



Scale: 6.98" / 100'  
Measured Depth Log

Well Name	EagleE14-63-1HNho1Z		
Location	Sec. 14 T6N R65W		
State	COLORADO	County	WELD
Country	USA		
API Number	05-123-38862	Rig Number	PRECISION # 829
		AFE #	139580
Region	DJ BASIN	Field	WATTENBERG
Spud Date	7/13/2014	Drilling Completed	7/21/2014
Surface Coordinates	40.4799, -104.6382		
Ground Elevation	4736'	K.B. Elevation	4752'
Logged Interval	6300'	To	12743'
		Total Depth	12743'
Formation	NIOBRARA C CHALK		
Type of Drilling Fluid	FW LSND		

Company Noble Energy Inc

Name Holly Duncan  
Company Noble Energy, Inc.  
Address 1625 BROADWAY  
DENVER, CO 80202

Liz van Diepen  
Cc  
23  
De  
Terry Acomb  
Cc  
23  
De

Operator

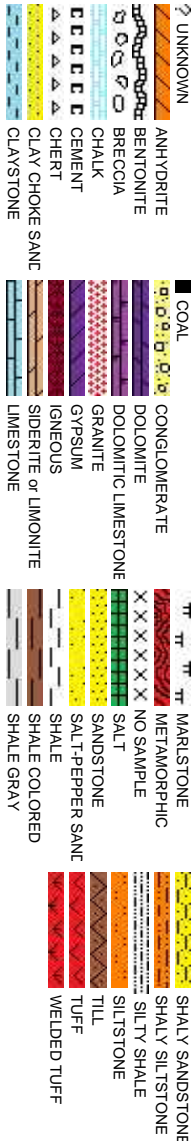
Geologist

Other

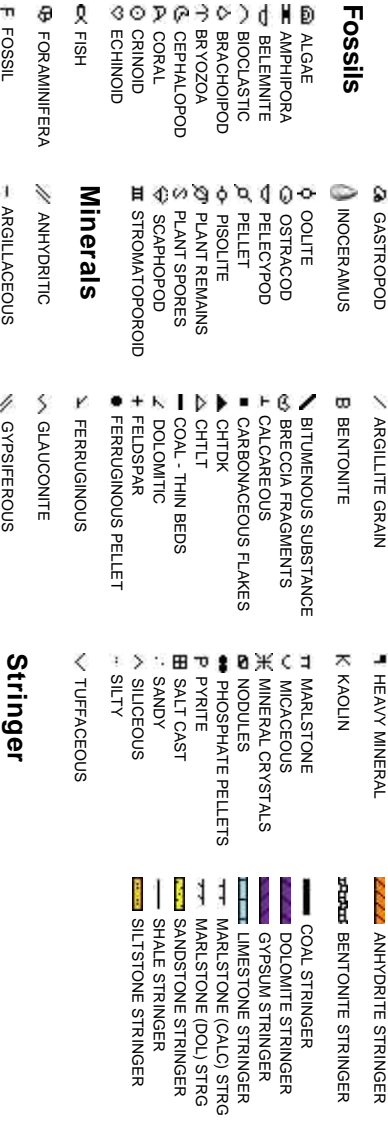
Blumline Logging  
85 S Lipan St  
Denver, CO 80223

Blumline Logging  
85 S Lipan St  
Denver, CO 80223

Rock Types



Accessories



Other Symbols

**Oil Show** P PINPOINT V VUGGY

**Engineering** D DEAD E EVEN Q QUESTIONABLE BIT SPOTTED STAINING CONNECTION (UP)

DST INTERVAL FAULT FORMATION TOP GAS SHOW OIL SHOW MN DEPTH UP MN DEPTH DOWN MN DEPTH (DOWN) ANGULAR PACKSTONE

**Porosity** CONNECTION (DOWN) CONNECTION GAS CONNECTION GAS (LEFT) TRIP GAS TRIP GAS (LEFT) INTERCRYSTALLINE INTEROOLITIC MOLDIC ORGANIC

WIRELINE TESTED - LEFT WIRELINE TESTED - RT FINELYXLN DRILL STEM TEST MN DEPTH MN DEPTH L LITHOGRAPHIC MX MICROXLN MS MUDSTONE

WACKESTONE

**Sorting** M MODERATE P POOR W WELL

**Textures** BS BOUNDSTONE C CHALKY CRYPTOXLN

Slide/Rotate

ROP  
ROF  
GAMMA

COLUMBINE LOGGING, INC. RIGGED UP  
ON 07/14/2014 MANNED 2-PERSON  
LOGGING WITH BLOODHOUND GAS  
CHROMATOGRAPH UNIT # 0715

Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4

Depth Labels

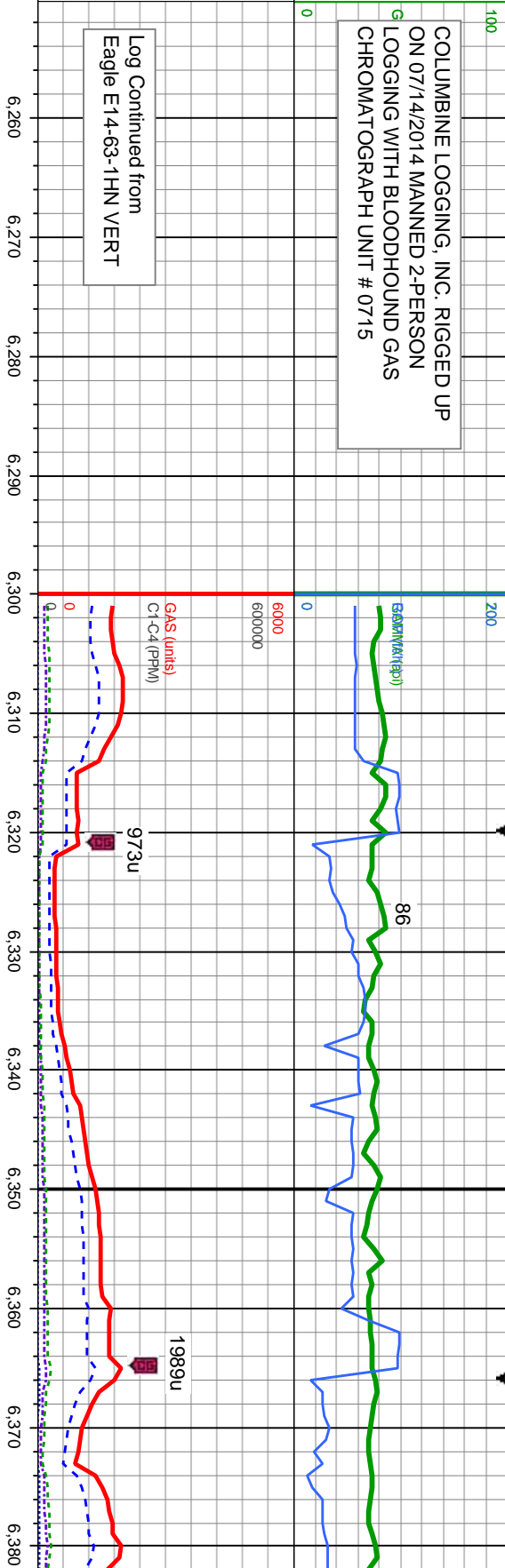
% Lith

Well Bore  
TVD

Oil Show

excellent  
good  
moderate  
trace  
slight trace

Images



6200

MD: 6,315  
TVD: 6,247.36  
Inclination: 6.5  
Azimuth: 94.7  
VS: -405.04

TVD (ft)

MD: 6,360  
TVD: 6,292.06  
Inclination: 6.9  
Azimuth: 86.1  
VS: -399.84

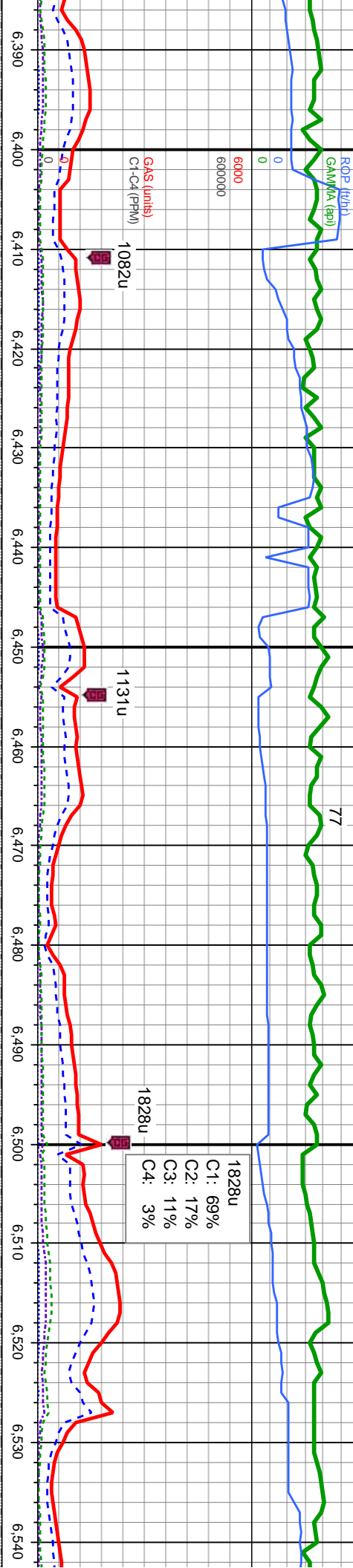
90% SLTY SH: lt-med gy, sft-firm, fri, sb ply, sl silty tex,  
rthy lst, non calc; 10% SHY SS: lt gy-wh, occ s&p, blkly,  
sl firm - sft, v f gr, sb rnd, mod-w sft, tr cly cnt, non calc

7200





700  
200



MD: 6,404  
TVD: 6,335.61  
Inclination: 9.5  
Azimuth: 93.2  
VS: -393.61

MD: 6,449  
TVD: 6,379.86  
Inclination: 11.4  
Azimuth: 96.6  
VS: -386.62

MD: 6,494  
TVD: 6,423.56  
Inclination: 16.1  
Azimuth: 90  
VS: -375.08

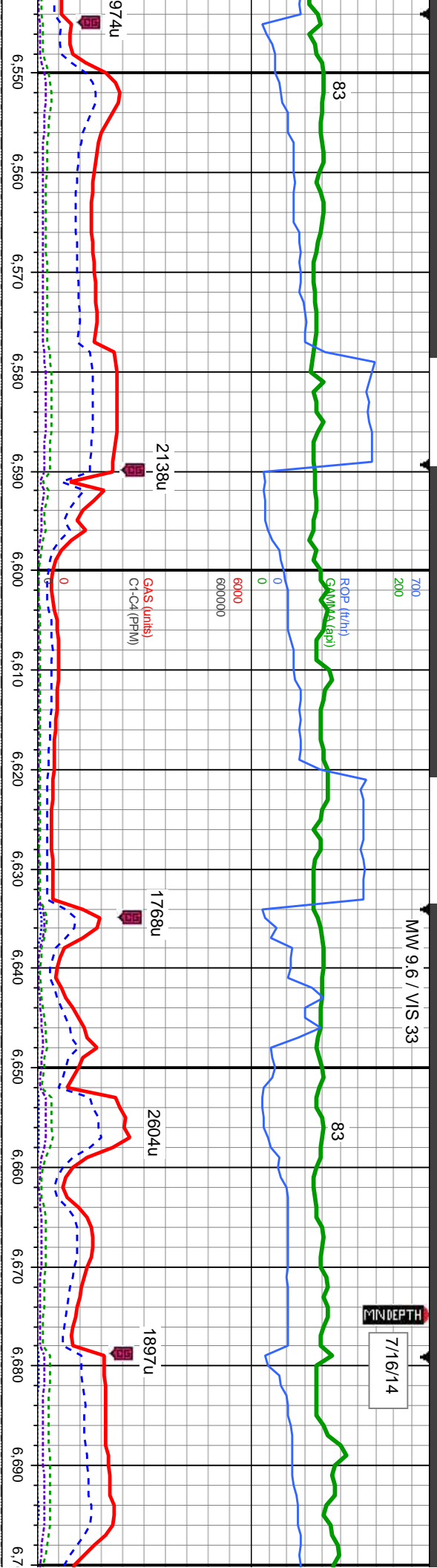
MD: 6,539  
TVD: 6,466.12  
Inclination: 21.7  
Azimuth: 88.6  
VS: -360.58

90% SLTY SH: lt-med gy, sft-firm, fri, sb ply, sl sily tex,  
rthy lstr, non calc; 10% SHY SS: lt gy-wh, occ s&p, blkly,  
sl frm - sft, v l gr, sb rnd, mod-w srl, tr cly cntl, non calc

90% SLTY S  
rthy lstr, non  
sl frm - sft, v







6200

MD: 6.629  
TVD: 6.547.53  
Inclination: 28  
Azimuth: 84.6  
VS: -322.36

MD: 6.674  
TVD: 6.586.86  
Inclination: 30.1  
Azimuth: 84.3  
VS: -300.51

MD: 6.584  
TVD: 6.507.35  
Inclination: 25.5  
Azimuth: 85.7  
VS: -342.6

TVD (ft)

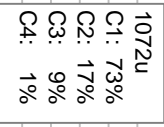
7200

90% SLTY SH: lt-med gy, sft-frm, fri, sb ply, sl silty tex,  
rthy lstr, non calc; 10% SHY SS: lt gy-wh, occ s&p, blkly,  
sl frm - sft, v f gr, sb rnd, mod-w srl, tr cly cnt, non calc

H: lt-med gy, sft-frm, fri, sb ply, sl silty tex,  
calc; 10% SHY SS: lt gy-wh, occ s&p, blkly,  
gr, sb rnd, mod-w srl, tr cly cnt, non calc







