

Company: ANADARKO

Well: CHEESE STATE 26N-21HZ

Field: WATTENBERG

County: WELD State: COLORADO

SLIM CEMENT MAPPING LOG  
CBL-VDL  
GR-CCL

County: WELD  
Field: WATTENBERG  
Location: 429' FNL, 815' FEL, T3N R65W S  
Well: CHEESE STATE 26N-21HZ  
Company: ANADARKO

LOCATION

429' FNL, 815' FEL, T3N R65W SEC 28 NENE

Elev.: K.B. 4842.00 ft  
G.L. 4817.00 ft  
D.F. 4841.00 ft

Permanent Datum: \_\_\_\_\_  
Log Measured From: KELLY BUSHING  
Drilling Measured From: KELLY BUSHING

GROUND LEVEL

Elev.: 4817.00 ft

25.00 ft above Perm. Datum

API Serial No.  
0512340946

Section  
28

Township  
3N

Range  
65W

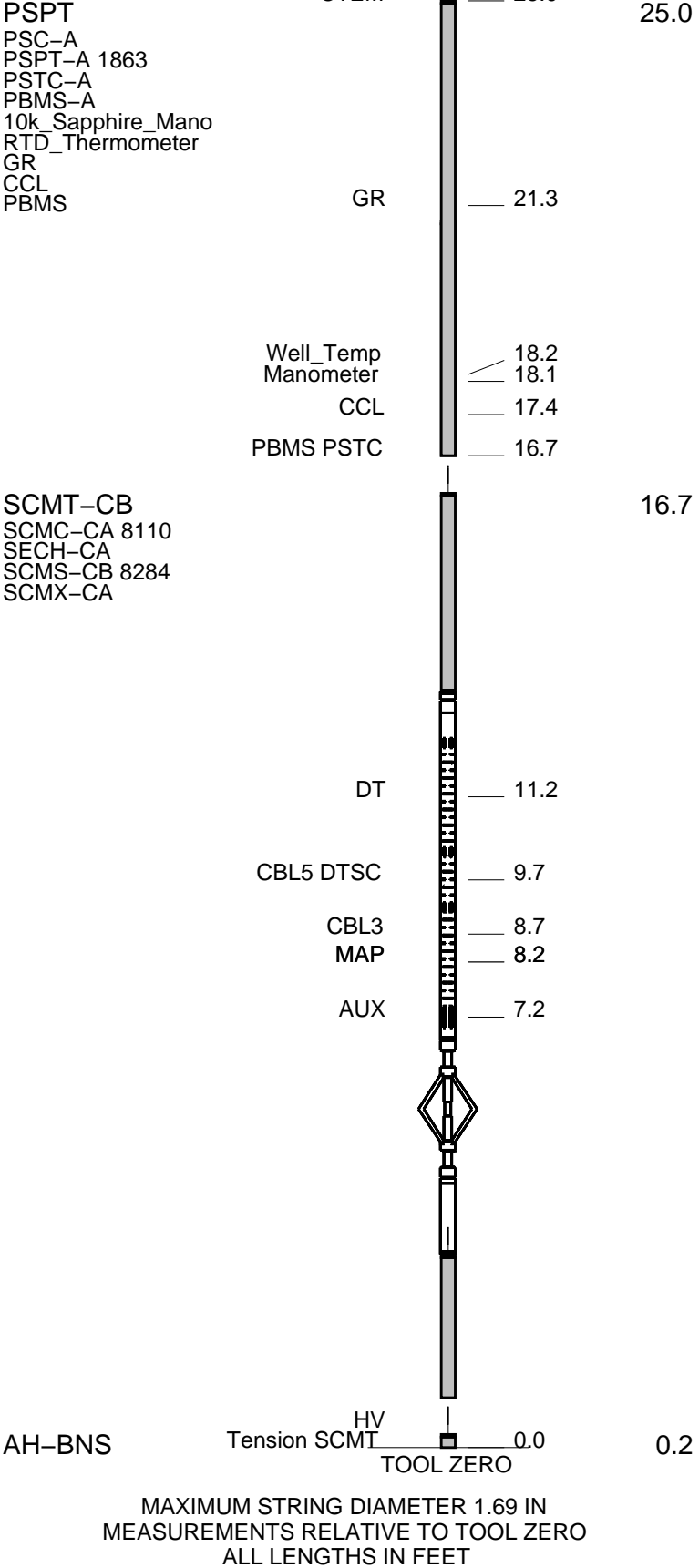
PVT DATA			Run 1	Run 2	Run 3
Oil Density					
Water Salinity					
Gas Gravity					
Bo					
Bw					
1/Bq					
Bubble Point Pressure					
Bubble Point Temperature					
Solution GOR					
Maximum Deviation					
CEMENTING DATA					
Primary/Squeeze	Primary				
Casing String No					
Lead Cement Type					
Volume					
Density					
Water Loss					
Additives					
Tail Cement Type					
Volume					
Density					
Water Loss					
Additives					
Expected Cement Top					

Logging Date	16-Jul-2015		
Run Number	1		
Depth Driller	12529 ft		
Schlumberger Depth	7292 ft		
Bottom Log Interval	7283 ft		
Top Log Interval	25 ft		
Casing Fluid Type	WATER		
Salinity			
Density	8.4 lbm/gal		
Fluid Level	25 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.500 in		
From	25 ft		
To	12529 ft		
Casing/Tubing Size	5.500 in		
Weight	17 lbm/ft		
Grade	HCP-110 LTC		
From	25 ft		
To	12507 ft		
Maximum Recorded Temperatures	253 degF		
Logger On Bottom	16-Jul-2015	8:00	
Unit Number	354	PLATTEVILLE	
Recorded By	KIRSTIE BUNTING		
Witnessed By	VAN FRANKE		

Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Fluid Type			
Salinity			
Density			
Fluid Level			
BIT/CASING/TUBING STRING			
Bit Size			
From			
To			
Casing/Tubing Size			
Weight			
Grade			
From			
To			
Maximum Recorded Temperatures			
Logger On Bottom			
Unit Number			
Recorded By			
Witnessed By			

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

## 25.2





MAIN PASS CBL–VDL 2800PSI

MAXIS Field Log

Company: ANADARKO Well: CHEESE STATE 26N–21HZ

Input DLIS Files

DEFAULT SCMT\_PSP\_026LUP FN:25 PRODUCER 16–Jul–2015 08:10 7324.0 FT 29.0 FT

Output DLIS Files

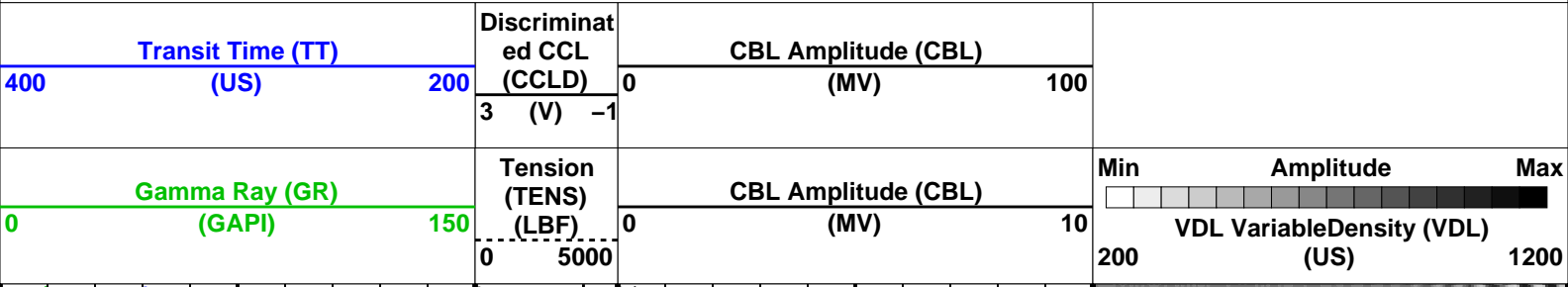
DEFAULT SCMT\_PSP\_028PUP FN:27 PRODUCER 16–Jul–2015 10:05 7320.0 FT 25.0 FT

OP System Version: 19C0–187

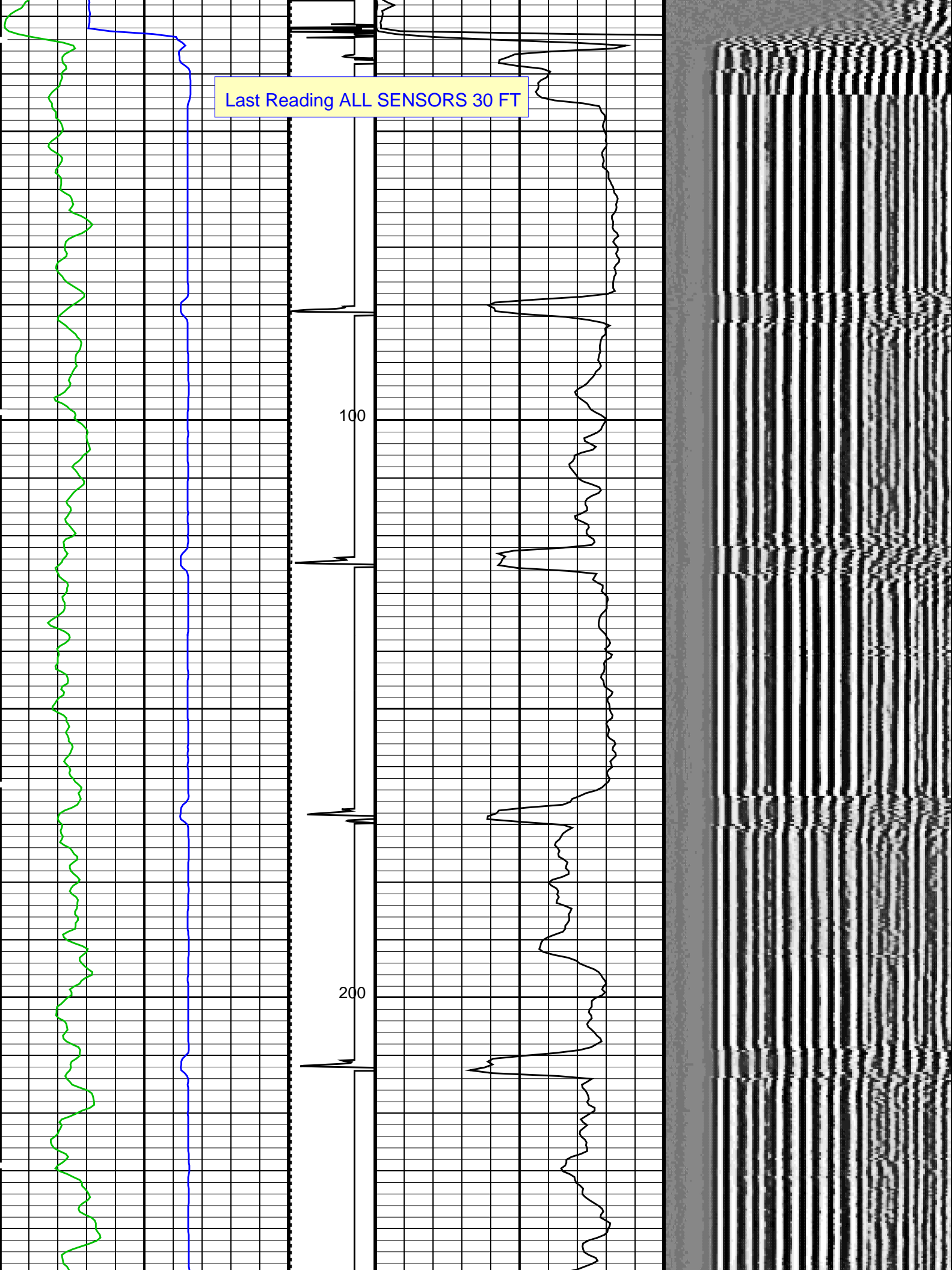
SCMT–CB SRPC–5095–H2–2011–OP19 PSPT 19C0–187

