



Scale: 5" / 100'
Measured Depth Log

Well Name Morning Fresh 29C-15HZ

Location NENW SEC 22 T3N R66W

State COLORADO County WELD

Country USA Rig Number ENSIGN 132

API Number 051233691000 AFE # 2074492

Region DJ BASIN Field WATTENBERG

Spud Date 6/13/2014 Drilling Completed 6/21/2014

Surface Coordinates 427' FNL & 1858' FWL
40.228429 104.942864

Bottom Hole Coordinates 460' FNL & 2000' FWL
40.226805 104.9795

Ground Elevation 4880' K.B. Elevation 4893'

Logged Interval 7200' To 12416 Total Depth 12416'

Formation CODELL

Type of Drilling Fluid FSNL

Operator

Company ANADARKO PETROLEUM INC
Address 1099 18th St, Suite 1800
Denver , CO 80202

Geologist

Name SHANA SWIRIN AND BEN KATKA
Company COLUMBINE LOGGING
Address 2385 S. Lipan St.
Denver, CO 80223

Zone Color Coding



Rock Types



Accessories

Fossils

	GASTROPOD
	INOCERAMUS
	OOOLITE
	AMPHIPORA
	OSTRACOD
	BELEMNITE
	BIOCLASTIC
	BRACHIOPOD
	BRYOZOA
	CEPHALOPOD
	CORAL
	CRINOID
	ECHINOID
	FISH
	FORAMINIFERA
	F FOSSIL

Minerals

	ARGILLITE GRAIN
	B BENTONITE
	H HEAVY MINERAL
	K KAOLIN
	M MARCASITE
	BRECCIA FRAGMENTS
	C CALCAREOUS
	CARBONACEOUS FLAKES
	CHERT
	CHTLT
	COAL - THIN BEDS
	D DOLOMITIC
	F FELDSPAR
	FERRUGINOUS PELLET
	F FERRUGINOUS
	G GLAUCONITE
	G GYPSIFEROUS
	S SILICEOUS
	S SILTY
	T TUFFACEOUS

Stringer

	ANHYDRITE STRINGER
	BENTONITE STRINGER
	COAL STRINGER
	DOLOMITE STRINGER
	GYPSUM STRINGER
	L Limestone stringer
	LMARLSTONE (CALC) STRG
	MMARLSTONE (DOL) STRG
	SSANDSTONE STRINGER
	SHALE STRINGER
	SILTSTONE STRINGER

Other Symbols

Oil Show

	P PINPOINT
	V VUGGY
	D DEAD
	E EVEN
	Q QUESTIONABLE
	BIT
	SPOTTED STAINING
	CONNECTION (UP)

Engineering

	DST INTERVAL
	FAULT
	FORMATION TOP
	GAS SHOW
	OIL SHOW
	MN DEPTH UP

	WIRELINE TESTED - LEFT
	WIRELINE TESTED - RT
	DRILL STEM TEST
	MN DEPTH
	G GRAINSTONE
	L LITHOGRAPHIC
	M MICROXLN
	M MUDSTONE

Rounding

CONNECTION (DOWN)

MN DEPTH (DOWN)

A ANGULAR

PS PACKSTONE

Porosity

	CONNECTION GAS
	CONNECTION GAS (LEFT)
	TRIP GAS
	TRIP GAS (LEFT)
	F FRACTURE
	INTERCRYSTALLINE
	INTEROOLITIC
	M MOLDIC
	O ORGANIC

	NORMAL FAULT
	OVERTURNED STRATA
	REVERSE FAULT
	CASING
	SIDEWALL CORE (LEFT)
	SIDEWALL CORE (RIGHT)
	SLIDE
	SURVEY

Textures

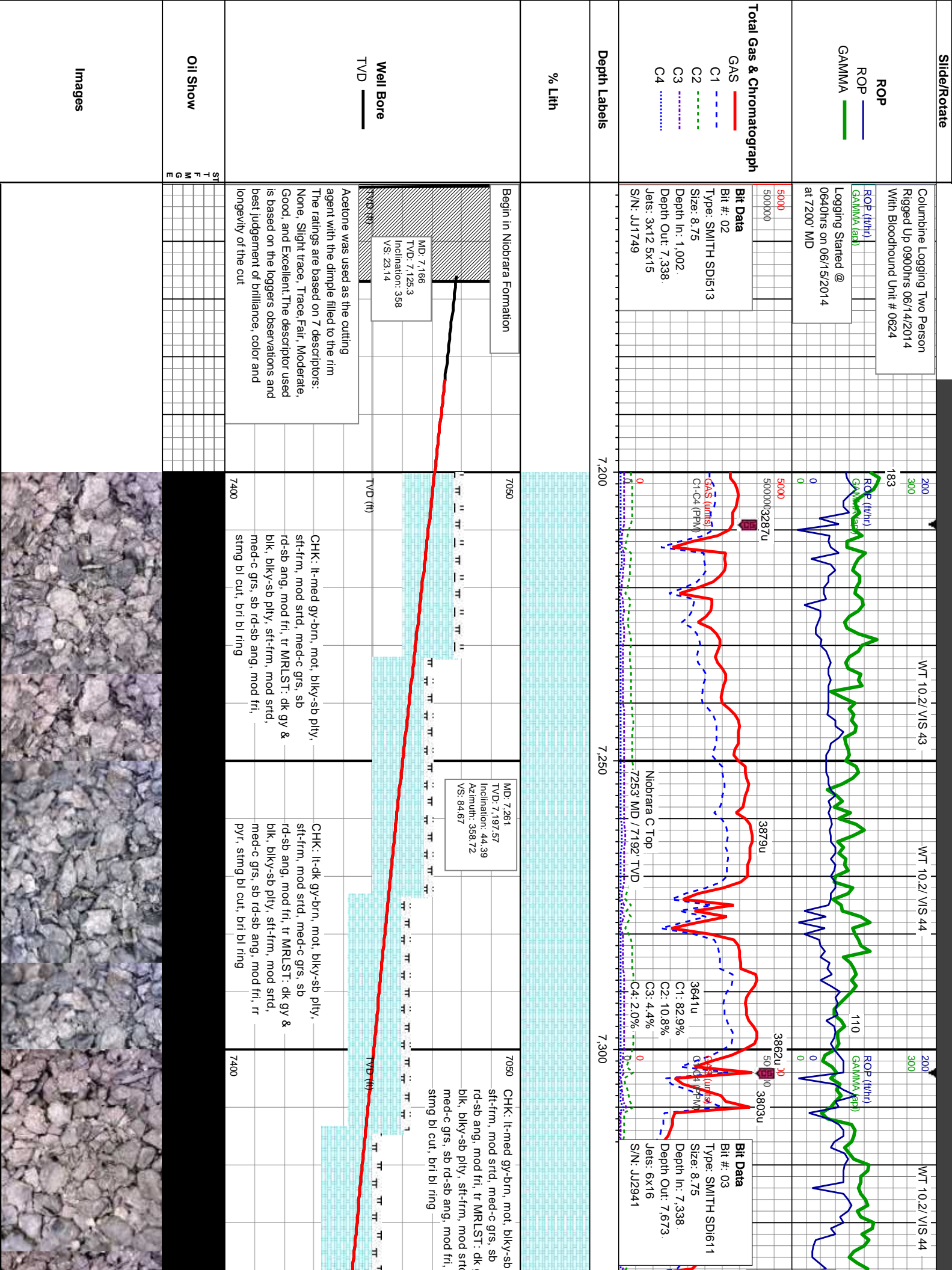
	S SUBANG
	S SUBRND
	B BOUNDSTONE
	C CHALKY
	C CRYPTOXLN
	P POOR
	W WELL

Sorting

M MODERATE

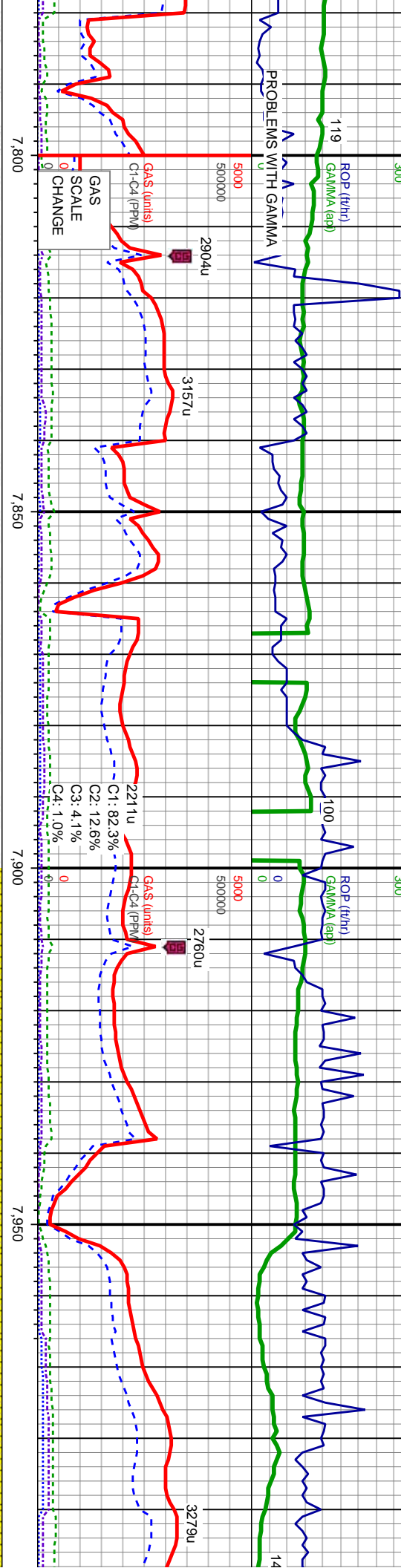


STONE	SHALY SANDSTONE
AMORPHIC	SHALY SILTSTONE
AMPLE	SILTY SHALE
STONE	SILTSTONE
-PEPPER SANI	TUFF
E COLORED	WELDED TUFF
E GRAY	



