



Scale: 5" / 100'
Measured Depth Log

Well Name SACK 16N-6HZ

Location SEC.31-T1N-R67W

State Colorado

County Weld

Spud Date

9/2/2014

Rig Number Precision Drilling 595

AFE # 2092908

Field Wattenburg

Surface Coordinates 673FSL & 702FEL, SEC.31

Ground Elevation 5080ft

Logged Interval 7050

Formation Niobrara

Operator

Company Anadarko

Address Anadarko Petroleum Corporation
1099 18th St. #1800
Denver, CO 80202

Geologist

Name Nick Barber and Michael Rooks

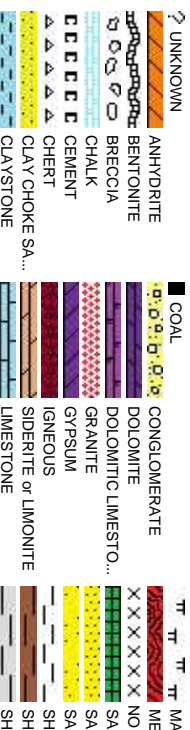
Company Columbine Logging Inc

Address 2385 S. Lipan Street
Denver, CO 80223
Phone: 303-289-7764

Zone Color Coding



Rock Types



Accessories

	GASTROPOD		ARGILLITE GRAIN		HEAVY MINERAL
	INOCERAMUS		B BENTONITE		KAOLIN
	ALGAE		BITUMENOUS SUBSTANCE		MARLSTONE
	AMPHIPORA		BRECCIA FRAGMENTS		MICACEOUS
	BELEMNITE		CALCAREOUS		MINERAL CRYSTALS
	BIOCLASTIC		CARBONACEOUS FLAKES		NODULES
	BRACHIOIPOD		CHERT		PHOSPHATE PELLETS
	BRYOZOA		COAL - THIN BEDS		PYRITE
	CEPHALOPOD		DOLOMITIC		SALT CAST
	CORAL		FELDSPAR		SANDY
	CRINOID		FERRUGINOUS PELLET		SILTY
	ECHINOID		FERRUGINOUS		TUFFACEOUS
	FISH		GLAUCONITE		
	FORAMINIFERA		ARGILLACEOUS		
	FOSSIL		GYPSIFEROUS		
				Stringer	
					ANHYDRITE STRINGER
					BENTONITE STRINGER
					COAL STRINGER
					DOLOMITE STRINGER
					GYPSUM STRINGER
					LIMESTONE STRINGER
					MARLSTONE (CALC) STRG
					MARLSTONE (DOL) STRG
					SANDSTONE STRINGER
					SHALE STRINGER
					SILTSTONE STRINGER

Fossils

Minerals

FORAMINIFERA
FOSSIL

ARGILLACEOUS

Stringer

Other Symbols

Oil Show

P PINPOINT
V VUGGY

Engineering

D DEAD
EVEN
QUESTIONABLE
SPOTTED STAIN...
CONNECTION (UP)

BIT

Rounding

MS MUDSTONE

Porosity

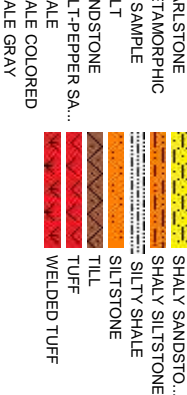
CONNECTION (DOWN)
CONNECTION GAS
CONNECTION GAS (LEF..
TRIP GAS
FRACTURE
FENESTRAL
INTERCRYSTALL...
INTEROOULTIC
MOLDIC
ORGANIC

