



Scale: 5" / 100'
Measured Depth Log

Well Name 70 Ranch 04-63-03-3340CH Horizontal

Location NWSW S3 T4N R63W

State COLORADO

Country USA

API Number 05-123-37930

Region DJ BASIN

Spud Date 1/4/2014

Surface Coordinates 1995' FSL, 234' FWL

Bottom Hole Coordinates 2442' FSL, 500' FEL

County WELD

Rig Number NABORS M37

AFE # 18532D

Field WATTENBERG

Drilling Completed 1/12/2014

Ground Elevation 4559'

K.B. Elevation 4582'

Logged Interval 4000' To 10865'

Total Depth 10865'

Formation NIOBRARA C CHALK

Type of Drilling Fluid H2O, LSND

Company BILL BARRETT
Address 1099 18TH ST.,
DENVER, CO 8

Name JOHN ROESIN
Company BILL BARRETT
Address 1099 18TH ST.,
DENVER, CO 8

WELLSITE GEOLOGISTS



Operator

CORP.

STE. 2300
0202

Geologist

CORP.

STE. 2300
0202

Other

ELIZABETH STOREY
ERIC BERNARDO

Rock Types

CONGLOMERATE	METAMORPHIC	SHALY SILTSTONE
DOLOMITE	NO SAMPLE	SILTSTONE
GRANITE	SALT	SILTY SHALE
GYP SUM	SALT- PEPPER SANC	TUFF
IGNEOUS	SANDSTONE	WELDED TUFF
LIMESTONE	SHALE	
SIDERITE or LIMONITE	SHALE COLORED	
MARLSTONE	SHALE GRAY	
	SHALY SANDSTONE	

Accessories

Fossils	F FOSSIL	ANHYDRITIC	FERRUGINOUS	TUFFACEOUS
GASTROPOD	ARGILLACEOUS	GLAUCONITE		
ALGAE	INOCERAMUS	ARGILLITE GRAIN	GYP SIFEROUS	
AMPHIBORA	OOLITE	B BENTONITE	HEAVY MINERAL	ANHYDRITE STRINGER
BELMINTITE	OSTRACOD	BITUMENOUS SUBSTANCE	KAOLIN	BENTONITE STRINGER
BIOCLASTIC	PELECYPOD	BRECCIA FRAGMENTS	MARLSTONE	COAL STRINGER
BRACHIOPOD	PELLET	1 CALCAREOUS	MINERAL CRYSTALS	DOLOMITE STRINGER
BR YOZOA	PISOLITE	CARBONACEOUS FLAKES	NODULES	GYP SUM STRINGER
CEPHALOPOD	PLANT REMAINS	CHTDK	PHOSPHATE PELLET:	LIMESTONE STRINGER
CORAL	PLANT SPORES	CHTLT	PYRITE	MARLSTONE (CALC) STRG
CRINOID	SCAPHOPOD	COAL - THIN BEDS	SALT CAST	MARLSTONE (DOU) STRG
ECHINOID	STROMATOPOROID	DOLOMITIC	SANDY	SANDSTONE STRINGER
FISH		FELDSPAR	SILICEOUS	SHALE STRINGER
FORAMINIFERA	Minerals	FERRUGINOUS PELLET	SILTY	SILTSTONE STRINGER

Other Symbols

Oil Show	MOLDIC	FAULT	WIRELINE TESTED - LEFT	E EARTHY
DEAD	ORGANIC	FORMATION TOP	WIRELINE TESTED - RT	FX FINELYXLN
P PINPOINT		GAS SHOW		BS GRAINSTONE
EVEN	VUGGY	MINDEPTH MIN DEPTH	Rounding	L LITHOGRAPHIC
QUESTIONABLE		NORMAL FAULT	ANGULAR	MX MICROXLN
SPOTTED STAINING	BIT	OIL SHOW	ROUNDED	MS MUDSTONE
Porosity	CONNECTION (LEFT)	OVERTURNED STRATA	SUBANG	PS PACKSTONE
E EARTHY	CONNECTION (RIGHT)	REVERSE FAULT	SUBRAND	WS WACKSTONE
FENESTRAL	CONNECTION GAS	SIDEWALL CORE (LEFT)		
F FRACTURE	CORE - LOST	SIDEWALL CORE (RIGHT)	Textures	
INTERCRYSTALLINE	CORE - RECOVERED	SLIDE	BOUNDSTONE	M MODERATE
INTERCOLTIC	DST INTERVAL	SURVEY	CHALKY	P POOR
		TRIP GAS	CRYPTOXLN	W WELL

Slide/Rotate

ROP
ROF
GAMMA

Bit #: 3
Type: SECURITY FXD55M
Size: 8.75
Depth In: 5,948'
Jets: 5x16
S/N: 11914292

