

RADIAL CEMENT BOND
GAMMA RAY
CCL

Company ANDADARKO PETROLEUM CORPORATION		Company ANDADARKO PETROLEUM CORPORATION					
Well HSR-DEBORRAH 7-5		Well HSR-DEBORRAH 7-5					
Field WATTENBERG		Field WATTENBERG					
County WELD		County WELD					
State COLORADO		State COLORADO					
Location: API # : 05-123-16755		Other Services					
SW/NE		Elevation					
LAT:40.25530 LONG:-104.79850		K.B. 4789'					
SEC 5 TWP 3N RGE 66W		D.F. 4788'					
Permanent Datum GL		G.L. 4779'					
Log Measured From KB 10'							
Drilling Measured From KB							
Date 2-12-2016	Run Number ONE						
Depth Driller 7446'	Depth Logger 6367'						
Bottom Logged Interval 6358'	SURFACE						
Top Log Interval 7.625"	WATER						
Open Hole Size 7.625"	WATER						
Type Fluid	WATER						
Density / Viscosity 1.0							
Max. Recorded Temp. 215 DEG F							
Estimated Cement Top 3362' & 116'							
Time Well Ready N/A							
Time Logger on Bottom N/A							
Equipment Number 4740							
Location GREELEY							
Recorded By N. BREHMER							
Witnessed By E. GRIEBEL							
Borehole Record		Tubing Record					
Run Number	Bit	From	To	Size	Weight	From	To
Casing Record	Size			Wgt/Ft	Top	Bottom	
Surface String	8 5/8"			24#	SURFACE	408'	
Prot. String							
Production String	4 1/2			11.6#	SURFACE	7425'	
Liner							

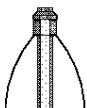
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All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, 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. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

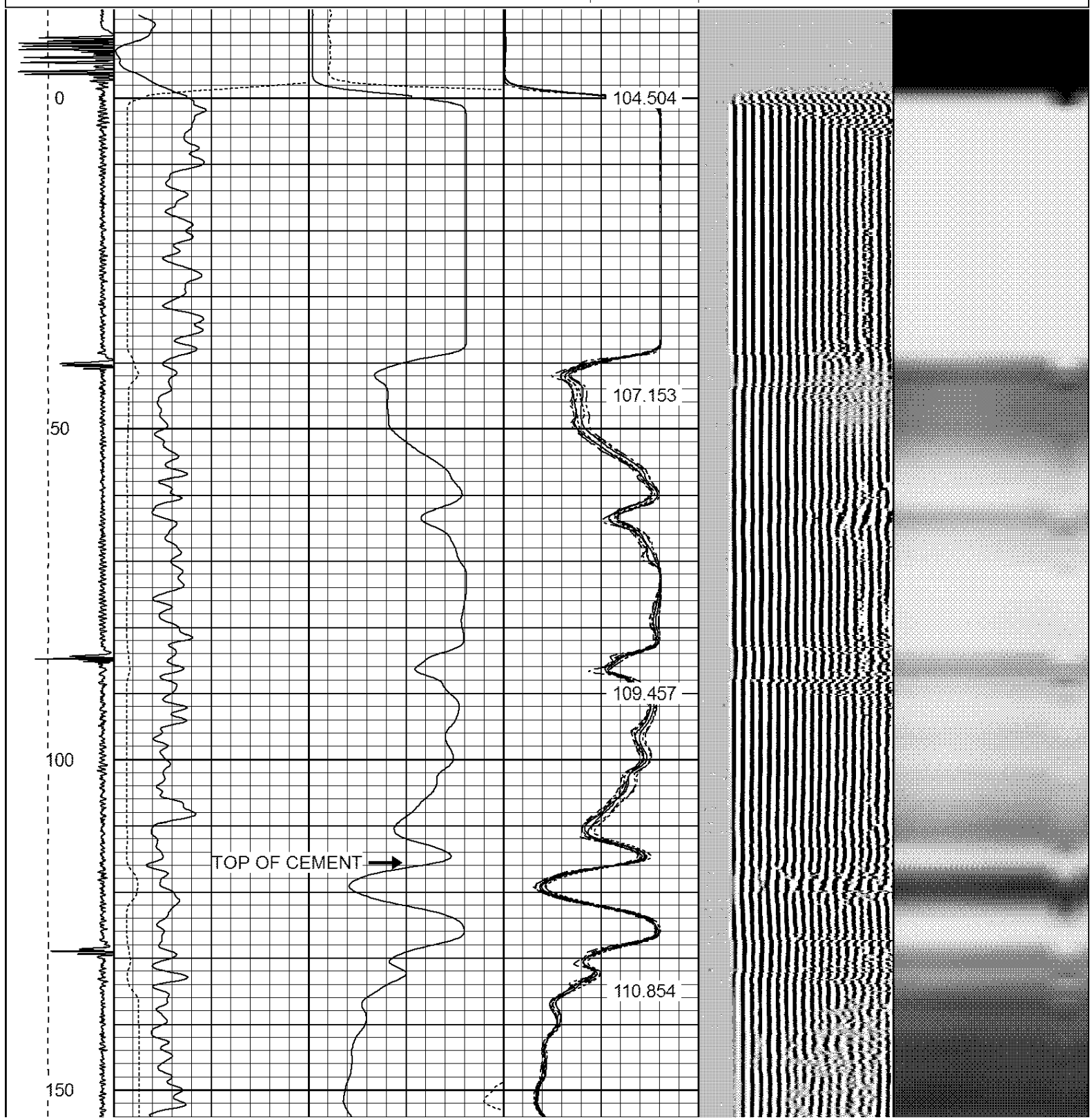
RAN CBL TO VERIFY CEMENT BOND
HOLE WAS LOADED THE NIGHT BEFORE LOGGING
CORRELATED UP HOLE 6' TO BRANDEX CBL 3-2-93
CALIBRATED FREE PIPE @3210', 81mA IN 4.5:

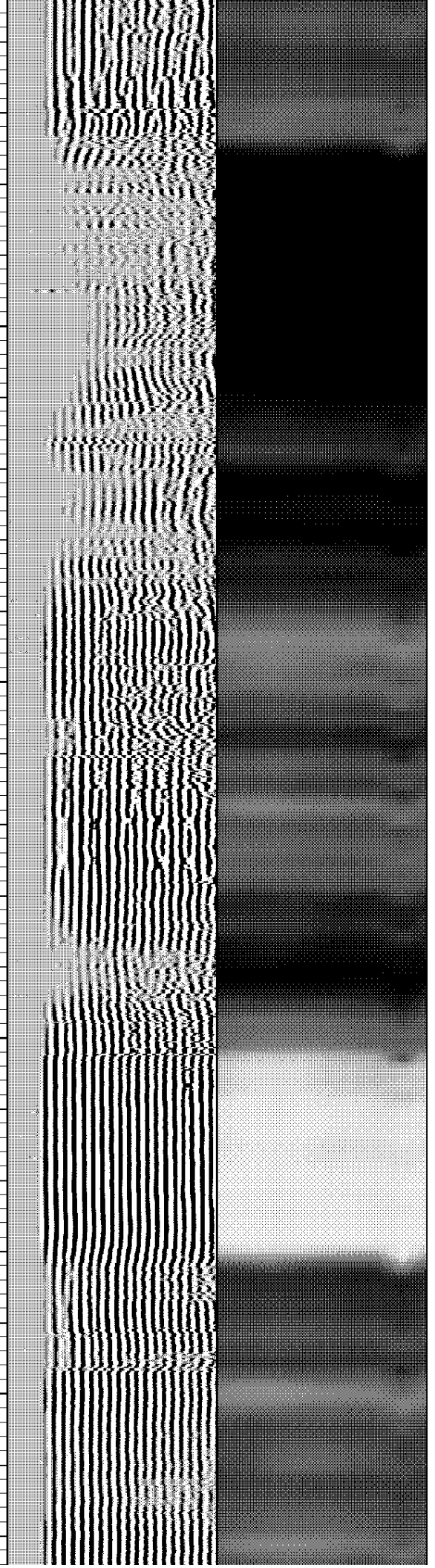
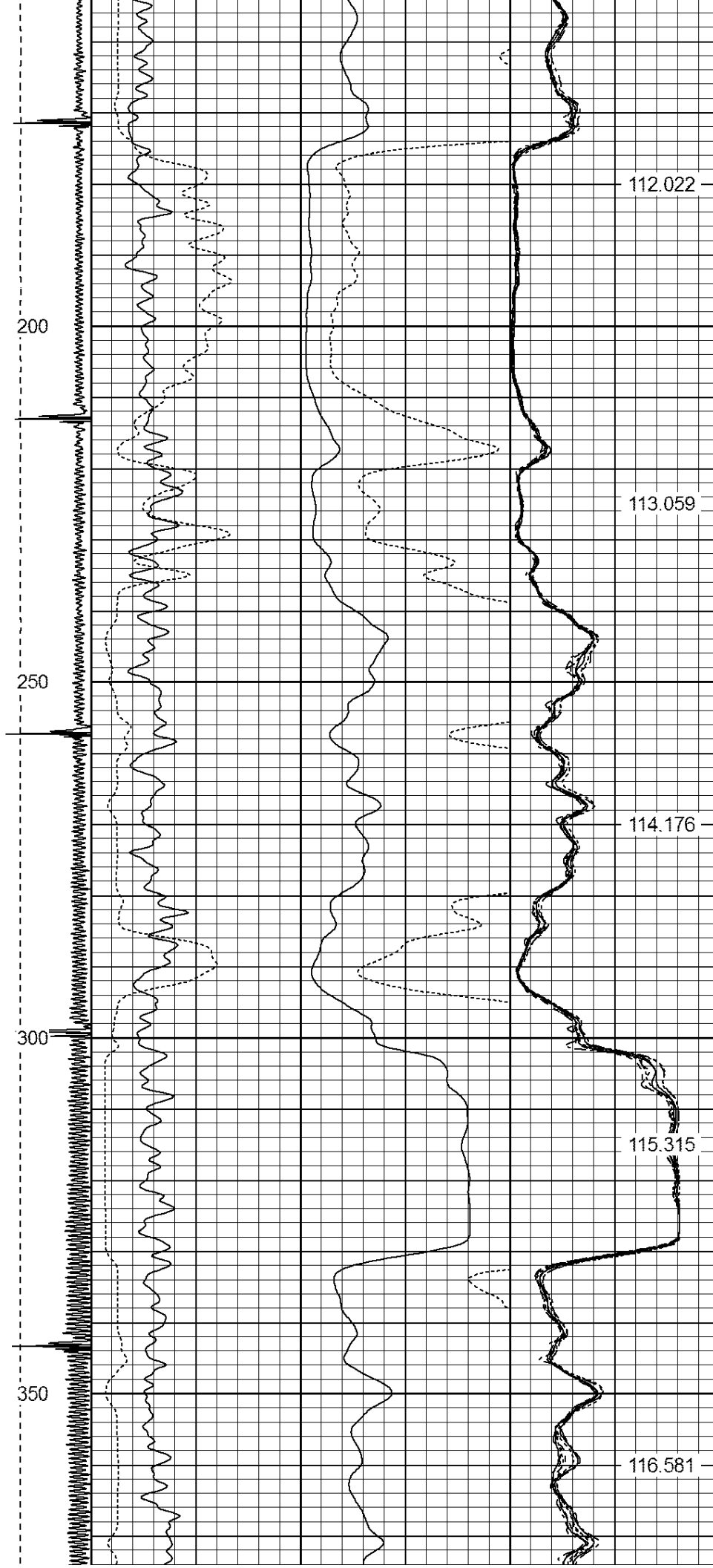
THANK YOU FOR USING WARRIOR.

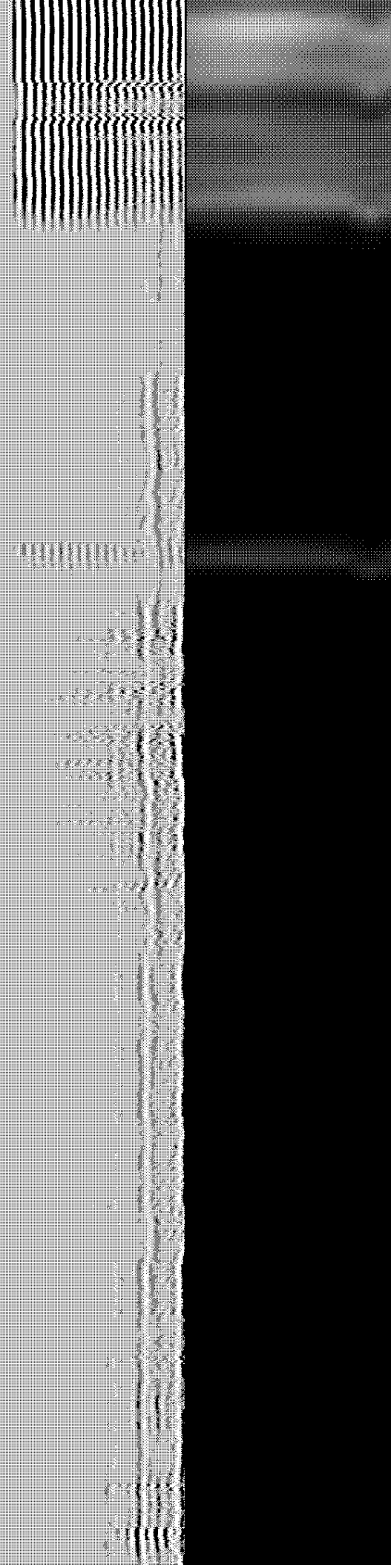
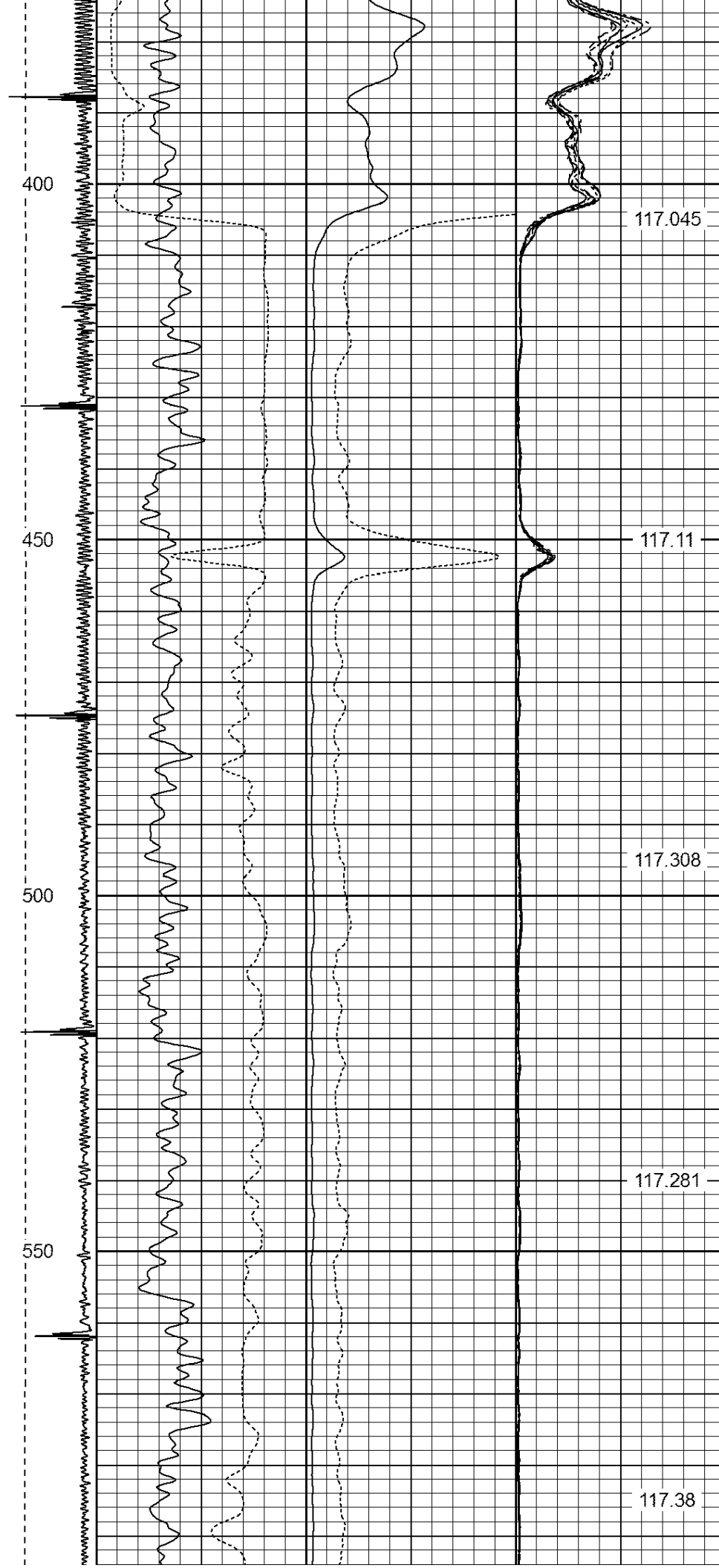
Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
						

