



Company: ANADARKO

Well: CHEESE STATE 1N-21HZ

Field: WATTENBERG

County: WELD State: COLORADO

SLIM CEMENT MAPPING LOG  
CBL-VDL  
GR-CCL

County:	WELD		
Field:	WATTENBERG		
Location:	428' FNL, 845' FEL, T3N R65W S		
Well:	CHEESE STATE 1N-21HZ		
Company:	ANADARKO		
LOCATION	428' FNL, 845' FEL, T3N R65W SEC 28 NENE	Elev.: K.B. 4843.00 ft G.L. 4818.00 ft D.F. 4842.00 ft	
	Permanent Datum: _____	GROUND LEVEL _____	Elev.: 4818.00 ft _____
	Log Measured From: _____	KELLY BUSHING _____	25.00 ft above Perm. Datum
	Drilling Measured From: _____	KELLY BUSHING _____	
Logging Date	15-Jul-2015		
Run Number	1		
Depth Driller	12564 ft		
Schlumberger Depth	7140 ft		
Bottom Log Interval	7131 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	12564 ft		
Casing/Tubing Size	5.500 in		
Weight	17 lbm/ft		
Grade	HCP-110 LTC		
From	25 ft		
To	12553 ft		
Maximum Recorded Temperatures	252 degF		
Logger On Bottom	15-Jul-2015	16:30	
Unit Number	354	PLATTEVILLE	
Recorded By	KIRSTIE BUNTING		
Witnessed By	VAN FRANKE		

Logging Date	15-Jul-2015		
Run Number	1		
Depth Driller	12564 ft		
Schlumberger Depth	7140 ft		
Bottom Log Interval	7131 ft		
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Casing Fluid Type	WATER		
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BIT/CASING/TUBING STRING			
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Grade	HCP-110 LTC		
From	25 ft		
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Maximum Recorded Temperatures	252 degF		
Logger On Bottom	15-Jul-2015	16:30	
Unit Number	354	PLATTEVILLE	
Recorded By	KIRSTIE BUNTING		
Witnessed By	VAN FRANKE		

	Run 1	Run 2	F
Oil Density			
Water Salinity			
Gas Gravity			
Bo			
Bw			
1/Bg			
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			
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.

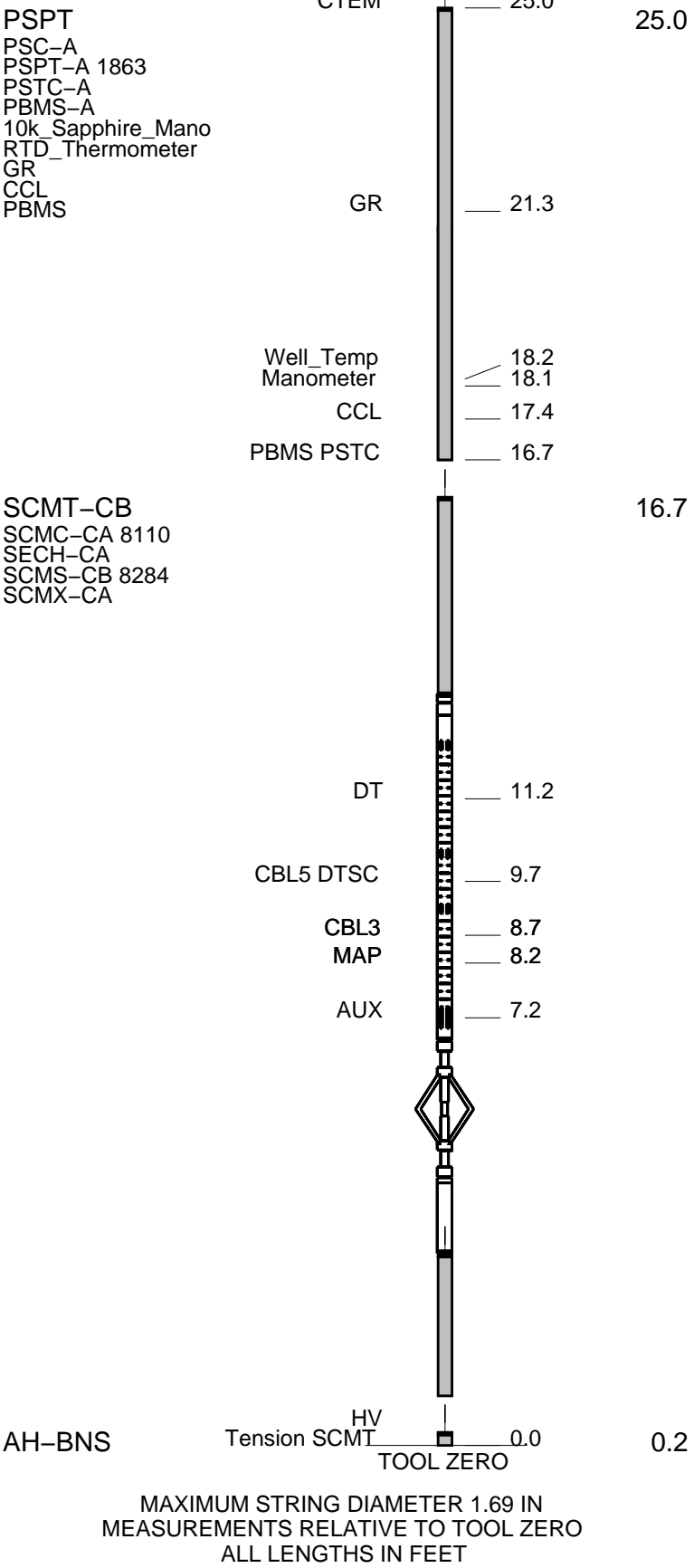
CREW: KBUNTING, RWILEY, JJUMP, BKRAI

SERVICE ORDER #:  
PROGRAM VERSION:  
FLUID LEVEL:

STOP

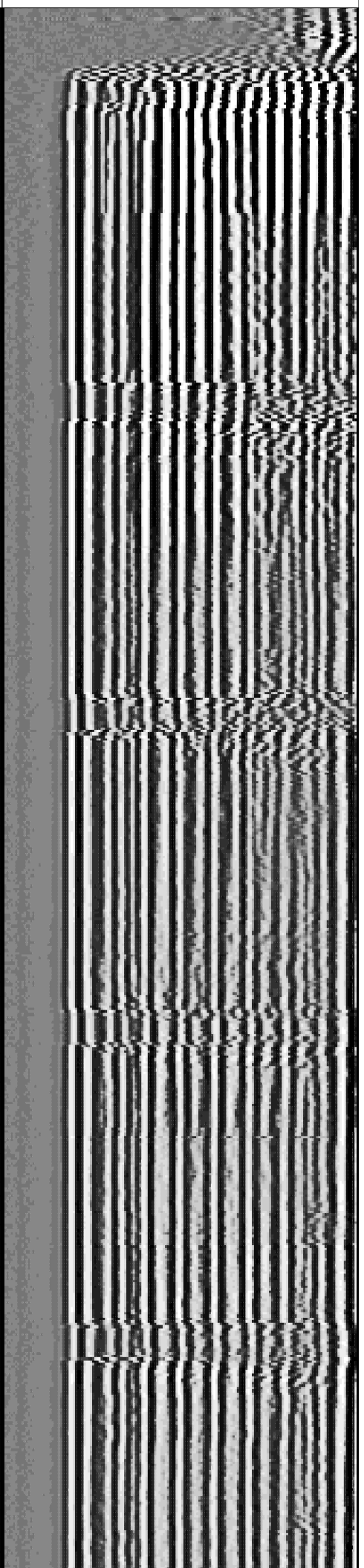
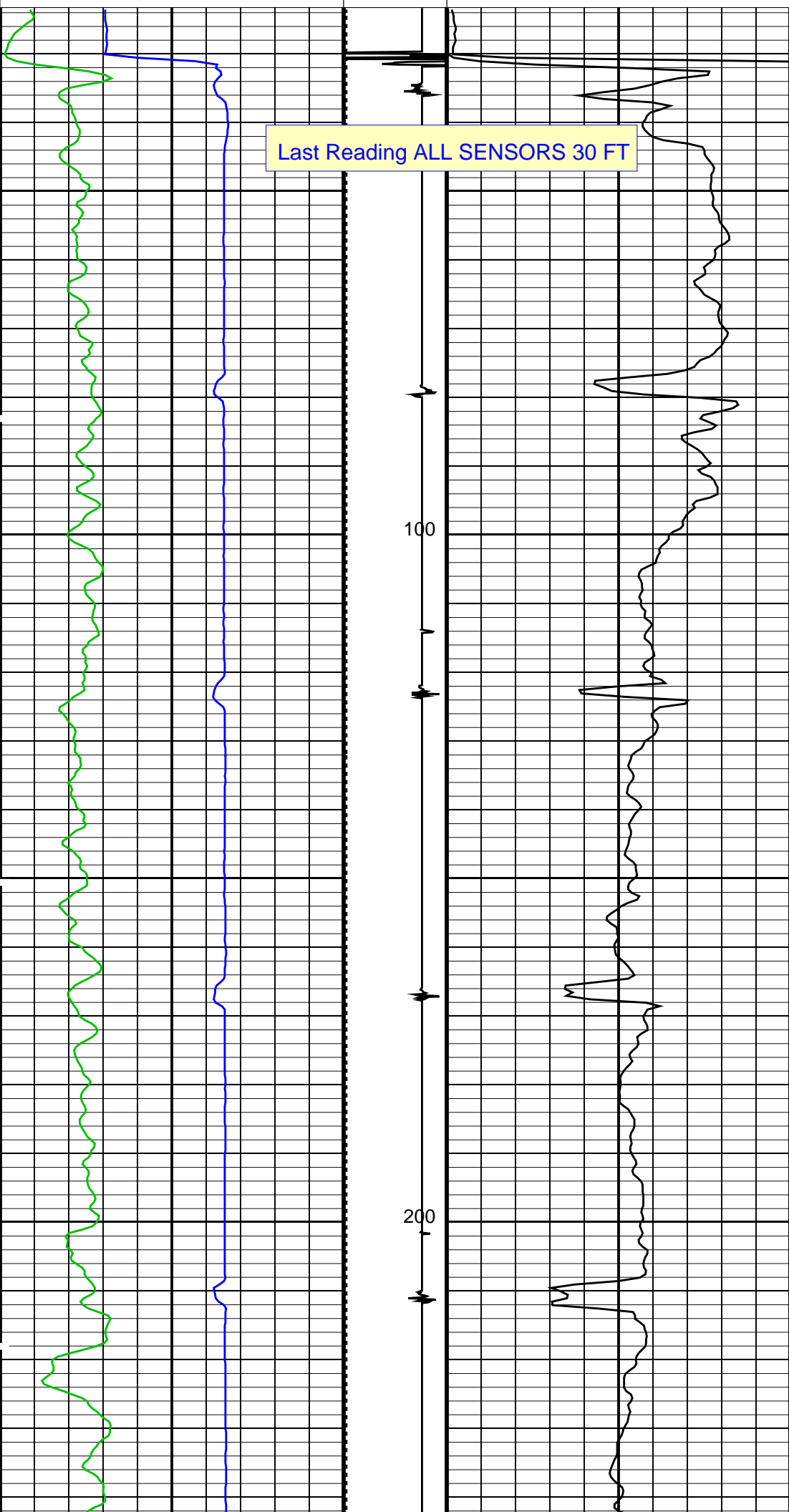
RUN 2

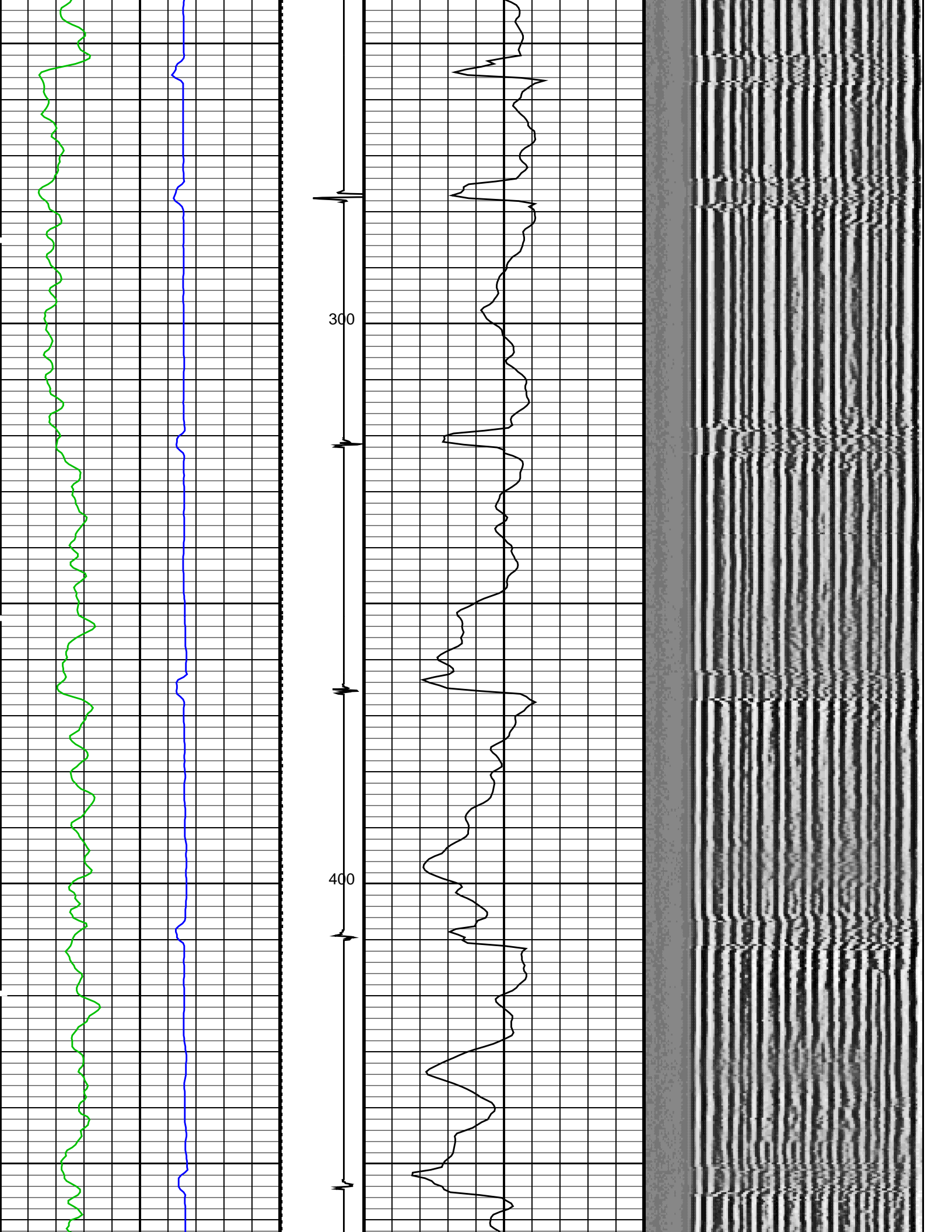
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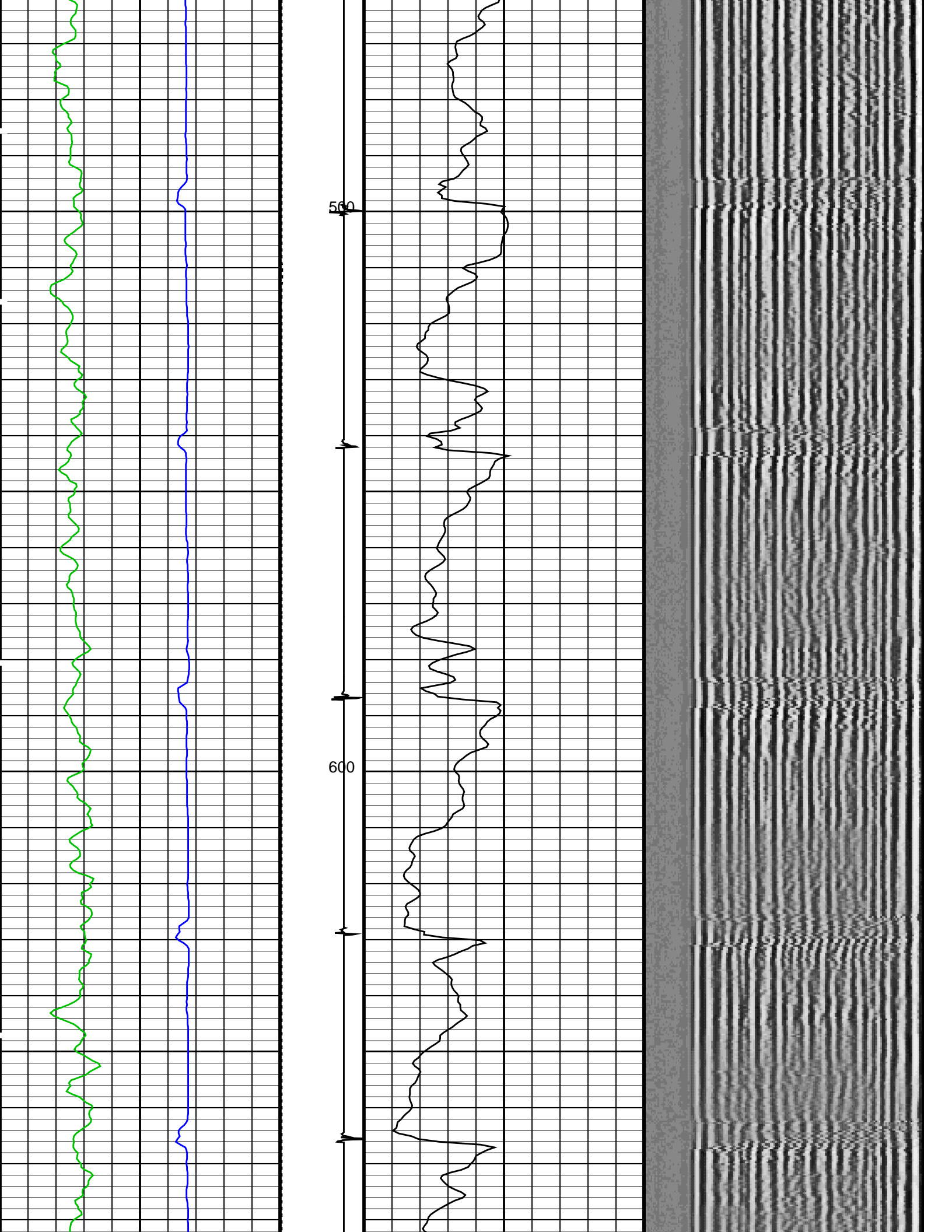


