



RADIAL ANALYSIS BOND LOG

Baker Atlas

File No:

Company

EXXONMOBIL PRODUCTION COMPANY

Well

FRU 197-2845

Field

FREEDOM UNIT

Country

RIO BLANCO

State

COLORADO

API No.
06103116330000

Location:

2357' FSIL & 234' FILL

Other Services

RP4

SEC: 28

TWP: 15

RGE: 97W

Permanent Datum

G.L.

Elevation

6082 ft

Log Measured From

K.B.

27 ft

Above P. D.

Drill Measured From

KELLY BUSHING

Elevations

KB 6108 ft

DF 6108 ft

GL 6082 ft

Date
06-SEPT-2010

Run

ONE

Service Order

576848

Depth Driller

12525 ft

Depth Logger

12386 ft

Bottom Logged Interval

12386 ft

Top Logged Interval

8295 ft

Time Started

12:00

Time Finished

16:00

Operator Rig Time

4 HRS

Type of Fluid in Hole

WATER

Fluid Density

N/A

Fluid Salinity

N/A

Fluid Level

FULL

Logged Cement Top

N/A

Wellhead Pressure

0 psi

Maximum Hole Deviation

N/A

Nominal Logging Speed

45 fpm

Maximum Recorded Temperature

N/A

Reference Log

N/A

Equipment

4271

Recorded By

TIM KAUTT

Location

GRAND JCT, CO

Witnessed By

MR. JIM JONES

- FOLD HERE

In making interpretations of logs, our employees will give the customer the benefit of their best judgement. But since all interpretations are opinions based on inferences from electrical or other measurements, we cannot, and we do not guarantee the accuracy or correctness of any interpretation. We shall not be liable or responsible for any loss, cost, damages, or expenses whatsoever incurred or sustained by the customer resulting from any interpretation made by any of our employees.

Borehole Record

Bit Size	From	To
8.125 in		

Casing Record

Size	Weight	Grade	From	To
10.75 in	45.5 lbm/ft	J-55	SURFACE	3682 ft
4.5 in	15.1 lbm/ft	P-110	SURFACE	12525 ft

Remarks

SHORT JOINTS ARE MARKED ON LOG
THE CREW OF 4271 THANKS YOU.

Equipment Data

Run	Trip	Tool	Series Number	Serial Number	Position

1	1	MANUREL	1426XA	10154957	CENTRALIZED
1	1	GAMMA RAY	2458XA	10417457	CENTRALIZED

MAIN SECTION

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	314.263	usec	6306.250	12389.000
RAL	Amp Gate Start Near	197.754	usec	6306.250	12389.000
RAL	Amp Gate Start Radial	197.754	usec	6306.250	12389.000
RAL	Amp Gate Width Far	25.000	usec	6306.250	12389.000
RAL	Amp Gate Width Near	25.000	usec	6306.250	12389.000
RAL	Amp Gate Width Radial	25.000	usec	6306.250	12389.000
RAL	casing od	4.500	inches	6306.250	12389.000
RAL	casing wt	15.100	lbm/ft	6306.250	12389.000
RAL	FB Start Far	289.263	usec	6306.250	12389.000
RAL	FB Start Near	172.754	usec	6306.250	12389.000
RAL	FB Start Radial	172.754	usec	6306.250	12389.000
RAL	FB Thresh Far	15.000	mV	6306.250	12389.000
RAL	FB Thresh Near	10.000	mV	6306.250	12389.000
RAL	FB Thresh Radial	10.000	mV	6306.250	12389.000
RAL	Fluid Travel Time	200.000	usec/ft	6306.250	12389.000

DEPTH OFFSETS (for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-12.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	ARB	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-11.360	AFAR	SIG	TT5			
1426XA	-7.250	GCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

Created by : RAL, v4.8.007

Plotted by : PlotMgr, v5.4.504

Company : EXXONMOBIL PRODUCTION COMPANY

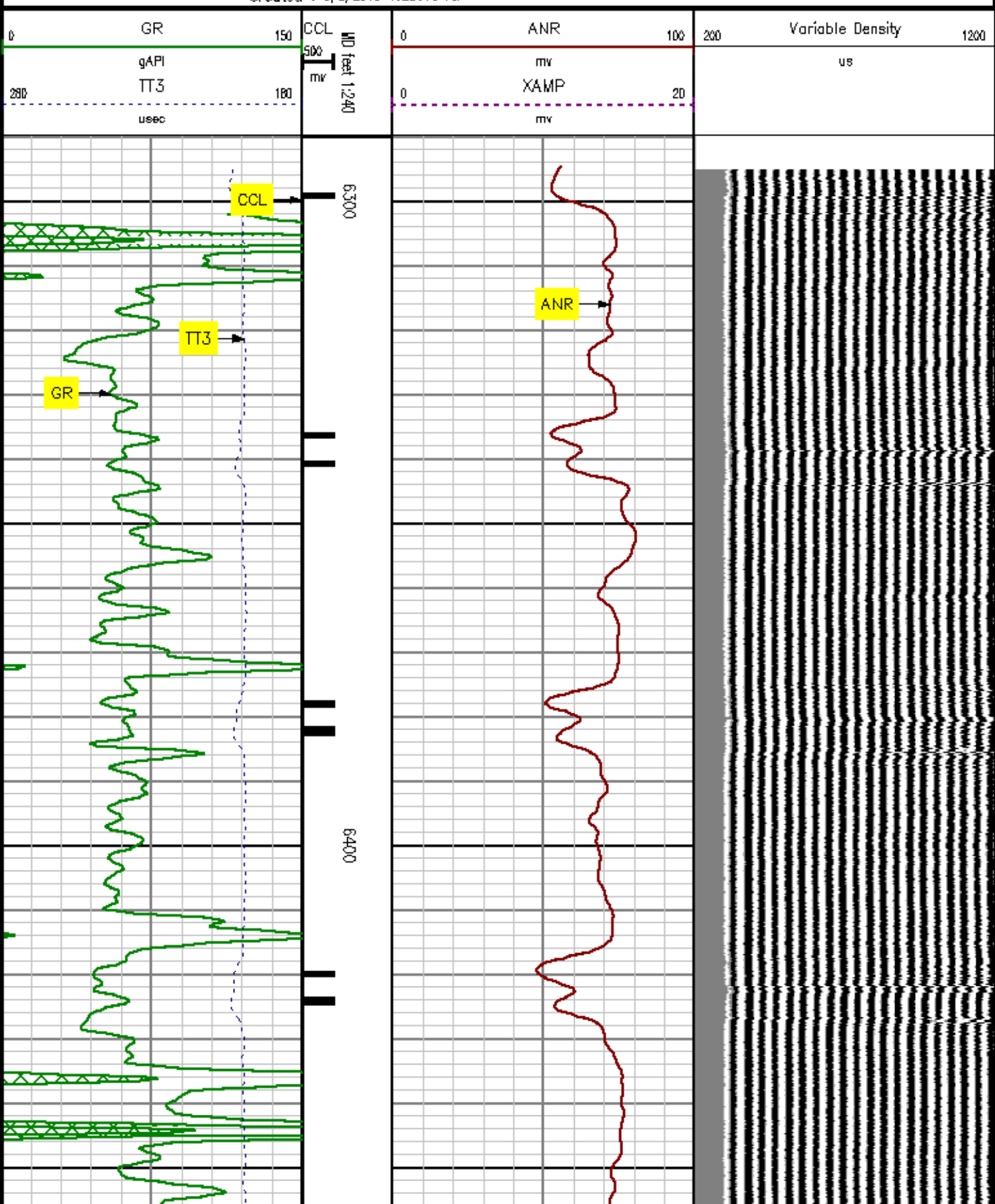
Well : FRU 197-28A5

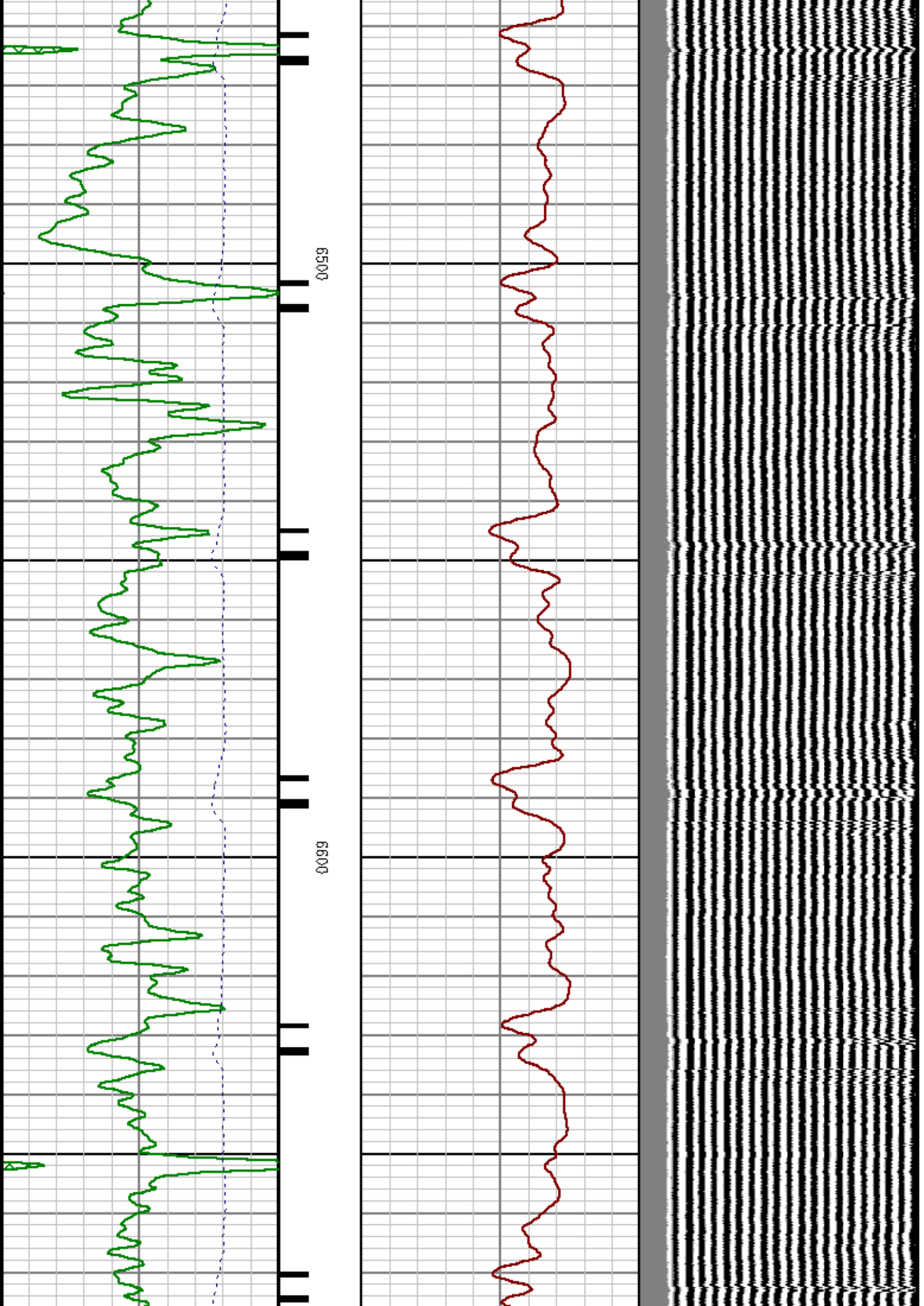
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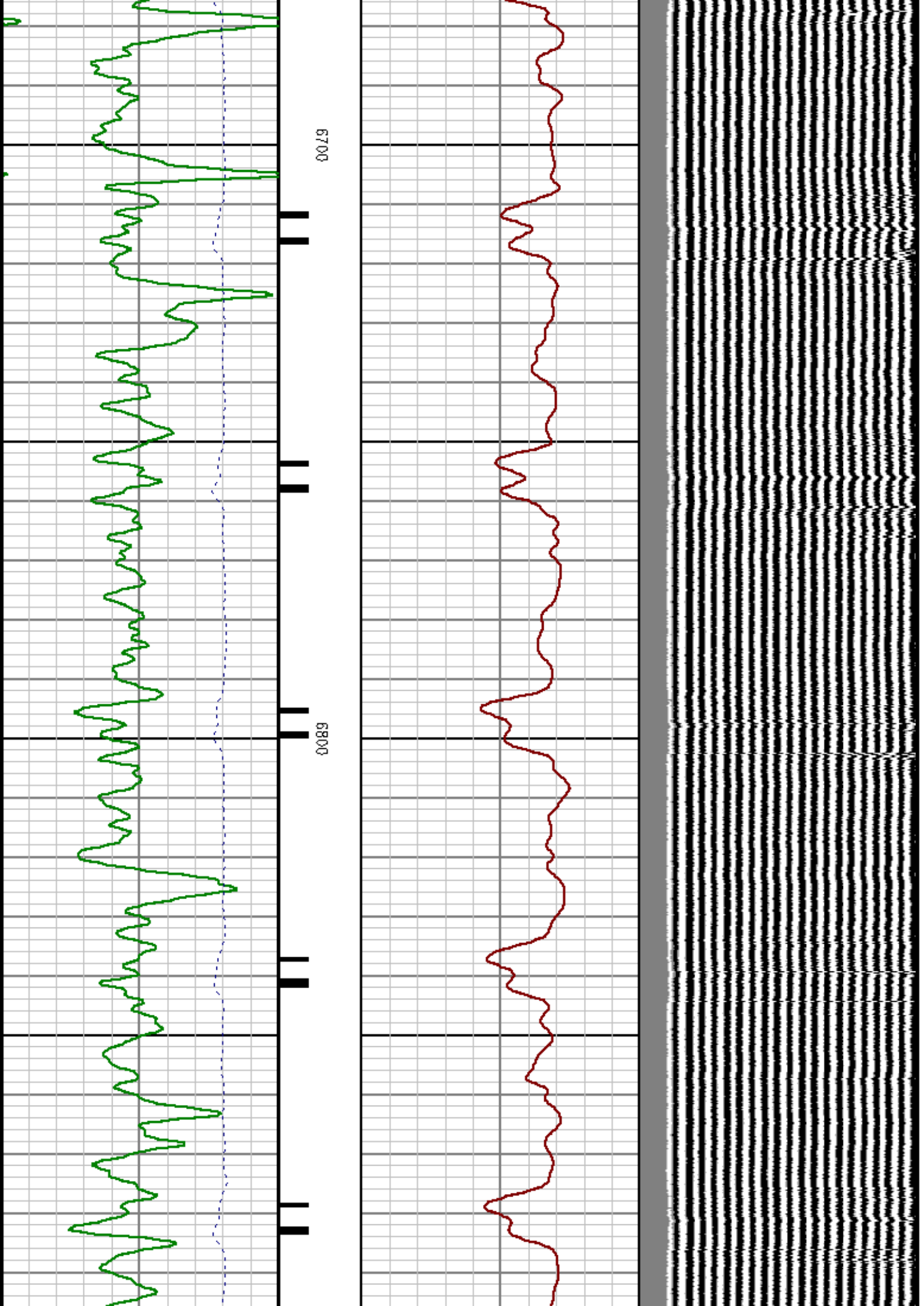
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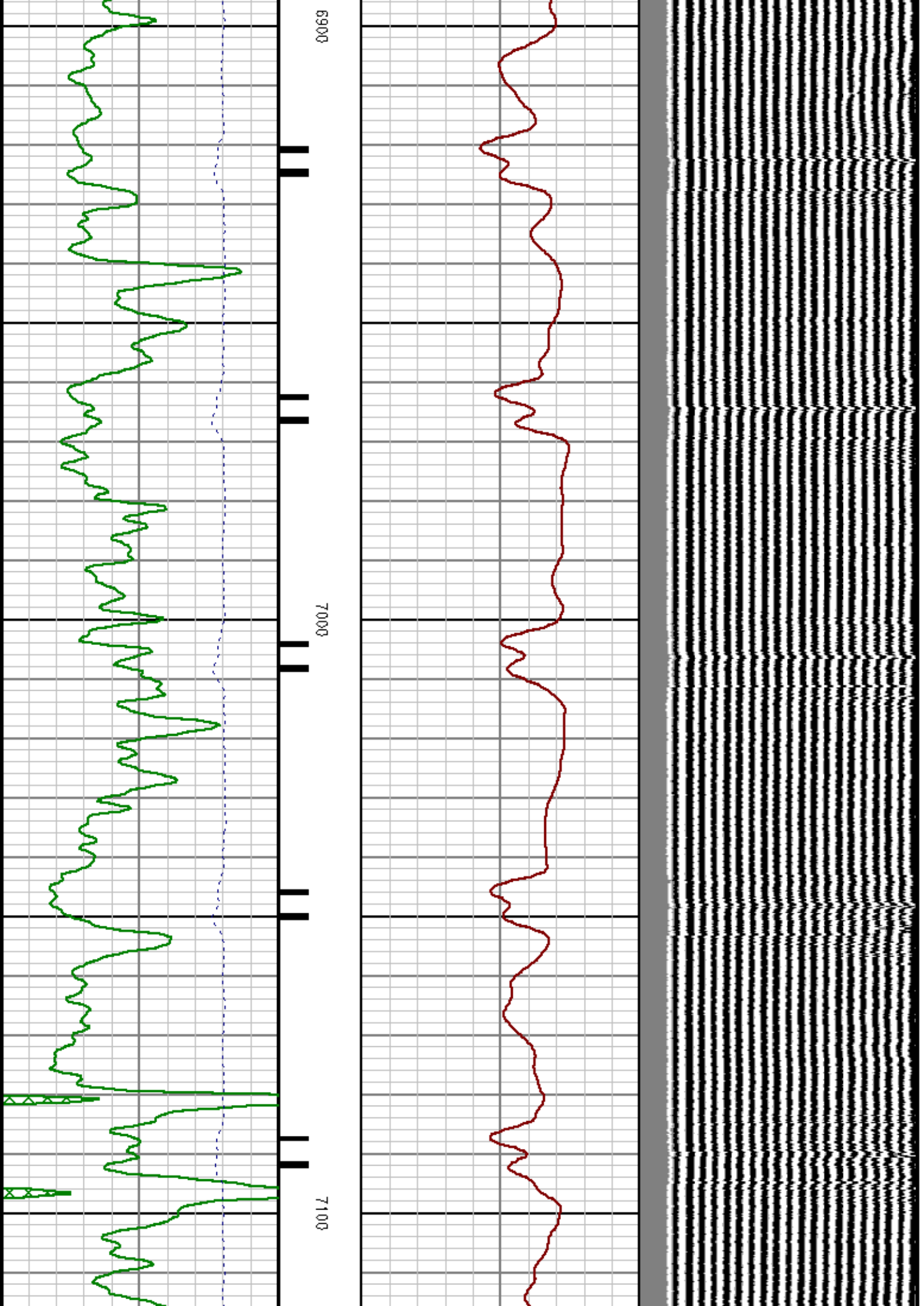
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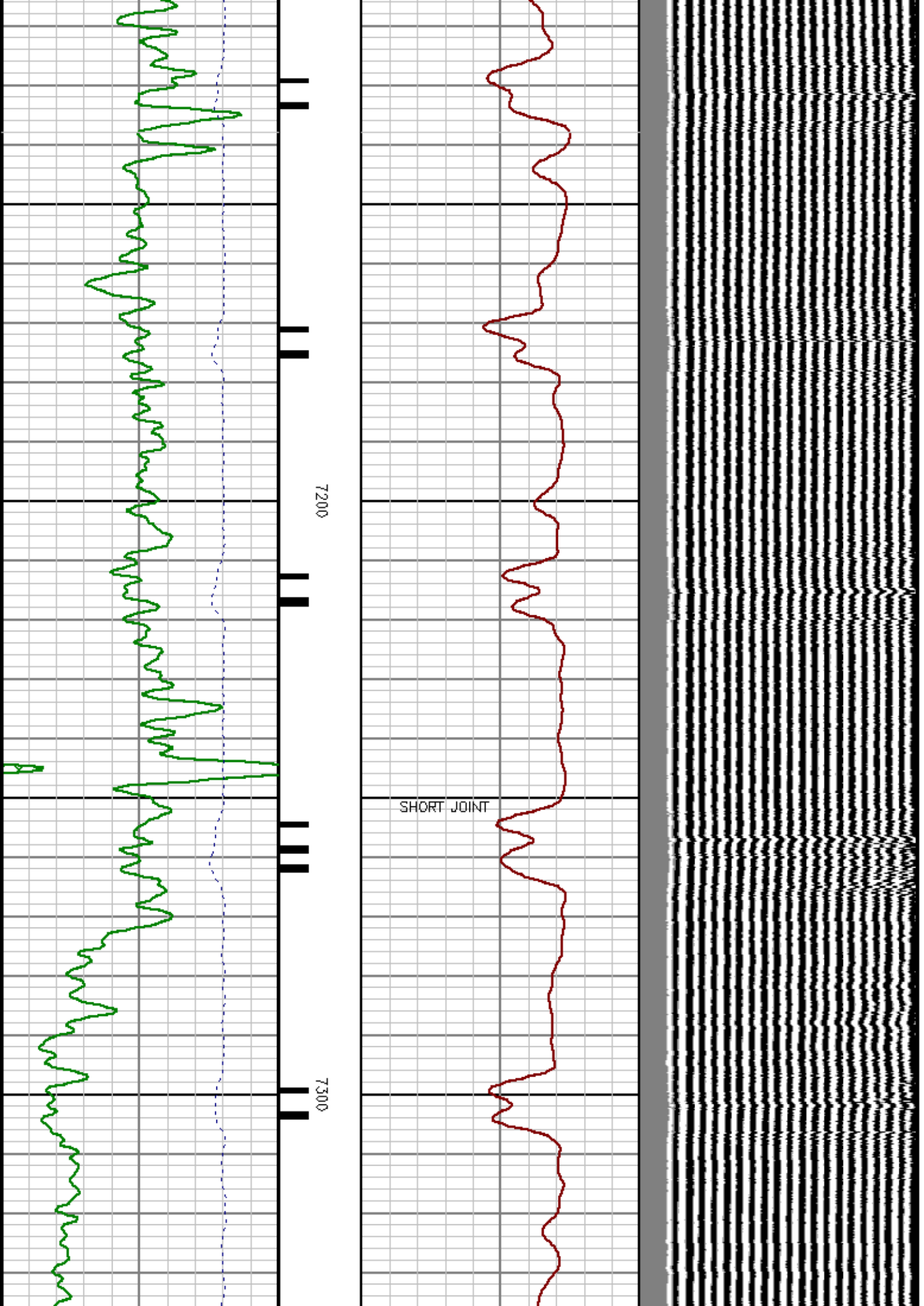
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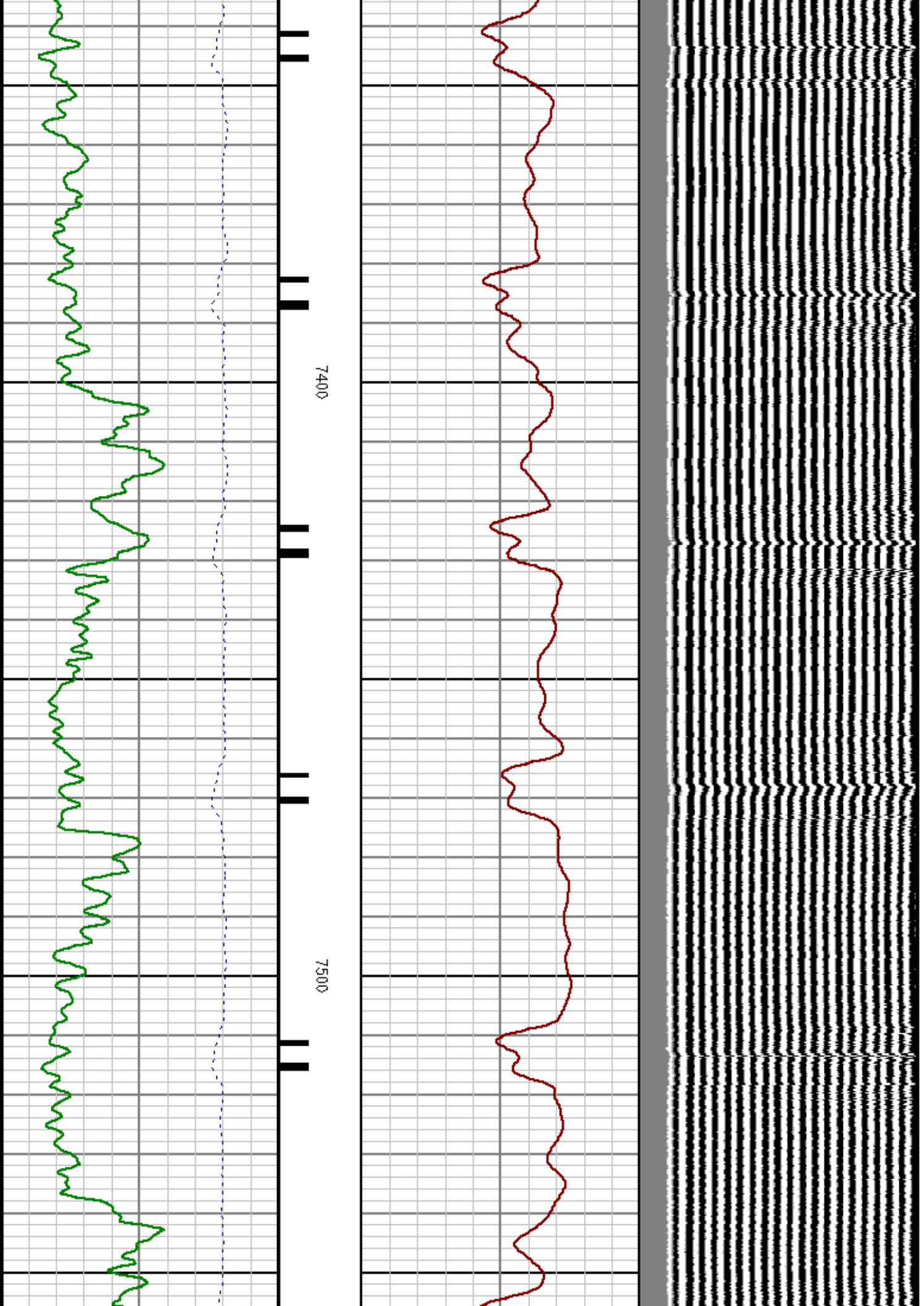


