

Décollement Consulting Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name State Pronghorn 11-14-16HNB

Location NW/NW Section 16, T5N - R61W

State Colorado

Country USA

API Number 05-123-39064-00

Region D.J. Basin

Spud Date 6/29/2014

County Weld

Rig Number Cade 21

Field Wattenberg

Drilling Completed 7/7/2014

Ground Elevation 4,642'

K.B. Elevation 4,659'

Logged Interval 6,000' **To** 10,758'

Total Depth 10,758'

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

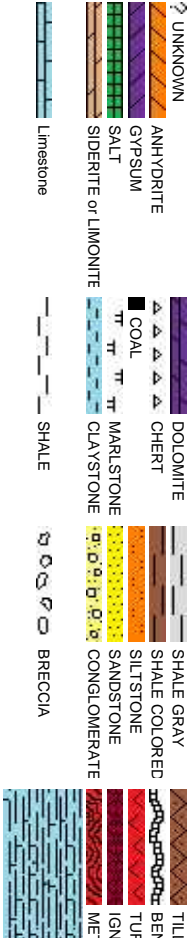
Geologist

Name Dick Brunner / Scott Sawyer

Company Decollement Consulting Inc.

Address 13300 Braun Road
Golden, CO 80401

Rock Types

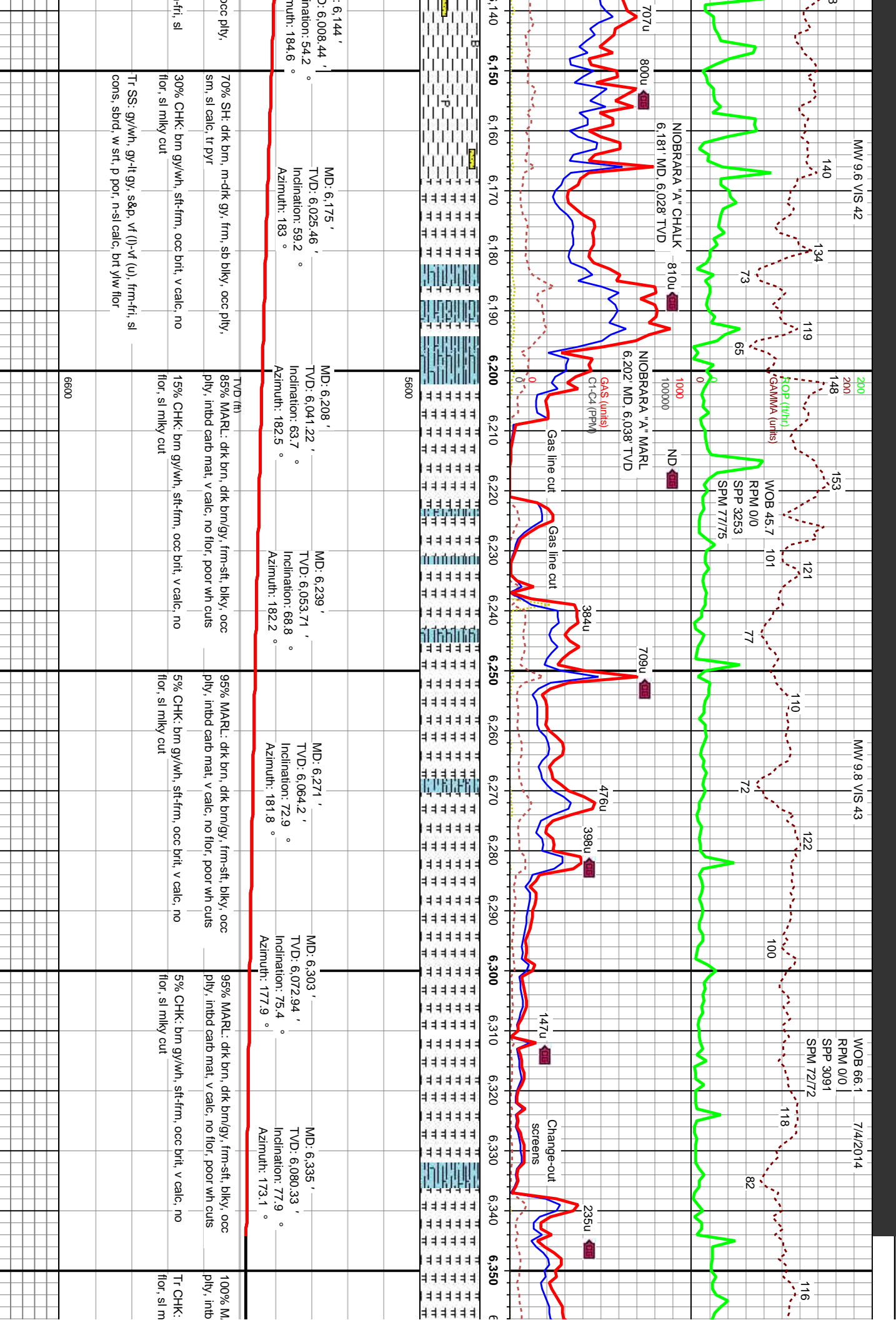


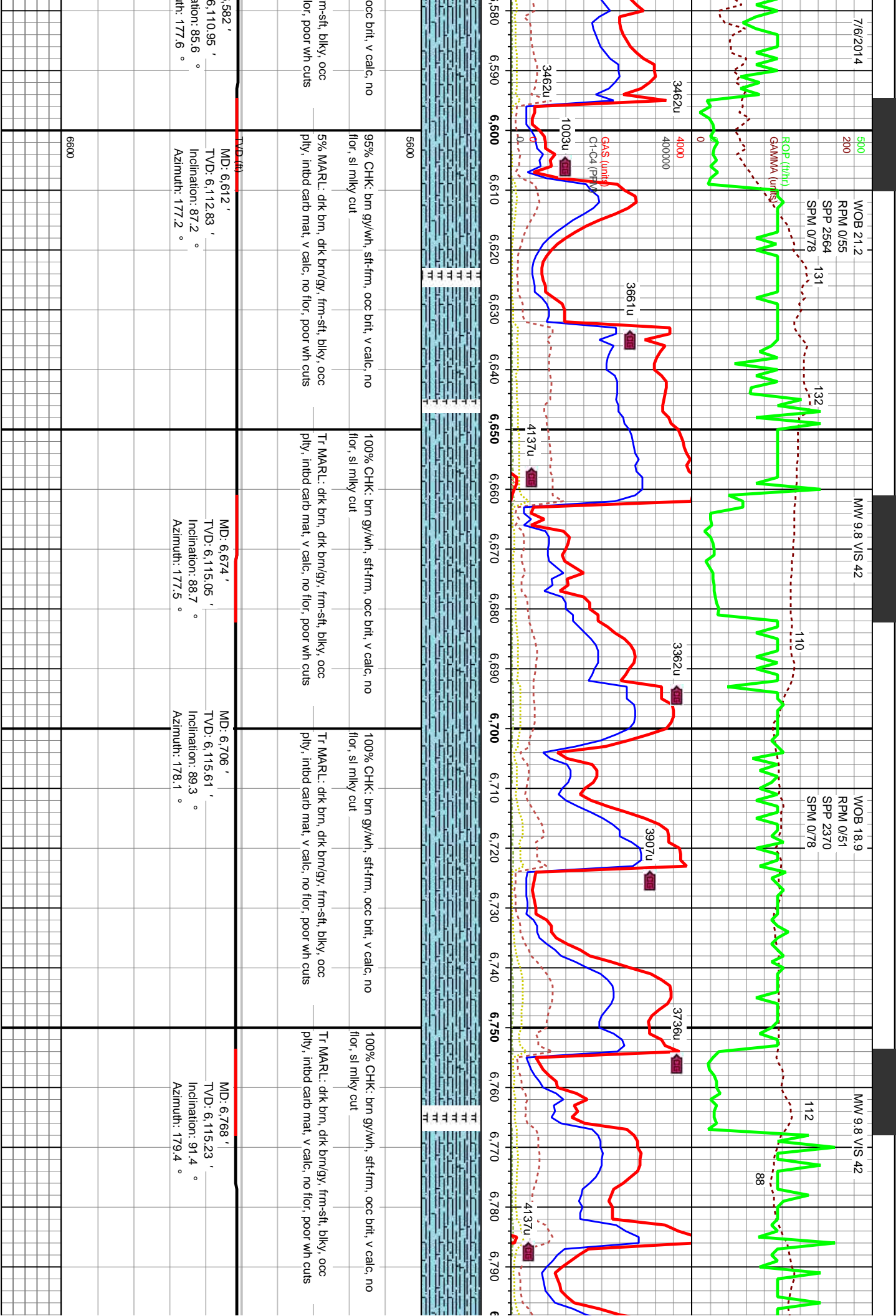
Accessories

