



Scale: 5" / 100'
Measured Depth Log

Well Name 70 Ranch 04-63-03-4841CH

Location NWSW S3 T4N R63W

State COLORADO

Country USA

API Number 05-123-37993

Region DJ BASIN

Spud Date 12/27/2013

Surface Coordinates 1973' FSL, 243' FWL

Bottom Hole Coordinates 1844' FSL, 500' FEL

County WELD

Rig Number NABORS M37

AFE # 18534D

Field WATTENBERG

Drilling Completed 1/2/2014

Ground Elevation 4560'

K.B. Elevation 4583'

Logged Interval 4000' To 10889'

Total Depth 10889'

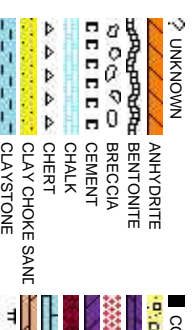
Formation NIOBRARA C CHALK

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

SITE GEOLOGISTS PASQU
ELIZAB
ERIC E
RIKIV



Operator

CORP.

STE: 2300
00202

Geologist

CORP.

STE: 2300
00202

Other

PALE DEL VECCHIO
BETH STOREY
ERNARDO
WITHERSPOON

Rock Types

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

Accessories

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

Other Symbols

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

Slide/Rotate

ROP
ROF
GAMMA

Total Gas & Chromatograph
GAS
C1
C2
C3
C4

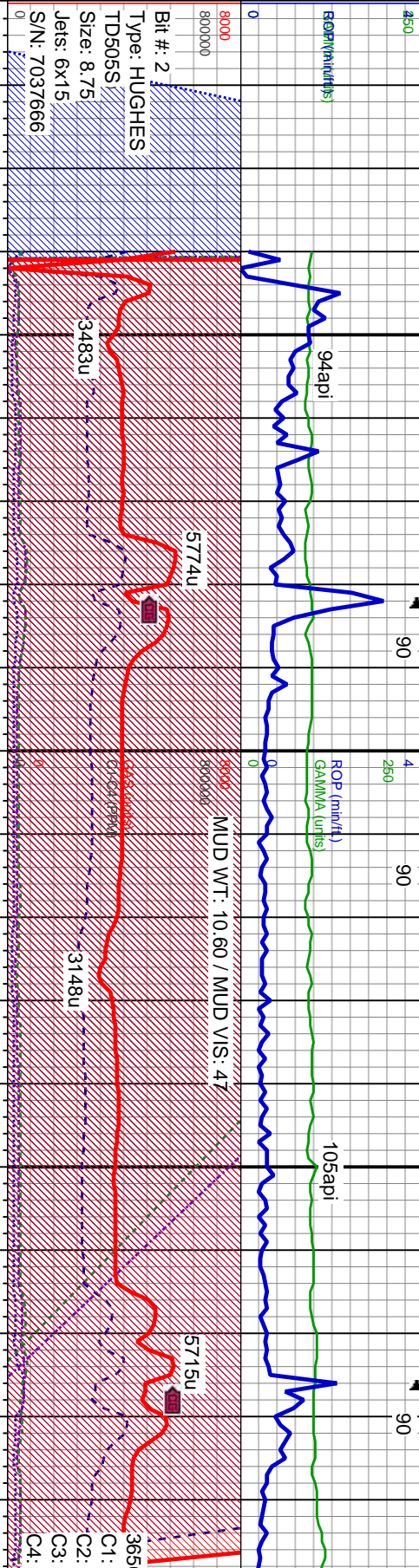
Depth Labels

% Lith

Well Bore
TVD

Oil Show

Images



Columnine Logging
2-Manned Geosteering
Operational 12/28/2013
Bloodhound# 314

Drilling Resumed @
16:59 on 12/28/13

SHY SLTST: gy-dk gy, firm-hd, blk-y-sb blk-y, occ sb blk-y-sb ply, gr-rthy, occ sd, non calc, qtz gr, occ cnt, arg, biot incl, SHYSS: lt gy-med gy, frt, f gr, sb rd- rd, mod-w str, arg, com glauc & biot incl, tr SS

SHY SLTST: gy-dk gy, firm-hd, blk-y-sb blk-y, occ sb blk-y-sb ply, gr-rthy, occ sd, non calc, qtz gr, occ cnt, arg, biot incl, intbnd w/ SLTY SH: gy-dk gy, some blk, sb blk-y-ply, fis, v-f-mic gr, sl tr pyr, sl tr SHY SS

TVD (ft)

MD: 6,015'
TVD: 6,002.84'
Inclination: 8.7°
Azimuth: 80.6°
VS: -189.86'

7000

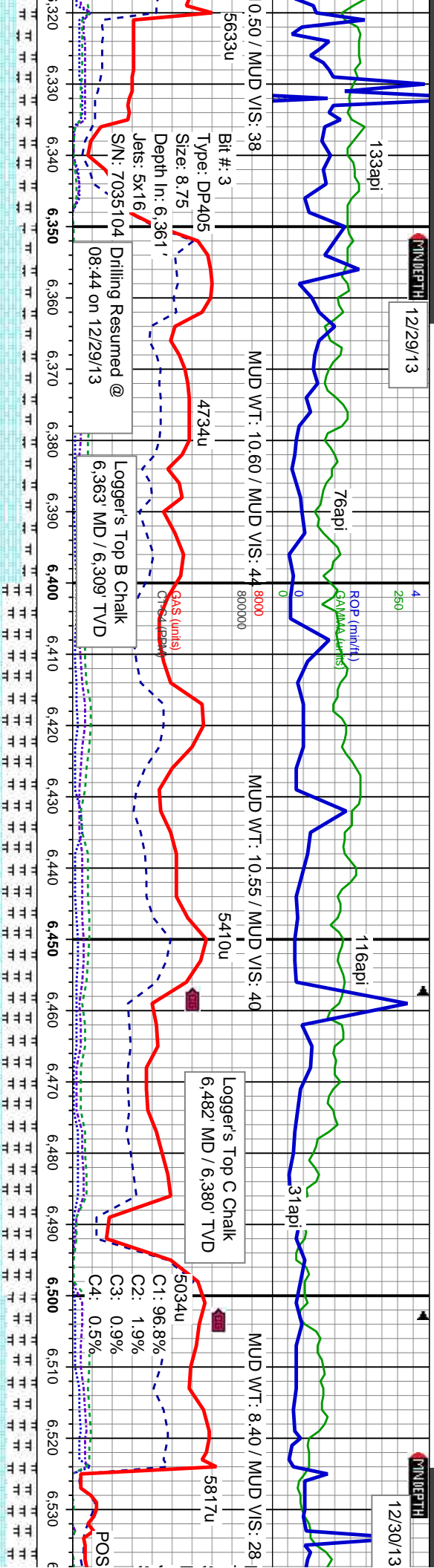


MINDEPTH

12/29/13

MINDEPTH

12/30/13



sb blkly, sft-sf frm, mot, v calc,
sb blkly-ply, pred frm, occ mod
rthy lst, dissn pyr, lt bent, slow,
cut, bri bl wh flr ring, thn tan vis

CHK: lt gy brn-med gy, brn, sb blkly, sft-frm, mot, v
calc, MRLST: dk gy-med gy, sb blkly-ply, pred frm,
occ mod sft, mot, calc cnt, rthy lst, dissn pyr,
slow, dull bl stmg-flash cut, bri bl wh flr ring, thn
tan vis ring

5MRLST: dk gy-med gy, sb blkly-ply, frm-mod sft, sl
mot, calc cnt, rthy lst, CHK: med gy-gy brn, lt gy,
sb blkly, sft-frm, mot, v calc, dissn pyr, slow, dull bl
stmg-flash cut, bri bl wh flr ring, thn tan vis ring

MRLST: dk gy-med gy, sb blkly-ply, frm-mod sft, sl
mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb
blkly, sft-frm, mot, v calc, dissn pyr, slow, dull bl
stmg-flash cut, bri bl wh flr ring, thn tan vis ring

MRLST: dk gy-med gy, sb blkly-ply, frm-r
mot, calc cnt, rthy lst, CHK: brn-gy brn, lt
blkly, sft-frm, mot, v calc, dissn pyr, slow,
stmg-flash cut, bri bl wh flr ring, thn tan v

MD: 6,335'
TVD: 6,289.4'
Inclination: 42°
Azimuth: 91.1°
VS: -28.04'

MD: 6,367'
TVD: 6,312.39'
Inclination: 46.1°
Azimuth: 91°
VS: -35.8'

MD: 6,398'
TVD: 6,333.17'
Inclination: 49.7°
Azimuth: 90.6°
VS: -12.8'

MD: 6,430'
TVD: 6,352.87'
Inclination: 54.3°
Azimuth: 90.3°
VS: 12.45'

MD: 6,462'
TVD: 6,370.53'
Inclination: 58.7°
Azimuth: 89.9°
VS: 39.08'

MD: 6,504'
TVD: 6,390.79'
Inclination: 63.6°
Azimuth: 90.3°
VS: 75.85'

MD: 6,534'
TVD: 6,403.0'
Inclination: 66°
Azimuth: 90.6°
VS: 103.22'

Drilling resumed at
15:23 on 12/30/13

7000

12/31/13

20L

180

112api

ROP (min/ft)
GAMMA (units)

74api

633api

8000

MUD WT: 8.55 / MUD VIS: 27

2634u

4867u

1342u

Gas (m/s)
C4 (ppm)

4155u

C1: 57.7%
C2: 20.2%
C3: 15.6%
C4: 6.5%

: dk gy-med gy, sb bkly-pily, frm-mod sft, sl
cnt, rthy lstr, CHK: brn-gy brn, lt gy, sb
-frm, mot, v calc, dissm pyr, slow, dull bl
sh cut, bri bl wh flr ring, thn tan vis ring

MRLST: dk gy-med gy, sb bkly-biky, frm-mod sft, sl
mot, calc cnt, sl rthy lstr, slow, dull bl string-flash
cut, bri bl wh flr ring, thn tan vis ring

