



Scale: 5" / 100'
Measured Depth Log

Well Name MATRIX N-29HC

Location SEC. 29-T6N-R65W

State COLORADO

County WELD

Country USA

Rig Number FRONTIER 8

API Number 0512340794

Field GREELEY

Region DJ BASIN

Drilling Completed 2/28/2015

Spud Date 12/30/2014

Surface Coordinates 537' FSL 2237' FWL

Bottom Hole Coordinates 470' FNL 1632' FEL

Ground Elevation 4708'

K.B. Elevation 4730.5'

Logged Interval 6000' To 11777'

Total Depth 11777'

Formation CODELL

Type of Drilling Fluid FWLSND

Operator

Company Bayswater Exploration and Production LLC.

Address 730 17th Street, Suite 610
Denver, CO 80202

Geologist

Name ROBERT DAVIS, LISA KANT

Company COLUMBINE LOGGING, INC.

Address 602 S. LIPAN ST.
DENVER, CO 80223

Zone Color Coding



Rock Types



Accessories

Fossils

	GASTROPOD
	INOCERAMUS
	OOOLITE
	AMPHIPORA
	OSTRACOD
	BELEMNITE
	BIOCLASTIC
	BRACHIOPOD
	BRYOZOA
	CEPHALOPOD
	CORAL
	CRINOID
	ECHINOID
	FISH
	FORAMINIFERA
	F FOSSIL

Minerals

	ARGILLITE GRAIN
	B BENTONITE
	H HEAVY MINERAL
	K KAOLIN
	M MARCASITE
	BRECCIA FRAGMENTS
	C CALCAREOUS
	CARBONACEOUS FLAKES
	CHERT
	CHTLT
	COAL - THIN BEDS
	D DOLOMITIC
	F FELDSPAR
	FERRUGINOUS PELLET
	F FERRUGINOUS
	G GLAUCONITE
	G GYPSIFEROUS
	S SILICEOUS
	S SILTY
	T TUFFACEOUS

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

Other Symbols

Oil Show

	P PINPOINT
	V VUGGY
	D DEAD
	E EVEN
	Q QUESTIONABLE
	BIT
	SPOTTED STAINING
	CONNECTION (UP)

Engineering

	DST INTERVAL
	FAULT
	FORMATION TOP
	GAS SHOW
	OIL SHOW
	MN DEPTH UP

	WIRELINE TESTED - LEFT
	WIRELINE TESTED - RT
	DRILL STEM TEST
	MN DEPTH
	G GRAINSTONE
	L LITHOGRAPHIC
	MX MICROXLN
	M MUDSTONE

Rounding

	A ANGULAR
--	-----------

	P PACKSTONE
--	-------------

Porosity

	CONNECTION GAS
	CONNECTION GAS (LEFT)
	TRIP GAS
	TRIP GAS (LEFT)

	NORMAL FAULT
	OVERTURED STRATA
	REVERSE FAULT
	CASING

	S SUBANG
	S SUBSAND
	W WACKESTONE

Sorting

	F FRACTURE
--	------------

	DOWN TIME GAS
--	---------------

	M MODERATE
--	------------

	INTERCRYSTALLINE
--	------------------

	DOWN TIME GAS (LEFT)
--	----------------------

	SIDEWALL CORE (LEFT)
--	----------------------

	P POOR
--	--------

	INTEROOLITIC
--	--------------

	CORE - LOST
--	-------------

	SIDEWALL CORE (RIGHT)
--	-----------------------

	W WELL
--	--------

	MOLDIC
--	--------

	SLIDE
--	-------

	B BOUNDSTONE
--	--------------

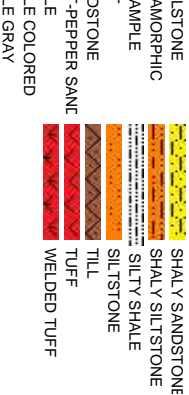
	C CHALKY
--	----------

	ORGANIC
--	---------

	CORE - RECOVERED
--	------------------

	SURVEY
--	--------

	C CRYPTOXLN
--	-------------



Slide/Rotate

ROP
ROP

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

COLUMBINE LOGGING RIGGED
UP ON 1/26/2015 MANNED
2-PERSON LOGGING WITH
BLOODHOUND GAS
CHROMATOGRAPH #0298

Depth Labels

Curves

GAMMA

% Lith

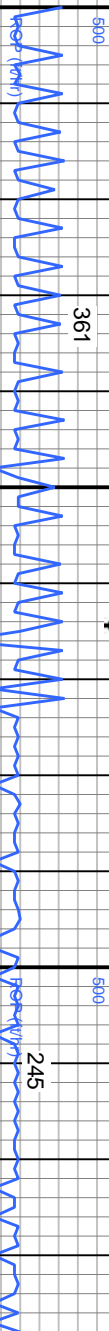
Well Bore
TVD

BEGIN LOGGING F/ 6000' MD
@ 06:39 HRS ON 1/26/2015

Oil Show

E
G
M
F
T
S

Images

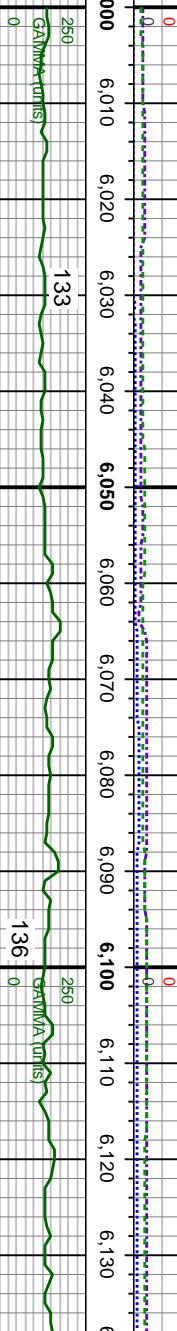


MUD WT 9.9/ MUD VIS 44

GAS (units)
C1-C4 (PPM)

1566u
C1: 73.5%
C2: 11.7%
C3: 11.5%
C4: 3.3% (units)
C1-C4 (PPM)

1224u



5600

5600

MD: 6,016'
TVD: 5,861.87'
Inclination: 15.2°
Azimuth: 118.6°
VS: -199.04'

MD: 6,112'
TVD: 5,954.9'
Inclination: 13.4°
Azimuth: 116.6°
VS: -202.76'

TVD (ft)

TVD (ft)

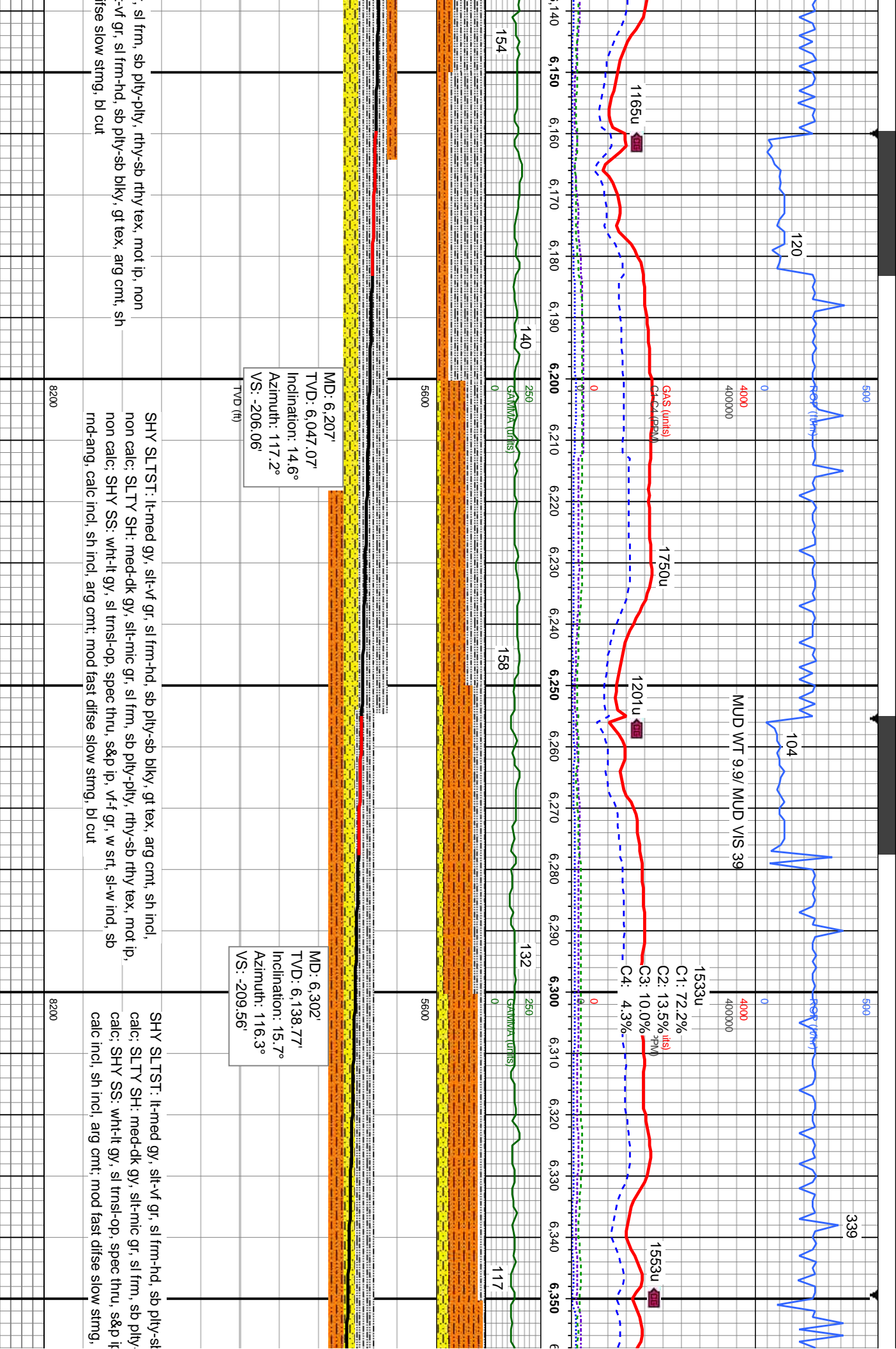
SHY SLTST: lt-med gy, silt-vf gr, sl frm-hd, sb pily-sb blk, gt tex, arg cmt, sh
incl, non calc; SLTY SH: med-dk gy, silt-mic gr, sl frm, sb pily-pily, rthy-sb rthy
tex, mot ip, non calc; mod fast difse slow string, bi cut