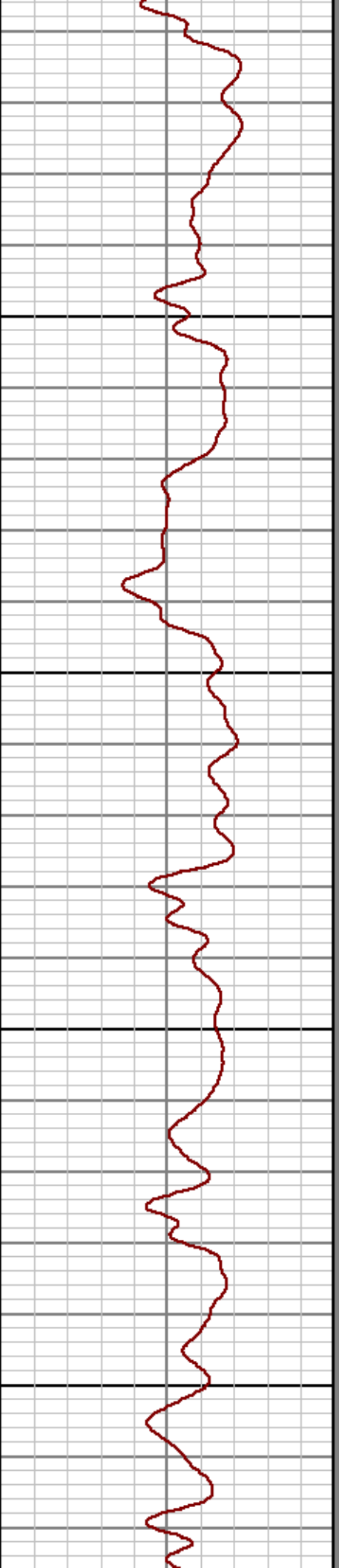
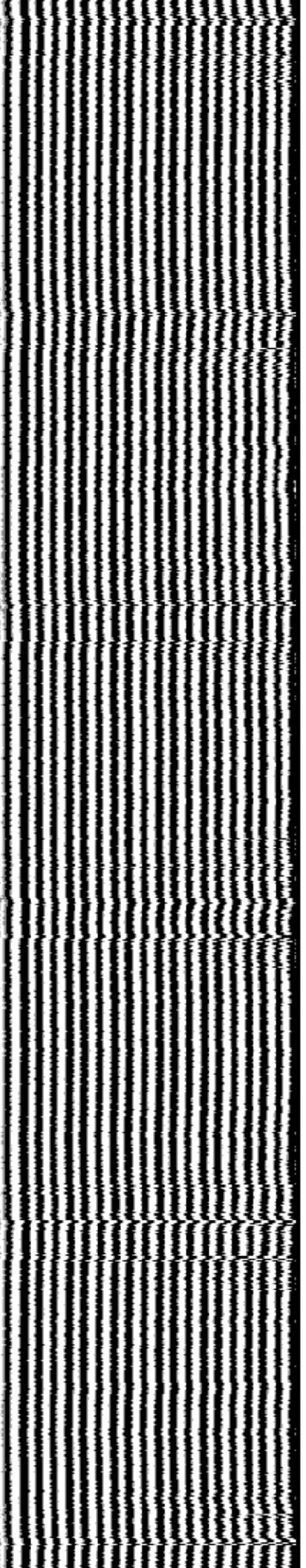






