

# COLUMBINE LOGGING

Scale: 5" / 100'  
Measured Depth Log

Well Name Berry Farms 32N-8HZ

Location SEC 8 T3N R67W

State COLORADO

County WELD

Country UNITED STATES OF AMERICA

Rig Number ENSIGN 145

API Number 051233889400

AFE # 2091186

Region DJ BASIN

Field WATTENBERG

Spud Date 4/6/2014

Drilling Completed 4/11/2014

Surface Coordinates 1,426' FNL, 300' FEL

Bottom Hole Coordinates 2,600'FSL, 50'FWL

Ground Elevation 4,820'

K.B. Elevation 4,833'

Logged Interval 7,000' To 11,887'

Total Depth 11,87'

Formation NIOBRARA B

Type of Drilling Fluid FW LSND

Operator

Company Anadarko

Address 1099 18TH ST.  
Denver, CO 80202

Geologist

Name LACEY LITTLE, JERAMY MURRAY

Company COLUMBINE LOGGING, INC.  
Address 2385 S LIPAN ST.  
Denver, CO 80223

Zone Color

Oil  
Note  
Error  
Condensate  
Core  
Water

Rock Type

UNKNOWN  
ANHYDRITE  
BENTONITE  
BRECCIA  
CHALK  
CEMENT  
CHERT  
CLAY CHOKE SAND  
CLAYSTONE  
COAL  
CONGLOMERATE  
DOLOMITE  
DOLOMITIC LIMESTONE  
GRANITE  
GYPSUM  
IGNEOUS  
SIDERITE or LIMONITE  
LIMESTONE

tor

gist

Coding



ypes



## Accessories

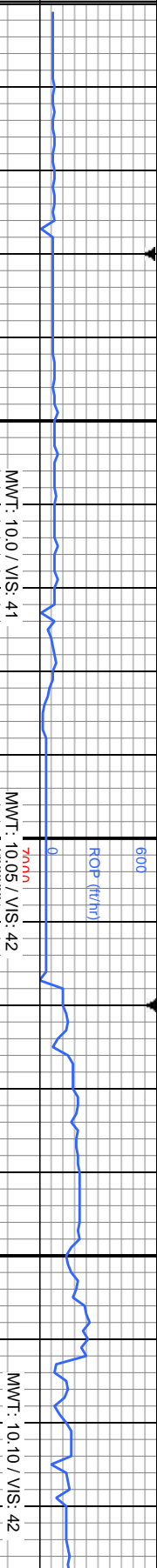
<b>Fossils</b>	GASTROPOD	ARGILLITE GRAIN	HEAVY MINERAL	ANHYDRITE STRINGER
INOCERAMUS	B BENTONITE	KAOLIN	BENTONITE STRINGER	
ALGAE	BITUMENOUS SUBSTANCE	MARLSTONE	COAL STRINGER	
AMPHIBORA	BRECCIA FRAGMENTS	MICACEOUS	DOLOMITE STRINGER	
BELEMNITE	CALCAREOUS	MINERAL CRYSTALS	GYPSUM STRINGER	
BIOCLASTIC	CARBONACEOUS FLAKES	NODULES	LIMESTONE STRINGER	
BRACHIOPOD	CHTDC	PHOSPHATE PELLETS	MARLSTONE (CALC) STRG	
BRYOZOA	CHTLT	PYRITE	MARLSTONE (DOL) STRG	
CEPHALOPOD	COAL - THIN BEDS	SALT CAST	SANDSTONE STRINGER	
CORAL	DOLOMITIC	SANDY	SHALE STRINGER	
CRINOID	FELDSPAR	SLICEOUS	SILTSTONE STRINGER	
ECHINOID	FERRUGINOUS PELLETT	SILTY		
FISH	FERRUGINOUS	TUFACEOUS		
FORAMINIFERA	ANHYDRITIC			
F FOSIL	ARGILLACEOUS	GYPSIFEROUS	<b>Stringer</b>	

## Other Symbols

<b>Oil Show</b>	P PINPOINT	DST INTERVAL	WIRELINE TESTED - LEFT	E EARTHY
	V VUGGY	FAULT	WIRELINE TESTED - RT	FX FINELYXN
<b>Engineering</b>	D DEAD	FORMATION TOP	DRILL STEM TEST	GS GRAINSTONE
	EVEN	GAS SHOW	MN DEPTH	L LITHOGRAPHIC
	QUESTIONABLE	OIL SHOW		MX MICROXN
	BIT			
	SPOTTED STAINING	MN DEPTH UP	<b>Rounding</b>	MS MUDSTONE
	CONNECTION (UP)			
<b>Porosity</b>	CONNECTION (DOWN)	MN DEPTH (DOWN)	A ANGULAR	PS PACKSTONE
	CONNECTION GAS	NORMAL FAULT	R ROUNDED	WS WACKSTONE
<b>E EARTHY</b>	CONNECTION GAS (LEFT)	OVERTURNED STRATA	B SUBANG	
<b>F FENESTRAL</b>	TRIP GAS	REVERSE FAULT	P SUBRND	
<b>F FRACTURE</b>	TRIP GAS (LEFT)	CASING		<b>Sorting</b>
	INTERCRYSTALLINE	SIDEWALL CORE (LEFT)		P POOR
	INTERCOLLITIC	SIDEWALL CORE (RIGHT)	BS BOUNDSTONE	W WELL
	MOLDIC	SLIDE	C CHALKY	
<b>O ORGANIC</b>	CORE - LOST	SURVEY	CRYPTOXN	
	CORE - RECOVERED			

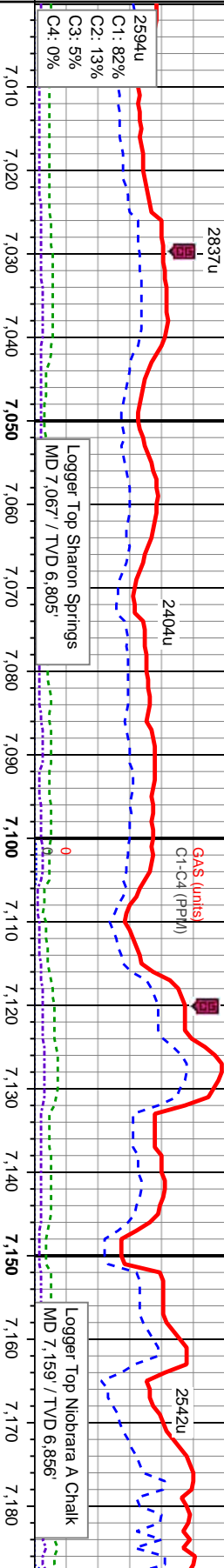
Slide/Rotate

ROP  
ROP



Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4

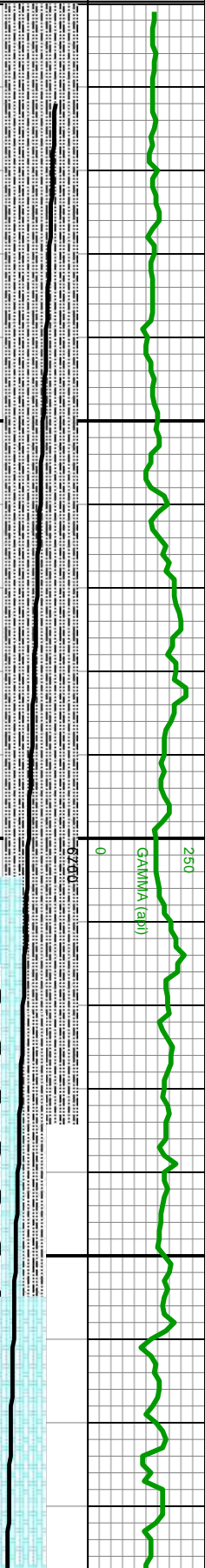


Depth Labels

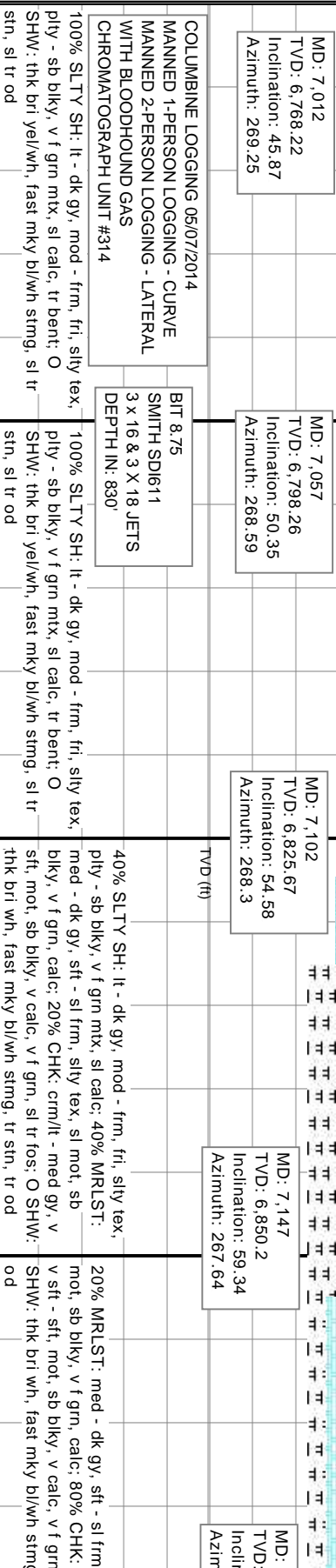
% Lith



Curves  
GAMMA



Well Bore  
TVD



Oil Show

E  
G  
M  
FR  
TR  
SL

Images





05/08/14

MINDEPTH

ROP (ft/m)

MINDEPTH

05/09/14

ROP (ft/m)

5120u

7000  
7MMWT: 10.25 / VIS: 42

7000  
7000000

GA\$ (unit)

GA\$ (unit)

5066u

C1-C4 (PPH)

3279u

3763u

C1: 63%

C2: 17%

C3: 12%

C4: 8%

2491u

C1-C4 (PPH)

C1-C4 (PPH)

C1-C4 (PPH)

5066u

C1: 63%

C2: 17%

C3: 12%

C4: 8%

2491u

C1-C4 (PPH)

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2491u

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5066u

C1: 63%

C2: 17%

C3: 12%

C4: 8%

2491u

C1-C4 (PPH)

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5066u

C1: 63%

C2: 17%

C3: 12%

C4: 8%

2491u

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5066u

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C2: 17%

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2491u

C1-C4 (PPH)

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2491u

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5066u

C1: 63%

C2: 17%

C3: 12%

C4: 8%

2491u

C1-C4 (PPH)

C1-C4 (PPH)

C1-C4 (PPH)

5066u

C1: 63%

C2: 17%

C3: 12%

C4: 8%

2491u

C1-C4 (PPH)

C1-C4 (PPH)

C1-C4 (PPH)

