



Scale: 5" / 100'
Measured Depth Log

Well Name Eagle E14-65-1HN

Location NWSW SEC14, T6N, R65W

State COLORADO

County WELD

Country USA

Rig Number H&P 330

API Number 05-123-38096

Field WATTENBERG

Region DJ BASIN

Drilling Completed 6/12/2014

Spud Date 6/5/2014

Surface Coordinates 2350' FSL, 364' FWL

Bottom Hole Coordinates 1.43' FNL, 5648.23' FEL

Ground Elevation 4718'

K.B. Elevation 4748'

Logged Interval 6192' To 12381'

Total Depth 12381'

Formation NIOBRARA C CHALK

Type of Drilling Fluid LSND

Operator

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

Geologist

Name RENEE CLACKLER

Company NOBLE ENERGY INC.

Address 1625 Broadway Suite 2200
Denver, CO 80202

Other

WELLSITE GEOLOGIST ANDREA ZUIDEMA
JESSICA SIEBERG

Zone Color Coding

Oil
Note
Error

Condensate
Core
Water

Gas
Pres
Sea

Rock Types

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

Accessories

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

Oil Show

MOLDIC
ORGANIC
DEAD
P PINPOINT
EVEN
VUGGY


Engineering

QUESTIONABLE
SPOTTED STAINING


Porosity

CONNECTION (LEFT)	CONNECTION (RIGHT)
E EARTHY	CONNECTION GAS
F FENESTRAL	CORE - LOST
F FRACTURE	INTERCRYSTALLINE
INTERROOTITIC	CORE - RECOVERED
	DST INTERVAL

Other Symbols

 FAULT  WIRELINE TESTED - LEFT **E** EARTHY

 FORMATION TOP  WIRELINE TESTED - RT **FX** FINELYXLN

 GAS SHOW **GS** GRAINSTONE

Rounding

 **MINDEPTH** MN DEPTH **L** LITHOGRAPHIC

 NORMAL FAULT **A** ANGULAR **MX** MICROXLN

 OIL SHOW **R** ROUNDED **MS** MUDSTONE

 OVERTURNED STRATA **B** SUBANG **PS** PACKSTONE

 REVERSE FAULT **F** SUBRND **WS** WACKESTONE

 SIDEWALL CORE (LEFT)

Textures

 SIDEWALL CORE (RIGHT)

Sorting

 SLIDE **BS** BOUNDSTONE **M** MODERATE

 **DS** SURVEY **C** CHALKY **P** POOR

 TRIP GAS **CX** CRYPTOXLN **W** WELL

Slide/Rotate

ROP

ROP

Total Gas & Chromatograph

- GAS —
C1 —
C2 —
C3 —
C4 —
- COLUMBINE LOGGING INC.
RIGGED UP ON 06/06/2014
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0595
COLUMBINE BEGAN LOGGING
ON 06/07/2014

Bit Data
Bit #: 2
Type: PDC SD1611
Size: 8.75"
Depth In: 6.192 '
Depth Out: 7.333 '
Jets: 2X14 : 4X15
S/N: JH9143

50' Sample Interval
BEGAN DRILLING CURVE
@ 11:54 AM 06/08/2014

Depth Labels

% Lith

Gamma

GAMMA

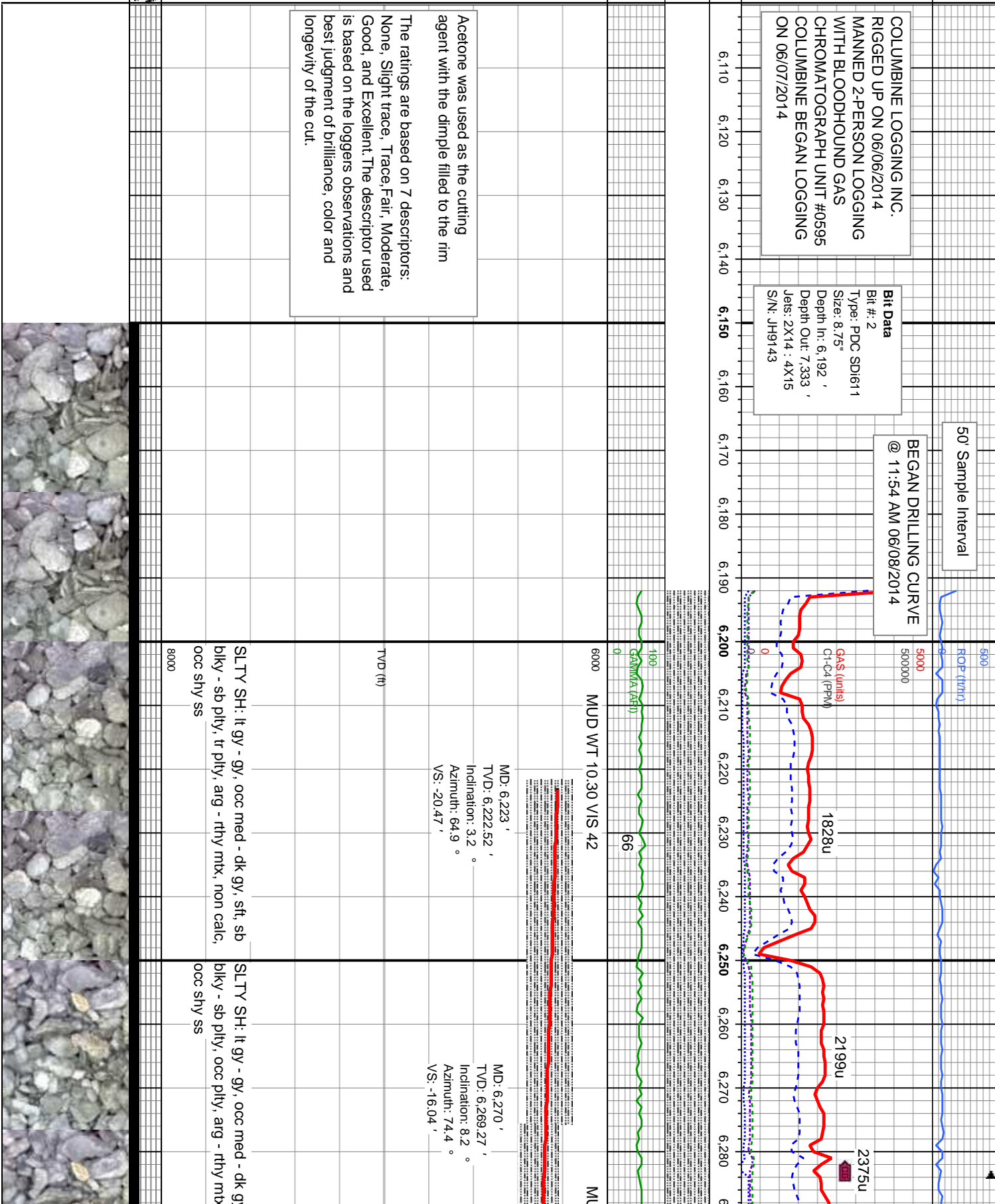
Well Bore
TVD —

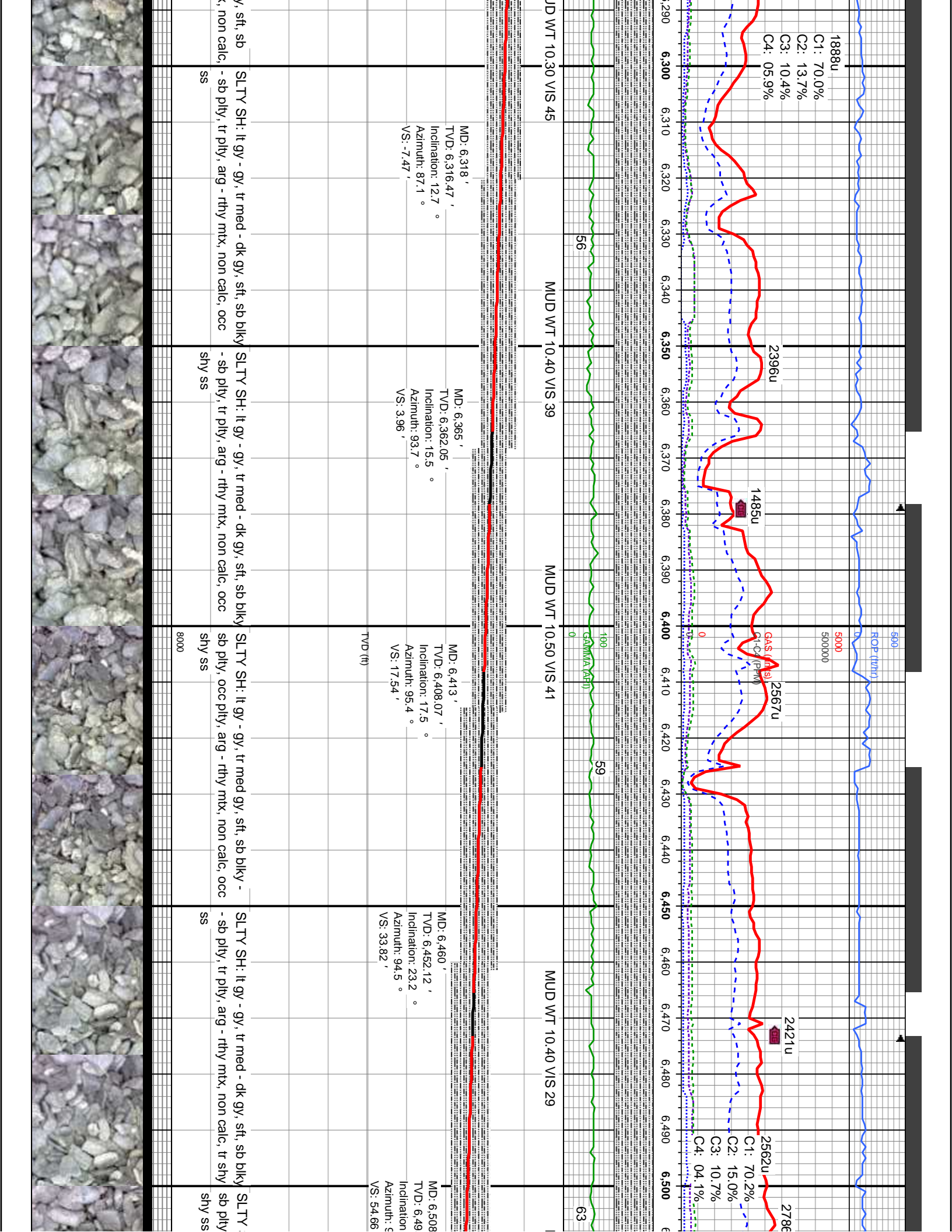
Acetone was used as the cutting agent with the dimple filled to the rim

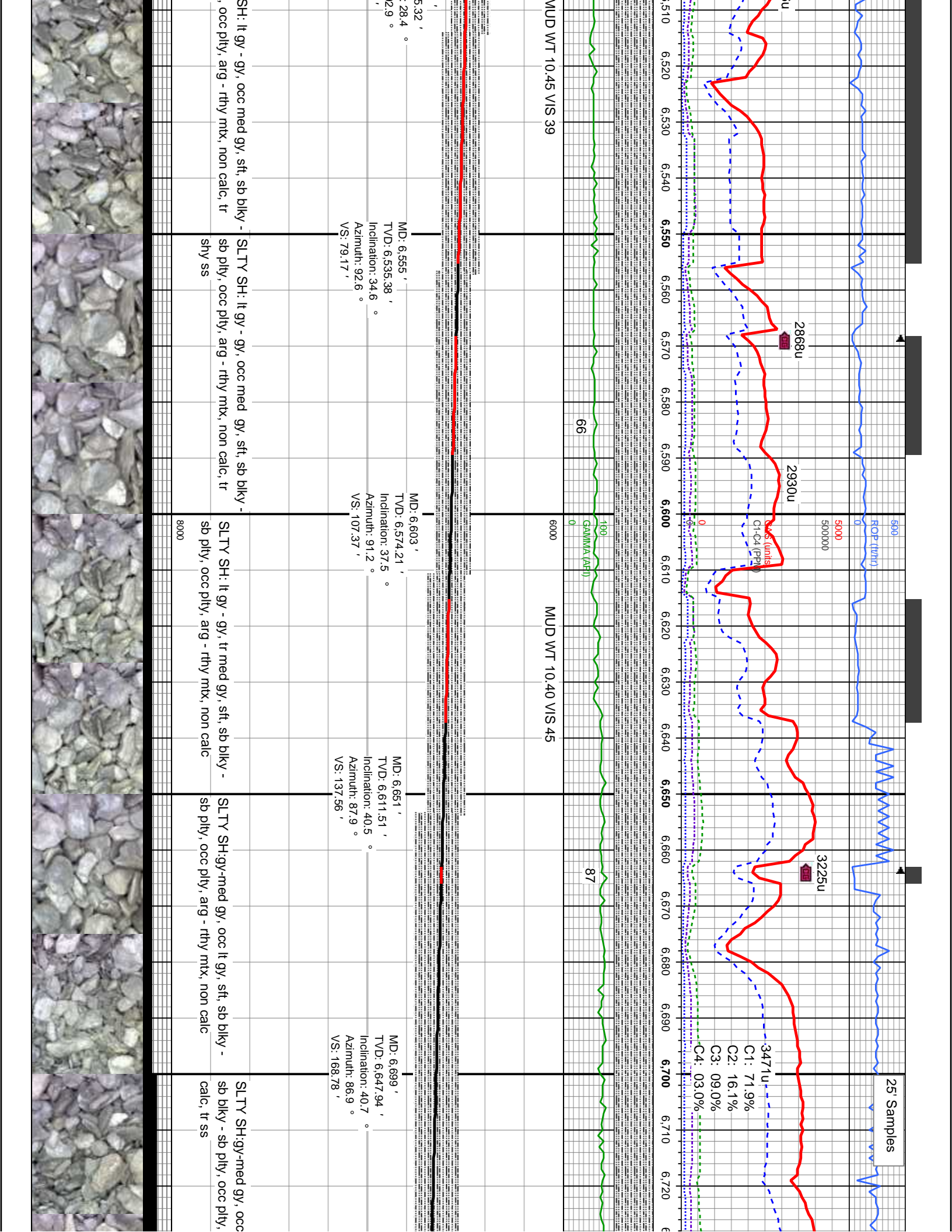
The ratings are based on 7 descriptors: None, Slight trace, Trace, Fair, Moderate, Good, and Excellent. The descriptor used is based on the loggers observations and best judgment of brilliance, color and longevity of the cut.