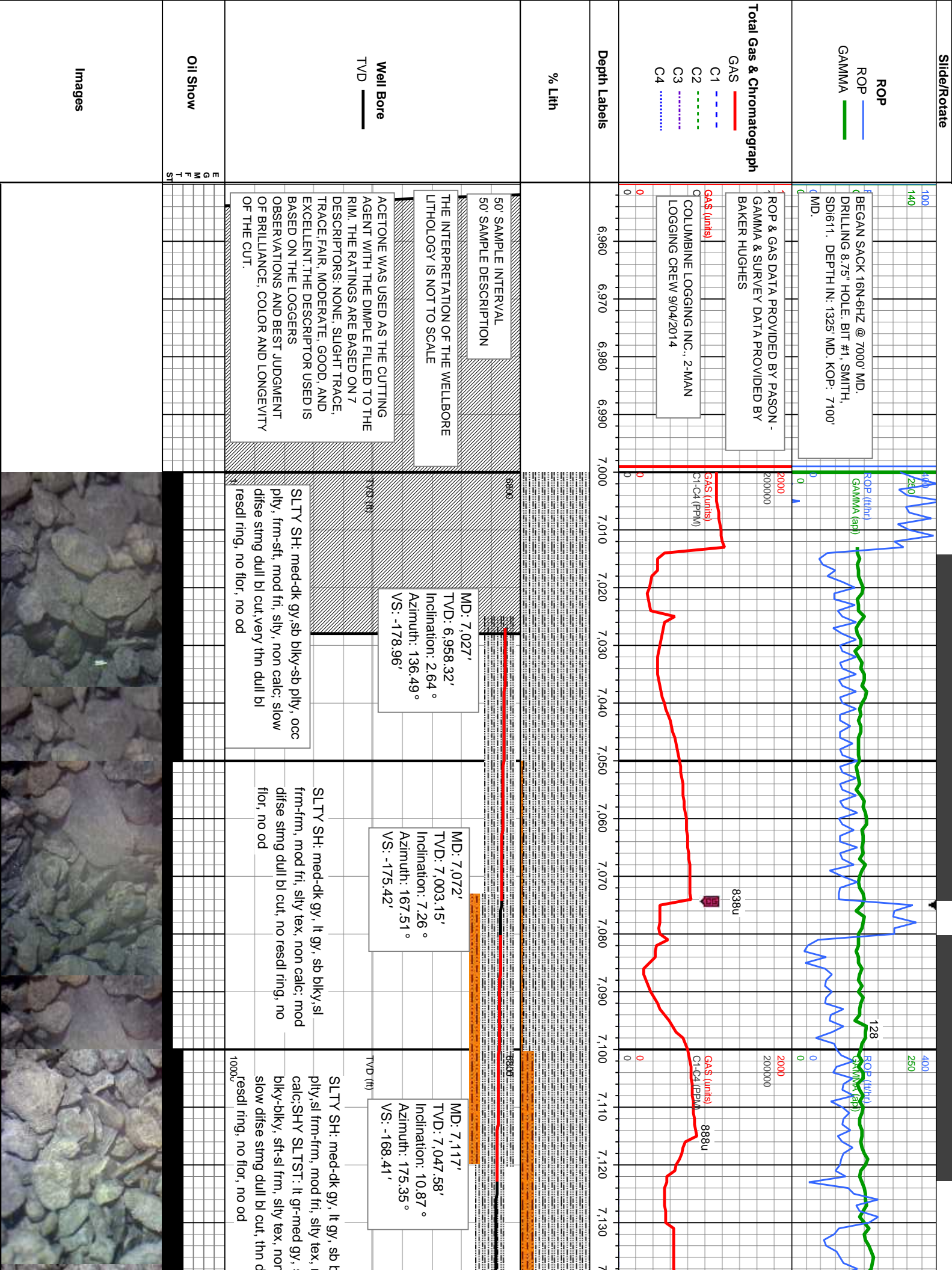
Textures

DOWN TIME GAS
DOWN TIME GAS (LEFT)
CORE - LOST
CORE - RECOVERED
SIDEWALL CORE (LEFT)
SIDEWALL CORE (RIGH..
SLIDE
SURVEY

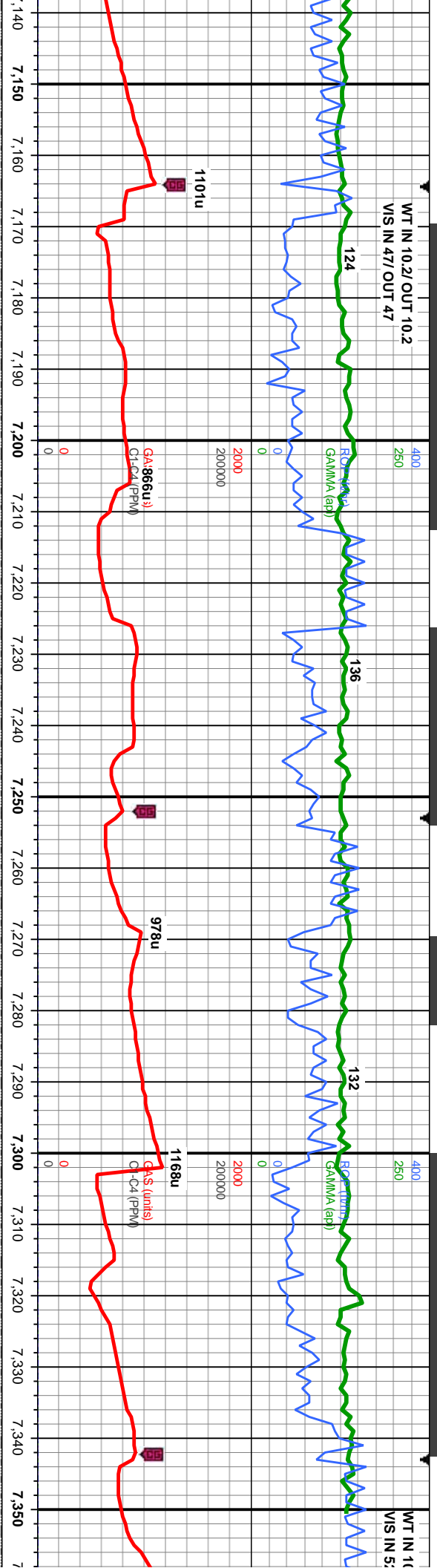
Sorting

PS PACKSTONE
MS WACKESTO...
P POOR
W WELL





WT IN 10.2/ OUT 10.2
VIS IN 47/ OUT 47



1101u

GA-866u
G-C4 (PPM)

978u

1168u
GAS (units)
G-C4 (PPM)

MD: 7.162'
TVD: 7.091.43'
Inclination: 14.96 °
Azimuth: 176.79 °
VS: 158.38'

MD: 7.206'
TVD: 7.133.45'
Inclination: 19.65 °
Azimuth: 177.54 °
VS: -145.85'

MD: 7.251'
TVD: 7.175.57'
Inclination: 21.42 °
Azimuth: 176.43 °
VS: -129.54'

MD: 7.295'
TVD: 7.216.02'
Inclination: 24.86 °
Azimuth: 173.27 °
VS: -112.32'

MD: 7.340'
TVD: 7.255.92'
Inclination: 30.19 °
Azimuth: 175.25 °
VS: -91.63'

SLTY SH: med-dk gy, lt gy, sb pty, sl
frm-frm, slty tex, non calc; mod difse stmg
dull bl cut, thk wht-bl resd ring, no flor, no
od

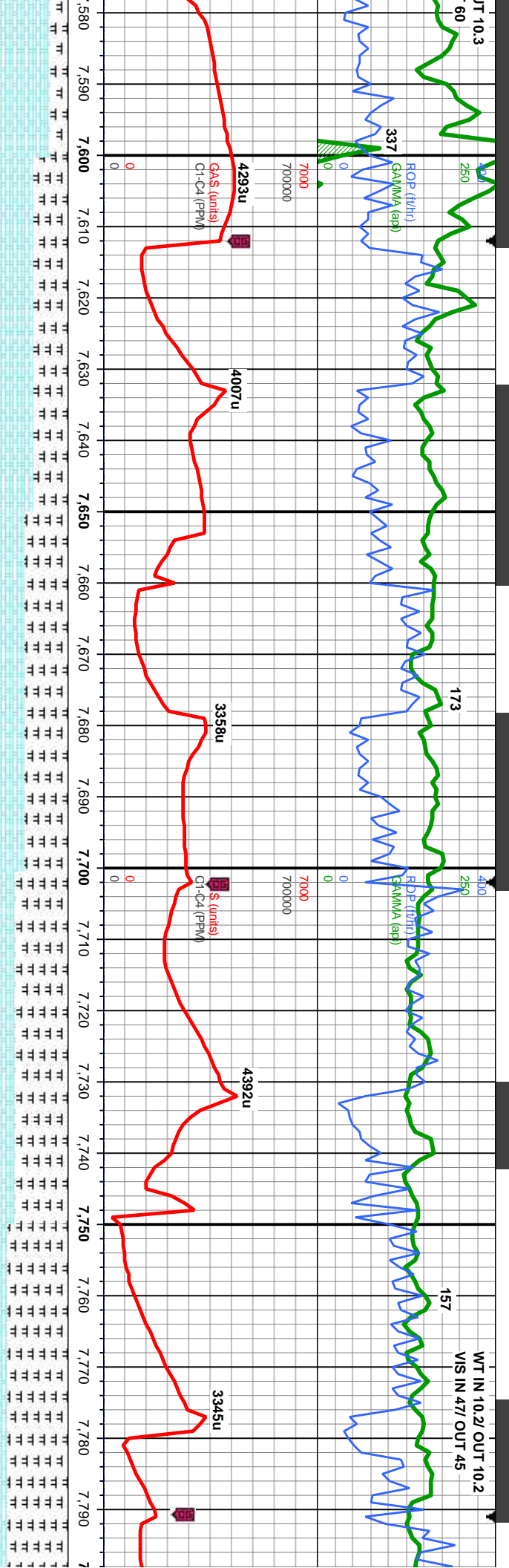
SLTY SH: med-dk gy, sb pty-pty, sl
frm-frm, slty tex, non calc; v slow difse
stmg dull bl cut, no resd ring, no flor, no
od

SLTY SH: lt-dk gy, sb pty-pty, sl frm, slty
tex, non calc; mod difse stmg dull bl cut,
thn dull lt bl-wht resd ring, no flor, no od

SLTY SH: med-dk gy, sb pty-pty, sl frm-frm,
slty tex, non calc; mod difse stmg dull bl
cut, thk lt bl-wht resd ring, no flor, no od

