



Scale: 5" / 100'
Measured Depth Log

Well Name NCLP PC AA04-67-1HNL

Location SWNW SEC4 T6N R63W

State COLORADO

Country USA

API Number 05-123-37176

Region DJ BASIN

Spud Date 12/1/2013

Surface Coordinates 2150' FNL, 250' FWL

Lat/Long: 40.5171/-104.45032

Bottom Hole Coordinates SEC3 T6N R63W

1650' FNL, 535' FEL

Ground Elevation 4710'

Logged Interval 5900' To 16202'

Formation TEEPEE BUTTES, SHARON SPRINGS, NIOBRARA

Type of Drilling Fluid LSND

County WELD

Rig Number PRECISION 828

AFE # 138016

Field WATTENBERG

Drilling Completed 12/15/2013

K.B. Elevation 4726

Total Depth 16206'

Company Noble Energy Inc
Address 1625 Broadway
Denver, CO 80202

Name CASSIDY MILL
Company NOBLE ENERGY
Address 410 17th Street
Denver, CO 80202

Wellsite Geologists: GARY F
WELLS
LOG CORP

CHALK

Operator

ic

202

Geologist

ER

BY, INC.

, Suite 1500
202

Other

MYERS, MOHAMMED ALMUBARAK

ITE GEOLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING INC.
CONTINUES FROM FILE: NCLP PC AA04-67-1HNL Vert.mplot

Accessories

Minerals

B BENTONITE

Stringer




 SANDSTONE STRINGER

Other Symbols

Engineering

 BIT
 CONNECTION (DOWN)
 CONNECTION GAS
 CASING
 SLIDE
 MINDEPTH MN DEPTH

Rock Types

   MARLSTONE

       SILTY SHALE

Slide/Rotate

ROP
ROF
GAMMA

COLUMBINE LOGGING, INC.
ON LOCATION 12/2/13
MANNED 2-PERSON LOGGING
USING PASON GAS SYSTEM
DRILLED OUT OF SHOE
0200 HRS, 12/3/13

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

Depth Labels

% Lith

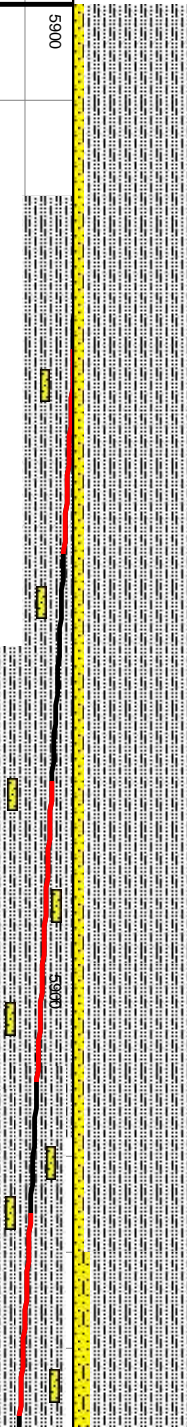
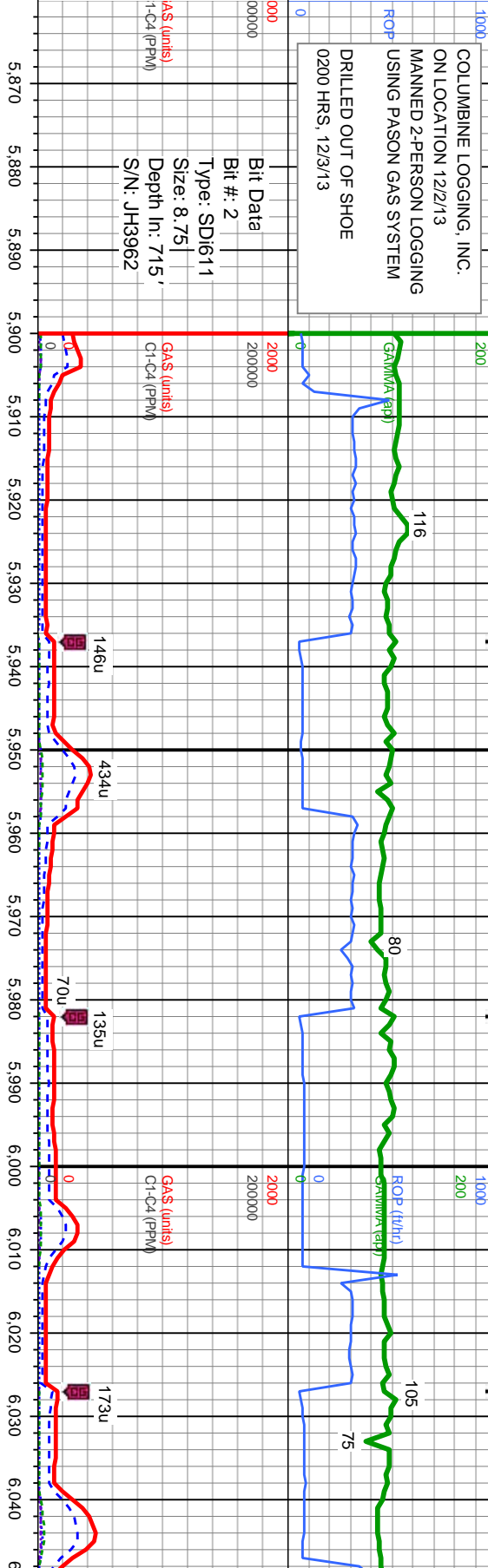
Well Bore
TVD

LOG CONTINUES FROM FILE:
NCLP_PC_AA04-67-1HNL_Vert.mplot

Oil Show

EGMFTS

Images



MD: 5.925
TVD: 5.888.17
INC: 1.43
AZW: 155.28

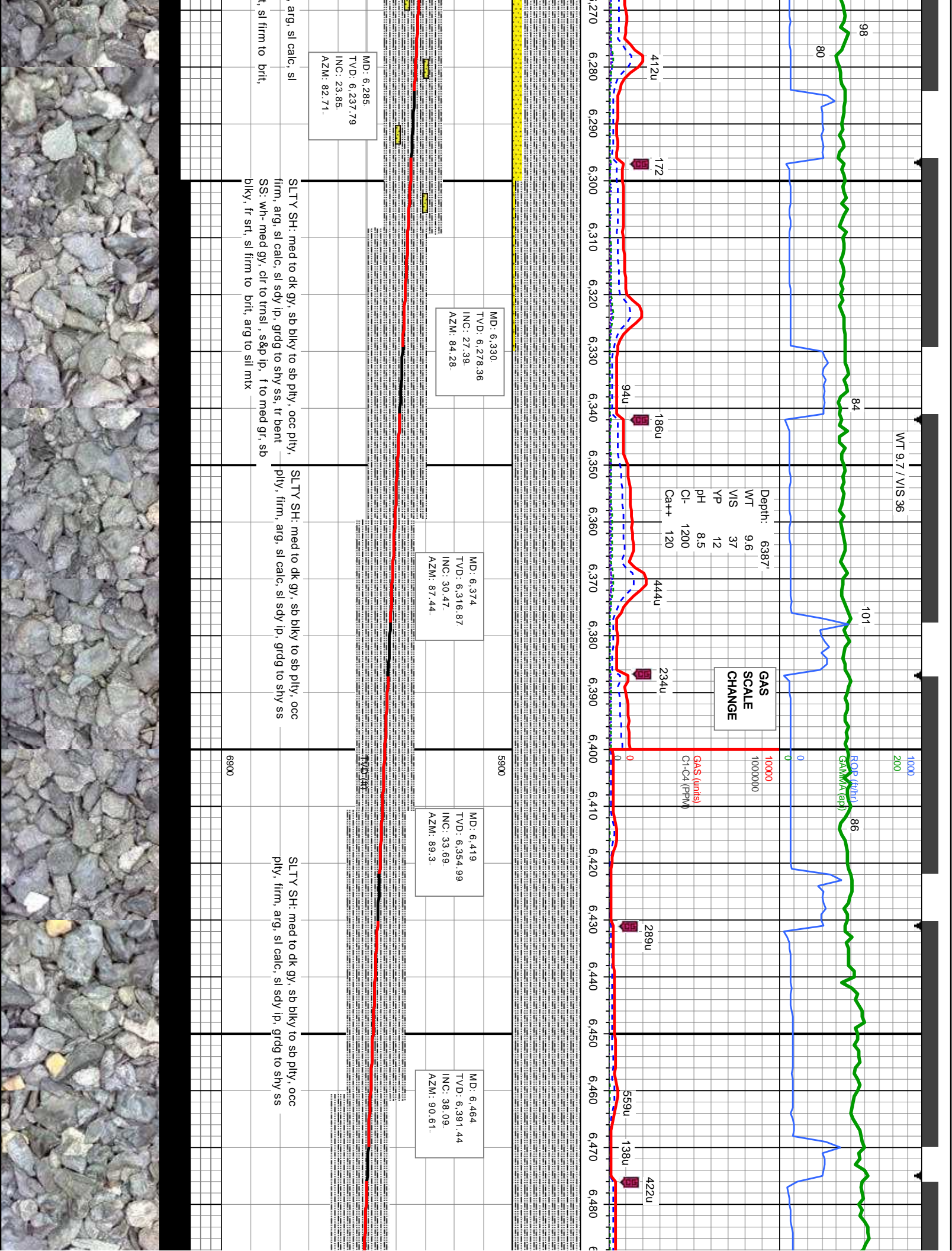
MD: 5.970
TVD: 5.933.12
INC: 3.9
AZW: 116.82

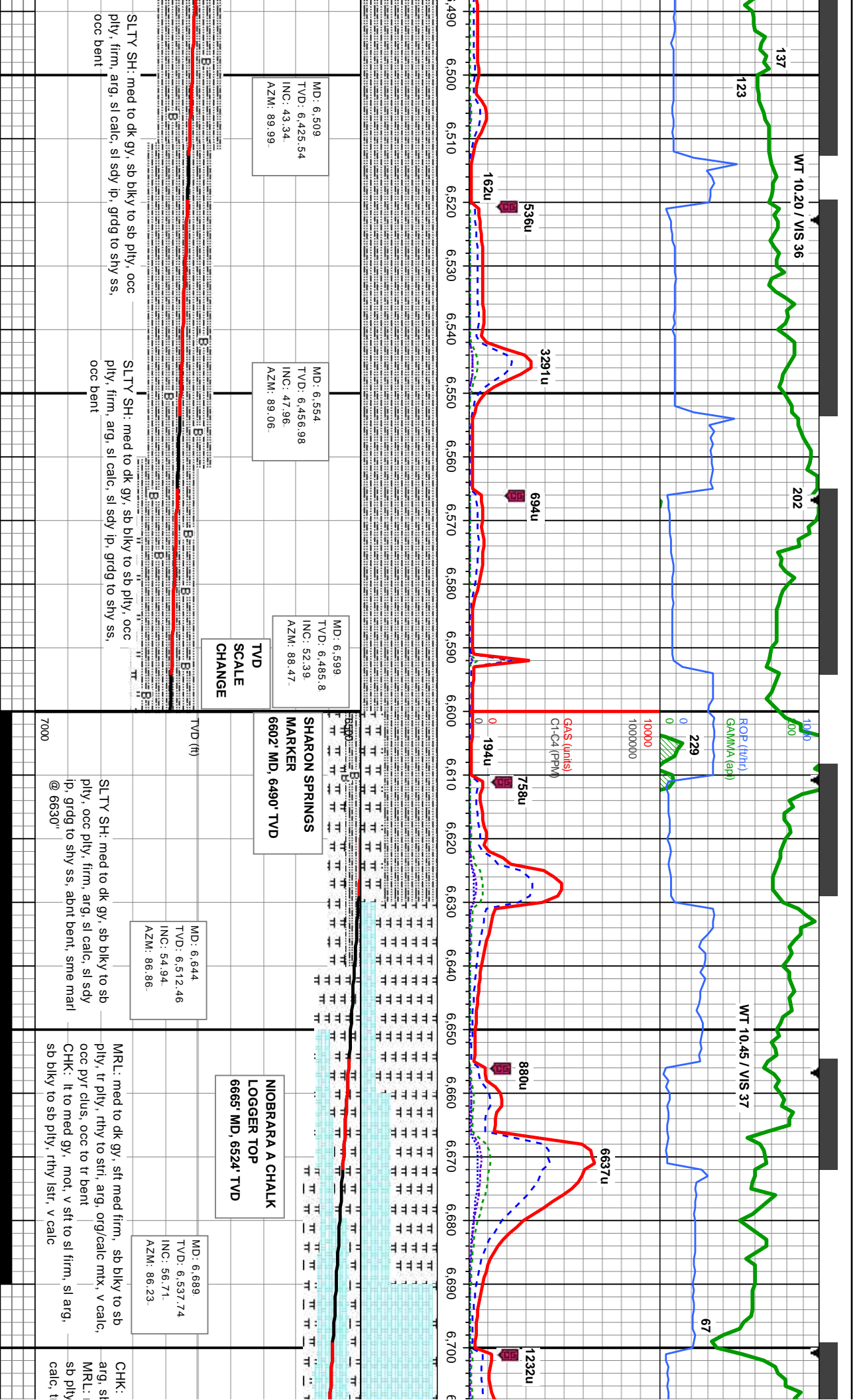
MD: 6.015
TVD: 5.977.88
INC: 7.66
AZW: 105.36

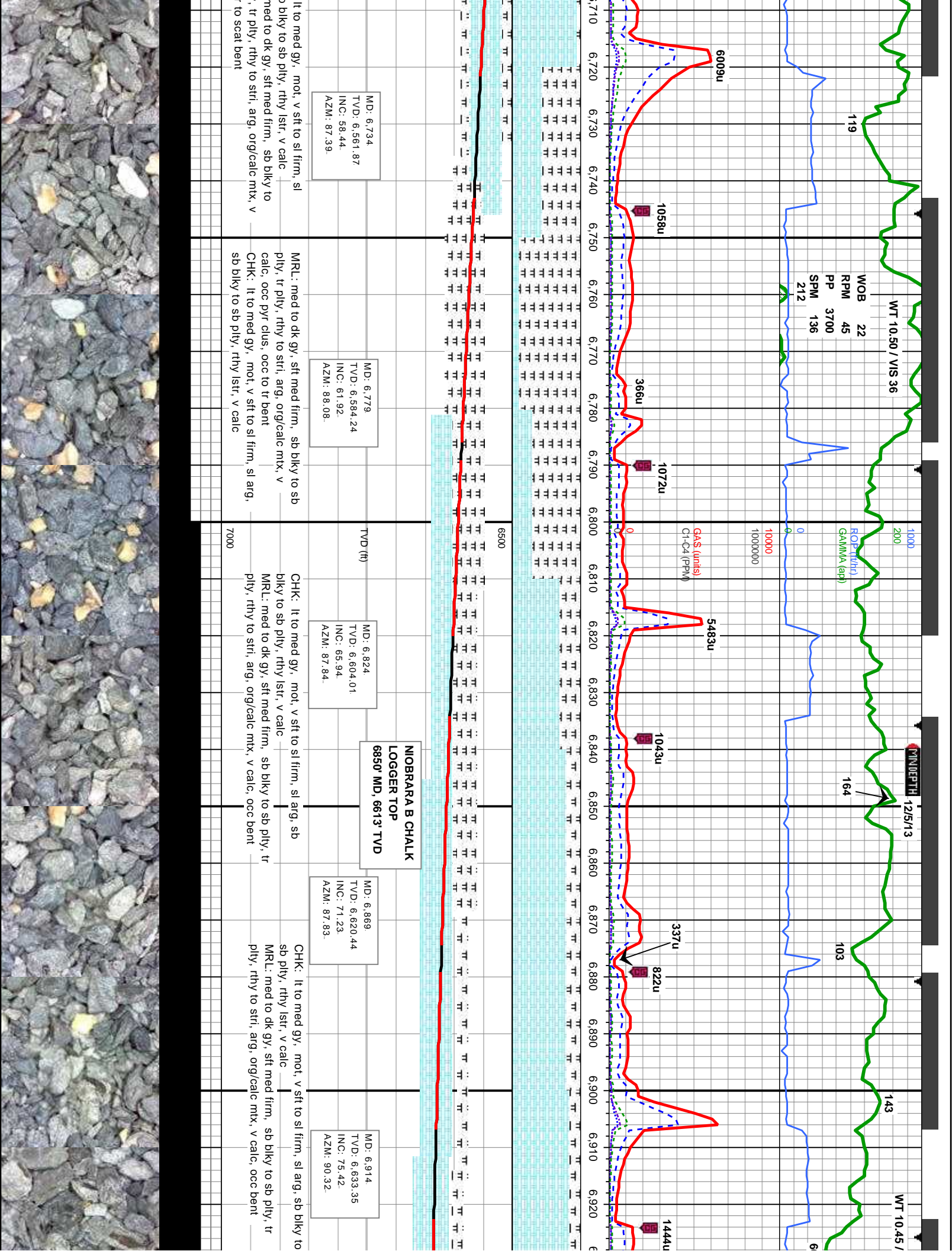
SLTY SH: med to dk gy, sb blkly to sb plty, occ plty, firm, arg,
sl calc, sl sdy ip, grdg to shly ss
SS: wh- mgy, clr to trns, s&p ip, f to mgr, sb blkly, fr srt, sl
firm to brlt, arg to sil mix

