



Scale: 5" / 100'
Measured Depth Log

Well Name	Fiscus Federal LD15-77HN	County	WELD
Location	NENW SEC15 T9N R58W	Rig Number	PRECISION 828
State	CO	AFE #	200238
Country	USA	Region	DENVER-JULESBURG BASIN
API Number	05-123-37367	Field	WILDCAT
Spud Date	10/27/2014	Drilling Completed	11/1/2014
Surface Coordinates	280' FNL, 1682' FWL		
	Lat/Long: 40.75785/-103.85377		
Ground Elevation	4701'	K.B. Elevation	4717'
Logged Interval	4900'	To	9906'
		Total Depth	9906l
Formation	PIERRE (TEEPEE BUTTES, SHARON SPRINGS), NIOBRARA (SMOKY HILLS A,& B LAYERS)		
Type of Drilling Fluid	LSND		

Company NOBLE ENERGY INC.
Address 1625 Broadway
Denver, CO 80202

Name TERESA MALESARDI
Company NOBLE ENERGY INC.
Address 1625 Broadway
Denver, CO 80202

WELL SITE GEOLOGISTS: GA
C.S
LO
GE

Operator

Geologist

Rock Types

UNKNOWN	BRECCIA	GRANITE	SHALE
CHALK	CEMENT	GYPSUM	SHALE COLORET
MARLSTONE	CHERT	IGNEOUS	SHALE GRAY
SANDSTONE	CLAY CHOKESAND	SIDERITE or LIMONITE	SILTSTONE
SHALY SANDSTONE	CLAYSTONE	TILL	TUFF
SILTY SHALE	COAL	METAMORPHIC	WELDED TUFF
SHALY SILTSTONE	CONGLOMERATE	NO SAMPLE	
ANHYDRITE	DOLOMITE	SALT	
BENTONITE	DOLOMITIC LIMESTONE	SALT-PEPPER SAND	

Accessories

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

Other

RY L. MYERS
METZ

CONTINUES FROM FILE: Fiscus Federal LD15-77HN Vert.mplot
OLOGICAL SERVICES PROVIDED BY COLUMBINE LOGGING, INC

Other Symbols

- P PINPOINT

VUGGY
- DST INTERVAL

FAULT
- WIRELINE TESTED - LEFT

WIRELINE TESTED - RT
- E EARTHY

FX FINELYXLN

- DEAD

FORMATION TOP

DRILL STEM TEST

GRAINSTONE
- EVEN

GAS SHOW

MINDEPTH MN DEPTH

L LITHOGRAPHIC
- QUESTIONABLE

OIL SHOW

MINDEPTH MN DEPTH

MX MICROXLN

- SPOTTED STAINING

CONNECTION (UP)

MINDEPTH MN DEPTH UP

MS MUDSTONE
- CONNECTION (DOWN)

MINDEPTH MN DEPTH (DOWN)

ANGULAR

PS PACKSTONE

Porosity

- CONNECTION GAS

NORMAL FAULT

R ROUNDED

WS WACKESTONE
- E EARTHY

CONNECTION GAS (LEFT)

OVERTURNED STRATA

S SUBANG
- FENESTRAL

TRIP GAS

REVERSE FAULT

R SUBRND

Sorting

- F FRACTURE

TRIP GAS (LEFT)

CASING

M MODERATE
- INTERCRYSTALLINE

DOWN TIME GAS

SIDEWALL CORE (LEFT)

P POOR

Textures

- INTEROOLITIC

DOWN TIME GAS (LEFT)

SIDEWALL CORE (RIGHT)