9.5+ / VIS 42

WT 9.5+ / VIS 41



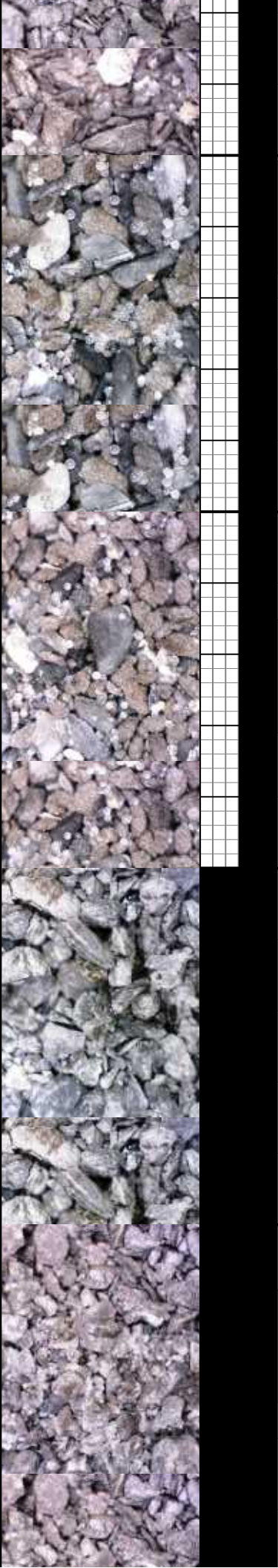
SS: med gy, lt-dk brn, clus, w srt, f-med grs, mod sft-hd, w rd, non-sl calc, SH: blk-dk gy, sb ply-ply, mod sft-frm, mod strd, med grs, string bl cut, dul bl ring

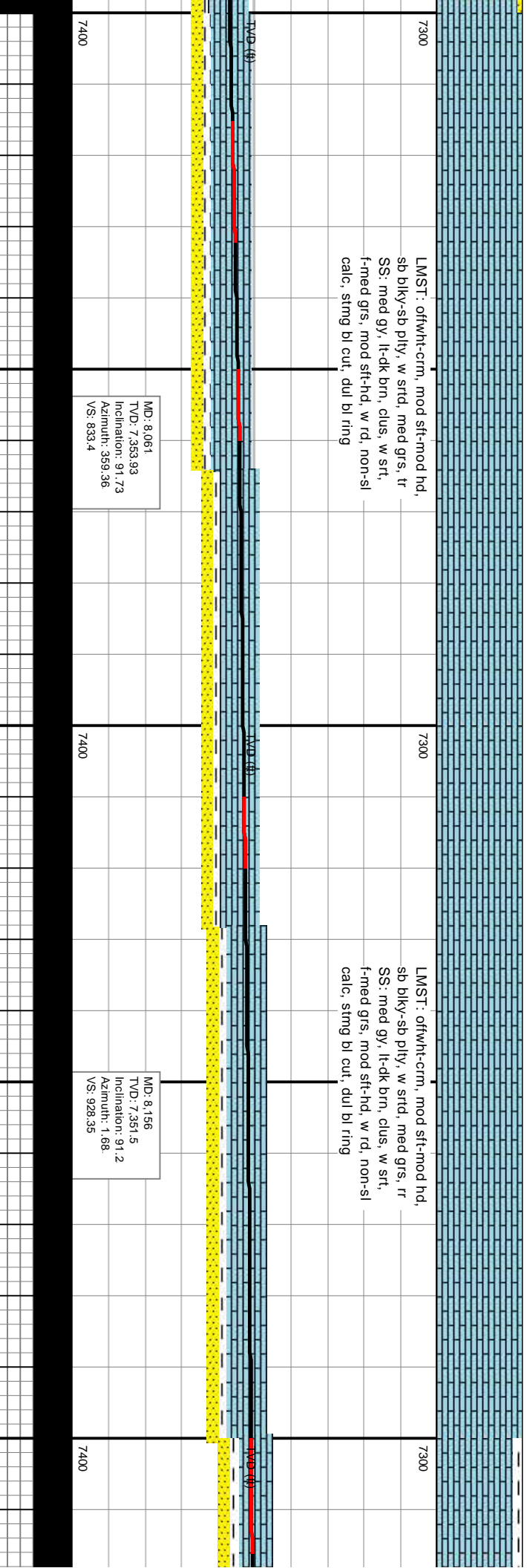
LMST: ofwht-crm, mod sft-mod hd, sb blkgy-sb ply, w strd, med grs, SS: med gy, lt-dk brn, clus, w srt, f-med grs, mod sft-hd, w rd, non-sl calc, string bl cut, bri bl ring

MD: 7.808
TVD: 7.365.87
Inclination: 91.48
Azimuth: 0.91
VS: 580.73

MD: 7.871
TVD: 7.363.41
Inclination: 92.99
Azimuth: 1.21
VS: 643.67

MD: 7.966
TVD: 7.358.15
Inclination: 93.36
Azimuth: 1.44
VS: 738.5





600 WT 9.5/ VIS 43
300

ROP (ft/h)
GAMMA (api)

5000
500000

8,250

1795u

1807u

8,300

GAS (units)
1415u (PPM)
C1: 77.6%
C2: 12.4%
C3: 6.4%
C4: 3.6%

8,350

3125u

8,400

PROBLEMS WITH GAMMA
ROP (ft/h)
GAMMA (api)

5000
500000

GAS (units)
C1-C4 (PPM)

LMST: offwht-crm, mod sft-mod hd,
sb blk-y-sb ply, w strd, med grs, SH:
blk-dk gy,sb ply-ply, mod sft-frm,
mod strd, med grs, sting bl cut, dul
bl ring

MD: 8,251
TVD: 7,349.99
Inclination: 90.62
Azimuth: 1.42
VS: 1,023.3

LMST: offwht-crm, mod sft-mod hd,
sb blk-y-sb ply, w strd, med grs, SH:
blk-dk gy,sb ply-ply, mod sft-frm,
mod strd, med grs, rr pyr, sting bl
cut, dul bl ring

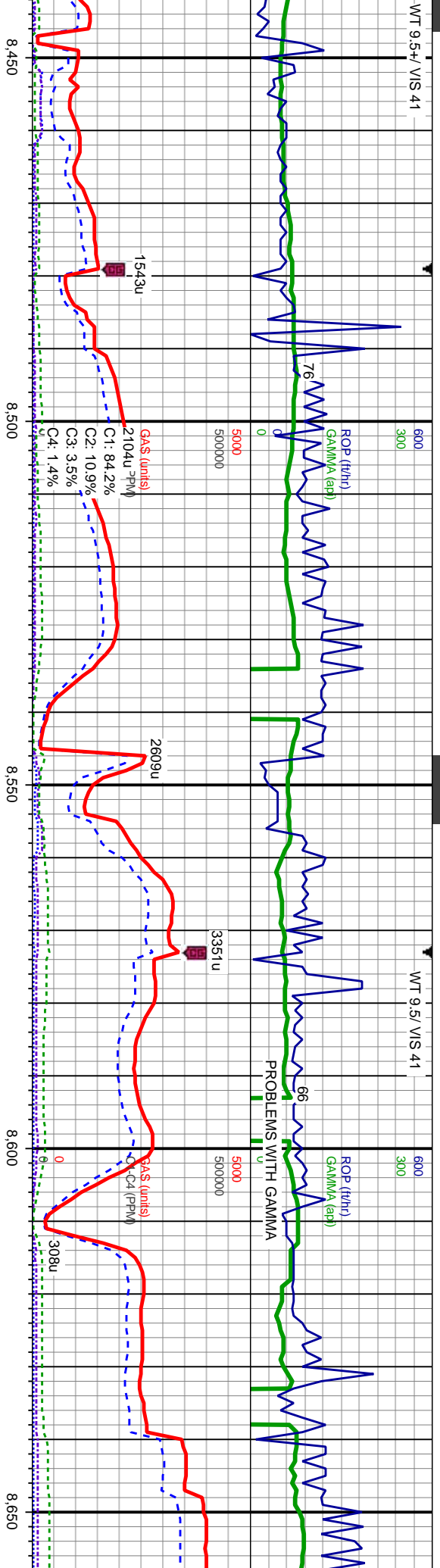
MD: 8,346
TVD: 7,349.76
Inclination: 89.66
Azimuth: 359.32
VS: 1118.30

LMS
sb b
med
mod
sting

MD: 8
TVD:
Inclin:
Azim:
VS: 1,

WT 9.5/ VIS 41

WT 9.5/ VIS 41



T: ofwht-crm, mod sft-mod hd,
dky-sb ply, w srt, med grs, SH;
dk gy,sb ply-ply, mod sft-fm,
srt, med grs, rr pyr, v calc,
bl cut, dul bl ring

LMST: ofwht-crm, mod sft-mod hd,
sb blk-sb ply, w srt, med grs, SH;
med-dk gy,sb ply-ply, mod sft-fm,
mod srt, med grs, rr pyr, v calc,
string bl cut, dul bl ring

