



Scale: 5" / 100'  
Measured Depth Log

Well Name 05123366230000\_Griffiths\_14N-20HZ

Location NENW SEC 17, T1N, R67W

State COLORADO

Country USA

API Number 05-123-366230000

Region DJ BASIN

Spud Date 8/23/2013

Surface Coordinates 965 FNL & 2141 FWL

Bottom Hole Coordinates RELATIVE TO WELLHEAD:  
9646.68' S & 349.94' E

Ground Elevation 5061'

Logged Interval 6900' To 17328'

Formation NIOBRARA "B"

Type of Drilling Fluid LSND

County WELD

Rig Number H&P 307

AFE # 2075214

Field WATTENBERG

Drilling Completed 9/6/2013

K.B. Elevation 5086'

Total Depth 17328'

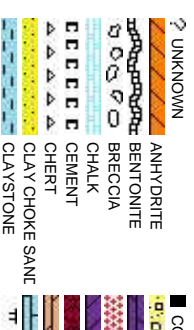
Company Anadarko

Address 1099 18th St.  
Suite 1800  
Denver, CO. 80

Name Jim Frank, Tim

Company Columbine Logg

Address 2385 S. Lipan S  
Denver, CO



# Operator

202

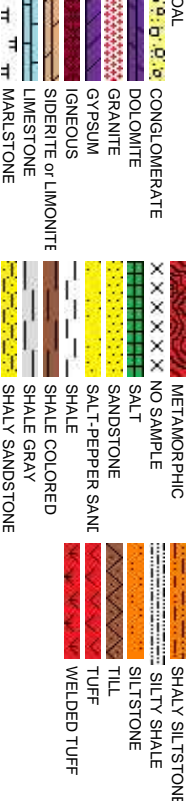
# Geologist

Bright, Chris Johnson

qing

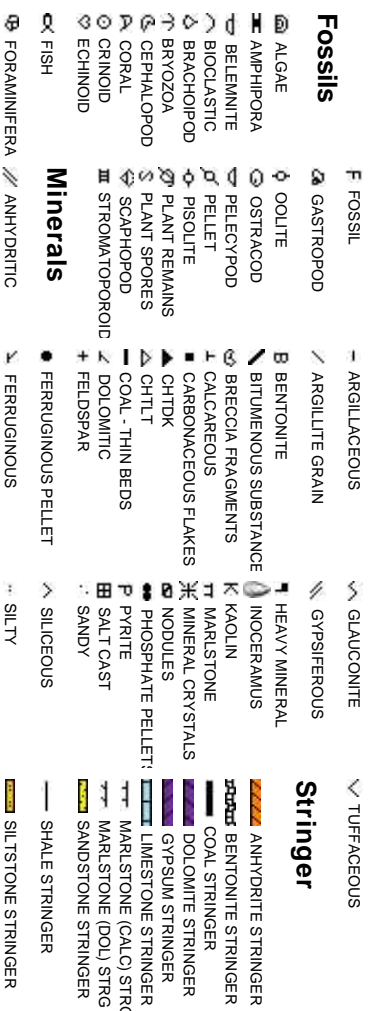
st.

## Rock Types



## Accessories

## Fossils

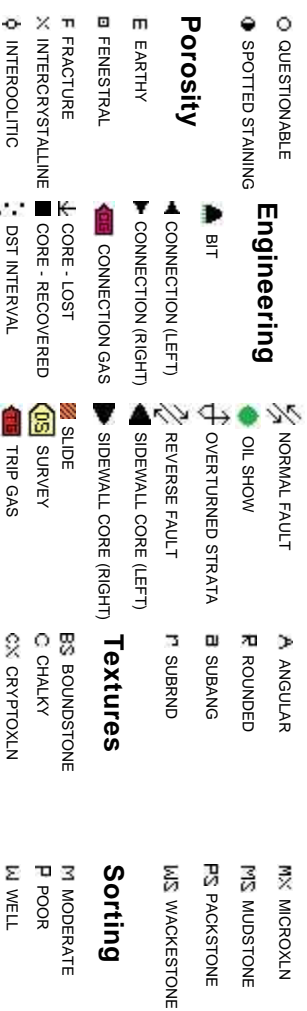


## Other Symbols

# Oil Show

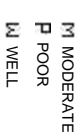


## Porosity



## Textures

## Sorting



Slide/Rotate

ROP  
ROF  
Gamma

DRILLING 8.75' HOLE  
W/ BIT # 1, SMITH SD1611  
IN @ 1096' MD

Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4

COLUMBINE LOGGING 2 MAN UNIT  
RIGGED UP 8/24/13, BEGIN LOGGING  
@ 8:00 PM W/ BLOODHOUND #0125

Depth Labels

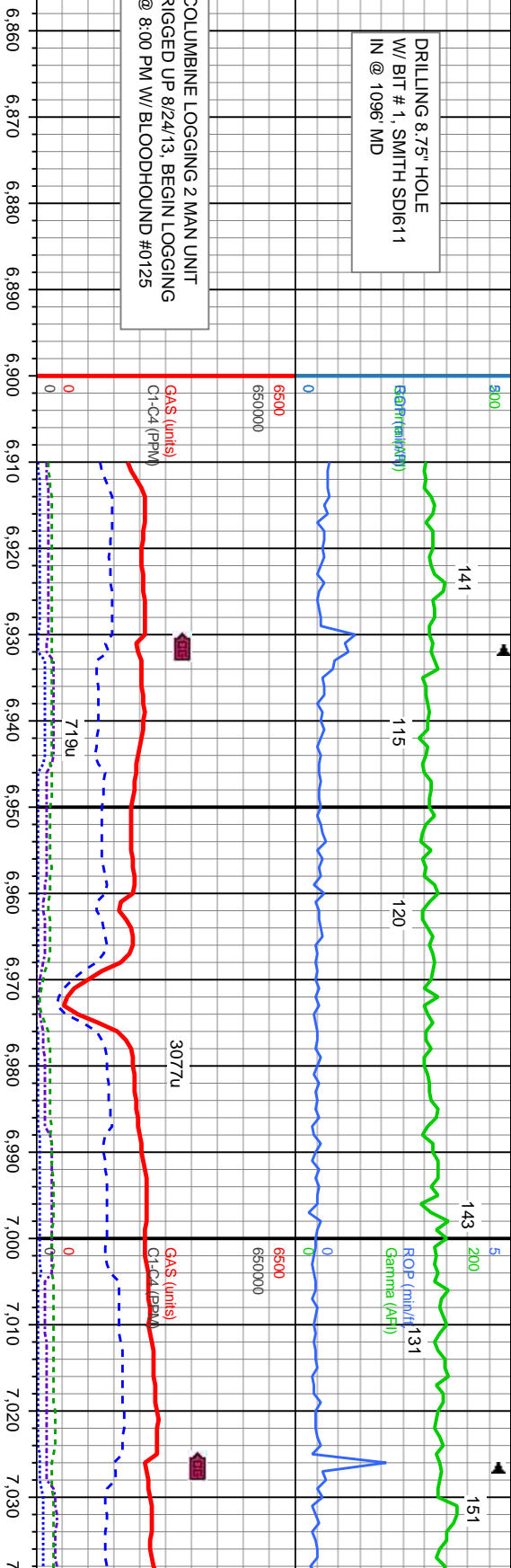
% Lith

Well Bore  
TVD

Oil Show

Images

TR  
P  
FR  
GD  
EXL



WT IN 9.6+ OUT 10.7  
VIS IN 46 OUT 48

MD: 6.930  
TVD: 6.892.34  
Inclination: 3.21  
Azimuth: 187.32  
VS: -425.01

DRILLING IN  
SUSSEX FM.

6900'-7000': SLTY SH: med gy-dk gy, sb pily-sb blk, firm to med sft, sb  
rnd-sb ang, mod fri, sl calc, tr bent, nostc

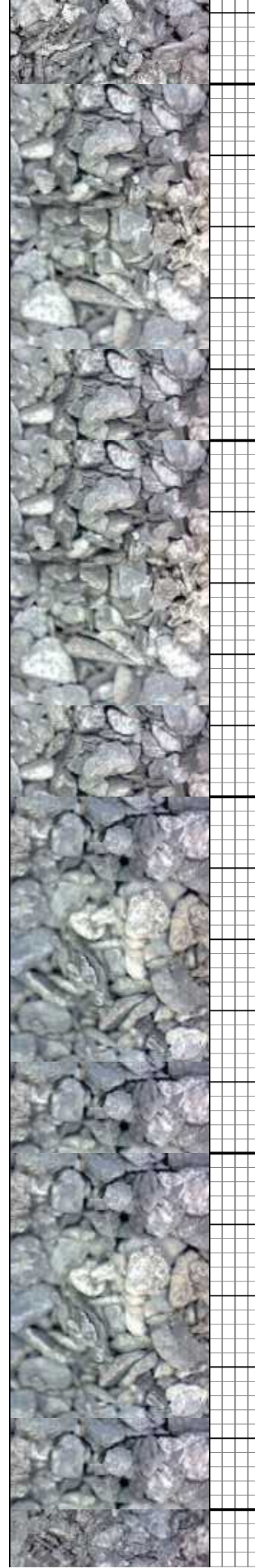
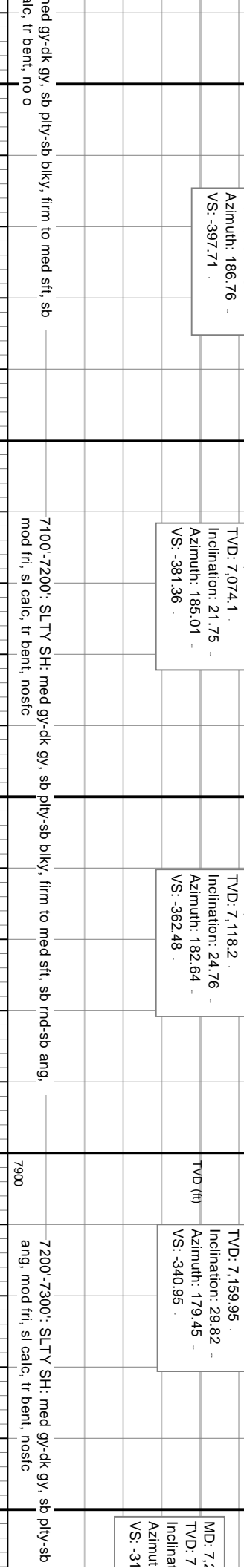
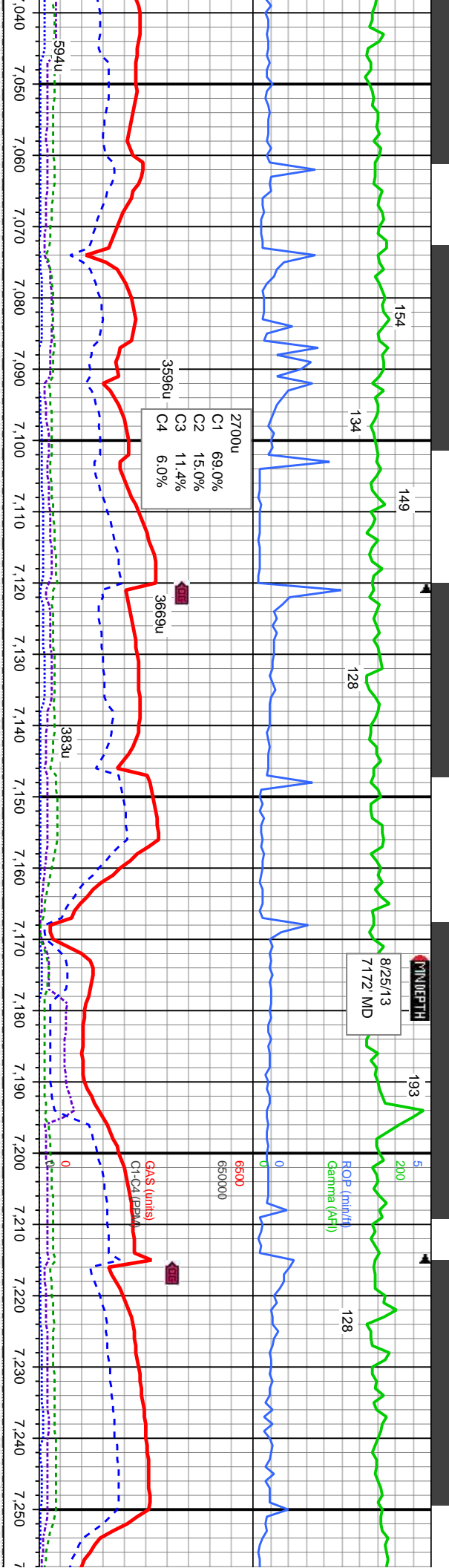
MD: 6.977  
TVD: 6.939.09  
Inclination: 8.33  
Azimuth: 190.92  
VS: -420.37

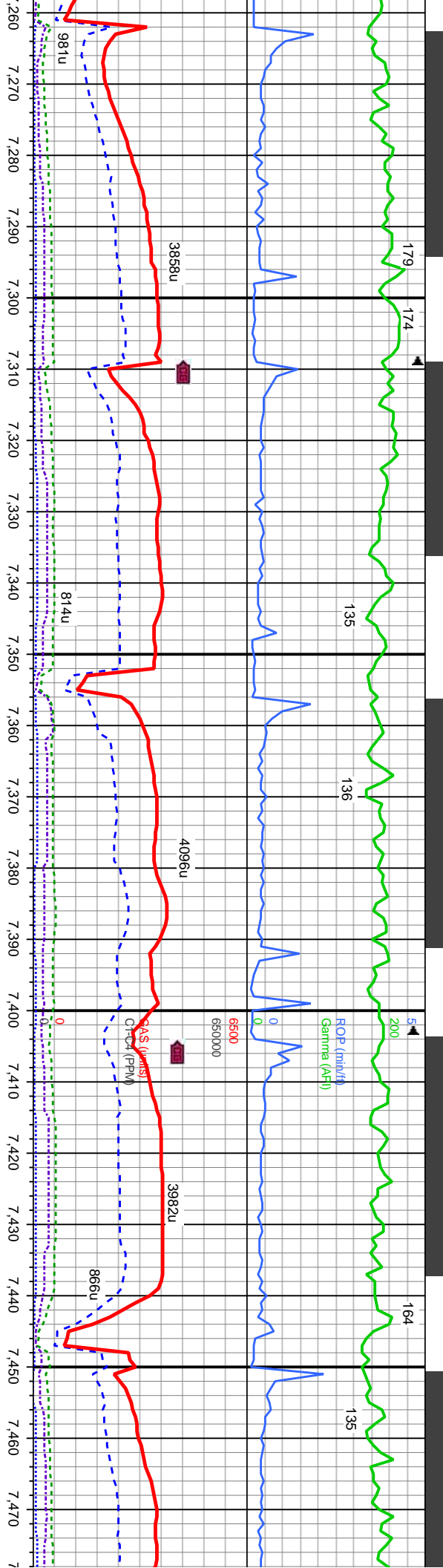
MD: 7.026  
TVD: 6.987.07  
Inclination: 14.82  
Azimuth: 189.86  
VS: -410.73

7000'-7100': SLTY SH: n  
rnd-sb ang, mod fri, sl ce









WT IN 9.7 OUT 9.7  
VIS IN 44 OUT 45

MD: 7,307  
TVD: 7,237.46  
Inclination: 38.49  
Azimuth: 180.91  
VS: -287.93

MD: 7,354  
TVD: 7,273.14  
Inclination: 42.68  
Azimuth: 180.6  
VS: -257.37

MD: 7,401  
TVD: 7,306.48  
Inclination: 46.93  
Azimuth: 179.28  
VS: -224.26

WT IN 9.8 OUT 9.7+  
VIS IN 47 OUT 43

MD: 7,448  
TVD: 7,336.75  
Inclination: 52.86  
Azimuth: 178.65  
VS: -188.33

7300-7350: SLTY SH: med gy-dk gy, sb ply-sb  
biky, firm to med sft, sb rnd-sb

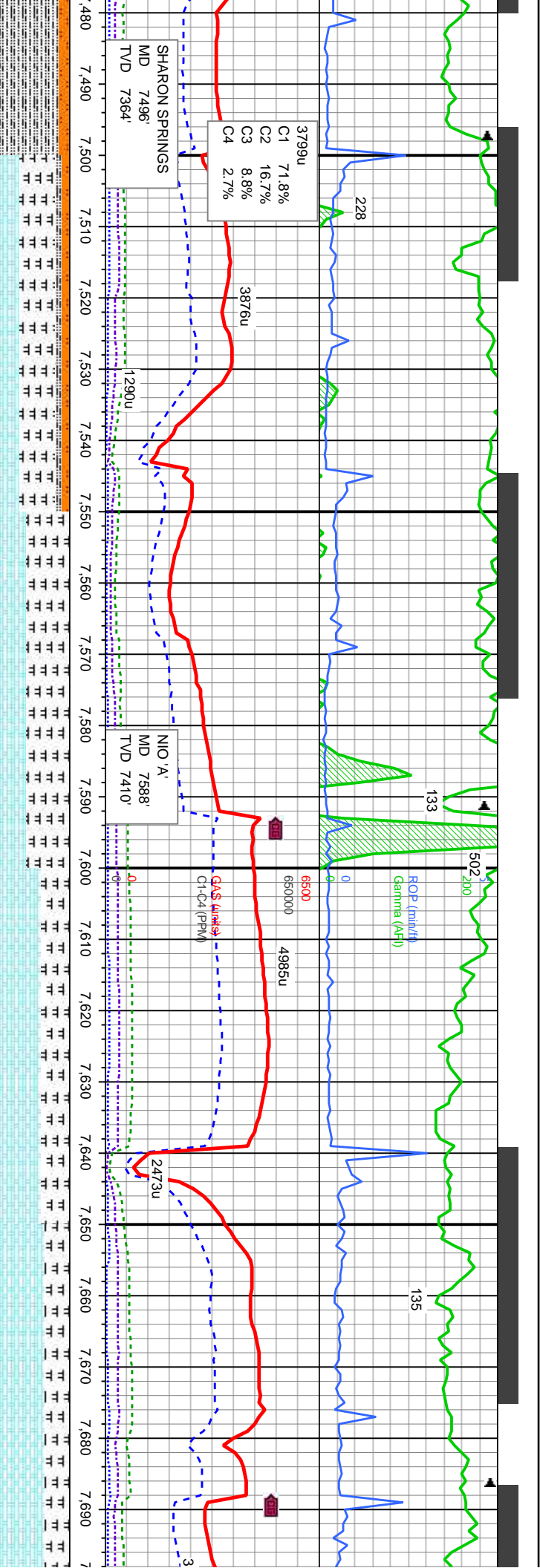
7350-7400: SLTY SH: med gy-dk gy, sb  
ply-sb biky, firm to med sft, sb rnd-sb ang,  
mod fri, sl calc, tr bent, nostc