BS BOUNDSTONE
- MOLDIC

CORE - LOST

SLIDE

C CHALKY
- ORGANIC

CORE - RECOVERED

SURVEY

CCX CRYPTOXLN

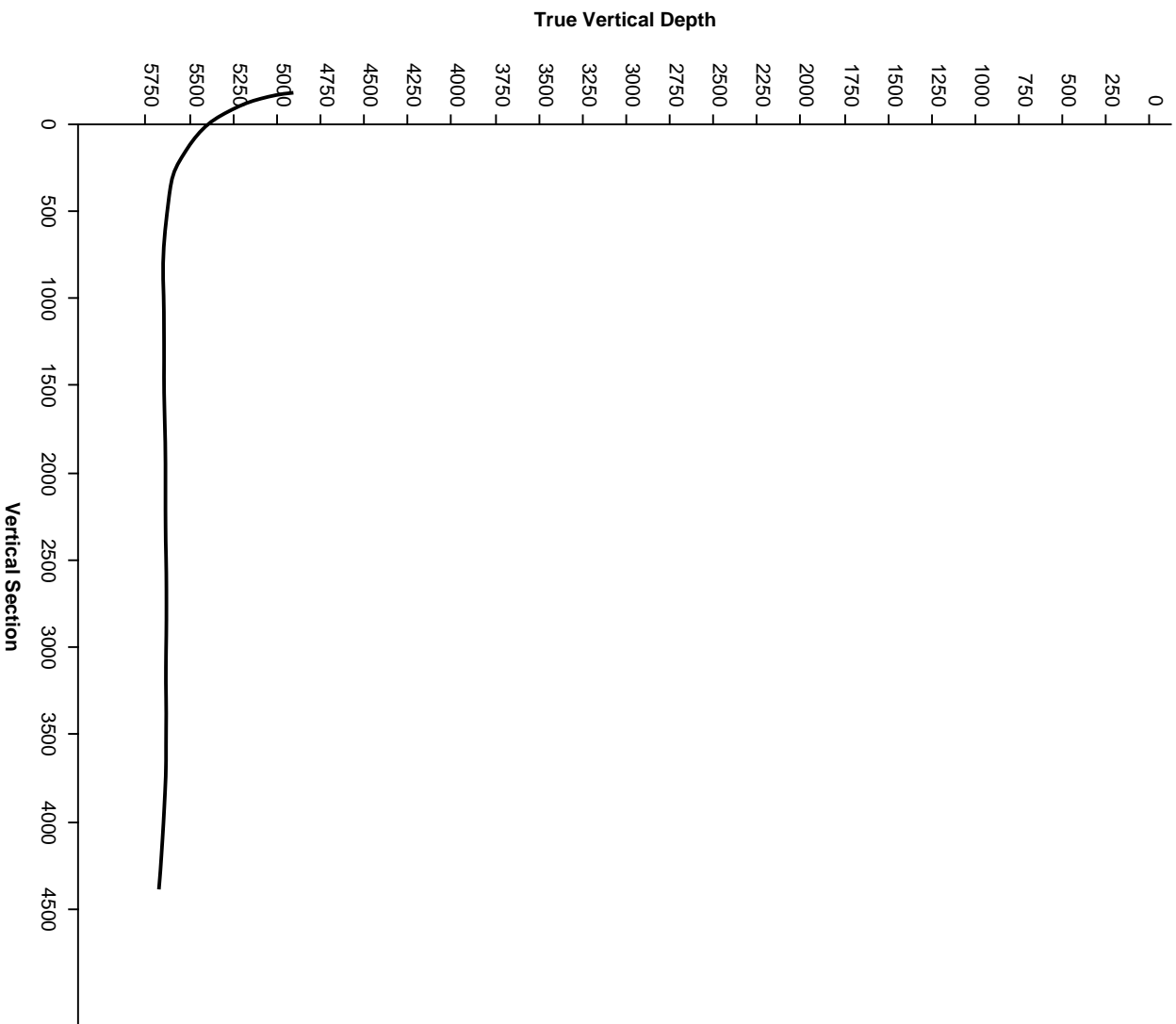
Survey Plan

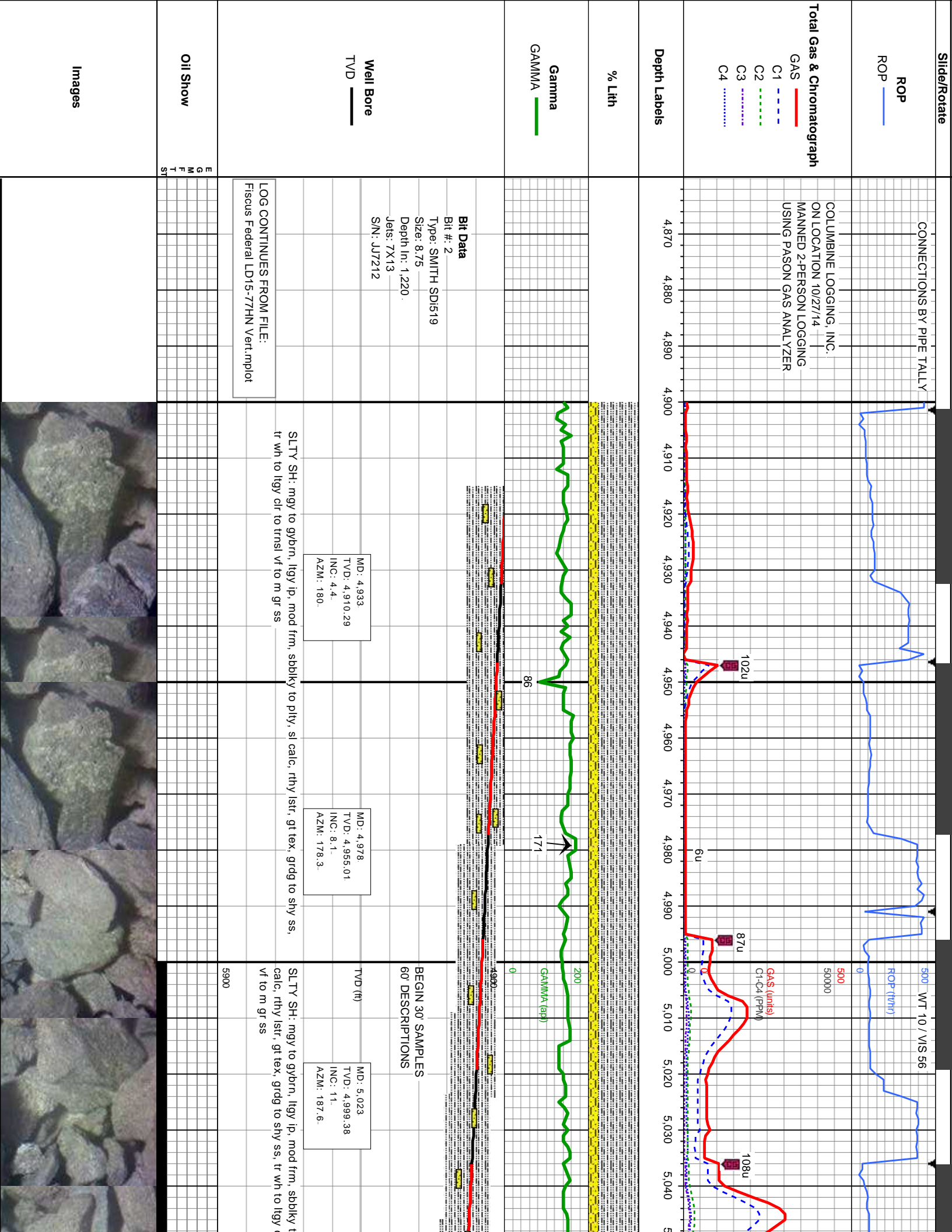
-400 -
-300 -
-200 -
-100 -
0
100

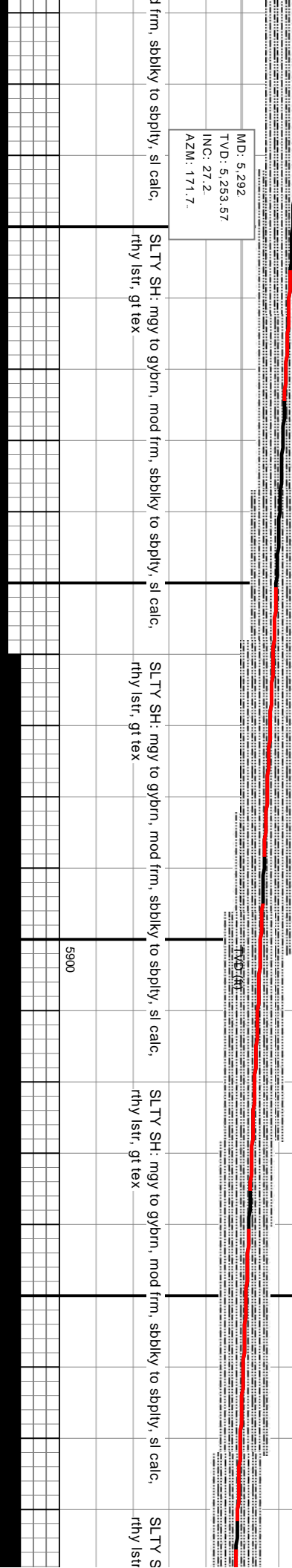
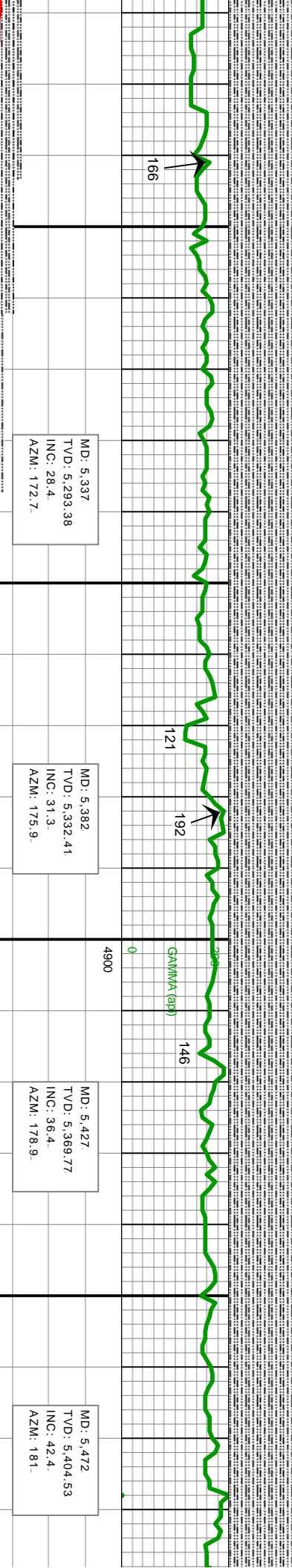
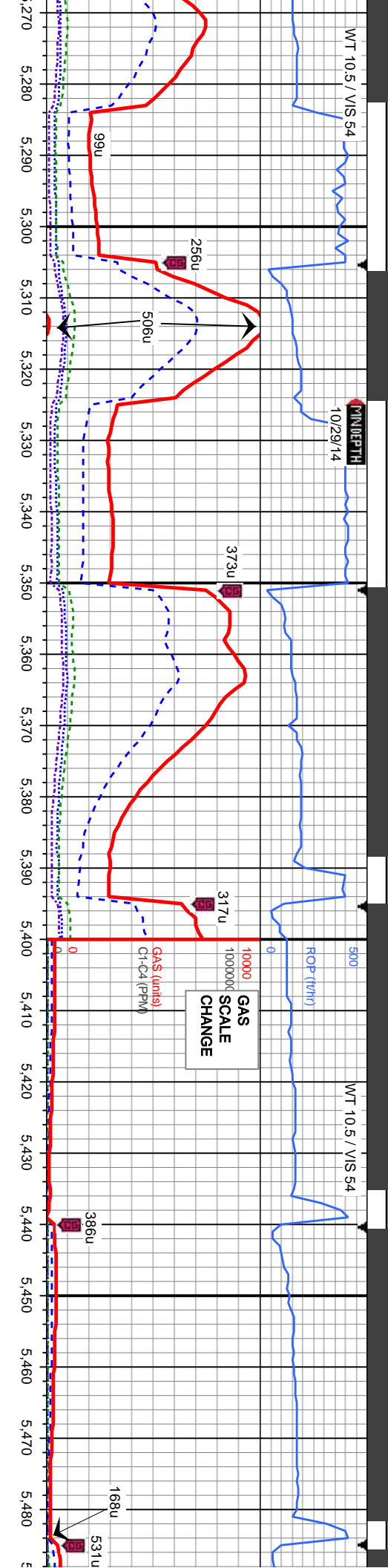
Nothing

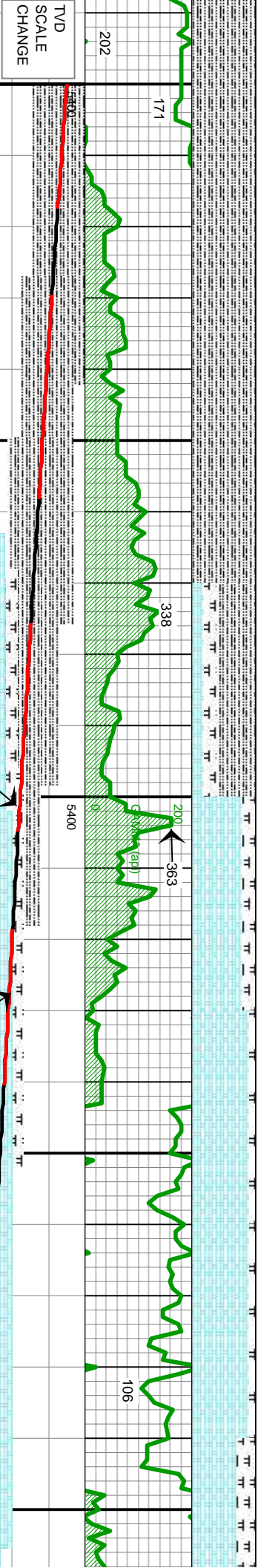
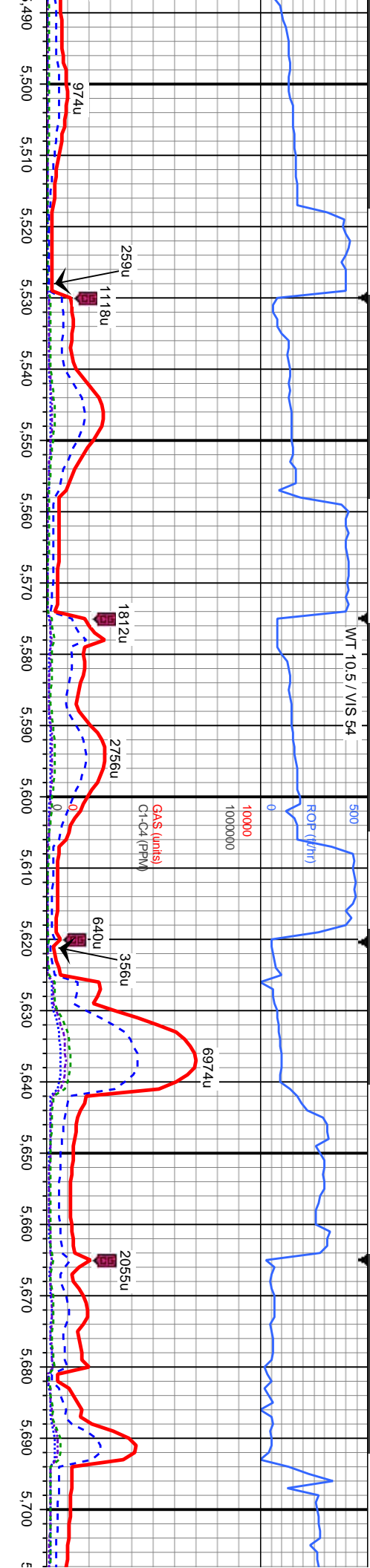
Easting

Survey Elevation









TVD (ft)	MD: 5,517	MD: 5,562	MD: 5,607	MD: 5,651	MD: 5,697
	TVD: 5,436.28	TVD: 5,465.39	TVD: 5,492.08	TVD: 5,516.3	TVD: 5,540.78
	INC: 47.8	INC: 51.6	INC: 55.6	INC: 57.6	INC: 58.1
	AZM: 180.1	AZM: 177.4	AZM: 176.3	AZM: 177.8	AZM: 179.7

SHARON SPRINGS 5602 MD, 5489' TVD

SLTY SH: mgy to gybrn, mod frm, sbbkly to sbply, sl calc, rthy slt, gt tex, abnt bent

MRL: m to dk gy, sbbkly to sbply, mod frm, rthy, sl mot, calc

CHK: lt to mgy, occ gy brn, mod sft to sl frm, sbply to sbbkly, rthy, sl mot, v calc

NIOBRARA A CHALK

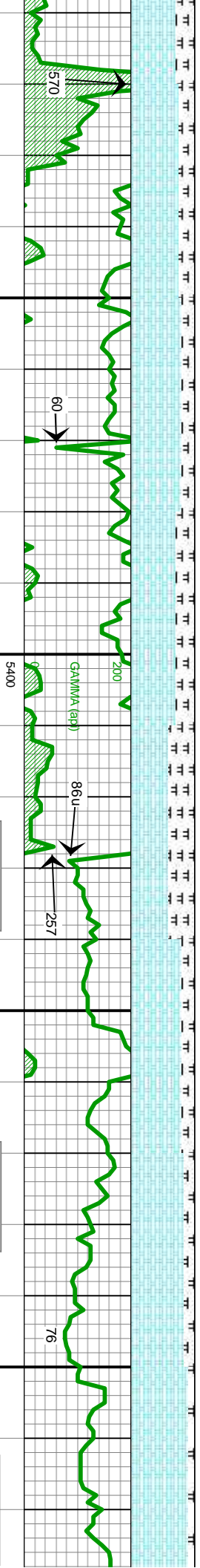
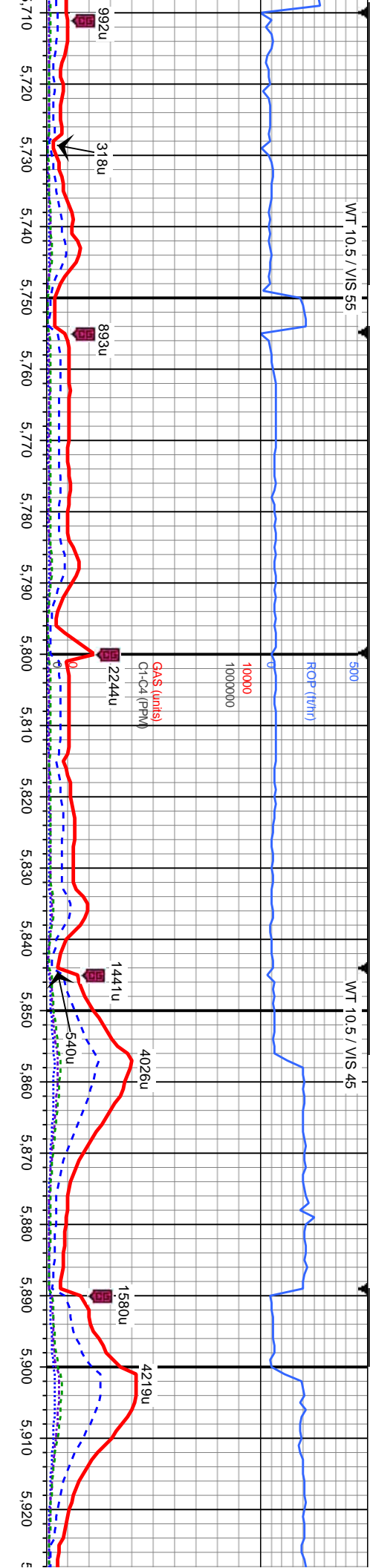
LOGGER TOP

