



Radial Cement Bond
Gamma Ray
Casing Collar Log

Company Kerr-McGee Oil & Gas Onshore, L.P.

Well Elliott 32N-18HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-38784-00

SHL: 2041' FNL & 457' FEL SE/NE

SEC 18 TWP 3N RGE 6NW

Permanent Datum Ground Level Elevation 4822'
Log Measured From Kelly Bushing 14'
Drilling Measured From Kelly Bushing
Other Services Gauge Run CIL
Elevation K.B. 4836'
D.F. 4835'
G.L. 4822'

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Elliott 32N-18HZ
Field Wattenberg
County Weld
State Colorado

Date

21-APR-2014

Run Number One

Depth Driller 11,797'

Depth Logger 7,221'

Bottom Logged Interval 7,218'

Top Log Interval Surface

Open Hole Size 9.625"

Type Fluid Water

Density / Viscosity 8.34 LB/GAL

Max. Recorded Temp. 246 F

E. Estimated Cement Top 558'

Time Well Ready ROA

Time Logger on Bottom -----

E. Equipment Number HD 119

Location Fort Lupton, CO

Recorded By Jackson

Witnessed By Sonny Sequera

Run Number

Bit From To

Size Weight

From To

From To

Casing Record Size (in) Wgt (lbs/ft) Grade Top Bottom
Surface Casing 9.5/8 36# J-55 Surface 1,070'
Intermediate #1 7 26 P-110 Surface 7,348'
Intermediate #2 4 1/2 11.6 P-110 6,235'
Liner 4 1/2 11.6 P-110 11,211'

<<< Fold Here >>>

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

Radial Cement Bond Log - Caliper Log is the first recorded log in hole.
Depth reference to Casing Talley reported Liner Top at 6,235'.
Corrected -19' at liner top with 14' KB
RCBL-CIL ran with 2800 PSI surface induced pressure.
Estimated Top of Cement @ 558'
Picked up trash in 4 1/2" and lost it when dropped back down for 7" main.
Spot of intrest @ 7100'

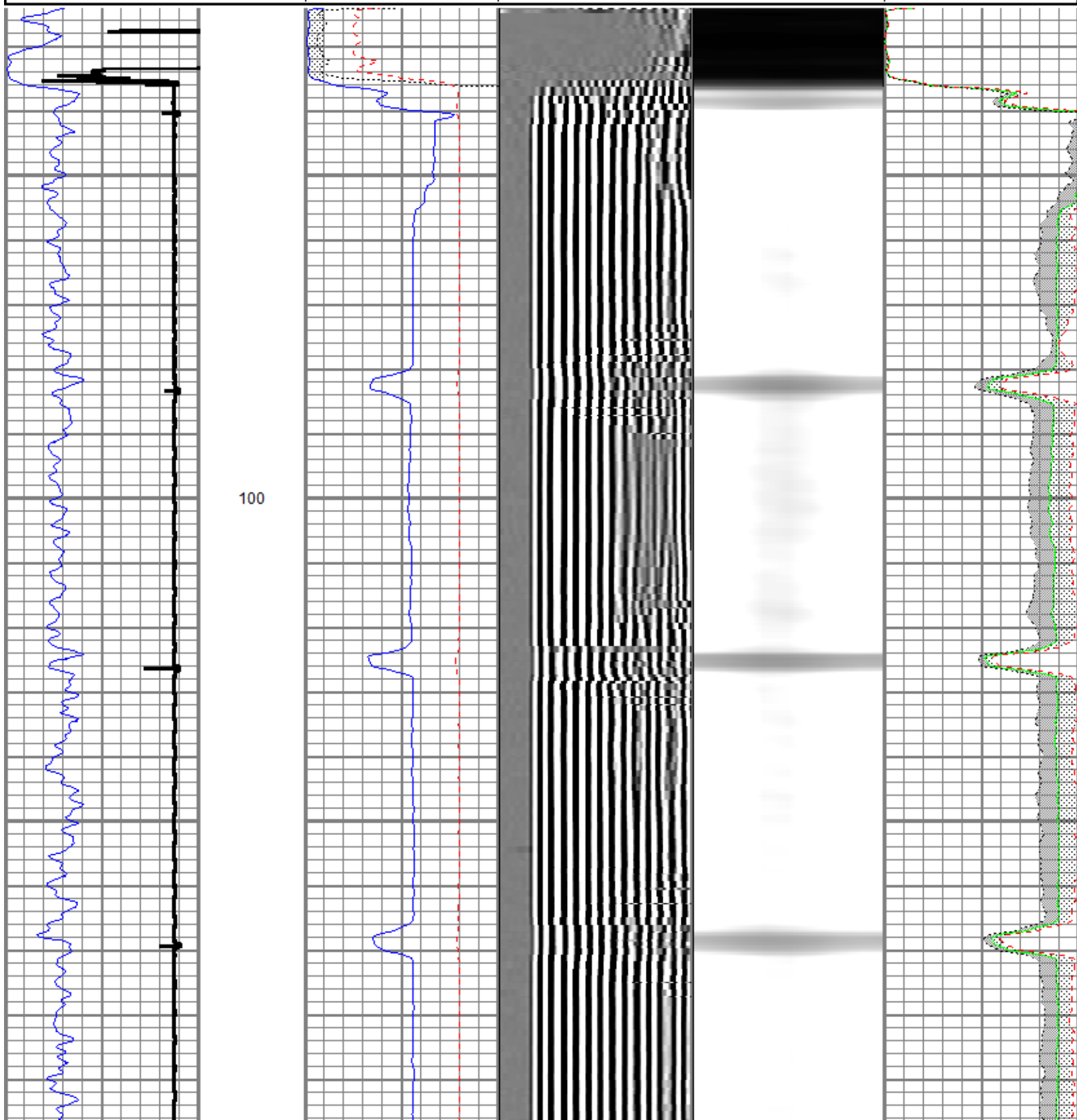
Thank you for choosing FMC Technologies Completion Services

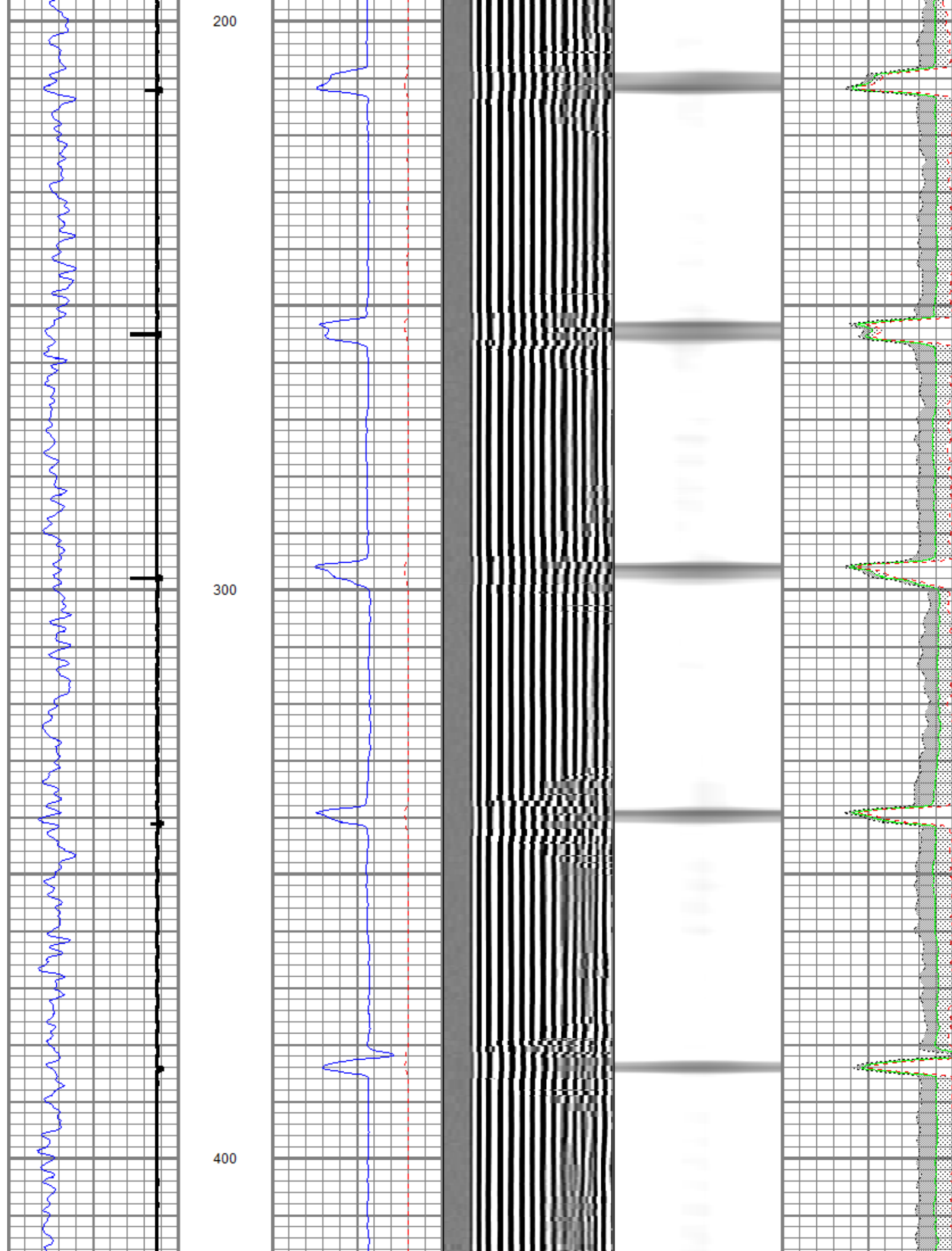
Main Pass 7"

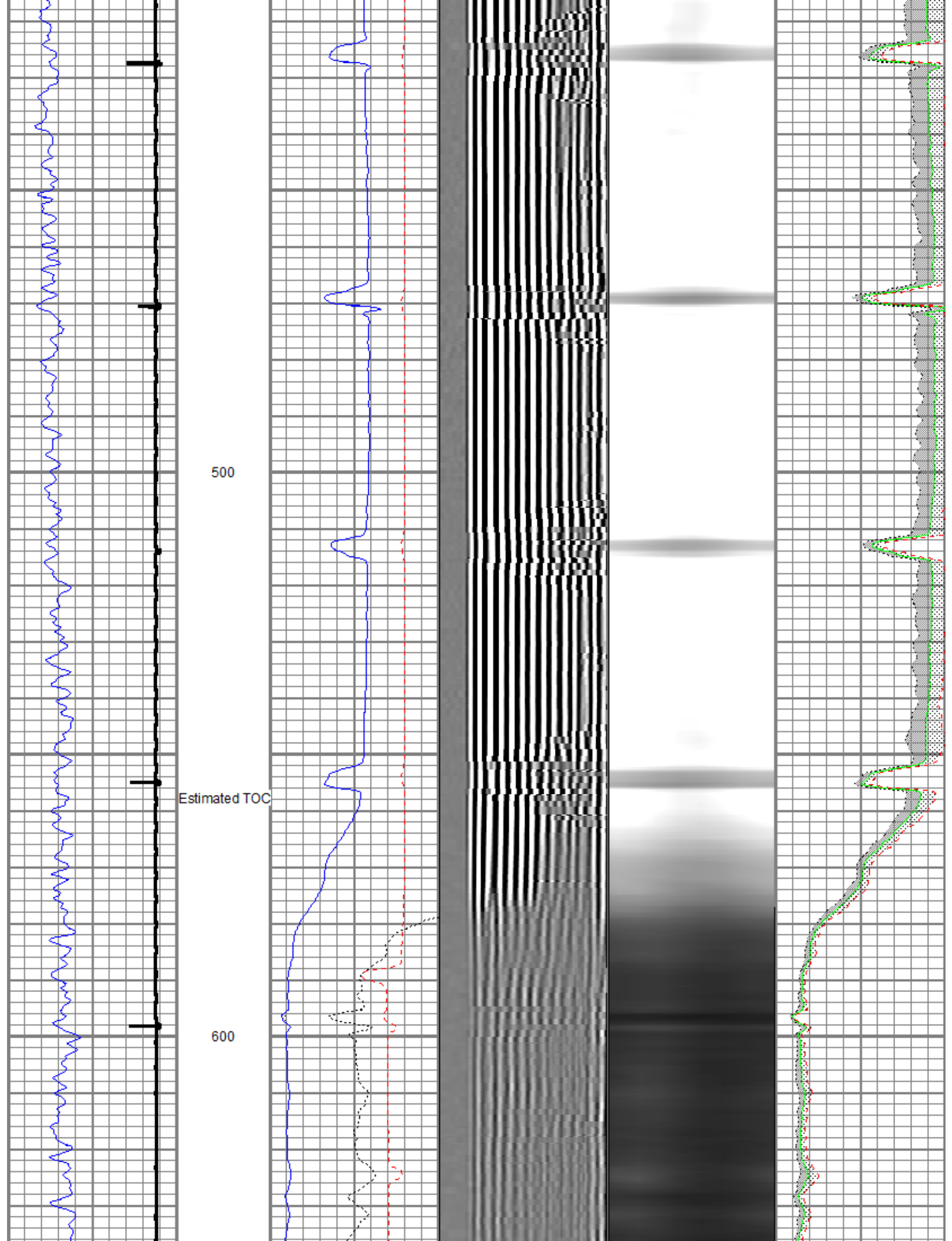


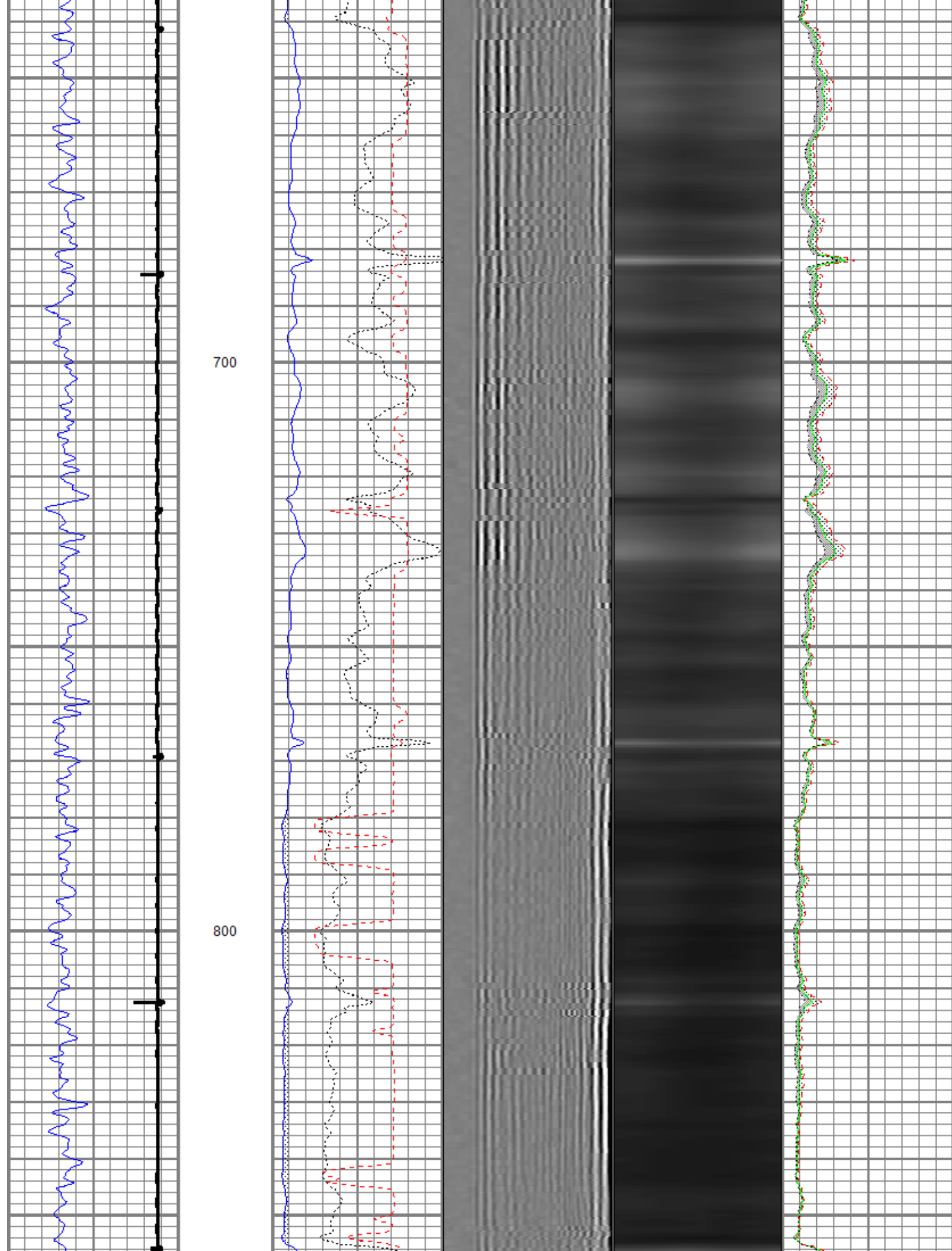
Database File: apc_elliott32n_18hz.db
 Dataset Pathname: pass4
 Presentation Format: rbt007
 Dataset Creation: Mon Apr 21 17:01:38 2014 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