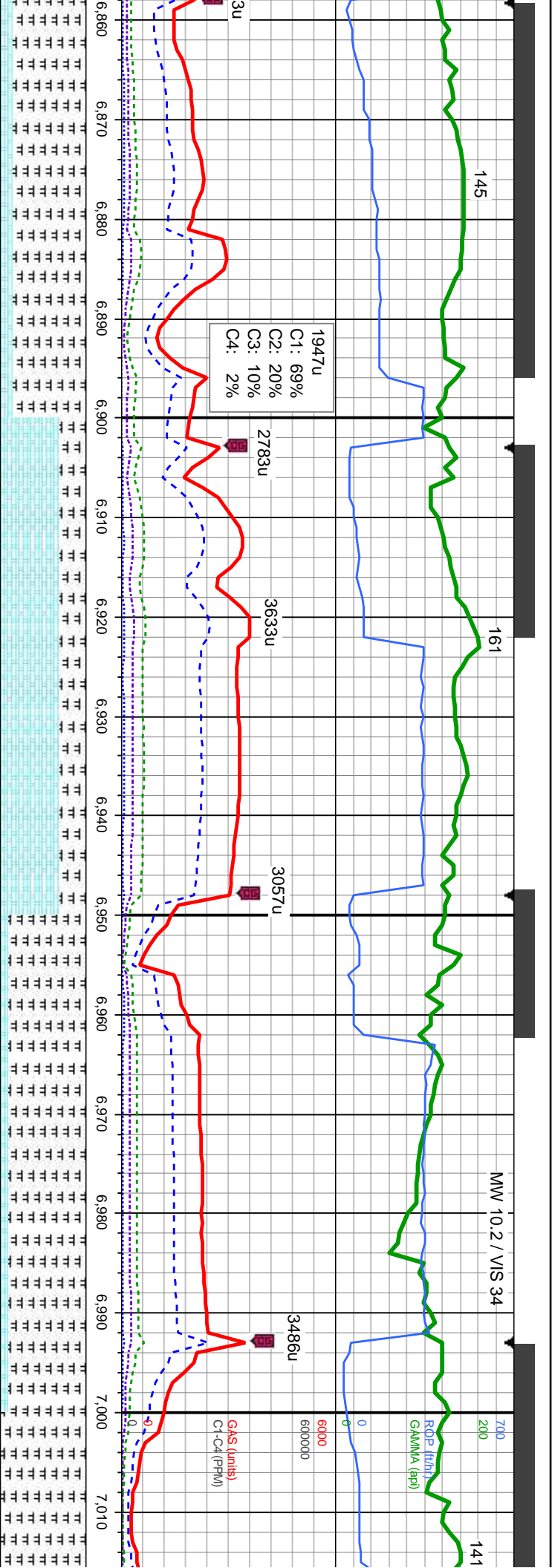
MM 10.0 / VIS 34

MD: 6,853			
TVD: 6,722.93			
Inclination: 45.5			

95% SLTY SH: lt-med gy, sft-frm, fri, sb  
ply, sl silty tex, rthy lsir, non calc; 5% SHY  
SS: lt gy-wh, occ s&p, billy, sl frm - sft, v f  
gr, sb md, mod-w srt, tr cly cmt, non calc







Sharon Springs  
MD 6895 / TVD 6751'

MD: 6,898  
TVD: 6,753.09  
Inclination: 50.3  
Azimuth: 87.1  
VS: -153.02

Niobrara A Chalk  
MD 6967' / TVD 6796'

MD: 6,943  
TVD: 6,781.14  
Inclination: 52.6  
Azimuth: 87.4  
VS: -117.9

Niobrara A Marl  
MD 6993' / TVD 6812'

MD: 6,987  
TVD: 6,808.17  
Inclination: 51.6  
Azimuth: 87.8  
VS: -83.27

% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, r-mot tex, calc, 15% CHK: crm-llgy to brn, mot, mod frm, sb ply-bkly, v calc, tr bent

70% CHK: crm-llgy to brn, mot, sft-mod frm, sb ply-bkly, v calc, 30% MRLST: med-dk gy, sl frm-mod hd, sb ply-bkly, sily-mot tex, calc, tr bent, occ sily sh

90% MRLST: med-dk gy, sl frm-mod hd, sb ply-sb bkly, sily-mot tex, calc, 10% CHK: crm-llgy to brn, mot, sft-mod frm, sb ply-sb bkly, v calc, occ bent, occ sily sh

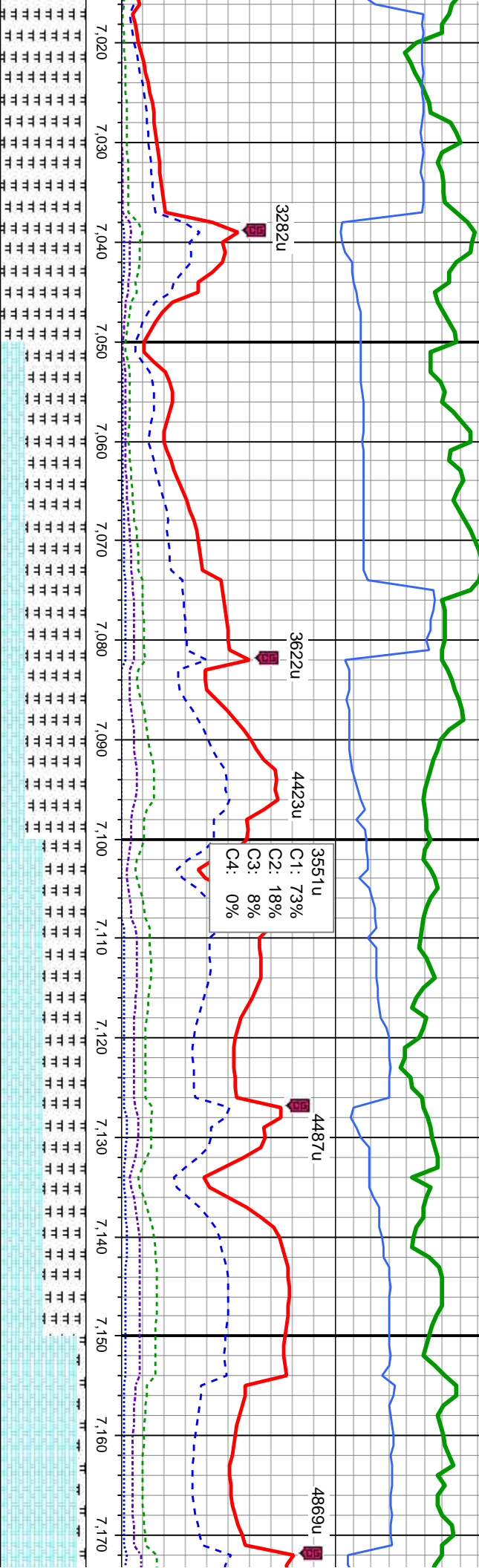
100% MRLST: bly, sily-mot





166

MW 10.2 / VIS 34



MD: 7,032  
TVD: 6,835.53  
Inclination: 53.5  
Azimuth: 87.9  
VS: -47.64

MD: 7,077  
TVD: 6,860.55  
Inclination: 58.9  
Azimuth: 88.7  
VS: -10.39

MD: 7,122  
TVD: 6,861.28  
Inclination: 66.2  
Azimuth: 88.4  
VS: 29.37

Niobrara B Chalk  
MD 7135' / TVD 6886'

MD: 7,166  
TVD: 6,897.04  
Inclination: 71.8  
Azimuth: 88.3  
VS: 70.29

med-dk gy, sl frm-mod hd, sb ply-sb  
tex, calc, scat chlk, occ bent, scat silty sh

70% MRLST: med-dk gy, sl frm-mod hd, sb ply-sb  
biky, silty-mot tex, calc, 30% CHK: lt-med gysbhn,  
mot, sft-mod frm, sb ply-sb biky, v calc, occ silty sh

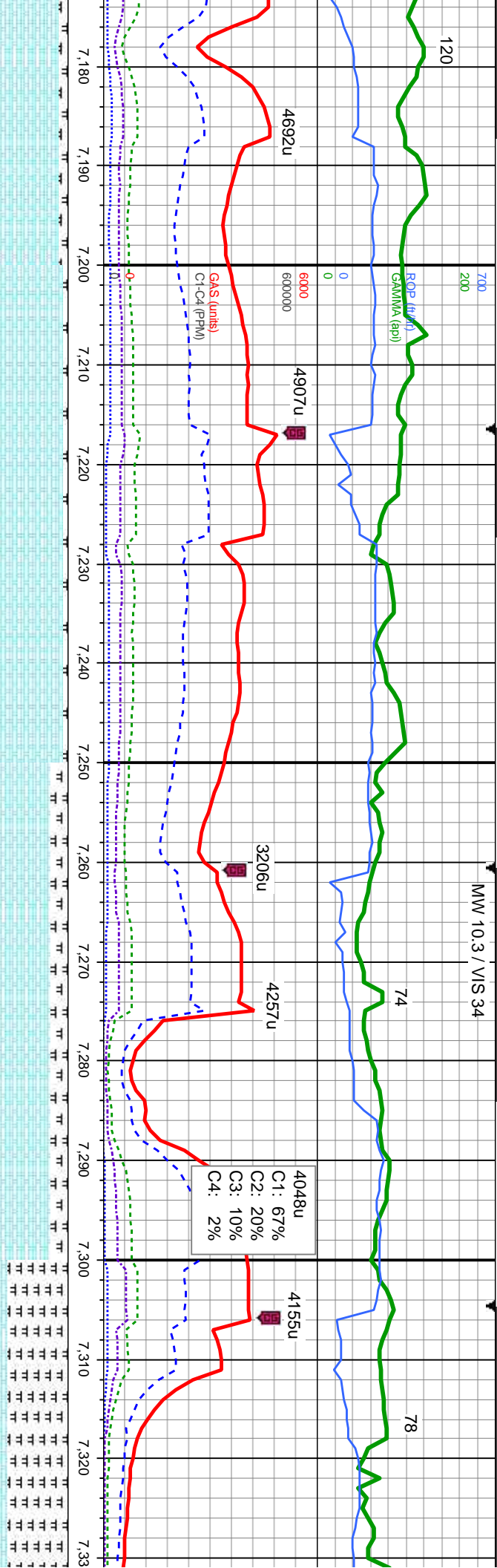
50% MRLST: med-dk gy, sl frm-mod hd, sb ply-sb biky,  
silty-mot tex, calc, 50% CHK: lt-med gysbhn, mot,  
sft-mod frm, sb ply-sb biky, v calc, rr pyr

90% CHK: lt-med gysbhn,  
biky, v calc, 10% MRLST:  
ply-sb biky, silty-mot tex, c





MW 10.3 / VIS 34



TVD SCALE CHANGE

MD: 7,211 TVD: 6,910.24 Inclination: 74.1 Azimuth: 89.2 VS: 113.14	MD: 7,256 TVD: 6,922.22 Inclination: 75 Azimuth: 89 VS: 156.31	Niobrara B Marl MD 7276 / TVD 6927'	MD: 7,301 TVD: 6,932.69 Inclination: 78.1 Azimuth: 88.7 VS: 199.89	MD: 7,301 TVD: 6,932.69 Inclination: 78.1 Azimuth: 88.7 VS: 199.89
95% CHK: lt-med gysbhn, mot, sft-mod frm, sb pily-sb blkly, v calc, 5% MRLST: med-dk gy, sl frm-mod hd, sb pily-sb blkly, silty-mot tex, calc, occ cal, rr pyr, tr bent	80% CHK: lt-med gysbhn, mot, sft-mod frm, sb pily-sb blkly, v calc, 20% MRLST: med-dk gy, sl frm-mod hd, sb pily-sb blkly, silty-mot tex, calc, occ cal, rr pyr, occ bent, scat cal			
6800				
7180				
7190				
7200				
7210				
7220				
7230				
7240				
7250				
7260				
7270				
7280				
7290				
7300				
7310				
7320				
7330				

B CHALK





MW 10.4 / VIS 34

MW 8.8 / \

MINDEPTH

7/17/14

200

132

140

CURVE TD 7384' MD  
07/16/2014 @ 09:10 MST

SHAKER REPAIR/BYPASS - NO GAS READINGS

KOP (ftm)  
GAMMA (api)

6000  
600000

GAS (units)  
C1-C4 (PPM)

4127u

2835u

4582u

6800

MD: 7.432  
TVD: 6.945.76  
Inclination: 88.3  
Azimuth: 90  
VS: 329.51

MD: 7.463  
TVD: 6.946.39  
Inclination: 89.4  
Azimuth: 90.6  
VS: 360.29

80% MRLST: med-dk gy, sl frm-mod hd, sb  
ply-sb blk, silty-mot tex, calc, cal incl, 20%  
CHK: lt-med gysbn, mot, sft-mod frm, sb ply-sb  
blk, v calc, tr pyr, abnt bent, scat cal

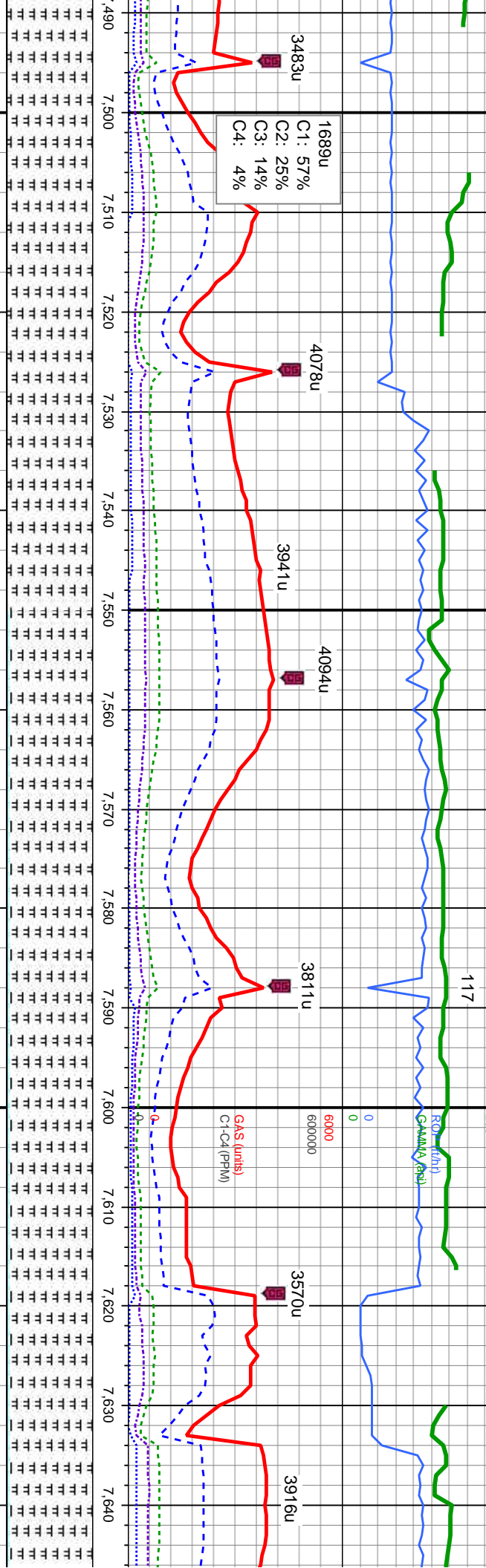
90% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blk,  
silty-mot tex, calc, tr cal incl, tr CHK: 10% CEMENT

100% MRLST: dk gy-blk, sl frm-mod hd, sb  
ply-sb blk, silty-mot tex, calc, tr cal incl, tr C



