



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Grenemyer 13N-3HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # : 05-123-38342			
Permanent Datum				SHL: 445' FNL & 1555' FWL			
Log Measured From				Lat/Long: 40.013615/-104.880484			
Drilling Measured From				SEC 34 TWP 1N RGE 67W			
Ground Level				Elevation 5047'			
Kelly Bushing				16 FT			
Kelly Bushing				K.B. 5063'			
				D.F. 5062'			
				G.L. 5047'			
Date				27-FEB-2014			
Run Number				One			
Depth Driller				15163 FT			
Depth Logger				6970 FT			
Bottom Logged Interval				6970 FT			
Top Log Interval				Surface			
Open Hole Size				8.75"			
Type Fluid				Water			
Density / Viscosity				8.34 LB/GAL			
Max. Recorded Temp.				215 DegF			
Estimated Cement Top				Surface			
Time Well Ready				08:00			
Time Logger on Bottom				12:38			
Equipment Number				HD 255			
Location				Fort Lupton, CO			
Recorded By				C. Bryan			
Witnessed By				Trevor Daniel			
Borehole Record				Tubing Record			
Run Number				Bit			
From				To			
				Size			
				Weight			
				From			
				To			
Casing Record				Size (in)			
Surface Casing				Wgt (lbs/Ft)			
Intermediate #1				Grade			
Intermediate #2				Top			
Liner				Bottom			
				9 5/8			
				36#			
				J-55			
				Surface			
				26			
				P-110			
				Surface			
				11.6			
				P-110			
				6902 FT			
				7955 FT			
				15163 FT			

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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

Logged With 2600 PSI At Surface  
Correlated To The Liner Top At 6902 FT

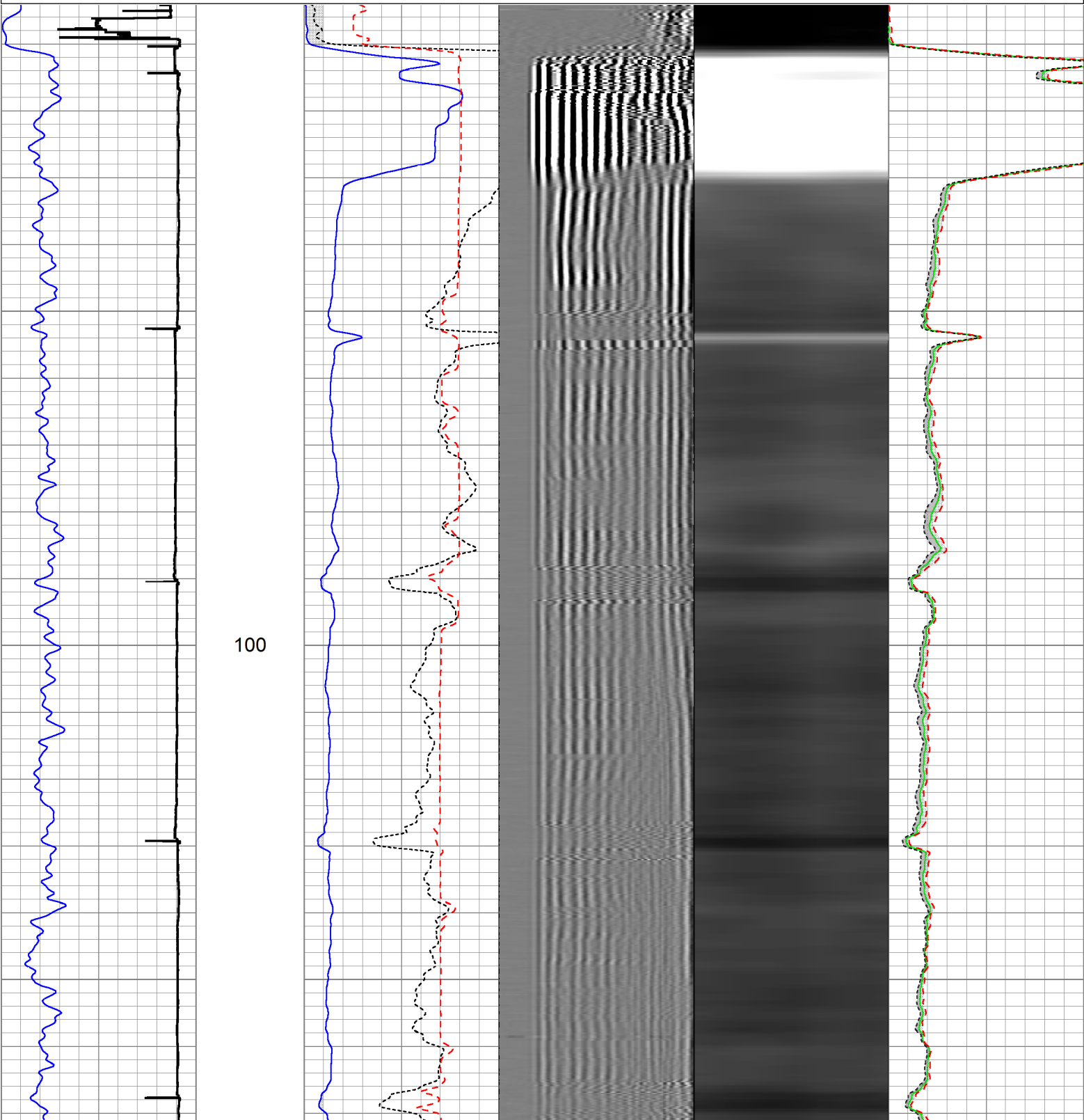
Thank you for choosing FMC Technologies Completion Services, Inc.