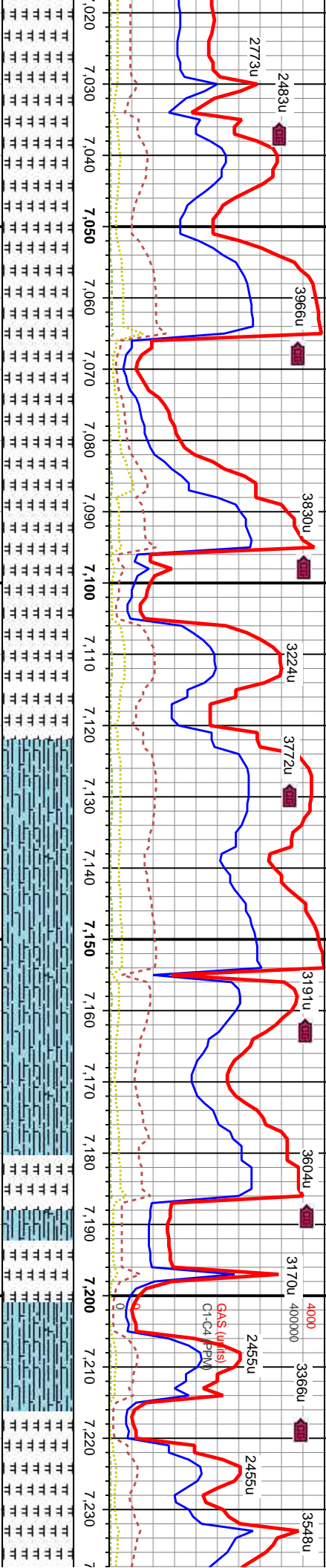
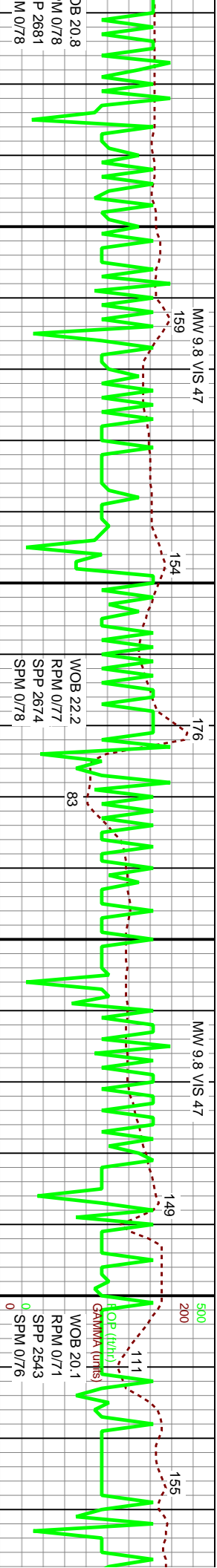
Fossils		Stringer	
F FOSSIL	- ARGILLACEOUS	✓ GLAUCONITE	ANHYDRITE STRINGER
GASTROPOD	/ ARGILLITE GRAIN	⚡ GYPSIFEROUS	BENTONITE STRINGER
ALGAE	○ OOLITE	↑ HEAVY MINERAL	COAL STRINGER
AMPHIPORA	○ OSTRACOD	K KAOLIN	DOLOMITE STRINGER
BELEMNITE	☞ PELECYPOD	TT MARLSTONE	GYPSUM STRINGER
BIOCLASTIC	☞ PELLET	⌘ MINERAL CRYSTALS	LIMESTONE STRINGER
BRACHIOPOD	☞ PISOLITE	⬢ NODULES	MARLSTONE (CALC) STRG
BRYOZOA	☞ PLANT REMAINS	▲ CHTDK	SANDSTONE STRINGER
CEPHALOPOD	☞ PLANT SPORES	▲ CHTLT	SHALE STRINGER
CORAL	☞ SCAPHOPOD	— COAL - THIN BEDS	
CRINOID	III STROMATOPOROID	☞ DOLOMITIC	
ECHINOID	+ FELDSPAR	✓ SILICEOUS	
FISH	● FERRUGINOUS PELLET	.. SILTY	
FORAMINIFERA	/// ANHYDRITIC	✓ TUFFACEOUS	SILTSTONE STRINGER

