

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name State Pronghorn X-32-31MRLNB

Location SESE SEC. 32 T5N R61W

State COLORADO County WELD

Country USA Rig Number XTREME 20

API Number 05-123-41263 AFE # 15093

Region DJ BASIN Field WATTENBERG

Spud Date 4/9/2015 Drilling Completed 5/12/2015

Surface Coordinates 568' FSL x 1067' FEL (LAT: 40.35154, -104.22731)

Bottom Hole Coordinates 1320' FSL x 860' FEL (LAT: 40.35532, -104.24520)PROJECTED

Ground Elevation 4529' K.B. Elevation 4546'

Logged Interval 5800' To 11956' Total Depth 11956'

Formation NIOBRARA B-CHALK

Type of Drilling Fluid LSND, H2O

Operator

Company Bonanza Creek Energy Inc.

Address 410 17th Street, Suite 1500 Denver, CO 80202

Geologist

Name Paul McKay

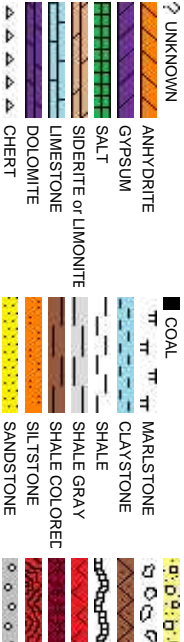
Company Bonanza Creek

Address 410 17TH STREET, SUITE 1500 DENVER, CO 80202

Zone Color Cod




















































Rock Types



Accessories

Fossils

Fossils	F FOSSIL	- ARGILLACEOUS	GLAUCONITE
 ALGAE	 GASTROPOD	 ARGILLITE GRAIN	 GYPSIFEROUS
 AMPHIPORA	 OOLITE	 B BENTONITE	 HEAVY MINERAL
 BELEMNITE	 OSTRACOD	 BITUMENOUS SUBSTANCE	 KAOLIN
 BIOCLASTIC	 PELECYPOD	 BRECCIA FRAGMENTS	 MARLSTONE
 BRACHIOPOD	 PELLET	 CALCAREOUS	 MINERAL CRY
 BRYOZOA	 PISOLITE	 CARBONACEOUS FLAKES	 NODULES
 CEPHALOPOD	 PLANT REMAINS	 CHTDK	 PHOSPHATE
 CORAL	 PLANT SPORES	 CHTLT	 PYRITE
 CRINOID	 SCAPHOPOD	 COAL - THIN BEDS	 SALT CAST
 ECHINOID	 STROMATOPOROID	 DOLOMITIC	 SANDY
 FISH	Minerals	 FELDSPAR	 SILICEOUS
 FORAMINIFERA	 ANHYDRITIC	 FERRUGINOUS PELLET	 SILTY
		 FERRUGINOUS	 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

Minerals

Other Symbols

Oil Show

O ORGANIC	FORMATION TOP	CONNECTION GAS	CRYPTOXLN
P PINPOINT	GAS SHOW	CONNECTION DOWN	E EARTHY
V VUGGY	MINDEPTH MN DEPTH	CASING	FX FINELYXLN

- EVEN
- QUESTIONABLE
- SPOTTED STAINING

Engineering

NORMAL FAULT
OIL SHOW
OVERTURNED STRATA
REVERSE FAULT
CASING

Rounding

FORMATION TOP	ES GRAINSTONE
L LITHOGRAPHIC	
MX MICROXLN	

Porosity

CONNECTION (LEFT)	ANGULAR
CONNECTION (RIGHT)	R ROUNDED
CONNECTION GAS	B SUBANG
CORE - LOST	P SUBRND
CORE - RECOVERED	
TRIP GAS	
SURVEY	

Textures

INTERCRYSTALLINE	BOUNDSTONE
INTEROOLITIC	P POOR
MOULDIC	W WELL
FAULT	
WIRELINE TESTED - LEFT	
WIRELINE TESTED - RT	
CHALKY	