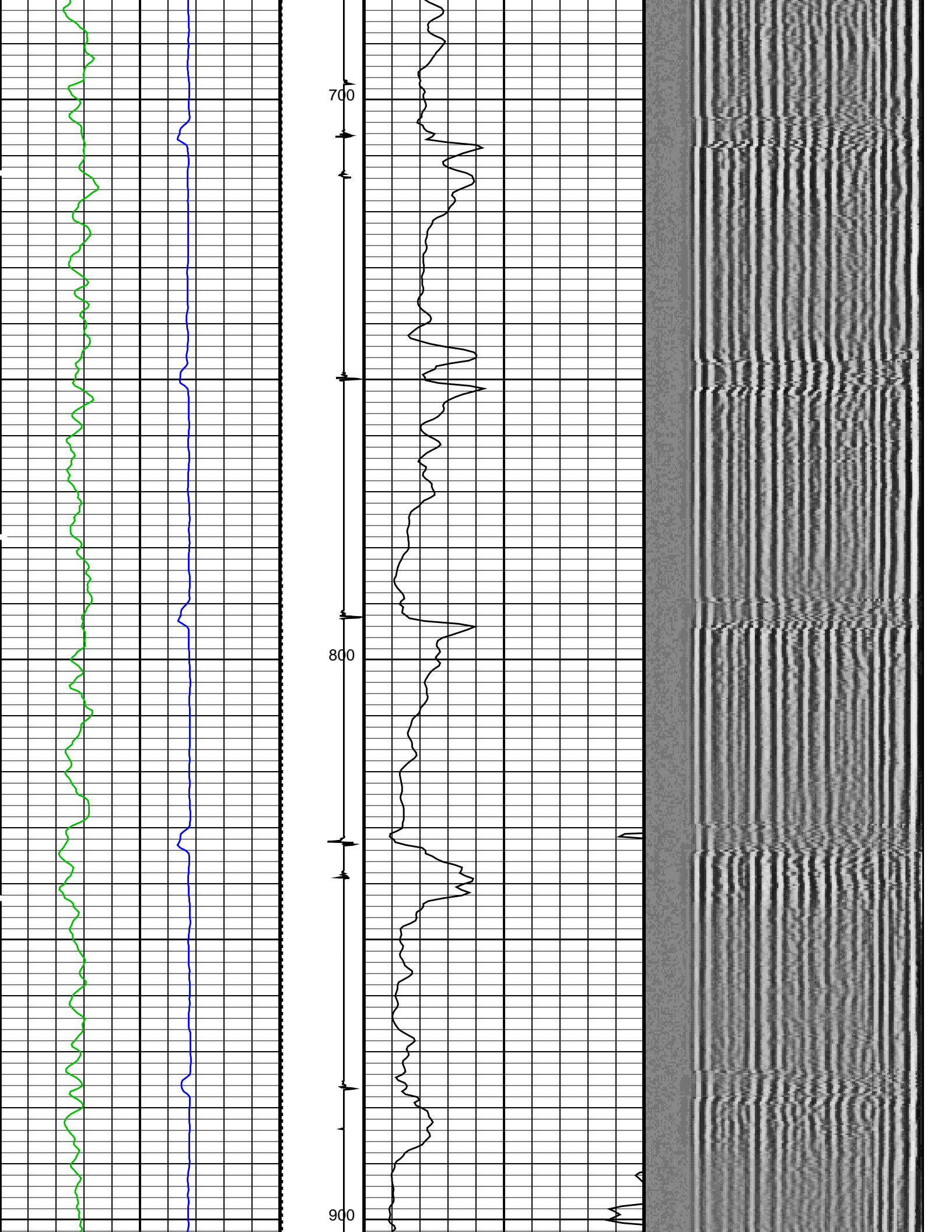
## MAIN PASS CBL-VDL 2800PSI



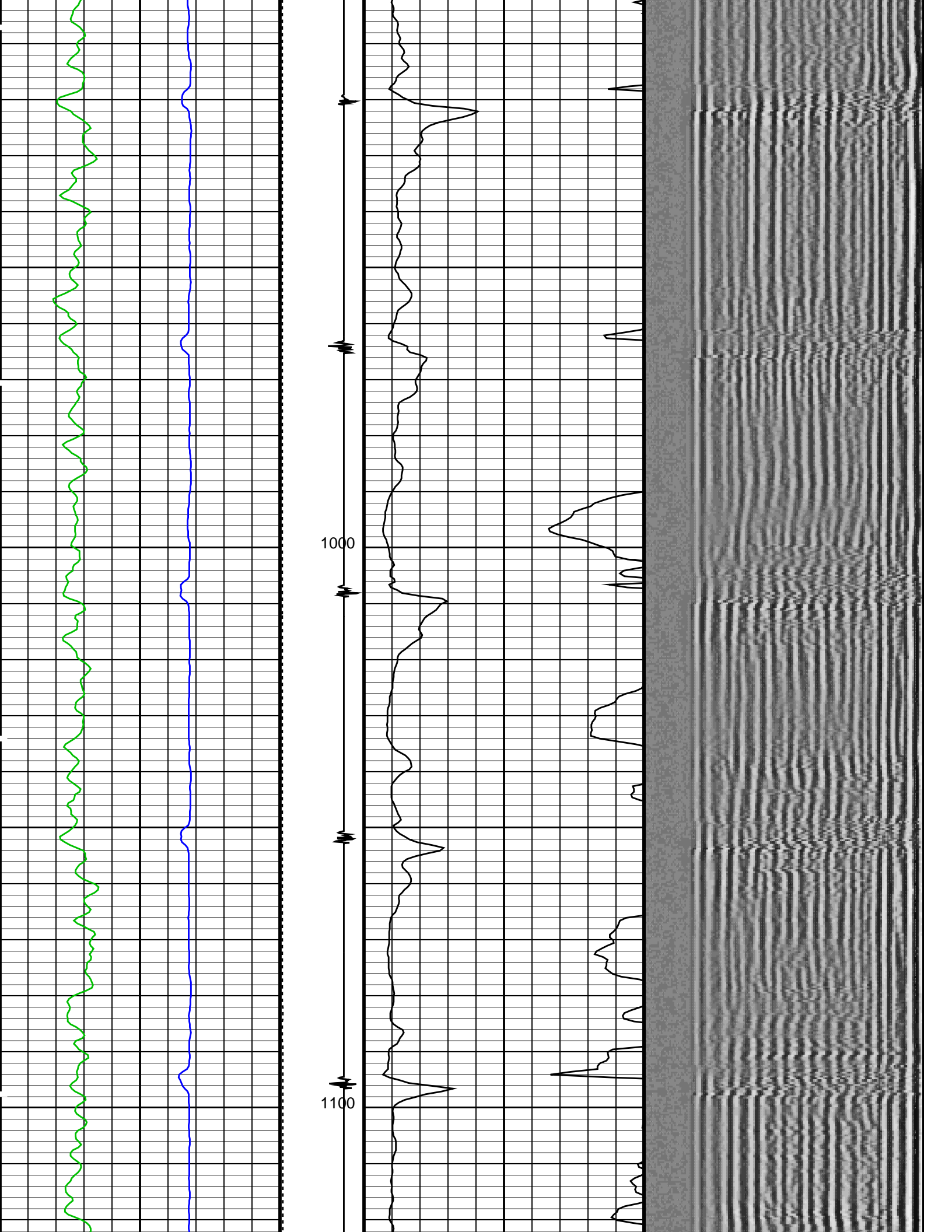


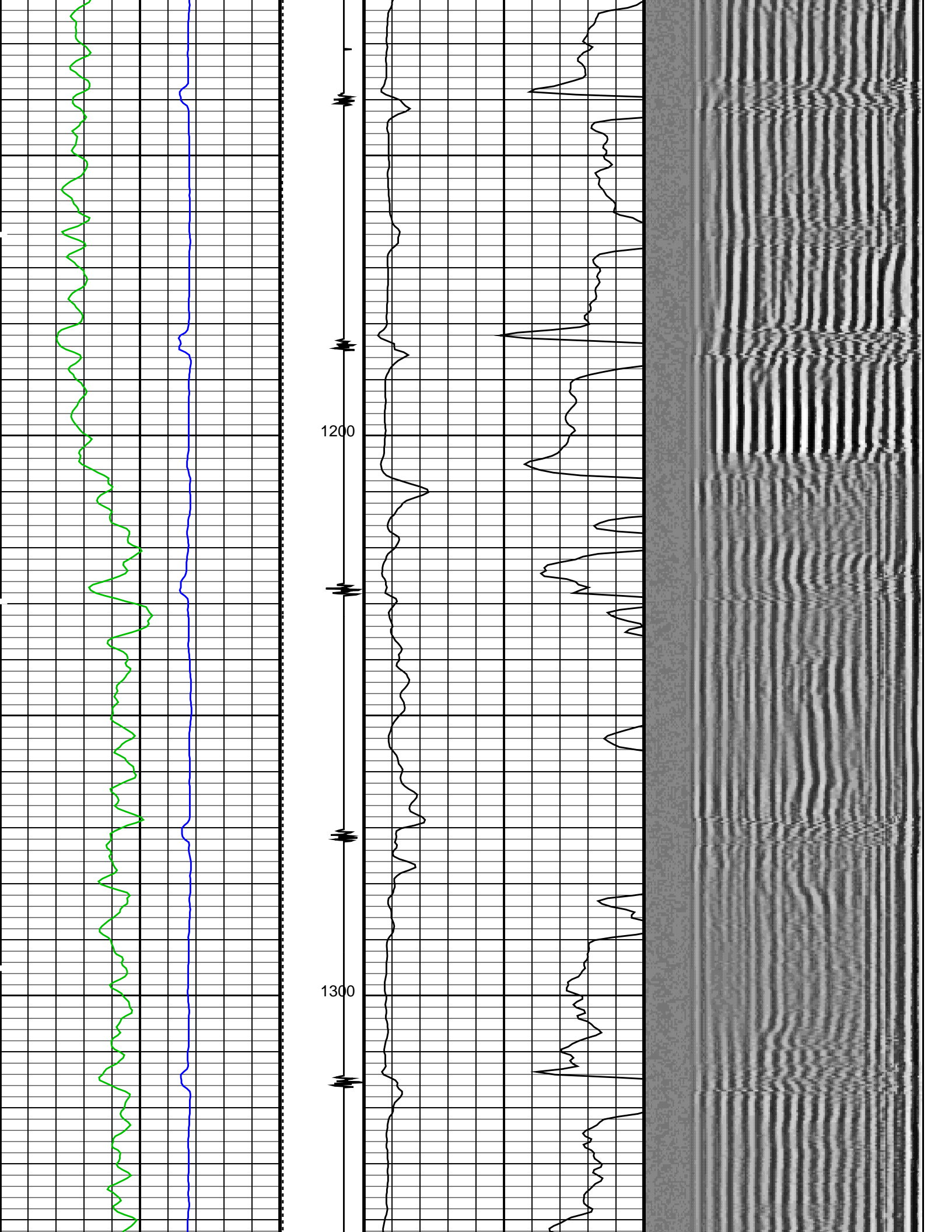


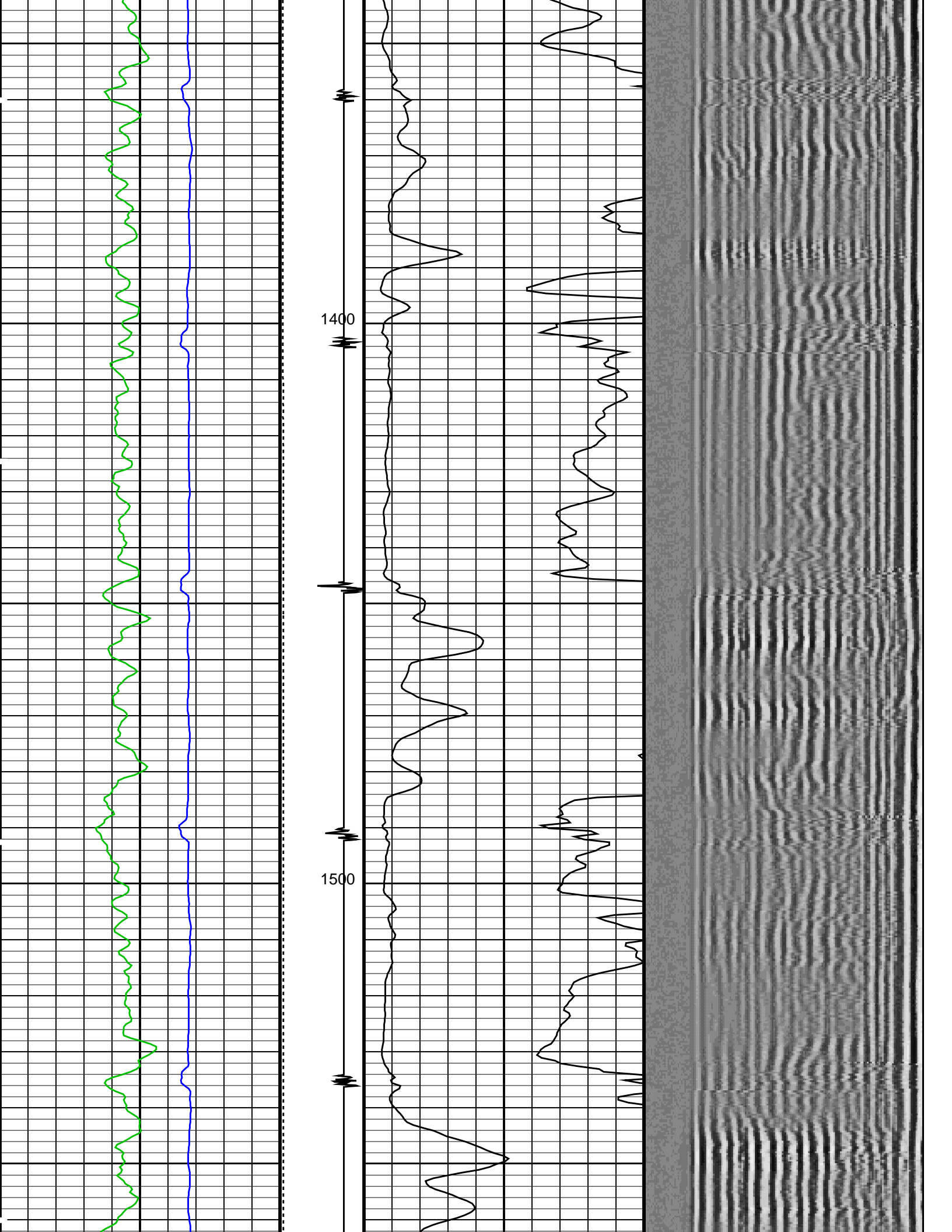


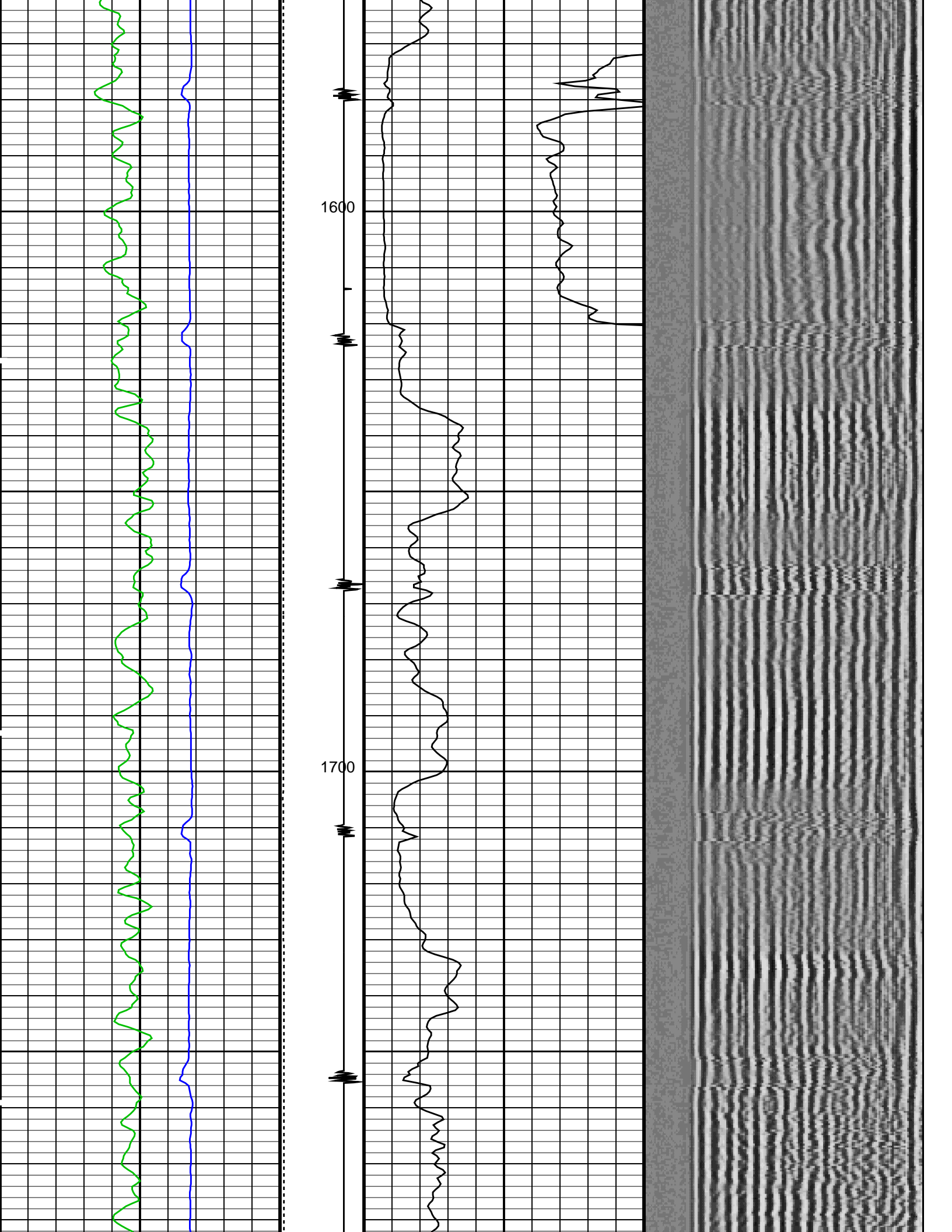




