



Scale: 5" / 100'
Measured Depth Log

Well Name Jelts 37N-19HZ

Location Sec 19 T1N R67W

State Colorado

Country United States of America

API Number 05-123-36564

Region DJ Basin

Spud Date 7/7/2013

Surface Coordinates 275' FNL 1798' FEL

Bottom Hole Coordinates 460' FSL 1560' FEL

Ground Elevation 5147'

Logged Interval 7130' To 12122'

Formation Sussex, Sharon Springs, Niobrara A, Niobrara B

Type of Drilling Fluid FW LSND

County Weld

Rig Number Ensign 145

AFE # 2074191

Field Wattenberg

K.B. Elevation 5160'

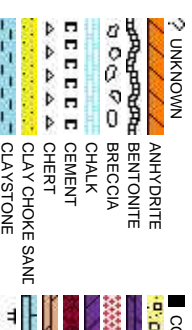
Total Depth 4992'

Company Anadarko

Address 1099 18th St.
Denver, CO. 80

Name Zack Heider

Company Anadarko Petro
Address 1099 18th St.
Denver, CO. 80



Operator

202

Geologist

leum Corporation

202

Rock Types

AL	CONGLOMERATE	METAMORPHIC
g	DOLomite	X X X X X NO SAMPLE
g	GRANITE	SALT
g	GYPSUM	SANDSTONE
g	IGNEOUS	SALT-PEPPER SANT
g	SIDERITE or LIMONITE	SHALE
g	LIMESTONE	SHALE COLORED
g	MARLSTONE	SHALE GRAY
g		SHALY SANDSTONE
g		SHALY SILTSTONE
g		SILTY SHALE
g		SILTSTONE
g		TILL
g		TUFF
g		WELDED TUFF

Accessories

Fossils	F FOSSIL	ARGILLACEOUS	GLAUCONITE	TUFFACEOUS
GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS		
OOLITE	B BENTONITE	HEAVY MINERAL		
OSTRACOD	BITUMENOUS SUBSTANCE	INOCERAMUS		ANHYDRITE STRINGER
BELEMITE	BRECCIA FRAGMENTS	KAOLIN		BENTONITE STRINGER
BIOCLASTIC	PELLET	CALCAREOUS		COAL STRINGER
BRACHIOPOD	PISOLITE	CARBONACEOUS FLAKES		DOLomite STRINGER
BRYOZOA	PLANT REMAINS	CHTDK		GYPSUM STRINGER
CEPHALOPOD	PLANT SPORES	CHTLT		LIMESTONE STRINGER
CORAL	SCAPHOPOD	COAL - THIN BEDS		MARLSTONE (CALC) STRG
CRINOID	STROMATOPOROID	DOLOMITIC		MARLSTONE (DOL) STRG
ECHINOID		FELDSPAR		SANDSTONE STRINGER
FISH		FERRUGINOUS PELLET		SHALE STRINGER
FORAMINIFERA	ANHYDRITIC	FERRUGINOUS		SILTSTONE STRINGER
		SILTY		

Stringer

Other Symbols

Oil Show	MOLDIC	FAULT	WIRELINE TESTED - LEFT	E EARTHY
ORGANIC	P PINPOINT	FORMATION TOP	WIRELINE TESTED - RT	FX FINELYXLN
DEAD		GAS SHOW		ES GRAINSTONE
EVEN	VUGGY	MINDEPTH MN DEPTH		L LITHOGRAPHIC
QUESTIONABLE				
SPOTTED STAINING				
Engineering				
BIT	NORMAL FAULT			MX MICROXLN
OIL SHOW				MS MUDSTONE
OVERTURNED STRATA	REVERSE FAULT			PS PACKSTONE
CONNECTION (LEFT)	SIDEWALL CORE (LEFT)			WS WACKSTONE
CONNECTION (RIGHT)				
CONNECTION GAS	SIDEWALL CORE (RIGHT)			
Textures				
BOUNDSTONE				
CHALKY				
CRYPTOXLN				
Sorting				
MODERATE				
POOR				
WELL				

Slide/Rotate

ROP
ROF

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

Depth Labels

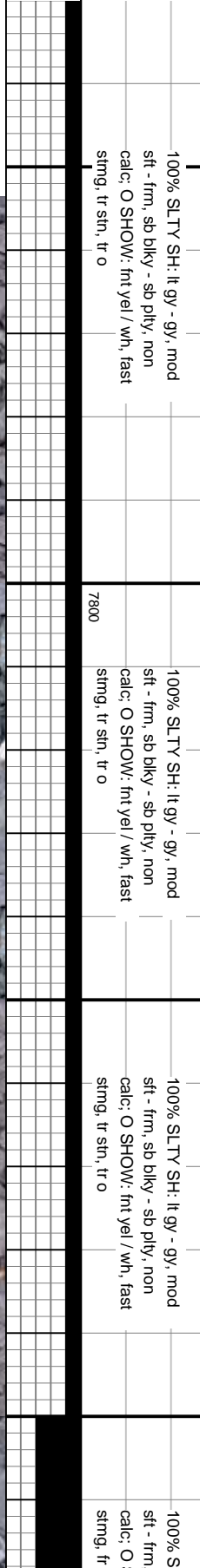
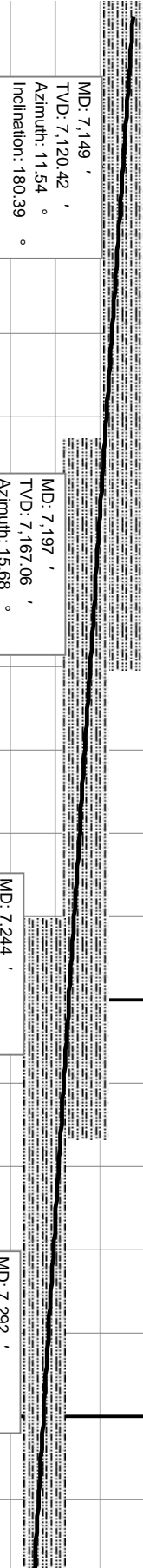
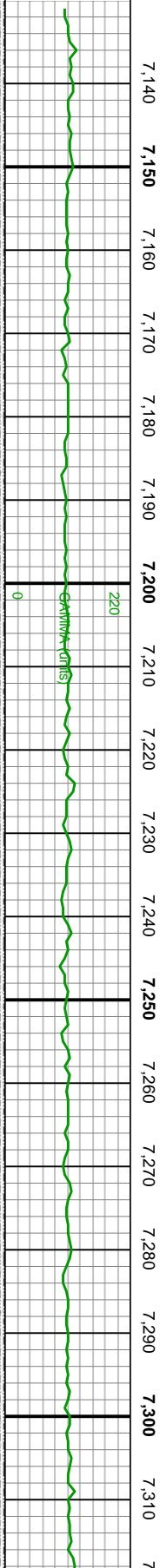
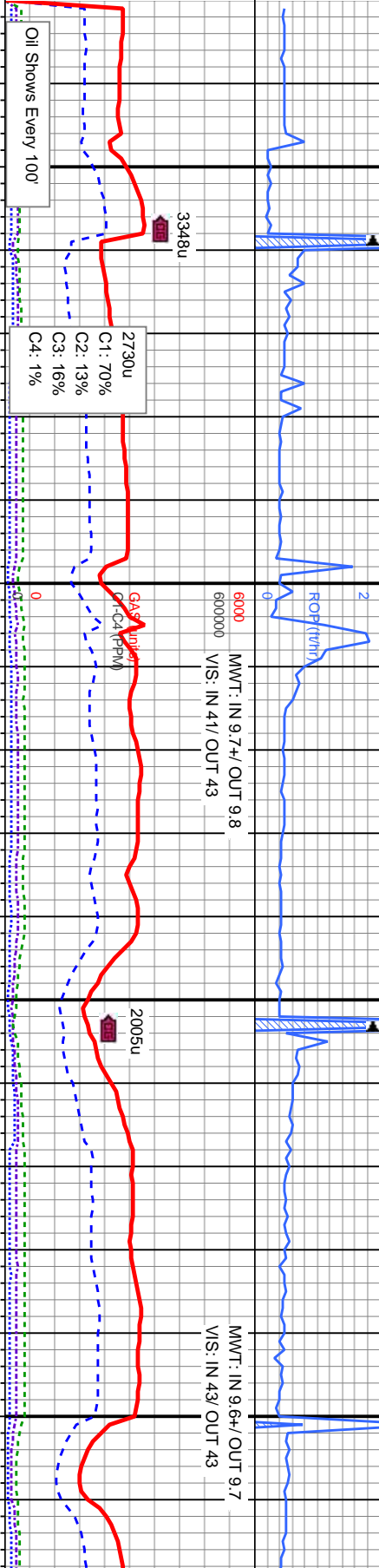
Gamma
GAMMA

% Lith

Well Bore
TVD

Oil Show

Images



MD: 7,149 '
TVD: 7,120.42 '
Azimuth: 11.54 °
Inclination: 180.39 °

MD: 7,197 '
TVD: 7,167.06 '
Azimuth: 15.68 °
Inclination: 176.78 °

MD: 7,244 '
TVD: 7,211.72 '
Azimuth: 20.52 °
Inclination: 175.34 °

MD: 7,292 '
TVD: 7,255.68 '
Azimuth: 26.7 °
Inclination: 177.02 °

COLUMBINE LOGGING 07/08/2013
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0598

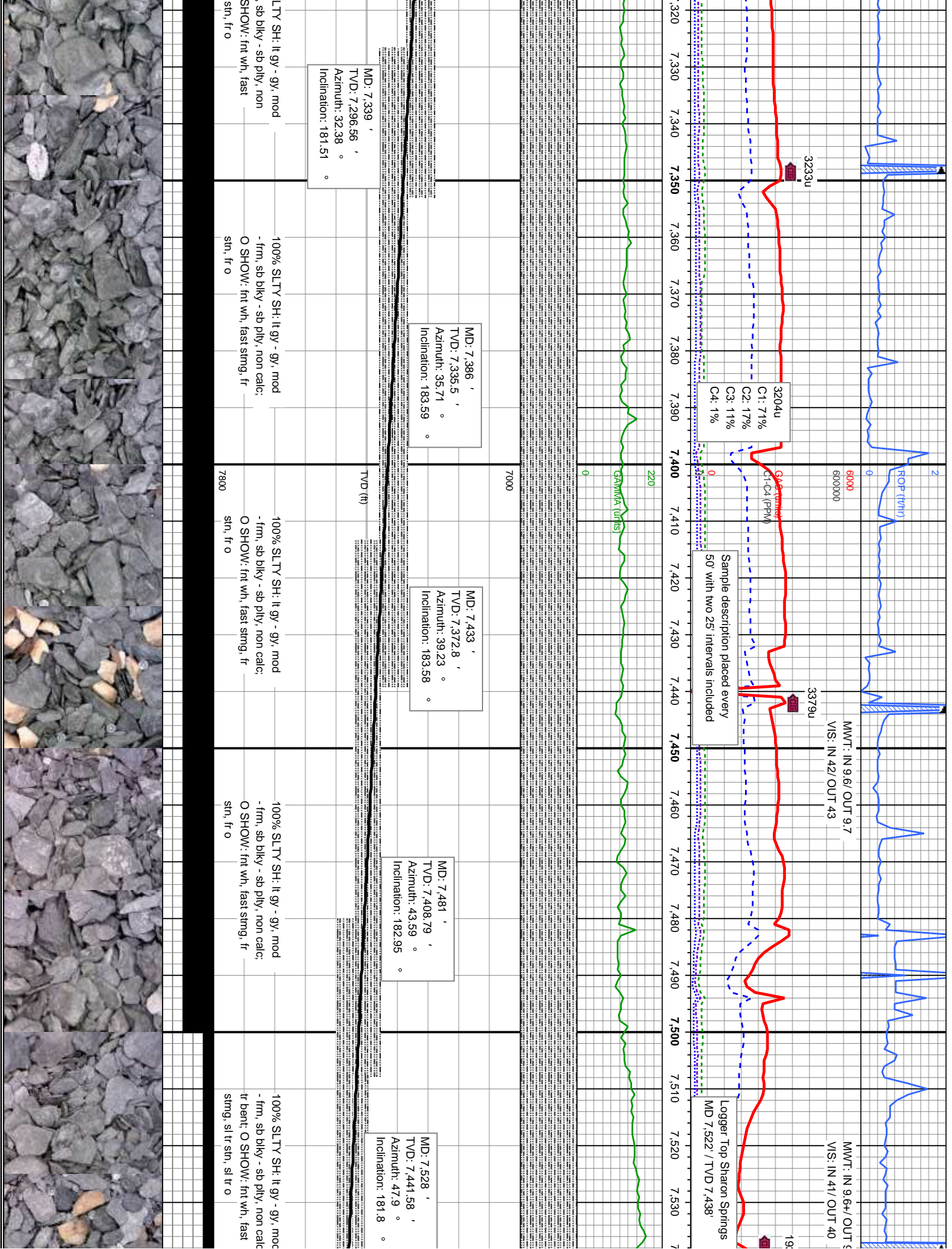
BIT 8.75
SMITH SD1611
6 X 15 JETS
DEPTH IN: 947'

