



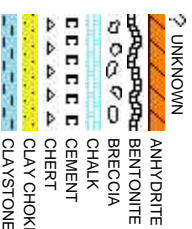
Scale: 5" / 100'
Measured Depth Log

Well Name	FERGE 30N-14HZ		
Location	SEC 14, T3N, R66W		
State	COLORADO		
Country	USA		
API Number	05-123-36339	Rig Number	ENSIGN 132
Region	DJ BASIN	AFE #	2073367
Spud Date	3/19/2014	Field	WATTENBERG
		Drilling Completed	3/26/2014
Surface Coordinates	282' FSL & 1028' FWL 40.218592 -104.750124		
Bottom Hole Coordinates	1' FNL & 210' FWL 40.23219 -104.7531		
Ground Elevation	4913'	K.B. Elevation	4926'
Logged Interval	6740'	To	12265'
		Total Depth	5525'
Formation	NIOBRARA B		
Type of Drilling Fluid	FSNL		

Company ANADARKO PE
Address 1099 18th St, S
Denver , CO 80

Name JAKE STUART
Company ANADARKO PE
Address 1099 18th St, S
Denver , CO 80

COLUMBINE LOGGERS



Slide/Rotate

Columbine Logging Two Person
Rigged Up 1800hrs 03/20/2014
With Bloodhound Unit # 0624

ROP
ROF
GAMMA

Logging Started @
1225hrs 03/21/2014
at 67'40" MD

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

Bit Data
Bit #: 01
Type: SMITH SD1611
Size: 8.75
Depth In: 1,245.
Depth Out: 7,655.
Jets: 6X18
S/N: JH4825

Depth Labels

% Lith

Begin in Sussex Formation

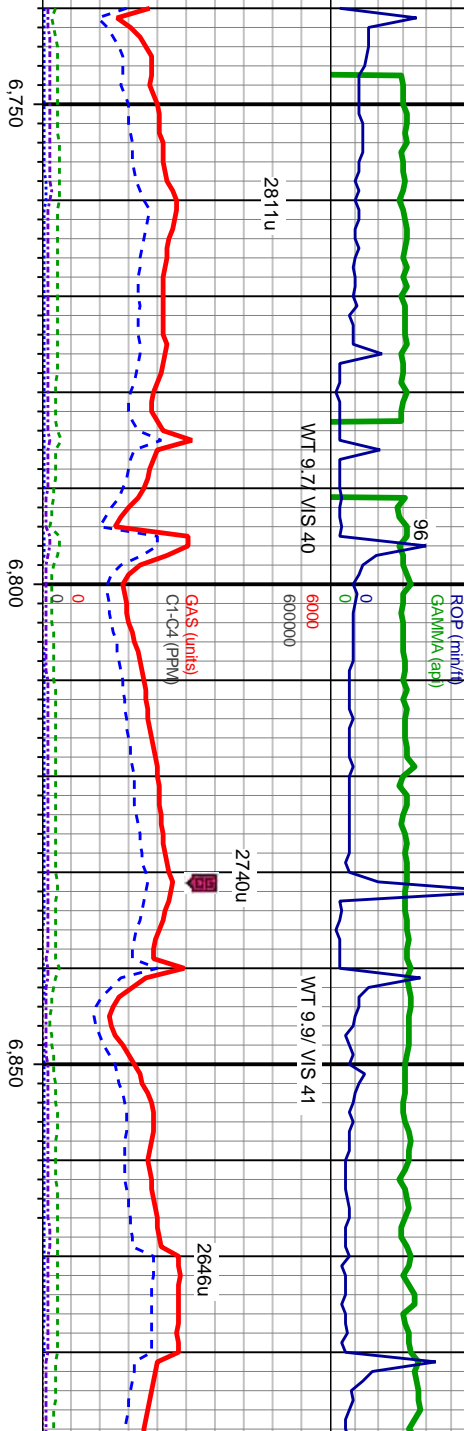
Well Bore
TVD

Acetone was used as the cutting agent with the dimple filled to the rim
The ratings are based on 7 descriptors:
None, Slight trace, Trace, Fair, Moderate, Good, and Excellent. The descriptor used is based on the loggers observations and best judgement of brilliance, color and longevity of the cut.

Oil Show

Images

Problems with Gamma



MD: 6,738
TVD: 6,652.8
Inclination: 1.43
Azimuth: 276.53
VS: -219.36

MD: 6,785
TVD: 6,699.75
Inclination: 3.74
Azimuth: 349.11
VS: -217.78

MD: 6,833
TVD: 6,747.53
Inclination: 7.11
Azimuth: 1.59
VS: -213.26

MD: 6,880
TVD: 6,793.91
Inclination: 11.38
Azimuth: 7.95
VS: -205.77

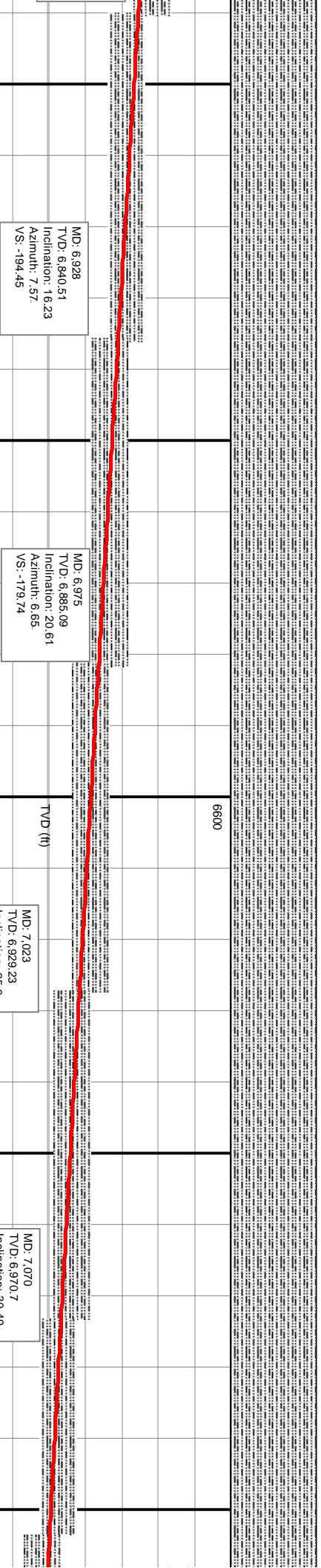
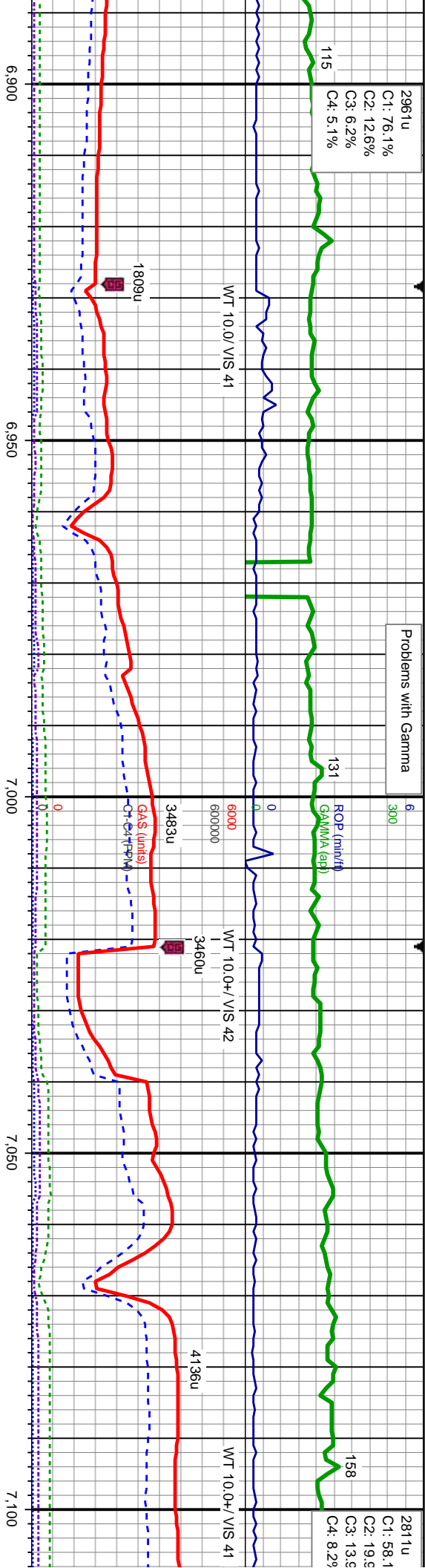
SLTY SH: lt-med gy, occ dk gy, sb ply-sb
biky, mod sftfrm, w srt, sb rnd-sb ang, mod
fri, sting bl cut, dull yel ring

SLTY SH: med-dk gy, occ lt gy, sb ply-sb
biky, mod sftfrm, w srt, sb rnd-sb ang, mod
fri, sting bl cut, dull yel ring

SLTY SH: med-dk gy, occ lt gy, sb ply-sb
biky, mod sftfrm, w srt, sb rnd-sb ang
fri, sting bl cut, dull yel ring

ST
FM
CE



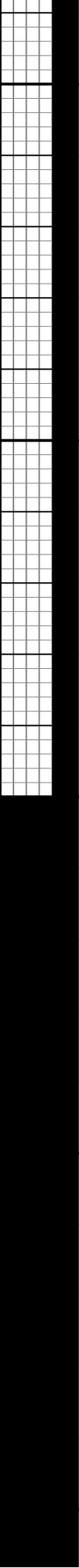


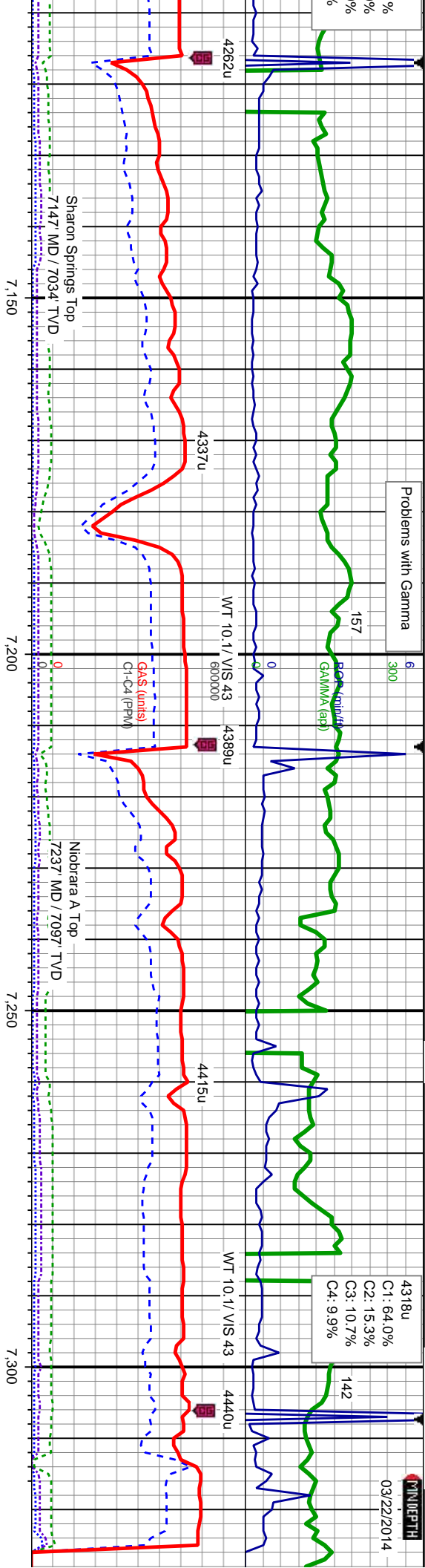
SLTY SH: med-dk gy, ooc lt gy, sb ply-sb
biky, mod sft-frm, w srt, sb md-sb ang, mod
fri, sting bl cut, dull yel ring