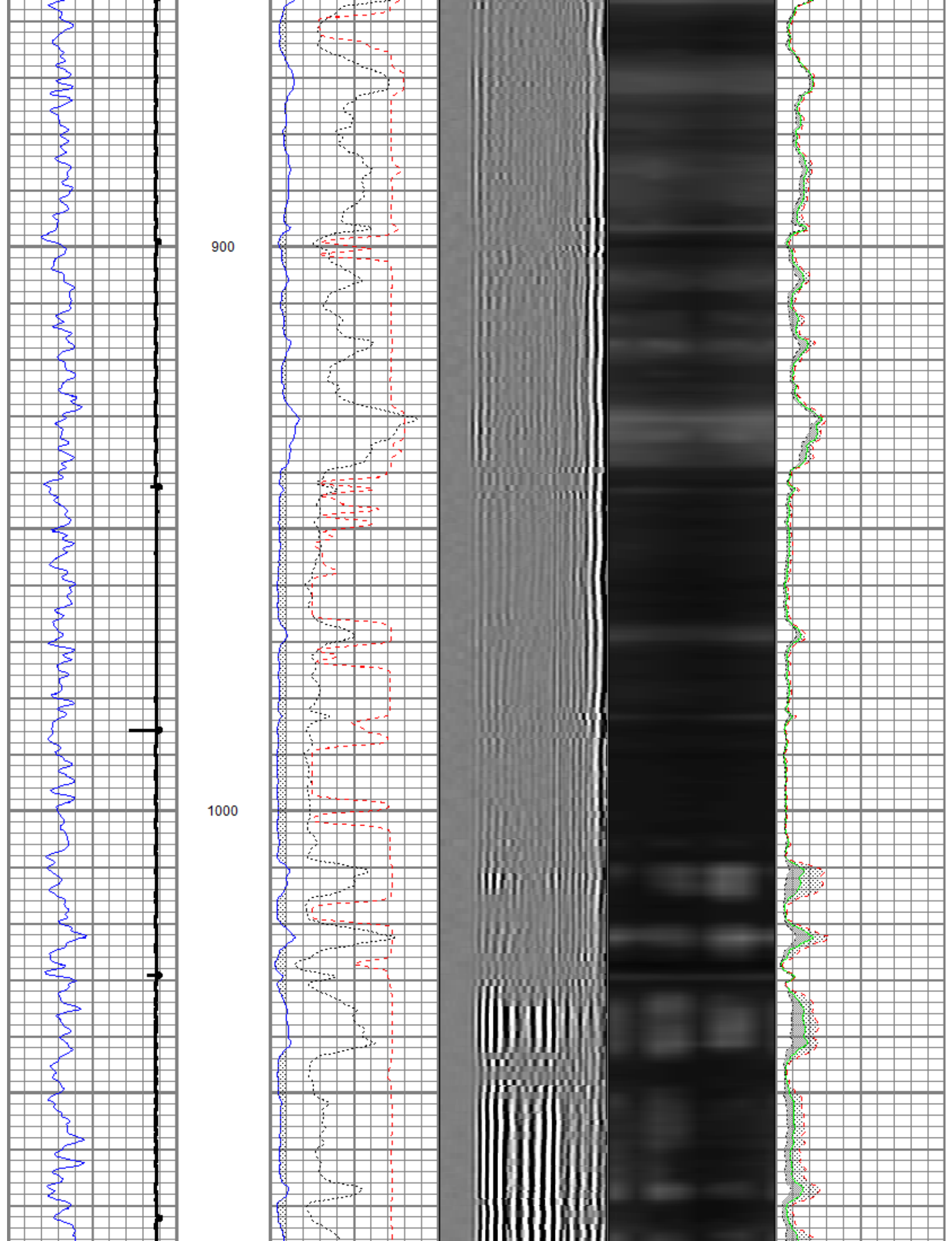
Gamma Ray	0	3' Amplitude (mV)	100	5' Variable Density Log		Sector Map	0	Average Amplitude	100
(GAPI)	120	3' Amplitude x 5		200	1200			Minimum Amplitude	
Casing Collar Locator		(mV)	20					0	100
		3' Travel Time						Maximum Amplitude	
		650 (usec)	150					0	100