MRLST: dk gy-med gy, sb bkly-biky, frm-mod sft, sl
mot, calc cnt, sl rthy lstr, slow, dull bl string-flash
cut, bri bl wh flr ring, thn tan vis ring

MRLST: dk gy-med gy, sb bkly-biky, frm-mod sft, sl
mot, calc cnt, sl rthy lstr, tr inlbd chk, slow, dull bl
string-flash cut, bri bl wh flr ring, thn tan vis ring

MRLST: dk gy-med gy, sb bkly
mot, calc cnt, sl rthy lstr, tr inlbd
string-flash cut, bri bl wh flr ring

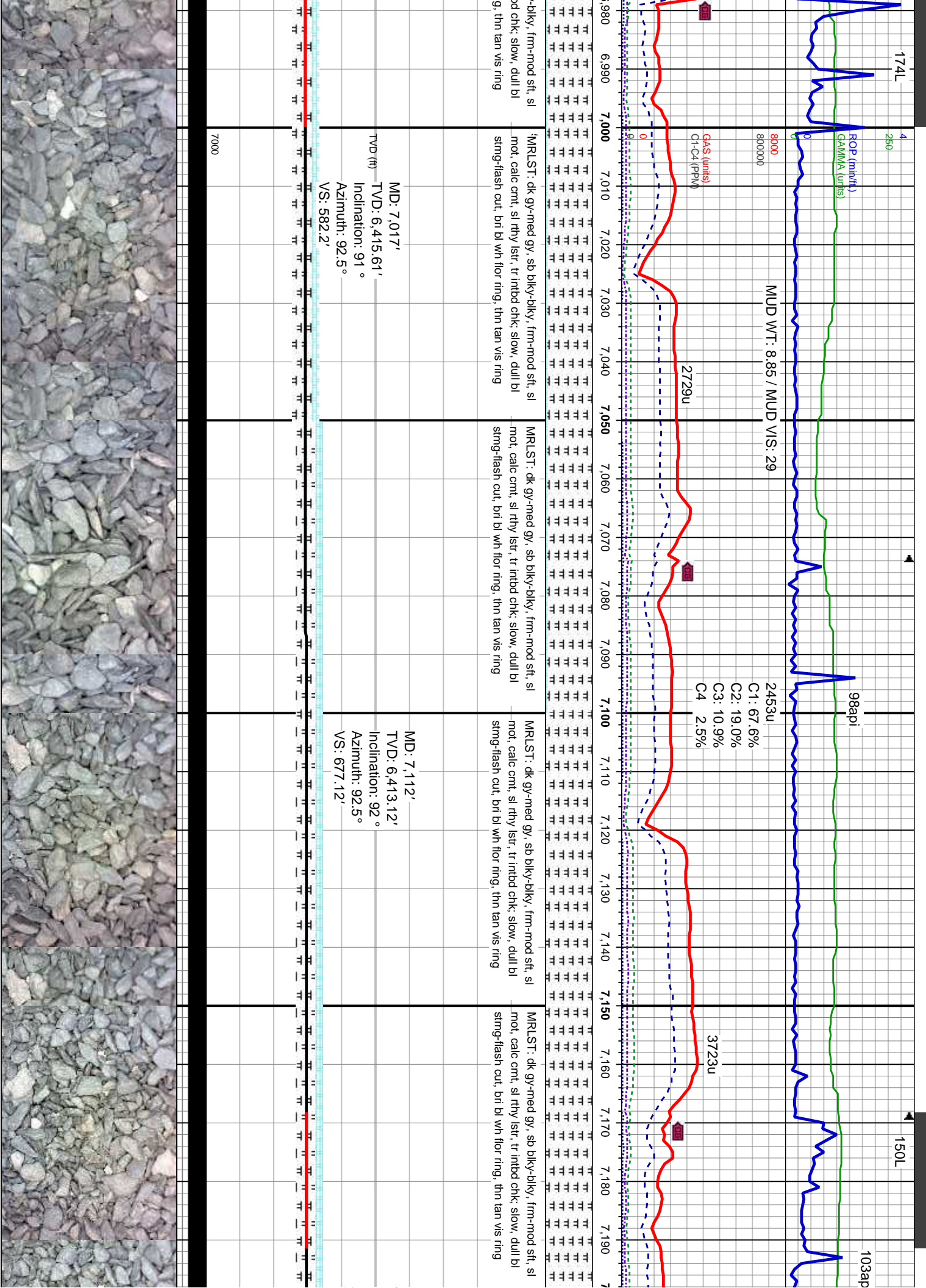
TVD (ft)

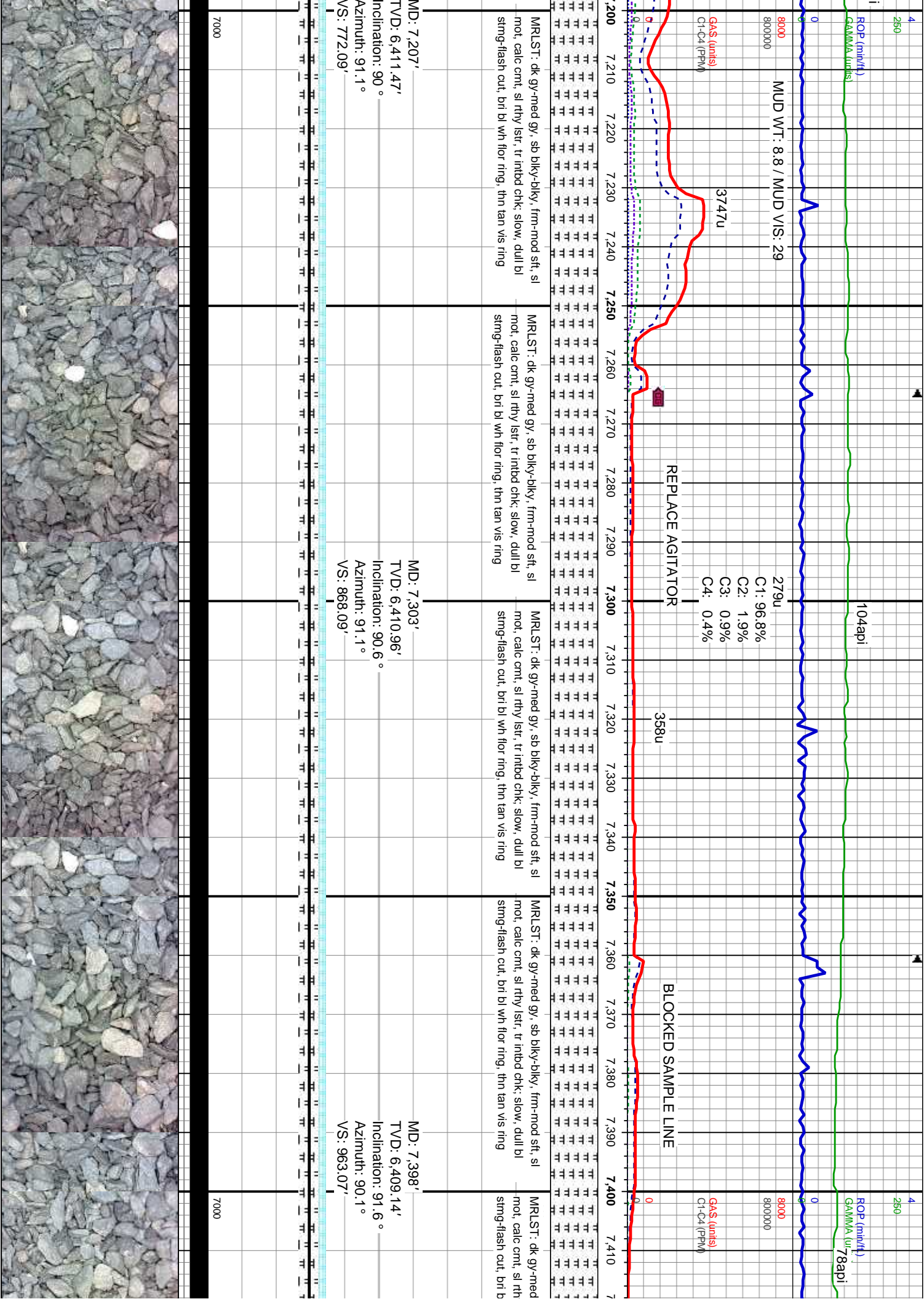
MD: 6.825'
TVD: 6.425.82'
Inclination: 94.2 °
Azimuth: 91 °
VS: 390.51'