SLTY SH: med-dk gy, ooc lt gy, sb ply-sb
biky, mod sft-frm, w srt, sb md-sb ang, mod
fri, sting bl cut, dull yel ring

SLTY SH: med-dk gy, sb ply-sb biky, mod
sft-frm, w srt, sb md-sb ang, mod fri, sting
bl cut, bri bl ring

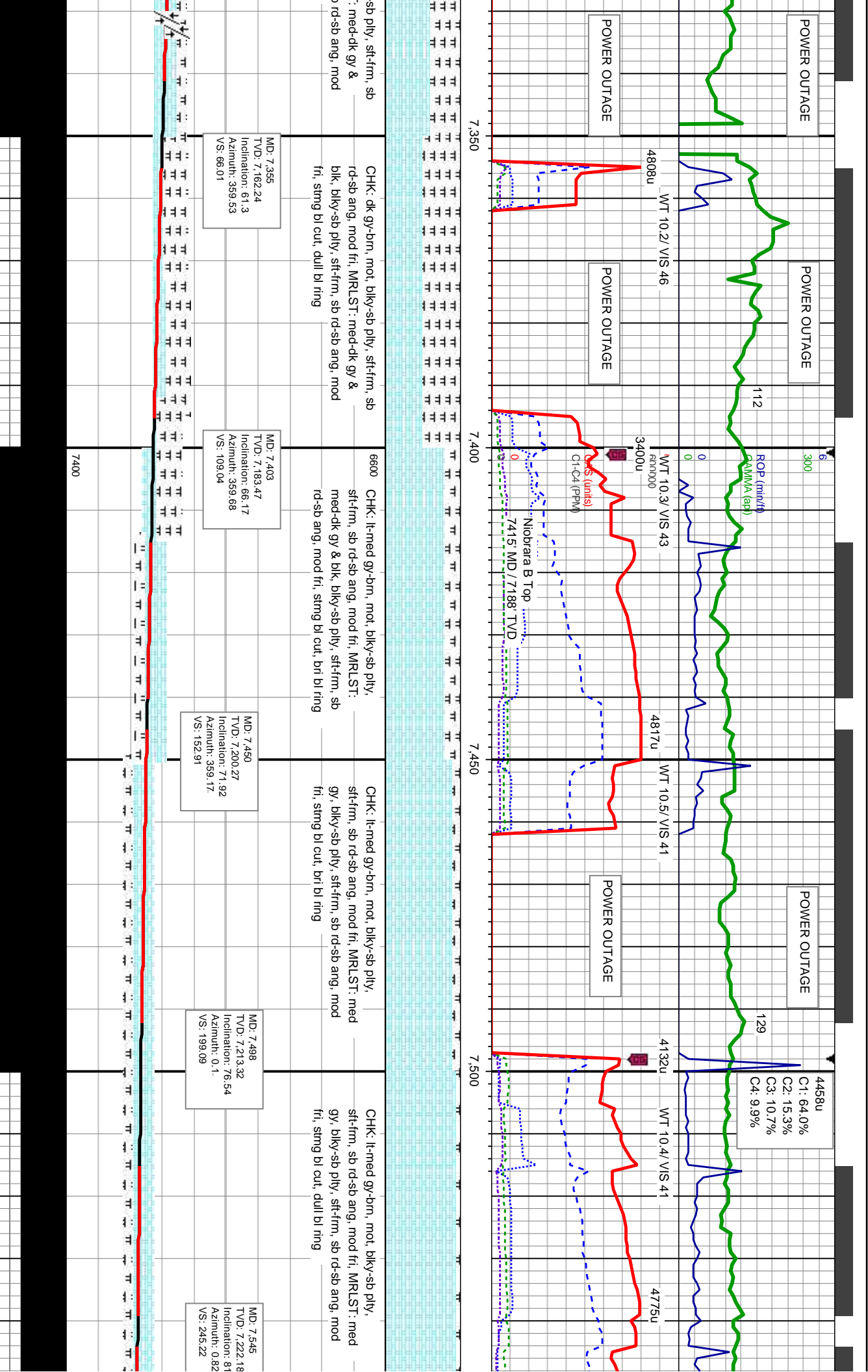
SLTY SH: med-dk gy, sb ply-sb biky, mod
sft-frm, w srt, sb md-sb ang, mod fri, sting bl
cut, bri bl ring





SLTY SH: med-dk gy, sb ply-sb blk, mod sst-frn, w srt, sb md-sb ang, mod fri, tr bent, string bl cut, bri bl ring	SLTY SH: lt-med gy, sb ply-sb blk, mod sst-frn, w srt, sb md-sb ang, mod fri, CHK: med-dk gy-brn, mot, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, MRLST: med-dk gy & blk, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, scat bent, scat pyr, string bl cut, bri bl ring	6600 CHK: dk gy-brn, mot, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, MRLST: med-dk gy & blk, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, SLTY SH: lt-med gy, sb ply-sb blk, mod sst-frn, w srt, sb md-sb ang, mod fri, scat bent, scat pyr, string bl cut, bri bl ring	CHK: dk gy-brn, mot, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, MRLST: med-dk gy & blk, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, string bl cut, bri bl ring	CHK: dk gy-brn, mot, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, MRLST: med-dk gy & blk, blk-sb ply, sst-frn, sb rd-sb ang, mod fri, string bl cut, bri bl ring
MD: 7,118 TVD: 7,010.85 Inclination: 35.92 Azimuth: 6.86 VS: -113.14	MD: 7,165 TVD: 7,047.48 Inclination: 41.59 Azimuth: 6.29 VS: -83.98	MD: 7,213 TVD: 7,081.59 Inclination: 47.82 Azimuth: 3.05 VS: -50.39	MD: 7,260 TVD: 7,111.42 Inclination: 53.35 Azimuth: 0.73 VS: -14.14	MD: 7,308 TVD: 7,138.49 Inclination: 57.98 Azimuth: 1.21 VS: 25.47





Problems with Gamma

03/23/2014
03/24/2014

3118u
C1: 83.0%
C2: 10.8%
C3: 3.4%
C4: 2.8%

ROP (min/hr)

WT 10.5/ VIS 41

4694u 00
600000

4764u

3970u

WT 10.3/ V

Bit Data
Bit #: 02
Type: VAREL VSS13D
Size: 6.12
Depth In: 7.655'
Depth Out: 12.265'
S/N: 4006816

TD Curve @ 7655'
@ 1245 hrs on 03/22/2014
Start drilling the Lateral
@ 1135hrs on 03/24/2014

7.600

7.650

7.700

7.750

CHK: lt-dk gy-brn, mot, biky-sb ply, sft-frm,
sb rd-sb ang, mod fri, MRLST: dk gy-blk,
biky-sb ply, sft-frm, sb rd-sb ang, mod fri,
stmg bl cut, dull bl ring

CHK: lt-dk gy-brn, mot, biky-sb ply, sft-frm,
sb rd-sb ang, mod fri, MRLST: dk gy-blk,
biky-sb ply, sft-frm, sb rd-sb ang, mod fri,
stmg bl cut, dull bl ring

CHK: dk gy-brn, mot, biky-sb ply, sft-frm, sb
rd-sb ang, mod fri, MRLST: dk gy-blk,
biky-sb ply, sft-frm, sb rd-sb ang, mod fri, tr
pyr, stmg bl cut, dull bl ring

CHK: dk gy-brn, mot, biky-sb ply, sft-frm
rd-sb ang, mod fri, MRLST: dk gy-blk,
biky-sb ply, sft-frm, sb rd-sb ang, mod fri
pyr, stmg bl cut, dull bl ring

MD: 7.608
TVD: 7.229.08
Inclination: 85.7°
Azimuth: 1.61°
VS: 307.78

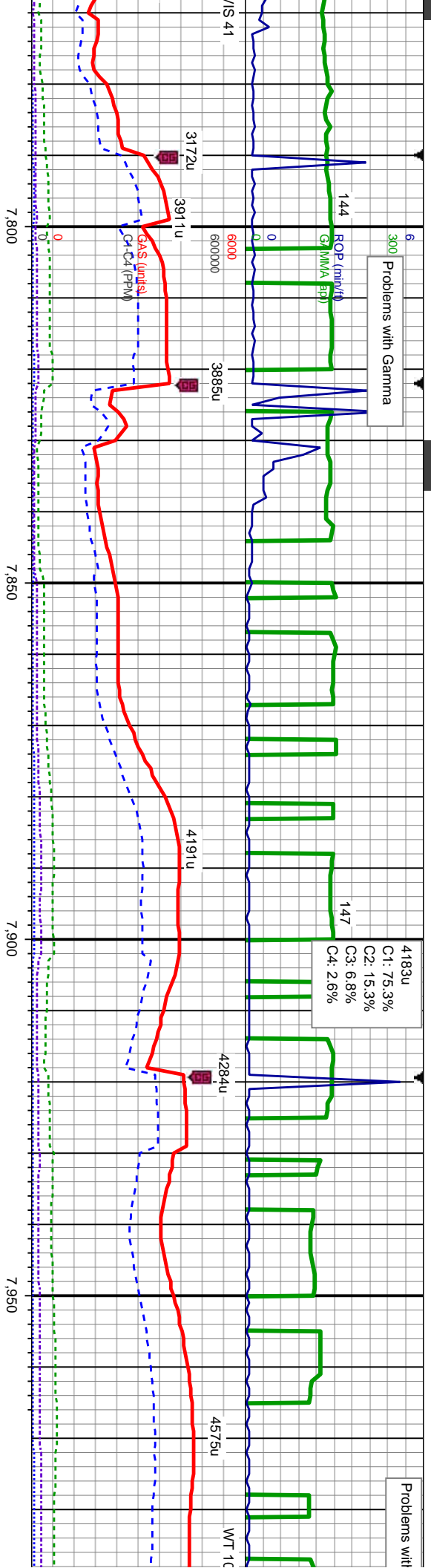
MD: 7.680
TVD: 7.232.01
Inclination: 89.63
Azimuth: 1.06°
VS: 379.66