Total Gas & Chromatograph

GAS
C1
C2
C3
C4

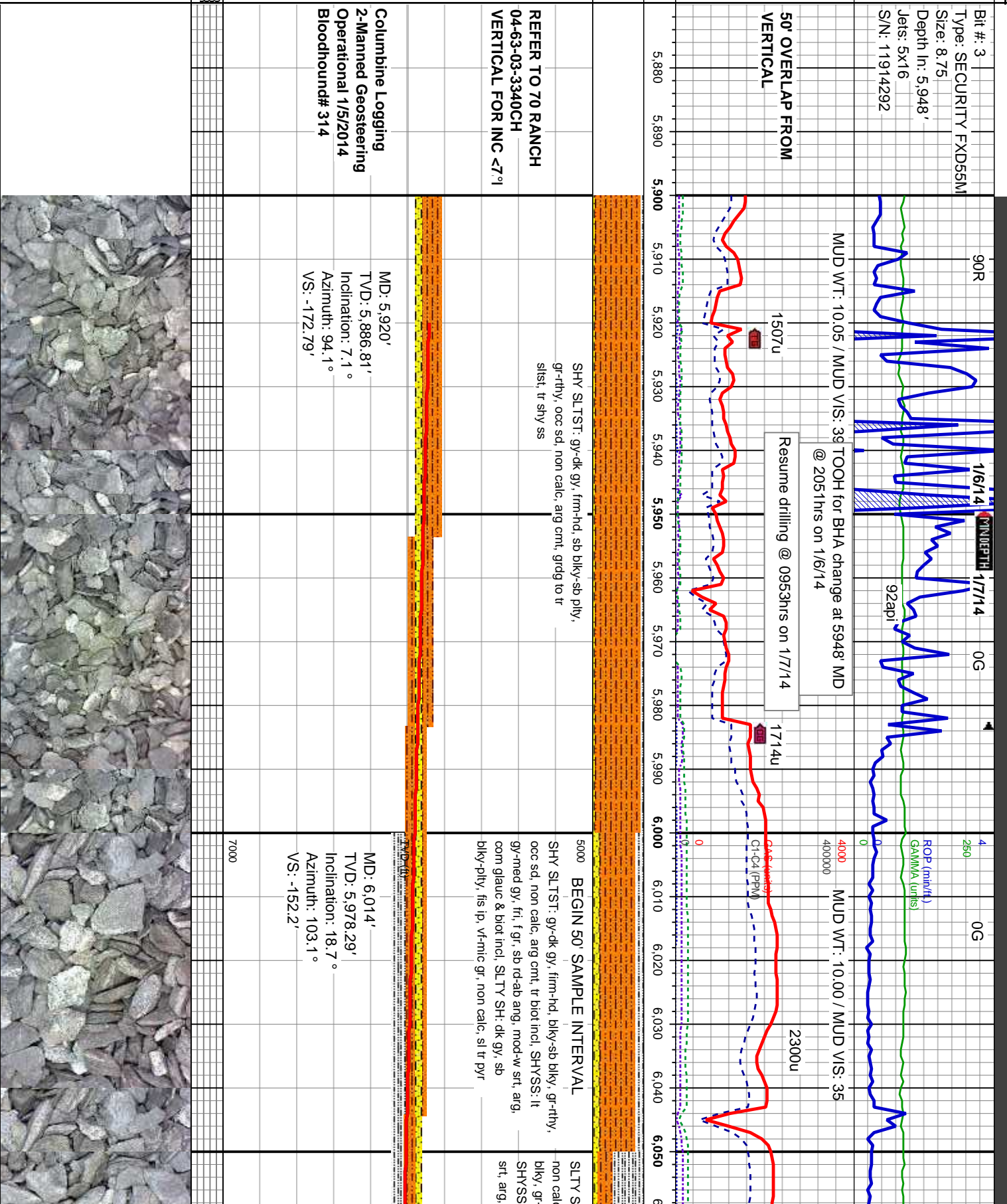
Depth Labels

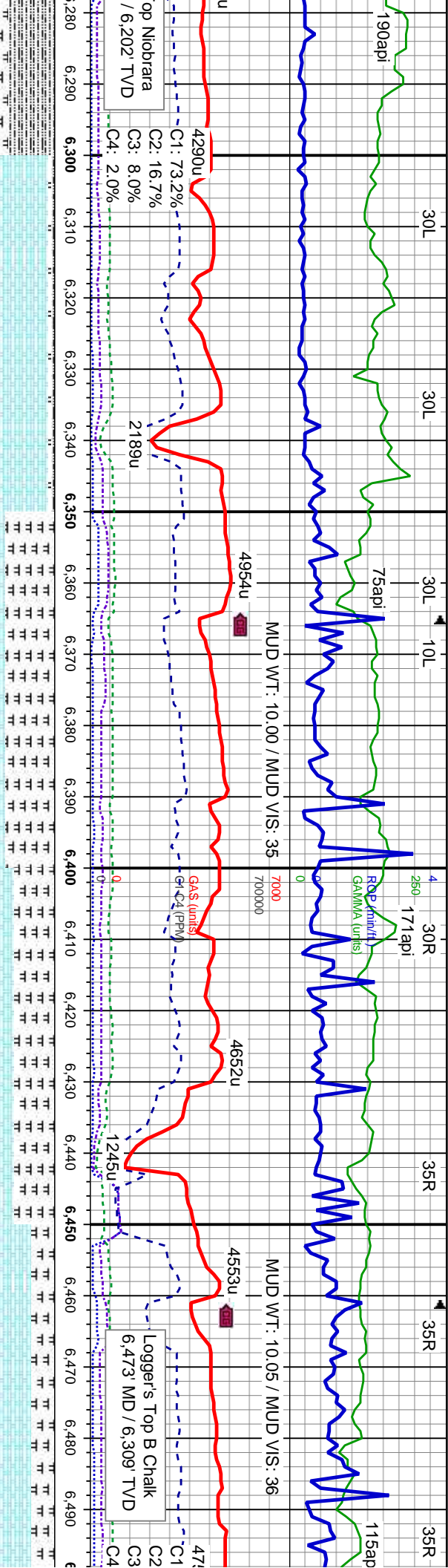
% Lith

Well Bore
TVD

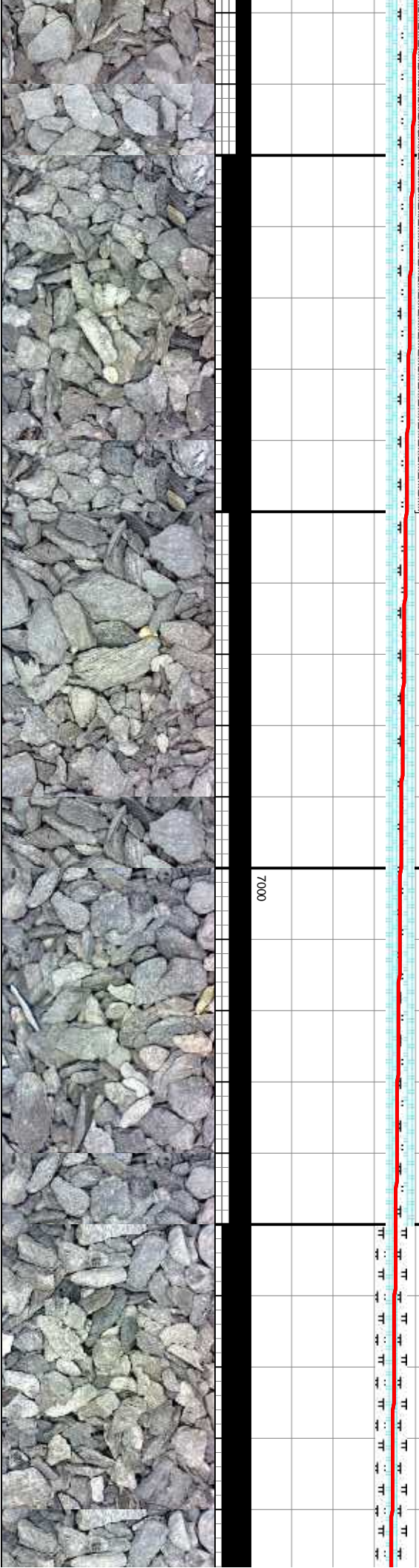
Oil Show

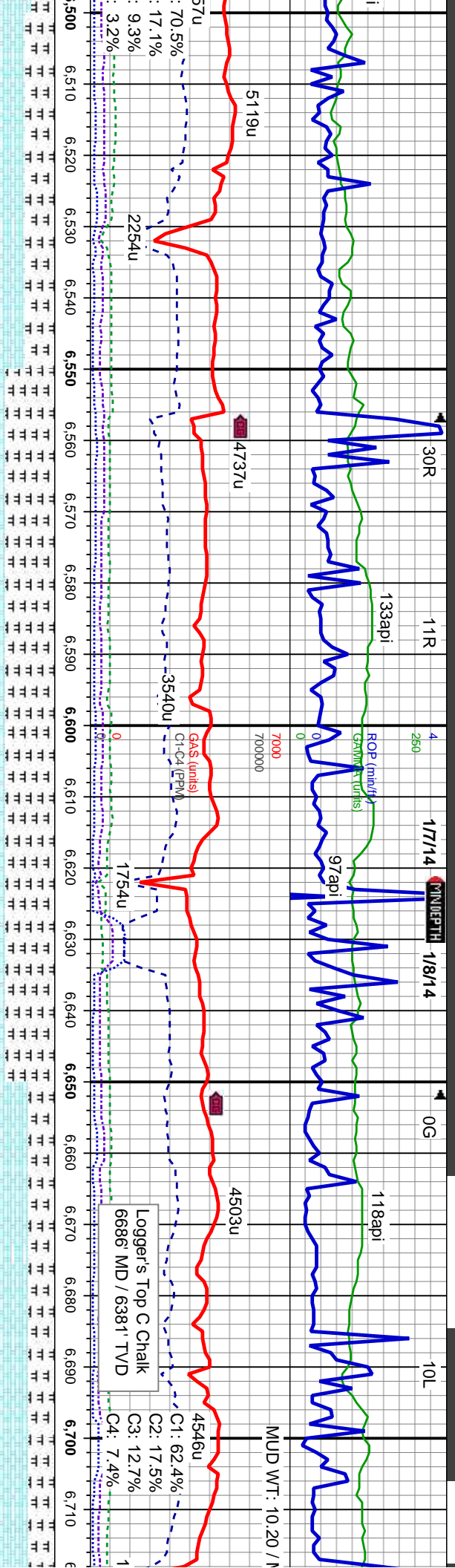
Images





MD: 6,303'	TVD: 6,218.82'	Inclination: 48°	Azimuth: 84.5°	VS: 0.85'
MD: 6,335'	TVD: 6,239.37'	Inclination: 52.1°	Azimuth: 80.1°	VS: 25.09'
MD: 6,367'	TVD: 6,258.05'	Inclination: 56.5°	Azimuth: 75.8°	VS: 50.41'
MD: 6,398'	TVD: 6,274.45'	Inclination: 59.6°	Azimuth: 75.7°	VS: 75.82'
MD: 6,430'	TVD: 6,290.09'	Inclination: 61.9°	Azimuth: 77.6°	VS: 102.89'
MD: 6,494'	TVD: 6,318.6	Inclination: 65°	Azimuth: 87.1°	VS: 159.75'



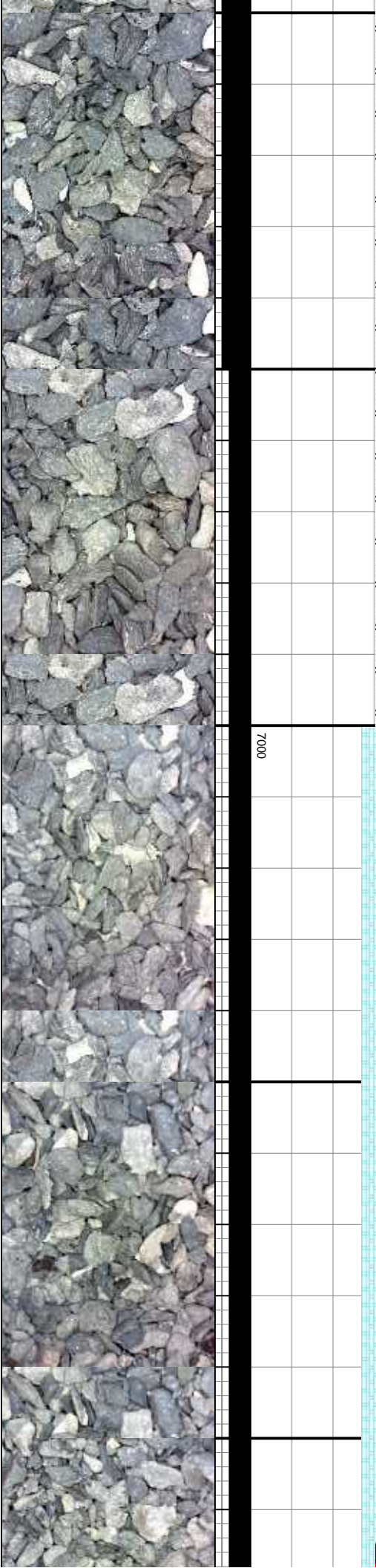


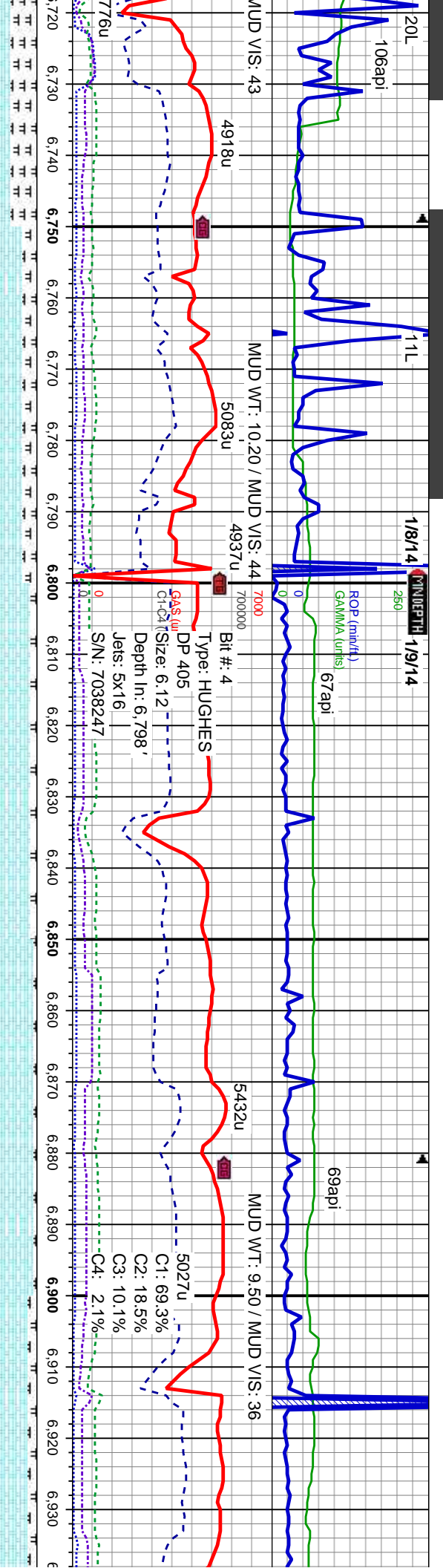
CHK: It gy-med gy, some crm, sb blk, stf-sl frm, v mot, v calc, MRLST: dk gy-blk, sb blk-ply, pred frm-brt, ooc mod sft, v mot, calc cnt, rthy lstr, tr dissn pyr, com bent, abnt fos frags: med fast, bri bl sting-flash cut, bri bl wh flr ring, thn tan vis ring

CHK: It gy-med gy, some crm, sb blk, stf-sl frm, v mot, v calc, MRLST: dk gy-blk, sb blk-ply, pred frm-brt, ooc mod sft, v mot, calc cnt, rthy lstr, tr dissn pyr, tr bent, tr fos frags: med fast, dull bl sting-flash cut, bri bl wh flr ring, thn tan vis ring

CHK: It gy-med gy, some crm, sb blk, stf-sl frm, v mot, v calc, MRLST: dk gy-blk, sb blk-ply, pred frm-brt, ooc mod sft, v mot, calc cnt, rthy lstr, tr dissn pyr, com bent, abnt fos frags: med fast, bri bl sting-flash cut, bri bl wh flr ring, thn tan vis ring

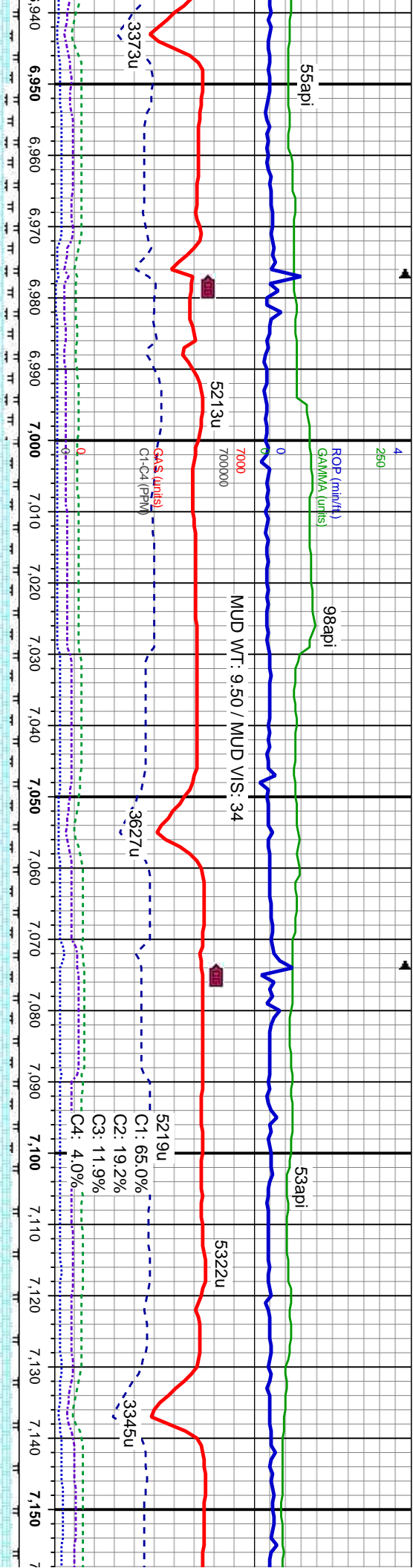
MD: 6,526' TVD: 6,331.56' Inclination: 65.7° Azimuth: 90.3° VS: 188.75'	MD: 6,558' TVD: 6,344.52' Inclination: 66.5° Azimuth: 90.4° VS: 218.01'	MD: 6,590' TVD: 6,356.22' Inclination: 70.6° Azimuth: 91° VS: 247.78'	MD: 6,622' TVD: 6,366.19' Inclination: 73.1° Azimuth: 92.1° VS: 278.19'	MD: 6,654' TVD: 6,374.42' Inclination: 77.1° Azimuth: 92.5° VS: 309.09'	MD: 6,686' TVD: 6,381.13' Inclination: 78.7° Azimuth: 92.5° VS: 340.37'	MD: 6,718' TVD: 6,386' Inclination: 79.3° Azimuth: 92.5° VS: 371.84'
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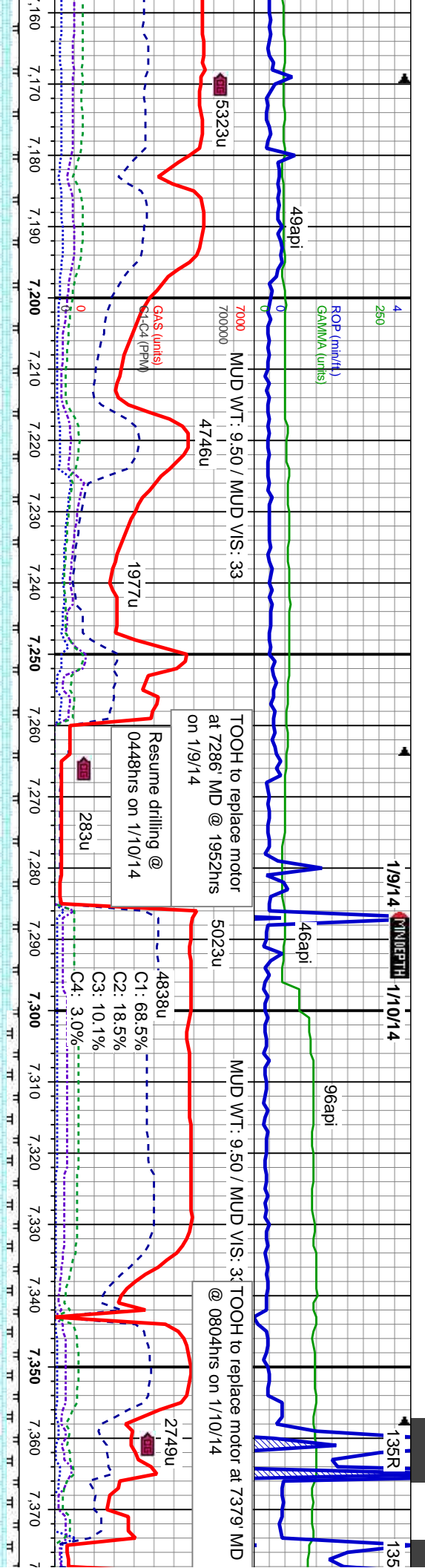
com crm, sb blkly, sft-sl frm, v : dk gy-blk, sb blkly-ply, pred frt, v mot, calc cnt, rthy lstr, tr dissem pyr, med fast, bri bl string-flash cut, thn tan vis ring	CHK: lt gy brn-brn, sb blkly, sft-sl frm, sl rthy tex, v mot, v calc, MRLST: dk gy, sb blkly-ply, pred frn-brt, ooc mod sft, v mot, calc cnt, rthy lstr, tr dissem pyr, tr fos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: gy brn-brn, sb blkly, sft-sl frm, sl rthy - wxy tex, v mot, v calc, MRLST: dk gy, sb blkly-ply, pred frn-brt, ooc mod sft, v mot, calc cnt, rthy lstr, tr dissem pyr, tr fos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: gy brn-brn, sb blkly, sft-sl frm, sl rthy - wxy tex, v mot, v calc, intbd tr mntsl, tr fos frags: fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: gy brn-brn, dk gy brn, sb blkly, sft-sl tex, v mot, v calc, MRLST: dk gy, sb blkly- frn-brt, ooc mod sft, v mot, calc cnt, rthy fos frags: med fast, bri bl string-flash cut, l flor ring, thn tan vis ring
	MD: 6.735' TVD: 6,389.55' Inclination: 81.3° Azimuth: 91.3° VS: 388.62'	MD: 6.821' TVD: 6,397.19' Inclination: 88.5° Azimuth: 86° VS: 474.14'	MD: 6.918' TVD: 6,399.14' Inclination: 89.2° Azimuth: 85.9° VS: 570.78'	





