



Scale: 5" / 100'
Measured Depth Log

Well Name	Rohn State LD10-68HN		
Location	NENE SEC9 T9N R58W		
State	CO	County	WELD
Country	USA		
API Number	05-123-37627	Rig Number	PRECISION 828
		AFE #	200317
Region	DENVER-JULESBURG BASIN		
Spud Date	10/10/2014	Drilling Completed	10/15/2014
Surface Coordinates	898' FNL, 330' FEL		
	Lat/Long: 40.77069/-103.86116		
Ground Elevation	4739'	K.B. Elevation	4755'
Logged Interval	5400'	To	9667'
		Total Depth	9667'
Formation	PIERRE (TEEPEE BUTTES, SHARON SPRINGS), NIOBRARA (SMOKY HILLS A, B & C LAYERS)		
Type of Drilling Fluid	LSND		

Company NOBLE ENERGY INC.
Address 1625 Broadway
Denver, CO 80202

Name TERESA MALESARDI
Company NOBLE ENERGY INC.
Address 1625 Broadway
Denver, CO 80202

WELL SITE GEOLOGISTS:

Operator

Geologist

Other

Rock Types

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

Accessories

GASTROPOD	ARGILLITE GRAIN	HEAVY MINERAL	ANHYDRITE STRINGER
INOCERAMUS	BENTONITE	KAOLIN	BENTONITE STRINGER
ALGAE	BITUMENOUS SUBSTANCE	MARLSTONE	COAL STRINGER
AMPHIPORA	BRECCIA FRAGMENTS	MICACEOUS	DOLOMITE STRINGER
BELEMNITE	CALCAREOUS	MINERAL CRYSTALS	GYPSUM STRINGER
BIOCLASTIC	CARBONACEOUS FLAKES	NODULES	LIMESTONE STRINGER
BRACHIOPOD	CHERT	PHOSPHATE PELLETS	MARLSTONE (CALC) STRG
BRYOZOA	CHERT	PYRITE	MARLSTONE (DOL) STRG
CEPHALOPOD	COAL - THIN BEDS	SALT CAST	SANDSTONE STRINGER
CORAL	DOLOMITIC	SANDY	SHALE STRINGER
CRINOID	FELDSPAR	SILTY	SILTSTONE STRINGER
ECHINOID	FERRUGINOUS PELLET		
FISH	FERRUGINOUS	TUFFACEOUS	
FORAMINIFERA	GLAUCONITE		
FOSSIL	GYPSIFEROUS	Stringer	

GARY L. MYERS
S.S. METZ
LOG CONTINUES FROM FILE: Rohn State LD10-68HN Vert.mplot
GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING, INC.

Other Symbols

Oil Show

- PINPOINT
- DST INTERVAL
- WIRELINE TESTED - LEFT
- E EARTHY
- VUGGY
- FAULT
- WIRELINE TESTED - RT
- FX FINELYXLN

DEAD

EVEN

QUESTIONABLE

BIT

OIL SHOW

MX MICROXLN

SPOTTED STAINING

CONNECTION (UP)

MN DEPTH UP

MS MUDSTONE

Engineering

FORMATION TOP

DRILL STEM TEST

GS GRANSTONE

GAS SHOW

MN DEPTH

L LITHOGRAPHIC

Porosity

CONNECTION (DOWN)

MN DEPTH (DOWN)

ANGULAR

PS PACKSTONE

CONNECTION GAS

NORMAL FAULT

R ROUNDED

WS WACKSTONE

E EARTHY

CONNECTION GAS (LEFT)

OVERTURNED STRATA

S SUBANG

FENESTRAL

TRIP GAS

REVERSE FAULT

S SUBRND

F FRACTURE

TRIP GAS (LEFT)

CASING

M MODERATE

Textures

INTERCRYSTALLINE

DOWN TIME GAS

SIDEWALL CORE (LEFT)

P POOR

INTEROOLITIC

DOWN TIME GAS (LEFT)

SIDEWALL CORE (RIGHT)

