



Scale: 5" / 100'
Measured Depth Log

Well Name HOUSTON 34N-8HZ

Location SEC.8-T3N-R67W

State COLORADO

Country USA

API Number 05-123-3894300

Region DJ BASIN

Spud Date 3/15/2014

Surface Coordinates 1719' FSL 543' FEL

Bottom Hole Coordinates 350' FSL 50' FWL

County WELD

Rig Number XTREME 8

AFE # 2091307

Field WATTENBERG

Drilling Completed 5/8/2014

Ground Elevation 4806'

K.B. Elevation 4823'

Logged Interval 6575' To 11931'

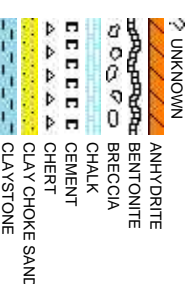
Total Depth 11931'

Formation NIOBRARA B CHALK

Type of Drilling Fluid FW LSND

Company ANADARKO PE
Address 1099 18th, Suite

Name RIKKI WITHER
Company COLUMBINE L
Address 2385 S. LIPAN
DENVER, CO 8



Operator

PETROLEUM COMPANY

1800 Denver, CO 80202

Geologist

SPOON, JERAMY MURRAY

LOGGING INC

ST
00223

Rock Types

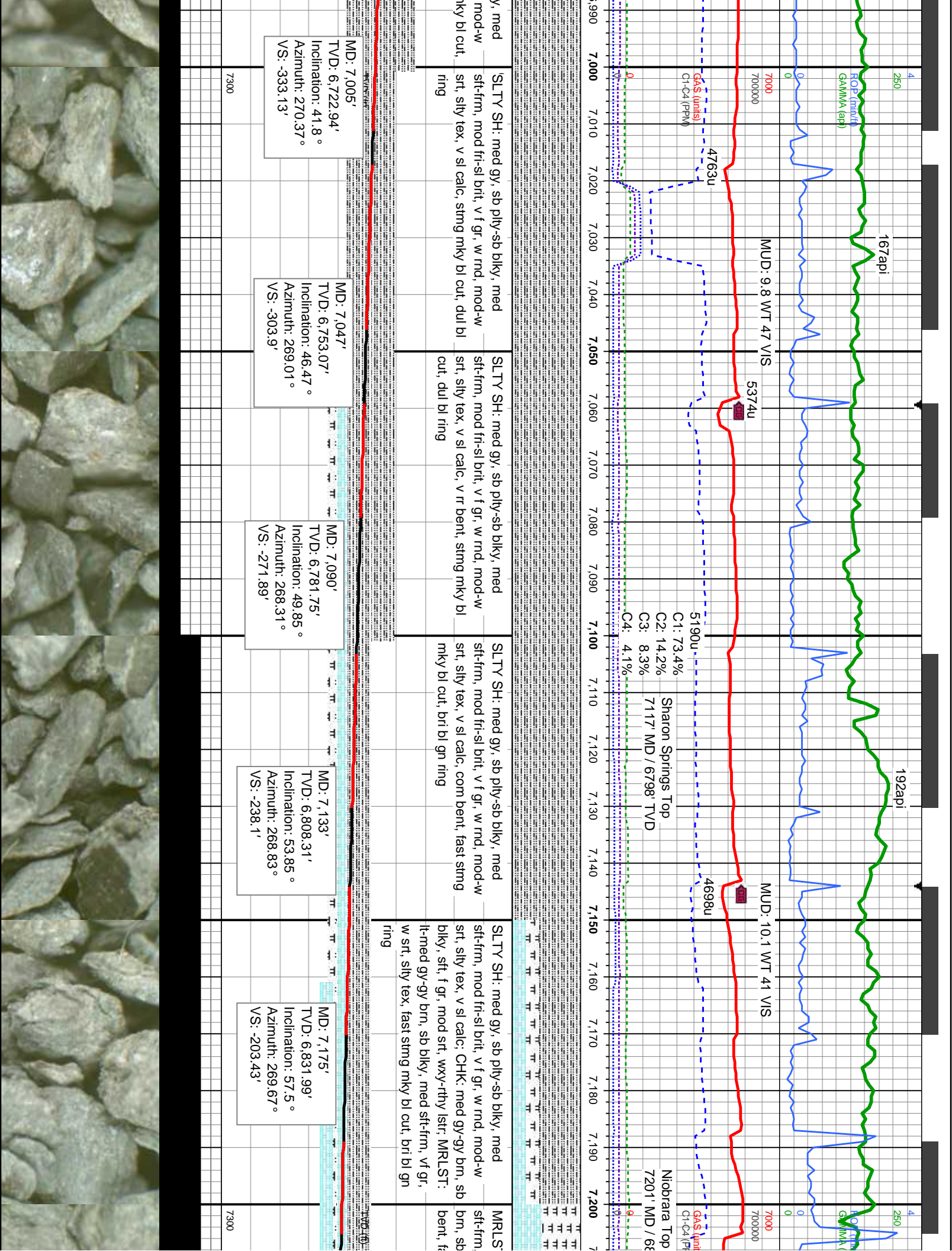
CONGLOMERATE	TT	TT	TT	MARLSTONE
DOLOMITTE	X	X	X	METAMORPHIC
DOLOMITIC LIMESTONE	X	X	X	NO SAMPLE
GRANITE				SALT
GYPSUM				SANDSTONE
IGNEOUS				SALT-PEPPER SANI
SIDERITE or LIMONITE				SHALE
LIMESTONE				SHALE COLORED
				SHALE GRAY
				SHALY SANDSTONE
				SHALY SILTSTONE
				SILTY SHALE
				SILTSTONE
				TILL
				TUFF
				WELDED TUFF

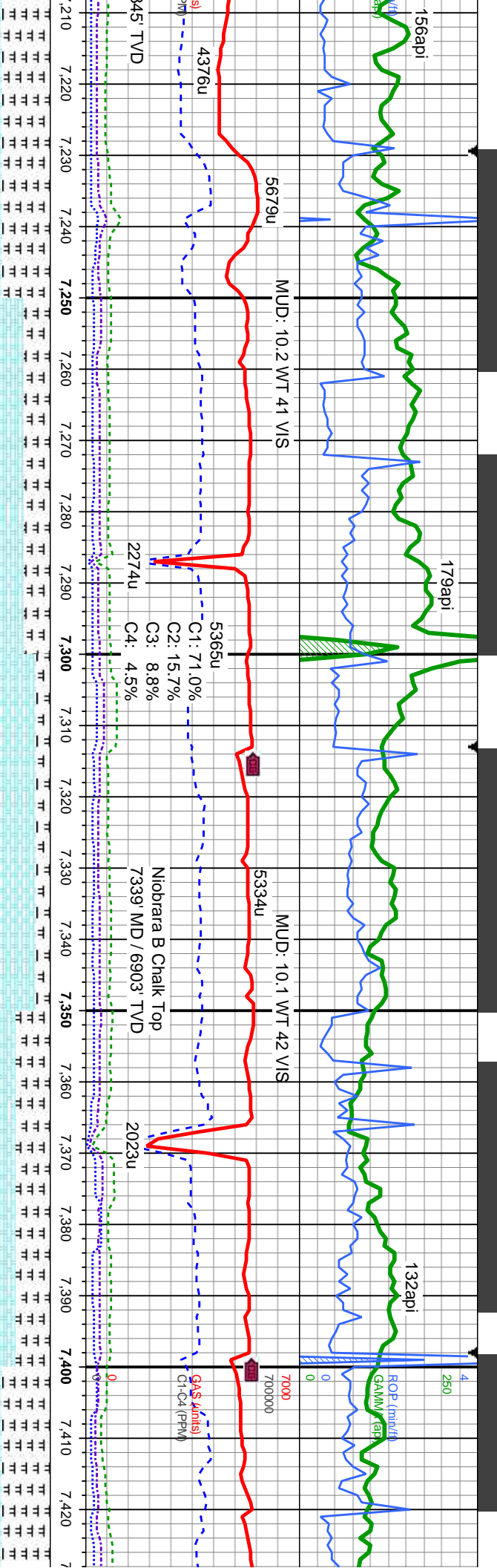
Accessories

Fossils	GASTROPOD	ARGILLITE GRAIN	HEAVY MINERAL
	INOCERAMUS	B BENTONITE	K KAOLIN
	O OOLITE	BITUMENOUS SUBSTANCE	M MARCASITE
	O OSTRACOD	BRECCIA FRAGMENTS	M MARLSTONE
	B BELEMNITE	C CALCAREOUS	M MICACEOUS
	B BIOCLASTIC	CARBONACEOUS FLAKES	M MINERAL CRYSTALS
	B BRACHIOPOD	C CHERT	N NODULES
	P PISOLITE	C CHERT	P PHOSPHATE PELLETS
	P PLANT REMAINS	T THIN BEDS	P PYRITE
	C CEPHALOPOD	D DOLOMITIC	S SALT CAST
	C CORAL	F FELDSPAR	S SANDY
	C CRINOID	F FERRUGINOUS PELLETT	S SIDERITE
	E ECHINOID		
Minerals	F FISH	F FERRUGINOUS	S SILICEOUS
	F FORAMINIFERA	A ANHYDRITIC	S SILTY
	F FOSSIL	A ARGILLACEOUS	T TUFFACEOUS
		G GLAUCONITE	
		G GYPSIFEROUS	
			S SILTSTONE STRINGER
			A ANHYDRITE STRINGER
			B BENTONITE STRINGER
			C COAL STRINGER
			D DOLOMITE STRINGER
			G GYPSUM STRINGER
			L LIMESTONE STRINGER
			M MARLSTONE (CALC) STRG
			M MARLSTONE (DOL) STRG
			S SANDSTONE STRINGER
			S SHALE STRINGER

