

COLUMBINE LOGGING

Scale: 5" / 100'
Measured Depth Log

Well Name State Pronghorn X43-32-31MRLNC

Location SESE SEC. 32 T5N R62W

State COLORADO

County WELD

Country USA

Rig Number XTREME 20

API Number 05-123-41260

AFE # 15092

Region DJ BASIN

Field WATTENBERG

Spud Date 4/14/2015

Drilling Completed 5/8/2015

Surface Coordinates 570' FSL x 1087' FEL (LAT: 40.35153, -104.22724)

Bottom Hole Coordinates 1650' FSL x 860' FEL (LAT: 40.35441, -104.24520) PROJECTED

Ground Elevation 4529'

K.B. Elevation 4546'

Logged Interval 5900' To 12085'

Total Depth 12085'

Formation NIOBRARA C-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

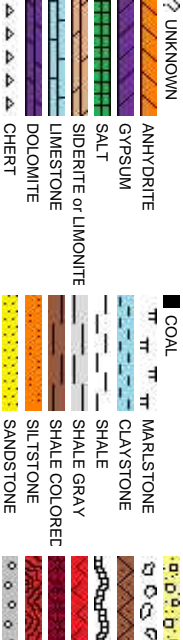
Company Bonanza Creek

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

Zone Color Cod



Rock Types



Accessories

Fossils

F FOSSIL	- ARGILLACEOUS	GLAUCONITE
GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS
OOLITE	B BENTONITE	HEAVY MINERAL
OSTRACOD	BITUMENOUS SUBSTANCE	KAOLIN
PELECYPOD	BRECCIA FRAGMENTS	MARLSTONE
PELLET	CALCAREOUS	MINERAL CRYSTALS
PISOLITE	CARBONACEOUS FLAKES	NODULES
PLANT REMAINS	CHTDC	PHOSPHATE PELLETS
CEPHALOPOD	PLANT SPORES	PYRITE
CORAL	SCAPHOPOD	SALT CAST
CRINOID	STROMATOPOROID	DOLOMITIC
ECHINOID	FELDSPAR	SANDY
FISH	FERRUGINOUS PELLETT	SILICEOUS
FORAMINIFERA	ANHYDRITIC	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

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

Engineering

EVEN	NORMAL FAULT	FORMATION TOP	GRAINSTONE
QUESTIONABLE	OIL SHOW	CONNECTION DOWN	L LITHOGRAPHIC
SPOTTED STAINING	BIT	OVERTURNED STRATA	MX MICROXLN

Porosity

CASING	REVERSE FAULT	A ANGULAR	M3 MUDSTONE
CONNECTION (LEFT)	SIDEWALL CORE (LEFT)	R ROUNDED	P3 PACKSTONE
CONNECTION (RIGHT)	SIDEWALL CORE (RIGHT)	B SUBANG	W3 WACKSTONE
CONNECTION GAS	SLIDE	P SUBRND	

Textures

F FRACTURE	SURVEY		
INTERCRYSTALLINE	CORE - RECOVERED	TRIP GAS	
INTEROOLITIC	DST INTERVAL	WIRELINE TESTED - LEFT	B3 BOUNDSTONE
MOULDIC	FAULT	WIRELINE TESTED - RT	C CHALKY

Sorting

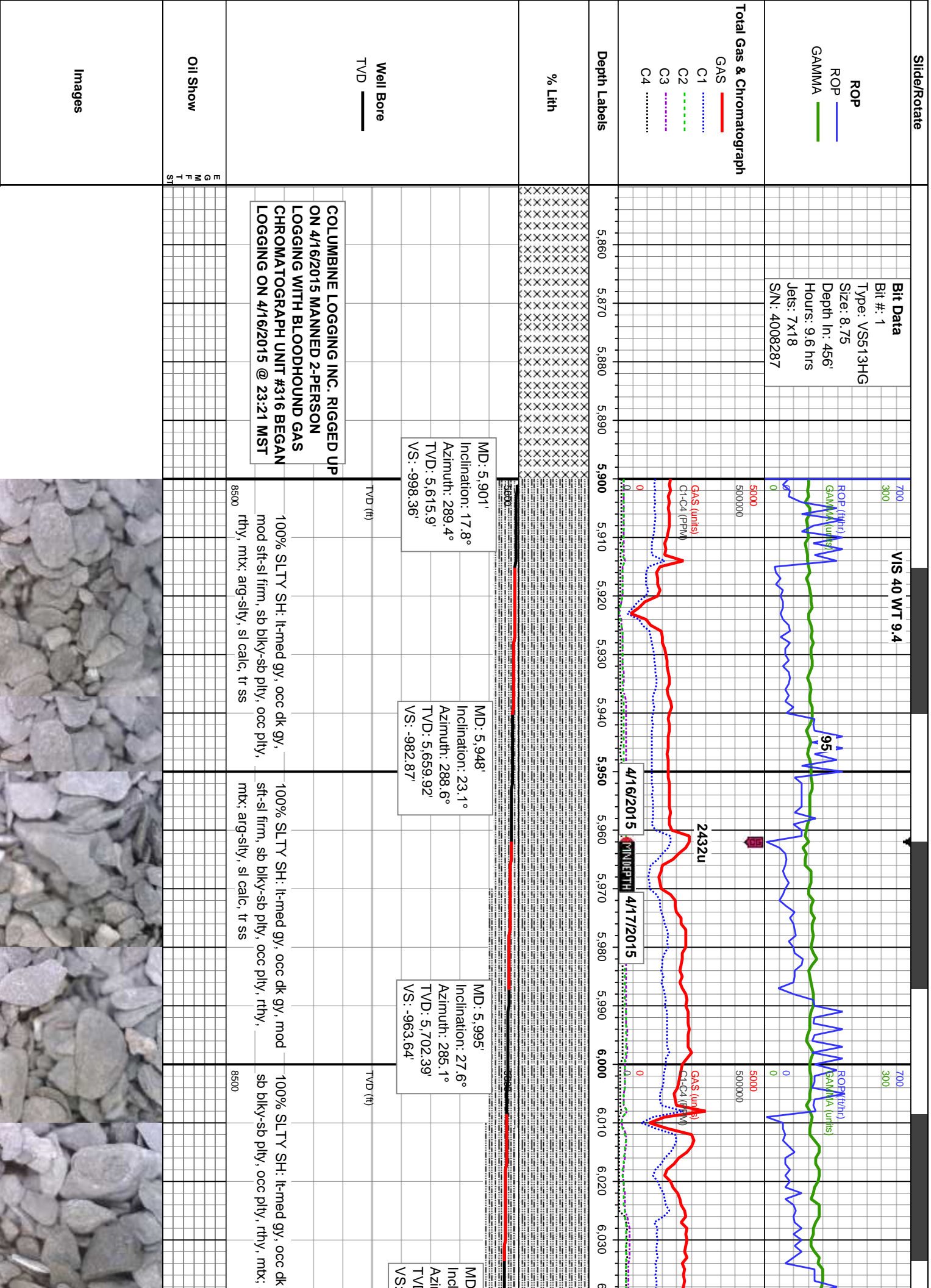
M MODERATE
P POOR
W WELL



ing

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

O 80202



VIS 36 WT 9.4

Sharon Springs "A" Spike
6117' MD 5805' TVD

Sharon Springs "B" Spike
210 6158' MD 5836' TVD

Niobrara A Chalk Top
6231' MD, 5855' TVD

Niobrara A Marl Top
6237' MD, 5890' TVD

Sharon Springs Top
MD: 6061' TVD: 5760'

3771u

5000

4019u

Gas Scale Change
0-8000 units

5551u

ROF (ft/h)

ROF (ft/h)