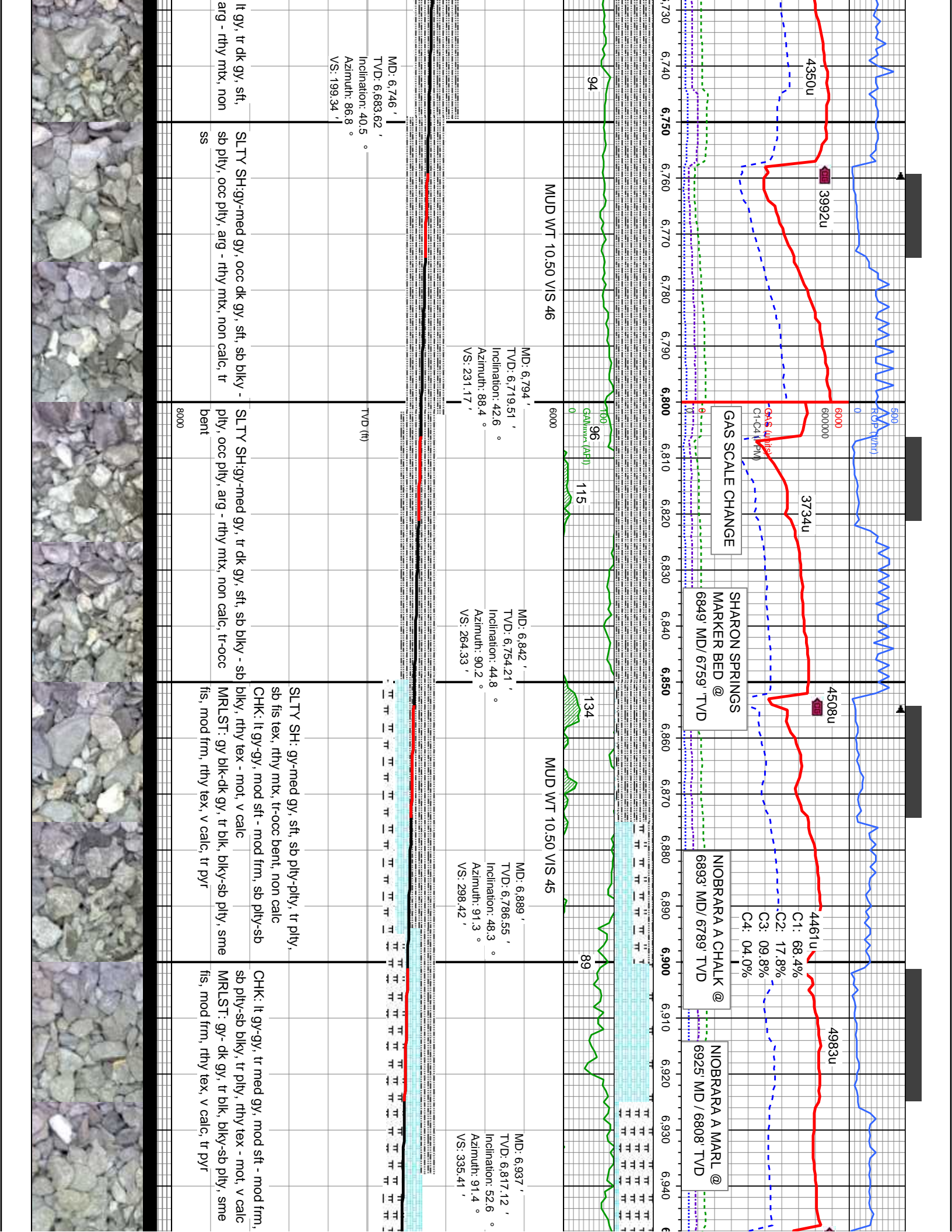
Oil Show

Images









MINDEPTH

06/09/2014

4994u

6000

4789u

4778u

4724u

4561u

5011u

GAS (units)
C1-C4 (PPM)

C1: 63.1%
C2: 18.3%
C3: 11.9%
C4: 06.8%

NOBRARA B CHALK @
7117' MD/ 6904' TVD

6,950

6,960

6,970

6,980

6,990

7,000

7,010

7,020

7,030

7,040

7,050

7,060

7,070

7,080

7,090

7,100

7,110

7,120

7,130

7,140

7,150

7,160

129

100

87

106

75

MUD WT 10.50 VIS 43

MUD WT 10.50 VIS 42

MUD

MD: 6.984 '
TVD: 6.844.19 '
Inclination: 57.1 °
Azimuth: 90.3 °
VS: 373.81 '

MD: 7.032 '
TVD: 6.868.9 '
Inclination: 60.9 °
Azimuth: 88.9 °
VS: 414.94 '

MD: 7.079 '
TVD: 6.890 '
Inclination: 65.2 °
Azimuth: 88.2 °
VS: 456.95 '

MD: 7.127 '
TVD: 6.908.27 '
Inclination: 70 °
Azimuth: 88.9 °
VS: 501.31 '

TVD (ft)

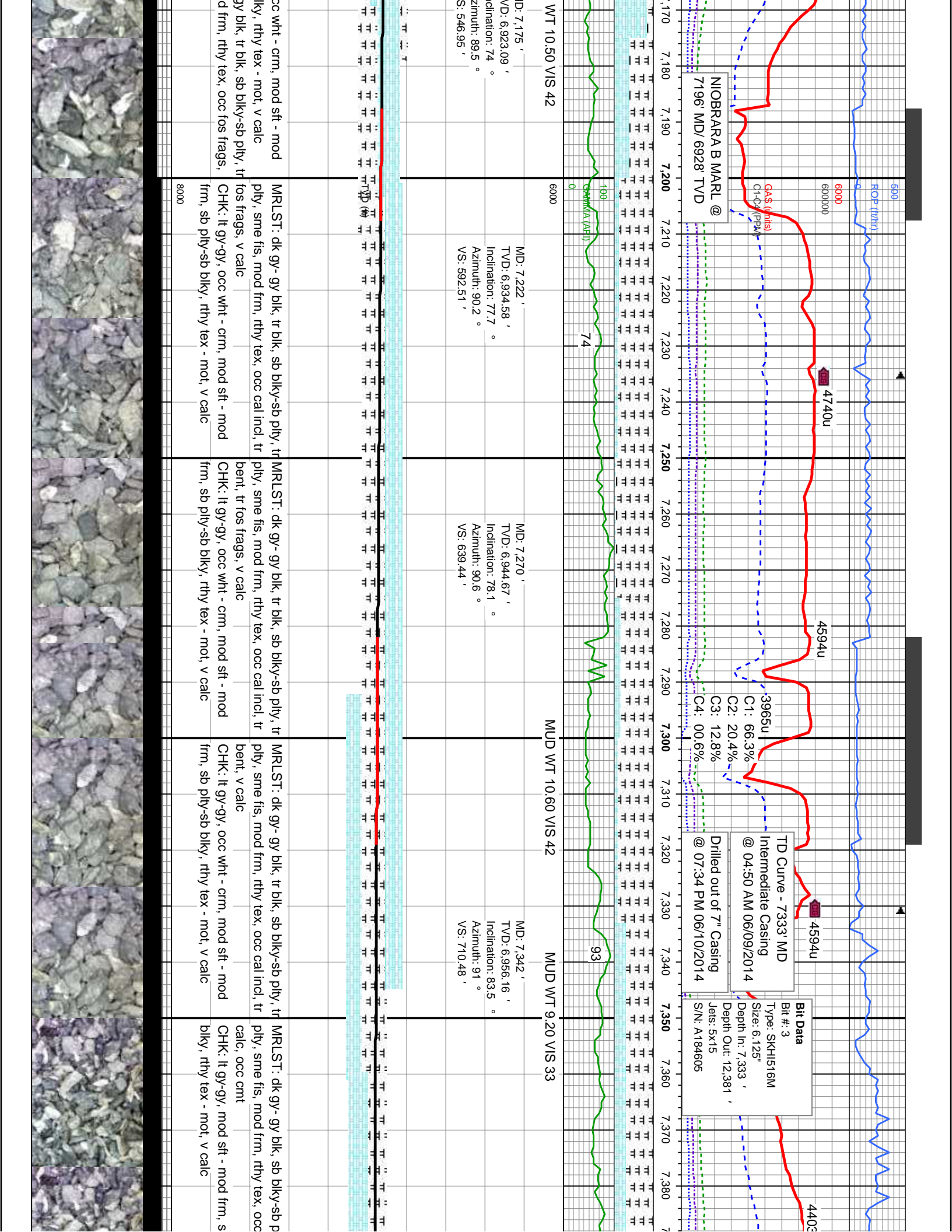
MRLST: gy- dk gy, occ blk, blk-sb pty, tr pty
sme fis, mod frm, rthy tex, v calc
CHK: lt gy-gy, mod sft - mod frm, sb pty-sb
blk, rthy tex - mot, v calc

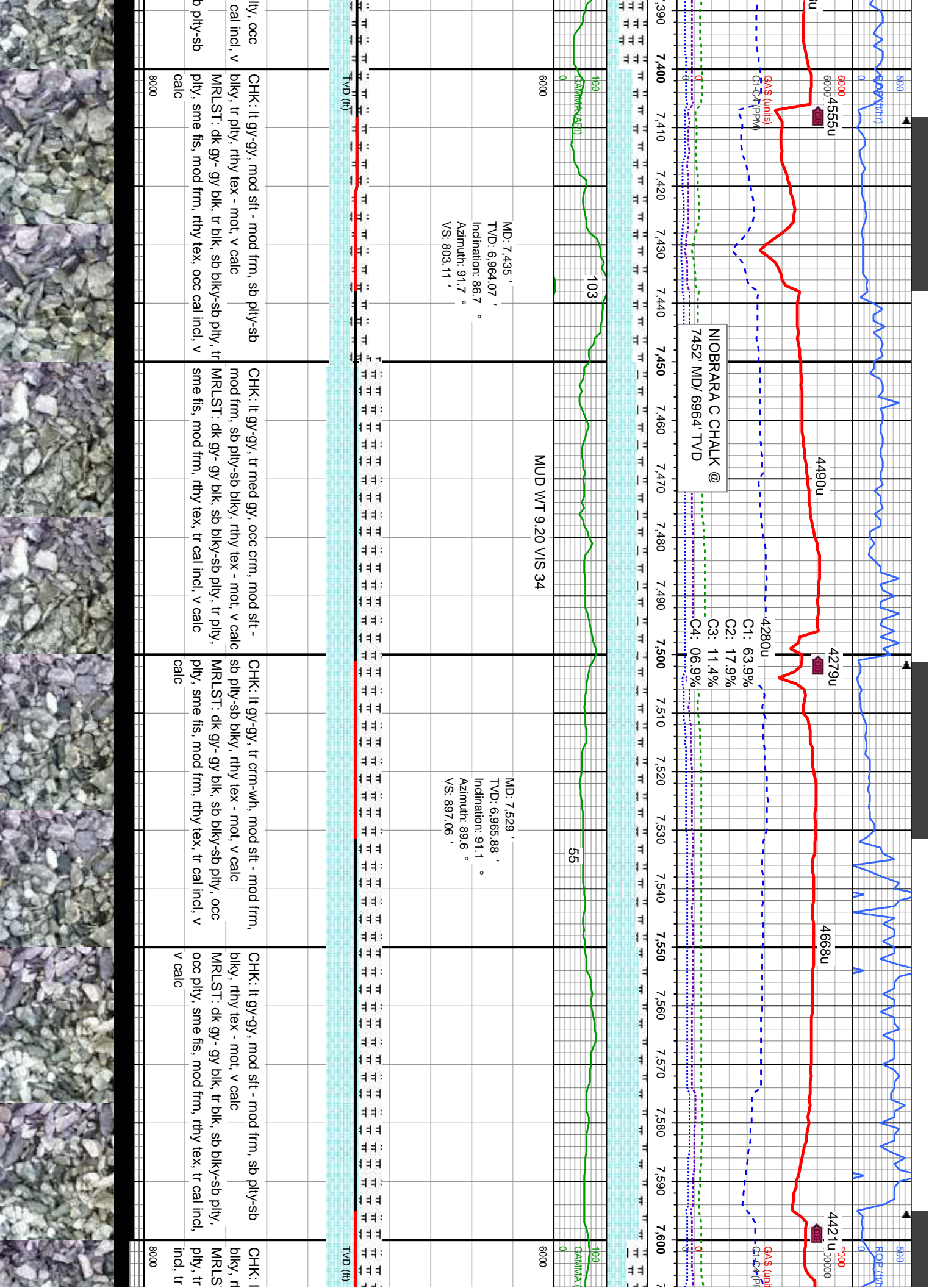
MRLST: gy- dk gy, tr gy blk, blk-sb pty, tr
pty, sme fis, mod frm, rthy tex, v calc
CHK: lt gy-gy, mod sft - mod frm, sb pty-sb
blk, rthy tex - mot, v calc, tr pyr