BS BOUNDSTONE

MOLDIC

CORE - LOST

SLIDE

CHALKY

ORGANIC

CORE - RECOVERED

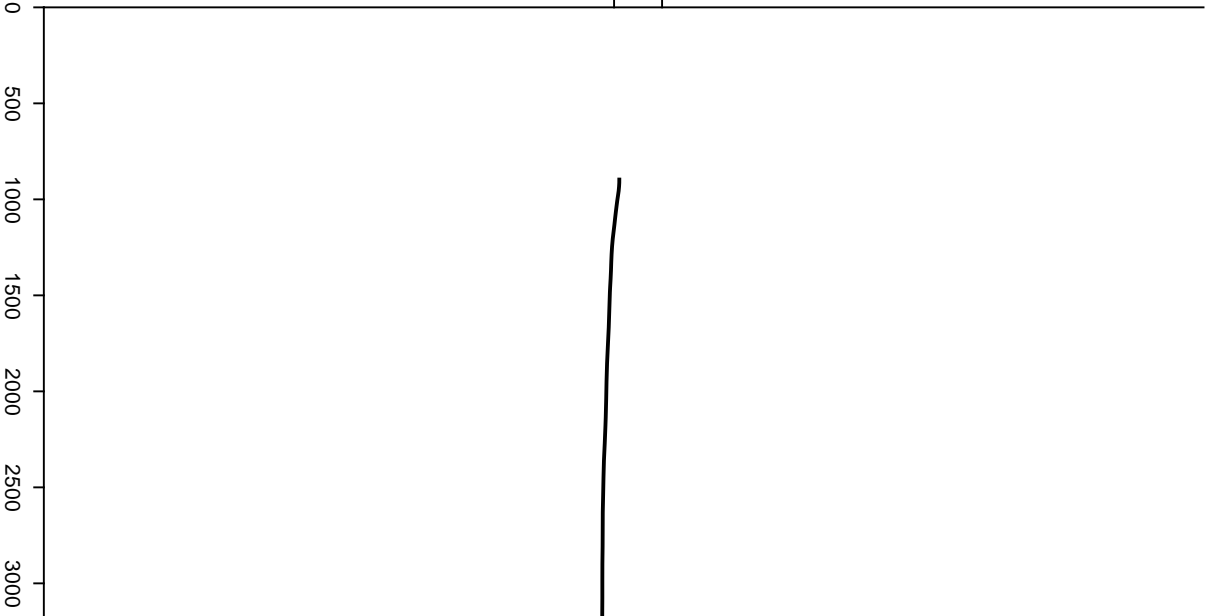
SURVEY

CRYPTOXLN

Survey Plan

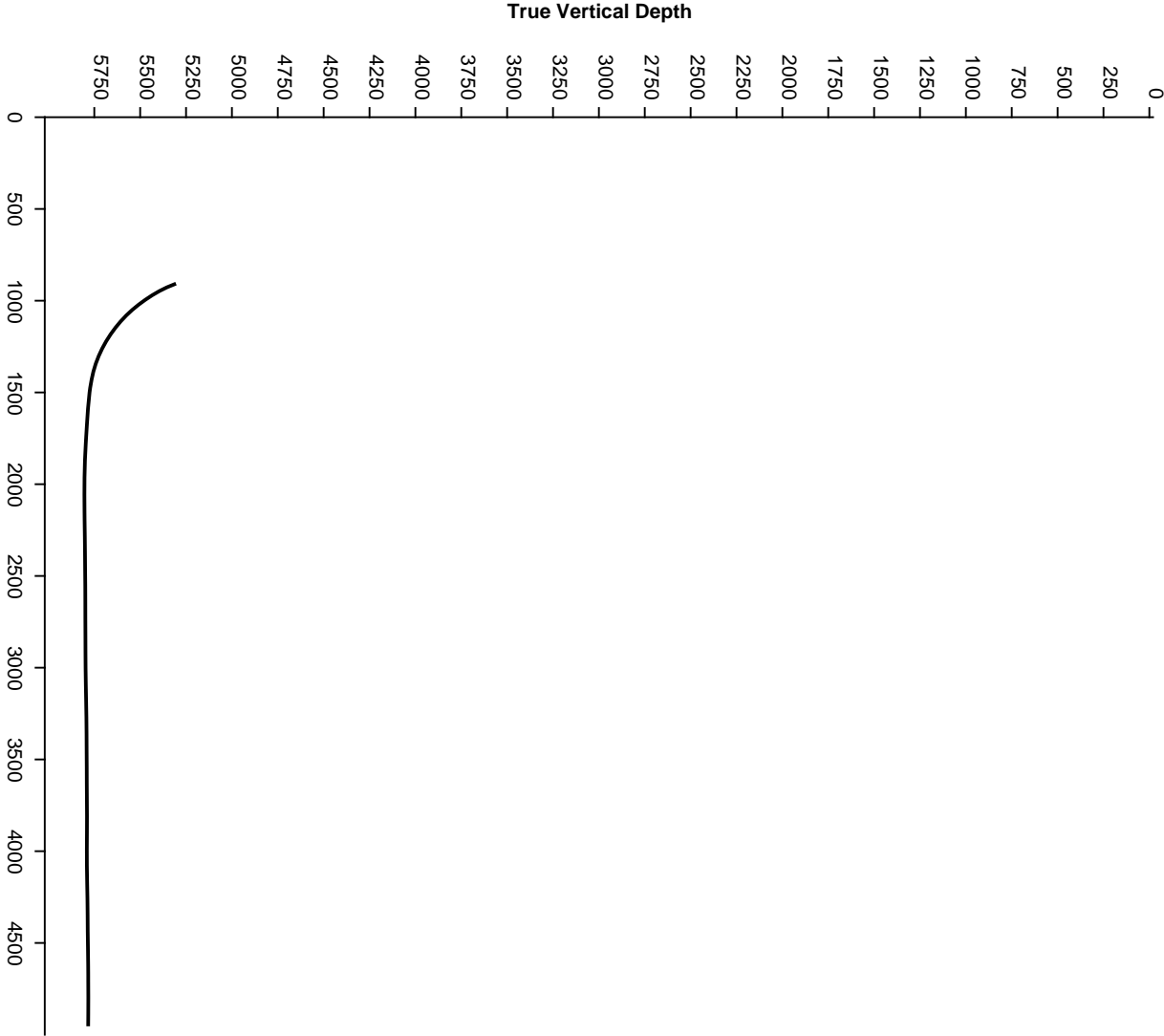
Northing

0
250

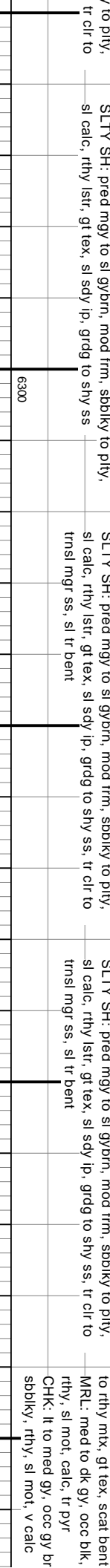
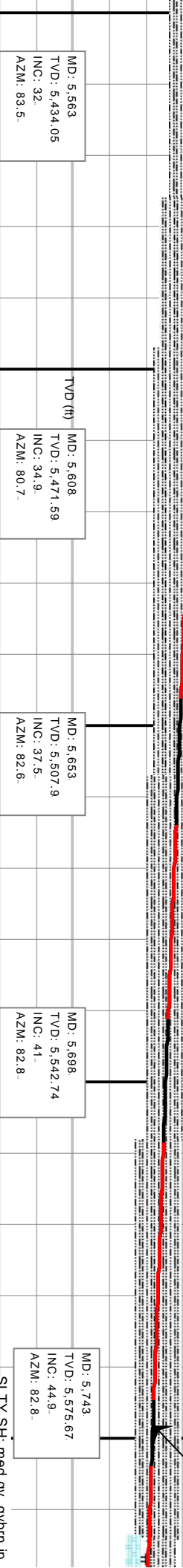
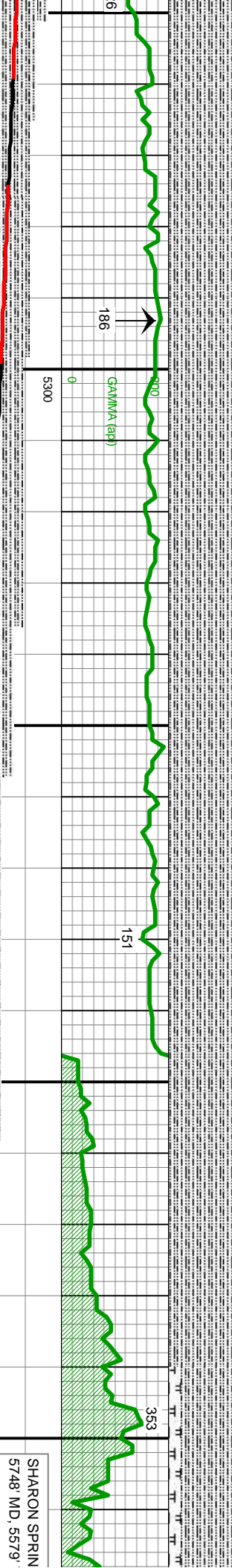
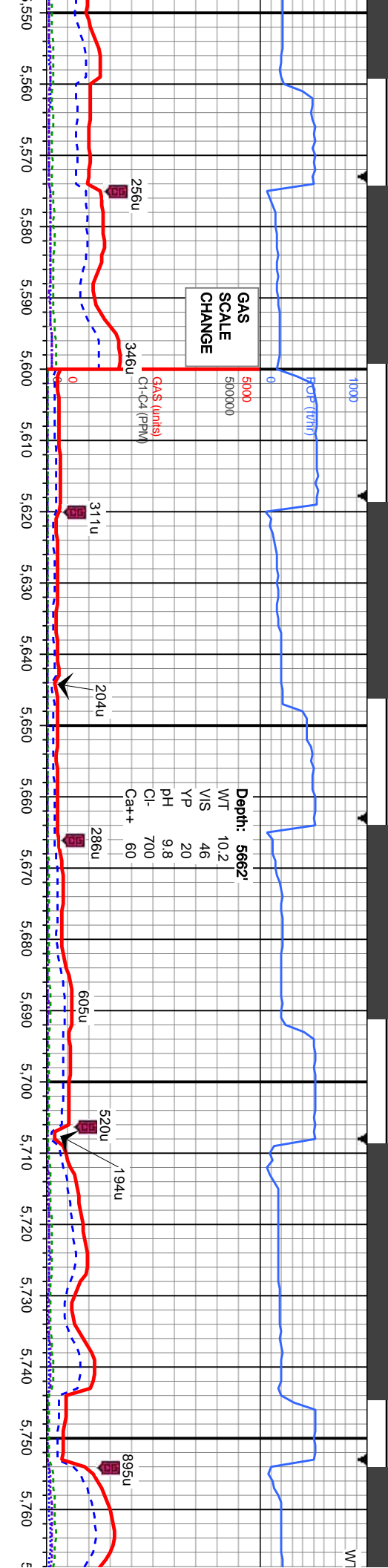


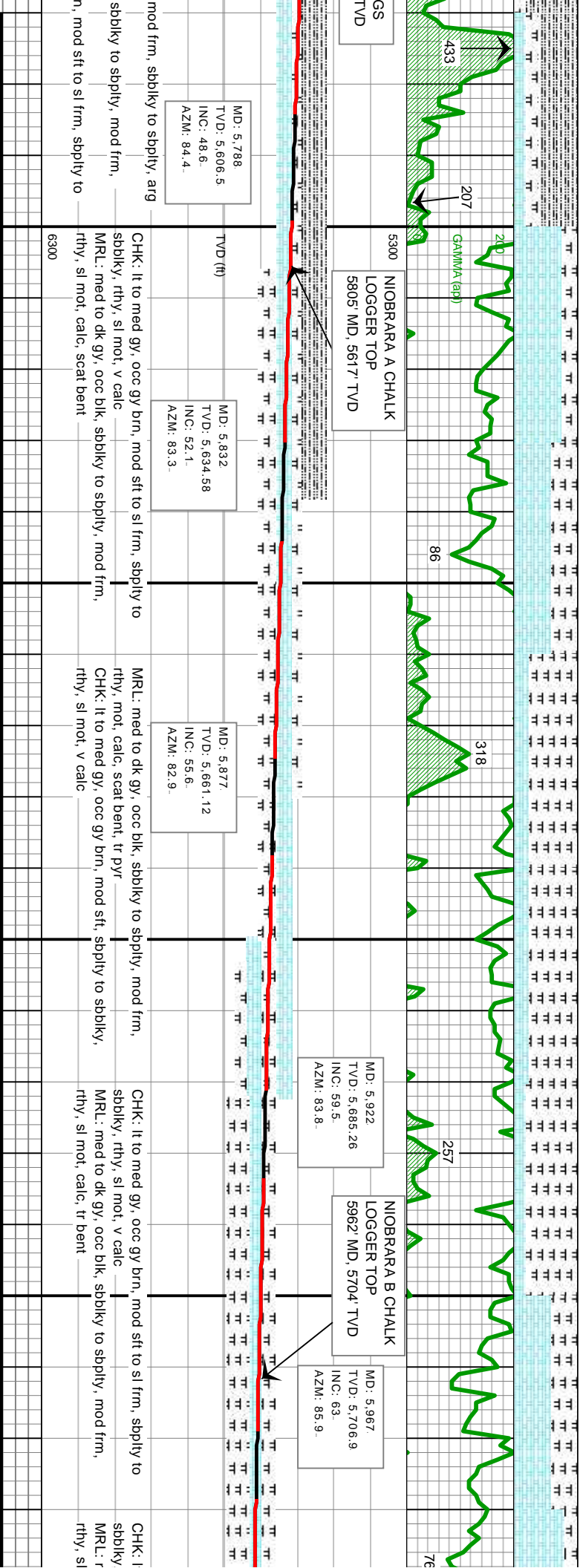
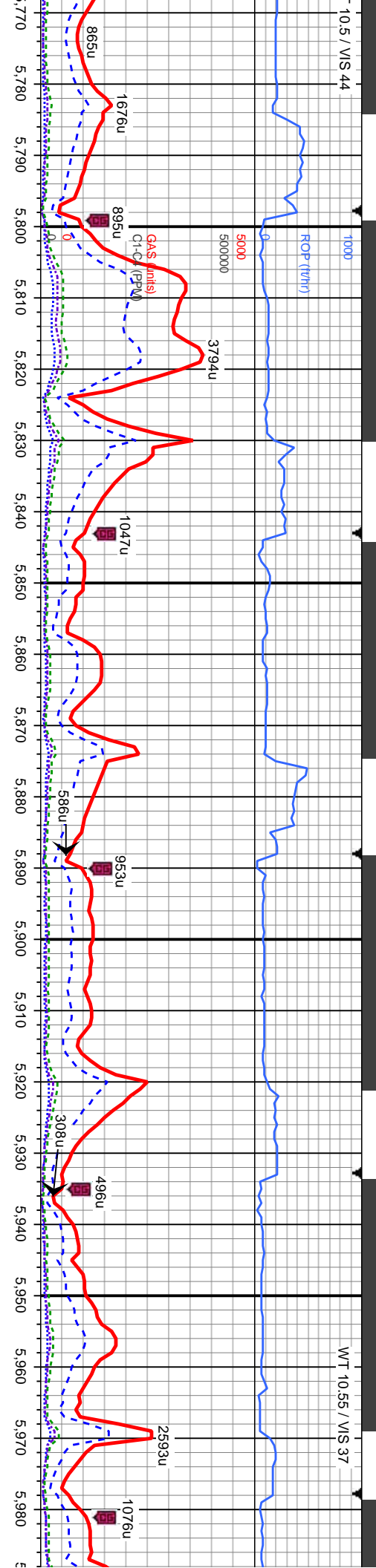
Easting