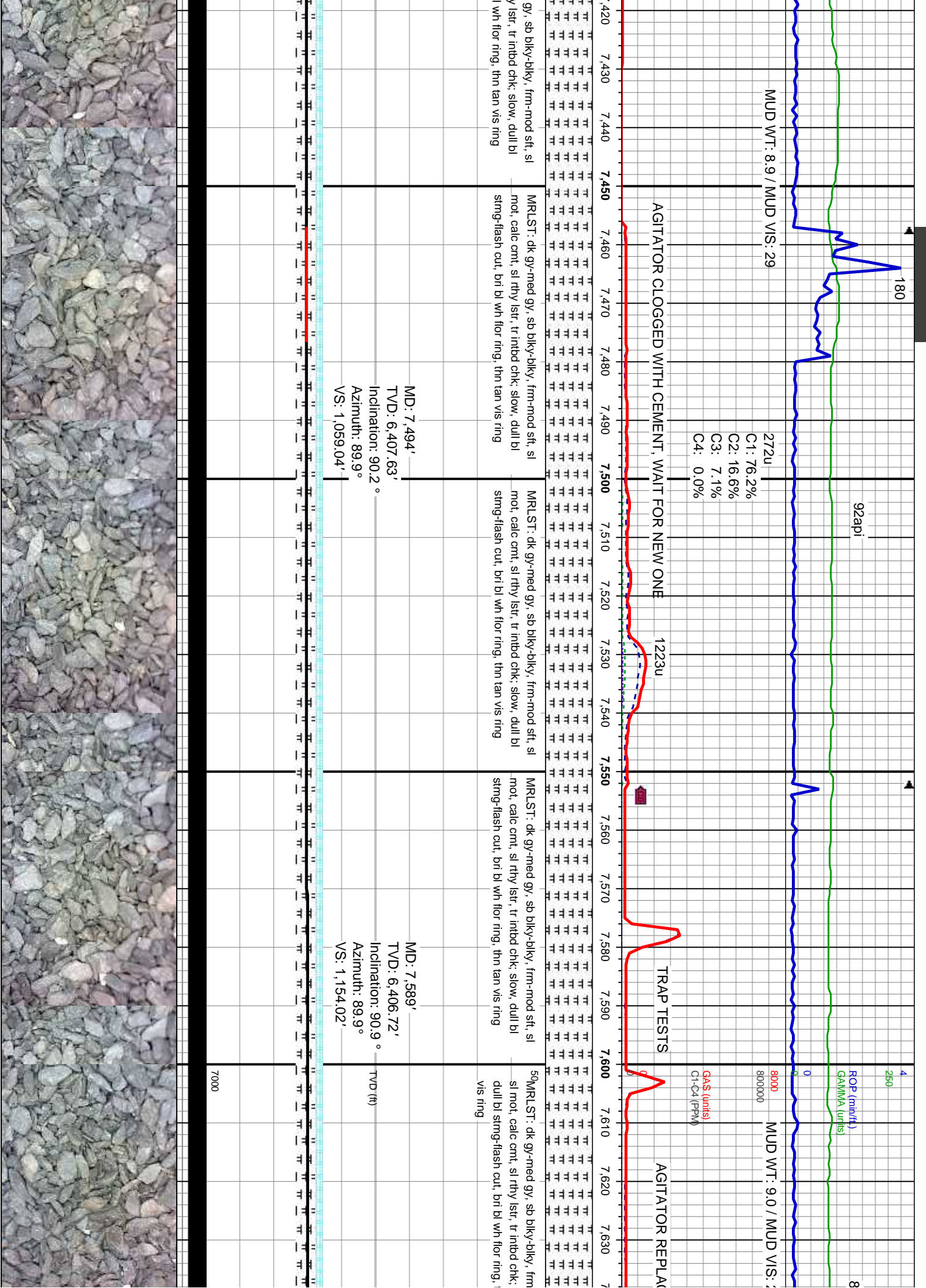
MD: 6.921'
TVD: 6.419.38'
Inclination: 93.5 °
Azimuth: 90.8 °
VS: 486.29'