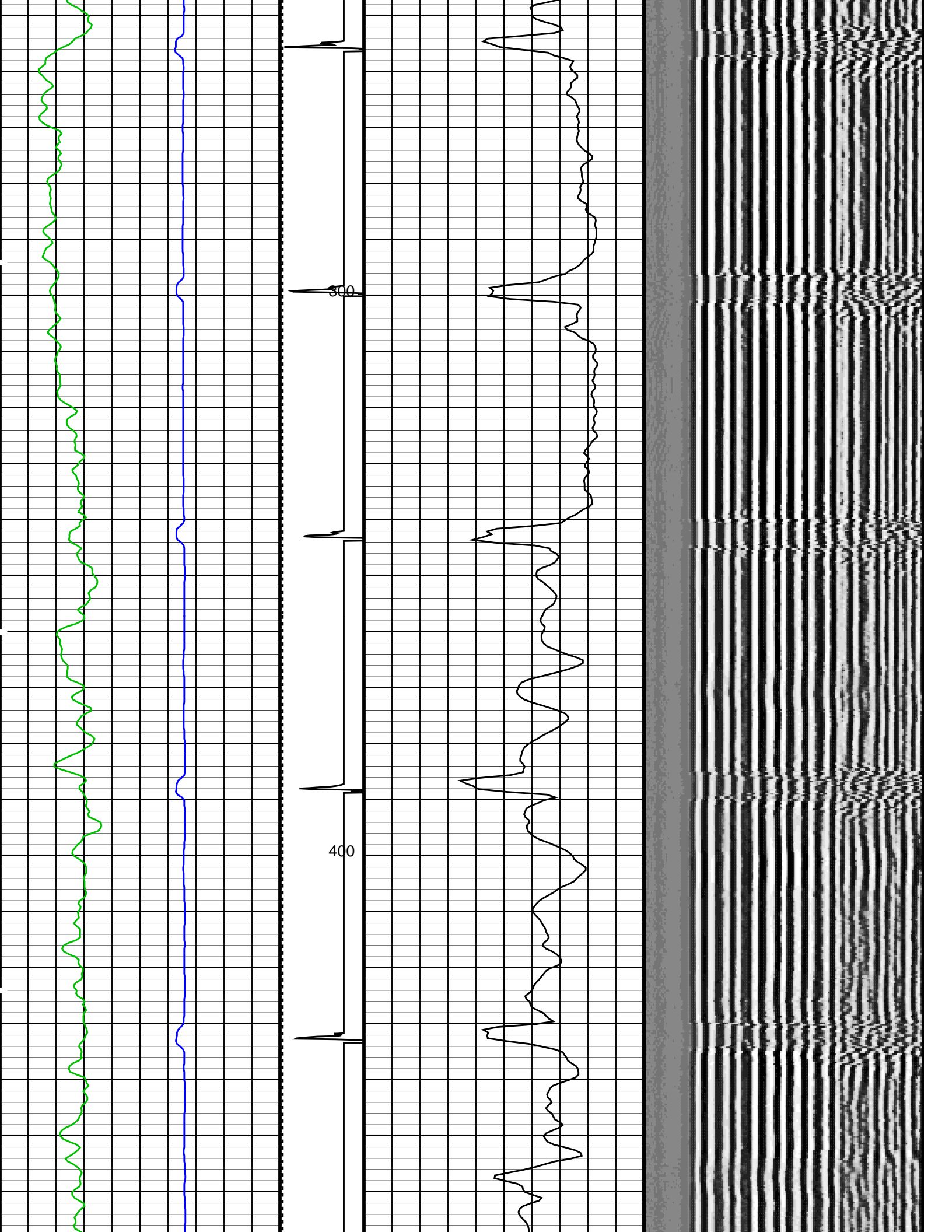
PIP SUMMARY

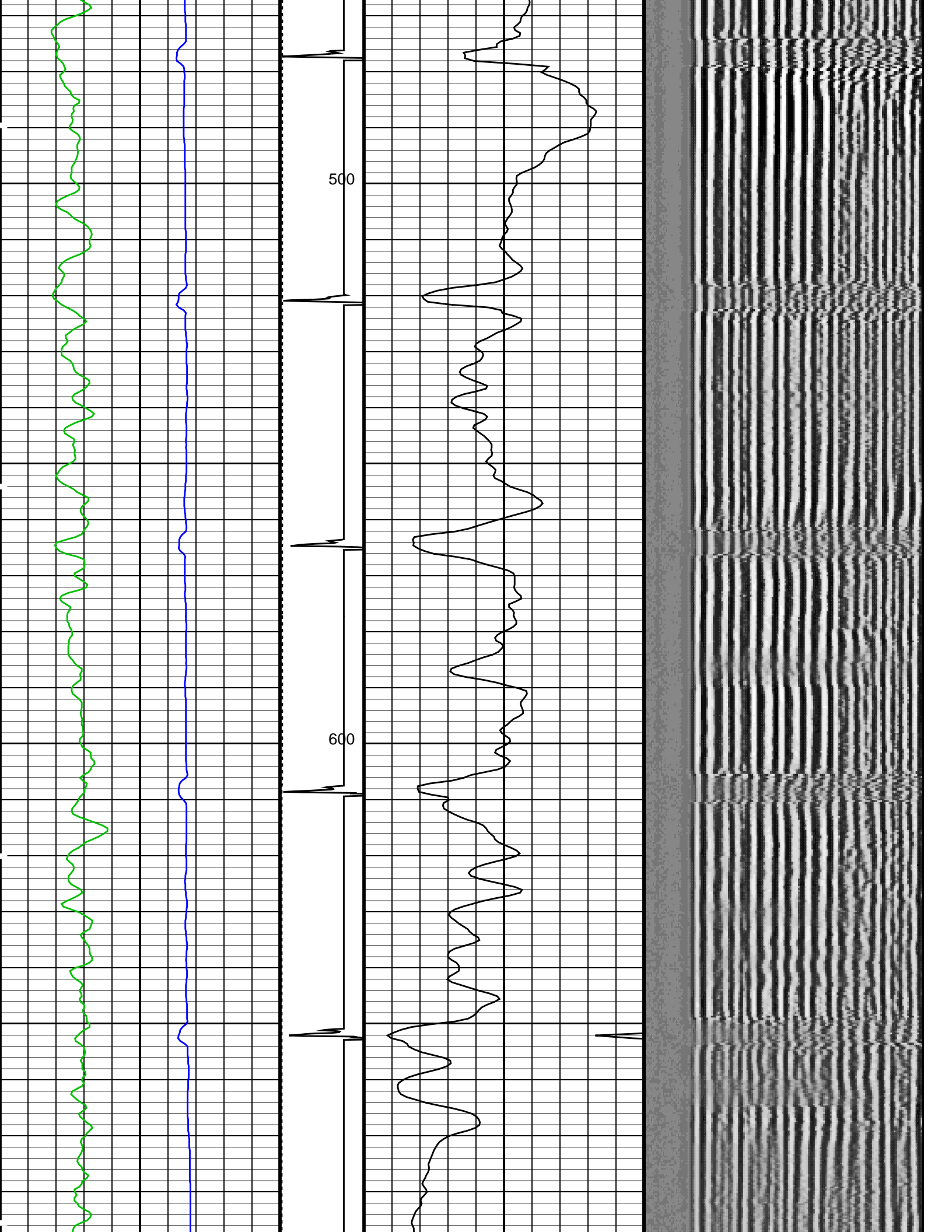
Time Mark Every 60 S

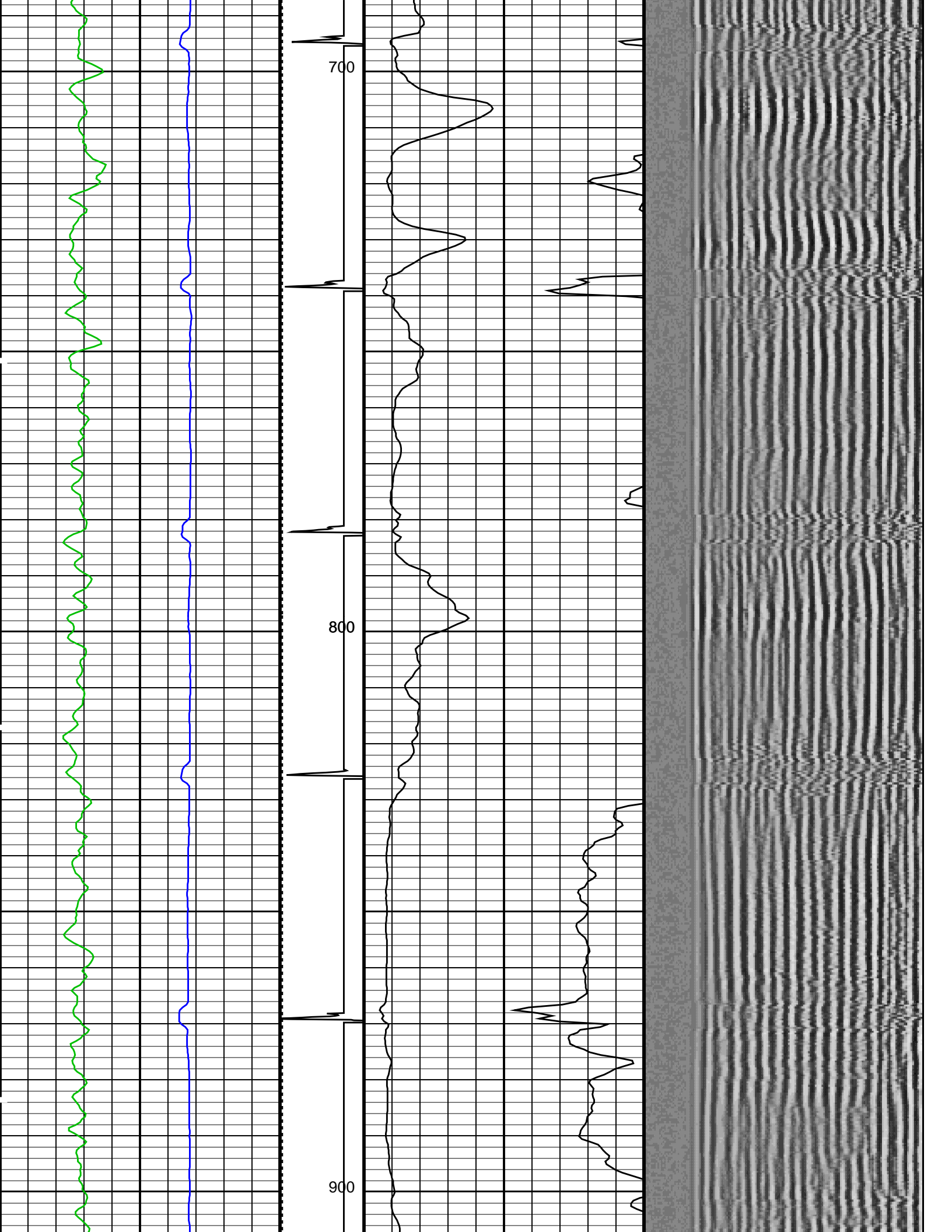




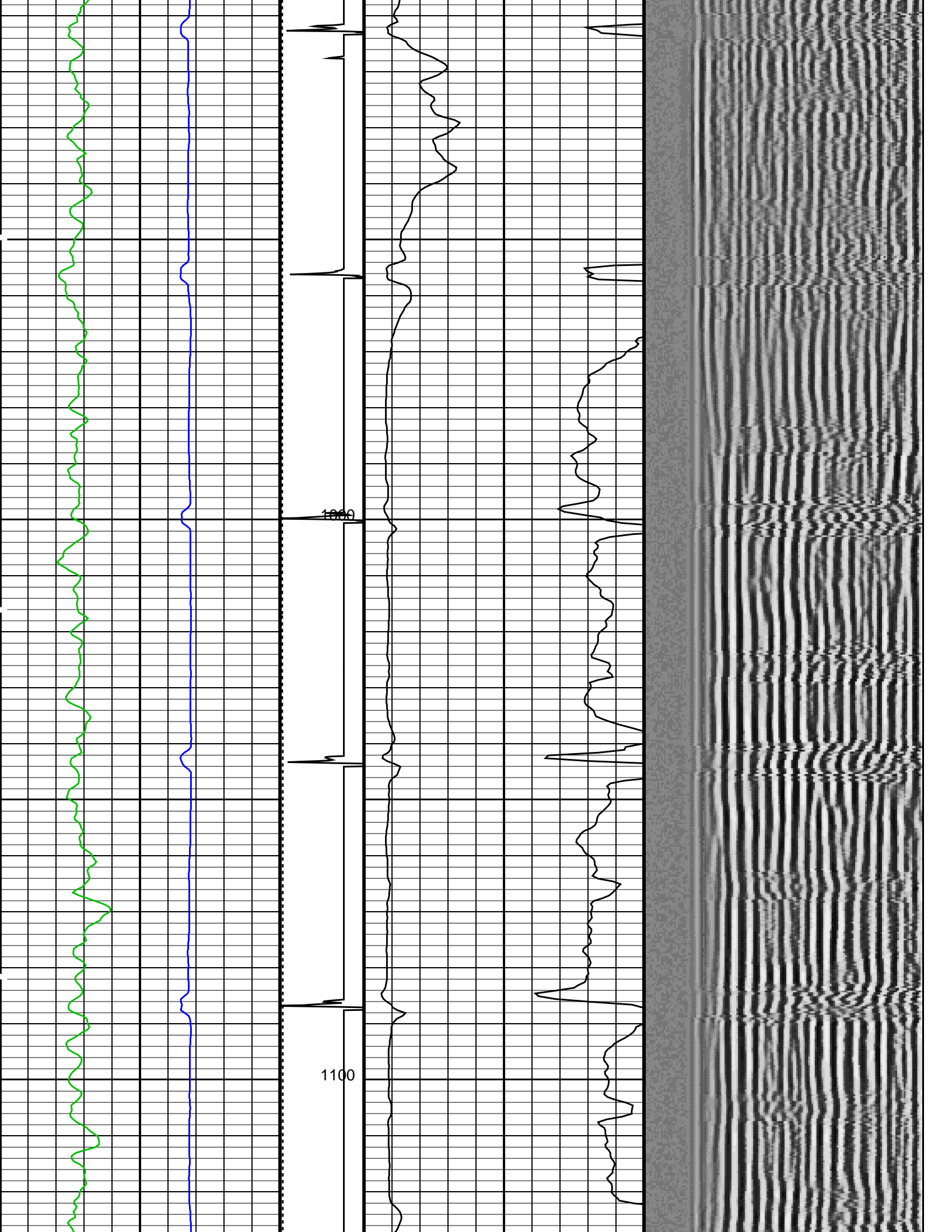


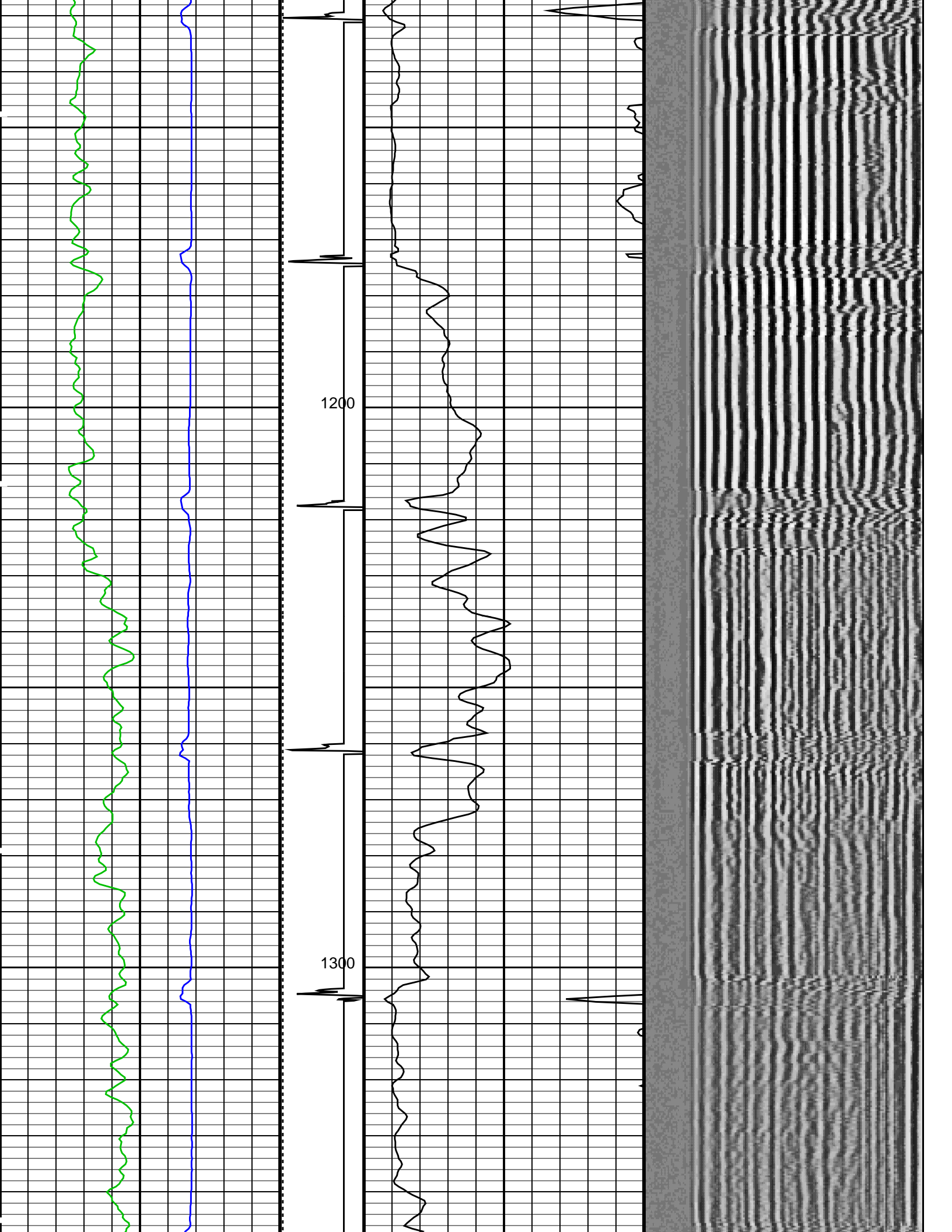


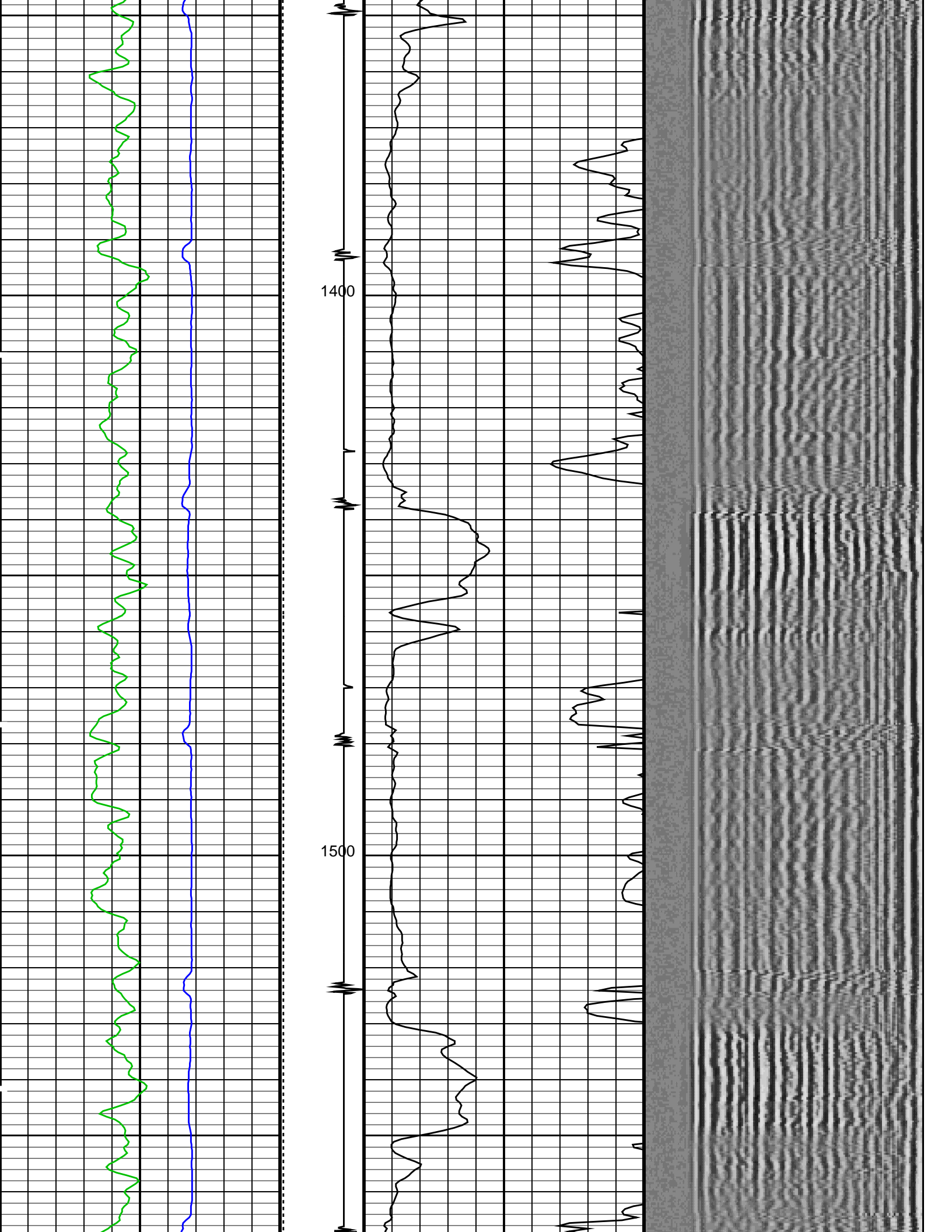