5066u

C1: 63%

C2: 17%

C3: 12%

C4: 8%

MD: 7,417  
TVD: 6,931.57  
Inclination: 82.81  
Azimuth: 270.23

BIT 6.125  
VAREL VS613D  
5 X20 JETS  
DEPTH IN: 7,522

MD: 7,522  
TVD: 6,938.1  
Inclination: 90.03  
Azimuth: 271.89

MD: 7,574  
TVD: 6,939.06  
Inclination: 91.01  
Azimuth: 272.27

TVD (ft)

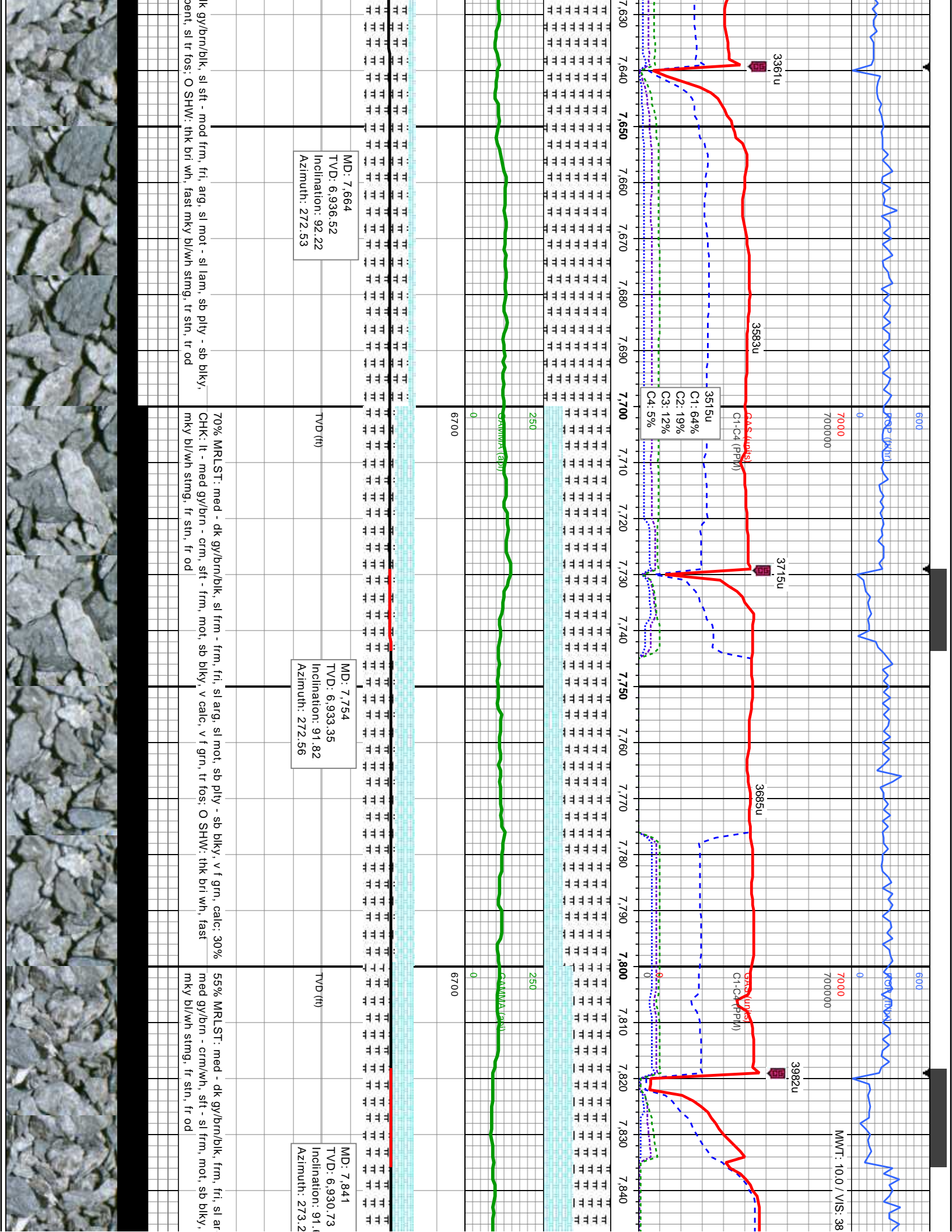
RLST: med - dk gy/brn, mod - frm, fri, arg.  
sb ply - sb blk, v f grn, calc; 75% CHK: lt  
gy/brn - gy/wh, sft - mod, mot, sb blk, v  
f grn, tr fos; O SHW: thk bri wh, fast mky  
stimg, fr sin, fr od

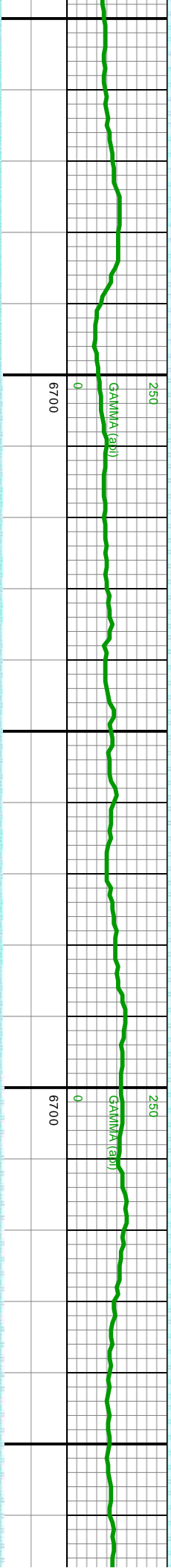
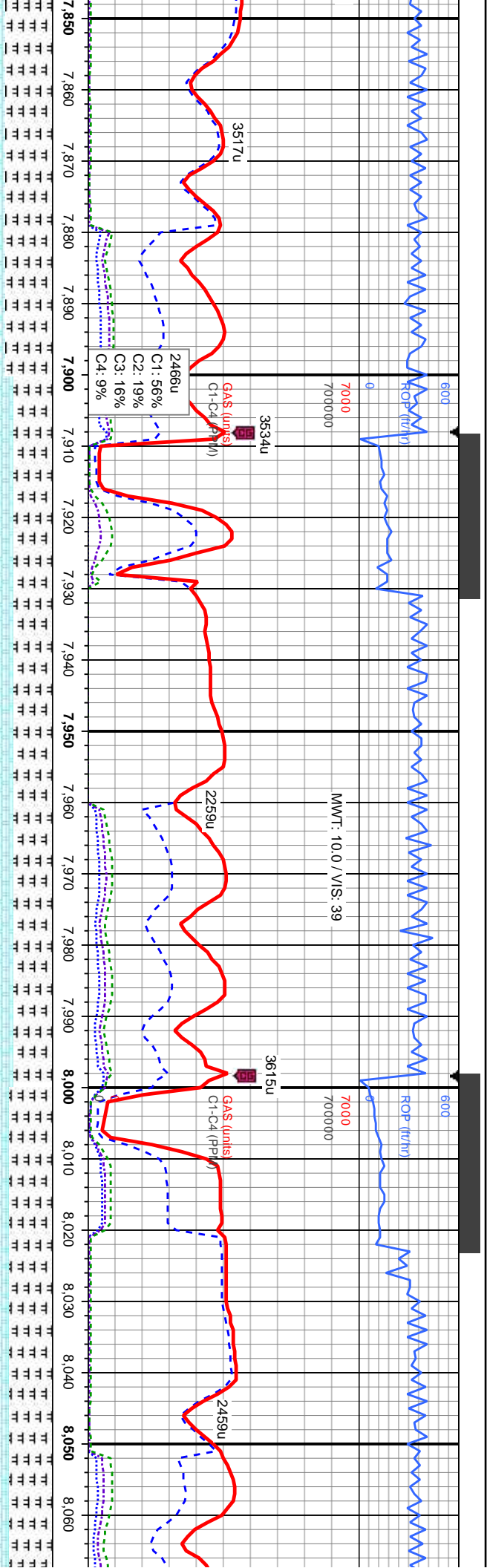
65% MRLST: med - dk gy/brn, mod - frm, fri, arg, v mot, sb ply - sb  
blk, v f grn, calc; 35% CHK: lt - med gy/brn - gy/wh, sft - mod, mot, sb  
blk, v calc, v f grn, tr fos; O SHW: thk bri wh, slow mky bl/wh stimg, fr  
sin, fr od

85% MRLST: med - dk gy/brn/blk, sft - frm, fri, arg, sl mot - sl  
lam, sb ply - sb blk, v f grn, calc; 15% CHK: lt - med gy/brn -  
crm, sft, mot, sb blk, v calc, v f grn, sl tr fos; O SHW: thk bri wh,  
slow mky bl/wh stimg, fr sin, fr od

100% MRLST: med - c  
7600 f grn, calc, tr chk, tr

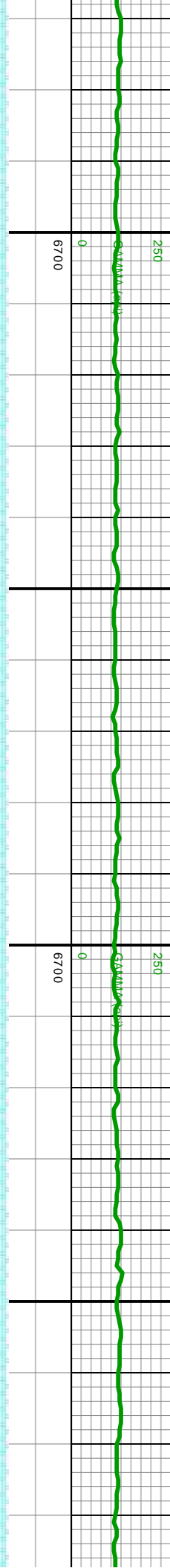
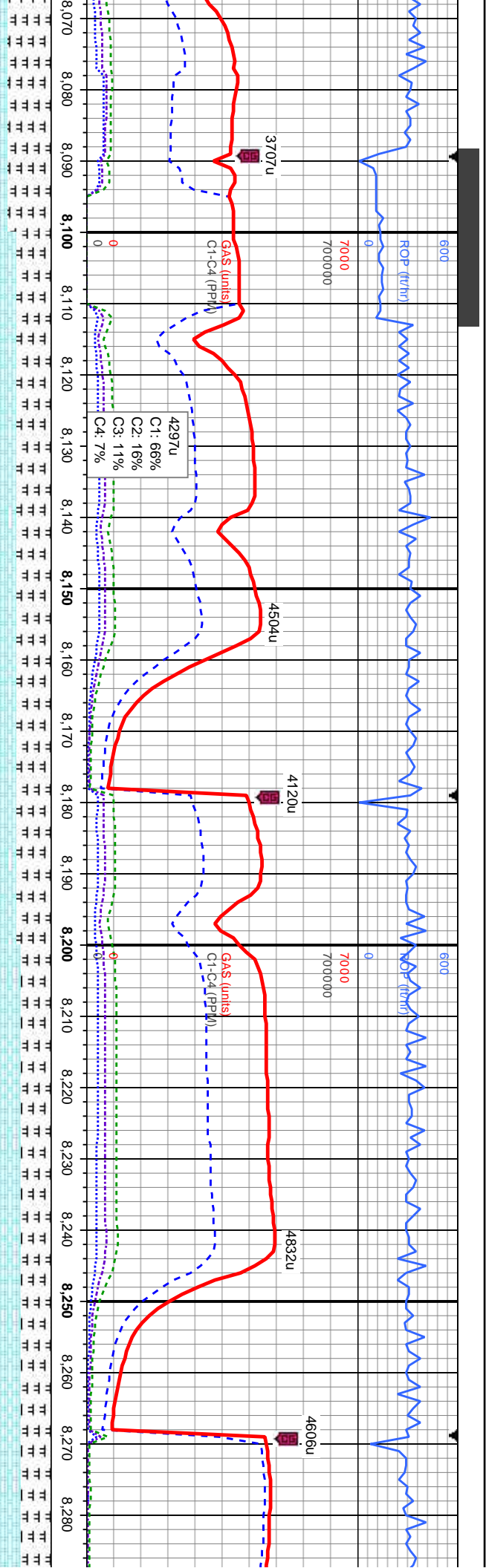






