



Scale: 5" / 100'
Measured Depth Log

Well Name	NAKAGAWA B13-65-1HN		
Location	SEC 13 T5N R64W		
State	COLORADO	County	WELD
Country	USA	Rig Number	H&P 330
API Number	05-123-36379-0000		
Region	DJ BASIN	Field	WATTENBERG
Spud Date	7/12/2013	Drilling Completed	7/20/2013
Surface Coordinates	40.394990, -104.507230		

Bottom Hole Coordinates	40.398310, -104.4910		
Ground Elevation	4570	K.B. Elevation	4600
Logged Interval	2500	To	11037
		Total Depth	11037
Type of Drilling Fluid	LNSD		

Company Noble Energy Ir

Name Teresa Malessa
Company Noble Energy Ir

WELL-SITE GEOLOGISTS



Operator

Geologist












































Other

RYAN SHILLING
MICHAEL ROOKS

Rock Types

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

Accessories

Fossils		F FOSSIL		- ARGILLACEOUS		GLAUCONITE		TUFFACEOUS
		GASTROPOD		ARGILLITE GRAIN		GYPSIFEROUS	Stringer	
		ALGAE		OOLITE		HEAVY MINERAL		
		AMPHIPORA		OSTRACOD		INOCERAMUS		
		BELEMNITE		PELECYPOD		KAOLIN		
		BIOCLASTIC		PELLET		MARLSTONE		
		BRACHIOPOD		PISOLITE		MINERAL CRYSTALS		
		BRYOZOA		PLANT REMAINS		NODULES		
		CEPHALOPOD		PLANT SPORES		PHOSPHATE PELLETS		
		CORAL		SCAPHOPOD		PYRITE		
		CRINOID		STROMATOPOROID		SALT CAST		
		ECHINOID				SANDY		
		FISH	Minerals			SILTACEOUS		
					FERRUGINOUS PELLET			
					FERRUGINOUS			
				ANHYDRITIC		SILTY		
						SILTSTONE STRINGER		

Other Symbols

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

Slide/Rotate

ROP
ROF
GAMMA

COLUMBINE LOGGING INC
RIGGED UP ON 07/12/2013
MANNED 2-PERSON LOGGING
WITH BLOODHOUND GAS
CHROMATOGRAPH UNIT #0314
BEGAN ON 07/13/2013

Total Gas & Chromatograph

GAS
C1
C2
C3
C4
CO2

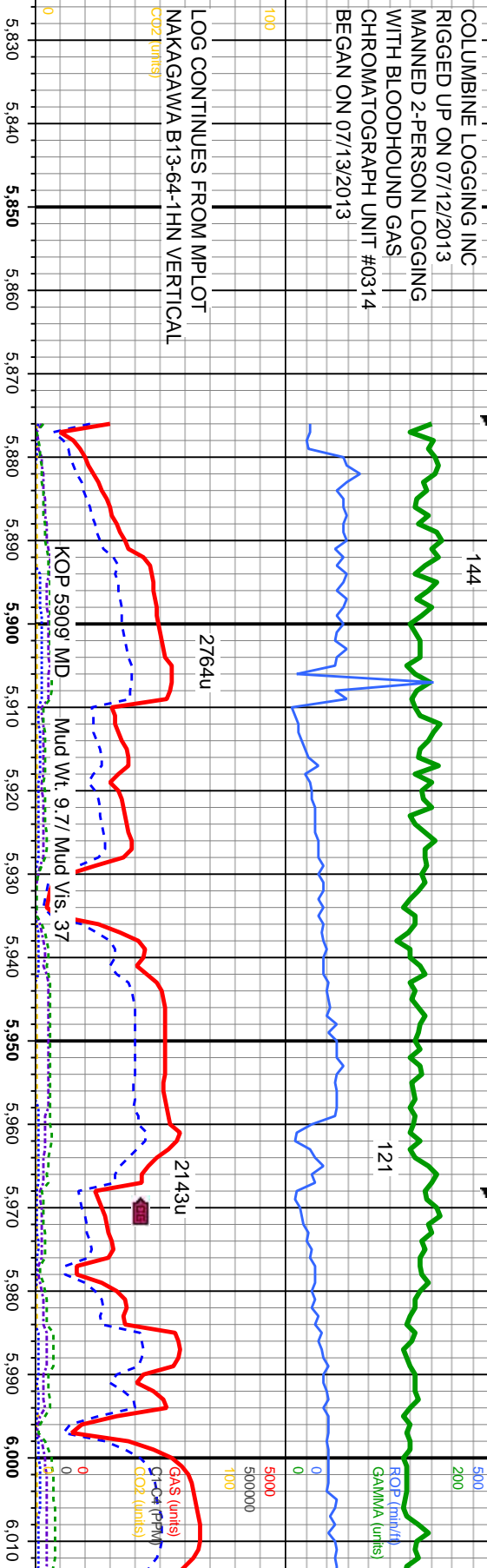
Depth Labels

% Lith

Well Bore
TVD

Oil Show

Images



50' SAMPLES

Bit Data

Bit #: 3
Type: SMITH/MDS16
Size: 8.75
Depth In: 5,876 '
Jets: 5x15

07/15/2013
3:00
MW: 9.65
FV: 35
PV: 13
YP: 10
PH: 9.9
GELS: 4/7/12

MD: 5,910
TVD: 5,827.37
Inclination: 9.5
Azimuth: 1.2
VS: 109.66

MD: 5,958
TVD: 5,874.4
Inclination: 13.7
Azimuth: 22.5
VS: 114.32

MD: 6,004
TVD: 5,918.66
Inclination: 17.9
Azimuth: 31.2
VS: 122.85

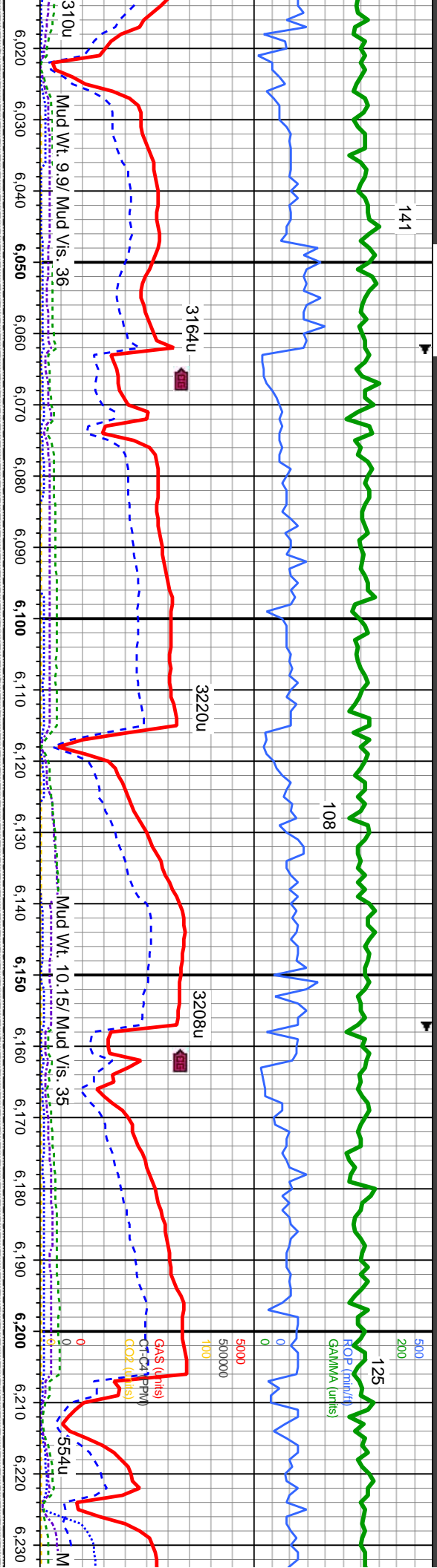
95% SLTY SH: MED - DK GY, OCC TAN,
V F GR, FRI-BRIT, SUB PLTY- SUB
BLKY, SL CALC, GRD TO
5% SHV SS: LT-MED GY, F-MED F GR,
SUB RD - SB ANG, MOD-P SRT, ARG
CMT, SL CALC, TR SH, TR SS

95% SLTY SH: MED - DK GY, OCC TAN,
V F GR, FRI-BRIT, SUB PLTY- SUB
BLKY, SL CALC, SOME INTBD SS, GRD
TO
5% SHV SS: LT-MED GY, F-MED F GR,
SUB RD - SB ANG, MOD-P SRT, ARG
CMT, SL CALC, TR SH, TR SS

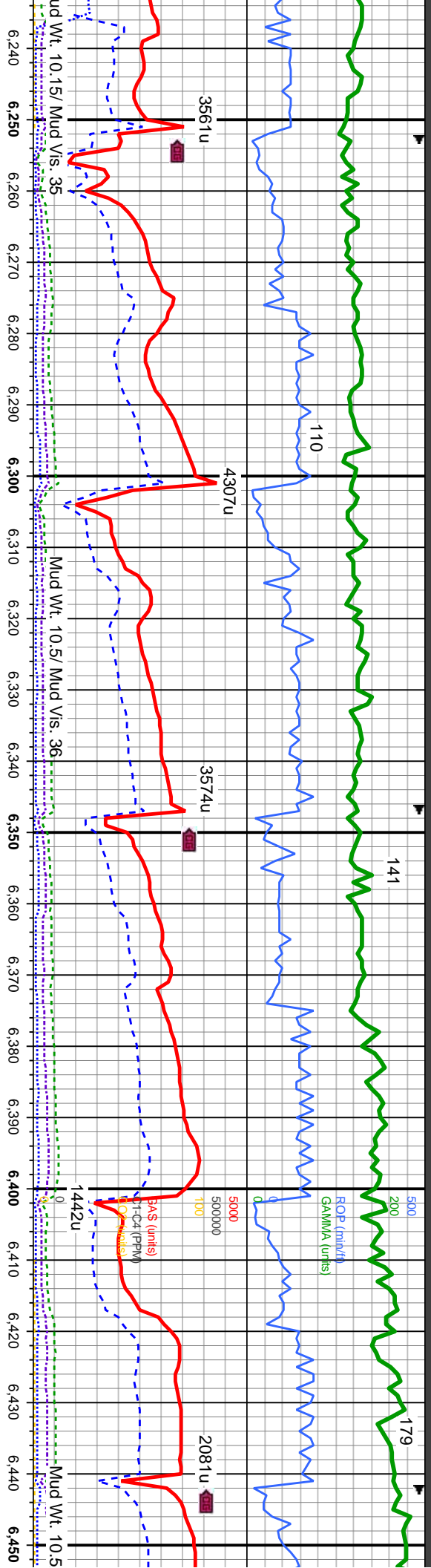
85%
V F GR, FRI-BRIT, SUB PLTY- SUB
BLKY, SL CALC, SOME INTBD SS, GRD
TO
15%
SUB RD - SB ANG, MOD-P SRT, ARG
CM

