



**PIONEER**

Pioneer Energy Services

**CEMENT BOND LOG  
WITH GAMMA RAY**

Comp. PUBLIC SERVICE COMPANY OF CO.  
Well STORAGE UNIT #2  
Field ROUNDUP  
Co. MORGAN  
State COLORADO

Company **PUBLIC SERVICE COMPANY OF CO.**  
Well **STORAGE UNIT #2**  
Field **ROUNDUP**  
County **MORGAN** State **COLORADO**

Location: API #: 05-087-07441 Other Services  
SEC SWSW  
660FSL / 660FWL  
TWP RGE  
Permanent Datum G.L. Elevation 4668'  
Log Measured From G.L. Above Perm. Datum  
Drilling Measured From G.L. Elevation  
K.B. 4668'  
D.F. 4668'  
G.L. 4668'

Date of Service	8-4-2020		
Run Number	ONE		
Depth Driller or PBTD	6456'		
Depth Logger	6320'		
Bottom Log Interval	6320'		
Top Log Interval	SURFACE		
Open Hole Size	12.250"		
Type Fluid	FW		
Fluid Level	SURFACE		
Fluid Density	NA		
Max. Recorded Temperature	NA		
Max. Wellhead Pressure	OPSI		
Wellhead Connection	7/16 5K FLANGE		
Estimated Cement Top	SEE LOG		
Unit Number	P132		
Wireline Size	.281		
Location	COLORADO		
Recorded By	JBUSH		
Witnessed By	MR.JEFF SCHNEIDER		
	Size	Wt/Ft	Top
Tubing Record			Bottom
Surface Casing	8.625"	24#	SURFACE 293'
Production Casing	5.50"	15.5#	SURFACE 6497'
Liner Record			

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.

ALL DEPTHS ARE WIRELINE MEASURMENTS TAKEN FROM GL

THANK YOU FOR USING PIONEER ENERGY SERVICES!

Your Pioneer Energy Services Crew

Engineer: J.BUSH  
Operator: C.SHEPPARD  
Operator: T.CROW  
Operator:

Tool Data - Services

SEE TOOL DIAGRAM

Serial Number

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
			Cable Head-Titan_144 1 7/16" Titan Cable Head	1.03	1.44	2.00	
TEMP	11.65						
WVFS8	9.35		PROBE-RBT-DIGITAL-RBL-DCT (FW1411-67) Probe 2 3/4" Radii Bond with Temp-Corrosion Package	8.75	2.75	105.00	
WVFS7	9.35						
WVFS6	9.35						
WVFS5	9.35						
WVFS4	9.35						
WVFS3	9.35						
WVFS2	9.35						
WVFS1	9.35						
WVFCAL	9.35						
WVF3FT	9.35						
WVF5FT	8.35						
HEADVOLT	5.16						
CCL	4.25						
GR	2.91		PROBE-GR/CCL-DIGITAL-275_6-PIN (PROBE-GR 6PINBOT) Probe 2 3/4" Gamma CCL 6-pin Bottom for CNT	4.83	2.75	50.00	
			Bullnose-PROBE Probe Go Pin Pressure Cap	0.33	1.38	1.00	
Dataset: excel_roundup_2.db: field/well/cbl/pass4 Total length: 14.94 ft Total weight: 158.00 lb O.D.: 2.75 in							

# Log Variables

DatabaseC:\ProgramData\Warrior\Data\excel\_roundup\_2.db  
Dataset field/well/cbl/pass4/\_vars\_

## Top - Bottom

BHTEMP_Src TEMP	BOREID in 7.875	BOTTEMP degF 100	CASEOD in 5.5	CASETHCK in 0	CASEWGHT lb/ft 11.5	MAXAMPL mV 0
MINAMPL mV 1	MINATTN db/ft 0.08	PERFS No	PPT usec 0	SRFTEMP degF 0	TDEPTH ft 0	

## Variable Description

BHTEMP\_Src : BHTEMP Input Source Selector  
BOREID : Borehole I.D.  
BOTTEMP : Bottom Hole Temperature  
CASEOD : Casing O.D.  
CASETHCK : Casing Thickness  
CASEWGHT : Casing Weight  
MAXAMPL : Maximum Amplitude

MINAMPL : Minimum Amplitude  
MINATTN : Minimum Attenuation  
PERFS : Perforation Flag  
PPT : Predicted Pipe Time  
SRFTEMP : Surface Temperature  
TDEPTH : Total Depth

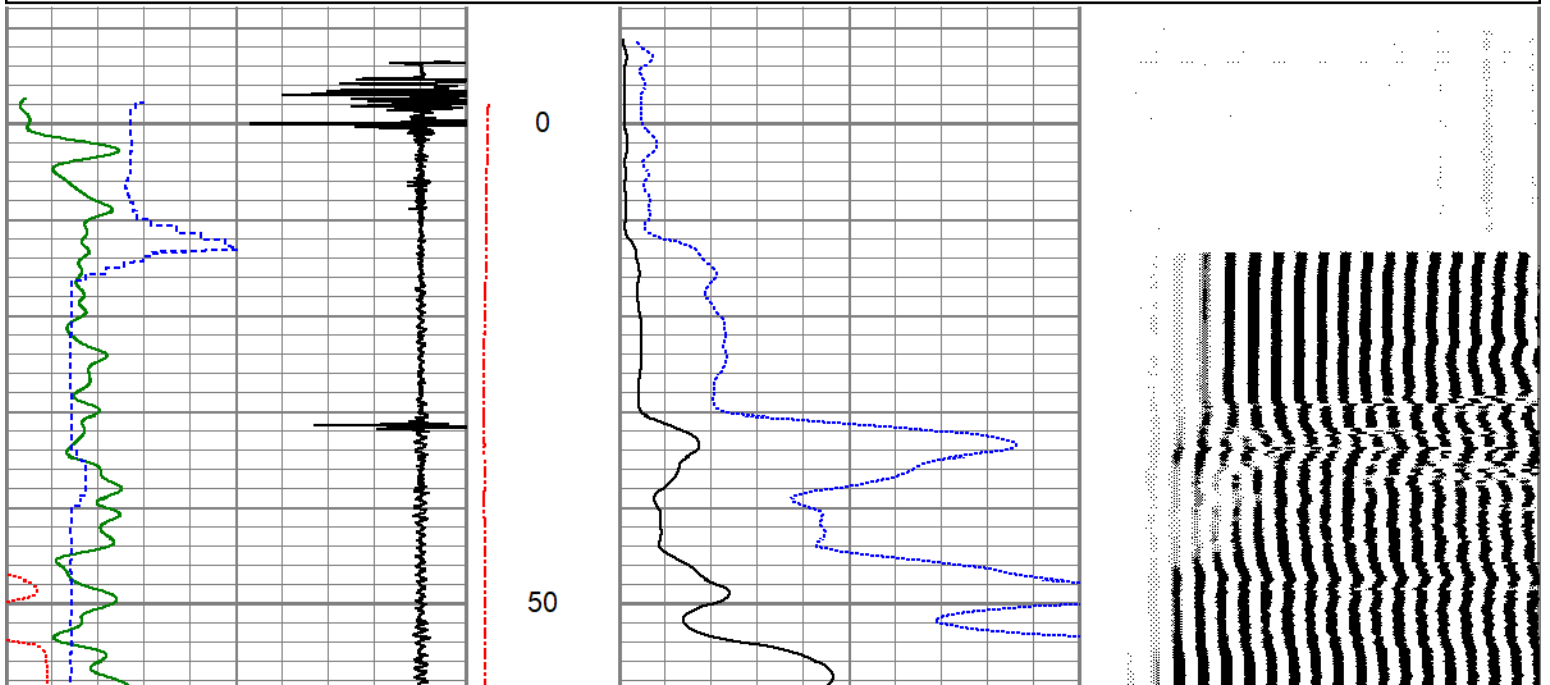


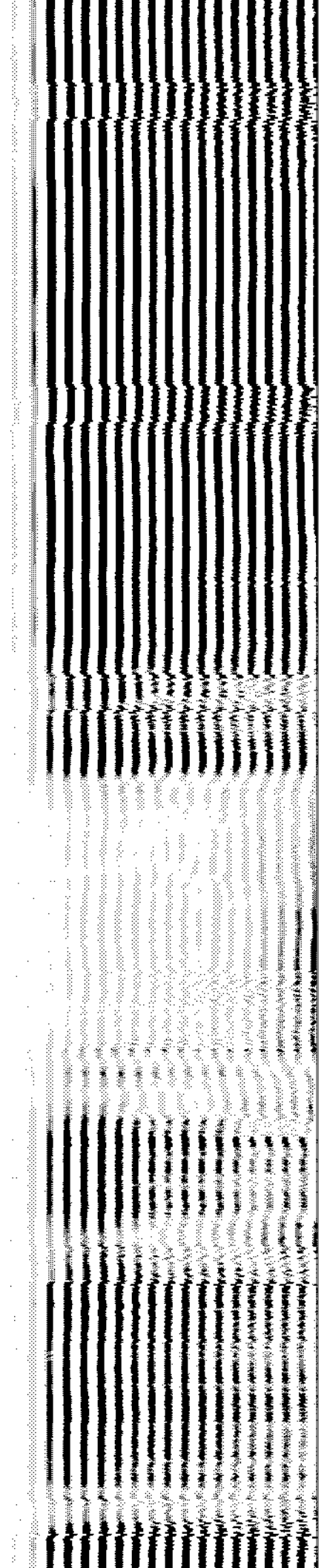
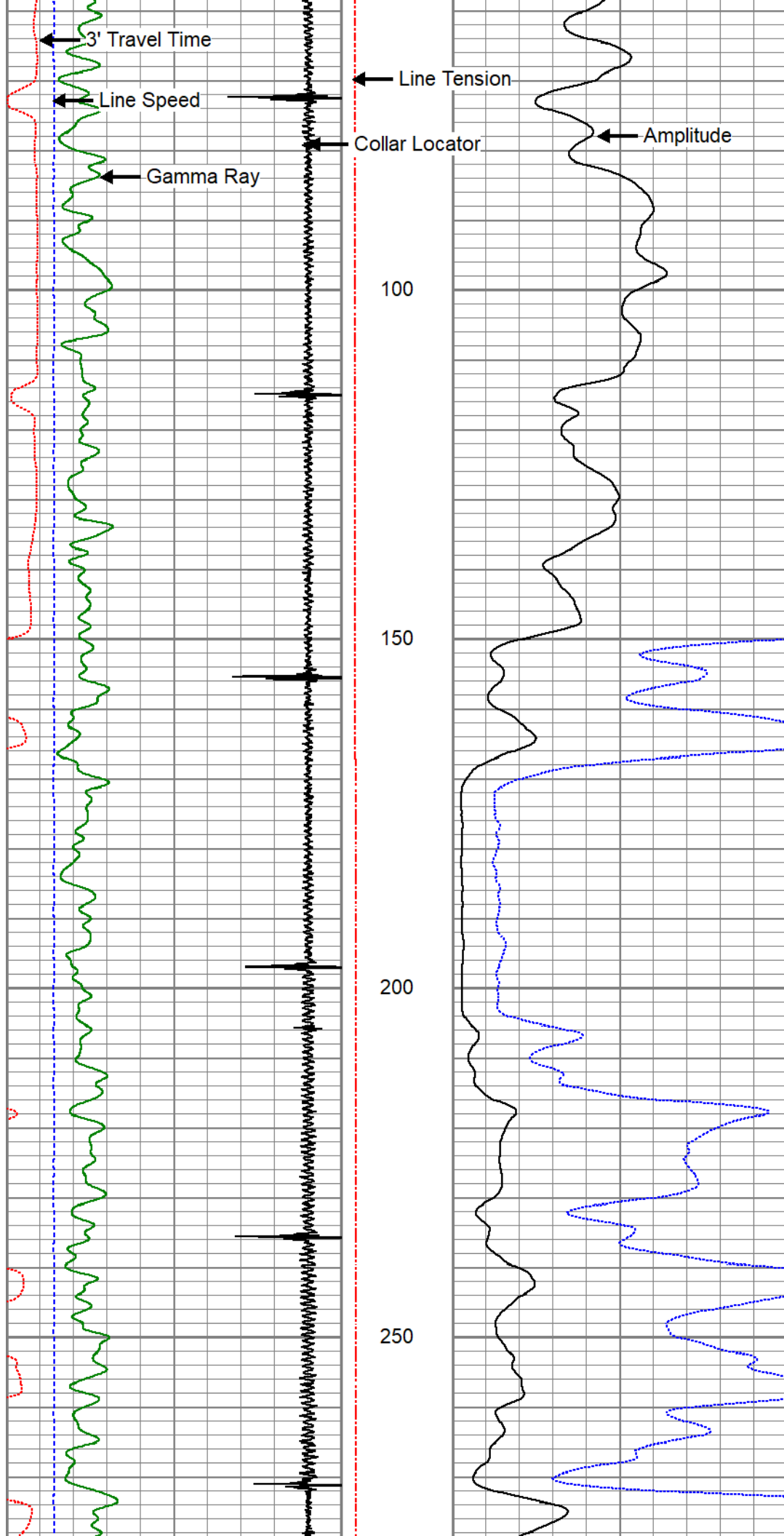
## MAIN LOG

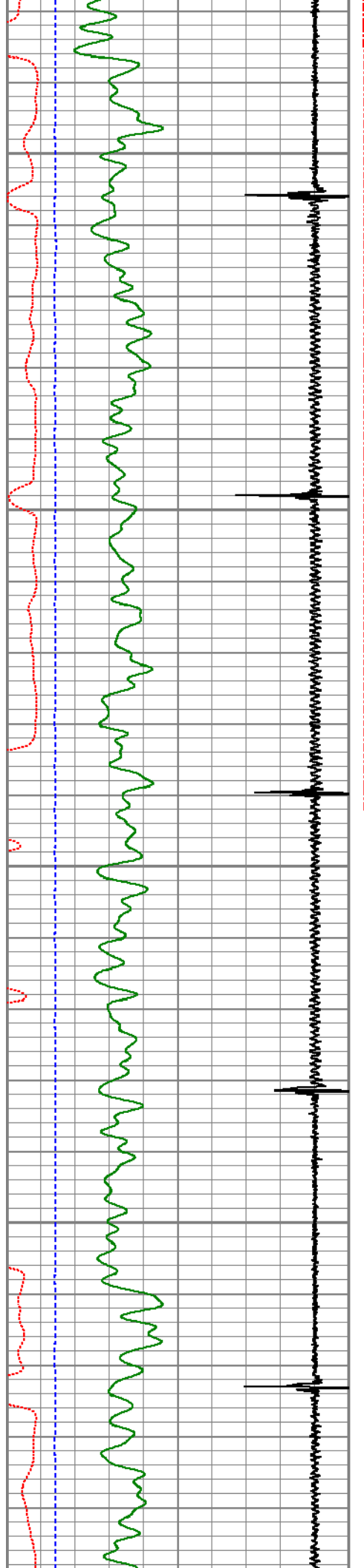
0 PSI APPLIED AT SURFACE

Database File excel\_roundup\_2.db  
Dataset Pathname cbl/pass4  
Presentation Format pinr\_cbl  
Dataset Creation Tue Aug 04 08:15:44 2020  
Charted by Depth in Feet scaled 1:240

-9	Collar Locator	1	Line Tension	0	Amplitude (mV)	100	200	Variable Density (usec)	1200
0	Gamma Ray (GAPI)	150	(lb)						
260	3' Travel Time (usec)	160	-100	2000					
-100	Line Speed (ft/min)	100							





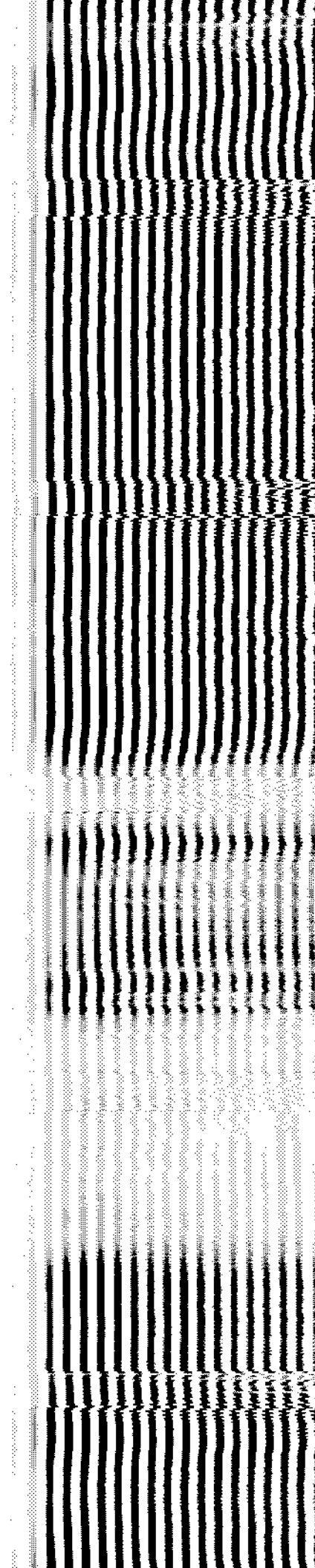
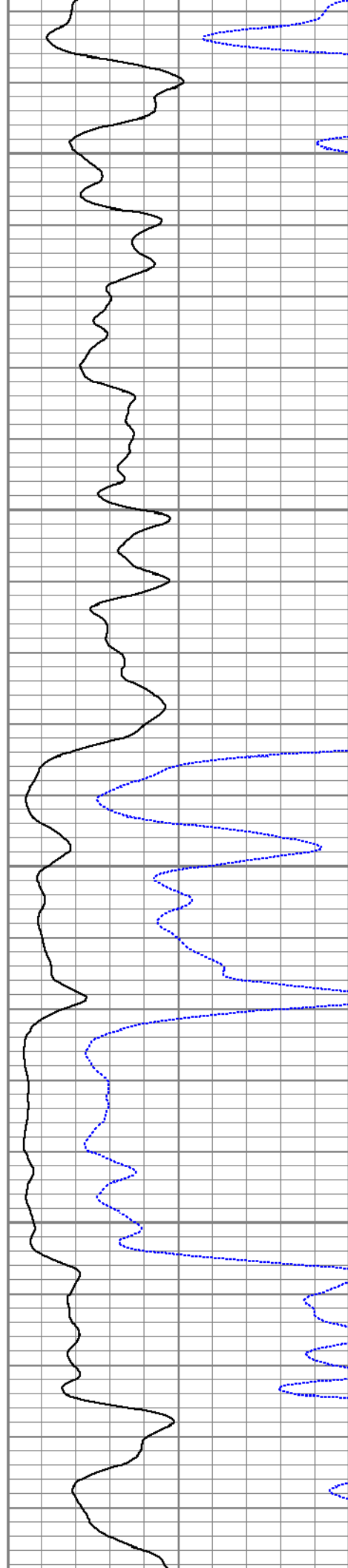


