

# COLUMBINE LOGGING

Scale: 5" / 100'  
Measured Depth Log

Well Name 05123377740000\_Boyd\_2N\_32HZ

Location SEC 5, T1N,R65W

State COLORADO

Country USA

API Number 051233777400

Region DJ BASIN

Spud Date 1/18/2014

Surface Coordinates 325' FSL & 2336' FEL

Bottom Hole Coordinates RELATIVE TO WELLHEAD:  
9712.99' N & 554.25' E

Ground Elevation 4950'

Logged Interval 6529' MD To 16612' MD

Formation NIOBRARA 'B'

Type of Drilling Fluid WBM

County WELD

Rig Number H&P 307

AFE # 2076556

Field WATTENBERG

Drilling Completed 2/2/2014

K.B. Elevation 4975'

Total Depth 16612' MD

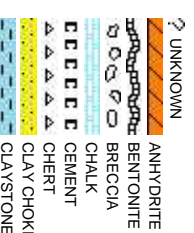
Company Anadarko

Address 1099 18th Street  
Denver, Co., 80202

Name Rhead Cannon

Company Anadarko Petro  
Address 1099 18th Street  
Room 15029  
Denver, Co., 80202

son, Chris Venturino Columbine  
2385 S  
Denver



# Operator

0202

# Geologist

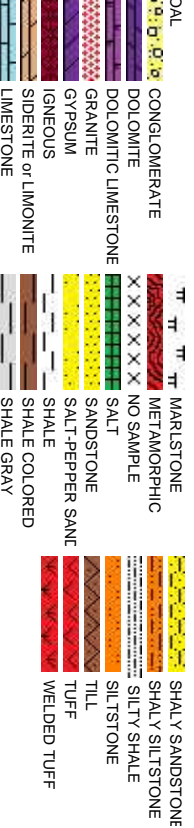
leum Co.

0202

## Other

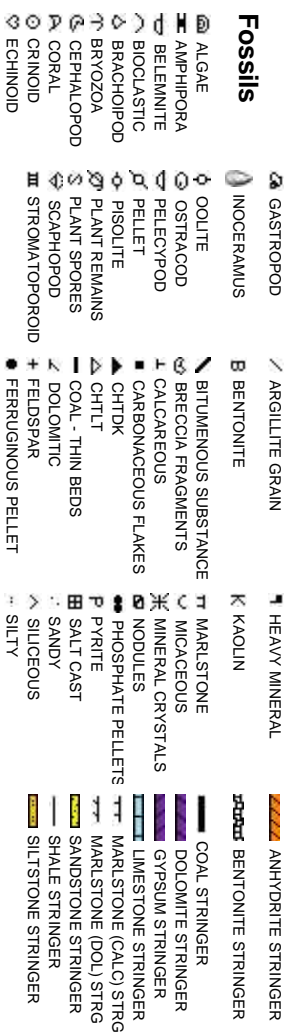
CO  
Lipan St.  
ine Logging Inc.

## Rock Types



## Accessories

## Fossils



## Minerals

**Springer**

## Other Symbols

## Oil Show



# Engineering



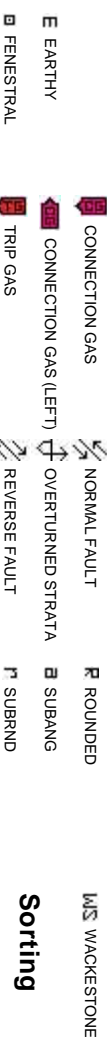
## Rounding



## Porosity



## Sorting



## Textures



Slide/Rotate

ROP  
ROF  
GAMMA

Total Gas & Chromatograph

GAS  
C1  
C3

Depth Labels

% Lith

Well Bore  
TVD

Oil Show

Images

COLUMBINE LOGGING TWO MAN  
RIGGED UP ON 1/19/2014 @ 13:15HRS,  
BEGIN LOGGING  
@ 18:10 HRS 1/19/2014

KOP= 6529' MD

DRLG 8.75' HOLE W/ BIT  
#1, HCC DP306S,  
IN @ 1075' MD

GAS DETECTION  
PROVIDED BY  
TOTCO

45u  
192u  
5000  
50000

MD: 6,526.  
TVD: 6,488.5.  
Inclination: 1.37  
Azimuth: 355.28  
VS: -1.34

MD: 6,574.  
TVD: 6,536.42.  
Inclination: 4.65  
Azimuth: 351.83  
VS: 1.16

MD: 6,621.  
TVD: 6,588.  
Inclination:  
Azimuth:  
VS: 6.79

DRILLING IN  
SUSSEX FM.

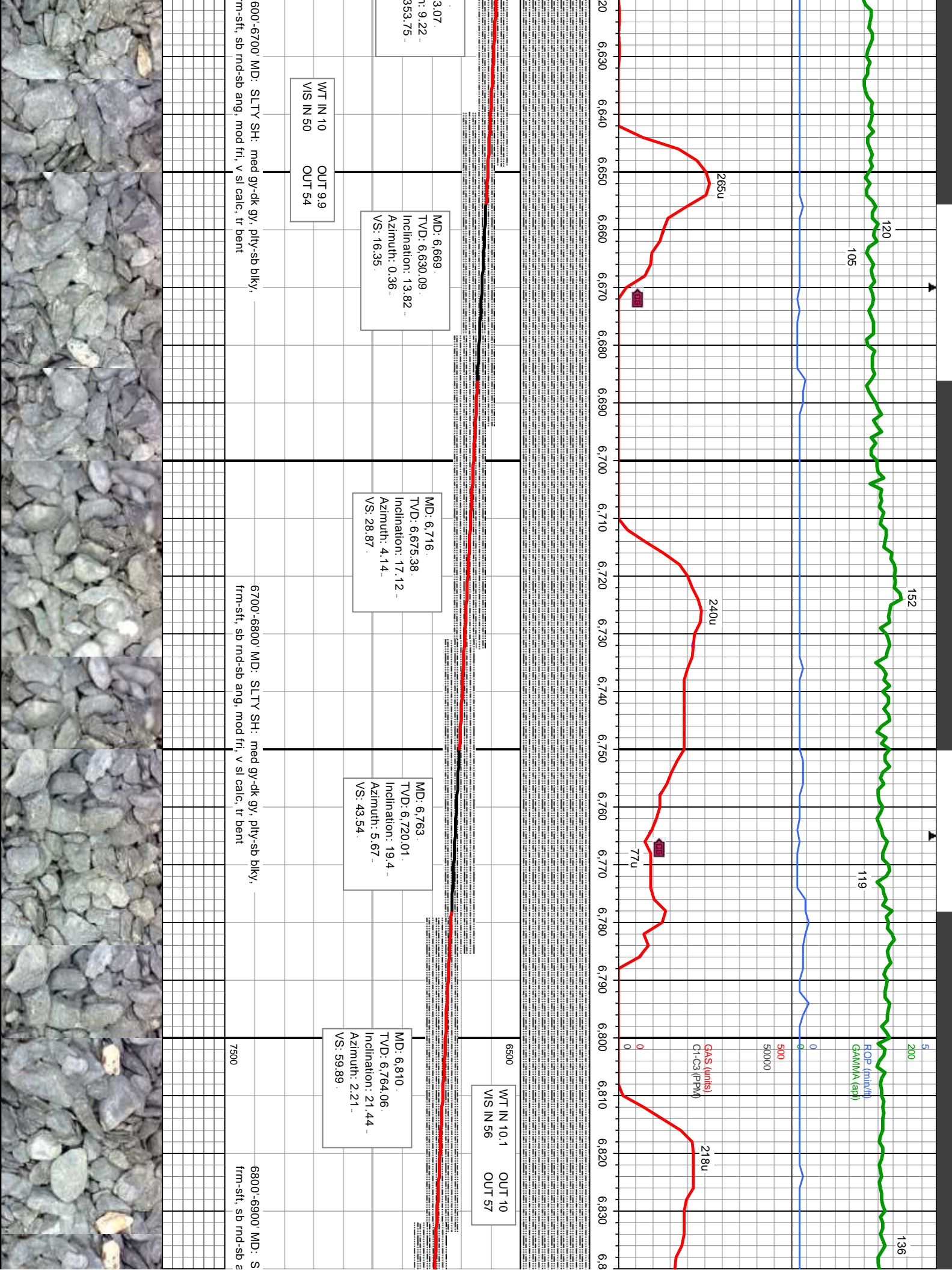
WT IN 9.9 OUT 9.6  
VIS IN 50 OUT 47

6529'-6600' MD: SLTY SH: med gy-dk gy, pty-sb blk, v  
frm-sft, sb rnd-sb ang, mod fri, v sl calc

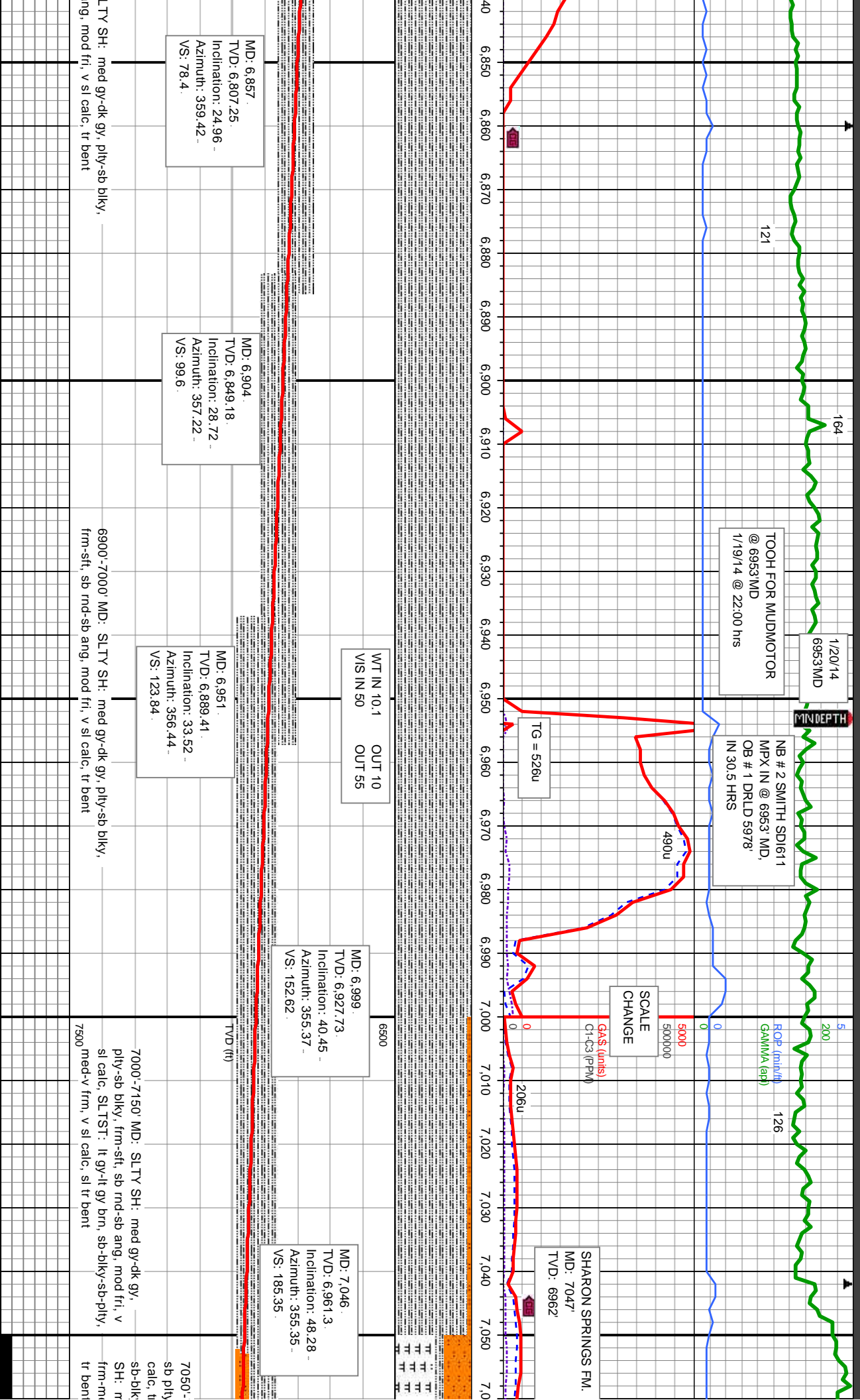
EGMTST

67500









ALTY SH: med gy-dk gy, plty-sb bilky,  
ing, mod fri, v sl calc, tr bent

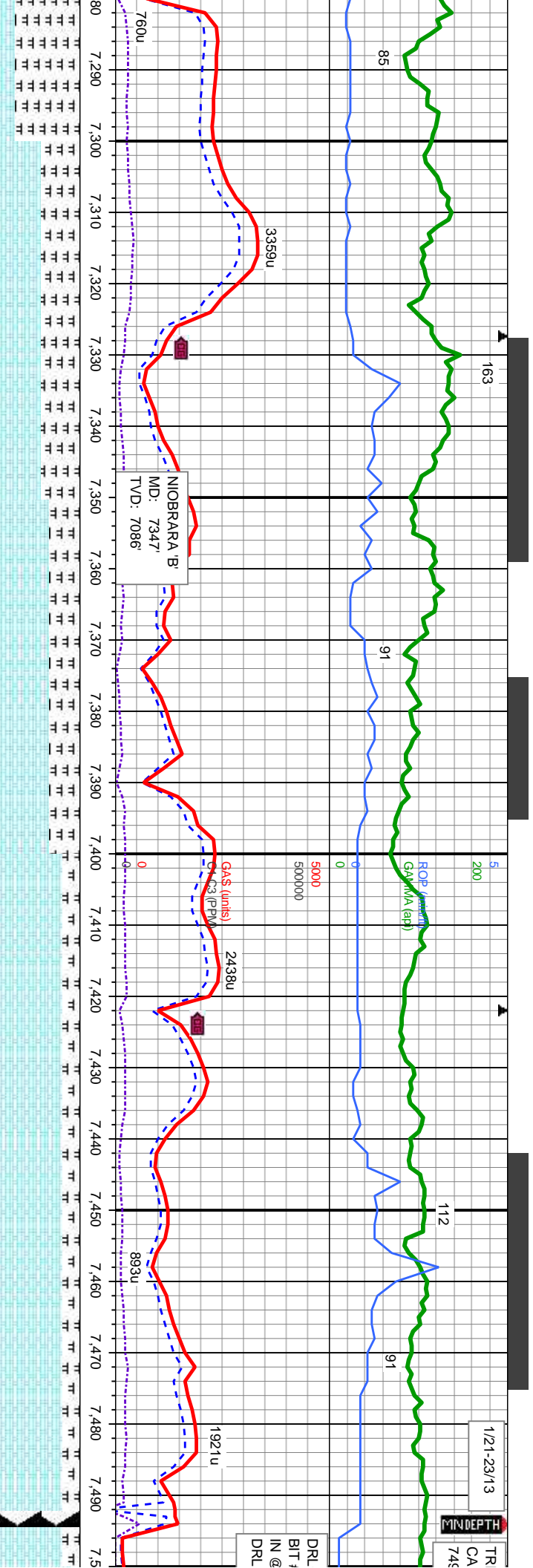
6900'-7000' MD: SLTY SH: med gy-dk gy, pily-sb blyk, firm-sft, sb rnd-sb ang, mod fri, v sl calc, tr bent

7000-7150 MD: SLTY SH: med gy-dk gy, plty-sb biky, frm-sft, sb md-sb ang, mod fri, v sl calc, SLST: lt gy-lt gy brn, sb-biky-sb-plty, med-v frm, v sl calc, sl tr bent

7050'-  
sb plty  
calc, tr  
sb-blk;  
SH: r  
frm-m  
tr bent







WT IN 10.3 OUT 10.3  
VIS IN 55 OUT 55

MD: 7.329  
TVD: 7.081 45  
Inclination: 74.92  
Azimuth: 359.43  
VS: 438.4

MD: 7.376  
TVD: 7.091 46  
Inclination: 80.46  
Azimuth: 0.05  
VS: 484.3

WT IN 10.2 OUT 10  
VIS IN 60 OUT 60

MD: 7.423  
TVD: 7.097 86  
Inclination: 83.88  
Azimuth: 0.06  
VS: 530.86

MD: 7.448  
TVD: 7.100 01  
Inclination: 86.29  
Azimuth: 359.75  
VS: 555.76

WT IN 10.1 OUT 10  
VIS IN 62 OUT 63

72.56  
359.26  
29

7300'-7350' MD CHK: lt-med gy, mot, sb  
biky-sb pily, sft-sl frm, fri, chky-sb wxy, v  
calc, MRLST: med-dk gy-gy brn, sb pily-sb  
biky, mod sft-frm, sb arg-sily, calc, tr bent, tr  
lt bl flr w/v slow-med halo cut

7350'-7400' MD CHK: lt-med gy, mot, sb  
biky-sb pily, sft-sl frm, fri, chky-sb wxy, v  
calc, MRLST: med-dk gy-gy brn, sb pily-sb  
biky, mod sft-frm, sb arg-sily, calc, tr bent, tr  
lt bl flr w/v slow-med halo cut

7400'-7450' MD CHK: lt-med gy, mot, sb  
biky-sb pily, sft-sl frm, fri, chky-sb wxy, v  
calc, MRLST: med-dk gy-gy brn, sb pily-sb  
biky, mod sft-frm, sb arg-sily, calc, tr bent, tr  
lt bl flr w/v slow-med halo cut

7450'-7500' MD: CHK: lt-med gy, mot, sb  
biky-sb pily, sft-sl frm, fri, chky-sb wxy, v  
calc, MRLST: med-dk gy-gy brn, sb pily-sb  
biky, mod sft-frm, sb arg-sily, calc, tr bent, tr  
lt bl flr w/v slow-med halo cut



P FOR 7"  
SING @  
4 MD

SCALE CHANGE

3

200

144

119

107

117

99

144

ROP (min/hr)

GAMMA (ap)

0

5000

500000

0

0

G 6.125" HOLE W/  
3. SEC MMDS4,  
7494', OB # 2  
D 541' IN 10.5 HRS

1111u

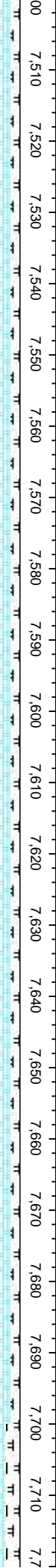
GAS (units)  
C1-C3 (PPM)

219u

1005u

48u

185u



MD: 7.525.  
TVD: 7,101.84.  
Inclination: 90.98  
Azimuth: 359.76  
VS: 632.72

MD: 7.618.  
TVD: 7,102.03.  
Inclination: 88.79  
Azimuth: 0.37  
VS: 726.71

MD: 7.712.  
TVD: 7,104.19.  
Inclination: 88.57  
Azimuth: 359.98  
VS: 819.69

6500 WT IN 9.6 OUT 9.6  
VIS IN 43 OUT 43

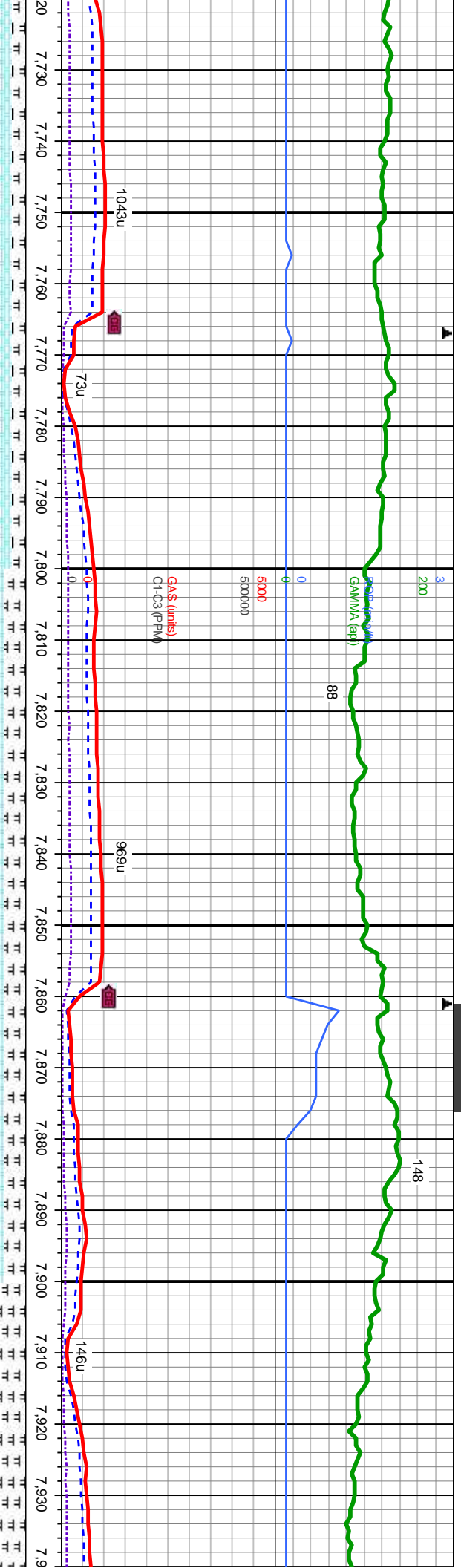
7500'-7600' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri,  
chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod  
sft-frm, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut

7600'-7700' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri,  
chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod  
sft-frm, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut

7700'  
chky  
sft-fr







WT IN 9.6  
VIS IN 42  
OUT 9.6  
41

MD: 7.805.  
TVD: 7.106.83.  
Inclination: 88.18.  
Azimuth: 2.18.  
VS: 912.63.