TR
MOD
GD
EXL





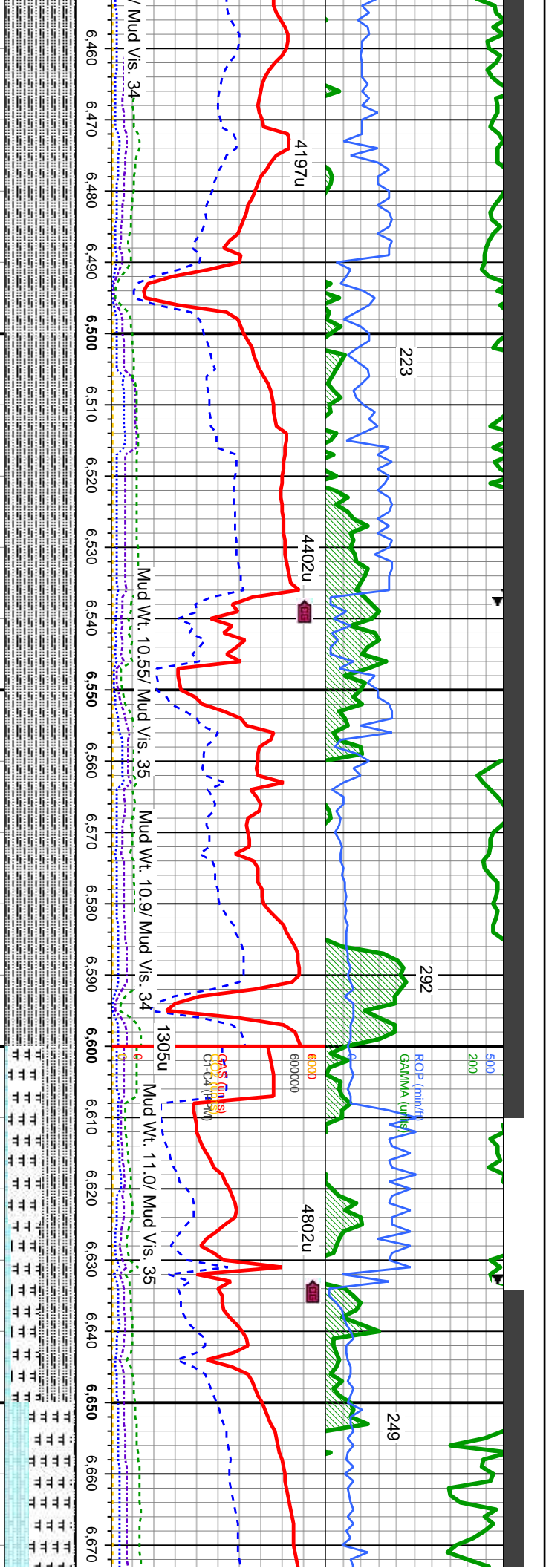
MD: 6,056	MD: 6,099	MD: 6,147	MD: 6,194	5700
TVD: 5,967.63	TVD: 6,007.13	TVD: 6,049.77	TVD: 6,089.75	
Inclination: 21.4	Inclination: 25.1	Inclination: 29.5	Inclination: 33.9	
Azimuth: 36.4	Azimuth: 36.3	Azimuth: 35.1	Azimuth: 35.5	
VS: 136.16	VS: 149.53	VS: 166.7	VS: 185.87	
80% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME INTBD SS, GRD TO	80% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME INTBD SS, GRD TO	85% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME INTBD SS, GRD TO	15% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	85% SLTY SH: MED - DK GY, V F GR, FRI- BRIT, SUB PLTY BLKY, SL CALC, SOME INTBD TO
20% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	20% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	15% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	15% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	15% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS
				6800



MD: 6,242 TVD: 6,128.57 Inclination: 38.1 Azimuth: 36.2 VS: 207.95	MD: 6,288 TVD: 6,164.01 Inclination: 41.1 Azimuth: 36.3 VS: 231.01	MD: 6,342 TVD: 6,204.05 Inclination: 43.2 Azimuth: 40 VS: 260.25	MD: 6,383 TVD: 6,233.29 Inclination: 45.8 Azimuth: 41.5 VS: 284.18	MD: 6,430 TVD: 6,265.41 Inclination: 48 Azimuth: 41.2 VS: 312.95
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90% SLTY SH: MED - DK GY, OCC TAN, V/F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME INTBD SS, GRD TO 10% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	85% SLTY SH: MED - DK GY, OCC TAN, V/F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME INTBD SS, GRD TO 15% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	90% SLTY SH: MED - DK GY, OCC TAN, V/F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME INTBD SS, GRD TO 10% SHY SS: LT-MED GY, F-MED F GR, SUB RD - SB ANG, MOD-P SRT, ARG CMT, SL CALC, TR SH, TR SS	100% SLTY SH: MED - DK GY, OCC TAN, V/F GR, FRI- BRIT, SUB PLTY- SUB BLKY, SL CALC, SOME INTBD SS
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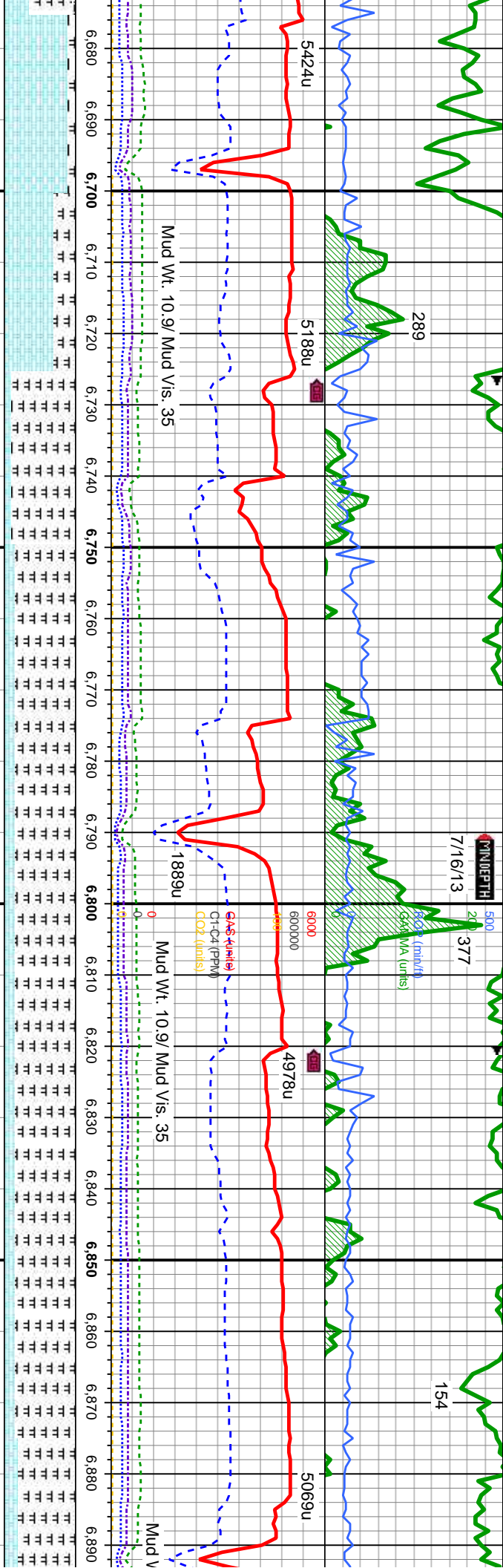


MD: 6,478 TVD: 6,296.71 Inclination: 50.6 Azimuth: 43.2 VS: 343.76		MD: 6,529 TVD: 6,328.21 Inclination: 53.1 Azimuth: 46.8 VS: 378.71		MD: 6,572 TVD: 6,354.27 Inclination: 52.3 Azimuth: 49.1 VS: 409.33		MD: 6,667 TVD: 6,409.0 Inclination: 57.0 Azimuth: 57.0 VS: 481.88	
100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC.		100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC.		100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC, TR SHY SS		SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC, MODERATE BENT, GRD TO MRLST: MED GRY - GRY BLK, SUB PLTY - SUB BLKY, SOME FIS, SL FRM - OCC SFT, SLTY - SL MOT, CALC CHK: LT - MED GY, OCC WH GY - CRM, SFT - SL FRM, SUB PLTY - SUB BLKY, MOT - RTHY, V CALC	

MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53		MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53		MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53		MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53	
100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC.		100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC.		100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC, TR SHY SS		SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC, MODERATE BENT, GRD TO MRLST: MED GRY - GRY BLK, SUB PLTY - SUB BLKY, SOME FIS, SL FRM - OCC SFT, SLTY - SL MOT, CALC CHK: LT - MED GY, OCC WH GY - CRM, SFT - SL FRM, SUB PLTY - SUB BLKY, MOT - RTHY, V CALC	

MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53		MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53		MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53		MD: 6,617 TVD: 6,381.21 Inclination: 54.2 Azimuth: 53.8 VS: 442.53	
100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC.		100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC.		100% SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC, TR SHY SS		SLTY SH: MED - DK GY, OCC TAN, V F GR, FRI - BRIT, SUB PLTY - SUB BLKY, SL CALC, MODERATE BENT, GRD TO MRLST: MED GRY - GRY BLK, SUB PLTY - SUB BLKY, SOME FIS, SL FRM - OCC SFT, SLTY - SL MOT, CALC CHK: LT - MED GY, OCC WH GY - CRM, SFT - SL FRM, SUB PLTY - SUB BLKY, MOT - RTHY, V CALC	