7400-7450: SLTY SH: med gy-dk gy, sb  
ply-sb biky, firm to med sft, sb rnd-sb ang,  
mod fri, sl calc, tr bent, nostc

7450-7500: MD: SLTY SH: m  
ply-sb biky, firm to med sft, i  
fri, sl calc, abnt bent, SLTST:  
ply-biky, med-v frm, sl arg, s







3799u  
C1 71.8%  
C2 16.7%  
C3 8.8%  
C4 2.7%

SHARON SPRINGS  
MD 7496'  
TVD 7364'

NIO A'  
MD 7588'  
TVD 7410'

ROP (min/ft)  
Gamma (AFI)

C1-C4 (PPM)

MD: 7,495  
TVD: 7,363.8  
Inclination: 56.84  
Azimuth: 177.46  
VS: -149.92

MD: 7,543  
TVD: 7,388.71  
Inclination: 60.62  
Azimuth: 175.5  
VS: -108.94

MD: 7,590  
TVD: 7,410.82  
Inclination: 63.25  
Azimuth: 174.44  
VS: -67.58

MD: 7,637  
TVD: 7,431.25  
Inclination: 65.24  
Azimuth: 173.66  
VS: -25.42

MD: 7,684  
TVD: 7,449.2  
Inclination: 69.84  
Azimuth: 173.89  
VS: 17.82

WT IN 9.8 OUT 9.7  
VIS IN 48 OUT 47

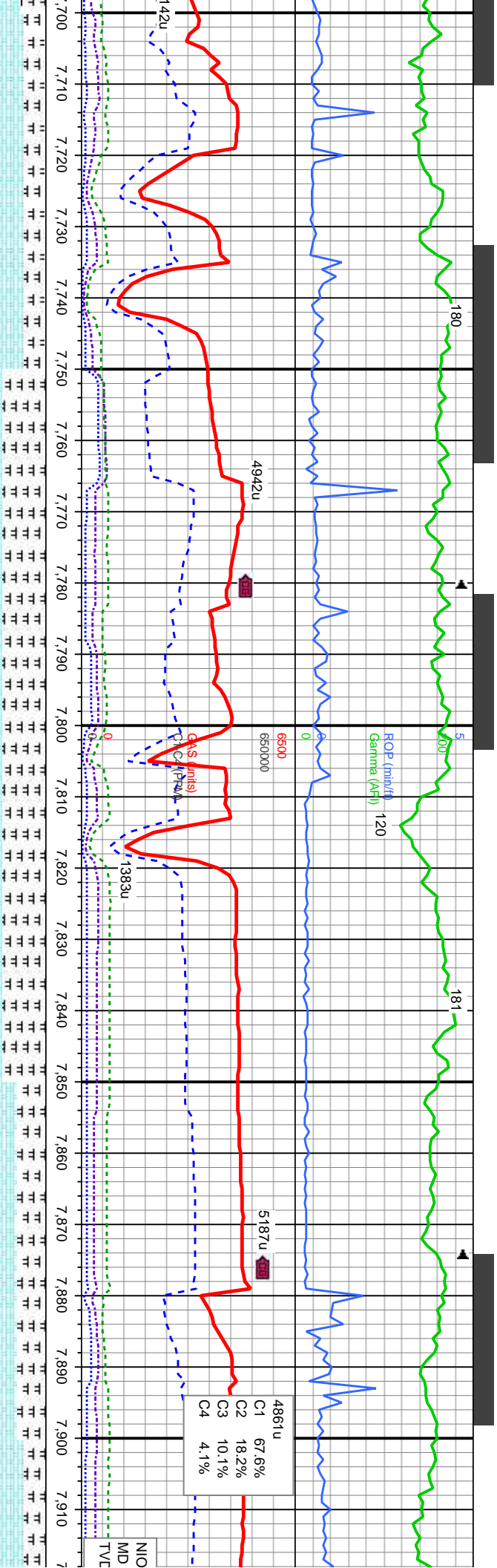
7500-7550 MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, SLTST: lt gy-lt gy brn, sb ply-biky, med-v frm, sl arg, sl-med calc, tr lt bl flr w/ v sl halo cut

7550-7600 MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

7600-7650 MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

7650-7700 MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

mod gy-dk gy, sb  
sb rnd-sb ang, mod  
gy-lt gy brn, sb  
lt-med calc, nosic



MD: 7,732  
TVD: 7,464.19  
Inclination: 73.74  
Azimuth: 174.55  
VS: 63.24

MD: 7779  
TVD: 7475.62  
Inclination: 78.12  
Azimuth: 176.34  
VS: 108.73

MD: 7826  
TVD: 7485.01  
Inclination: 78.83  
Azimuth: 177.94  
VS: 154.75

MD: 7873  
TVD: 7493.77  
Inclination: 79.69  
Azimuth: 179.73  
VS: 200.92

MD: 79  
TVD: 7  
Inclination:  
Azimuth:  
VS: 24

7700'-7750MD: CHK- lt-med gy, lt-med gy brn, mot, strl, sb blk-y-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

7750'-7800MD: CHK- lt-med gy, lt-med gy brn, mot, strl, sb blk-y-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

7800'-7850MD: CHK- lt-med gy, lt-med gy brn, mot, strl, sb blk-y-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

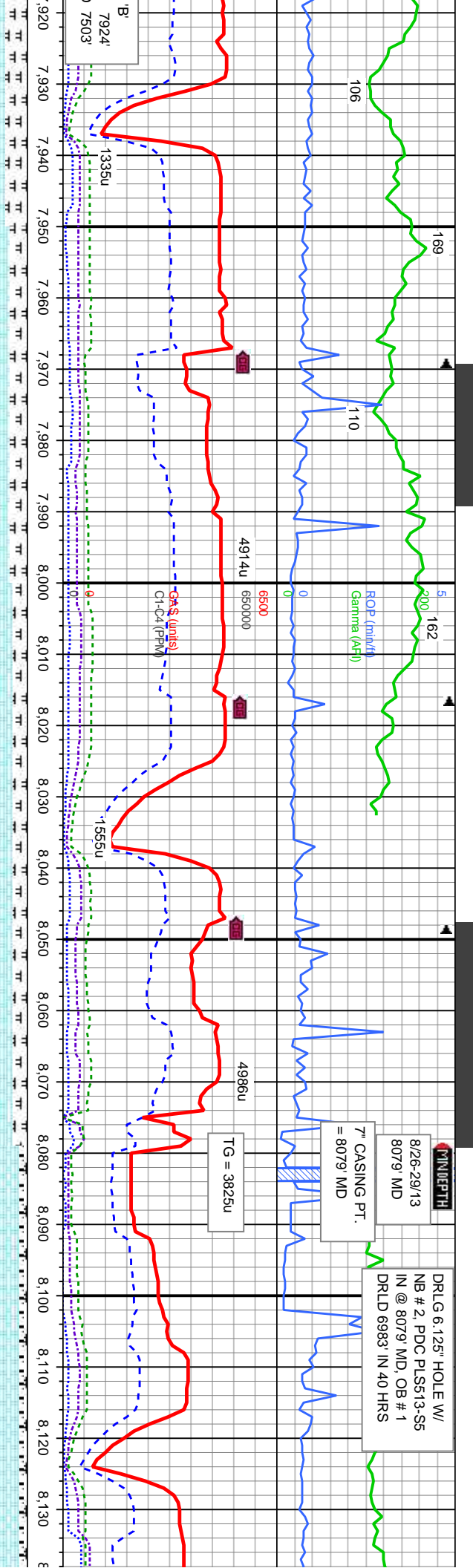
7850'-7900MD: CHK- lt-med gy, lt-med gy brn, mot, strl, sb blk-y-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

7900'-7950MD: CHK- lt-med gy, lt-med gy brn, mot, strl, sb blk-y-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

WT IN 9.8 OUT 9.8  
VIS IN 40 OUT 39







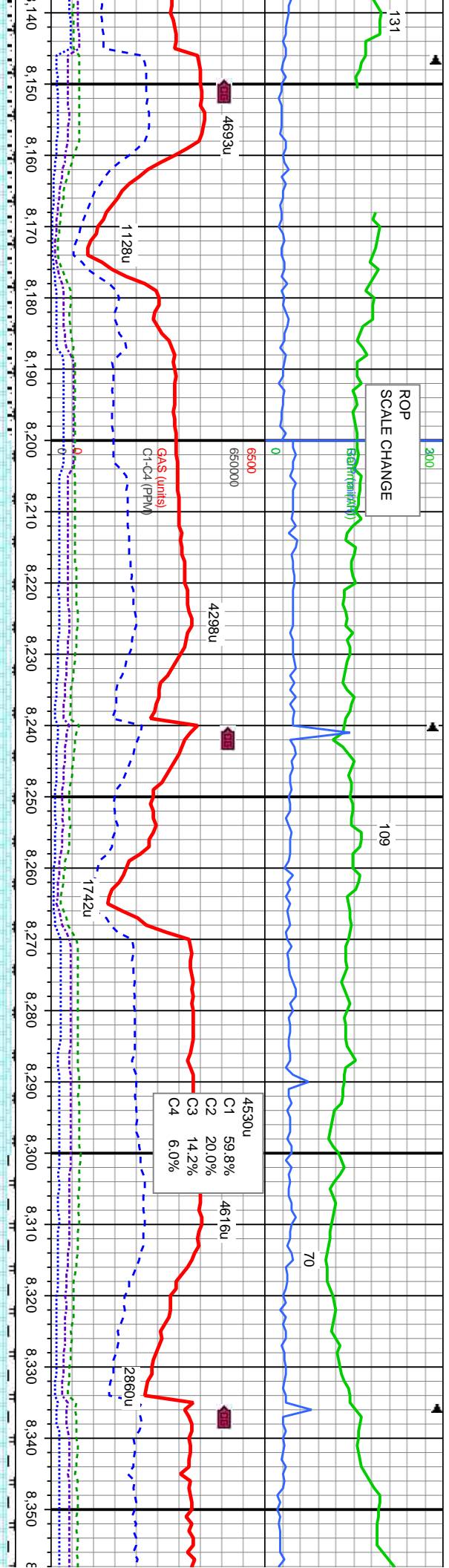
WT IN 10 VIS IN 49	OUT 9.9 OUT 48
SCALE CHANGE	
WT IN 9.1 VIS IN 32	OUT 9.0 OUT 34

MD: 7967 TVD: 7509.34 Inclination: 81.96 Azimuth: 181.08 VS: 293.59	MD: 8014 TVD: 7515.12 Inclination: 83.91 Azimuth: 181.15 VS: 340.21	MD: 8026 TVD: 7516.37 Inclination: 84.16 Azimuth: 181.3 VS: 352.13	MD: 8,088 TVD: 7,520.33 Inclination: 88.52 Azimuth: 180.73 VS: 413.96
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CHK- lt-med gy, lt-med gy brn, sb ply, sft - sl frm, fri, calc, MRLST- med-dk gy-gy sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut	7950'-8000' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut	8000'-8079' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut	8079'-8200' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb ply, sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut
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MD: 8,182  
TVD: 7,522.5  
Inclination: 88.83  
Azimuth: 180.41  
VS: 507.9

WT IN 9.0 OUT 9.0  
VIS IN 39 OUT 36

MD: 8,276  
TVD: 7,524.17  
Inclination: 89.13  
Azimuth: 180.37  
VS: 601.86

d gy, lt-med gy brn, mot, strf, sb bly-sb ply, sft - sl  
MRLST- med-dk gy-gy brn, sb ply-bly, sft-fm, mod  
w/ v sl halo cut

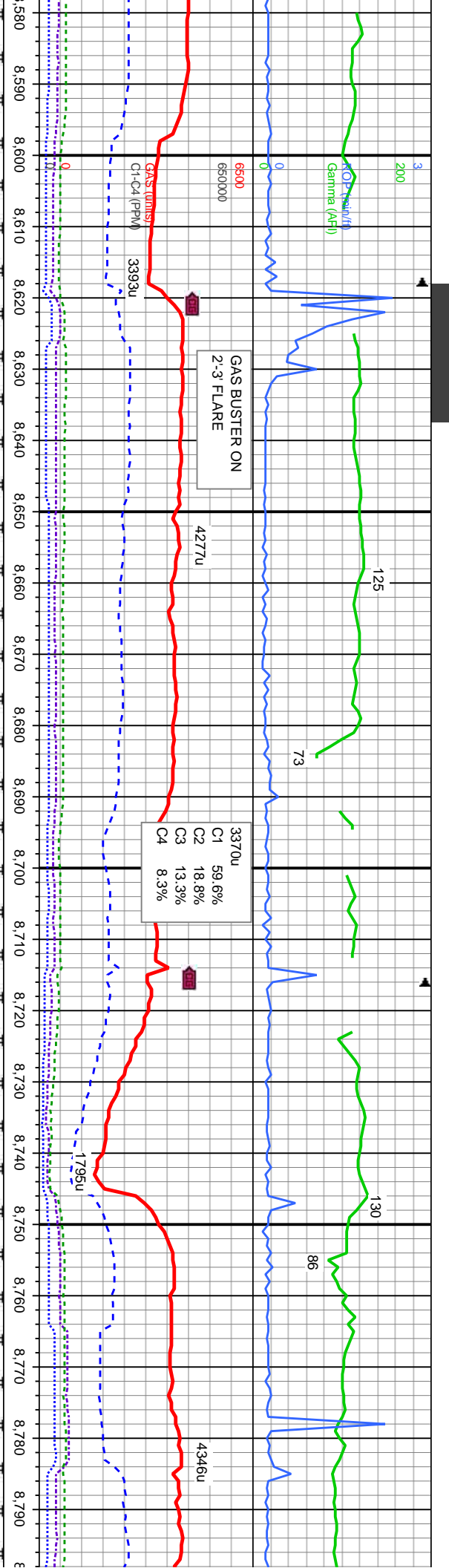
8200'-8300' MD: CHK- lt-med gy, lt-med gy brn, mot, strf, sb bly-sb ply,  
sft - sl frm, fri, chky-sb wxy, v calc, MRLST- med-dk gy-gy brn, sb  
ply-bly, sft-fm, mod arg-sly, sl calc, tr lt bl flr w/ v sl halo cut

8300'-8400' MD: CHK- lt-med gy, lt-med gy brn,  
sft - sl frm, fri, chky-sb wxy, v calc, MRLST- m  
ply-bly, sft-fm, mod arg-sly, sl calc, tr lt bl







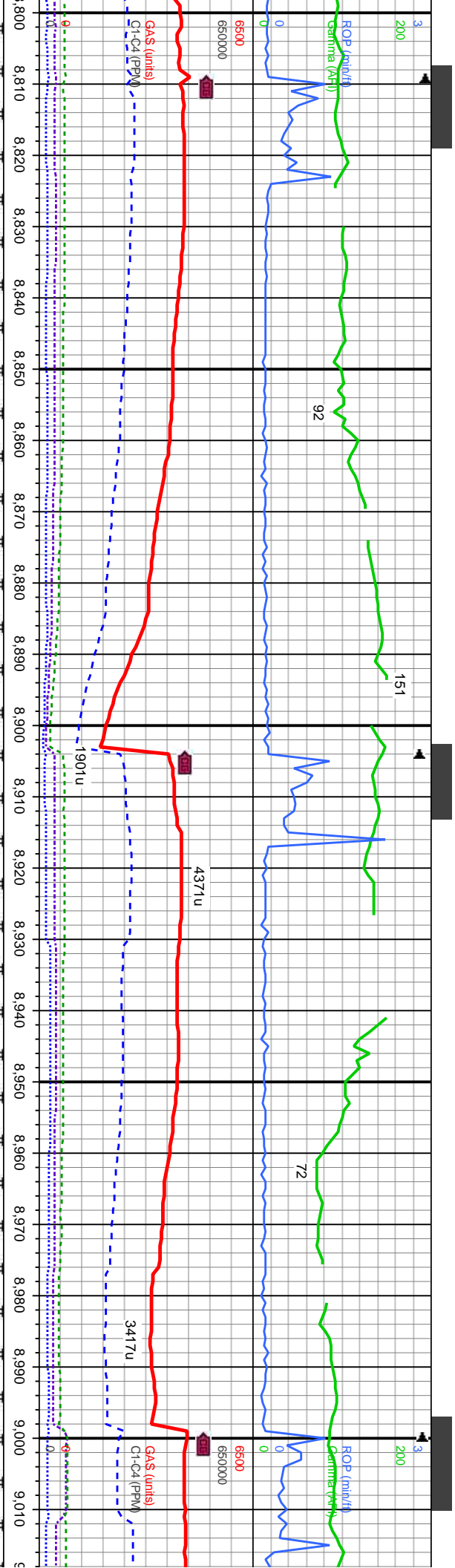


7000	MD: 8,654 TVD: 7,527.3 Inclination: 90.3 Azimuth: 180.23 VS: 979.76	WT IN 9.0 VIS IN 39	OUT 9.0 OUT 37
	MD: 8,748 TVD: 7,526.48 Inclination: 90.7 Azimuth: 180.24 VS: 1,073.74		

8600'-8700' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pily-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

8700'-8800' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pily-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut





MD: 8,842  
TVD: 7,525.07  
Inclination: 91.02  
Azimuth: 179.55  
VS: 1,167.72

MD: 8,937  
TVD: 7,523.38  
Inclination: 91.01  
Azimuth: 179.41  
VS: 1,262.7

8800'-8900' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pty-blky, sft-frm, mod arg-slt-y, sl calc, tr lt bl flr w/ v sl halo cut