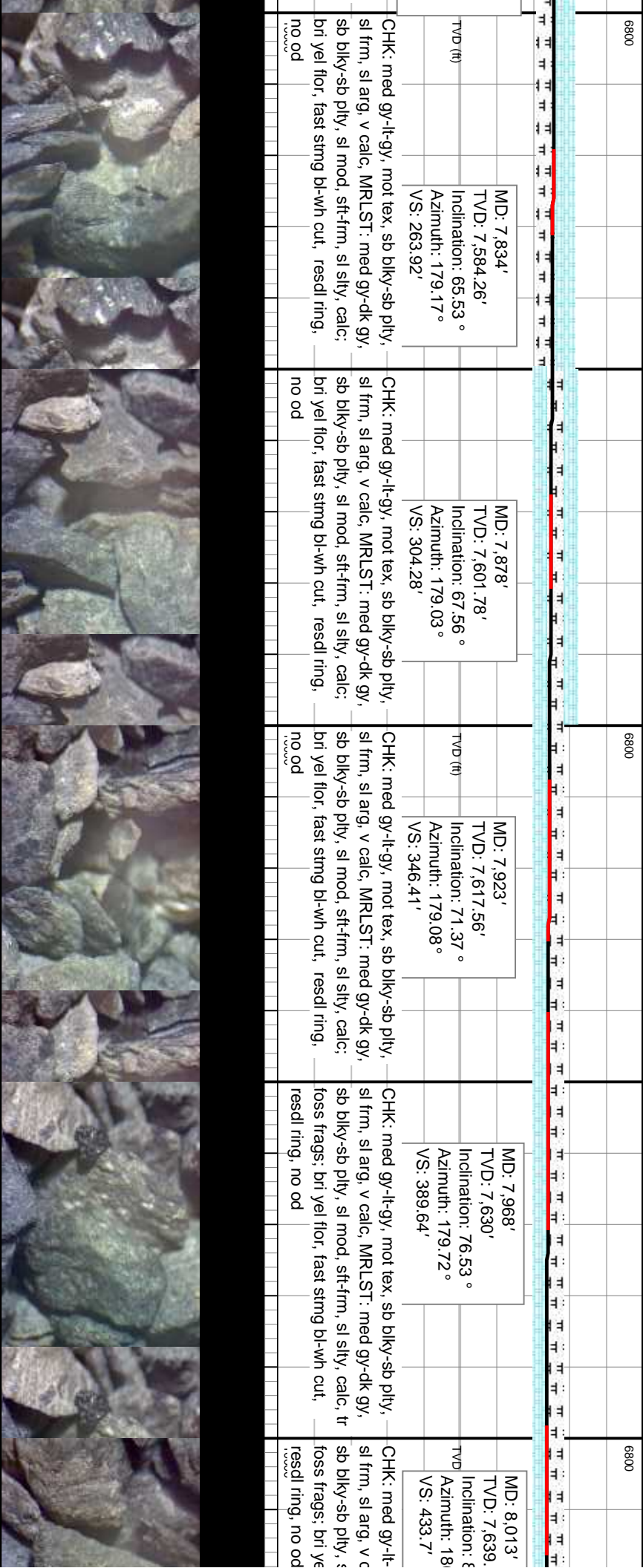
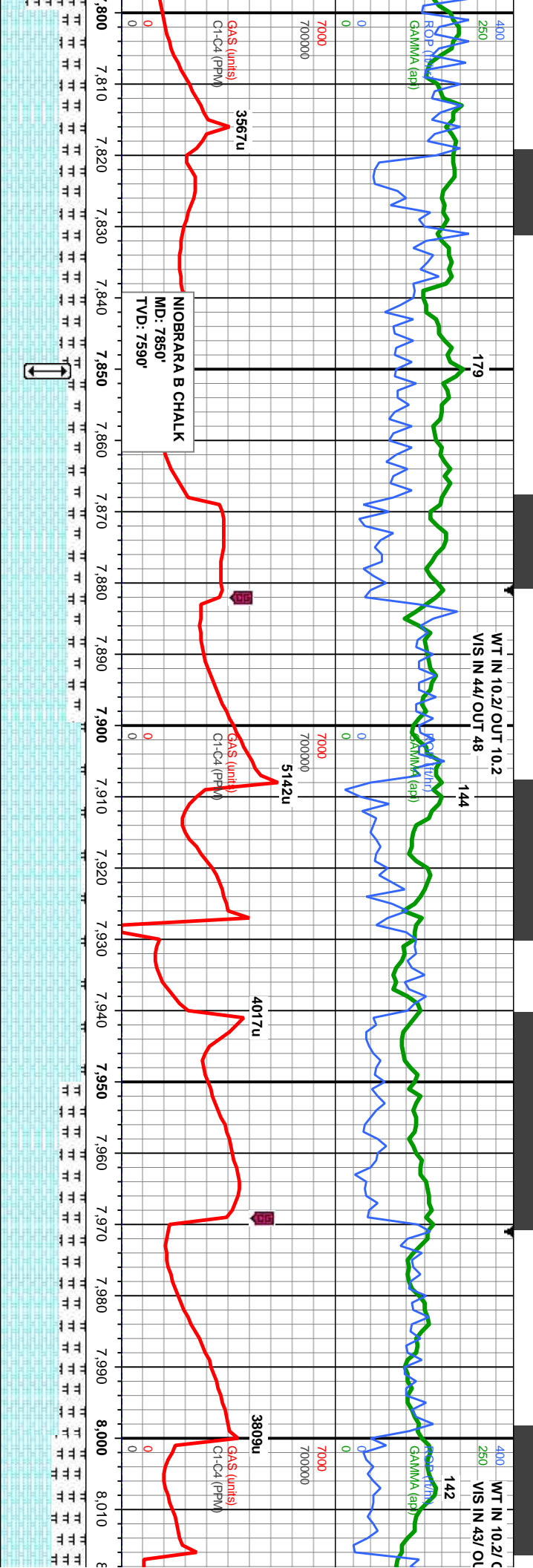
SLTY SH: med-dk gy, sb pty-pty, sl frm-frm,
slty tex, non calc; mod difse stmg dull bl
cut, thk lt bl-wht resd ring, no flor, no od