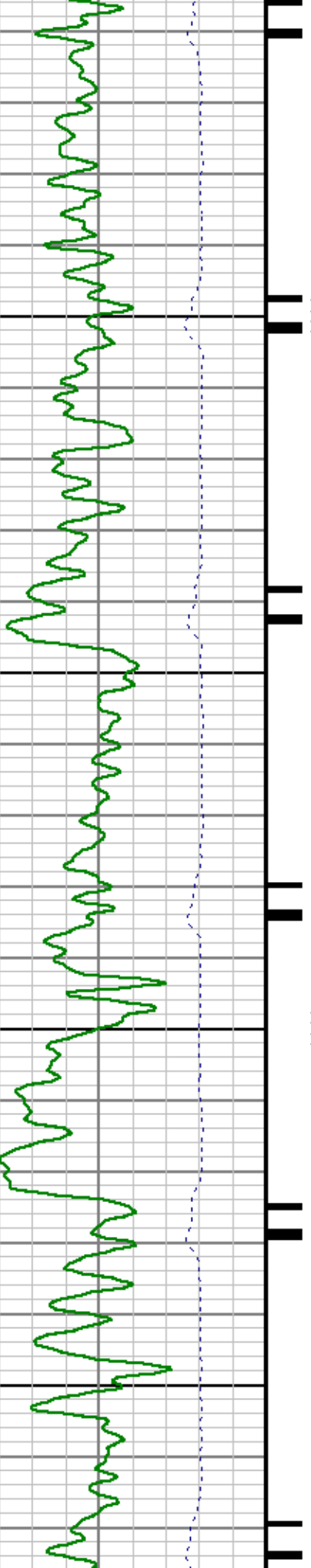


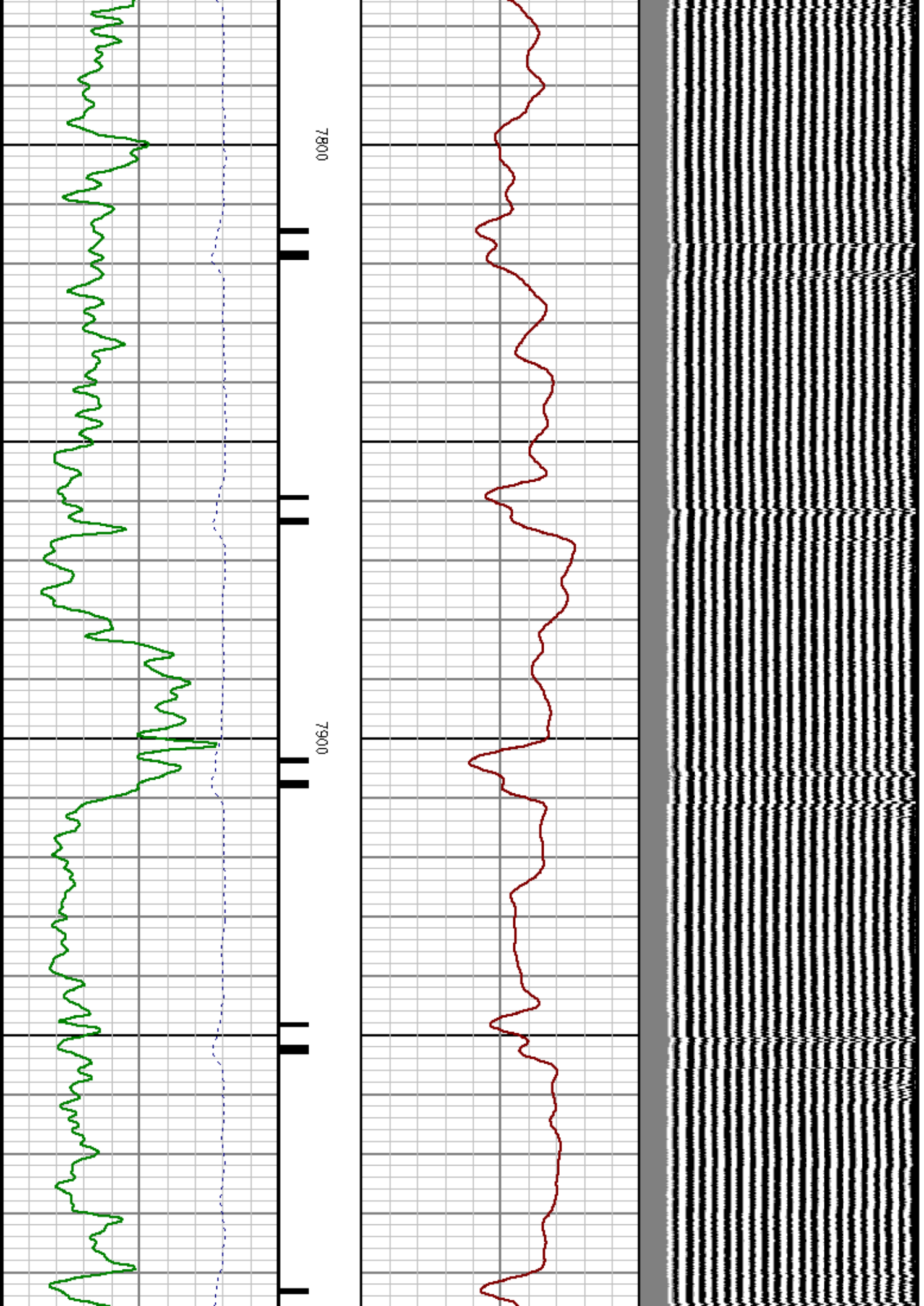


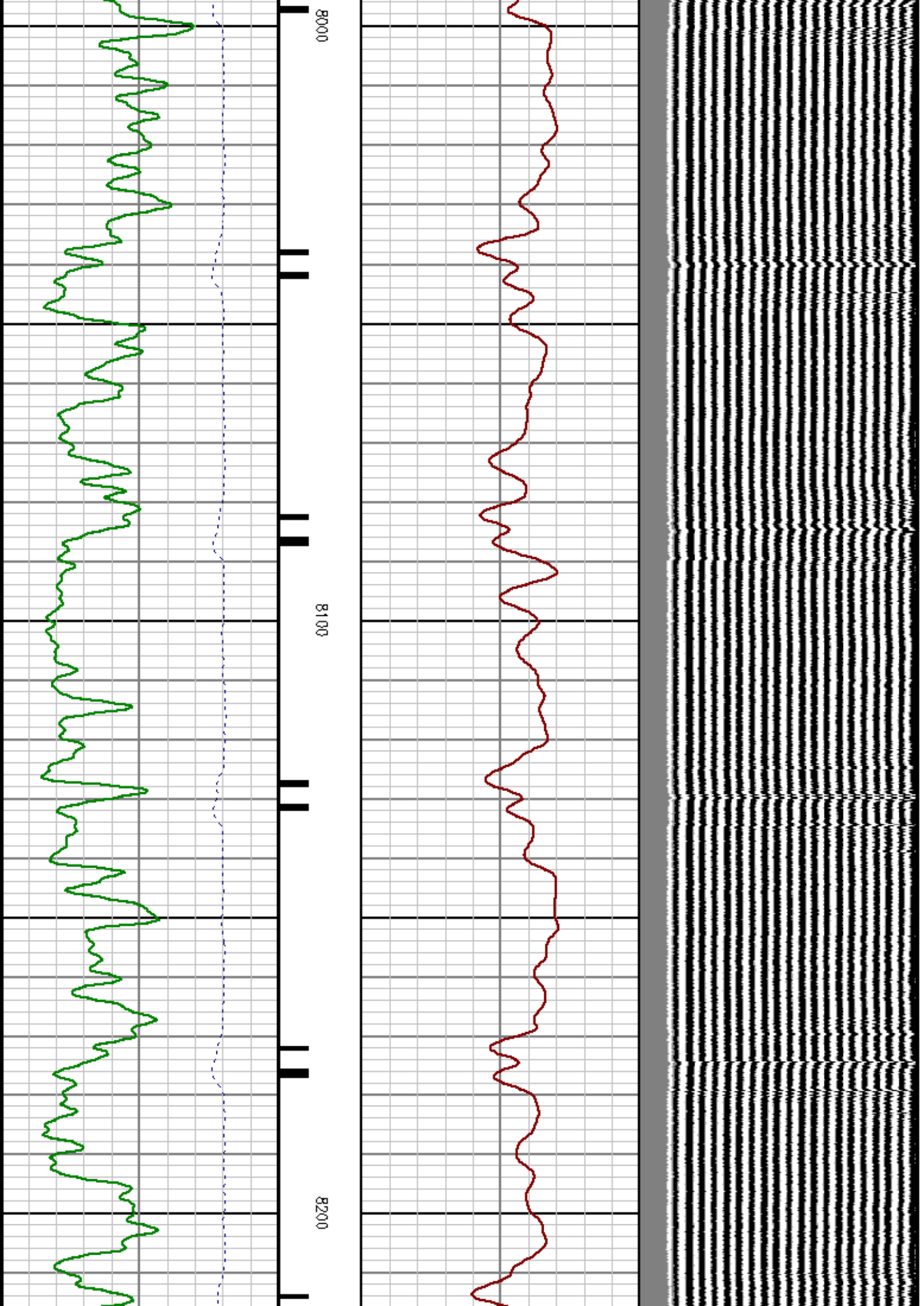


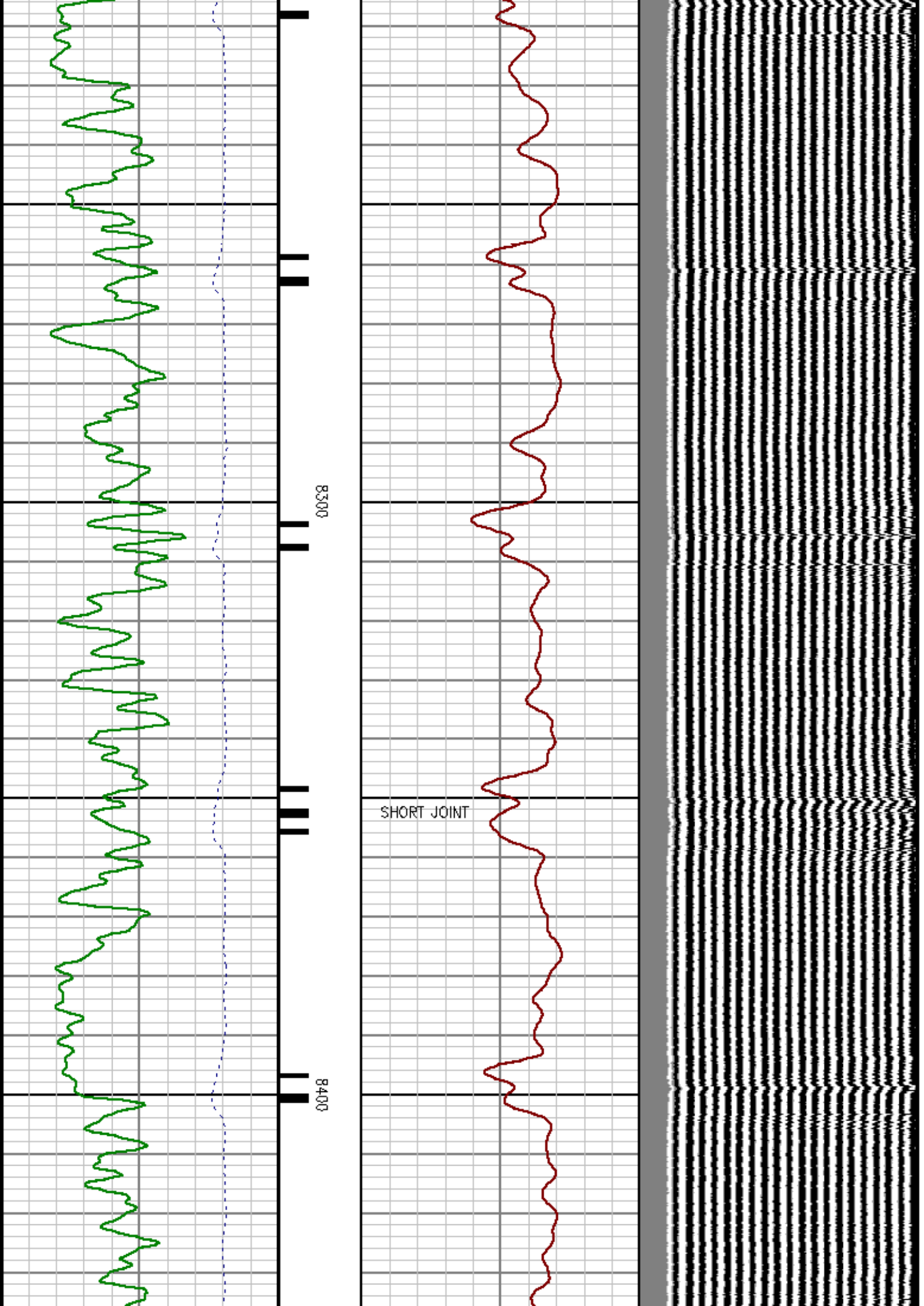
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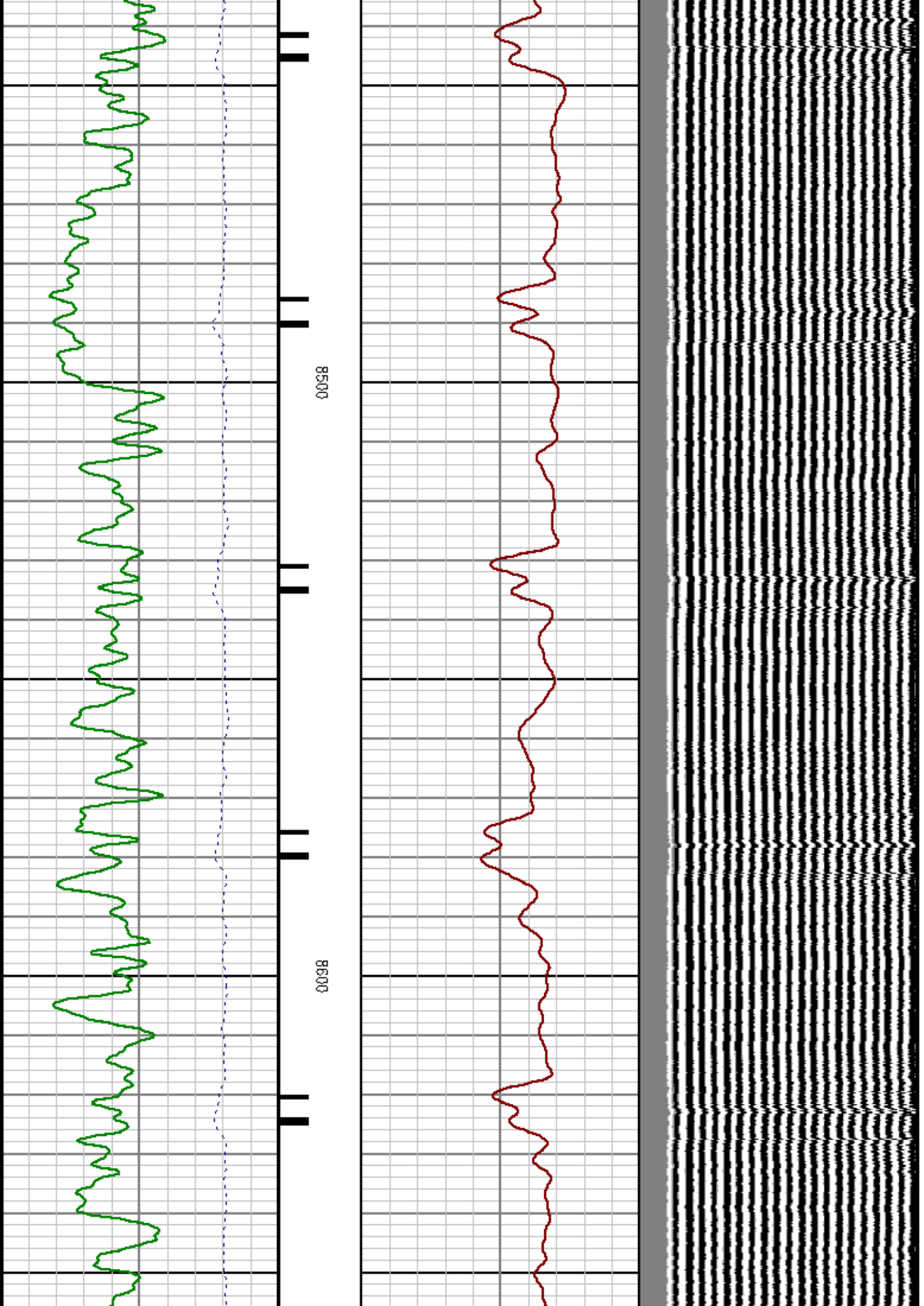
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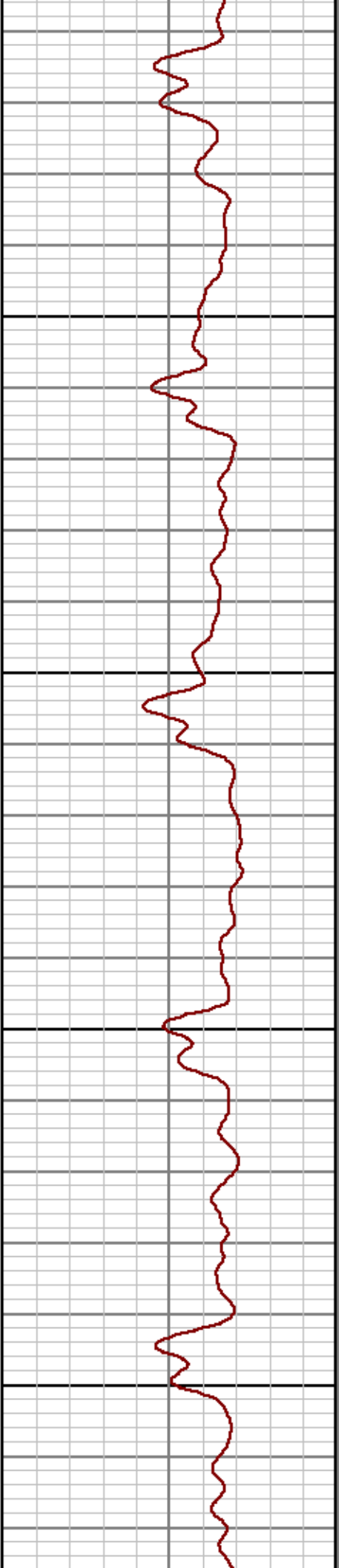
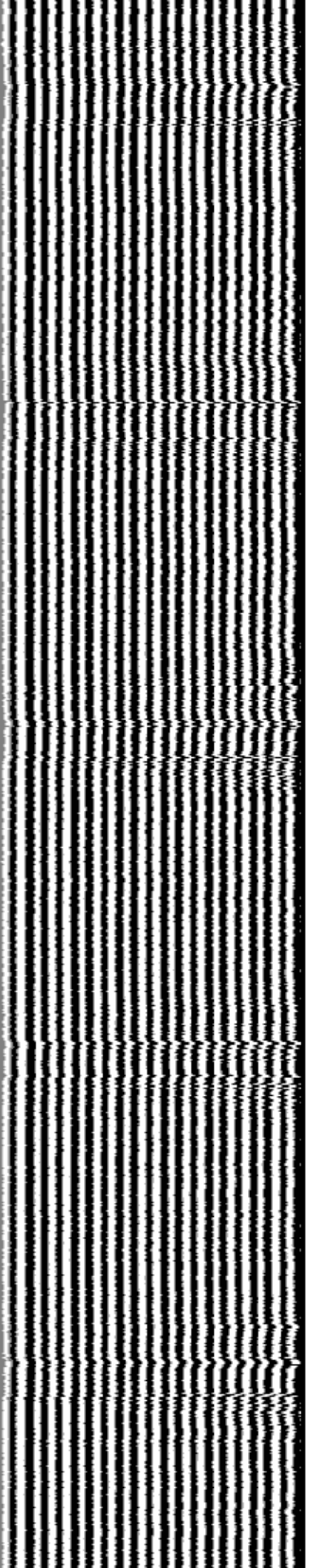