7400

Problems with Gamma

Problems with

C1: 75.3%
C2: 15.3%
C3: 6.8%
C4: 2.6%



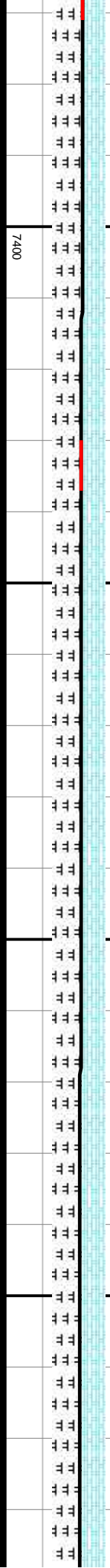
CHK: dk gy-brn, mot, bkly-sb ply, sft-frm, sb
rd-sb ang, mod fri, MRLST: dk gy-blk,
bkly-sb ply, sft-frm, sb rd-sb ang, mod fri, rr
pyr, rr fos frags, string bl cut, dull bl ring

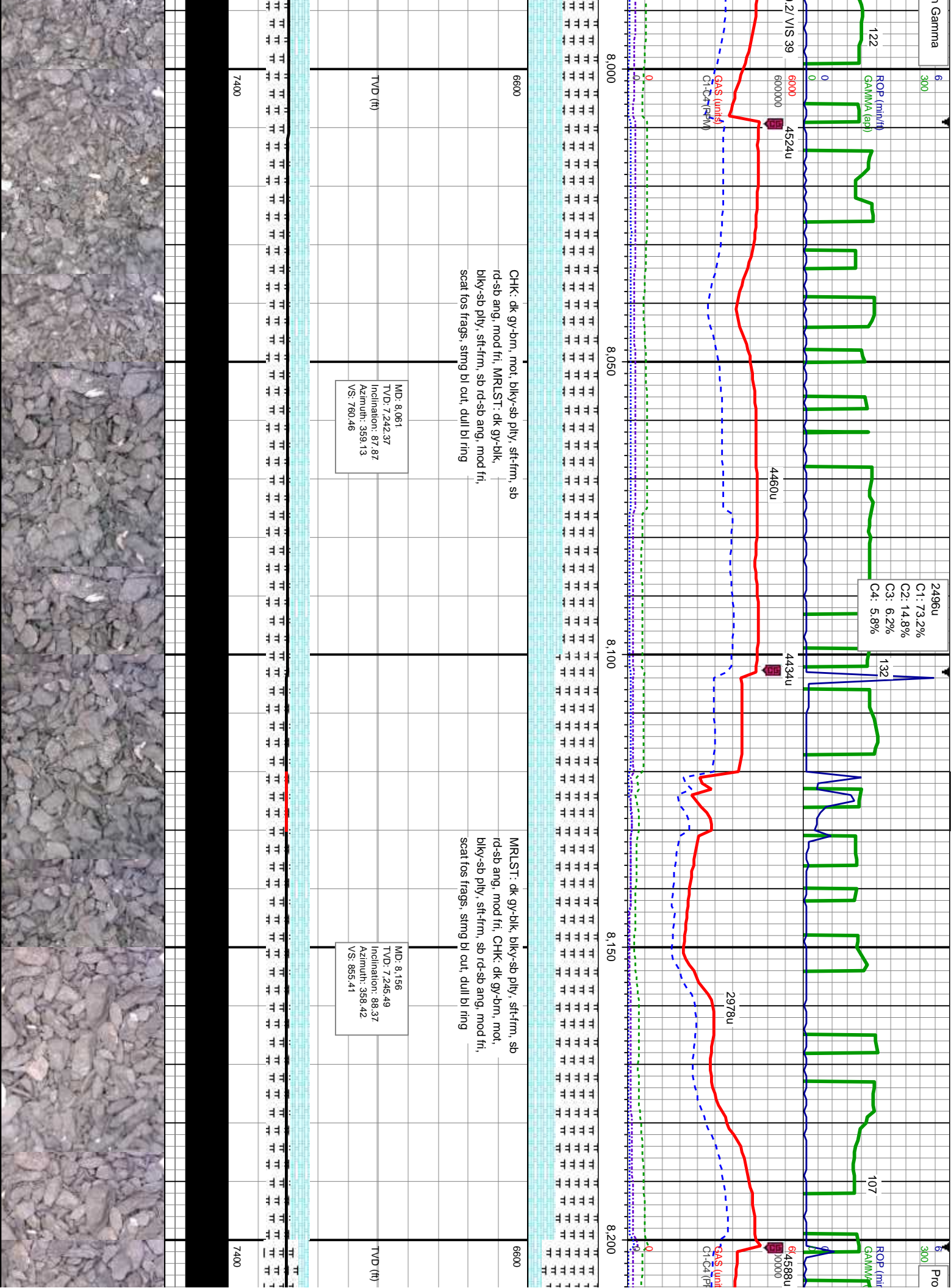
CHK: dk gy-brn, mot, bkly-sb ply, sft-frm, sb
rd-sb ang, mod fri, MRLST: dk gy-blk,
bkly-sb ply, sft-frm, sb rd-sb ang, mod fri, rr
pyr, rr fos frags, string bl cut, dull bl ring

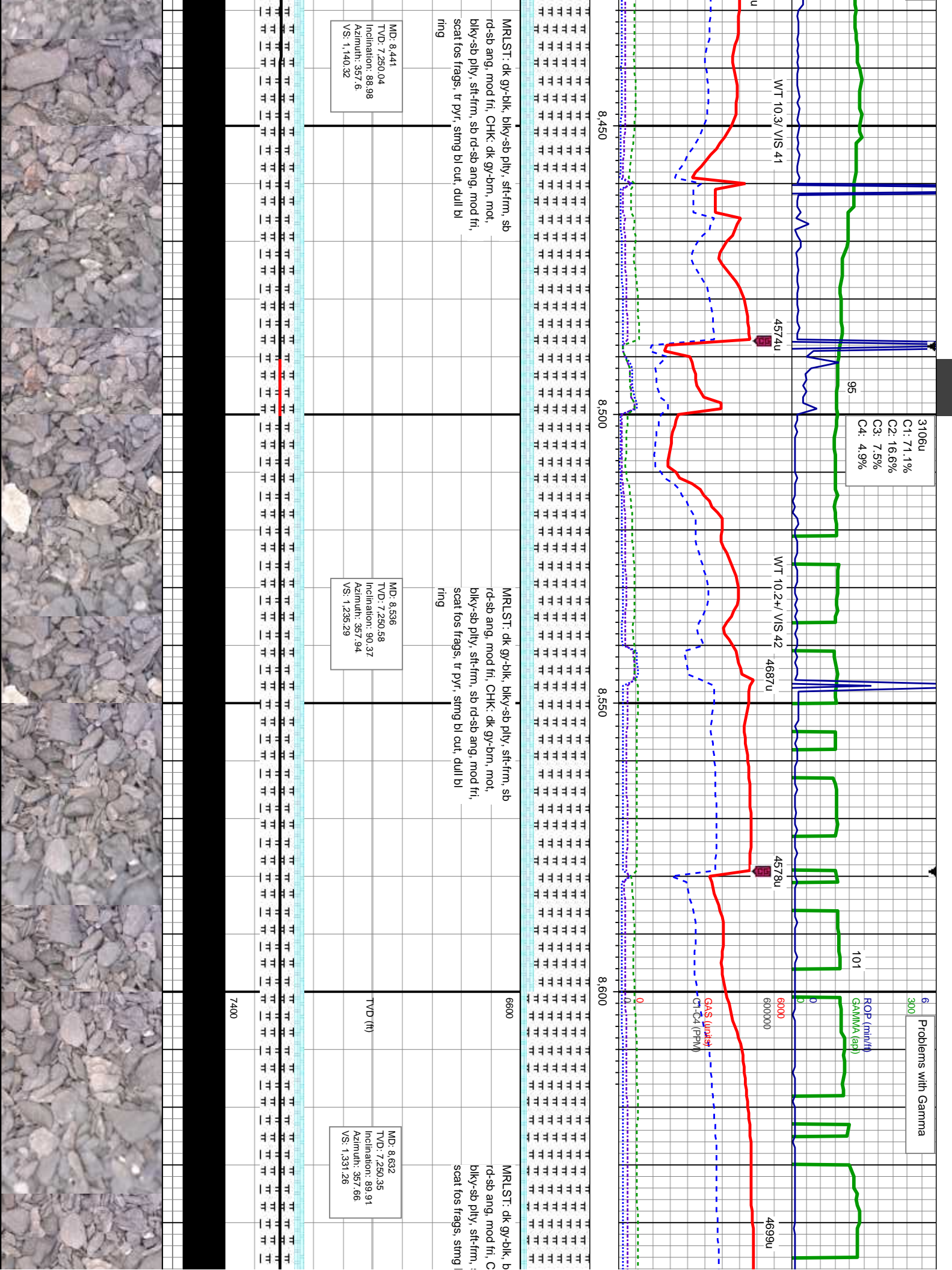
MD: 7.776
TVD: 7.233.38
Inclination: 88.74
Azimuth: 0.26
VS: 475.62

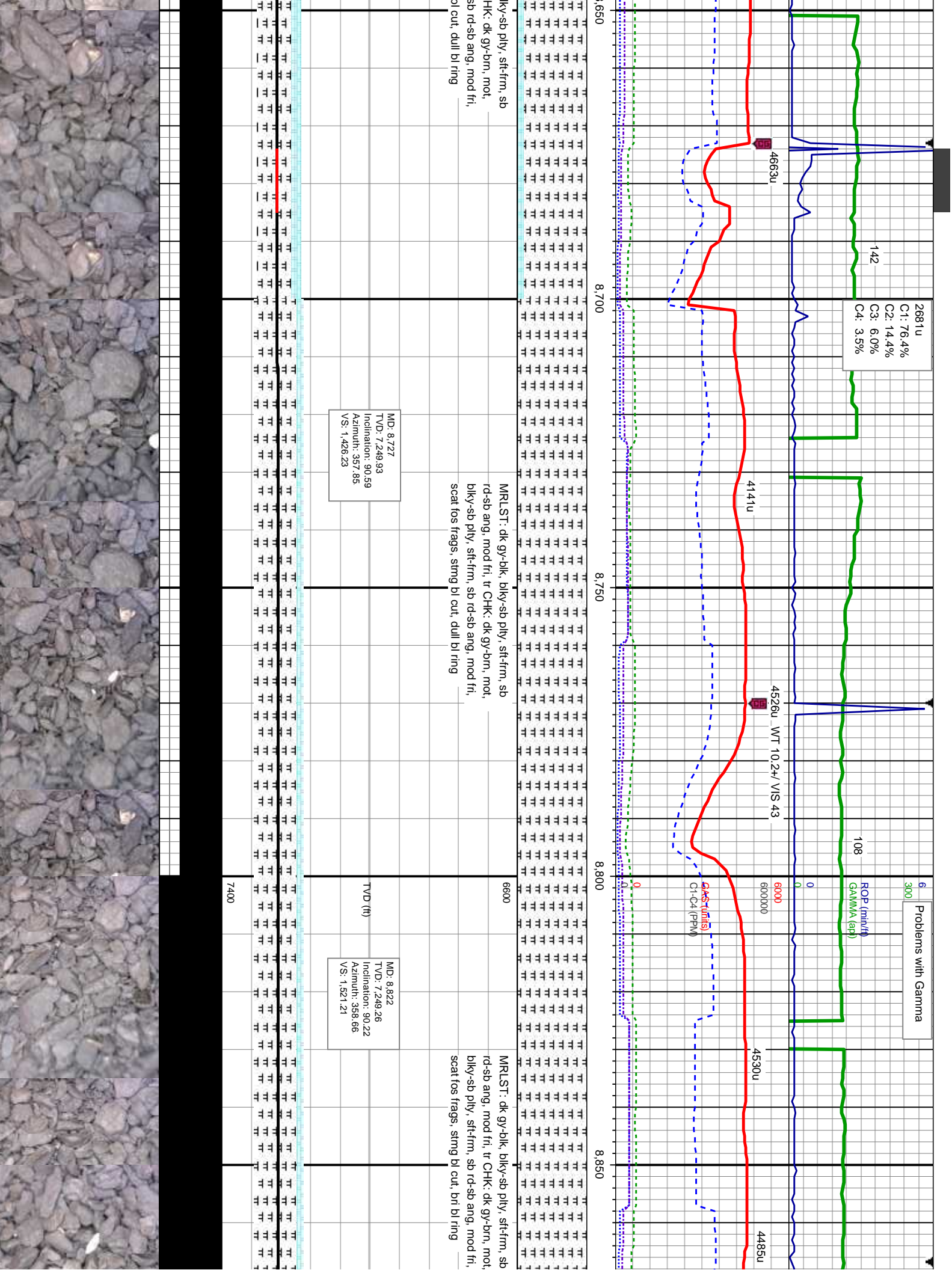
MD: 7.870
TVD: 7.235.93
Inclination: 88.15
Azimuth: 359.47
VS: 569.57