Sorting

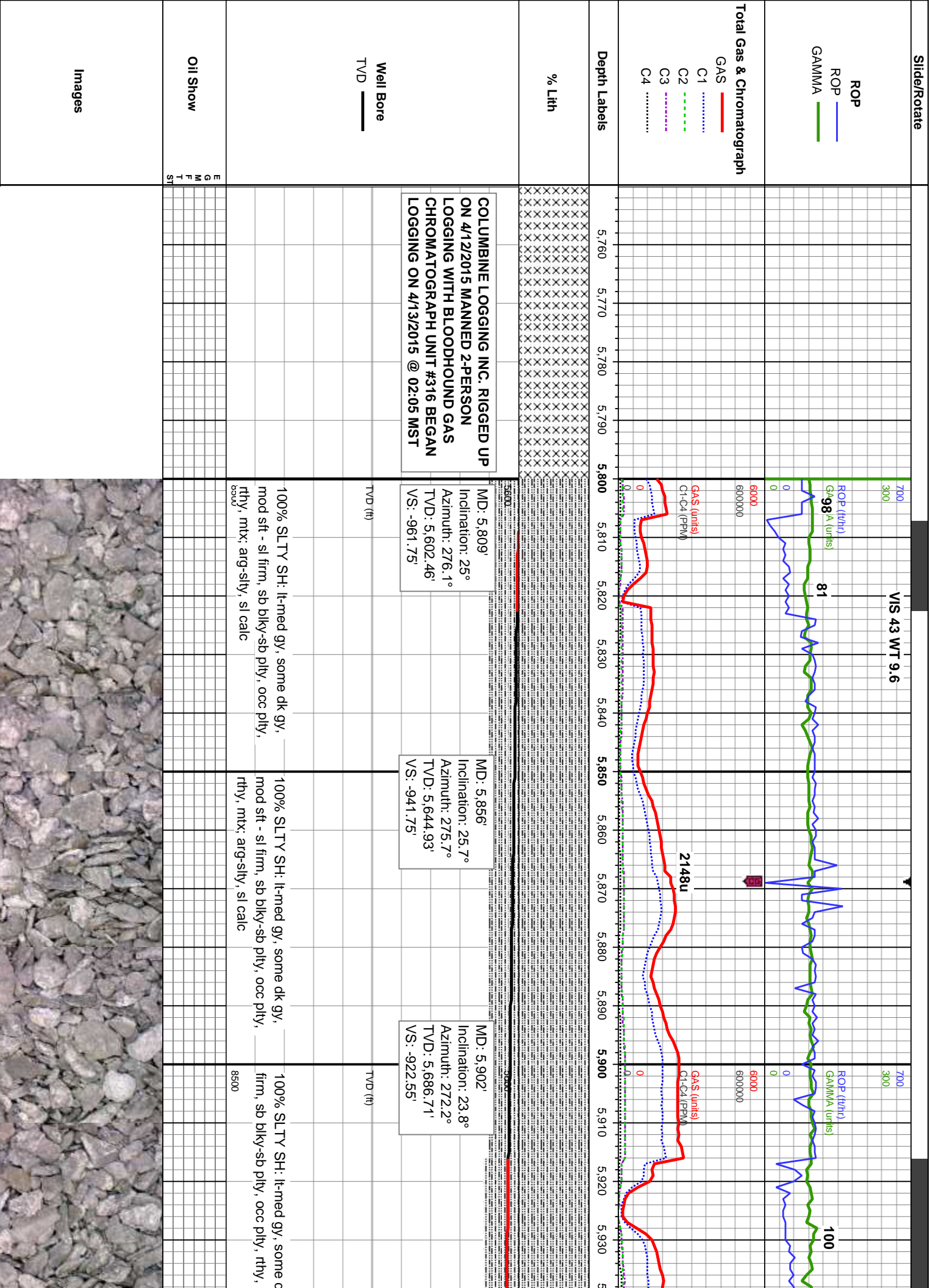
M MODERATE
P POOR
W WELL

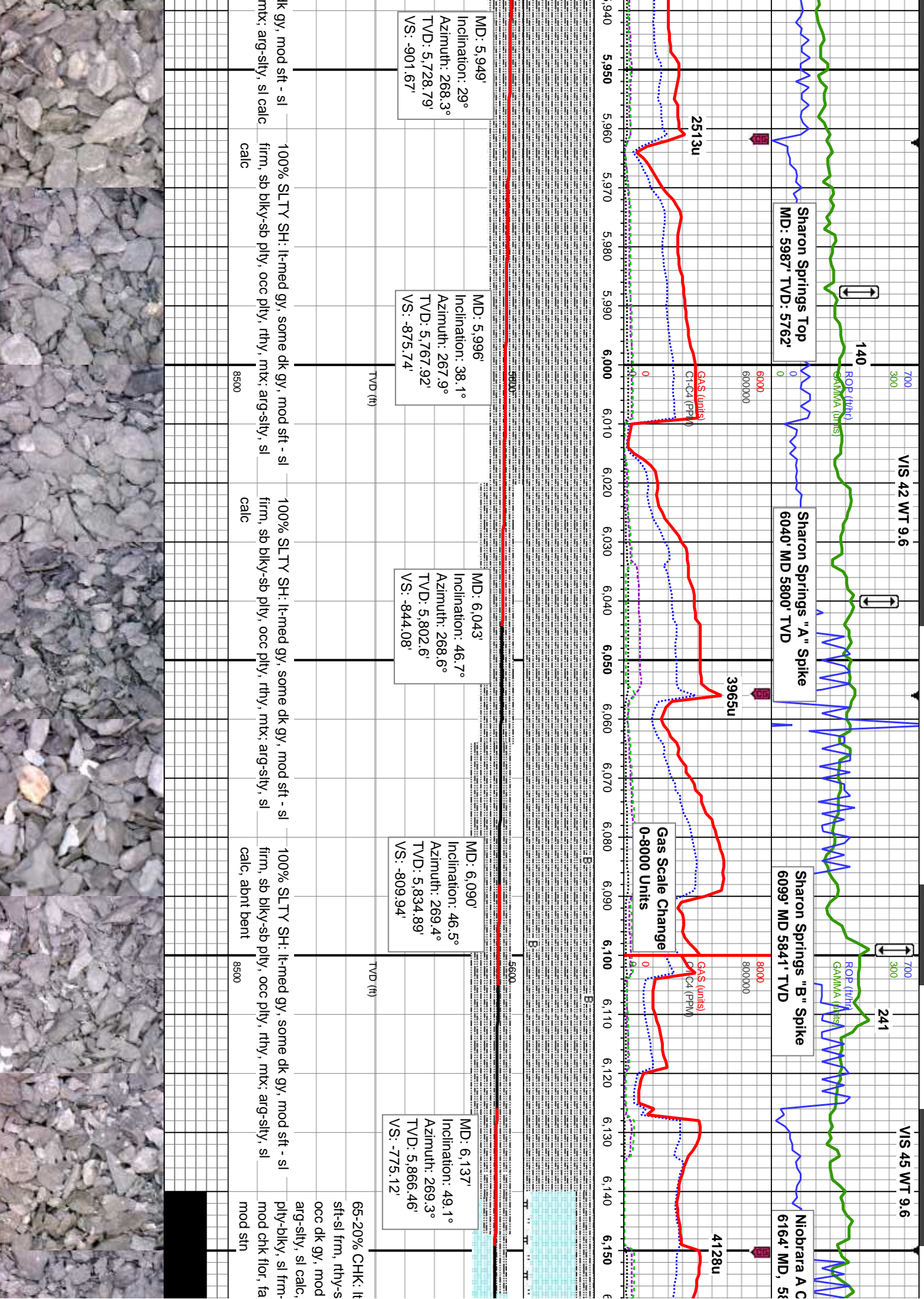
ing

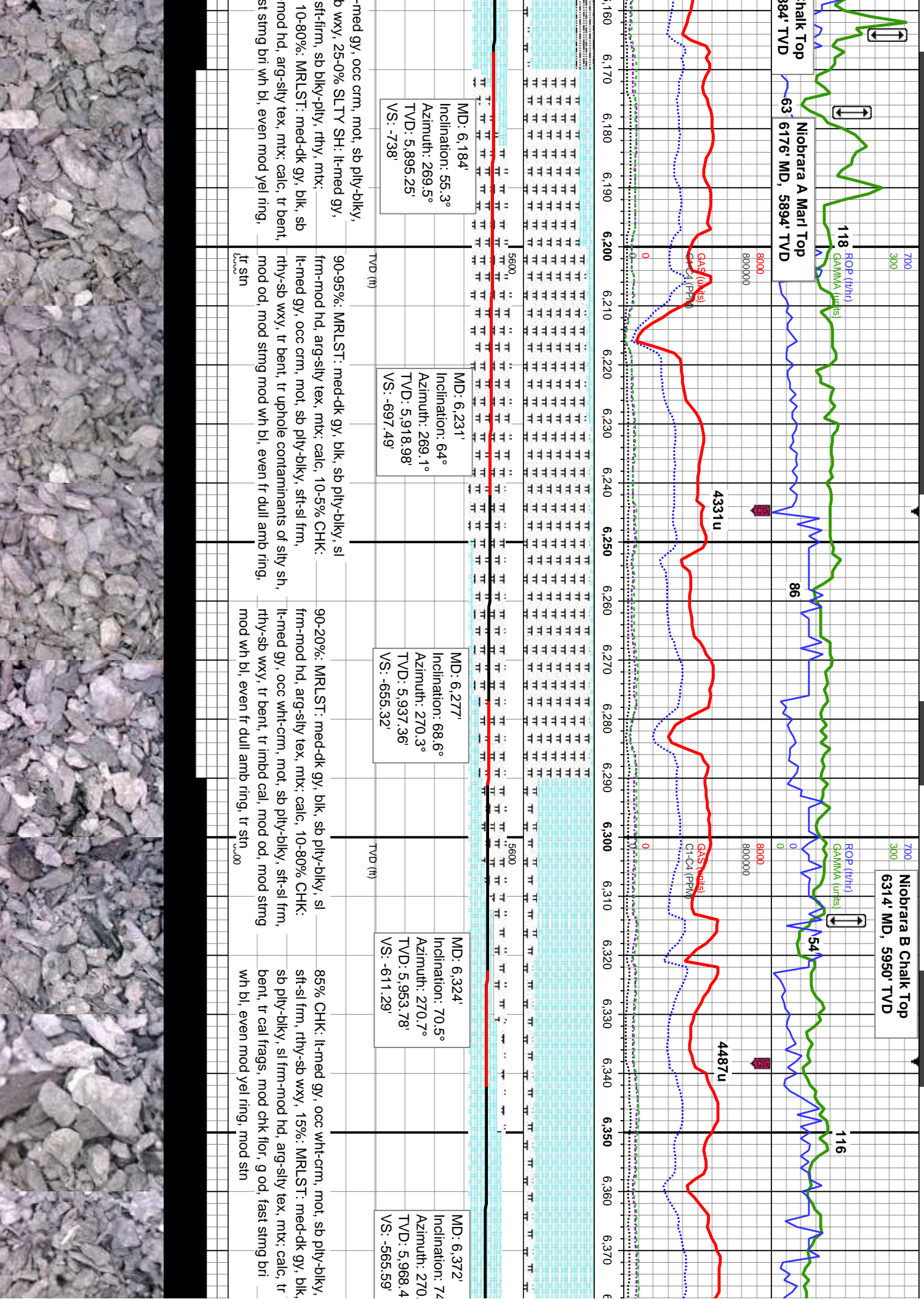


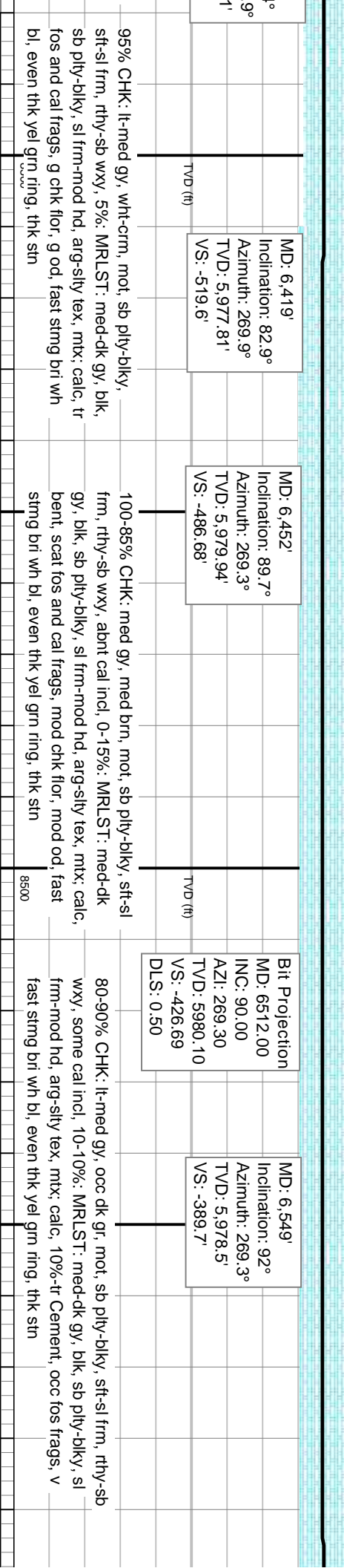
CONGLOMERATE	CHALK
BRECCIA	SILTY SHALE
TILL	NO SAMPLE
BENTONITE	SHALY SANDSTONE
TUFF	SHALY SILTSTONE
IGNEOUS	
METAMORPHIC	
CEMENT	

