

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name State Pronghorn K-O-12HNC

Location NE/NW Section 12, T5N - R61W

State Colorado

Country USA

API Number 05-123-39462-00

Region D.J. Basin

Spud Date 7/23/2014

County Weld

Rig Number Cade 21

Field Wattenberg

Drilling Completed 8/3/2014

Ground Elevation 4,641'

K.B. Elevation 4,658

Logged Interval 5,800' **To** 10,713'

Total Depth 10,713'

Formation Niobrara "B" Chalk

Type of Drilling Fluid Water Based Mud

Operator

Company Bonanza Creek Energy, Inc.

Address 410 17th Street, Suite 1500
Denver, CO 80202

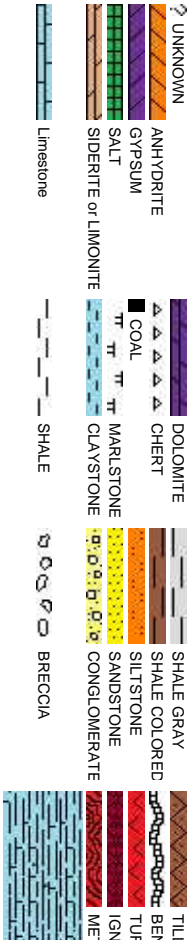
Geologist

Name Dick Brunner / Scott Sawyer

Company Decollement Consulting Inc.