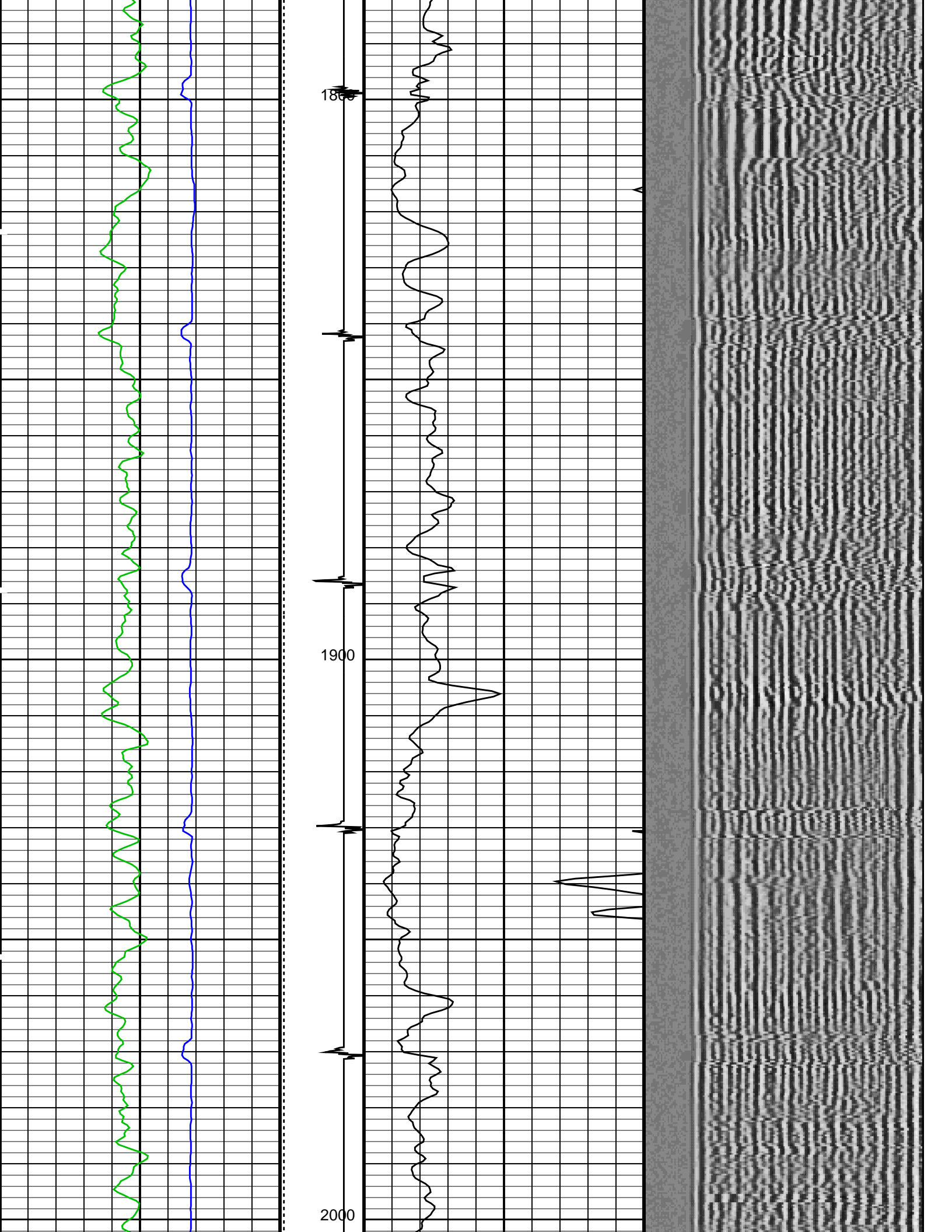


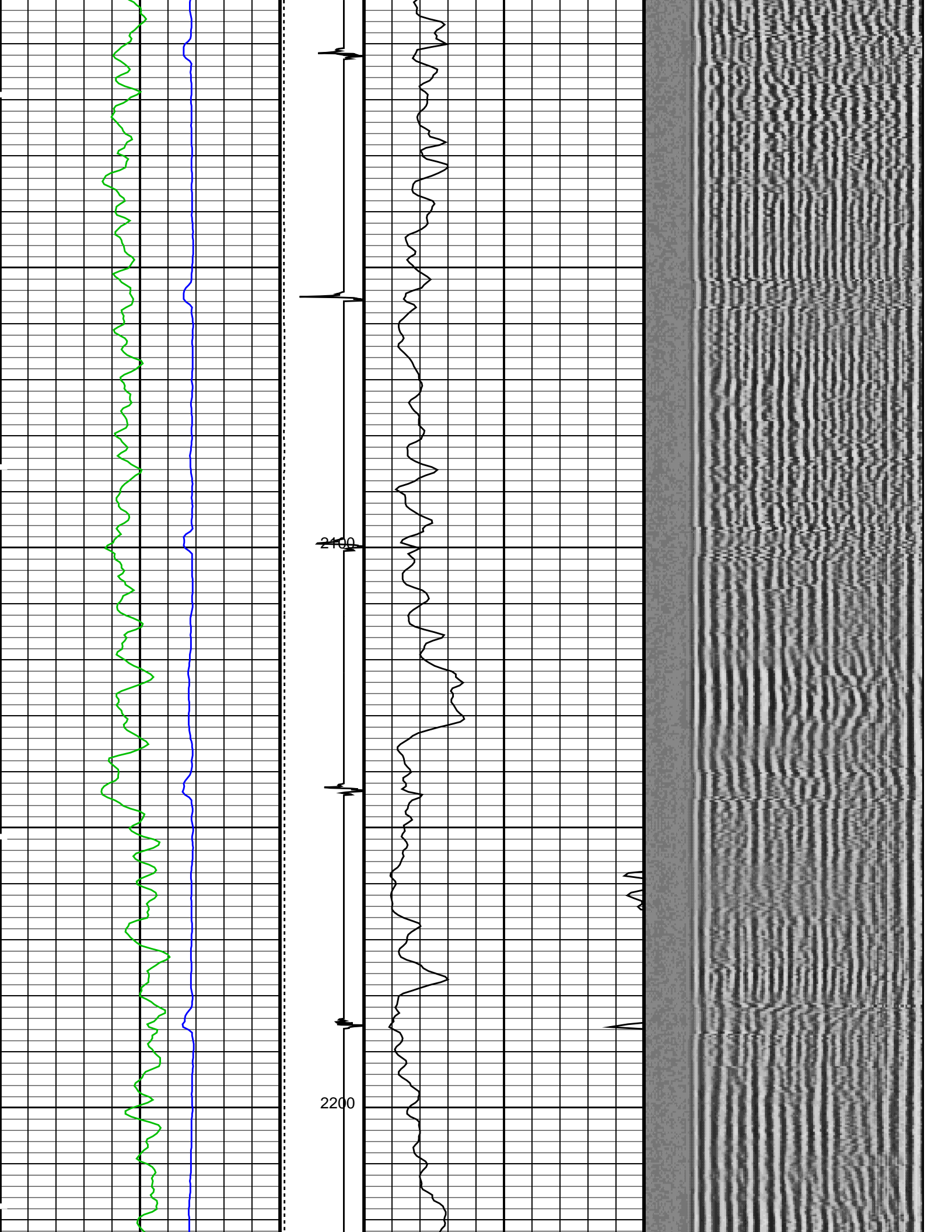


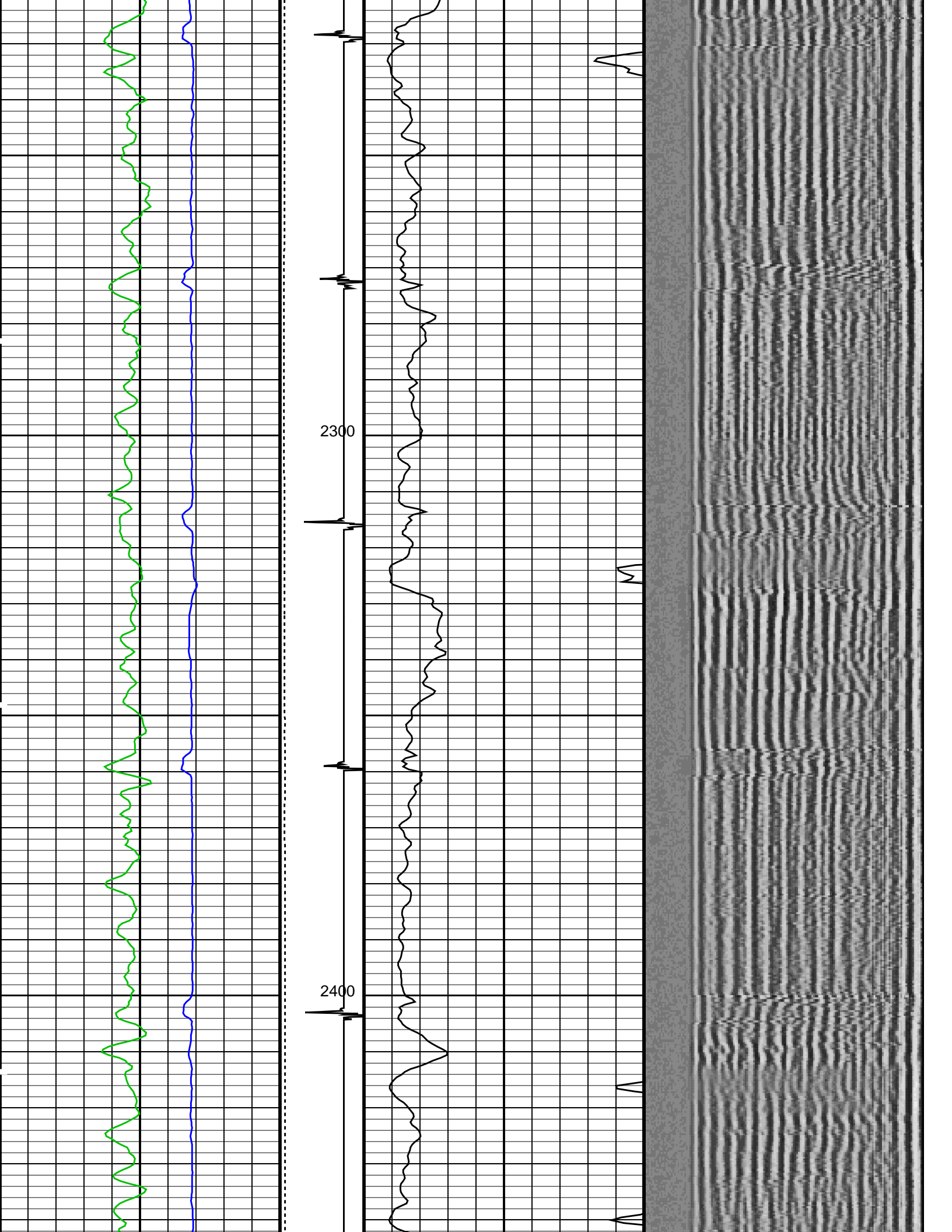


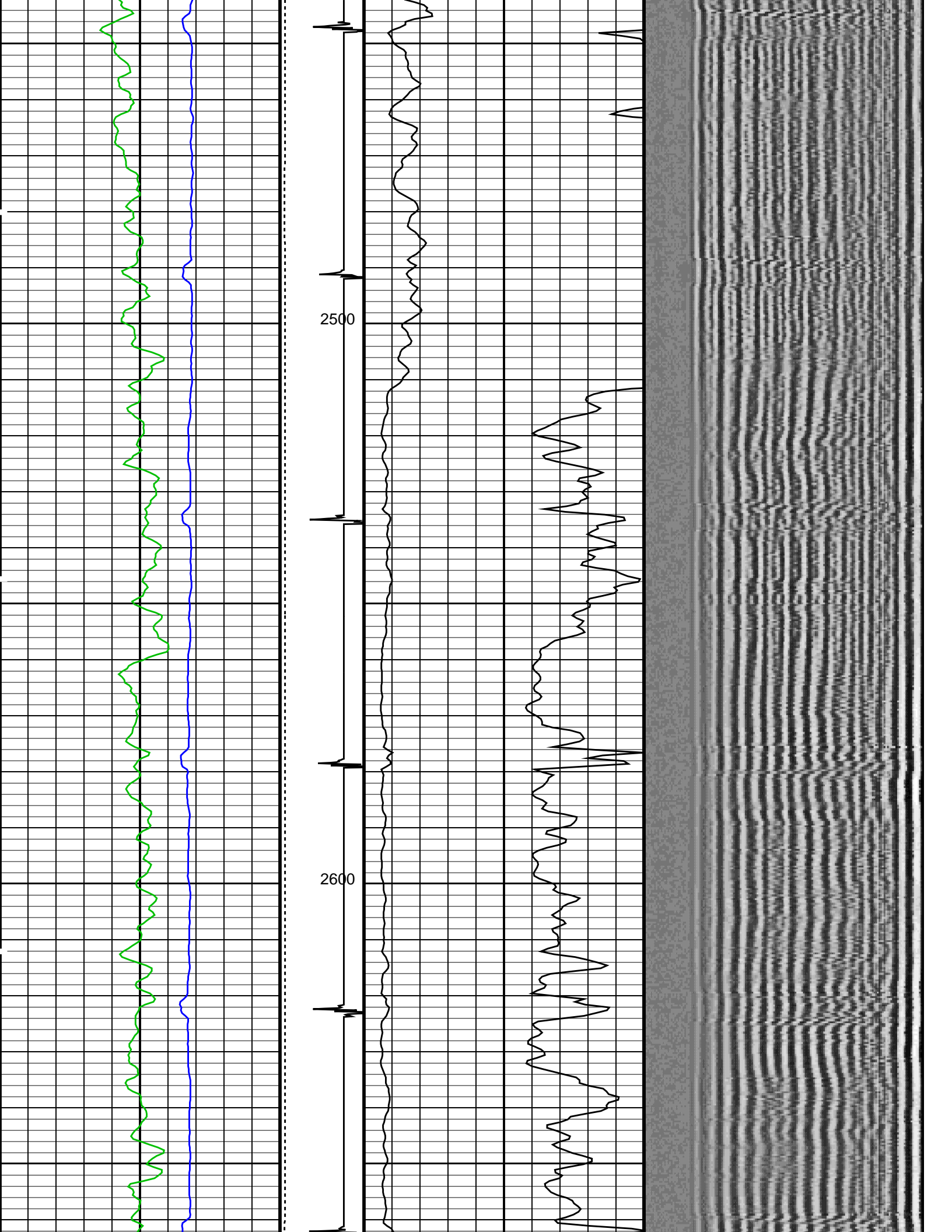




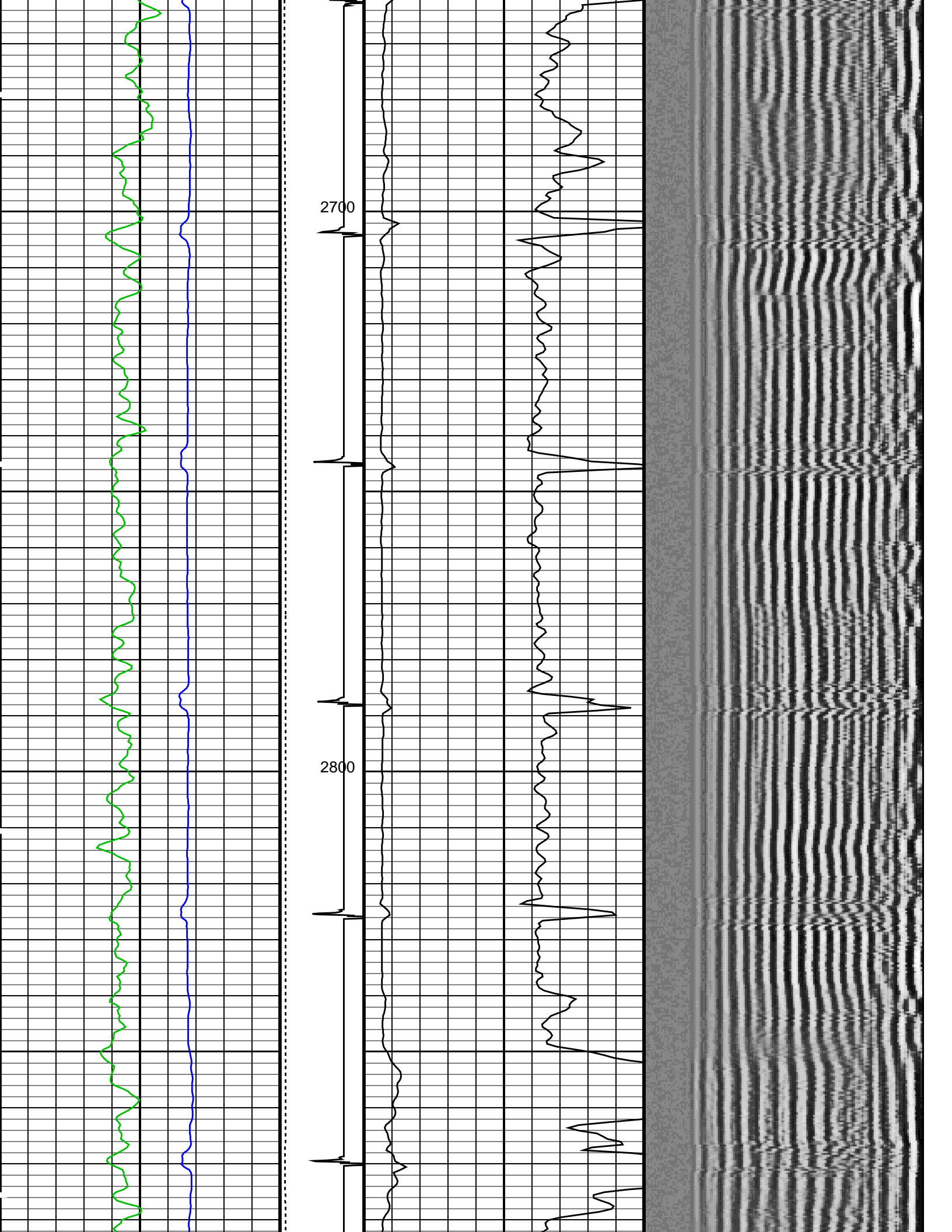


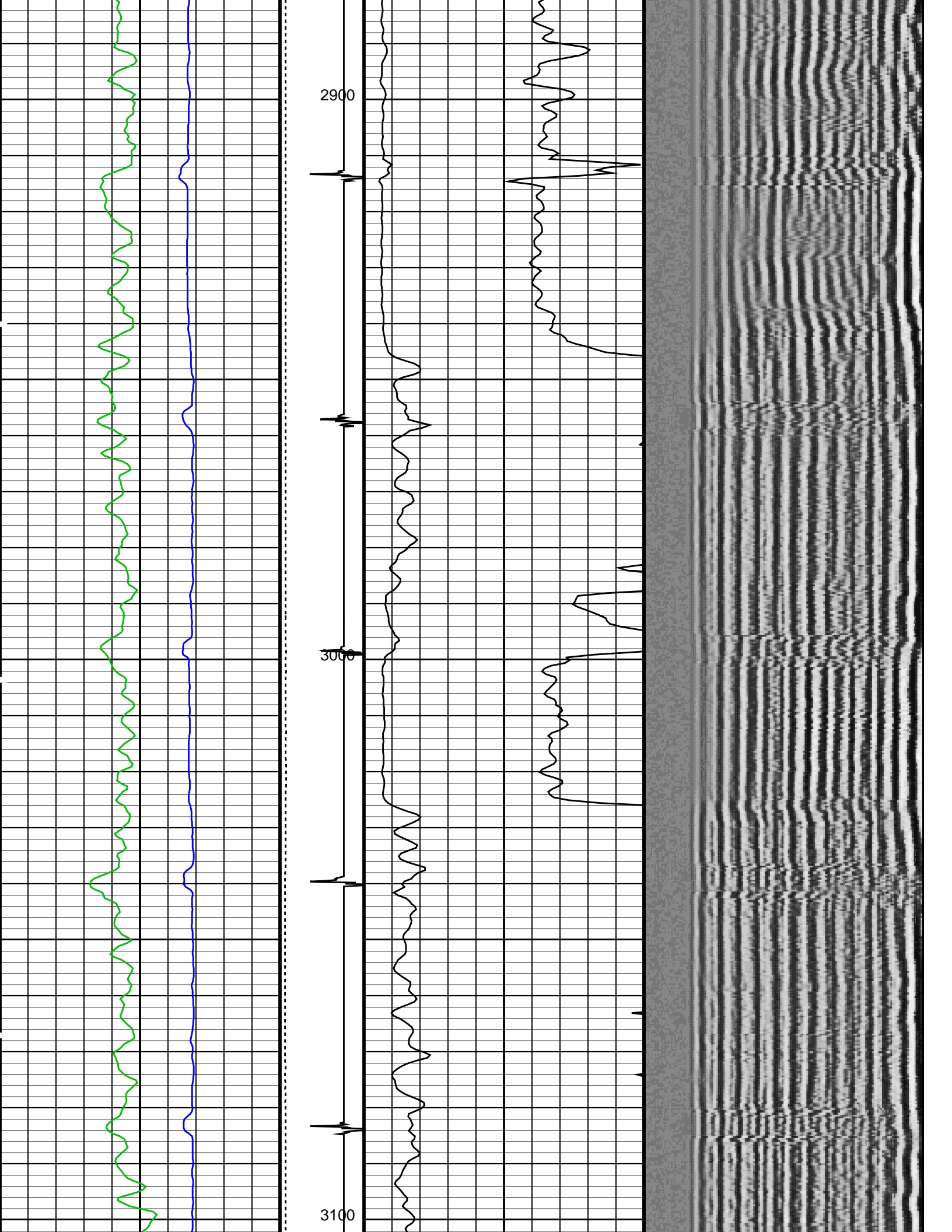