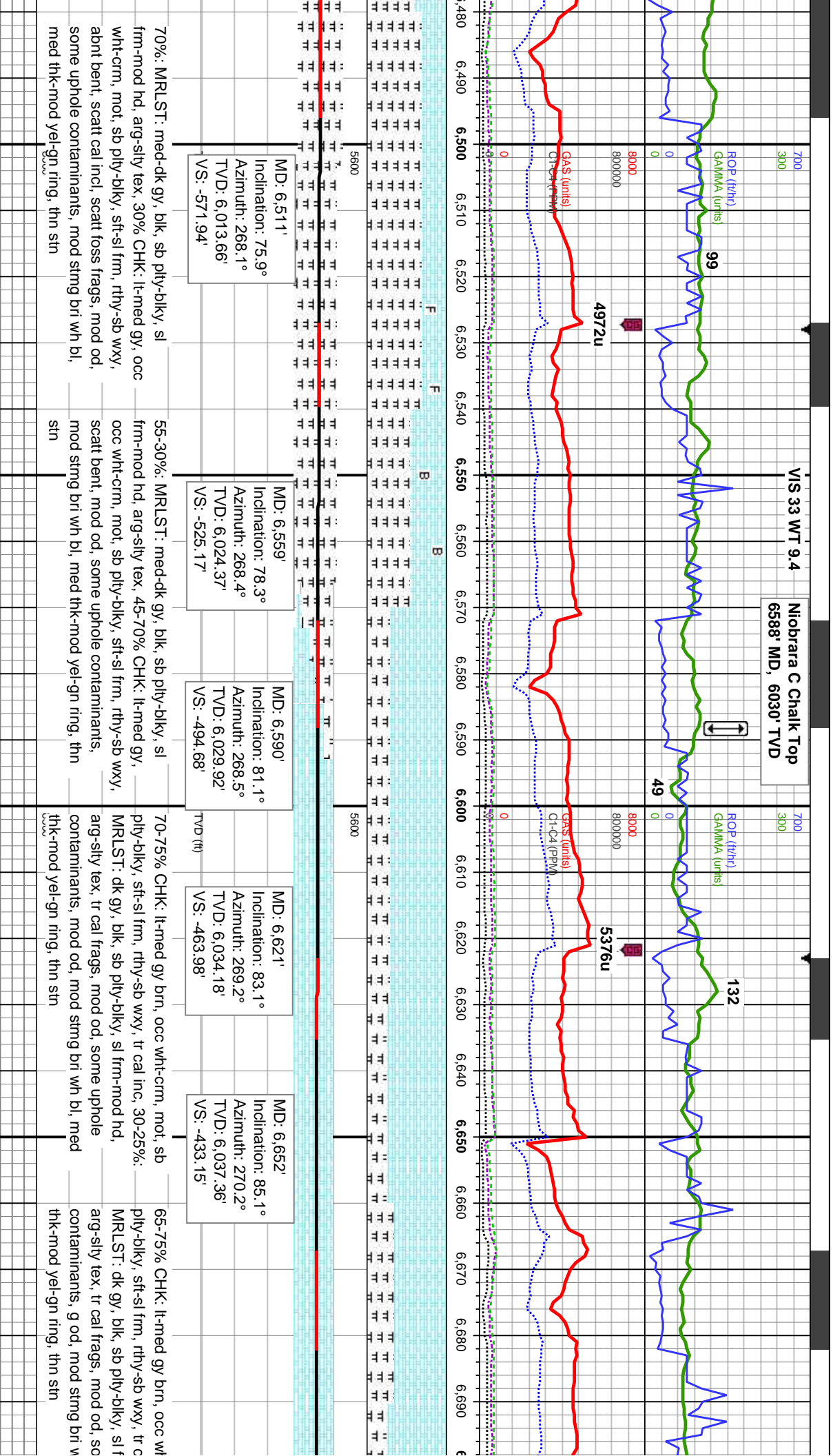
91

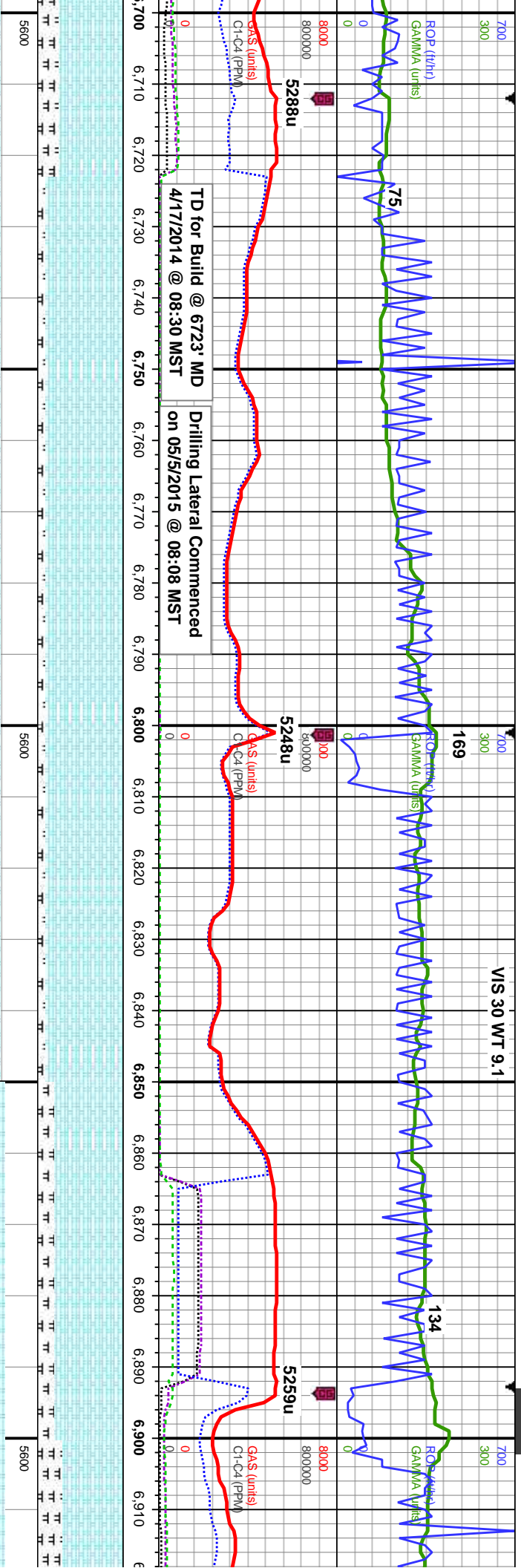
6237

MD

5890

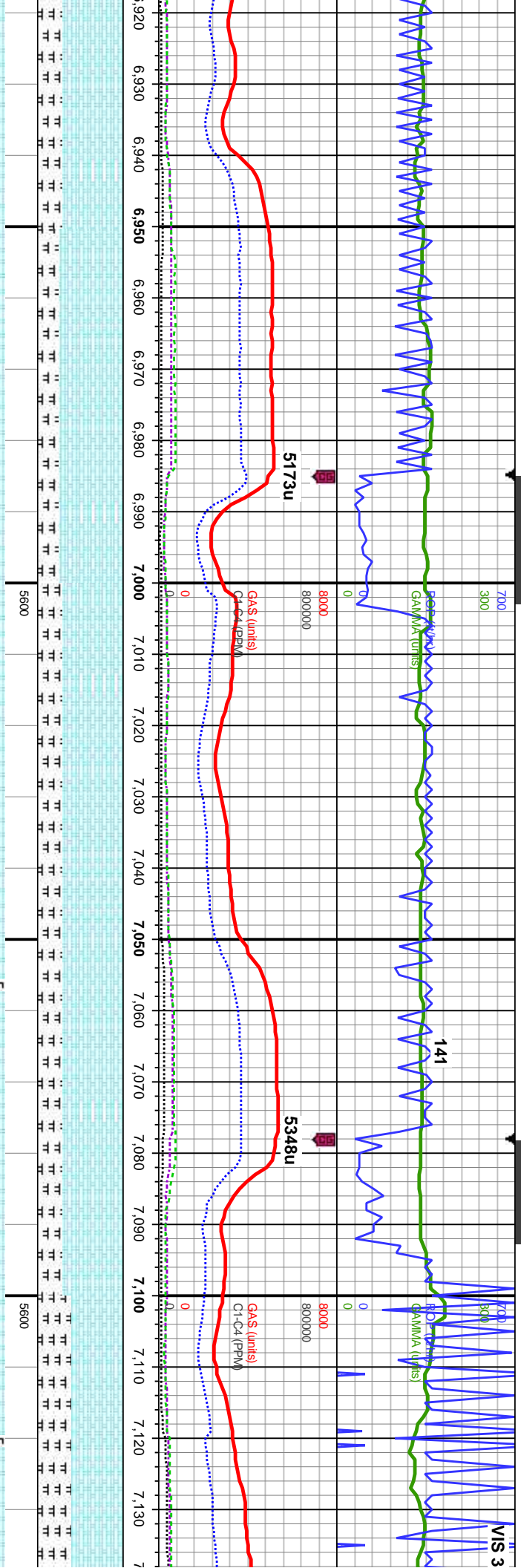
T





MD: 6,737' Inclination: 88.7° Azimuth: 271.2° TVD: 6,041.96' VS: -348.3'		MD: 6,830' Inclination: 88.8° Azimuth: 269° TVD: 6,043.99' VS: -255.33'		MD: 6,830' Inclination: 88.8° Azimuth: 269° TVD: 6,043.99' VS: -255.33'		MD: 6,830' Inclination: 88.8° Azimuth: 269° TVD: 6,043.99' VS: -255.33'	
TVD (ft)		TVD (ft)		TVD (ft)		TVD (ft)	
It-frm, mod, sb		90% CHK: It-med gy brn, occ wht-frm, mot, sb pty-biky, sft-sl frm, 10%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g chk flr, mod od, mod stmg bri wh bl, even mod thk bri yel grn ring, thk stn		90% CHK: It-med gy brn, occ wht-frm, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, tr cal incl, 10%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g chk flr, mod od, mod stmg bri wh bl, even mod thn mod amb ring, thk stn		80% CHK: med gy brn, occ lt gy, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, some cal incl, 20%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g od, mod stmg bri wh bl, even mod thn mod amb ring, thk stn	
al incl, 35-25%:		90% CHK: It-med gy brn, occ wht-frm, mot, sb pty-biky, sft-sl frm, 10%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g chk flr, mod od, mod stmg bri wh bl, even mod thk bri yel grn ring, thk stn		90% CHK: It-med gy brn, occ wht-frm, mot, sb pty-biky, sft-sl frm, 10%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g chk flr, mod od, mod stmg bri wh bl, even mod thn mod amb ring, thk stn		70% CHK: med pty-biky, sft-sl frm, incl, 30%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g od, mod stmg bri wh bl, even mod thn mod amb ring, thk stn	
8500		8500		8500		8500	





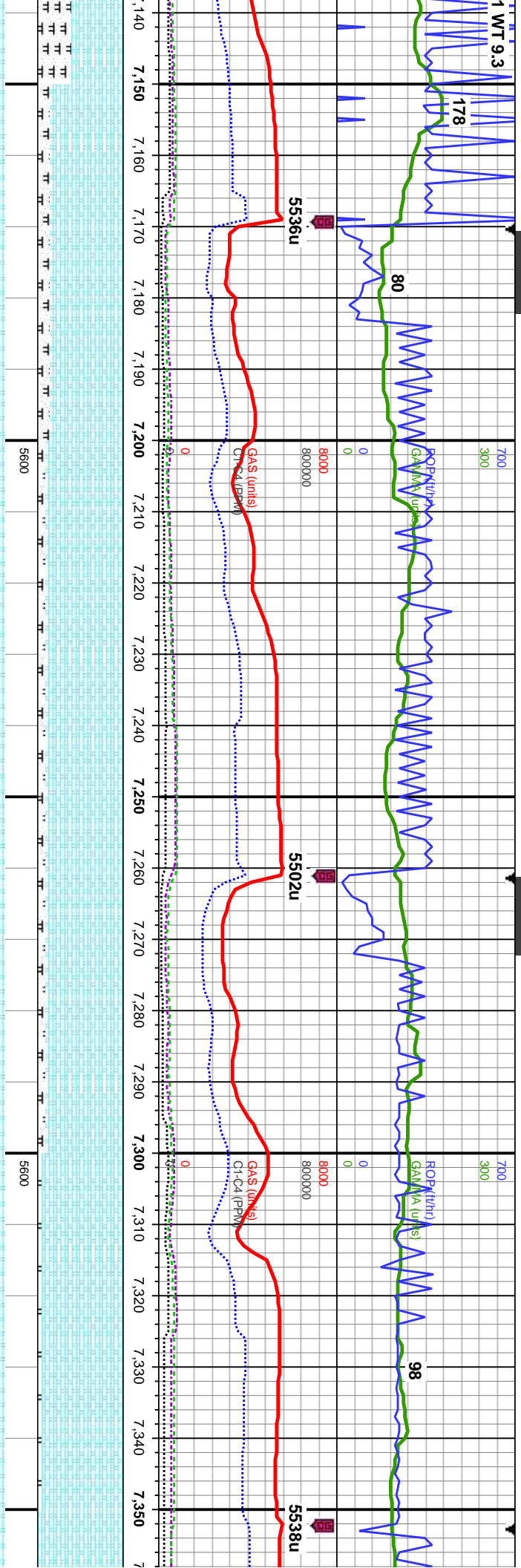
MD: 6.922'
Inclination: 89.1°
Azimuth: 268.8°
TVD: 6,045.67'
VS: -163.36'

MD: 7.014'
Inclination: 90°
Azimuth: 269.1°
TVD: 6,046.4'
VS: -71.37'

MD: 7.105'
Inclination: 92°
Azimuth: 271°
TVD: 6,044.81'
VS: 19.61'

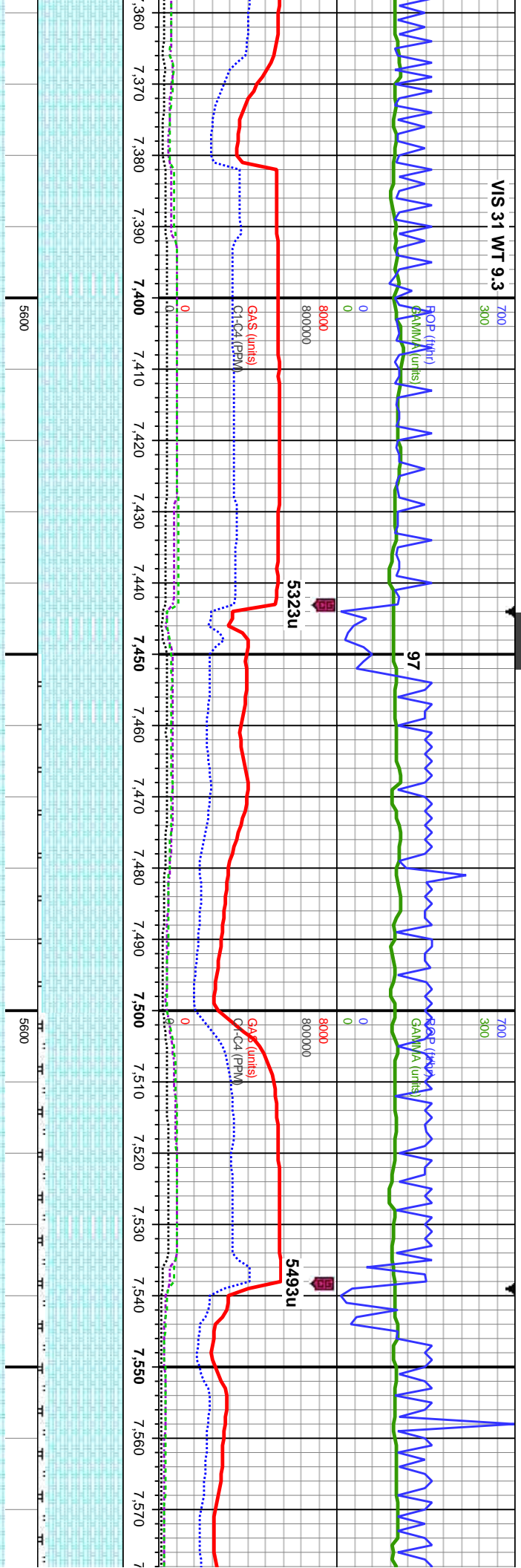
gy brn, occ lt gy, mot, sb	75% CHK: med gy brn, occ lt gy, mot, sb	70% CHK: med gy brn, occ lt gy, mot, sb	70% CHK: med gy brn, occ lt gy, mot, sb	60% CHK: med gy brn, occ lt gy, m
ply-sb wxy, some cal	ply-dlky, sft-sl frm, rthy-sb wxy, some cal	ply-dlky, sft-sl frm, rthy-sb wxy, some cal	ply-dlky, sft-sl frm, rthy-sb wxy, some cal	ply-dlky, sft-sl frm, rthy-sb wxy, sor
ST: dk gy, blk, sb ply-dlky, sl	incl, 25%: MRLST: dk gy, blk, sb ply-dlky, sl	incl, 30%: MRLST: dk gy, blk, sb ply-dlky, sl	incl, 30%: MRLST: dk gy, blk, sb ply-dlky, sl	incl, 40%: MRLST: dk gy, blk, sb pl
stly tex, tr foss frags, g od,	frm-mod hd, arg-sily tex, tr foss frags, g od,	frm-mod hd, arg-sily tex, tr foss frags, g od,	frm-mod hd, arg-sily tex, scatt foss frags, g	frm-mod hd, arg-sily tex, scatt foss
bl, even mod thk bri yel	mod stmg bri wh bl, even mod thk bri yel grn	fast stmg bri wh bl, even thk bri yel grn ring,	od, fast stmg bri wh bl, even thk bri yel grn	od, fast stmg bri wh bl, even mod th
	ring, thk sn	ring, thk sn	ring, thk sn	amb ring, thk sn