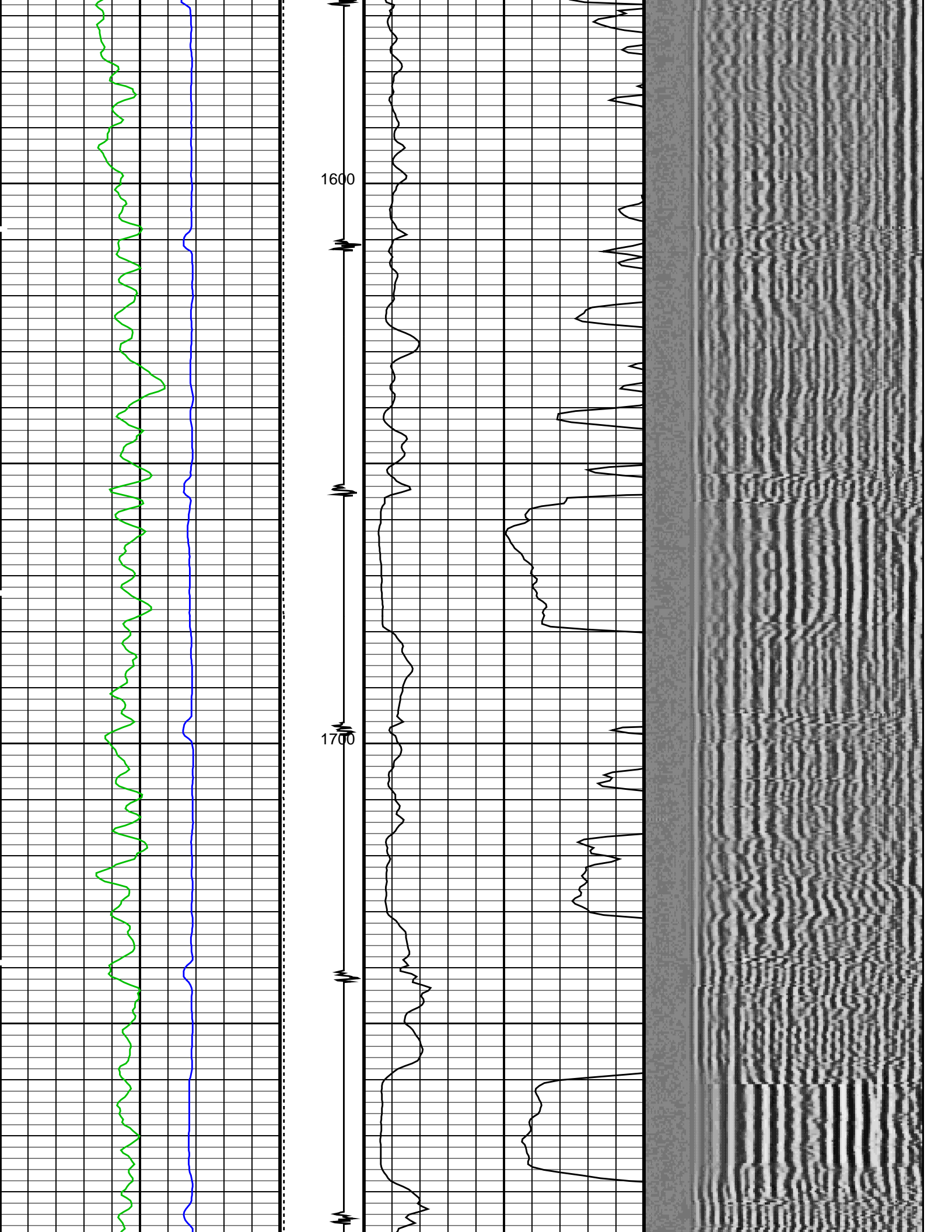




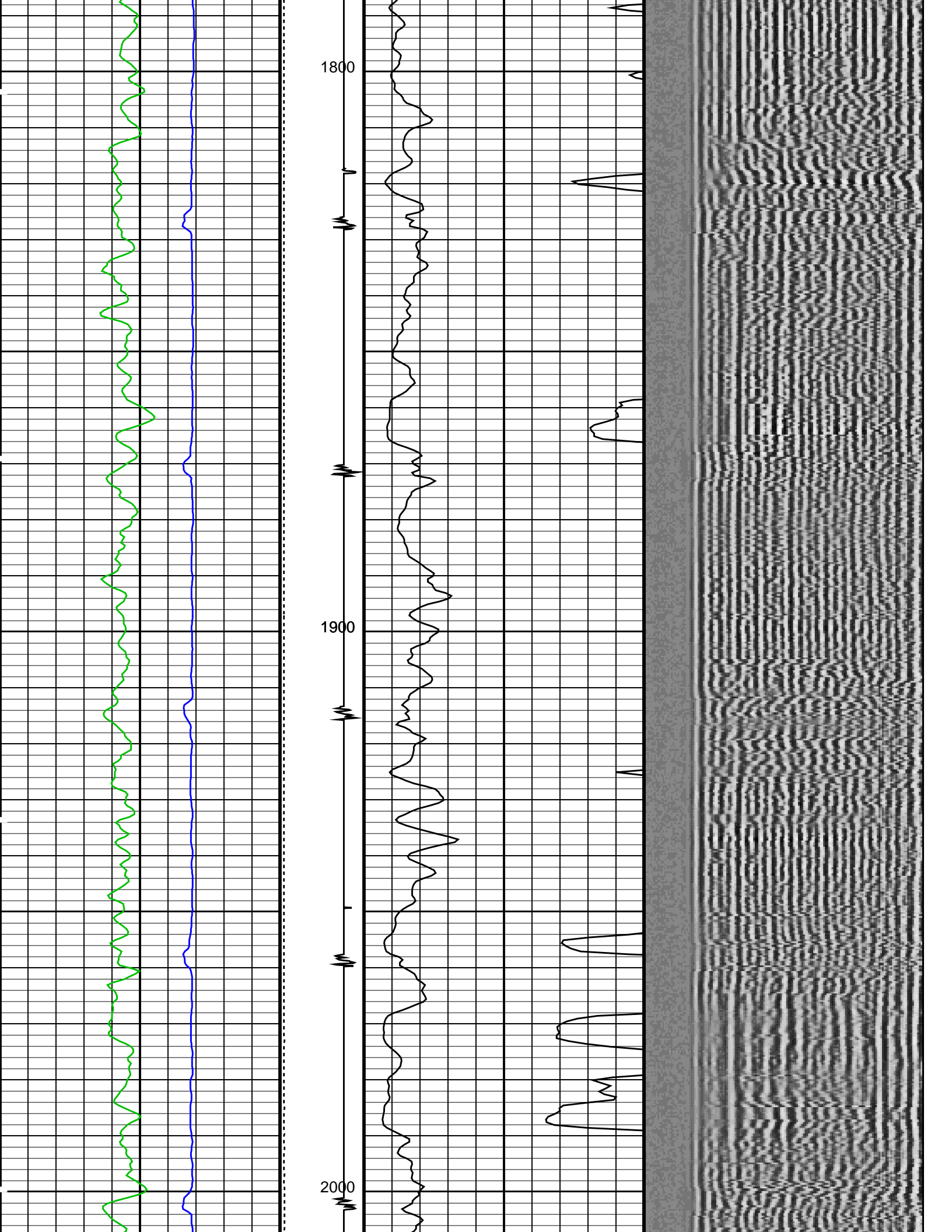


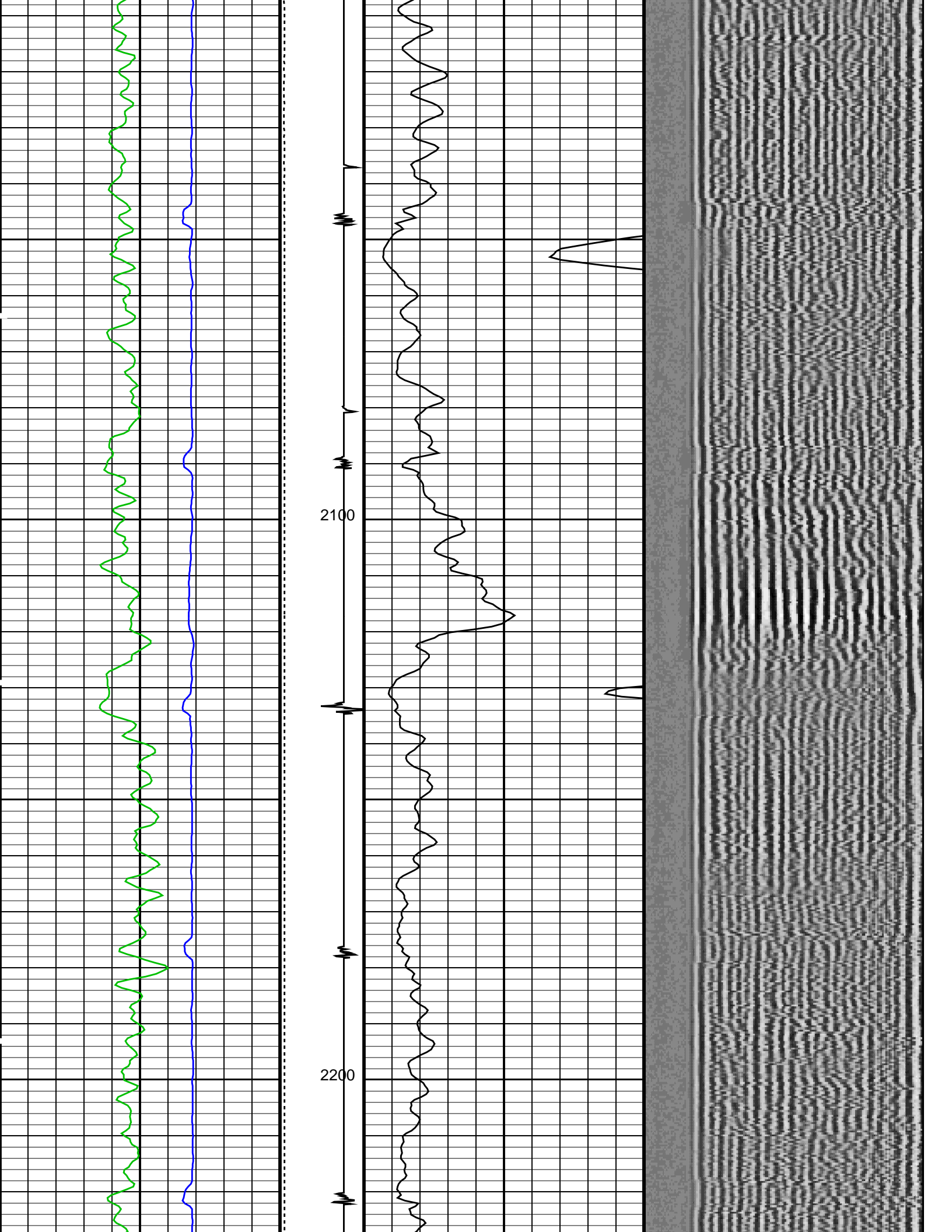


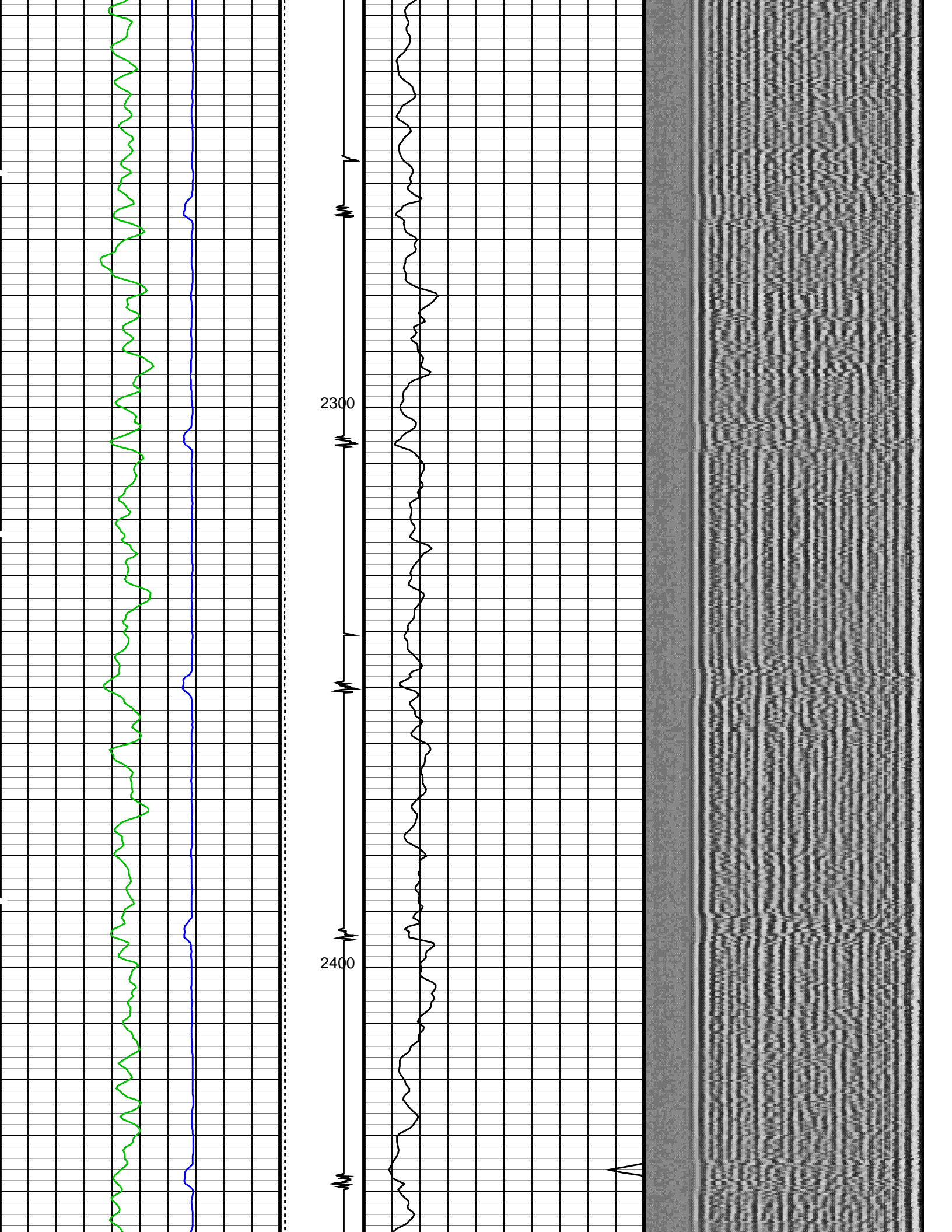


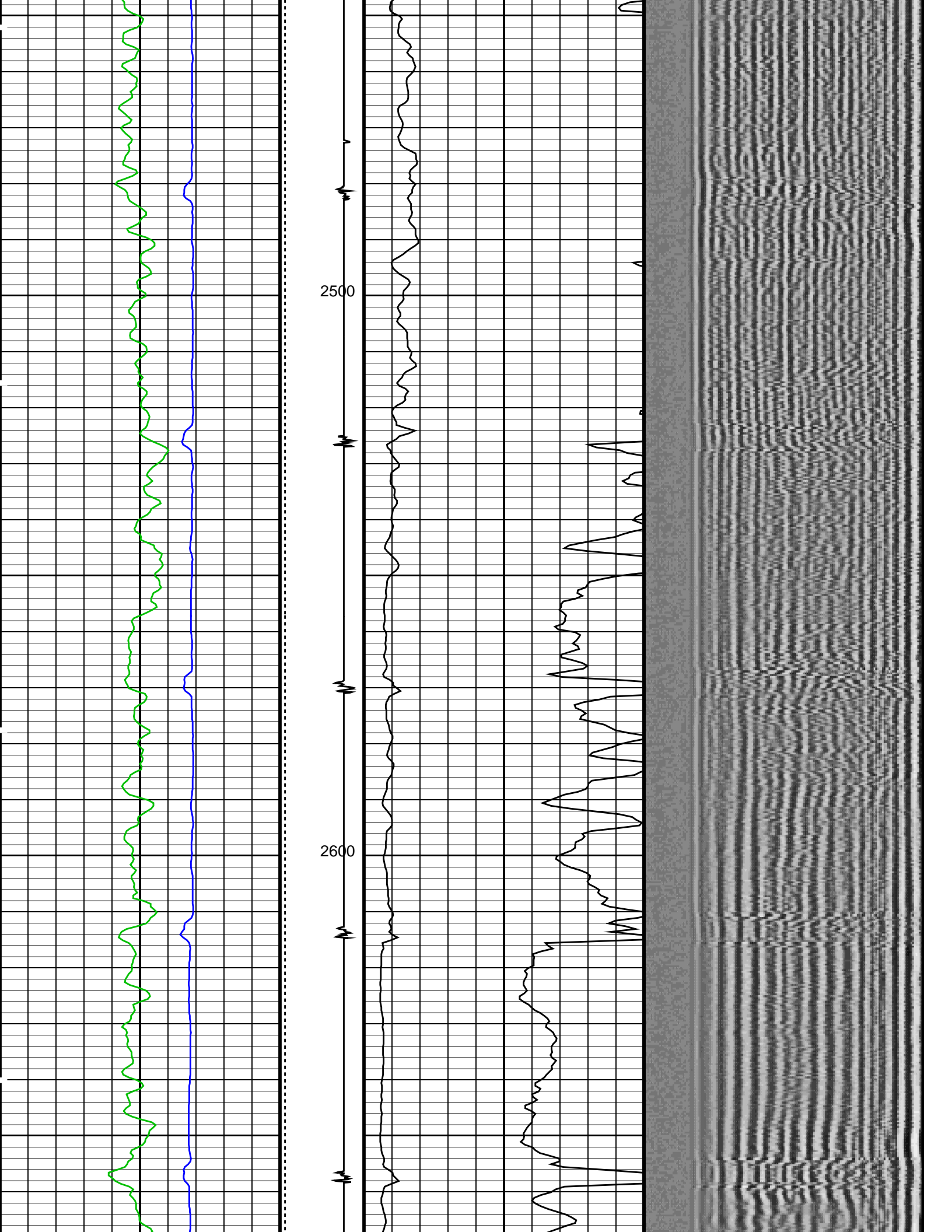




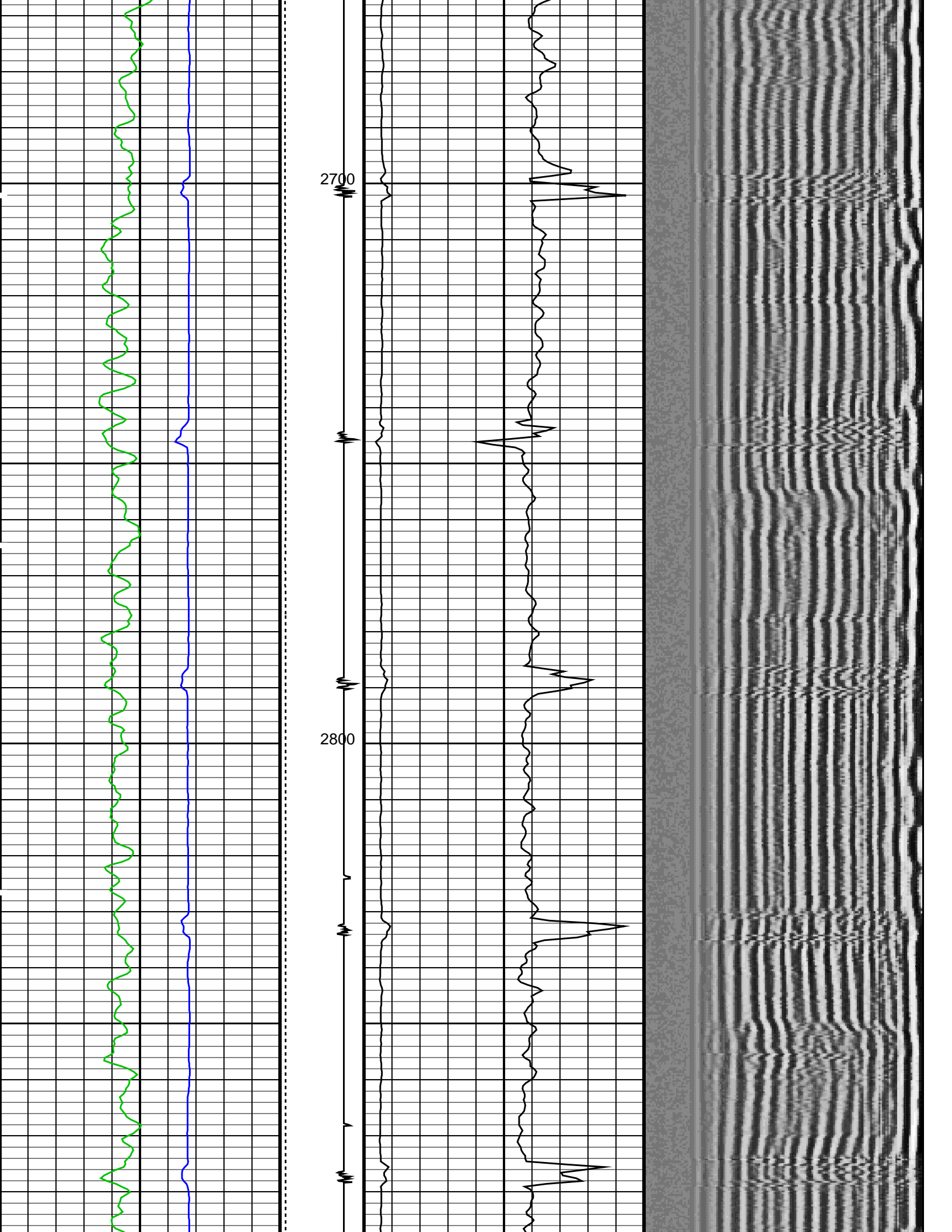