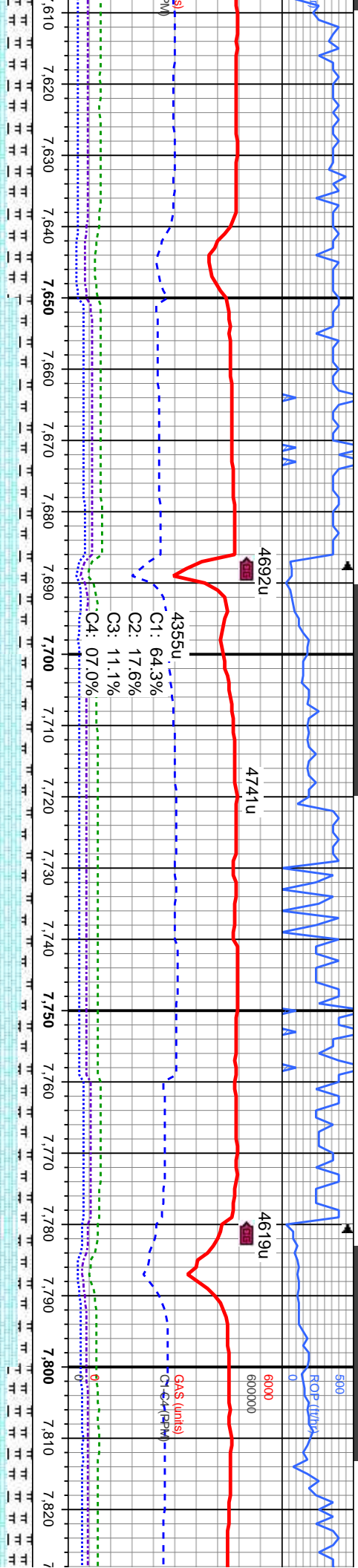
MRLST: gy blk- dk gy, tr blk, blk-sb pty, occ
tr pty, sme fis, mod frm, rthy tex, v calc, tr chk,
blk, rthy tex - mot, v calc

MRLST: dk gy- gy blk, tr blk, sb blk-sb pty,
tr pty, sme fis, mod frm, rthy tex, v calc
CHK: lt gy-gy, mod sft - mod frm, sb pty-sb
blk, rthy tex - mot, v calc

CHK: lt gy-gy, on
frm, sb pty-sb b
MRLST: dk gy- i
pty, sme fis, mo
v calc







MUD WT 9.10 VIS 34

MD: 7.624 '
TVD: 6,963.11 '
Inclination: 92.2 °
Azimuth: 90 °
VS: 992.02 '

MUD WT 9.10 VIS 35

MD: 7.717 '
TVD: 6,960.4 '
Inclination: 91.1 °
Azimuth: 91.5 °
VS: 1,084.96 '

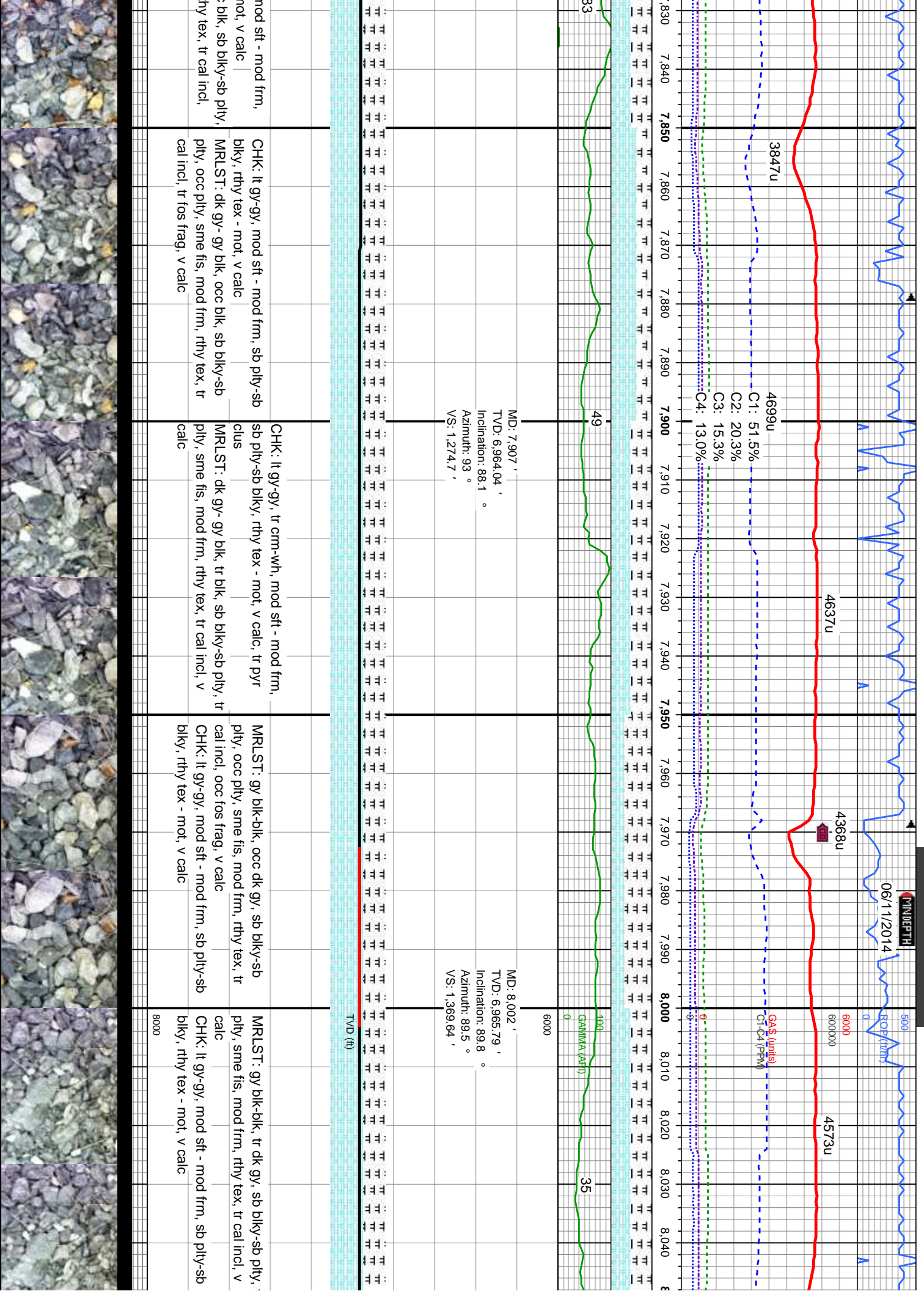
MD: 7.812 '
TVD: 6,960.98 '
Inclination: 88.2 °
Azimuth: 93 °
VS: 1,179.88 '

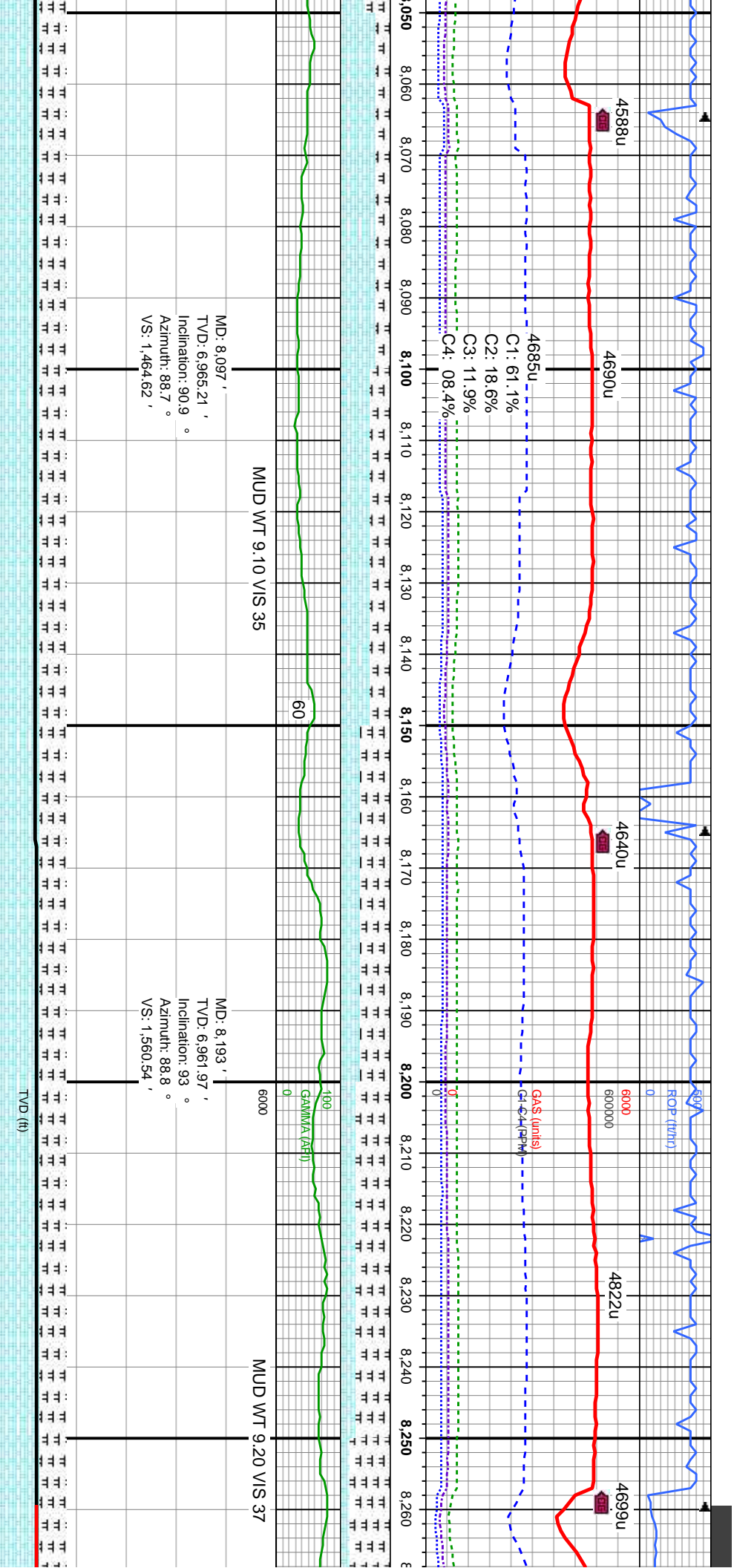


TVD (ft)

It gy-gy, mod sft - mod frm, sb pily-sb hy tex - mot, v calc	CHK: It gy-gy, tr crm, mod sft - mod frm, sb pily-sb blk, rthy tex - mot, v calc	CHK: It gy-gy, mod sft - mod frm, sb pily-sb blk, tr pily, rthy tex - mot, v calc	CHK: It gy-gy, mod sft - mod frm, sb pily-sb blk, rthy tex - mot, v calc	CHK: It gy-gy, tr crm-wh, r sb pily-sb blk, rthy tex - r
Tr: dk gy- gy blk, occ blk, sb blk, sb pily, sme fis, mod frm, rthy tex, tr cal	MRLST: dk gy- gy blk, tr blk, sb blk, sb pily, tr pily, sme fis, mod frm, rthy tex, tr cal incl, v calc	MRLST: dk gy- gy blk, sb blk, sb pily, tr pily, sme fis, mod frm, rthy tex, tr fos frag, v calc	MRLST: dk gy- gy blk, occ blk, sb blk, sb pily, tr pily, sme fis, mod frm, rthy tex, tr cal incl, tr fos frag, v calc	MRLST: dk gy- gy blk, occ tr pily, sme fis, mod frm, r occ fos frag, v calc







MD: 8.097 '
TVD: 6,965.21 '
Inclination: 90.9 °
Azimuth: 88.7 °
VS: 1,464.62 '

