



Scale: 5" / 100'
Measured Depth Log

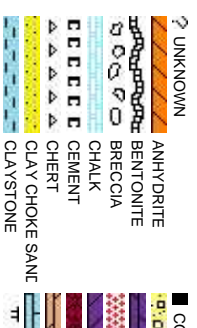
Well Name	Antelope F-J-15HNB
Location	NW/4 SEC 15 T5N R62W
State	COLORADO
Country	USA
API Number	05-123-35985
Spud Date	3/5/2013
Surface Coordinates	425 FNL X 1174 FWL (LAT: 40.606, 104.31466)
Bottom Hole Coordinates	531 FNL X 1320 FWL (LAT: 40.40578, 104.31414) 460 FSL X 1320 FWL (LAT: 40.39385, 104.31454)
Ground Elevation	4,698
Logged Interval	5,700
Formation	NIOBRARA "B" CHALK
Type of Drilling Fluid	H2O, LSND

K.B. Elevation 4,709

Company Bonanza Creek
Address 410 17th Street
Denver, CO 802

Name Paul McKay
Company Bonanza Creek
410 17th Street
Denver, CO 802

Wellsite Geologists



Operator

Energy Inc.

Suite 1500
202

Geologist

Energy Inc.

Suite 1500
202

Other

Trent Nelson
Wedge Howland

Rock Types

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

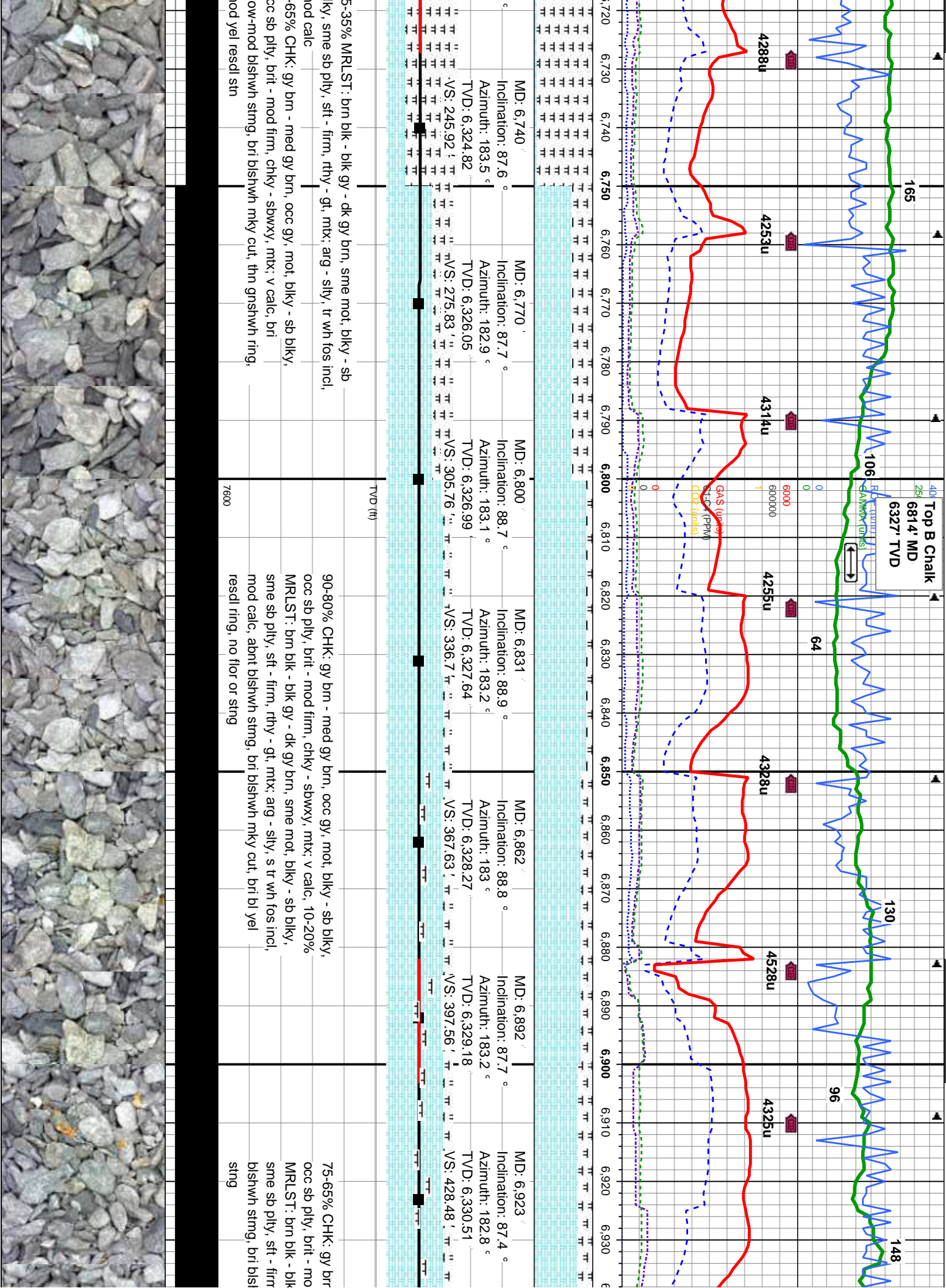
Accessories

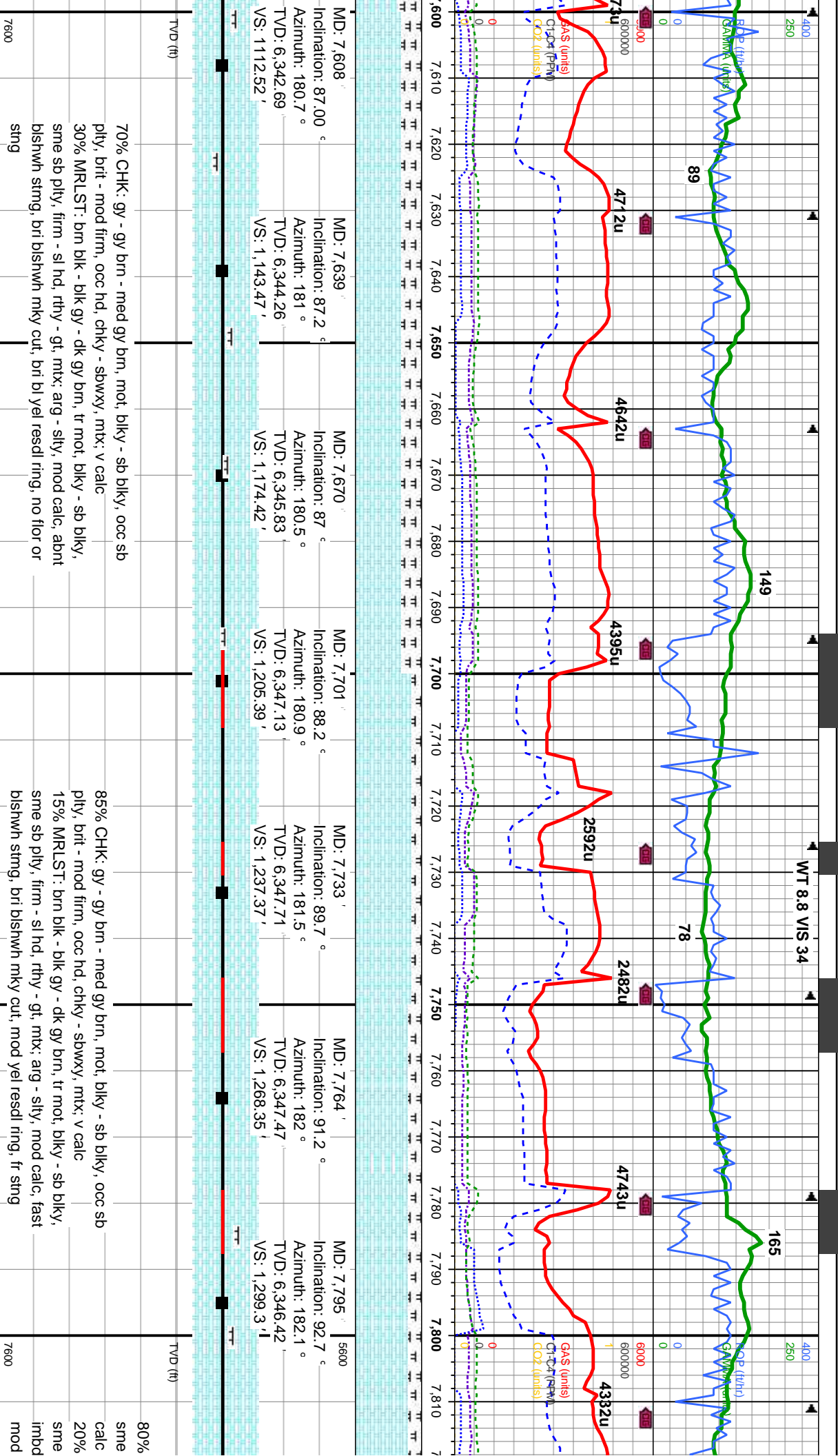
Fossils	F FOSSIL	ARGILLACEOUS	GLAUCONITE	TUFFACEOUS
GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS		
ALGAE	OOLITE	B BENTONITE	HEAVY MINERAL	
AMPHIPORA	OSTRACOD	BITUMENOUS SUBSTANCE	INOCERAMUS	ANHYDRITE STRINGER
BELEMITE	PELECYPOD	BRECCIA FRAGMENTS	KAOLIN	BENTONITE STRINGER
BIOCLASTIC	PELLET	CALCAREOUS	MARLSTONE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

