

HALLIBURTON

RESERVOIR
MONITORING
TOOL - ELITE

Company		BILL BARRETT CORPORATION					
Well	PAPPENHEIM 6-62-27-3225BH2						
Field	WATTENBERG						
County	WELD	State	CO				
Company		BILL BARRETT CORPORATION					
Well	PAPPENHEIM 6-62-27-3225BH2						
Field	WATTENBERG						
County	WELD	State	CO				
API No.: 05123392950000		Serv #: 901634215					
Location: SHL: 2582' FSL & 205' FWL SWNW		Other Services					
LATITUDE: 40.458070		CBL-M					
LONGITUDE: -104.317490							
Sec: 27 Twp: 6N Rge: 62W							
Permanent Datum		GROUND LEVEL Elevation 4733					
Log Measured From	23 Ft. above perm. datum		K.B. 4756' D.F. 4756' G.L. 4733				
Drilling Measured From	K.B.						
Date @ Time Logged	9-SEPT-14 @ 04:30	Type Fluid in Hole	FRESH WATER				
Run No.	ONE	Density of Fluid	8.4#				
Depth - Driller	16111'	Fluid Level	320'				
Depth - Logger	5627'	Cement Top Est. Logged	SEE LOG				
Bottom - Logged Interval	5619'	Equipment / Location	11072147 / BRIGHTON, CO				
Top - Log Interval	SURFACE	Recorded by	J. SCHMIDT / D.SOLIS				
Max. Recorded Temp.	N/A	Witnessed by	R. SCHULTZ				
CEMENTING DATA	Surface	Protection	Liner				
	String	String					
Date / Time Cemented							
Primary / Squeeze							
Expected Compressive Strength	psi@ hrs	psi@ hrs	psi@ hrs				
Cement Volume							
Cement Type / Weight	/	/	/				
Formulation							
Mud Type / Mud Wgt.	/	/	/				
Borehole Record		Casing & Tubing Record					
Run Number	Bit	From	To	Size	Weight	From	To
CONDUCTOR	24	0	60	16	65	0	60
SURF	13 1/2	0	800	9 5/8	36	0	800
1ST	8 3/4	0	6694	7	26	0	6694
1ST LINER	6 1/8	5627	16111	4 1/2	11.6	5627	16111

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HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

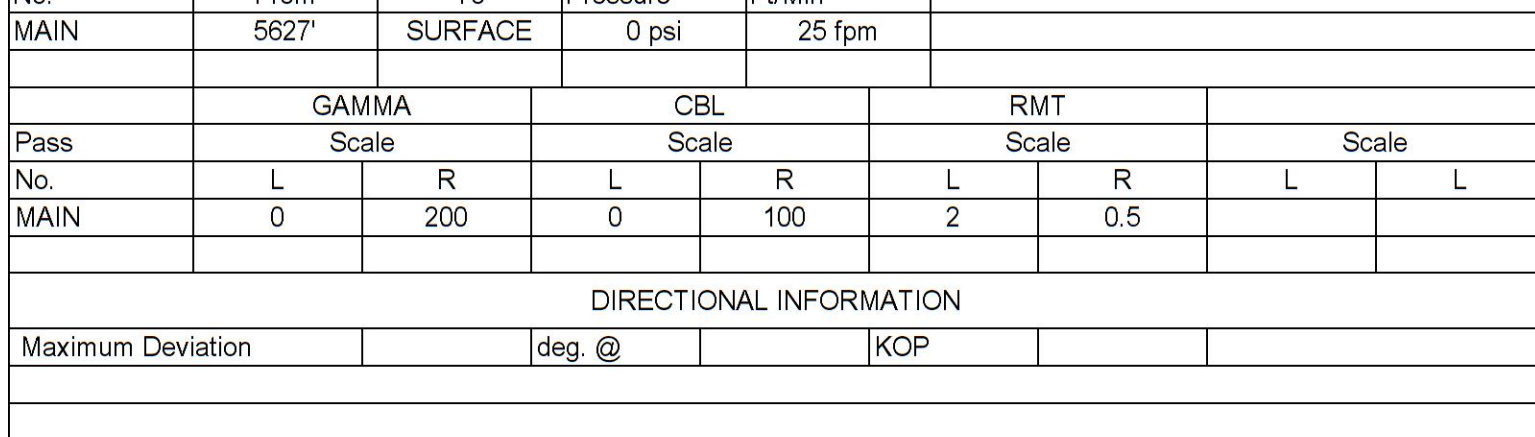
Comments

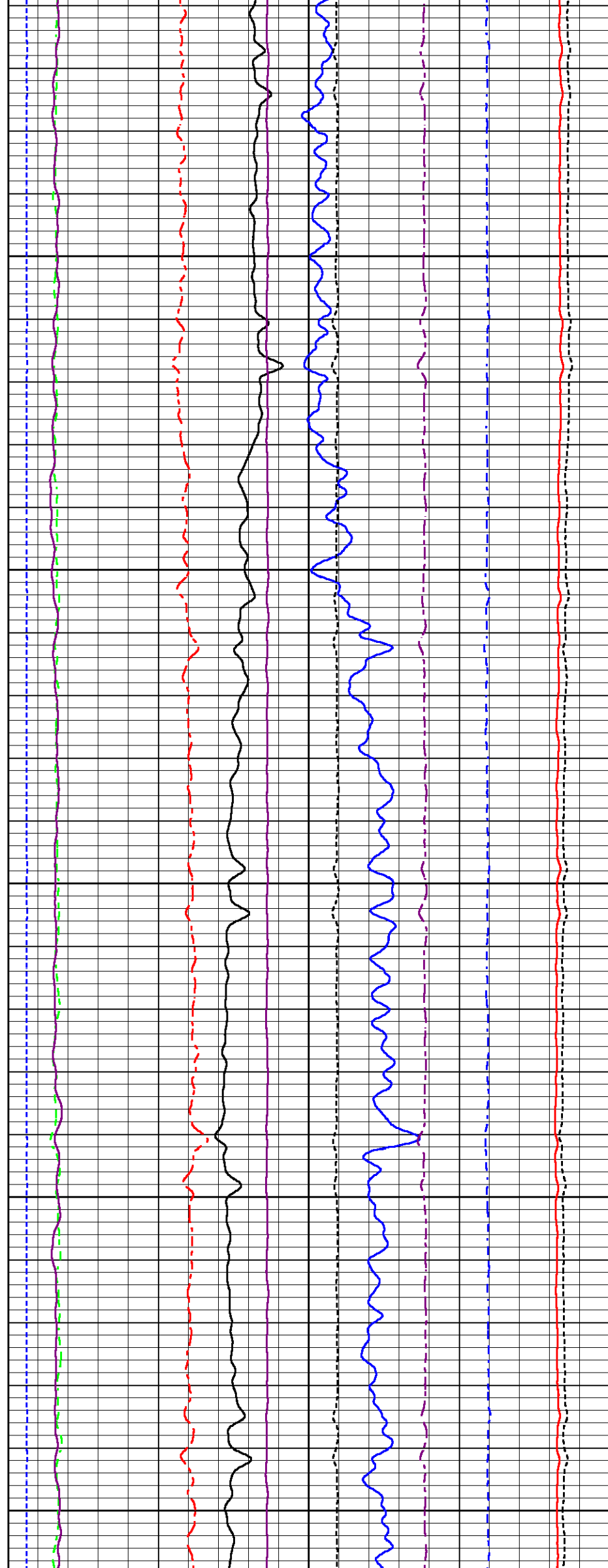
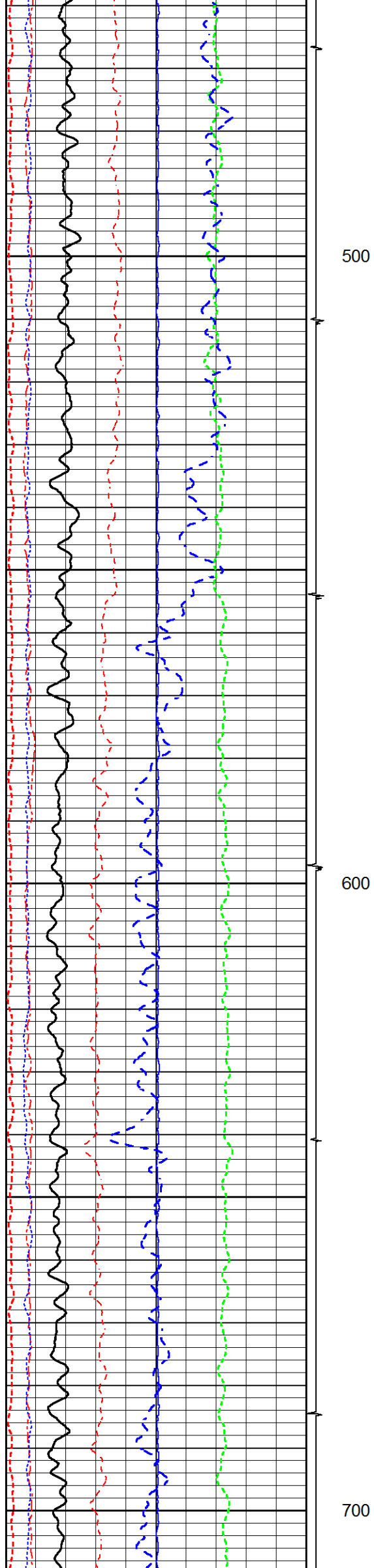
TOOLS WERE RAN IN 7.0" 26# CASING.
RMT RAN IN SIGMA MODE WITH A GENERATOR VOLTAGE OF 80.

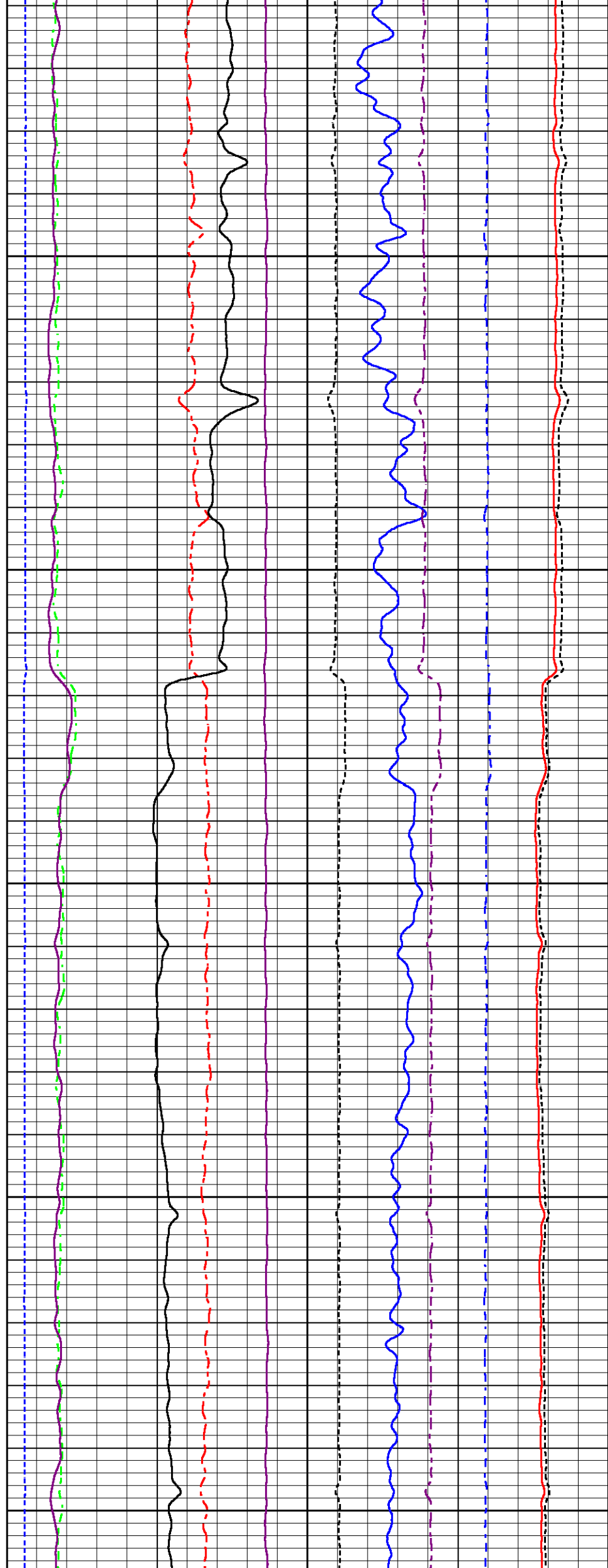
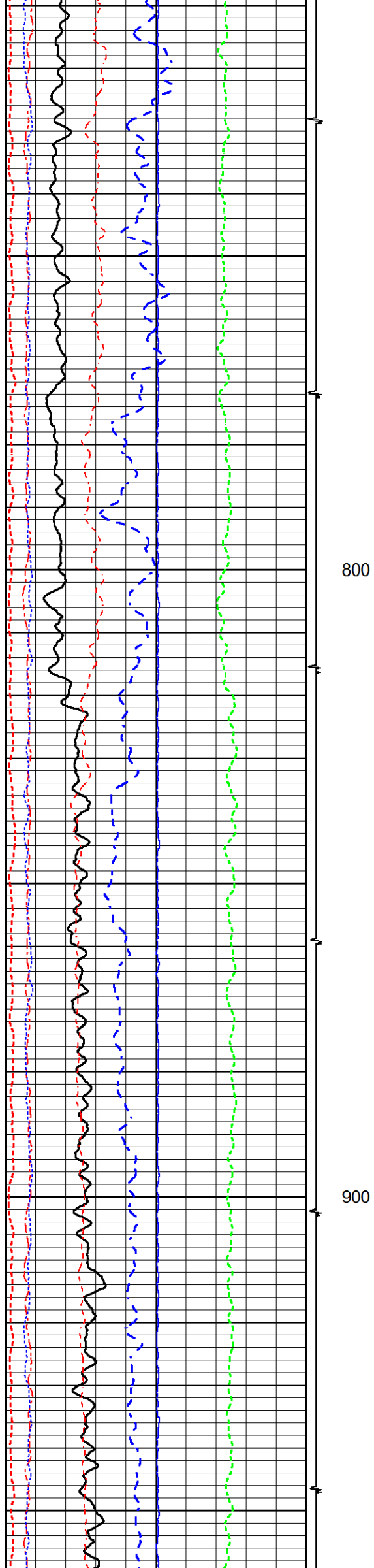
YOUR CREW: G. SELLERS, L. SIMONS.