SLTY SH: med to dk gy, sb blkly to sb plty, occ
plty, firm, arg, sl calc, sl sdy ip, grdg to shly s
SS: wh- mgy, clr to trns, s&p ip, f to mgr, s
blkly, fr srt, sl firm to brlt, arg to sil mix









VIS 37

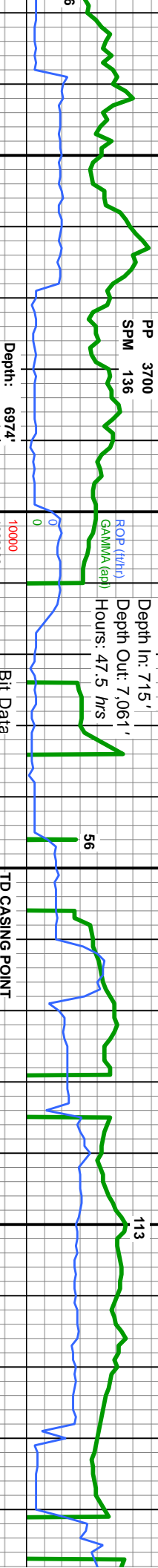
WOB 22
RPM 45
PP 3700
SPM 136

Bit Date
Bit #: 2
Depth In: 7'15'
Depth Out: 7'061'
Hours: 47.5 hrs

MINDEPTH
12/6/3-12/8/13

WT 9.2 / VIS 31

ROP (ft/hr)
GAMMA (api)

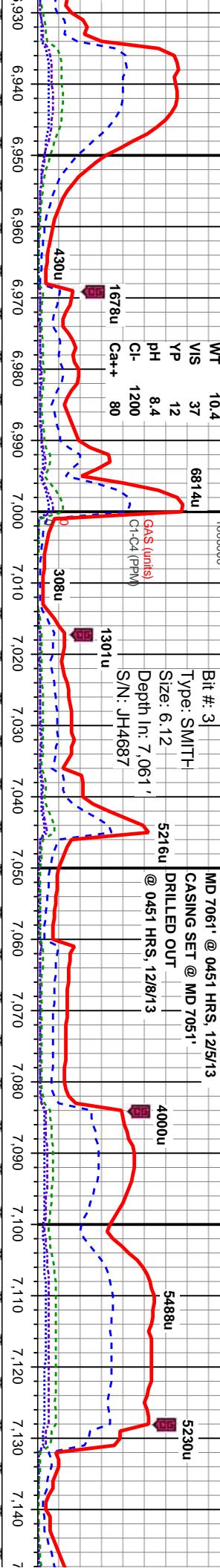


Depth: 6974'
WT 10.4
VIS 37
YP 12
pH 8.4
Cl- 1200
Ca++ 80

6814u
GAS (units)
Cl-C4 (ppm)

Bit Date
Bit #: 3
Type: SMITH-
Size: 6.12
Depth In: 7'061'
S/N: JH4687

TD CASING POINT
MD 7061' @ 0451 HRS, 12/5/13
CASING SET @ MD 7051'
DRILLED OUT
@ 0451 HRS, 12/8/13



TVD
SCALE
CHANGE

MD: 6.959
TVD: 6.643.96
INC: 77.28.
AZM: 91.49.

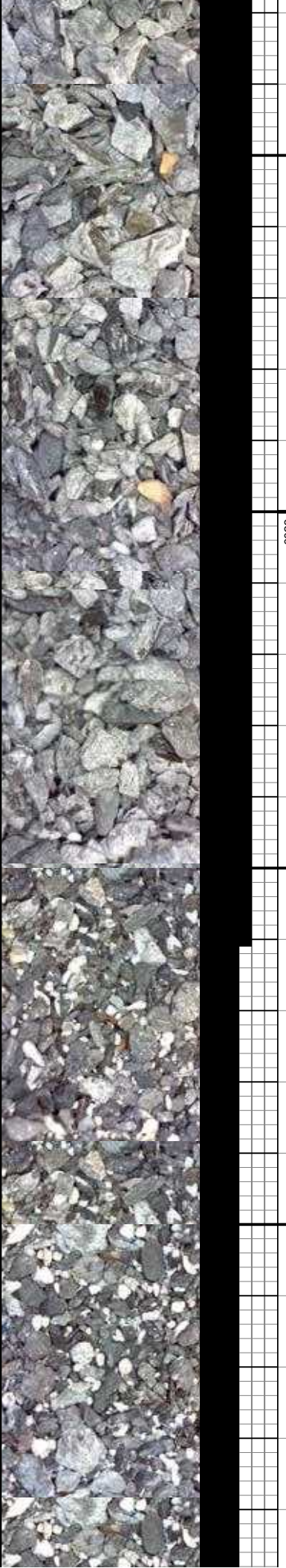
MD: 7.004
TVD: 6.652.38
INC: 81.15.
AZM: 93.08.

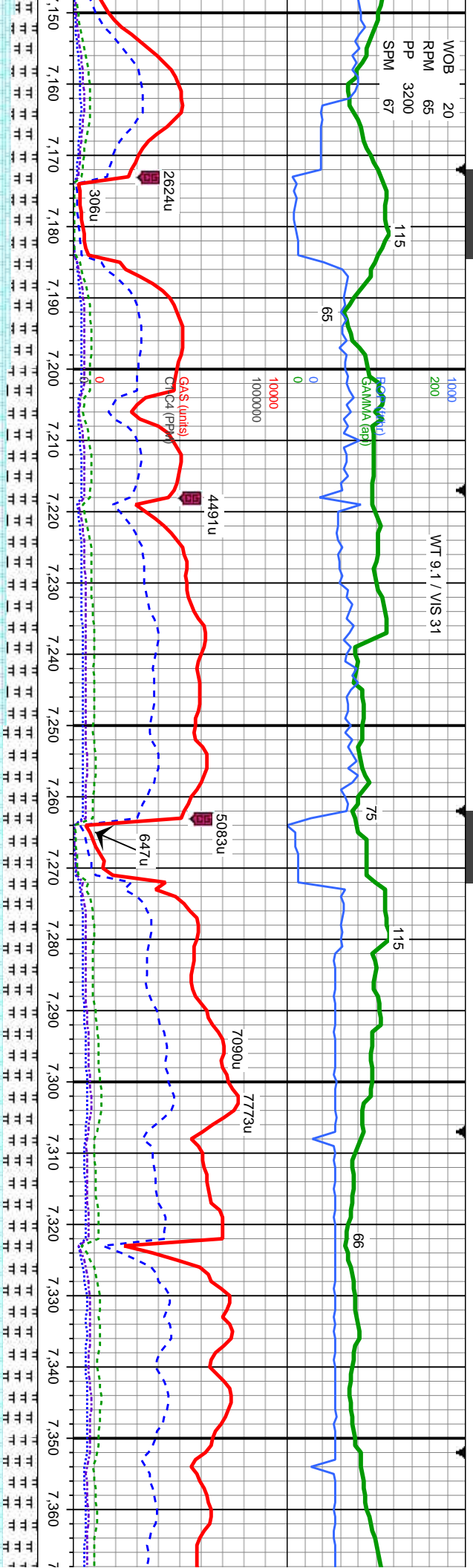
MD: 7.105
TVD: 6.663.69
INC: 85.99.
AZM: 91.69.

CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ bent

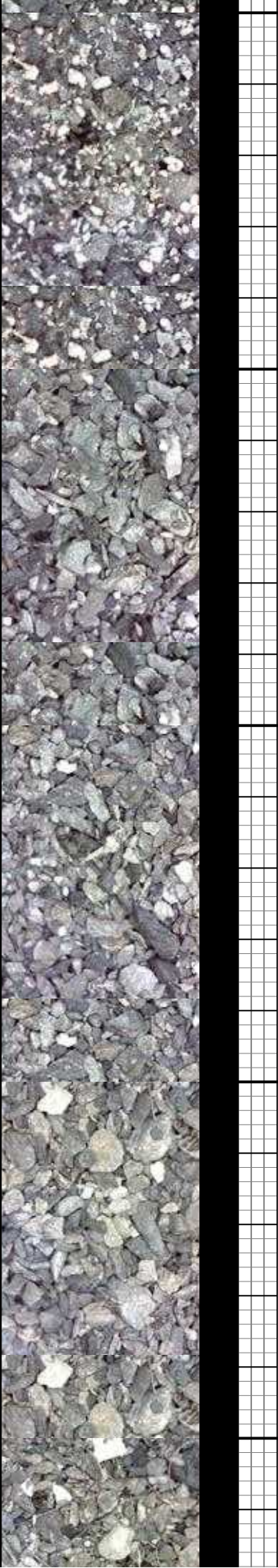
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, tr bent

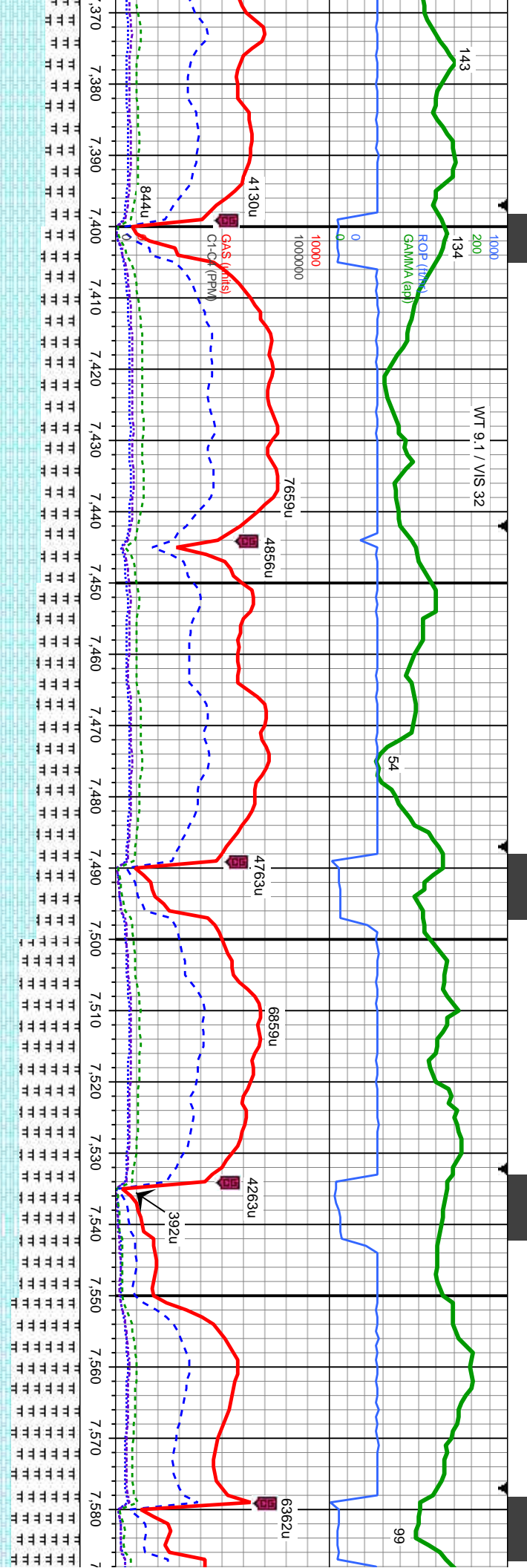
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, scat bent



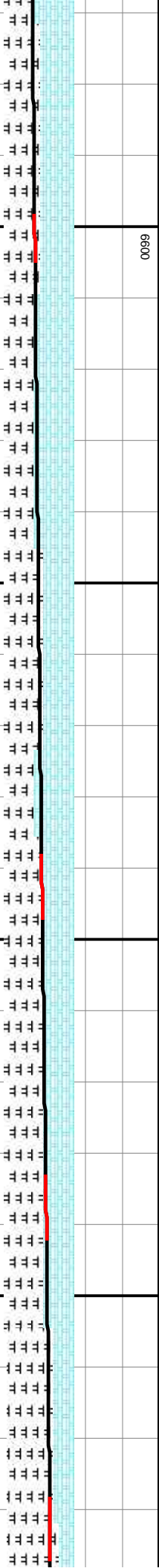


MOB 20		RPM 65		PP 3200		SPM 67		115		65		75		115		66	
2624u		306u		4491u		5083u		647u		7090u		7773u					
GAS (units)		CHC4 (PPM)															
MD: 7.195		TVD: 6,668.78		INC: 87.53		AZM: 89.63		TVD (ft)		MD: 7.285		TVD: 6,670.6		INC: 90.15		AZM: 89.43	
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc		MR.L: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, scat bent		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc		MR.L: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, occ bent		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc		MR.L: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, occ bent		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc		MR.L: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, occ bent		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc	
6600																	





6600



MD: 7.375
TVD: 6.669.05
INC: 91.82
AZM: 88.75-

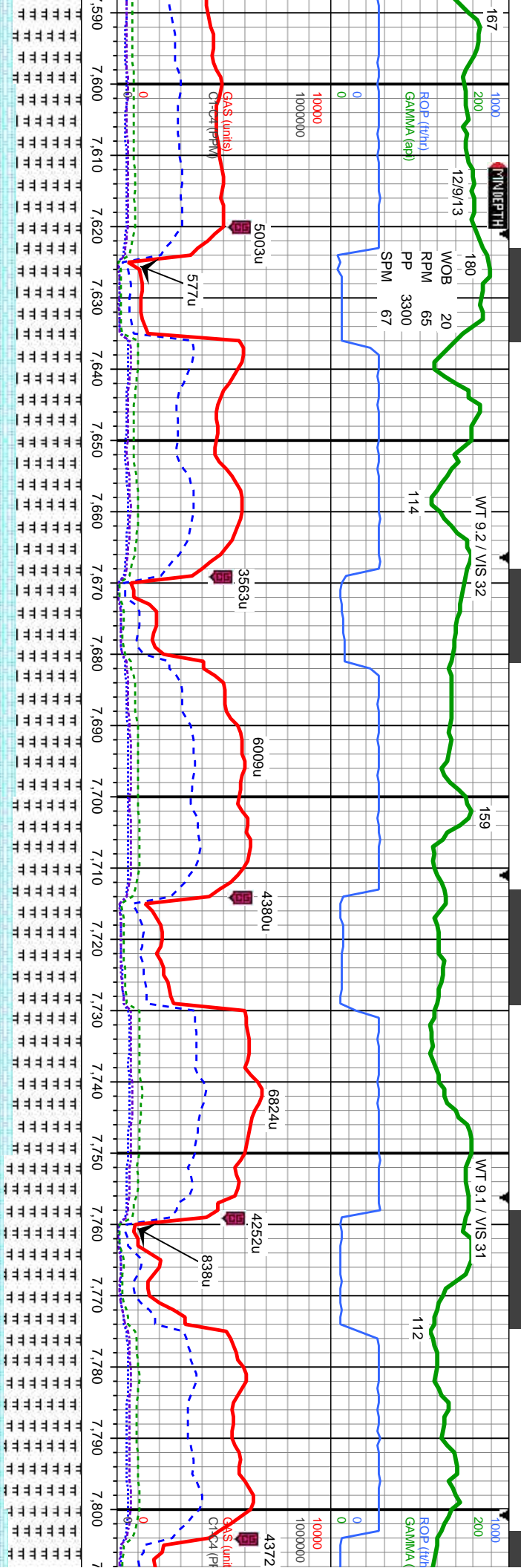
TVD (ft)

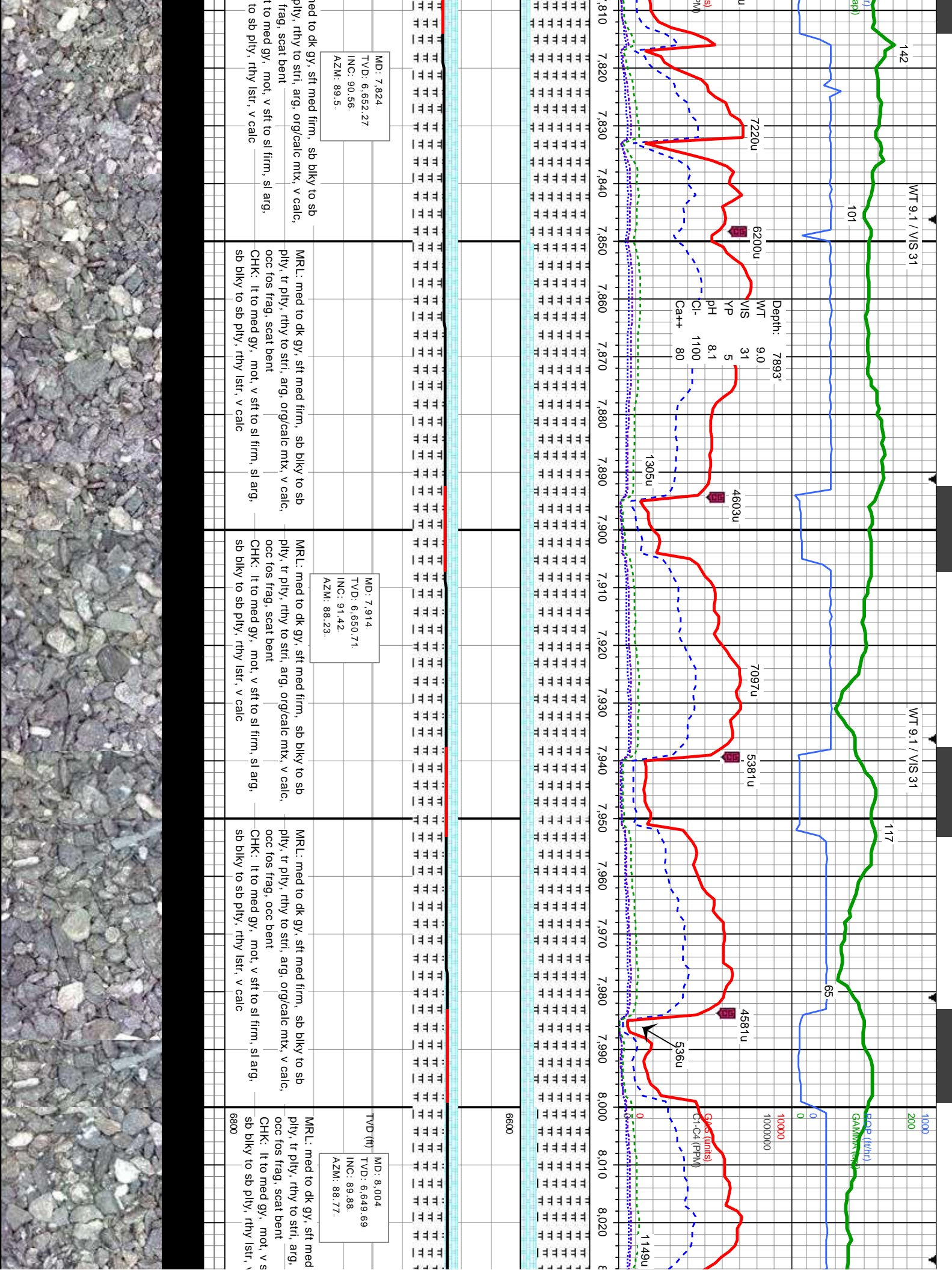
MD: 7.465
TVD: 6.665.42
INC: 92.81
AZM: 88.12-