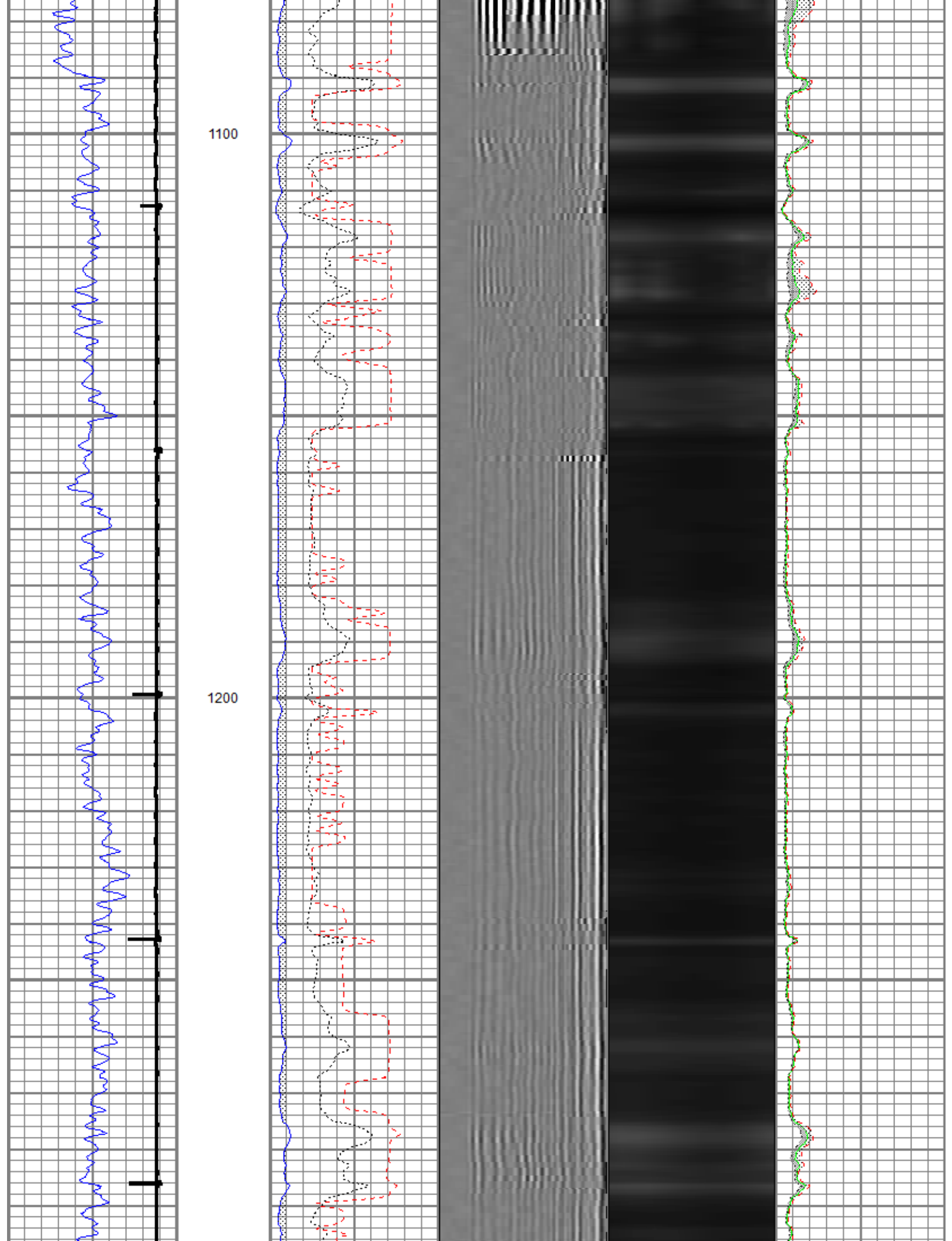


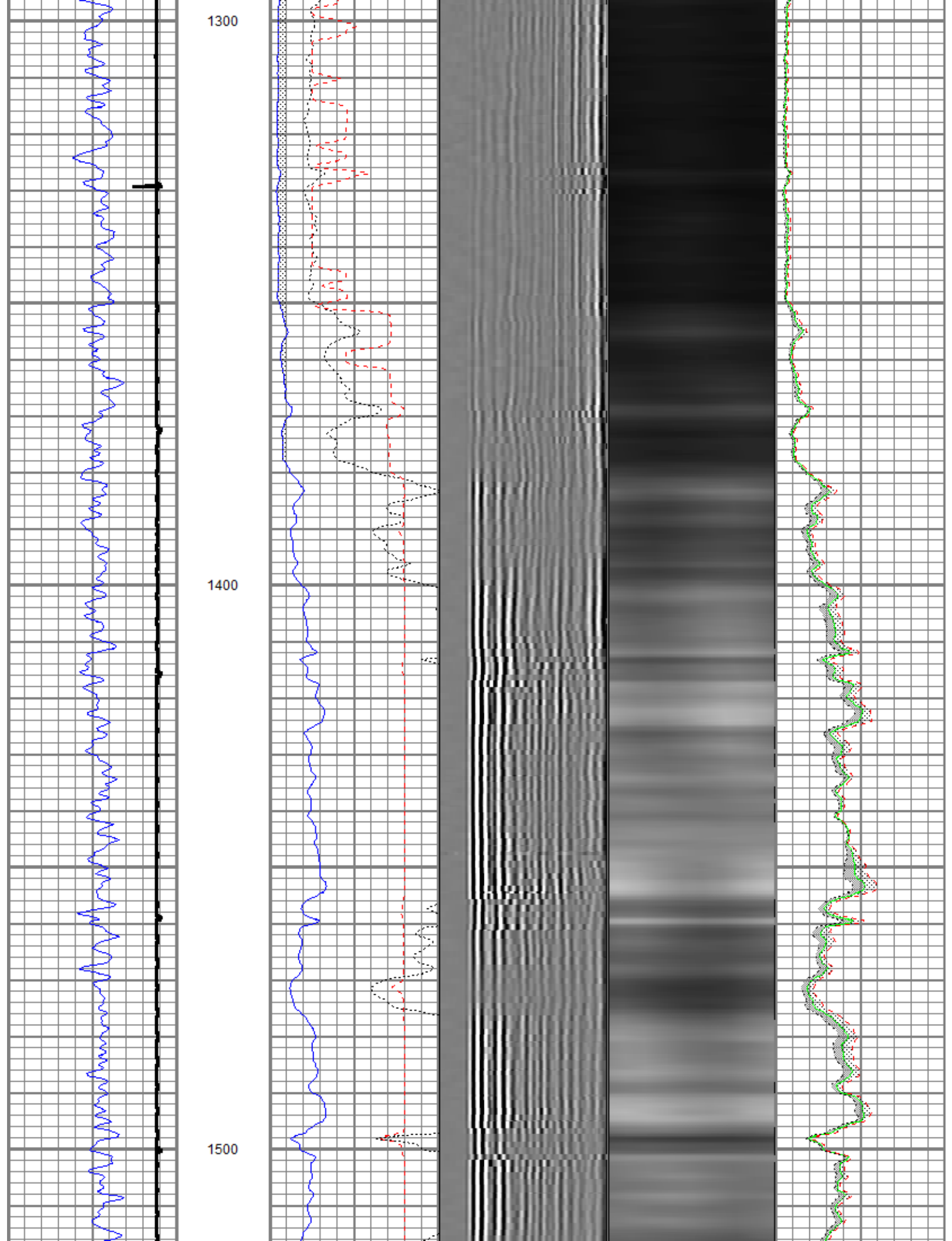


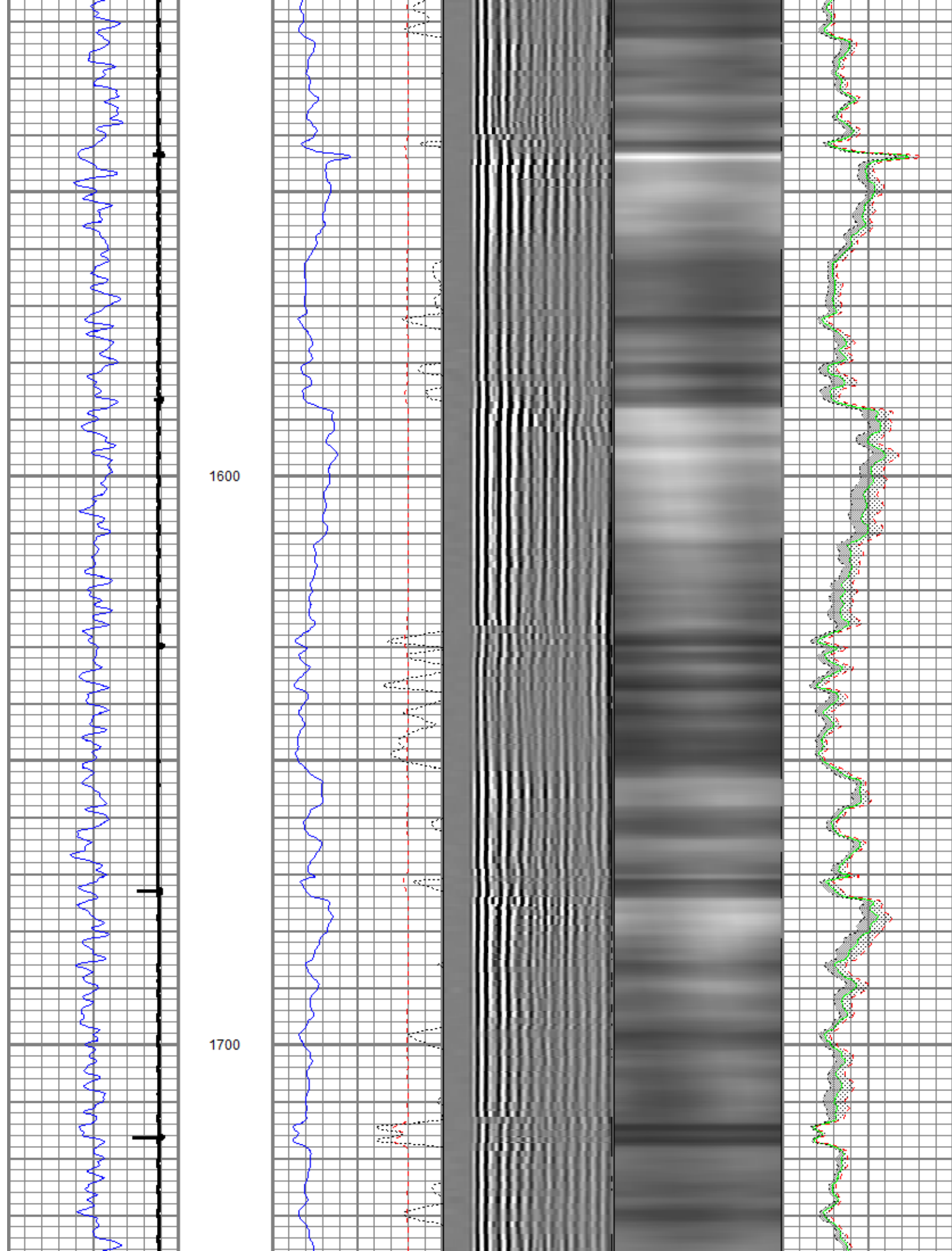


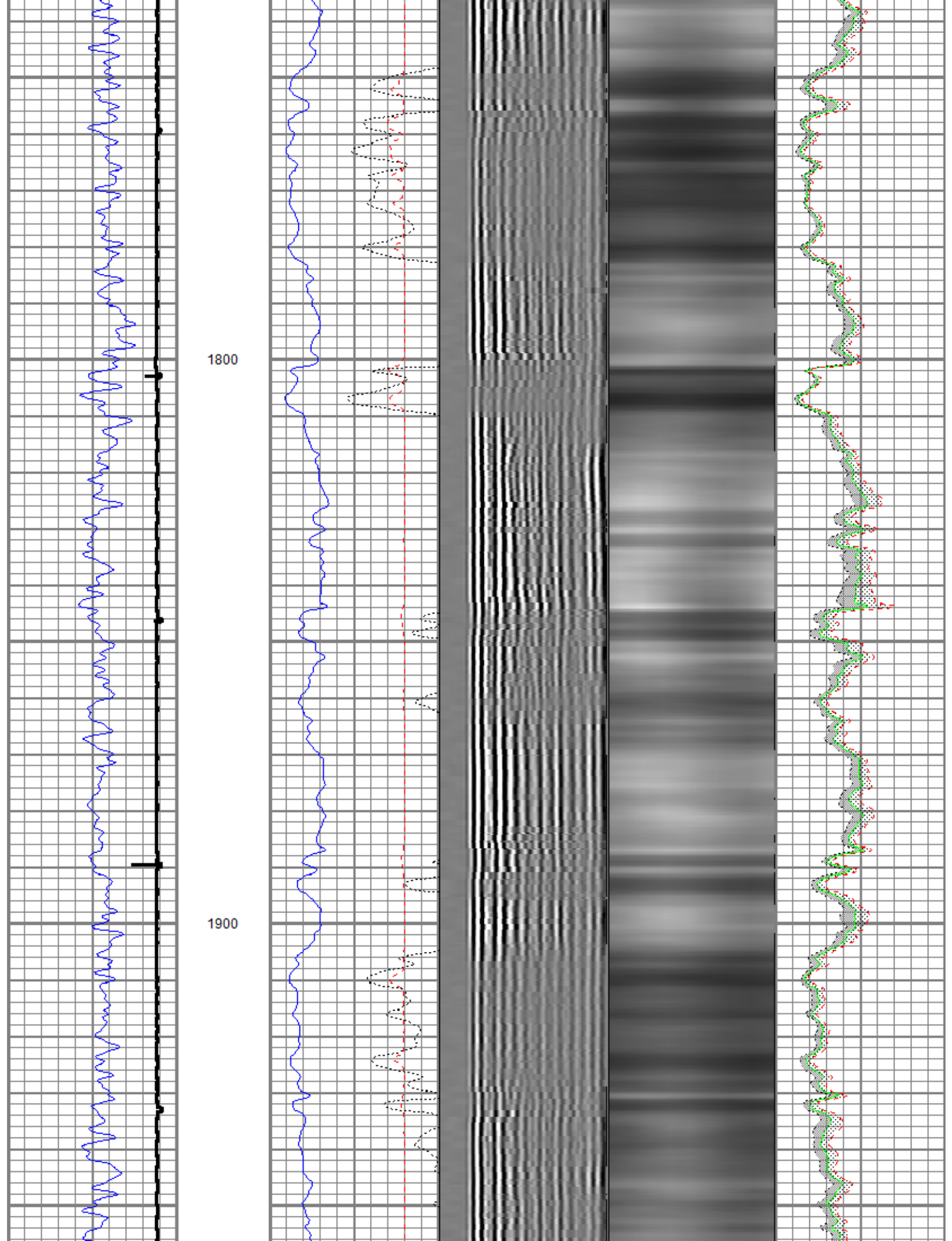


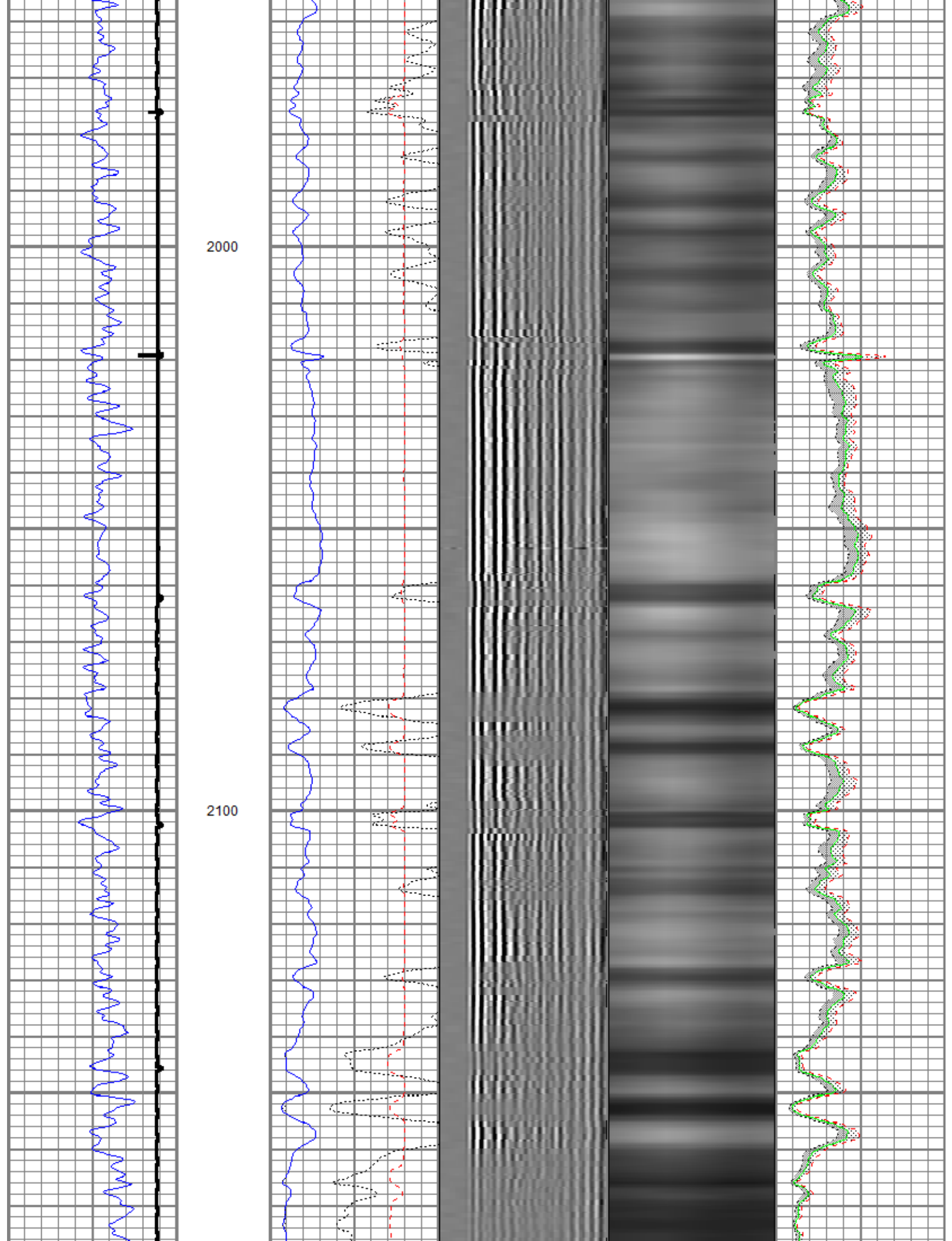


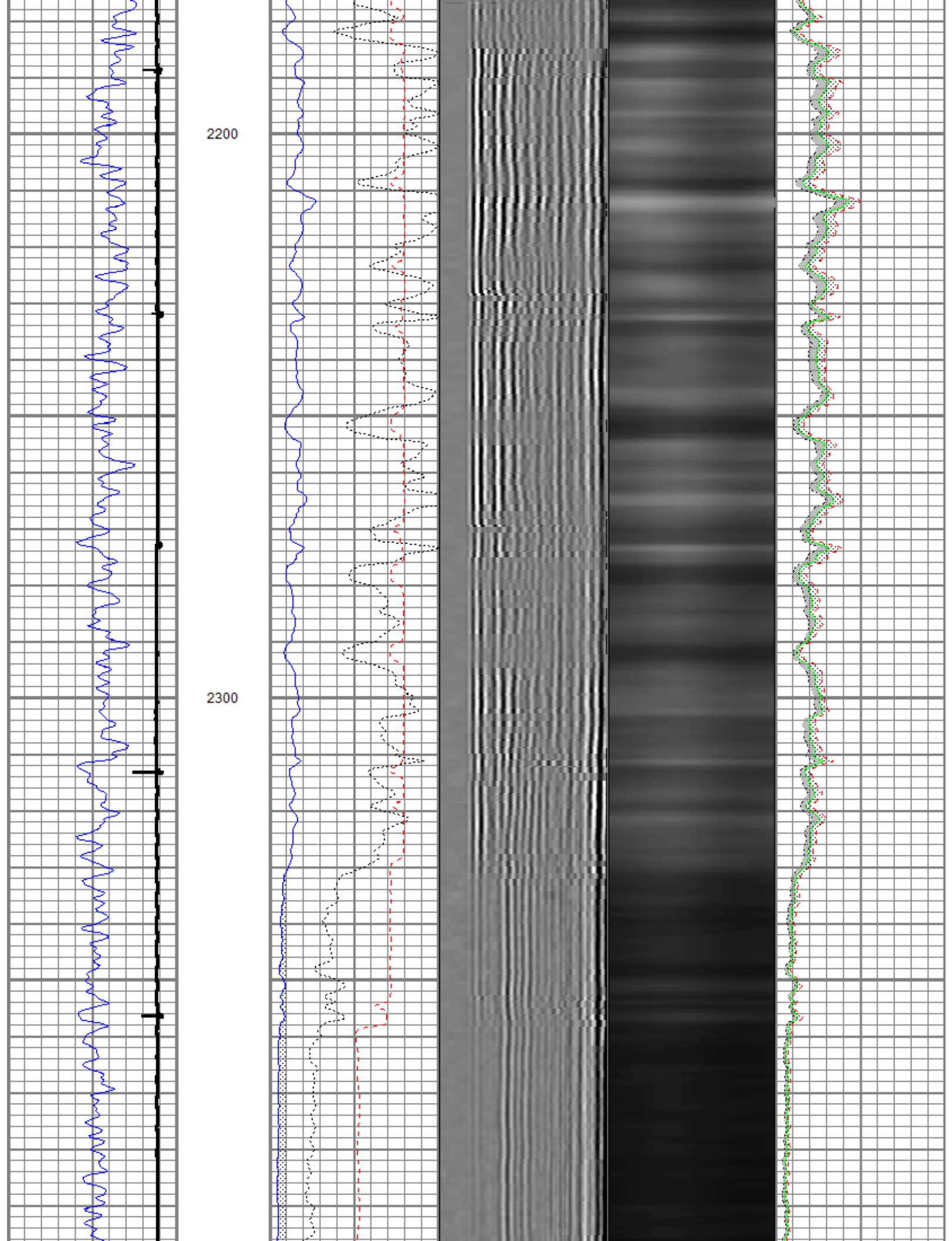


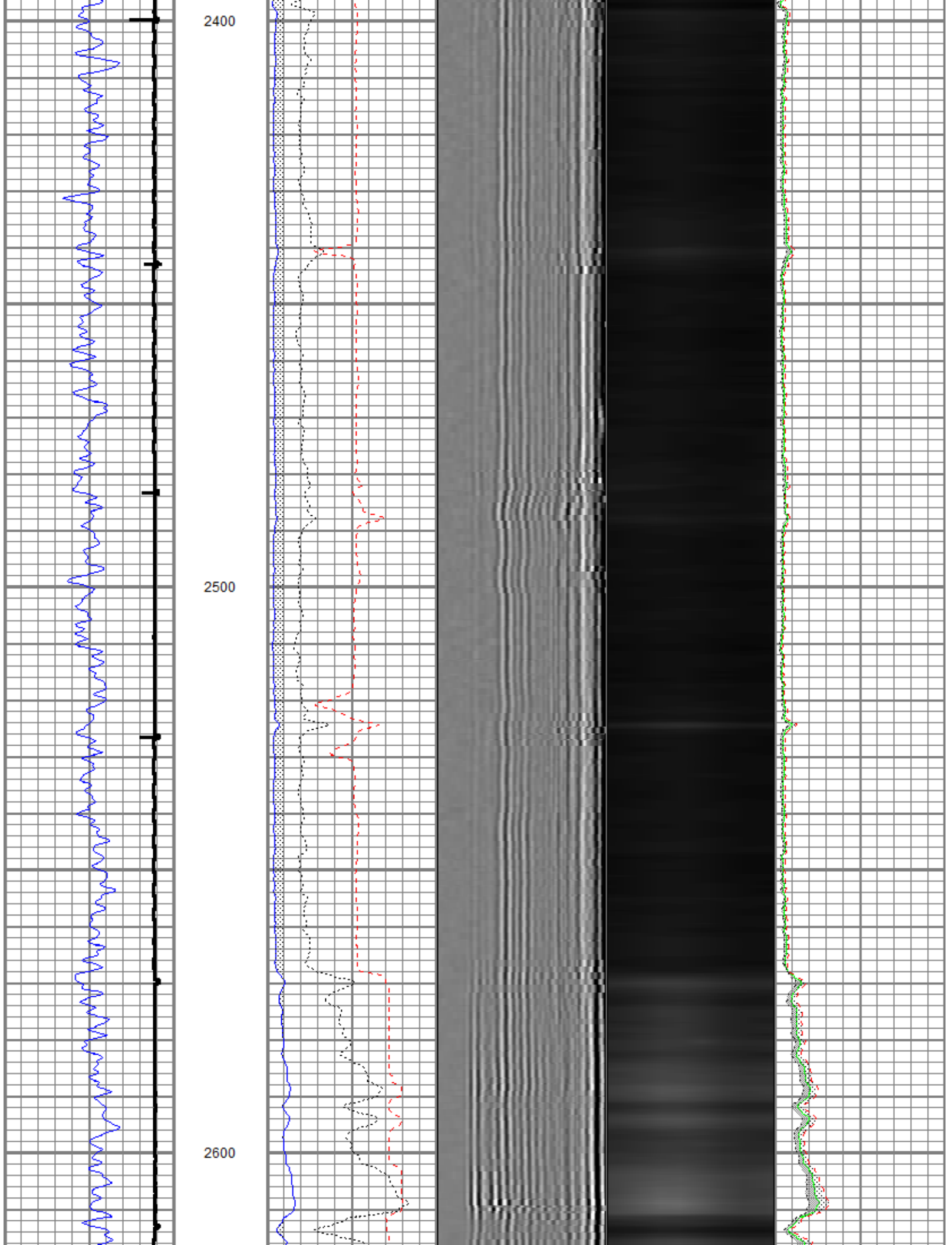