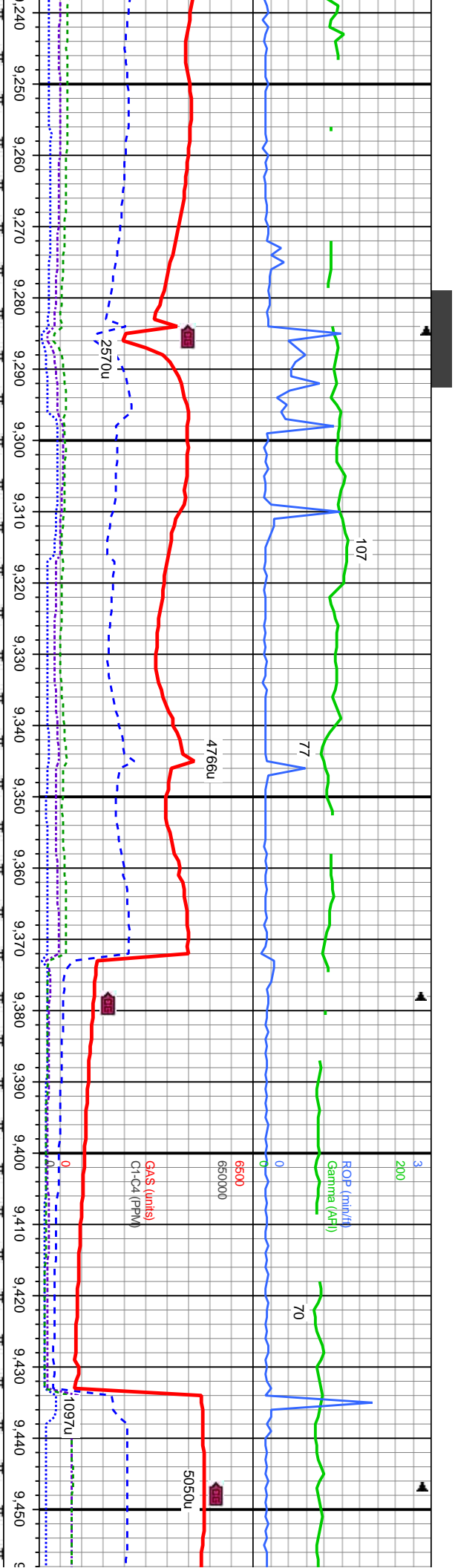
8900'-9000' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pty-blky, sft-frm, mod arg-slt-y, sl calc, tr lt bl flr w/ v sl halo cut

9000' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pty-blky, sft-frm, mod arg-slt-y, sl calc, tr lt bl flr w/ v sl halo cut









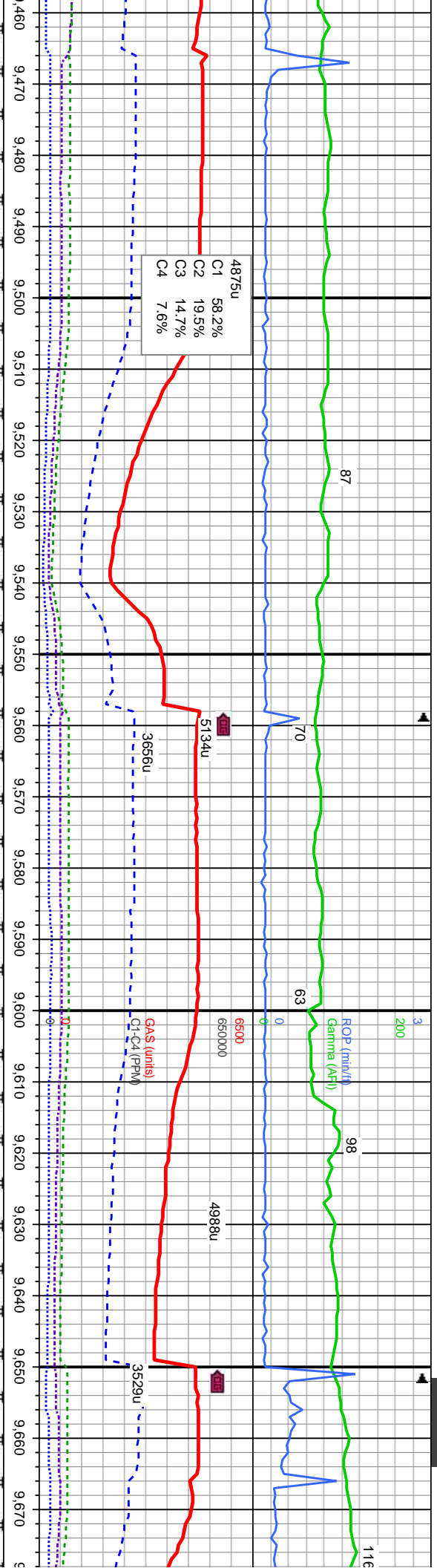
MD: 9,315  
TVD: 7,522.24  
Inclination: 89.19  
Azimuth: 177.48  
VS: 1,640.67

MD: 9,409  
TVD: 7,523.15  
Inclination: 89.69  
Azimuth: 177.66  
VS: 1,734.63

Depth (ft)	Description
9240'-9250'	med gy, lt-med gy brn, mot, stri, sb blk-y-sb pily, sft - calc, tr bent, MRLST- med-dk gy-gy brn, sb
9250'-9260'	arg-sily, sl calc, tr lt bl flr w/ v sl halo cut
9260'-9270'	
9270'-9280'	
9280'-9290'	
9290'-9300'	
9300'-9310'	
9310'-9320'	
9320'-9330'	
9330'-9340'	
9340'-9350'	
9350'-9360'	
9360'-9370'	
9370'-9380'	
9380'-9390'	
9390'-9400'	
9400'-9410'	
9410'-9420'	
9420'-9430'	
9430'-9440'	
9440'-9450'	







MD: 9.501  
TVD: 7.523.36  
Inclination: 90.06  
Azimuth: 178.05  
VS: 1.826.61

MD: 9.593  
TVD: 7.522.91  
Inclination: 90.49  
Azimuth: 178.4  
VS: 1.918.6

WT IN 8.9 OUT 8.9  
VIS IN 38 OUT 38

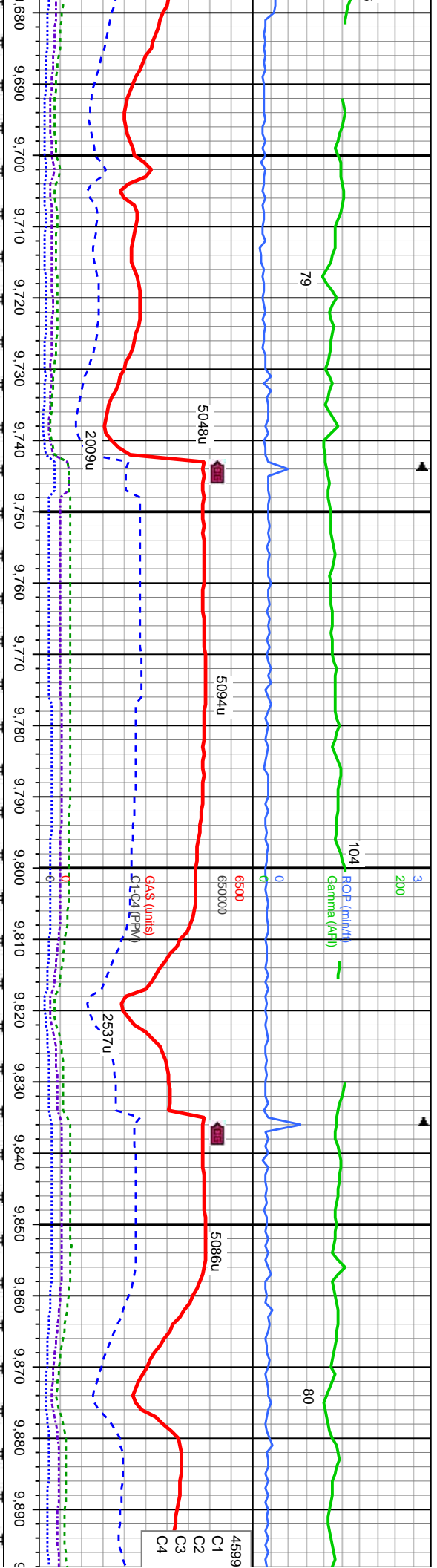
MI  
TV  
In  
Az  
VS

mot, stri, sb blk-y-sb pily, sft -  
med-dk gy-gy brn, sb  
or w/ v sl halo cut

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

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





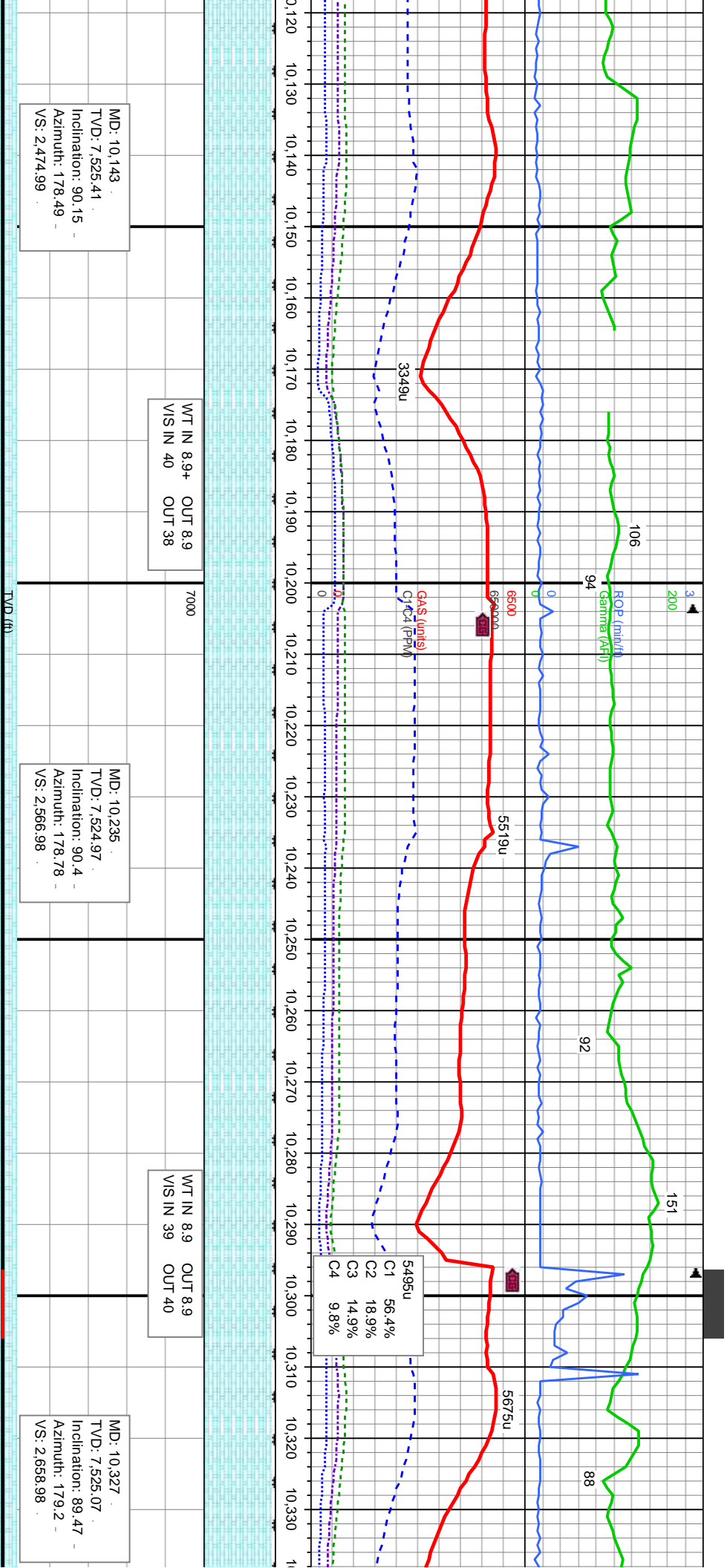
D: 9.685 D: 7.522.84 Inclination: 89.6 Azimuth: 177.5 VS: 2.010.58		MD: 9.777 TVD: 7.523.04 Inclination: 90.15 Azimuth: 178.55 VS: 2.102.56		MD: 9.868 TVD: 7.523.26 Inclination: 89.57 Azimuth: 178.16 VS: 2.193.55	
WT IN 8.9 OUT 8.9+ VIS IN 38 OUT 36		7000		7000	

9700'-9800' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb plty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut		9800'-9900' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb plty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut	
8000		8000	







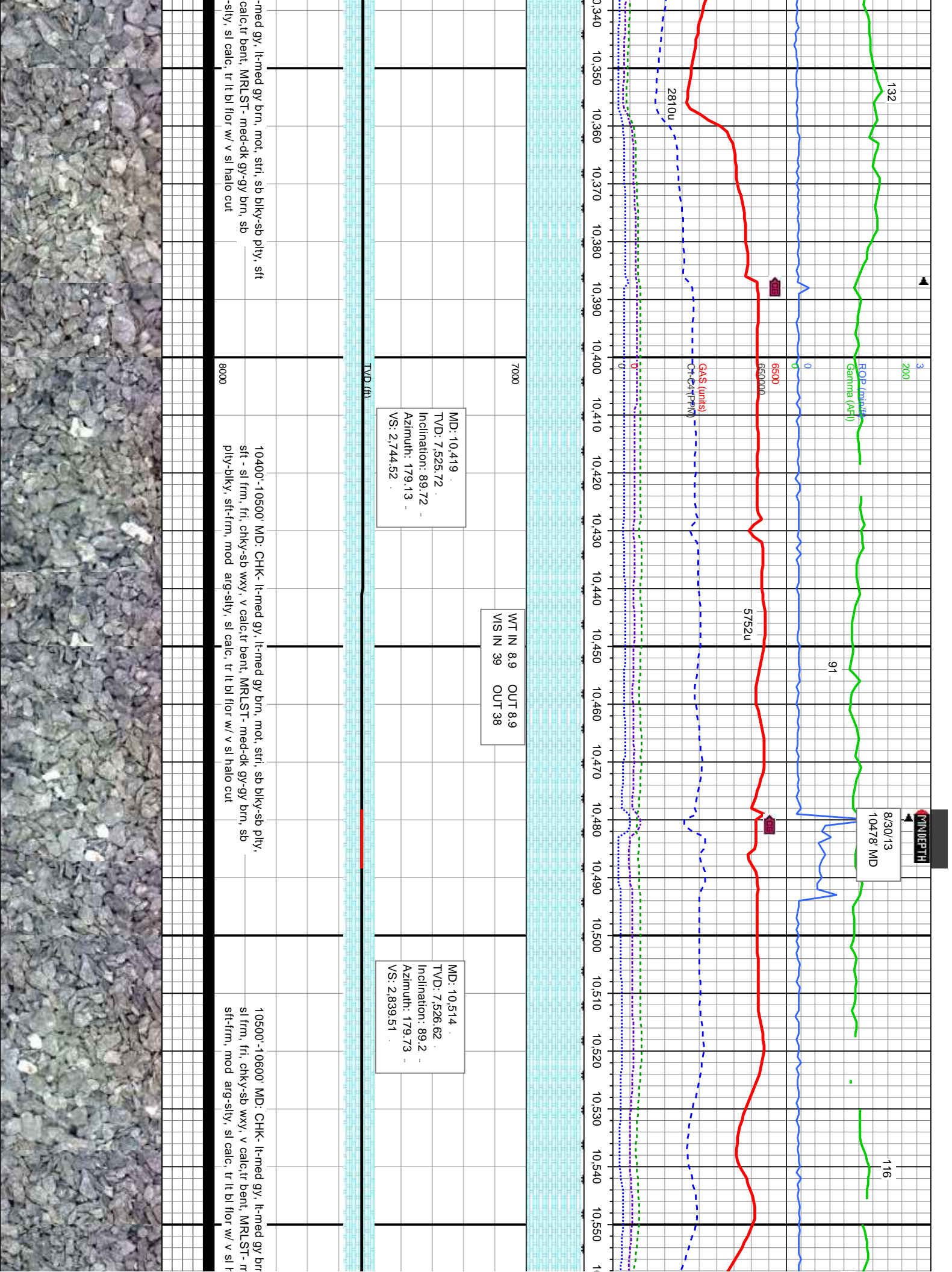


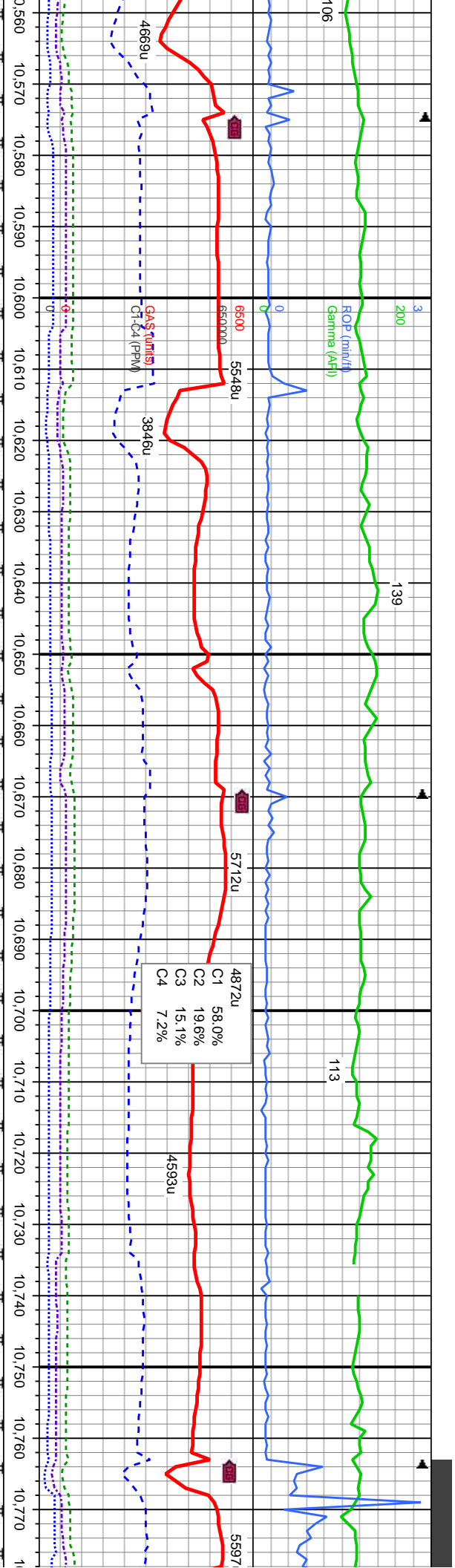
10200'-10300' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb ply, sft  
- sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb  
ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

