

Décollement
Consulting
Inc.



Scale: 5" / 100'
Measured Depth Log

Well Name Pronghorn 11-41 28HNB

Location SWNW Sec 28 T5N R61W

State Colorado

Country USA

API Number 05-123-3863-00

County Weld

Rig Number Ensign 136

Field D.J. Basin

Spud Date 1/14/2014

Drilling Completed 1/21/2014

Surface Coordinates 1412 FNL X 370 FWL

Ground Elevation 4616

K.B. Elevation 4633

Logged Interval 5800'

To 10742'

Total Depth 10742'

Formation Niobrara "B"

Type of Drilling Fluid WBM

Company Bonanza Creek Energy

Address 410 17th Street, Suite 100
Denver, CO 80202

Name Leo Carrasco/Chris I

Company Décollement Consulting

Address 13300 Braun Road
Golden, CO 80401



Operator

gy

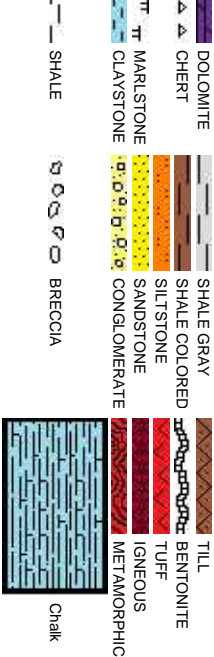
le 1500

Geologist

twin

ing Inc.