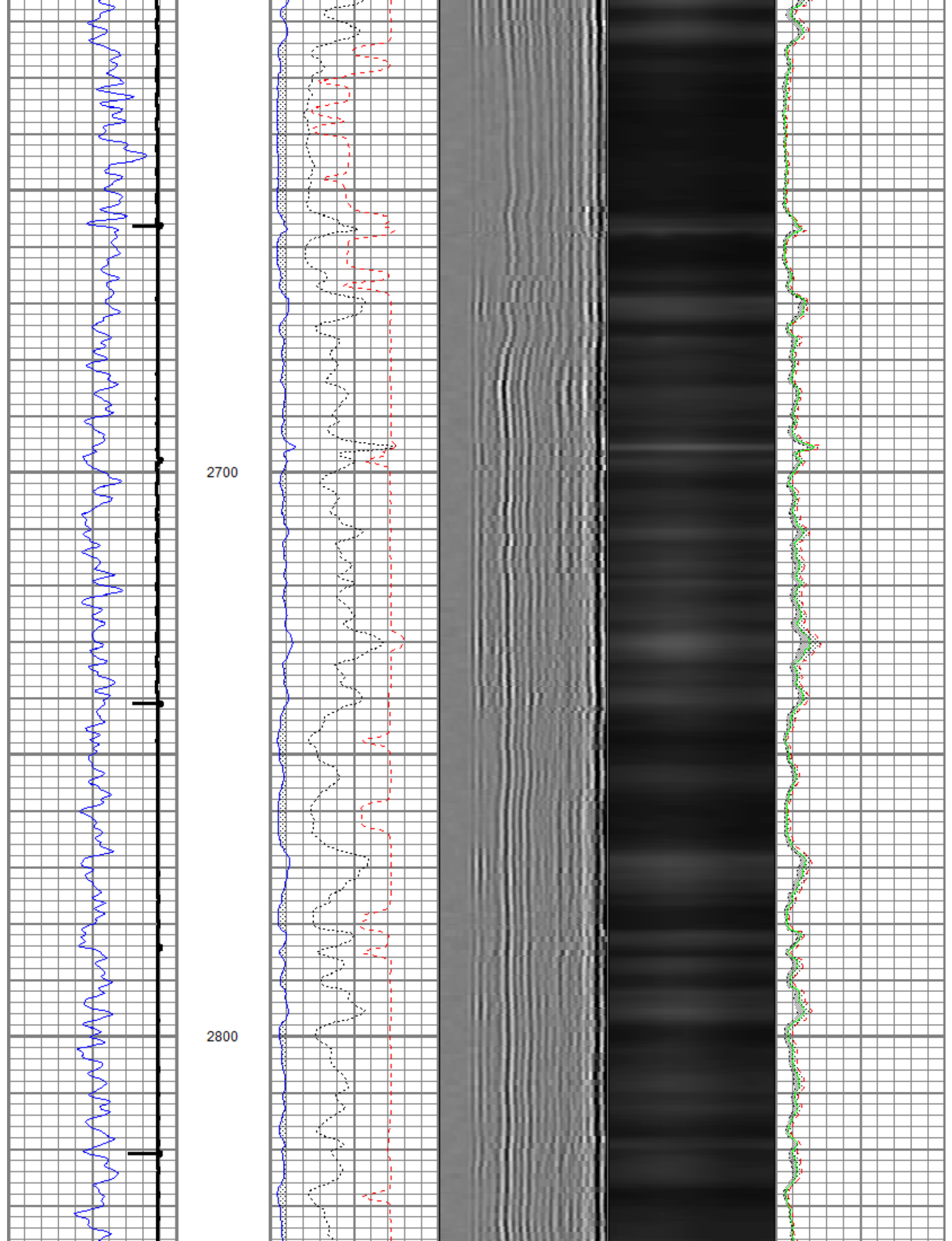


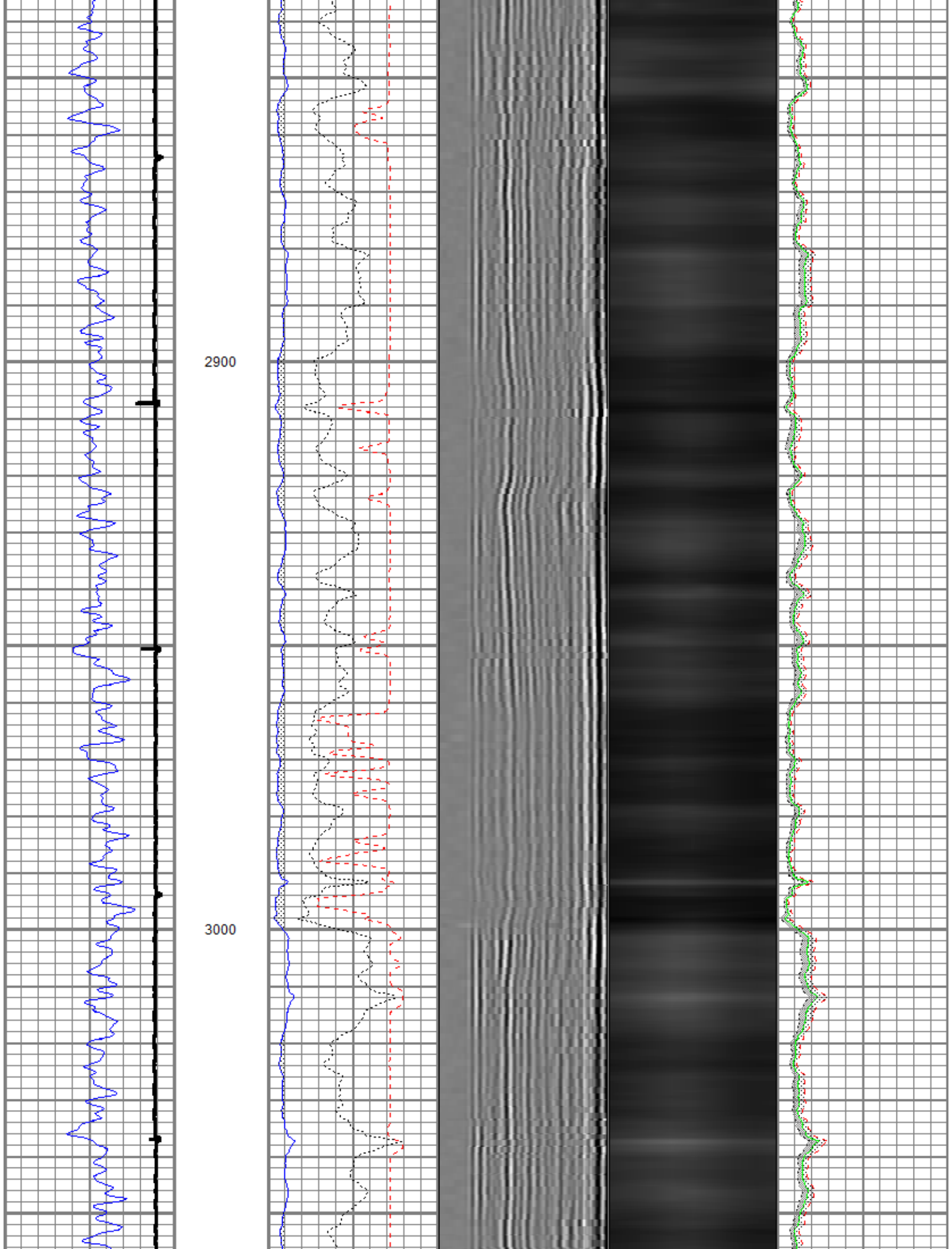


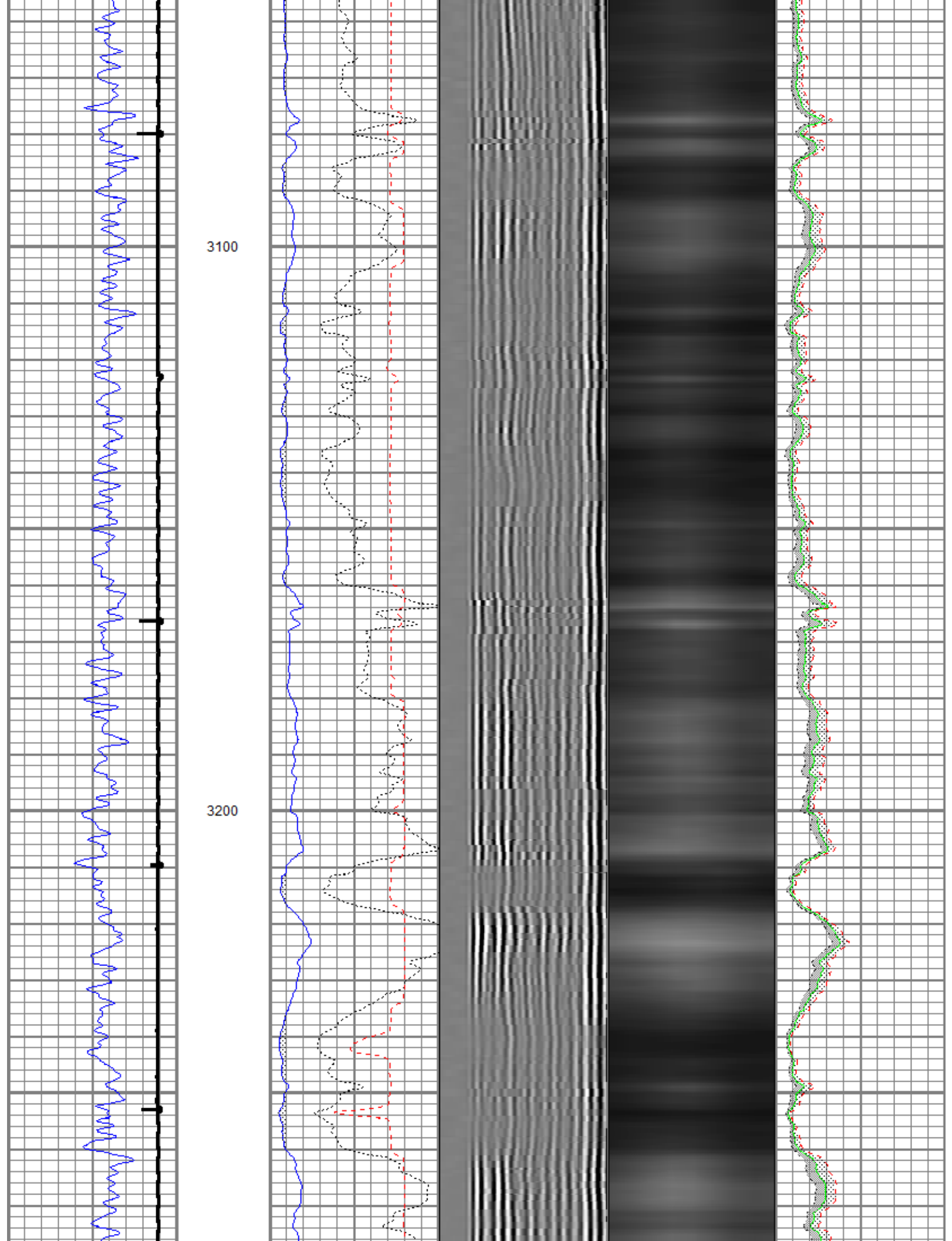


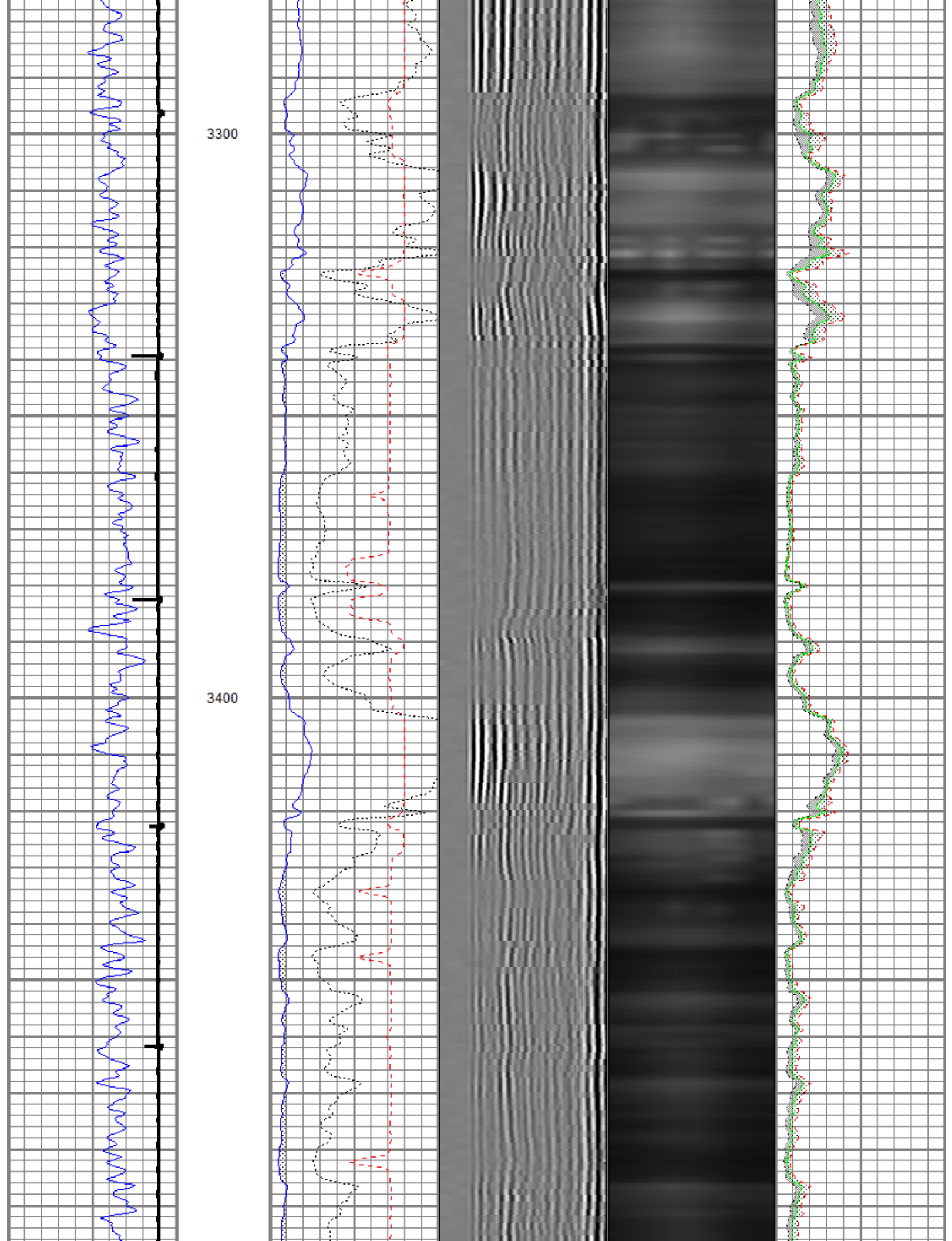


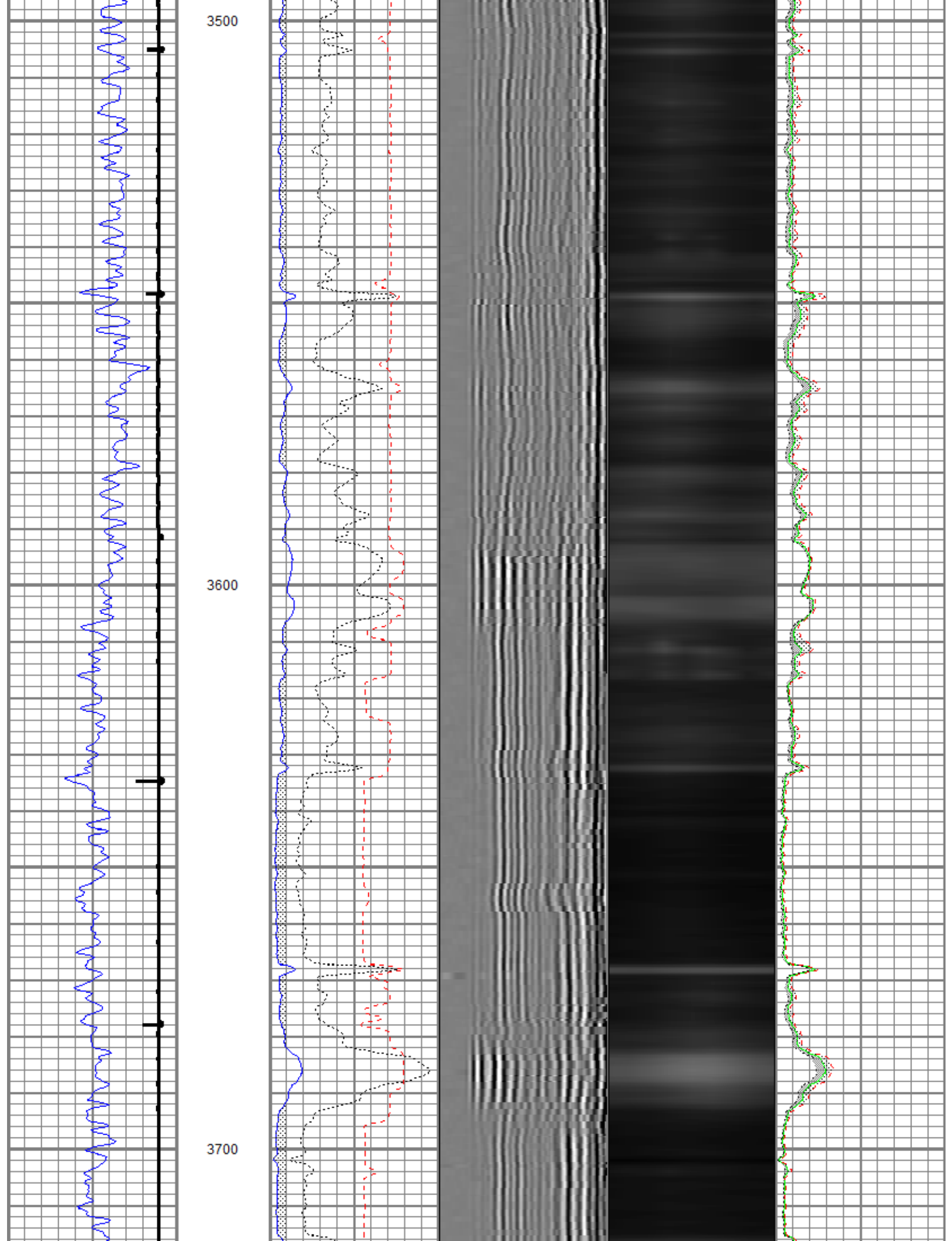


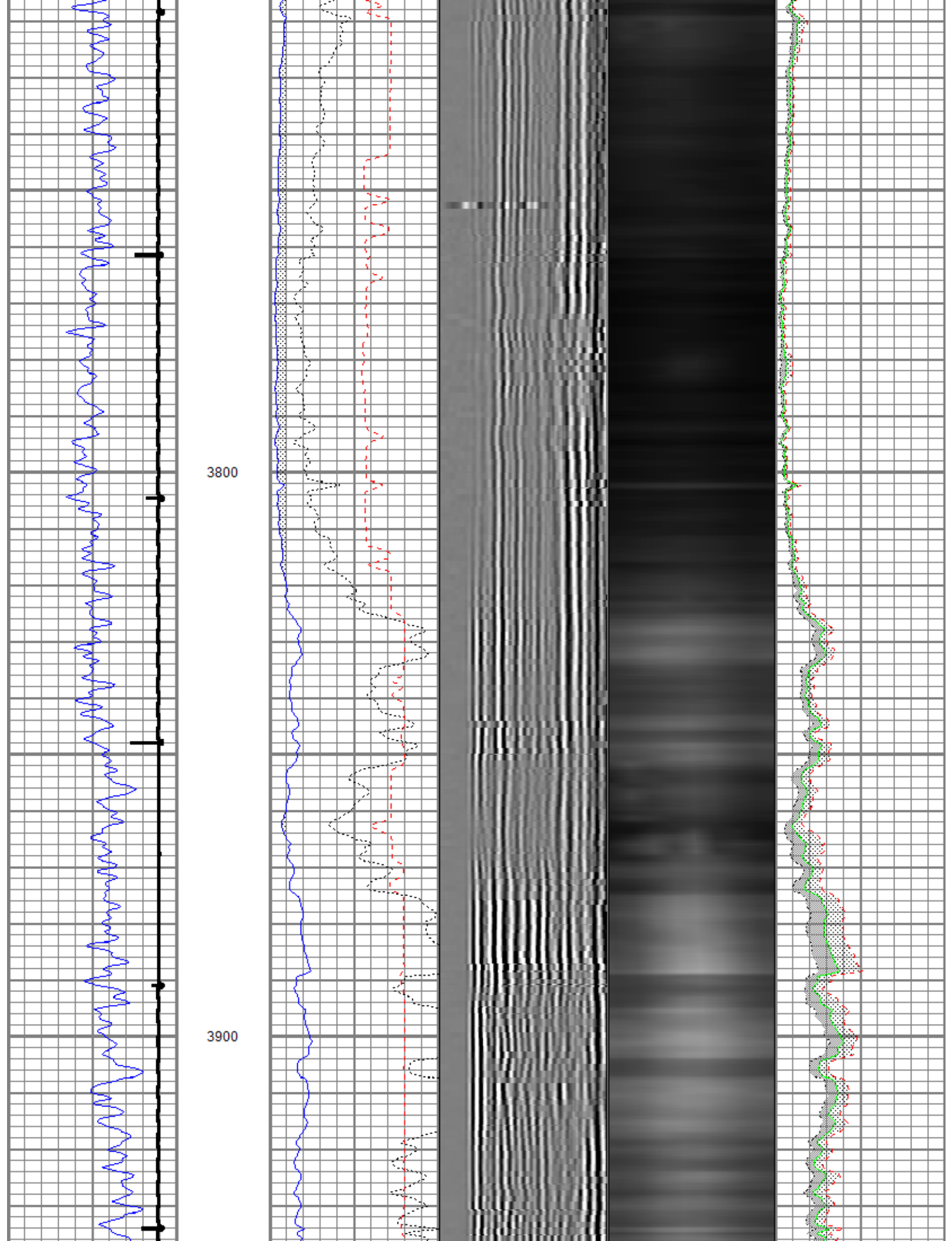


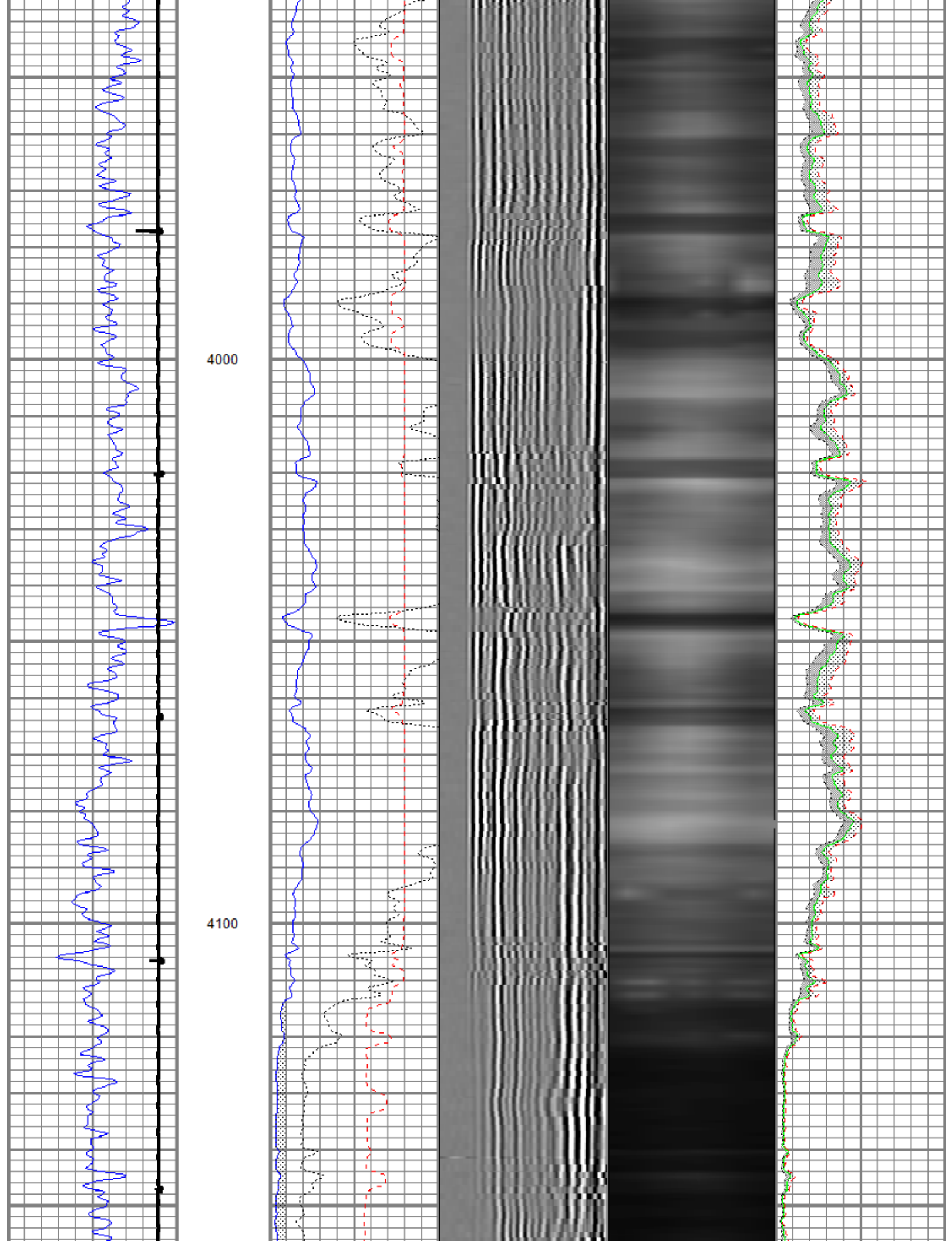


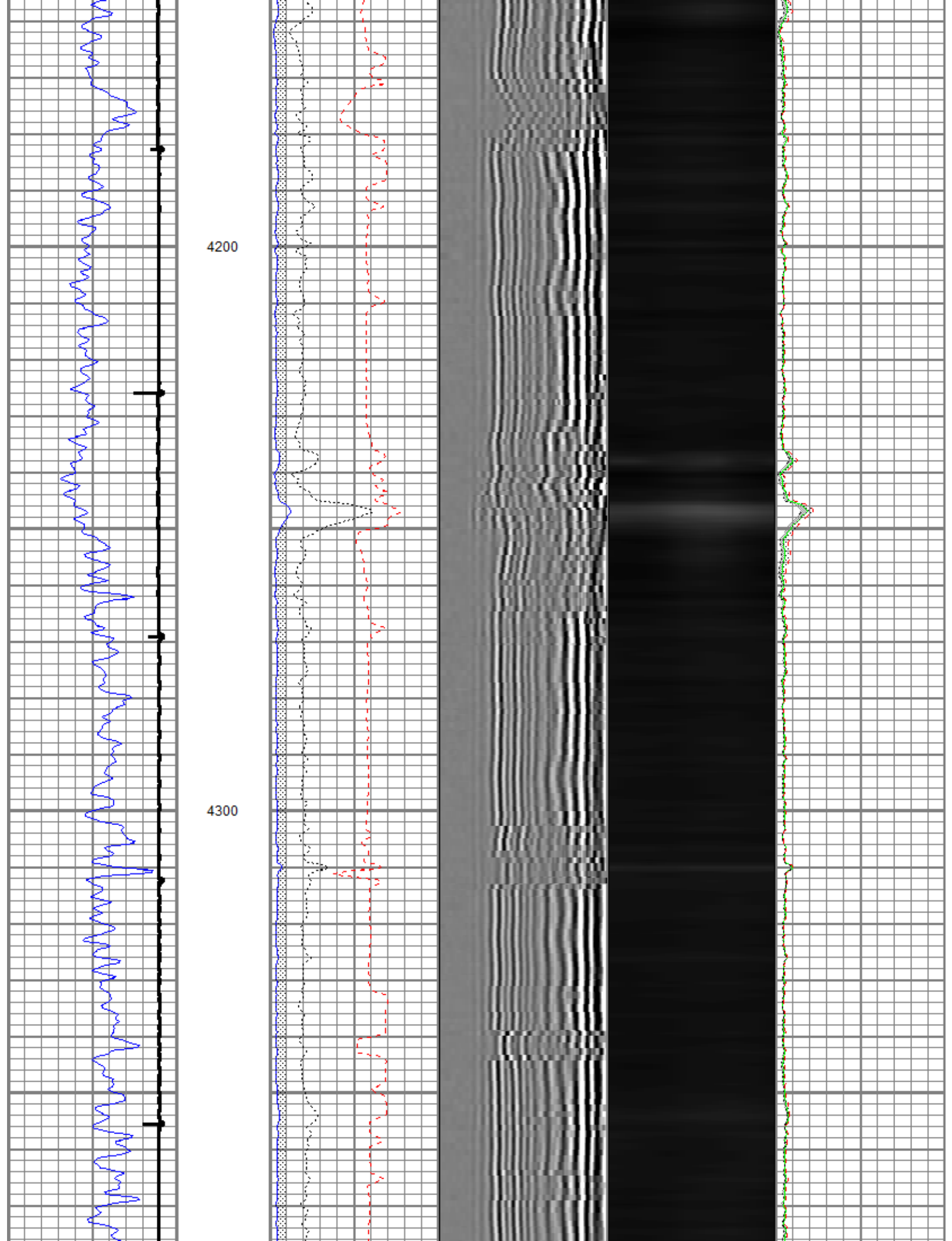