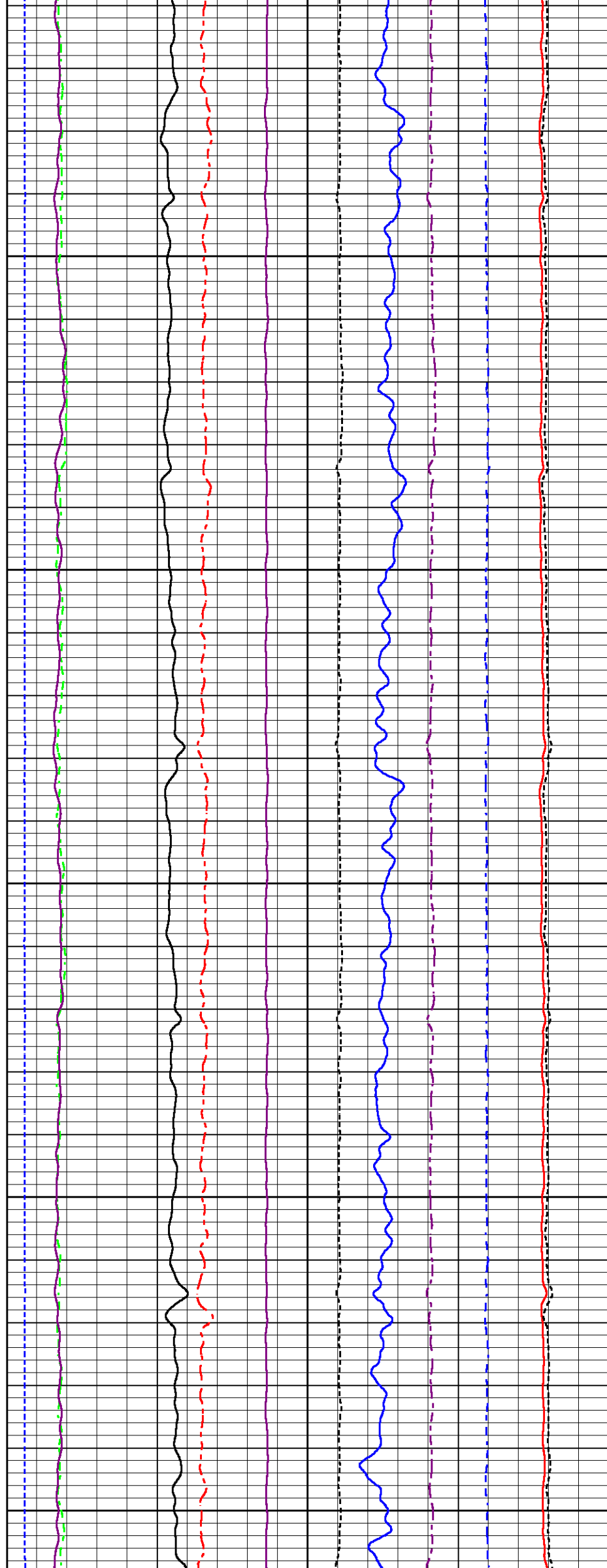
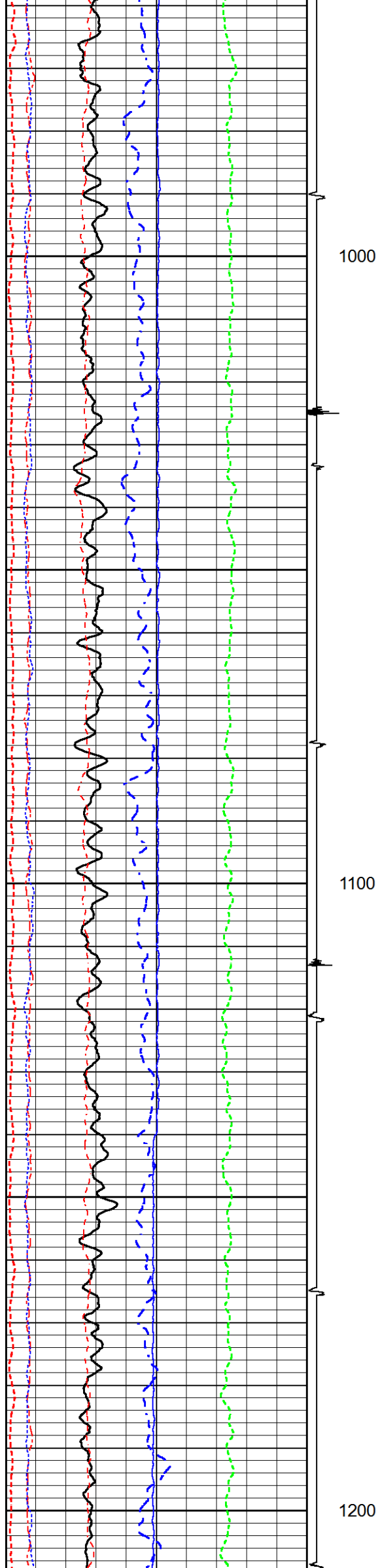
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES.

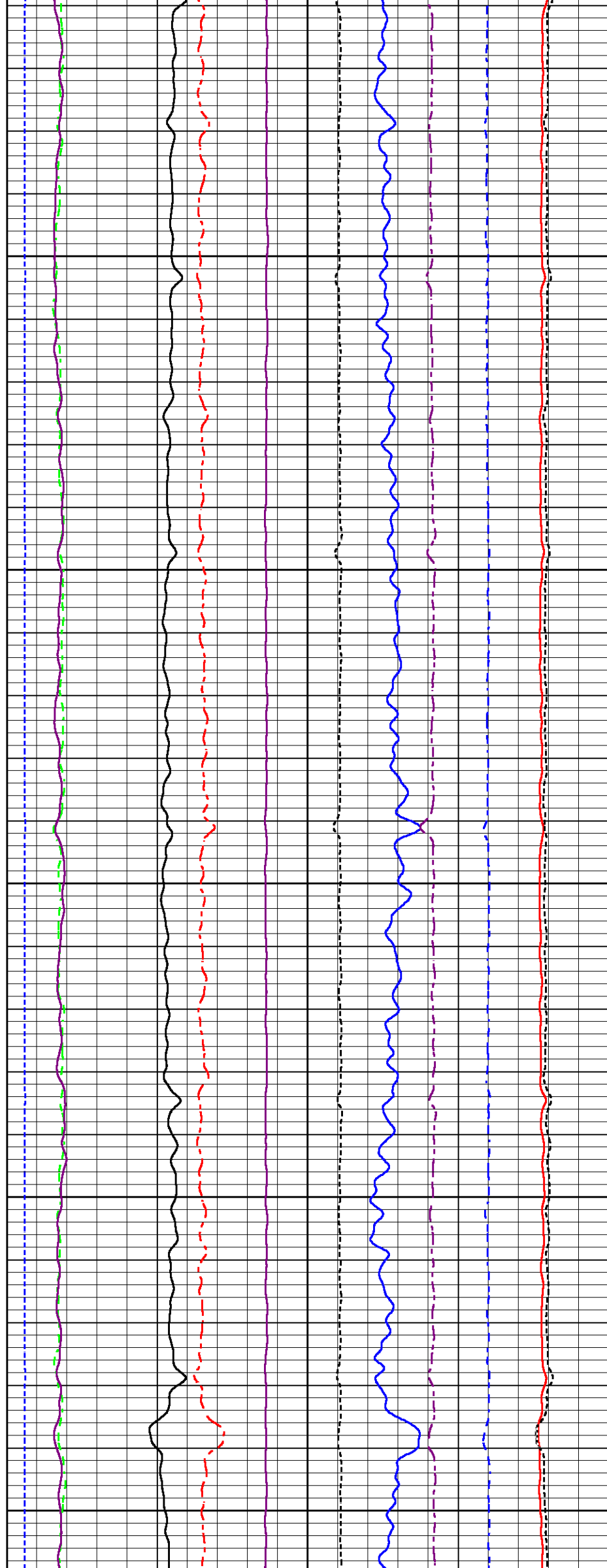
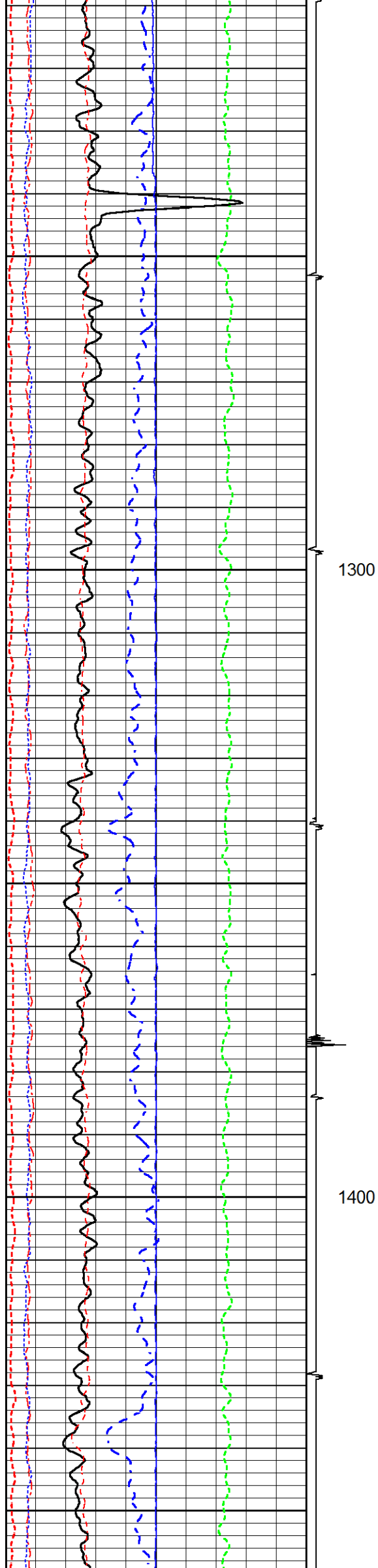
Service Ticket No.	901634215	API No.	05123392950000	PGM Ver	8.0
The Well Name, Location, Borehole Description, and / or Cementing Data Furnished by Client					
EQUIPMENT DATA					
GAMMA		CBL		RMT	
Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11495480	Serial No.	1208113	Serial No.	12210614
Model No.	TTTCU-002	Model No.	CBL-M	Model No.	RMTi
Diameter	1.69"	Diameter	2.75"	Diameter	2.125"
LOGGING DATA					
General Data					
Pass	Depths		Well Head	Speed	Logging Run Comments
No	From	To	Pressure	Ft/Min	

