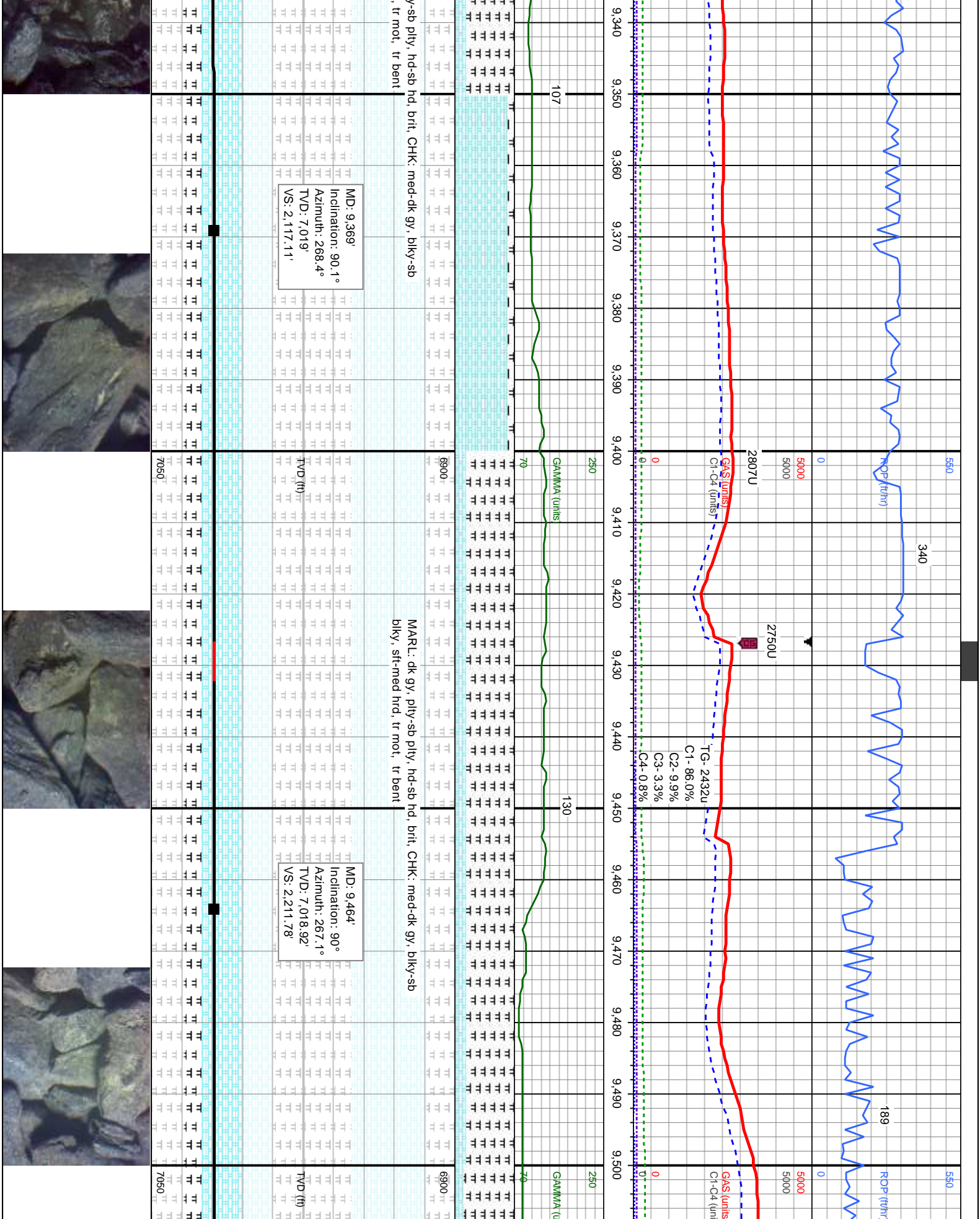




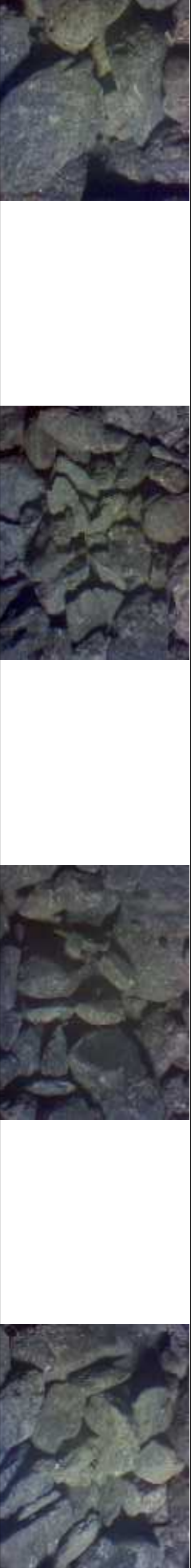
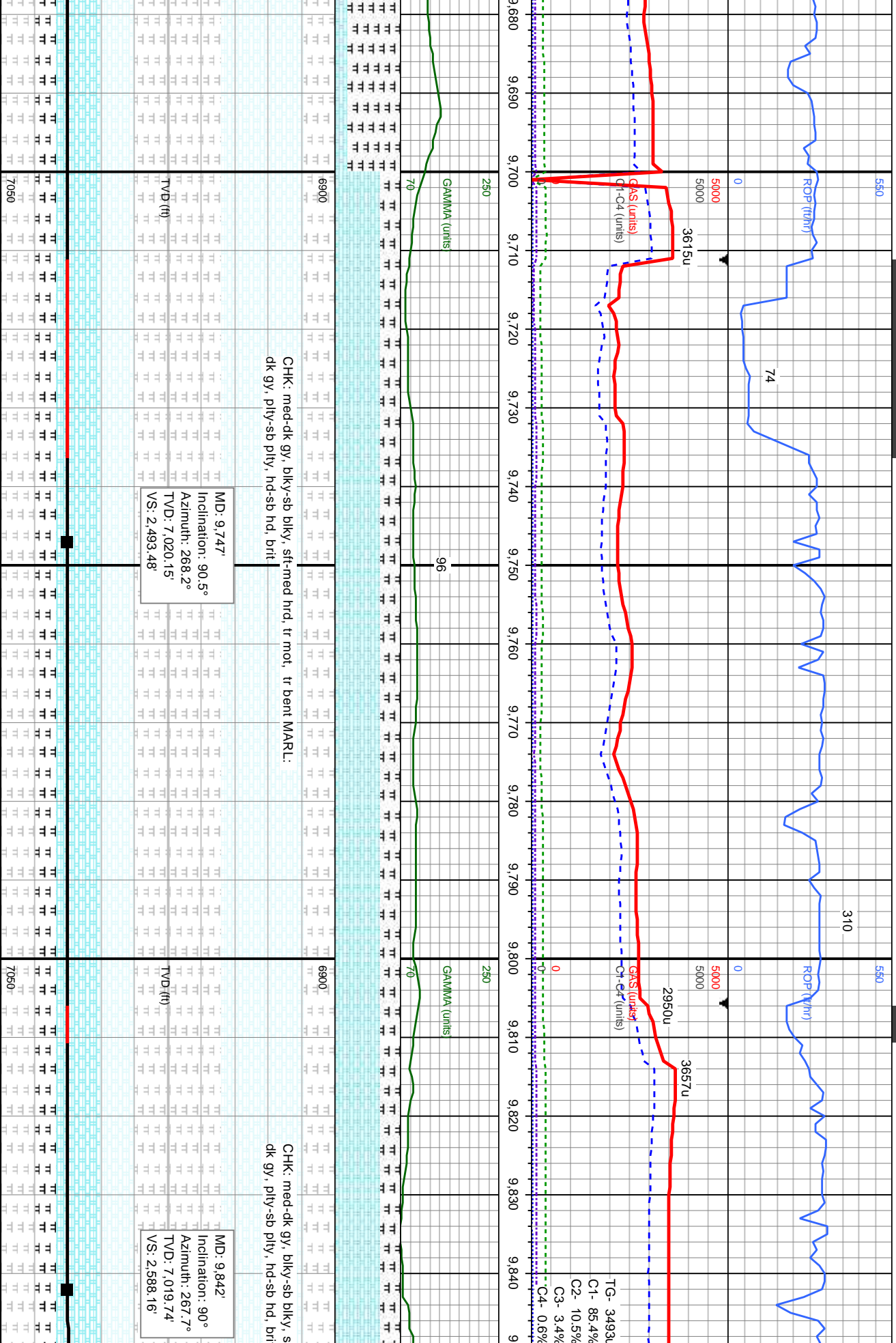