Address 13300 Braun Road
Golden, CO 80401

Rock Types

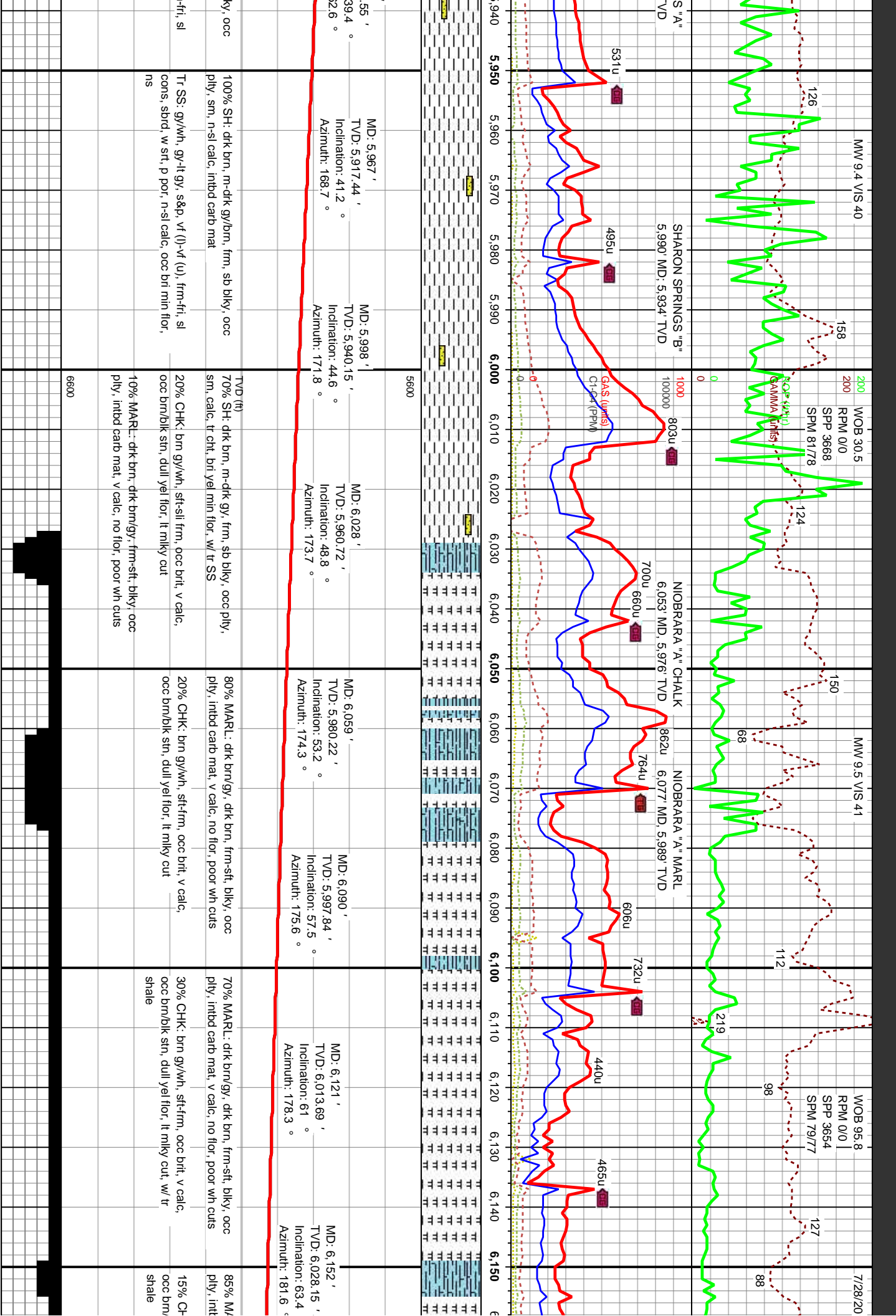


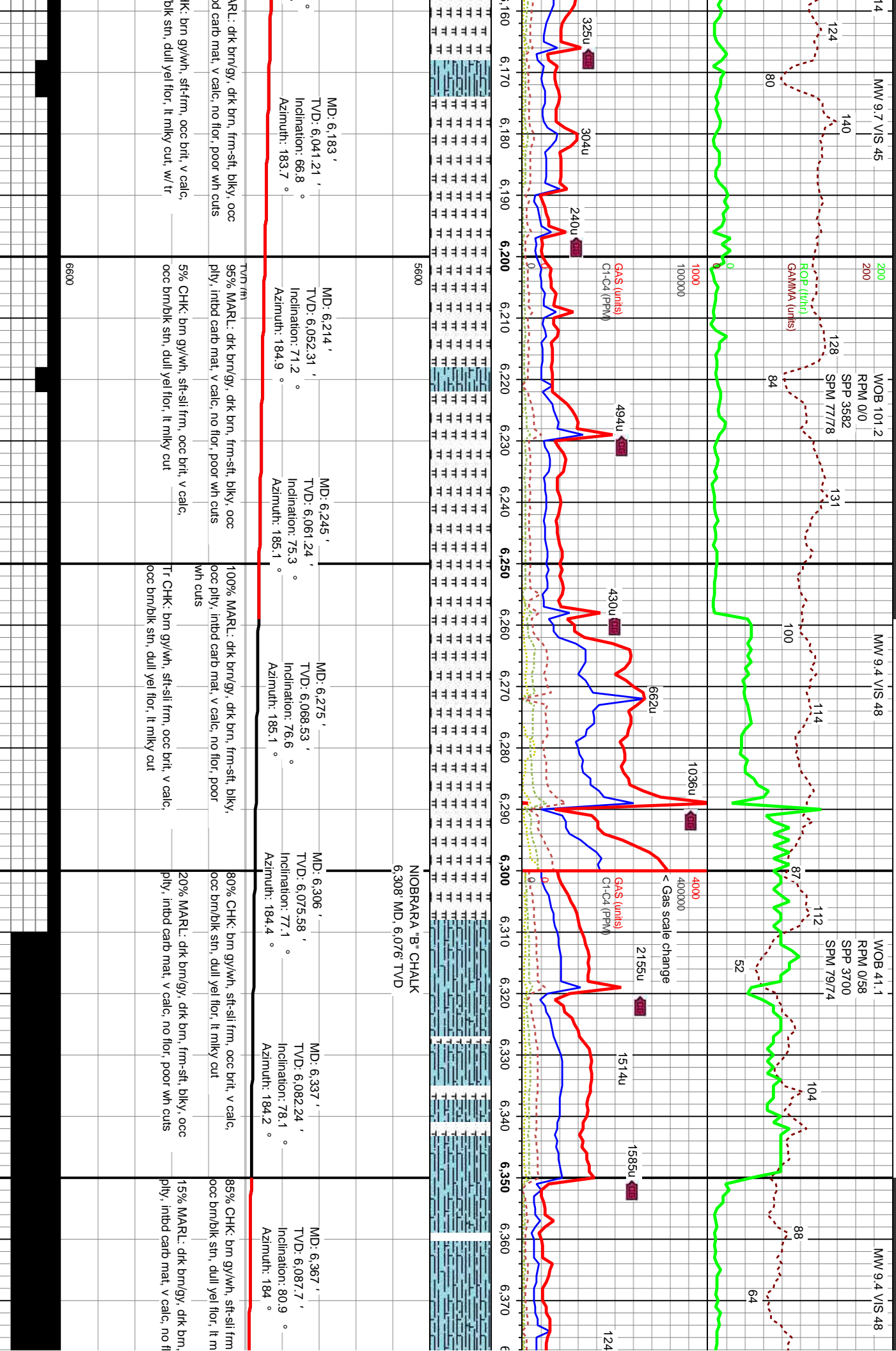
Accessories

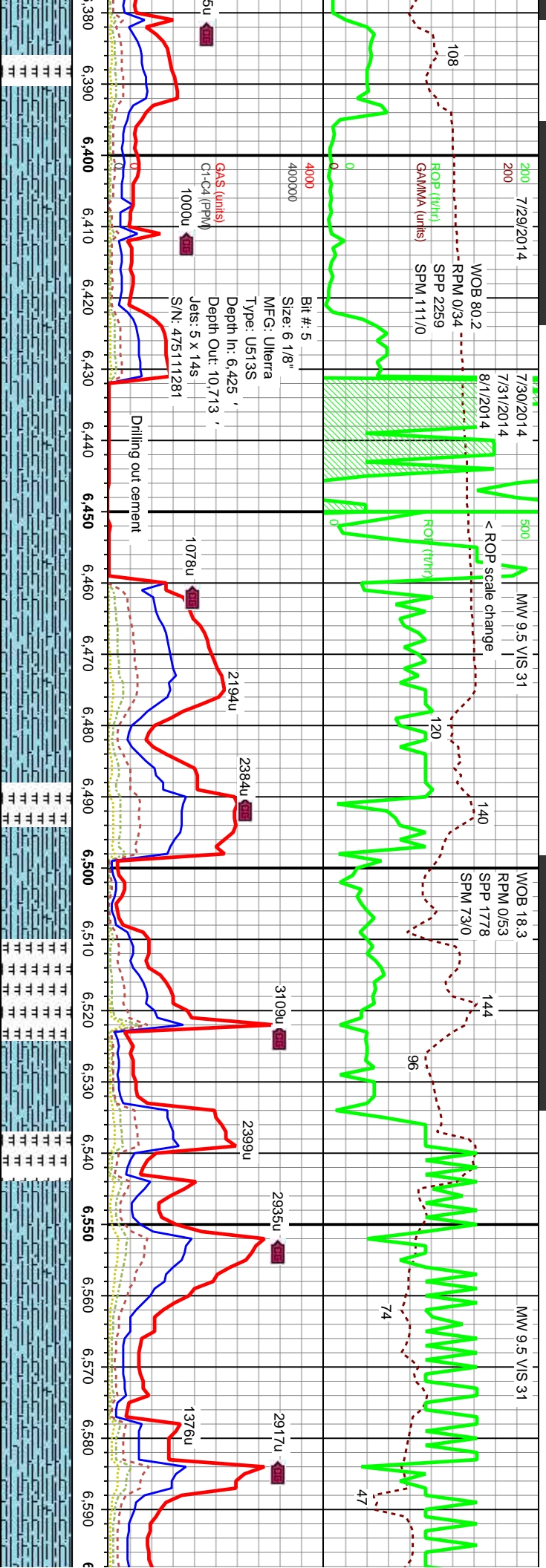
Fossils	F FOSSIL	— ARGILLACEOUS	✓ GLAUCONITE	Stringer
GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS		ANHYDRITE STRINGER
ALGAE	OOLITE	B BENTONITE	HEAVY MINERAL	BENTONITE STRINGER
AMPHIPORA	OSTRACOD	BITUMENOUS SUBSTANCE	K KAOLIN	COAL STRINGER
BELEMNITE	PELECYPOD	BRECCIA FRAGMENTS	TT MARLSTONE	DOLOMITE STRINGER
BIOCLASTIC	PELLET	C CALCAREOUS	MINERAL CRYSTALS	GYPSUM STRINGER
BRACHIOPOD	PISOLITE	CARBONACEOUS FLAKES	N NODULES	LIMESTONE STRINGER
BRYOZOA	PLANT REMAINS	CHTDK	PHOSPHATE PELLET	MARLSTONE (CALC) STRG
CEPHALOPOD	PLANT SPORES	CHLILT	P PYRITE	MARLSTONE (DOL) STRG
CORAL	SCAPHOPOD	COAL - THIN BEDS	B SALT CAST	SANDSTONE STRINGER
CRINOID	STROMATOPOROID	D DOLOMITIC	S SANDY	SHALE STRINGER
ECHINOID	F FELDSPAR	FERRUGINOUS PELLET	S SILTY	SILTSTONE STRINGER
FISH				
FORAMINIFERA	ANHYDRITIC	F FERRUGINOUS	T TUFFACEOUS	