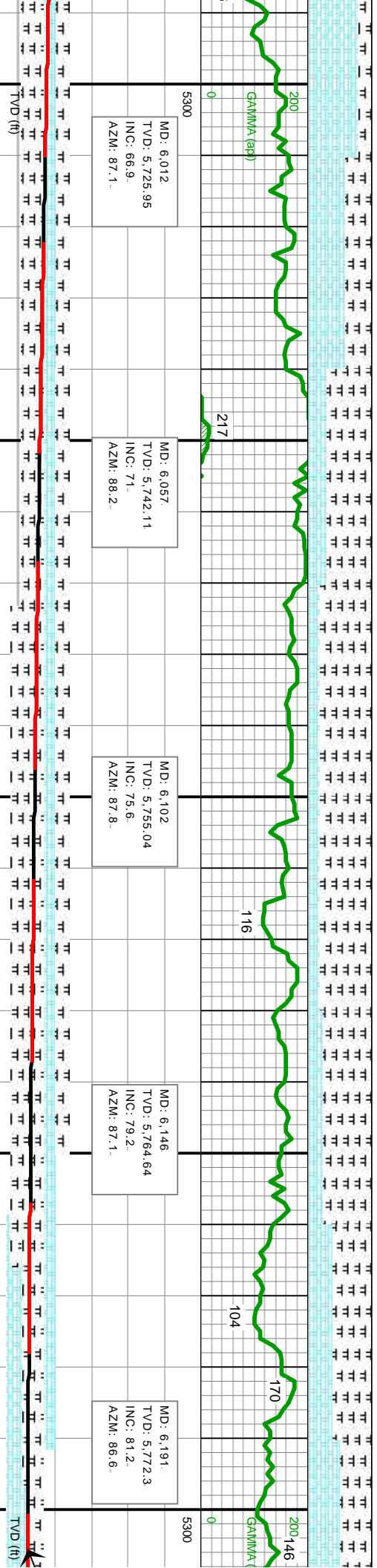
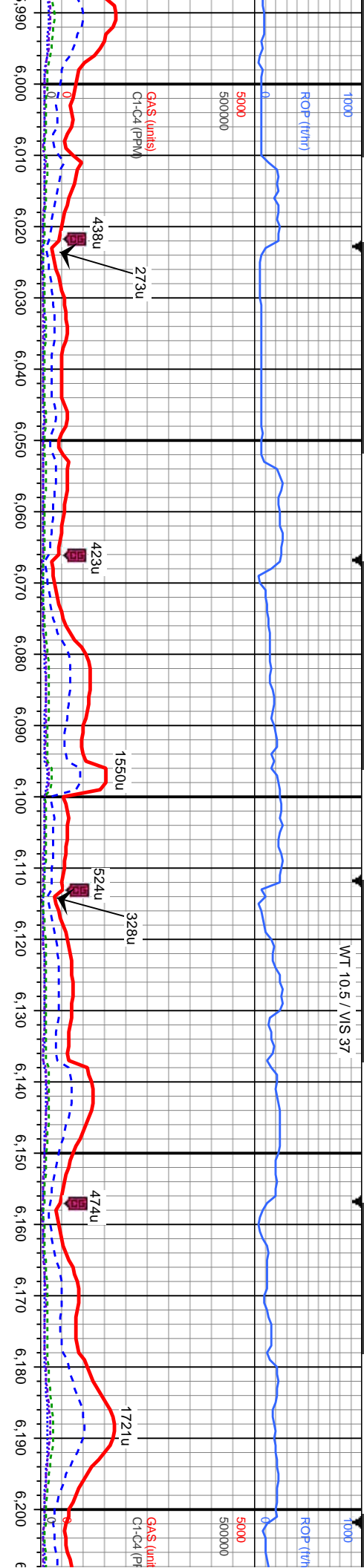
Survey Elevation



3500 4000 4500







MD: 6.012
TVD: 5,725.95
INC: 66.9
AZM: 87.1

MD: 6.057
TVD: 5,742.11
INC: 71
AZM: 88.2

MD: 6.102
TVD: 5,755.04
INC: 75.6
AZM: 87.8

MD: 6.146
TVD: 5,764.64
INC: 79.2
AZM: 87.1

MD: 6.191
TVD: 5,772.3
INC: 81.2
AZM: 86.6

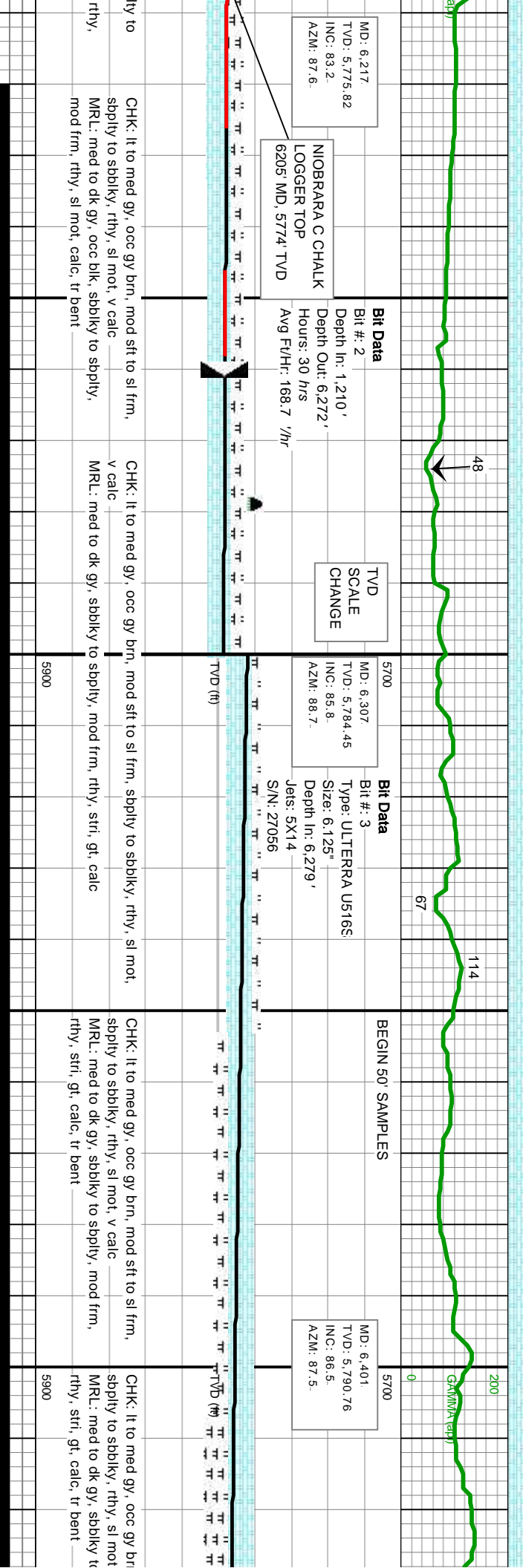
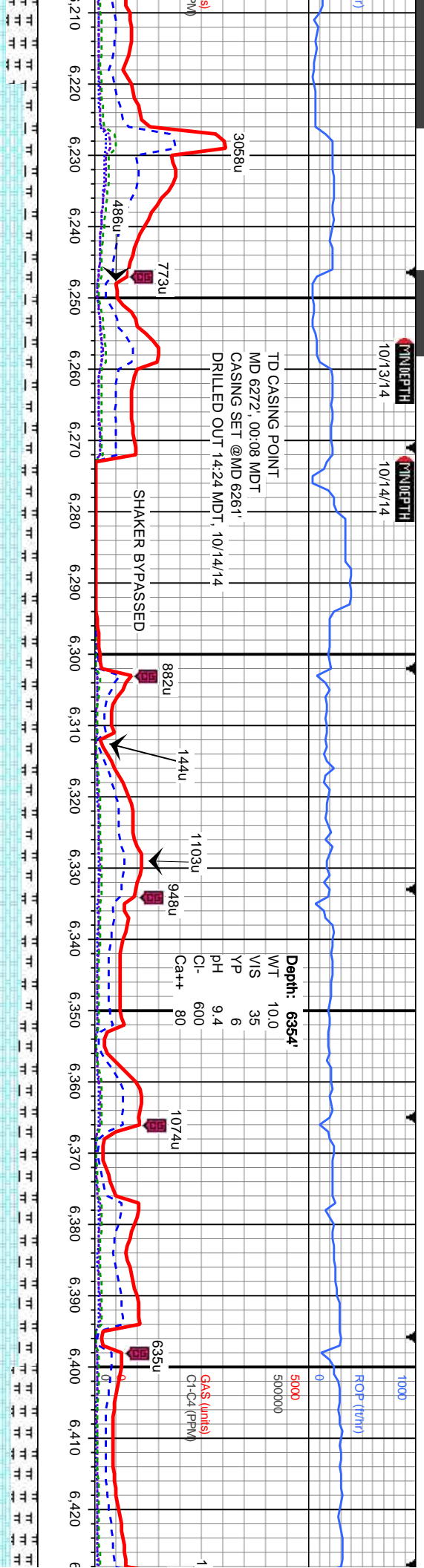
to med gy, occ gy brn, mod sft to sl frm, sbply to rthy, sl mot, v calc
med to dk gy, occ blk, sbply to sbply, mod frm, mot, calc, tr bent