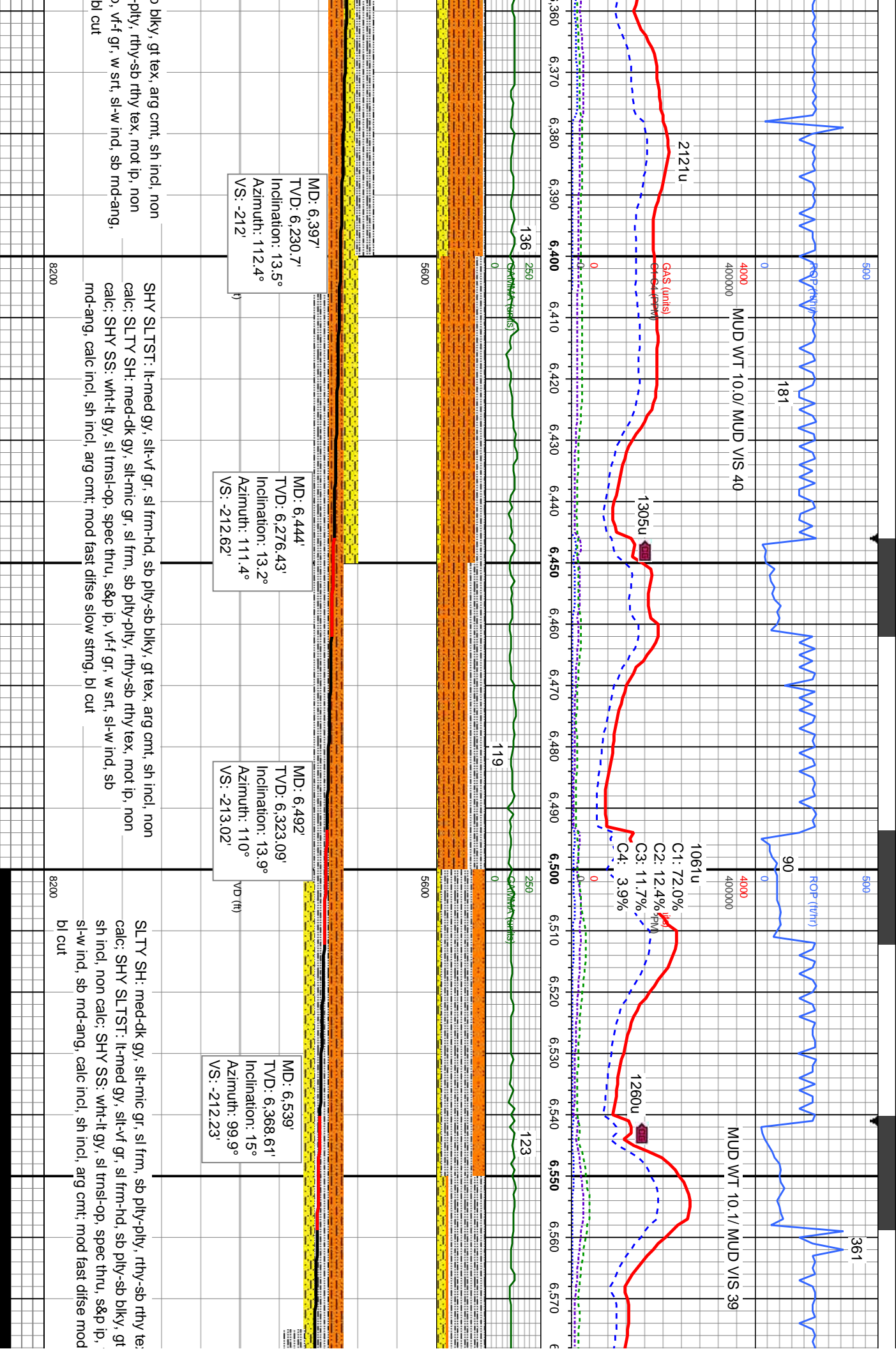
SLTY SH: med-dk gy, silt-mic gr
calc; SHY SLTST: lt-med gy, silt
incl, non calc, rr SS; mod fast d