I/S 30

MW 8.9 / VIS 31

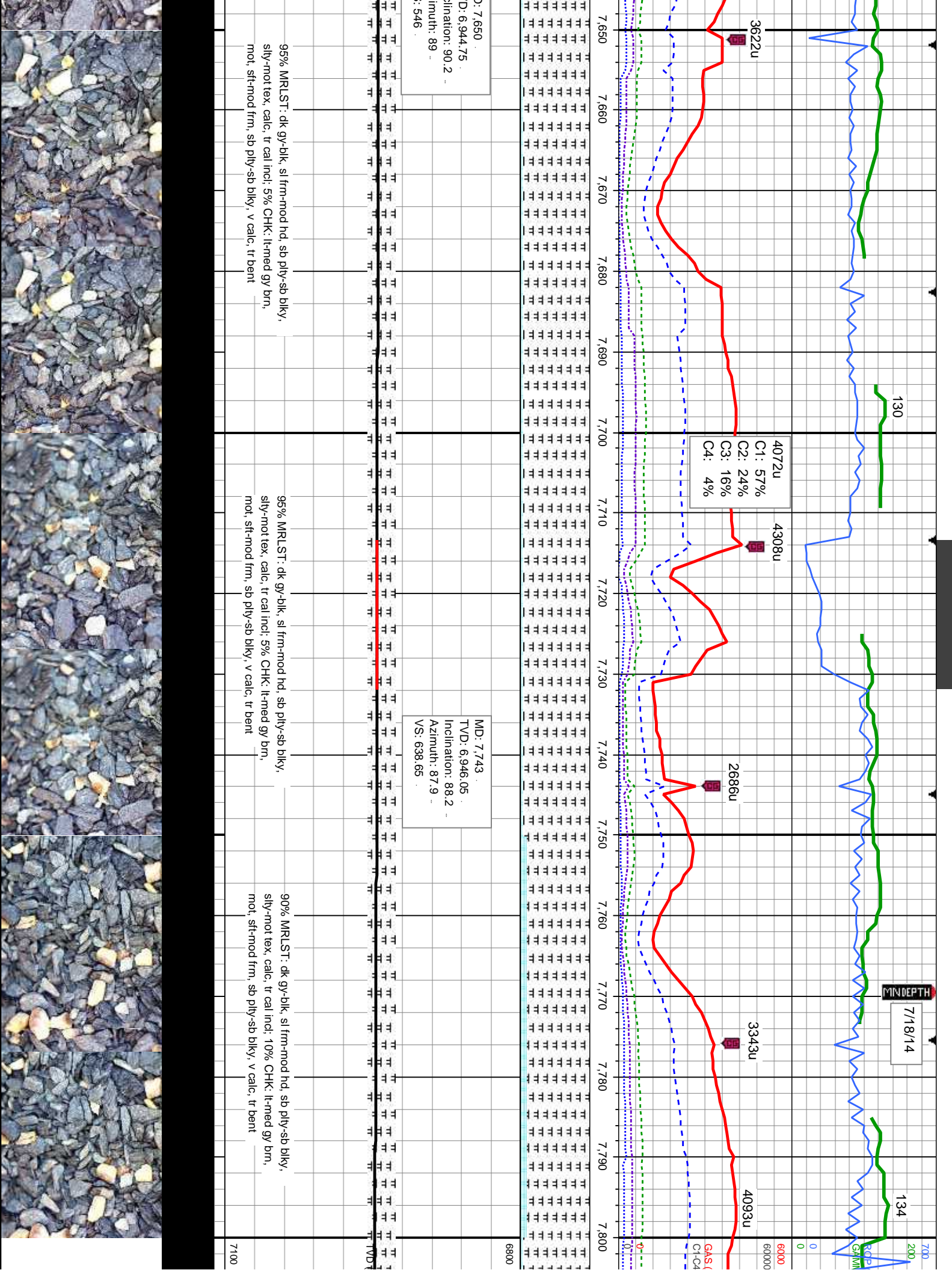


MD: 7,556.  
TVD: 6,945.9  
Inclination: 91.2  
Azimuth: 90.8  
VS: 452.57

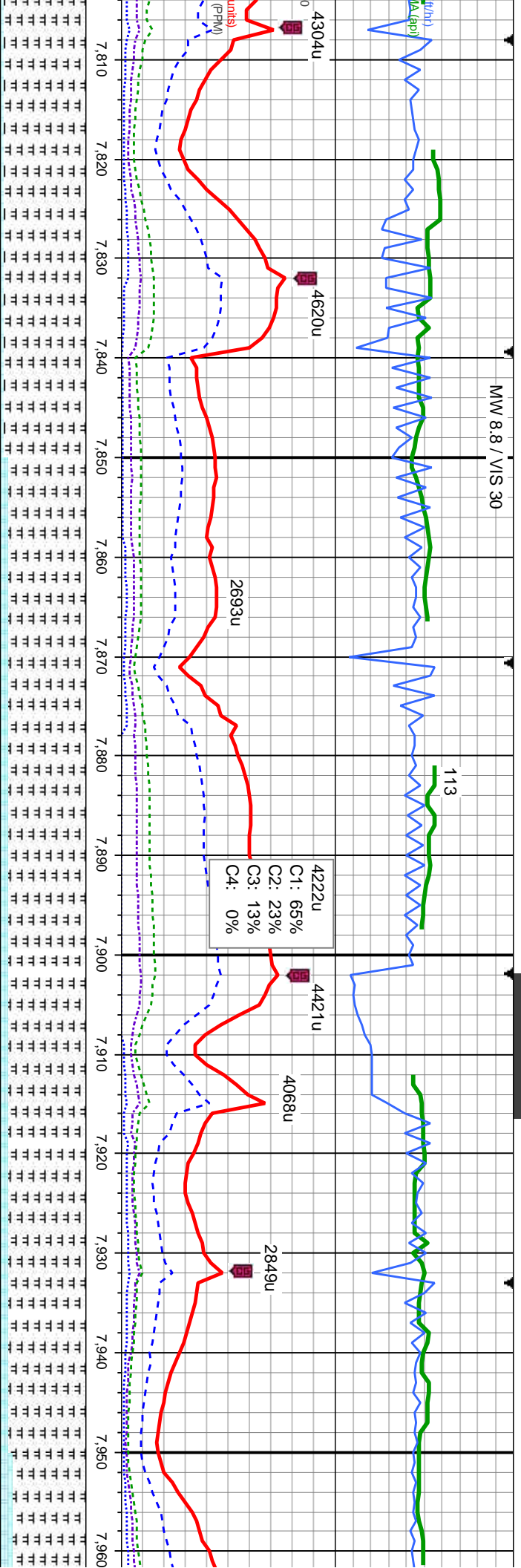
100%	100% MRLST: dk gy-blk, sl frm-mod hd, sb pty-sb blk, pty-sb blk, silty-mot tex, calc, tr cal incl, tr CHK	95%	95% MRLST: dk gy-blk, sl frm-mod hd, sb pty-sb blk, silty-mot tex, calc, tr cal incl, 5% CHK: lt-med gy brn, mot, sft-mod frm, sb pty-sb blk, v calc, tr bent	7100
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MW 8.8 / VIS 30



MD: 7.838  
TVD: 6,949.37  
Inclination: 87.8  
Azimuth: 87.7  
VS: 733.34

MD: 7.932  
TVD: 6,951.91  
Inclination: 89.1  
Azimuth: 89.6  
VS: 826.94

95% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-mot tex, calc, tr cal incl: 5% CHK: lt-med gy brn,  
mot, sft-mod frm, sb ply-sb blkly, v calc, tr bent

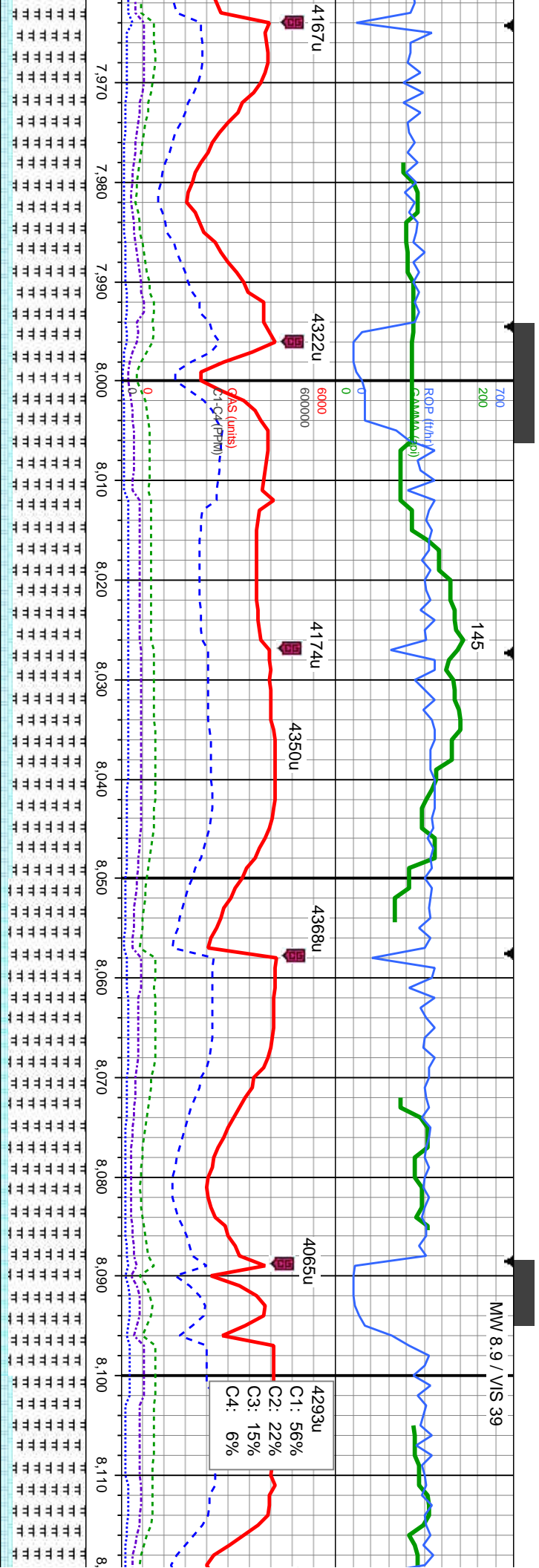
90% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-mot tex, calc, tr cal incl: 10% CHK: lt-med gy brn,  
mot, sft-mod frm, sb ply-sb blkly, v calc, tr bent

90% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-mot tex, calc, tr cal incl: 10% CHK: lt-med gy brn,  
mot, sft-mod frm, sb ply-sb blkly, v calc, tr bent

85% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-mot tex, calc, tr cal incl: 10% CHK: lt-med gy brn,  
mot, sft-mod frm, sb ply-sb blkly, v calc, tr bent







MD: 8.025  
TVD: 6,951.83  
Inclination: 91  
Azimuth: 89.7  
VS: 919.42

MD: 8.118  
TVD: 6,950  
Inclination:  
Azimuth: 8  
VS: 1,011.9

85% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
lex, calc, tr cal incl, 15% CHK, lt-med gy, gy  
mod frm, sb ply-sb blkly, v calc, tr-occ bent

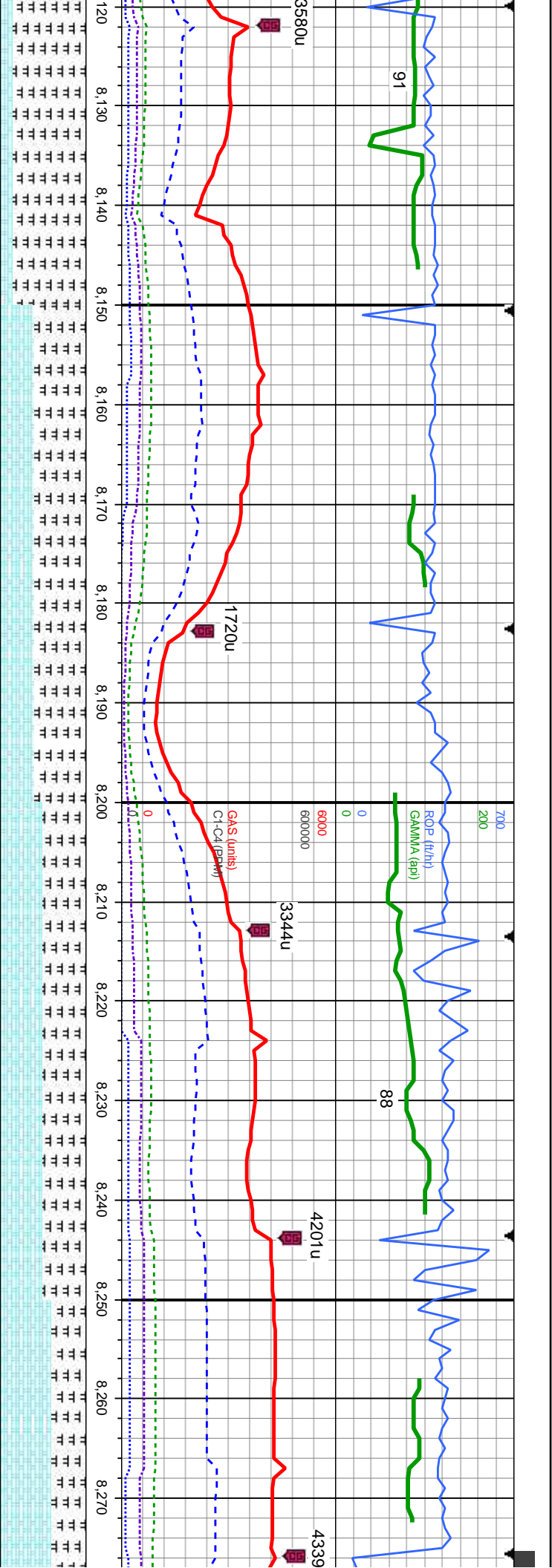
85% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-mot tex, calc, tr cal incl, 15% CHK, lt-med gy, gy  
bm, sft-mod frm, sb ply-sb blkly, v calc, tr-occ bent

90% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-mot tex, calc, tr cal incl, 10% CHK, lt-med gy bm,  
mot, sft-mod frm, sb ply-sb blkly, v calc, tr bent

85% MRLST: dk gy-blk  
sily-mot tex, calc, tr cal  
bm, sft-mod frm, sb ply







69  
90.4  
9.5  
1

MD: 8,211  
TVD: 6,949.31  
Inclination: 91.3  
Azimuth: 89.3  
VS: 1,104.42

sl frm-mod hd, sb ply-sb blk, incl; 15% CHK; lt-med gy, gy -sb blk, v calc, tr-occ bent

60% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-mot tex, calc, tr cal incl; 40% CHK; lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blk, v calc, tr-occ bent

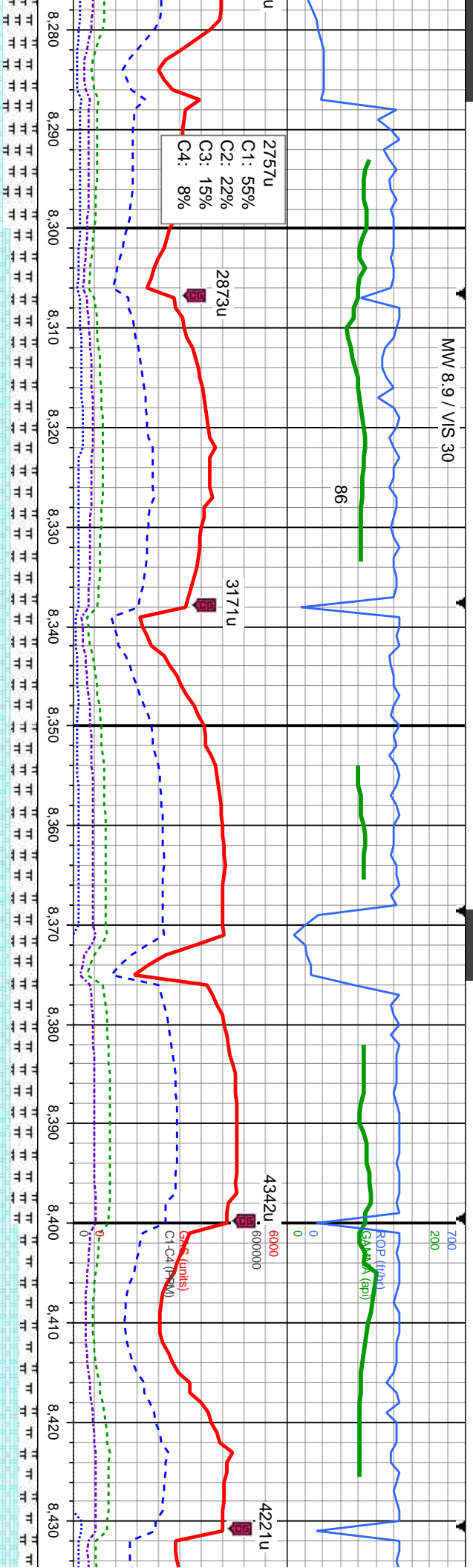
50% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-mot tex, calc, occ cal incl; 50% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blk, v calc, occ bent, scat cal