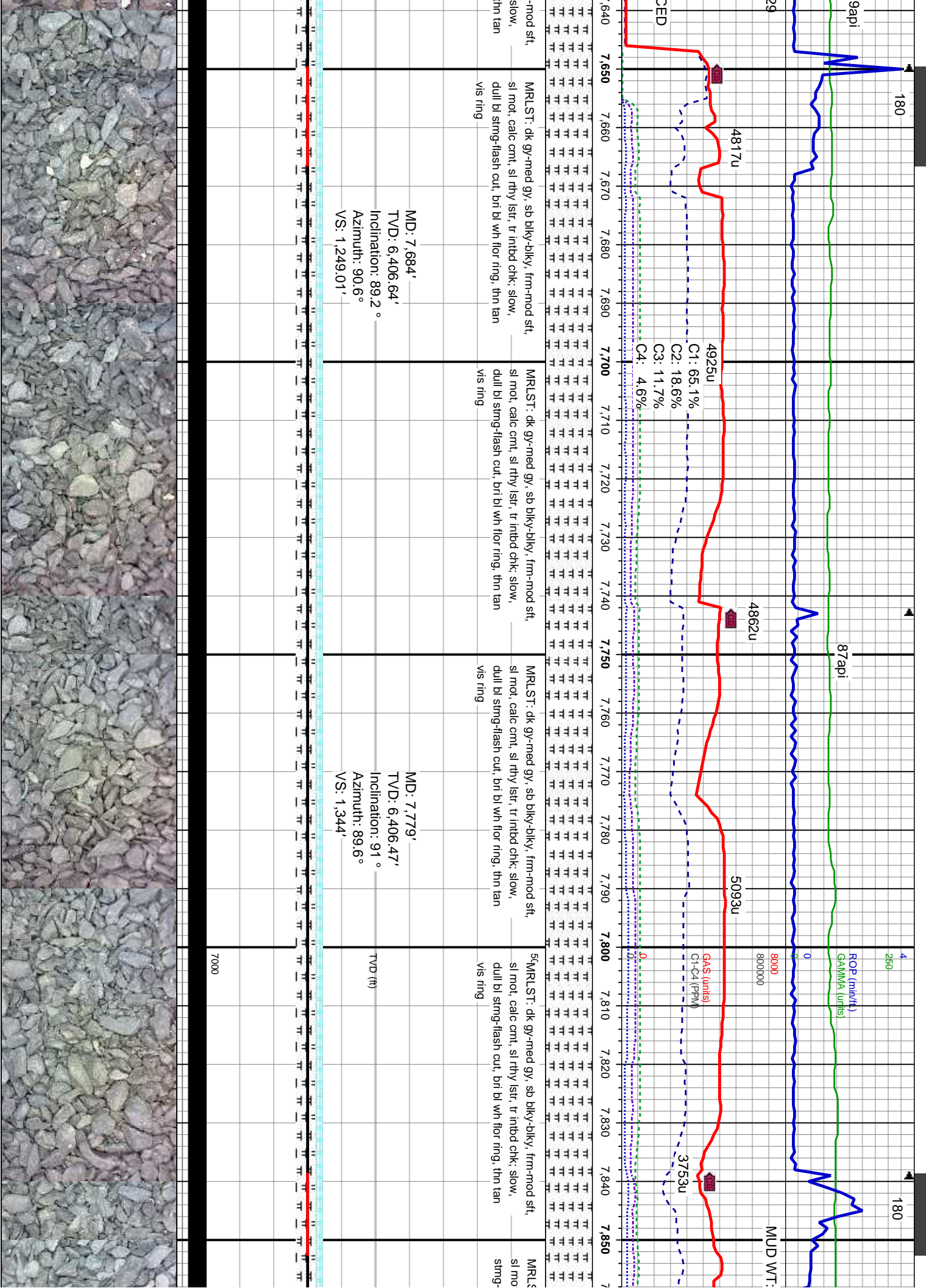
7000

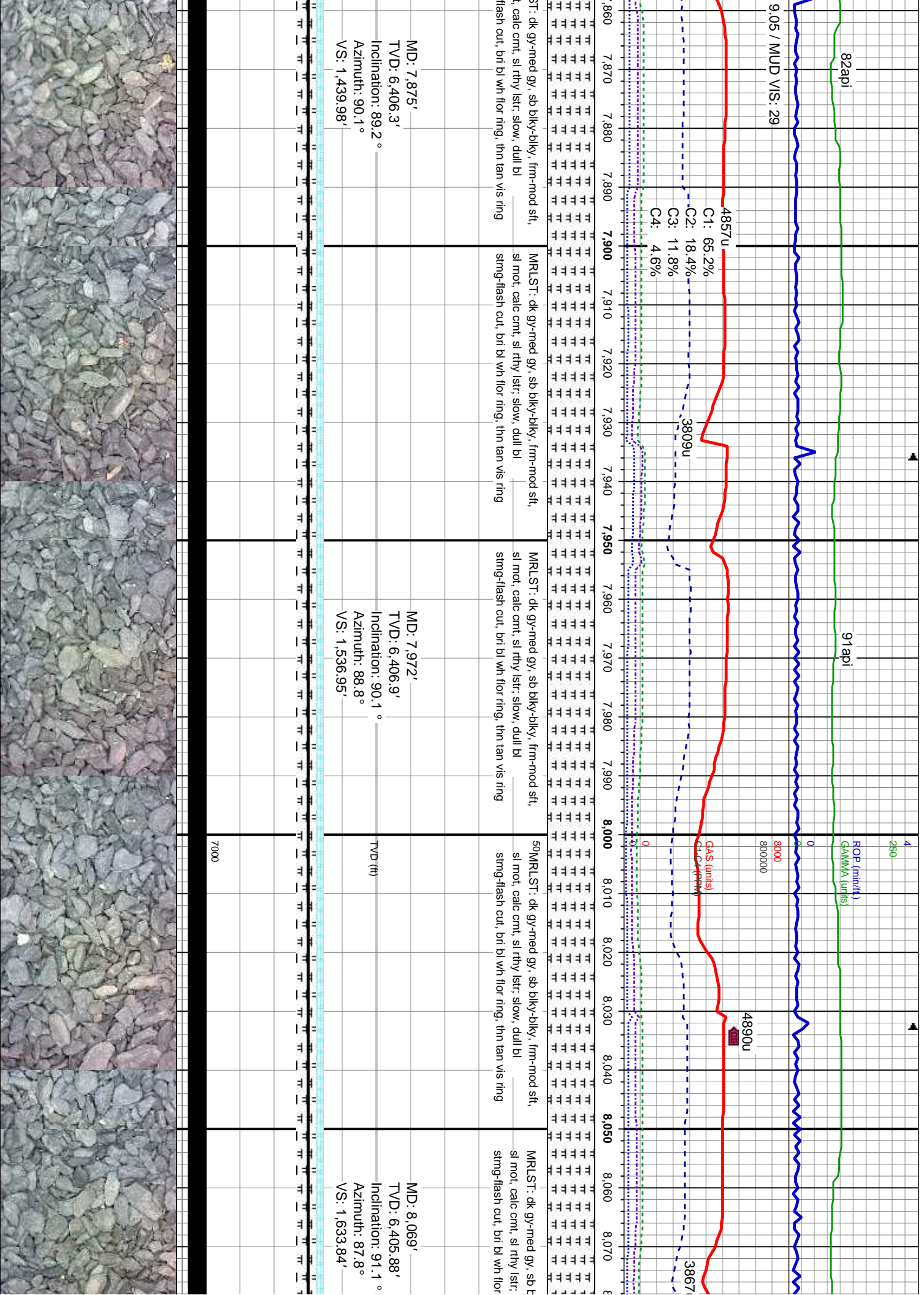


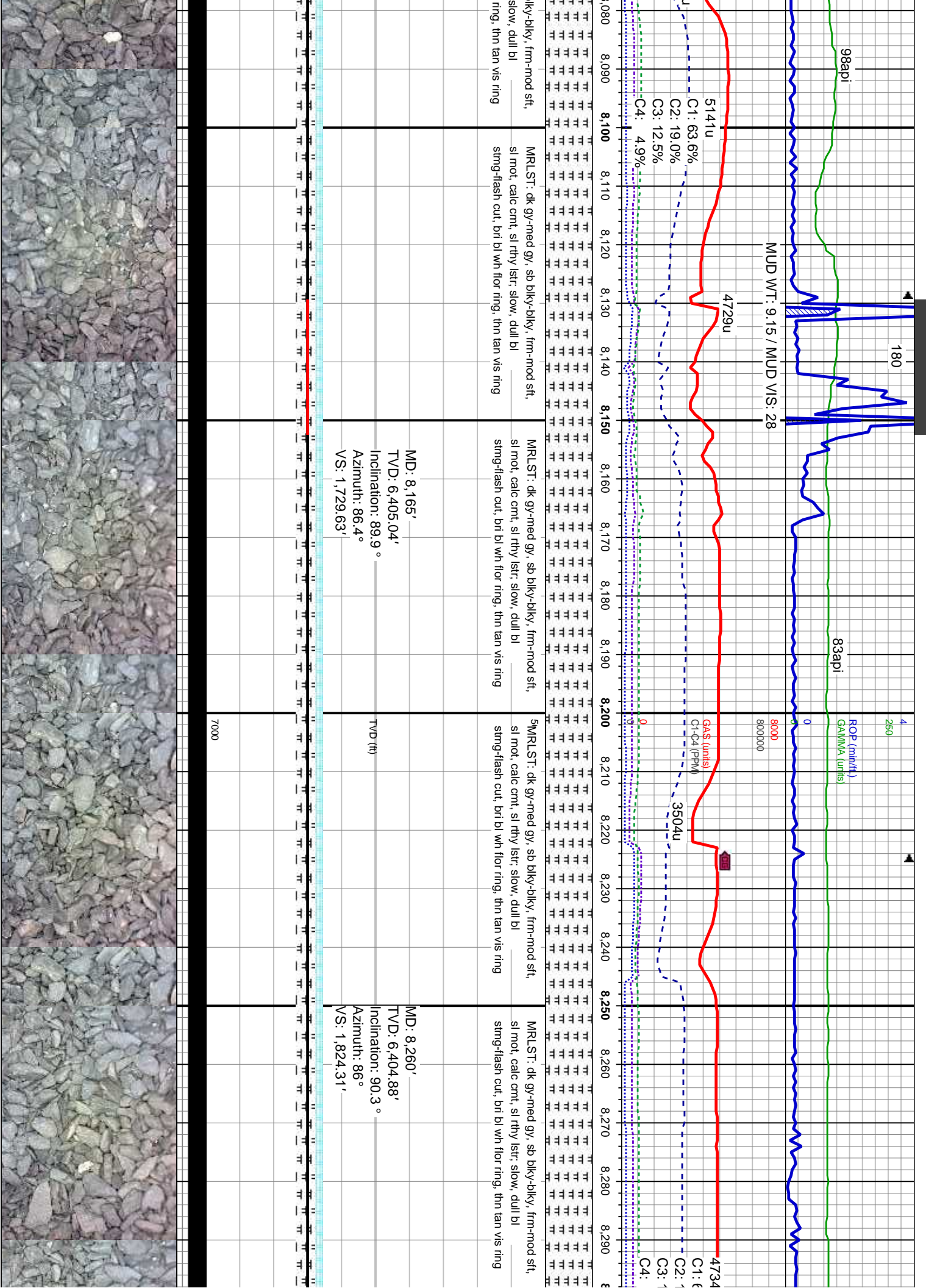












98api

83api

MUD WT: 9.15 / MUD VIS: 28

4729u

GAS (units)
C1-C4 (ppm)

3504u

4734

C1: 6

C2: 1

C3: 1

C4: 1

5141u

C1: 63.6%

C2: 19.0%

C3: 12.5%

C4: 4.9%

MRSLT: dk gy-med gy, sb bkly-bkly, frm-mod sft, sl mot, calc cnt, sl rthy lstr, slow, dull bl sting-flash cut, bri bl wh flr ring, thin tan vis ring

MRSLT: dk gy-med gy, sb bkly-bkly, frm-mod sft, sl mot, calc cnt, sl rthy lstr, slow, dull bl sting-flash cut, bri bl wh flr ring, thin tan vis ring

5MRSLT: dk gy-med gy, sb bkly-bkly, frm-mod sft, sl mot, calc cnt, sl rthy lstr, slow, dull bl sting-flash cut, bri bl wh flr ring, thin tan vis ring

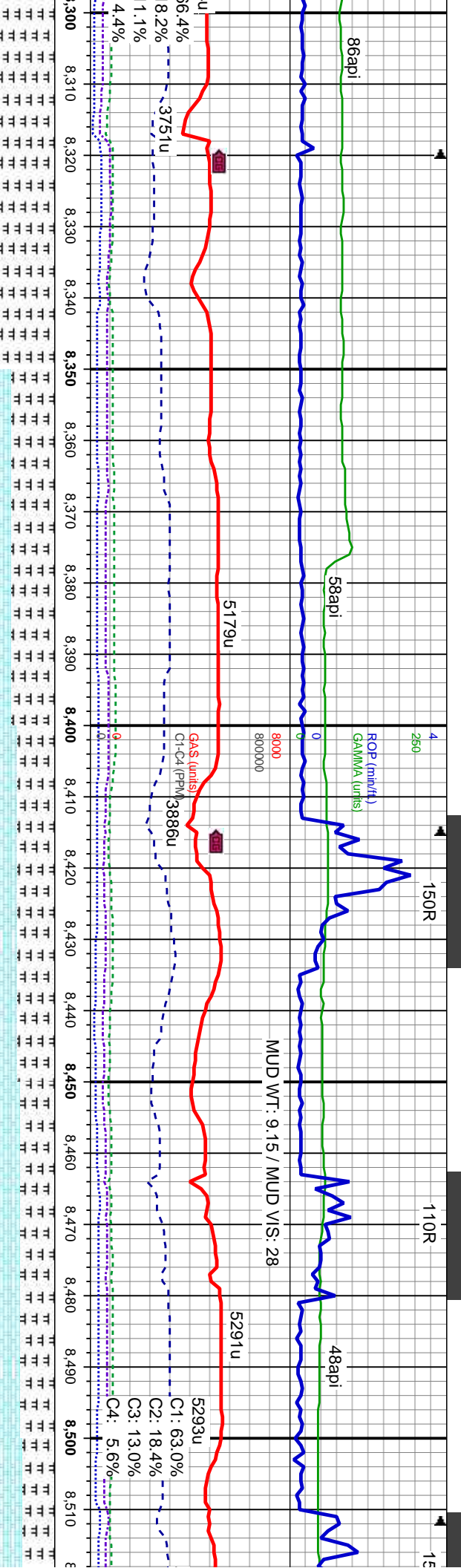
MRSLT: dk gy-med gy, sb bkly-bkly, frm-mod sft, sl mot, calc cnt, sl rthy lstr, slow, dull bl sting-flash cut, bri bl wh flr ring, thin tan vis ring

MD: 8,165'
TVD: 6,405.04'
Inclination: 89.9 °
Azimuth: 86.4 °
VS: 1,729.63'

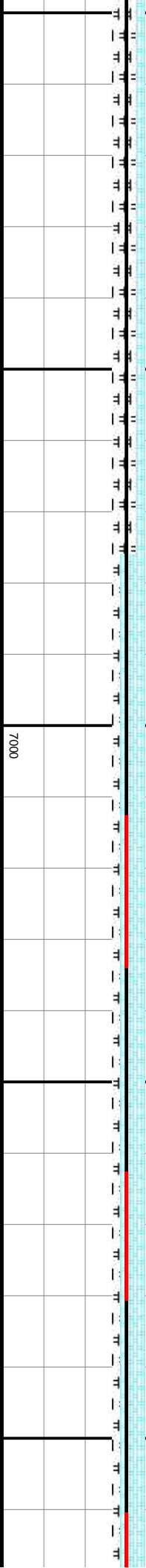
TVD (ft)

MD: 8,260'
TVD: 6,404.88'
Inclination: 90.3 °
Azimuth: 86 °
VS: 1,824.31'

7000



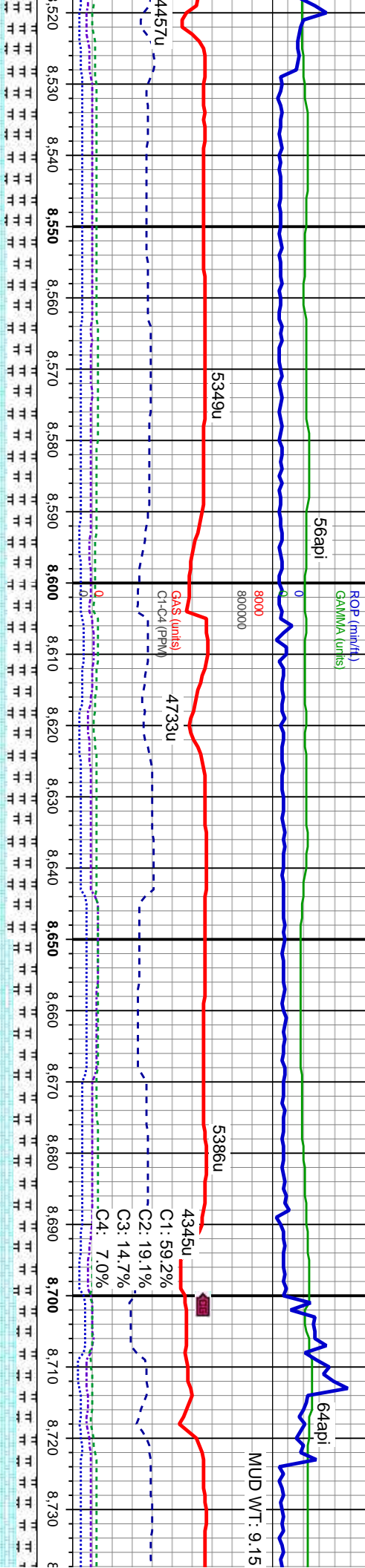
MRLST: dk gy-med gy, sb blk-y-bkly, frm-mod sft, sl mot, calc cnt, sl rthy lst, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MD: 8.355' TVD: 6,403.55' Inclination: 91.5 ° Azimuth: 85.5° VS: 1,918.92'	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring
MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MD: 8.451' TVD: 6,401.62' Inclination: 90.8 ° Azimuth: 86.6° VS: 2,014.56'	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring	MRLST: dk gy-med gy, sb blk-y-plty, frm-mod sft, sl mot, calc cnt, rthy lst, CHK: brn-gy brn, lt gy, sb blk-y, sft-frm, mot, v calc, dissn pyr, slow, dull bl string-flash cut, bri bl wh flor ring, thin tan vis ring