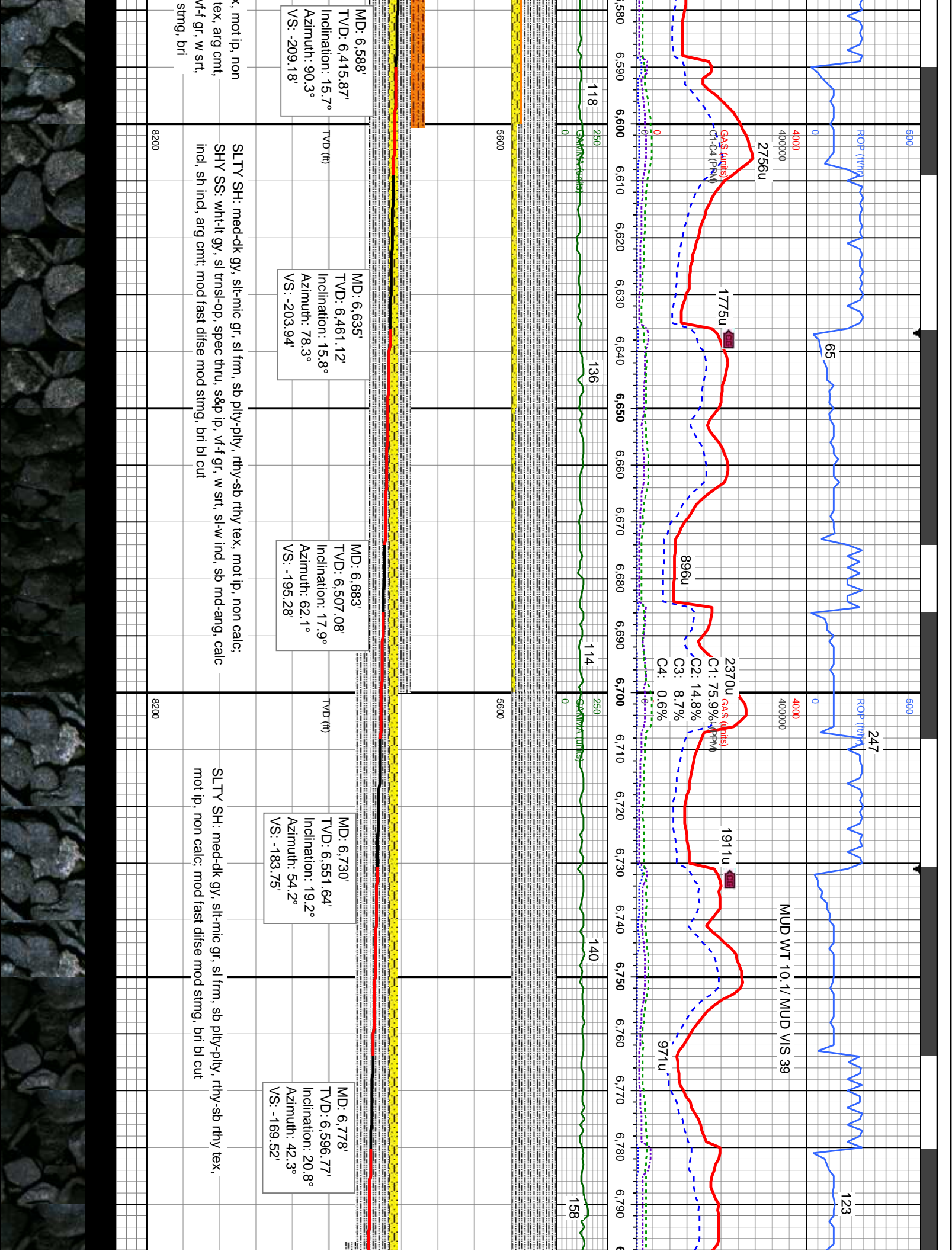
8200

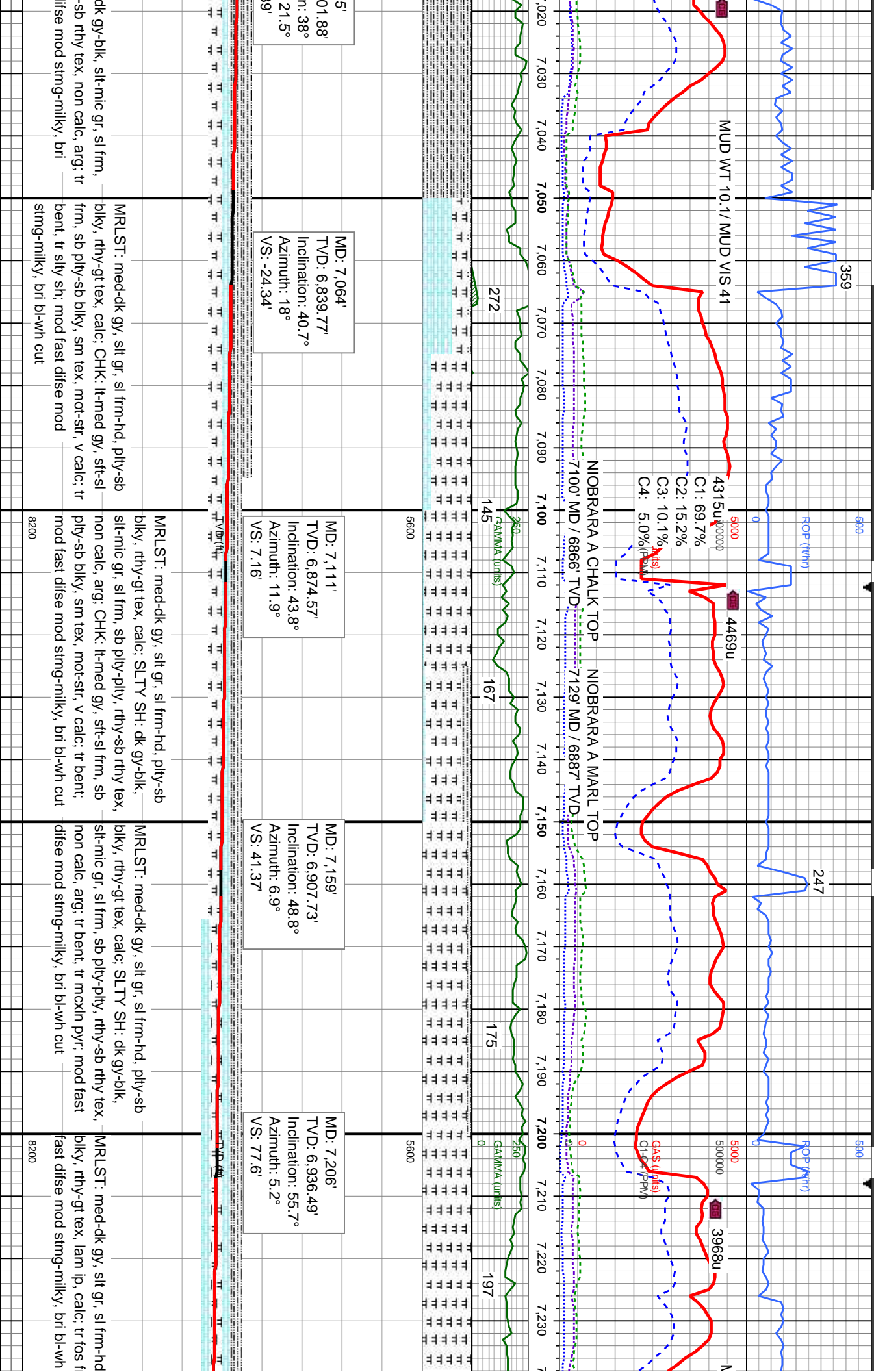
8200

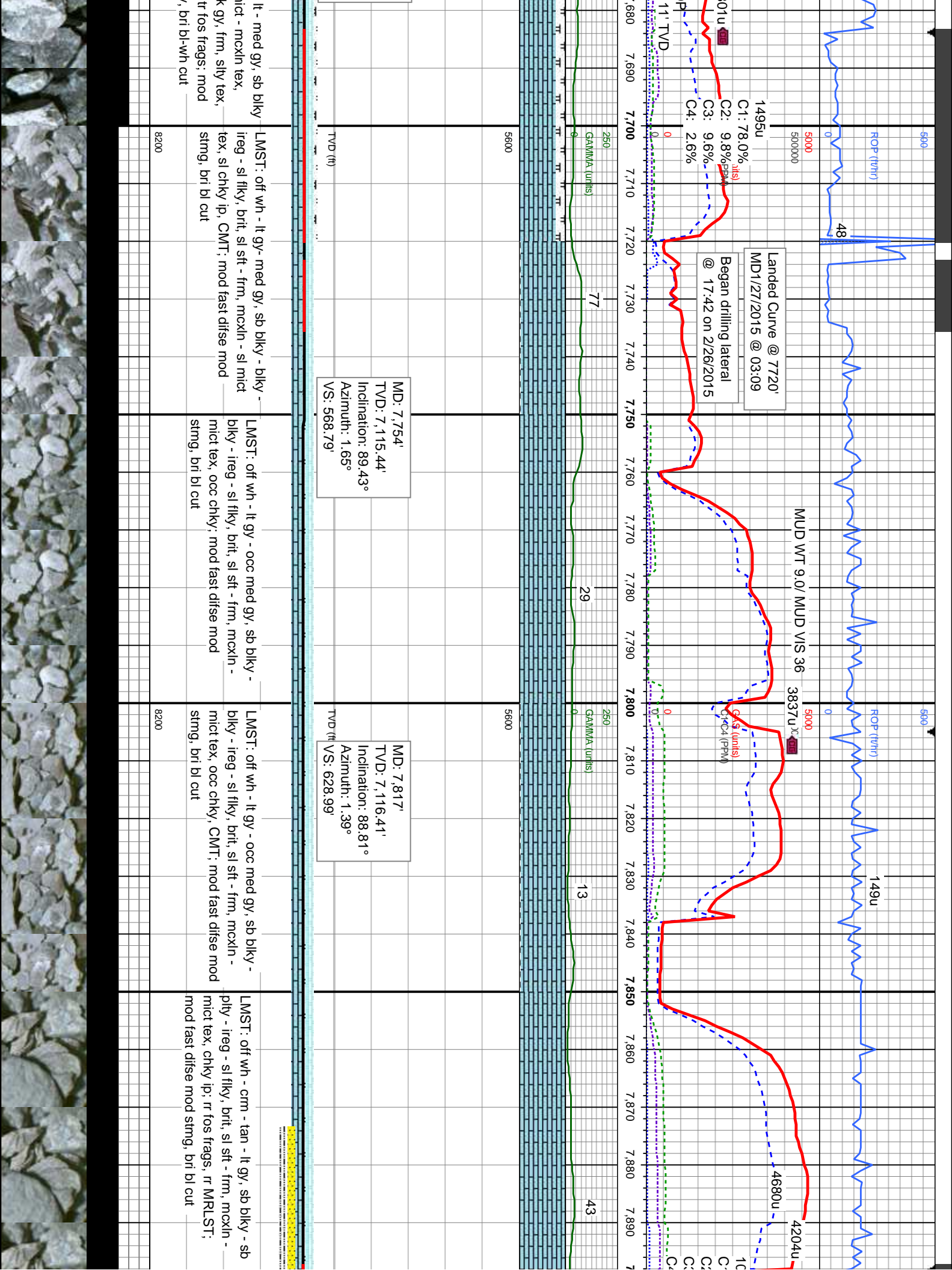


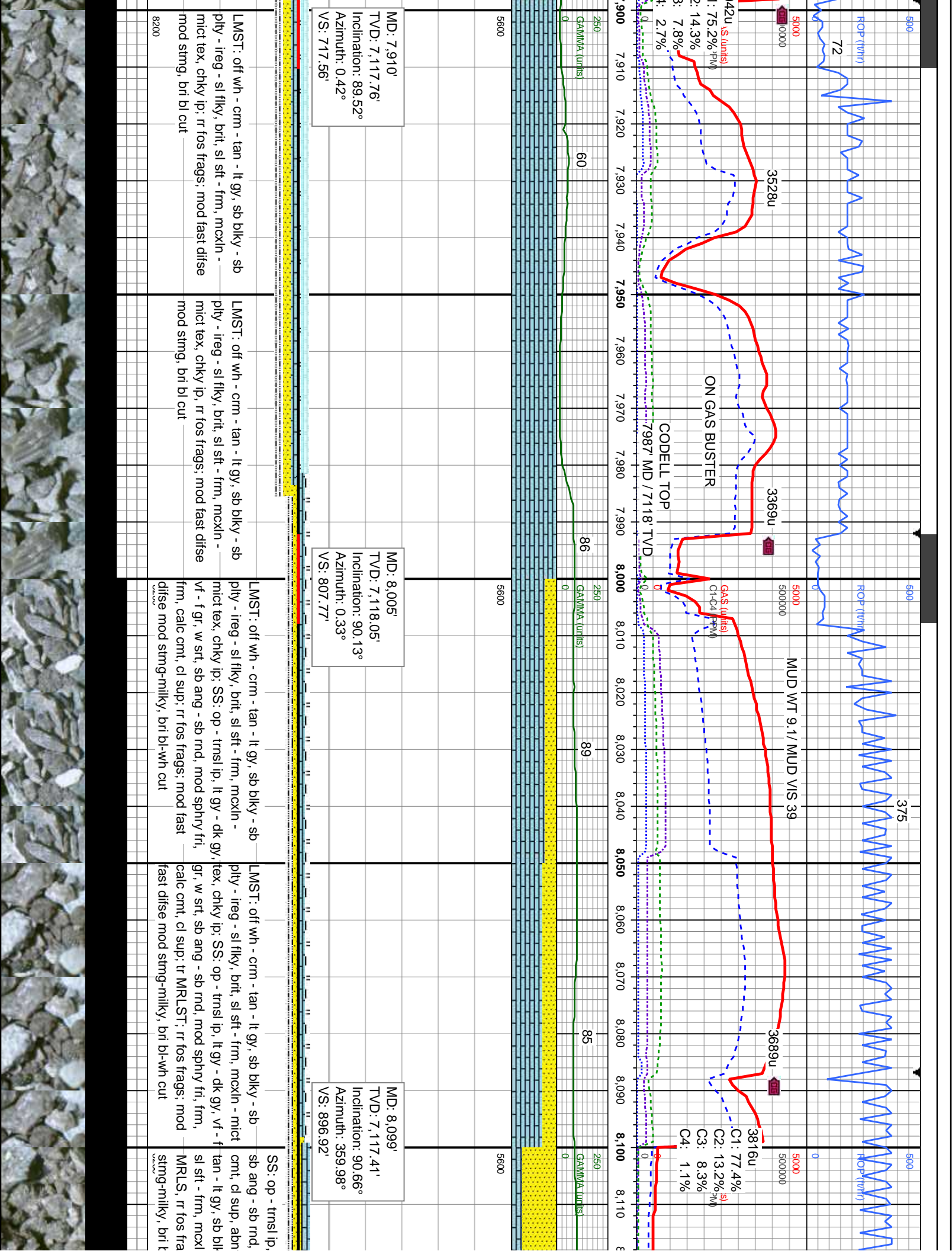












2/27/2015

500

500

244

4353u

RO (ft)