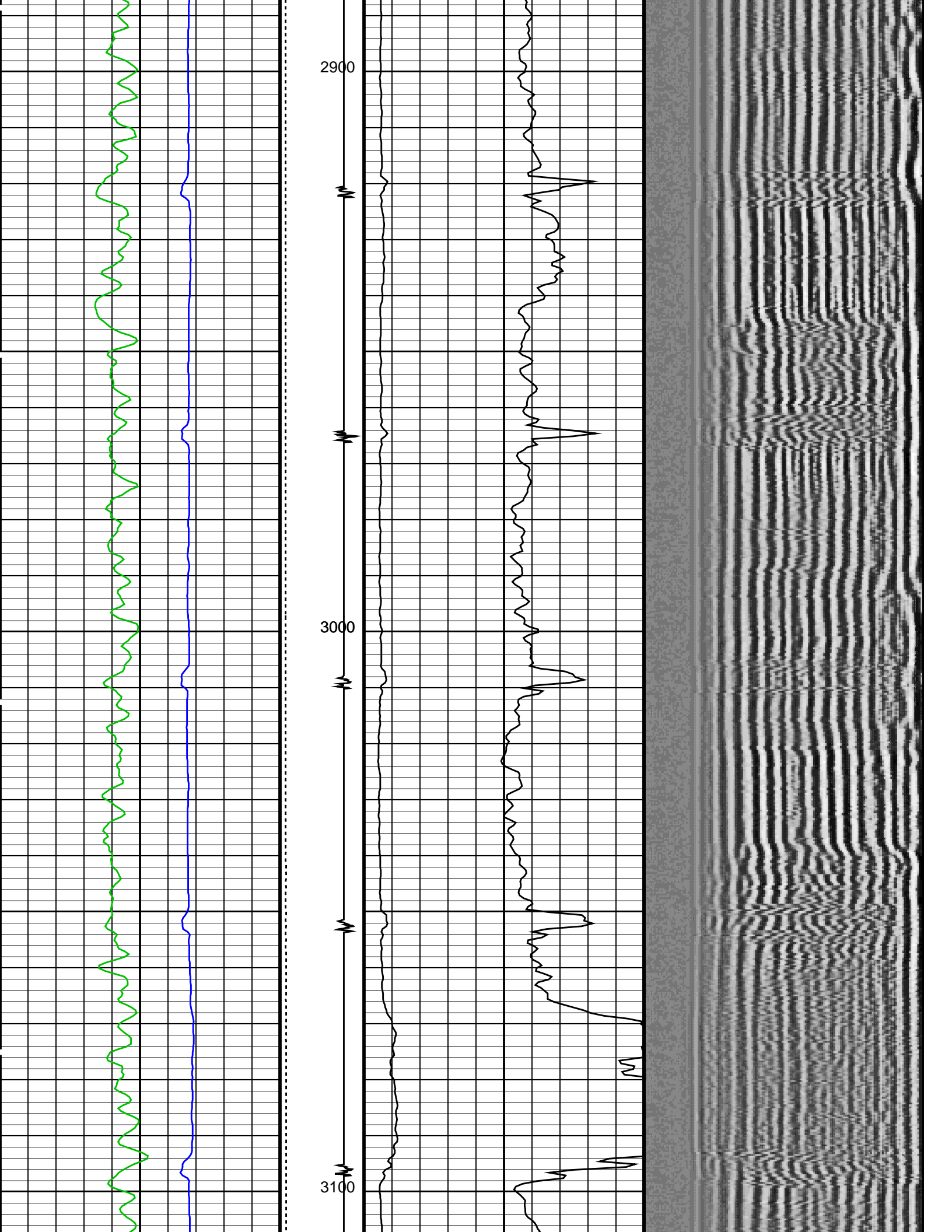


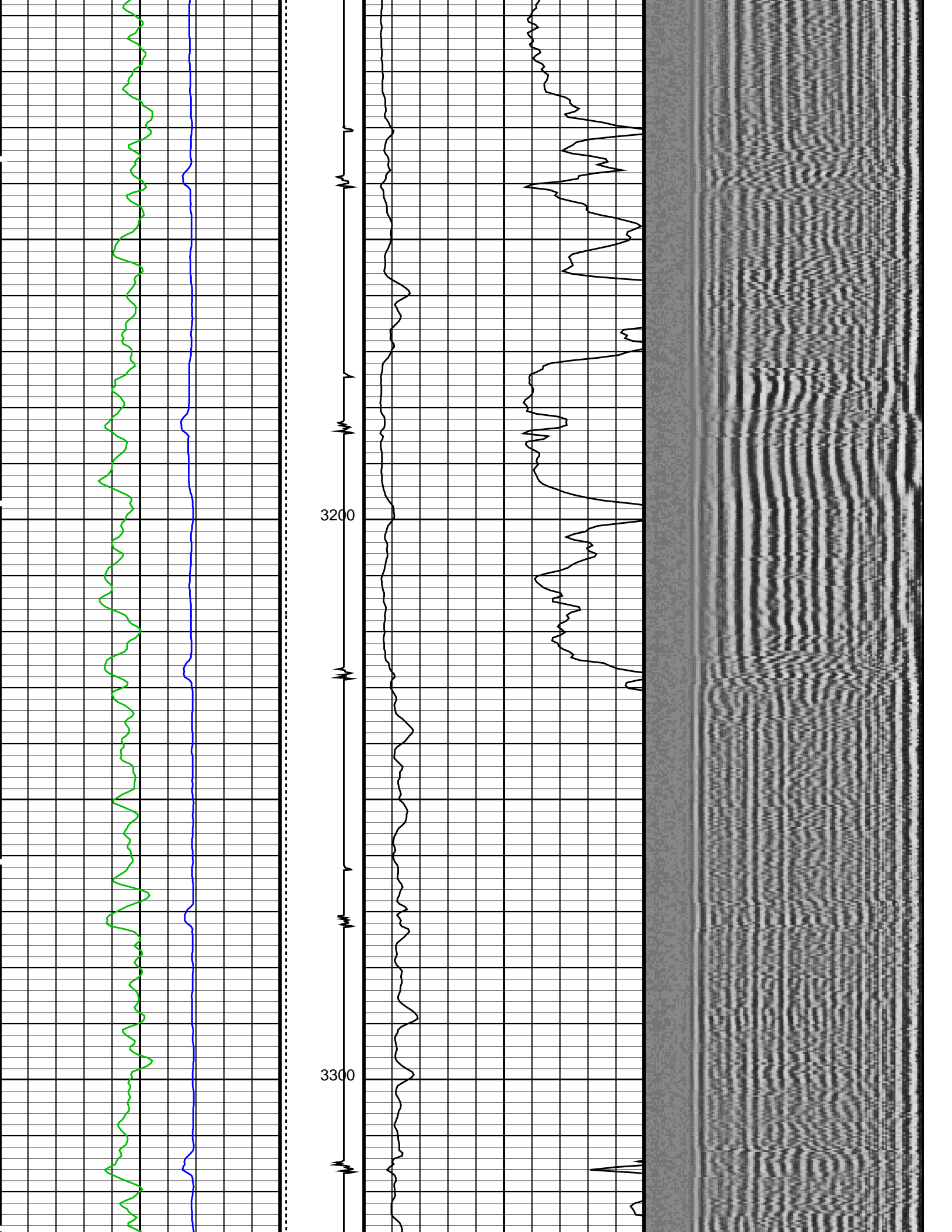


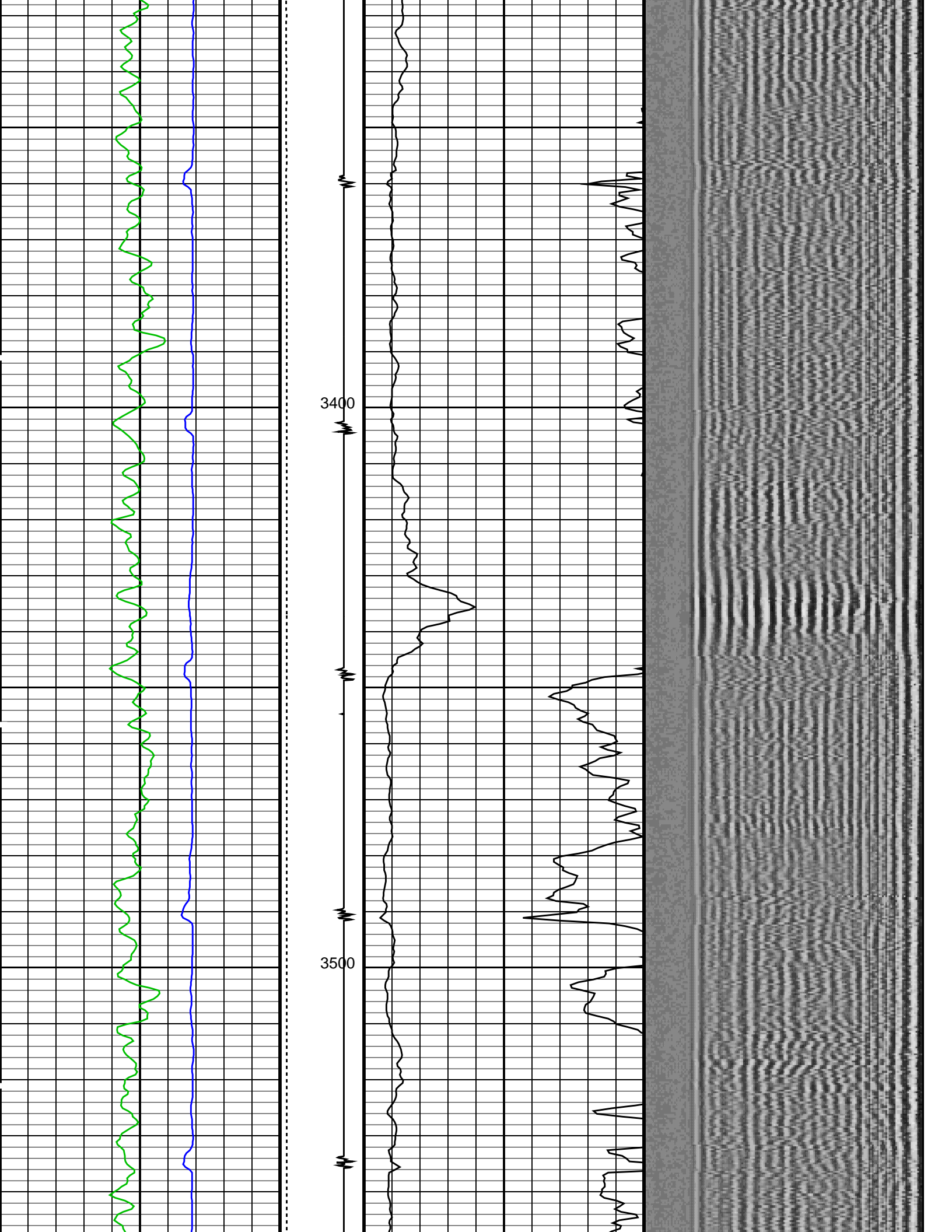




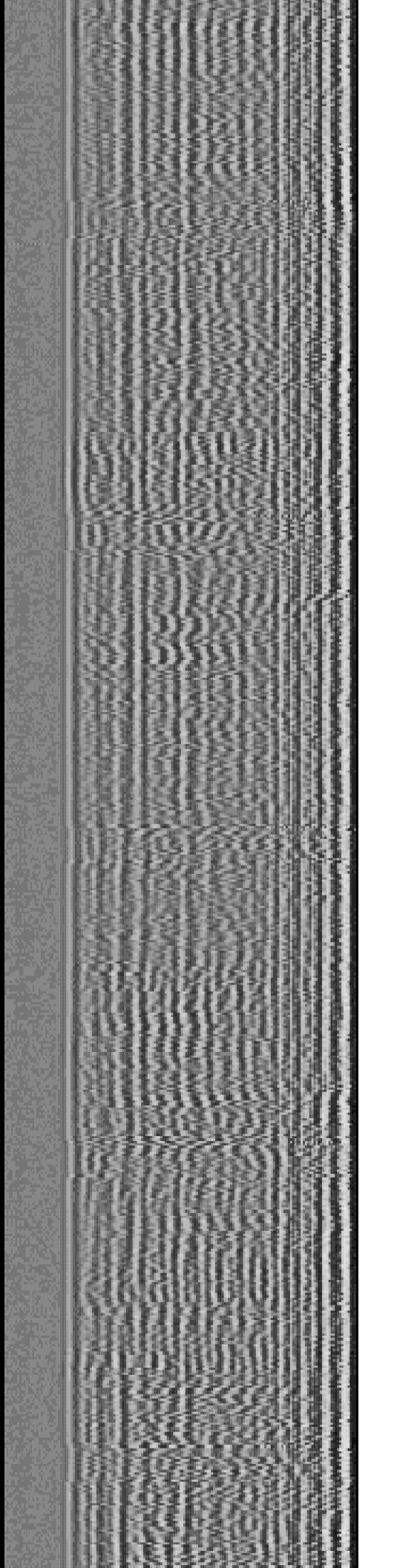
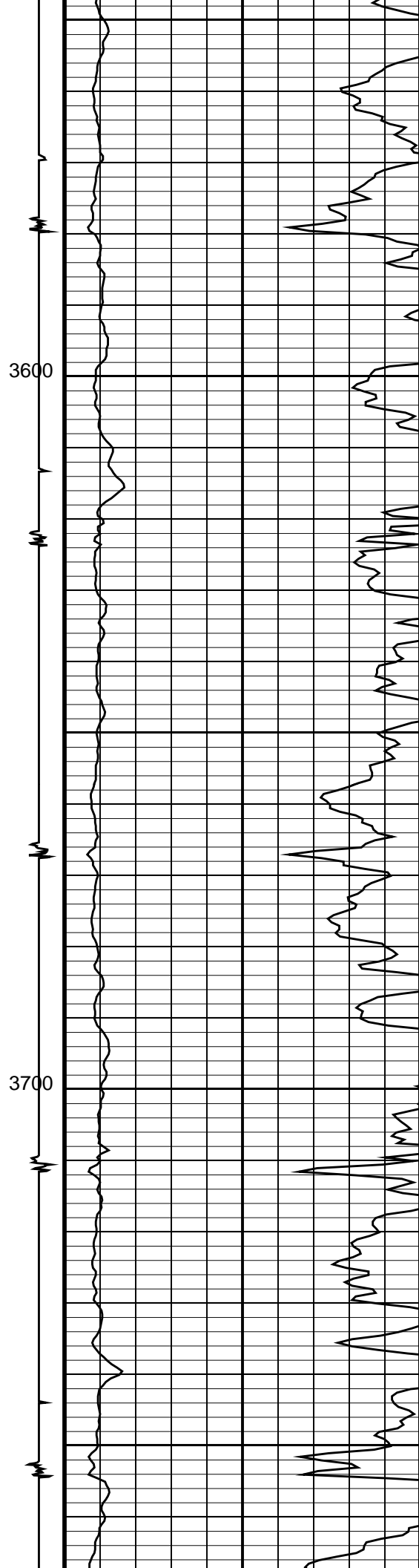
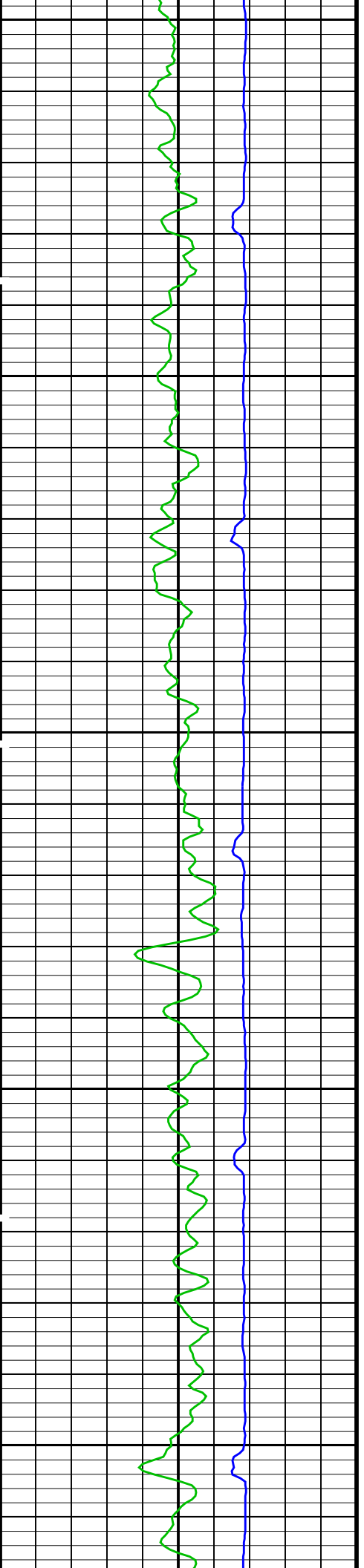