NIO A CHALK

LOGGERS TOP OF NIO A MARL

6691' MD / 6421' TVD

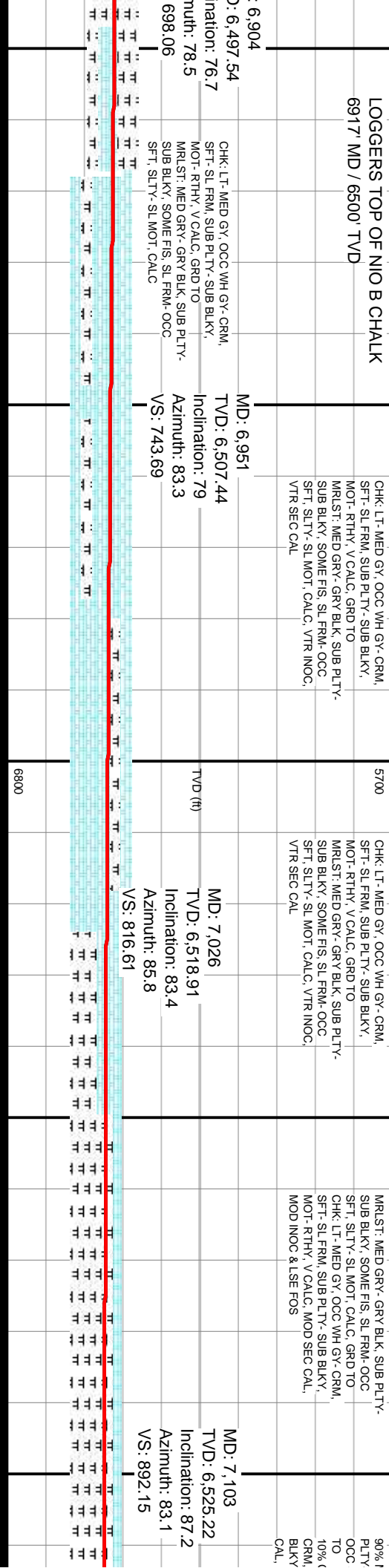
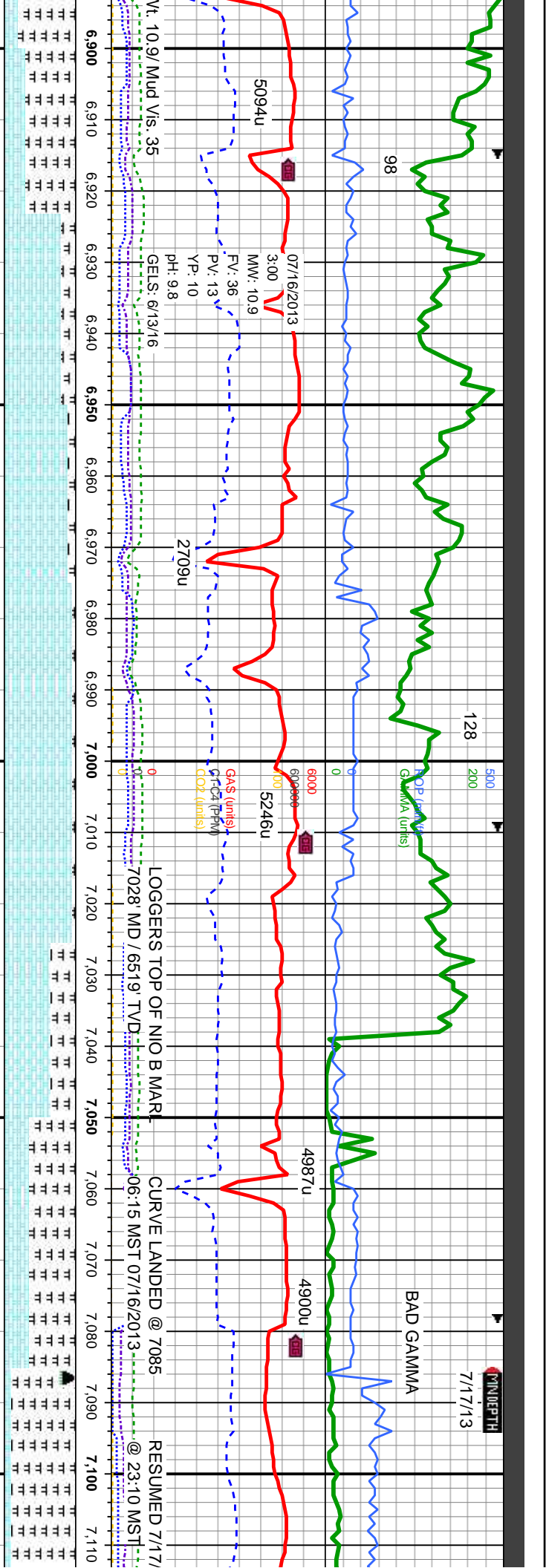
CHK: LT- MED GY, OCC WH GY- CRM,
SFT- SL FRM, SUB PLTY- SUB BLKY,
MOT- RTHY, V CALC, GRD TO
MRST: MED GRY- GRY BLK, SUB PLTY-
SUB BLKY, SOME FIS, SL FRM- OCC
SFT, SLTY- SL MOT, CALC

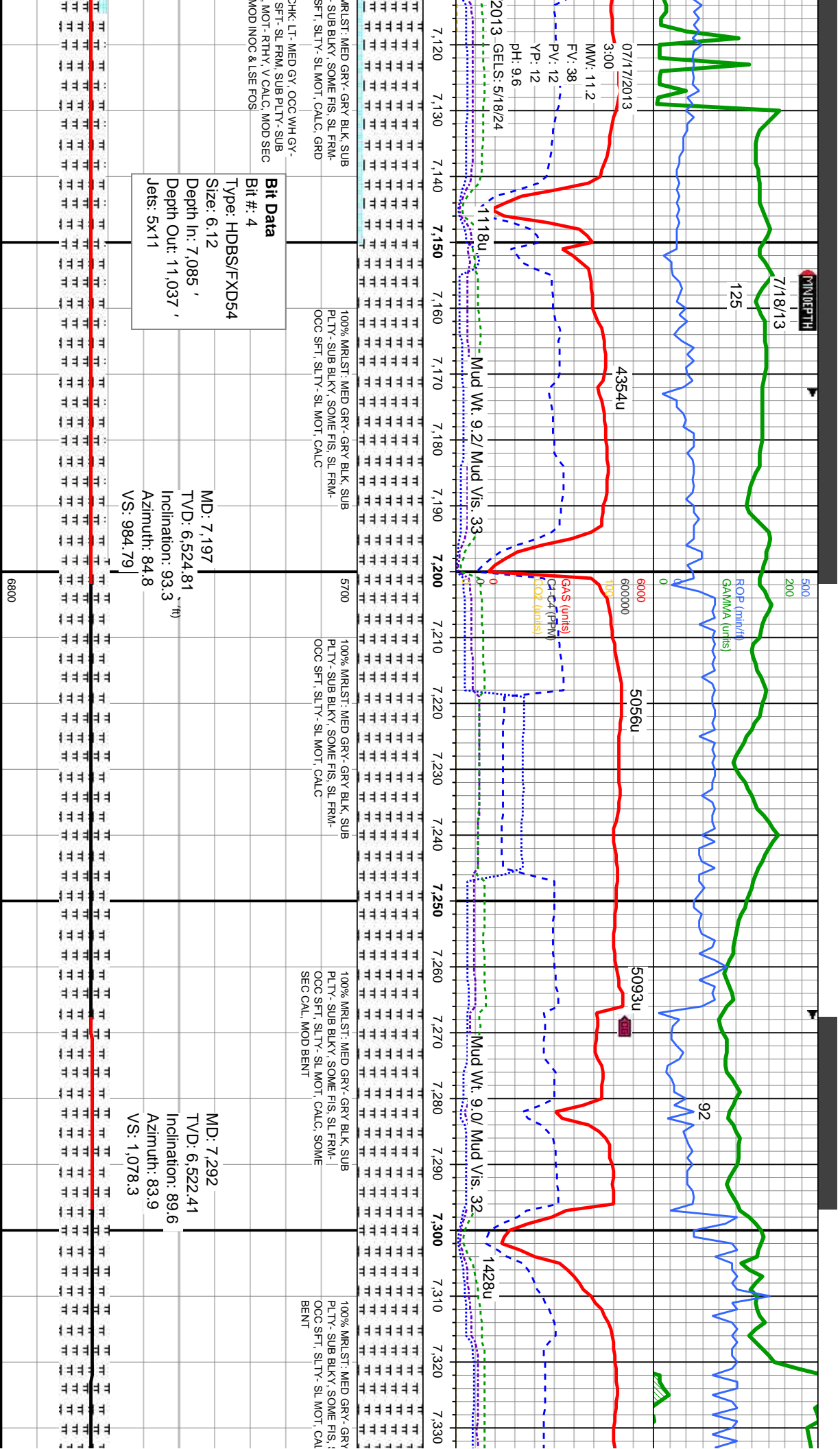
MD: 6,761
TVD: 6,452.79
Inclination: 65.8
Azimuth: 64.5
VS: 562.74

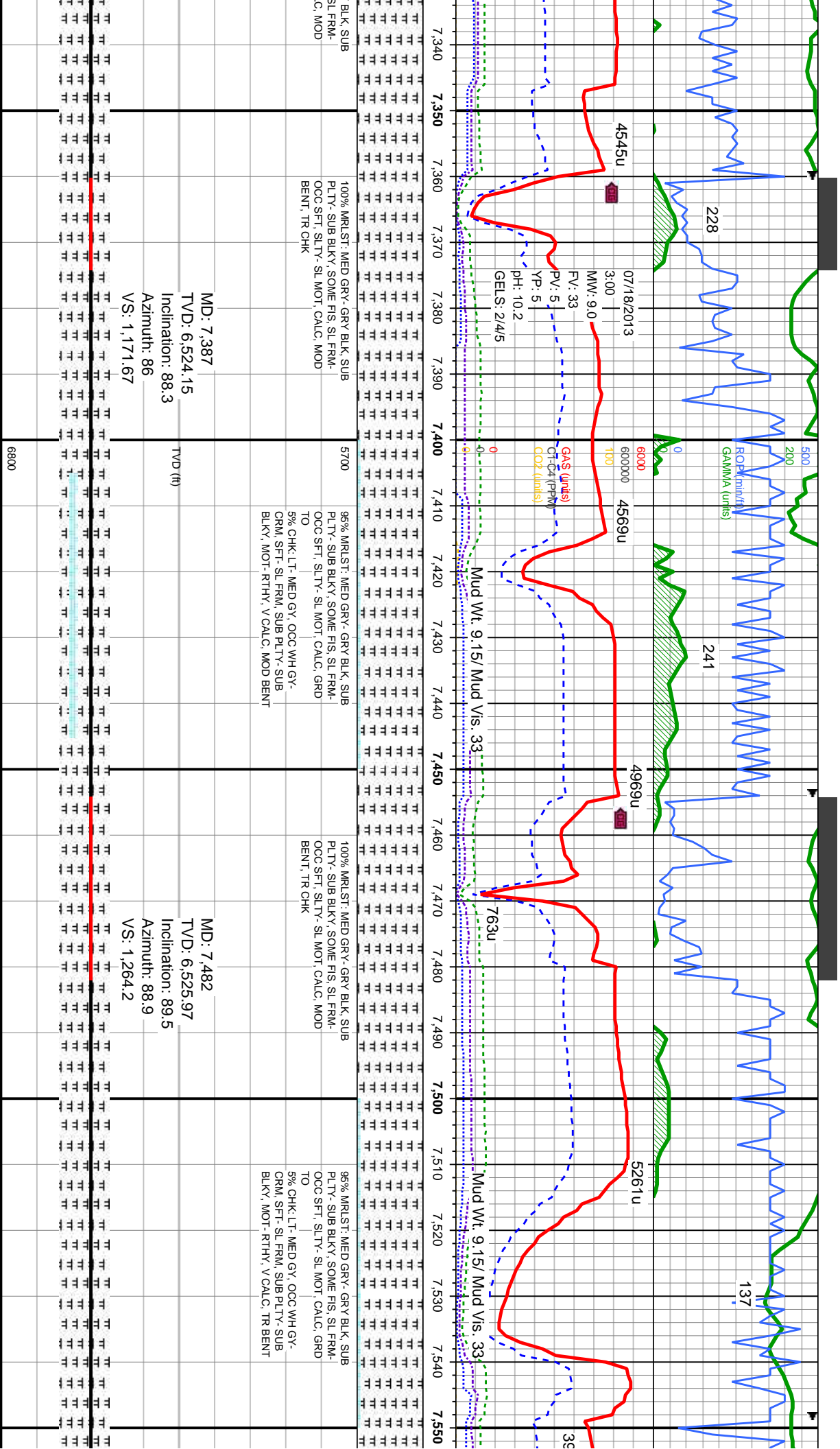
OCC WH GY- CRM,
PLTY- SUB BLKY,
C, GRD TO
GY OCC TAN, V F
PLTY- SUB BLKY, SL
BENT