frn, sl rthy ply, pried istr, tr bri bl wh	CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, v mot, v calc, MRLST: dk gy, sb blk-ply, pried frn-brt, occ mod sft, v mot, calc cnt, rthy istr, tr fos frags: med fast, bri bl sting-flash cut, bri bl wh flor ring, thn tan vis ring	5000 CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, v mot, v calc, MRLST: dk gy, sb blk-ply, pried frn-brt, occ mod sft, v mot, calc cnt, rthy istr, tr fos frags: med fast, bri bl sting-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 7,014' TVD: 6,399.9' Inclination: 89.9° Azimuth: 85.5° VS: 666.4'	frn, sl rthy ply, pried istr, tr bri bl wh	CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, v mot, v calc, MRLST: dk gy, sb blk-ply, pried frn-brt, occ mod sft, v mot, calc cnt, rthy istr, tr fos frags: med fast, bri bl sting-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 7,109' TVD: 6,399.65' Inclination: 90.4° Azimuth: 85.3° VS: 760.99'	CHK: gy tex, v r frn-brt, fos frag flor ring
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5323u
49api
7000
700000
4746u
1977u
283u
5023u
4838u
2749u

GA\$ (units)
SI, C4 (PPM)

CHK: gy brn-brn, dk gy brn, sb biky, sft-sl frm, sl rthy
tex, v mot, v calc, MRLST: dk gy, sb biky-pty, pried
frm-brt, v mot, calc cnt, rthy lstr, tr
fos frags: med fast, bri bl sting-flash cut, bri bl wh
flor ring, thn tan vis ring

CHK: gy brn-brn, dk gy brn, sb biky, sft-sl frm, sl rthy
tex, v mot, v calc, MRLST: dk gy, sb biky-pty, pried
frm-brt, v mot, calc cnt, rthy lstr, tr fos frags: med
fast, bri bl sting-flash cut, bri bl wh flor ring, thn
tan vis ring

CHK: gy brn-brn, dk gy brn, sb biky, sft-sl frm, sl rthy
tex, v mot, v calc, MRLST: dk gy, sb biky-pty, pried
frm-brt, v mot, calc cnt, rthy lstr, tr fos frags: med
fast, bri bl sting-flash cut, bri bl wh flor ring, thn
tan vis ring

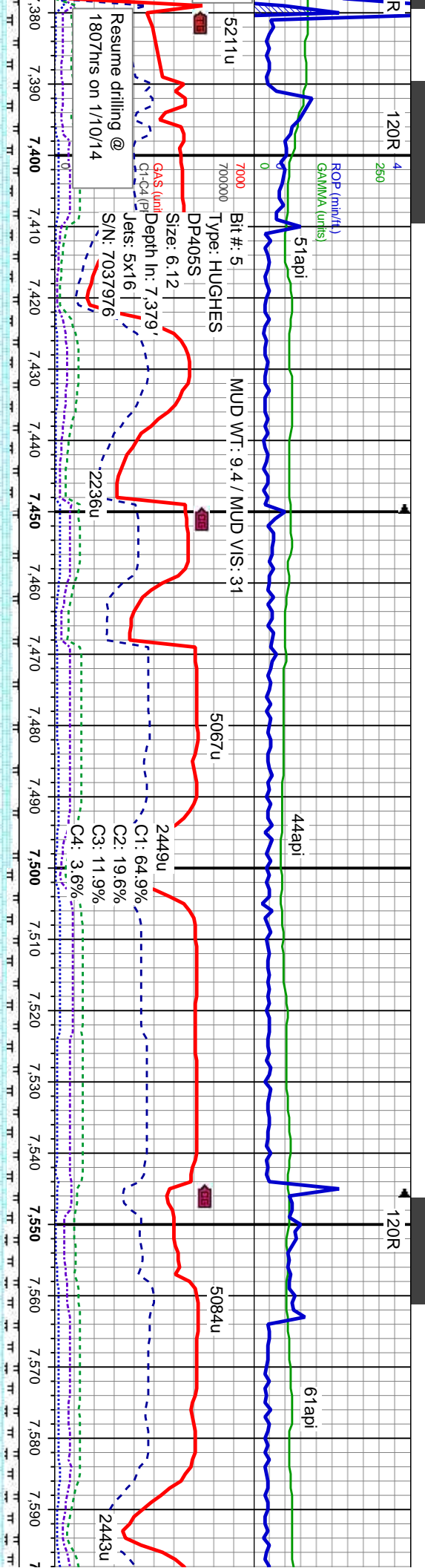
MD: 7,204'
TVD: 6,398.73'
Inclination: 90.7°
Azimuth: 84.6°
VS: 855.49'

MD: 7,299'
TVD: 6,396.91'
Inclination: 91.5°
Azimuth: 85.2°
VS: 949.98'

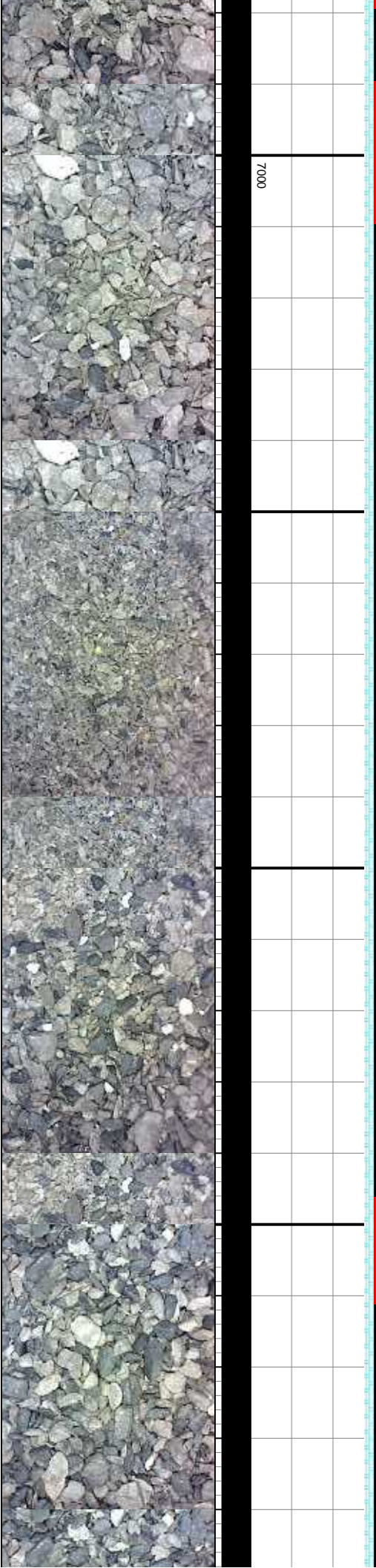
C1: 68.5%
C2: 18.5%
C3: 10.1%
C4: 3.0%

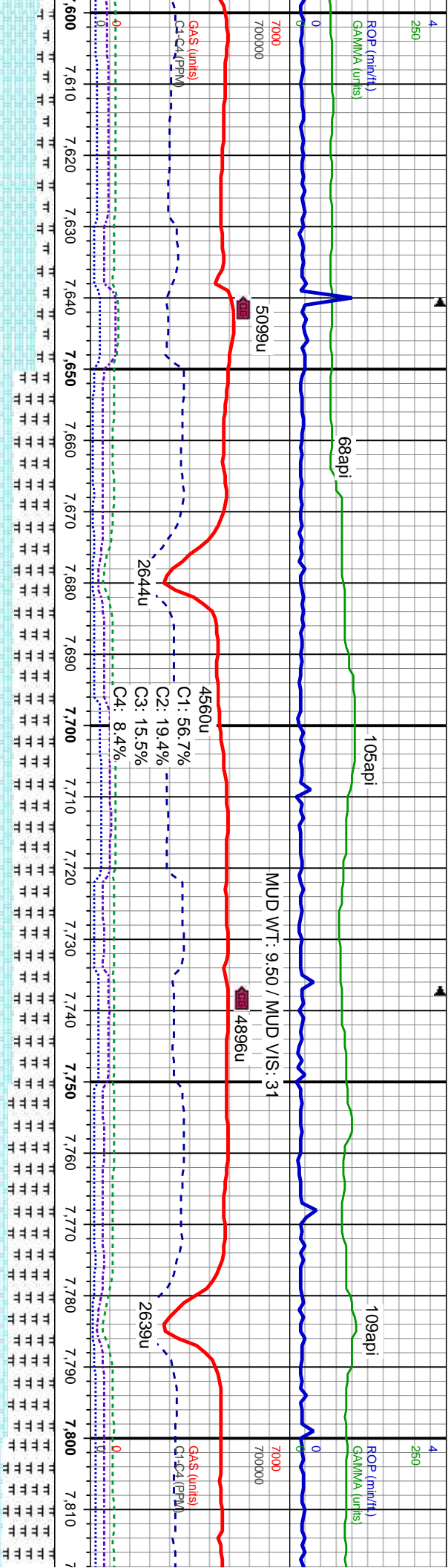
MUD WT: 9.50 / MUD VIS: 34 TOOH to replace motor at 7379' MD @ 0804hrs on 1/10/14