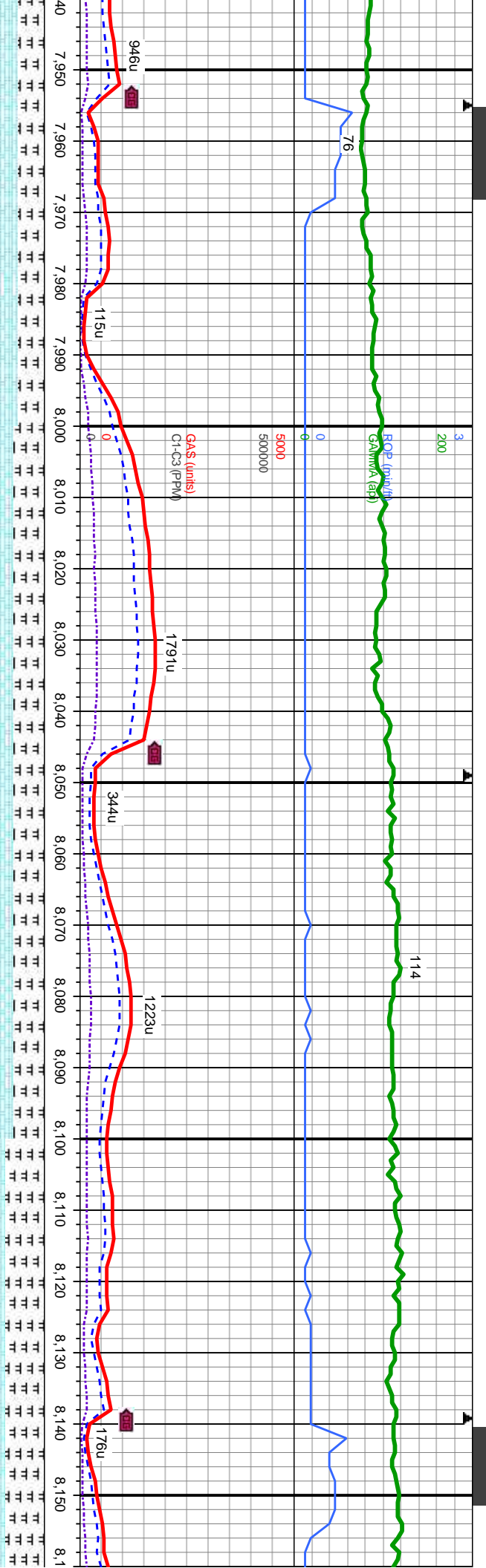
MD: 7.899  
TVD: 7.109.39.  
Inclination: 88.7.  
Azimuth: 359.88.  
VS: 1,006.58.

-7800' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod m, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut

7800'-7900' MD: CHK: lt-med gy, mot, sb blk-y-sb ply, sft-sl frm, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb ply-sb blk-y, mod sft-frm, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut

7900'-8000' MD: CHK: lt-m chky-sb wxy, v calc, MRLS sft-frm, sb arg-sily, calc, tr





WT IN 9.6 OUT 9.6  
VIS IN 43 OUT 40

MD: 7.992.  
TVD: 7.110.53.  
Inclination: 89.9.  
Azimuth: 359.95.  
VS: 1.099.57.

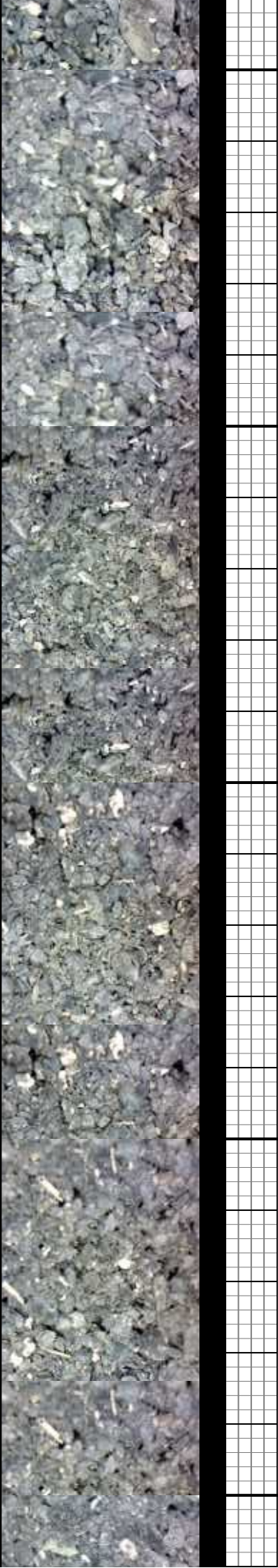
MD: 8.084.  
TVD: 7.111.06.  
Inclination: 89.44.  
Azimuth: 0.4.  
VS: 1.191.57.

WT IN 9.7  
VIS IN 48

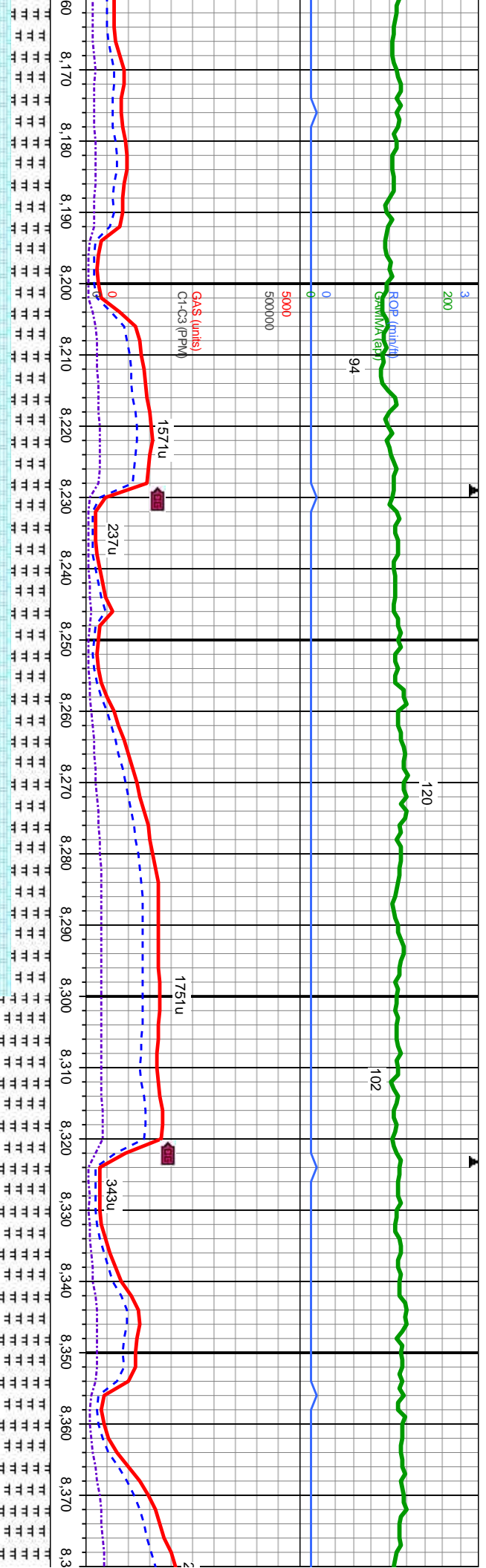
med gy, mot, sb blk-y-sb pily, sft-sl frm, fri,  
T: med-dk gy-gy brn, sb pily-sb blk-y, mod  
bent, tr lt bl flr w/v slow-med halo cut

8000'-8100' MD: CHK: lt-med gy, mot, sb blk-y-sb pily, sft-sl frm, fri,  
chk-y-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk-y, mod  
sft-frm, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut

8100'-8200' MD: CHK: lt-med gy, mot, sb blk-y-s  
chk-y-sb wxy, v calc, MRLST: med-dk gy-gy br  
sft-frm, sb arg-sily, calc, tr bent, tr lt bl flr w/v







OUT 9.6  
OUT 42

6500

WT IN 9.8  
VIS IN 45

OUT 9.6  
OUT 45

MD: 8,175.  
TVD: 7,110.82.  
Inclination: 90.86  
Azimuth: 0.96  
VS: 1,282.56

TVD (ft)

MD: 8,359  
TVD: 7,109.6  
Inclination: 89.9  
Azimuth: 0.94  
VS: 1,466.54

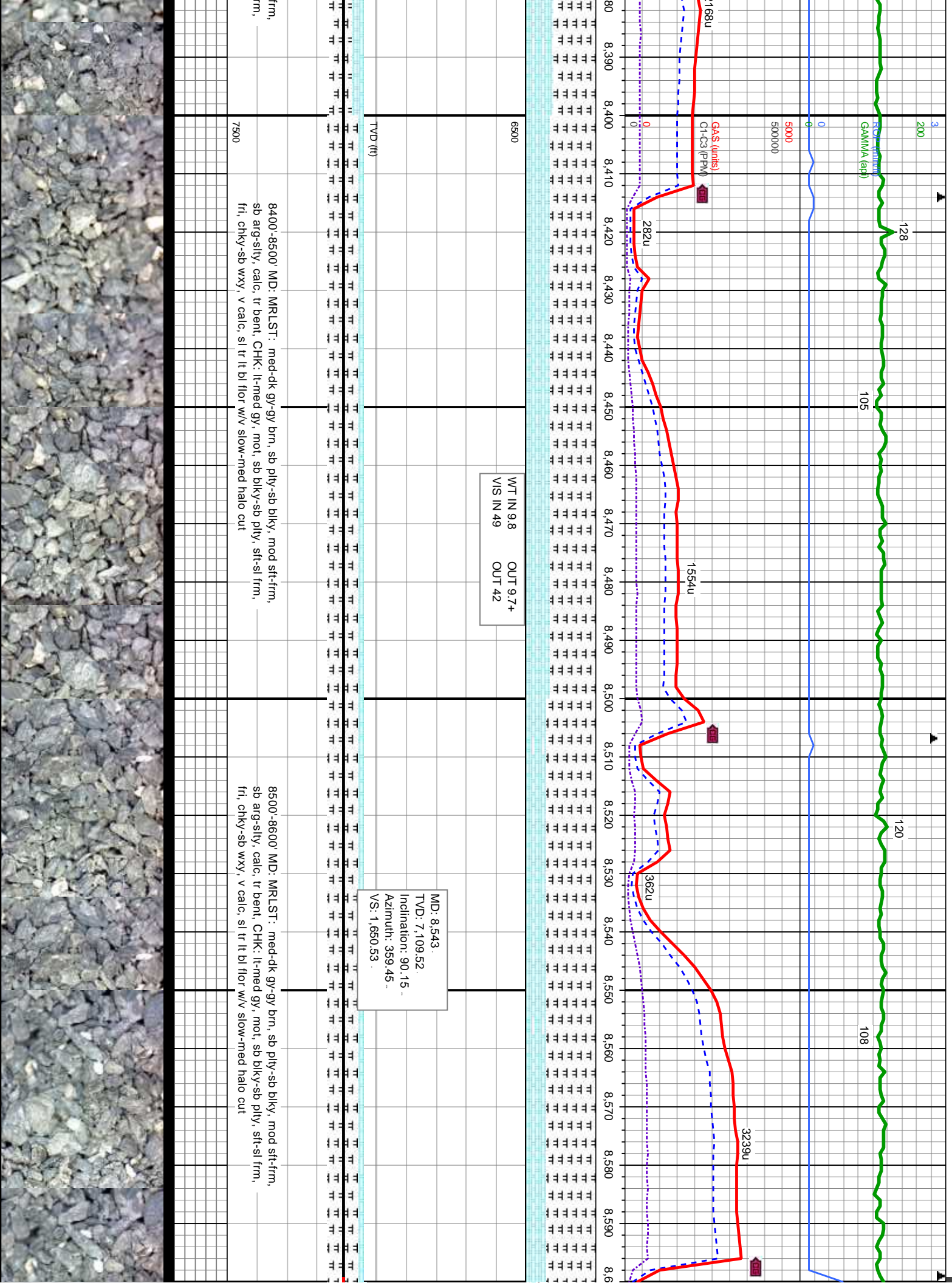
b pily, sft-sl frm, fri,  
n, sb pily-sb blkly, mod  
slow-med halo cut

8200'-8300' MD: CHK: lt-med gy, mot, sb blkly-sb pily, sft-sl frm, fri,  
chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blkly, mod  
sft-frm, sb arg-sily, calc, tr bent, tr lt bl flr w/v slow-med halo cut

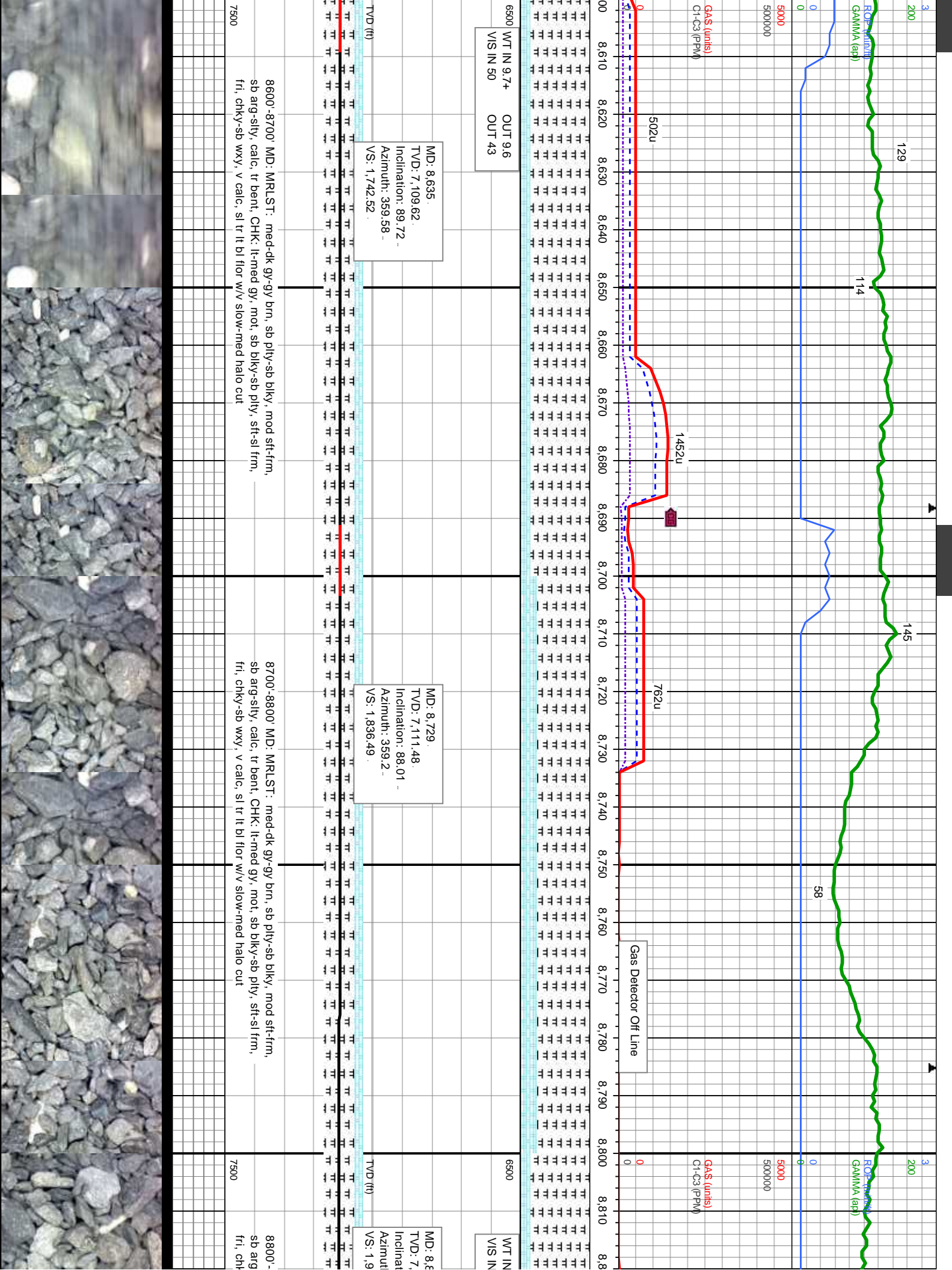
8300'-8400' MD: MRLST: med-dk gy-gy brn, sb pily-sb blkly, mod sft-  
sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blkly-sb pily, sft-sl f  
fri, chky-sb wxy, v calc, sl tr lt bl flr w/v slow-med halo cut

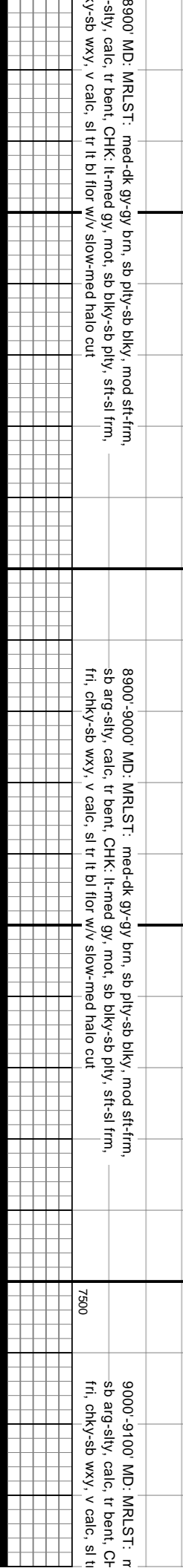
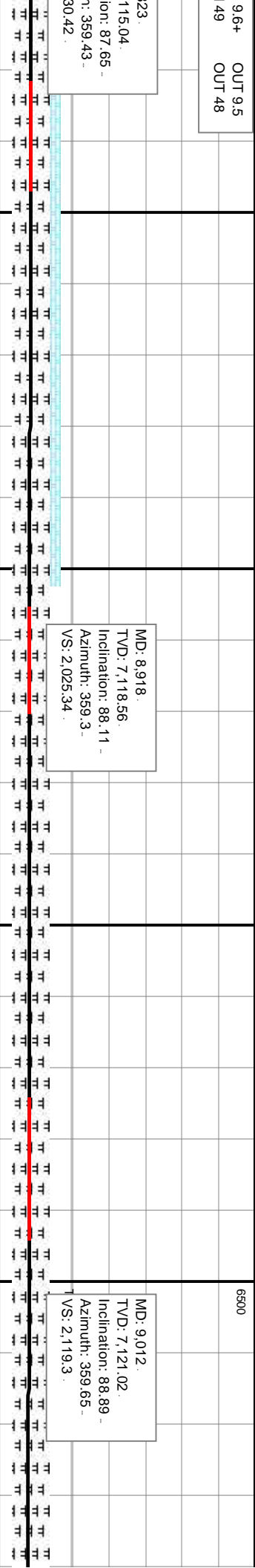
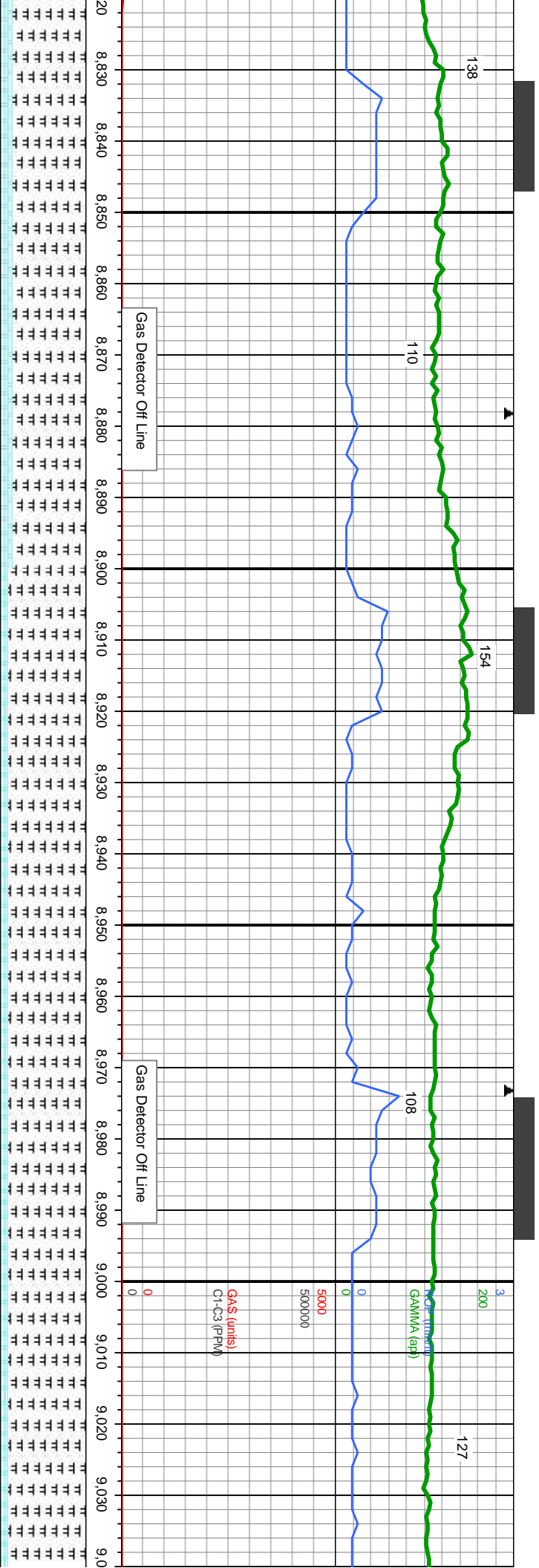
7500