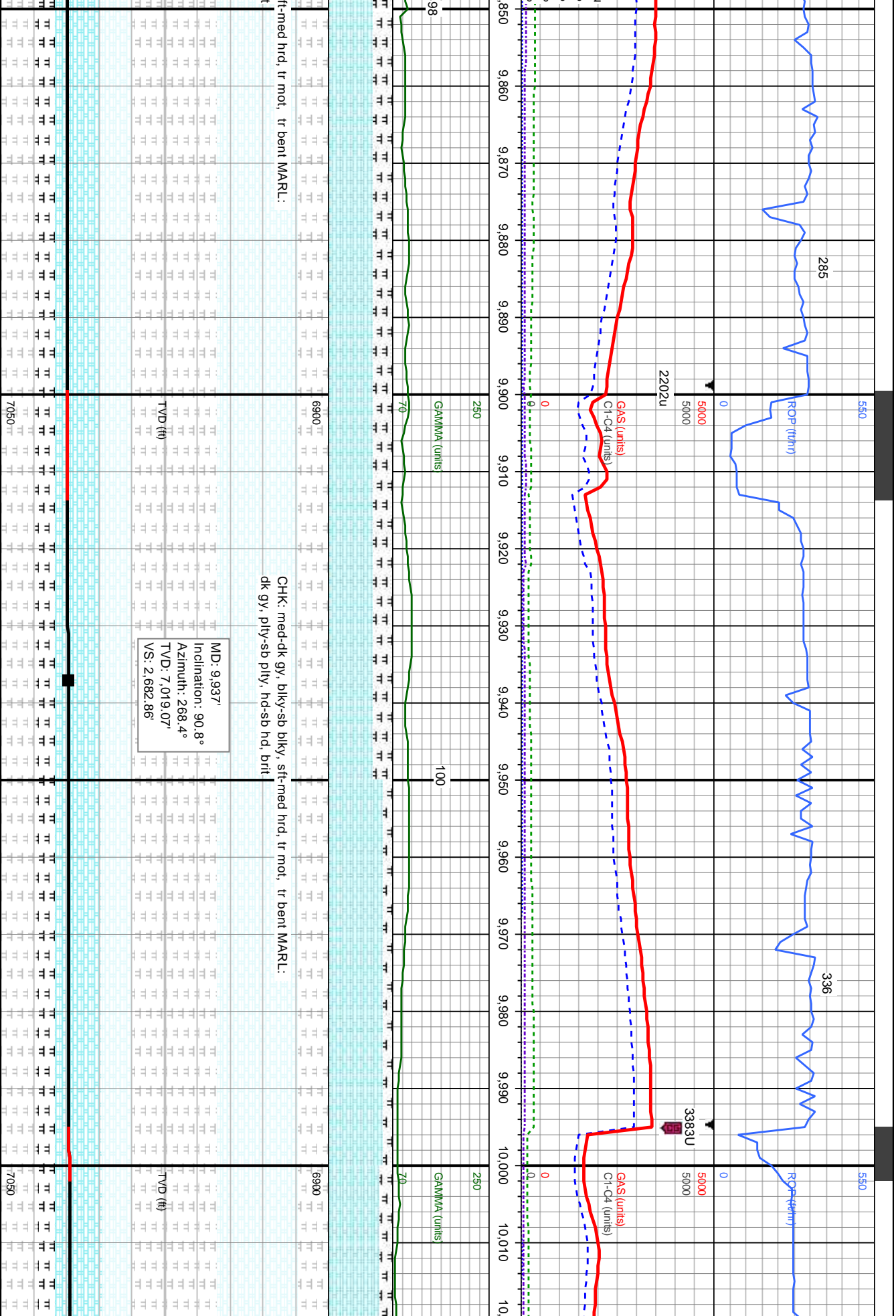






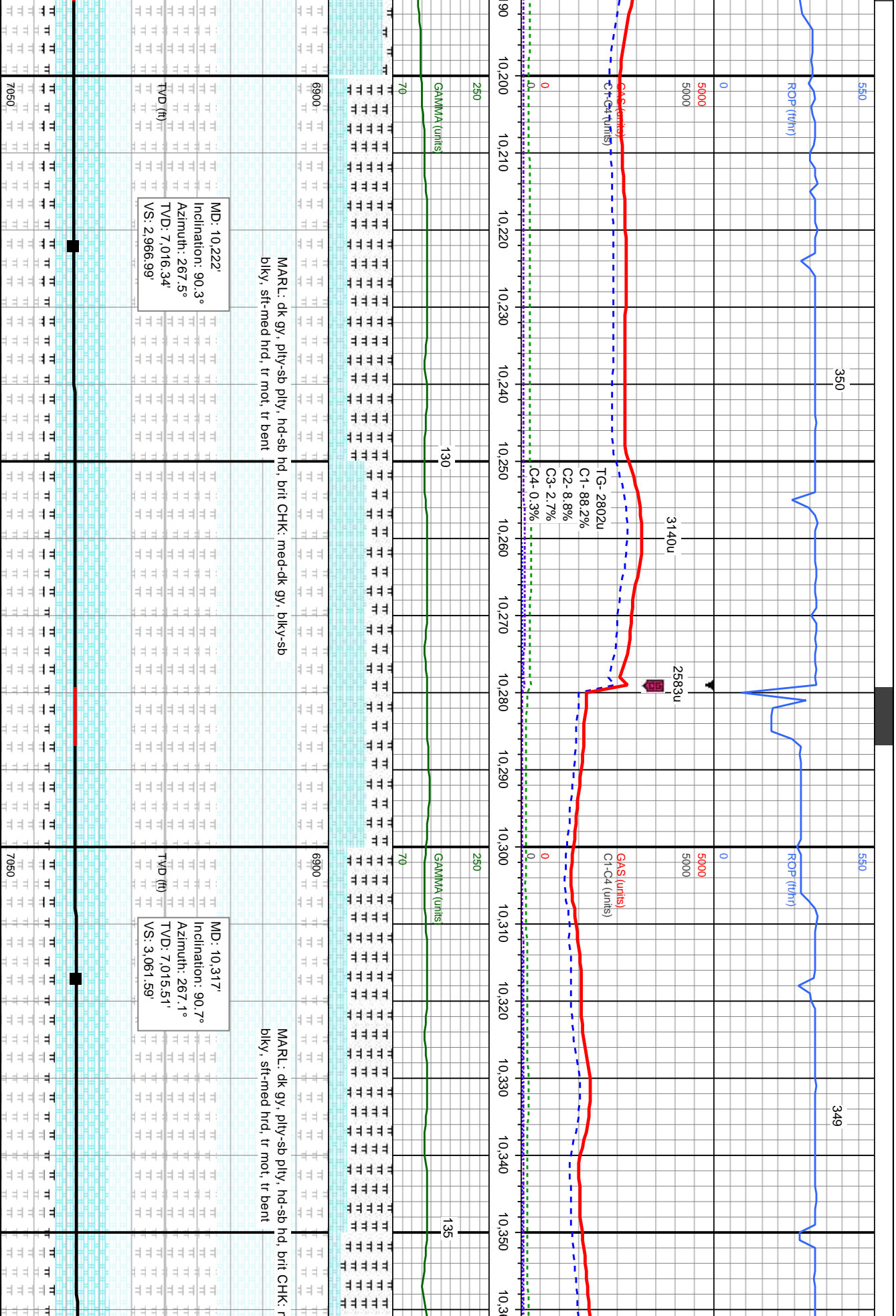


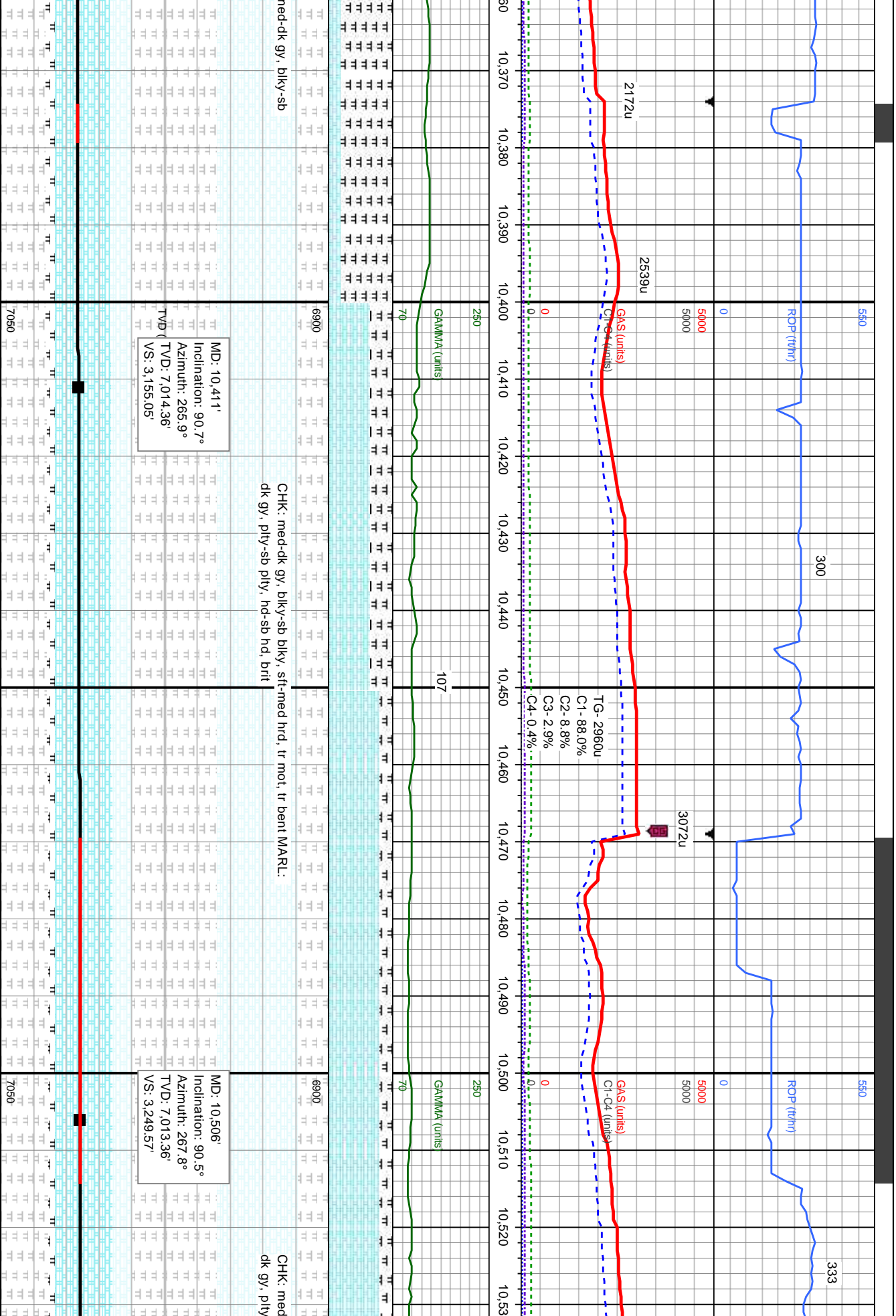


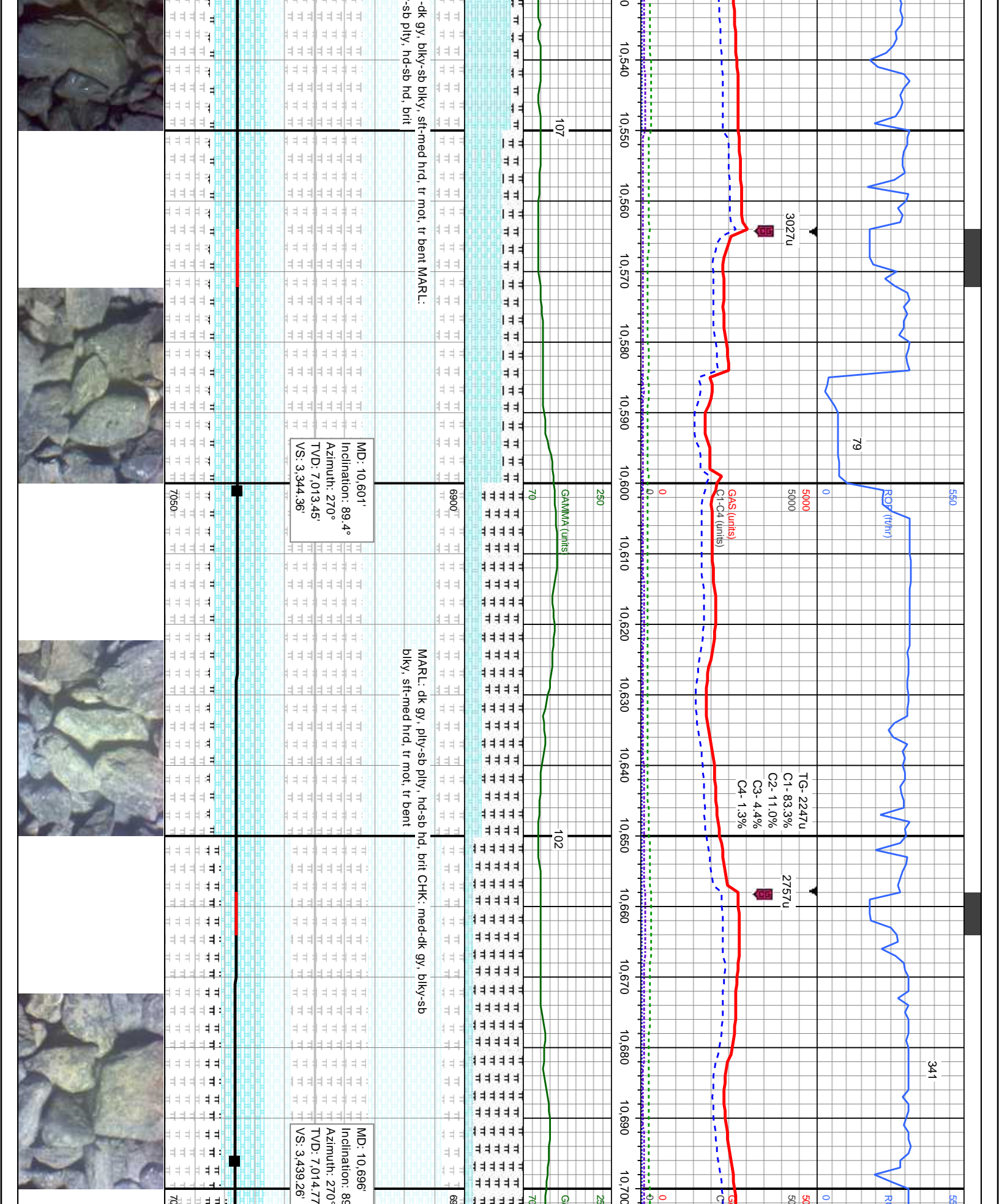




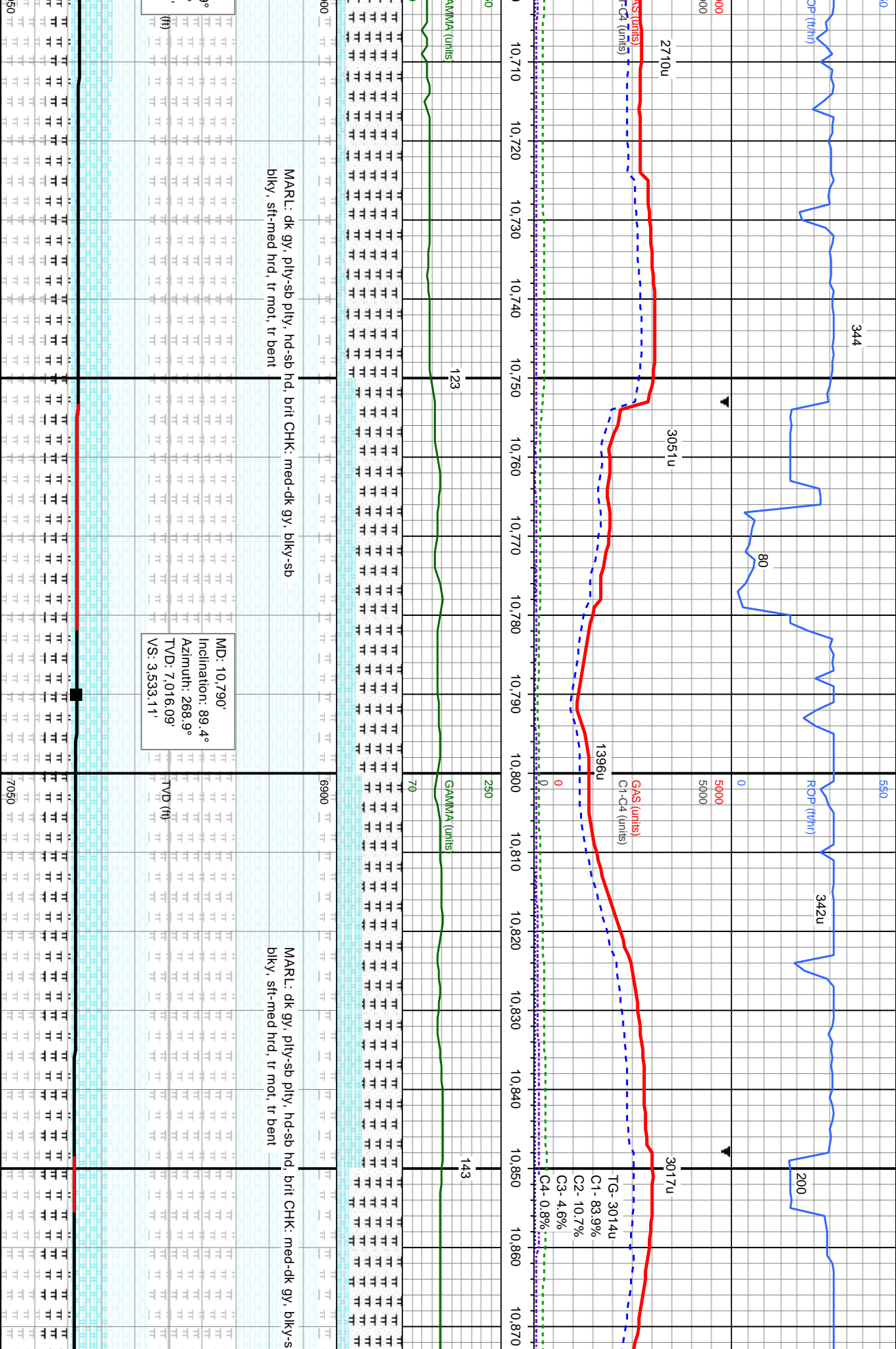




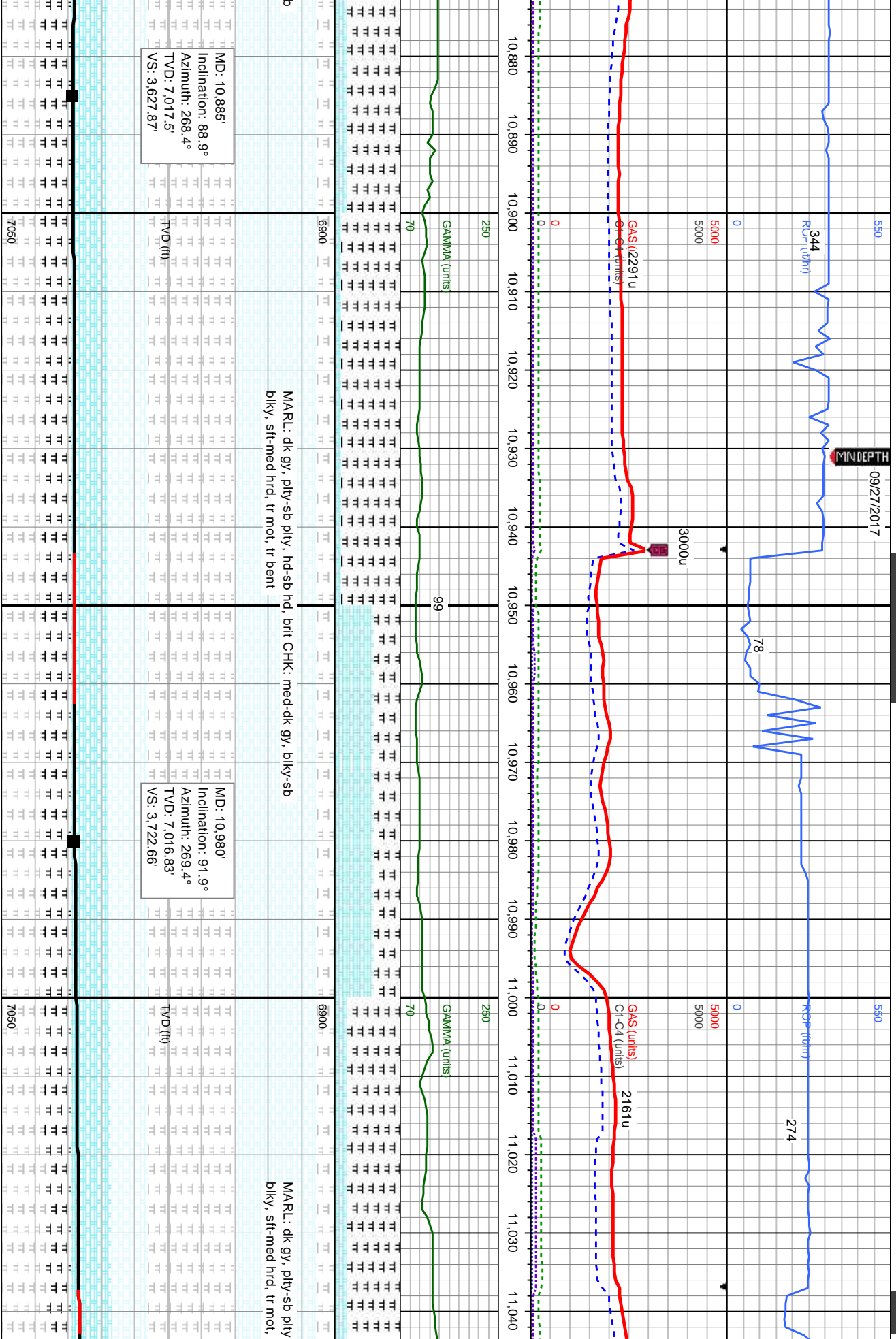


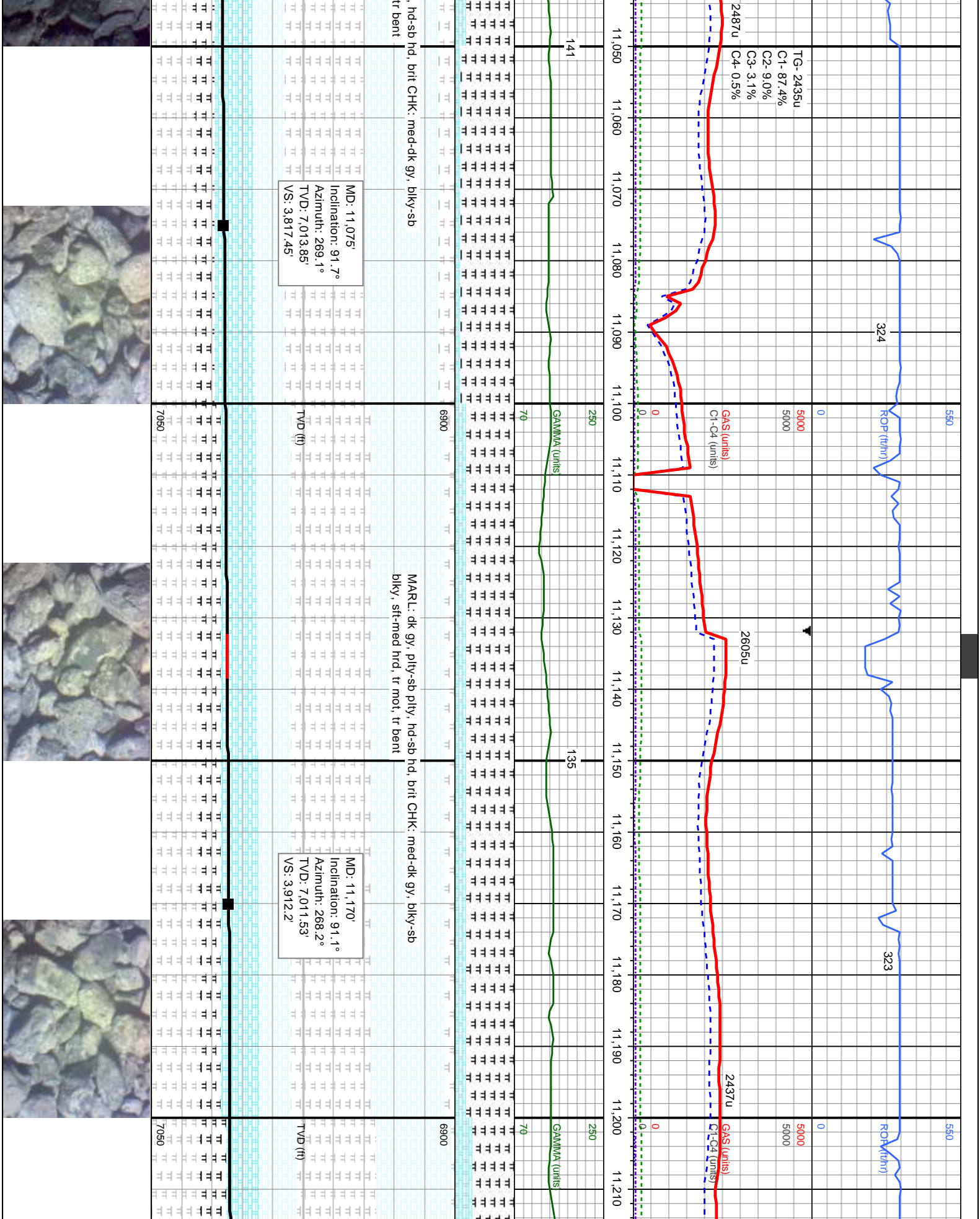


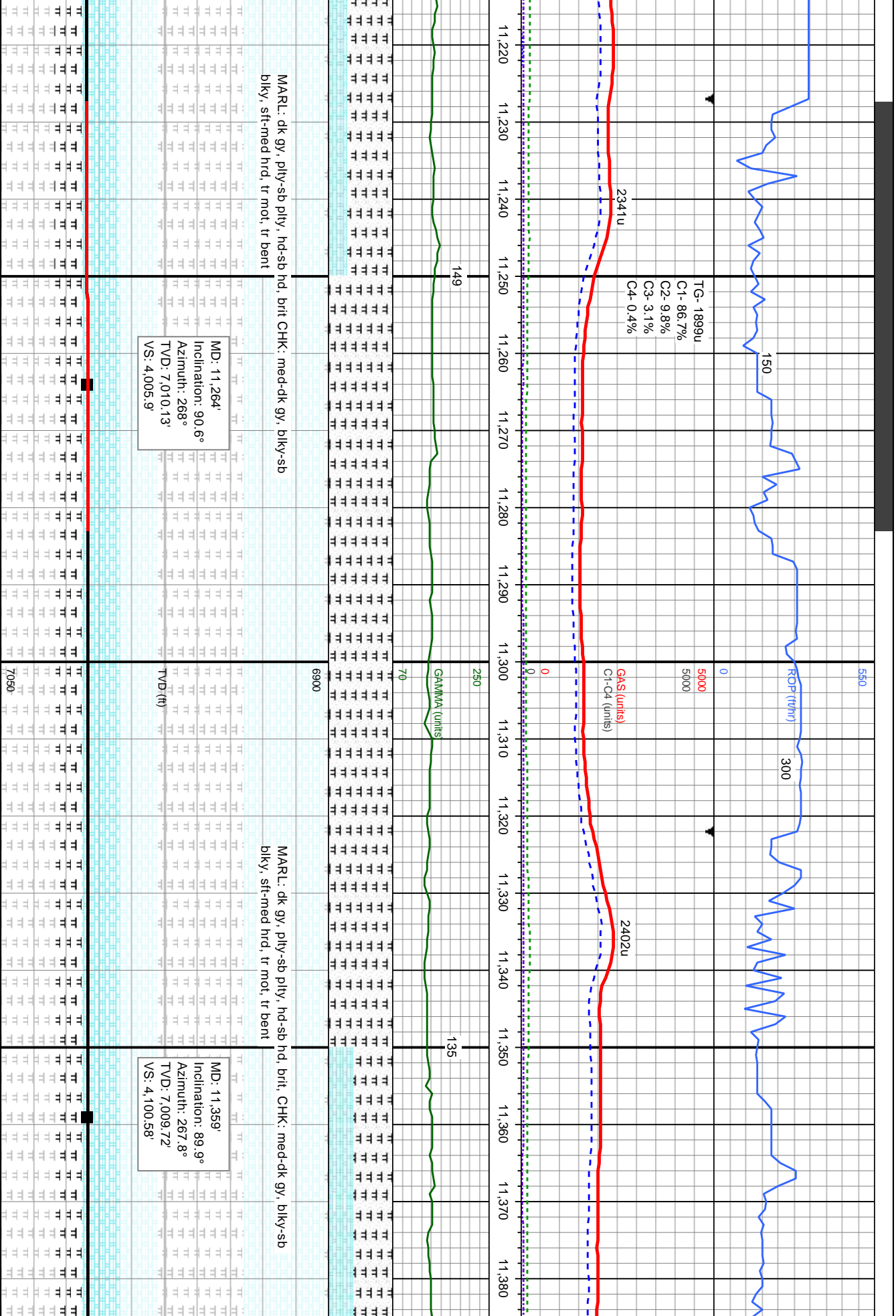




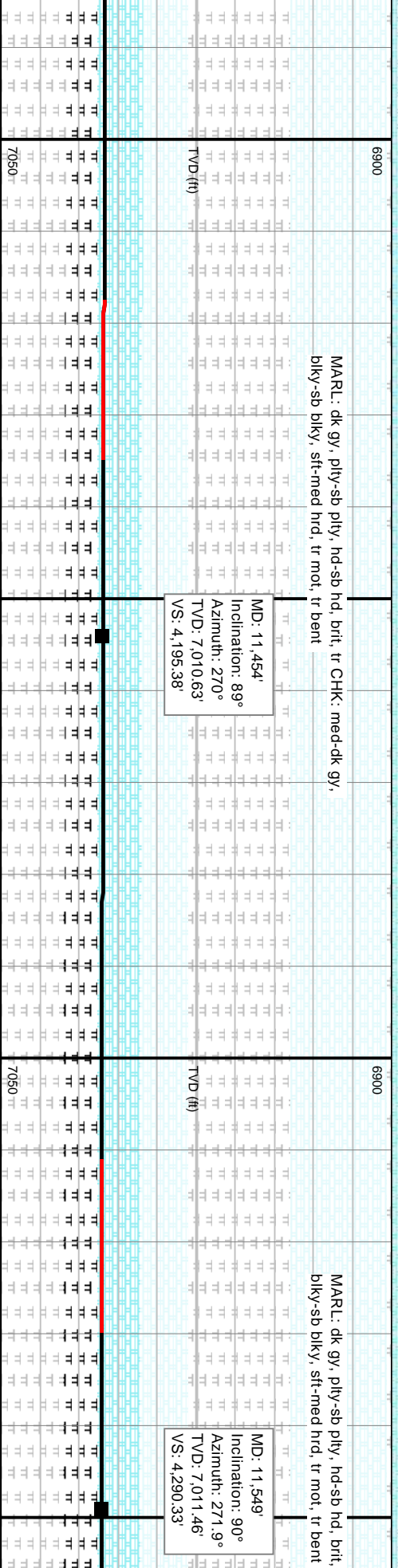
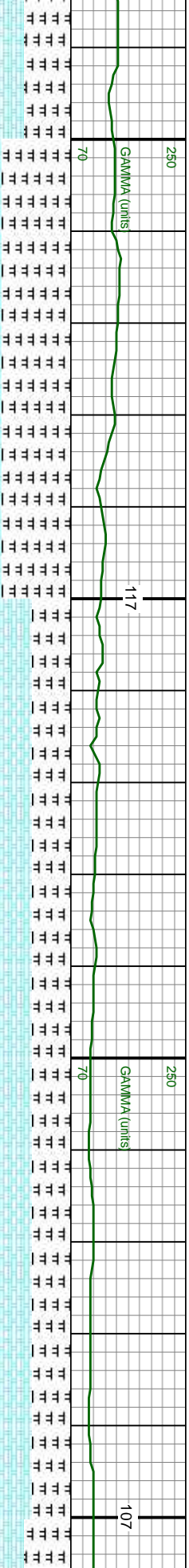