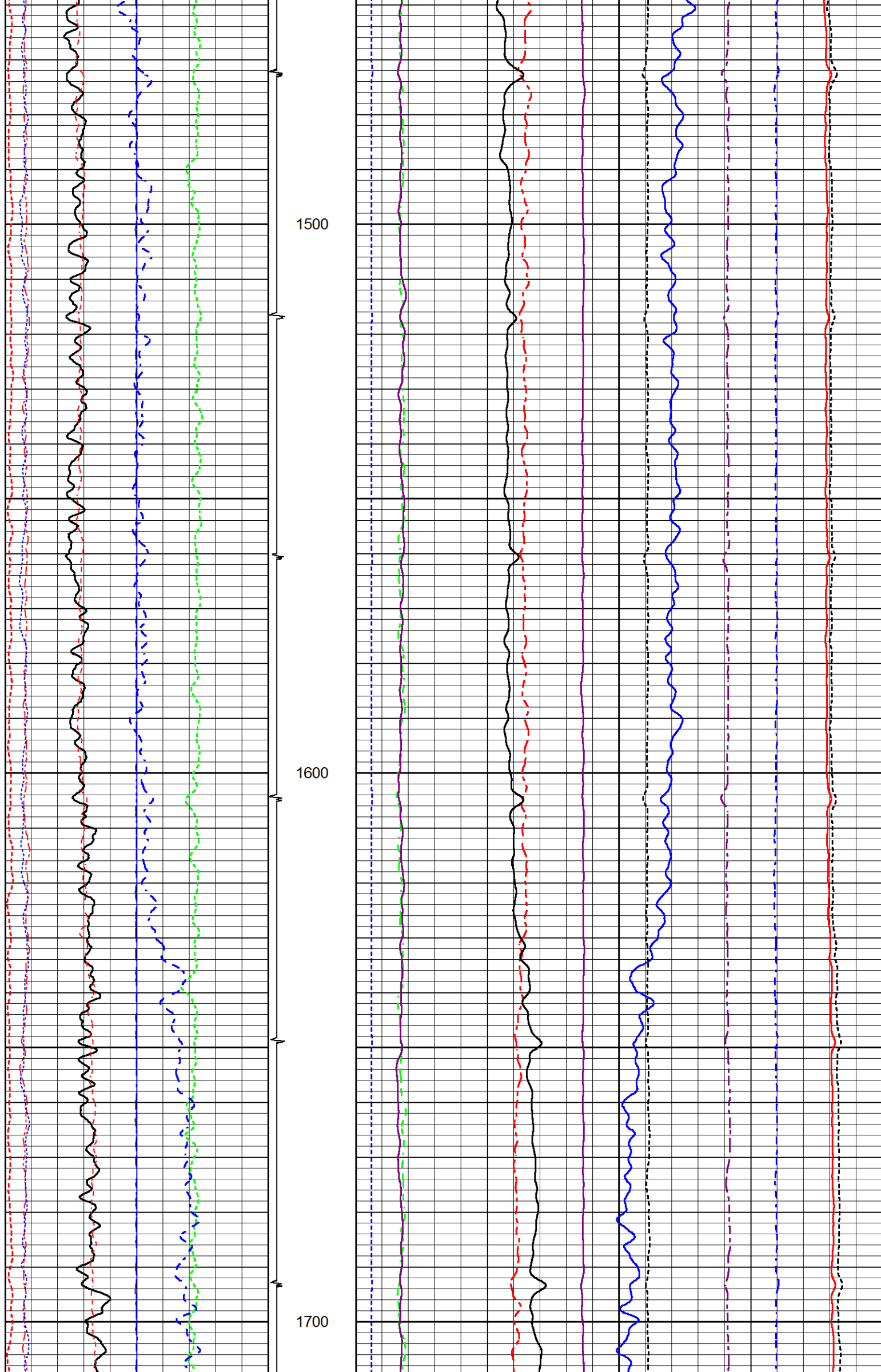


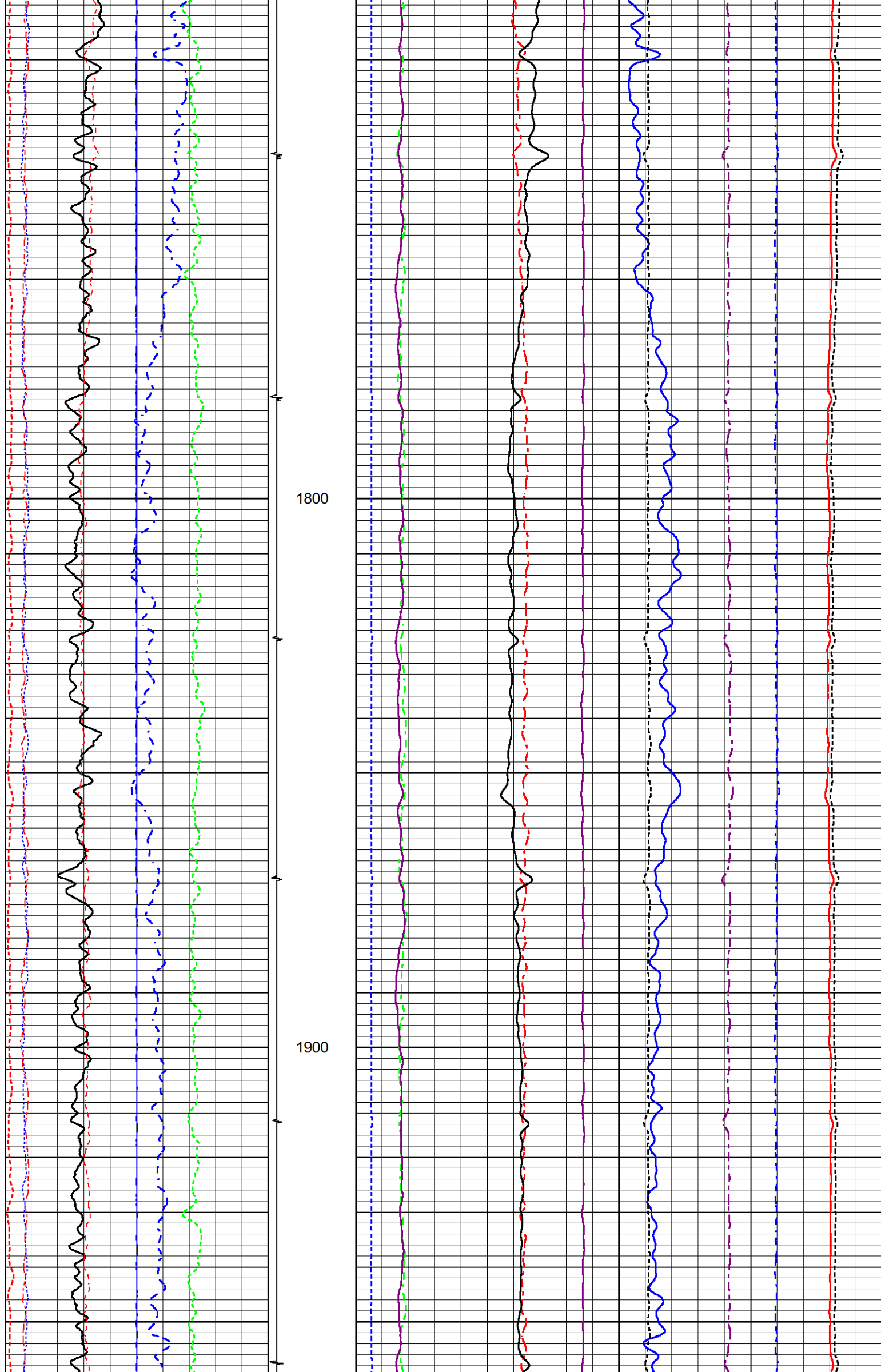


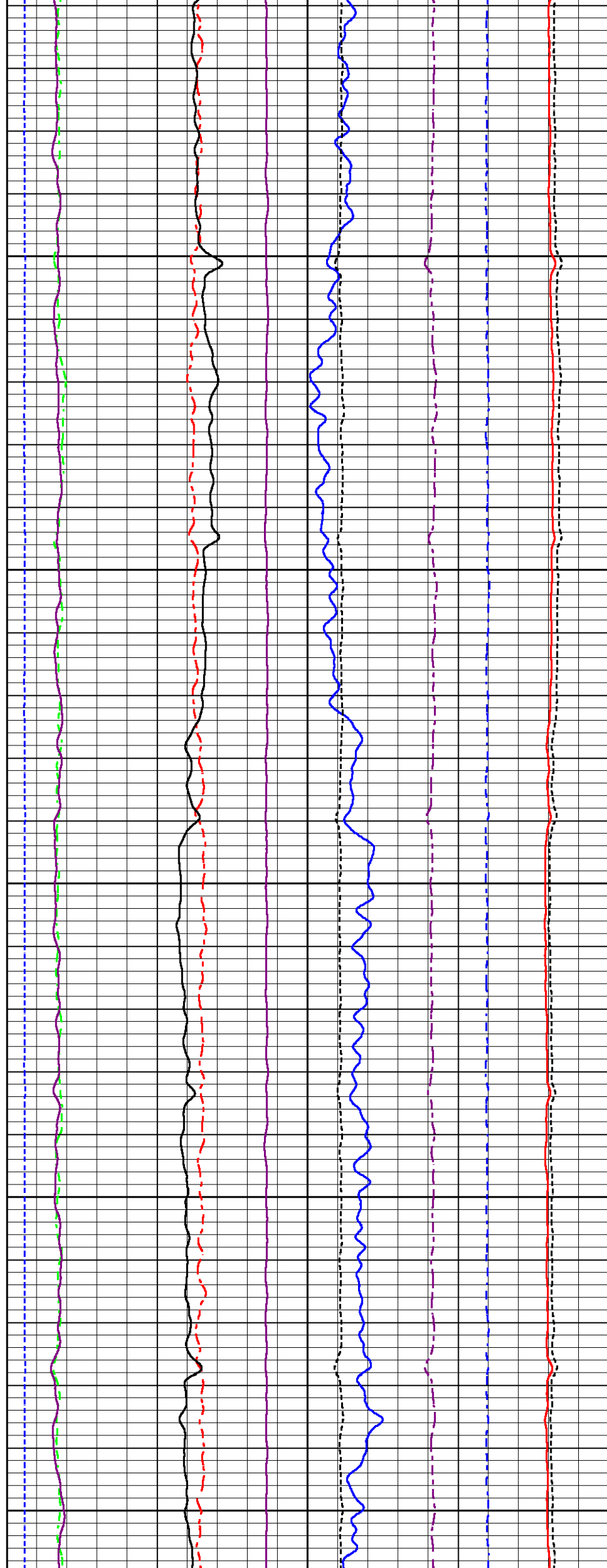
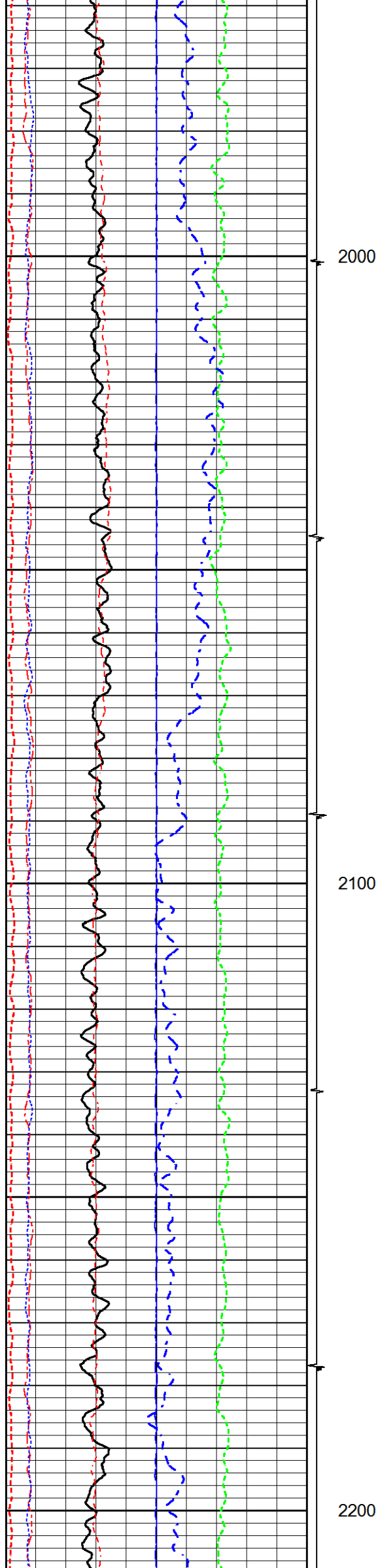


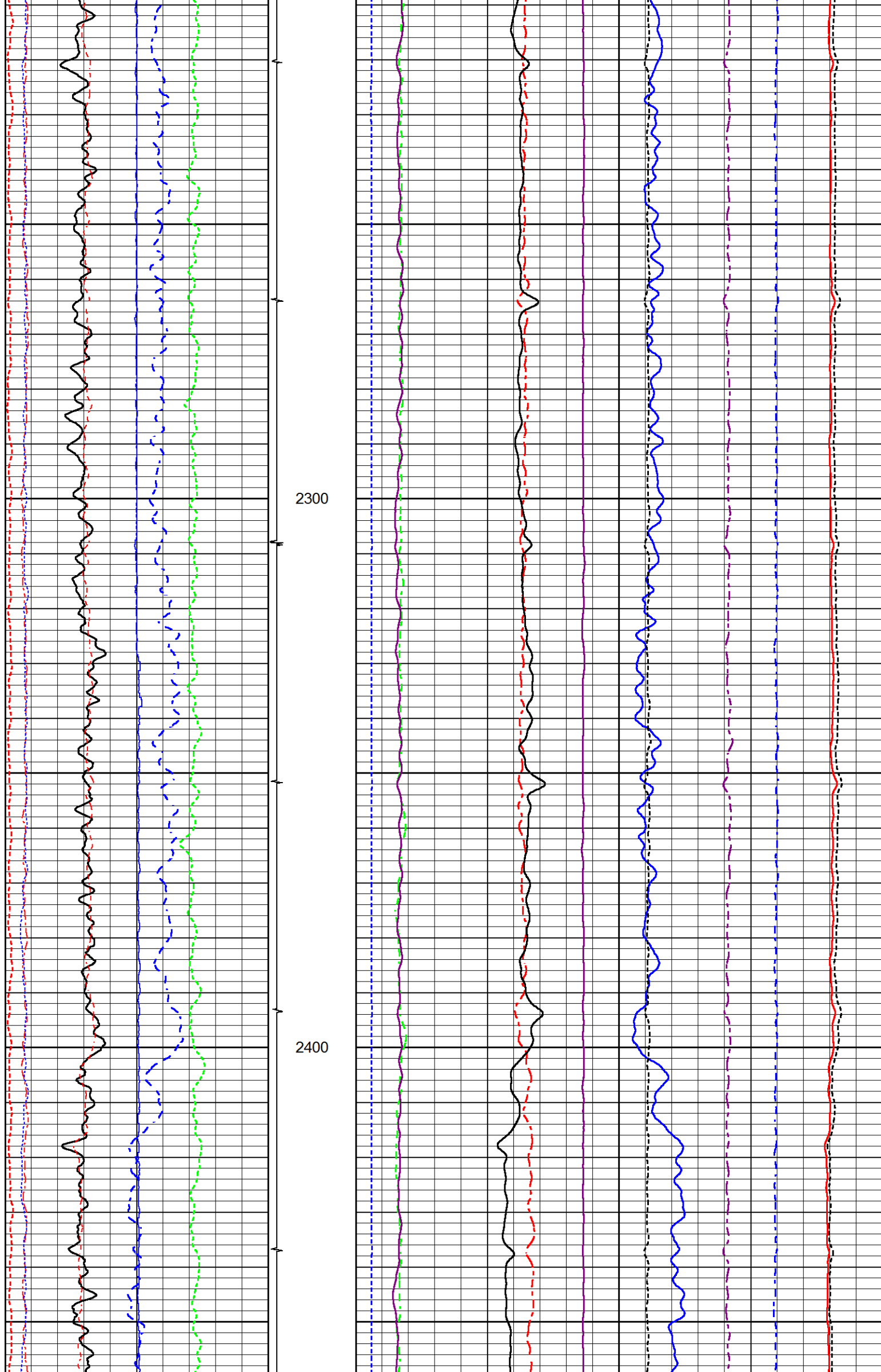


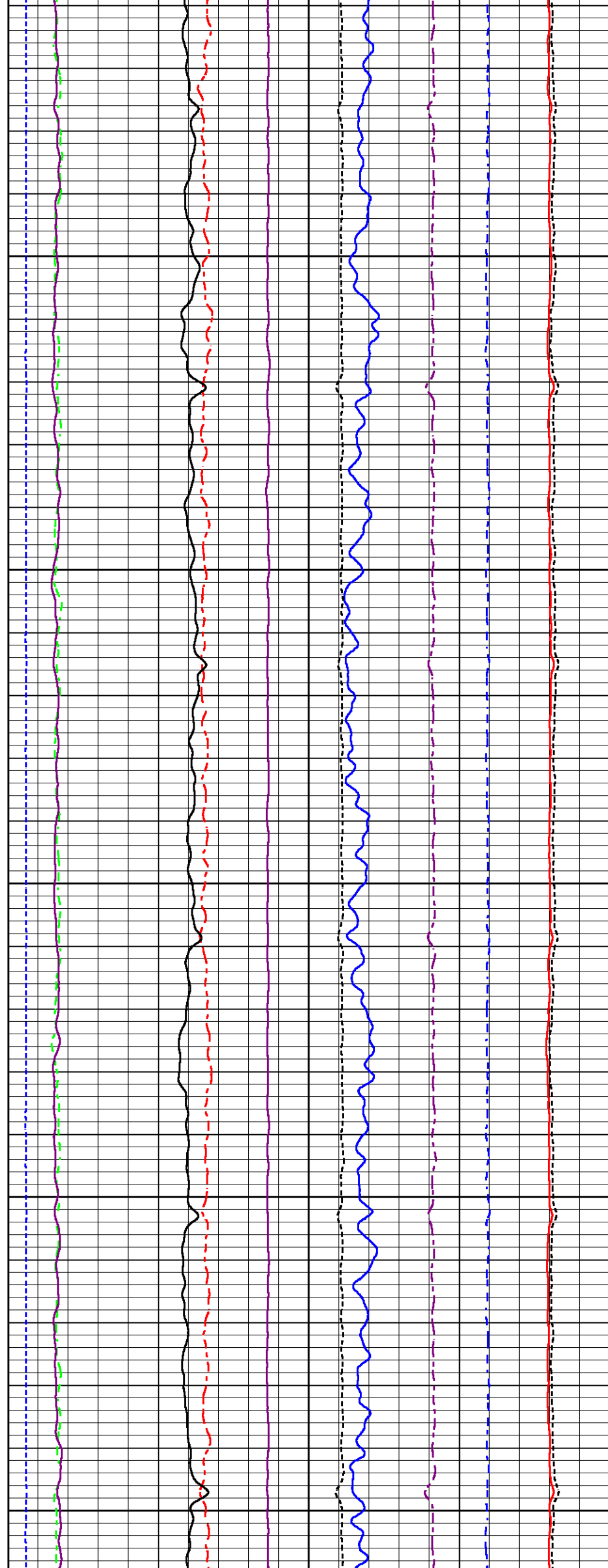
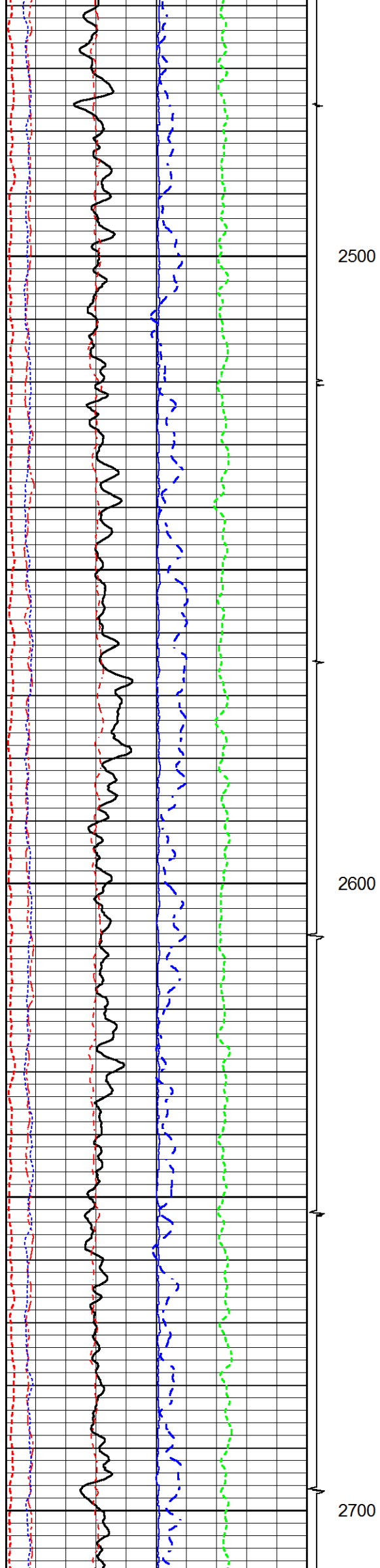