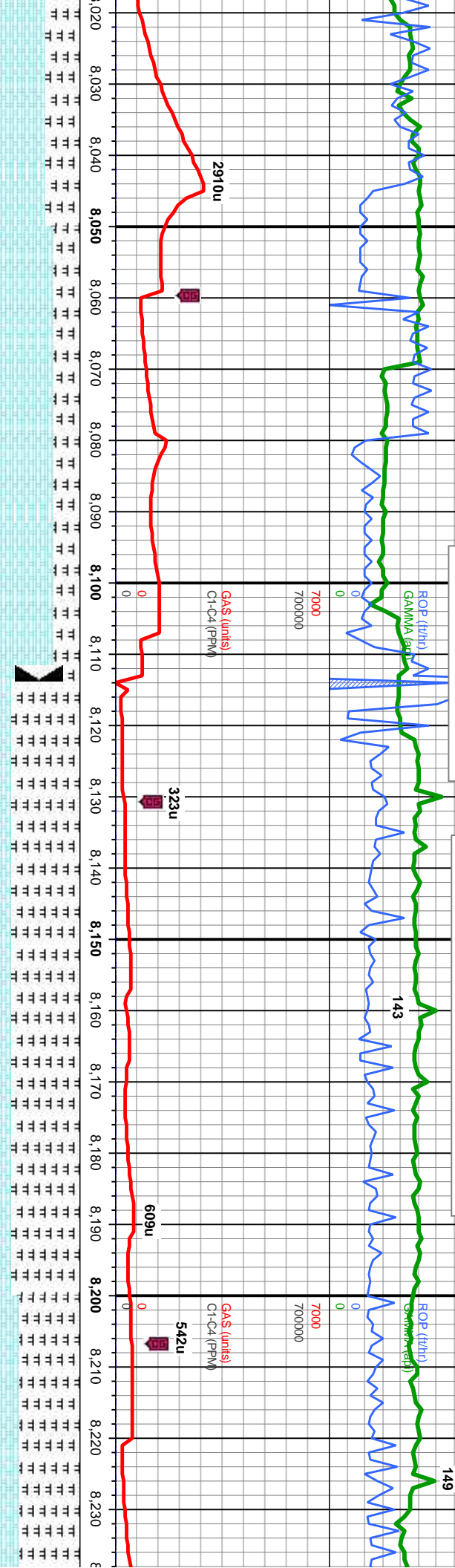


6800		MD: 7,609' TVD: 7,467.82' Inclination: 48.67 ° Azimuth: 179.54 ° VS: 72.42'	CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, sl frm, sl arg, v calc, MRLST: med gy-dk gy, sb blk-y-sb pily, sl mod, sft-frm, sl silty, calc; fnt yel flor, mod-fast stmg bl-wh cut, resdl ring, no od, no flor
6800		MD: 7,654' TVD: 7,495.92' Inclination: 54.02 ° Azimuth: 177.17 ° VS: 107.53'	CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, sl frm, sl arg, v calc, MRLST: med gy-dk gy, sb blk-y-sb pily, sl mod, sft-frm, sl silty, calc; fnt yel flor, mod-fast stmg bl-wh cut, resdl ring, no od, no flor
6800		MD: 7,699' TVD: 7,521.02' Inclination: 58.17 ° Azimuth: 176.95 ° VS: 144.83'	MRLST: med gy-dk gy, sb blk-y-sb pily, sl mod, sft-frm, sl silty, calc; CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, sl frm, sl arg, v calc; bri yel flor, fast stmg bl-wh cut, resdl ring, no od
		MD: 7,744' TVD: 7,543.9' Inclination: 60.69 ° Azimuth: 177.88 ° VS: 183.54'	MRLST: med gy-dk gy, sb blk-y-sb pily, sl mod, sft-frm, sl silty, calc; CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, sl frm, sl arg, v calc; bri yel flor, fast stmg bl-wh cut, resdl ring, no od
		MD: 7,789' TVD: 7,564.93' Inclination: 63.58 ° Azimuth: 178.2 ° VS: 223.3'	MRLST: med gy-dk gy, sb blk-y-sb pily, sl mod, sft-frm, sl silty, calc; CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, sl frm, sl arg, v calc; bri yel flor, fast stmg bl-wh cut, resdl ring, no od