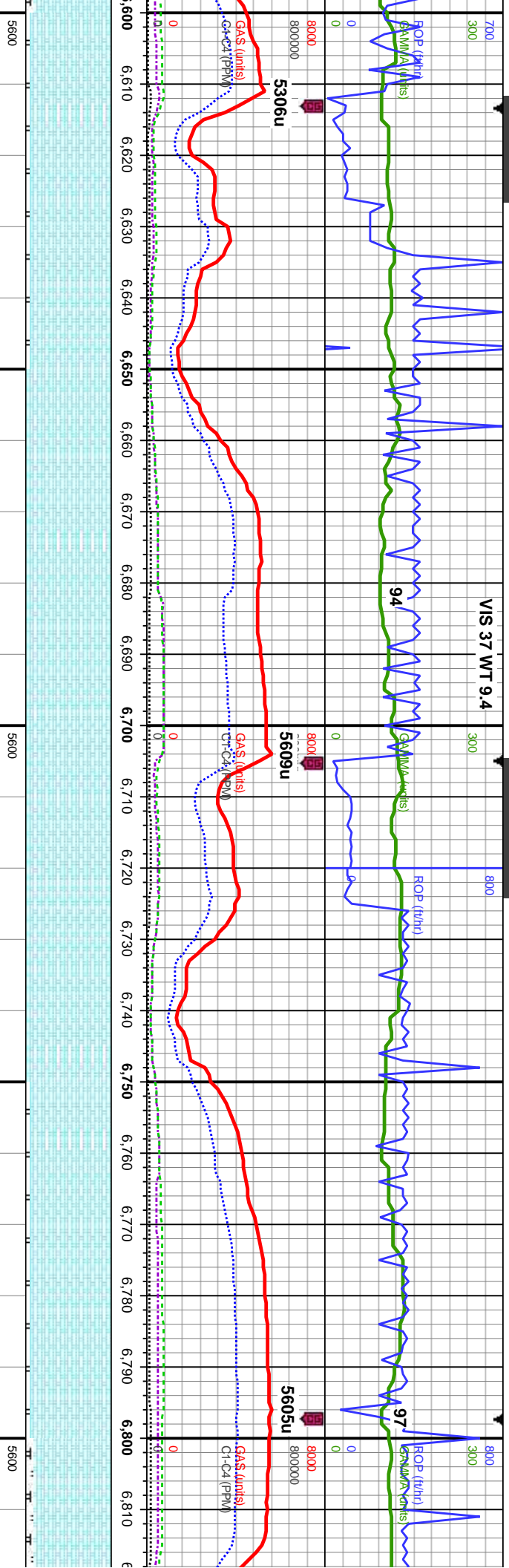
O 80202





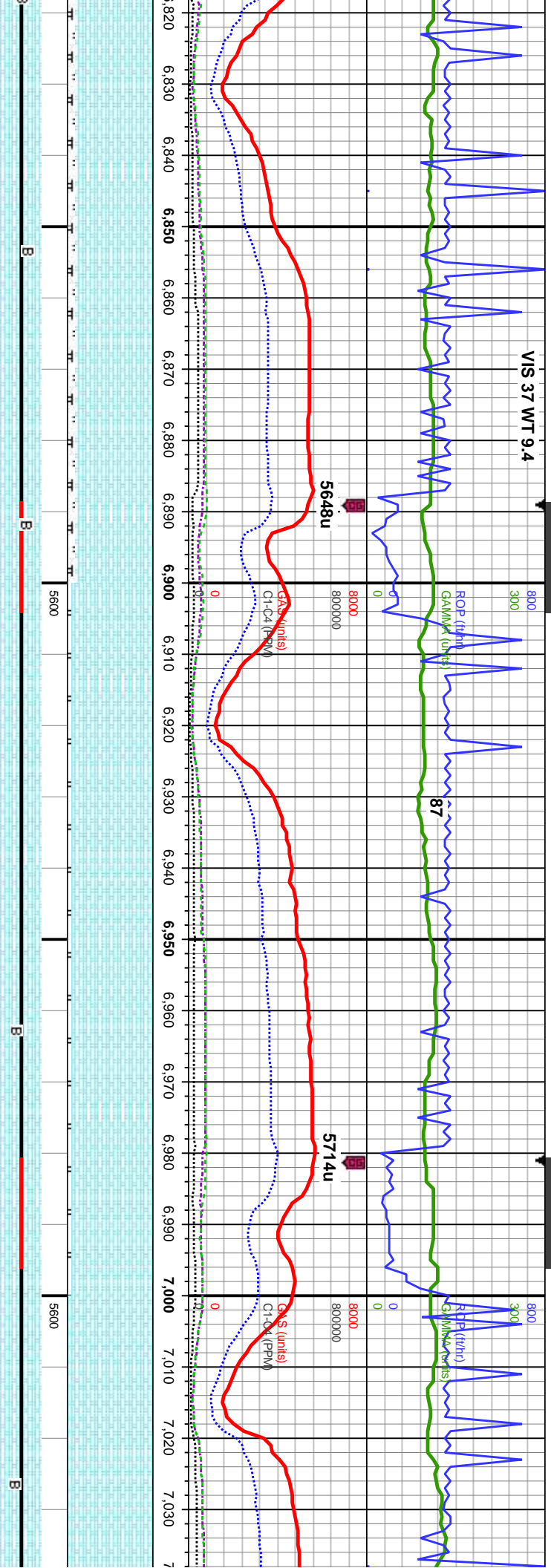


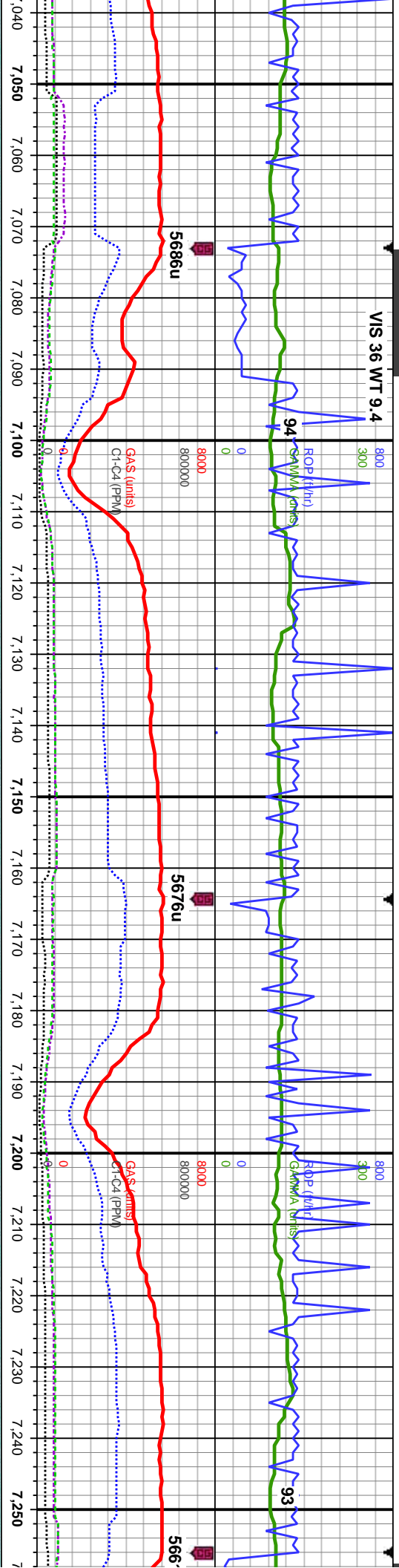




MD: 6.642' Inclination: 91.8° Azimuth: 269.3° TVD: 5,975.42' VS: -296.76'		MD: 6.733' Inclination: 89.4° Azimuth: 269.5° TVD: 5,974.47' VS: -205.77'		MD: 6.794' Inclination: 89.4° Azimuth: 269.5° TVD: 5,974.47' VS: -205.77'	
95% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, 5% MRLST: med-dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, mtx; calc, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin		100% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin		100% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin	
95% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, 5% MRLST: med-dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, mtx; calc, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin		100% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin		100% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin	
95% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, 5% MRLST: med-dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, mtx; calc, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin		100% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin		100% CHK: lt-med gy, occ dk gr, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, some cal incl, some bent, g od, v fast sting bri wh bl, even thk yel grn ring, thk sin	





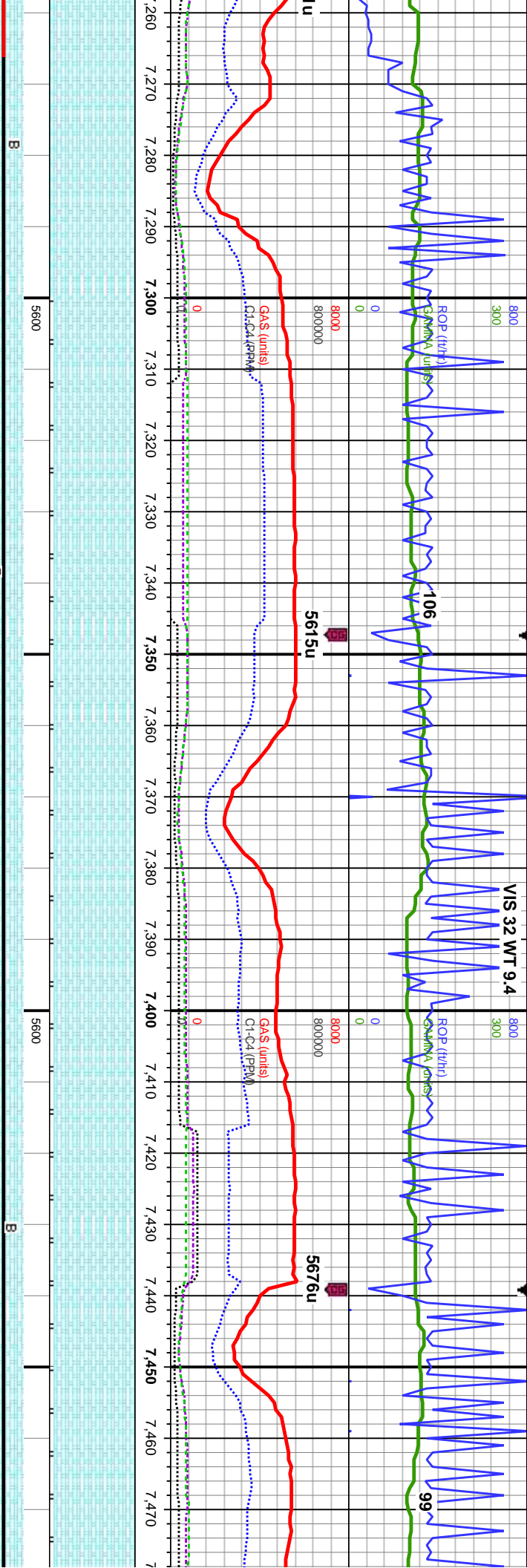


MD: 7,101'
Inclination: 88.9°
Azimuth: 269.1°
TVD: 5,971.98'
VS: 162.19'

MD: 7,192'
Inclination: 90.2°
Azimuth: 269.8°
TVD: 5,972.69'
VS: 253.18'

not, sb	100% CHK: lt-med gy, occ dk gy, mot, sb	100% CHK: lt-med gy, occ dk gy, mot, sb	100% CHK: lt-med gy, occ dk gy, mot, sb	100% CHK: lt-med gy, occ dk gy, mot, sb
me cal	ply-bkly, sft-sl frm, rthy-sb wxy, some cal	ply-bkly, sft-sl frm, rthy-sb wxy, some cal	ply-bkly, sft-sl frm, rthy-sb wxy, some cal	ply-bkly, sft-sl frm, rthy-sb wxy, some cal
st string	incl, scat bent, g chk flr, g od, v fast string	incl, scat bent, g chk flr, g od, v fast string	incl, scat bent, g chk flr, g od, fast string bri	incl, scat bent, g chk flr, g od, fast string bri
stin	bri wh bl, even thk yel grm ring, thk sin	bri wh bl, even thk yel grm ring, mod sin	wh bl, even mod yel grm ring, mod sin	wh bl, even thk yel grm ring, thk sin





MD: 7,284'
Inclination: 89.7°
Azimuth: 270.2°
TVD: 5,972.77'
VS: 345.18'

CHK: lt-med gy, occ dk gy, mot, sb
sft-sl frm, rthy-sb wxy, some cal
bent, g chk flr, g od, fast string bri
even thk yel gm ring, thk sin

95% CHK: lt-med gy bm, mot, sb pty-blky,
sft-sl frm, rthy-sb wxy, occ cal incl, 5%
MRLST: med-dk gy, blk, sb pty-blky, sl
frm-mod hd, arg-sily tex, mix; calc, occ fos
frags, abnt gy-gn bent, g od, fast string bri
wh bl, even thk bri yel gm ring, thk sin

MD: 7,376'
Inclination: 88.9°
Azimuth: 269.9°
TVD: 5,973.9'
VS: 437.17'

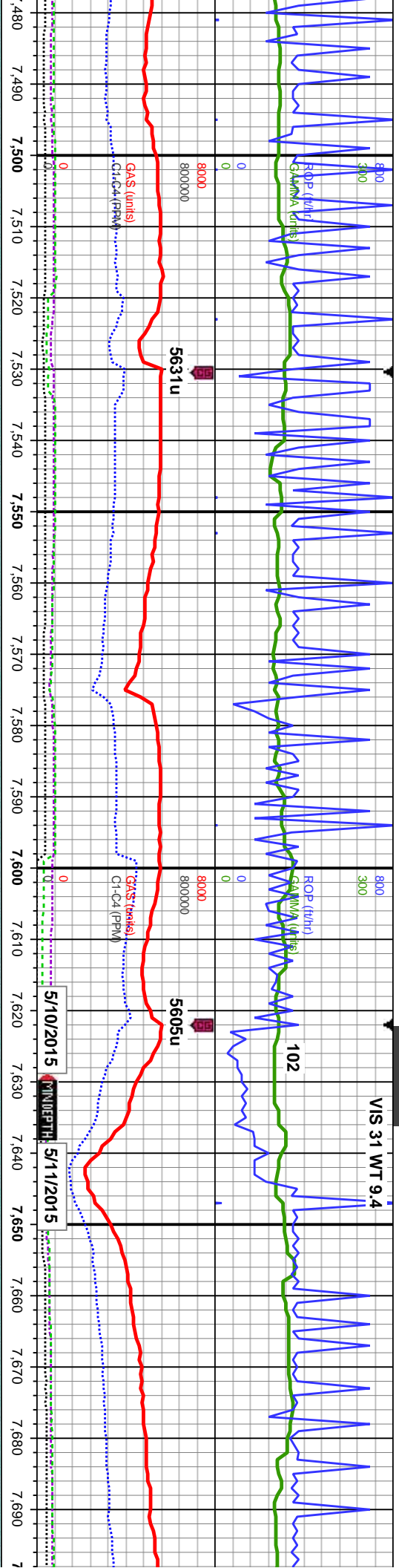
95% CHK: lt-med gy bm, mot, sb pty-blky,
sft-sl frm, rthy-sb wxy, occ cal incl, 5%
MRLST: med-dk gy, blk, sb pty-blky, sl
frm-mod hd, arg-sily tex, mix; calc, occ fos
frags, abnt gy-gn bent, g od, fast string bri
wh bl, even thk bri yel gm ring, thk sin

95% CHK: lt-med gy bm, mot, sb pty-blky,
sft-sl frm, rthy-sb wxy, occ cal incl, 5%
MRLST: med-dk gy, blk, sb pty-blky, sl
frm-mod hd, arg-sily tex, mix; calc, occ fos
frags, abnt gy-gn bent, g od, fast string bri
wh bl, even mod thk mod yel ring, mod sin

MD: 7,467'
Inclination: 89.2°
Azimuth: 270.4°
TVD: 5,975.41'
VS: 528.15'

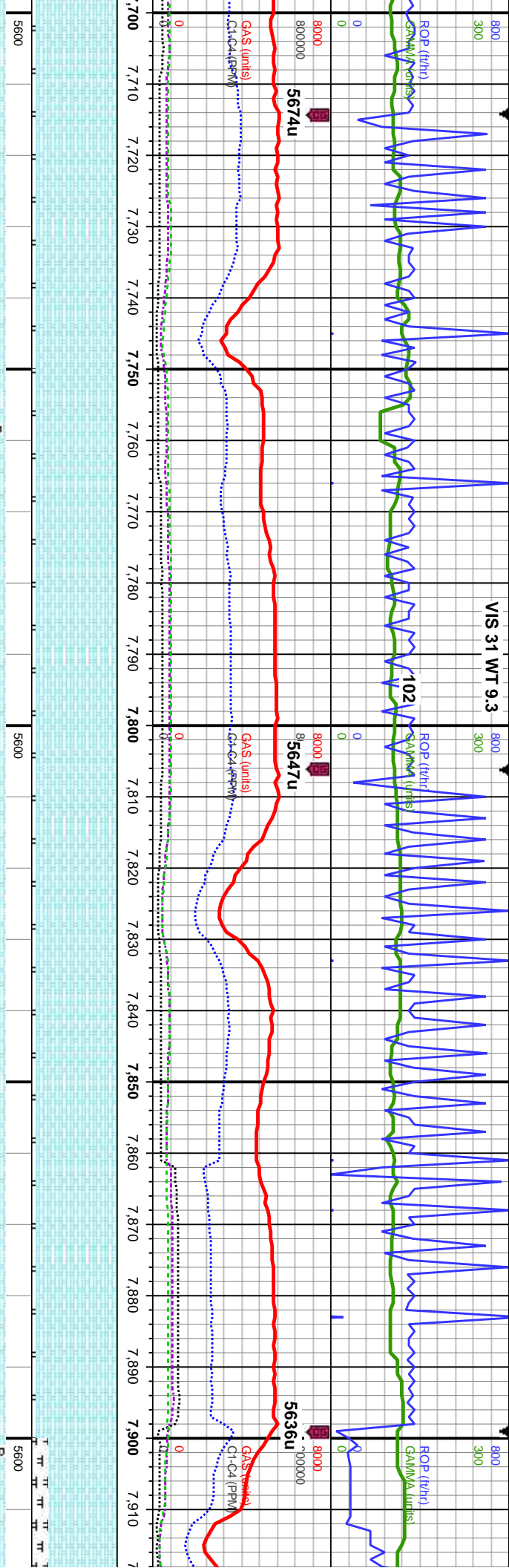
95% CHK: lt-med gy bm, mot, sb pty-blky,
sft-sl frm, rthy-sb wxy, occ cal incl, 5%
MRLST: med-dk gy, blk, sb pty-blky, sl
frm-mod hd, arg-sily tex, mix; calc, occ fos
frags, abnt gy-gn bent, g od, fast string bri
wh bl, even mod thk mod yel ring, mod sin