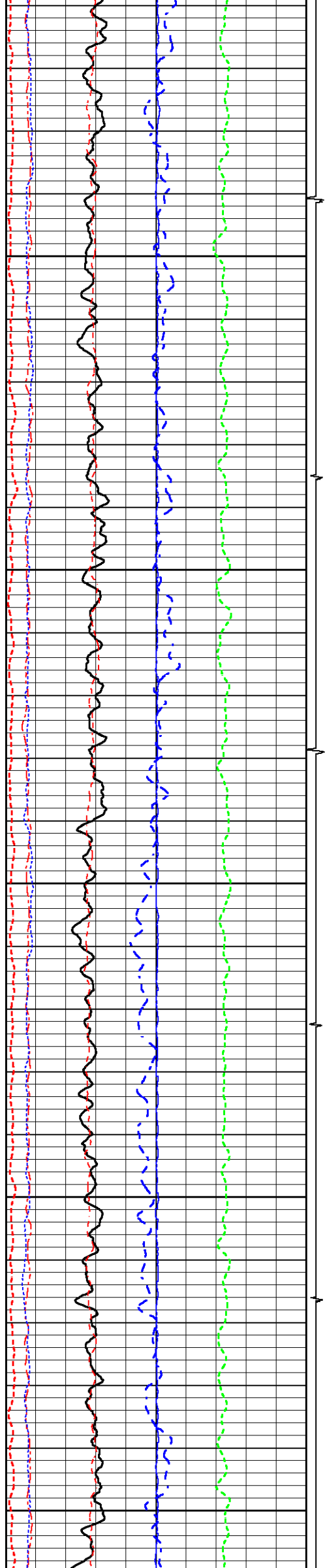






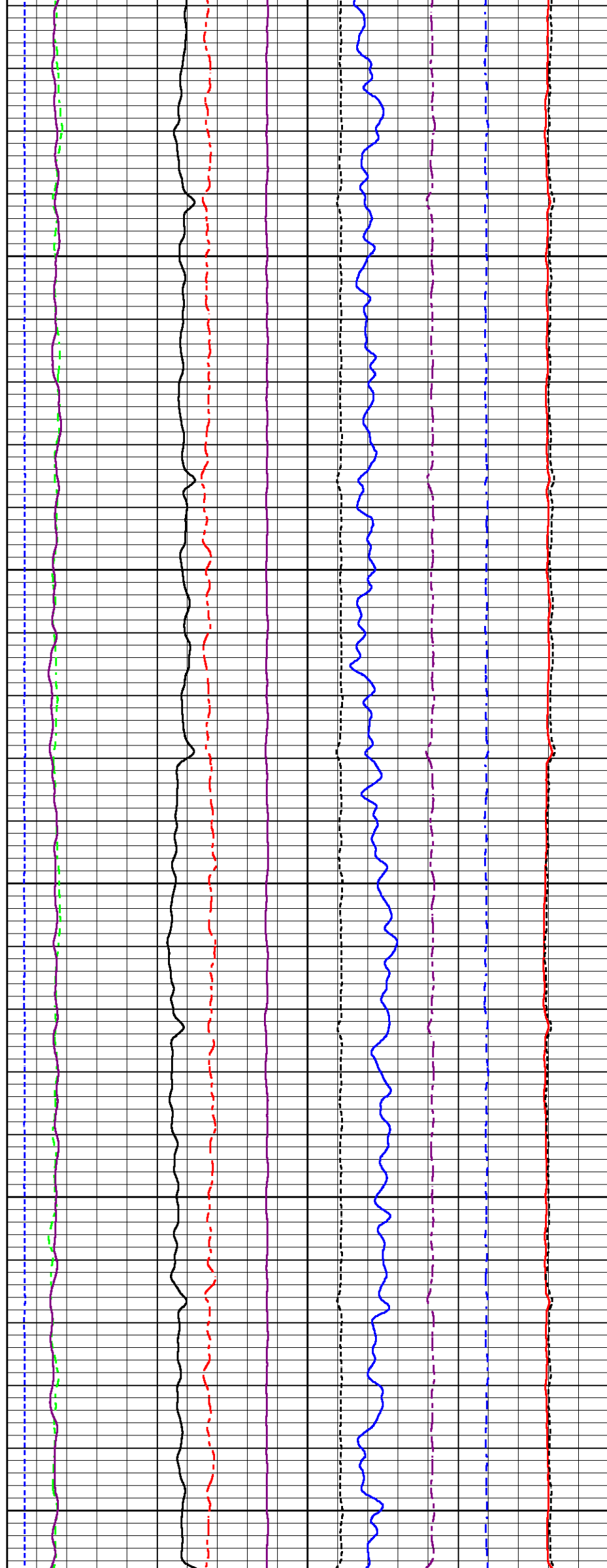


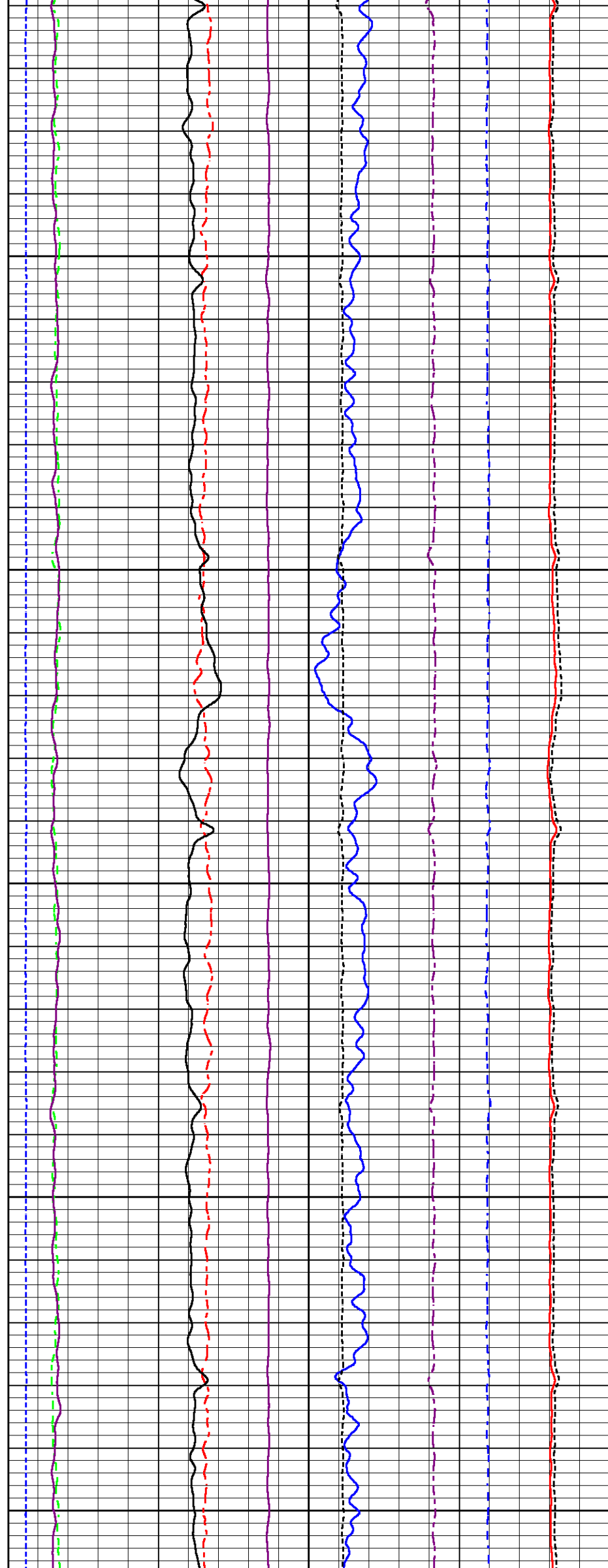
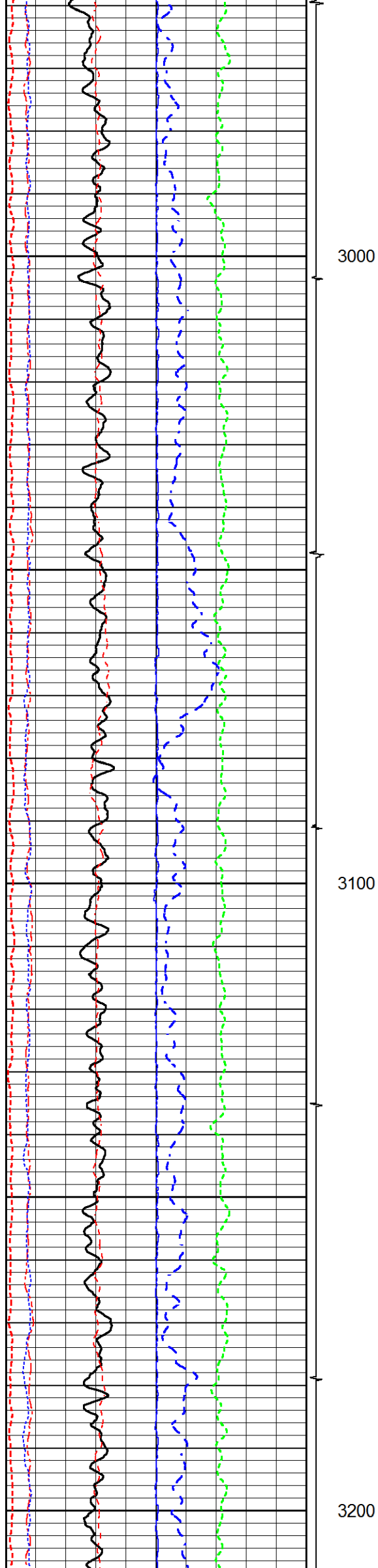


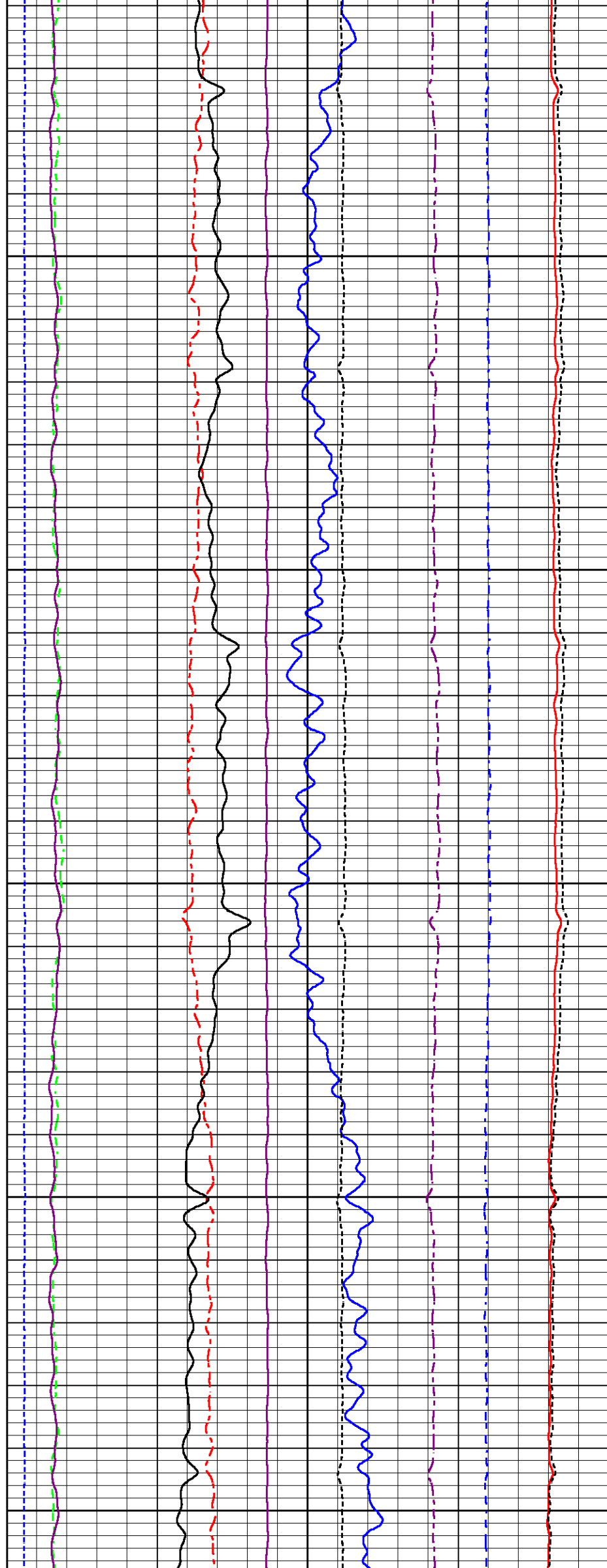
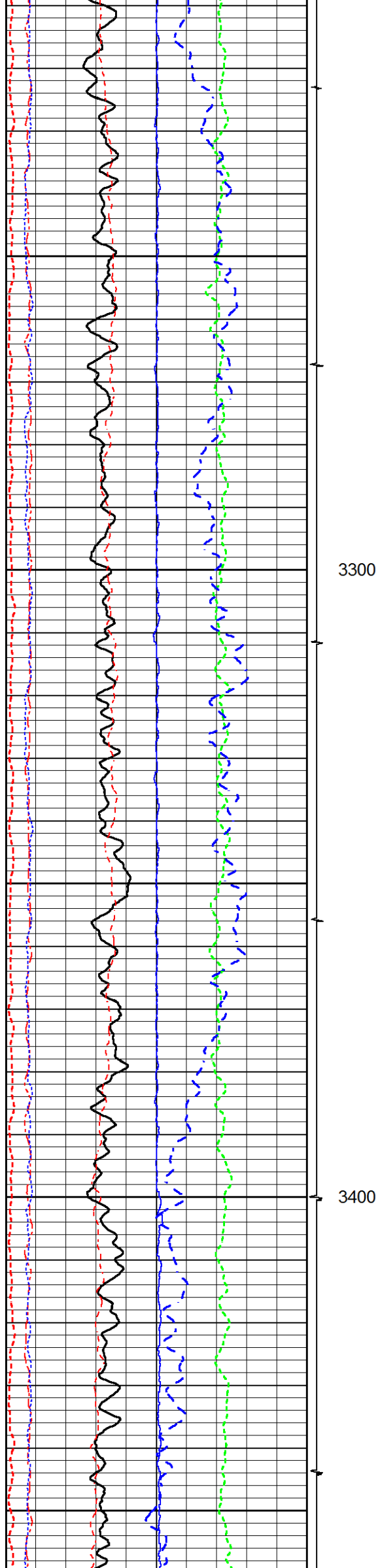