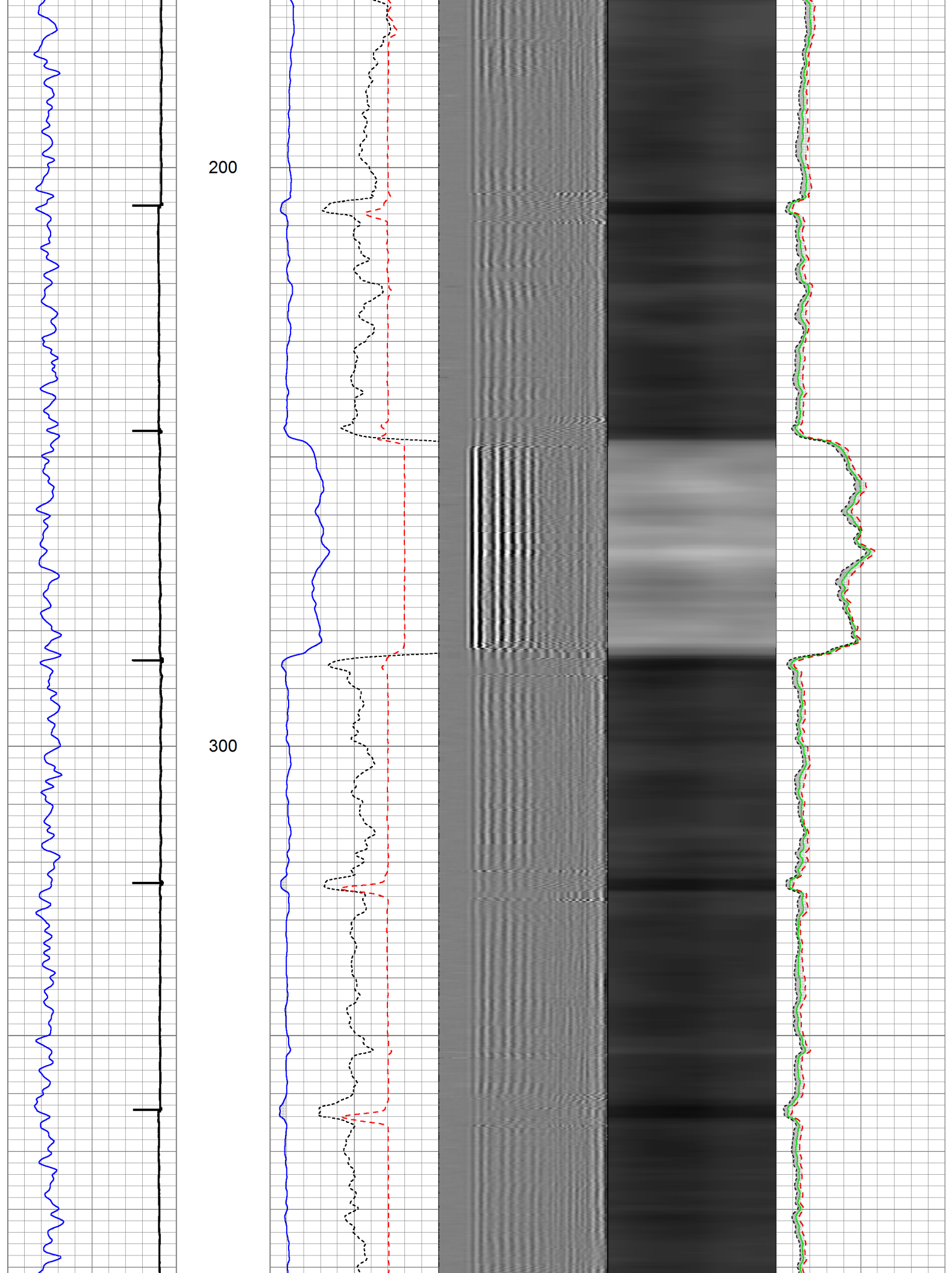
Main Pass: 7" Casing

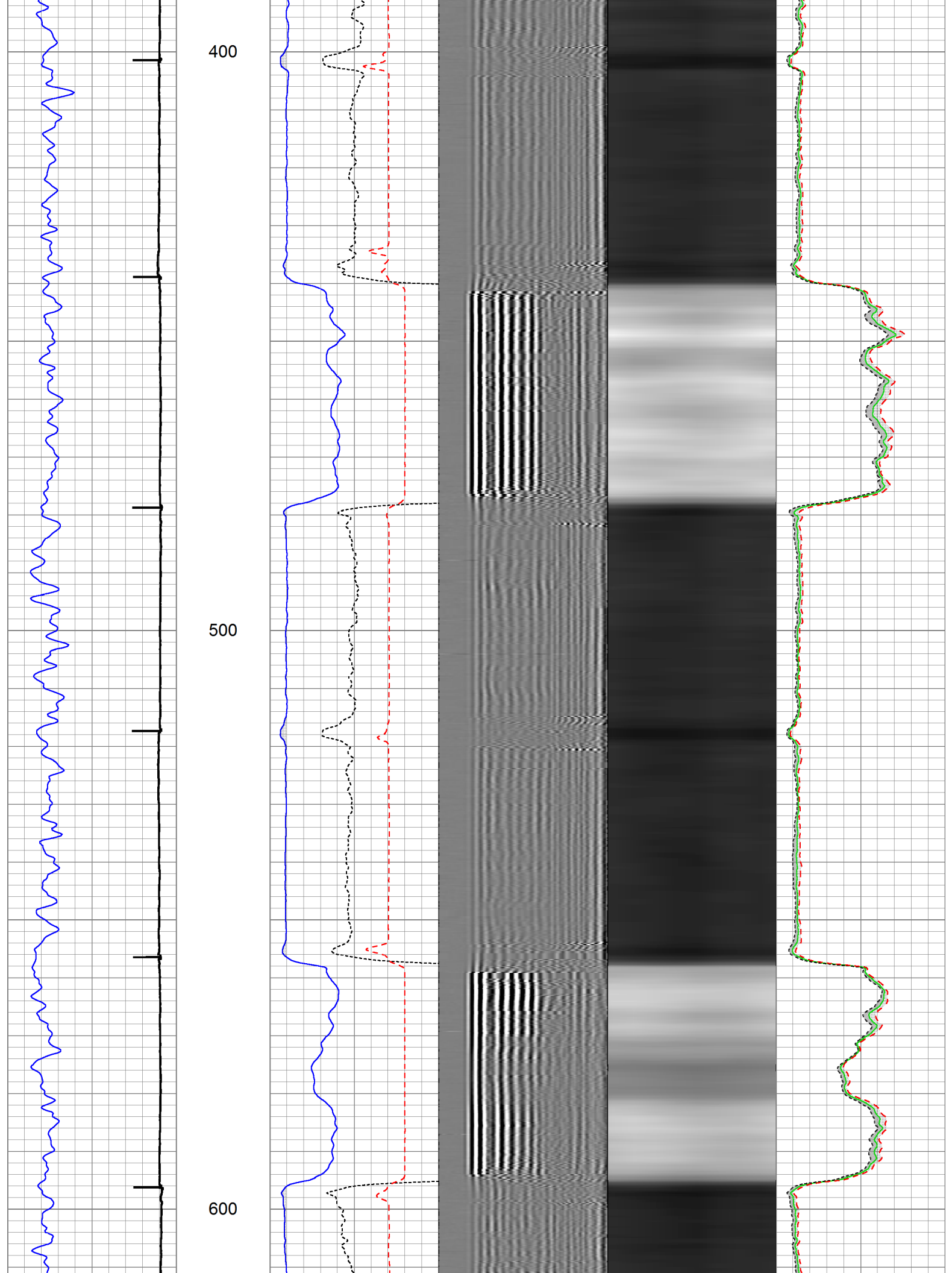