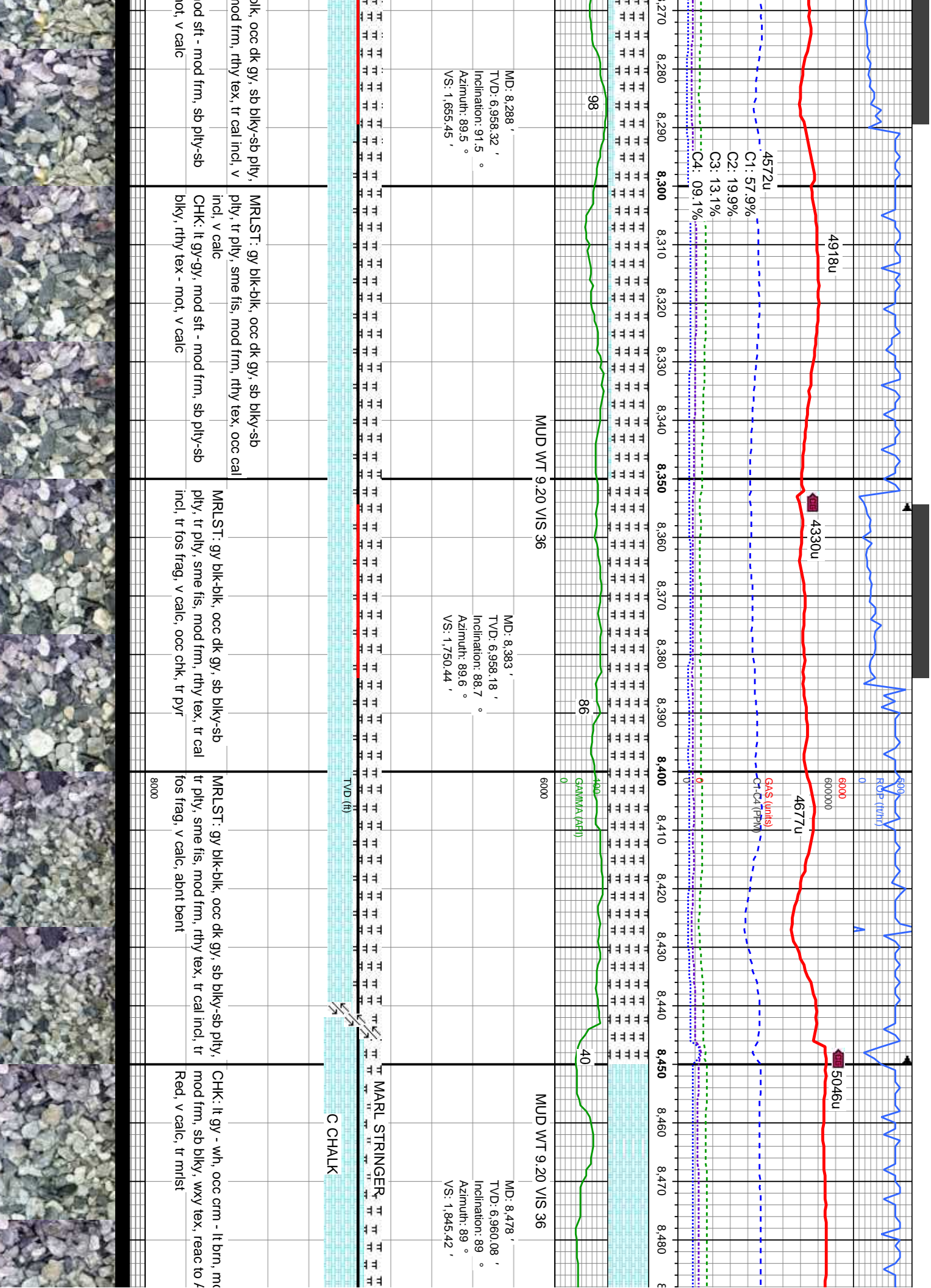
MUD WT 9.10 VIS 35

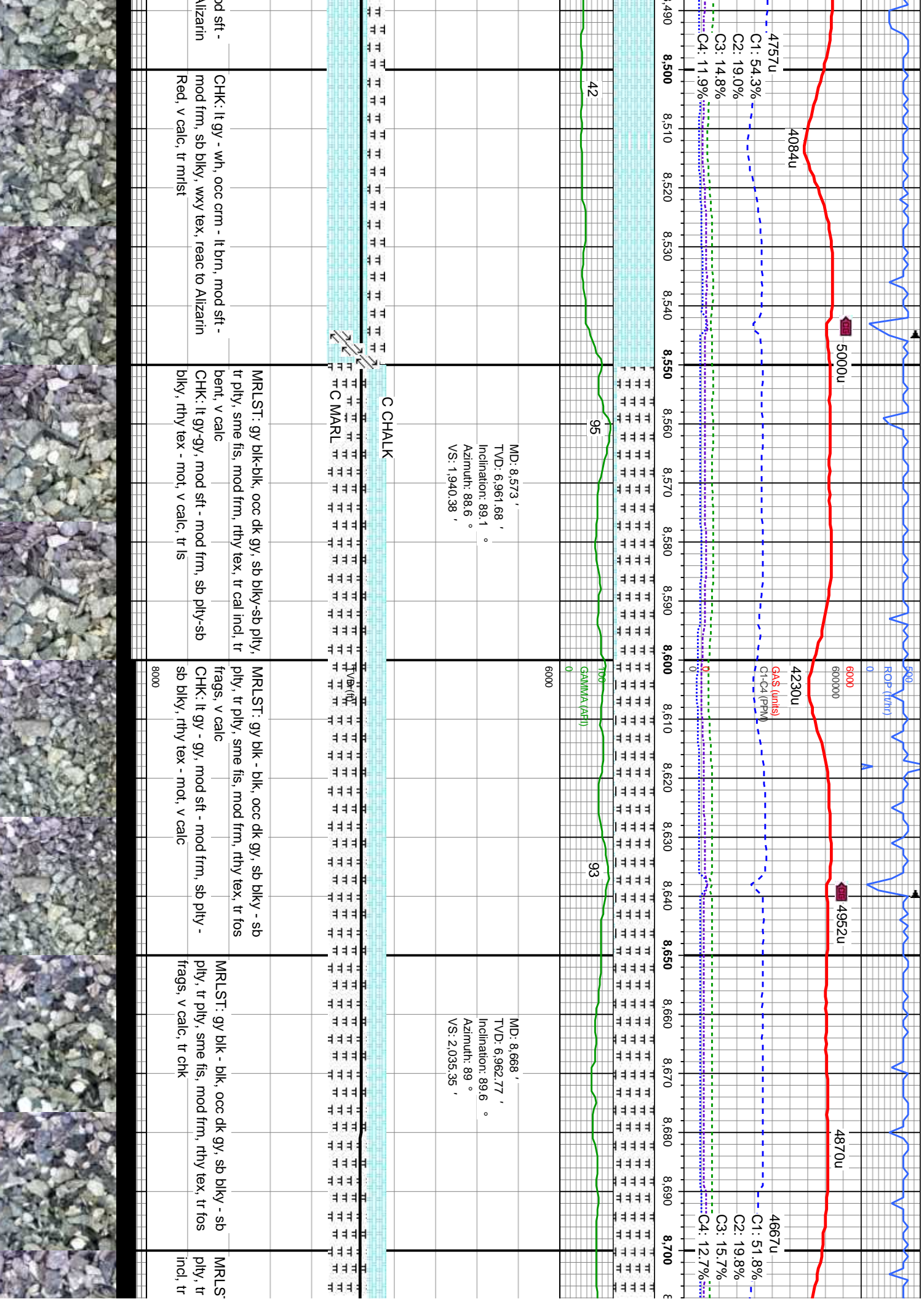
MD: 8.193 '
TVD: 6,961.97 '
Inclination: 93 °
Azimuth: 88.8 °
VS: 1,560.54 '

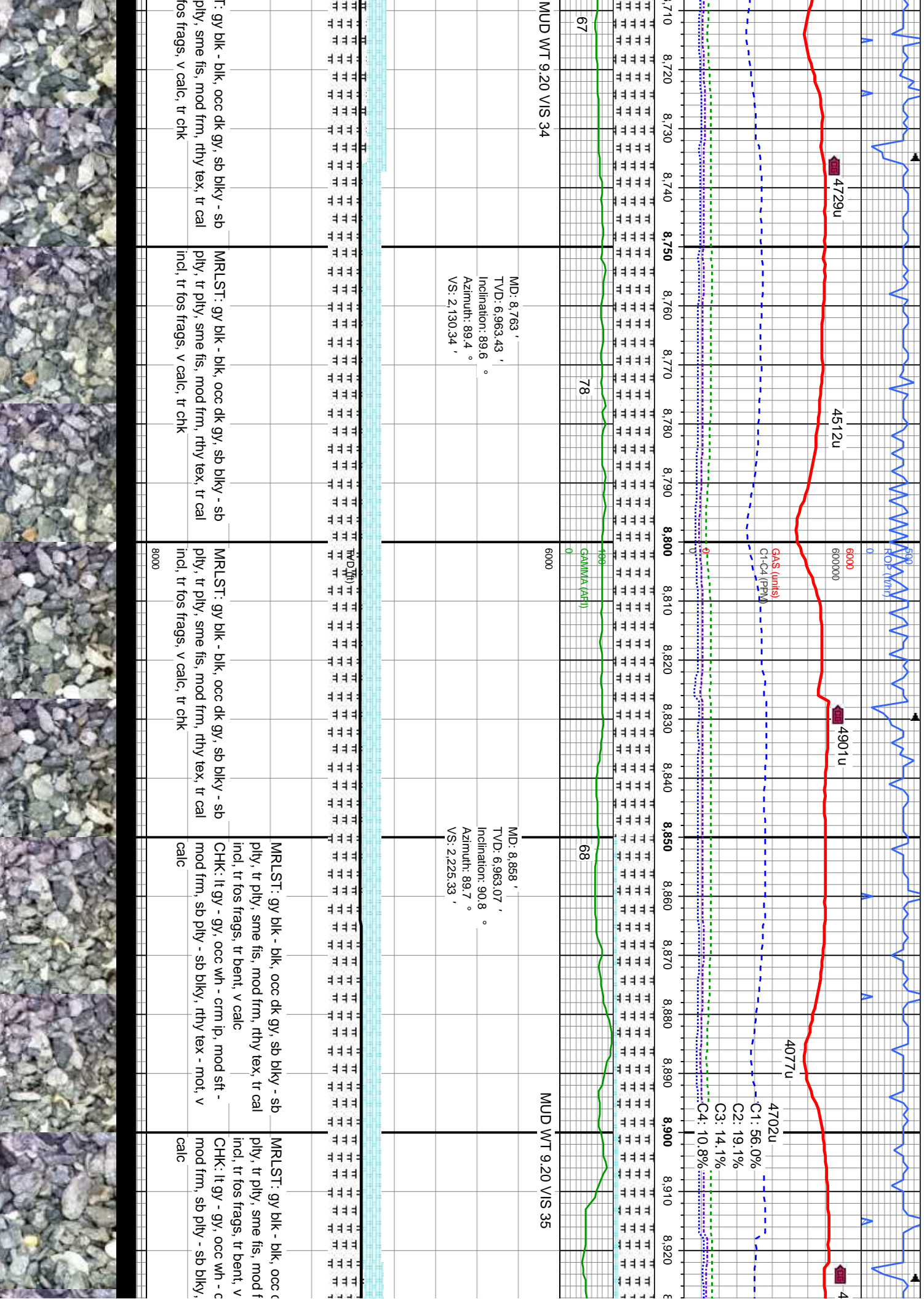
MUD WT 9.20 VIS 37

CHK: lt gy-gy, tr crm, mod sft - mod frm, sb pty-sb blk, rthy tex - mot, v calc	CHK: lt gy-gy, mod sft - mod frm, sb pty-sb blk, rthy tex - mot, v calc	MRLST: gy blk-blk, occ dk gy, sb blk-sb pty, cal incl, tr fos frag, v calc	MRLST: gy blk-blk, occ dk gy, sb blk-sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr fos frag, v calc	MRLST: gy blk-blk, occ dk gy, sb blk-sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr fos frag, v calc	MRLST: gy blk-blk, occ dk gy, sb blk-sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr fos frag, v calc
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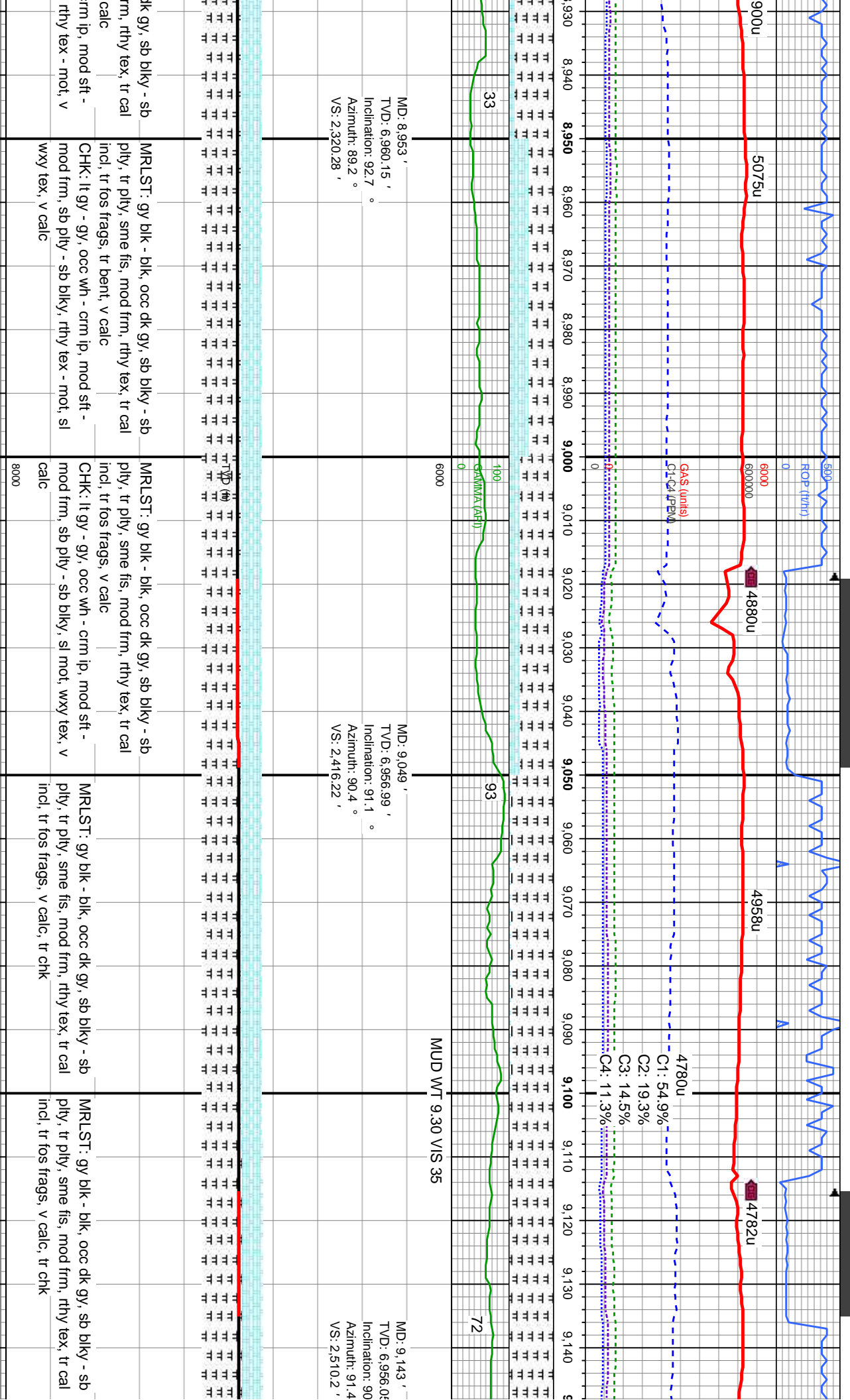