Rock Types

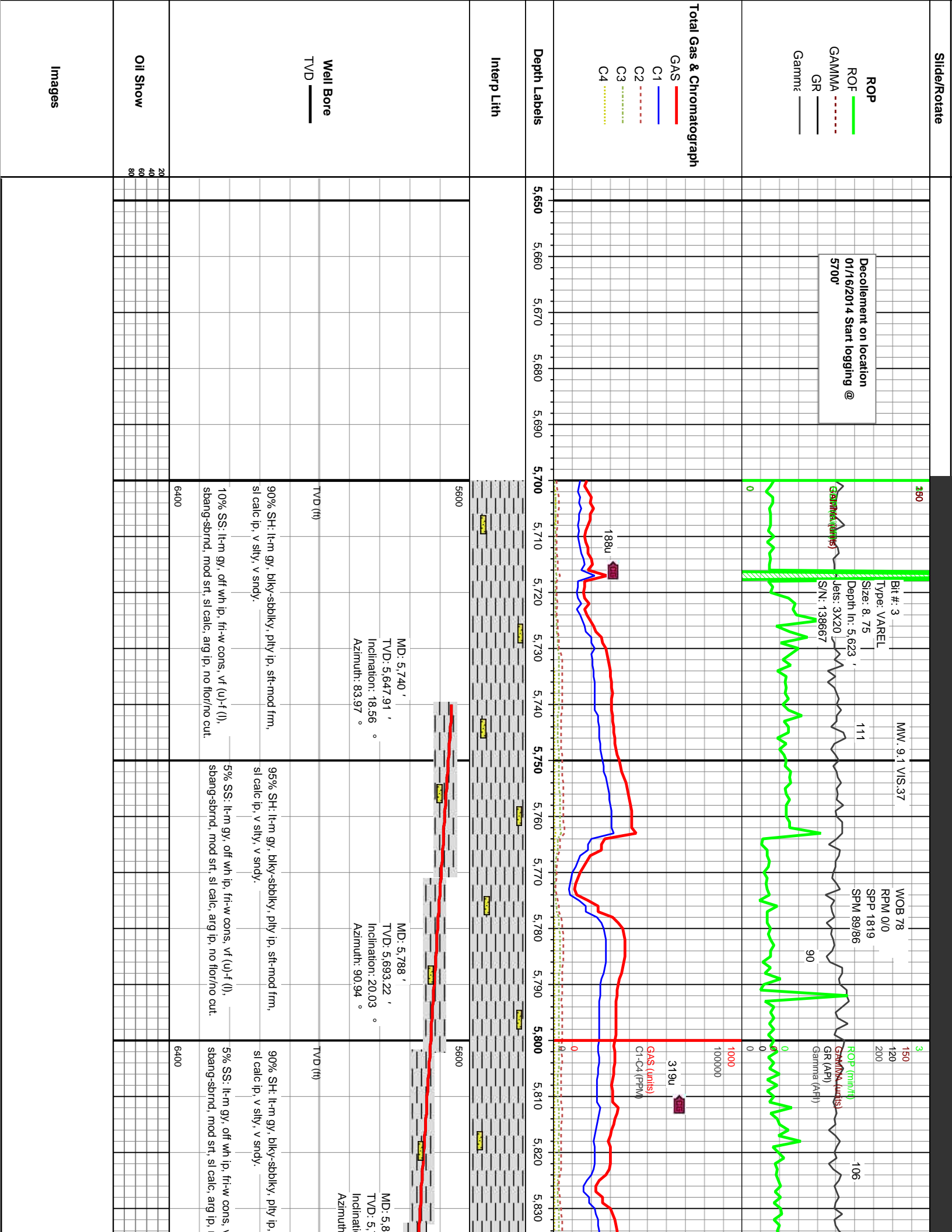


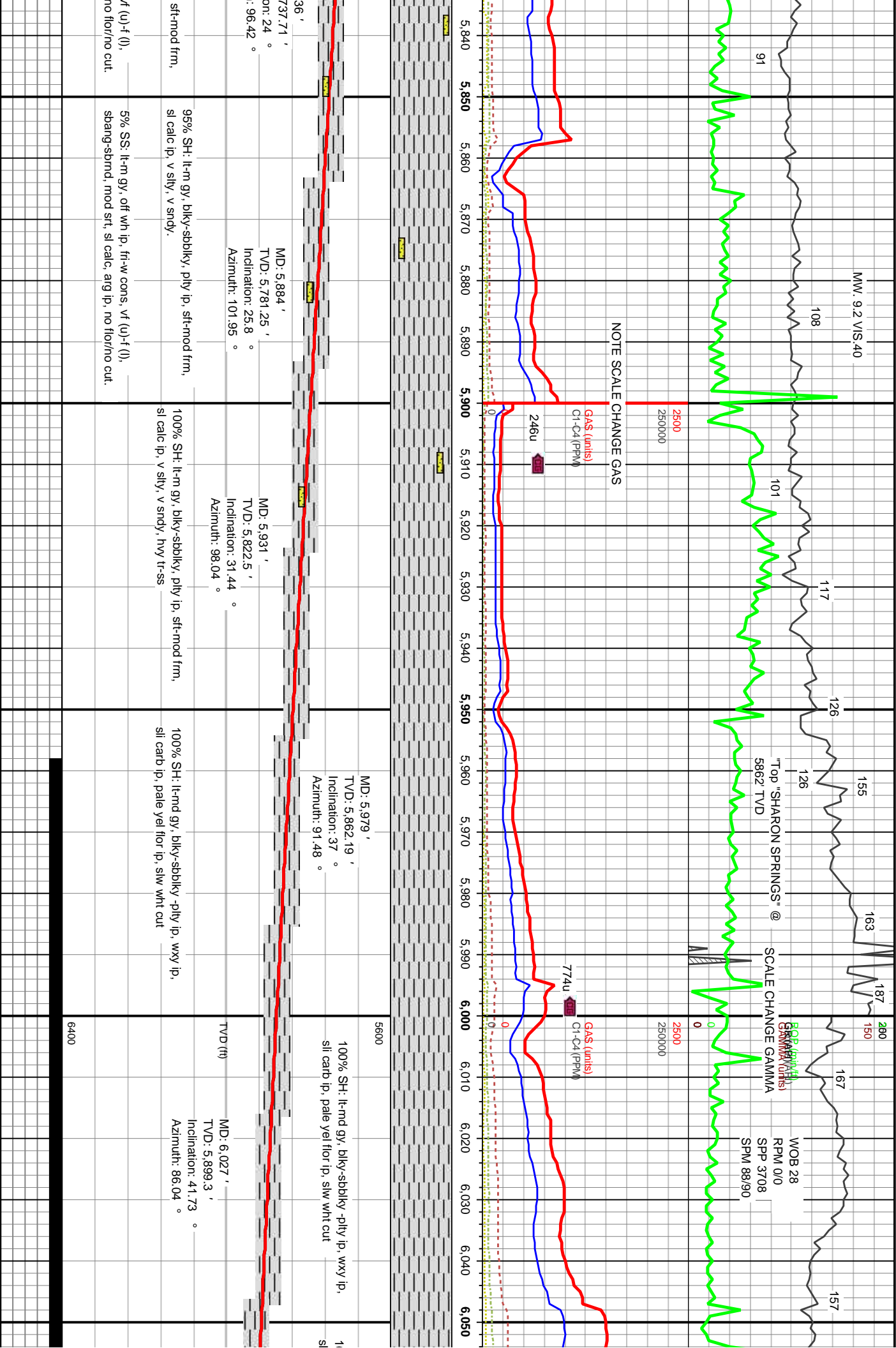
Accessories

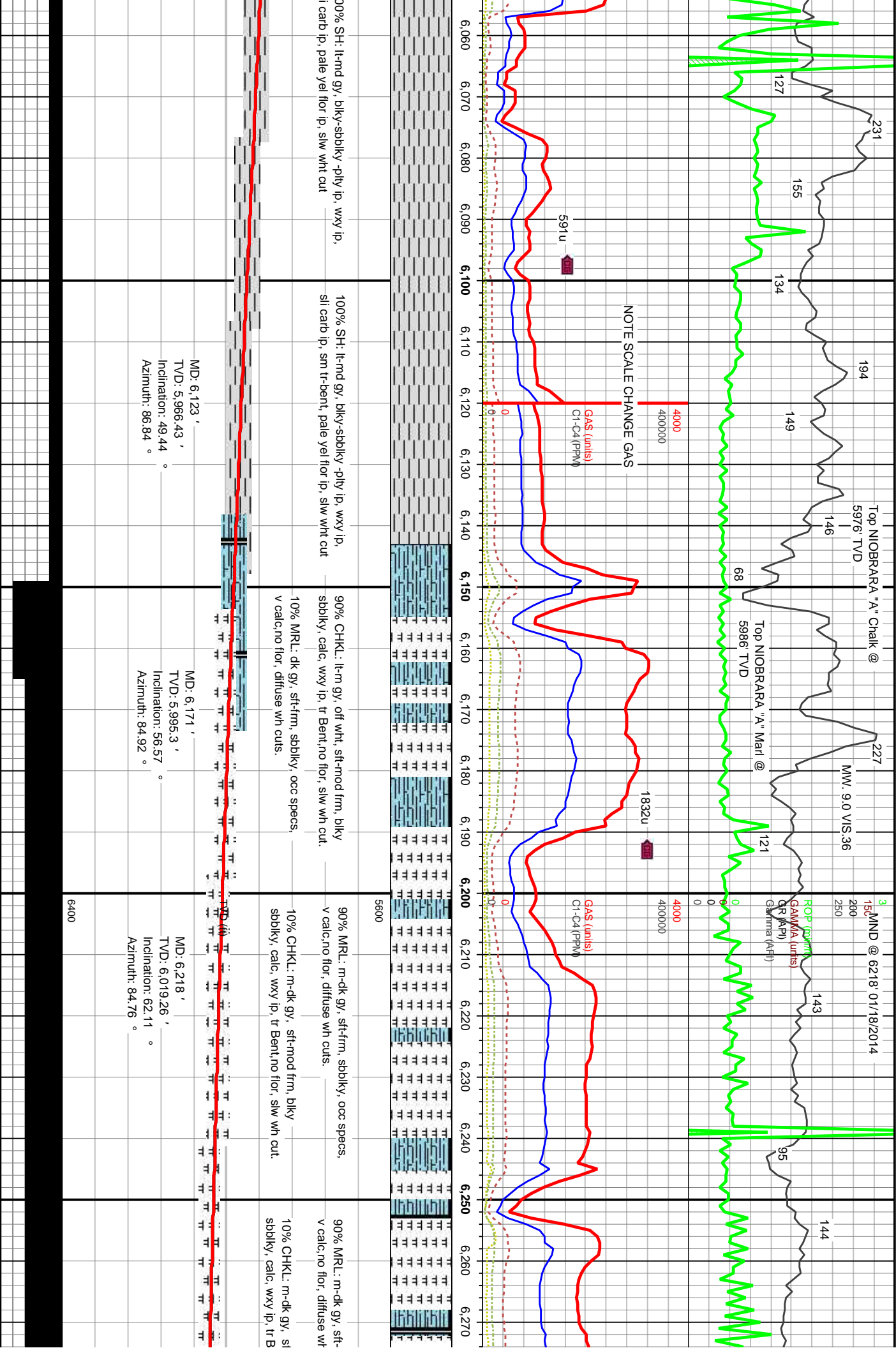
Fossils	F FOSSIL	- ARGILLACEOUS	✓ GLAUCONITE	Stringer
GASTROPOD	GA GASTROPOD	/ ARGILLITE GRAIN	≡ GYPSIFEROUS	ANHYDRITE STRINGER
ALGAE	Φ OOLITE	B BENTONITE	↑ HEAVY MINERAL	BENTONITE STRINGER
AMPHIPORA	OSTRACOD	BITUMENOUS SUBSTANCE	K KAOLIN	COAL STRINGER
BELEMNITE	PELECYPOD	BRECCIA FRAGMENTS	TT MARLSTONE	DOLOMITE STRINGER
BIOCLASTIC	PELLET	LCALCAREOUS	MINERAL CRYSTALS	GYPSUM STRINGER
BRACHIOPOD	PISOLITE	CARBONACEOUS FLAKES	OD NODULES	LIMESTONE STRINGER
BRYOZOA	PLANT REMAINS	CHTDK	PHOSPHATE PELLETS	MARLSTONE (CALC) STRG
CERPHALOPOD	PLANT SPORES	CHTLT	P PYRITE	MARLSTONE (DOL) STRG
CORAL	SCAPHOPOD	COAL - THIN BEDS	SA SALT CAST	SANDSTONE STRINGER
CRINOID	STROMATOPOROID	DOLOMITIC	S SANDY	SHALE STRINGER
ECHINOID		+ FELDSPAR	SLICEOUS	SILTSTONE STRINGER
FISH	Minerals	● FERRUGINOUS PELLETS	.. SILTY	
FORAMINIFERA	ANHYDRITIC	✓ FERRUGINOUS	✓ TUFACEOUS	

Other Symbols

Oil Show	ORGANIC	GAS SHOW	ANGULAR	MX MICROXLN
P PINPOINT	✓ VUGGY	MINDEPTH MN DEPTH	R ROUNDED	MS MUDSTONE
DEAD	EVEN	NORMAL FAULT	B SUBANG	PS PACKSTONE
QUESTIONABLE	SPOTTED STAINING	OIL SHOW	↑ SUBRND	WS WACKESTONE
	BIT	OVERTURNED STRATA		
Engineering	REVERSE FAULT		Textures	Sorting
CONNECTION (LEFT)	SIDEWALL CORE (LEFT)		B3 BOUNDSTONE	M MODERATE
CONNECTION (RIGHT)	SIDEWALL CORE (RIGHT)		P POOR	
E EARTHY	CONNECTION GAS	SLIDE	C CHALKY	
F FENESTRAL	CORE - LOST	SURVEY	CX CRYPTOXLN	W WELL
FRACTURE	CORE - RECOVERED	TRIP GAS	E EARTHY	Chalk
INTERCRYSTALLINE	DST INTERVAL	WIRELINE TESTED - LEFT	FX FINELYXLN	
INTEROOLITIC	FAULT	WIRELINE TESTED - RT	BS GRAINSTONE	
MOLDIC	FORMATION TOP		L LITHOGRAPHIC	
		Rounding		





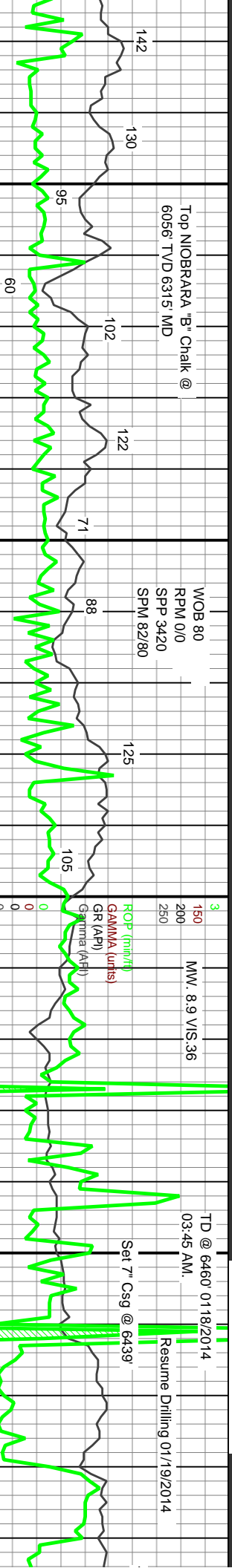


Top NIOBRARA "B" Chalk @
6056 TVD 6315 MD

WOB 80
RPM 0/0
SPP 3420
SPM 82/80

TD @ 6460 01/18/2014
03:45 AM.
Resume Drilling 01/19/2014

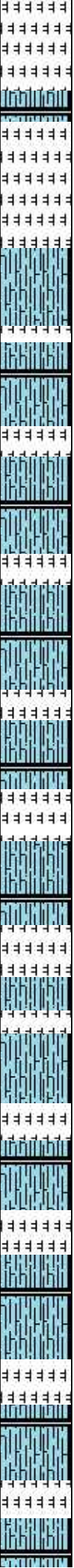
Set 7" Csg @ 6439'



NOTE SCALE CHANGE GAS

GAS (units)
C1-C4 (PPM)

GAS (units)
C1-C4 (PPM)



80% CHKL: m-dk gy, sft-mod frm, bly sbblky, calc, wxy ip, tr Bent, no flor, slw wh/bl cut, bl res ring.

95% CHKL: m-dk gy, sft-mod frm, bly sbblky, calc, wxy ip, tr Bent, no flor, slw wh/bl cut, bl res ring.

80% CHKL: m-dk gy, sft-mod frm, bly sbblky, calc, wxy ip, tr Bent, no flor, slw wh/bl cut, bl res ring.

80% CHKL: m-dk gy, sft-mod frm, bly sbblky, calc, wxy ip, tr Bent, no flor, slw wh/bl cut, bl res ring.

20% MRL: m-dk gy, sft-frm, sbblky, occ specs, v calc, fos, no flor, diffuse wh cuts.

5% MRL: m-dk gy, sft-frm, sbblky, occ specs, v calc, fos, no flor, diffuse wh cuts.

20% MRL: m-dk gy, sft-frm, sbblky, occ specs, v calc, fos, no flor, diffuse wh cuts.

20% MRL: m-dk gy, sft-frm, sbblky, occ specs, v calc, fos, no flor, diffuse wh cuts.



TVD (ft)

MD: 6,312 '
TVD: 6,065.84 '
Inclination: 72.04 °
Azimuth: 88.56 °

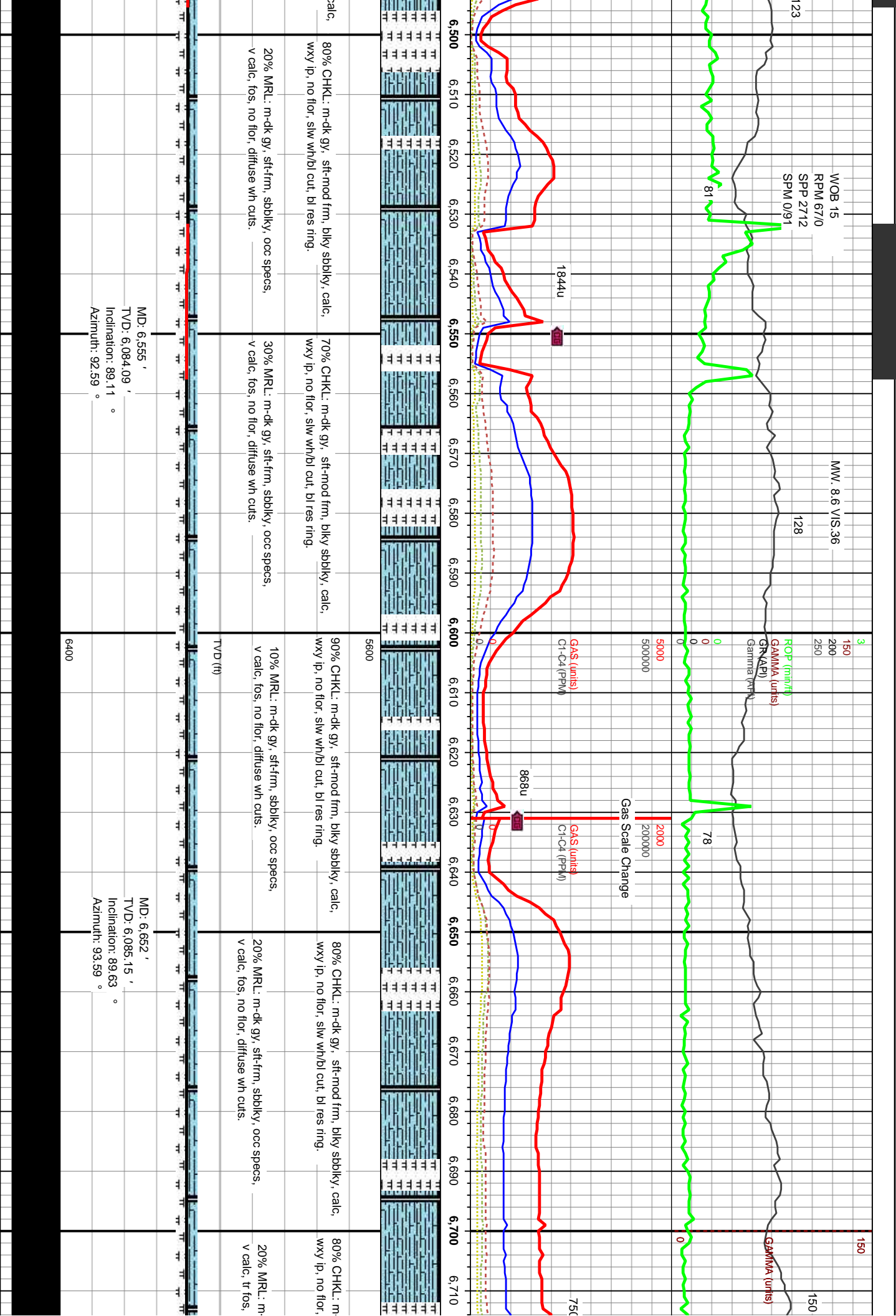
MD: 6,360 '
TVD: 6,067.53 '
Inclination: 79.74 °
Azimuth: 89.83 °

