



# RADIAL ANALYSIS BOND LOG

Baker Atlas

File No:	Company	FIRST LIBERTY ENERGY INC
CH070632	Well	BASIN #1
API No:	Field	DEL NORTE
05105050190000	County	RIO GRANDE
	State	COLORADO
NESE Spec 9-140N-RSE	Location	Other Services
	SHL: 1900' FSL, 660' FEL BHL: 1900' FSL, 660' FEL	NONE
	SEC 9 TWP 40N RGE 5E	
Permanent Datum	G.L.	Elevation 8176 ft
Log Measured From	K.B.	17 ft Above P. D.
Drill Measured From	KELLY BUSHING	Elevations KB 8193 ft DF NA GL 8176 ft

Date	06 APR 2013
Run	4
Service Order	575103
Depth Driller	6633 ft
Depth Logger	6913 ft
Bottom Logged Interval	6903 ft
Top Logged Interval	3900 ft
Time Started	1400
Time Finished	1700
Operator Rig Time	3 HRS
Type of Fluid in Hole	WATER
Fluid Density	NA
Salinity	NA
Fluid Level	NA
Logged Cement Top	NA
Wellhead Pressure	0 psi
Maximum Hole Deviation	NA
Nominal Logging Speed	45 fpm
Maximum Recorded Temperature	NA
Reference Log	BAKER HUGHES OH LOG
Reference Log Date	07 MAR 2013
Equipment No.	4271
Location	GRAND JUNCTION
Recorded By	JACOB STALEY
Witnessed By	Bob Williams

- 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
12.52 In	80 ft	1243 ft
8.75 In	1243 ft	4812 ft
6.125 In	4812 ft	9243 ft

Casing Record				
Size	Weight	Grade	From	To
16 In	75 lbm/ft	NA	0 ft	80 ft
9.625 In	36 lbm/ft	NA	0 ft	1220 ft
7 In	23 lbm/ft	NA	0 ft	4374 ft
4.5 In	11.6 lbm/ft	NA	0 ft	6975 ft
7 In	26 lbm/ft	NA	4374 ft	4797 ft

Remarks
ALL DATA WAS DEPTH SHIFTED TO MATCH THE GR CURVE OF THE BAKER HUGHES OH LOG WITH A LINEAR SHIFT OF +2
THE DEPTH SHIFTING PROCESS CREATES THE POTENTIAL FOR COLLAR LENGTHS TO VARY FROM OTHER CASED HOLE LOGS WITHOUT A GR REFERENCE

## Equipment Data

Run	Trip	Tool	Series Number	Serial Number	Position
1	1	VDL	1426XA	10124106	CENT
1	1	GR/CCL	1355XA	10580209	CENT

# *PRIMARY PRESENTATION*

## *0 PSI*

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	usec	3849.750	3970.000
RAL	Amp Gate Start Near	200.000	usec	3849.750	3970.000
RAL	Amp Gate Start Radial	200.000	usec	3849.750	3970.000
RAL	Amp Gate Width Far	25.000	usec	3849.750	3970.000
RAL	Amp Gate Width Near	25.000	usec	3849.750	3970.000
RAL	Amp Gate Width Radial	25.000	usec	3849.750	3970.000
RAL	casing od	4.500	inches	3849.750	3970.000
RAL	casing wt	11.600	lbm/ft	3849.750	3970.000
RAL	FB Start Far	291.900	usec	3849.750	3970.000
RAL	FB Start Near	175.391	usec	3849.750	3970.000
RAL	FB Start Radial	175.391	usec	3849.750	3970.000
RAL	FB Thresh Far	10.000	mv	3849.750	3970.000
RAL	FB Thresh Near	4.000	mv	3849.750	3970.000
RAL	FB Thresh Radial	4.000	mv	3849.750	3970.000
RAL	Fluid Travel Time	200.000	usec/ft	3849.750	3970.000
RAL	Amp Gate Start Far	305.000	usec	3970.000	6927.000
RAL	Amp Gate Start Near	200.000	usec	3970.000	6927.000
RAL	Amp Gate Start Radial	200.000	usec	3970.000	6927.000
RAL	Amp Gate Width Far	25.000	usec	3970.000	6927.000
RAL	Amp Gate Width Near	25.000	usec	3970.000	6927.000
RAL	Amp Gate Width Radial	25.000	usec	3970.000	6927.000
RAL	casing od	4.500	inches	3970.000	6927.000
RAL	casing wt	11.600	lbm/ft	3970.000	6927.000
RAL	FB Start Far	291.900	usec	3970.000	6927.000
RAL	FB Start Near	175.391	usec	3970.000	6927.000
RAL	FB Start Radial	175.391	usec	3970.000	6927.000
RAL	FB Thresh Far	10.000	mv	3970.000	6927.000
RAL	FB Thresh Near	4.000	mv	3970.000	6927.000
RAL	FB Thresh Radial	4.000	mv	3970.000	6927.000

RAL	FB Thresh Radial	4.000	mv	3970.000	6927.000
RAL	Fluid Travel Time	200.000	usec/ft	3970.000	6926.750

## DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-11.000	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	-10.040	AFAR	SIG	TT5			
1355XA	-5.620	CCL					
1355XA	-1.500	GR					
1355XA	0.000	TEMP					

Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : FIRST LIBERTY ENERGY INC

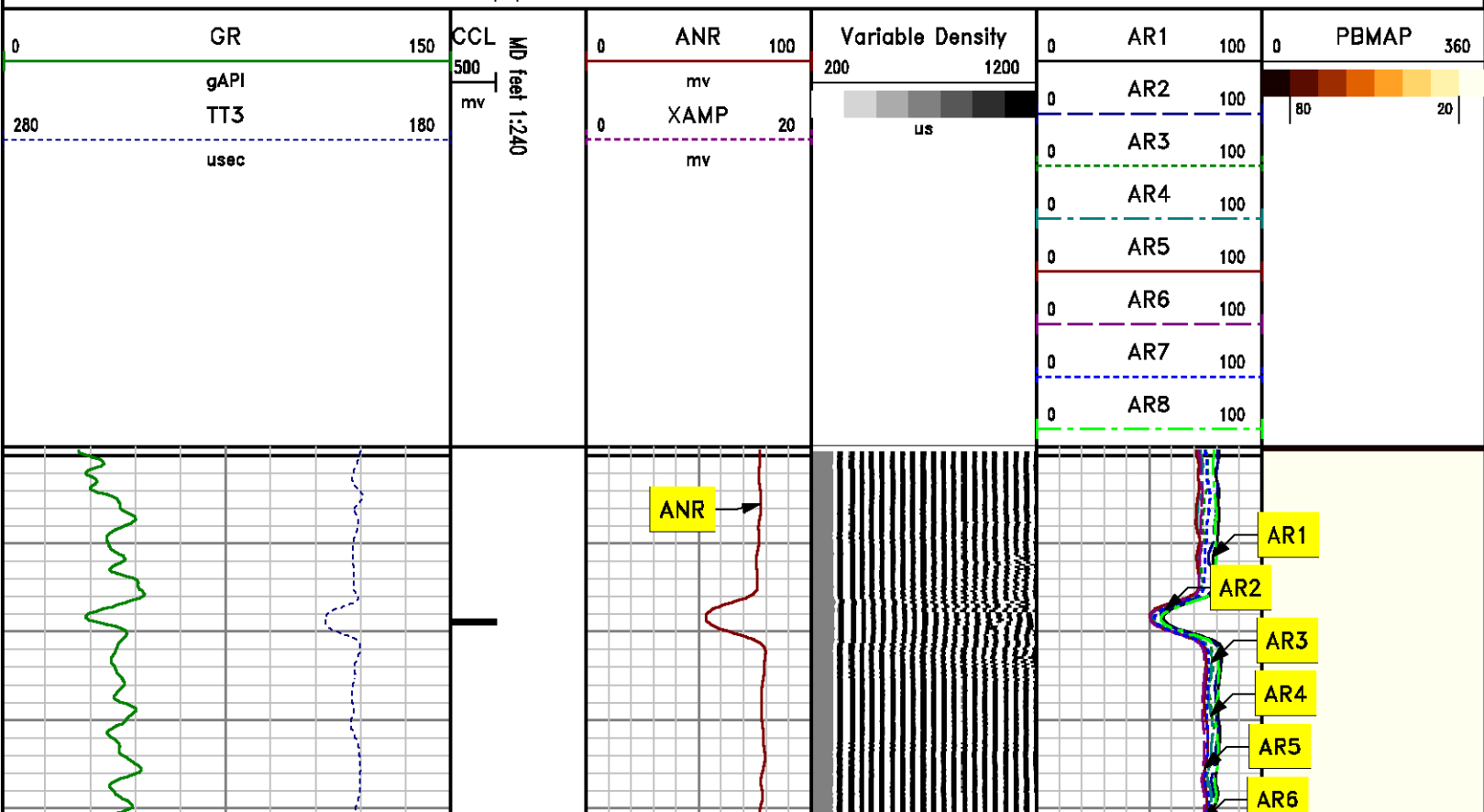
Well : BASIN #1

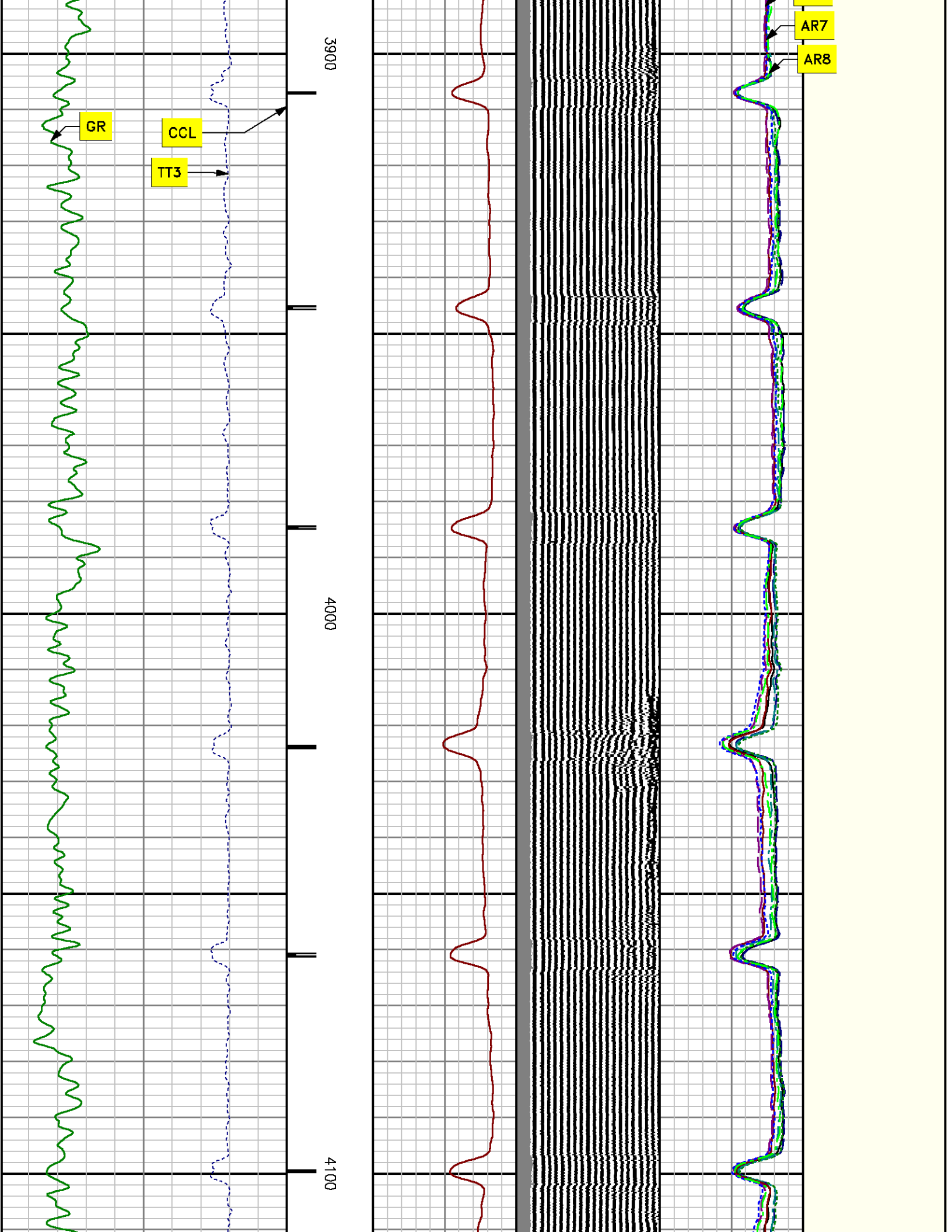
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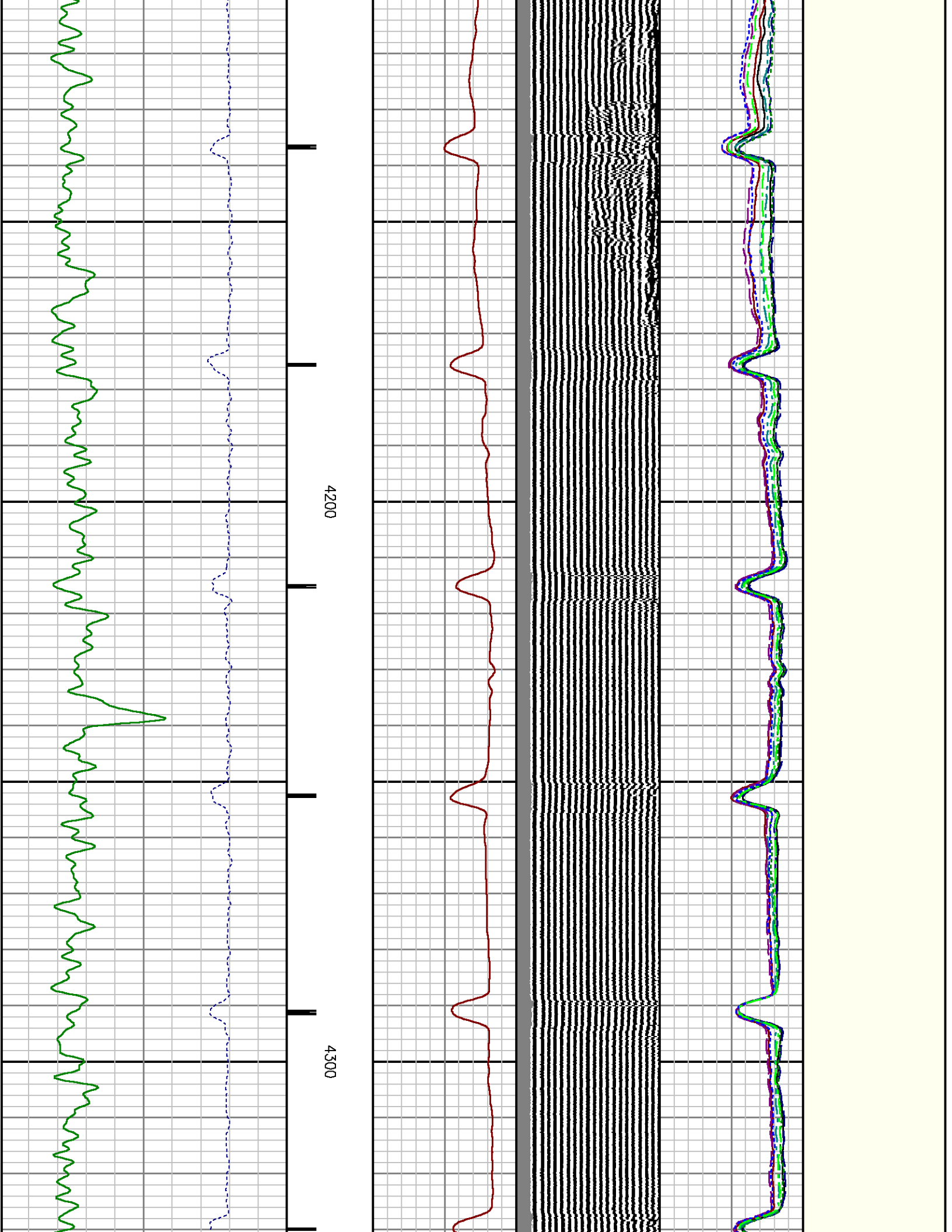