Logged With 2600 PSI At Surface

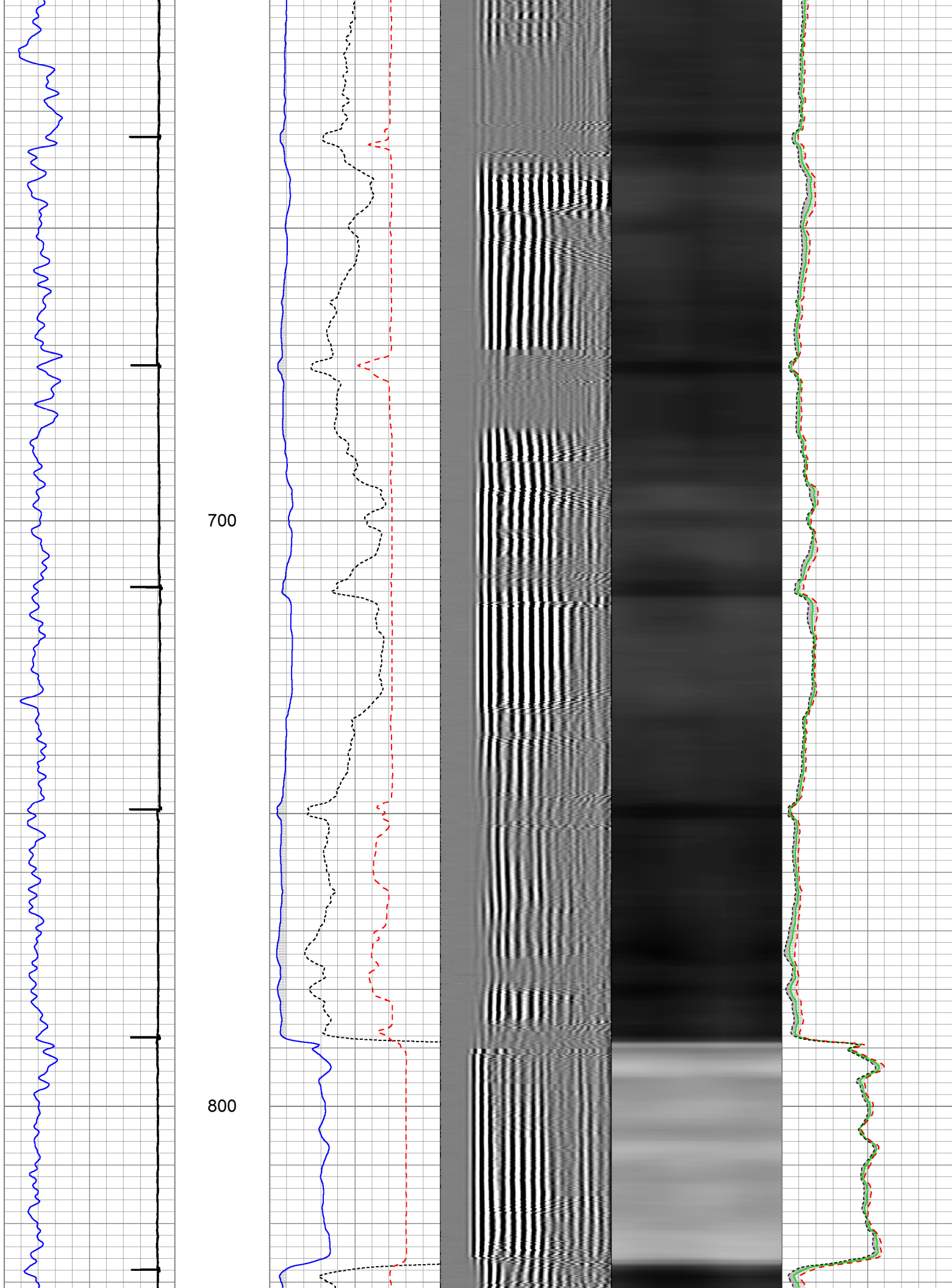
Gamma Ray			3' Amplitude			5' Variable