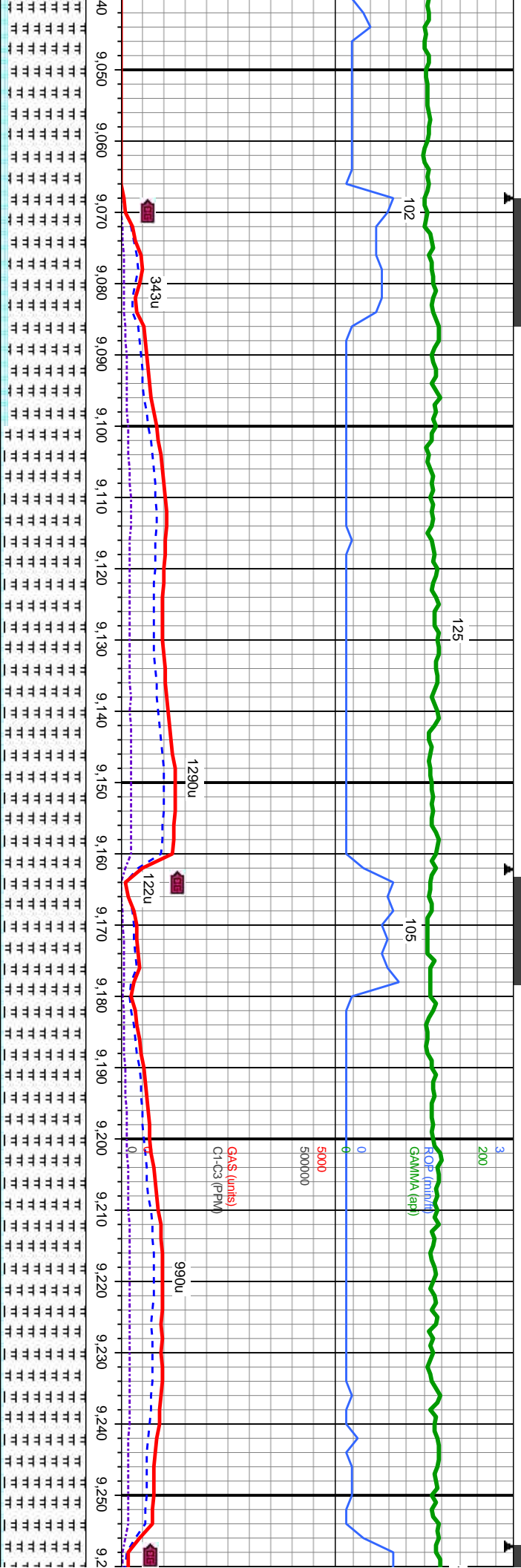












WT IN 9.6  
VIS IN 46  
OUT 9.3  
OUT 48

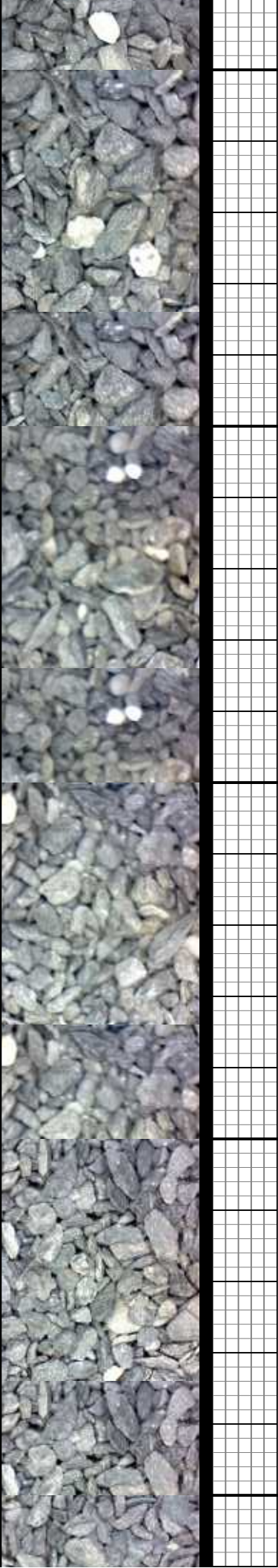
MD: 9.107  
TVD: 7,122.84  
Inclination: 88.91  
Azimuth: 359.27  
VS: 2,214.28

MD: 9.201  
TVD: 7,124.47  
Inclination: 89.1  
Azimuth: 359.89  
VS: 2,308.26

med-dk gy-gy brn, sb pty-sb blk, mod sft-fm, —  
sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, —  
lt bl flr w/v slow-med halo cut

9100'-9200' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, mod sft-fm, —  
sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, —  
fri, chky-sb wxy, v calc, sl tr lt bl flr w/v slow-med halo cut

9200'-9300' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, mod sft-fm, —  
sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, —  
fri, chky-sb wxy, v calc, sl tr lt bl flr w/v slow-med halo cut



1/24/14  
9352MD

MINDEPTH

3  
200

ROP (m/hr)  
GAMMA (ap)

0  
5000  
500000

GAS (units)  
C1-C3 (PPM)

6500

MD: 9.296.  
TVD: 7,125.97.  
Inclination: 89.1 -  
Azimuth: 359.8.  
VS: 2,403.25.

MD: 9.390.  
TVD: 7,126.15.  
Inclination: 90.67 -  
Azimuth: 1.09.  
VS: 2,497.24.

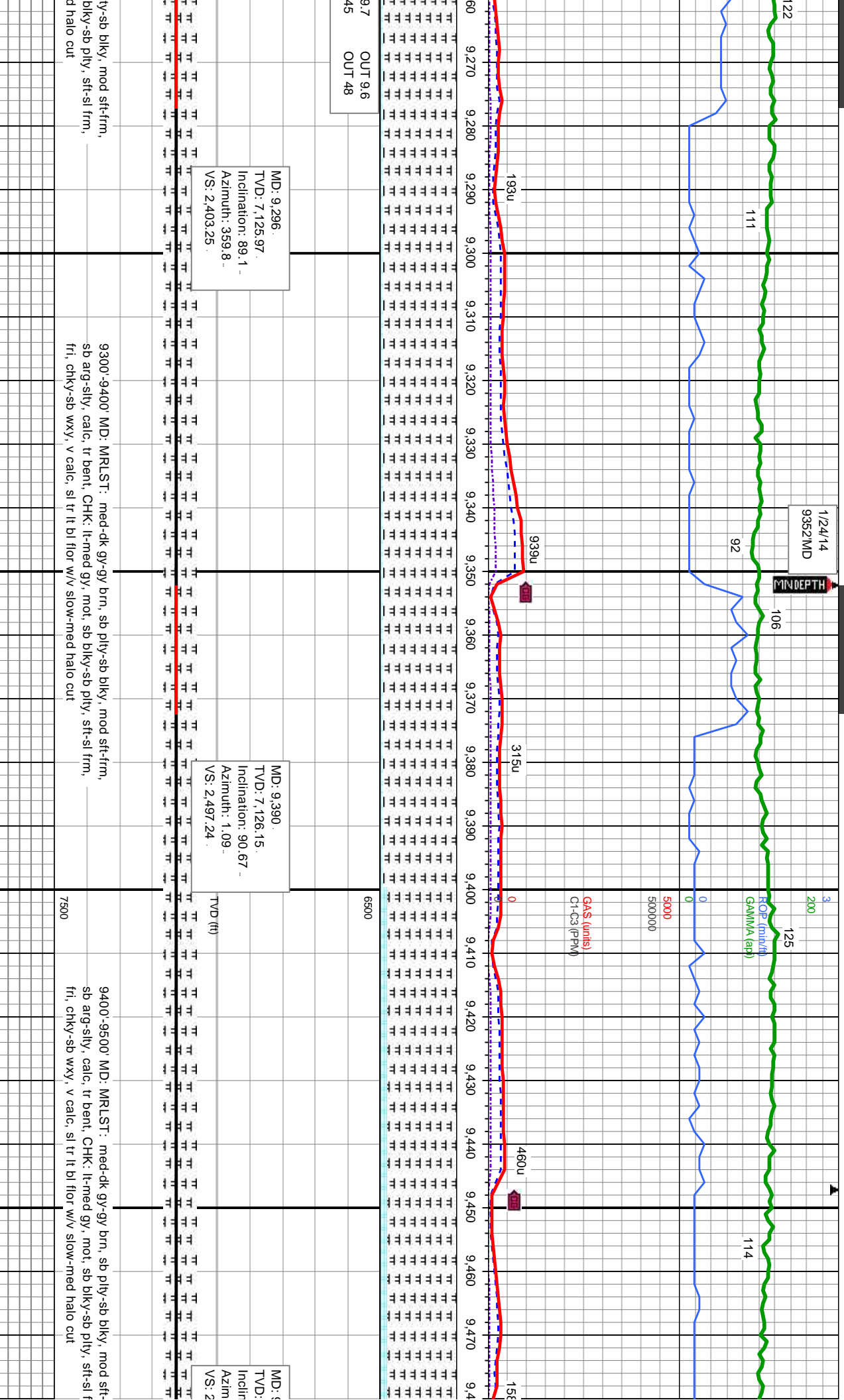
TVD (ft)

MD: 9.400.  
TVD: 7,126.15.  
Inclination: 90.67 -  
Azimuth: 1.09.  
VS: 2,497.24.

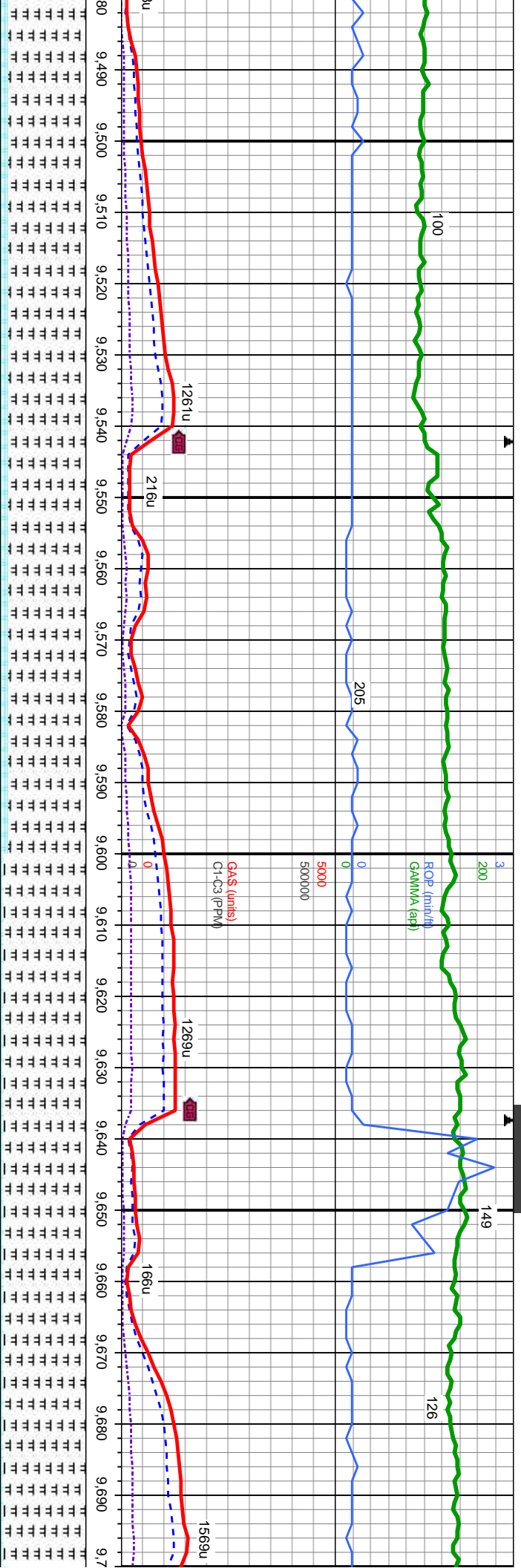
9300'-9400' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, mod sft-firm, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, sl tr lt bl flr w/v slow-med halo cut

9400'-9500' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, mod sft-firm, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, sl tr lt bl flr w/v slow-med halo cut

9.7  
OUT 9.6  
45  
OUT 48







MD: 9.485  
TVD: 7,126.19  
Inclination: 89.29  
Azimuth: 0.87  
VS: 2.592.23

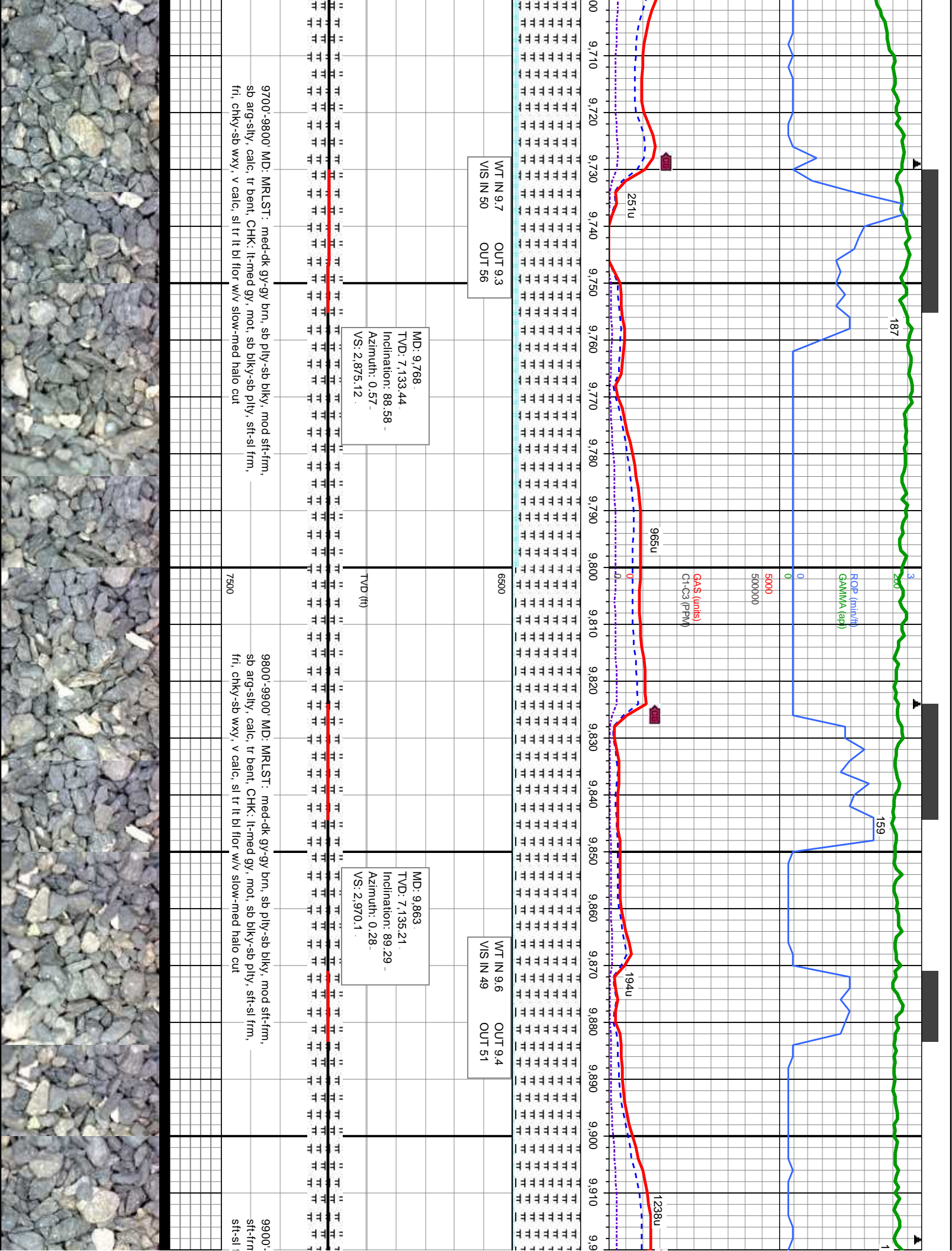
MD: 9.579  
TVD: 7,127.96  
Inclination: 88.55  
Azimuth: 0.43  
VS: 2.686.21

MD: 9.674  
TVD: 7,130.73  
Inclination: 88.11  
Azimuth: 0.37  
VS: 2.781.16

9500'-9600' MD: MRLST: med-dk gy-gy brn, sb ply-sb blkly, mod sft-frm, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blkly-sb ply, sft-sl frm, fri, chky-sb wxy, v calc, sl tr lt bl flr w/v slow-med halo cut