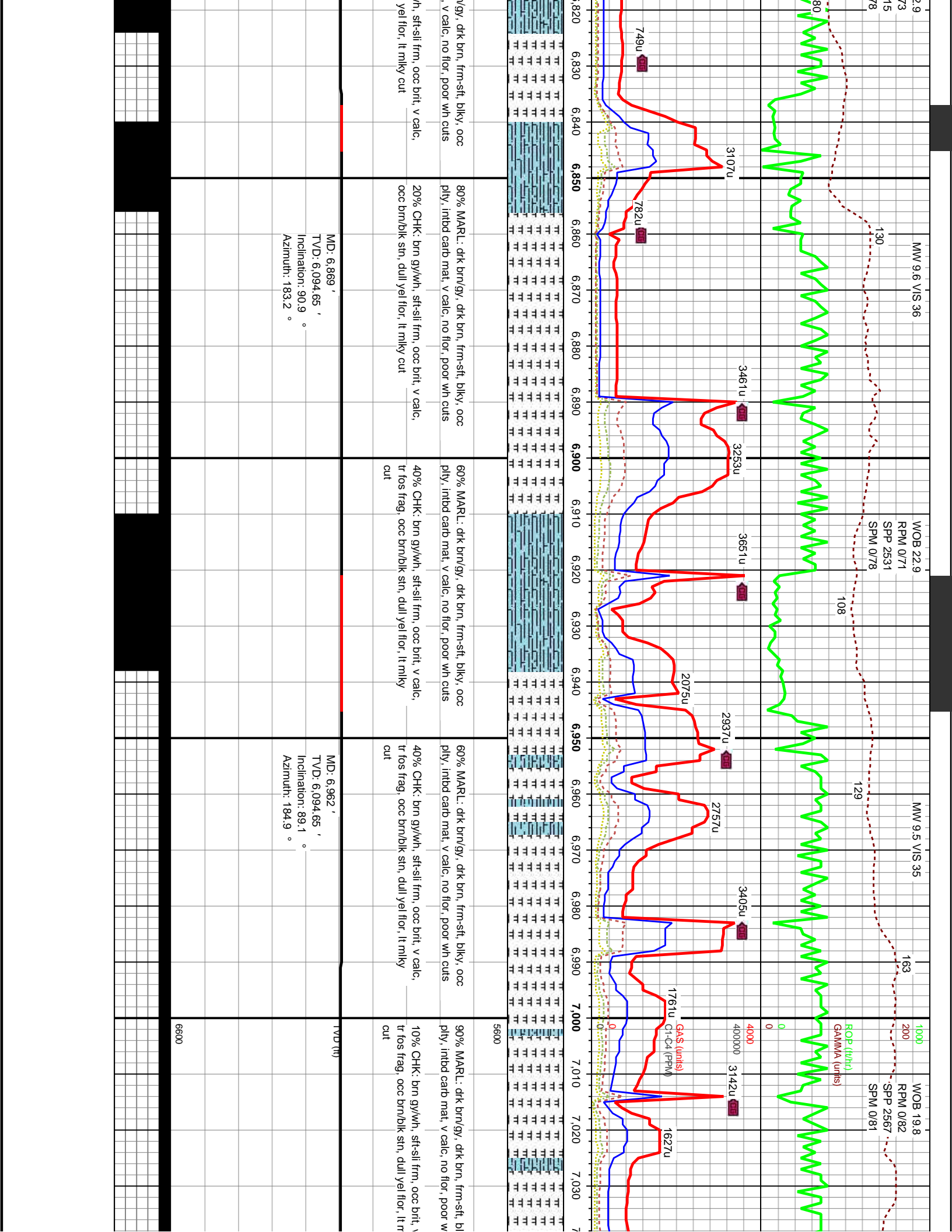
Other Symbols

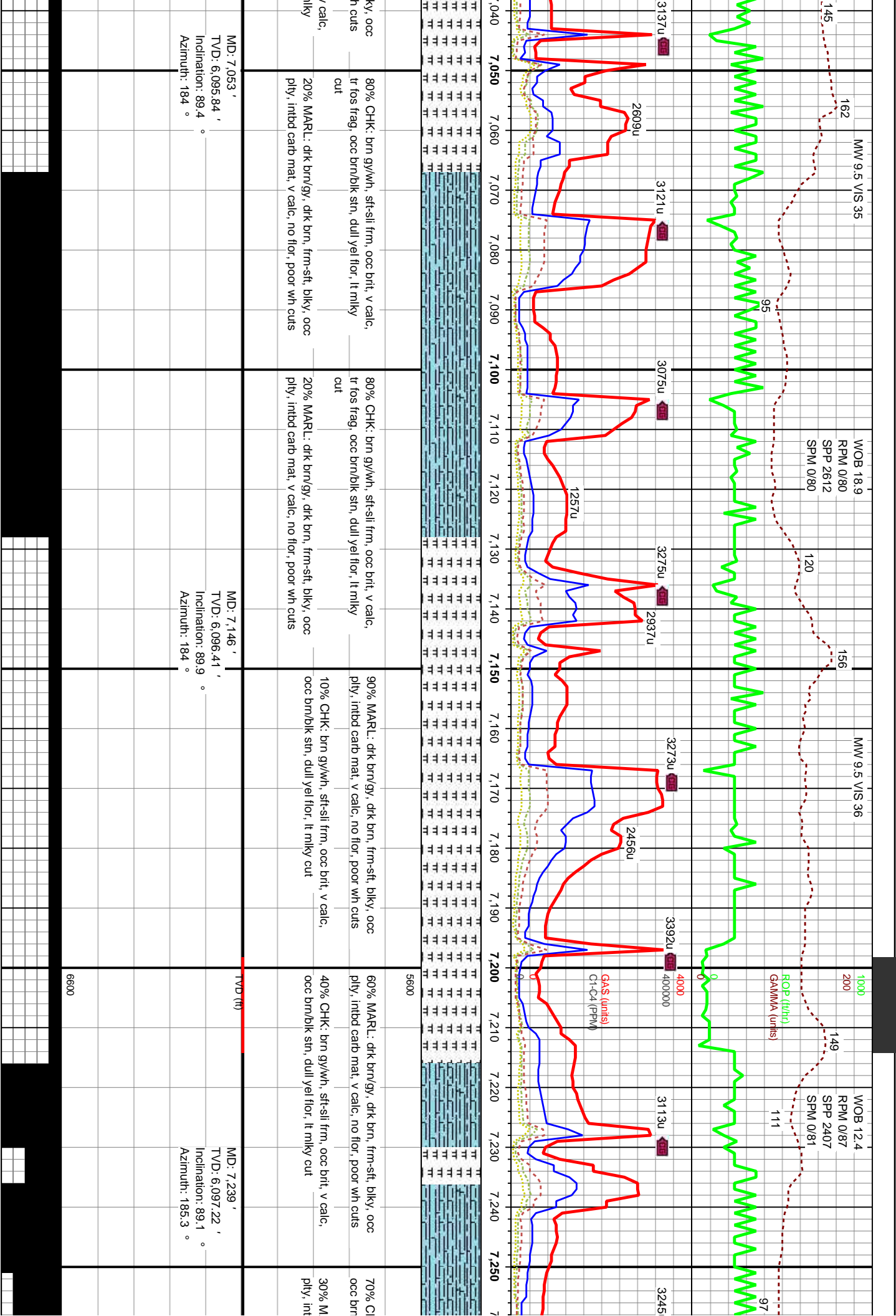
Oil Show	ORGANIC	GAS SHOW	MX MICROXLN
P PINPOINT	MN DEPTH	A ANGULAR	MS MUDESTONE
D DEAD	V VUGGY	NF NORMAL FAULT	PS PACKSTONE
E EVEN		OS OIL SHOW	S SUBANG
Q QUESTIONABLE	Engineering	OS OVERTURNED STRATA	S SUBRAND
S SPOTTED STAINING	BIT	RF REVERSE FAULT	Sorting
	CONNECTION (LEFT)	SIDEWALL CORE (LEFT)	M MODERATE
Porosity	CONNECTION (RIGHT)	SIDEWALL CORE (RIGHT)	P POOR
E EARTHY	CONNECTION GAS	SLIDE	W WELL
F FENESTRAL	CORE - LOST	S SURVEY	Chalk
F FRACTURE	CORE - RECOVERED	TRIP GAS	E EARTHY
INTERCRYSTALLINE	DST INTERVAL	WIRELINE TESTED - LEFT	FX FINELYXLN
INTEROOLITIC	FAULT	WIRELINE TESTED - RT	Chalk
MOLDIC	FORMATION TOP		GS GRAINSTONE
		Rounding	L LITHOGRAPHIC





[illegible]

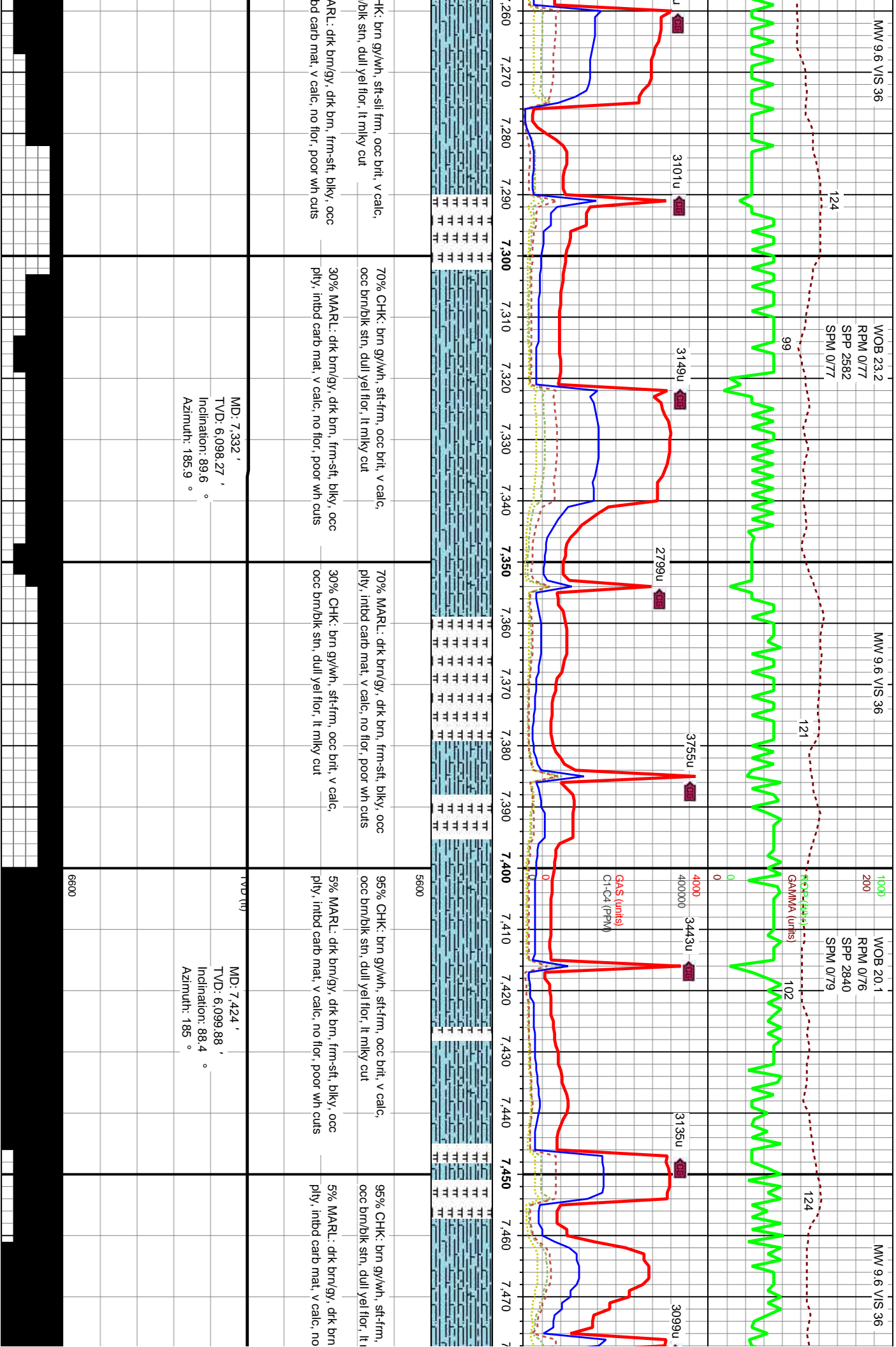




MD: 7.053 '
TVD: 6.095.84 '
Inclination: 89.4 °
Azimuth: 184 °

MD: 7.146 '
TVD: 6.096.41 '
Inclination: 89.9 °
Azimuth: 184 °

MD: 7.239 '
TVD: 6.097.22 '
Inclination: 89.1 °
