



Scale: 5" / 100'  
Measured Depth Log

Well Name Waste Management 2Q-201 HORZ

Location SW SE Sec 2 T2N R64W

State Colorado

Country USA

API Number 05-123-36963-0000

Region Northern Colorado

Spud Date 5/27/2013

Surface Coordinates 230' FSL & 1,416' FEL

Bottom Hole Coordinates 511' FNL & 2,494' FEL

County Weld

Rig Number ENSIGN 119

AFE # DR 0001461

Field Wattenberg

Drilling Completed 6/16/2013

Ground Elevation 4895'

K.B. Elevation 4918'

Logged Interval 6068' To 11274'

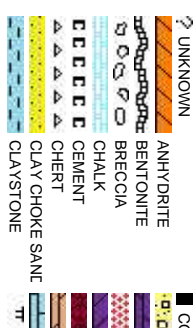
Total Depth 11274'

Formation Shannon, Sharon Springs, Niobrara

Type of Drilling Fluid LSND

Company PDC Energy Inc  
Address 1775 Sherman  
Denver, Colorado

Name Brion Brown  
Company Columbine Logging  
Address 2385 South Lipscomb  
Denver, Colorado



Operator

Street, Suite 3000  
do 80203

Geologist

ing  
an Street  
do 80223

Rock Types

AL	CONGLOMERATE	METAMORPHIC
g, b, o, r	DOLomite	X X X X X NO SAMPLE
	GRANITE	SALT
	GYPSUM	SANDSTONE
	IGNEOUS	SALT-PEPPER SANC
	SIDERITE or LIMONITE	SHALE
	LIMESTONE	SHALE COLORED
tt	MARLSTONE	SHALE GRAY
		SHALY SANDSTONE
		SHALY SILTSTONE
		SILTY SHALE
		SILTSTONE
		TILL
		TUFF
		WELDED TUFF

Accessories

<b>Fossils</b>	F FOSSIL	ARGILLACEOUS	GLAUCONITE	TUFFACEOUS
GASTROPOD	ARGILLITE GRAIN	GYPSIFEROUS		
OOLITE	B BENTONITE	HEAVY MINERAL		
AMPHIROA	BITUMENOUS SUBSTANCE	INOCERAMUS		ANHYDRITE STRINGER
BELEMITE	BRECCIA FRAGMENTS	KAOLIN		BENTONITE STRINGER
BIOCLASTIC	PELLET	CALCAREOUS		COAL STRINGER
BRACHIOPOD	PISOLITE	CARBONACEOUS FLAKES		DOLomite STRINGER
BRYOZOA	PLANT REMAINS	CHTDK		GYPSUM STRINGER
CEPHALOPOD	PLANT SPORES	CHTLT		LIMESTONE STRINGER
CORAL	SCAPHOPOD	COAL - THIN BEDS		MARLSTONE (CALC) STRG
CRINOID	STROMATOPOROID	DOLOMITIC		MARLSTONE (DOL) STRG
ECHINOID		FELDSPAR		SANDSTONE STRINGER
FISH		FERRUGINOUS PELLET	SILICEOUS	SHALE STRINGER
FORAMINIFERA	ANHYDRITIC	FERRUGINOUS	SILTY	SILTSTONE STRINGER