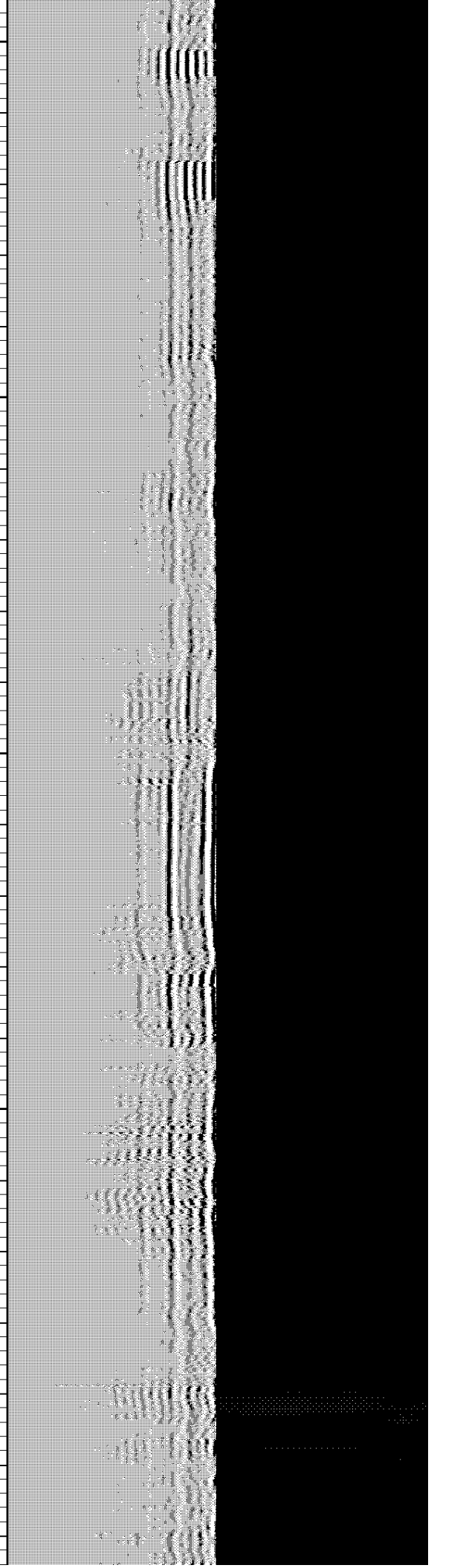
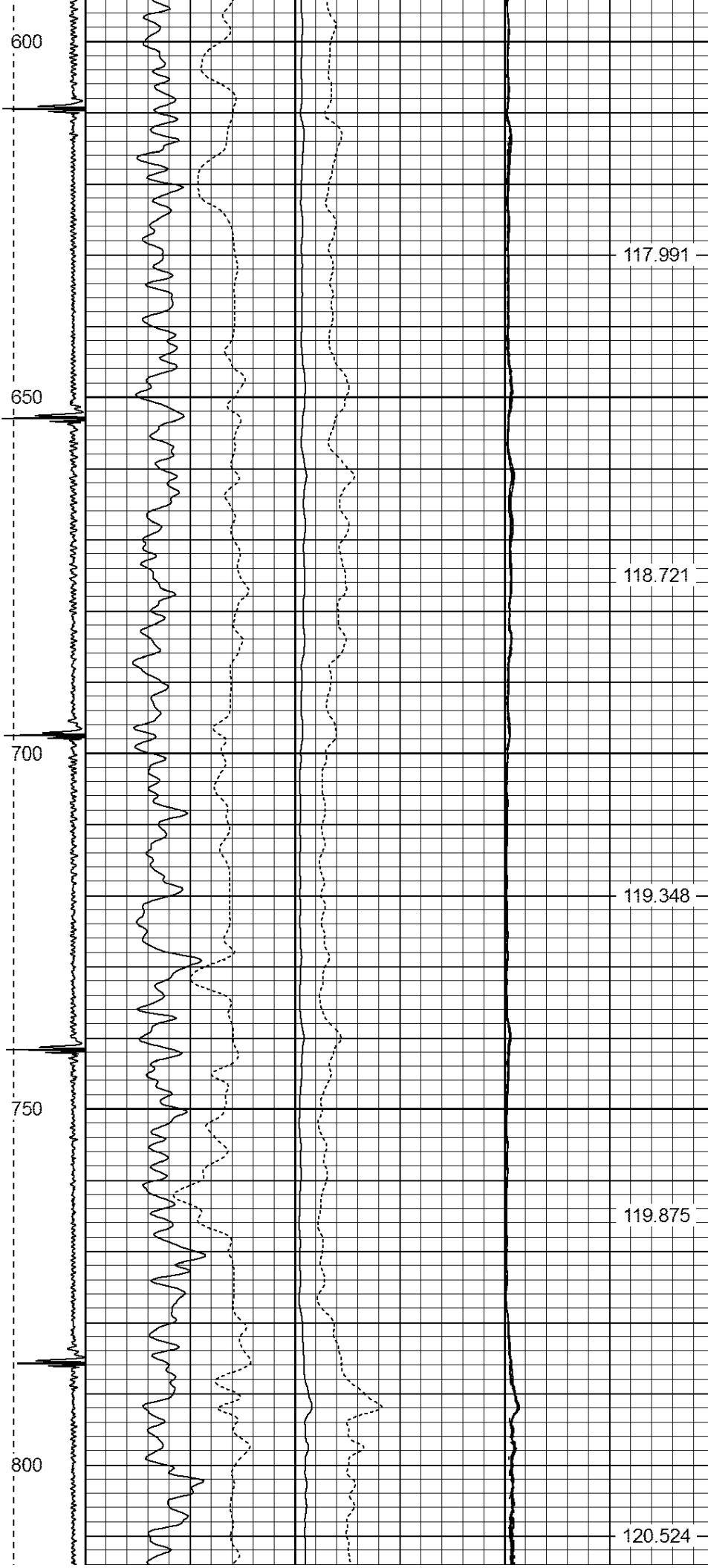
Tool Joint	Tool Joint Length (ft)	Tool Joint Weight (lb)	Tool Joint O.D. (in)	Tool Joint Description	Tool Joint Weight (lb)	Tool Joint O.D. (in)	Tool Joint Length (ft)
HEADVOLT	16.13						
IntTemp	14.71						
WVFS3FT	11.46						
WVFCAL	11.46						
WVFS1	11.46						
WVFS2	11.46						
WVFS3	11.46						
WVFS4	11.46						
WVFS5	11.46						
WVFS6	11.46						
WVFS7	11.46						
WVFS8	11.46						
WVFS5FT	10.46						
CNLSC	6.00						
CNSSC	5.17						
CCL	3.64						
GR	0.90						
Dataset: hsr deborrah 7-5.db: field/well/run1/pass4 Total Length: 18.96 ft Total Weight: 160.00 lb O.D.: 2.75 in							

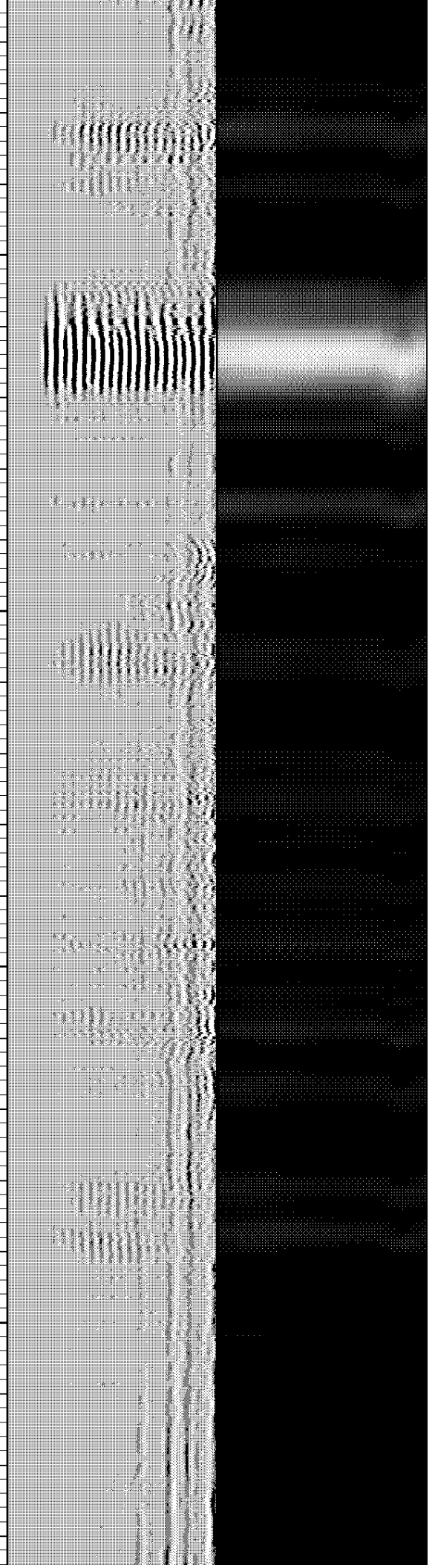
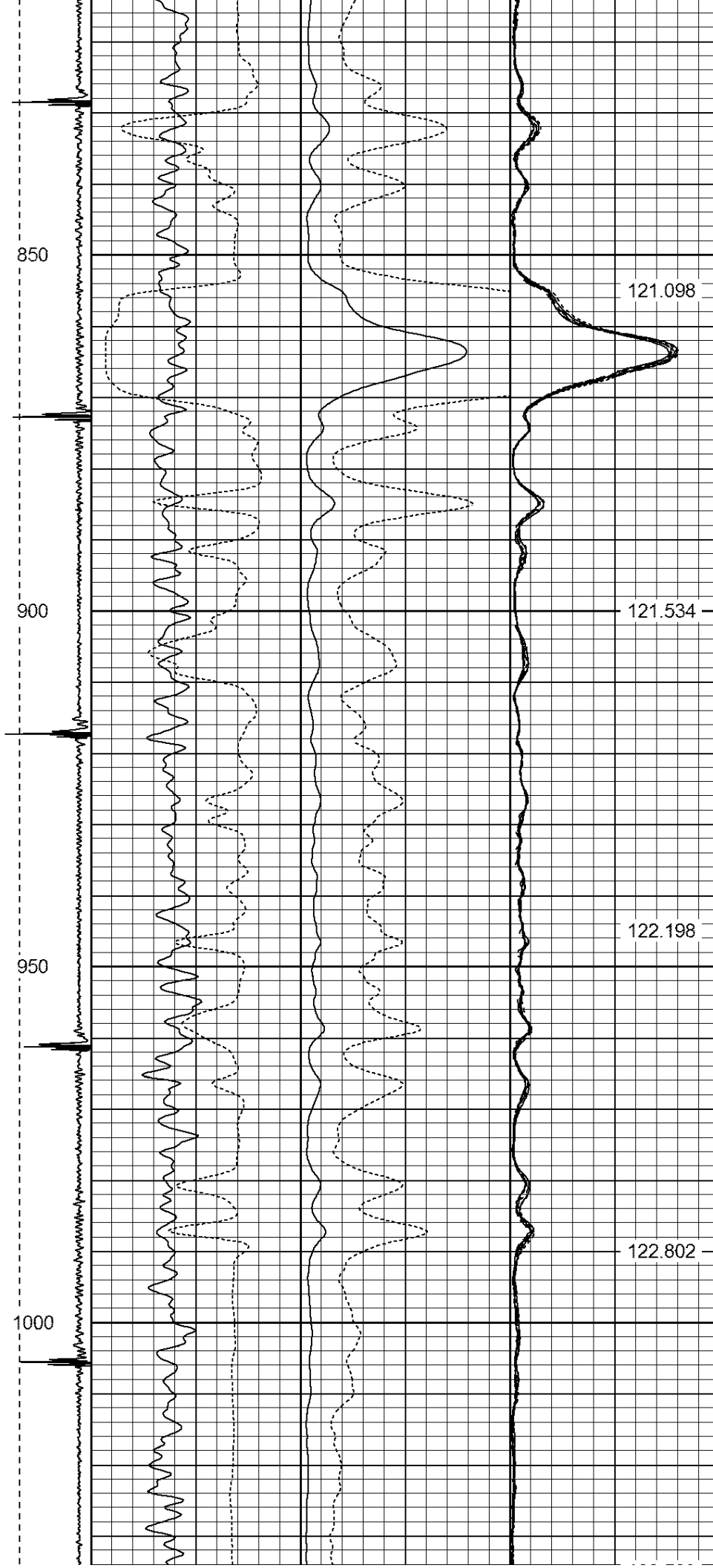
-9	CCL	1	200	TT (usec)	1000	0	AMP (mV)	100	0	AMPS1	100	200	VDL	1200	1	Cement Map	8
LSPD			0	GR (GAPI)	200	0	AMPx5 (mV)	20	0	AMPS2	100				100		1
(ft/min)			200	GR (GAPI)	400				0	AMPS4	100						
0	250								0	AMPS5	100						
									0	AMPS6	100						
									0	AMPS7	100						
									0	AMPS8	100						
										IntTemp							
										(degF)							