MD: 6,715
TVD: 6,432.77
Inclination: 62.6
Azimuth: 60.7
VS: 522.21









100% MRLST: MED GRY- GRV BLK. SUB
PLTY- SUB BLKY, SOME FIS. SL FRM-
OCC SFT, SLTY- SL MOT, CALC. MOD
BENT, TR CHK

5700

95% MRLST: MED GRY- GRV BLK. SUB
PLTY- SUB BLKY, SOME FIS. SL FRM-
OCC SFT, SLTY- SL MOT, CALC. GRD
TO

5% CHK: LT- MED GY, OCC WH GY-
CRM. SFT- SL FRM. SUB PLTY- SUB
BLKY, MOT- RTHY, V CALC. MOD BENT

100% MRLST: MED GRY- GRV BLK. SUB
PLTY- SUB BLKY, SOME FIS. SL FRM-
OCC SFT, SLTY- SL MOT, CALC. MOD
BENT, TR CHK

95% MRLST: MED GRY- GRV BLK. SUB
PLTY- SUB BLKY, SOME FIS. SL FRM-
OCC SFT, SLTY- SL MOT, CALC. GRD
TO

5% CHK: LT- MED GY, OCC WH GY-
CRM. SFT- SL FRM. SUB PLTY- SUB
BLKY, MOT- RTHY, V CALC. TR BENT

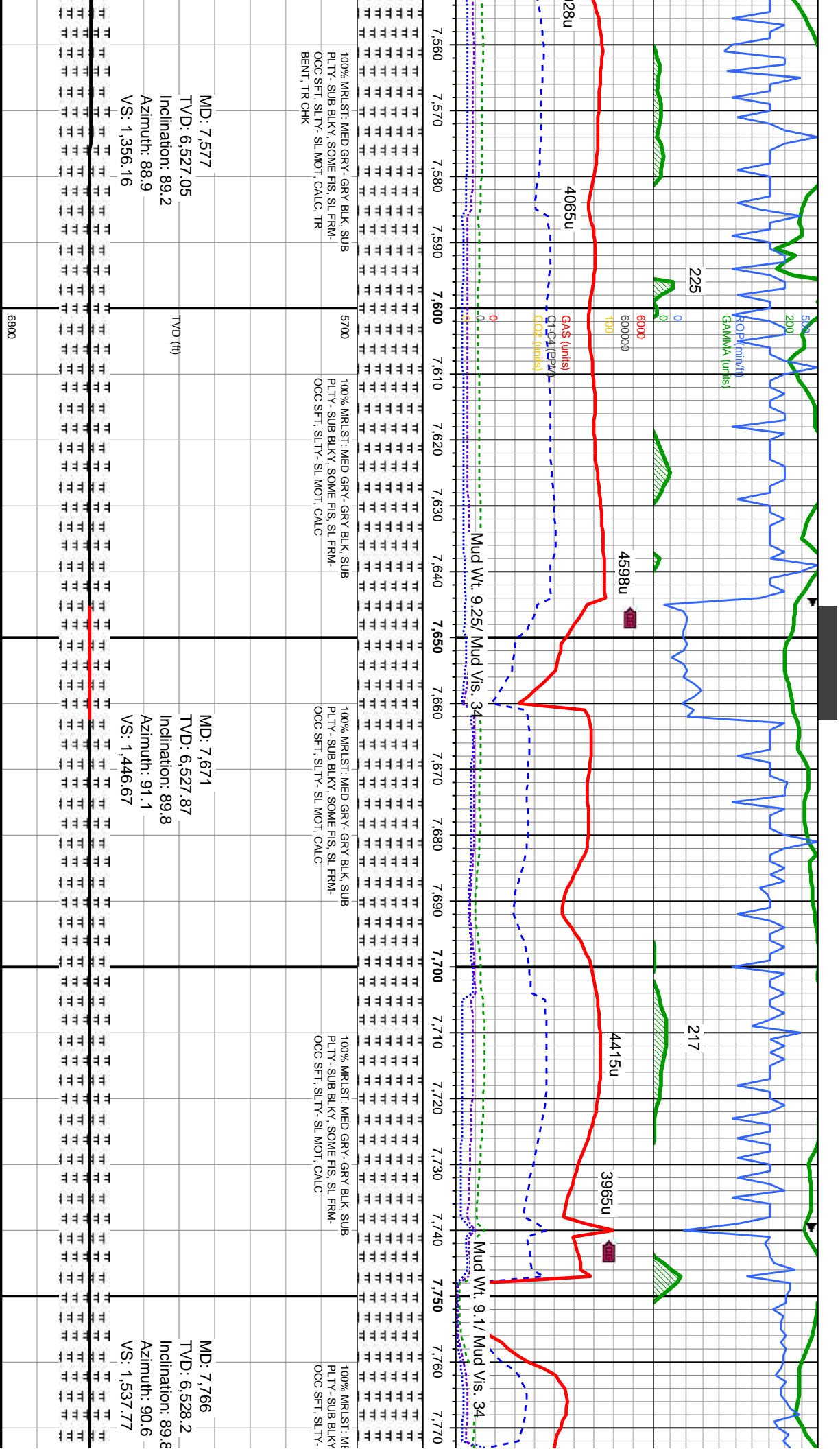
MD: 7,387
TVD: 6,524.15
Inclination: 88.3
Azimuth: 86
VS: 1,171.67

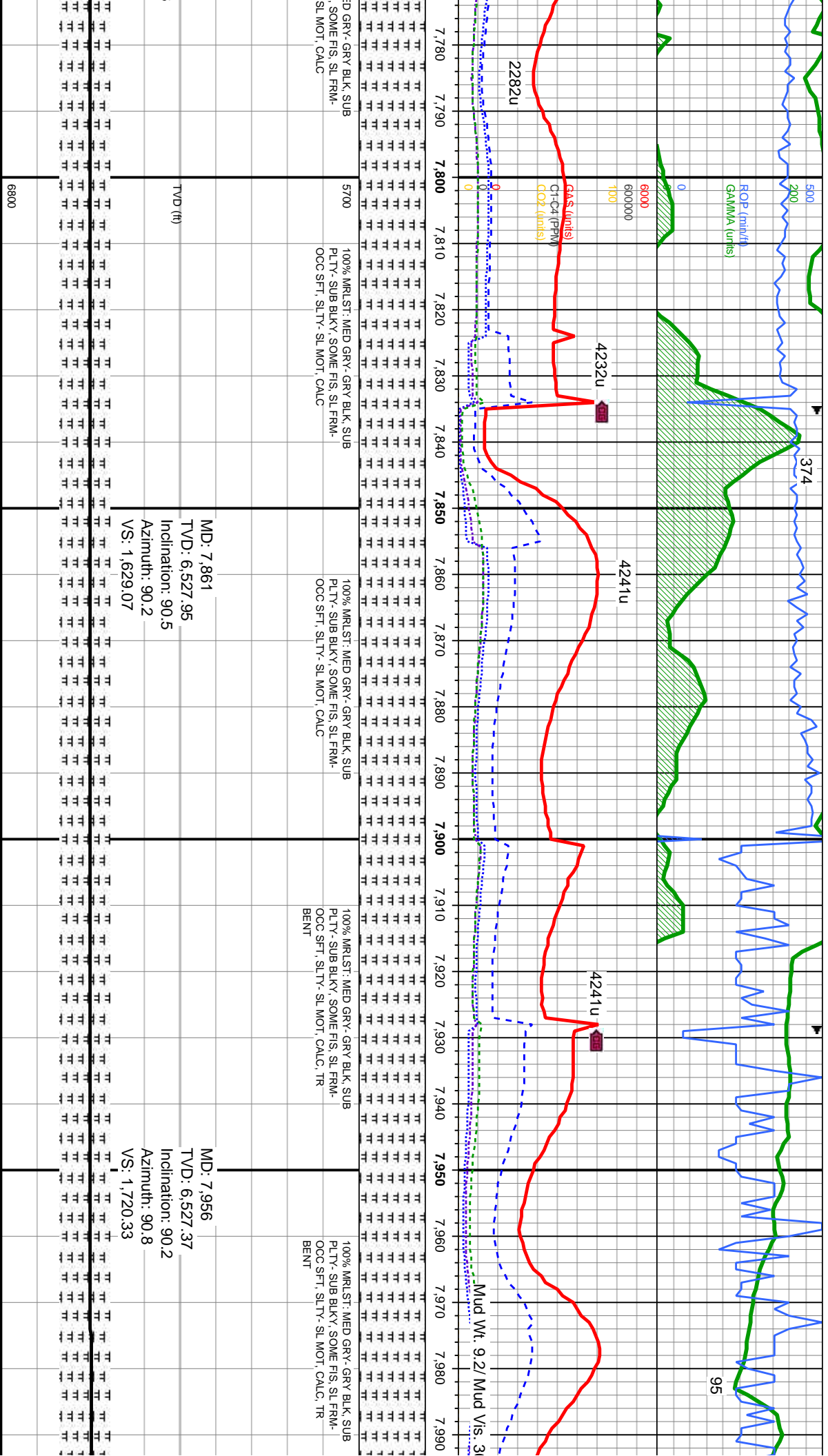
MD: 7,482
TVD: 6,525.97
Inclination: 89.5
Azimuth: 88.9
VS: 1,264.2

TVD (ft)