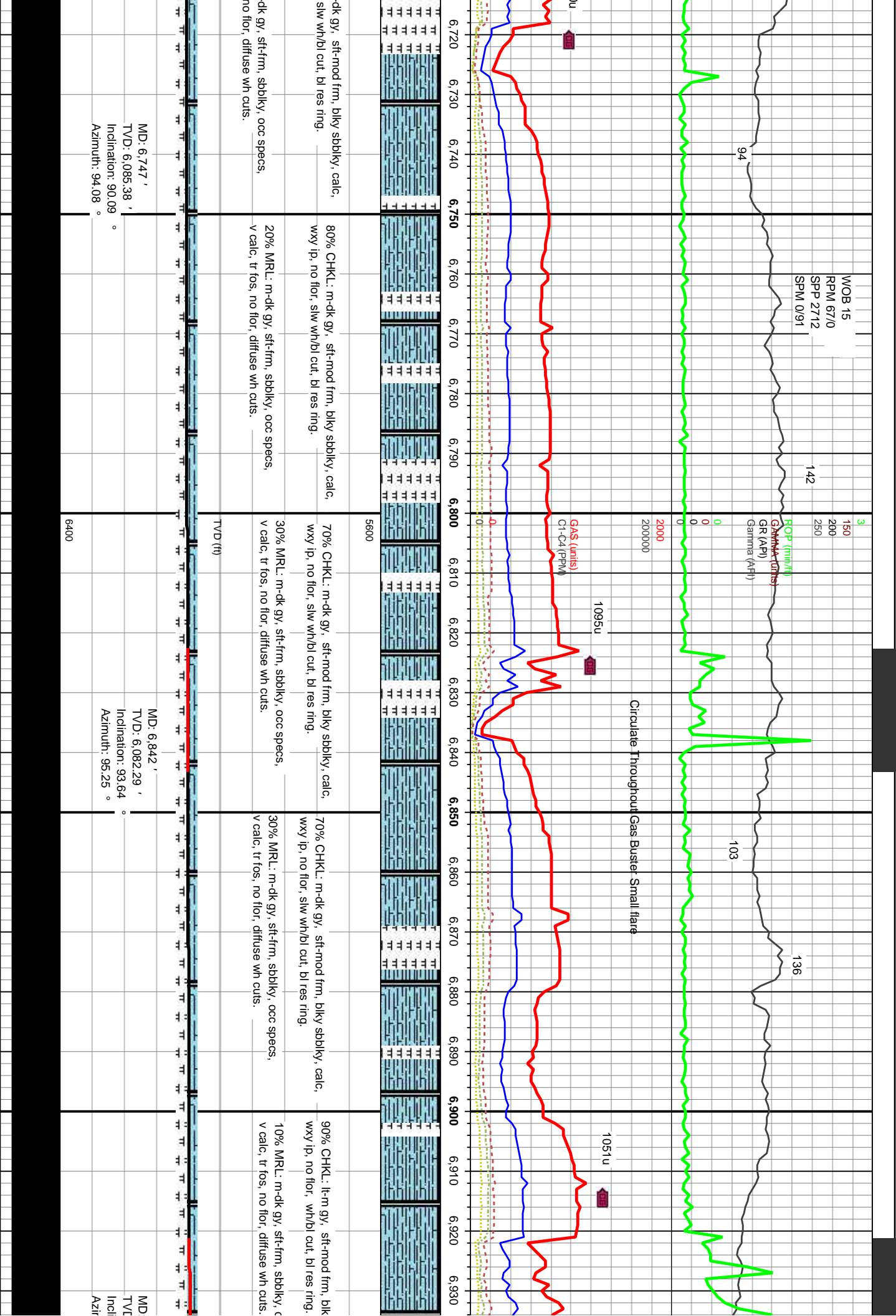
MD: 6,393 '
TVD: 6,072.56 '
Inclination: 82.73 °
Azimuth: 88.42 °

MD: 6,460 '
TVD: 6,081.04 '
Inclination: 82.73 °
Azimuth: 88.42 °

BIT PROJECTION







NW 8.7/MIS 34

350
200
250

ROP (m/h-ft)
GRVMA (units)
GRVMA2 (KFE)

78

145

127

71

119

155

112

2000
200000

1228u
GAS (units)
C1-C4 (PPM)

1186u

6,940 6,950 6,960 6,970 6,980 6,990 7,000 7,010 7,020 7,030 7,040 7,050 7,060 7,070 7,080 7,090 7,100 7,110 7,120 7,130 7,140 7,150



v sbbiky, calc,

90% CHKL: lt-m gy, sft-mod frm, blkly sbbiky, calc, wxy ip, no flor, wh/bl cut, bl res ring.

occ specs,

10% MRL: m-dk gy, sft-frm, sbbiky, occ specs, v calc, tr fos, no flor, diffuse wh cuts.

80% CHKL: lt-m gy, sft-mod frm, blkly sbbiky, calc, wxy ip, no flor, wh/bl cut, bl res ring.

20% MRL: m-dk gy, sft-frm, sbbiky, occ specs, v calc, tr fos, no flor, diffuse wh cuts.

90% CHKL: lt-m gy, sft-mod frm, blkly sbbiky, calc, wxy ip, no flor, wh/bl cut, bl res ring.

10% MRL: m-dk gy, sft-frm, sbbiky, occ specs, v calc, tr fos, no flor, diffuse wh cuts.

70% CHKL: lt-m gy, sft-mod frm, blkly sbbiky, calc, wxy ip, no flor, wh/bl cut, bl res ring.

30% MRL: m-dk gy, sft-frm, sbbiky, occ specs, v calc, tr fos, no flor, diffuse wh cuts.

80%

wx

v ch

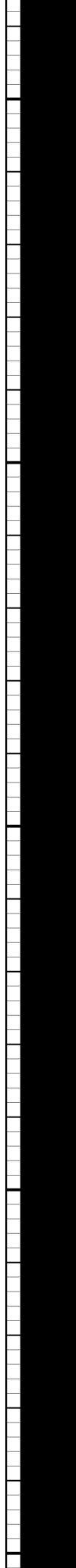
TVD (ft)

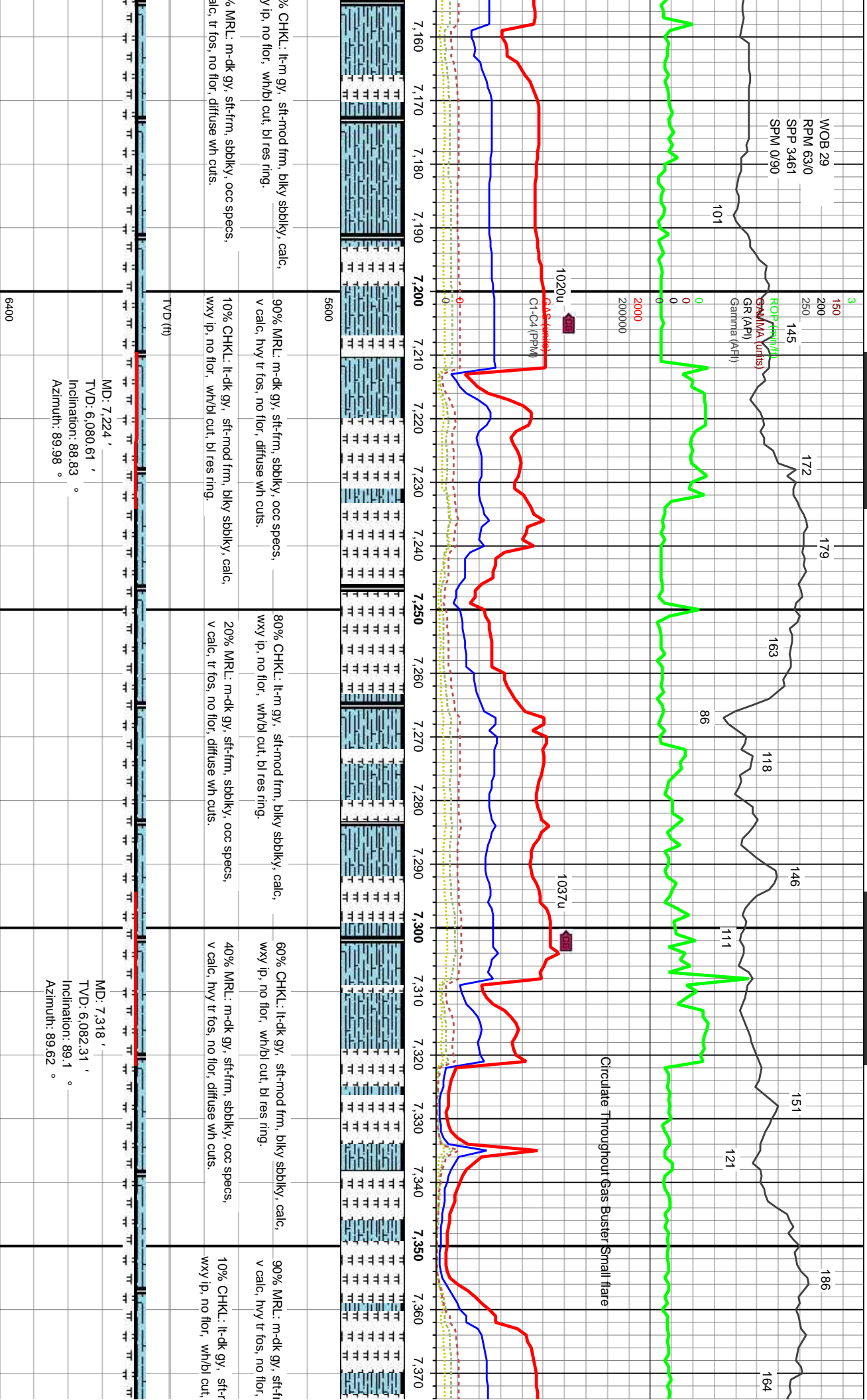
6,938 '
D: 6.077 '
nation: 91.73 °
nuth: 94.47 °