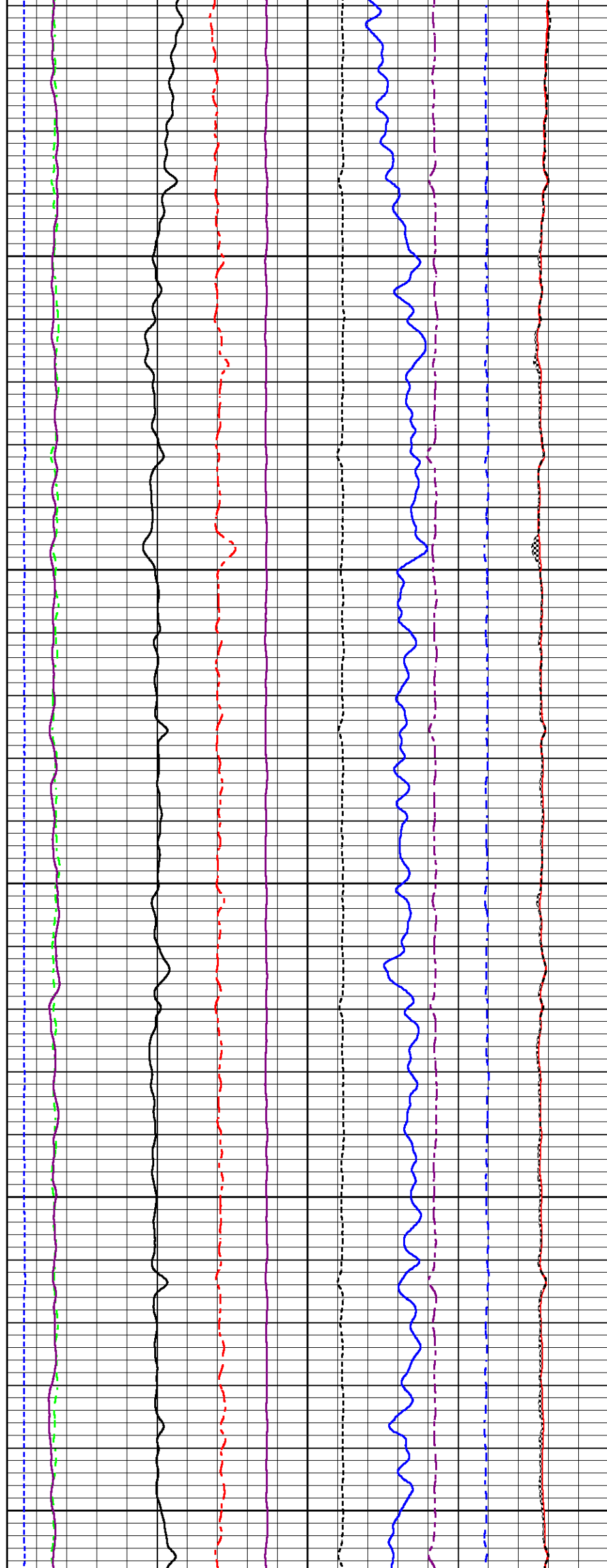
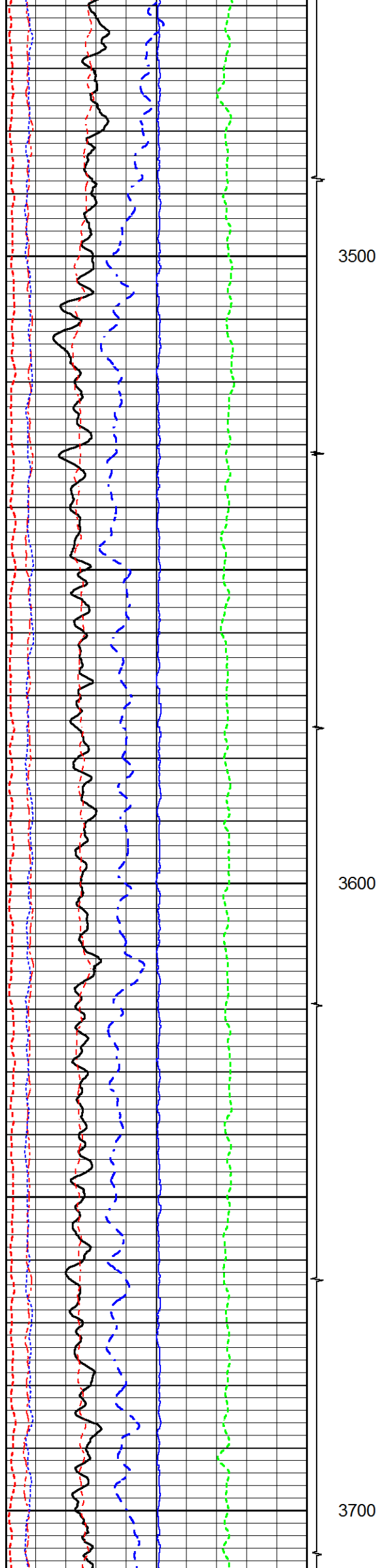
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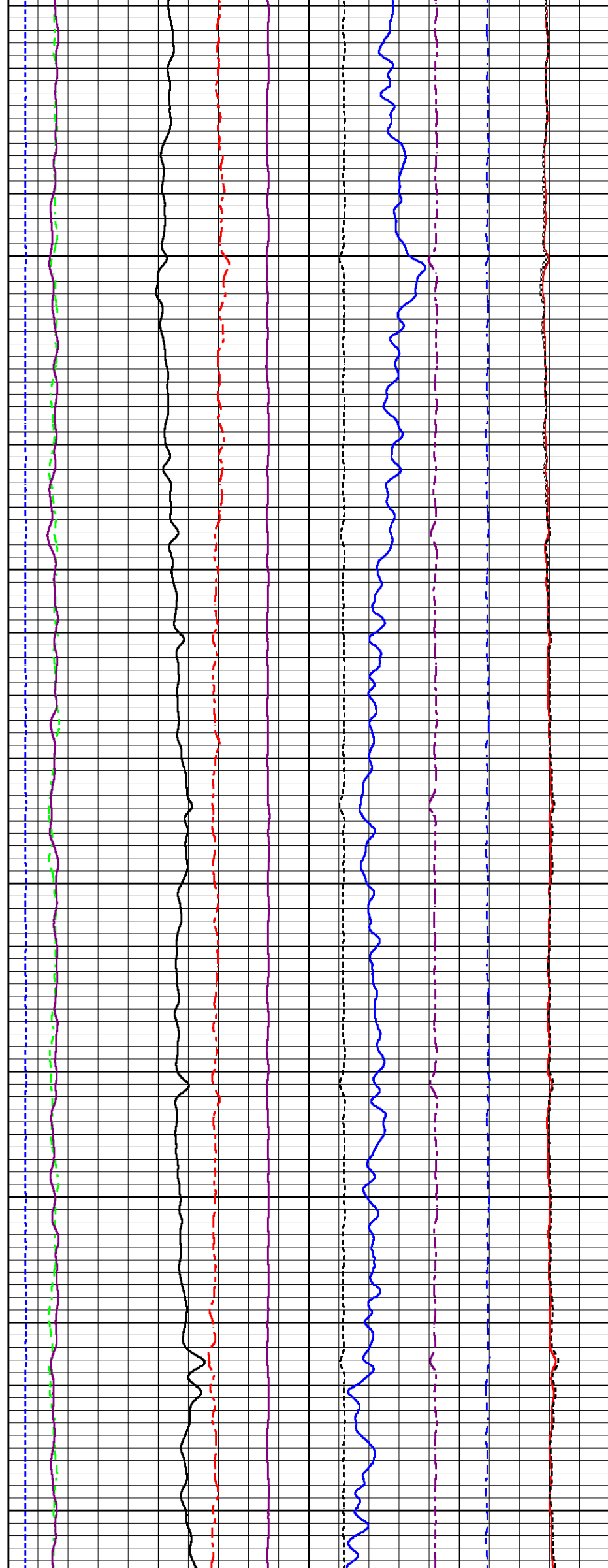
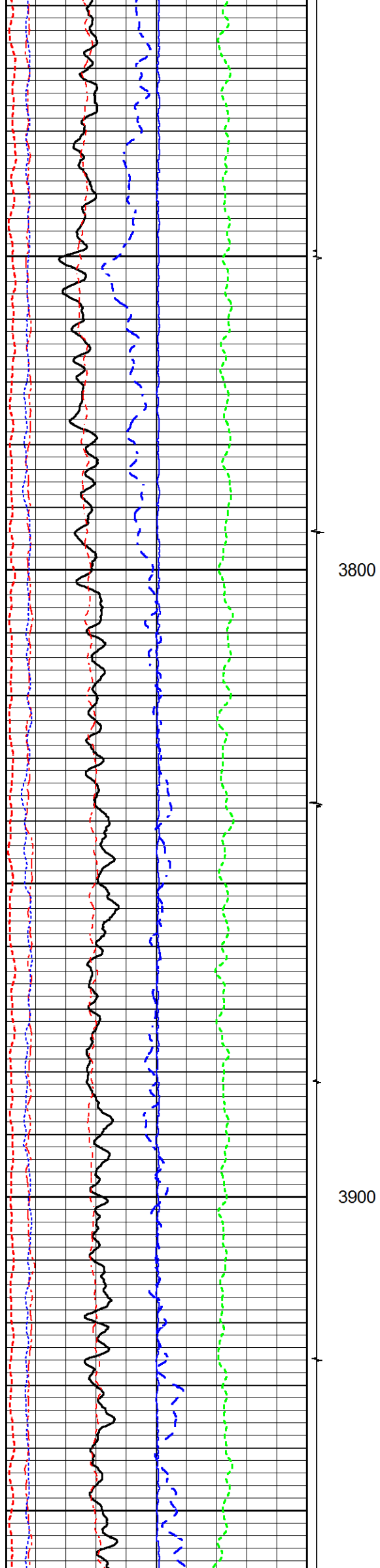
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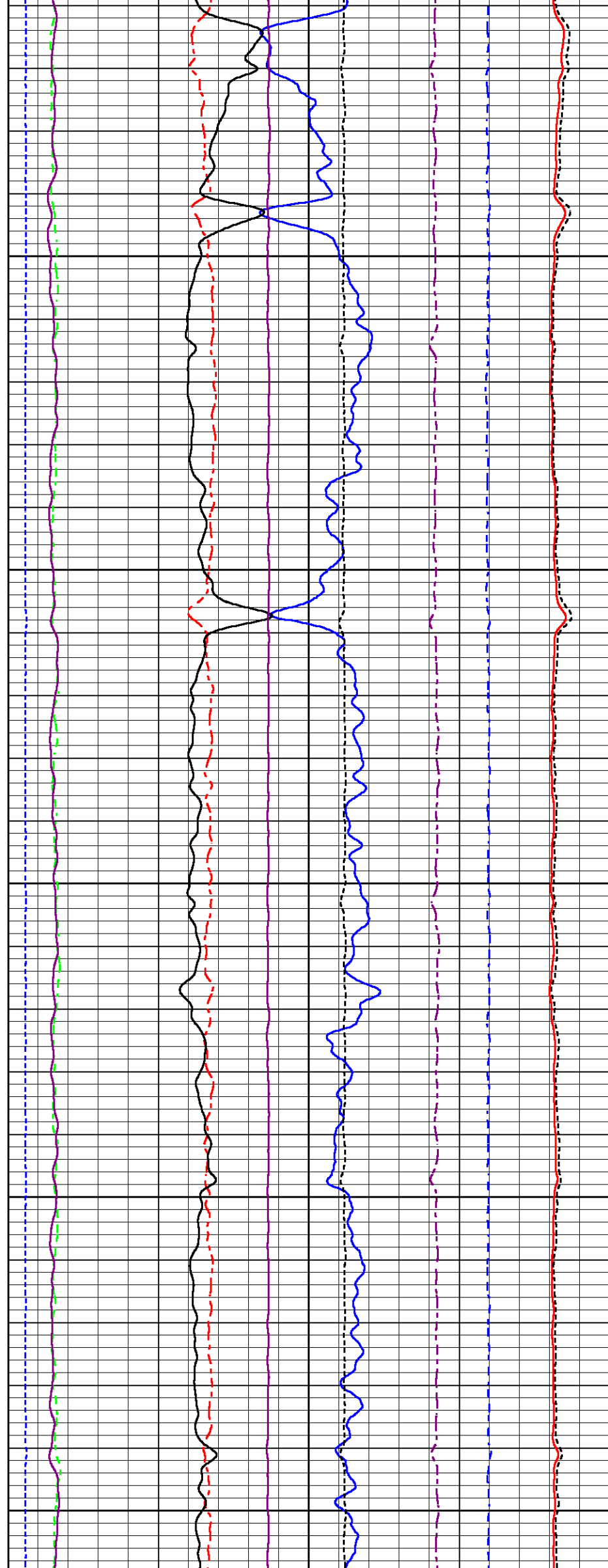
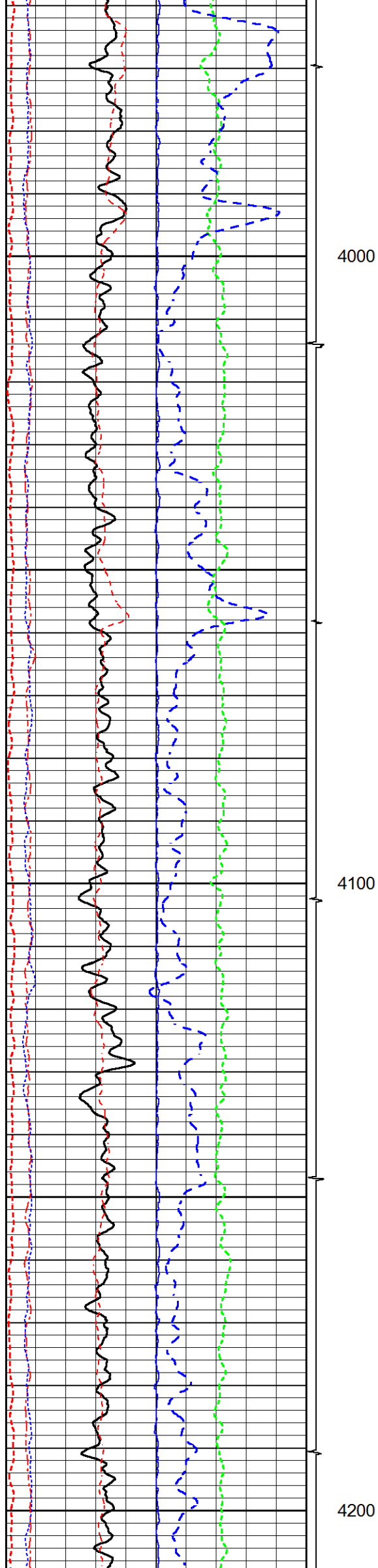