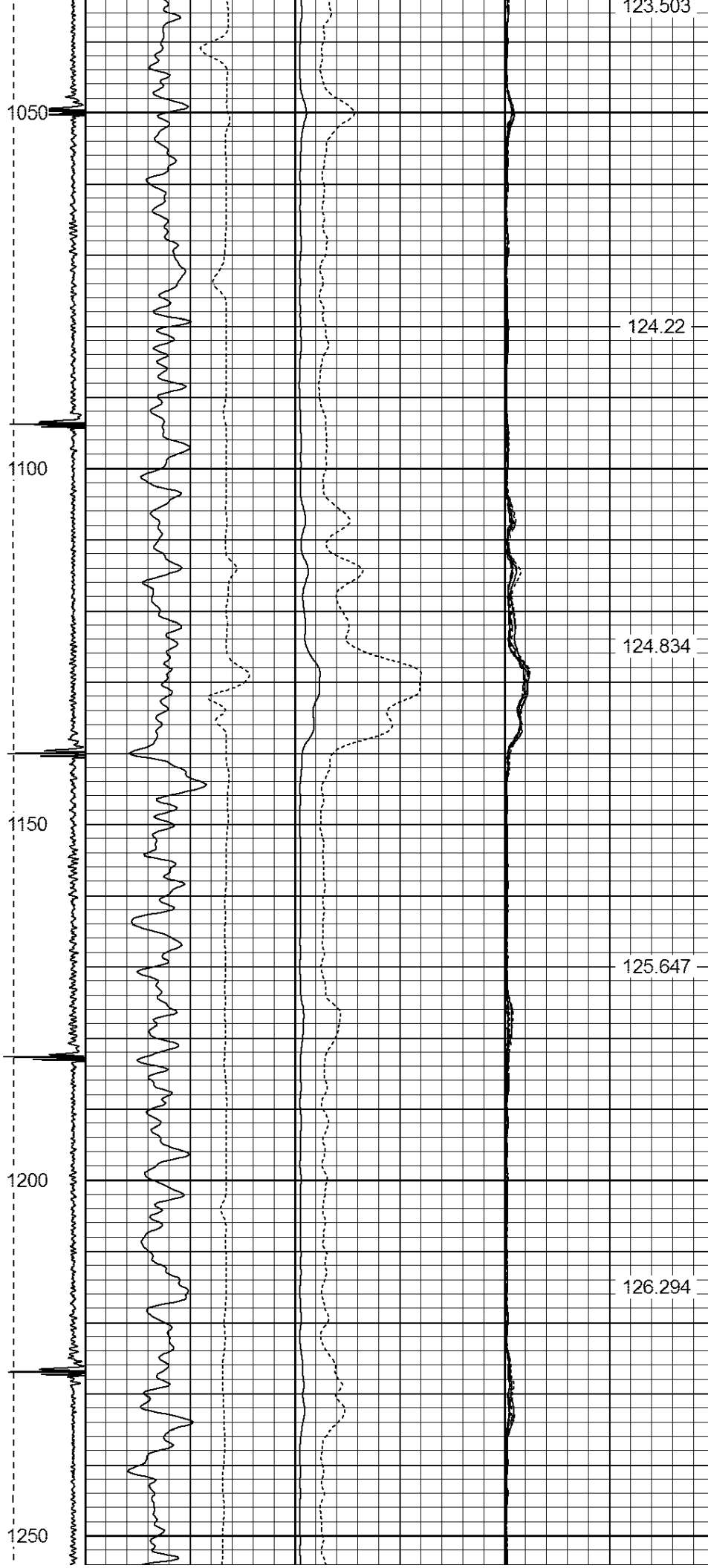


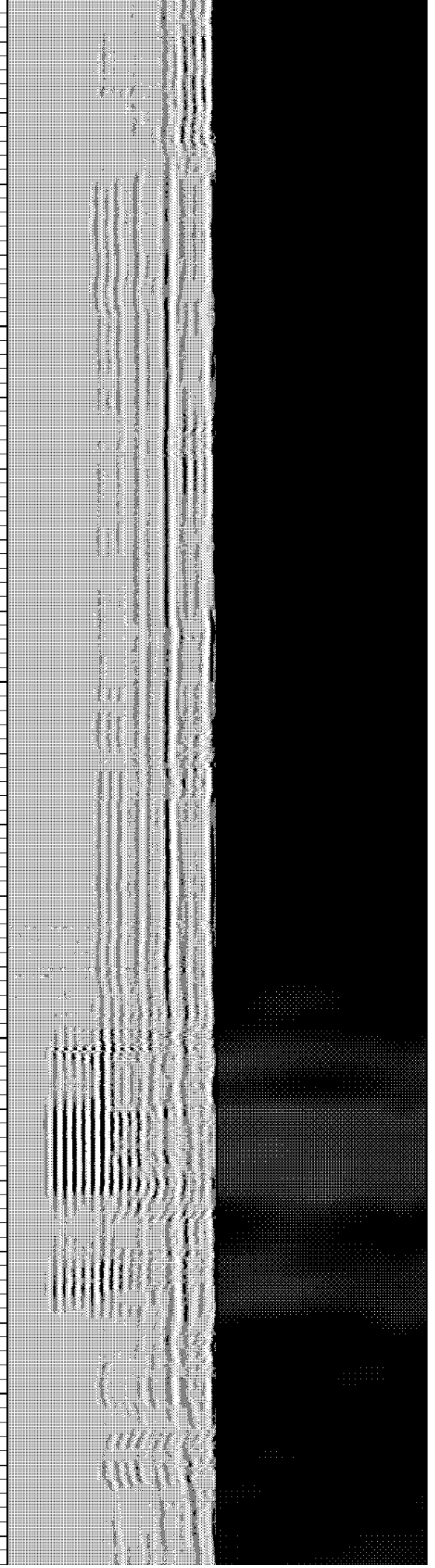
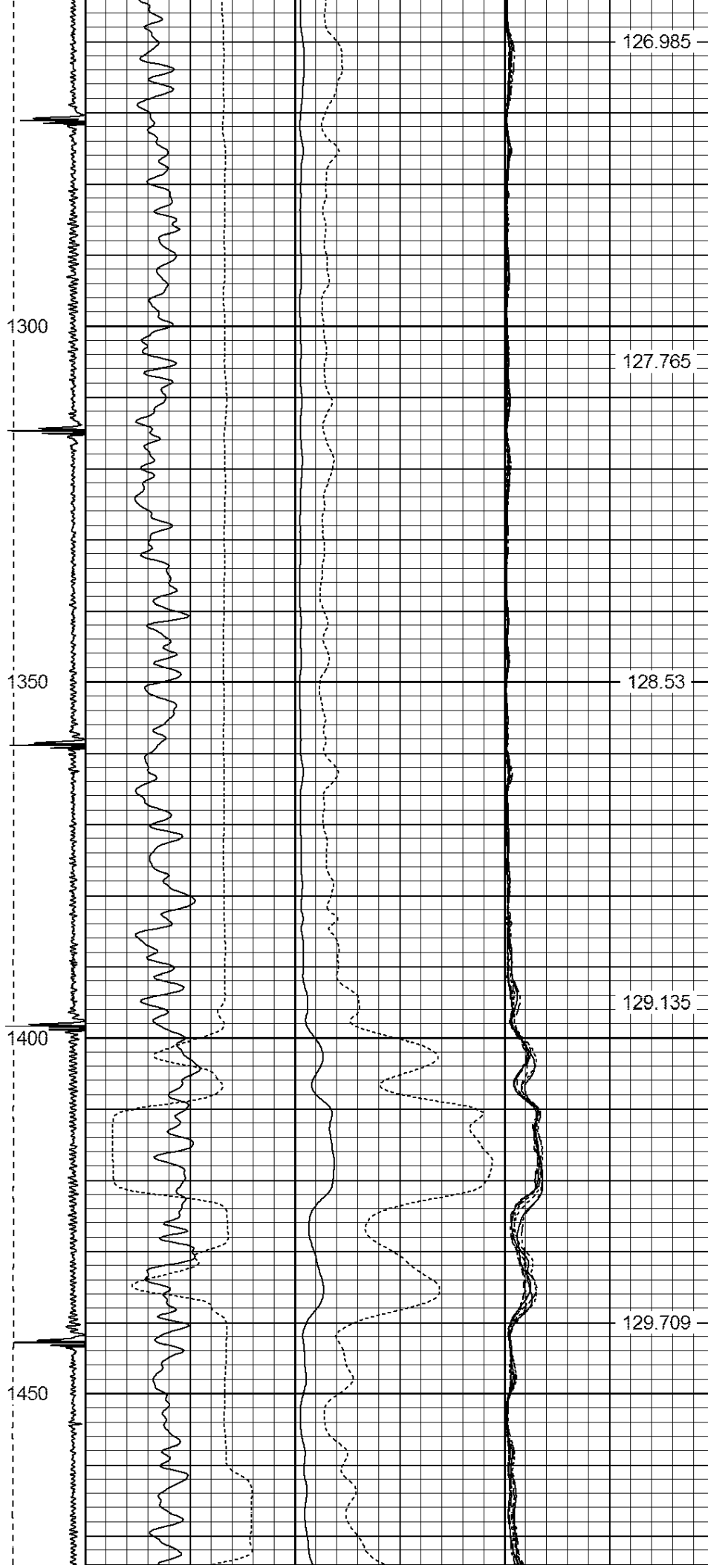


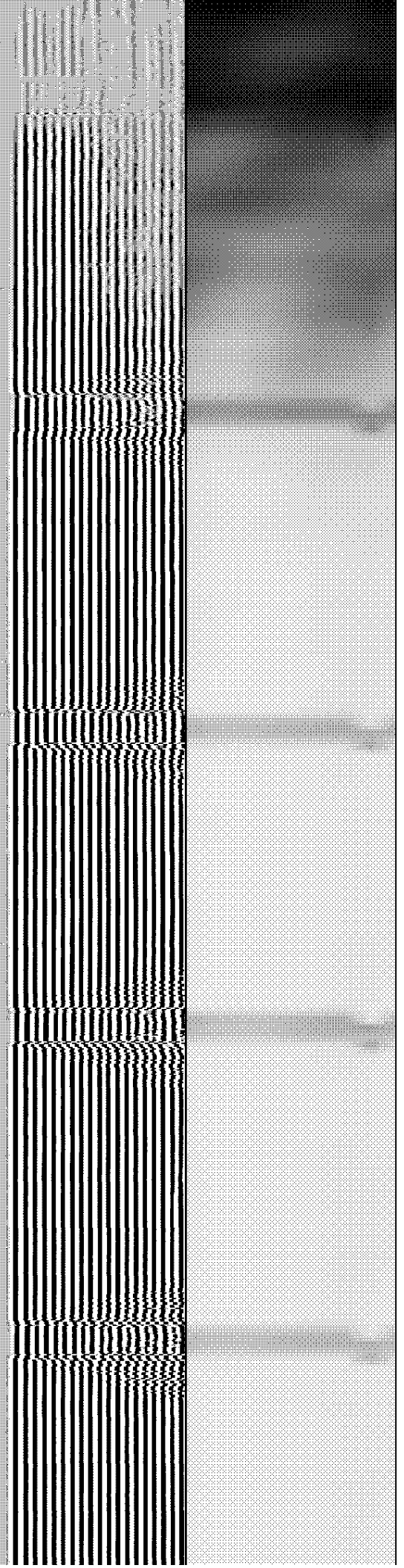
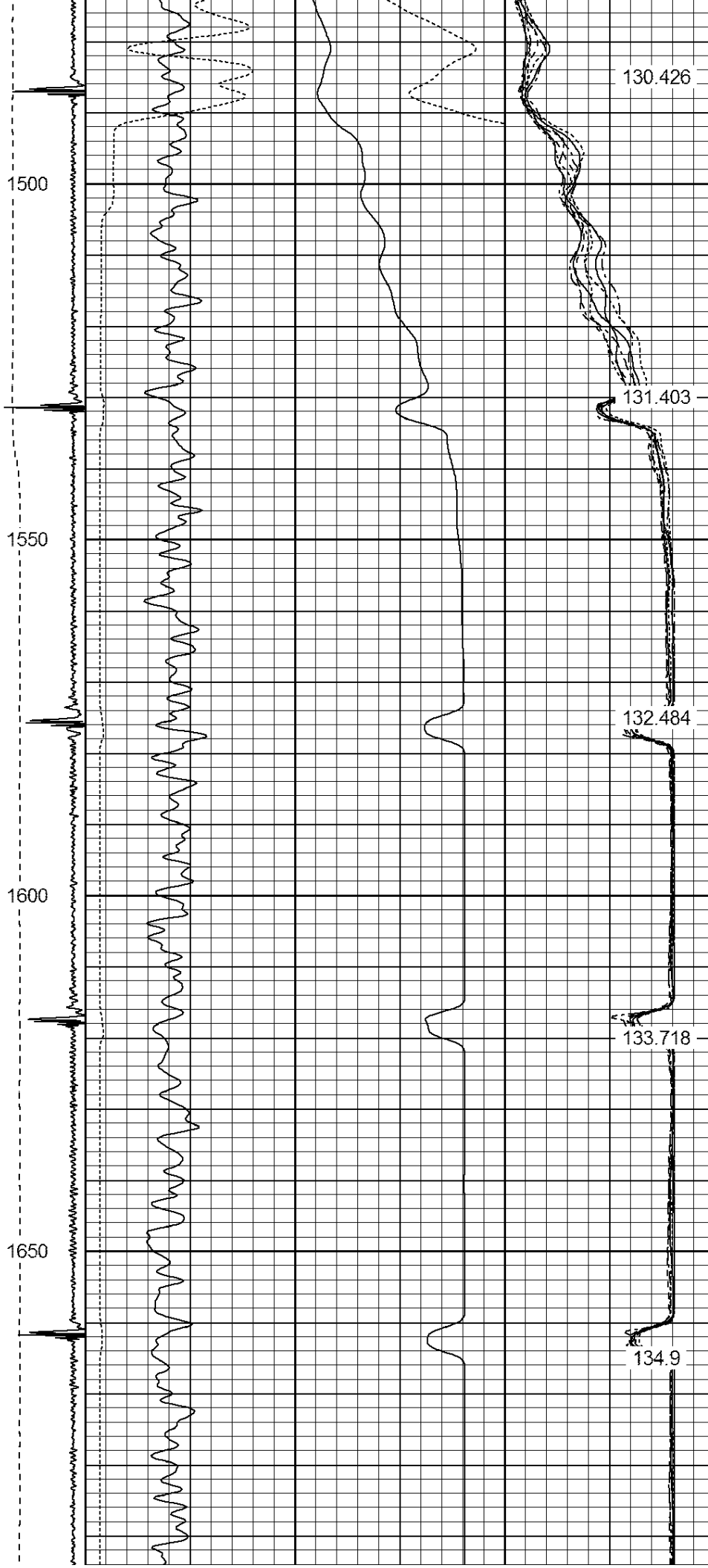