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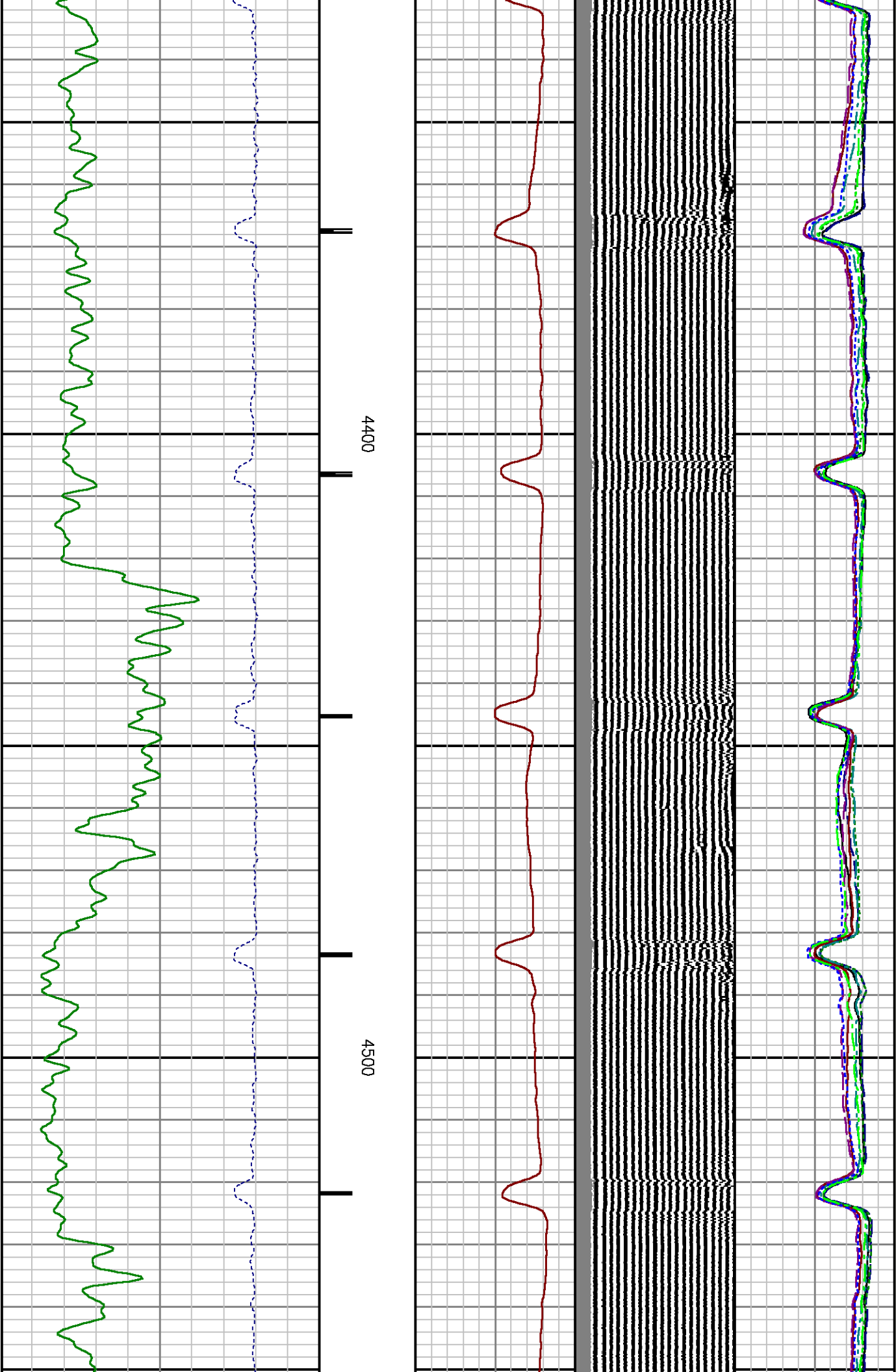
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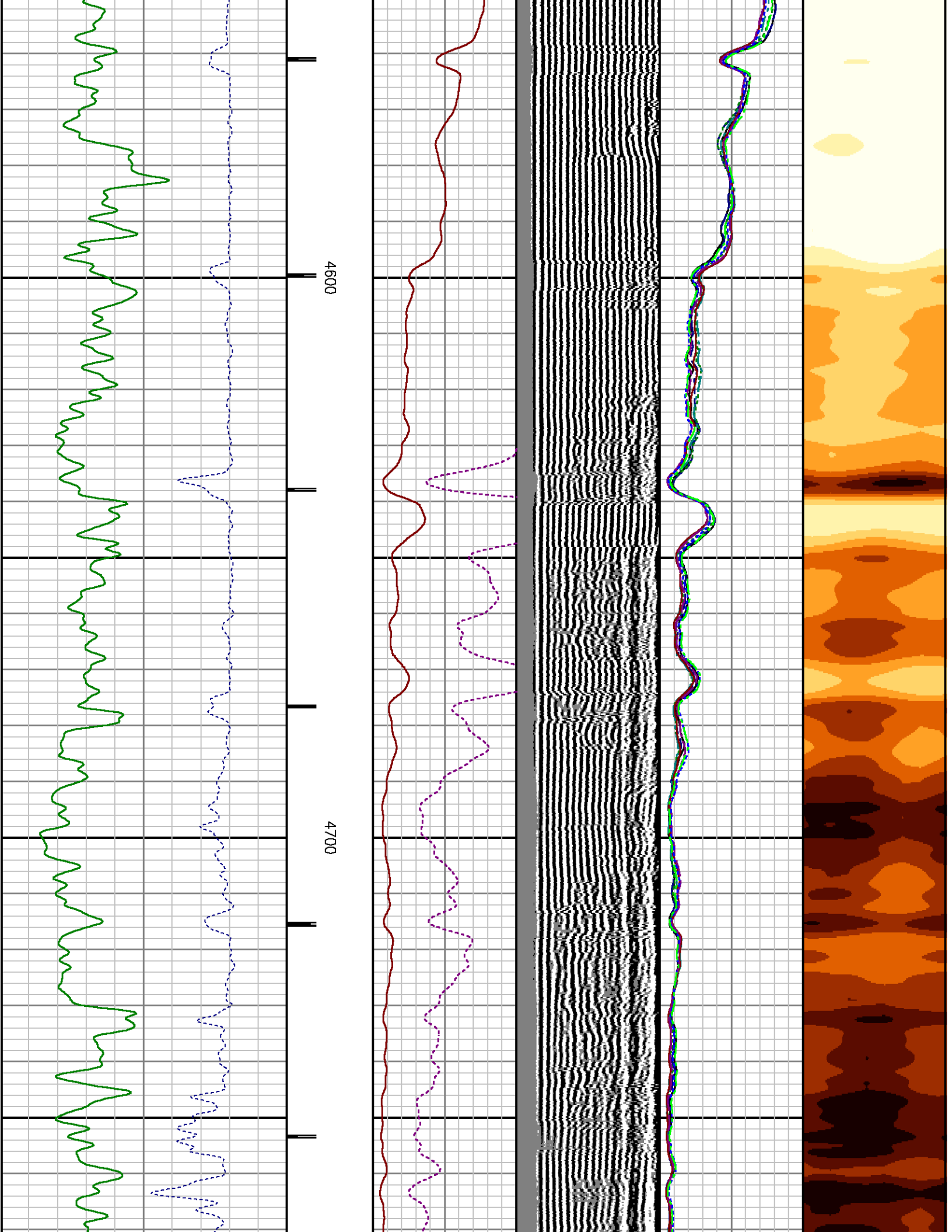
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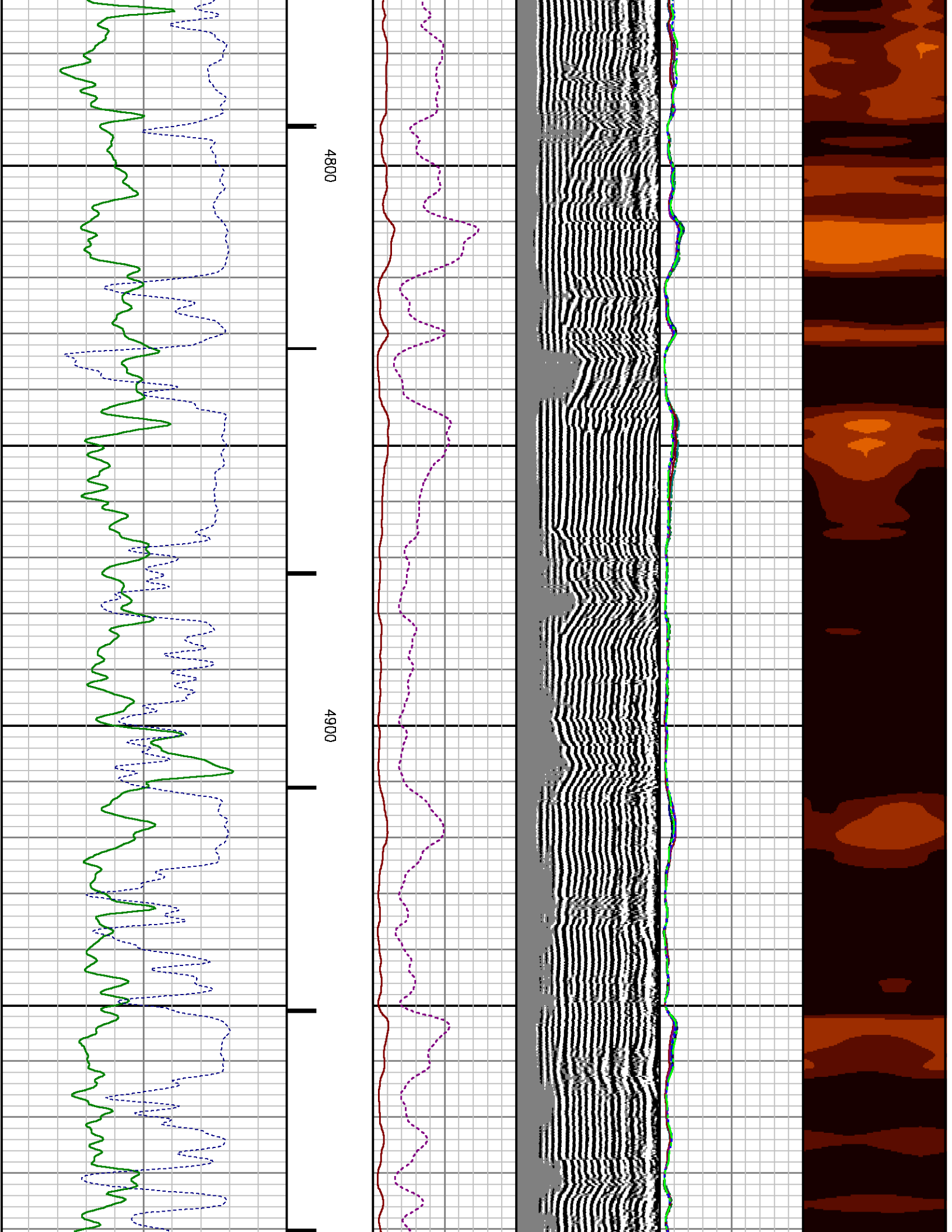