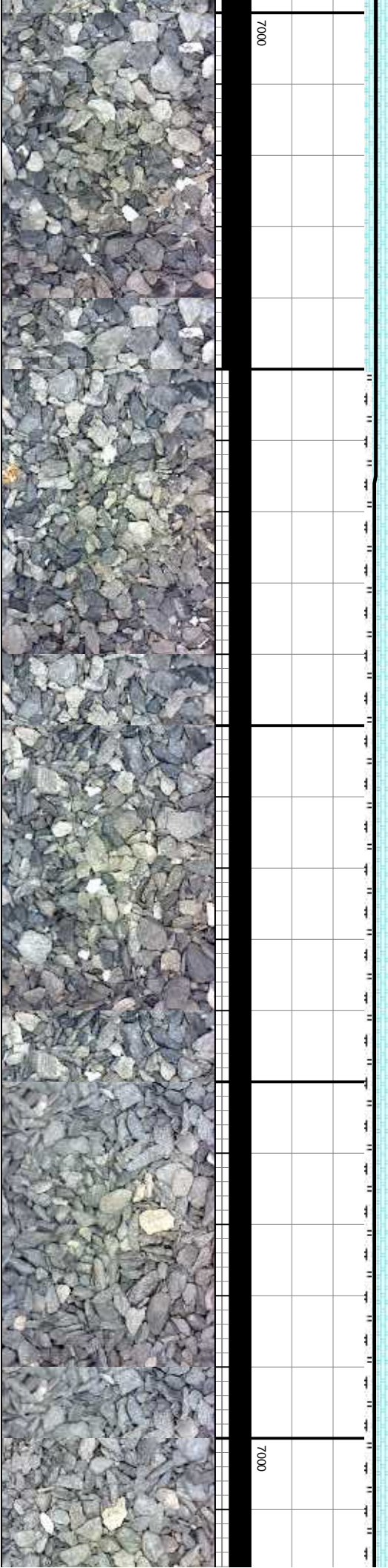


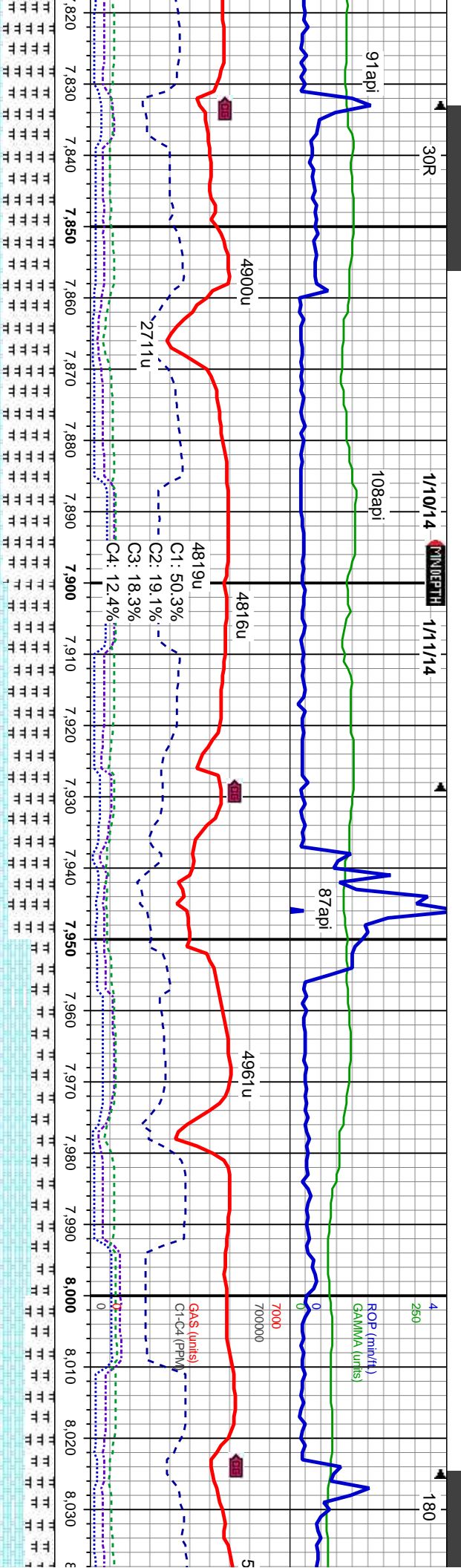
biky, sft-sl frm, sl rthy gy, sb biky-ply, frn-brt, tr fos frags: med wh flor ring, thn	5000 CHK: gy brn-brn, dk gy brn, sb biky, sft-sl frm, sl rthy tex, mot, v calc, MRLST: dk gy, sb biky-ply, frn-brt, mot, calc cmt, rthy lstr, tr fos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: gy brn-brn, dk gy brn, sb biky, sft-sl frm, sl rthy tex, mot, v calc, MRLST: dk gy, sb biky-ply, frn-brt, mot, calc cmt, rthy lstr, tr fos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: gy brn-brn, dk gy brn, sb biky, sft-sl frm, sl rthy tex, mot, v calc, MRLST: dk gy, sb biky-ply, frn-brt, mot, calc cmt, rthy lstr, tr fos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: gy brn-brn, dk gy brn, sb biky, sft-sl frm, sl rthy tex, mot, v calc, MRLST: dk gy, sb biky-ply, frn-brt, mot, calc cmt, rthy lstr, tr fos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring
MD: 7,389' TVD: 6,395.5' Inclination: 90.3° Azimuth: 86.7° VS: 1,039.65'	MD: 7,485' TVD: 6,395.83' Inclination: 89.3° Azimuth: 88.5° VS: 1,135.5'			MD: 7,588' TVD: 6,397.9' Inclination: 88.4° Azimuth: 90.3° VS: 1,238.44'





CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, mot, v calc, MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc frm-brt, mot, calc cnt, rthy istr, tr tos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, mot, v calc, tr bent: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, sl mot, v calc, tr bent: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, sl mot, v calc, tr bent: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 7.676' TVD: 6,400.28' Inclination: 88.5 ° Azimuth: 89.6° VS: 1,326.4'	TVD (ft)
5000					
CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, mot, v calc, MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc frm-brt, mot, calc cnt, rthy istr, tr tos frags: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, mot, v calc, tr bent: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, sl mot, v calc, tr bent: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy tex, sl mot, v calc, tr bent: med fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 7.772' TVD: 6,403.04' Inclination: 88.2 ° Azimuth: 89° VS: 1,422.33'	TVD (ft)





dk ply-ply, frm-brt, sl mot, calc
gy brn-brn, dk gy brn, sb blk,
sl mot, v calc, tr bent, tr fos
bl sting-flash cut, bri bl wh flor

MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc
cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk,
sft-sl frm, sl rthy tex, sl mot, v calc, tr bent, tr fos
frags: med fast, bri bl sting-flash cut, bri bl wh flor
ring, thn tan vis ring

MRLST: dk gy, sb blk-ply, frm-brt, sl mot, calc
cnt, rthy istr, CHK: gy brn-brn, dk gy brn, sb blk,
sft-sl frm, sl rthy tex, sl mot, v calc, tr bent, tr fos
frags: med fast, bri bl sting-flash cut, bri bl wh flor
ring, thn tan vis ring

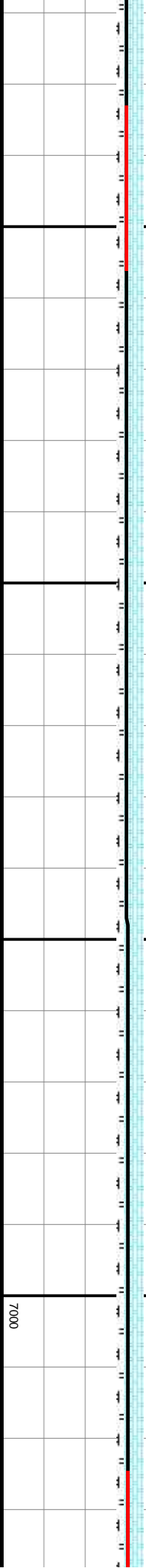
CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy
tex, mot, v calc, MRLST: dk gy, sb blk-ply,
frm-brt, mot, calc cnt, rthy istr, tr fos frags: med
fast, bri bl sting-flash cut, bri bl wh flor ring, thn
tan vis ring

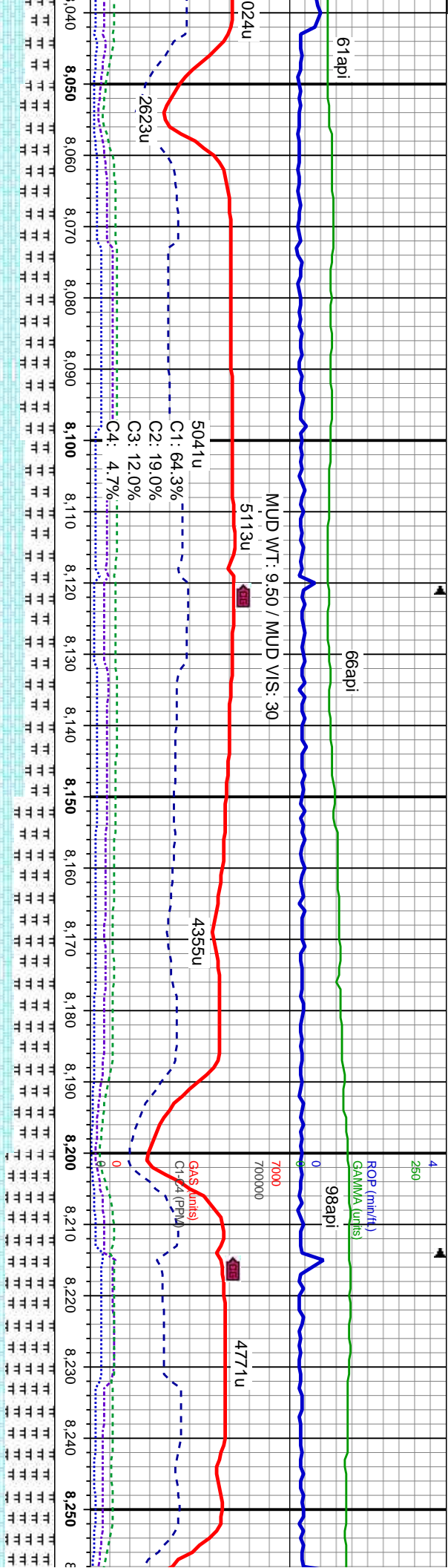
5000
CHK: gy brn-brn, dk gy brn, sb blk, sft-sl
tex, mot, v calc, MRLST: dk gy, sb blk-ply,
frm-brt, mot, calc cnt, rthy istr, tr fos frags:
fast, bri bl sting-flash cut, bri bl wh flor ring,
tan vis ring

MD: 7.868'
TVD: 6,402.71'
Inclination: 92.2 °
Azimuth: 90.4°
VS: 1,518.29'

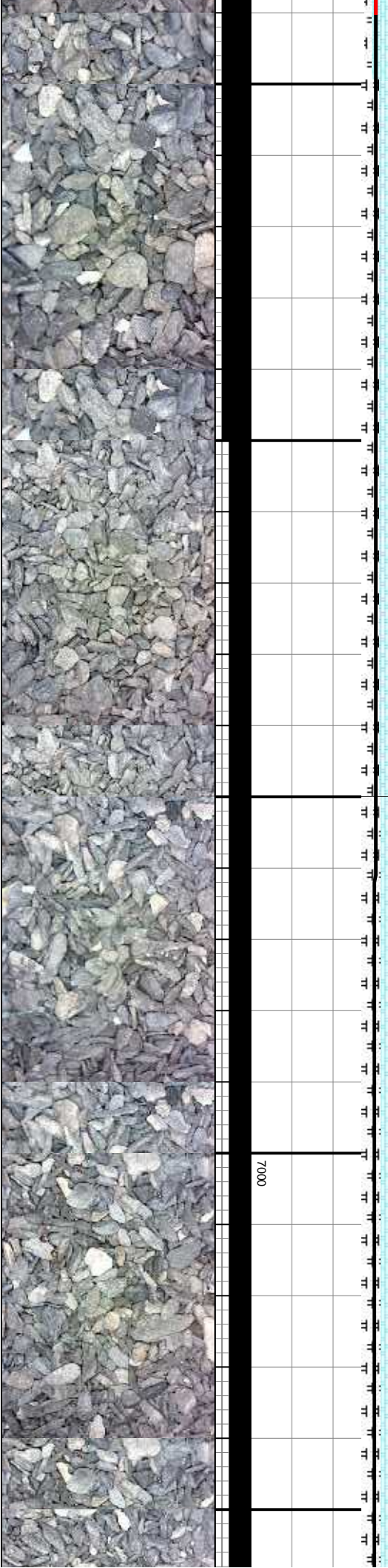
MD: 7.964'
TVD: 6,399.44'
Inclination: 91.7 °
Azimuth: 92.4°
VS: 1,614.23'