300

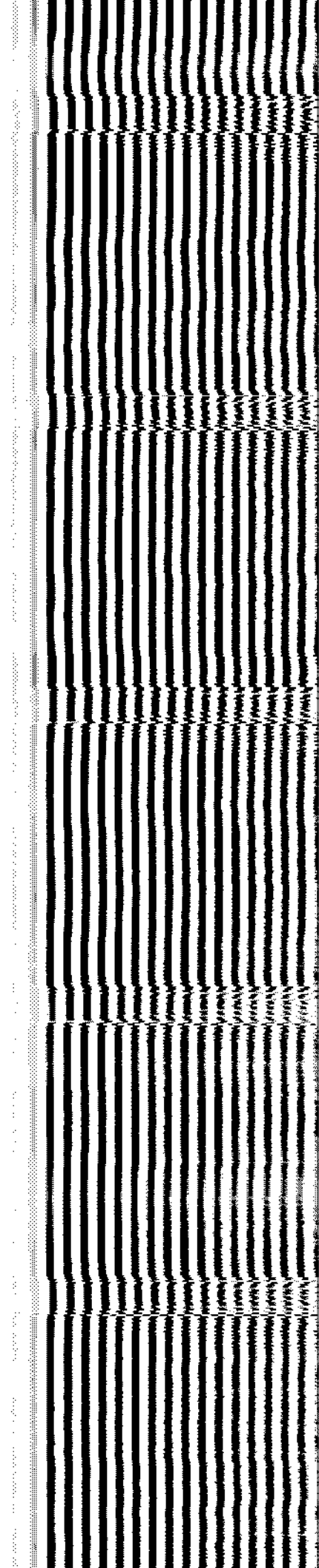
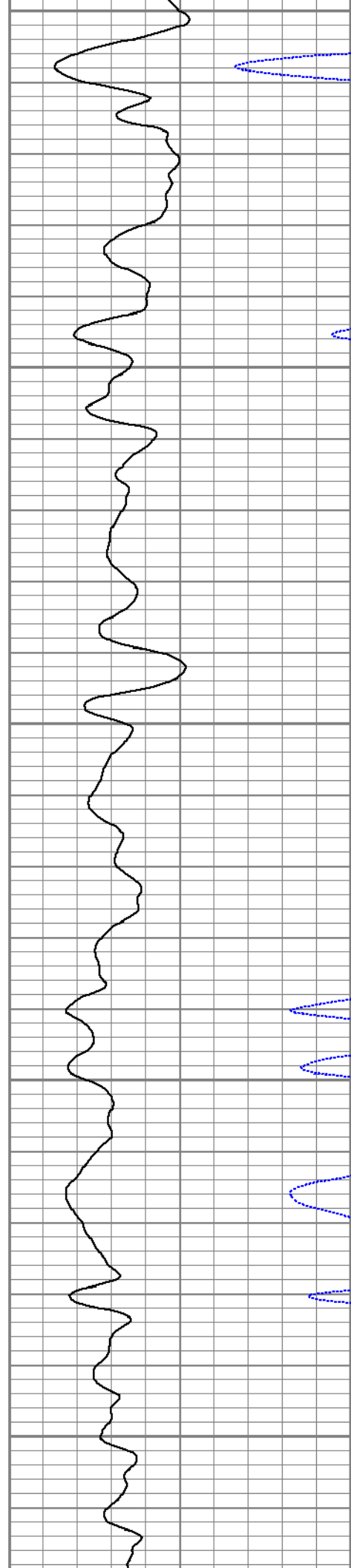
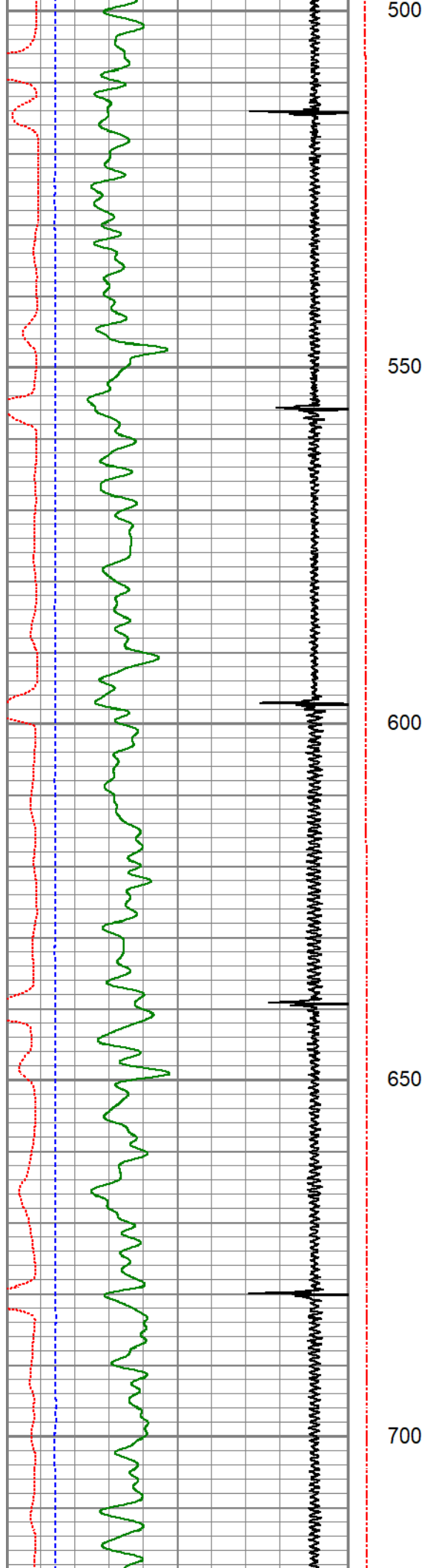
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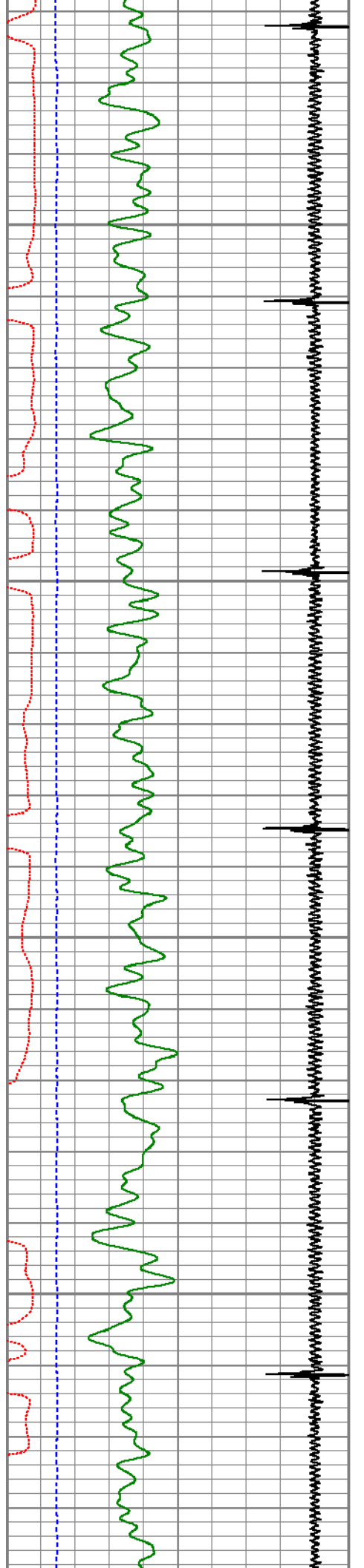
400

450







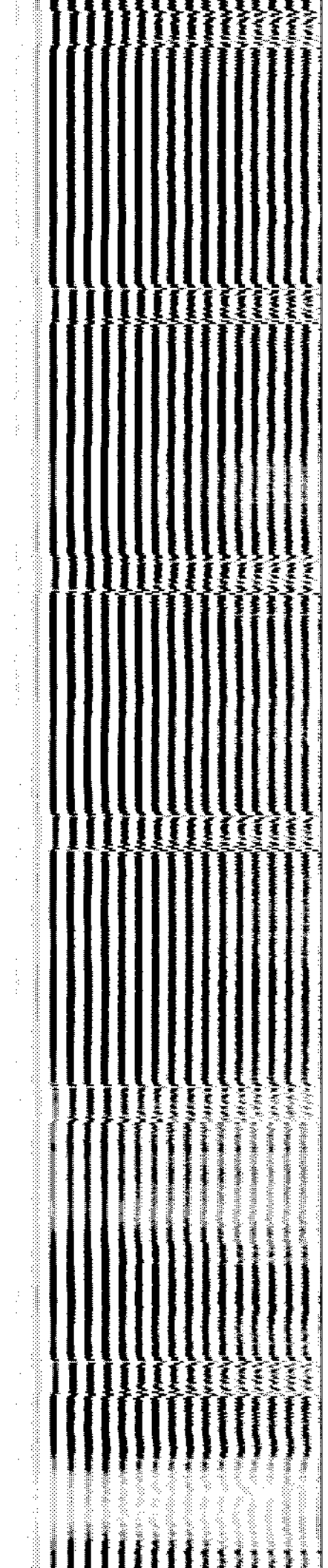
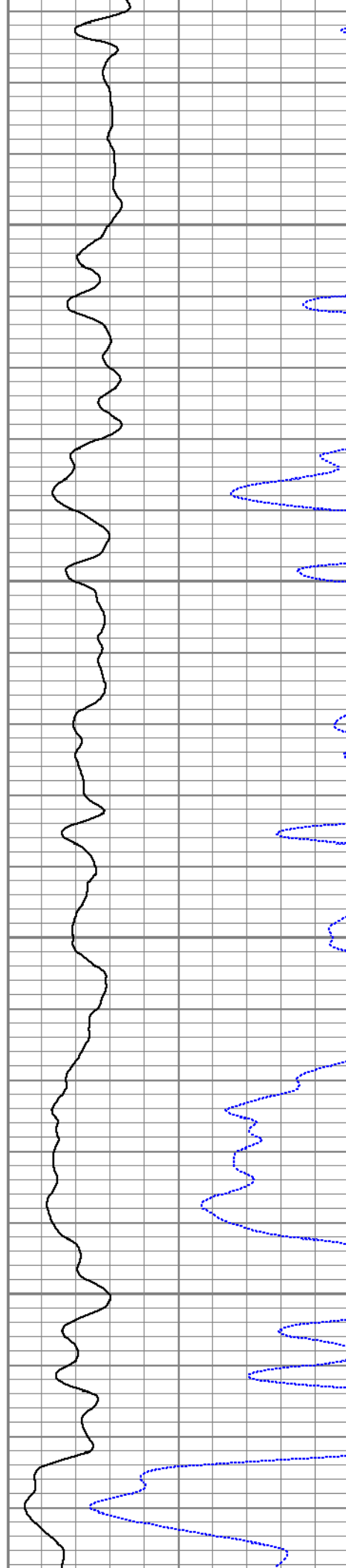


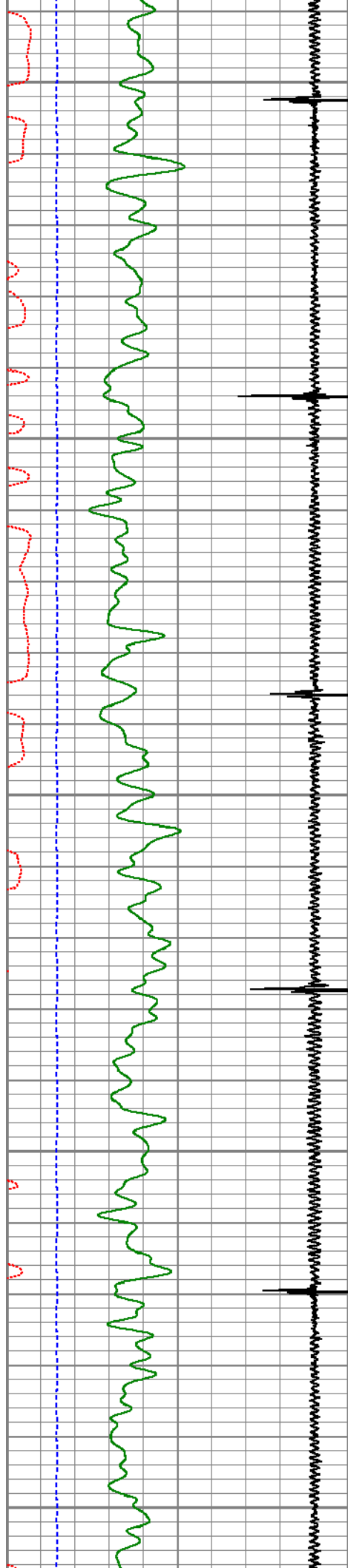
750

800

850

900





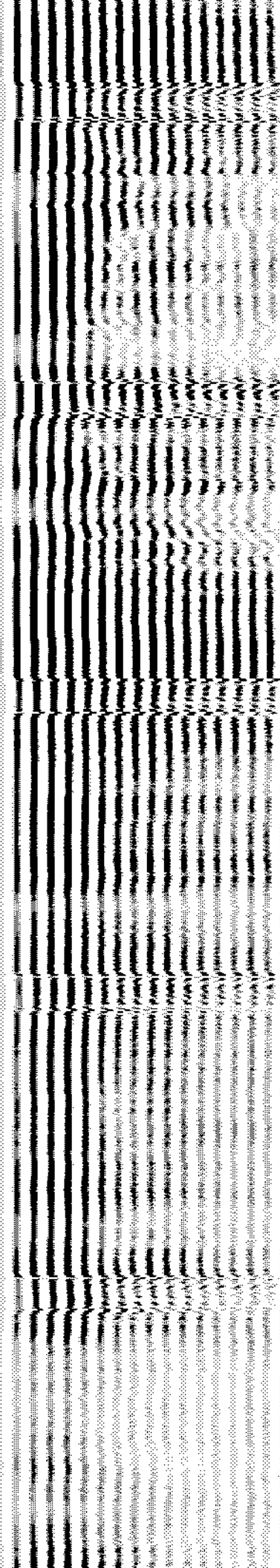
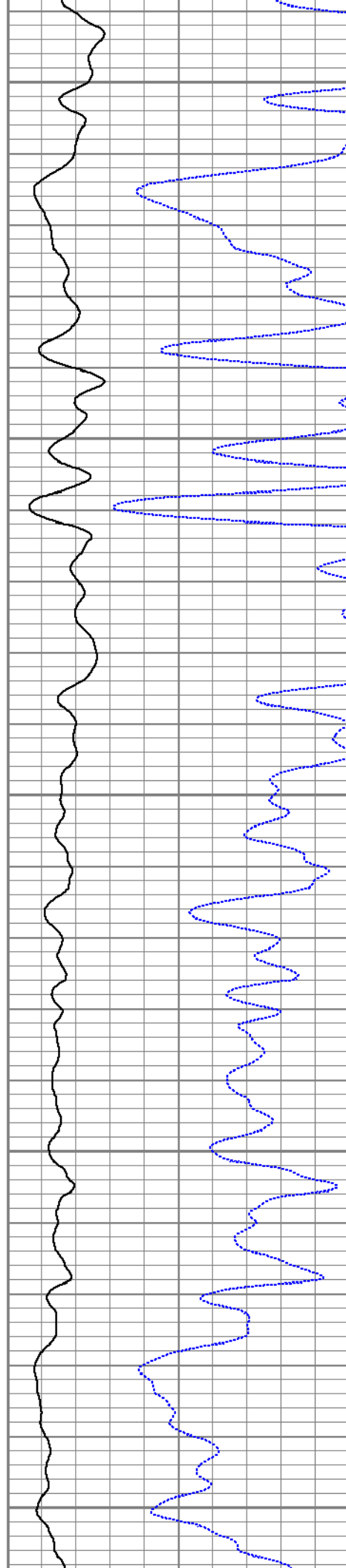
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1000