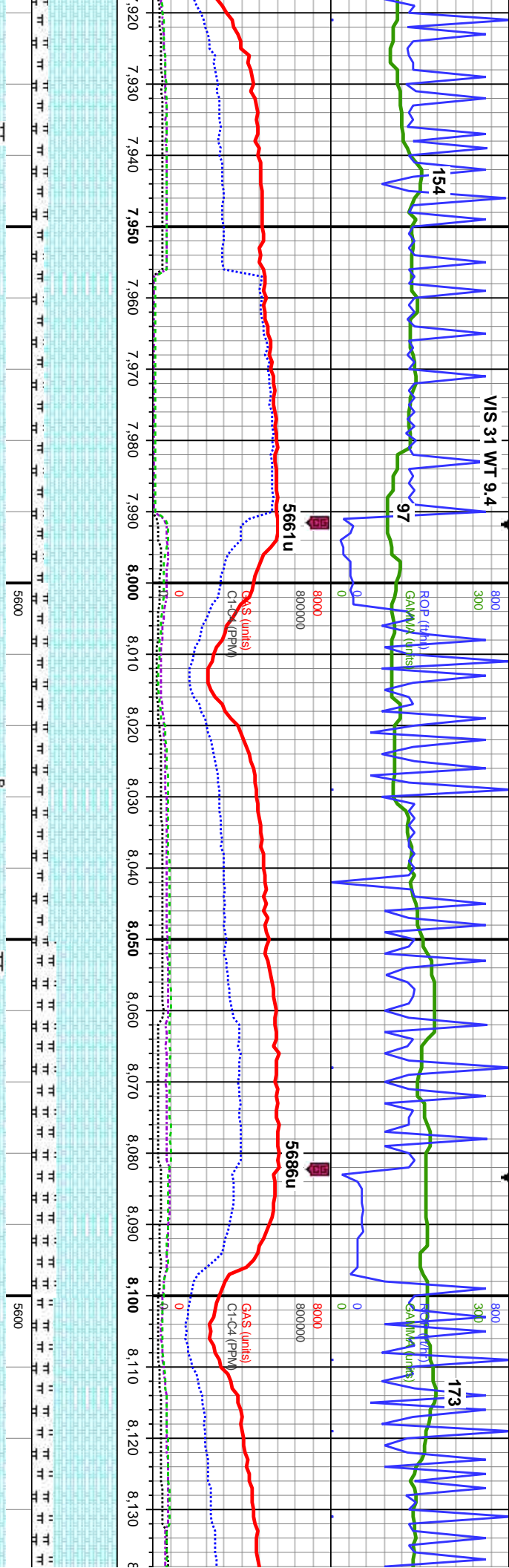
B		B		B		B	
5600		5600		5600		5600	
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
95% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl, 5% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, occ fos frags, some gy-gn bent, g od, fast stmg bri wh bl, even thk mod amb ring, thk sin		95% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl, 5% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, occ fos frags, some gy-gn bent, g od, fast stmg bri wh bl, even thk mod amb ring, thk sin		95% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl, 5% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, cal and fos frags, abnt gy-gn bent, g od, fast stmg bri wh bl, even thk mod amb ring, mod sin		95% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl, 5% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mtx; calc, cal and fos frags, abnt gy-gn bent, g od, fast stmg bri wh bl, even thk mod amb ring, mod sin	
MD: 7,559' Inclination: 89.8° Azimuth: 270.4° TVD: 5,976.21' VS: 620.14'		MD: 7,651' Inclination: 90.5° Azimuth: 269.3° TVD: 5,975.97' VS: 712.14'					





B		B		B	
MD: 7,743' Inclination: 90.1° Azimuth: 268.9° TVD: 5,975.49' VS: 804.13'		MD: 7,836' Inclination: 89.4° Azimuth: 268.3° TVD: 5,975.89' VS: 897.11'		MD: 7,836' Inclination: 89.4° Azimuth: 268.3° TVD: 5,975.89' VS: 897.11'	
95% CHK: lt-med gy brn, occ dk gy, mot, sb pity-dlky, sft-sl frm, rthy-sb wxy, occ cal incl, 5% MRLST: med-dk gy, blk, sb pity-dlky, sl frm-mod hd, arg-sily tex, mtix, calc, cal and fos frags, abnt gy-gn bent, g od, v fast string bri wh bl, even v thk bri yel gm ring, thk sin		95% CHK: lt-med gy brn, occ dk gy, mot, sb pity-dlky, sft-sl frm, rthy-sb wxy, occ cal incl, 5% MRLST: med-dk gy, blk, sb pity-dlky, sl frm-mod hd, arg-sily tex, mtix, calc, cal and fos frags, abnt gy-gn bent, g od, v fast string bri wh bl, even v thk bri yel gm ring, thk sin		95% CHK: lt-med gy brn, occ dk gy, mot, sb pity-dlky, sft-sl frm, rthy-sb wxy, occ cal incl, 5% MRLST: med-dk gy, blk, sb pity-dlky, sl frm-mod hd, arg-sily tex, mtix, calc, cal and fos frags, abnt gy-gn bent, g od, v fast string bri wh bl, even v thk bri yel gm ring, thk sin	
TVD (ft)		TVD (ft)		TVD (ft)	

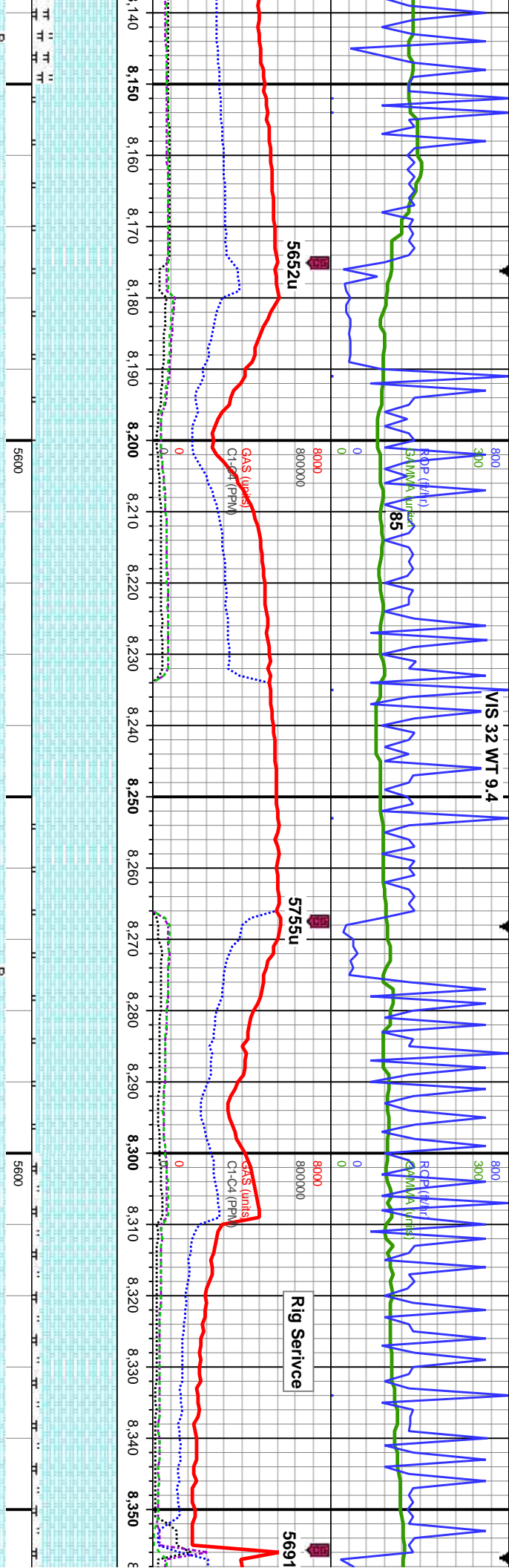




MD: 7.927' Inclination: 92.1° Azimuth: 269° TVD: 5,974.7' VS: 988.08'	
MD: 8,019' Inclination: 91.8° Azimuth: 270° TVD: 5,971.57' VS: 1,080.03'	
MD: 8,111' Inclination: 91.2° Azimuth: 269.9° TVD: 5,969.16' VS: 1,172'	

d gy brn, occ dk gy, mot, sb m, rthy-sb wxy, occ cal incl, med-dk gy, blk, sb pty-blky, sl sily tex, mx; calc, tr imbd cal, scatt cal frags, abnt gy-gn bent, g od, v bl, even thn mod amb ring,	85% CHK: lt-med gy brn, occ dk gy, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl, 15% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mx; calc, tr imbd cal, scatt cal frags, abnt gy-gn bent, g od, v fast sting bri wh bl, even thn mod amb ring, mod sin	80% CHK: med gy brn, occ lt gy, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, 20% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mx; calc, tr imbd cal, scatt gy-gn bent, mod od, v fast sting bri wh bl, even mod thk mod yel gm ring, thk sin	70% CHK: med gy brn, occ lt gy, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, 30% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mx; calc, tr imbd cal, scatt gy-gn bent, mod od, v fast sting bri wh bl, even mod thk mod yel gm ring, thk sin	75% CHK: med gy brn, occ lt gy, m pty-blky, sft-sl frm, rthy-sb wxy, 25% med-dk gy, blk, sb pty-blky, sl frm-i arg-sily tex, mx; calc, tr imbd cal, s bent, mod od, v fast sting bri wh bl, thk bri yel gm ring, thk sin
---	--	---	---	---



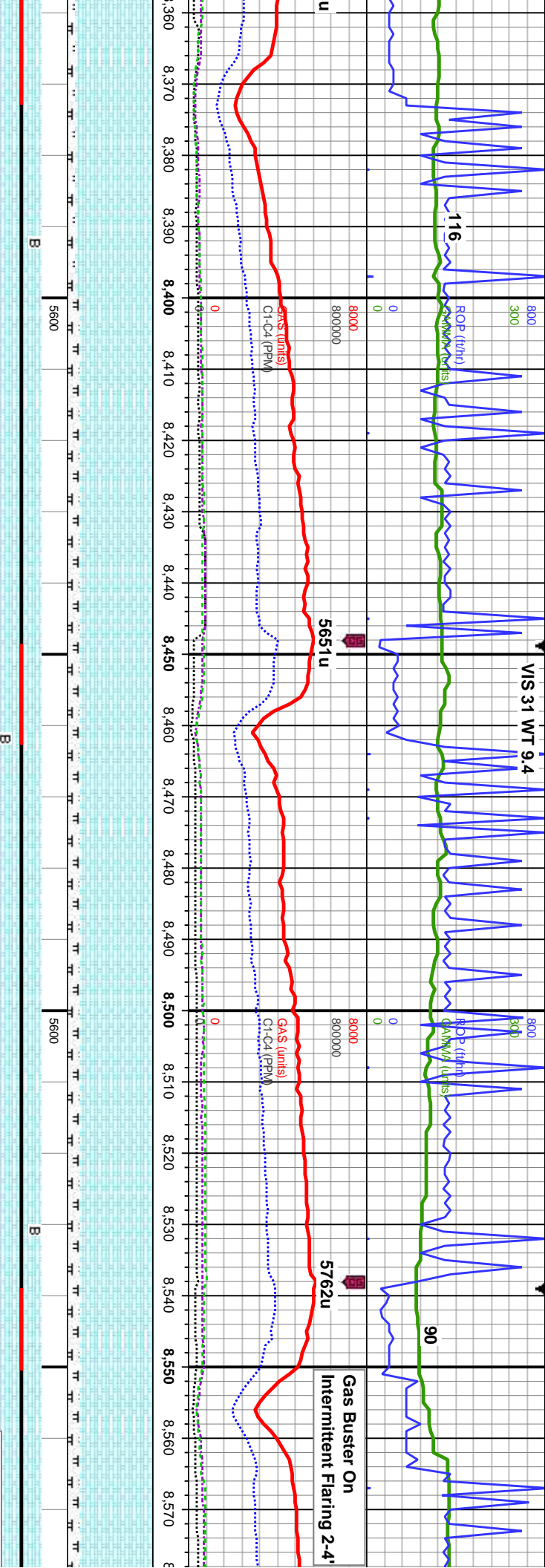


MD: 8,201'
Inclination: 90.2°
Azimuth: 270.1°
TVD: 5,968.06'
VS: 1,261.99'