RO (ft)

237

222

MUD WT 9.1 / MUD VIS 40

4098u

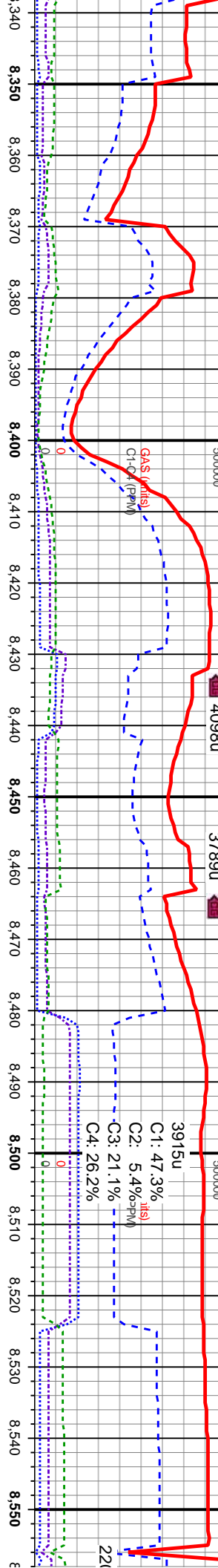
3789u

3915u

4353u

C1: 47.3%
C2: 5.4%
C3: 21.1%
C4: 26.2%

222



143

250

106

112

250

107

222

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rmd, mod sphry fri, frm, calc cnt, cl sup, abnt qtz, tr SLTY SH, tr LMST; mod fast difse fast stmng-milky, bri bl-wh cut

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rmd, mod sphry fri, frm, calc cnt, cl sup, abnt qtz; SLTY SH: dk gy - blk, slt - mic gr, ply, brit, sl frm, arg - sb rthy tex, non calc, tr LMST; mod fast difse fast stmng-milky, bri bl-wh cut

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rmd, mod sphry fri, frm, calc cnt, cl sup, abnt qtz, tr SLTY SH, tr LMST; mod fast difse fast stmng-milky, bri bl-wh cut

TVD (ft)

TVD (ft)

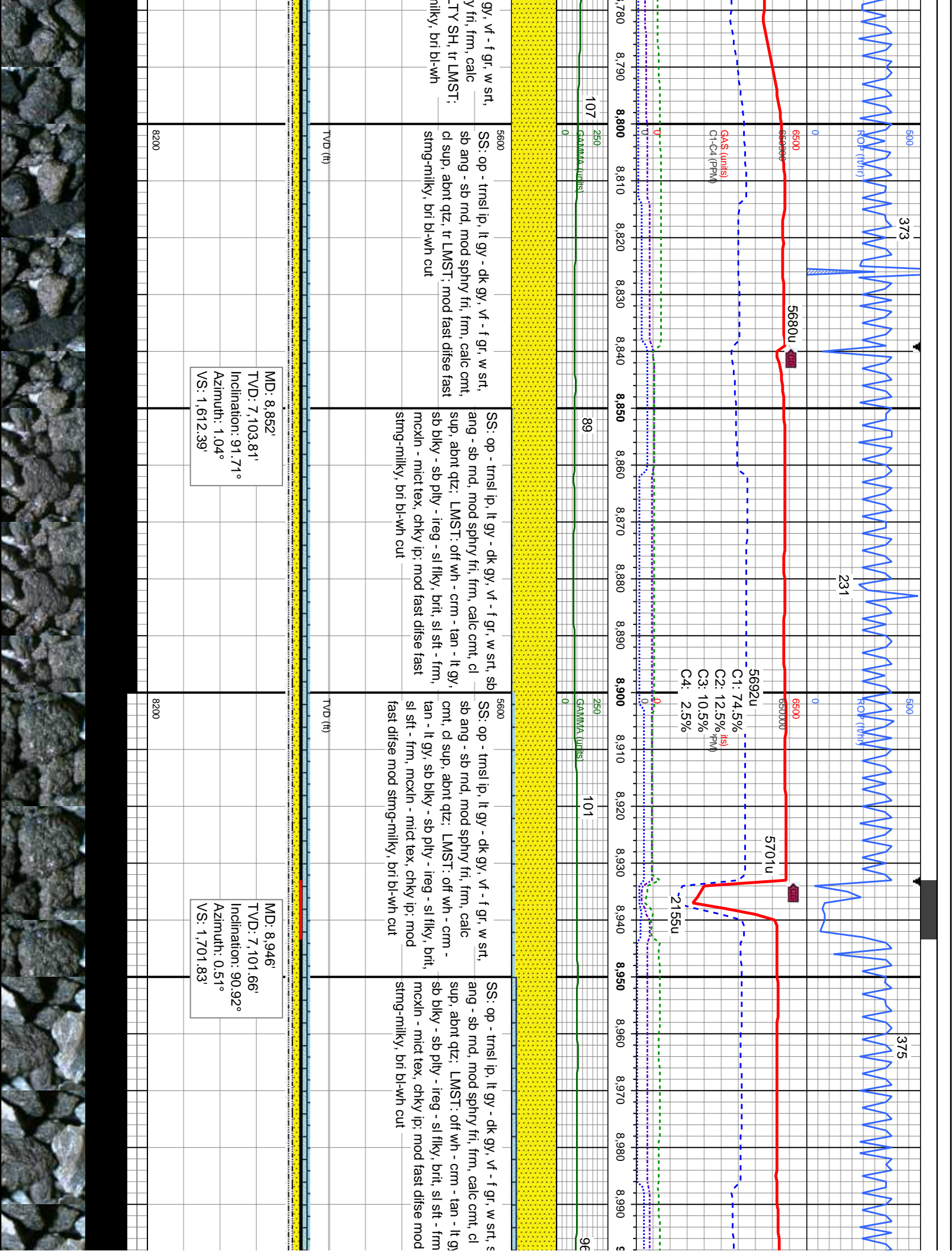
MD: 8,381'
TVD: 7,111.77'
Inclination: 90.75°
Azimuth: 1.04°
VS: 1,164.32'

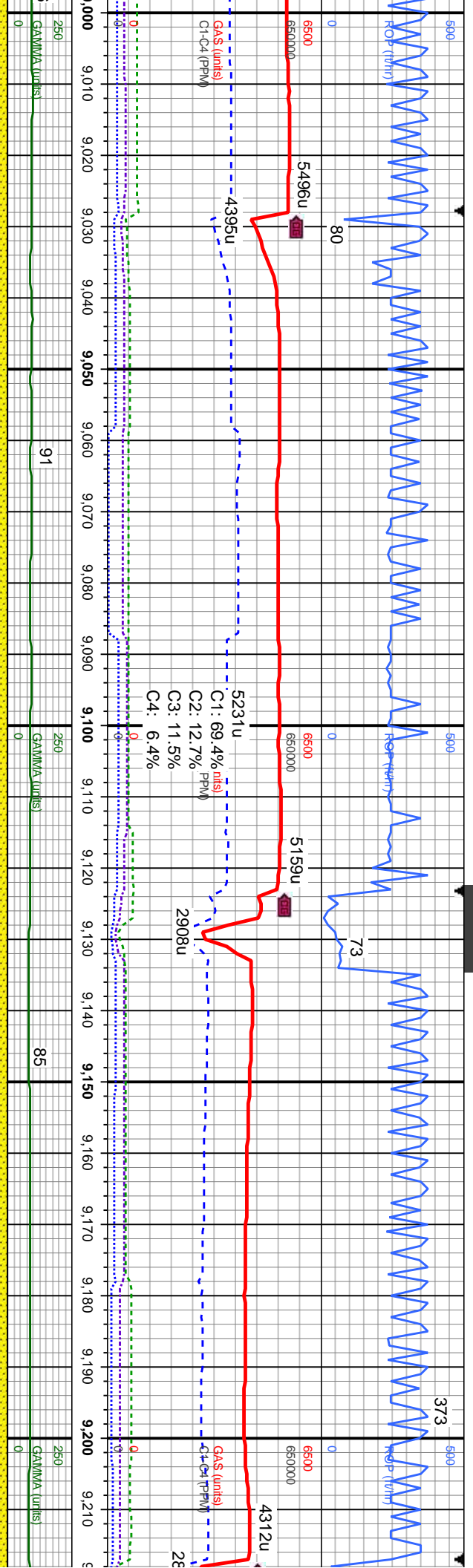
MD: 8,475'
TVD: 7,110.76'
Inclination: 90.48°
Azimuth: 0.86°
VS: 1,253.87'