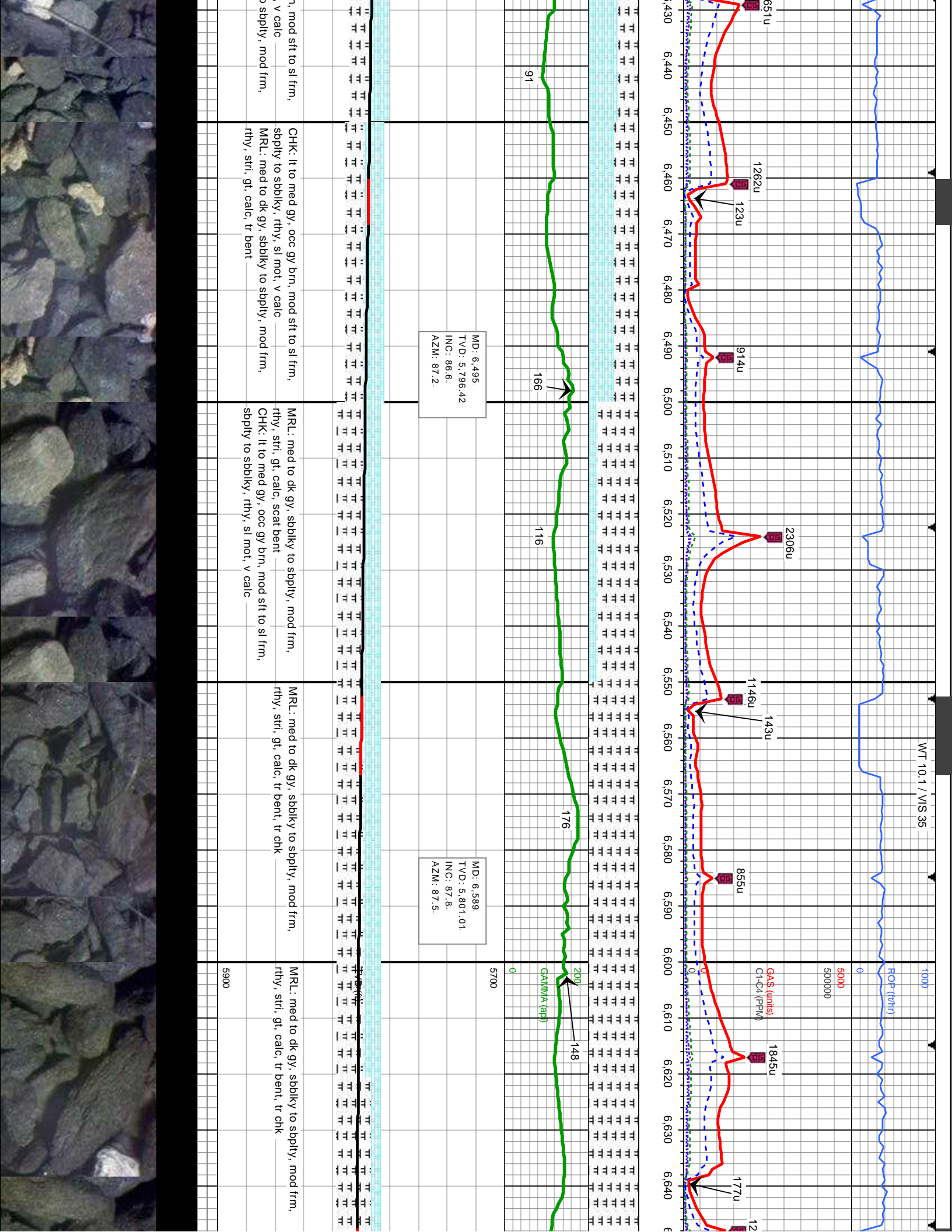
MRL: med to dk gy, occ blk, sbply to sbply, mod frm, rthy, sl mot, calc, tr bent, tr pyr
CHK: lt to med gy, gybrn ip, mod sft, sbply to sbply, rthy, sl mot, v calc

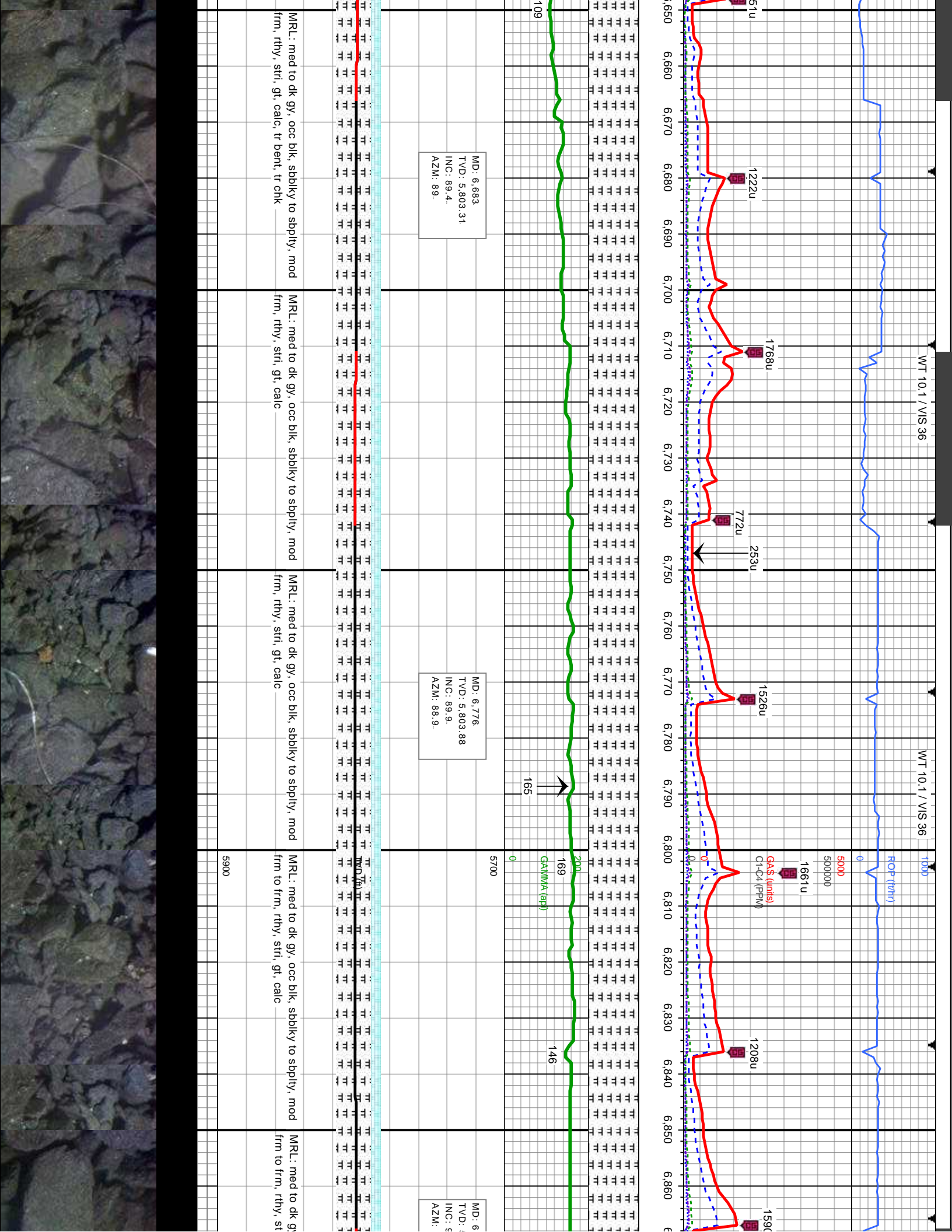
MRL: med to dk gy, occ blk, sbply to sbply, frm, rthy, sl mot, calc, tr bent
CHK: lt to med gy, mod sft to sl frm, sbply to sbply, rthy, sl mot, v calc

CHK: lt to med gy, gybrn ip, mod sft to sl frm, sbply, rthy, sl mot, v calc
MRL: med to dk gy, occ blk, sbply to sbply, frm, mot, calc, tr bent, tr pyr









DRILLERS DEPTH CORRECTION
FROM 6898' TO 6929'

WT 10.1 / VIS 37

ROP (ft/hr)

GA\$ (units)
C1-C4 (PPM)

5000
5000000

2512u

2056u

2466u

501u

1348u

1052u

296u

178u

172

151

200

GAMMA (pp)

138

MD: 6.915.
TVD: 5.803.38
INC: 90.7.
AZM: 88.1.

MD: 6.915.
TVD: 5.802.87
INC: 90.6.
AZM: 88.3.

MD: 7.005.
TVD: 5.801.69
INC: 90.9.
AZM: 87.

occ blk, sbbkly to sbply, mod
rthy, gt, calc

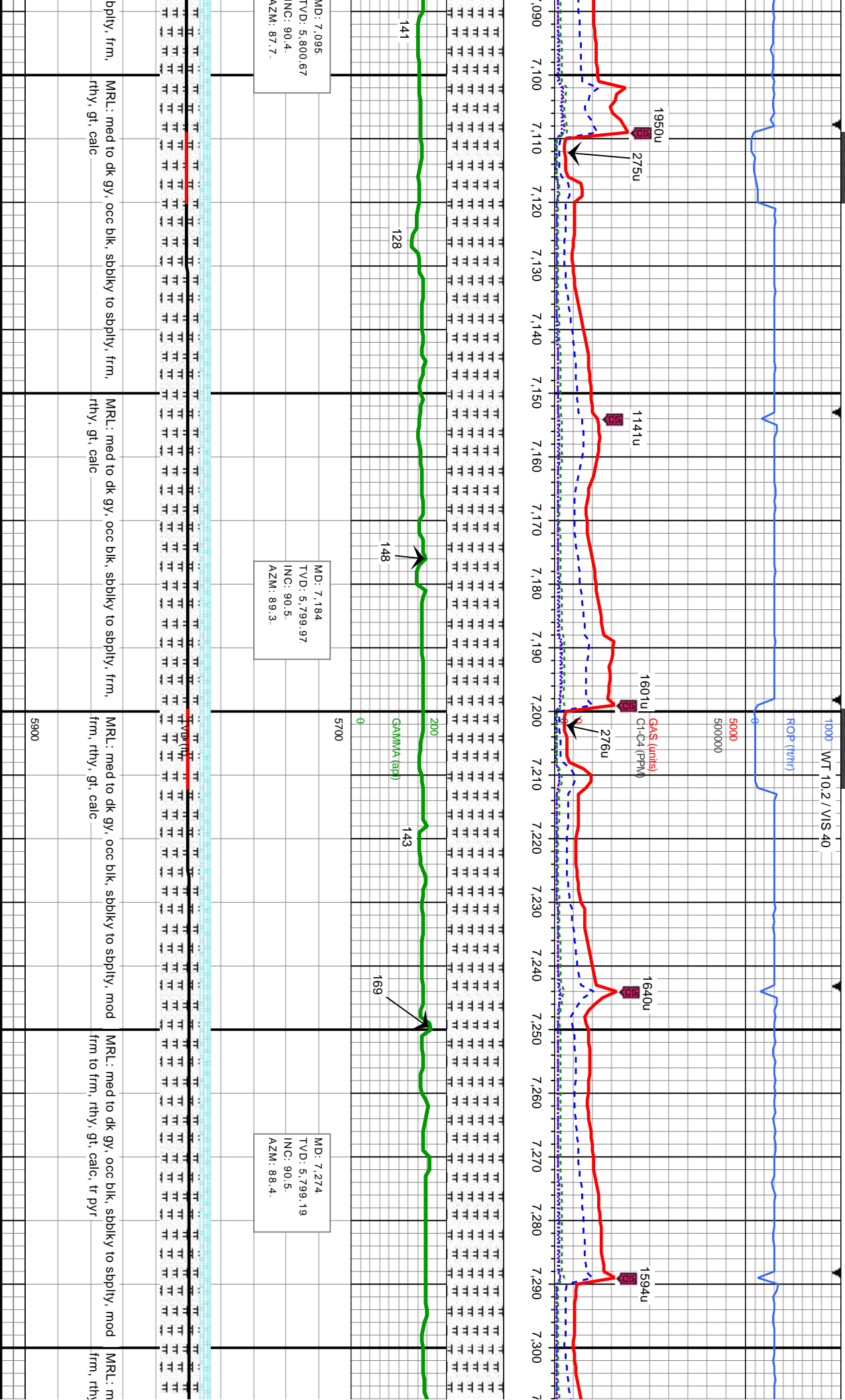
MRU: med to dk gy, occ blk, sbbkly to sbply, frm.
rthy, gt, calc