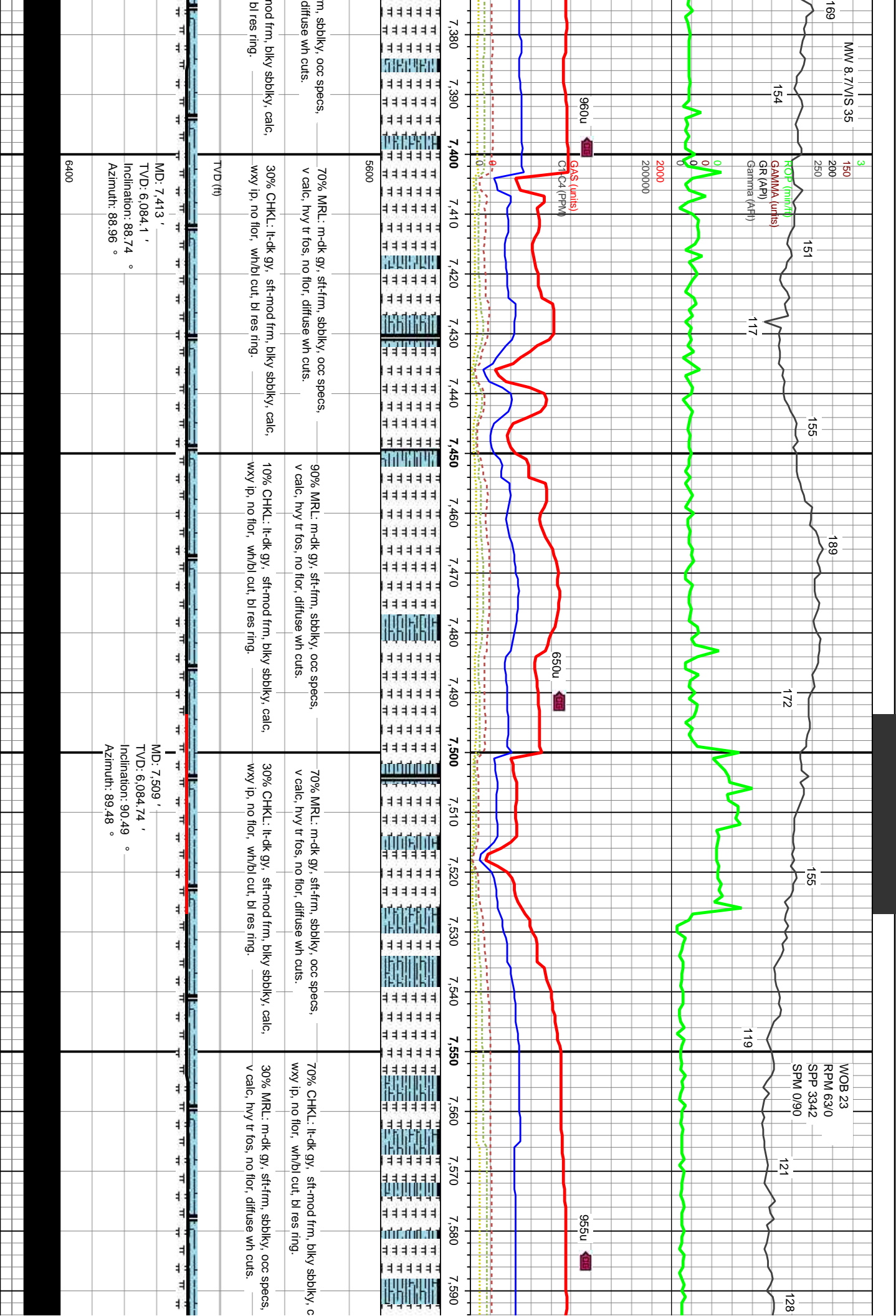
MD: 7.034 '
TVD: 6.077 '
Inclination: 89.07 °
Azimuth: 92.68 °

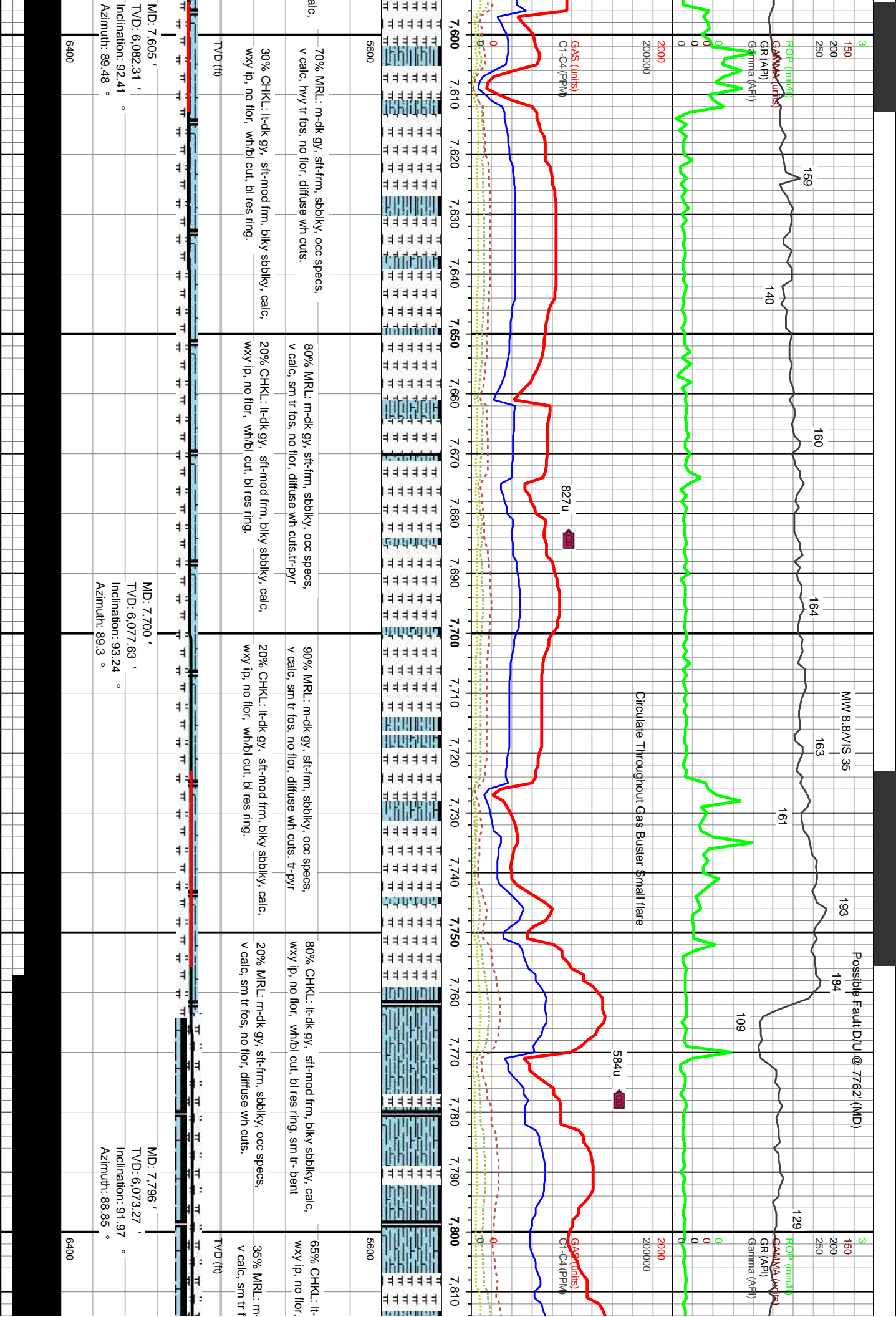
MD: 7.129 '
TVD: 6.078.77 '
Inclination: 88.95 °
Azimuth: 91.26 °