8200

8200



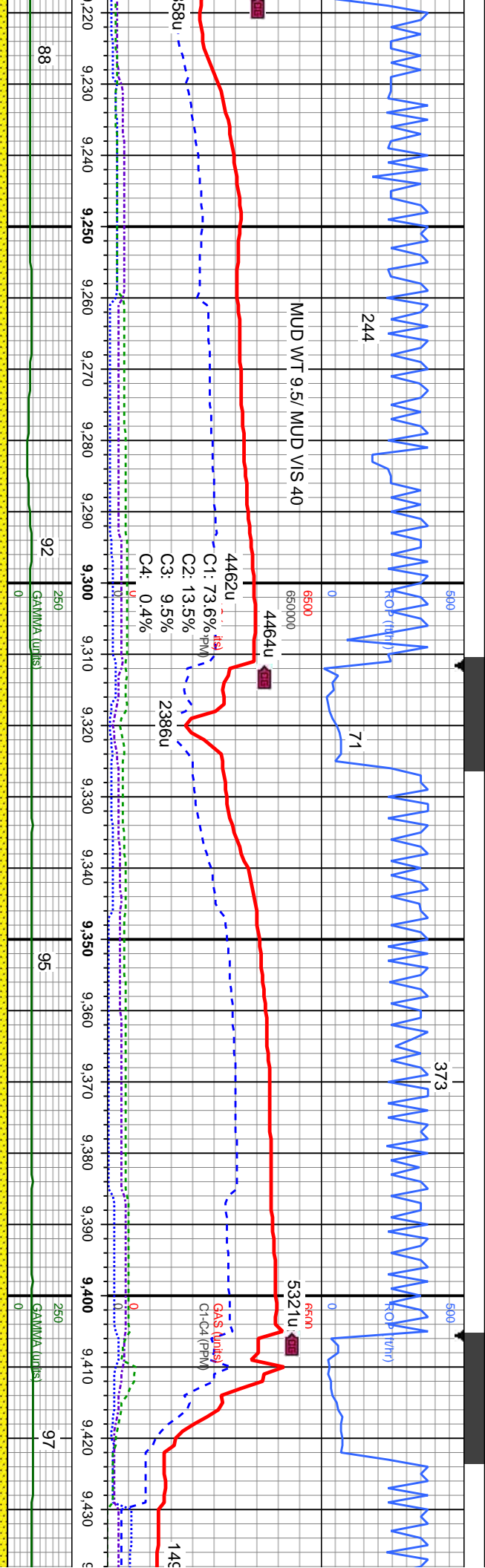




SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry fri, frm, calc cmt, cl sup, abnt qtz; LMST: off wh - crm - tan - lt gy, sb blkly - sb ply - ireg - sl flky, brit, sl sft - frm, mcoln - mict tex, chky ip: mod fast difse mod stmg-milky, bri bl-wh cut	SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry fri, frm, calc cmt, cl sup, abnt qtz; LMST: off wh - crm - tan - lt gy, sb blkly - sb ply - ireg - sl flky, brit, sl sft - frm, mcoln - mict tex, chky ip: mod fast difse mod stmg-milky, bri bl-wh cut	SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry fri, frm, calc cmt, cl sup, abnt qtz; LMST: off wh - crm - tan - lt gy, sb blkly - sb ply - ireg - sl flky, brit, sl sft - frm, mcoln - mict tex, chky ip, tr SLTY SH; mod fast difse fast stmg-milky, bri bl-wh cut	SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry fri, frm, calc cmt, cl sup, abnt qtz; LMST: off wh - crm - tan - lt gy, sb blkly - sb ply - ireg - sl flky, brit, sl sft - frm, mcoln - mict tex, chky ip, tr SLTY SH; mod fast difse fast stmg-milky, bri bl-wh cut
5600	5600	5600	5600
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)

MD: 9.041' TVD: 7,099.83' Inclination: 91.28° Azimuth: 1.12° VS: 1,792.25'	MD: 9.135' TVD: 7,098.82' Inclination: 89.96° Azimuth: 0.25° VS: 1,881.66'
8200	8200





It gy - dk gy, vf - f gr, w srl, mod sphry fri, frm, calc cmt, LMST: off wh - crm - tan - lt gy, sb blkly - sb ply - ireg - sl flky, brit, sl sft - frm, mexln - mict tex, chky ip, rr SLTY SH; st stmg-milky, bri bl-wh cut

SS: op - trnsi ip, lt gy - dk gy, vf - f gr, w srl, sb ang - sb rnd, mod sphry fri, frm, calc cmt, ci sup, abnt qtz ; LMST: off wh - crm - tan - lt gy, sb blkly - sb ply - ireg - sl flky, brit, sl sft - frm, mexln - mict tex, chky ip, rr SLTY SH; mod fast difse fast stmg-milky, bri bl-wh cut

SS: op - trnsi ip, lt gy - dk gy, vf - f gr, w srl, sb ang - sb rnd, mod sphry fri, frm, calc cmt, ci sup, abnt qtz, rr SLTY SH, tr LMST; difse fast stmg-milky, bri bl-wh cut

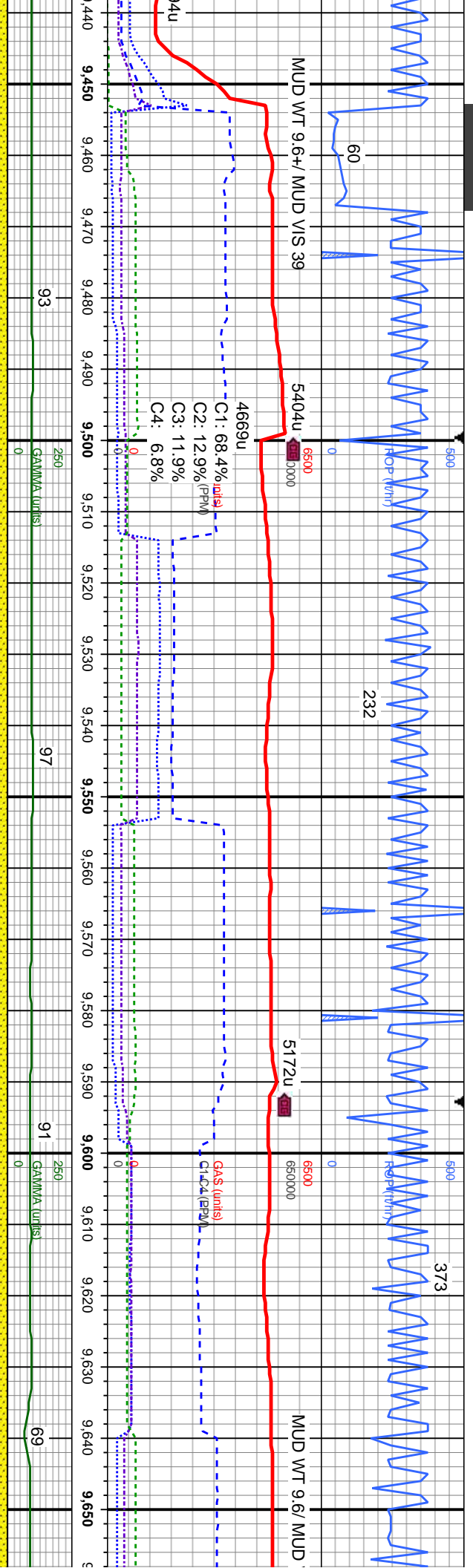
SS: op - trnsi ip, lt gy - dk gy, vf - f gr, w srl, sb ang - sb rnd, mod sphry fri, frm, calc cmt, ci sup, abnt qtz, tr LMST; mod fast stmg-milky, bri bl-wh cut

MD: 9,229'
TVD: 7,099.18'
Inclination: 89.6°
Azimuth: 359.1°
VS: 1,970.56'

MD: 9,323'
TVD: 7,100.12'
Inclination: 89.25°
Azimuth: 358.49°
VS: 2,058.97'

MD: 9,417'
TVD: 7,100.77'
Inclination: 89.96°
Azimuth: 0.77°
VS: 2,147.84'