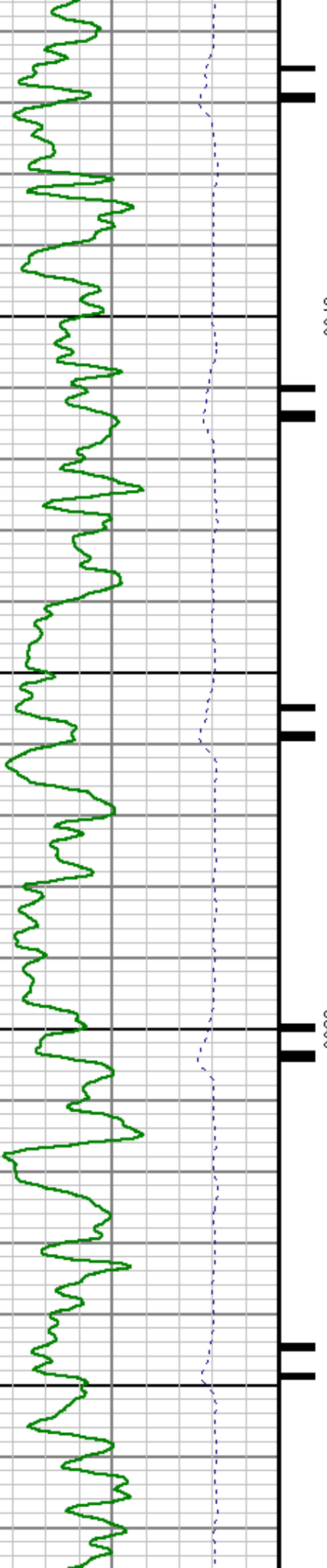


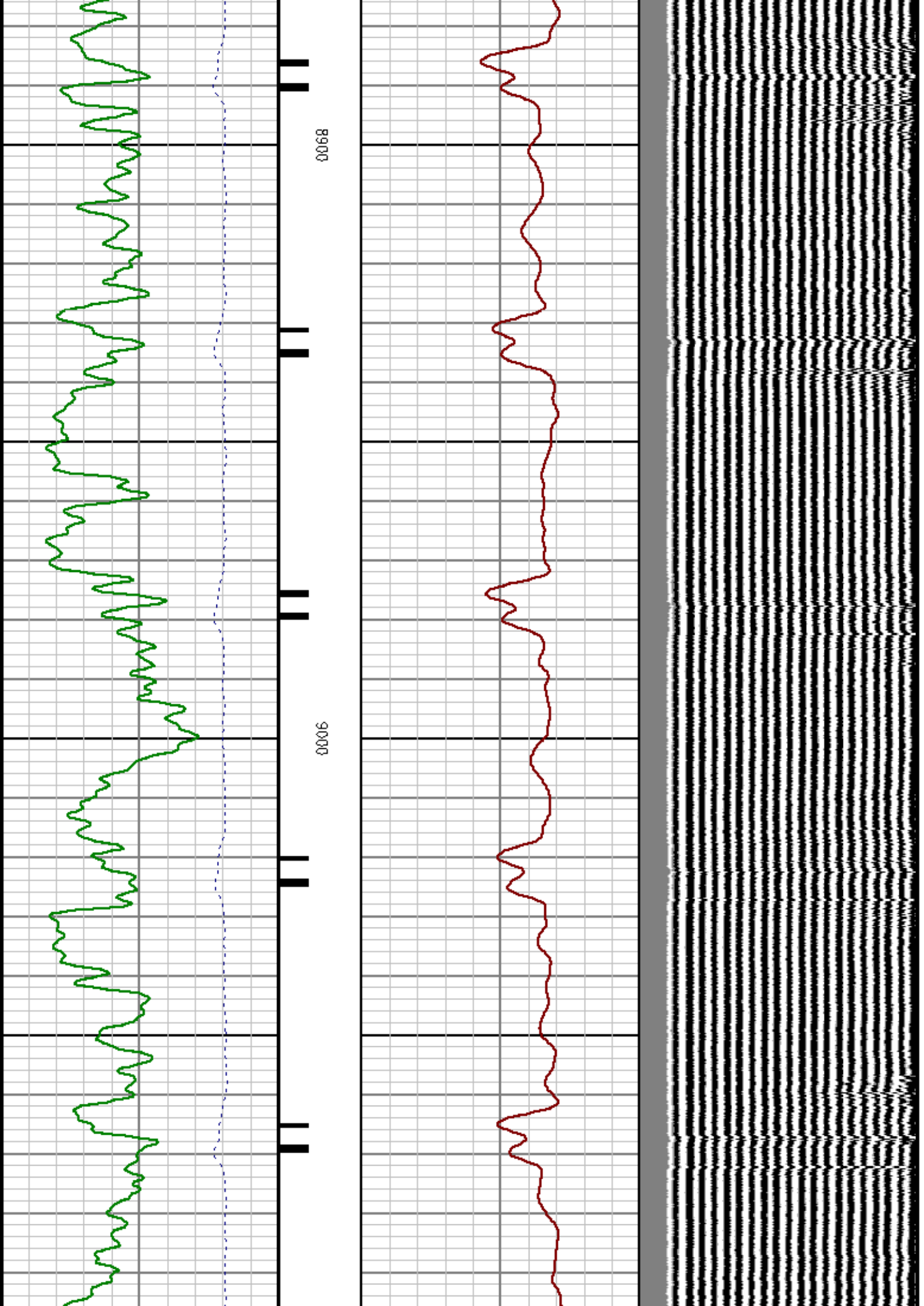


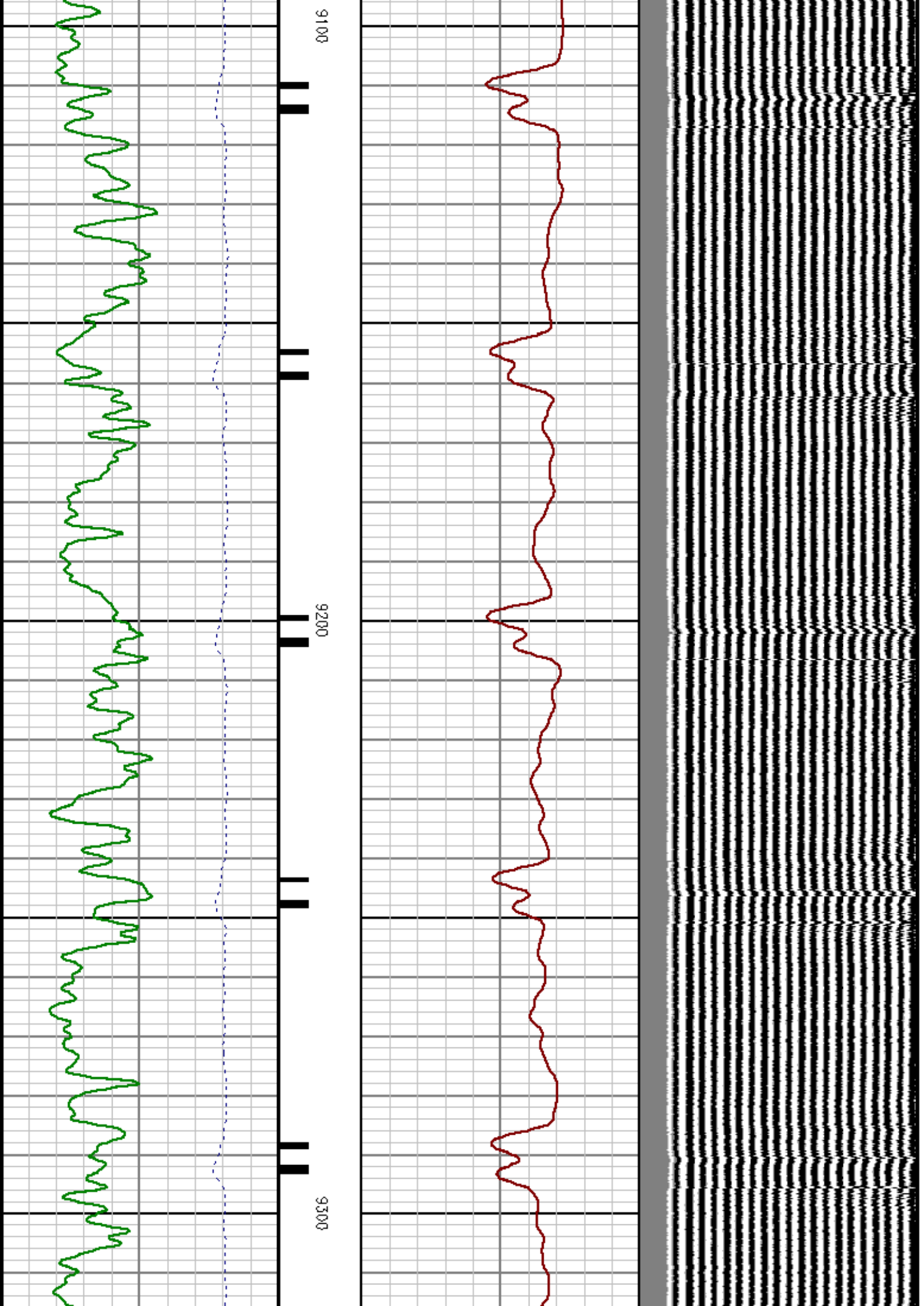


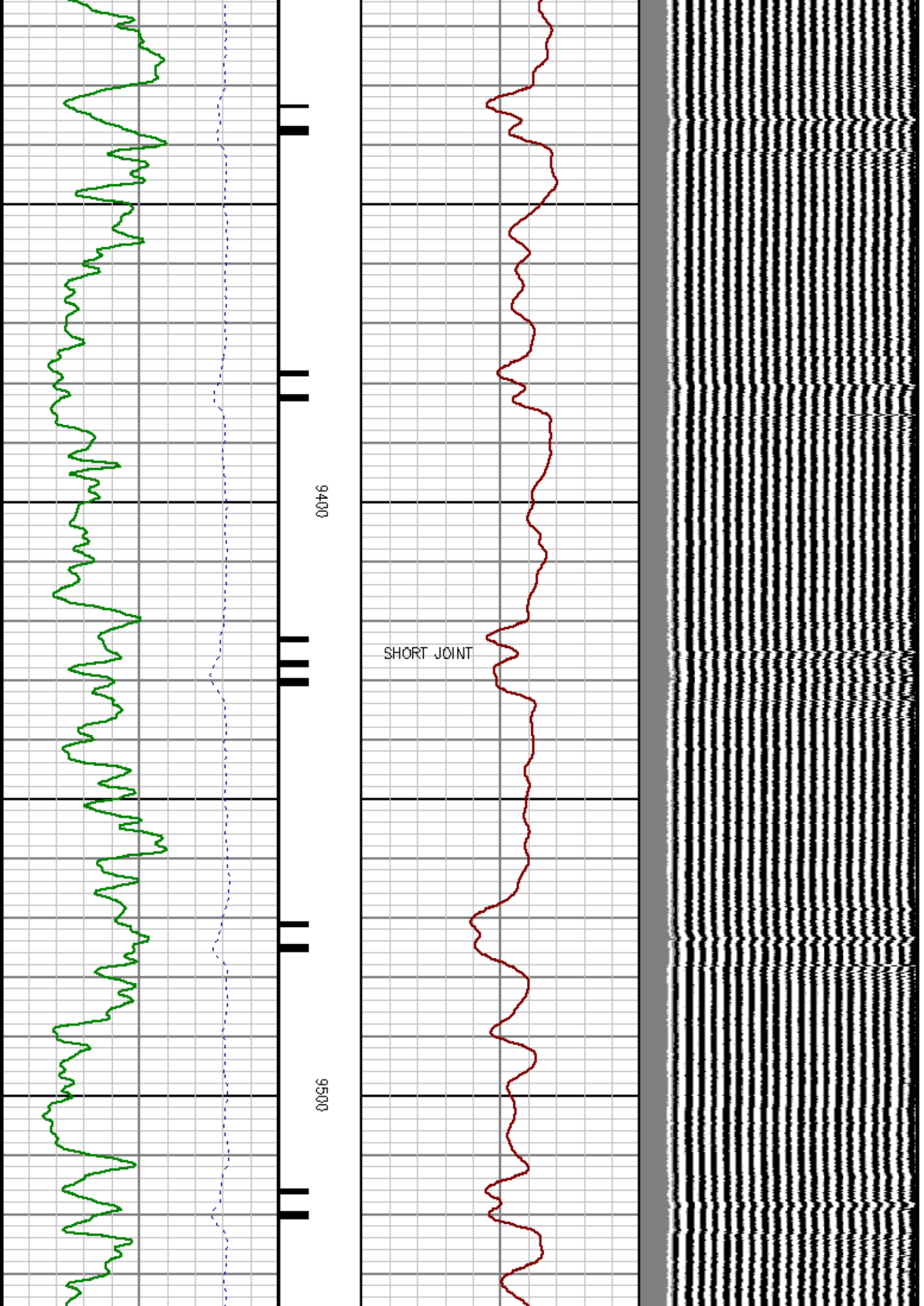
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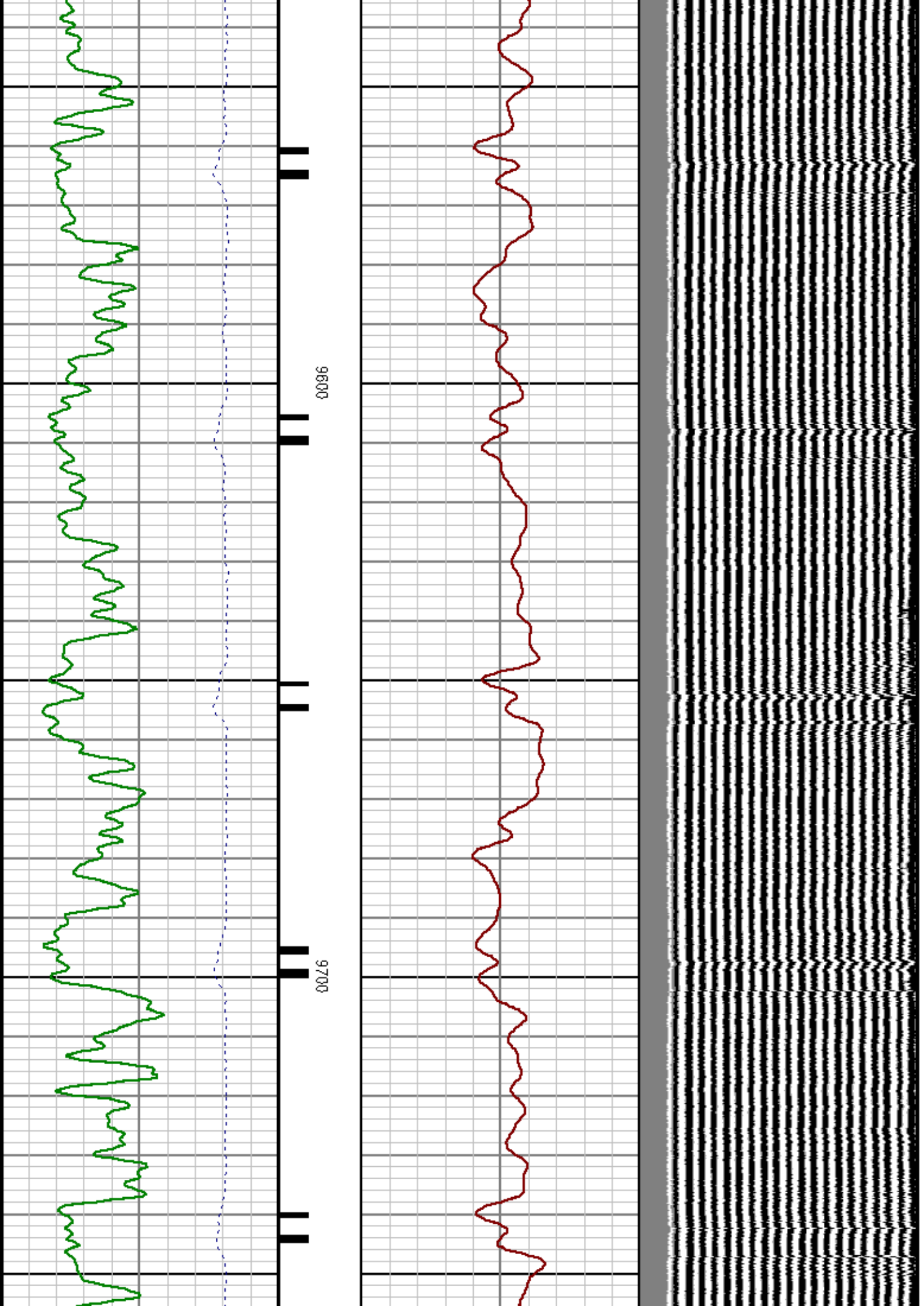
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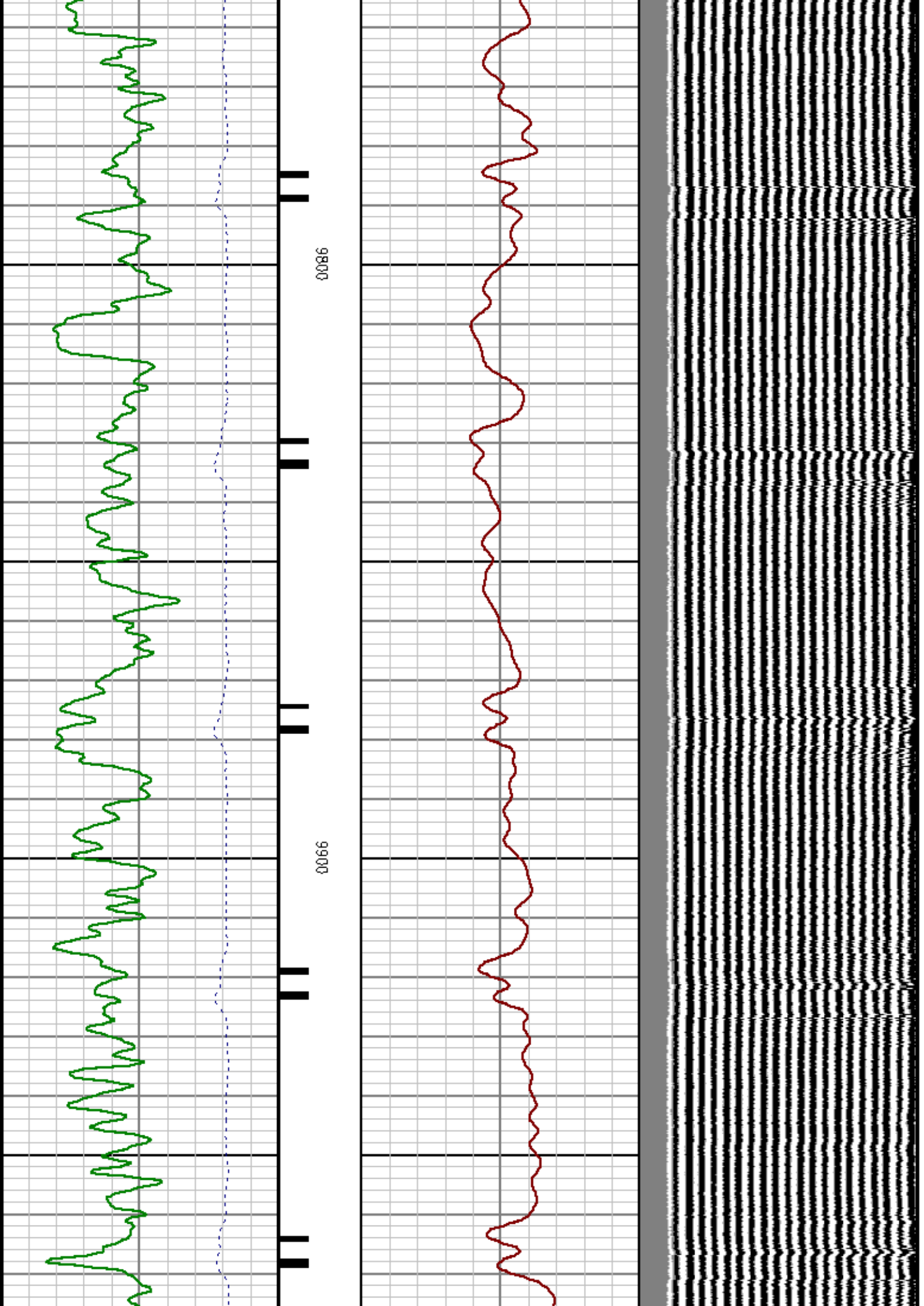