Other Symbols

Oil Show	P PINPOINT	W WIRELINE TESTED - LEFT	E EARTHY
	V VUGGY	W WIRELINE TESTED - RT	F FINELY XLN
	D DEAD	F FORMATION TOP	G GRAINSTONE
	E EVEN	G GAS SHOW	L LITHOGRAPHIC
	Q QUESTIONABLE	O OIL SHOW	M MICRO XLN
	B BIT		
	S SPOTTED STAINING	C CONNECTION (UP)	M MUDSTONE
		C CONNECTION (DOWN)	A ANGULAR
Porosity	C CONNECTION GAS	N NORMAL FAULT	R ROUNDED
	E EARTHY	O OVERTURNED STRATA	S SUBANG
	F FENESTRAL	R REVERSE FAULT	S SUBRAND
	F FRACTURE	C CASING	
	I INTERCRYSTALLINE	D DOWN TIME GAS	Textures
	I INTERCRYSTALLINE	D DOWN TIME GAS (LEFT)	S SIDEWALL CORE (LEFT)
	M MOLDIC	C CORE - LOST	S SLIDE
	O ORGANIC	C CORE - RECOVERED	S SURVEY
		S SIDEWALL CORE (RIGHT)	B BOUNDSTONE
		S SLIDE	C CHALKY
		S SURVEY	C CRYPTO XLN
			P POOR
			W WELL
			M MODERATE
			S SORTING





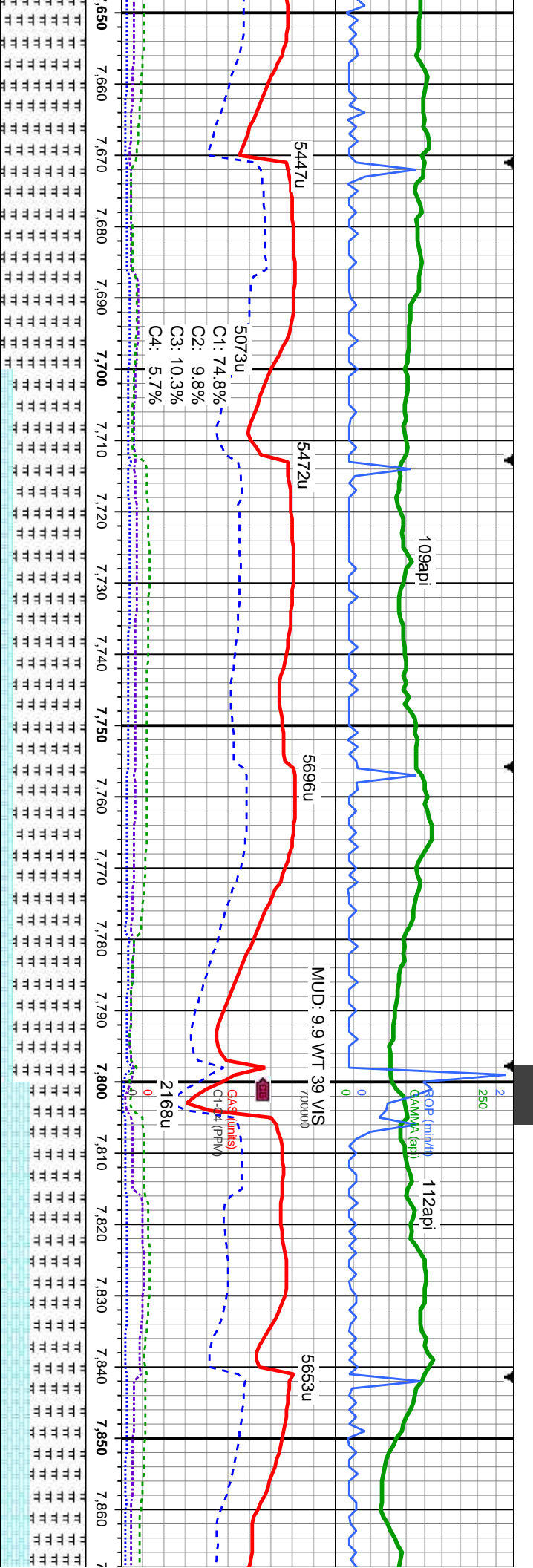
lt-med gy-gy brn, sb blk, med vif gr, w srt, silty tex; CHK: med gy-gy blk, wxy-rthy lsir, tr	CHK: med gy-gy brn, sb blk, srt, f gr, mod srt, wxy-rthy lsir; MRLST: lt-med gy-gy brn, sb blk, med srt-frn, vif gr, w srt, silty tex, tr bent, fast sting mky bl cut, bri bl gn ring
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MD: 7,218' TVD: 6,854.23' Inclination: 60.2° Azimuth: 270.2° VS: -166.63'	MD: 7,260' TVD: 6,873.93' Inclination: 63.86° Azimuth: 271.44° VS: -129.55'	MD: 7,303' TVD: 6,891.62' Inclination: 67.52° Azimuth: 271.07° VS: -90.37'	MD: 7,346' TVD: 6,906.37' Inclination: 72.37° Azimuth: 272.14° VS: -50'	MD: 7,388' TVD: 6,917.21' Inclination: 77.69° Azimuth: 271.75° VS: -9.45'	MD: 7,420' TVD: 6,928.21' Inclination: 82.14° Azimuth: 271.75° VS: -9.45'
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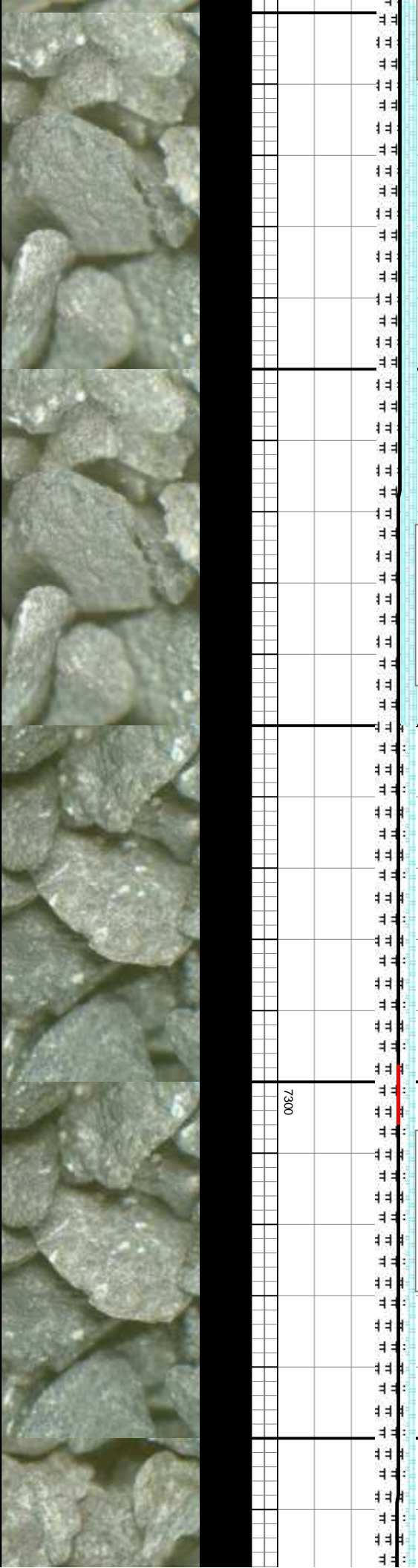
CHK: med gy-gy brn, sb blk, srt, f gr, mod srt, wxy-rthy lsir; MRLST: lt-med gy-gy brn, sb blk, med srt-frn, vif gr, w srt, silty tex, fast sting mky bl cut, bri bl gn ring	CHK: med gy-gy brn, sb blk, srt, f gr, mod srt, wxy-rthy lsir; MRLST: dk-med gy-gy brn, sb blk, med srt-frn, vif gr, w srt, silty tex, fast sting mky bl cut, bri bl gn ring
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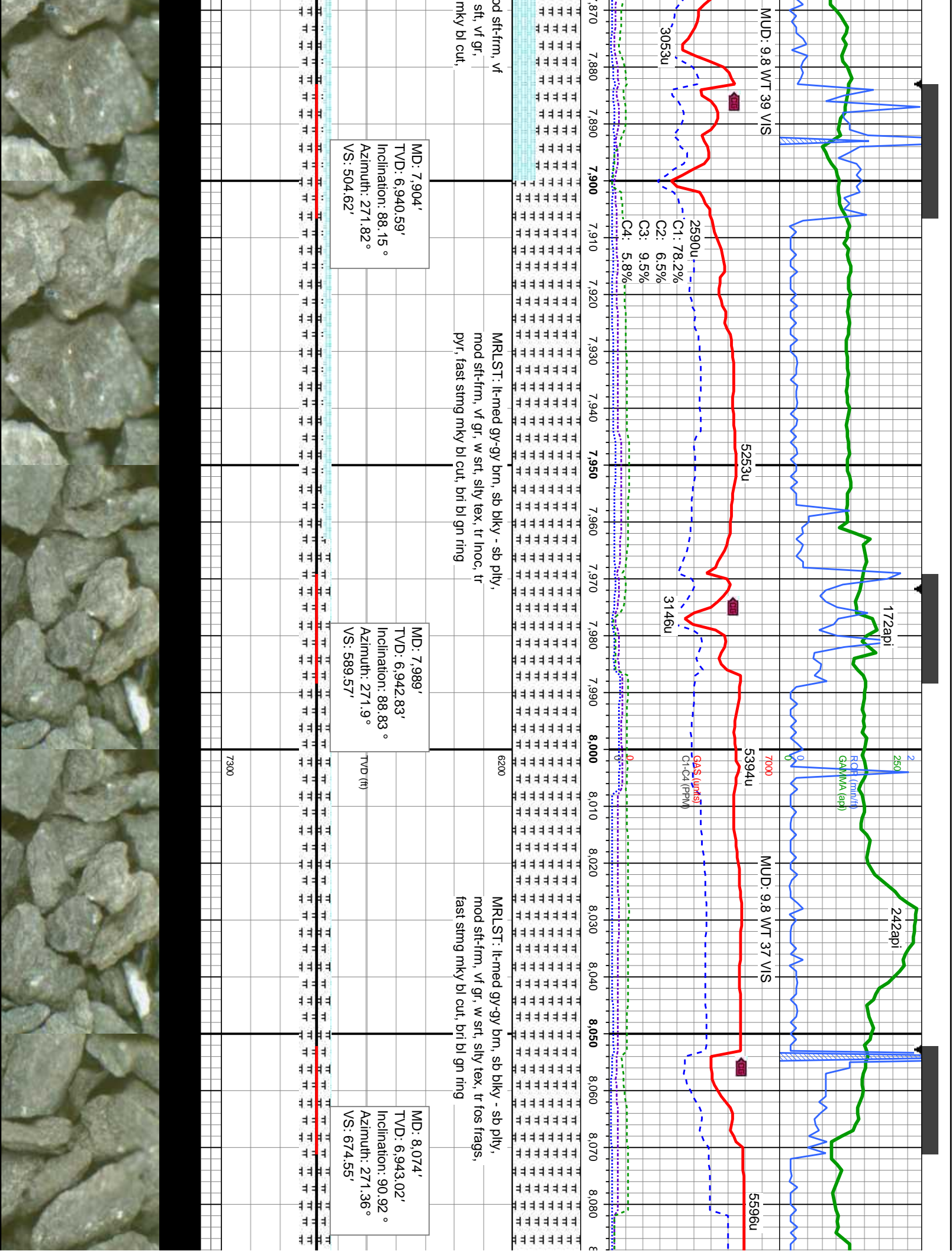
MRLST: lt-med gy-gy brn, srt-frn, vif gr, w srt, silty tex, fast sting mky bl cut, bri bl gn ring