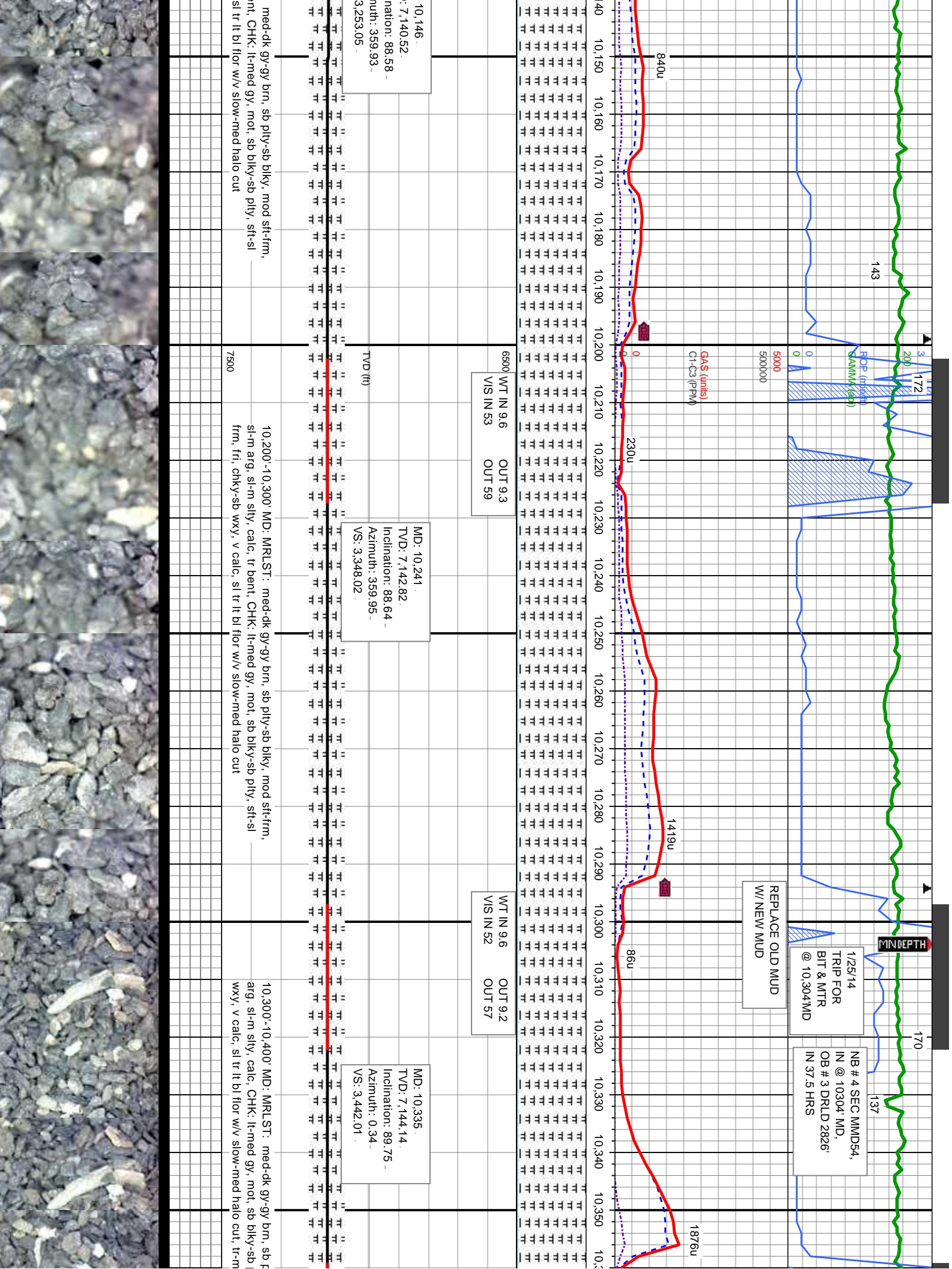
9600'-9700' MD: MRLST: med-dk gy-gy brn, sb ply-sb blkly, mod sft-frm, sb arg-sily, calc, tr bent, CHK: lt-med gy, mot, sb blkly-sb ply, sft-sl frm, fri, chky-sb wxy, v calc, sl tr lt bl flr w/v slow-med halo cut



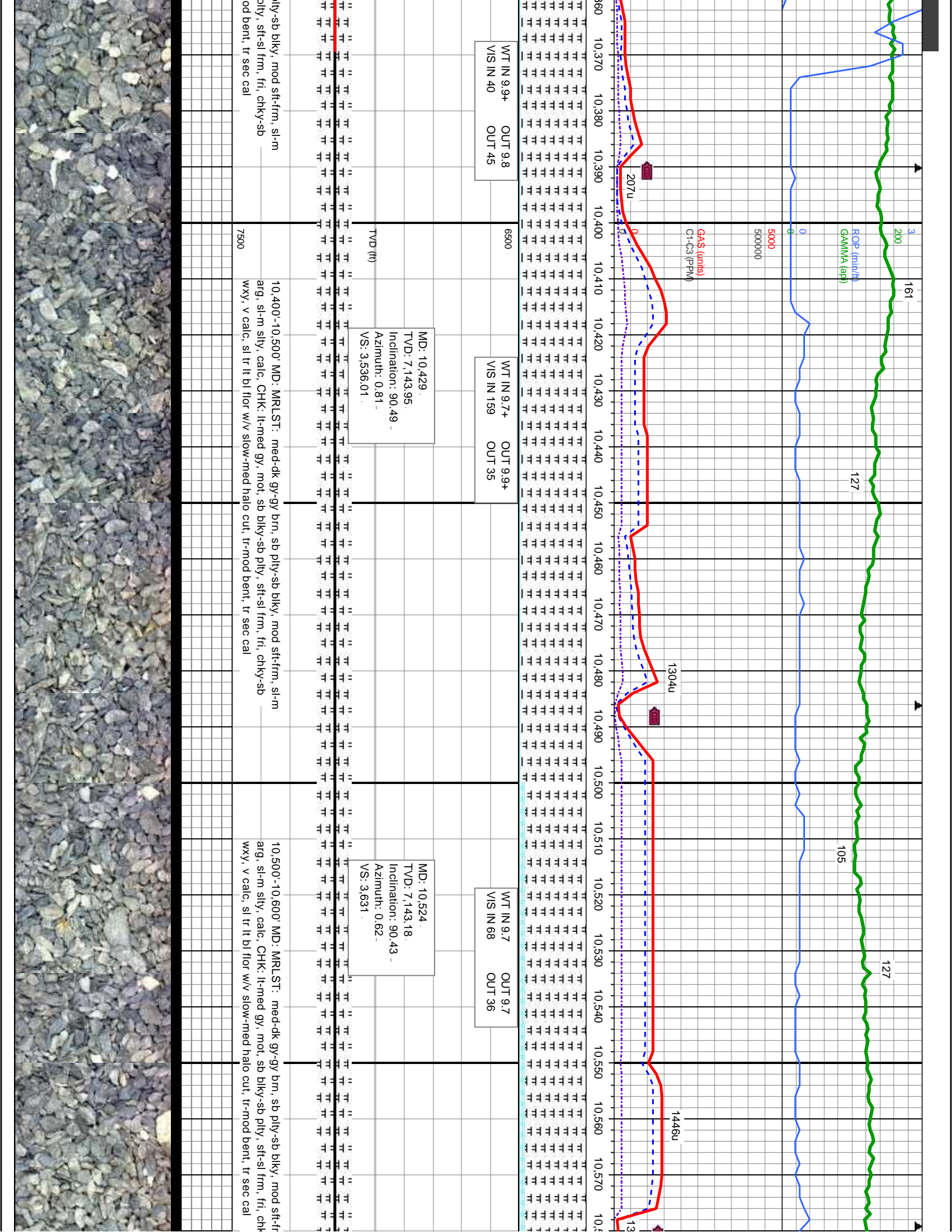


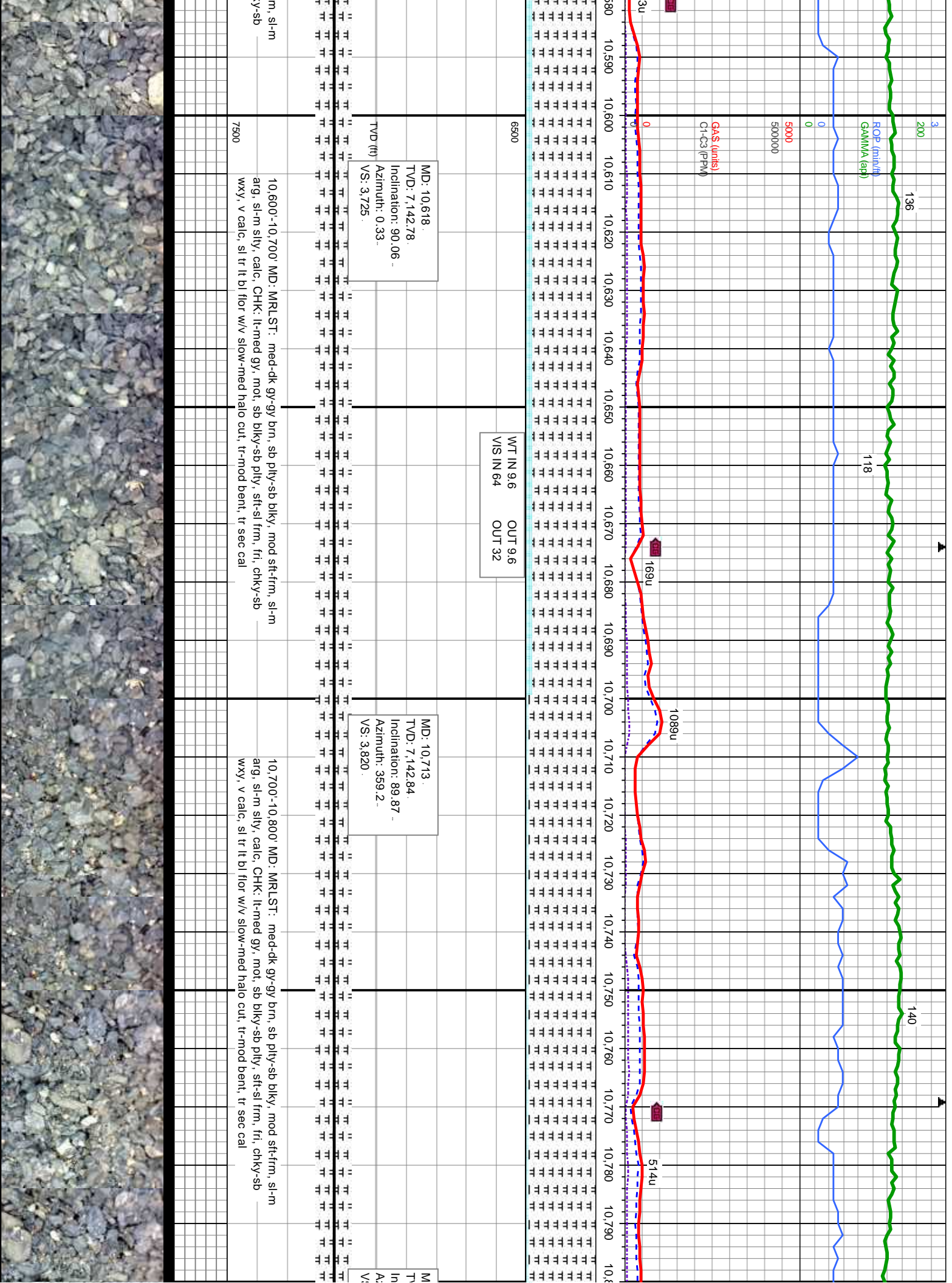




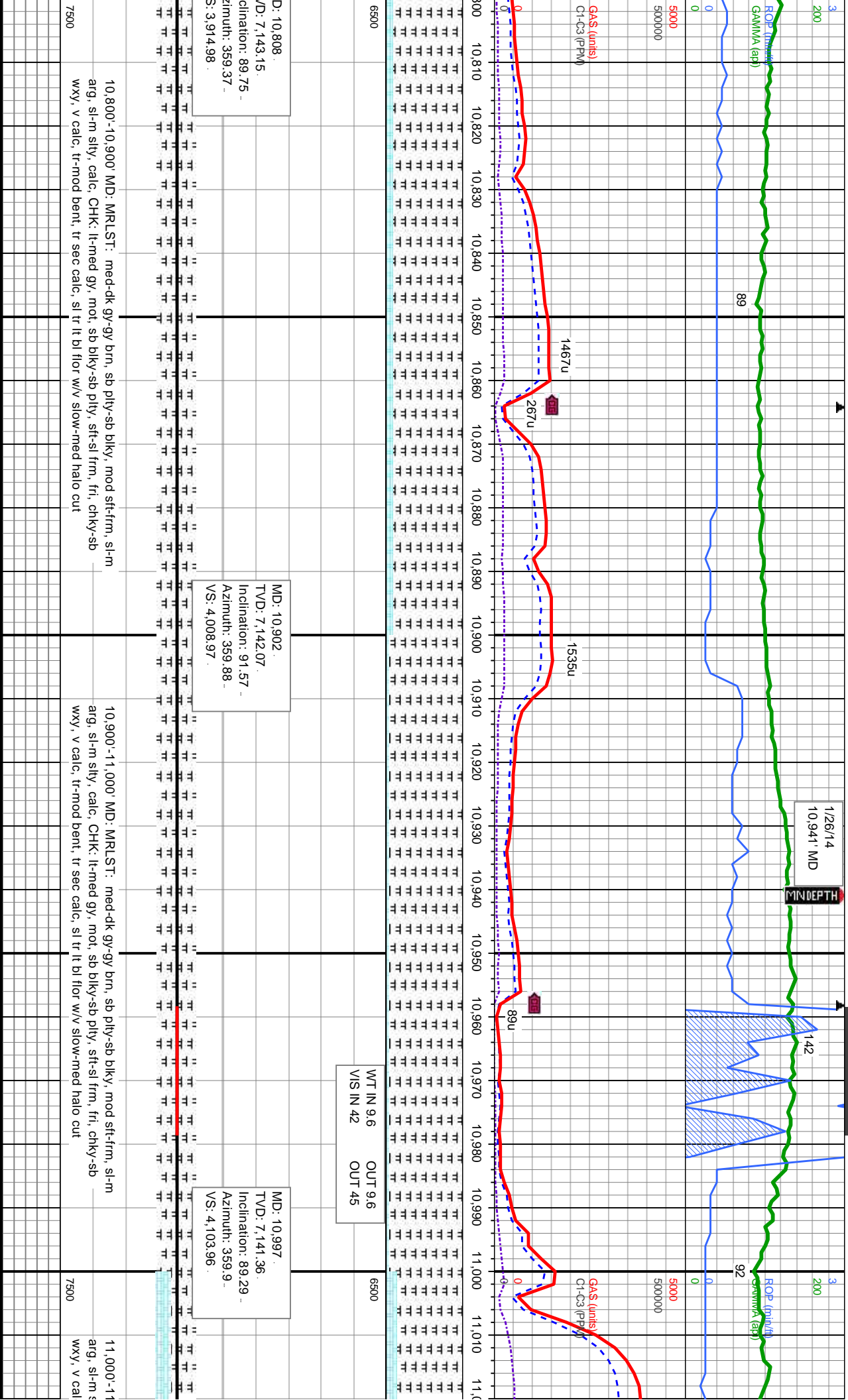


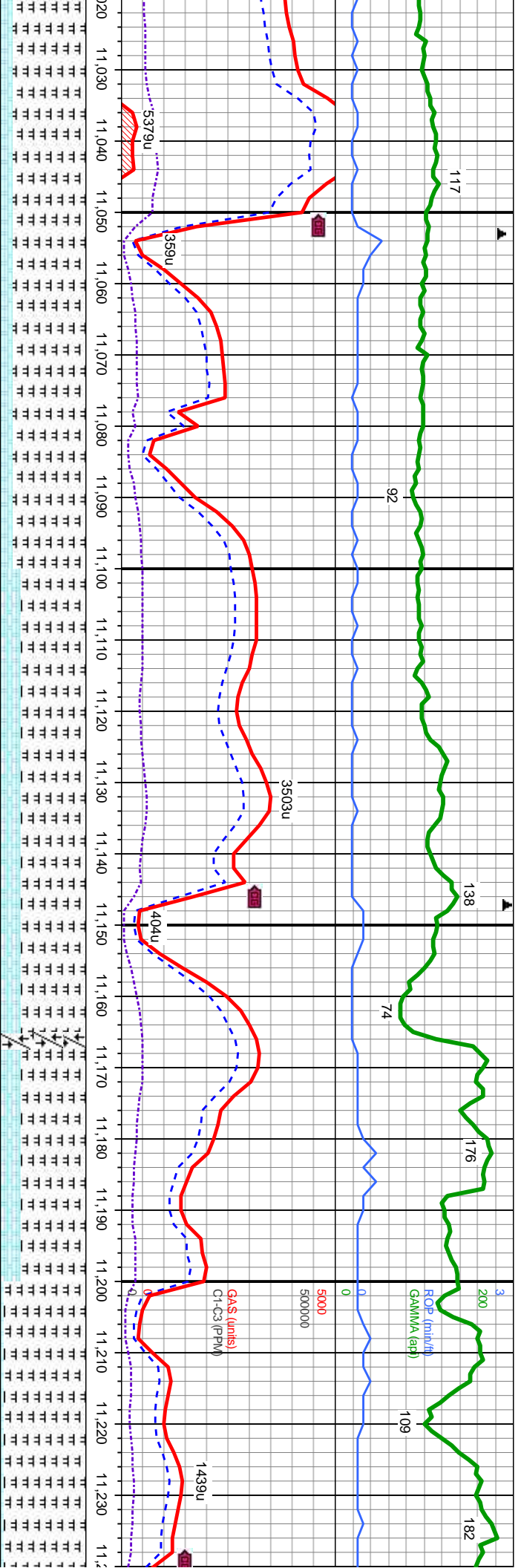












MD: 11,092.  
TVD: 7,142.36  
Inclination: 89.5  
Azimuth: 359.66  
VS: 4,198.95

WT IN 9.6 OUT 9.6  
VIS IN 44 OUT 42

MD: 11,186.  
TVD: 7,143.33  
Inclination: 89.32  
Azimuth: 359.36  
VS: 4,292.94

TVD (ft)

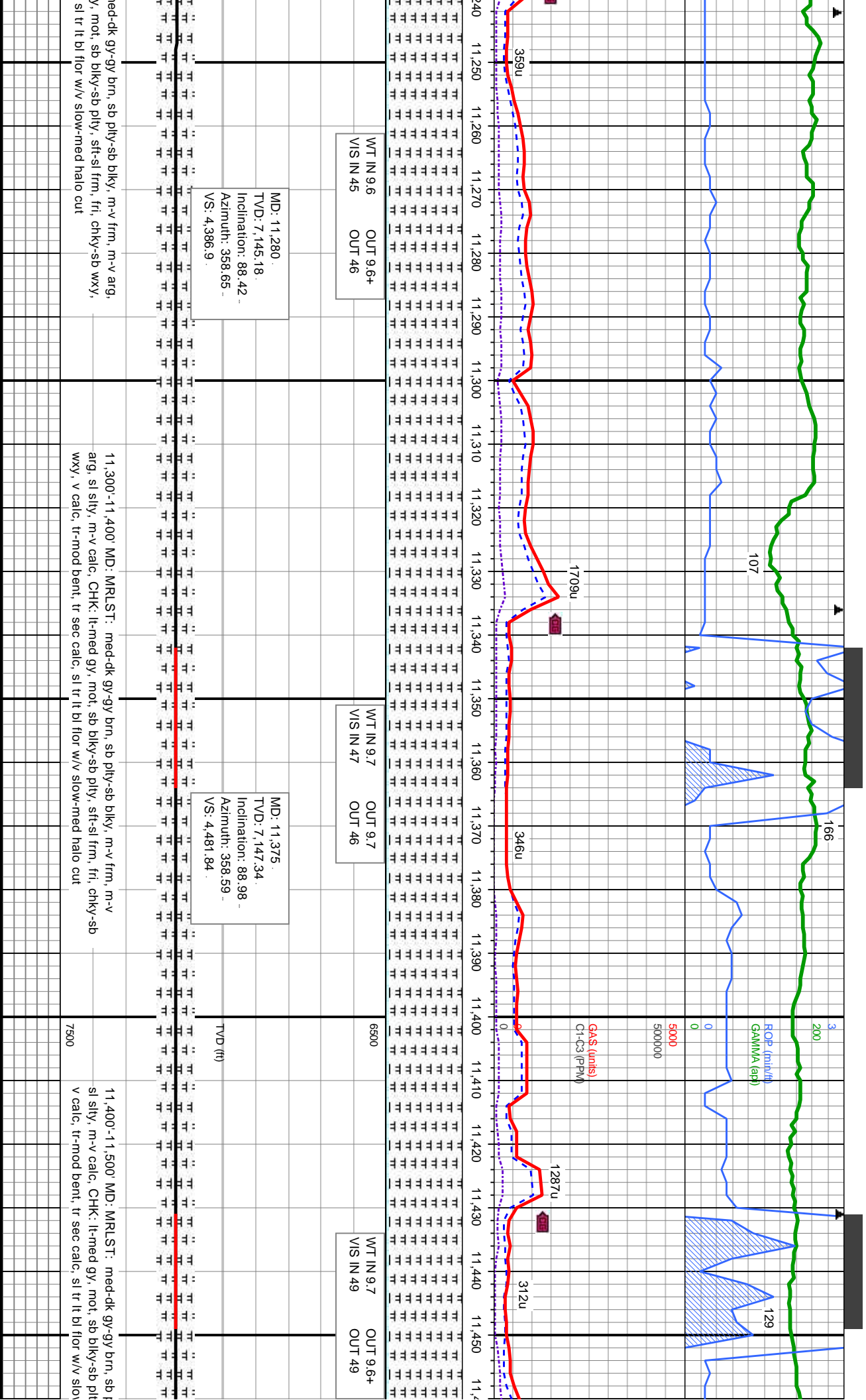
100' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, mod sft-fm, sl-m  
sily, calc, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl fm, fri, chky-sb  
c, tr-mod bent, tr sec calc, sl tr lt bl flr w/v slow-med halo cut