Azimuth: 185.3 °



7.260 7.270 7.280 7.290 7.300 7.310 7.320 7.330 7.340 7.350 7.360 7.370 7.380 7.390 7.400 7.410 7.420 7.430 7.440 7.450 7.460 7.470

70% CHK: brn gy/wh, sft-sil frm, occ brt, v calc, occ brn/bk sin, dull yel flr, lt milky cut

30% MARL: dtk brn/gy, dtk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts

70% CHK: brn gy/wh, sft-sil frm, occ brt, v calc, occ brn/bk sin, dull yel flr, lt milky cut

30% MARL: dtk brn/gy, dtk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts

70% CHK: brn gy/wh, sft-sil frm, occ brt, v calc, occ brn/bk sin, dull yel flr, lt milky cut

30% MARL: dtk brn/gy, dtk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts

95% CHK: brn gy/wh, sft-sil frm, occ brt, v calc, occ brn/bk sin, dull yel flr, lt milky cut

5% MARL: dtk brn/gy, dtk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts

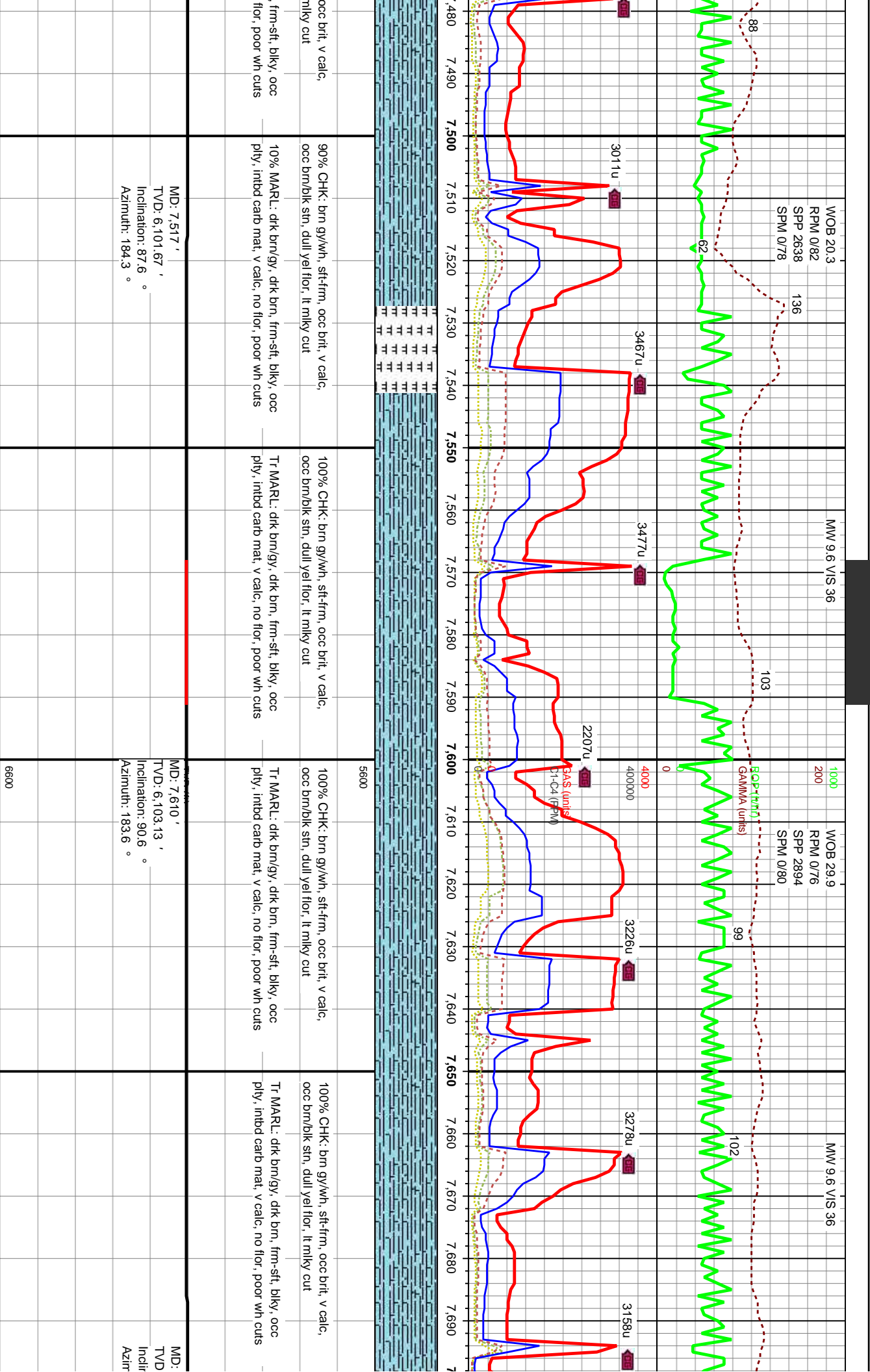
95% CHK: brn gy/wh, sft-sil frm, occ brt, v calc, occ brn/bk sin, dull yel flr, lt milky cut