OR

160R

MINDEPTH
1/1/14



gy, sb blk-y-ply, frm-mod sft, sl	MRLST: dk gy-med gy, sb blk-y-ply, frm-mod sft, sl	5MRLST: dk gy-med gy, sb blk-y-ply, frm-mod sft, sl	MRLST: dk gy-med gy, sb blk-y-ply, frm-mod sft, sl	MRLST: dk gy-med gy, sb blk-y-ply, frm-mod sft, sl
str, CHK: brn-gy brn, lt gy, sb	mot, calc cmt, rthy lst, CHK: brn-gy brn, lt gy, sb	mot, calc cmt, rthy lst, CHK: brn-gy brn, lt gy, sb	mot, calc cmt, rthy lst, CHK: brn-gy brn, lt gy, sb	mot, calc cmt, rthy lst, CHK: brn-gy brn, lt gy, sb
calc, dissm pyr: slow, dull bl	blk-y, sft-frm, mot, v calc, dissm pyr: slow, dull bl	blk-y, sft-frm, mot, v calc, dissm pyr: slow, dull bl	blk-y, sft-frm, mot, v calc, dissm pyr: slow, dull bl	blk-y, sft-frm, mot, v calc, dissm pyr: slow, dull bl
sl wh flr ring, thn tan vis ring	stmg-flash cut, bri bl wh flr ring, thn tan vis ring	stmg-flash cut, bri bl wh flr ring, thn tan vis ring	stmg-flash cut, bri bl wh flr ring, thn tan vis ring	stmg-flash cut, bri bl wh flr ring, thn tan vis ring

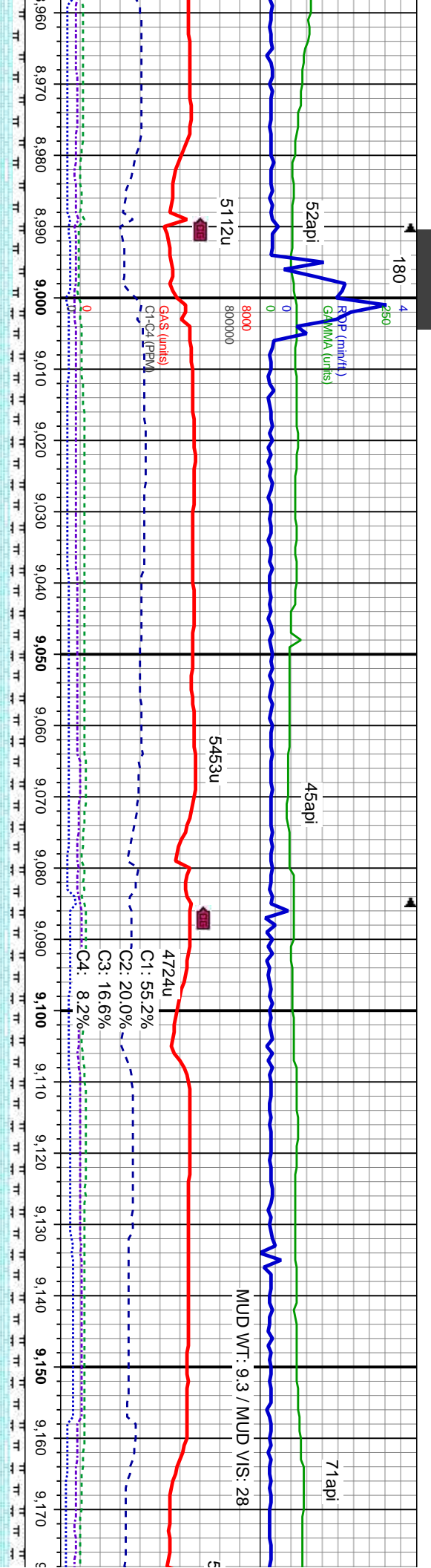
MD: 8,547'
TVD: 6,401.71'
Inclination: 89.1°
Azimuth: 88.8°
VS: 2,110.41'

MD: 8,642'
TVD: 6,401.87'
Inclination: 90.7°
Azimuth: 89°
VS: 2,205.35'

MD: 8,730'
TVD: 6,401.87'
Inclination: 90.7°
Azimuth: 89°
VS: 2,301'

7000





brn-gy brn, sb blk-y-sb pily, sft-frn, mot, v
MR.LST: dk gy-med gy, sb blk-y-pily, frm-mod
calc cmt, rthy lstr, dissim pyr: slow, bl
stng-flash cut, bri bl wh flor ring, thn tan vis ring

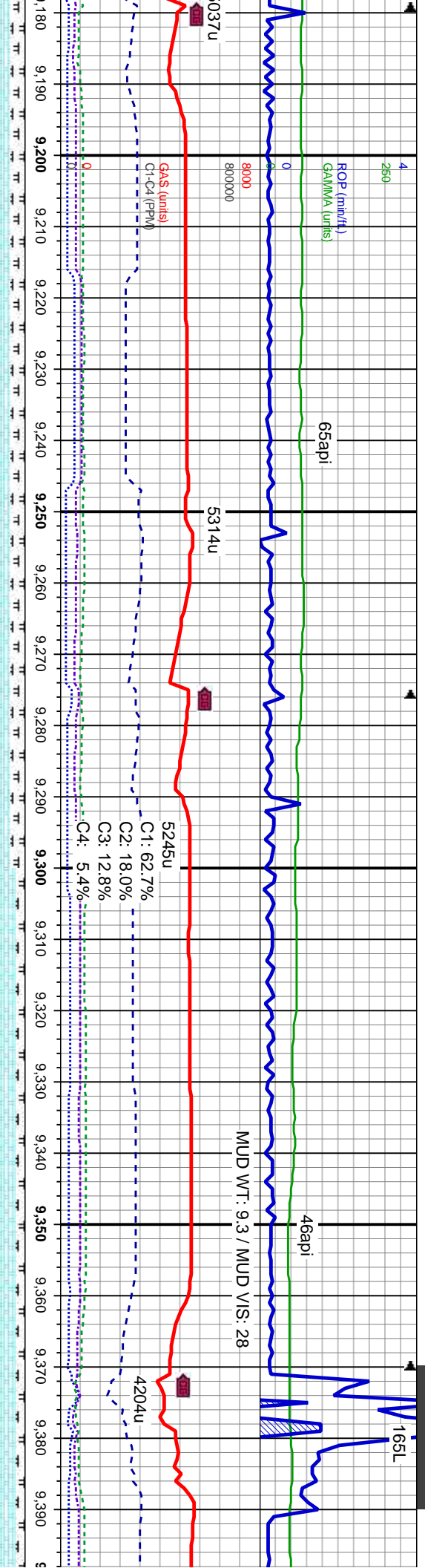
5CHK: brn-gy brn, sb blk-y-sb pily, sft-frn, mot, v
calc, MR.LST: dk gy-med gy, sb blk-y-pily, frm-mod
sft, sl mot, calc cmt, rthy lstr, dissim pyr: slow, bl
stng-flash cut, bri bl wh flor ring, thn tan vis ring

MD: 9,026'
TVD: 6,401.93'
Inclination: 87.8 °
Azimuth: 93.1 °
VS: 2,589.26'

CHK: brn-gy brn, sb blk-y-sb pily, sft-frn, mot, v
calc, MR.LST: dk gy-med gy, sb blk-y-pily, frm-mod
sft, sl mot, calc cmt, rthy lstr, dissim pyr: slow, bl
stng-flash cut, bri bl wh flor ring, thn tan vis ring

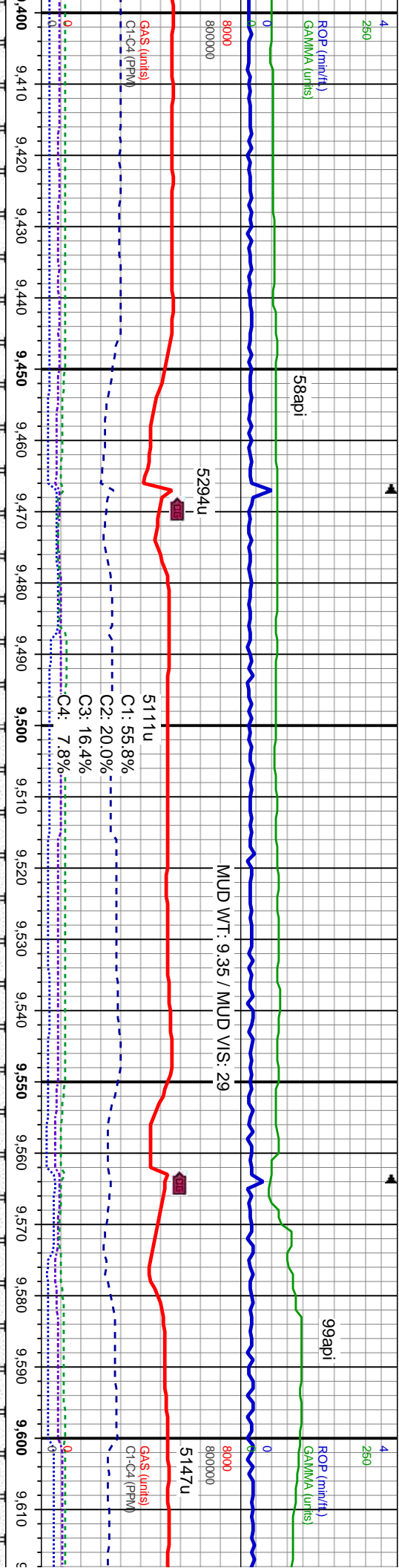
MD: 9,122'
TVD: 6,404.61'
Inclination: 89 °
Azimuth: 92.5 °
VS: 2,685.16'