g, sl mot, pily - sb blk, v f grn, calc, 45% CHK: lt - v calc, v f grn, tr fos, tr cal: O SHW: thk bri wh, fast		45% MRLST: med - dk gy/brn/blk, frm, fri, sl arg, mot, sb pily - sb blk, v f grn, calc, 55% CHK: lt - med gy/brn - crm/wh, sft - sl frm, mot, sb blk - blk, v calc, v f grn, tr fos, tr sily sh, O SHW: thk zbrl wh, fast mky bl/wh stm, mod sh, mod od		50% MRLST: med - dk gy/brn/blk, sl frm - v frm, fri, arg, mot, sb pily - sb blk, v f grn, calc, 55% CHK: lt - med gy/brn - crm/wh, sft - frm, mot, sb blk - blk, v calc, v f grn, tr fos, tr cal: O SHW: thk bri wh, fast mky bl/wh stm, mod sh, mod od	
9		MD: 7,931 TVD: 6,928.37 Inclination: 91.38 Azimuth: 271.8	MD: 8,021 TVD: 6,926.97 Inclination: 90.4 Azimuth: 271.44		





MD: 8,111  
TVD: 6,927.43  
Inclination: 89.01  
Azimuth: 271.88

MD: 8,201  
TVD: 6,929.11  
Inclination: 88.85  
Azimuth: 272.06

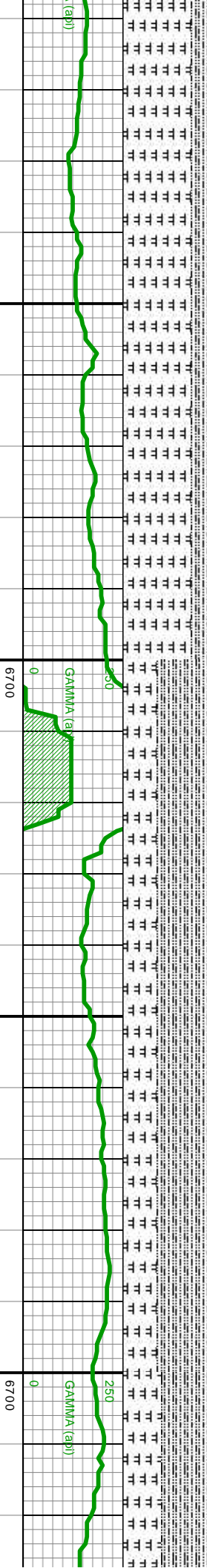
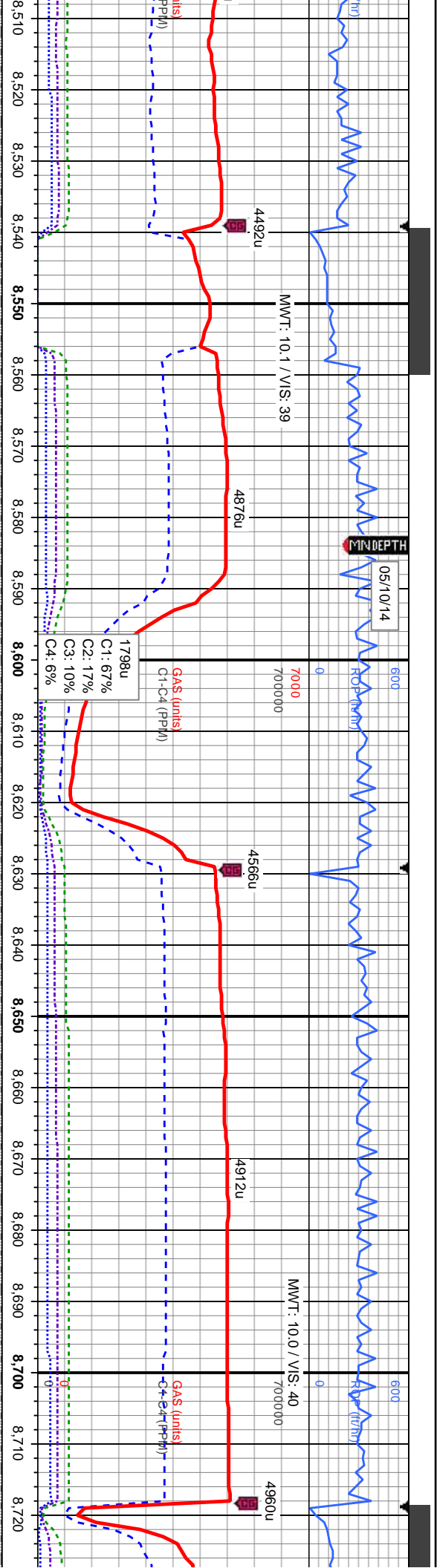
MD:  
TVD:  
Incli:  
Azim:

40% MRLST: lt - dk gy/brn, mod sft - frm, fri, arg, mot, ply - sb blk, v f grn, calc, 60% CHK: lt - med gy/brn - crm/wh, sft, mol, blk, v calc, v f grn, sl tr fos: O SHW: thk bri wh, fast mky bl/wh stmg, mod stn, mod od

35% MRLST: lt - dk gy/brn, sl sft - frm, sl fri, arg, mot, ply - sb blk, v f grn, calc, 65% C med gy/brn - crm/wh, mod sft, mol, blk, v calc, v f grn, sl tr fos: O SHW: thk bri wh, fast mky bl/wh stmg, mod stn, mod od







MD: 8,561  
TVD: 6,928.89  
Inclination: 90.49  
Azimuth: 271.08

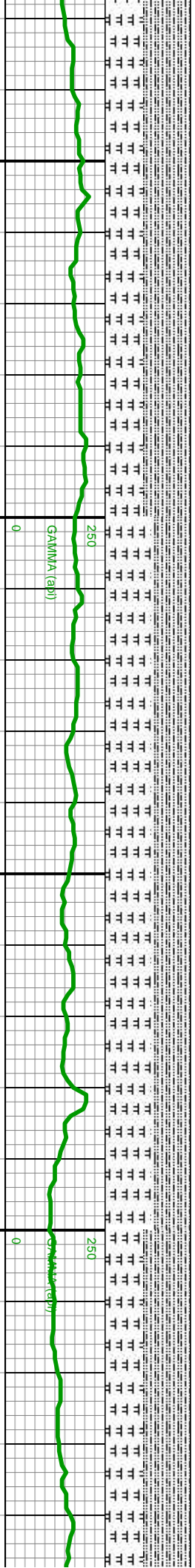
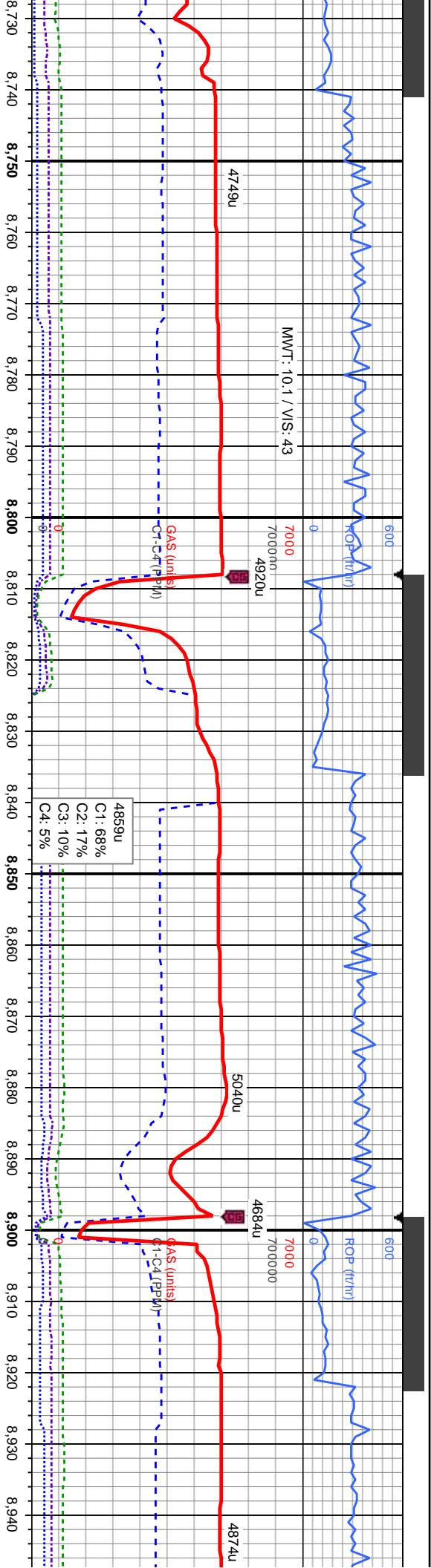
MD: 8,651  
TVD: 6,927.31  
Inclination: 91.53  
Azimuth: 270.73

SLTY SH: med - dk gy, blk, mod - frm, fri, silty tex, ply - sb ply, v f grn, sl calc: 80% MRLST:  
dk gy, brn, blk, sft - frm, silty tex, occ mot, sb blkly - sb ply, v f grn, calc, tr fos, tr cal, tr  
SHW: thk bri wh, fast mky b/wh stmg, tr sin, tr od

60% SLTY SH: med - dk gy, blk, v frm - hd, silty tex, ply - sb ply, sl lam, v f grn, sl calc: 40% MRLST:  
med - dk gy, brn, frm, silty tex, fri, occ mot, sb blkly, v f grn, calc, sl tr fos, tr cal, tr bent: O SHW: thk  
bri wh, slow mky b/wh stmg, tr sin, tr od