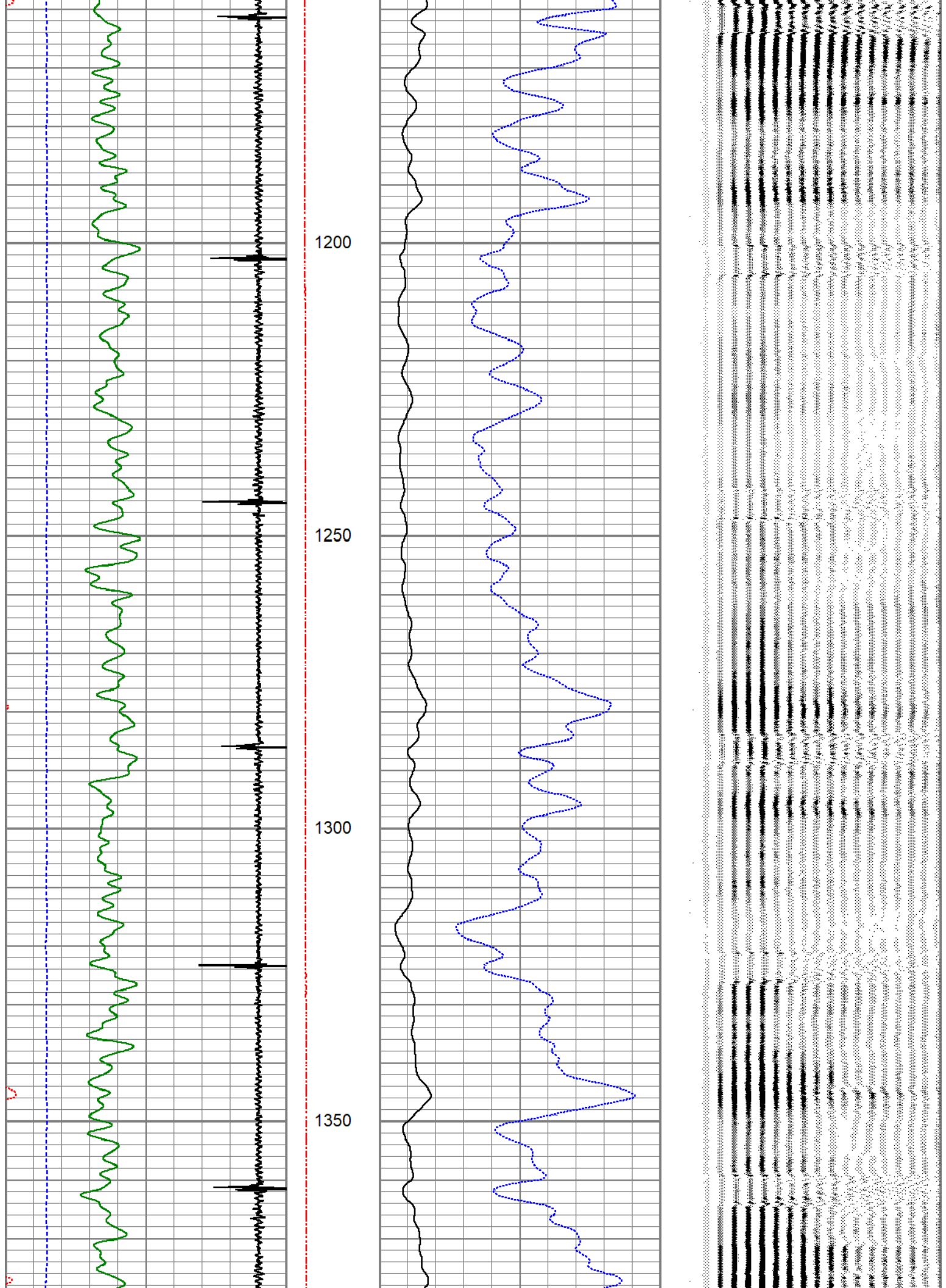
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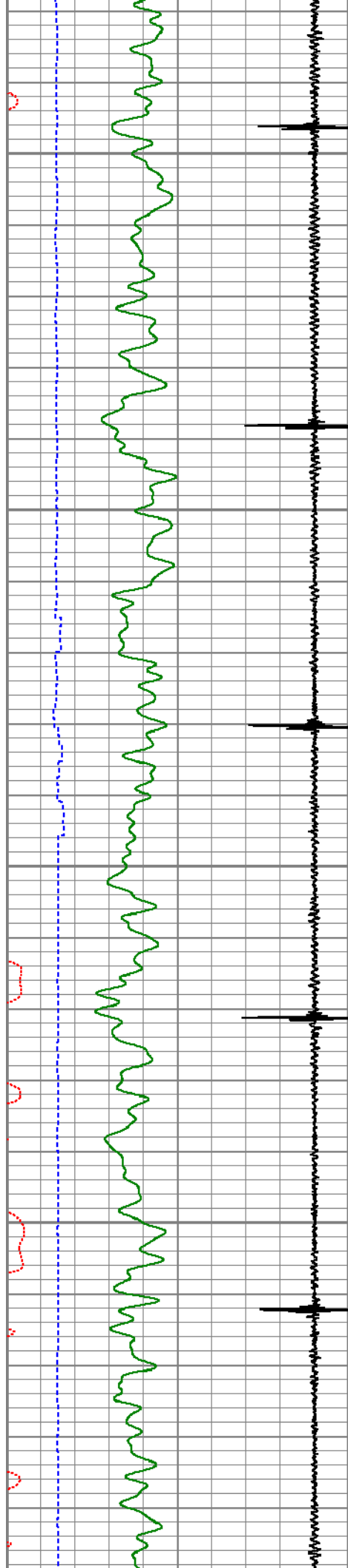
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1150







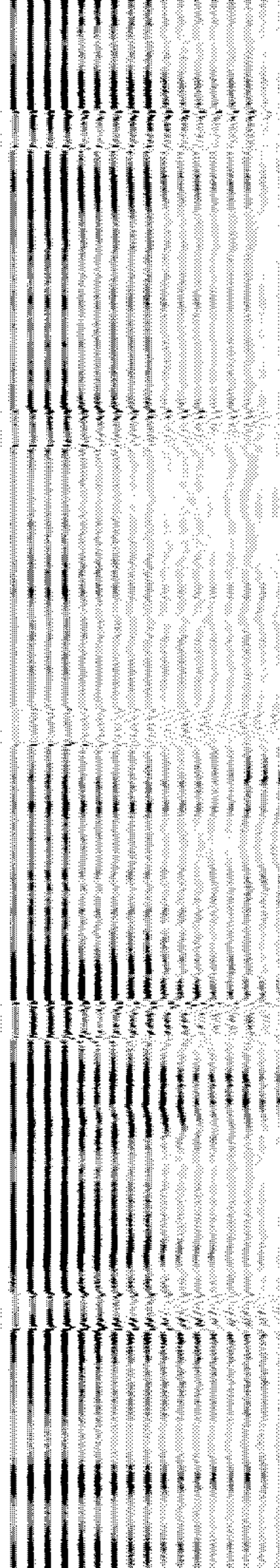
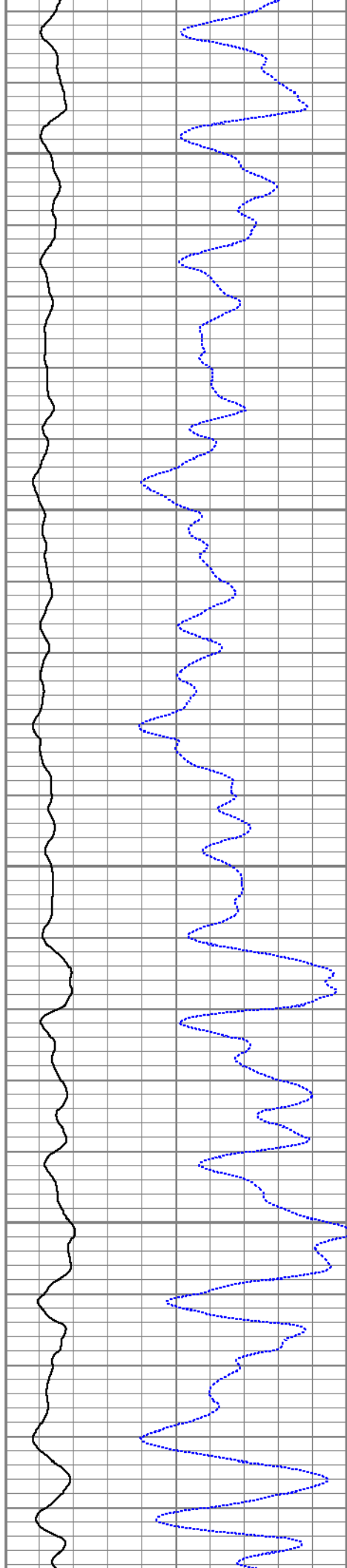


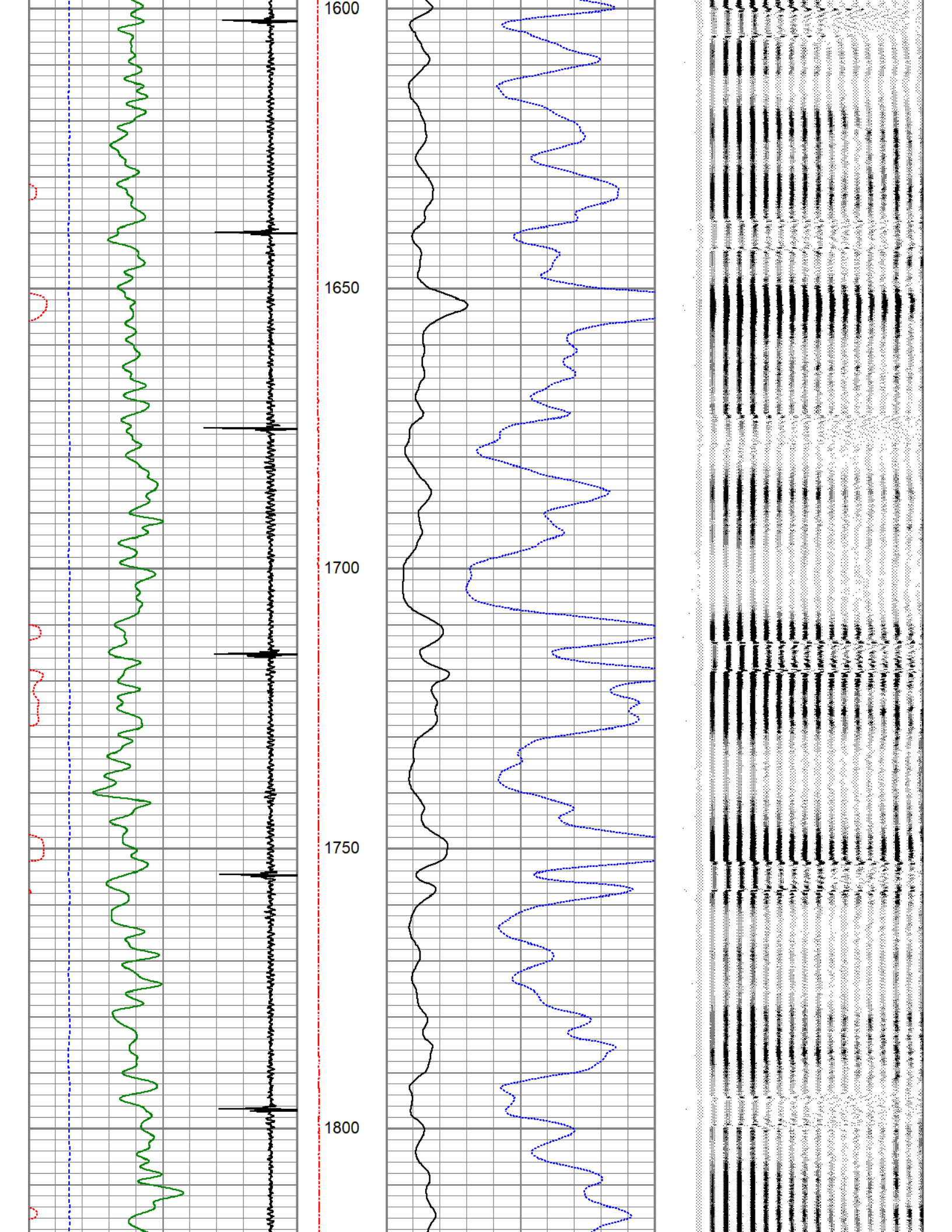
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1450

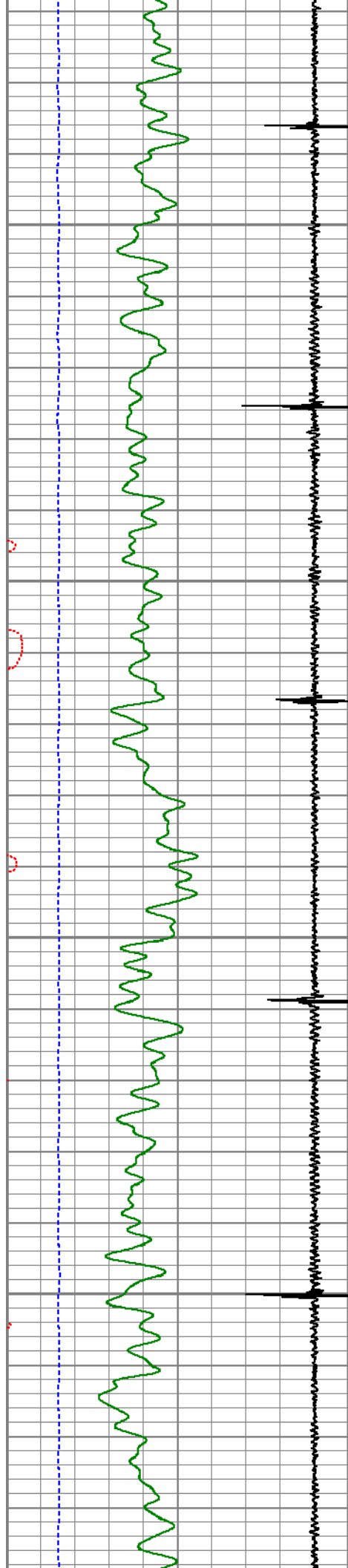
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1550







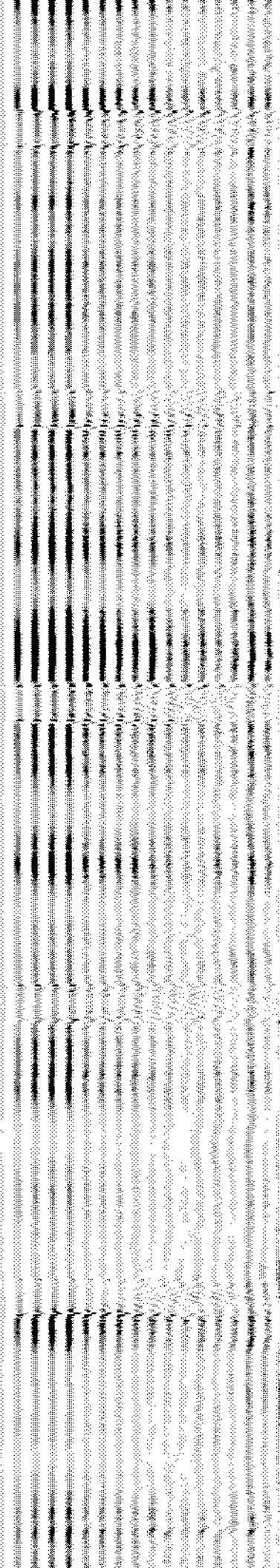
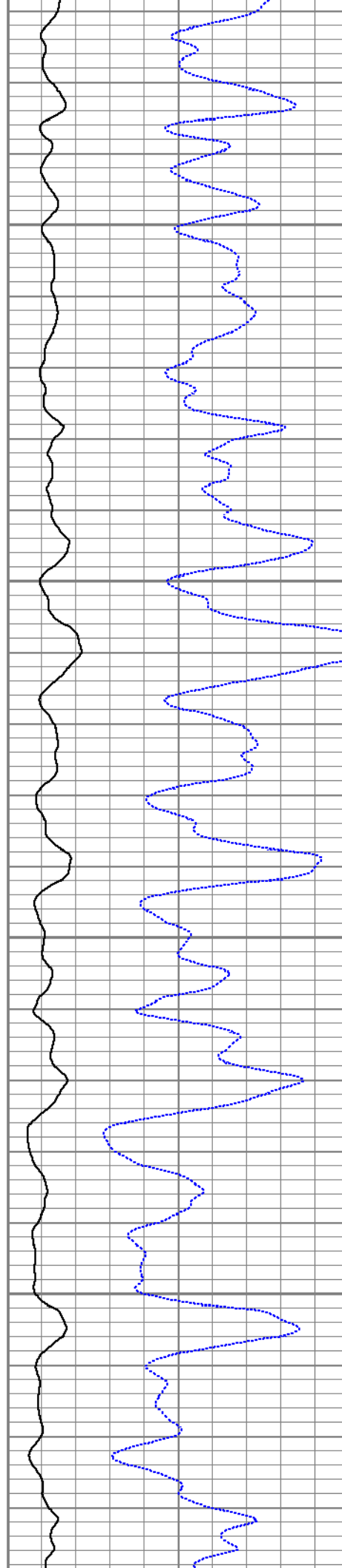