6800







MD GRV - GRV BLK, SUB
SOME FIS, SL FRM -
SL MOT, CALC

5700

100% MRLST: MED GRV - GRV BLK, SUB
PLTY - SUB BLKY, SOME FIS, SL FRM -
OCC SFT, SLTY - SL MOT, CALC

100% MRLST: MED GRV - GRV BLK, SUB
PLTY - SUB BLKY, SOME FIS, SL FRM -
OCC SFT, SLTY - SL MOT, CALC

100% MRLST: MED GRV - GRV BLK, SUB
PLTY - SUB BLKY, SOME FIS, SL FRM -
OCC SFT, SLTY - SL MOT, CALC, TR
BENT

100% MRLST: MED GRV - GRV BLK, SUB
PLTY - SUB BLKY, SOME FIS, SL FRM -
OCC SFT, SLTY - SL MOT, CALC, TR
BENT

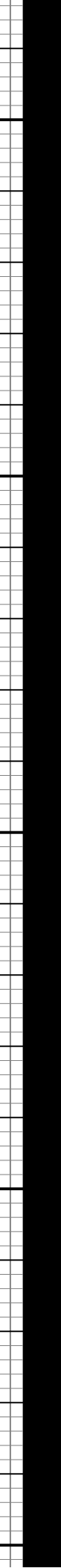
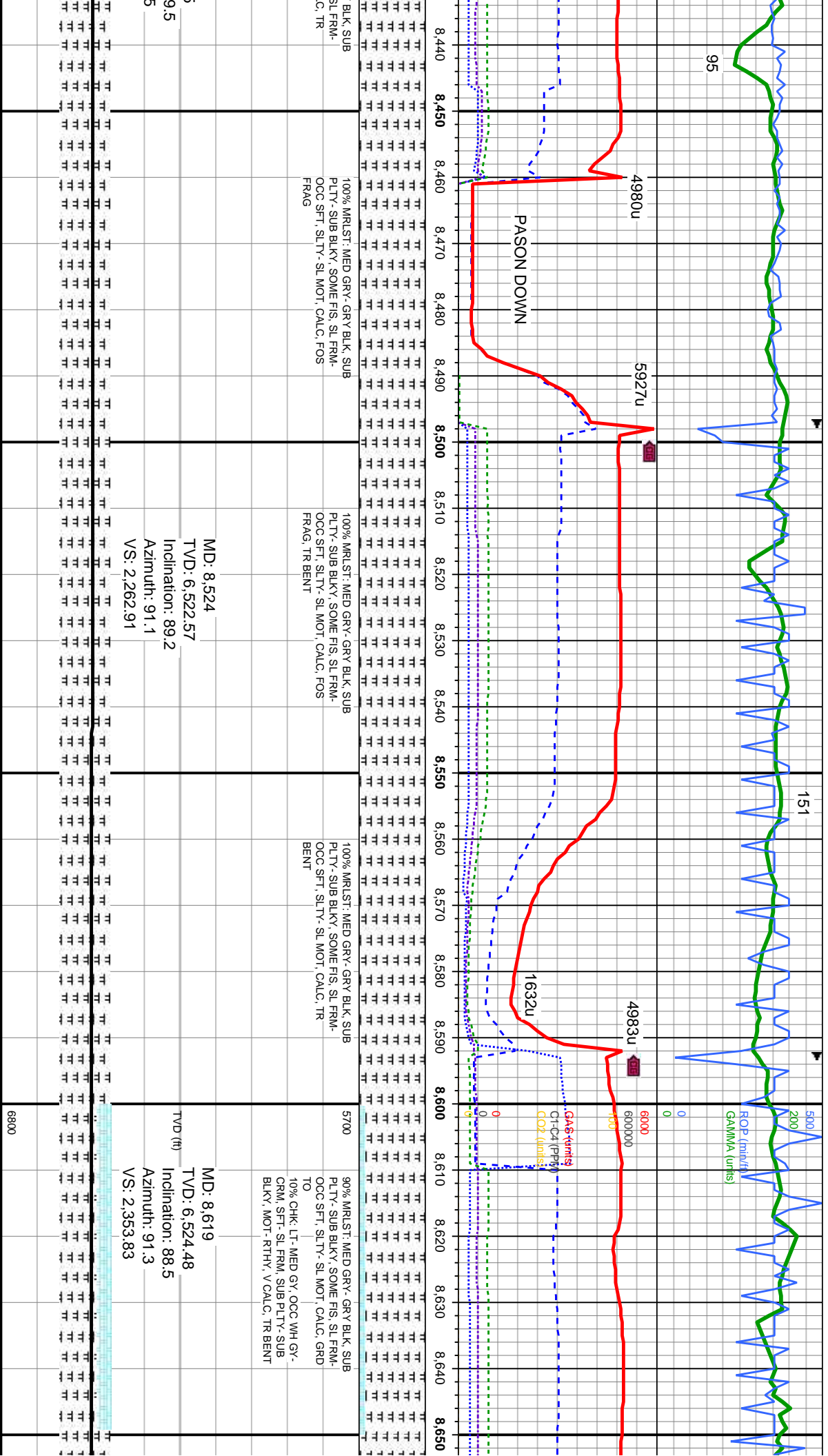
TVD (ft)

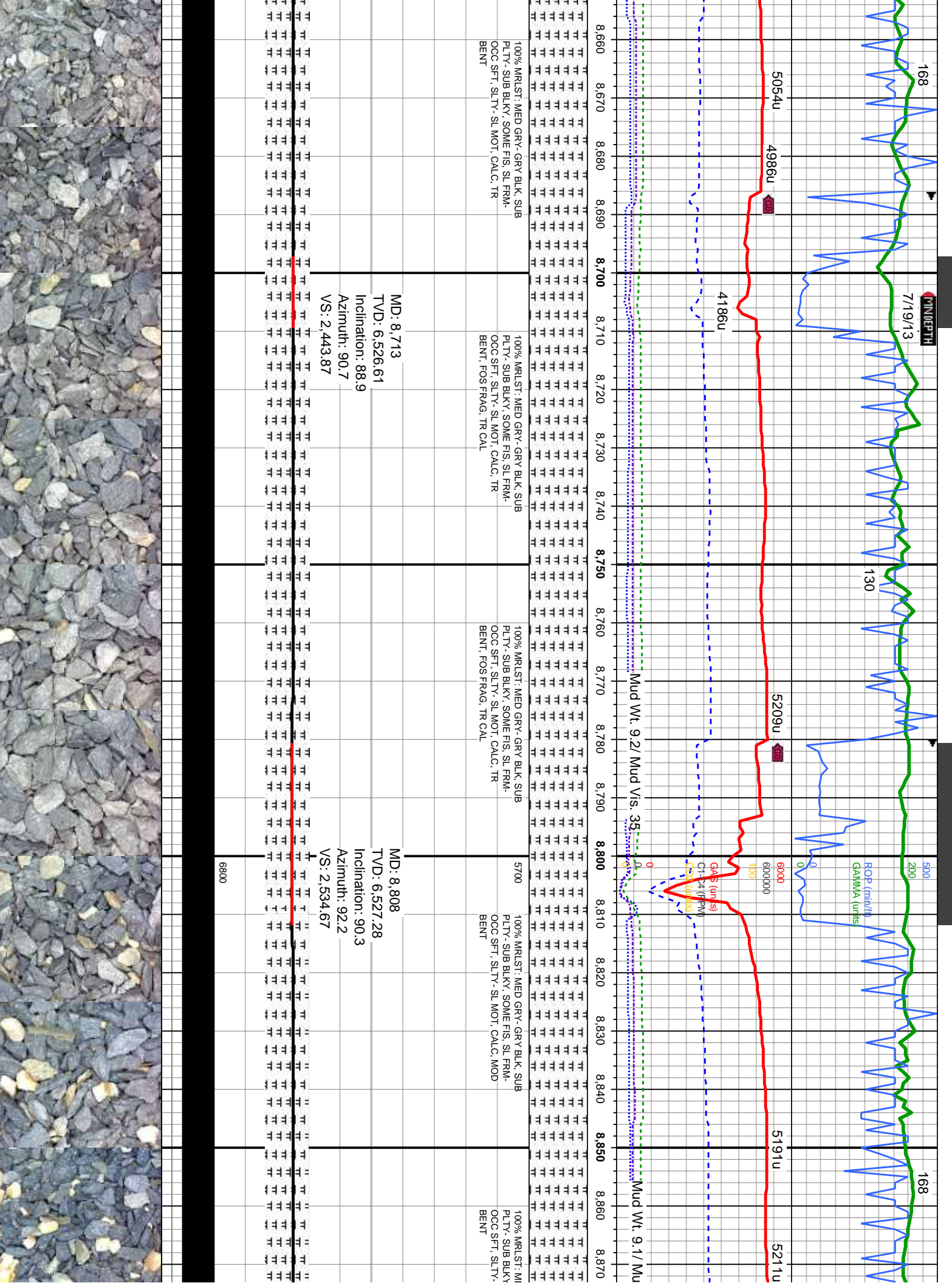
MD: 7.861
TVD: 6,527.95
Inclination: 90.5
Azimuth: 90.2
VS: 1,629.07

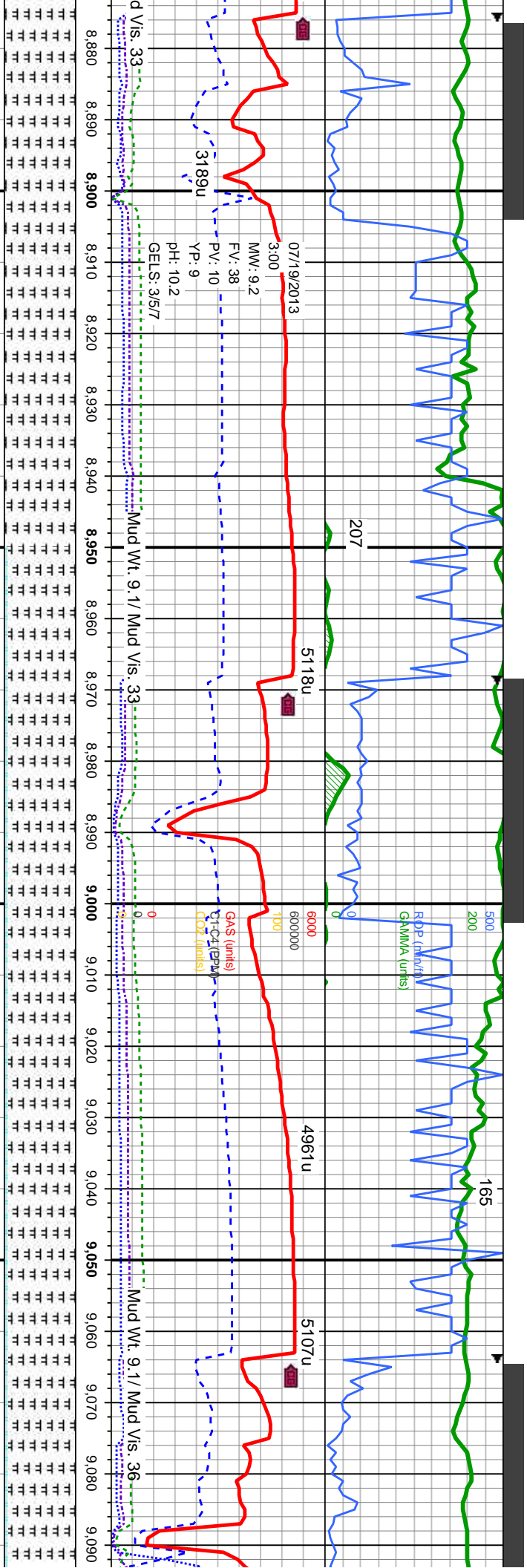
MD: 7.956
TVD: 6,527.37
Inclination: 90.2
Azimuth: 90.8
VS: 1,720.33