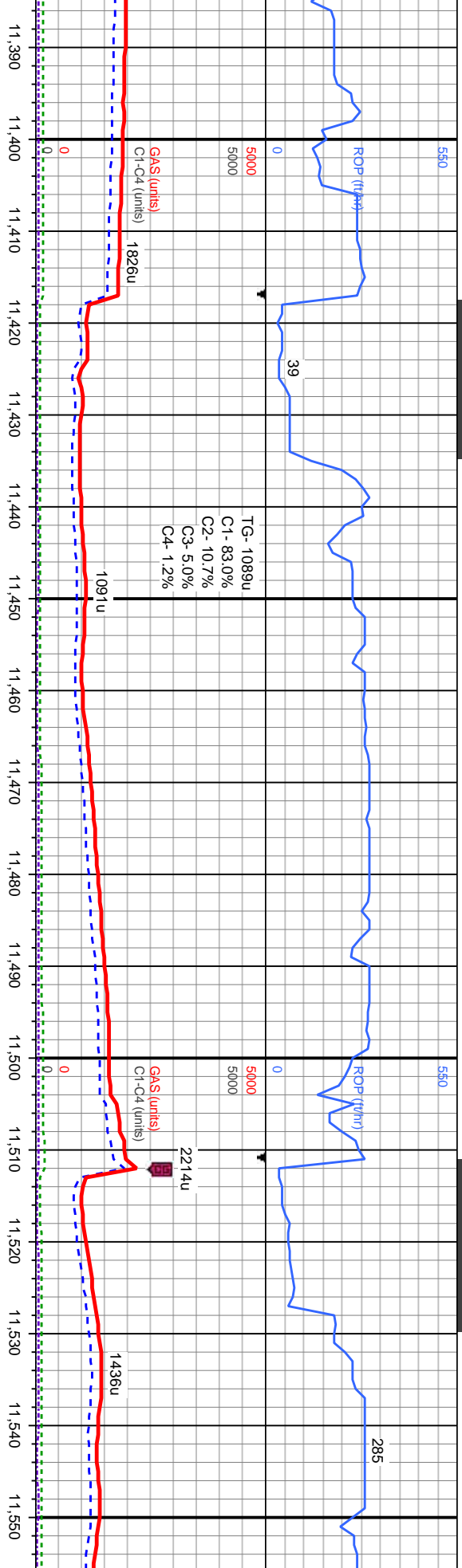






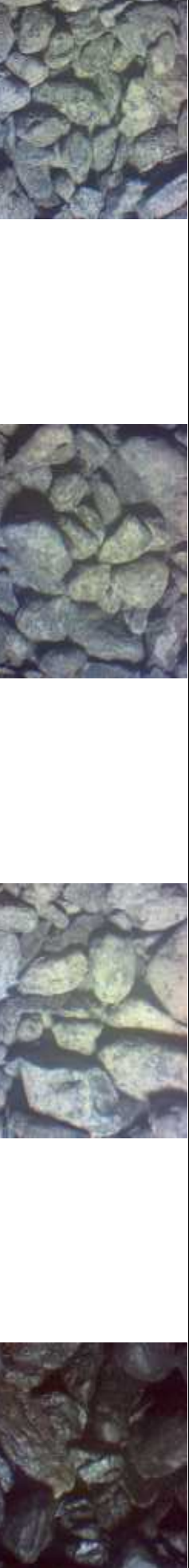
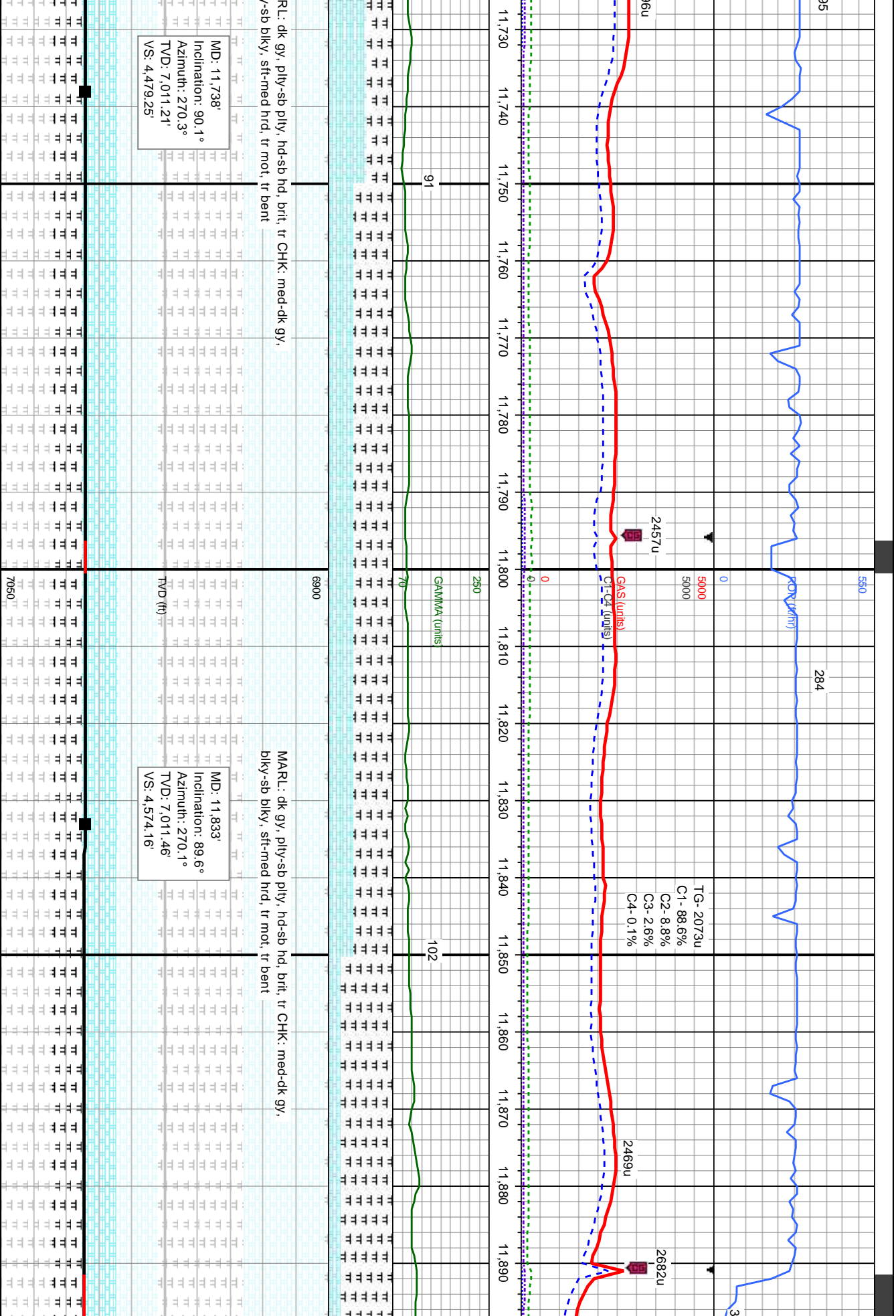


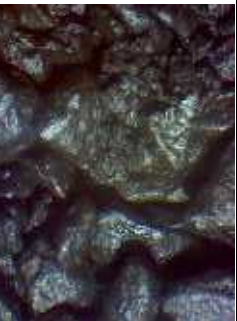
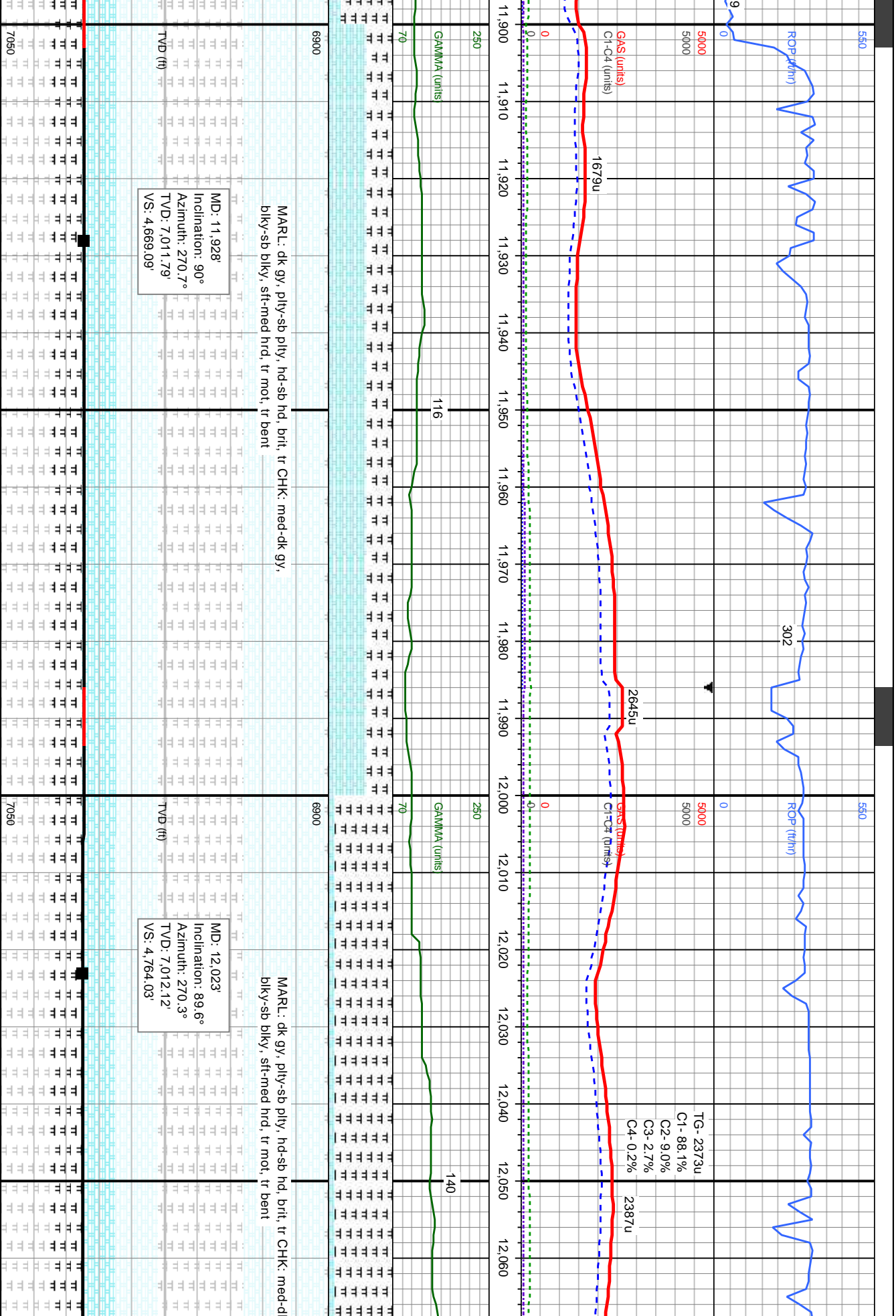




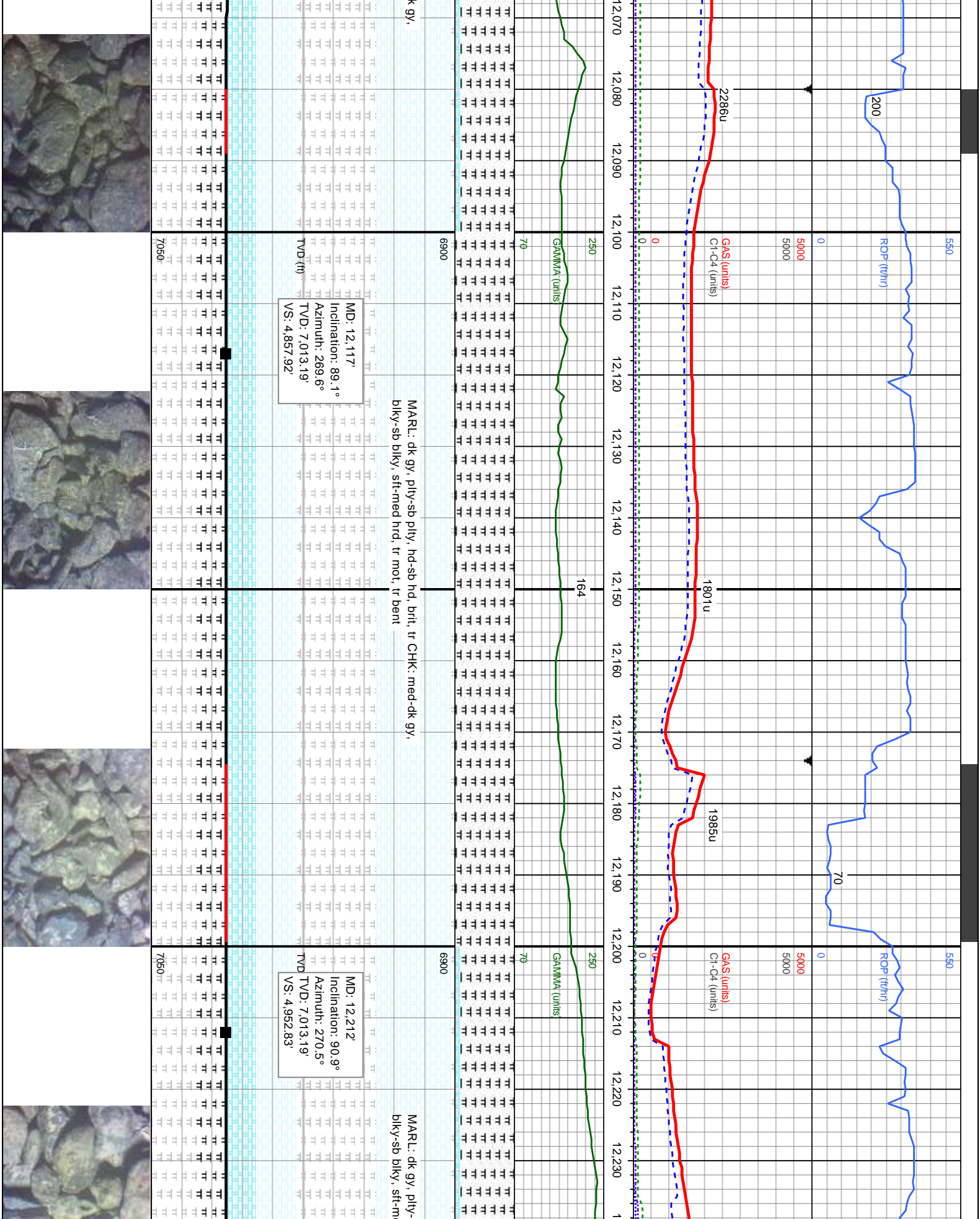






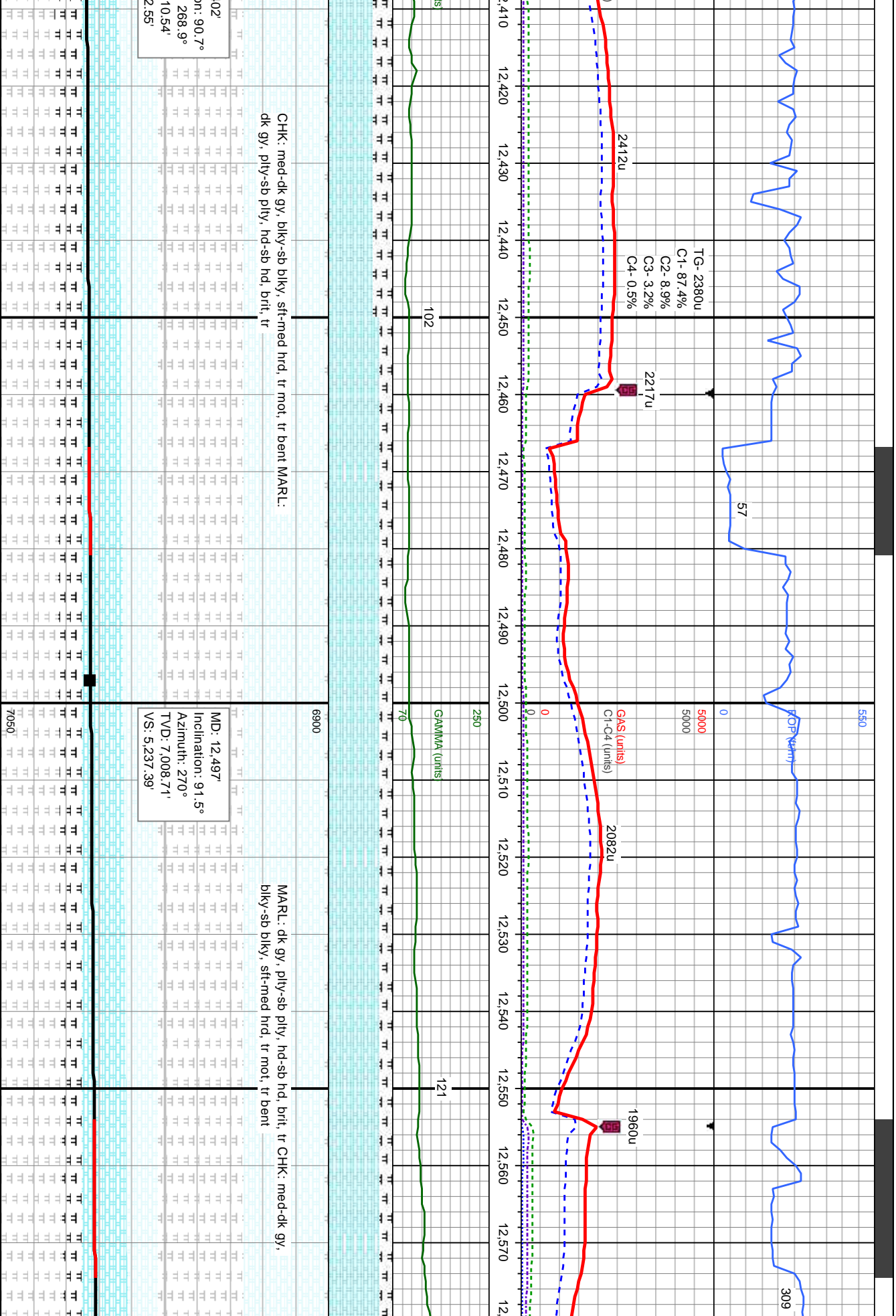










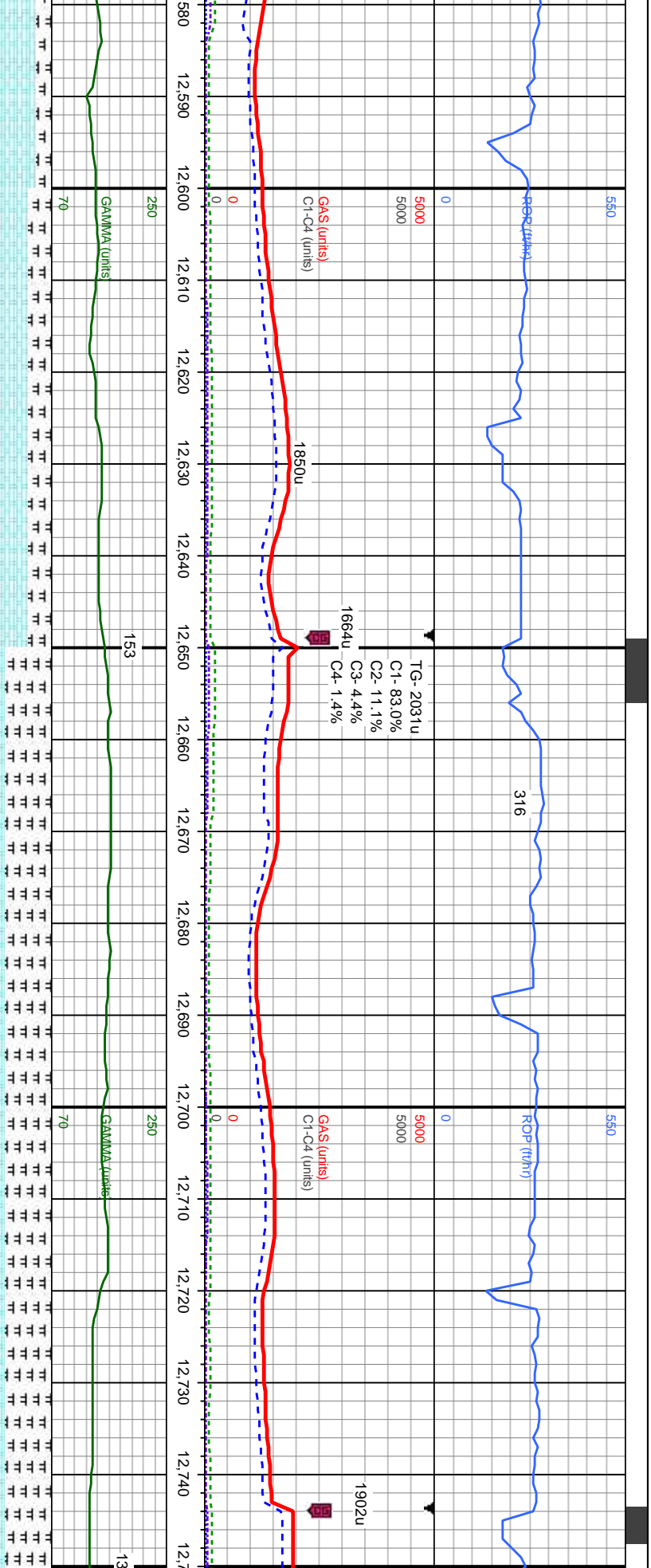


CHK: med-dk gy, bkly-sb bkly, sft-med hrd, tr mot, tr bent MARL: dk gy, ply-sb pty, hd-sb hd, brit, tr