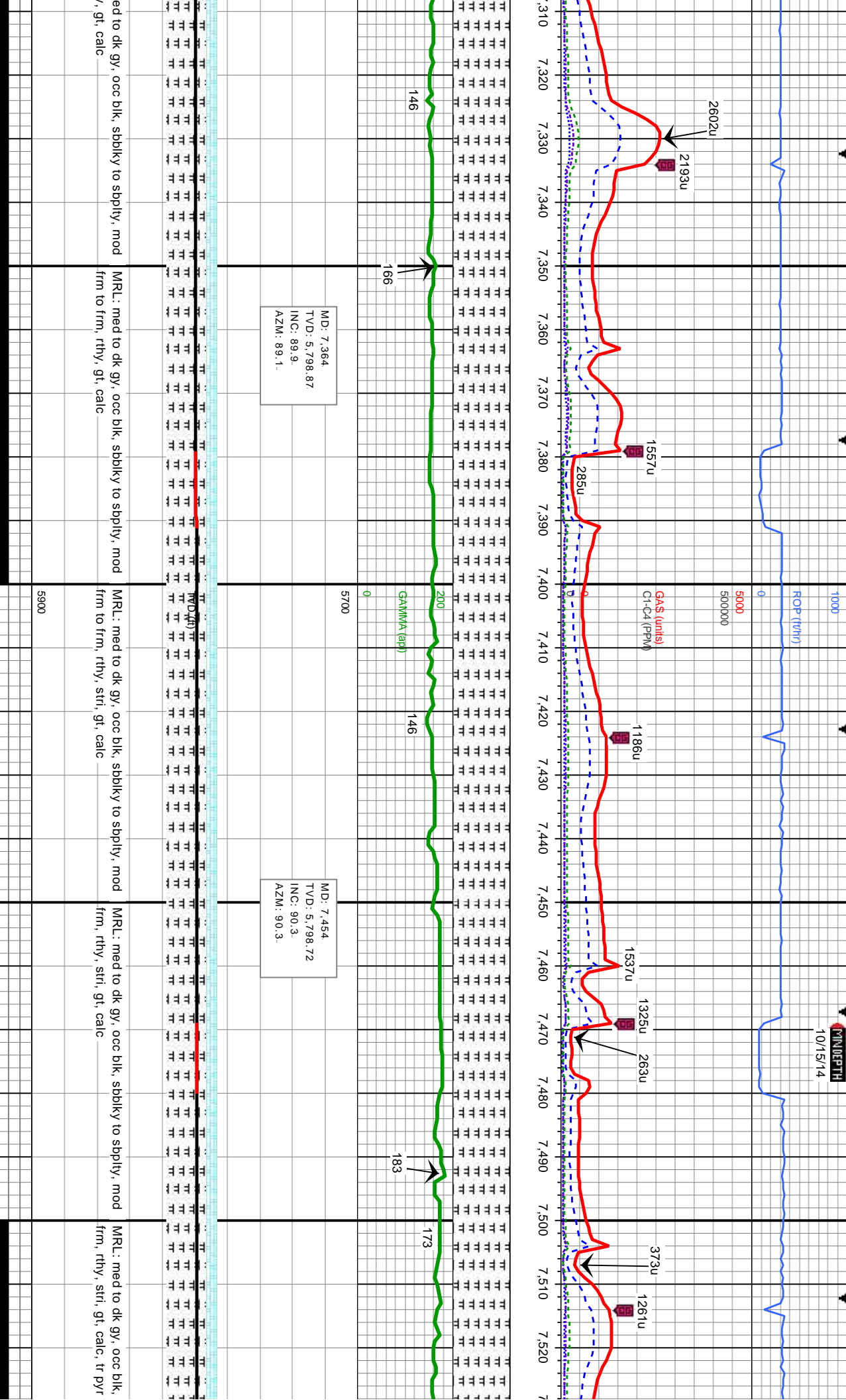
MRU: med to dk gy, occ blk, sbbkly to sbply, frm.
rthy, gt, calc, tr pyr

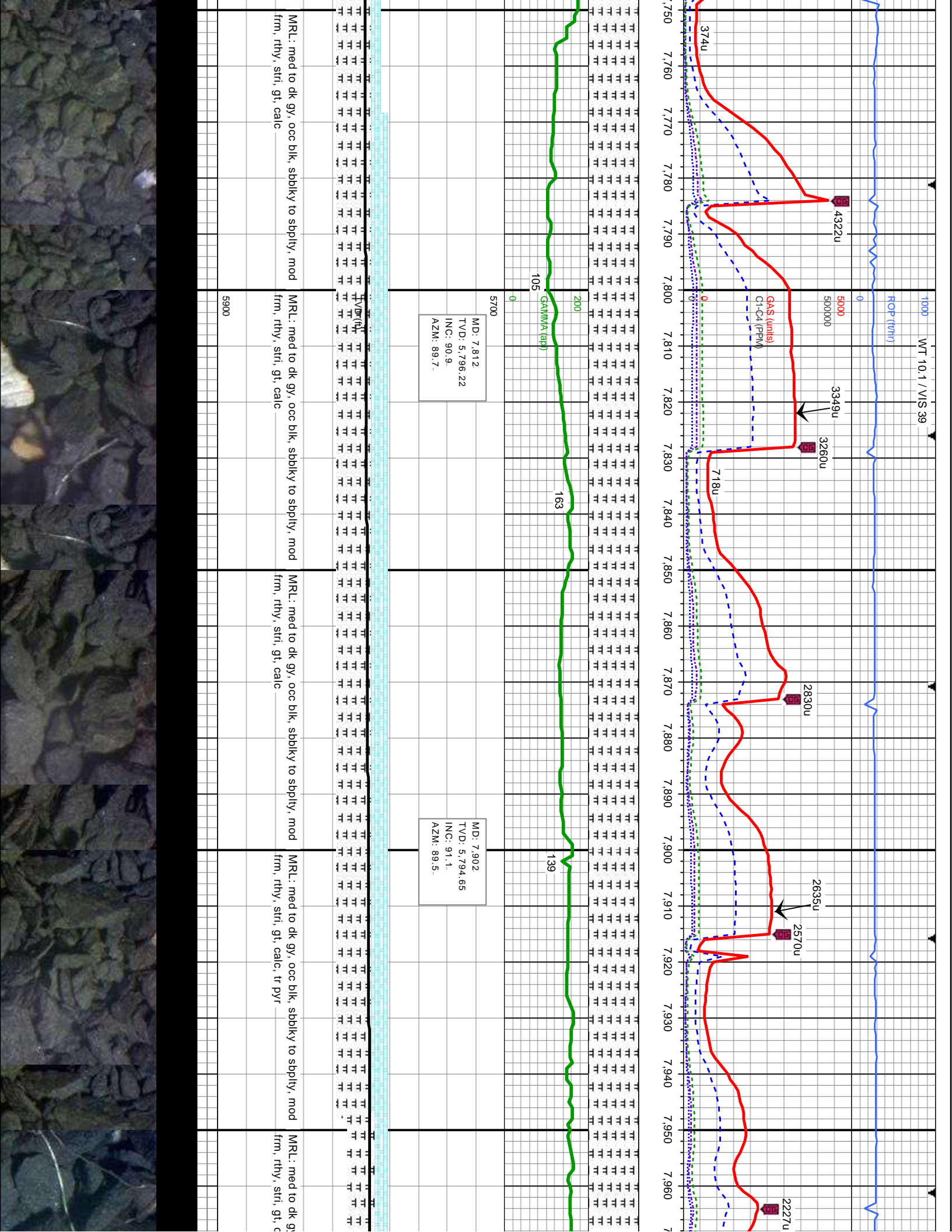
MRU: med to dk gy, occ blk, sbbkly to sbply, frm.
rthy, gt, calc, tr pyr