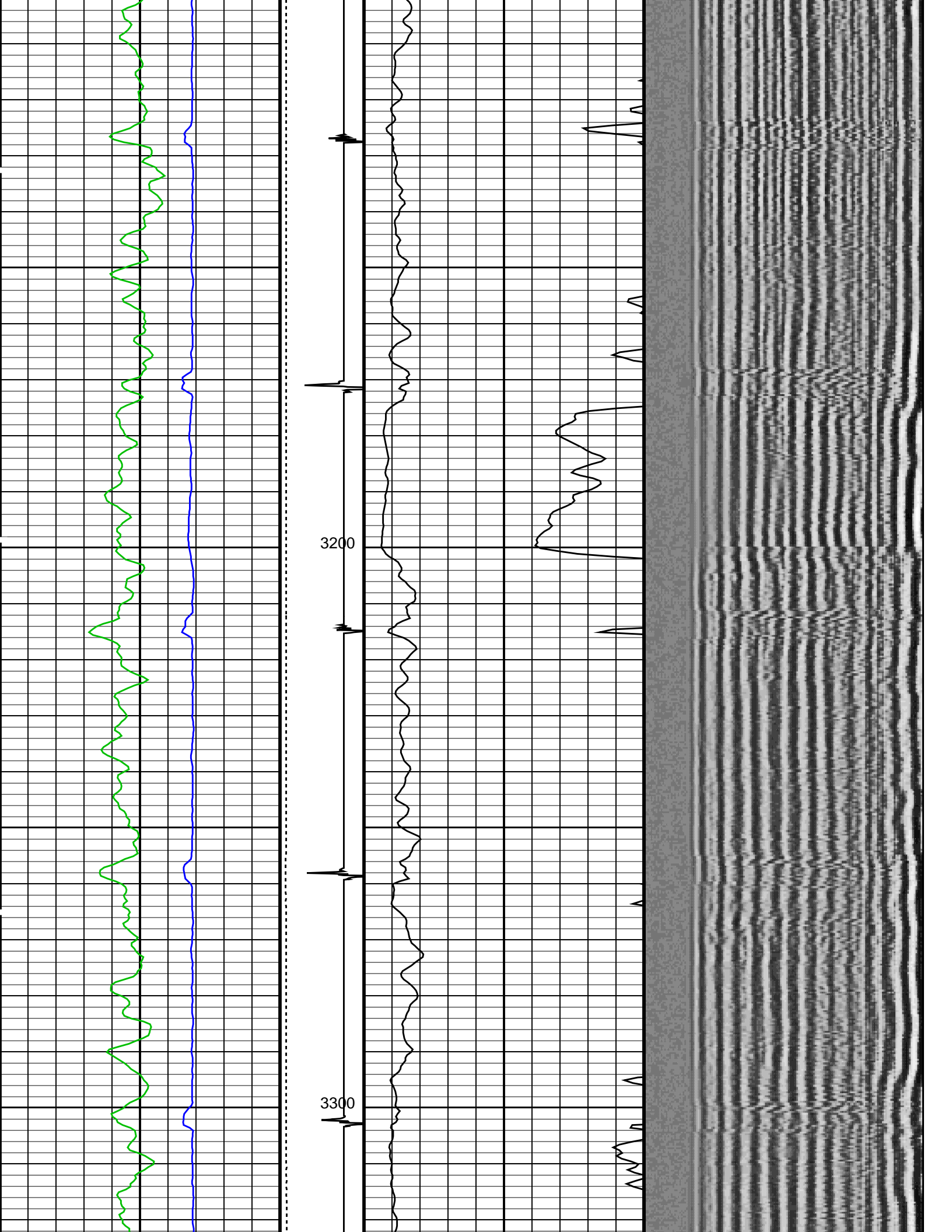


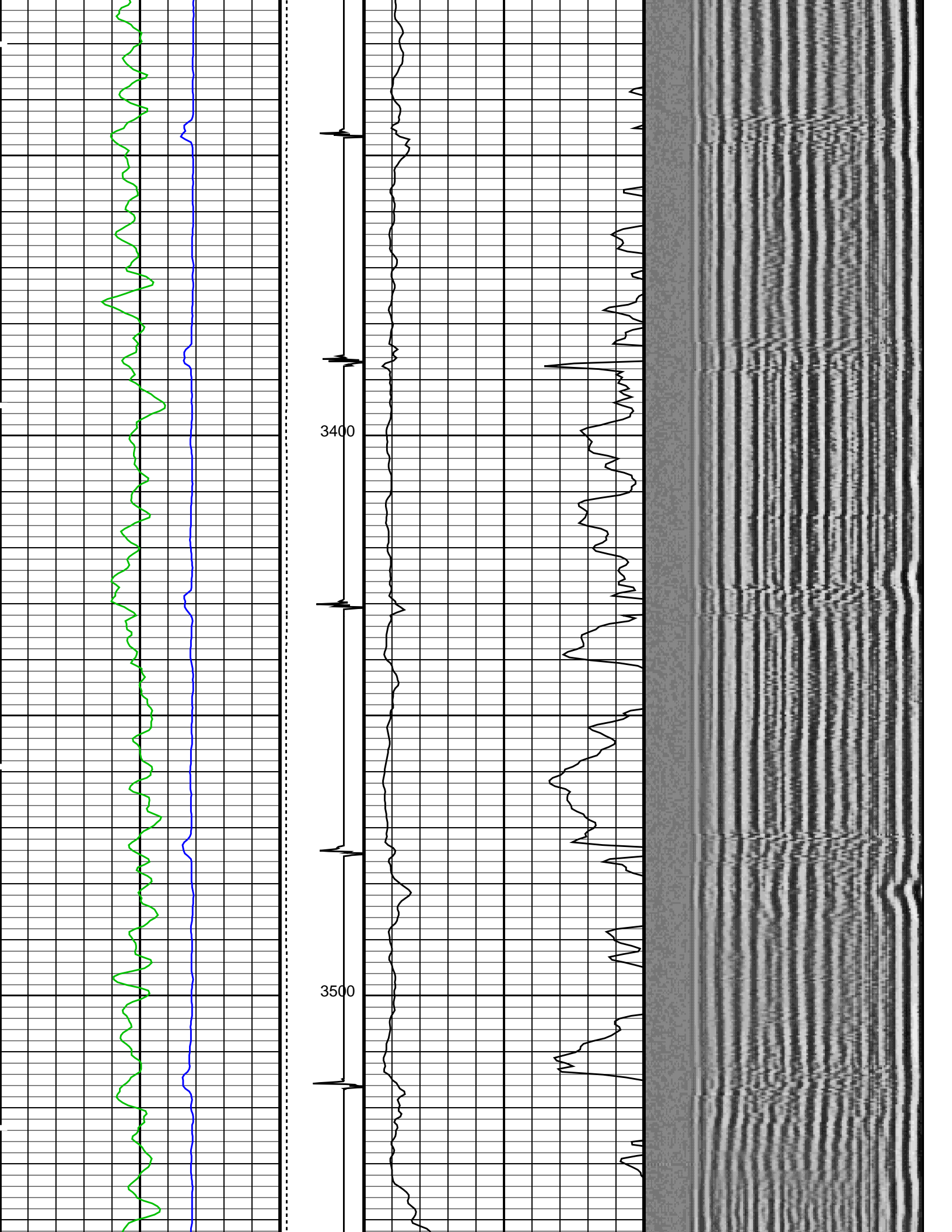




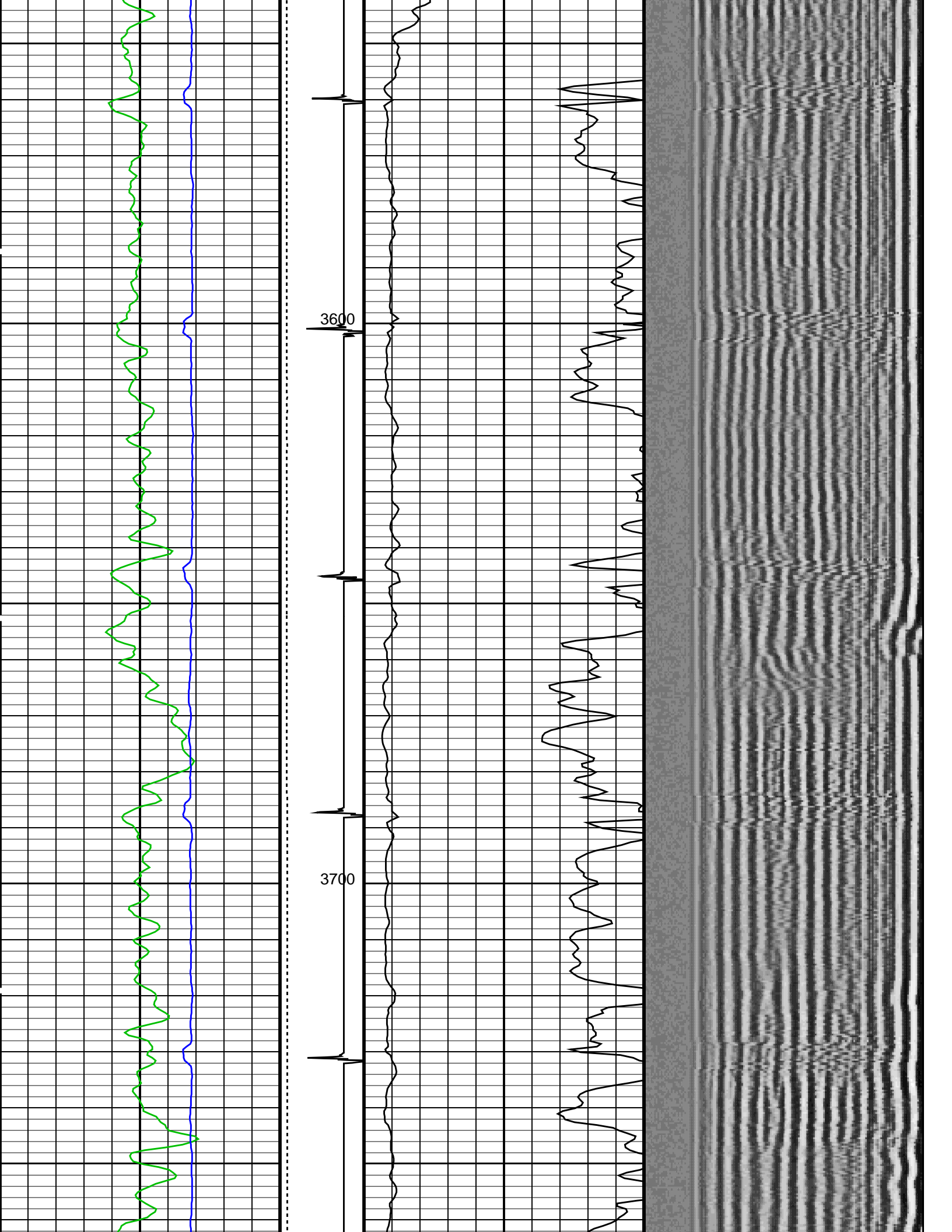


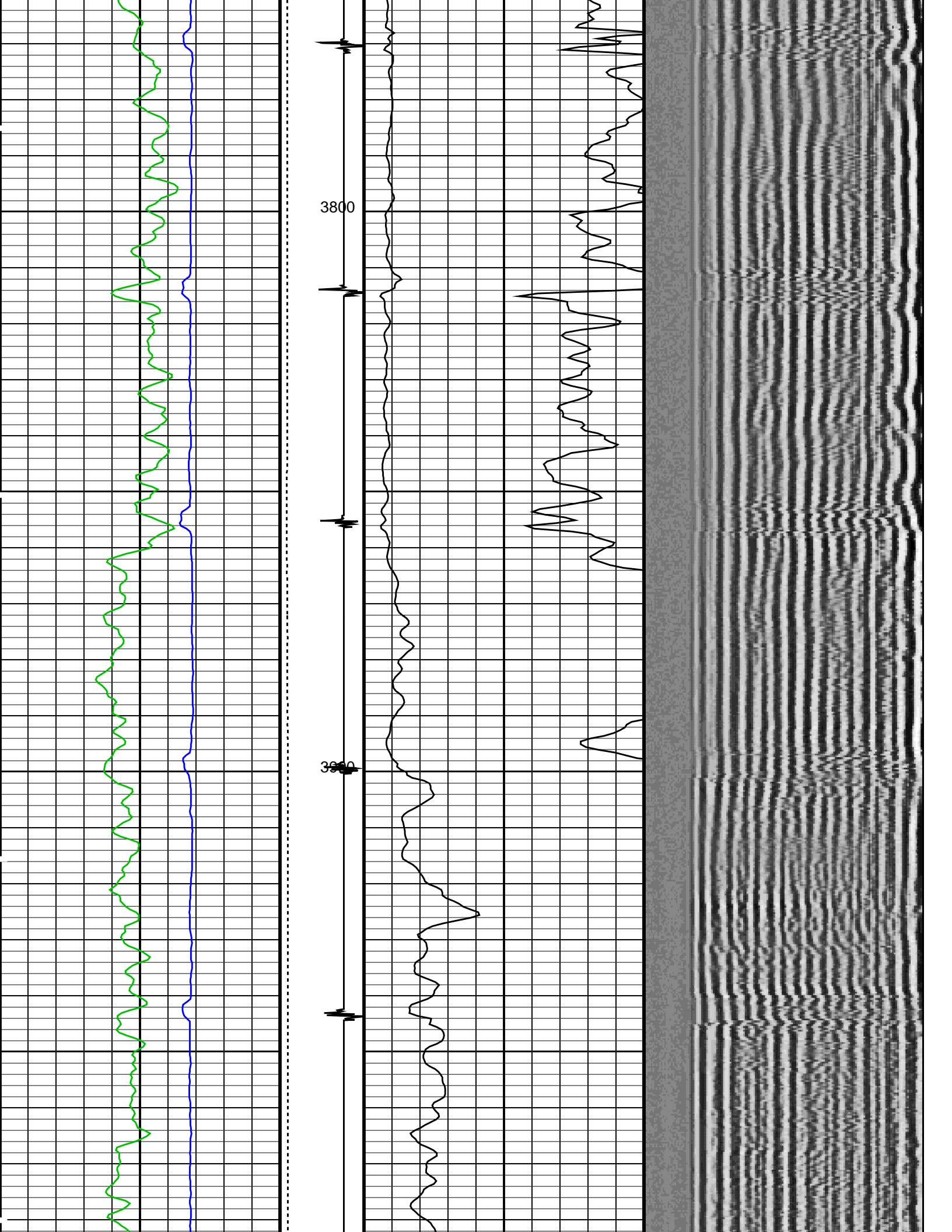


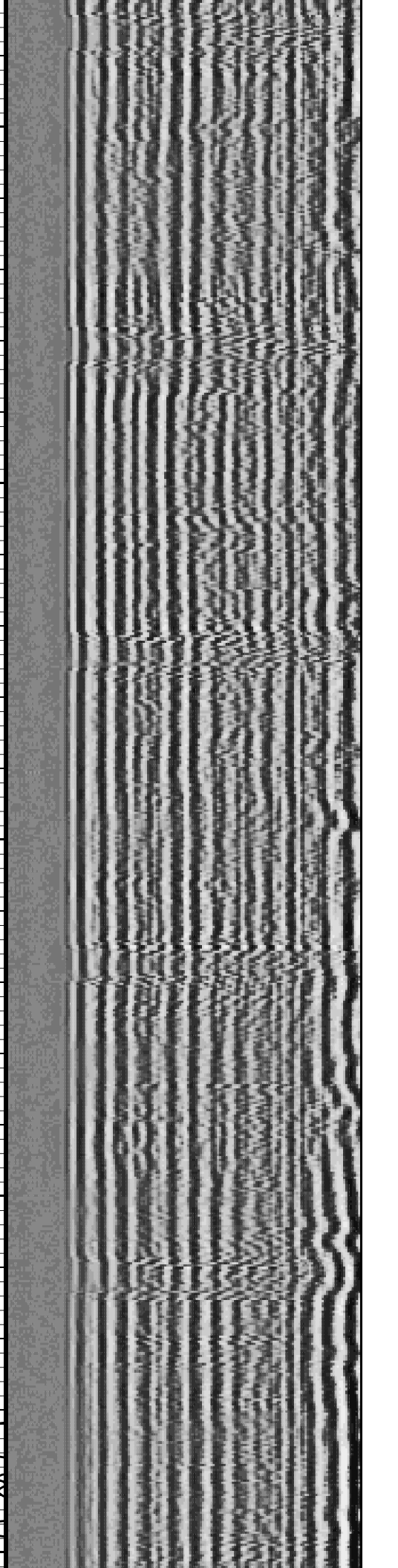