5626' MD, 5502' TVD

CHK: lt to mgy, mod sft to sl frm, sbply to sbbkly, rthy, sl mot, v calc

MRL: m to dkgy, sbbkly to sbply, mod frm, rthy, s

mot, calc, scat bent



MD: 5,741
TVD: 5,562.85
INC: 61.7
AZM: 180.3

MD: 5,786
TVD: 5,581.78
INC: 68.5
AZM: 180.3

MD: 5,831
TVD: 5,595.12
INC: 77
AZM: 178.7

MD: 5,876
TVD: 5,603.82
INC: 80.7
AZM: 177.5

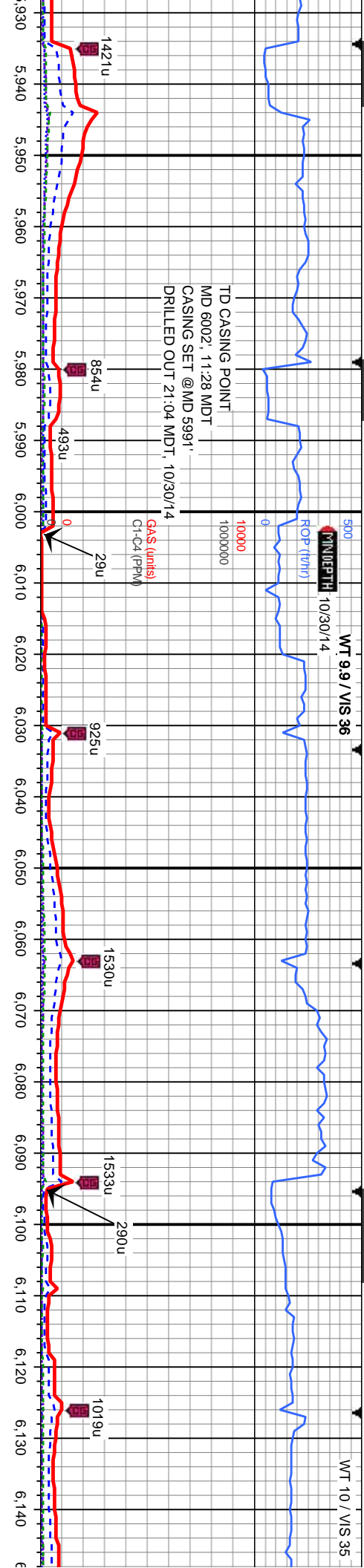
MD: 5,921
TVD: 5,610.39
INC: 82.5
AZM: 178

CHK: It to mgy, mod sft to sl frm, sbply to sbply, rhy, mot,	CHK: It to mgy, mod sft to sl frm, sbply to sbply, rhy, mot	CHK: It to mgy, mod sft to sl frm, sbply to sbply, rhy, mot	CHK: It to mgy, mod sft to sl frm, sbply to sbply, rhy, mot
stri to sl	stri, v calc	stri, v calc	stri, v calc
MRL: m to dkgy, sbply to sbply, mod frm, rhy, stri to sl	MRL: m to dkgy, sbply to sbply, mod frm, rhy, gt, stri, calc, tr fos frag, occ (5810) to tr (5840) bent	MRL: m to dkgy, sbply to sbply, mod frm, rhy, gt, stri, calc, occ fos frag, scat (5870) to tr (5900) bent	MRL: m to dkgy, sbply to sbply, mod frm, rhy, gt, stri, calc, occ (5930) to abnt (596
mod, calc, scat bent			
	5900		

WT 9.9 / VIS 36

WT 10 / VIS 35

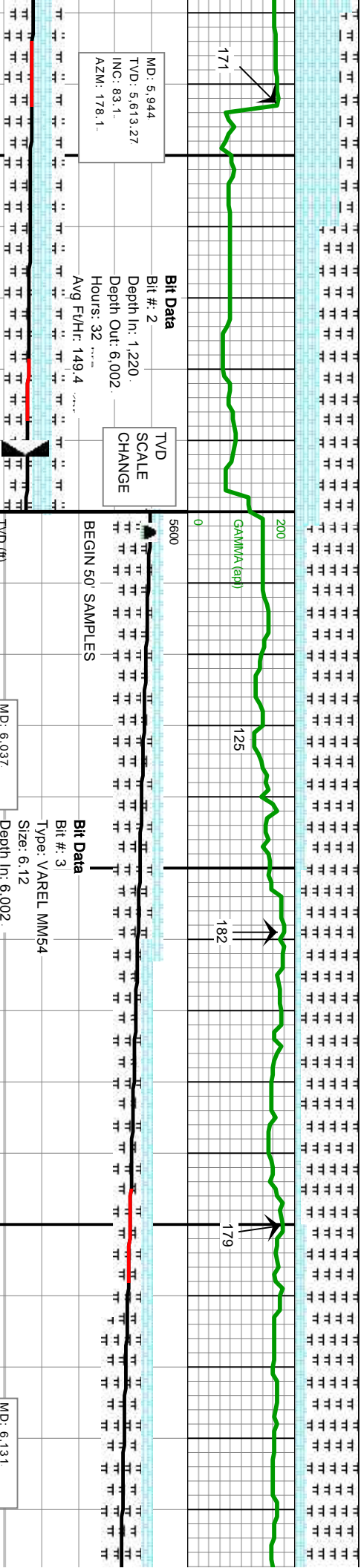
TD CASING POINT
MD 6002, 11:28 MDT
CASING SET @ MD 5991'
DRILLED OUT 21:04 MDT, 10/30/14



MD: 5.944
TVD: 5.613.27
INC: 83.1
AZM: 178.1

Bit Data
Bit #: 2
Depth In: 1,220
Depth Out: 6,002
Hours: 32
Avg Ft/Hr: 149.4

TVD
SCALE
CHANGE



MD: 6.037
TVD: 5.624.53
INC: 83
AZM: 178.3

Bit Data
Bit #: 3
Type: VAREL MM54
Size: 6.12
Depth In: 6,002
Jets: 3X13
S/N: 12564973

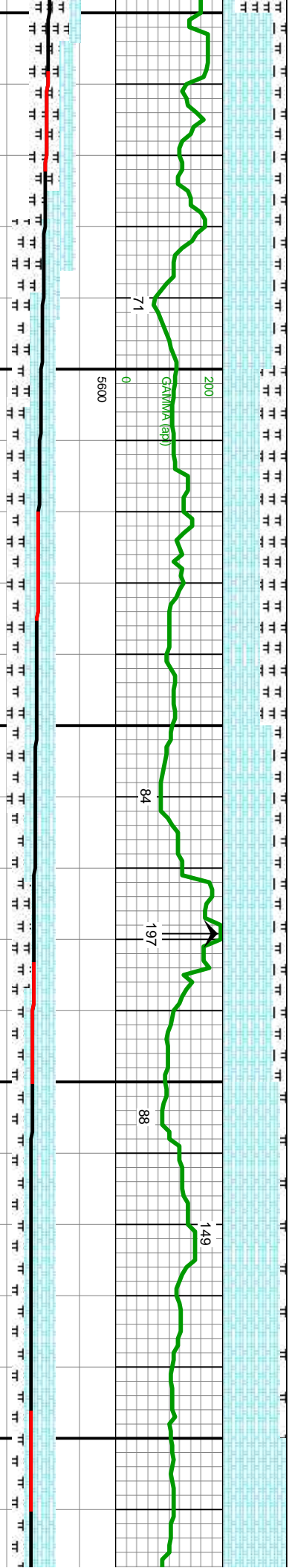
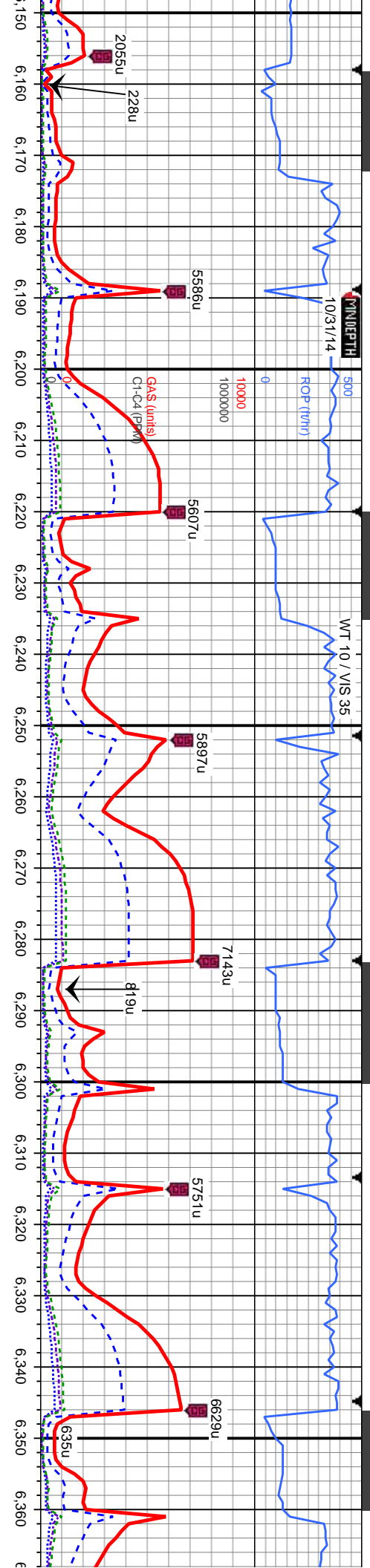
MD: 6.131
TVD: 5.634.76
INC: 84.5
AZM: 178.1

frm, supply to sbblky, rthy, rthy, gt, strl, calc, about fos frag, occ bent
CHK: It to mgy, mod sft to sl frm, sbply to sbply, rthy, mot to strl, v calc

MRL: m to dky, sbblky to sbply, mod frm, rthy, gt, strl, calc, tr bent
CHK: It to mgy, mod sft, sbply to sbply, rthy, mot to strl, v calc