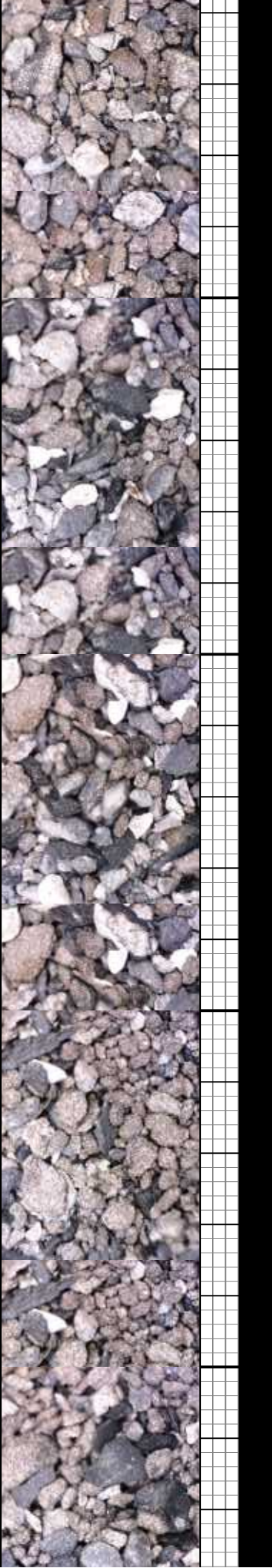
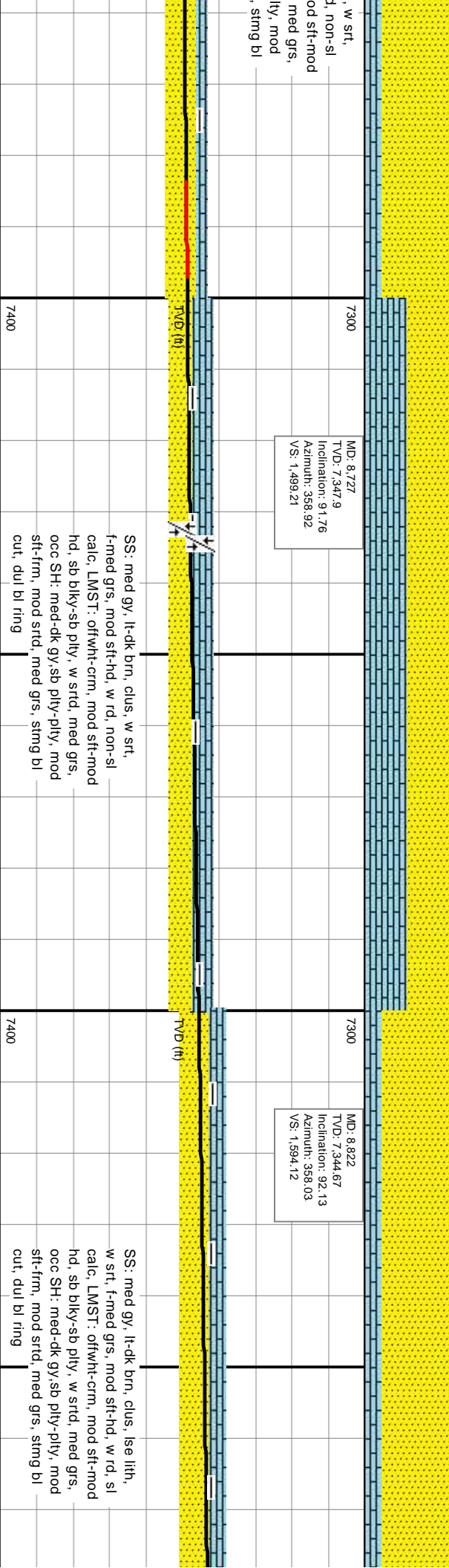
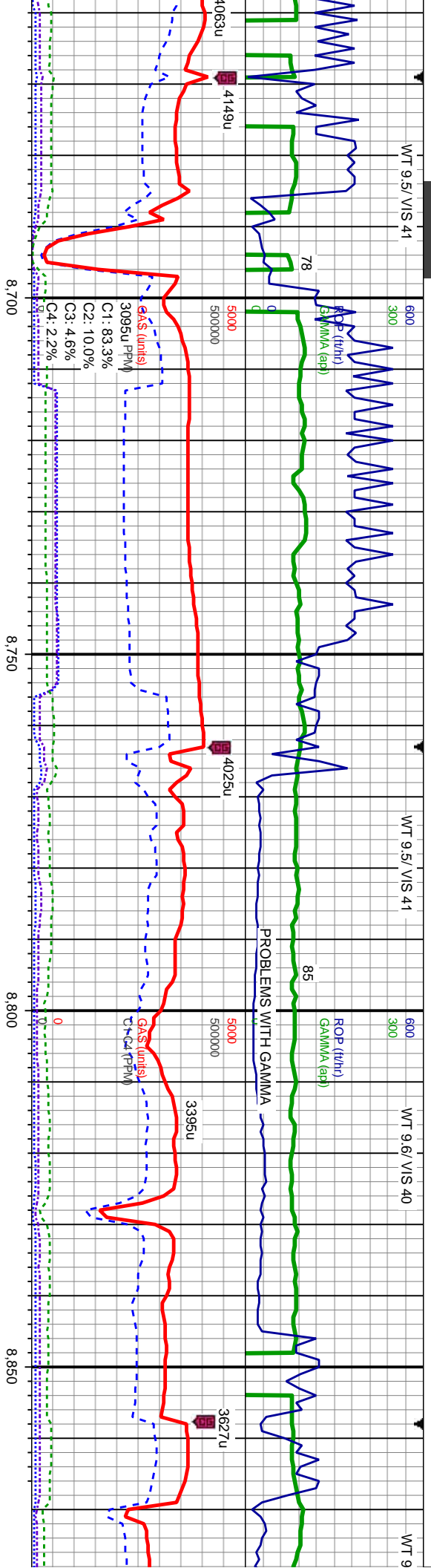
SS: med gy, lt-dk brn, clus
f-med grs, mod sft-hd, w rr
calc, LMST: ofwht-crm, m
hd, sb blk-sb ply, w srt,
rr SH: med-dk gy,sb ply-p
sft-fm, mod srt, med grs
cut, dul bl ring

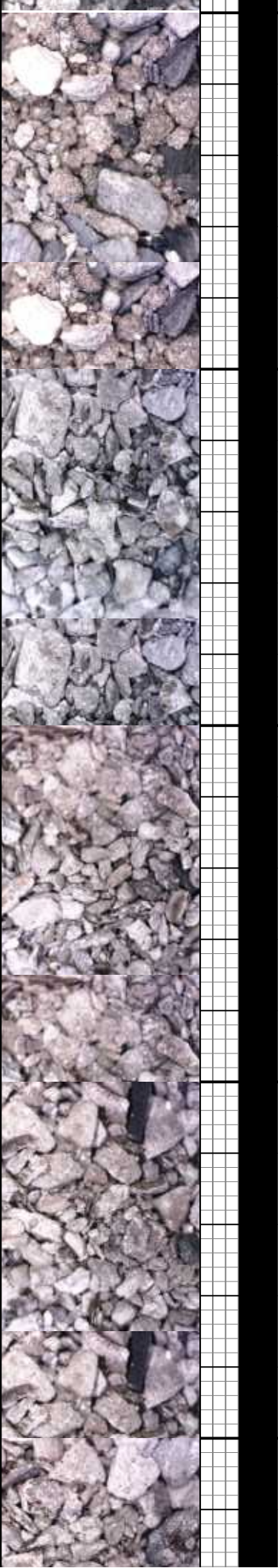
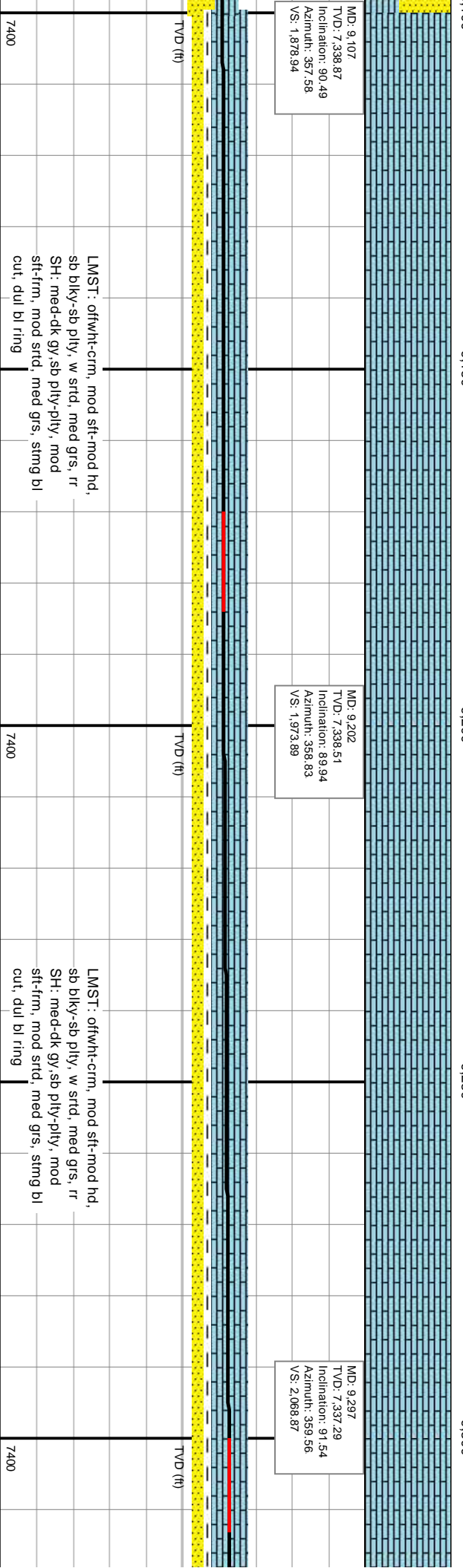
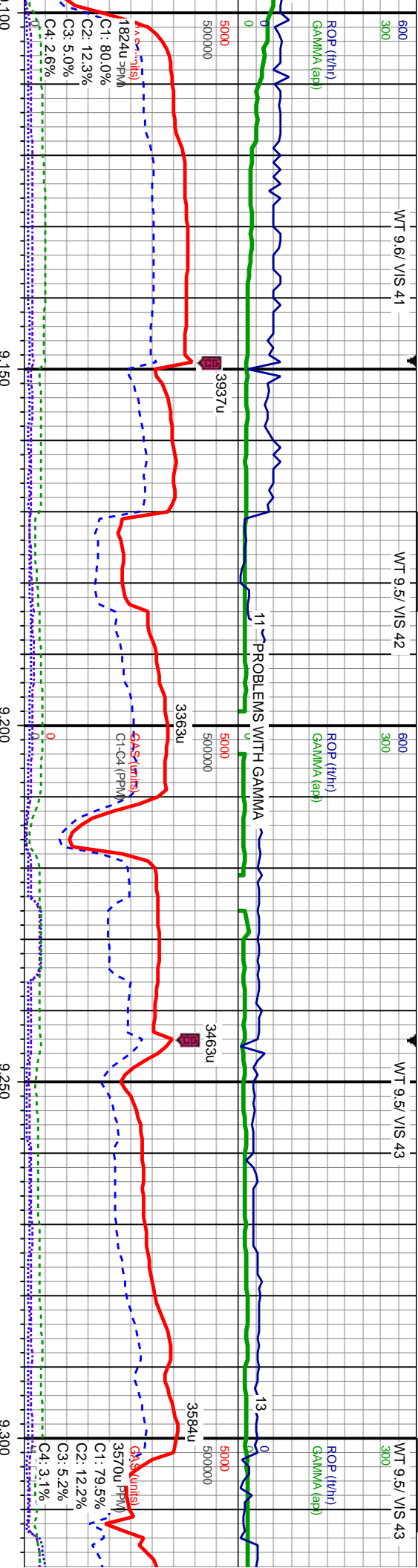
441
TVD: 7,350.14
Inclination: 89.88
Azimuth: 359.04
VS: 213.28