10300'-10400' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb ply, sft  
- sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb  
ply-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut









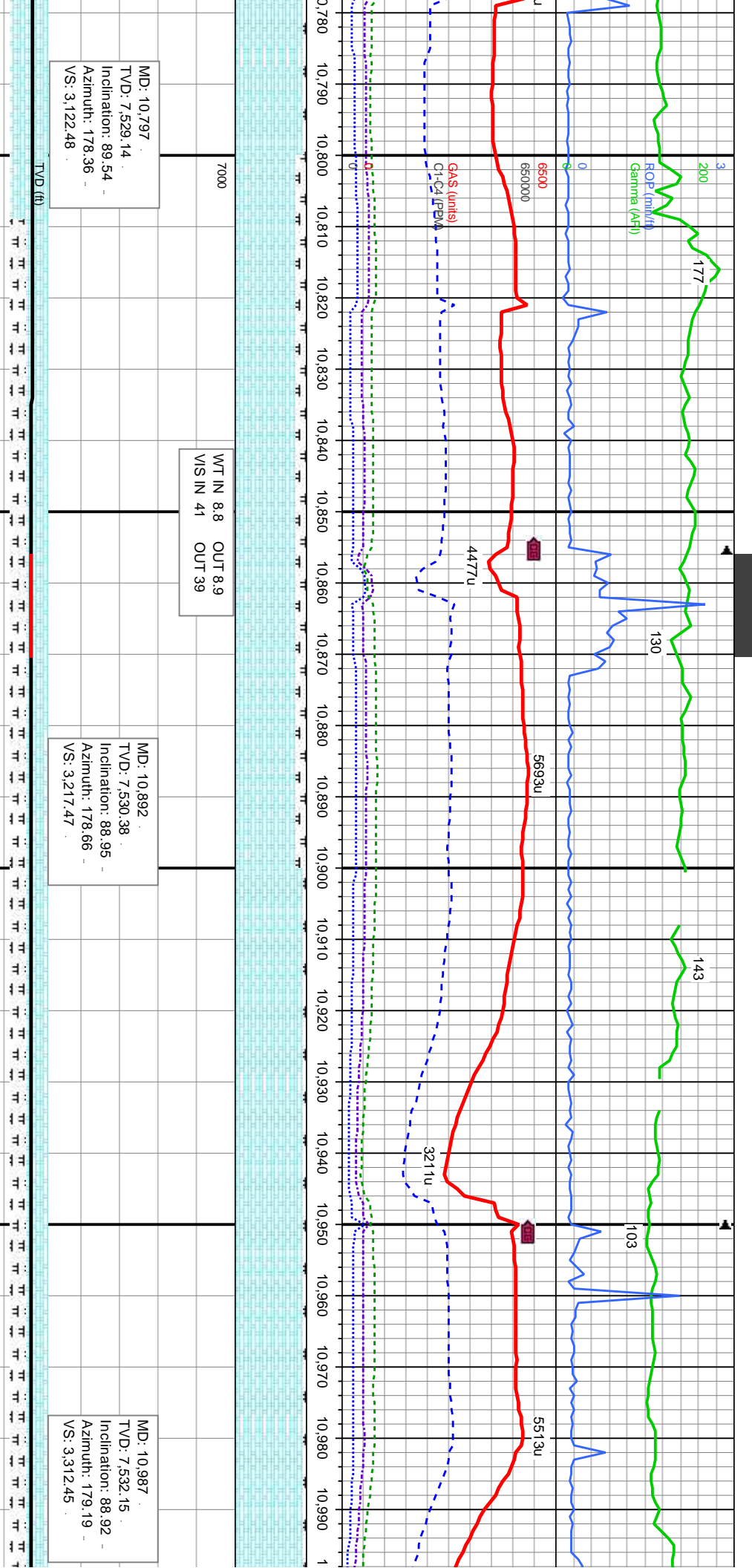
7000	WT IN 8.8+ OUT 8.9 VIS IN 40 OUT 38	MD: 10,608 TVD: 7,527.86 Inclination: 89.29 Azimuth: 179.44 VS: 2,933.5
8000	WT IN 8.8 OUT 8.9 VIS IN 43 OUT 39	MD: 10,703 TVD: 7,528.6 Inclination: 89.81 Azimuth: 180.06 VS: 3,028.49

10600'-10700' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pily-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flor w/ v sl halo cut

10700'-10800' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy b pily-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flor w/ v sl halo cut







MD: 10,797  
TVD: 7,529.14  
Inclination: 89.54  
Azimuth: 178.36  
VS: 3,122.48

WT IN 8.8 OUT 8.9  
VIS IN 41 OUT 39

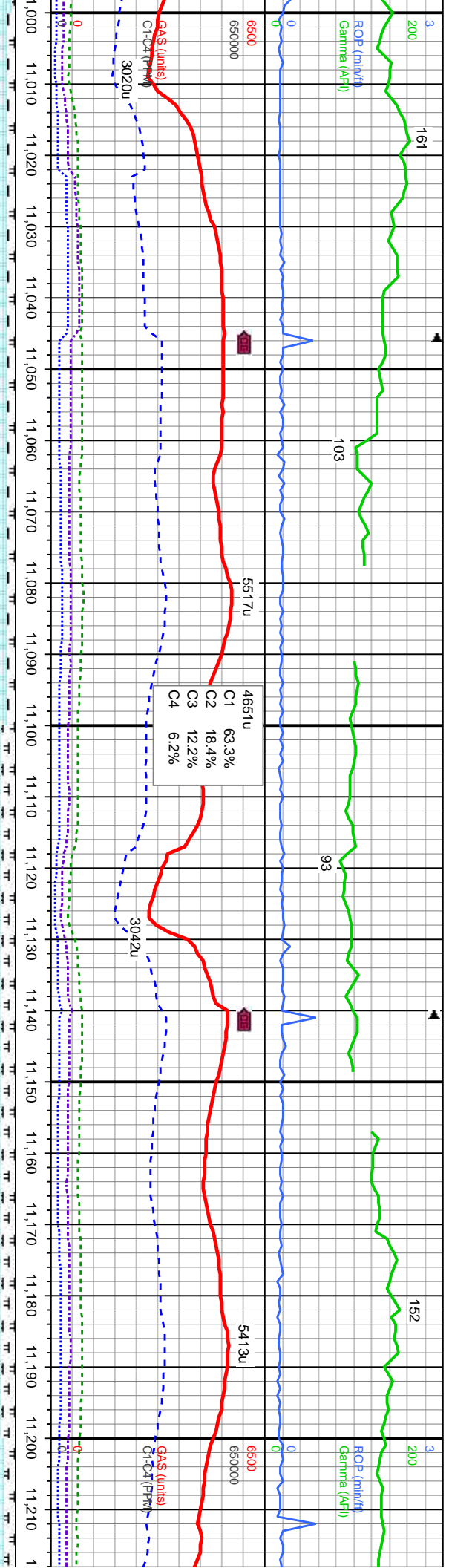
MD: 10,892  
TVD: 7,530.38  
Inclination: 88.95  
Azimuth: 178.66  
VS: 3,217.47

MD: 10,987  
TVD: 7,532.15  
Inclination: 88.92  
Azimuth: 179.19  
VS: 3,312.45

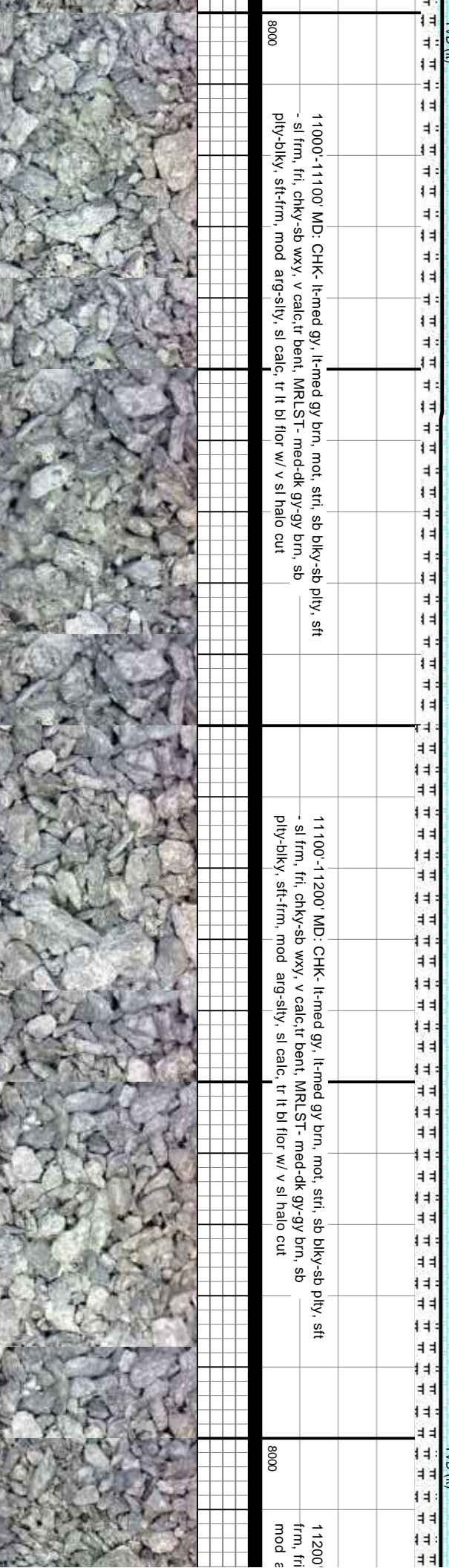
10800'-10900' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pty, sft -  
sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pty-blky,  
sft-frm, mod arg-slt-y, sl calc, tr lt bl flr w/ v sl halo cut

10900'-11000' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pty, sft -  
sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pty-blky,  
sft-frm, mod arg-slt-y, sl calc, tr lt bl flr w/ v sl halo cut

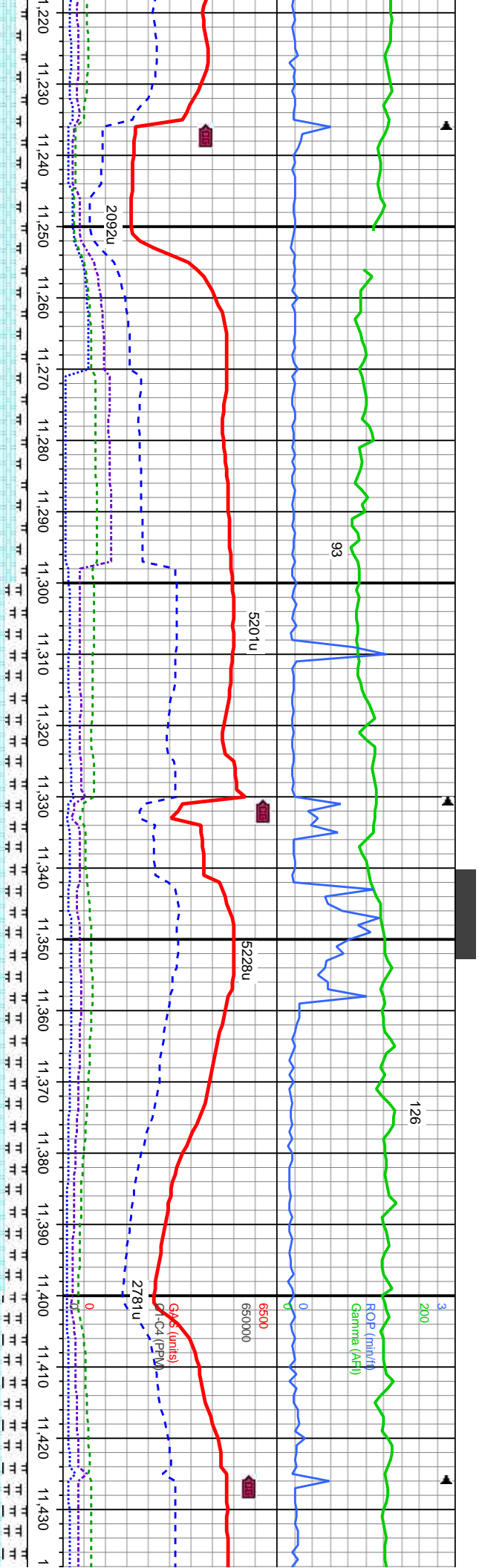




7000	WT IN 8.8 VIS IN 40	OUT 8.8 OUT 39	MD: 11,081 TVD: 7,533.75 Inclination: 89.13 Azimuth: 179.29 VS: 3,406.44	TVD (ft)
11,000-11,100	MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk-gy-gy brn, sb pty-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut			
11,100-11,200	MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-y-sb pty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk-gy-gy brn, sb pty-blky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut		MD: 11,176 TVD: 7,534.76 Inclination: 89.66 Azimuth: 178.38 VS: 3,501.43	TVD (ft)
8000				







WT IN 8.8 OUT 8.8  
VIS IN 40 OUT 39

WT IN 8.9 OUT 8.8  
VIS IN 40 OUT 39

WT IN 8.8  
VIS IN 41

MD: 11,271  
TVD: 7,534.99  
Inclination: 90.06  
Azimuth: 180.16  
VS: 3,596.43

MD: 11,365  
TVD: 7,535.02  
Inclination: 89.9  
Azimuth: 178.38  
VS: 3,690.42

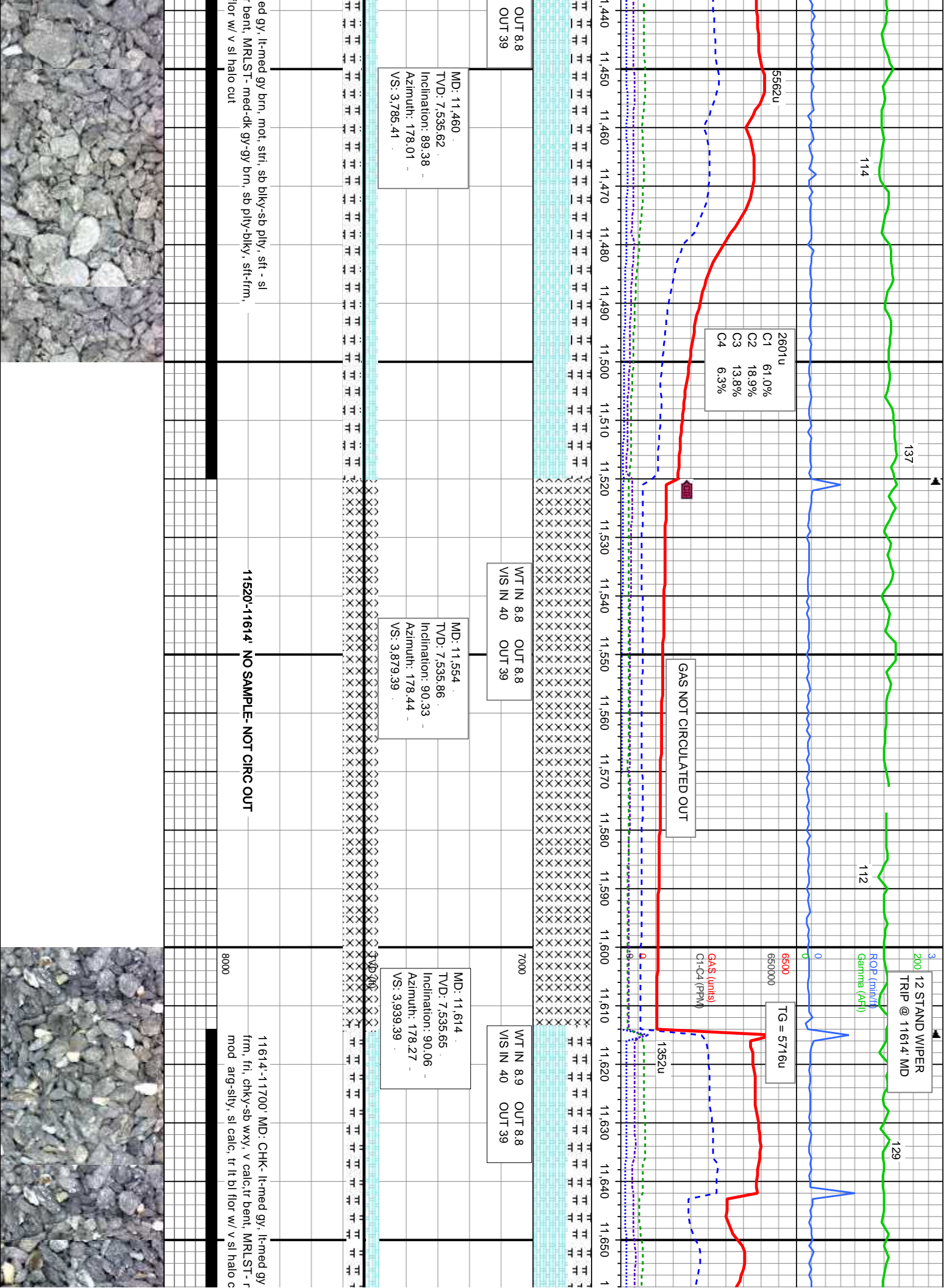
TVD (ft)

11300' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft - sl  
chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pily-biky, sft-firm,  
arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