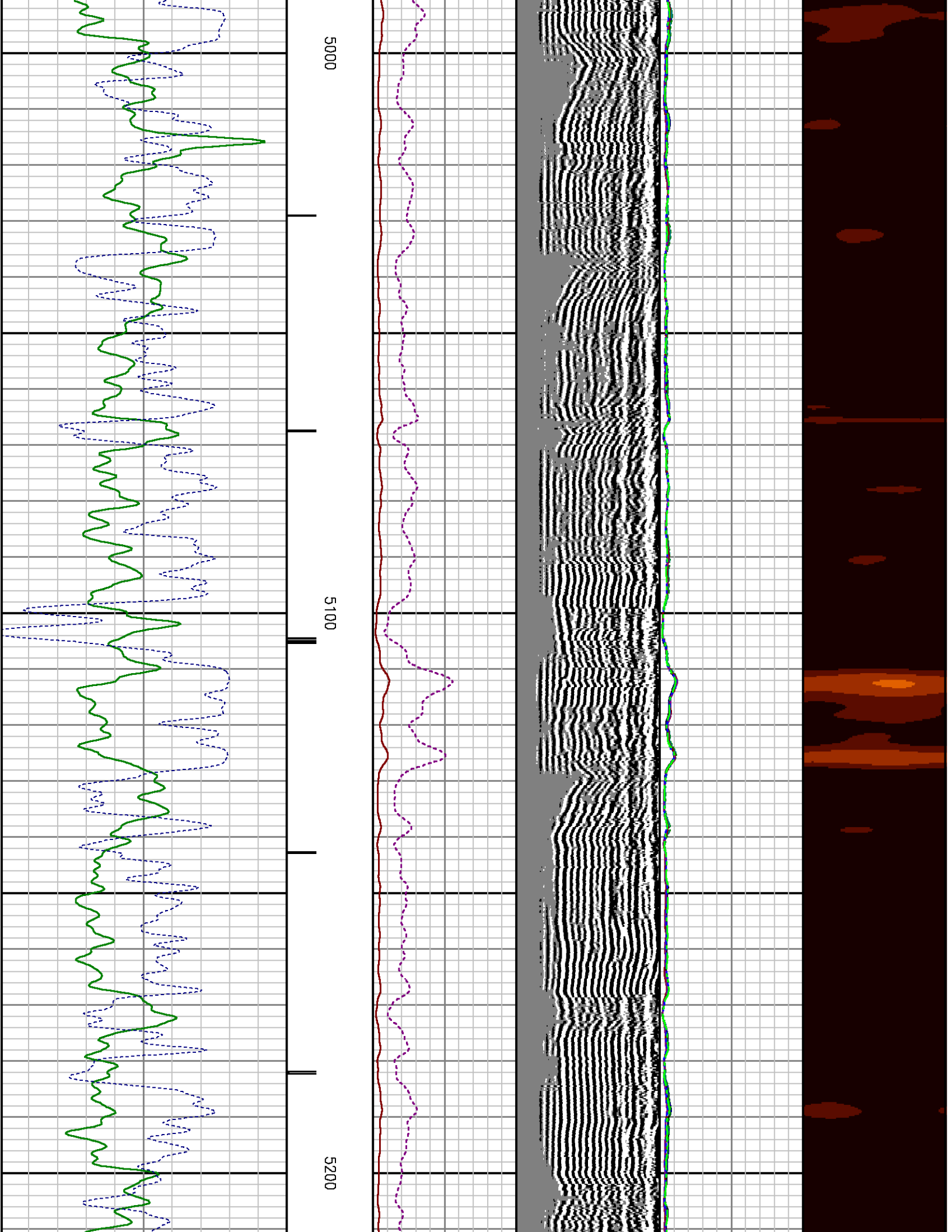


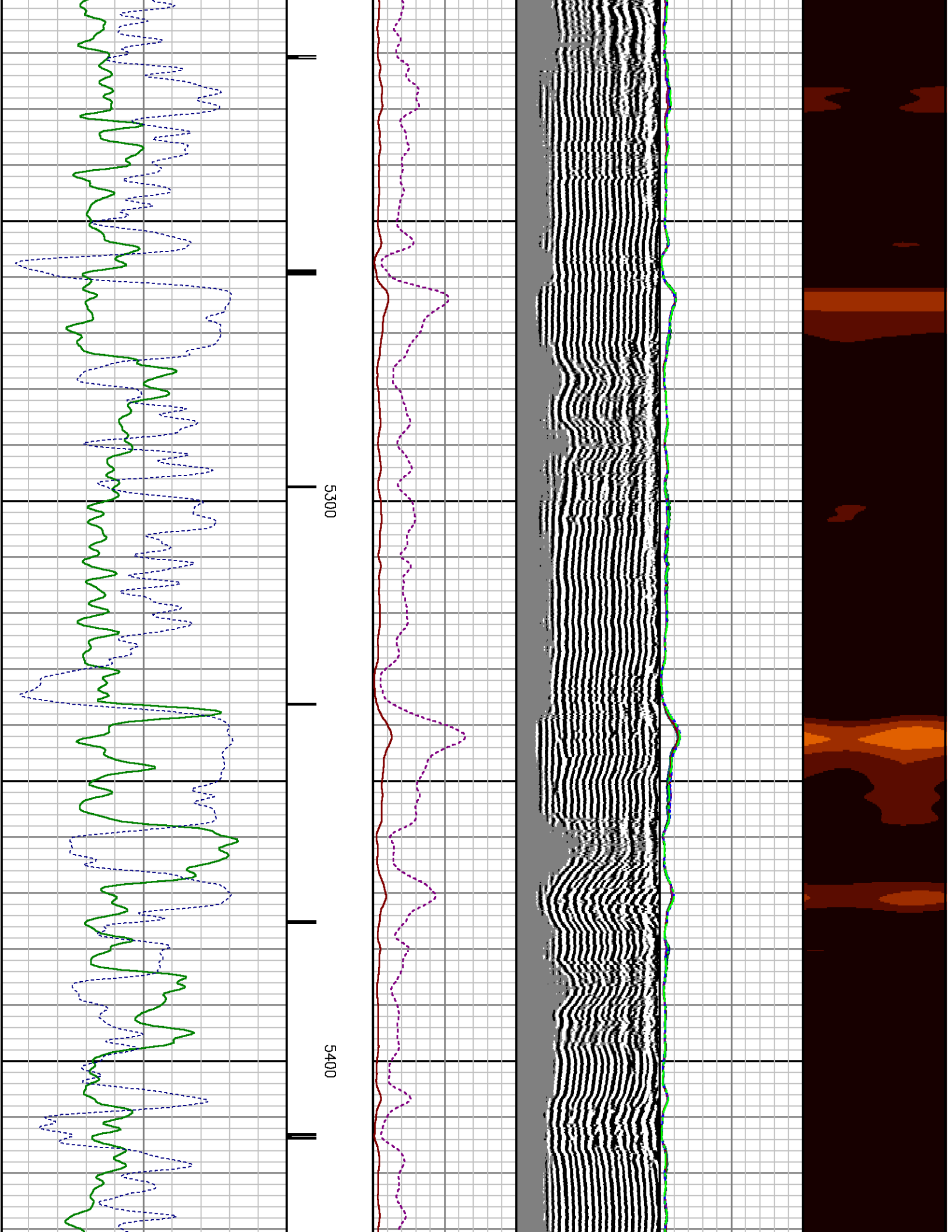


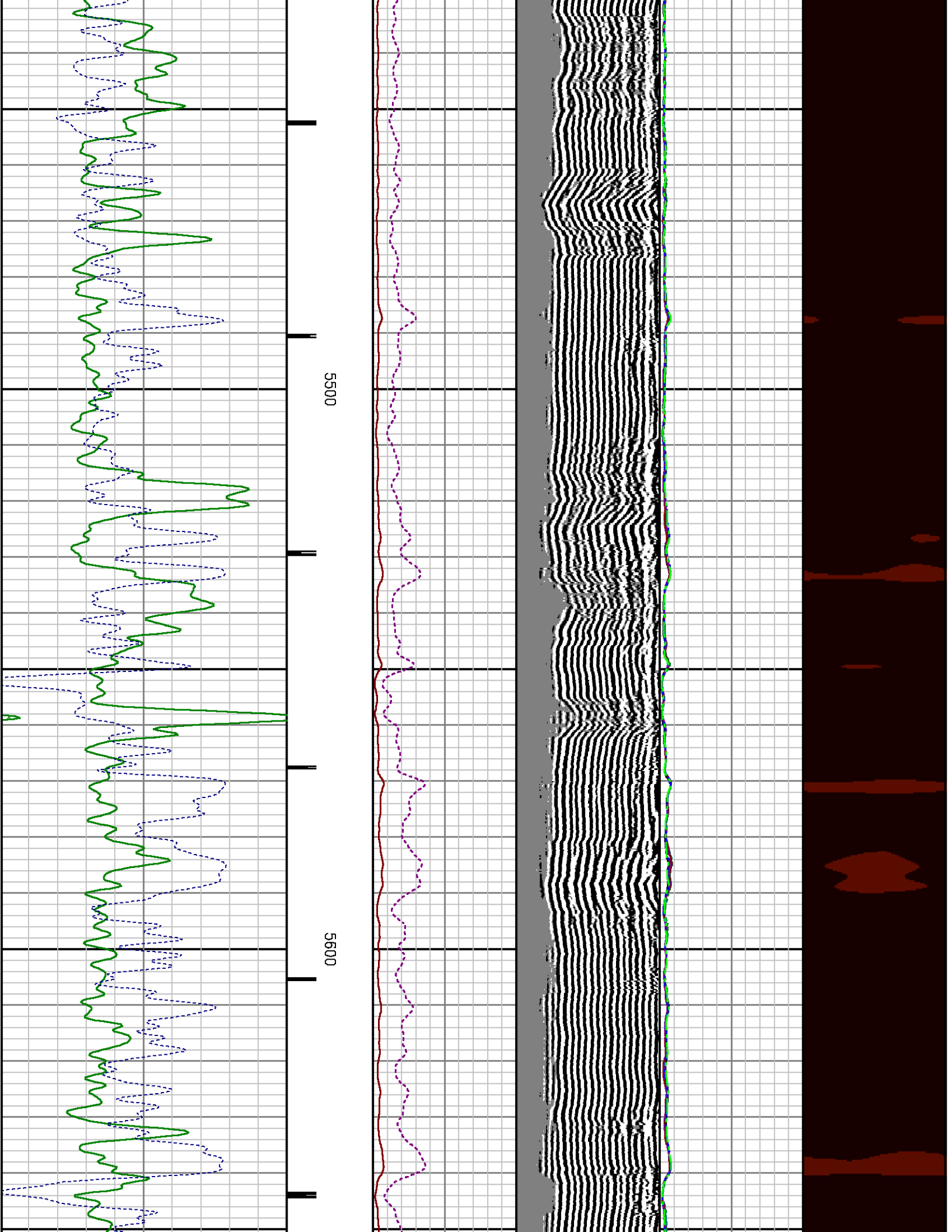


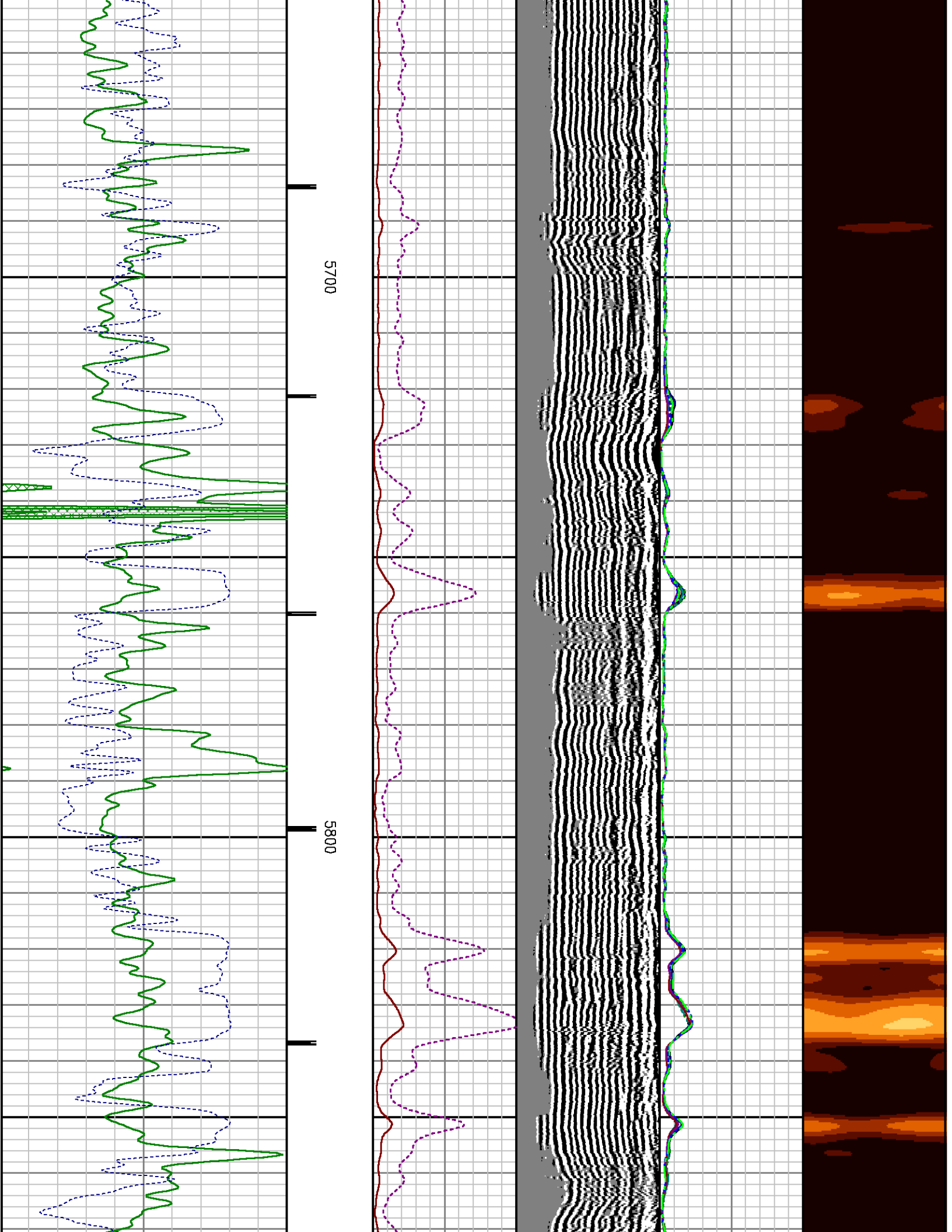


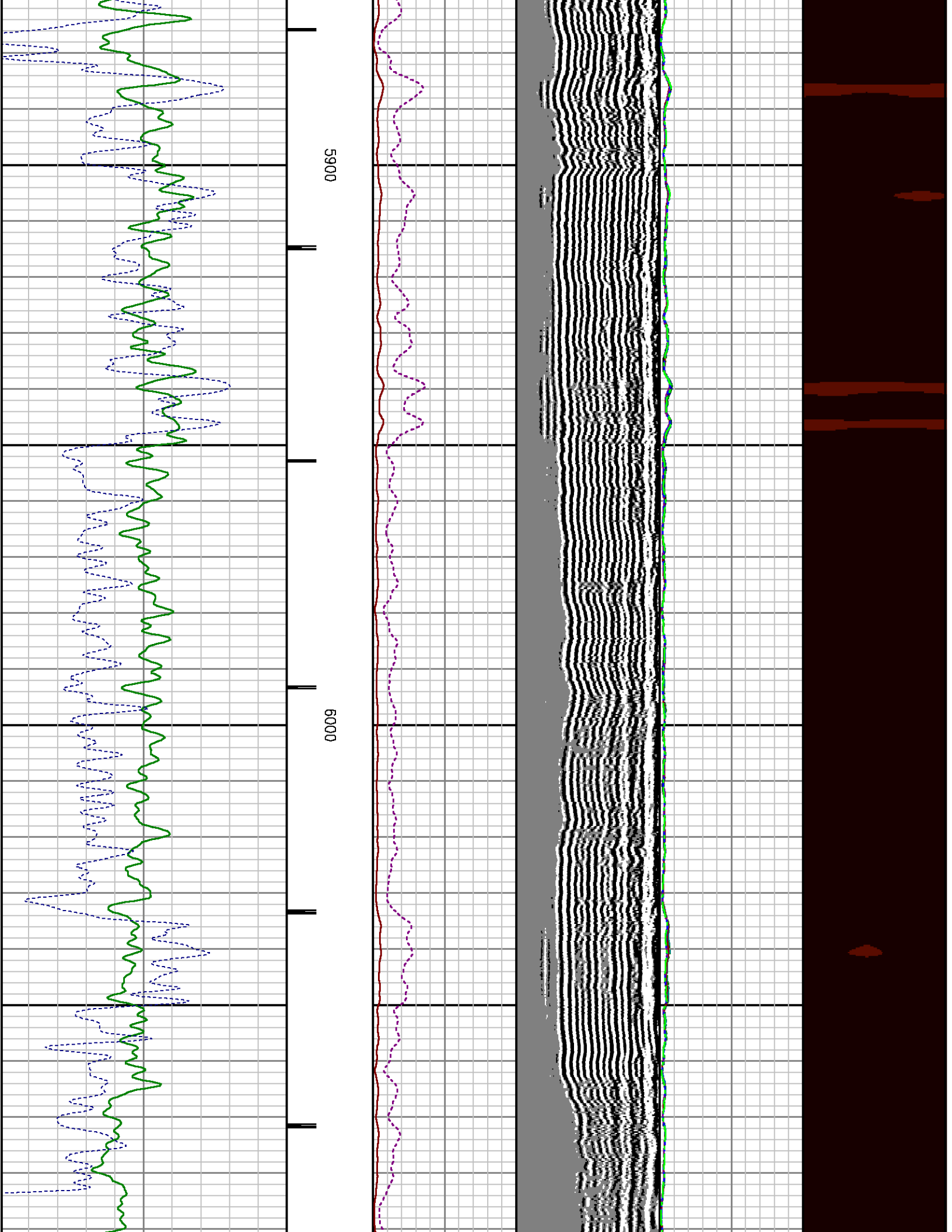




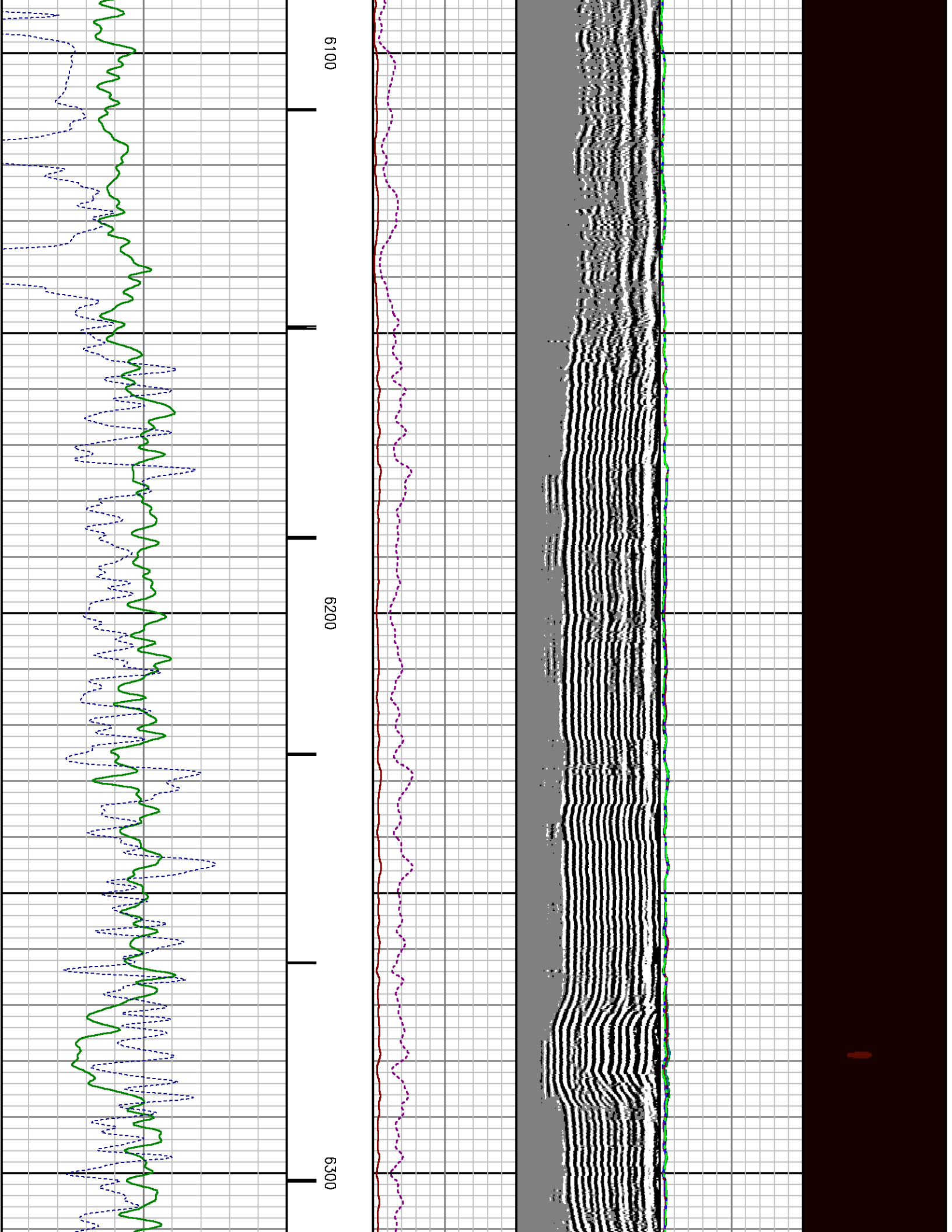


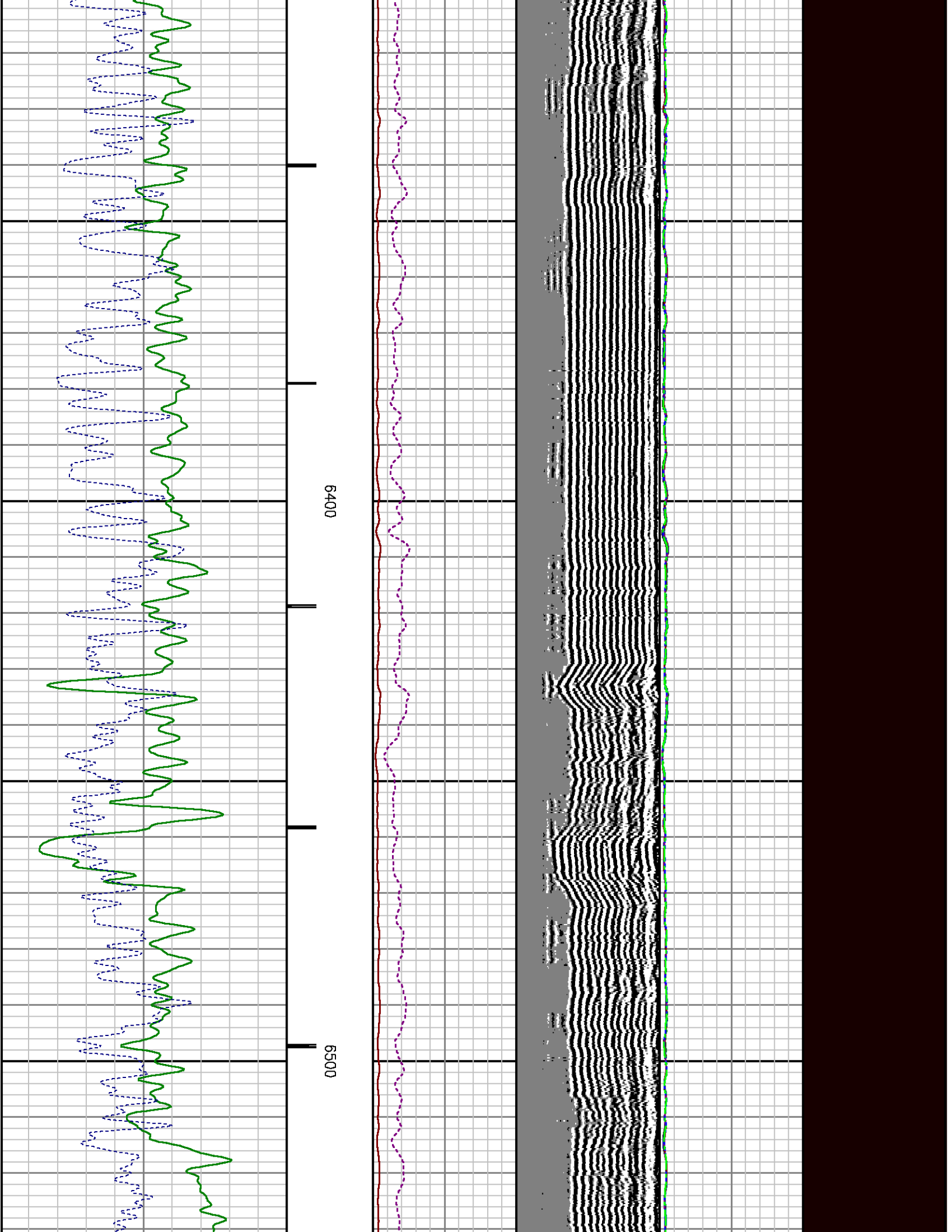




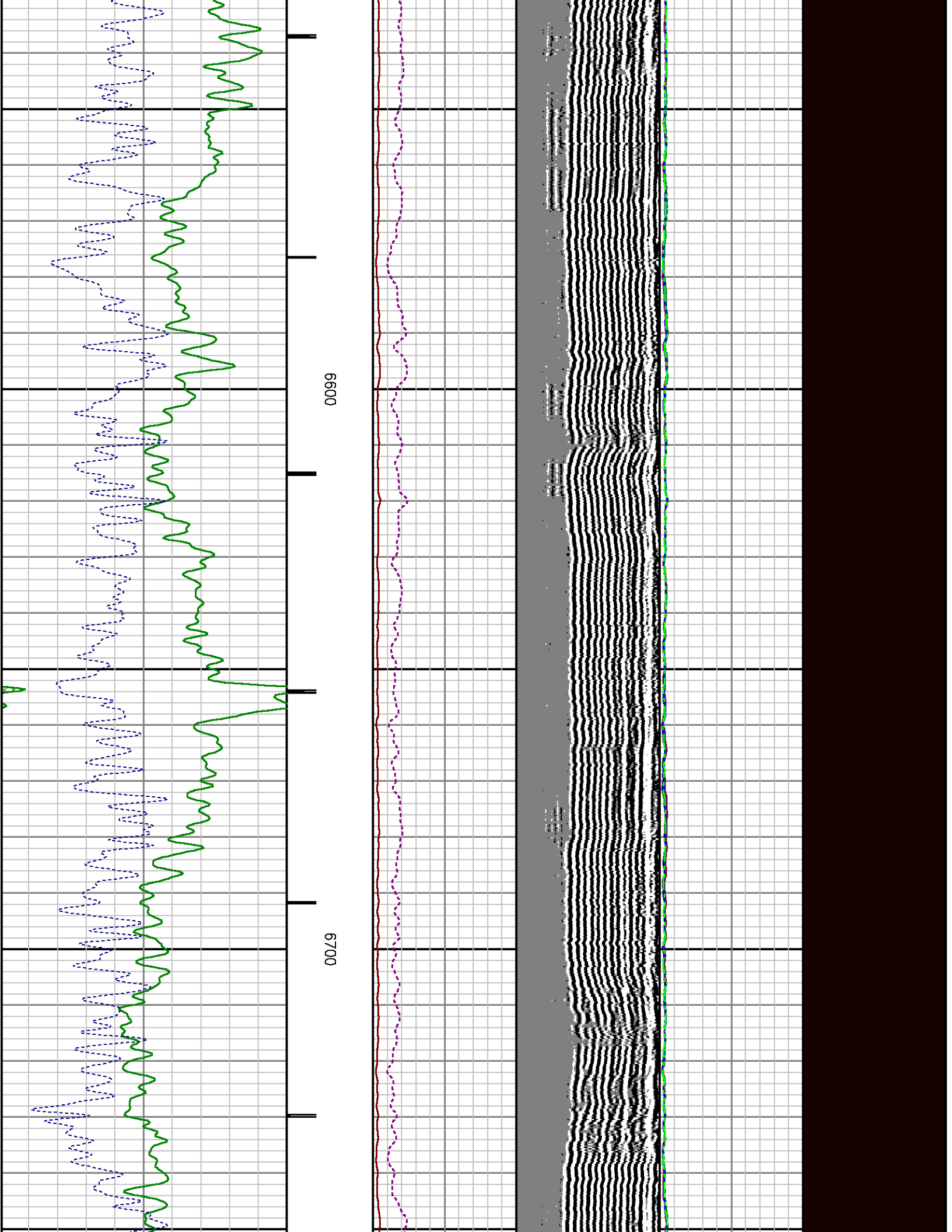