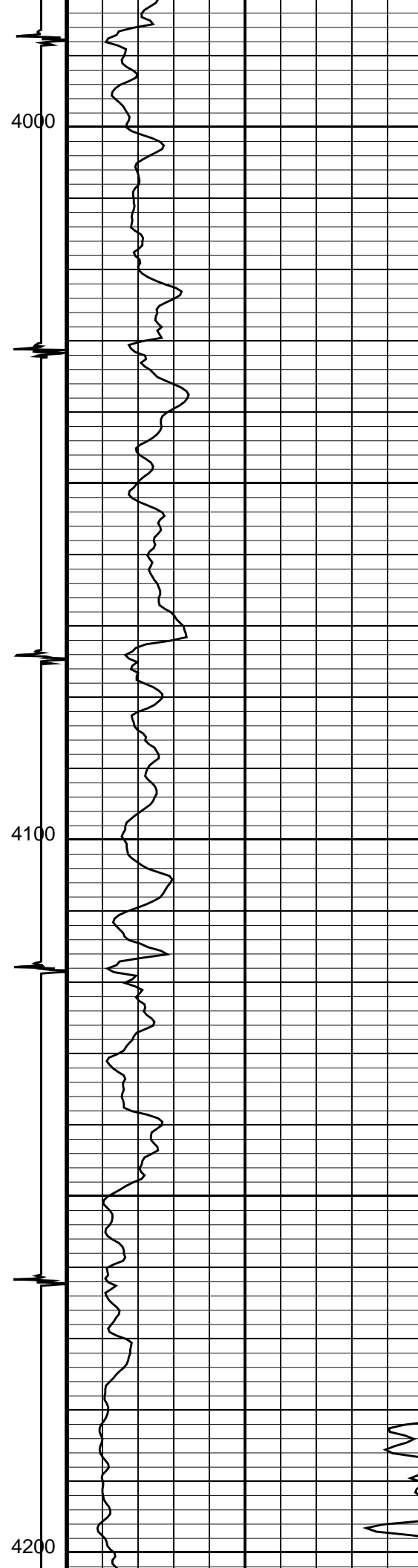
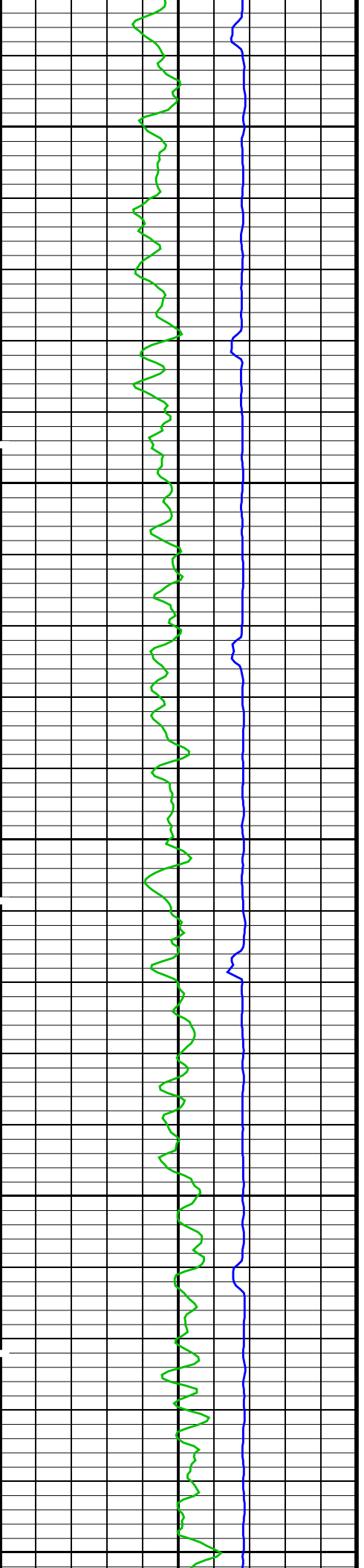


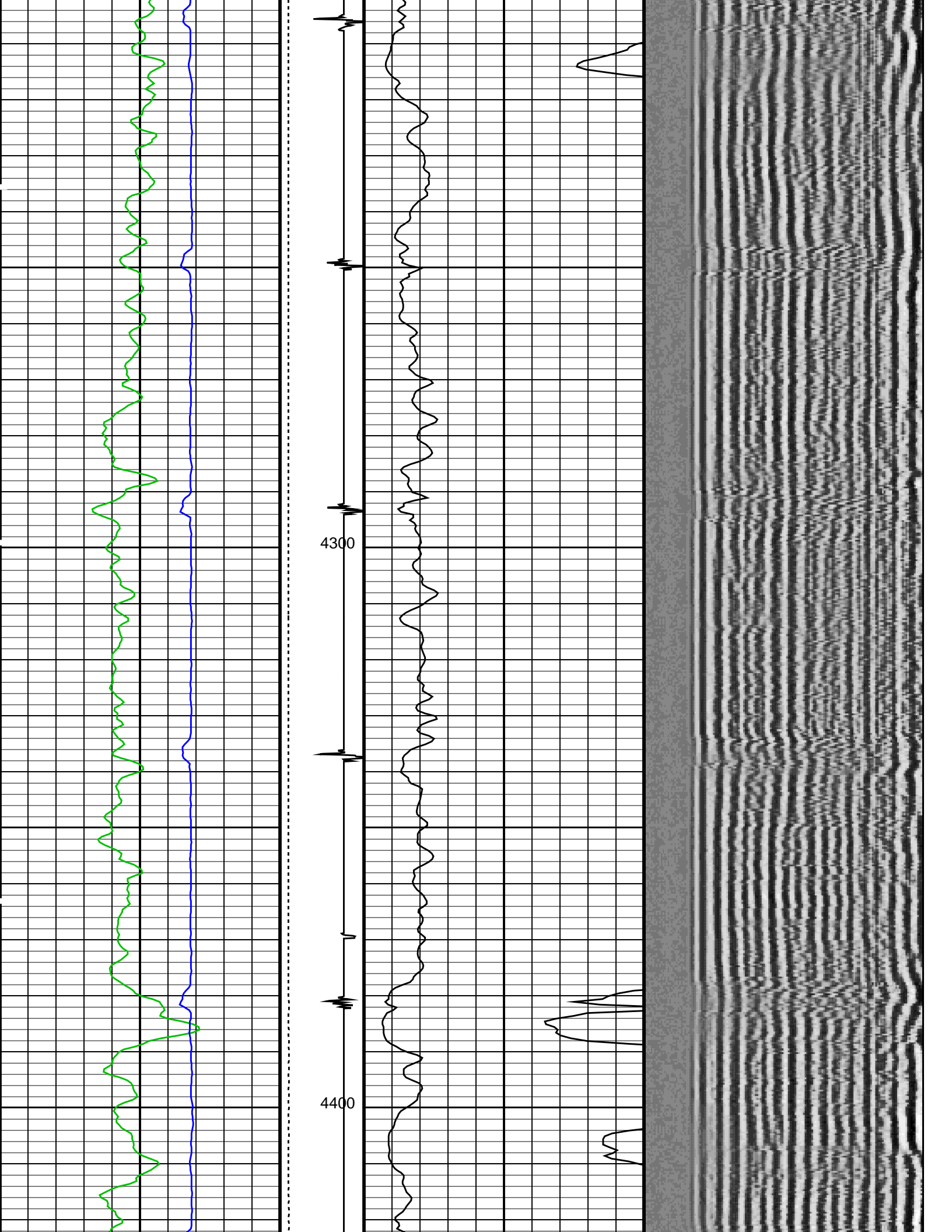




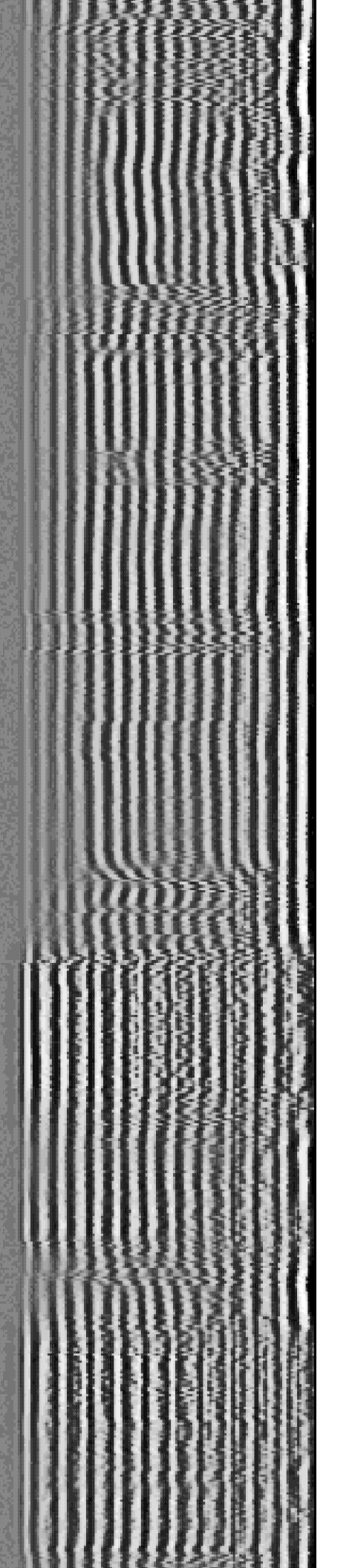
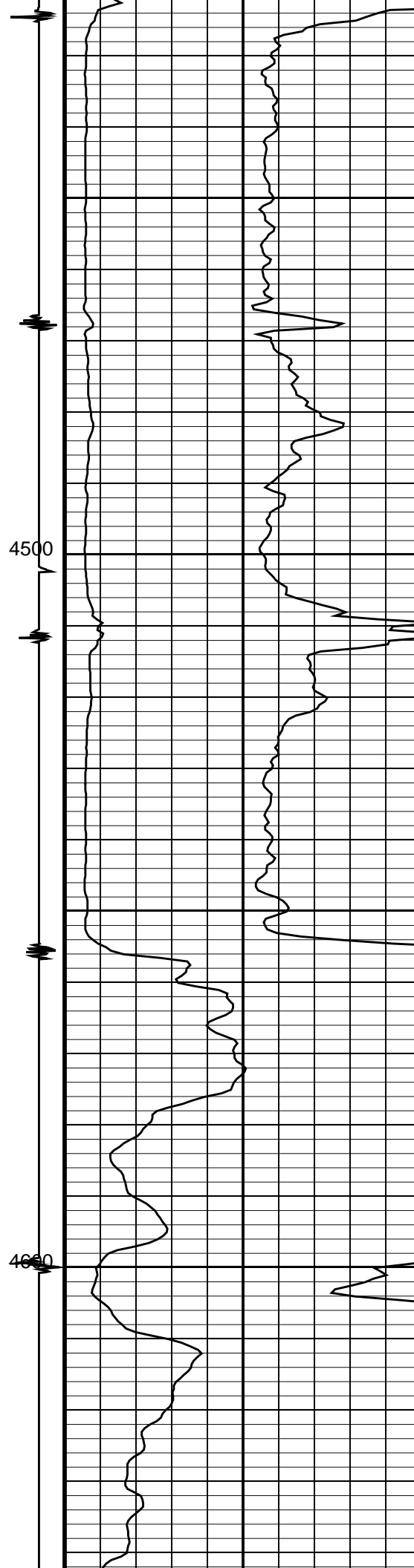
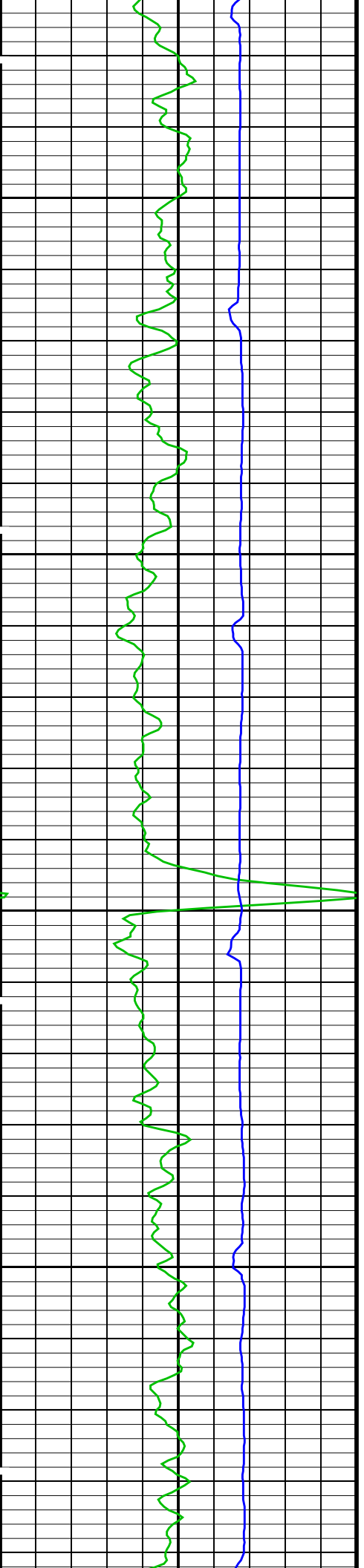