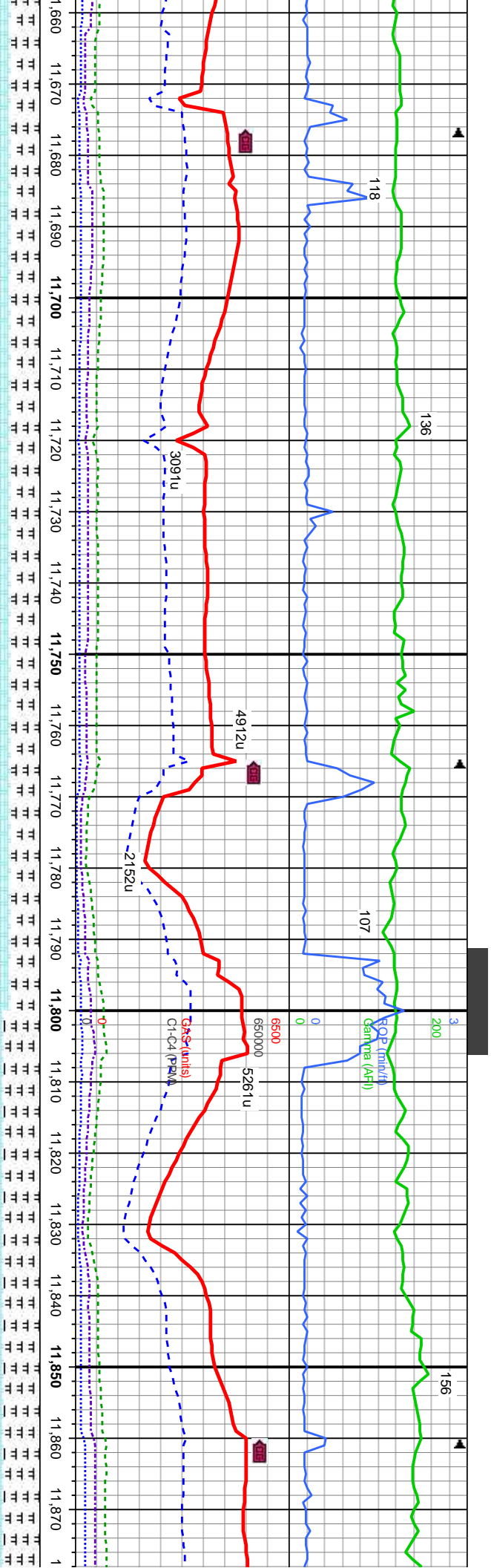
11300'-11400' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft  
- sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb  
pily-biky, sft-firm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

11400'-11500' MD: CHK- lt-m  
frm, fri, chky-sb wxy, v calc, tr  
mod arg-sily, sl calc, tr lt bl









WT IN 8.9 OUT 8.8  
VIS IN 40 OUT 39

MD: 11,708  
TVD: 7,535.63  
Inclination: 89.97  
Azimuth: 178.63  
VS: 4,033.38

WT IN 8.8 OUT 8.8  
VIS IN 42 OUT 41

MD: 11,803  
TVD: 7,536.44  
Inclination: 89.05  
Azimuth: 178.32  
VS: 4,128.37

WT IN 8.7+ OUT 8.8+  
VIS IN 43 OUT 41

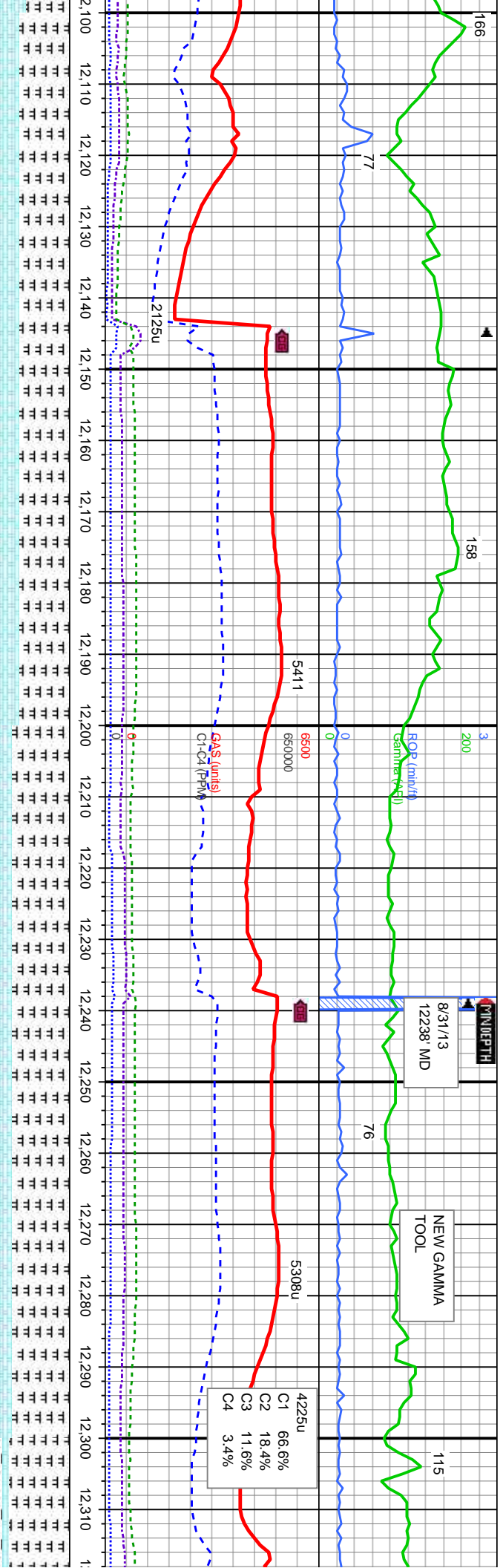
11700'-11800' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pty, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pty-biky, sft-frm, mod arg-sly, sl calc, tr lt bl flr w/ v sl halo cut

11800'-11900' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pty frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pty-biky mod arg-sly, sl calc, tr lt bl flr w/ v sl halo cut









OUT 8.9  
OUT 40

WT IN 8.9  
VIS IN 44  
OUT 8.9+  
OUT 42

MD: 12.181  
TVD: 7,540.05  
Inclination: 89.41  
Azimuth: 177.56  
VS: 4.506.23

MD: 12.276  
TVD: 7,540.87  
Inclination: 89.6  
Azimuth: 177.46  
VS: 4.601.19

MD: 12.303  
TVD: 7,541.05  
Inclination: 89.63  
Azimuth: 177.24  
VS: 4.634.64

12100'-12200' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-ly-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pily-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

12200'-12300' MD: CHK- lt-med gy, lt-med gy brn, mot, stri, sb blk-ly-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr bent, MRLST- med-dk gy-gy brn, sb pily-biky, sft-frm, mod arg-sily, sl calc, tr lt bl flr w/ v sl halo cut

12300' arg-si, arg-si, frm, f sft, v



9/1/13  
12362 MD  
NB # 3, SEC MMD54  
IN @ 12362 MD, OB # 2  
DRLD 4287 IN 44.5 HRS

TRIP FOR BIT &  
BHA @ 12362 MD

300 Gamma (API)

137

112

TG = 4702u

65000

4273u

102

3919u

3573u

3475u

GAS (units)  
C1-C4 (PPM)

1876u

1643u

WT IN 8.9+ OUT 8.9  
VIS IN 43 OUT 42

WT IN 8.7 OUT 8.7+  
VIS IN 41 OUT 41

MD: 12,371  
TVD: 7,541.98  
Inclination: 88.8  
Azimuth: 178.58  
VS: 4,702.62

MD: 12,466  
TVD: 7,544.41  
Inclination: 88.27  
Azimuth: 178.73  
VS: 4,797.58

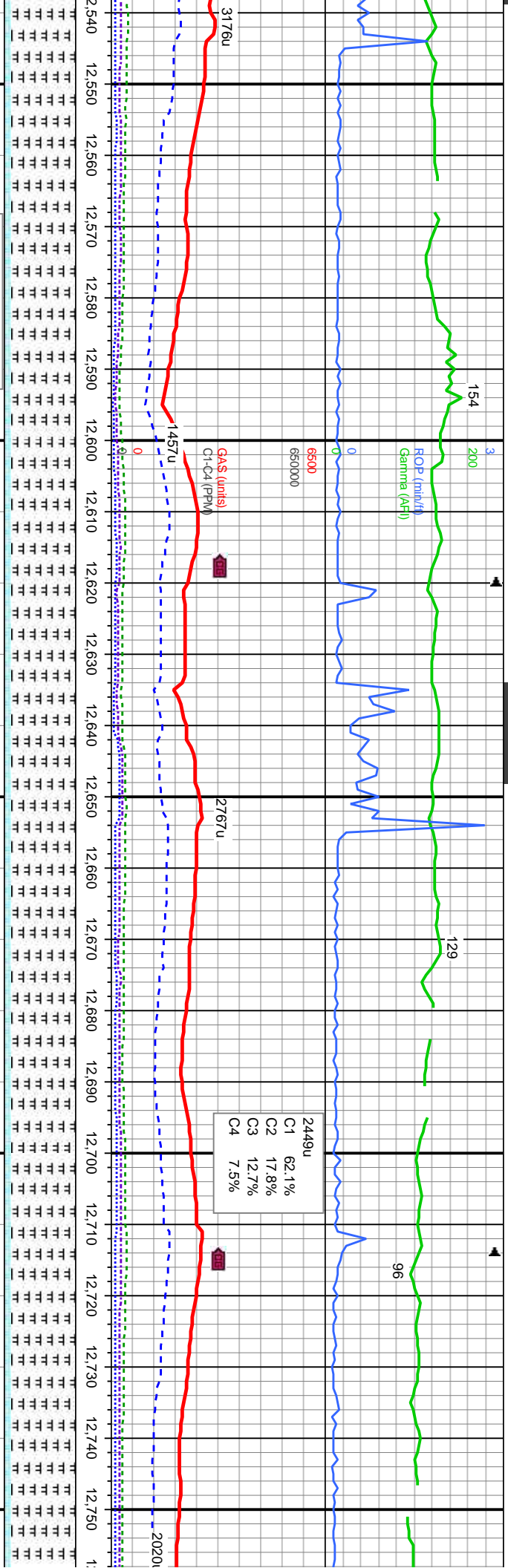
0-12400' MD: MRLST - med-dk gy-gy brn, sb pily-blky, sft-frn, mod  
ly, sl calc, CHK - lt-med gy, lt-med gy brn, mot, sft, sb blky-sb pily, sft - sl  
ri, chky-sb wxy, v calc, abnt pyr, BENT - lt-gy-lt brn-erm, cpxln-amor, v  
sl aren, tr lt bl flor w/ v sl halo cut

12400'-12500' MD: MRLST - med-dk gy-gy brn, sb pily-blky, sft-frn, mod  
arg-sily, sl calc, abnt bent, tr pyr, CHK - lt-med gy, lt-med gy brn, mot, sft, sb  
blky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut

12500'-12600' MD: MRLST  
arg-sily, sl calc, abnt bent,  
blky-sb pily, sft - sl frn, fri







MD: 12,560  
TVD: 7,546.69  
Inclination: 88.95  
Azimuth: 179.17  
VS: 4,891.55

WT IN 8.7+ OUT 8.8  
VIS IN 40 OUT 40

7000

MD: 12,655  
TVD: 7,547.72  
Inclination: 89.81  
Azimuth: 179.12  
VS: 4,986.55

2449u  
C1 62.1%  
C2 17.8%  
C3 12.7%  
C4 7.5%

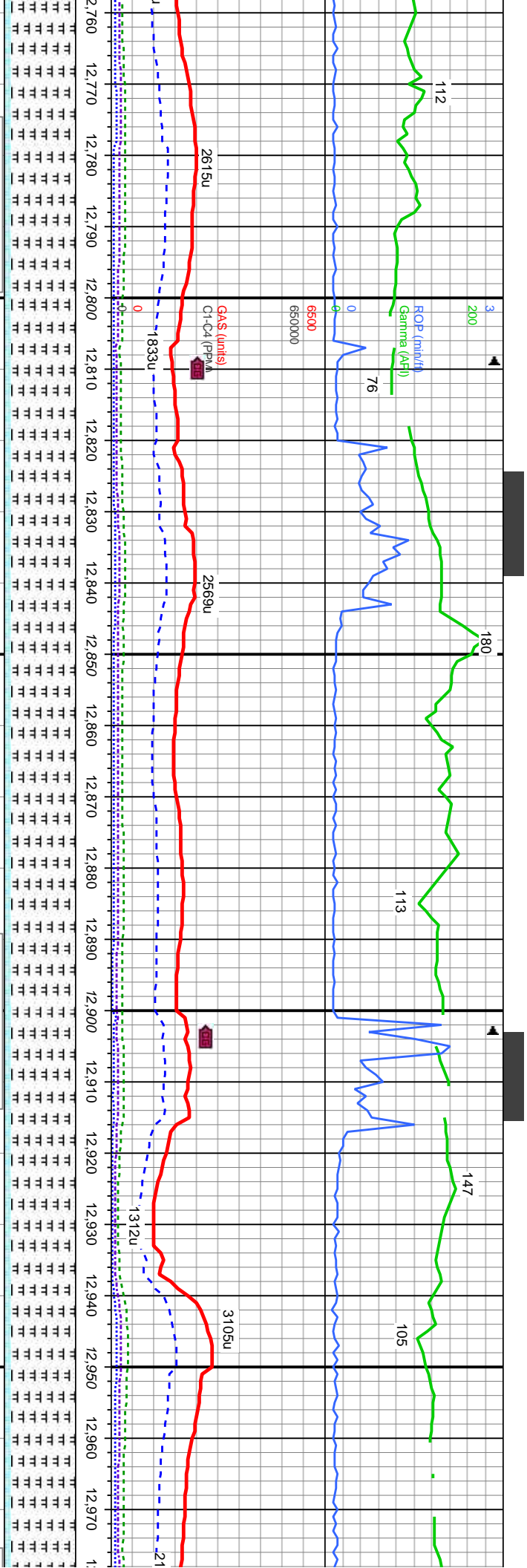
MD: 12,750  
TVD: 7,548.52  
Inclination: 89.23  
Azimuth: 178.98  
VS: 5,081.54

- med-dk gy-gy brn, sb pily-biky, sft-fm, mod  
tr pyr, CHK- lt-med gy, lt-med gy brn, mot, stri, sb  
chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

12600'-12700' MD: MRLST- med-dk gy-gy brn, sb pily-biky, sft-fm, mod arg-sily,  
sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft - sl  
frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

12700'-12800' MD: MRLST- med-dk gy-gy brn,  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med  
pily, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl





WT IN 8.8 OUT 8.8  
VIS IN 41 OUT 40

WT IN 8.8 OUT 8.8  
VIS IN 41 OUT 41

MD: 12,844 '  
TVD: 7,548.9 '  
Inclination: 90.3 °  
Azimuth: 179.2 °  
VS: 5,175.54 '

MD: 12,939 '  
TVD: 7,548.45 '  
Inclination: 90.24 °  
Azimuth: 180.56 °  
VS: 5,270.53 '

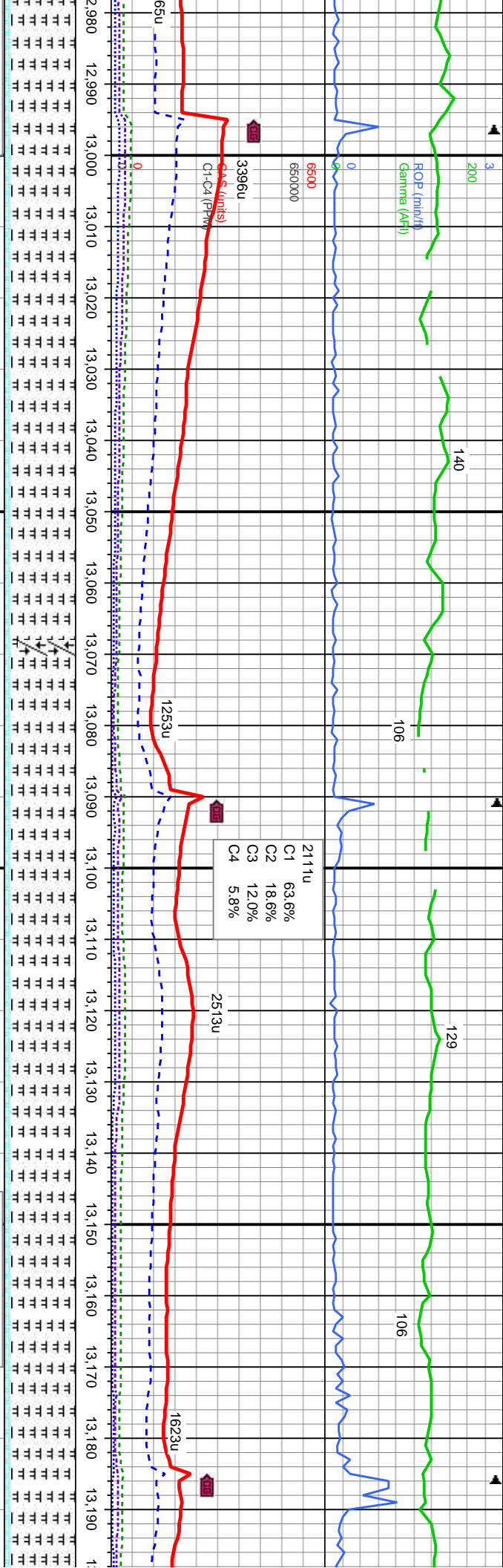
sb pty-blky, sft-fm, mod  
gy brn, mot, stri, sb blky-sb  
flor w/ v sl halo cut

12800'-12900' MD: MRLST- med-dk gy-gy brn, sb pty-blky, sft-fm, mod  
arg-sly, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb  
pty, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut

12900'-13000' MD: MRLST- med-dk gy-gy brn-sl mot, sb pty-blky, sft-fm  
arg-sly, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut







TIN 8.8	OUT 8.8
SIN 41	OUT 41
WT IN 8.8	OUT 8.8
VIS IN 41	OUT 41

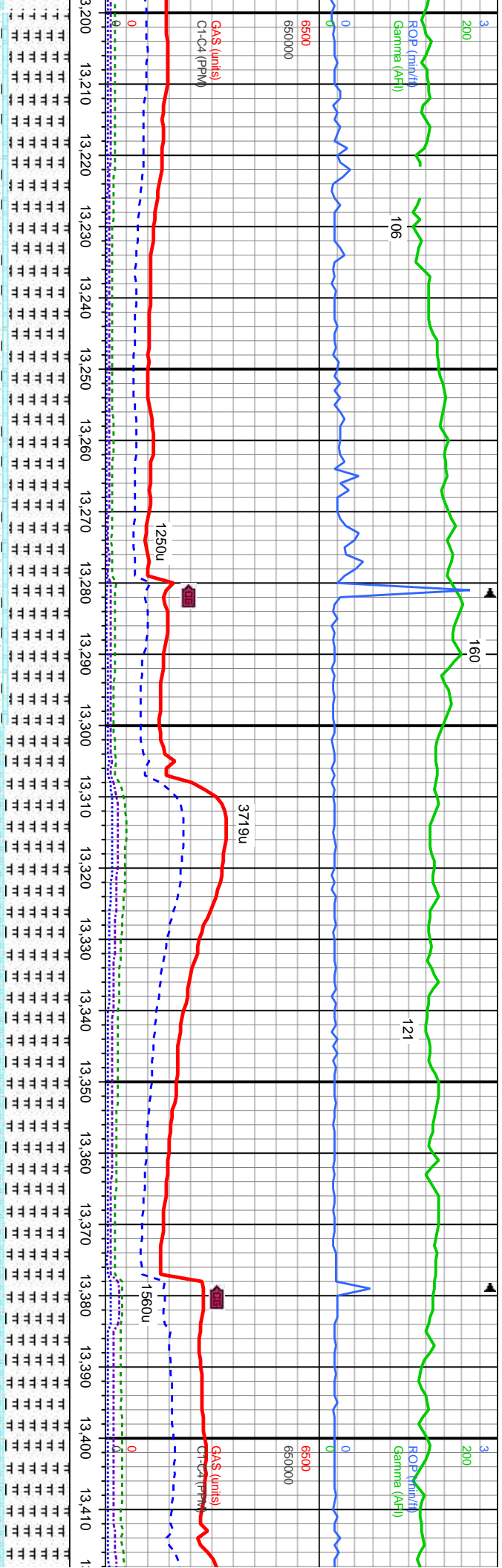
MD: 13,033  
TVD: 7,548.21  
Inclination: 90.06  
Azimuth: 180.41  
VS: 5.364.5