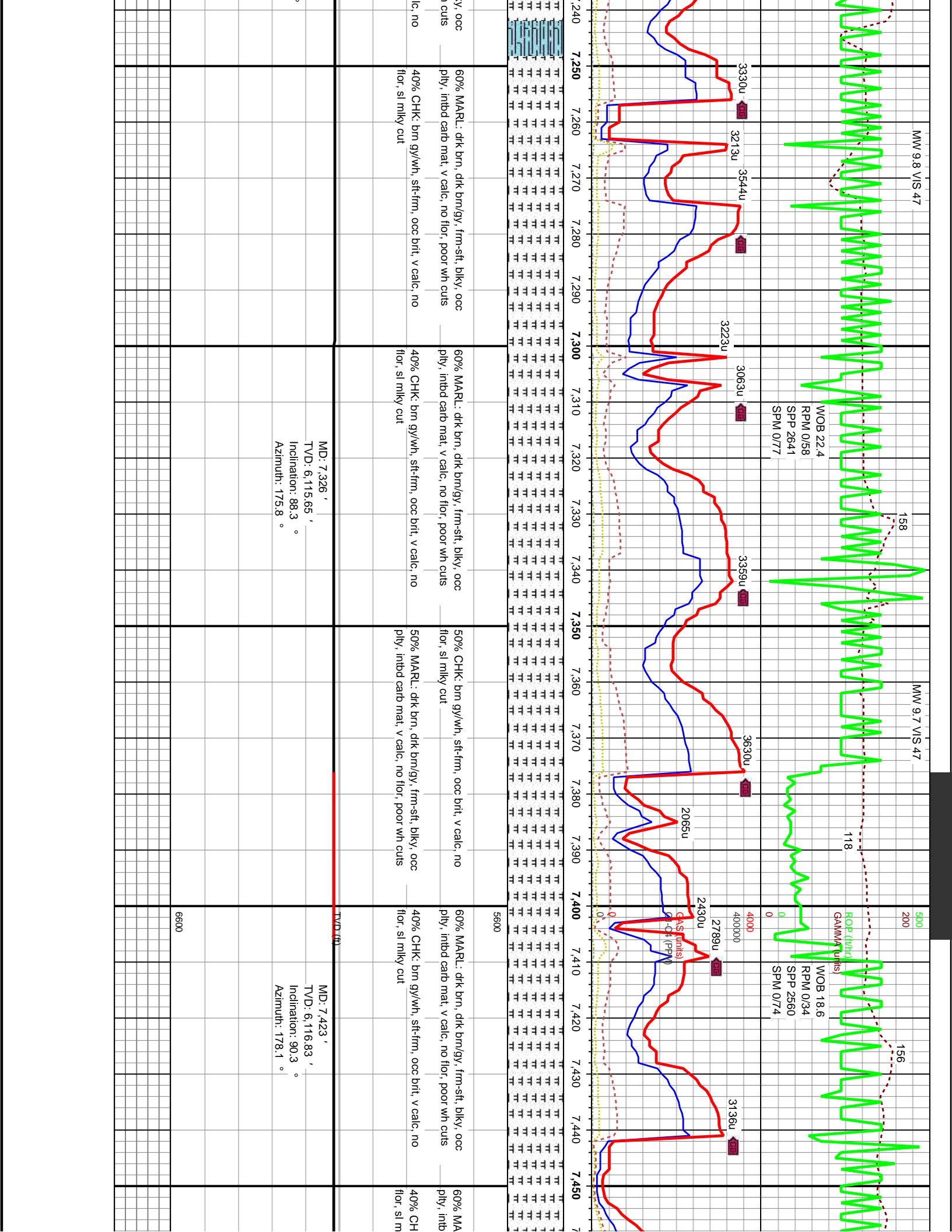
Other Symbols

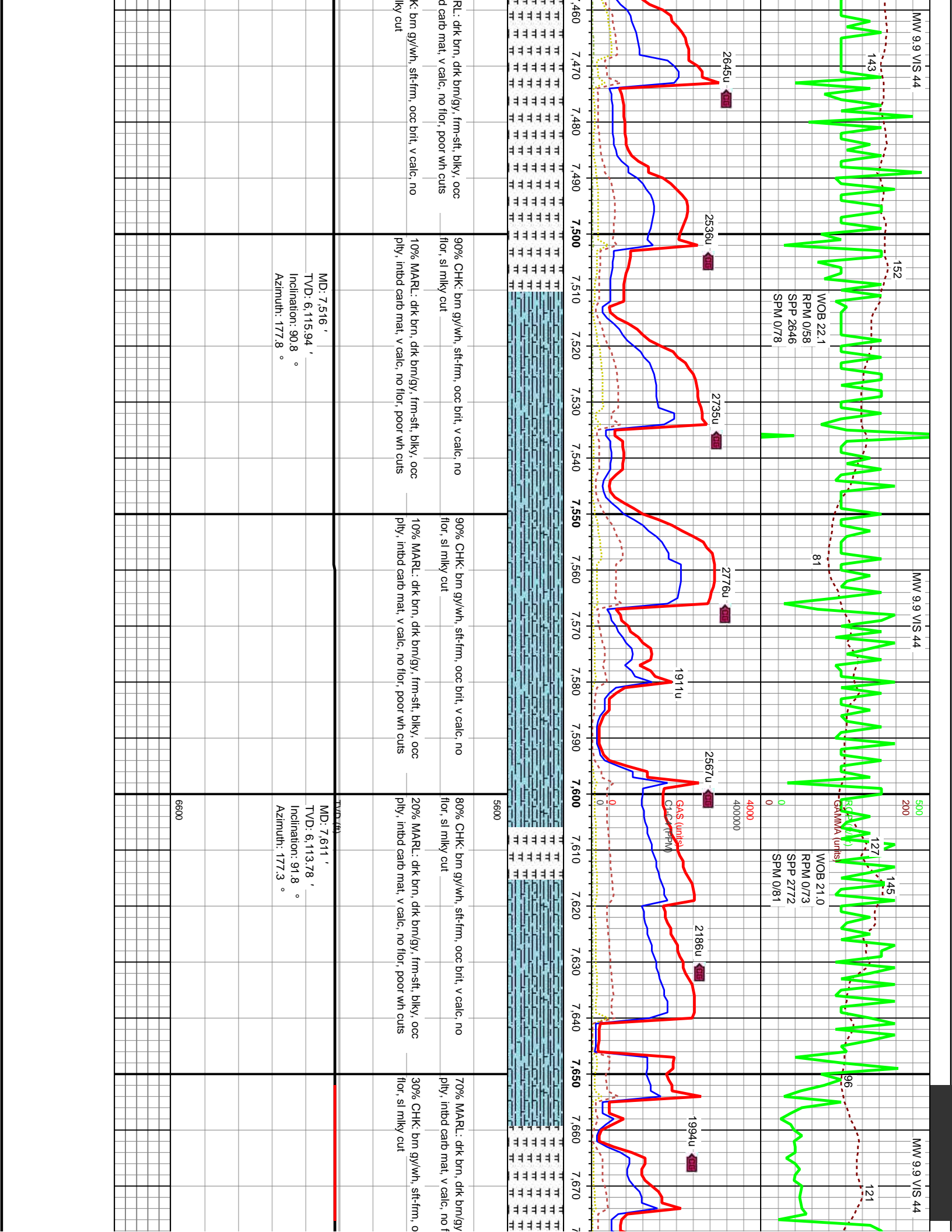
Oil Show		Engineering	
○ ORGANIC	✖ GAS SHOW	↕ REVERSE FAULT	MX MICROXLN
P PINPOINT	MINDEPTH MN DEPTH	▲ SIDEWALL CORE (LEFT)	MS MUDSTONE
✓ VUGGY	↗ NORMAL FAULT	▲ SIDEWALL CORE (RIGHT)	R ROUNDED
● DEAD	↘ OIL SHOW	SLIDE	R SUBANG
● EVEN	↕ OVERTURNED STRATA	05 SURVEY	R SUBRD
○ QUESTIONABLE	↗ BIT	TRIP GAS	
SPOTTED STAINING	CONNECTION (LEFT)	WIRELINE TESTED - LEFT	
Porosity		WIRELINE TESTED - RT	
E EARTHY	CONNECTION (RIGHT)		
F FENESTRAL	CONNECTION GAS		
F FRACTURE	CORE - LOST		
✕ INTERCRYSTALLINE	CORE - RECOVERED		
☞ INTEROOLITIC	DST INTERVAL		
✓ MOLDIC	FAULT		
	FORMATION TOP		
Rounding			