MARL: dk gy, plty-sb ply, hd-sb hd, brit, tr CHK: med-dk gy, biky-sb biky, sft-med hrd, tr mot, tr bent

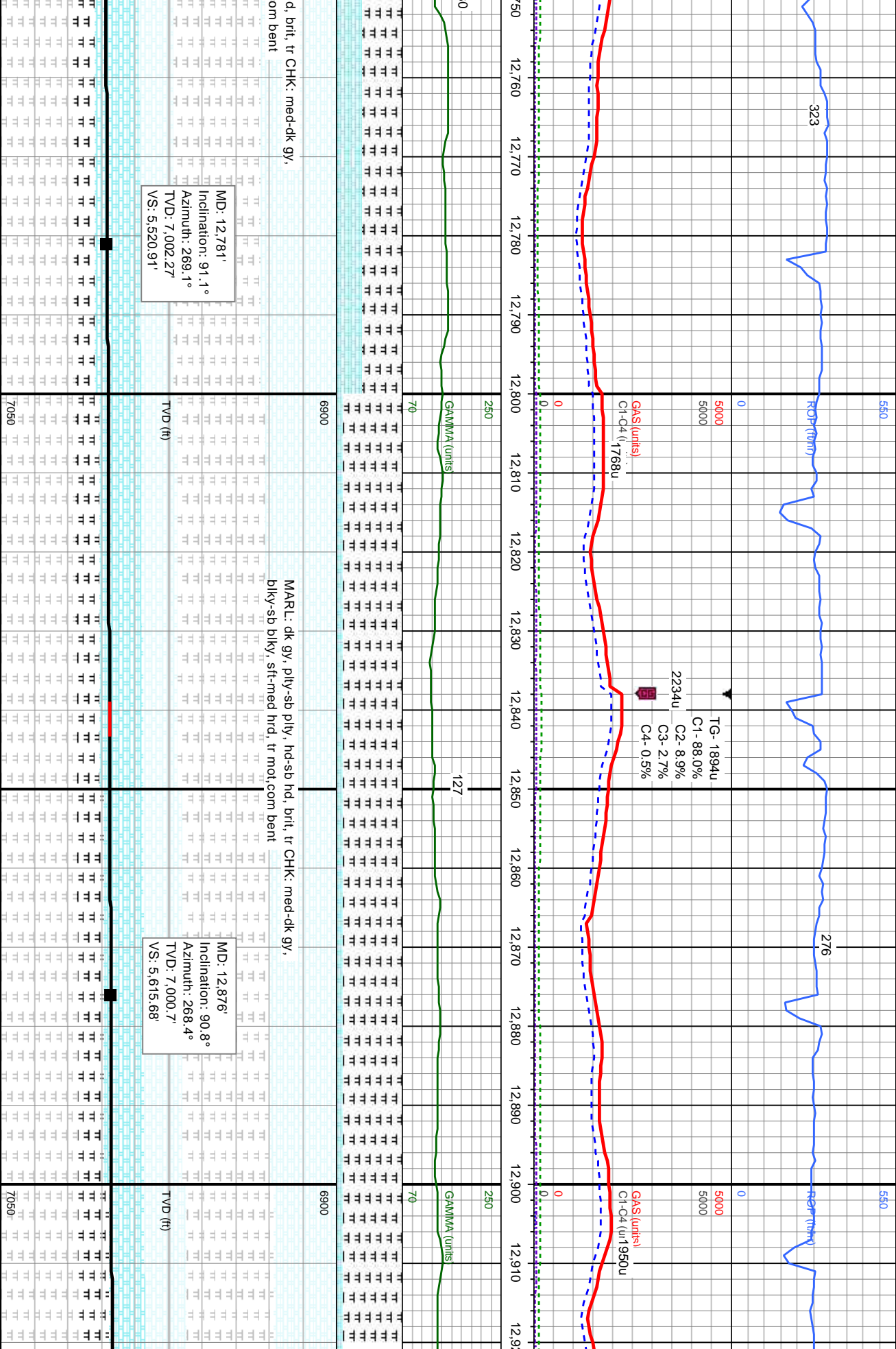
268.9°  
10.54'  
2.55'

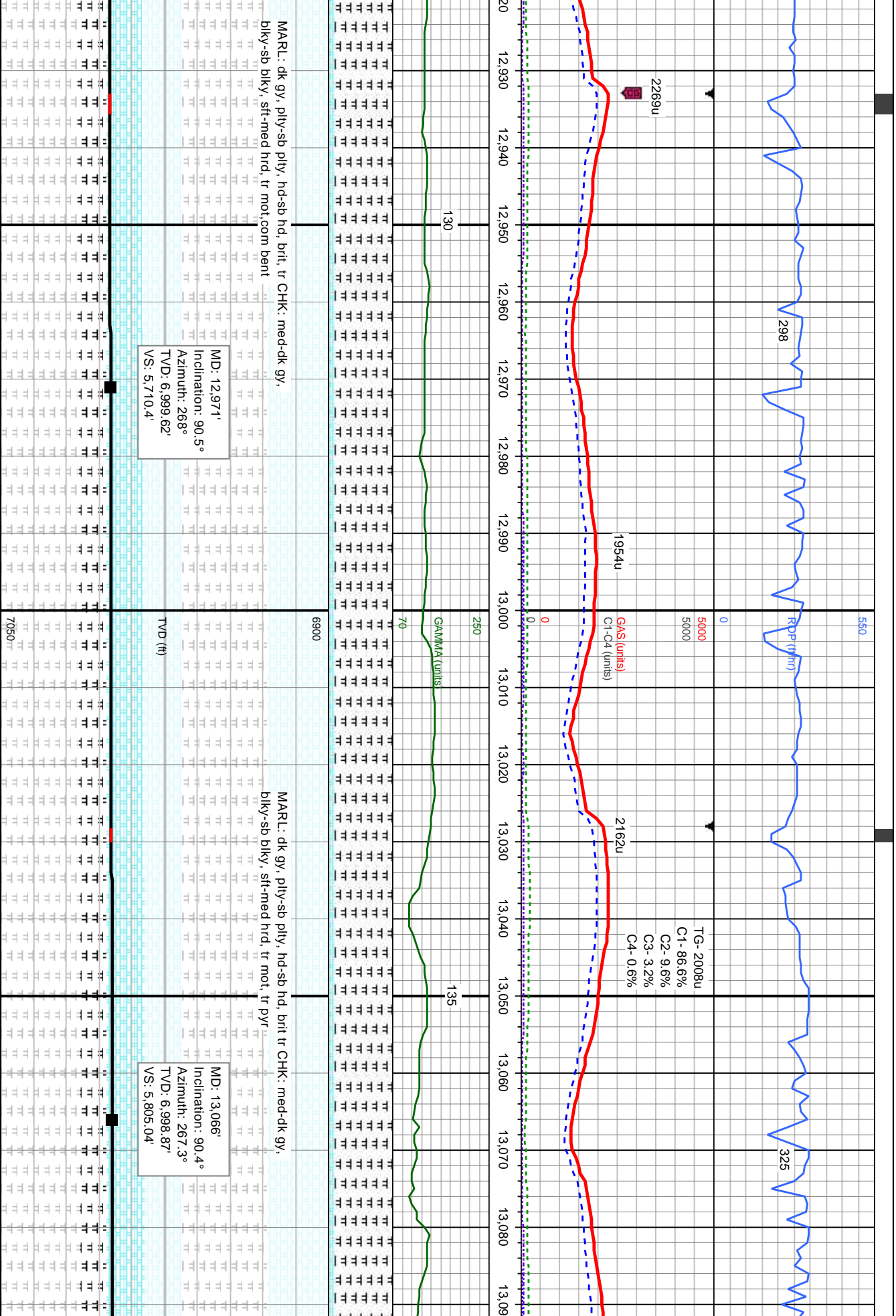
MD: 12,497'  
Inclination: 91.5°  
Azimuth: 270°  
TVD: 7,008.71'  
VS: 5,237.39'

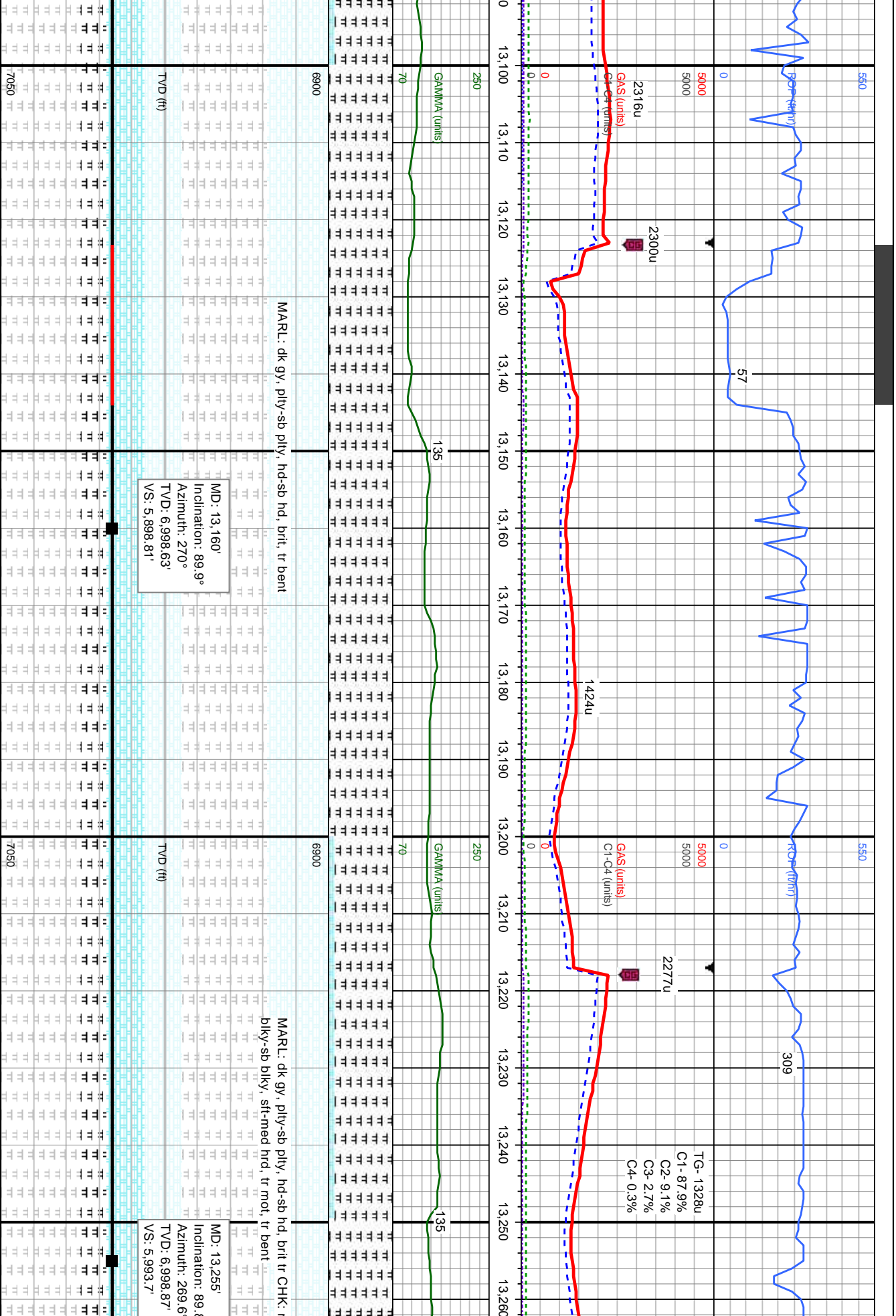


<div>MD: 12.592' Inclination: 91.5° Azimuth: 269.6° TVD: 7,006.23' VS: 5,332.25'</div>		6900	MARL: dk gy, pily-sb pily, hd-sb hd, brit, tr CHK: med-dk gy, bily-sb bily, sft-med hrd, tr mot, tr bent		6900	<div>MD: 12.686' Inclination: 91.1° Azimuth: 269.4° TVD: 7,004.09' VS: 5,426.09'</div>		7050	7050
TVD (ft)						TVD (ft)			
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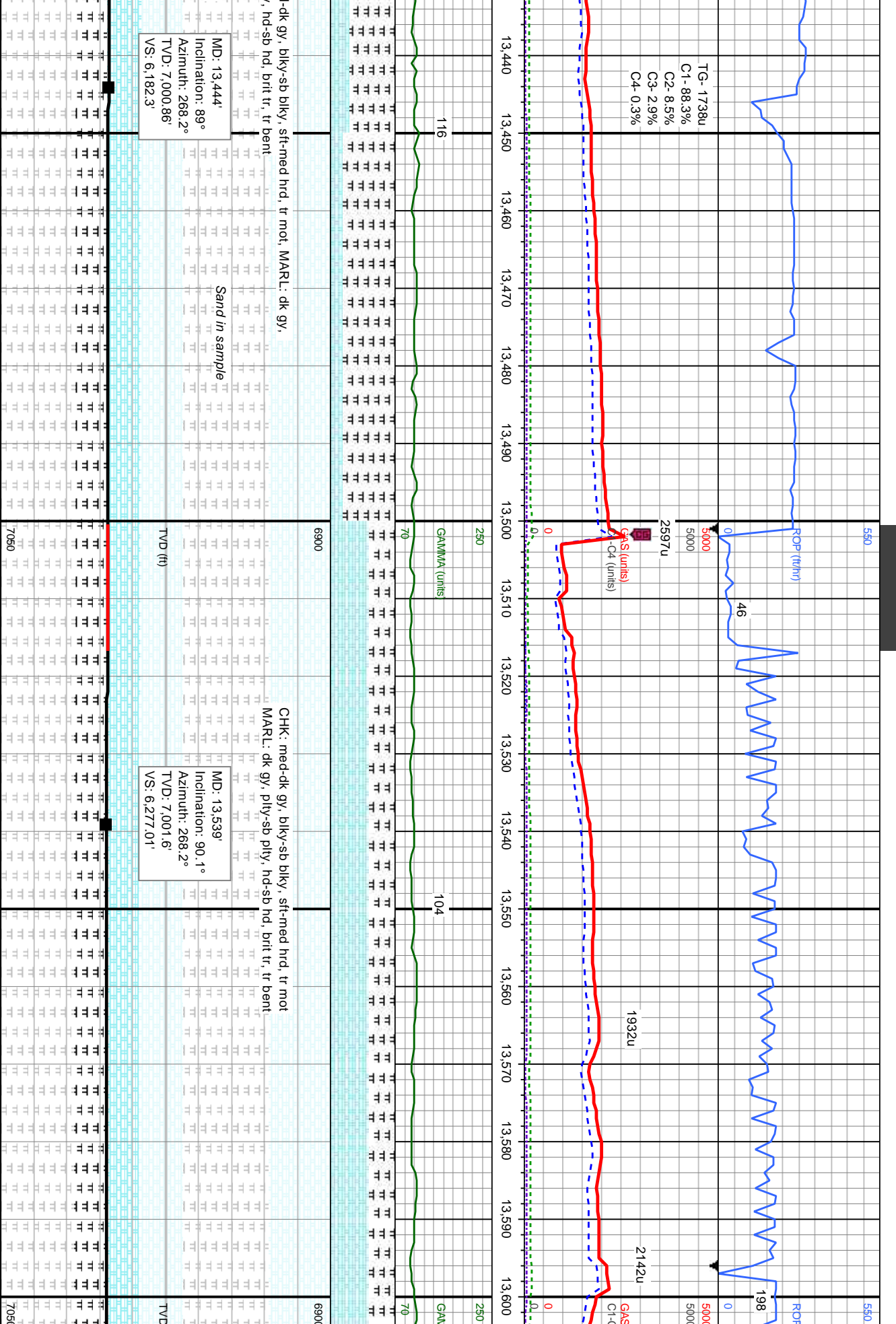