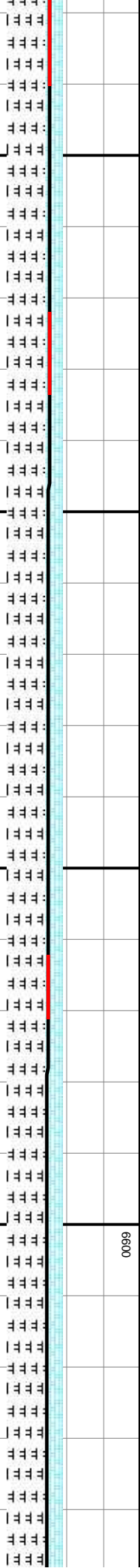
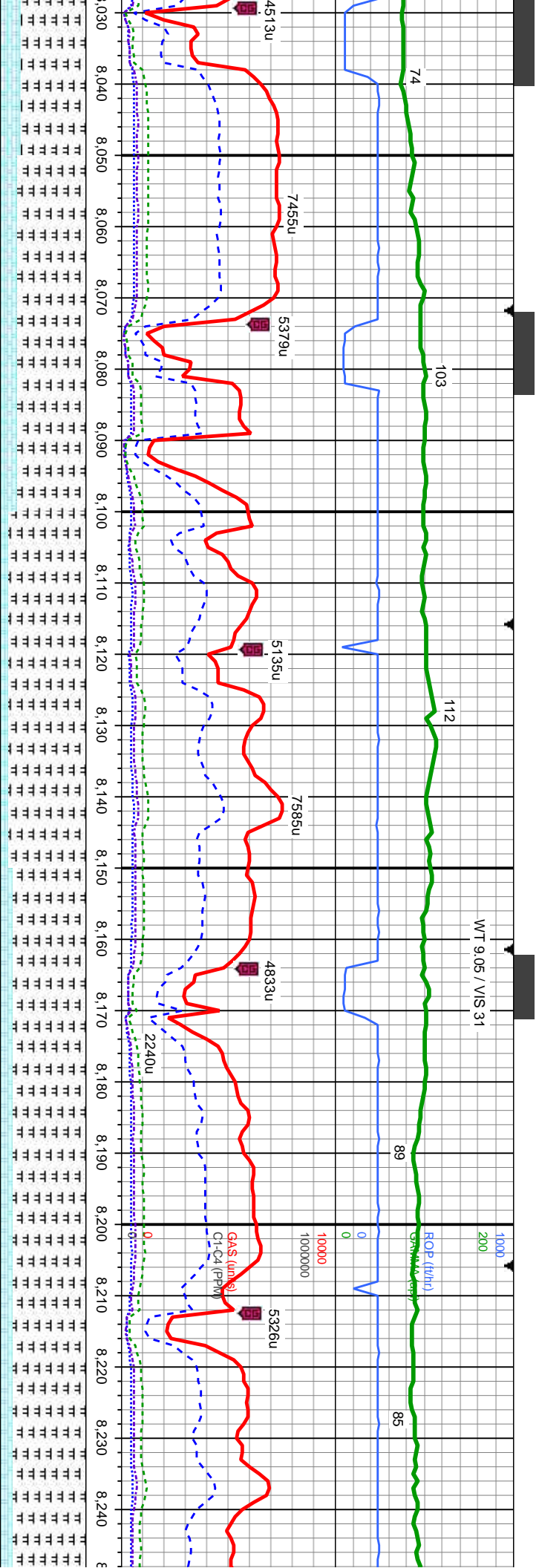
MD: 7.554
TVD: 6.660.96
INC: 92.93
AZM: 88.81-

mot, v sft to sl firm, sl arg,	CHK: It to med gy, mot, v sft to sl firm, sl arg,
rthy lstr, v calc	sb biky to sb ply, rthy lstr, v calc
y, sft med firm, sb biky to sb	MRL: med to dk gy, sft med firm, sb biky to sb
stri, arg, org/calc mtx, v calc,	ply, tr ply, rthy to stri, arg, org/calc mtx, v calc,
nt	occ fos frag, tr bent
6800	



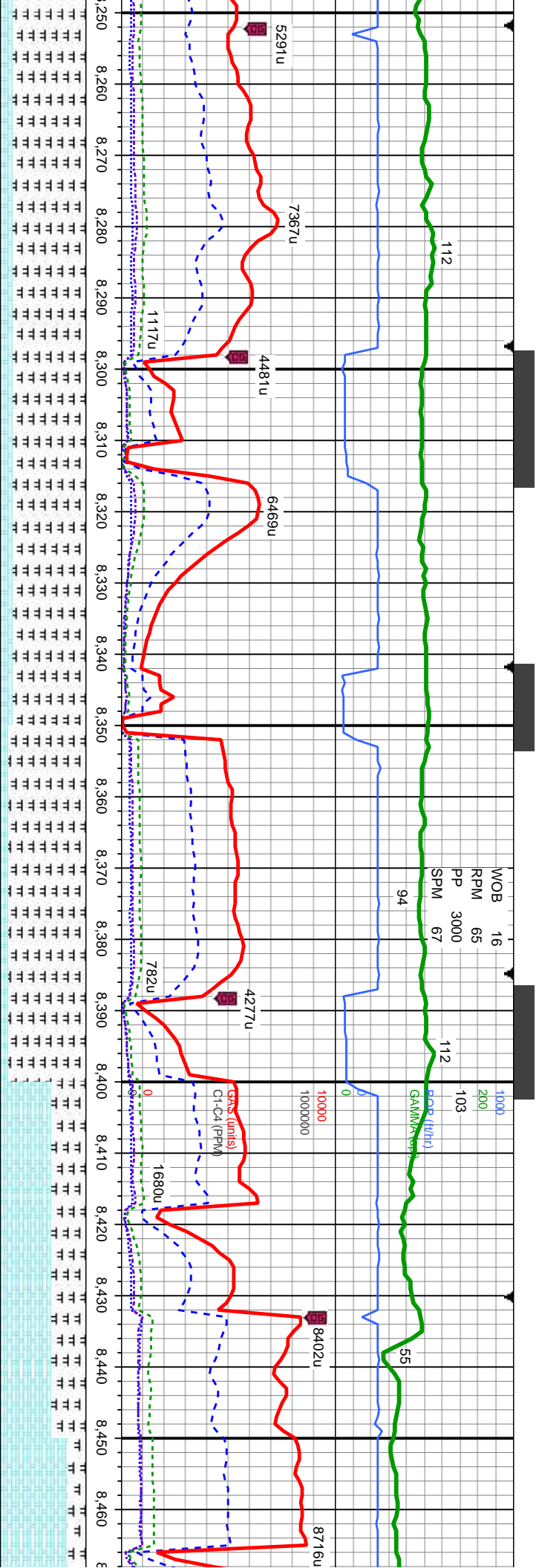
[illegible]





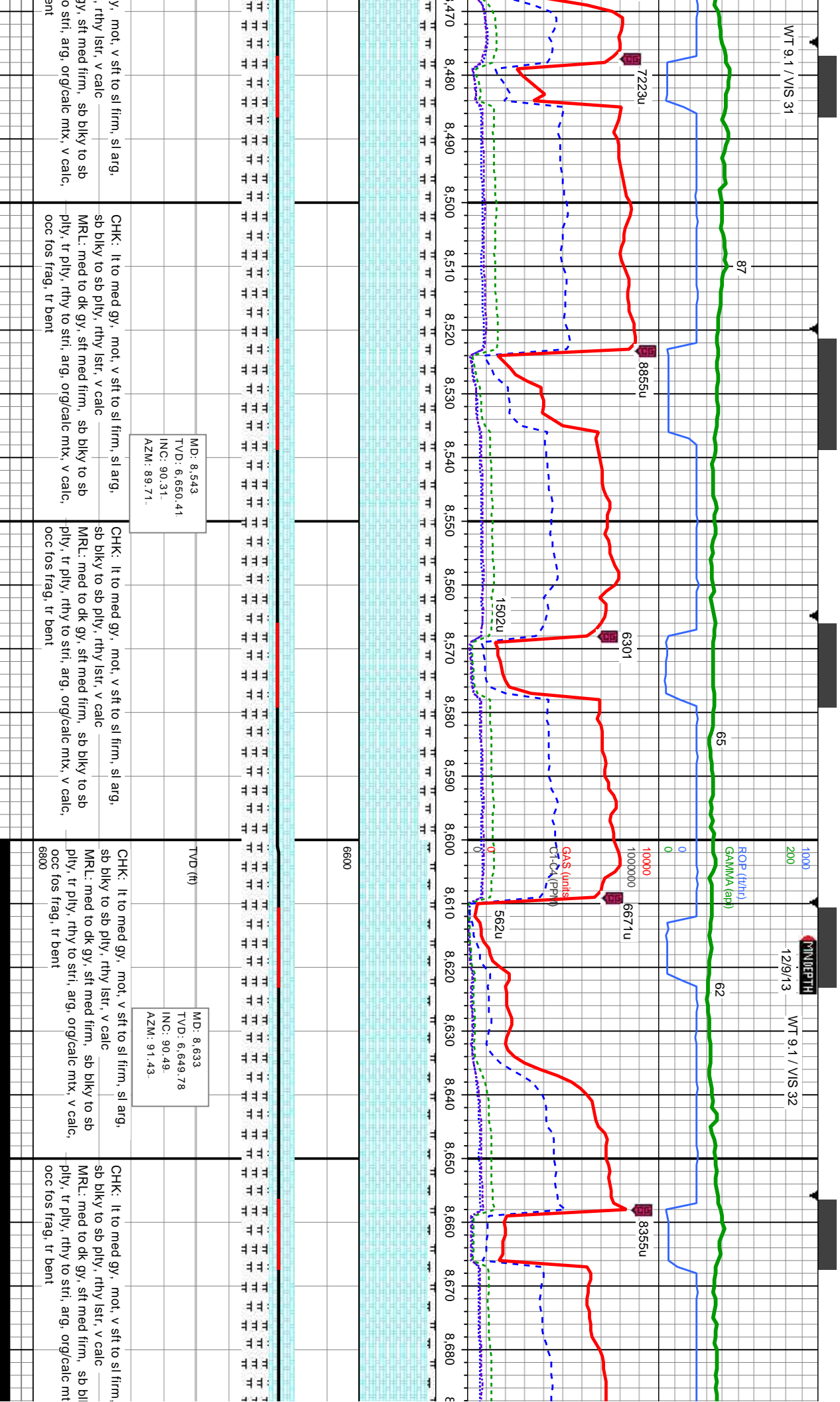
firm, sb blkly to sb org/calc mtz, v calc, ft to sl firm, sl arg, /calc	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtz, v calc, occ fos frag, occ bent CHK: lt to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtz, v calc, occ fos frag, occ bent CHK: lt to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtz, v calc, occ fos frag, occ bent CHK: lt to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
	MD: 8.094 TVD: 6,649.98 INC: 89.75 AZM: 90.16	MD: 8.184 TVD: 6,650.83 INC: 89.17 AZM: 89.42	
		TVD (ft)	
		6800	

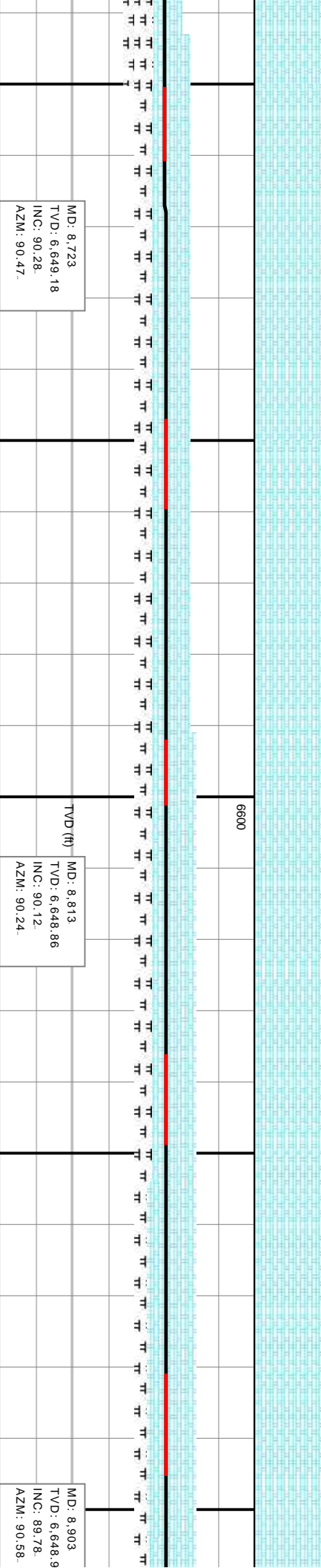
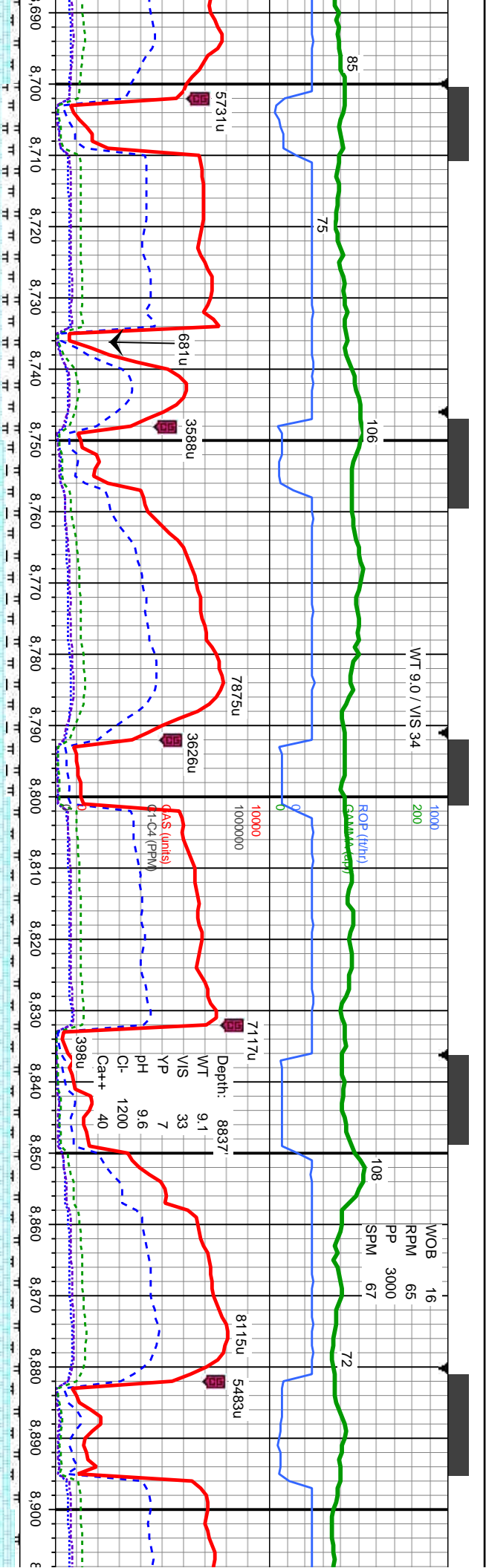




MD: 8.274 TVD: 6.651.02 INC: 90.59 AZM: 88.68.		MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MD: 8.363 TVD: 6.650.61 INC: 89.94 AZM: 88.86.		MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MD: 8.453 TVD: 6.650.65 INC: 90. AZM: 88.71.		MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, tr bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc

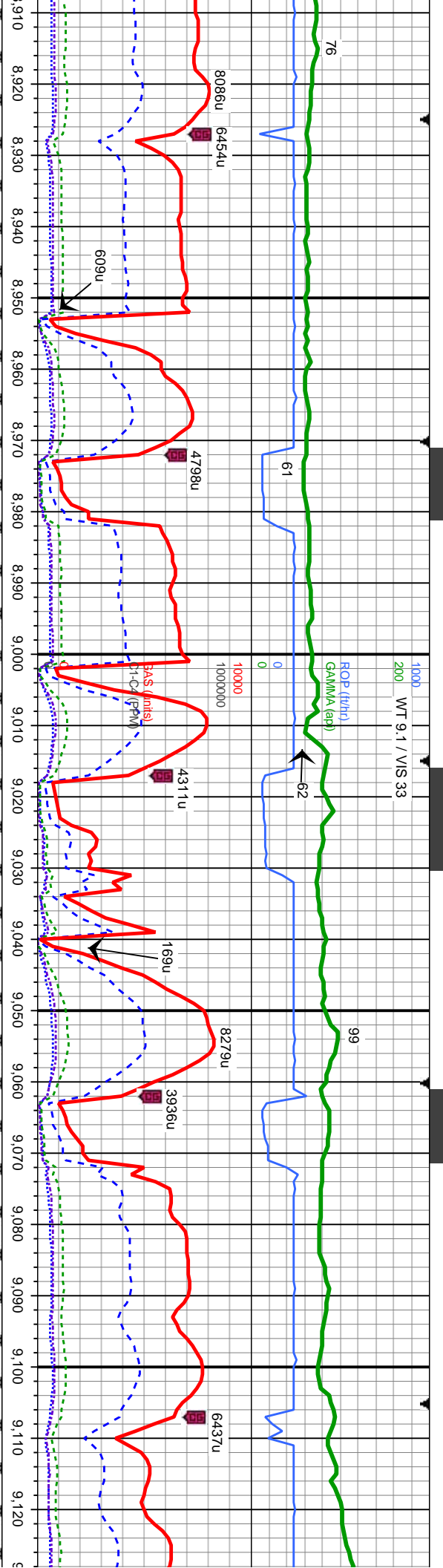






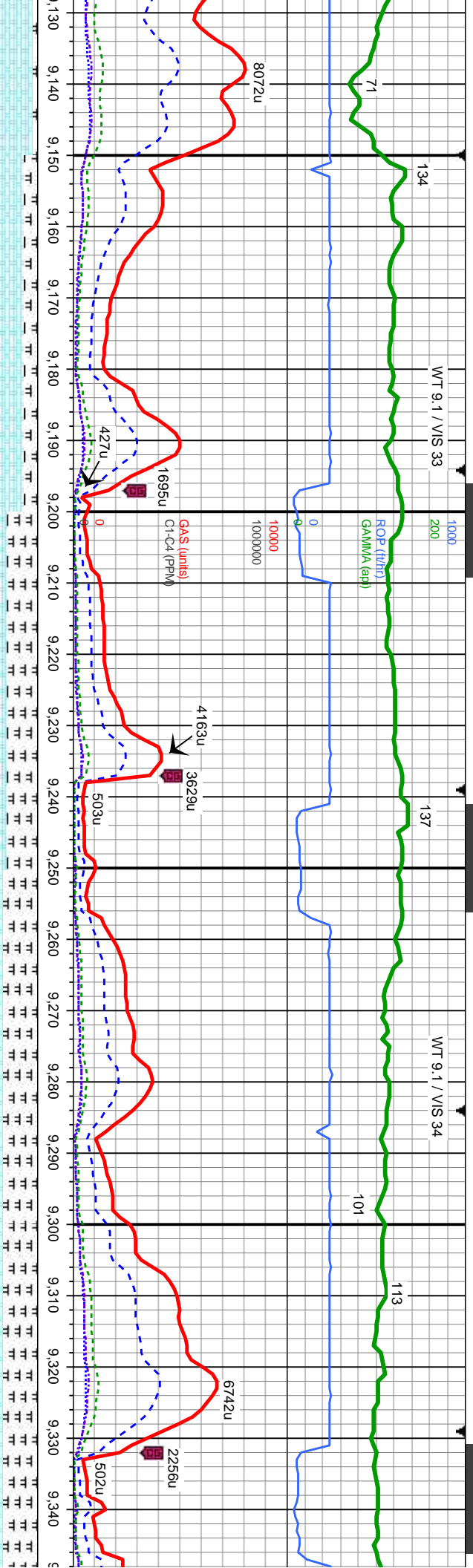
sl arg,	CHK: It to med gy, mot, v sft to sl firm, sl arg,	MD: 8.723 TVD: 6,649.18 INC: 90.28 AZM: 90.47.	CHK: It to med gy, mot, v sft to sl firm, sl arg,
Y to sb	sb biky to sb pily, rthy lsfr, v calc		sb biky to sb pily, rthy lsfr, v calc
X, v calc,	MRL: med to dk gy, sft med firm, sb biky to sb pily, tr pily, rthy to stri, arg, org/calc mtz, v calc, occ fos frag, tr bent		MRL: med to dk gy, sft med firm, sb biky to sb pily, tr pily, rthy to stri, arg, org/calc mtz, v calc, occ fos frag, tr bent





It to med gy, mot, v sft to sl firm, sl arg, sb bly to sb ply, rthy lstr, v calc		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb bly to sb ply, rthy lstr, v calc		MD: 8.993 TVD: 6,648.75 INC: 90.46 AZM: 90.31		TVD (ft)		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb bly to sb ply, rthy lstr, v calc		MD: 9.083 TVD: 6,649.04 INC: 89.17 AZM: 90.11		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb bly to sb ply, rthy lstr, v calc	
MR.L: med to dk gy, sft med firm, sb bly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, occ fos frag, tr bent		MR.L: med to dk gy, sft med firm, sb bly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, occ fos frag, tr bent						MR.L: med to dk gy, sft med firm, sb bly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, occ fos frag, tr bent				MR.L: med to dk gy, sft med firm, sb bly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, occ fos frag, tr bent	





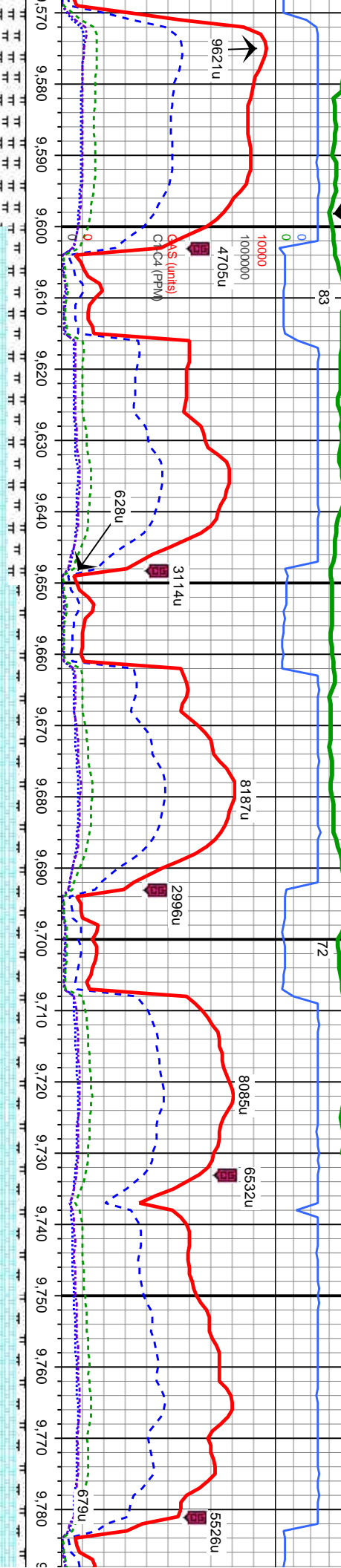
MD: 9.172 TVD: 6,648.83 INC: 91.11 AZM: 89.66		TVD (ft)		MD: 9.262 TVD: 6,648.22 INC: 89.66 AZM: 89.27			
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb pily, rthy lstr, v calc		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb pily, rthy lstr, v calc		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb pily, rthy lstr, v calc			
MRL: med to dk gy, sft med firm, sb biky to sb pily, tr pily, rthy to stri, arg, org/calc mx, v calc, occ fos frag, scat bent		MRL: med to dk gy, sft med firm, sb biky to sb pily, tr pily, rthy to stri, arg, org/calc mx, v calc, occ fos frag, scat bent		MRL: med to dk gy, sft med firm, sb biky to sb pily, tr pily, rthy to stri, arg, org/calc mx, v calc, occ fos frag, scat bent			
occ fos frag, scat bent		occ fos frag, scat bent		occ fos frag, scat bent			



WOB 20
RPM 80
PP 3200
SPM 67

1000 WT 9.1 / VIS 32
200

ROP (ft/hr)
GAMMA (gr)



6600

MD: 9.621
TVD: 6.647.48
INC: 90.74
AZM: 88.09.

MD: 9.711
TVD: 6.646.63
INC: 90.34
AZM: 89.17.

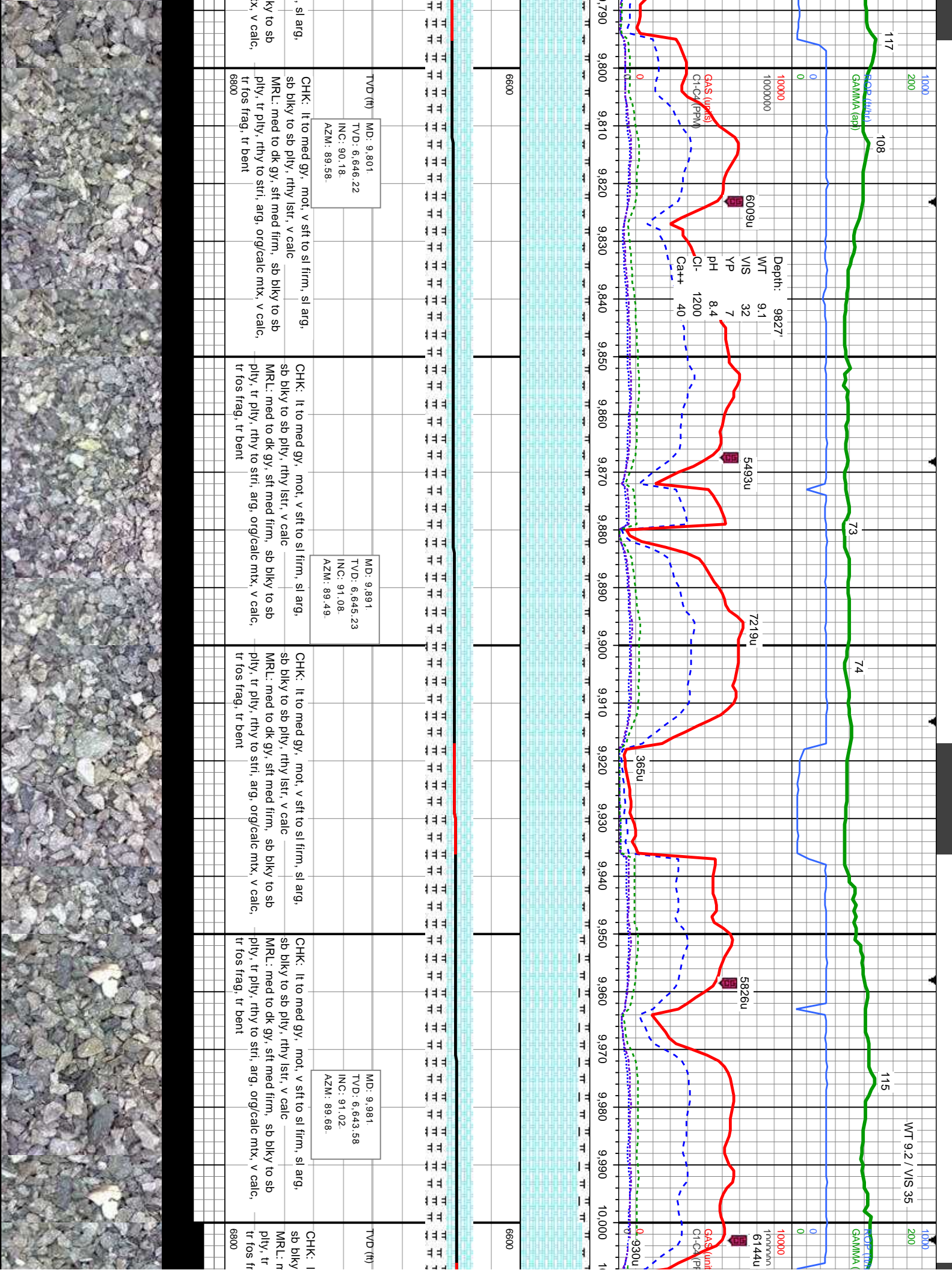
mot, v sft to sl firm, sl arg,
rthy lsfr, v calc
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mix, v calc,
occ fos frag, occ bent

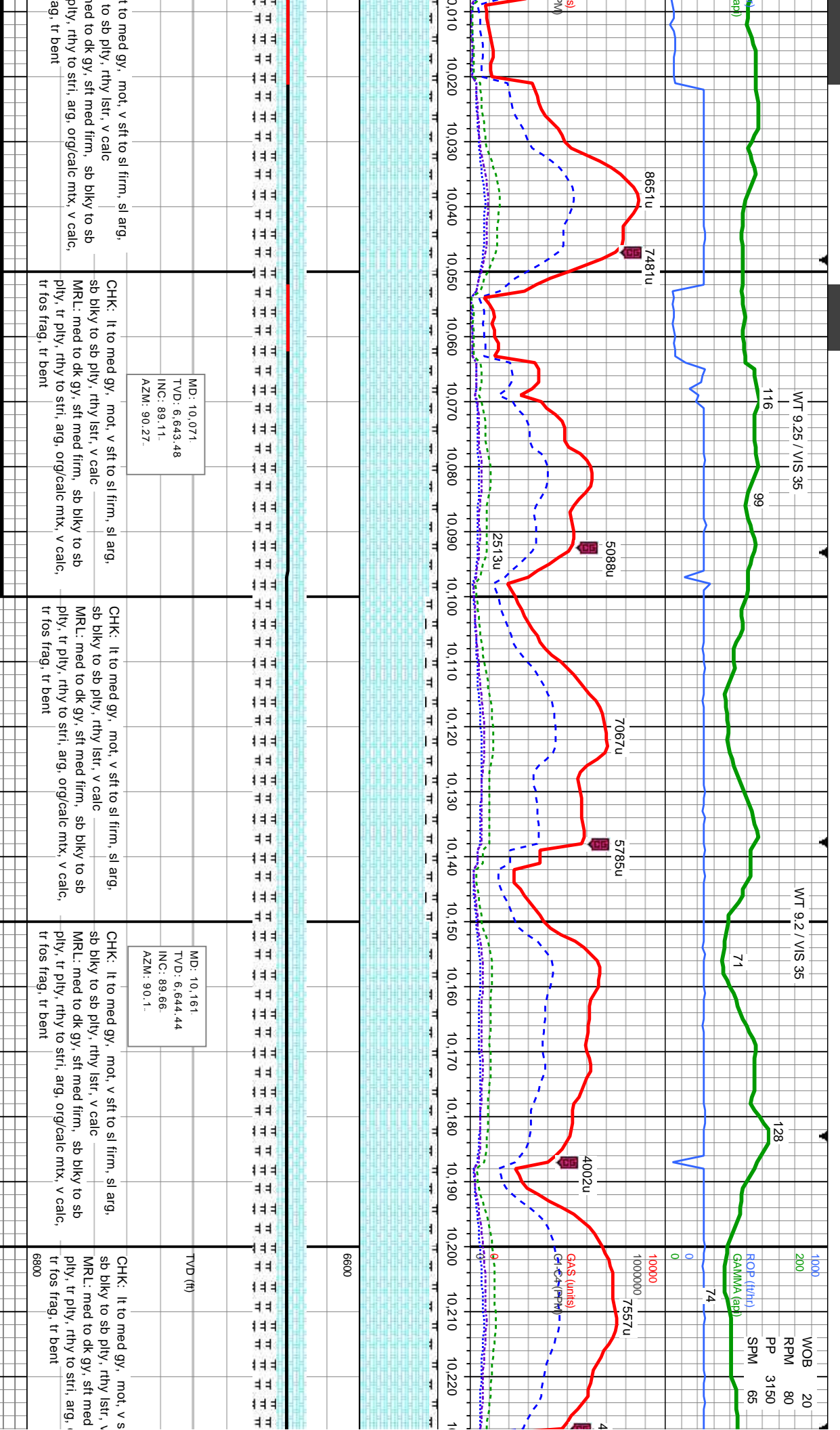
CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mix, v calc,
occ fos frag, occ bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mix, v calc,
tr fos frag, tr bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mix, v calc,
tr fos frag, tr bent







WT 9.2 / VIS 35

WT 9.2 / VIS 35

117 128

116

100' MIN DEPTH
200 12/10/13
GAMMA (api)

54

6218u

768u

9231u 9081u

9324u

8380u 1000000

7467u

342u

6AS (units)
1000000

336u

10,230 10,240 10,250 10,260 10,270 10,280 10,290 10,300 10,310 10,320 10,330 10,340 10,350 10,360 10,370 10,380 10,390 10,400 10,410 10,420 10,430 10,440

6600

MD: 10.236
TVD: 6.644.2
INC: 90.71.
AZM: 91.27.