MD: 7.966
TVD: 7.239.05
Inclination: 88.12
Azimuth: 359.22
VS: 665.52









3685u

C1: 76.8%
C2: 13.4%
C3: 6.1%
C4: 3.7%

109

4571u

4560u

129 ROP (min/h)

Problems with Gamma

300

WT 10.2+/- VIS

5461u

6000

4040u

GRS (m/s)
Cl-C4 (PPM)

8,900

8,950

9,000

9,050

MRSLT: dk gy-blk, bily-sb ply, sftfrm, sb
rd-sb ang, mod fri, tr CHK: dk gy-brn, mot,
bily-sb ply, sftfrm, sb rd-sb ang, mod fri,
scat fos frags, sting bl cut, bri bl ring

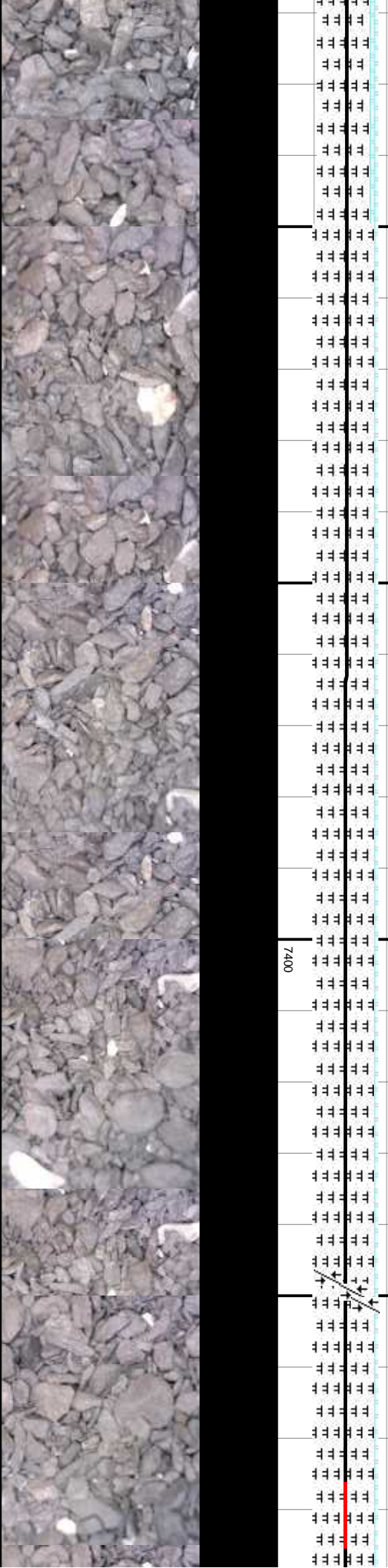
6600

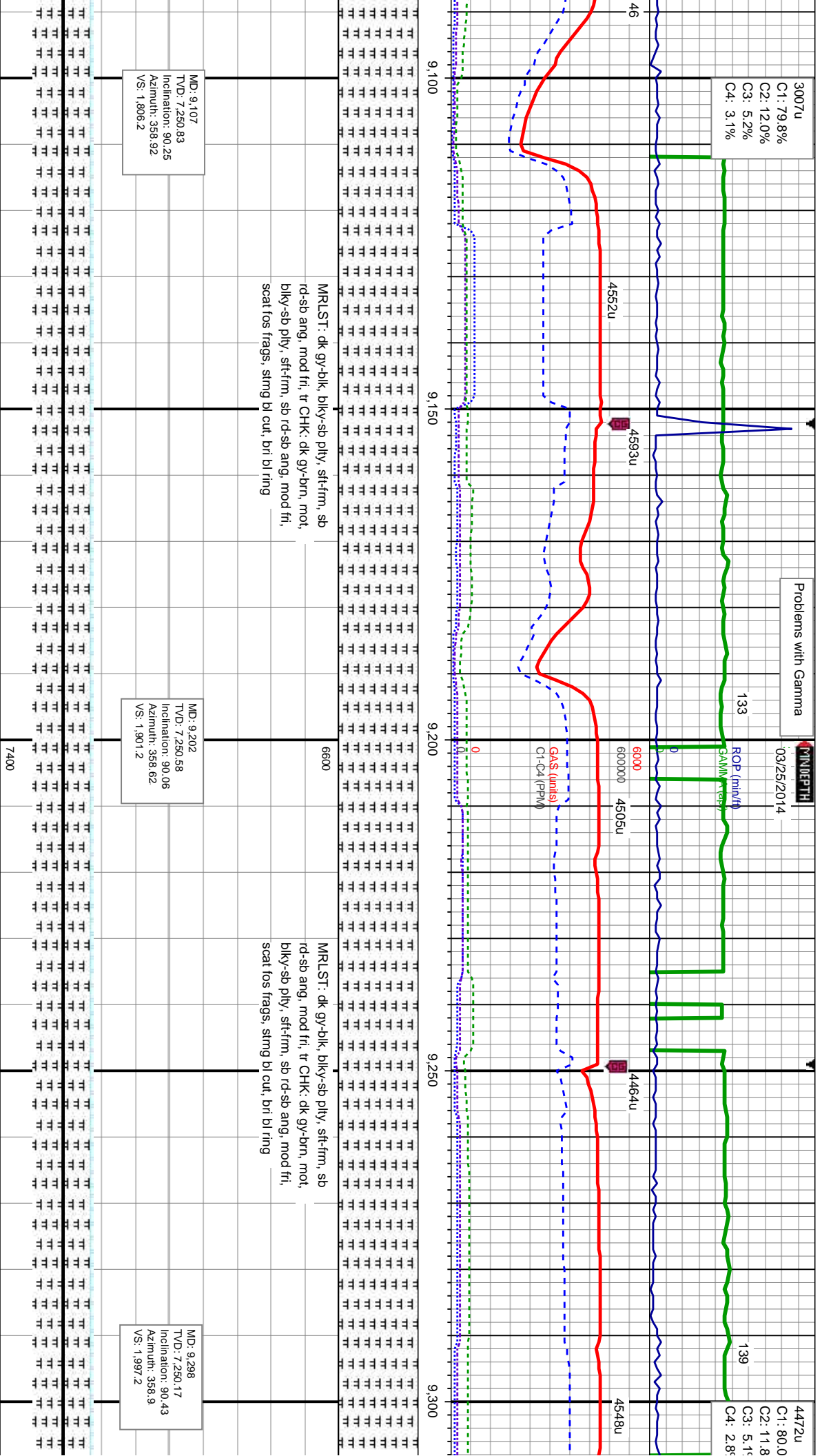
MRSLT: dk gy-blk, bily-sb ply, sftfrm, sb
rd-sb ang, mod fri, tr CHK: dk gy-brn, mot,
bily-sb ply, sftfrm, sb rd-sb ang, mod fri,
scat fos frags, sting bl cut, bri bl ring

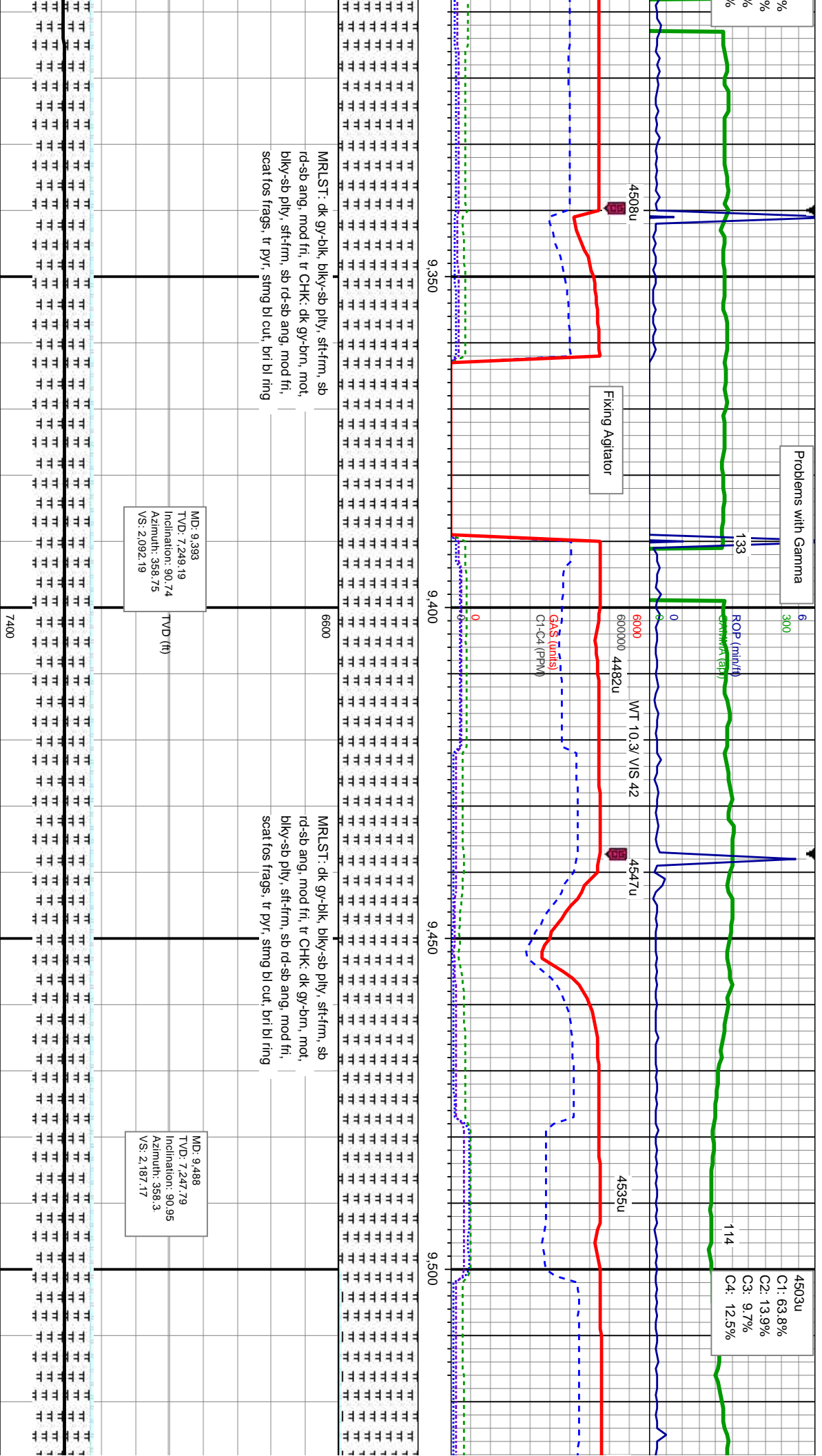
MD: 8.917
TVD: 7,249.53
Inclination: 89.48
Azimuth: 359.52
VS: 1.616,21