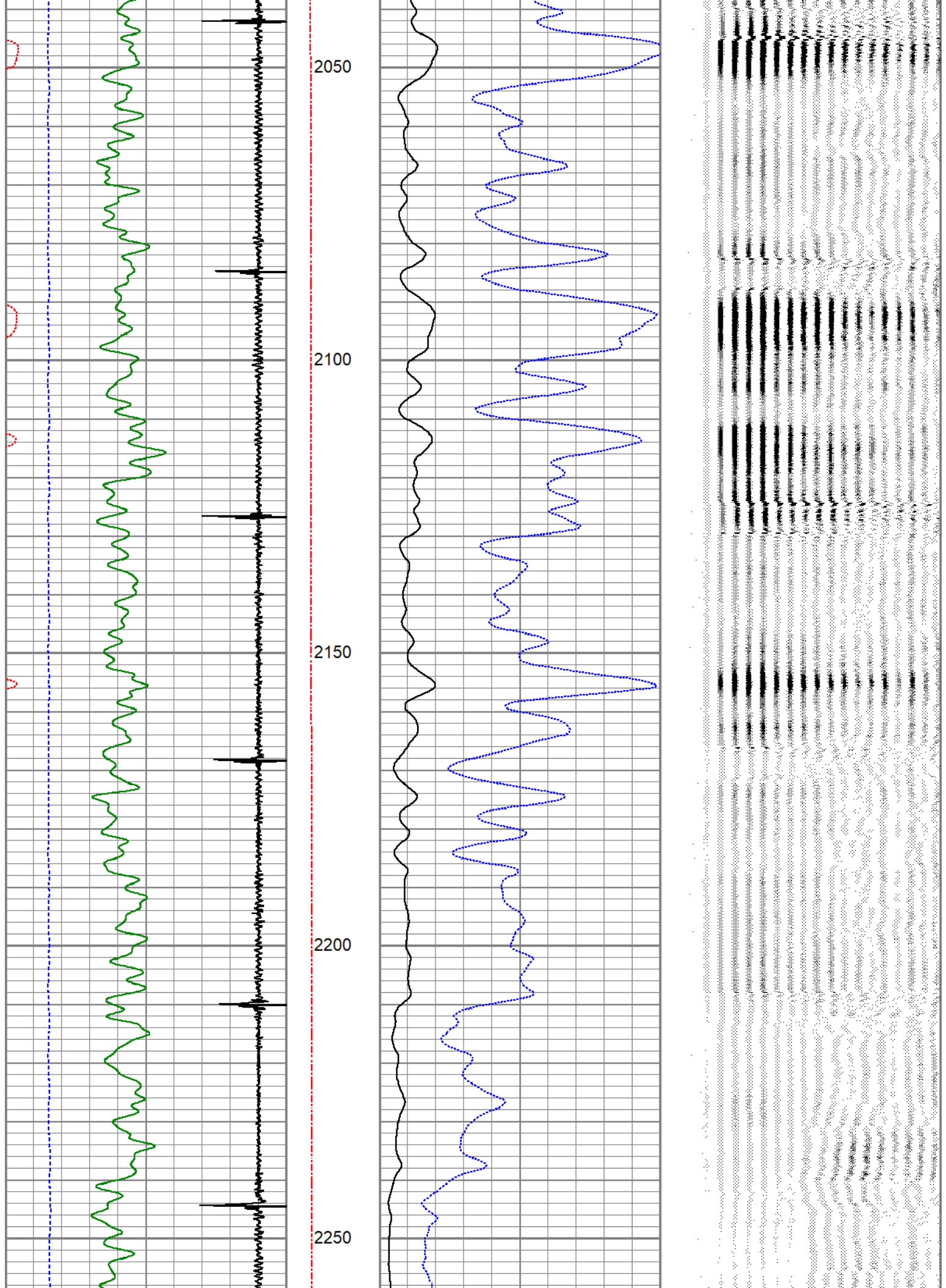
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1900

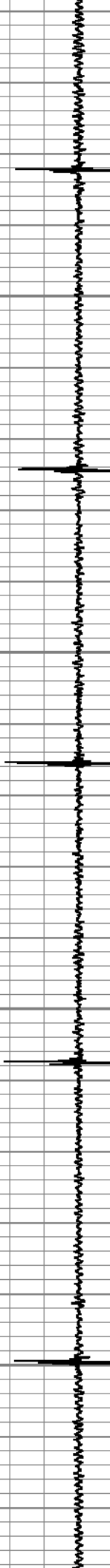
1950

2000







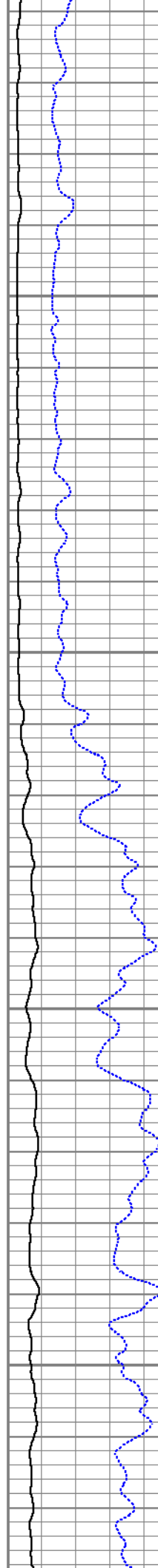


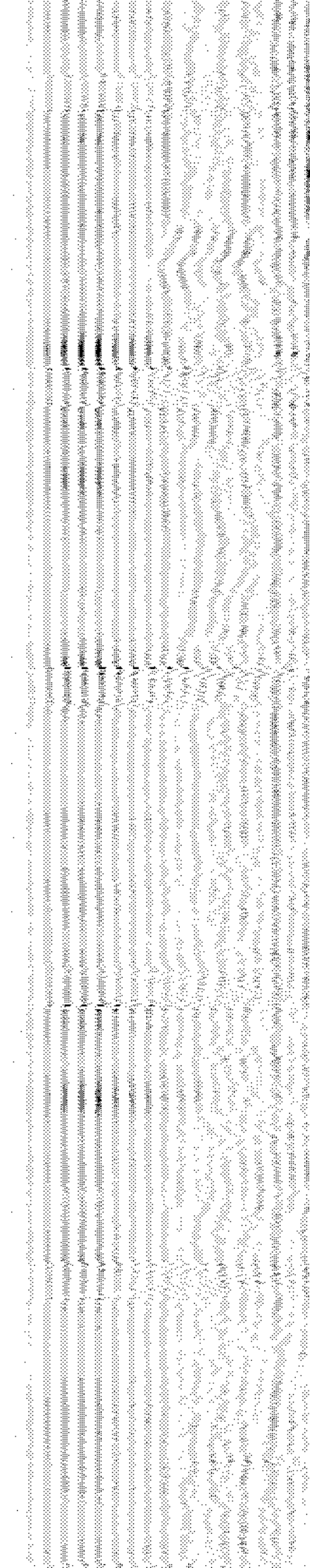
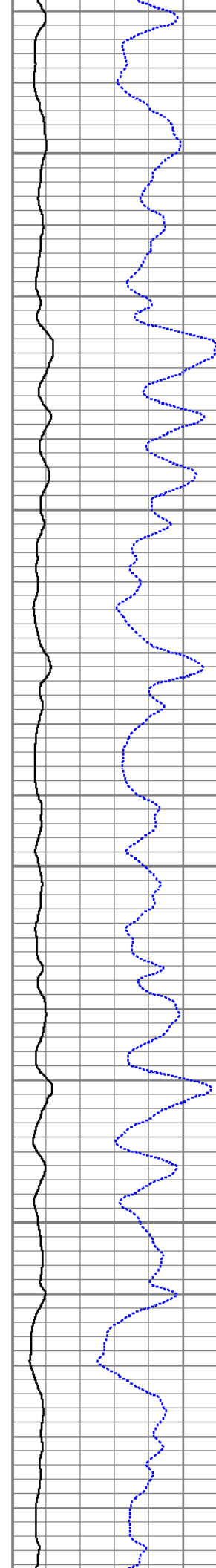
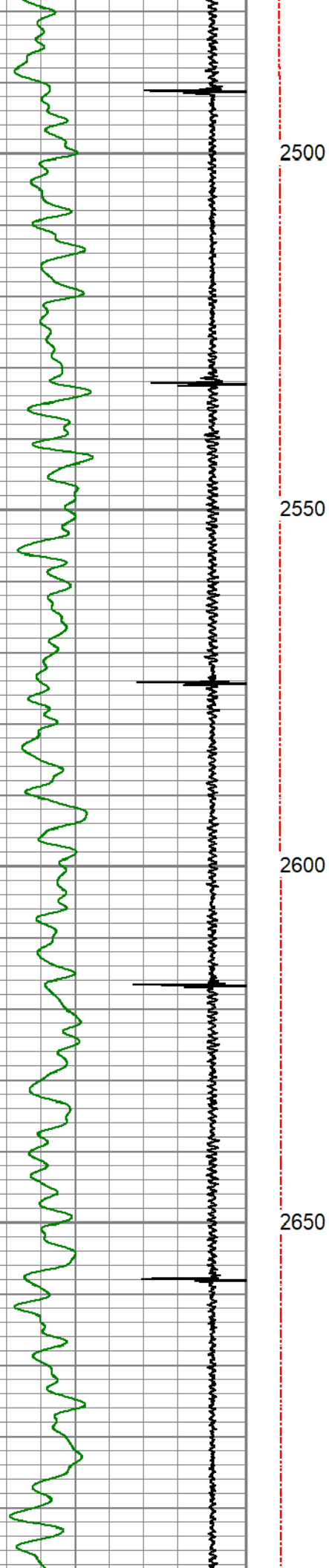
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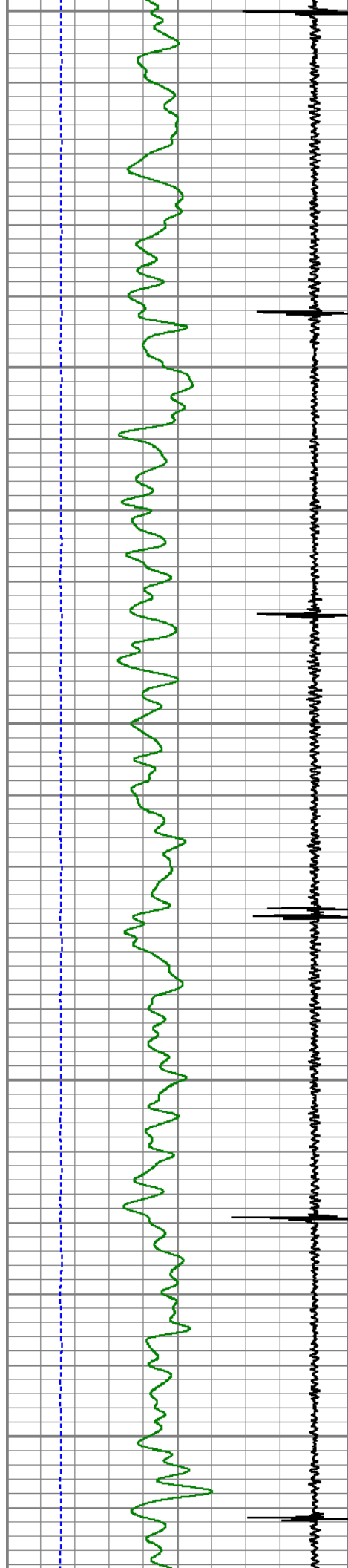
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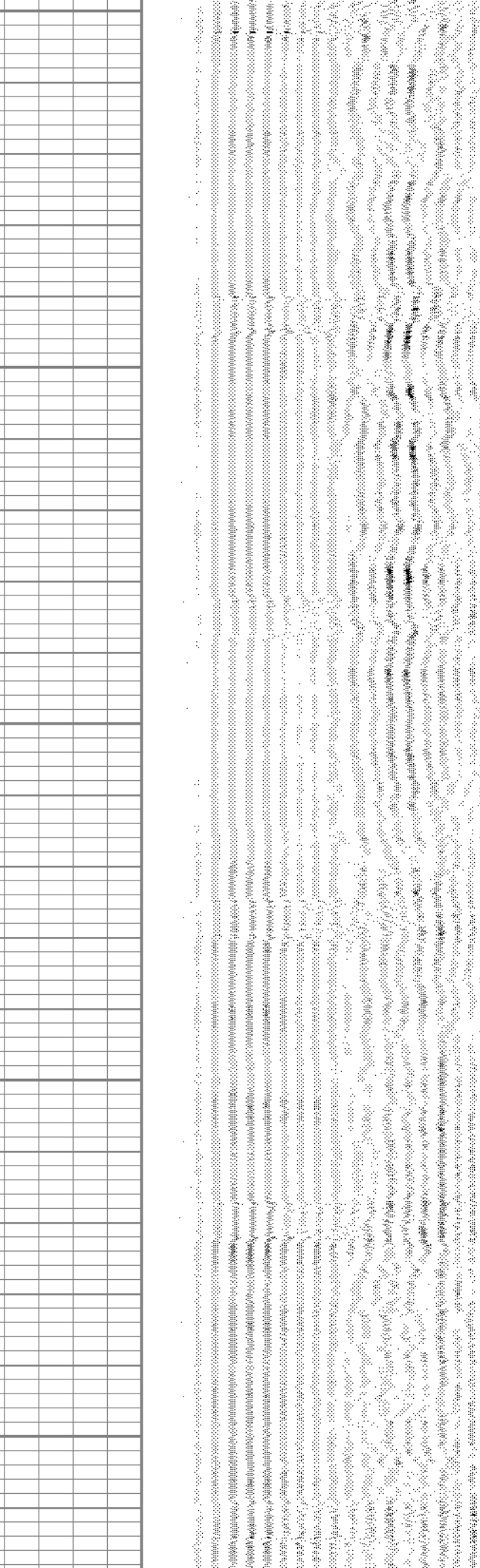
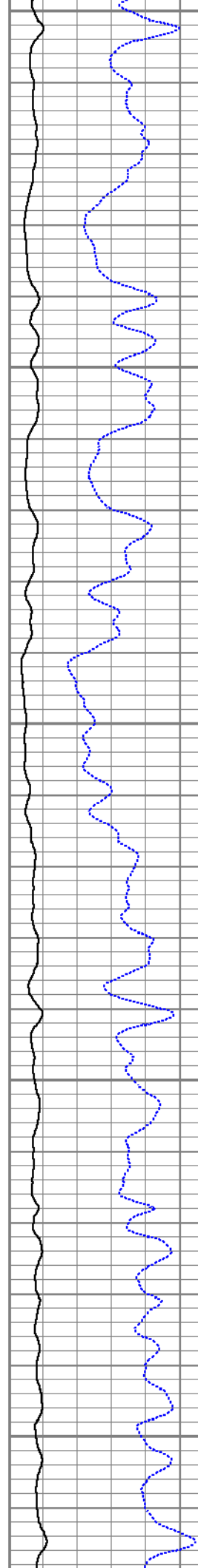
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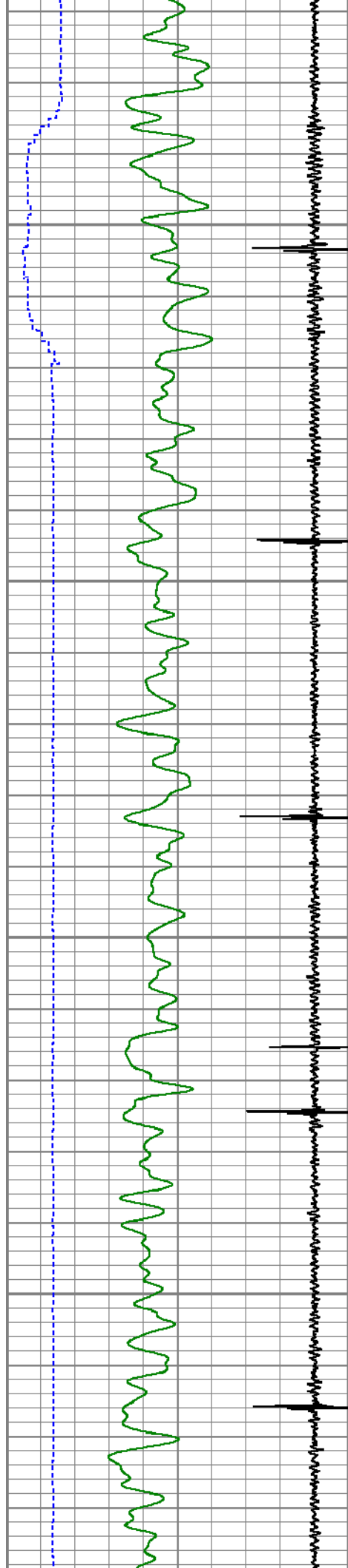