CHK: dk brn-gy brn, sb blk-y-sb pily, sft-frn, mot, v
calc, MR.LST: dk gy-med gy, sb blk-y-pily, frm-mod
sft, sl mot, calc cmt, rthy lstr, dissim pyr: mod fast,
bl stng-flash cut, bri bl wh flor ring, thn tan vis ring



p.pty, sft-frn, mot, v b biky-p.pty, frn-mod dissm pyr, mod fast, ring, thin tan vis ring	CHK: dk brn-gy brn, sb biky-sb p.pty, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb biky-p.pty, frn-mod sft, sl mot, calc cnt, rthy lstr, dissm pyr, mod fast, bl string-flash cut, bri bl wh flor ring, thin tan vis ring	CHK: dk brn-gy brn, sb biky-sb p.pty, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb biky-p.pty, frn-mod sft, sl mot, calc cnt, rthy lstr, dissm pyr, mod fast, bl string-flash cut, bri bl wh flor ring, thin tan vis ring	CHK: brn-gy brn, lt brn, sb biky-sb p.pty, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb biky-p.pty, frn-mod sft, sl mot, calc cnt, rthy lstr, mod fast, bl string-flash cut, bri bl wh flor ring, thin tan vis ring	CHK: brn-gy brn, lt brn, sb biky-sb p.pty, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb biky-p.pty, frn-mod sft, sl mot, calc cnt, rthy lstr, mod fast, bl string-flash cut, bri bl wh flor ring, thin tan vis ring
	MD: 9,217' TVD: 6,405.44' Inclination: 90 ° Azimuth: 92.9° VS: 2,780.11'		MD: 9,312' TVD: 6,404.77' Inclination: 90.8 ° Azimuth: 93.1° VS: 2,875.04'	





5CHK: brn-gy brn, lt brn, sb blk-y-sb pily, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb blk-y-pily, frn-mod sft, sl mot, calc cnt, rthy lstr: mod fast, bl sting-flash cut, bri bl wh flor ring, thn tan vis ring

5CHK: brn-gy brn, lt brn, sb blk-y-sb pily, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb blk-y-pily, frn-mod sft, sl mot, calc cnt, rthy lstr: mod fast, bl sting-flash cut, bri bl wh flor ring, thn tan vis ring

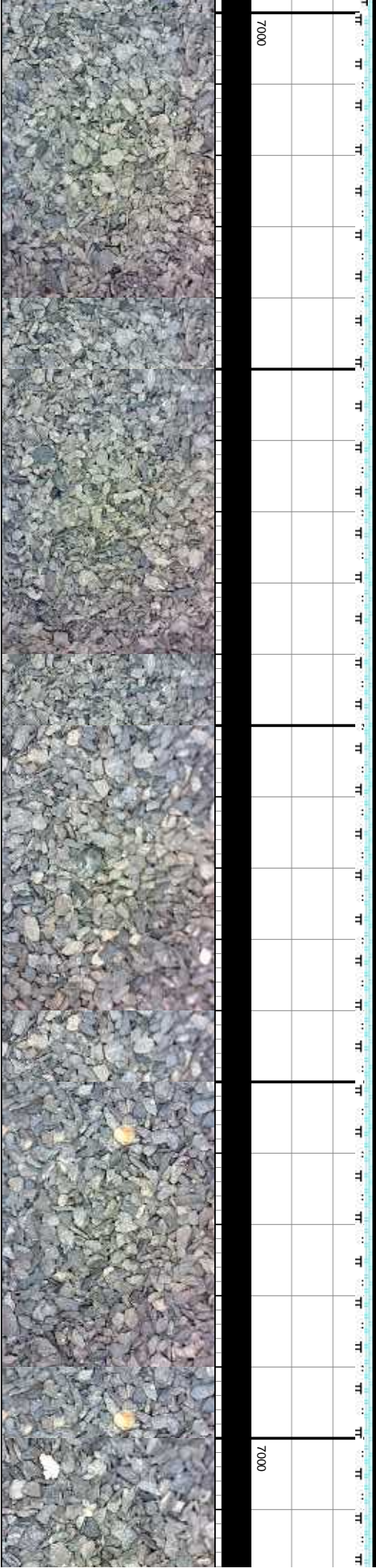
5CHK: dk brn-gy brn, sb blk-y-sb pily, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb blk-y-pily, frn-mod sft, sl mot, calc cnt, rthy lstr: mod fast, bl sting-flash cut, bri bl wh flor ring, thn tan vis ring

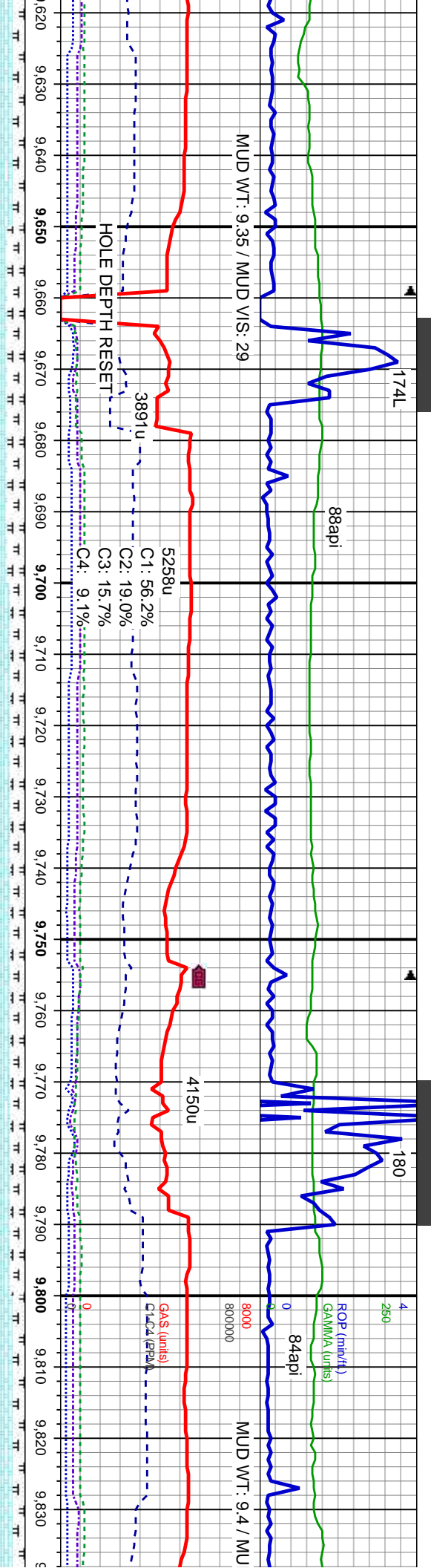
5CHK: dk brn-gy brn, sb blk-y-sb pily, sft-frn, mot, v calc, MRLST: dk gy-med gy, sb blk-y-pily, frn-mod sft, sl mot, calc cnt, rthy lstr: mod fast, bl sting-flash cut, bri bl wh flor ring, thn tan vis ring

MD: 9,408'
TVD: 6,403.77'
Inclination: 90.4 °
Azimuth: 93.1 °
VS: 2,970.96'

MD: 9,504'
TVD: 6,402.85'
Inclination: 90.7 °
Azimuth: 92.4 °
VS: 3,066.9'

MD: 9,600'
TVD: 6,401.34'
Inclination: 91.1 °
Azimuth: 91.7 °
VS: 3,162.87'





1, sb blk-y-sb ply, sft-firm, mot, v
y-med gy, sb blk-y-ply, frm-mod
t, rthy lstr, mod fast, bl
bl wh flor ring, thn tan vis ring

CHK: dk brn-gy brn, sb blk-y-sb ply, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-ply, frm-mod
sft, sl mot, calc cnt, rthy lstr, mod fast, bl
stmg-flash cut, bri bl wh flor ring, thn tan vis ring

CHK: dk brn-gy brn, sb blk-y-sb ply, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-ply, frm-mod
sft, sl mot, calc cnt, rthy lstr, mod fast, bl
stmg-flash cut, bri bl wh flor ring, thn tan vis ring

CHK: dk brn-gy brn, sb blk-y-sb ply, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-ply, frm-mod
sft, sl mot, calc cnt, rthy lstr, mod fast, bl
stmg-flash cut, bri bl wh flor ring, thn tan vis ring

5CHK: dk brn-gy brn, sb blk-y-sb ply, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-ply, frm-mod
sft, sl mot, calc cnt, rthy lstr, mod fast, bl
stmg-flash cut, bri bl wh flor ring, thn tan vis ring