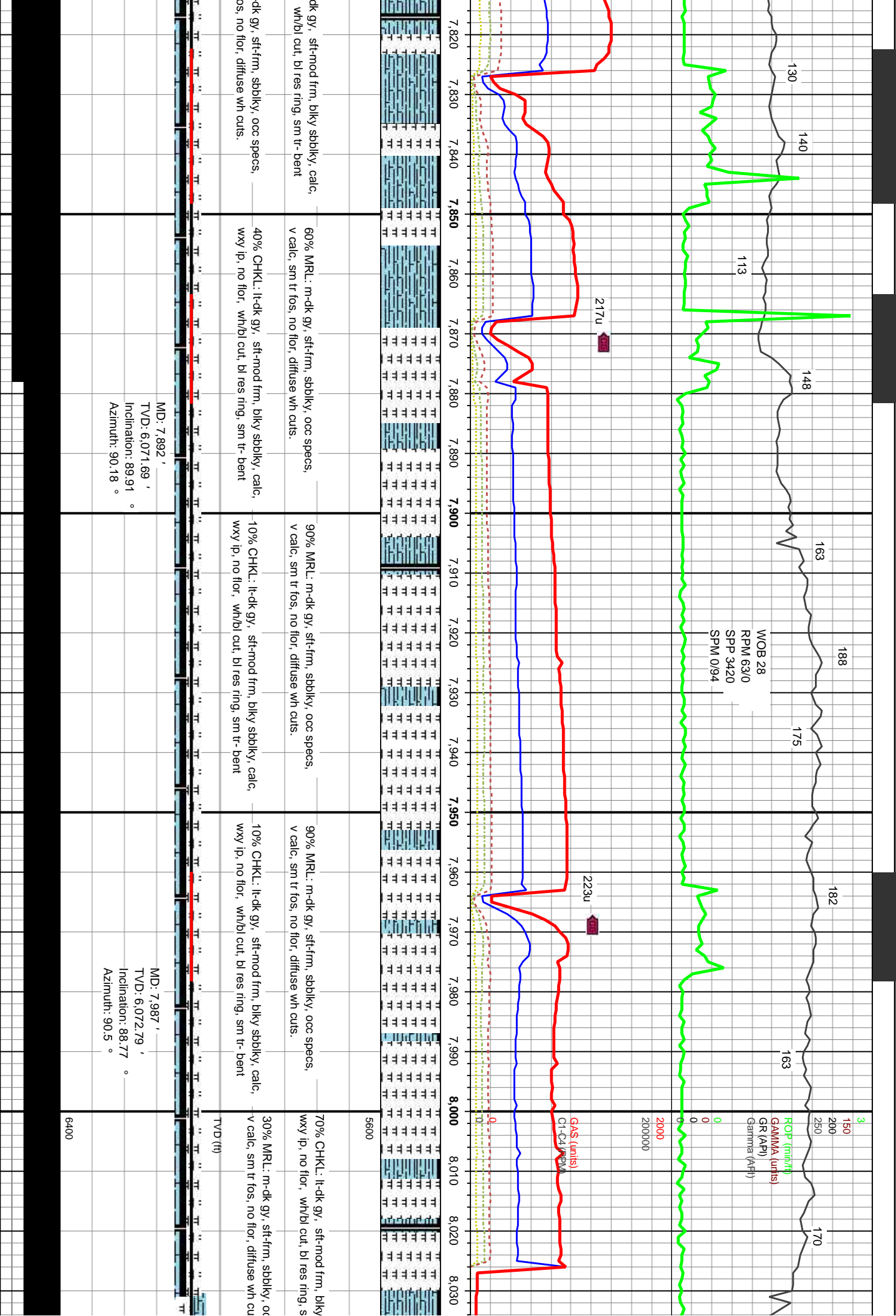
6400

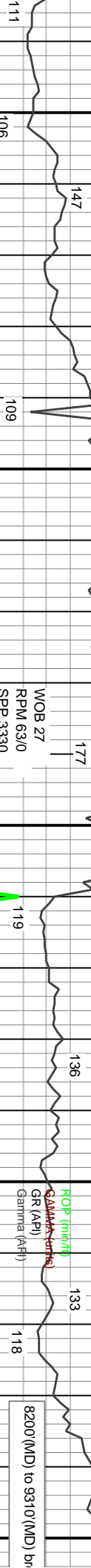






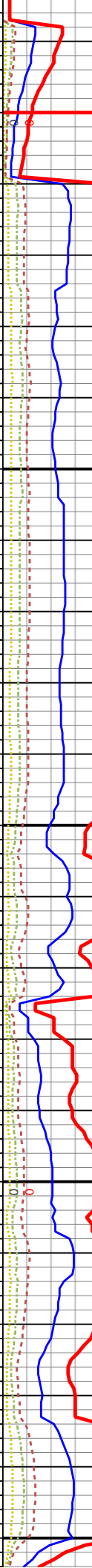
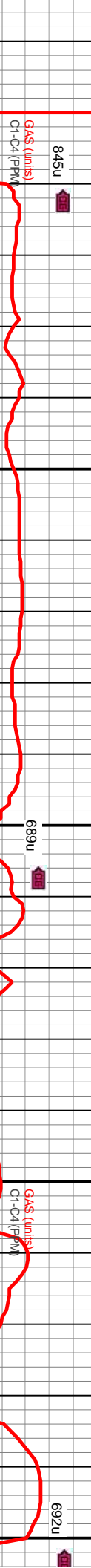
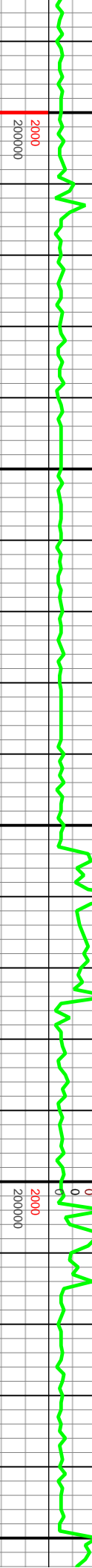






WOB 27
RPM 63/0
SPM 3330
SPM 0/94

8200 (MD) to 9310' (MD) br



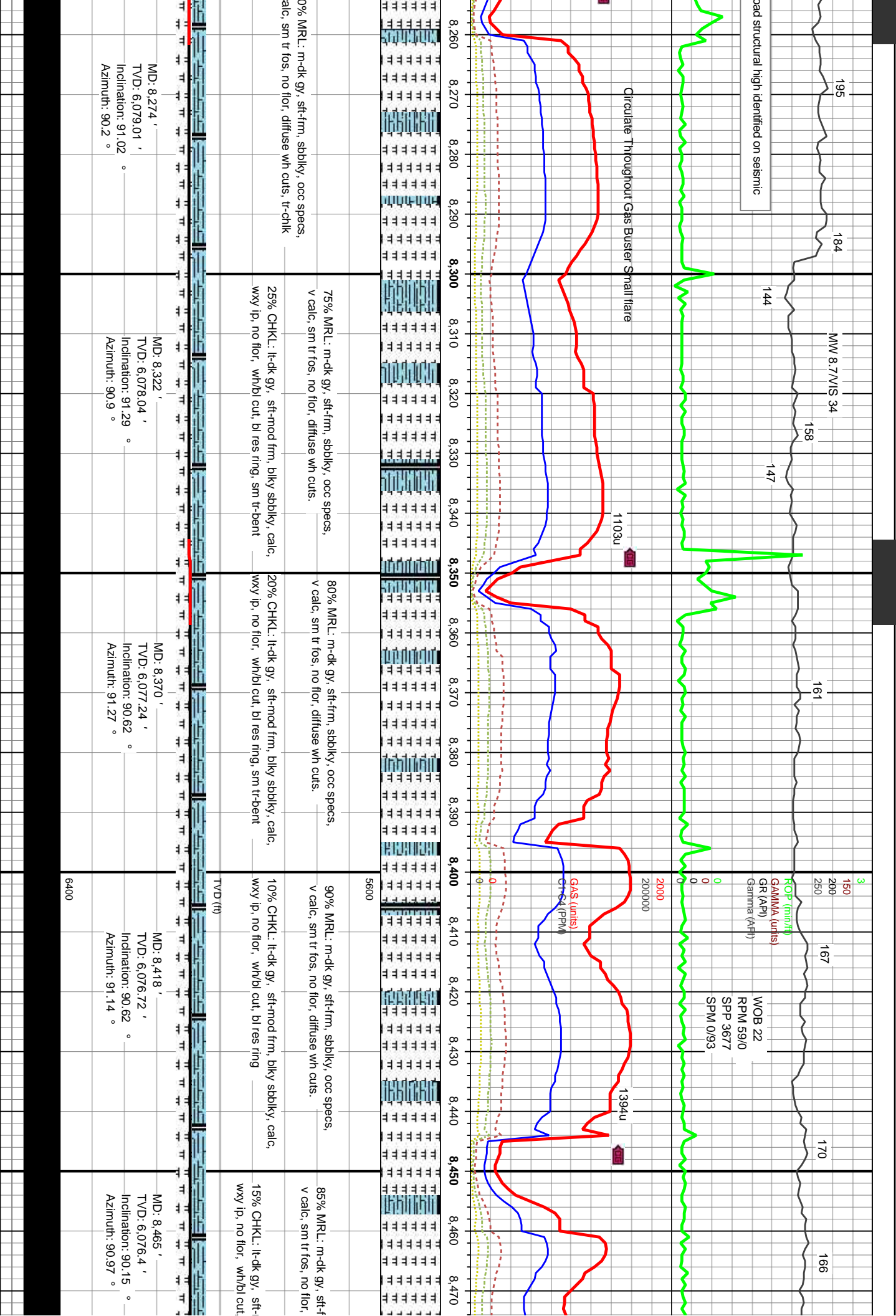
sbblky, calc, m tr bent
70% MRL: m-dk gy, sft-frn, sbblky, occ specs, v calc, sm tr fos, no flor, diffuse wh cuts.
30% CHKL: lt-dk gy, sft-mod frm, blyk sbblky, calc, wxy ip, no flor, wh/bl cut, bl res ring

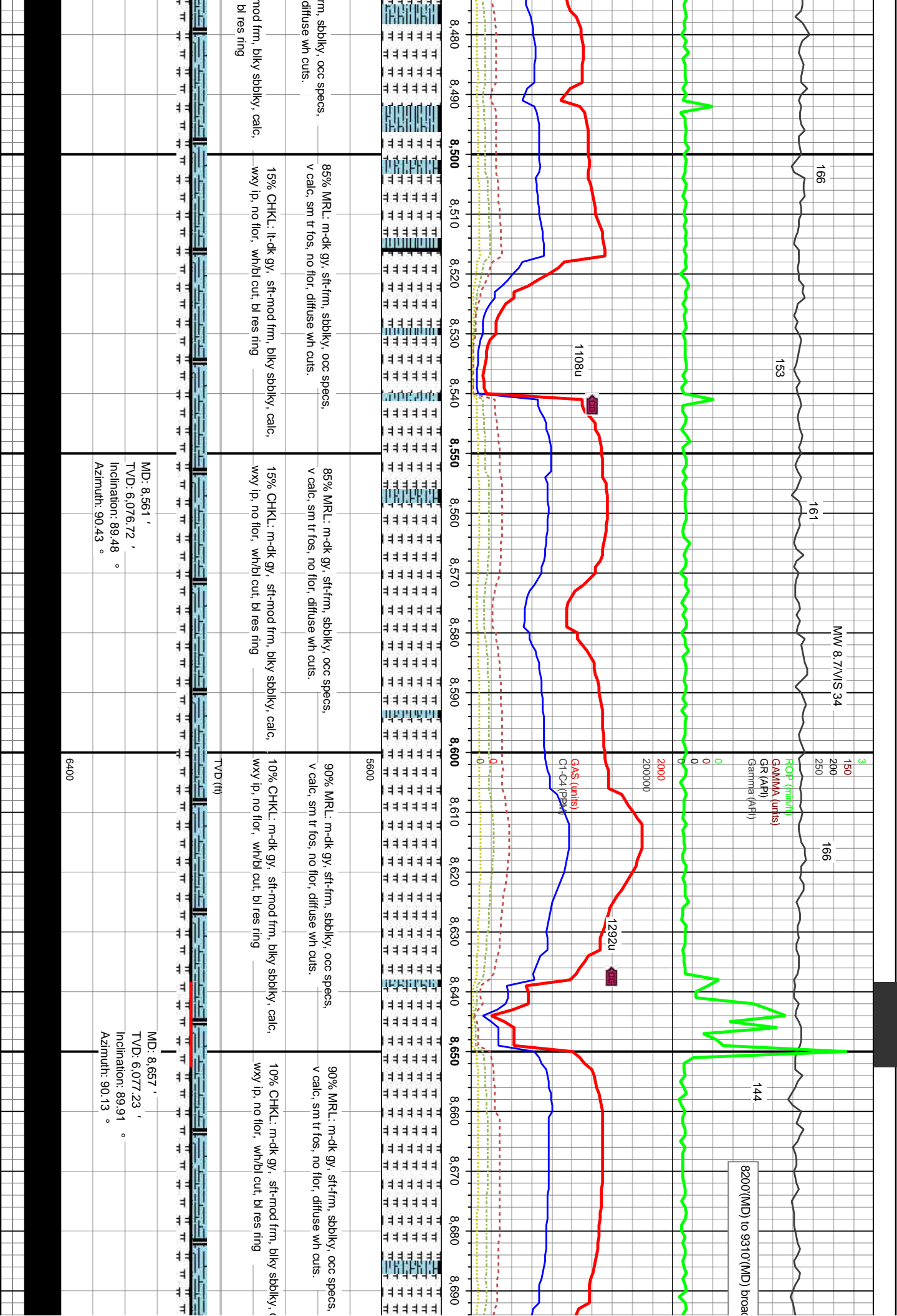
90% MRL: m-dk gy, sft-frn, sbblky, occ specs, v calc, sm tr fos, no flor, diffuse wh cuts.
10% CHKL: lt-dk gy, sft-mod frm, blyk sbblky, calc, wxy ip, no flor, wh/bl cut, bl res ring