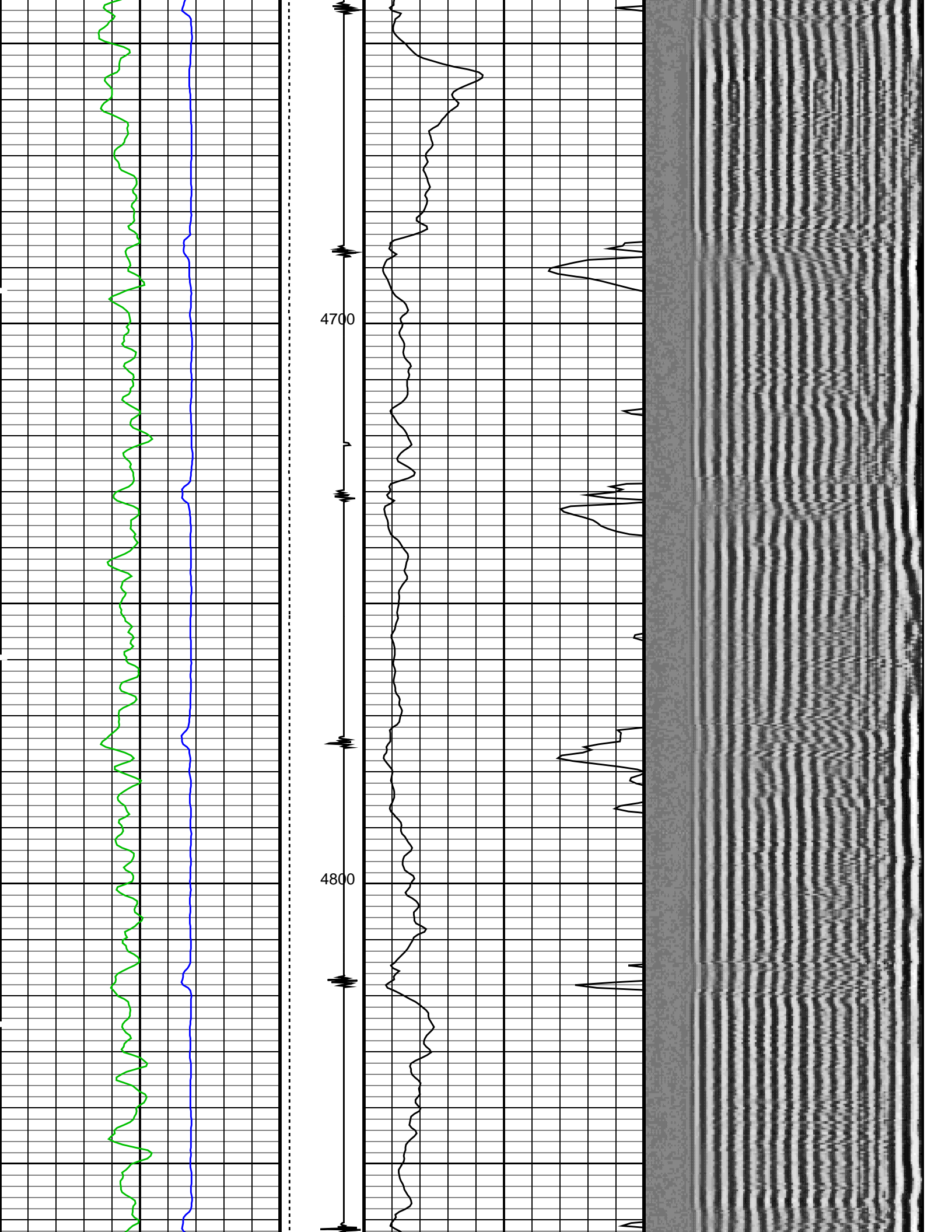


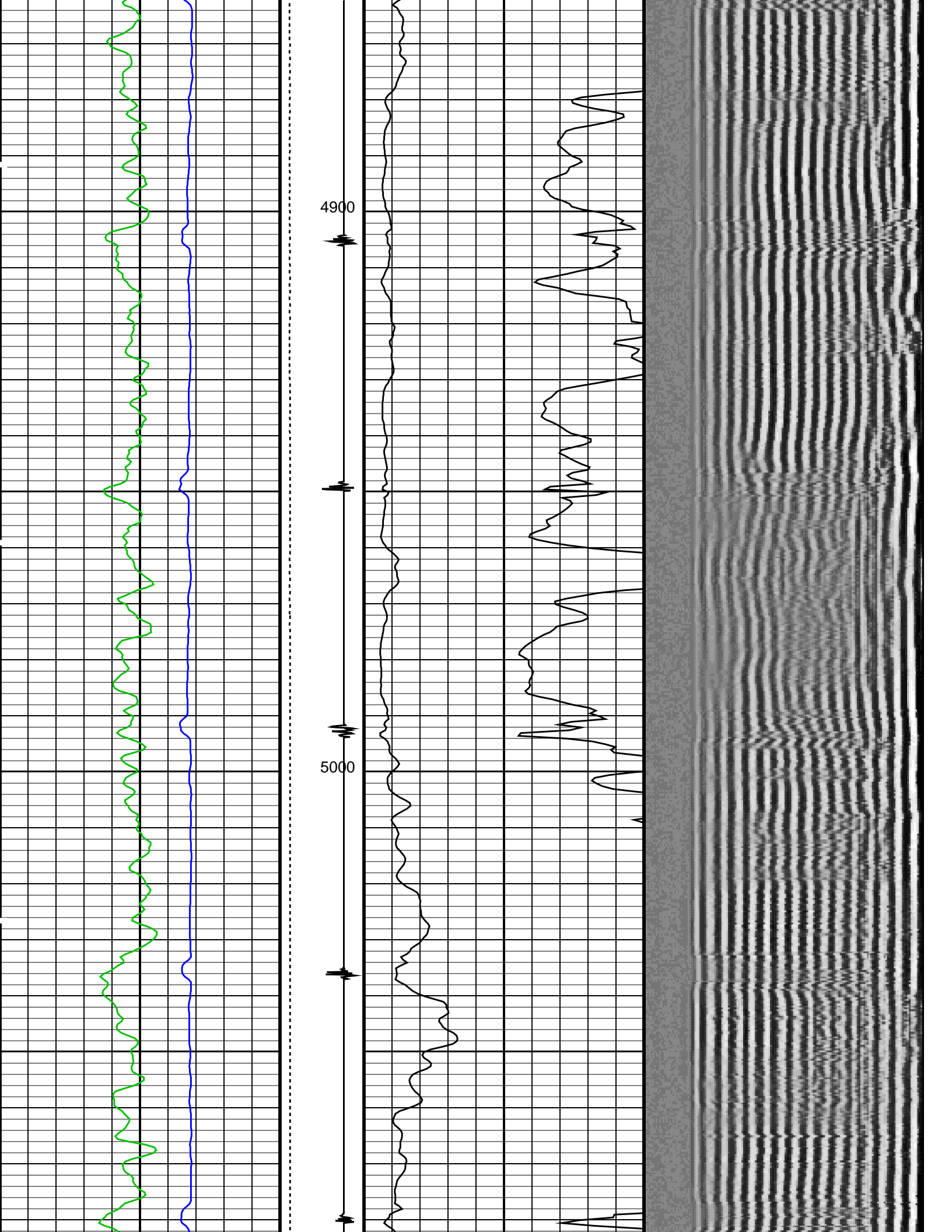


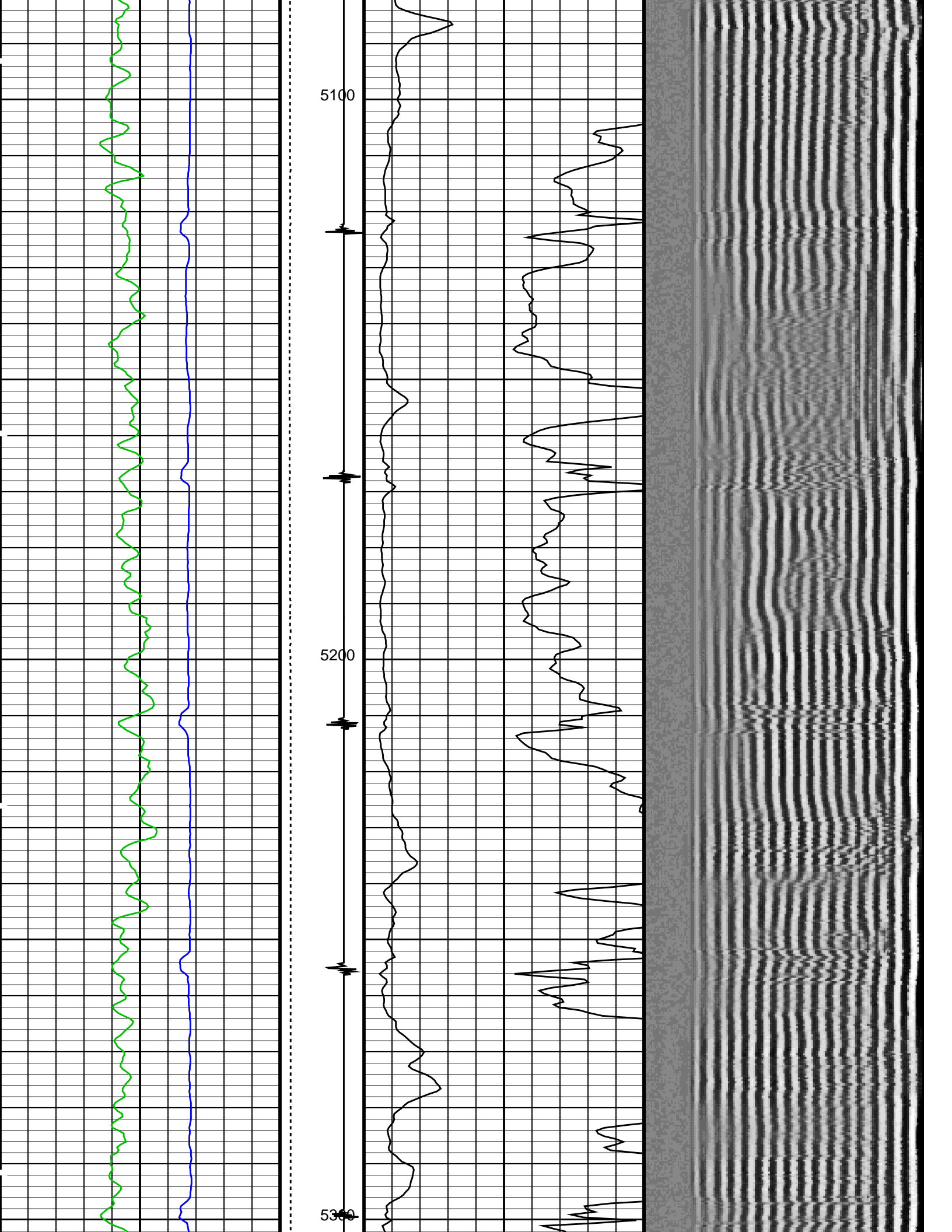




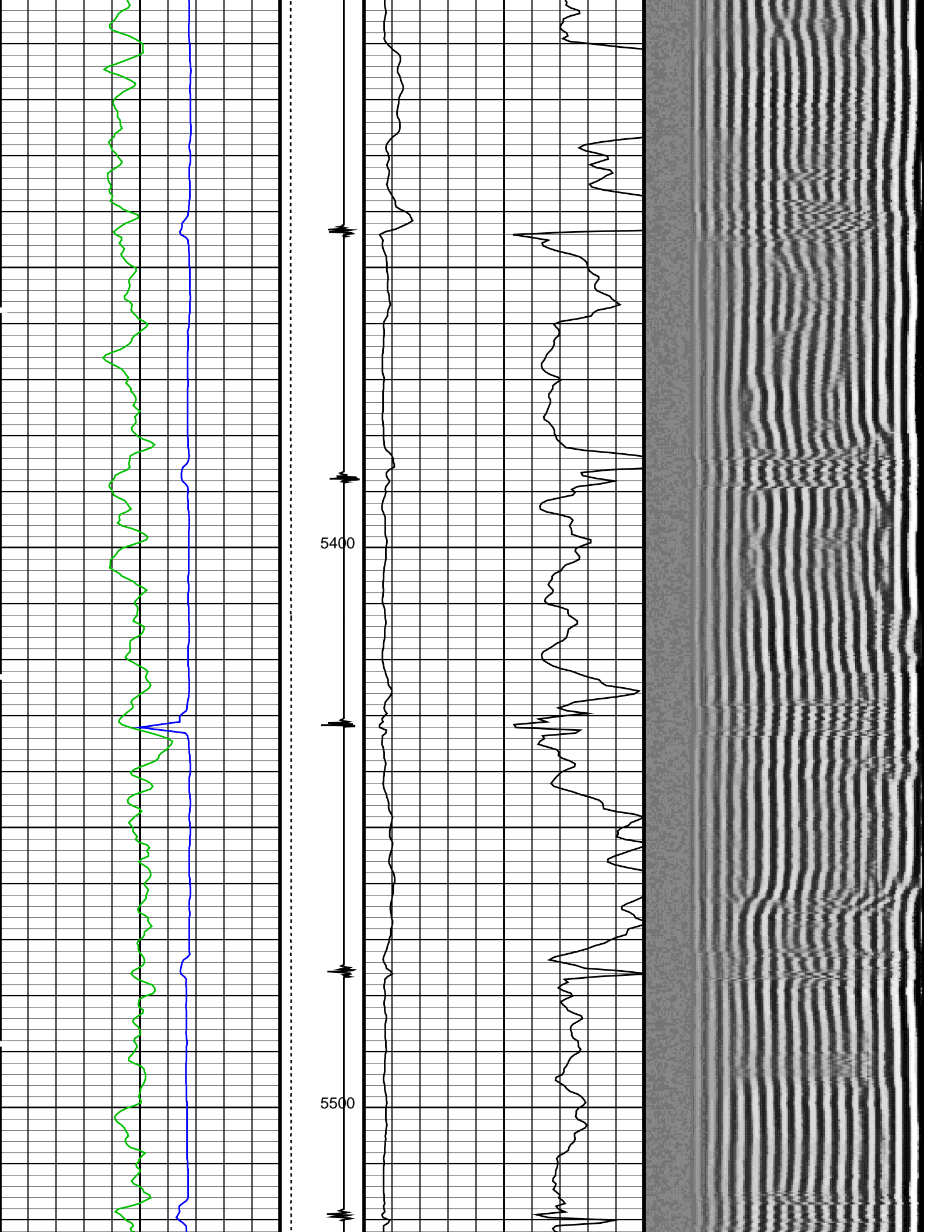


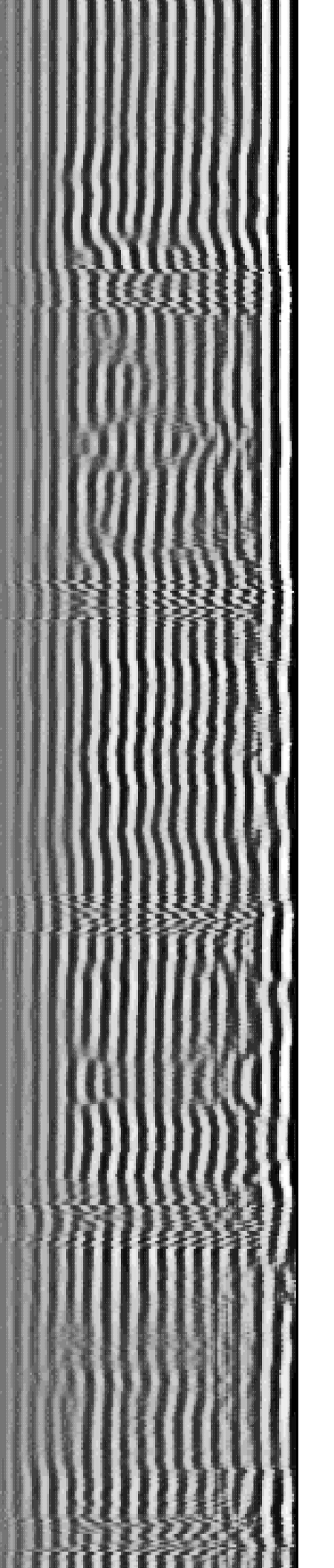
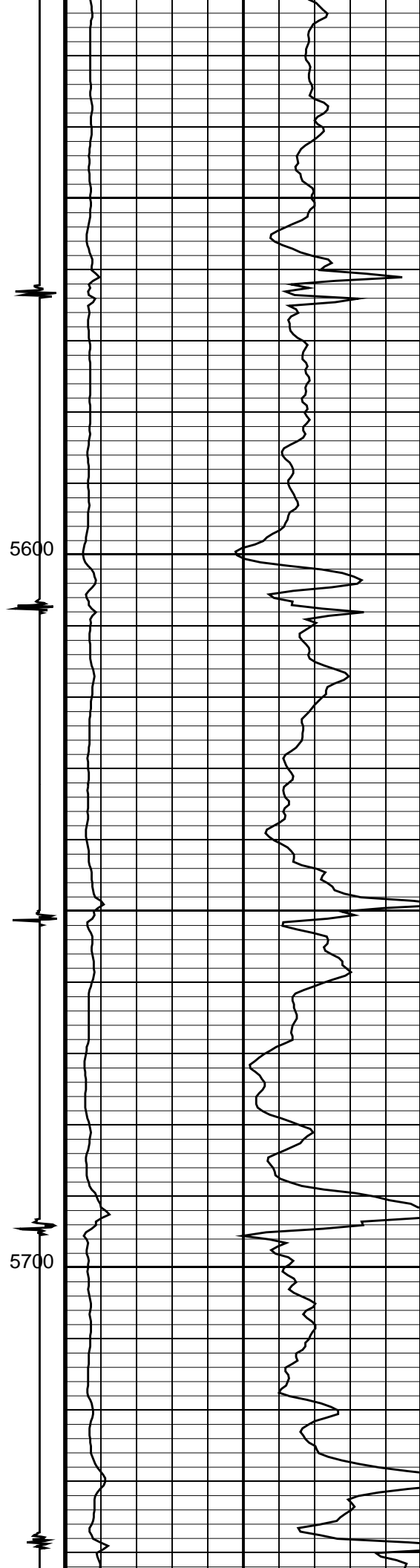
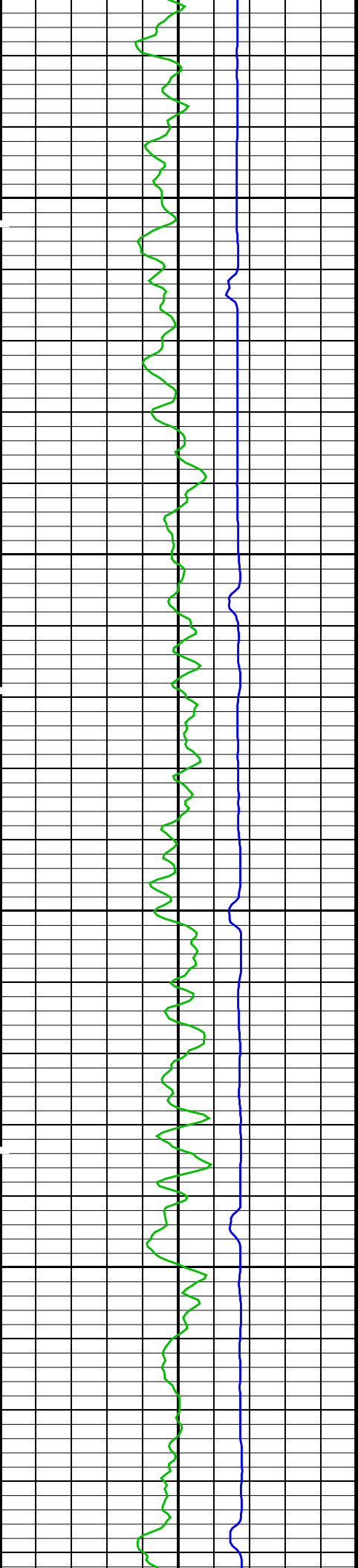


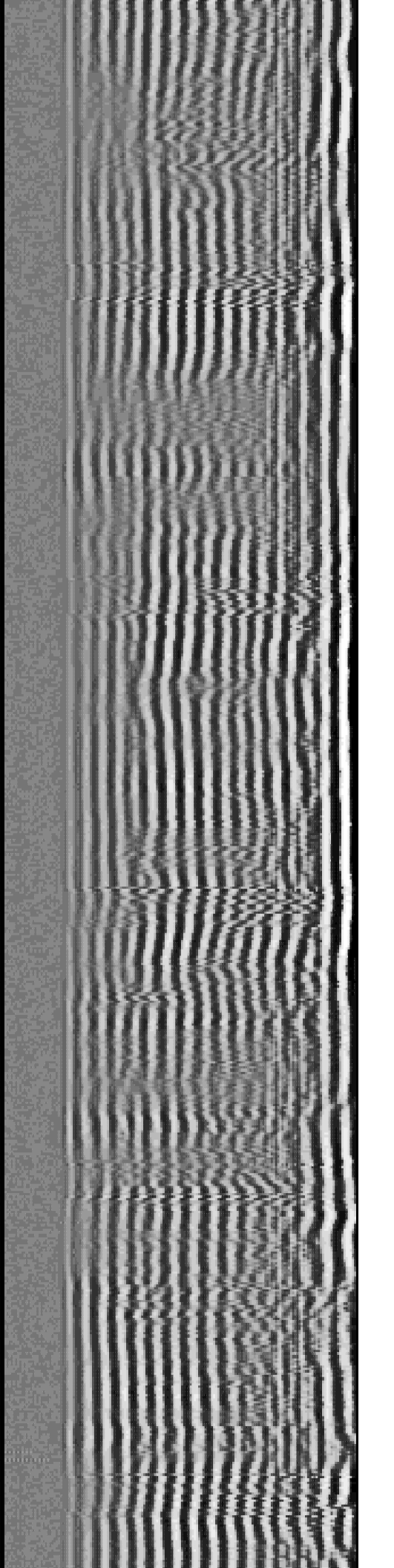
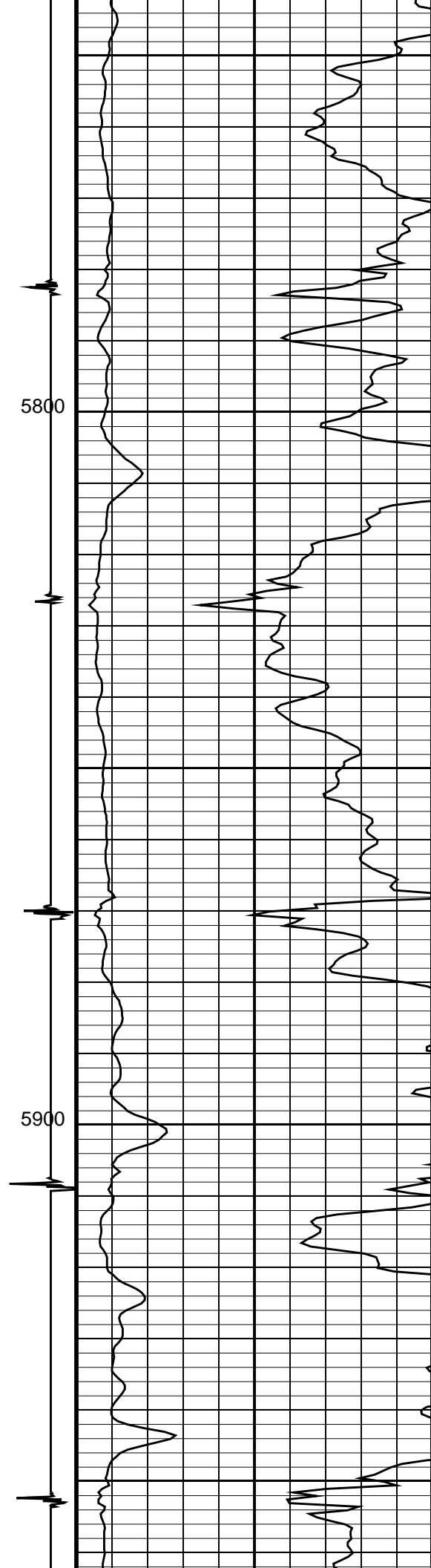
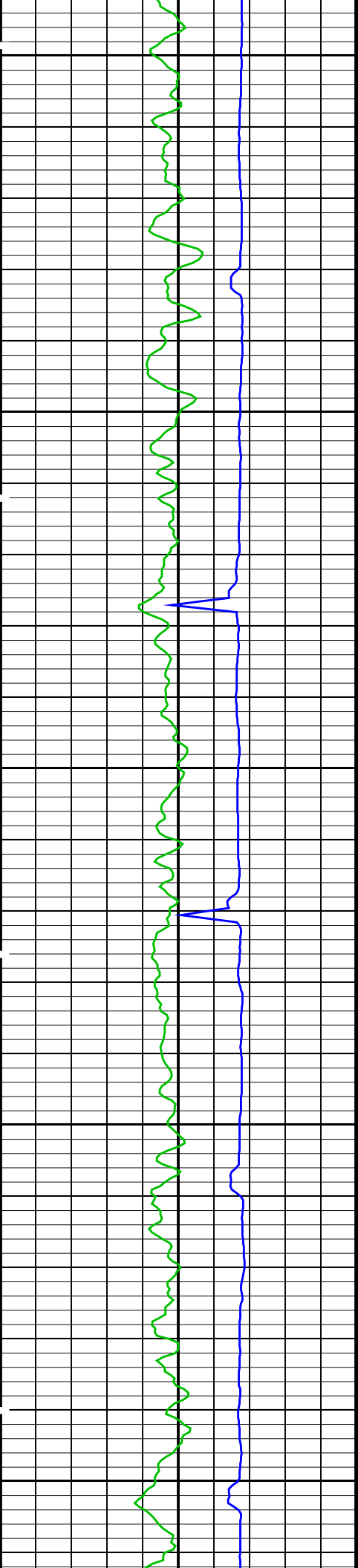