6800



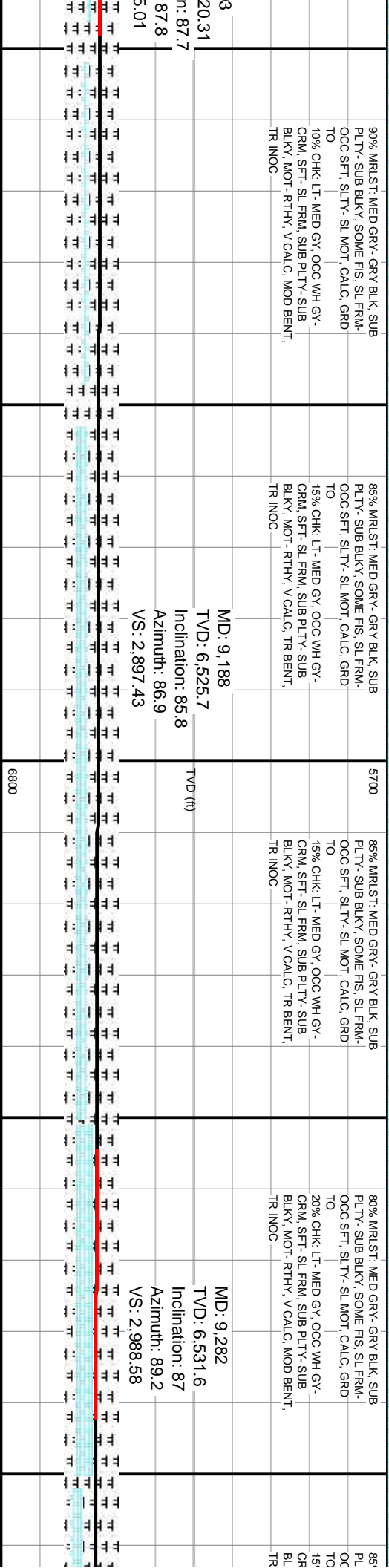


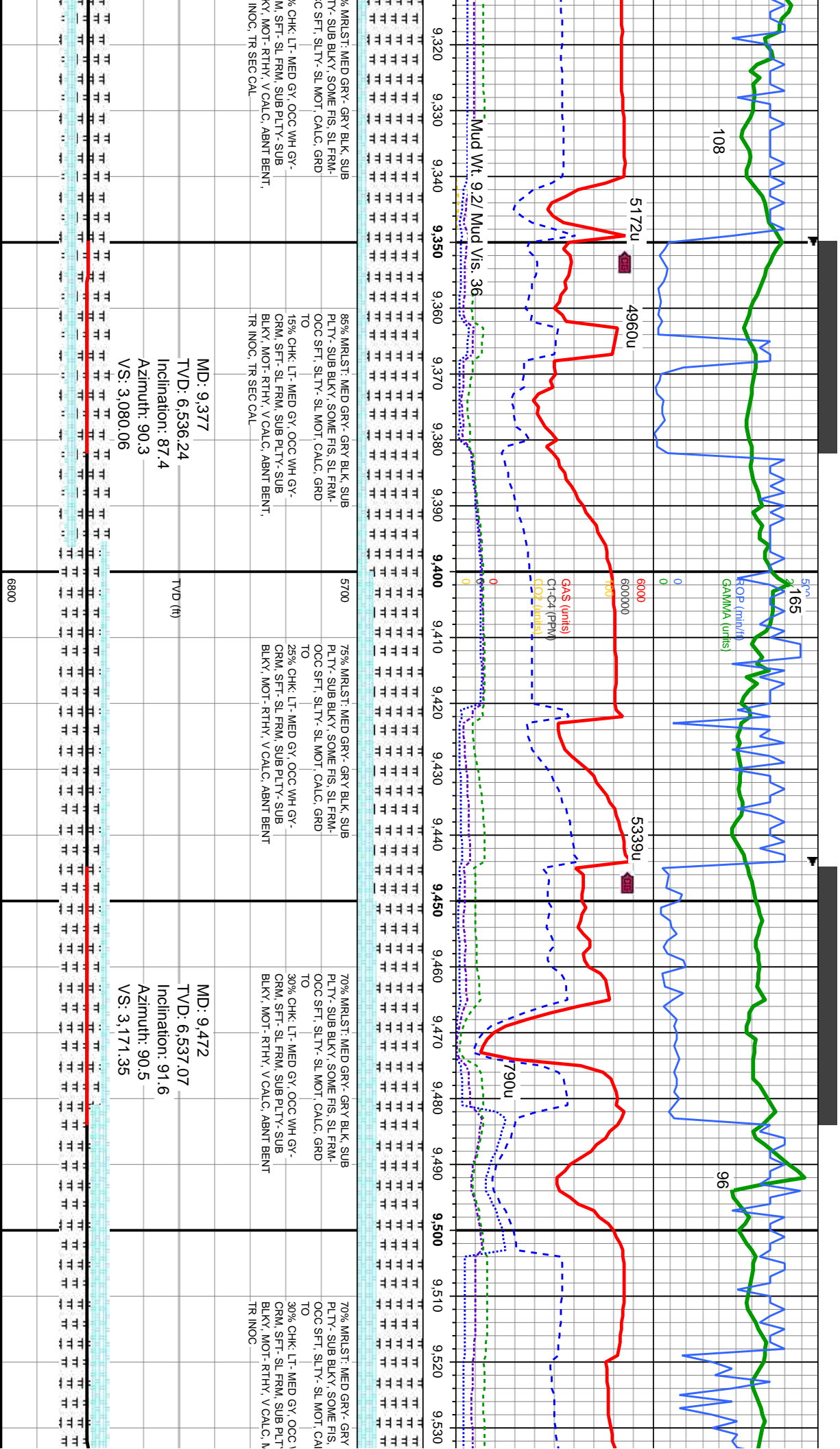


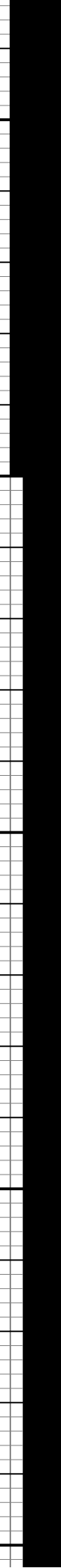
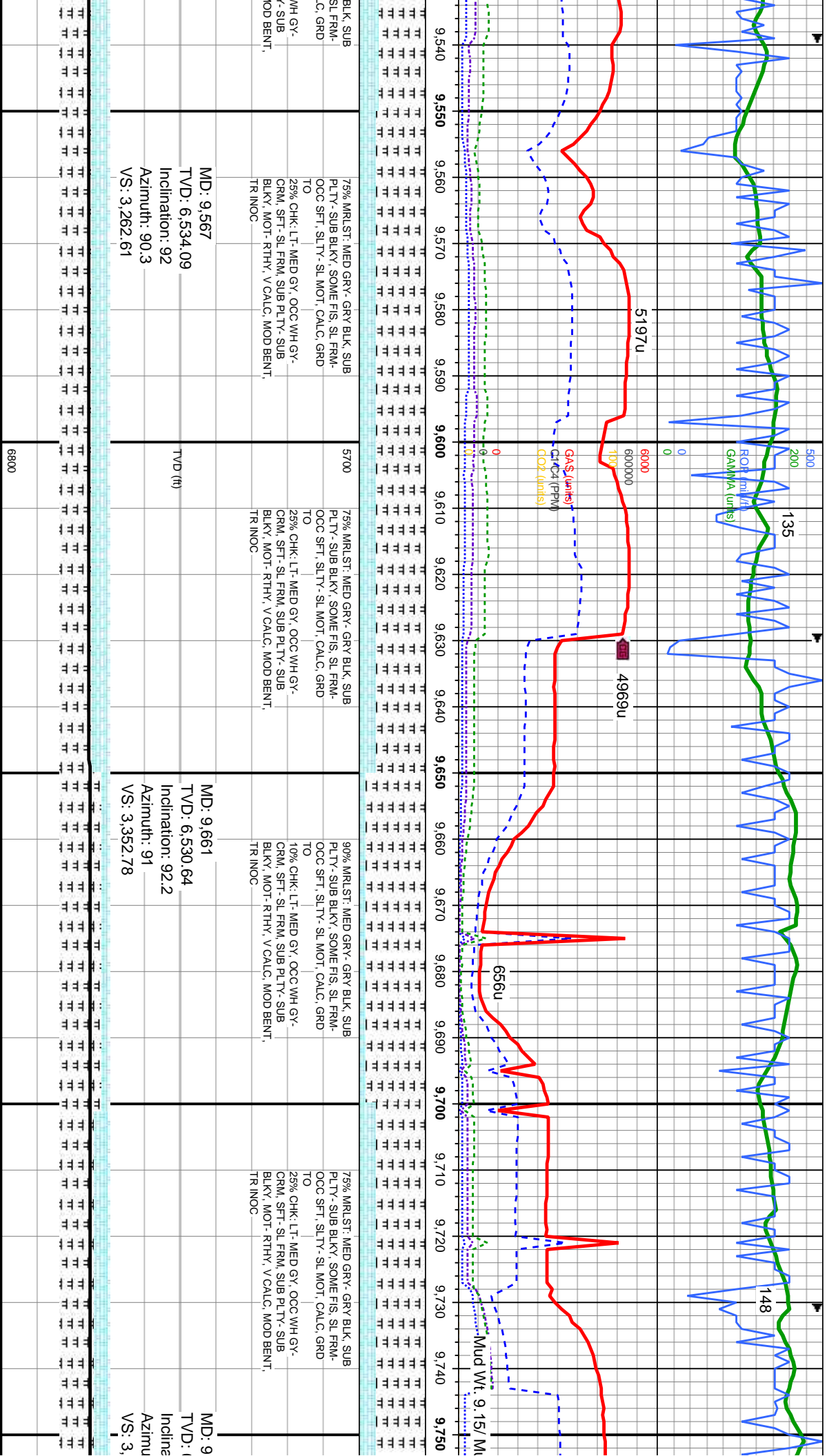