55% SLTY SH: lt - dk gy, b  
med - dk gy, brn, frm, silty  
SHW: thk bri wh, slow mky





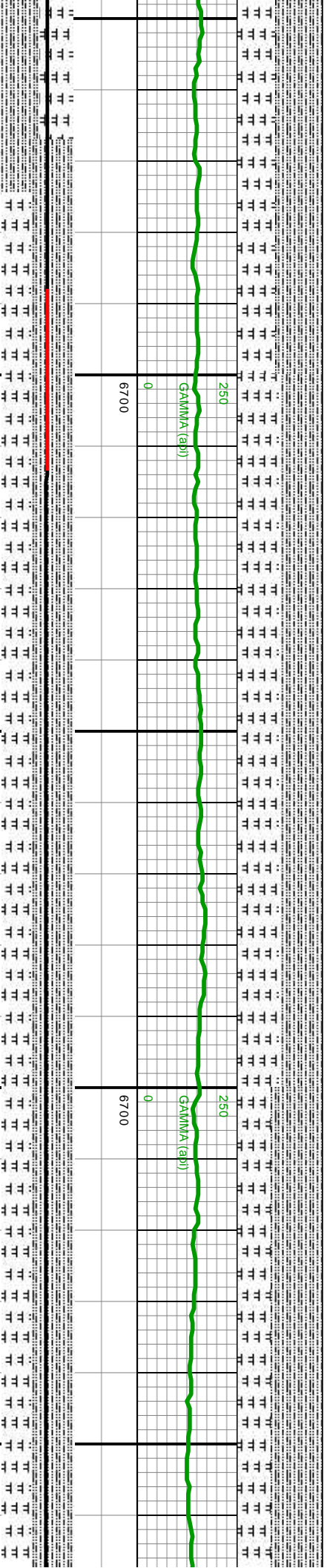
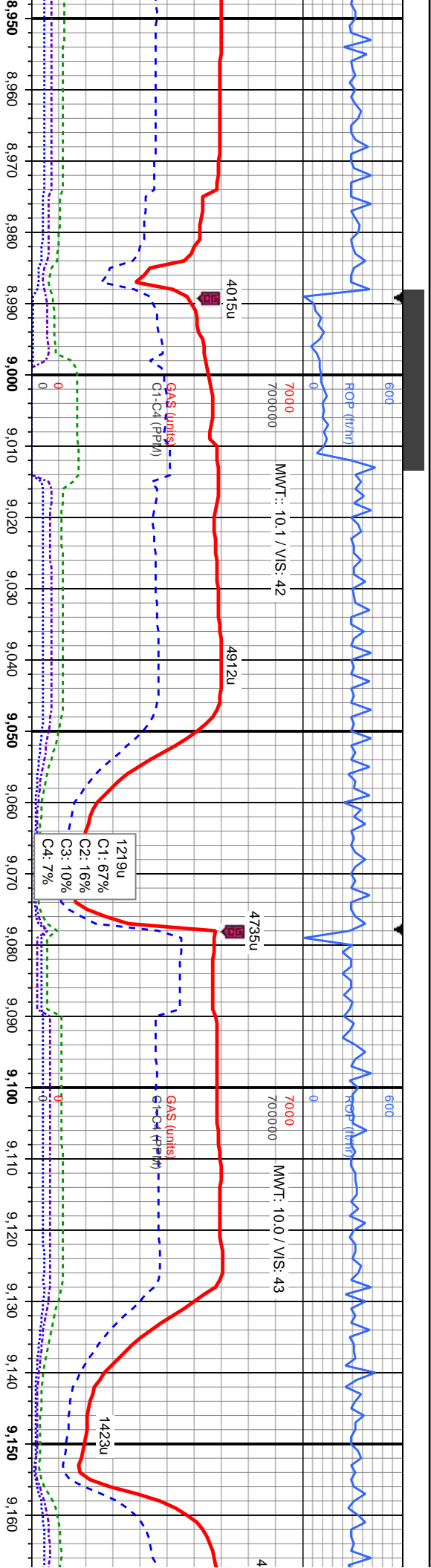
MD: 8.741  
TVD: 6.925.19  
Inclination: 91.17  
Azimuth: 270.16

MD: 8.831  
TVD: 6.923.21  
Inclination: 91.35  
Azimuth: 268.89

MD: 8.921  
TVD: 6.922.12  
Inclination: 90.03  
Azimuth: 269.19

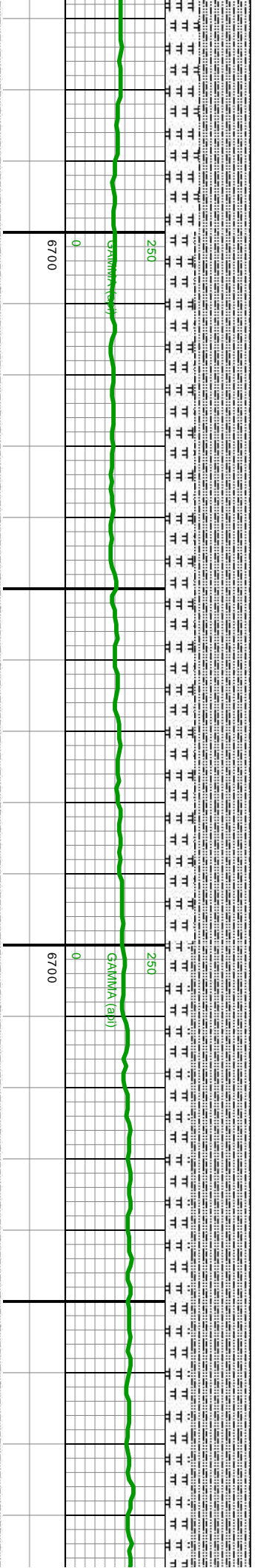
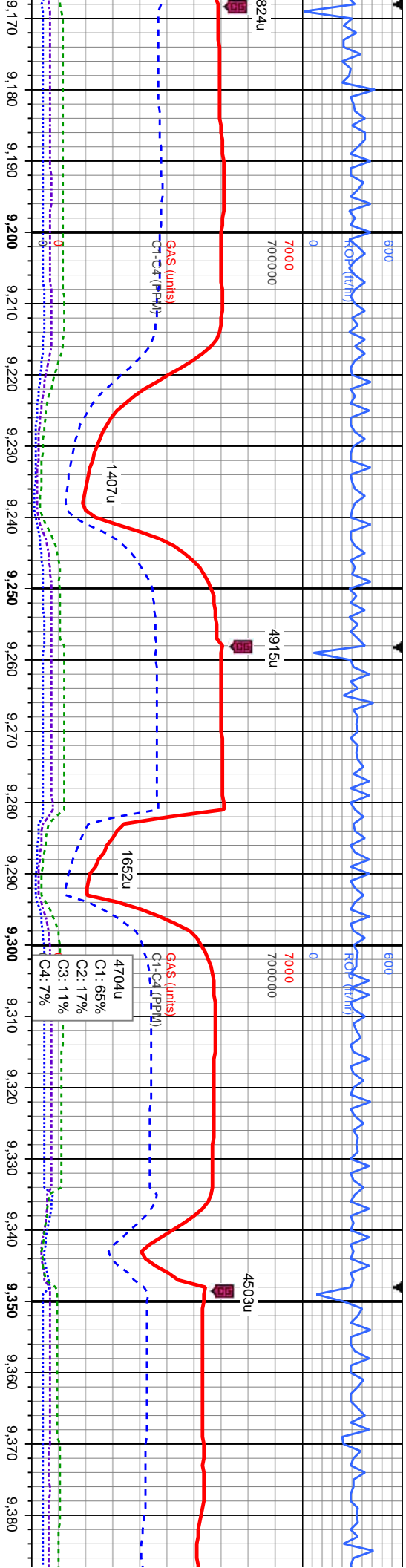
mod frm - hd, silty tex, pily - sb pily, sl lam, v f grn, sl calc, 45% MRLST: med - dk gy, brn, crm, sl sft - frm, silty tex, frl, mot, sb biky - biky, v f grn, calc, sl tr fos, tr bent: O SHW: 7SHW: thk bri wh, mod mky bl/wh stmg, fr str, fr od





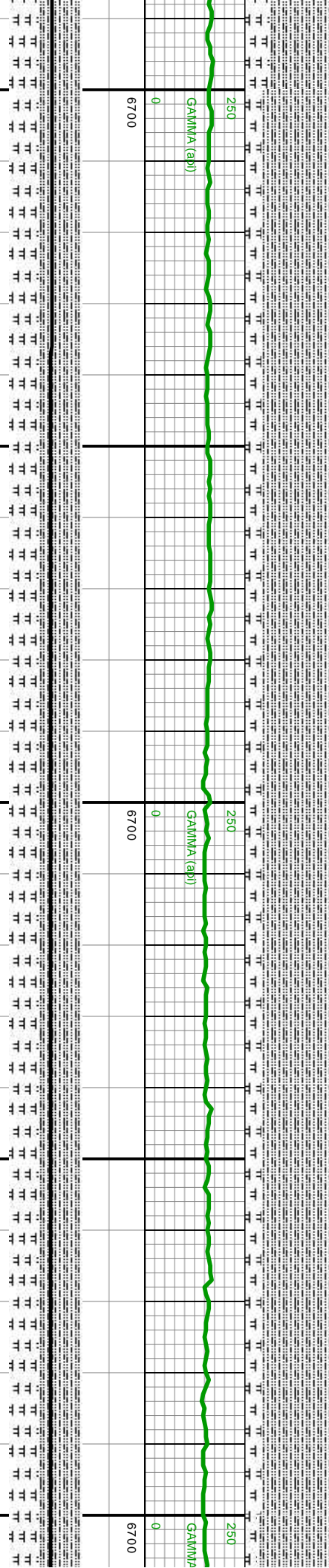
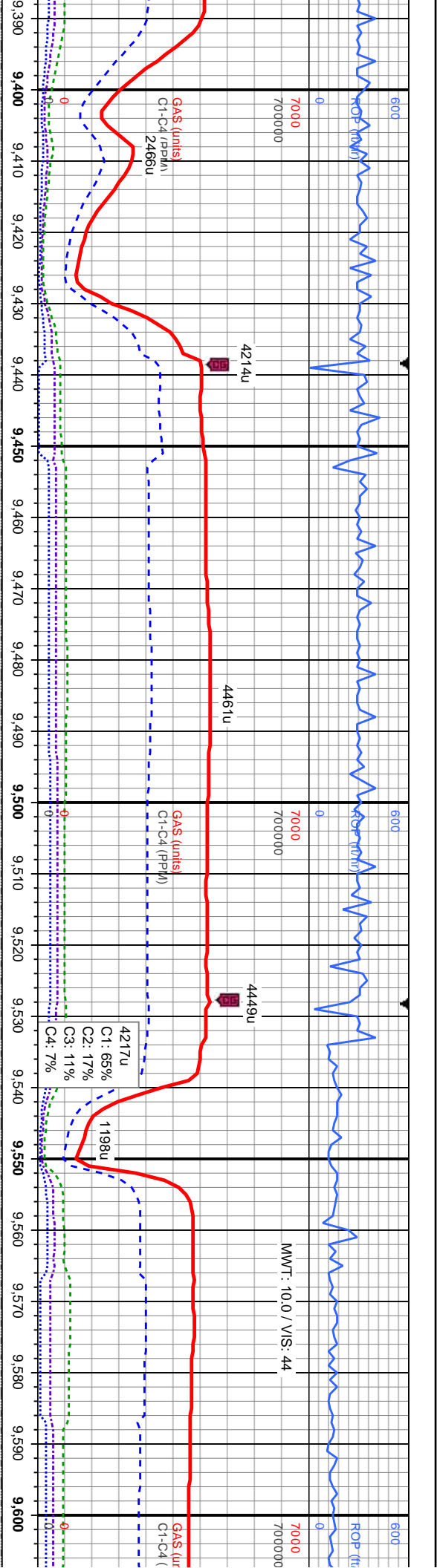
MD: 9.011 TVD: 6,923.17 Inclination: 88.64 Azimuth: 269.47	MD: 9.101 TVD: 6,925.12 Inclination: 88.88 Azimuth: 269.7
50% SLTY SH: med - dk gy, blk, v frm, silty tex, sb pily - pily, v f grn, sl calc: 50% MRLST: lt - dk gy, brn, sl sft - frm, silty tex, fri, mot, sl arg, sb blk, v f grn, calc, sl tr fos, O SHW: thk bri wh, mod mky	60% SLTY SH: med - dk gy, blk, v frm - hrd, silty tex, sb pily - pily, v dk gy/brn - brn, mod - frm, silty tex, fri, mot, sl arg, sb blk, v f grn, fast mky bl/wh stmg, fr stn, fr od