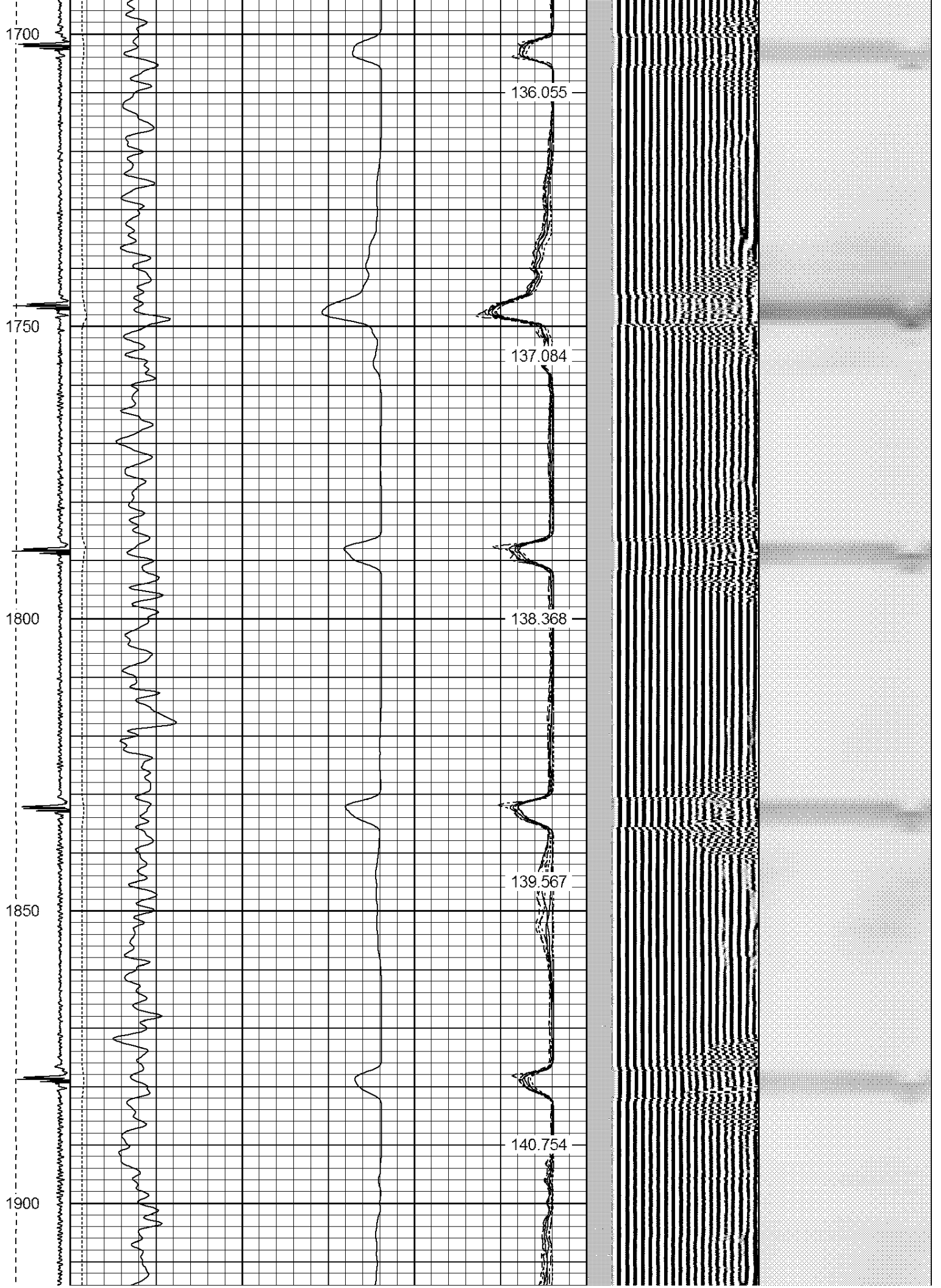


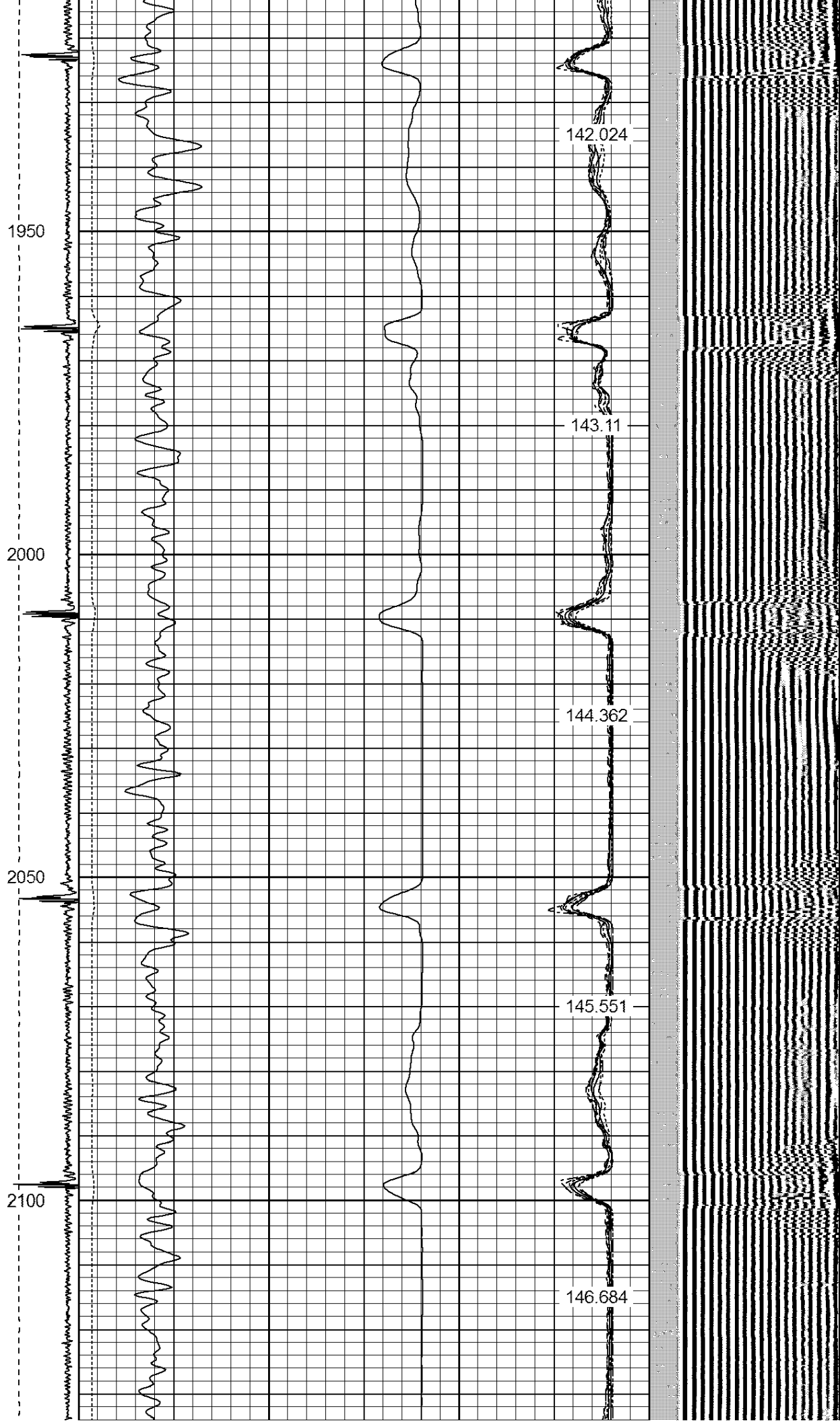


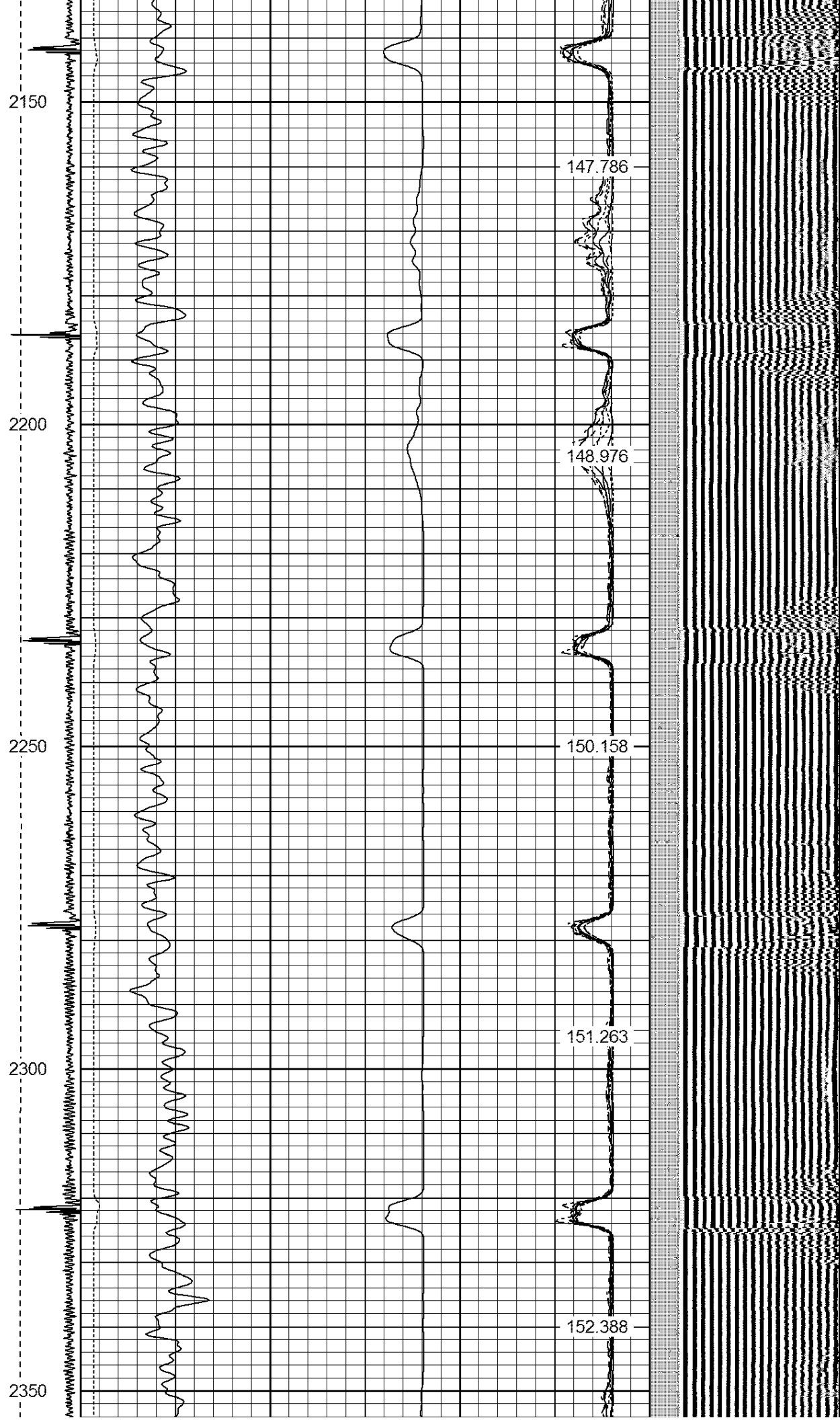


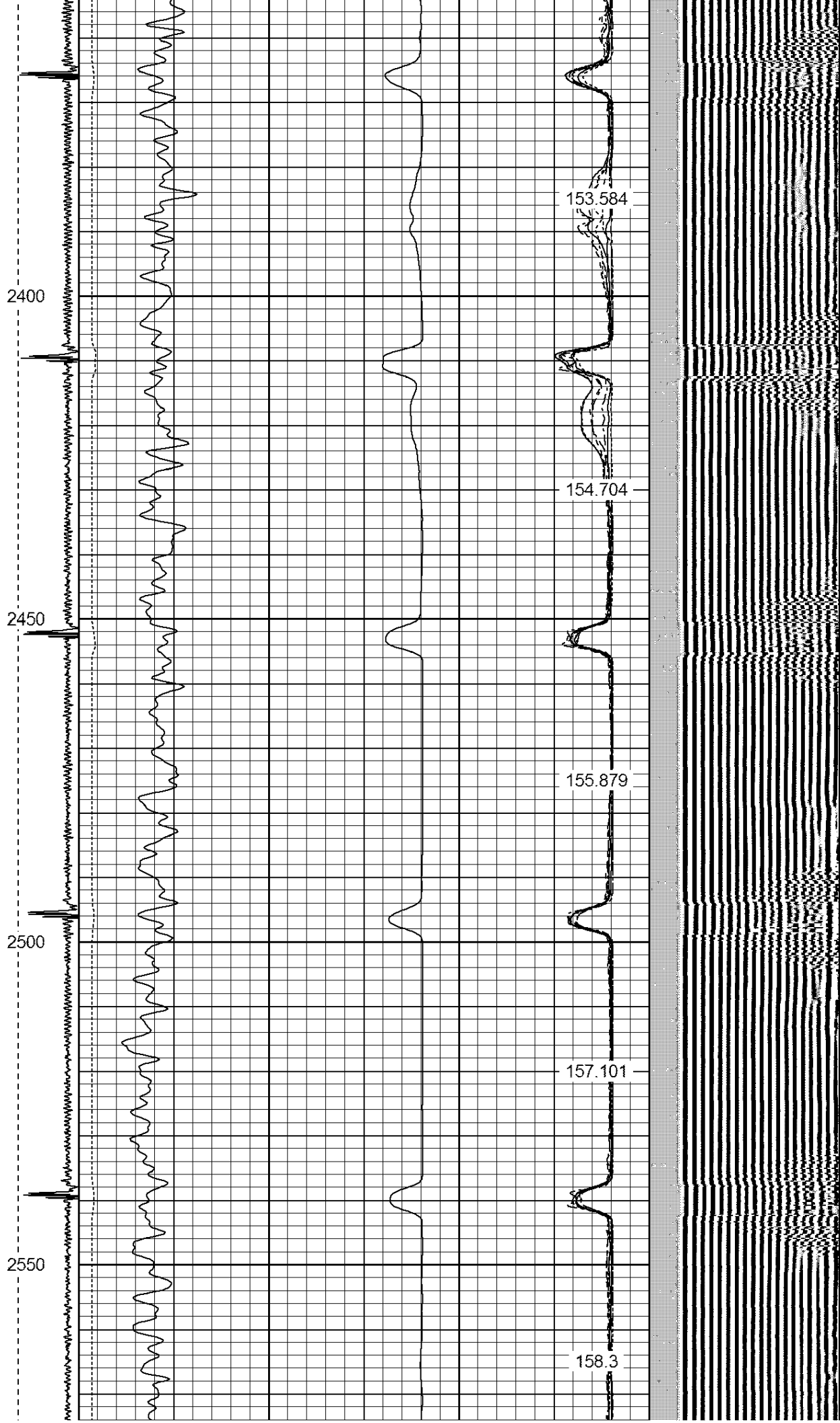












2600

2650

2700

2750

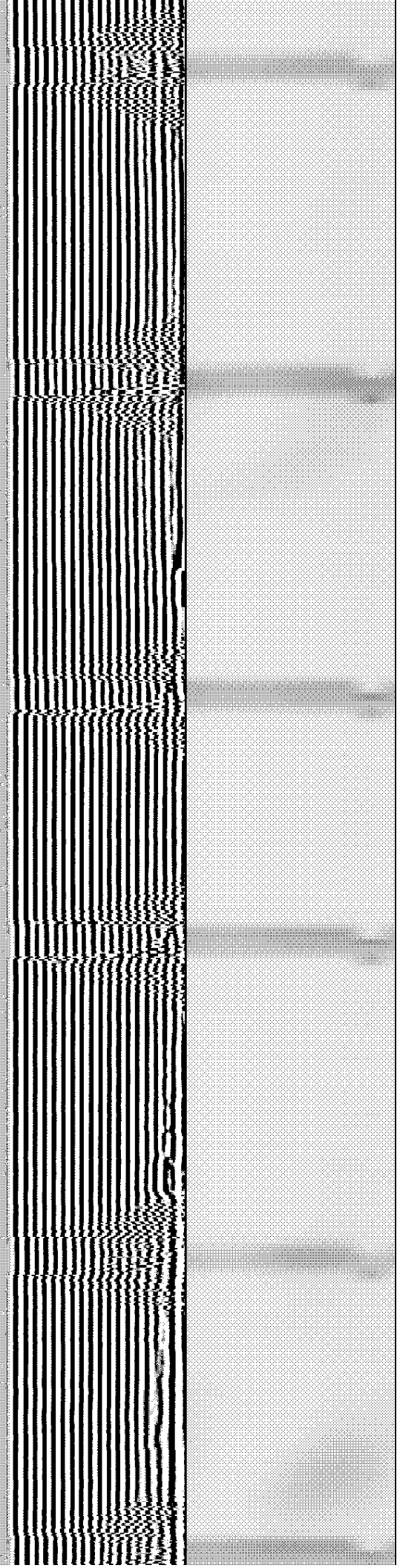
159.539

160.722

161.902

163.207

164.432



2800

2850

2900

2950

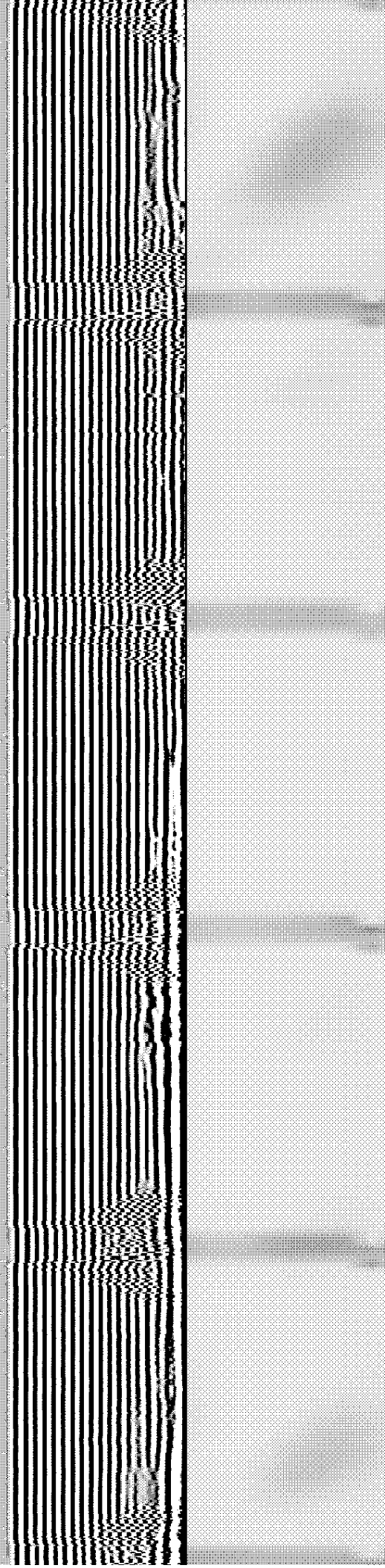
3000

165.778

167.142

168.422

169.747



3050

3100

3150

3200

FREE PIPE CALIBRATION →

81mA IN 4.5"