MD: 9.012
TVD: 7,250.5
Inclination: 89.35
Azimuth: 359.4
VS: 1.711,21

7400







Problems with Gamma

6

300

125 ROP (min./ft)
GAMMA (api)

122

4593u
C1: 70.1%
C2: 12.8%
C3: 8.1%
C4: 9.0%

4549u

6000 WT 10.4/ VIS 44

4582u

4557u

4589u

GAS (units)
Cl-C4 (PPM)

9,550

9,600

9,650

9,700

MRLST: dk gy-blk, blk-y-sb ply, sft-frm, sb
rd-sb ang, mod fri, CHK: dk gy-brn, mot,
blk-y-sb ply, sft-frm, sb rd-sb ang, mod fri,
string bl cut, bri bl ring

MRLST: dk gy-blk, blk-y-sb ply, sft-frm, sb
rd-sb ang, mod fri, CHK: dk gy-brn, mot,
blk-y-sb ply, sft-frm, sb rd-sb ang, mod fri,
string bl cut, bri bl ring

MRLST: dk gy-blk,
rd-sb ang, mod fri,
blk-y-sb ply, sft-frm,
string bl cut, bri bl ring

MD: 9.583
TVD: 7,246.69
Inclination: 90.37
Azimuth: 358.44
VS: 2,282.16

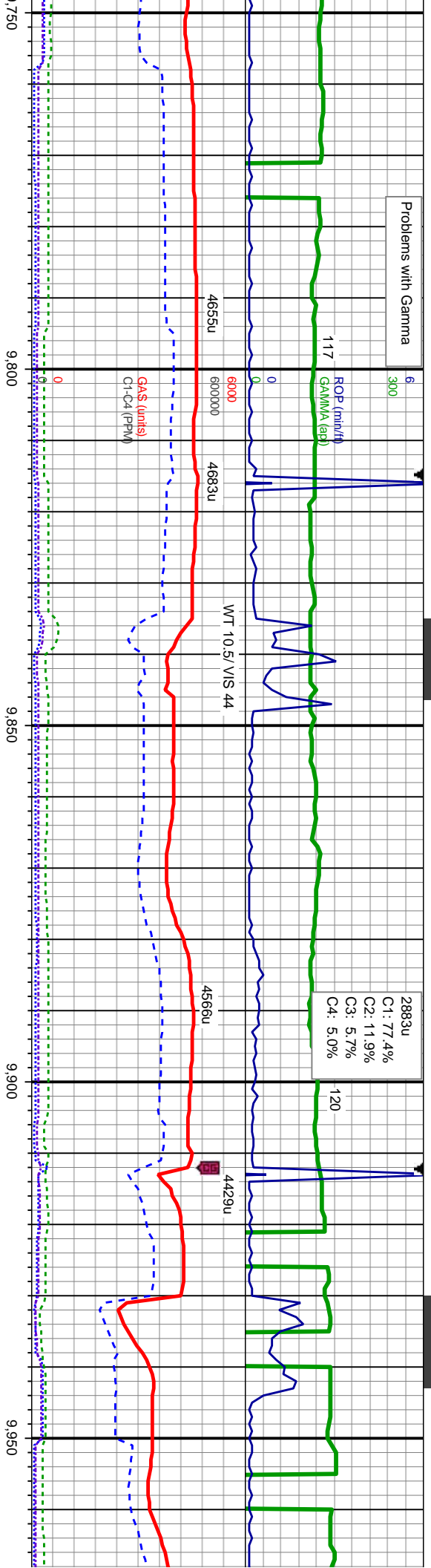
MD: 9.678
TVD: 7,246.28
Inclination: 90.12
Azimuth: 358.37
VS: 2,377.15

TVD (ft)

7400



Problems with Gamma



blky-sb ply, sft-frm, sb
CHK: dk gy-brn, mot,
sb rd-sb ang, mod fri,
g

MD: 9.773
TVD: 7.246.31
Inclination: 89.85
Azimuth: 357.89
VS: 2.472.13

TVD (ft)

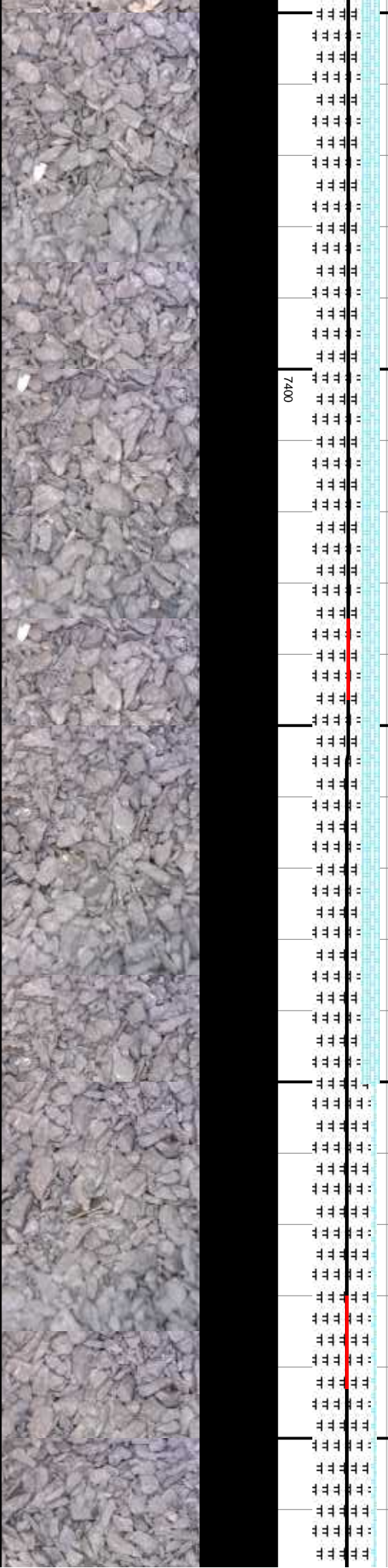
7400

MRLST: dk gy-blk, blky-sb ply, sft-frm, sb
rd-sb ang, mod fri, CHK: dk gy-brn, mot,
blky-sb ply, sft-frm, sb rd-sb ang, mod fri,
string bl cut, bri bl ring

MD: 9.868
TVD: 7.246.97
Inclination: 89.35
Azimuth: 358.71
VS: 2.567.12

MRLST: dk gy-blk, blky-sb ply, sft-frm, sb
rd-sb ang, mod fri, CHK: dk gy-brn, mot,
blky-sb ply, sft-frm, sb rd-sb ang, mod fri,
string bl cut, bri bl ring

MD: 9.964
TVD: 7.247.44
Inclination: 90
Azimuth: 359
VS: 2.653.11



Problems with Gamma

6

300

144

ROP (min/ft)

GA (MA app)

60043322u

6000000

4339u

GA\$ (units)

Cl-C4 (PPM)

0

10,000

10,050

10,100

10,150

3817u

C1: 82.3%

C2: 10.9%

C3: 4.3%

C4: 2.5%

122

WT 10.6 / VIS 43

4571u

4196u

4525u

6600

MRSLT: dk gy-blk, blk-y-sb pily, sft-frn, sb
rd-sb ang, mod fri, CHK: dk gy-brn, mot,
blk-y-sb pily, sft-frn, sb rd-sb ang, mod fri,
stng bl cut, bri bl ring

MRSLT: dk gy-blk, blk-y-sb pily, sft-frn, sb
rd-sb ang, mod fri, CHK: dk gy-brn, mot,
blk-y-sb pily, sft-frn, sb rd-sb ang, mod fri,
stng bl cut, bri bl ring

09

92

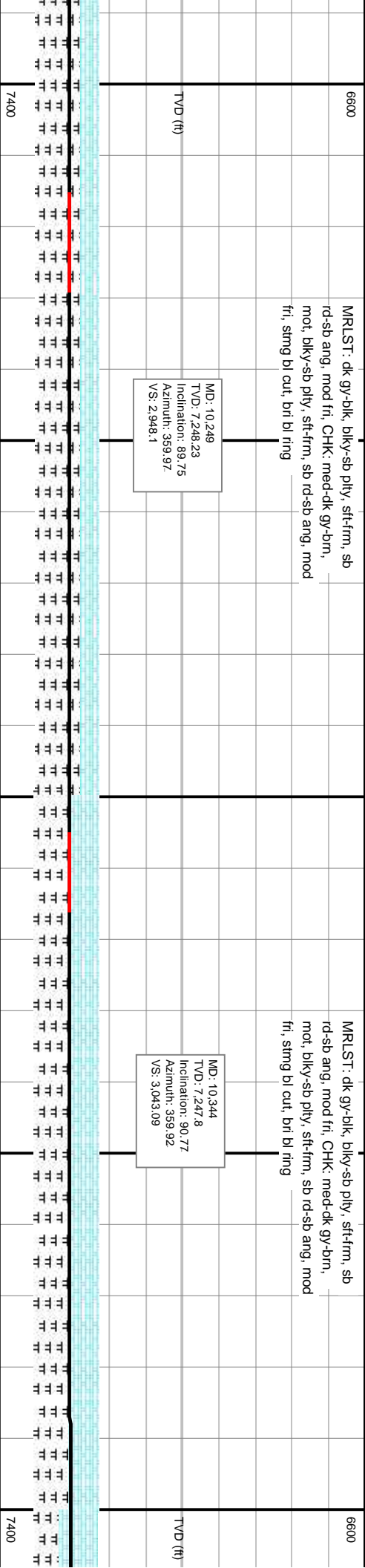
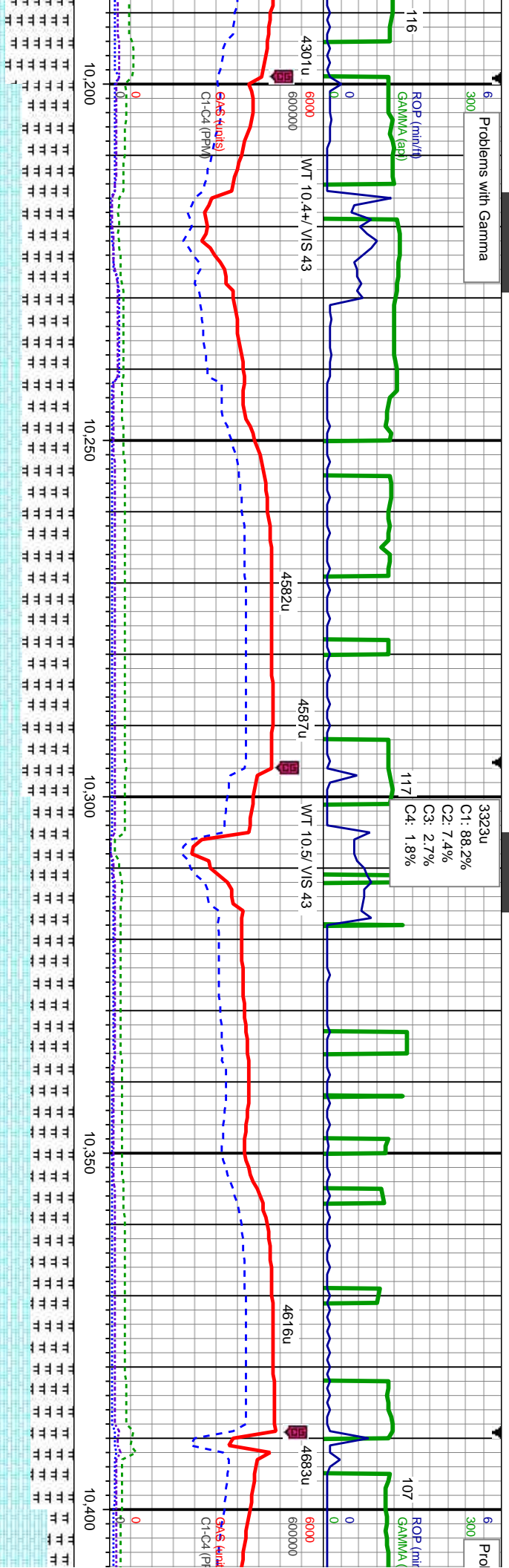
TVD (ft)