Other Symbols

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

Slide/Rotate	
<p>Bit Data</p> <p>Bit #: 2 Type: SDI611MPX Size: 8.75 Depth In: 440 ' Jets: 6X13 S/N: JG7221</p>	<p>ROP</p> <p>ROP —</p> <p>GAMMA</p> <p>GAMMA —</p>
<p>Total Gas & Chromatograph</p> <p>GAS —</p> <p>C1 —</p> <p>C2 —</p> <p>C3 —</p> <p>C4 —</p> <p>CO2 —</p>	<p>COLUMBINE LOGGING RIGGED UP ON 03/10/2013 MANNED 2-PERSON LOGGING WITH BLOODHOUND GAS CHROMATOGRAPH UNIT #0680 BEGAN ON 03/11/2013</p>
<p>Depth Labels</p> <p>5,660 5,670 5,680 5,690 5,700 5,710 5,720 5,730 5,740 5,750 5,760 5,770 5,780 5,790 5,800 5,810 5,820 5,830</p>	<p>1425u 1880u 1680u 1717u 665u</p>
<p>% Lith</p>	<p>100% SLTYSH: medgy - dkgy, sme brn gy, sl firm - mod sft, sbply - plty, rthy - gty, mtx: slty - arg, non calc</p>
<p>Well Bore</p> <p>TVD —</p>	<p>MD: 5,710' Inclination: 3.4° Azimuth: 28° TVD: 5,691.59' VS: -399.99'</p> <p>MD: 5,742' Inclination: 3.1° Azimuth: 29.1° TVD: 5,723.54' VS: -401.58'</p> <p>MD: 5,773' Inclination: 1.4° Azimuth: 49.6° TVD: 5,754.51' VS: -402.55'</p> <p>MD: 5,805' Inclination: 2.9° Azimuth: 173.6° TVD: 5,786.5' VS: -401.99'</p> <p>MD: 5,833' Inclination: 2.9° Azimuth: 173.6° TVD: 5,814.5' VS: -399.99'</p>
<p>Oil Show</p>	<p>100% SLTYSH: medgy - dkgy, sme brn gy, sl firm - mod sft, sbply - plty, rthy - gty, mtx: slty - arg, non calc</p>
<p>Images</p>	<p>7600</p>