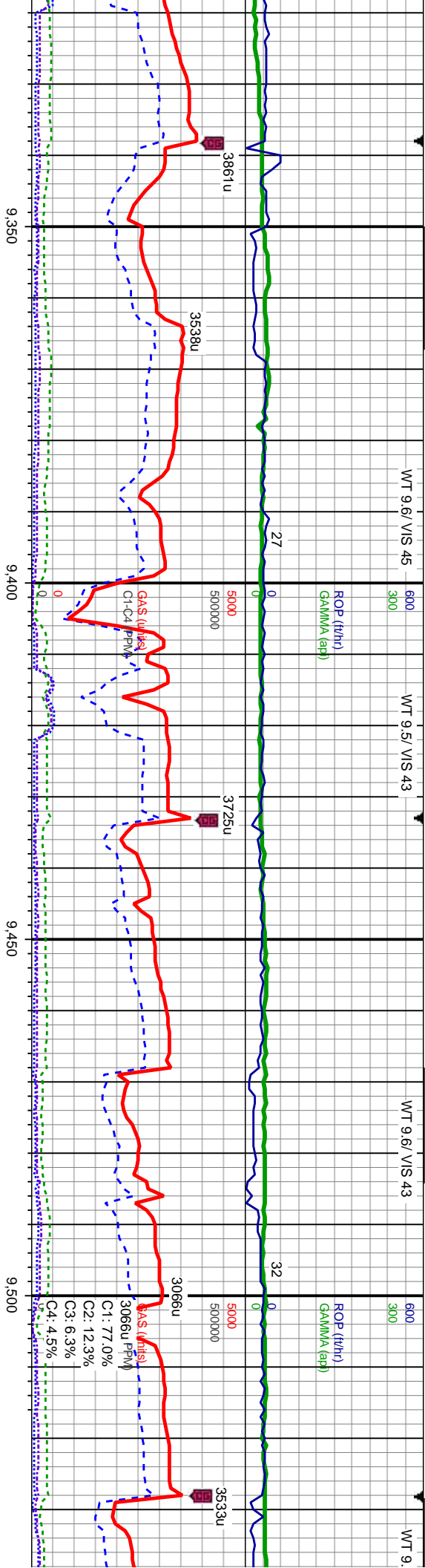
MD: 8.536
TVD: 7,350.39
Inclination: 89.82
Azimuth: 359.15
VS: 1,308.27

MD: 8.532
TVD: 7,349.94
Inclination: 90.71
Azimuth: 358.7
VS: 1,404.25









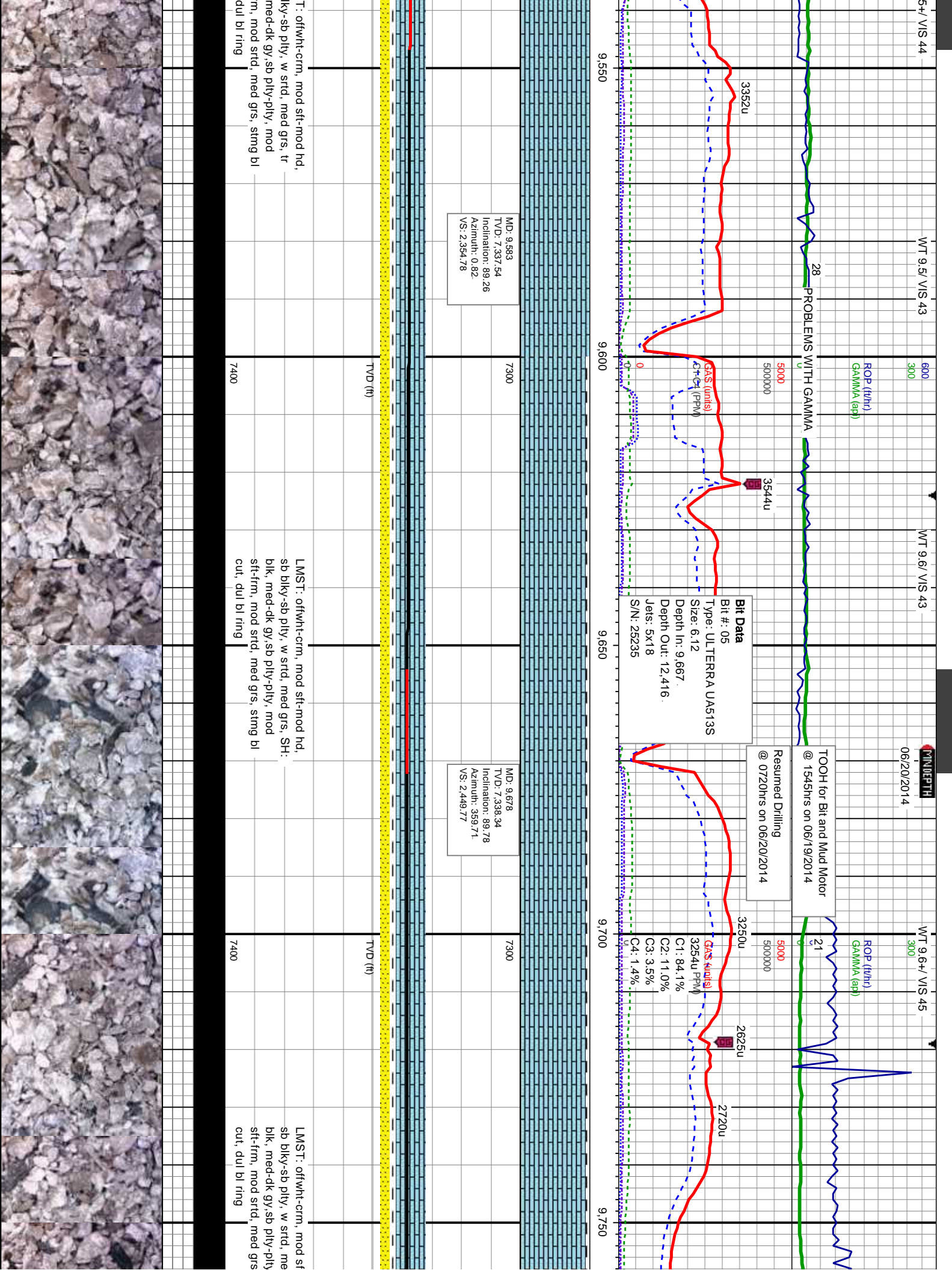
MD: 9.392
TVD: 7.336.46
Inclination: 89.45
Azimuth: 1.17.
VS: 2.163.86