F		MD: 7,196' Inclination: 91.4° Azimuth: 270.1° TVD: 6,042.11' VS: 110.56'	MD: 7,288' Inclination: 90.2° Azimuth: 269° TVD: 6,040.83' VS: 202.54'	TVD (ft)
85% CHK: lt-med gy brn, occ wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl, 15%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, tr cal frags, mod chk flor, mod od, fast stimg bri wh bl, even mod thn mod amb ring, thk stn	90% CHK: lt-med gy brn, occ wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl, 10%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mod chk flor, mod od, fast stimg bri wh bl, even thk bri yel gm ring, thk stn	90% CHK: lt-med gy brn, occ wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl, 10%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mod chk flor, mod od, fast stimg bri wh bl, even thk bri yel gm ring, thk stn	95% CHK: lt-med gy brn, occ wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl, 5%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, mod chk flor, mod od, mod-fast stimg bri wh bl, even v thk bri yel gm ring, thk sin	100% C
mot, sb				mot, st
cal				cal incl
ty-blky, sl				
frags, g				
in mod				bri wh l





MD: 7.380'
Inclination: 90.6°
Azimuth: 268.8°
TVD: 6,040.18'
VS: 294.53'

MD: 7.471'
Inclination: 89.6°
Azimuth: 267.9°
TVD: 6,040.02'
VS: 385.51'

MD: 7.563'
Inclination: 90.3°
Azimuth: 269.8°
TVD: 6,040.1'
VS: 477.49'

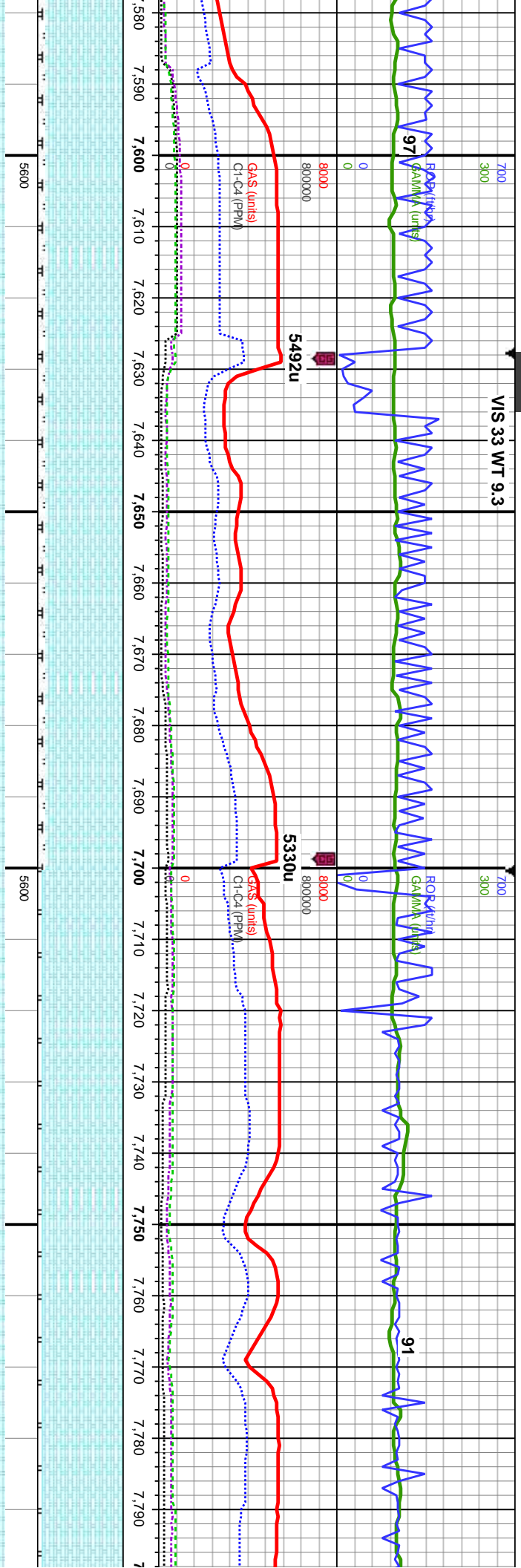
CHK: lt-med gy brn, occ wht-crm, ply-biky, sft-sl frm, rthy-sb wxy, tr mod chk flor, g od, mod-fast stimg bl, even v thk bri yel grn ring, thk stn

100% CHK: lt-med gy brn, occ wht-crm, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, tr cal incl, mod chk flor, g od, fast stimg bri wh bl, even thk bri yel grn ring, thk stn

95% CHK: lt-med gy brn, occ wht-crm, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, tr cal incl, 5%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, mod chk flor, g od, fast stimg bri wh bl, even thk bri yel grn ring, thk stn

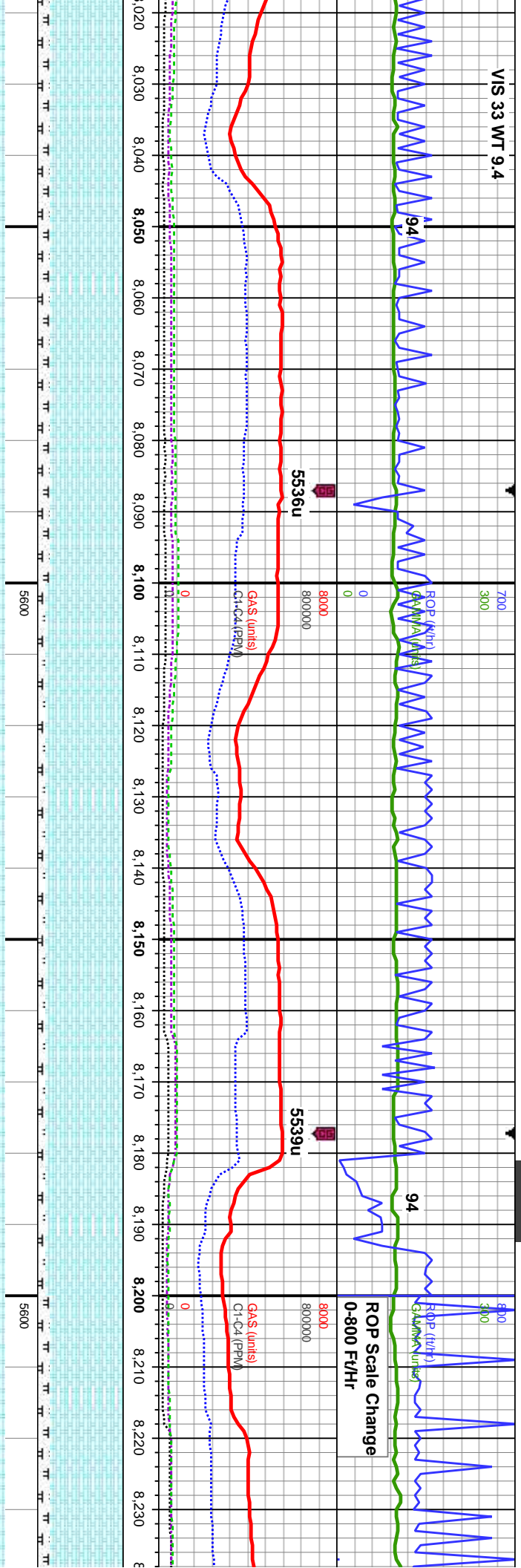
90% CHK: med gy brn, occ lt gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, 10%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, scatt foss frags, tr imbd cal, mod chk flor, g od, fast-mod stimg bri wh bl, even mod-thn mod amb ring, fr stn

90% CHK: med gy brn, oc ply-biky, sft-sl frm, rthy-sb dk gy, blk, sb ply-biky, sl frm-mod arg-sily tex, scatt foss frags, chk flor, g od, fast-mod str mod-thn mod amb ring, fr



MD: 7.655' Inclination: 90° Azimuth: 270° TVD: 6,039.86' VS: 569.49'		MD: 7.748' Inclination: 89.5° Azimuth: 269.5° TVD: 6,040.27' VS: 662.49'	
90% CHK: med gy brn, occ lt gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, 10%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, scatt foss frags, tr imbd cal, mod od, fast-mod stimg bri wh bl, even mod-thn mod amb ring, mod sin	90% CHK: med gy brn, occ lt gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, 10%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, scatt foss frags, tr imbd cal, mod od, fast-mod stimg bri wh bl, even mod-thn mod amb ring, mod sin	95% CHK: lt-med gy brn, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, 5%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g od, fast-mod stimg bri wh bl, even mod-thn mod amb ring, tr sin	95% CHK: lt-med gy brn, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, 5%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g od, fast-mod stimg bri wh bl, even mod-thn mod amb ring, tr sin
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)





MD: 8,023'
Inclination: 90°
Azimuth: 269.2°
TVD: 6,040.03'
VS: 937.47'

85% CHK: lt-med gy brn, occ dk gy, mot, sb
ply-biky, sft-sl frm, rthy-sb wxy, tr cal incl
15%: MRLST: dk gy, blk, sb ply-biky, sl
frm-mod hd, arg-sily tex, occ foss frags,
mod chk flor, mod od, fast-mod stimg bri wh
even mod-thn mod amb ring, fr sin