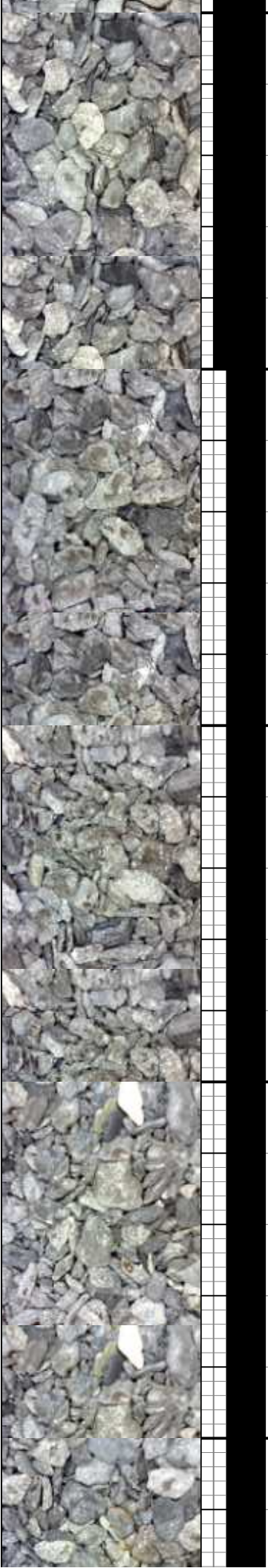


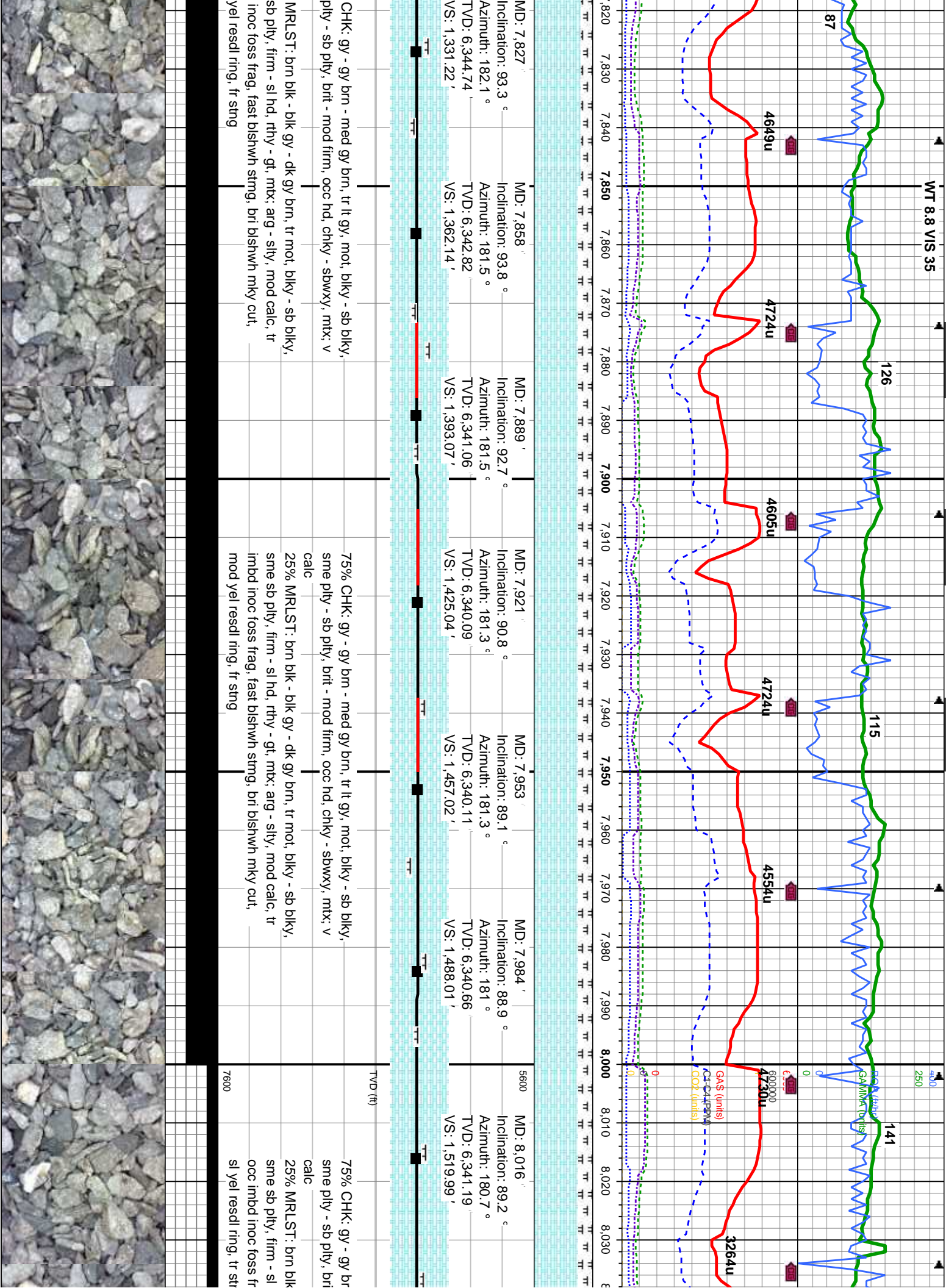


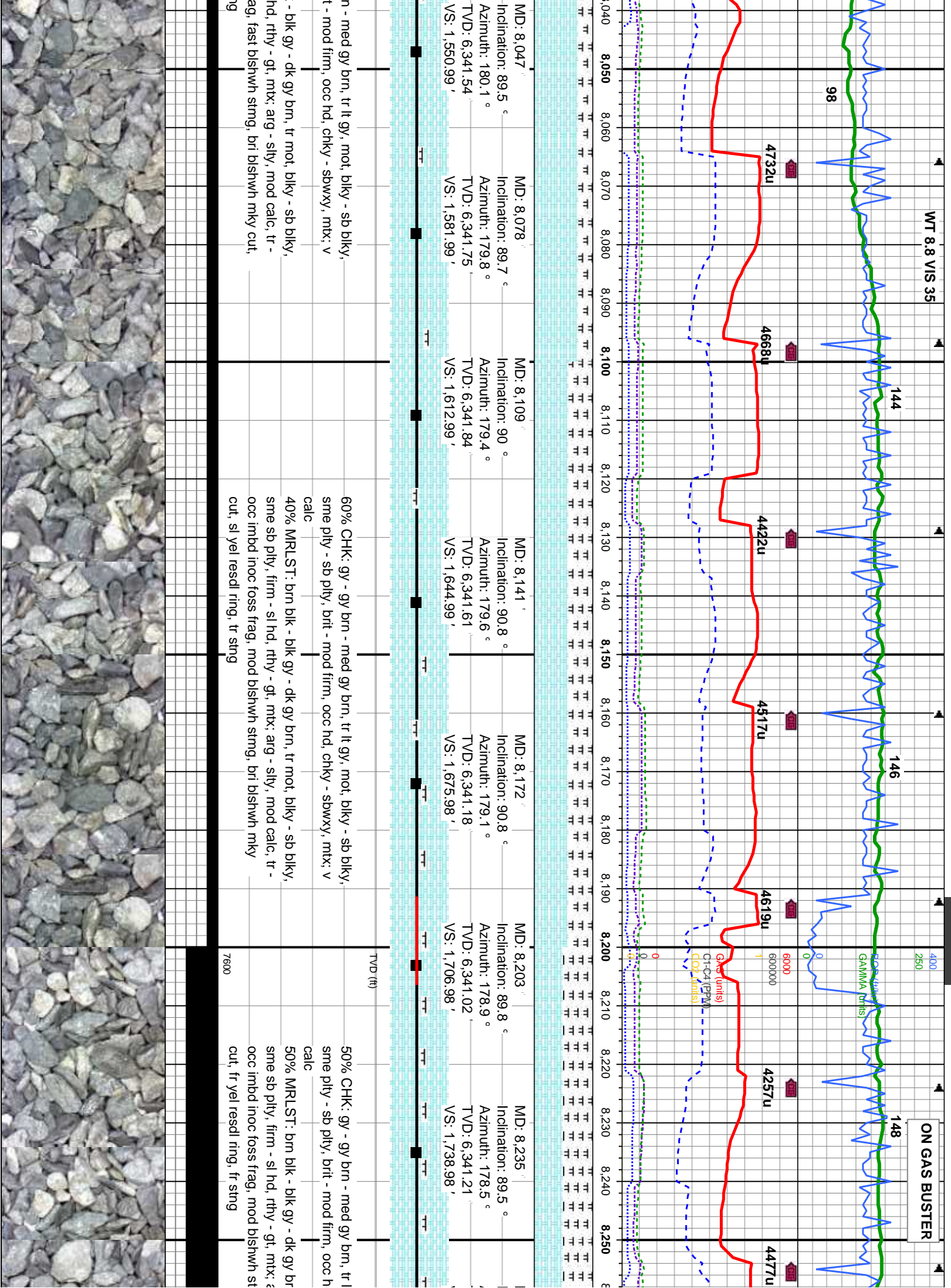
70% CHK: gy - gy brn - med gy brn, mot, blkly - sb blkly, occ sb
ply, brit - mod firm, occ hd, chky - sbwxy, mtx; v calc
30% MRLST: brn blk - blk gy - dk gy brn, tr mot, blkly - sb blkly,
sme sb ply, firm - sl hd, rthy - gt, mtx; arg - slty, mod calc, abnt
bshwh stmg, bri bshwh mky cut, bri bl yel resd ring, no flor or
stng