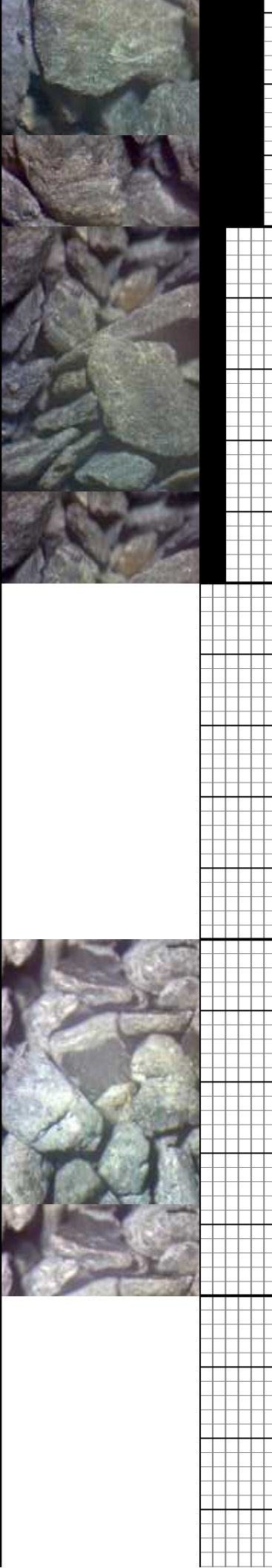


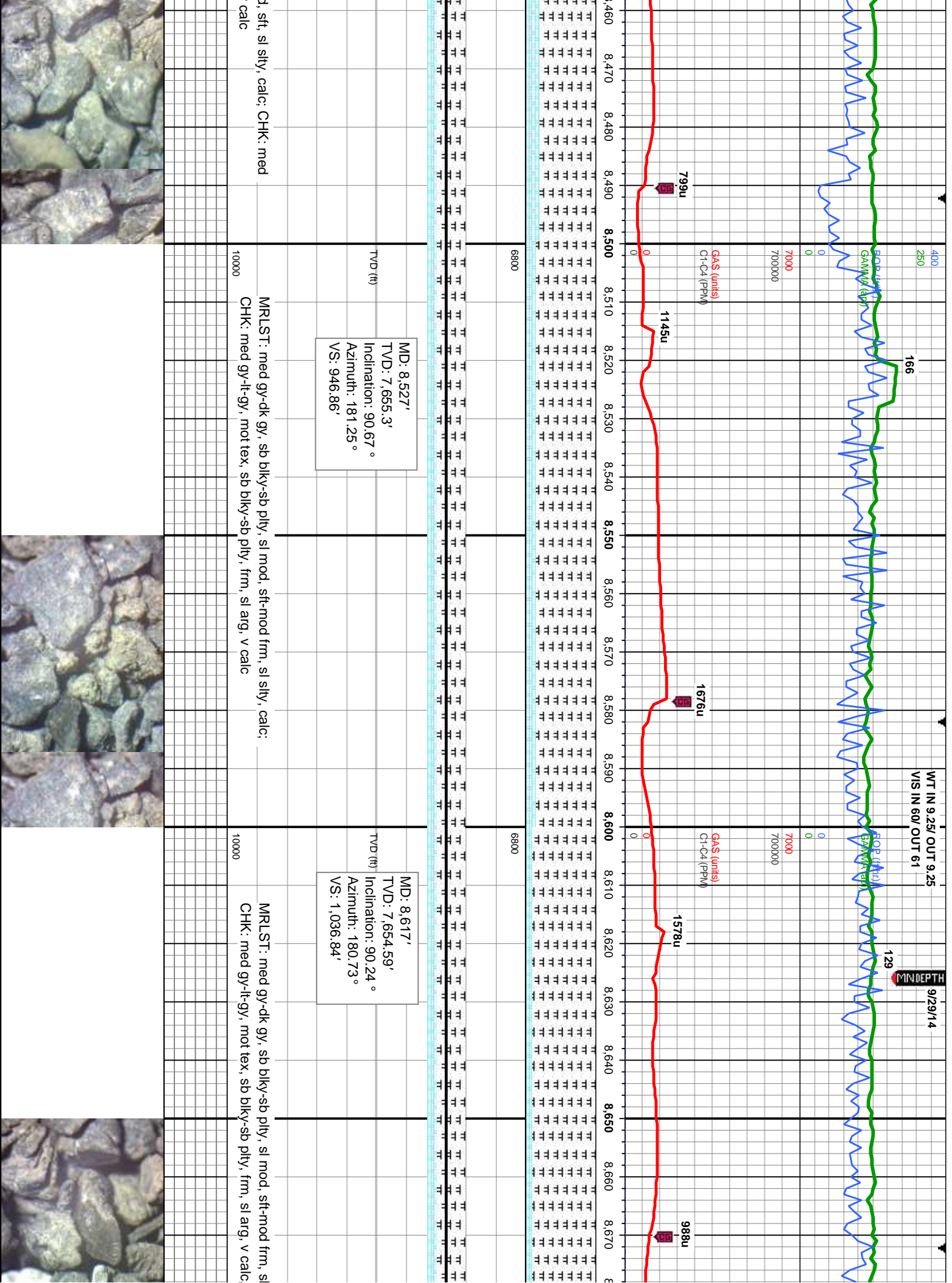


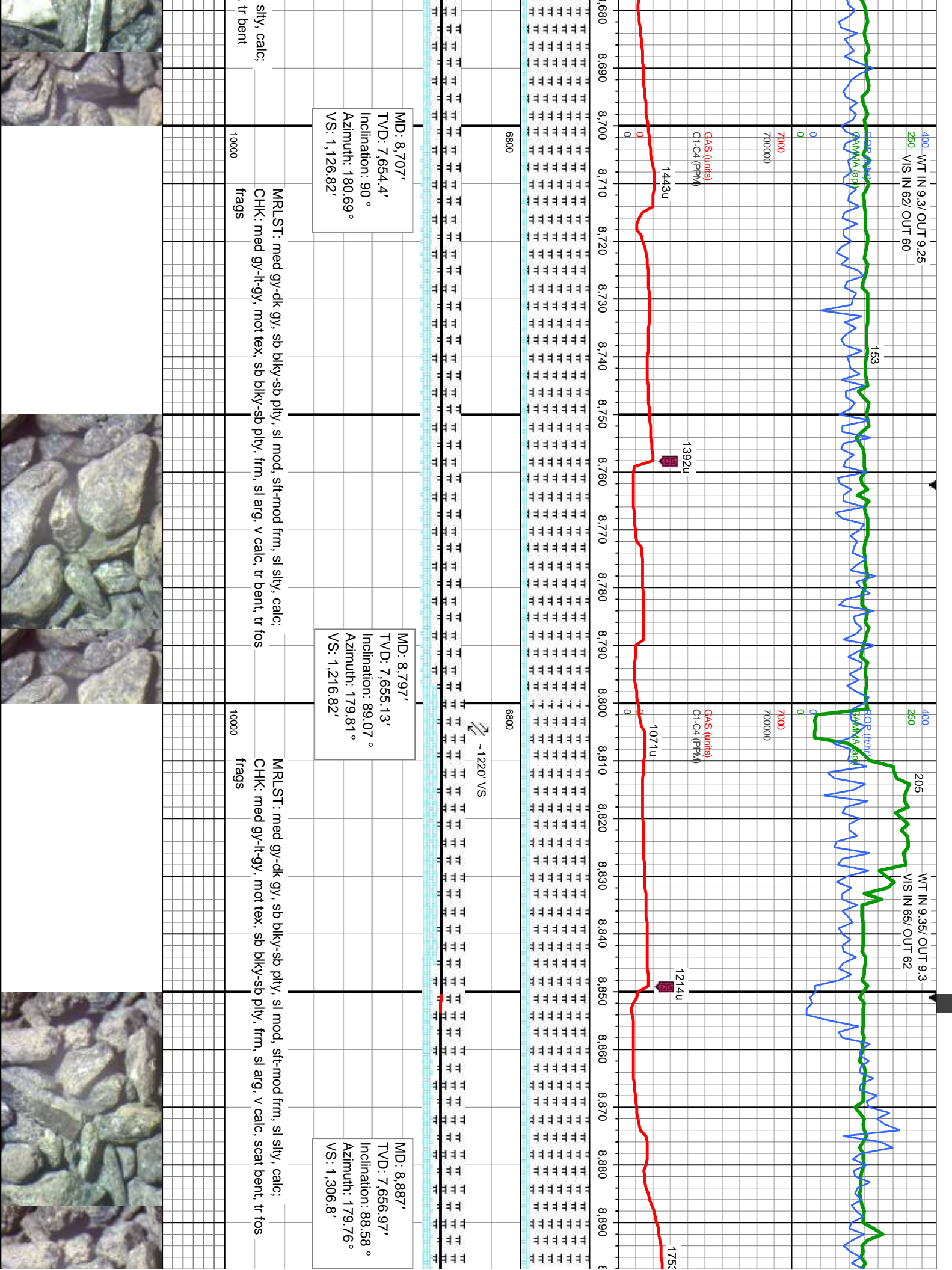
OUT 10.25
WT IN 10.25/ OUT 10.25
8113' MD AT 21:45 ON 9/5/14
REACHED TD FOR CURVE AT
6.125" HOLE W/ BIT #2 DEPTH IN: 8113' MD
WT IN 9.35/ OUT 9.3
VIS IN 71/ OUT 65