11,100'-11,200' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, mod sft-fm, sl-m  
arg, sl-m sily, calc, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl fm, fri, chky-sb  
wxy, v calc, tr-mod bent, tr sec calc, sl tr lt bl flr w/v slow-med halo cut

11,200'-11,300' MD: MRLST: m  
sily, m-v calc, CHK: lt-med g  
v calc, tr-mod bent, tr sec calc,



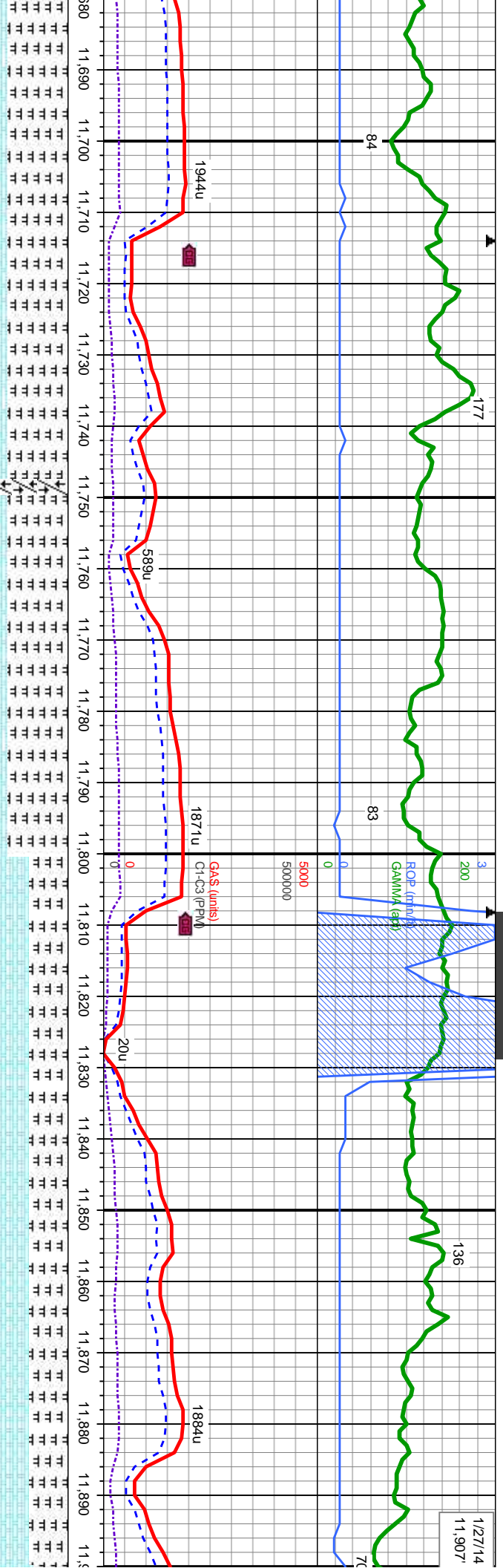








1/27/14  
11,907'



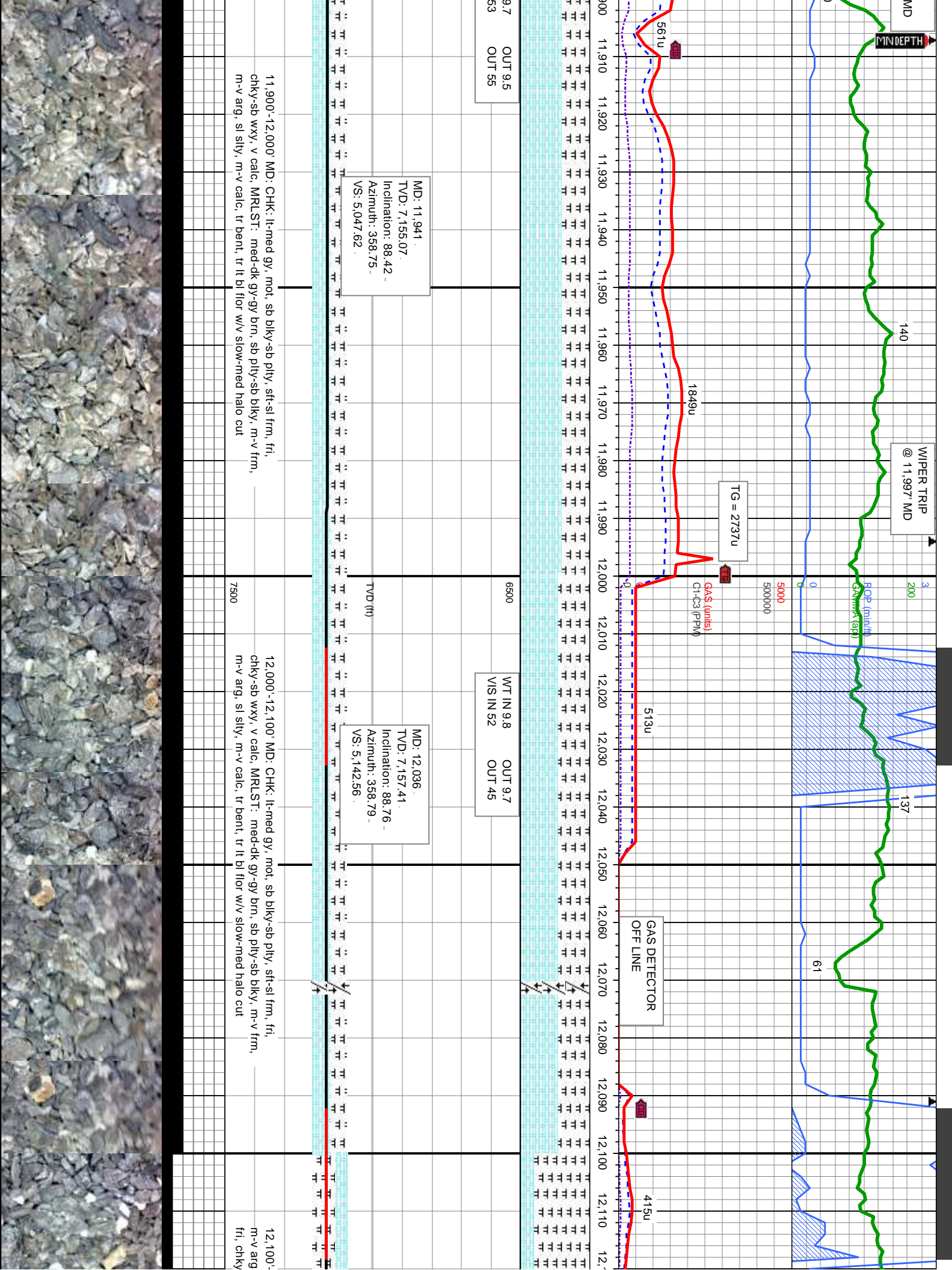
MD: 11,752.  
TVD: 7,151.25.  
Inclination: 88.45 -  
Azimuth: 358.47 -  
VS: 4,858.72.

MD: 11,847.  
TVD: 7,153.16.  
Inclination: 89.25 -  
Azimuth: 358.72 -  
VS: 4,953.67.

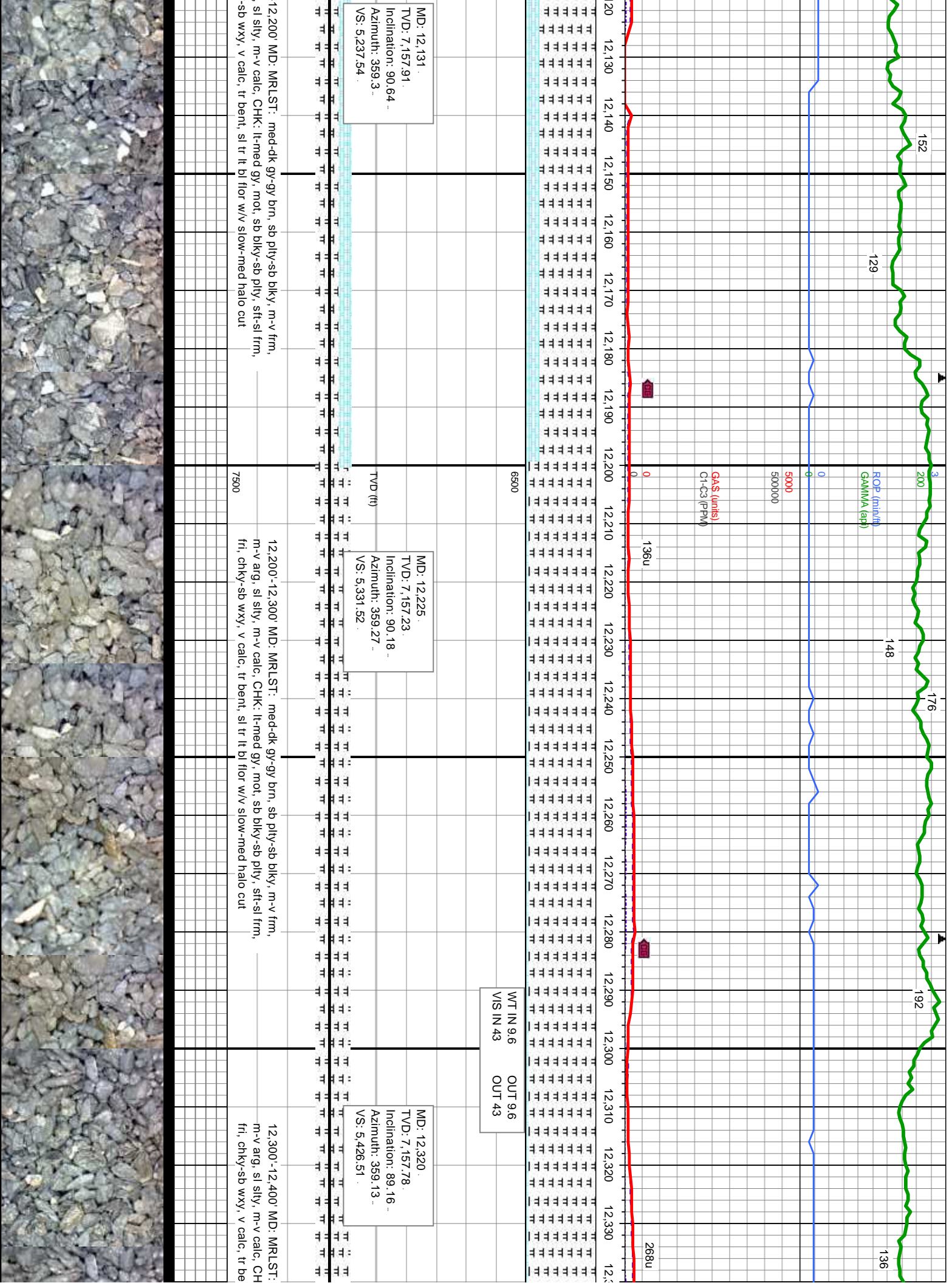
11,700'-11,800' MD: MRLST: med-dk gy-gy brn, sb pily-sb blk, m-v frm, m-v arg, sl silty, m-v calc, CHK: lt-med gy, mot, sb blk-sb pily, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, sl tr lt bl flr w/v slow-med halo cut

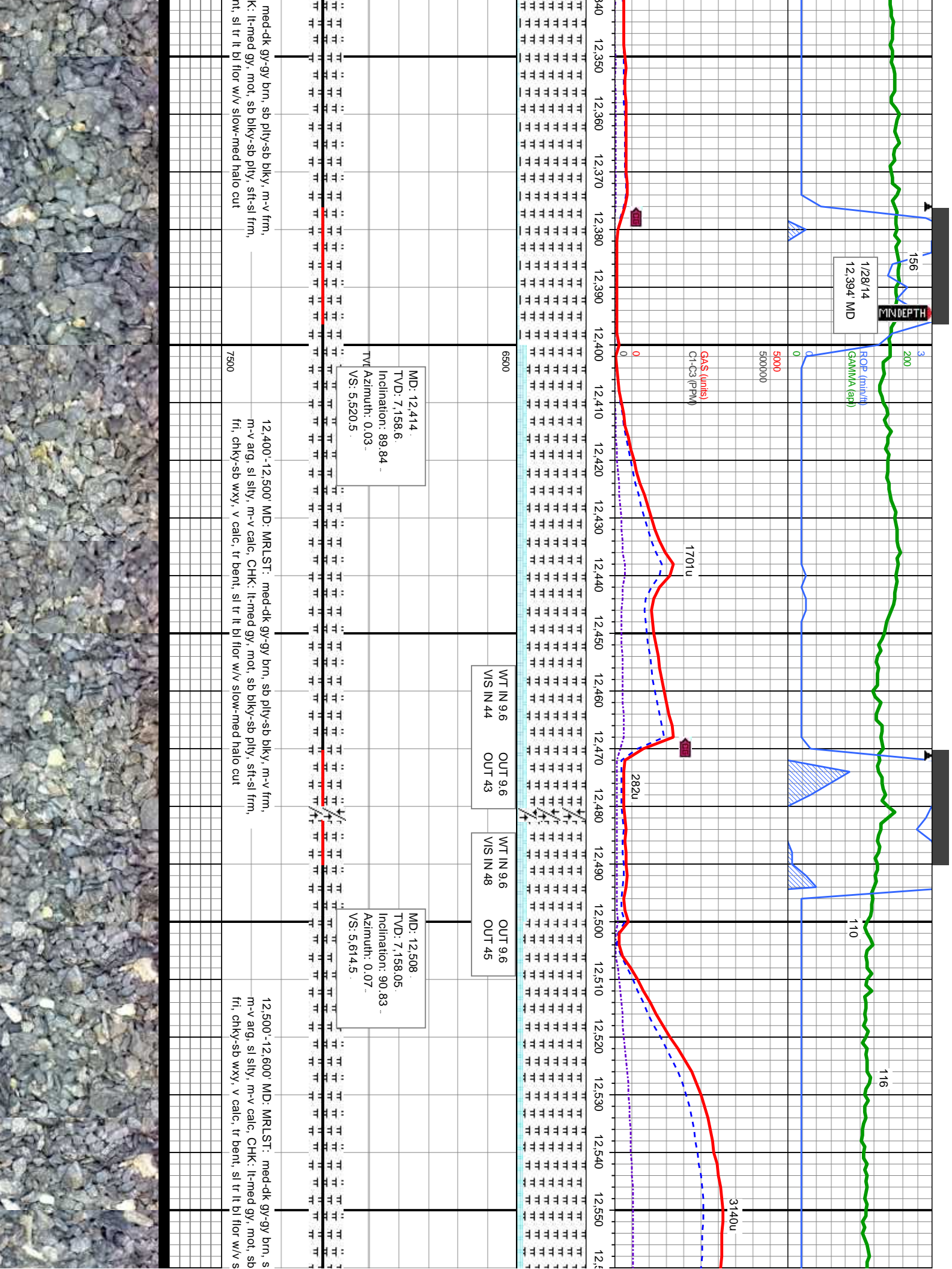
11,800'-11,900' MD: CHK: lt-med gy, mot, sb blk-sb pily, sft-sl frm, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blk, m-v frm, m-v arg, sl silty, m-v calc, tr bent, tr lt bl flr w/v slow-med halo cut



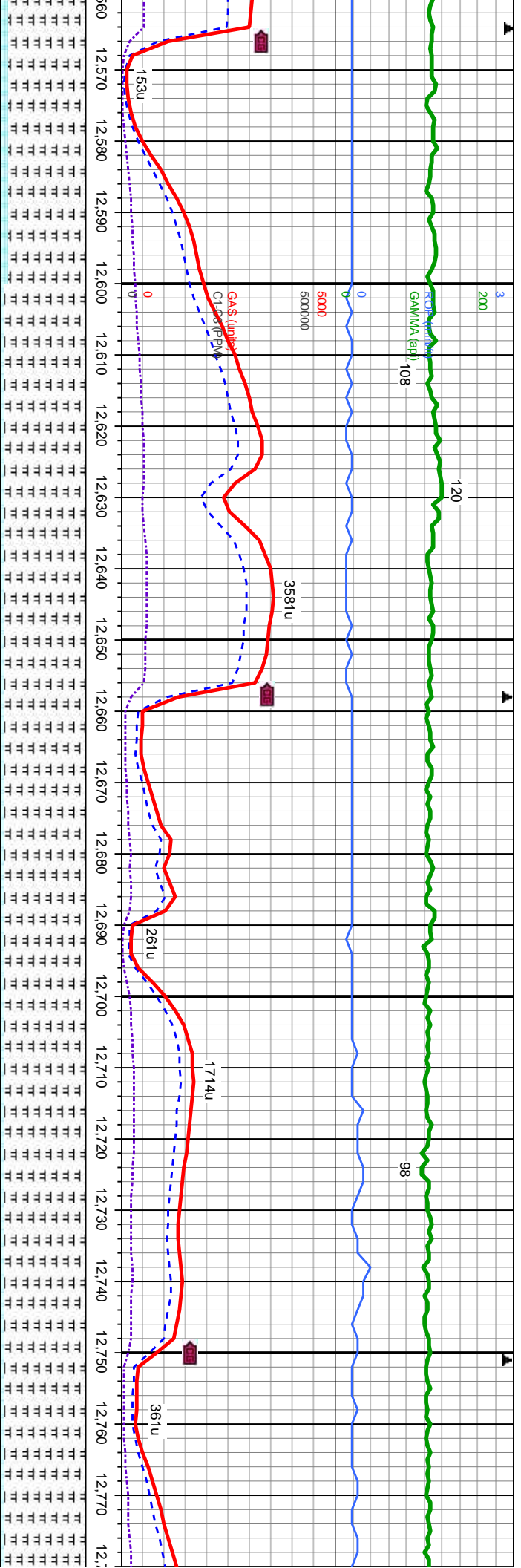












MD: 12,603.  
TVD: 7,155.57.  
Inclination: 92.16 -  
Azimuth: 0.32 -  
VS: 5.709.46 -

MD: 12,697.  
TVD: 7,152.31.  
Inclination: 91.82 -  
Azimuth: 0.82 -  
VS: 5.803.4 -

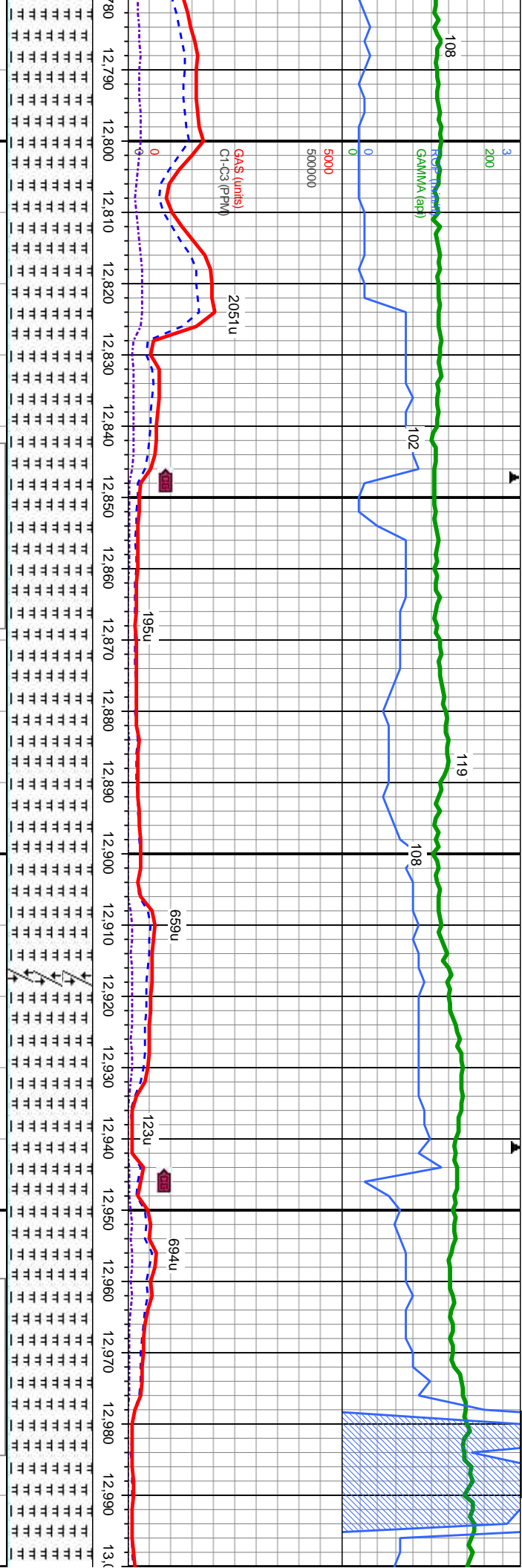
WT IN 9.6  
VIS IN 46  
OUT 9.6

b pily-sb blkly, m-v frm, —  
blkly-sb pily, sft-sl frm, —  
low-med halo cut

12,600'-12,700' MD: MRLST: med-dk gy-gy brn, sb pily-sb blkly, m-v frm,  
m-v arg, sl silty, m-v calc, CHK: lt-med gy, mot, sb blkly-sb pily, sft-sl frm,  
fri, chky-sb wxy, v calc, tr bent, sl tr lt bl flr w/v slow-med halo cut

12,700'-12,800' MD: MRLST: med-dk gy-gy brn, sb pily-sb blkly, m-v frm,  
m-v arg, sl silty, m-v calc, CHK: lt-med gy, mot, sb blkly-sb pily, sft-sl fr  
fri, chky-sb wxy, v calc, tr bent, sl tr lt bl flr w/v slow-med halo cut





WT IN 9.6 OUT 9.6+  
VIS IN 44 OUT 45

WT IN 9.6 OUT 9.6  
VIS IN 44 OUT 44

MD: 12,792.  
TVD: 7,149.62.  
Inclination: 91.42 -  
Azimuth: 1.18 -  
VS: 5,898.35.