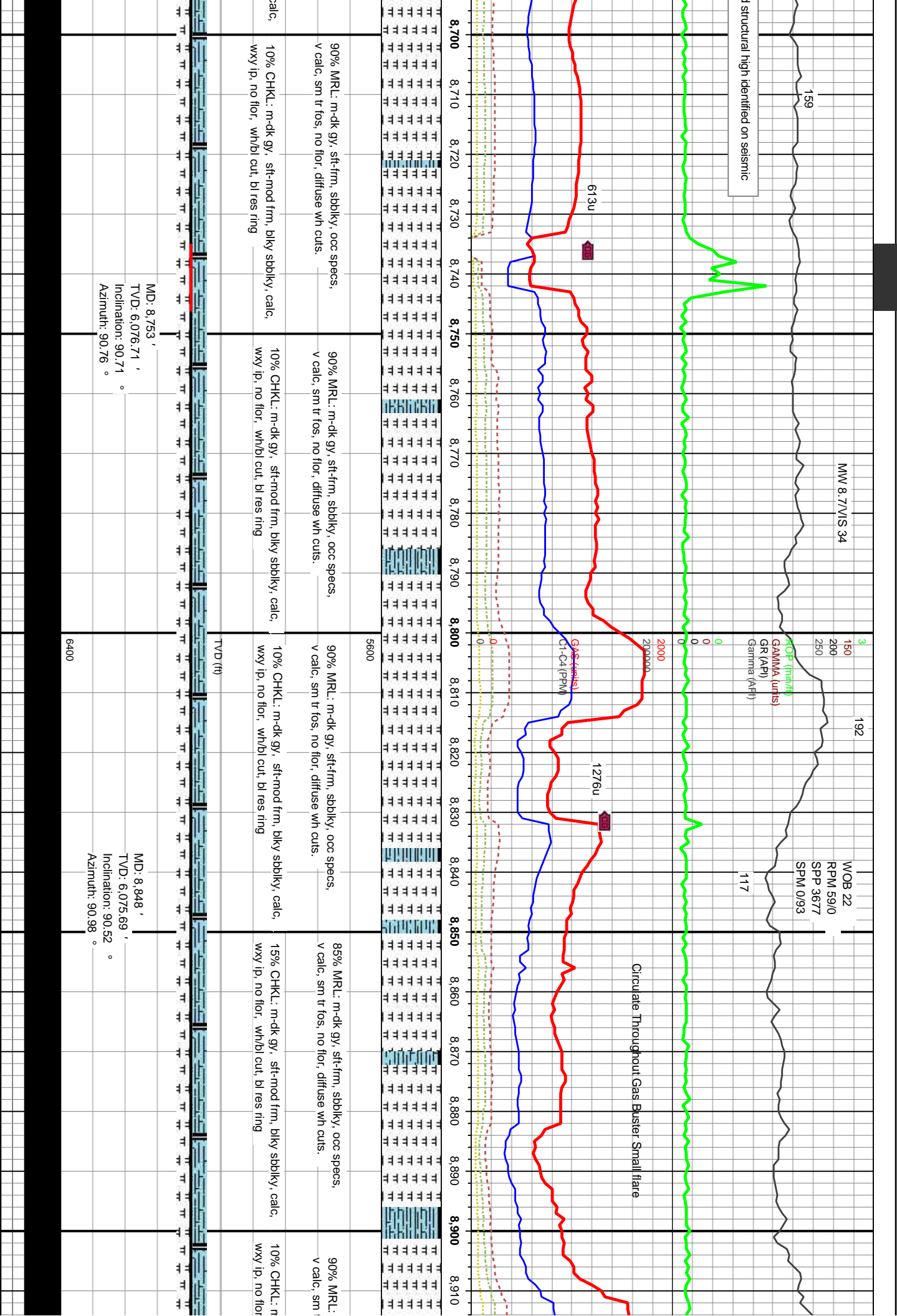
70% CHKL: lt-dk gy, sft-frn, sbblky, occ specs, wxy ip, no flor, wh/bl cut, bl res ring

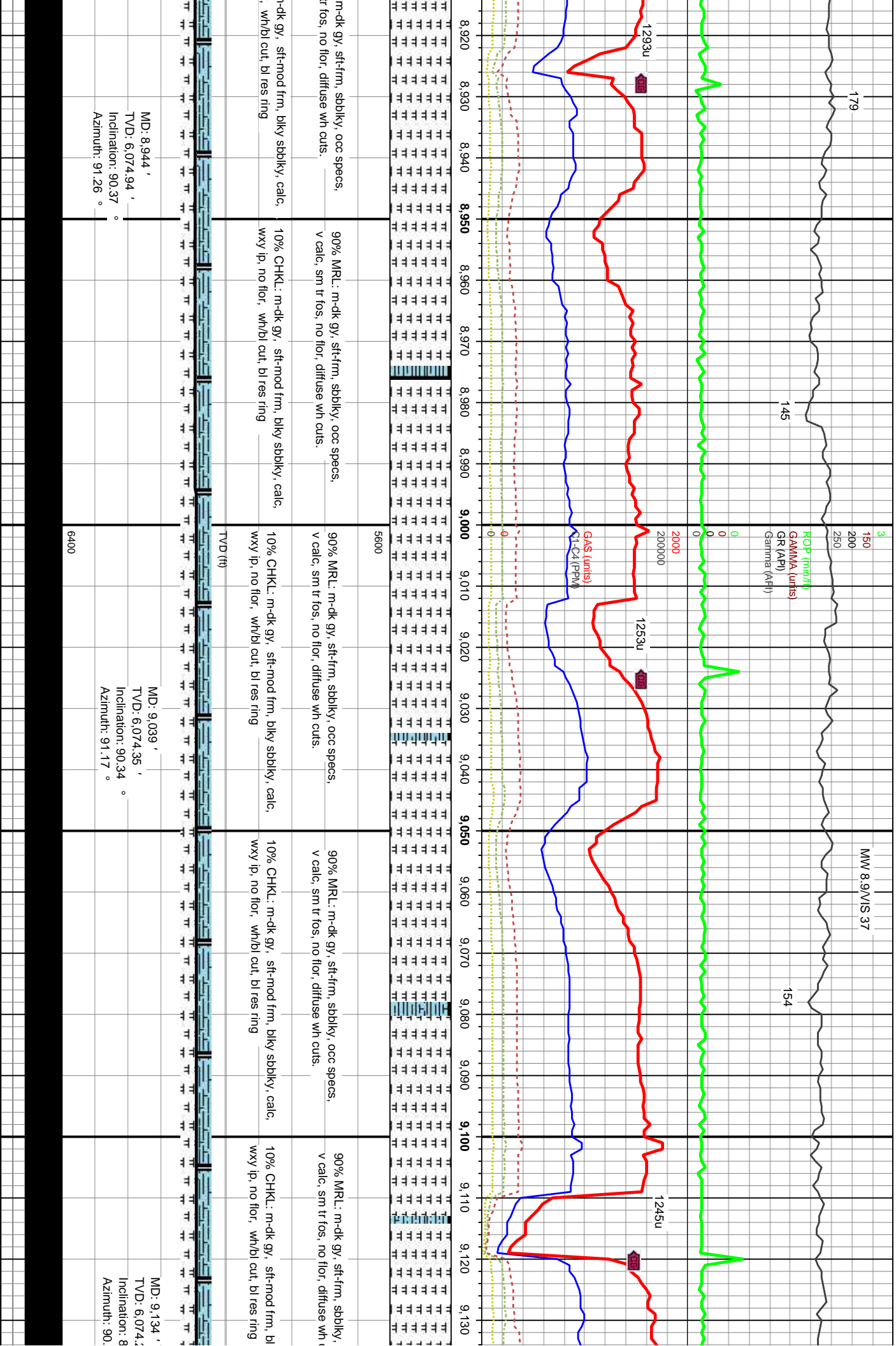
40% MRL: m-dk gy, sft-frn, sbblky, occ specs, v calc, sm tr fos, no flor, diffuse wh cuts.

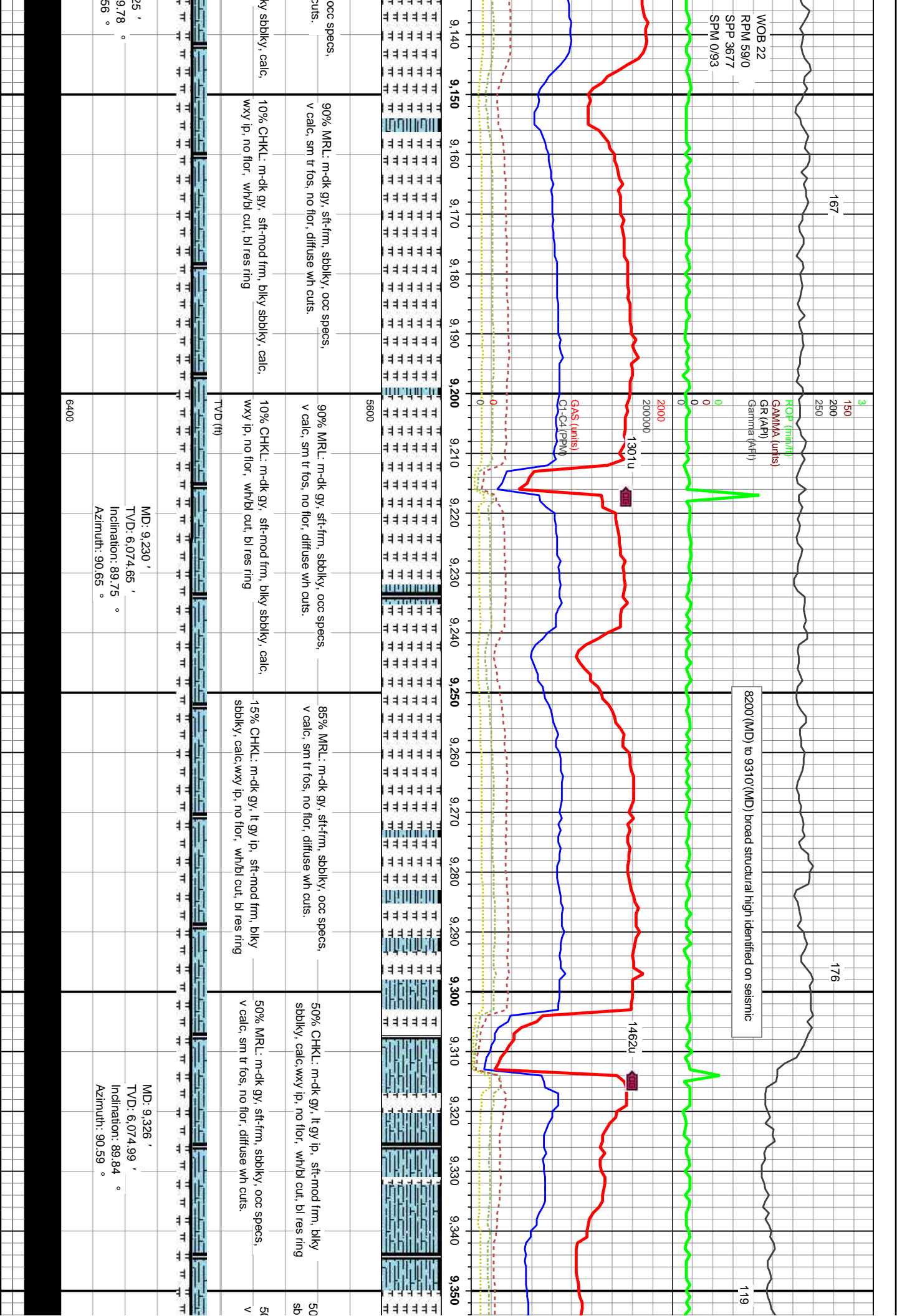
MD: 8,082' TVD: 6,075.57' Inclination: 87.87° Azimuth: 90.96°
MD: 8,130' TVD: 6,077.44' Inclination: 87.66° Azimuth: 91.4°
MD: 8,178' TVD: 6,078.89' Inclination: 88.88° Azimuth: 90.47°
MD: 8,226' TVD: 6,079.4' Inclination: 89.91° Azimuth: 89.88°