MD: 10,059
TVD: 7247.36
Inclination: 90°
Azimuth: 359.8°
VS: 2.758.1°

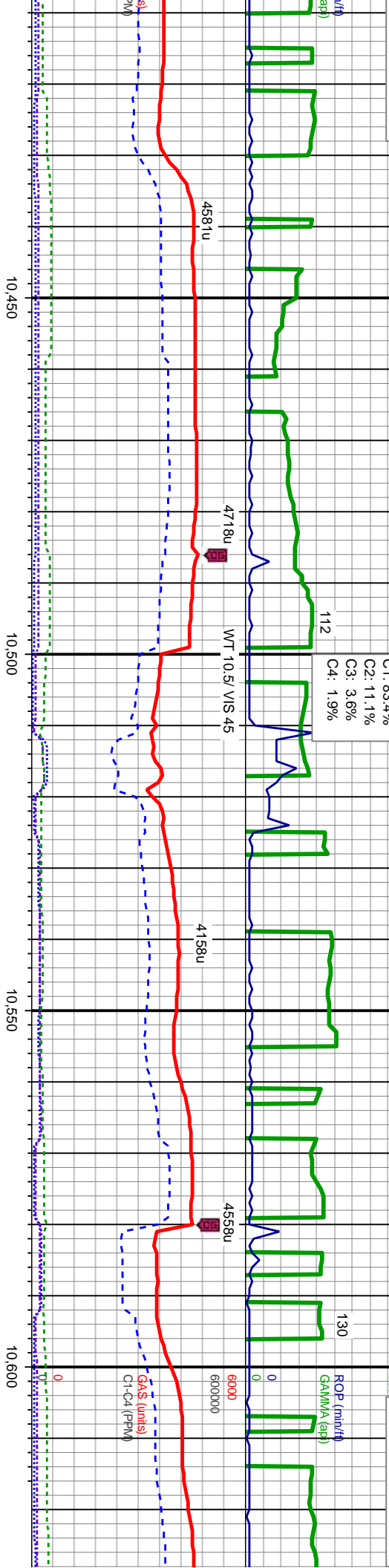
MD: 10,154
TVD: 7247.69
Inclination: 89.6°
Azimuth: 358.96°
VS: 2.853.1°

7400





3670u
C1: 83.4%
C2: 11.1%
C3: 3.6%
C4: 1.9%

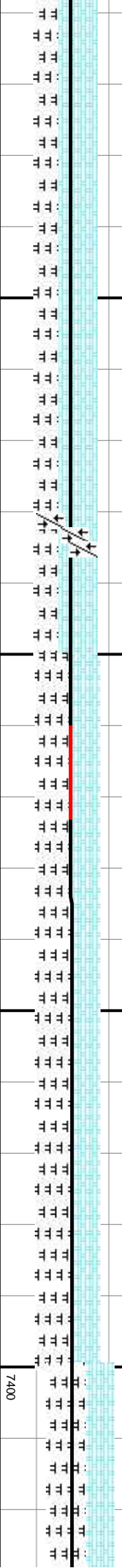


CHK: lt-med gy-brn, mot, blk-y-sb ply,
sft-frm, sb rd-sb ang, mod fri, MRLST: dk
gy-blk, blk-y-sb ply, sft-frm, sb rd-sb ang,
mod fri, string bl cut, bri bl ring

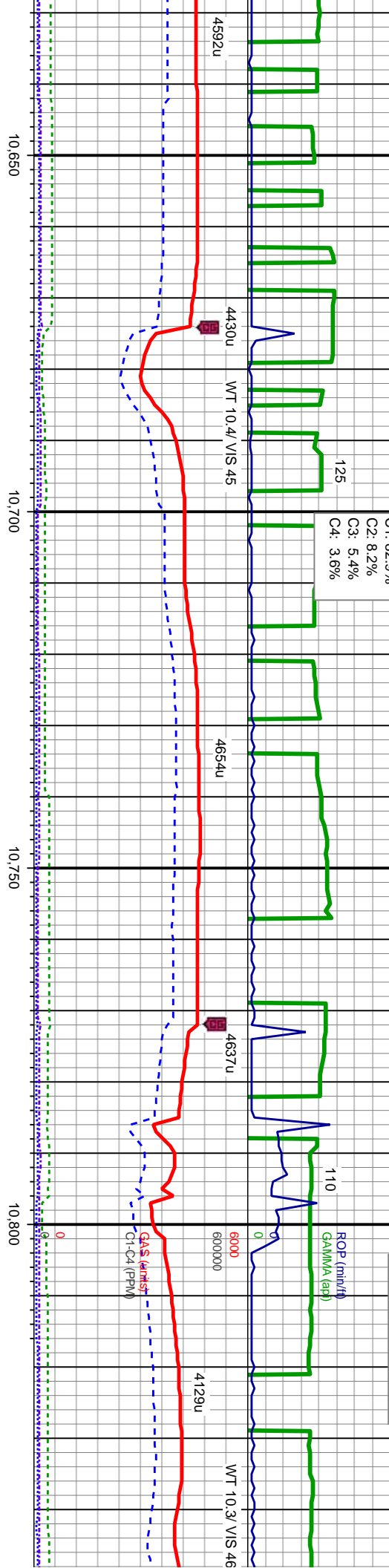
CHK: lt-med gy-brn, mot, blk-y-sb ply,
sft-frm, sb rd-sb ang, mod fri, MRLST: dk
gy-blk, blk-y-sb ply, sft-frm, sb rd-sb ang,
mod fri, scat fos frags, scat lse pyr, string bl
cut, bri bl ring

MD: 10,534
TVD: 7,243.77
Inclination: 91.66
Azimuth: 359.59
VS: 3.233.03

MD: 10,663
TVD: 7,244
Inclination:
Azimuth:
VS: 3.329



Problems with Gamma



C1: 82.9%
C2: 8.2%
C3: 5.4%
C4: 3.6%

125

1.10

MRLST: dk gy-blk, blk-y-sb pty, sft-frm, sb
rd-sb ang, mod fri, CHK: lt-med gy-brn,
mot, blk-y-sb pty, sft-frm, sb rd-sb ang, mod
fri, scat fos frags, scat lse pyr, string bl cut,
fri bl ring

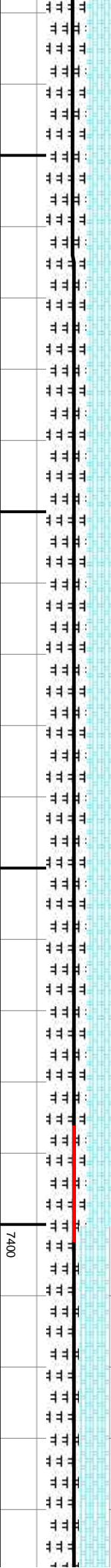
MRLST: dk gy-blk, blk-y-sb pty, sft-frm, sb
rd-sb ang, mod fri, CHK: med-dk gy-brn,
mot, blk-y-sb pty, sft-frm, sb rd-sb ang, mod
fri, scat fos frags, string bl cut, bri bl ring

MRLST: dk gy-blk,
rd-sb ang, mod fri,
mot, blk-y-sb pty, s
fri, scat fos frags, s

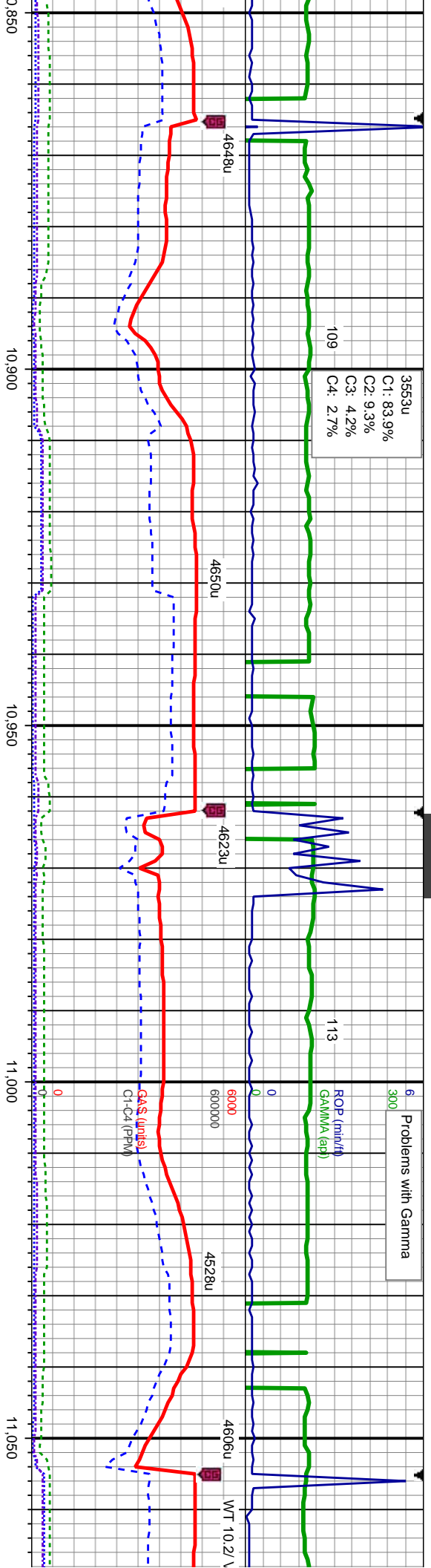
1.29
91.29
358.7

MD: 10.725
TVD: 7.239.47
Inclination: 90.9
Azimuth: 357.36
VS: 3.423.96

MD: 10.820
TVD: 7.239.11
Inclination: 89.54
Azimuth: 358.51
VS: 3.518.94



Problems with Gamma



0.850 10.900 10.950 11.000 11.050

bkly-sb pily, sft-firm, sb
CHK: med-dk gy-brn,
lt-firm, sb rd-sb ang, mod
ring bl cut, bri bl ring