2700  
2750  
2800  
2850  
2900



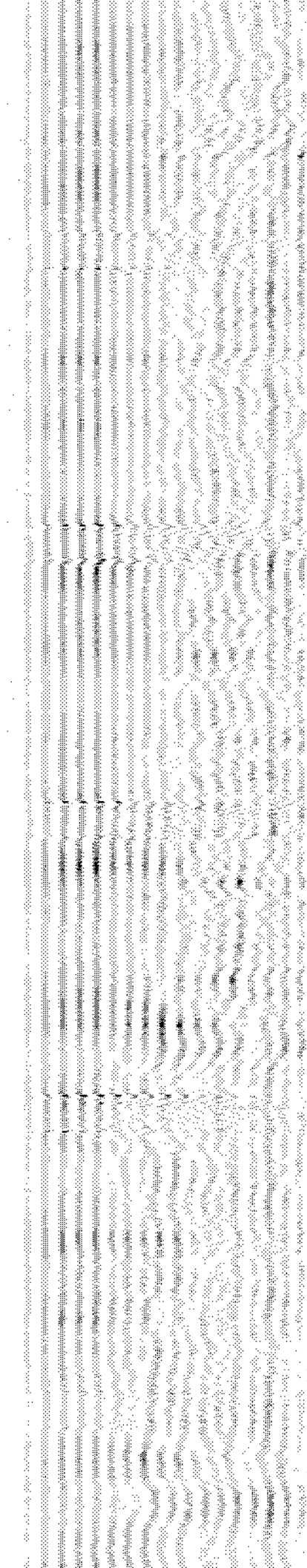
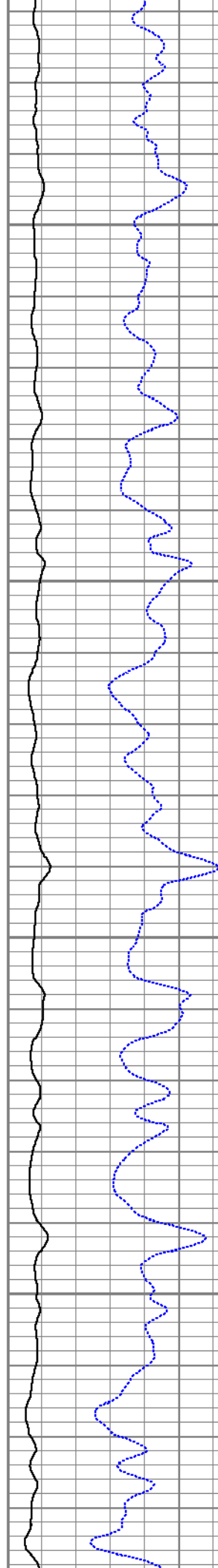


2950

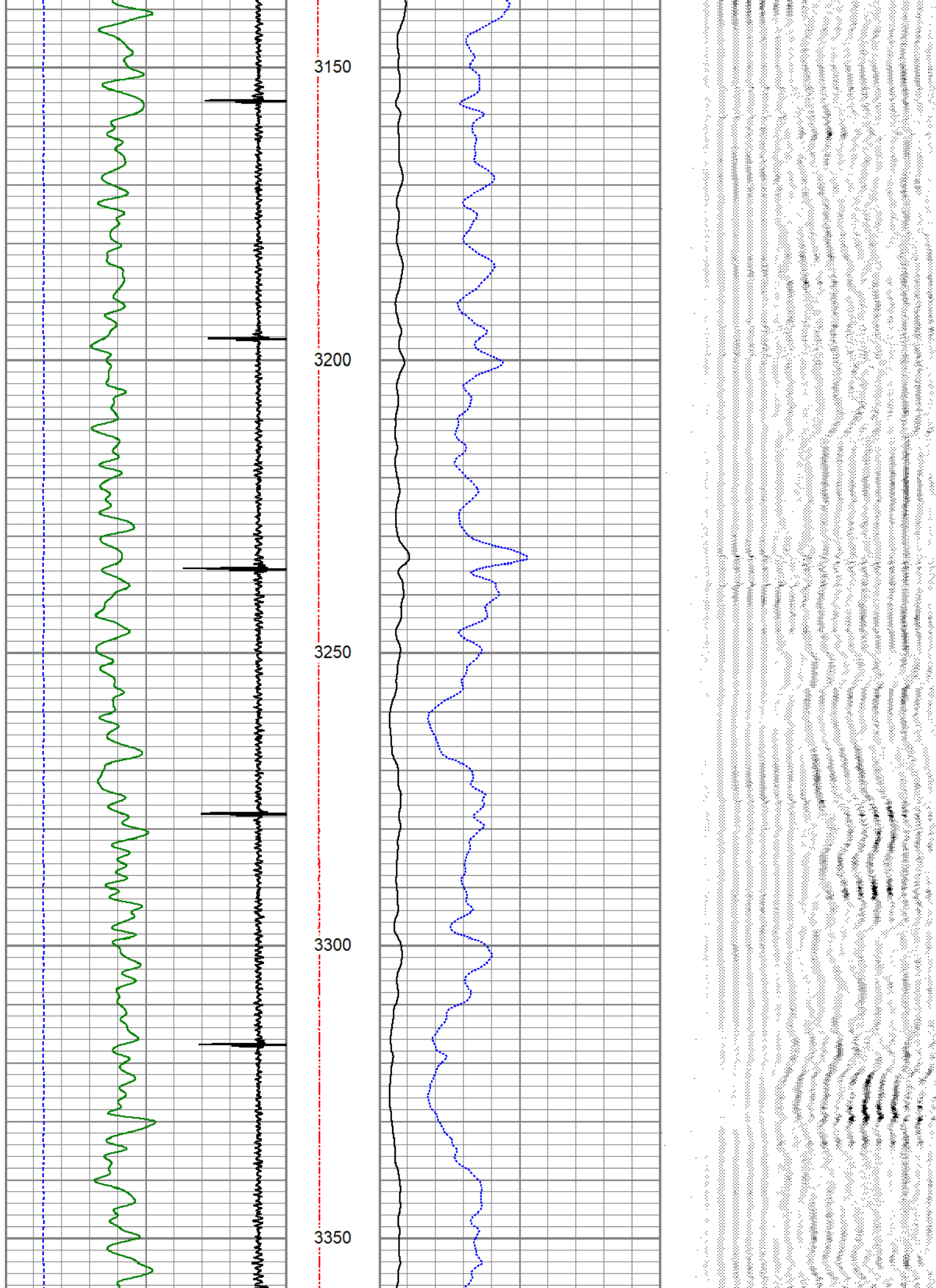
3000

3050

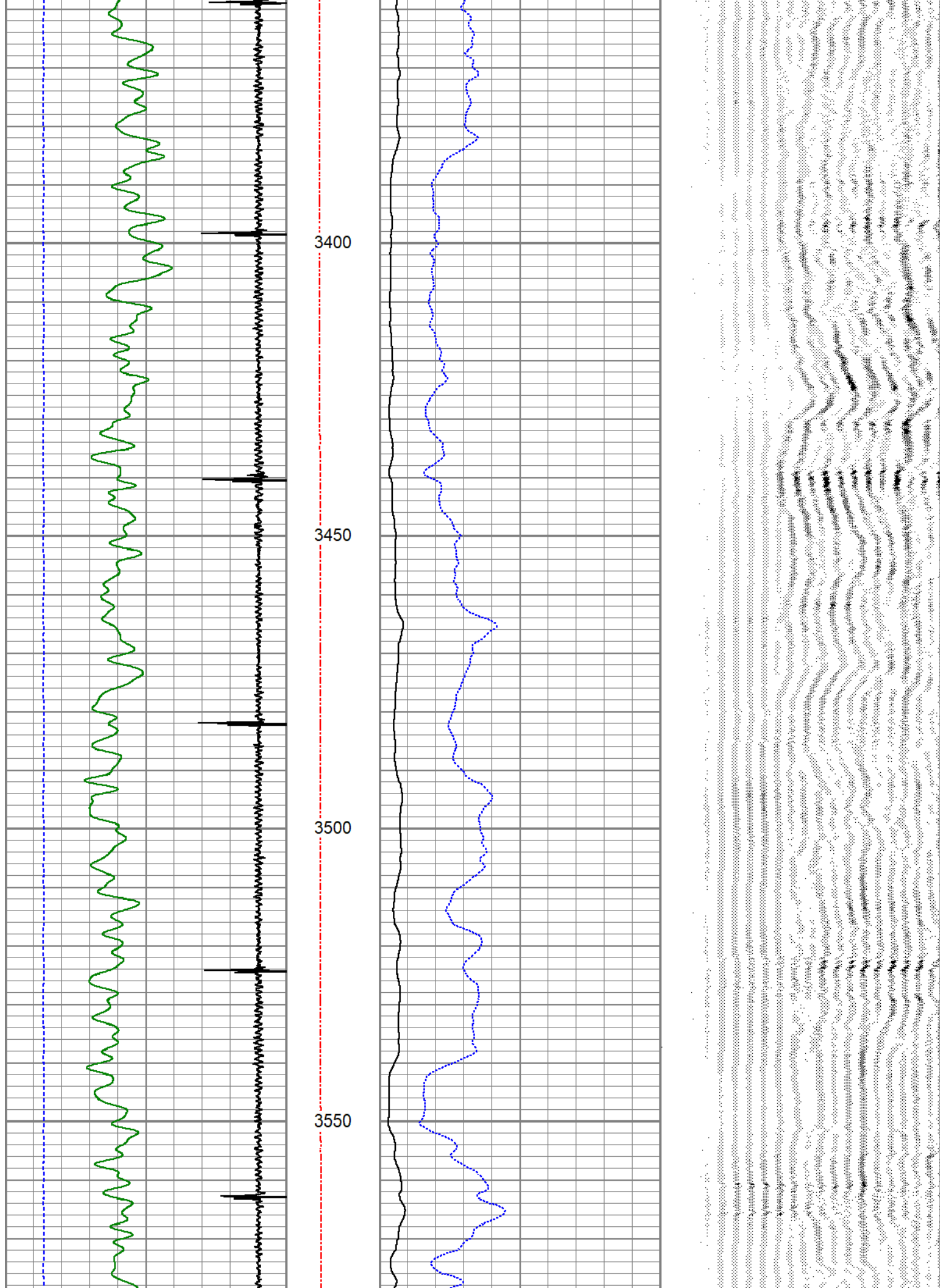
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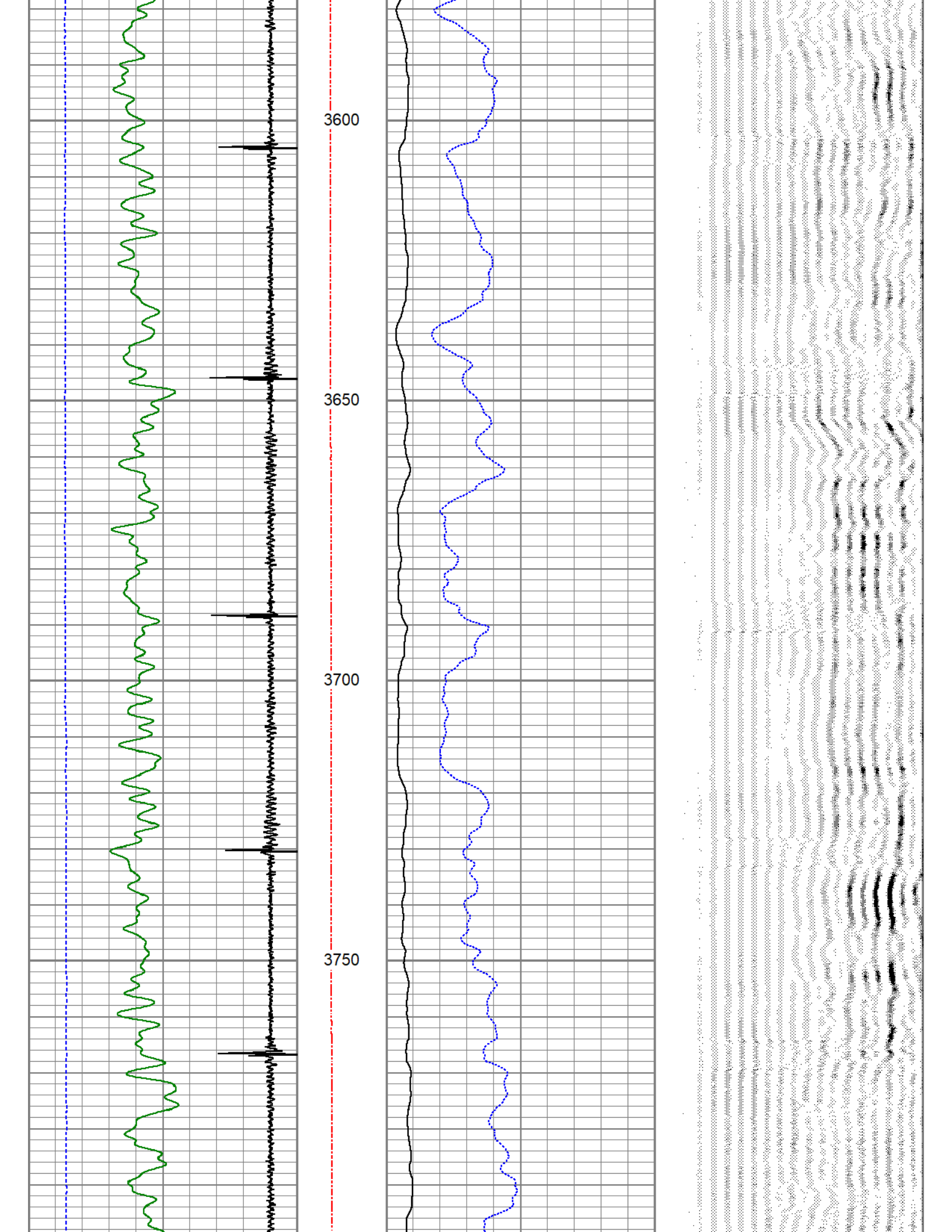