Other Symbols

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

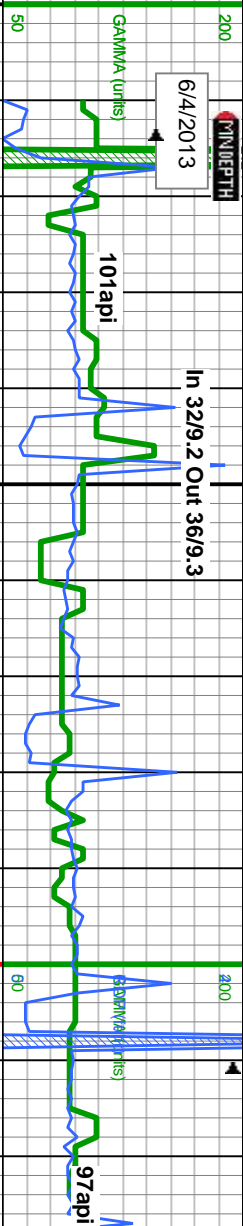
Slide/Rotate

Columbine Logging

2-Manned Geosteering  
Bloodhound #312

Operational 6/3/2013

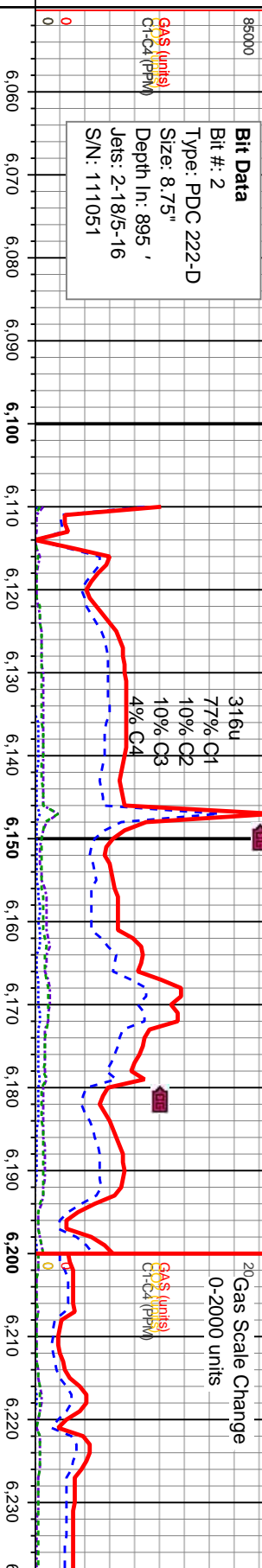
ROP  
ROF  
GAMMA



Total Gas & Chromatograph

GAS  
C1  
C2  
C3  
C4  
CO2

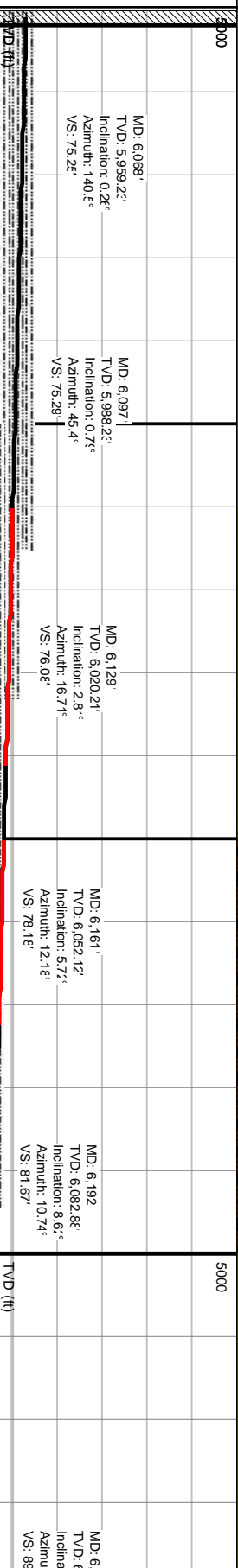
Depth Labels



% Lith



Well Bore  
TVD



Oil Show

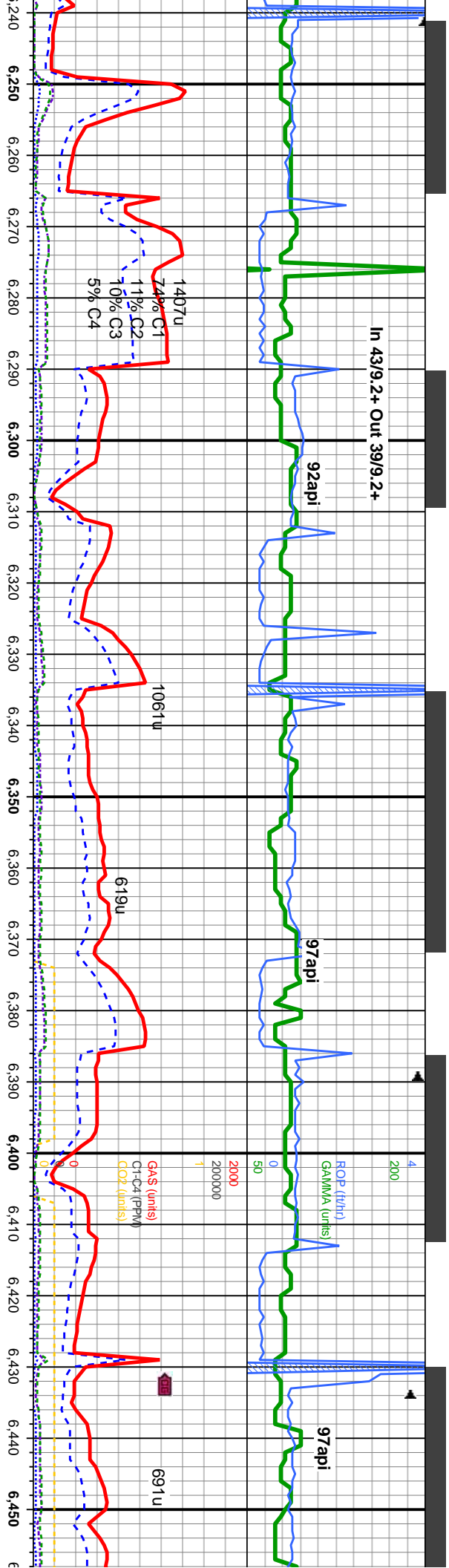
TR  
P  
FR  
G  
E



Images







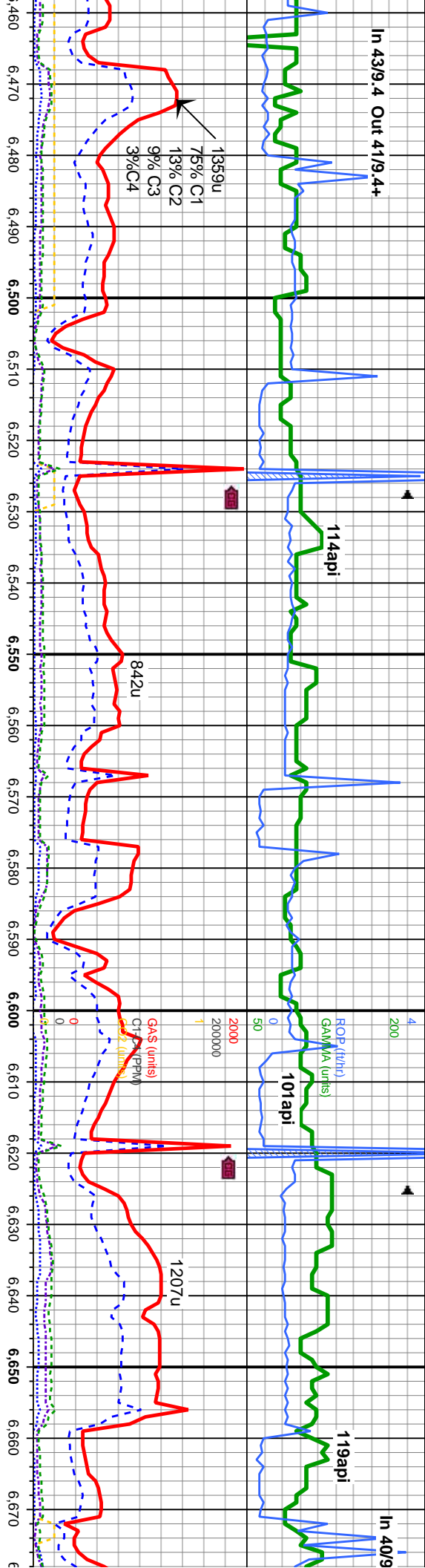
SLTY SH: lt-m gy, sft, sb pty, rthy-grty tex, sl calc, w/ occ carb lams, grdg to SHLY SLTST: lt gy, sft, sb pty, rthy, silty sl calc, SS: lly, s&p, vgr, ang-sb rd, w srd, m consol, sl calc cnt, n vis por n flor, fnt tr lt yel cut, n stn	SLTY SH: lt-m gy, sft, sb pty, rthy-grty tex, sl calc, w/ occ carb lams, grdg to SHLY SLTST: lt gy, sft, sb pty, rthy, silty sl calc, SS: lly, s&p, vgr, ang-sb rd, w srd, m consol, sl calc cnt, n vis por n flor, fnt tr lt yel cut, n stn	SLTY SH: lt-m gy, sft, sb pty, rthy-grty tex, sl calc, w/ occ carb lams, grdg to SHLY SLTST: lt gy, sft, sb pty, rthy, silty sl calc, SS: lly, s&p, vgr, ang-sb rd, w srd, m consol, sl calc cnt, n vis por n flor, fnt tr lt yel cut, n stn	SLTY SS: lt gy, s&p, vgr, ang-sb rd, w srd, m consol, sl calc cnt n vi spor intbd w/ SHLY SLTST: m gy, sft, sb pty-diky, rthy lstr, silty -sb grty tex, sl calc, tr carb mat, n flor, sl tr lt yel cut, n stn.	SHLY m con: SLTST -sb grty yel cut
129.04' ion: 12.8° h: 7.04° 74'				

MD: 6,286' TVD: 6,176.56' Inclination: 15.2° Azimuth: 5.64° VS: 100.8°	MD: 6,335' TVD: 6,221.62' Inclination: 17.9° Azimuth: 3.53° VS: 113.5°	MD: 6,383' TVD: 6,266.72' Inclination: 21.6° Azimuth: 1.42° VS: 129.1°	MD: 6,430' TVD: 6,309.95' Inclination: 24.7° Azimuth: 0.53° VS: 146.97°
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In 43/9.4 Out 41/9.4+



SS: lt gy, s&p, vifgr, ang-sb rd, w srt, sol, sl calc cmtn vi spor intbd w/ SHLY : m gy, sft, sb ply-blky, rthy lstr, silty gy, sft, sl calc, tr carb mat, n flor, sl tr lt n stn.

SLTY SH: lt-m gy, sft, sb ply & blky, sb fis in part, rthy lstr, silty tex, w/ occ carb lams, intbd w/ grdg from SHLY SLTST: lt gy, sft, sb blky, m sl calc occ SS: lt gy, clt, s&p, vif gr, ang-sb rd, w srt, m consol, sl calc cmtn, n vis por n flor, sl tr lt yel cut, n stn.

SLTY SH: lt-m gy, sft, sb ply & blky, sb fis in part, rthy lstr, silty tex, w/ occ carb lams, intbd w/ grdg from SHLY SLTST: lt gy, sft, sb blky, m sl calc occ

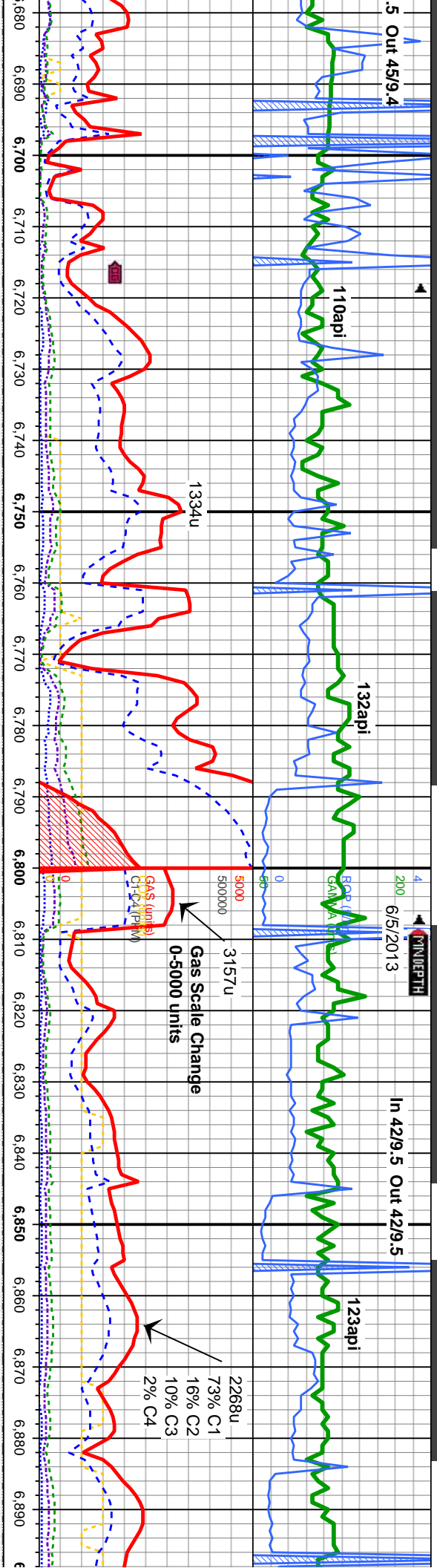
SLTY SH: lt-m gy, sft, sb ply & blky, sb fis in part, rthy lstr, silty tex, w/ occ carb lams, intbd w/ grdg from SHLY SLTST: lt gy, sft, sb blky, m sl calc occ, tr pyr, tr bent

SLTY SH: lt-m gy, sft, sb in part, rthy lstr, silty tex, lams, intbd w/ grdg from gy, sft, sb blky, m sl calc c tr ss

MD: 6.478 TVD: 6.353.21' Inclination: 26.8° Azimuth: 1.58° VS: 167.1'	MD: 6.525 TVD: 6.394.41' Inclination: 30.5° Azimuth: 0.58° VS: 188.8°	MD: 6.573 TVD: 6.434.9° Inclination: 34.3° Azimuth: 358.7° VS: 213.8°	MD: 6.620 TVD: 6.472.8° Inclination: 38.0° Azimuth: 357.3° VS: 240.9°	MD: 6.669 TVD: 6.510.5° Inclination: 41.1° Azimuth: 357.7° VS: 271.5°
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ply & blk, sb fis w/ occ carb	SLTY SH: lt-m gy, sft, sb ply & blk, sb fis in part, rthy lstr, silty tex, w/ occ carb lams, intbd w/ grdg from SHLY SLTST: lt gy, sft, sb blk, m sl calc occ, tr pyr, tr bent, tr ss	SLTY SH: lt-m gy, sft, sb ply & blk, sb fis in part, rthy lstr, silty tex, w/ occ carb lams, intbd w/ grdg, tr bent, tr pyr, sl calc	SLTY SH: lt-m gy, sft, sb ply & blk, sb fis in part, rthy lstr, silty tex, w/ occ carb lams, intbd w/ grdg, tr bent, tr pyr, sl calc
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MD: 6,716'  
TVD: 6,545.21'  
Inclination: 43.91°  
Azimuth: 358.82°  
VS: 302.61'

MD: 6,764'  
TVD: 6,578.31'  
Inclination: 48.1°  
Azimuth: 359.6°  
VS: 336.4'

TVD (ft)  
MD: 6,811'  
TVD: 6,608.3°  
Inclination: 51.7°  
Azimuth: 359.1°  
VS: 371.5°

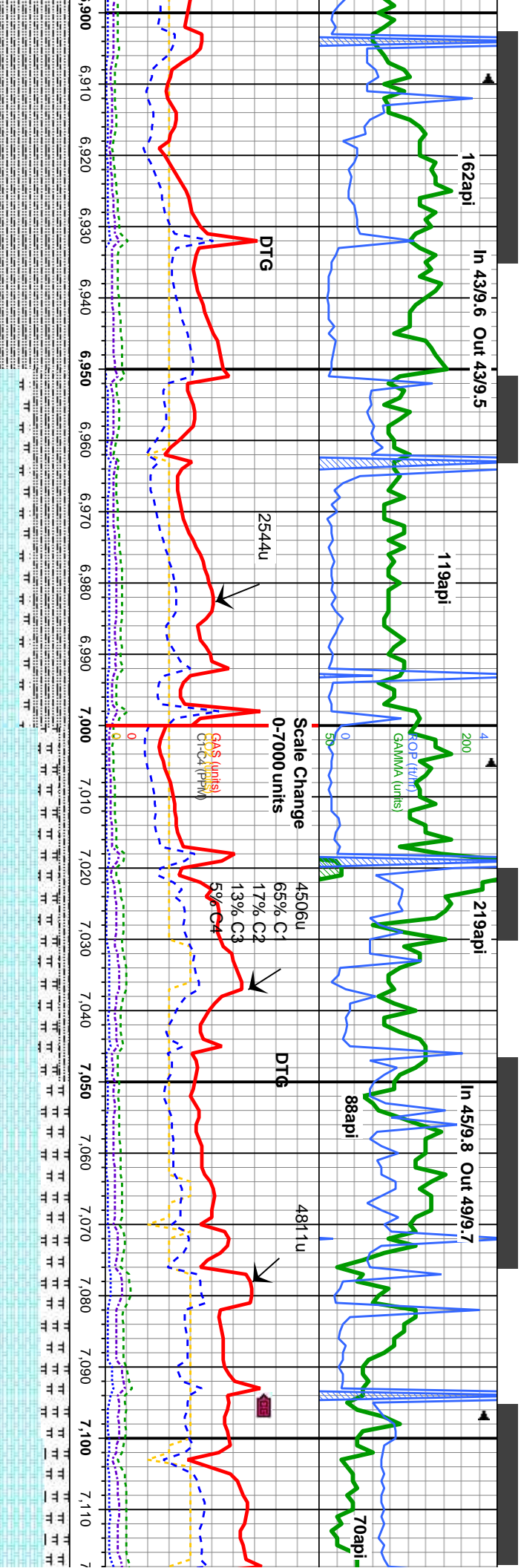
MD: 6,859'  
TVD: 6,636.7'  
Inclination: 55.7°  
Azimuth: 358.61°  
VS: 409.2°