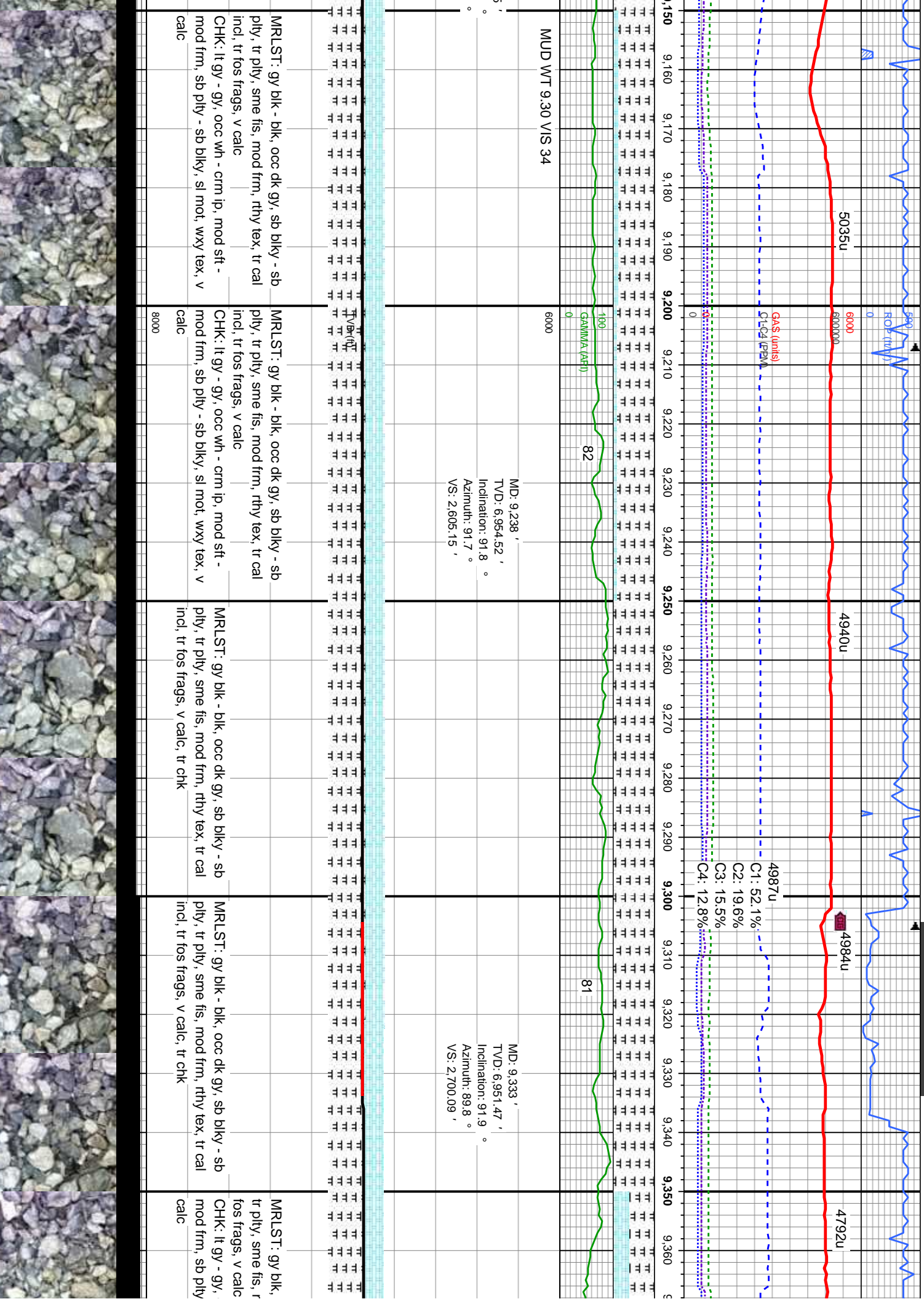


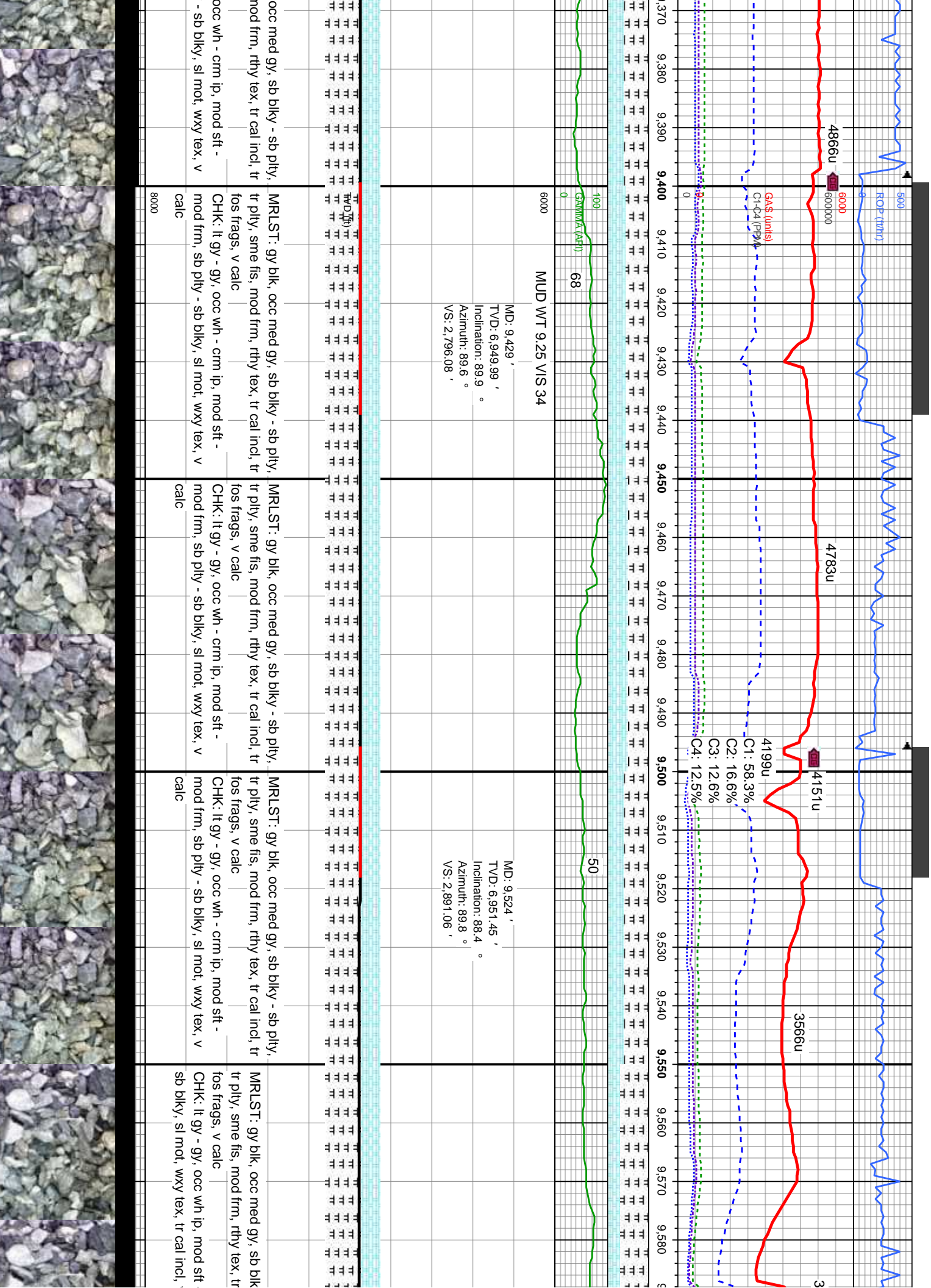


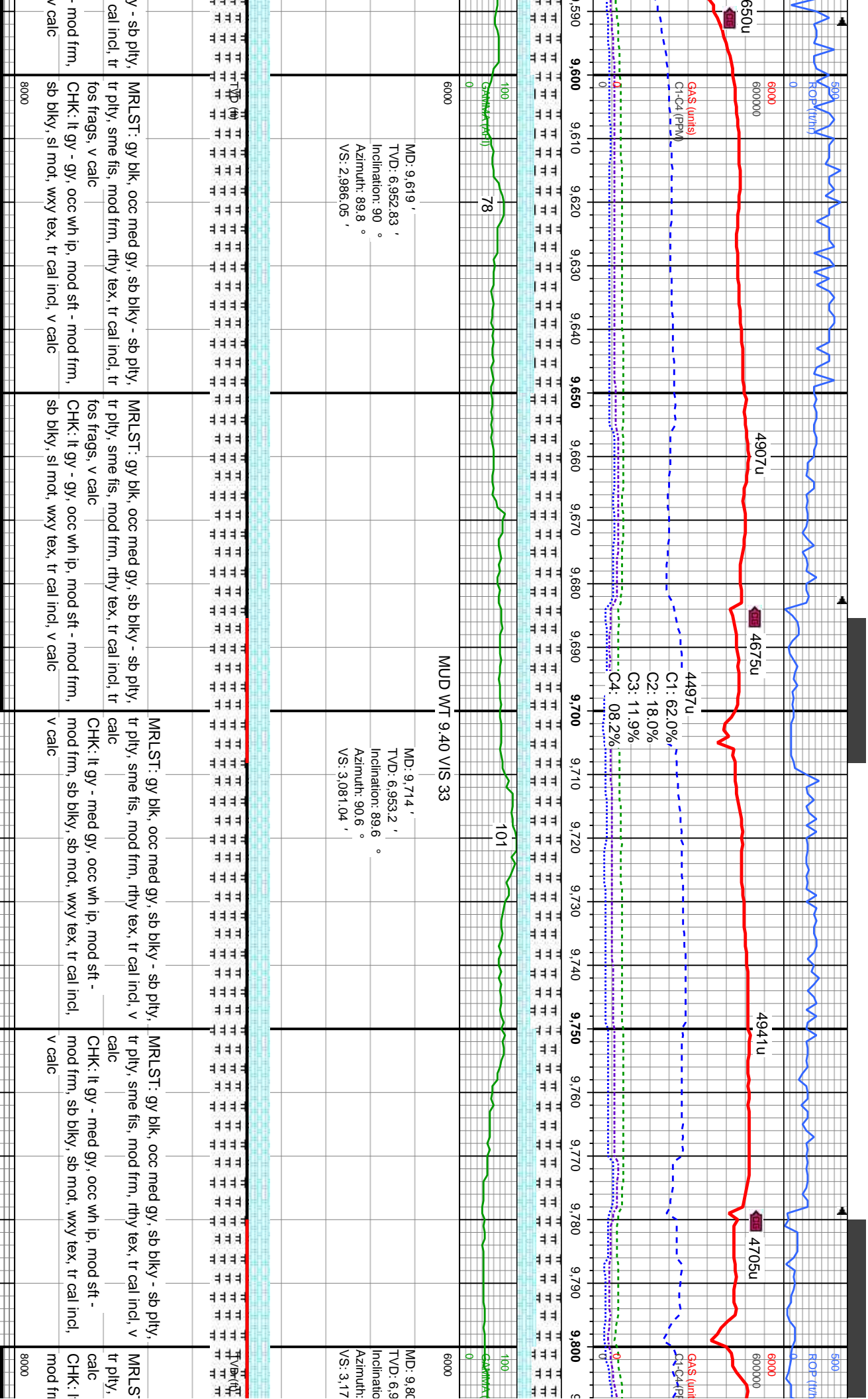
8,710	8,720	8,730	8,740	8,750	8,760	8,770	8,780	8,790	8,800	8,810	8,820	8,830	8,840	8,850	8,860	8,870	8,880	8,890	8,900	8,910	8,920
MUD WT 9.20 VIS 34																					
MD: 8,763 ' TVD: 6,963.43 ' Inclination: 89.6 ° Azimuth: 89.4 ° VS: 2,130.34 '																					
MRLST: gy blk - blk, occ dk gy, sb blk - sb																					
ply, tr ply, sme fis, mod frm, rthy tex, tr cal																					
incl, tr fos frags, v calc, tr chk																					
8000																					
MUD WT 9.20 VIS 35																					
MD: 8,858 ' TVD: 6,963.07 ' Inclination: 90.8 ° Azimuth: 89.7 ° VS: 2,225.33 '																					
MRLST: gy blk - blk, occ dk gy, sb blk - sb																					
ply, tr ply, sme fis, mod frm, rthy tex, tr cal																					
incl, tr fos frags, tr bent, v calc																					
CHK: lt gy - gy, occ wh - crm ip, mod sft -																					
mod frm, sb ply - sb blk, rthy tex - mot, v																					
calc																					
MRLST: gy blk - blk, occ dk gy, sb blk - sb																					
ply, tr ply, sme fis, mod frm, rthy tex, tr cal																					
incl, tr fos frags, tr bent, v																					
CHK: lt gy - gy, occ wh - crm ip, mod sft -																					
mod frm, sb ply - sb blk, rthy tex - mot, v																					
calc																					