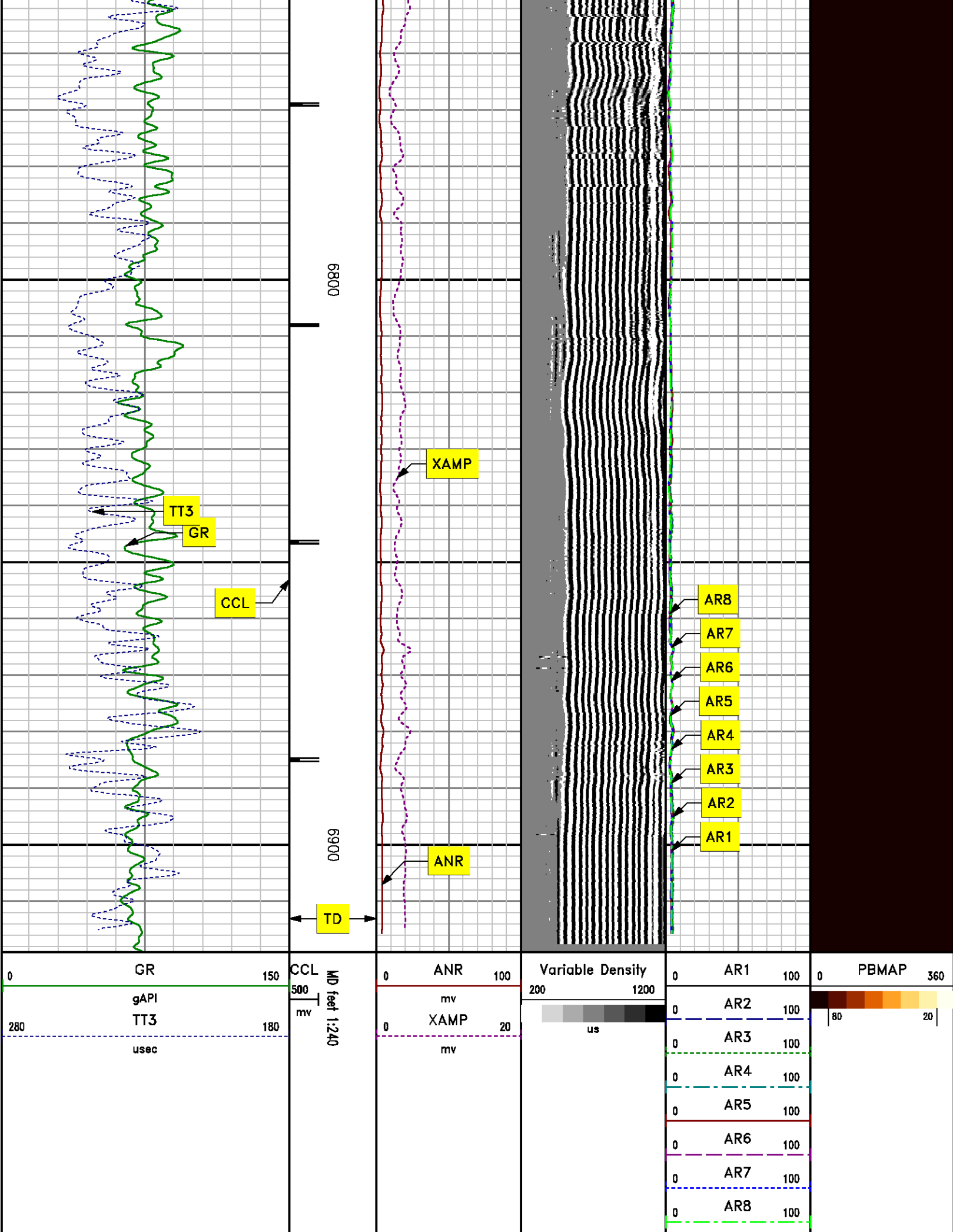












# ***REPEAT SECTION***

## ***0 PSI***

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
RAL	Amp Gate Start Far	305.000	usec	6623.380	6923.630
RAL	Amp Gate Start Near	200.000	usec	6623.380	6923.630
RAL	Amp Gate Start Radial	200.000	usec	6623.380	6923.630
RAL	Amp Gate Width Far	25.000	usec	6623.380	6923.630
RAL	Amp Gate Width Near	25.000	usec	6623.380	6923.630
RAL	Amp Gate Width Radial	25.000	usec	6623.380	6923.630
RAL	casing od	4.500	inches	6623.380	6923.630
RAL	casing wt	11.600	lbm/ft	6623.380	6923.630
RAL	FB Start Far	291.900	usec	6623.380	6923.630
RAL	FB Start Near	175.391	usec	6623.380	6923.630
RAL	FB Start Radial	175.391	usec	6623.380	6923.630
RAL	FB Thresh Far	10.000	mv	6623.380	6923.630
RAL	FB Thresh Near	4.000	mv	6623.380	6923.630
RAL	FB Thresh Radial	4.000	mv	6623.380	6923.630
RAL	Fluid Travel Time	200.000	usec/ft	6623.380	6923.630

### DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
1426XA	-11.000	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	-10.040	AFAR	SIG	TT5			
1355XA	-5.620	CCL					
1355XA	-1.500	GR					
1355XA	0.000	TEMP					