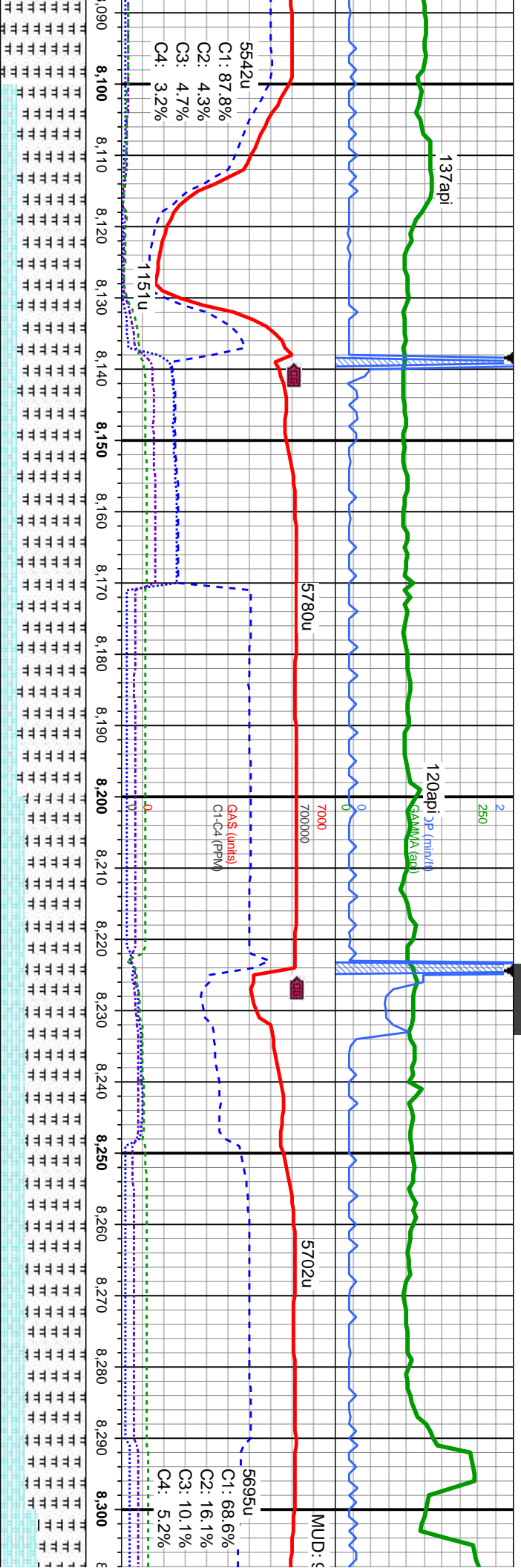




gy brn, sb blk, med	MRSLT: dk-med gy-gy brn, sb blk - sb pty, mod sft-fm, vf	6200	MRSLT: dk-med gy-gy brn, sb blk - sb pty, mod sft-fm, vf
ty tex, tr inoc, fast stmg	gr, w srt, silty tex: CHK: med gy-gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr, tr inoc, fast stmg mky bl cut, bri bl gn ring		gr, w srt, silty tex: CHK: med gy-gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr, tr inoc, fast stmg mky bl cut, bri bl gn ring
3.28'	MD: 7.733'		MD: 7.818'
: 89.04 °	TVD: 6.935.11'		TVD: 6.937.7'
273 °	Inclination: 88.51 °		Inclination: 87.99 °
	Azimuth: 272.83 °		Azimuth: 272.45 °
8'	VS: 334.19'		VS: 418.71'







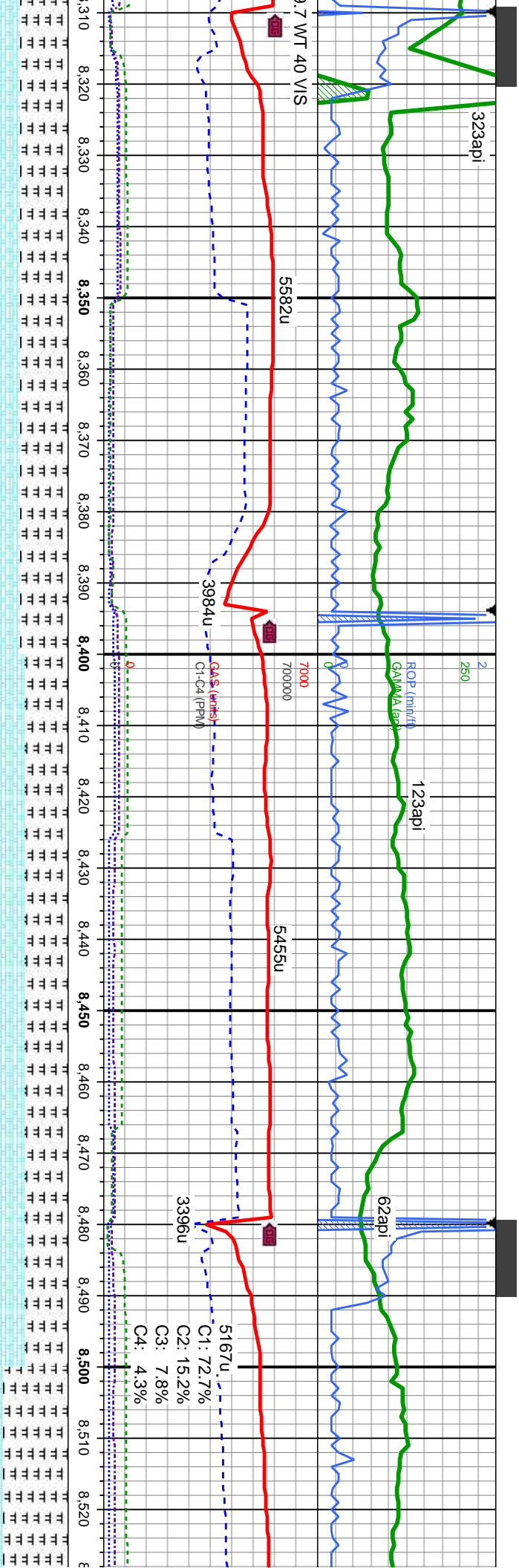
MRLST: lk-med gy-gy brn, sb blk, mod sft-firm, vif gr, w sft, silty tex; CHK: med gy-gy brn, sb blk, vif gr, mod sft, wxy-rthy lstr, tr fos frags, tr pyr, string mky bl cut, bl gn ring

MD: 8,159'
TVD: 6,941.31'
Inclination: 91.38°
Azimuth: 271.28°
VS: 759.52'

MRLST: dk-med gy-gy brn, sb blk - sb ply, mod sft-firm, vif gr, w sft, silty tex; CHK: med gy-gy brn, sb blk, vif gr, mod sft, wxy-rthy lstr, tr inoc, fast string mky bl cut, bri bl gn ring

MD: 8,244'
TVD: 6,939.06'
Inclination: 91.66°
Azimuth: 270.84°
VS: 844.49'





MRSLT: dk-med gy-gy brn, sb blk-y - sb ply, mod sft frm, vf gr, w srt, slty tex; CHK: med gy-gy brn, sb blk-y, sft, vf gr, mod srt, wxy-rthy lstr, tr lnoc, fast stmg mky bl cut, bri bl gn ring

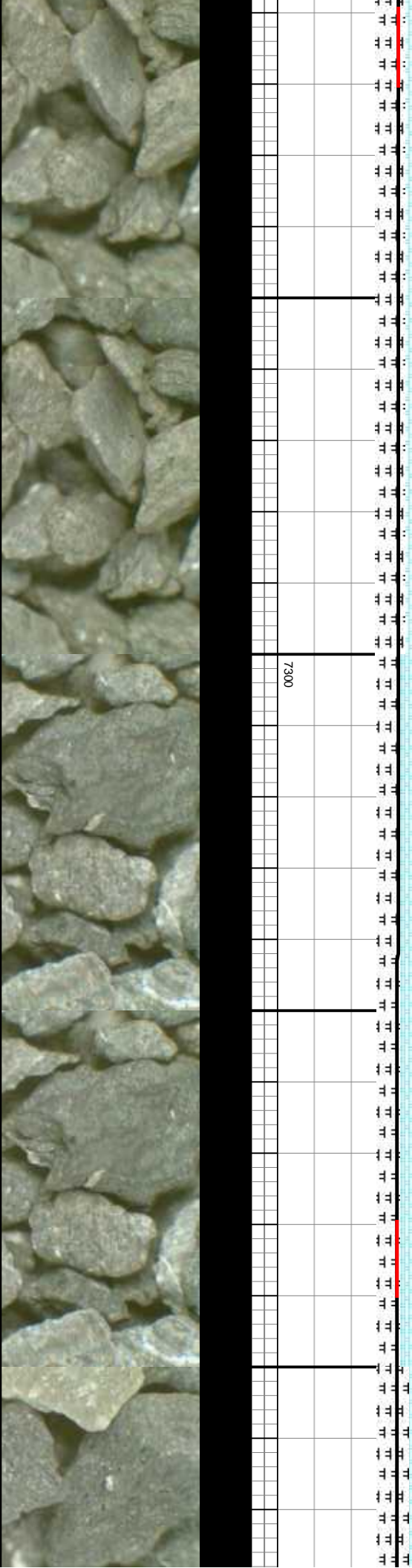
MD: 8,330'
TVD: 6,937.84'
Inclination: 89.96°
Azimuth: 270.88°
VS: 930.47'