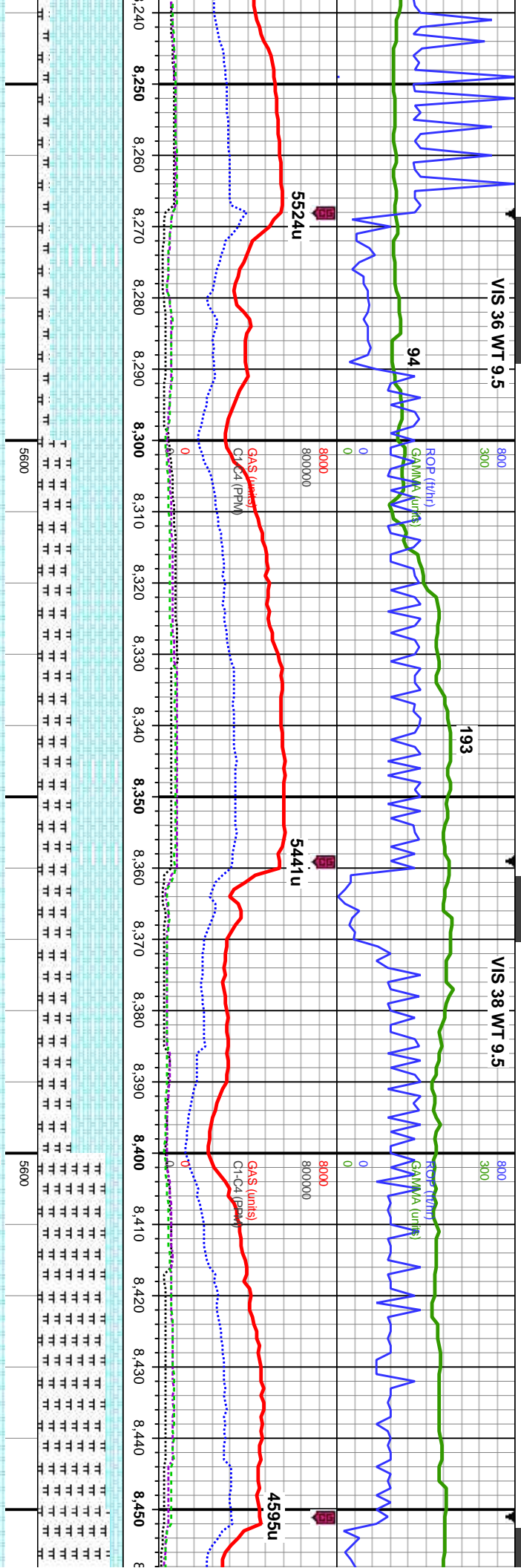
MD: 8,114'
Inclination: 89.7°
Azimuth: 267°
TVD: 6,040.27'
VS: 1,028.43'

90% CHK: lt-med gy brn, occ dk gy, mot, sb
ply-biky, sft-sl frm, rthy-sb wxy, tr cal incl
10%: MRLST: dk gy, blk, sb ply-biky, sl
frm-mod hd, arg-sily tex, tr foss frags, mod
chk flor, mod od, fast-mod stimg bri wh bl,
even mod-thn mod amb ring, fr sin

MD: 8,205'
Inclination: 89.8°
Azimuth: 267.4°
TVD: 6,040.66'
VS: 1,119.34'

85% CHK: lt-med gy brn, mot, sb
sft-sl frm, rthy-sb wxy, tr cal incl 15
MRLST: dk gy, blk, sb ply-biky, sl
hd, arg-sily tex, occ cal and foss fr
some chk flor, mod od, fast stimg b
even thk bri yel grn ring, thk sin



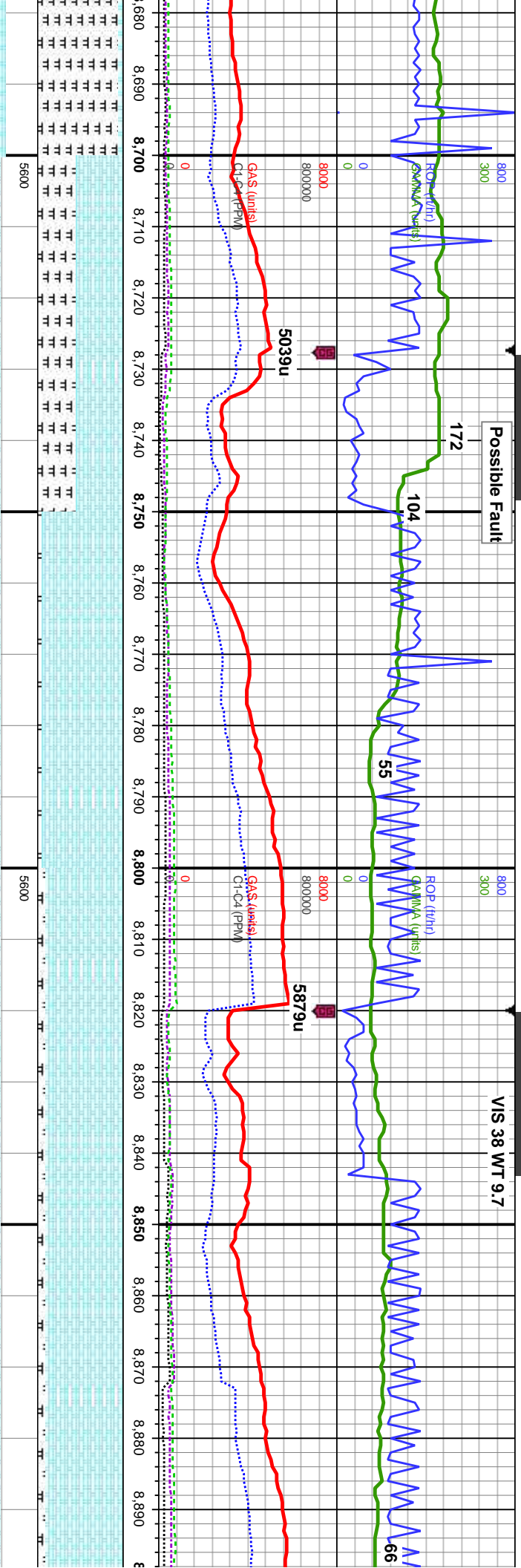


MD: 8,296'
Inclination: 90.9°
Azimuth: 270.8°
TVD: 6,040.11'
VS: 1,210.32' (ft)

MD: 8,388'
Inclination: 89.9°
Azimuth: 269.3°
TVD: 6,039.47'
VS: 1,302.31'

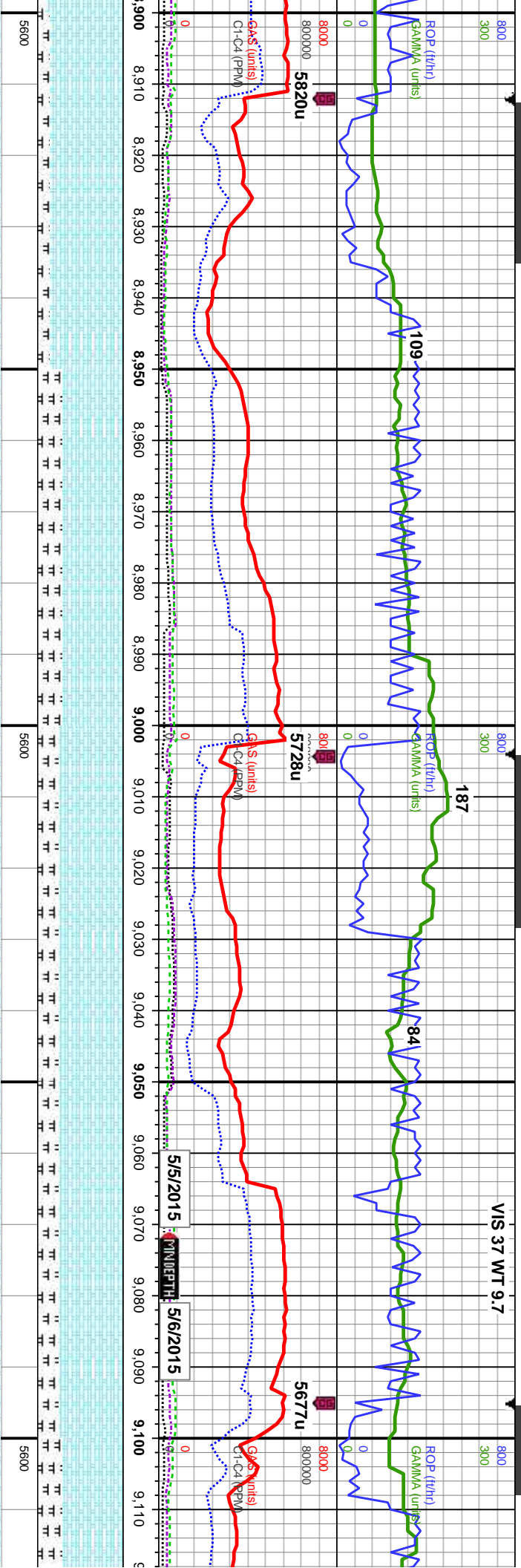
85% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl 15%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, occ cal and foss frags, some chk flor, mod od, fast sting bri wh bl, even thk bri yel grn ring, thk sin	60% CHK: med-dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl 40%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, scat cal and foss frags, tr bent, fast-mod sting bri wh bl, even mod-thn mod anb ring, fr sin	60% CHK: med-dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl 40%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, scat cal and foss frags, tr bent, fast-mod sting bri wh bl, even mod-thn mod anb ring, fr sin	80%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, 20% CHK: med-dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl, scat cal frags, tr foss frags, slow-mod sting bri wh bl, even thn, thin anb ring, tr sin	85%: N frm-mc gy brn, wxy, tr slow-m ring, tr
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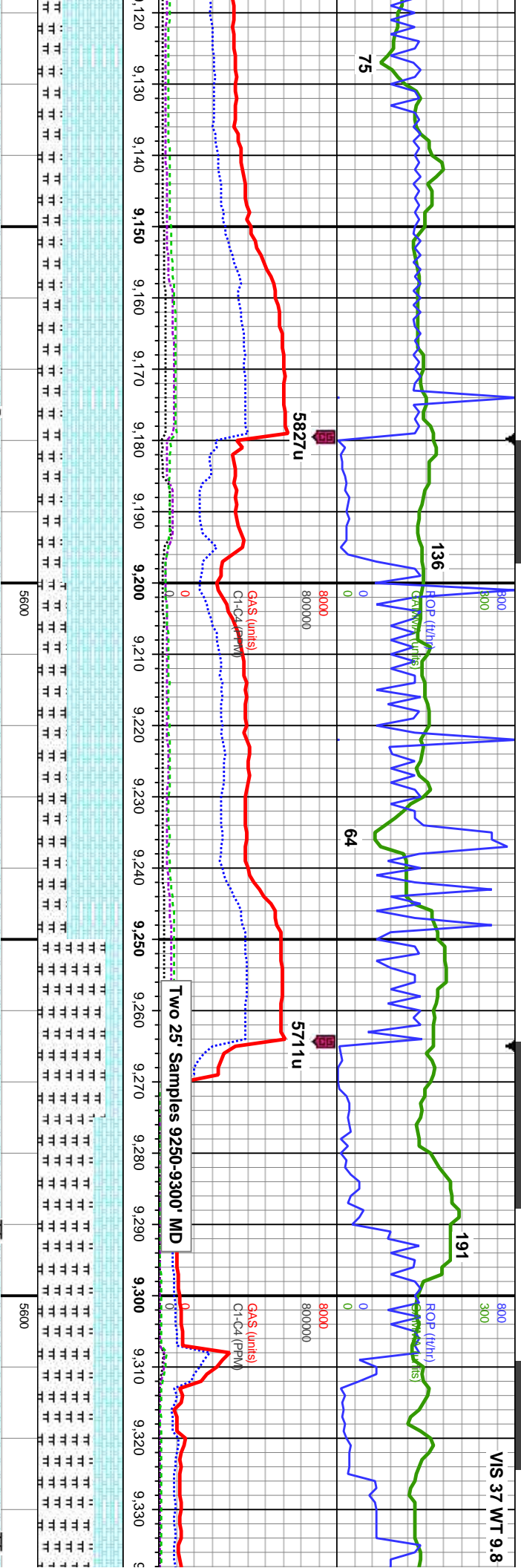
MD: 8,756' Inclination: 91.3° Azimuth: 274.5° TVD: 6,037.7' VS: 1,669.92'		MD: 8,848' Inclination: 90.1° Azimuth: 273.5° TVD: 6,036.57' VS: 1,761.64'	
55% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, occ cal incl 45%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, tr cal and foss frags, tr bent, fast string bri wh bl, even thk mod yel-grn ring, g sn	95% CHK: lt, wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl 45%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, g chk flor, g od, fast string bri wh bl, even thk mod yel-grn ring, g sn	90% CHK: lt, wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl 10%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, g chk flor, g od, fast string bri wh bl, even thk mod yel-grn ring, thk sn	90% CHK: lt, wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr cal incl 10%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, g chk flor, g od, fast string bri wh bl, even thk mod yel-grn ring, thk sn
TVD (ft)	TVD (ft)	TVD (ft)	TVD (ft)