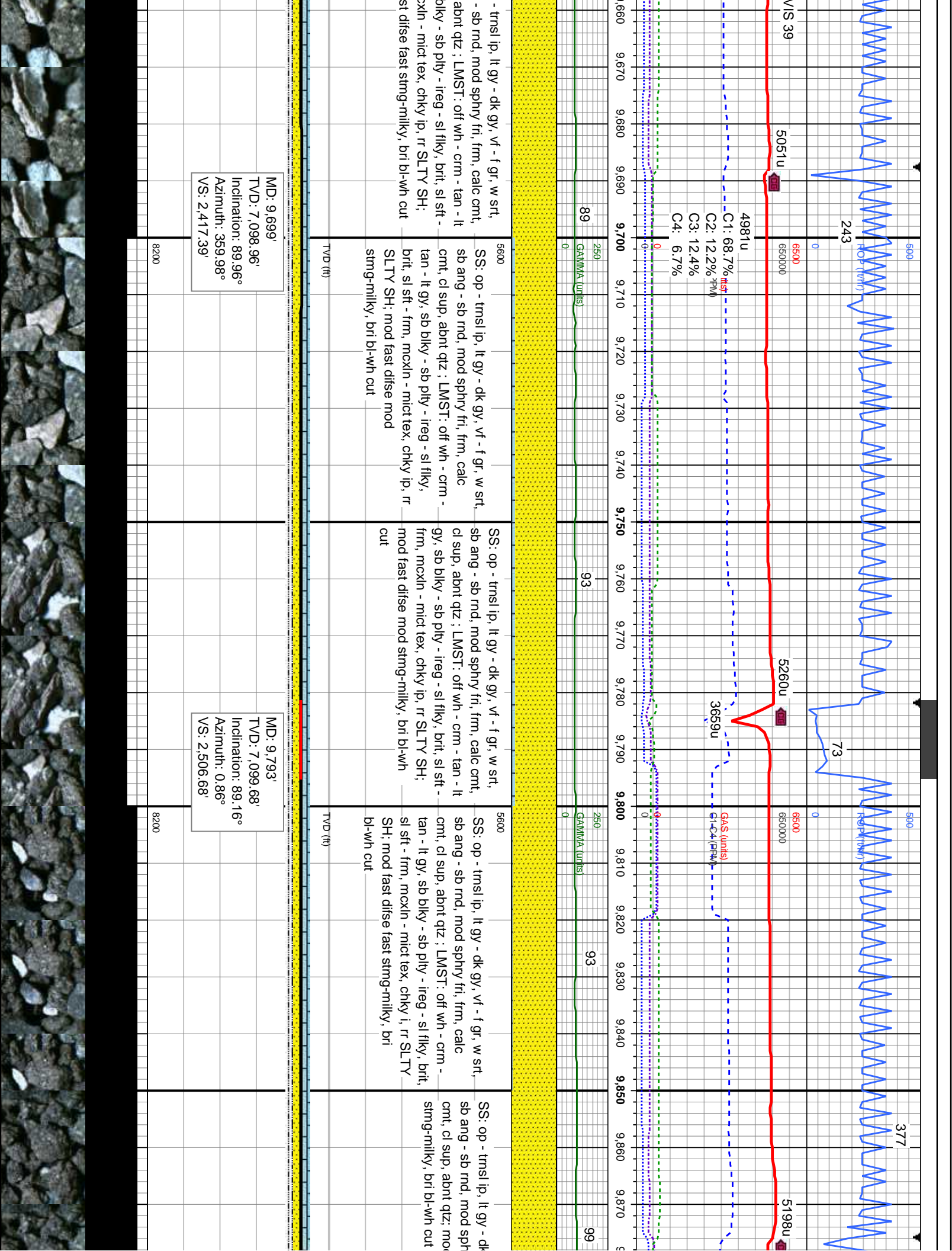


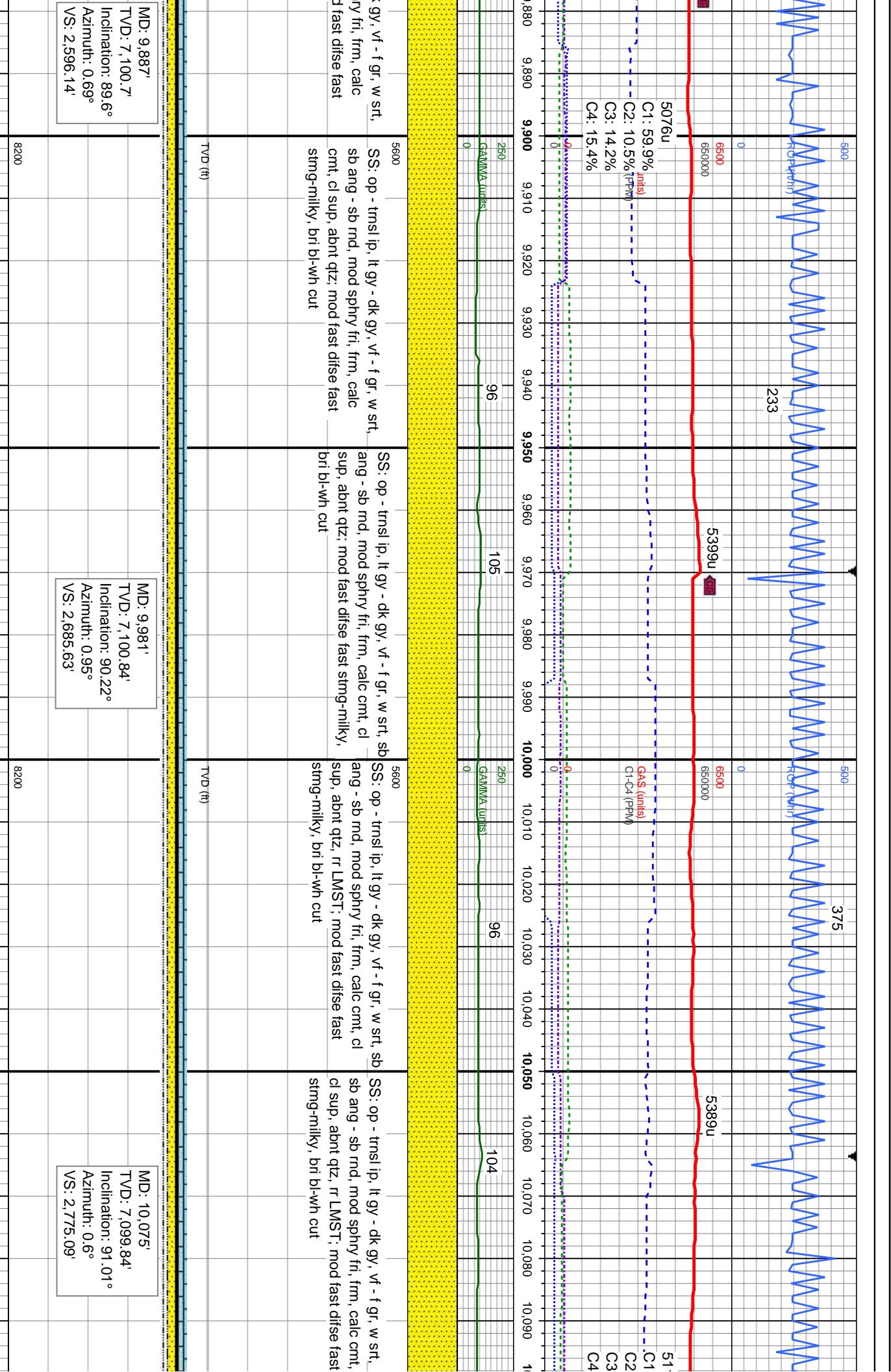


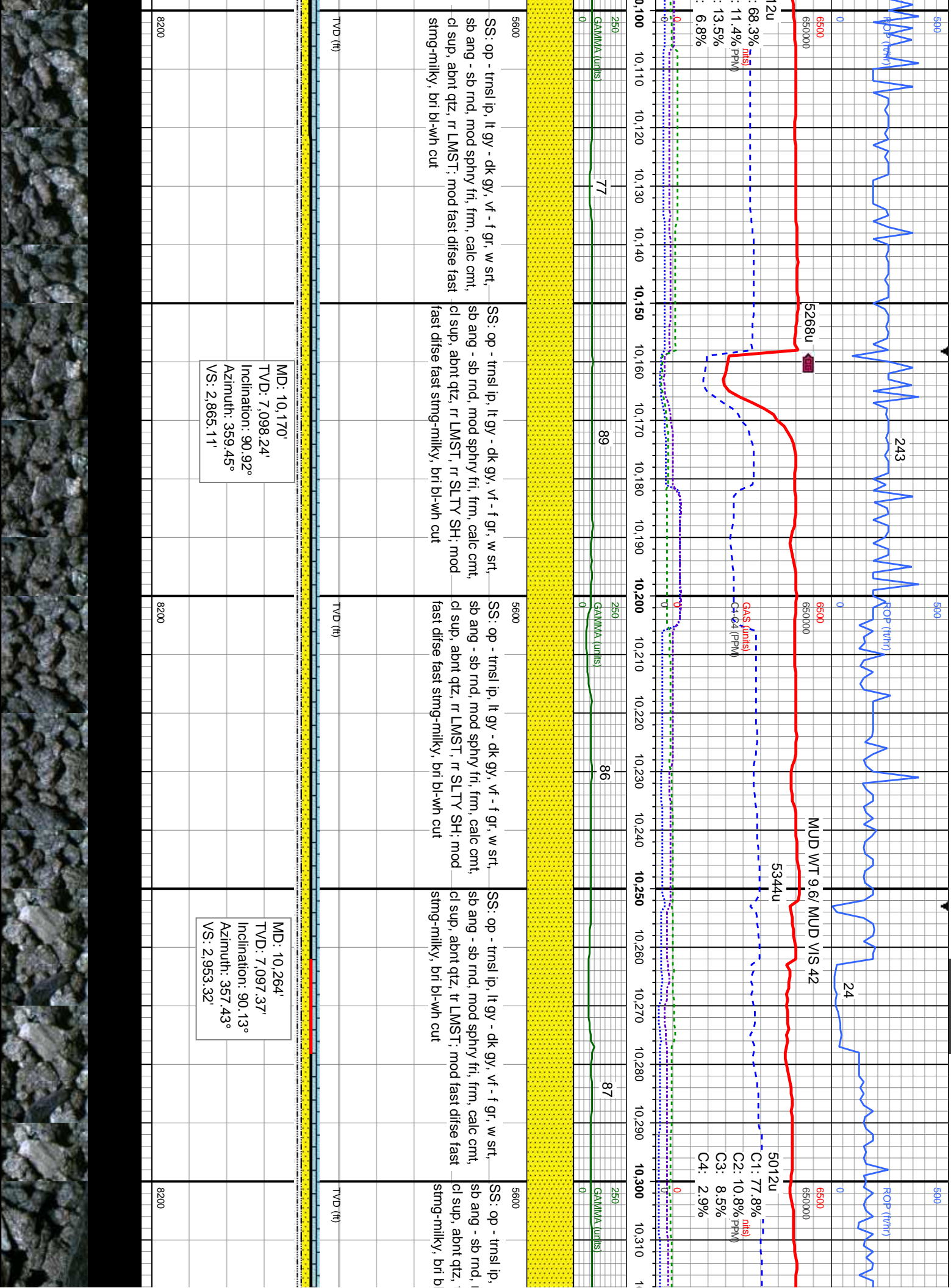
SS: op - tmsl ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry fri, frm, calc cmt, cl sup, abnt qtz, tr LMST; mod fast difse fast stmg-milky, bri bl-wh cut	SS: op - tmsl ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry fri, frm, calc cmt, cl sup, abnt qtz, tr LMST; mod fast difse fast stmg-milky, bri bl-wh cut	SS: op - tmsl ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb md, mod sphry fri, frm, calc cmt, cl sup, abnt qtz, tr LMST; mod fast difse fast stmg-milky, bri bl-wh cut	SS: op - tmsl ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb md, mod sphry fri, frm, calc cmt, cl sup, abnt qtz; LMST: off wh - crm - tan - lt gy, sb bky - sb ply - ireg - sl flky, brit, sl sft - frm, mckln - mict tex, chky ip,; tr SLTY SH; mod fast difse fast stmg-milky, bri bl-wh cut	SS: op - tmsl ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb md, mod sphry fri, frm, calc cmt, cl sup, abnt qtz; LMST: off wh - crm - tan - lt gy, sb bky - sb ply - ireg - sl flky, brit, sl sft - frm, mckln - mict tex, chky ip,; tr SLTY SH; mod fast difse fast stmg-milky, bri bl-wh cut
5600	5600	5600	5600	5600
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)