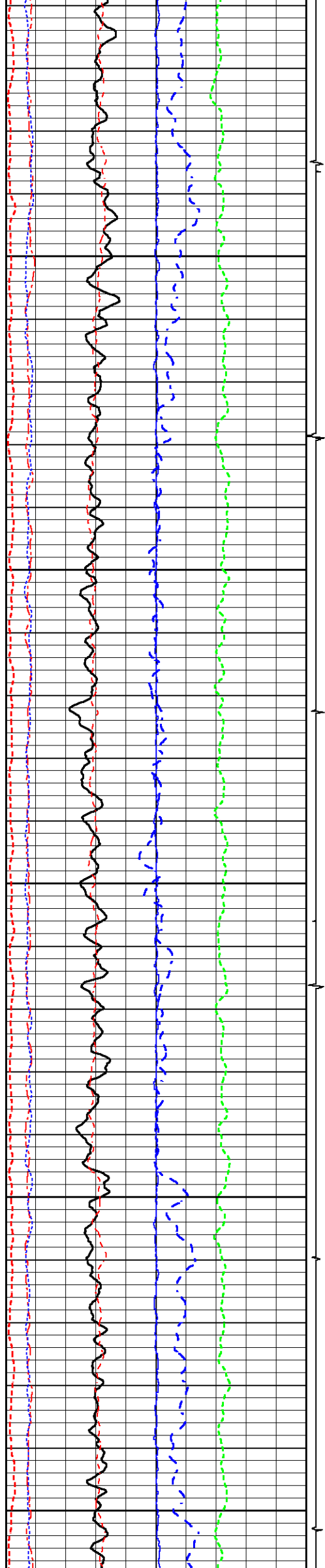






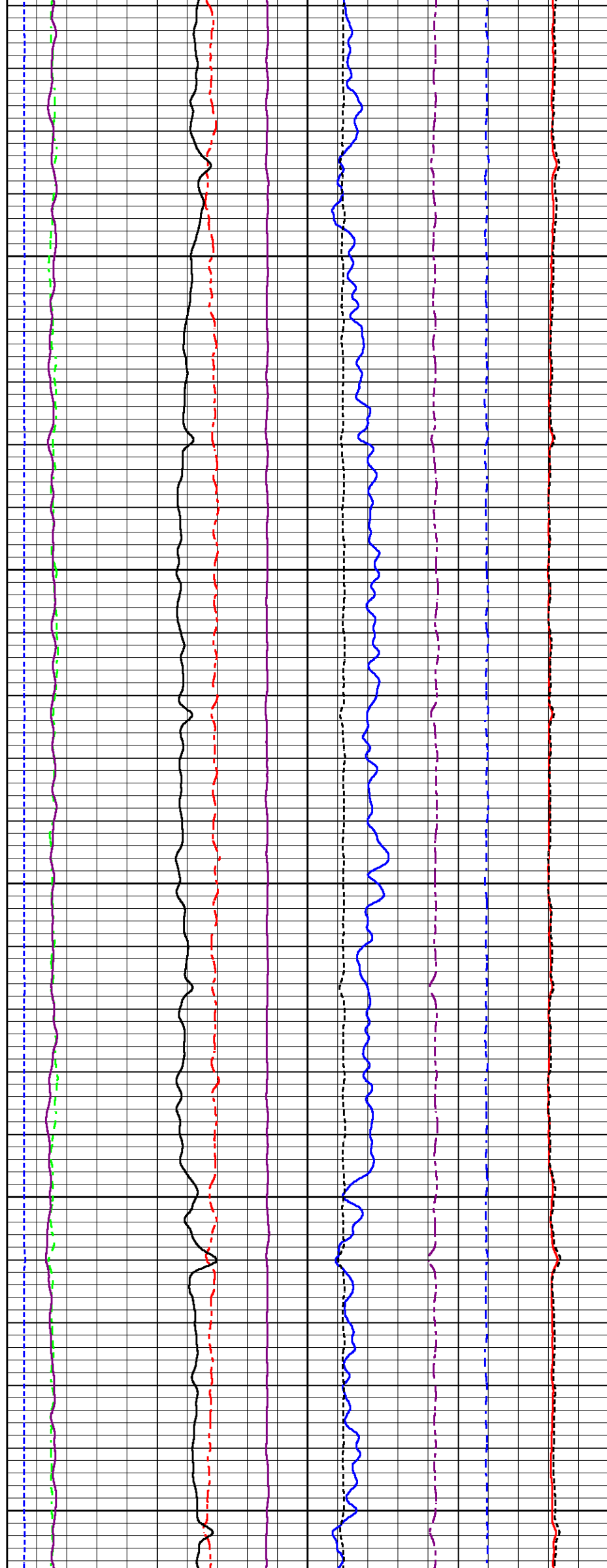


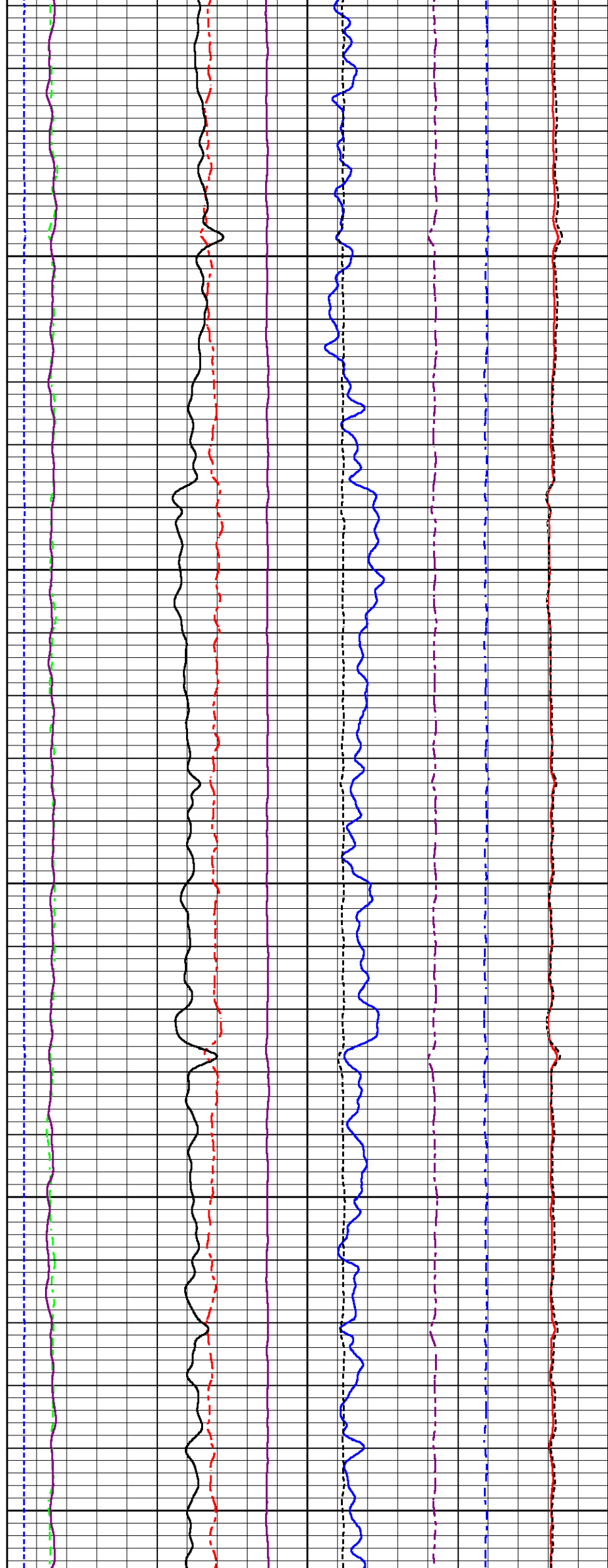
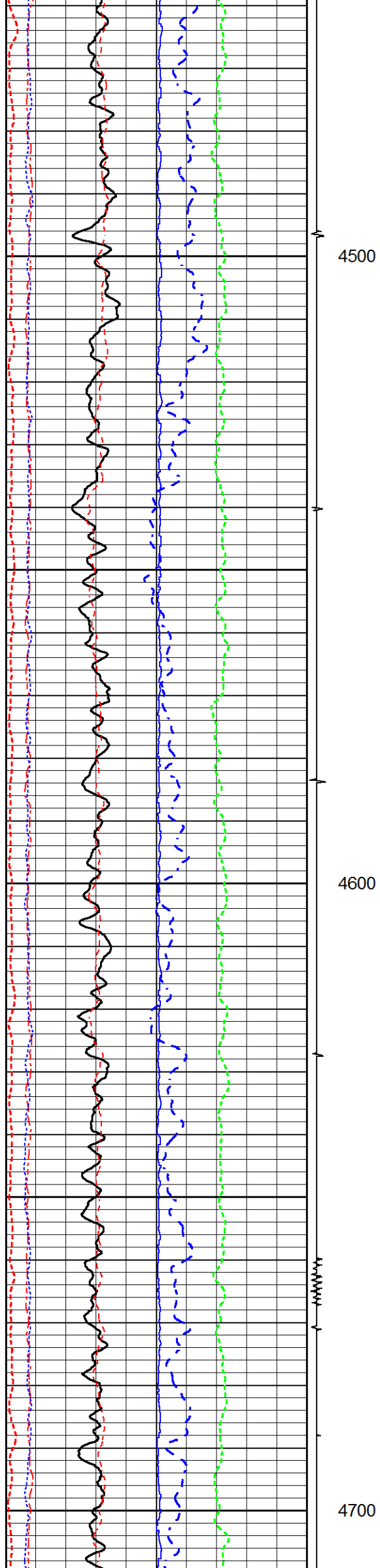


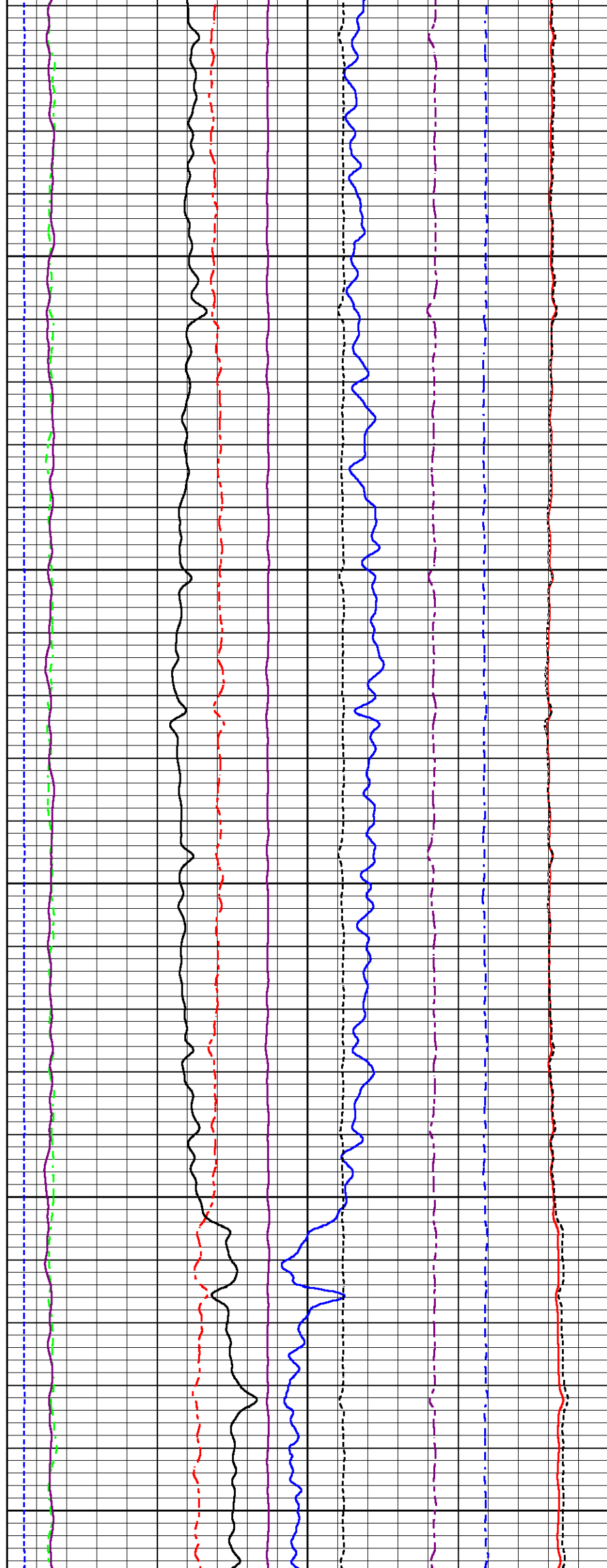
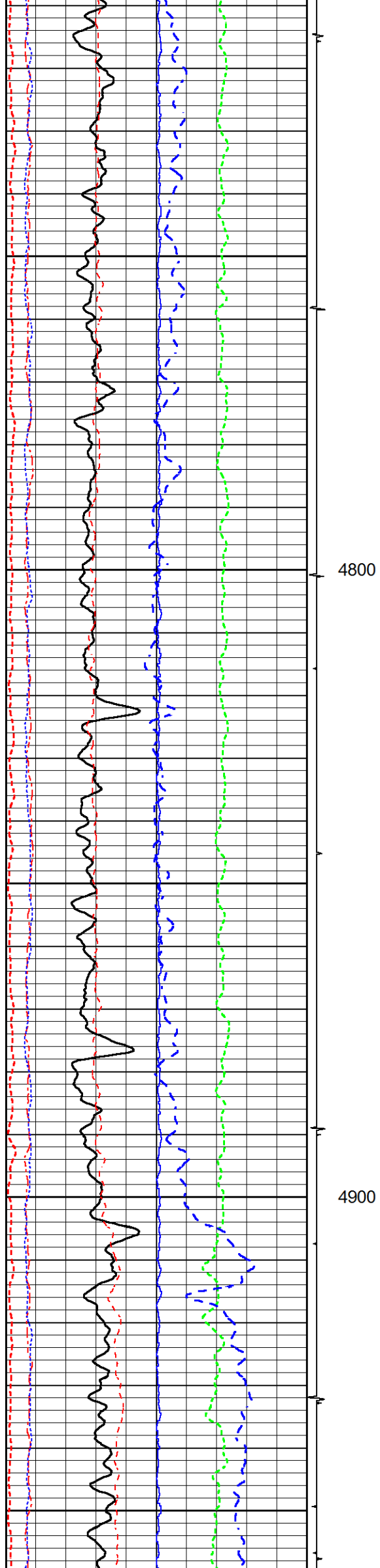