Sharon Springs Top @  
MD 6,785' / TVD 6,592'

7000



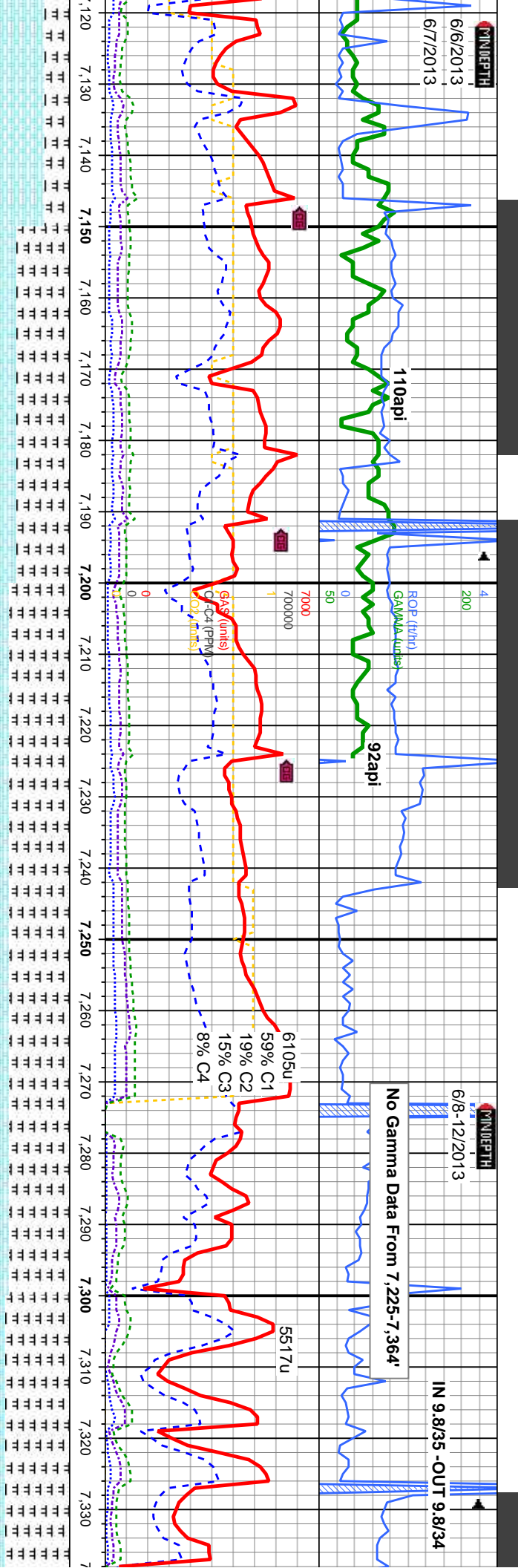




SLTY SH: lt-m gy, sft, sb pty & blk, sb fis in part, rthy lstr, silty tex, w/ occ carb lams, intbd w/ grdg, bent, tr pyr, sl calc	SLTY SH: m-dk gy & blk, sft, sb pty, rthy-sb wxy lstr, silty tex, v sl calc, tr oolitic texture, n flor, slow streaming lt yel cut, frnt yel str. CHK: lt-m gy, sft, sb blk, rthy, lstr, mot tex, v calc w org mat.	5 <sup>1</sup> CHK: lt-m gy brn in part, sft, sb blk, sb fis, lam, rthy-sb wxy lstr, mot tex w/ occ fos, v calc, MRL: m gy, sft, sb blk, rthy -sb wxy lstr, mot & lam tex, v calc w/ org mat & occ fos, frnt, lt yel/gn flor, fst string, lt-m yel cut, lt yel str.	6700
MD: 6,906' TVD: 6,661.94' Inclination: 59.2° Azimuth: 357.4° VS: 448°	MD: 6,954' TVD: 6,685.1° Inclination: 62.8° Azimuth: 356.3° VS: 489.2°	MD: 7,001' TVD: 6,706.11° Inclination: 64.1° Azimuth: 355.1° VS: 530.6°	MD: 7,049' TVD: 6,726.0° Inclination: 66.7° Azimuth: 355.6° VS: 573.7°
Niobrara Top @ MD 6947/TVD 6681'			
Niobrara A @ MD 7023/TVD 6715'			
Enter Target @ MD 7078/TVD 6736'			
Represent			
CHK: lt-m gy brn in part, sft, sb blk, wxy lstr, mot tex w/ occ fos, v calc, rthy -sb wxy lstr, mot & lam tex, v cal fos, frnt, lt yel/gn flor, fst string, lt-m yel			



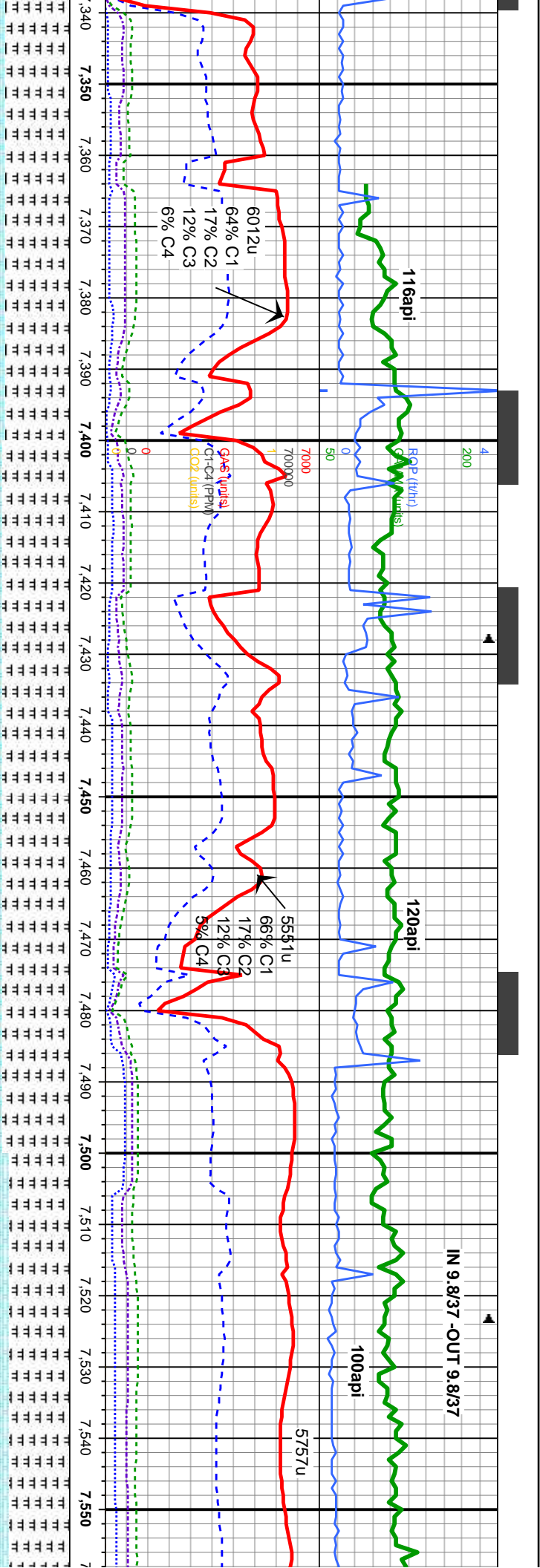




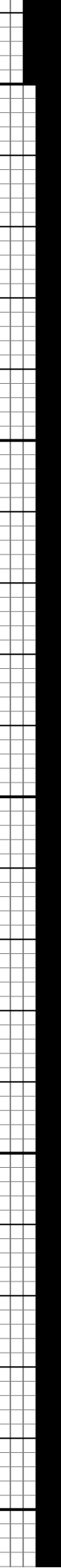
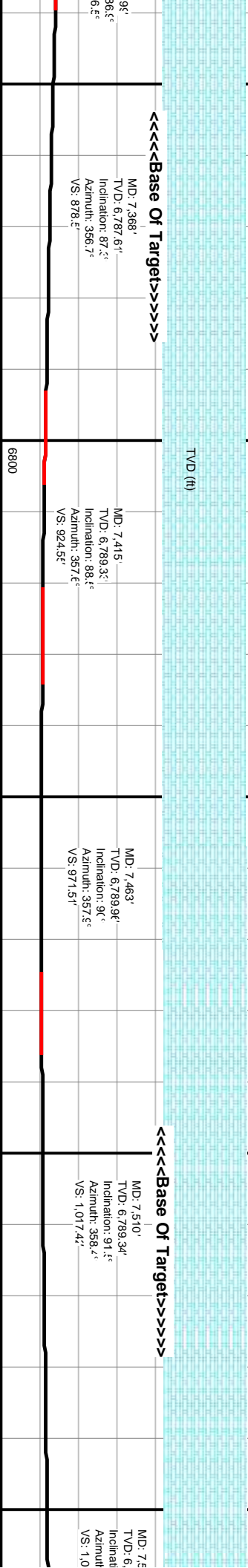