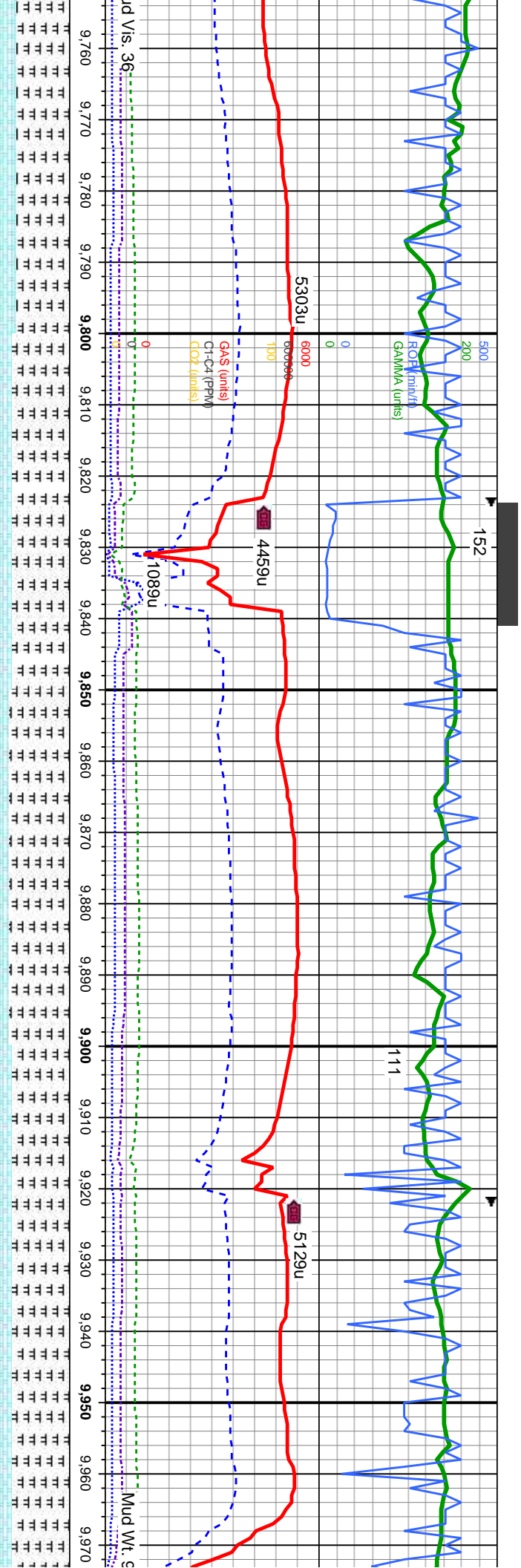
MD: 8.903 TVD: 6,524.04 Inclination: 93.6 Azimuth: 95.4 VS: 2,624.19	100% MR.LST: MED GRY- GRV BLK. SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, ABNT BENT, TR INOC	95% MR.LST: MED GRV- GRV BLK. SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO 5% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, ABNT BENT, TR INOC	5700	95% MR.LST: MED GRV- GRV BLK. SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO 5% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, ABNT BENT, TR INOC	MD: 8.998 TVD: 6,519.73 Inclination: 91.6 Azimuth: 92.4 VS: 2,713.62	95% MR.LST: MED GRV- GRV BLK. SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO 5% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, ABNT BENT, TR INOC	MD: 9.09 TVD: 6.5 Inclination: 91.6 Azimuth: 92.4 VS: 2,801
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75% MRLST: MED GRV- GRV BLK, SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO	5700	80% MRLST: MED GRV- GRV BLK, SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO	85% MRLST: MED GRV- GRV BLK, SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO	80% MRLST: MED GRV- GRV BLK, SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO	80% MRLST: MED GRV- GRV BLK, SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, GRD TO
25% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC		20% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC	15% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC	20% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC	20% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC