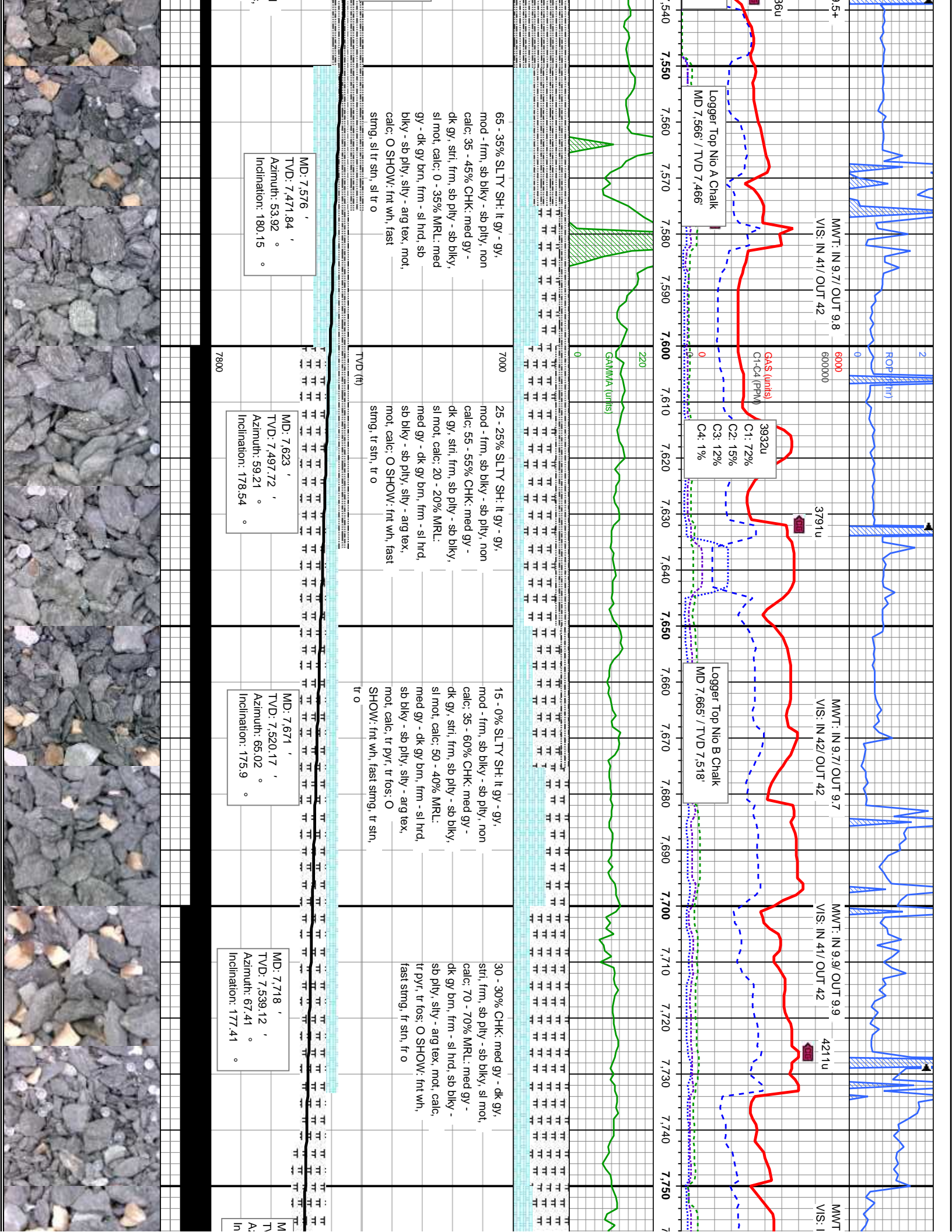
100% SLTY SH: lt gy - gy, mod
sft - frm, sb blkly - sb plty, non
calc: O SHOW: fnt yel / wh, fast
strng, tr sn, tr o

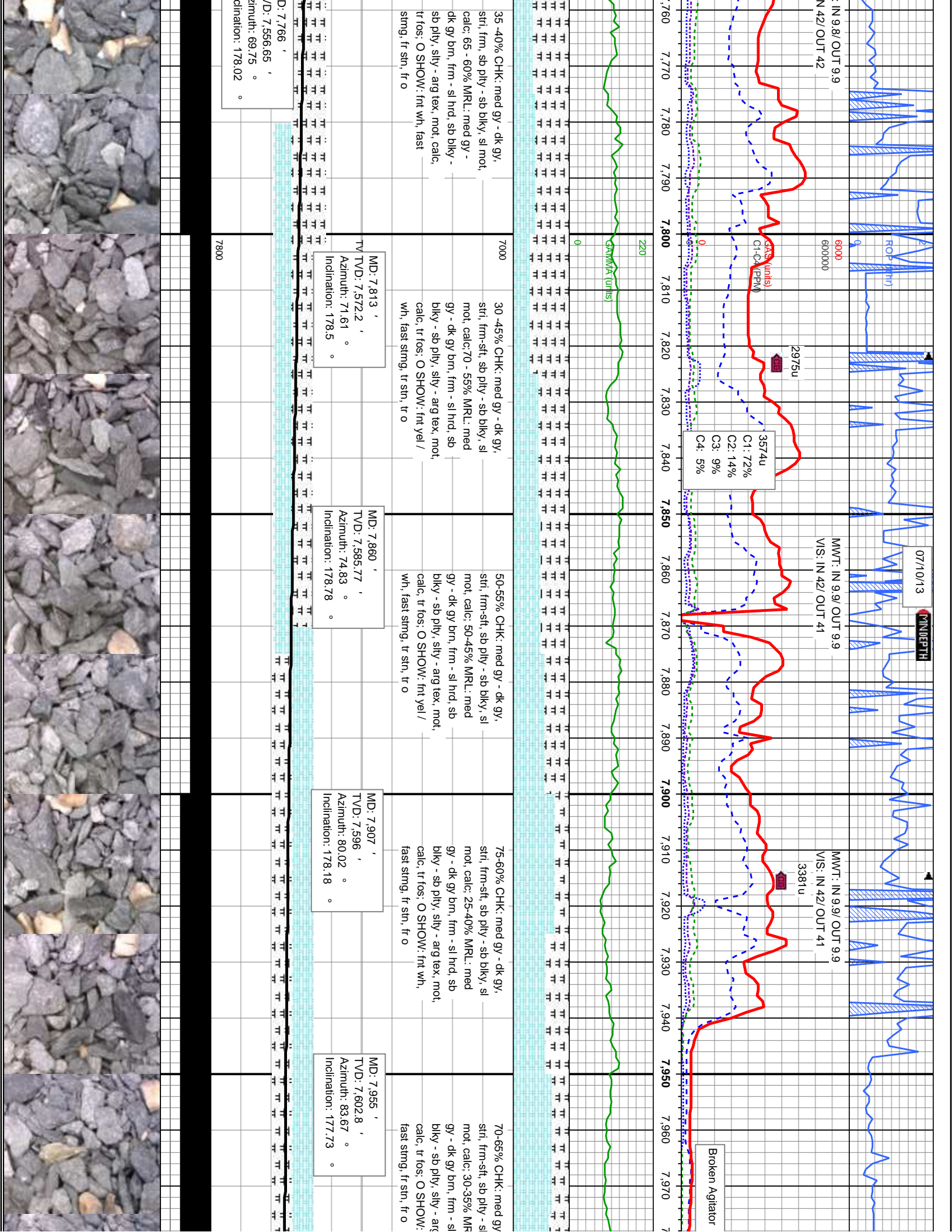
100% SLTY SH: lt gy - gy, mod
sft - frm, sb blkly - sb plty, non
calc: O SHOW: fnt yel / wh, fast
strng, tr sn, tr o

100% SLTY SH: lt gy - gy, mod
sft - frm, sb blkly - sb plty, non
calc: O SHOW: fnt yel / wh, fast
strng, tr sn, tr o

100% S
sft - frm
calc: O
strng, fr







SCALE
CHANGE

07/11/13
07/12/13

MINDEPTH

MWTT: IN 10.2/ OUT 10.2
VIS: IN 45/ OUT 44

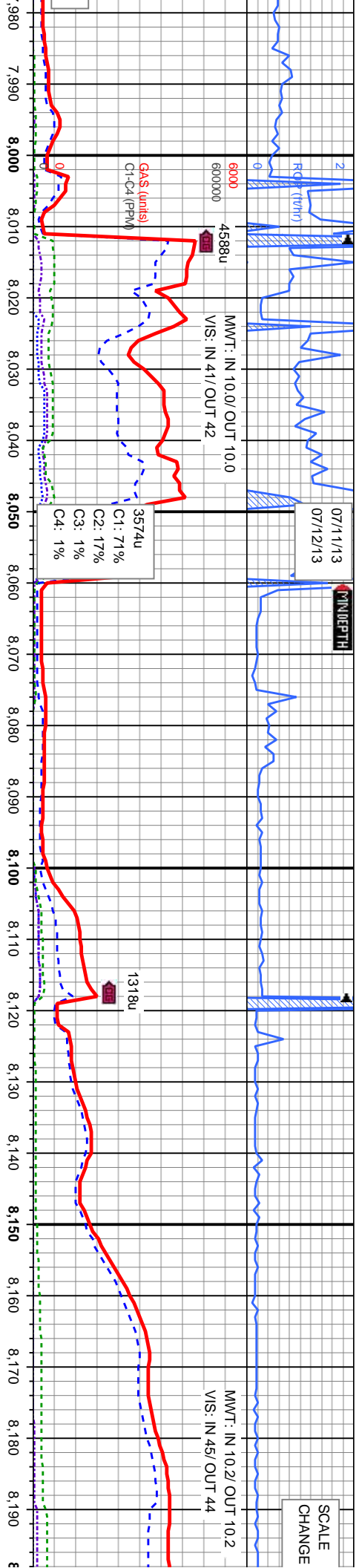
MWTT: IN 10.0/ OUT 10.0
VIS: IN 41/ OUT 42

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

3574u
C1: 71%
C2: 17%
C3: 1%
C4: 1%

1318u

4588u



GAMMA (units)