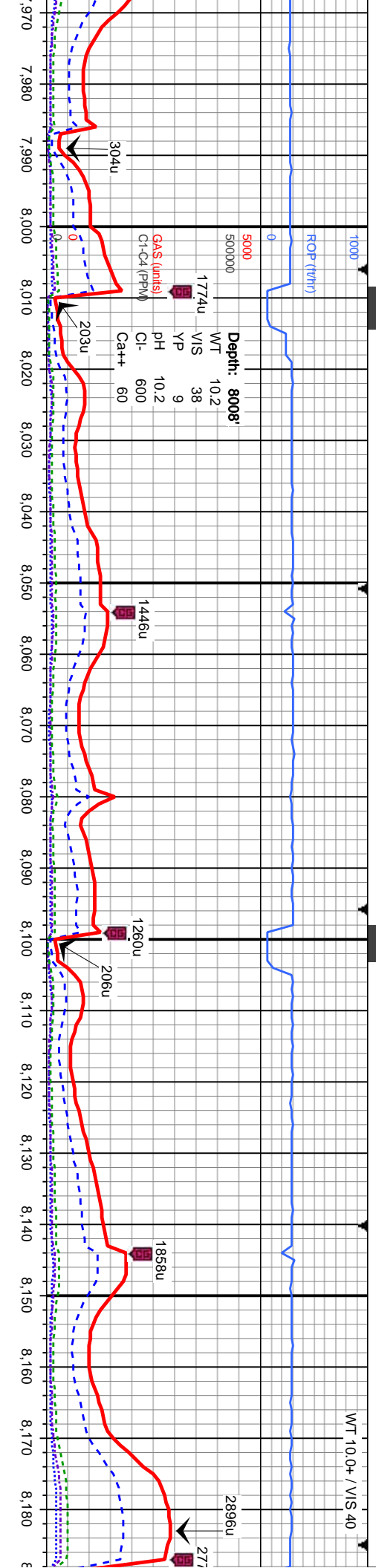
MRU: med to dk gy, occ blk, sbbkly to s
rthy, gt, calc

5900





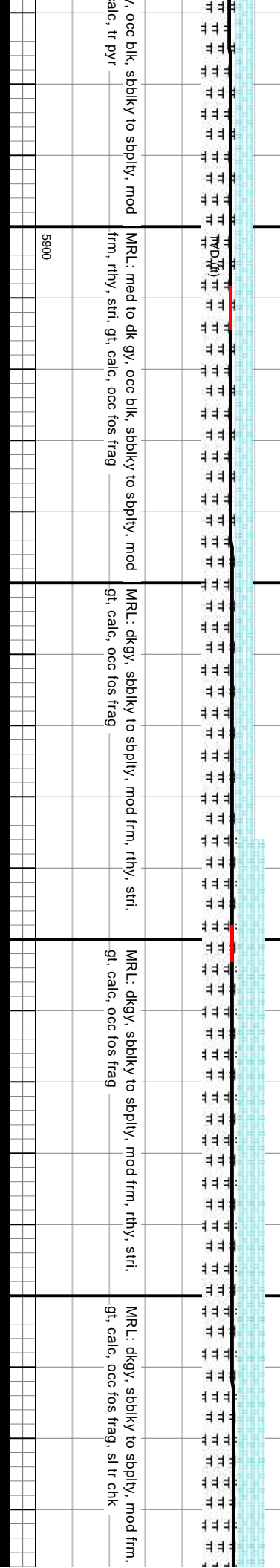




MD: 7.992
TVD: 5.793.08
INC: 90.9
AZM: 87.5

MD: 8.082
TVD: 5.792.22
INC: 90.2
AZM: 87.

MD: 8.172
TVD: 5.791.75
INC: 90.4
AZM: 89.1



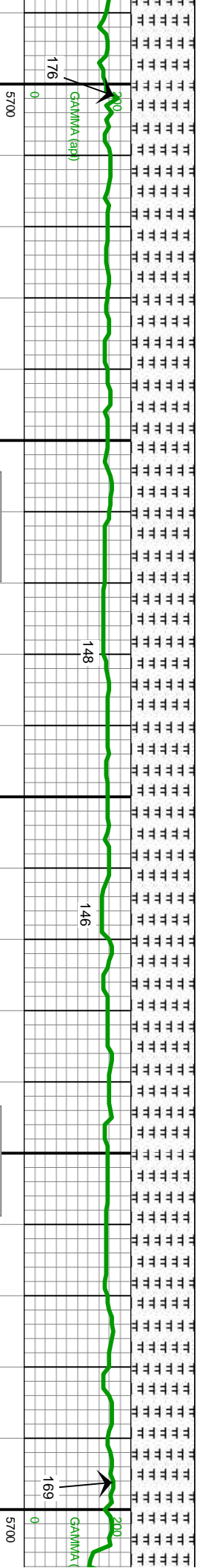
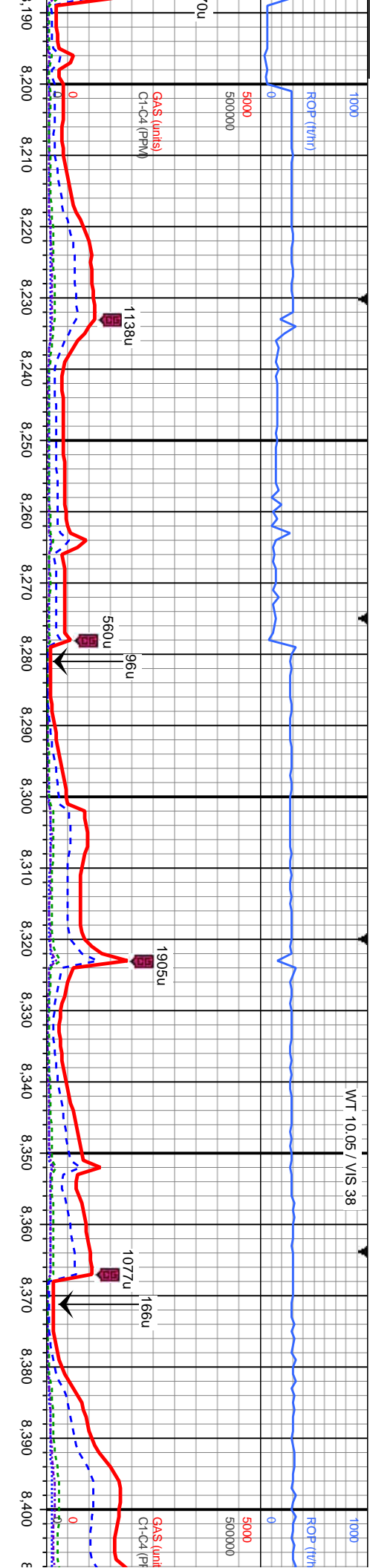
occ blk, sbblky to sbply, mod
calc, tr pyr

MRL: med to dk gy, occ blk, sbblky to sbply, mod
frm, rthy, stri, gt, calc, occ fos frag

MRL: dkgy, sbblky to sbply, mod frm, rthy, stri,
gt, calc, occ fos frag

MRL: dkgy, sbblky to sbply, mod frm, rthy, stri,
gt, calc, occ fos frag

MRL: dkgy, sbblky to sbply, mod frm,
gt, calc, occ fos frag, sl tr chk



MD: 8,262
TVD: 5,791.27
INC: 90.2
AZM: 88.3

MD: 8,351
TVD: 5,790.96
INC: 90.2
AZM: 87.2

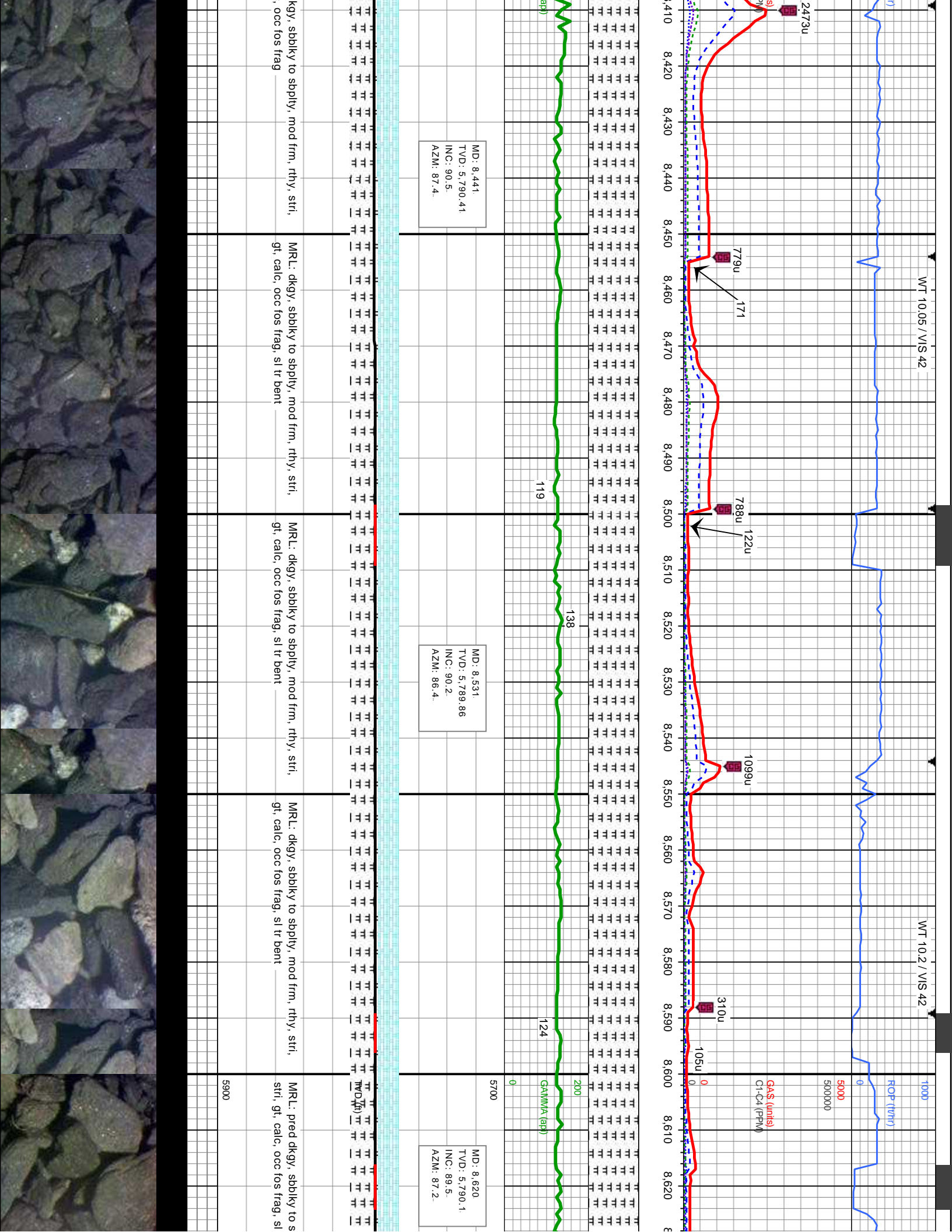
thny, stri,
MRL: dkgy, sbblky to sbply, mod frm, thny, stri,
gt, calc, occ los frag, sl tr Dent