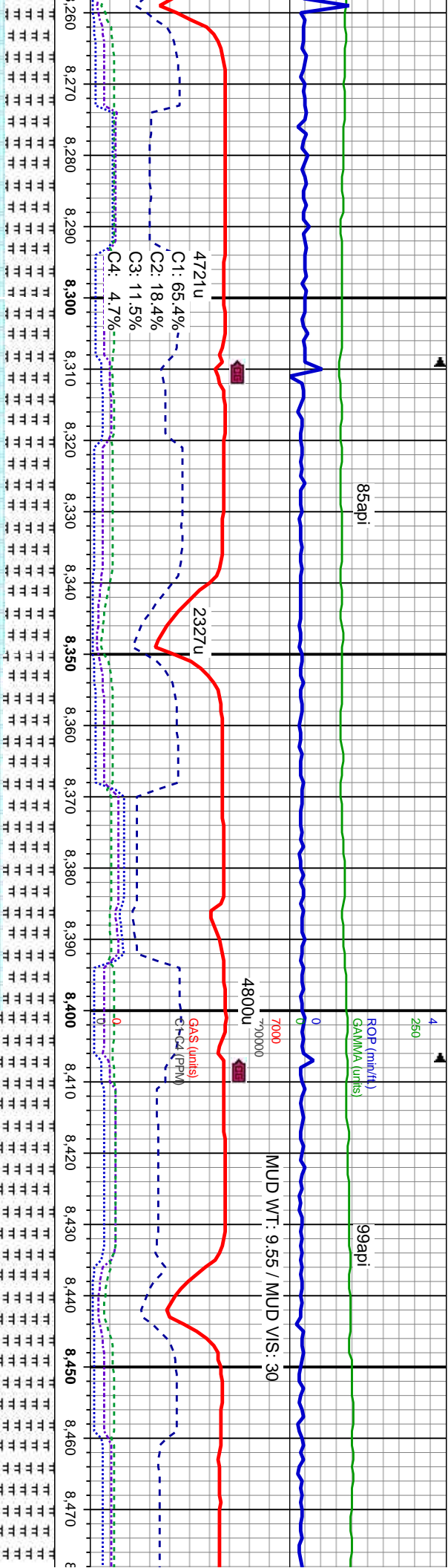
TVD (ft)





frm, sl rthy	CHK: gy brn-brn, dk gy brn, sb blk, sft-sl frm, sl rthy	CHK: gy brn-brn, gy, sb blk, sft-sl frm, sl rthy tex, mot, v calc, MRLST: dk gy, sb blk-ply, frm-brit, mot, calc cnt, rthy istr, tr fos frags, med fast, bri bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk-med gy, sb blk-sb ply, frm-brit, slty-sl mot, calc cnt, rthy istr, tr fos frags, CHK: gy brn-brn, gy, sb blk, sft-sl frm, sl wxy-rthy tex, mot, v calc, med fast, bri bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk-med gy, sb blk-sb ply, frm-brit, slty-sl mot, calc cnt, rthy istr, tr fos frags, CHK: brn-gy brn, sb blk, sft-sl frm, sl wxy-rthy tex, mot, v calc; med fast, bri bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk-med gy, sb blk-sb ply, frm-brit, slty-sl mot, calc cnt, rthy istr, tr fos frags, CHK: brn-gy brn, sb blk, sft-sl frm, sl wxy-rthy tex, mot, v calc; med fast, bri bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring
MD: 8,060' TVD: 6,398.77' Inclination: 89.1° Azimuth: 91.5° VS: 1,710.19'			MD: 8,155' TVD: 6,399.93' Inclination: 89.5° Azimuth: 91.5° VS: 1,805.18'		MD: 8,251' TVD: 6,400.94' Inclination: 89.3° Azimuth: 90.8° VS: 1,901.17'





dk-med gy, sb blk-y-sb pily, frm-brit, silty-sl
ic cnt, rthy lst, tr fos frags, CHK: brn-gy
blk-y, sft-sl frm, sl wxy-rthy tex, mot, v calc;
it, bri bl sting-flash cut, bri bl wh flor ring,
vis ring

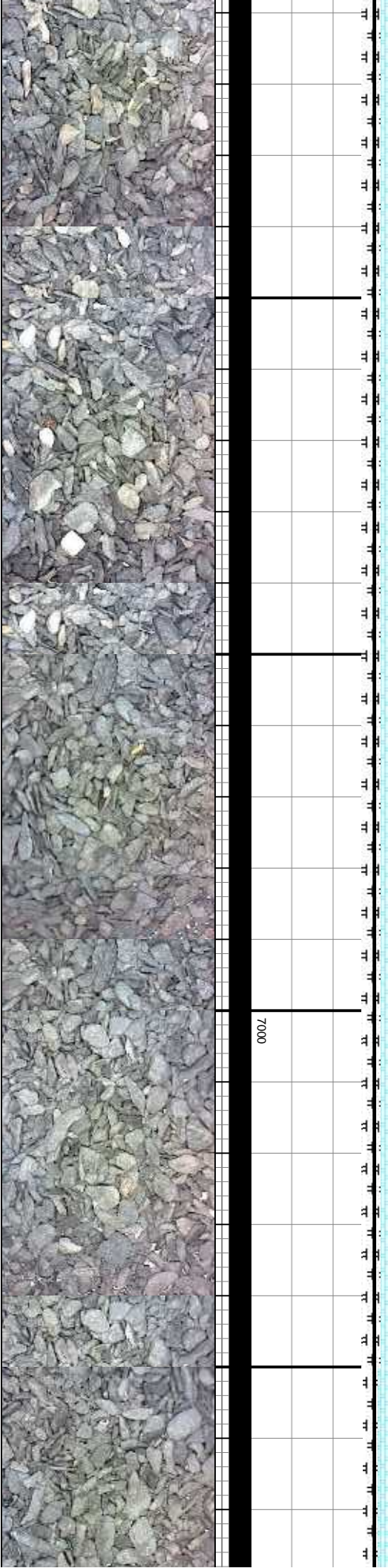
MRLST: dk-med gy, sb blk-y-sb pily, frm-brit, silty-sl
mot, calc cnt, rthy lst, tr fos frags, CHK: brn-gy
brn, sb blk-y, sft-sl frm, sl wxy-rthy tex, mot, v calc;
med fast, bri bl sting-flash cut, bri bl wh flor ring,
thin tan vis ring

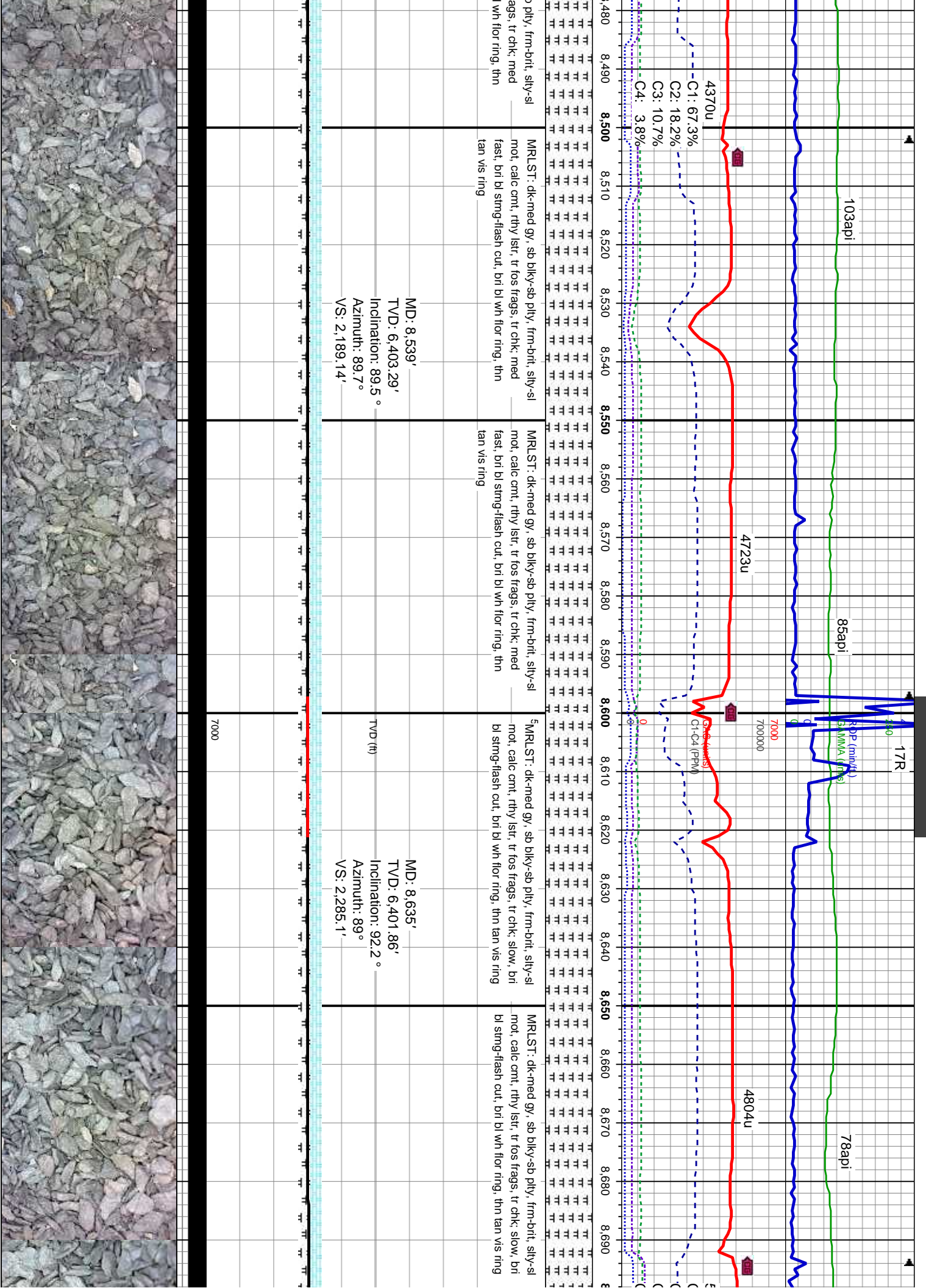
MRLST: dk-med gy, sb blk-y-sb pily, frm-brit, silty-sl
mot, calc cnt, rthy lst, tr fos frags, CHK: med
fast, bri bl sting-flash cut, bri bl wh flor ring, thin
tan vis ring

MRLST: dk-med gy, sb blk-y-sb pily, frm-brit, silty-sl
mot, calc cnt, rthy lst, tr fos frags, CHK: med
fast, bri bl sting-flash cut, bri bl wh flor ring, thin
tan vis ring

MD: 8,348'
TVD: 6,401.95'
Inclination: 89.5 °
Azimuth: 90.3 °
VS: 1,998.16'

MD: 8,443'
TVD: 6,402.62'
Inclination: 89.7 °
Azimuth: 90.1 °
VS: 2,093.16'





103api

85api

78api

4370u

4723u

4804u

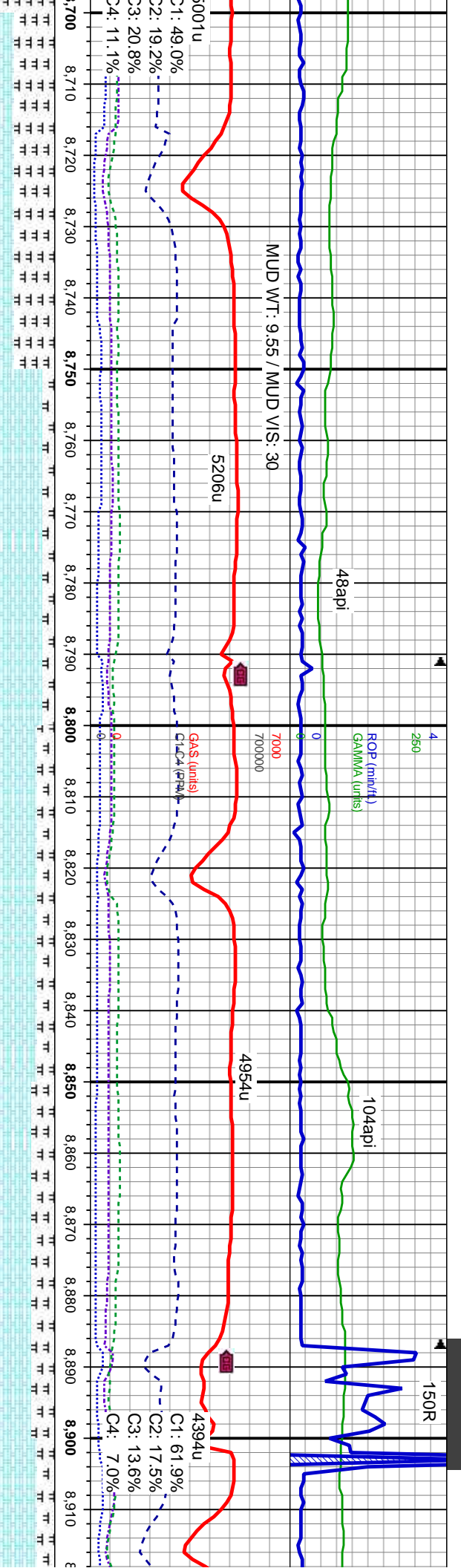
C1: 67.3%
C2: 18.2%
C3: 10.7%
C4: 3.8%

MRLST: dk-med gy, sb blk-y-sb ply, frm-brit, silty-sl
mot, calc cnt, rthy lst, tr fos frags, tr chk, med
fast, brt bl sting-flash cut, brt bl wh flr ring, thin
tan vis ring