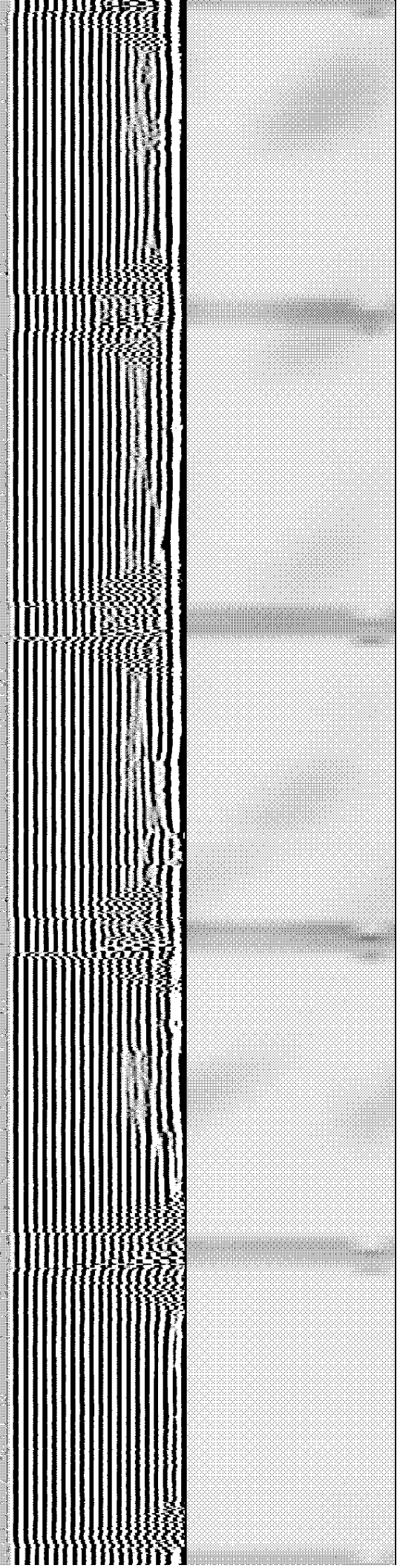
172.46

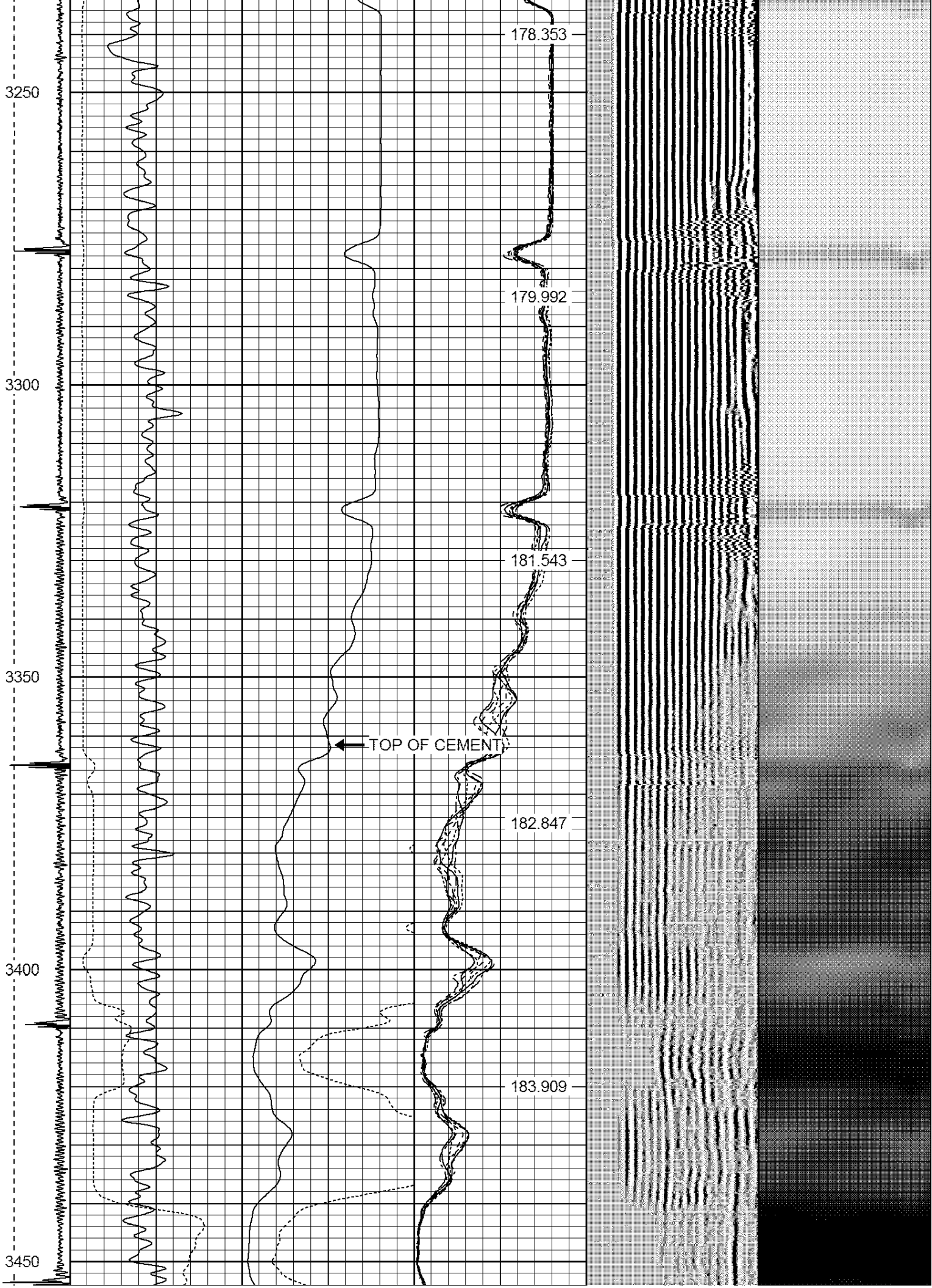
173.923

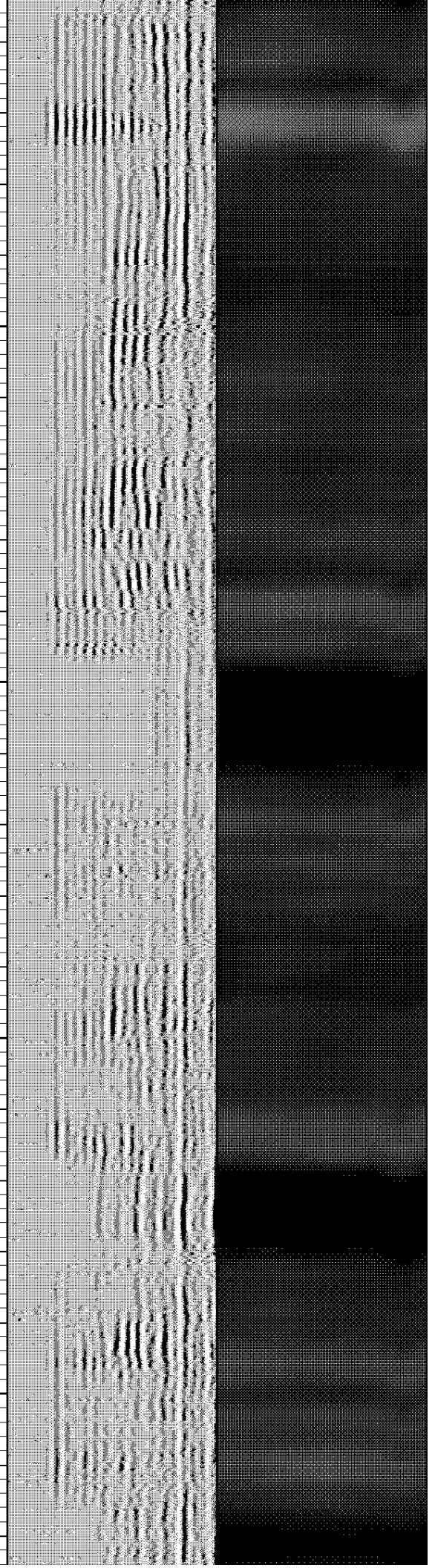
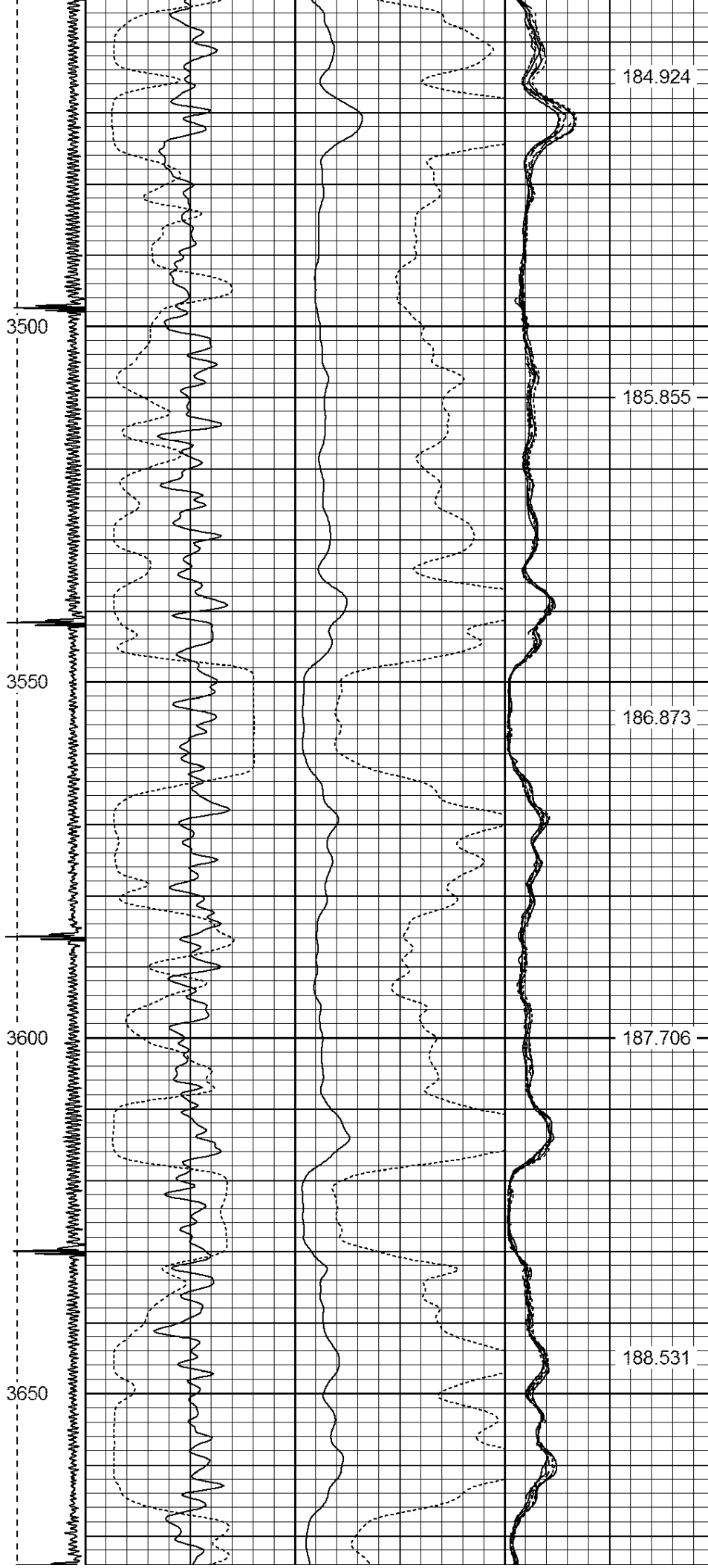
175.329