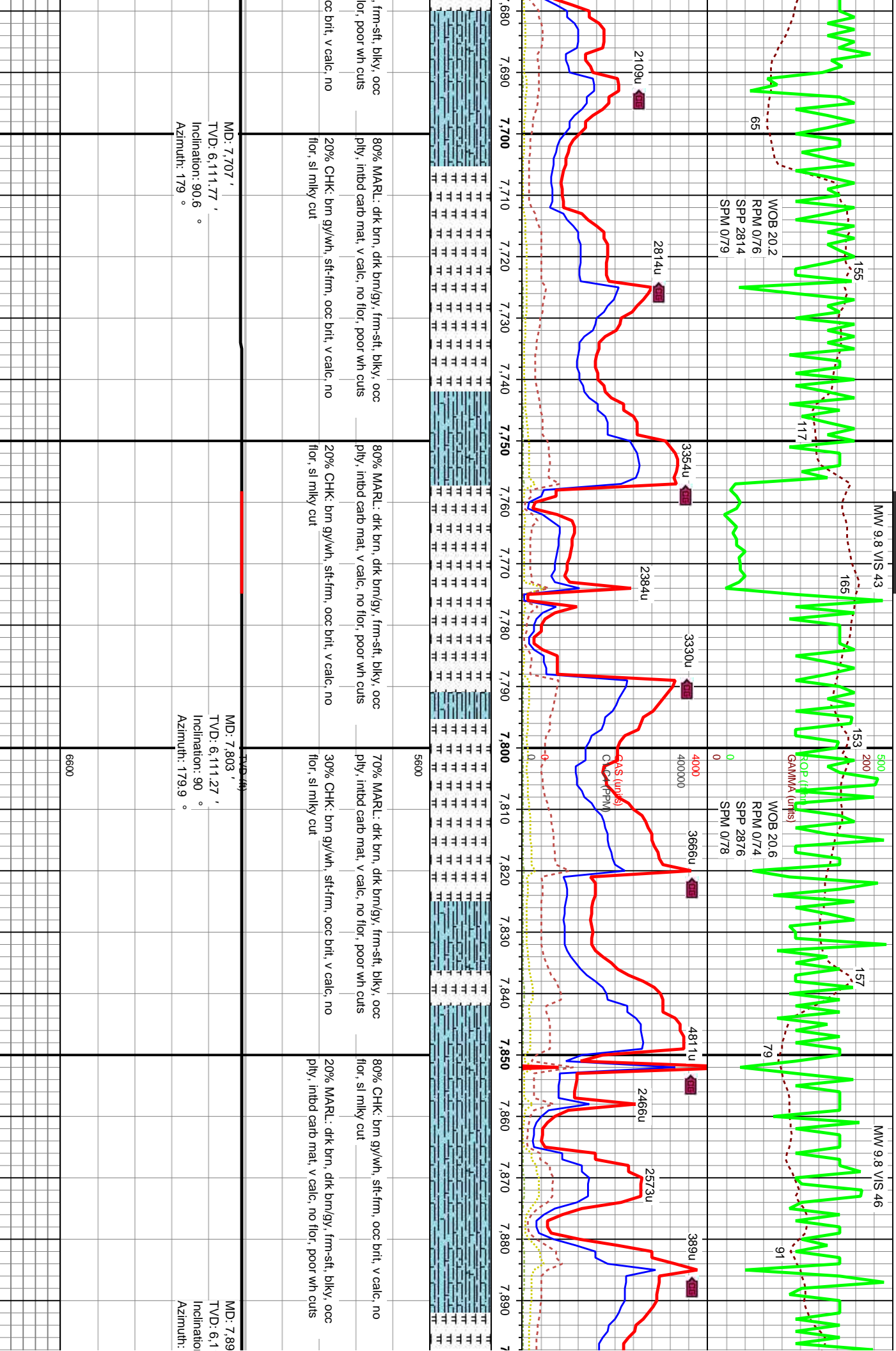


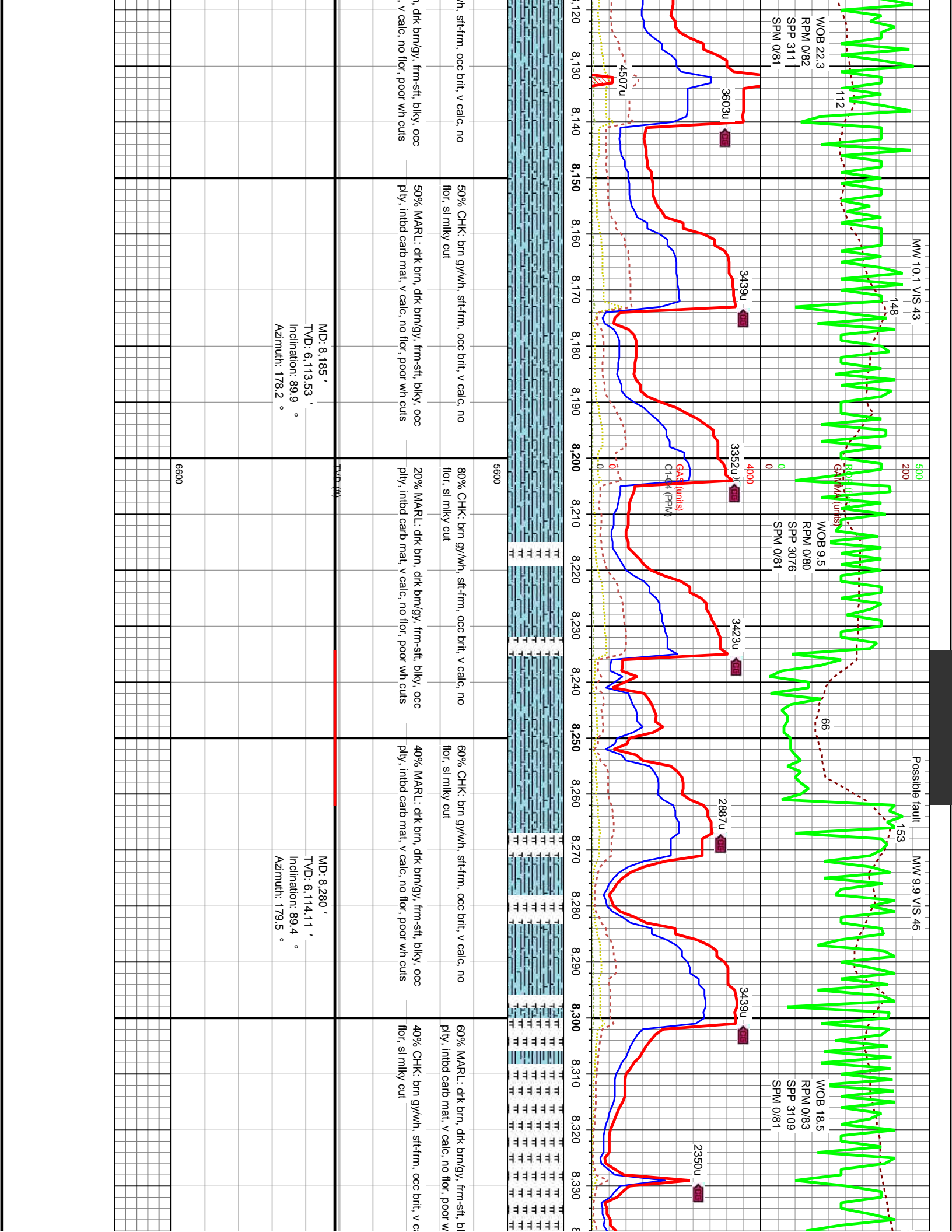