5% MARL: dtk brn/gy, dtk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts

MD: 7.332 ' TVD: 6.098.27 ' Inclination: 89.6 ° Azimuth: 185.9 °

MD: 7.424 ' TVD: 6.099.88 ' Inclination: 88.4 ° Azimuth: 185 °

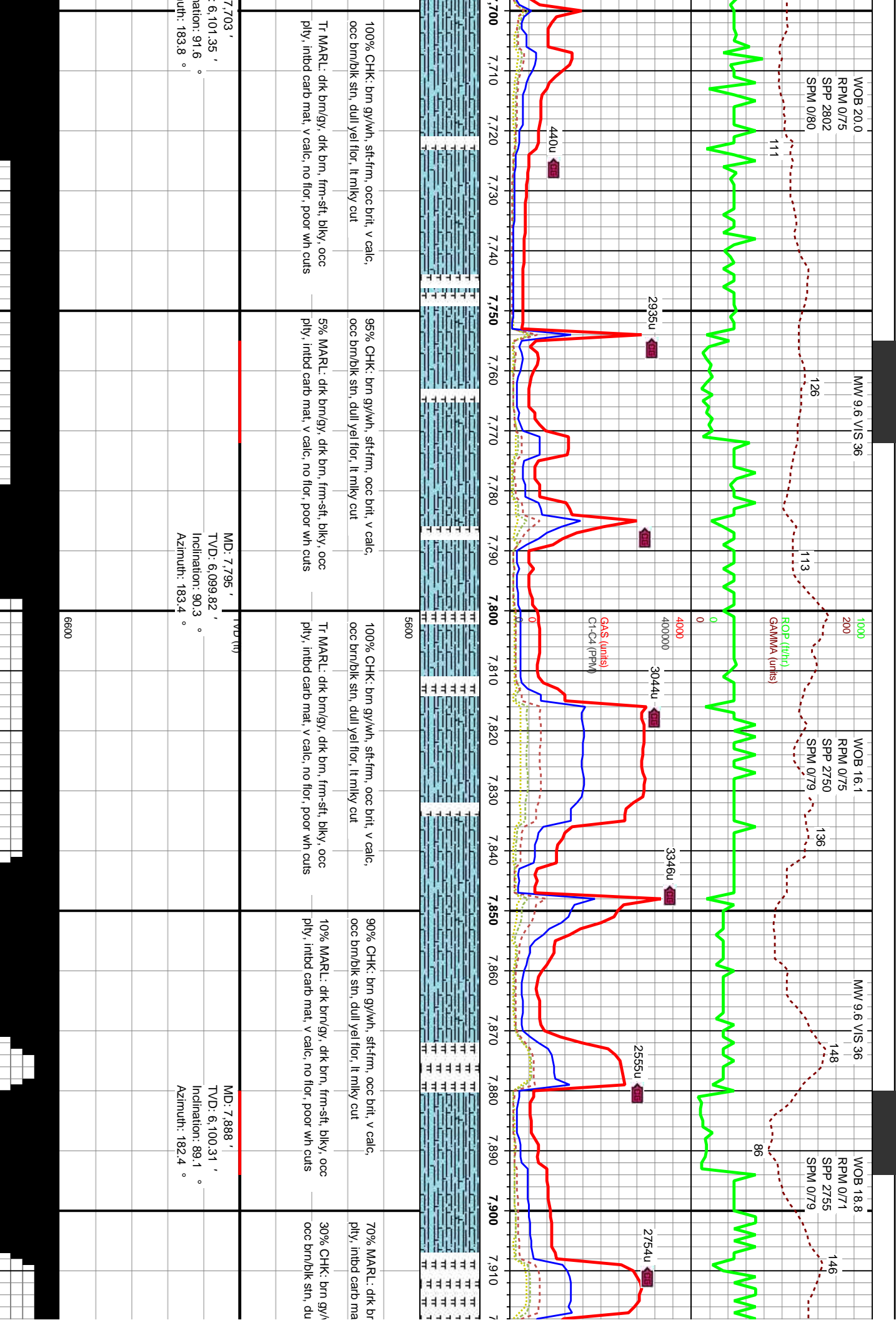
6600

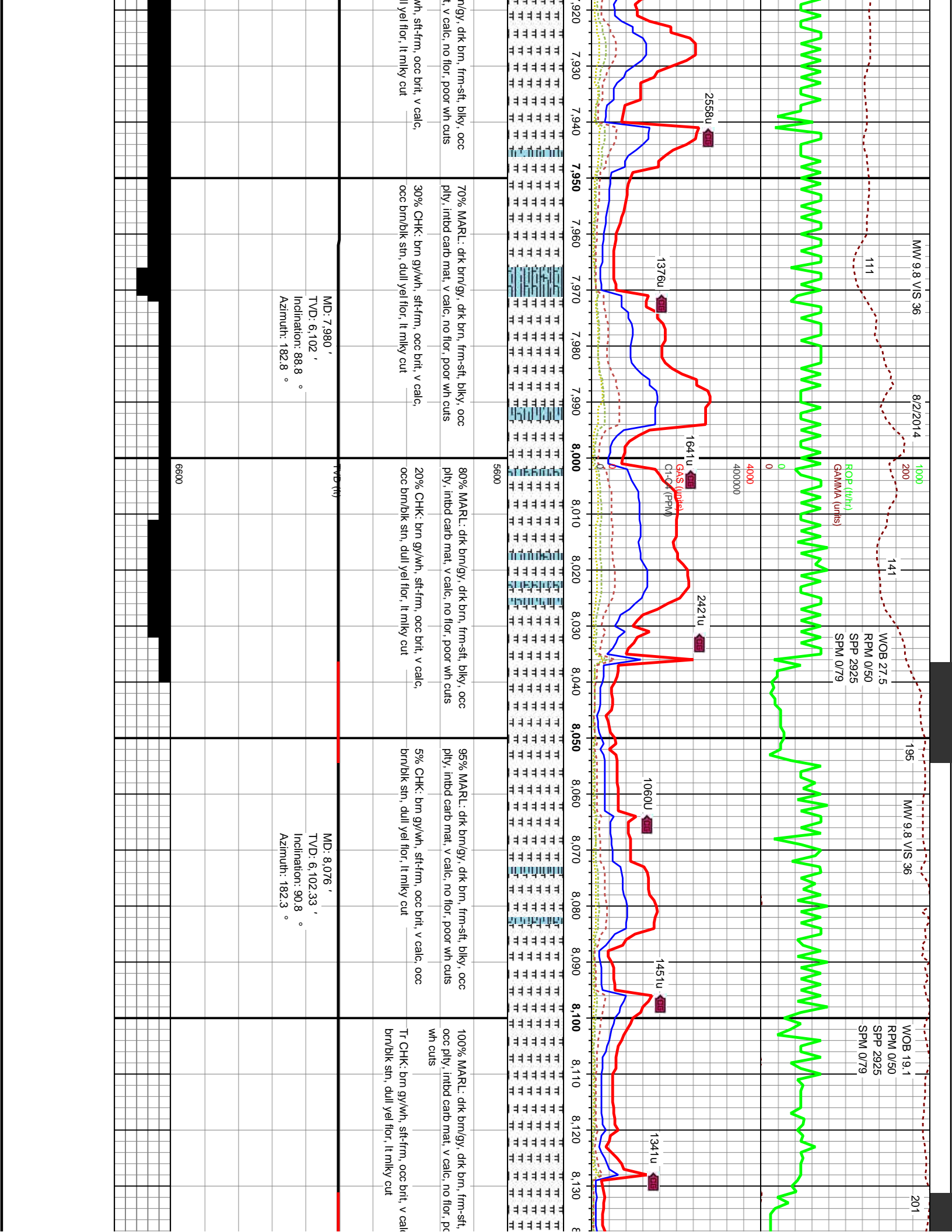


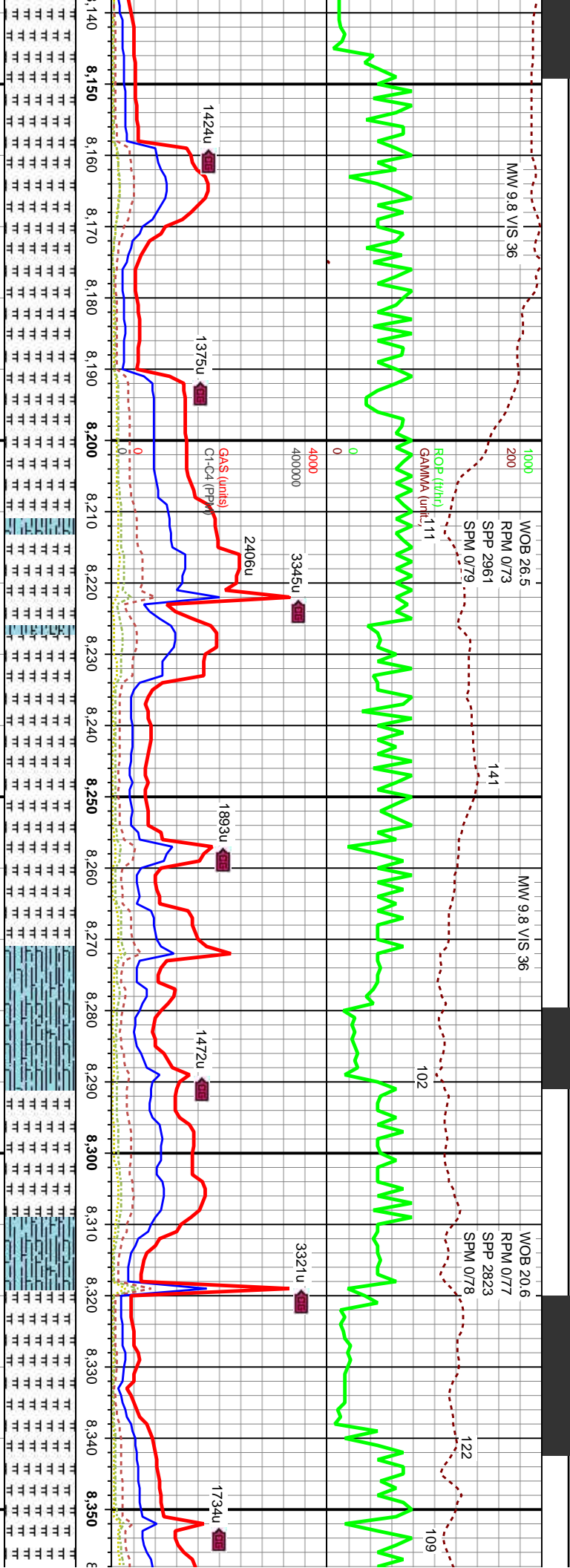
MD: 7.517 '
TVD: 6,101.67 '
Inclination: 87.6 °
Azimuth: 184.3 °

MD: 7.610 '
TVD: 6,103.13 '
Inclination: 90.6 °
Azimuth: 183.6 °

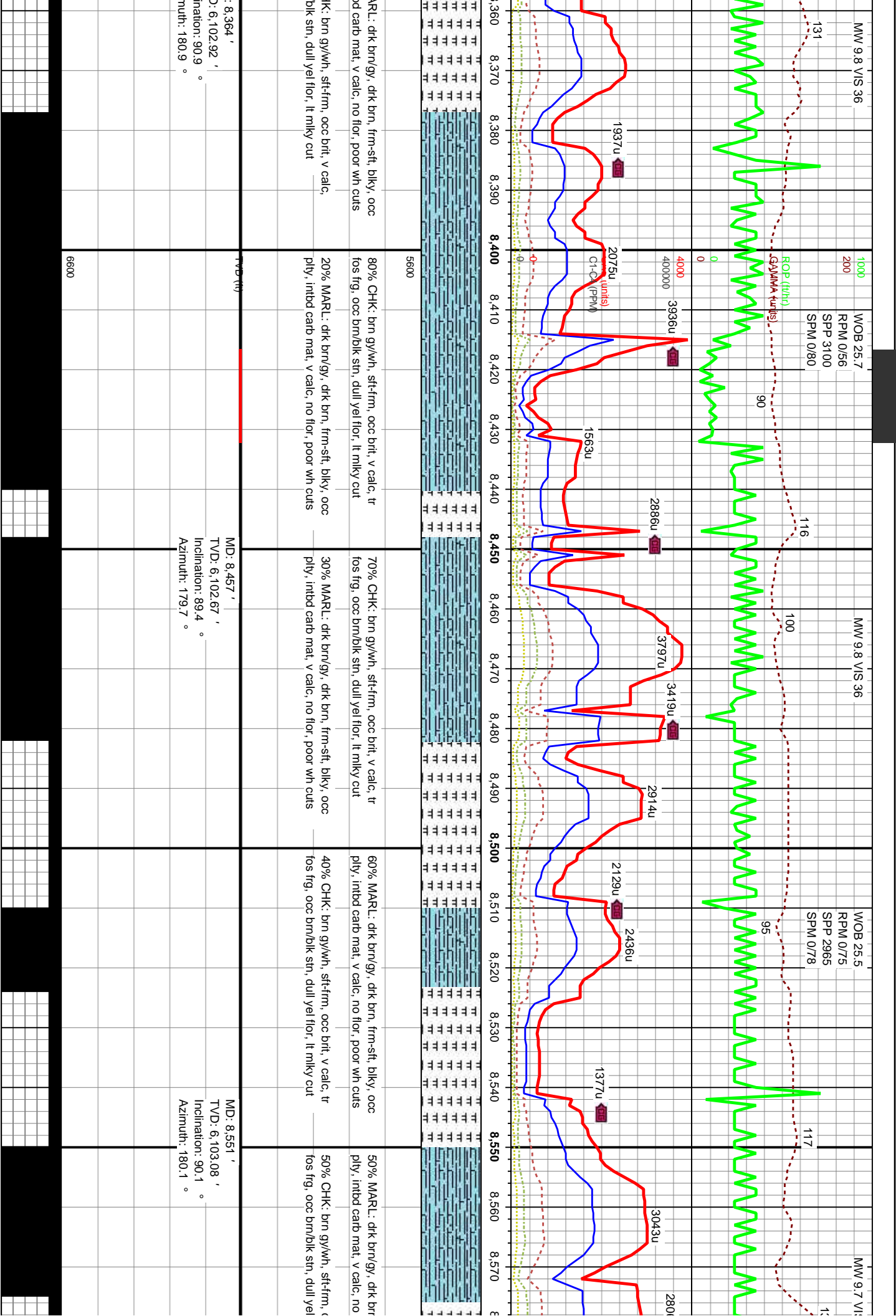
MD: 7.610 '
TVD: 6,103.13 '
Inclination: 90.6 °
Azimuth: 183.6 °