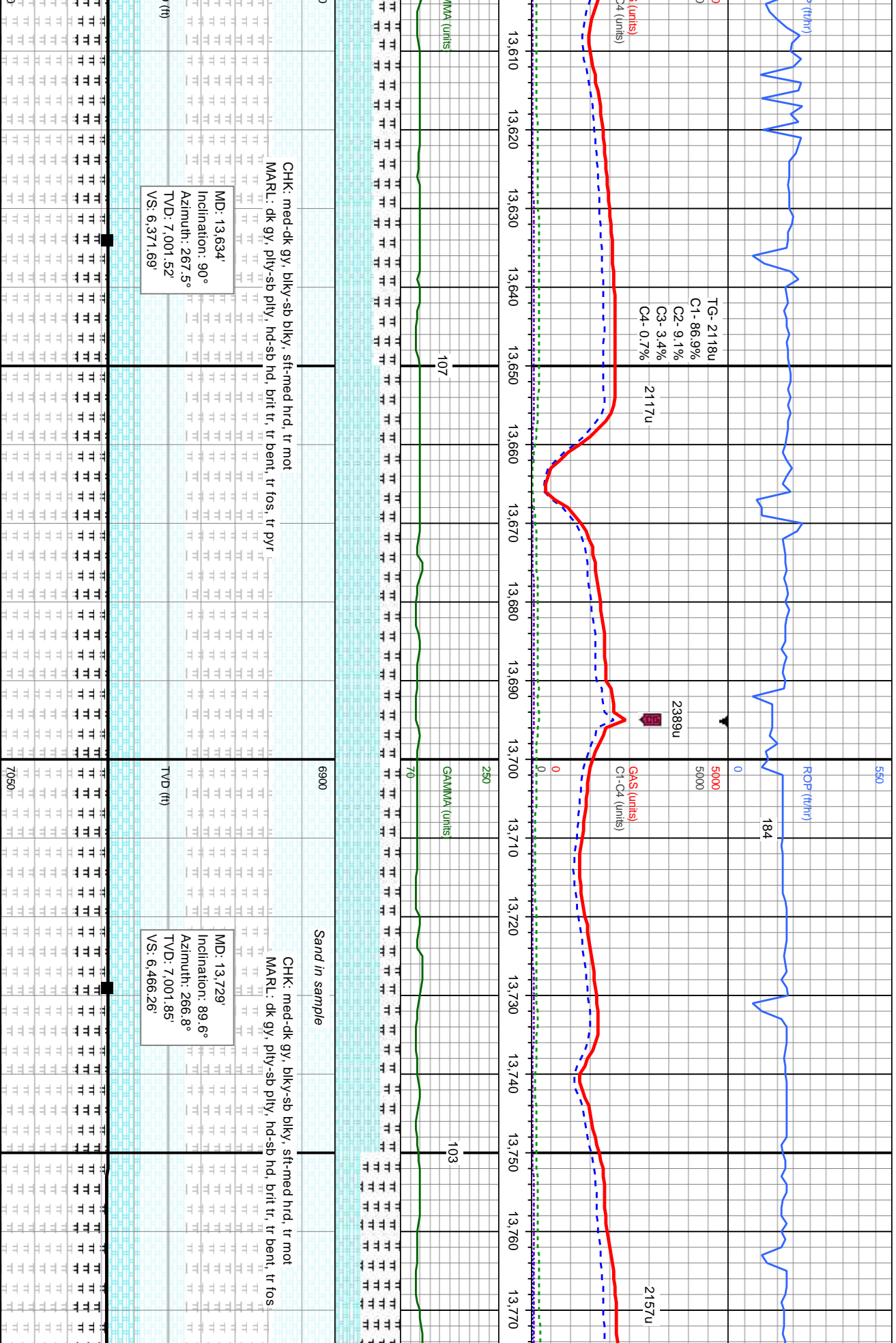












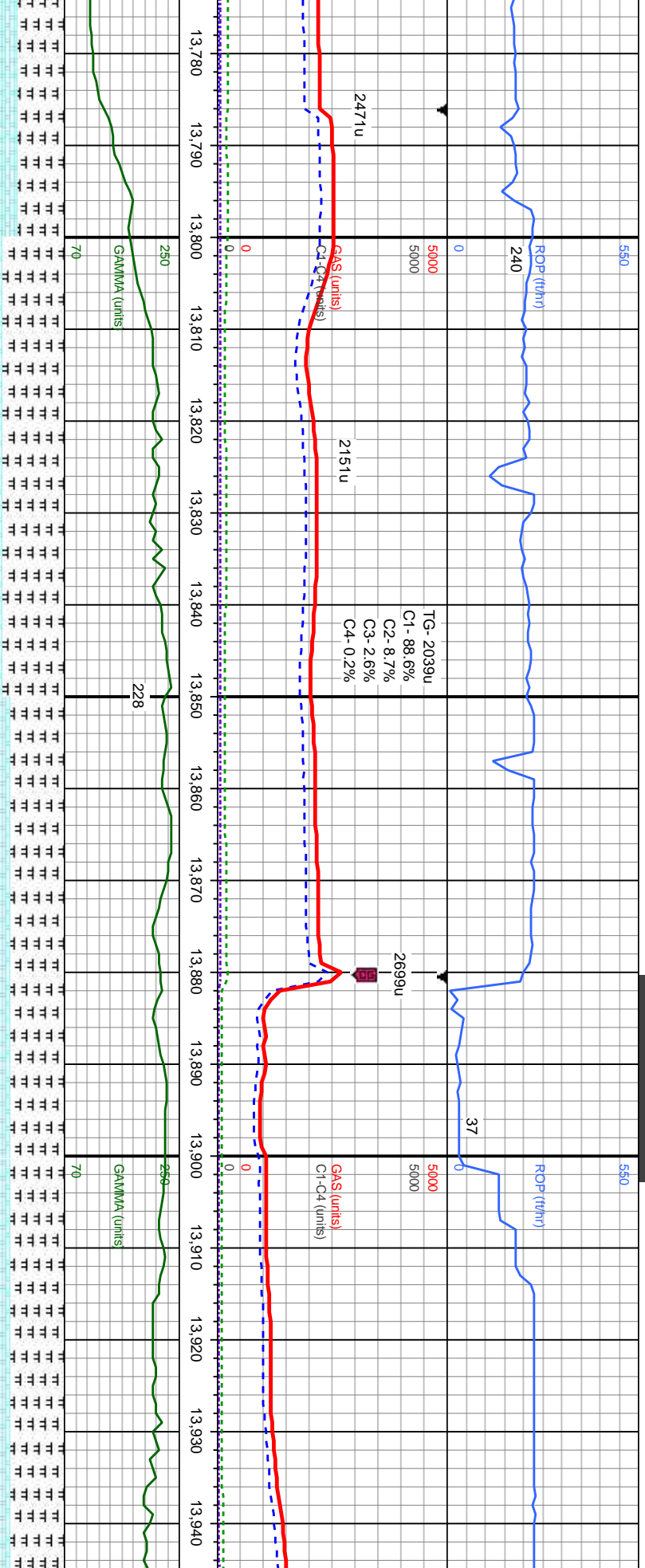
CHK: med-dk gy, blk-y-sb blk-y, sft-med hrd, tr mot  
MARL: dk gy, pty-sb pty, hd-sb hd, brit tr, tr bent, tr fos, tr pyr

Sand in sample

CHK: med-dk gy, blk-y-sb blk-y, sft-med hrd, tr mot  
MARL: dk gy, pty-sb pty, hd-sb hd, brit tr, tr bent, tr fos







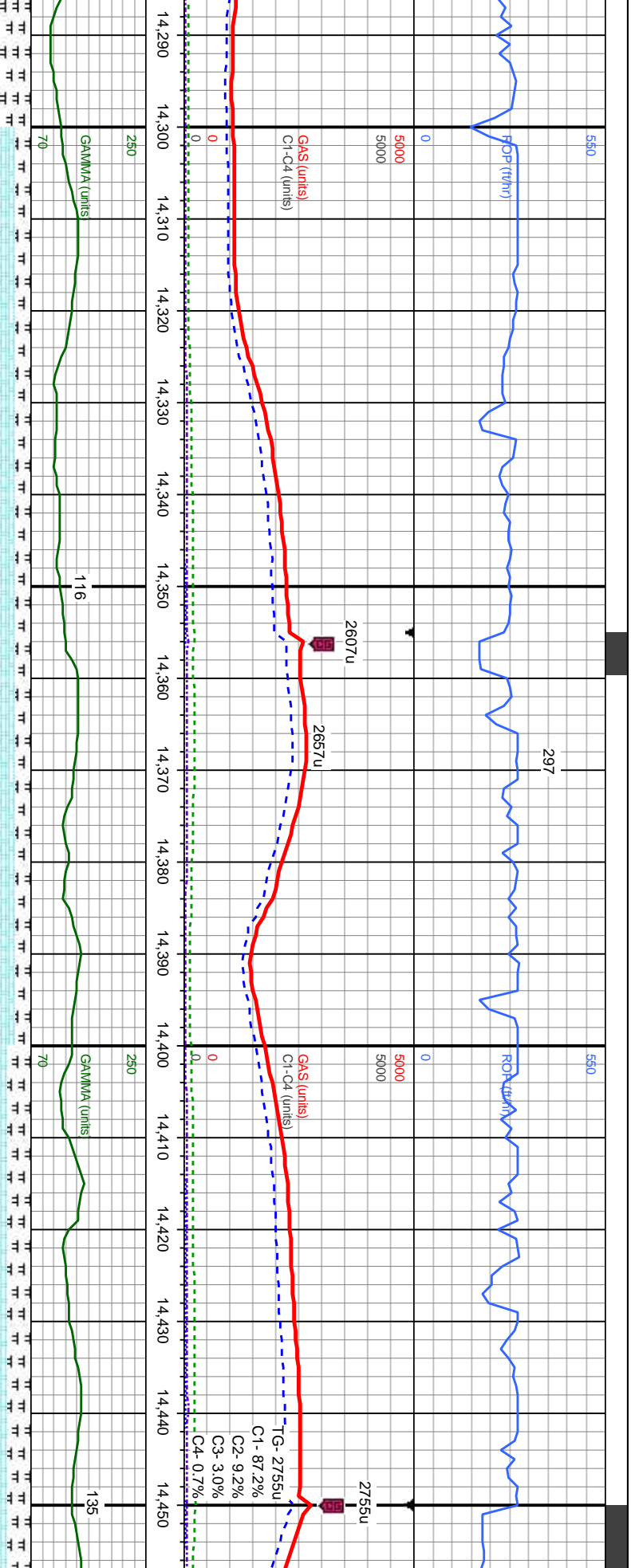
6900		MARL: dk gy, pily-sb pily, hd-sb hd, brit tr CHK: med-dk gy, bily-sb bily, sft-med hrd, tr mot, tr bent		6900	
TVD (ft)		MD: 13.824'		TVD (ft)	
		Inclination: 89.4°			
		Azimuth: 265.9°			
		VS: 6.560.7'			
7050				7050	
TVD (ft)		MD: 13.919'		TVD (ft)	
		Inclination: 89.9°			
		Azimuth: 268.2°			
		VS: 6.655.25'			
7050				7050	





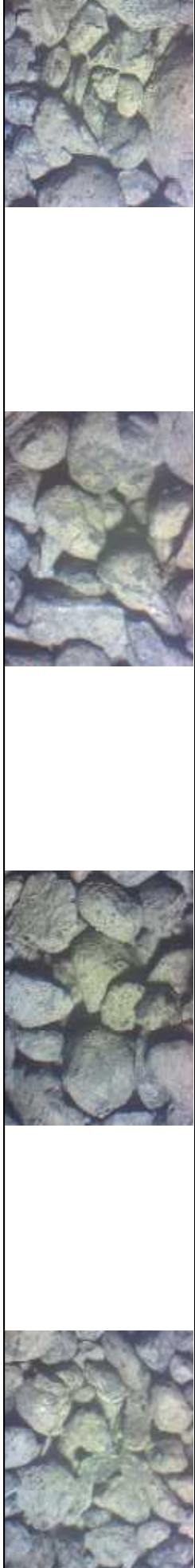
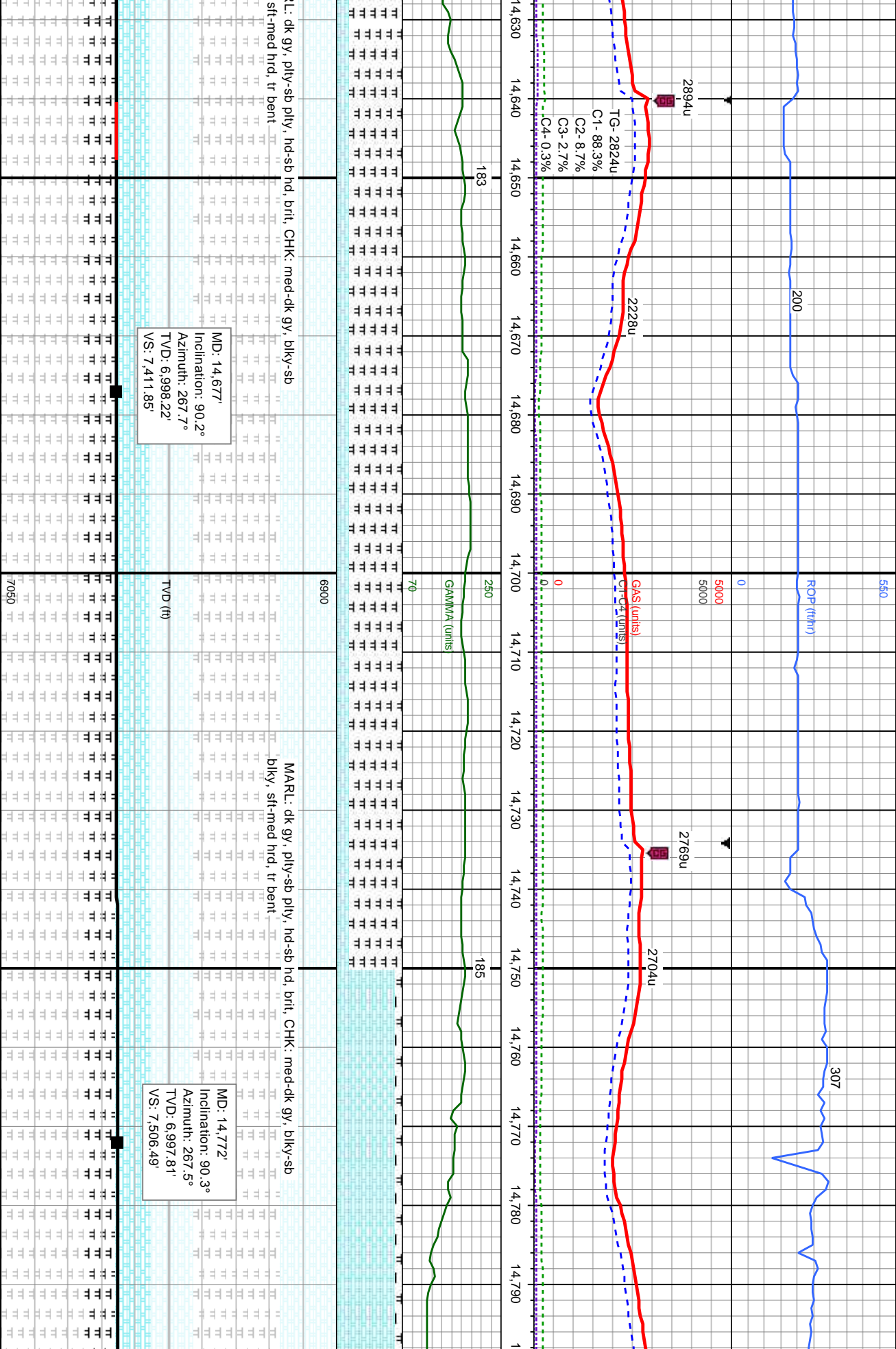




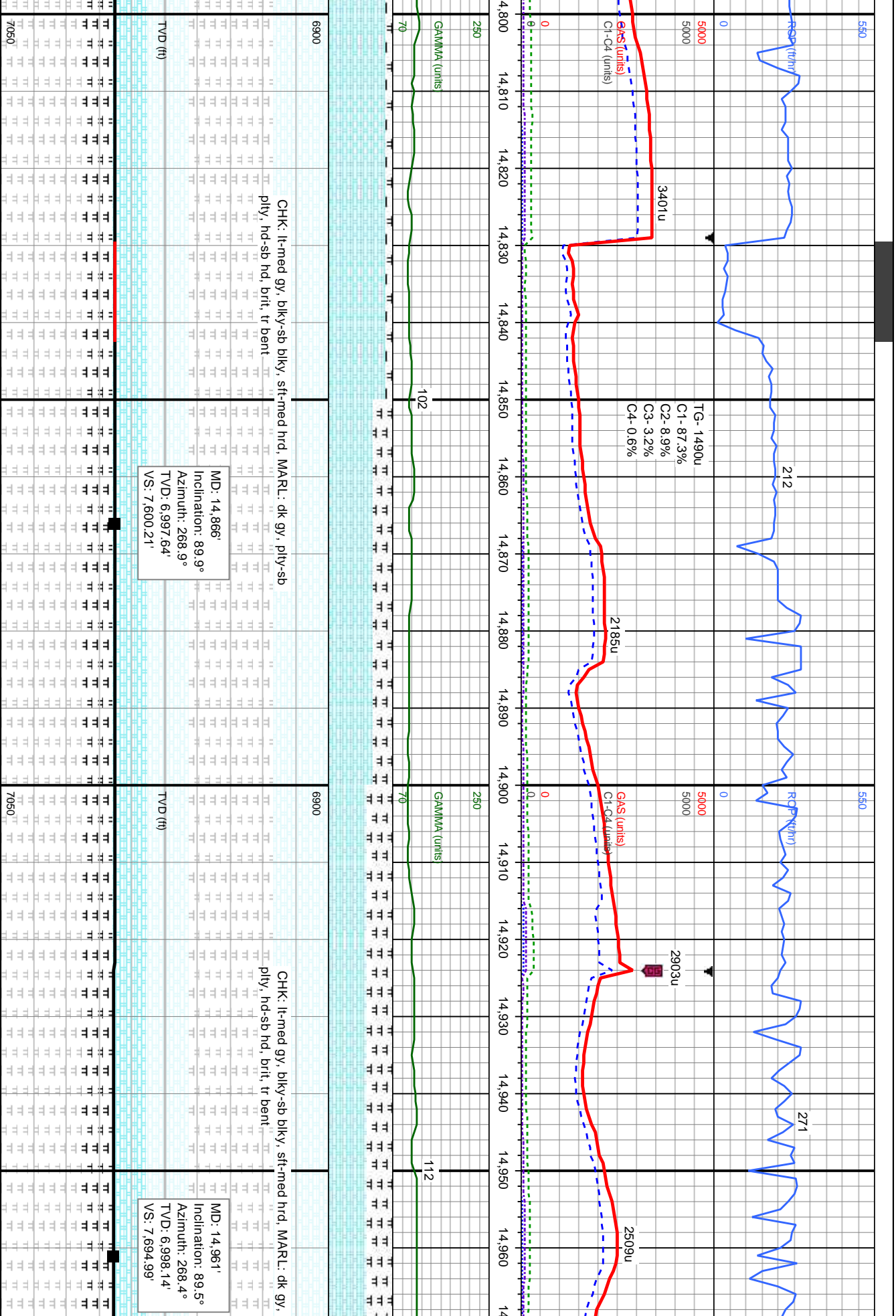


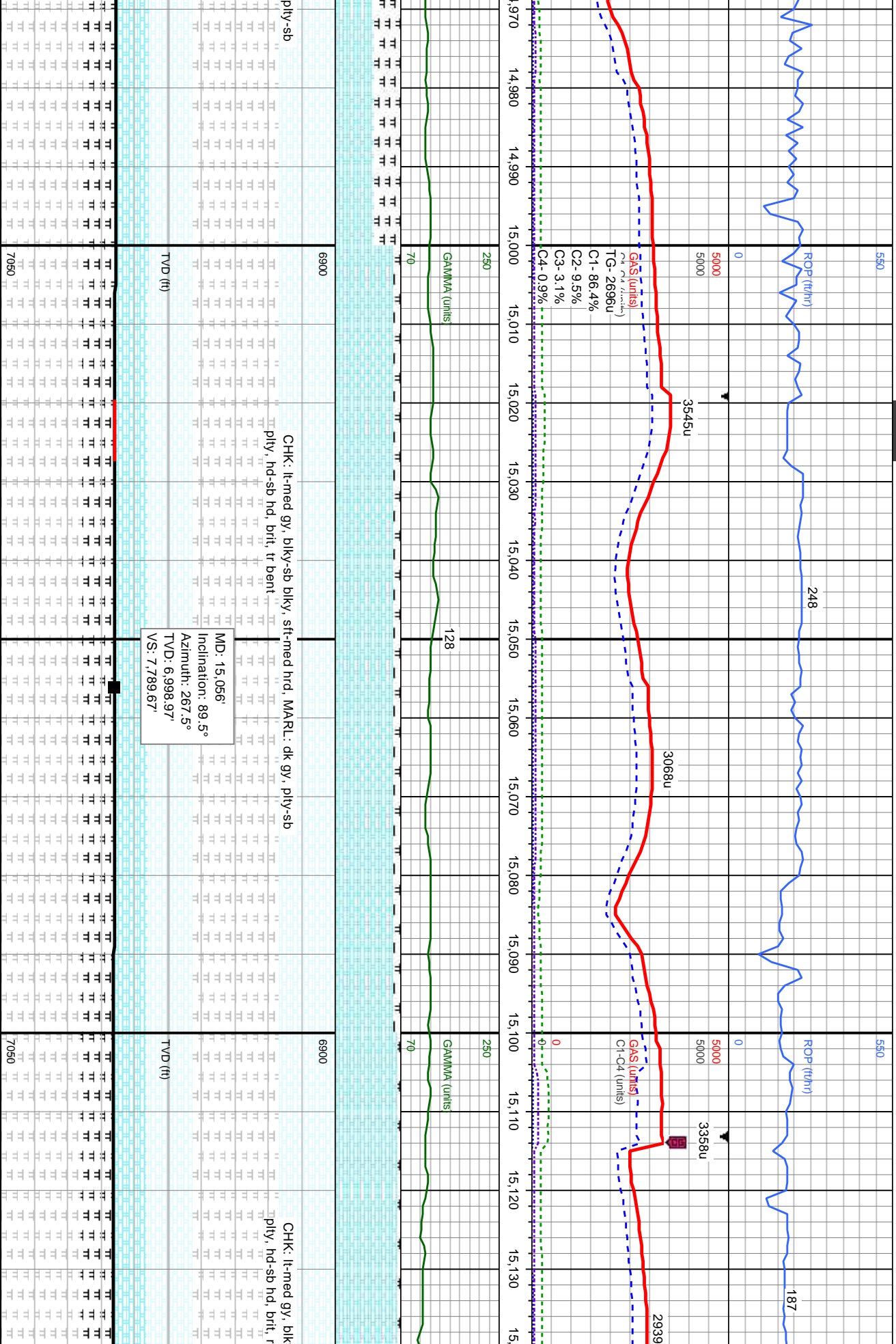
6900	CHK: lt-med gy, blk-y-sb blk-y, sft-med hrd, tr mot, MARL: dk gy, ply-sb ply, hd-sb hd, brlt, tr bent, tr fos	6900	CHK: lt-med gy, blk-y-sb blk-y, sft-med hrd, tr mot, MARL: dk gy, ply-sb ply, hd-sb hd, brlt, tr bent, tr fos
MD: 14,298° Inclination: 90.8° Azimuth: 269.8° TVD: 6,999.71° VS: 7.033,54°		MD: 14,393° Inclination: 90.5° Azimuth: 269.4° TVD: 6,998.63° VS: 7.128,41°	
7060		7050	