60% CHK: lt-med gy, gy brn ply-sb blk, v calc; 40% MFL frm-mod hd, sb ply-sb blk, occ cal incl, occ bent, scat c





MW 8.9 / VIS 30



2757u  
C1: 55%  
C2: 22%  
C3: 15%  
C4: 8%

MD: 8.305  
TVD: 6,948.41  
Inclination: 89.8  
Azimuth: 88.3  
VS: 1,198.03

MD: 8.398  
TVD: 6,948.57  
Inclination: 90  
Azimuth: 89.8  
VS: 1,290.61

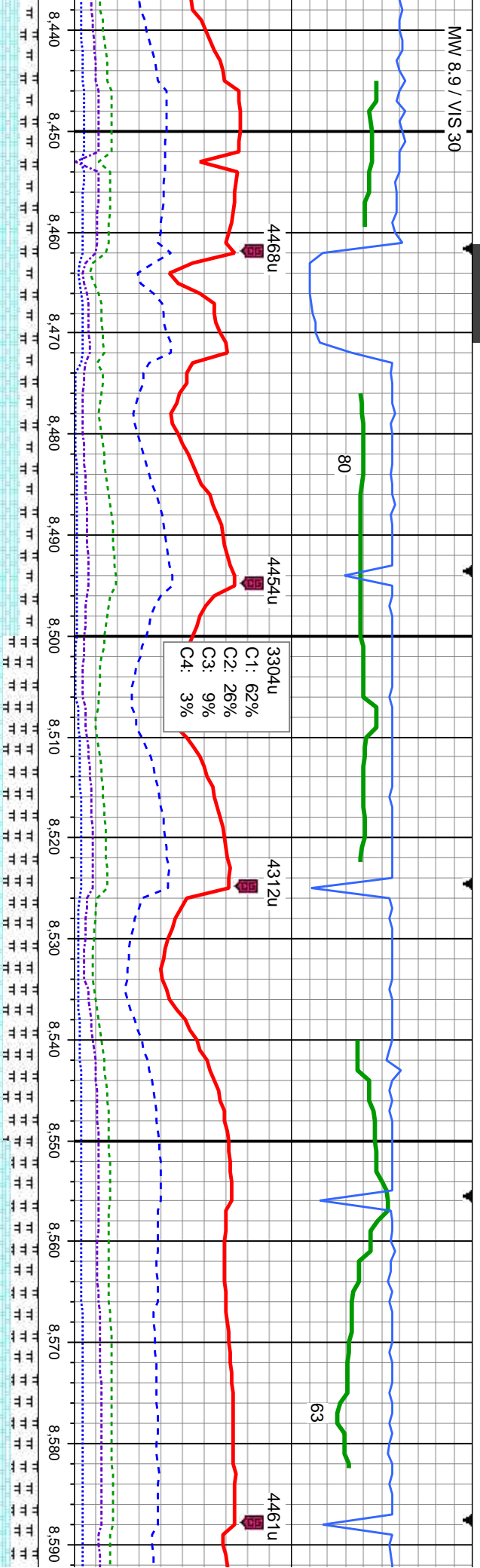
70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blk, v calc, 30% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blk, sily-mot tex, calc, occ cal incl, occ bent, scat cal

70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blk, v calc, 30% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blk, sily-mot tex, calc, occ cal incl, occ bent, scat cal





MW 8.9 / VIS 30



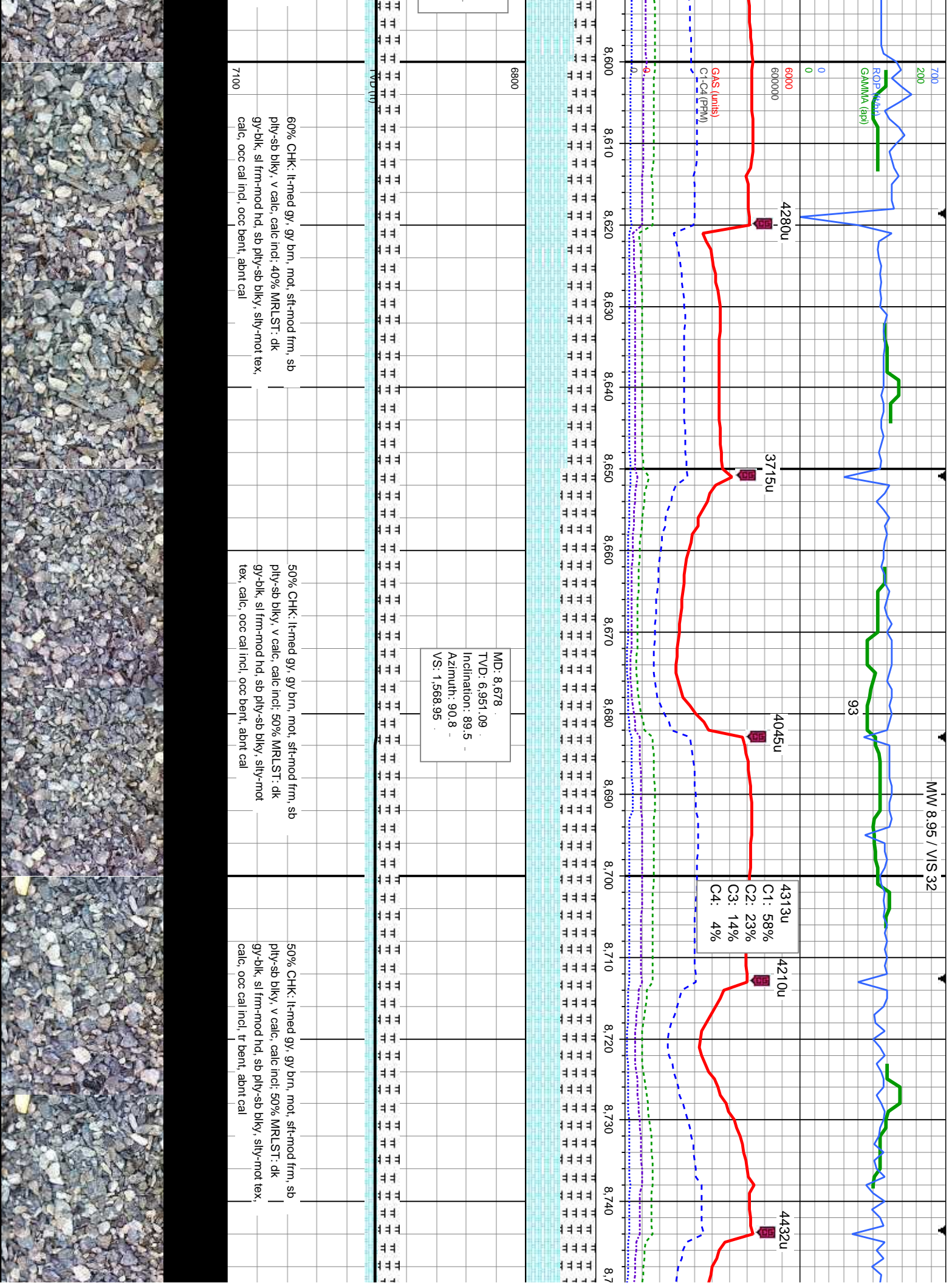
MD: 8,492  
TVD: 6,948.9  
Inclination: 89.6  
Azimuth: 89.3  
VS: 1,384.11

MD: 8,586  
TVD: 6,949.97  
Inclination: 89.1  
Azimuth: 89.9  
VS: 1,477.59

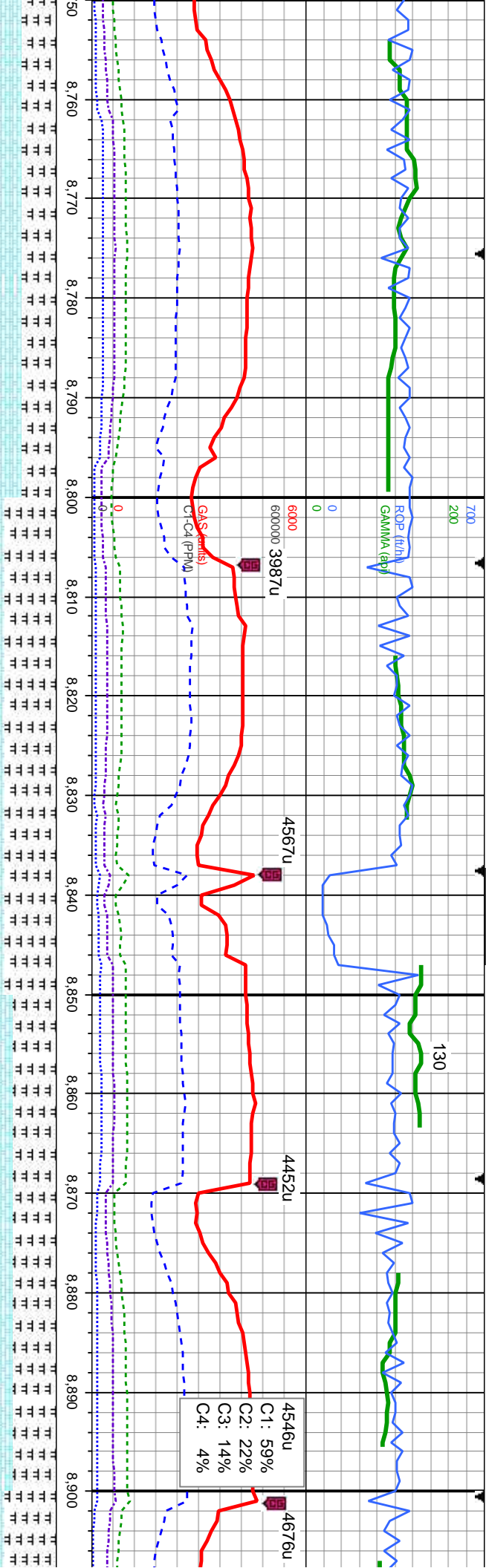
mod frm, sb	80% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb	60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb	70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb
ST: dk	ply-sb blk, v calc, calc incl: 20% MRLST: dk gy-blk,	ply-sb blk, v calc, calc incl: 40% MRLST: dk	ply-sb blk, v calc, calc incl: 30% MRLST: dk
ly-mot tex,	sl frm-mod hd, sb ply-sb blk, sily-mot tex, calc, occ	gy-blk, sl frm-mod hd, sb ply-sb blk, sily-mot tex,	gy-blk, sl frm-mod hd, sb ply-sb blk, sily-mot tex,
	cal incl, occ bent, abnt cal	calc, occ cal incl, occ bent, abnt cal	calc, occ cal incl, occ bent, abnt cal











MD: 8.772  
TVD: 6,952.48  
Inclination: 88.8  
Azimuth: 90.8  
VS: 1,662.2

MD: 8.866  
TVD: 6,953.47  
Inclination: 90  
Azimuth: 90.1  
VS: 1,755.52

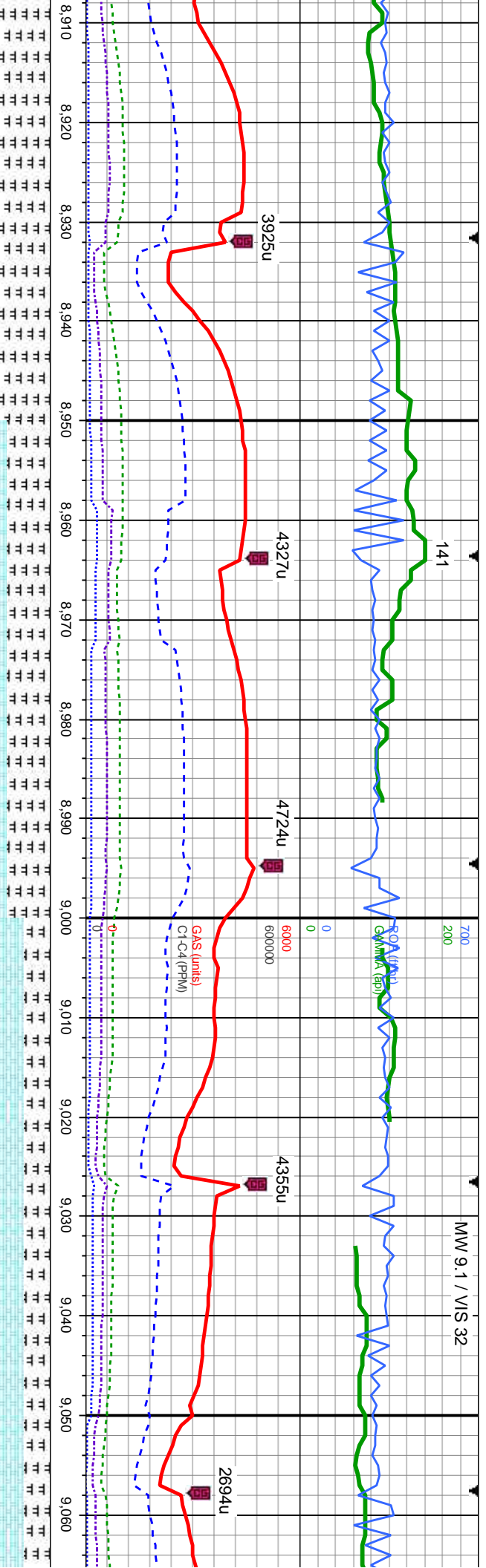
60% CHK: lt-med gy, gy brn, mot. sft-mod frm, sb  
ply-sb blkly, v calc, calc incl; 40% MRLST: dk  
gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-mot tex,  
calc, occ cal incl, tr bent, abnt cal

60% MRLST: dk gy-blk, sl frm-mod hd, sb  
ply-sb blkly, silty-mot tex, calc, occ cal incl;  
40% CHK: lt-med gy, gy brn, mot. sft-mod frm,  
sb ply-sb blkly, v calc, occ calc incl, scat cal

50% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb  
blkly, silty tex, calc, occ cal incl; 50% CHK: lt-med  
gy, gy brn, mot. sft-mod frm, sb ply-sb blkly, v calc,  
occ calc incl, scat cal







MD: 8.961  
TVD: 6.953.39  
Inclination: 90.1  
Azimuth: 89.9  
VS: 1.849.94

MD: 9.055  
TVD: 6.952.73  
Inclination: 90.7  
Azimuth: 89.5  
VS: 1.943.4

60% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-mot tex, calc, occ cal incl; 40% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, occ calc incl, scat cal	50% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty tex, calc, occ cal incl; 50% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, occ calc incl, scat cal	70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, occ calc incl; 30% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty tex, calc, occ cal incl, occ cal	70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, occ calc incl; 30% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty tex, calc, occ cal incl, occ cal
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MW 9.2 / VIS 33