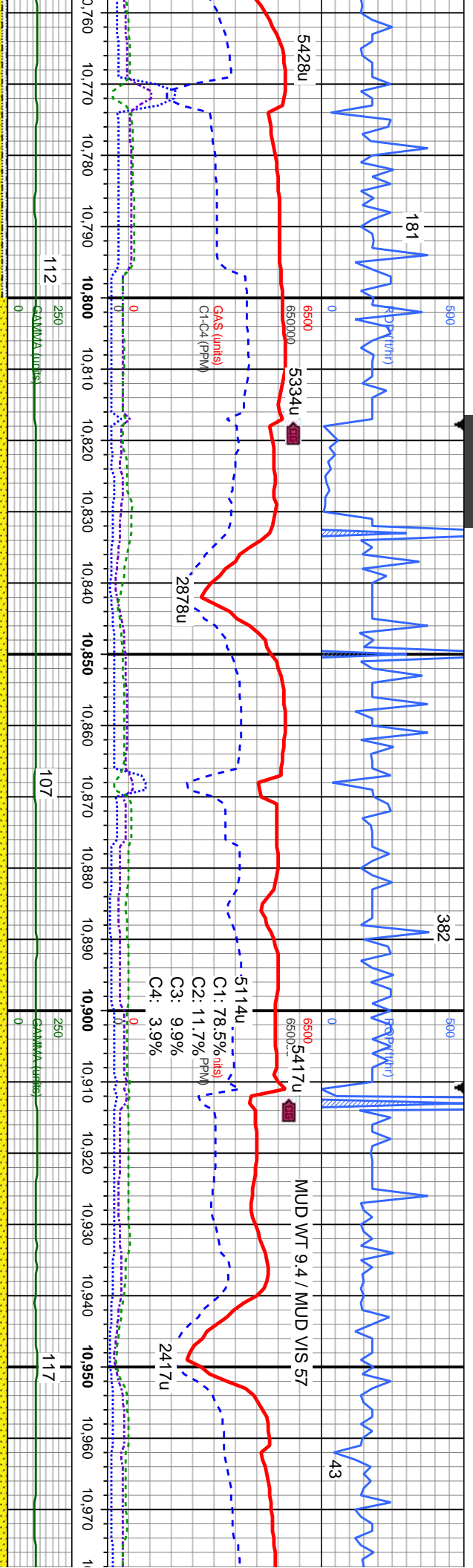
MD: 9,510' TVD: 7,100.41' Inclination: 90.48° Azimuth: 2.88° VS: 2,236.85'	MD: 9,605' TVD: 7,099.47' Inclination: 90.66° Azimuth: 1.48° VS: 2,327.95'
8200	8200











trns l ip, lt gy - dk gy, vf - f gr, w srt,
- sb md, mod sphry fri, frm, calc cnt,
abnt qtz, SLTY SH; mod gy - dk gy, silt
, sl frm, bri, ply, arg - sb rthy, non
LMST; mod fast difse fast
milky, bri bl-wh cut

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt,
sb ang - sb rnd, mod sphry fri, frm, calc cnt,
cl sup, abnt qtz, r LMST; mod fast difse fast
stmg-milky, bri bl-wh cut

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt,
sb ang - sb rnd, mod sphry fri, frm, calc
cnt, cl sup, abnt qtz, r SLTY SH; mod fast
difse fast stmg-milky, bri bl-wh cut

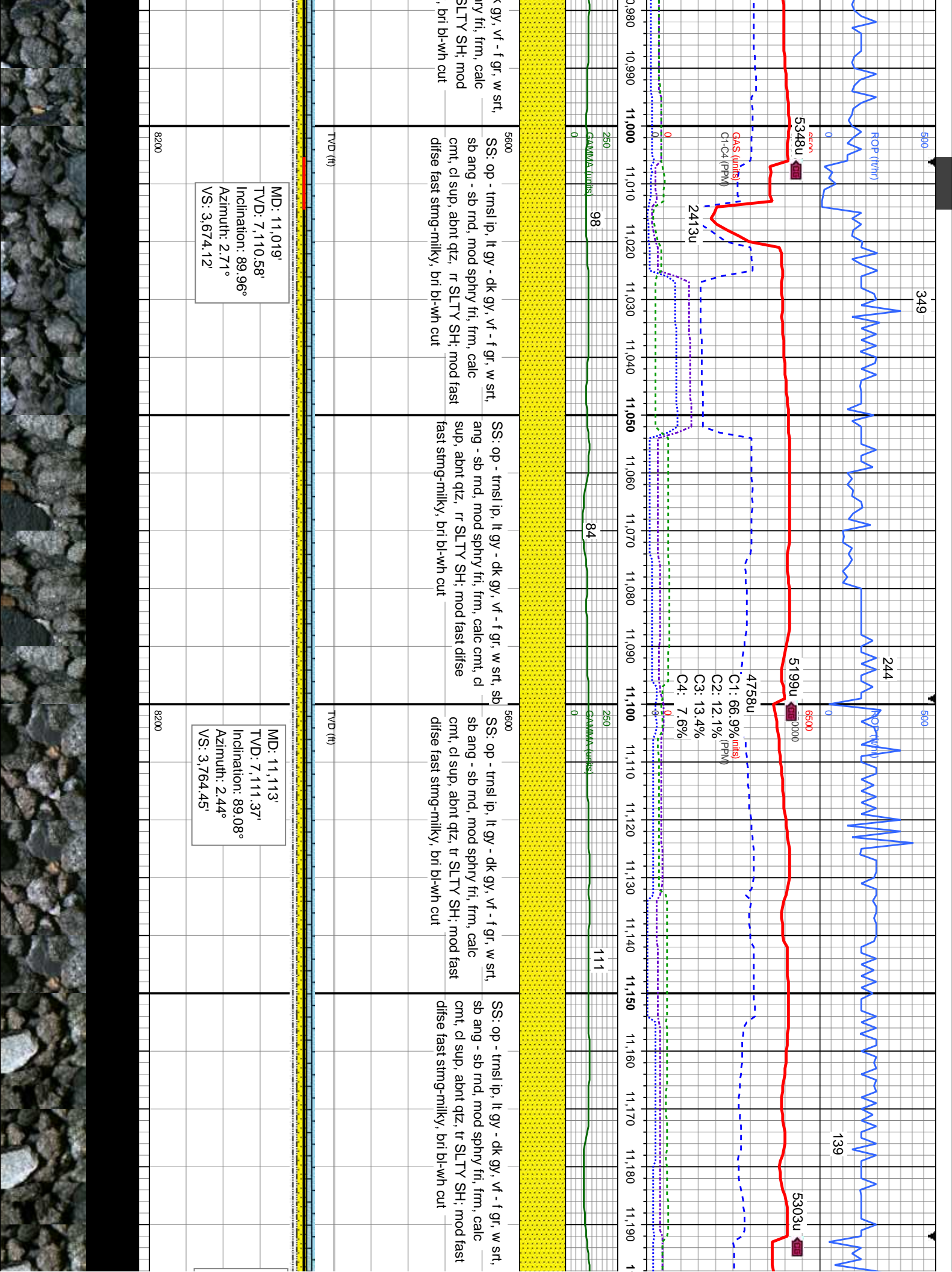
SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt,
sb ang - sb rnd, mod sphry fri, frm, calc
cnt, cl sup, abnt qtz, r SLTY SH; mod fast
difse fast stmg-milky, bri bl-wh cut

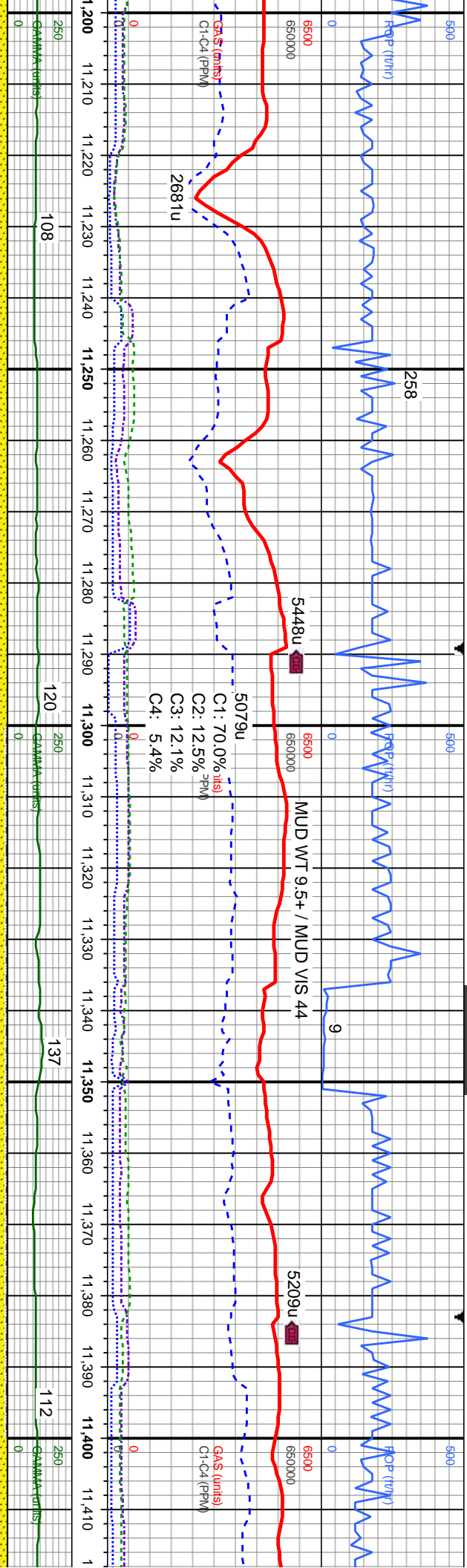
SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt,
sb ang - sb rnd, mod sphry fri, frm, calc cnt,
cl sup, abnt qtz, r SLTY SH; mod fast difse fast
stmg-milky, bri bl-wh cut