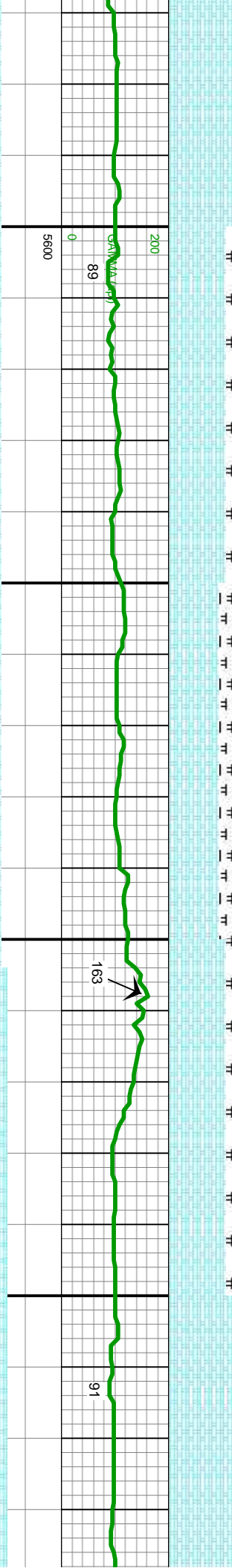
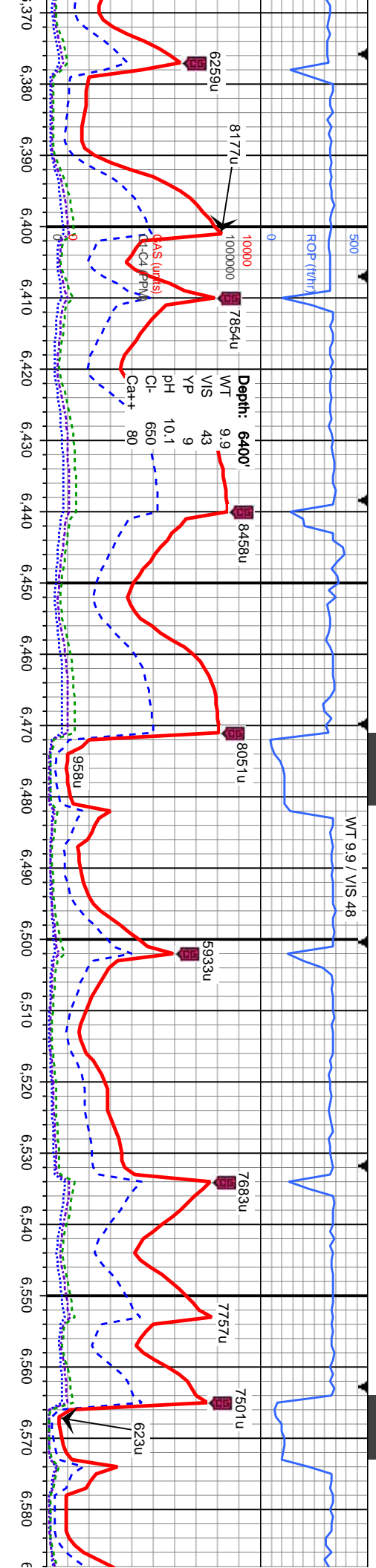
MRL: m to dky, sbblky to sbply, mod frm, rthy, gt, strl, calc
CHK: It to mgy, mod sft, sbply to sbply, rthy, mot to strl, v calc





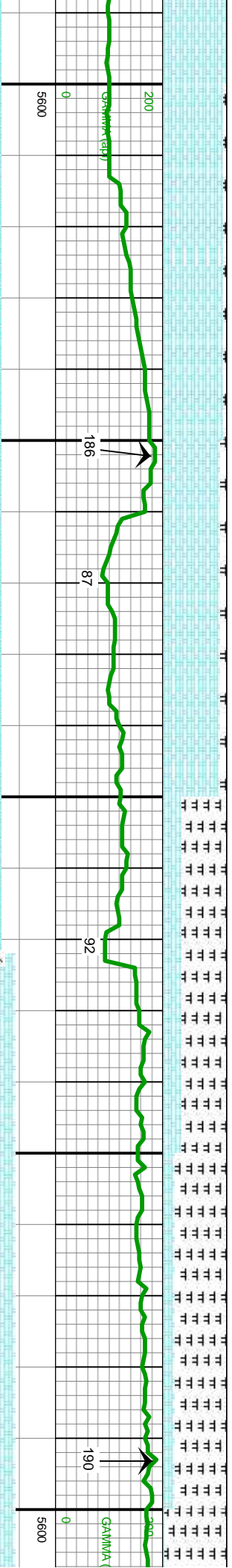
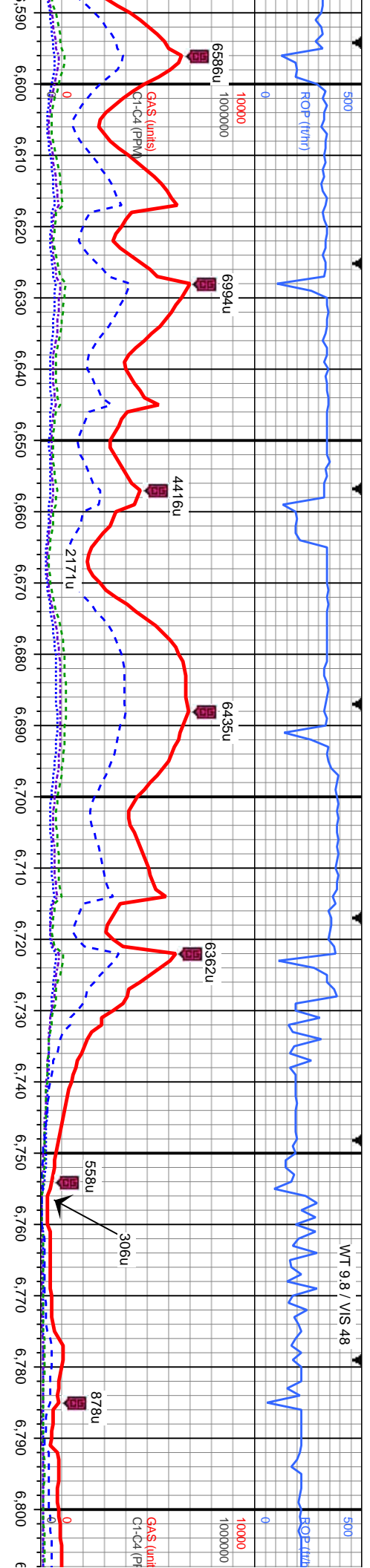
CHK: It to mgy, mod sft, sbply to sbblky, rthy, mot to strf, v calc	MD: 6.224 TVD: 5.642.14 INC: 86.4 AZM: 178.5	CHK: It to mgy, mod sft, sbply to sbblky, rthy, mot to strf, v calc	MD: 6.317 TVD: 5.646.11 INC: 88.7 AZM: 178.8	CHK: It to mgy, mod sft to sl frm, sbply to sbblky, rthy, mot to strf, v calc	MD: 6.317 TVD: 5.646.11 INC: 88.7 AZM: 178.8	CHK: It to mgy, mod sft to sl frm, sbply to sbblky, rthy, mot to strf, v calc	MD: 6.317 TVD: 5.646.11 INC: 88.7 AZM: 178.8
MRL: m to dkgy, sbblky to sbply, mod frm, rthy, gt, strf, calc	5800	MRL: m to dkgy, sbblky to sbply, mod frm, rthy, gt, strf, calc	5800	MRL: m to dkgy, sbblky to sbply, mod frm, rthy, gt, strf, calc	5800	MRL: m to dkgy, sbblky to sbply, mod frm, rthy, gt, strf, calc	5800





MD: 6.411 TVD: 5.645.87 INC: 91.6 AZM: 178.8	CHK: It to mgy, mod sft, sbply to sbply, rthy, mot to str, v calc MRL: m to dkgy, blk ip, sbply to sbply, mod frm, rthy, gt, str, calc
MD: 6.504 TVD: 5.643.19 INC: 91.7 AZM: 176.8	CHK: It to mgy, mod sft to sl frm, sbply to sbply, rthy, mot to str, v calc MRL: dkgy, blk ip, sbply to sbply, mod frm, rthy, gt, str, calc
MD: 6.504 TVD: 5.643.19 INC: 91.7 AZM: 176.8	CHK: It to mgy, mod sft to sl frm, sbply to sbply, rthy, mot to str, v calc, occ mrl





PROBABLE FAULT

6,598	TVD (ft)	MD: 6,690	TVD: 5,641.15	INC: 90.4	AZM: 175.9	6,784	TVD (ft)	MD: 6,784	TVD: 5,640.74	INC: 90.1	AZM: 175.5	6,800	TVD (ft)
5,641.63													
176.1													

CHK: It to mgy, mod sft to sl frm, sbbkly to sbbkly, rthy, mot to strl, v calc, occ mrl

CHK: It to mgy, mod sft to sl frm, sbbkly to sbbkly, rthy, mot to strl, v calc, occ mrl

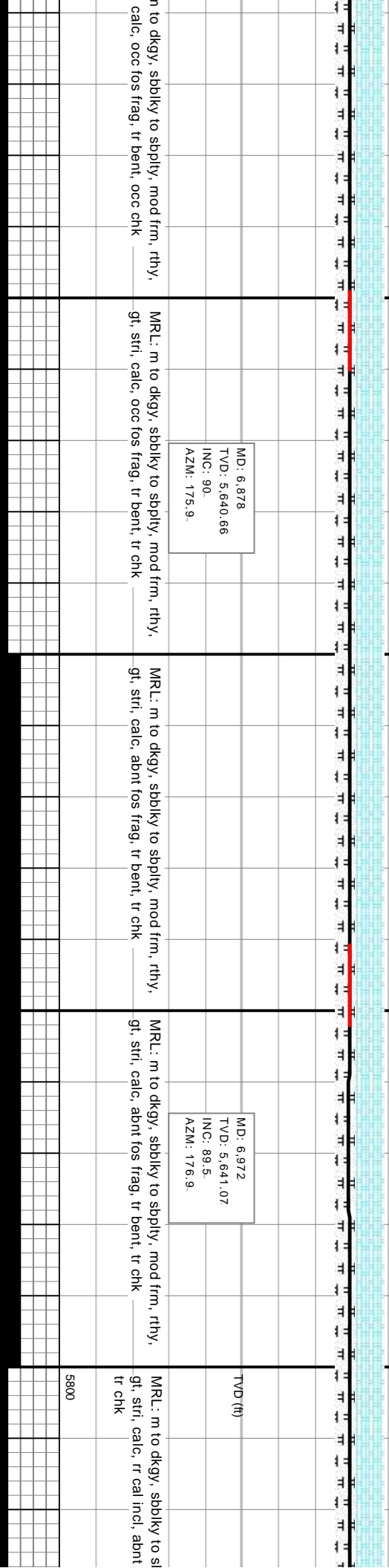
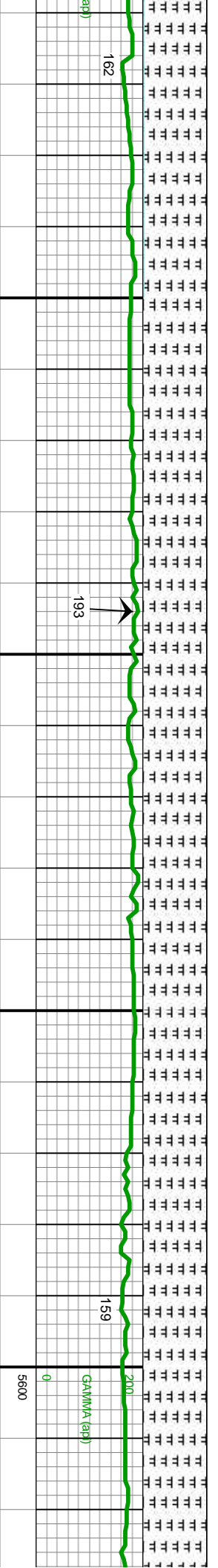
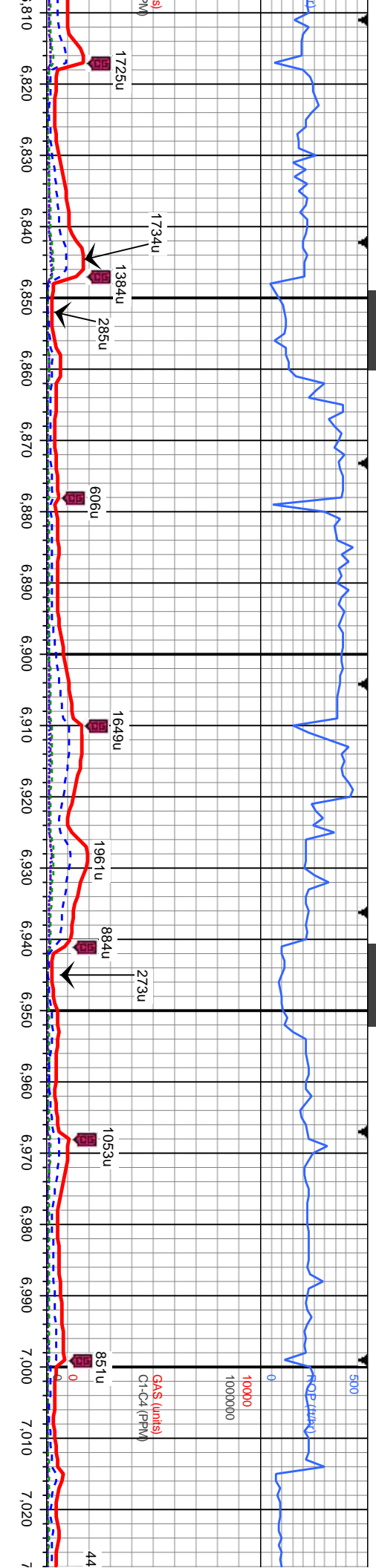
MR: m to dkg, sbbkly to sbbkly, mod frm, rthy, gt, strl, calc, tr fos frag, sl tr bent