MD: 10.329
TVD: 6.642.47
INC: 91.42.
AZM: 92.1.

MD: 10.423
TVD: 6.640.68
INC: 90.77.
AZM: 90.21.

CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, tr fos frag, tr bent

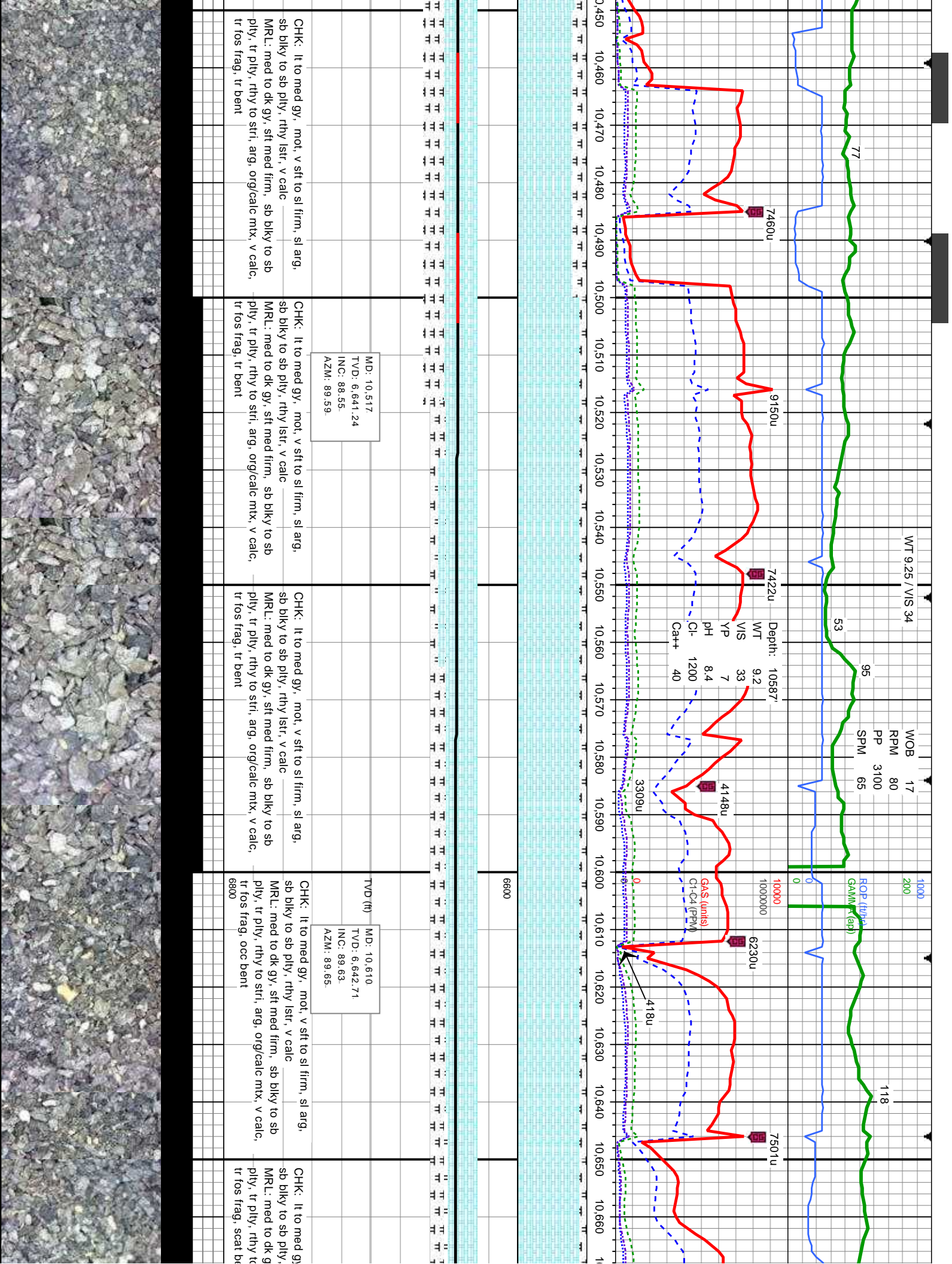
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, tr fos frag, tr bent

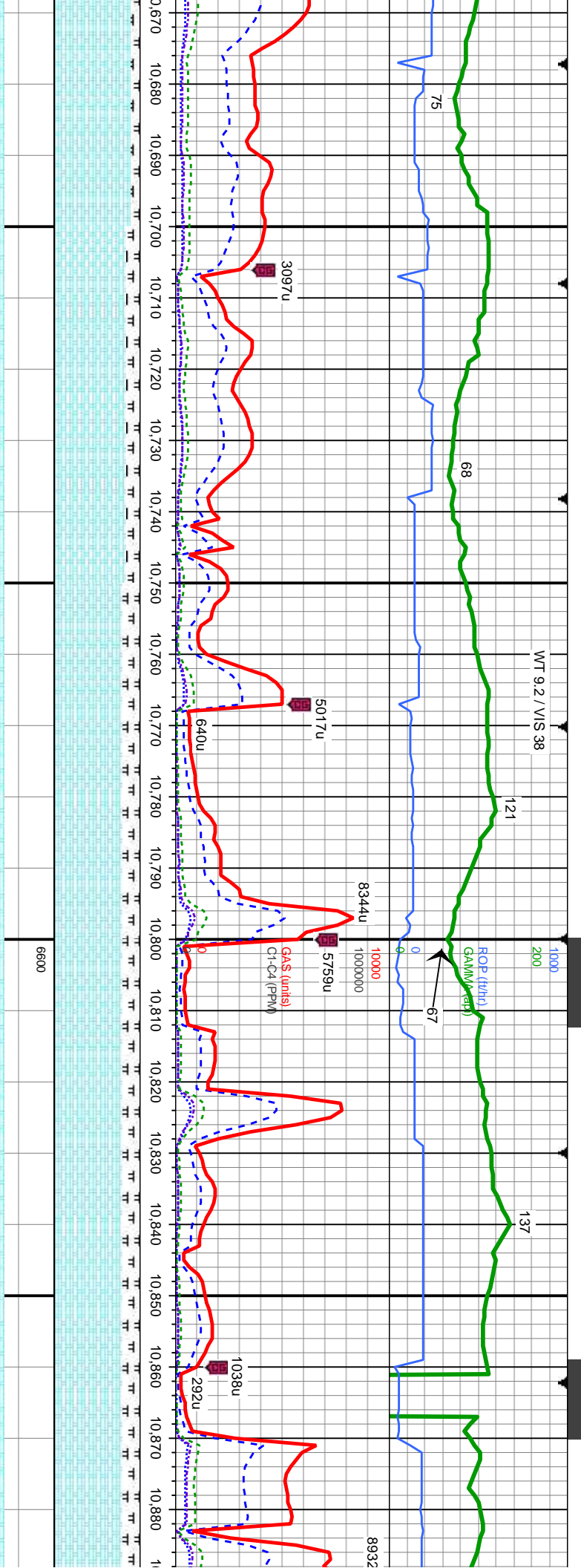
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, tr fos frag, tr bent

CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, tr fos frag, tr bent

6800







MD: 10,703
TVD: 6,642.87
INC: 90.18
AZM: 89.53.

MD: 10,795
TVD: 6,641.98
INC: 90.92
AZM: 88.94.

MD: 10
TVD: 6
INC: 86
AZM: 8

mot, v sft to sl firm, sl arg,
rthy lsfr, v calc
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mx; v calc,
tr fos frag, occ bent

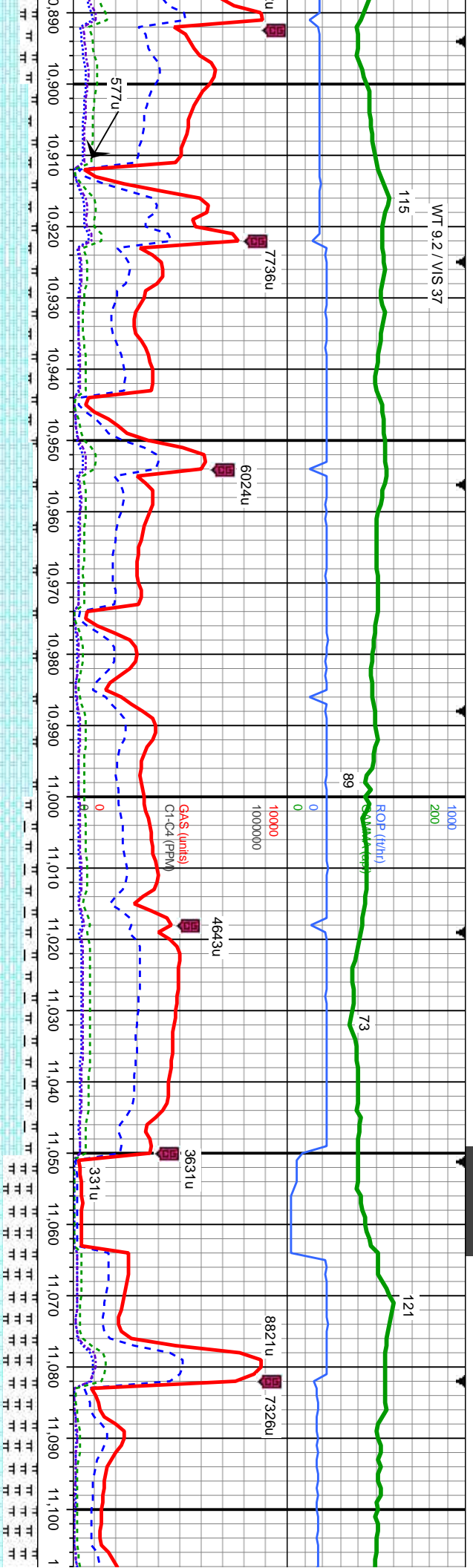
CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mx; v calc,
tr fos frag, occ bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mx; v calc,
tr fos frag, occ bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft med firm, sb biky to sb
ply, tr ply, rthy to stri, arg, org/calc mx; v calc,
tr fos frag, occ bent

TVD (ft)





889
641.71
41-
8.05.

sl arg,
ky to sb
x; v calc,

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy istr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx; v calc,
tr fos frag, occ bent

MD: 10.984
TVD: 6,641.92
INC: 90.34
AZM: 87.7

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy istr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx; v calc,
tr fos frag, occ bent

TVD (ft)

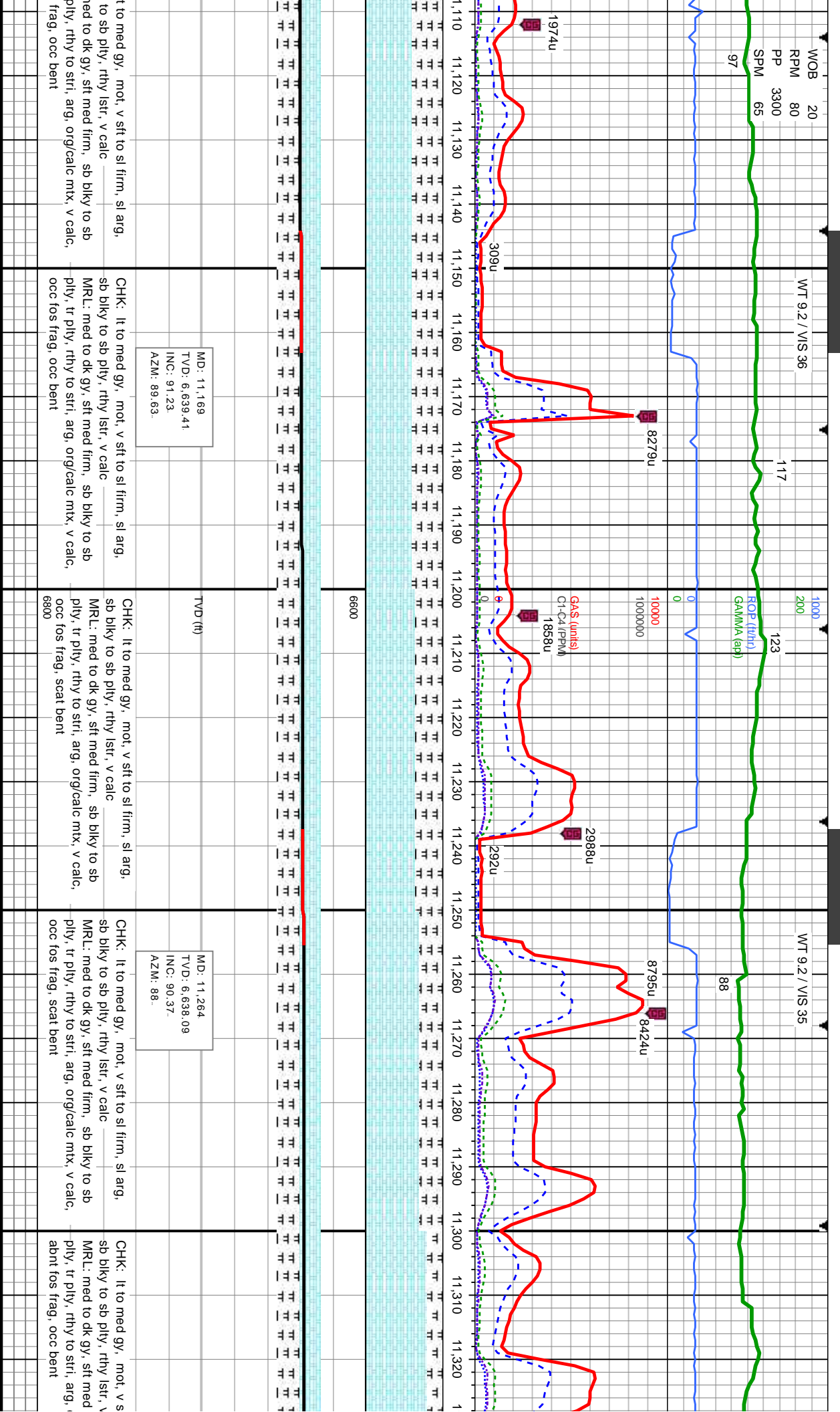
CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy istr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx; v calc,
abnt fos frag, occ bent

MD: 11.077
TVD: 6,641.02
INC: 90.77
AZM: 88.39

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy istr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx; v calc,
abnt fos frag, occ bent

CHK: I
sb biky
MRL: n
pily, tr
occ fos





It to med gy, mot, v sft to sl firm, sl arg,
sb bly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb bly to sb
ply, tr ply, rthy to stri, arg, org/calc mtx, v calc,
frag, occ bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb bly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb bly to sb
ply, tr ply, rthy to stri, arg, org/calc mtx, v calc,
occ fos frag, occ bent

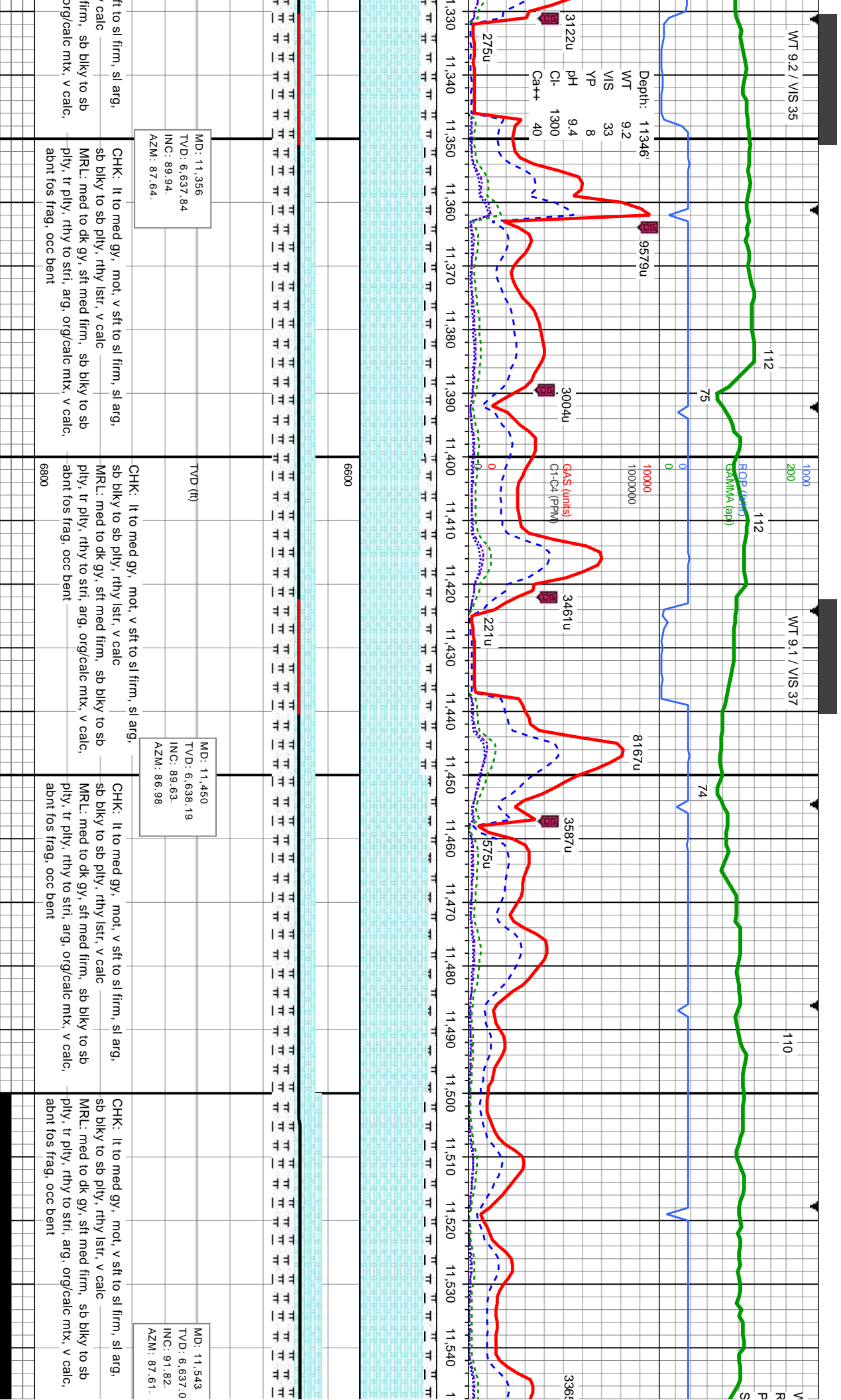
CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb bly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb bly to sb
ply, tr ply, rthy to stri, arg, org/calc mtx, v calc,
occ fos frag, scat bent