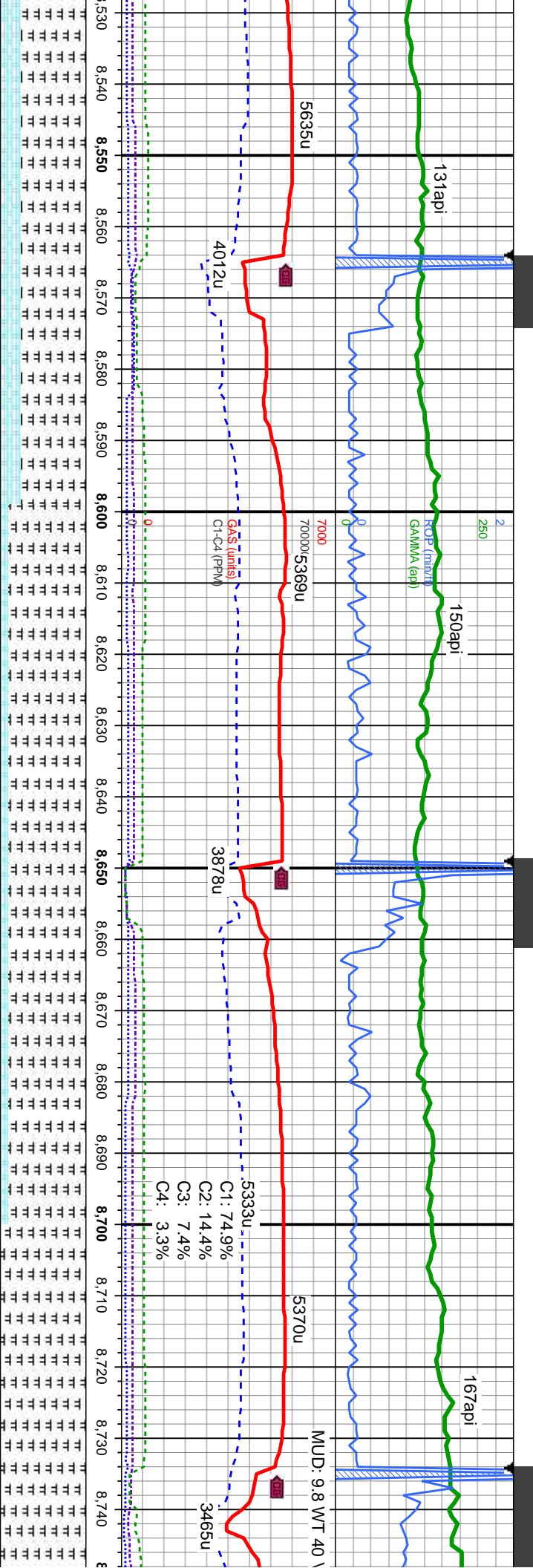
MRSLT: dk-med gy-gy brn, sb blk-y - sb ply, mod sft frm, vf gr, w srt, slty tex; CHK: med gy-gy brn, sb blk-y, sft, vf gr, mod srt, wxy-rthy lstr, tr lnoc, fast stmg mky bl cut, bri bl gn ring

MD: 8,415'
TVD: 6,938.52'
Inclination: 89.13°
Azimuth: 270.62°
VS: 1,015.47'

MD: 8,500'
TVD: 6,940.17'
Inclination: 88.64°
Azimuth: 269.6°
VS: 1,100.45'

MRSLT: dk-m slty tex; CHK: about lnoc, tr t



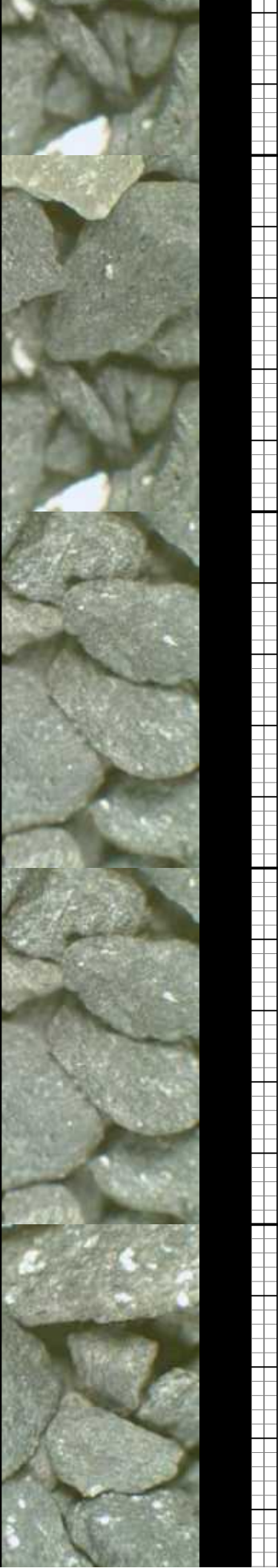


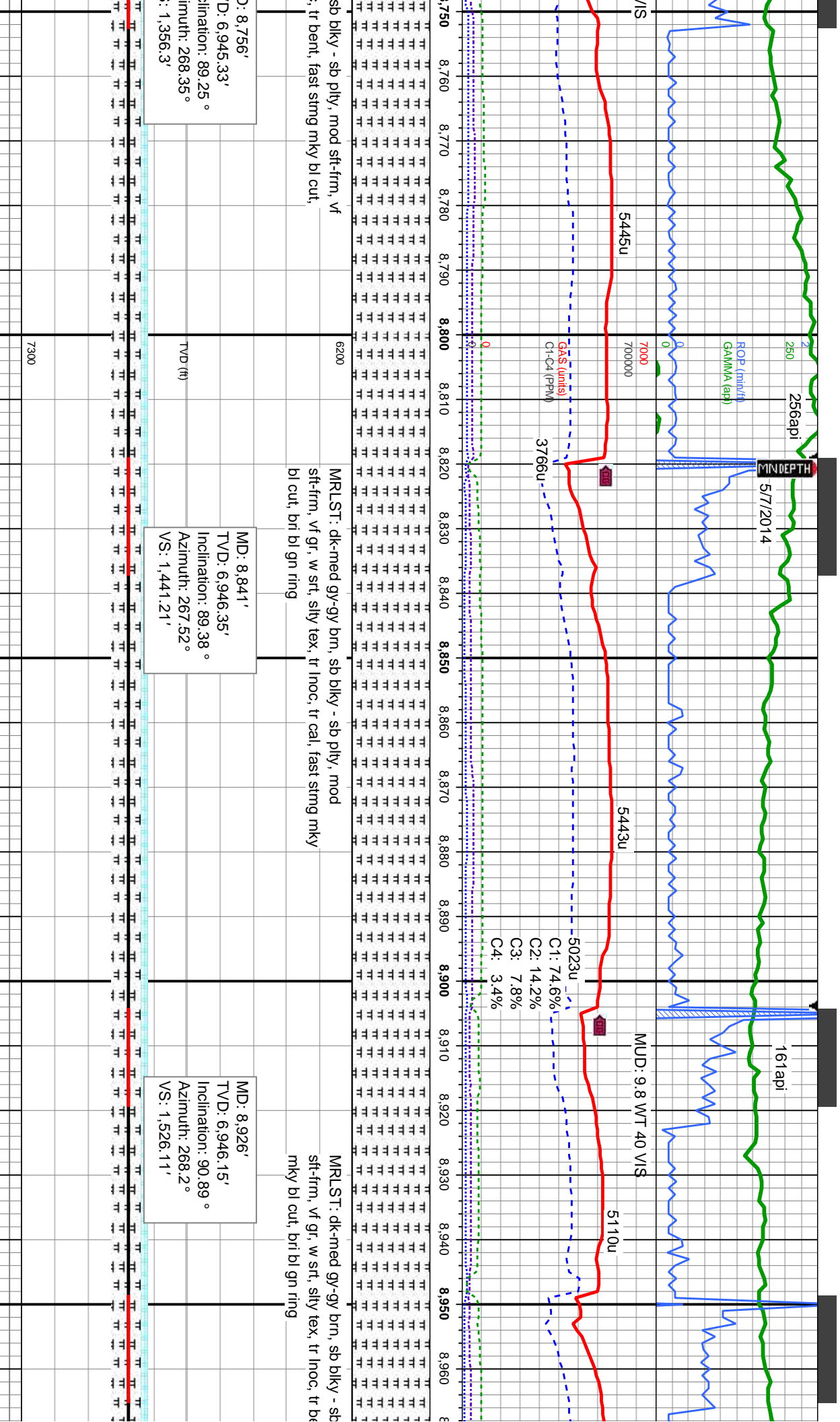
med gy-gy brn, sb blk, mod sft-firm, vf gr, w srt, med gy-gy brn, sb blk, sft, vf gr, mod srt, wxy-rthy lstr, bent, fast smg mky bl cut, bri bl gn ring