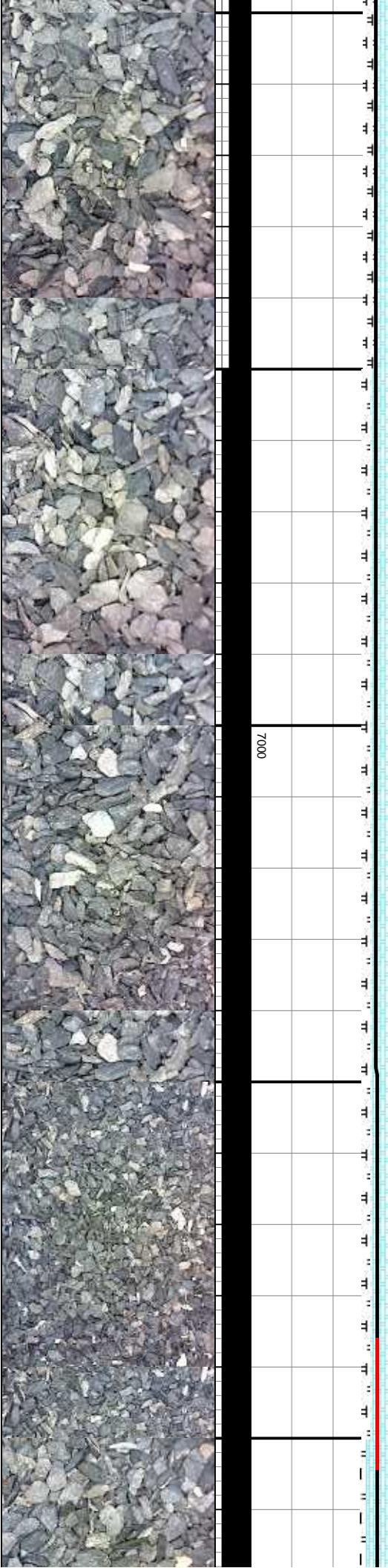
MRLST: dk-med gy, sb blk-y-sb ply, frm-brit, silty-sl
mot, calc cnt, rthy lst, tr fos frags, tr chk, med
fast, brt bl sting-flash cut, brt bl wh flr ring, thin
tan vis ring

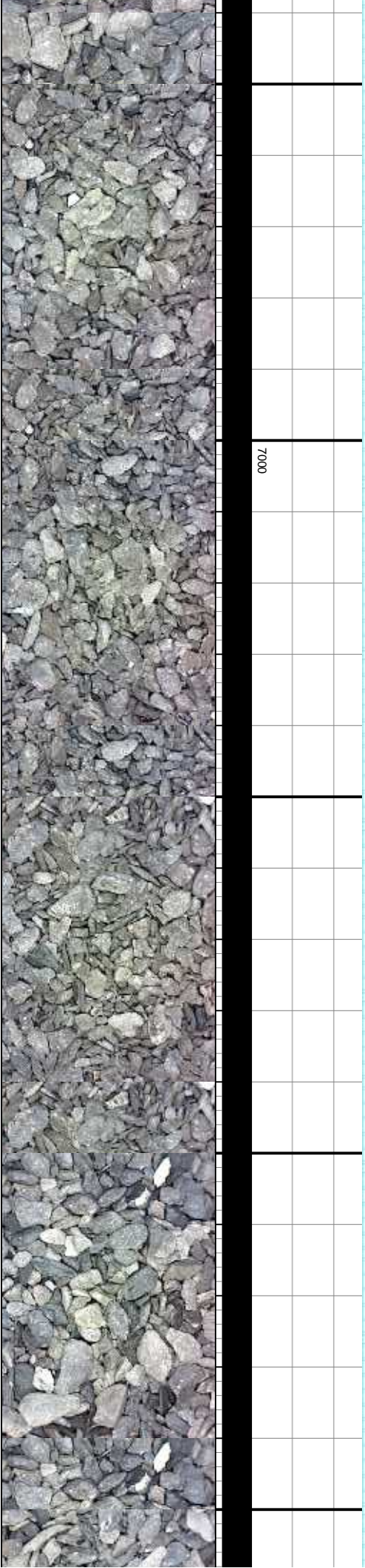
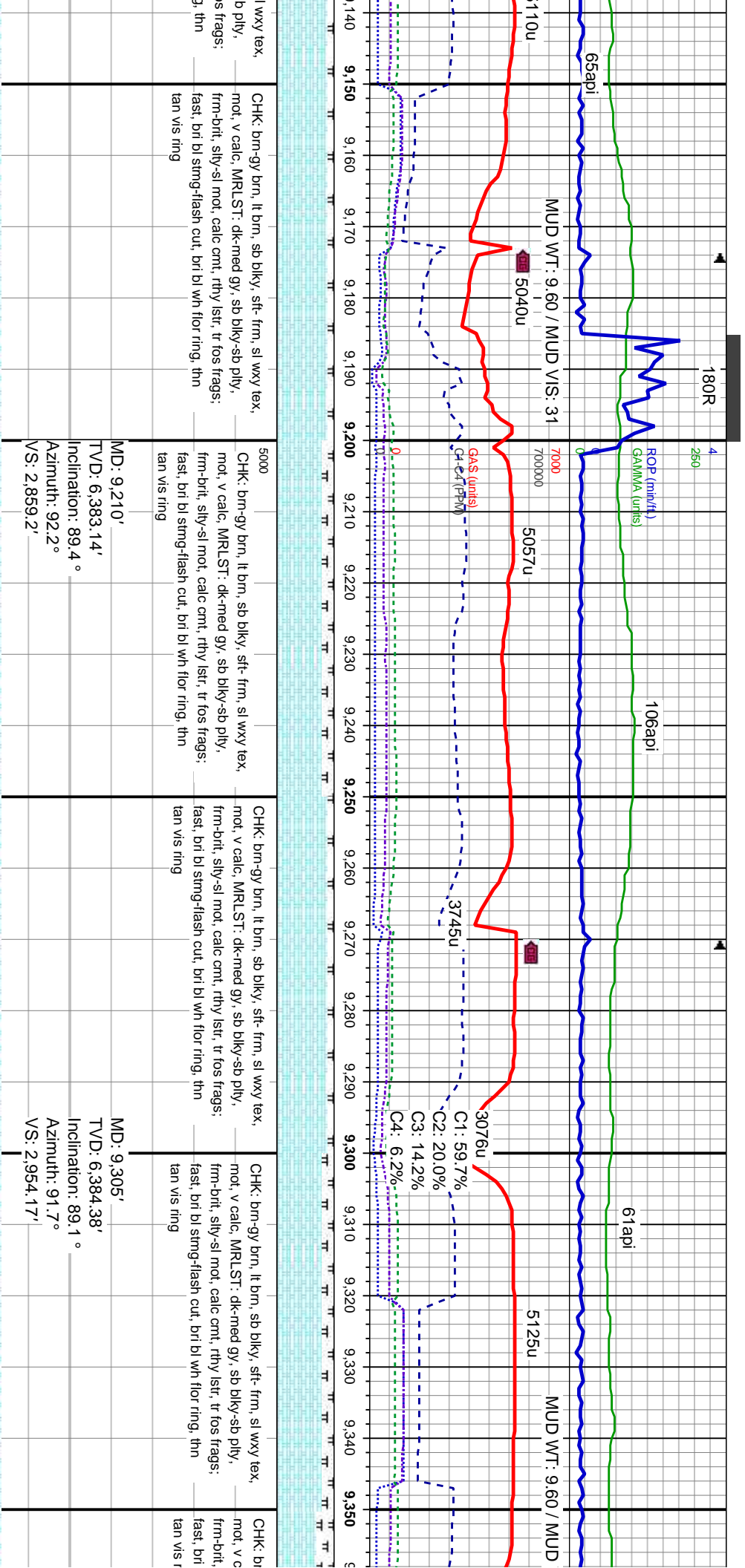
MRLST: dk-med gy, sb blk-y-sb ply, frm-brit, silty-sl
mot, calc cnt, rthy lst, tr fos frags, tr chk, slow, brt
bl sting-flash cut, brt bl wh flr ring, thin tan vis ring

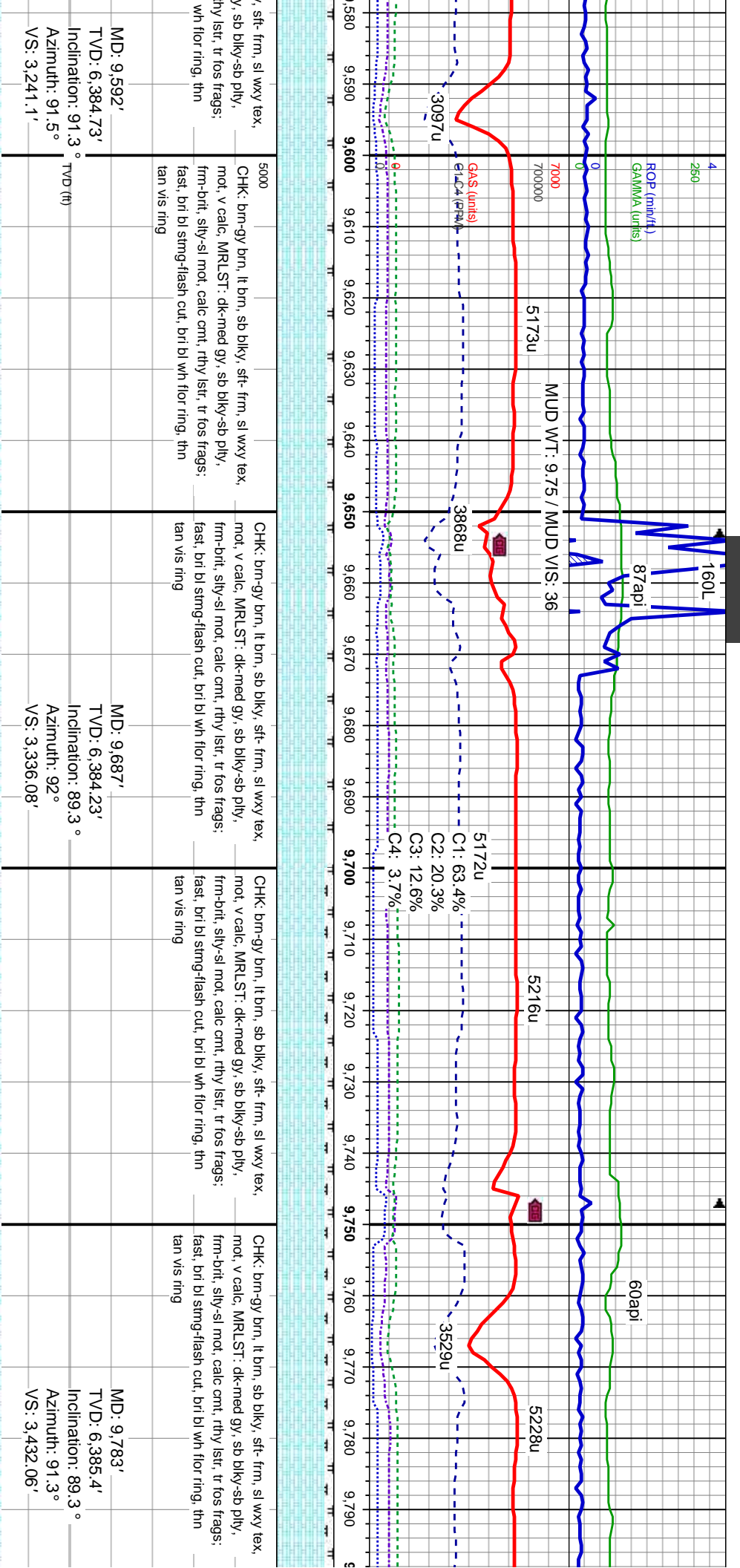
MRLST: dk-med gy, sb blk-y-sb ply, frm-brit, silty-sl
mot, calc cnt, rthy lst, tr fos frags, tr chk, slow, brt
bl sting-flash cut, brt bl wh flr ring, thin tan vis ring