220

0

- dk gy, srti, frm-sft, sb ply - sb blk, sl mot, calc: 25-15% MRL: med gy - dk gy brn, frm - sl hrd, sb blk - sb ply, silty - arg tex, mot, calc, tr fos: O SHOW: fnt wh, fast string, fr o

75% CHK: med gy - dk gy, srti, frm-sft, sb ply - sb blk, sl mot, calc: 25% MRL: med gy - dk gy brn, frm - sl hrd, sb blk - sb ply, silty - arg tex, mot, calc, tr fos: O SHOW: fnt wh, fast string, fr o

60% CHK: med gy - dk gy, srti, frm-sft, sb ply - sb blk, sl mot, calc: 40% MRL: med gy - dk gy brn, frm - sl hrd, sb blk - sb ply, silty - arg tex, mot, calc, tr fos: O SHOW: fnt wh, fast string, fr o

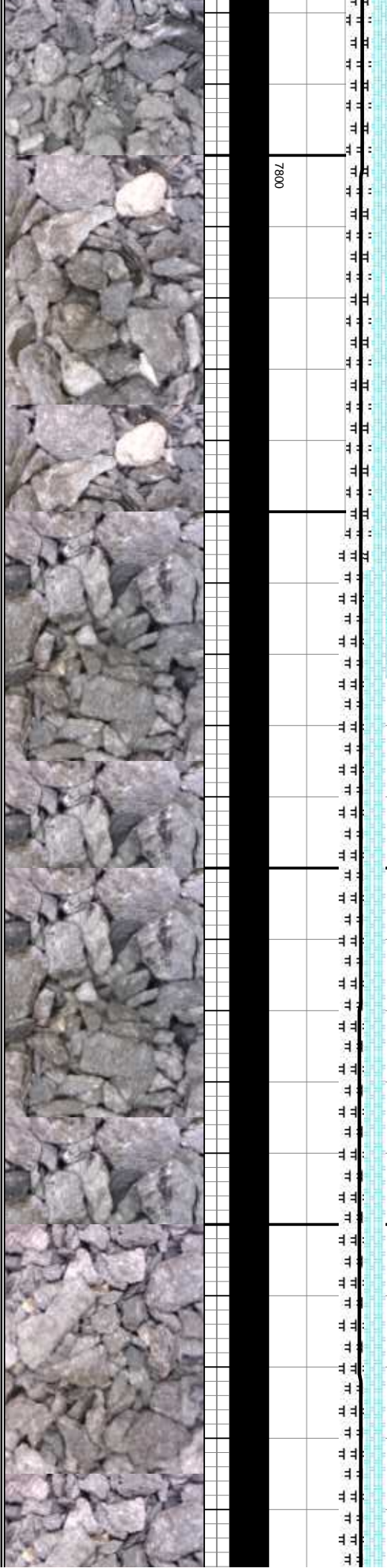
MD: 8,002 '
TVD: 7,607.38 '
Azimuth: 85.15 °
Inclination: 177.85 °

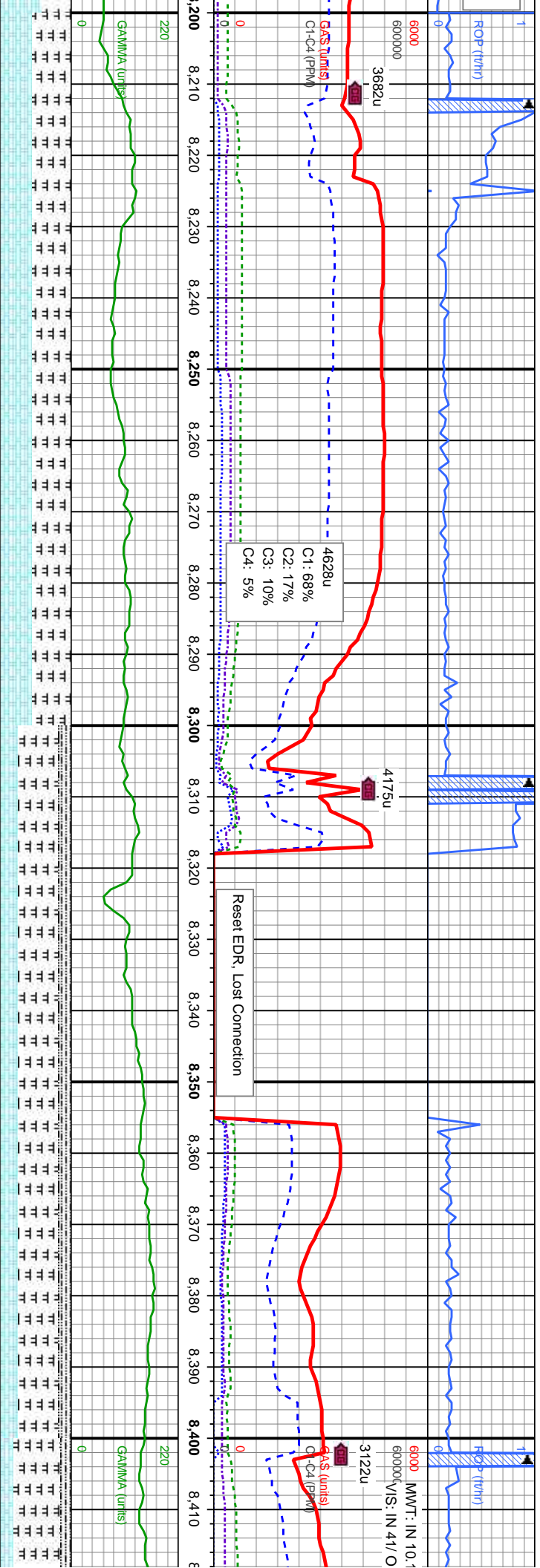
BIT 6.125
VAREL VM613S
5 X 18 JETS
DEPTH IN: 8,060"

MD: 8,062 '
TVD: 7,610.23 '
Azimuth: 89.41 °
Inclination: 178.49 °

MD: 8,156 '
TVD: 7,610.46 '
Azimuth: 90.31 °
Inclination: 179.07 °

7800



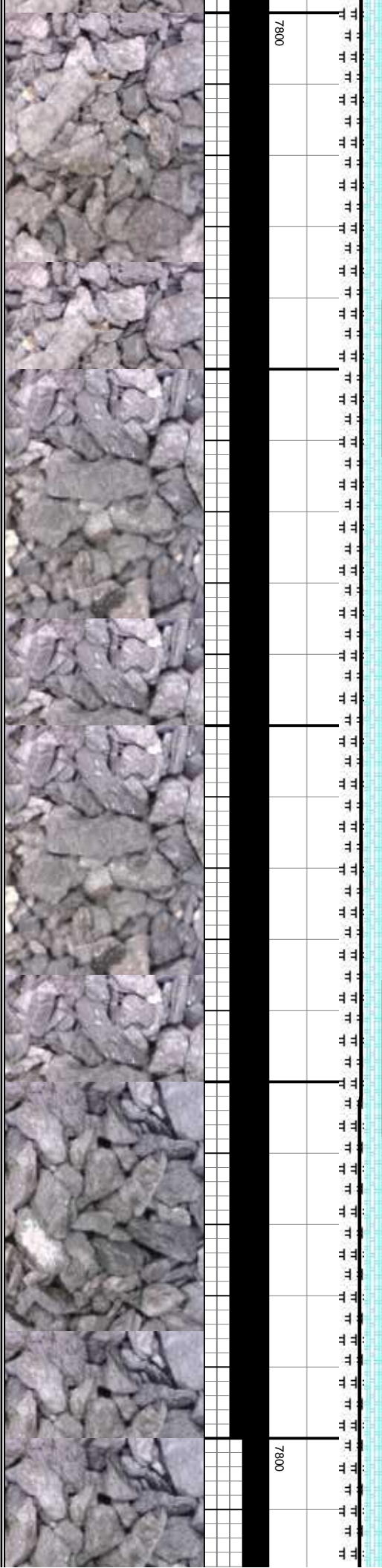


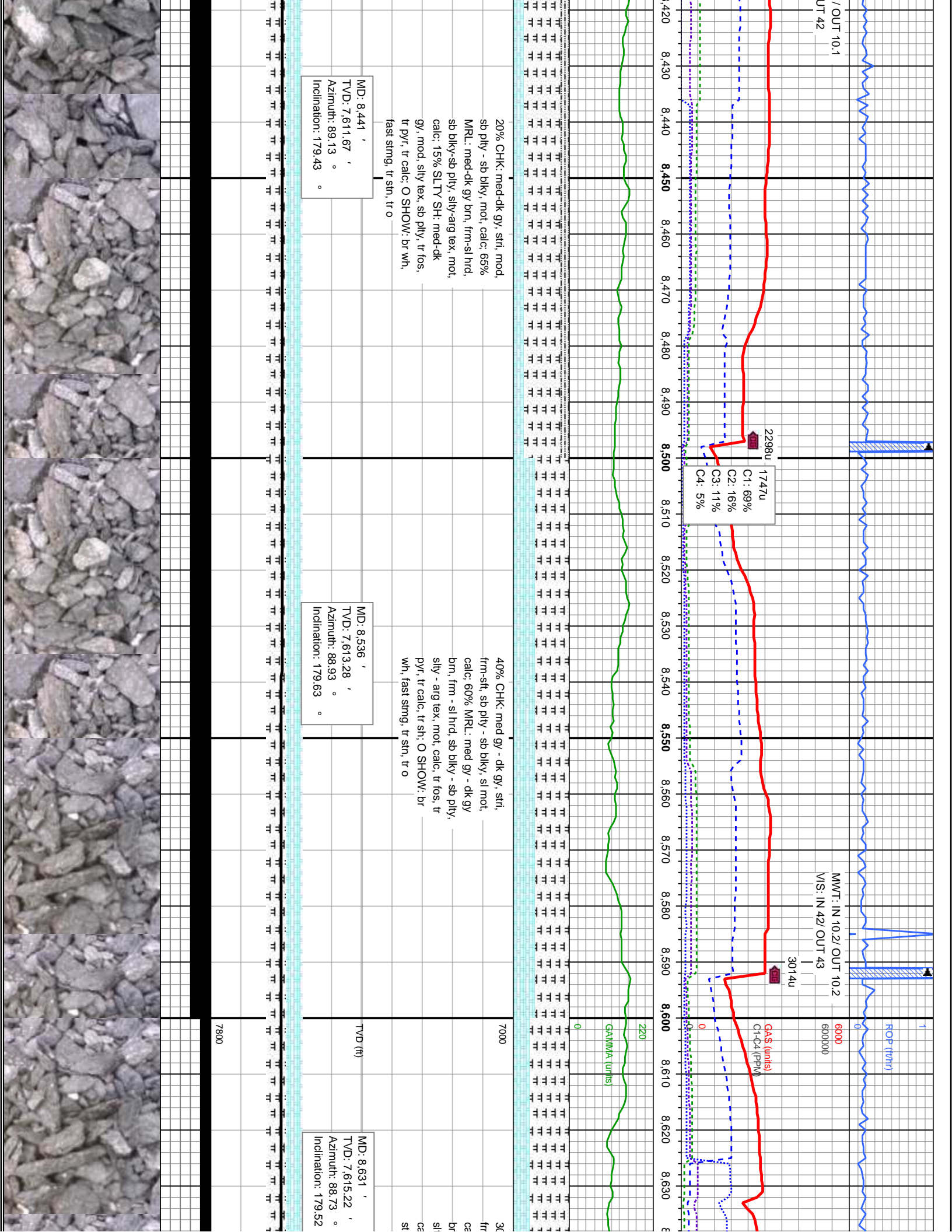
45% CHK: med gy - dk gy, stri,
frm-sft, sb ply - sb blk, sl mot,
calc; 55% MRL: med gy - dk gy
brn, frm - sl hrd, sb blk - sb ply,
sily - arg tex, mot, calc, tr fos; O
SHOW: br wh, fast string, fr str, fr
o