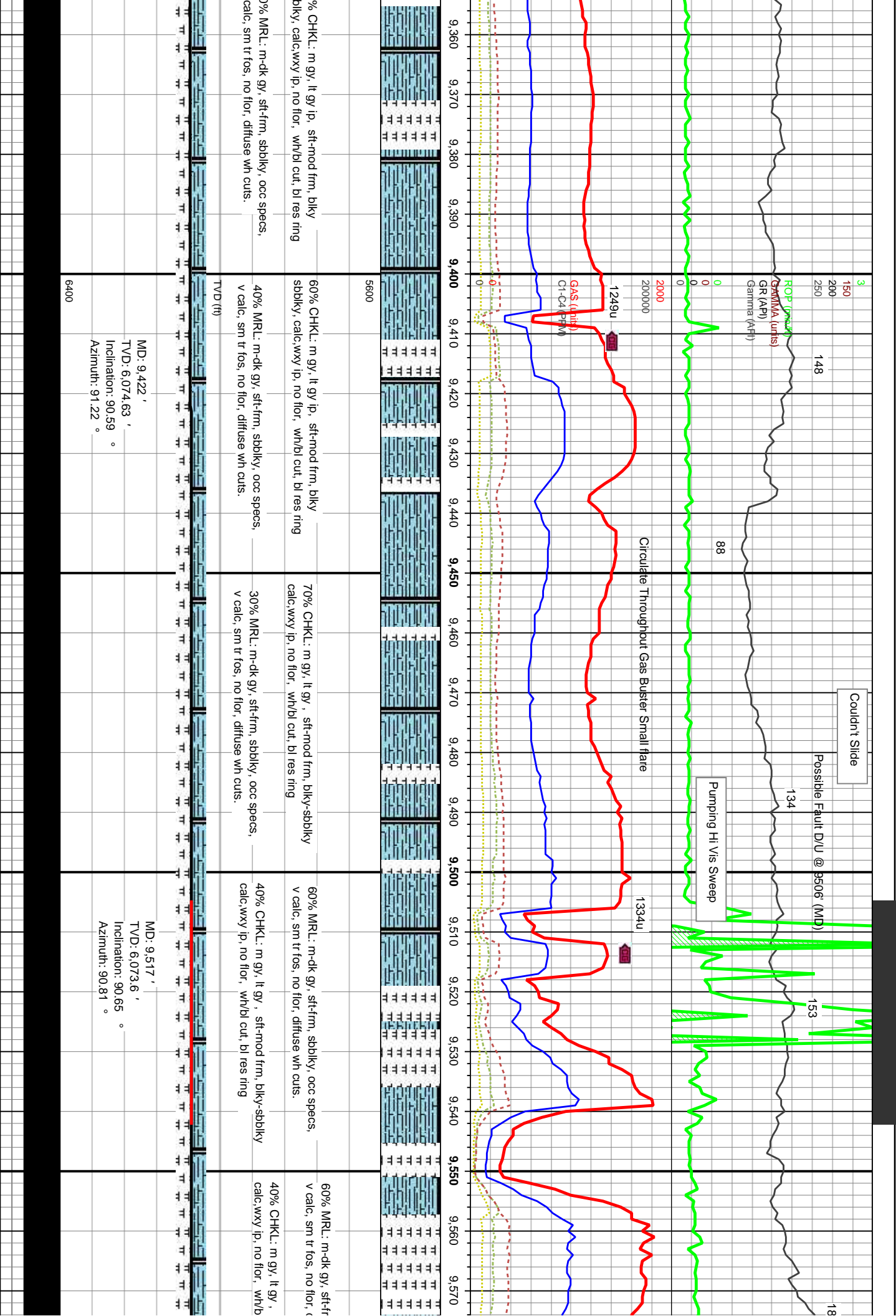


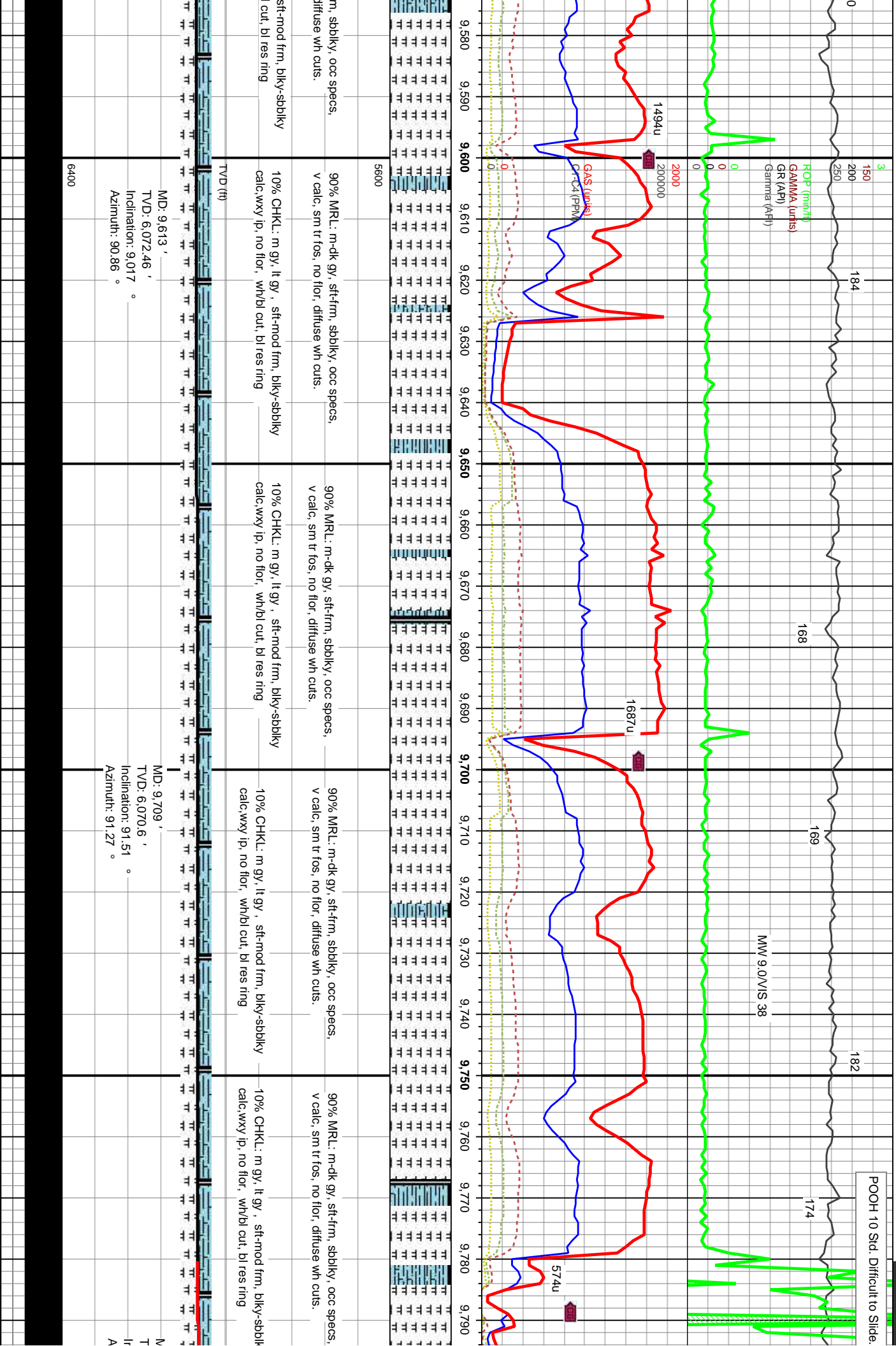


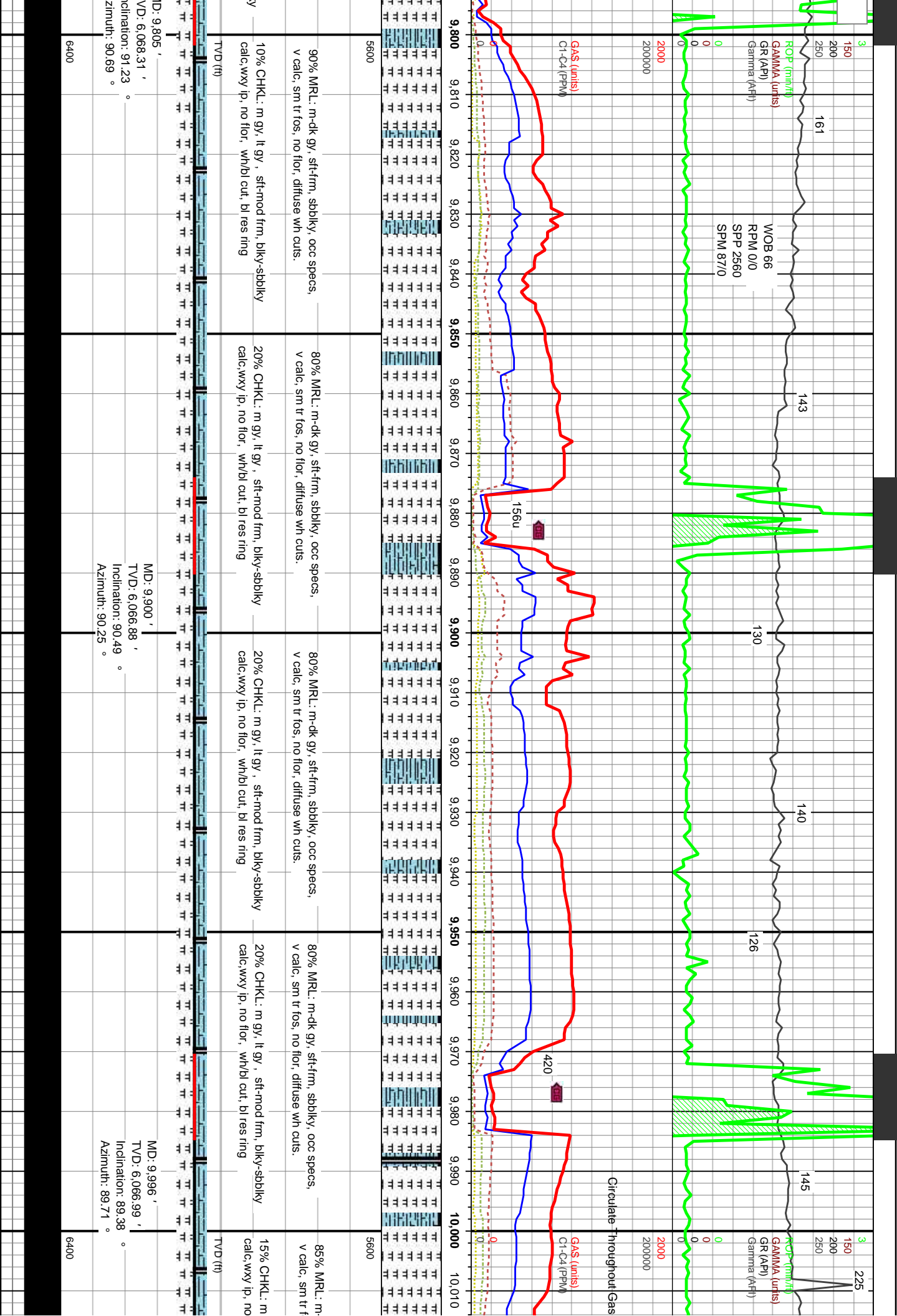


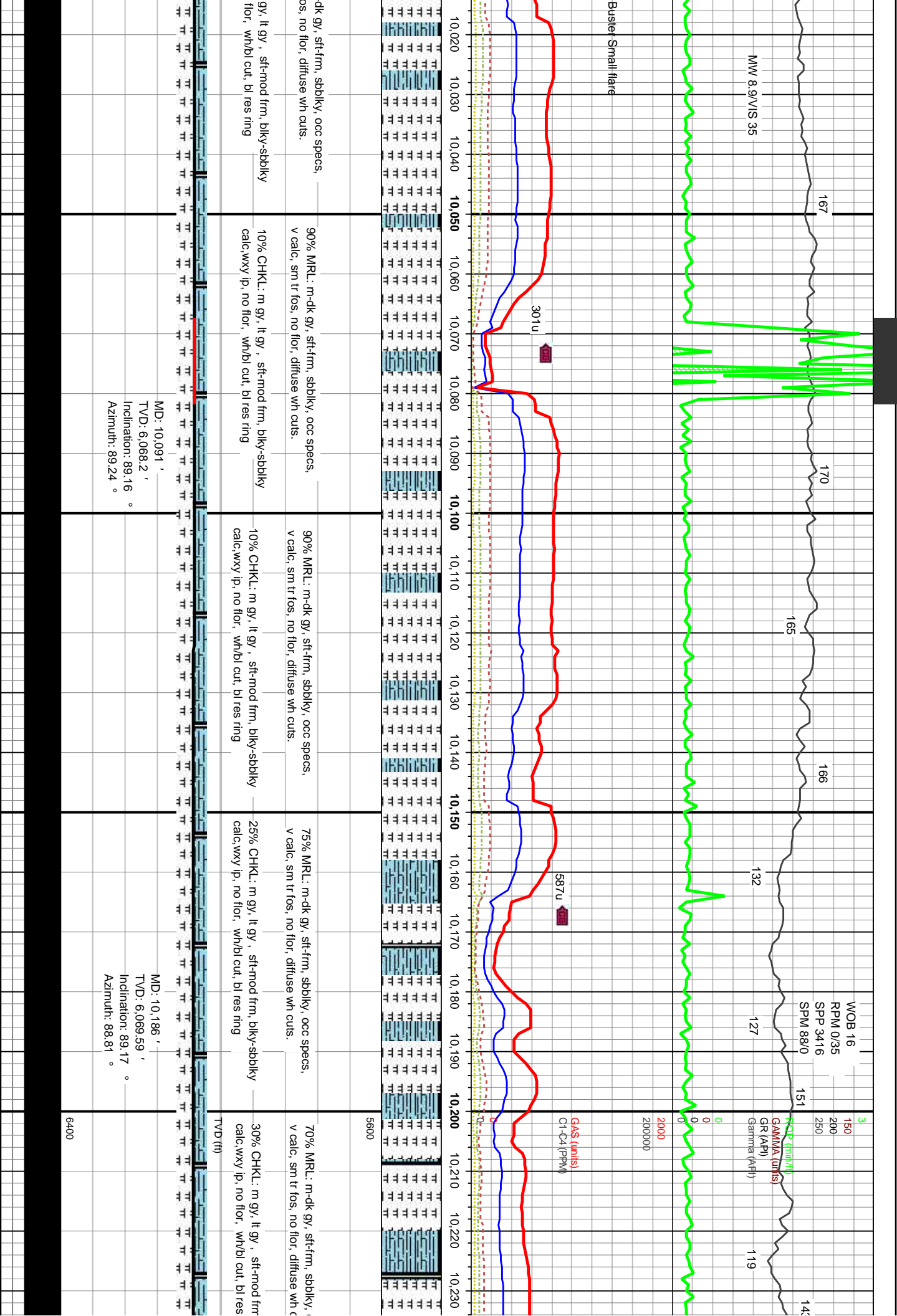






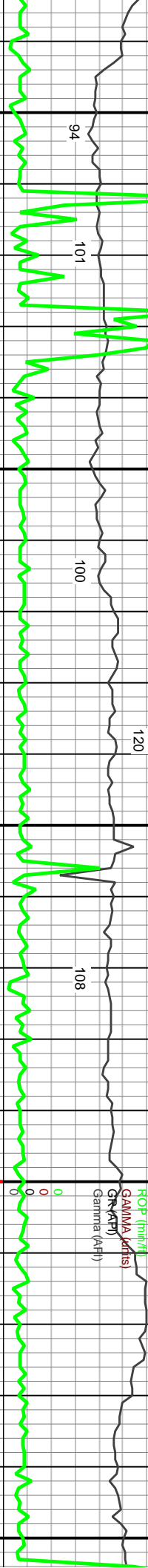






3
150
200
250
ROP (m/hr)
GAMMA (units)
Gamma (API)

94 101 100 120 108



765u

1555u

2500

2052u

Gas (units)
0.1-0.4 (ppm)

NOTE SCALE CHANGE GAS



5600

60% CHKL: m gy, lt gy, sft-mod frm, biky-sbbiky
calc, wxy ip, no flor, wh/bl cut, bl res ring

70% CHKL: m gy, lt gy, sft-mod frm, biky-sbbiky
calc, wxy ip, no flor, wh/bl cut, bl res ring

60% CHKL: m gy, lt gy, sft-mod frm, biky-sbbiky
calc, wxy ip, no flor, wh/bl cut, bl res ring

60% CHKL: m gy, lt gy, sft-mod frm, biky-sbbiky
calc, wxy ip, no flor, wh/bl cut, bl res ring

40% MRL: m-dk gy, sft-frm, sbbiky, occ specs,
v calc, sm tr fos, no flor, diffuse wh cuts.

30% MRL: m-dk gy, sft-frm, sbbiky, occ specs,