MD: 8,940' Inclination: 90.1° Azimuth: 273.5° TVD: 6,036.41' VS: 1,853.43'		85% CHK: lt-med gy brn, mot, sb ply-blky, sft-sl frm, rthy-sb wxy, occ cal incl 15%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr fos frags, mod chk flr, mod od, fast string bri wh bl, even thk mod amb ring, g stn
MD: 9,031' Inclination: 88.3° Azimuth: 271.5° TVD: 6,037.69' VS: 1,944.3'		75% CHK: lt-med gy brn, occ dk gy, mot, sb ply-blky, sft-sl frm, rthy-sb wxy, occ cal incl 25%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr fos frags, some chk flr, mod-fast string bri wh bl, even mod yel-gn ring, mod stn
MD: 9,103' Inclination: 88.3° Azimuth: 271.5° TVD: 6,037.69' VS: 1,944.3'		75% CHK: lt-med gy brn, occ dk gy, mot, sb ply-blky, sft-sl frm, rthy-sb wxy, occ cal incl 25%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr fos frags, some chk flr, mod-fast string bri wh bl, even mod yel-gn ring, mod stn
MD: 9,111' Inclination: 88.3° Azimuth: 271.5° TVD: 6,037.69' VS: 1,944.3'		70% CHK: med ply-blky, sft-sl frm, rthy-sb wxy, occ cal incl 15%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr fos frags, mod chk flr, mod od, fast string bri wh bl, even thk mod amb ring, g stn





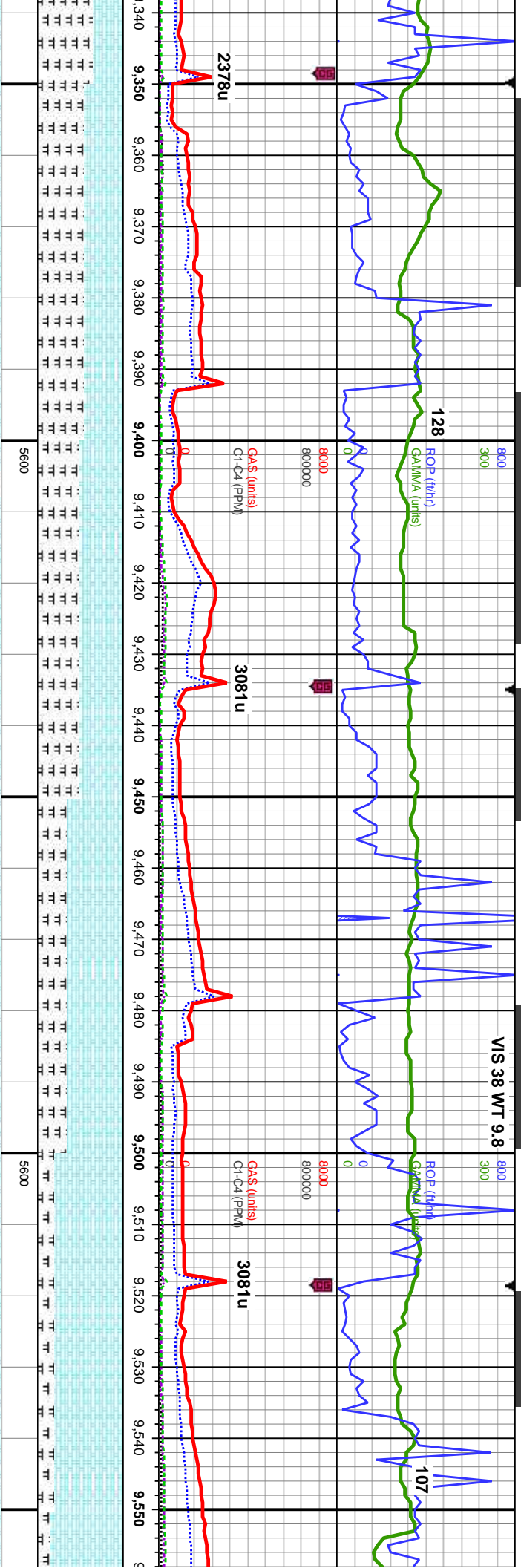
6'
n: 87°
270.9°
441.17'
9.2'

MD: 9,201'
Inclination: 86.2°
Azimuth: 269.8°
TVD: 6,046.21'
VS: 2,114.04'

MD: 9,286'
Inclination: 85.3°
Azimuth: 268.7°
TVD: 6,052.51'
VS: 2,198.8'

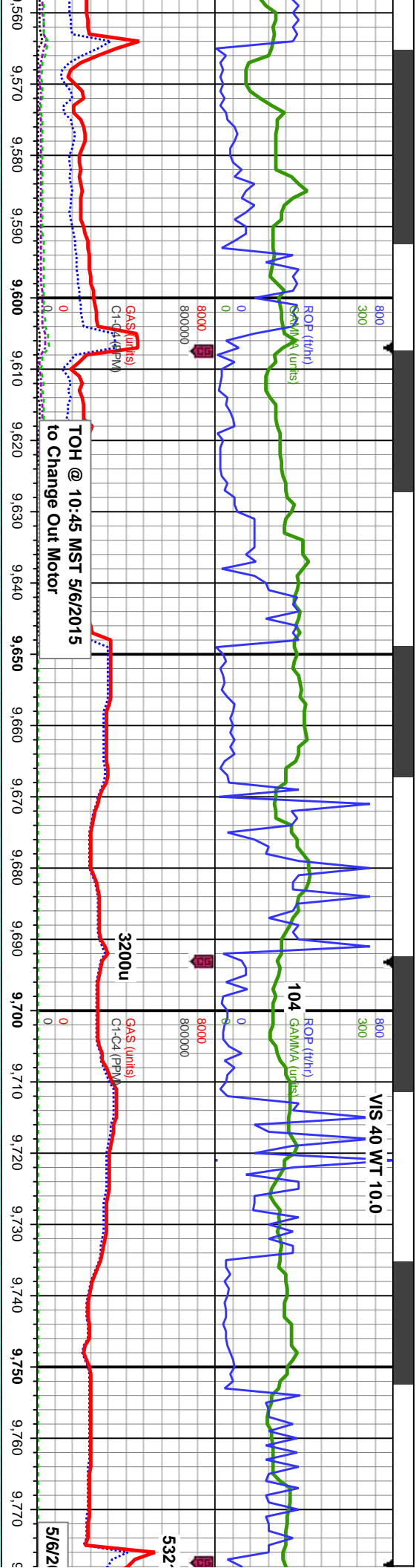
gy brn, occ lt gy, mot, sb	70% CHK: med gy brn, occ lt gy, mot, sb	65% CHK: med gy brn, occ lt gy, mot, sb	80-65%: MRLST: dk gy, blk, sb ply-blky, sl	65%: MRLST: dk gy, blk, sb ply-blky, sl
m, rthy-sb wxy, 30%:	ply-blky, sft-sl frm, rthy-sb wxy, 30%:	ply-blky, sft-sl frm, rthy-sb wxy, 35%:	frm-mod hd, arg-sily tex, 20-35% CHK:	frm-mod hd, arg-sily tex, 35% CHK
dk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	med-dk gy brn, mot, sb ply-blky, sft-sl frm,	gy brn, mot, sb ply-blky, sft-sl frm,
scatt foss frags, tr imbd cal,	hd, arg-sily tex, scatt foss frags, tr imbd cal,	hd, arg-sily tex, scatt foss frags, tr imbd cal,	rthy-sb wxy, tr fos frags, mod stmg bri wh bl,	wxy, tr fos frags, mod stmg mod wh
bl, med thk-mod yel-gn	mod stmg bri wh bl, med thk-mod yel-gn	mod stmg bri wh bl, med thk-mod yel-gn	med thk-mod yel-gn ring, thn sin	thn-amb ring, thn sin





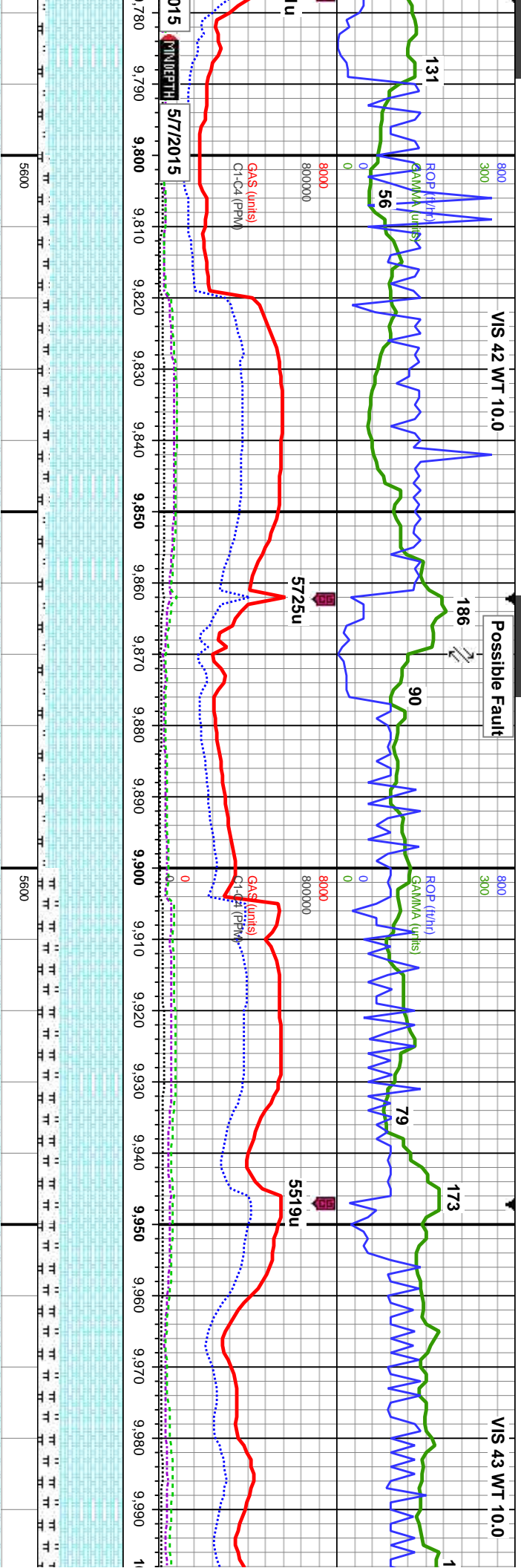
MD: 9,370' Inclination: 85.5° Azimuth: 268.4° TVD: 6,059.25' VS: 2,282.51'		MD: 9,455' Inclination: 87.8° Azimuth: 269.1° TVD: 6,064.21' VS: 2,367.35'		MD: 9,542' Inclination: 88.6° Azimuth: 269.9° TVD: 6,066.95' VS: 2,454.31'	
55%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, 45% CHK: med-dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, tr fos frags, mod sting mod wh bl, dull thn-amb ring, thn sn	50% CHK: med-dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, 50%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, tr cal frags, tr bent, mod sting bri wh bl, med thk-mod yel-gn ring, thn sn	65% CHK: med-dk gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, 35%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, tr cal frags, tr bent, mod sting bri wh bl, med thk-mod yel-gn ring, thn sn	80% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, 20%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, tr cal frags, g od, mod-fast sting bri wh bl, even mod-thn mod amb ring, g sn	85% C	sft-sl fr blk, sb tr cal fr even n