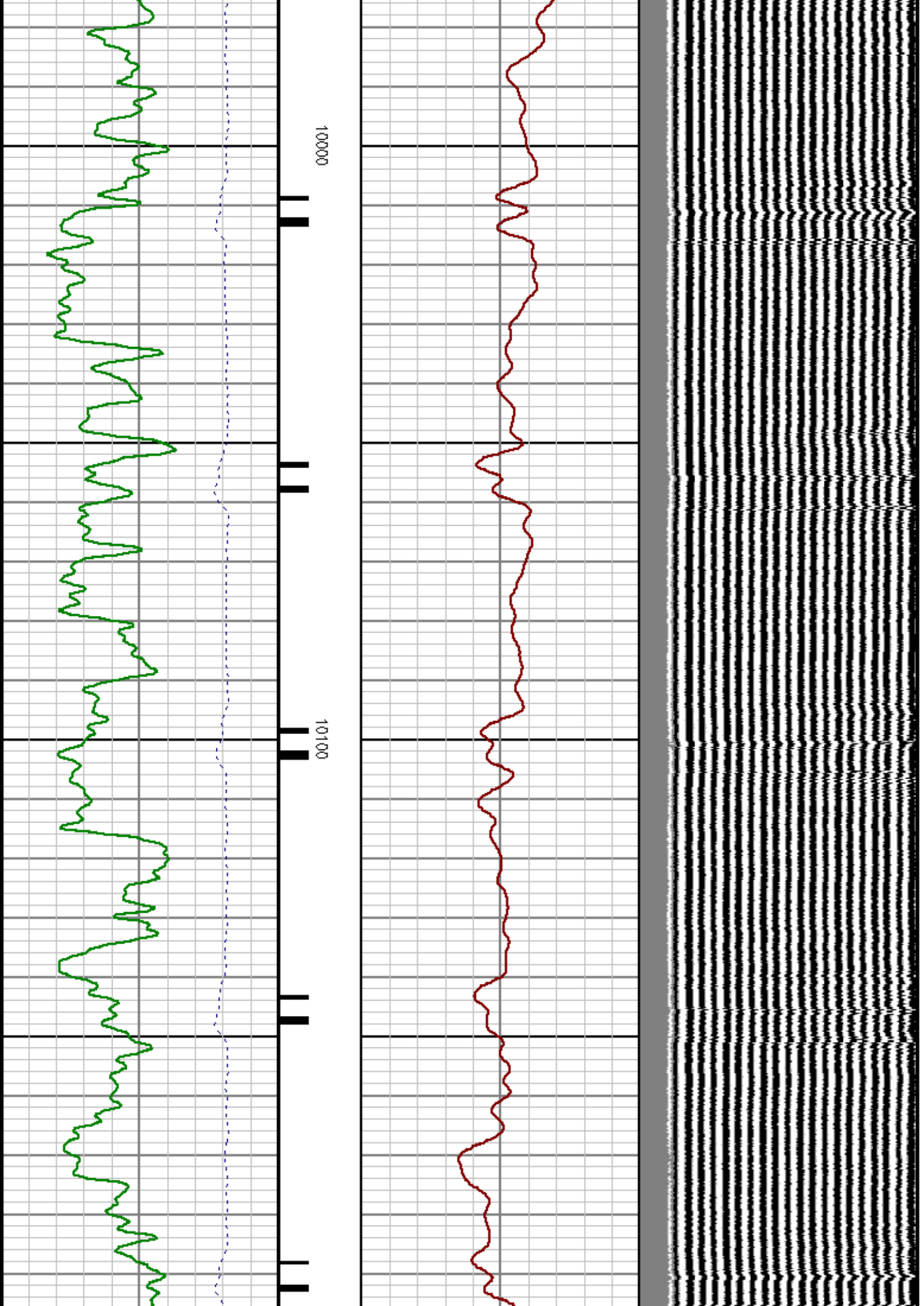


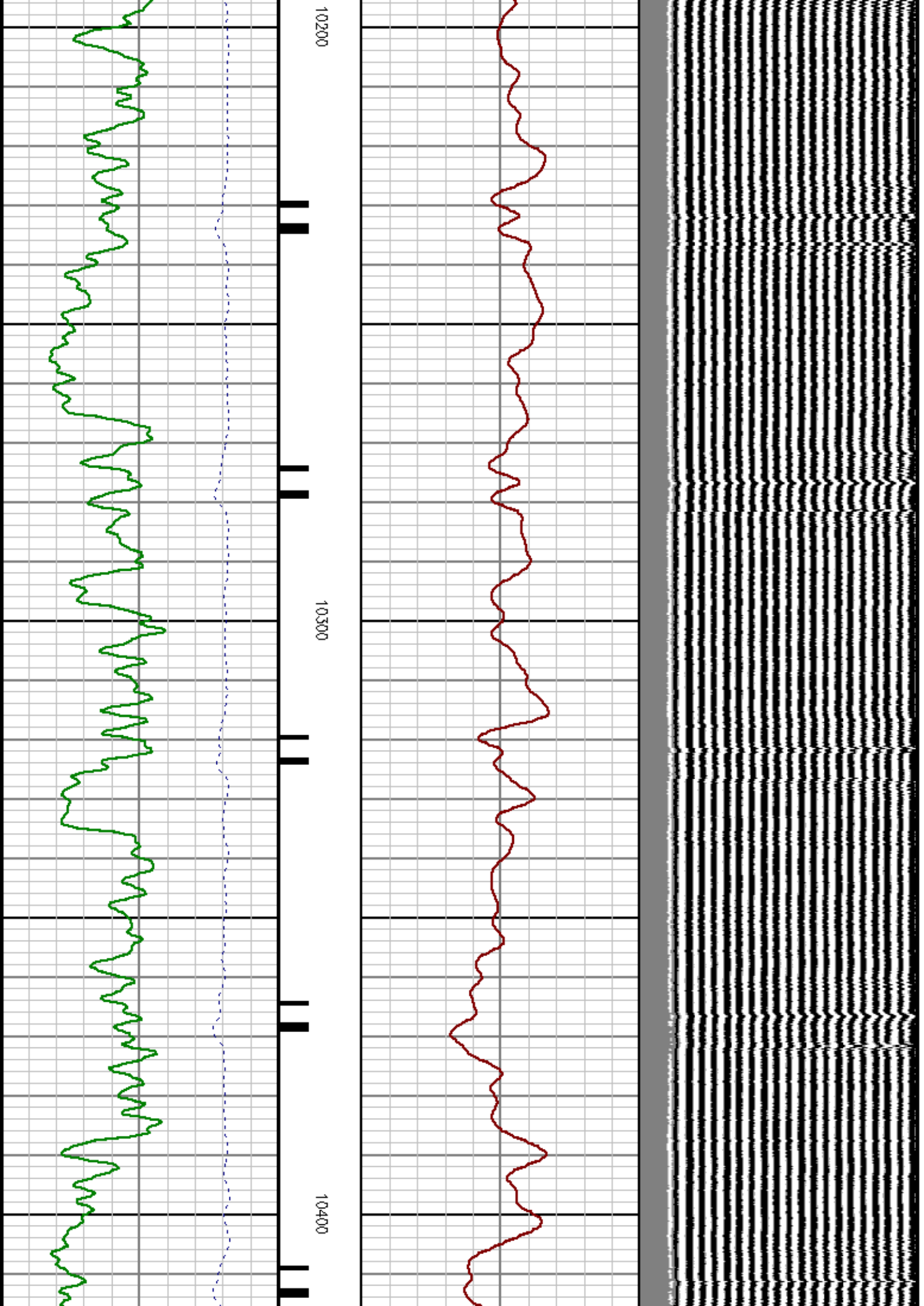


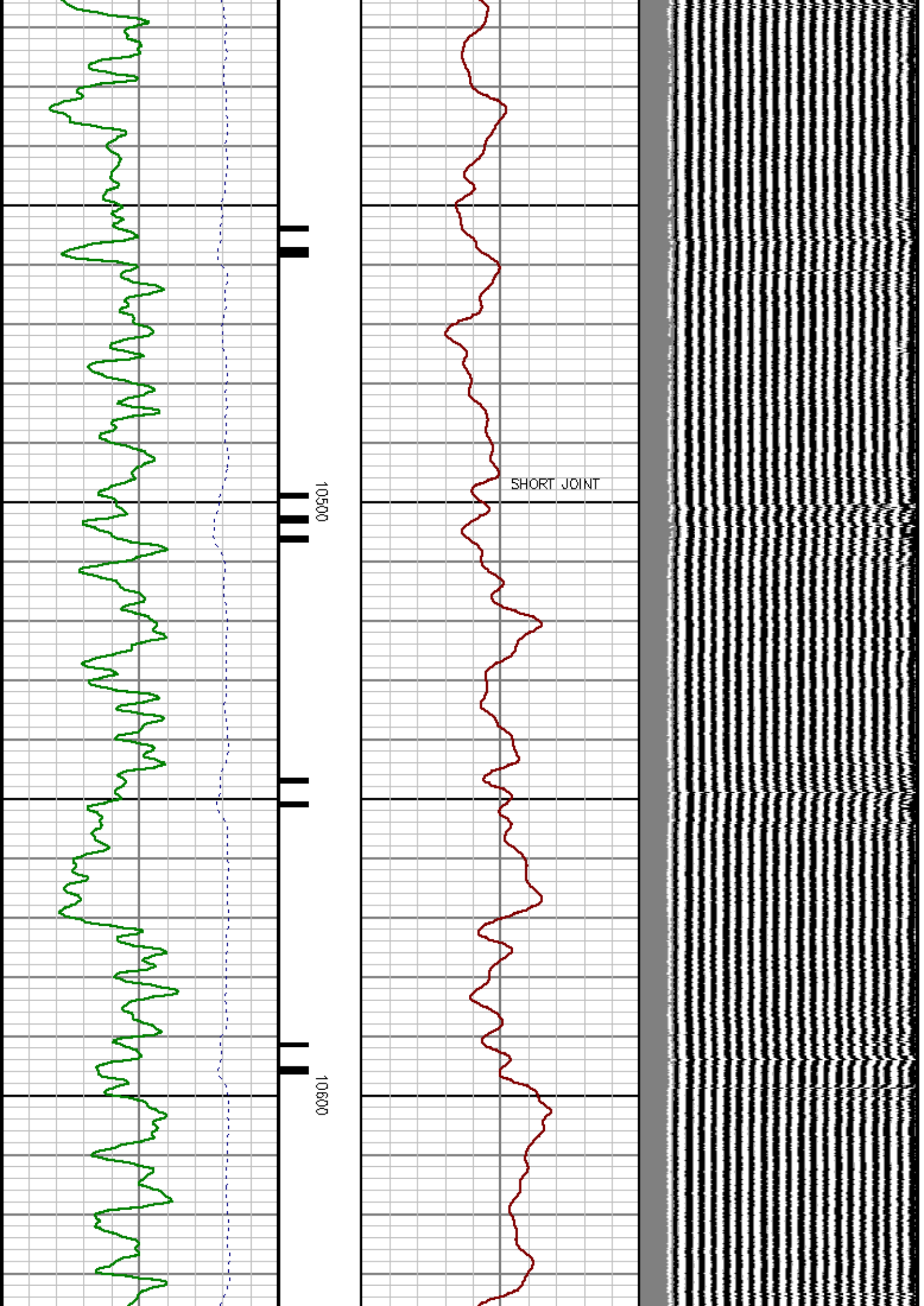


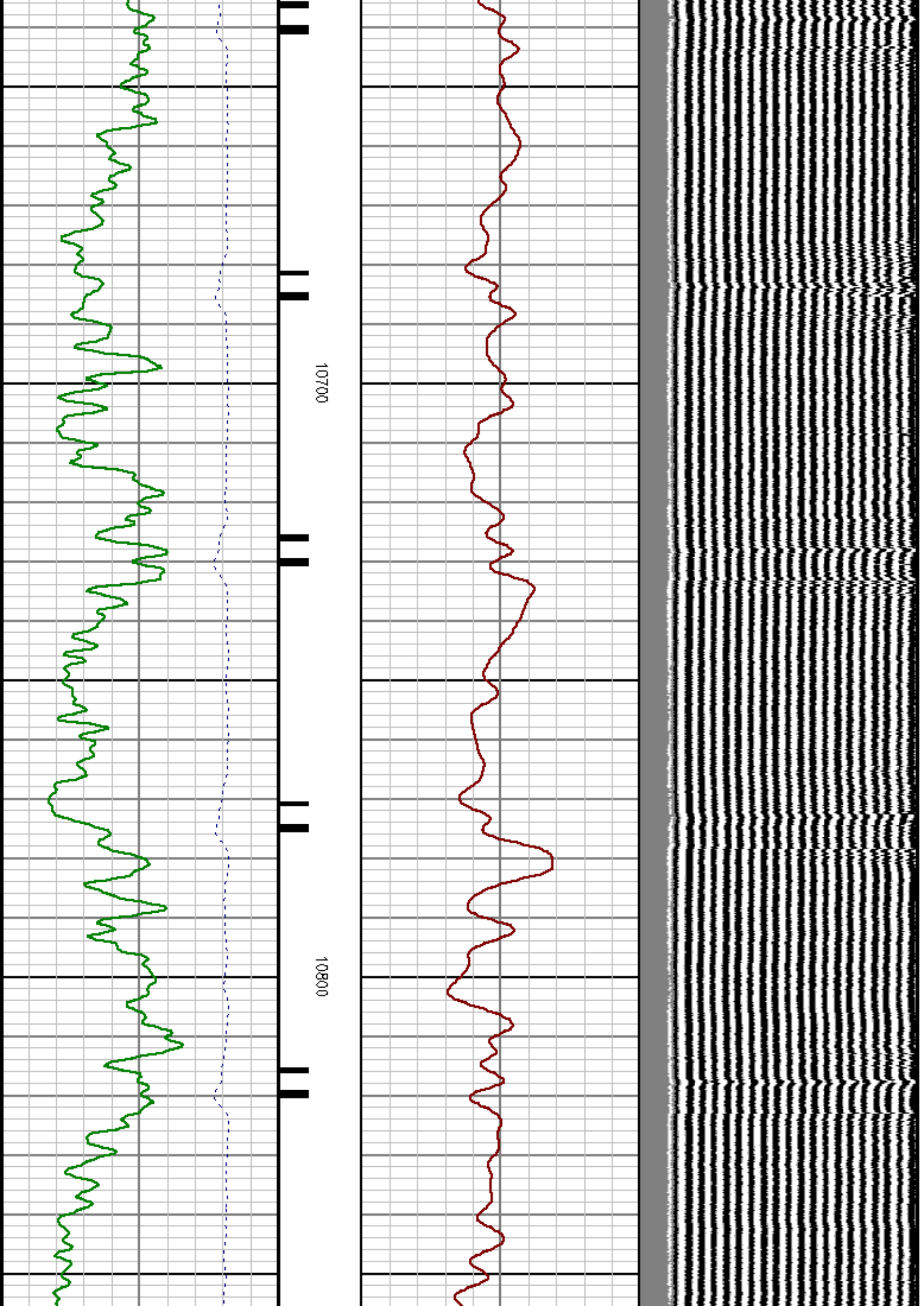


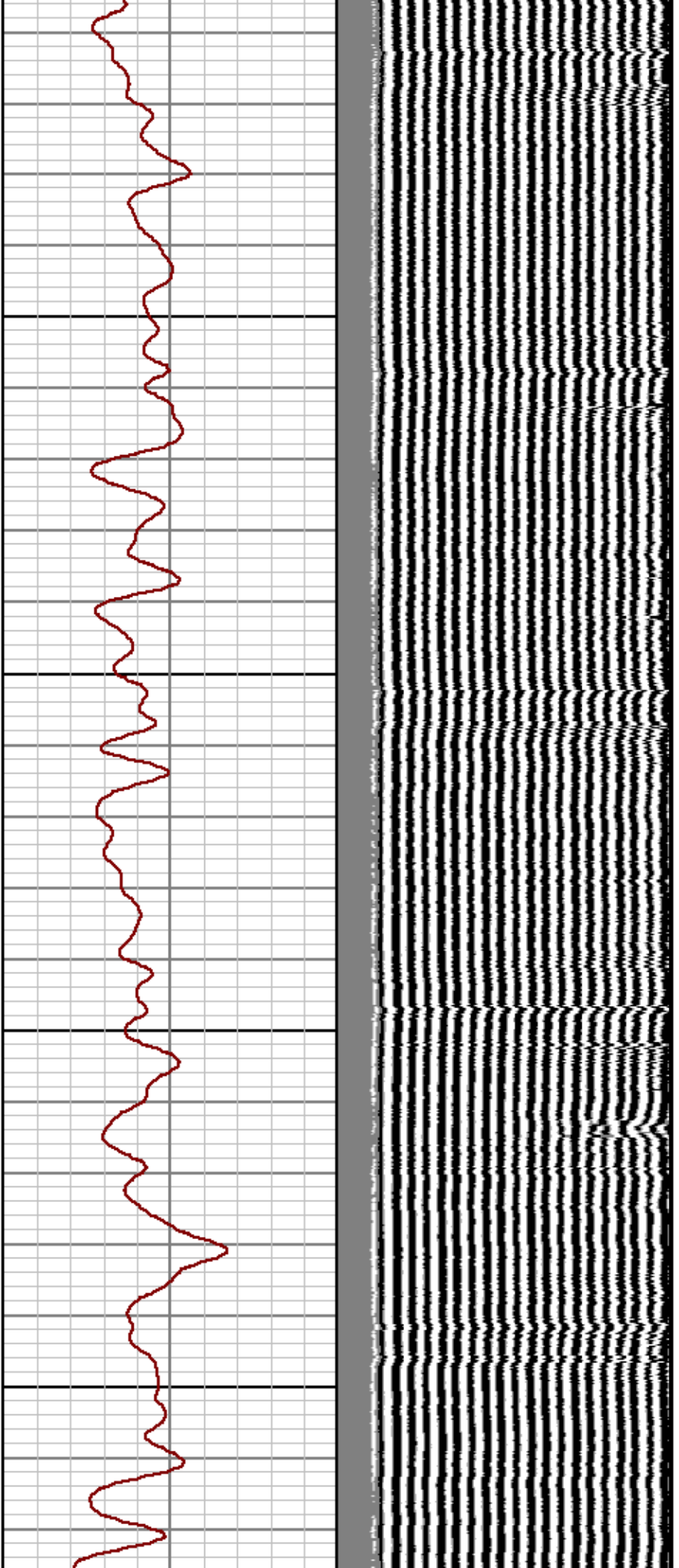






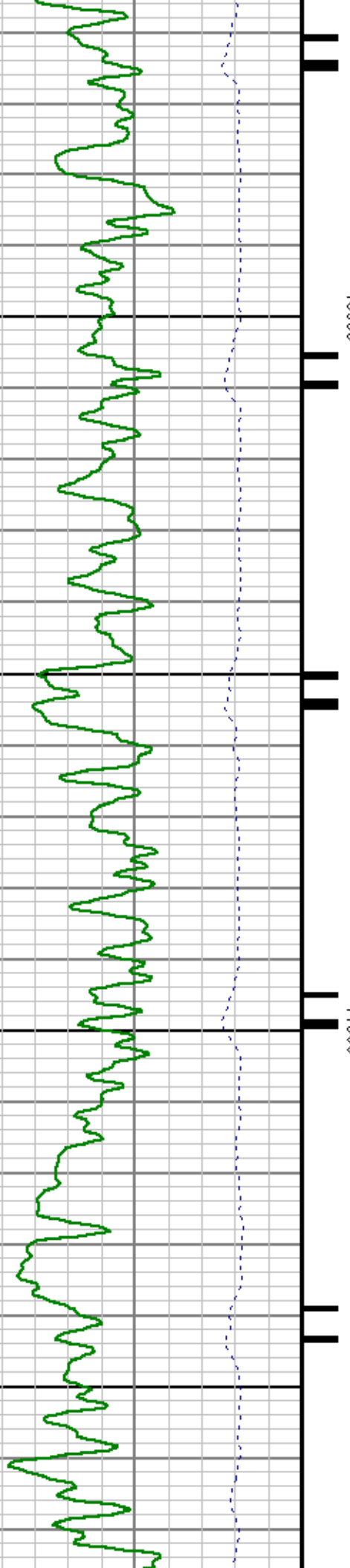


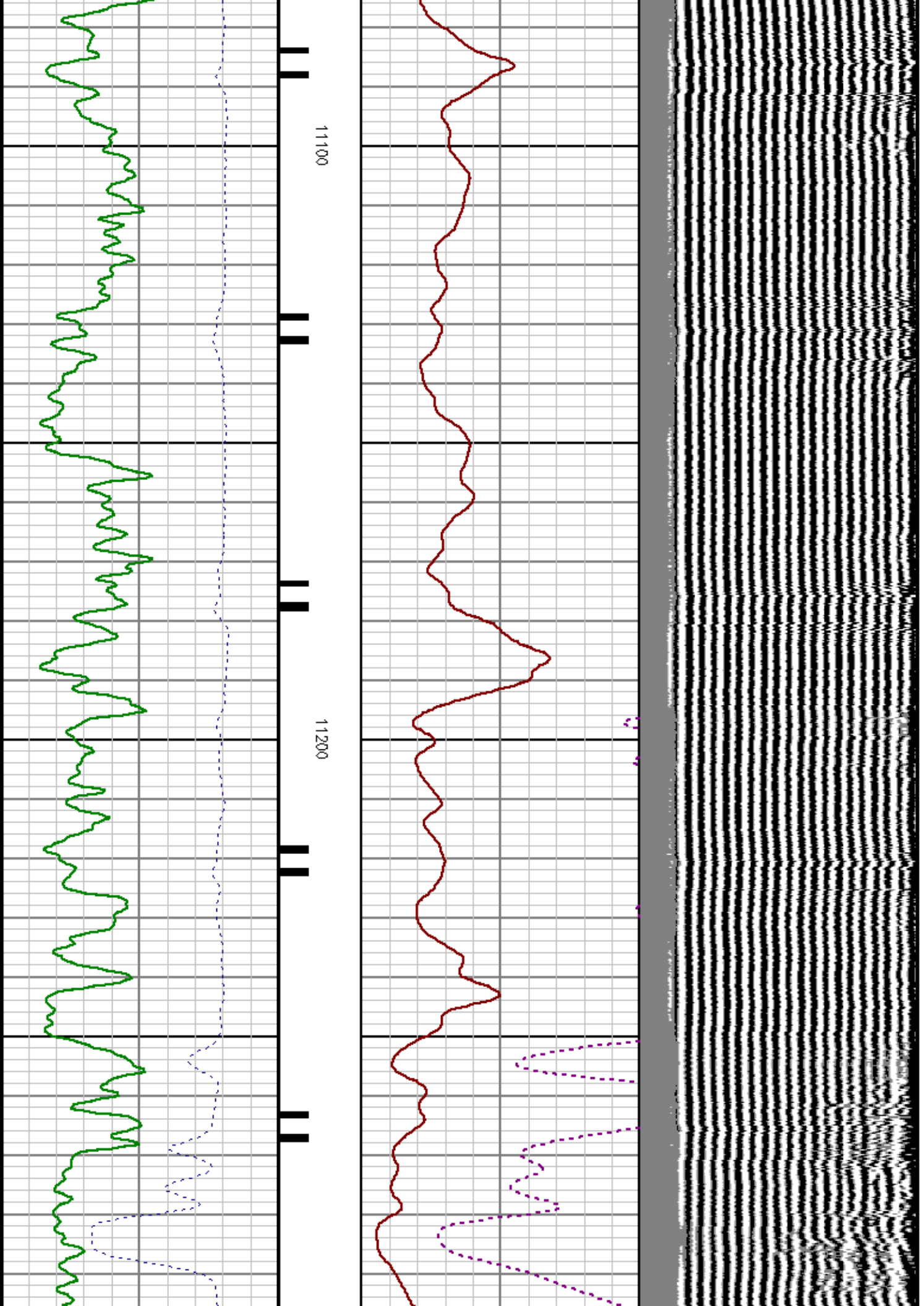


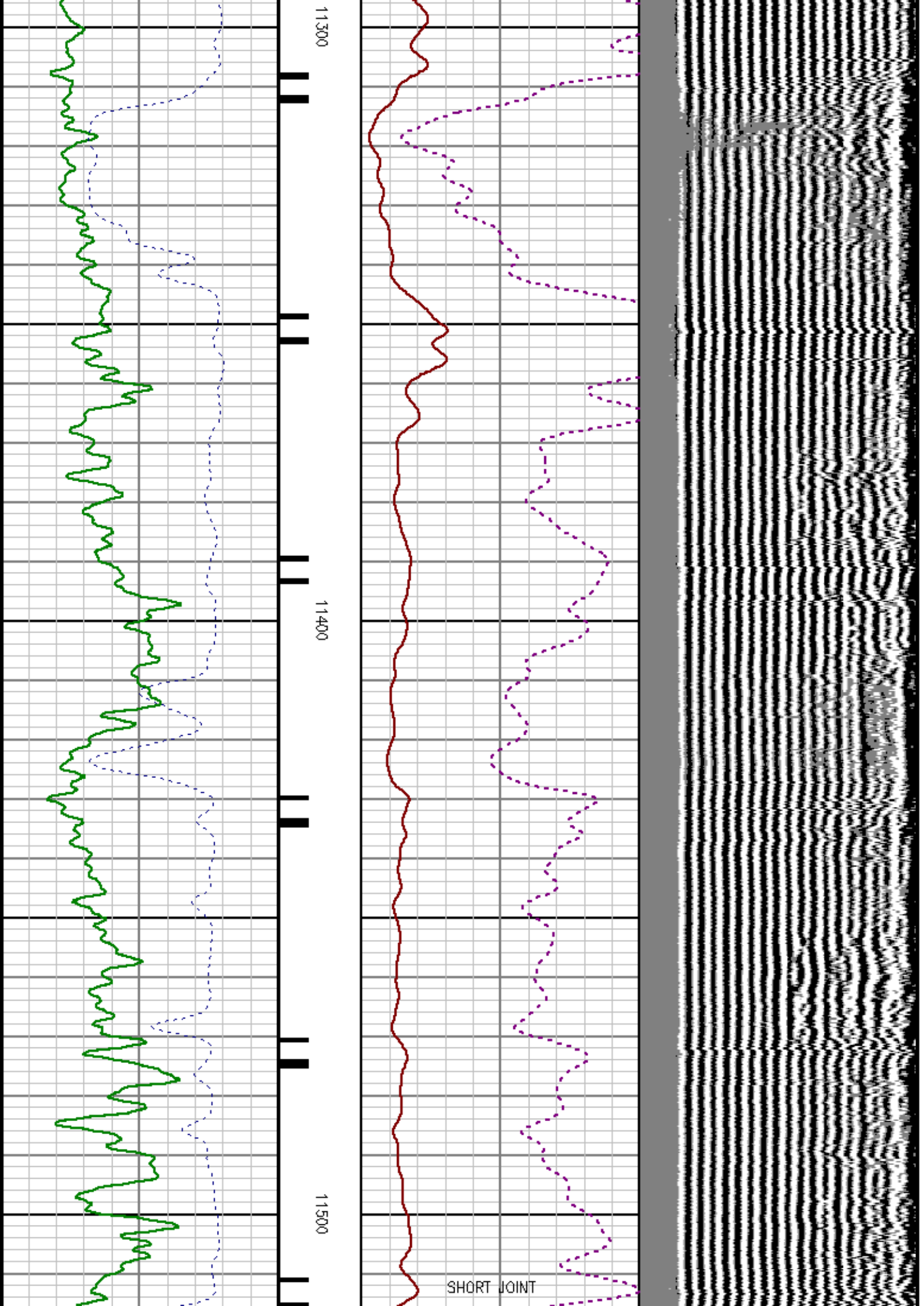