ROP (ft/h)  
GAMMA (api)

58

65

3689u  
C1: 65%  
C2: 20%  
C3: 12%  
C4: 3%

4512u

4474u

4900u

GAS (units)  
Gr-CA(FW)

9,070 9,080 9,090 9,100 9,110 9,120 9,130 9,140 9,150 9,160 9,170 9,180 9,190 9,200 9,210 9,220

MD: 9,148

TVD: 6,951.11

Inclination: 91.3

Azimuth: 88.8

VS: 2,035.96

lt-med gy, gy brn, mot, sft-mod frm,  
bky, v calc, occ calc incl, 30%  
gy-blk, sl frm-mod hd, sb ply-sb bky,  
occ cal incl, occ cal

70% CHK: lt-med gy, gy brn, mot, sft-mod frm,  
sb ply-sb bky, v calc, occ calc incl, 30%  
MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb bky,  
sily tex, calc, occ cal incl, occ cal

90% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb bky, v calc, occ calc incl, 10% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb bky, sily tex,  
calc, occ cal incl, tr bent, scat cal

80% CHK: lt-med gy, g  
ply-sb bky, v calc, occ  
dk gy-blk, sl frm-mod h  
calc, occ cal incl, tr ber

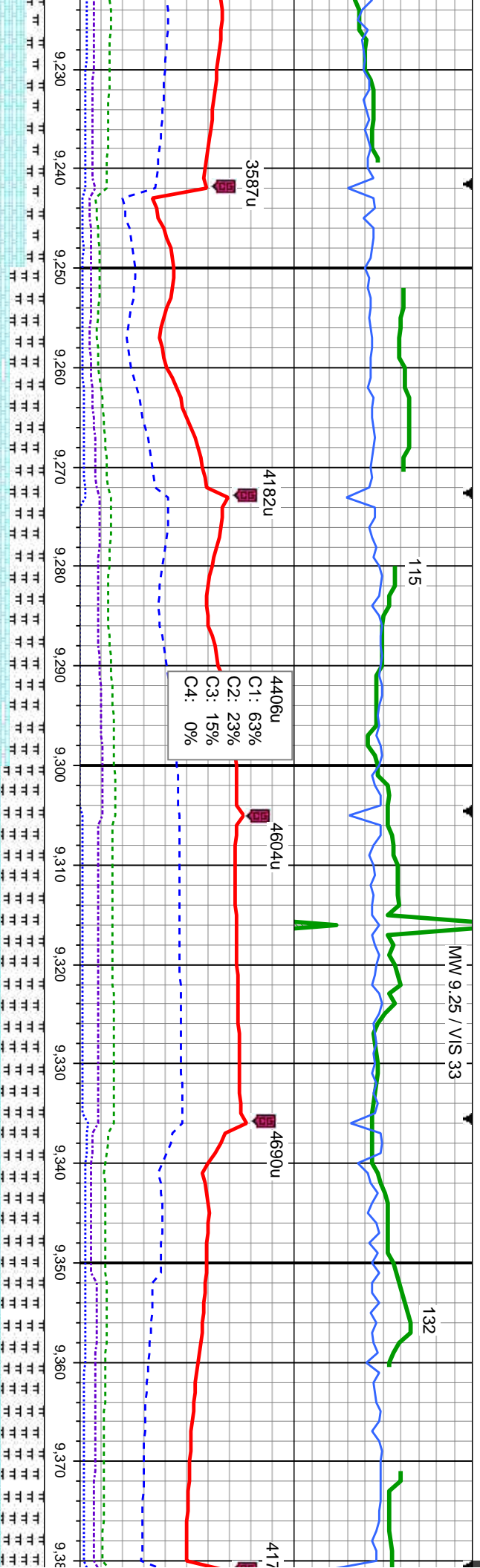
TVD (ft)

6800

7100







MD: 9,241  
TVD: 6,949.73  
Inclination: 90.4  
Azimuth: 88.7  
VS: 2,128.57

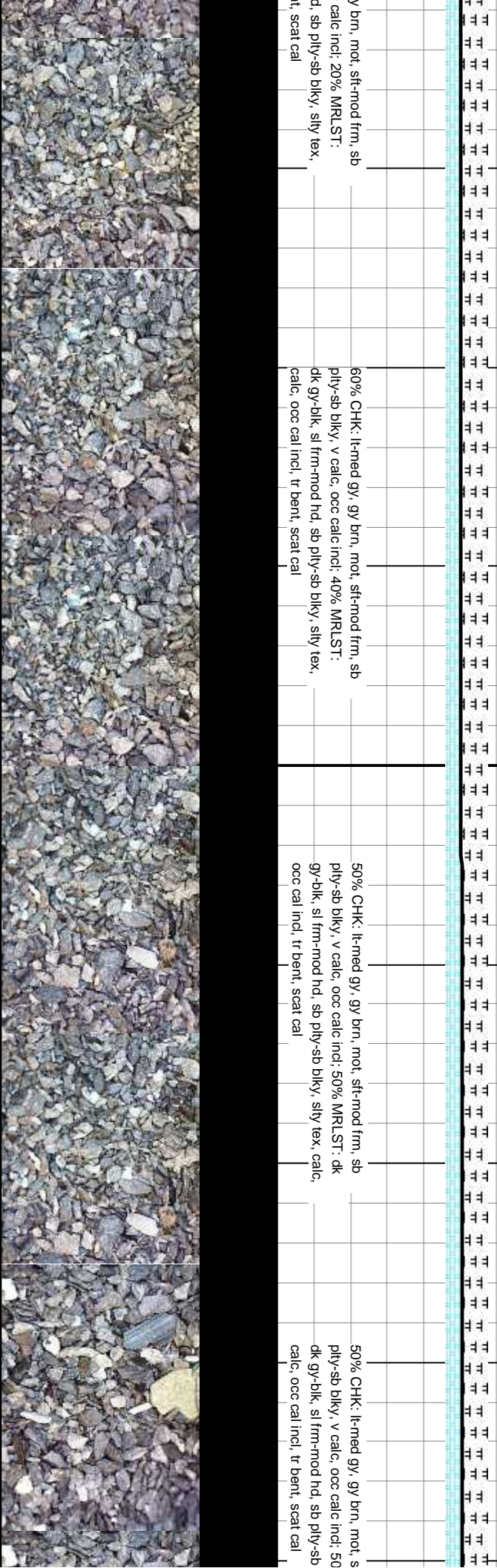
v brn, mot, sft-mod frm, sb  
calc incl: 20% MRLST:  
dk, sb ply-sb blk, sily tex,  
it, scat cal

60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl: 40% MRLST:  
dk, gy-blk, sl frm-mod hd, sb ply-sb blk, sily tex,  
calc, occ cal incl, tr bent, scat cal

50% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl: 50% MRLST: dk  
gy-blk, sl frm-mod hd, sb ply-sb blk, sily tex, calc,  
occ cal incl, tr bent, scat cal

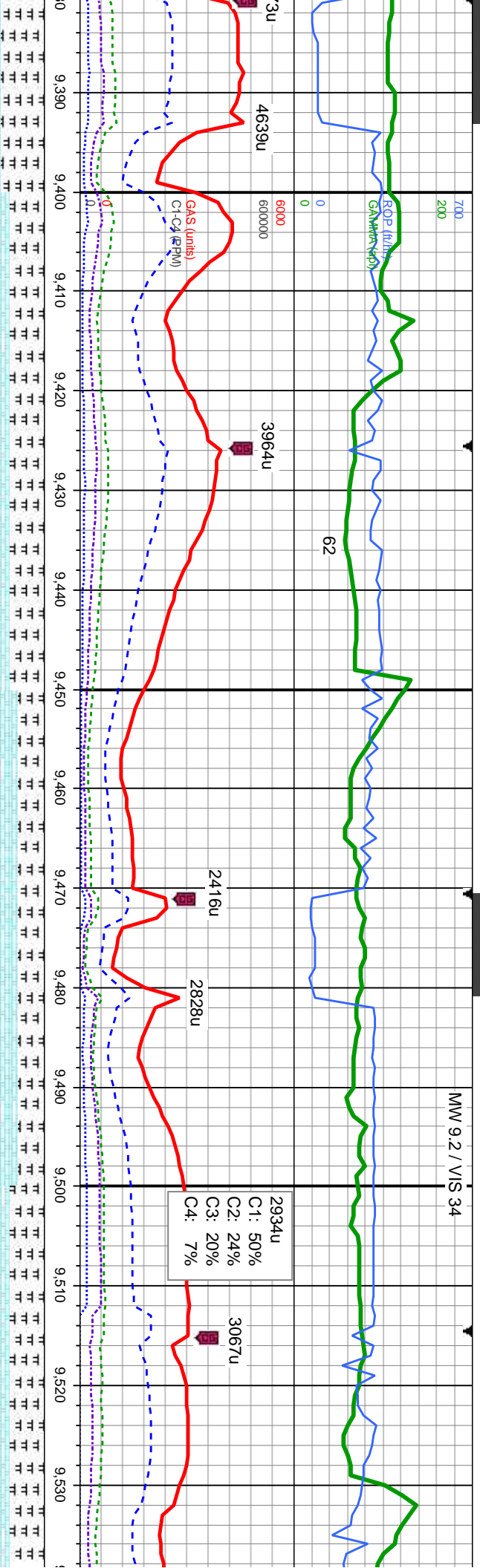
50% CHK: lt-med gy, gy brn, mot, s  
ply-sb blk, v calc, occ calc incl: 50  
dk gy-blk, sl frm-mod hd, sb ply-sb  
calc, occ cal incl, tr bent, scat cal

MD: 9,318  
TVD: 6,948.72  
Inclination: 91.1  
Azimuth: 89.2  
VS: 2,205.23





MW 9.2 / VIS 34



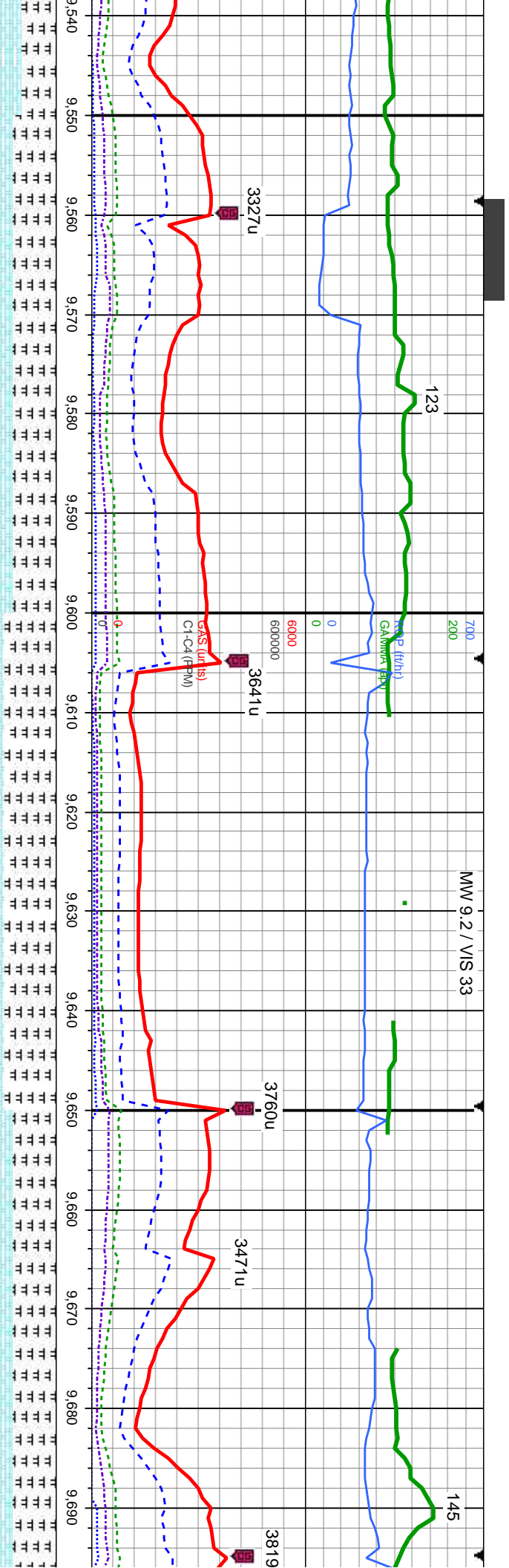
MD: 9.408  
TVD: 6,947.23  
Inclination: 89.8  
Azimuth: 89.9  
VS: 2,294.74

MD: 9.497  
TVD: 6,946.84  
Inclination: 89.7  
Azimuth: 89.4  
VS: 2,383.24

lt-mod frm, sb  
% MRLST:  
biky, silty tex,  
60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb biky, v calc, occ calc incl: 40% MRLST: dk  
gy-blk, sl frm-mod hd, sb ply-sb biky, silty tex, calc,  
occ cal incl, occ bent, occ cal  
70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb biky, v calc, occ calc incl: 30% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb biky, silty tex,  
calc, occ cal incl, occ bent, occ cal  
60% CHK: lt-med gy, gy brn, mot, sft-mod frm,  
ply-sb biky, v calc, occ calc incl: 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb biky, silty tex,  
calc, occ cal incl, occ bent, occ cal







50% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb	60% MRLST: dk gy-blk, sl frm-mod hd, sb	50% MRLST: dk gy-blk, sl frm-mod hd, sb
ply-sb blk, v calc, occ calc incl; 50% MRLST:	ply-sb blk, silty tex, calc, occ cal incl; 40%	blk, silty tex, calc, occ cal incl; 50% CHK: lt-med
dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty tex,	CHK: lt-med gy, gy brn, mot, sft-mod frm, sb	gy, gy brn, mot, sft-mod frm, sb ply-sb blk, v
calc, occ cal incl, occ bent, occ cal	ply-sb blk, v calc, occ calc incl, abnt cal	calc, occ calc incl, tr bent, scat cal
7100		





MW 9.2 / VIS 33

119

3541u  
C1: 65%  
C2: 22%  
C3: 11%  
C4: 2%

4111u

4089u

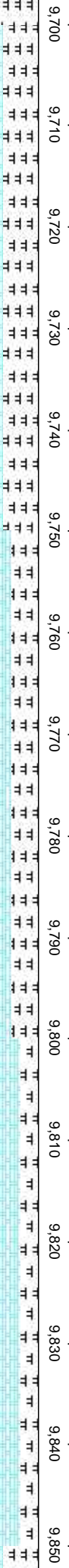
1675u

3049u

3502u

GAS (units)  
C-Cl (lb/m)

ROP (ft/hr)  
GAMMA (cp)



MD: 9,766  
TVD: 6,946.78  
Inclination: 90.4  
Azimuth: 90.7  
VS: 2,650.55

MD: 9,810  
TVD: 6,946.78  
Inclination: 90.4  
Azimuth: 90.7  
VS: 2,650.55

60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl: 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty tex,  
calc, occ cal incl, occ cal, occ bent

70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl: 30% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty tex,  
calc, occ cal incl, scat cal, tr bent

80% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl: 20% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty tex,  
calc, occ cal incl, scat cal, tr bent





MW 9.2 / VIS 33

93

86

4282u

3657u

2785u

3902u

3987u

2528u  
C1: 61%  
C2: 21%  
C3: 13%  
C4: 5%

ROP (ft/m)  
GAMMA (api)  
GAS (lunks)  
C1+C4 (PPM)

2091



945.31  
ion: 91.5  
r: 89.4  
38.98

MD: 9.945  
TVD: 6.944.44  
Inclination: 89.6  
Azimuth: 88.9  
VS: 2.828.55

60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl, 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty tex,  
calc, occ cal incl, scat cal, tr bent

70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl, 30% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-wxy  
tex, calc, occ calc frags, tr bent

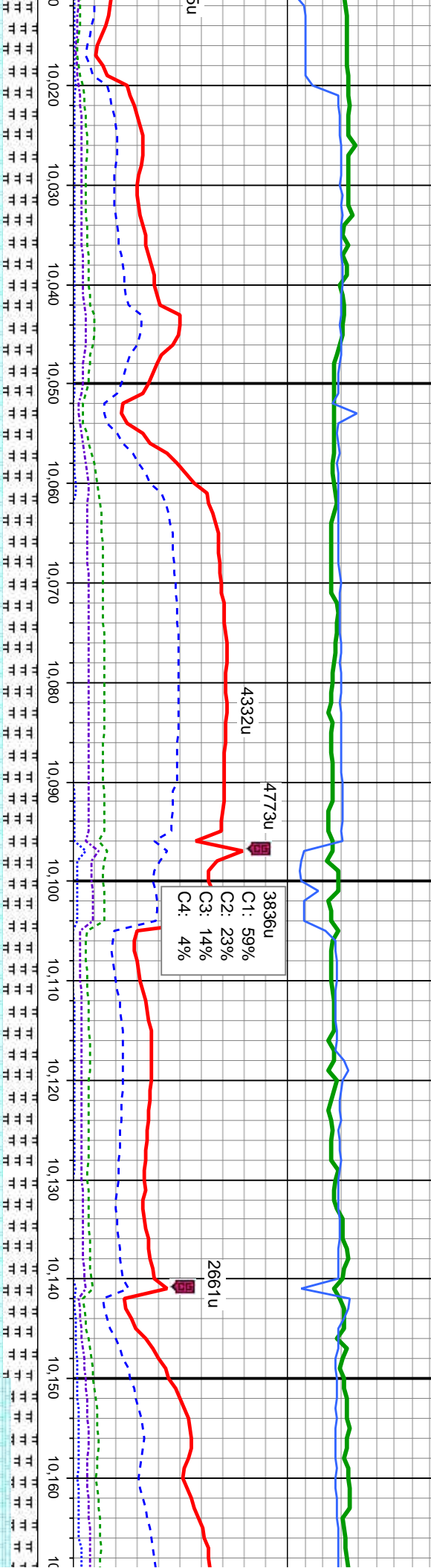
60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc incl, 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-wxy  
tex, calc, occ calc frags, tr bent





MW 9.25 / VIS 33

MW 9.2 / VIS 36



MD: 10,035  
TVD: 6,945.31  
Inclination: 89.3  
Azimuth: 89.5  
VS: 2,918.12

MD: 10,124  
TVD: 6,946.01  
Inclination: 89.8  
Azimuth: 90.2  
VS: 3,006.59

60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc inci, 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, sily-wxy  
tex, calc, occ calc frags, tr bent

60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc inci, 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, sily-wxy  
tex, calc, occ calc frags, tr bent

60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc inci, 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, sily-wxy  
tex, calc, occ calc frags, tr bent

70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blk, v calc, occ calc inci, 40% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blk, sily-wxy  
tex, calc, occ calc frags, tr bent





MW 9.2 / VIS 35

91

82

ROP (ft/hr)  
GAMMA (cp)

3981u

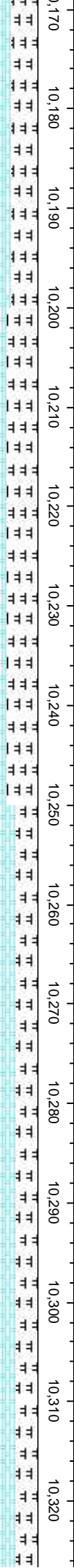
3899u

4005u

3976u

3861u  
C1: 62%  
C2: 22%  
C3: 13%  
C4: 3%

GAS (units)  
C1-C4 (PPM)



MD: 10,214  
TVD: 6,945.85  
Inclination: 90.4  
Azimuth: 89.9  
VS: 3,096.02

MD: 10,303  
TVD: 6,945.93  
Inclination: 89.5  
Azimuth: 89.9  
VS: 3,184.49

TVD (ft)

gy brn, mot, sft-mod frm, sb  
calc incl: 30% MRLST:  
d, sb pily-sb blk, sily-wxy  
s, tr bent

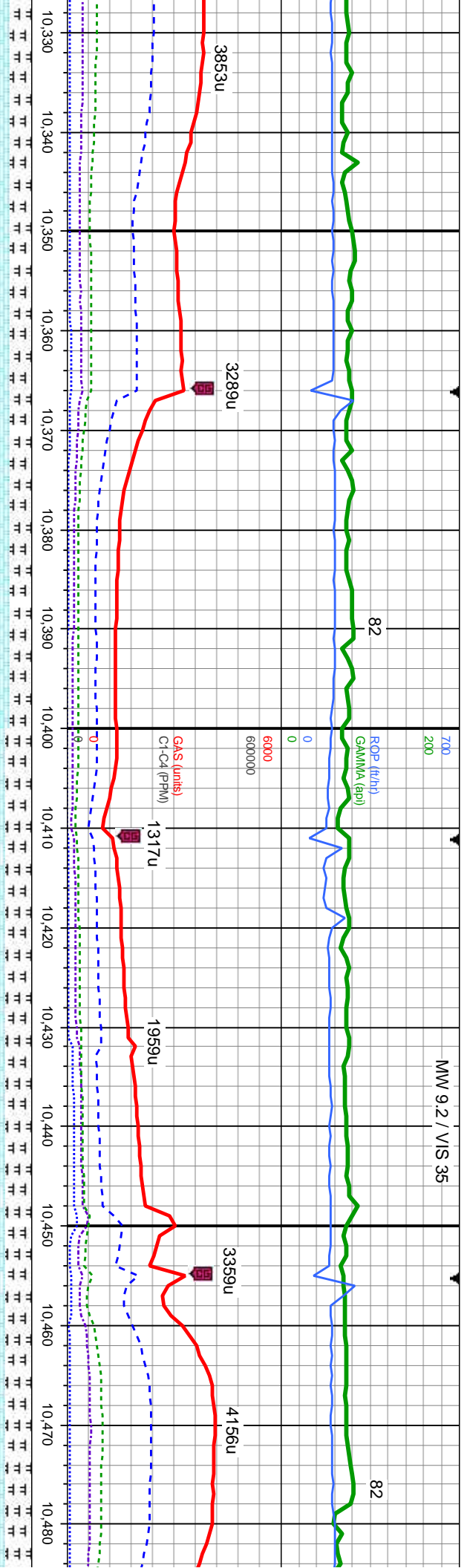
65% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
pily-sb blk, v calc, occ calc incl: 35% MRLST:  
dk gy-blk, sl frm-mod hd, sb pily-sb blk, sily-wxy  
tex, calc, occ calc frags, tr bent

75% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
pily-sb blk, v calc, occ calc incl: 25% MRLST:  
dk gy-blk, sl frm-mod hd, sb pily-sb blk, sily-wxy  
tex, calc, occ calc frags, tr bent

75% CHK: lt-med gy, gy brn, r  
pily-sb blk, v calc, occ calc in  
dk gy-blk, sl frm-mod hd, sb pl  
tex, calc, occ calc frags, tr ber







MD: 10.393  
TVD: 6,947.26  
Inclination: 88.8  
Azimuth: 88.5  
VS: 3,274.05

MD: 10.483  
TVD: 6,949  
Inclination:  
Azimuth: 8  
VS: 3,363.7

not, sft-mod frm, sb		75% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb		70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb		70% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb	
cl, 25% MRLST:		ply-sb blk, v calc, occ calc inci: 25% MRLST:		ply-sb blk, v calc, occ calc inci: 30% MRLST:		ply-sb blk, v calc, occ calc inci: 30% MRL	
ly-sb blk, sly-wxy		dk gy-blk, sl frm-mod hd, sb ply-sb blk, sly-wxy		dk gy-blk, sl frm-mod hd, sb ply-sb blk, sly-wxy		dk gy-blk, sl frm-mod hd, sb ply-sb blk, sly	
		tex, calc, occ calc frags, tr bent		tex, calc, occ calc frags, tr bent		tex, calc, occ calc frags, tr bent	

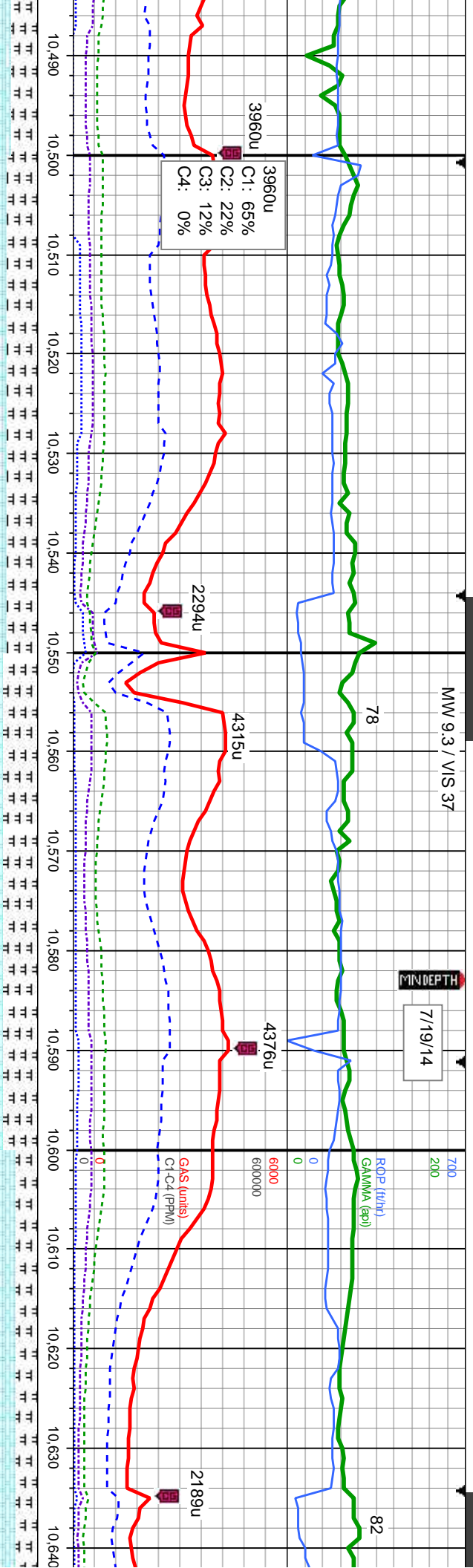




MW 9.3 / VIS 37

7/19/14

MINDEPTH



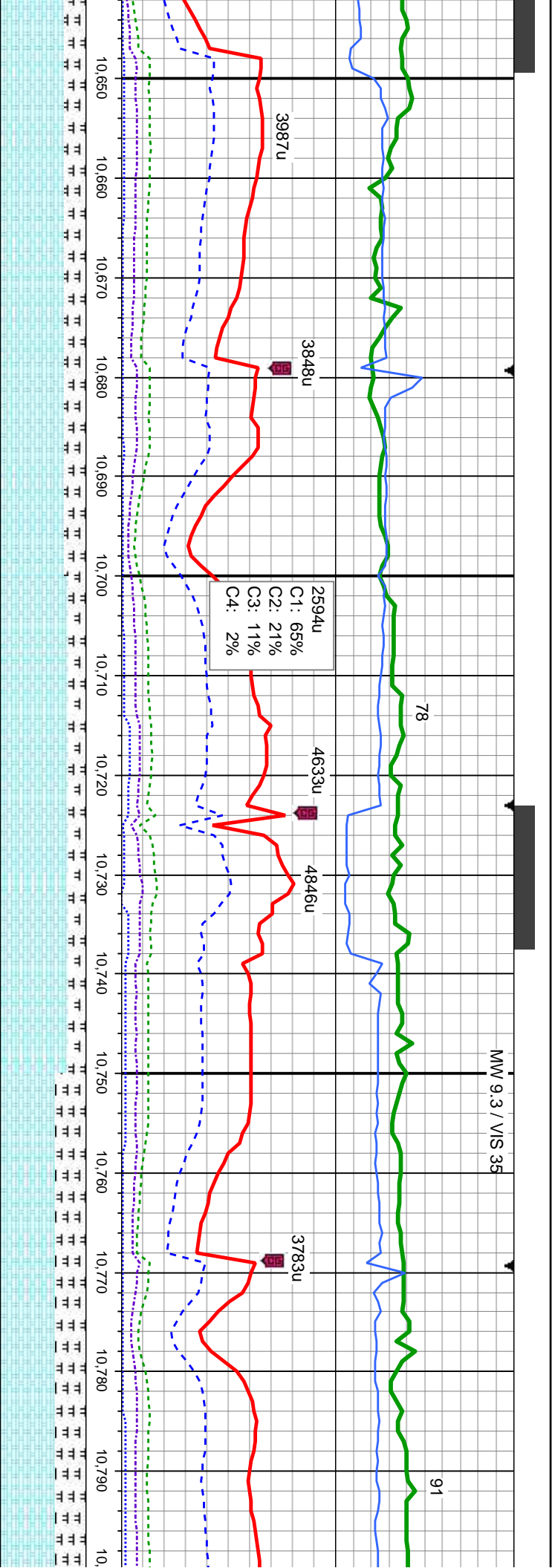
62.0  
88.2  
7.4  
6

MD: 10,572  
TVD: 6,951.33  
Inclination: 89.6  
Azimuth: 87.5  
VS: 3,452.61

frm, sb	65% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb	60% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb	75% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb
ST:	ply-sb blk, v calc, occ calc incl: 35% MRLST:	ply-sb blk, v calc, occ calc incl: 40% MRLST:	ply-sb blk, v calc, occ calc incl: 25% MRLST:
y-wxy	dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-wxy	dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-wxy	dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-wxy
	tex, calc, occ calc frags, lt bent	tex, calc, occ calc frags, lt bent	tex, calc, occ calc frags, lt bent