MD: 8,292'
Inclination: 90.2°
Azimuth: 270.5°
TVD: 5,967.74'
VS: 1,352.98'

95% CHK: lt-med gy brn, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, 5% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mtx; calc, abnt gy-gn bent, tr cal frags & foss, g chk flor, g od, v fast sting bri wh bl, even v thk bri yel grn ring, thk stn	100% CHK: lt-med gy brn, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, abnt gy-gn bent, tr cal frags & foss, g chk flor, g od, v fast sting bri wh bl, even v thk bri yel grn ring, thk stn	95% CHK: lt-med gy brn, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, 5% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mtx; calc, abnt gy-gn bent, tr cal frags & foss, g chk flor, g od, v fast sting bri wh bl, even v thk bri yel grn ring, thk stn	90% CHK: lt-med gy brn, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, 10% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mtx; calc, abnt gy-gn bent, tr cal frags & foss, g chk flor, g od, mod-fast sting bri wh bl, even thn mod amb ring, mod stn	90% C sft-sl fr gy, blk tex, mtx foss, g bl, eve
--	---	--	---	---





MD: 8,383'
Inclination: 89.8°
Azimuth: 269.8°
TVD: 5,967.74'
VS: 1,443.98'

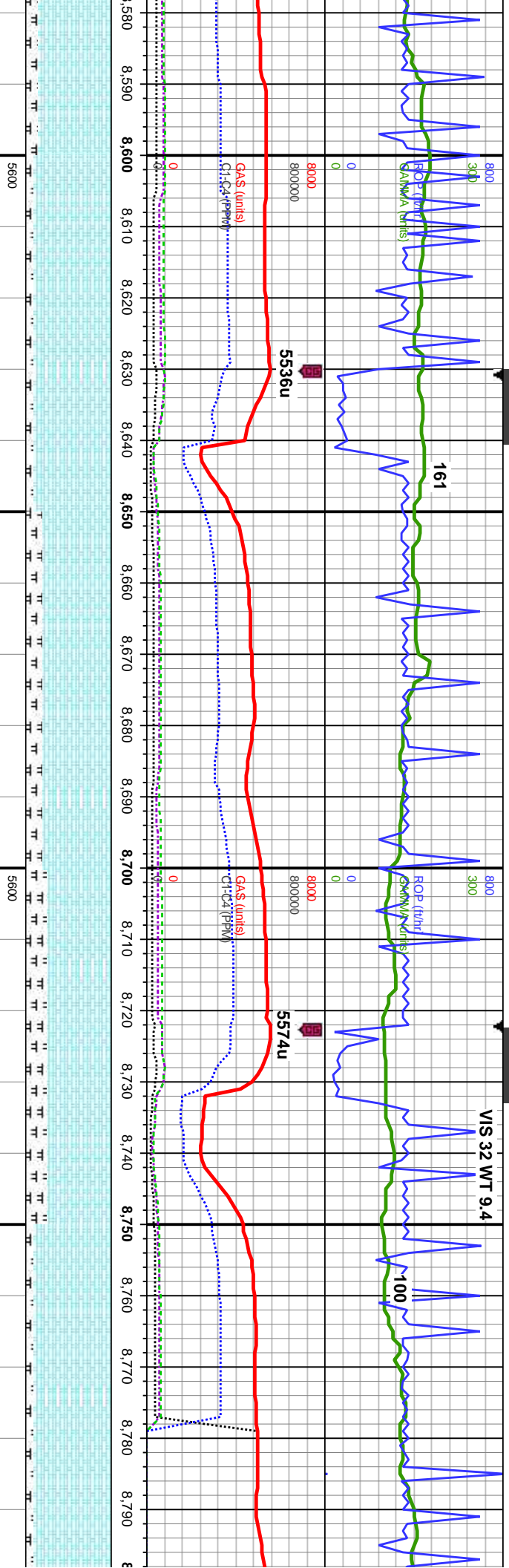
85% CHK: lt-med gy brn, mot, sb pily-biky, sft-sl frm, rthy-sb wxy, 15% MRLST: med-dk gy, blk, sb pily-biky, sl frm-mod hd, arg-sily tex, mtb; calc, abnt gy-gn bent, tr cal frags & foss, g chk flor, g od, v fast sting bri wh bl, even v thk bri yel grn ring, thk stn	85% CHK: lt-med gy brn, occ dk gy brn, mot, sb pily-biky, sft-sl frm, rthy-sb wxy, tr imbd cal 15% MRLST: med-dk gy, blk, sb pily-biky, sl frm-mod hd, arg-sily tex, mtb; calc, abnt gy-gn bent, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn
---	---

MD: 8,475'
Inclination: 89.4°
Azimuth: 268.9°
TVD: 5,968.39'
VS: 1,535.97'

MD: 8,567'
Inclination: 89.5°
Azimuth: 269.2°
TVD: 5,969.27'
VS: 1,627.96'

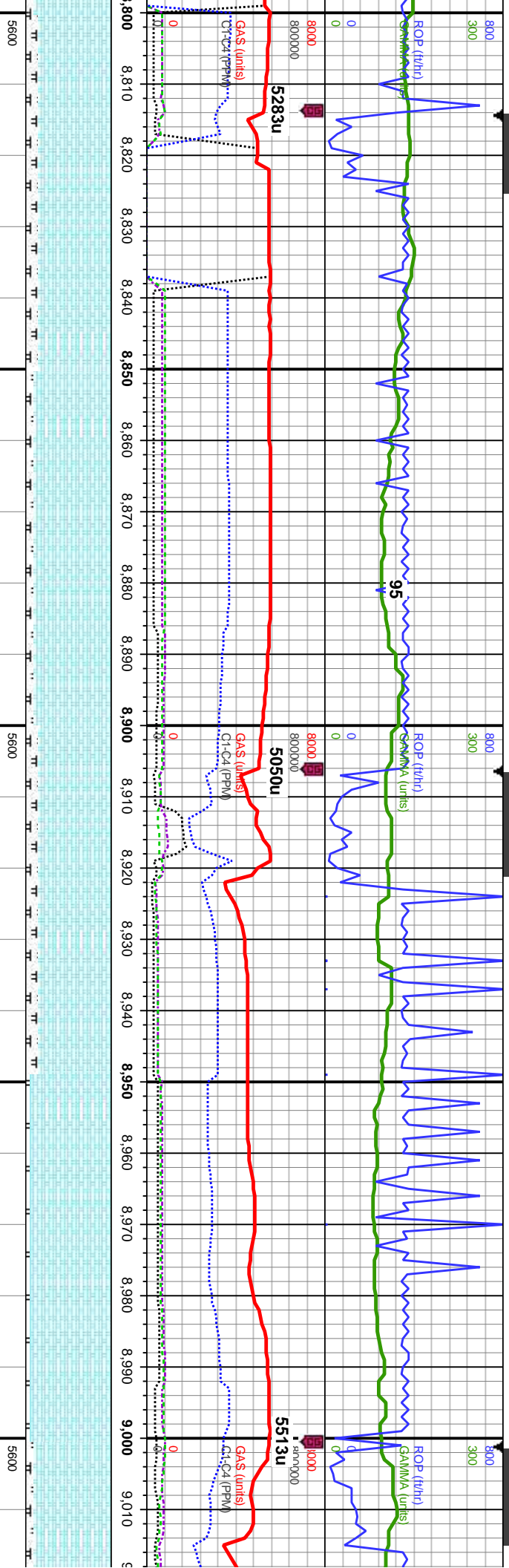
85% CHK: lt-med gy brn, mot, sb pily-biky, sft-sl frm, rthy-sb wxy, tr imbd cal 15% MRLST: med-dk gy, blk, sb pily-biky, sl frm-mod hd, arg-sily tex, mtb; calc, g chk flor, abnt gy-gn bent, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	85% CHK: lt-med gy brn, sft-sl frm, rth pily-biky, sl frm-mod hd, arg-sily tex, g c calc, abnt gy-gn bent, g c fast sting bri wh bl, even mod thk mod yel grn ring, mod stn
--	---





B		B	
TVD (ft)		TVD (ft)	
90% CHK: lt-med gy brn, occ dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 10% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mt; calc, abnt gy-gn bent, g chk flr, mod od, fast stmg bri wh bl, even mod thk bri yel grn ring, thk stn		90% CHK: lt-med gy brn, occ dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 10% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mt; calc, abnt gy-gn bent, g chk flr, mod od, fast stmg bri wh bl, even mod thk bri yel grn ring, thk stn	
MD: 8,659' Inclination: 89.5° Azimuth: 269.8° TVD: 5,970.07' VS: 1,719.96'		MD: 8,752' Inclination: 89.5° Azimuth: 270.6° TVD: 5,970.88' VS: 1,812.95'	

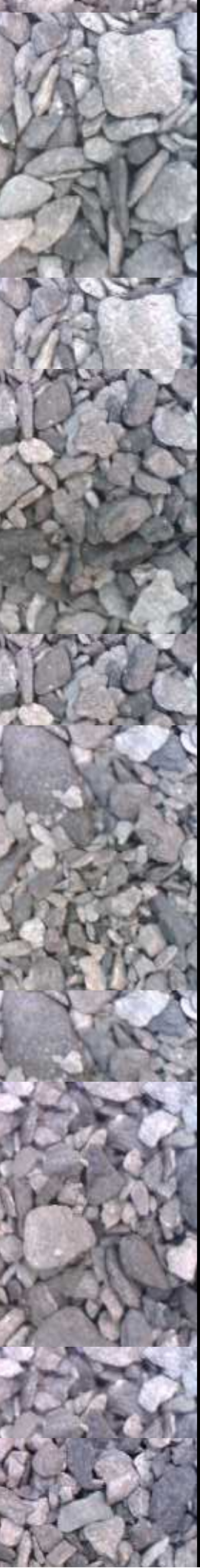


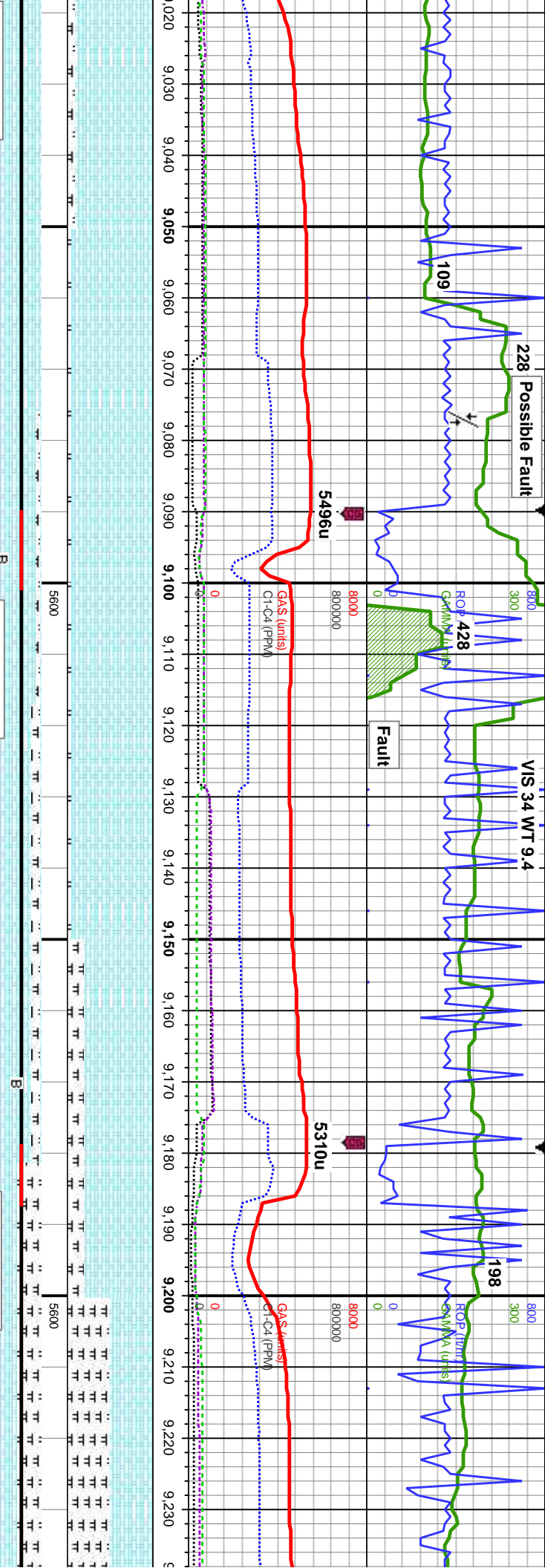


MD: 8,844'
Inclination: 90.3°
Azimuth: 270.7°
TVD: 5,971.05'
VS: 1,904.93'