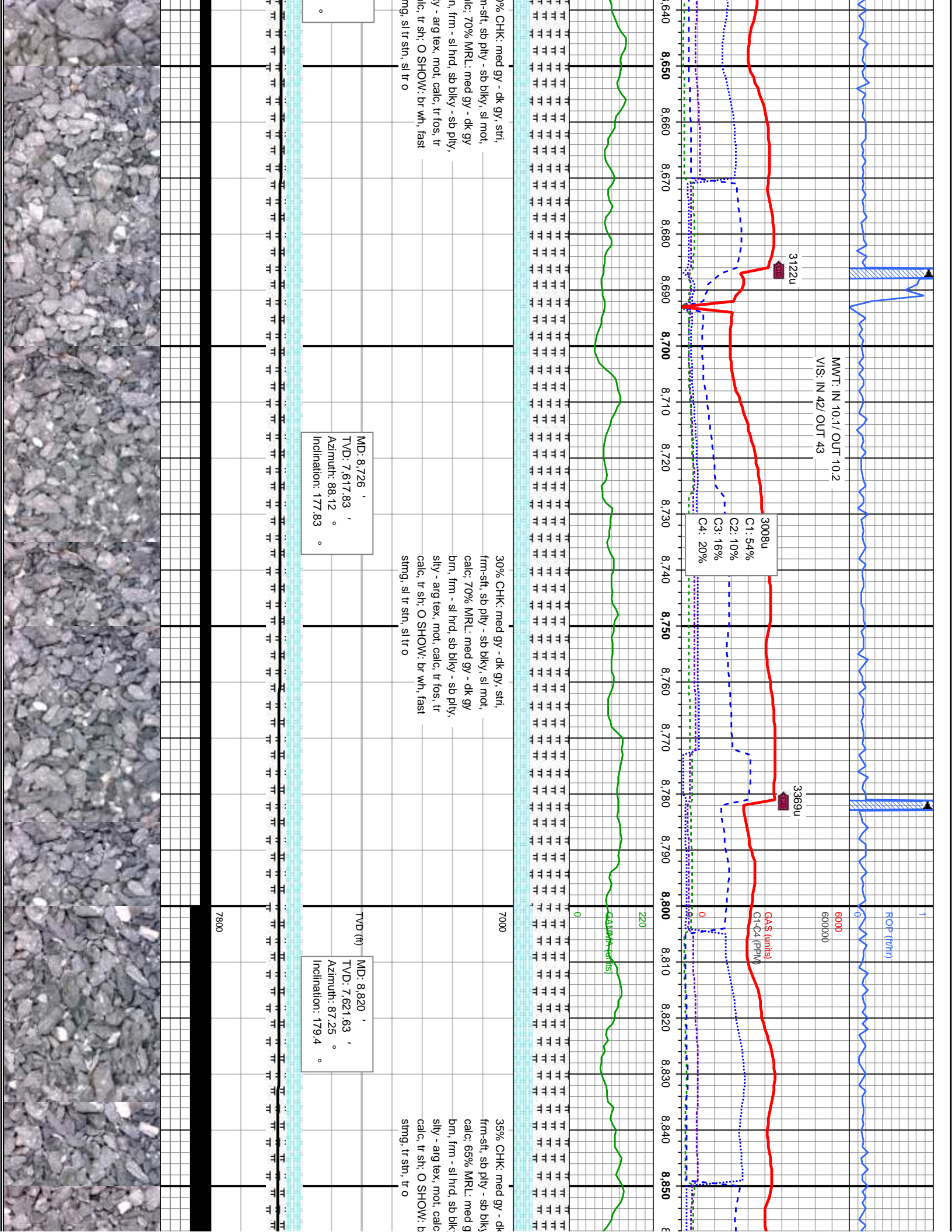
MD: 8,251 '
TVD: 7,609.9 '
Azimuth: 90.36 °
Inclination: 178.79 °

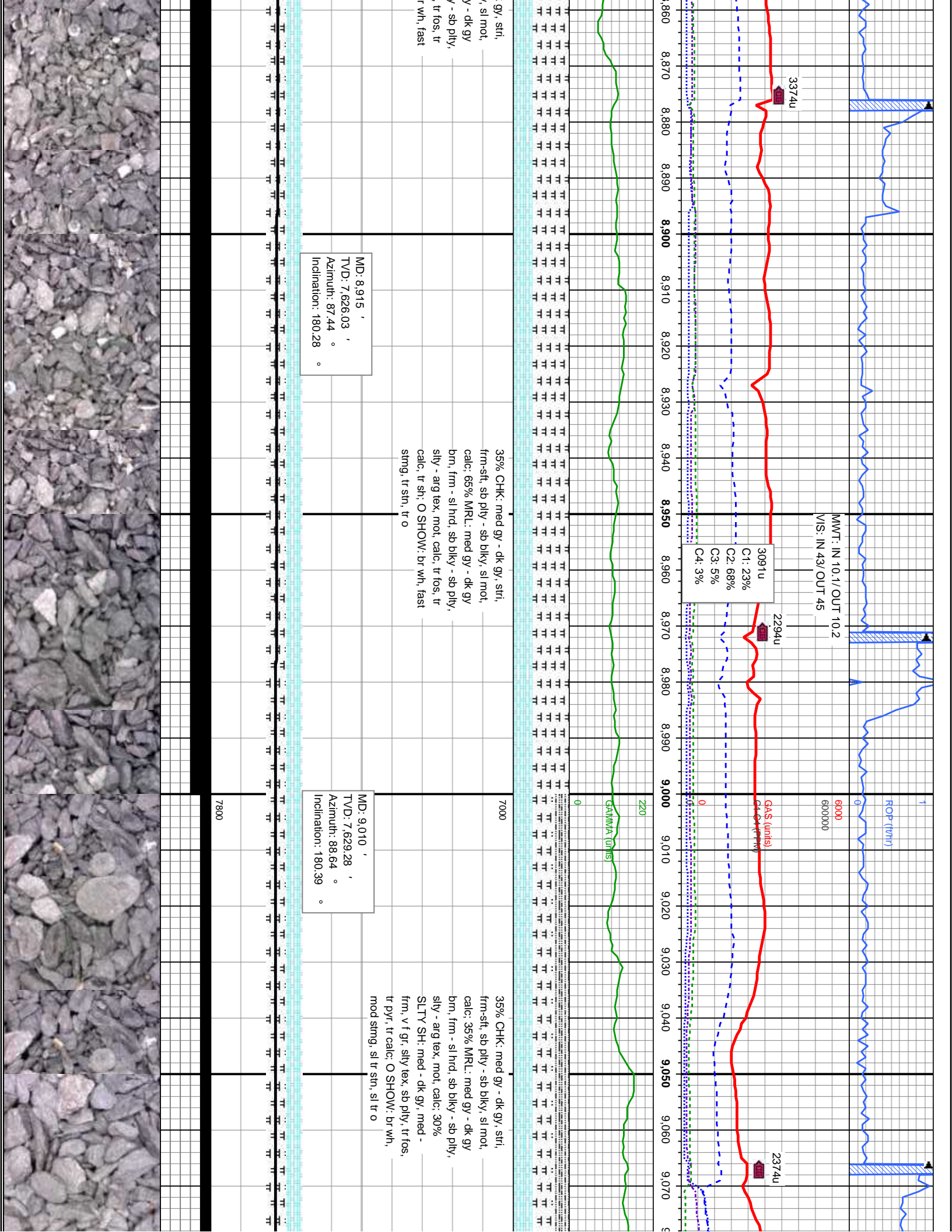
25% CHK: med - dk gy, stri,
mod, sb ply - sb blk, sl mot,
calc; 55% MRL: med - dk gy
brn, frm - sl hrd, sb blk - sb ply,
sily - arg, mot, calc; 20% SLTY
SH: med - dk gy, med - frm, sily
tex, sb ply, tr fos; O SHOW: br
wh, fast string, fr str, fr o

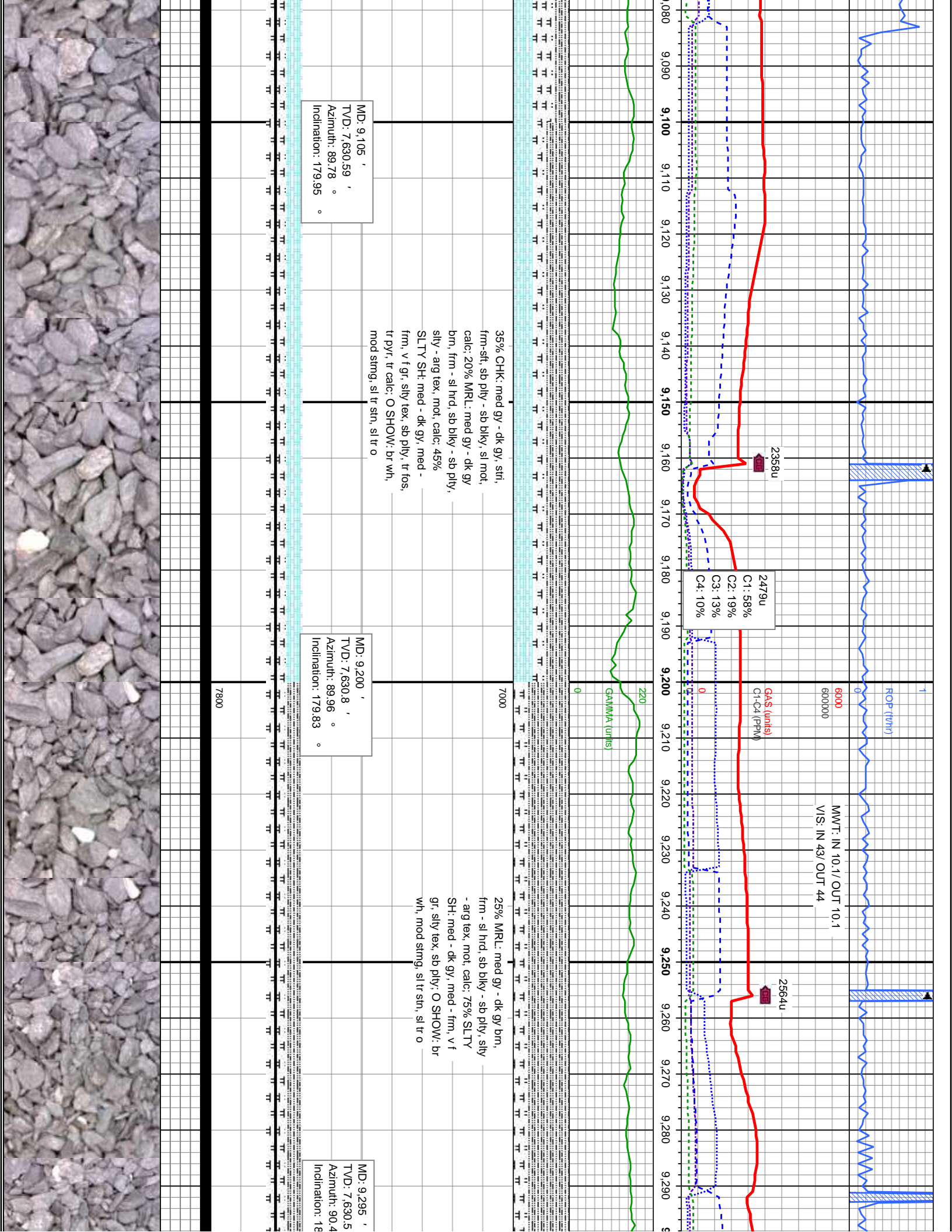
MD: 8,346 '
TVD: 7,610.28 '
Azimuth: 89.19 °
Inclination: 179.44 °