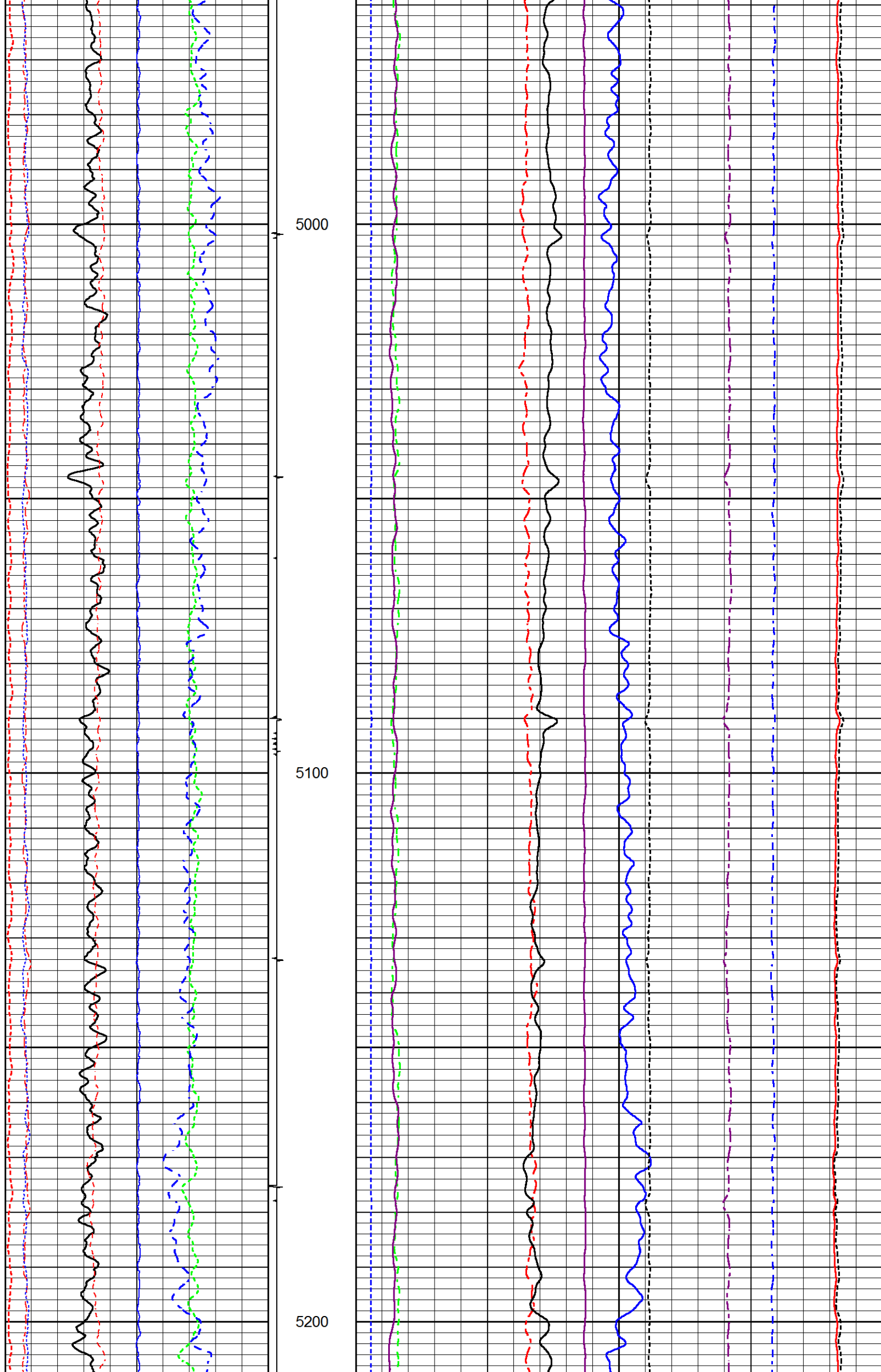
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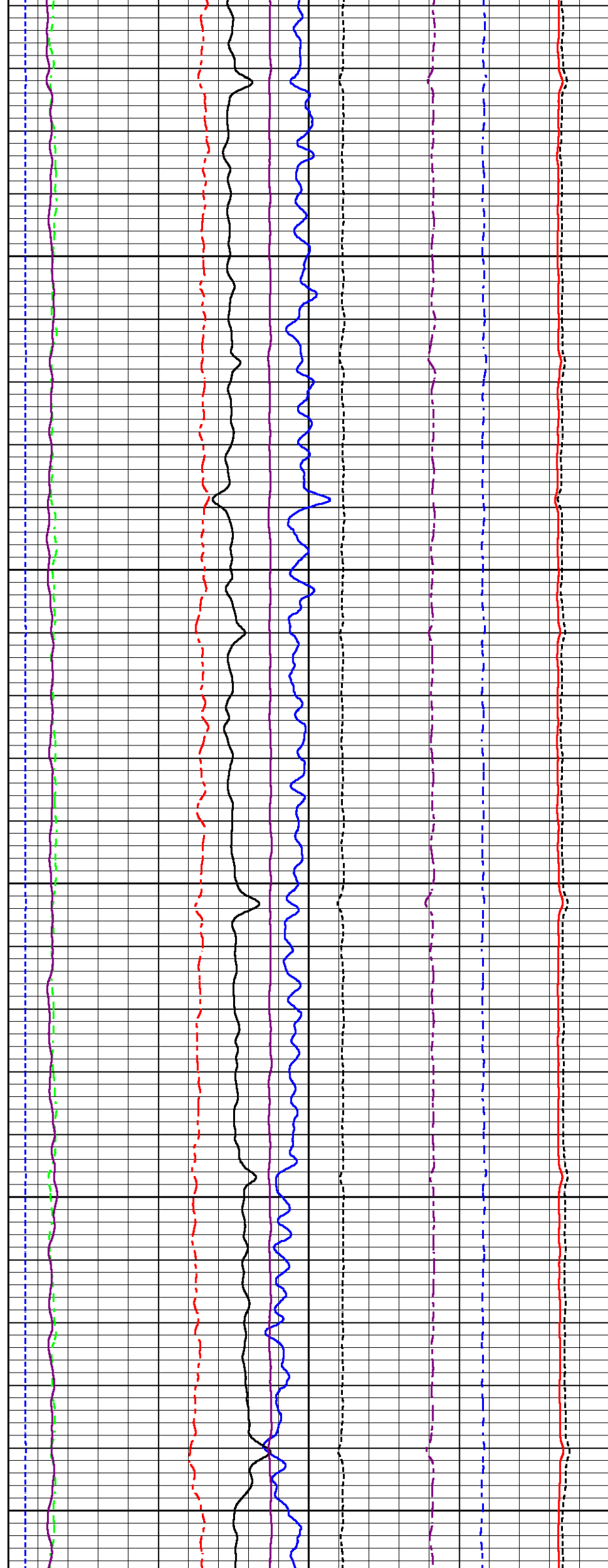
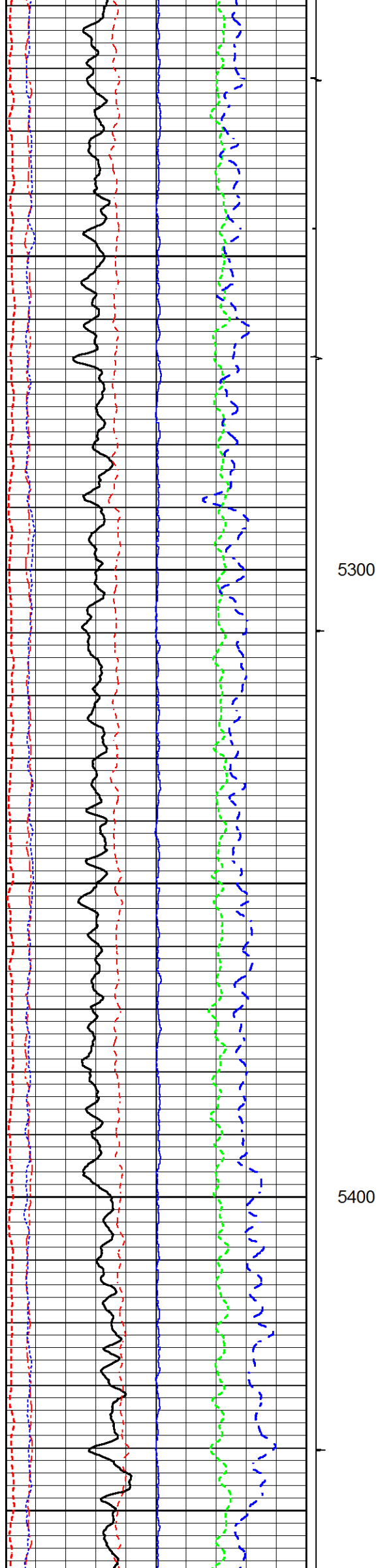
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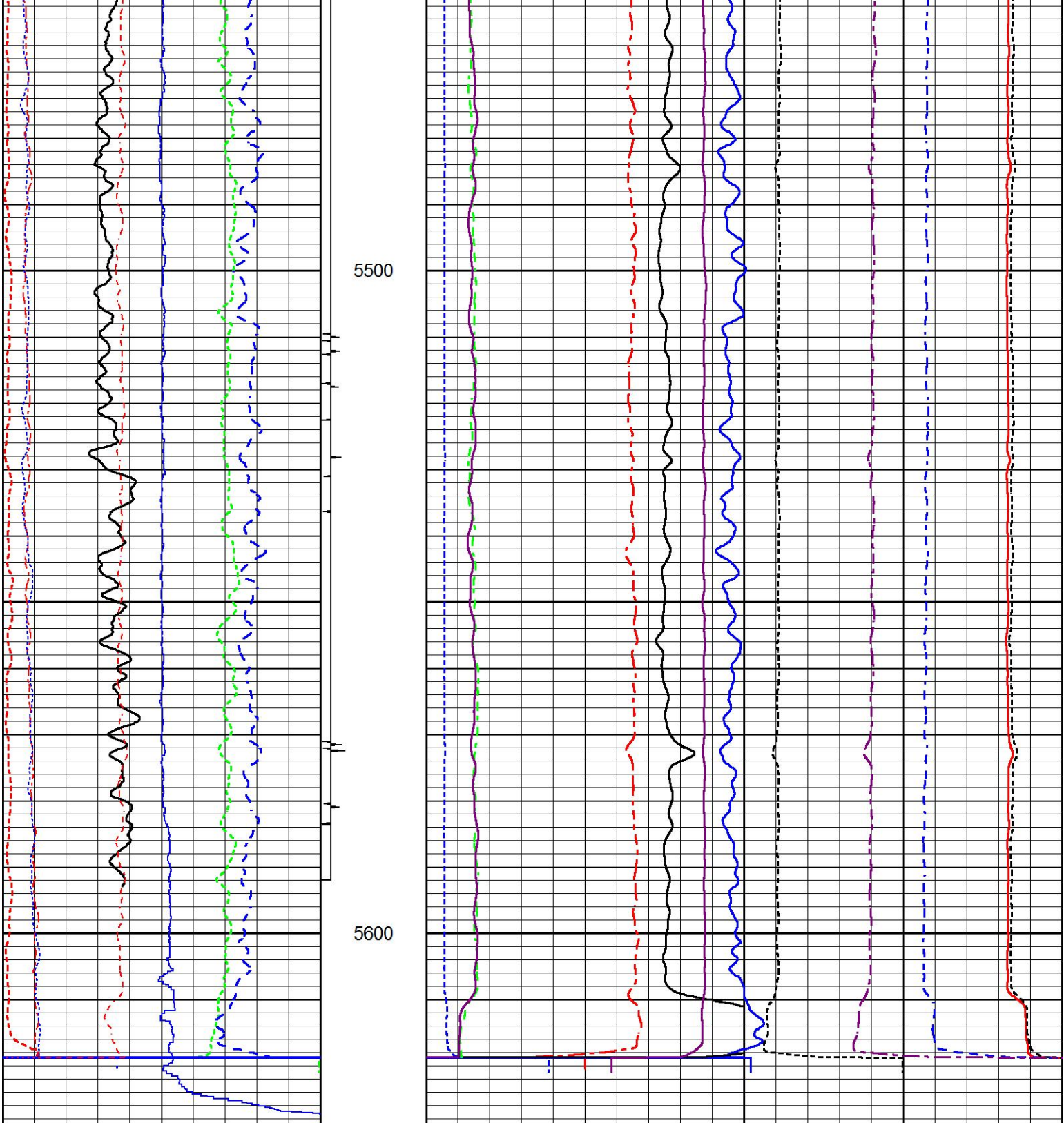












200	Near Bore Si (SGBN)	0	31	-281	60	SGIN				0	
0	OAI	100			2	RATIO (RNF)		0.5	60000	Near Counts (NCAP)	0
10	FAR FIT ERR (SGFF)	40			0	RIN		15	60000	Far Counts (FCAP)	0
0	GR (GAPI)	200			0	RICF		6	100000	FAR INTEL CT (FSIN)	0
0	NEAR FIT ERR (SGFN)	100			0	H YIELD (YH2)		1	10000	NEAR INTEL CT (NSIN)	0
0	IN FIT ERR (CFTR1) NEAR	1			0	H YIELD (YH1)		1	ET INL NEAR (NNII)		
0	IN FIT ERR (CFTR2) FAR	1					INOX2		50000	-1000	
50	LSPD (ft/min) (ft/min)	0					-1500	1500			