176.871

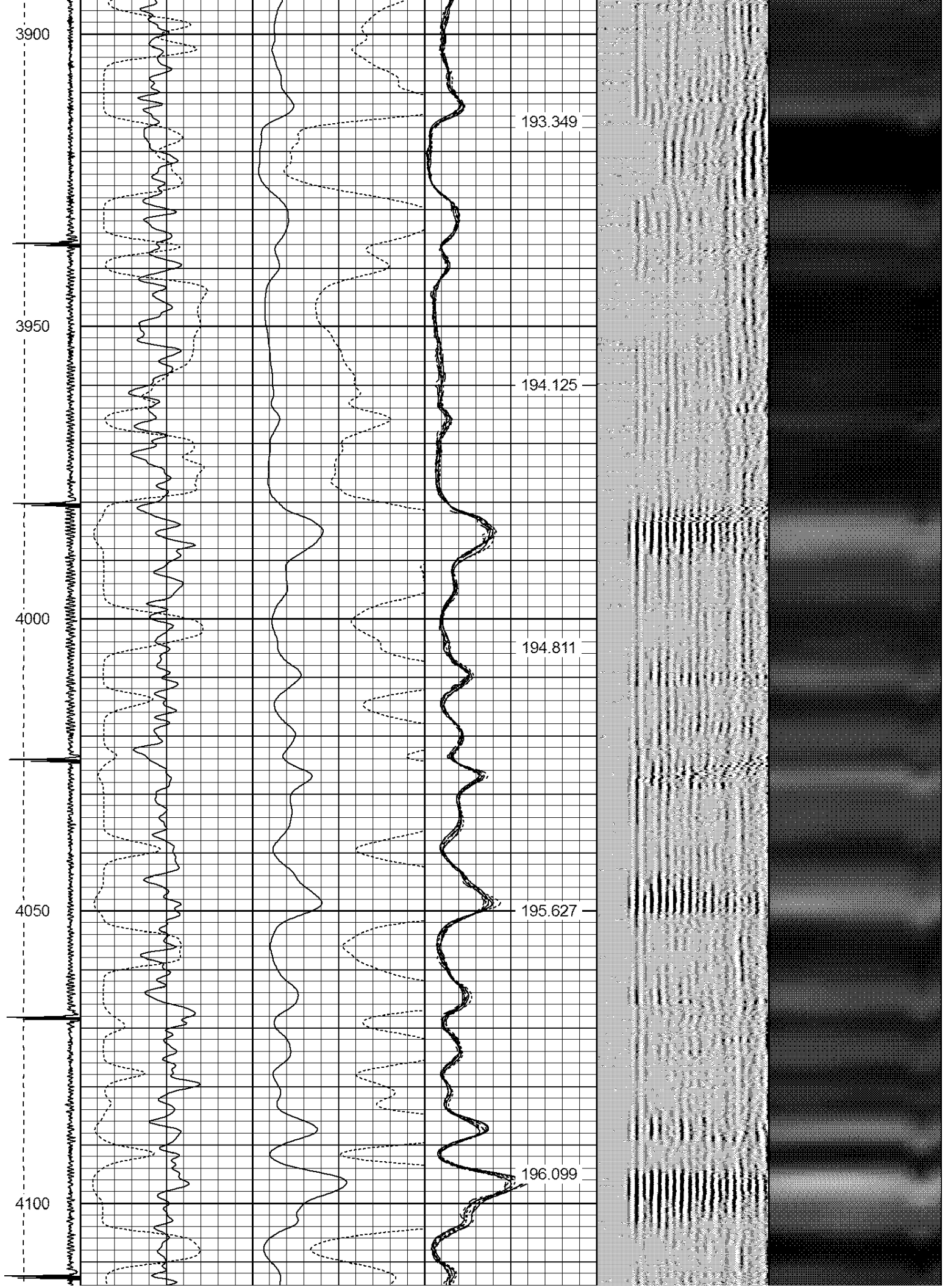
177.171

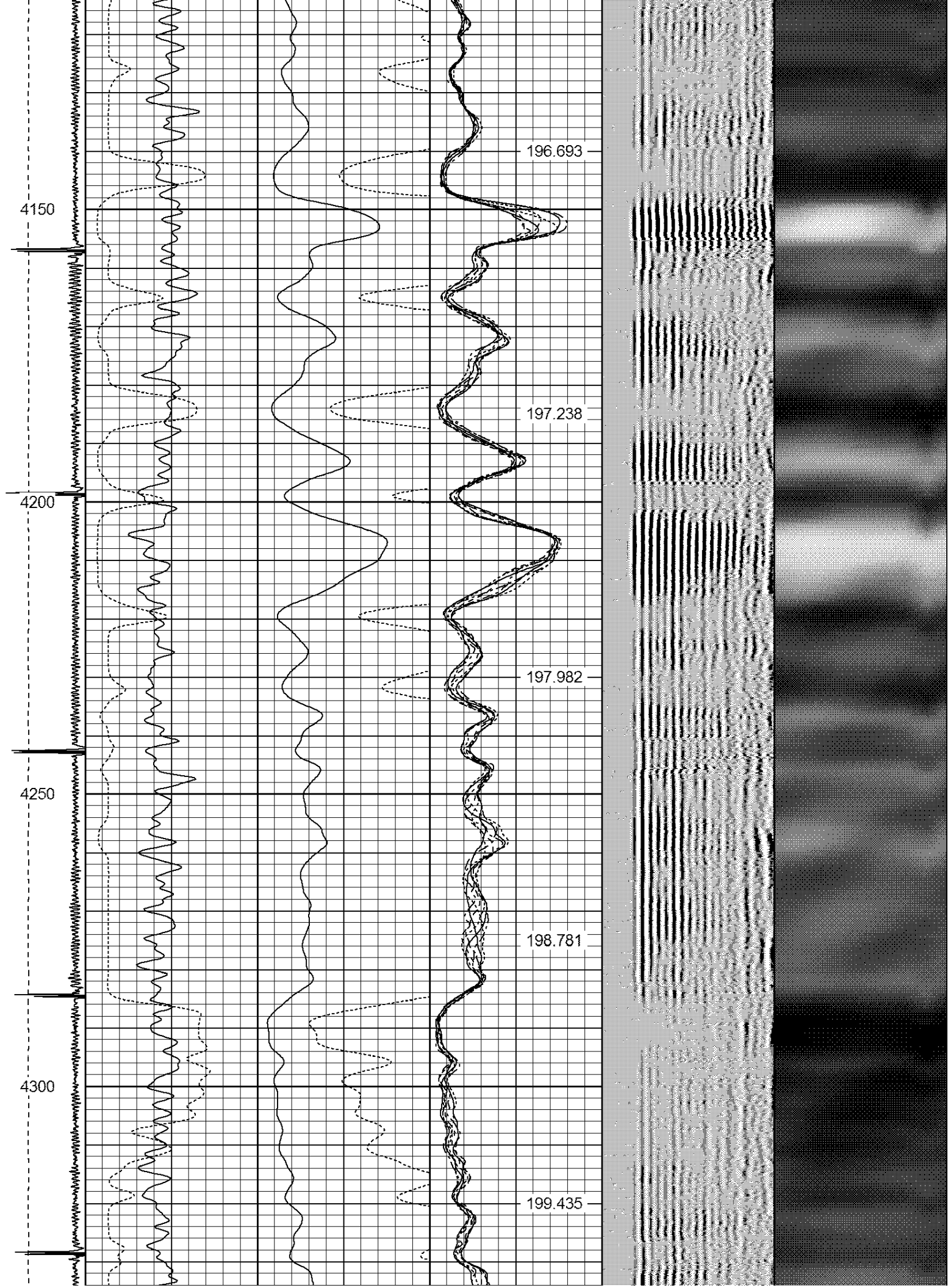


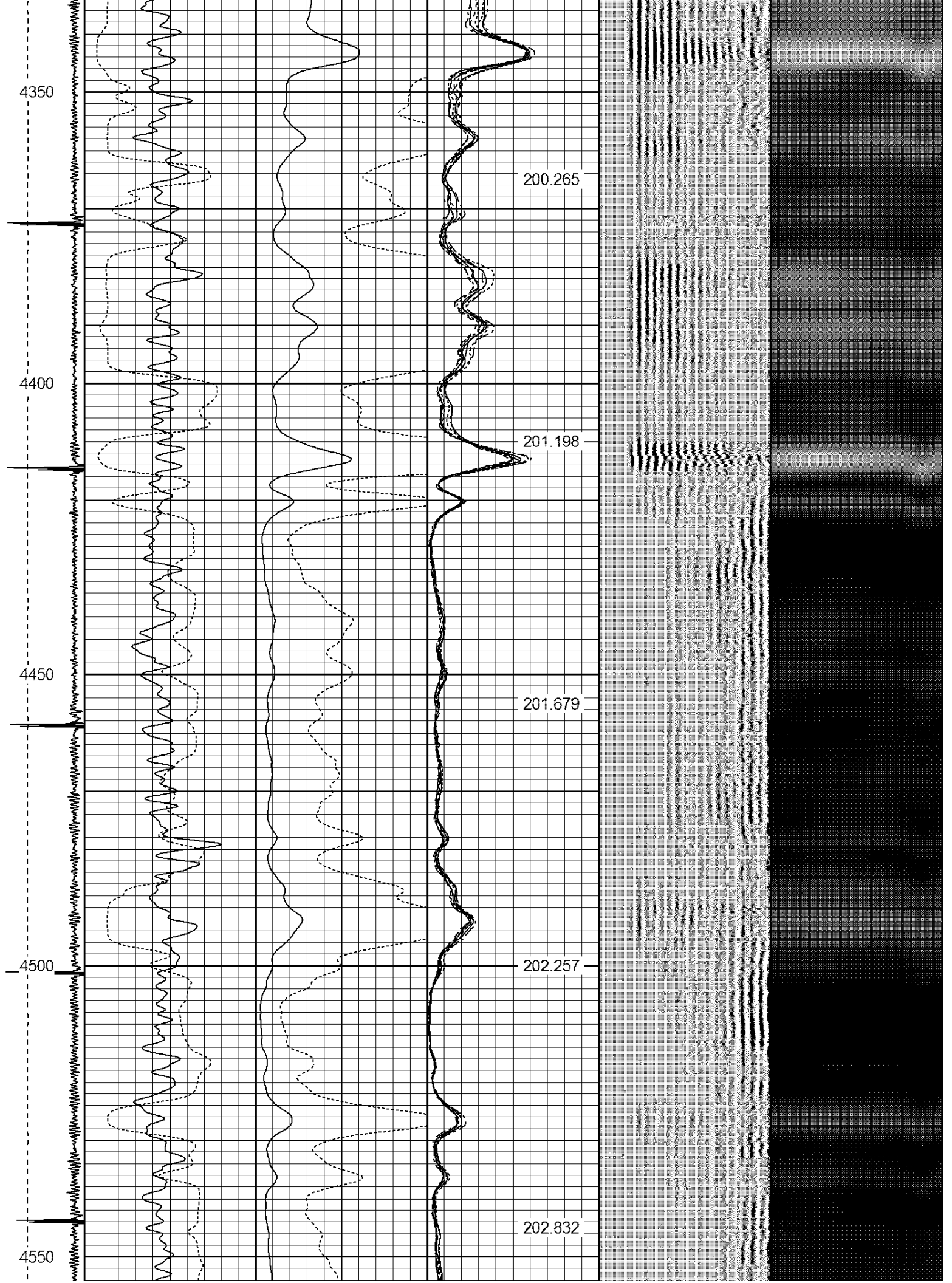


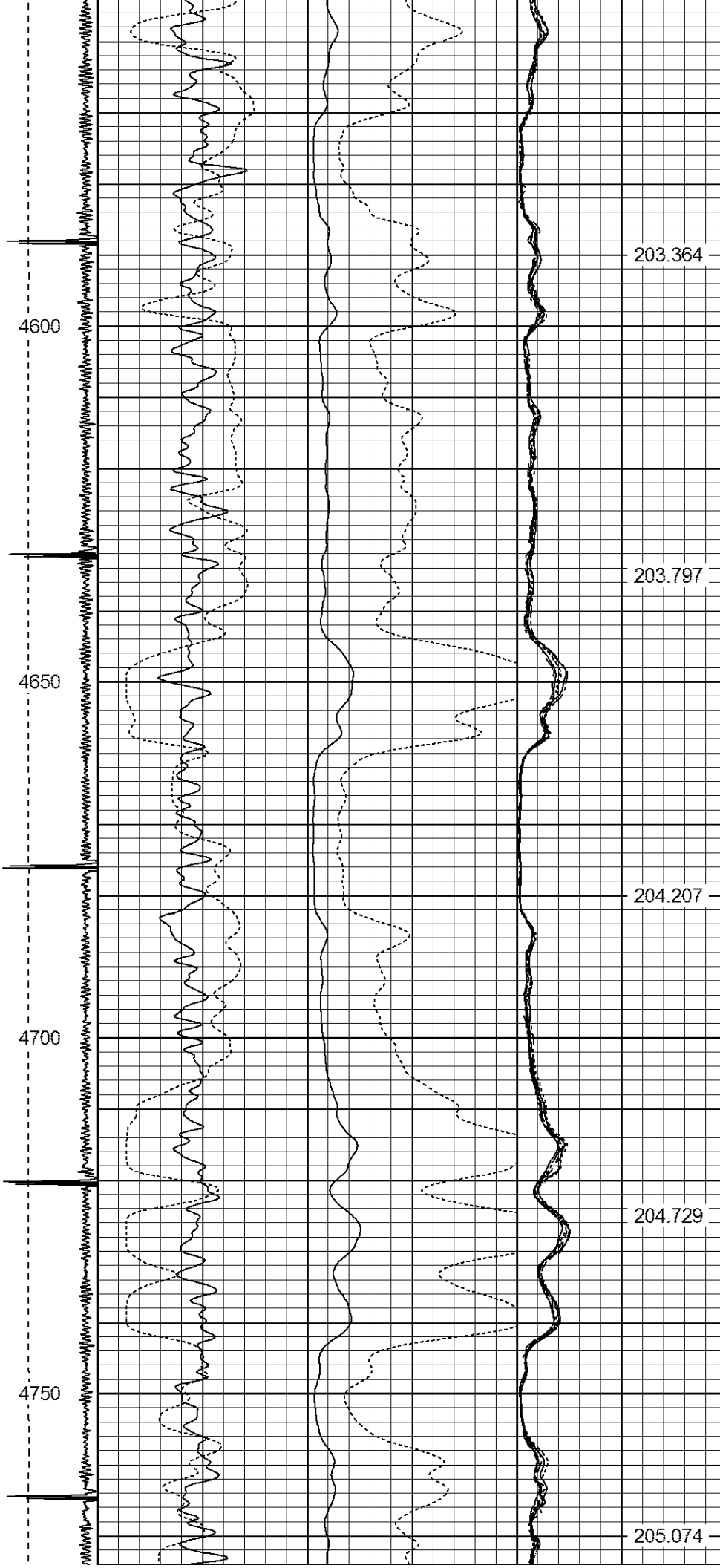


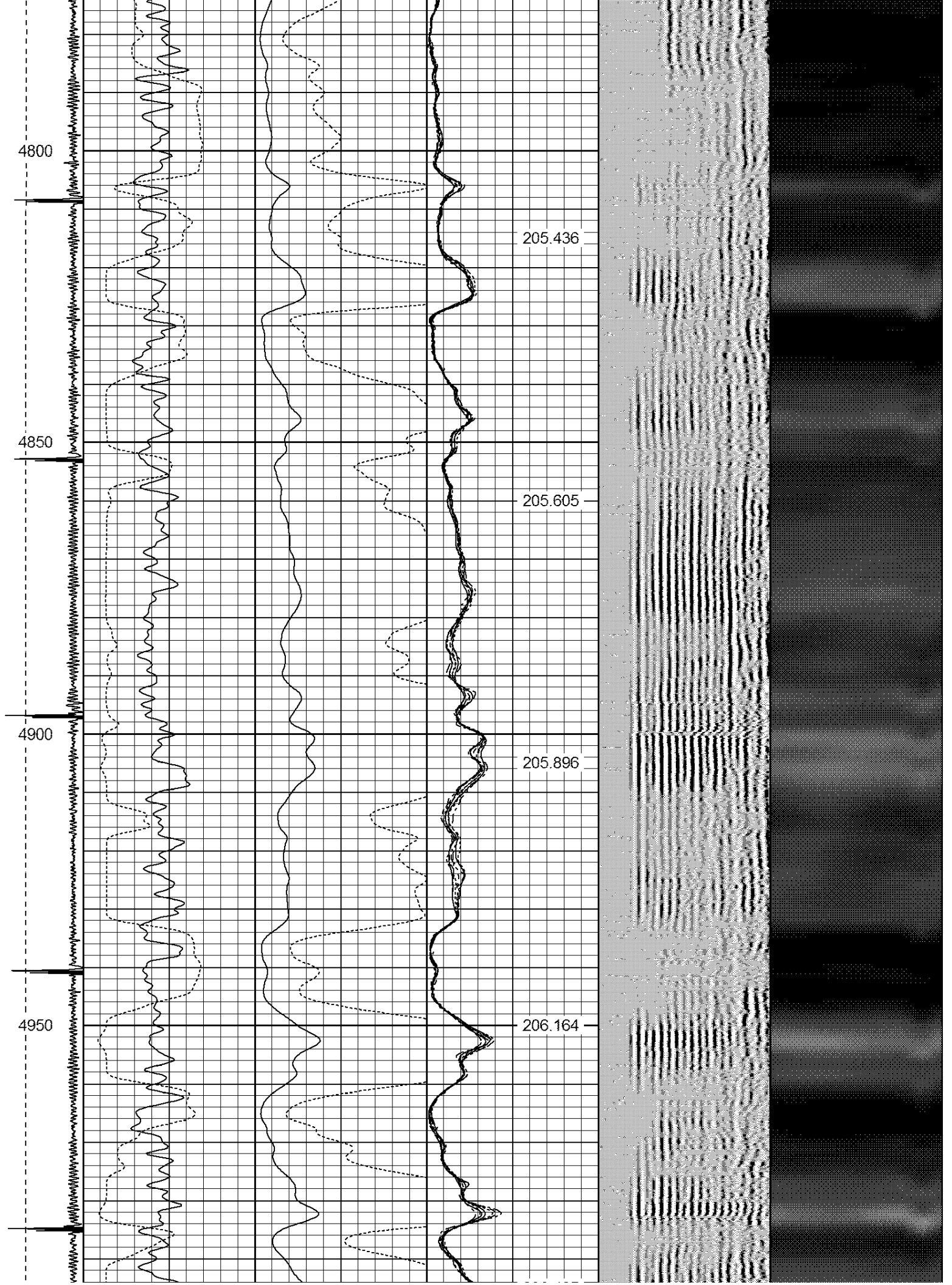


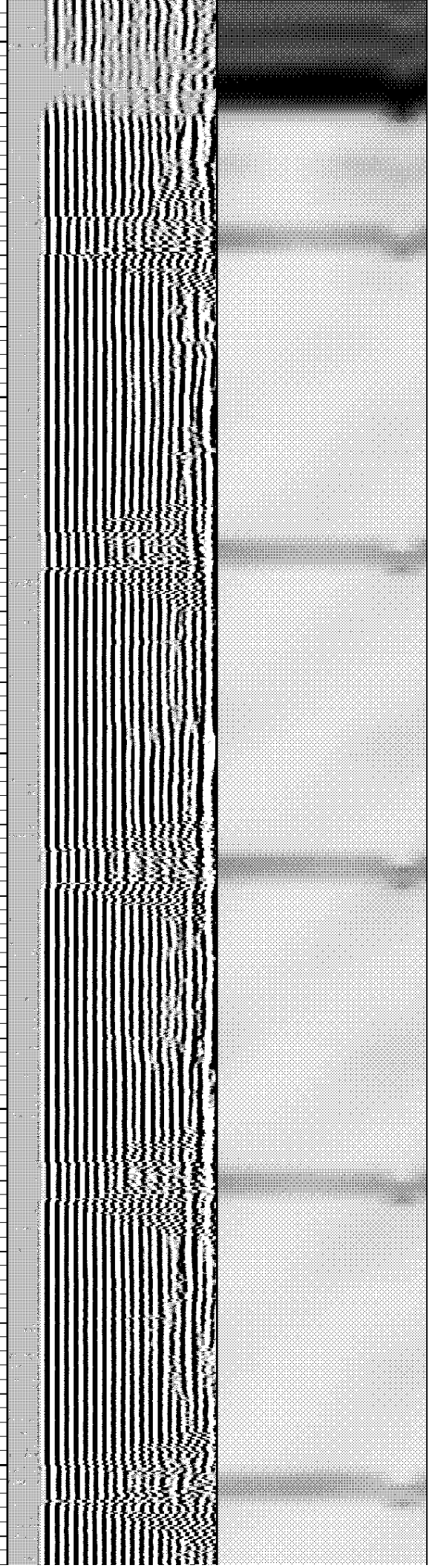
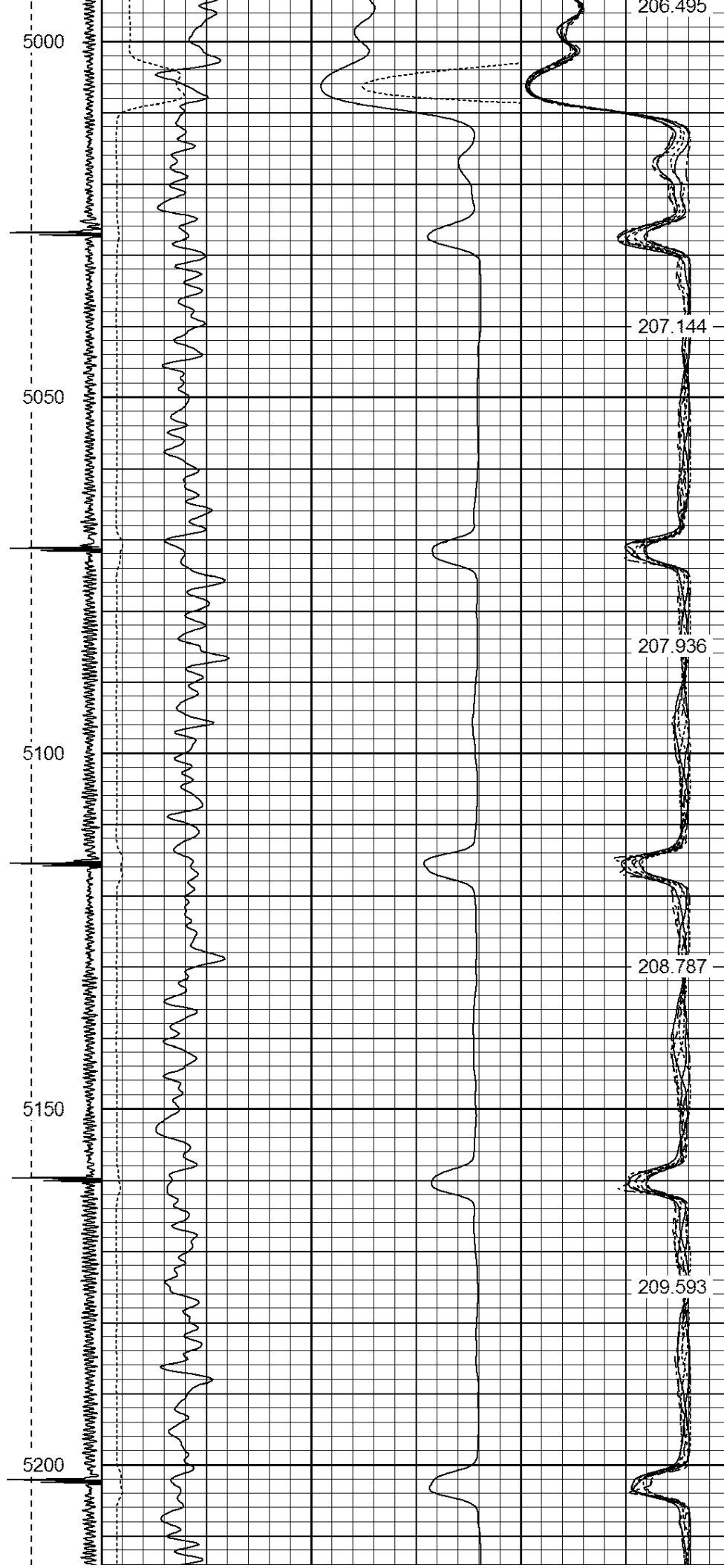