MD: 13,128  
TVD: 7,547.7  
Inclination: 90.55  
Azimuth: 180.7  
VS: 5.459.47

13000'-13100' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-biky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

13100'-13200' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-biky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut





MD: 13,223  
TVD: 7,546.97  
Inclination: 90.33  
Azimuth: 180.51  
VS: 5,554.43

13200'-13300' MD: MRLST - med-dk gy-gy brn, sb pily-blky, sft-frm, mod arg-sily, sl calc,CHK- lt-med gy, lt-med gy brn, mod, stri, sb blky-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr pyr, BENT - lt gy-lt brn-crm, crpxh-annor, v sft, v sl aren, tr lt bl flr w/ v sl halo cut

MD: 13,317  
TVD: 7,546.68  
Inclination: 90.03  
Azimuth: 180.5  
VS: 5,648.4

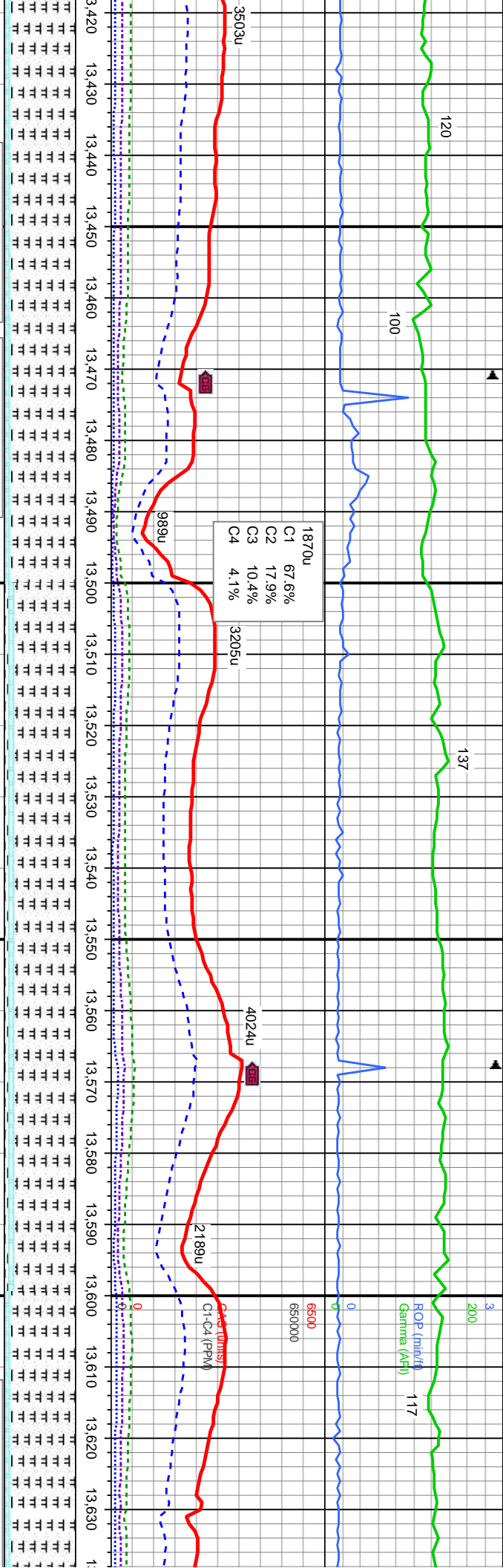
13300'-13400' MD: MRLST - med-dk gy-gy brn- sl mod, sb pily-blky, sft-frm, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mod, stri, sb blky-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

MD: 13,412  
TVD: 7,546.78  
Inclination: 89.85  
Azimuth: 180.09  
VS: 5,743.38

13400'-  
arg-sily  
sft - sl l







WT IN 8.8 OUT 8.9  
VIS IN 42 OUT 42

WT IN 8.9 OUT 9.0  
VIS IN 41 OUT 41

MD: 13.506  
TVD: 7.547.02  
Inclination: 89.85  
Azimuth: 180.11  
VS: 5.837.36

MD: 13.601  
TVD: 7.547.27  
Inclination: 89.85  
Azimuth: 180.84  
VS: 5.932.34

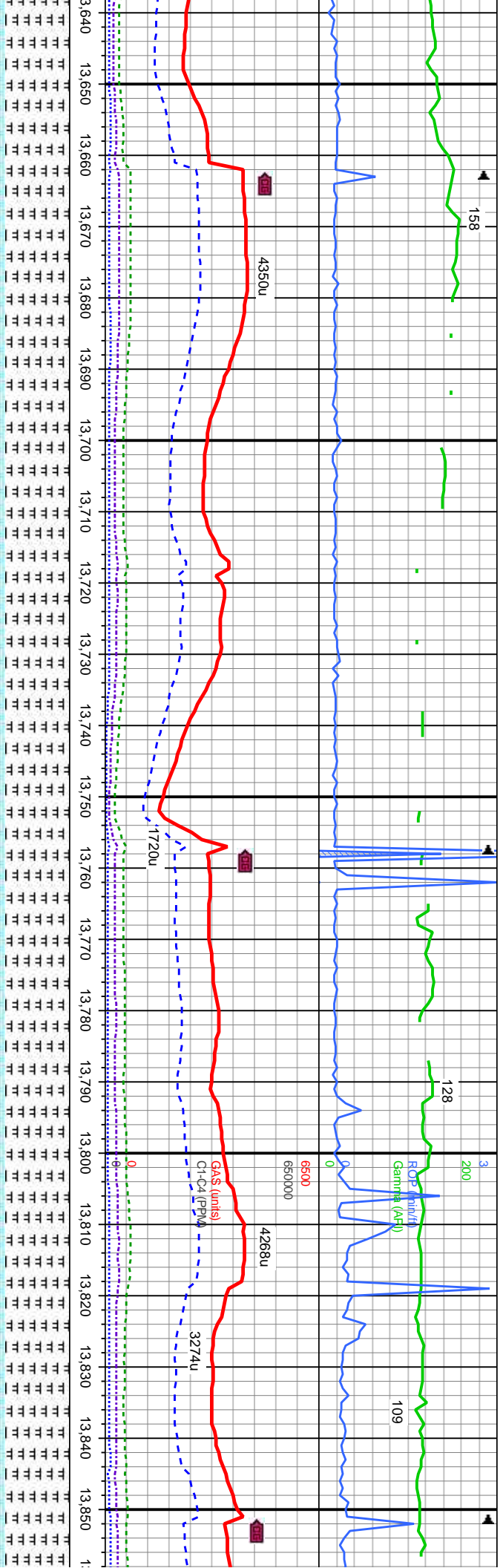
WT IN 8.9 OUT 8.9+  
VIS IN 43 OUT 41

13500' MD: MRLST - med-dk gy-gy brn- sl mot, sb plty-blky, sft-frn, mod  
sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, strl, sb blky-sb plty,  
frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

13500'-13600' MD: MRLST - med-dk gy-gy brn, sb plty-blky, sft-frn, mod  
arg-slt, sl calc, CHK- lt-med gy, lt-med gy brn, mot, strl, sb blky-sb plty, sft - sl  
frn, fri, chky-sb wxy, v calc, tr pyr, BENT - lt gy-lt brn-crm, crpxn-armor, v sft, v  
sl aren, tr lt bl flr w/ v sl halo cut

13600'-13700' MD: MRLST - n  
arg-slt, sl calc, tr bent, CHK-  
sft - sl frn, fri, chky-sb wxy, v





MD: 13,695  
TVD: 7,547.54  
Inclination: 89.82  
Azimuth: 180.28  
VS: 6.026.3

13700' MD  
Large amount of LCM in sample.

med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

WT IN 8.9 OUT 8.9  
VIS IN 41 OUT 40

13800' MD  
Large amount of LCM in sample.

13600'-13700' MD: MRLST- med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

MD: 13,790  
TVD: 7,547.92  
Inclination: 89.72  
Azimuth: 180.79  
VS: 6.121.27

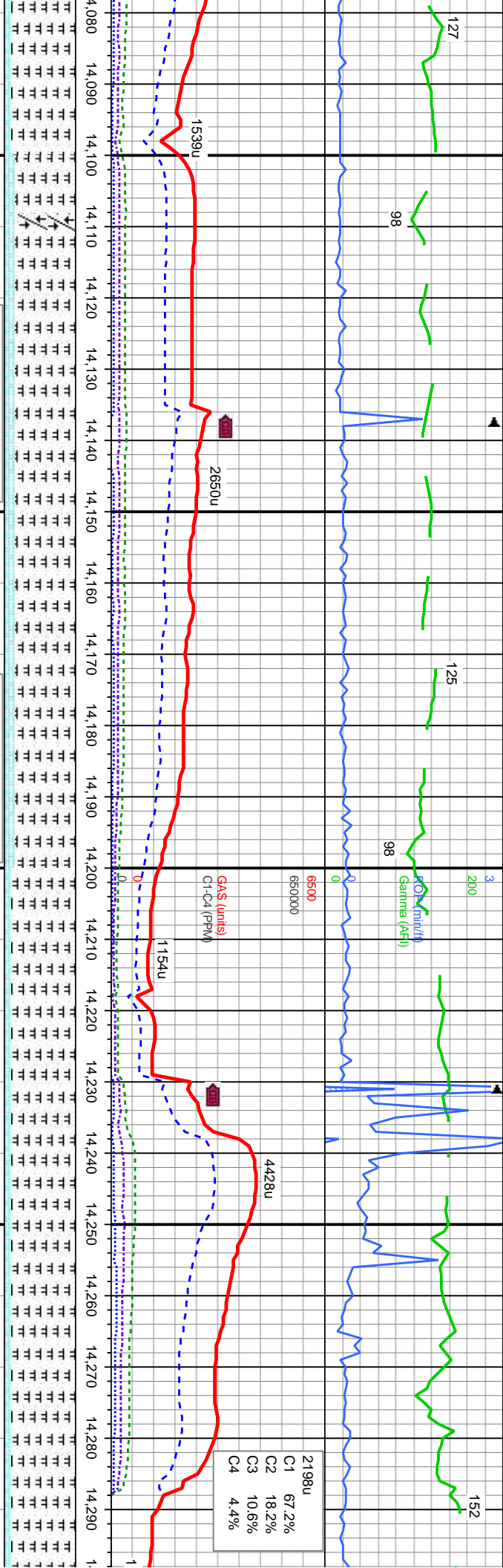
WT IN 8.9 OUT 8.9  
VIS IN 41 OUT 40

13800'-13900' MD: MRLST- med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

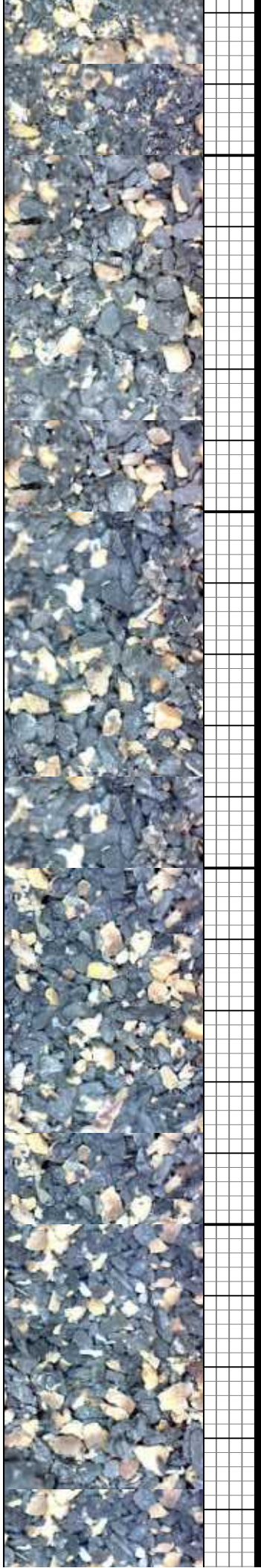




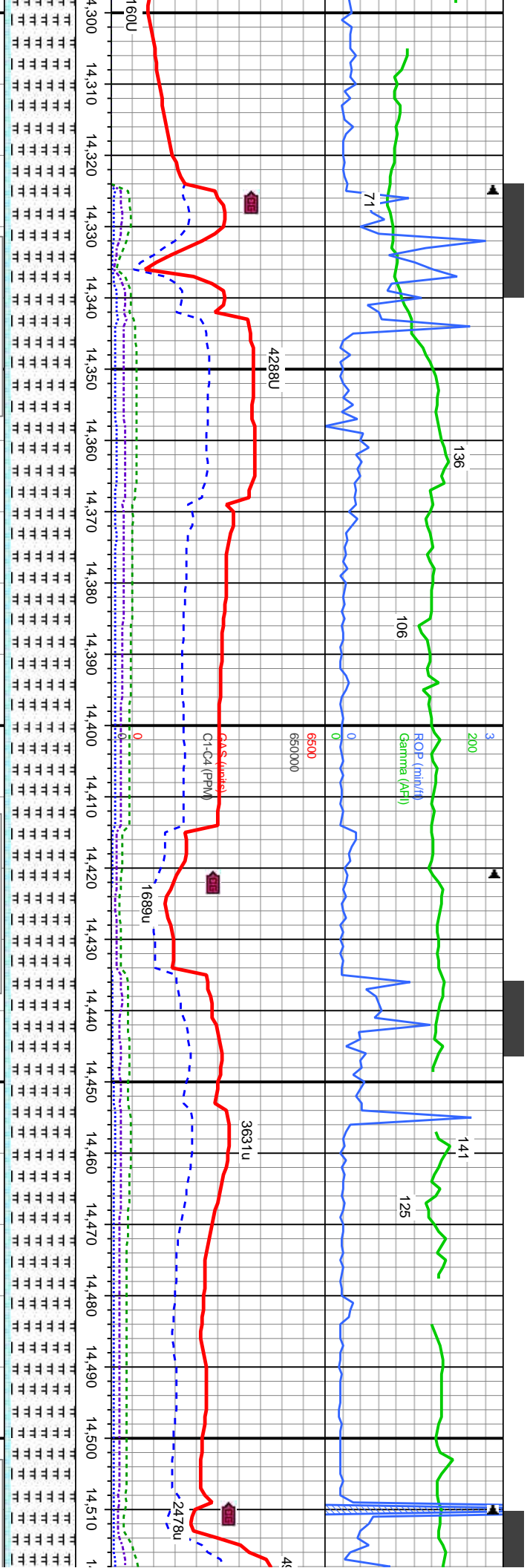




14100'-14200'	MD: MRLST - med-dk gy-gy brn- sl mot, sb plty-biky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, strf, sb biky-sb plty, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut	WT IN 8.7+ OUT 8.8+ VIS IN 42 OUT 40	MD: 14,167 TVD: 7,550.86 Inclination: 90.22 Azimuth: 180.73 VS: 6,491.7	WT IN 8.8 OUT 8.7+ VIS IN 42 OUT 41	7000
14200'-14300'	MD: MRLST - med-dk gy-gy brn- sl mot, sb plty-biky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, strf, sb biky-sb plty, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut	WT IN 8.7+ OUT 8.8+ VIS IN 42 OUT 40	MD: 14,262 TVD: 7,551.46 Inclination: 89.05 Azimuth: 179.35 VS: 6,586.68	WT IN 8.8 OUT 8.7+ VIS IN 42 OUT 41	8000







WT IN 8.8 OUT 8.8  
VIS IN 41 OUT 42

WT IN 8.8 OUT 8.8  
VIS IN 41 OUT 41

WT IN 8.7+ OUT 8.7+  
VIS IN 42 OUT 42

MD: 14,356  
TVD: 7,553.76  
Inclination: 88.15  
Azimuth: 178.64  
VS: 6,680.65

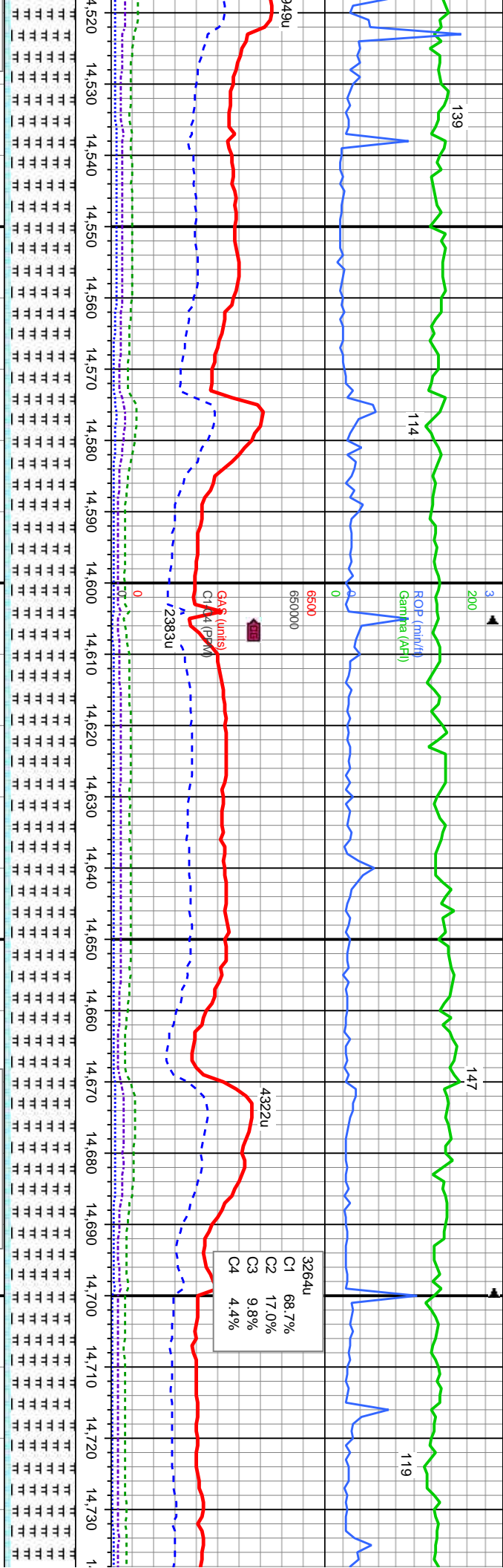
MD: 14,451  
TVD: 7,556.34  
Inclination: 88.73  
Azimuth: 179.96  
VS: 6,775.61