MD: 12,886.  
TVD: 7,146.95.  
Inclination: 91.84 -  
Azimuth: 1.42 -  
VS: 5,992.3.

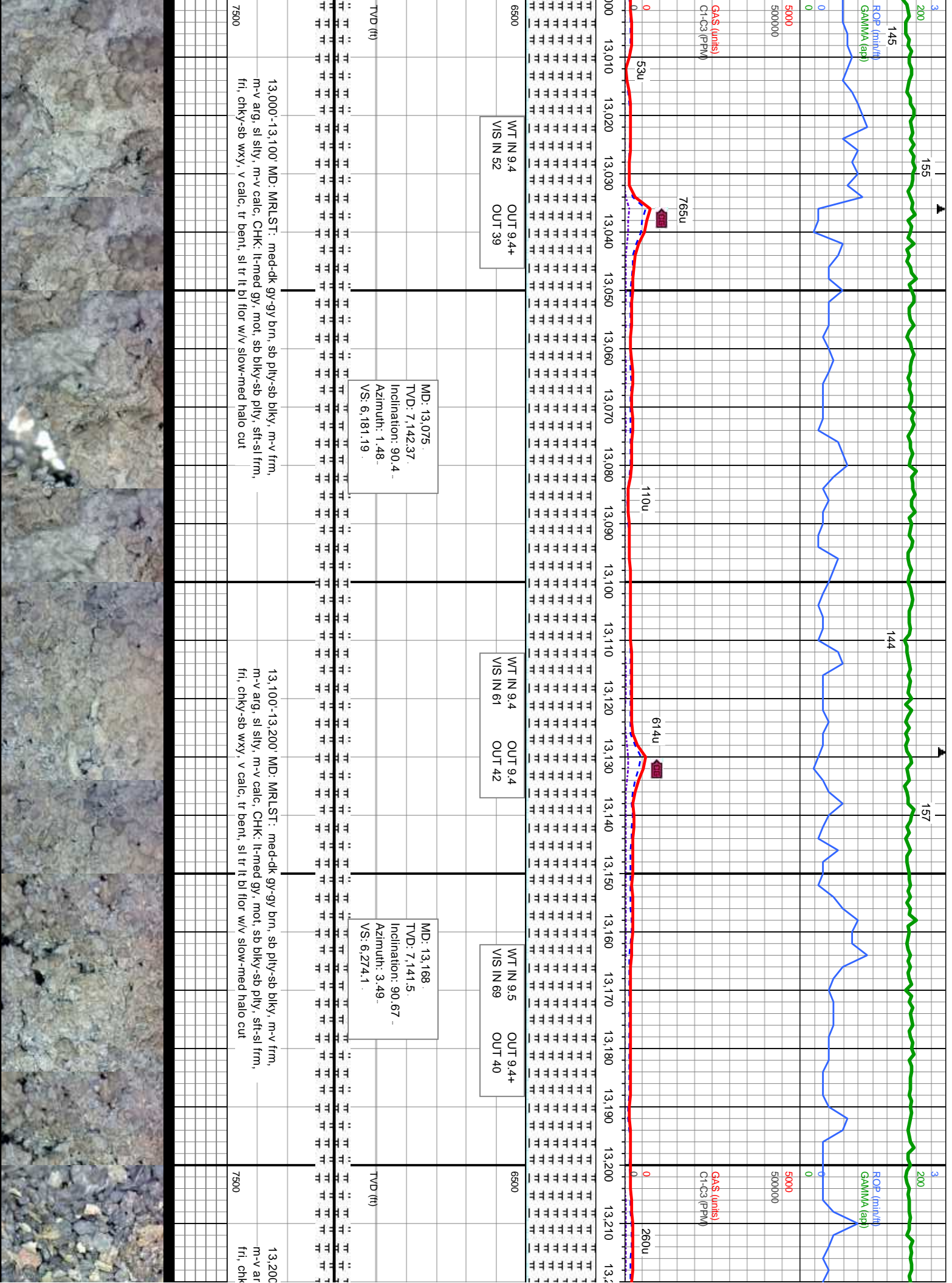
MD: 12,980.  
TVD: 7,144.08.  
Inclination: 91.66 -  
Azimuth: 1.37 -  
VS: 6,086.23.

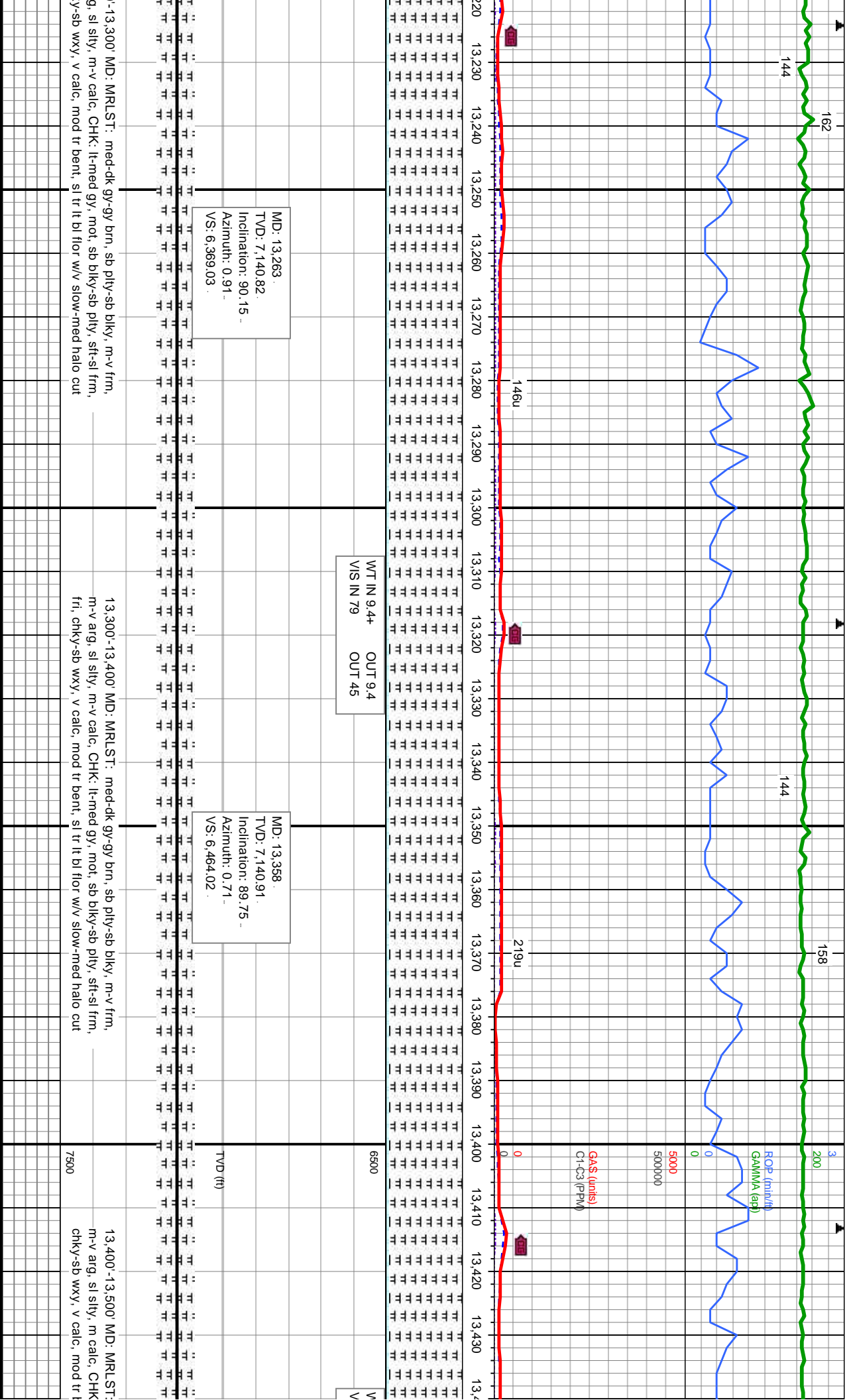
12,800'-12,900' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, m-v frm, m-v arg, sl slty, m-v calc, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, sl tr lt bl flr w/v slow-med halo cut

12,900'-13,000' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, m-v frm, m-v arg, sl slty, m-v calc, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, sl tr lt bl flr w/v slow-med halo cut

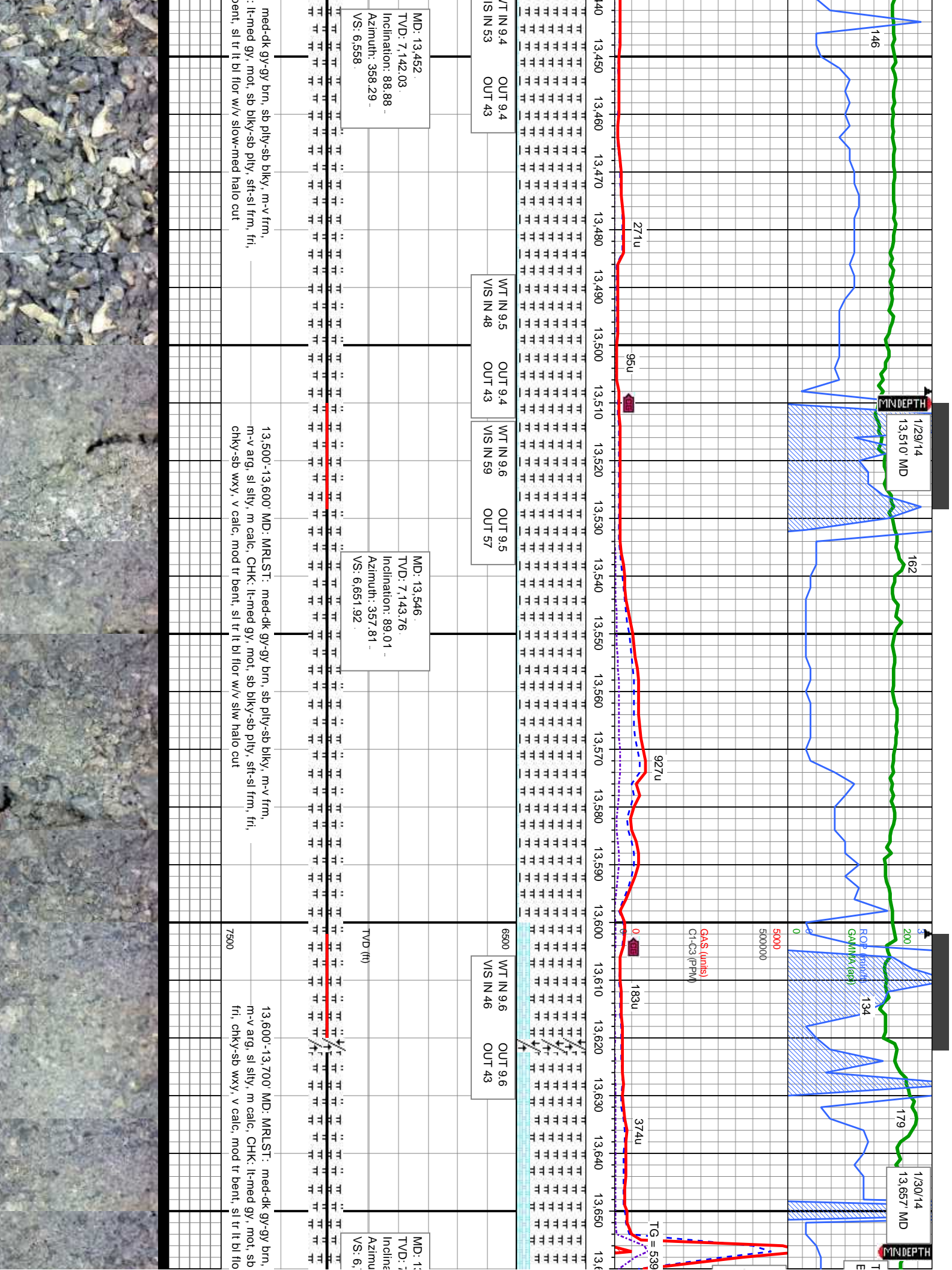






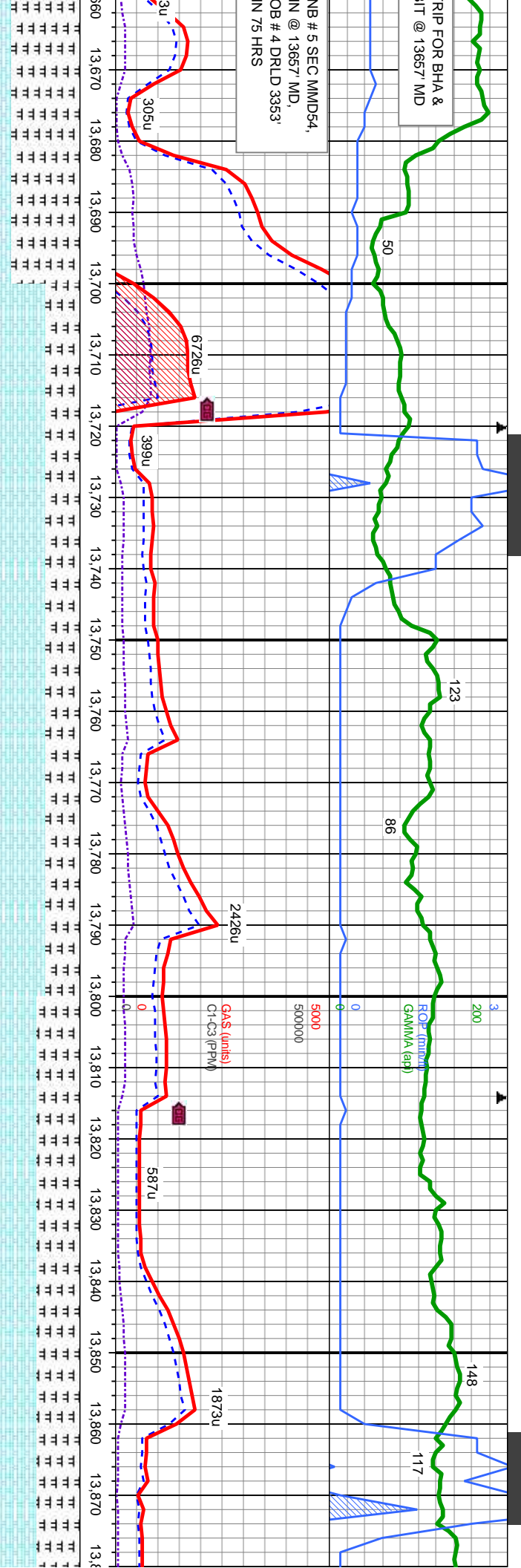






RIP FOR BHA &  
LIT @ 13657' MD

NB # 5 SEC MMD54,  
IN @ 13657' MD,  
JOB # 4 DRLD 3353  
IN 75 HRS



8,664.  
,143.77.  
ation: 90.98  
th: 357.66-  
769.81

MD: 13,758.  
TVD: 7,141.73.  
Inclination: 91.51  
Azimuth: 359.48  
VS: 6,863.75

TVD (ft)

MD: 13,852.  
TVD: 7,139.08.  
Inclination: 91.72  
Azimuth: 359.61  
VS: 6,957.71

WT IN 9.5+ OUT 9.4  
VIS IN 45 OUT 43

WT IN 9.5+ OUT 9.4+  
VIS IN 46 OUT 46

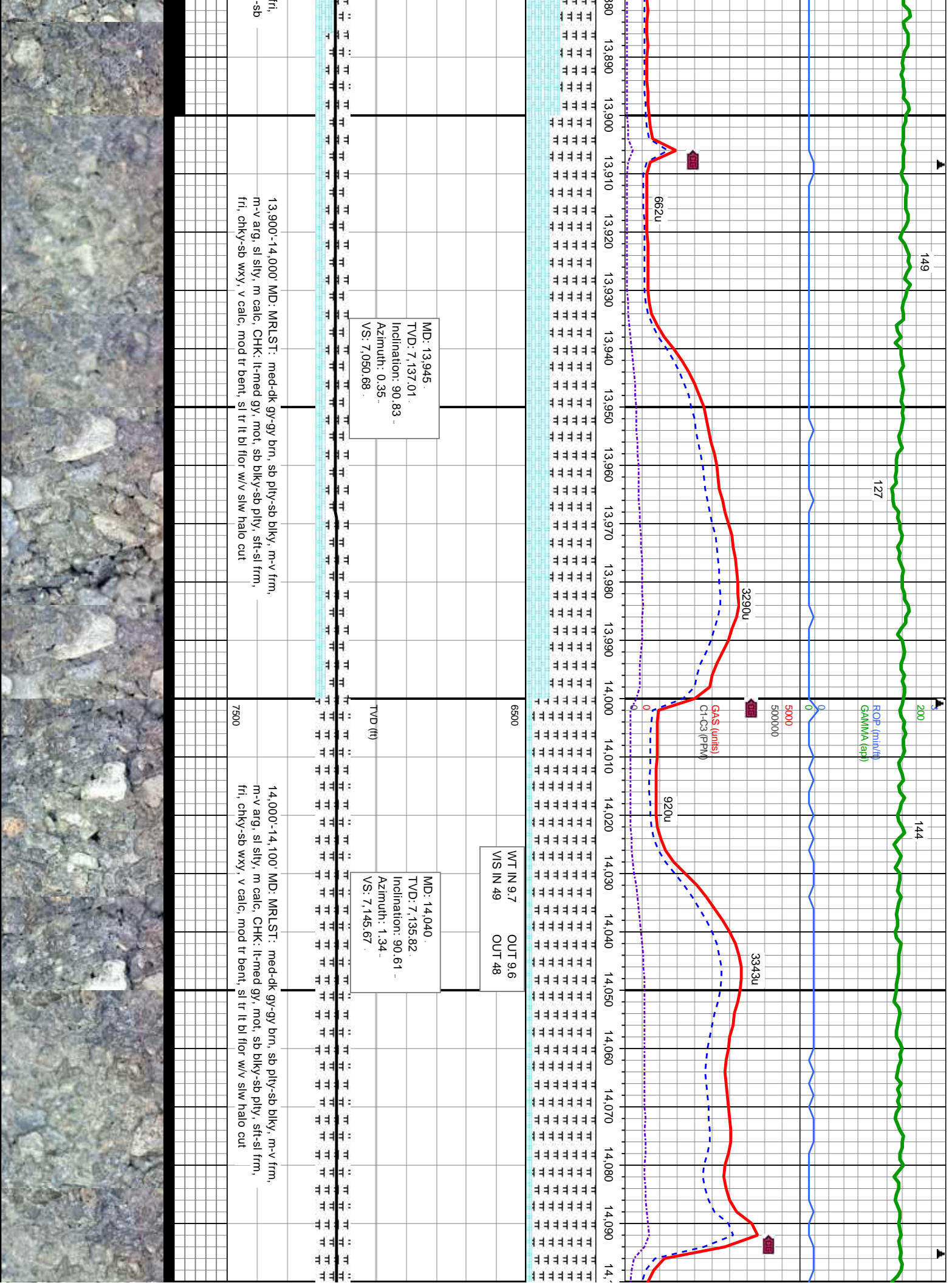
sb ply-sb blk, m-v frm,  
blk-sb ply, sft-sl frm,  
r w/v slw halo cut