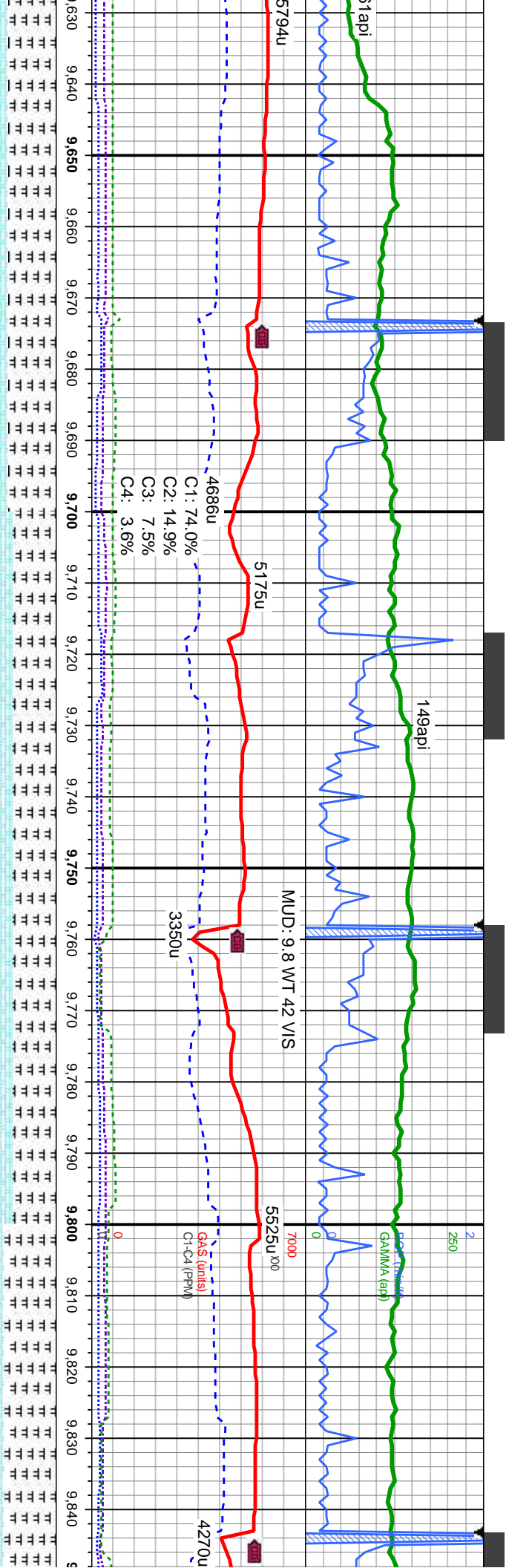
MD: 8,671'
TVD: 6,943.79'
Inclination: 88.67°
Azimuth: 268.88°
VS: 1,271.36'

MD: 8,671'
TVD: 6,943.79'
Inclination: 88.67°
Azimuth: 268.88°
VS: 1,271.36'

MD: 8,671'
TVD: 6,943.79'
Inclination: 88.67°
Azimuth: 268.88°
VS: 1,271.36'







dk-med gy-gy brn, sb blk, mod sft-firm, v
sily tex; CHK: med gy-gy brn, sb blk, mod
rthy lstr, com inoc, com bent, fast sting mky bl cut,
bl ring

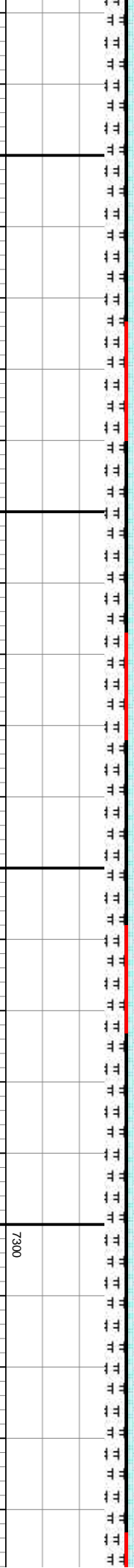
MD: 9,693'
TVD: 6,936.89'
Inclination: 89.41 °
Azimuth: 269.75 °
VS: 2,260.58'

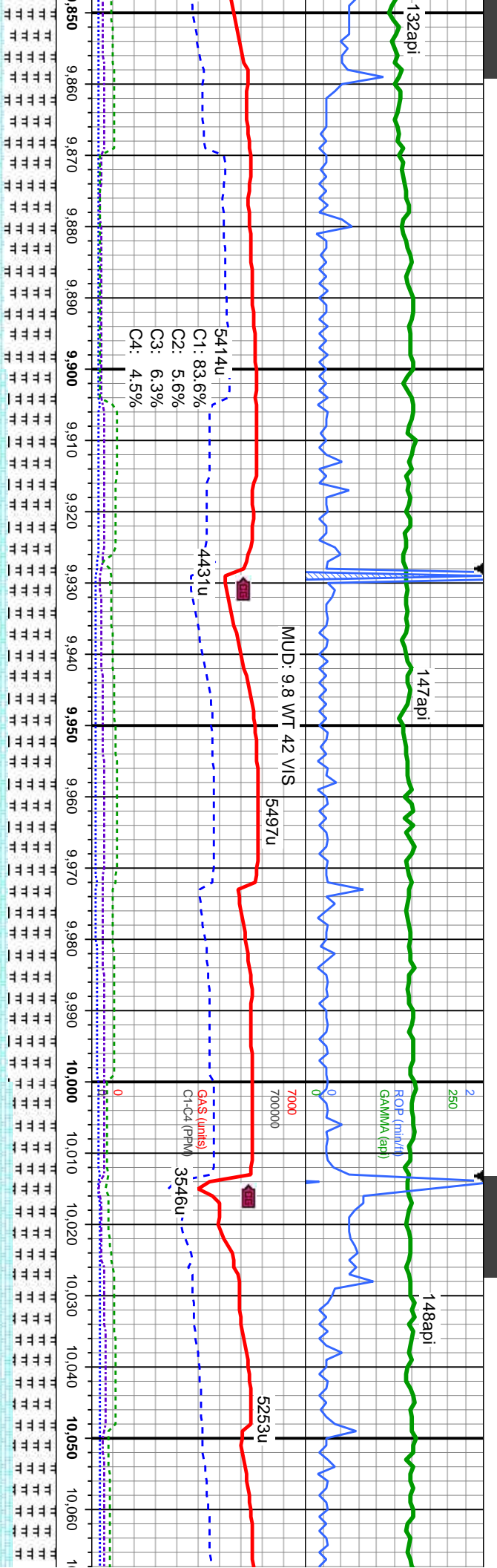
MRLST: dk-med gy-gy brn, sb blk, mod sft-firm, v
gr, w srt, sily tex; CHK: med gy-gy brn, sb blk, mod
srt, wxy-rthy lstr, tr inoc, abnt bent, fast sting mky bl cut, bri
spty bl ring

MD: 9,779'
TVD: 6,936.97'
Inclination: 90.49 °
Azimuth: 268.47 °
VS: 2,346.55'

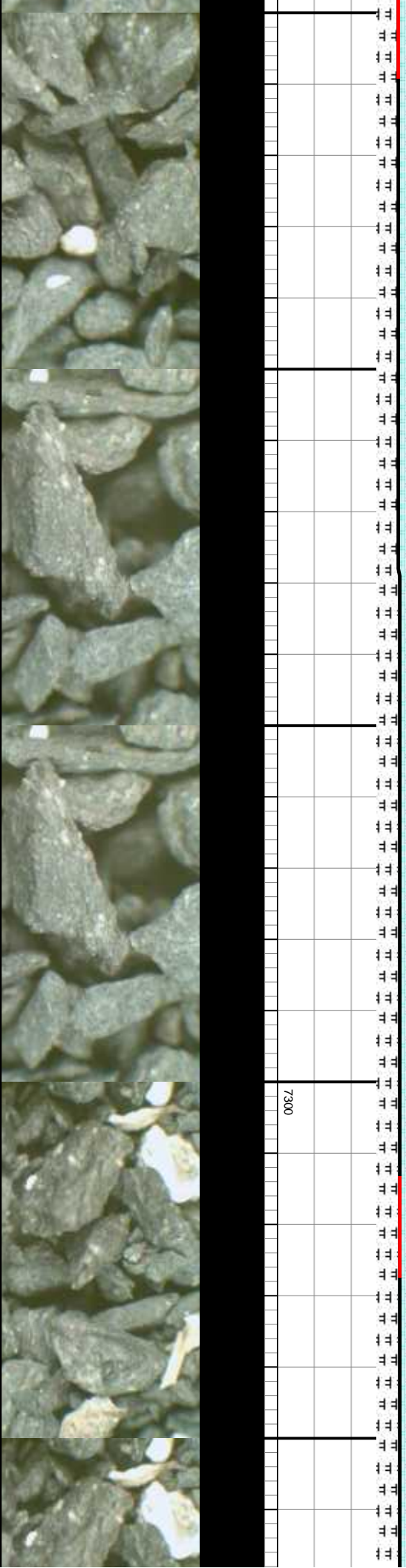
MRLST: dk-med gy-gy brn, sb
larn, v gr, w srt, sily tex; CHK:
gr, mod srt, wxy-rthy lstr, com
bl cut, bri spty bl ring