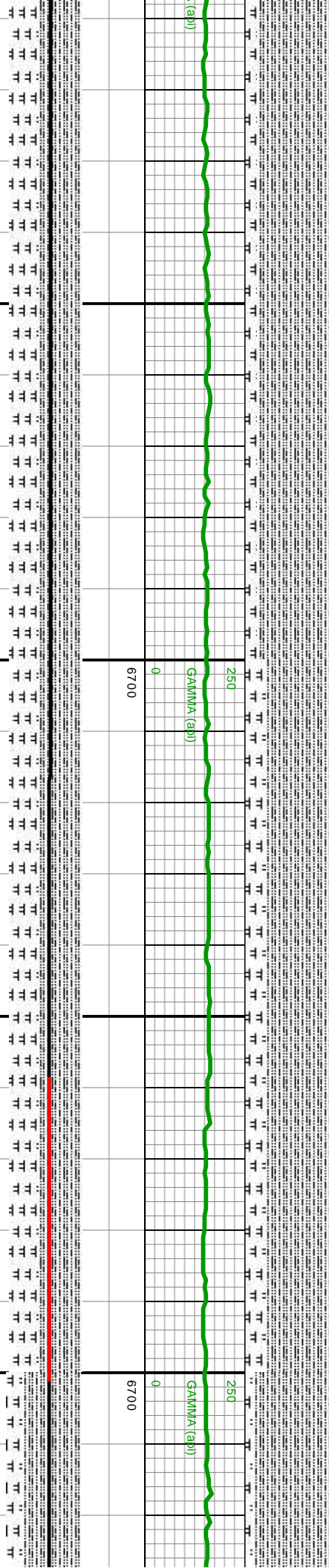
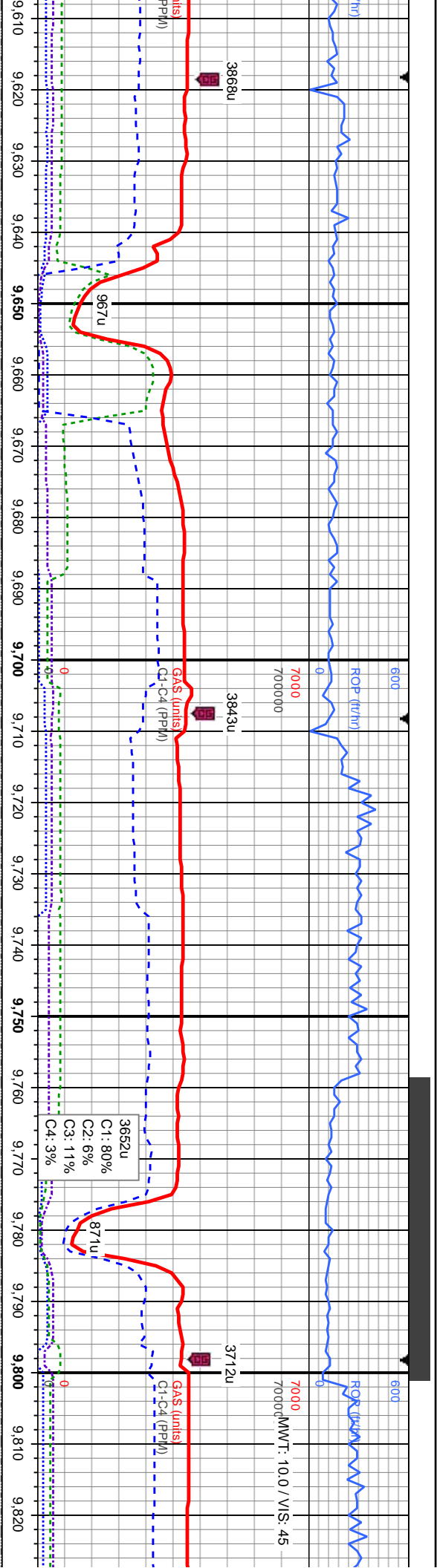
MD: 9.191 TVD: 6.926.78 Inclination: 89 Azimuth: 270.06		MD: 9.281 TVD: 6.928.27 Inclination: 89.1 Azimuth: 270.33		MD: 9.371 TVD: 6.929.56 Inclination: 89.26 Azimuth: 270.62	
TVD (ft)		TVD (ft)		TVD (ft)	
65% SLTY SH: med - dk gy, blk, frm - hrd, silty tex, sb pily- pily, v f grn, v sl calc; 35% MRLST: lt - dk gy/brn - brn, mod - frm, silty tex, fri, mot, arg, sb blk, v f grn, calc, tr fos; O SHW: thk bri wh, fast mky bl/wh stmg, fr stn, fr od		70% SLTY SH: med - dk gy, blk, frm - hrd, silty tex, sb pily - pily, v f grn, v sl calc; 30% MRLST: lt - dk gy/brn - brn, mod - frm, silty tex, fri, mot, arg, sb blk, v f grn, calc, tr fos; O SHW: thk b mky bl/wh stmg, fr stn, fr od			





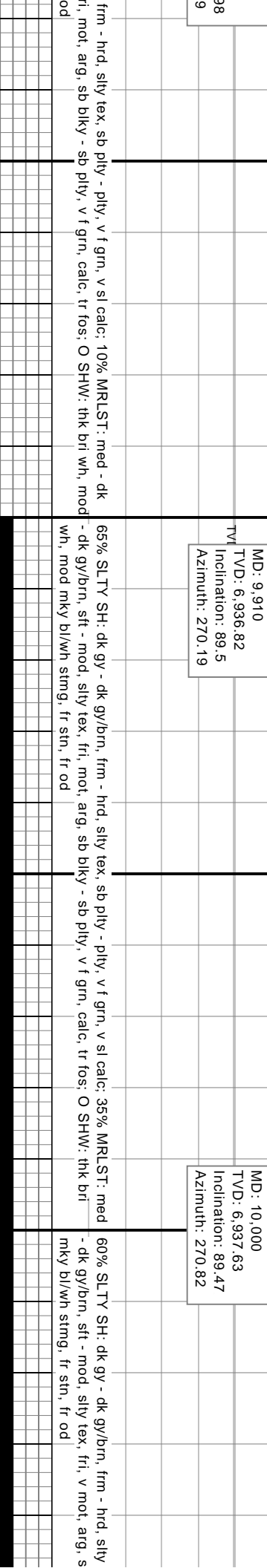
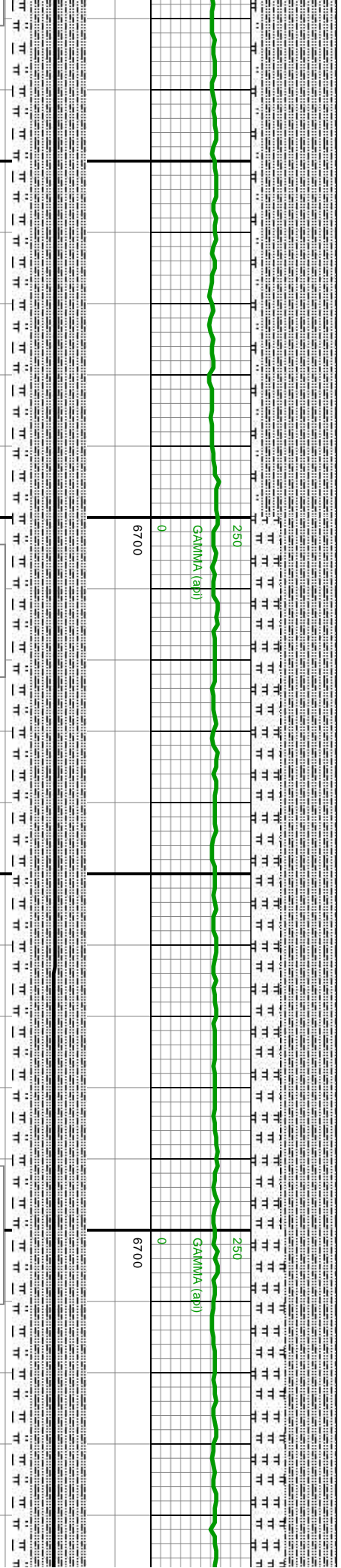
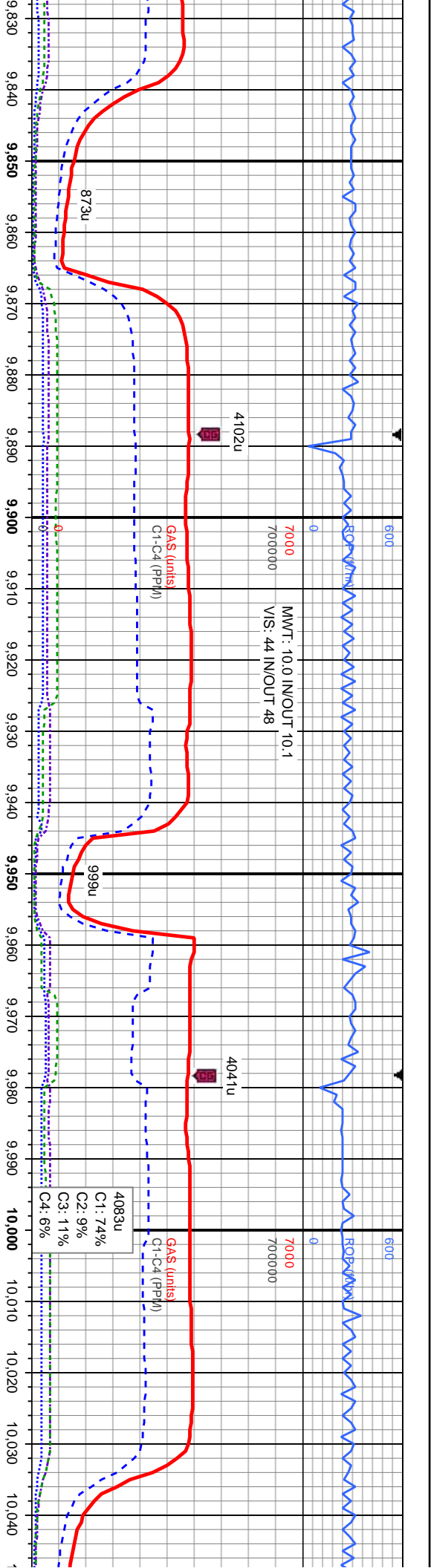
ROP (ft/hr)	600
Gas (units)	7000
C1-C4 (PPM)	700000
Gamma (api)	250
MD: 9,550	
TVD: 6,931.5	
Inclination: 89.5	
Azimuth: 270.92	
ROP (ft/hr)	600
Gas (units)	7000
C1-C4 (PPM)	700000
Gamma (api)	250