Target @ 1377/TVD 6756'	Target @ 7" intermediate casing Set @ MD 7264' /TVD 6,780'
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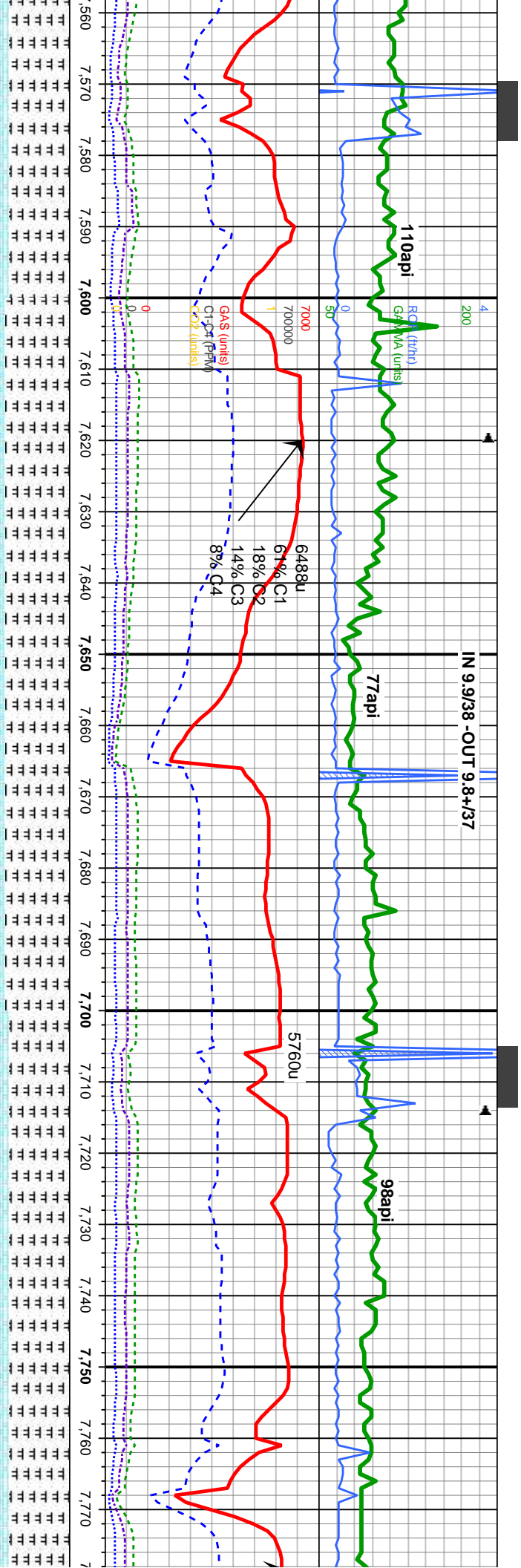




rthy lstr,	MRL: m-dk gy, & blk., sft, sb blkly, rthy lstr,	67m	MRL: m-dk gy, & blk., sft, sb blkly, rthy lstr,	MRL: m-dk gy, & blk., sft, sb blkly, rthy lstr,	MRL: m-dk gy, & blk., sft, sb blkly, rthy lstr,	MRL: m-dk gy, & blk., sft, sb blkly, rthy lstr,
w/ org	mot & sb grty tex, oss fos, v calc w/ org		mat & sb grty tex, oss fos, v calc w/ org	mat & sb grty tex, oss fos, v calc w/ org	mat, CHK: m gy, sft, sb blkly, rthy, v calc	mat, CHK: m gy, sft, sb blkly, rthy, v calc
sin	w/occ fos, n flor, string lt yel cut, lt yel sin		w/occ fos, n flor, string lt yel cut, lt yel sin	w/occ fos, n flor, string lt yel cut, lt yel sin	w/occ fos, n flor, string lt yel cut, lt yel sin	w/occ





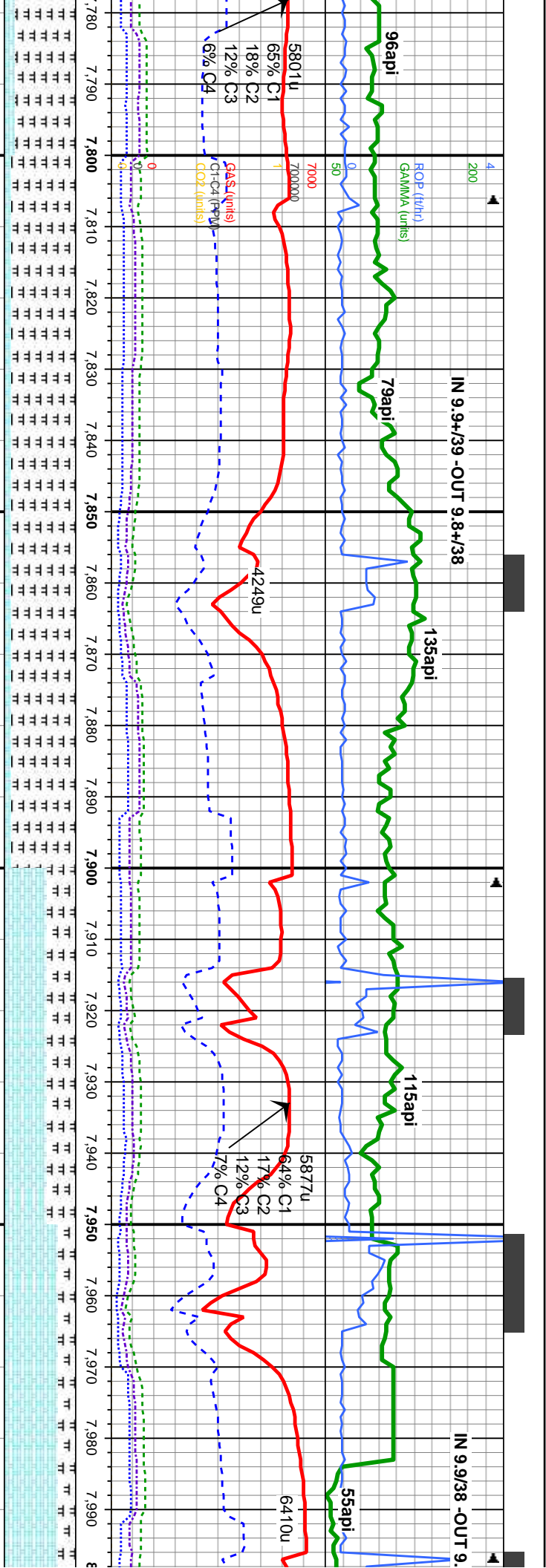


m-dk gy, & blk., sft, sb blk, rthy lstr, sb grty tex, oss fos, v calc w/ org	6" MRL: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, oss fos, v calc w/ org mat, CHK: m gy, sft, sb blk, rthy, v calc w/occ fos, n flor, sting lt yel cut, lt yel sin	MRL: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, oss fos, v calc w/ org mat, CHK: m gy, sft, sb blk, rthy, v calc w/occ fos, n flor, sting lt yel cut, lt yel sin	MRL: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, oss fos, v calc w/ org mat, CHK: m gy, sft, sb blk, rthy, v calc w/occ fos, n flor, sting lt yel cut, lt yel sin	MRL: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, oss fos, v calc w/ org mat, CHK: m gy, sft, sb blk, rthy, v calc w/occ fos, n flor, sting lt yel cut, lt yel sin
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559'	MD: 7.606' TVD: 6.787.04' Inclination: 91.4° Azimuth: 357.2° VS: 1.111.24'	MD: 7.654' TVD: 6.786.14' Inclination: 90.4° Azimuth: 357.2° VS: 1.158.34'	MD: 7.701' TVD: 6.765.44' Inclination: 90.4° Azimuth: 356.6° VS: 1.204.44'	MD: 7.749' TVD: 6.784.6° Inclination: 91.4° Azimuth: 357° VS: 1.251.54'
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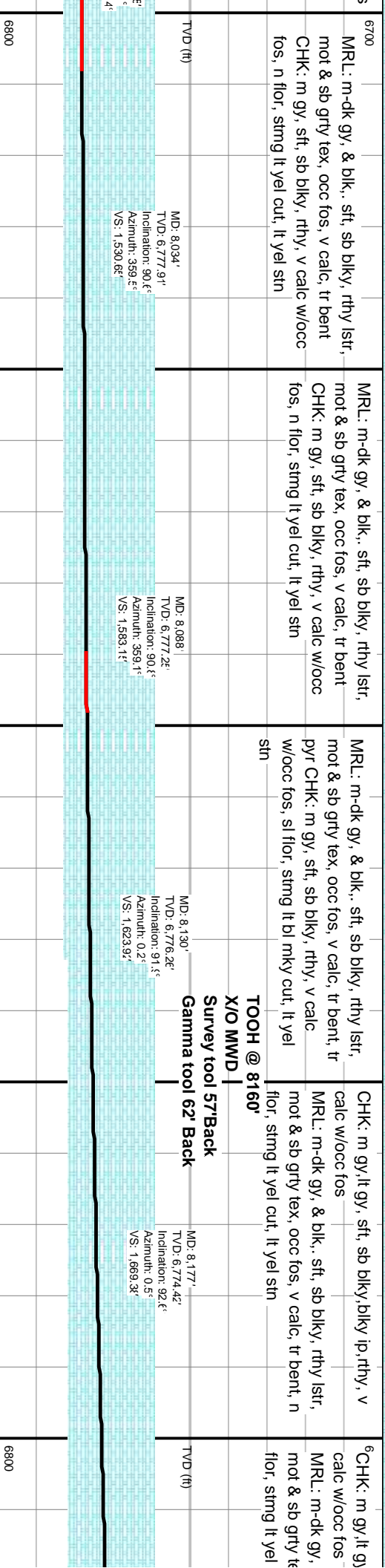