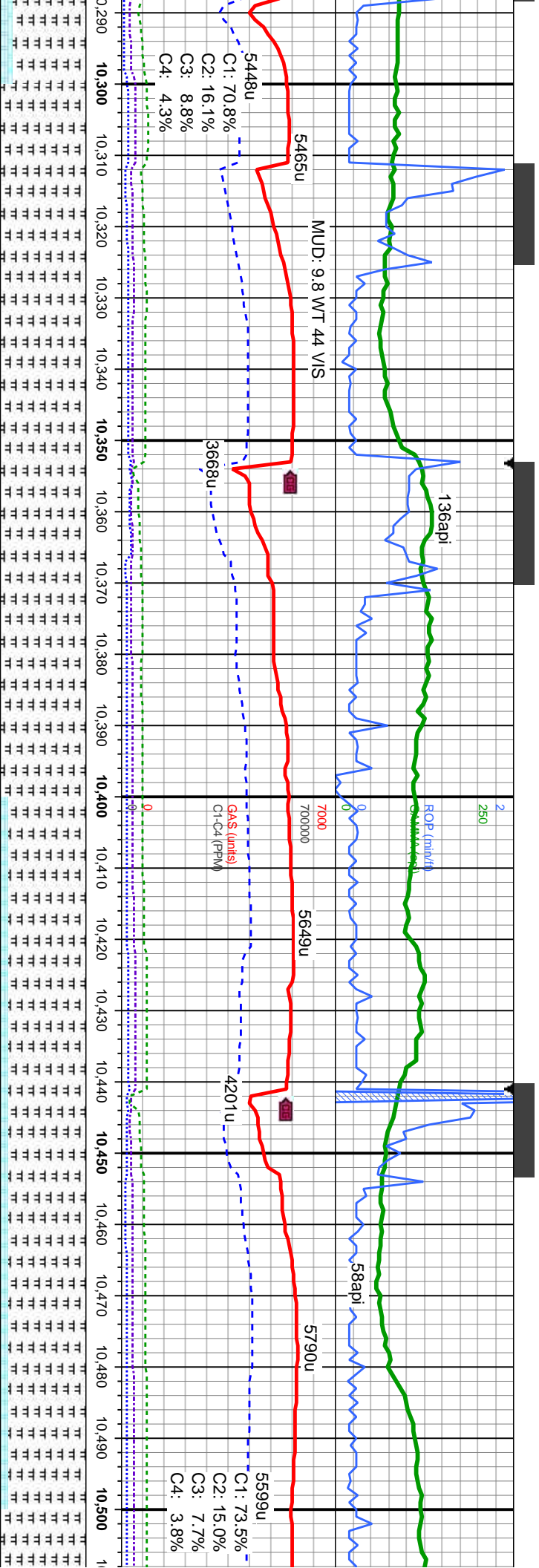
TVD (ft)





blky - sb ply, mod sft-frm, med gy-gy brn, sb blky, sft, f inoc, abnt bent, fast sting mky	MRLST: dk-med gy-gy brn, sb blky - sb ply, mod sft-frm, lam, vif gr, w srt, sily tex; CHK: med gy-gy brn, sb blky, sft, f gr, mod srt, wxy-rthy lstr, com inoc, tr fos frags, abnt bent, fast sting mky bl cut, bri sply bl ring	6200	MRLST: dk-med gy-gy brn, sb blky - sb ply, lam, vif gr, w srt, sily tex; CHK: med gy-gy brn, sb blky, sft, f inoc, tr fos frags, sting mky bl cut, bri sply bl ring
MD: 9,864' TVD: 6,935.58' Inclination: 91.38 ° Azimuth: 268.69 ° VS: 2,431.49'	MD: 9,949' TVD: 6,934.51' Inclination: 90.06 ° Azimuth: 268.1 ° VS: 2,516.43'	TVD (ft)	MD: 10,034' TVD: 6,934.44' Inclination: 90.03 ° Azimuth: 267.48 ° VS: 2,601.33'

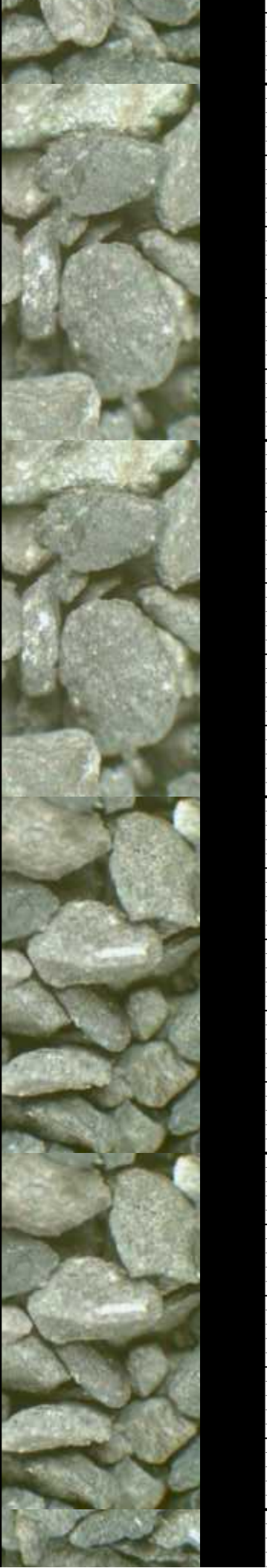
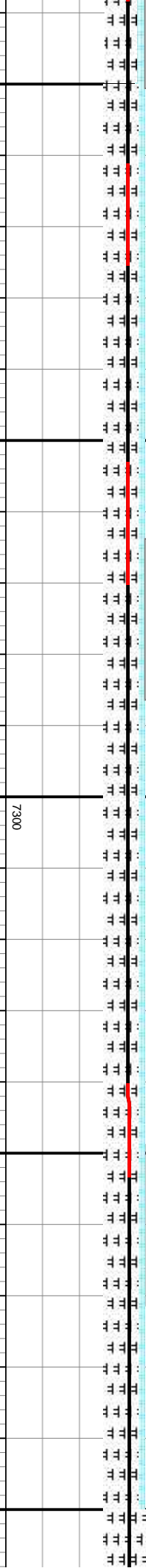