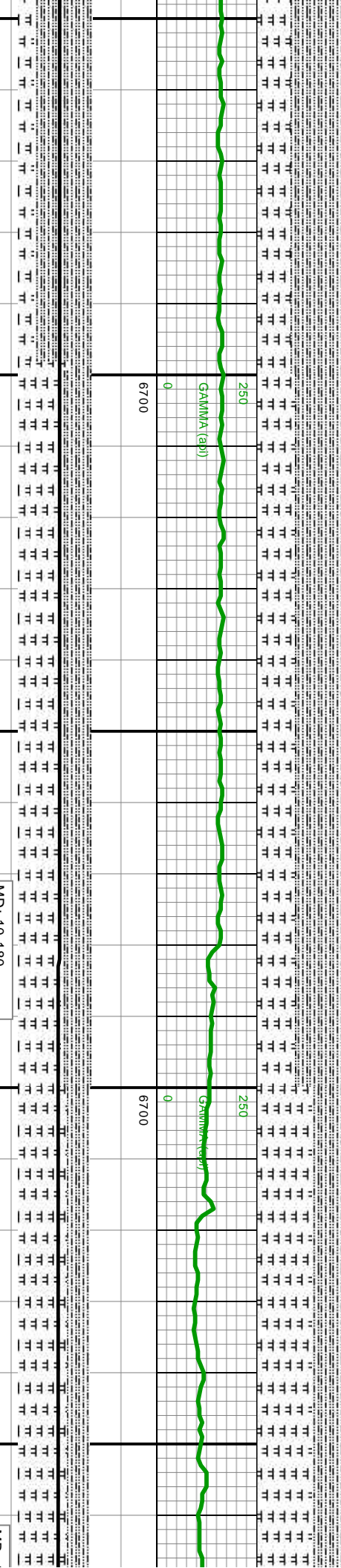
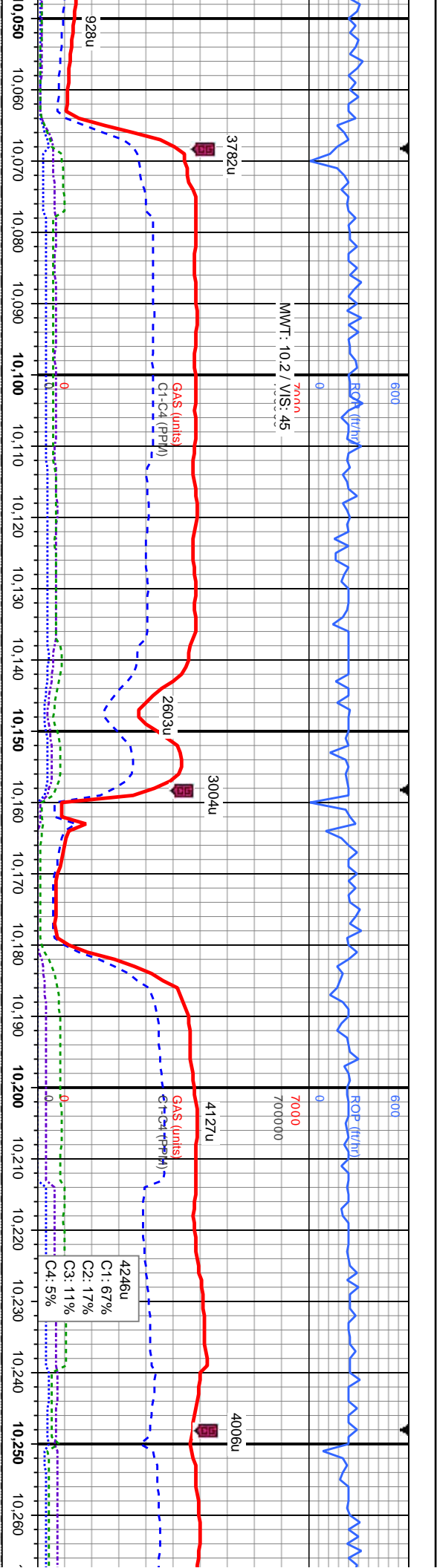




SLTY SH: dk gy - blk, frm - hrd, silty tex, sb pily - pily, v f grn, v sl calc, 15% MRUST: med - dk mod - frm, silty tex, frl, mot, arg, sb bily, v f grn, calc, tr fos, O SHW: thk bri wh, fast mky string, fr str, fr od	TVD (ft)	MD: 9,731 TVD: 6,933.99 Inclination: 88.92 Azimuth: 270.31	SLTY SH: dk gy - blk, frm - hrd, silty tex, sb pily - pily, v f grn, v sl calc, 25% MRUST: med - dk gy/bm, sft - frm, silty tex, frl, mot, arg, sb bily, v f grn, calc, tr fos, tr bent, sl tr chk, O SHW: thk bri wh, slow mky bl/wh string, sl tr str, sl tr od	TVD (ft)	MD: 9,820 TVD: 6,935.62 Inclination: 88.5 Azimuth: 269.8
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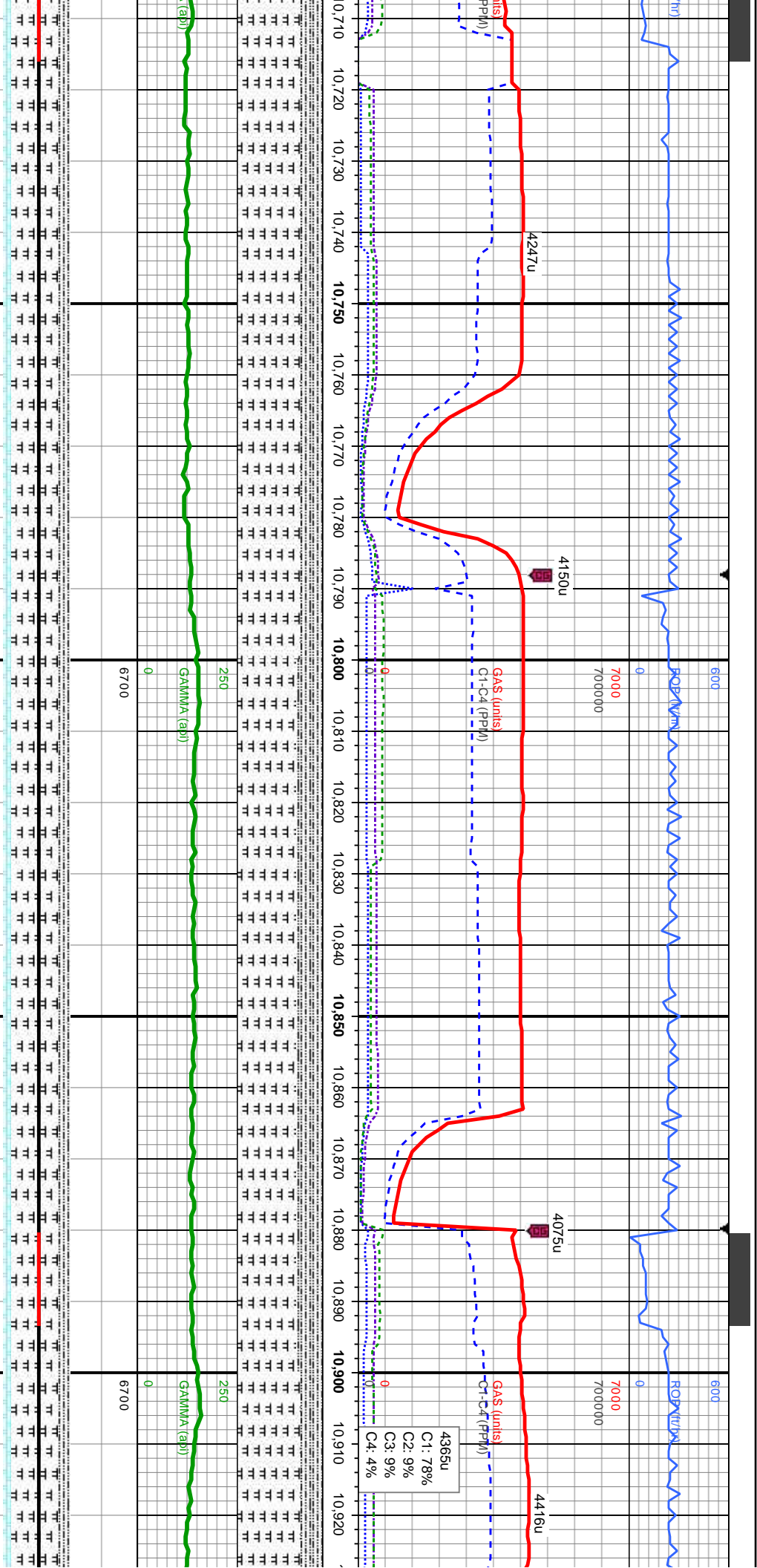


text, sb pily - pily, v f grn, v sl calc, 40% MRLST: med	55% SLTY SH: dk gy - dk gy/brn, frm - hrd, silty tex, sb pily - pily, v f grn, v sl calc, 45% MRLST: med	35% SLTY SH: med - dk gy - dk gy/brn, frm - hrd, silty tex, sb pily - pily, v f grn, v sl calc, 45% MRLST: med
- dk gy/brn, sft - mod, silty tex, fri, v mot, arg, sb biky, v f grn, calc, tr fos; O SHW: thk bri wh, mod	- dk gy/brn, sft - mod, silty tex, fri, v mot, arg, sb biky, v f grn, calc, tr fos; O SHW: thk bri wh, mod	MRLST: lt - med gy/brn, sft - mod, silty tex, fri, v mot, arg, sb biky, v f grn, calc, tr fos; O SHW: thk bri wh, mod mky bl/wh strng, fr str, fr od
MD: 10.180 TVD: 6,940.78 Inclination: 88.52 Azimuth: 270.5	MD: 10.180 TVD: 6,940.78 Inclination: 88.52 Azimuth: 270.5	MD: 10.180 TVD: 6,940.78 Inclination: 88.52 Azimuth: 270.5