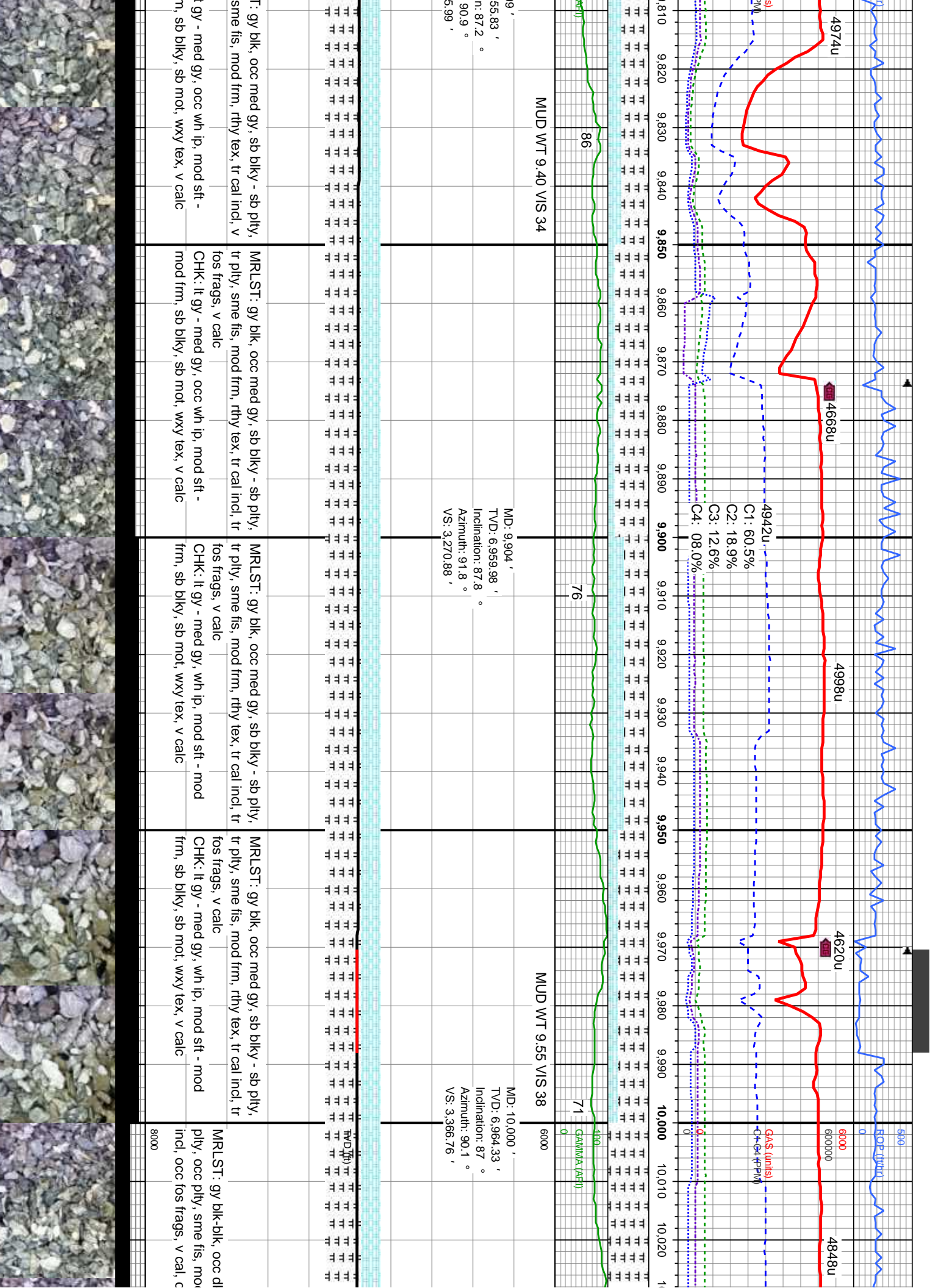


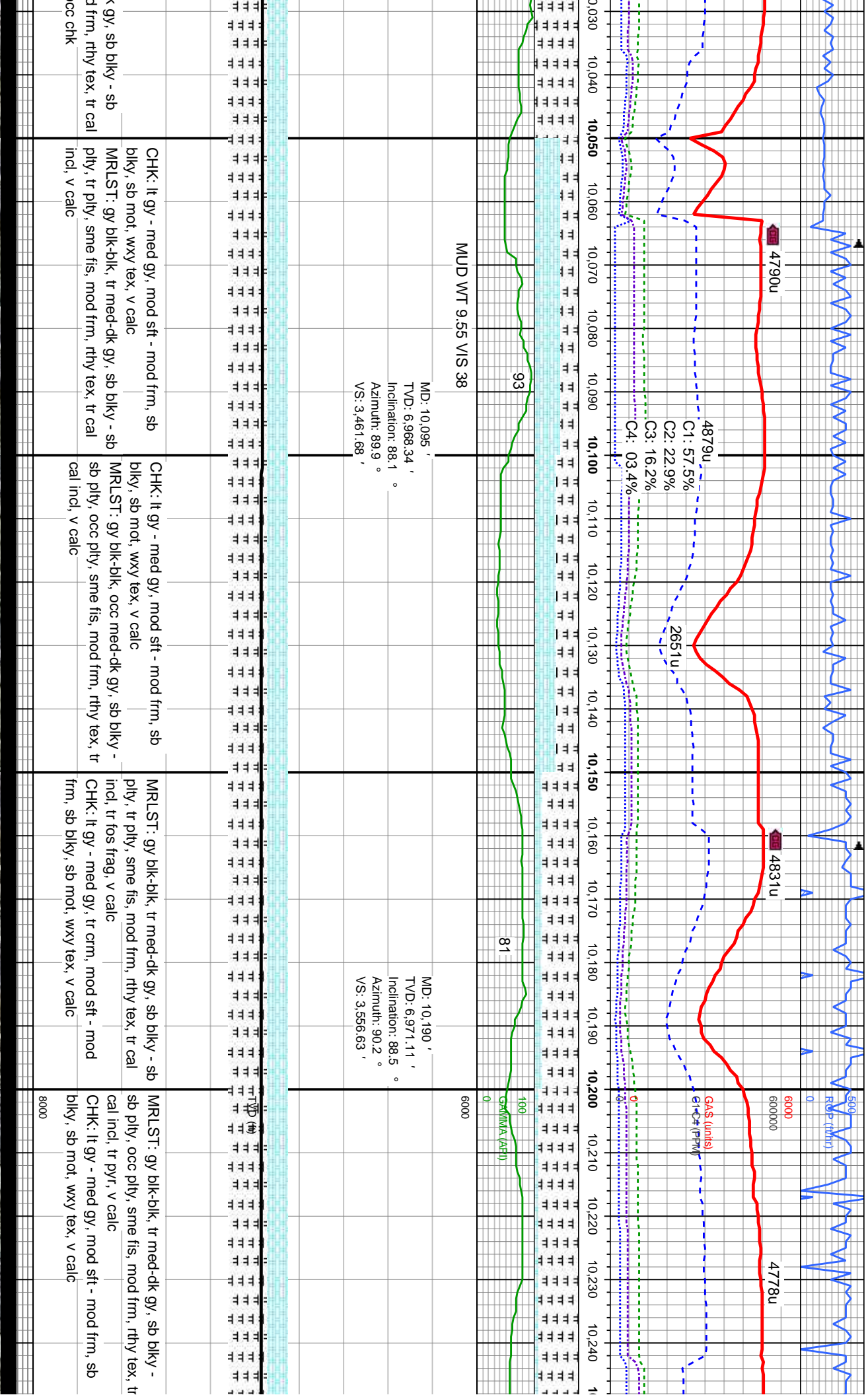


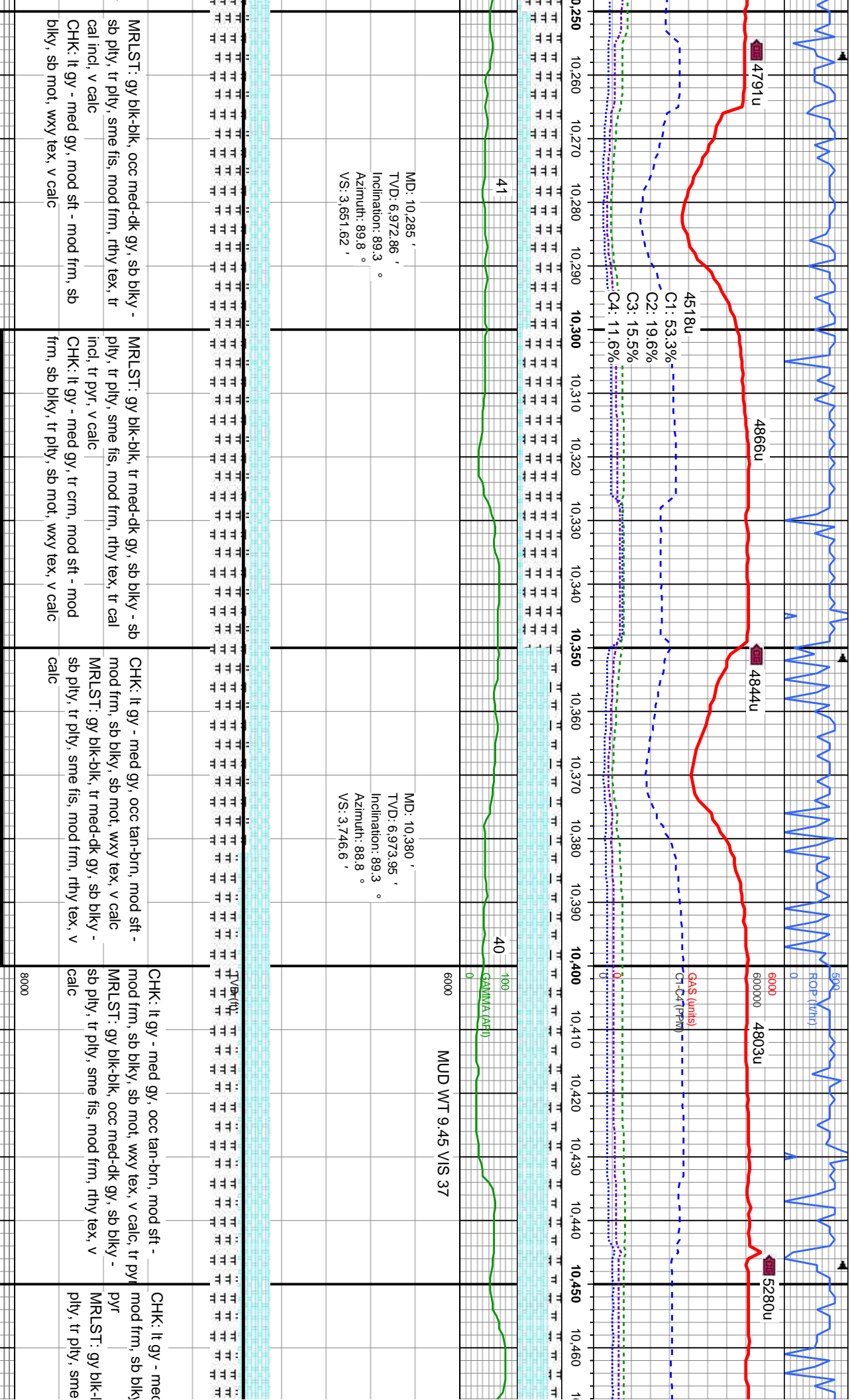


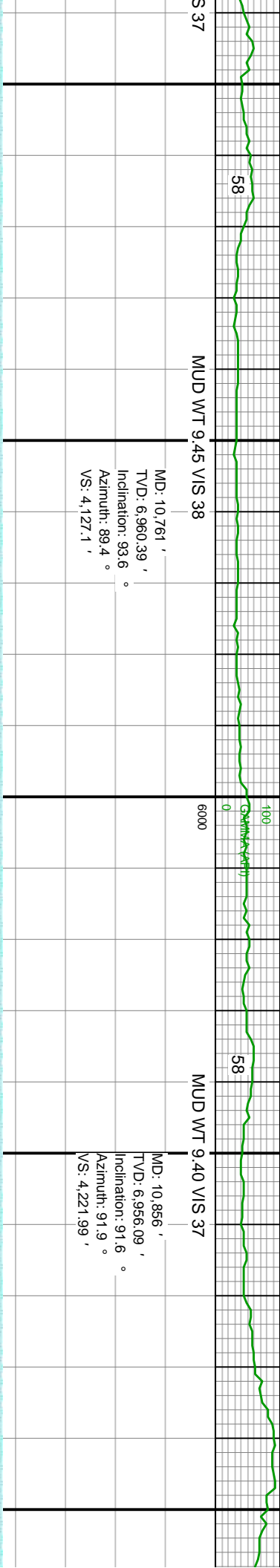
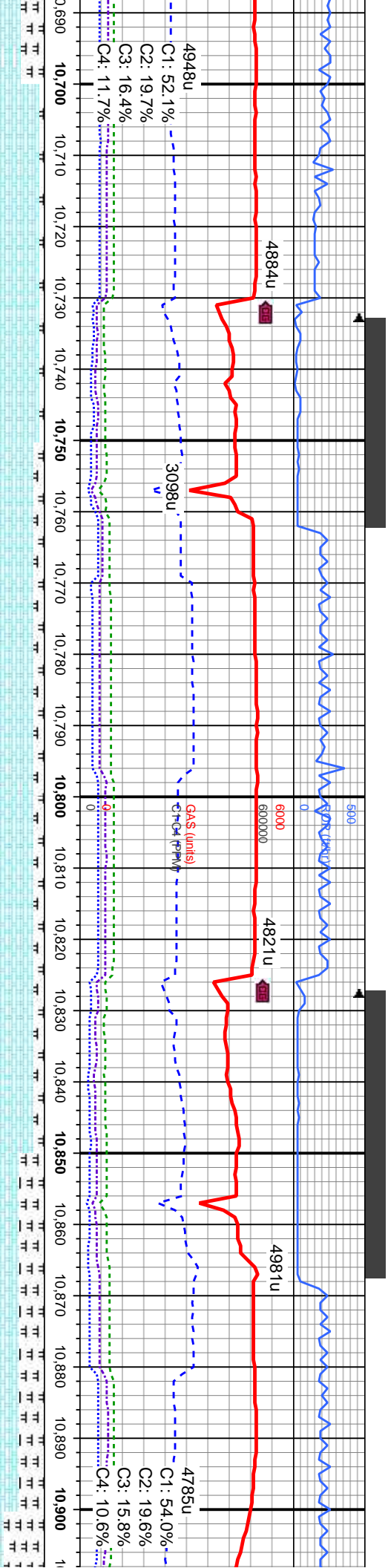










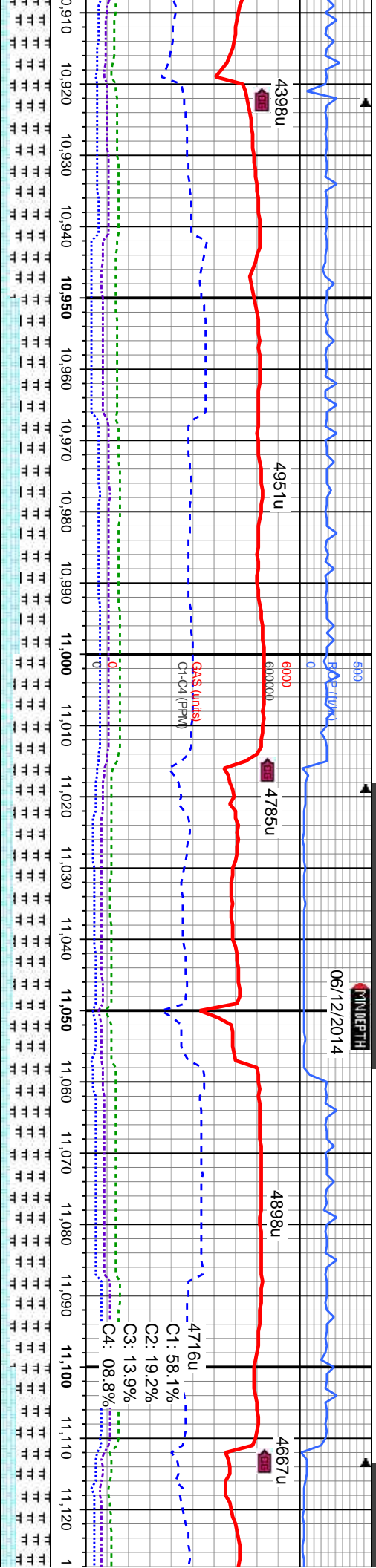


S 37		MUD WT 9.45 VIS 38		MUD WT 9.40 VIS 37	
MD: 10.761 '		MD: 10.856 '		MD: 10.856 '	
TVD: 6,960.39 '		TVD: 6,956.09 '		TVD: 6,956.09 '	
Inclination: 93.6 °		Inclination: 91.6 °		Inclination: 91.6 °	
Azimuth: 89.4 °		Azimuth: 91.9 °		Azimuth: 91.9 °	
VS: 4,127.1 '		VS: 4,221.99 '		VS: 4,221.99 '	
CHK: lt gy - med gy, tr tan, mod sft - mod frm, sb blk-ly-sb ply, sb mot, wxy tex, v calc		CHK: lt gy - med gy, tr tan-brn, mod sft - mod frm, sb blk-ly-sb ply, sb mot, wxy tex, v calc		CHK: lt gy - med gy, mod sft - mod frm, sb blk-ly-sb ply, sb mot, wxy tex, v calc	
MRLST: gy blk-dk gy, tr blk, sb blk-ly - sb ply, tr ply, sme fis, mod frm, rthy tex, tr cal incl, v calc		MRLST: gy blk-dk gy, tr blk, sb blk-ly - sb ply, tr ply, sme fis, mod frm, rthy tex, v calc		MRLST: gy blk-dk gy, occ dk gy, sb blk-ly - sb ply, tr ply, sme fis, mod frm, rthy tex, tr cal incl, v calc	
MRLS: occ ply		MRLS: occ ply		MRLS: occ ply	
tr fos f		tr fos f		tr fos f	
CHK: l		CHK: l		CHK: l	
frm, st		frm, st		frm, st	