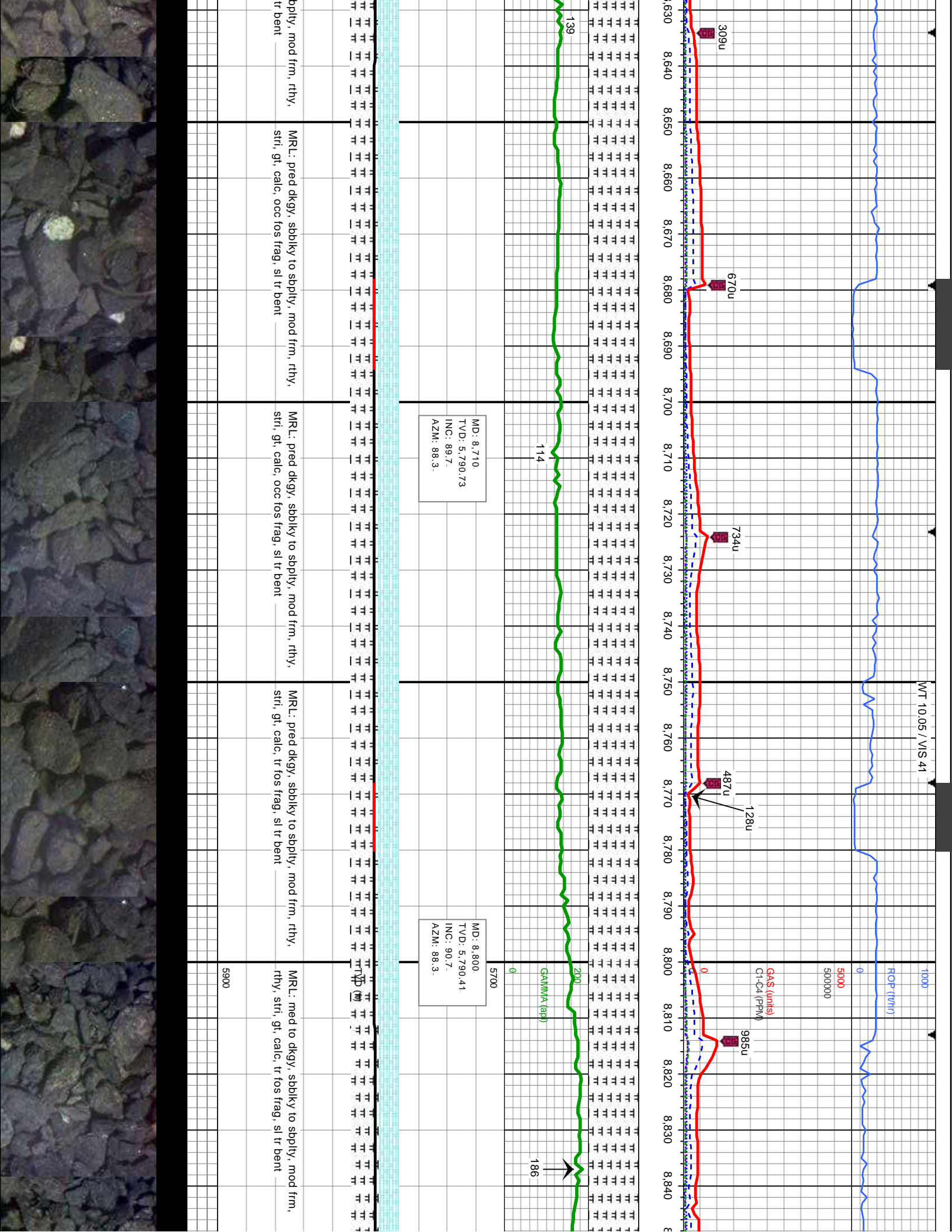
thny, stri,
MRL: dkgy, sbblky to sbply, mod frm, thny, stri,
gt, calc, occ los frag

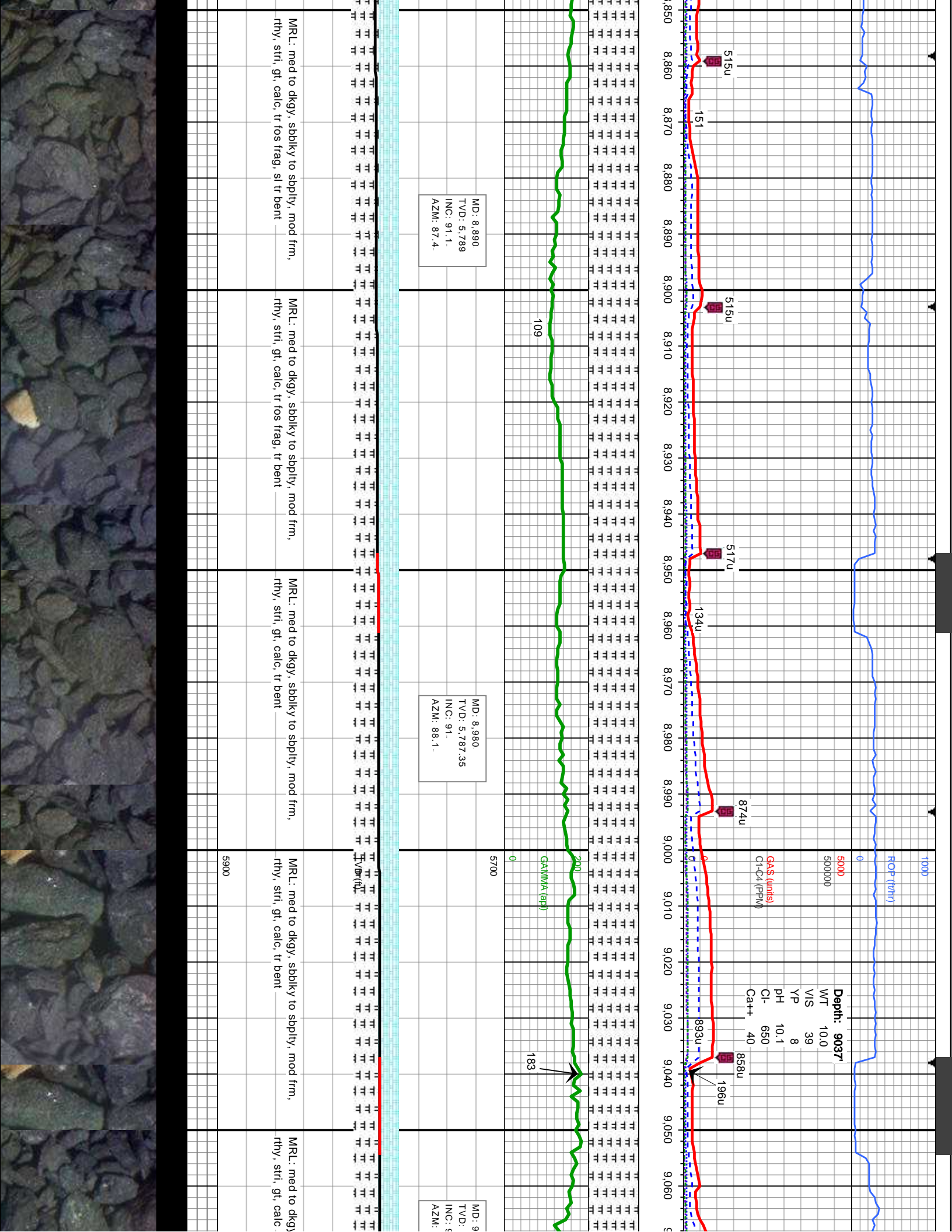
thny, stri,
MRL: dkgy, sbblky to sbply, mod frm, thny, stri,
gt, calc, occ los frag