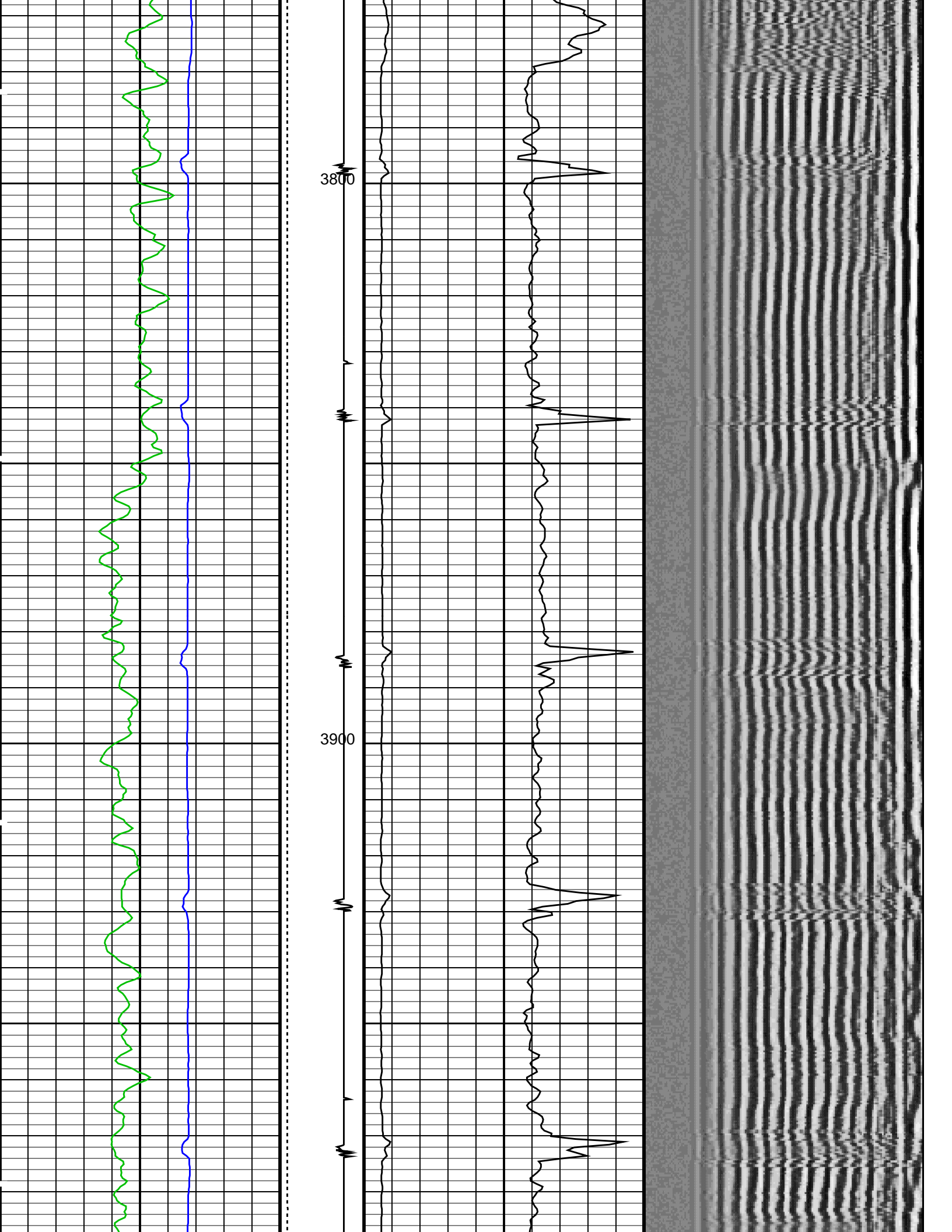


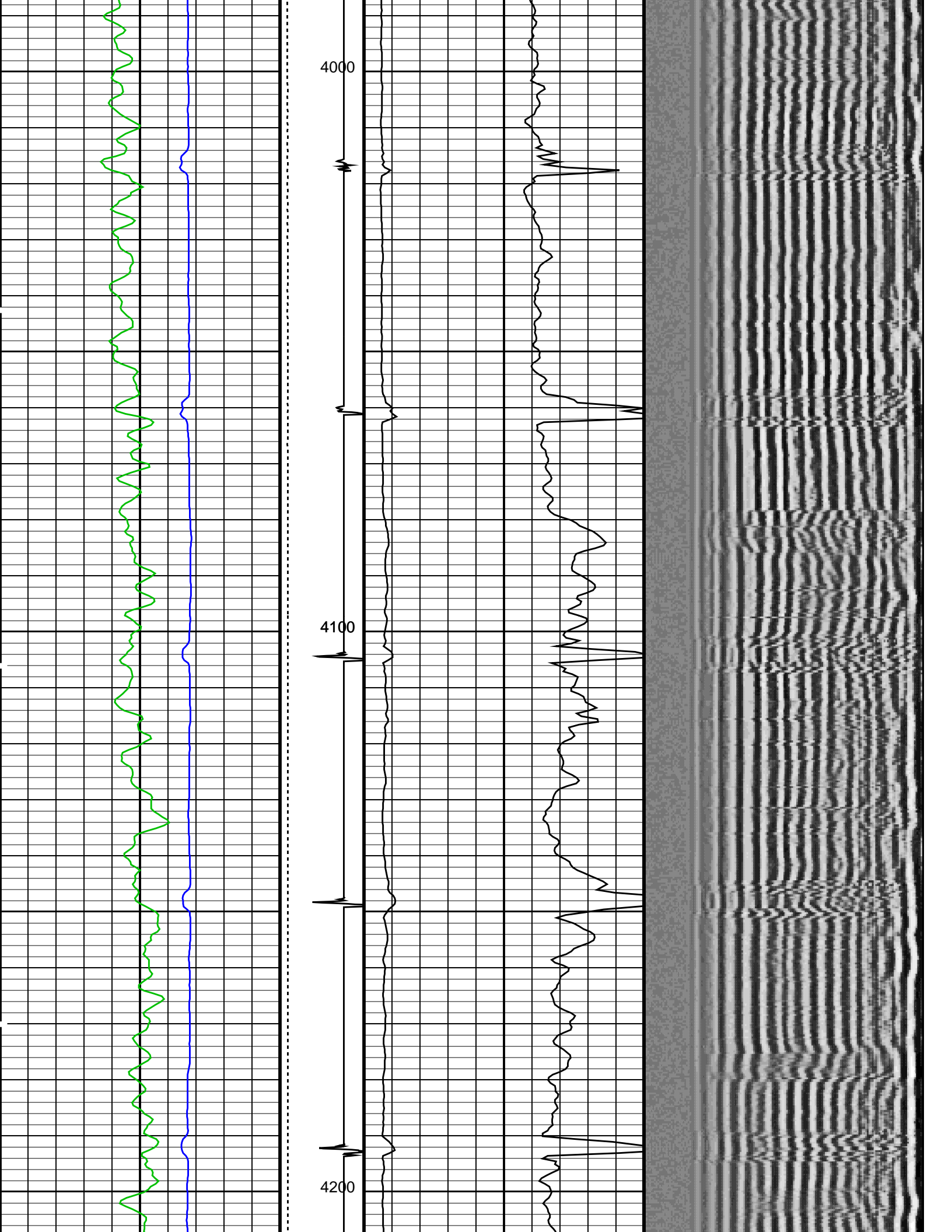


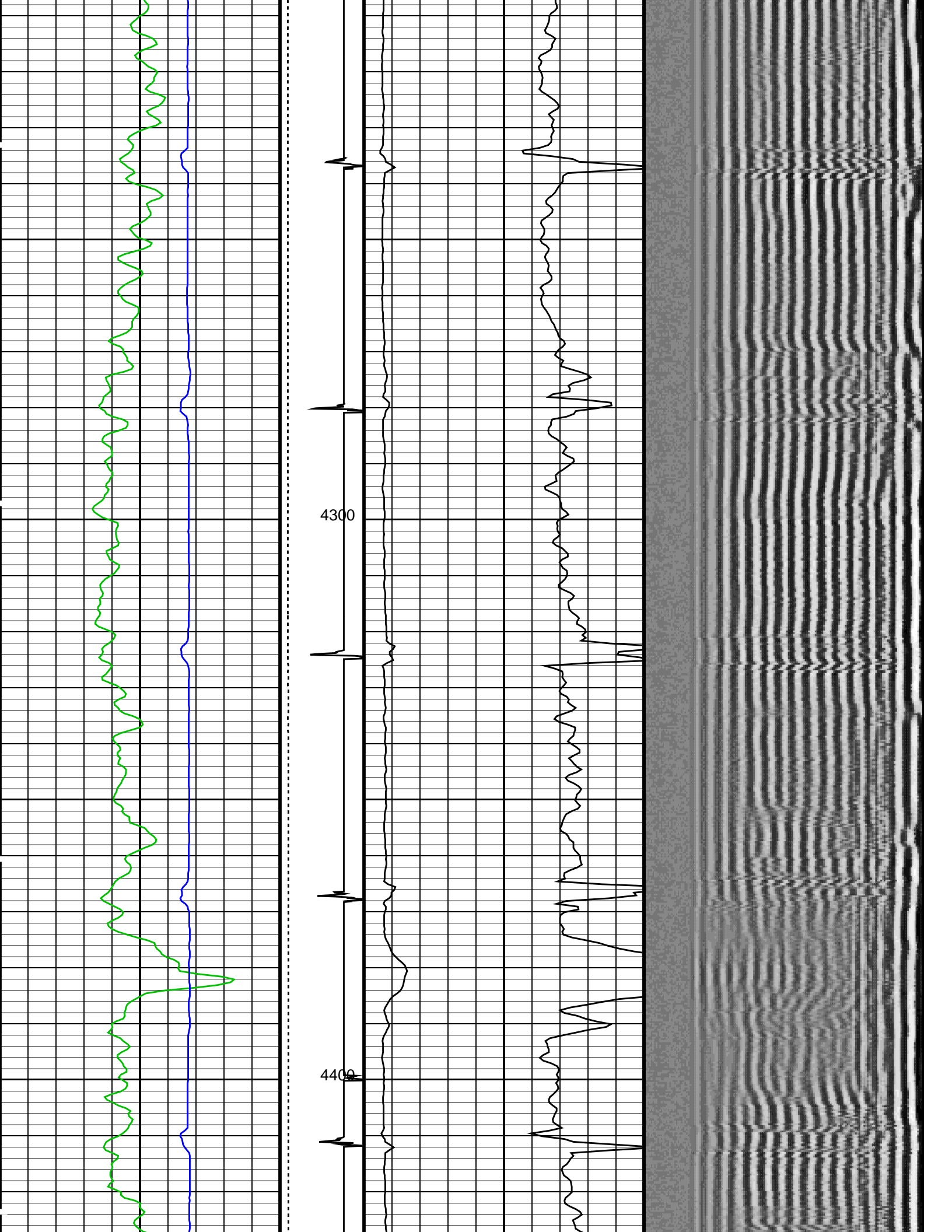




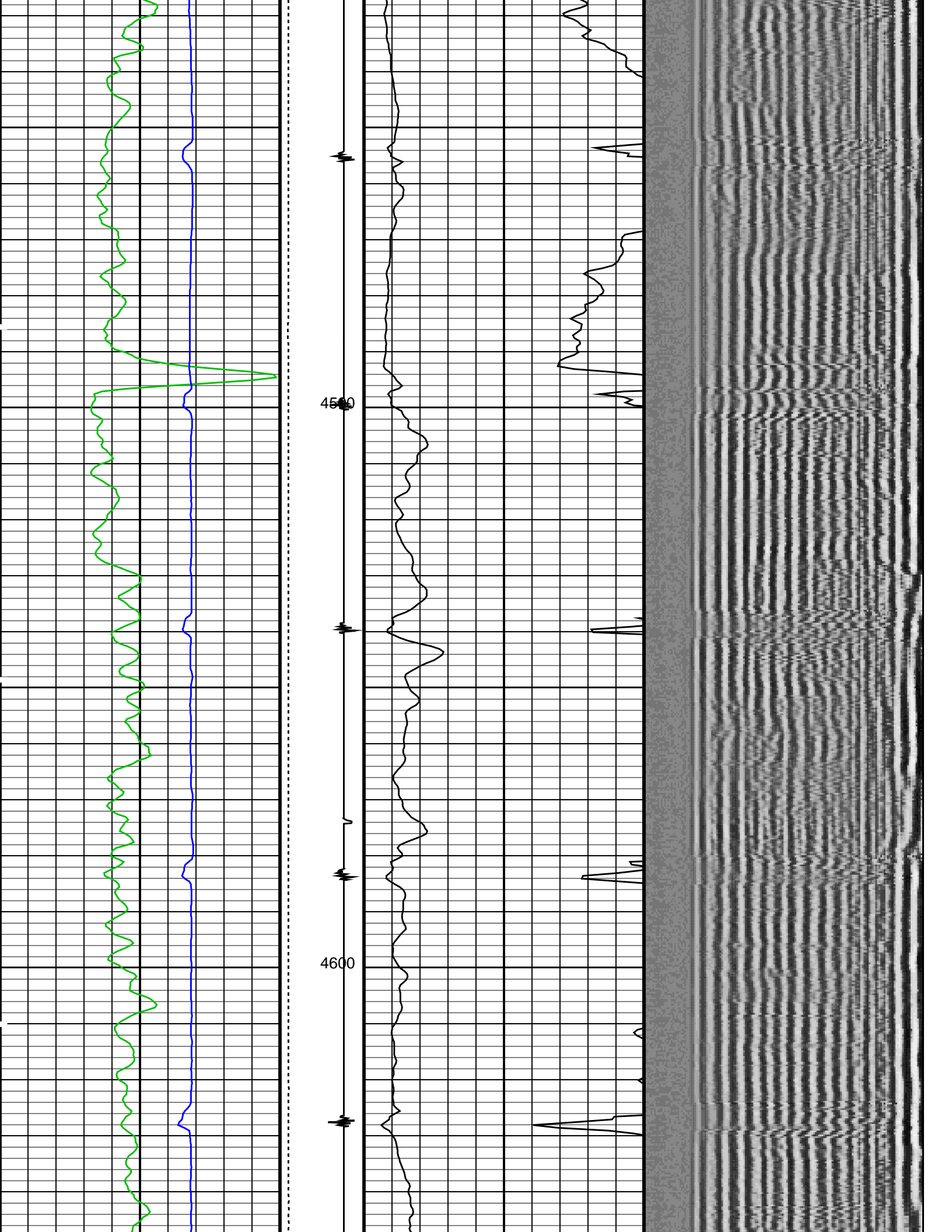


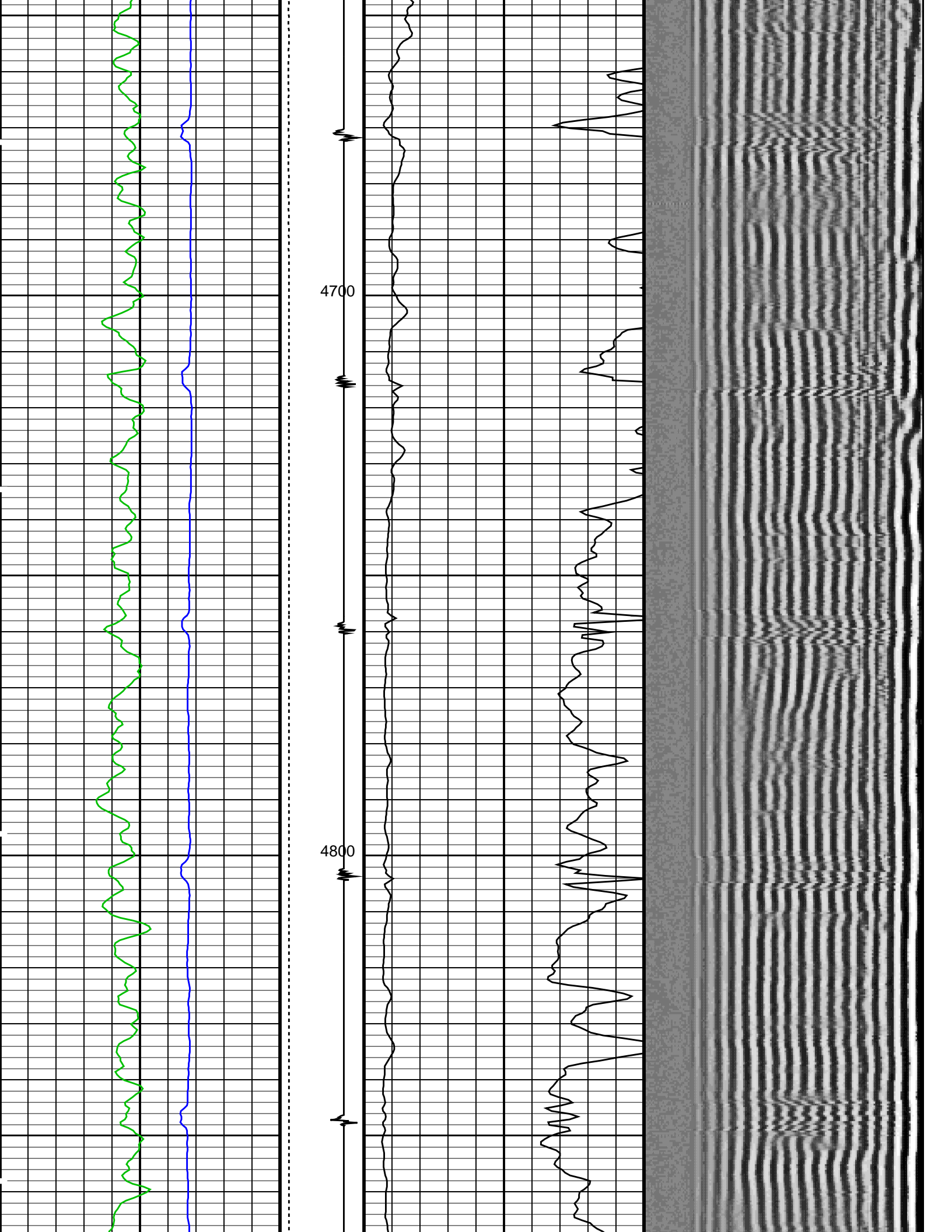


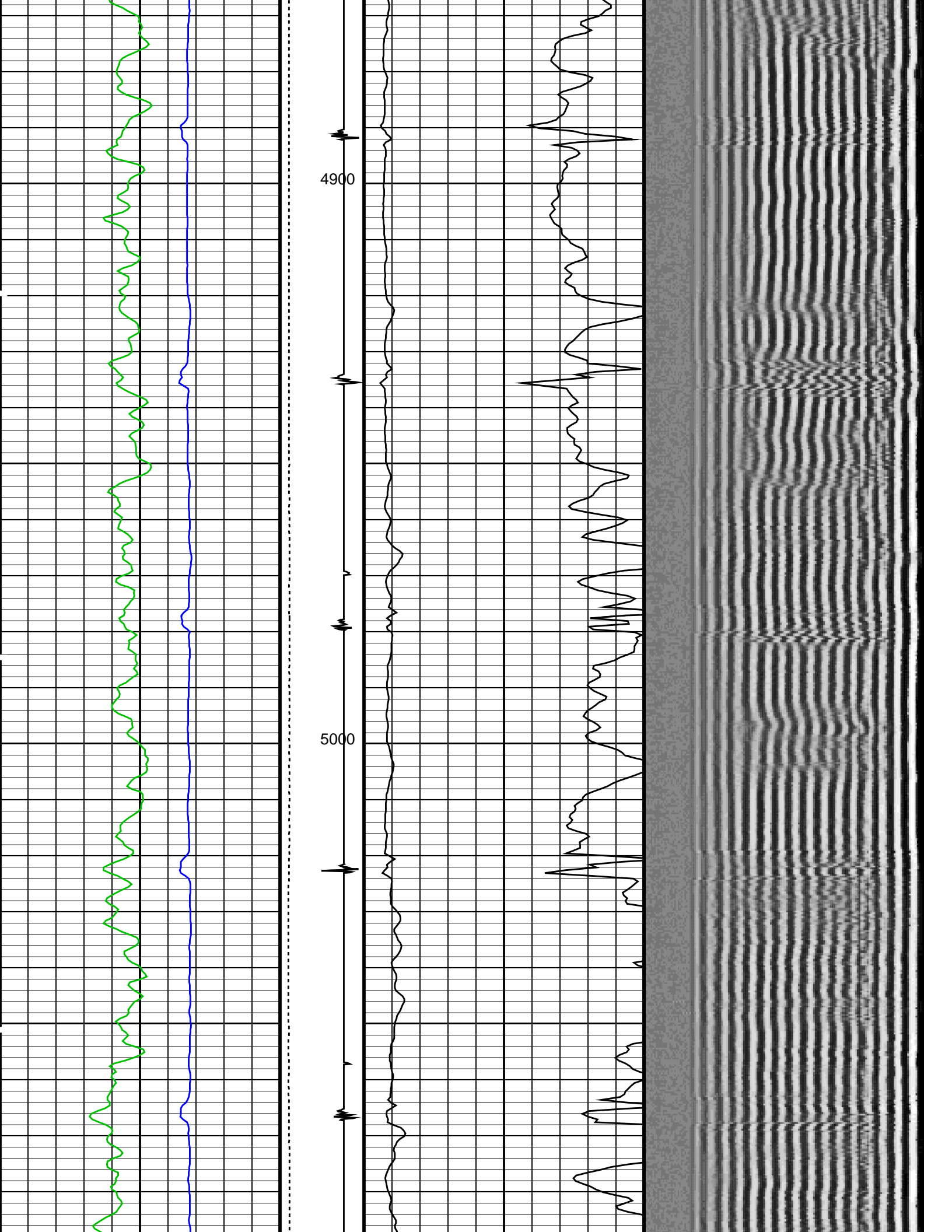


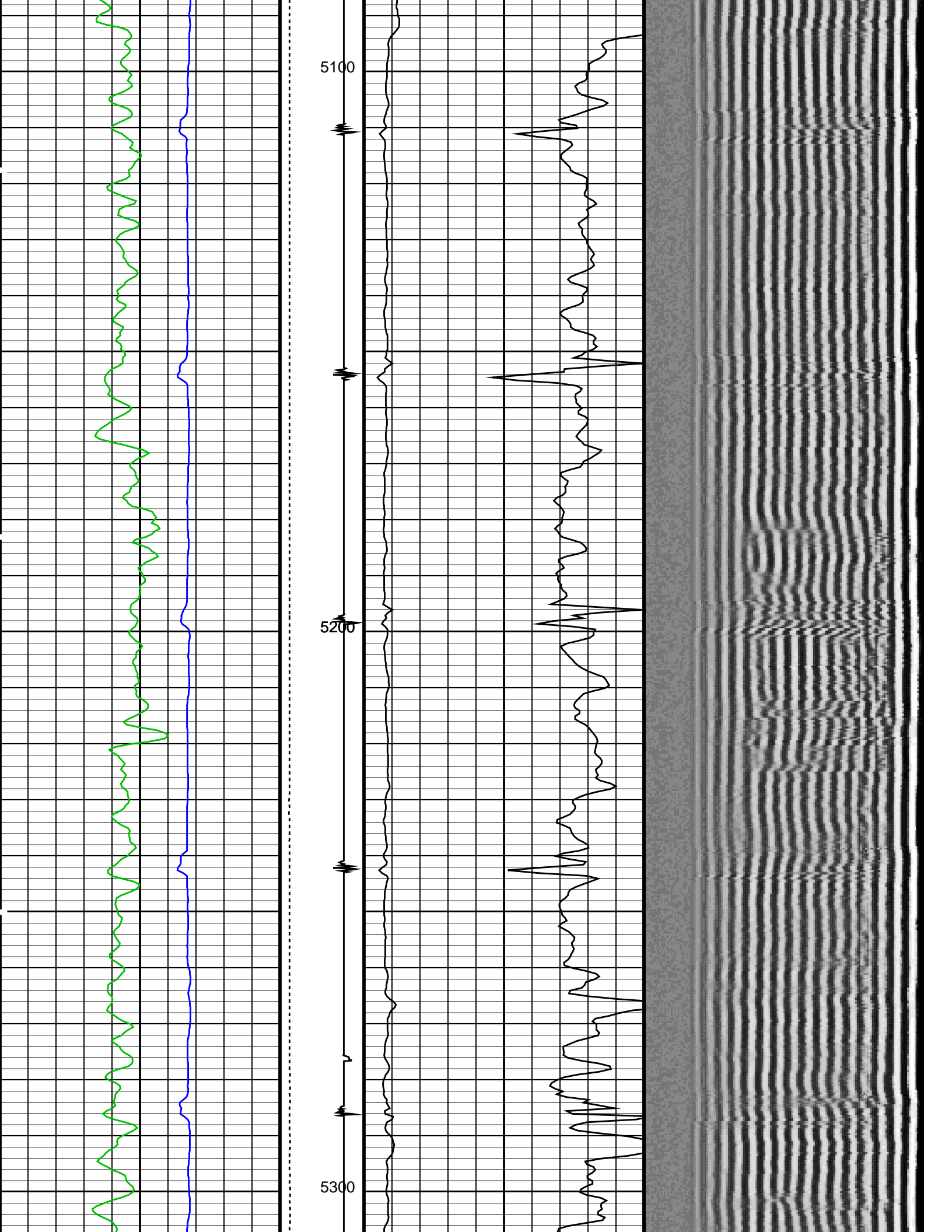




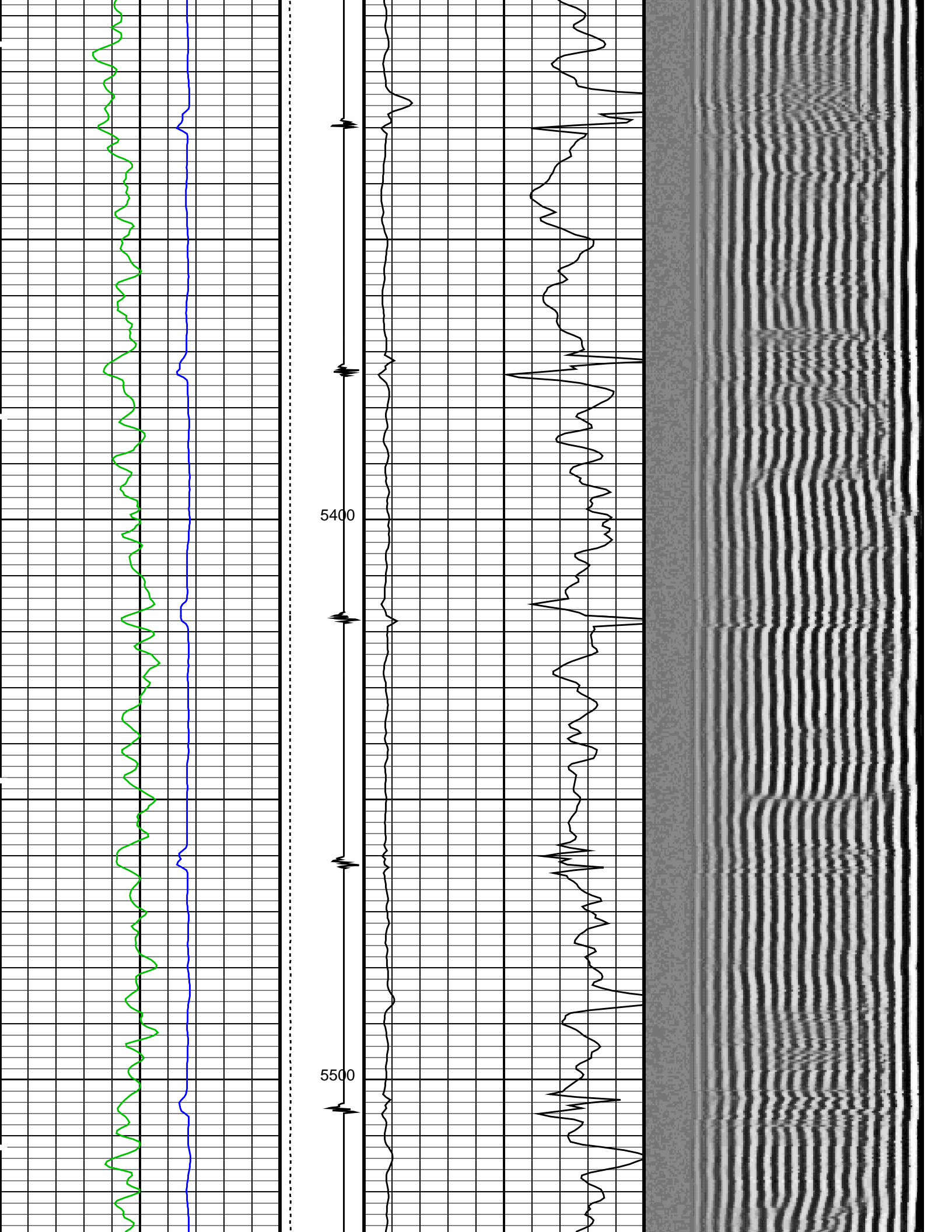