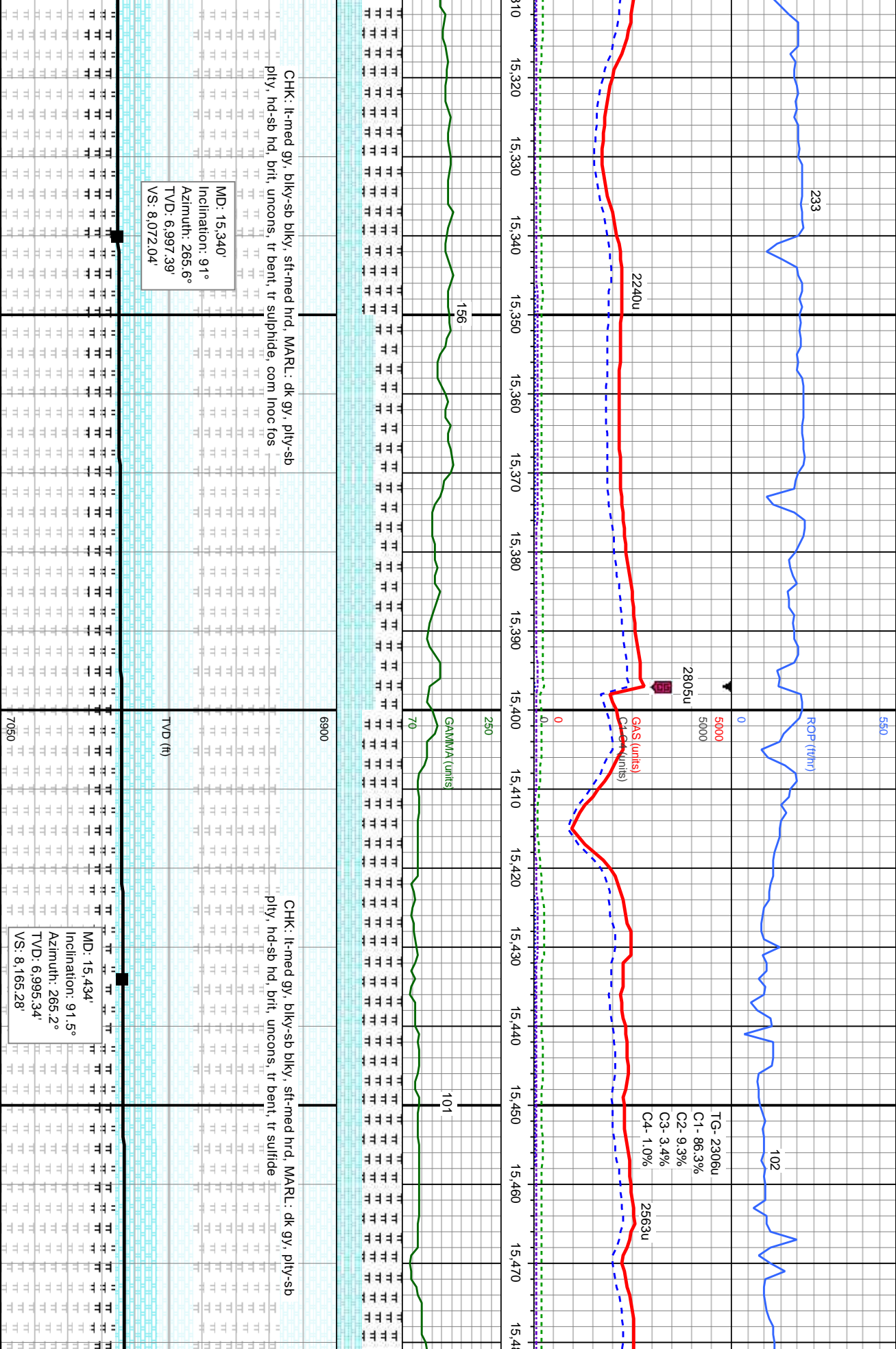








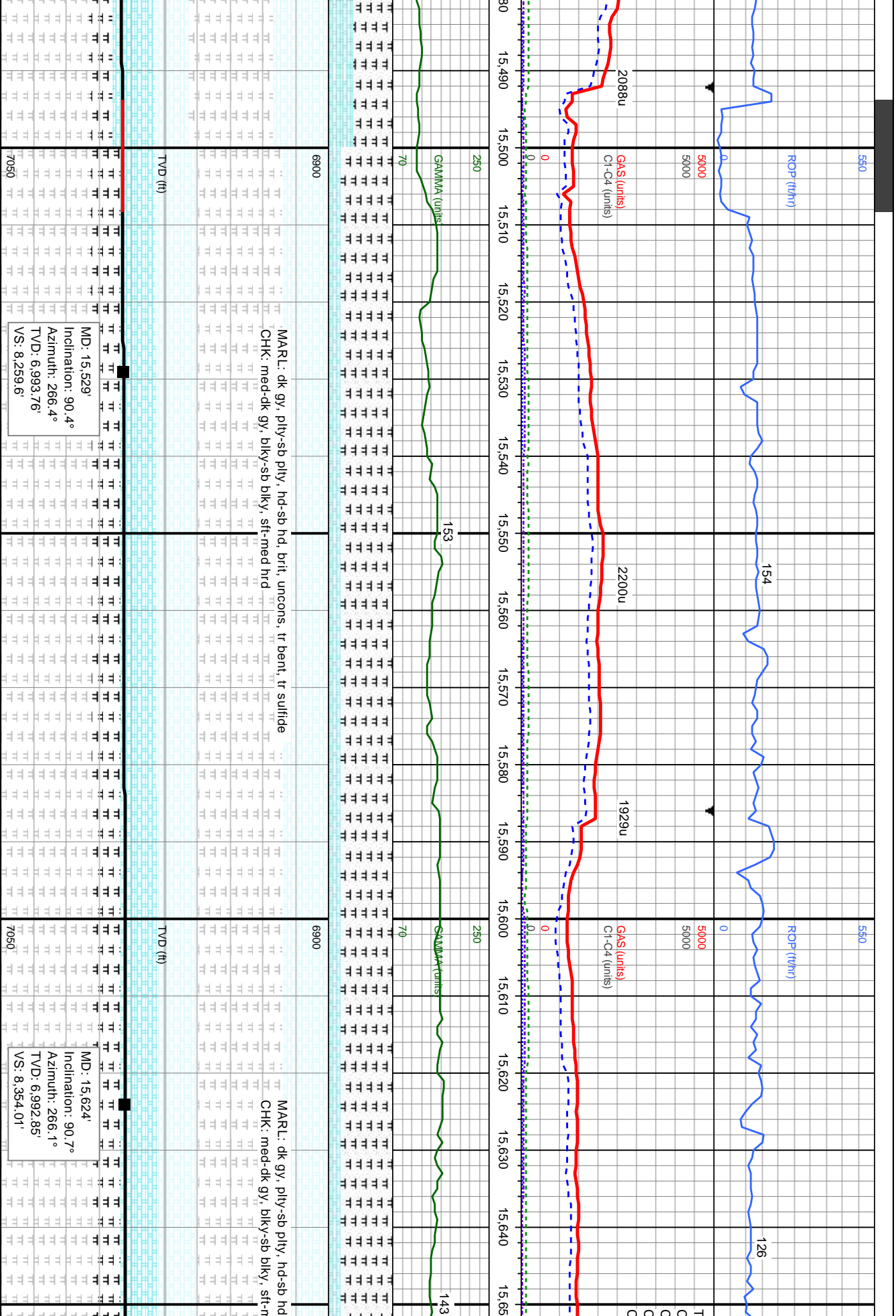




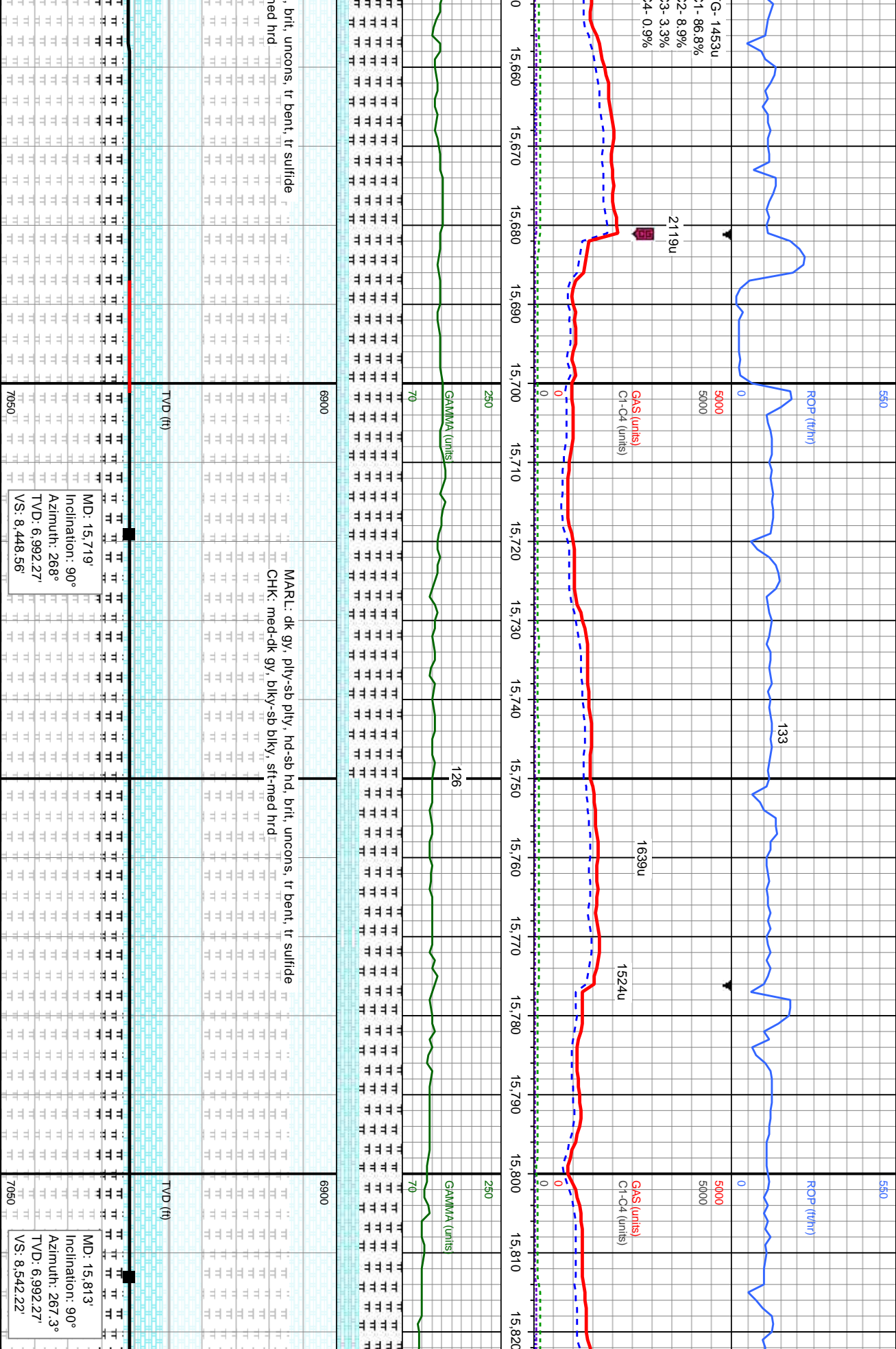
CHK: lt-med gy, blk-y-sb blk-y, sft-med hrd, MARL: dk gy, pty-sb  
pty, hd-sb hd, brlt, unconfs, tr bent, tr sulphide, com inoc fos

CHK: lt-med gy, blk-y-sb blk-y, sft-med hrd, MARL: dk gy, pty-sb  
pty, hd-sb hd, brlt, unconfs, tr bent, tr sulfide





MD: 15.529'	MD: 15.624'
Inclination: 90.4°	Inclination: 90.7°
Azimuth: 266.4°	Azimuth: 266.1°
TVD: 6,993.76'	TVD: 6,992.85'
VS: 8,259.6'	VS: 8,354.01'

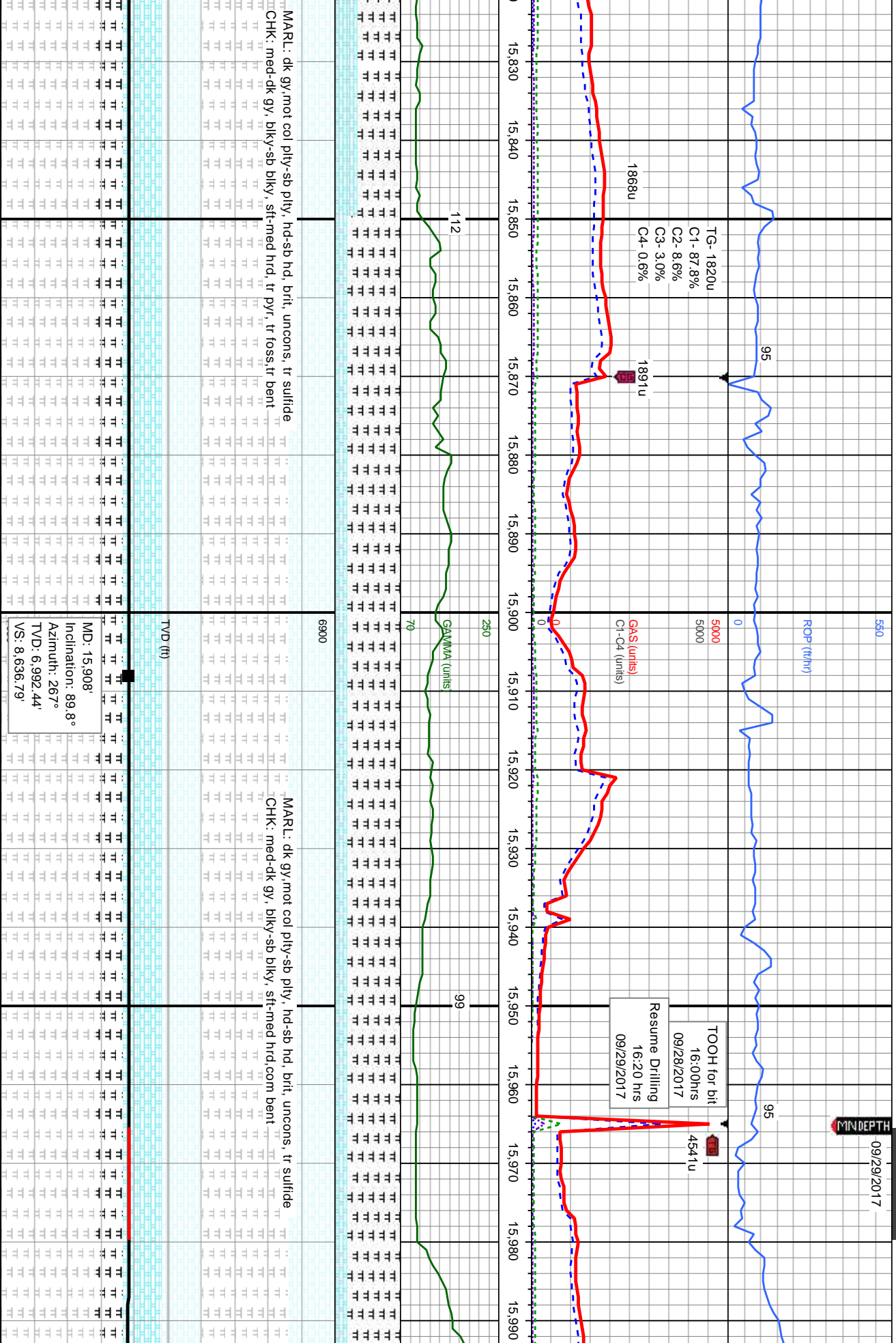


MD: 15,719'  
Inclination: 90°  
Azimuth: 268°  
TVD: 6,992.27'  
VS: 8,448.56'

MD: 15,813'  
Inclination: 90°  
Azimuth: 267.3°  
TVD: 6,992.27'  
VS: 8,542.22'