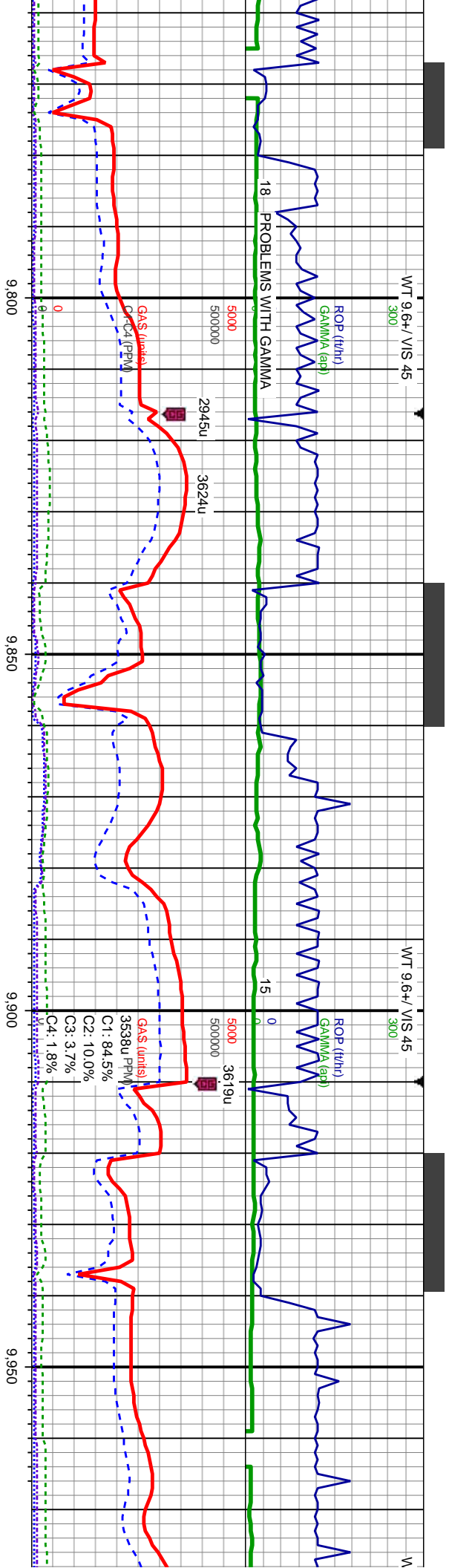
MD: 9.487
TVD: 7.336.92
Inclination: 90
Azimuth: 2.14
VS: 2.258.81

LMST: offwt-crm, mod sft-mod hd,
sb blk-y-sb ply, w srd, med grs, rr
SH: med-dk gy-sb ply-ply, mod
sft-firm, mod srd, med grs, sting bl
cut, dul bl ring

LMST: offwt-crm, mod sft-mod hd,
sb blk-y-sb ply, w srd, med grs, tr
SH: med-dk gy-sb ply-ply, mod
sft-firm, mod srd, med grs, sting bl
cut, dul bl ring

LMS
sb b
SH:
sft-f
cut,





MD: 9.773
TVD: 7.338.47
Inclination: 90.06
Azimuth: 359.43
VS: 2.544.77

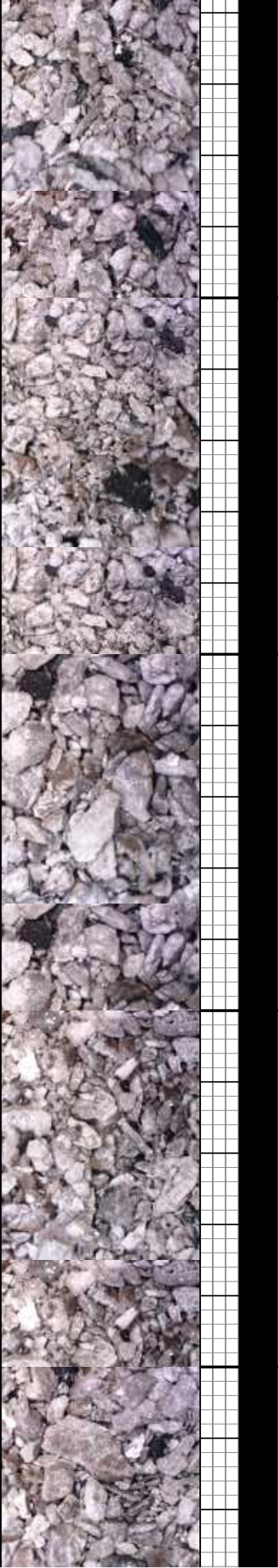
MD: 9.868
TVD: 7.338.65
Inclination: 89.72
Azimuth: 359.67
VS: 2.639.77

MD: 9.963
TVD: 7.340.52
Inclination: 88.03
Azimuth: 359.27
VS: 2.734.74

LMST: offwht-frm, dk frm, mod
sft-mod hd, sb blk-y-sb ply, w srt,
med grs, tr SH: blk, med-dk gy/sb
ply-ply, mod sft-frm, mod srt, med
grs, stimg bl cut, dul bl ring

LMST: offwht-frm, dk frm, mod
sft-mod hd, sb blk-y-sb ply, w srt,
med grs, tr SH: blk, med-dk gy/sb
ply-ply, mod sft-frm, mod srt, med
grs, stimg bl cut, dul bl ring

LMST: offwht-frm, dk frm, mod
sft-mod hd, sb blk-y-sb ply, w srt,
med grs, tr SH: blk, med-dk gy/sb
ply-ply, mod sft-frm, mod srt, med
grs, stimg bl cut, dul bl ring



T 9.6+ VIS 43

600
300

PROBLEMS WITH GAMMA

55

ROP (t/hr)
GAMMA (cp)

3720u

50 3743u
500

GAS (units)
C1: 4 (ppm)

10,000

10,050

10,100

10,150

6kWT 9.6/ VIS 43

300

ROP (t/hr)
GAMMA (cp)

80

4162u
500000

GAS (units)
C1: 76.3%
C2: 12.7%
C3: 7.1%
C4: 3.9%

3719u

PROBLEM

80

41

7300

MD: 10,058
TVD: 7,344.45
Inclination: 87.23
Azimuth: 357.19
VS: 2,829.61

7300

MD: 10,153
TVD: 7,348.81
Inclination: 87.5
Azimuth: 357.9
VS: 2,924.42

TVD (ft)

TVD (ft)

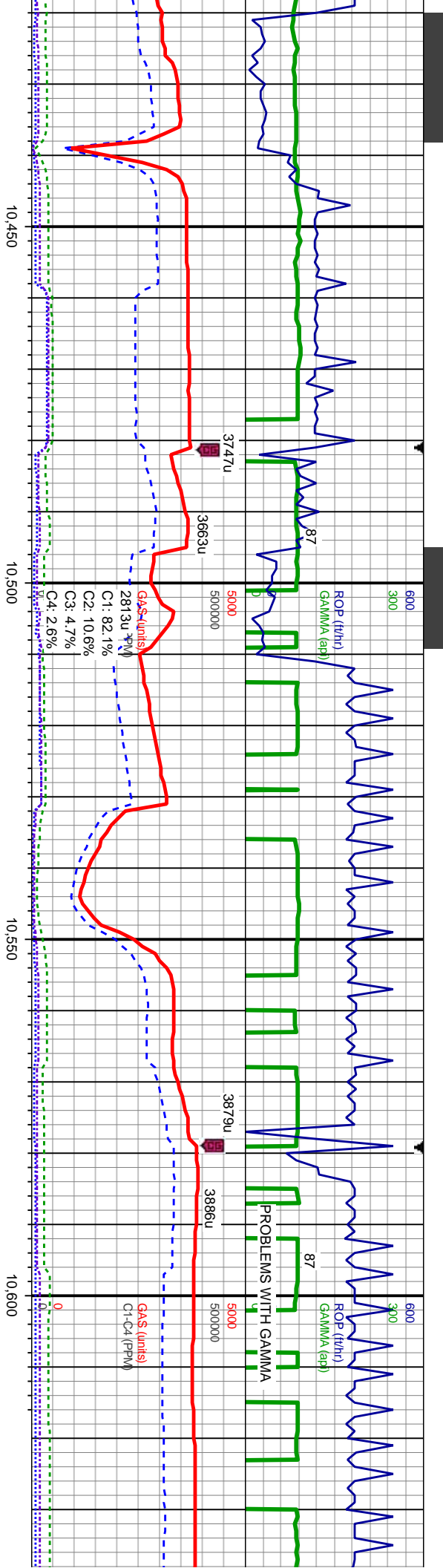
7400

7400

LMST: offwht-crm, dk crm, mod
sft-mod hd, sb blk-y-sb ply, w srt,
med grs, SH: blk, med-dk gy, sb
ply-ply, mod sft-frm, mod srt, med
grs, SS: med gy, lt-dk brn, clus, lse
lith, well srt, f-med grs, mod sft-hd,
w rd, non-sl calc, sting bl cut, dul bl
ring

SS: lt-dk brn, clus, lse lith, w srt,
f-med grs, mod sft-hd, w rd, non-sl
calc, LMST: offwht-crm, dk crm, mod
sft-mod hd, sb blk-y-sb ply, w srt,
med grs, tr SH: blk, med-dk gy, sb
ply-ply, mod sft-frm, mod srt, med
grs, sting bl cut, dul bl ring





SS: lt-dk brn, clus, lse lith, w srt,
f-med grs, mod srt-hd, w rd, non-sl
calc, sting bl cut, dul bl ring

SS: lt-dk brn, clus, lse lith, w srt,
f-med grs, mod srt-hd, w rd, non-sl
calc, sting bl cut, dul bl ring