06/12/2014

PN100PT11



MD: 10,952 '
TVD: 6,952.48 '
Inclination: 92.7 °
Azimuth: 92.3 °
VS: 4,317.85 '

MUD WT 9.40 VIS 38

91

MD: 11,047 '
TVD: 6,949.78 '
Inclination: 90.6 °
Azimuth: 92.9 °
VS: 4,412.71 '

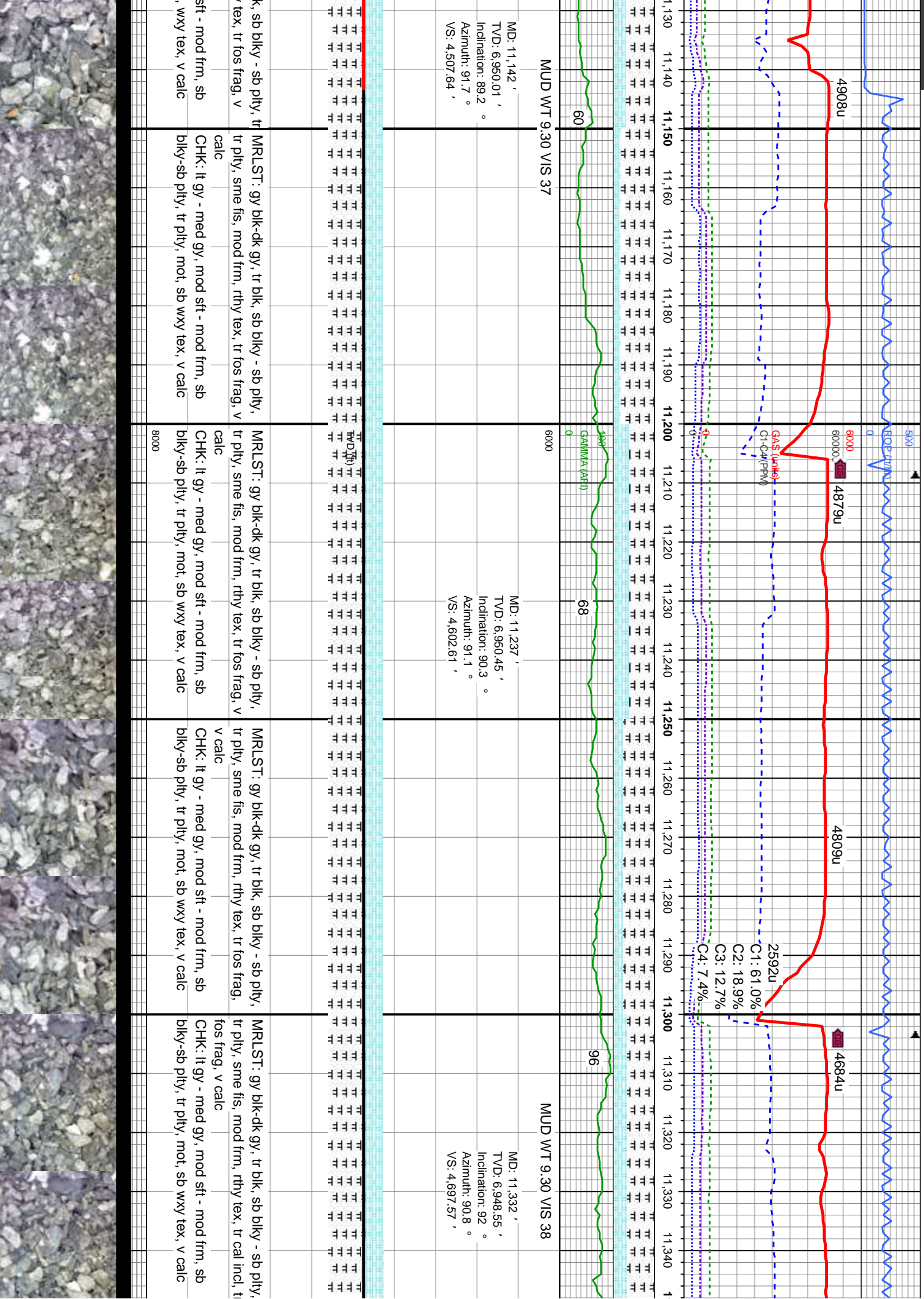
MUD WT 9.40 VIS 38

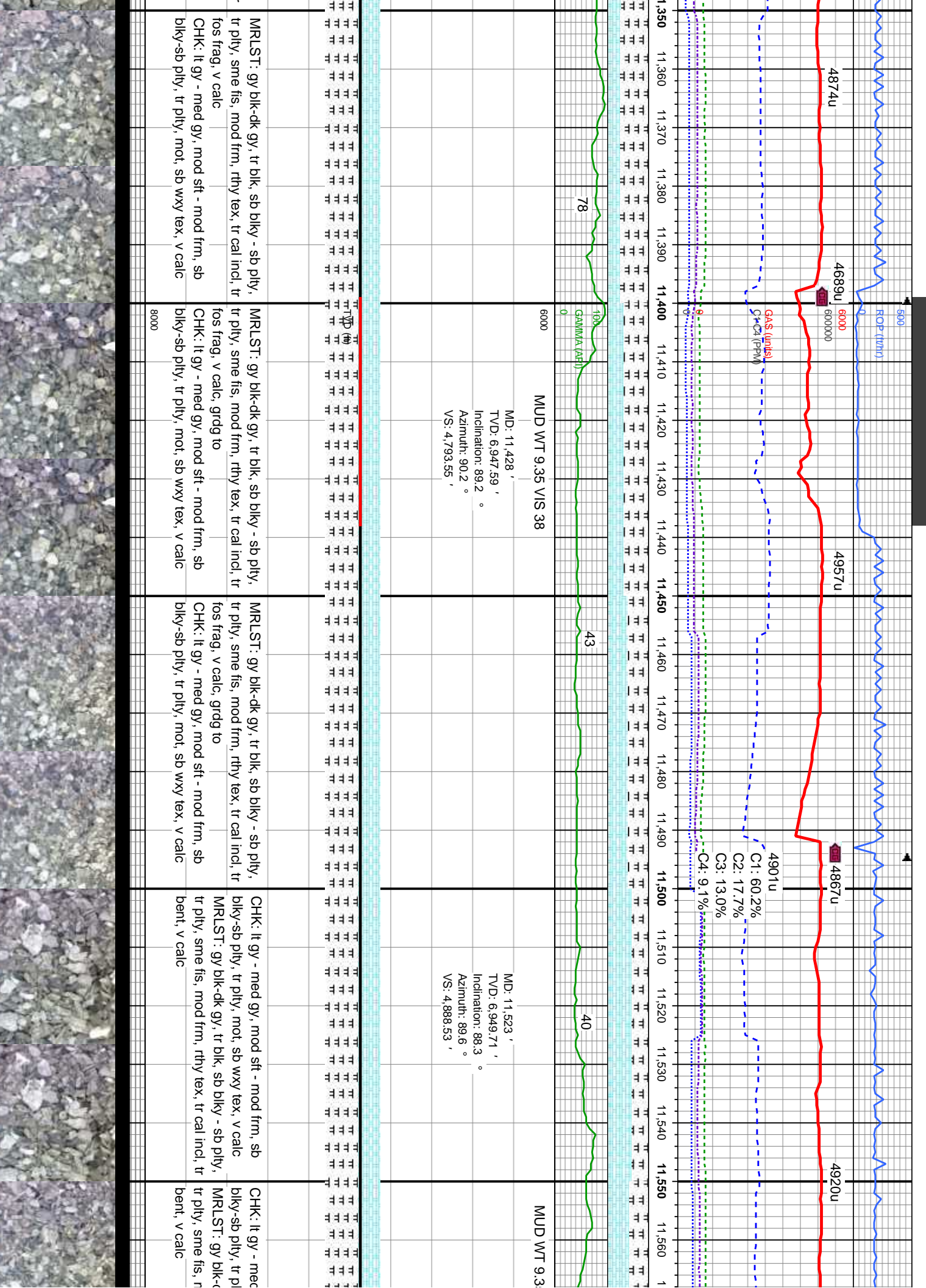
76

MUD WT 9.35 VIS 37

Log	Description
MRSLT	gy blk-dk gy, tr blk, sb blk - sb pty, pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, v calc
CHK	lt gy - med gy, tr crn, mod sft - mod frm, sb blk-sb pty, tr pty, sb mot, wxy tex, v calc
MRSLT	gy blk-dk gy, occ blk, sb blk - sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, v calc
CHK	lt gy - med gy, tr crn, mod sft - mod frm, sb blk-sb pty, tr pty, sb mot, wxy tex, v calc
MRSLT	gy blk-dk gy, tr blk, sb blk - sb pty, pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, v calc
CHK	lt gy - med gy, tr crn, mod sft - mod frm, sb blk-sb pty, tr pty, sb mot, wxy tex, v calc
MRSLT	gy blk-dk gy, tr blk, sb blk - sb pty, pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, v calc
CHK	lt gy - med gy, tr crn, mod sft - mod frm, sb blk-sb pty, tr pty, sb mot, wxy tex, v calc







590

ROP (ft/hr)

4874u

4689u

6000

600000

GCS (units)

C-CAL (PPM)

4957u

4867u

4920u

4901u

C1: 60.2%

C2: 17.7%

C3: 13.0%

C4: 9.1%

78

43

40

100

GAMMA (API)

MUD WT 9.35 VIS 38

MD: 11.428 '
 TVD: 6.947.59 '
 Inclination: 89.2 °
 Azimuth: 90.2 °
 VS: 4.793.55 '

MUD WT 9.3

MD: 11.523 '
 TVD: 6.949.71 '
 Inclination: 88.3 °
 Azimuth: 89.6 °
 VS: 4.888.53 '

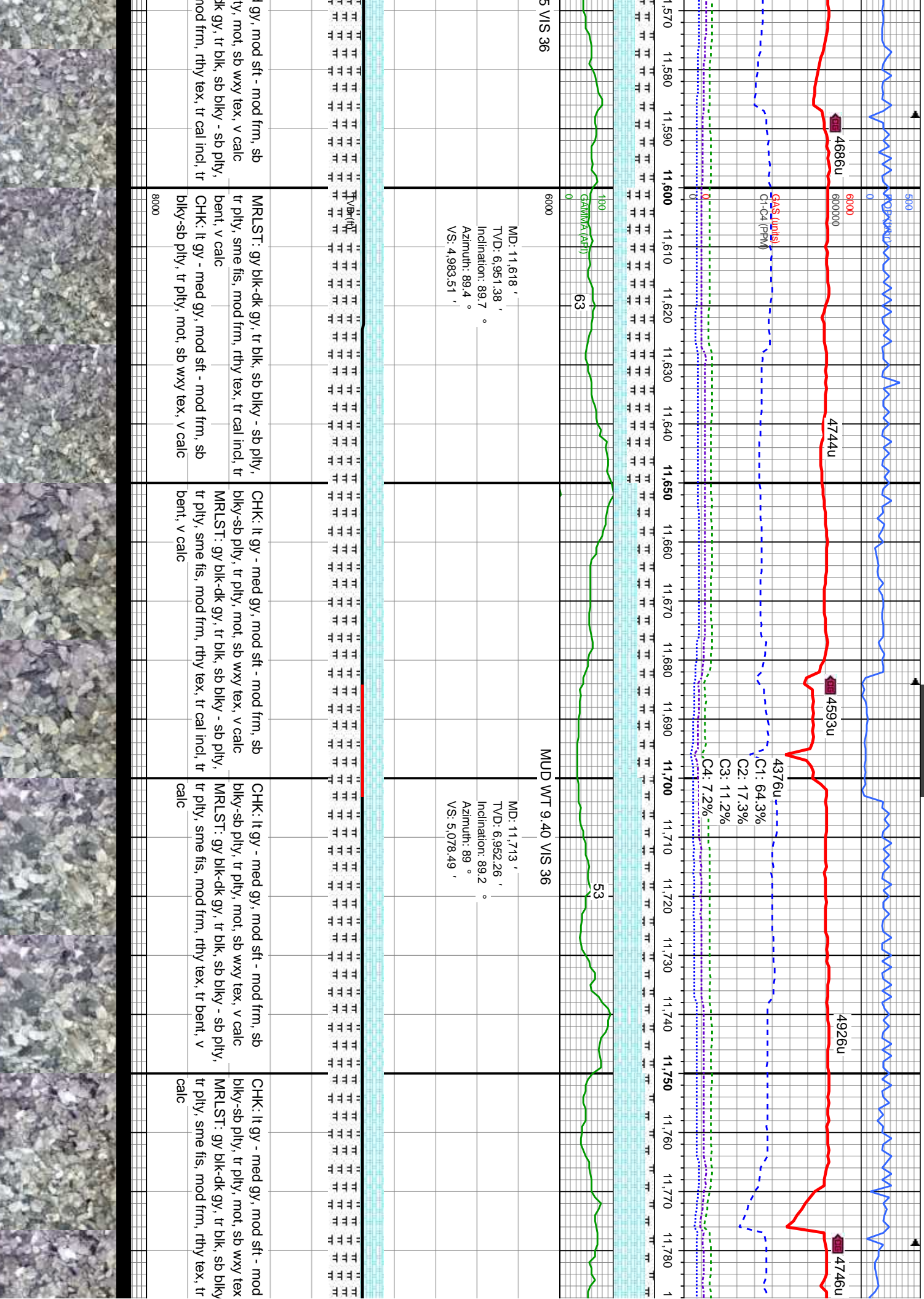
MRLST: gy blk-dk gy, tr blk, sb blk - sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr fos frag, v calc
 CHK: lt gy - med gy, mod sft - mod frm, sb blk-sb pty, tr pty, mot, sb wxy tex, v calc