MRLST: dk-med gy, sb blk-y-sb ply, frm-brit, silty-sl mot, calc cnt, rthy lsir, tr fos frags, CHK: brn, gy brn-gy, sb blk-y, sft-frm, sl wxy-rthy tex, rthy lsir, tr fos frags; fast, bri bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 8,731' TVD: 6,398.18' Inclination: 92.2 ° Azimuth: 88° VS: 2,380.95'	CHK: brn, gy brn-gy, sb blk-y, sft-frm, sl wxy-rthy tex, mot, v calc, MRLST: dk-med gy, sb blk-y-sb ply, frm-brit, silty-sl mot, calc cnt, rthy lsir, tr fos frags; fast, bri bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 8,827' TVD: 6,393.99' Inclination: 92.8 ° Azimuth: 86.7° VS: 2,476.69'	CHK: brn, gy brn-gy, sb blk-y, sft-frm, sl wxy-rthy tex, mot, v calc, MRLST: dk-med gy, sb blk-y-sb ply, frm-brit, silty-sl mot, calc cnt, rthy lsir, tr fos frags; med fast, bri bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 8,827' TVD: 6,393.99' Inclination: 92.8 ° Azimuth: 86.7° VS: 2,476.69'







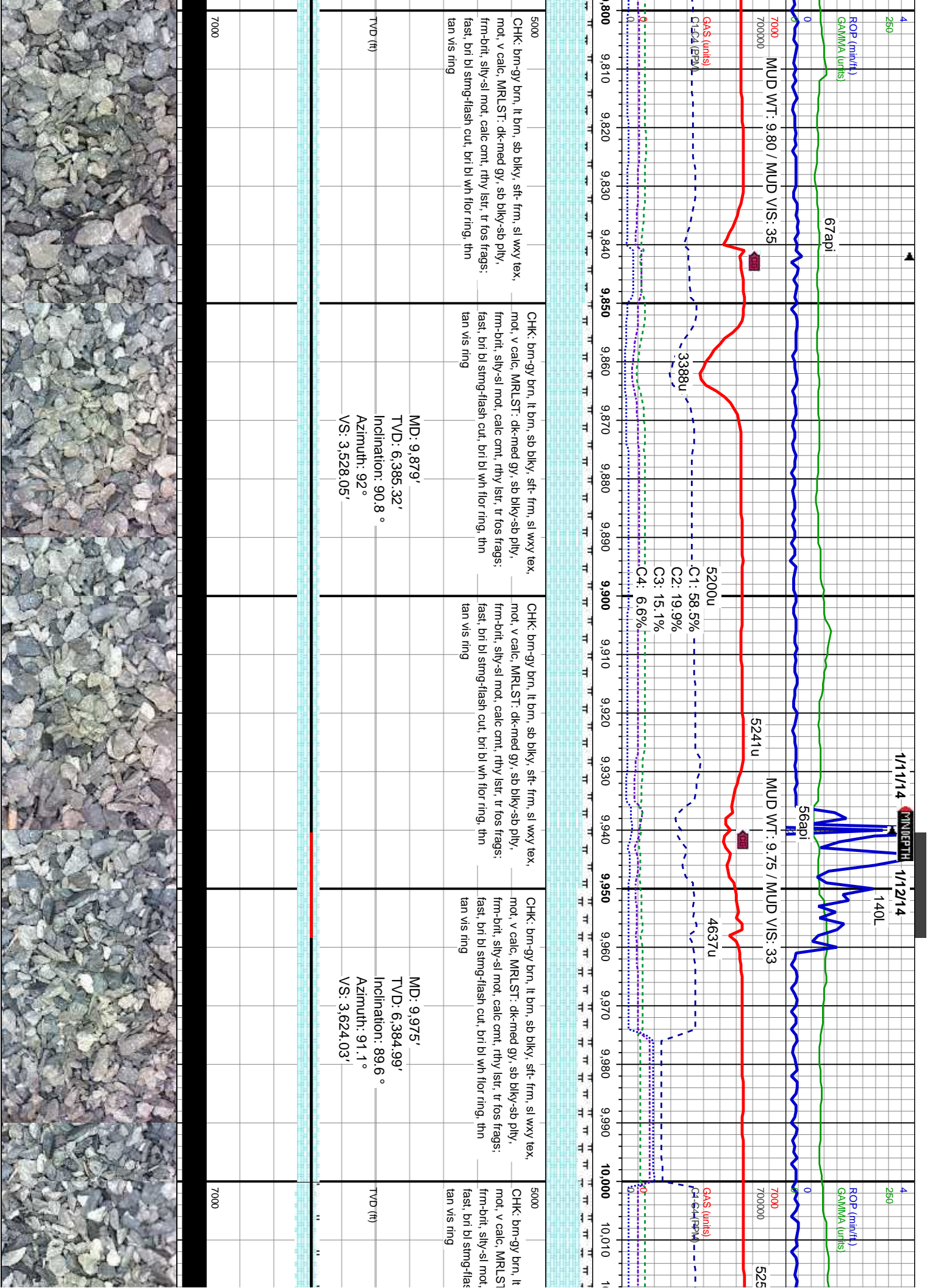
MD: 9,592'
TVD: 6,384.73'
Inclination: 91.3°
Azimuth: 91.5°
VS: 3,241.1'

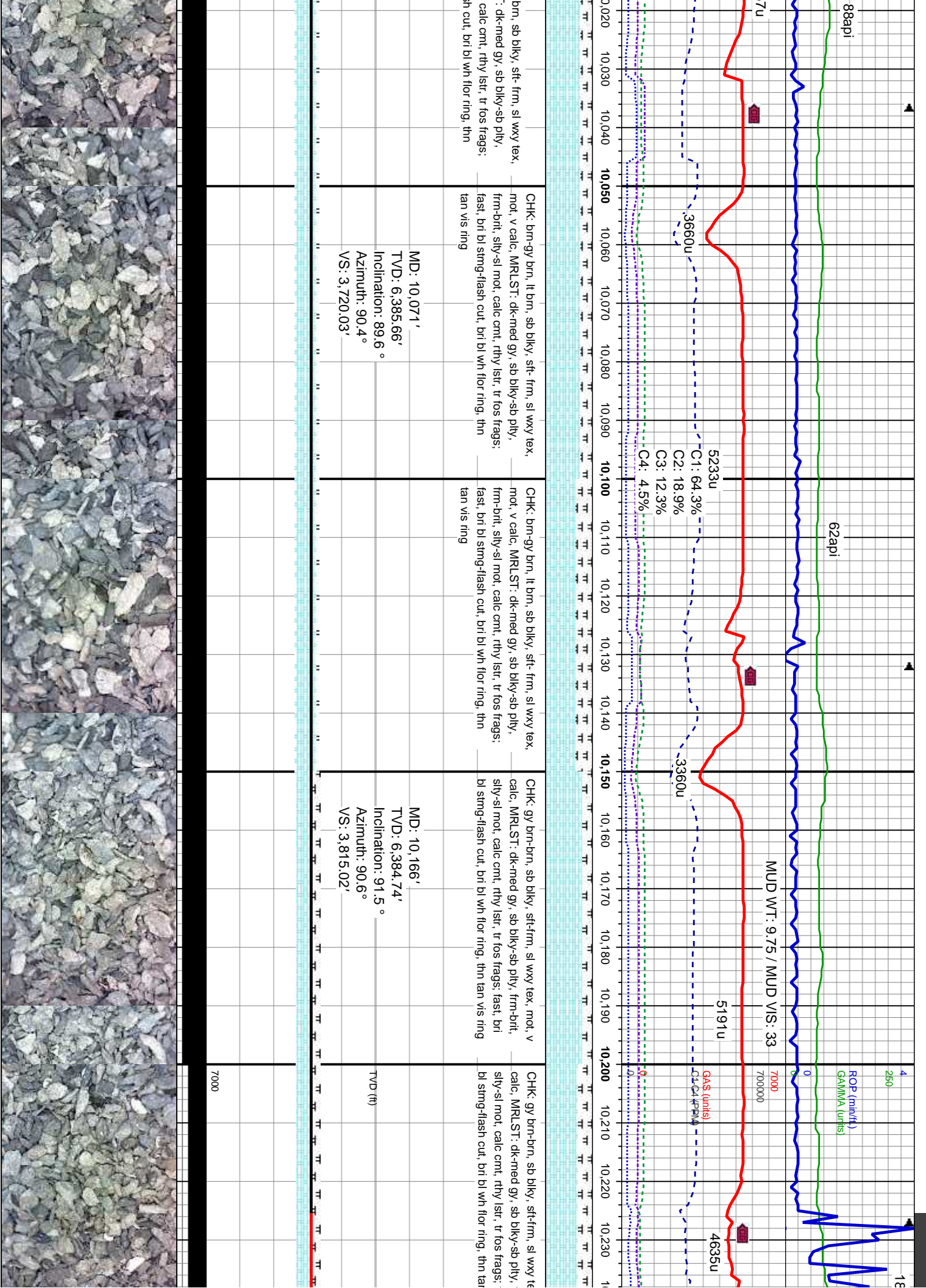
MD: 9,687'
TVD: 6,384.23'
Inclination: 89.3°
Azimuth: 92°
VS: 3,336.08'

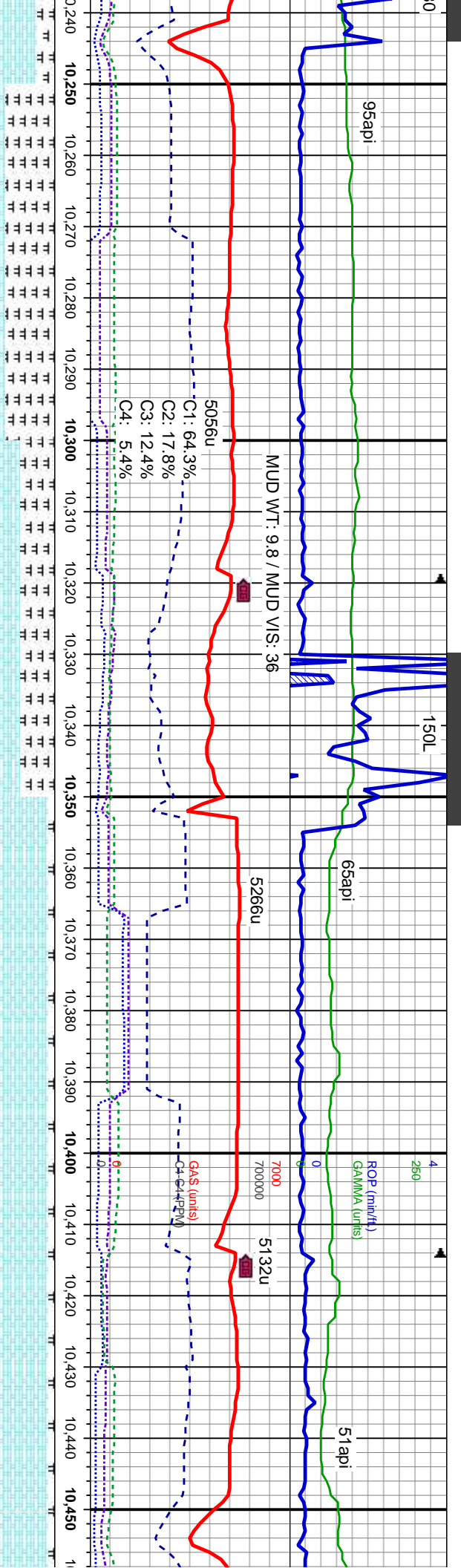
MD: 9,783'
TVD: 6,385.4'
Inclination: 89.3°
Azimuth: 91.3°
VS: 3,432.06'