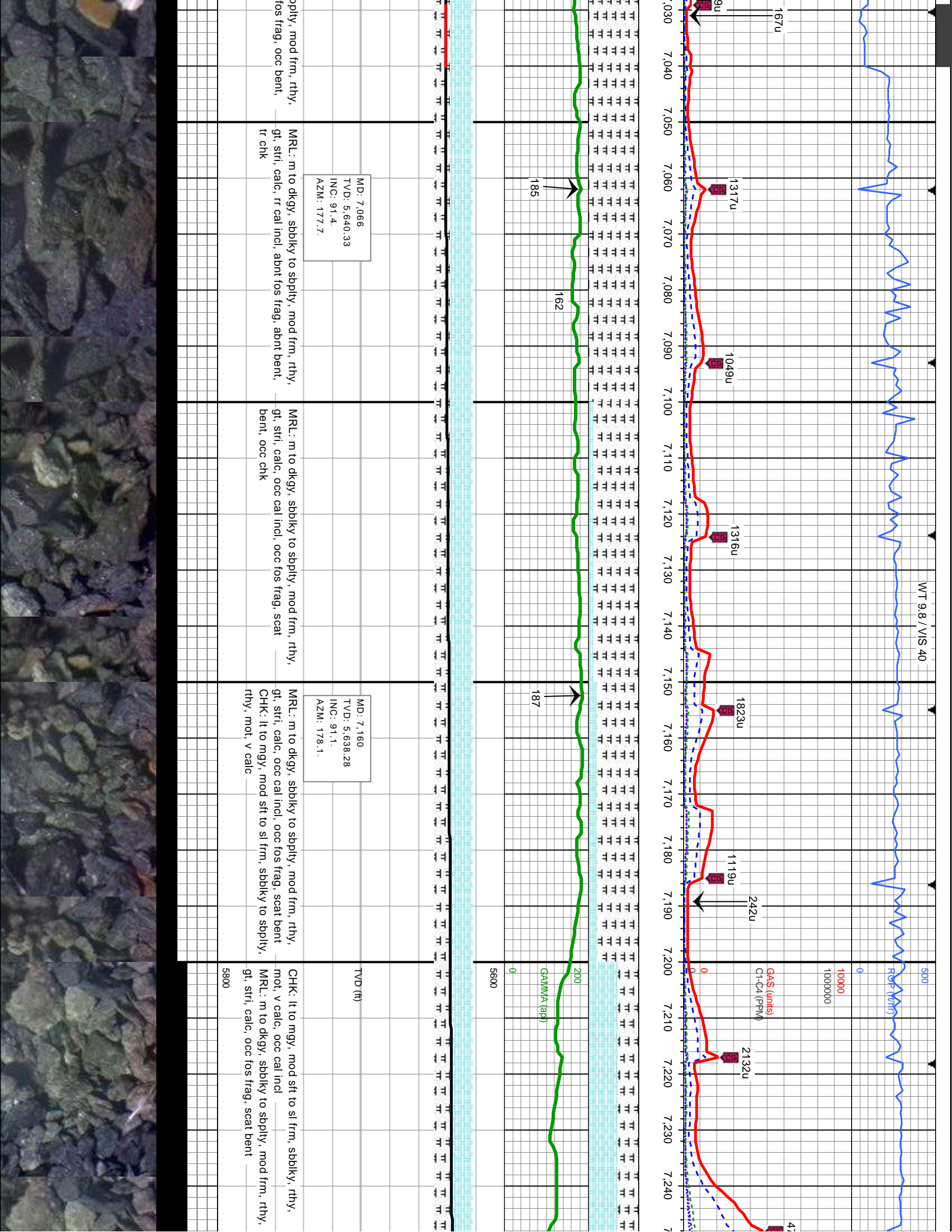
CHK: It to mgy, mod sft to sl frm, sbbkly to sbbkly, rthy, mot to strl, v calc

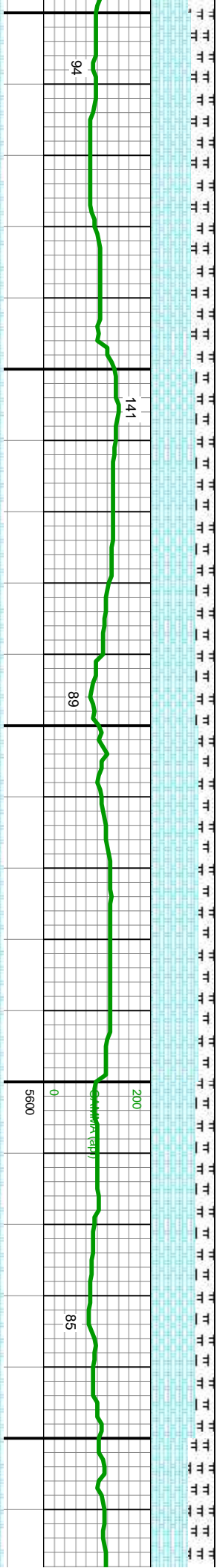
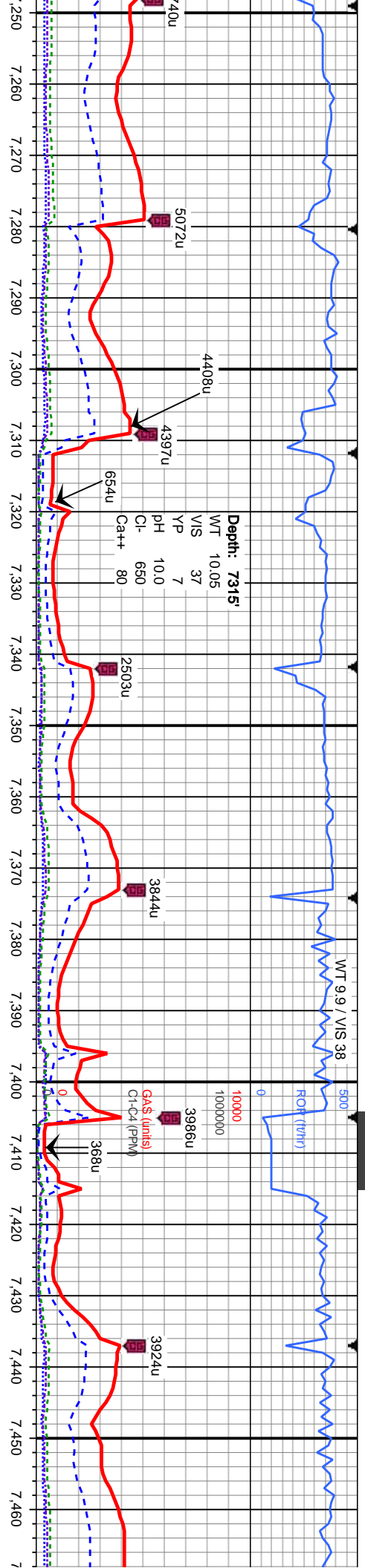
MR: m to dkg, sbbkly to sbbkly, mod frm, rthy, gt, strl, calc, occ fos frag, tr bent

CHK: It to mgy, mod sft to sl frm, sbbkly to sbbkly, rthy, mot to strl, v calc



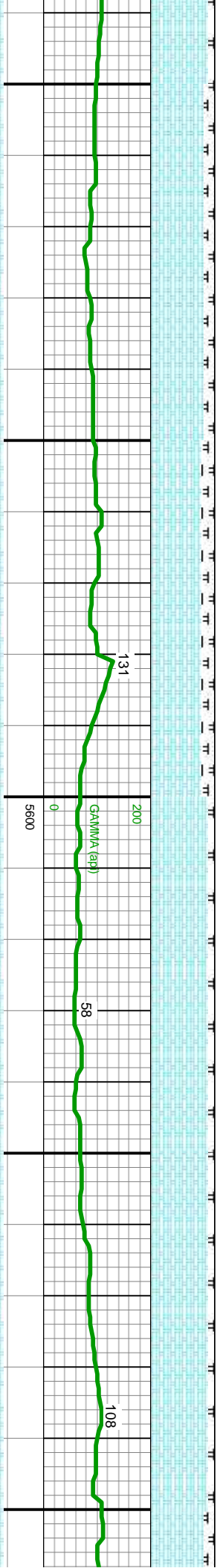
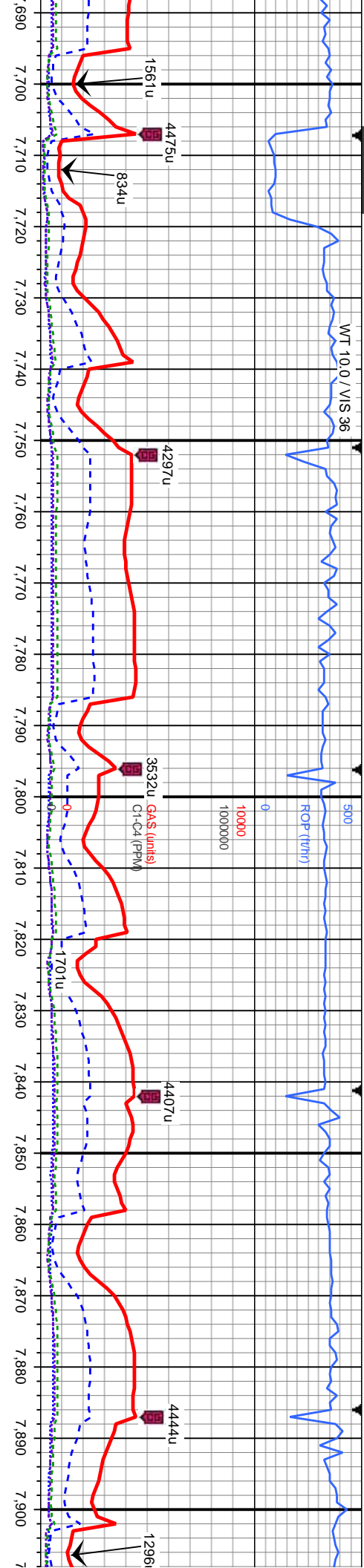