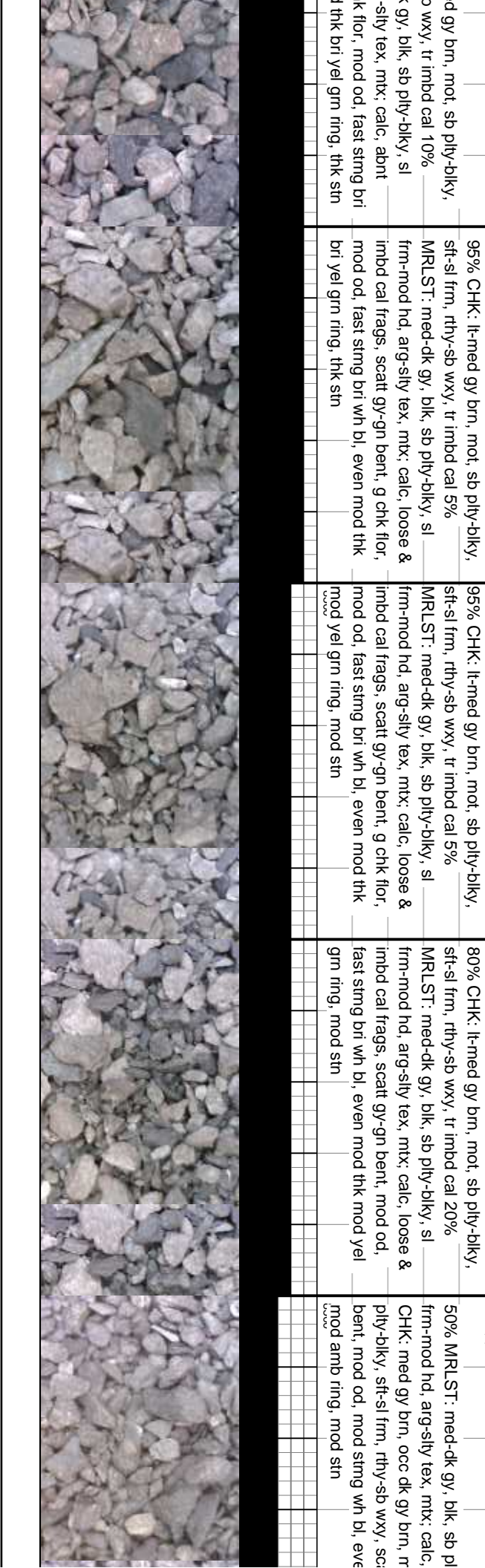
MD: 8,936'
Inclination: 89.8°
Azimuth: 271°
TVD: 5,970.96'
VS: 1,996.91'

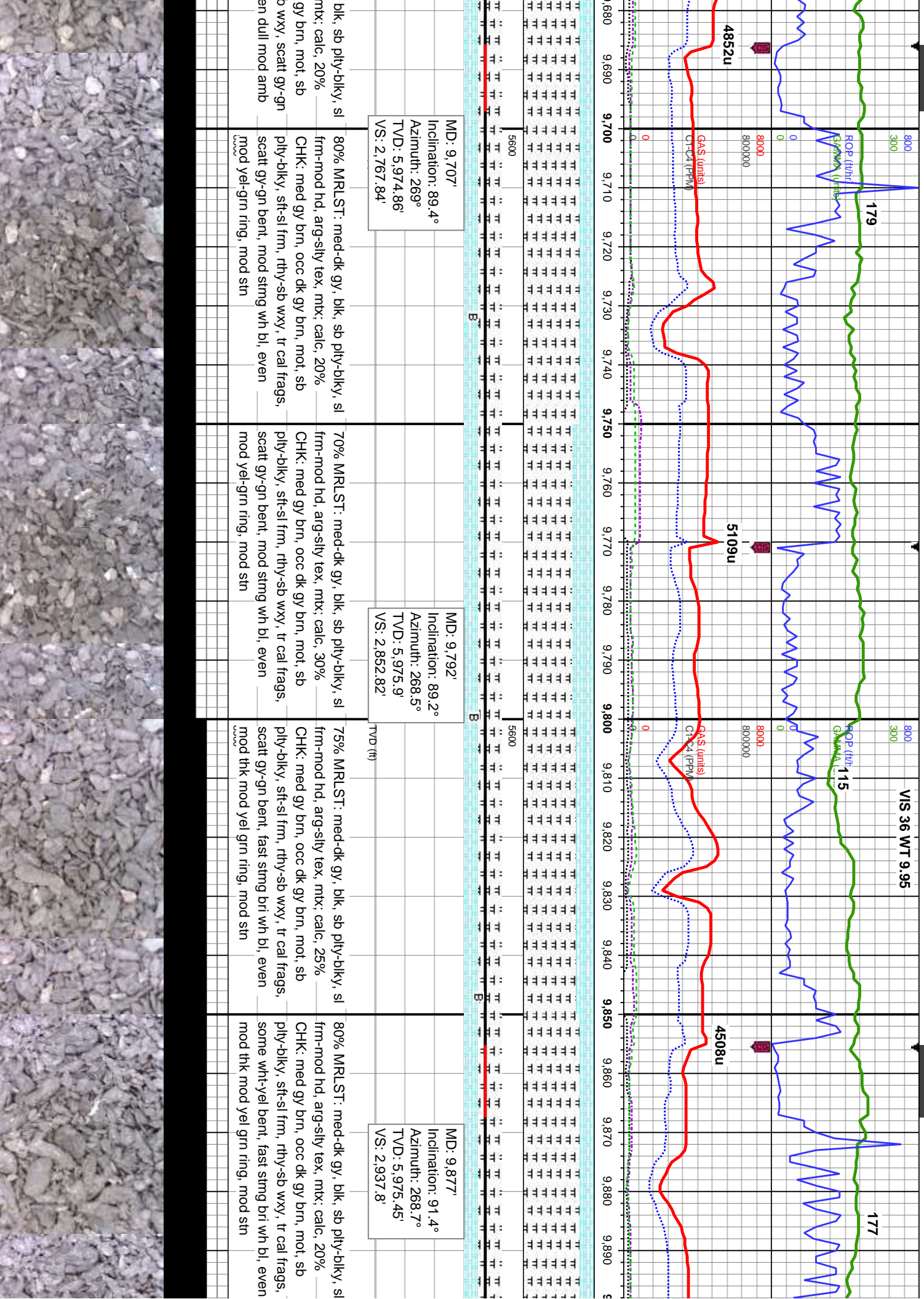
TVD (ft)	85% CHK: lt-med gy brn, occ dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 15% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mt; calc, abnt gy-gn bent, g chk flor, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	90% CHK: lt-med gy brn, occ dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 10% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mt; calc, abnt gy-gn bent, g chk flor, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	TVD (ft)	85% CHK: lt-med gy brn, occ dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 15% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mt; calc, abnt gy-gn bent, g chk flor, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	95% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 5% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mt; calc, abnt gy-gn bent, g chk flor, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	TVD (ft)	90% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 5% MRLST: med-dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mt; calc, abnt gy-gn bent, g chk flor, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn
----------	--	--	----------	--	--	----------	--