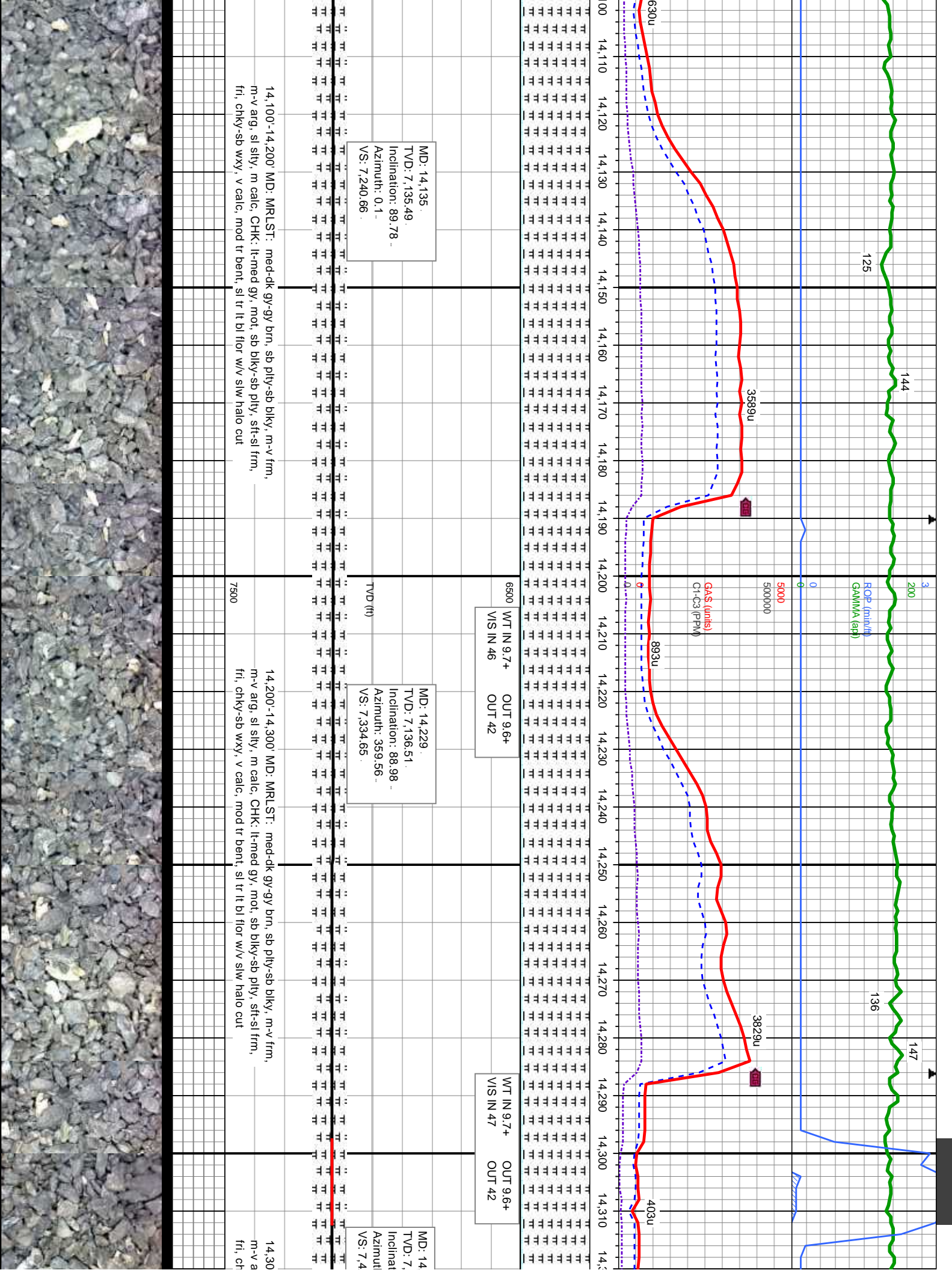
13,700'-13,800' MD: CHK: lt-med gy, mot, sb blk-sb ply, sft-sl frm, fri,  
chky-sb wxy, v calc, mod tr bent, MRLST: med-dk gy-gy brn, sb ply-sb  
blk, m-v frm, m-v arg, sl silty, m calc, tr lt bl flr w/v slw halo cut

13,800'-13,900' MD: CHK: lt-med gy, mot, sb blk-sb ply, sft-sl frm,  
chky-sb wxy, v calc, mod tr bent, MRLST: med-dk gy-gy brn, sb ply  
blk, m-v frm, m-v arg, sl silty, m calc, tr lt bl flr w/v slw halo cut

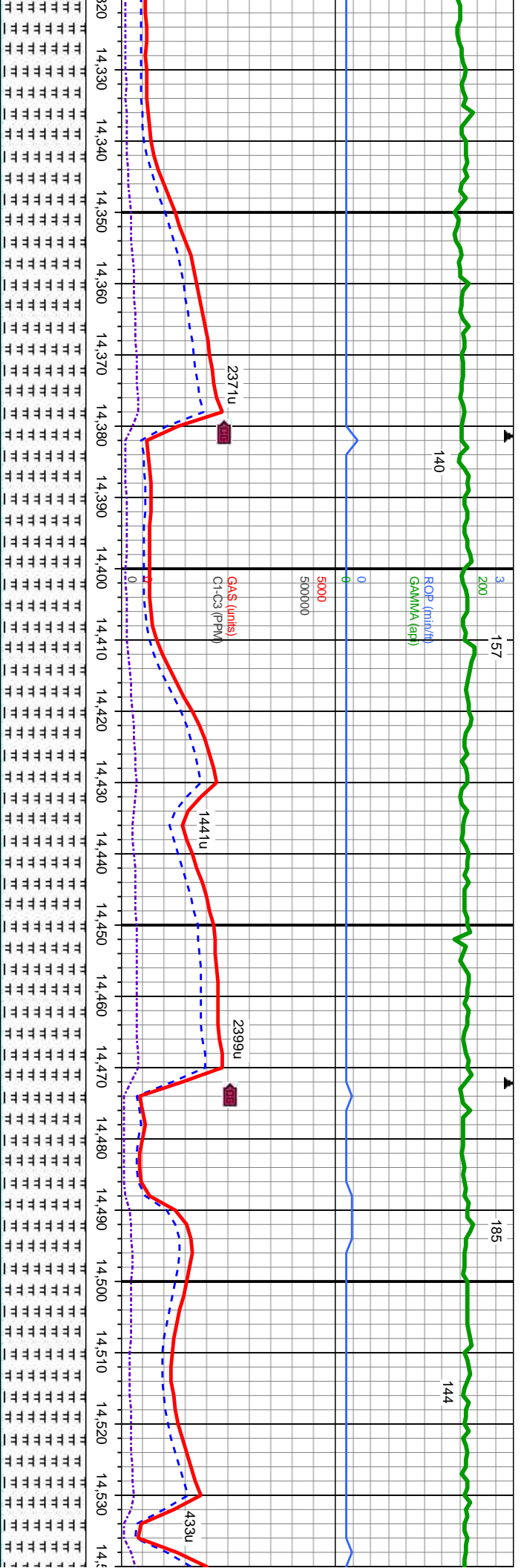












323.  
137.48.  
ion: 89.84  
n: 1.77  
28.64.

MD: 14.418.  
TVD: 7,138.15.  
Inclination: 89.35  
Azimuth: 2.49.  
TVD (ft)  
VS: 7,523.58.

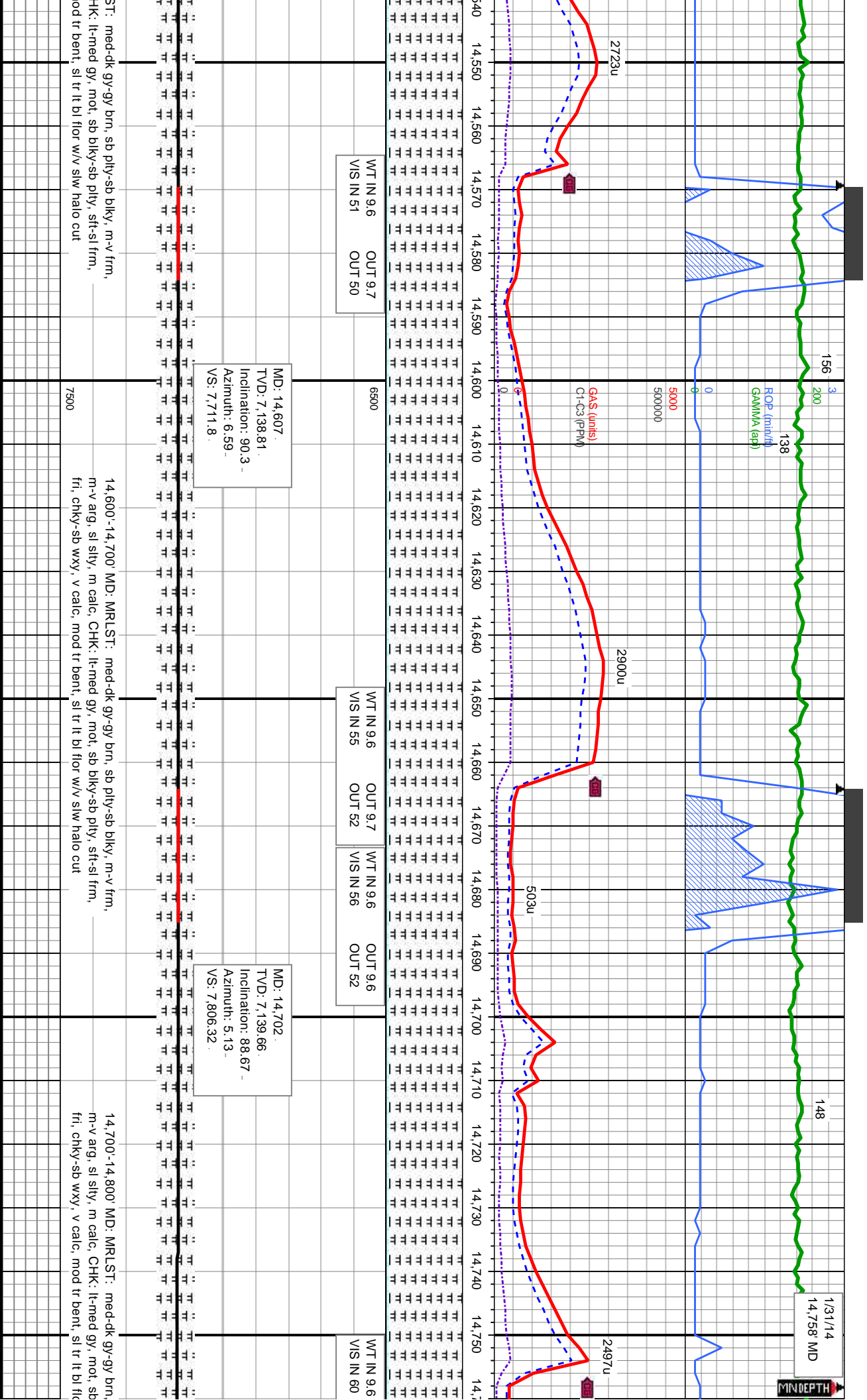
MD: 14.513.  
TVD: 7,138.87.  
Inclination: 89.78  
Azimuth: 5.86.  
VS: 7,618.33.

0'-14,400' MD: MRLST: med-dk gy-gy brn, sb pily-sb blk, m-v frm,  
g, sl silty, m calc, CHK: lt-med gy, mot, sb blk-sb pily, stf-si frm,  
ky-sb wxy, v calc, mod tr bent, sl tr lt bl flr wlv slw halo cut

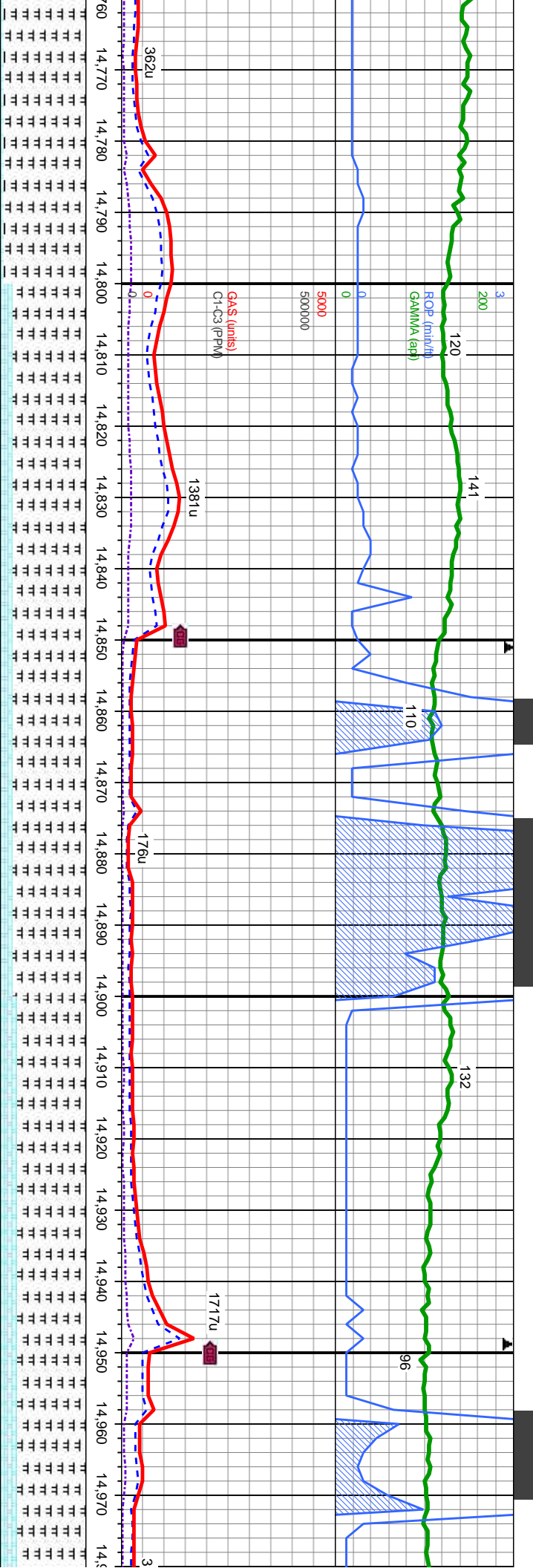
14,400'-14,500' MD: MRLST: med-dk gy-gy brn, sb pily-sb blk, m-v frm,  
m-v arg, sl silty, m calc, CHK: lt-med gy, mot, sb blk-sb pily, stf-si frm,  
fri, chky-sb wxy, v calc, mod tr bent, sl tr lt bl flr wlv slw halo cut

14,500'-14,600' MD: MRLST: med-dk gy-gy brn, sb pily-sb blk, m-v frm,  
m-v arg, sl silty, m calc, CHK: lt-med gy, mot, sb blk-sb pily, stf-si frm,  
fri, chky-sb wxy, v calc, mod tr bent, sl tr lt bl flr wlv slw halo cut









OUT 9.6  
OUT 53

6500

WT IN 9.6  
VIS IN 53  
OUT 9.6  
OUT 55

MD: 14,796  
TVD: 7,142.22  
Inclination: 88.21  
Azimuth: 5.26  
VS: 7,899.92

MD: 14,891  
TVD: 7,144.75  
Inclination: 88.73  
Azimuth: 4.17  
VS: 7,994.58

MD: 14,900  
TVD: 7,144.75  
Inclination: 88.73  
Azimuth: 4.17  
VS: 7,994.58

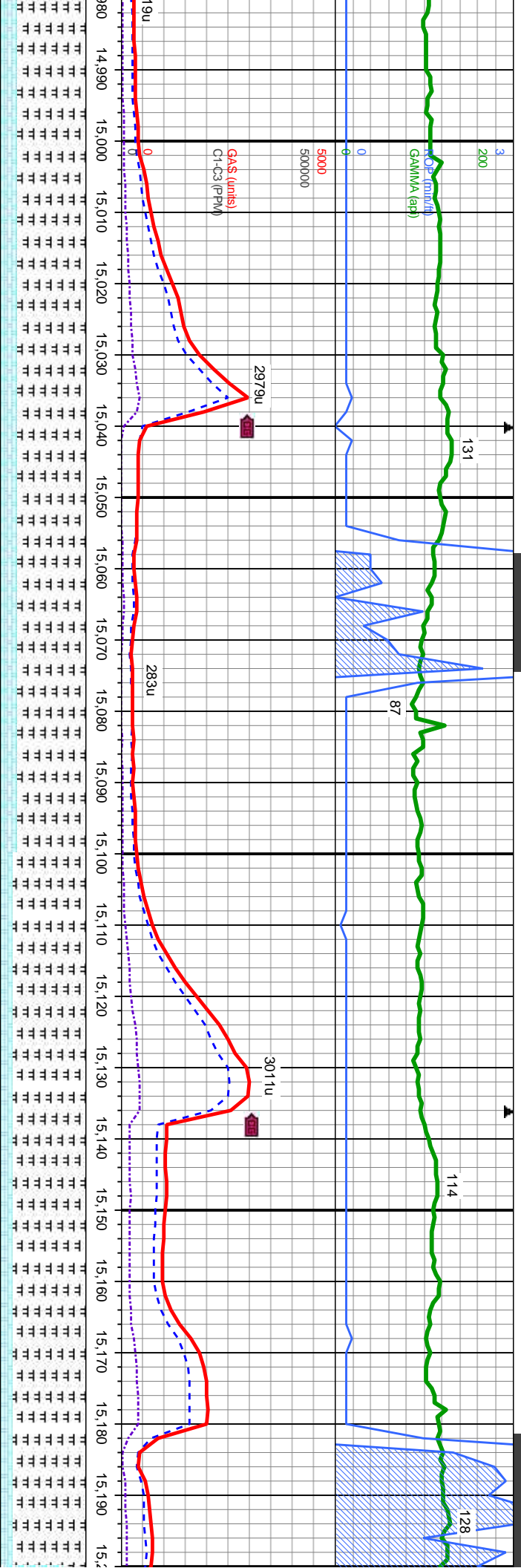
sb pty-sb blk, m-v frm, blk-sb pty, st-sl frm, or w/v slw halo cut

14,800'-14,900' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, m-v frm, m-v arg, sl stly, m calc, CHK: lt-med gy, mot, sb blk-sb pty, st-sl frm, fri, chky-sb wxy, v calc, mod tr bent, sl tr lt bl flr w/v slw halo cut

14,900'-15,000' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, m-v frm, m-v arg, sl stly, m calc, CHK: lt-med gy, mot, sb blk-sb pty, st-sl frm, fri, chky-sb wxy, v calc, mod tr bent, sl tr lt bl flr w/v slw halo cut