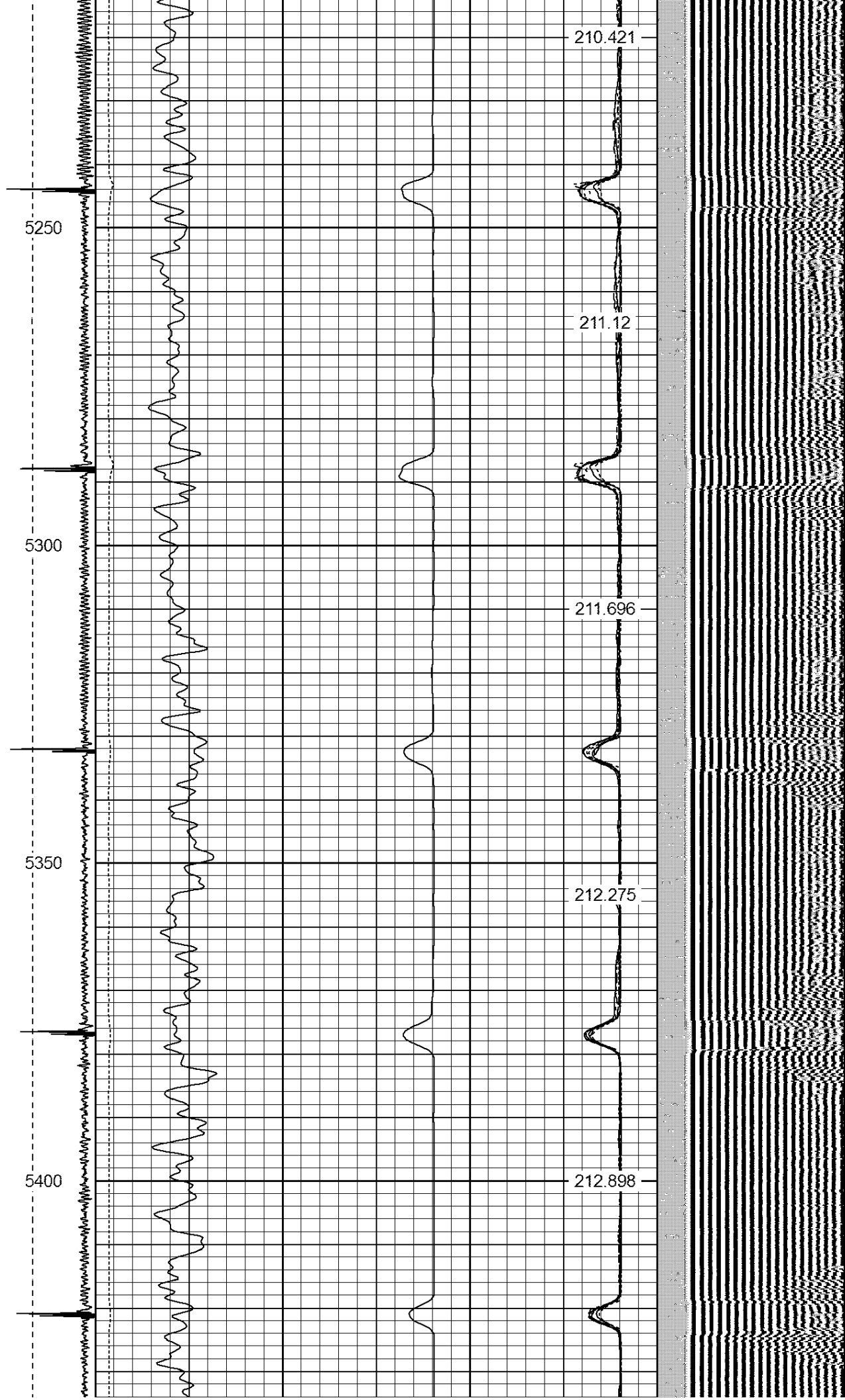


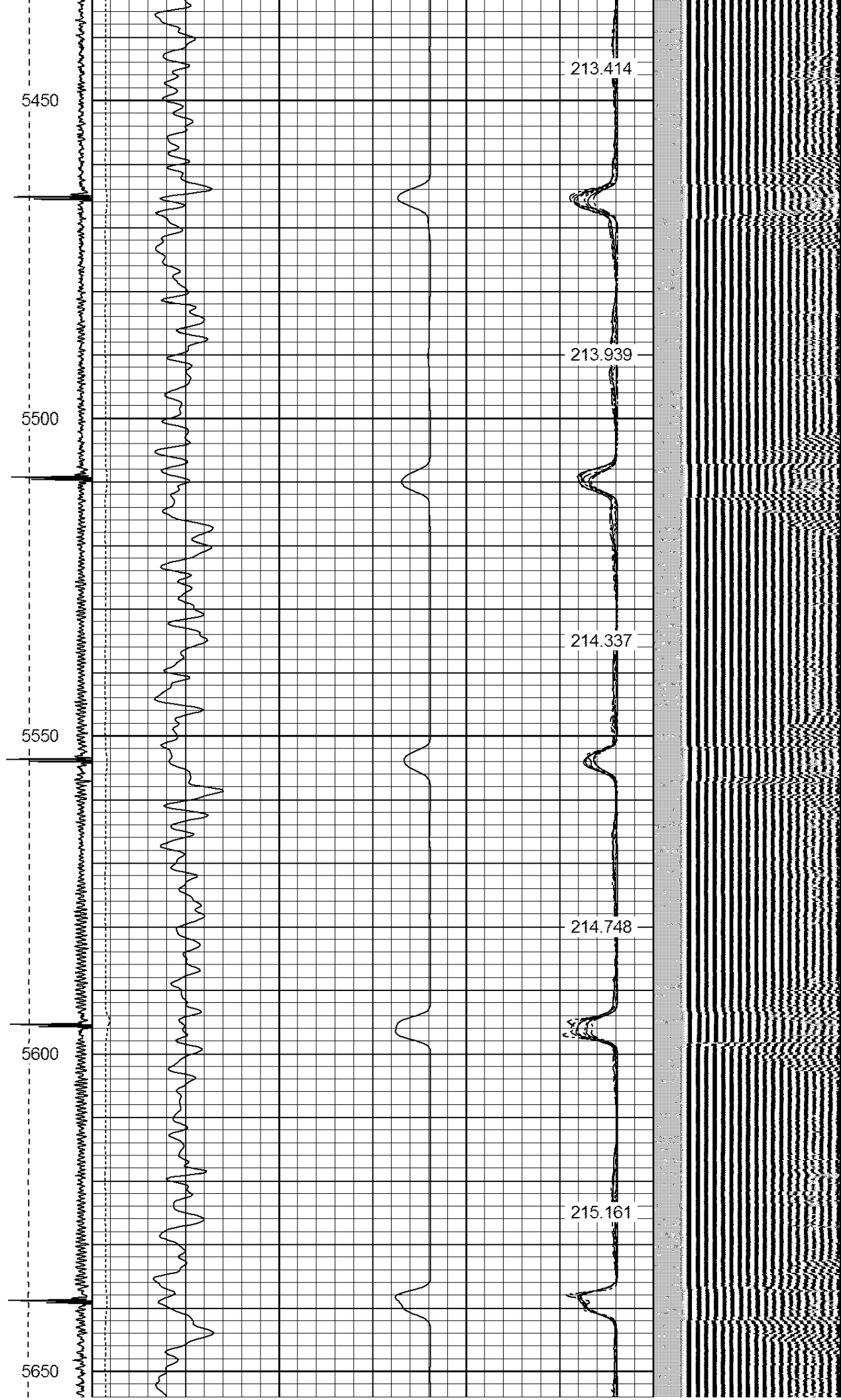


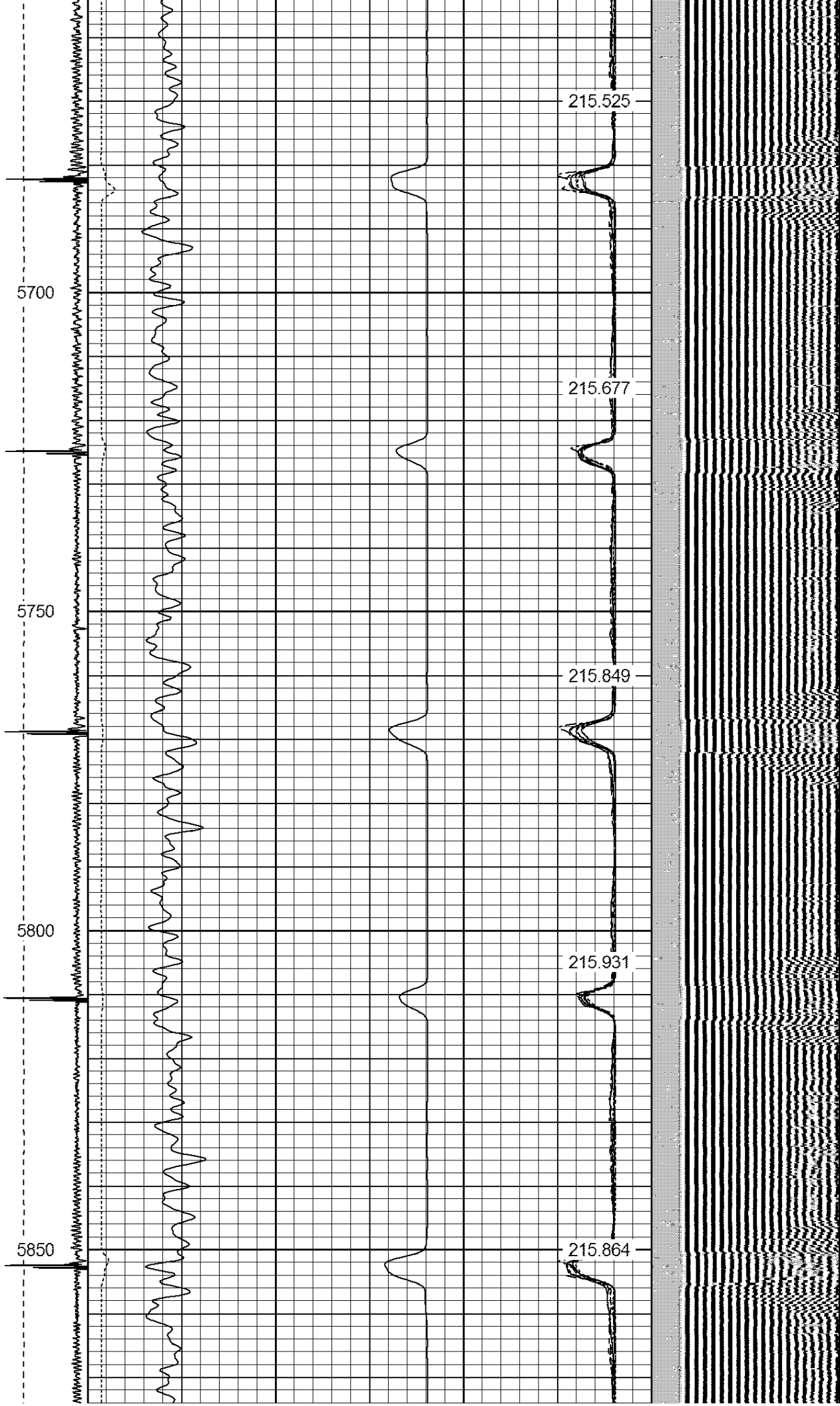










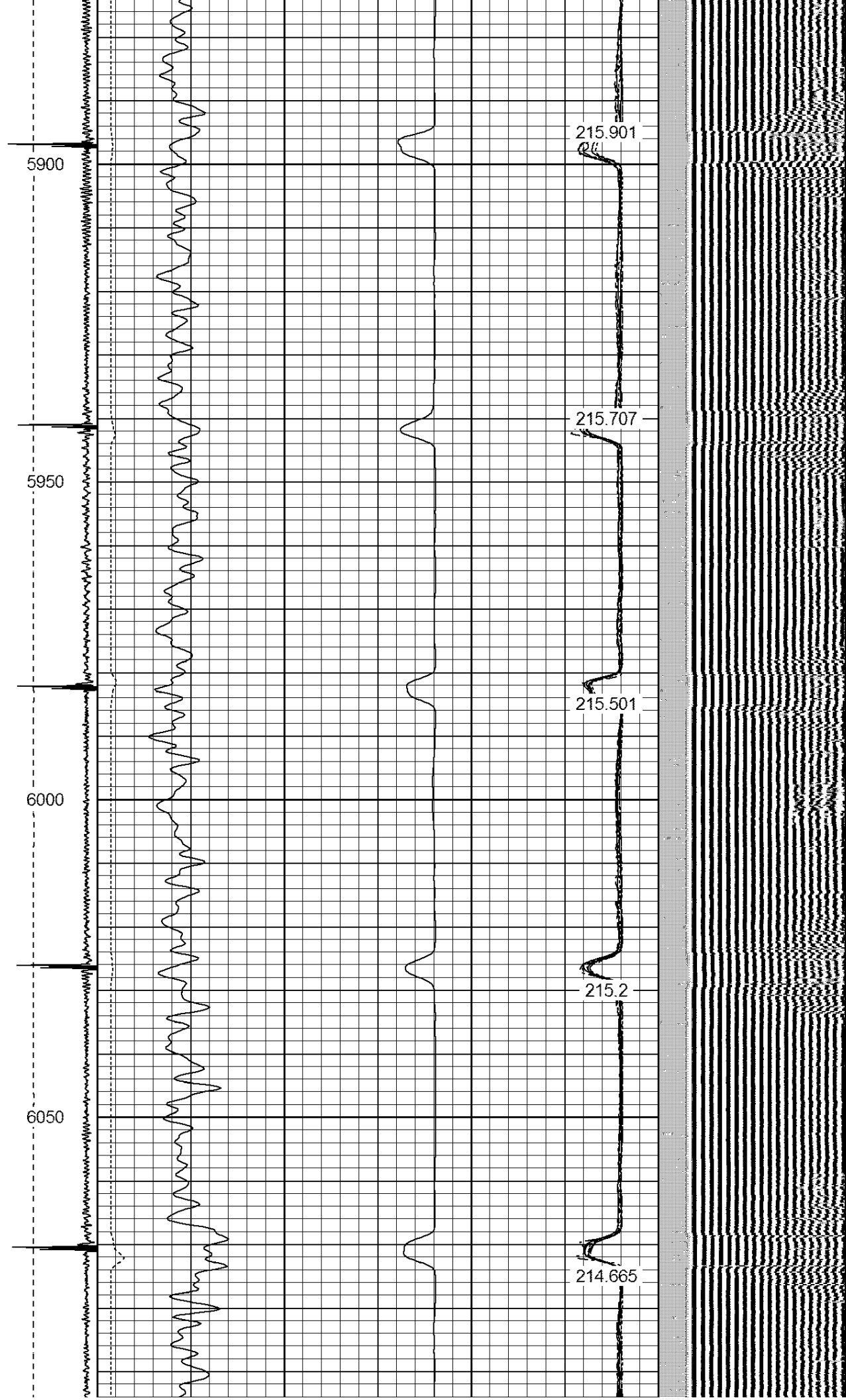


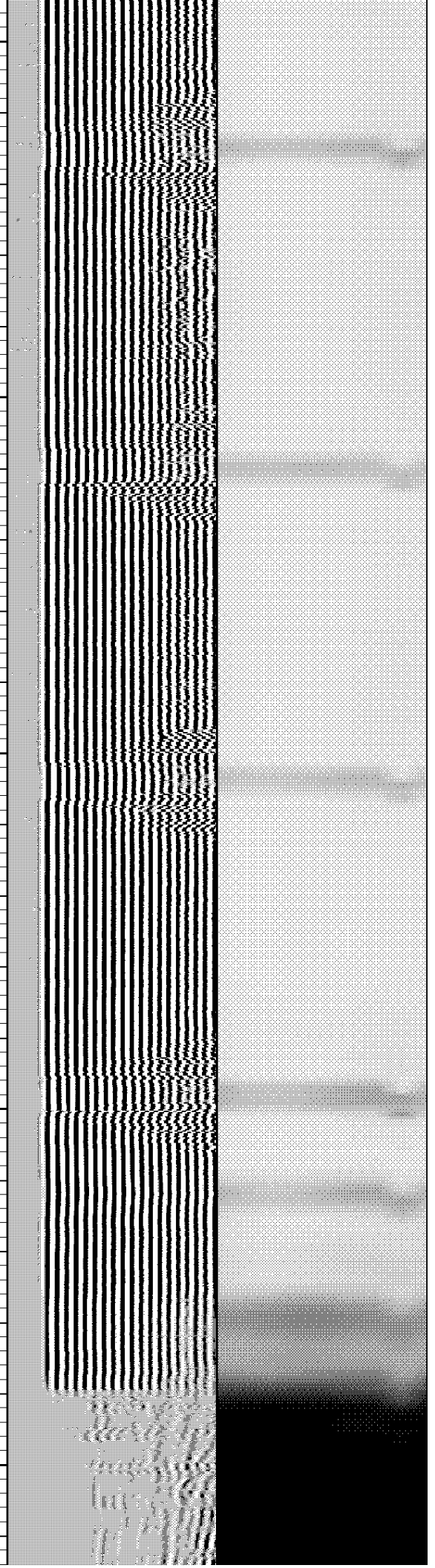
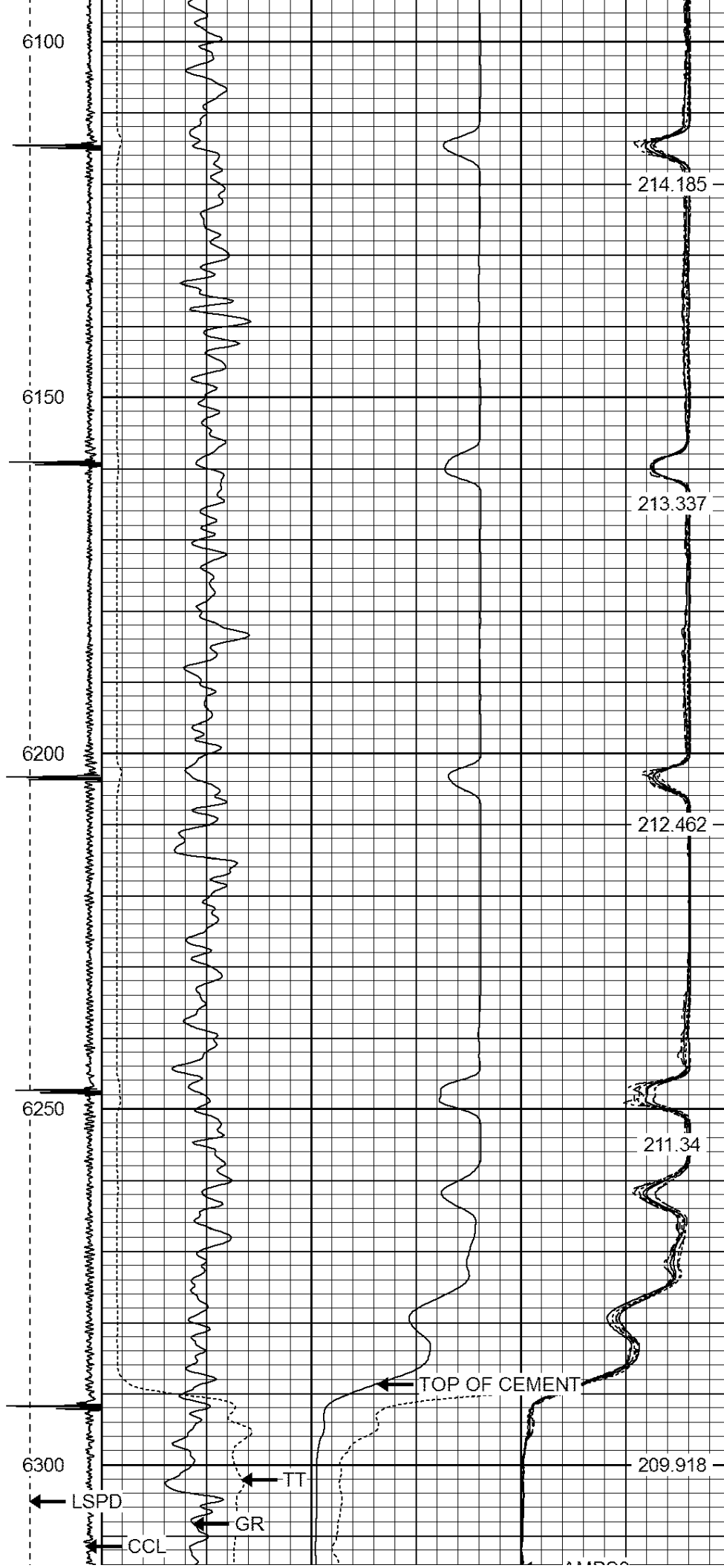
5700

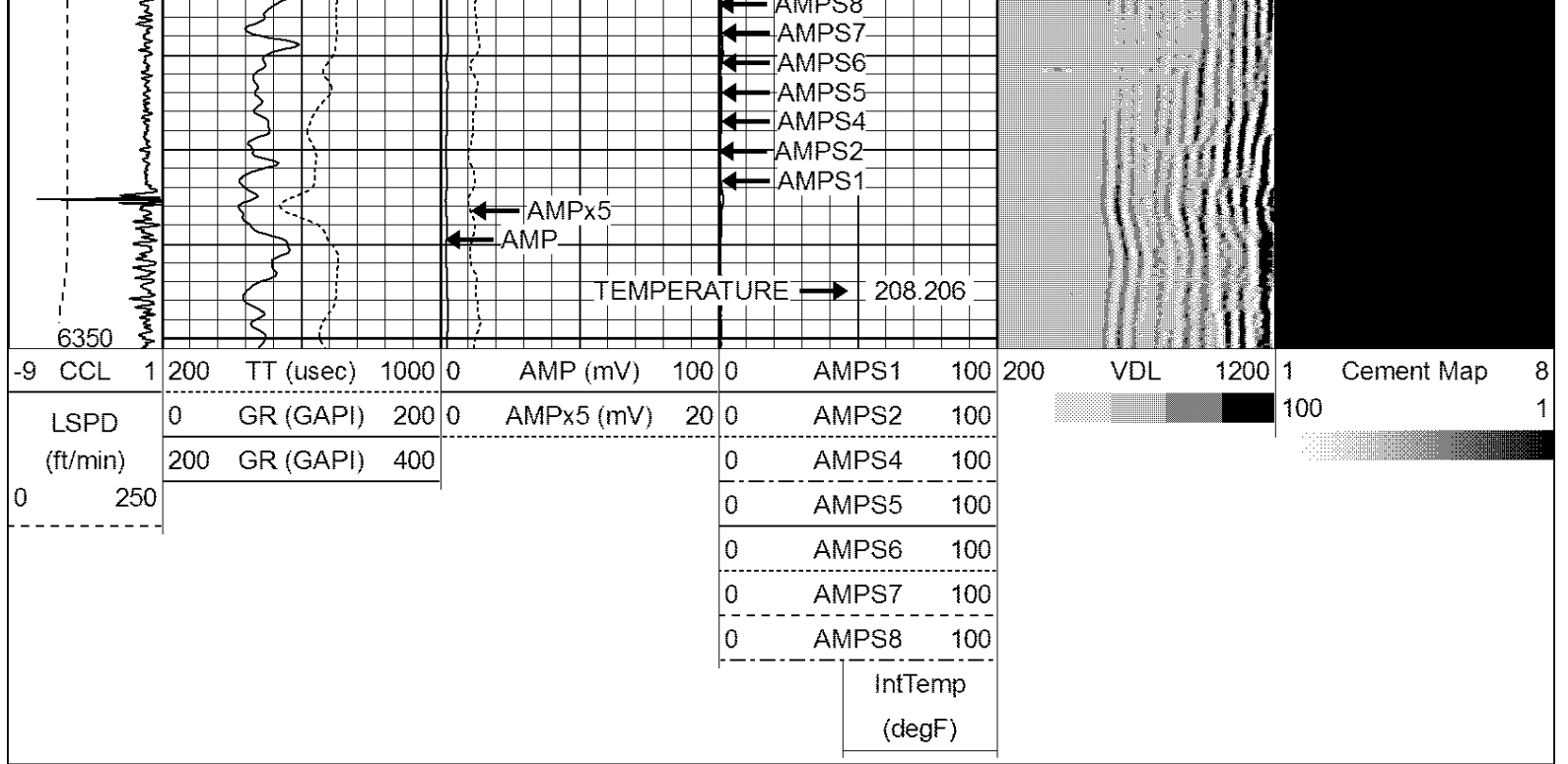
5750

5800

5850







Calibration Report						
Database File:		hsr deborrah 7-5.db				
Dataset Pathname:		pass4				
Dataset Creation:		Fri Feb 12 07:54:25 2016 by Log 7.0 B1				
Gamma Ray Calibration Report						
Serial Number:		275				
Tool Model:		Probe				
Performed:		Wed Jun 18 08:30:36 2014				
Calibrator Value:		100.0		GAPI		
Background Reading:		35.0		cps		
Calibrator Reading:		160.0		cps		
Sensitivity:		0.7000		GAPI/cps		
Compensated Neutron Calibration Report						
Serial Number:		275				
Tool Model:		Probe_B				
CALIBRATION		Wed Jul 30 08:47:19 2008				
Detector		Readings		Target		Normalization
Short Space		5001.20	cps	0.00	cps	1.0000
Long Space		1029.31	cps	0.00	cps	1.0000
PRE-SURVEY VERIFICATION						
Detector		Readings		Measured		Target
1)	Short Space	cps		pu		pu
	Long Space	cps				
2)	Short Space	cps		pu		
	Long Space	cps				
3)	Short Space	cps		nu		
	Long Space	cps				

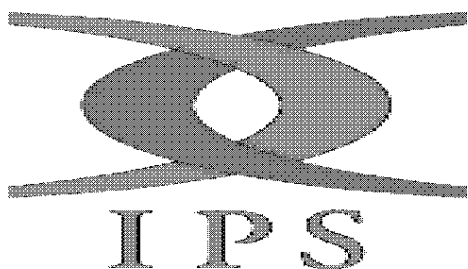
POST-SURVEY VERIFICATION				