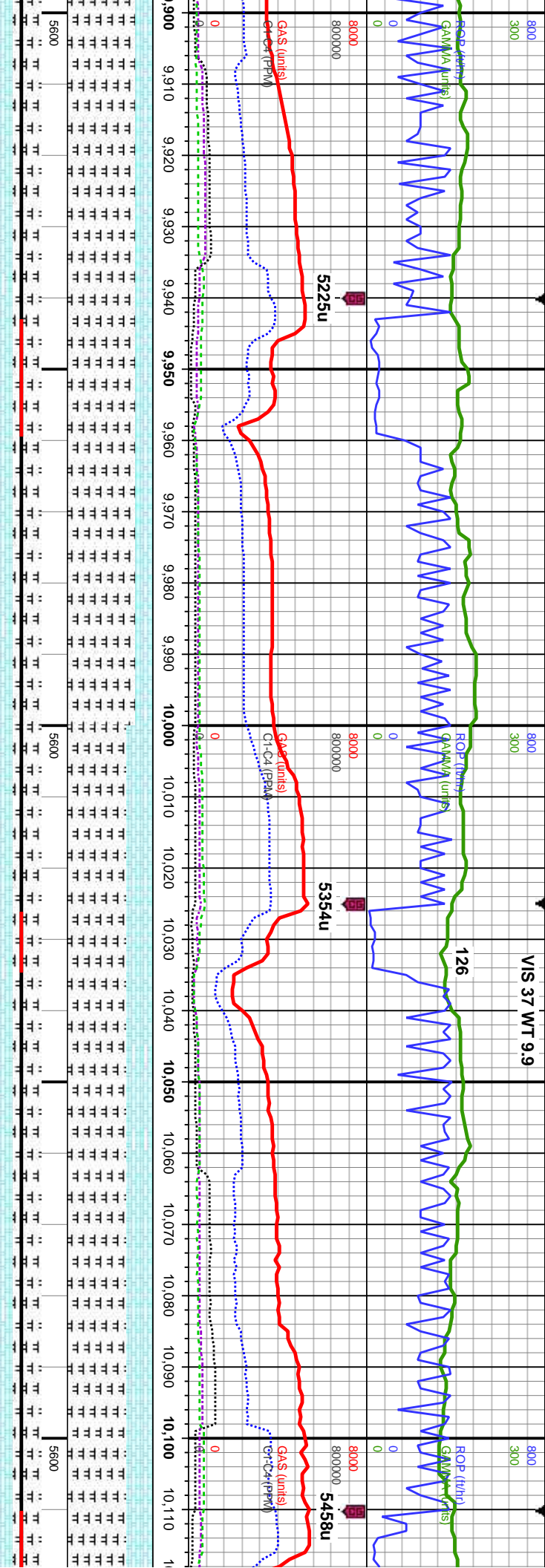




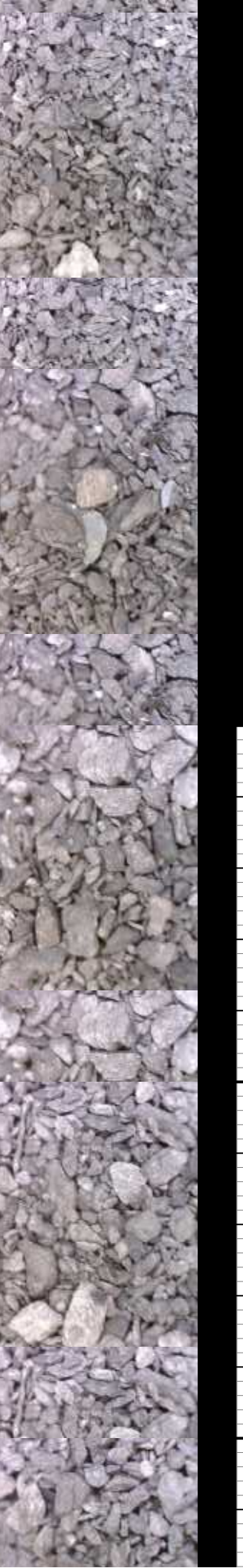
MD: 9.027' Inclination: 89.8° Azimuth: 269.6° TVD: 5,971.28' VS: 2,087.91'	95% CHK: lt-med gy brn, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 5% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mt; calc, loose & imbd cal frags, scatt gy-gn bent, g chk flr, mod od, fast sting bri wh bl, even mod thk bri yel grn ring, thk stn	95% CHK: lt-med gy brn, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 5% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mt; calc, loose & imbd cal frags, scatt gy-gn bent, g chk flr, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	MD: 9.111' Inclination: 89.7° Azimuth: 269.2° TVD: 5,971.65' VS: 2,171.9'	80% CHK: lt-med gy brn, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 20% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mt; calc, loose & imbd cal frags, scatt gy-gn bent, mod od, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	MD: 9.196' Inclination: 89.3° Azimuth: 268.7° TVD: 5,972.39' VS: 2,256.89'	50% MRLST: med-dk gy, blk, sb pily-blky, sft-sl frm, rthy-sb wxy, tr imbd cal 20% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mt; calc, CHK: med gy brn, occ dk gy brn, r pily-blky, sft-sl frm, rthy-sb wxy, sc bent, mod od, mod sting wh bl, even mod amb ring, mod stn
--	---	---	---	---	--	---

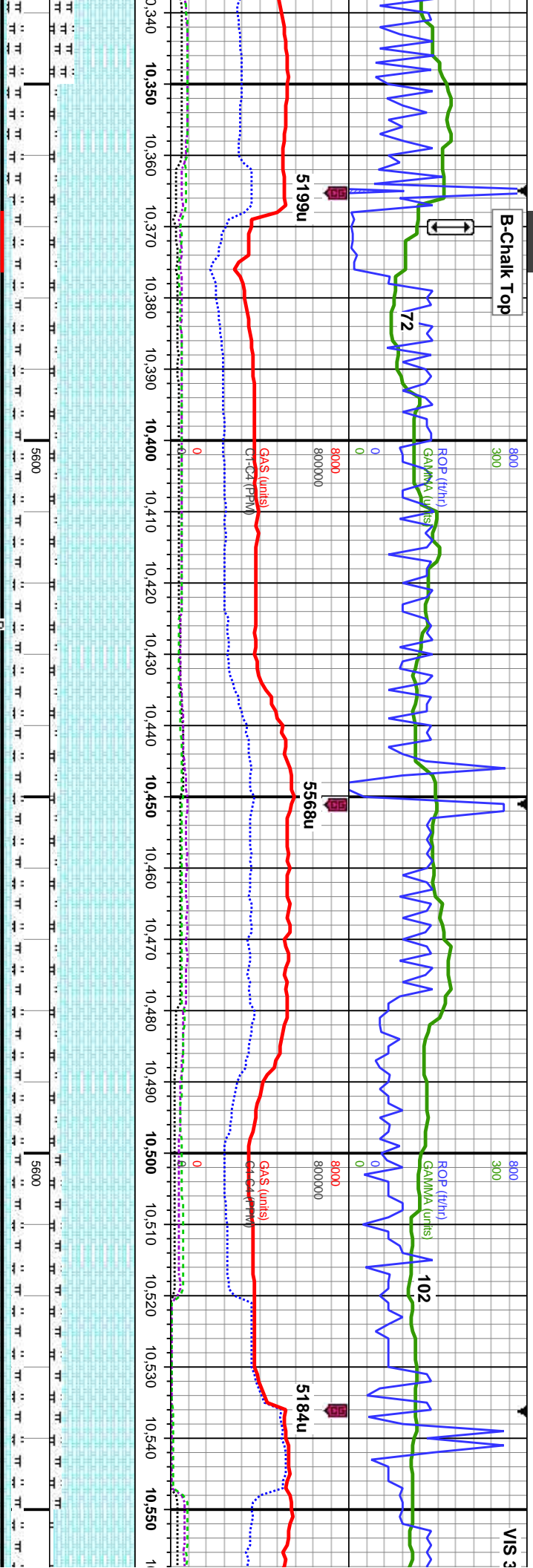






MD: 9,962' Inclination: 90.3° Azimuth: 270.3° TVD: 5,974.19' VS: 3,022.79'		MD: 10,046' Inclination: 89.2° Azimuth: 270.2° TVD: 5,974.56' VS: 3,106.78'	
80% MRLST: med-dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, mtx; calc, 20% CHK: med gy brn, occ dk gy brn, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, tr cal frags, some wht-yel bent, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	80% MRLST: med-dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, mtx; calc, 20% CHK: med gy brn, occ dk gy brn, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, tr cal frags, some wht-yel bent, fast sting bri wh bl, even mod thk mod yel grn ring, mod stn	70% MRLST: med-dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, mtx; calc, 30% CHK: med gy brn, occ dk gy brn, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, tr cal frags, some wht-yel bent, mod sting bri wh bl, even thn yel grn ring, mod sin	70% MRLST: med-dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, mtx; calc, 30% CHK: med gy brn, occ dk gy brn, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, tr cal frags, some wht-yel bent, mod sting bri wh bl, even thn yel grn ring, mod sin
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)



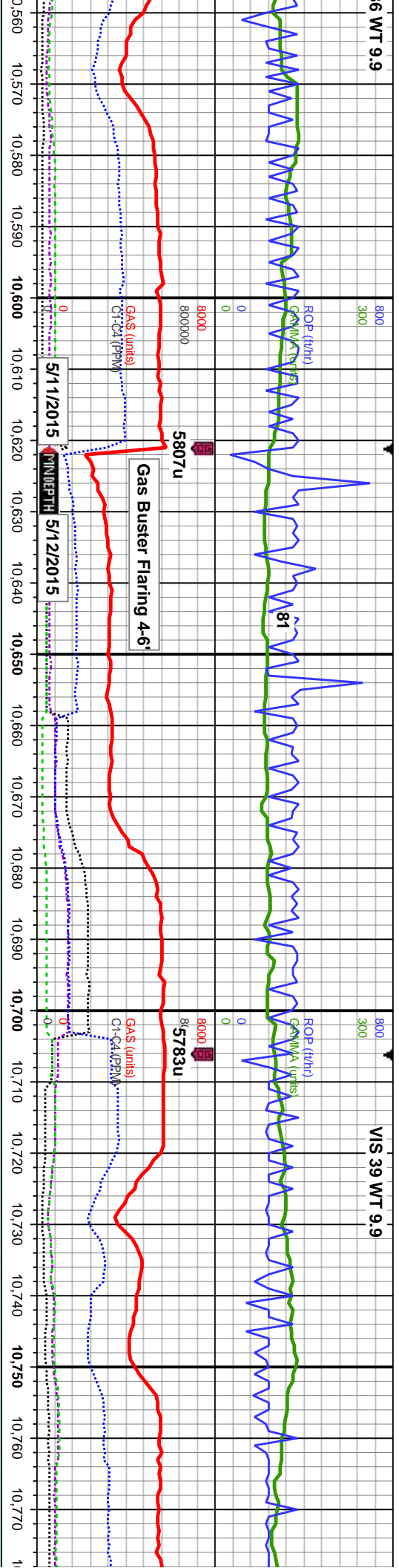


MD: 10,388' Inclination: 88.7° Azimuth: 269.8° TVD: 5,981.04' VS: 3,448.67'		90% CHK: wht-crm, occ med-dk gy brn, mot, sb blk-y-biky, sft-sl frm, rthy-sb wxy, 10% MRLST: med-dk gy, blk, sb pily-biky, sl frm-mod hd, arg-sily tex, mx; calc, scat gy-gn bent, mod chk flor, fast sting bri wh bl, even thk mod yel ring, thk sin	90% CHK: wht-crm, occ med-dk gy brn, mot, sb blk-y-biky, sft-sl frm, rthy-sb wxy, 10% MRLST: med-dk gy, blk, sb pily-biky, sl frm-mod hd, arg-sily tex, mx; calc, scat gy-gn bent, mod chk flor, fast sting bri wh bl, even v thk brt yel gm ring, mod sin	90% CHK: wht-crm, occ med-dk gy brn, mot, sb blk-y-biky, sft-sl frm, rthy-sb wxy, 10% MRLST: med-dk gy, blk, sb pily-biky, sl frm-mod hd, arg-sily tex, mx; calc, scat gy-gn bent, mod chk flor, fast sting bri wh bl, even v thk bri yel gm ring, mod sin	85% CHK: wht-crm, med-dk gy brn, mot, sb blk-y-biky, sft-sl frm, rthy-sb wxy, 15% MRLST: med-dk gy, blk, sb pily-biky, sl frm-mod hd, arg-sily tex, mx; calc, tr gy-gn bent, fast sting bri wh bl, even v thk bri yel gm ring, thn sin	95% C mot, sl MRLS frm-m bent, f gm rin
TVD (ft)						



6 WT 9.9

VIS 39 WT 9.9



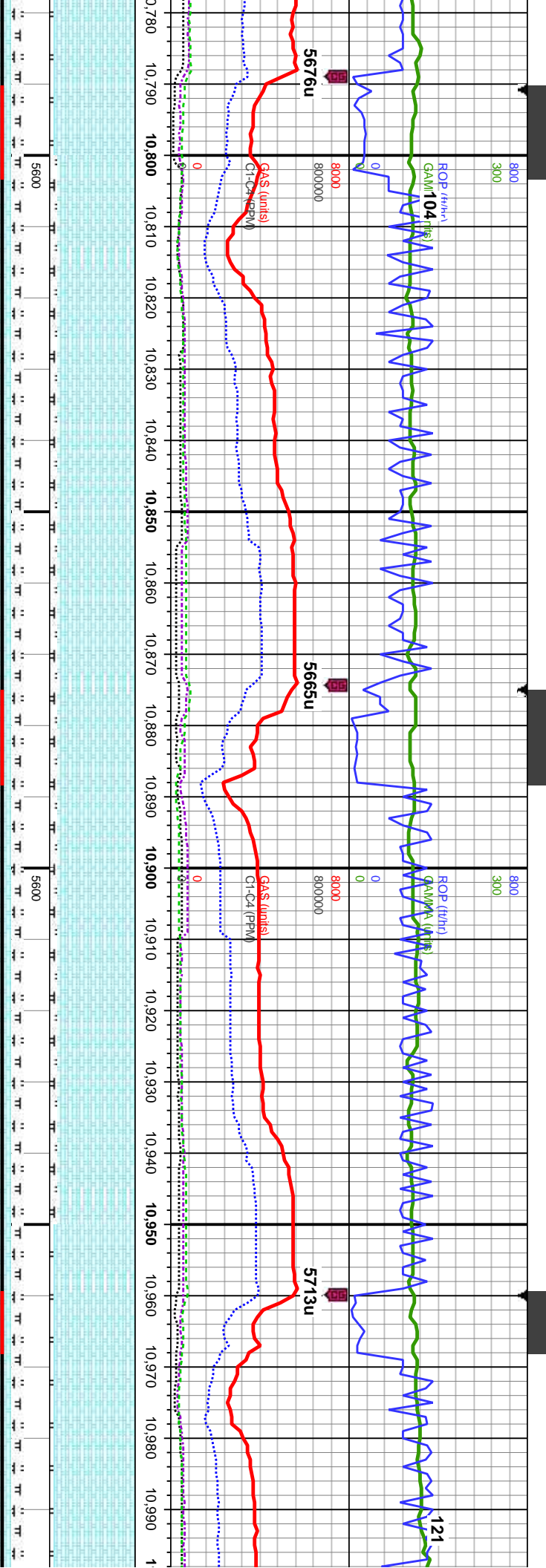
558'
n: 89.3°
269.9°
884.31'
8.64'