v calc, sm tr fos, no flor, diffuse wh cuts.

40% MRL: m-dk gy, sft-frm, sbbiky, occ specs,
v calc, sm tr fos, no flor, diffuse wh cuts.

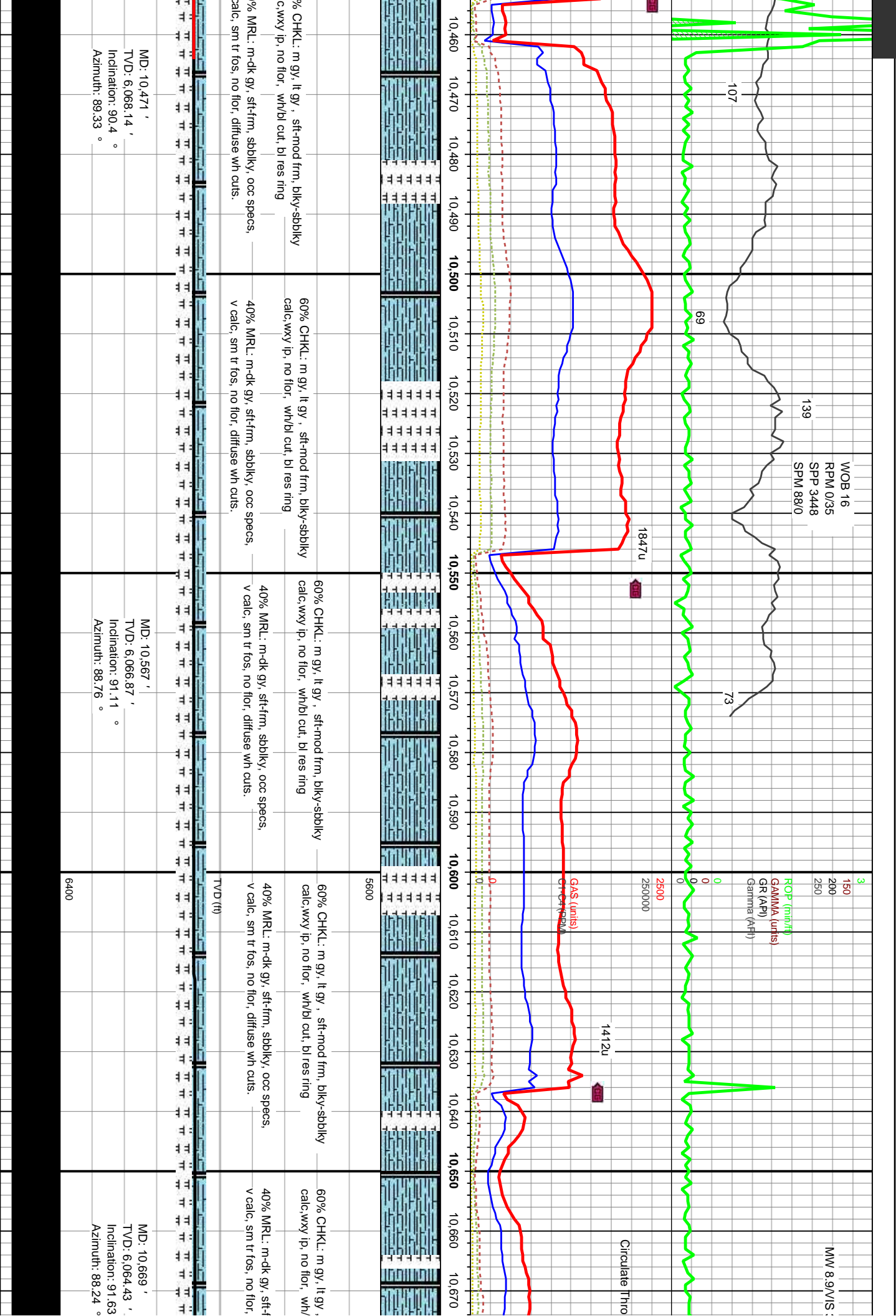
40% MRL: m-dk gy, sft-frm, sbbiky, occ specs,
v calc, sm tr fos, no flor, diffuse wh cuts.

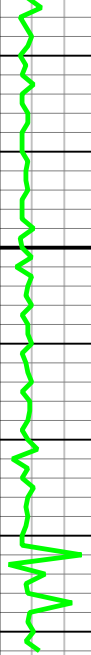
TVD (ft)

MD: 10,280 '
TVD: 6,070.09 '
Inclination: 90.22 °
Azimuth: 89.33 °

MD: 10,376 '
TVD: 6,069.18 '
Inclination: 90.86 °
Azimuth: 89.54 °

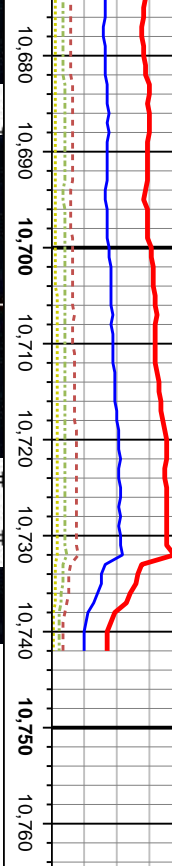
6400





ughout Gas Buster Small flare

957u



sft-mod frm, blk-y-sbdky
bl cut, bl res ring

50% CHKL: lt-m gy, sft-mod frm, blk-y-sbdky
calc, wxy lp, no flor, wh/bl cut, bl res ring.

rm, sbdky, occ specs,
diffuse wh cuts.

50% MRL: m-dk gy, sft-frm, sbdky, occ specs,
v calc, sm tr fos, no flor, diffuse wh cuts.



Bit Projection

MD: 10,742 '
TVD: 6,062.36 '
Inclination: 91.62 °
Azimuth: 88.24 °