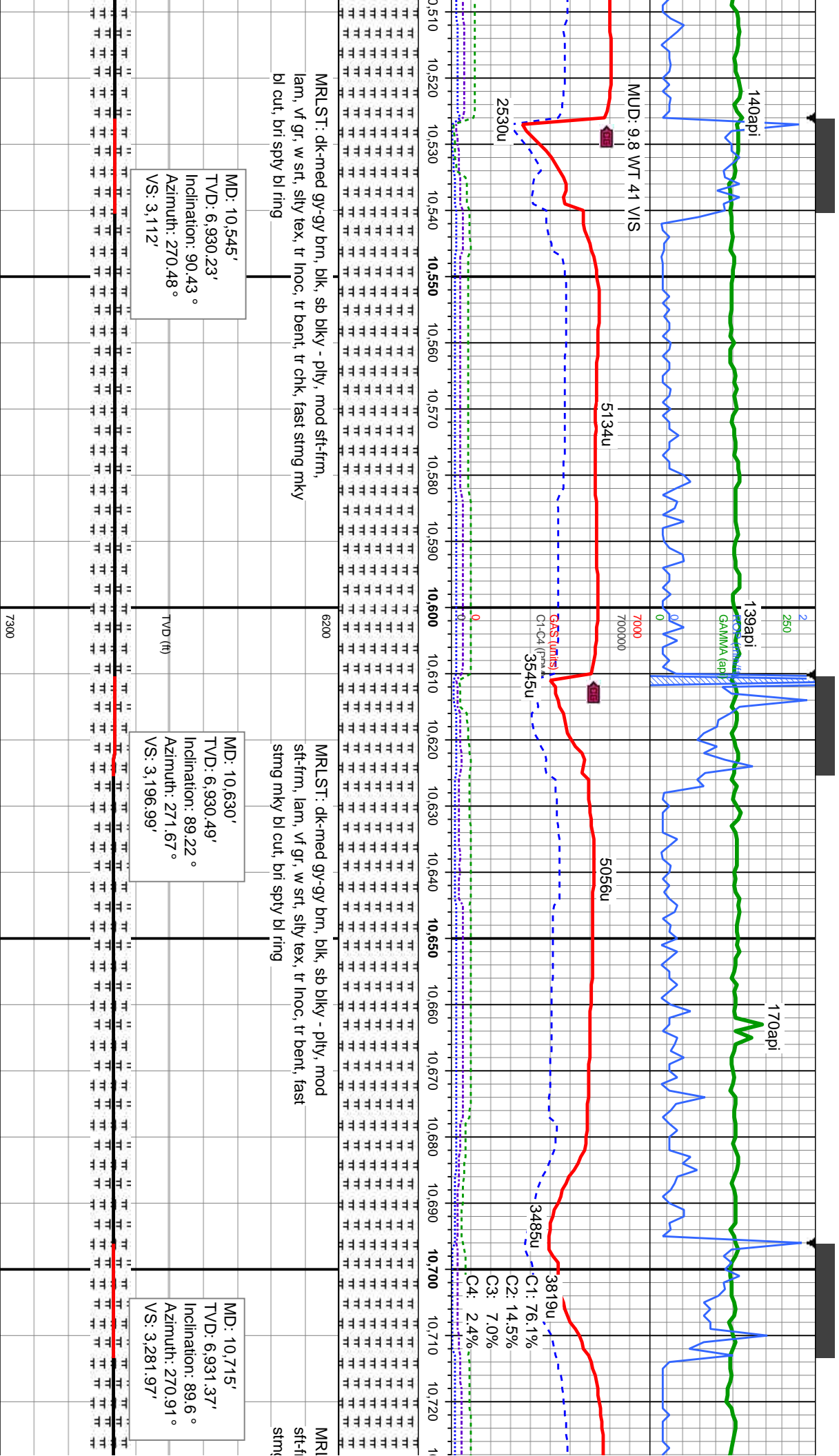


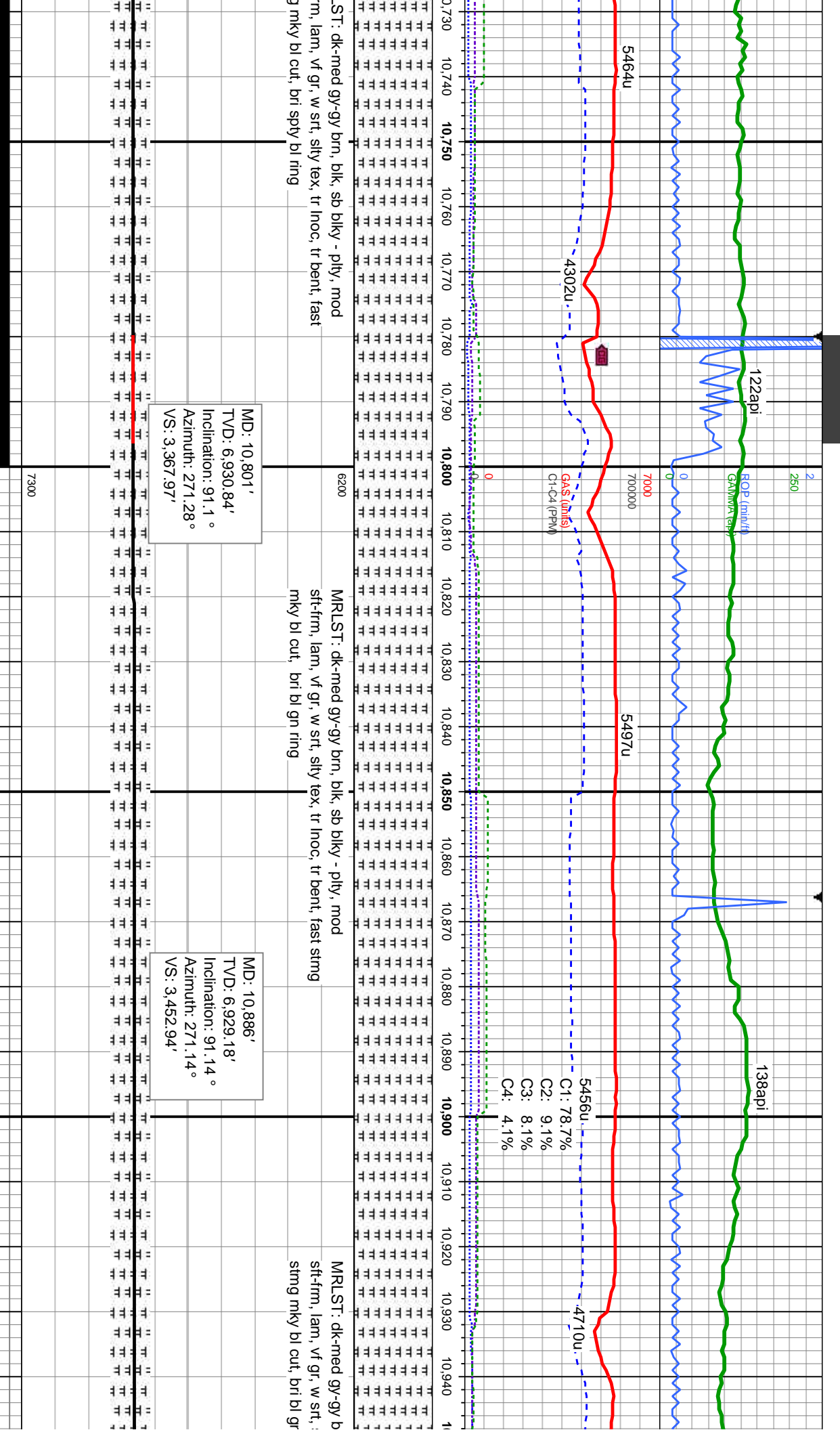
290'	MD: 10,375'	MD: 10,460'
931.61'	TVD: 6,930.77'	TVD: 6,930.39'
on: 90.4°	Inclination: 90.73°	Inclination: 89.78°
i: 268.4°	Azimuth: 270.38°	Azimuth: 270.4°
67.02'	VS: 2.942'	VS: 3.027'
	TVD (ft)	

MRLST: dk-med gy-gy brn, blk, sb blk - sb ply, mod sft-fm, lam, vf gr, w srt, slty tex, tr inoc, fast sting mky bl cut, bri spty bl ring

MRLST: dk-med gy-gy brn, blk, sb blk - sb ply, mod sft-fm, lam, vf gr, w srt, slty tex: CHK: med gy-gy brn, sb blk, sft, f gr, mod srt, wxy-rthy lstr, sl tr inoc, tr pyr, fast sting mky bl cut, bri spty bl ring





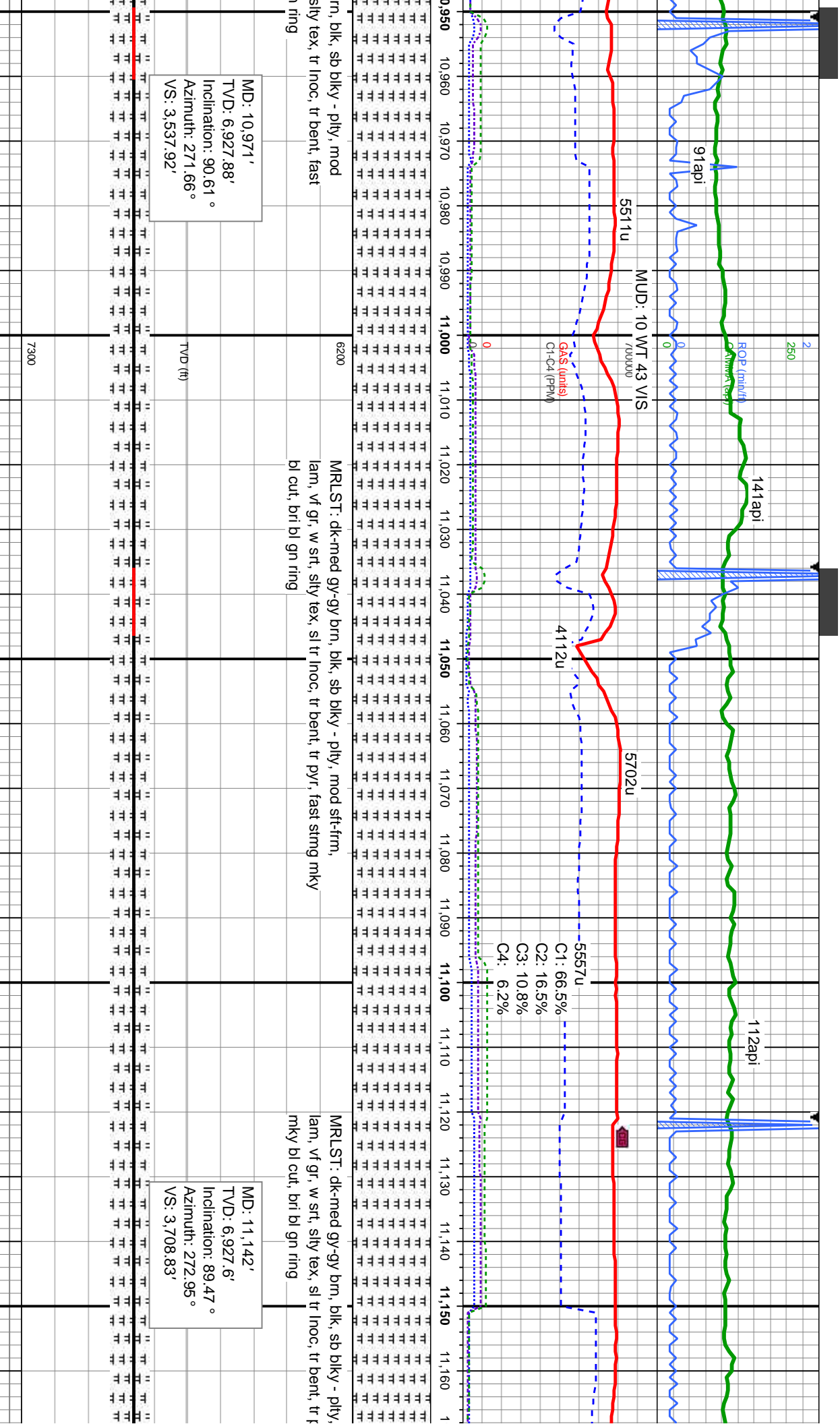


ST: dk-med gy-gy brn, blk, sb blk - pty, mod
m, lam, v gf, w sft, silty tex, tr lnoc, tr bent, fast
g mky bl cut, bri spy bl ring

MRLST: dk-med gy-gy brn, blk, sb blk - pty, mod
sft-firm, lam, v gf, w sft, silty tex, tr lnoc, tr bent, fast strng
mky bl cut, bri bl gn ring

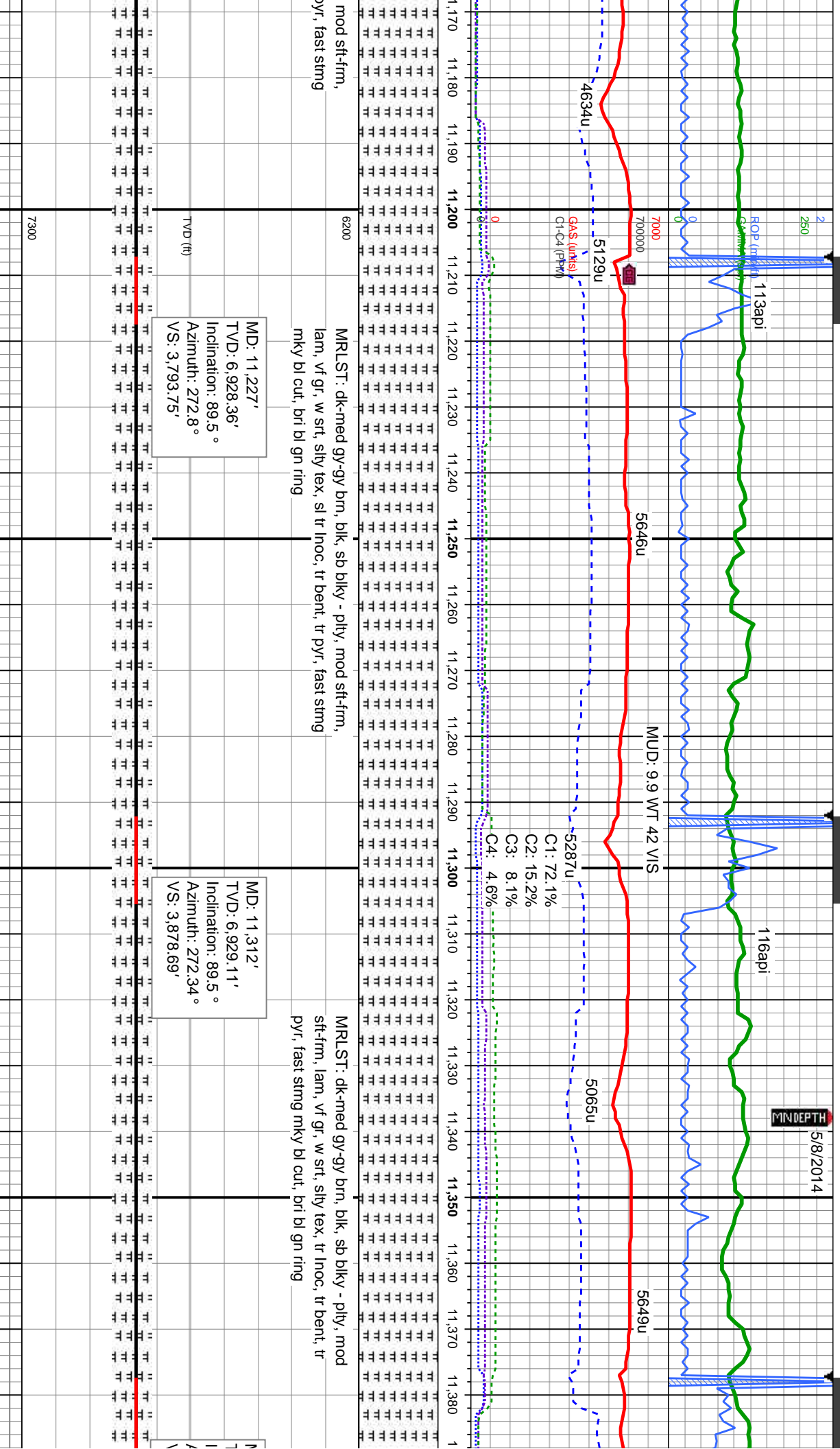
MRLST: dk-med gy-gy b
sft-firm, lam, v gf, w sft, silty
strng mky bl cut, bri bl gr