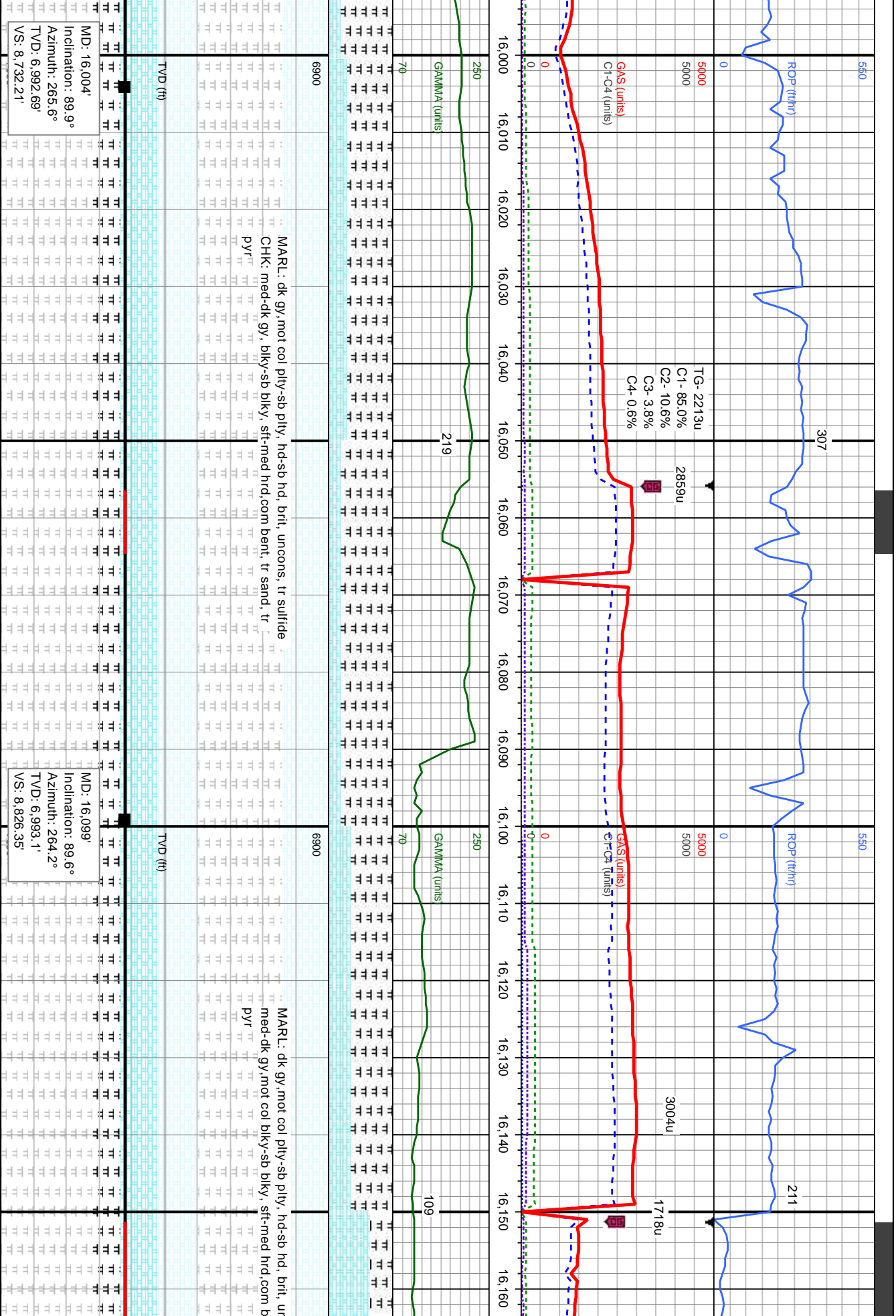
**MNDEPTH**

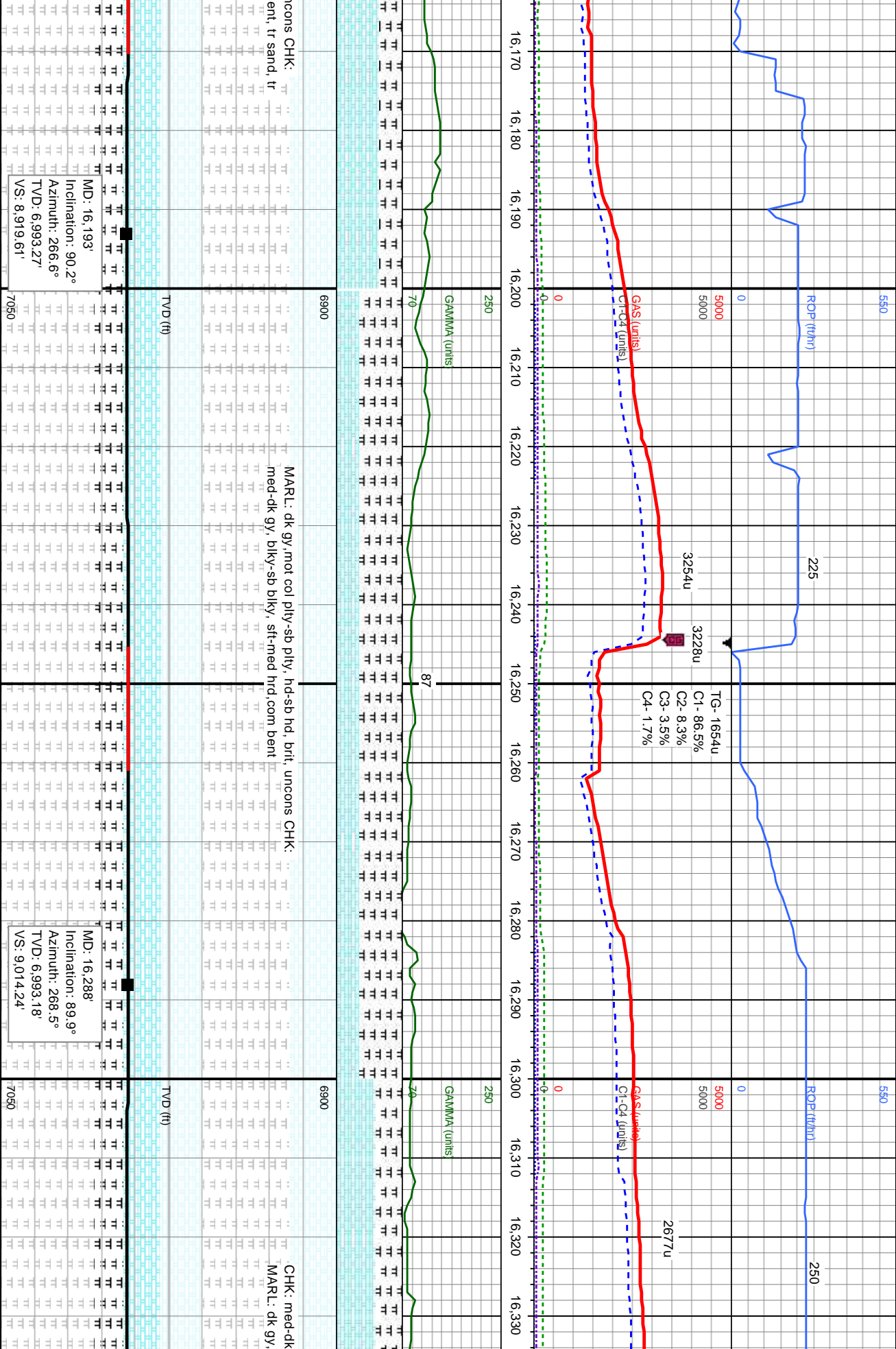


MARL: dk gy, mot col ply-sb ply, hd-sb hd, brit, uncons, tr sulfide  
CHK: med-dk gy, blk-y-sb blk-y, sft-med hrd, com bent

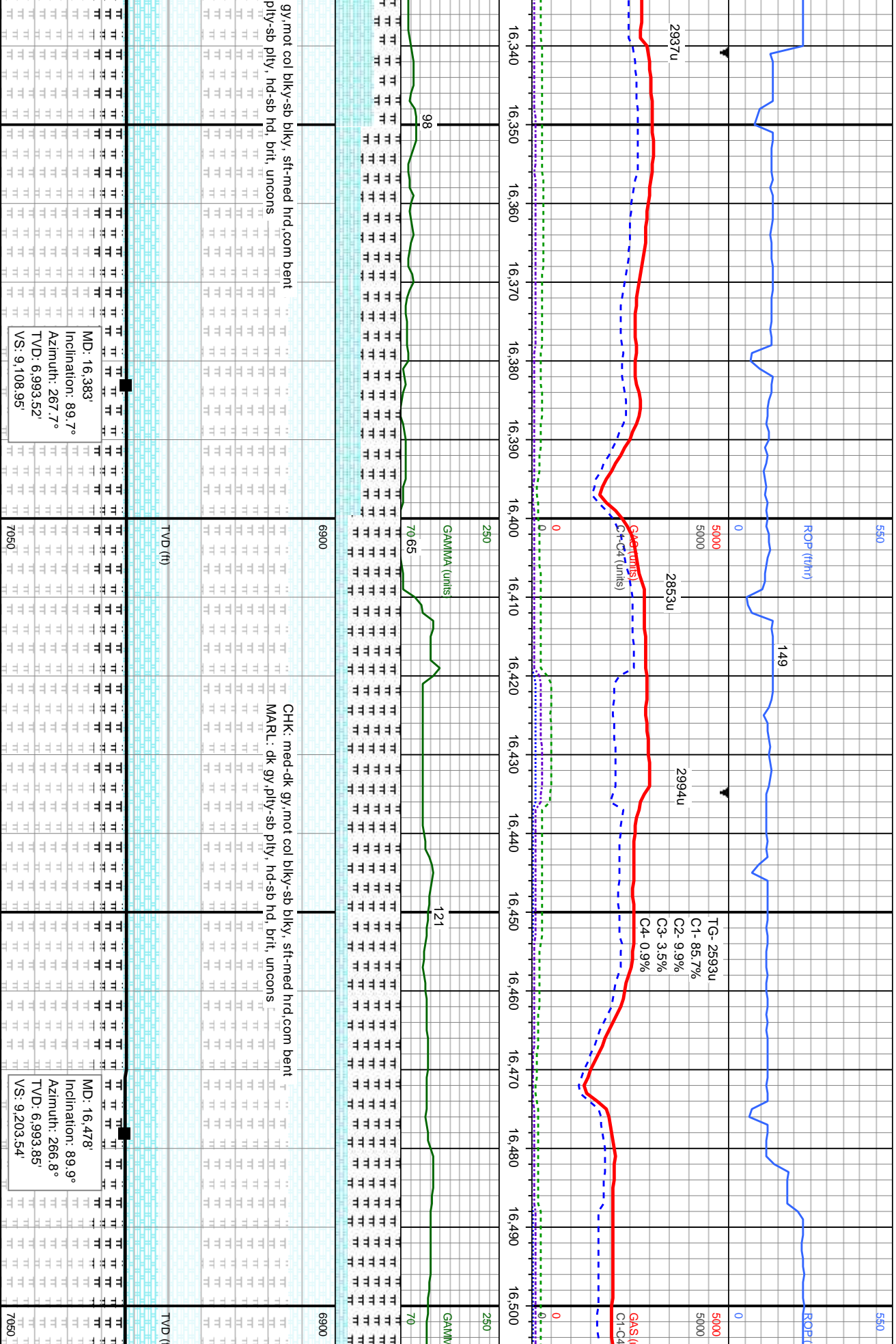
CHK: med-dk gy, blyk-sb blyk, sft-med hrd,com bent

MD: 15,908'  
Inclination: 89.8°  
Azimuth: 267°  
TVD: 6,992.44'  
VS: 8,636.79'

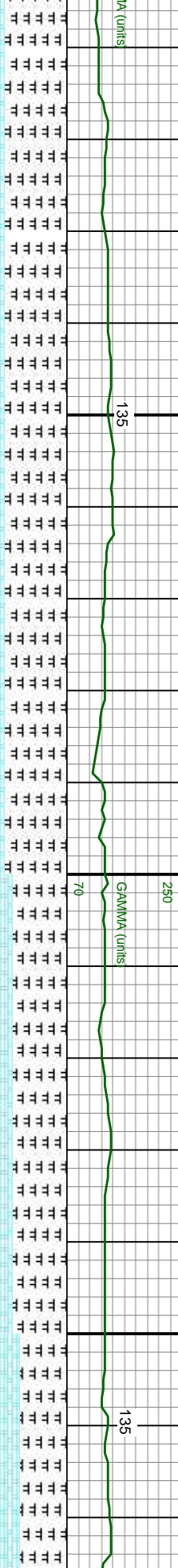
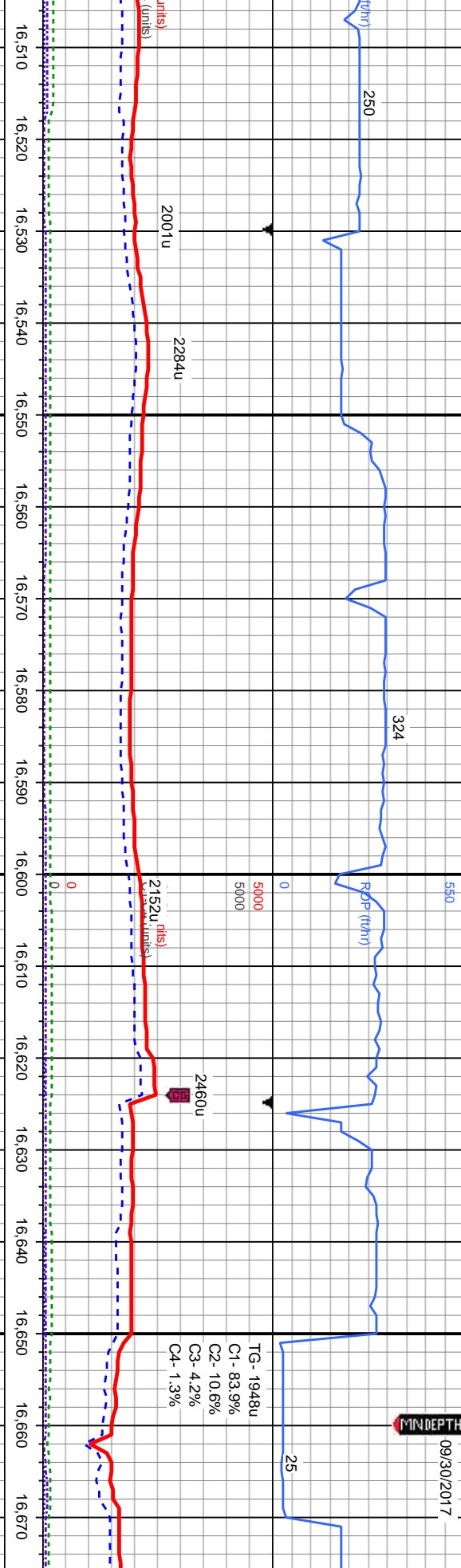








MINDEPTH

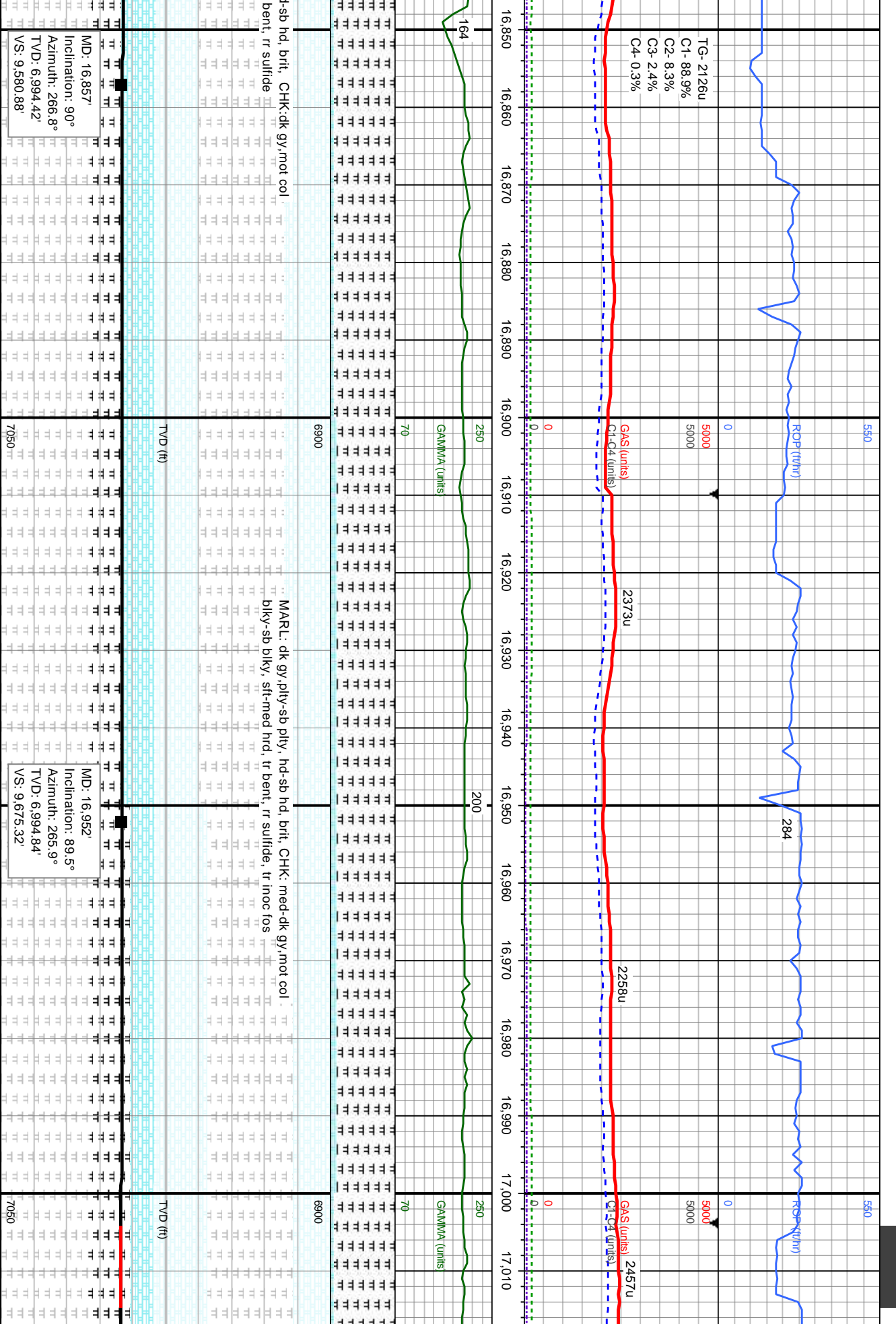


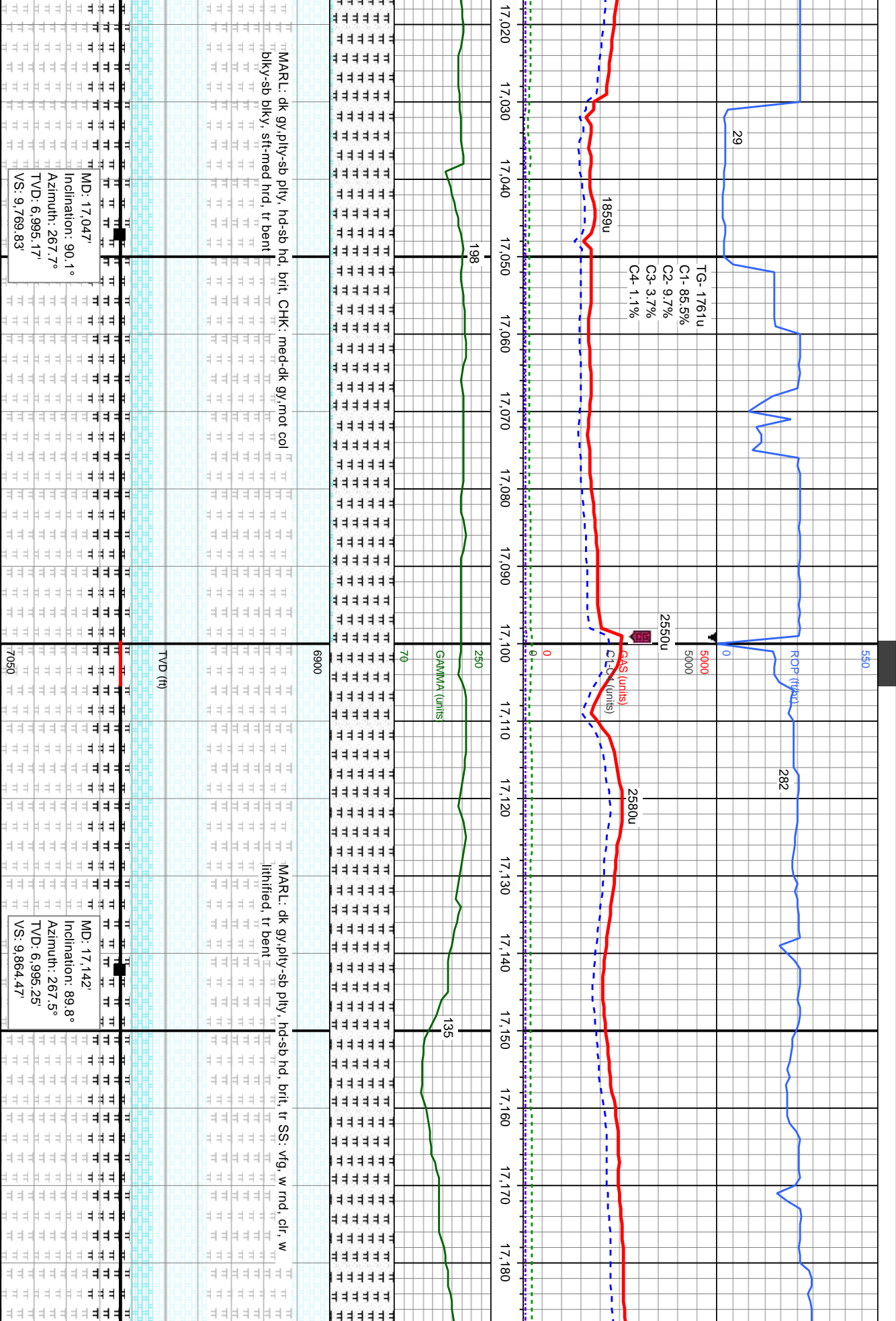
MARL: dk gy, pily-sb pily, hd-sb hd, brit, unconcs CHK: med-dk		MARL: dk gy, pily-sb pily, hd-sb hd, brit, unconcs CHK: dk gy, mot	
gy, mot col bily-sb bily, sft-med hrd, com bent		col bily-sb bily, sft-med hrd, com bent	
MD: 16.573'		MD: 16.688'	
Inclination: 90°		Inclination: 90°	
Azimuth: 266.1°		Azimuth: 268.2°	
TVD: 6,993.93'		TVD: 6,993.93'	
VS: 9,297.99'		VS: 9,392.56'	
TVD (ft)		TVD (ft)	
6900		7050	