14300'-14400' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

14400'-14500' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

14500'-14510' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut





MD: 14,545  
TVD: 7,558.04  
Inclination: 89.2  
Azimuth: 178.67  
VS: 6,869.59

MD: 14,639  
TVD: 7,559.46  
Inclination: 89.07  
Azimuth: 178.67  
VS: 6,963.58

3264u  
C1 68.7%  
C2 17.0%  
C3 9.8%  
C4 4.4%

MD: 14,734  
TVD: 7,561.29  
Inclination: 88.3  
Azimuth: 178.6  
VS: 7,058.56

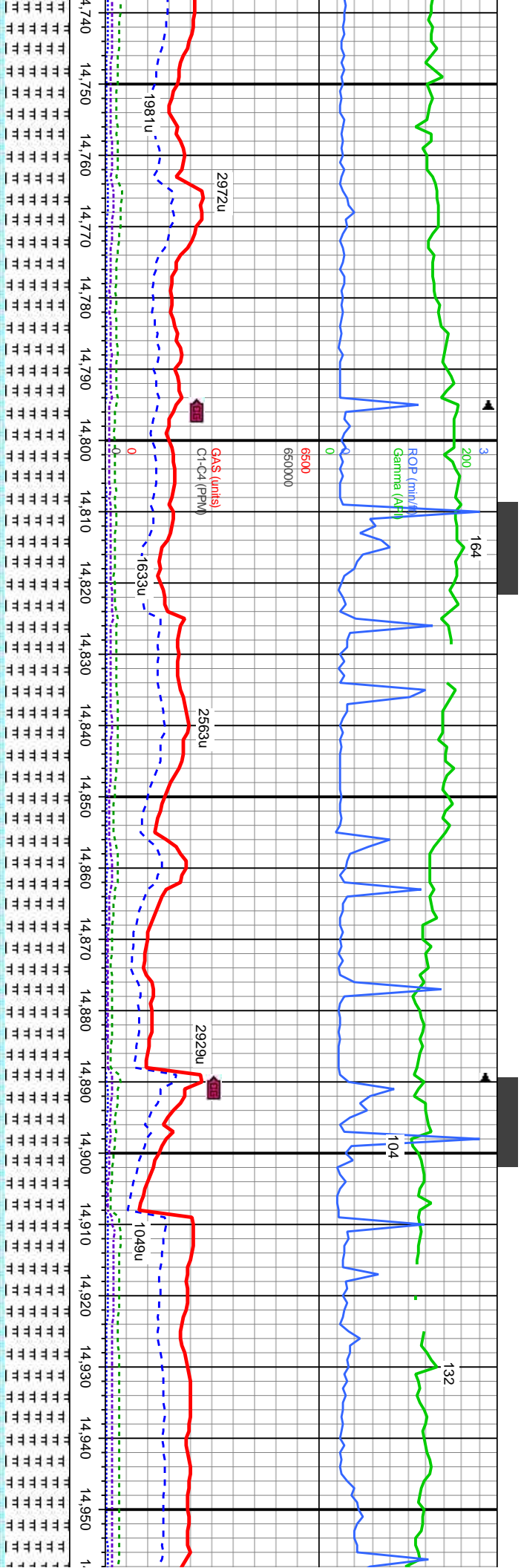
14600' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-biky, sft-frm, mod sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, frm, fri, chky-sb wxy, v calc, tr lt bl flwr w/ v sl halo cut

14600'-14700' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-biky, sft-frm, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flwr w/ v sl halo cut

14700'-14800' MD: MRLST - mod arg-sily, sl calc, tr bent, biky-sb pily, sft - sl frm, fri, c







WT IN 8.7+ OUT 8.8  
VIS IN 42 OUT 42

WT IN 8.7 OUT 8.8  
VIS IN 44 OUT 41

MD: 14.828  
TVD: 7.562.97  
Inclination: 89.22  
Azimuth: 179.12  
VS: 7.152.54

MD: 14.922  
TVD: 7.564.32  
Inclination: 89.13  
Azimuth: 178.99  
VS: 7.246.53

med-dk gy-gy brn- sl mot, sb ply-biky, sft-frn,  
CHK- lt-med gy, lt-med gy brn, mot, stri, sb  
biky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

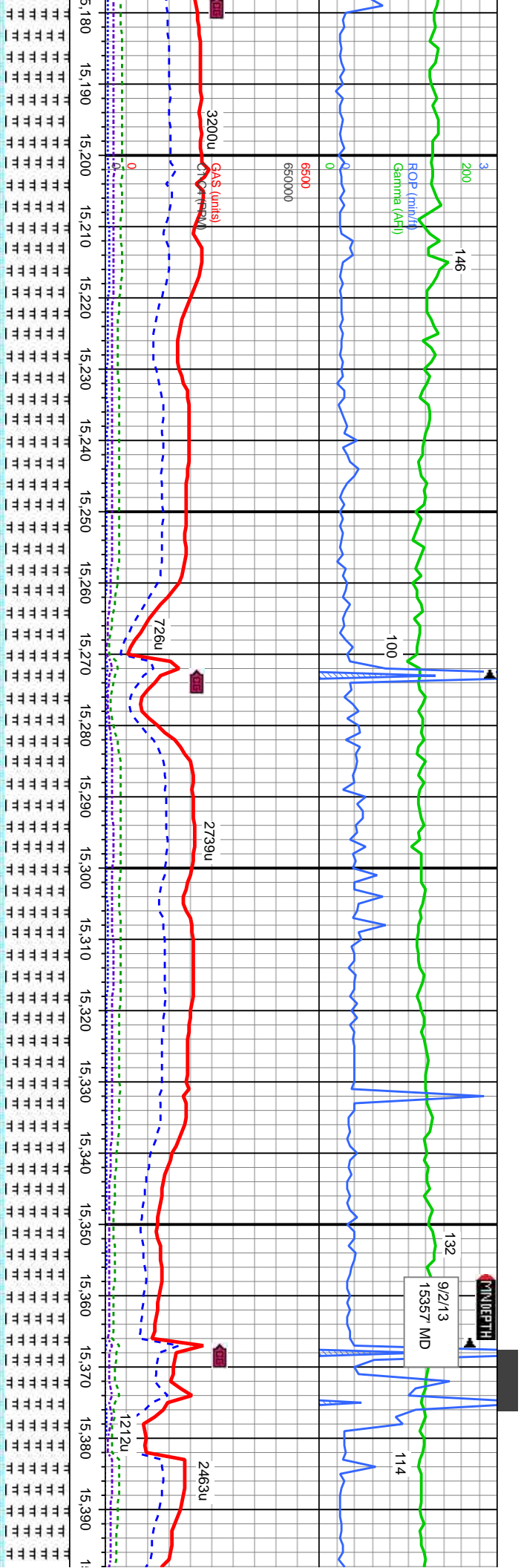
14800'-14900' MD: MRLST- med-dk gy-gy brn- sl mot, sb ply-biky, sft-frn,  
mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb  
biky-sb ply, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

14900'-15000' MD: MRLST- med-dk gy-gy brn- sl  
mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med  
biky-sb ply, sft - sl frn, fri, chky-sb wxy, v calc,









MD: 15,205  
TVD: 7,566.67  
Inclination: 89.45  
Azimuth: 179.23  
VS: 7,529.52

WT IN 8.7 OUT 8.6  
VIS IN 43 OUT 42

MD: 15,299  
TVD: 7,567.6  
Inclination: 89.42  
Azimuth: 179.14  
VS: 7,623.52

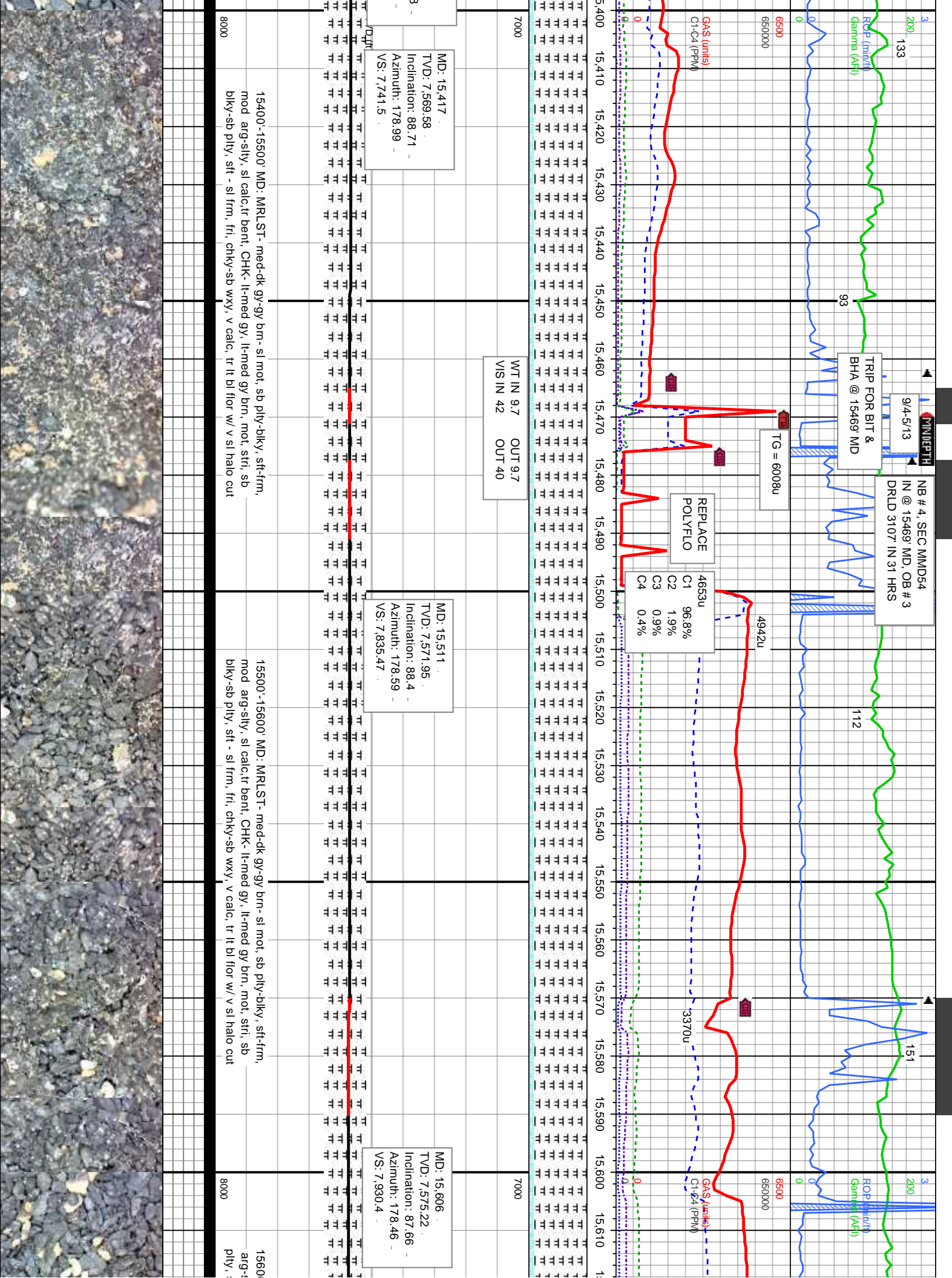
WT IN 8.8 OUT 8.8+  
VIS IN 41 OUT 39

MD: 15,393  
TVD: 7,569.06  
Inclination: 88.4  
Azimuth: 179.5  
VS: 7,717.5

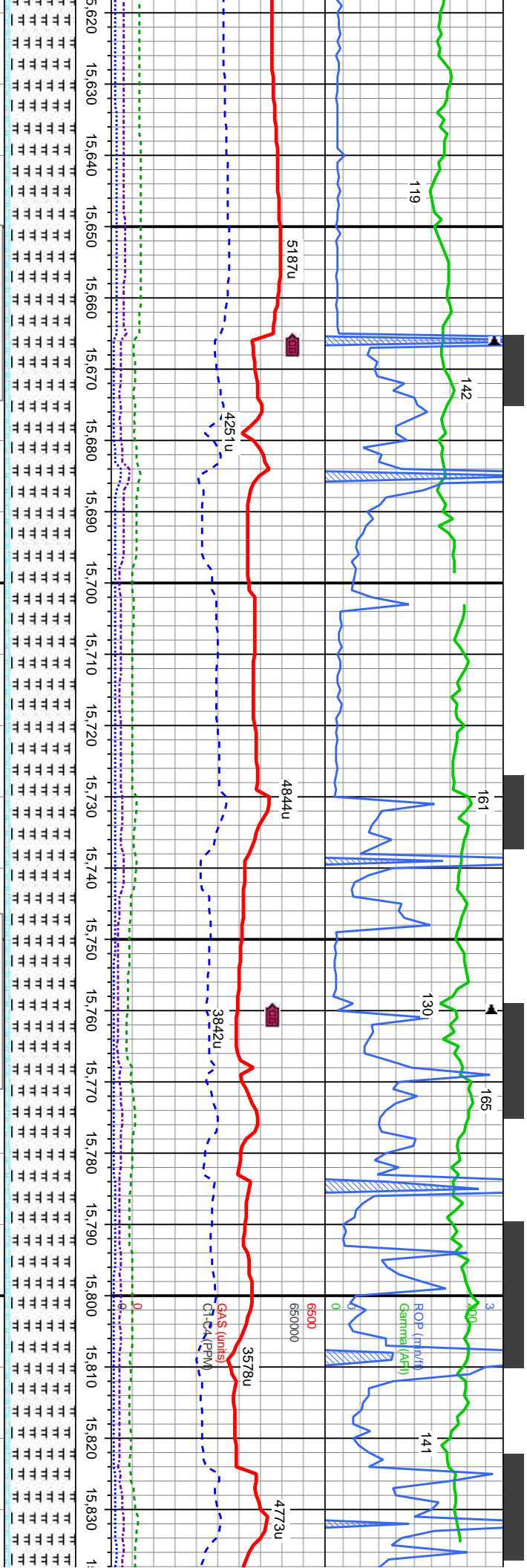
15200'-15300' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-biky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

15300'-15400' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-biky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily, sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut









WT IN 9.7  
VIS IN 42  
OUT 9.7  
OUT 41

WT IN 9.8  
VIS IN 42  
OUT 9.8  
OUT 43

7000

MD: 15.701  
TVD: 7.579.33  
Inclination: 87.38  
Azimuth: 178.15  
VS: 8.026.31

MD: 15.795  
TVD: 7.583.81  
Inclination: 87.16  
Azimuth: 179.23  
VS: 8.119.2

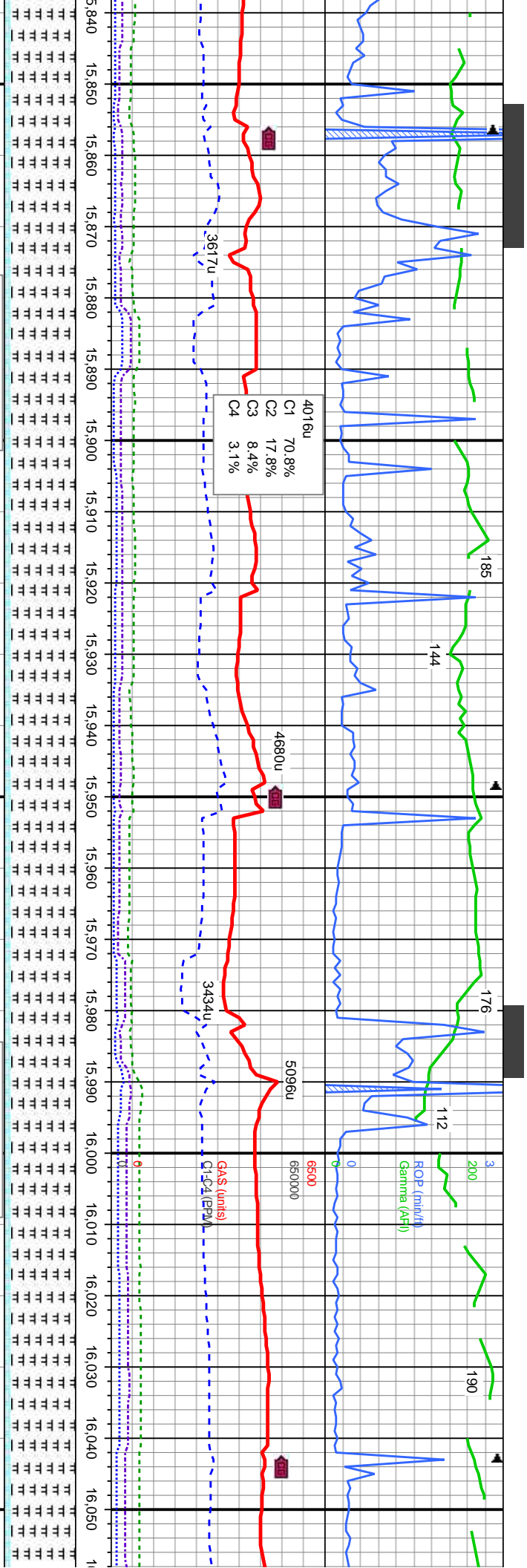
15700'-15700' MD: MRLST- med-dk gy-gy brn- sl mot, sb plty-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut