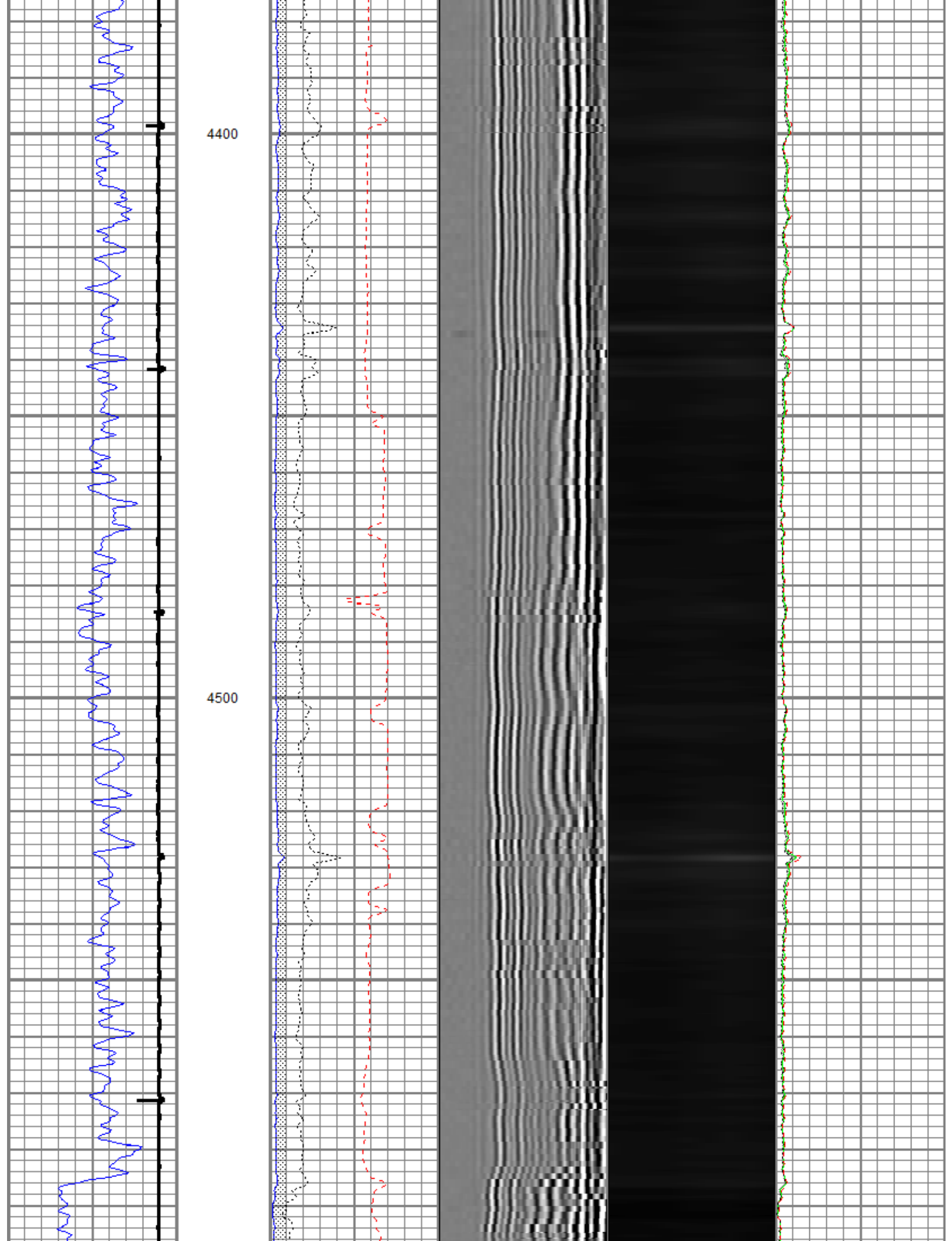


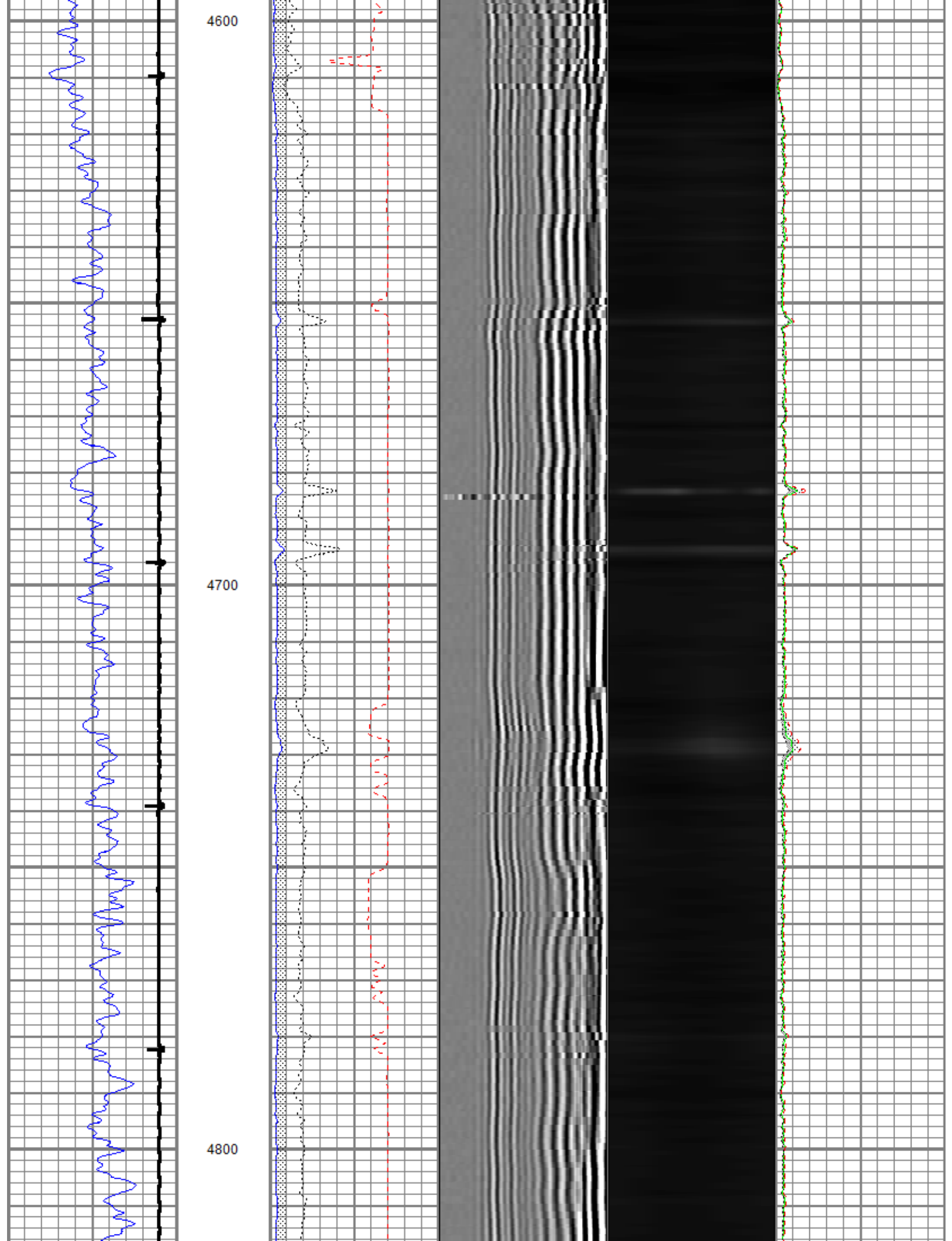


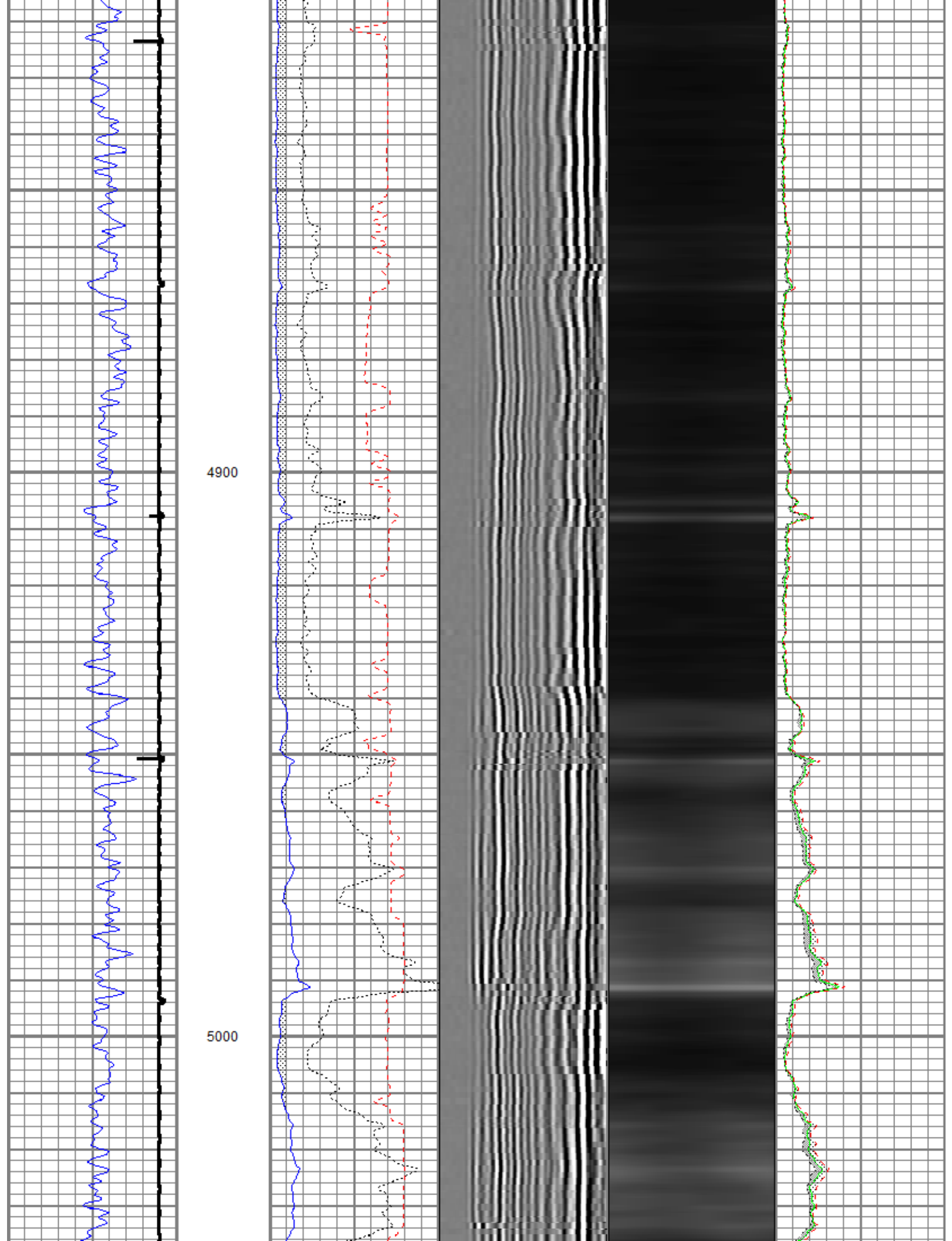


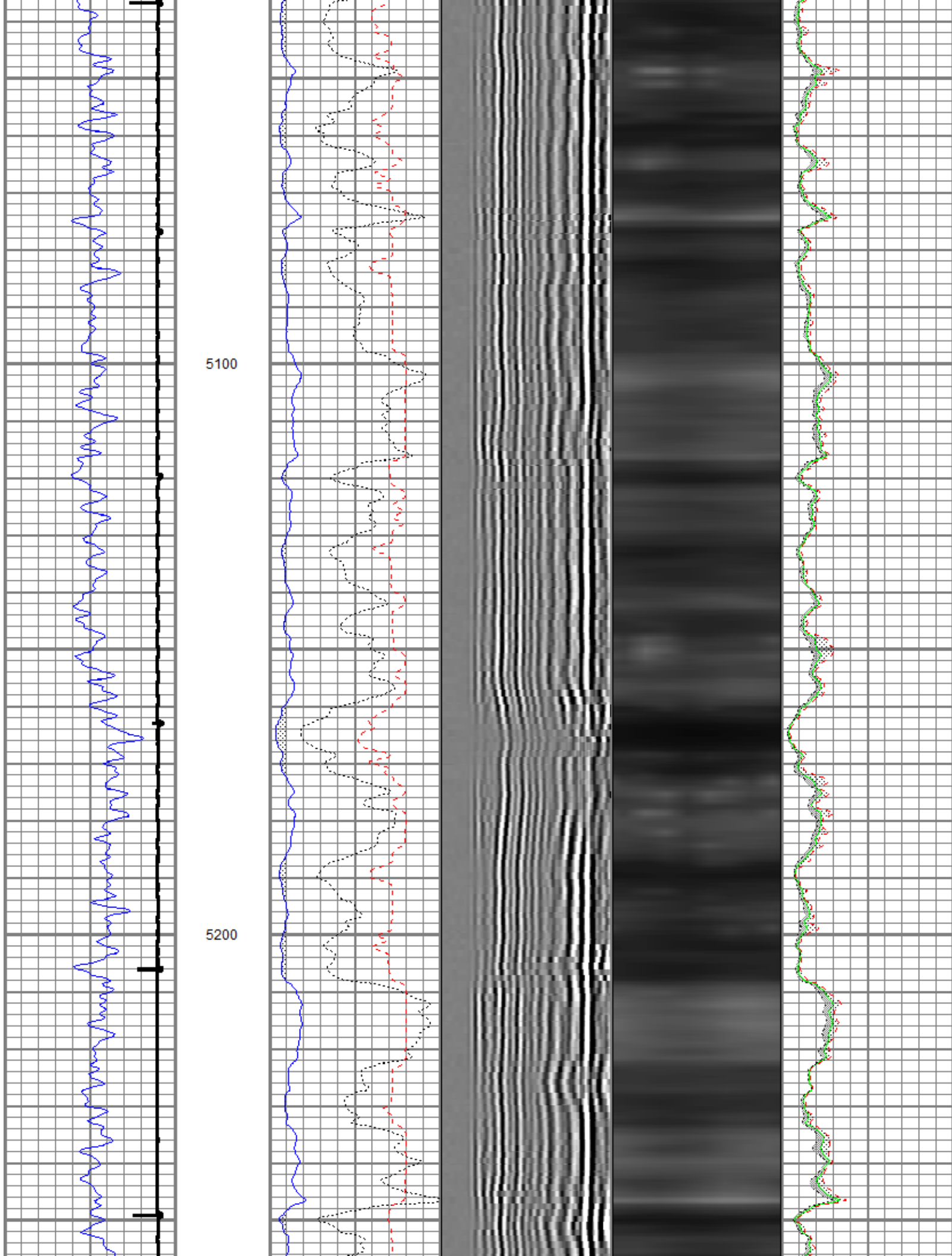


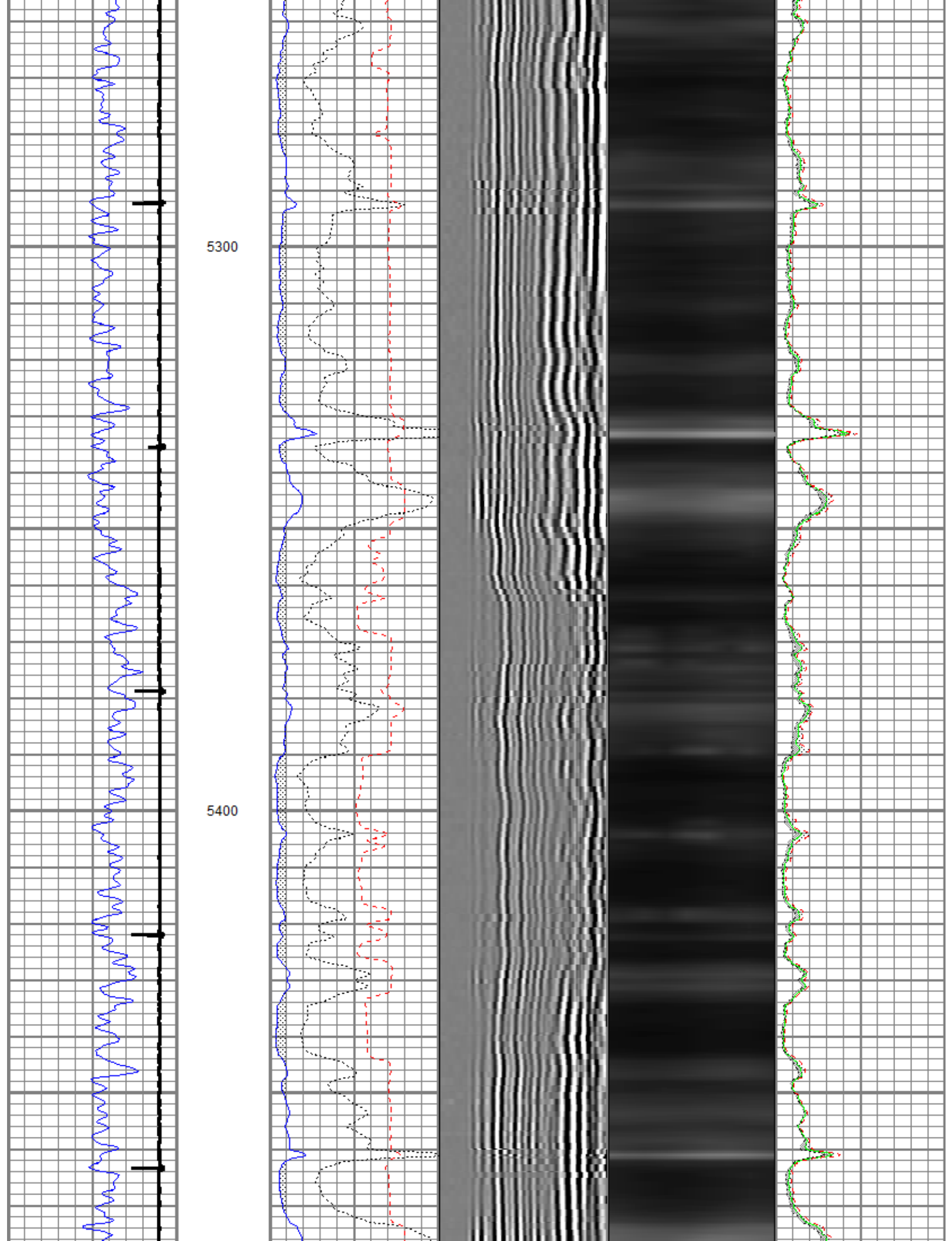


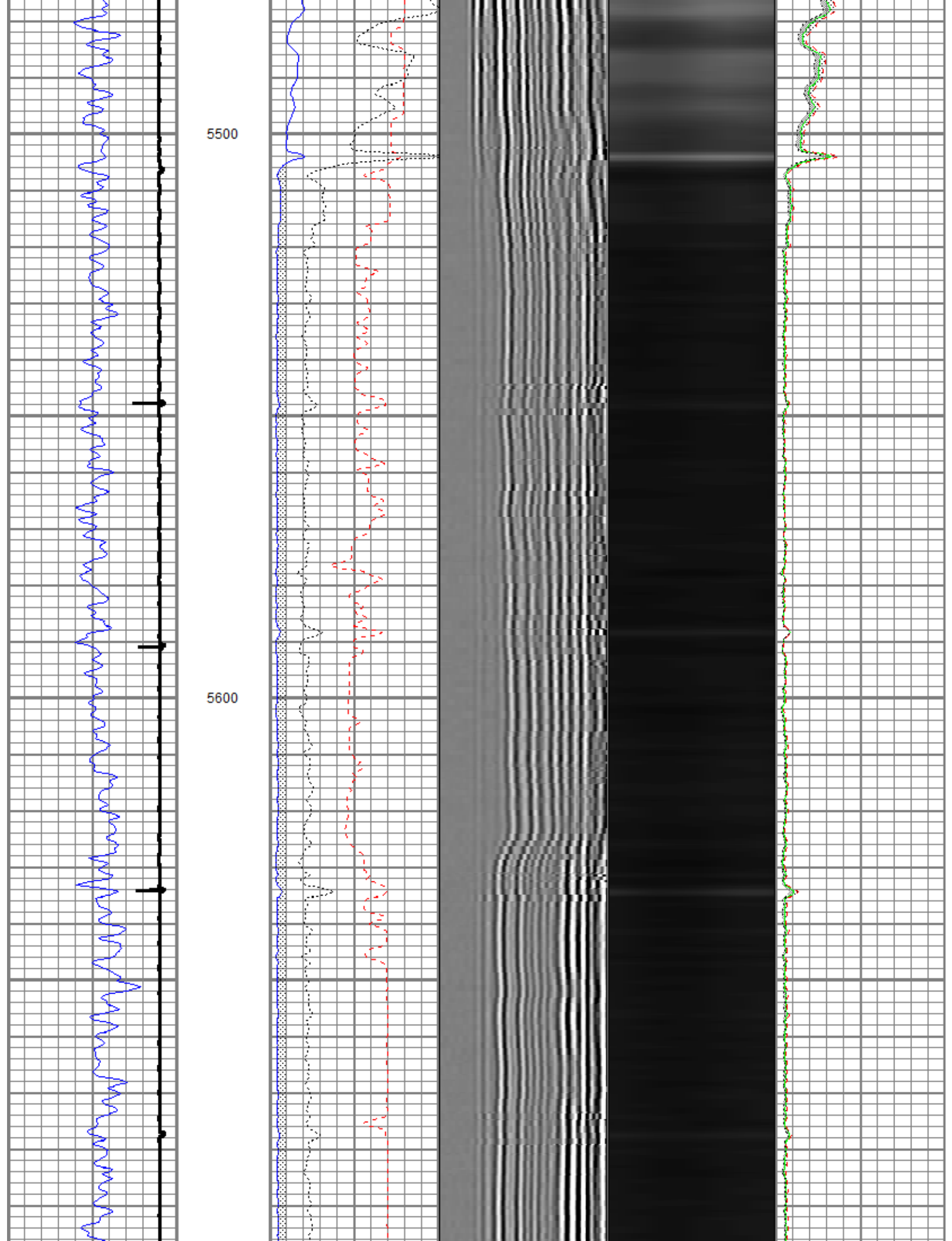


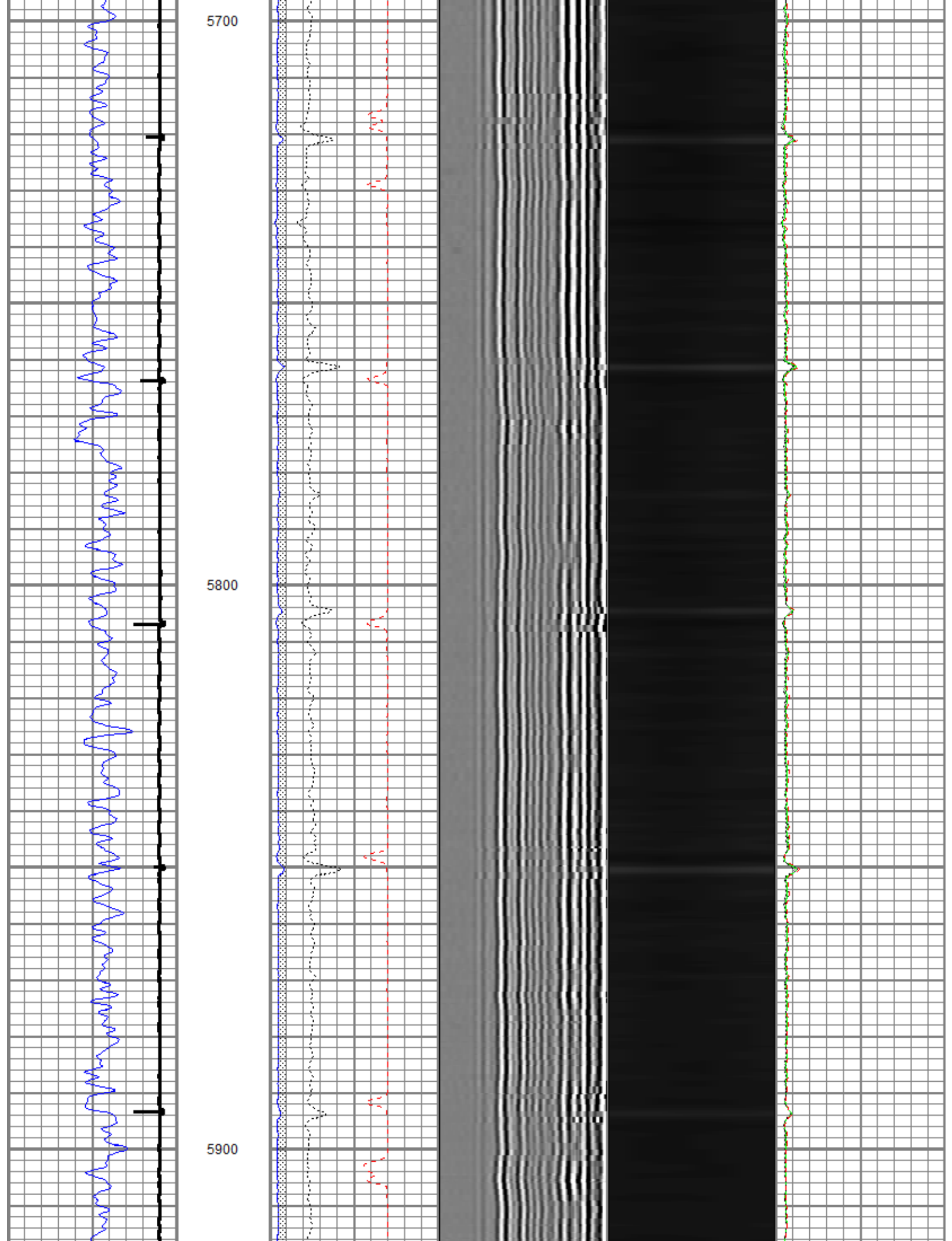