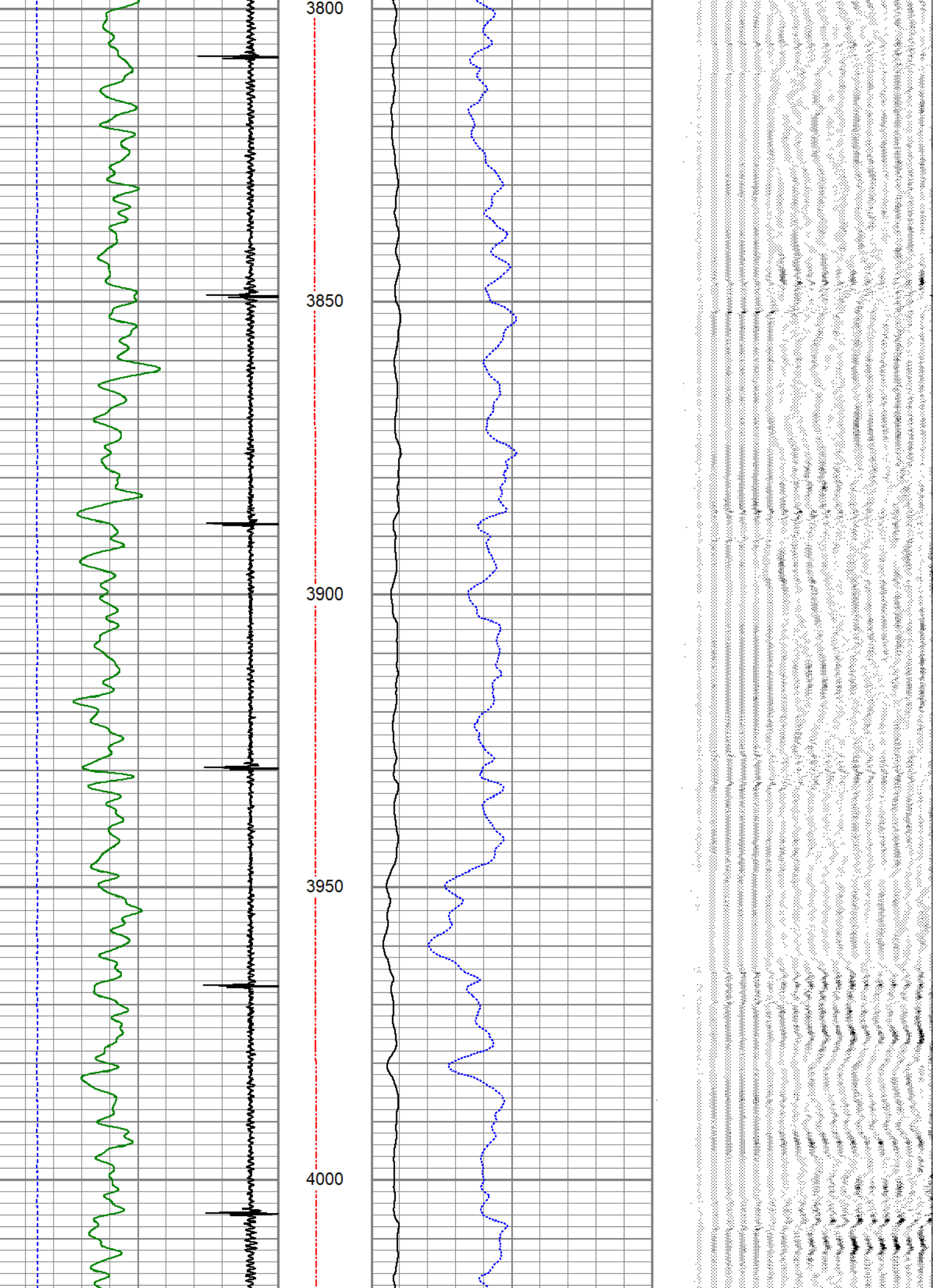


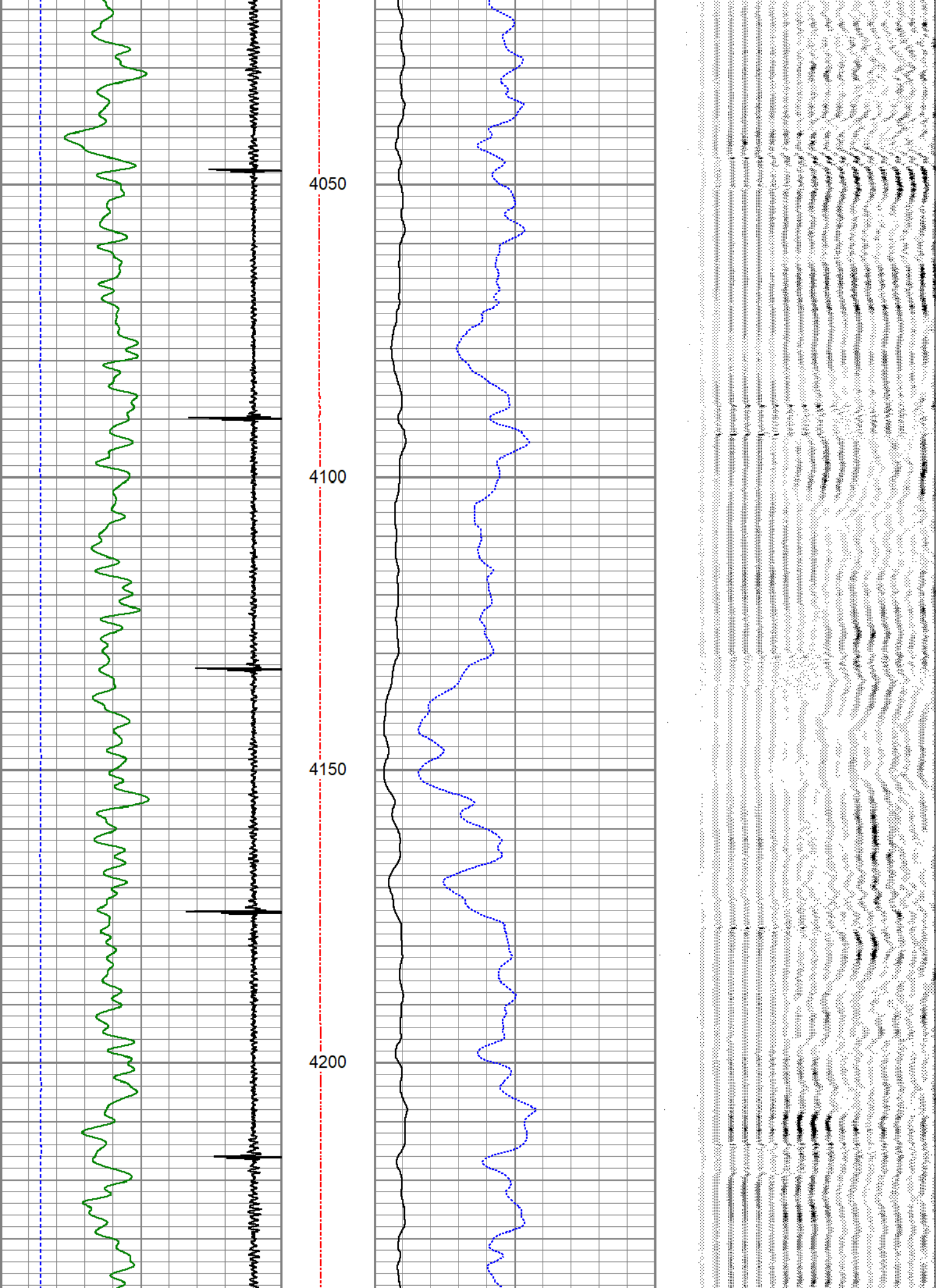




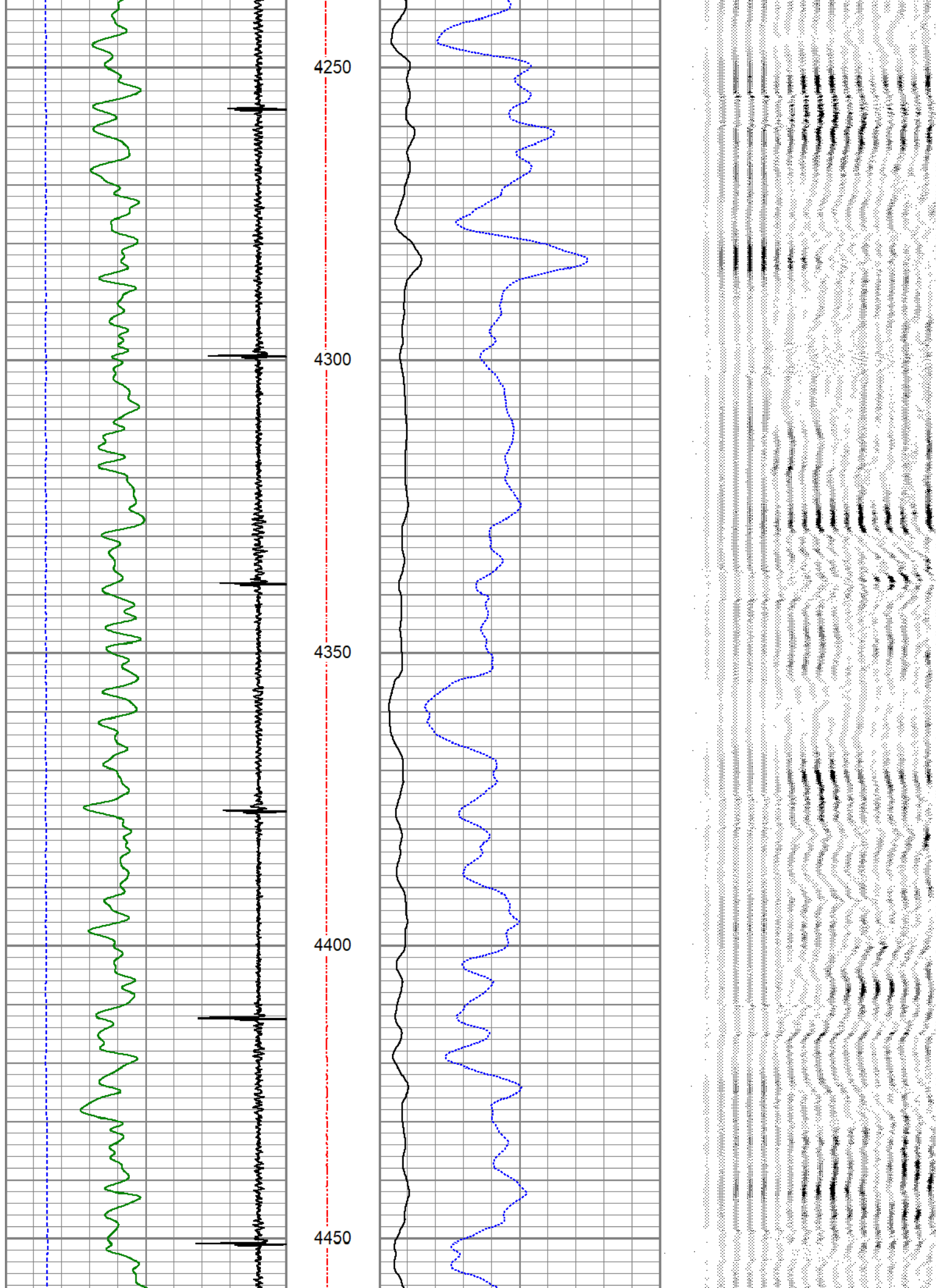




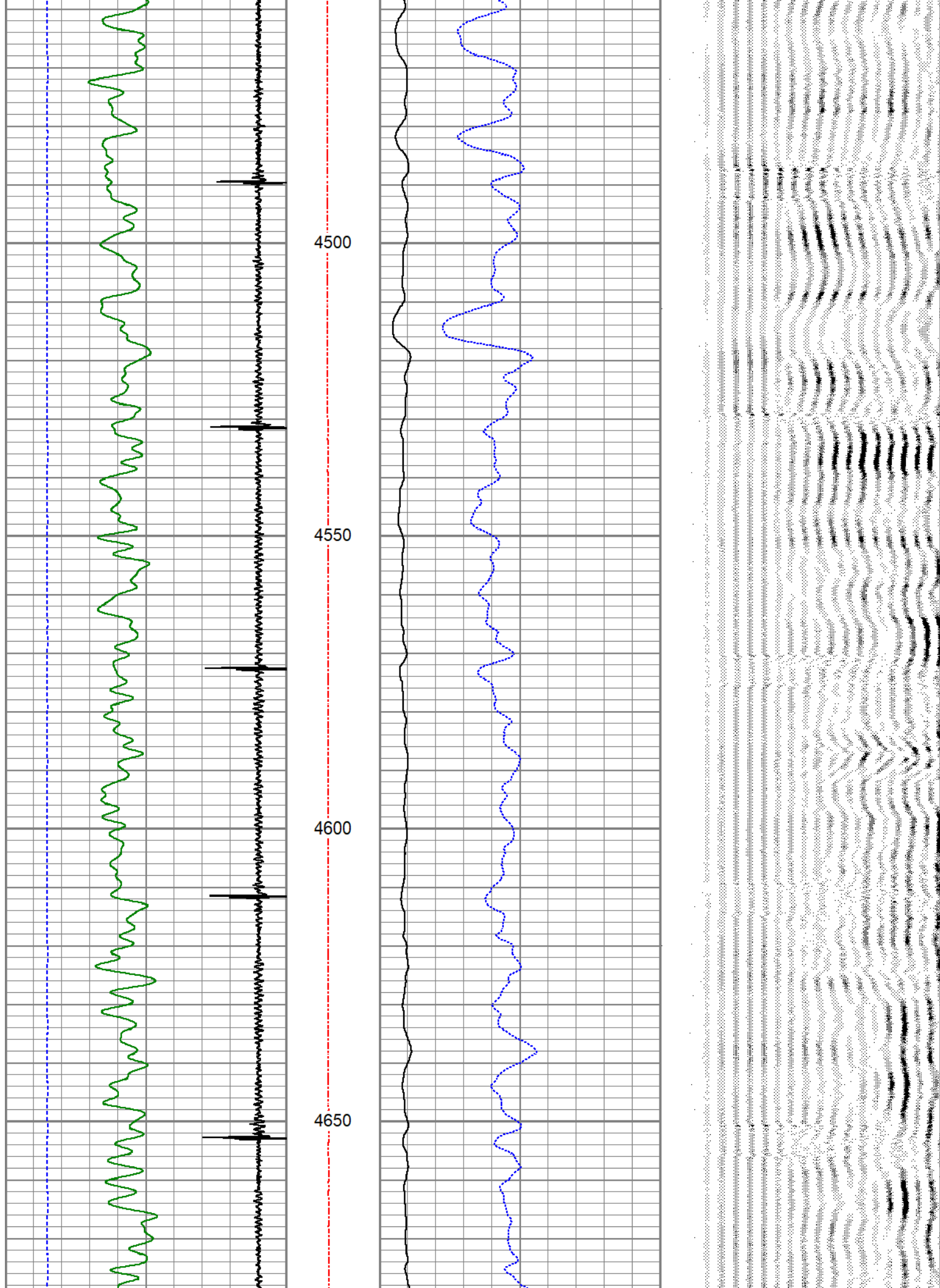


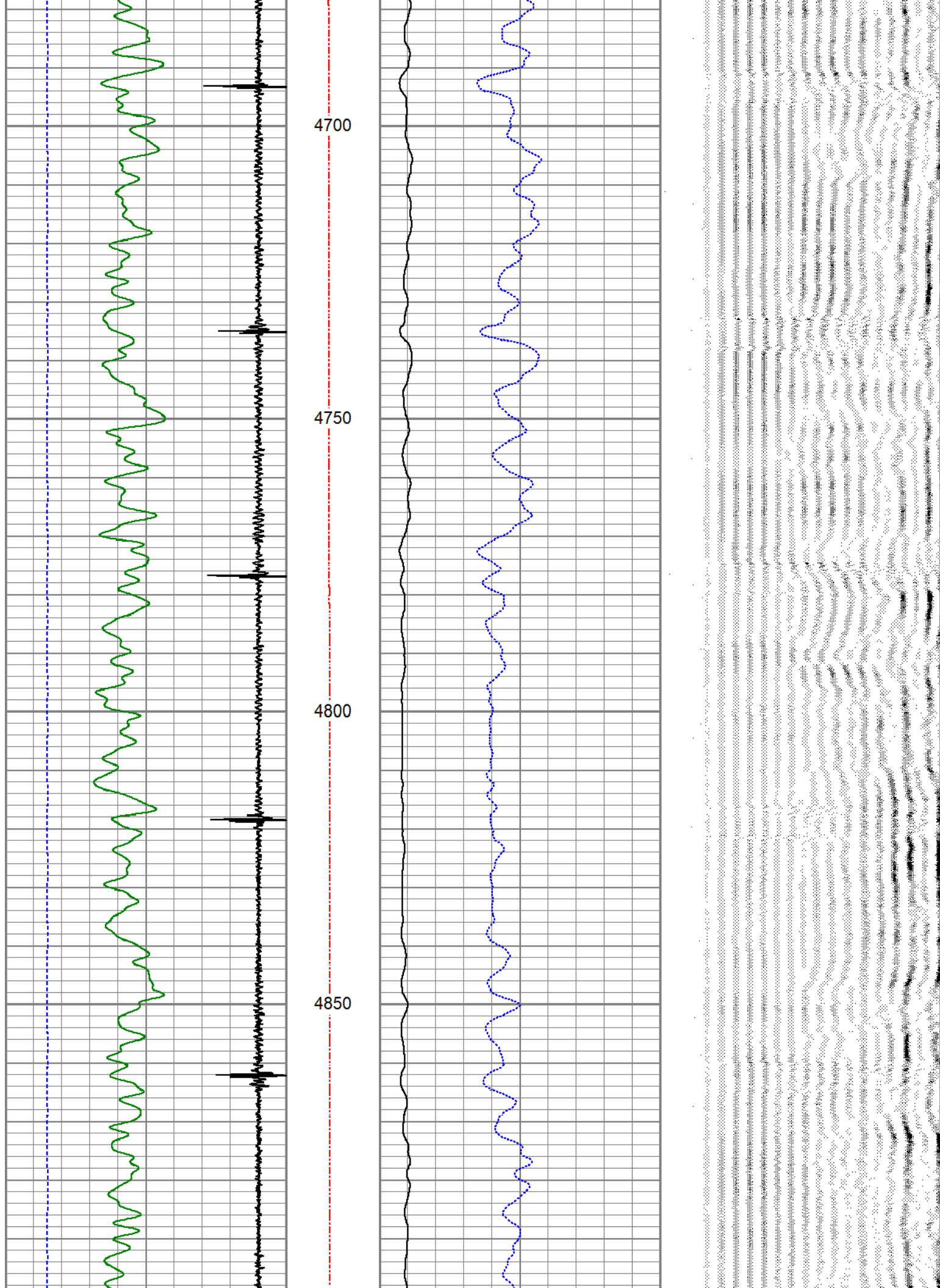


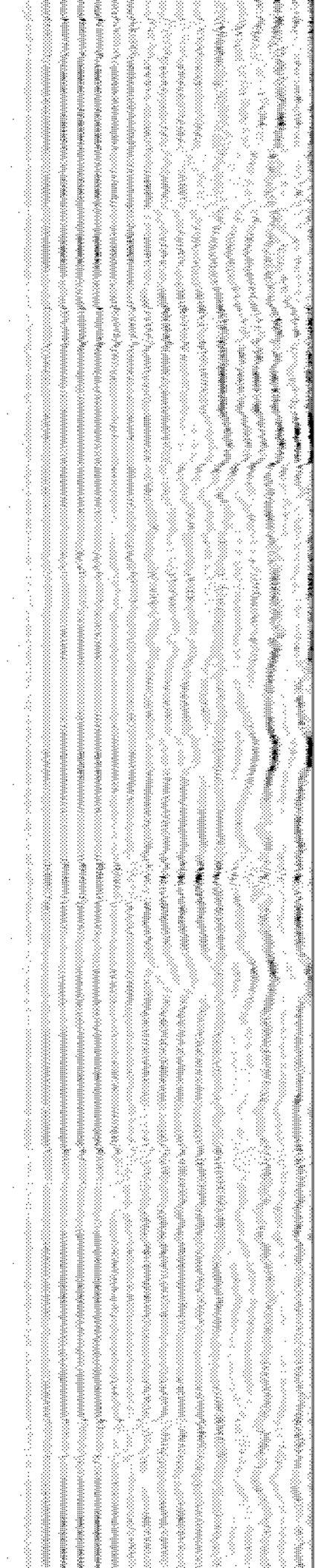
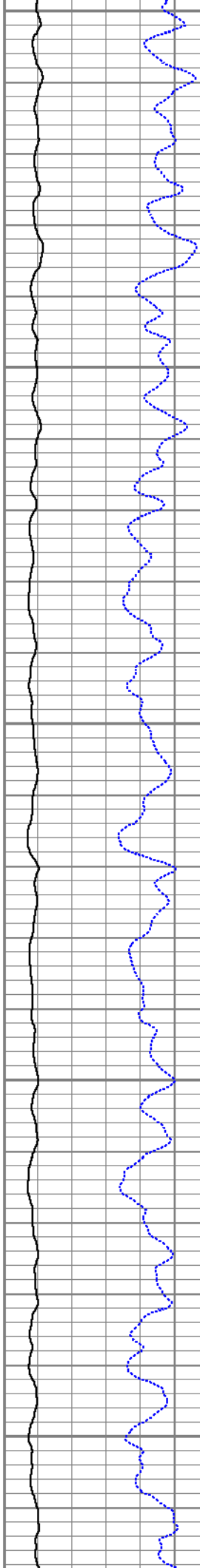
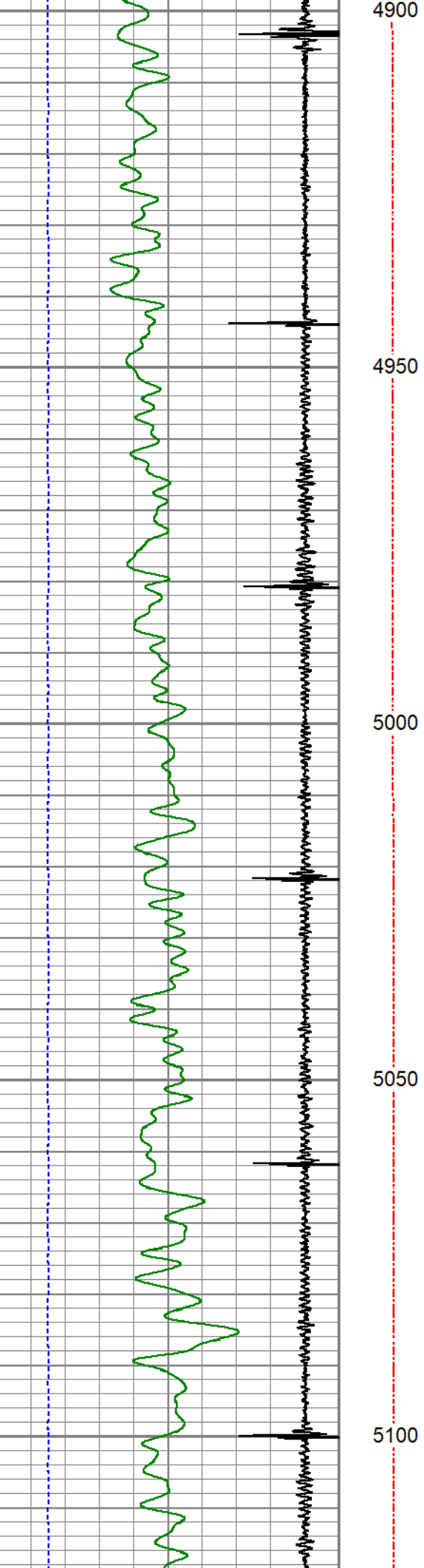