Density Log			Sector Map			Average Amplitude		
0	(GAPI)	150	0	(mV)	100							0	100	
Casing Collars			3' Amplitude x 5									Minimum Amplitude		
			0	(mV)	20							0	100	
			3' Travel Time									Maximum Amplitude		
			650	(usec)	150							0	100	

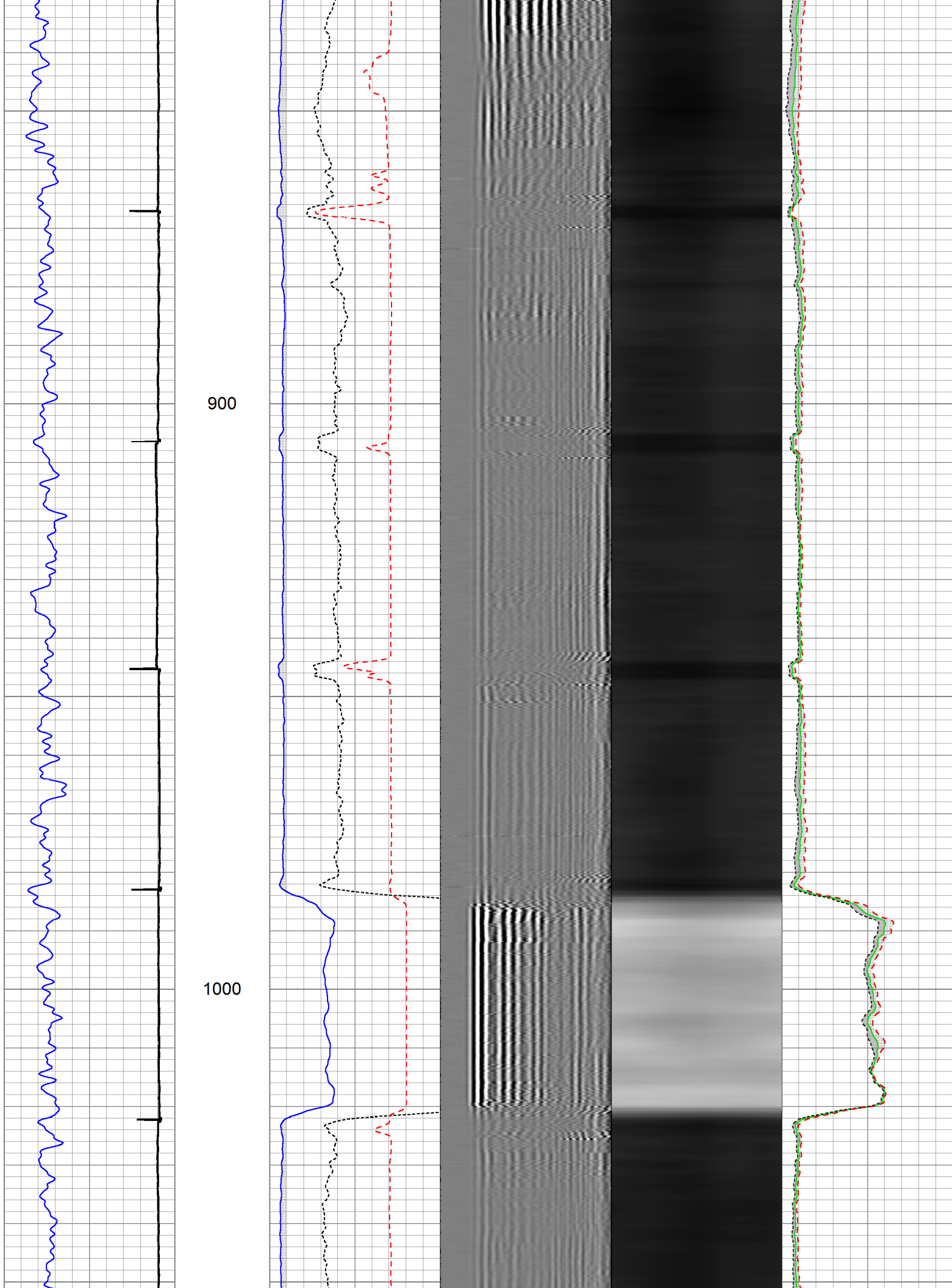


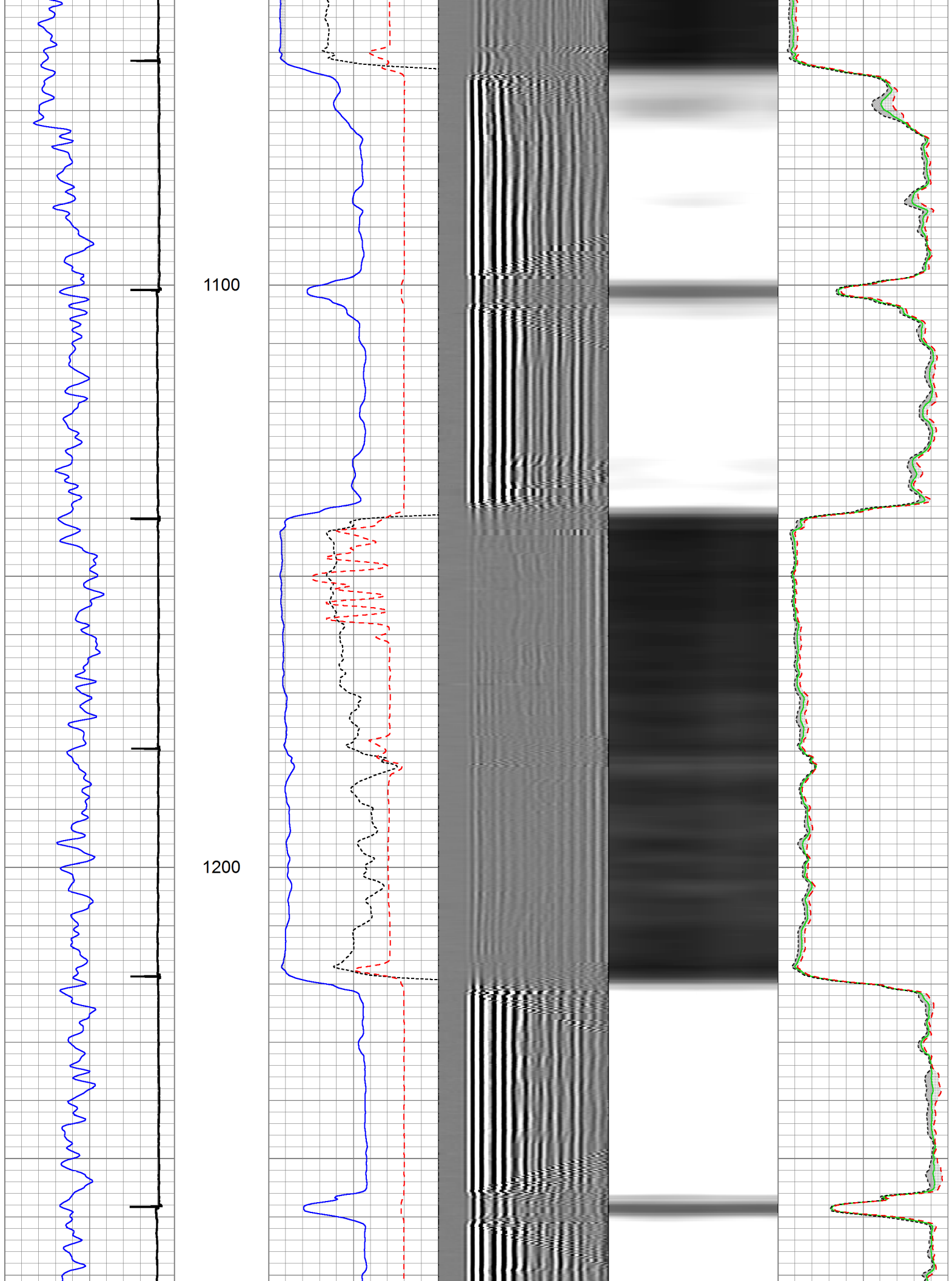