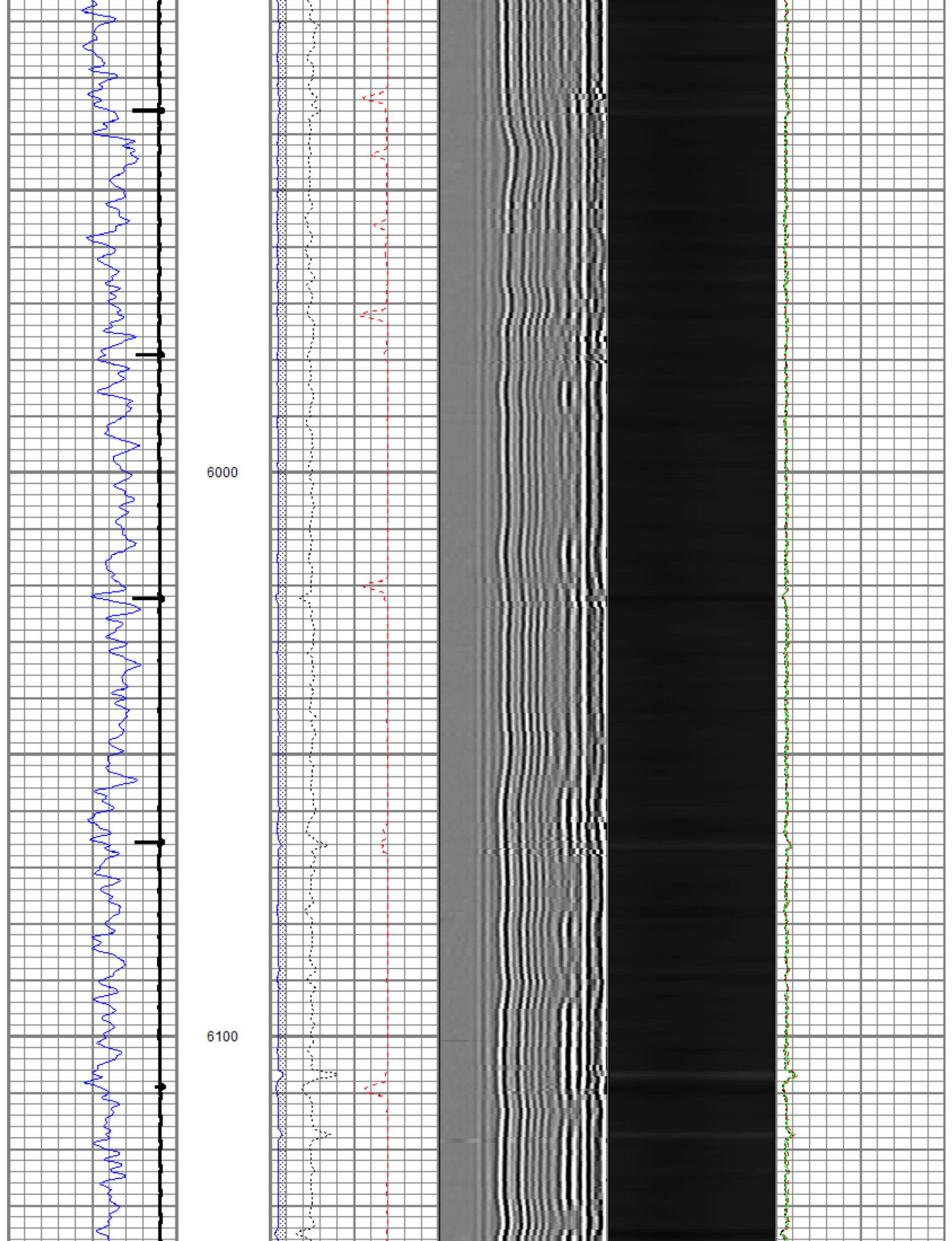


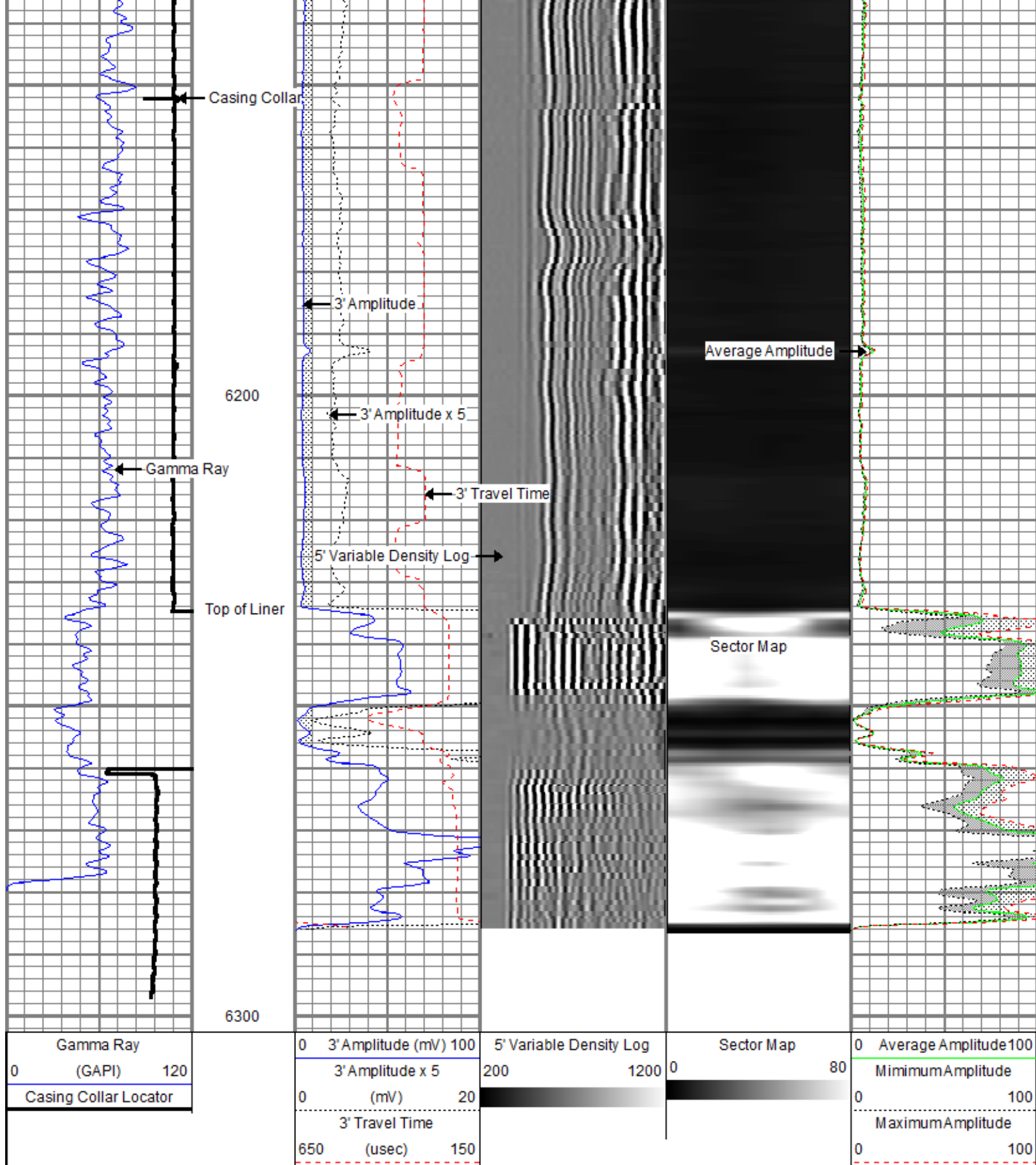








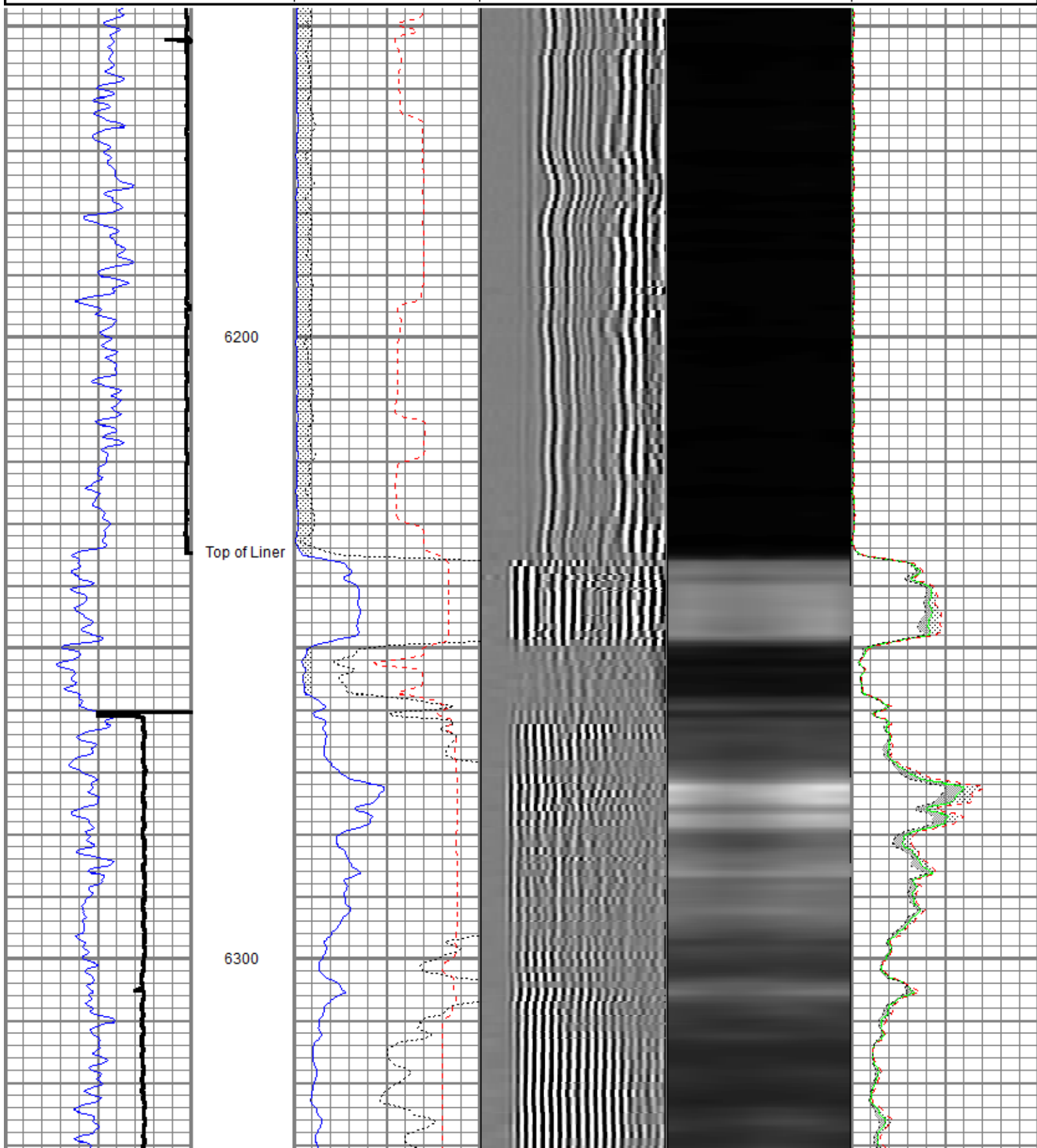


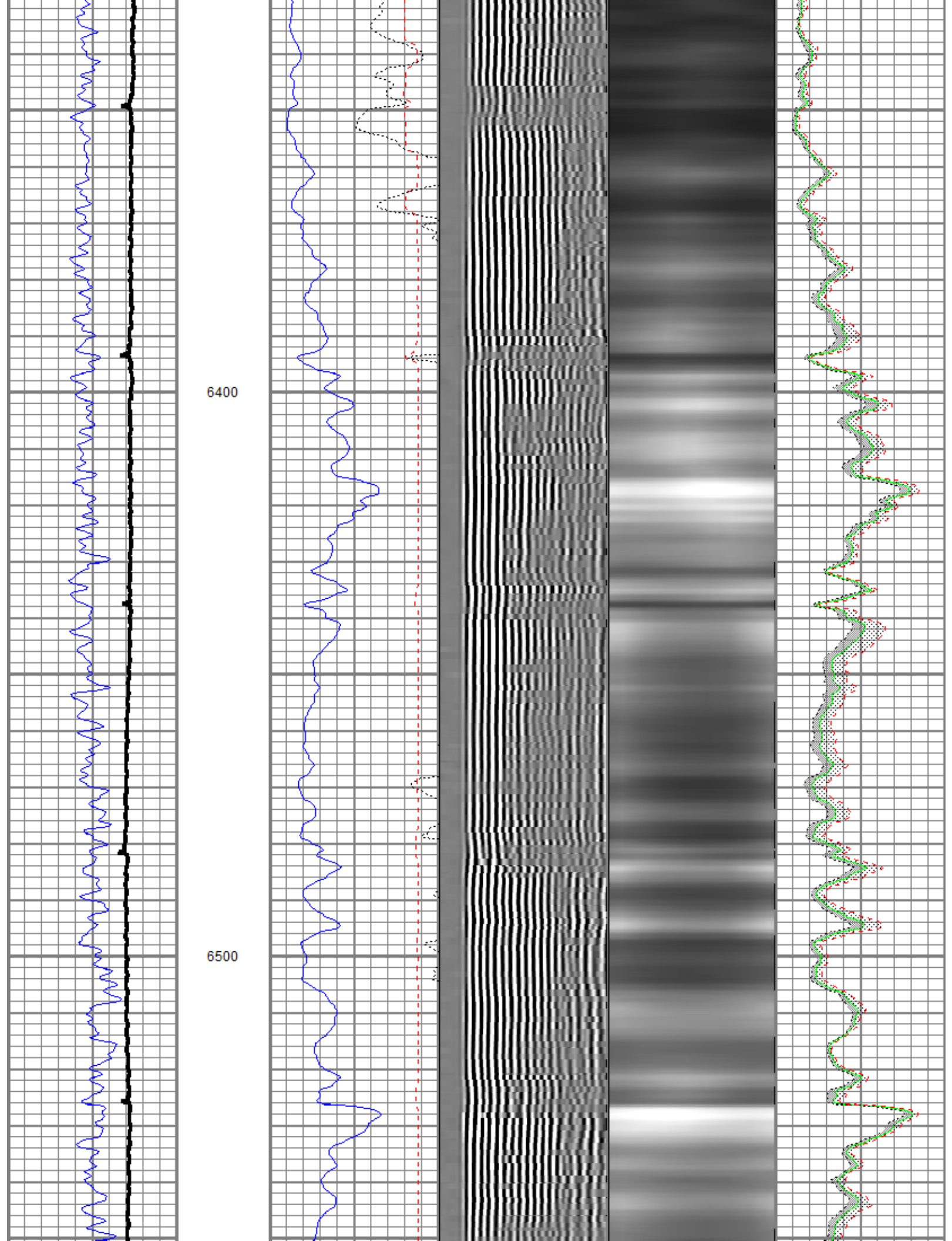


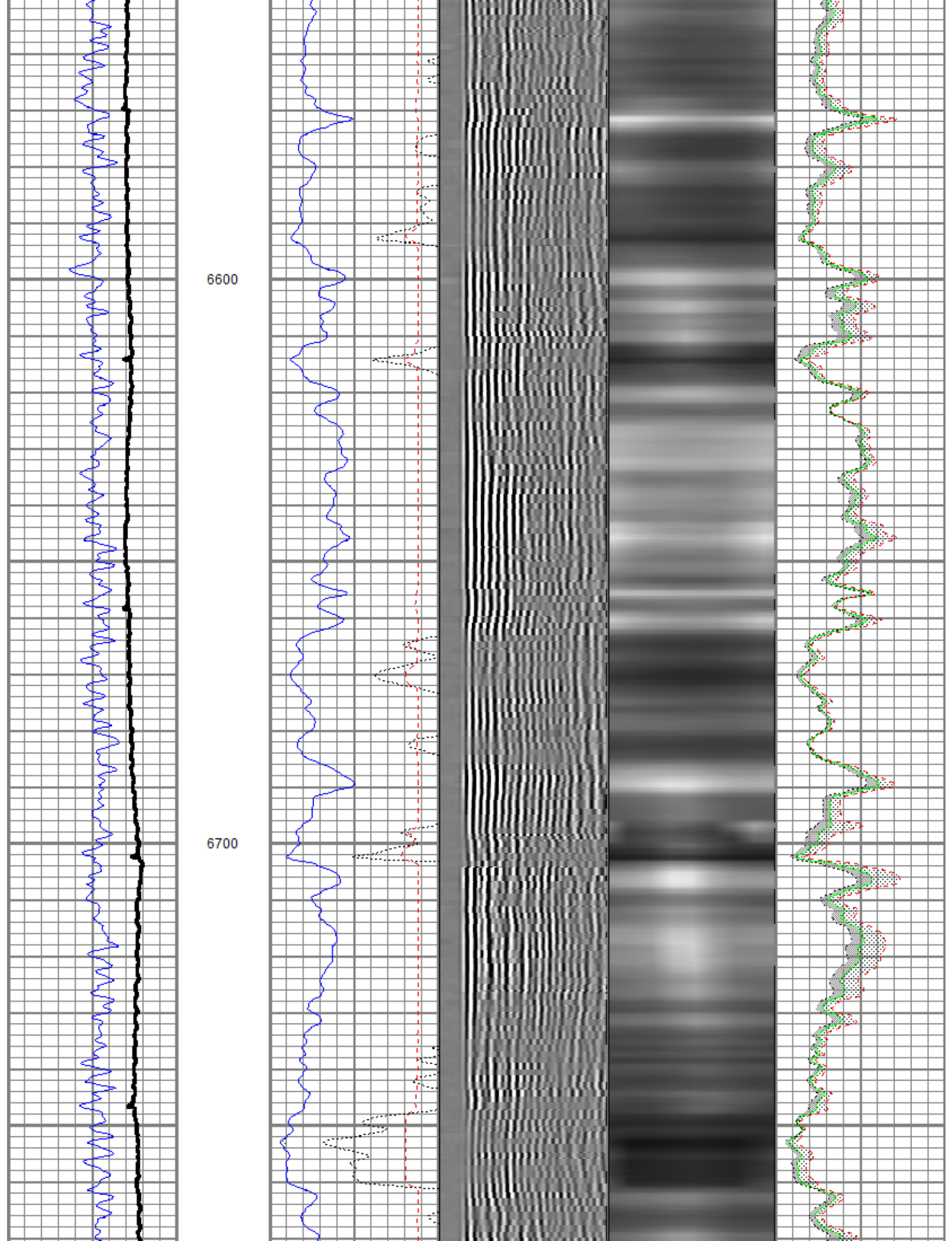
Main Pass 4.5"

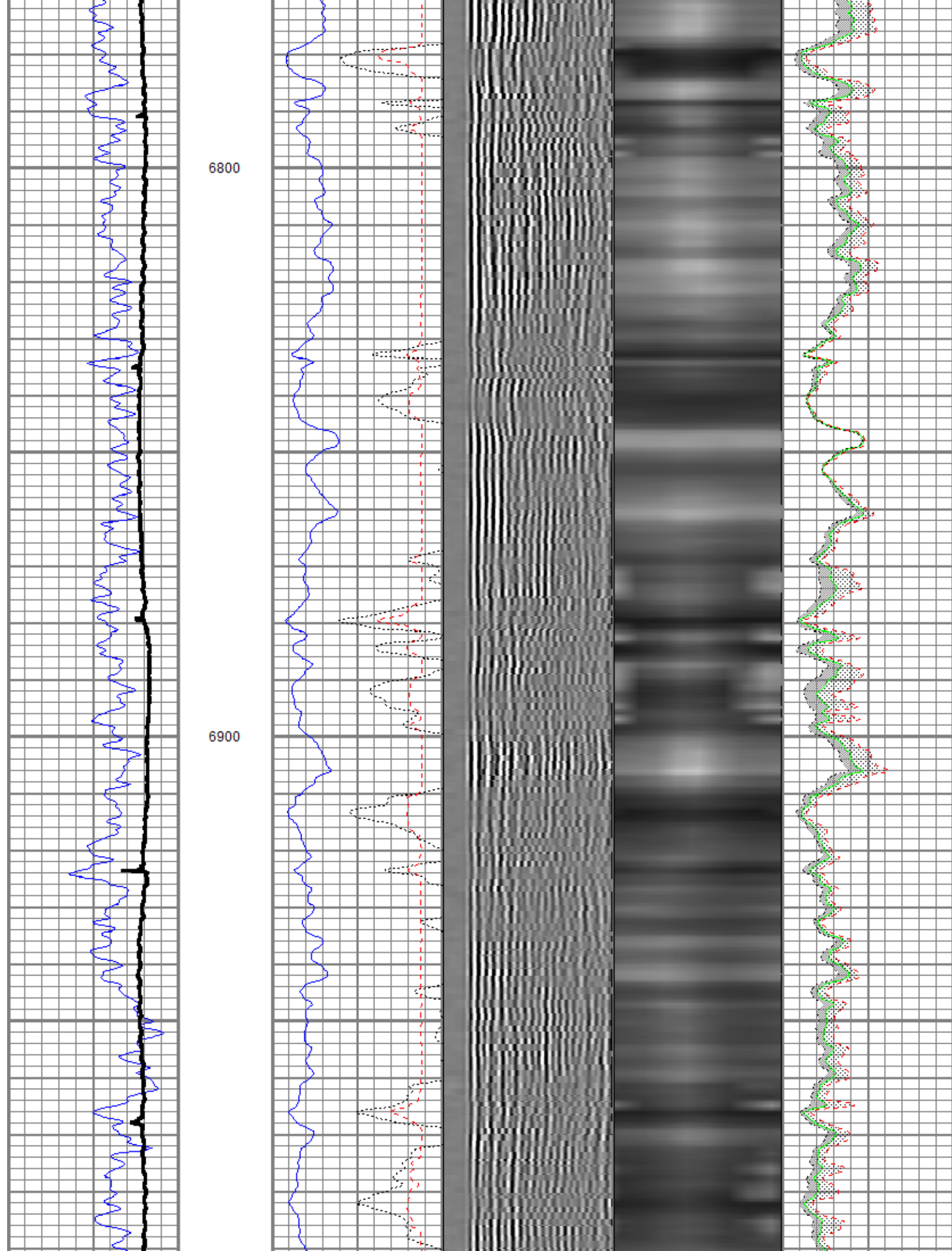
Logged with 2800 PSI Induced Surface Pressure