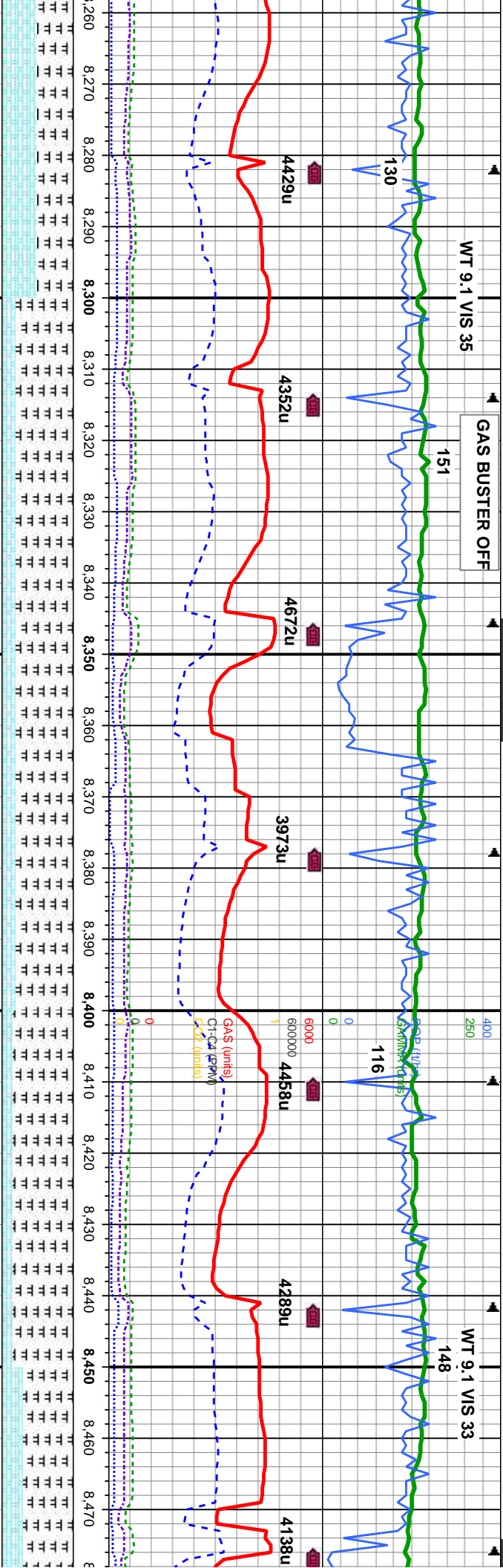
85% CHK: gy - gy brn - med gy brn, mot, blkly - sb blkly, occ sb
ply, brit - mod firm, occ hd, chky - sbwxy, mtx; v calc
15% MRLST: brn blk - blk gy - dk gy brn, tr mot, blkly - sb blkly,
sme sb ply, firm - sl hd, rthy - gt, mtx; arg - slty, mod calc, fast
bshwh stmg, bri bshwh mky cut, mod yel resd ring, fr stng

80%
sme
calc
20%
sme
imbd
mod









MD: 8,266

Inclination: 90.0 °

Azimuth: 179.2 °

TVD: 6,341.35

VS: 1,769.97

MD: 8,298

Inclination: 90.3 °

Azimuth: 179.6 °

TVD: 6,341.26

VS: 1,801.97

MD: 8,330

Inclination: 90.2 °

Azimuth: 178.8 °

TVD: 6,341.12

VS: 1,833.97

MD: 8,361

Inclination: 89.1 °

Azimuth: 178.7 °

TVD: 6,341.31

VS: 1,864.97

MD: 8,393

Inclination: 89.5 °

Azimuth: 178.8 °

TVD: 6,341.7

VS: 1,896.96

MD: 8,425

Inclination: 90.7 °

Azimuth: 179.3 °

TVD: 6,341.65

VS: 1,928.96

MD: 8,457

Inclination: 90.9 °

Azimuth: 178.7 °

TVD: 6,341.2

VS: 1,960.95

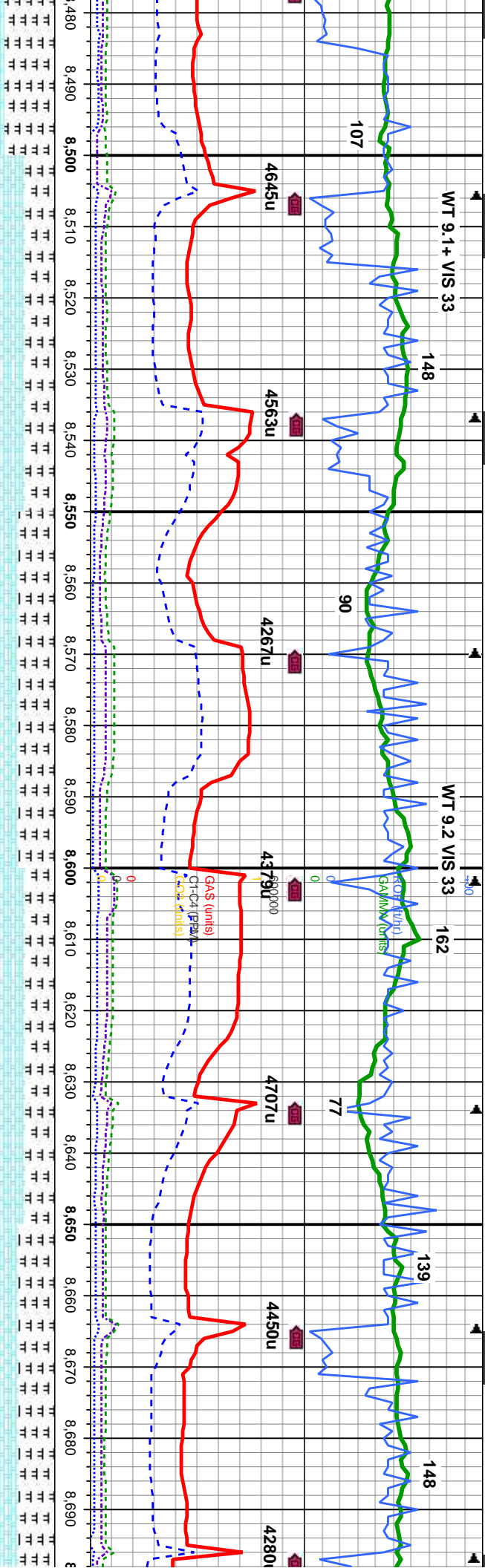
80% MRLST: btm blk - blk gy - dk gy brn, tr mot, blk - sb blk, sme sb pty, firm - sl hd, rthy - gt, mtx; arg - stly, mod calc, tr - occ imbd inoc foss frag

20% CHK: gy - gy brn - med gy brn, tr lt gy, stri - mot, blk - sb blk, sme pty - sb pty, brit - mod firm, occ hd, chky - sbwxy, mtx; v calc, slow-mod bishwh sting, bri bishwh mky cut, sl yel resd ring, tr sting

85-70% MRLST: btm blk - blk gy - dk gy brn, tr mot, blk blk, sme sb pty, firm - sl hd, rthy - gt, mtx; arg - stly, mtr - occ imbd inoc foss frag

15-30% CHK: gy - gy brn - med gy brn, tr lt gy, stri - mot, sb blk, sme pty - sb pty, brit - mod firm, occ hd, chky - mtx; v calc, mod bishwh sting, bri bishwh mky cut, mod y resd ring, mod sting