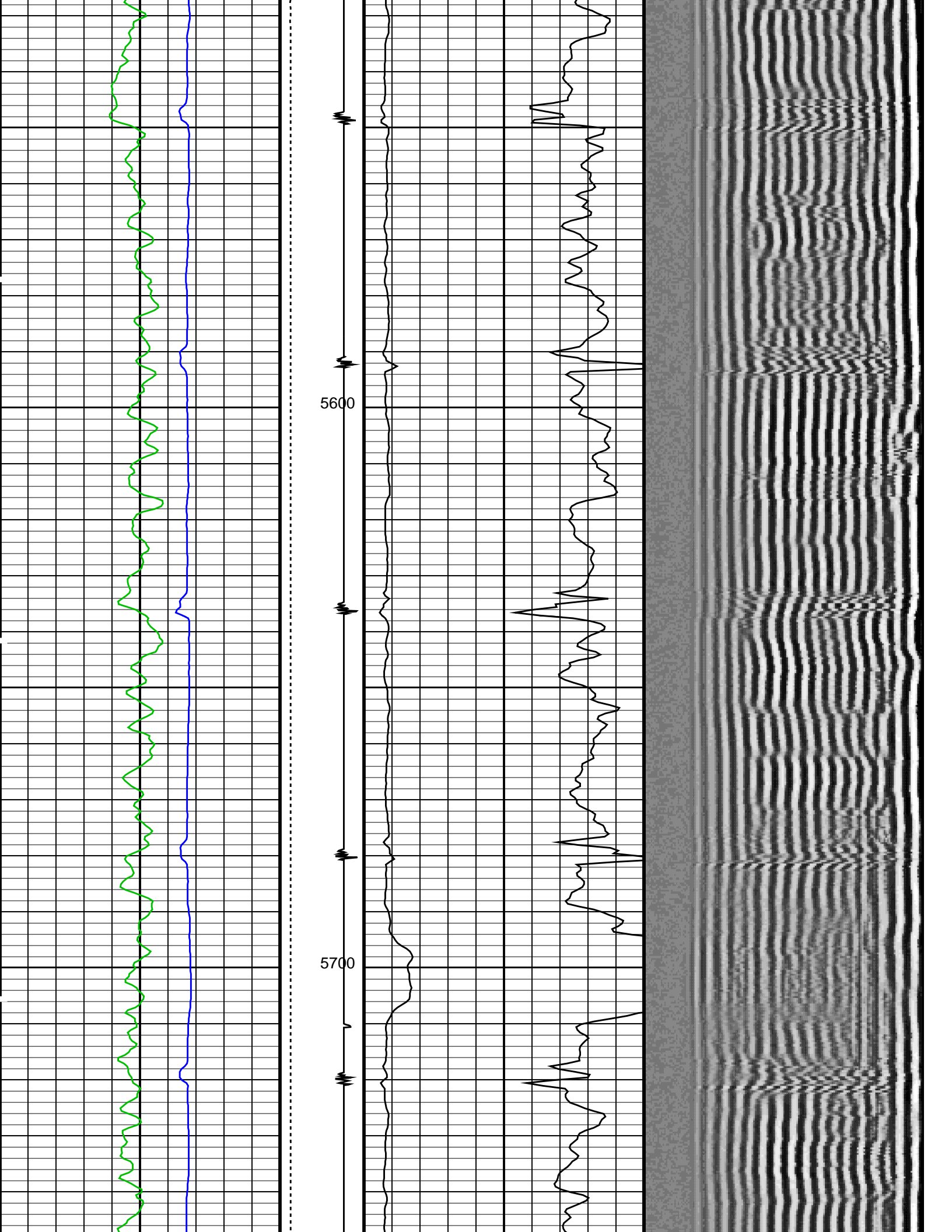


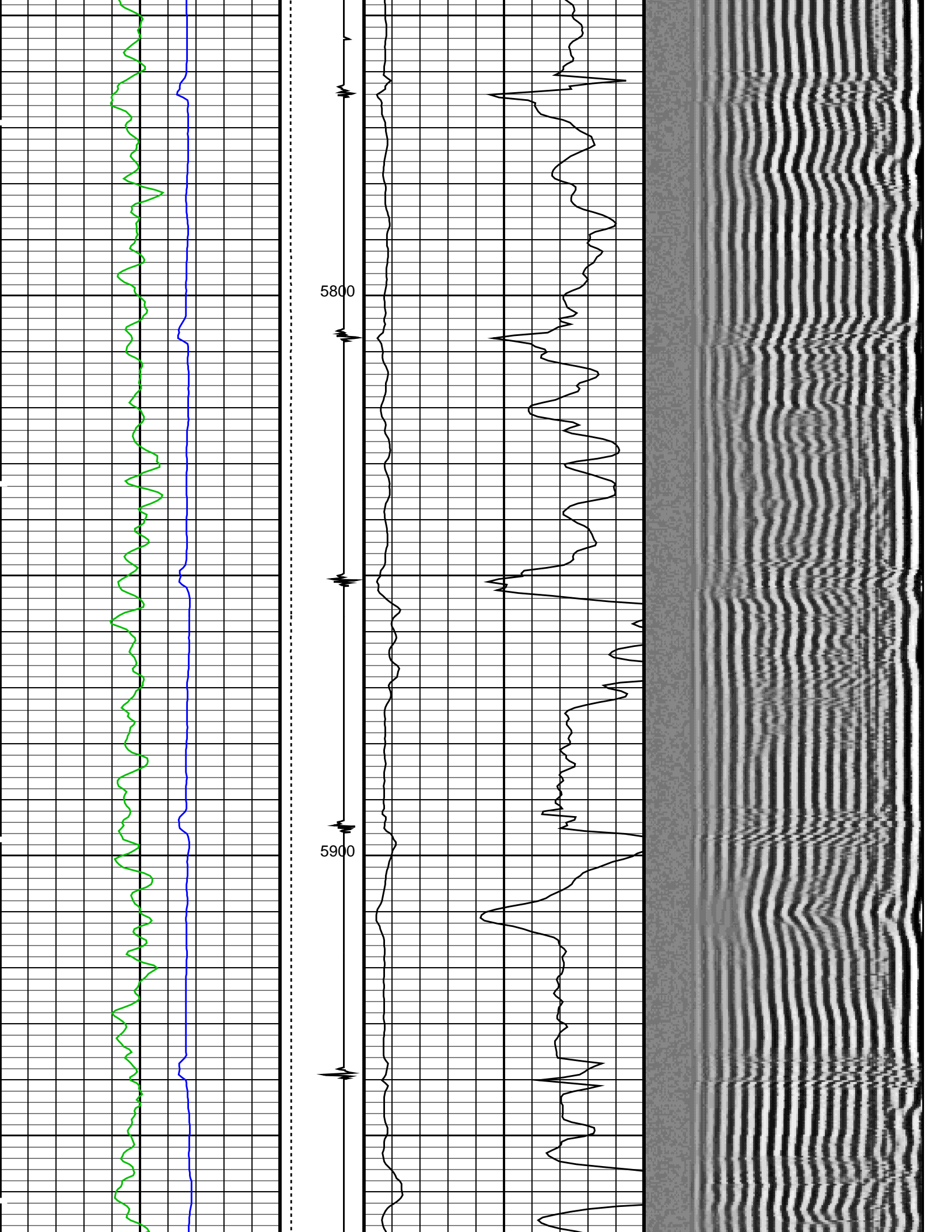


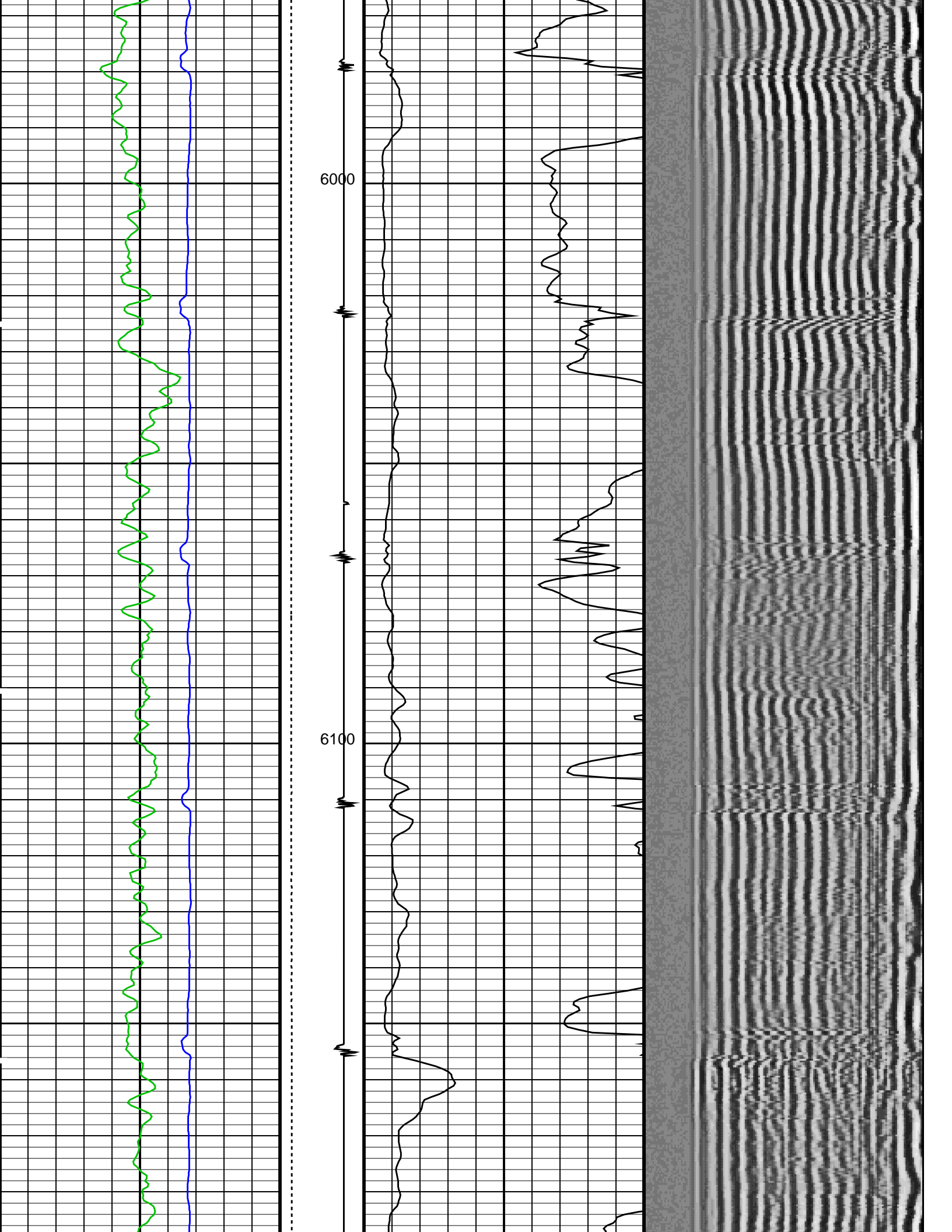




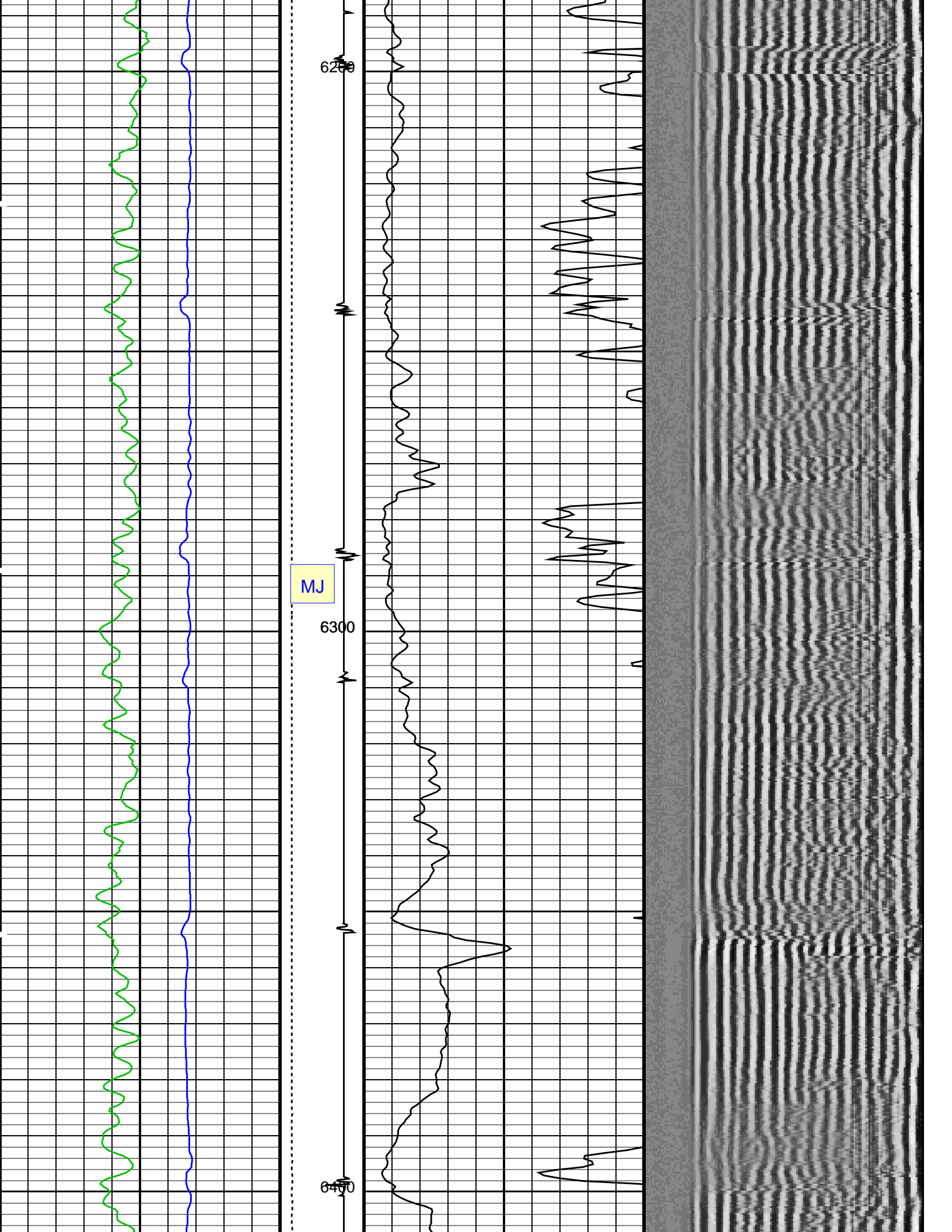




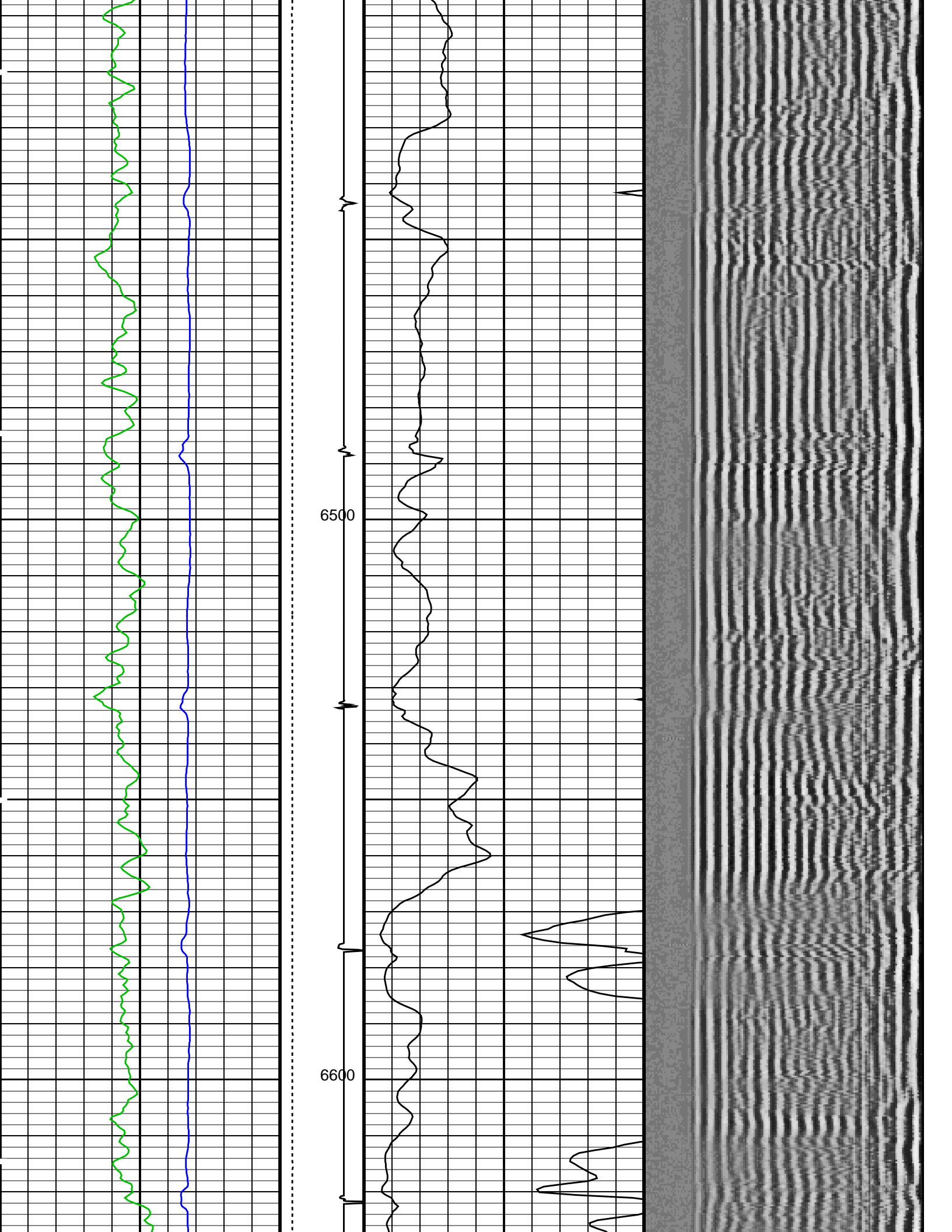


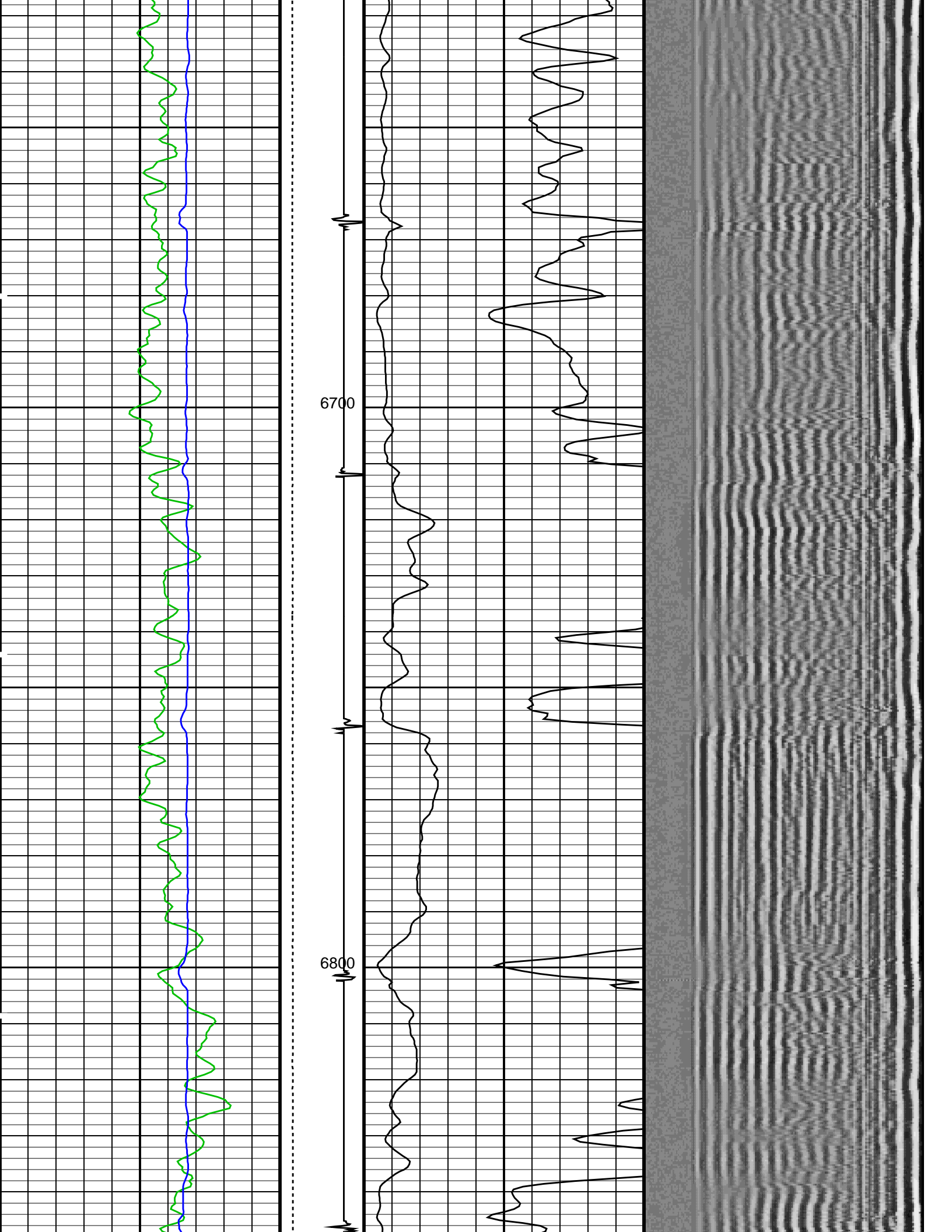


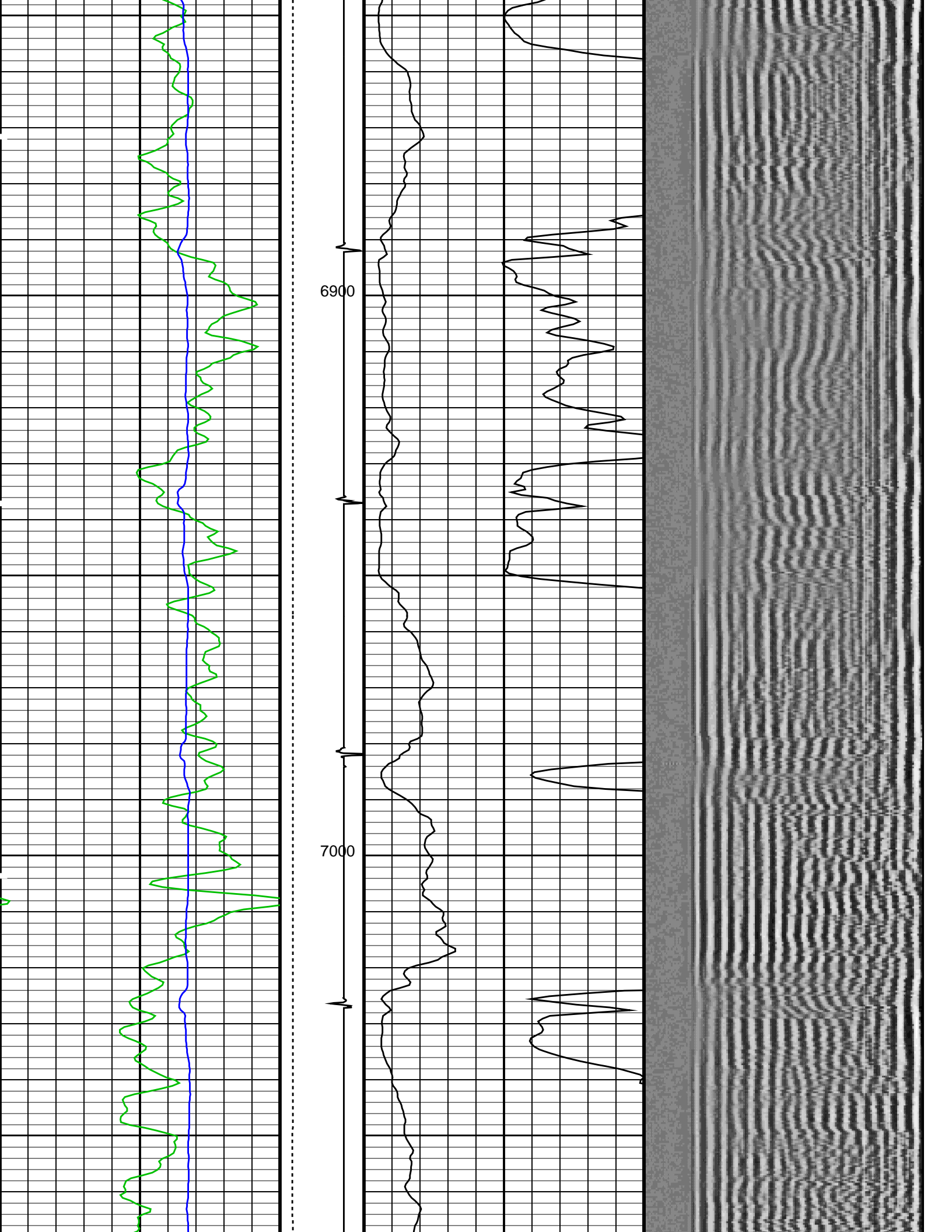