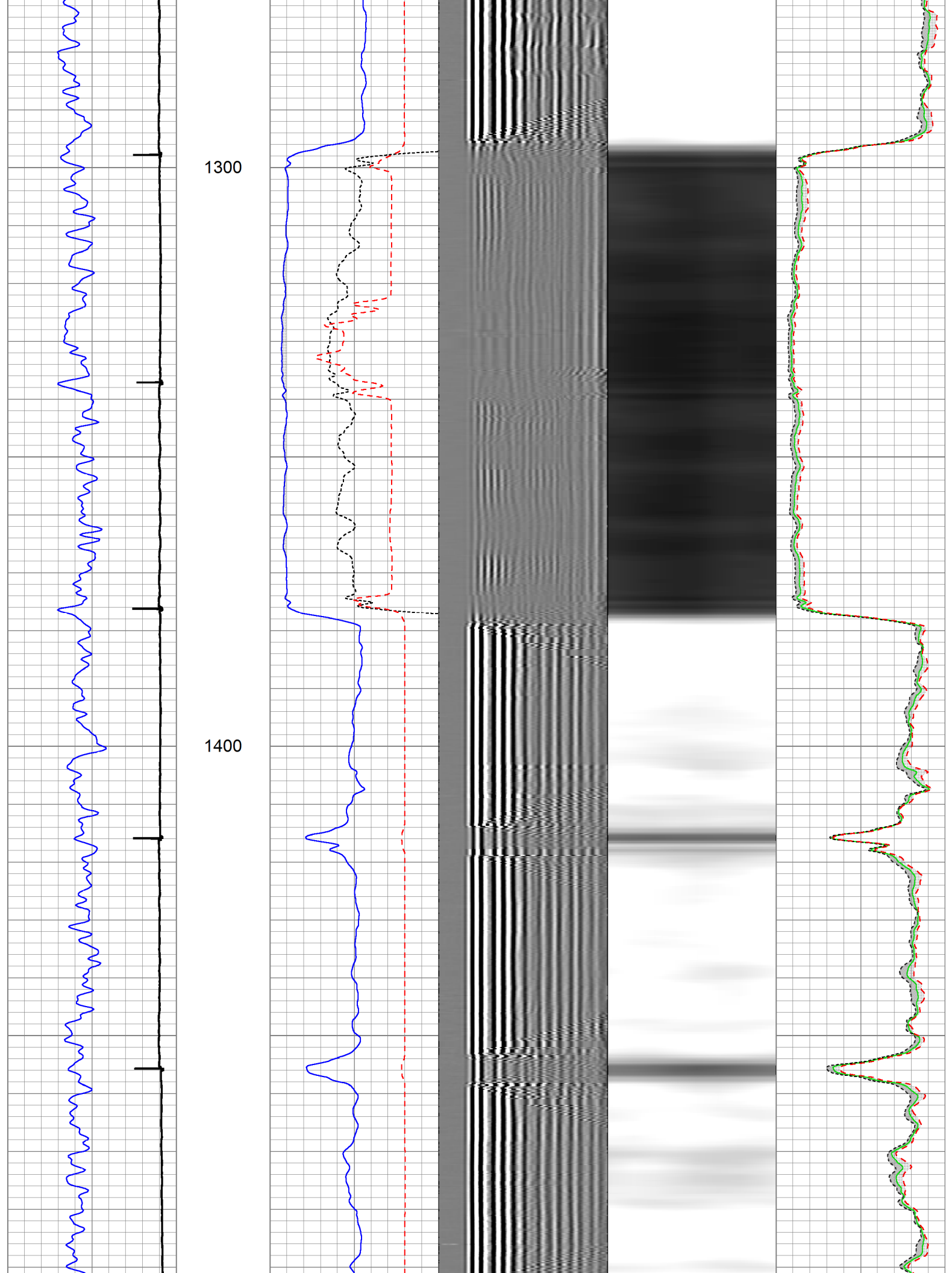


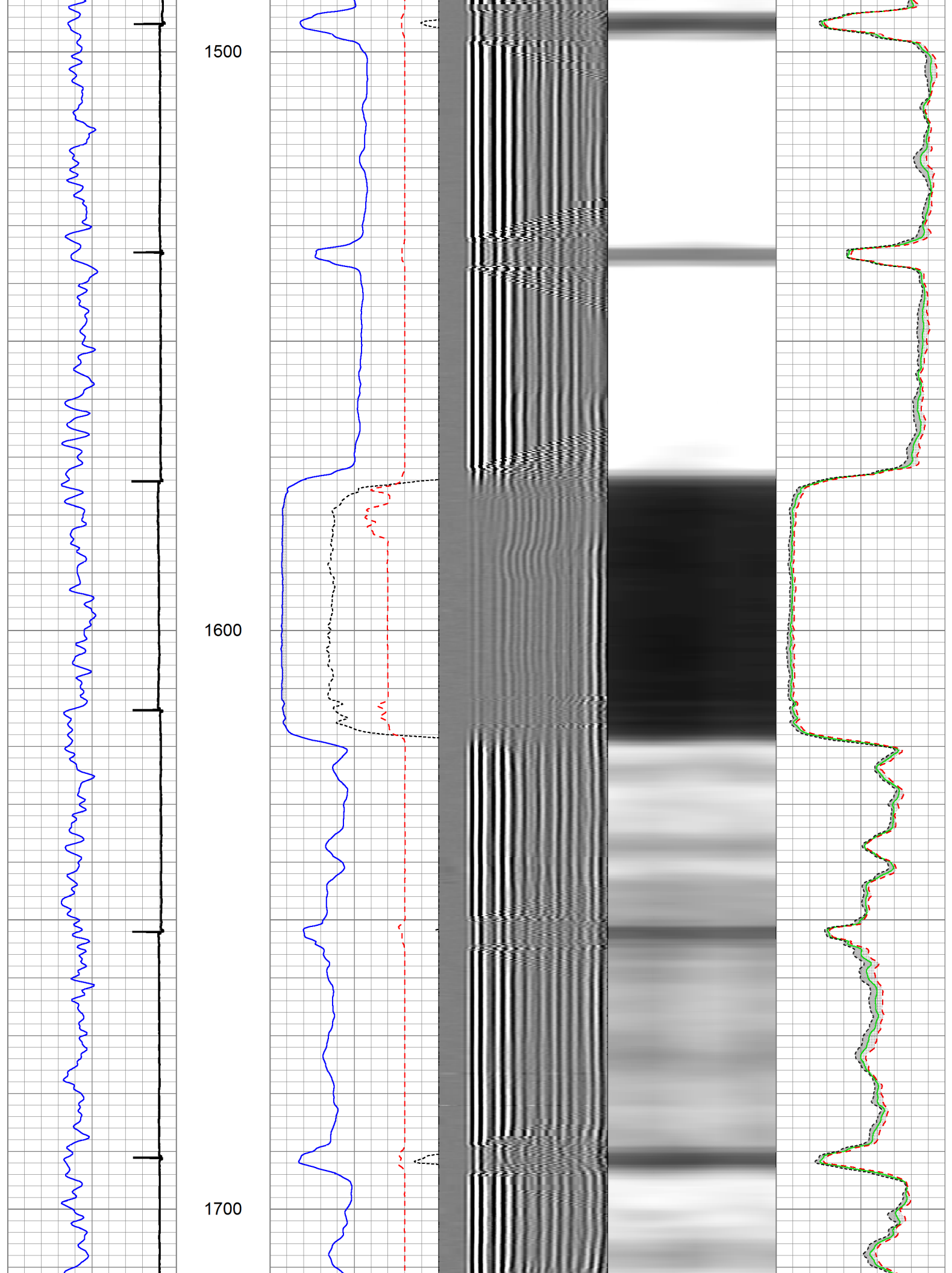


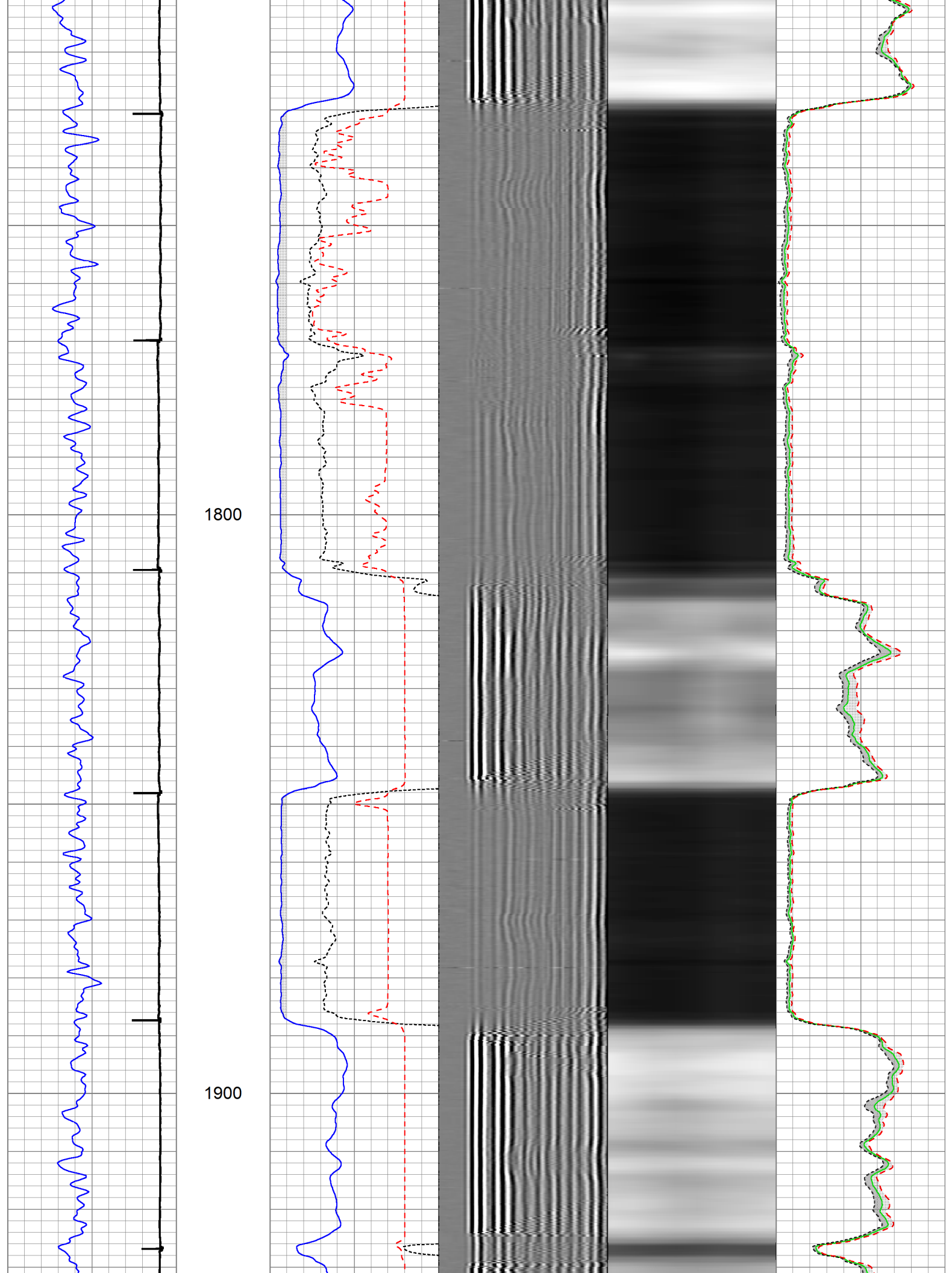