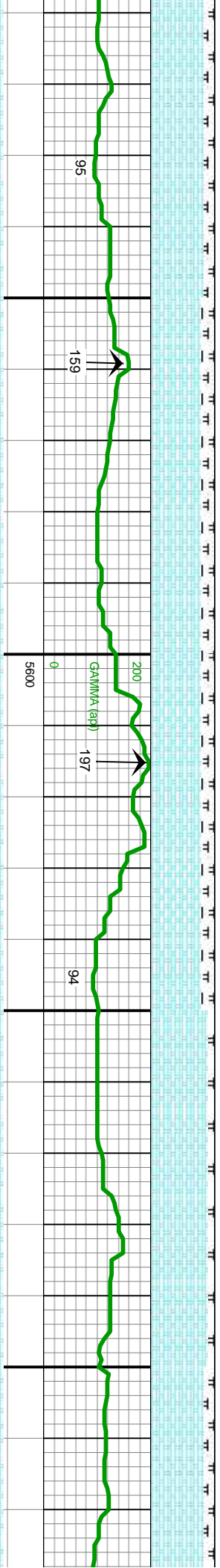
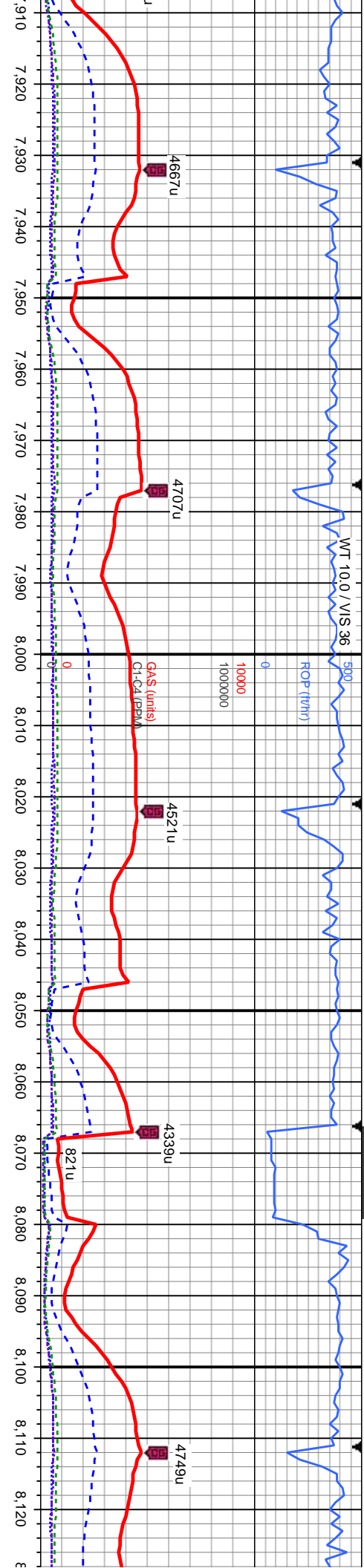


MD: 7.254 TVD: 5,636.14 INC: 91.5 AZM: 177.9	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, occ cal incl MRL: m to dkgy, sbbkly to spply, mod frm, rthy, gt, str, calc, abnt fos frag, occ bent	MD: 7.347 TVD: 5,633.79 INC: 91.4 AZM: 177.4	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, occ cal incl MRL: m to dkgy, sbbkly to spply, mod frm, rthy, gt, str, calc, rr cal incl, abnt fos frag, occ bent	MD: 7.347 TVD: 5,633.79 INC: 91.4 AZM: 177.4	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, abnt cal incl MRL: m to dkgy, sbbkly to spply, mod frm, rthy, gt, str, calc, rr cal incl, abnt fos frag, occ bent	MD: 7.347 TVD: 5,633.79 INC: 91.4 AZM: 177.4	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, abnt cal incl MRL: m to dkgy, sbbkly to spply, mod frm, rthy, gt, str, calc, rr cal incl, abnt fos frag, occ bent	MD: 7.347 TVD: 5,633.79 INC: 91.4 AZM: 177.4	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, abnt cal incl MRL: m to dkgy, sbbkly to spply, mod frm, rthy, gt, str, calc, rr cal incl, abnt fos frag, occ bent	MD: 7.347 TVD: 5,633.79 INC: 91.4 AZM: 177.4	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, abnt cal incl MRL: m to dkgy, sbbkly to spply, mod frm, rthy, gt, str, calc, rr cal incl, abnt fos frag, occ bent