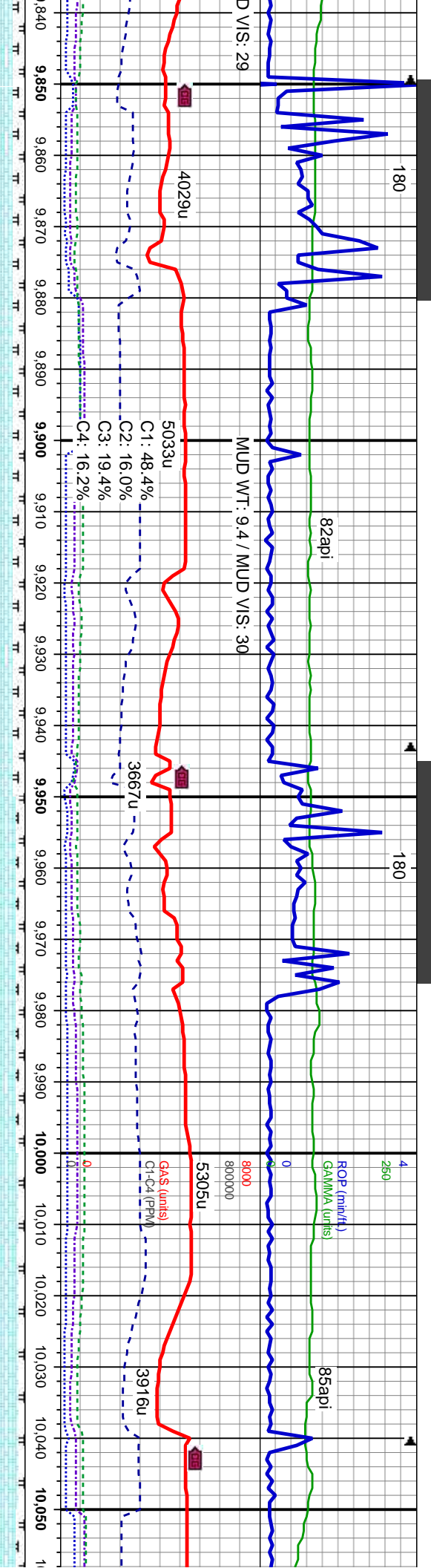
MD: 9,696'
TVD: 6,399.41'
Inclination: 91.2°
Azimuth: 91.7°
VS: 3,258.84'

MD: 9,791'
TVD: 6,397.51'
Inclination: 91.1°
Azimuth: 92.2°
VS: 3,353.81'

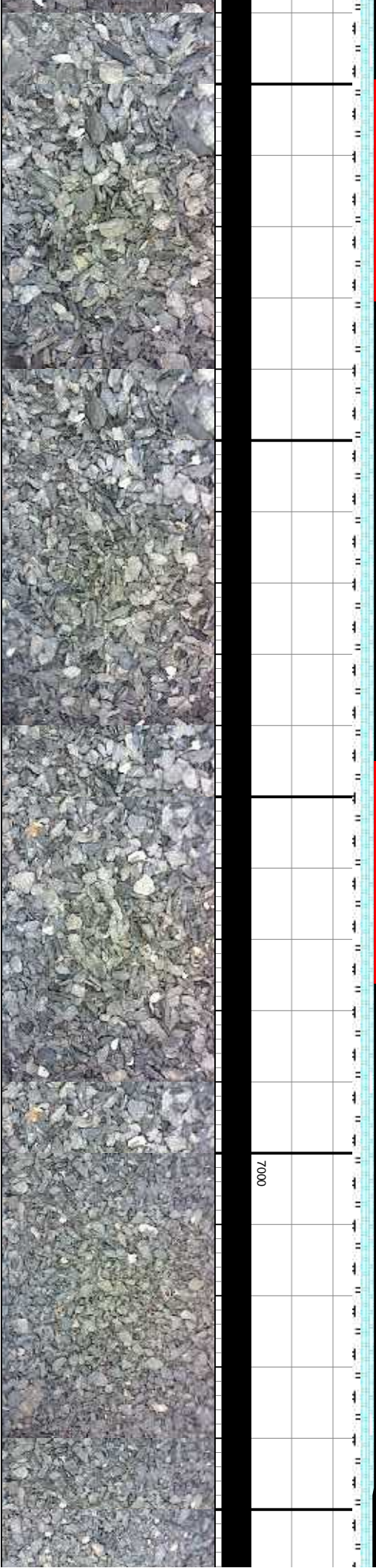
TVD (ft)