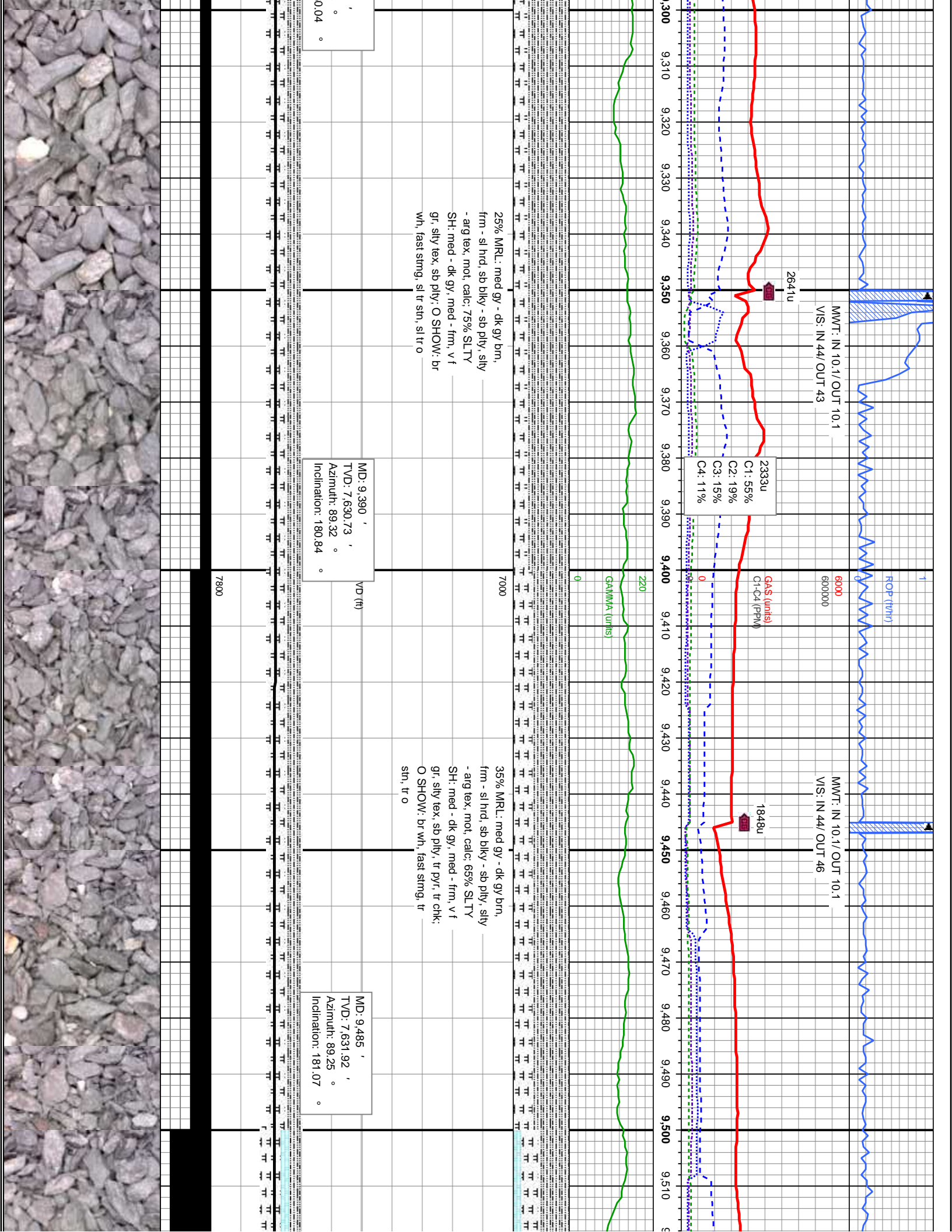


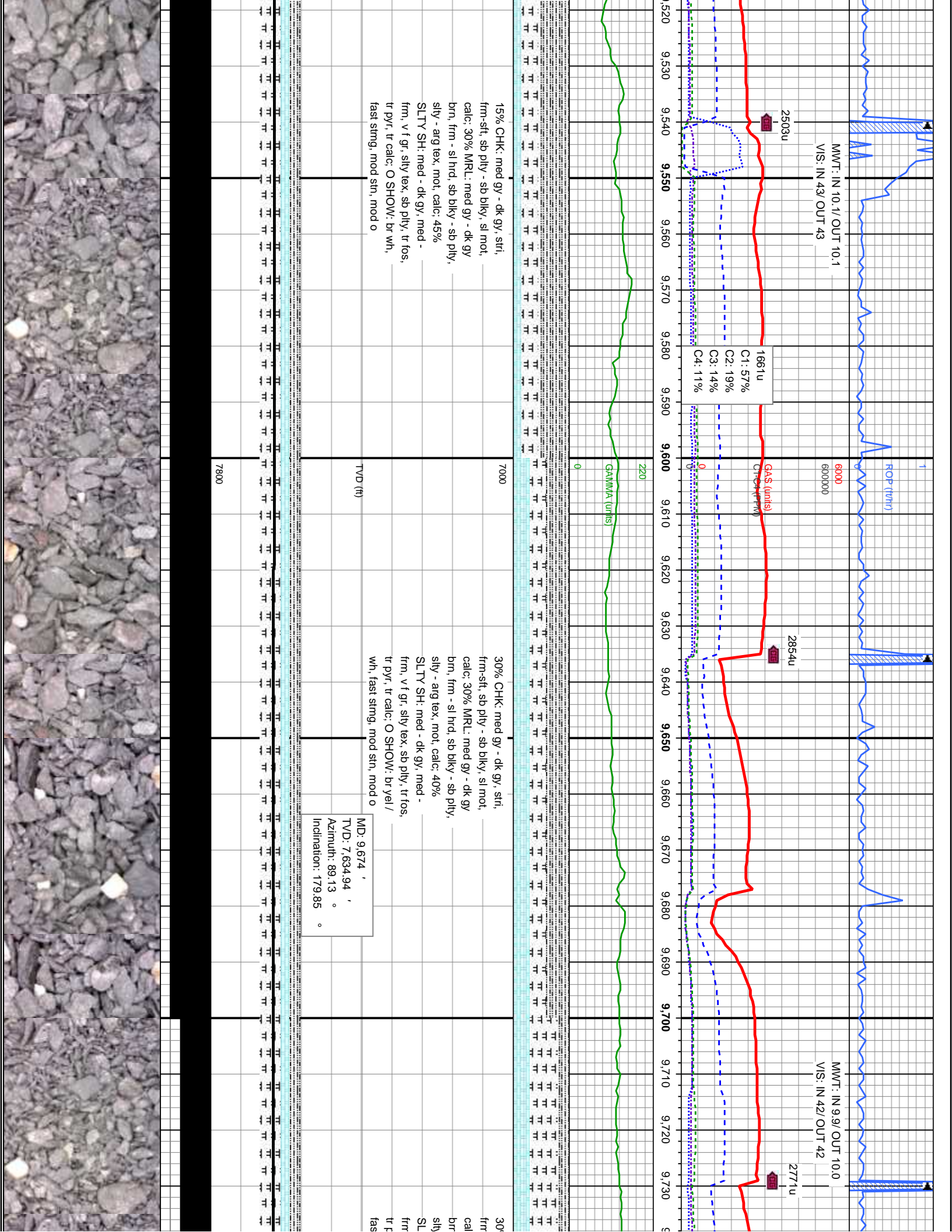


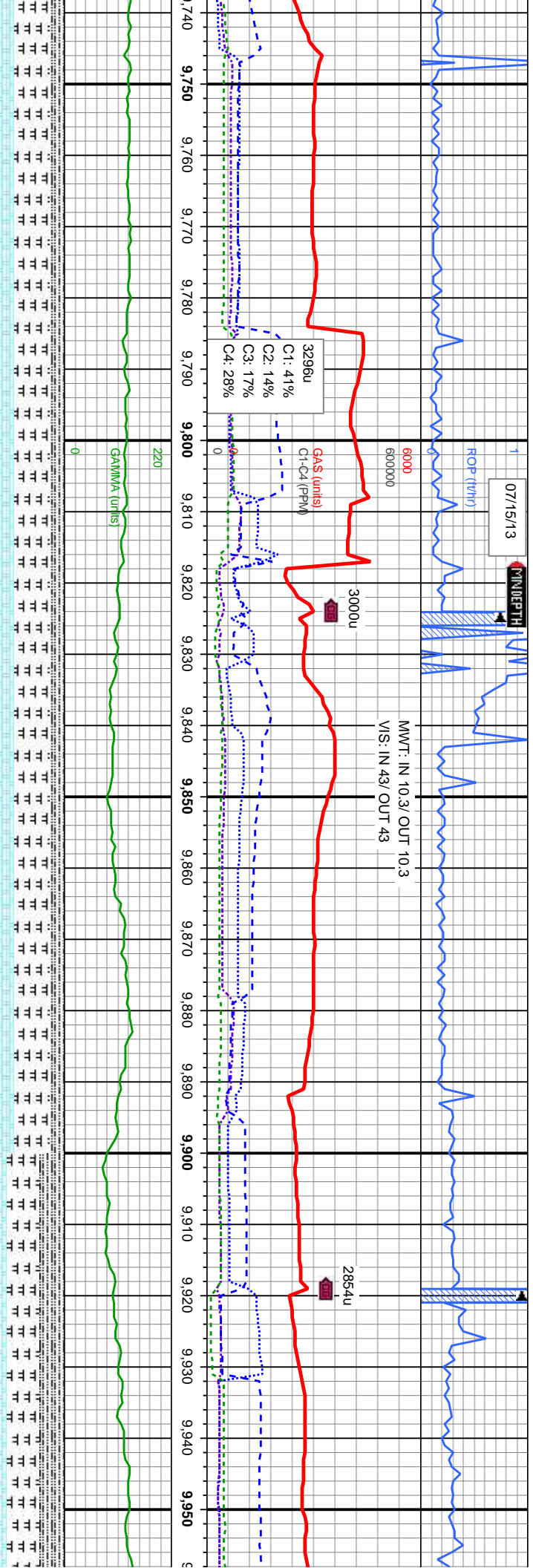












% CHK: med gy - dk gy, stri,
-sft, sb ply - sb blk, sl mot,
c: 50% MRL: med gy - dk gy
i, frm - sl hrd, sb blk - sb ply,
TY SH: med - dk gy, med -
i, v f gr, silty tex, sb ply, tr fos,
yr, tr calc: O SHOW: br wh,
t sting, fr sin, fr o

MD: 9,769 '
TVD: 7,636.07 '
Azimuth: 89.5 °
Inclination: 180.81 °

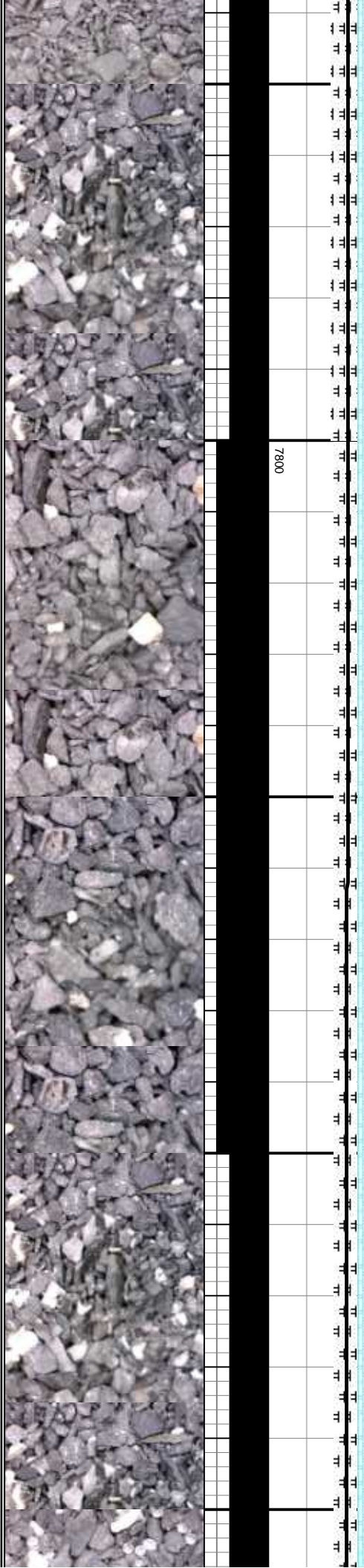
TVD (ft)