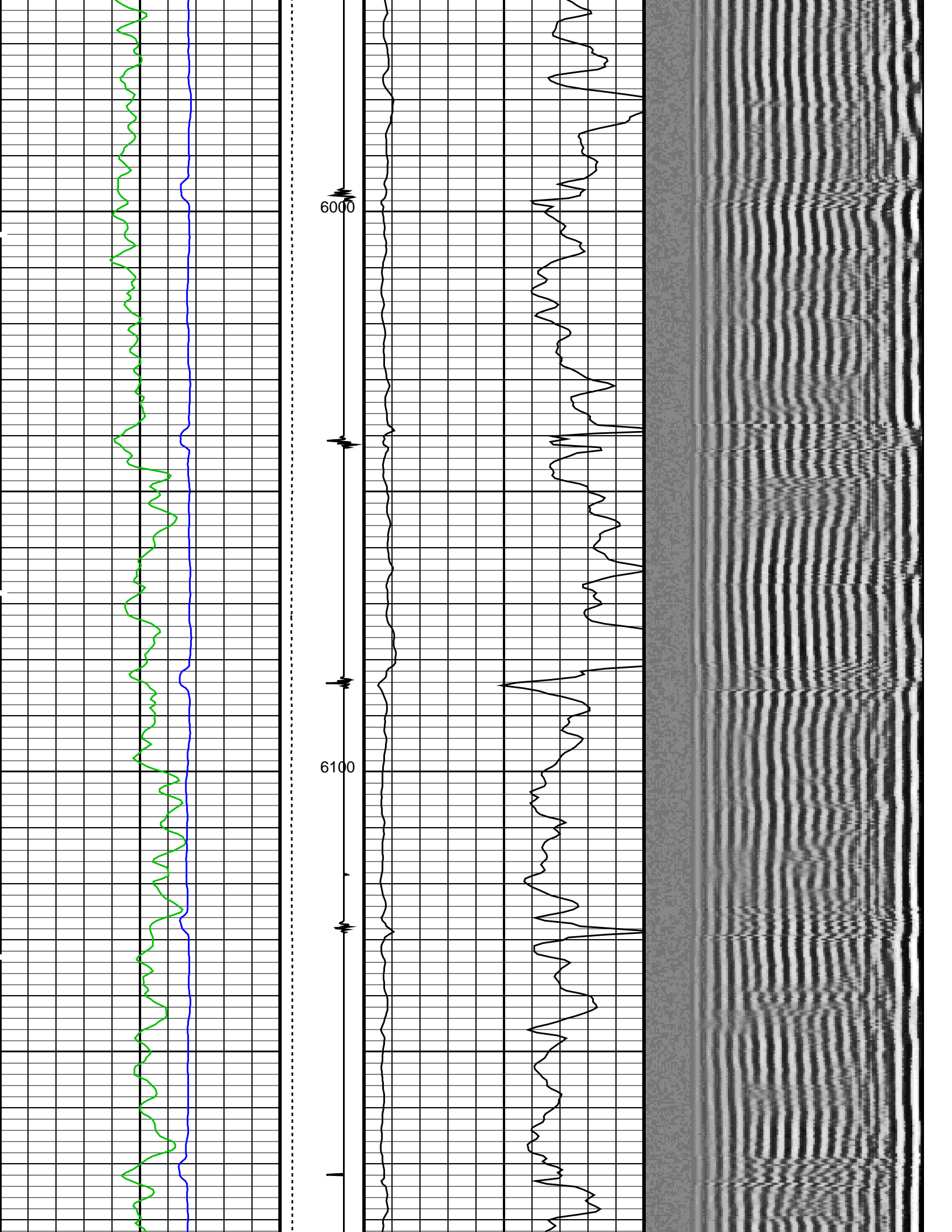




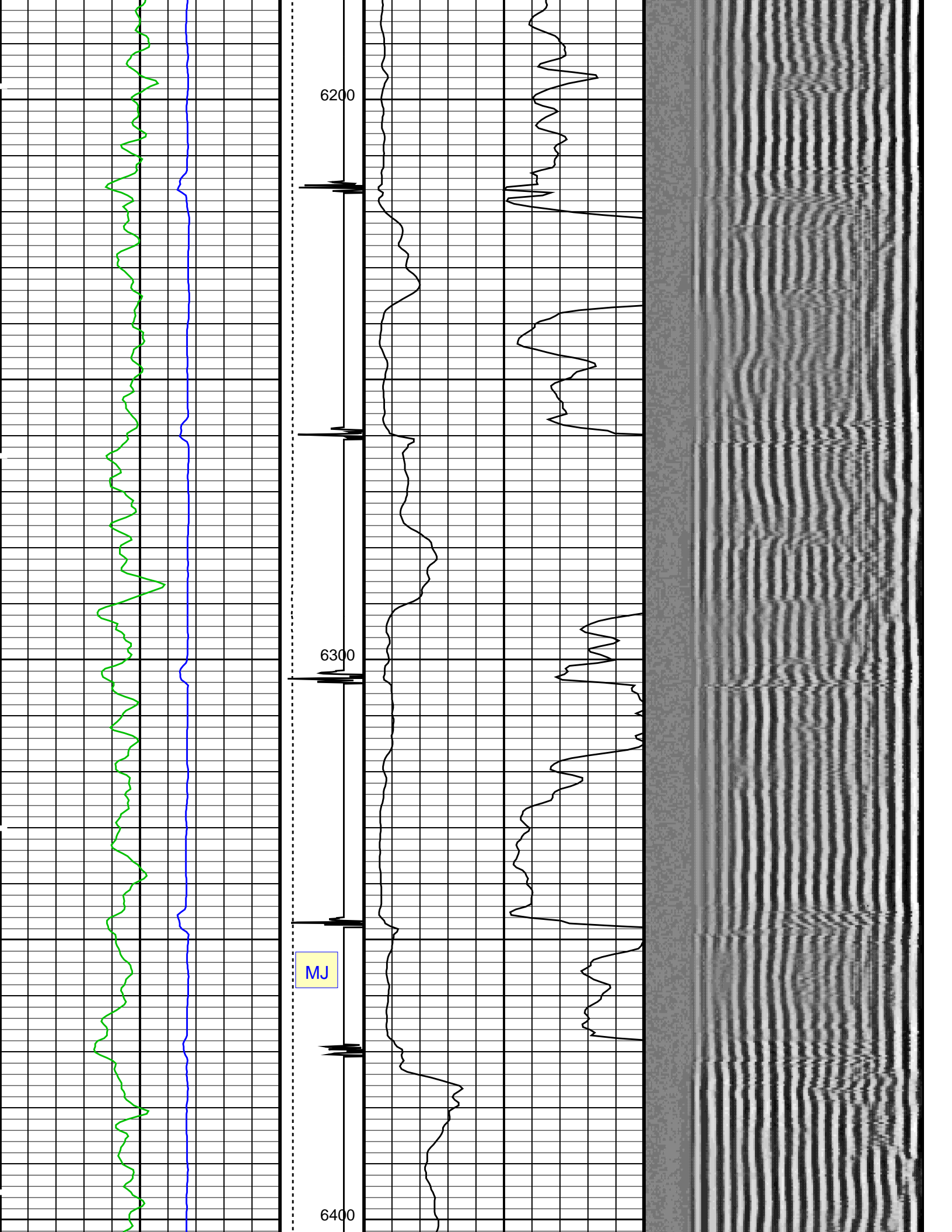


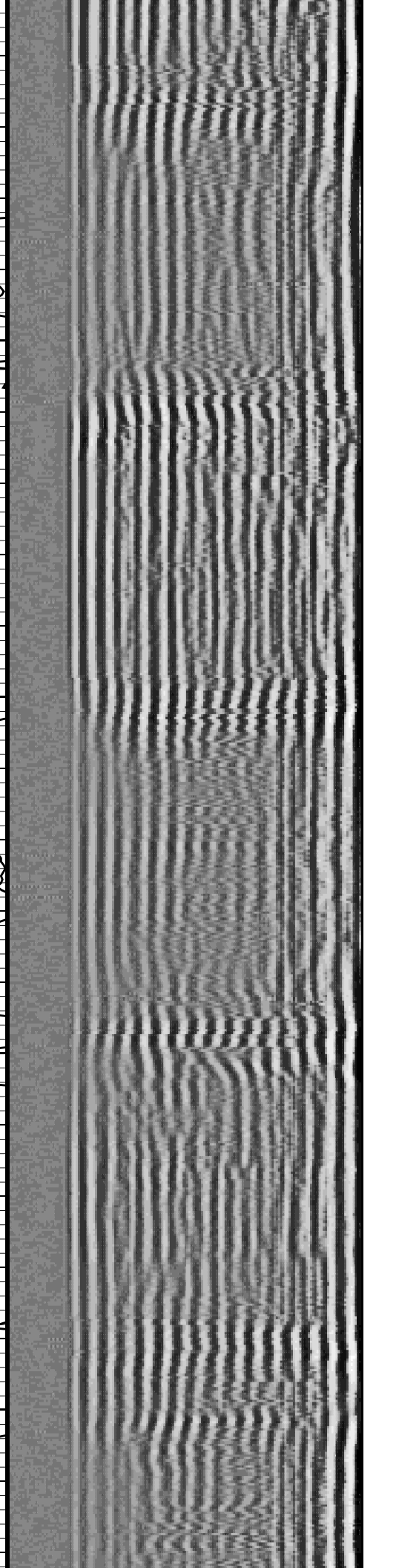
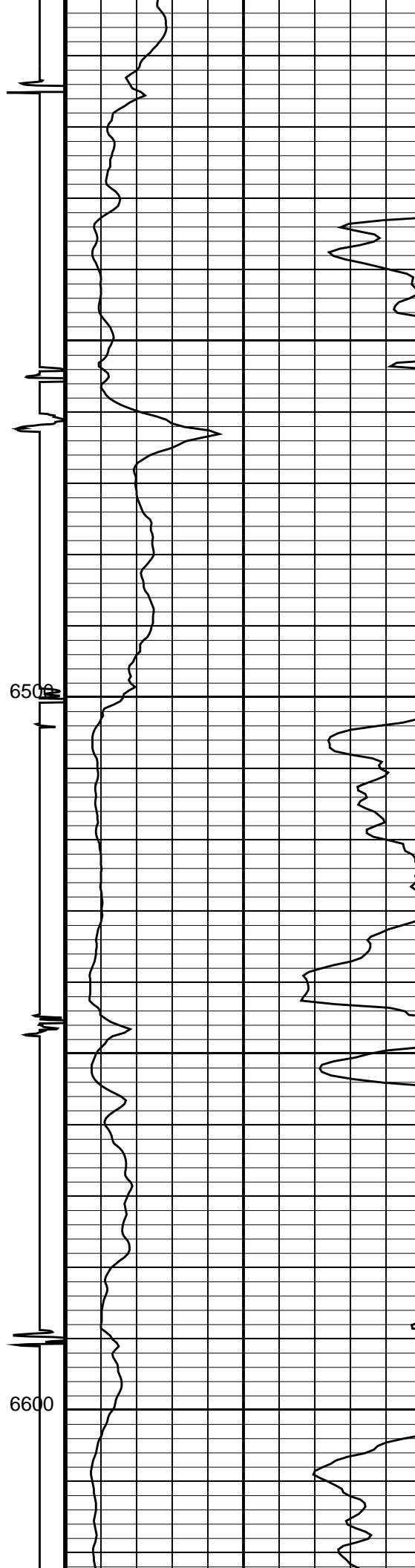
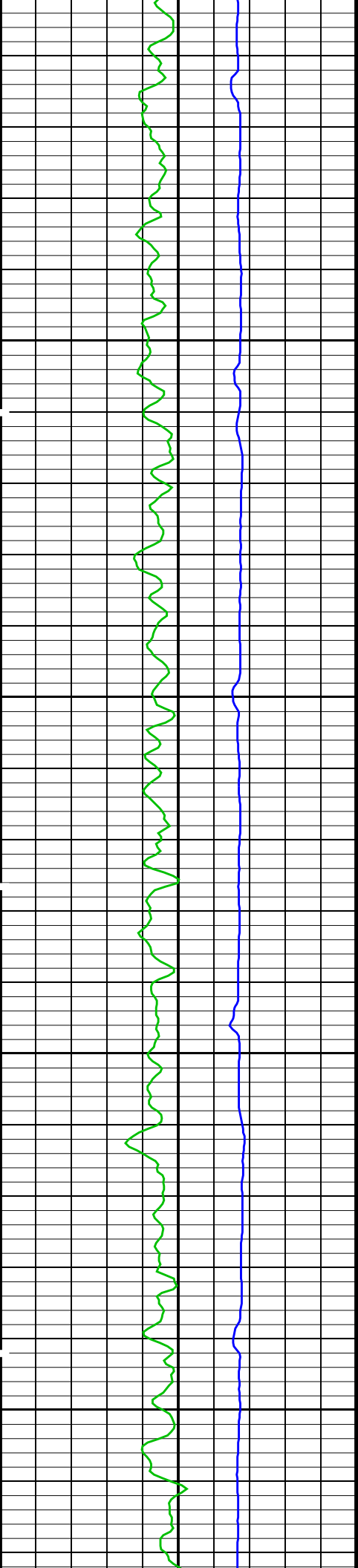