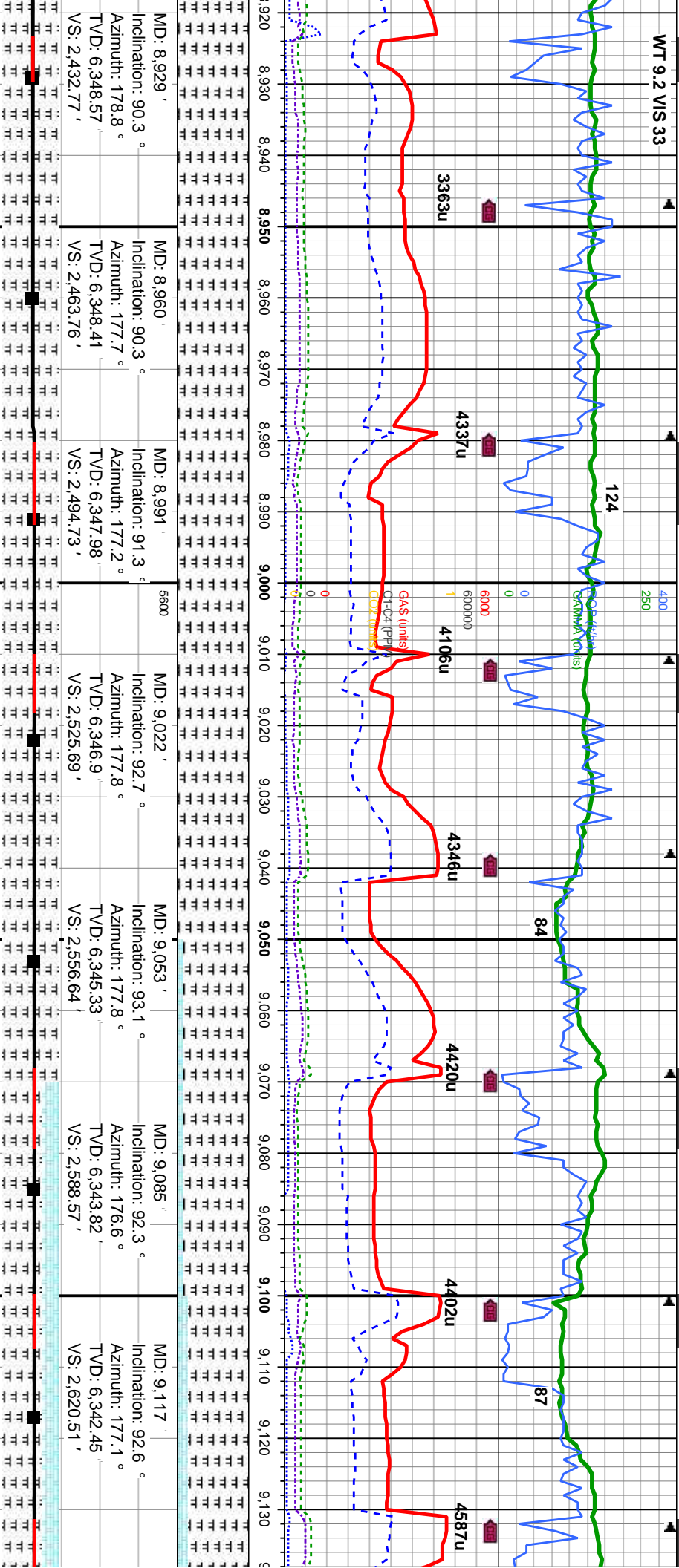


MD: 8,488'	MD: 8,520'	MD: 8,551'	MD: 8,583'	MD: 8,614'	MD: 8,646'	MD: 8,677'
Inclination: 90 °	Inclination: 88.7 °	Inclination: 87.9 °	Inclination: 87.5 °	Inclination: 87.5 °	Inclination: 87.2 °	Inclination: 87.9 °
Azimuth: 178.7 °	Azimuth: 179.1 °	Azimuth: 179.5 °	Azimuth: 178.8 °	Azimuth: 178.7 °	Azimuth: 178.6 °	Azimuth: 178.5 °
TVD: 6,340.96'	TVD: 6,341.32'	TVD: 6,342.24'	TVD: 6,343.52'	TVD: 6,344.88'	TVD: 6,346.36'	TVD: 6,347.68'
VS: 1,991.95'	VS: 2,023.94'	VS: 2,054.93'	VS: 2,086.9'	VS: 2,117.87'	VS: 2,149.83'	VS: 2,180.8'

- sb d calc, biky - sbwxy, el	60-50% CHK: lt gy - gy brn - med gy brn, stri - mot, biky - sb biky, sme pily - sb pily, brit - mod firm, occ hd, chky - sbwxy, mtx; v calc 40-50% MRLST: brn blk - blk gy - dk gy brn, tr mot, biky - sb biky, sme sb pily, firm - sl hd, rthy - gt, mtx; arg - silty, mod calc, tr - occ imbd inoc foss frag, mod bishwh stmg, bri bishwh mky cut, fr yel resdl ring, fr sing	60-50% CHK: lt gy - gy brn - med gy brn, stri - mot, biky - sb biky, sme pily - sb pily, brit - mod firm, occ hd, chky - sbwxy, mtx; v calc 40-50% MRLST: brn blk - blk gy - dk gy brn, tr mot, biky - sb biky, sme sb pily, firm - sl hd, rthy - gt, mtx; arg - silty, mod calc, tr - occ imbd inoc foss frag, mod bishwh stmg, bri bishwh mky cut, mod yel resdl ring, mod sing
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WT 9.2 VIS 33