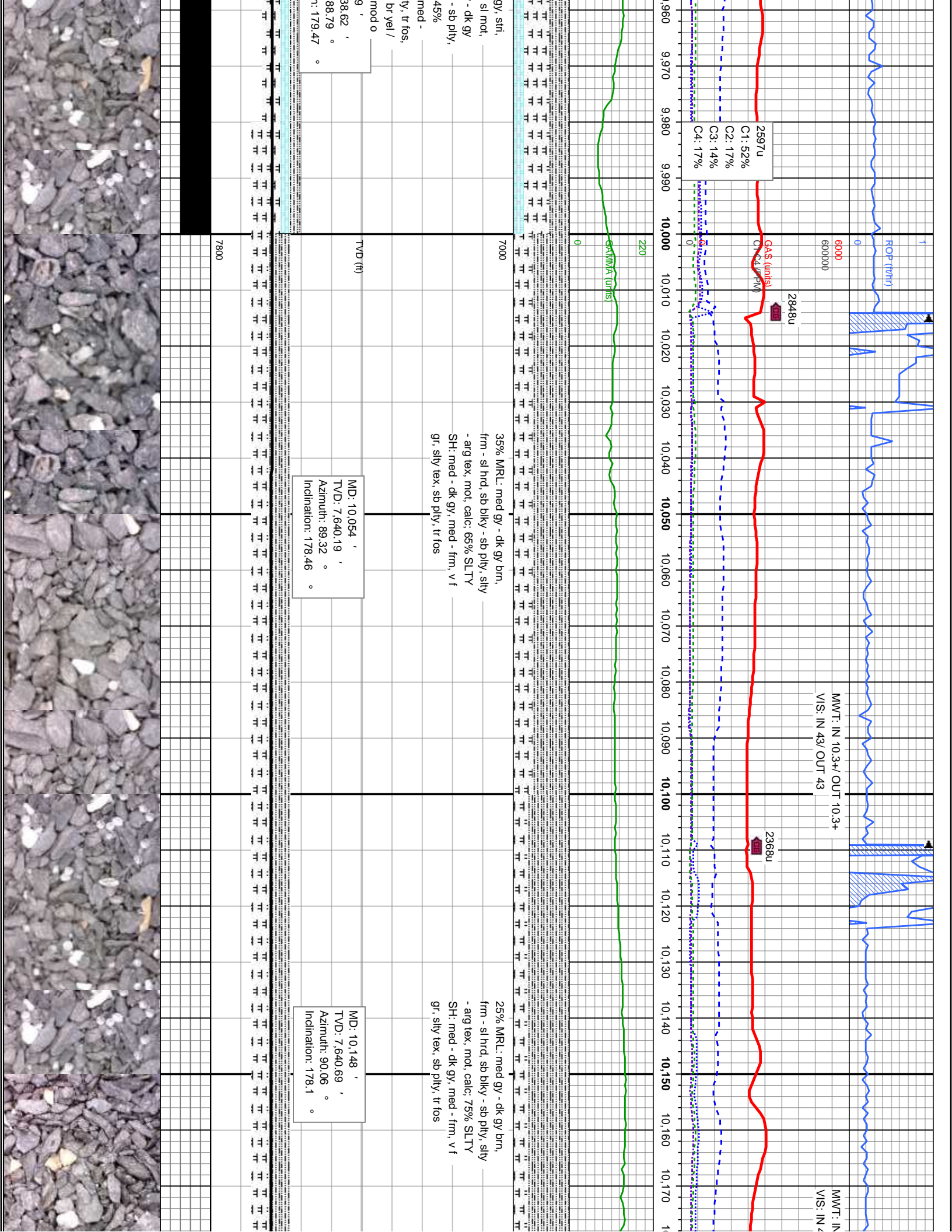
30% CHK: med gy - dk gy, stri,
frm-sft, sb ply - sb blk, sl mot,
calc: 50% MRL: med gy - dk gy
brn, frm - sl hrd, sb blk - sb ply,
sily - arg tex, mot, calc: 20%
SLTY SH: med - dk gy, med -
frm, v f gr, silty tex, sb ply, tr fos,
tr pyr, tr calc: O SHOW: br wh,
fast sting, fr sin, fr o

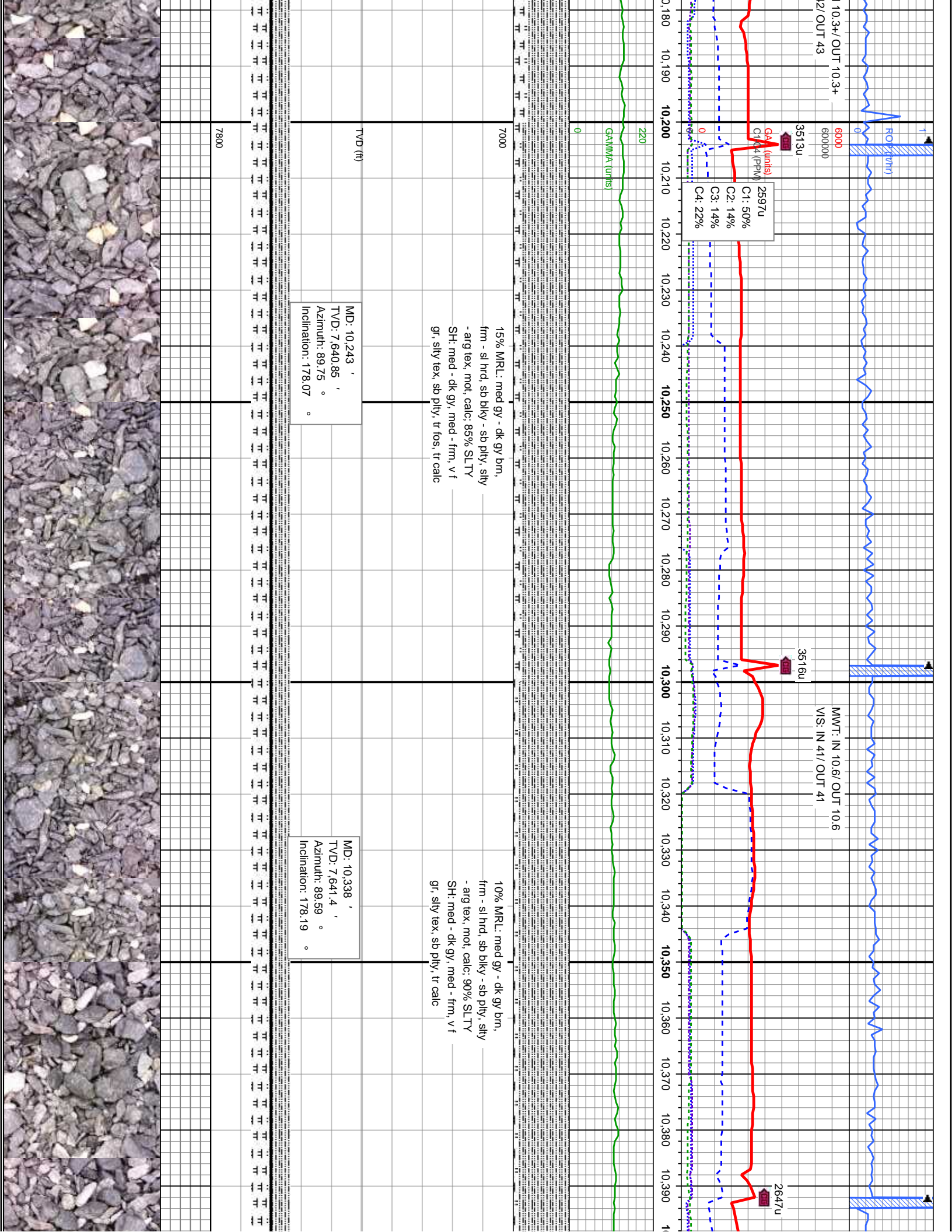
MD: 9,864 '
TVD: 7,637.05 '
Azimuth: 89.32 °
Inclination: 179.32 °

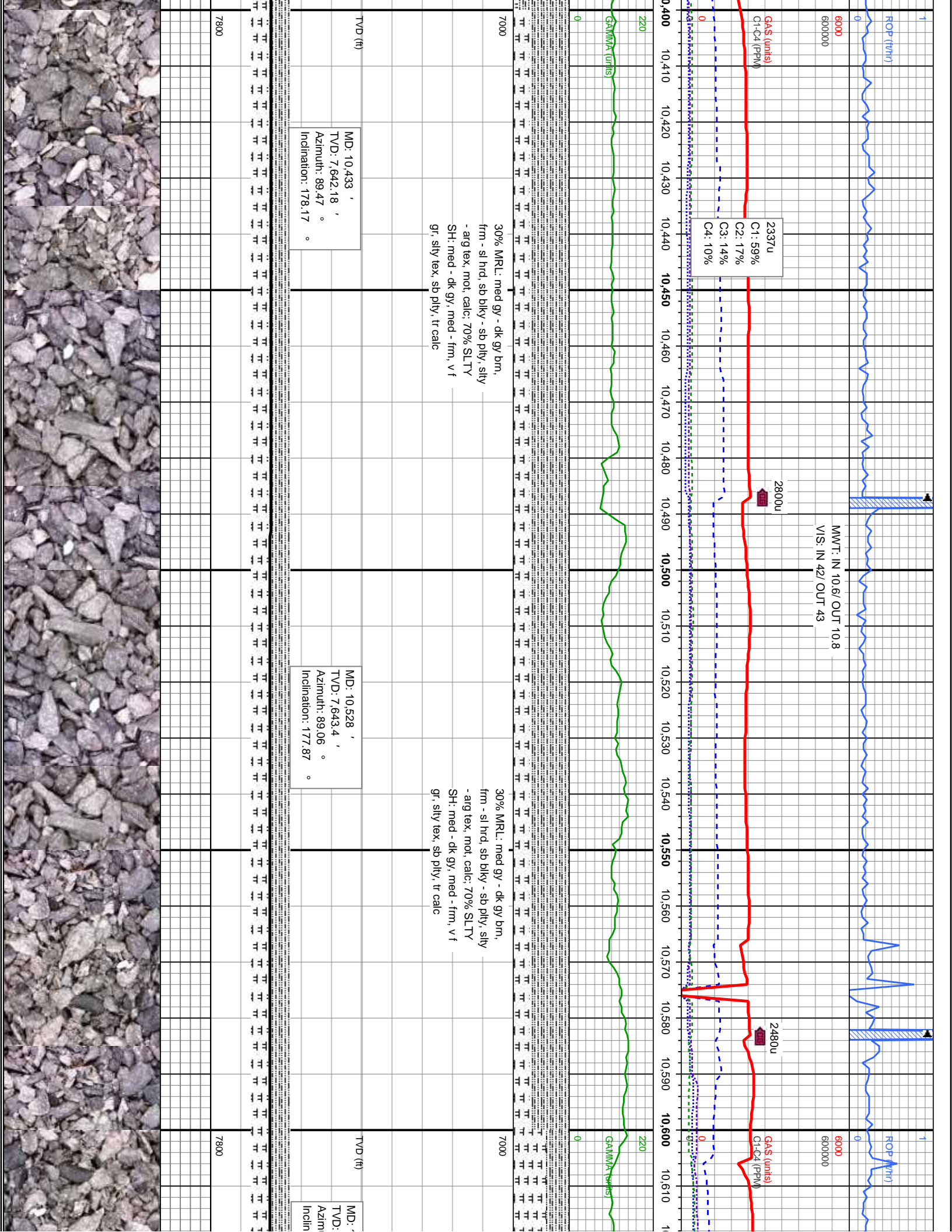
20% CHK: med gy - dk
frm-sft, sb ply - sb blk
calc: 35% MRL: med gy
brn, frm - sl hrd, sb blk
sily - arg tex, mot, calc:
SLTY SH: med - dk gy,
frm, v f gr, silty tex, sb p
tr pyr, tr calc: O SHOW:
wh, fast sting, mod sin,