sb blk, rthy lstr, v calc w/ org blk, rthy, v calc vel cut, lt yel stn	6 <sup>MR</sup> RL: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, oss fos, v calc w/ org mat, CHK: m gy, sft, sb blk, rthy, v calc w/occ fos, n flor, string lt yel cut, lt yel stn	MR: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, oss fos, v calc, tr bent CHK: m gy, sft, sb blk, rthy, v calc w/occ fos, n flor, string lt yel cut, lt yel stn	CHK: m gy, sft, sb blk, rthy, v calc w/occ fos MR: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, occ fos, v calc, tr bent, n flor, string lt yel cut, lt yel stn	CHK: m gy, sft, sb blk, rthy, v calc w/occ fos MR: m-dk gy, & blk., sft, sb blk, rthy lstr, mot & sb grty tex, occ fos, v calc, tr bent, n flor, string lt yel cut, lt yel stn
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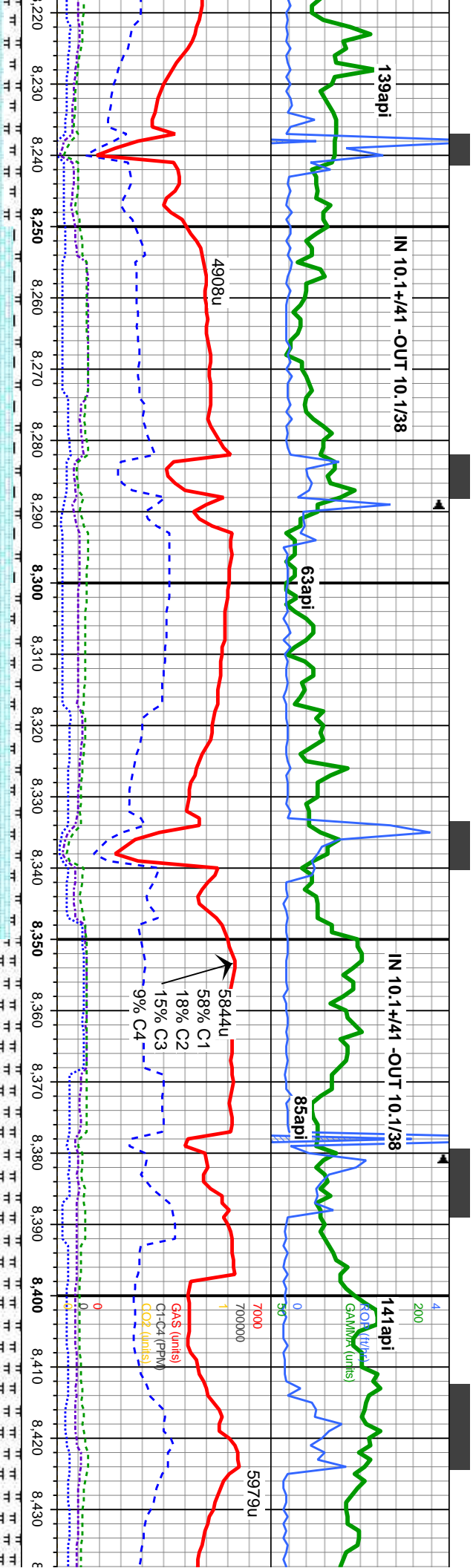
MD: 7.796' TVD: 6,783.27' Inclination: 91.4° Azimuth: 356.6° VS: 1,297.6'	MD: 7.844' TVD: 6,782.01' Inclination: 91.4° Azimuth: 356.7° VS: 1,344.7'	MD: 7.891' TVD: 6,780.75' Inclination: 91.4° Azimuth: 356.5° VS: 1,390.87'	MD: 7.939' TVD: 6,779.57' Inclination: 91.4° Azimuth: 357.1° VS: 1,437.9'	MD: 7.986' TVD: 6,778.5' Inclination: 91° Azimuth: 358° VS: 1,483.9'
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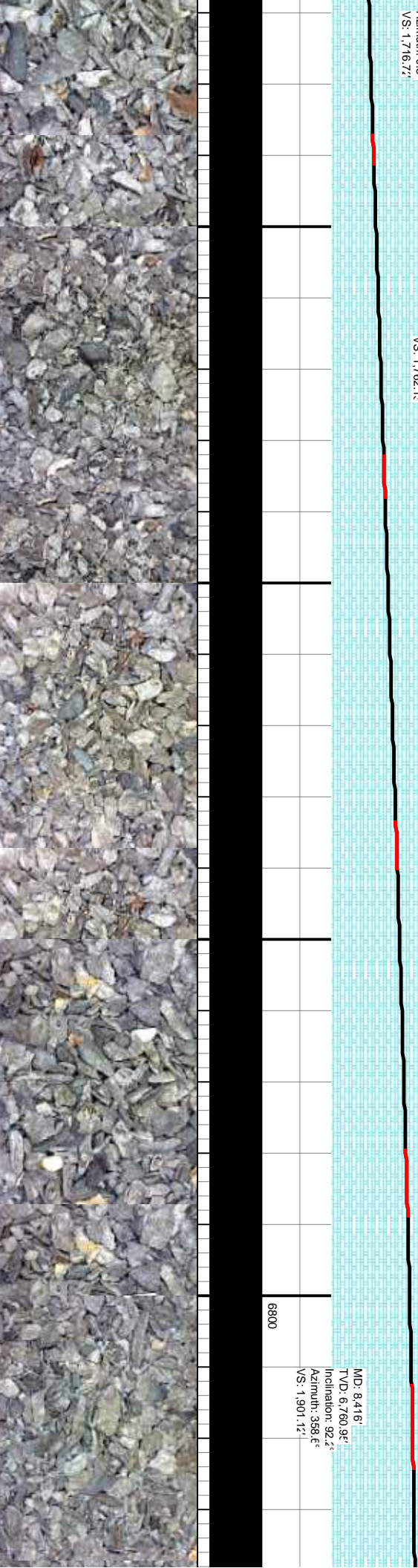




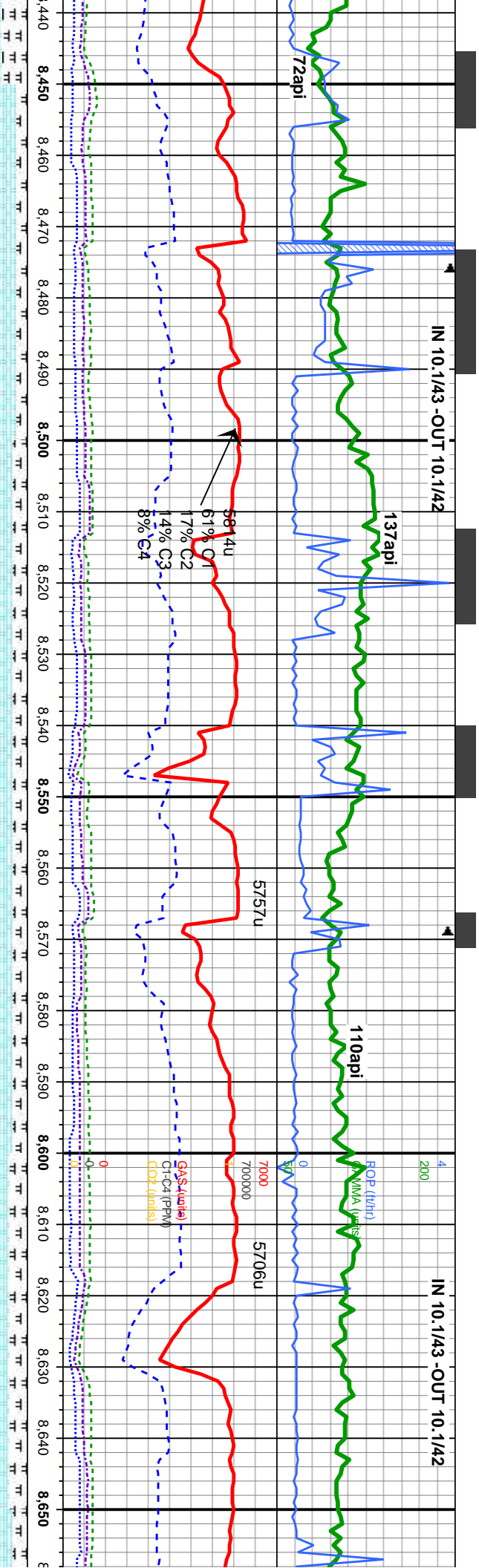




7, sft, sb blkly, blkly ip, rthy, v	CHK: m gy, lt gy, sft, sb blkly, blkly ip, rthy, v calc w/occ fos	CHK: lt-m gy, off wh, sft, sb blkly & pily, rthy lsfr, mot & lam tex, v calc w/ tr fos, intbd w/ MRL: m-dk gy, blk, sft, sb blkly, rthy-sb wxy lsdfr, mot tex, v calc w/ org mat, n flor, stmg bri yell/blu cut, lt brn stn.	CHK: lt-m gy, off wh, sft, sb blkly & pily, rthy lsfr, mot & lam tex, v calc w/ tr fos, intbd w/ MRL: m-dk gy, blk, sft, sb blkly, rthy-sb wxy lsdfr, mot tex, v calc w/ org mat, n flor, stmg bri yell/blu cut, lt brn stn.	6700
MD: 8,226' TVD: 6,771.86' Inclination: 93.4° Azimuth: 0.5° VS: 1,716.72'	MD: 8,273' TVD: 6,768.96' Inclination: 93.6° Azimuth: 0.2° VS: 1,762.13'	MD: 8,321' TVD: 6,766.01' Inclination: 93.4° Azimuth: 389° VS: 1,808.66'	MD: 8,385' TVD: 6,762.33' Inclination: 92.5° Azimuth: 386.6° VS: 1,870.97'	TVD (ft)





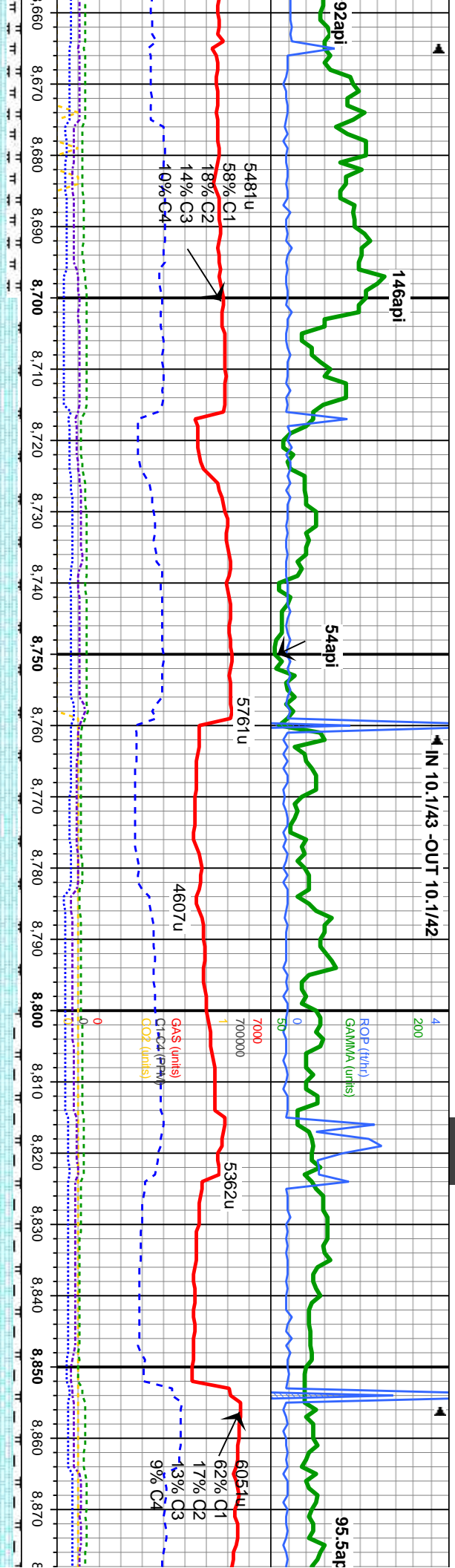


Depth (ft)	Log Description
8440 - 8450	CHK: It-m gy, off wh, sft, sb blkly & plty, rthy lstr, mot & lam tex, v calc w/ tr fos, intbd w/ MRL: m-dk gy, blk, sft, sb blkly, rthy-sb wxy lsdr, mot tex, v calc w/ org mat, n flor, sting bri yel/blu cut, lt brn stn.
8450 - 8500	CHK: It-m gy, off wh, sft, sb blkly & plty, rthy lstr, mot & lam tex, v calc w/ tr fos, intbd w/ MRL: m-dk gy, blk, sft, sb blkly, rthy-sb wxy lsdr, mot tex, v calc w/ org mat, n flor, sting bri yel/blu cut, lt brn stn.
8500 - 8550	CHK: It-m gy, off wh, sft, sb blkly & plty, rthy lstr, mot & lam tex, v calc w/ tr fos, intbd w/ MRL: m-dk gy, blk, sft, sb blkly, rthy-sb wxy lsdr, mot tex, v calc w/ org mat, n flor, sting bri yel/blu cut, lt brn stn.
8550 - 8600	CHK: It-m gy, off wh, sft, sb blkly & plty, rthy lstr, mot & lam tex, v calc w/ tr fos, intbd w/ MRL: m-dk gy, blk, sft, sb blkly, rthy-sb wxy lsdr, mot tex, v calc w/ org mat, n flor, sting bri yel/blu cut, lt brn stn.
8600 - 8650	CHK: It-m gy, off wh, sft, sb blkly & plty, rthy lstr, mot & lam tex, v calc w/ tr fos, intbd w/ MRL: m-dk gy, blk, sft, sb blkly, rthy-sb wxy lsdr, mot tex, v calc w/ org mat, n flor, sting bri yel/blu cut, lt brn stn.