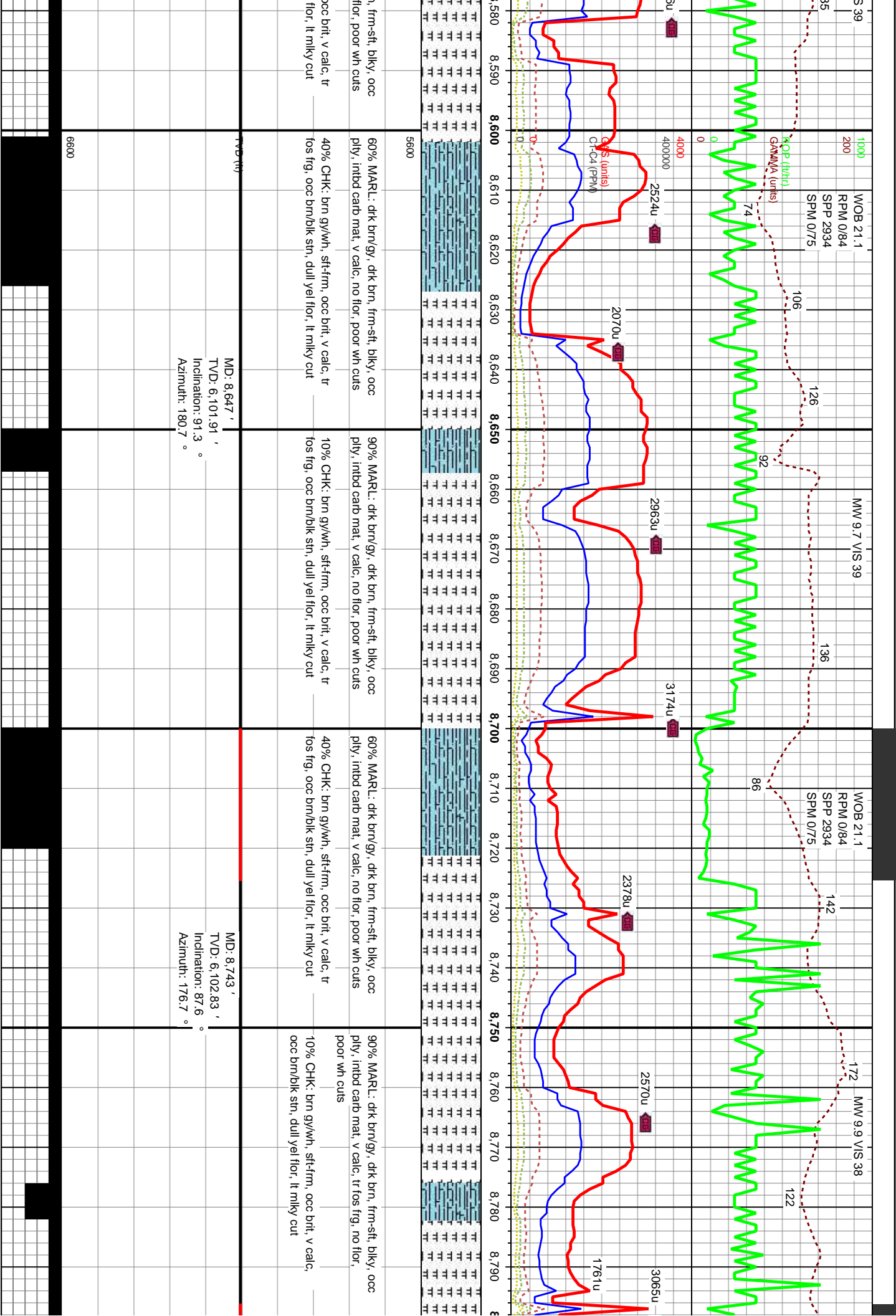


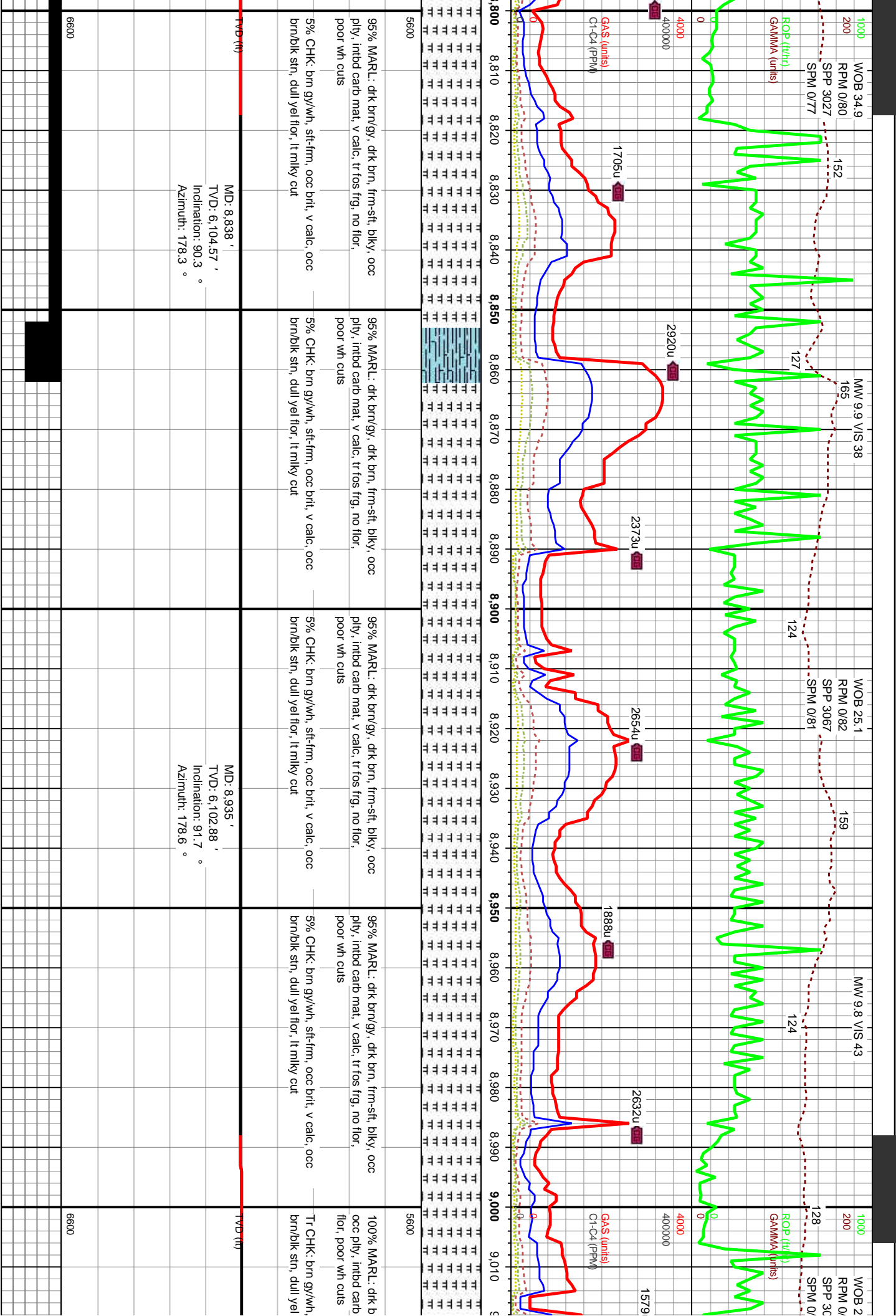


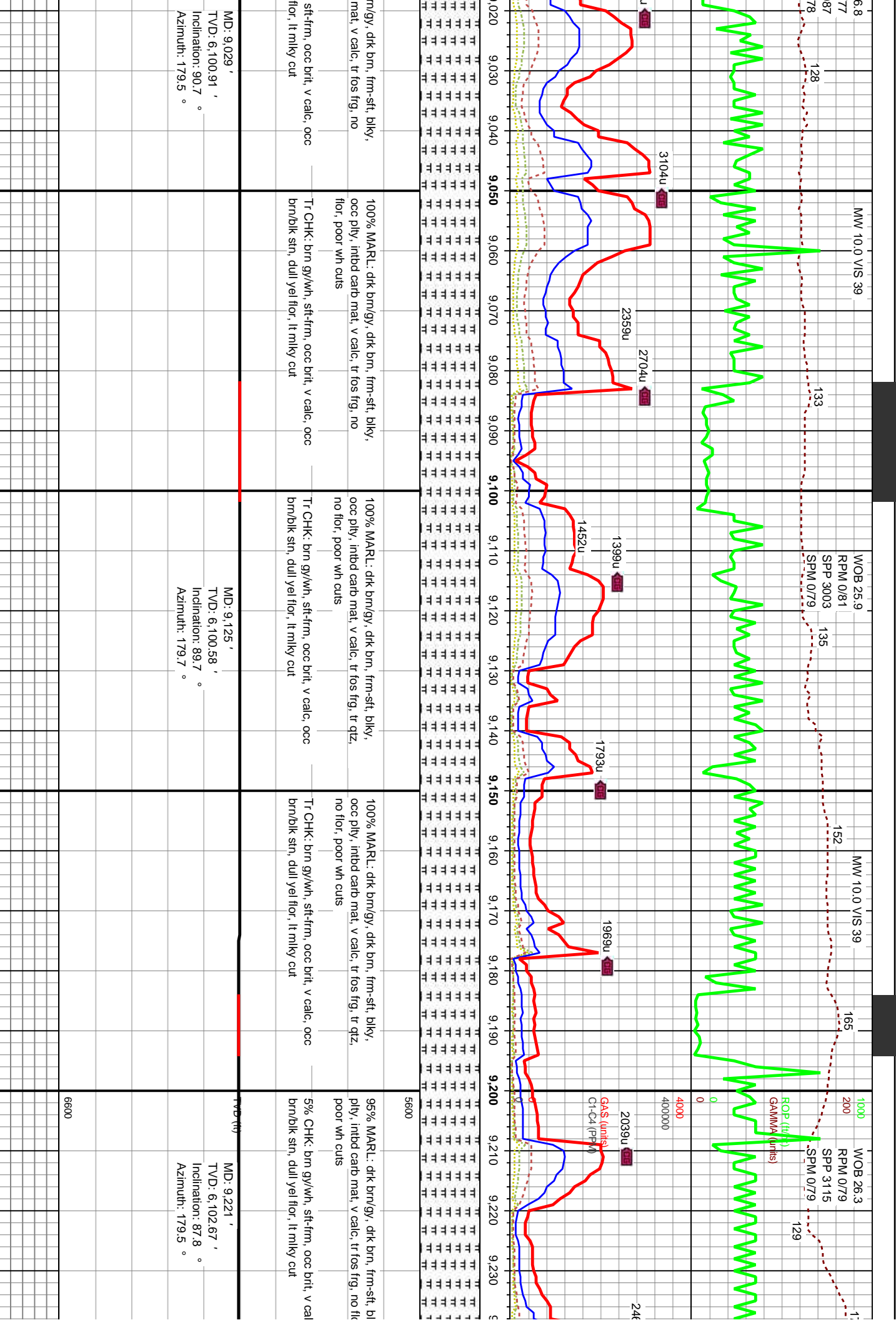


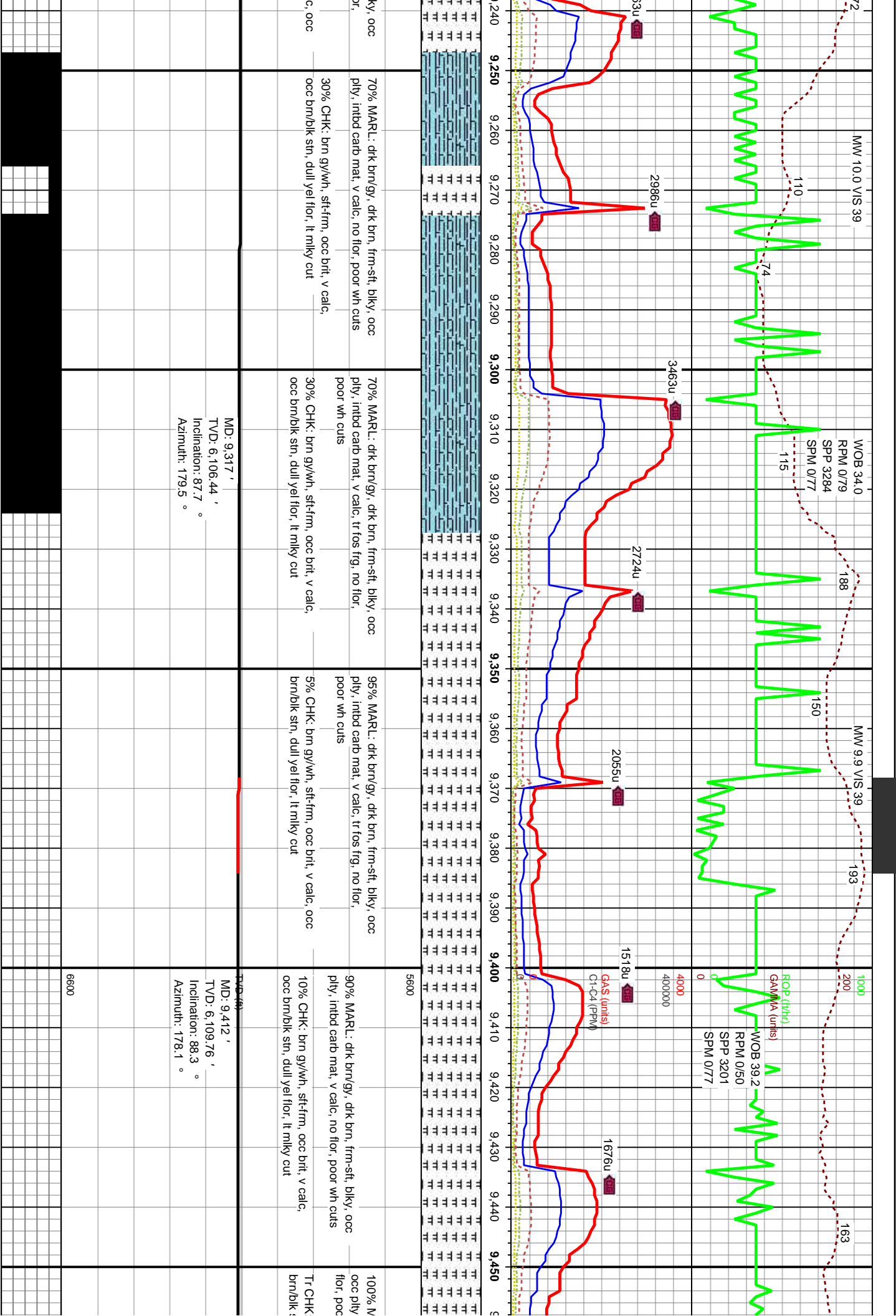
95% MARL: drk brn/gy, drk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flor, poor wh cuts	95% MARL: drk brn/gy, drk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flor, poor wh cuts	80% MARL: drk brn/gy, drk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flor, poor wh cuts	90% MARL: drk brn/gy, drk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flor, poor wh cuts	60% MARL: drk brn/gy, drk brn, frm-sft, blk, occ ply, intbd carb mat, v calc, no flor, poor wh cuts
5% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk sin, dull yel flr, lt mlky cut	5% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk sin, dull yel flr, lt mlky cut	20% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk sin, dull yel flr, lt mlky cut	10% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk sin, dull yel flr, lt mlky cut	40% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk sin, dull yel flr, lt mlky cut
MD: 8,172 ' TVD: 6,102.08 ' Inclination: 89.5 ° Azimuth: 182.1 °	MD: 8,268 ' TVD: 6,103.09 ' Inclination: 89.3 ° Azimuth: 182.1 °	MD: 8,268 ' TVD: 6,103.09 ' Inclination: 89.3 ° Azimuth: 182.1 °	MD: 8,268 ' TVD: 6,103.09 ' Inclination: 89.3 ° Azimuth: 182.1 °	MD: 8,268 ' TVD: 6,103.09 ' Inclination: 89.3 ° Azimuth: 182.1 °