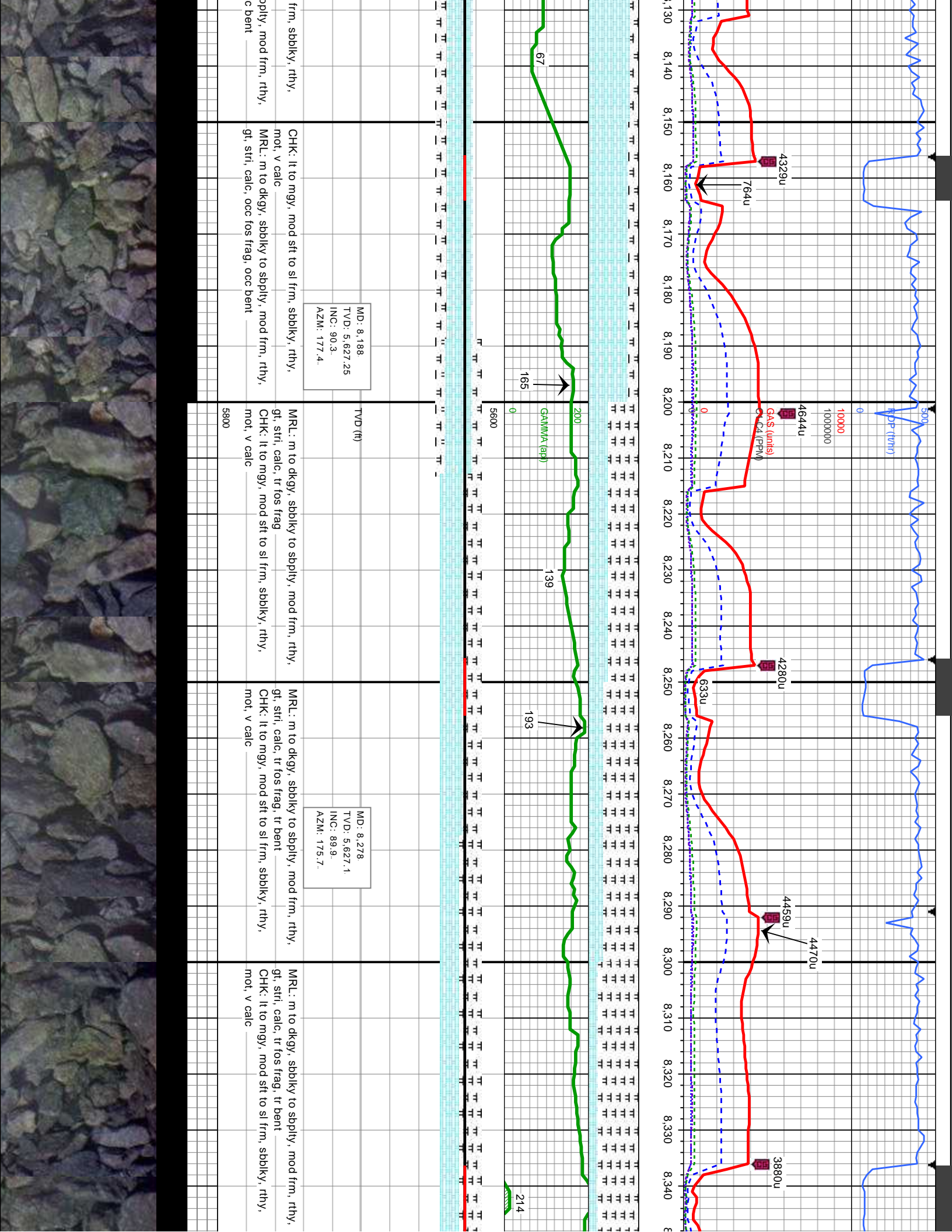


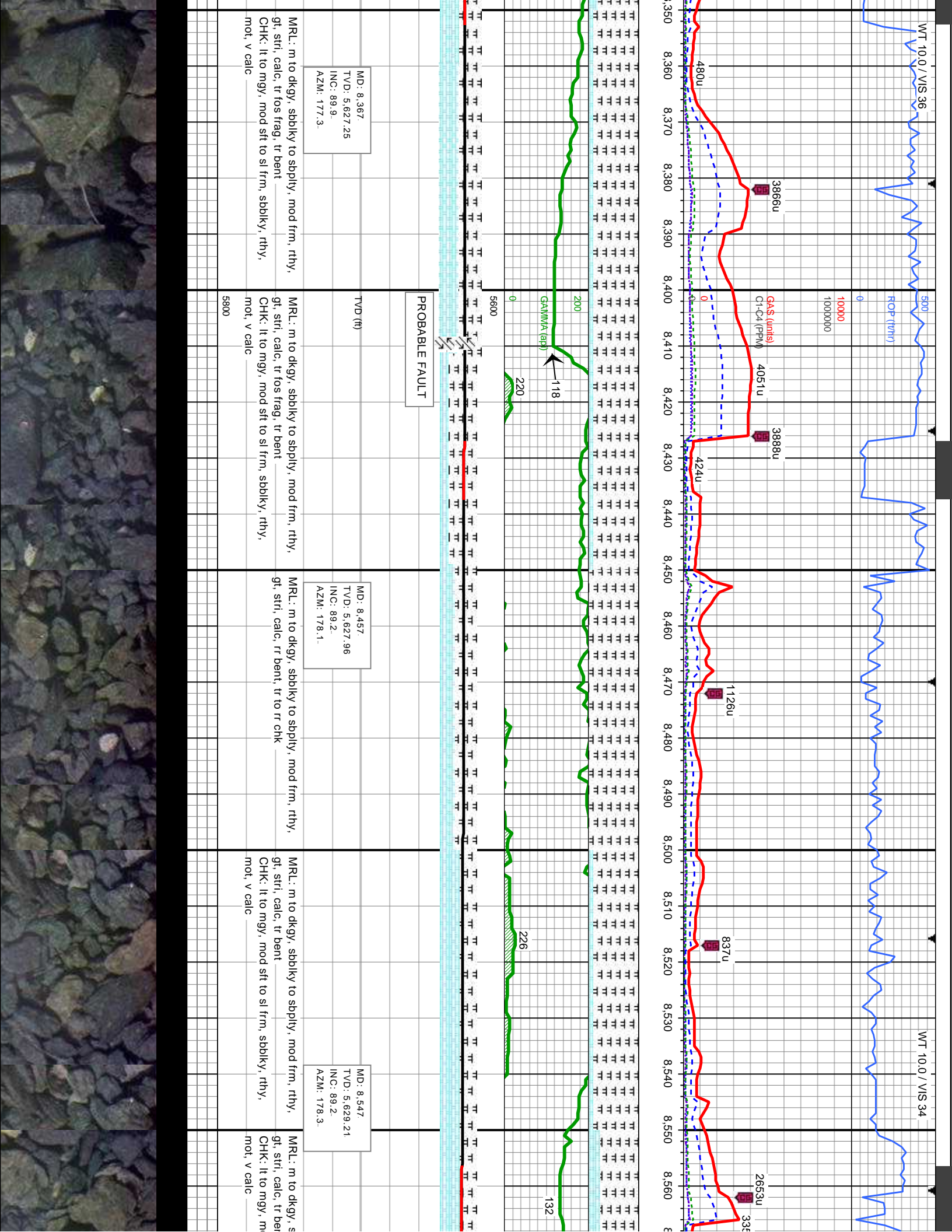
MD: 7.738 TVD: 5,632.51 INC: 90.2 AZM: 179.9	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, rr cal incl MRL: m to dkgy, sbbkly to spply, mod frm, rthy, gt, strl, calc, rr cal incl, abnt fos frag, tr bent	MD: 7.828 TVD: 5,631.96 INC: 90.5 AZM: 179.8	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, occ cal incl, abnt fos frag, tr bent, occ mrl	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, occ cal incl, abnt fos frag, tr bent, occ mrl	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, -mot. v calc, occ cal incl, abnt fos frag, tr bent, occ mrl
---	---	---	--	--	--

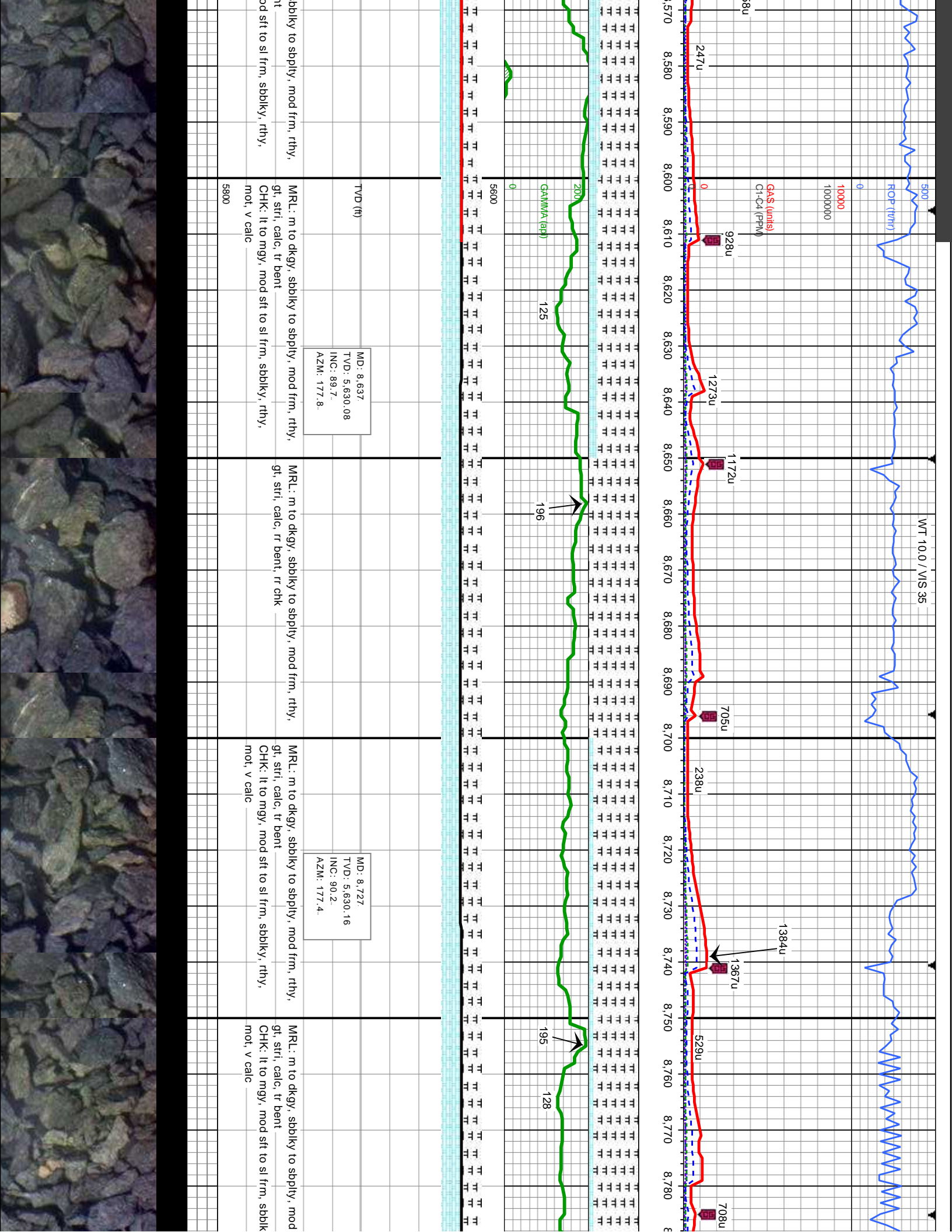


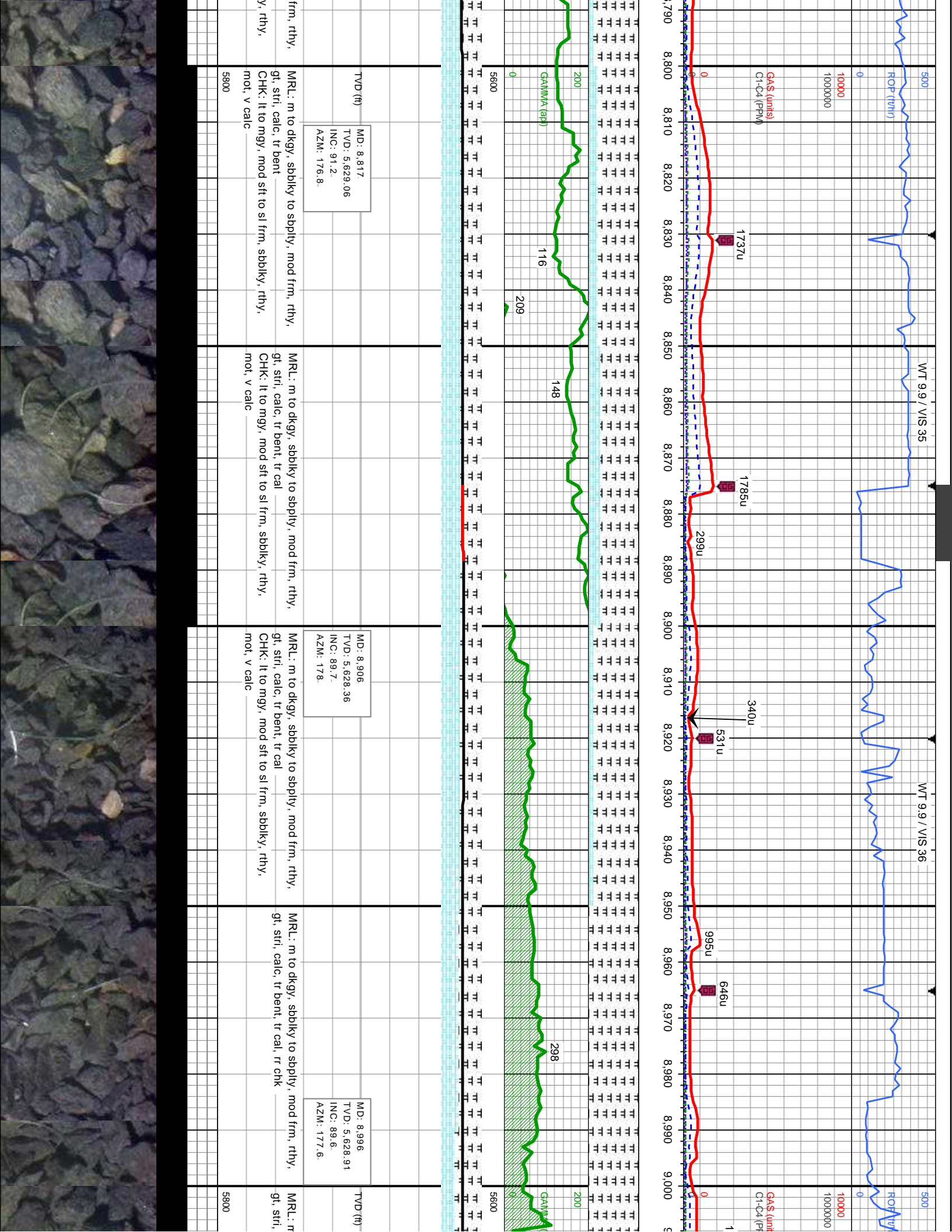
MD: 7.918 TVD: 5.631.02 INC: 90.7 AZM: 179.8	to mgy, mod sft to sl frm, sbbkly, rthy, calc, occ cal incl to dgy, sbbkly to spply, mod frm, rthy, calc, abnt fos frag, occ bent	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, mot. v calc, occ cal incl MRL: m to dgy, sbbkly to spply, mod frm, rthy, gt, sti, calc, abnt fos frag, scat bent	TVD (ft) MD: 8.008 TVD: 5.629.29 INC: 91.5 AZM: 179.3	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, mot. v calc MRL: m to dgy, sbbkly to spply, mod frm, rthy, gt, sti, calc, occ fos frag, occ bent	MD: 8.098 TVD: 5.627.8 INC: 90.4 AZM: 177.9	CHK: It to mgy, mod sft to sl frm, sbbkly, rthy, mot. v calc MRL: m to dgy, sbbkly to spply, mod frm, rthy, gt, sti, calc, occ fos frag, occ