	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

Segmented Cement Bond Log Calibration Report				
Serial Number:		Base		
Tool Model:		Probe		
Calibration Casing Diameter:		4.500	in	
Calibration Depth:		1606.317	ft	

Master Calibration, performed Fri Feb 12 07:32:20 2016:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3'	0.006	2.500	2.000	81.196	31.756	1.807
CAL	1.755	2.500				
5'	0.009	2.500	2.000	81.196	31.793	1.714
SUM						
S1	0.010	2.500	0.500	81.000	32.324	0.189
S2	0.011	2.500	0.500	81.000	32.336	0.159
S3	0.008	2.500	0.500	81.000	32.303	0.242
S4	0.005	2.500	0.500	81.000	32.268	0.330
S5	0.008	2.500	0.500	81.000	32.308	0.231
S6	0.008	2.500	0.500	81.000	32.305	0.239
S7	0.012	2.500	0.500	81.000	32.358	0.106
S8	0.012	2.500	0.500	81.000	32.357	0.107

Internal Reference Calibration, performed Tue Jun 05 07:53:42 2012:						
	Raw (v)		Calibrated (v)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
CAL	0.000	0.000	1.755	2.500	1.000	0.000

Air Zero Calibration, performed Fri Feb 12 07:14:20 2016:			
	Raw (v)		Results
	Zero	Zero	Offset
3'	0.000	0.000	0.000
5'	0.000	0.000	0.000
SUM			
S1	0.000	0.000	0.000
S2	0.000	0.000	0.000
S3	0.000	0.000	0.000
S4	0.000	0.000	0.000
S5	0.000	0.000	0.000
S6	0.000	0.000	0.000
S7	0.000	0.000	0.000
S8	0.000	0.000	0.000



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