MD: 8.448' TVD: 6,760.02' Inclination: 91.1° Azimuth: 358.6° VS: 1,932.32'	MD: 8.480' TVD: 6,759.91' Inclination: 89.5° Azimuth: 359.7° VS: 1,993.67'	MD: 8.558' TVD: 6,761.11' Inclination: 89.2° Azimuth: 1.1° VS: 2,039.1°	MD: 8.607' TVD: 6,761.82' Inclination: 89.5° Azimuth: 0.9° VS: 2,086.2°	MD: 8.665' TVD: 6,762.02' Inclination: 89.5° Azimuth: 0.9° VS: 2,133.67'
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CHK: It gy, wh, sft, sb blk, rthy-sb wxy lstr mot & lam tex, v calc, w/ tr fos, occ intbd MRL: m-dk gy, sft, sb blk, rthy-sb wxy lstr, mot & lam tax, v calc, org mat, n flr, stmg bri yel cut, It brn str

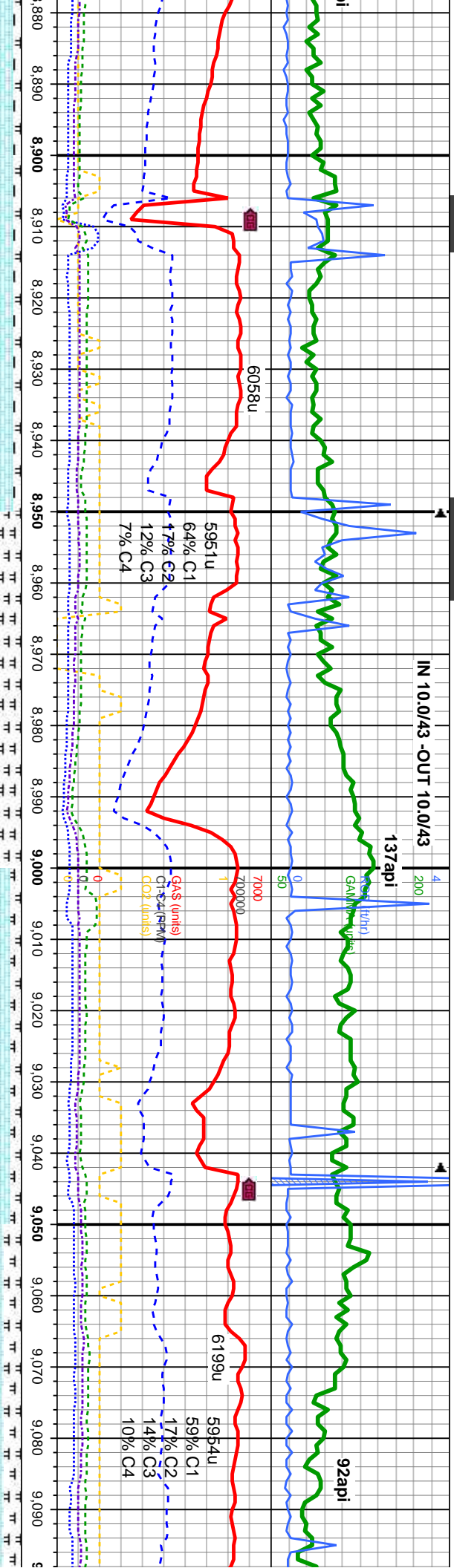
CHK: It gy, wh, sft, sb blk, rthy-sb wxy lstr mot & lam tex, v calc, w/ tr fos, occ intbd MRL: m-dk gy, sft, sb blk, rthy-sb wxy lstr, mot & lam tax, v calc, org mat, n flr, stmg bri yel cut, It brn str

CHK: It gy, wh, sft, sb blk, rthy-sb wxy lstr mot & lam tex, v calc, w/ tr fos, occ intbd MRL: m-dk gy, sft, sb blk, rthy-sb wxy lstr, mot & lam tax, v calc, org mat, n flr, stmg bri yel cut, It brn str

MD: 8.702' TVD: 6.762.6' Inclination: 89.4° Azimuth: 0.7° VS: 2.178.14'	MD: 8.750' TVD: 6.763.02' Inclination: 90.2° Azimuth: 0.36° VS: 2.224.57'	MD: 8.797' TVD: 6.762.62' Inclination: 90.71° (It) Azimuth: 0.36° VS: 2.270.04'	MD: 8.844' TVD: 6.762.26' Inclination: 90.1° Azimuth: 359.8° VS: 2.315.67'
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xy, rthy-sb wxy lstr tr fos, occ intbd y, rthy-sb wxy lstr, g mat, n flor, string	CHK: lt gy, wh, sft, sb blk, rthy-sb wxy lstr mot & lam tex, v calc, w/ tr fos, occ intbd MRL: m-dk gy, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, org mat, n flor, string bri yel cut, lt brn stn	CHK: lt gy, wh, sft, sb blk, rthy-sb wxy lstr mot & lam tex, v calc, w/ tr fos, occ intbd MRL: m-dk gy, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, org mat, n flor, string bri yel cut, lt brn stn	6CHK: lt gy, wh, sft, sb blk, rthy-sb wxy lstr mot & lam tex, v calc, w/ tr fos, occ intbd MRL: m-dk gy, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, org mat, n flor, string bri yel cut, lt brn stn	CHK: lt gy, wh, sft, sb blk, rthy-sb wxy lstr mot & lam tex, v calc, w/ tr fos, occ intbd MRL: m-dk gy, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, org mat, n flor, string bri yel cut, lt brn stn
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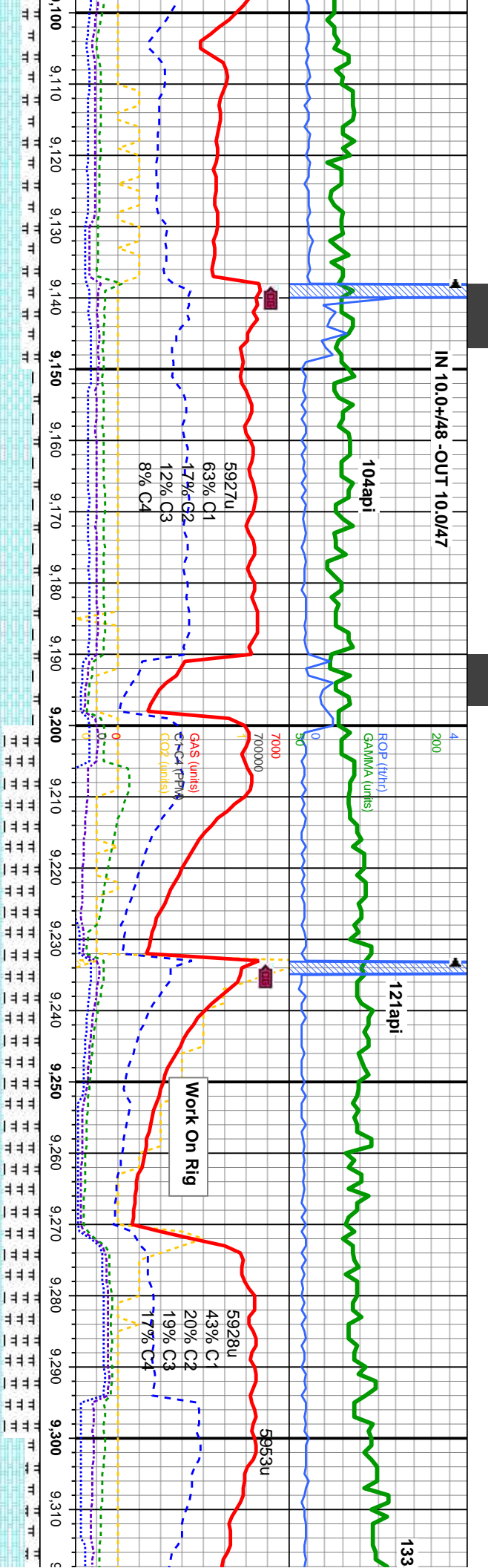
MD: 8.891' TVD: 6.761.4° Inclination: 91.1° Azimuth: 0.5° VS: 2.361.1°	MD: 8.940' TVD: 6.760.4° Inclination: 90.1° Azimuth: 0.9° VS: 2.408.4°	MD: 8.987' TVD: 6.760.2° Inclination: 90° Azimuth: 1.4° VS: 2.453.1°	MD: 9.034' TVD: 6.760.2° Inclination: 90° Azimuth: 0.9° VS: 2.499.1°	MD: 9.083' TVD: 6.760.1° Inclination: 90.° Azimuth: 0.2° VS: 2.546.5°
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TVD (ft)

6800







CHK: lt gy, wh, sft, sb blkly, rthy-sb wxy lstr  
mot & lam tex, v calc, w/ tr fos, occ intbd  
MRL: m-dk gy, sft, sb blkly, rthy-sb wxy lstr,  
mot & lam tax, v calc, org mat, n flor, stmg  
bri yel cut, lt brn stn

CHK: lt gy, wh, sft, sb blkly, rthy-sb wxy lstr  
mot & lam tex, v calc, w/ tr fos, occ intbd  
MRL: m-dk gy, sft, sb blkly, rthy-sb wxy lstr,  
mot & lam tax, v calc, org mat, n flor, stmg  
bri yel cut, lt brn stn

CHK: lt gy, wh, sft, sb blkly, rthy-sb wxy lstr  
mot & lam tex, v calc, w/ tr fos, occ intbd  
MRL: m-dk gy, sft, sb blkly, rthy-sb wxy lstr,  
mot & lam tax, v calc, org mat, n flor, stmg  
bri yel cut, lt brn stn

CHK: lt gy, wh, sft, sb blkly, rthy-sb wxy lstr  
mot & lam tex, v calc, w/ tr fos, occ intbd  
MRL: m-dk gy, sft, sb blkly, rthy-sb wxy lstr,  
mot & lam tax, v calc, org mat, n flor, stmg  
bri yel cut, lt brn stn