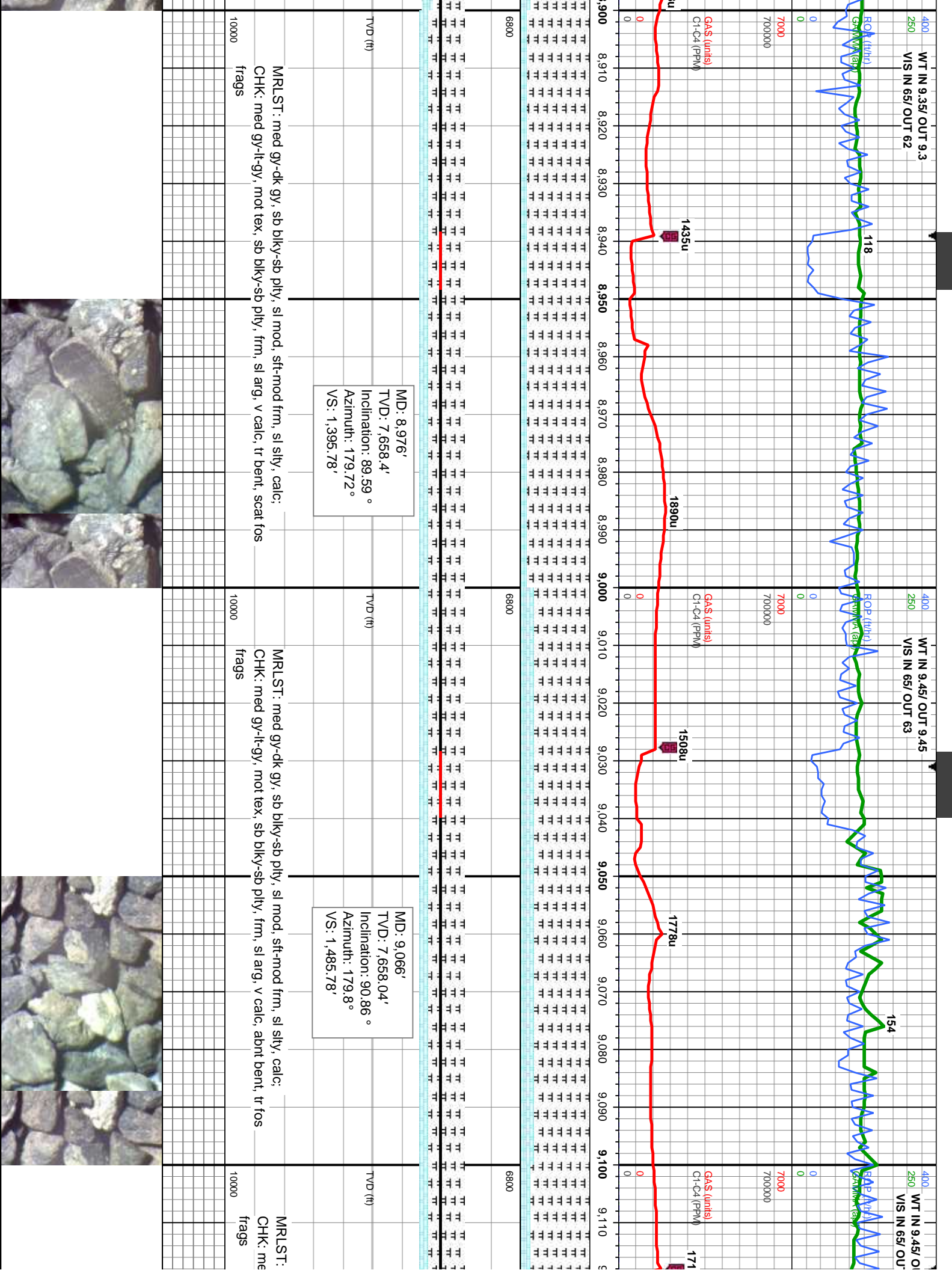


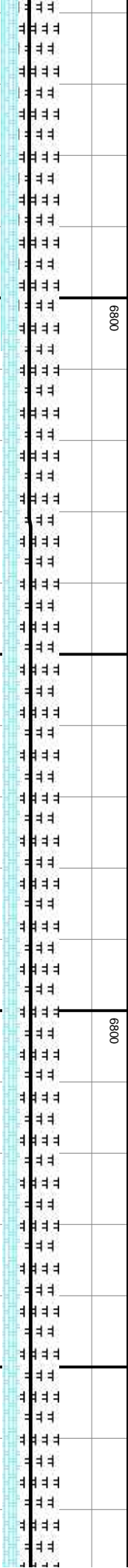
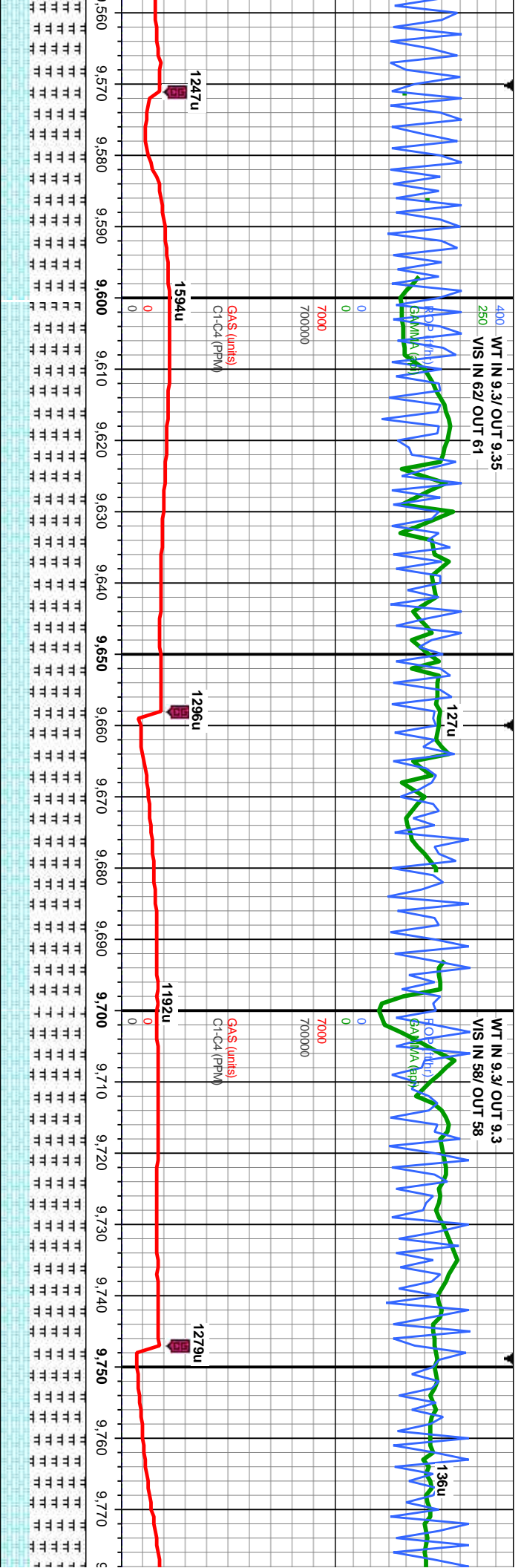
gy, mot tex, sb blk-y-sb pty, calc, MRLST: med gy-dk gy, sl mod, sft-frm, sl silty, calc, tr i flor, fast sting bl-wh cut,	CHK: med gy-lt-gy, mot tex, sb blk-y-sb pty, sl frm, sl arg, v calc, MRLST: med gy-dk gy, sb blk-y-sb pty, sl mod, sft-frm, sl silty, calc, tr foss frags, fnt yel flor, mod-fast sting bl-wh cut, resdl ring, no od, no flor	MD: 8,065' TVD: 7,646.42' Inclination: 83.76 ° Azimuth: 180.44 ° VS: 485.18'	MD: 8,112' TVD: 7,649.32' Inclination: 89.16 ° Azimuth: 180.44 ° VS: 532.07'	MRLST: med gy-dk gy, sb blk-y-sb pty, sl mod, sft-frm, sl silty, calc: CHK: med gy-lt-gy, mot tex, sb blk-y-sb pty, sl frm, sl arg, v calc, tr foss frags	MRLST: med gy-dk gy, sb blk-y-sb pty, sl mod, sft-frm, sl silty, calc: CHK: med gy-lt-gy, mot tex, sb blk-y-sb pty, sl frm, sl arg, v calc, tr foss frags
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MD: 9,606'
TV/D: 7,656.43'
Inclination: 90.68 °
Azimuth: 179.42 °
VS: 2.025.76'

MD
TV
Inc
Azi
VS

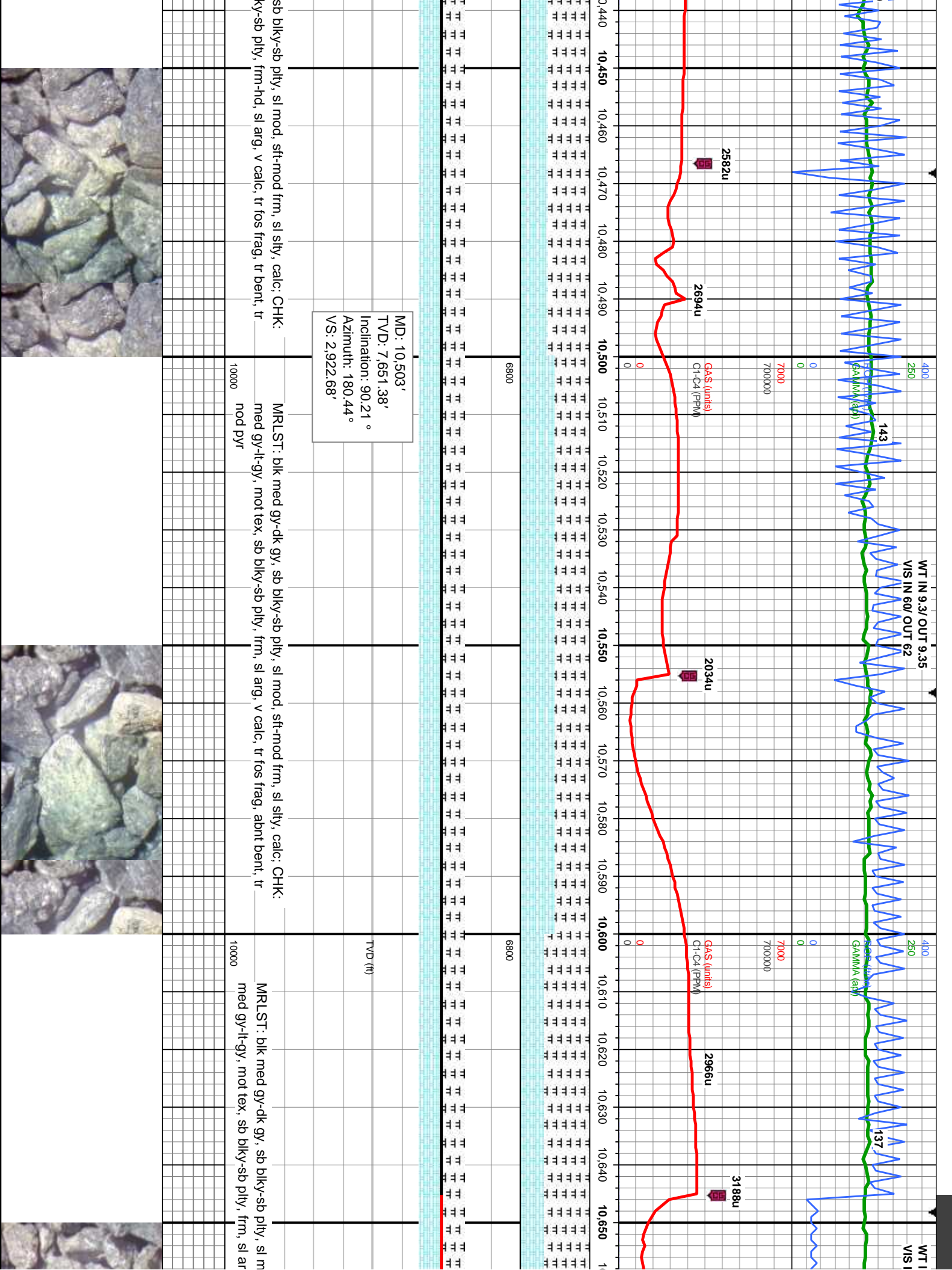
MD: 9,606'
TV/D: 7,656.43'
Inclination: 90.68 °
Azimuth: 179.42 °
VS: 2.025.76'