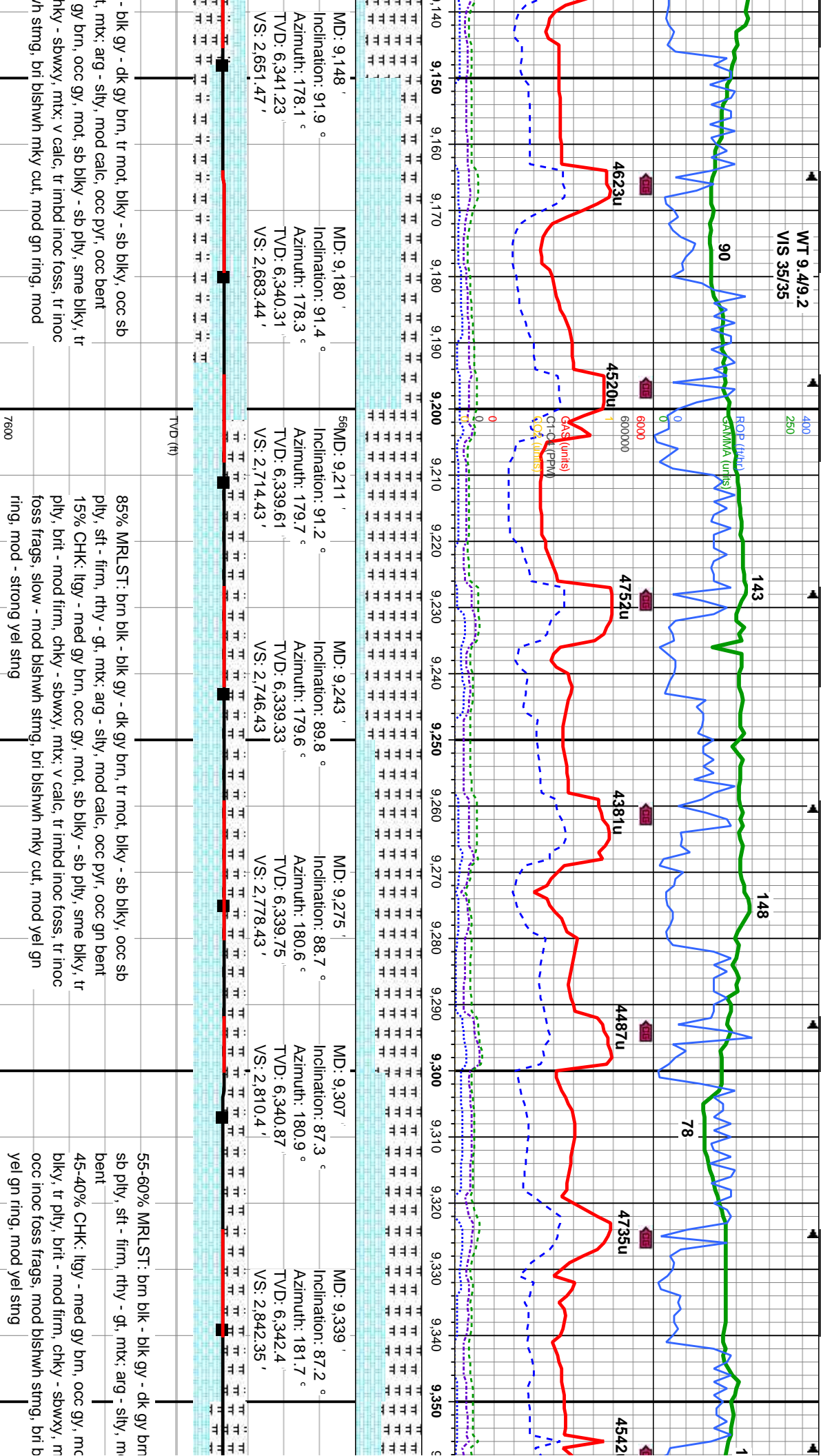


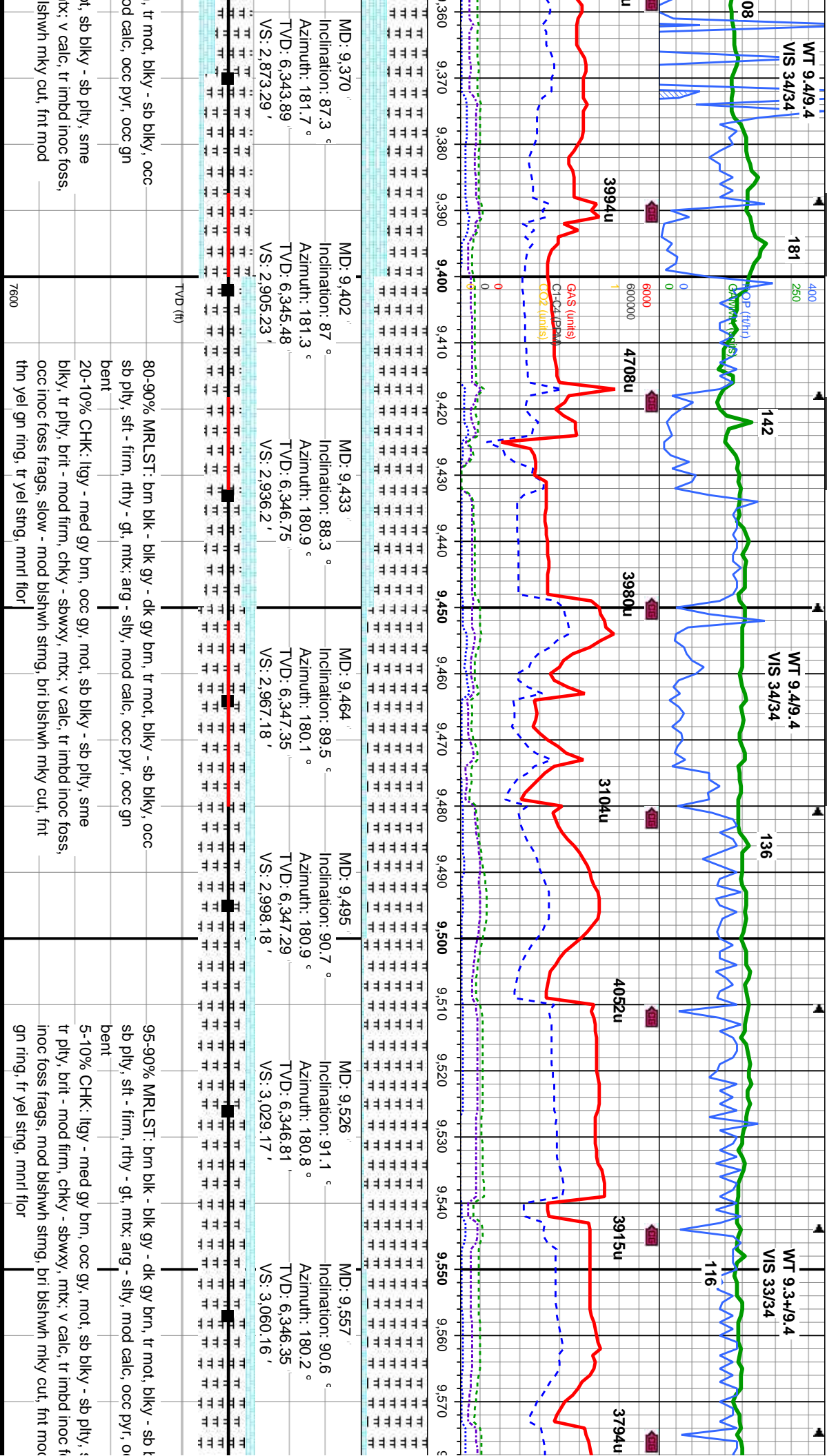
100% MRLST: brn blk - blk gy - dk gy brn, s tr mot, blk - sb
ply, sme sb ply, firm - sl hd, rthy - gt, mtx; arg - slty, mod calc,
occ imbd inoc foss frag, occ bent w/plyr, slow - mod bishwh
mg, bri bishwh mky cut, mod yel gn ring, mod yel sting, mml