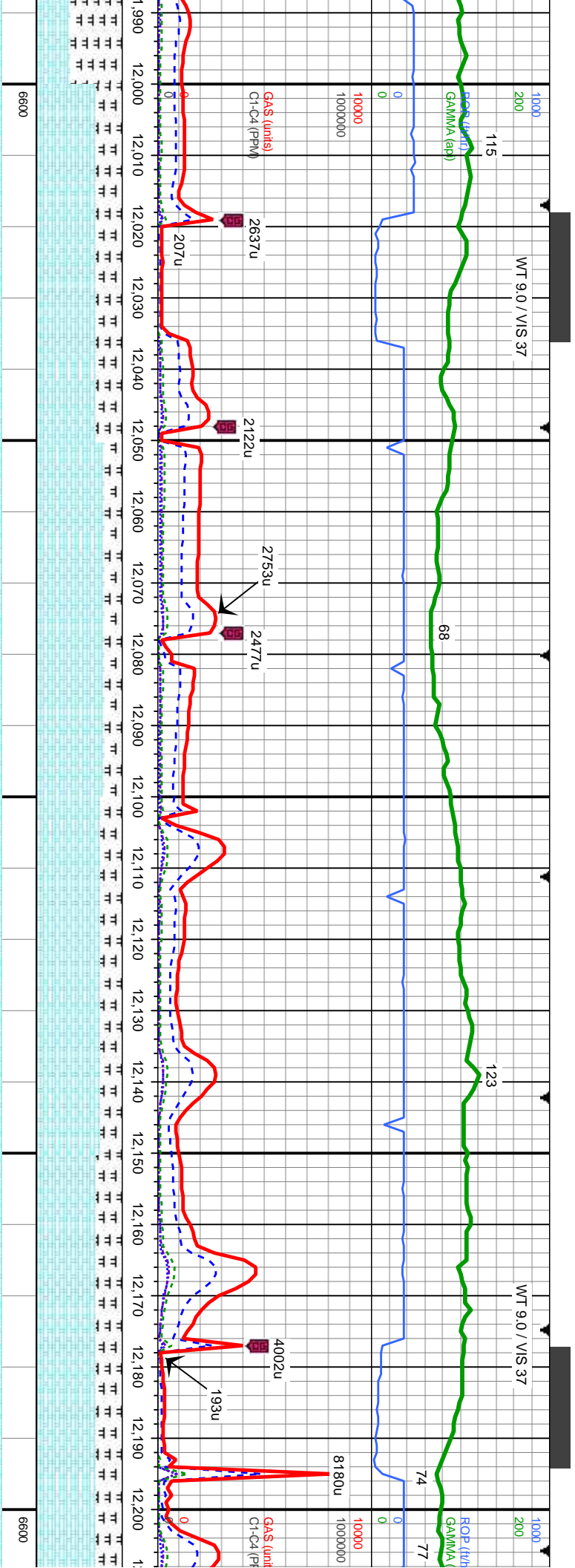
CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb bly to sb ply, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb bly to sb
ply, tr ply, rthy to stri, arg, org/calc mtx, v calc,
abnt fos frag, occ bent

MD: 11.169
TVD: 6.639.41
INC: 91.23
AZM: 89.63.

TVD (ft)

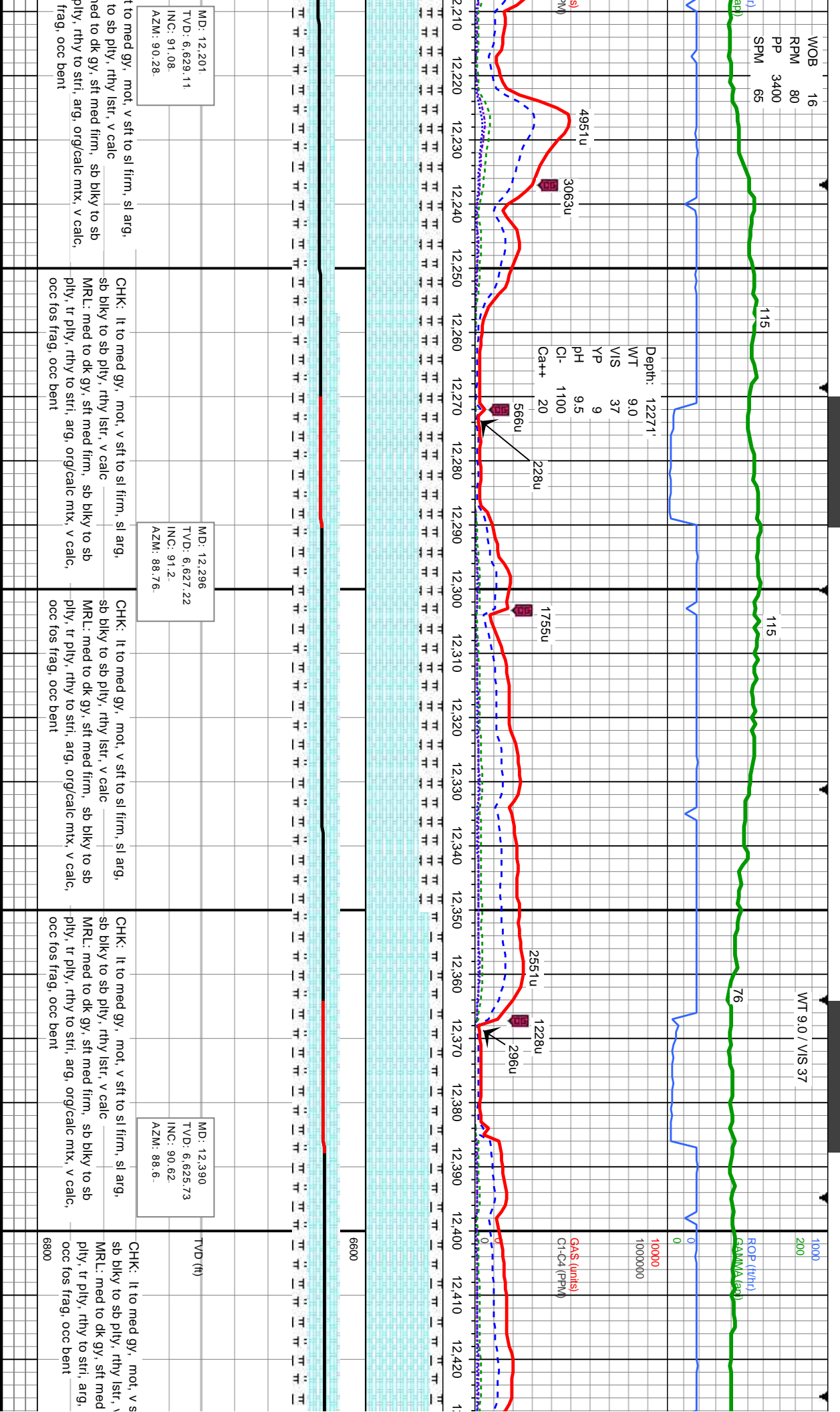
MD: 11.264
TVD: 6.638.09
INC: 90.37
AZM: 88.

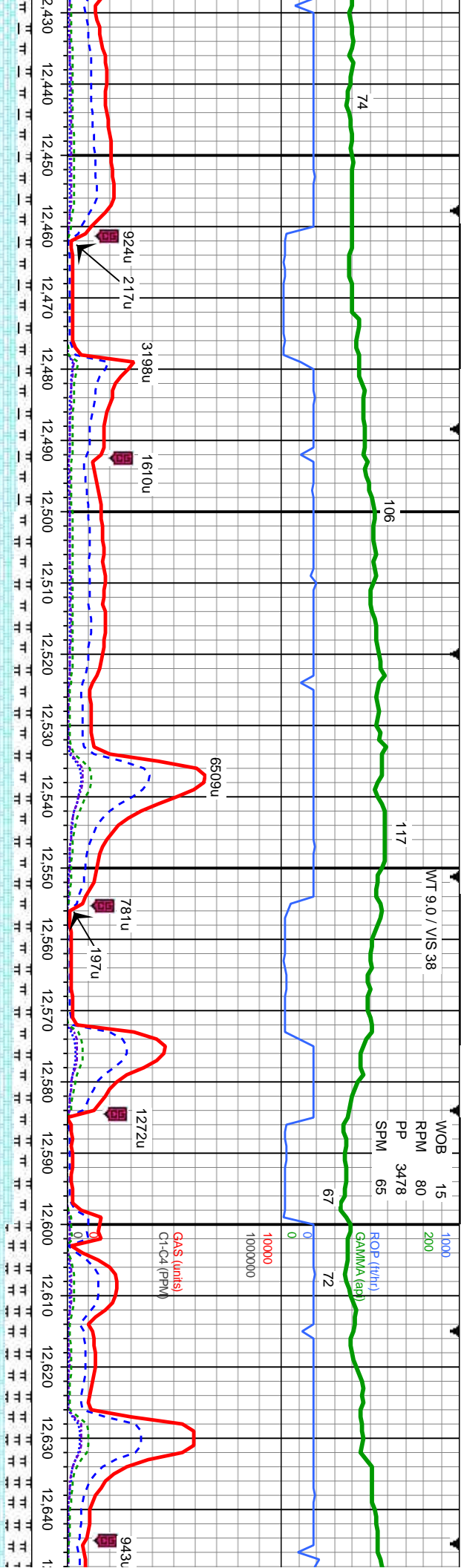




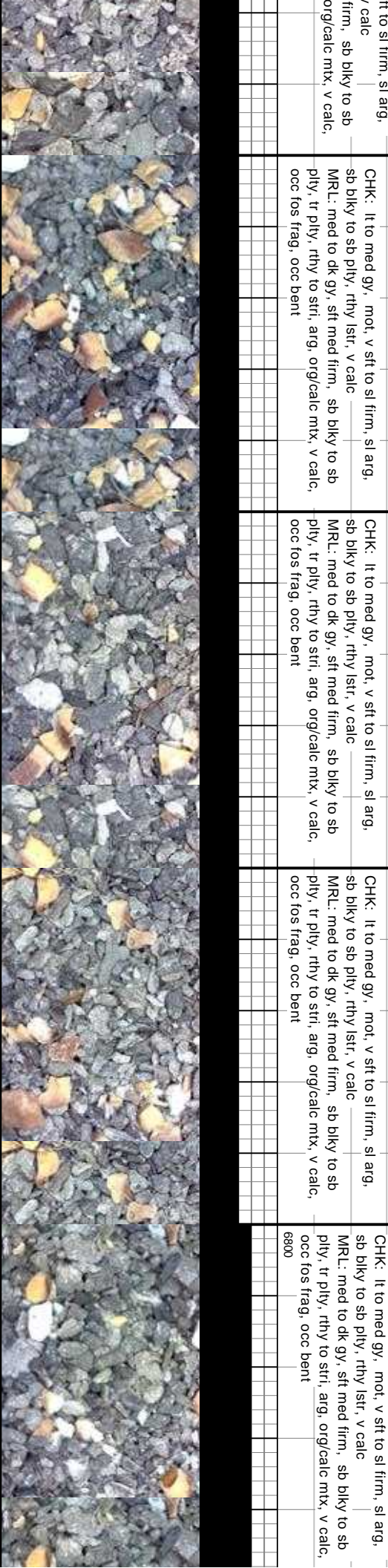
ky to sb sl arg,	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lstr, v calc MRL: med to dk gy, sft med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abt fos frag, tr bent	MD: 12.013 TVD: 6.633.61 INC: 91.51. AZM: 89.81.	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lstr, v calc MRL: med to dk gy, sft med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abt fos frag, tr bent	MD: 12.107 TVD: 6.631.18 INC: 91.45. AZM: 90.02.	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lstr, v calc MRL: med to dk gy, sft med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abt fos frag, tr bent	CHK: I sb biky MRL: r ply, tr occ fos
---------------------	--	---	--	---	--	---







ft to sl firm, sl arg, / calc	MD: 12.484 TVD: 6.625.27 INC: 89.94 AZM: 87.99.	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb pily, rthy lstr, v calc MRL: med to dk gy, sft med firm, sb biky to sb pily, tr pily, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, occ bent
firm, sb biky to sb org/calc mtx, v calc,	MD: 12.578 TVD: 6.626 INC: 89.17. AZM: 88.31.	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb pily, rthy lstr, v calc MRL: med to dk gy, sft med firm, sb biky to sb pily, tr pily, rthy to stri, arg, org/calc mtx, v calc, occ fos frag, occ bent



WT 9.0 / VIS 37

WT 9.1 / VIS 38

1000

200

ROP (ft/hr)

GAMMA (api)

63

0

0

10000

1000000

Depth: 12861'

T 9.0

S 37

2 8

9.3

1100

20

113

110

66

63

0

0

10000

1000000

GAS (units)

Cr-C4 (PPM)