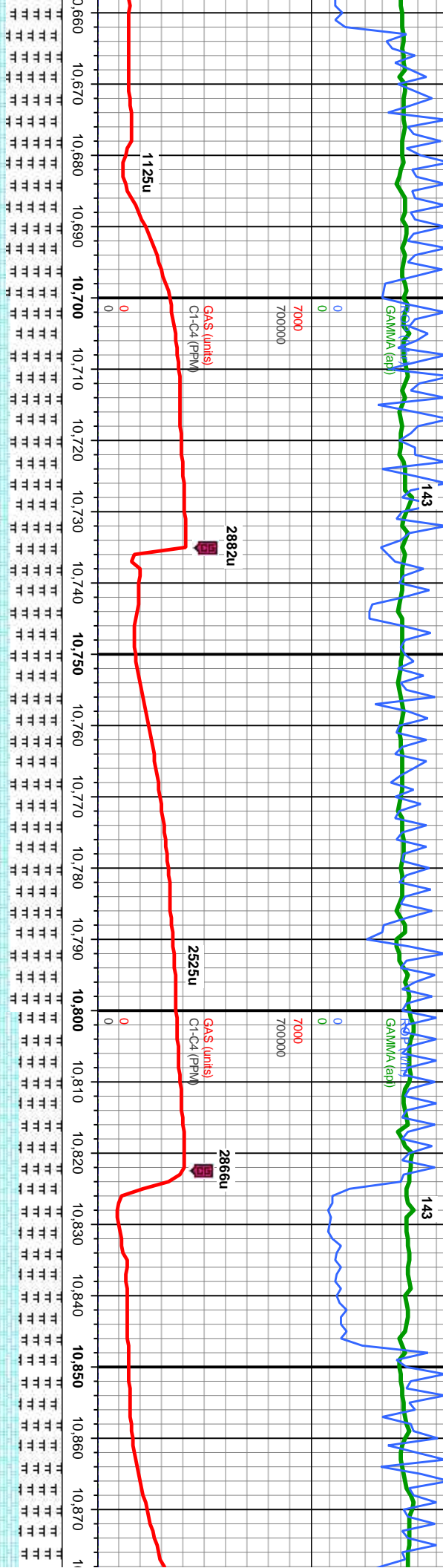
MD: 9,606'
TV/D: 7,656.43'
Inclination: 90.68 °
Azimuth: 179.42 °
VS: 2.025.76'

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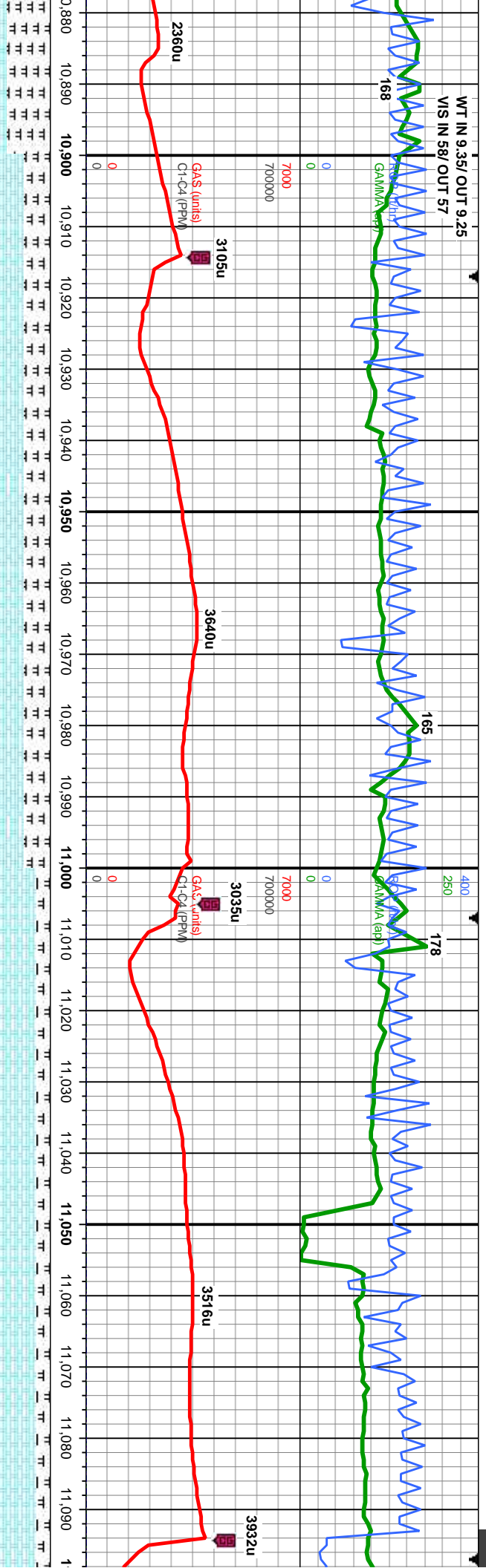


MD: 10,683'
TVD: 7,650.77'
Inclination: 90.18 °
Azimuth: 179.95 °
VS: 3,102.67'

mod, sft-mod frm, sl sily, calc: CHK: g, v calc, tr fos frag, abnt bent

MRLST: blk med gy-dk gy, sb blk-ly-sb ply, sl mod, sft-mod frm, sl sily, calc: CHK: med gy-lt-gy, mot tex, sb blk-ly-sb ply, frm-hd, sl arg, v calc, tr fos frag, abnt bent





6800	6800
TVD (ft)	TVD (ft)
10000	10000

MD: 11,042'
TVD: 7,642.41'
Inclination: 91.79 °
Azimuth: 180.18 °
VS: 3,461.56'

calc, CHK:
ag, tr bent, tr

CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, frm-hd, sl arg, v calc, MRLST: blk med gy-dk gy, sb blk-y-sb pily, sl mod, mod frm, sl silty, calc, tr fos frag, tr bent

CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, hd, sl arg, v calc, MRLST: blk med gy-dk gy, sb blk-y-sb pily, sl mod, mod frm, sl silty, calc, tr fos frag, tr bent



OUT 9.4
UT 60

WT IN 9.4 / OUT 9.4
VIS IN 60/ OUT 60

400
250
0

67

164

88

ROP (ft/h)
GAMMA (api)

ROP (ft/h)
GAMMA (api)

GAS (units)
Ct-C4 (PPM)

GAS (units)
Ct-C4 (PPM)

4068u

3904u

1186u

11,320 11,330 11,340 11,350 11,360 11,370 11,380 11,390 11,400 11,410 11,420 11,430 11,440 11,450 11,460 11,470 11,480 11,490 11,500 11,510 11,520 11,530

6800

6800

MD: 11,401'
TVD: 7,641.39'
Inclination: 88.61 °
Azimuth: 180.31 °
VS: 3,820.47'