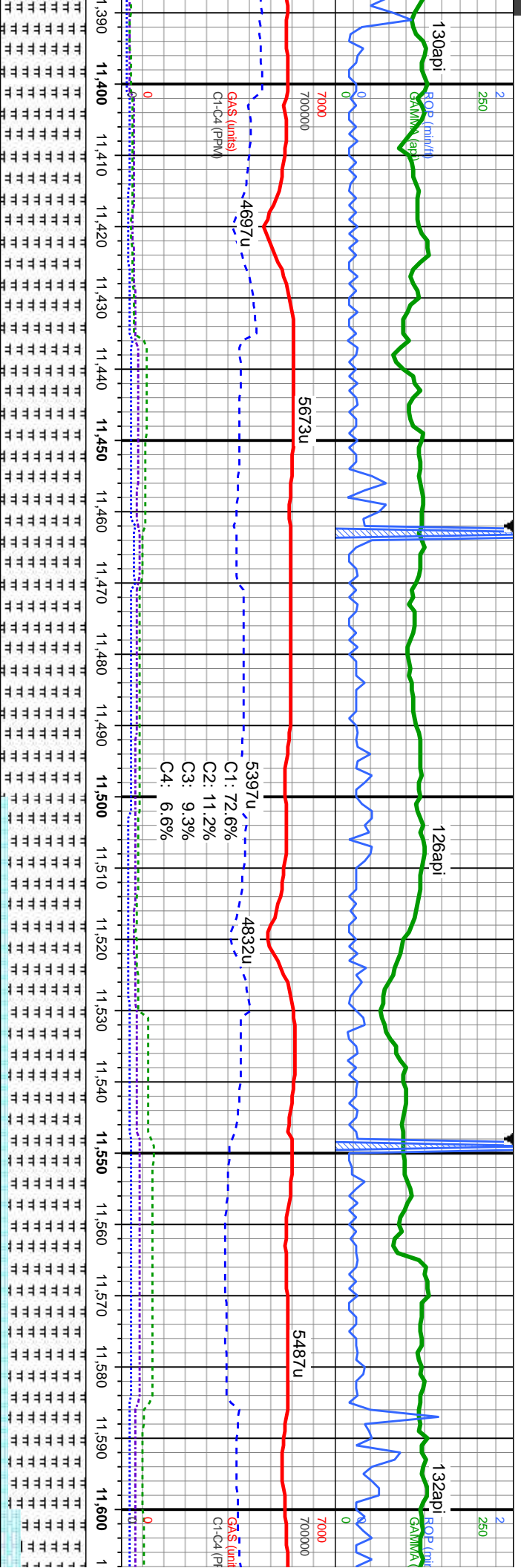




5/8/2014

MINDEPTH





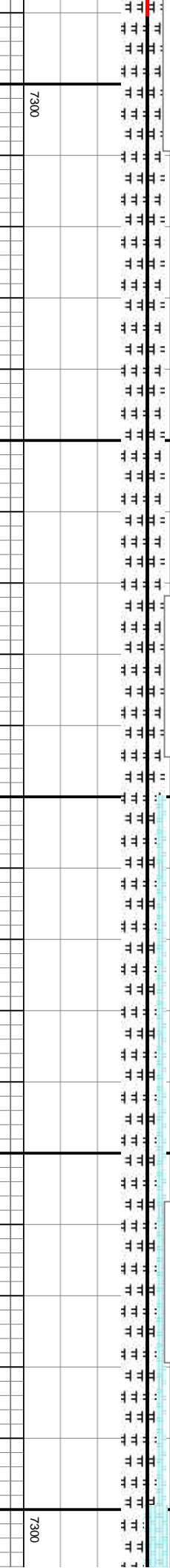
MRLST: dk-med gy-gy brn, blk, sb blkly - ply, mod
sft frm, lam, vf gr, w srt, silty tex, sl tr lnoc, tr bent, tr pyr,
fast stmg mky bl cut, bri bl gn ring

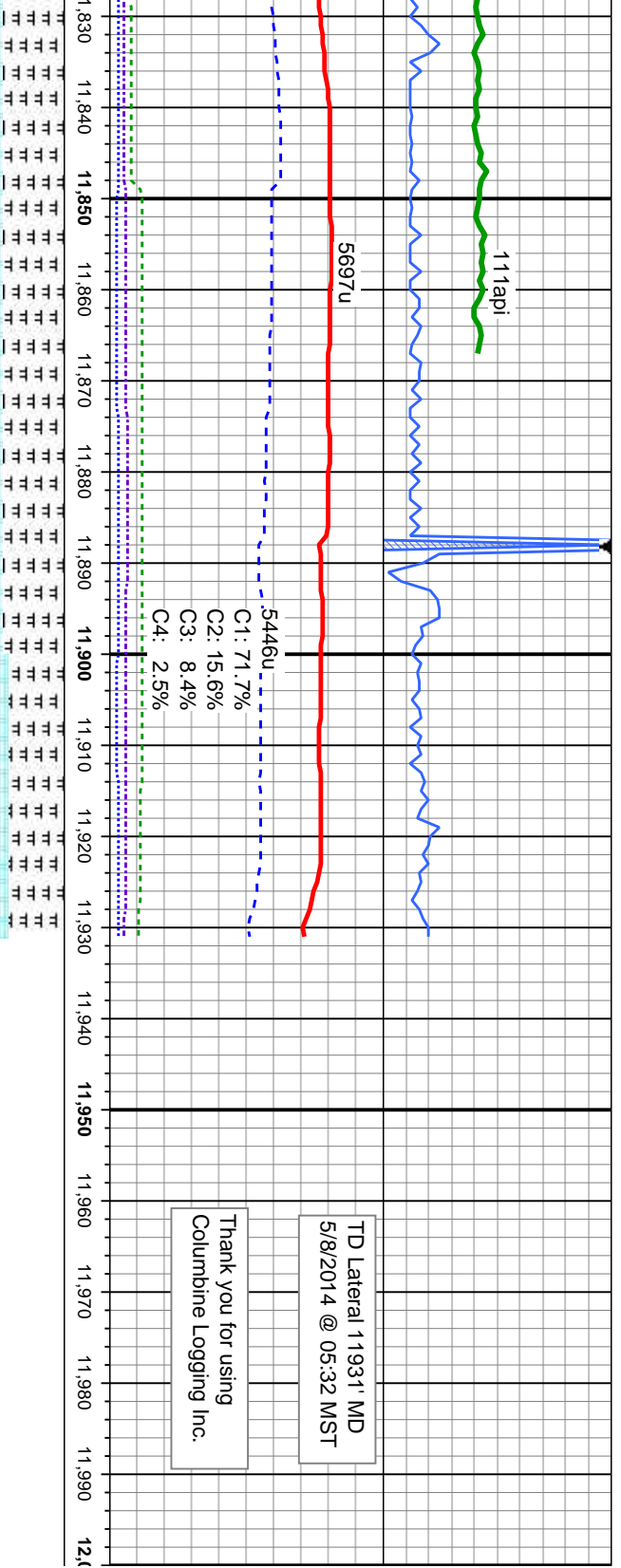
MD: 11,483'
TVD: 6,929.17'
Inclination: 90.06°
Azimuth: 272°
VS: 4,049.63'

MRLST: dk-med gy-gy brn, sb blkly - sb ply, mod sft frm,
lam, vf gr, w srt, silty tex; CHK: med gy-gy brn, sb blkly, sft, f
gr, mod srt, wxy-rthy lstr, rr lnoc, tr bent, fast stmg mky bl cut,
bri bl gn ring

MD: 11,568'
TVD: 6,929.58'
Inclination: 89.38°
Azimuth: 271.77°
VS: 4,134.61'

TVD (ft)





TD Lateral 11931' MD
5/8/2014 @ 05:32 MST

Thank you for using
Columbine Logging Inc.

MR.LST: dk-med gy-gy brn, sb blkly - sb pfly, mod sft-fm,
lam, vf gr, w sft, sfty tex: CHK: med gy-gy brn, sb blkly, sft, f
gr, mod sft, wxy-rthy lstr, rr lnoc, tr bent, fast string mky bl cut,
brt bl gn ring

MD: 11,863'
TVD: 6,933.78'
Inclination: 90.37°
Azimuth: 270.1°
VS: 4,429.55'

MD: 11,931'
TVD: 6,933.34'
Inclination: 90.37°
Azimuth: 270.1°
VS: 4,497.55'

PROJECTION TO BIT