MD: 10.662  
TVD: 6,951.48  
Inclination: 90.2  
Azimuth: 88.7  
VS: 3,542.34

MD: 10.751  
TVD: 6,951.41  
Inclination: 89.9  
Azimuth: 90.1  
VS: 3,630.88

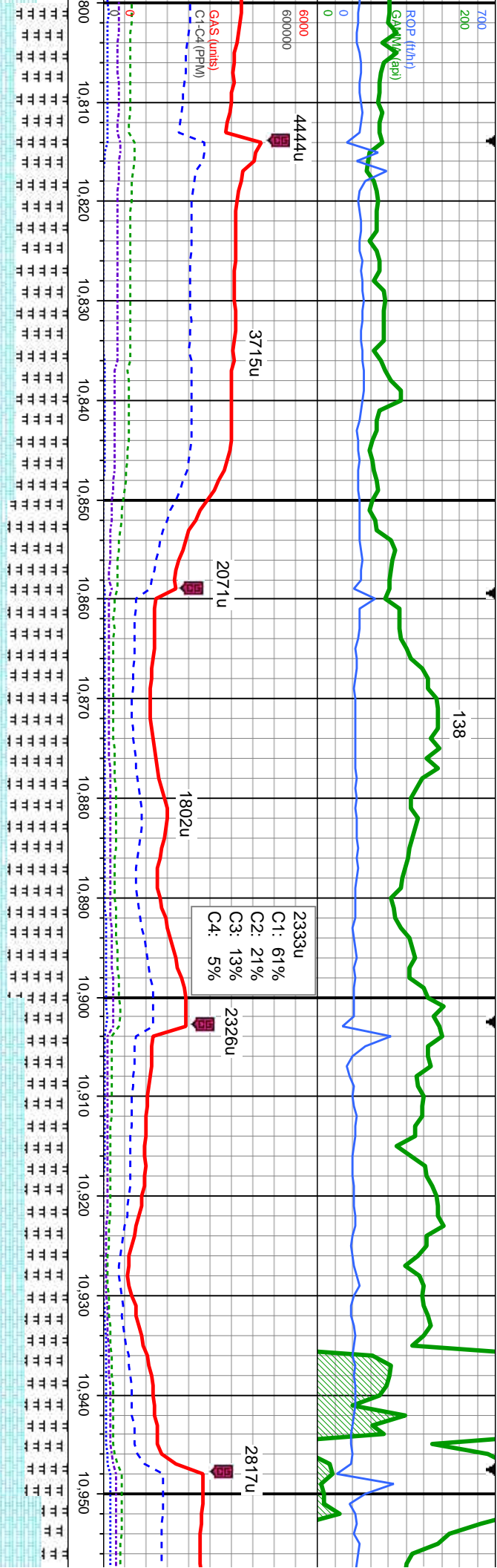
75% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blkly, v calc, occ calc incl; 25% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy  
tex, calc, occ calc frags, tr bent

80% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blkly, v calc, occ calc incl; 20% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy  
tex, calc, occ calc frags, tr bent

65% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb  
ply-sb blkly, v calc, occ calc incl; 35% MRLST:  
dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy  
tex, calc, occ calc frags, tr bent







MD: 10,841  
TVD: 6,951.09  
Inclination: 90.5  
Azimuth: 90.5  
VS: 3,720.27

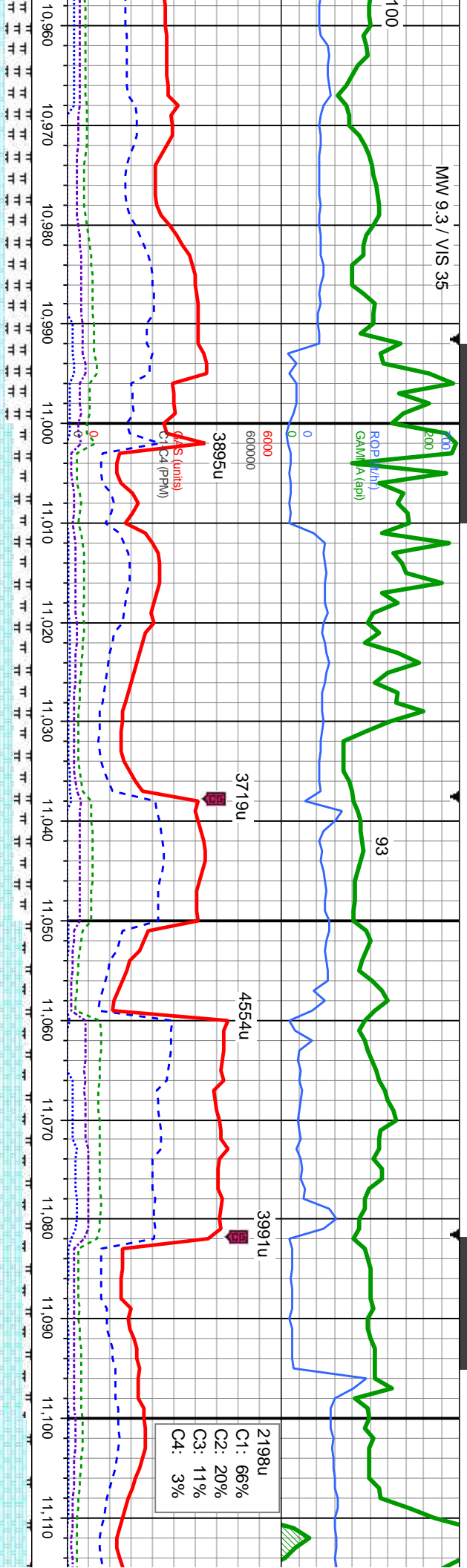
MD: 10,931  
TVD: 6,949.13  
Inclination: 92  
Azimuth: 90.8  
VS: 3,809.57

60% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb biky, silty-wxy tex, calc, ooc calc frags, tr bent; 40% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb biky, v calc, ooc calc incl	70% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb biky, silty-wxy tex, calc, ooc calc frags, tr bent; 30% CHK: lt-med gy, gy brn, mot, sft-mod frm, sb ply-sb biky, v calc, ooc calc incl	50% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb biky, v calc, ooc calc incl; 50% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb biky, silty-wxy tex, calc, ooc calc frags, tr bent, scat cal
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MW 9.3 / VIS 35



MD: 11,020  
TVD: 6,946.88  
Inclination: 90.9  
Azimuth: 89.6  
VS: 3,897.95

2198u  
C1: 66%  
C2: 20%  
C3: 11%  
C4: 3%

MD: 11,110  
TVD: 6,946.09  
Inclination: 90.1  
Azimuth: 88.6  
VS: 3,987.54

70% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, ooc calc incl; 30% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy tex, calc, ooc calc frags, tr bent, scat cal

80% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, ooc calc incl; 20% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy tex, calc, ooc calc frags, ooc cal

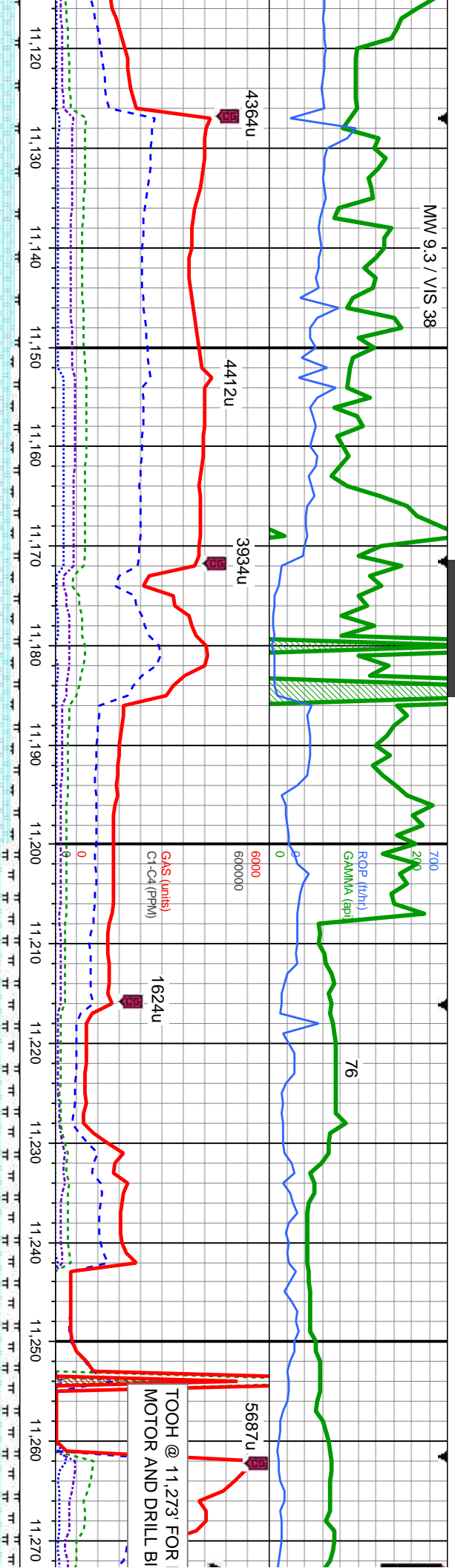
90% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, ooc calc incl; 10% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy tex, calc, ooc calc frags, ooc cal

95% CHK: frm, sb ply-sb blkly, silty-wxy





MW 9.3 / VIS 38



MD: 11,200  
TVD: 6,946.56  
Inclination: 89.3  
Azimuth: 89.4  
VS: 4,077.14

lt-med gy, bf, gy brn, mot, sft-mod  
y-sb blk, v calc, occ calc incl; 5%  
k gy-blk, sl frm-mod hd, sb pily-sb  
wxy tex, calc, occ calc frags, occ cal

90% CHK: lt-med gy, bf, gy brn, mot, sft-mod  
frm, sb pily-sb blk, v calc, occ calc incl; 10%  
MRLST: dk gy-blk, sl frm-mod hd, sb pily-sb  
blk, sily-wxy tex, calc, occ calc frags, occ cal

80% CHK: lt-med gy, bf, gy brn, mot, sft-mod  
frm, sb pily-sb blk, v calc, occ calc incl; 20%  
MRLST: dk gy-blk, sl frm-mod hd, sb pily-sb blk,  
sily-wxy tex, calc, occ calc frags, occ cal

70% CHK: lt-med gy, bf, gy brn, mot, sft-mod  
frm, sb pily-sb blk, v calc, occ calc incl; 10%  
MRLST: dk gy-blk, sl frm-mod hd, sb pily-sb blk,  
sily-wxy tex, calc, occ calc frags, occ cal



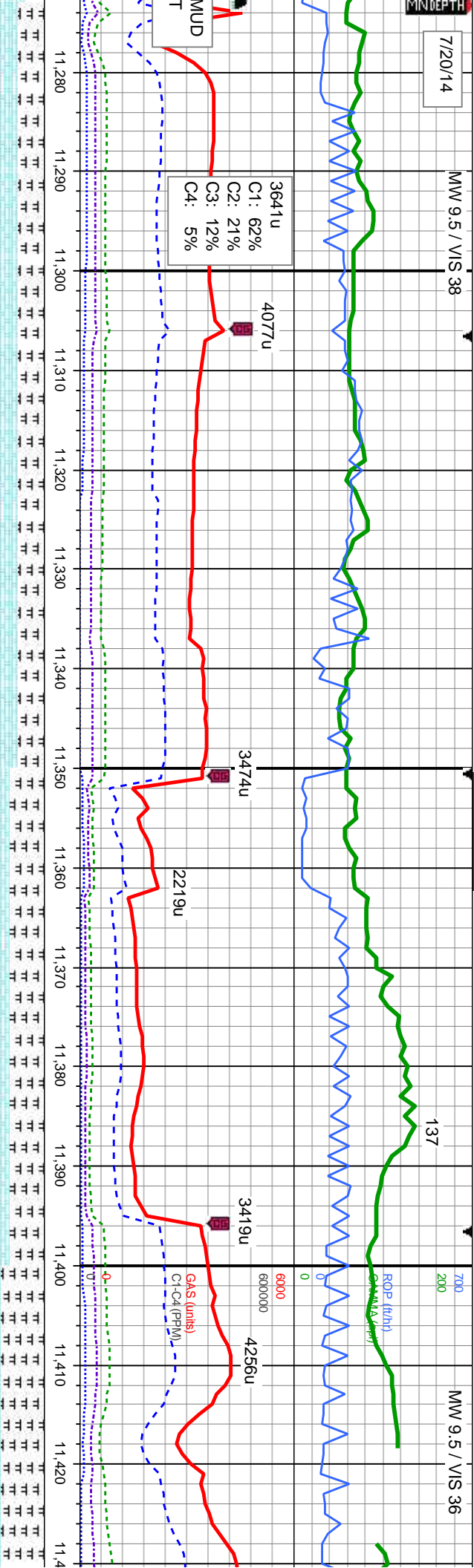


7/20/14

MW 9.5 / VIS 38

137

MW 9.5 / VIS 36



MD: 11,289  
TVD: 6,946.72  
Inclination: 90.5  
Azimuth: 88.9  
VS: 4,165.72

MD: 11,379  
TVD: 6,946.4  
Inclination: 89.9  
Azimuth: 89.3  
VS: 4,255.31

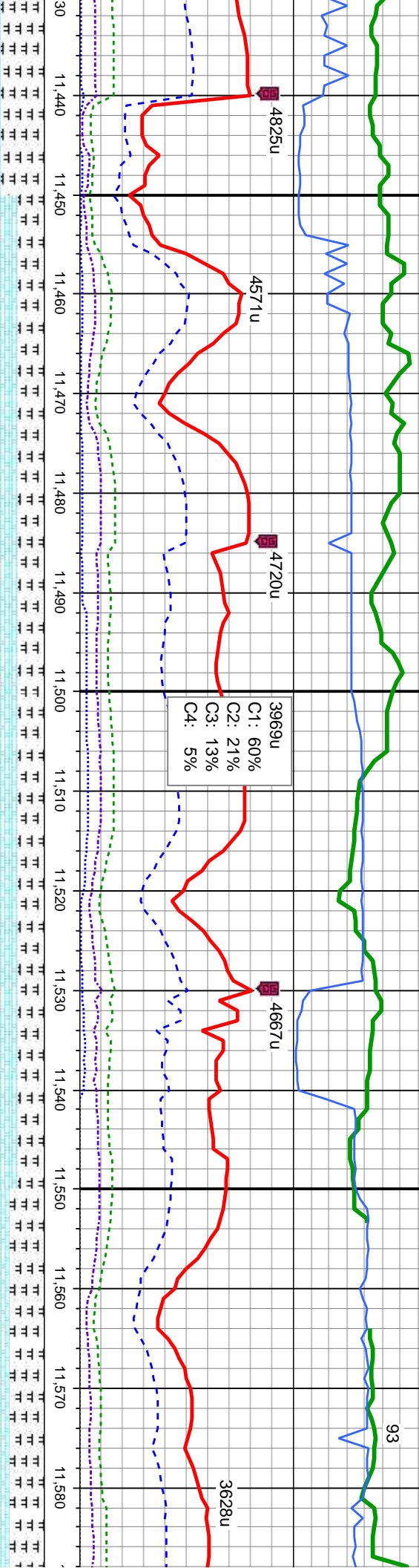
7/20/14  
MW 9.5 / VIS 38  
137  
MW 9.5 / VIS 36  
ROP (ft/hr)  
CMAA (ft/hr)  
GAS (units)  
C1-C4 (PPM)  
3641u  
4077u  
3474u  
2219u  
3419u  
4256u  
MD: 11,289  
TVD: 6,946.72  
Inclination: 90.5  
Azimuth: 88.9  
VS: 4,165.72  
MD: 11,379  
TVD: 6,946.4  
Inclination: 89.9  
Azimuth: 89.3  
VS: 4,255.31  
70% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb pily-sb blkly, v calc, occ calc incl; 30% MRLST: dk gy-blk, sl frm-mod nd, sb pily-sb blkly, silty-wxy tex, calc, occ calc frags, scat cal  
60% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb pily-sb blkly, v calc, occ calc incl; 40% MRLST: dk gy-blk, sl frm-mod nd, sb pily-sb blkly, silty-wxy tex, calc, occ calc frags, scat cal  
50% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb pily-sb blkly, v calc, occ calc incl; 30% MRLST: dk gy-blk, sl frm-mod nd, sb pily-sb blkly, silty-wxy tex, calc, occ calc frags, scat cal