MD: 10,643'
Inclination: 90°
Azimuth: 270°
TVD: 5,984.83'
VS: 3,703.64'

MD: 10,727'
Inclination: 91.3°
Azimuth: 269.9°
TVD: 5,983.87'
VS: 3,787.63'

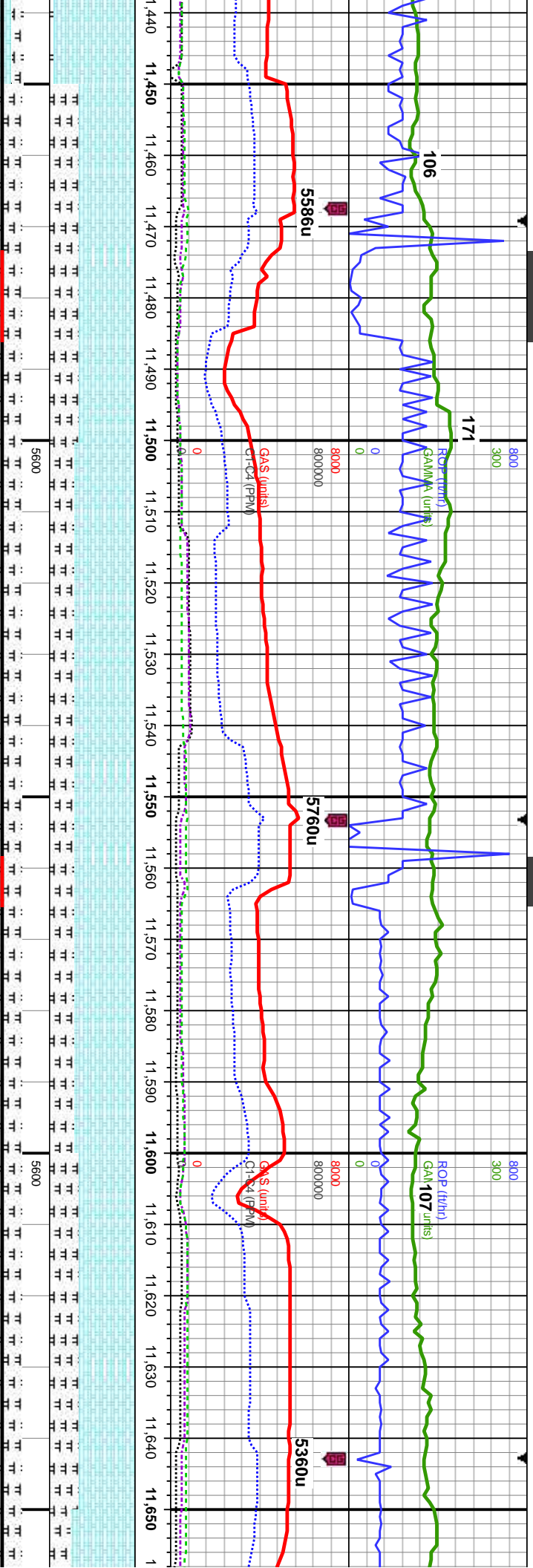
HK: wht-frm, occ med-dk gy brn, o biky-blky, sft-sl frm, rthy-sb wxy, 5% T: med-dk gy, blk, sb pily-blky, sl hd, arg-sily tex, mx; calc, tr gy-gn stmg bri wh bl, even v thk bri yel g, thn stn	100% CHK: lt-med gy, mot, sb pily-blky, sft-sl frm, rthy-sb wxy, tr cal incl, tr bent, v g chk flr, g od, fast stmg bri wh bl, even thk mod amb ring, thk stn	95% CHK: wht-frm, occ med-dk gy brn, mot, sb biky-blky, sft-sl frm, rthy-sb wxy, 5% MRLST: med-dk gy, blk, sb pily-blky, sl frm-mod hd, arg-sily tex, mx; calc, tr gy-gn bent, g chk flr, g od, fast stmg bri wh bl, even v thk bri yel grn ring, thk stn	95% CHK: wht-frm, occ r MRLST: med-dk gy, blk, ; frm-mod hd, arg-sily tex, bent, g chk flr, g od, fast even v thk bri yel grn ring
---	---	--	--





med-dk gy brn, n, rthy-sb wxy, 5% mty-biky, sl	90% CHK: wht-crm, occ med-dk gy brn, mot, sb biky-biky, sft-sl frm, rthy-sb wxy, 10% MRLST: med-dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, mtx; calc, tr gy-gn bent, g chk flor, g od, fast stmg bri wh bl, even thn frt amb ring, thk stn	MD: 10,812' Inclination: 90.3° Azimuth: 270.2° TVD: 5,982.69' VS: 3,872.62'	med-dk gy brn, n, rthy-sb wxy, 5% mty-biky, sl	90% CHK: wht-crm, occ med-dk gy brn, mot, sb biky-biky, sft-sl frm, rthy-sb wxy, 10% MRLST: med-dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, mtx; calc, tr gy-gn bent, g chk flor, g od, fast stmg bri wh bl, even thn frt amb ring, thk stn	MD: 10,897' Inclination: 89.4° Azimuth: 269.9° TVD: 5,982.91' VS: 3,957.62'	med-dk gy brn, n, rthy-sb wxy, 5% mty-biky, sl	95% CHK: wht-crm, occ med-dk gy brn, mot, sb biky-biky, sft-sl frm, rthy-sb wxy, 5% MRLST: med-dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, mtx; calc, tr gy-gn bent, g chk flor, g od, fast stmg bri wh bl, even thn frt amb ring, thk stn



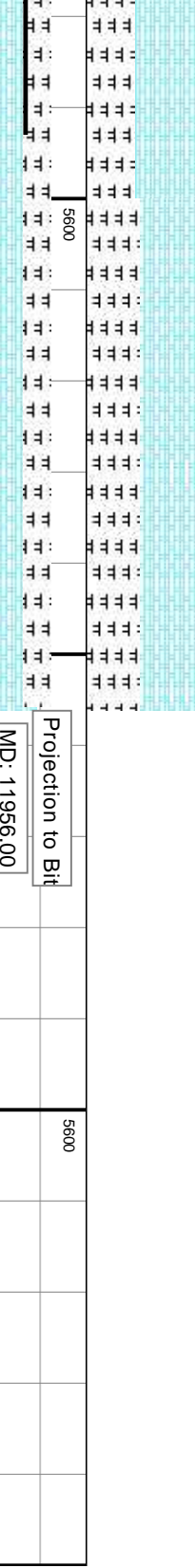
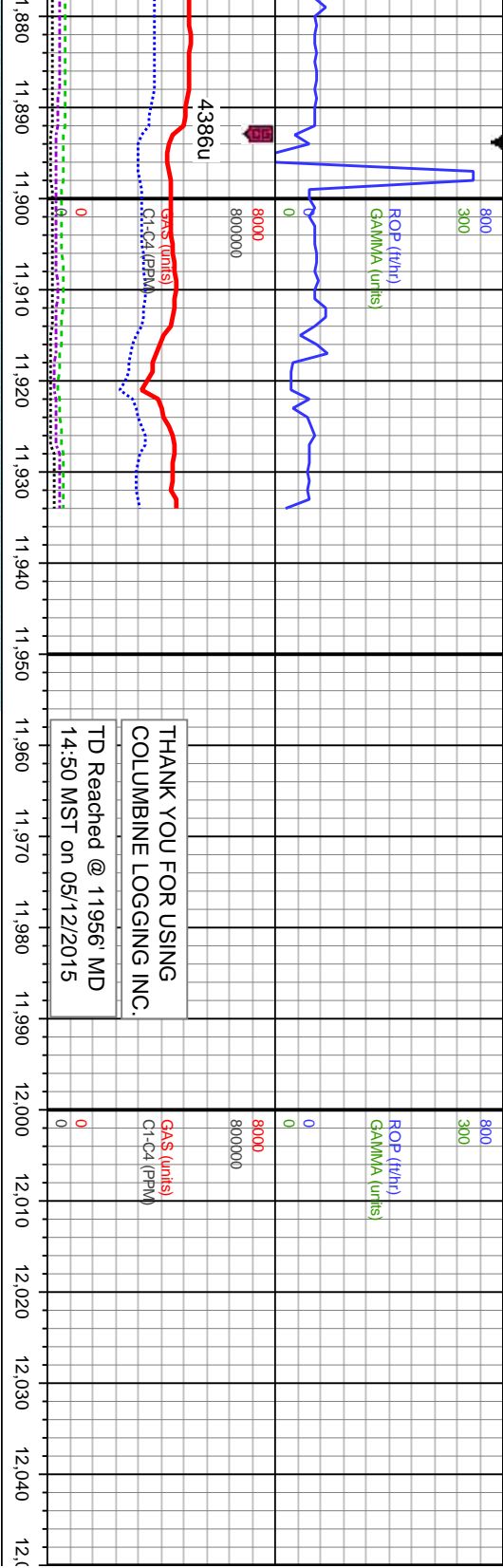


MD: 11,495'
Inclination: 89.5°
Azimuth: 270.3°
TVD: 5,985.81'
VS: 4,555.55'

MD: 11,580'
Inclination: 89.8°
Azimuth: 269.9°
TVD: 5,986.33'
VS: 4,640.55'

gy brn,	65% CHK: med-dk gy brn, mot, sb blk-y-bkly,	70% CHK: med-dk gy brn, mot, sb blk-y-bkly,	70% CHK: med-dk gy brn, mot, sb blk-y-bkly,	65% CHK: med-dk gy brn, mot, sb blk-y-bkly,	75% C
wxy, 5%	sft-sl frm, rthy-sb wxy, 35% MRLST: med-dk	sft-sl frm, rthy-sb wxy, 30% MRLST: med-dk	sft-sl frm, rthy-sb wxy, 30% MRLST: med-dk	sft-sl frm, rthy-sb wxy, 35% MRLST: med-dk	mot, sl
y, sl	gy, blk, sb pty-bkly, sl frm-mod hd, arg-sily	gy, blk, sb pty-bkly, sl frm-mod hd, arg-sily	gy, blk, sb pty-bkly, sl frm-mod hd, arg-sily	gy, blk, sb pty-bkly, sl frm-mod hd, arg-sily	25% W
tr cal	tex, mtx: calc, mod od, fast string bri wh bl,	tex, mtx: calc, mod od, fast string bri wh bl,	tex, mtx: calc, mod od, fast string bri wh bl,	tex, mtx: calc, mod od, fast string bri wh bl,	frm-inc
bri wh	even mod thk mod yel grn ring, mod sin	even mod thk mod yel grn ring, thk sin	even mod thk mod yel grn ring, thk sin	even v thk bri yel grn ring, thk sin	cnk flo
mod sin					sin





MD: 11,893'
Inclination: 91.3°
Azimuth: 271.3°
TVD: 5,983.2'
VS: 4,953.47'

TVD (ft)

mot, sb blkly-bkly,
% MRLST: med-dk
-mod hd, arg-sily
mod od, mod stmg
ring, fr sn

50% CHK: med-dk gy brn, mot, sb blkly-bkly,
stf-si frm, rthy-sb wxy, 50% MRLST: med-dk
gy, blk, sb plty-bkly, si frm-mod hd, arg-sily
tex, mty: calc, scatt bent, mod od, mod stmg
bri wh bl, even thn fnt amb ring, fr sn

MD: 11956.00
INC: 91.30
AZI: 271.30
TVD: 5981.77
VS: 5016.43
DLS: 0.00
H/L: 1.8
R/L: 5.4

TVD (ft)

8500