Created by : RAL, v4.8.008

Plotted by : PlotMgr, v5.4.504

Company : FIRST LIBERTY ENERGY INC

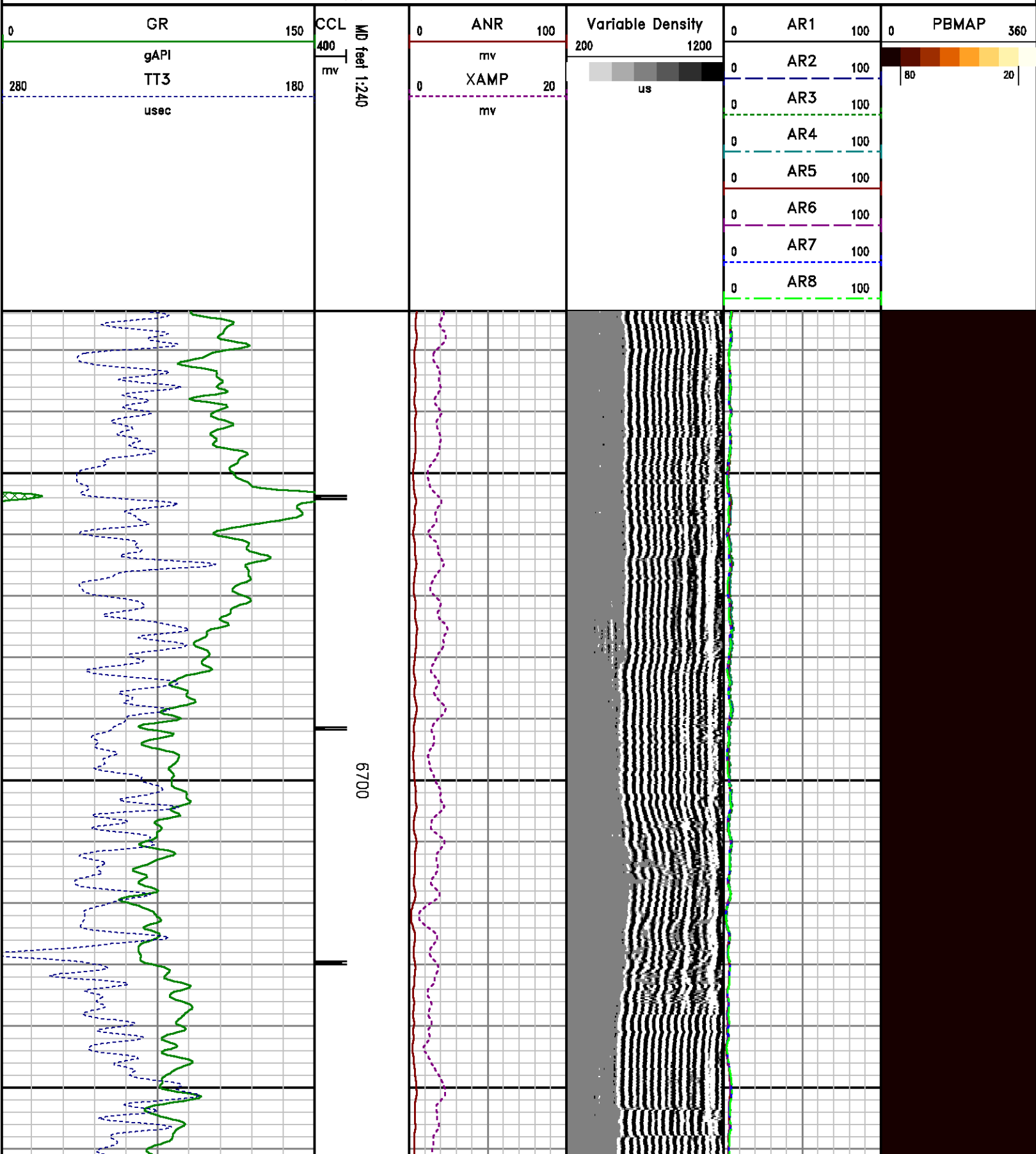
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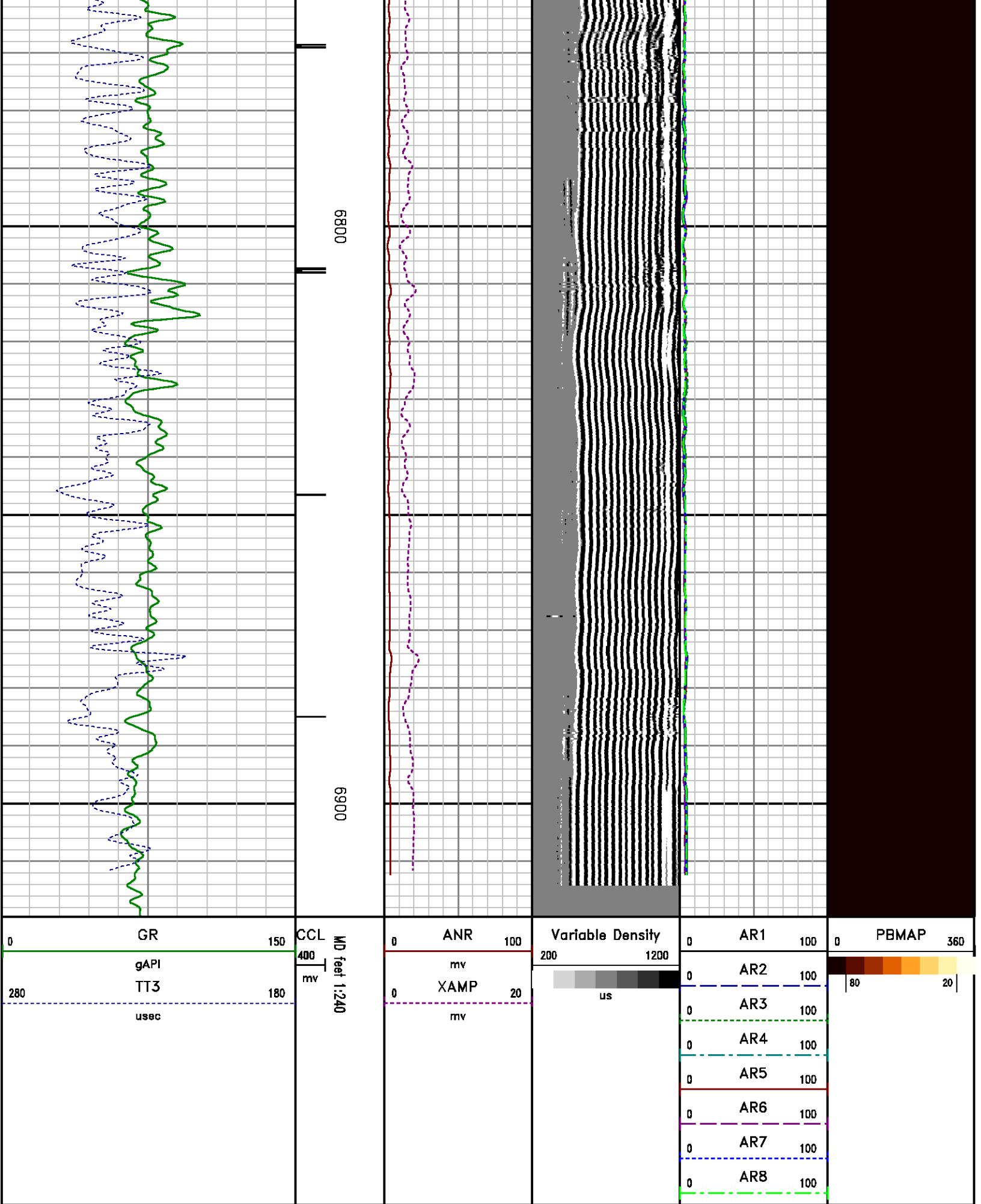
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Mode : PlotMgr 5.4.504

Interval : 6623.63 - 6919.63 feet UP

Created : 4/6/2013 3:45:18 PM





# CALIBRATION SUMMARY

## RALSHP

Shop Calibration: C:\case\calver\RALSHP\106A6 shp.cal

### SHOP CALIBRATION SUMMARY

DATE/TIME PERFORMED: Sat Apr 06 15:03:30 2013 TOOL SERIES: 1426XA ASSET: 106 SEQ: A6

Tool Delay [usec] -59.00 Tank OD in 5.50 Tank Wt lbm/ft 15.50 Tank ID in 4.95

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	218	216	30	166	25	-0.334	100.00	0.17
3 Ft. Receiver	218	216	30	158	25	-0.449	100.00	0.16
5 Ft. Receiver	326	325	30	267	25	-1.850	150.00	0.18
Radial #1	218	216	30	148	25	0.245	100.00	0.16
Radial #2	218	216	30	148	25	-0.059	100.00	0.16
Radial #3	218	216	30	148	25	-0.097	100.00	0.16
Radial #4	218	216	30	148	25	-0.181	100.00	0.16
Radial #5	218	216	30	148	25	-0.227	100.00	0.16
Radial #6	218	216	30	148	25	-0.101	100.00	0.16
Radial #7	218	216	30	148	25	-0.336	100.00	0.16
Radial #8	218	216	30	148	25	-0.034	100.00	0.16

## RALFLD

Wellsite Calibration: C:\case\calver\RALFLD\106A6 fld.cal

### WELLSITE CALIBRATION SUMMARY

DATE/TIME PERFORMED: Sat Apr 06 15:04:40 2013 TOOL SERIES: 1426XA ASSET: 106 SEQ: A6

Tool Delay [usec] -59.00 Casing OD in 4.50 Casing Wt lbm/ft 11.60 Casing ID in 4.00

RECEIVER	Zero Gate Start [usec]	Zero Gate Width [usec]	Zero Amp. [mV]	Full Amp. [mV]	Wellsite Factor	Amp. Ref [mV]
CAL Pulse	166	25	-0.011	0.000	1.00	100.000
3 Ft. Receiver	200	30	-0.298			
5 Ft. Receiver	317	30	0.056			
Radial #1	200	30	-0.892			
Radial #2	200	30	-0.403			
Radial #3	200	30	-0.262			

Radial #4	200	30	-0.332
Radial #5	200	30	-0.213
Radial #6	200	30	-0.198
Radial #7	200	30	-0.077
Radial #8	200	30	-0.140

## ***GAMMA RAY***

Calibration File: C:\case\calver\GR\209A.cal

### CALIBRATION SUMMARY

DATE/TIME PERFORMED: Mon Apr 01 16:37:57 2013 TOOL SERIES: 1355XA ASSET: 209 SEQ: A

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
6670 S2K	132.31	594.62	0.400	52.95	237.95	185.00

Verification File: C:\case\calver\GR\209A.VP

### PRIMARY LOG VERIFICATION

DATE/TIME PERFORMED: Mon Apr 01 16:39:36 2013 TOOL SERIES: 1355XA ASSET: 209 SEQ: A

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
6670 S2K	131.11	577.07	0.400	52.47	230.92	178.46

## ***TOOL DIAGRAM***

### ***CABLE HEAD***

Series FCBLHD  
Mnemonic CBLH  
Diameter 3.38"  
Weight 15.00 lb  
Length 3.17'

### ***PROBE 2 3/4 DUAL RECEIVER RADII***

Series 1426XA  
Mnemonic PROB  
Diameter 2.75"  
Length 11.17'  
Measure Point 0.75' FAR RCVR  
Measure Point 2.67' NEAR RCVR  
Measure Point 5.75' XMIT  
Temp Rating 350.00 °F



21.29'

XMIT 12.71'



Press Rating 18000.00 PSI

**RAL GR/TEMP/CCL/CHV DETECTOR**

Series 1355XA  
Mnemonic RAL  
Diameter 2.75"  
Weight 85.00 lb  
Length 6.96'  
Measure Point 0.17' TEMP  
Measure Point 1.67' GR  
Measure Point 5.79' CCL  
Temp Rating 400.00 °F  
Press Rating 20000.00 PSI



NEAR RCVR 9.63'  
FAR RCVR 7.71'  
CCL 5.79'  
GR 1.67'  
TEMP 0.17'  
0.00'

Total Length: 21.29'  
Total Weight: Not Available  
Max Diameter: 0' 3.38"



Company FIRST LIBERTY ENERGY INC  
Well BASIN #1  
Field DEL NORTE  
County RIO GRANDE State COLORADO

File No:  
CH070632  
API No:  
05105060190000

**Location**

SHL: 1900' FSL, 660' FEL  
BHL: 1900' FSL, 660' FEL

**Elevations**

KB 8193 ft  
DF NA  
GL 8176 ft

NESE Sec 9-T40N-R5E

SEC 9 TWP 40N RGE 5E

Baker Atlas