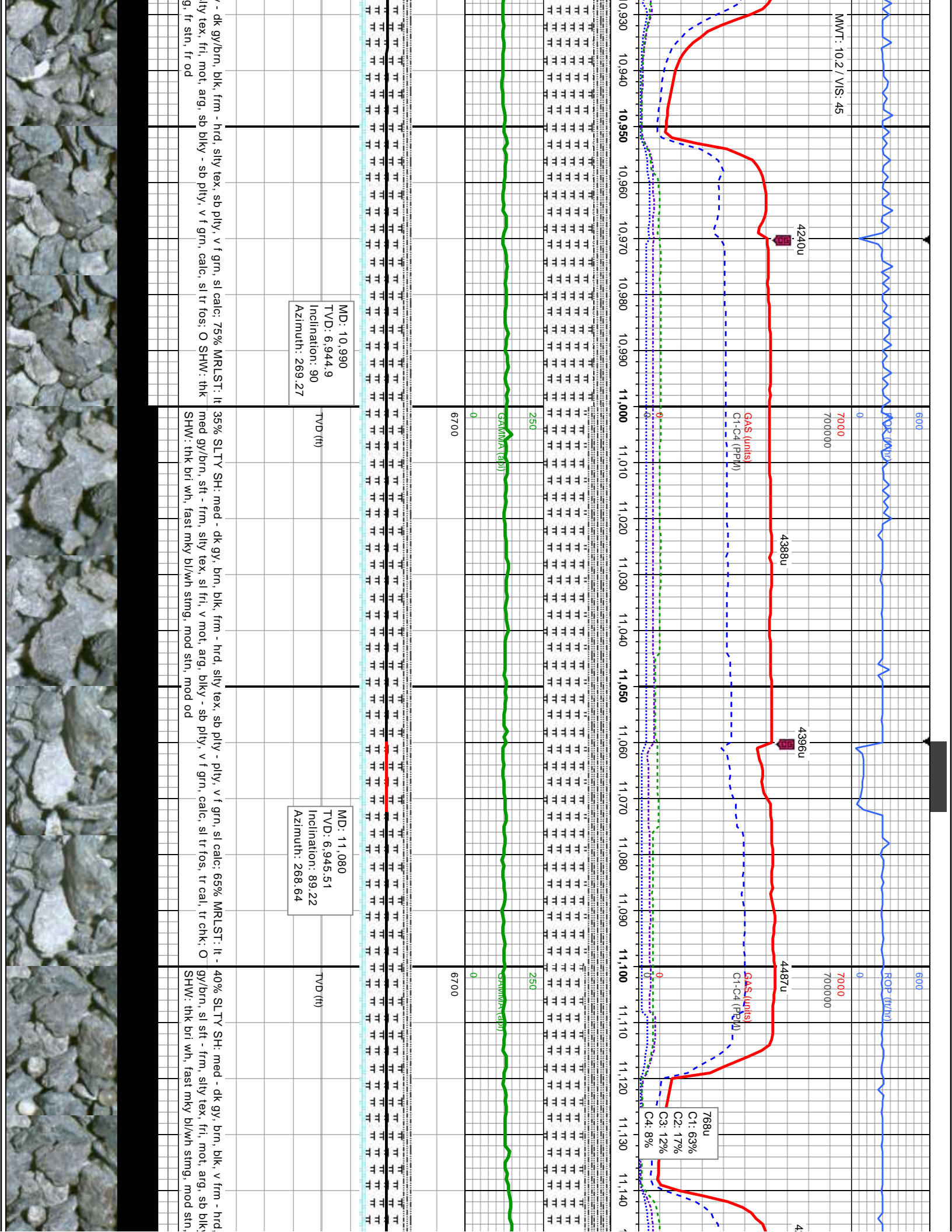
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TVD: 6,943.04  
Inclination: 89.01  
Azimuth: 269.91

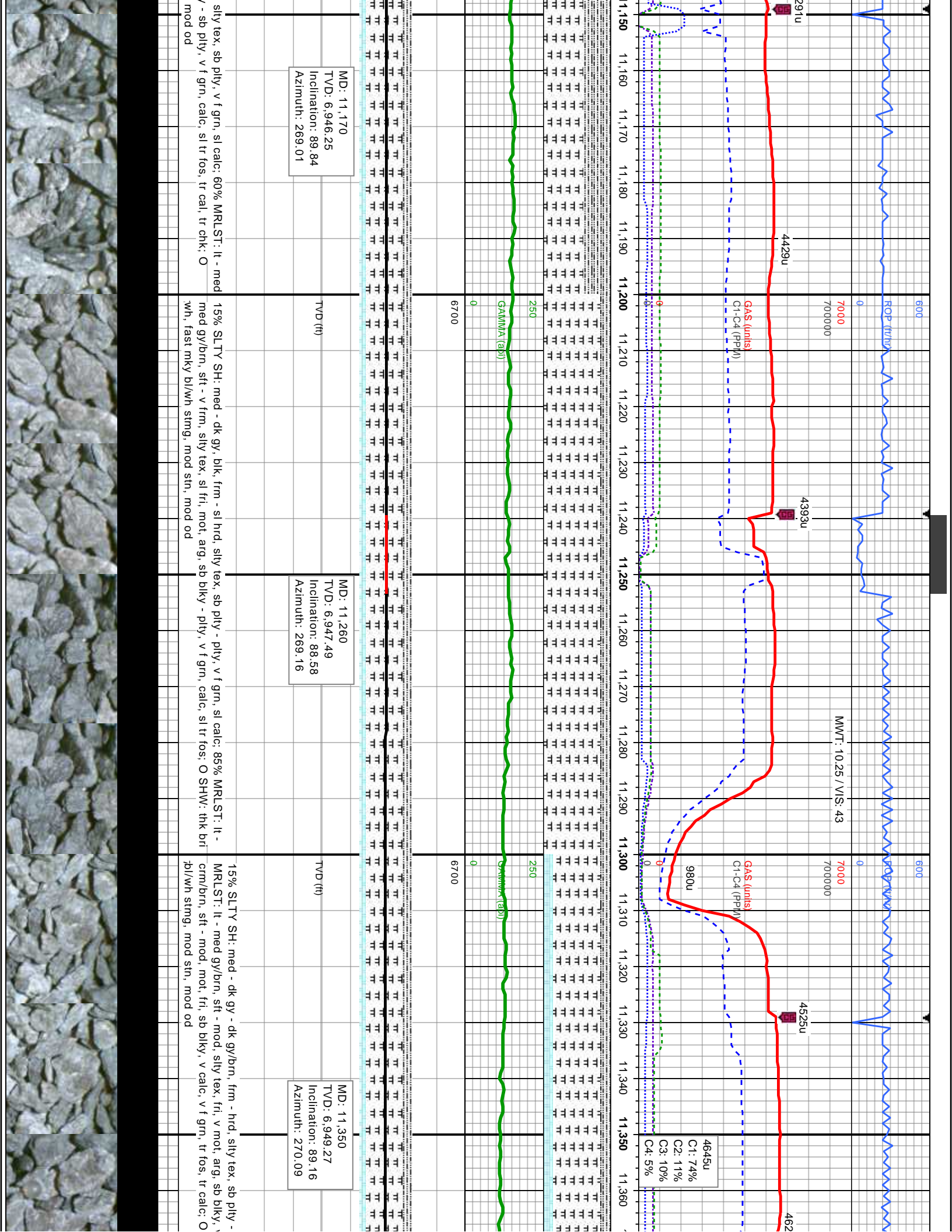
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Inclination: 90.352  
Azimuth: 270.32

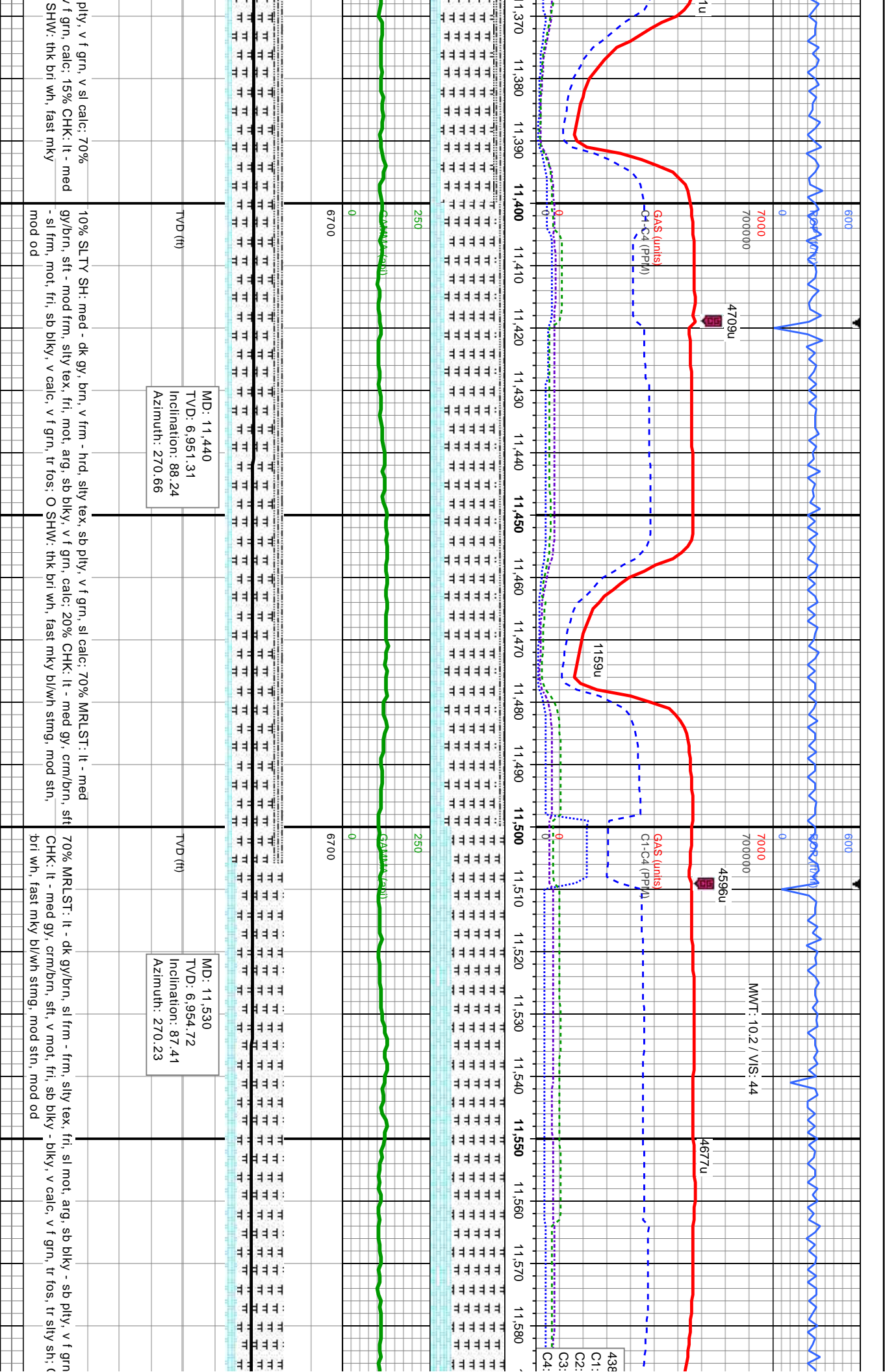
MD: 10,900  
TVD: 6,943.95  
Inclination: 88.79  
Azimuth: 269.08