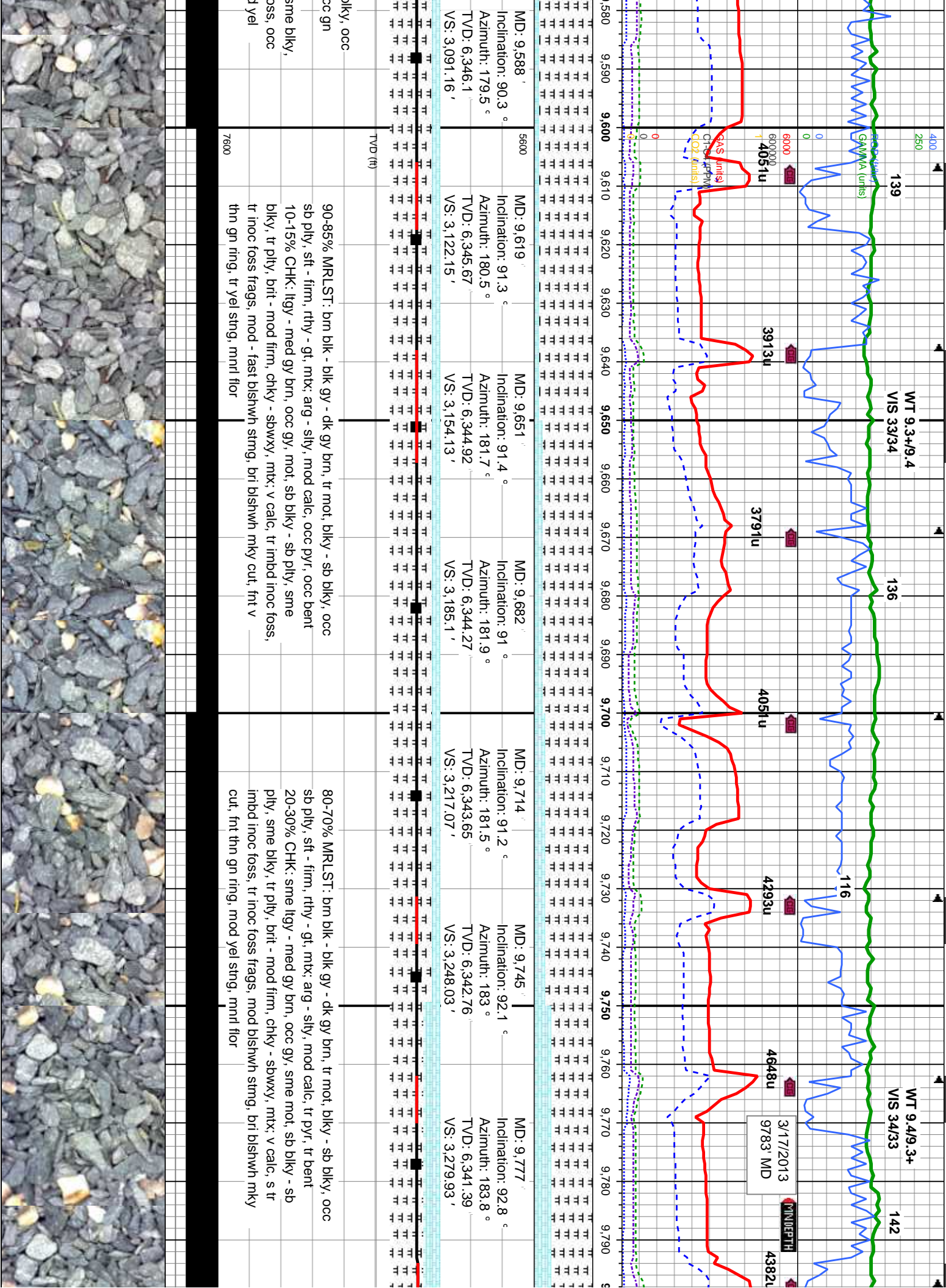
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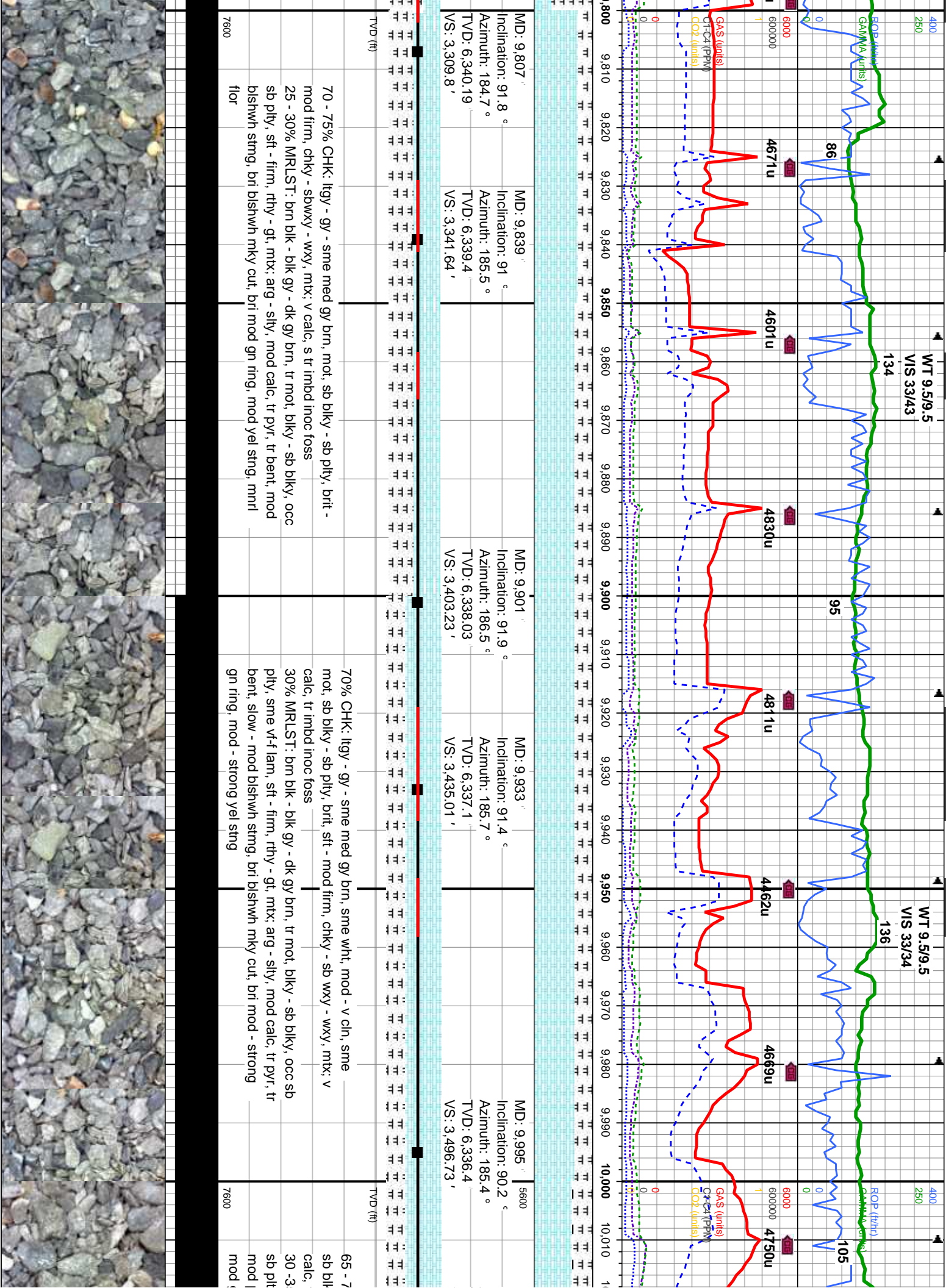
TVD (ft)