MD: 11,491'
TVD: 7,642.9'
Inclination: 89.47 °
Azimuth: 180.18 °
VS: 3,910.46'

med gy-lt-gy, mot tex, sb blk-y-sb pily, hd, sl arg, v calc; MRLST: blk
gy-dk gy, sb blk-y-sb pily, sl mod, mod frm, sl silty, calc, tr fos frags

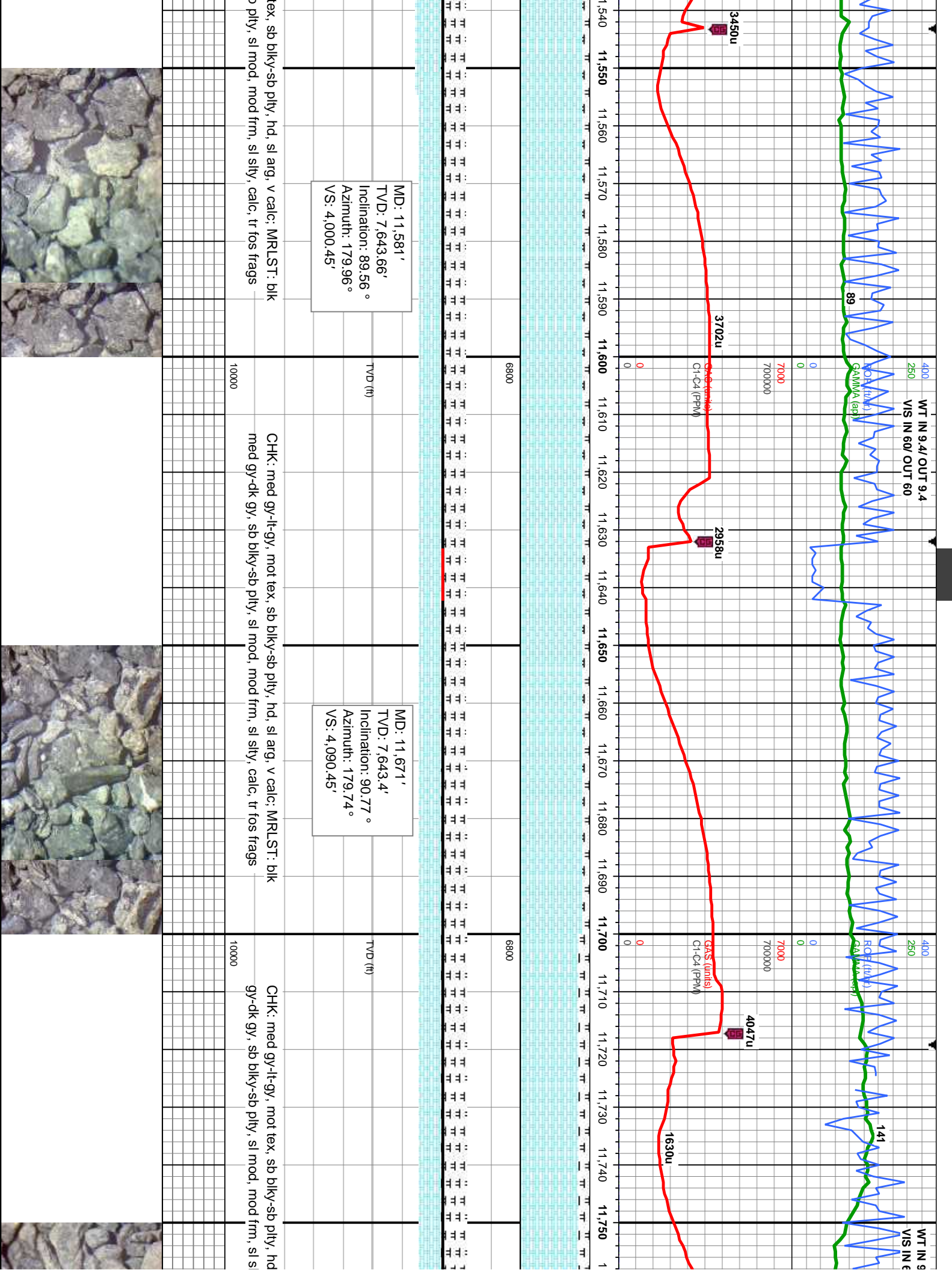
CHK: med gy-lt-gy, mot tex, sb blk-y-sb pily, hd, sl arg, v calc; MRLST: blk med
gy-dk gy, sb blk-y-sb pily, sl mod, mod frm, sl silty, calc, tr fos frags

CHK: med gy-lt-gy, mot
med gy-dk gy, sb blk-y-sb

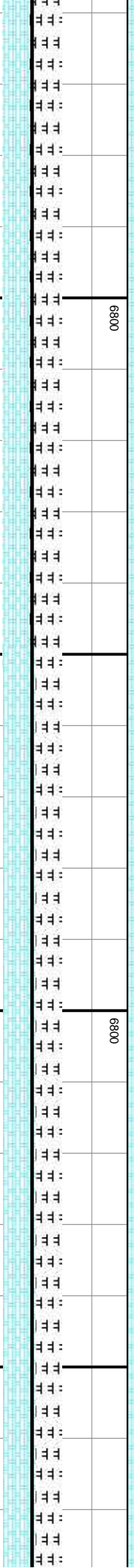
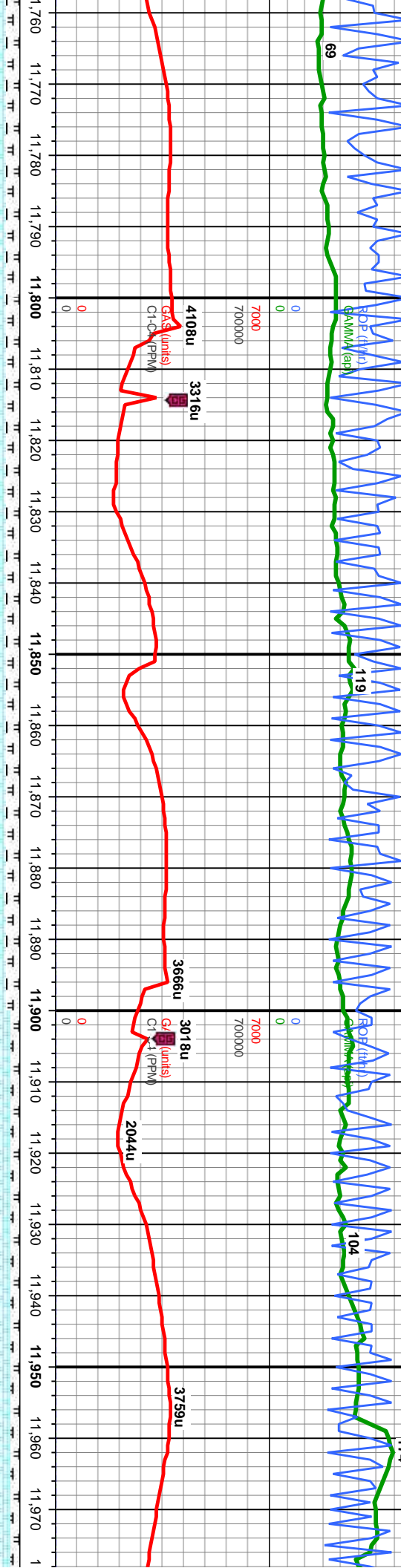
10000

10000





3/ OUT 9.25
2/ OUT 60



MD: 11,851'
TVD: 7,640.89'
Inclination: 90.83 °
Azimuth: 179.61 °
VS: 4,270.43'

, sl arg, v calc: MRLST: blk med
ly, calc, tr fos frags