90% CHK: lt-med gy brn, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, 10%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, tr cal frags, mod chk flor, g od, mod-fast stimg bri wh bl, even mod-thn mod amb ring, g stn	MD: 9,627' Inclination: 89.4° Azimuth: 269.5° TVD: 6,068.43' VS: 2,539.29'	60% CHK: med gy brn, occ dk gy, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, 40%: MRLST: dk gy, blk, sb pty-blky, sl frm-mod hd, arg-sily tex, tr fos and cal frags, tr bent, mod-fast stimg bri wh bl, even mod-thn mod amb ring, mod stn	MD: 9,712' Inclination: 90° Azimuth: 268.2° TVD: 6,068.88' VS: 2,624.28'	90% CHK: lt-med gy, mot frn, rthy-sb wxy, occ cal i dk gy, blk, sb pty-blky, sl arg-sily tex, g od, fast strr thn frt amb ring, mod stn
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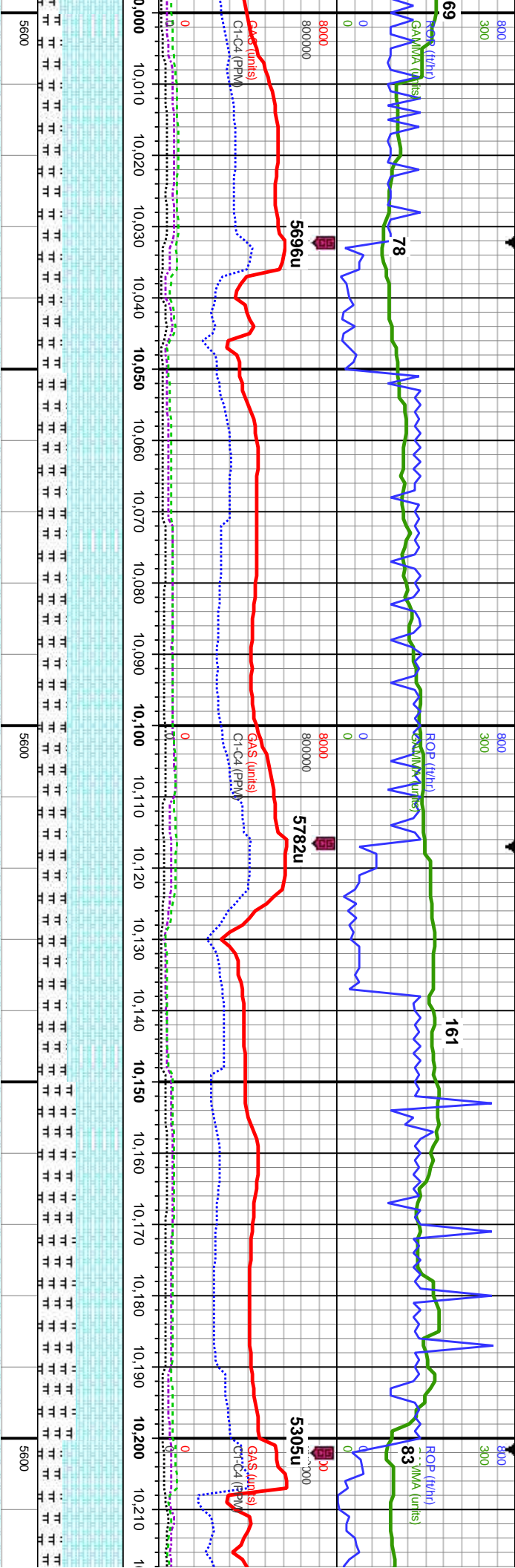
MD: 9,797'
Inclination: 91.3°
Azimuth: 267°
TVD: 6,067.91'
VS: 2,709.22'

MD: 9,881'
Inclination: 90.1°
Azimuth: 267.4°
TVD: 6,066.89'
VS: 2,793.13'

MD: 9,966'
Inclination: 90.1°
Azimuth: 267.5°
TVD: 6,066.74'
VS: 2,878.07'

85% CHK: lt-med gy, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, occ cal incl, 15%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sly tex, g od, fast sting bri wh bl, even thk bri wh grn ring, mod sin	90% CHK: lt gy, occ med-dk gy, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, occ cal incl, 10%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sly tex, mod chk flor, g od, fast sting bri wh bl, even thk bri wh grn ring, mod sin	75% CHK: lt-med gy, occ dk gy, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, cal incl, 25%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sly tex, occ imbd cal, some cal and fos frags, mod chk flor, mod od, fast sting bri wh bl, even thn frt amb ring, thk sin	75% CHK: lt-med gy, occ dk gy, mot, sb pty-biky, sft-sl frm, rthy-sb wxy, cal incl, 25%: MRLST: dk gy, blk, sb pty-biky, sl frm-mod hd, arg-sly tex, occ imbd cal, some cal and fos frags, mod chk flor, mod od, fast sting bri wh bl, even thn frt amb ring, thk sin
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MD: 10,051'
Inclination: 90.3°
Azimuth: 267.7°
TVD: 6,066.44'
VS: 2,963.02'

MD: 10,136'
Inclination: 90.2°
Azimuth: 267.7°
TVD: 6,066.07'
VS: 3,047.97'

MD:
Incl:
Azir
TVC
VS:

70% CHK: lt-med gy, occ dk gy, mot, sb
ply-bkly, sft-sl frm, rthy-sb wxy, tr cal incl,
30%: MRLST: dk gy, blk, sb ply-bkly, sl
frm-mod hd, arg-sily tex, tr cal incl, some
cal and fos frags, mod od, fast sting bri wh
bl, even thk mod wh grn ring, mod str

65% CHK: med gy, occ dk gy, mot, sb
ply-bkly, sft-sl frm, rthy-sb wxy, 35%:
MRLST: dk gy, blk, sb ply-bkly, sl frm-mod
hd, arg-sily tex, tr cal frags, mod od, fast
sting bri wh bl, even thk mod wh grn ring,
mod sin

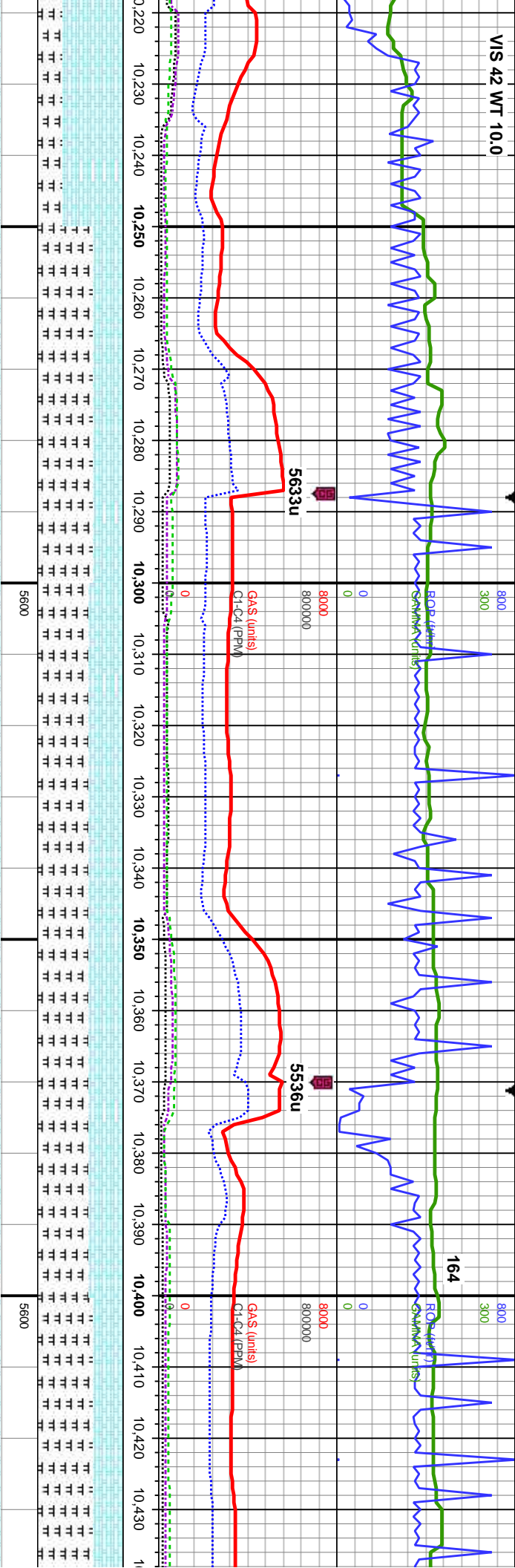
65% CHK: med gy, occ dk gy, mot, sb
ply-bkly, sft-sl frm, rthy-sb wxy, 35%:
MRLST: dk gy, blk, sb ply-bkly, sl frm-mod
hd, arg-sily tex, tr cal frags, mod od, fast
sting bri wh bl, even thk bri wh grn ring,
mod sin

55% CHK: med gy, occ dk gy, mot, sb
ply-bkly, sft-sl frm, rthy-sb wxy, 45%:
MRLST: dk gy, blk, sb ply-bkly, sl frm-mod
hd, arg-sily tex, tr cal frags, mod od, fast
sting bri wh bl, even thk bri wh grn ring,
mod sin

70% CHK: lt-med
sft-sl frm, rthy-sl
blk, sb ply-bkly,
tr cal frags, mod
even v thn frt a



VIS 42 WT 10.0



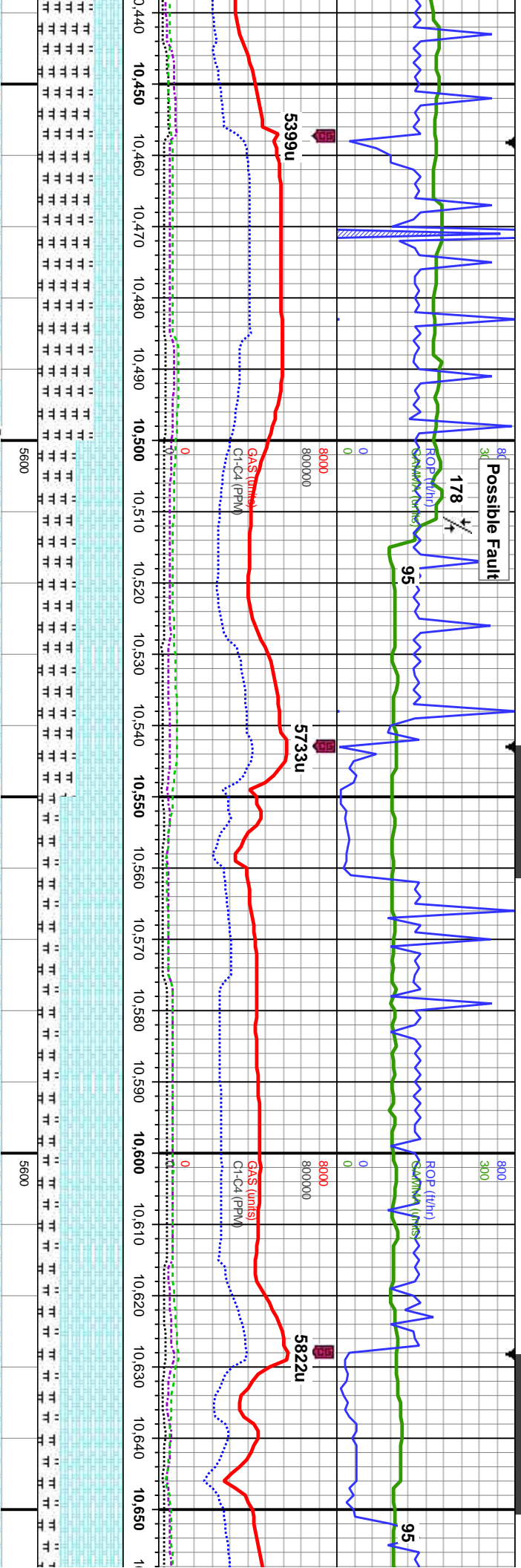
10,221'
Inclination: 91°
Azimuth: 268.7°
TVD: 6,065.18'
VS: 3,132.94'

MD: 10,306'
Inclination: 91.3°
Azimuth: 269°
TVD: 6,063.47'
VS: 3,217.91'

MD: 10,392'
Inclination: 91°
Azimuth: 268.6°
TVD: 6,061.75'
VS: 3,303.88'