CHK: lt gy, wh,  
mot & lam tex,  
MRL: m-dk gy,  
mot & lam tax,  
bri yel cut, lt brn

MD: 9,130'  
TVD: 6,759.91'  
Inclination: 90.1°  
Azimuth: 0.4°  
VS: 2.592.0°

MD: 9,178'  
TVD: 6,760.12'  
Inclination: 86°  
Azimuth: 359.2°  
VS: 2.638.5°

MD: 9,225'  
TVD: 6,760.72'  
Inclination: 89.1°  
Azimuth: 359.1°  
VS: 2.684.2°

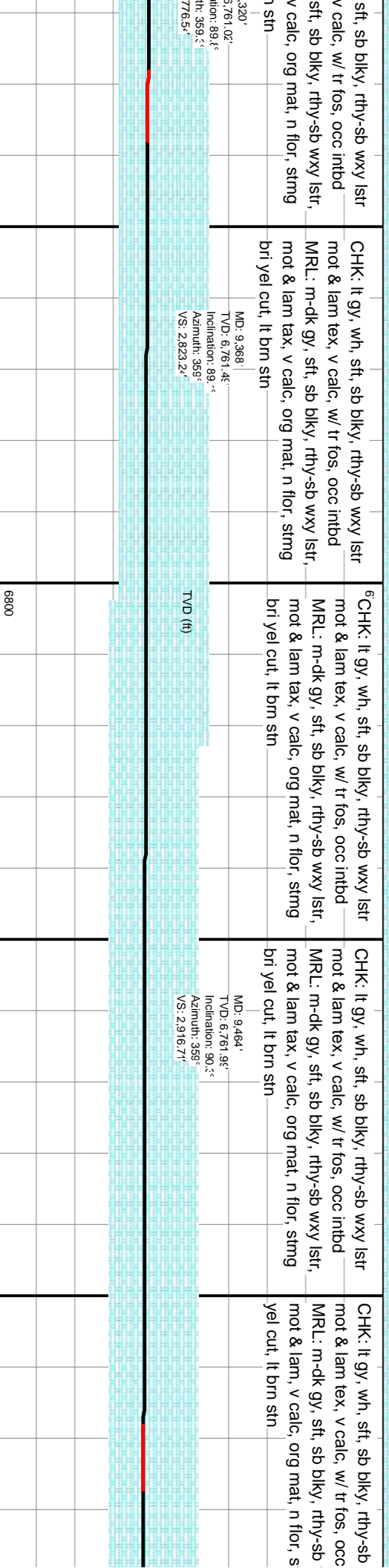
MD: 9,273'  
TVD: 6,760.94'  
Inclination: 90°  
Azimuth: 359.1°  
VS: 2.730.8°

MD: 9,  
TVD: ,  
Incline  
Azimu  
VS: 2.

6800



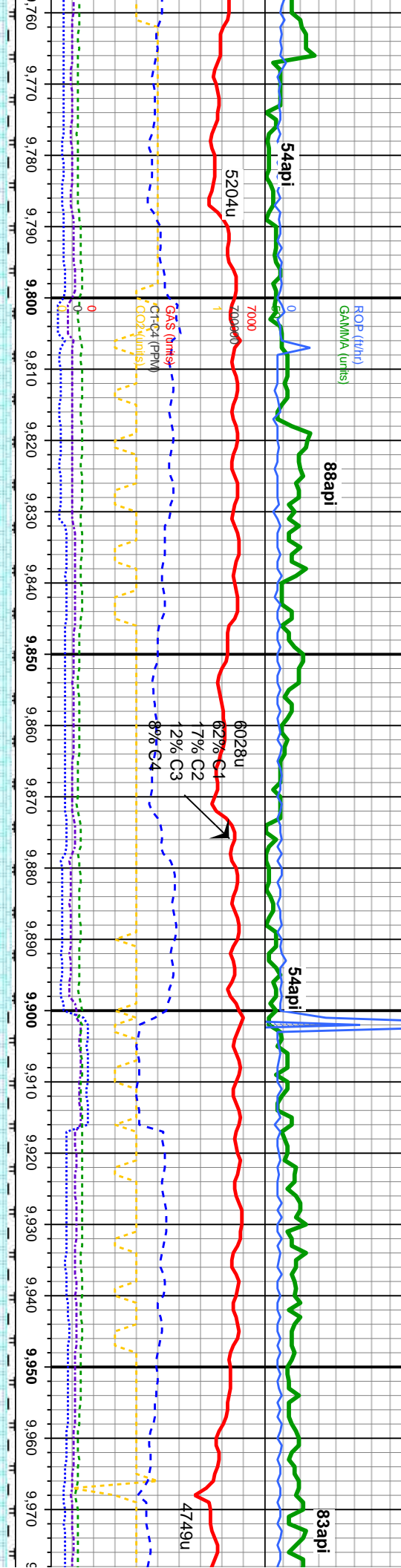




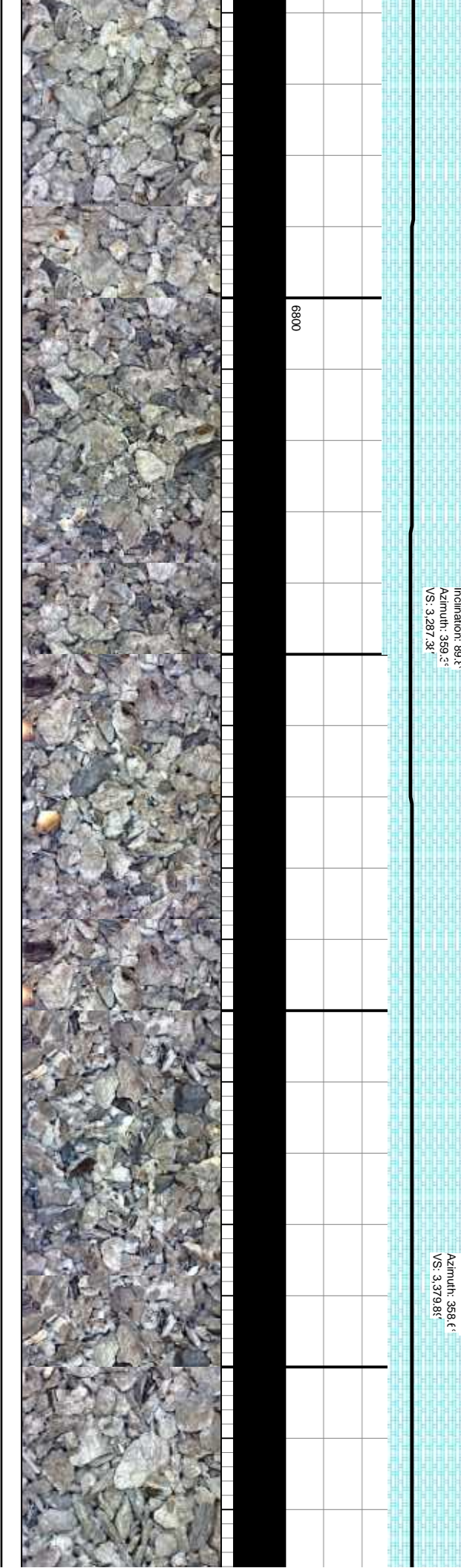




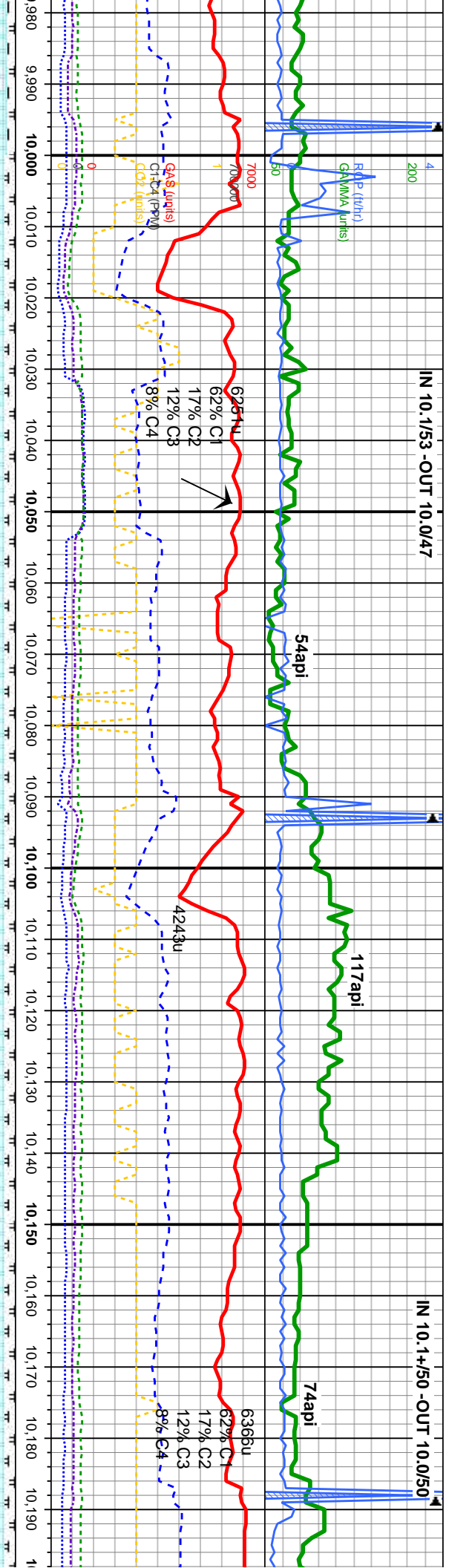




lt-m gy, gy brn in part, sft, sb blk, wxy lstr, mot & lam trex, v calc, occ secondary calcite, intbd with, m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn stn.	6700 CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam trex, v calc, occ fos, occ secondary calcite, intbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn stn.	MD: 9,845' TVD: 6,767, 52' Inclination: 89.3° Azimuth: 359.3° VS: 3,287, 34'
lt-m gy, gy brn in part, sft, sb blk, wxy lstr, mot & lam trex, v calc, occ secondary calcite, intbd with, m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn stn.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam trex, v calc, occ fos, occ secondary calcite, intbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn stn.	MD: 9,940' TVD: 6,767, 41' Inclination: 90.7° Azimuth: 358.6° VS: 3,379, 85'