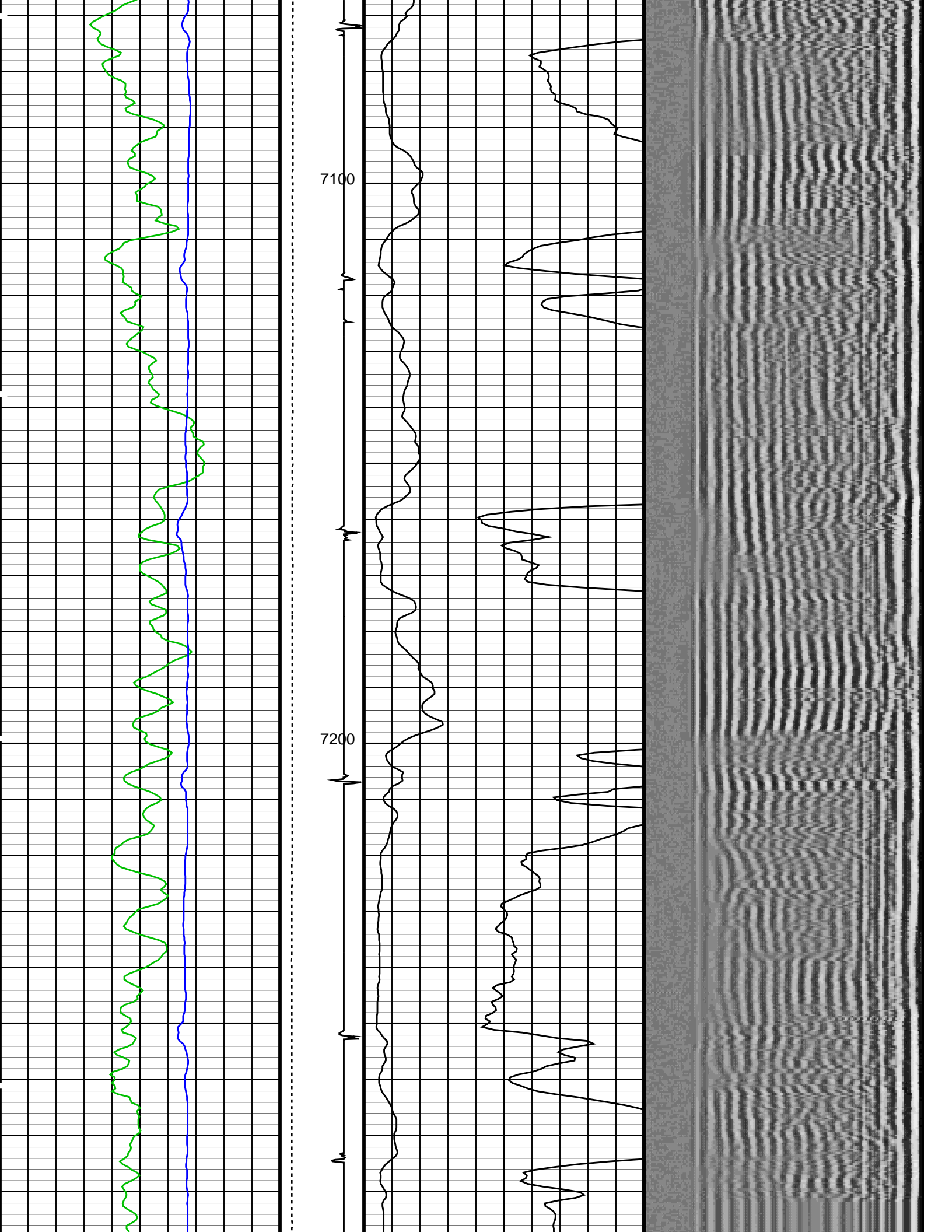




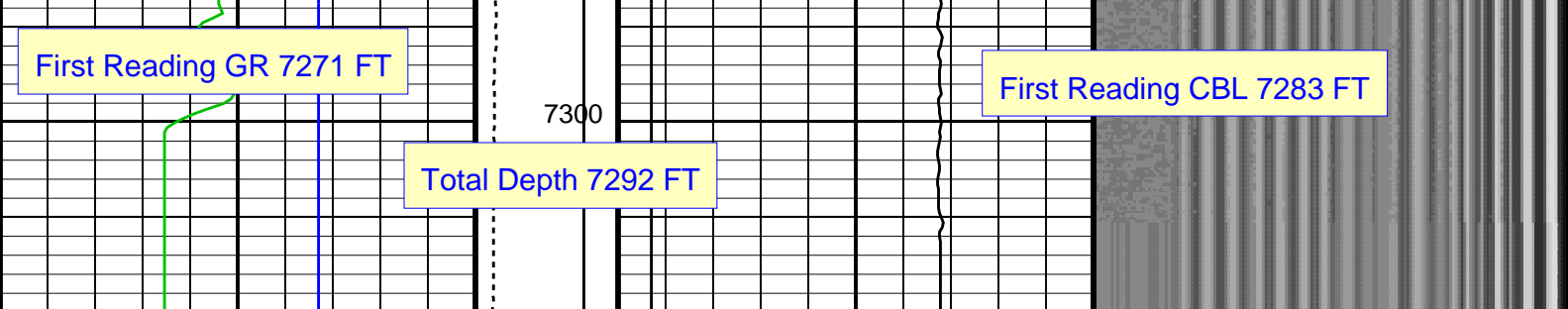












Gamma Ray (GR) (GAPI) 0 150		Tension (TENS) (LBF) 0 5000	CBL Amplitude (CBL) (MV) 0 10		Min Amplitude Max
Transit Time (TT) (US) 400 200		Discriminated CCL (CCLD) (V) 3 -1	CBL Amplitude (CBL) (MV) 0 100		VDL Variable Density (VDL) (US) 200 1200