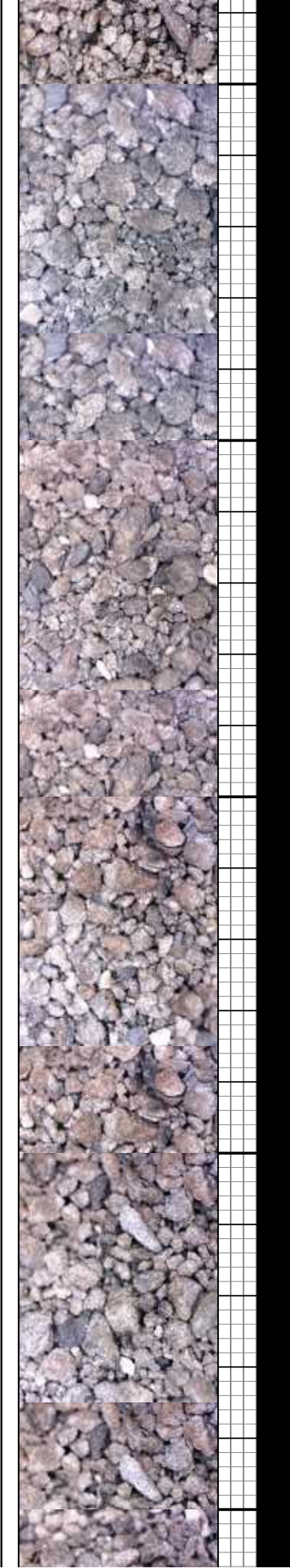
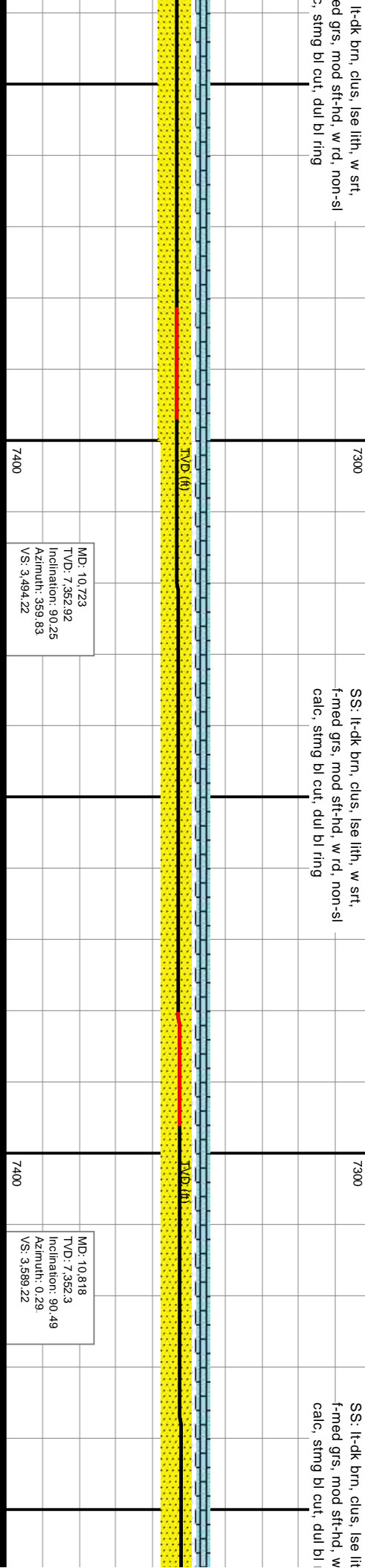
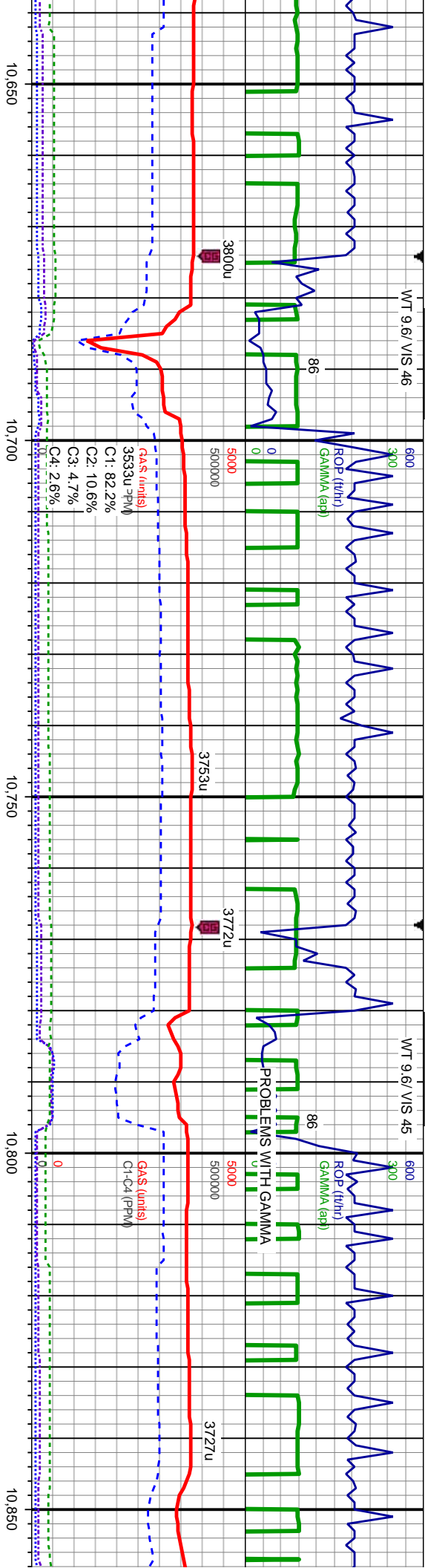
SS:
f-m
cal

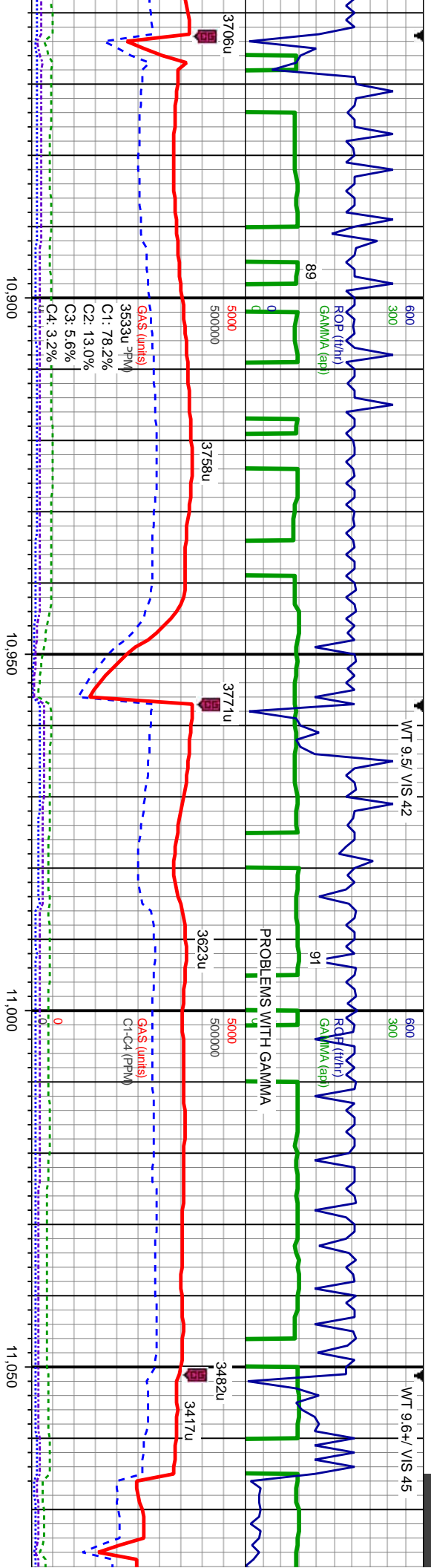
MD: 10,438
TVD: 7,353.76
Inclination: 89.23
Azimuth: 359.28
VS: 3,209.25

MD: 10,533
TVD: 7,353.99
Inclination: 90.49
Azimuth: 359.99
VS: 3,304.25

MD: 10,628
TVD: 7,353.36
Inclination: 90.28
Azimuth: 358.4
VS: 3,399.23







h, w srt,
rd, non-sl
ring

SS: lt-dk brn, clus, lse lith, w srt,
f-med grs, mod sft-hd, w rd, non-sl
calc, string bl cut, dul bl ring