MD: 10,830'
TVD: 7,111.52'
Inclination: 90.04°
Azimuth: 3.94°
VS: 3,491.5'

MD: 10,924'
TVD: 7,111.02'
Inclination: 90.57°
Azimuth: 4.11°
VS: 3,582.46'







SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb md, mod sphry fri, frm, calc cnt, cl sup, abnt qtz, tr SLTY SH; mod fast difse fast stmg-milky, bri bl-wh cut

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rmd, mod sphry fri, frm, calc cnt, cl sup, abnt qtz, tr SLTY SH; mod fast difse fast stmg-milky, bri bl-wh cut

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rmd, mod sphry fri, frm, calc cnt, cl sup, abnt qtz; SLTY SH: med gy - dk gy, slt - mic gr, sl frm, brit, pily, arg - sb rthy, non calc; mod fast difse fast stmg-milky, bri bl-wh cut

SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rmd, mod sphry fri, frm, calc cnt, cl sup, abnt qtz; SLTY SH: med gy - dk gy, slt - mic gr, sl frm, brit, pily, arg - sb rthy, non calc; mod fast difse fast stmg-milky, bri bl-wh cut

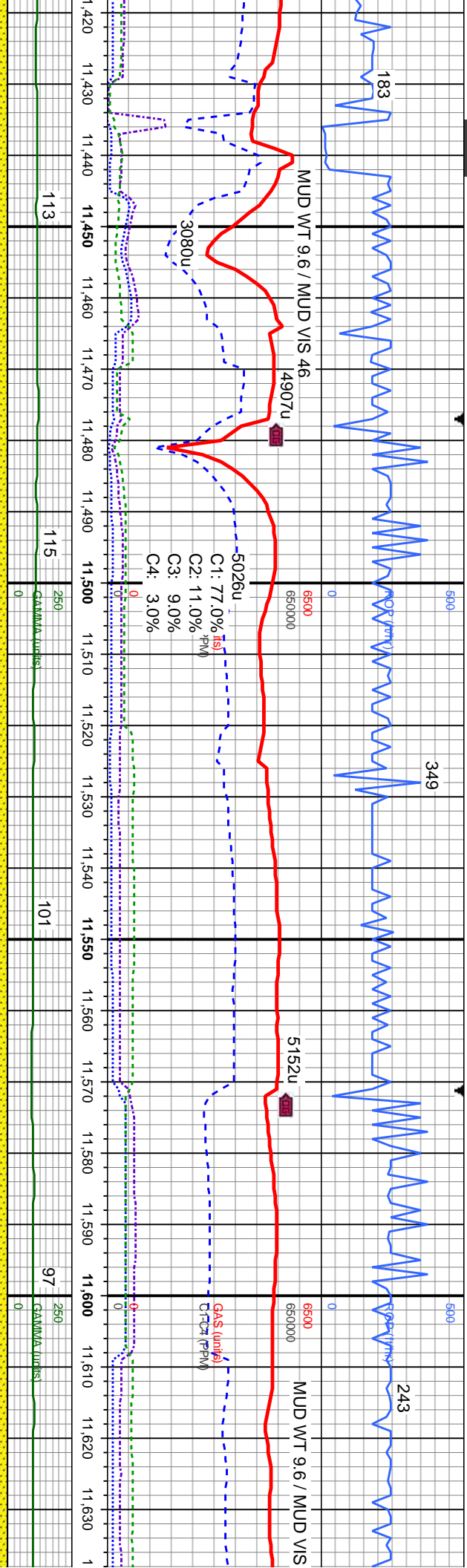
SS: op - trns l ip, sb ang - sb rmd, cl sup, abnt qtz, fast stmg-milky,

MD: 11,207'
TVD: 7,112.02'
Inclination: 90.13°
Azimuth: 1.92°
VS: 3,854.59'

MD: 11,301'
TVD: 7,111.37'
Inclination: 90.66°
Azimuth: 1.83°
VS: 3,944.59'

MD: 11,395'
TVD: 7,111.8'
Inclination: 88.81°
Azimuth: 0.69°
VS: 4,034.29'





lt gy - dk gy, vf - f gr, w srt,
mod sphry fri, frm, calc cmt,
tr SLTY SH; mod fast difse
bri bl-wh cut

SS: op - trnsi ip, lt gy - dk gy, vf - f gr, w srt,
sb ang - sb rmd, mod sphry fri, frm, calc cmt,
cl sup, abnt qtz, rr SLTY SH; mod fast difse
fast stm-g-milky, bri bl-wh cut

SS: op - trnsi ip, lt gy - dk gy, vf - f gr, w srt, sb
ang - sb rmd, mod sphry fri, frm, calc cmt, cl
sup, abnt qtz, rr SLTY SH, rr LMST; mod fast
difse fast stm-g-milky, bri bl-wh cut

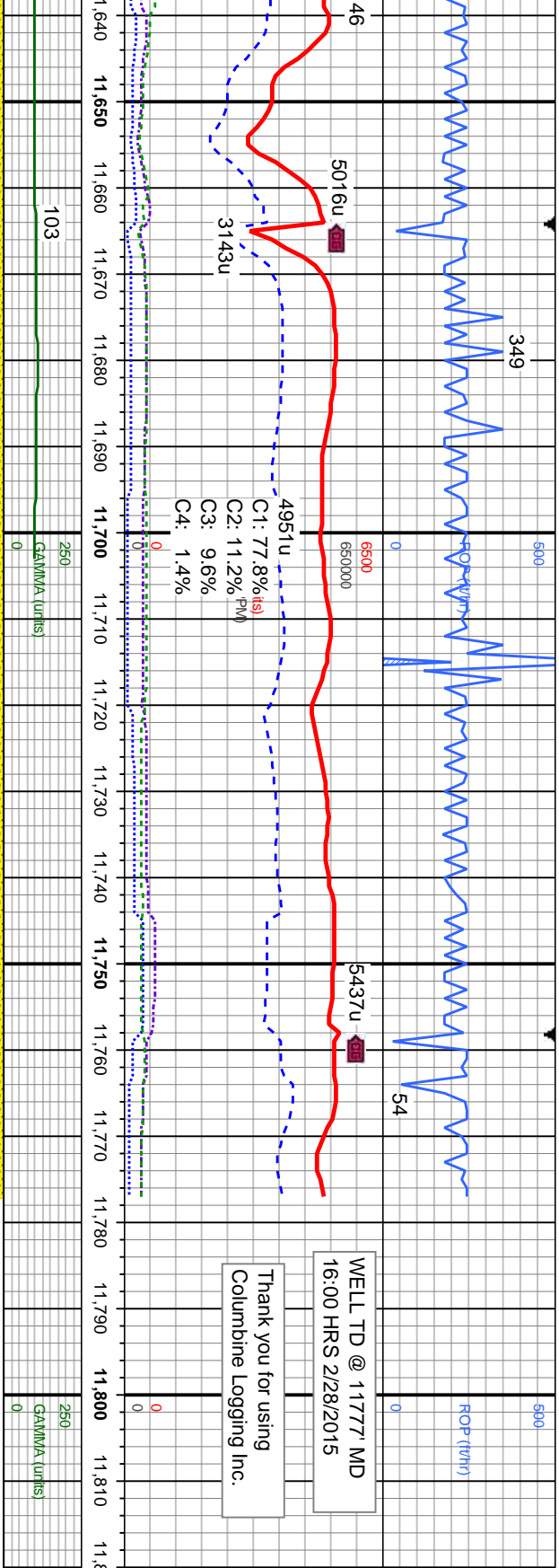
SS: op - trnsi ip, lt gy - dk gy, vf - f gr, w srt,
sb ang - sb rmd, mod sphry fri, frm, calc cmt,
cl sup, abnt qtz; mod fast difse fast
stm-g-milky, bri bl-wh cut

SS: op - trnsi ip, lt gy - dk gy, vf - f gr, w srt,
sb ang - sb rmd, mod sphry fri, frm,
cl sup, abnt qtz; mod fast difse fast
stm-g-milky, bri bl-wh cut

MD: 11,489'
TVD: 7,113.4'
Inclination: 89.25°
Azimuth: 359.1°
VS: 4,123.29'

MD: 11,583'
TVD: 7,114.4'
Inclination: 89.52°
Azimuth: 359.1°
VS: 4,211.87'





WELL TD @ 11777' MD
16:00 HRS 2/28/2015

Thank you for using
Columbine Logging Inc.

gr, w srt, calc cmt,	SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry frt, frm, calc cmt, cl sup, abnt qtz, tr SLTY SH; mod fast difse fast strng-milky, bri bl-wh cut	5600	SS: op - trns l ip, lt gy - dk gy, vf - f gr, w srt, sb ang - sb rnd, mod sphry frt, frm, calc cmt, cl sup, abnt qtz, tr SLTY SH; mod fast difse fast strng-milky, bri bl-wh cut	5600
		TVD (ft)		TVD (ft)

MD: 11,678'
TVD: 7,114.84'
Inclination: 89.96°
Azimuth: 358.23°
VS: 4,301.16'

MD: 11,777'
TVD: 7,114.91'
Inclination: 89.96°
Azimuth: 358.23°
VS: 4,393.94'

PROJECTION TO BIT