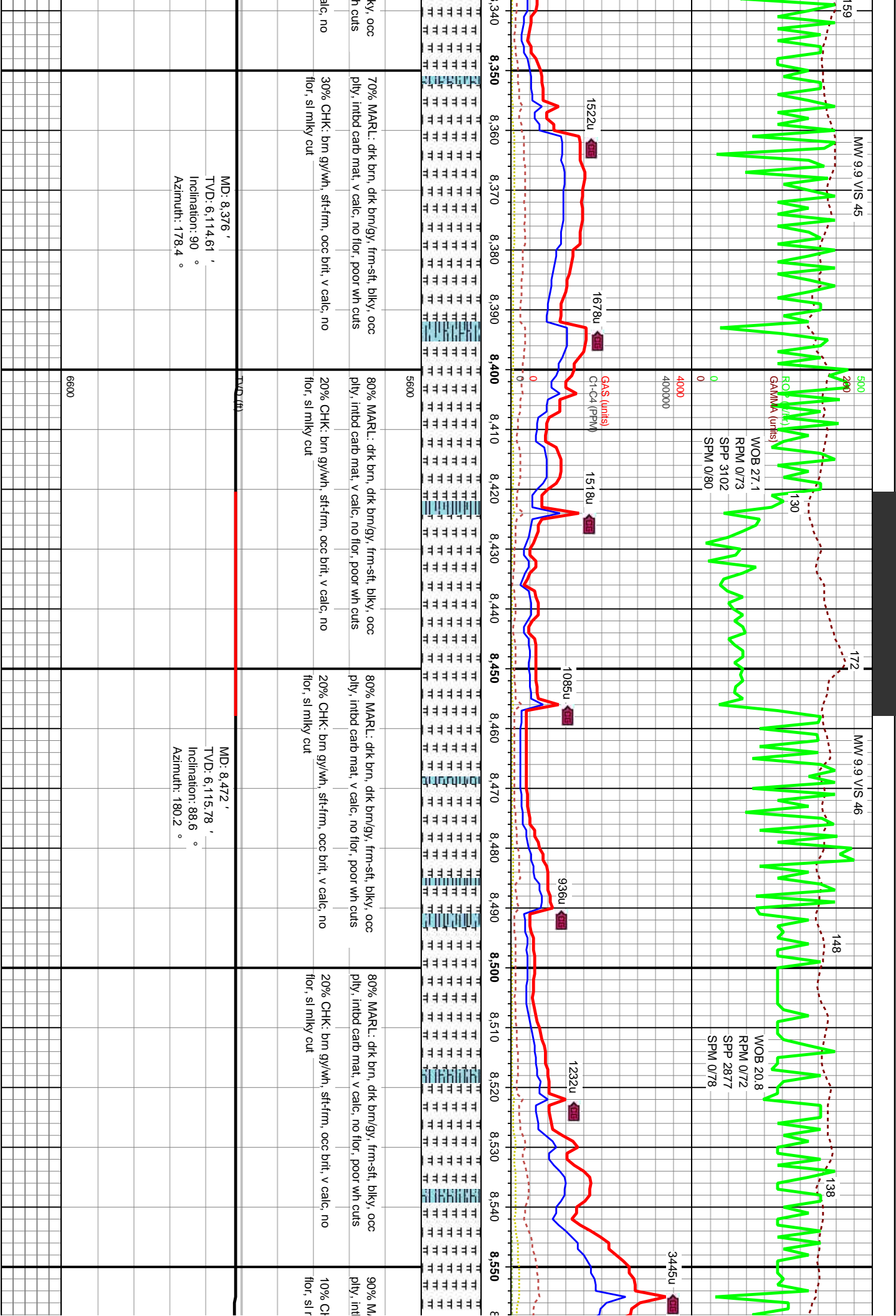