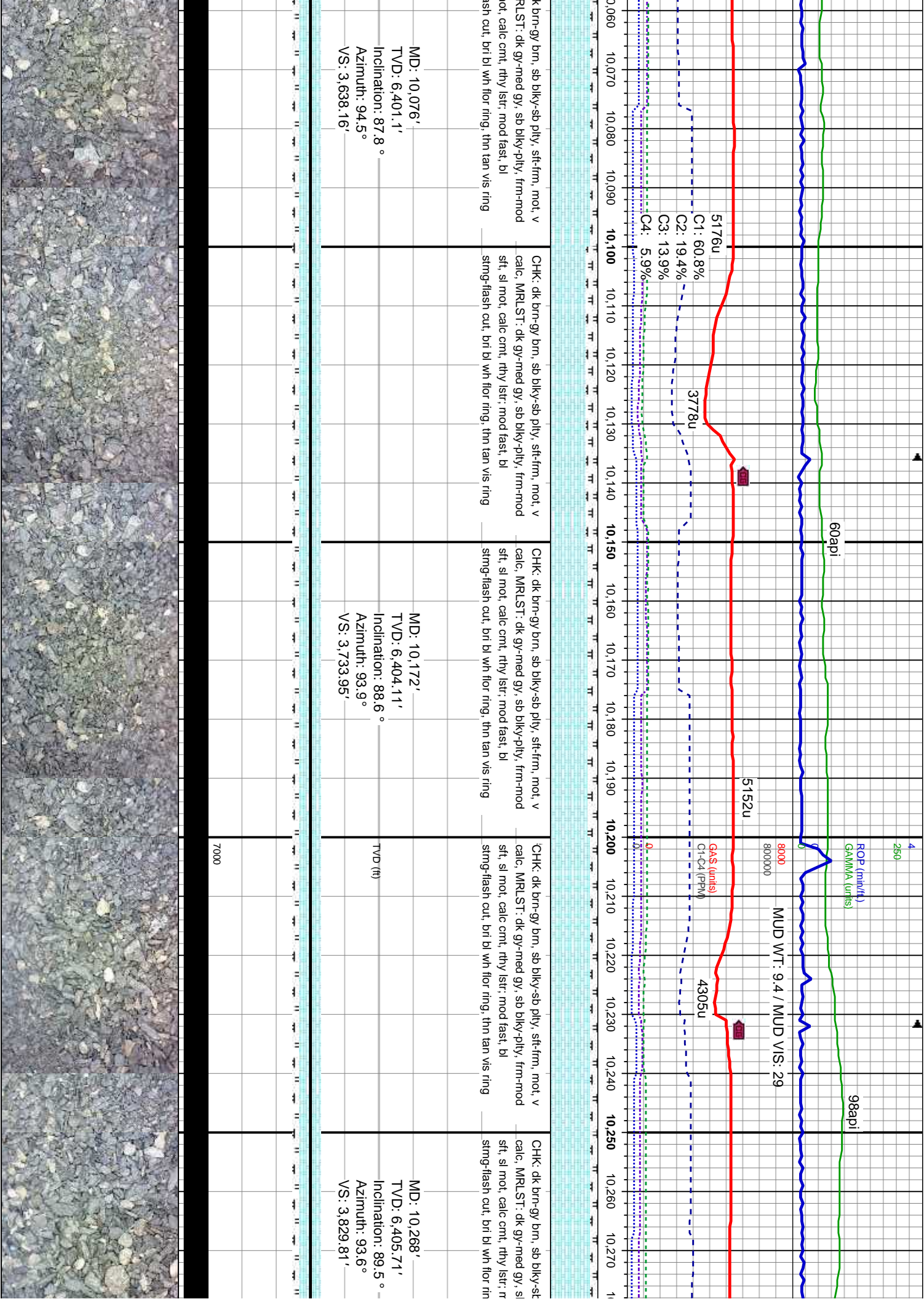
7000

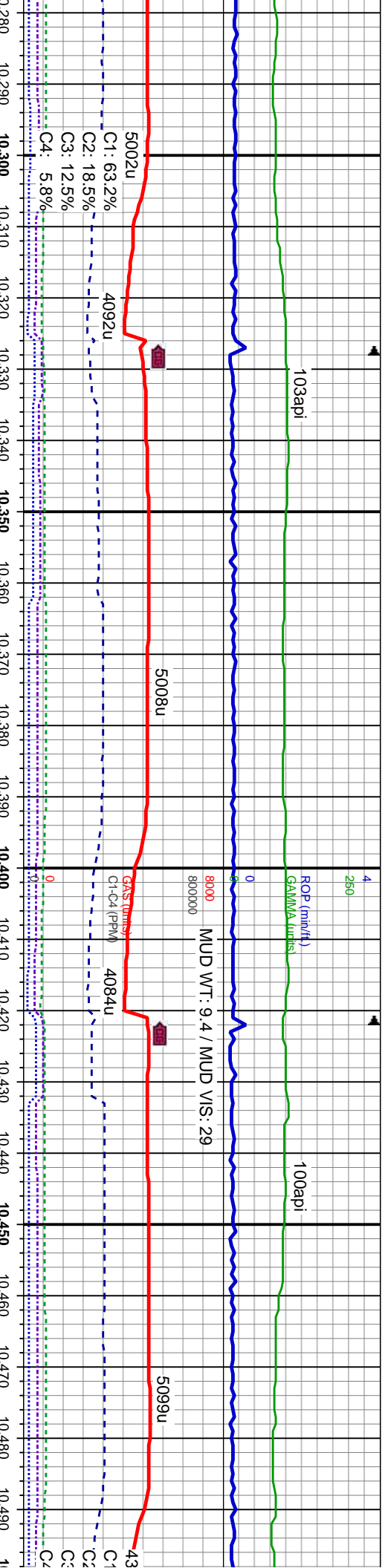




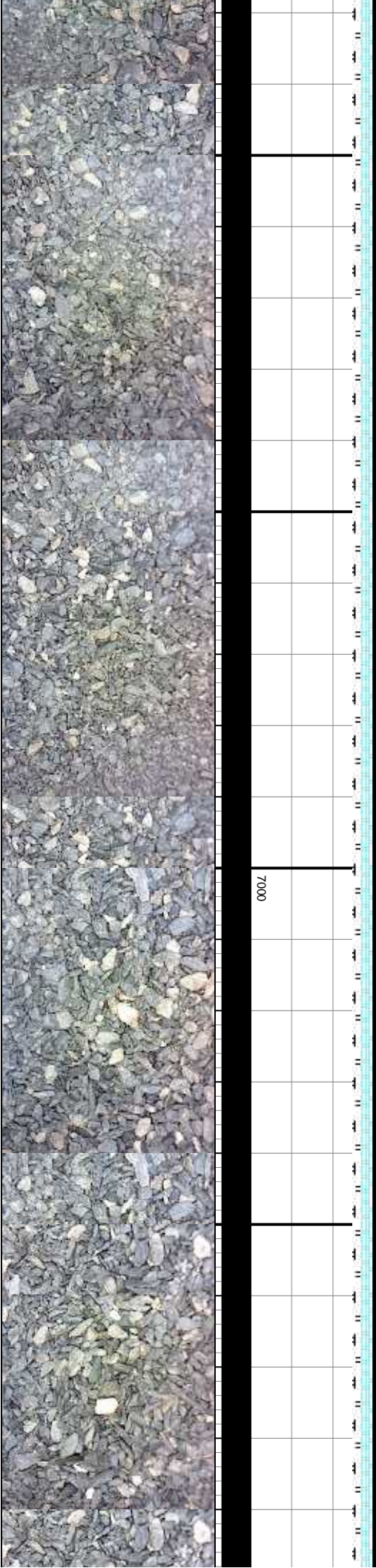
frm, mot, v	CHK: dk brn-gy brn, sb blk-y-sb pily, sft-frm, mot, v	MD: 9,885' TVD: 6,396.11' Inclination: 90.6° Azimuth: 94.6° VS: 3,447.7'	frm-mod	calc, MRLST: dk gy-med gy, sb blk-y-pily, frm-mod	MD: 9,981' TVD: 6,397.45' Inclination: 87.8° Azimuth: 95° VS: 3,543.45'	frm-mod	calc, MRLST: dk gy-med gy, sb blk-y-pily, frm-mod	TVD (ft)
stng-ring	stng-flash cut, bri bl wh flor ring, thin tan vis ring		stng-ring	calc, MRLST: dk gy-med gy, sb blk-y-pily, frm-mod		stng-ring	calc, MRLST: dk gy-med gy, sb blk-y-pily, frm-mod	
				stng-flash cut, bri bl wh flor ring, thin tan vis ring			calc, MRLST: dk gy-med gy, sb blk-y-pily, frm-mod	
				stng-flash cut, bri bl wh flor ring, thin tan vis ring			calc, MRLST: dk gy-med gy, sb blk-y-pily, frm-mod	

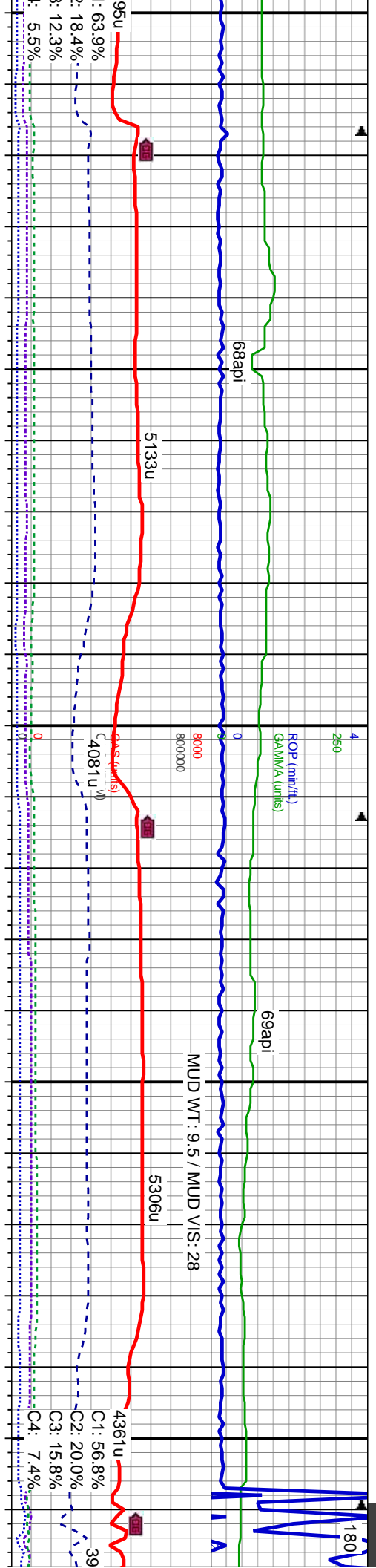






g, thn tan vis ring	CHK: dk brn-gy brn, sb biky-sb pily, sft-firm, mot, v calc, MRLST: dk gy-med gy, sb biky-pily, frm-mod sft, sl mot, calc cnt, rthy lstr: mod fast, bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 10,362' TVD: 6,406.12' Inclination: 90 ° Azimuth: 93.4 ° VS: 3,923.71'	g, thn tan vis ring	CHK: dk brn-gy brn, sb biky-sb pily, sft-firm, mot, v calc, MRLST: dk gy-med gy, sb biky-pily, frm-mod sft, sl mot, calc cnt, rthy lstr: mod fast, bl stmg-flash cut, bri bl wh flor ring, thn tan vis ring	MD: 10,457' TVD: 6,405.45' Inclination: 90.8 ° Azimuth: 92.9 ° VS: 4,018.63'
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CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod
sft, sl mot, calc cnt, rthy lstr: mod fast, bl
stmg-flash cut, bri bl wh flor ring, thin tan vis ring

CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod
sft, sl mot, calc cnt, rthy lstr: mod fast, bl
stmg-flash cut, bri bl wh flor ring, thin tan vis ring

CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod
sft, sl mot, calc cnt, rthy lstr: mod fast, bl
stmg-flash cut, bri bl wh flor ring, thin tan vis ring

CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod
sft, sl mot, calc cnt, rthy lstr: mod fast, bl
stmg-flash cut, bri bl wh flor ring, thin tan vis ring

CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v
calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod
sft, sl mot, calc cnt, rthy lstr: mod fast, bl
stmg-flash cut, bri bl wh flor ring, thin tan vis ring

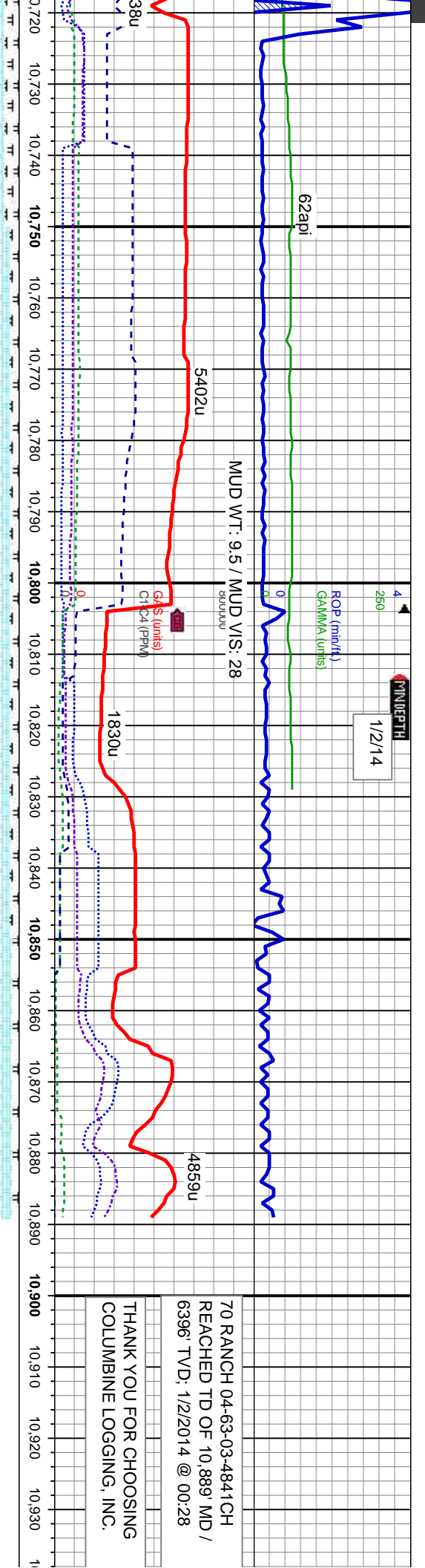
MD: 10,553'
TVD: 6,403.78'
Inclination: 91.2°
Azimuth: 92.5°
VS: 4,114.57'

TVD (ft)

MD: 10,649'
TVD: 6,400.85'
Inclination: 92.3°
Azimuth: 92°
VS: 4,210.49'

7000





1, sb blk-y-sb pily, sft-firm, mot, v	CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v	CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v	CHK: dk brn-gy brn, sb blk-y-sb pily, sft-firm, mot, v
gy-med gy, sb blk-y-pily, firm-mod	calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod	calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod	calc, MRLST: dk gy-med gy, sb blk-y-pily, firm-mod
t, rthy lstr, mod fast, bl	sft, sl mot, calc cmt, rthy lstr, mod fast, bl	sft, sl mot, calc cmt, rthy lstr, mod fast, bl	sft, sl mot, calc cmt, rthy lstr, mod fast, bl
bl wh flor ring, thin tan vis ring	stmg-flash cut, bri bl wh flor ring, thin tan vis ring	stmg-flash cut, bri bl wh flor ring, thin tan vis ring	stmg-flash cut, bri bl wh flor ring, thin tan vis ring
MD: 10,744'	MD: 10,829'	MD: 10,889'	PTB Survey
TVD: 6,398.36'	TVD: 6,397.17'	TVD: 6,396.23'	
Inclination: 90.7°	Inclination: 90.9°	Inclination: 90.7°	
Azimuth: 91.7°	Azimuth: 91.1°	Azimuth: 91.1°	
VS: 4,305.44'	VS: 4,390.43'	VS: 4,450.44'	



70 RANCH 04-63-03-4841CH
REACHED TD OF 10,889' MD /
6396' TVD; 1/2/2014 @ 00:28

THANK YOU FOR CHOOSING
COLUMBINE LOGGING, INC.