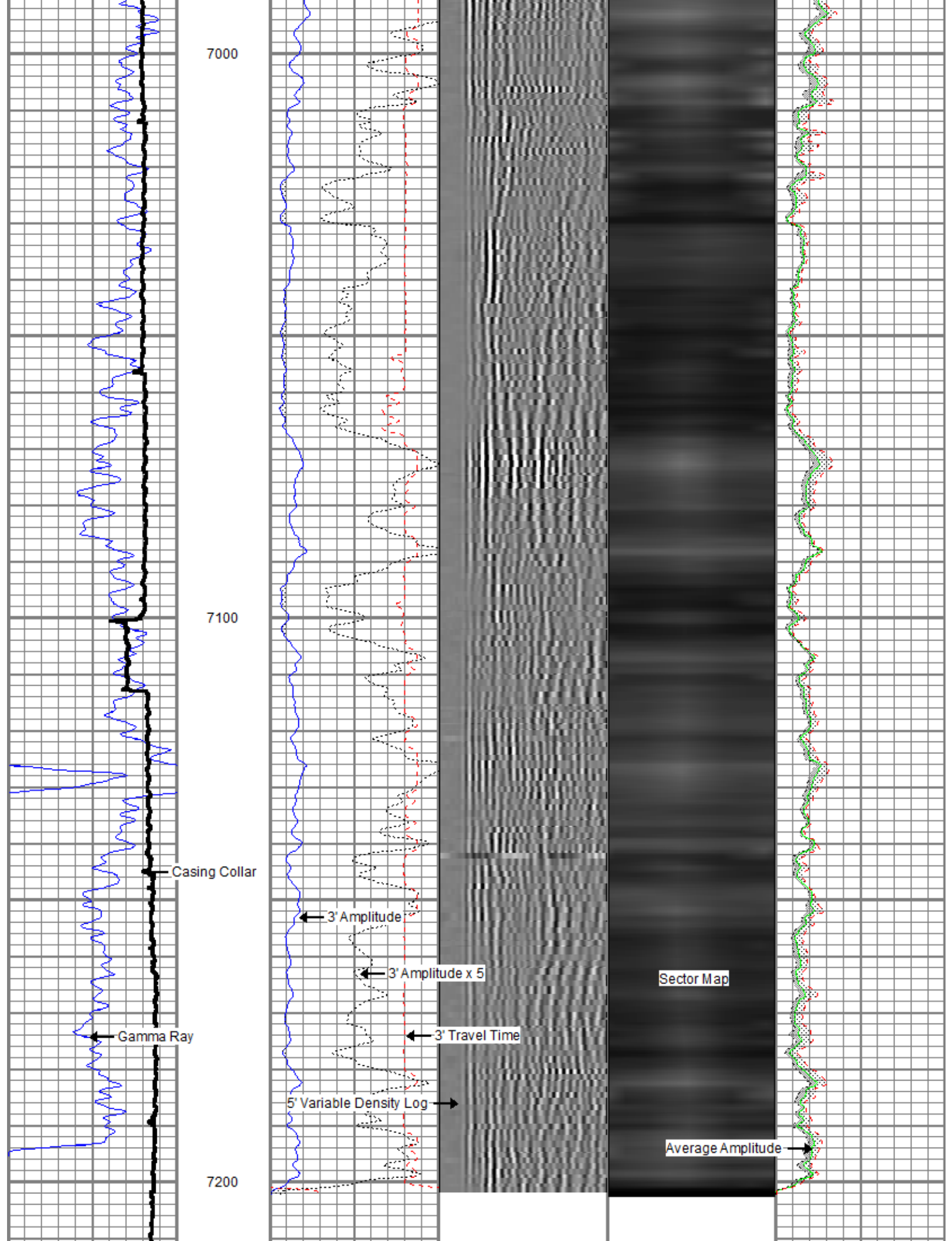
Gamma Ray		0	3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0	Average Amplitude 100
0	(GAPI) 120		3' Amplitude x 5	200	1200	0	Minimum Amplitude
Casing Collar Locator		0	(mV) 20			0	100
			3' Travel Time				Maximum Amplitude
		650	(usec) 150			0	100