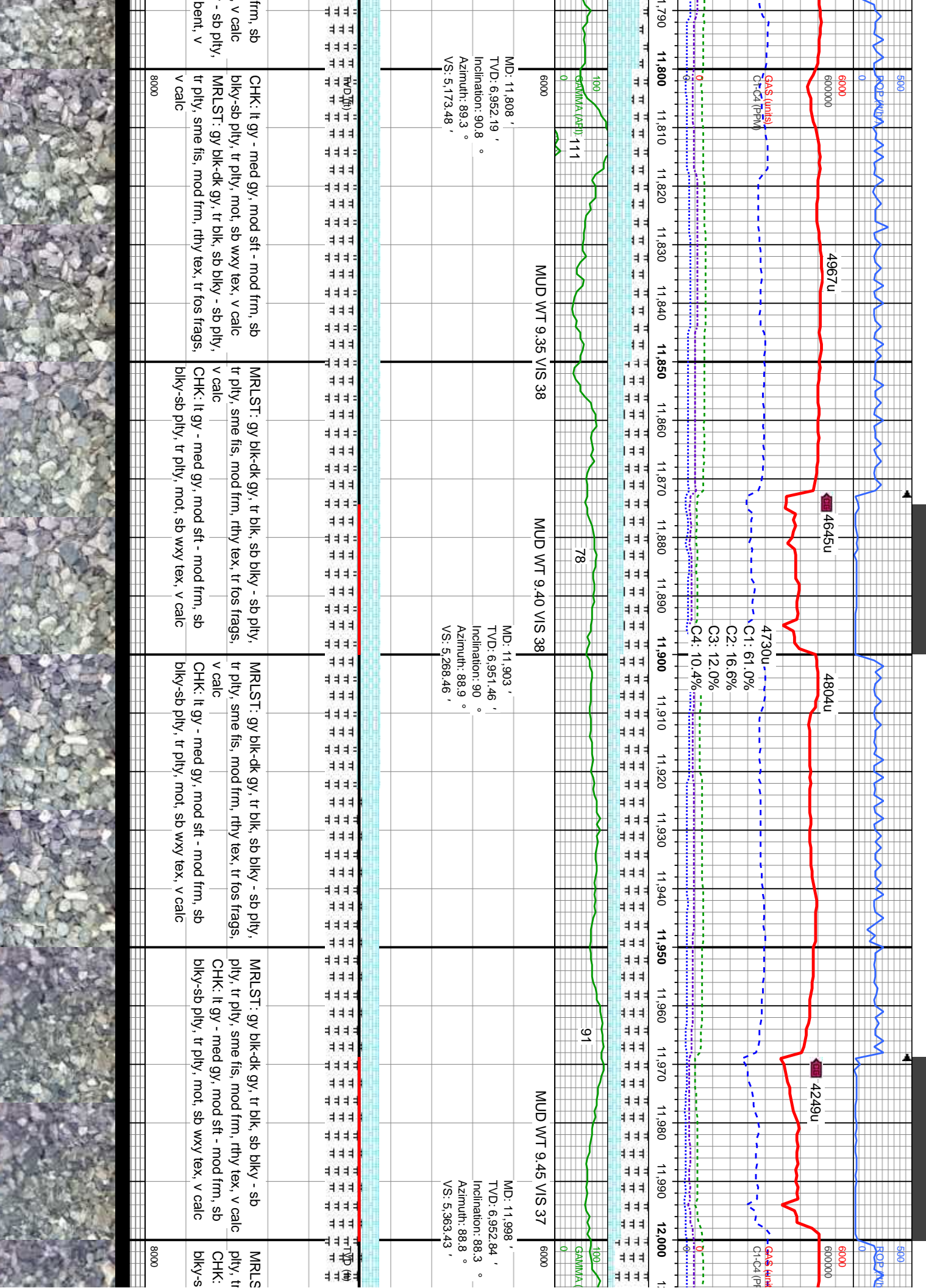
MRLST: gy blk-dk gy, tr blk, sb blk - sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr fos frag, v calc, grdg to
 CHK: lt gy - med gy, mod sft - mod frm, sb blk-sb pty, tr pty, mot, sb wxy tex, v calc

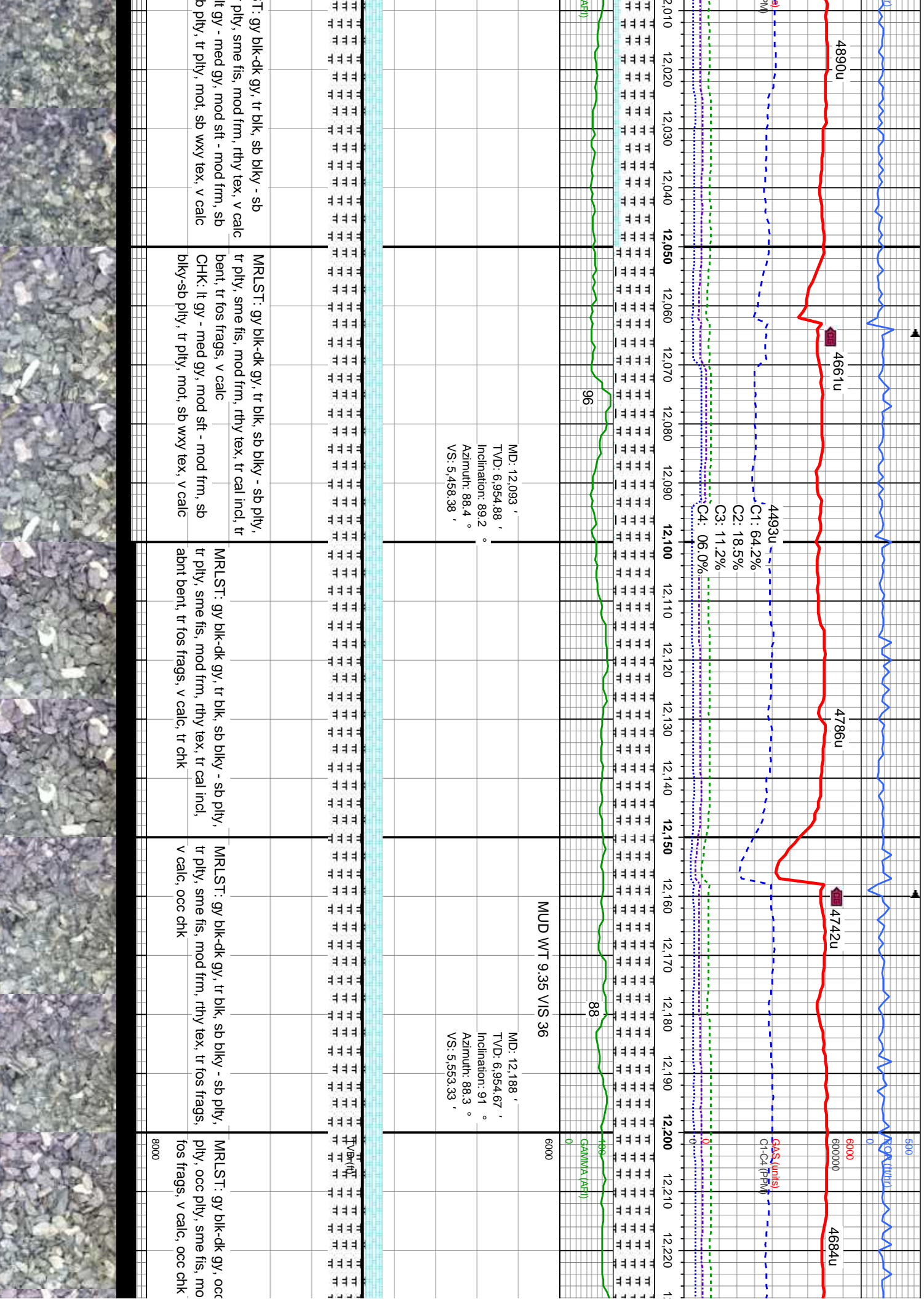
MRLST: gy blk-dk gy, tr blk, sb blk - sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr fos frag, v calc, grdg to
 CHK: lt gy - med gy, mod sft - mod frm, sb blk-sb pty, tr pty, mot, sb wxy tex, v calc

CHK: lt gy - med gy, mod sft - mod frm, sb blk-sb pty, tr pty, mot, sb wxy tex, v calc
 MRLST: gy blk-dk gy, tr blk, sb blk - sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr bent, v calc

CHK: lt gy - med gy, mod sft - mod frm, sb blk-sb pty, tr pty, mot, sb wxy tex, v calc
 MRLST: gy blk-dk gy, tr blk, sb blk - sb pty, tr pty, sme fis, mod frm, rthy tex, tr cal incl, tr bent, v calc

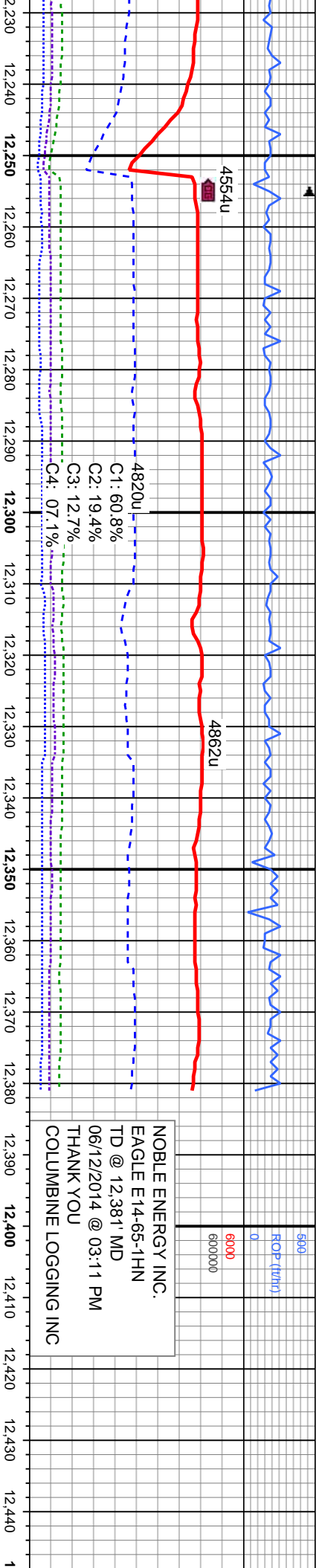






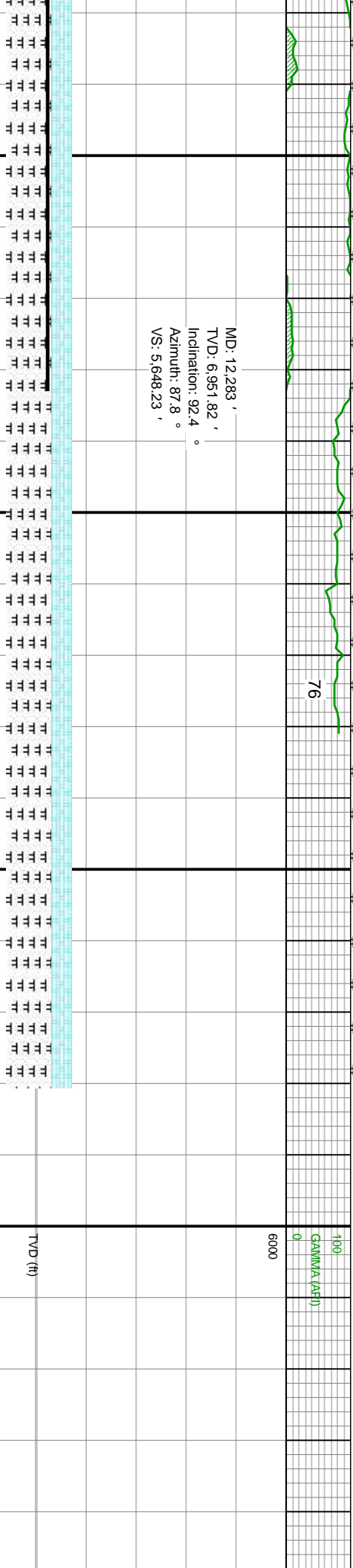
590
ROP (ft/hr)
0
6000
600000

NOBLE ENERGY INC.
EAGLE E14-65-1HN
TD @ 12,381' MD
06/12/2014 @ 03:11 PM
THANK YOU
COLUMBINE LOGGING INC



76

MD: 12,283 '
TVD: 6,951.82 '
Inclination: 92.4 °
Azimuth: 87.8 °
VS: 5,648.23 '



TVD (ft)

8000

blk, sb blk - sb
d frm, rthy tex, tr

MRLST: gy blk-blk, occ dk gy, sb blk - sb
pty, tr pty, sme fis, mod frm, rthy tex, tr fos
frags, v calc, occ chk

MRLST: gy blk-blk, tr dk gy, sb blk - sb pty,
occ pty, sme fis, mod frm, rthy tex, tr cal
incl, tr fos frags, tr pyr, v calc, tr chk

MRLST: gy blk-blk, occ dk gy, sb blk - sb
pty, tr pty, sme fis, mod frm, rthy tex, tr cal
incl, tr fos frags, tr pyr, v calc, tr chk