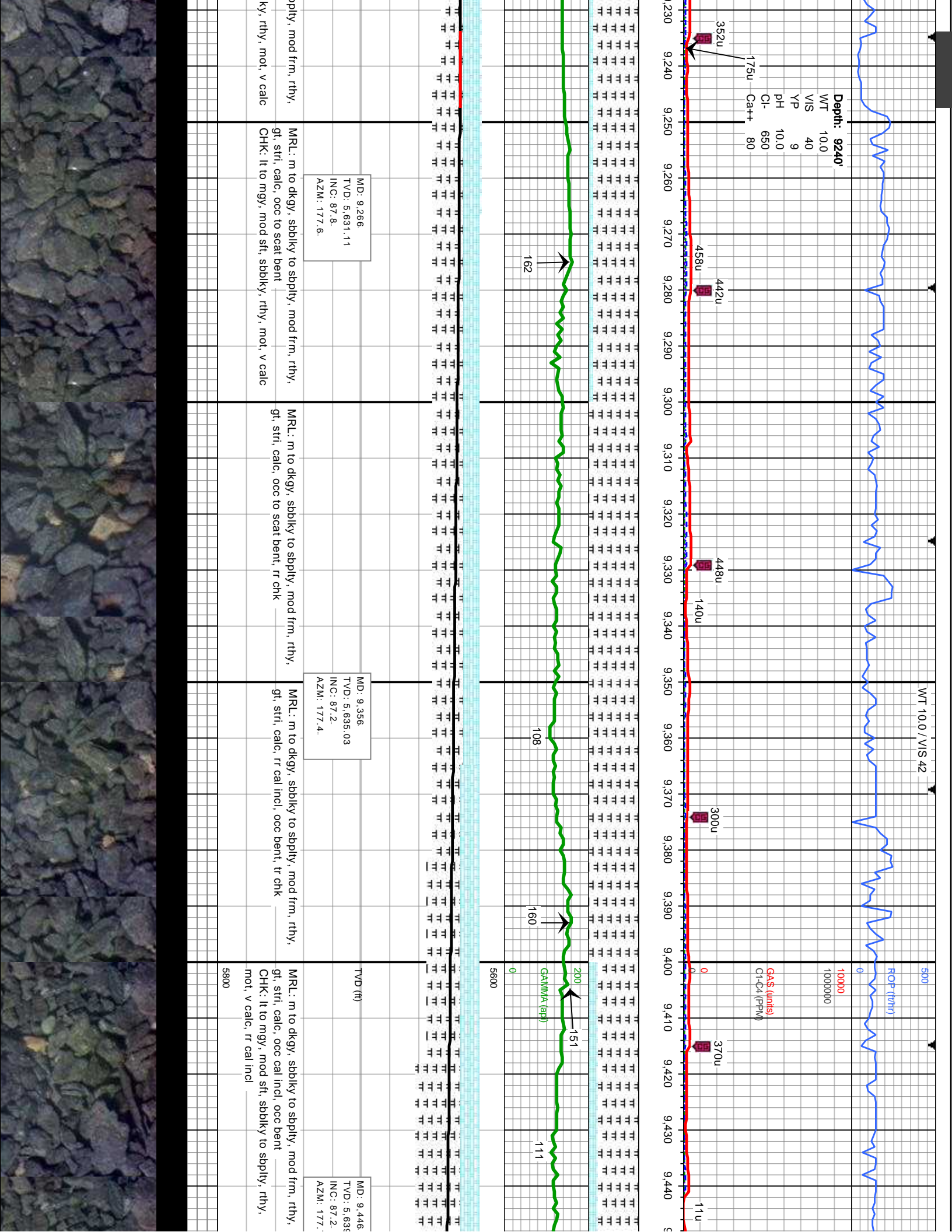


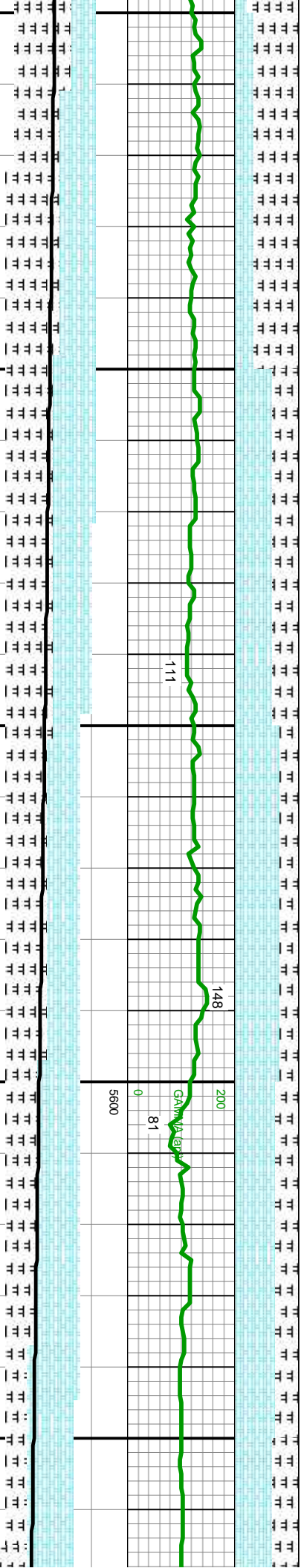
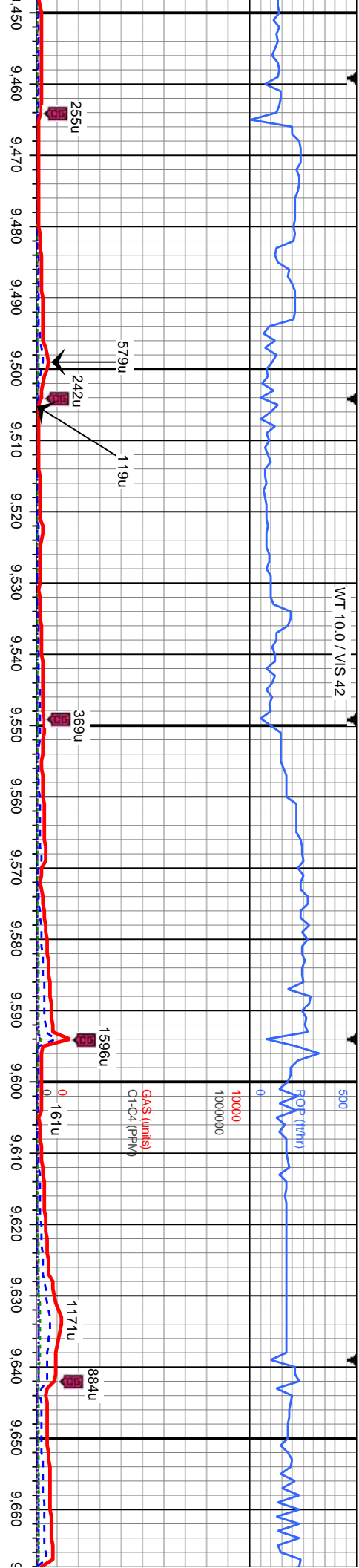






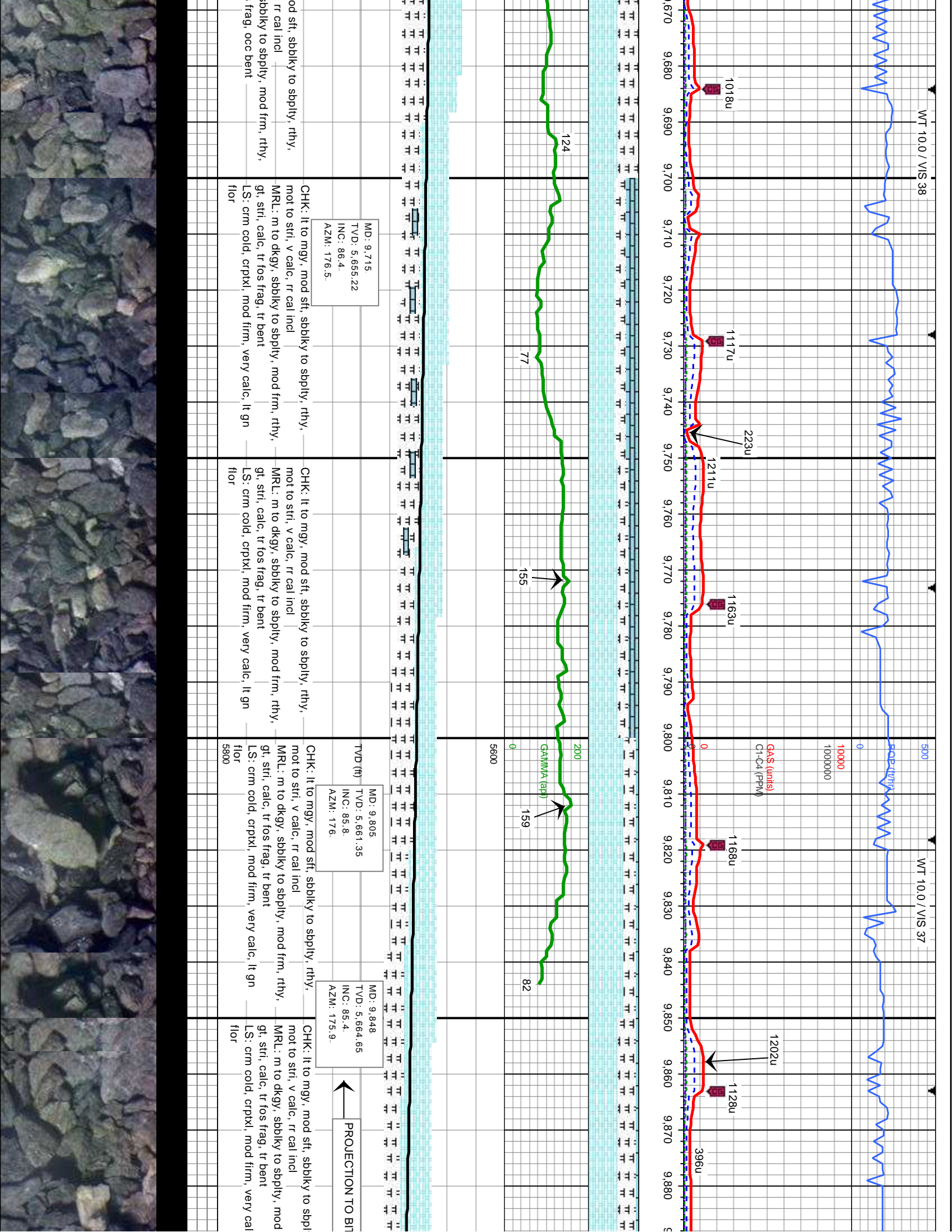




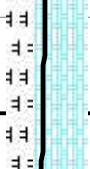
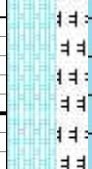
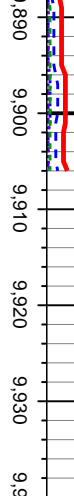


MD: 9.536' TVD: 5,644.22' INC: 86.7° AZM: 177°		CHK: It to mgy, mod sft, sbbiky to sbbly, rthy, mot to stfi, v calc, rr cal incl	CHK: It to mgy, mod sft, sbbiky to sbbly, rthy, mot to stfi, v calc, rr cal incl
MD: 9.625' TVD: 5,649.57' INC: 86.4° AZM: 177.4°		CHK: It to mgy, mod sft, sbbiky to sbbly, rthy, mot to stfi, v calc, rr cal incl	CHK: It to mgy, mod sft, sbbiky to sbbly, rthy, mot to stfi, v calc, rr cal incl





THANK YOU FOR CHOOSING
COLUMBINE LOGGING, INC.



TD @ MD 9906'
08:52 MDT, 11/1/14

MD: 9,906
TV D: 5,669.3
INC: 85.4
AZM: 175.9

Bit Data

Bit #: 3
Depth In: 6,002.
Depth Out: 9,906
Hours: 24
Avg Ft/Hr: 162.7

g, it gn
frm, rthy,
y, rthy,