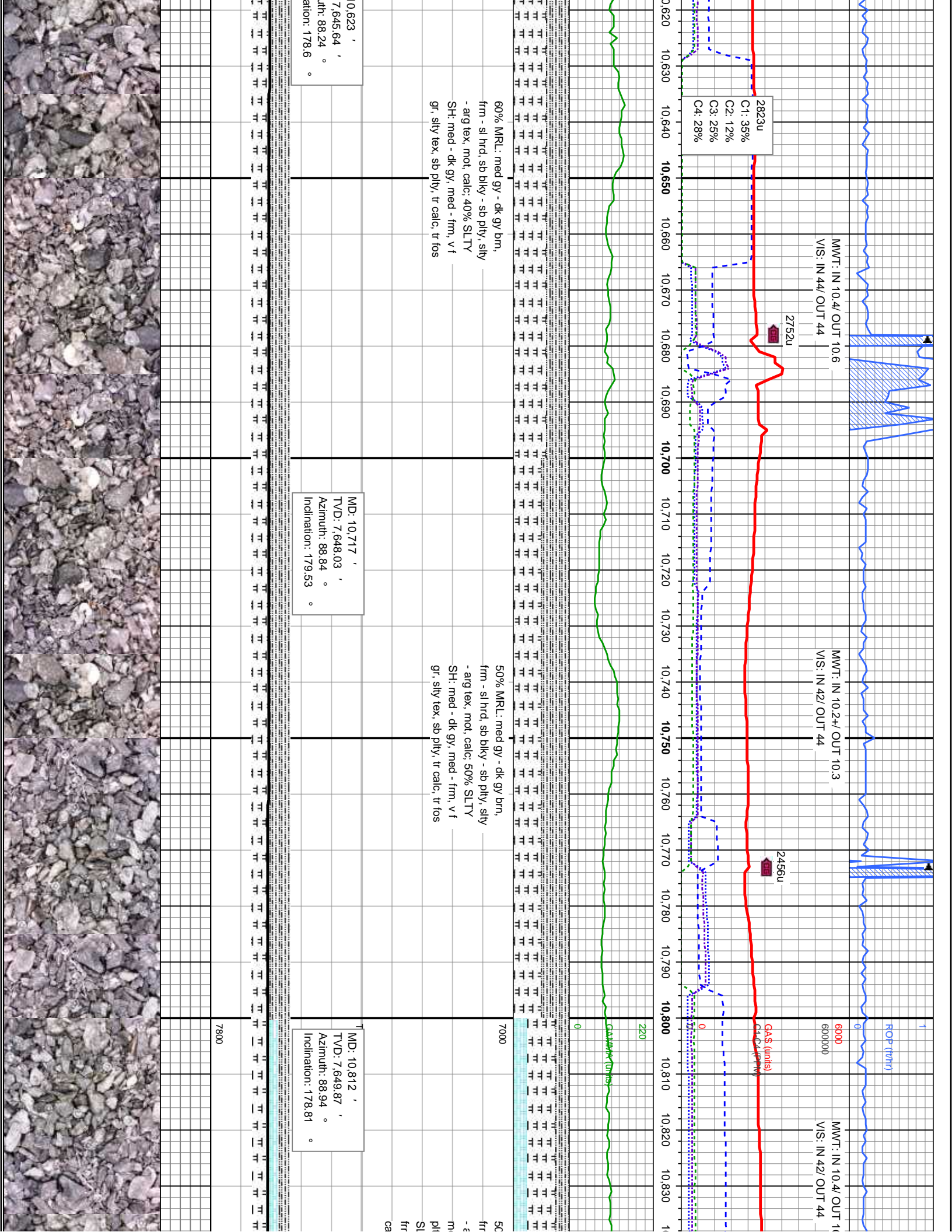
MD: 9,950 '
TVD: 7,637.05 '
Azimuth: 89.32 °
Inclination: 179.32 °