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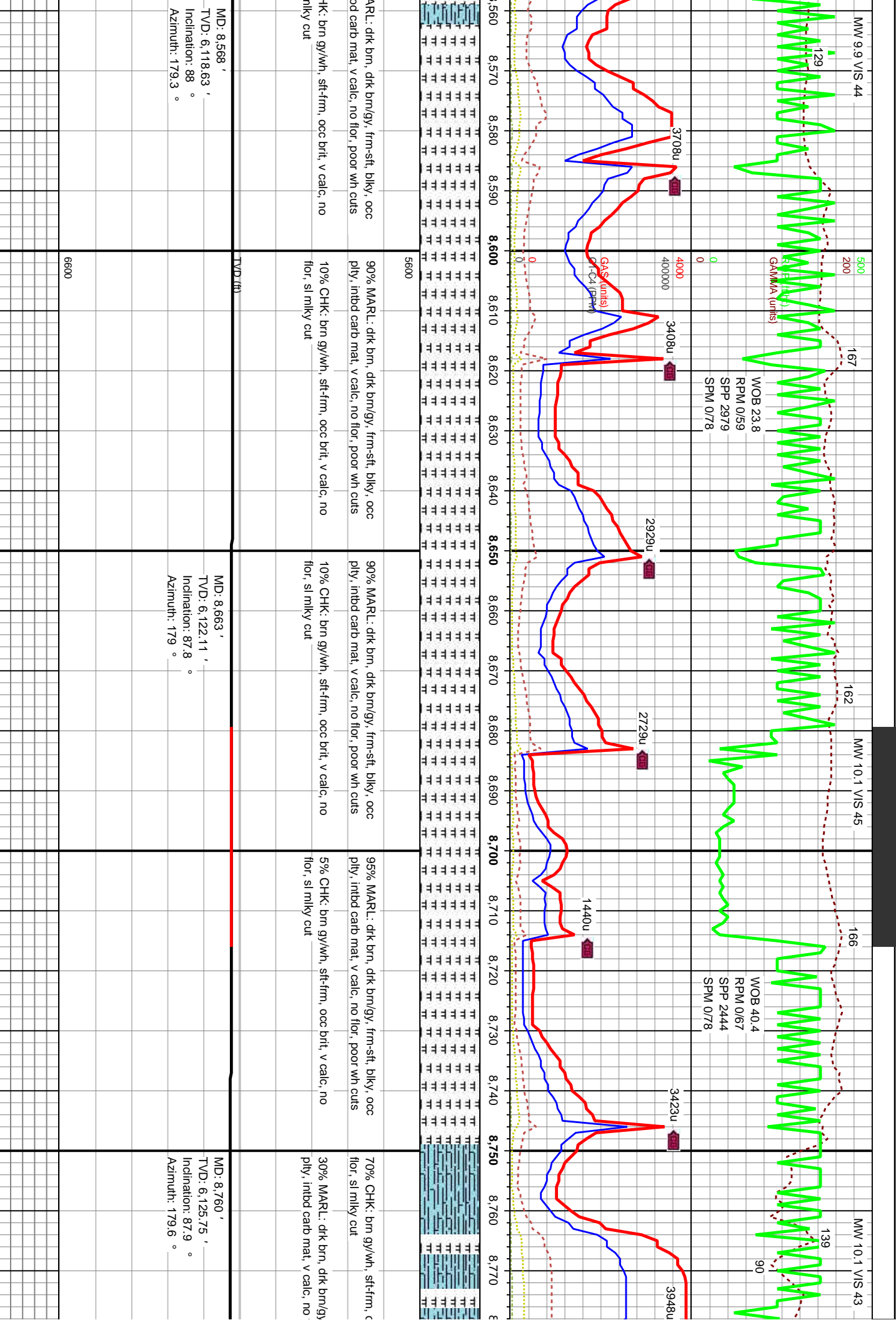