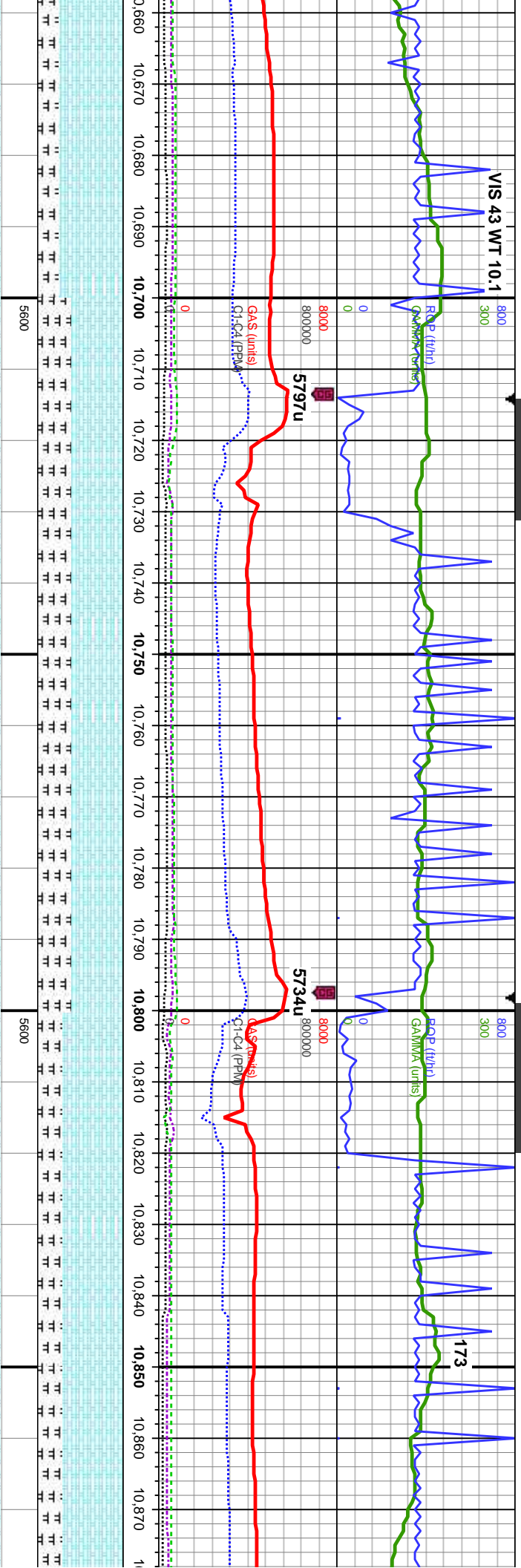
65%: MRLST: blk, sb pty-blky, sl frm-mod hd, arg tex, 35% CHK: dk gy brn, occ wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, some cal incl, scatt cal and fos frags, g od, fast sting bri wh bl, even v thn frt amb ring, thn stn	60%: MRLST: blk, sb pty-blky, sl frm-mod hd, arg tex, 40% CHK: dk gy brn, occ wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, some cal incl, scatt cal and fos frags, g od, fast sting bri wh bl, even thk mod wh ggn ring, mod stn	60%: MRLST: blk, sb pty-blky, sl frm-mod hd, arg tex, 40% CHK: dk gy brn, occ wht-crm, mot, sb pty-blky, sft-sl frm, rthy-sb wxy, some cal incl, scatt cal and fos frags, g od, fast sting bri wh bl, even thk mod wh ggn ring, mod stn	65%: MRLST: blk, sb pty-blky, sl fr hd, arg tex, 35% CHK: dk gy brn, c wht-crm, mot, sb pty-blky, sft-sl frm wxy, some cal incl, scatt cal and fo g od, mod sting bri wh bl, even v th
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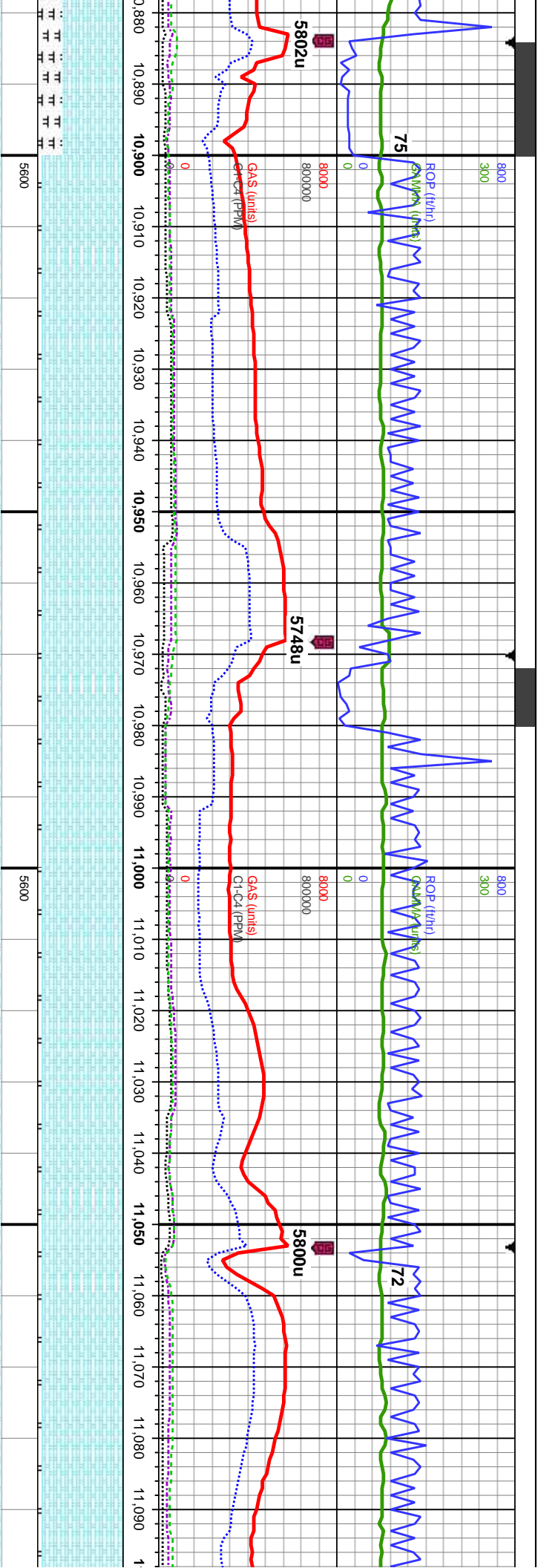
F		F		F		F		F	
MD: 10,477'	Inclination: 90.6°	MD: 10,562'	Inclination: 90.4°	MD: 10,647'	Inclination: 90.5°	MD: 10,477'	Inclination: 90.6°	MD: 10,562'	Inclination: 90.4°
Azimuth: 267°		Azimuth: 266.9°		Azimuth: 268.4°		Azimuth: 267°		Azimuth: 266.9°	
TVD: 6,060.56'		TVD: 6,059.82'		TVD: 6,059.15'		TVD: 6,060.56'		TVD: 6,059.82'	
VS: 3,388.83'		VS: 3,473.73'		VS: 3,558.67'		VS: 3,388.83'		VS: 3,473.73'	
65%: MRLST: blk, sb ply-blky, sl frm-mod	55% CHK: med gy, occ dk gy, mot, sb	75% CHK: lt-med gy, occ med gy brn, mot,	75% CHK: lt-med gy, occ med gy brn, mot,	75% C	75% CHK: lt-med gy, occ med gy brn, mot,	65%: MRLST: blk, sb ply-blky, sl frm-mod	55% CHK: med gy, occ dk gy, mot, sb	75% CHK: lt-med gy, occ med gy brn, mot,	75% C
hd, arg tex, 35% CHK: dk gy brn, occ	ply-blky, sft-sl frm, rthy-sb wxy, 45%:	sb ply-blky, sft-sl frm, rthy-sb wxy, 25%:	sb ply-blky, sft-sl frm, rthy-sb wxy, 25%:	sb ply-blky, sft-sl frm, rthy-sb wxy, 25%:	sb ply-blky, sft-sl frm, rthy-sb wxy, 25%:	hd, arg tex, 35% CHK: dk gy brn, occ	ply-blky, sft-sl frm, rthy-sb wxy, 45%:	sb ply-blky, sft-sl frm, rthy-sb wxy, 25%:	sb ply-blky, sft-sl frm, rthy-sb wxy, 25%:
wht-crm, mot, sb ply-blky, sft-sl frm, rthy-sb	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	wht-crm, mot, sb ply-blky, sft-sl frm, rthy-sb	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod	MRLST: dk gy, blk, sb ply-blky, sl frm-mod
wxy, some cal incl, scat cal and fos frags,	hd, arg-sily tex, scat cal & foss frags, tr pyr,	hd, arg-sily tex, tr imbd cal, tr cal & foss	hd, arg-sily tex, tr imbd cal, tr cal & foss	hd, arg-sily tex, tr cal & foss frags, g od, fast	hd, arg-sily tex, tr cal & foss frags, g od, fast	wxy, some cal incl, scat cal and fos frags,	hd, arg-sily tex, scat cal & foss frags, tr pyr,	hd, arg-sily tex, tr imbd cal, tr cal & foss	hd, arg-sily tex, tr imbd cal, tr cal & foss
g od, mod sting bri wh bl, even v thn frt	mod od, fast sting bri wh bl, even thk bri wh	frags, tr pyr, tr bent, g od, fast sting bri wh	frags, tr pyr, tr bent, g od, fast sting bri wh	sting bri wh bl, even mod bri wh grn ring, g	sting bri wh bl, even mod bri wh grn ring, g	g od, mod sting bri wh bl, even v thn frt	mod od, fast sting bri wh bl, even thk bri wh	mod od, fast sting bri wh bl, even thk bri wh	sting bri wh bl, even mod bri wh grn ring, g
amb ring, thn stn	grn ring, mod stn	bl, even thk bri wh grn ring, mod stn	bl, even thk bri wh grn ring, mod stn	stn	stn	amb ring, thn stn	grn ring, mod stn	bl, even thk bri wh grn ring, mod stn	stn





MD: 10,732' Inclination: 91.9° Azimuth: 269.9° TVD: 6,057.37' VS: 3,643.65'		60% CHK: lt-med gy, occ med gy brn, mot, sb ply-blky, sft-sl frm, rthy-sb wxy, 40%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr cal frags, mod od, mod stimg bri wh bl, even mod amb ring, mod sin	60% CHK: lt-med gy, occ med gy brn, mot, sb ply-blky, sft-sl frm, rthy-sb wxy, 40%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr cal frags, mod od, mod stimg bri wh bl, even mod amb ring, mod sin	70% CHK: lt-med gy, occ med gy brn, mot, sb ply-blky, sft-sl frm, rthy-sb wxy, 30%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr cal frags, mod od, fast stimg bri wh bl, even mod bri wh grn ring, g sin	70% CHK: lt-med gy, occ med gy brn, mot, sb ply-blky, sft-sl frm, rthy-sb wxy, 30%: MRLST: dk gy, blk, sb ply-blky, sl frm-mod hd, arg-sily tex, tr cal frags, mod od, fast stimg bri wh bl, even mod
TVD (ft)		sin	sin	sin	sin