MRLST: med-dk gy-blk, bkly-sb pily, sft-firm,
sb rd-sb ang, mod fri, CHK: med-dk gy-brn,
mot, bkly-sb pily, sft-firm, sb rd-sb ang, mod
fri, scat fos frags, string bl cut, bri bl ring

6600

CHK: lt-med gy-brn, mot, bkly-sb pily,
sft-firm, sb rd-sb ang, mod fri, MRLST: dk
gy-blk, bkly-sb pily, sft-firm, sb rd-sb ang,
mod fri, string bl cut, bri bl ring

MD: 10.915
TVD: 7240.24
Inclination: 89.11
Azimuth: 358.25
VS: 3.613.92

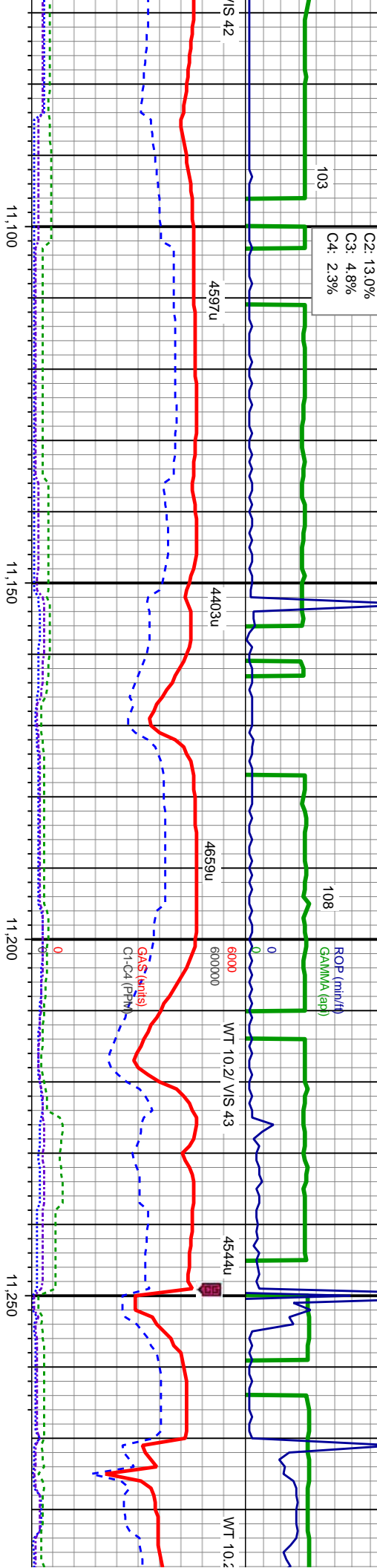
MD: 11.010
TVD: 7241.03
Inclination: 89.94
Azimuth: 359.28
VS: 3.708.91

7400



Problems with Gamma

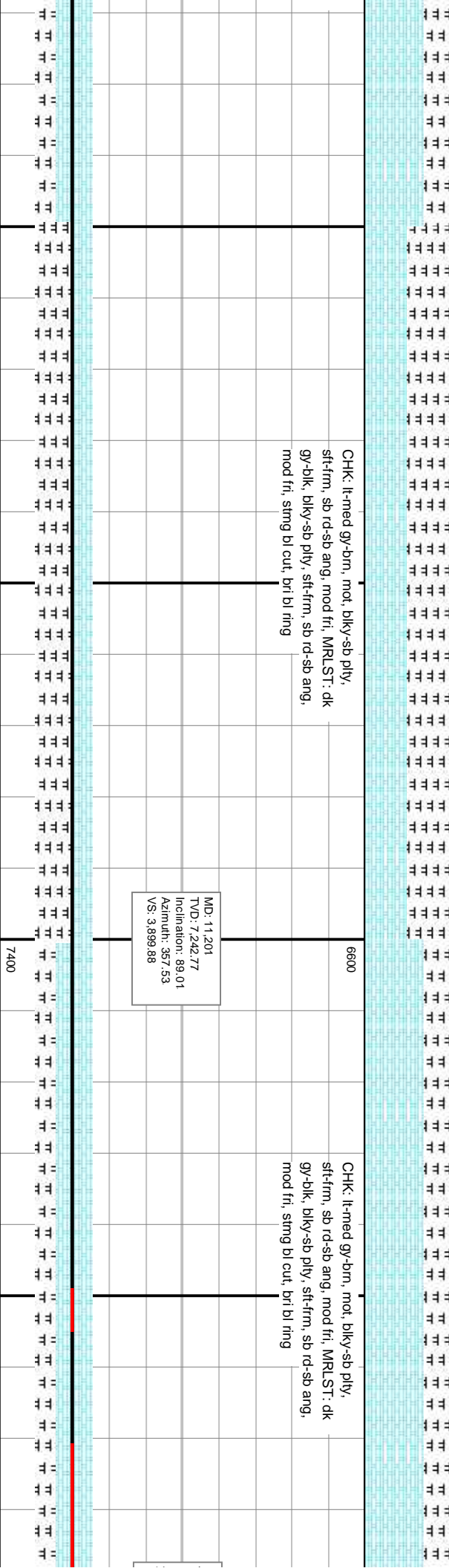
C1: 79.9%
C2: 13.0%
C3: 4.8%
C4: 2.3%



CHK: lt-med gy-bm, mod, biky-sb ply,
sft-frm, sb rd-sb ang, mod fri, MRLST: dk
gy-blk, biky-sb ply, sft-frm, sb rd-sb ang,
mod fri, stmg bl cut, bri bl ring

MD: 11.201
TVD: 7,242.77
Inclination: 89.01
Azimuth: 357.53
VS: 3,899.88

CHK: lt-med gy-bm, mod, biky-sb ply,
sft-frm, sb rd-sb ang, mod fri, MRLST: dk
gy-blk, biky-sb ply, sft-frm, sb rd-sb ang,
mod fri, stmg bl cut, bri bl ring

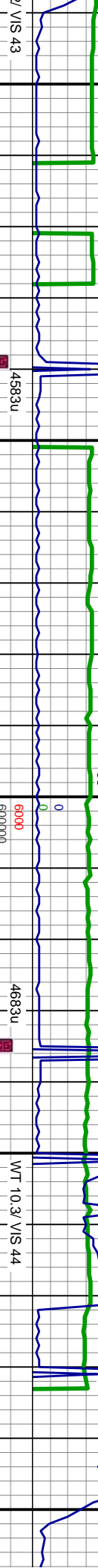


3624u
C1: 84.3%
C2: 9.9%
C3: 3.6%
C4: 2.2%

Problems with Gamma
ROP (in./h)
GAMMA (api)

03/26/2014

4514u
C1: 86.1%
C2: 8.7%
C3: 3.3%
C4: 1.9%



7/ VIS 43

3755u

WT 10.3/ VIS 44

94

GAS (units)
Cl-C4 (PPM)

11,300 11,350 11,400 11,450 11,500

CHK: med-dk gy, dk brn, mot, blk-y-sb ply,
sft-frm, sb rd-sb ang, mod fri, MRLST: dk
gy-blk, blk-y-sb ply, sft-frm, sb rd-sb ang,
mod fri, string bl cut, bri bl ring

CHK: lt-dk gy, med brn, mot, blk-y-sb ply,
sft-frm, sb rd-sb ang, mod fri, MRLST: dk
gy-blk, blk-y-sb ply, sft-frm, sb rd-sb ang,
mod fri, string bl cut, bri bl ring

MD: 11,296
TVD: 7,242.77
Inclination: 90.99
Azimuth: 358.02
VS: 3,994.84

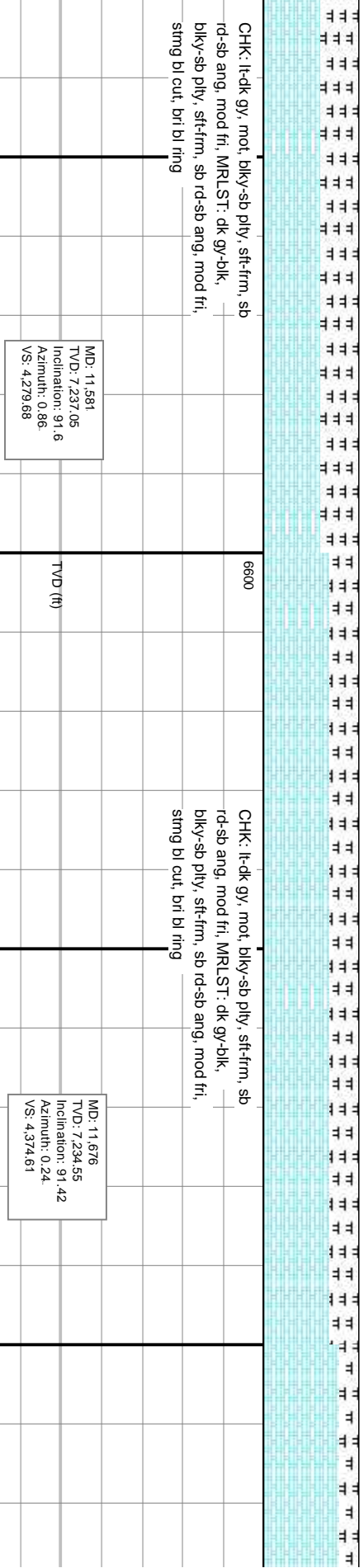
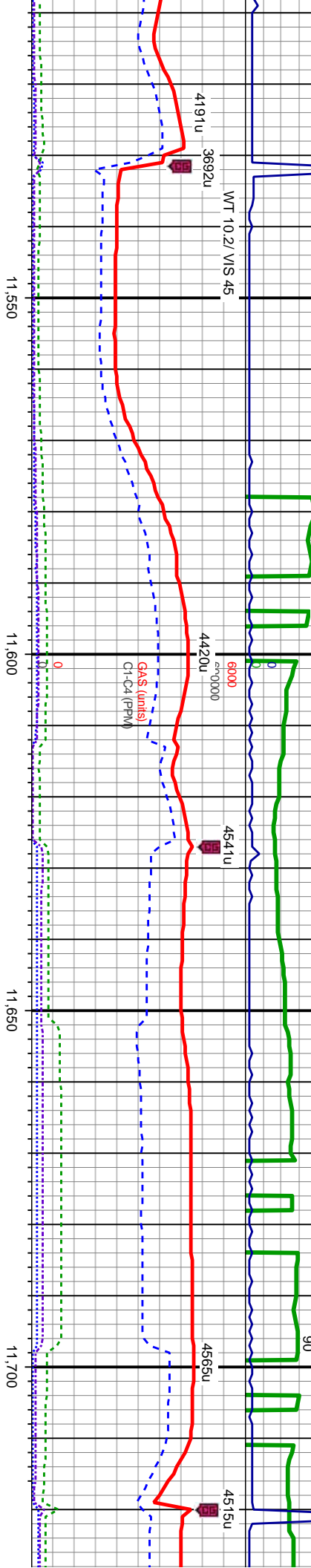
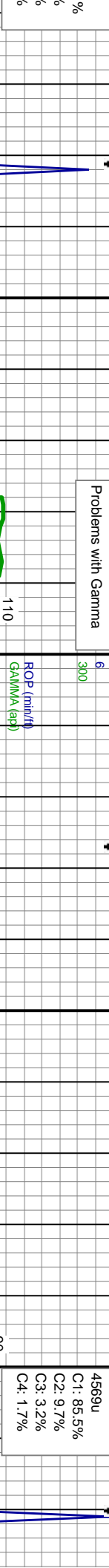
MD: 11,391
TVD: 7,241.49
Inclination: 90.56
Azimuth: 356.77
VS: 4,089.79