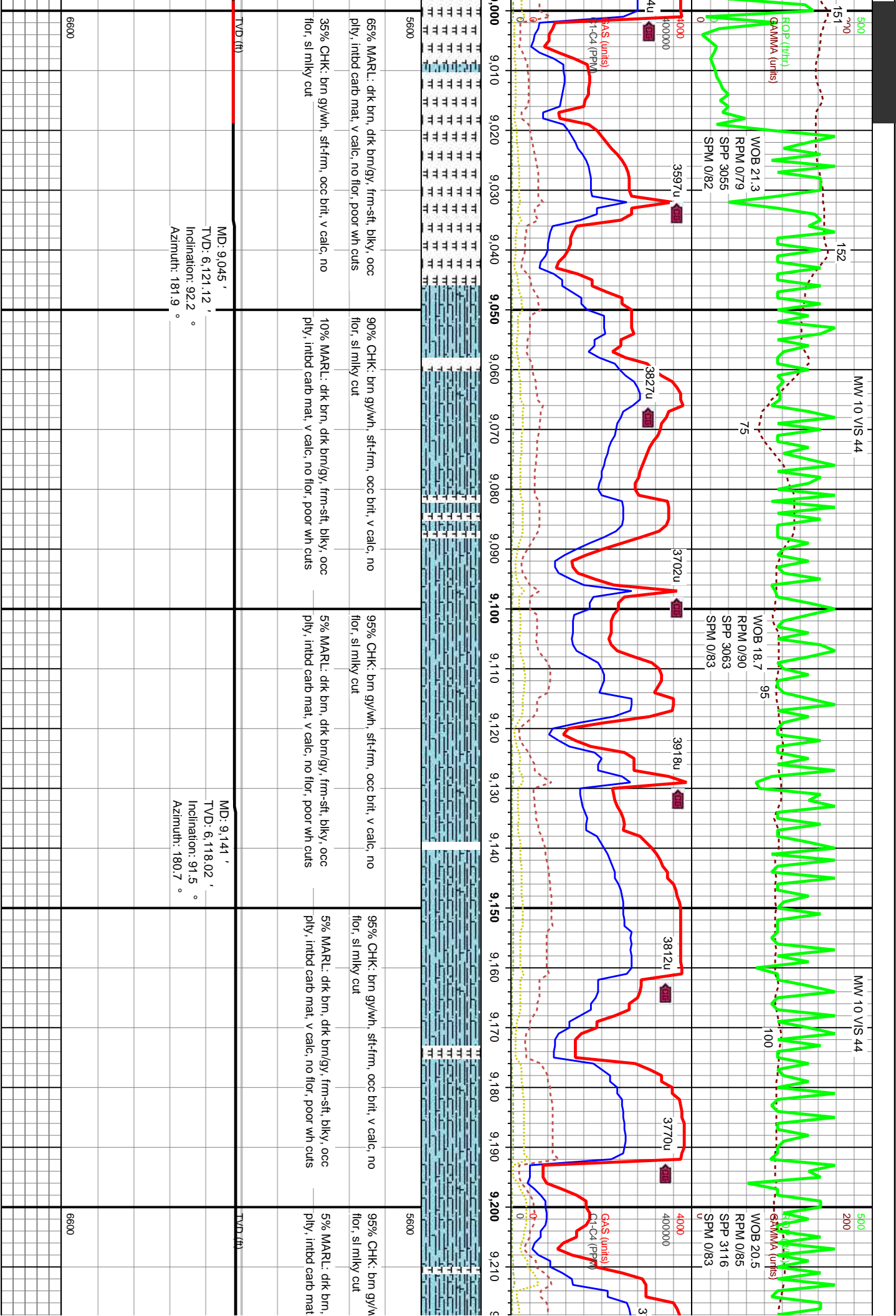


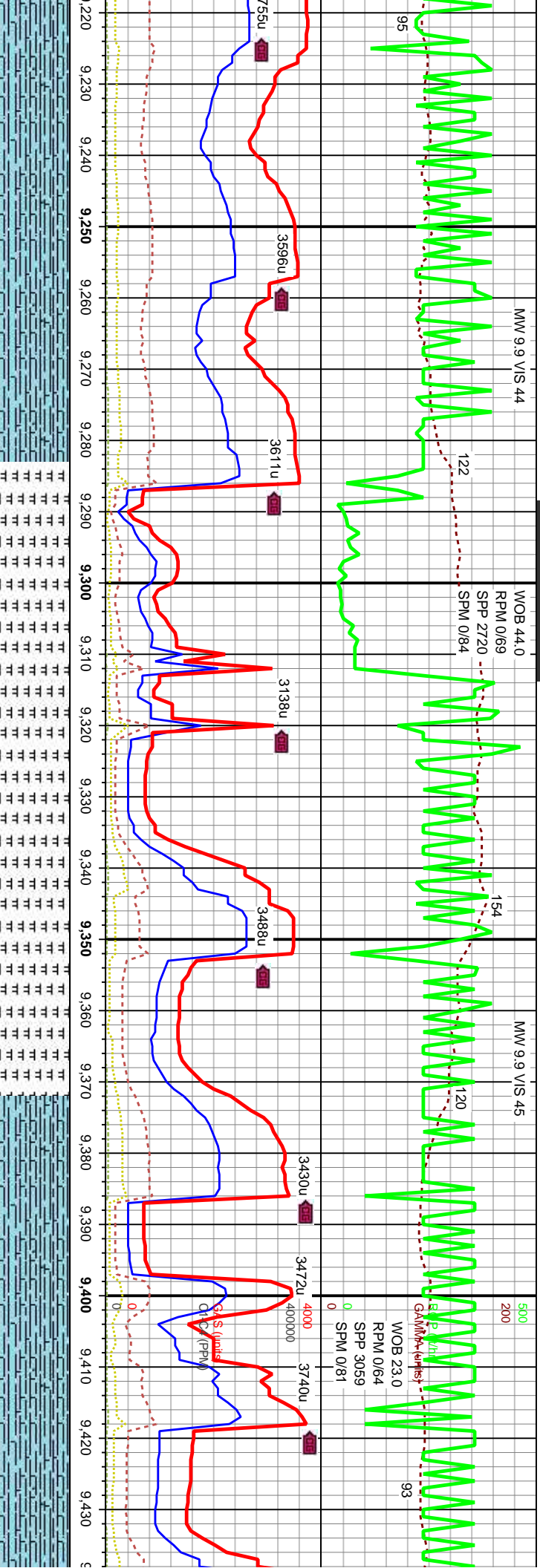












h, sft-frm, occ brt, v calc, no	90% CHK: brn gy/wh, sft-frm, occ brt, v calc, no flr, sl milky cut	70% MARL: dk brn, dk brn/gy, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts	70% CHK: brn gy/wh, sft-frm, occ brt, v calc, no flr, sl milky cut	95% CHK: brn gy/wh, sft-frm, occ brt, v calc, no flr, sl milky cut
dk brn/gy, frm-sft, blk, occ	10% MARL: dk brn, dk brn/gy, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts	30% CHK: brn gy/wh, sft-frm, occ brt, v calc, no flr, sl milky cut	30% MARL: dk brn, dk brn/gy, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts	5% MARL: dk brn, dk brn/gy, frm-sft, blk, occ ply, intbd carb mat, v calc, no flr, poor wh cuts
v calc, no flr, poor wh cuts				
MD: 9,237 ' TVD: 6,116.85 ' Inclination: 89.9 ° Azimuth: 179.3 °	MD: 9,332 ' TVD: 6,116.76 ' Inclination: 90.2 ° Azimuth: 180.1 °	MD: 9,426 ' TVD: 6,116.76 ' Inclination: 89.8 ° Azimuth: 179.6 °		