#### PIP SUMMARY

Time Mark Every 60 S

Format: CBL\_VDL Vertical Scale: 5" per 100'

Graphics File Created: 16-Jul-2015 10:05

### OP System Version: 19C0-187

SCMT-CB SRPC-5095-H2-2011-OP19 PSPT 19C0-187

#### <<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number SCMS-CB 8284

Current Casing Size 5.50000 IN

Casing Weight 17.0 LB/F

Expected CBL Amplitude in Free Pipe Section	71 MV	Minimum Sonic Amplitude	1.15842 MV (100% Cement)
			2.63842 MV (80% Cement)
		MAP Minimum Sonic Amplitude	7.35072 MV (100% Cement)
			12.3898 MV (80% Cement)

#### Master Calibration (Normalization)

#### Before Calibration (Adjustment)

Date of Master Calibration 21-JUN-2013

CBL Correction Factor 0.0743795

CBL Adjustment Factor (CBAF) 1.0

MAP 1 Correction Factor 0.105721

MAP Adjustment Factor (MPAF) 1.0

MAP 2 Correction Factor 0.132315

MAP 3 Correction Factor 0.146735

MAP 4 Correction Factor 0.109791

MAP 5 Correction Factor 0.114089

MAP 6 Correction Factor 0.110732

MAP 7 Correction Factor 0.116601

MAP 8 Correction Factor 0.0804110

### Parameters

DLIS Name	Description	Value	
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD			
BILI	Bond Index Level for Zone Isolation	0.8	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	238.059	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	352.059	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	50	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	71	MV

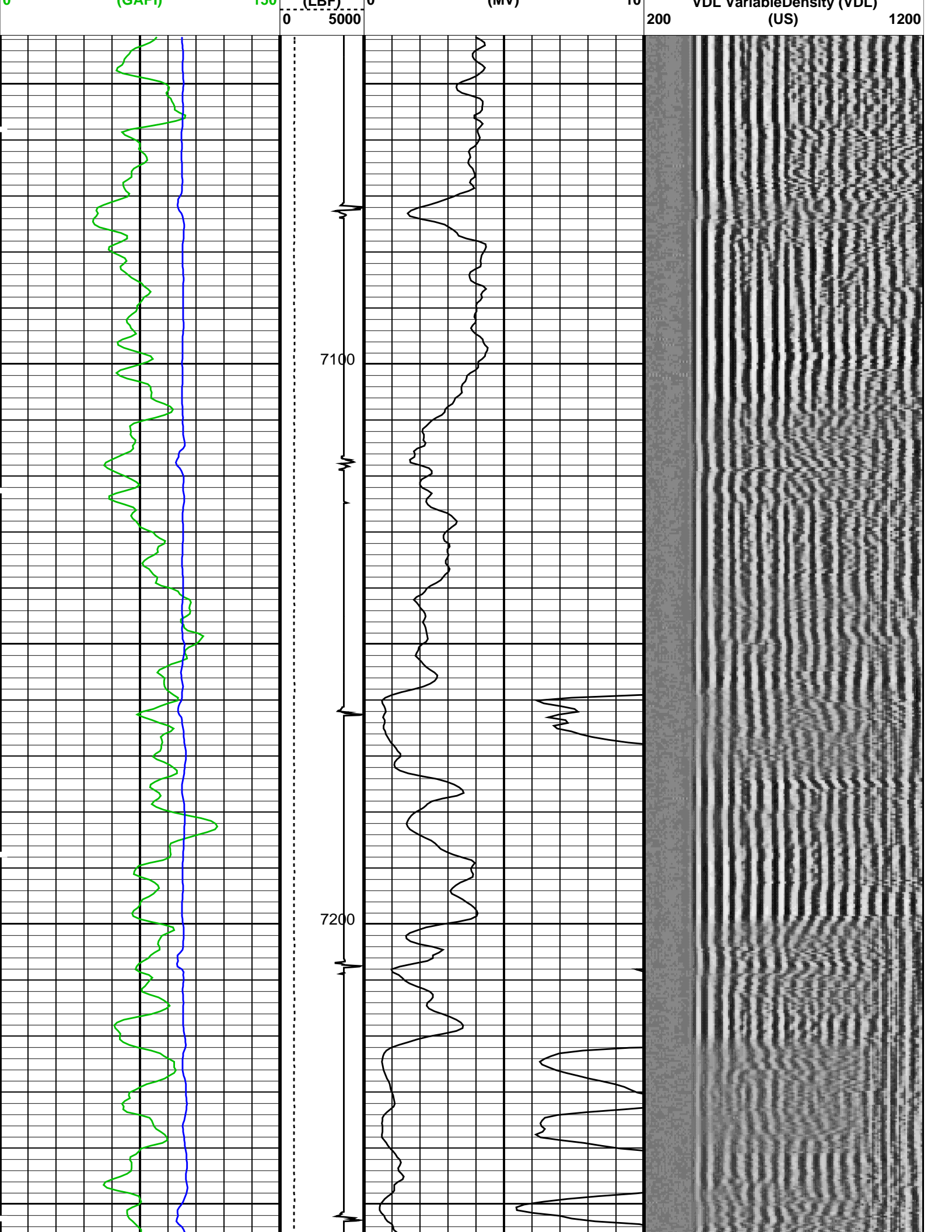


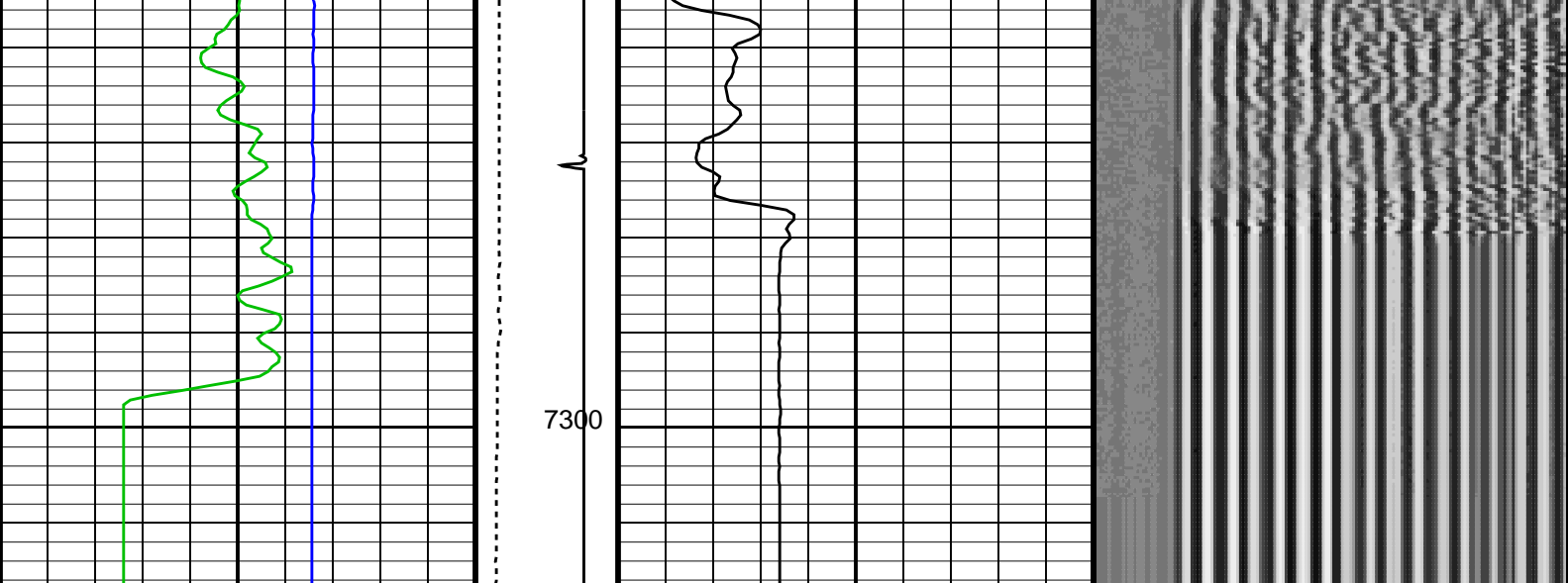
Input DLIS Files						
DEFAULT	SCMT_PSP_026LUP	FN:25	PRODUCER	16-Jul-2015 08:10	7324.0 FT	29.0 FT
Output DLIS Files						
DEFAULT	SCMT_PSP_028PUP	FN:27	PRODUCER	16-Jul-2015 10:05		



MAXIS Field Log

PIP SUMMARY				
<div> <div></div> <div>Time Mark Every 60 S</div> </div>				
<div>Transit Time (TT)</div> <div>400 (US) 200</div>		<div>Discriminat ed CCL (CCLD)</div> <div>3 (V) -1</div>	<div>CBL Amplitude (CBL)</div> <div>0 (MV) 100</div>	
<div>Gamma Ray (GR)</div> <div>0 (CAPI) 150</div>		<div>Tension (TENS)</div> <div>0 (LBE)</div>	<div>CBL Amplitude (CBL)</div> <div>0 (MV) 10</div>	
			<div>Min Amplitude Max</div> <div> <div></div> <div>VDL Variable Density (VDL)</div> </div>	





<b>Gamma Ray (GR)</b> <b>(GAPI)</b> 0 150	<b>Tension</b> <b>(TENS)</b> <b>(LBF)</b> 0 5000	<b>CBL Amplitude (CBL)</b> 0 10 (MV)	<b>Min</b> <b>Amplitude</b> <b>Max</b> <b>VDL VariableDensity (VDL)</b> <b>(US)</b> 200 1200
		<b>CBL Amplitude (CBL)</b> 0 100 (MV)	
<b>Transit Time (TT)</b> <b>(US)</b> 400 200	<b>Discriminat</b> <b>ed CCL</b> <b>(CCLD)</b> 3 (V) -1		

#### PIP SUMMARY

Time Mark Every 60 S

Format: CBL\_VDL Vertical Scale: 5" per 100'

Graphics File Created: 16-Jul-2015 12:10

### OP System Version: 19C0-187

SCMT-CB 19C0-187 PSPT 19C0-187

#### <<<SCMT Cement Evaluation Information Summary>>>

Sonde Serial Number SCMS-CB 8284

Current Casing Size 5.50000 IN

Casing Weight 17.0 LB/F

Expected CBL Amplitude  
in Free Pipe Section 71 MV

Minimum Sonic Amplitude 1.15842 MV (100% Cement)

2.63842 MV (80% Cement)

MAP Minimum Sonic Amplitude 7.35072 MV (100% Cement)

12.3898 MV (80% Cement)

#### Master Calibration (Normalization)

#### Before Calibration (Adjustment)

Date of Master Calibration 21-JUN-2013

CBL Correction Factor 0.0743795

CBL Adjustment Factor (CBAF) 1.0

MAP 1 Correction Factor 0.105721

MAP Adjustment Factor (MPAF) 1.0

MAP 2 Correction Factor 0.132315

MAP 3 Correction Factor 0.146735

MAP 4 Correction Factor 0.109791

MAP 5 Correction Factor 0.114089

MAP 6 Correction Factor 0.110732

MAP 7 Correction Factor 0.116601

MAP 8 Correction Factor 0.0804110

### Parameters

DLIS Name Description Value

Parameter Name		Parameter Value	
SCMT-CB: Slim Cement Mapping Tool, 1-11/16 OD			
BILI	Bond Index Level for Zone Isolation	0.8	
CB3D	SCMT CBL 3 ft Peak Detection Mode	PEAK	
CB3G	SCMT CBL 3 ft Peak Detection T0_Delay and Noise Gate	238.059	US
CB3T	SCMT CBL 3 ft Fixed Threshold Level	20	MV
CB5D	SCMT CBL 5 ft Peak Detection Mode	PEAK	
CB5G	SCMT CBL 5 ft Peak Detection T0_Delay and Noise Gate	352.059	US
CB5T	SCMT CBL 5 ft Fixed Threshold Level	20	MV
CBLG	CBL Gate Width	50	US
CBRA	CBL LQC Reference Amplitude in Free Pipe	71	MV
CMCF	CBL Cement Type Compensation Factor	1	
CMTC	SCMT Slow Channel Multiplexer Mode	SCAN	
CMTM	SCMT Operating Mode	LOG	
CSCS	SCMT Slow Channel Index	VCC	
CTHI	Casing Thickness	0.306128	IN
DTF	Delta-T Fluid	189	US/F
FATT	Acoustic Attenuation due to Fluid	0	DB/F
FCF	CBL Fluid Compensation Factor	0.924277	
GOBO	Good Bond	2.63842	MV
MAPD	SCMT MAP Peak Detection Mode	PEAK	
MAPG	SCMT MAP Peak Detection T0_Delay and Noise Gate	181.059	US
MAPT	SCMT MAP Fixed Threshold Level	30	MV
MATT	Maximum Attenuation	13.848	DB/F
MCCF	MAP Cement Type Compensation Factor	1	
MCI	Minimum Cemented Interval for Isolation	4.75	FT
MMSA	MAP Minimum Sonic Amplitude	7.35072	MV
MSA	Minimum Sonic Amplitude	1.15842	MV
PEDE	Peak Detection On/Off Switch in Playback	OFF	
VDLG	VDL Manual Gain	5	
ZCMT	Acoustic Impedance of Cement	6.8	MRAY
System and Miscellaneous			
CSIZ	Current Casing Size	5.500	IN
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	-6.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	7292	FT

Input DLIS Files						
DEFAULT	SCMT_PSP_029PUP	FN:28	PRODUCER	16-Jul-2015 12:06	7322.5 FT	7047.0 FT
Output DLIS Files						
DEFAULT	SCMT_PSP_008PUP	FN:7	PRODUCER	16-Jul-2015 12:10		



# PBMS COEFFICIENTS

## MAXIS Field Log

Client:	ANADARKO	Tool:	PSP
Field:	WATTENBERG	Sub Type:	PBMS
Well:	CHEESE STATE 26N-21HZ	Sensor:	Clock Model
Run date:	16-Jul-2015		

PBMS Digitalization Clock	
Sonde Serial NB	
Sensor Serial NB	1863
Calib Date ddmmyy	261007
Matrix Size	16

Coeff CRC	3AB0		
Clock Coeff			
	Temp**0	Temp**1	Temp**2
Temp**0	−.151788334201E+03	−.102873785445E+01	−.167225792957E+00
	Temp**3	Temp**4	Temp**5
Temp**0	+.136689035753E−02	+.538068013029E−06	0.0

Client:	ANADARKO	Tool:	PSP
Field:	WATTENBERG	Sub Type:	PBMS
Well:	CHEESE STATE 26N−21HZ	Sensor:	Sapphire
Run date:	16−Jul−2015		

PBMS Sapphire 10kPsi Gauge			
Sonde Serial NB	COEFFICIENTS FOR SAPPHIRE PBMS−A.1863 S/N:		
Sensor Serial NB	1863		
Calib Date ddmmyy	261007		
Matrix Size	66		
Coeff CRC	F756		
Pres Coeff			
	Tt**0	Tt**1	Tt**2
Tp**0	−.359590231743E+05	+.299188234803E+05	−.107446687531E+05
Tp**1	+.237648969480E+05	−.186021128720E+05	+.671109848596E+04
Tp**2	−.149422117989E+03	+.596502883584E+02	−.652553761493E+01
Tp**3	+.143644323931E+01	−.305754161348E+00	0.0
Tp**4	0.0	0.0	0.0
Tp**5	0.0	0.0	0.0
	Tt**3	Tt**4	Tt**5
Tp**0	+.180759727775E+04	−.117082497700E+03	0.0
Tp**1	−.113521285304E+04	+.740106734909E+02	0.0
Tp**2	0.0	0.0	0.0
Tp**3	0.0	0.0	0.0
Tp**4	0.0	0.0	0.0



Tp**5	0.0	0.0	0.0
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PBMS Sapphire 10kPsi Gauge

Sonde Serial NB :  
Sensor Serial NB 1863  
Calib Date ddmmyy 261007  
Matrix Size 66  
Coeff CRC 89EB

Temp Coeff

	Tp**0	Tp**1	Tp**2
Tt**0	+.196657284828E+04	+.100051500932E+02	-.971524337955E+01
Tt**1	-.124071500899E+04	-.116824853877E+00	+.270298401768E+01
Tt**2	+.276001008305E+03	-.113239508435E+01	-.340525434373E-01
Tt**3	-.216436996942E+02	+.118632399044E+00	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0
	Tp**3	Tp**4	Tp**5
Tt**0	+.255739855736E+01	-.250107203346E+00	0.0
Tt**1	-.674177192949E+00	+.655237399131E-01	0.0
Tt**2	0.0	0.0	0.0
Tt**3	0.0	0.0	0.0
Tt**4	0.0	0.0	0.0
Tt**5	0.0	0.0	0.0

Client:	ANADARKO	Tool:	PSP
Field:	WATTENBERG	Sub Type:	PBMS
Well:	CHEESE STATE 26N-21HZ	Sensor:	GR
Run date:	16-Jul-2015		

PBMS Gamma Ray

Sonde Serial NB RESISTORS FOR GR SENSOR N.33499,TOOL PBMS-AA1863. SENSOR S/N:  
Sensor Serial NB 33499  
Calib Date ddmmyy 100402  
Matrix Size 12  
Coeff CRC DFA9

GR HV Rt

Rt**0	Rt**1
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Rt**0	+.150000000000e+04	+.241000000000e+04
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Client:	ANADARKO	Tool:	PSP
Field:	WATTENBERG	Sub Type:	PBMS
Well:	CHEESE STATE 26N-21HZ	Sensor:	WellTemp RTD
Run date:	16-Jul-2015		

PBMS RTD Well Thermometer

Sonde Serial NB	COEFFICIENTS FOR RTD THERMOMETER PBMS-A.1863 S/N:
Sensor Serial NB	1863
Calib Date ddmmyy	261007
Matrix Size	16
Coeff CRC	3DE3

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	-.445369658202E+03	+.231013910229E+03	-.562860354452E+02
	Tt**3	Tt**4	Tt**5
Tt**0	+.107489365785E+02	-.720697242025E+00	0.0

State:	COLORADO
	SLIM CEMENT MAPPING LOG CBL-VDL GR-CCL