MD: 11,486
TVD: 7,239.7
Inclination: 91.6
Azimuth: 0.64
VS: 4,184.75

TVD (ft)

7400

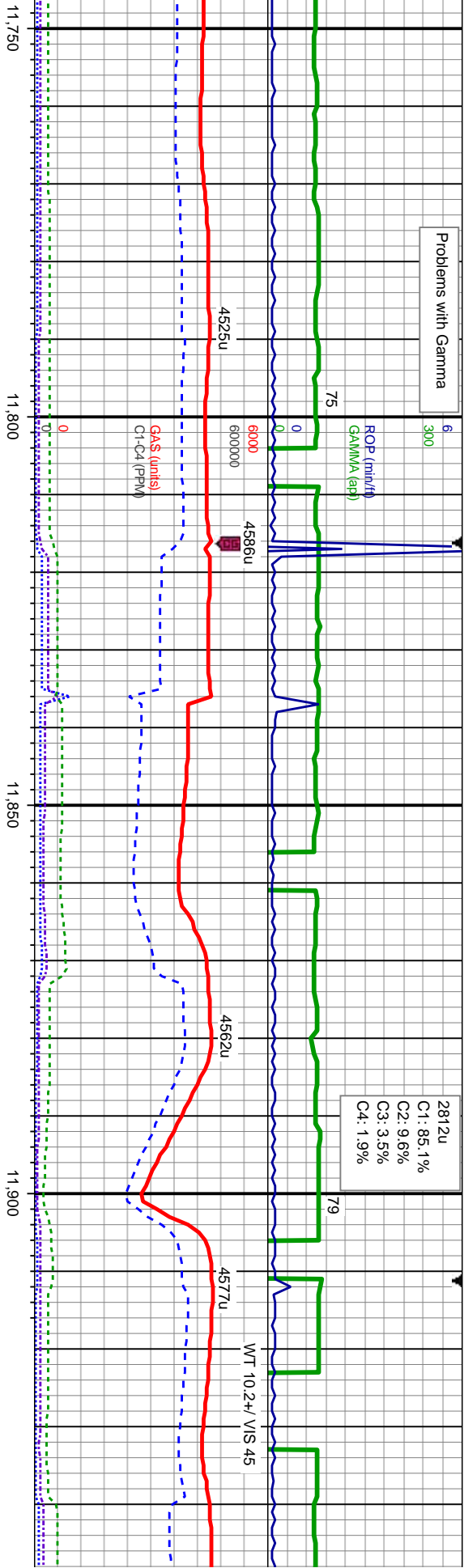




Problems with Gamma

2812u

C1: 85.1%
C2: 9.6%
C3: 3.5%
C4: 1.9%



CHK: lt-med gy, mot, blk/sb ply, sft-frm, sb rd-sb ang, mod fri, MRLST: dk gy-blk, blk/sb ply, sft-frm, sb rd-sb ang, mod fri, string bl cut, bri bl ring

CHK: lt-med gy, mot, blk/sb ply, sft-frm, sb rd-sb ang, mod fri, MRLST: dk gy-blk, blk/sb ply, sft-frm, sb rd-sb ang, mod fri, string bl cut, bri bl ring

CHK: lt-med gy, mot, blk/sb ply, sft-frm, sb rd-sb ang, mod fri, MRLST: dk gy-blk, blk/sb ply, sft-frm, sb rd-sb ang, mod fri, string bl cut, bri bl ring

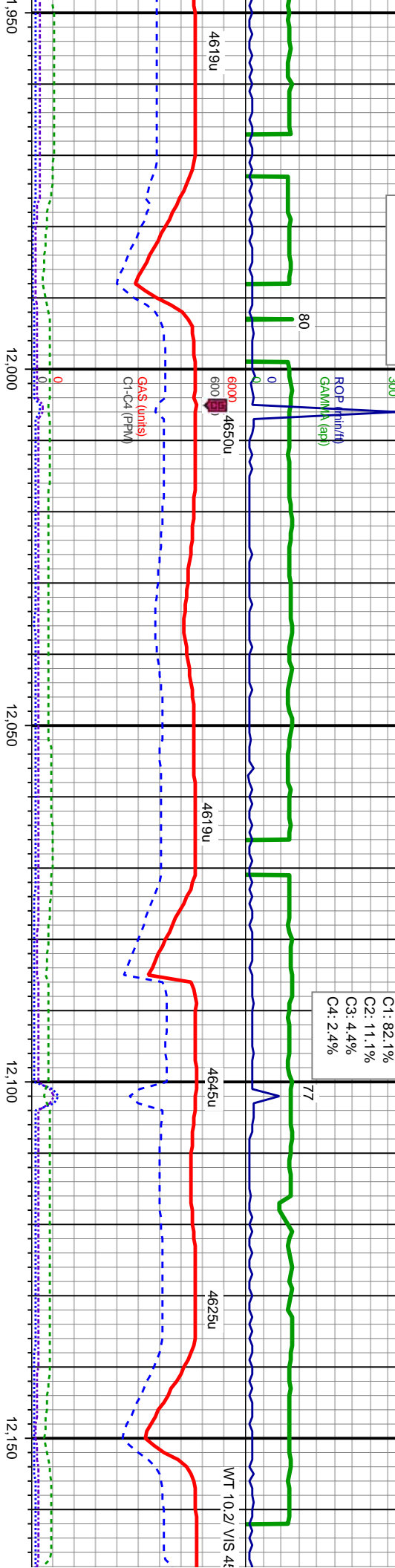
MD: 11,771
TVD: 7,232.27
Inclination: 91.33
Azimuth: 359.8
VS: 4,469.58

MD: 11,866
TVD: 7,231.66
Inclination: 89.42
Azimuth: 358.21
VS: 4,564.57

7400



Problems with Gamma



biky-sb ply, sft-frn,
MRLST: dk gy-blk,
sb rd-sb ang, mod fri,
g

CHK: lt-med gy, mot, biky-sb ply, sft-frn,
sb rd-sb ang, mod fri, MRLST: dk gy-blk,
biky-sb ply, sft-frn, sb rd-sb ang, mod fri,
string bl cut, bri bl ring

CHK: lt-med gy, mot, biky-sb ply, sft-frn,
sb rd-sb ang, mod fri, MRLST: dk gy-blk,
biky-sb ply, sft-frn, sb rd-sb ang, mod fri,
string bl cut, bri bl ring

MD: 11.961
TVD: 7.231.84
Inclination: 90.37
Azimuth: 358.44
VS: 4.659.56

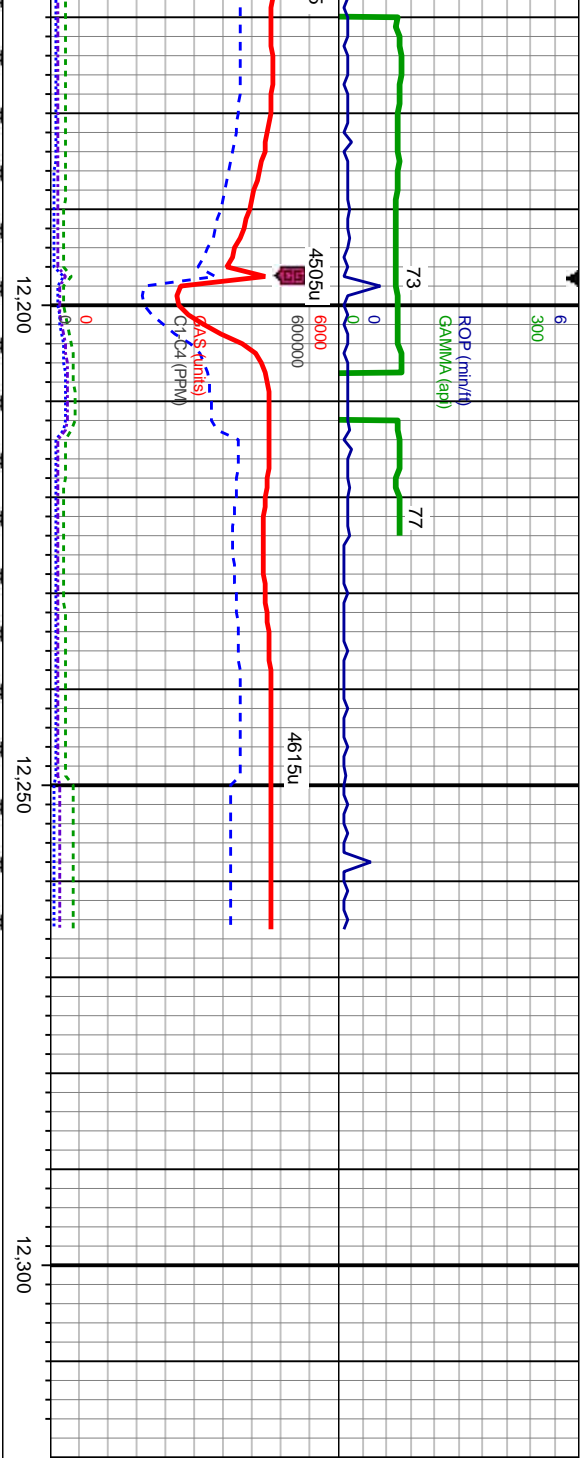
TVD (ft)

MD: 12.056
TVD: 7.231.12
Inclination: 90.49
Azimuth: 358.45
VS: 4.754.55

MD: 12.151
TVD: 7.230.38
Inclination: 90.4
Azimuth: 359.34
VS: 4.849.54

7400





6600	CHK: lt-med gy, mot, blk/sb ply, sft frm, sb rd-sb ang, mod fri, MRLST: dk gy-blk, blk/sb ply, sft frm, sb rd-sb ang, mod fri, sting bl cut, bri bl ring	MD: 12.222 TVD: 7.229.83 Inclination: 90.49 Azimuth: 359.54 VS: 4.920.54	PROJECTION TO BIT ANADARKO FERGE 30N-14HZ WELL TD @ 12265' MD ON 03/26/2014 @ 0830HRS	THANK YOU FOR USING COLUMBINE LOGGING INC.
7400				