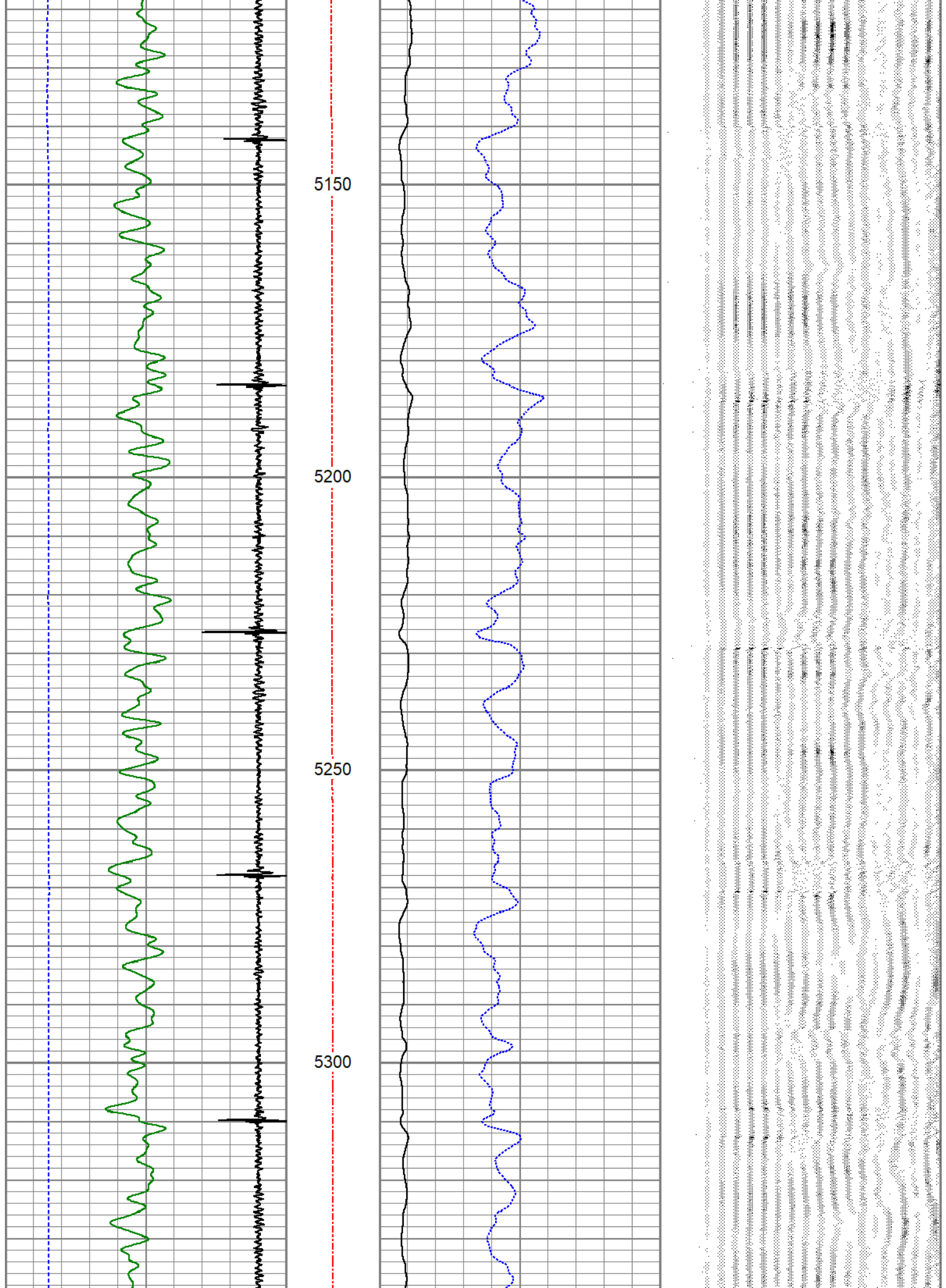


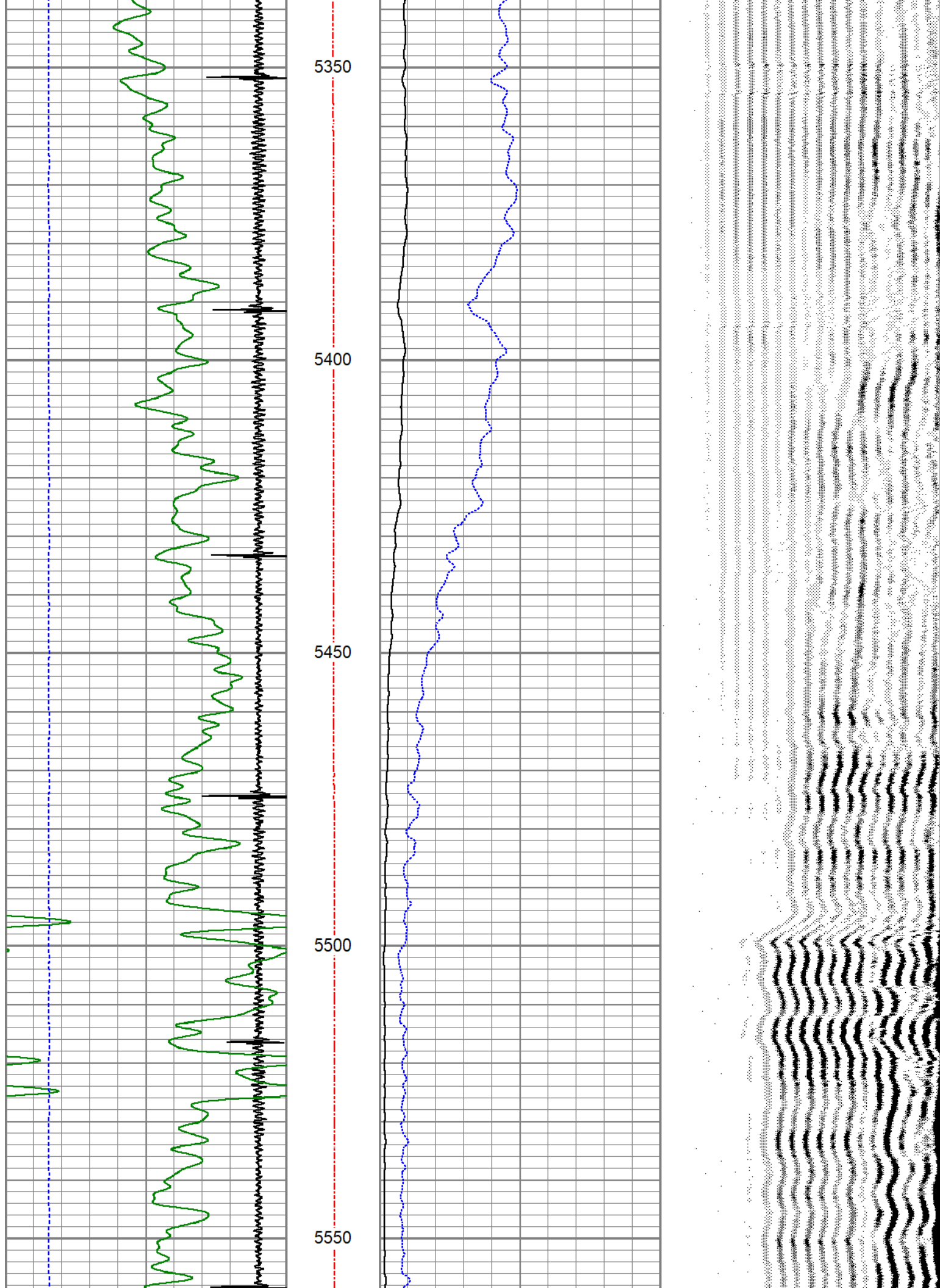




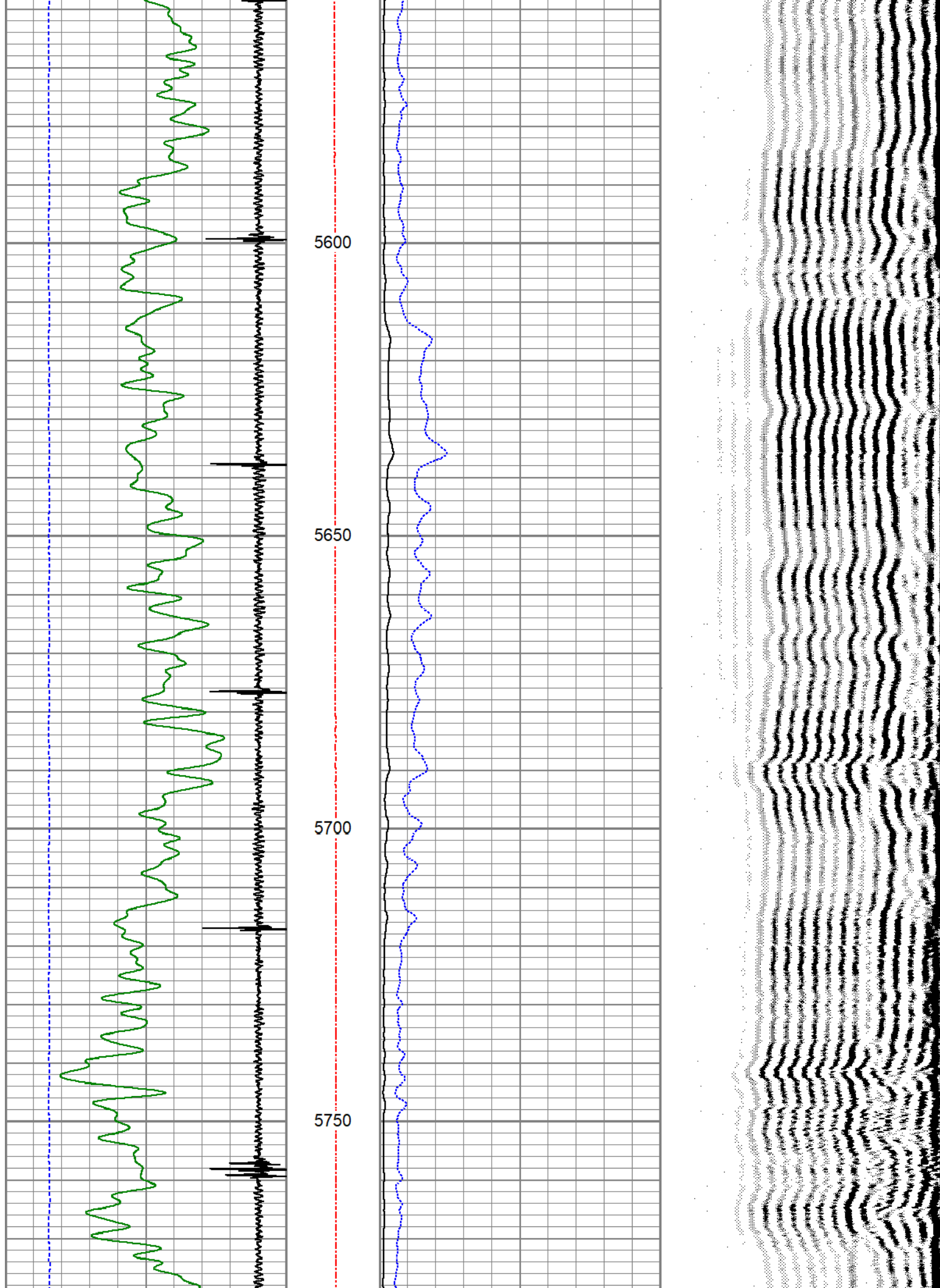


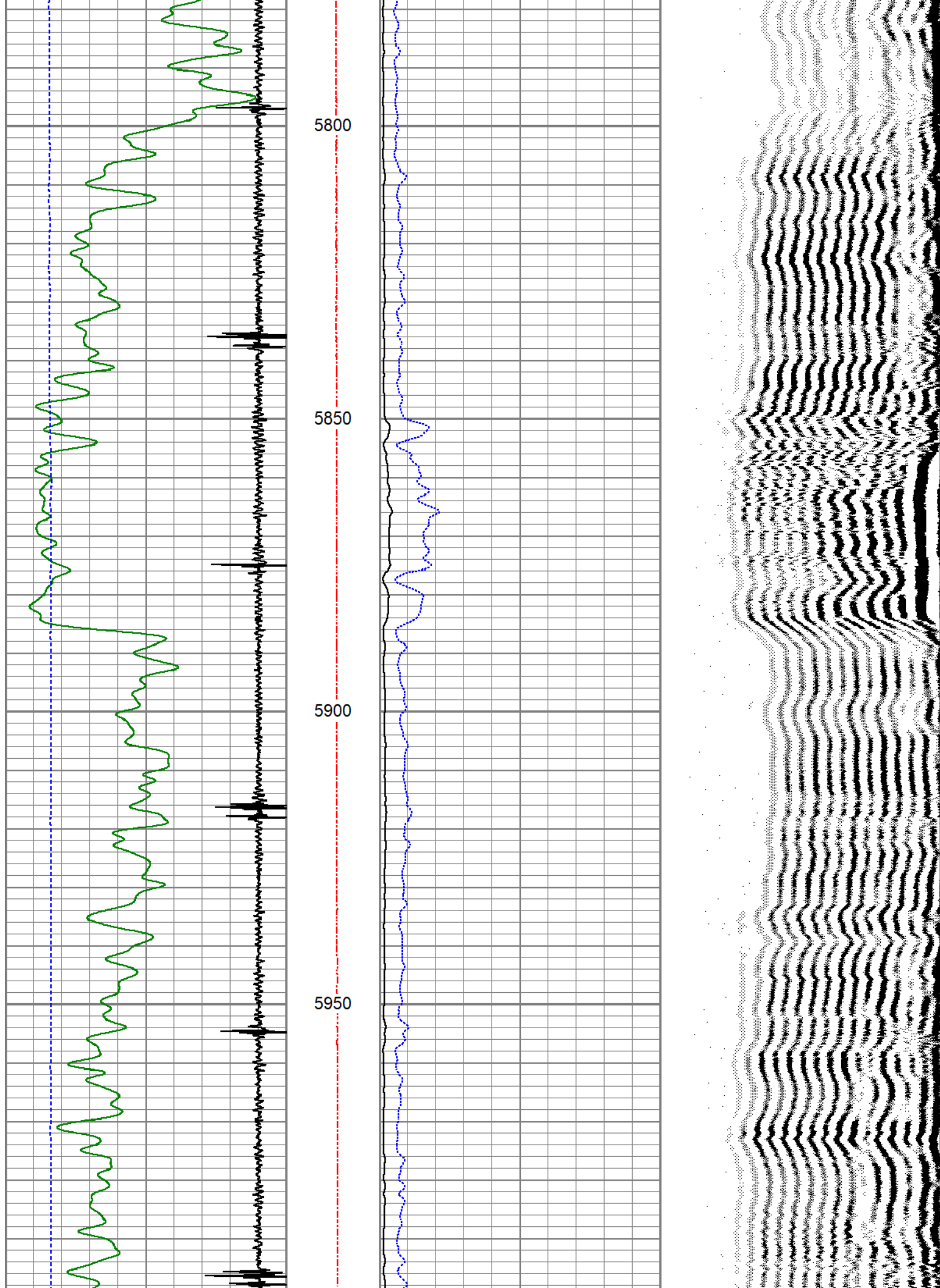


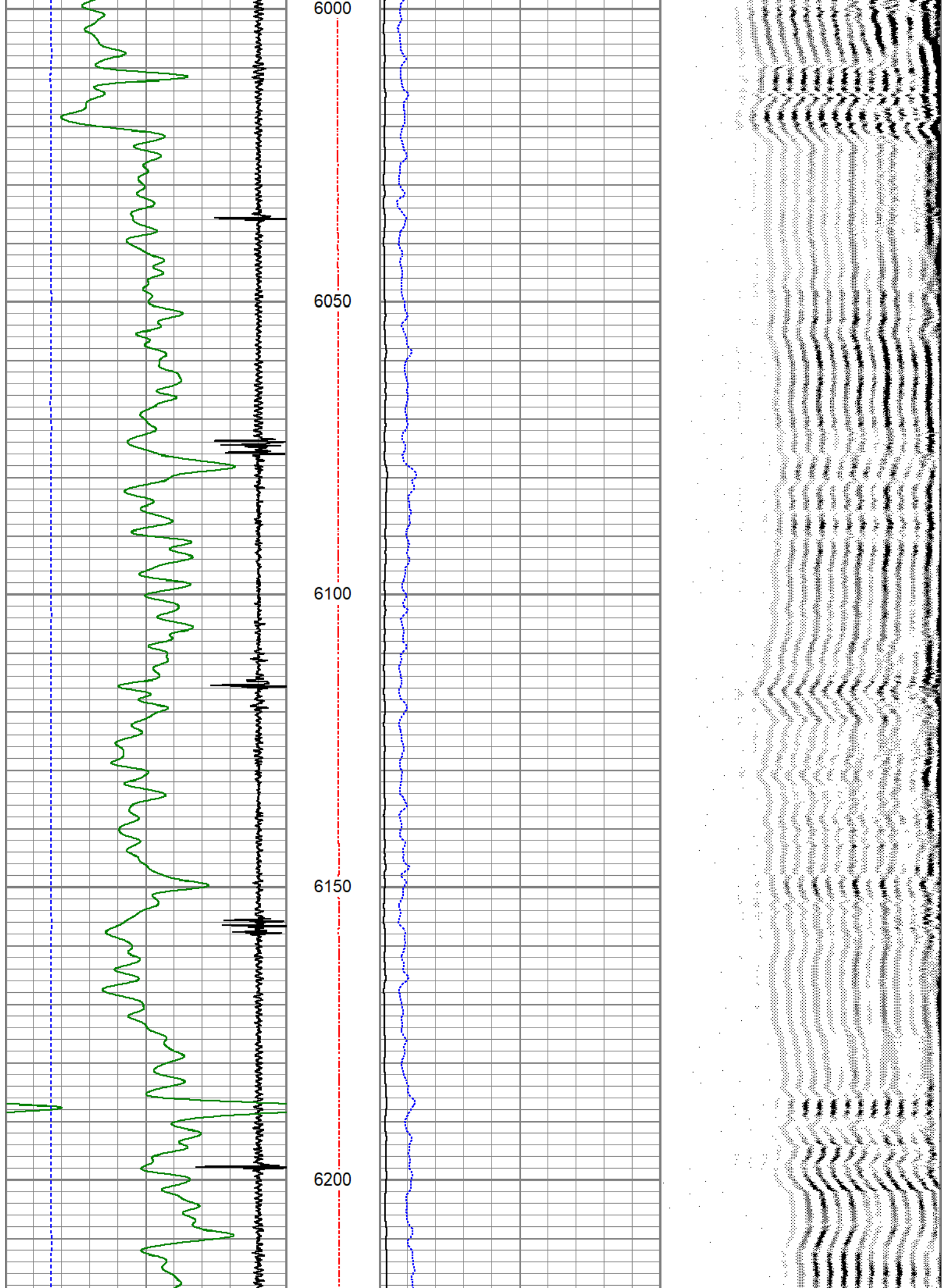


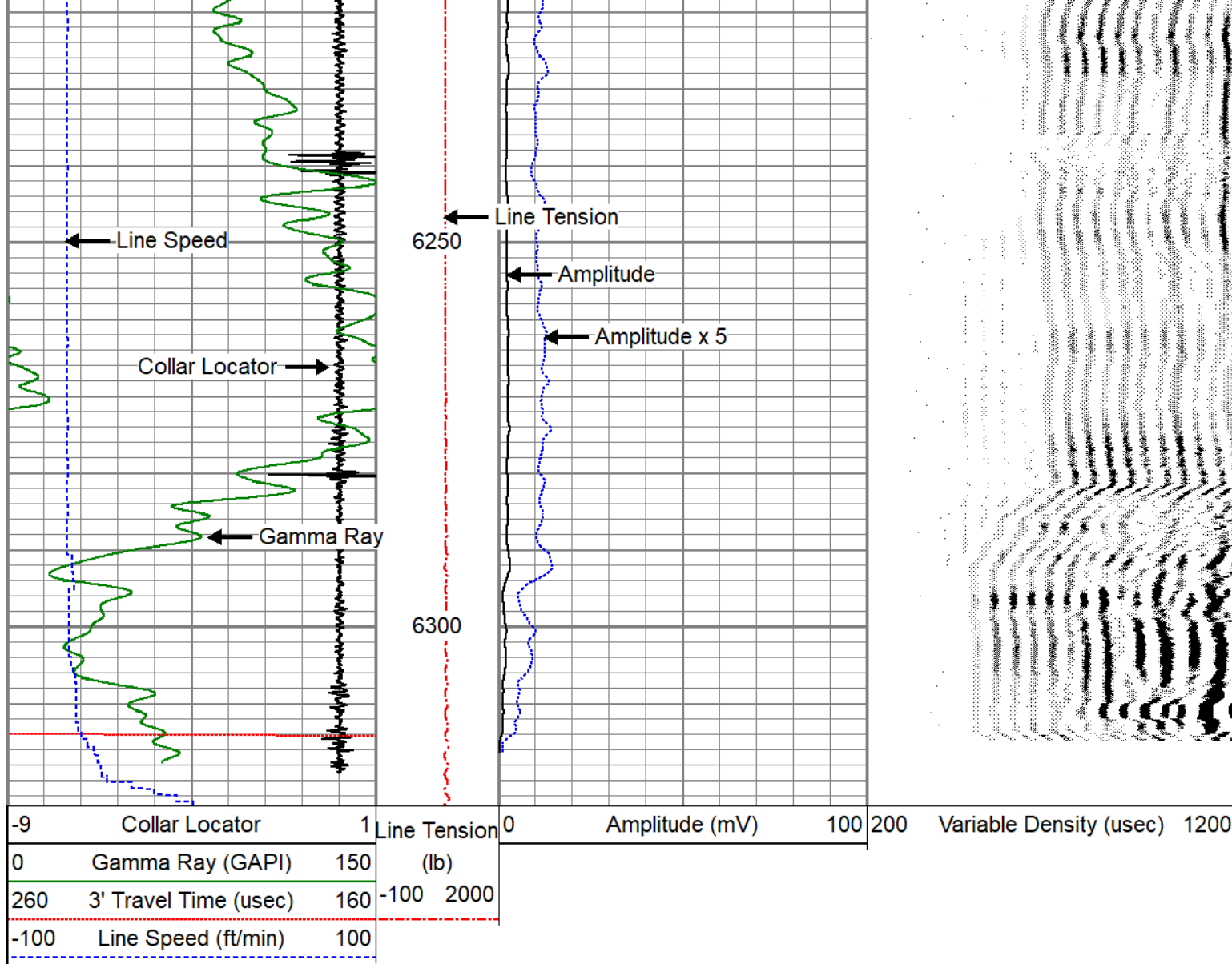













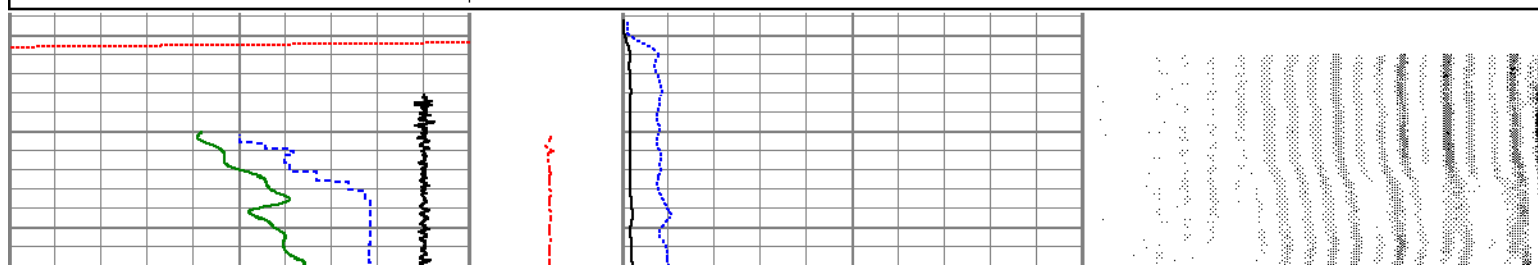
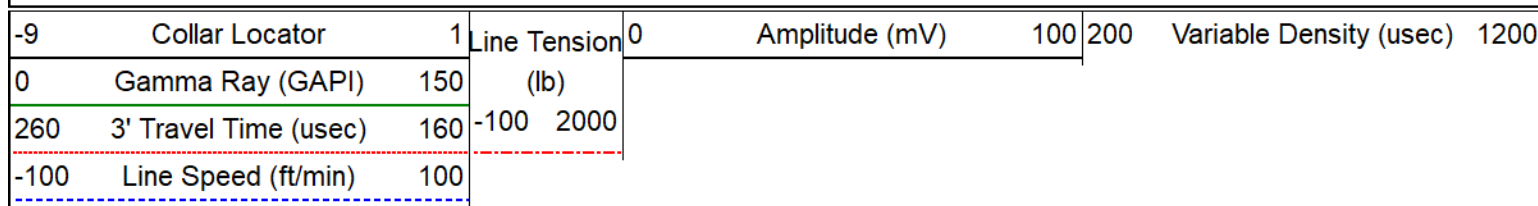


**PIONEER**  
Pioneer Energy Services

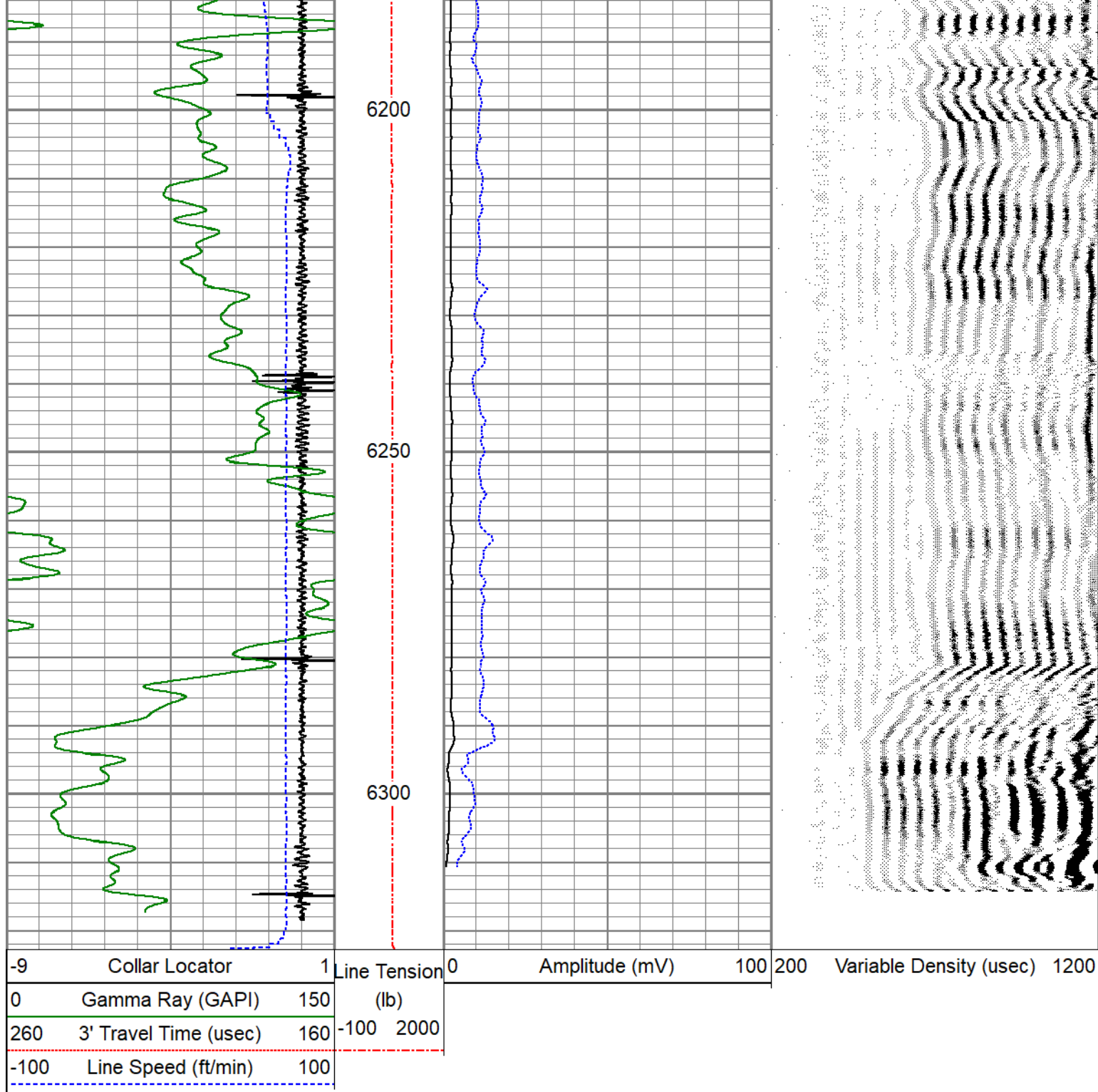
## REPEAT SECTION

0 PSI APPLIED AT SURFACE

Database File	excel_roundup_2.db
Dataset Pathname	cbl/pass3
Presentation Format	pinr_cbl
Dataset Creation	Tue Aug 04 08:13:16 2020
Charted by	Depth in Feet scaled 1:240







### Calibration Report

Database File excel\_roundup\_2.db  
 Dataset Pathname cbl/pass4  
 Dataset Creation Tue Aug 04 08:15:44 2020

### Gamma Ray Calibration Report

Serial Number: PROBE-GR-6PINBOT  
 Tool Model: 275\_6-PIN  
 Performed: Tue Aug 04 07:50:15 2020

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 1.0 cps

Sensitivity:

1.0000

GAPI/cps

## Segmented Cement Bond Log Calibration Report

Serial Number: FW1411-67  
Tool Model: RBL-DCT

Calibration Casing Diameter: 5.500 in  
Calibration Depth: 863.738 ft