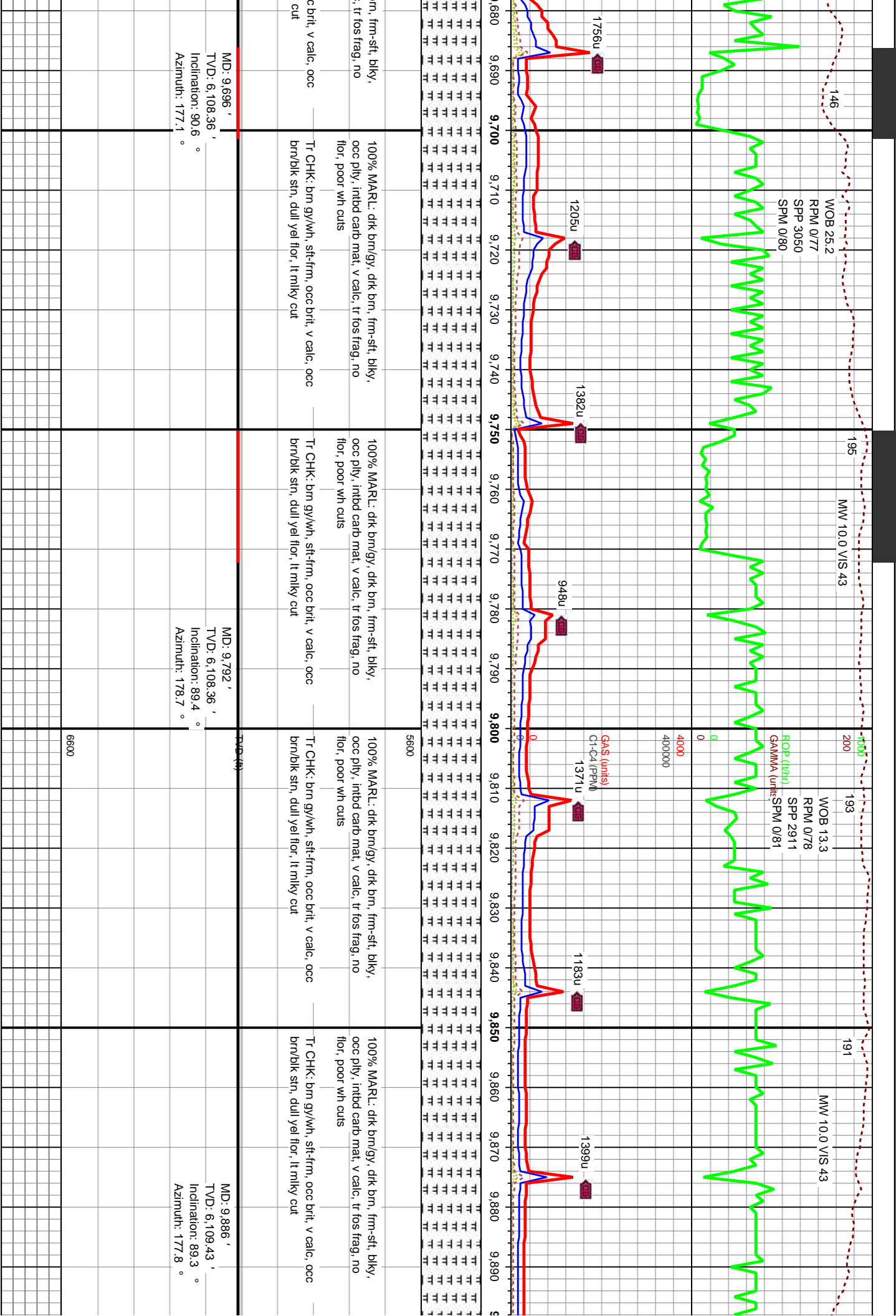












WOB 25.2
RPM 0/77
SPM 3050
SPM 0/80

WOB 13.3
RPM 0/78
SPM 2911
SPM 0/81

WOB 19.1
RPM 0/78
SPM 0/81

1756u

1205u

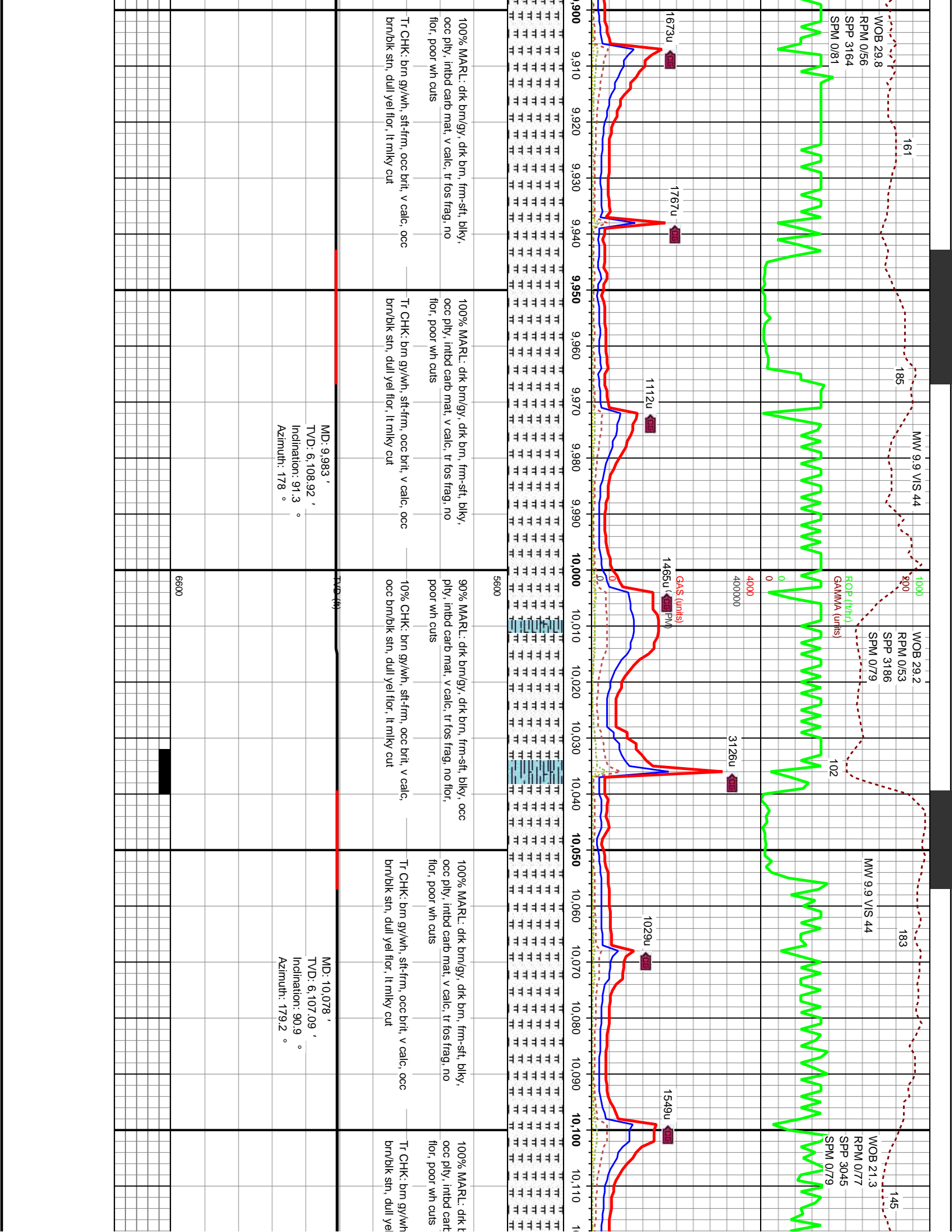
1382u

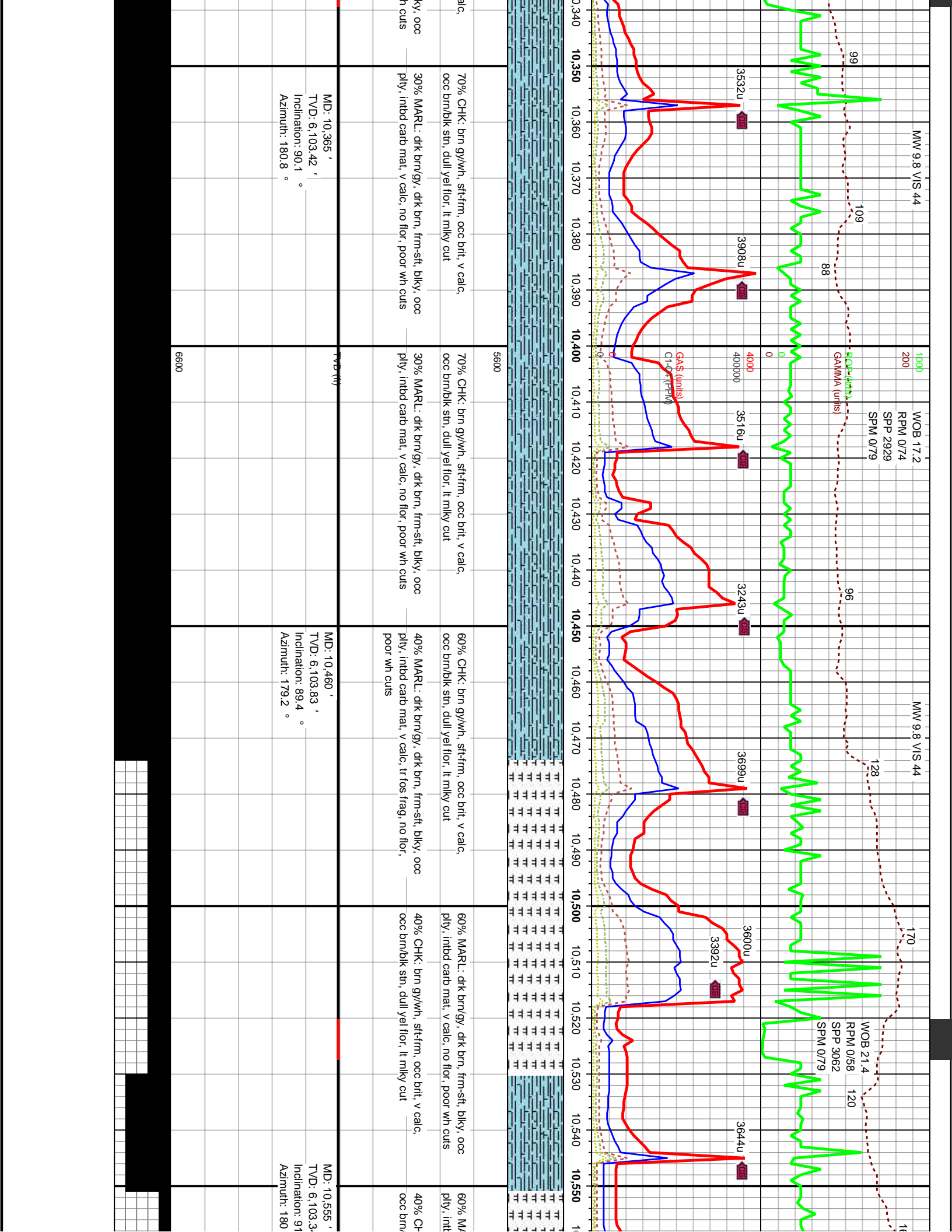
948u

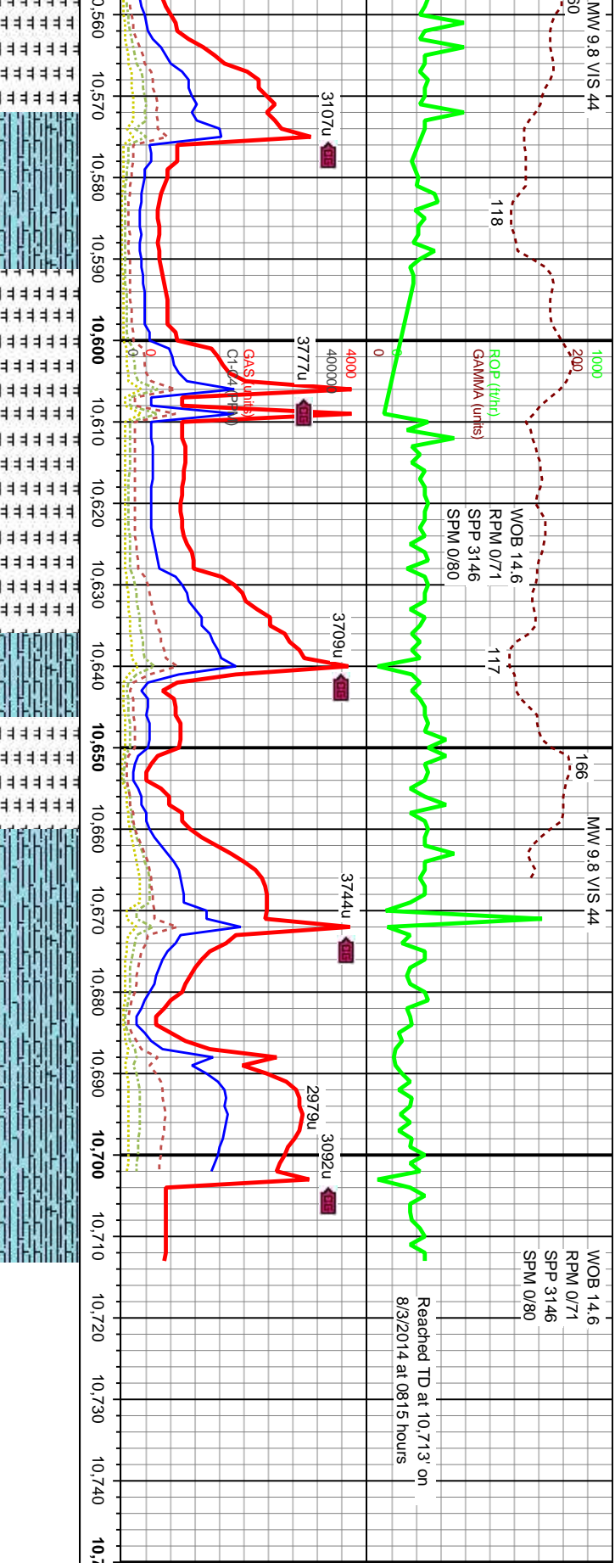
1371u

1183u

1399u







RL: dkf brn/gy, dkf brn, frm-sft, blk, occ carb mat. v calc, no flor, poor wh cuts	80% MARL: dkf brn/gy, dkf brn, frm-sft, blk, occ ply, intbd carb mat. v calc, no flor, poor wh cuts	70% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk stn, dull yel flor, lt milky cut	70% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk stn, dull yel flor, lt milky cut
KK: brn gy/wh, sft-frm, occ brt, v calc, blk stn, dull yel flor, lt milky cut	20% CHK: brn gy/wh, sft-frm, occ brt, v calc, occ brn/blk stn, dull yel flor, lt milky cut	30% MARL: dkf brn/gy, dkf brn, frm-sft, blk, occ ply, intbd carb mat. v calc, no flor, poor wh cuts	30% MARL: dkf brn/gy, dkf brn, frm-sft, blk, occ ply, intbd carb mat. v calc, no flor, poor wh cuts
MD: 10,651' TVD: 6,100.49' Inclination: 92.2° Azimuth: 178.9°			
MD: 10,662' TVD: 6,100.05' Inclination: 92.4° Azimuth: 178.6°			
THANK YOU FOR USING DECOLLEMENT CONSULTING!			
6600			