MAIN PASS

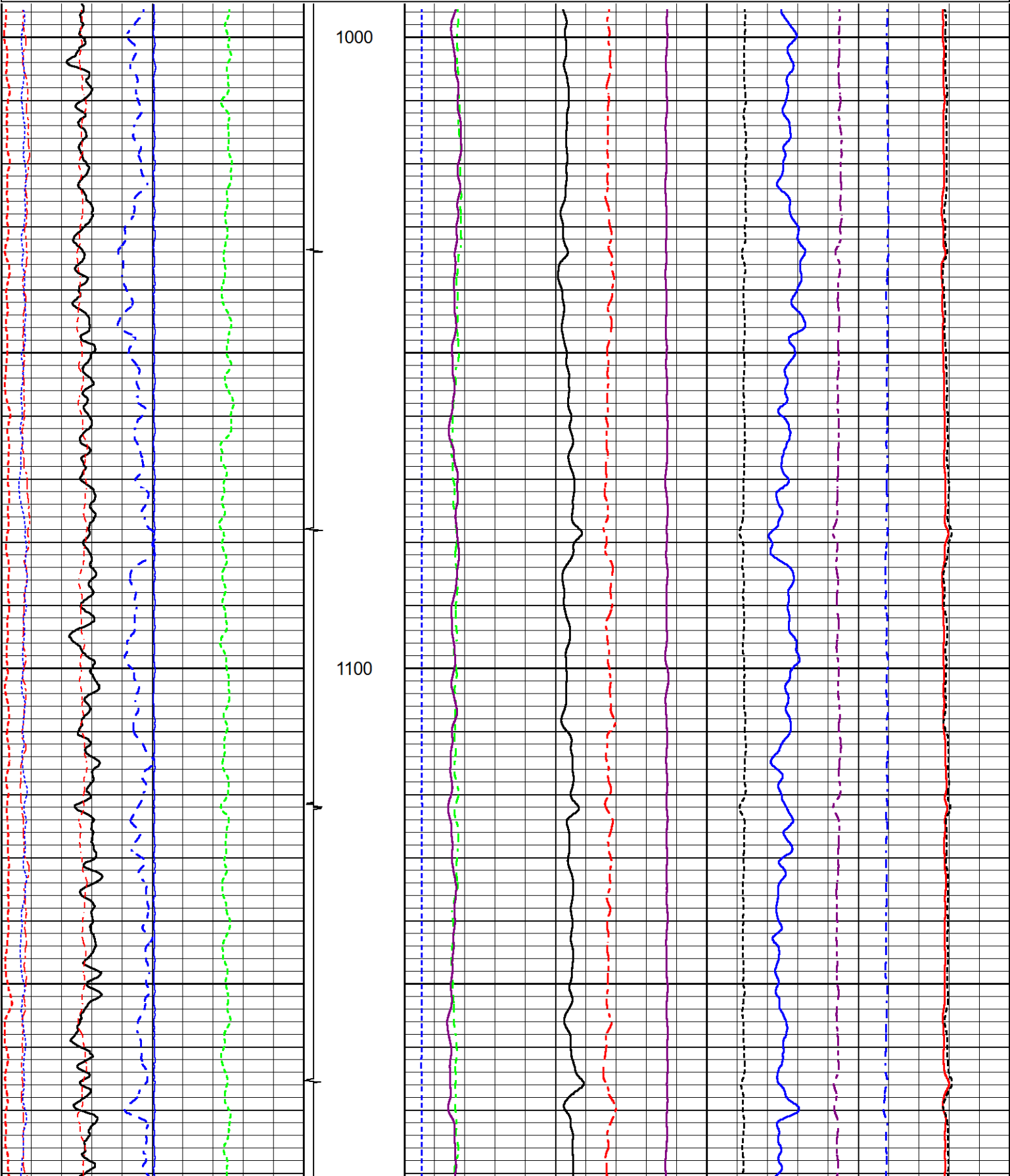
5" = 100'

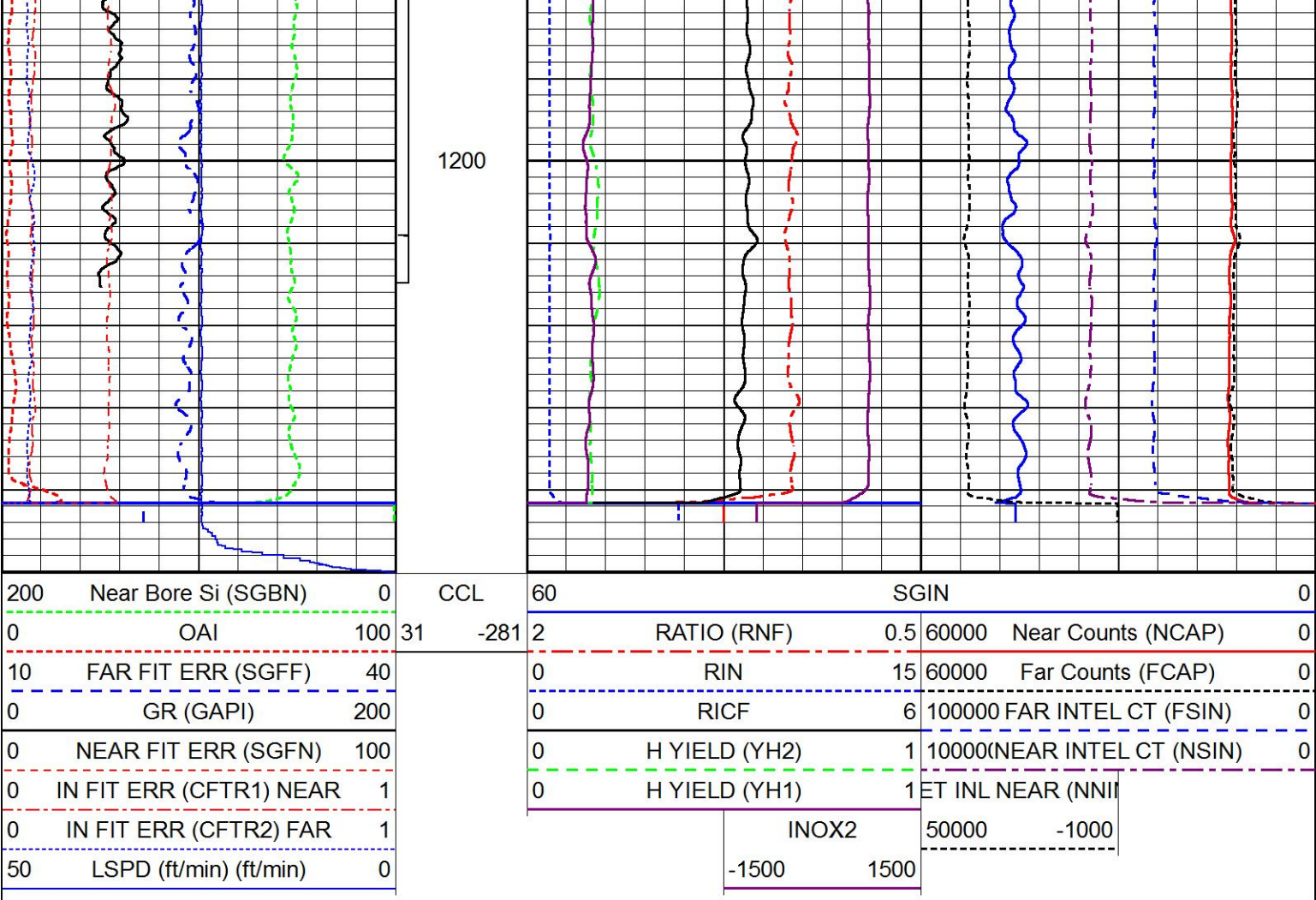
REPEAT PASS

5" = 100'

Database File	bb_pappenheim.db
Dataset Pathname	RP1
Presentation Format	rmte_main2
Dataset Creation	Tue Sep 09 03:44:24 2014
Charted by	Depth in Feet scaled 1:240

200	Near Bore Si (SGBN)	0	CCL	60	SGIN				0	
0	OAI	100	31	-281	2	RATIO (RNF)	0.5	60000	Near Counts (NCAP)	0
10	FAR FIT ERR (SGFF)	40			0	RIN	15	60000	Far Counts (FCAP)	0
0	GR (GAPI)	200			0	RICF	6	100000	FAR INTEL CT (FSIN)	0
0	NEAR FIT ERR (SGFN)	100			0	H YIELD (YH2)	1	10000	(NEAR INTEL CT (NSIN)	0
0	IN FIT ERR (CFTR1) NEAR	1			0	H YIELD (YH1)	1	ET INL NEAR (NNII		
0	IN FIT ERR (CFTR2) FAR	1					INOX2	50000	-1000	
50	LSPD (ft/min) (ft/min)	0				-1500	1500			





REPEAT PASS

5" = 100'

Calibration Report

Database File bb_pappenheim.db
Dataset Pathname MAIN1
Dataset Creation Tue Sep 09 04:32:29 2014

Reservoir Monitor Tool I Calibration Report

Serial-Model: 12210614-A
Shop Calibration Performed: Tue Aug 05 09:54:21 2014

Carbon/Oxygen Mode

Stabilization

Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	80.00	80.00	0.00	+/-15.00	V
ITCR2	3302	3250	52	+/-250	cps

Near Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0263	5.46	<6.00
Fe	207	206 +/-2	0.0958	----	----
NGAIN = 0.992		NZOFF = 0.7			

Far Detector

	Channel	Expected Value	Amplitude	FWHM	Tol.
H	60	60 +/-2	0.0354	5.68	<6.50
Fe	210	208 +/-2	0.0912	----	----
FGAIN = 0.999		FZOFF = 0.2			

FGAIN = 0.990		FZOFF = 0.3			
Flask Temperature		61.1 degF			
Result	Logged	Expected Value	Diff.	Tol.	Units
COIR2	0.45	0.45	-0.00	+/-0.02	
LIRI2	1.65	1.64	0.01	+/-0.05	
TCCR2	5369	5000	369	+/-1000	cps
ITCR2	3280	3200	80	+/-250	cps

Sigma Mode					
Stabilization					
Result	Logged	Expected Value	Diff.	Tol.	Units
GENV	80.00	80.00	0.00	+/-15.00	V
FCAP	10337	10000	337	+/-500	cps
Horizontal Water Tank					
Result	Logged	Expected Value	Diff.	Tol.	Units
N/F Normalizer	0.95	0.95	-0.00		
N/F Inel Norm	0.61	0.61	0.00		
RNF	1.05	1.07	-0.02	+/-0.12	
RINC	1.63	1.64	-0.01	+/-0.18	
SGFN	24.09	24.00	0.09	+/-0.50	cu
SGFF	22.92	22.85	0.07	+/-0.50	cu
FSIN	24838	24000	838	+/-2000	cps
FCAP	10459	10000	459	+/-1000	cps
NFTR	0.83			<5.00	
FFTR	0.90			<5.00	
NBKG	181			<500	cps
FBKG	96			<500	cps
RTN	0.40	0.40	0.00	+/-0.10	usec
RTF	0.42	0.40	0.02	+/-0.10	usec

Calibration Software Modules	
HRMTI Module	2013.11.14.0
RMTI Module	2014.5.9.1
Log Data Acquisition Software Modules	
HRMTI Module	2013.11.14.0
RMTI Module	2014.5.9.1

Cement Bond Log Shop Calibration Report	
Serial-Model:	1208113-A
Calibration Performed:	Tue Sep 09 03:19:33 2014

Free Pipe Calibration		
TT	Measured	Units
Amplitude	289.2	usec
Log Base Line	633.9	mV
	-2.3	mV
Calibration References and Gain		
Name	Value	Units
Pipe O.D.	7.000	in
Pipe Weight	26.0	lb/ft
Pipe Ref. Amp.	62.2	mV
Amp. Gain	0.098	

Gamma Ray Calibration Report	
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Type / Serial:		002 / 11495480			
SHOP CALIBRATION		Mon Sep 08 13:42:53 2014			
Background	Counts/Sec.	Gain	Offset	Jig	Units
Calibrator	47.3				cps
	221.7	1.3941			cps
					GAPI/cps
PRIMARY VERIFICATION					
Background	70.7				cps
Calibrator	314.3				cps
Difference				243.6	GAPI
BEFORE SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI
AFTER SURVEY VERIFICATION					
Background	0.0				cps
Calibrator	0.0				cps
Difference				0.0	GAPI

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)
CCL	35.09		STNDCH-STND_CH 1.4375 IN CABLE HEAD	1.50	1.44	1.00
GR	32.83					
Temp	23.11					
TT3FT	20.86					
AMP3FT	20.86					
WVF5FT	19.90					
FrameCnt	16.38					
TLINITCNT	16.38		TTTCU-002 (11495480) Through Tubing Telemetry Cartridge - Ultrawire	7.65	1.69	100.00
CbICTT	16.38					
CbICCsgWgt	16.38					
CbICCsgOD	16.38					
CbICamp	16.38					
CbIBLine	16.38					
CbITTTresh	16.38					
CbIAGate	16.38		XHU-003 (11971778) Crossover Halliburton 1553 to Ultrawire	1.58	1.69	7.00
CbILWvCnt	16.38					
CbICStat	16.38		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
CbIIVolt	16.38					
CbIITemp	16.38					
CbISeqNum	16.38					
CbITStat	16.38					
WVF3FT	16.38					
RmtTFGT	8.47					
RmtFBACK	8.47					
RmtFCAPT	8.47					
RmtFINEL	8.47					
RmtTNGT	7.97		HCBLM-A (1208113) Halliburton HCBLM Tool	9.38	2.75	116.00
RmtNBACK	7.97					
RmtNCAPT	7.97					
RmtNINEL	7.97					
TLINITCNT	0.22					
RImpBTEST	0.22					
RImpBCYC	0.22					
RImpBRGW	0.22		CENT-CASTM-CENT CAST M INLINE CENTRALIZER	2.16	3.13	25.00
RImpBRGO	0.22					
RImpState	0.22					
RImpPhase	0.22					
RImpCyc	0.22					

Tool Joint	Tool Joint ID	Tool Joint Description	Length (ft)	Weight (lb)	O.D. (in)
RmtGenClampV	0.22				
RmtFTemp	0.22				
RmtFP5V	0.22				
RmtFPMHV	0.22				
RmtFPMI	0.22				
RmtFPrgSt1	0.22				
RmtFDetStat	0.22				
RmtNTemp	0.22				
RmtNPMHV	0.22	RMTI-A (12210614) Halliburton RMTI Tool	14.00	2.13	77.00
RmtNPMI	0.22				
RmtNPrgSt1	0.22				
RmtNDetStat	0.22				
RmtGenlonl	0.22				
RmtGen15BusV	0.22				
RmtGenLvdsV	0.22				
RmtGenSyncV	0.22				
RmtGenClampV	0.22				
RmtGenP5V	0.22				
RmtGenP33V	0.22	BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
RmtGen200V	0.22				
RmtGenP15VI	0.22				
RmtGenTemp	0.22				
RmtGenP5VI	0.22				

Dataset: bb_pappenheim.db: field/well/run1/MAIN1

Total length: 38.66 ft

Total weight: 352.20 lb

O.D.: 3.13 in

38.66 ft

352.20 lb

3.13 in