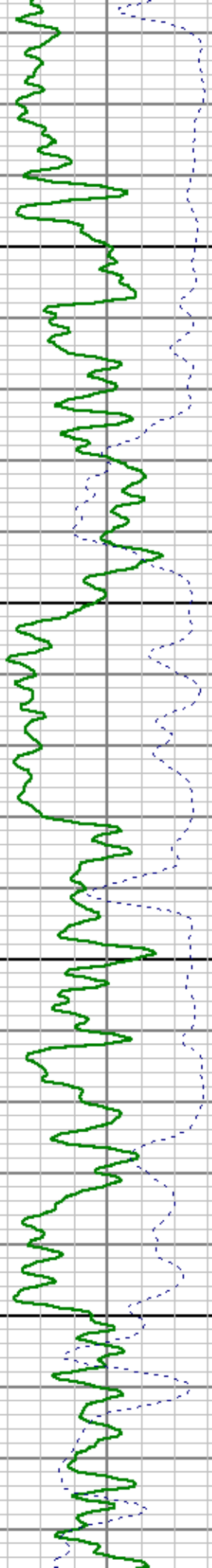
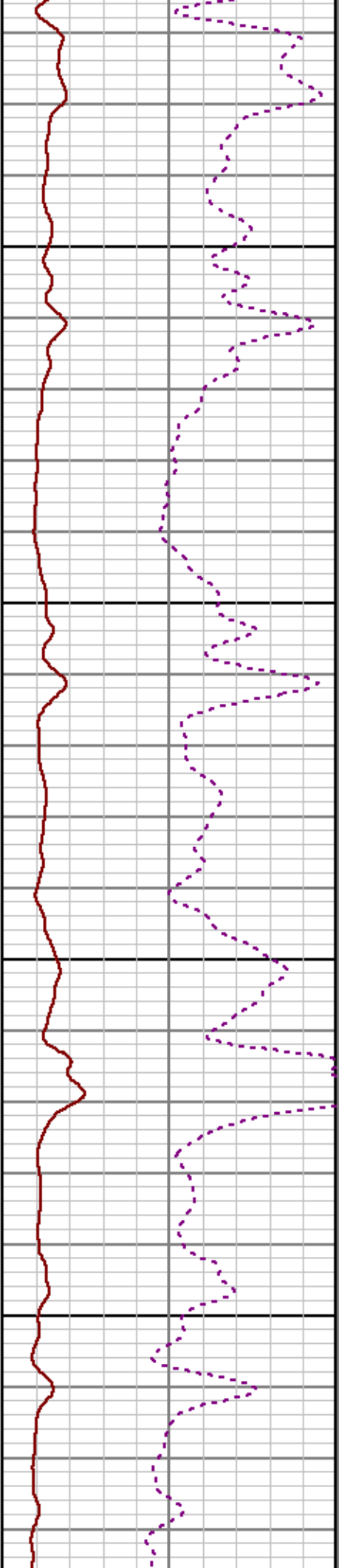
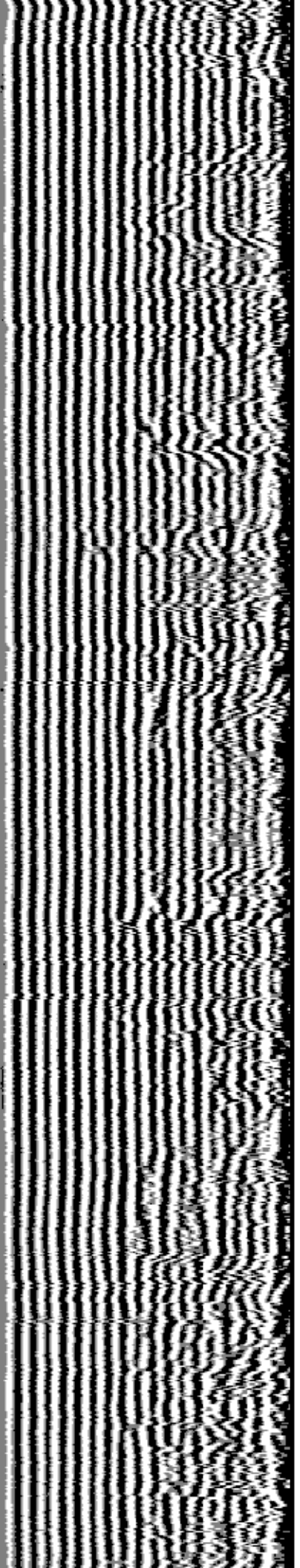
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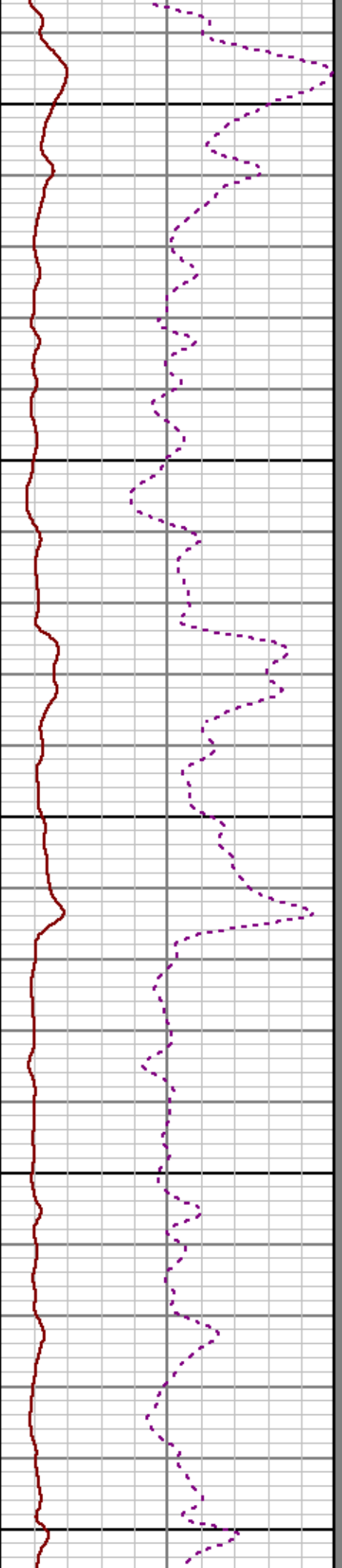
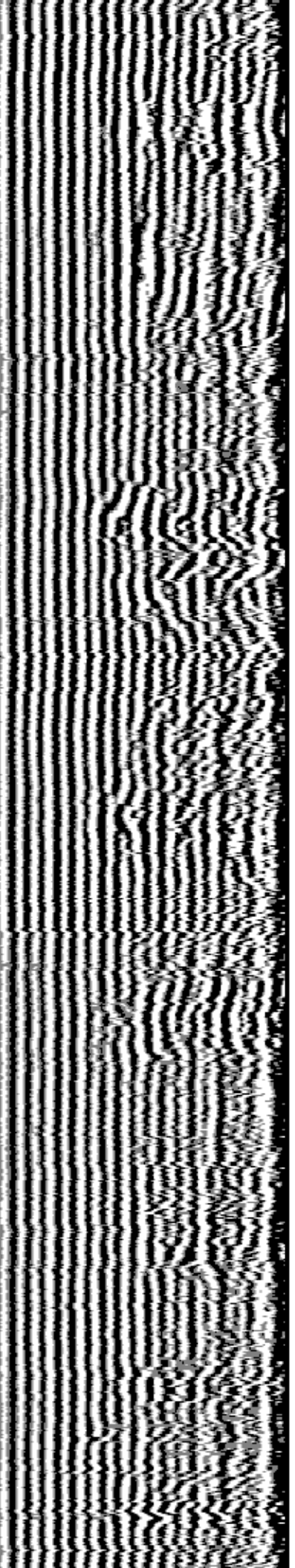
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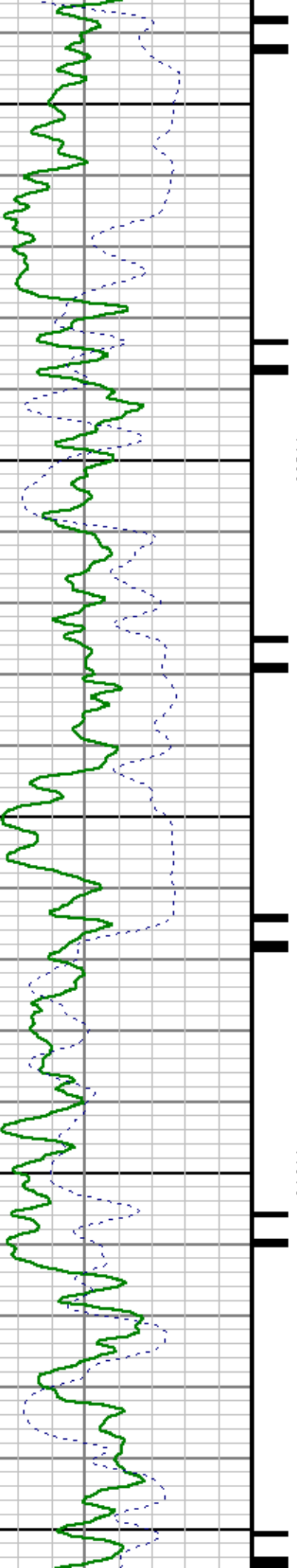