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

10000

1000000

0

0

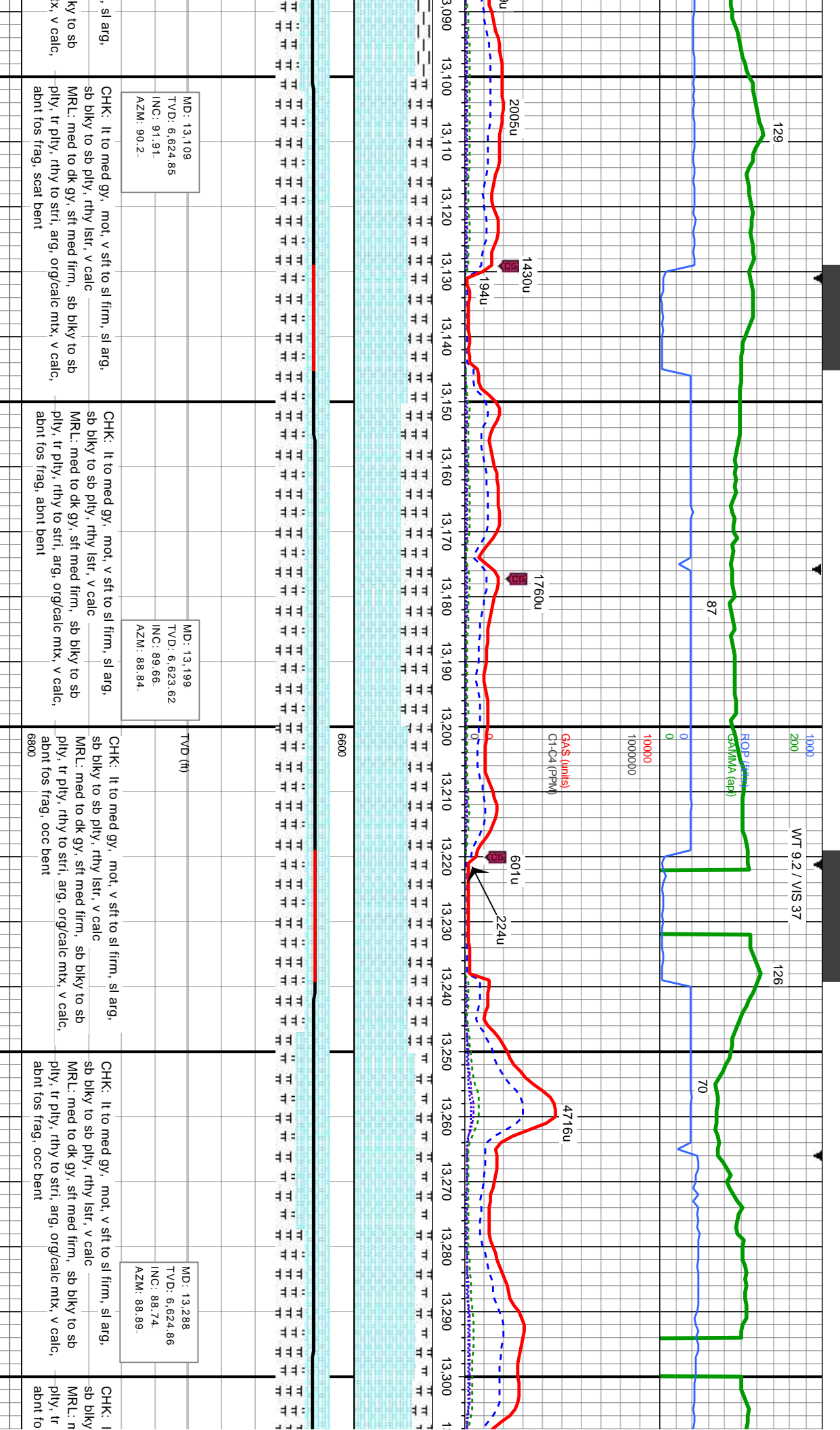
10000

1000000

0

0

10000



MD: 13.109
TVD: 6,624.85
INC: 91.91
AZM: 90.2-

MD: 13.199
TVD: 6,623.62
INC: 89.66
AZM: 88.84

MD: 13.288
TVD: 6,624.86
INC: 88.74
AZM: 88.89

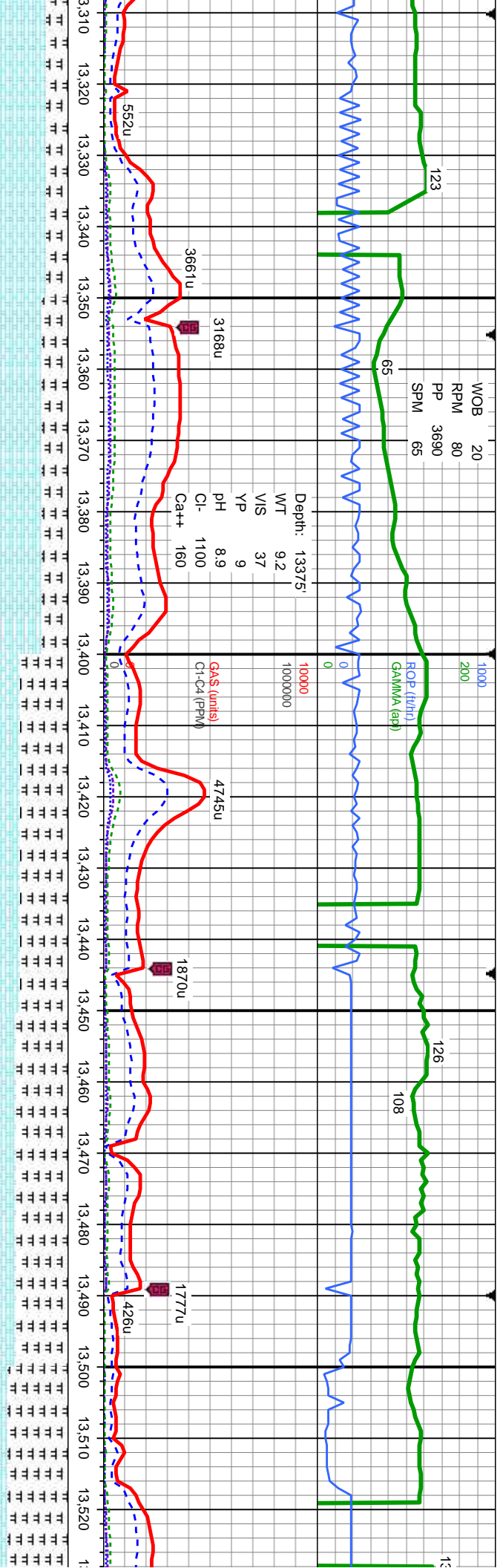
CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx, v calc,
abt tos frag, scat bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx, v calc,
abt tos frag, abt bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx, v calc,
abt tos frag, occ bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx, v calc,
abt tos frag, occ bent

CHK: It to med gy, mot, v sft to sl firm, sl arg,
sb biky to sb pily, rthy lstr, v calc
MRL: med to dk gy, sft med firm, sb biky to sb
pily, tr pily, rthy to stri, arg, org/calc mx, v calc,
abt tos frag, occ bent



MD: 13.378 TVD: 6,626.36 INC: 89.35. AZM: 88.76.		TVD (ft)		MD: 13.468 TVD: 6,625.73 INC: 90.31. AZM: 87.88.	
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blyky to sb ply, rthy lstr, v calc		MRL: med to dk gy, sft med firm, sb blyky to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, occ bent		MRL: med to dk gy, sft med firm, sb blyky to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, occ bent	
s frag, occ bent		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blyky to sb ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, occ bent		MRL: med to dk gy, sft med firm, sb blyky to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, occ bent	
s frag, occ bent		CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blyky to sb ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, occ bent		MRL: med to dk gy, sft med firm, sb blyky to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, occ bent	



WT 9.2 / VIS 34

WT 9.2 / VIS 35

FIN DEPTH
12.13/13

WT

1000

131

120

ROP (ft/hr)
GAMMA (api) 103

0

10000

1000000

GAS (units)
Cl-C4 (PPM)

0

4358u

537u

198u

773u

225u

818u

9738u

9397u

6600



TVD (ft)

MD: 13,827
TVD: 6,620.28
INC: 90.65
AZM: 86.99

MD: 13,917
TVD: 6,619.65
INC: 90.15
AZM: 88.77

MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, tr bent
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc

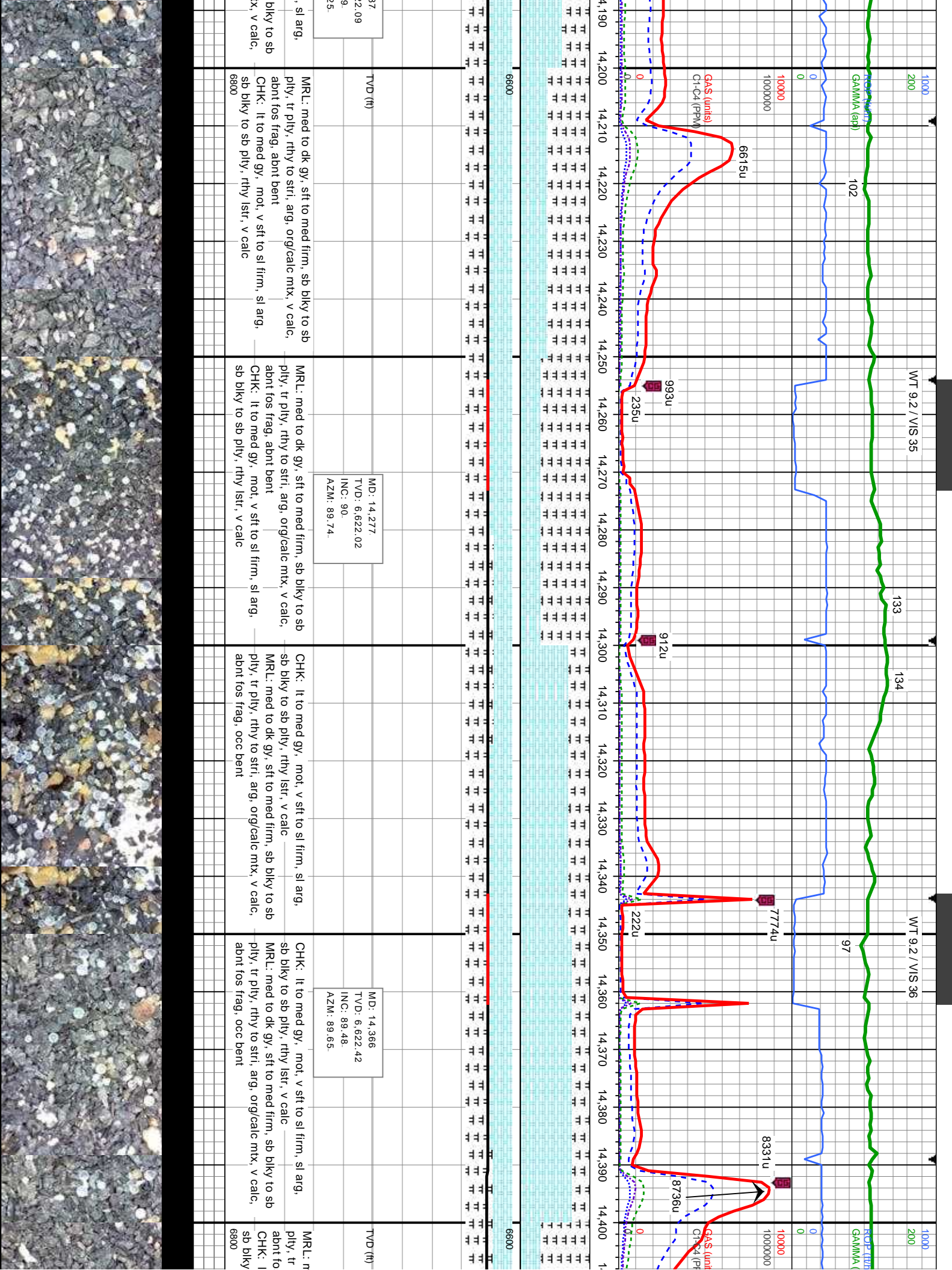
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, tr bent
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc

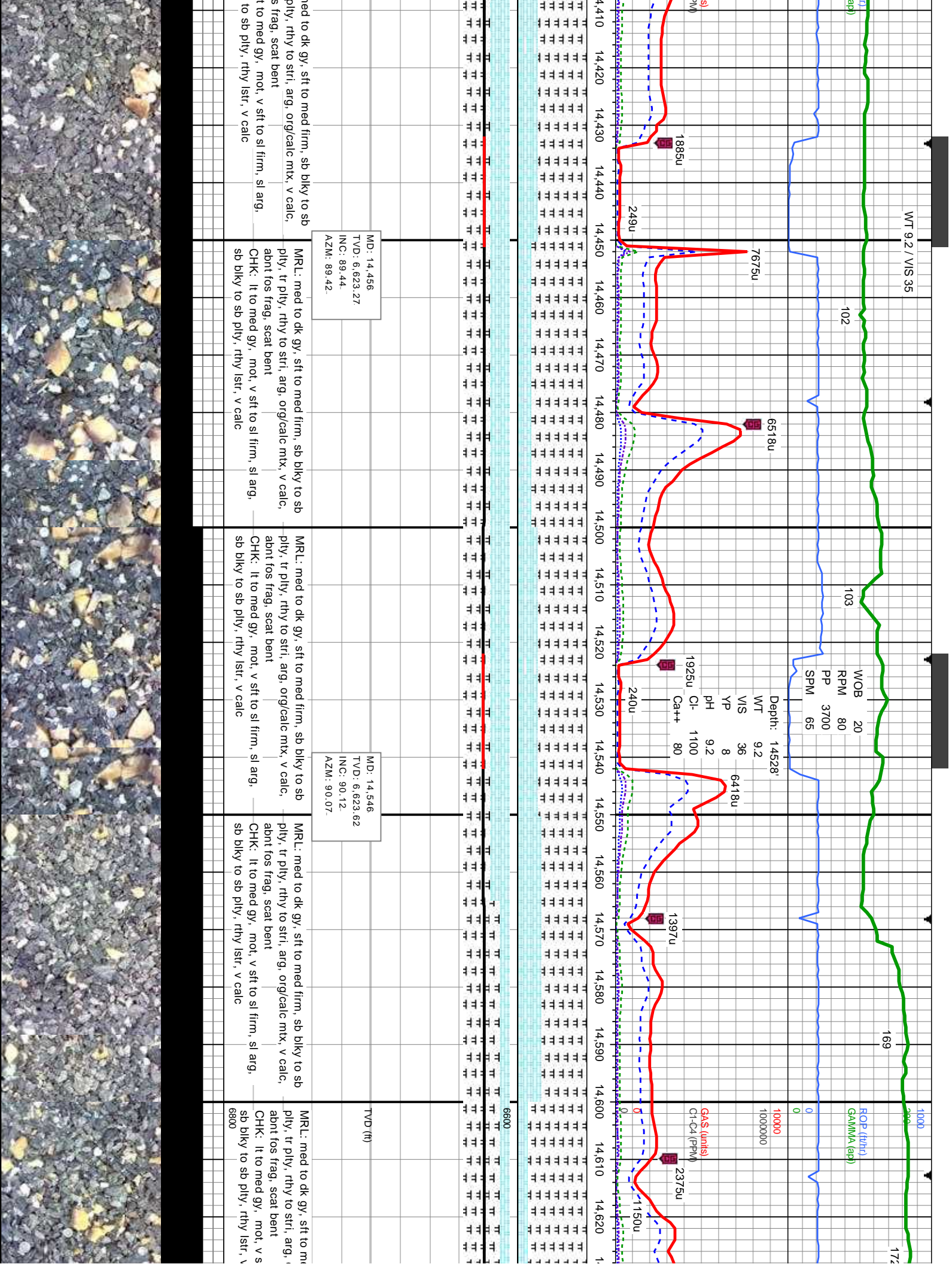
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, tr bent
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc

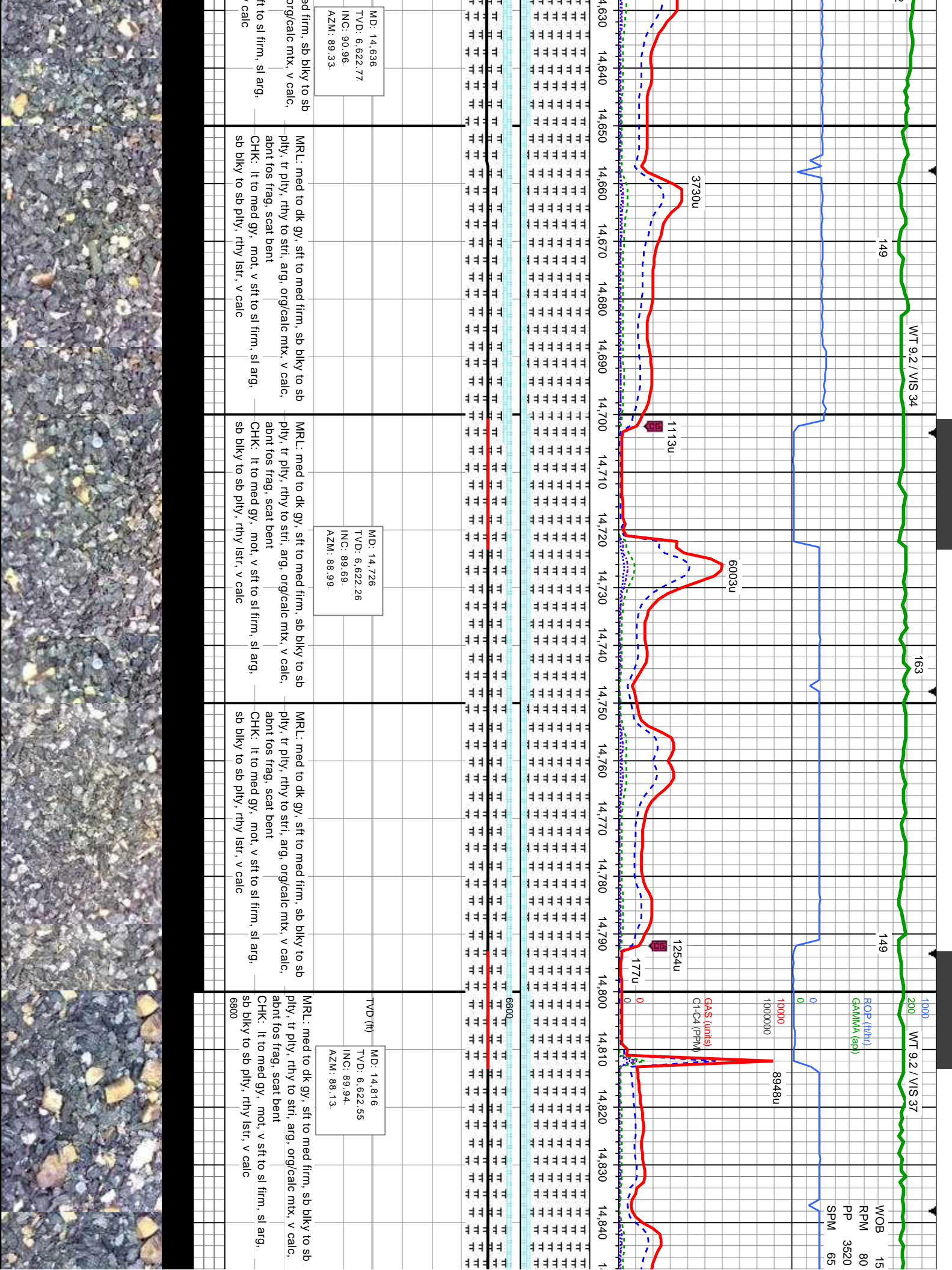
MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, tr bent
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc

MRL: med to dk gy, sft med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, tr bent
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc