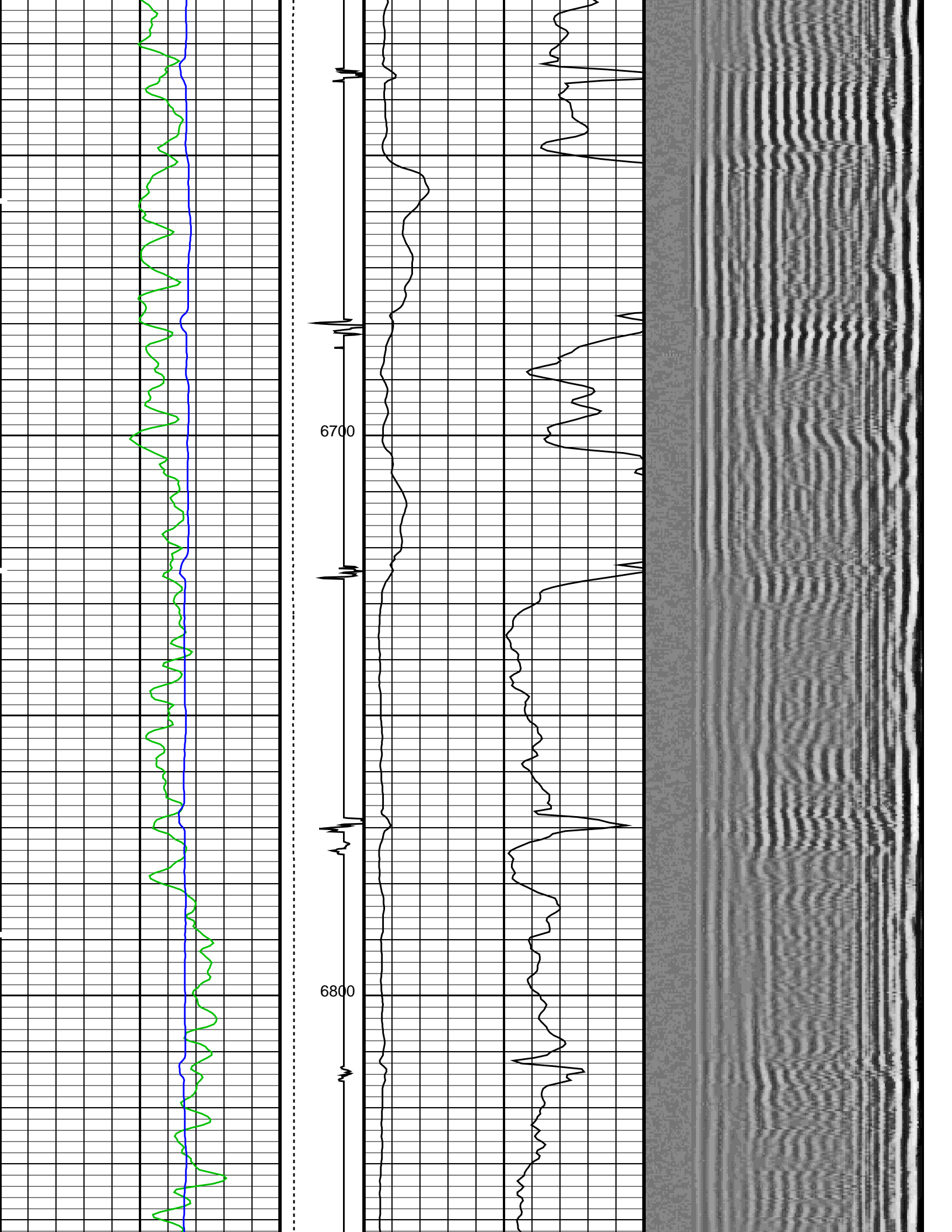


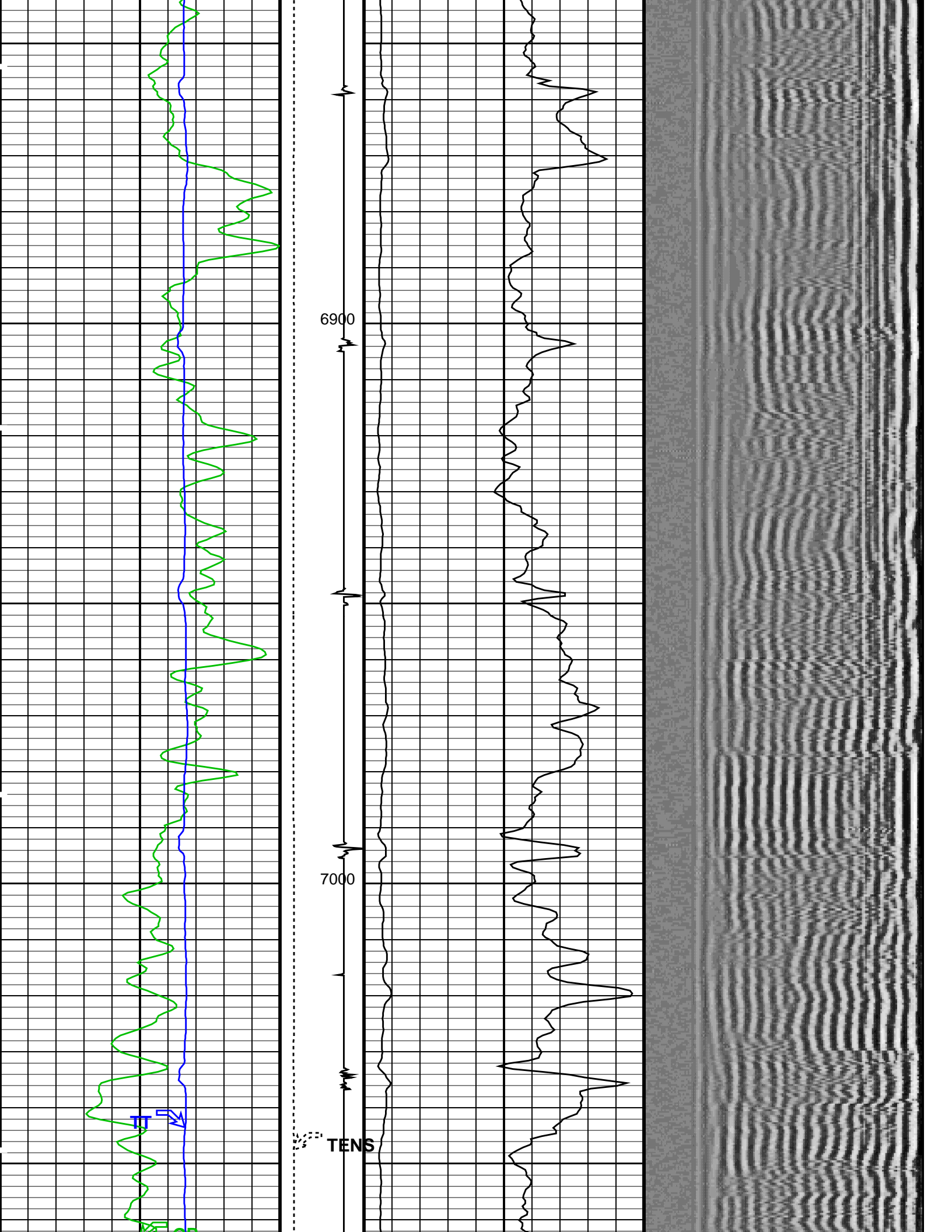




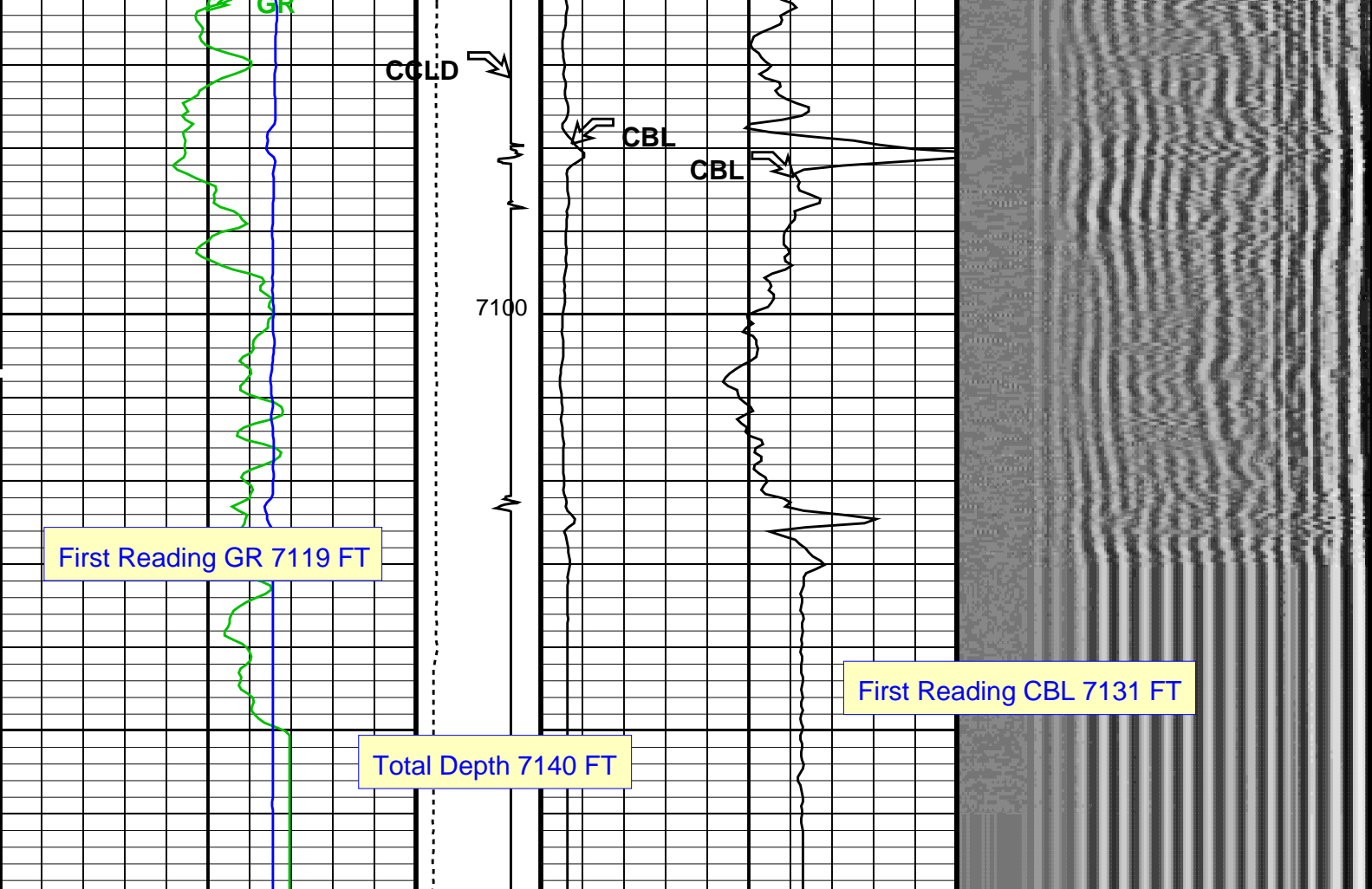












Gamma Ray (GR) (GAPI)	Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)	Min	Amplitude	Max
0 150	0 5000	0 10	200	VDL VariableDensity (VDL) (US)	1200
Transit Time (TT) (US)	Discriminat ed CCL (CCLD)	CBL Amplitude (CBL) (MV)			
400 200	3 (V) -1	0 100			

#### PIP SUMMARY

Time Mark Every 60 S

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

Graphics File Created: 15-Jul-2015 21:08

### 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	
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
CWEI	Casing Weight	17.00	LB/F
DFD	Drilling Fluid Density	8.40	LB/G
DO	Depth Offset for Playback	0.0	FT
PP	Playback Processing	RECOMPUTE	
TD	Total Depth	7140	FT

## Input DLIS Files

DEFAULT	SCMT_PSP_020PUP	FN:19	PRODUCER	15–Jul–2015 19:43	7169.5 FT	23.0 FT
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## Output DLIS Files

DEFAULT	SCMT_PSP_002PUP	FN:1	PRODUCER	15–Jul–2015 21:08
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Schlumberger

REPEAT PASS CBL–VDL 0PSI

MAXIS Field Log

# Input DLIS Files

DEFAULT SCMT\_PSP\_021PUP FN:20 PRODUCER 15-Jul-2015 19:43 7174.5 FT 6884.5 FT

# Output DLIS Files

DEFAULT SCMT\_PSP\_003PUP FN:2 PRODUCER 15-Jul-2015 21:17 7174.5 FT 6884.5 FT

## OP System Version: 19C0-187

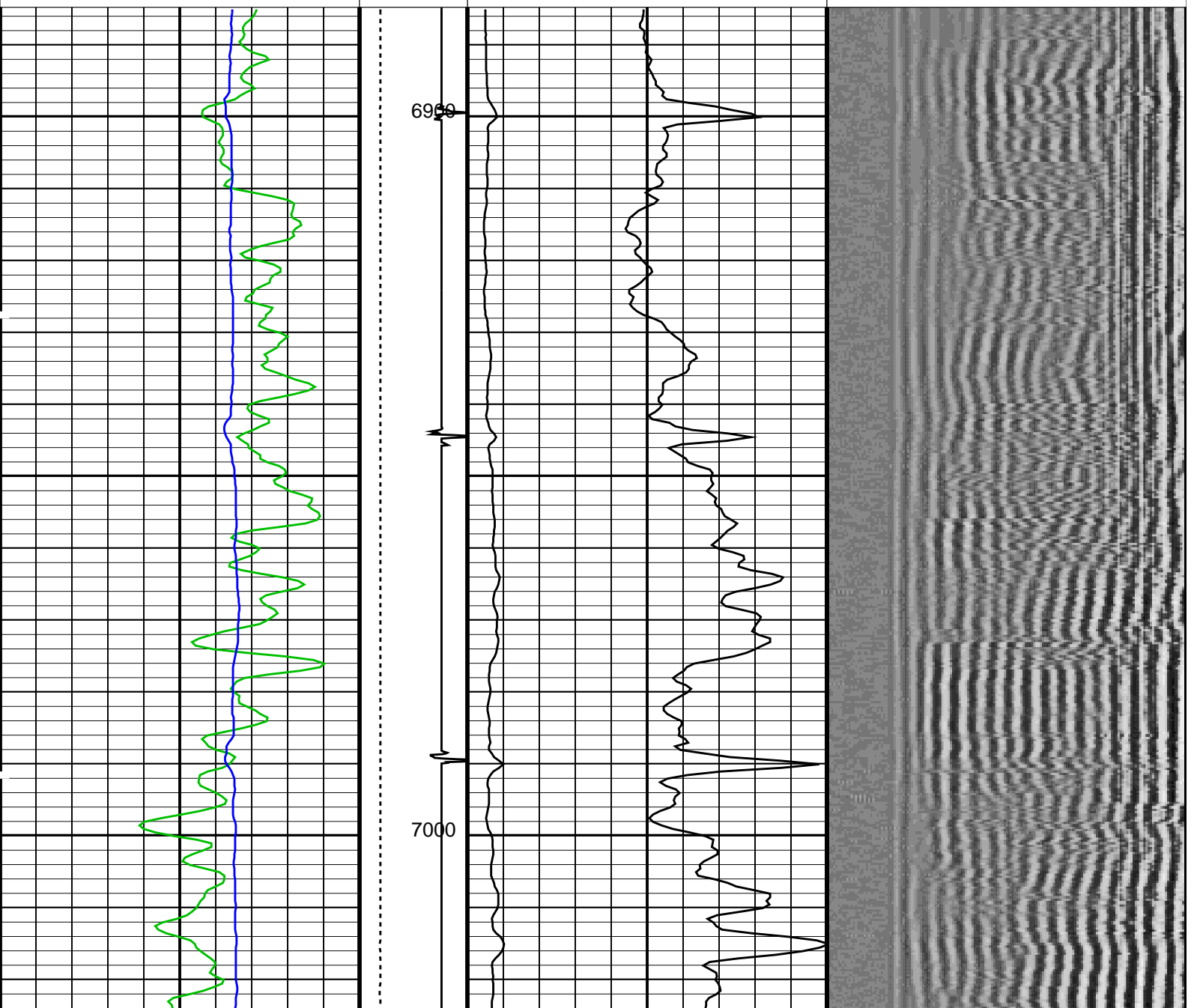
SCMT-CB 19C0-187 PSPT 19C0-187

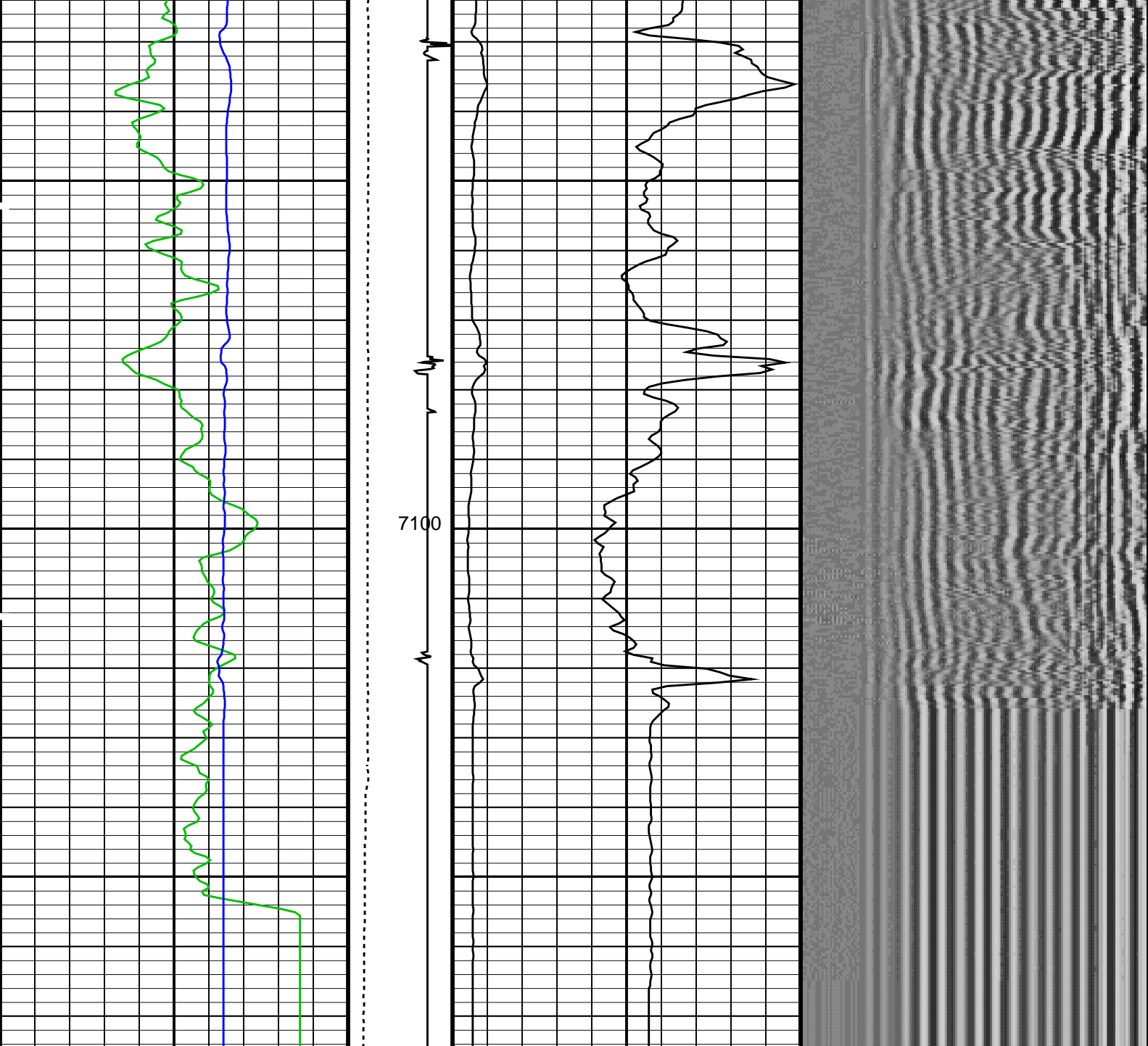
### PIP SUMMARY

Time Mark Every 60 S

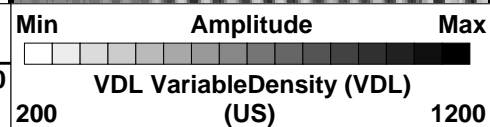
Transit Time (TT) (US)		Discriminat ed CCL (CCLD)	CBL Amplitude (CBL) (MV)	
400	200	3 (V) -1	0	100
Gamma Ray (GR) (GAPI)		Tension (TENS) (LBF)	CBL Amplitude (CBL) (MV)	
0	150	0 5000	0	10

Min Amplitude Max  
VDL VariableDensity (VDL)  
(US) 200 1200





Gamma Ray (GR) (GAPI)		0	150
Transit Time (TT) (US)		400	200
Tension (TENS) (LBF)	0	5000	
Discriminat ed CCL (CCLD)	0	100	
(V)	3	-1	
CBL Amplitude (CBL) (MV)		0	10
CBL Amplitude (CBL) (MV)		0	100



### PIP SUMMARY

Time Mark Every 60 S  
Format: CBL\_VDL Vertical Scale: 5" per 100' Graphics File Created: 15-Jul-2015 21:17

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			
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		
CWEI	Casing Weight	17.00	LB/F		
DFD	Drilling Fluid Density	8.40	LB/G		
DO	Depth Offset for Playback	0.0	FT		
PP	Playback Processing	RECOMPUTE			
TD	Total Depth	7140	FT		

Input DLIS Files						
DEFAULT	SCMT_PSP_021PUP	FN:20	PRODUCER	15-Jul-2015 19:43	7174.5 FT	6884.5 FT
Output DLIS Files						
DEFAULT	SCMT_PSP_003PUP	FN:2	PRODUCER	15-Jul-2015 21:17		



## MAXIS Field Log

Client: ANADARKO  
Field: WATTENBERG  
Well: CHEESE STATE 1N-21HZ  
Run date: 15-Jul-2015

Tool: PSP  
Sub Type: PBMS  
Sensor: Clock Model

## 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  
Field: WATTENBERG  
Well: CHEESE STATE 1N-21HZ  
Run date: 15-Jul-2015

Tool: PSP  
Sub Type: PBMS  
Sensor: Sapphire

## PBMS Sapphire 10kPsi Gauge

Sonde Serial NB

Sensor Serial NB 1863

Calib Date ddmmyy 261007

## COEFFICIENTS FOR SAPPHIRE PBMS-A.1863 S/N:

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

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
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Client:	ANADARKO	Tool:	PSP
Field:	WATTENBERG	Sub Type:	PBMS
Well:	CHEESE STATE 1N-21HZ	Sensor:	GR
Run date:	15-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
Rt**0	+.150000000000e+04	+.241000000000e+04

Client:	ANADARKO	Tool:	PSP
Field:	WATTENBERG	Sub Type:	PBMS
Well:	CHEESE STATE 1N-21HZ	Sensor:	WellTemp RTD
Run date:	15-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

Company: ANADARKO

Well: CHEESE STATE 1N-21HZ

Field: WATTENBERG

County: WELD

State: COLORADO

Schlumberger

SLIM CEMENT MAPPING LOG  
CBL-VDL  
GR-CCL