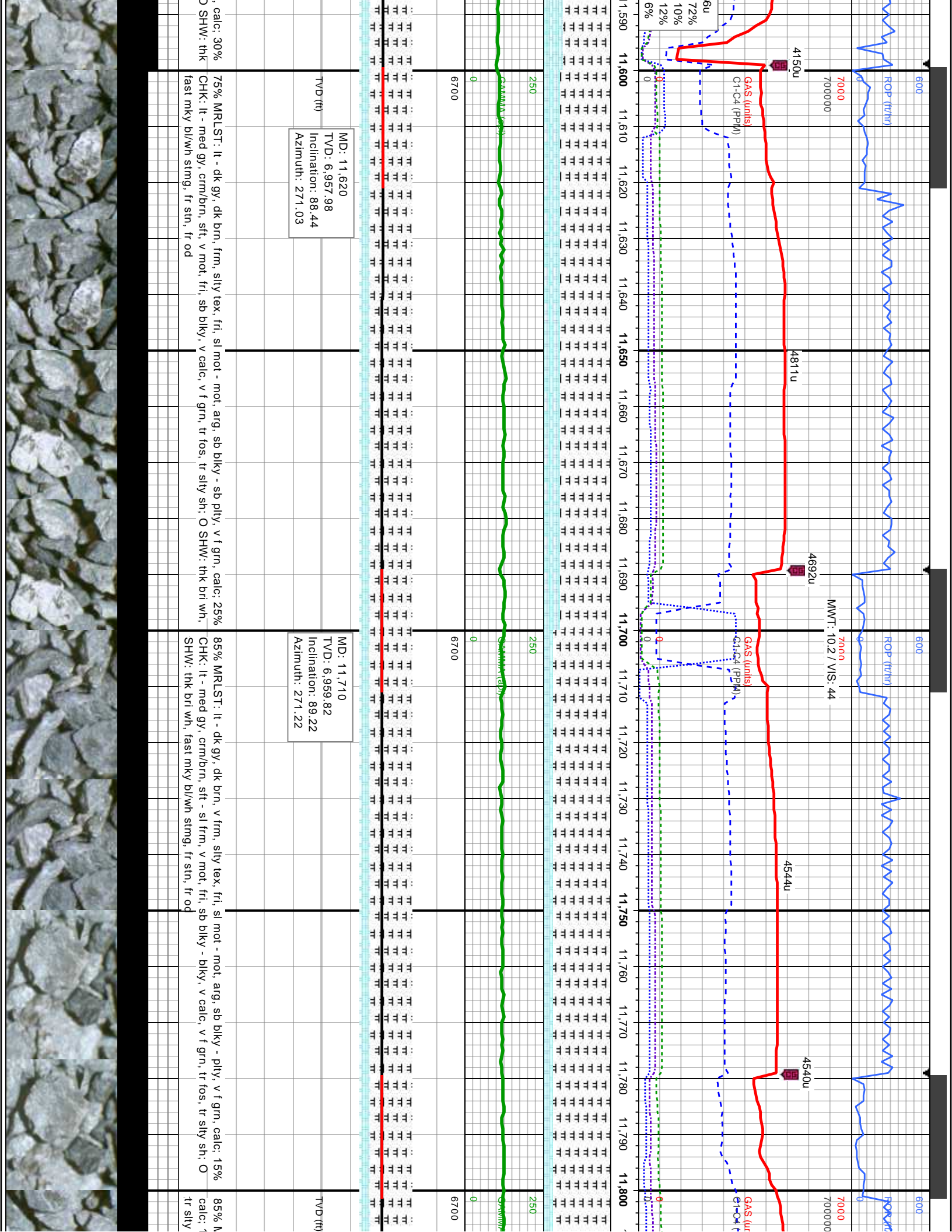
30% SLTY SH: med - dk gy - dk gy/brn, blk, frm - sl hrd, silty tex, sb pily - pily, v f grn, sl calc: 70%  
MRLST: lt - med gy/brn, mod sft - frm, silty tex, fri, mot, sl arg, sb bily - sb pily, v f grn, calc, sl tr  
fos: O SHW: thk bri wh, fast mky bl/wh stmg, fr str, fr od

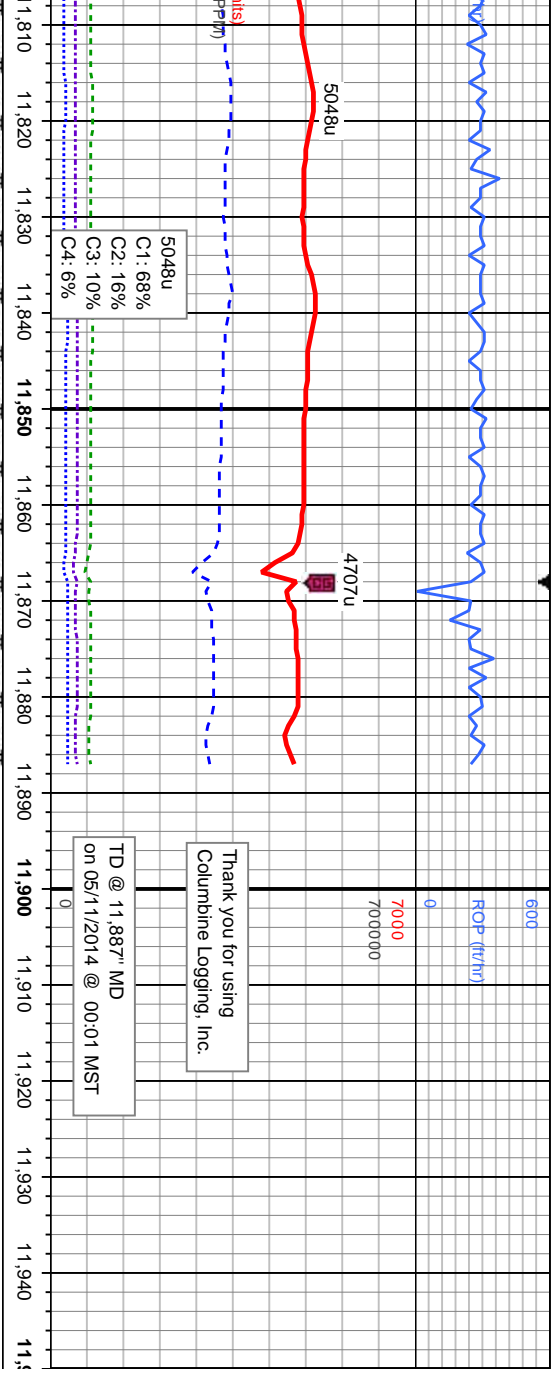
25% SLTY SH: med - dk gy  
- med gy/brn, sl sft - frm, s  
bri wh, fast mky bl/wh stmg





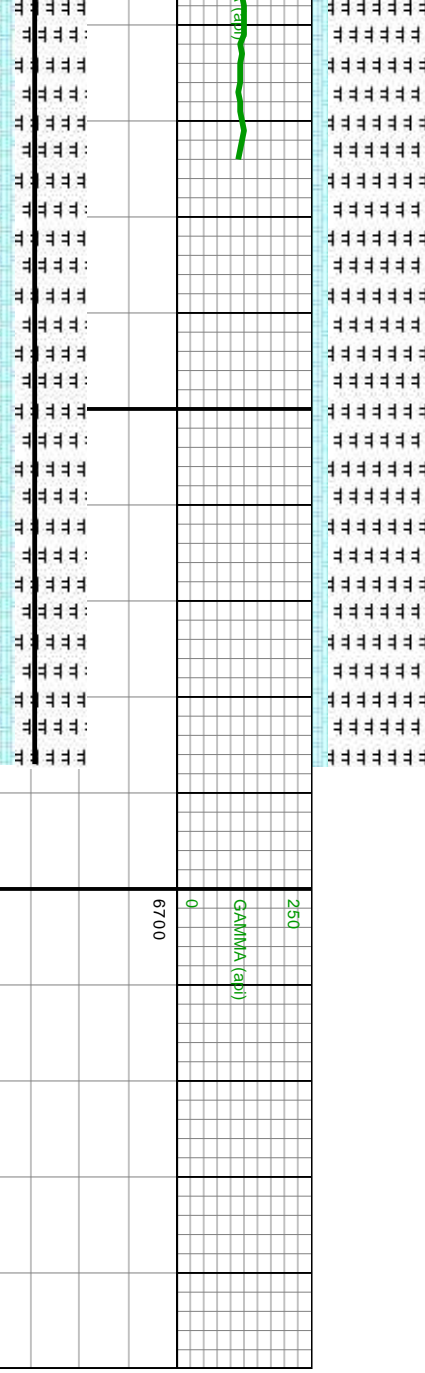






Thank you for using  
Columbine Logging, Inc.

TD @ 11,887" MD  
on 05/11/2014 @ 00:01 MST



MD: 11,819  
TVD: 6,960.12  
Inclination: 90.46  
Azimuth: 271.44

MD: 11,887  
TVD: 6,959.58  
Inclination: 90.46  
Azimuth: 271.44

RLST: lt - dk gy, dk brn, v frm, silty tex, fri, sl mot, arg, sb blk, v f grn, 5% CHK: lt - med gy, crm/brn, sft - sl frm, mot, fri, sb blk, v cal, v f grn, tr fos, sh; O SHW: thk brl wh, fast mky bl/wh slmg, fr str, fr od