Master Calibration, performed Mon Aug 03 16:40:03 2020:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.011	1.287	1.000	71.921	55.608	0.363
CAL	1.486	1.486				
5'	0.008	1.259	1.000	71.921	56.691	0.524
SUM						
S1	0.109	1.303	0.000	100.000	83.777	-9.141
S2	0.016	1.291	0.000	100.000	78.432	-1.256
S3	0.014	1.300	0.000	100.000	77.753	-1.076
S4	0.014	1.308	0.000	100.000	77.295	-1.065
S5	0.012	1.300	0.000	100.000	77.662	-0.924
S6	0.013	1.286	0.000	100.000	78.587	-1.031
S7	0.014	1.285	0.000	100.000	78.687	-1.131
S8	0.014	1.299	0.000	100.000	77.818	-1.083

Air Zero Calibration, performed Mon Aug 03 16:41:04 2020:

	Raw (v)		Calibrated (v)		Results	
	Zero		Zero		Offset	
3'	0.015		0.000			-0.004
5'	0.031		0.000			-0.023
SUM						
S1	0.029		0.000			0.080
S2	0.014		0.000			0.002
S3	0.015		0.000			-0.001
S4	0.015		0.000			-0.001
S5	0.014		0.000			-0.003
S6	0.013		0.000			0.000
S7	0.026		0.000			-0.012
S8	0.016		0.000			-0.002

## Temperature Calibration Report

Serial Number: FW1411-67  
Tool Model: RBL-DCT  
Performed: (Not Performed)

	Reference	Reading
Low Reference:	0.00 degF	0.00 degF
High Reference:	1.00 degF	1.00 degF
Gain:	1.00	
Offset:	0.00	
Delta Spacing	1	



Company	PUBLIC SERVICE COMPANY OF CO.		
Well	STORAGE UNIT #2		
Field	ROUNDUP		
County	MORGAN		
State	COLORADO	Country	USA