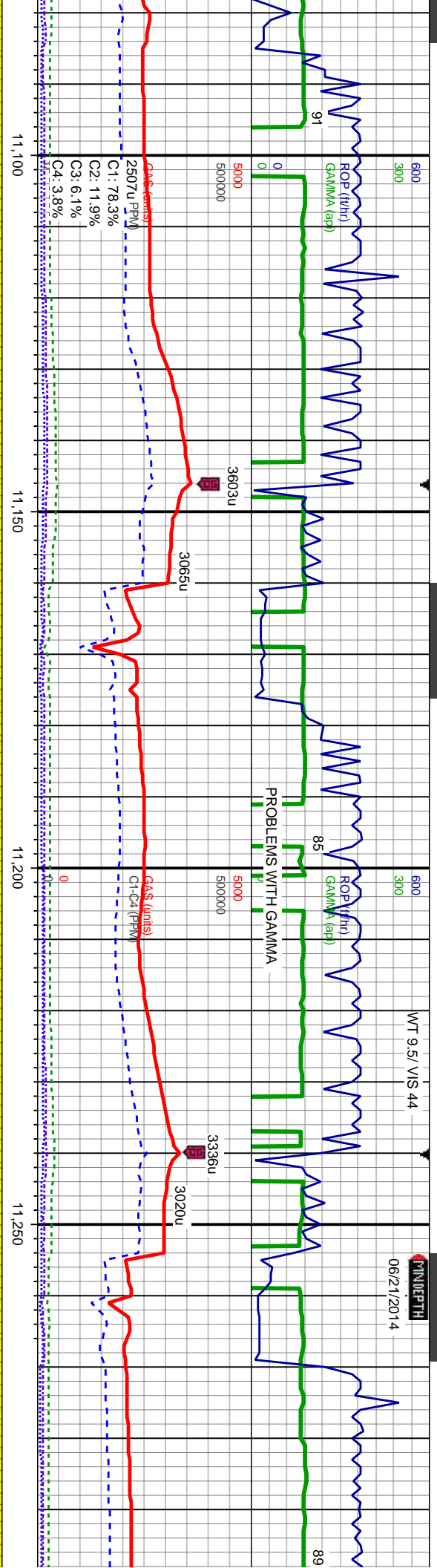
SS: lt-dk brn, clus, lse lith, w srt,
f-med grs, mod sft-hd, w rd, non-sl
calc, string bl cut, dul bl ring

MD: 10.913
TVD: 7,351.56
Inclination: 90.4
Azimuth: 0.19
VS: 3.684.21

MD: 11.008
TVD: 7,351.36
Inclination: 89.85
Azimuth: 358.93
VS: 3.779.21



WT 9.5 / VIS 44



SS: lt-dk brn, clus, w srt, f-med grs,
mod sft-hd, w rd, non-sl calc, rr SH:
blk, med-dk gy, sp ply-pty, mod
sft-frm, mod strd, med grs, stmg bl
cut, dul bl ring

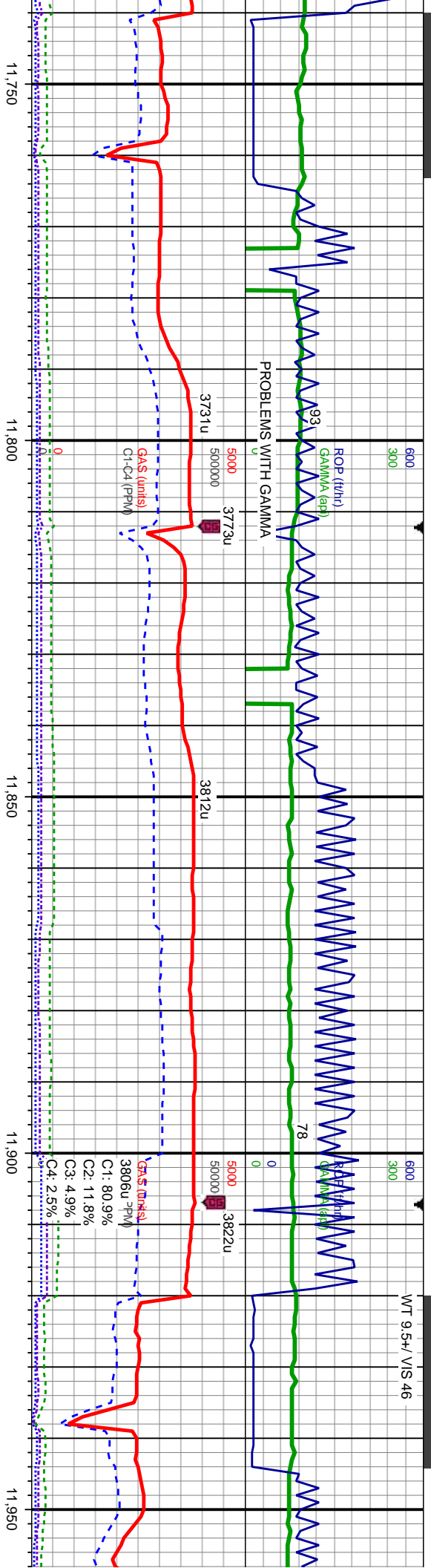
SS: lt-dk brn, clus, w srt, f-med grs,
mod sft-hd, w rd, non-sl calc, rr SH:
blk, med-dk gy, sp ply-pty, mod
sft-frm, mod strd, med grs, stmg bl
cut, dul bl ring

MD: 11.103
TVD: 7,350.87
Inclination: 90.74
Azimuth: 0.15
VS: 3.874.2

MD: 11.198
TVD: 7,350.49
Inclination: 89.72
Azimuth: 1.56
VS: 3.969.19

MD: 11.293
TVD: 7,350.21
Inclination: 90.6
Azimuth: 1.48
VS: 4.064.15





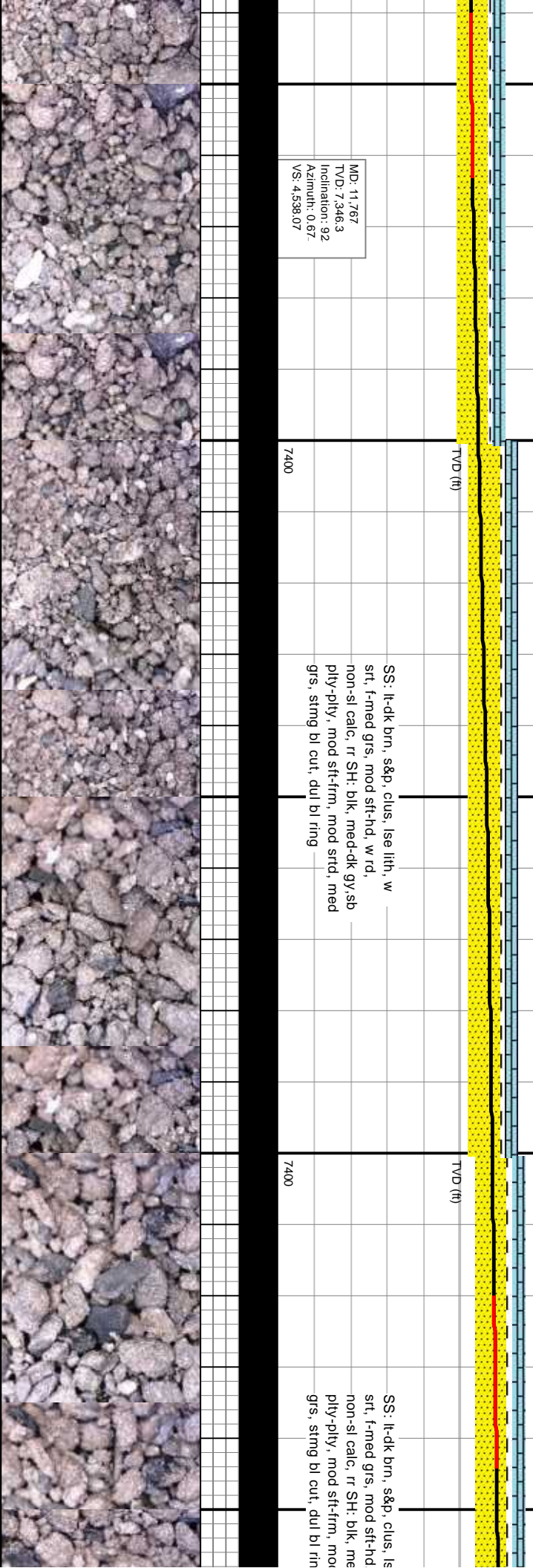
lt-dk brn, clus, w srt, f-med grs,
d sft-hd, w rd, non-sl calc, rr SH:
med-dk gy, sb ply-pty, mod
sft-frm, mod strd, med grs, sting bl
dul bl ring

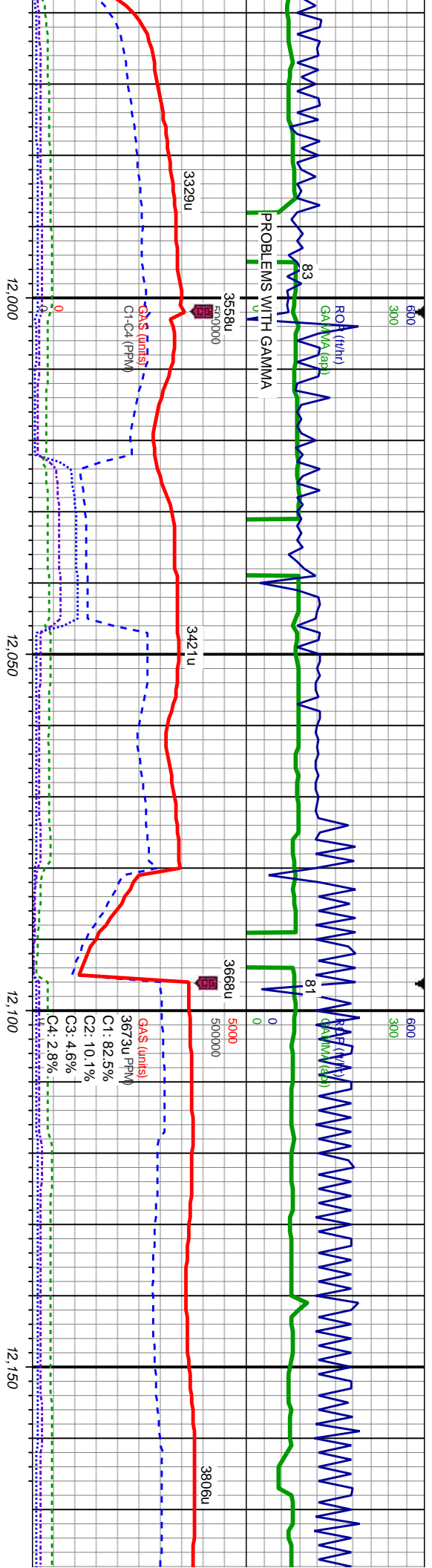
MD: 11.767
TVD: 7.346.3
Inclination: 92
Azimuth: 0.67.
VS: 4.538.07