7500





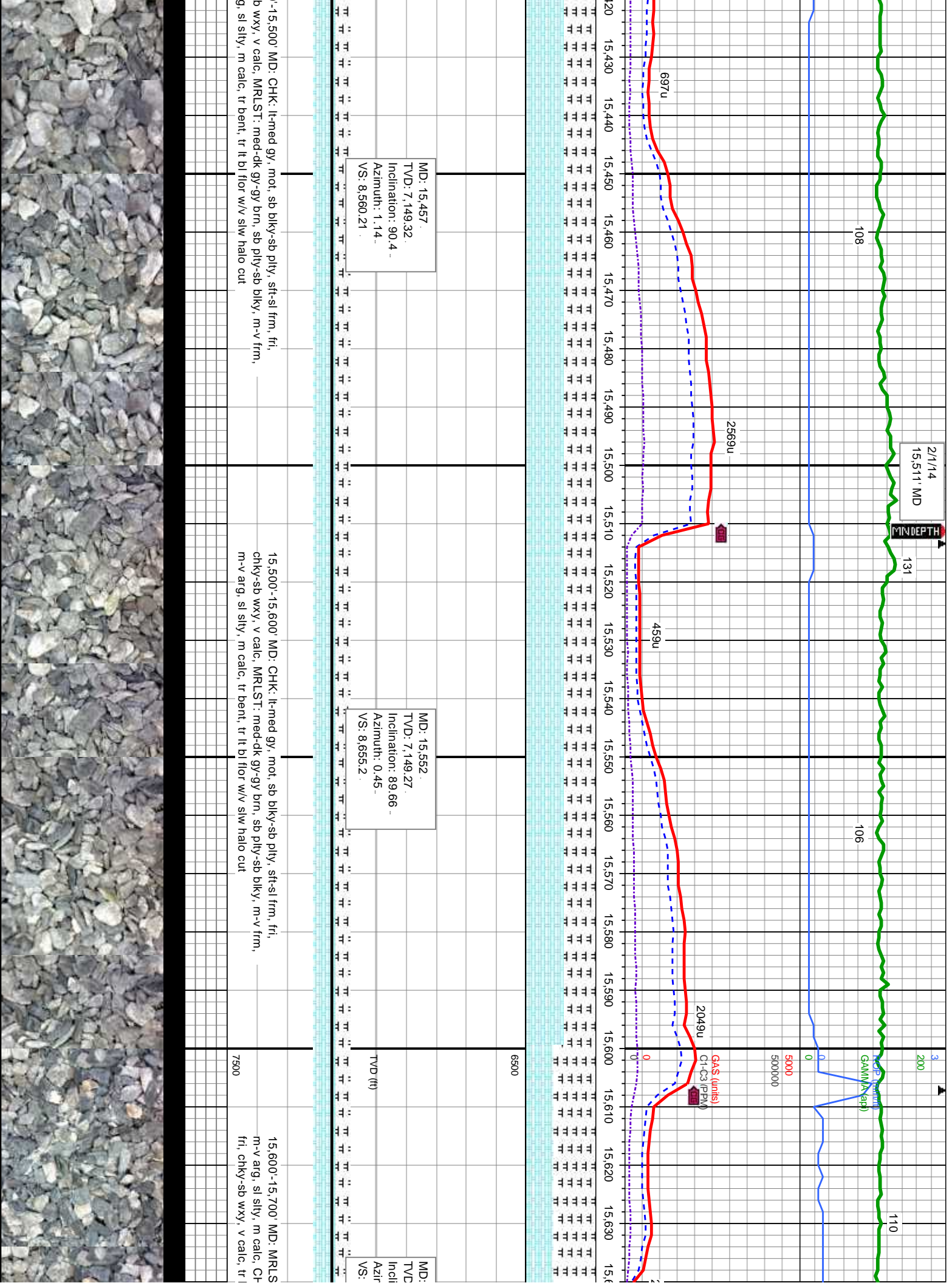
6500	WT IN 9.6 VIS IN 50	OUT 9.6 OUT 55
4,985 7,146.46 ation: 89.19 uth: 3.34 088.38	MD: 15.079 TVD: 7,147.66 Inclination: 89.35 Azimuth: 1.84 VS: 8,182.28	
TVD (ft)		

15,000'-15,100' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, m-v frm, m-v arg, sl silty, m calc, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, sl tr lt bl flr w/v slw halo cut	7500
---	------



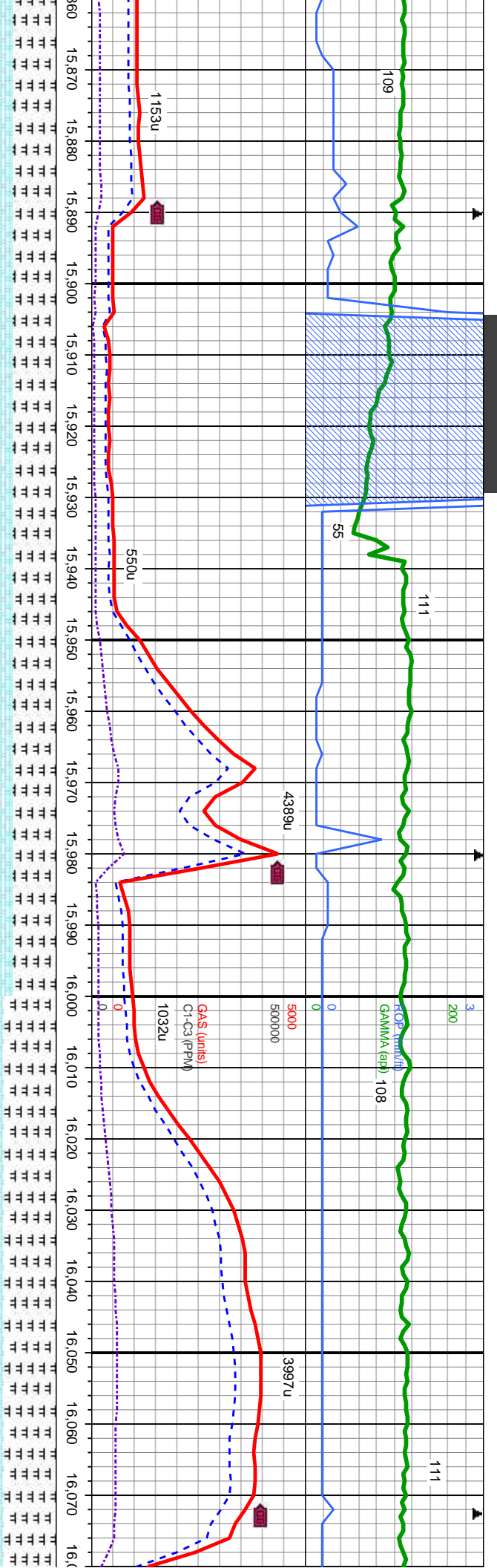












WT IN 9.7  
VIS IN 59  
OUT 9.7  
OUT 61

WT IN 9.6  
VIS IN 47  
OUT 9.6  
OUT 46

MD: 15.929  
TVD: 7,148.76  
Inclination: 90.98  
Azimuth: 2.55  
VS: 9.032.03

MD: 16.024  
TVD: 7,147.44  
Inclination: 90.61  
Azimuth: 2.58  
VS: 9.126.94

sb pty-sb blkly, m-v frm, blkly-sb pty, sft-sl frm, w halo cut

15,900'-16,000' MD: MRLST: med-dk gy-gy brn, sb pty-sb blkly, m-v frm, m-v arg, sl stly, m calc, CHK: lt-med gy, mot, sb blkly-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, tr lt bl flr w/v slw halo cut

7500

16,000'-16,100' MD: MRLST: med-dk gy-gy brn, sb pty-sb blkly, m-v frm, m-v arg, sl stly, m calc, CHK: lt-med gy, mot, sb blkly-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, tr lt bl flr w/v slw halo cut





2/2/2014  
16,267' MD

102

117

MOF (muv)  
GAMMA (ap)

109

1299u

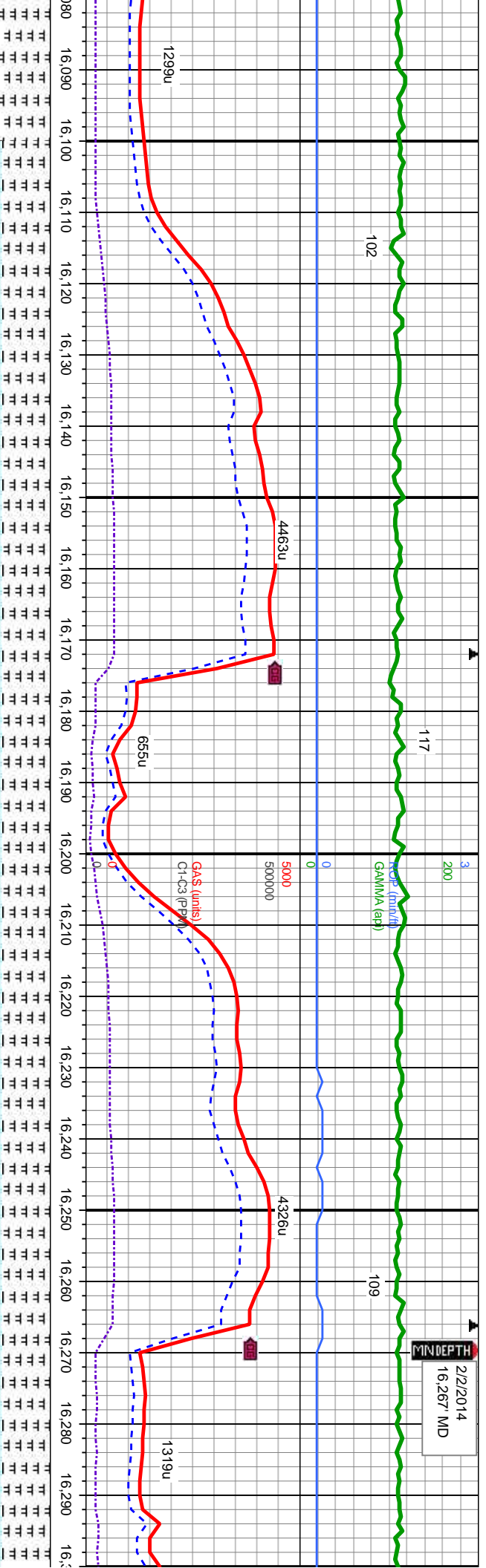
4463u

665u

4326u

1319u

GAS (units)  
C1-C3 (PPM)

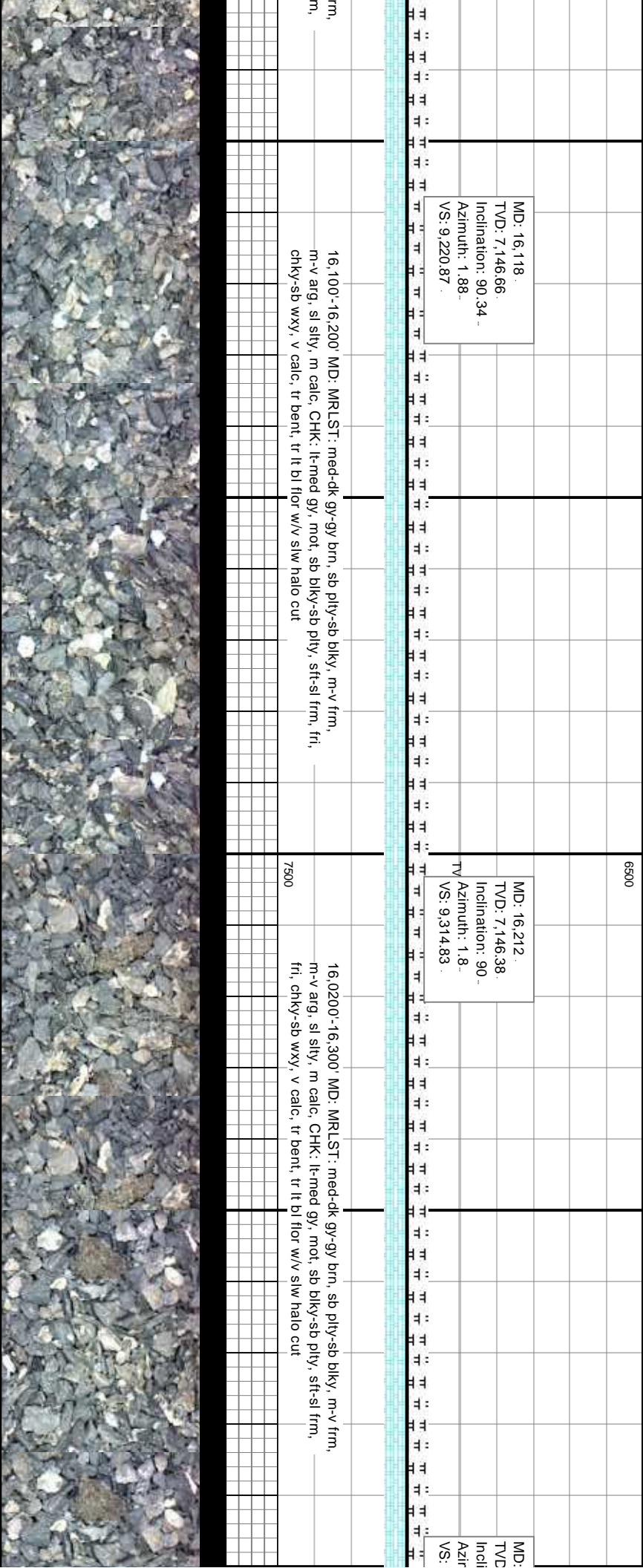


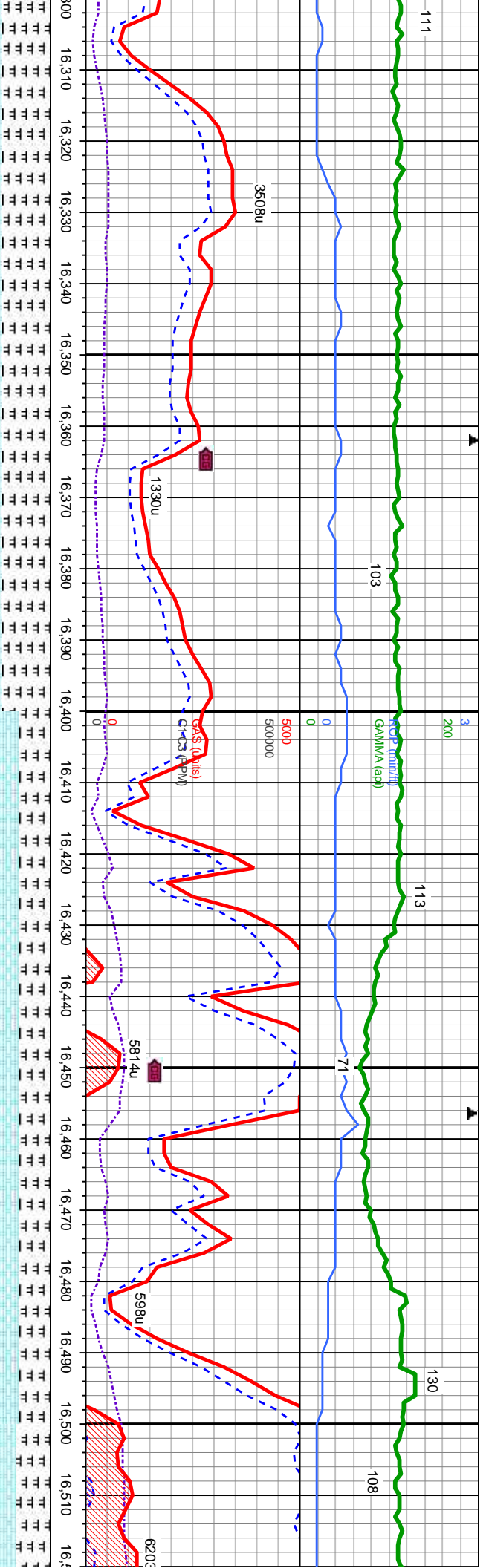
MD: 16,118.  
TVD: 7,146.66.  
Inclination: 90.34  
Azimuth: 1.88  
VS: 9,220.87

MD: 16,212  
TVD: 7,146.38  
Inclination: 90  
Azimuth: 1.8  
VS: 9,314.83

16,100'-16,200' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, m-v frm, m-v arg, sl silty, m calc, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, tr lt bl flr w/v slw halo cut

16,0200'-16,300' MD: MRLST: med-dk gy-gy brn, sb pty-sb blk, m-v frm, m-v arg, sl silty, m calc, CHK: lt-med gy, mot, sb blk-sb pty, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, tr lt bl flr w/v slw halo cut





WT IN 9.6  
VIS IN 51  
OUT 9.6  
OUT 48

MD: 16,306  
TVD: 7,145.98  
Inclination: 90.49  
Azimuth: 1.93  
VS: 9,408.79

MD: 16,401  
TVD: 7,145.01  
Inclination: 90.68  
Azimuth: 2.86  
VS: 9,503.71

WT IN 9.6  
VIS IN 52  
OUT 9.6  
OUT 48

MD: 16,496  
TVD: 7,143.3  
Inclination: 91.38  
Azimuth: 3.01  
VS: 9,598.58

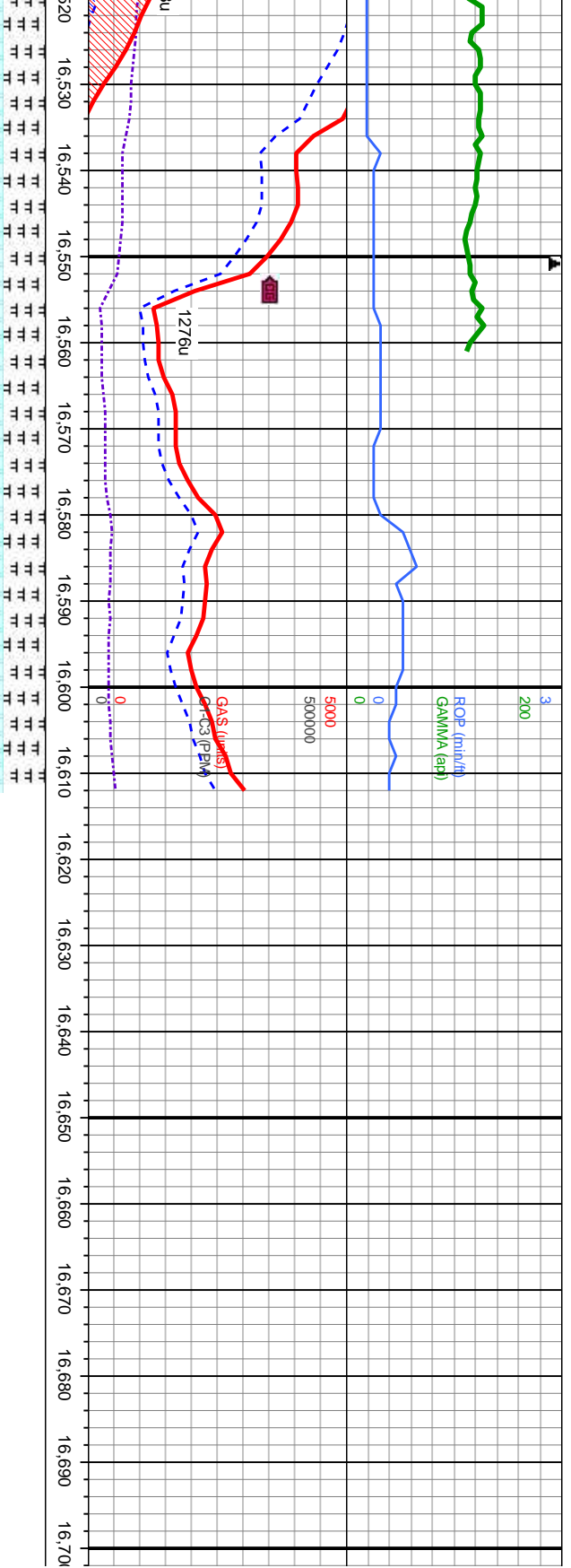
16,300'-16,400' MD: MRLST: med-dk gy-gy brn, sb pily-sb blkly, m-v frm, fri, chky-sb wxy, v calc, tr bent, tr lt bl flr w/v slw halo cut

16,400'-16,500' MD: CHK: lt-med gy, mot, sb blkly-sb pily, sft-sl frm, fri, chky-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb pily-sb blkly, m-v frm, m-v arg, sl slty, m calc, tr bent, tr lt bl flr w/v slw halo cut

16,500'-16,510' MD: CHK: lt-med gy, mot, sb blkly-sb pily, sft-sl frm, fri, chky-sb wxy, v calc, tr bent, tr lt bl flr w/v slw halo cut







MD: 16,556 .  
TVD: 7,141.87  
Inclination: 91.35 -  
Azimuth: 3.29 -  
VS: 9,658.48 .

MD: 16,612 .  
TVD: 7,140.55  
Inclination: 91.35 -  
Azimuth: 2.39 -  
VS: 9,714.41 .

PROJ. TO BIT

Well TDd @ 16,612 MD  
ON 2/2/14 @ 05:00 HRS

THANK YOU FOR USING  
COLUMBINE LOGGING INC.

00-16,612 MD: CHK: lt-med gy, mot, sb blk-y-sb plty, sft-sl frm,  
blk-y-sb wxy, v calc, MRLST: med-dk gy-gy brn, sb plty-sb blk-y,  
frm, m-v arg, sl silty, m calc, tr bent, tr lt bl flor w/v slw halo cut

7500