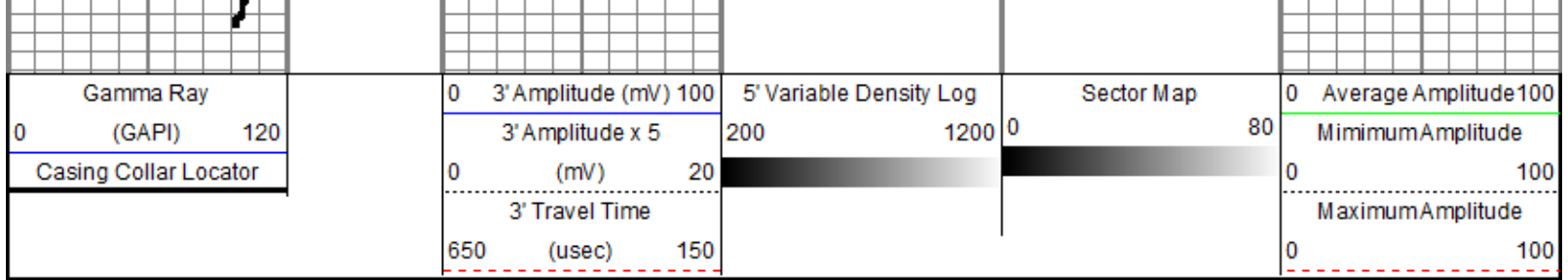






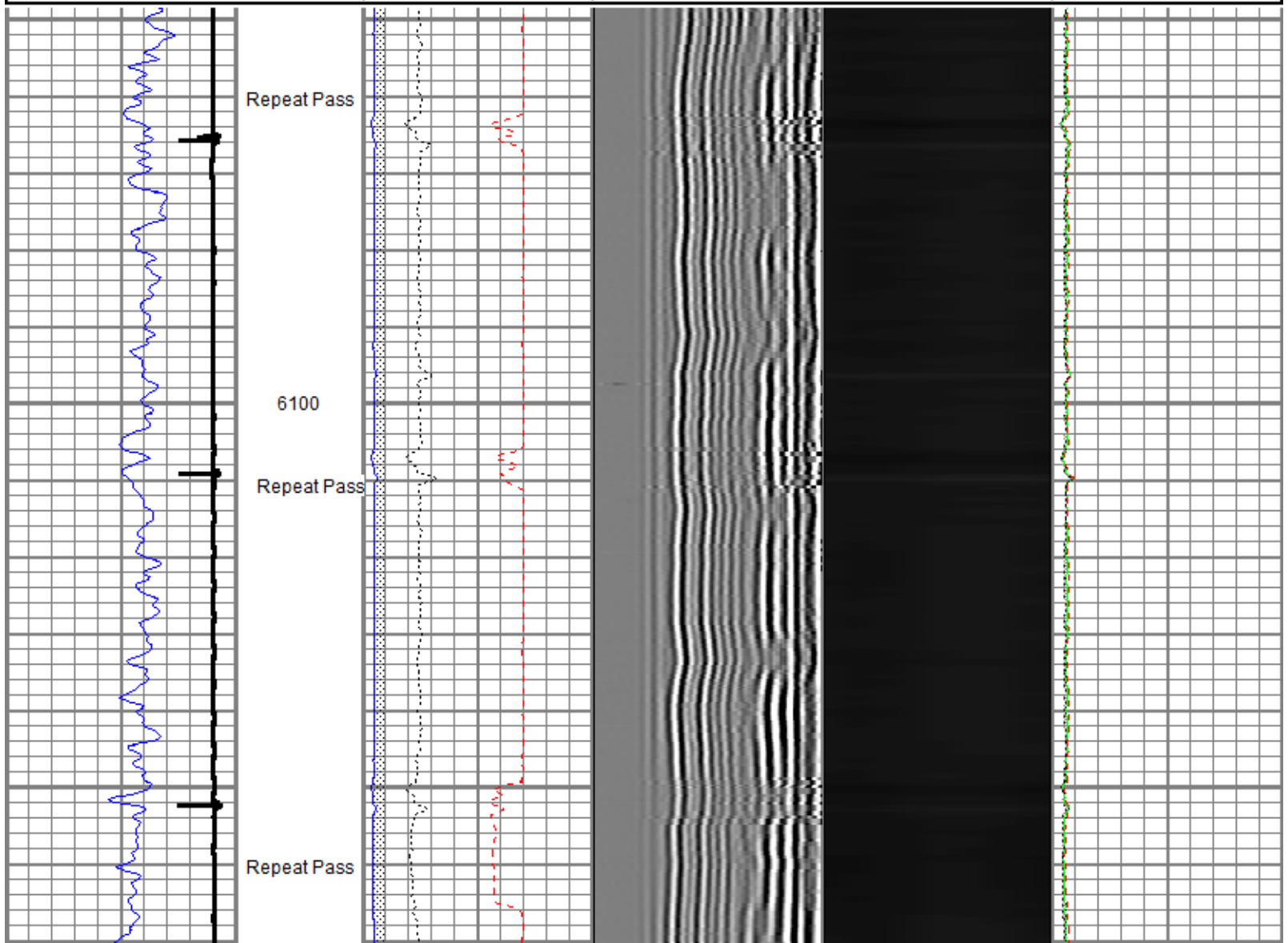
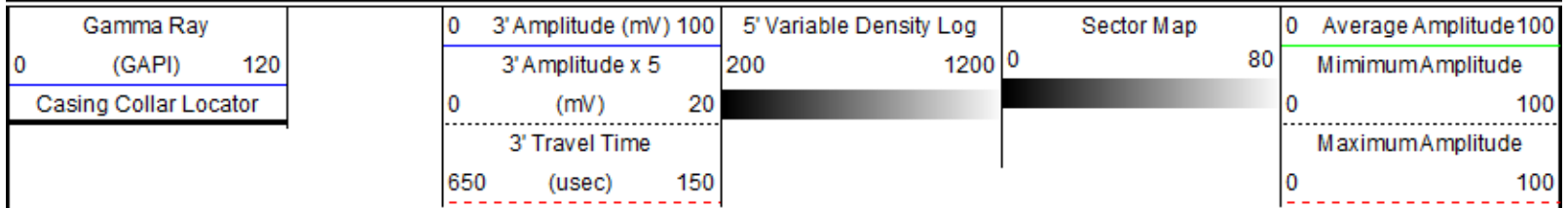


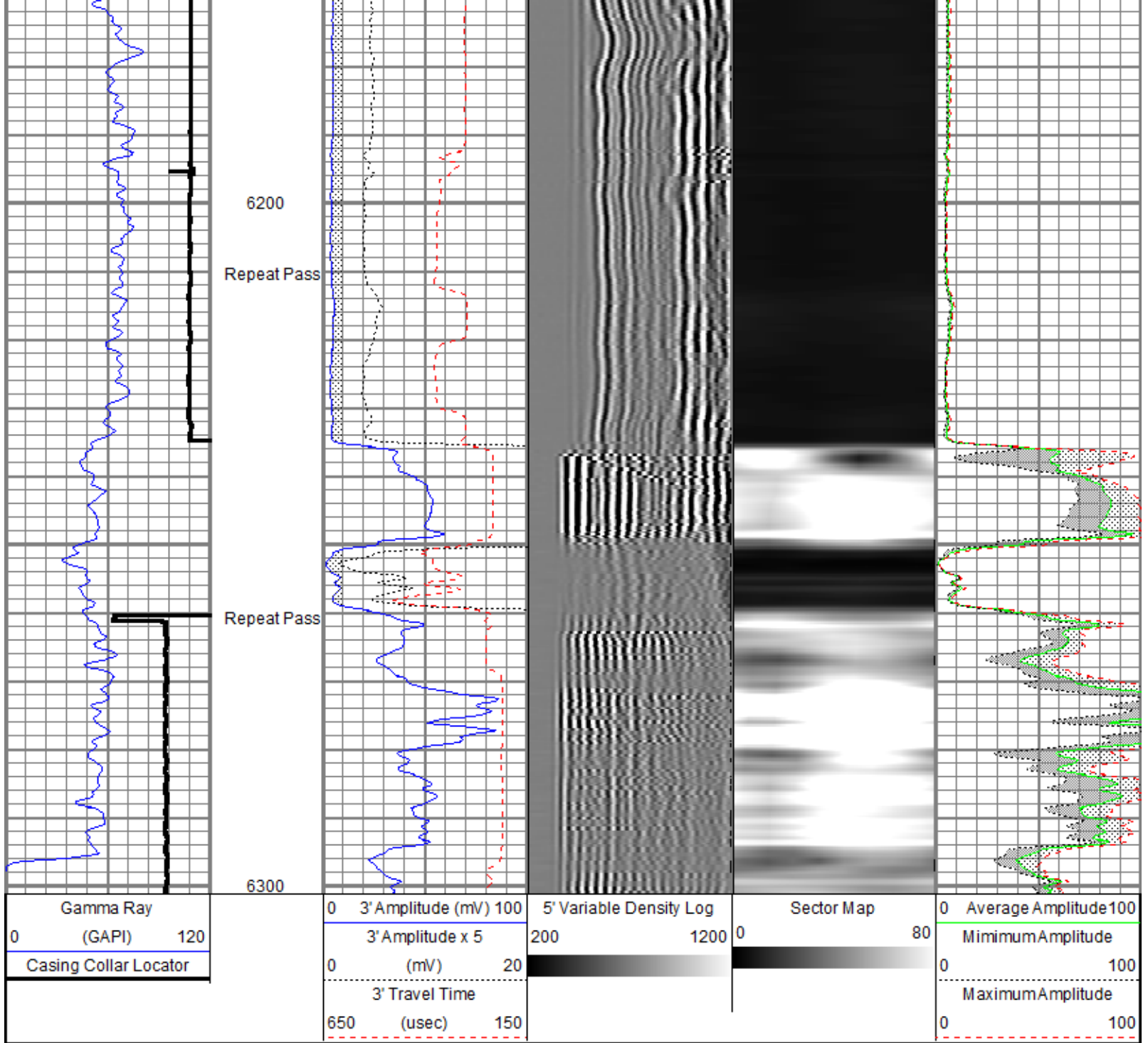




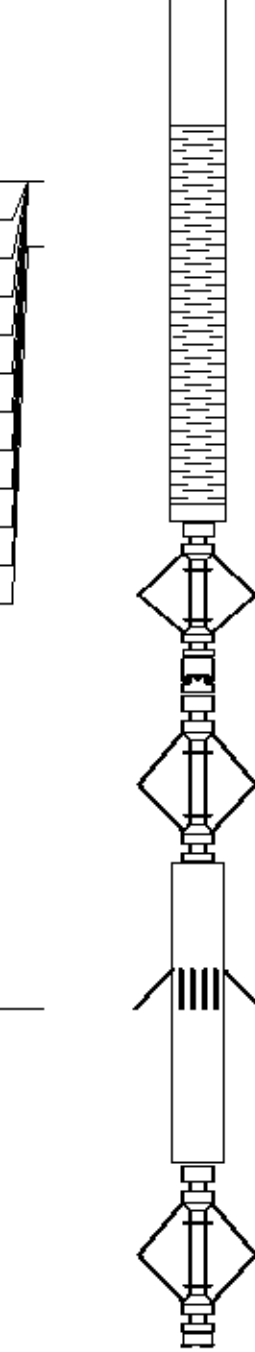
Repeat Pass

Database File: apc_elliott32n_18hz.db
 Dataset Pathname: pass2
 Presentation Format: rbt007
 Dataset Creation: Mon Apr 21 16:08:37 2014 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	24.27		CHD-AES (000001) Cable Head	1.04	1.69	2.00
			XTU-001 (000001) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			PGR-020 (000001) Production Gamma Ray	1.93	1.69	9.50
			PRC-001 (000001) Production Roller Centraliser (3 Arm)	1.92	1.69	7.00

WVF3FT	17.51		RBT-004 (1066in7) Radial Bond Tool (UW 3 1/8)	9.47	3.13	140.00
WVFS1	17.51					
WVFS2	17.51					
WVFS3	17.51					
WVFS4	17.51					
WVFS5	17.51					
WVFS6	17.51					
WVFS7	17.51					
WVFS8	17.51					
CBLTEMP	17.51					
CBLROT	17.51					
WVF5FT	16.51		PRC-017 (000002) Production Roller Centraliser (3 Arm)	2.01	1.69	7.00
			PKJ-013 (000001) Production Knuckle Joint	0.57	1.69	3.50
			PRC-034 (000007 4 arm spring activated PRC) Production Roller Centraliser (4 Arm)	2.52	3.00	13.00
MIT	5.08		MIT-027 (10012912) Multifinger Imaging Tool (UW 40F)	4.54	2.75	61.10
			PRC-034 (000006) Production Roller Centraliser (4 Arm)	2.52	3.00	13.00
			BUL-006 (000002) Bullnose Terminator	0.22	1.69	1.20
Dataset: apc_elliott32n_18hz.db: field/well/run1/pass4 Total Length: 28.32 ft Total Weight: 263.80 lb O.D. 3.13 in						

Calibration Report			
Database File:	apc_elliott32n_18hz.db		
Dataset Pathname:	pass5		
Dataset Creation:	Mon Apr 21 19:27:08 2014 by Log Sondex V7.03		
Multi-finger Imaging Tool Calibration Report			
	Serial Number:	10012912	
	Number of Fingers:	40	
	Tool Model:	027	
Inclinometer Calibration Report			
	Performed:	Mon, Oct, 06 14:03:04 2008	
	Calibration Angle:	45	
		Inc X	Inc Y
Vertical:		1996	1984
Finger 1 up:		1780	1738

Finger 31 up:		2235	1756
Finger 21 up:		2216	2228
Finger 11 up:		1736	2196
Sensitivity ratio:	1.0062		
X-axis angle:	131.534		
Deviation const.:	331.322		

Finger Calibration Report

Performed:

Mon Apr 21 15:18:54 2014

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1062	356.0	1418	386.0	1804	405.0	2209
Finger 02:	1191	365.0	1556	388.0	1944	399.0	2343
Finger 03:	1080	370.0	1450	406.0	1856	423.0	2279
Finger 04:	1095	356.0	1451	395.0	1846	414.0	2260
Finger 05:	1105	365.0	1470	402.0	1872	414.0	2286
Finger 06:	1096	363.0	1459	401.0	1860	412.0	2272
Finger 07:	1091	366.0	1457	401.0	1858	412.0	2270
Finger 08:	1117	359.0	1476	397.0	1873	412.0	2285
Finger 09:	1102	365.0	1467	396.0	1863	406.0	2269
Finger 10:	1100	364.0	1464	391.0	1855	406.0	2261
Finger 11:	1114	358.0	1472	394.0	1866	402.0	2268
Finger 12:	1110	351.0	1461	393.0	1854	404.0	2258
Finger 13:	1115	356.0	1471	389.0	1860	395.0	2255
Finger 14:	1090	358.0	1448	399.0	1847	408.0	2255
Finger 15:	1055	358.0	1413	408.0	1821	422.0	2243
Finger 16:	1068	361.0	1429	404.0	1833	421.0	2254
Finger 17:	1038	358.0	1396	403.0	1799	428.0	2227
Finger 18:	1126	350.0	1476	386.0	1862	402.0	2264
Finger 19:	1082	351.0	1433	390.0	1823	411.0	2234
Finger 20:	1052	353.0	1405	401.0	1806	424.0	2230
Finger 21:	1073	358.0	1431	398.0	1829	408.0	2237
Finger 22:	1031	357.0	1388	400.0	1788	426.0	2214
Finger 23:	1004	357.0	1361	407.0	1768	437.0	2205
Finger 24:	1059	351.0	1410	387.0	1797	406.0	2203
Finger 25:	1019	355.0	1374	404.0	1778	433.0	2211
Finger 26:	1142	351.0	1493	373.0	1866	397.0	2263
Finger 27:	1084	360.0	1444	393.0	1837	419.0	2256
Finger 28:	1112	353.0	1465	380.0	1845	407.0	2252
Finger 29:	1064	366.0	1430	399.0	1829	430.0	2259
Finger 30:	1078	360.0	1438	393.0	1831	420.0	2251
Finger 31:	1105	359.0	1464	387.0	1851	416.0	2267
Finger 32:	1094	377.0	1471	397.0	1868	428.0	2296
Finger 33:	1148	361.0	1509	376.0	1885	394.0	2279
Finger 34:	1125	355.0	1480	384.0	1864	415.0	2279
Finger 35:	1059	374.0	1433	412.0	1845	442.0	2287
Finger 36:	1082	366.0	1448	401.0	1849	426.0	2275
Finger 37:	1117	364.0	1481	393.0	1874	415.0	2289
Finger 38:	1145	360.0	1505	390.0	1895	397.0	2292
Finger 39:	1143	357.0	1500	384.0	1884	403.0	2287
Finger 40:	1100	367.0	1467	398.0	1865	417.0	2282

Post Survey Calibration Check

Performed:

Mon Apr 21 19:26:48 2014

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.021	0.011	5.016	0.008	6.014	0.007	7.020	0.010
Finger 02:	4.014	0.007	5.015	0.008	6.016	0.008	7.016	0.008
Finger 03:	4.018	0.009	5.017	0.008	6.015	0.008	7.013	0.006
Finger 04:	4.017	0.008	5.025	0.012	6.012	0.006	7.027	0.013
Finger 05:	4.009	0.005	5.017	0.008	6.014	0.007	7.012	0.006
Finger 06:	4.010	0.005	5.016	0.008	6.018	0.009	7.020	0.010
Finger 07:	4.015	0.008	5.017	0.009	6.018	0.009	7.022	0.011
Finger 08:	4.018	0.009	5.015	0.008	6.015	0.008	7.016	0.008
Finger 09:	4.018	0.009	5.018	0.009	6.007	0.003	7.013	0.006
Finger 10:	4.028	0.014	5.007	0.004	6.010	0.005	7.014	0.007
Finger 11:	4.016	0.008	5.014	0.007	6.008	0.004	7.017	0.008
Finger 12:	4.006	0.003	5.013	0.007	6.014	0.007	7.009	0.004
Finger 13:	4.016	0.008	5.012	0.006	6.009	0.004	7.012	0.006
Finger 14:	4.020	0.010	5.016	0.008	6.014	0.007	7.012	0.006
Finger 15:	4.024	0.012	5.031	0.016	6.013	0.006	7.014	0.007

Finger 16:	4.016	0.008	5.015	0.008	6.013	0.006	7.011	0.006
Finger 17:	4.017	0.009	5.019	0.010	6.015	0.007	7.013	0.006
Finger 18:	4.024	0.012	5.017	0.009	6.013	0.006	7.013	0.006
Finger 19:	4.014	0.007	5.014	0.007	6.011	0.005	7.013	0.006
Finger 20:	4.012	0.006	5.018	0.009	6.009	0.004	7.011	0.005
Finger 21:	4.012	0.006	5.029	0.014	6.005	0.003	7.021	0.011
Finger 22:	4.017	0.008	5.019	0.010	6.016	0.008	7.015	0.007
Finger 23:	4.012	0.006	5.013	0.006	6.012	0.006	7.015	0.007
Finger 24:	4.012	0.006	5.019	0.010	6.017	0.009	7.012	0.006
Finger 25:	4.016	0.008	5.020	0.010	6.013	0.006	7.021	0.011
Finger 26:	4.016	0.008	5.014	0.007	6.015	0.008	7.019	0.010
Finger 27:	4.023	0.012	5.019	0.009	6.015	0.008	7.017	0.008
Finger 28:	4.016	0.008	5.014	0.007	6.014	0.007	7.016	0.008
Finger 29:	4.010	0.005	5.007	0.004	6.009	0.004	7.016	0.008
Finger 30:	4.022	0.011	5.018	0.009	6.016	0.008	7.017	0.009
Finger 31:	4.015	0.007	5.014	0.007	6.016	0.008	7.016	0.008
Finger 32:	4.020	0.010	5.002	0.001	6.010	0.005	7.013	0.007
Finger 33:	4.020	0.010	5.020	0.010	6.014	0.007	7.013	0.007
Finger 34:	4.016	0.008	5.031	0.015	6.013	0.007	7.010	0.005
Finger 35:	4.017	0.009	5.016	0.008	6.009	0.004	7.010	0.005
Finger 36:	4.017	0.008	5.020	0.010	6.009	0.004	7.015	0.007
Finger 37:	4.019	0.009	5.021	0.010	6.016	0.008	7.013	0.006
Finger 38:	4.015	0.008	5.017	0.008	6.000	-0.000	7.009	0.005
Finger 39:	4.009	0.005	5.014	0.007	6.013	0.007	7.011	0.006
Finger 40:	4.019	0.010	5.022	0.011	6.012	0.006	7.010	0.005
Average:	4.016	0.008	5.017	0.009	6.013	0.006	7.015	0.007

Segmented Cement Bond Log Calibration Report

Serial Number:	1066in7
Tool Model:	004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	151.017 ft

Master Calibration, performed Sun Mar 02 16:30:51 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.004	0.717	0.800	62.165	85.210	1.106
5FT	-0.007	0.772	0.800	62.165	78.746	1.377
S1	-0.003	0.679	0.000	100.000	146.553	0.445
S2	-0.005	0.696	0.000	100.000	142.673	0.686
S3	-0.005	0.710	0.000	100.000	139.922	0.637
S4	-0.005	0.730	0.000	100.000	136.067	0.659
S5	-0.003	0.741	0.000	100.000	134.379	0.382
S6	-0.004	0.748	0.000	100.000	132.996	0.482
S7	-0.003	0.740	0.000	100.000	134.593	0.434
S8	-0.003	0.703	0.000	100.000	141.539	0.441

Gamma Ray Calibration Report

Serial Number:	000001	
Tool Model:	020	
Performed:	Sun Jun 13 13:33:21 1993	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	1.0000	GAPI/cps



Company	Kerr-McGee Oil & Gas Onshore, L.P.
Well	Elliott 32N-18HZ
Field	Wattenburg