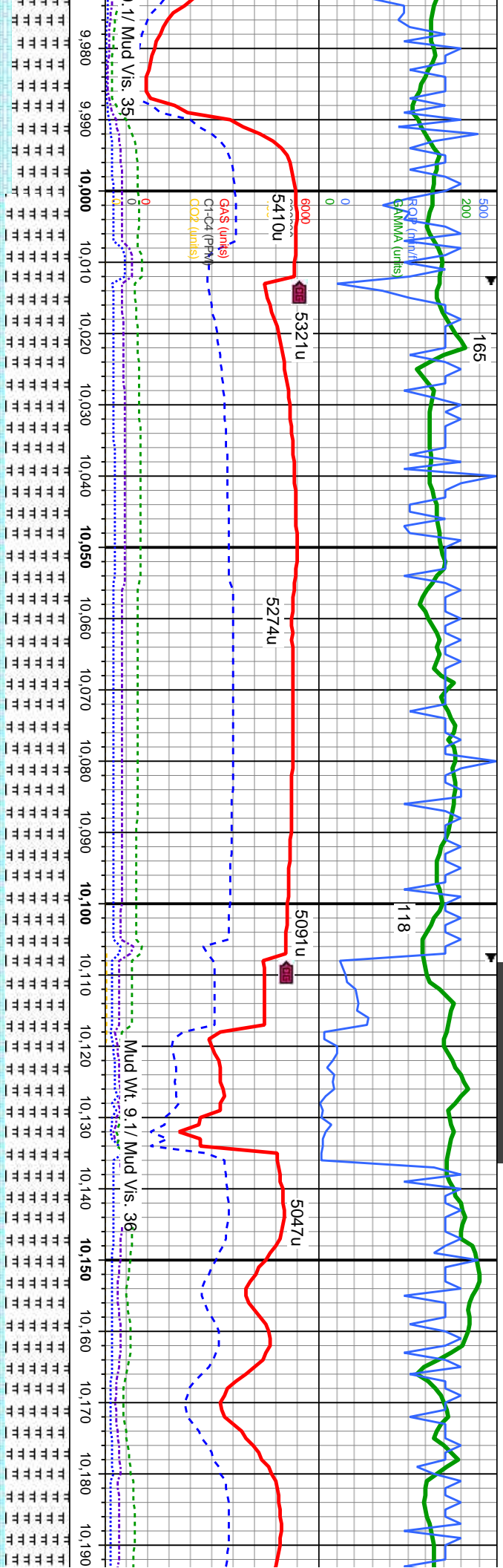
756
3,528.9
tion: 89.9
th: 89.2
444.19

MD: 9,851
TVD: 6,527.91
Inclination: 91.3
Azimuth: 89.3
VS: 3,536

MD: 9,946
TVD: 6,526
Inclination: 91
Azimuth: 89.9
VS: 3,627.65

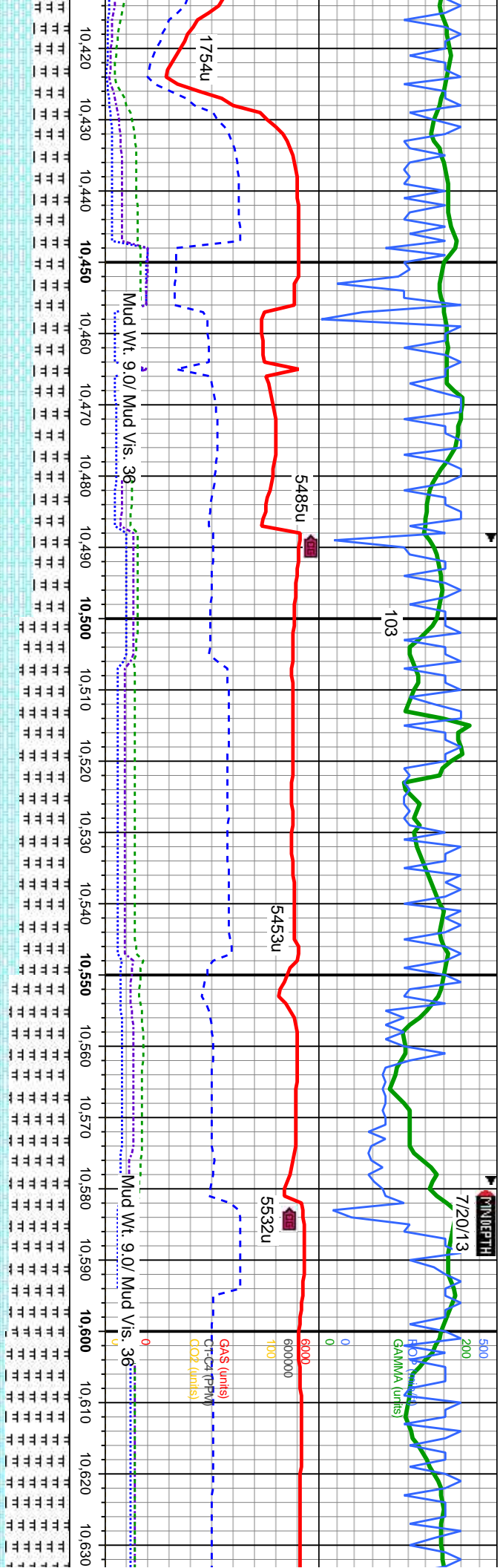
6800



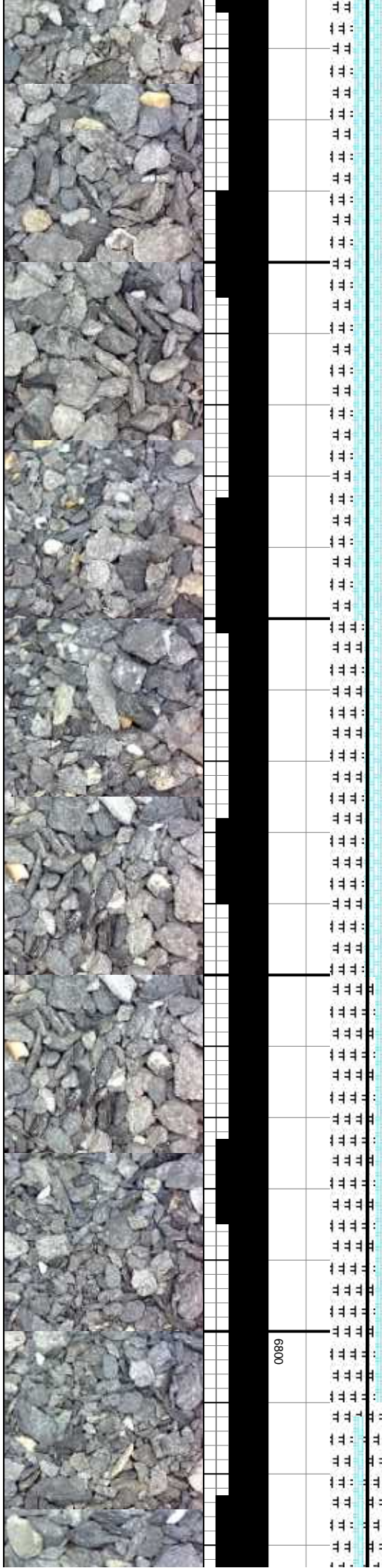


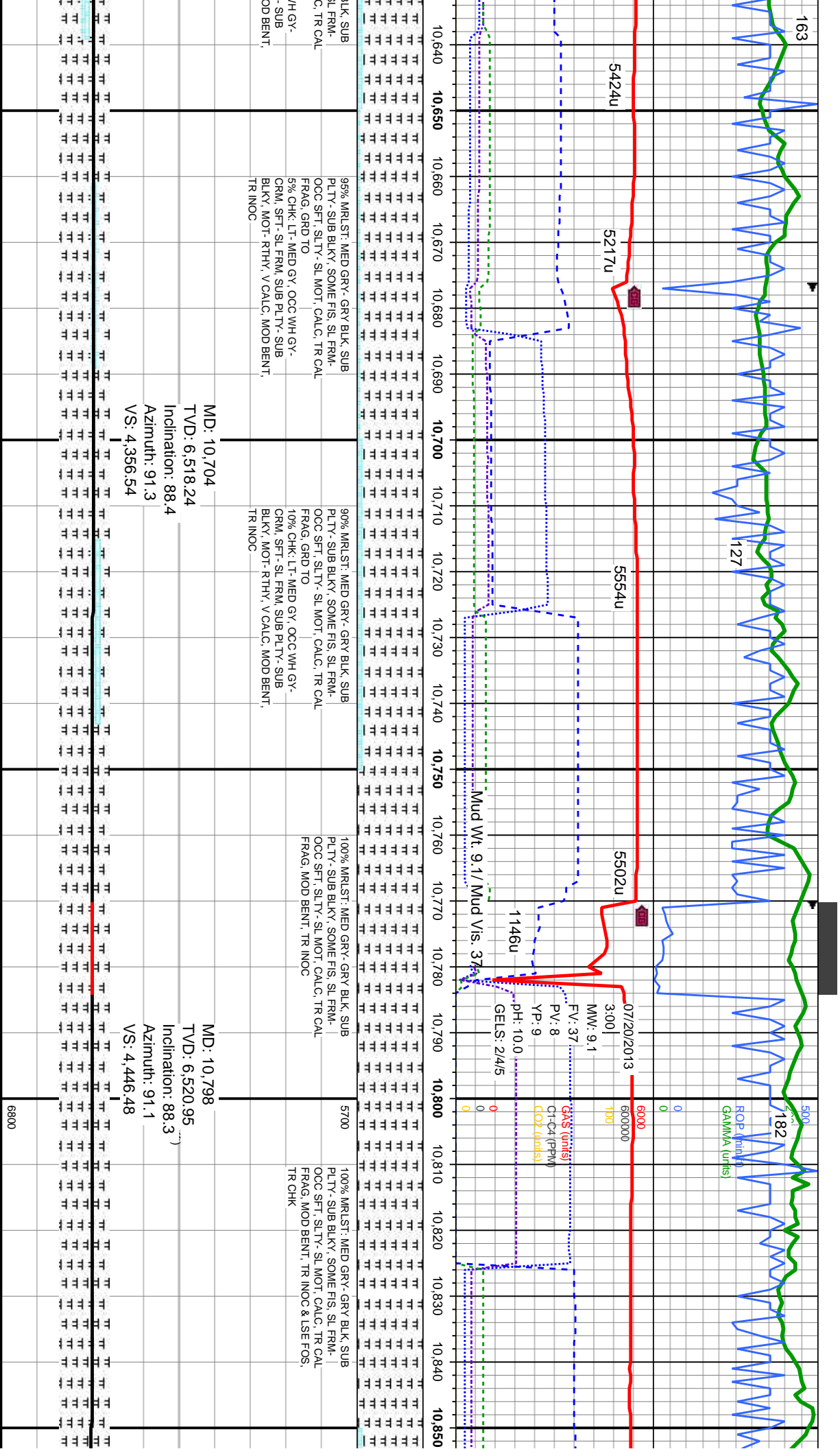
5700	90% MRLST: MED GRV, GRV BLK, SUB PLTY, SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY, SL MOT, CALC, GRD TO 10% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC	90% MRLST: MED GRV, GRV BLK, SUB PLTY, SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY, SL MOT, CALC, GRD TO 10% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC	90% MRLST: MED GRV, GRV BLK, SUB PLTY, SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY, SL MOT, CALC, GRD TO 10% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC
	MD: 10.041 TVD: 6,523.68 Inclination: 91.8 Azimuth: 90.9 VS: 3,718.92		MD: 10.135 TVD: 6,521.14 Inclination: 91.3 Azimuth: 89.6 VS: 3,809.3
6800			





10,420	10,430	10,440	10,450	10,460	10,470	10,480	10,490	10,500	10,510	10,520	10,530	10,540	10,550	10,560	10,570	10,580	10,590	10,600	10,610	10,620	10,630
70% MRLST: MED GRY- GRV BLK, SUB PLTY- SUB BLKY, SOME FIS, SL FRM- OCC SFT, SLTY- SL MOT, CALC, MOD TO 50% CHK: LT- MED GY, OCC WH GY- CRM, SFT- SL FRM, SUB PLTY- SUB BLKY, MOT- RTHY, V CALC, MOD BENT, TR INOC																					
MD: 10,514 TVD: 6,515.34 Inclination: 89.7 Azimuth: 90.7 VS: 4,174.47																					





Depth (ft)	10,640	10,650	10,660	10,670	10,680	10,690	10,700	10,710	10,720	10,730	10,740	10,750	10,760	10,770	10,780	10,790	10,800	10,810	10,820	10,830	10,840	10,850
Substratum	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB	BLK. SUB
Formation	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL	TR CAL
Notes																						

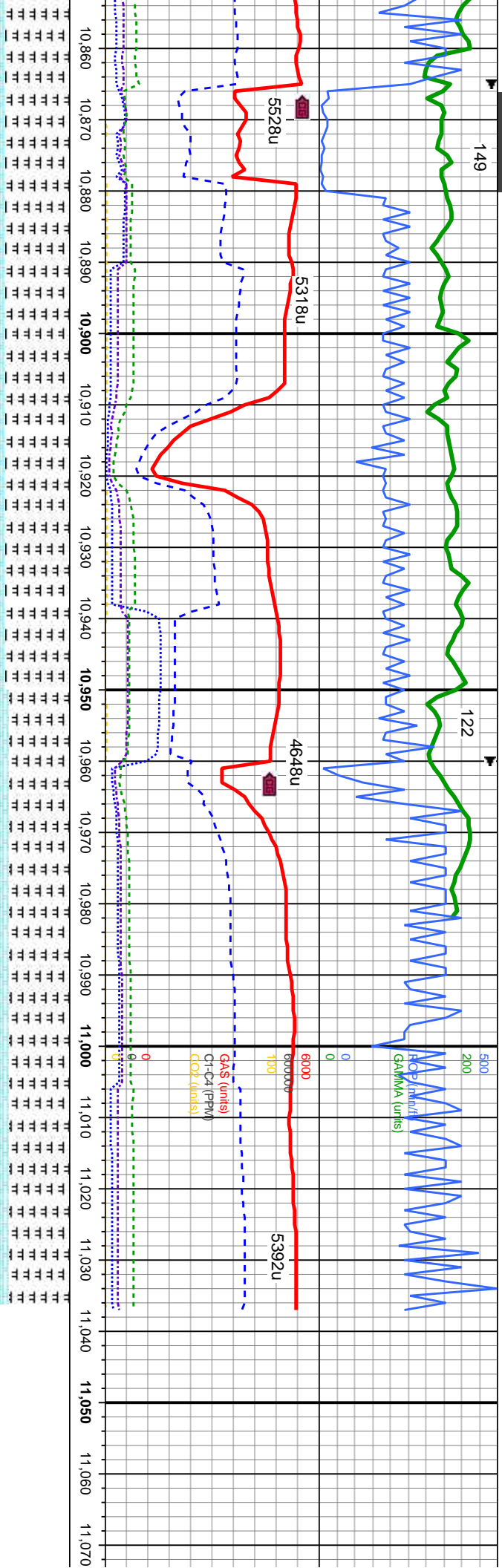
MD: 10,704
TVD: 6,518.24
Inclination: 88.4
Azimuth: 91.3
VS: 4,356.54

MD: 10,798
TVD: 6,520.95
Inclination: 88.3
Azimuth: 91.1
VS: 4,446.48



149

122



90% MRLST: MED GRY- GRV BLK, SUB
PLTY- SUB BLKY, SOME FIS, SL FRM-
OCC SFT, SLTY- SL MOT, CALC, TR CAL
FRAG, GRD TO
10% CHK: LT- MED GY, OCC WH GY-
CRM, SFT- SL FRM, SUB PLTY- SUB
BLKY, MOT- RTHY, V CALC, MOD BENT,
SOME INOC

90% MRLST: MED GRY- GRV BLK, SUB
PLTY- SUB BLKY, SOME FIS, SL FRM-
OCC SFT, SLTY- SL MOT, CALC, TR CAL
FRAG, GRD TO
10% CHK: LT- MED GY, OCC WH GY-
CRM, SFT- SL FRM, SUB PLTY- SUB
BLKY, MOT- RTHY, V CALC, MOD BENT,
SOME INOC

85% MRLST: MED GRY- GRV BLK, SUB
PLTY- SUB BLKY, SOME FIS, SL FRM-
OCC SFT, SLTY- SL MOT, CALC, TR CAL
FRAG, GRD TO
15% CHK: LT- MED GY, OCC WH GY-
CRM, SFT- SL FRM, SUB PLTY- SUB
BLKY, MOT- RTHY, V CALC, SOME
INOC, TR BENT

85% MRLST: MED GRY- GRV BLK, SUB
PLTY- SUB BLKY, SOME FIS, SL FRM-
OCC SFT, SLTY- SL MOT, CALC, TR CAL
FRAG, GRD TO
15% CHK: LT- MED GY, OCC WH GY-
CRM, SFT- SL FRM, SUB PLTY- SUB
BLKY, MOT- RTHY, V CALC, SOME
INOC, TR BENT

TD HORIZONTAL @
07/20/2013 06:56 N
THANK YOU FOR U
COLUMBINE LOGG

MD: 10,893

TVD: 6,524.68

Inclination: 87.2

Azimuth: 91.5

VS: 4,537.29

MD: 10,968

TVD: 6,528.73

Inclination: 86.6

Azimuth: 91.8

VS: 4,608.8

TVD (ft)

6800