MW 9.45 / VIS 36

93



MD: 11,468  
TVD: 6,946.09  
Inclination: 90.5  
Azimuth: 90.9  
VS: 4,343.74

MD: 11,558  
TVD: 6,946.41  
Inclination: 89.1  
Azimuth: 91.2  
VS: 4,432.98

mot, sft-mod frm,  
cl: 50%  
sb ply-sb blkly,  
scat cal

70% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm,  
sb ply-sb blkly, v calc, occ calc incl: 30%  
MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-wxy tex, calc, occ calc incl, scat cal

70% CHK: lt-med gy, bf, gy brn, mot, sft-mod  
frm, sb ply-sb blkly, v calc, occ calc incl: 30%  
MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-wxy tex, calc, occ calc frags, scat cal

60% CHK: lt-med gy, bf, gy brn, mot, sft-mod  
frm, sb ply-sb blkly, v calc, occ calc incl: 40%  
MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly,  
sily-wxy tex, calc, occ calc frags, scat cal



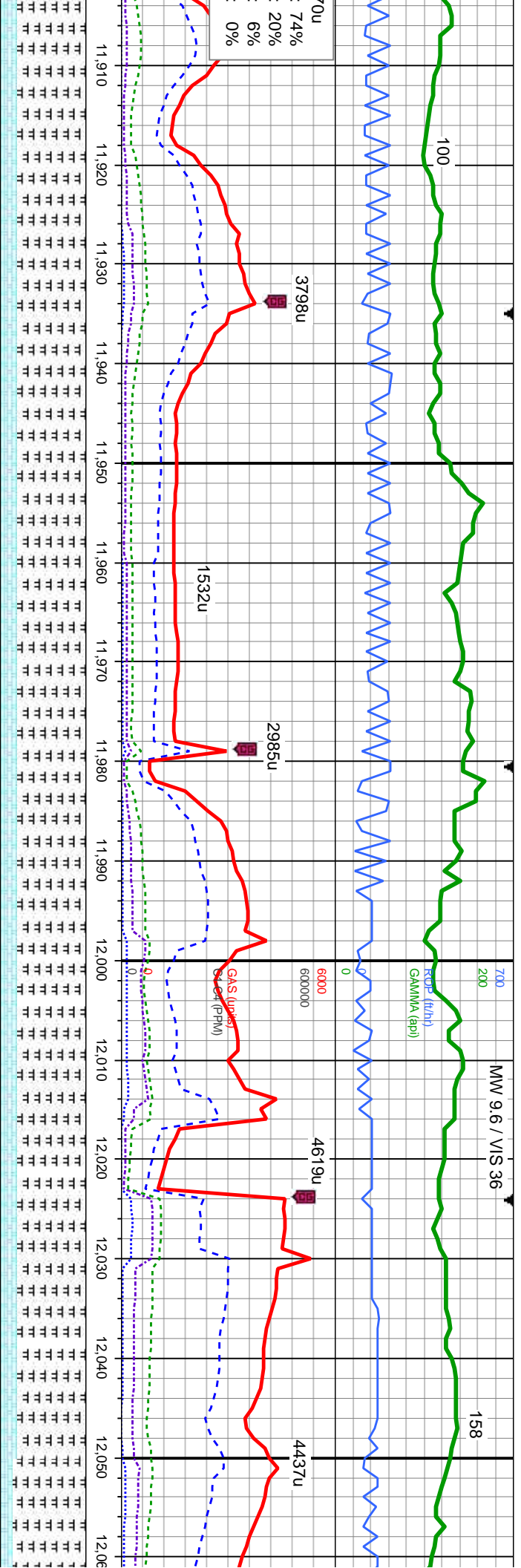












80% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy tex, calc: 20% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, occ calc incl, occ calc frags, scat bent	80% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy tex, calc: 20% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, occ calc incl, occ calc frags, scat bent	80% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blkly, silty-wxy tex, calc: 20% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc, occ calc incl, occ calc frags, scat bent	85% M
			blkly, sil
			gy brn,
			occ cal





MW 9.6 / VIS 36

3654u

1576u

C1: 64%  
C2: 21%  
C3: 12%  
C4: 3%

1622u

87

2153u

2153u  
C4 (P&M)

MD: 12.096  
TVD: 6.948.06  
Inclination: 89.8  
Azimuth: 89.8  
VS: 4.966.29

MD: 12.186  
TVD: 6.948.29  
Inclination: 89.9  
Azimuth: 88.8  
VS: 5.055.85

RLST: dk gy-blk, sl frm-mod hd, sb ply-sb  
-y-wxy tex, calc, 15% CHK, lt-med gy, bl,  
mot, sft-mod frm, sb ply-sb blkly, v calc,  
c incl, occ calc frags, scat bent

85% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb  
blkly, sily-wxy tex, calc, 15% CHK, lt-med gy, bl,  
gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc,  
occ calc incl, occ calc frags, scat bent

80% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb  
blkly, sily-wxy tex, calc, 20% CHK, lt-med gy, bl,  
gy brn, mot, sft-mod frm, sb ply-sb blkly, v calc,  
occ calc incl, occ calc frags, scat bent

90% MRLST: dk gy-  
blkly, sily-wxy tex, ce  
gy brn, mot, sft-mod  
occ calc incl, occ cal

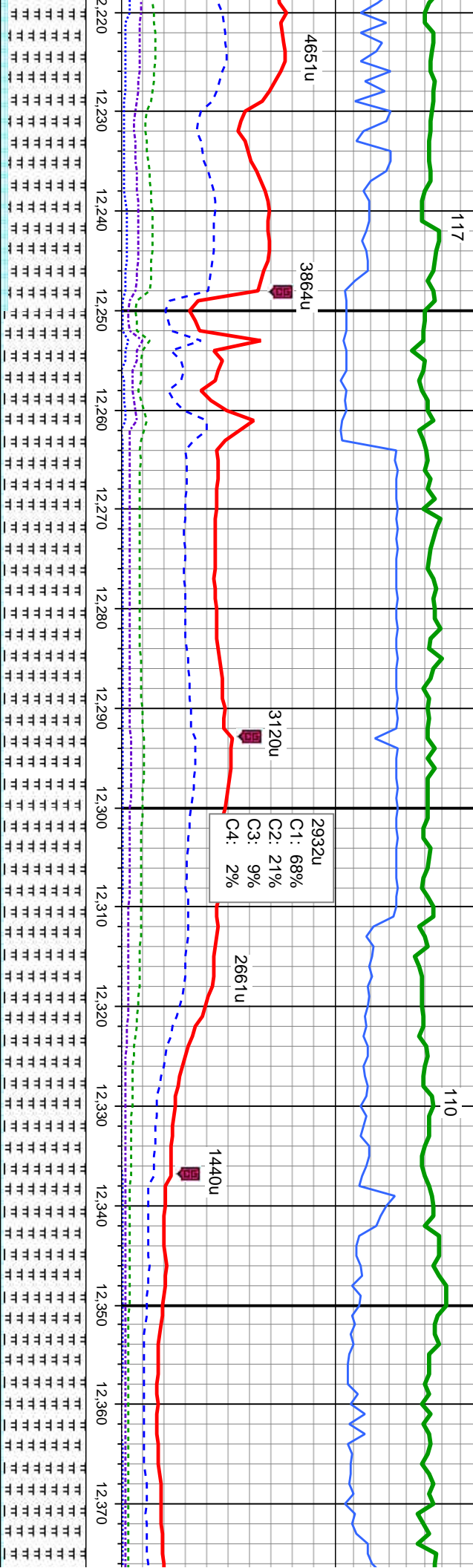
TVD (ft)

6800

7100







MD: 12,275  
TVD: 6,949.92  
Inclination: 88  
Azimuth: 90  
VS: 5,144.38

2932u  
C1: 68%  
C2: 21%  
C3: 9%  
C4: 2%

MD: 12,365  
TVD: 6,953.69  
Inclination: 87.2  
Azimuth: 89.5  
VS: 5,233.78

blk, sl frm-mod hd, sb ply-sb ic, 10% CHK: lt-med gy, bf, frm, sb ply-sb blk, v calc, c frags, scat bent	95% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-wxy tex, calc, 5% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blk, v calc, occ calc incl, occ calc frags, scat bent	95% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb blk, silty-wxy tex, calc, 5% CHK: lt-med gy, bf, gy brn, mot, sft-mod frm, sb ply-sb blk, v calc, occ calc incl, occ calc frags, scat bent	95% MRLST: dk gy-blk, sl frm-mod h blk, silty-wxy tex, calc, 5% CHK: lt-r brn, mot, sft-mod frm, sb ply-sb blk calc incl, occ calc frags, scat bent
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7/21/14

MINDEPTH

113

ROP (ft/hr)  
GAMMA (api)

6000  
600000

GAS (units)  
C1-C4 (PPM)

3157u

1606u

1162u

1137u  
C1: 68%  
C2: 20%  
C3: 10%  
C4: 3%

1363u

MD: 12,455  
TVD: 6,957.77  
Inclination: 87.6  
Azimuth: 89  
VS: 5,323.25

7100

95% MRLST: dk gy-blk, sl frm-mod hd, sb pily-sb  
biky, silty-wxy tex, calc: 5% CHK: lt-med gy, bf, gy  
brn, mot, sft-mod frm, sb pily-sb biky, v calc, occ  
calc incl, occ calc frags, scat bent

95% MRLST: dk gy-blk, sl frm-mod hd, sb pily-sb  
biky, silty-wxy tex, calc: 5% CHK: lt-med gy, bf, gy  
brn, mot, sft-mod frm, sb pily-sb biky, v calc, occ  
calc incl, occ calc frags, scat bent

95% MRLST: dk gy-blk, sl frm-mod hd, sb pily  
biky, silty-wxy tex, calc: 5% CHK: lt-med gy, bl  
brn, mot, sft-mod frm, sb pily-sb biky, v calc, c  
calc incl, occ calc frags, scat bent



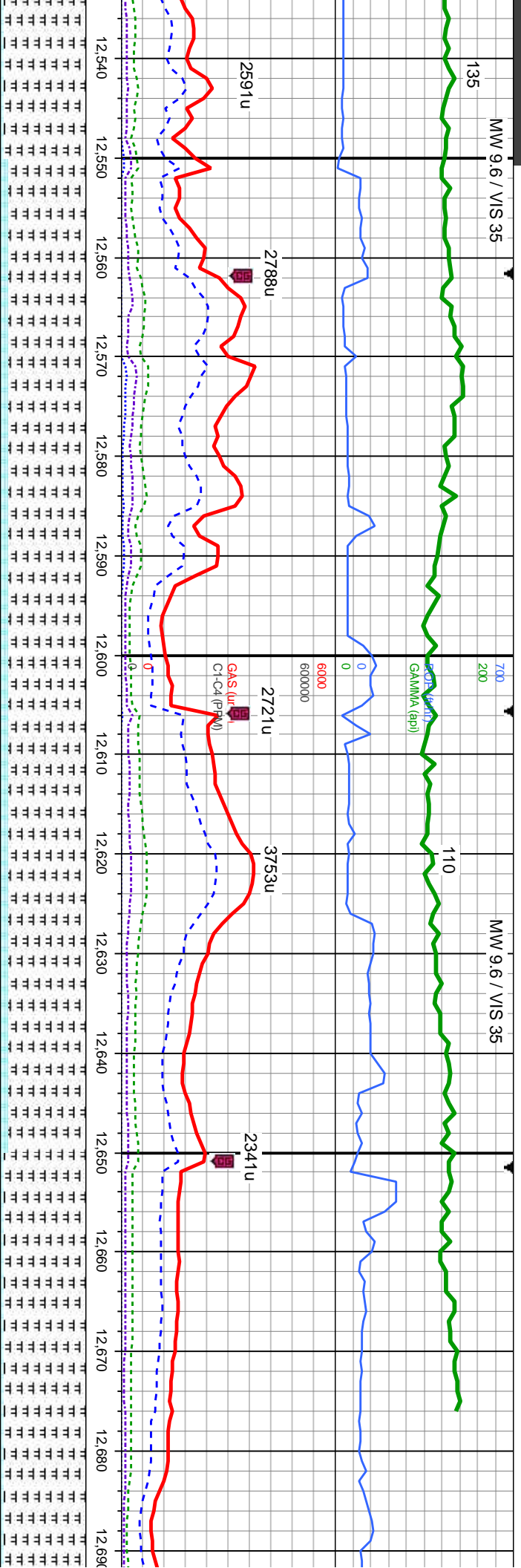


MW 9.6 / VIS 35

135

MW 9.6 / VIS 35

110



MD: 12,544  
TVD: 6,959.87  
Inclination: 89.7  
Azimuth: 87.9  
VS: 5,411.91

MD: 12,634  
TVD: 6,959.56  
Inclination: 90.7  
Azimuth: 87.2  
VS: 5,501.69

MD: 12,681  
TVD: 6,959.11  
Inclination: 90.4  
Azimuth: 86.9  
VS: 5,548.61

90% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb  
biky, silty-wxy tex, calc: 10% CHK: lt-med gy, bf,  
gy brn, mot, sft-mod frm, sb ply-sb biky, v calc,  
occ calc incl, occ calc frags, scat bent

90% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb  
biky, silty-wxy tex, calc: 10% CHK: lt-med gy, bf,  
gy brn, mot, sft-mod frm, sb ply-sb biky, v calc,  
occ calc incl, occ calc frags, scat bent

95% MRLST: dk gy-blk, sl frm-mod hd, sb  
ply-sb biky, silty-wxy tex, calc: 5% CHK: lt-med  
gy, bf, gy brn, mot, sft-mod frm, sb ply-sb biky, v  
calc, occ calc incl, occ calc frags, occ bent

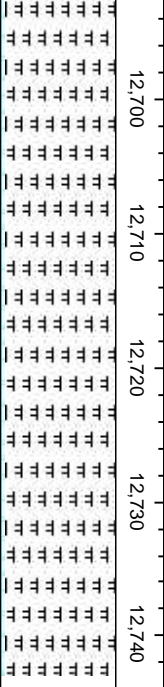




1040u  
C1: 65%  
C2: 20%  
C3: 12%  
C4: 3%

1649u

1262u



MD: 12,743  
TVD: 6,958.67  
Inclination: 90.4  
Azimuth: 86.9  
VS: 5,610.5

TD Well @ 12,743'  
on 07/21/2014 - 04:17 MST  
Thank you for choosing  
Columbine Logging, Inc.

95% MRLST: dk gy-blk, sl frm-mod hd, sb ply-sb  
biky, silty-wxy tex, calc: 5% CHK: lt-med gy, bf,  
gy brn, mot, sft-mod frm, sb ply-sb biky, v calc,  
occ calc incl, occ calc frags, occ bent