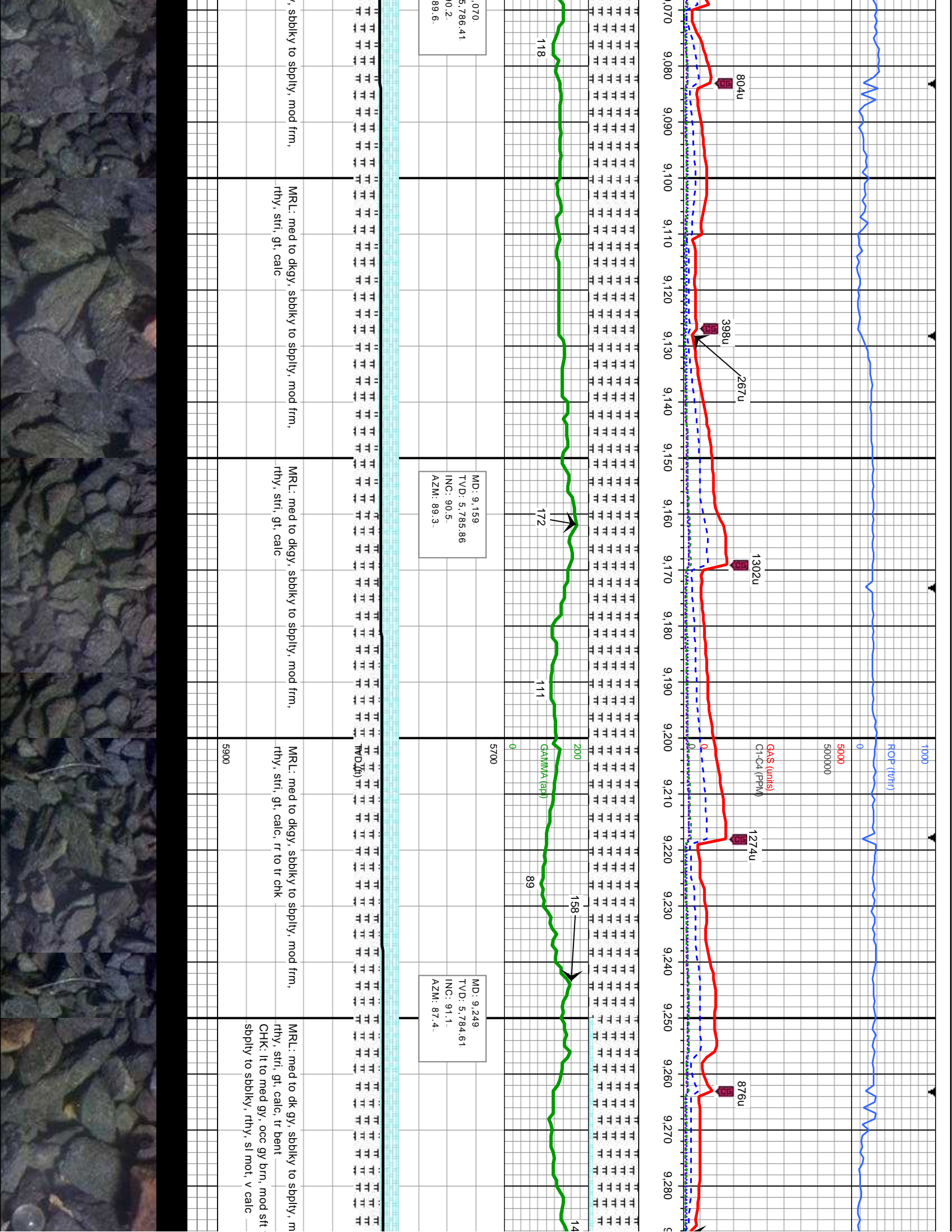
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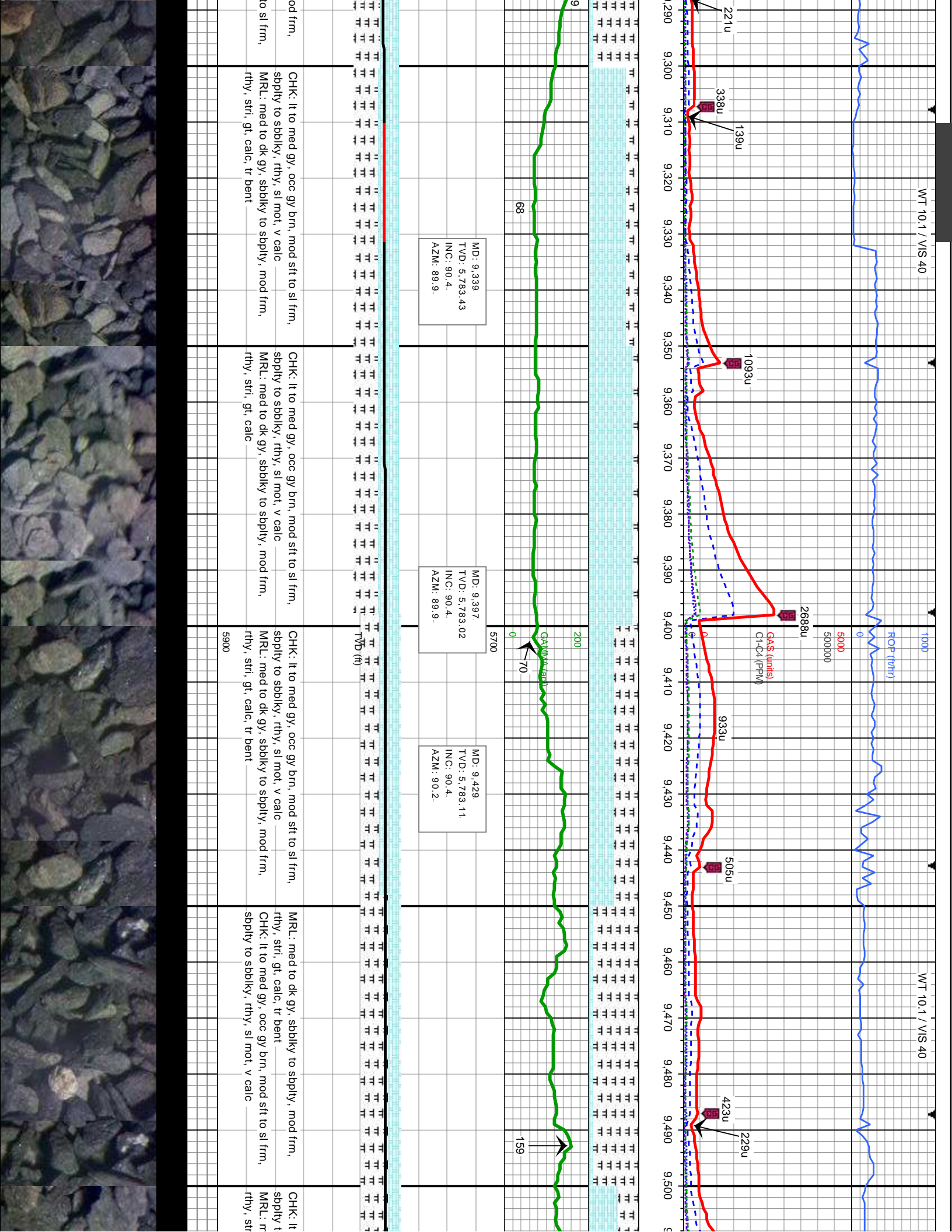
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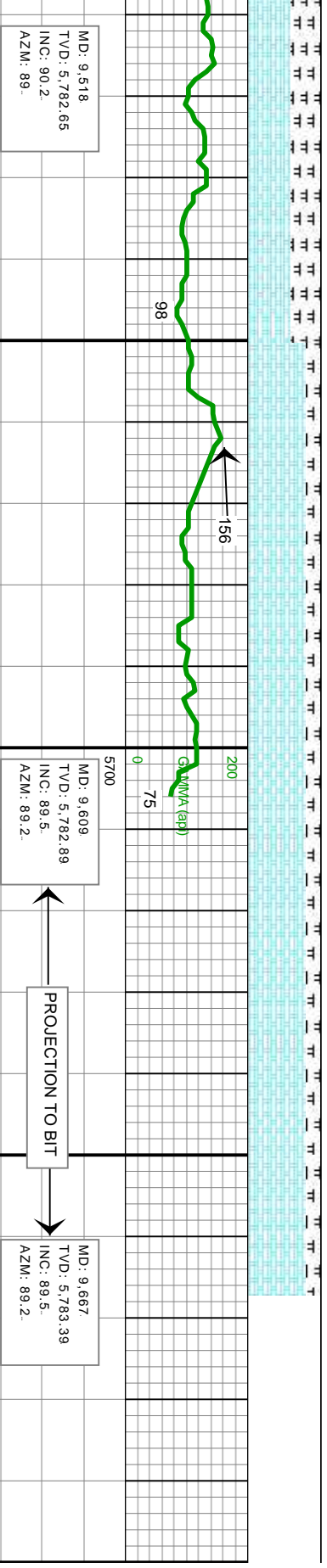
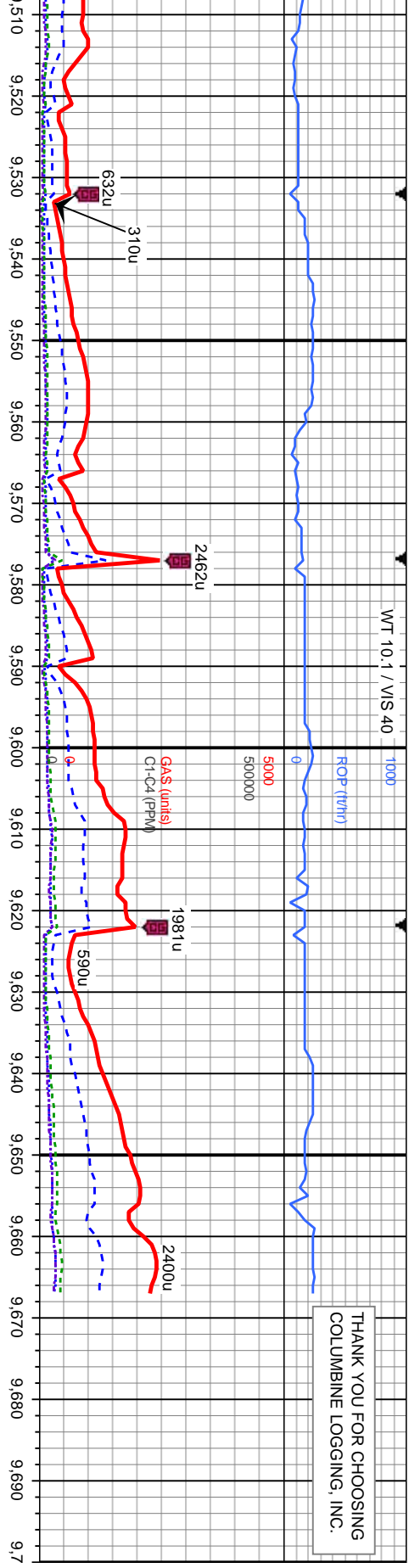








THANK YOU FOR CHOOSING
COLUMBINE LOGGING, INC.



MD: 9,518
TVD: 5,782.65
INC: 90.2
AZM: 89.

MD: 9,609
TVD: 5,782.89
INC: 89.5
AZM: 89.2

PROJECTION TO BIT

MD: 9,667
TVD: 5,783.39
INC: 89.5
AZM: 89.2



to med gy, occ gy brn, mod sft to sl frm,
o sbbkly, rthy, sl mot, v calc
med to dk gy, sbbkly to sbbply, mod frm,
l, gt, calc, tr bent

CHK: It to med gy, occ gy brn, mod sft to sl frm,
sbbply to sbbkly, rthy, sl mot, v calc
MRL: med to dk gy, sbbkly to sbbply, mod frm,
rthy, stn, gt, calc

CHK: It to med gy, occ gy brn, mod sft to sl frm,
sbbply to sbbkly, rthy, sl mot, v calc
MRL: med to dk gy, sbbkly to sbbply, mod frm,
rthy, stn, gt, calc

Bit Data
Bit #: 3
Depth In: 9,667'
Depth Out: 6,272'
Hours: 30 hrs
Avg Ft/Hr: 113.2 1/hr