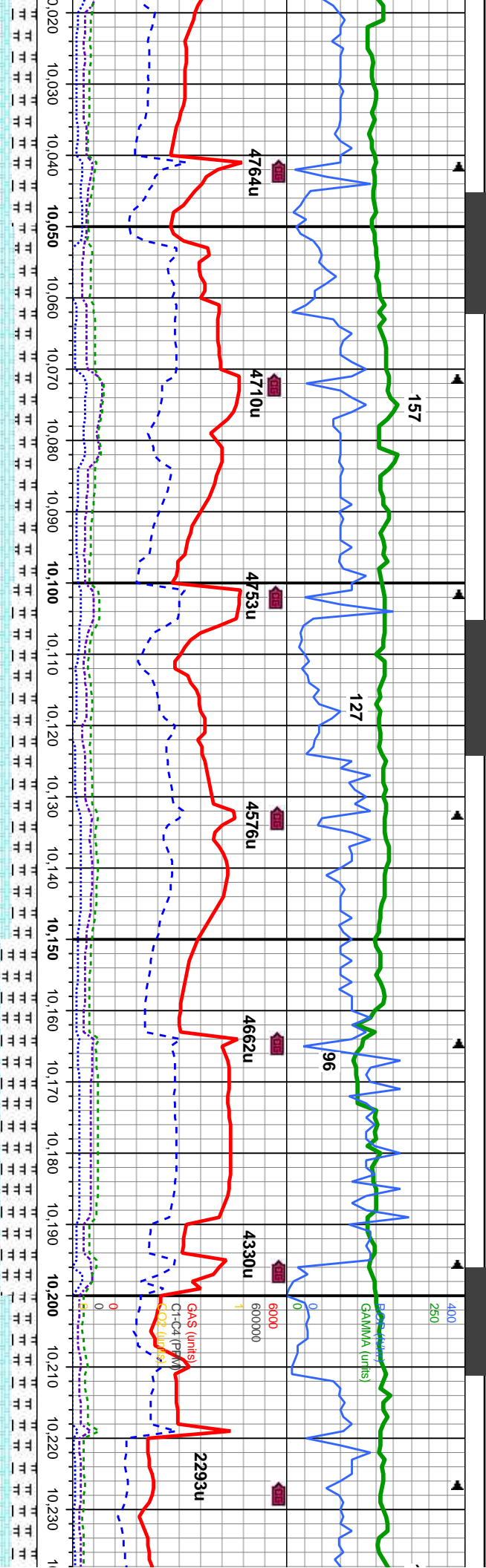








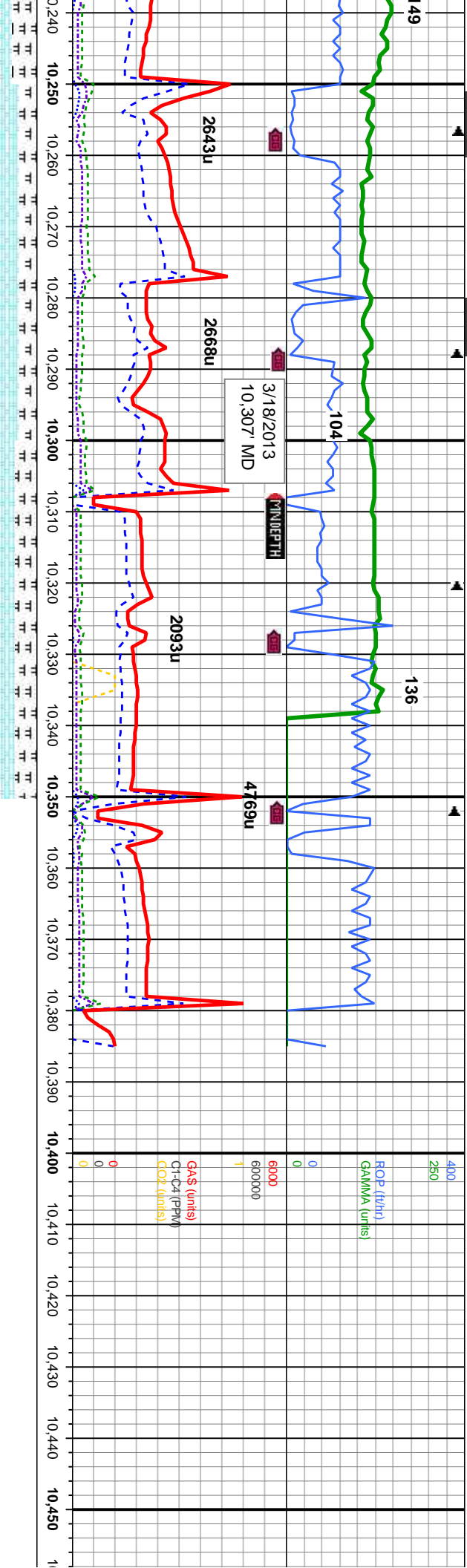




MD: 10,026	MD: 10,057	MD: 10,088	MD: 10,120	MD: 10,151	MD: 10,182	MD: 10,214
Inclination: 90 °	Inclination: 90.2 °	Inclination: 89.9 °	Inclination: 89.6 °	Inclination: 89.6 °	Inclination: 89.9 °	Inclination: 91.7 °
Azimuth: 185.4 °	Azimuth: 185.8 °	Azimuth: 185.8 °	Azimuth: 185.5 °	Azimuth: 185.8 °	Azimuth: 185.1 °	Azimuth: 186 °
TVD: 6,336.35	TVD: 6,336.29	TVD: 6,336.27	TVD: 6,336.4	TVD: 6,336.62	TVD: 6,336.76	TVD: 6,336.31
VS: 3,527.57	VS: 3,558.39	VS: 3,589.21	VS: 3,621.03	VS: 3,651.86	VS: 3,682.69	VS: 3,714.51

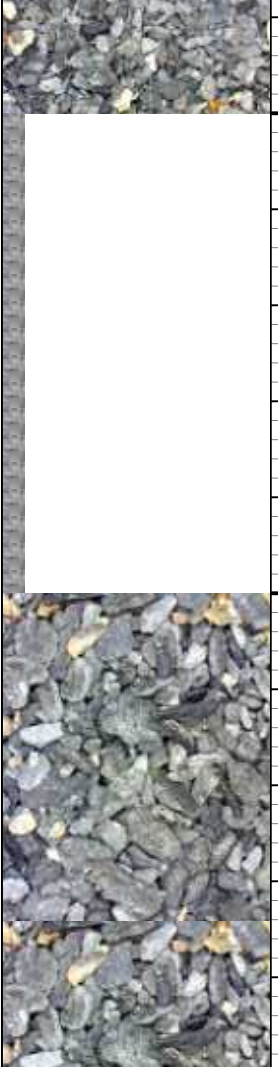
0% CHK: Itgy - gy - tr med gy brn, com wht, mod cin, sme mot, sb ply, bit, sft - mod firm, chky - sb wxy - wxy, cprtl, mt; v tr imbd inoc foss, tr intbdd w/ mrlst	65-50% CHK: Itgy - gy - tr med gy brn, com wht, mod cin, sme mot, sb biky - sb ply, bit, sft - mod firm, chky - wxy, cprtl, mt; v imbd inoc foss, tr intbdd wi mrlst	65-75% CHK: Itgy - gy - sb biky - sb ply, bit, sft imbd inoc foss, tr intbdd 35-50% MRLST: brn blk - blk gy - dk gy brn, tr mot, biky - sb biky, occ sb ply, sme vf-f lam, sme fis, sft - firm, rthy - gt, mt; arg - sily, mod calc, tr - mod pyr, tr bent, slow - mod bishwh stmg, bri bishwh mky cut, bri cut, bri thn gn ring, mod yel stng, mnt flr	65-75% CHK: Itgy - gy - sb biky - sb ply, bit, sft imbd inoc foss, tr intbdd 35-25% MRLST: brn blk sb ply, sme vf-f lam, sm calc, s tr bent, mod bish gn ring, mod yel stng
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MD: 10,245'	Inclination: 92 °	MD: 10,277'	Inclination: 92 °	MD: 10,308'	Inclination: 90.9 °	MD: 10,339'	Inclination: 90.9 °
Azimuth: 186 °		Azimuth: 186 °		Azimuth: 187 °		Azimuth: 186.5 °	
TVD: 6,335.31'		TVD: 6,334.36'		TVD: 6,333.57'		TVD: 6,333.09'	
VS: 3,745.3'		VS: 3,777.08'		VS: 3,807.84'		VS: 3,838.6'	

tr med gy brn, com wht, mod clin, sme mot, - - mod firm, chky - wxy, crptxl, mt; v calc, tr wi mrlst	70% CHK: lky - gy - tr med gy brn, com wht, mod clin, sme mot, sb biky - sb pty, brit, sft - mod firm, chky - wxy, crptxl, mt; v calc, tr imbd inoc foss, tr imbd wi mrlst
- blk gy - dk gy brn, tr mot, biky - sb biky, occ e fis, sft - firm, rthy - gt, mt; arg - sily, mod wht string, bri bishwh mky cut, bri thn - mod	30% MRLST: brn blk - blk gy - dk gy brn, tr mot, biky - sb biky, occ sb pty, sme vf-f lam, sme fis, sft - firm, rthy - gt, mt; arg - sily, mod calc, s tr bent, mod bishwh string, bri bishwh mky cut, bri thn - mod gn ring, mod yel string



5600	
TVD (ft)	
7600	