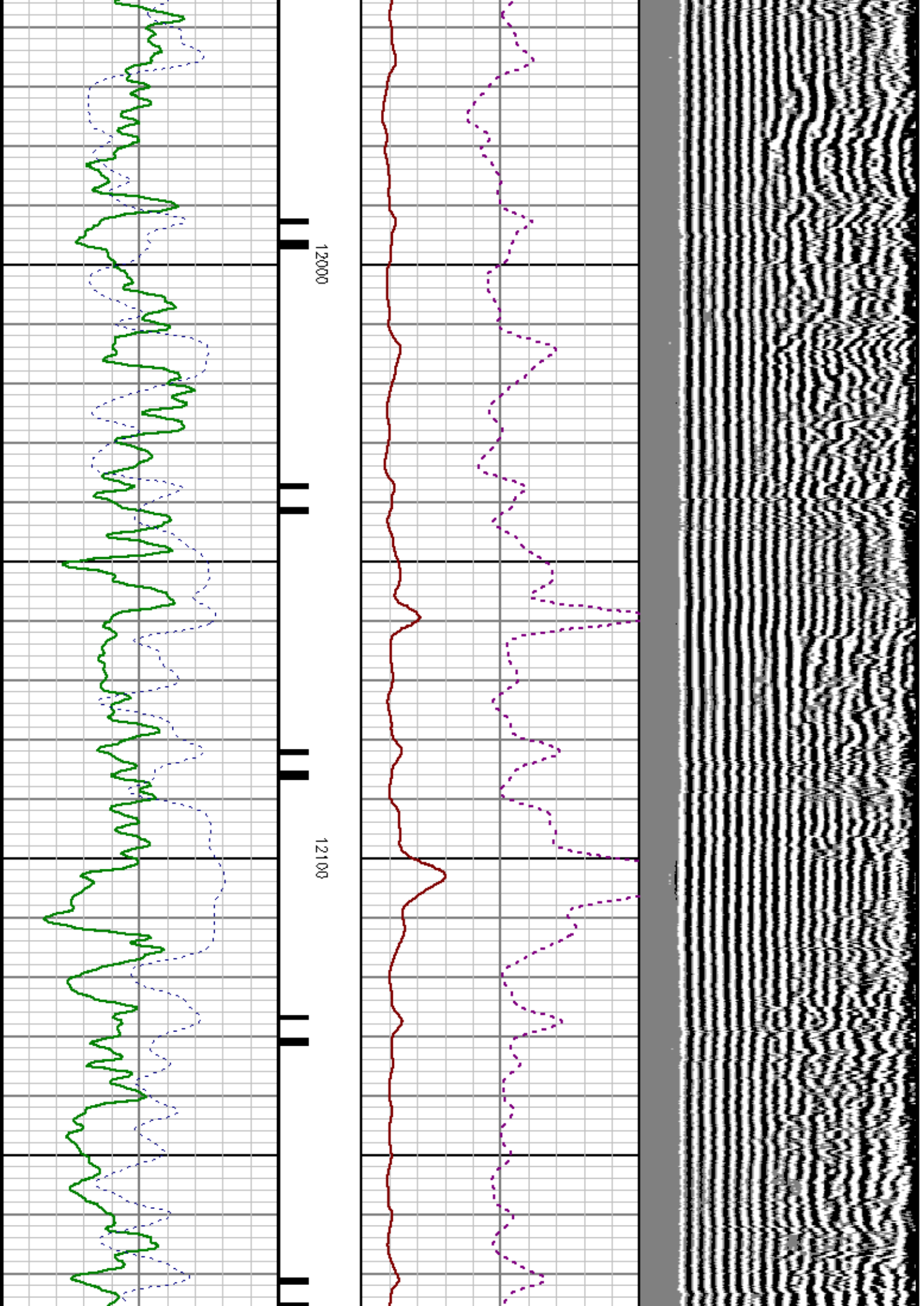


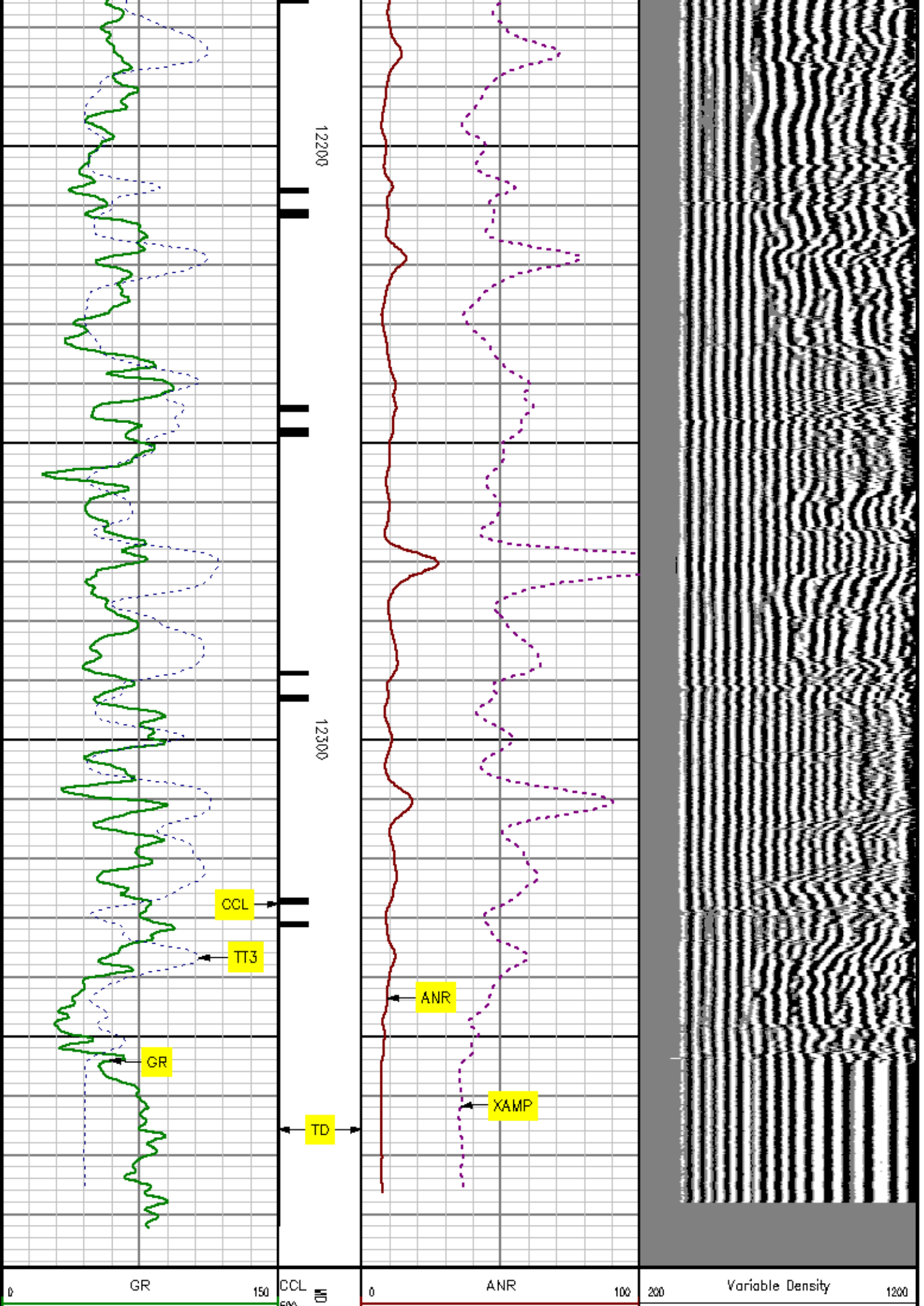


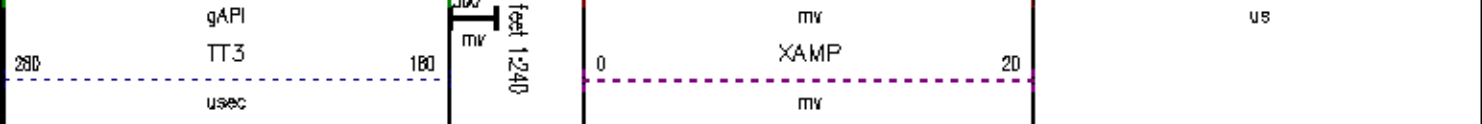
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11900









REPEAT SECTION

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	314.263	usec	12119.750	12393.000
RAL	Amp Gate Start Near	197.754	usec	12119.750	12393.000
RAL	Amp Gate Start Radial	197.754	usec	12119.750	12393.000
RAL	Amp Gate Width Far	25.000	usec	12119.750	12393.000
RAL	Amp Gate Width Near	25.000	usec	12119.750	12393.000
RAL	Amp Gate Width Radial	25.000	usec	12119.750	12393.000
RAL	casing od	4.500	inches	12119.750	12393.000
RAL	casing wt	15.100	lbm/ft	12119.750	12393.000
RAL	FB Start Far	289.263	usec	12119.750	12393.000
RAL	FB Start Near	172.754	usec	12119.750	12393.000
RAL	FB Start Radial	172.754	usec	12119.750	12393.000
RAL	FB Thresh Far	15.000	mv	12119.750	12393.000
RAL	FB Thresh Near	10.000	mv	12119.750	12393.000
RAL	FB Thresh Radial	10.000	mv	12119.750	12393.000
RAL	Fluid Travel Time	200.000	usec/ft	12119.750	12392.999

DEPTH OFFSETS (for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-12.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	ARB	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
		AFAR	SIG	TT5			
1426XA	-11.360						
1426XA	-7.260	CCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

Created by : R4L, v4.8.007

Plotted by : PlotMgr, v5.4.504

Company : EXXONMOBIL PRODUCTION COMPANY

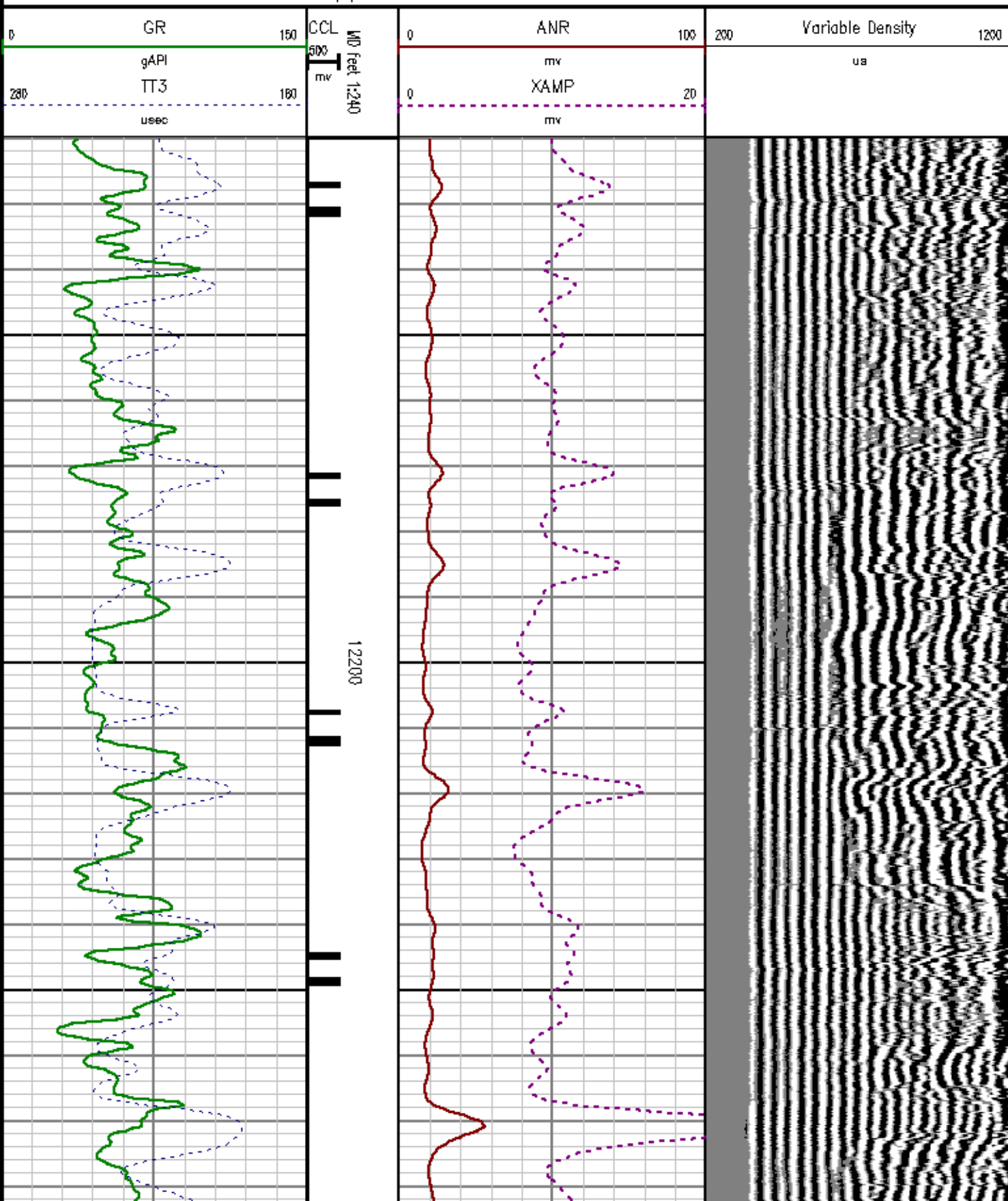
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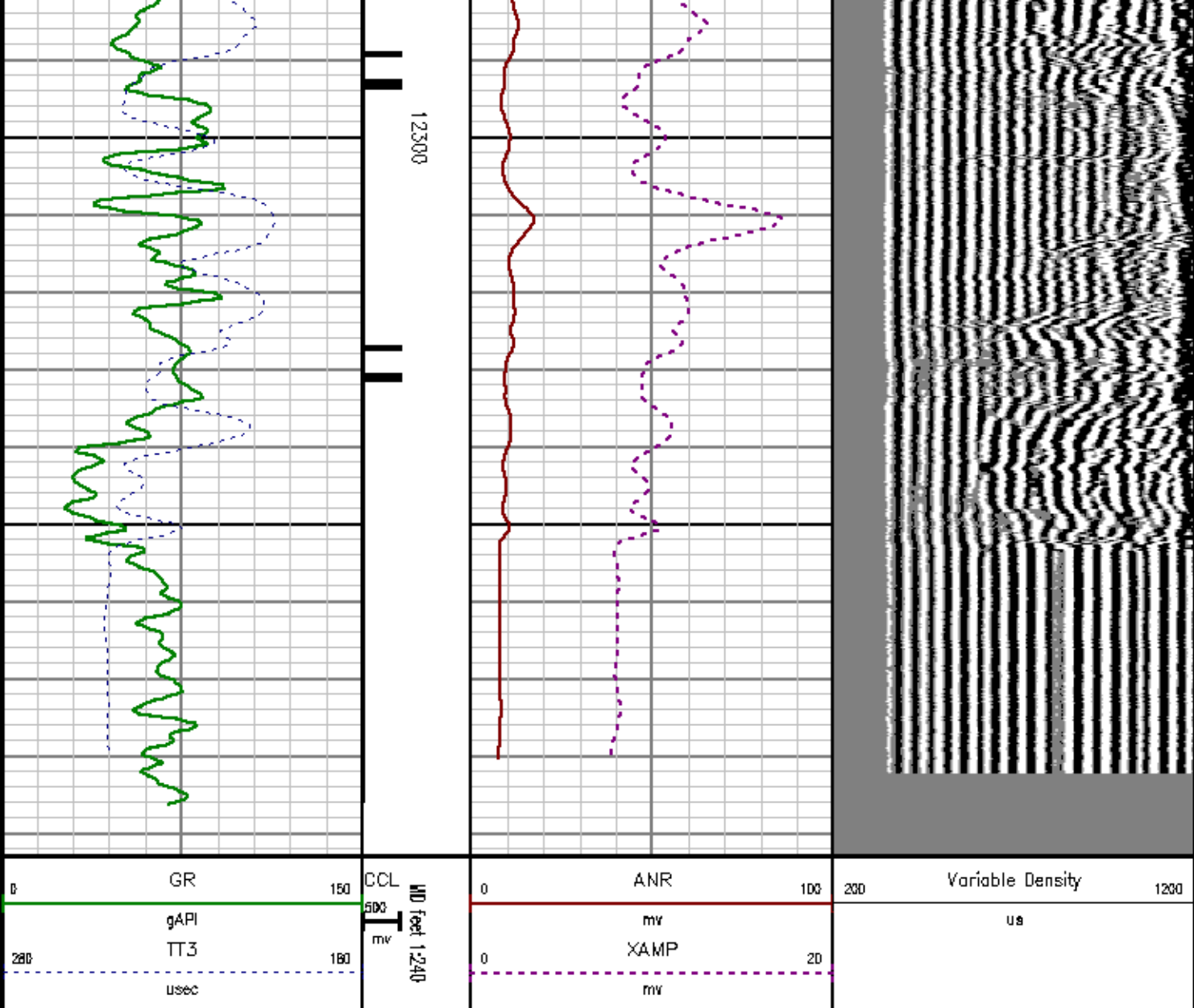
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Mode : PlotMgr 5.4.504

Interval : 12120.00 - 12393.00 feet UP

Created : 9/8/2010 1:15:34 PM





SURFACE CASING SECTION

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	314.263	u sec	3199.750	3621.000
RAL	Amp Gate Start Near	197.754	u sec	3199.750	3621.000
RAL	Amp Gate Start Radial	197.754	u sec	3199.750	3621.000
RAL	Amp Gate Width Far	25.000	u sec	3199.750	3621.000
RAL	Amp Gate Width Near	25.000	u sec	3199.750	3621.000
RAL	Amp Gate Width Radial	25.000	u sec	3199.750	3621.000

RAL	casing od	4.500	inches	3199.750	3621.000
RAL	casing wt	15.100	lbm/ft	3199.750	3621.000
RAL	FB Start Far	289.263	usec	3199.750	3621.000
RAL	FB Start Near	172.754	usec	3199.750	3621.000
RAL	FB Start Radial	172.754	usec	3199.750	3621.000
RAL	FB Thresh Far	15.000	mv	3199.750	3621.000
RAL	FB Thresh Near	10.000	mv	3199.750	3621.000
RAL	FB Thresh Radial	10.000	mv	3199.750	3621.000
RAL	Fluid Travel Time	200.000	usec/ft	3199.750	3621.000

DEPTH OFFSETS (for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-12.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	ARB	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-11.360	AFAR	SIG	TT5			
1426XA	-7.250	CCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