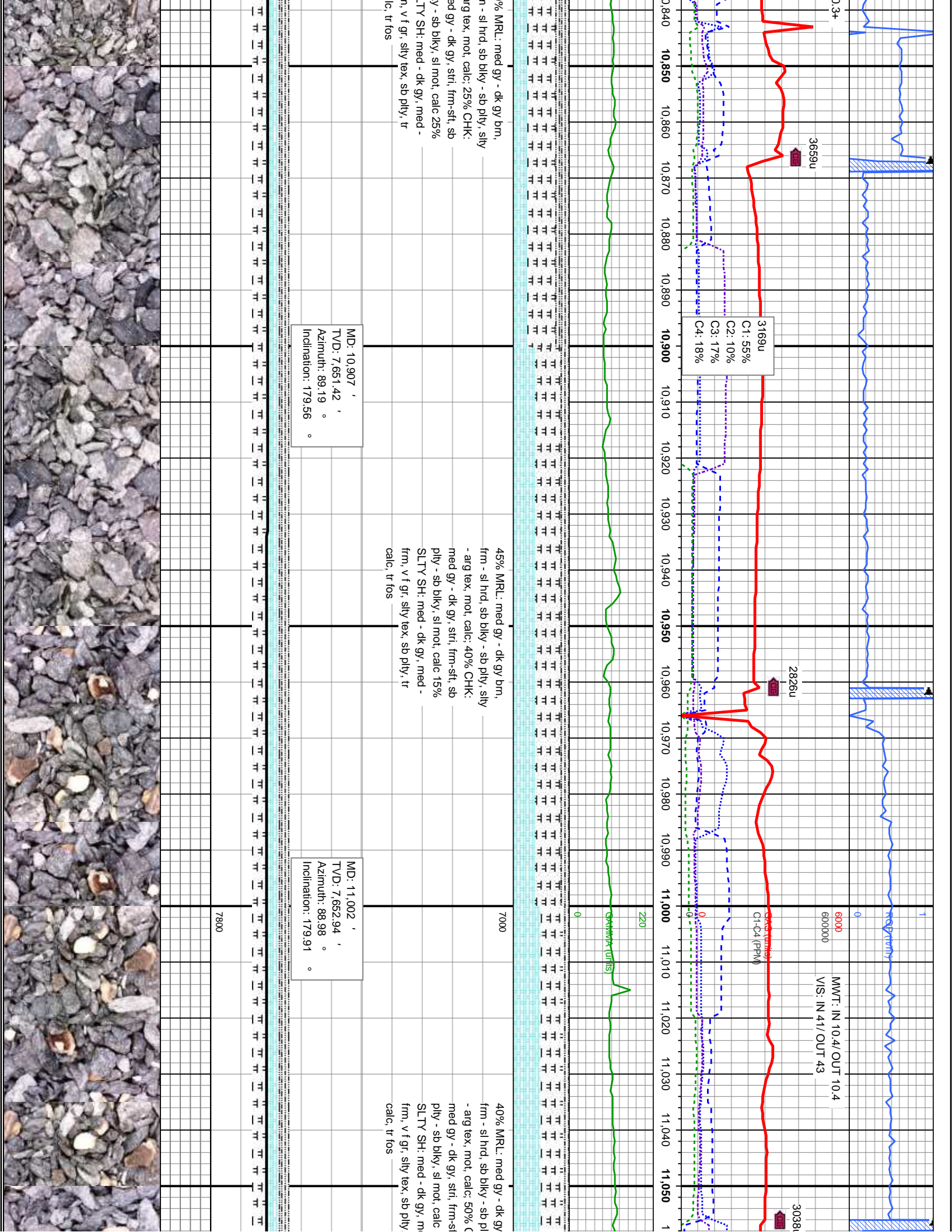


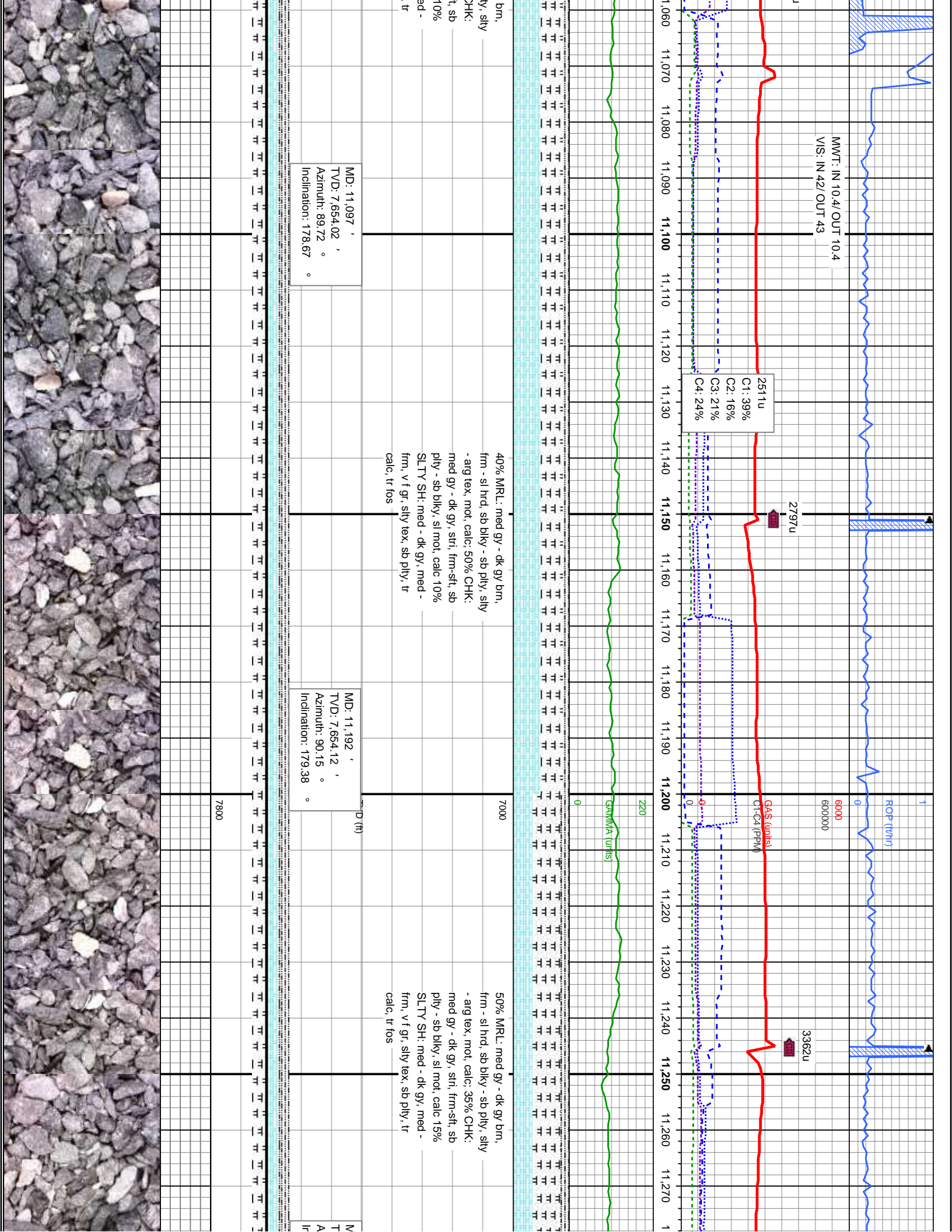


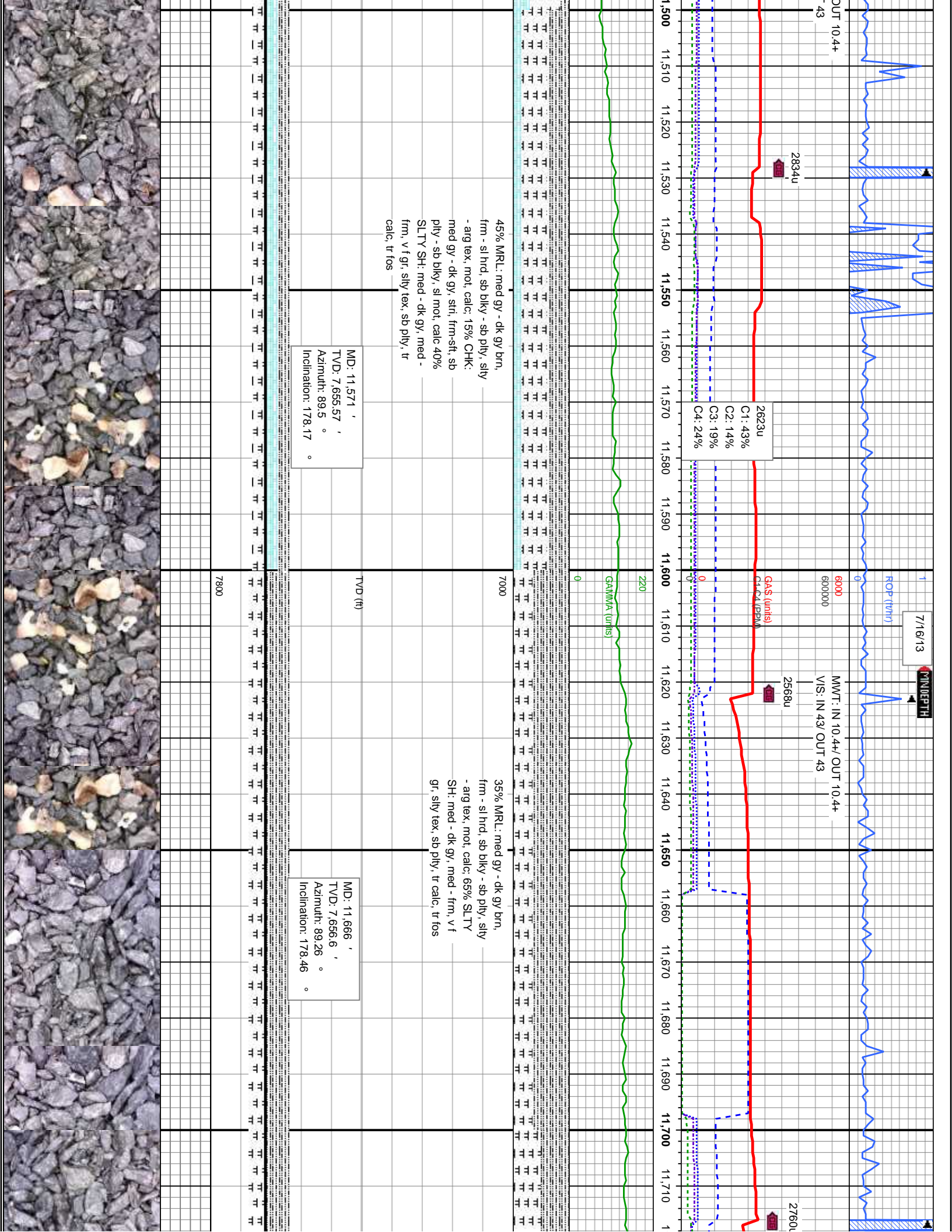


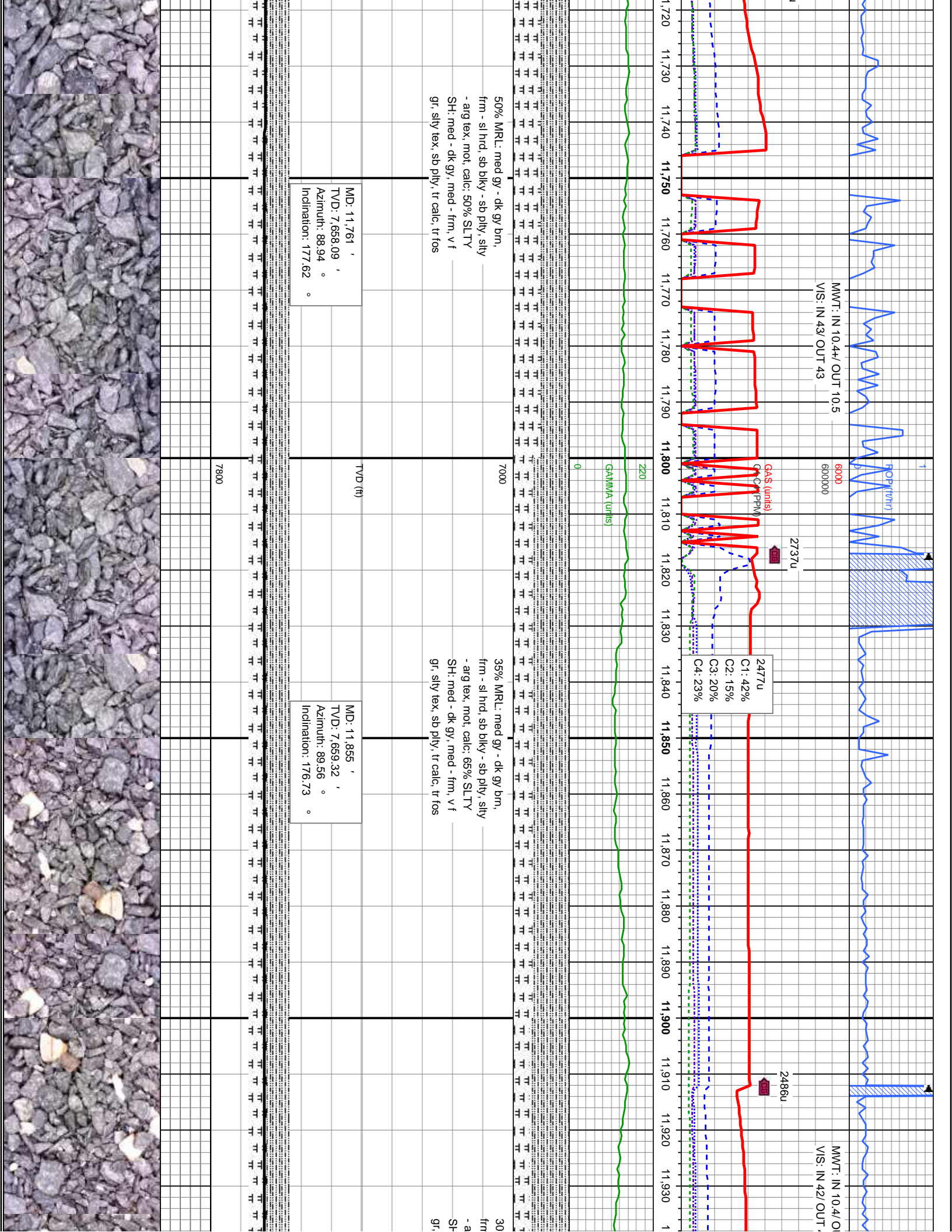


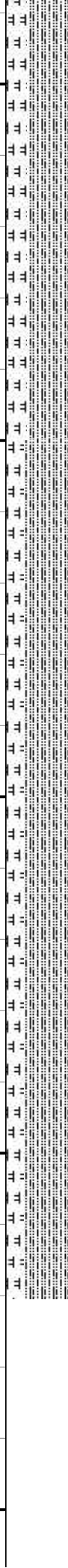
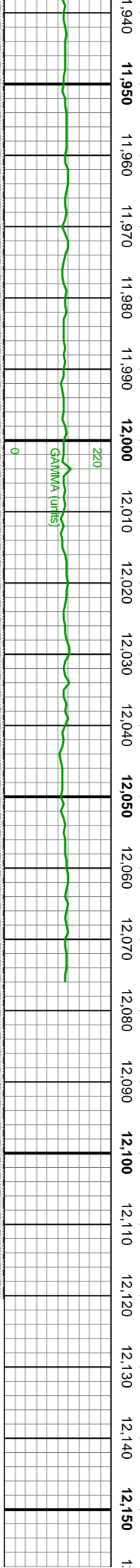
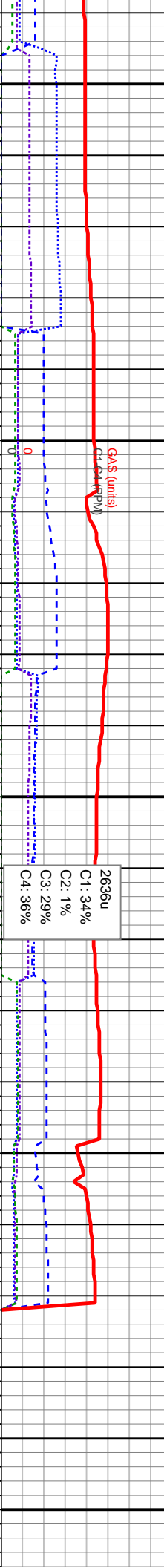
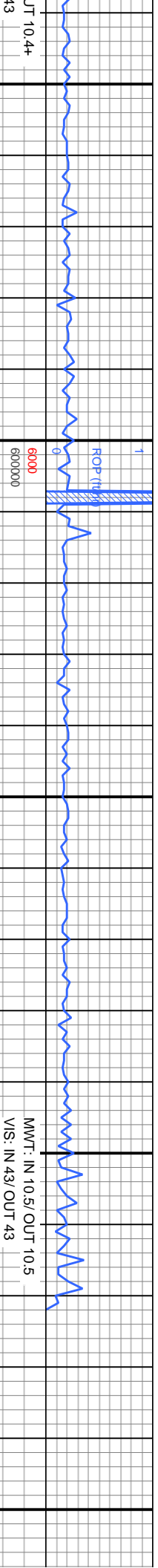












% MRL: med gy - dk gy brn,
- sl hrd, sb biky - sb ply, sily
- alg tex, mot, calc; 70% SLTY
i: med - dk gy, med - frm, v f
sily tex, sb ply, tr calc, tr fos

25% MRL: med gy - dk gy brn,
frm - sl hrd, sb biky - sb ply, sily
- alg tex, mot, calc; 75% SLTY
SH: med - dk gy, med - frm, v f
gr, sily tex, sb ply, tr calc, tr fos

Thank You For Using
Columbine Logging, Inc.

TD @ MD 12,122'
on 07/16/2013 @ 4:32 MST

MD: 11,950 '
TVD: 7,660.13 '
Azimuth: 89.47 °
Inclination: 175.97 °

MD: 12,045 '
TVD: 7,661.34 '
Azimuth: 89.07 °
Inclination: 175.62 °

MD: 12,068 '
TVD: 7,661.73 '
Azimuth: 88.95 °
Inclination: 175.67 °

MD: 12,122 '
TVD: 7,662.72 '
Azimuth: 88.95 °
Inclination: 175.67 °

TVD (ft)

7800