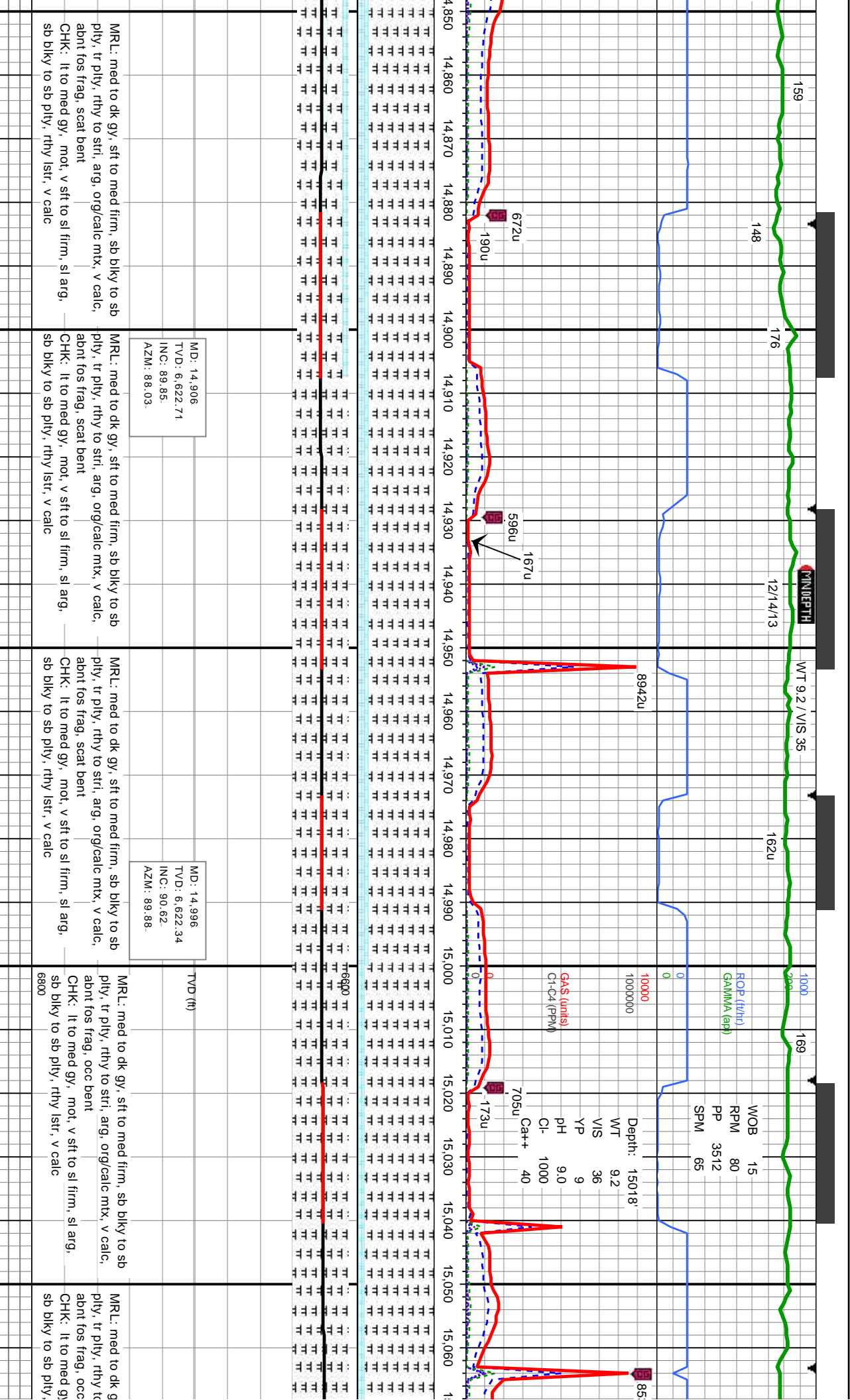


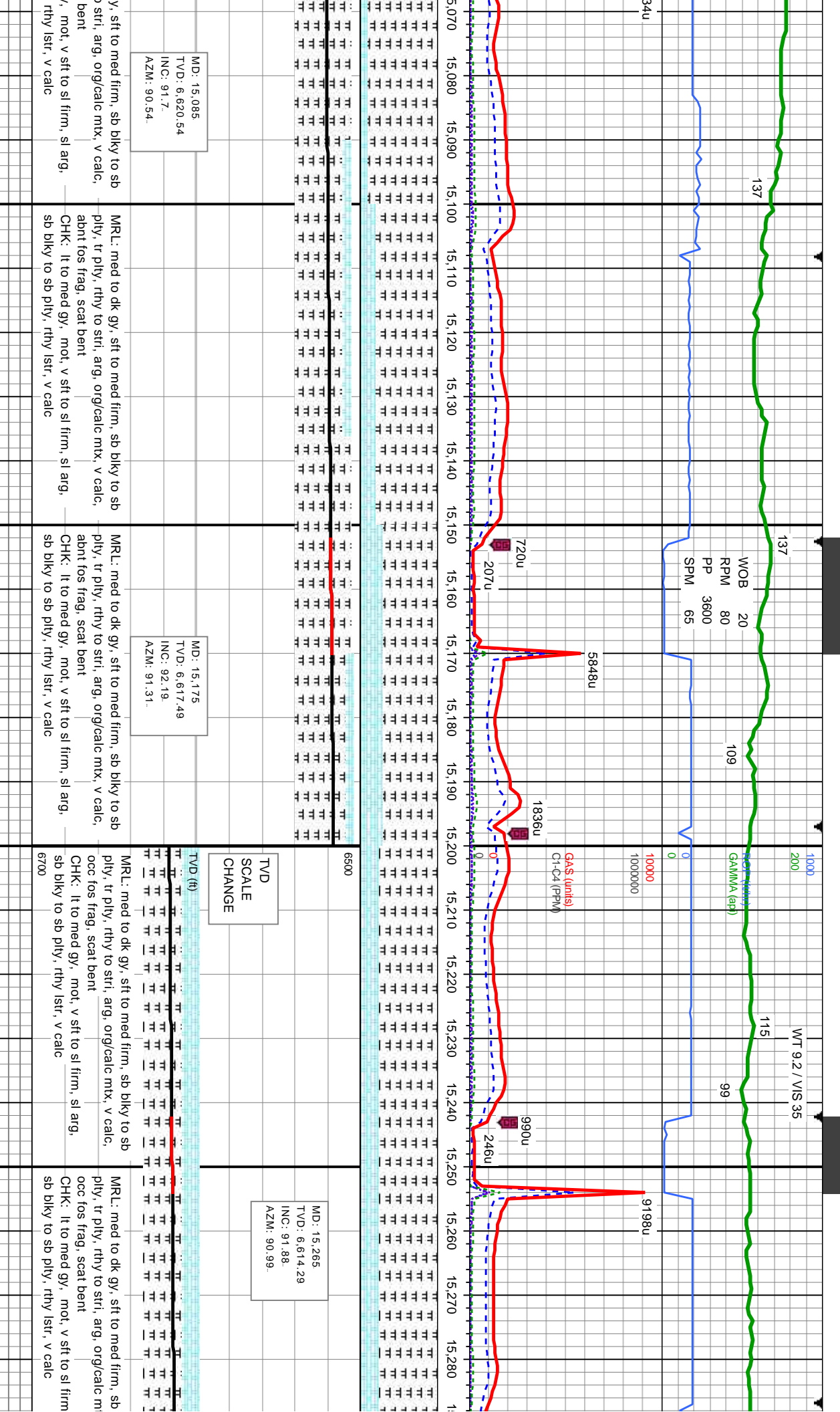
MD: 14.636
TVD: 6,622.77
INC: 90.96
AZM: 89.33

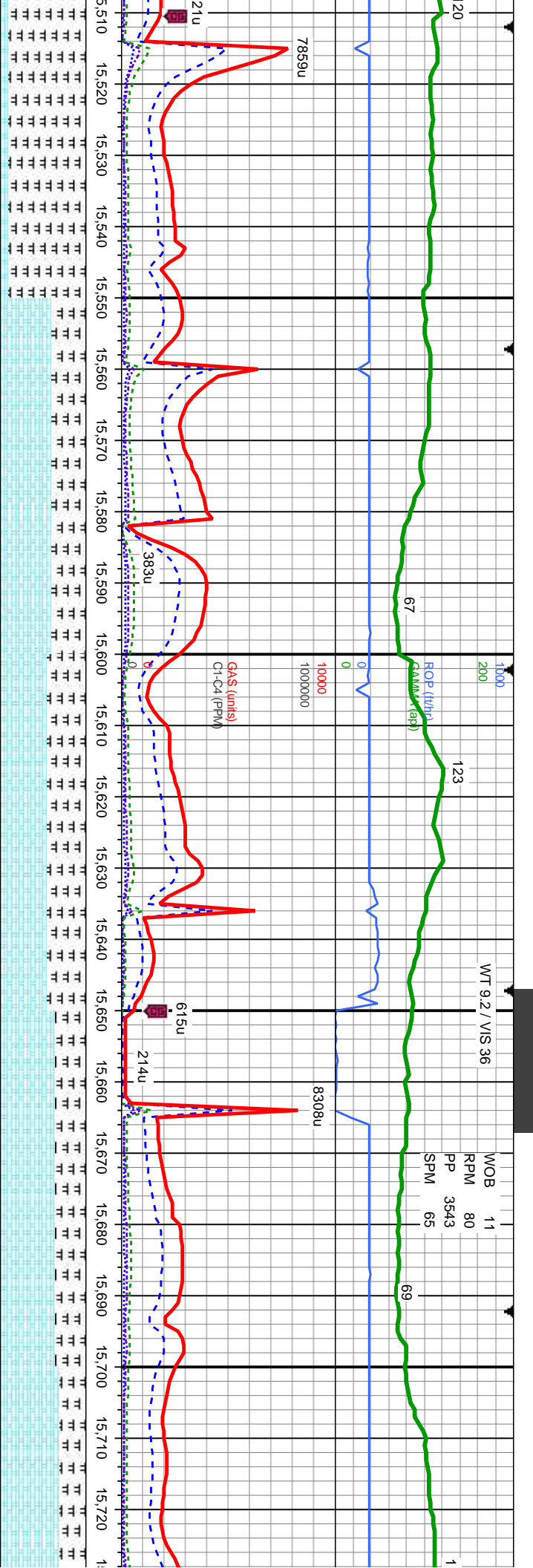
MD: 14.726
TVD: 6,622.26
INC: 89.69
AZM: 88.99

MD: 14.816
TVD: 6,622.55
INC: 89.94
AZM: 88.13









MD: 15.535
TVD: 6,609.38
INC: 91.85
AZM: 89.52

MD: 15.625
TVD: 6,605.68
INC: 92.87
AZM: 88.72

MD: 15.715
TVD: 6,601.53
INC: 92.41
AZM: 88.37

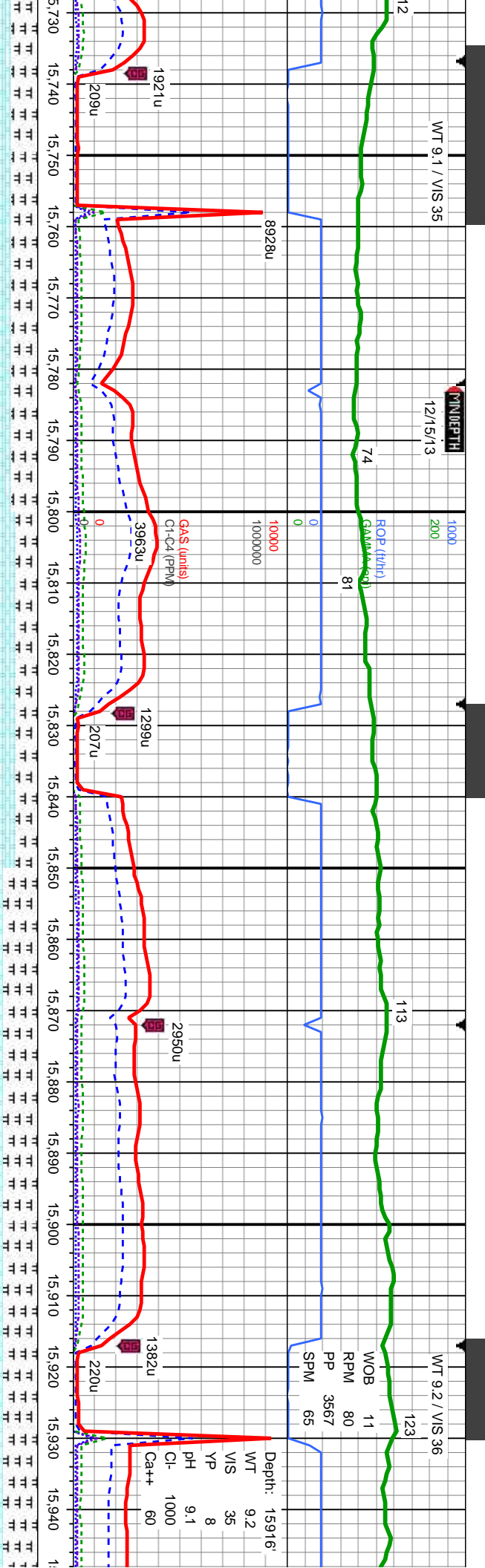
to dk gy, sft to med firm, sb blkly to sb blkly, rthy to stri, arg, org/calc mtx, v calc, frag, scat bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
to med gy, mot, v sft to sl firm, sl arg, to sb ply, rthy lstr, v calc	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, scat bent

to dk gy, sft to med firm, sb blkly to sb blkly, rthy to stri, arg, org/calc mtx, v calc, frag, scat bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
to med gy, mot, v sft to sl firm, sl arg, to sb ply, rthy lstr, v calc	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, scat bent

to dk gy, sft to med firm, sb blkly to sb blkly, rthy to stri, arg, org/calc mtx, v calc, frag, scat bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
to med gy, mot, v sft to sl firm, sl arg, to sb ply, rthy lstr, v calc	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, scat bent

to dk gy, sft to med firm, sb blkly to sb blkly, rthy to stri, arg, org/calc mtx, v calc, frag, scat bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lstr, v calc
to med gy, mot, v sft to sl firm, sl arg, to sb ply, rthy lstr, v calc	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mtx, v calc, abnt fos frag, scat bent



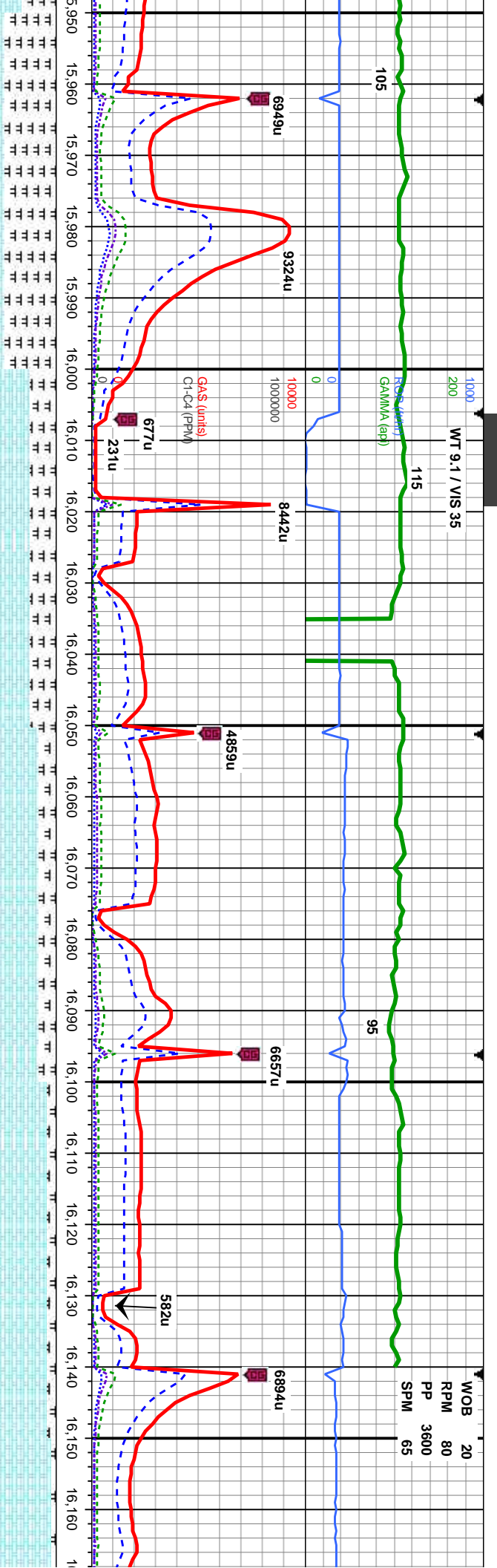


MD: 15.805
TVD: 6,598.41
INC: 91.57
AZM: 88.48

MD: 15.894
TVD: 6,595.8
INC: 91.79
AZM: 88.87

It to sl firm, sl arg, calc	It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lsfr, v calc
firm, sb biky to sb org/calc mx, v calc,	MR.L: med to dk gy, sft to med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, scat bent
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lsfr, v calc	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft to med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, scat bent	MR.L: med to dk gy, sft to med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, occ bent
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lsfr, v calc	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb biky to sb ply, rthy lsfr, v calc
MR.L: med to dk gy, sft to med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, scat bent	MR.L: med to dk gy, sft to med firm, sb biky to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, occ bent





MD: 15.984
TVD: 6.594.1
INC: 90.37.
AZM: 90.03

MD: 16.074
TVD: 6.593.21
INC: 90.77.
AZM: 90.59

MD: 16.134
TVD: 6.592.67
INC: 90.25.
AZM: 89.06

PROJ

MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, occ bent	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lsfr, v calc	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lsfr, v calc	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lsfr, v calc	CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lsfr, v calc
CHK: It to med gy, mot, v sft to sl firm, sl arg, sb blkly to sb ply, rthy lsfr, v calc	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, scat bent	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, scat bent	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, scat bent	MRL: med to dk gy, sft to med firm, sb blkly to sb ply, tr ply, rthy to stri, arg, org/calc mx, v calc, abnt fos frag, scat bent
6700				