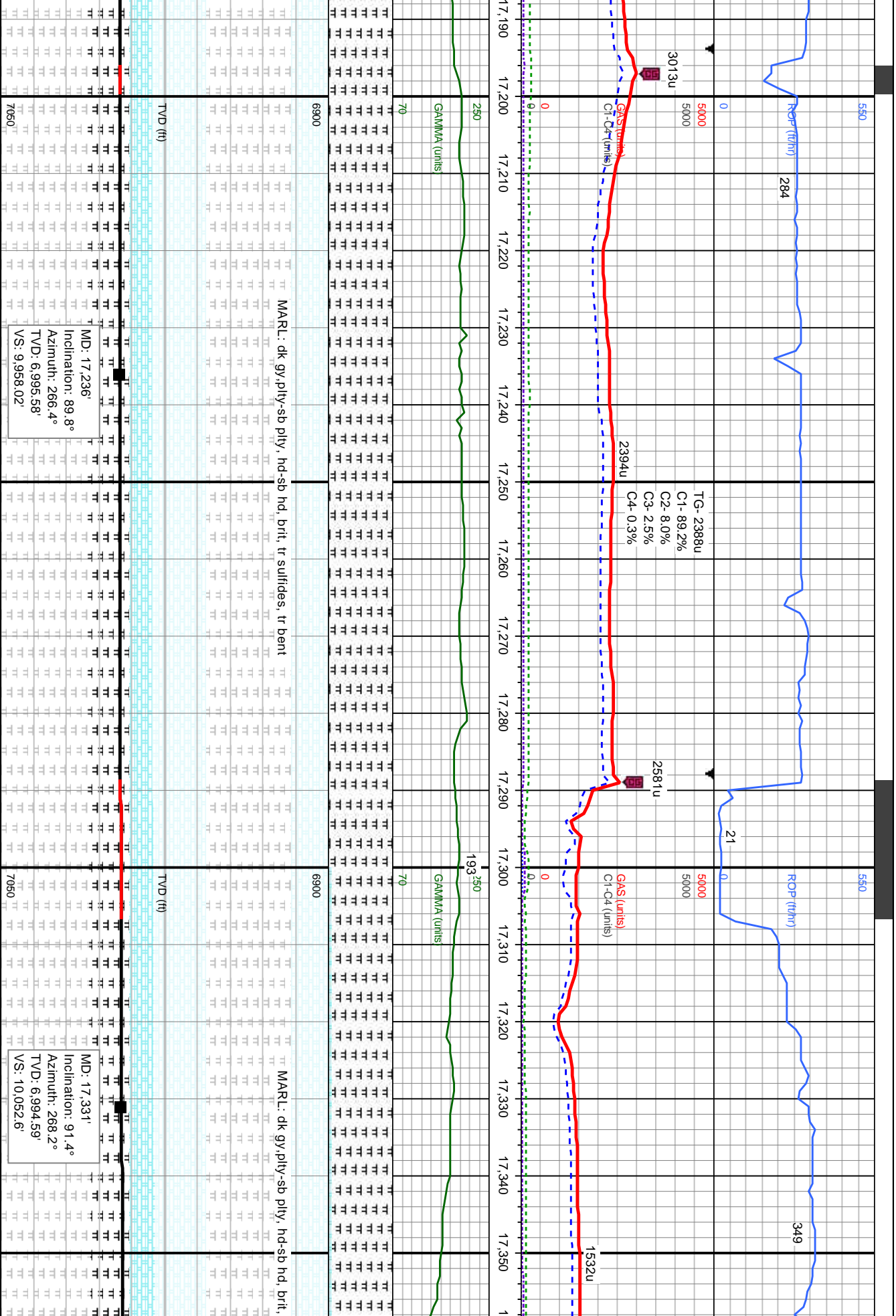
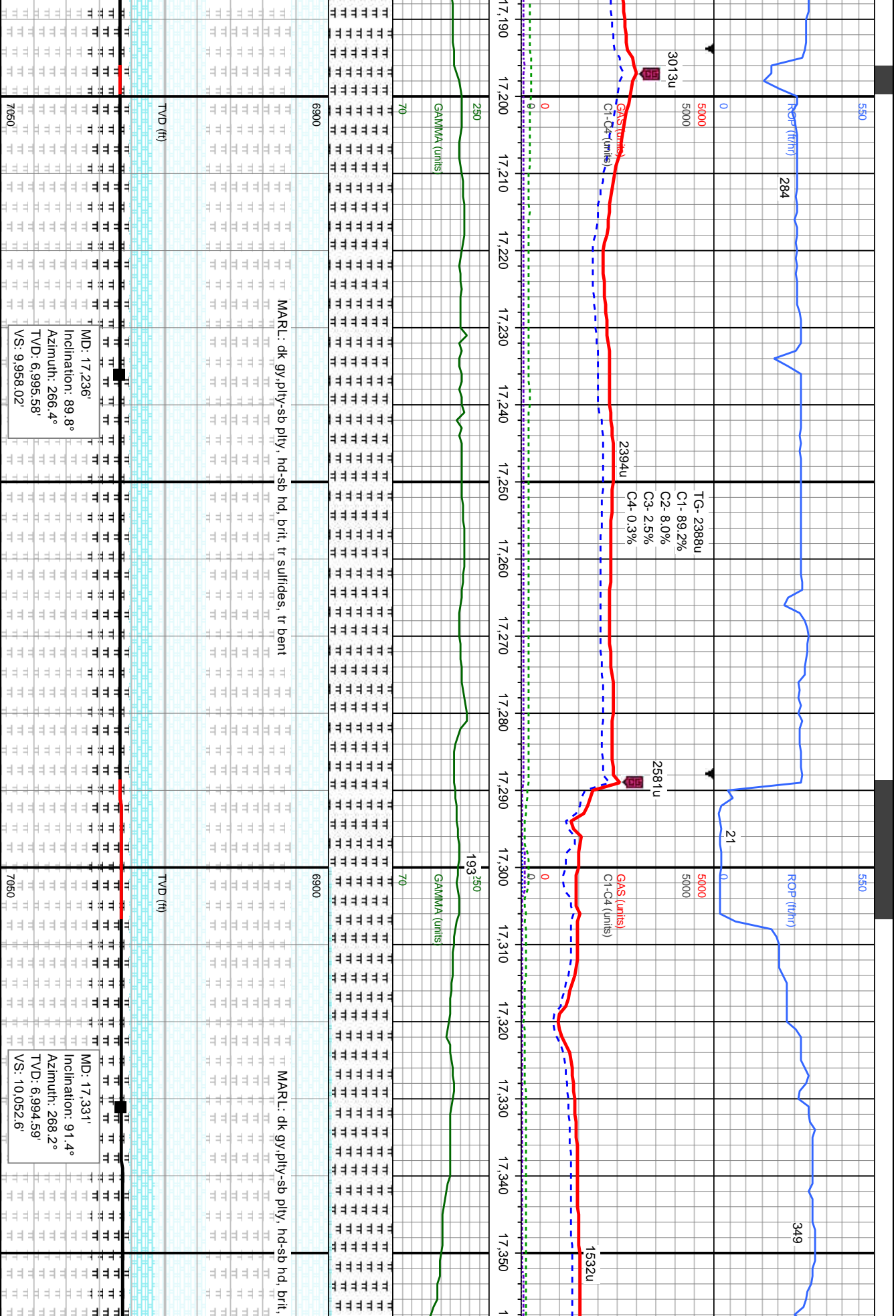




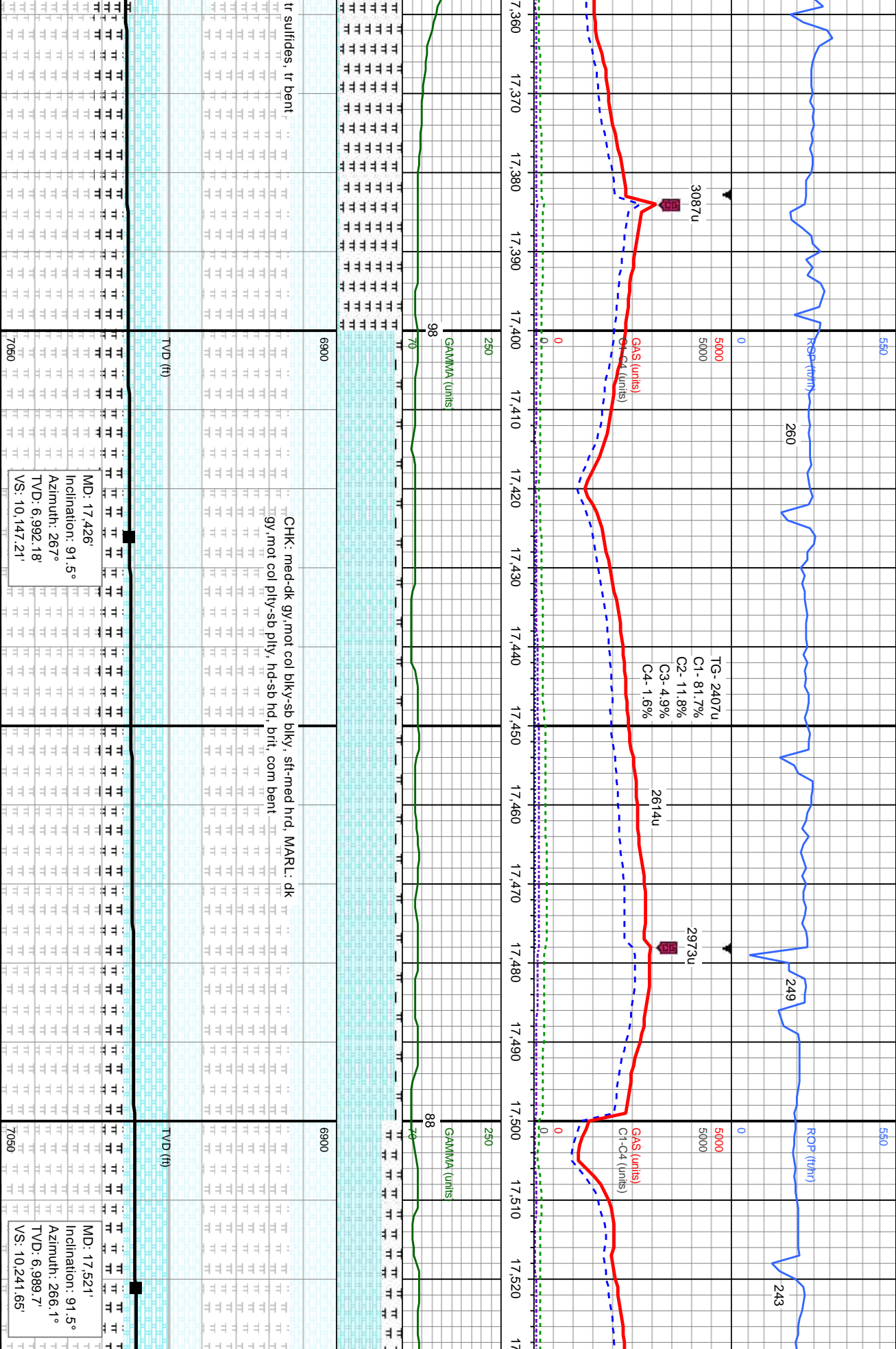


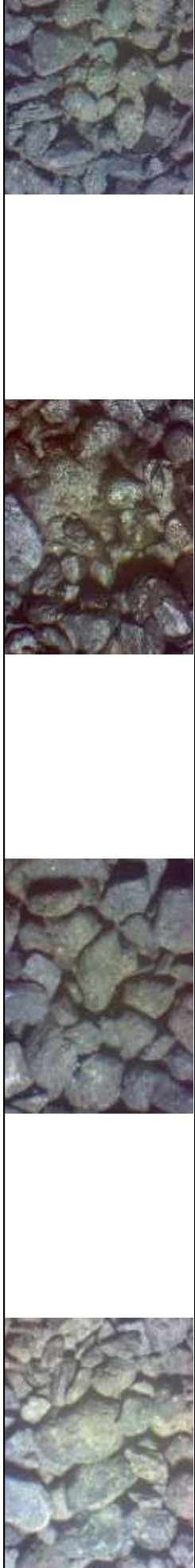
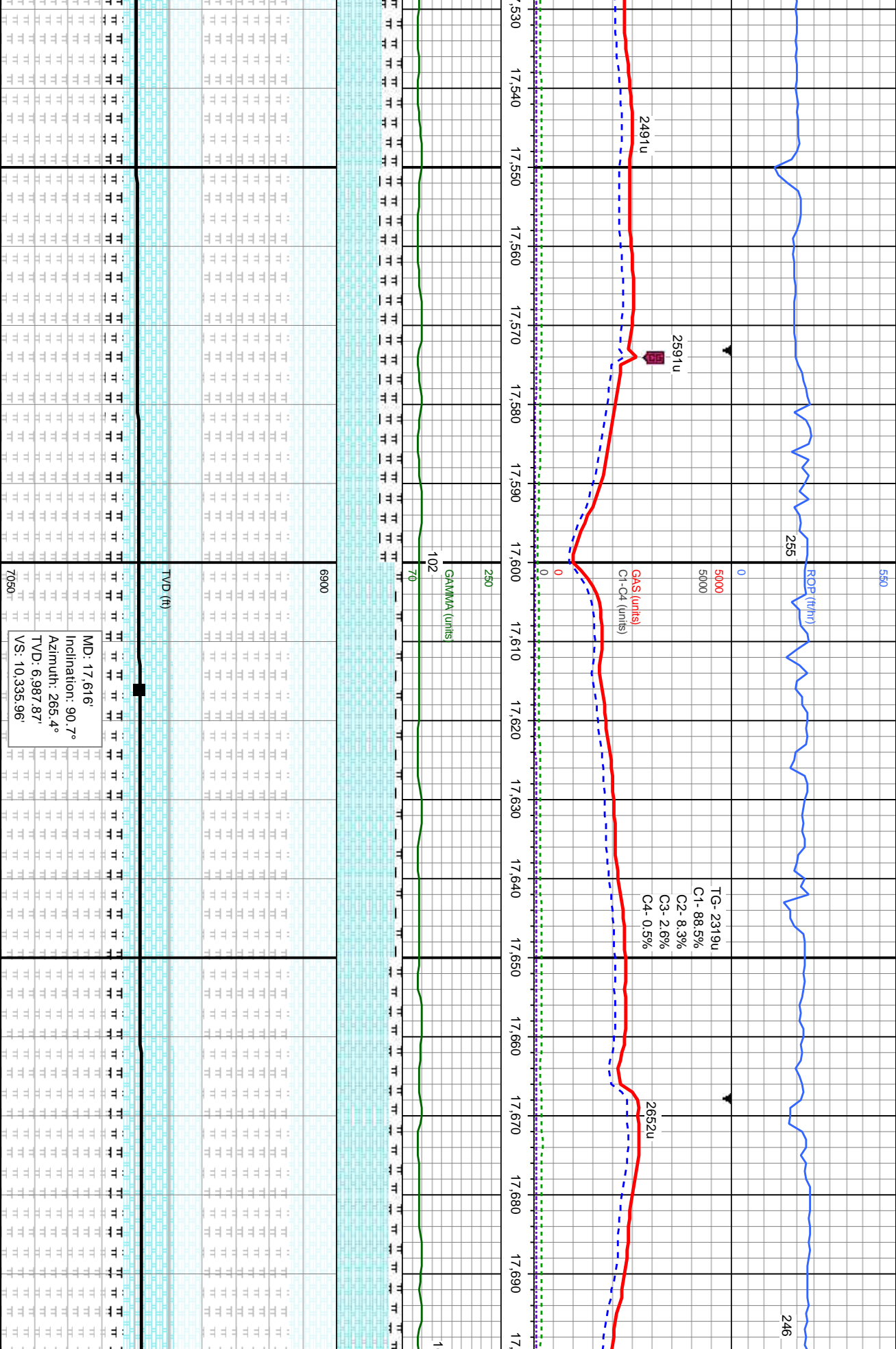


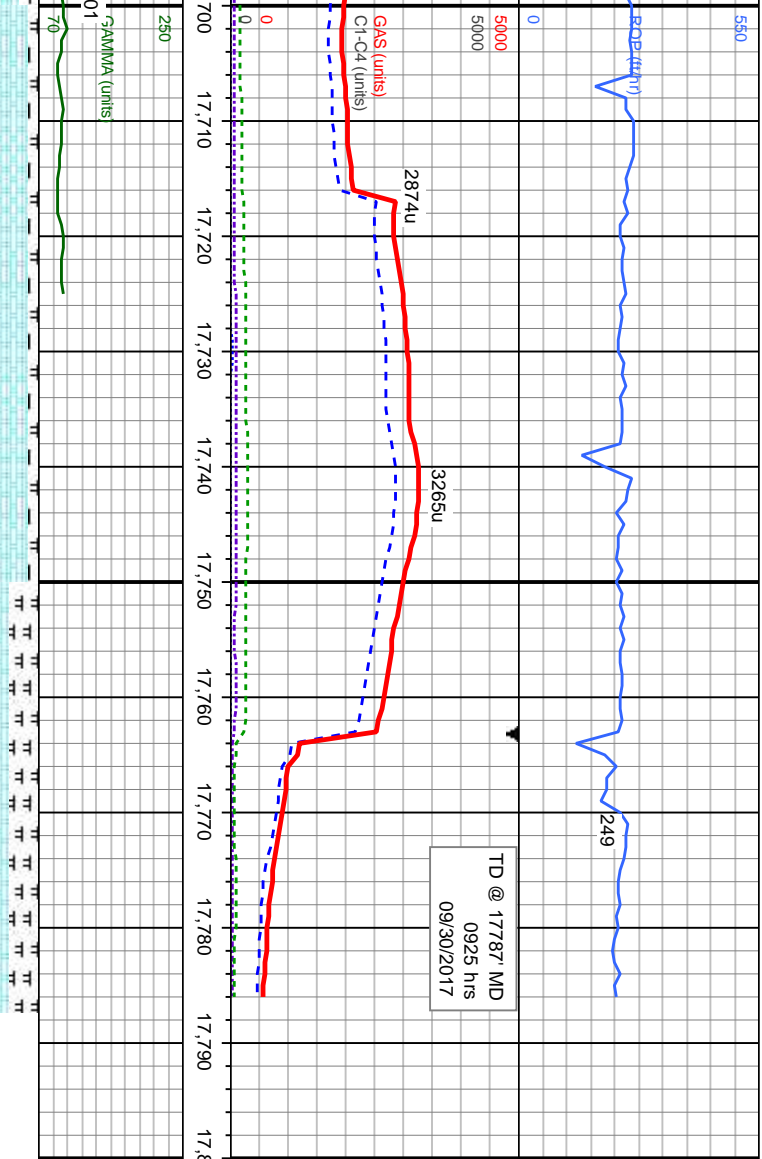












6900		Thank you for using Columbine Logging Inc.	
TVD (ft)		Projection to Bit	
MD: 17,711'		MD: 17,735'	
Inclination: 90.6°		Inclination: 90.5°	
Azimuth: 265.2°		Azimuth: 265°	
TVD: 6,986.79'		TVD: 6,986.56'	
VS: 10,430.19'		VS: 10,453.98'	
7050		7050	