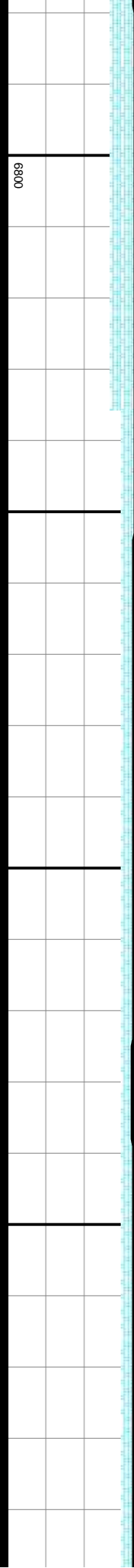




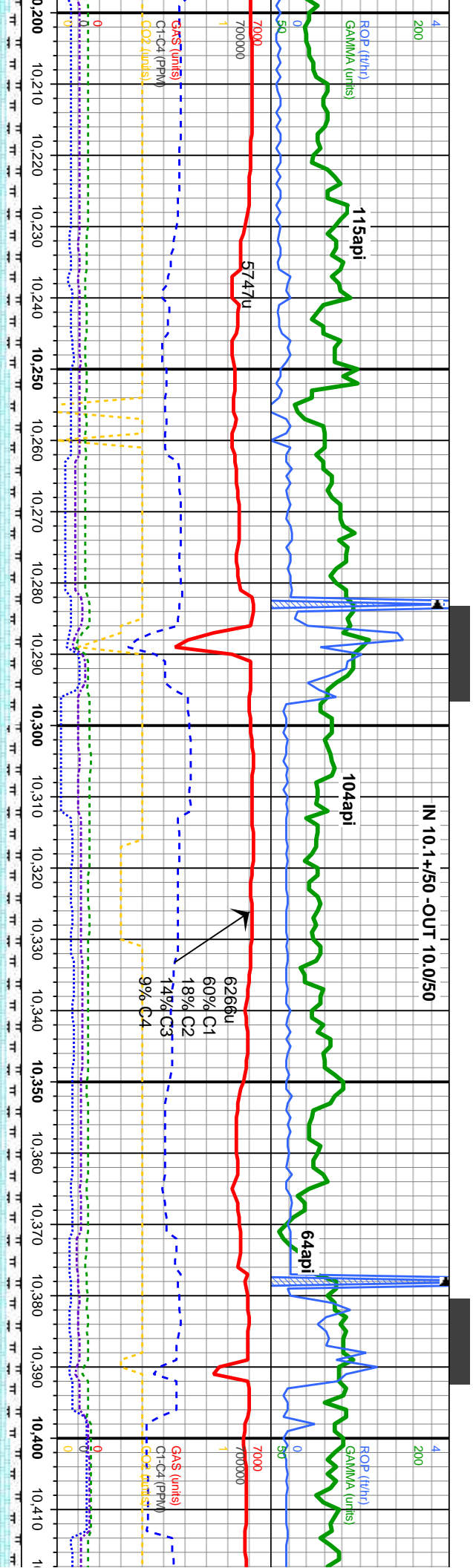


part, sft, sb blk, m tex, v calc, occ e, inbd with, i, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr el cut, lt brn sin.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, occ fos, occ secondary calcie, inbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stimgn bri yel cut, lt brn sin.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, occ fos, occ secondary calcie, inbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stimgn bri yel cut, lt brn sin.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, occ fos, occ secondary calcie, inbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stimgn bri yel cut, lt brn sin.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam tex, v calc, occ fos, occ secondary calcie, inbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stimgn bri yel cut, lt brn sin.
67m				

MD: 10.035° TVD: 6,766.94' Inclination: 89.5° Azimuth: 357° VS: 3.472,84	MD: 10.130° TVD: 6,767.44' Inclination: 89.5° Azimuth: 356.7° VS: 3.566,00'
TVD (ft)	







6'CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam trex, v calc, occ fos, occ secondary calcite, intbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn str.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam trex, v calc, occ fos, occ secondary calcite, intbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn str.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam trex, v calc, occ fos, occ secondary calcite, intbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn str.	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot & lam trex, v calc, occ fos, occ secondary calcite, intbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr bent, tr lt gn chk flr, stmgh bri yel cut, lt brn str.
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MD: 10.225'  
TVD: 6,767.1'  
Inclination: 90.4°  
Azimuth: 356.5°  
VS: 3.659.3°

<<<<<Base Of Target>>>>>

<<<<<Base Of Target>>>>>

MD: 10.321'  
TVD: 6,766.6'  
Inclination: 90.1°  
Azimuth: 357.6°  
VS: 3.753.5°

MD: 10.416'  
TVD: 6,766'  
Inclination: 35°  
Azimuth: 384.6°  
VS: 3.846.2°





IN 10.2/48 -OUT 10.1/51

110api

833api

129api

ROP (ft/hr)  
VAC (min/s)

6350u

6402u

6484u

6584u

66% C1

17% C2

14% C3

6% C4

6% C4

6% C4

6% C4

6% C4

6% C4

6% C4

6% C4

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6% C4

6% C4

6% C4

mot & lam trex, v calc, occ  
rthy-sb wxy lstr, intbd with,  
fos, occ secondary calcite, intbd with,  
MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb  
wxy lstr, mot tex, v calc, org mat, tr bent, tr  
lt gn chk flr, strngh bri yel cut, lt brn str.

CHK: lt-m gy, gy brn in part, sft, sb blk,  
rthy-sb wxy lstr, mot & lam trex, v calc, occ  
fos, occ secondary calcite, intbd with,  
MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb  
wxy lstr, mot tex, v calc, org mat, tr bent, tr  
lt gn chk flr, strngh bri yel cut, lt brn str.

CHK: lt-m gy, gy brn in part, sft, sb blk,  
rthy-sb wxy lstr, mot & lam trex, v calc, occ  
fos, occ secondary calcite, intbd with,  
MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb  
wxy lstr, mot tex, v calc, org mat, tr bent, tr  
lt gn chk flr, strngh bri yel cut, lt brn str.

CHK: lt-m gy, gy brn in part, sft, sb blk,  
rthy-sb wxy lstr, mot & lam trex, v calc, occ  
fos, occ secondary calcite, intbd with,  
MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb  
wxy lstr, mot tex, v calc, org mat, tr bent, tr  
lt gn chk flr, strngh bri yel cut, lt brn str.

CHK: lt-m gy, gy brn in part, sft, sb blk,  
rthy-sb wxy lstr, mot & lam trex, v calc, occ  
fos, occ secondary calcite, intbd with,  
MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb  
wxy lstr, mot tex, v calc, org mat, tr bent, tr  
lt gn chk flr, strngh bri yel cut, lt brn str.

<<<<<Base Of Target>>>>

TVD (ft)

MD: 10.511'  
TVD: 6,765.11'  
Inclination: 90.7°  
Azimuth: 358.6°  
VS: 3,939.0'

MD: 10.511'  
TVD: 6,765.11'  
Inclination: 90.7°  
Azimuth: 358.6°  
VS: 3,939.0'

MD: 10.606'  
TVD: 6,763.96'  
Inclination: 90.7°  
Azimuth: 359.1°  
VS: 4,031.67'

6800

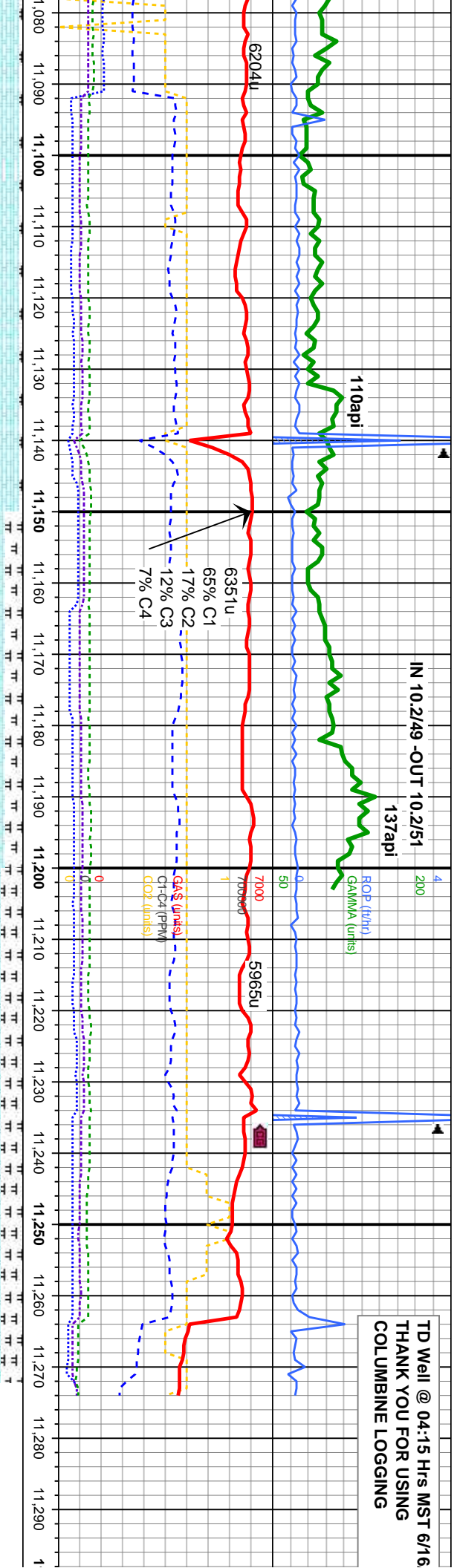












art, sft, sb blk, calc, occ fos, intbd k, sft, sb blk, rthy-sb wxy lstr, v calc, org mat, tr	CHK: lt-m gy, gy brn in part, sft, sb blk, rthy-sb wxy lstr, mot, v calc, occ fos, intbd with, MRL: m-dk gy, gy blk, sft, sb blk, rthy-sb wxy lstr, mot tex, v calc, org mat, tr lt gn chk flr, stmg brn yel cut, lt brn stn.	CHK: lt-m gy, sft, sb blk, rthy-sb wxy lstr, silty-mot tex, lam in part, v calc with tr fos, intbd with, MARL: m-dk gy, & blk, sft, sb blk, rthy-sb wxy lstr, v calc with org mat, tr lt gn chk flr, stmg brn yel cut, lt brn stn.	6700 CHK: lt-m gy, sft, sb blk, rthy-sb wxy lstr, silty-mot tex, lam in part, v calc with tr fos, intbd with, MARL: m-dk gy, & blk, sft, sb blk, rthy-sb wxy lstr, v calc with org mat, tr brn yel cut, lt brn stn.
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2. 11.082 D: 6.752, 16° Inclination: 91.6° Azimuth: 0.2° VS: 4.492, 8°	MD: 11.178 TVD: 6.749, 31° Inclination: 92.5° Azimuth: 0° VS: 4.585, 8°	MD: 11.214 TVD: 6.747, 96° Inclination: 92.5° Azimuth: 0° VS: 4.620, 7°	MD: 11.274 TVD: 6.745, 66° Inclination: 92.5° Azimuth: 0° VS: 4.678, 8°
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6800

TVD (ft)