15700'-15800' MD: MRLST- med-dk gy-gy brn- sl mot, sb plty-blky, sft-frn, mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb plty, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut

15800'-15900' MD: MRLST- arg-sily, sl calc, tr bent, CHK- sft - sl frm, fri, chky-sb wxy

8000





WT IN 9.8 OUT 9.8  
VIS IN 43 OUT 41

MD: 15,889  
TVD: 7,586.19  
Inclination: 89.93  
Azimuth: 178.12  
VS: 8,213.15

WT IN 9.8 OUT 9.8  
VIS IN 42 OUT 40

MD: 15,984  
TVD: 7,586.33  
Inclination: 89.9  
Azimuth: 177.36  
VS: 8,308.12

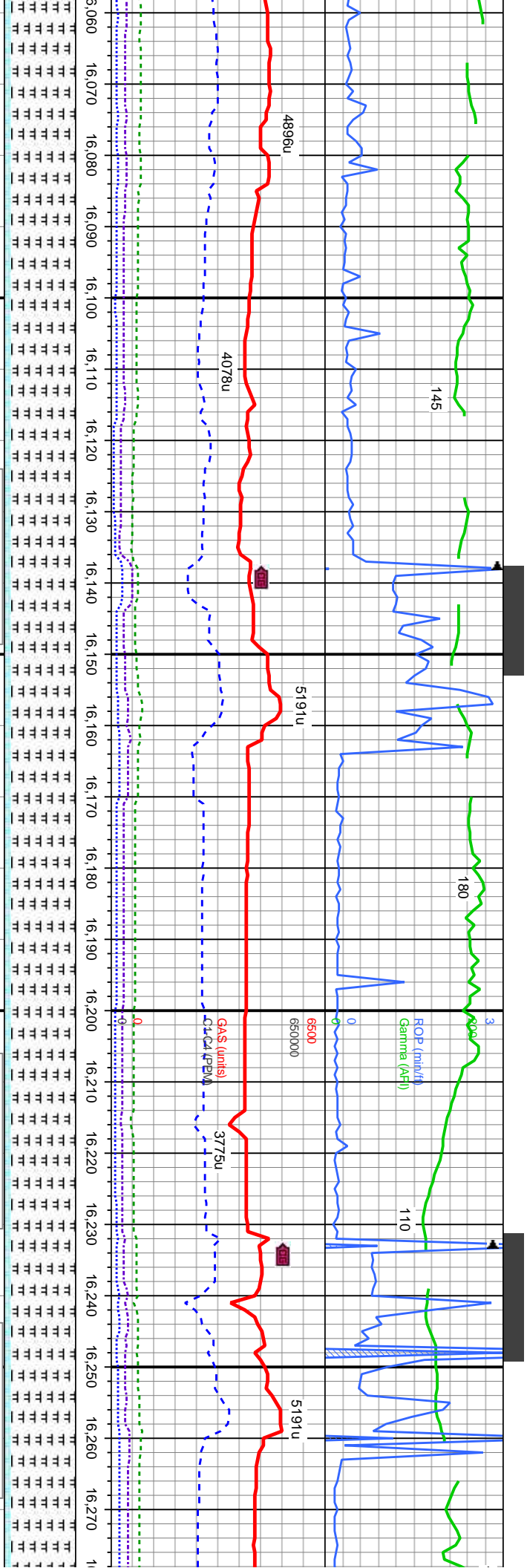
med-dk gy-gy brn- sl mot, sb pily-blky, sft frm, mod  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily,  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

15900'-16000' MD: MRLST- med-dk gy-gy brn- sl mot, sb pily-blky, sft frm, mod  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily,  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

16000'-16100' MD: MRLST- med-dk gy-gy brn- sl  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med g  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/







MD: 16,078  
TVD: 7,586.9  
Inclination: 89.41  
Azimuth: 176.65  
VS: 8,402.06

WT IN 9.8 OUT 9.8  
VIS IN 42 OUT 42

MD: 16,173  
TVD: 7,587.51  
Inclination: 89.85  
Azimuth: 177.59  
VS: 8,497

WT IN 9.9 OUT 9.8  
VIS IN 43 OUT 42

WT IN 9.9 OUT 9.9  
VIS IN 42 OUT 41

MD: 16,267  
TVD: 7,587.43  
Inclination: 90.25  
Azimuth: 177.82  
VS: 8,590.97

mot, sb pily-blky, sft-frm, mod  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily,  
v sl halo cut

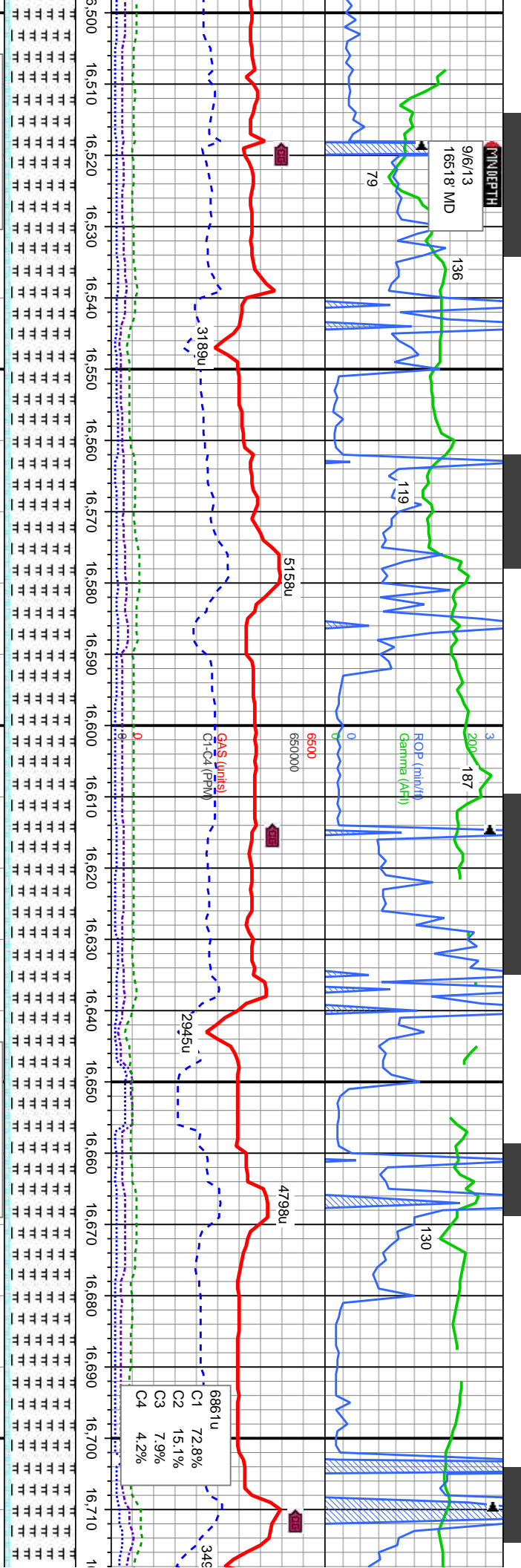
16100'-16200' MD: MRLST- med-dk gy-gy brn- sl mot, sb pily-blky, sft-frm, mod  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily,  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut

16200'-16300' MD: MRLST- med-dk gy-gy brn- sl mot, sb pily-blky, sft-frm, mod  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily,  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut









WT IN 9.9 OUT 9.9  
VIS IN 42 OUT 41

MD: 16,551  
TVD: 7,594.52  
Inclination: 87.94  
Azimuth: 179.79  
VS: 8,874.83

WT IN 9.8 OUT 9.8  
VIS IN 42 OUT 41

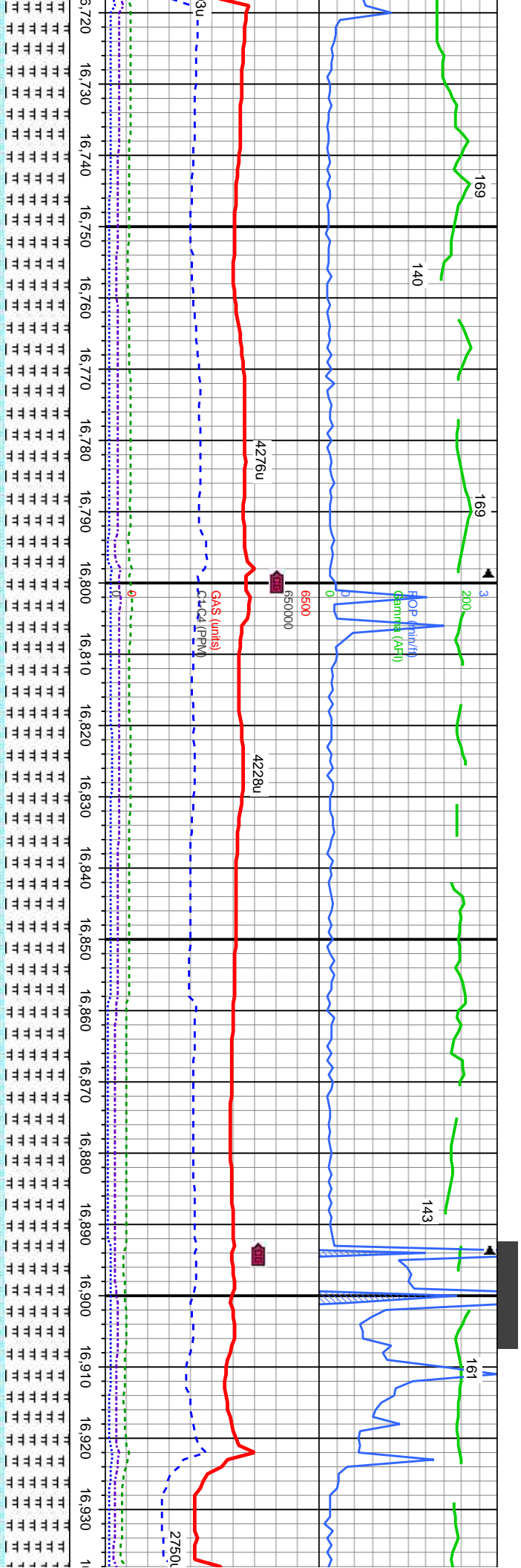
MD: 16,645  
TVD: 7,597.2  
Inclination: 88.79  
Azimuth: 178.62  
VS: 8,968.79

16500'-16600' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, tr pyr, CHK- lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frn, frn, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

16600'-16700' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-blky, sft-frn, mod arg-sily, sl calc, tr bent, tr pyr, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily, sft - sl frn, frn, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

16700'





WT IN 9.8 OUT 9.8  
VIS IN 41 OUT 41

MD: 16,739  
TVD: 7,597.92  
Inclination: 90.33  
Azimuth: 179.26  
VS: 9,062.78

MD: 16,833  
TVD: 7,597.81  
Inclination: 89.81  
Azimuth: 178.28  
VS: 9,156.78

WT IN 9.8 OUT 9.8  
VIS IN 43 OUT 41

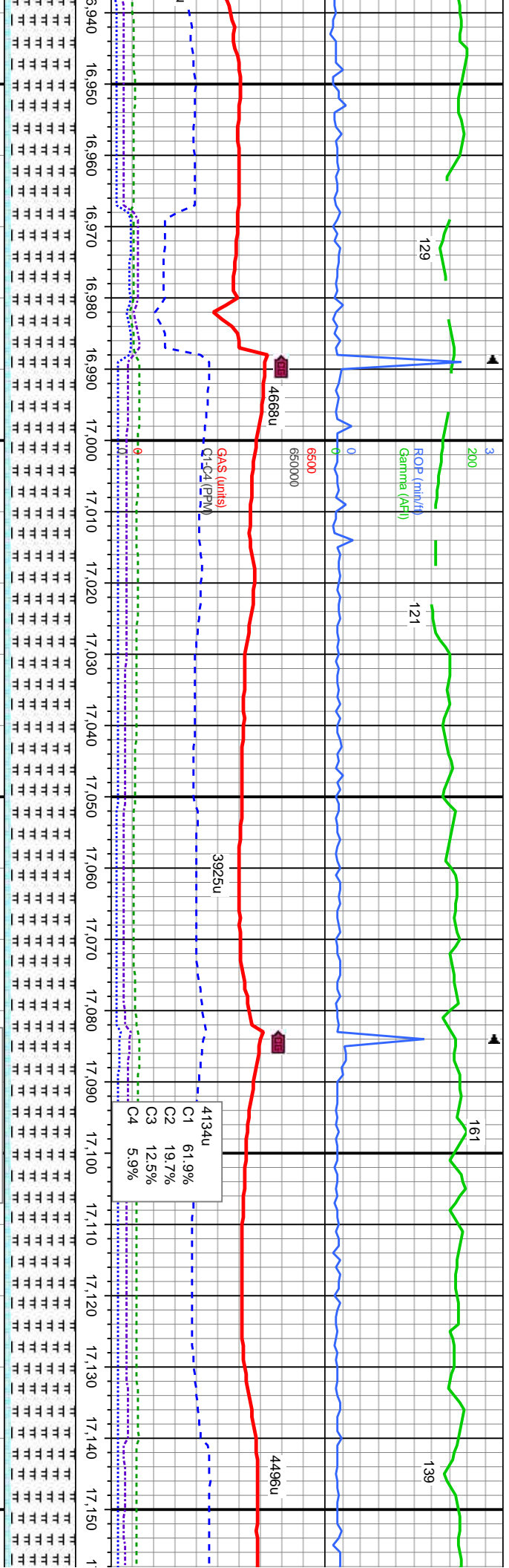
MD: 16,928  
TVD: 7,598.22  
Inclination: 89.69  
Azimuth: 177.9  
VS: 9,251.77

16800'-16800' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-biky, sft-frn, mod  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb biky-sb pily,  
sft - sl frn, fri, chky-sb wxy, v calc, tr lt bl flor w/ v sl halo cut

16900'-17000' MD: MRLST-  
arg-sily, sl calc, tr bent, CHK  
sft - sl frn, fri, chky-sb wxy,







WT IN 9.9 OUT 9.9  
VIS IN 42 OUT 43

MD: 17,022  
TVD: 7,599.64  
Inclination: 88.58  
Azimuth: 177.92  
VS: 9,345.73

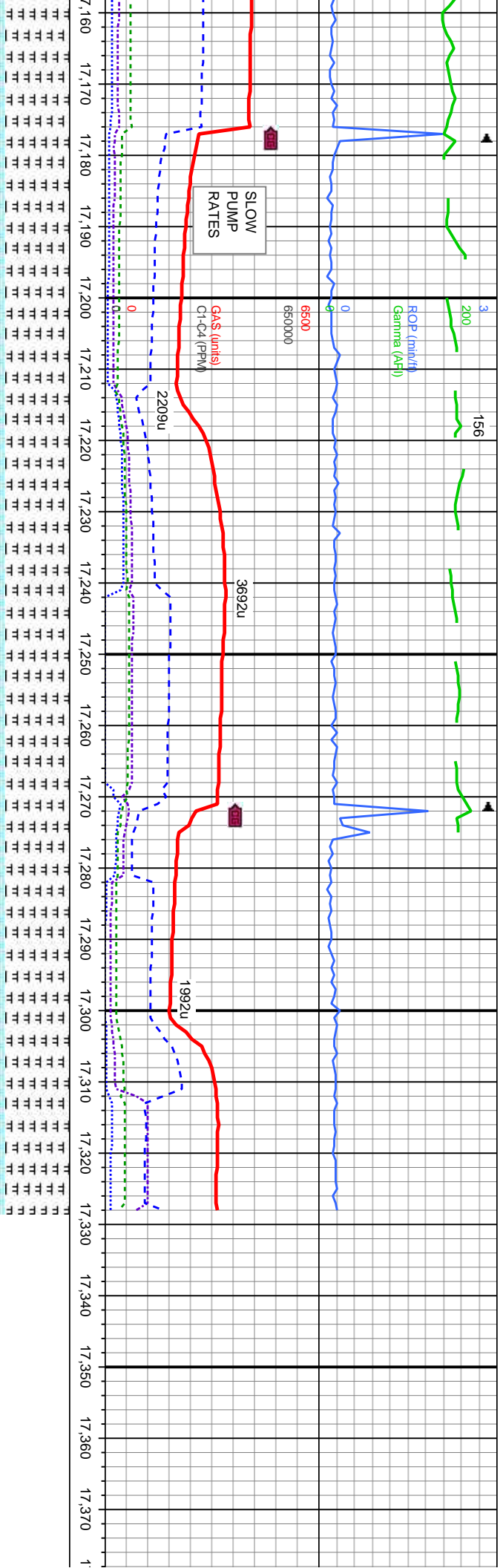
MD: 17,116  
TVD: 7,602.71  
Inclination: 87.68  
Azimuth: 177.29  
VS: 9,439.65

med-dk gy-gy brn- sl mot, sb pily-biky, sft frm, mod  
lt-med gy, lt-med gy brn, mot, sft, sb biky-sb pily,  
v calc, tr lt bl flr w/ v sl halo cut

17000'-17100' MD: MRLST- med-dk gy-gy brn- sl mot, sb pily-biky, sft frm,  
mod arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, sft, sb  
biky-sb pily, sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

17100'-17200' MD: MRLST- med-dk gy-gy brn- sl  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/





WT IN 9.9 OUT 9.9  
VIS IN 43 OUT 43

MD: 17,210  
TVD: 7,607.6  
Inclination: 86.36  
Azimuth: 176.45  
VS: 9,533.45

MD: 17,269  
TVD: 7,611.6  
Inclination: 85.87  
Azimuth: 176.29  
VS: 9,592.25

MD: 17,328  
TVD: 7,615.85  
Inclination: 85.87  
Azimuth: 176.29  
VS: 9,651.02

TDed WELL  
@ 2:00 PM, 9/6/2013  
17328 MD

THANK YOU FOR USING  
COLUMBINE LOGGING INC.

mot, sb pily-blky, sft-frm, mod  
brn, mot, stri, sb blky-sb pily,  
v sl halo cut

17200'-17300' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-blky, sft-frm, mod  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky-sb pily,  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut

17300'-17328' MD: MRLST - med-dk gy-gy brn- sl mot, sb pily-blky, sft-f  
arg-sily, sl calc, tr bent, CHK- lt-med gy, lt-med gy brn, mot, stri, sb blky  
sft - sl frm, fri, chky-sb wxy, v calc, tr lt bl flr w/ v sl halo cut