SS: lt-dk brn, s&g, clus, lse lith, w
srt, f-med grs, mod sft-hd, w rd,
non-sl calc, rr SH: blk, med-dk gy, sb
ply-pty, mod sft-frm, mod strd, med
grs, sting bl cut, dul bl ring

MD: 11.861
TVD: 7.342.1
Inclination: 93.12
Azimuth: 359.81
VS: 4.631.98

MD: 11.956
TVD: 7.339.56
Inclination: 88
Azimuth: 0.76
VS: 4.726.93



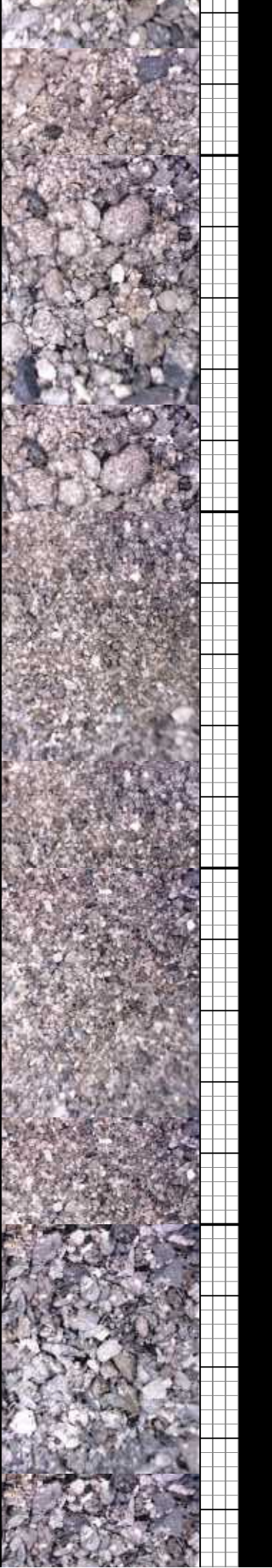
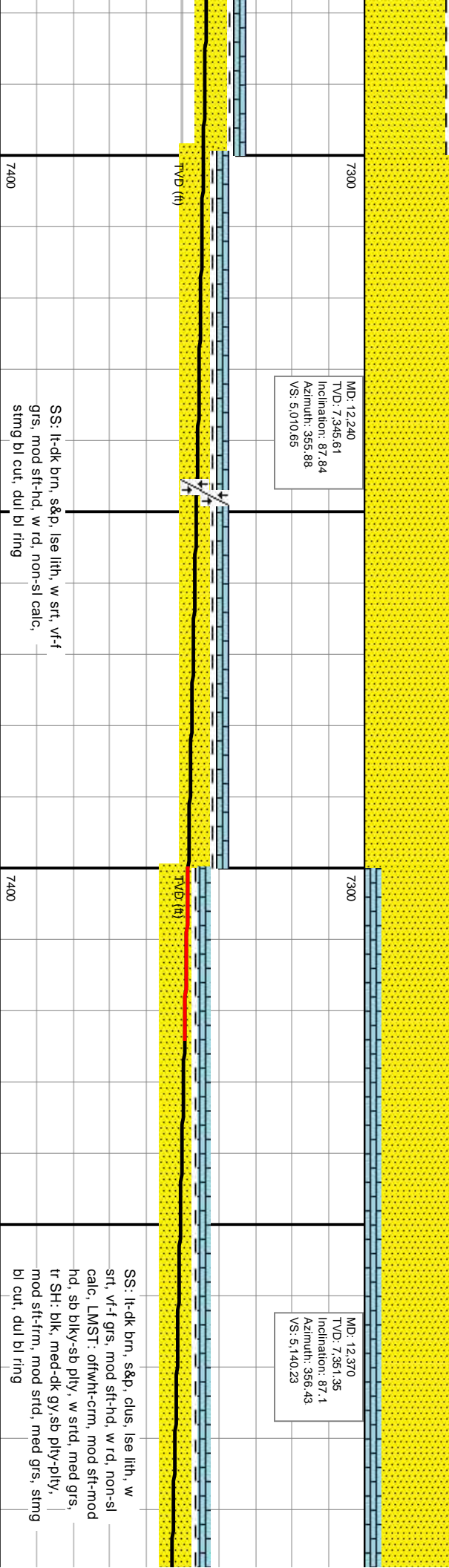
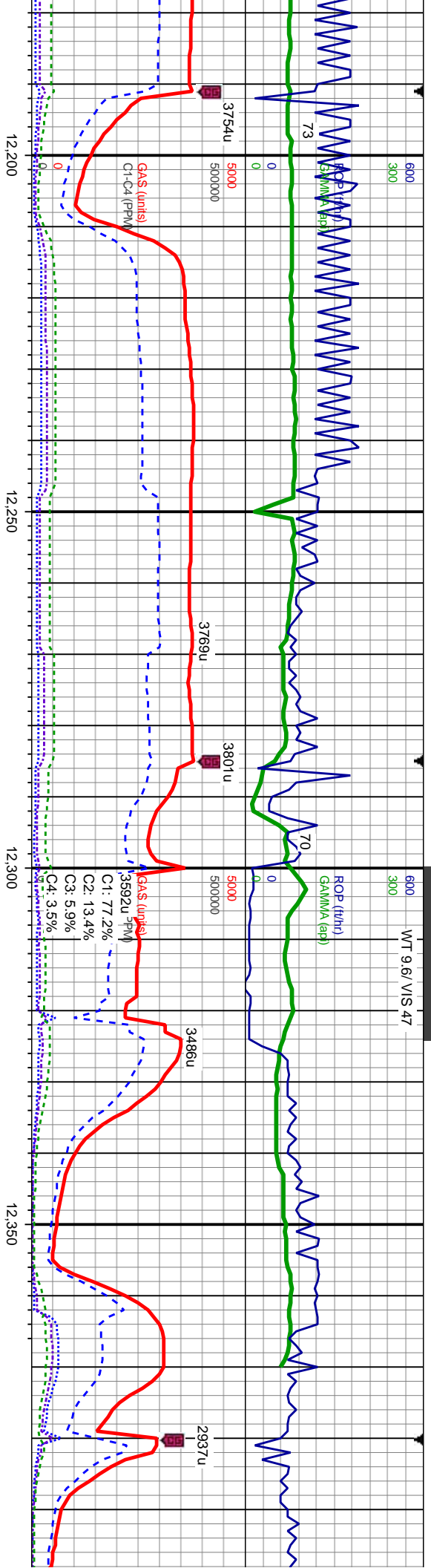


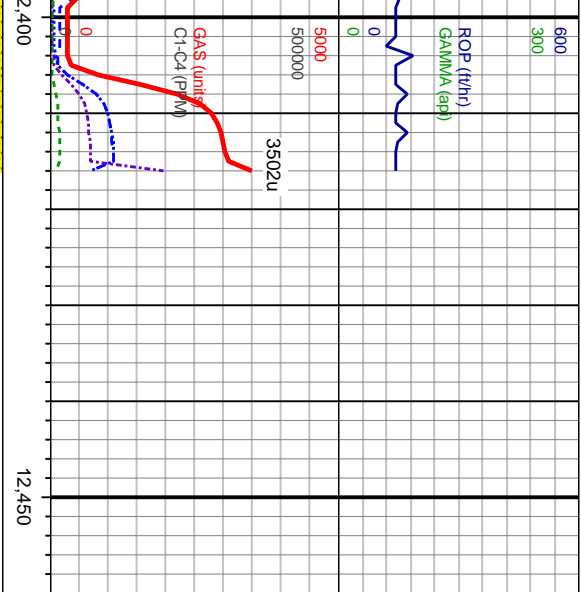
MD: 12,051
TVD: 7,340.02
Inclination: 89.57
Azimuth: 359.57
VS: 4,821.93

MD: 12,146
TVD: 7,342.11
Inclination: 87.9
Azimuth: 357.73
VS: 4,916.87

SS: lt-dk brn, s&dp, lse ilth, w srt, f-med grs, mod sft-hd, w rd, non-sl calc, SH: blk, med-dk gy, sb ply-ply, mod sft-fm, mod srd, med grs, sting bl cut, dul bl ring	7400
SS: lt-dk brn, s&dp, lse ilth, w srt, f-med grs, mod sft-hd, w rd, non-sl calc, SH: blk, med-dk gy, sb ply-ply, mod sft-fm, mod srd, med grs, sting bl cut, dul bl ring	7400







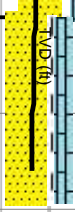
12,450

73 PROJECTION TO BIT

MD: 12,416
TVD: 7,353.67
Inclination: 87.1
Azimuth: 356.43
VS: 5,186.08

ANADARKO
MORNING FRESH 29C-15HZ
WELL TD @ 12,416' MD
ON 06/21/2014 @ 1500HRS

THANK YOU FOR USING
COLUMBINE LOGGING INC.



7400