7000

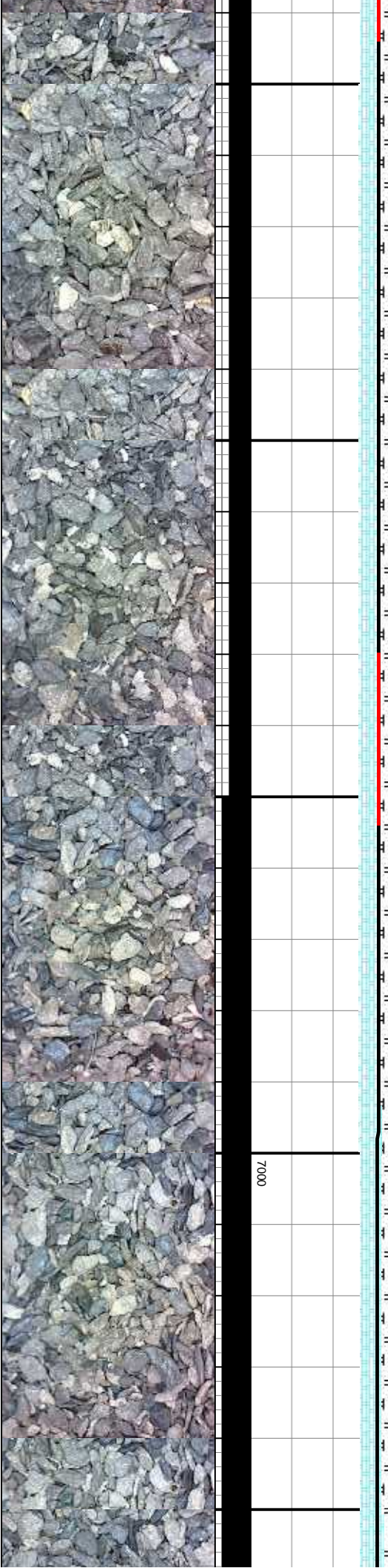


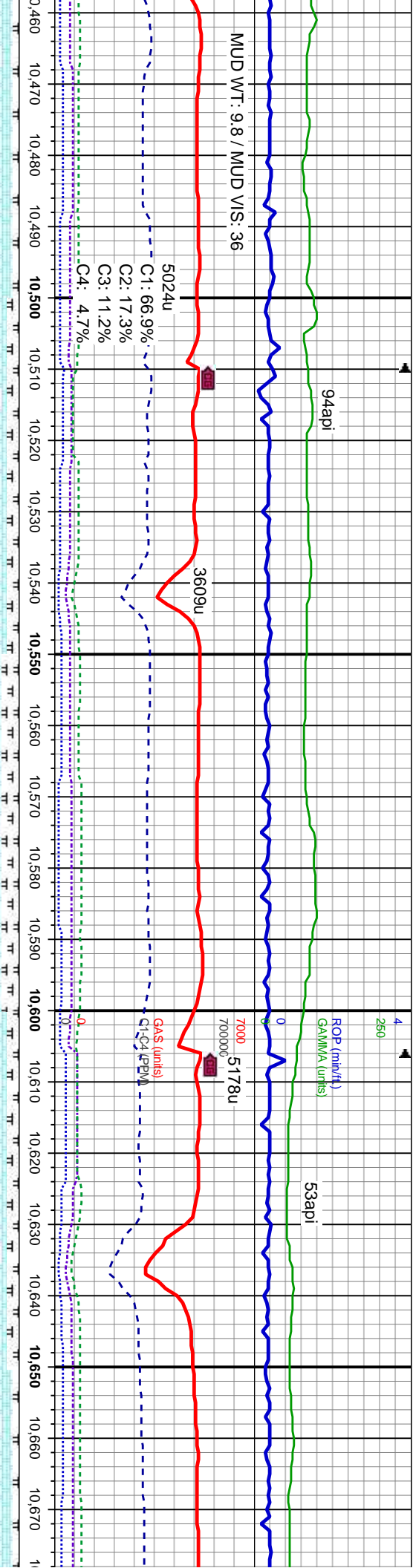






ax, mot, v frm-brit, v vis ring	MRLST: dk-med gy, sb biky-sb ply, frm-brit, silty-sl mot, calc cnt, rthy lstr, com fos frags, CHK: gy brn, sb biky, sft-frm, sl wxy tex, mot, v calc; fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	MRLST: dk-med gy, sb biky-sb ply, frm-brit, silty-sl mot, calc cnt, rthy lstr, com fos frags, CHK: gy brn, sb biky, sft-frm, sl wxy tex, mot, v calc; fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: brn - lt brn, gy brn, sb biky, sft-frm, sl wxy tex, mot, v calc, MRLST: dk-med gy, sb biky-sb ply, frm-brit, silty-sl mot, calc cnt, rthy lstr, com fos frags: fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring	CHK: brn - lt brn, gy brn, sb biky, sft-frm, sl wxy tex, mot, v calc, MRLST: dk-med gy, sb biky-sb ply, frm-brit, silty-sl mot, calc cnt, rthy lstr, com fos frags: fast, bri bl string-flash cut, bri bl wh flor ring, thn tan vis ring
MD: 10,260' TVD: 6,382.78' Inclination: 90.9° Azimuth: 90.6° VS: 3,909'			MD: 10,355' TVD: 6,384.27' Inclination: 87.3° Azimuth: 89.2° VS: 4,003.96'	MD: 10,451' TVD: 6,388.62' Inclination: 87.5° Azimuth: 88.5° VS: 4,099.81'

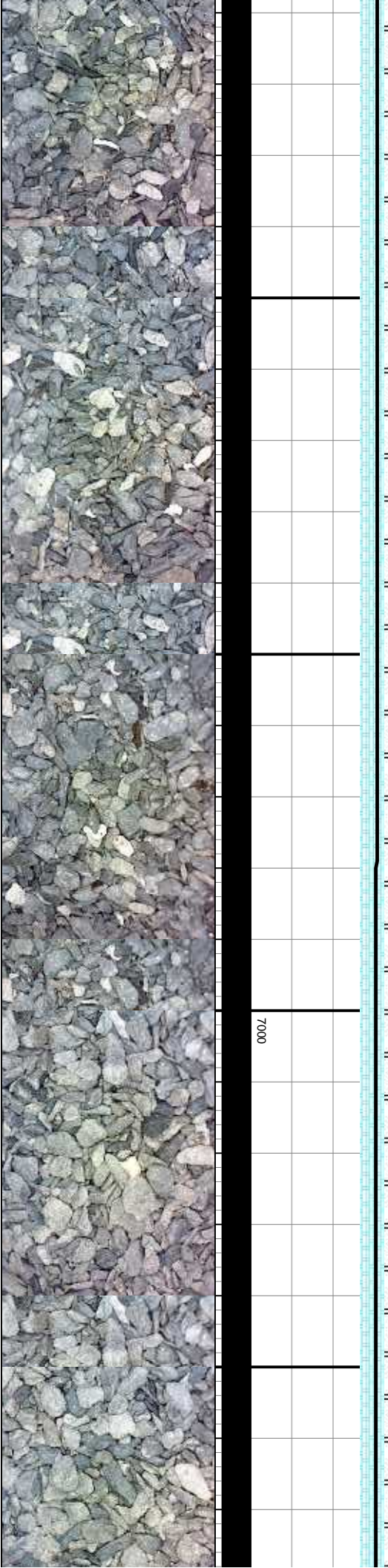




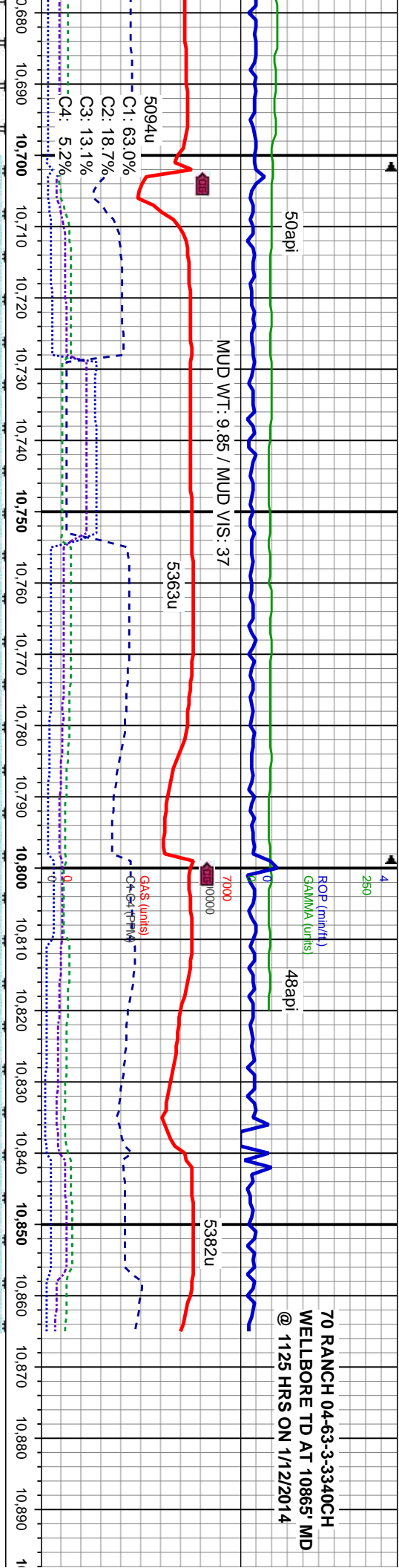
n - lt brn, gy brn, sb blk, sft-fm, sl wxy tex, calc, MRLST: dk-med gy, sb blk-sb ply, sily-si mot, calc cnt, rthy istr, tr fos frags; bl stmg-flash cut, bri bl wh flor ring, thin	CHK: brn - gy brn, sb blk, sft-fm, sl wxy tex, sl mot, v calc, MRLST: dk-med gy, sb blk-sb ply, frm-brt, sily-si mot, calc cnt, rthy istr, tr fos frags; fast, bri bl stmg-flash cut, bri bl wh flor ring, thin vis ring	CHK: gy brn-brn, med gy, sb blk, sft-fm, sl wxy-rthy tex, sl mot, v calc, MRLST: dk-med gy, sb blk-sb ply, frm-brt, sily-si mot, calc cnt, rthy istr, tr fos frags; fast, bri bl stmg-flash cut, bri bl wh flor ring, thin tan vis ring	CHK: brn-gy brn, sb blk, sft-fm, sl wxy-rthy tex, sl mot, v calc, MRLST: dk-med gy, sb blk-sb ply, frm-brt, sily-si mot, calc cnt, rthy istr, tr fos frags; fast, bri bl stmg-flash cut, bri bl wh flor ring, thin vis ring	CHK: brn-gy brn, sb blk, sft-fm, sl wxy-rthy tex, sl mot, v calc, MRLST: dk-med g frm-brt, sily-si mot, calc cnt, rthy istr, tr fos frags; fast, bri bl stmg-flash cut, bri b tan vis ring
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MD: 10,547'
TVD: 6,392.22'
Inclination: 88.2 °
Azimuth: 87.6 °
VS: 4,195.63'

MD: 10,642'
TVD: 6,394.79'
Inclination: 88.7 °
Azimuth: 86.9 °
VS: 4,290.42'



70 RANCH 04-63-3-3340CH
WELLBORE TD AT 10865' MD
@ 1125 HRS ON 1/12/2014



n, sl wxy-rtly tex, sl y, y, sb blyk-sb ply, thy lstr, tr fos frags; wh flr ring, thn	CHK:brn, occ lt brn & gy brn, sb blyk, sft-firm, sl wxy tex, sl mot, v calc, tr mlst, tr fos frags, fast, bri bl stng-flash cut, bri bl wh flr ring, thn tan vis ring	CHK:brn, occ lt brn & gy brn, sb blyk, sft-firm, sl wxy tex, sl mot, v calc, tr mlst, tr fos, fast, bri bl stng-flash cut, bri bl wh flr ring, thn tan vis ring	CHK:brn-t brn, gy brn, sb blyk, sft-firm, sl wxy tex, sl mot, v calc, tr mlst, tr fos, fast, bri bl stng-flash cut, bri bl wh flr ring, thn tan vis ring
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MD: 10,739'
TVD: 6,396.15'
Inclination: 89.7°
Azimuth: 86.2°
VS: 4,387.15'

MD: 10,804'
TVD: 6,396.32'
Inclination: 90°
Azimuth: 85°
VS: 4,451.88'

PTB Survey
MD: 10,865'
TVD: 6,396.32'
Inclination: 90°
Azimuth: 85°
VS: 4,554.03'

THANK YOU FOR USING
COLUMBINE LOGGING, INC.