Created by : RAL, v4.8.007

Plotted by : PlotMgr, v5.4.504

Company : EXXONMOBIL PRODUCTION COMPANY

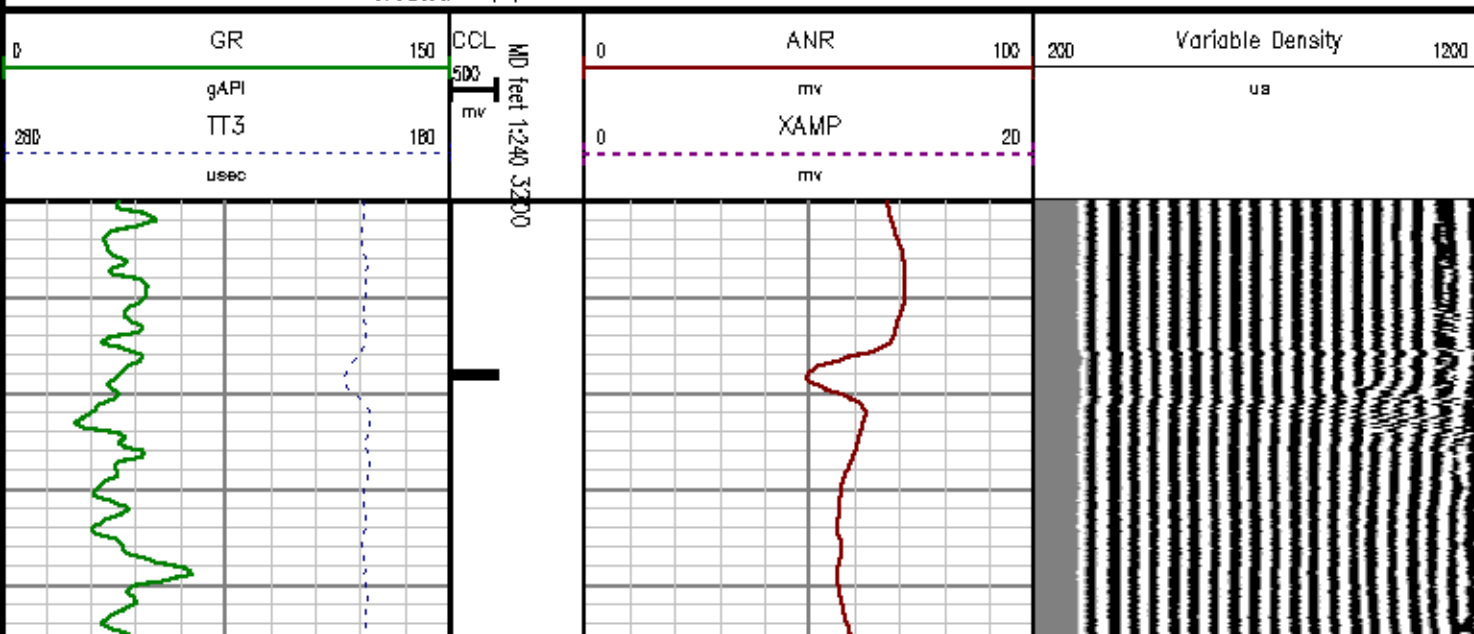
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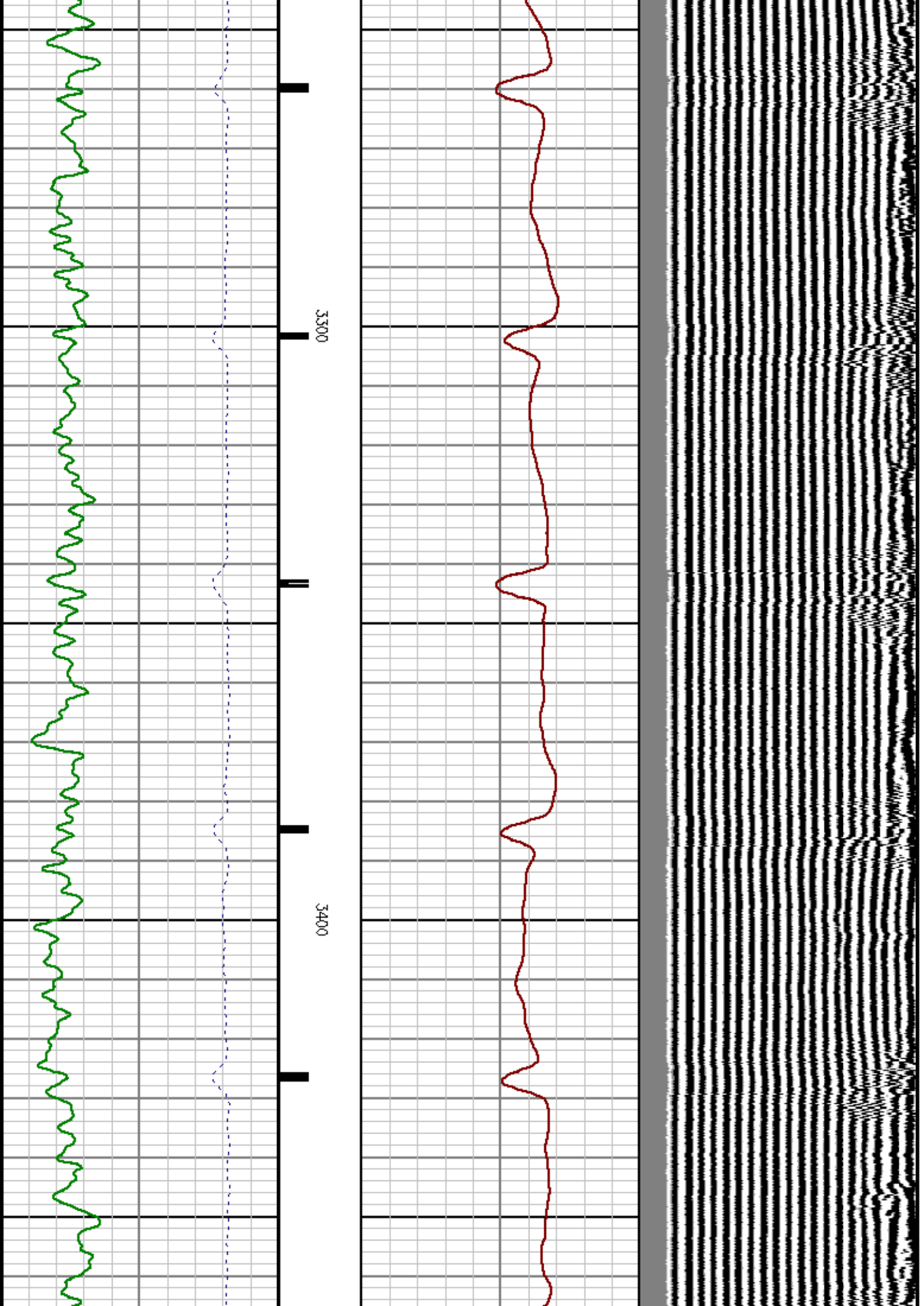
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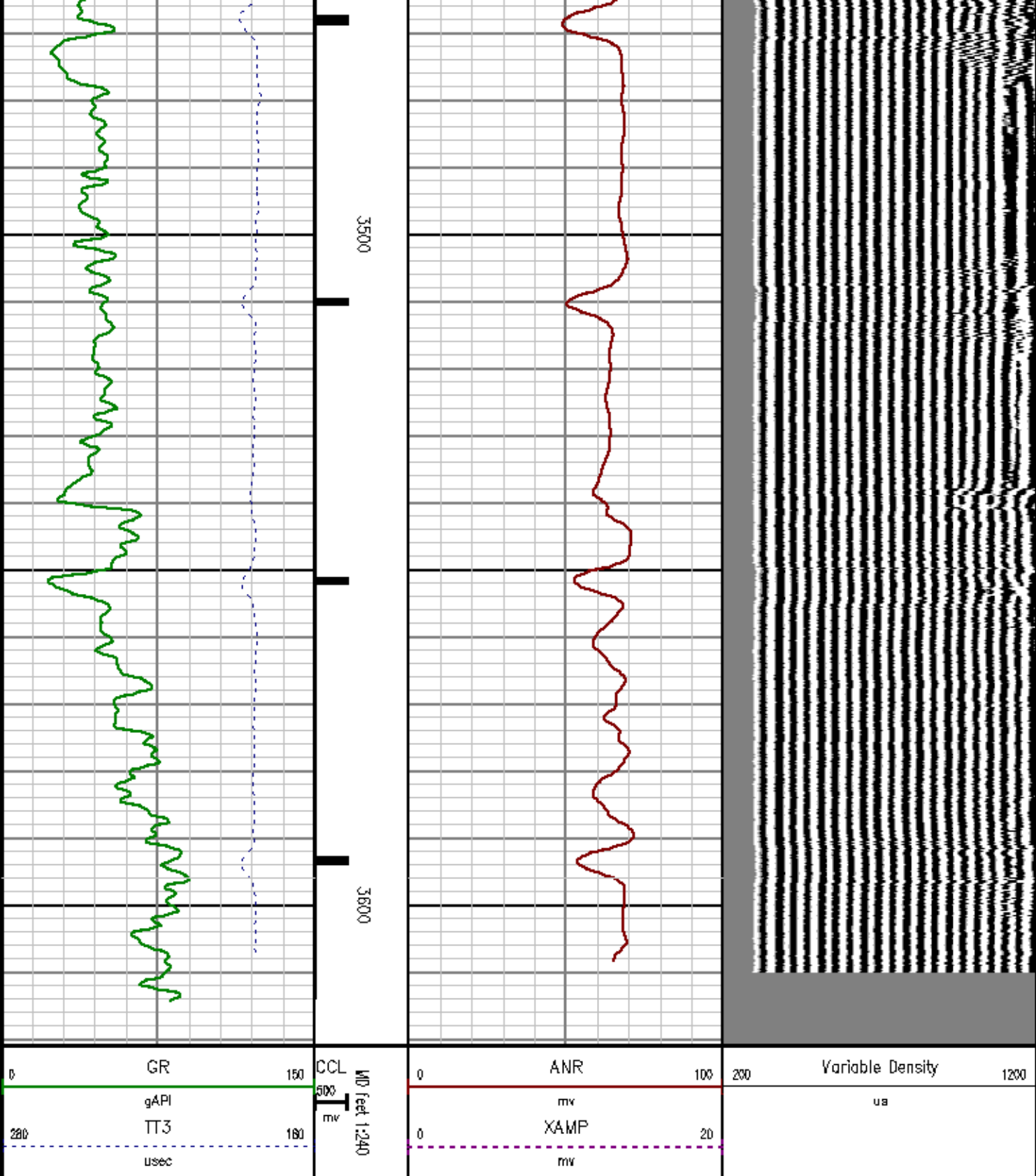
Mode : PlotMgr 5.4.504

Interval : 3200.00 - 3621.00 feet UP

Created : 9/8/2010 3:21:26 PM







FREE PIPE SECTION

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	314.263	usec	79.000	208.250
RAL	Amp Gate Start Near	197.754	usec	79.000	208.250
RAL	Amp Gate Start Radial	197.754	usec	79.000	208.250
RAL	Amp Gate Width Far	25.000	usec	79.000	208.250
RAL	Amp Gate Width Near	25.000	usec	79.000	208.250
RAL	Amp Gate Width Radial	25.000	usec	79.000	208.250
RAL	casing od	4.500	inches	79.000	208.250
RAL	casing wt	15.100	lbm/ft	79.000	208.250
RAL	FB Start Far	289.263	usec	79.000	208.250
RAL	FB Start Near	172.754	usec	79.000	208.250
RAL	FB Start Radial	172.754	usec	79.000	208.250
RAL	FB Thresh Far	15.000	mv	79.000	208.250
RAL	FB Thresh Near	10.000	mv	79.000	208.250
RAL	FB Thresh Radial	10.000	mv	79.000	208.250
RAL	Fluid Travel Time	200.000	usec/ft	79.250	208.250

DEPTH OFFSETS (for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-12.360	ACAL	ANR	AR1	AR2	AR3	AR4
		AR5	AR6	AR7	AR8	CHV	FPR2
		FPR3	FPR5	TT3	TTR1	TTR2	TTR3
		TTR4	TTR5	TTR6	TTR7	TTR8	XAMP
1426XA	-11.360	AFAR	SIG	TT5			
1426XA	-7.250	CCL					
1426XA	-5.390	GR					
1426XA	0.000	NEU					

Created by : RAL, v4.8.007

Plotted by : PlotMgr, v5.4.504

Company : EXXONMOBIL PRODUCTION COMPANY

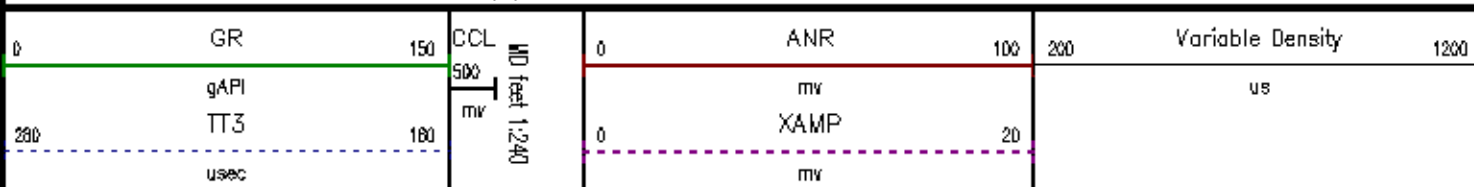
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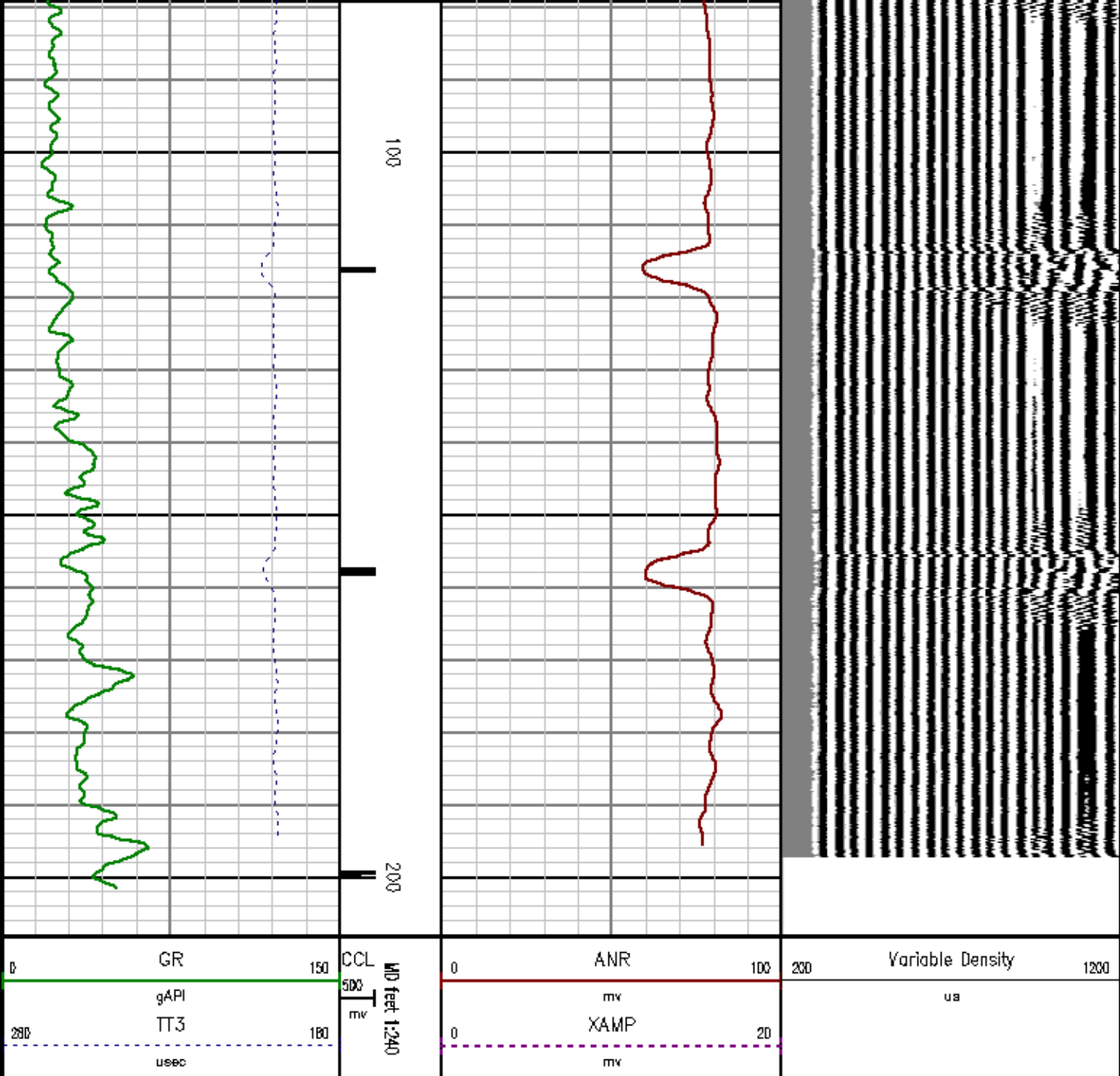
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Mode : PlotMgr 5.4.504

Interval : 79.25 - 208.25 feet DOWN

Created : 9/8/2010 12:26:20 PM





CALIBRATION SUMMARY

GAMMA RAY

DATE/TIME PERFORMED: Mon Aug 30 10:46:45 2010 TOOL SERIES: 1426XA ASSET: 457 SEQ: S1

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K DA612	94.49	353.29	0.715	67.54	252.54	185.00

Verification File: C:\case\calver\GR\457S1.VP

PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Mon Aug 30 10:48:09 2010 TOOL SERIES: 1426XA ASSET: 457 SEQ: S1

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K DA612	96.62	354.81	0.715	69.07	253.64	184.57

RALSHP

Shop Calibration: C:\case\calver\RALSHP\957S11_shp.cal

SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED: Wed Sep 08 12:19:53 2010 TOOL SERIES: 1426XA ASSET: 957 SEQ: S11

Tool Delay [usec]	-54.00	Tank OD in	5.50	Tank Wt lbm/ft	15.50	Tank ID in	4.95
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RECEIVER	Travel Time [usec]	Amp. Gate Start [usec]	Amp. Gate Width [usec]	Zero Gate Start [usec]	Zero Gate Width [usec]	Zero Amp. [mV]	Amp Ref. [mV]	Shop Factor
CAL Pulse	217	216	30	166	25	-0.274	100.00	0.24
3 Ft. Receiver	217	216	25	148	25	-0.001	100.00	0.23
5 Ft. Receiver	325	324	25	252	25	0.069	150.00	0.26
Radial #1	219	216	30	155	25	-0.557	100.00	0.23
Radial #2	220	216	30	155	25	-0.294	100.00	0.23
Radial #3	219	216	30	155	25	-0.216	100.00	0.23
Radial #4	217	216	30	155	25	0.152	100.00	0.23
Radial #5	215	216	30	155	25	0.090	100.00	0.23
Radial #6	214	216	30	155	25	0.238	100.00	0.23
Radial #7	215	216	30	155	25	0.100	100.00	0.23
Radial #8	217	216	30	155	25	0.022	100.00	0.23

RALFLD

Well Site Calibration: C:\case\calver\RALFLD\957S11 fld.cal

WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED: Wed Sep 08 12:21:13 2010 TOOL SERIES: 1426XA ASSET: 957 SEQ: S11

Tool Delay [usec]	-54.00	Casing OD in	4.50	Casing Wt lbm/ft	15.10	Casing ID in	3.83
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RECEIVER	Zero Gate	Zero Gate	Zero Amp	Full Amp	Well Site Factor	Amp. Ref
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RECEIVER	Start [usec]	Width [usec]	Zero Amp. [mV]	Full Amp. [mV]	Website Factor	Amp. Rel [mV]
CAL Pulse	166	25	-0.050	0.000	1.00	100.000
3 Ft. Receiver	166	25	-0.377			
5 Ft. Receiver	280	25	-0.143			
Radial #1	164	25	-0.328			
Radial #2	164	25	-0.321			
Radial #3	164	25	-0.096			
Radial #4	164	25	-0.197			
Radial #5	164	25	-0.110			
Radial #6	164	25	-0.120			
Radial #7	164	25	-0.198			
Radial #8	164	25	-0.157			

TOOL DIAGRAM

OTA SHORT CABLE HEAD

CENTRALIZER

Series RALCENT
 Mnemonic CENT
 Diameter 3.12"
 Weight 20.00 lb

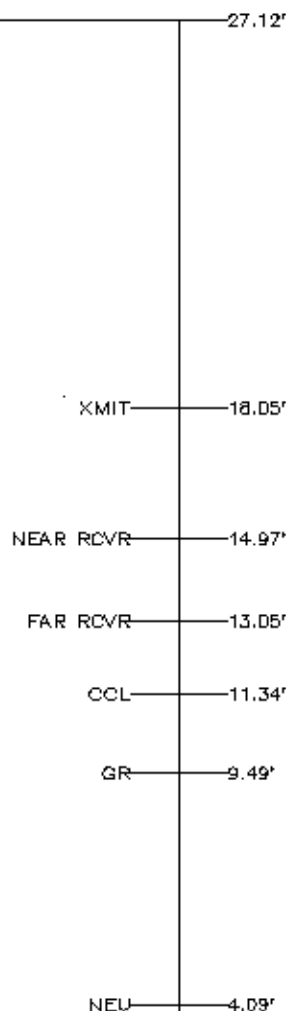
PROBE 2 3/4 DUAL RECEIVER RADII (1426XA)

Probe GR/CCL/NEU

Series 2459XA
 Mnemonic PROB
 Diameter 2.75"
 Length 9.42"
 Measure Point 1.21' NEU
 Measure Point 6.80' GR
 Measure Point 8.46' CCL

CENTRALIZER

Series RALCENT



Mnemonic	CENT
Diameter	3.12"
Weight	20.00 lb

Total Length: 27.12'
Total Weight: Not Available
Max Diameter: 0' 3.12"

0.00'



Baker Atlas

CASE

Company EXXONMOBIL PRODUCTION COMPANY

Well FRU 197-28A5

Field FREEDOM UNIT

County RIO BLANCO State COLORADO

File No:

API No:

05103116330000

Location:

2357' FSL & 234' FWL

Elevations

KB 6109 ft

DF 6108 ft

GL 8062 ft

SEC: 28 TWP: 1S RGE: 97W