MD: 10,902'
Inclination: 90.4°
Azimuth: 269.4°
TVD: 6,053.29'
VS: 3,813.59'

med gy brn, mot, y-sb wxy, 30%: y-biky, sl frm-mod s, mod od, fast bri wh grn ring, g	95% CHK: lt-med gy, occ med wh crm, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, 5%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g chk flr, g od, fast stmg bri wh bl, even thk mod yel-grn ring, g stn	95% CHK: lt-med gy, occ med wh crm, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, 5%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal frags, g chk flr, g od, fast stmg bri wh bl, even thk mod yel-grn ring, g stn
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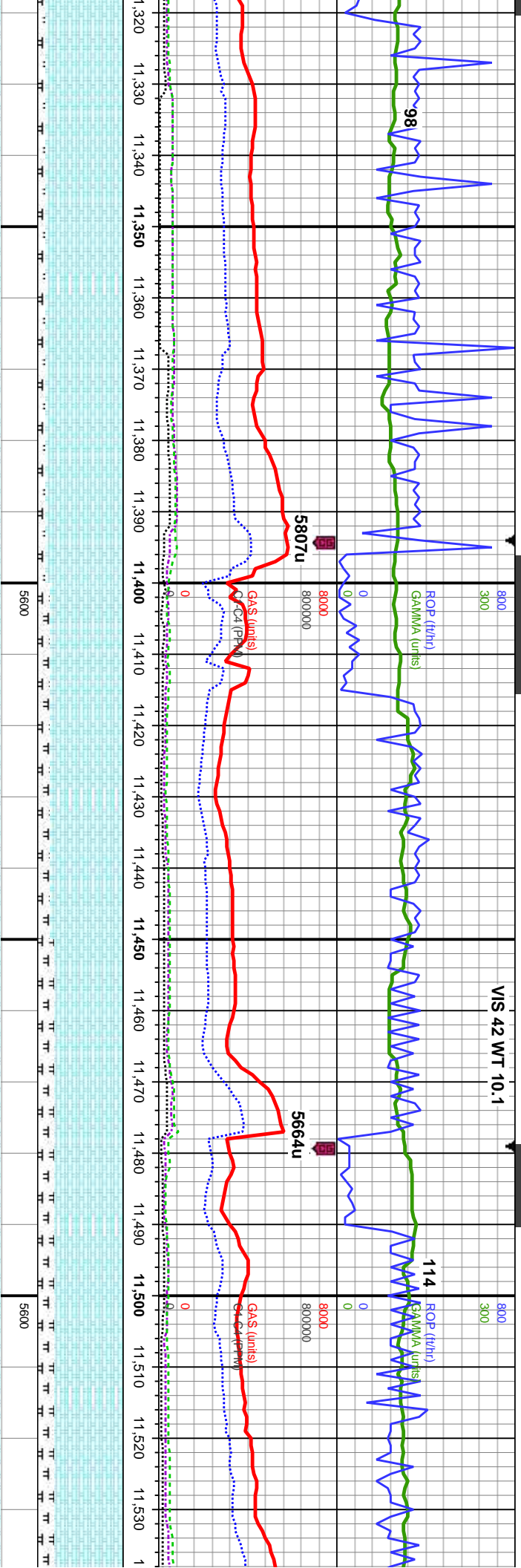
MD: 10,987'
Inclination: 89.9°
Azimuth: 269.4°
TVD: 6,053.07'
VS: 3,898.59'

	95% CHK: lt-med gy, occ dk gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, abnt cal incl, 5%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal frags, mod chk flr, g od, fast stmg bri wh bl, even thk mod yel-grn ring, g stn	
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MD: 11,072'
Inclination: 89.9°
Azimuth: 268.5°
TVD: 6,053.22'
VS: 3,983.58'

	95% CHK: lt-med gy, occ dk gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, abnt cal incl, 5%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal frags, mod chk flr, g od, fast stmg bri wh bl, even thk mod yel-grn ring, g stn	
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MD: 11,328'
Inclination: 89.5°
Azimuth: 268.4°
TVD: 6,052.03'
VS: 4,239.56'

ccrm, lt-med gy, mot, sb
rm, rthy-sb wxy, occ cal incl,
dk gy, blk, sb pily-blky, sl
-sily tex, tr cal and fos
g od, fast sting bri wh bl,
n gm ring, mod sin

90% CHK: wht-crm, lt-med gy, mot, sb
pily-blky, sft-sl frm, rthy-sb wxy, occ cal incl,
10%: MRLST: dk gy, blk, sb pily-blky, sl
frm-mod hd, arg-sily tex, tr cal and fos
frags, g chk flwr, g od, fast sting bri wh bl,
even mod bri wh gm ring, mod sin

MD: 11,413'
Inclination: 90.8°
Azimuth: 269.6°
TVD: 6,051.8'
VS: 4,324.56'

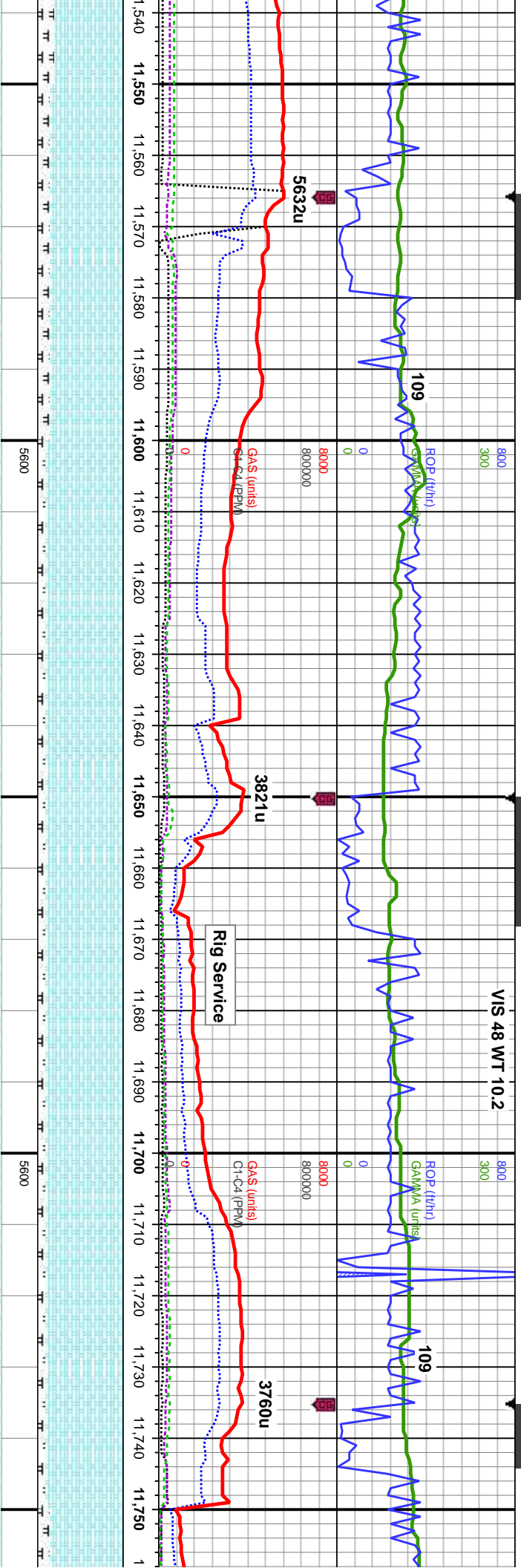
85% CHK: lt-med gy, occ dk gy, mot, sb
pily-blky, sft-sl frm, rthy-sb wxy, occ cal incl,
15%: MRLST: dk gy, blk, sb pily-blky, sl
frm-mod hd, arg-sily tex, tr cal and fos frags,
fast sting bri wh bl, even mod bri wh gm
ring, thk sin

80% CHK: lt-med gy, occ dk gy, mot, sb
pily-blky, sft-sl frm, rthy-sb wxy, occ cal incl,
20%: MRLST: dk gy, blk, sb pily-blky, sl
frm-mod hd, arg-sily tex, tr cal and fos frags,
fast sting bri wh bl, even mod bri wh gm
ring, thk sin

MD: 11,500'
Inclination: 90.2°
Azimuth: 269.3°
TVD: 6,051.05'
VS: 4,411.55'

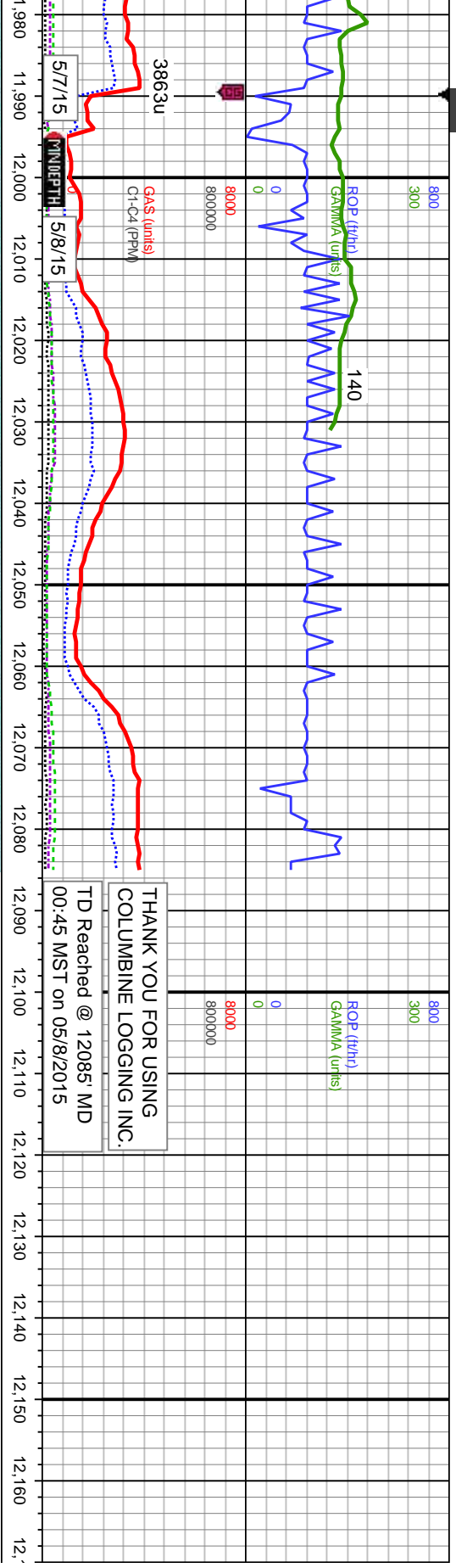
80% CHK: lt-med gy, occ dk gy, mot, sb
pily-blky, sft-sl frm, rthy-sb wxy, occ cal incl,
20%: MRLST: dk gy, blk, sb pily-blky, sl
frm-mod hd, arg-sily tex, tr cal and
fast-mod sting bri wh bl, even mod-
amb ring, fr sin





MD: 11,585' Inclination: 88.8° Azimuth: 267.8° TVD: 6,051.79' VS: 4,496.53'		85% CHK: lt-med gy, occ dk gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, occ cal incl, 15%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal and tos frags, mod chk flor, g od, fast-mod sting bri wh bl, even mod-thn mod amb ring, tr sin	90% CHK: lt-med gy, occ dk gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, occ cal incl, 10%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal and tos frags, mod chk flor, g od, fast sting bri wh bl, even mod bri wh grm ring, thk sin	MD: 11,670' Inclination: 89.5° Azimuth: 269° TVD: 6,053.05' VS: 4,581.5'	90% CHK: wht-crm, lt-med gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, occ cal incl, 10%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal and tos frags, mod chk flor, g od, fast sting bri wh bl, even mod bri wh grm ring, thk sin	90% CHK: wht-crm, lt-med gy, mot, sb ply-biky, sft-sl frm, rthy-sb wxy, occ cal incl, 10%: MRLST: dk gy, blk, sb ply-biky, sl frm-mod hd, arg-sily tex, tr cal and tos frags, mod chk flor, g od, fast sting bri wh bl, even thk mod ye-grm ring, thk sin	MD: 11,754' Inclination: Azimuth: 26 TVD: 6,053 VS: 4,665.4
TVD (ft)				TVD (ft)			





MD: 12,020' Inclination: 91.6° Azimuth: 268.5° TVD: 6,052.62' VS: 4,931.38'		MD: 12,085' Inclination: 91.6° Azimuth: 268.5° TVD: 6,050.81' VS: 4,996.34'	
65% CHK: med gy, occ dk gy brn, mot, sb pity-biky, stf-sl frm, rthy-sb wxy, tr cal incl, 35%: MRLST: dk gy, blk, sb pity-biky, sl frm-mod hd, arg-sily tex, tr cal frags, tr bent, mod od, fast-mod string brl wh bl, even mod-thn mod amb ring, fr sin		65% CHK: med gy, occ dk gy brn, mot, sb pity-biky, stf-sl frm, rthy-sb wxy, tr cal incl, 35%: MRLST: dk gy, blk, sb pity-biky, sl frm-mod hd, arg-sily tex, tr cal frags, tr bent, mod od, fast-mod string brl wh bl, even mod-thn mod amb ring, fr sin	