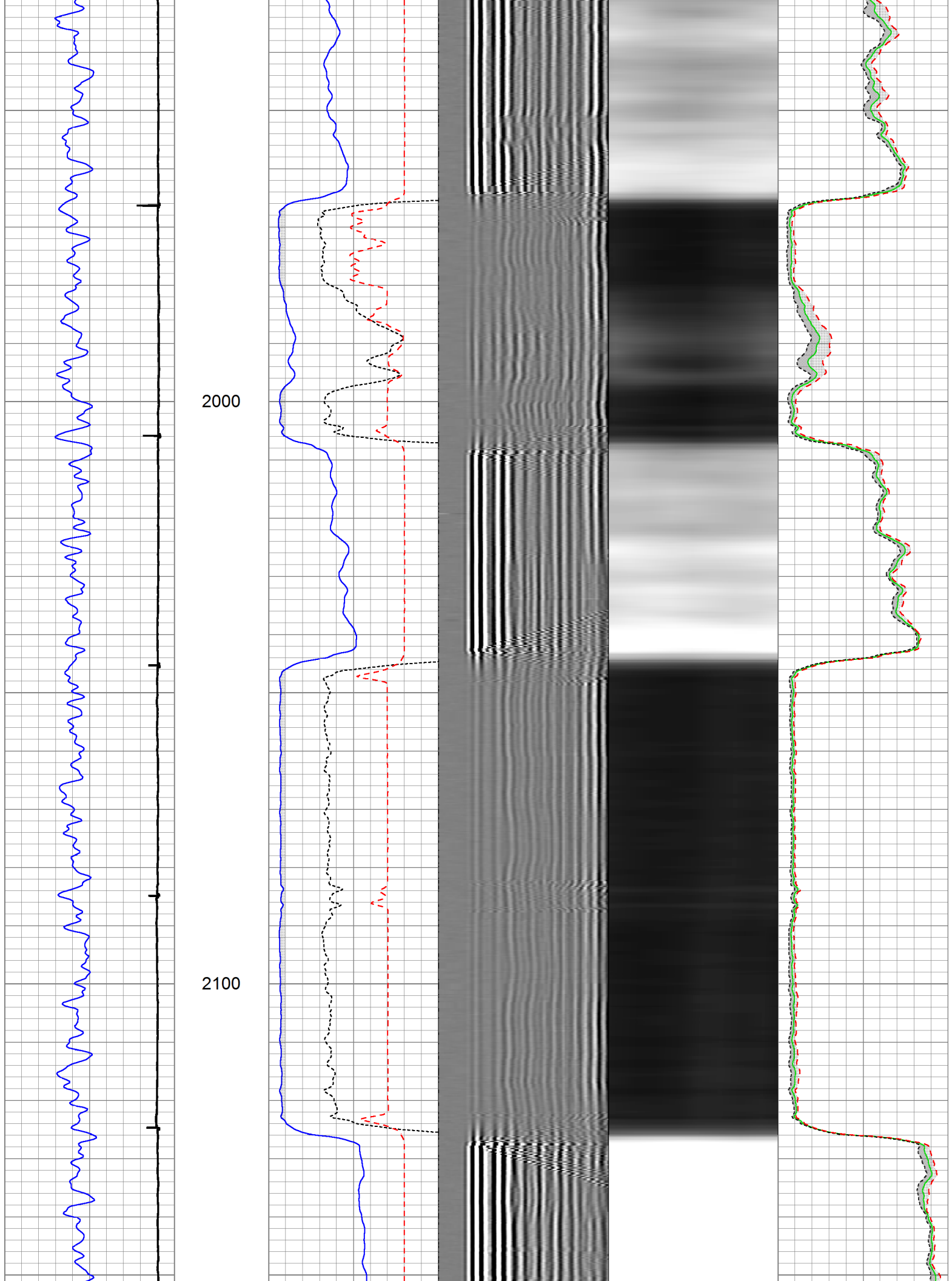






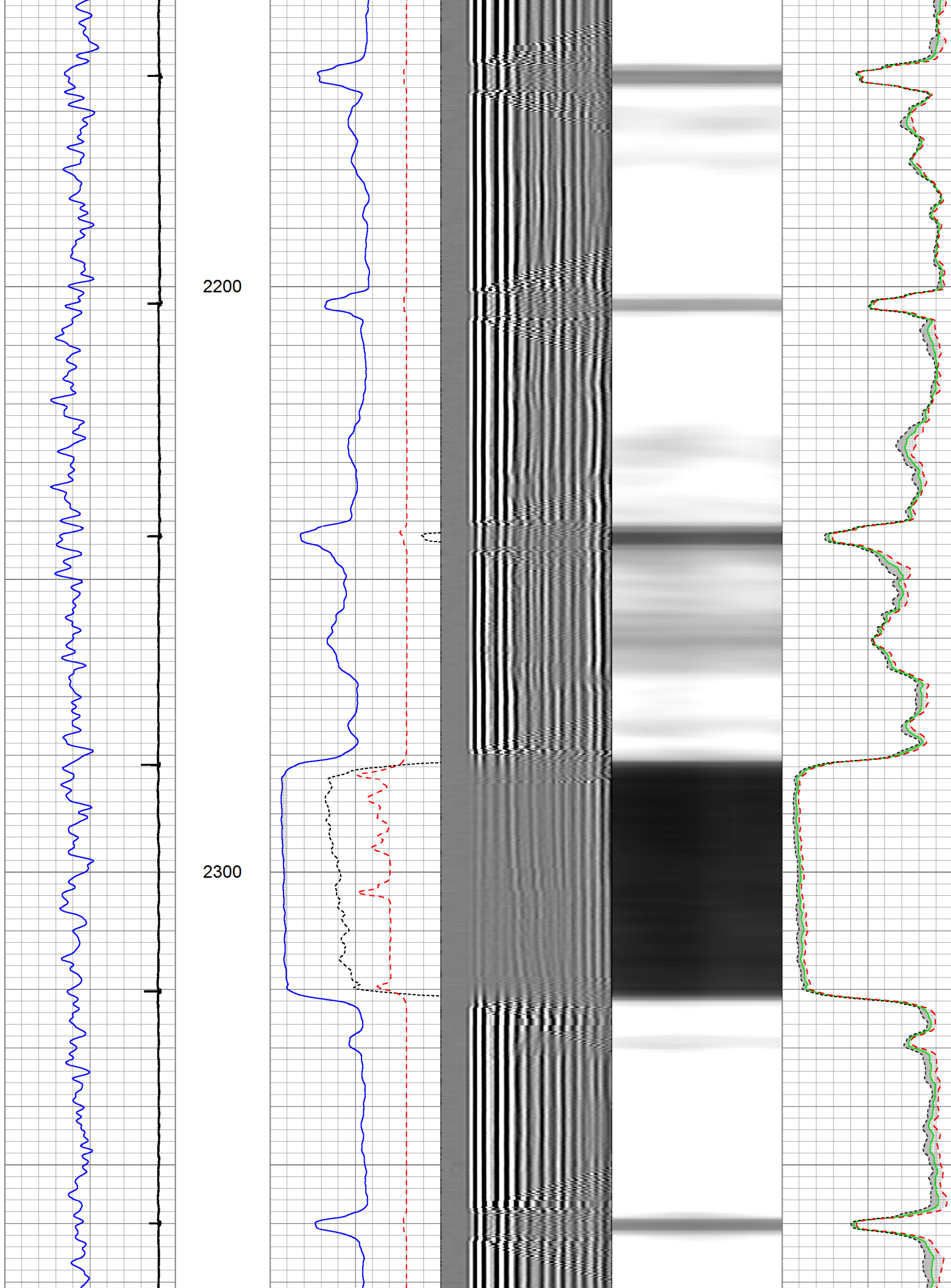




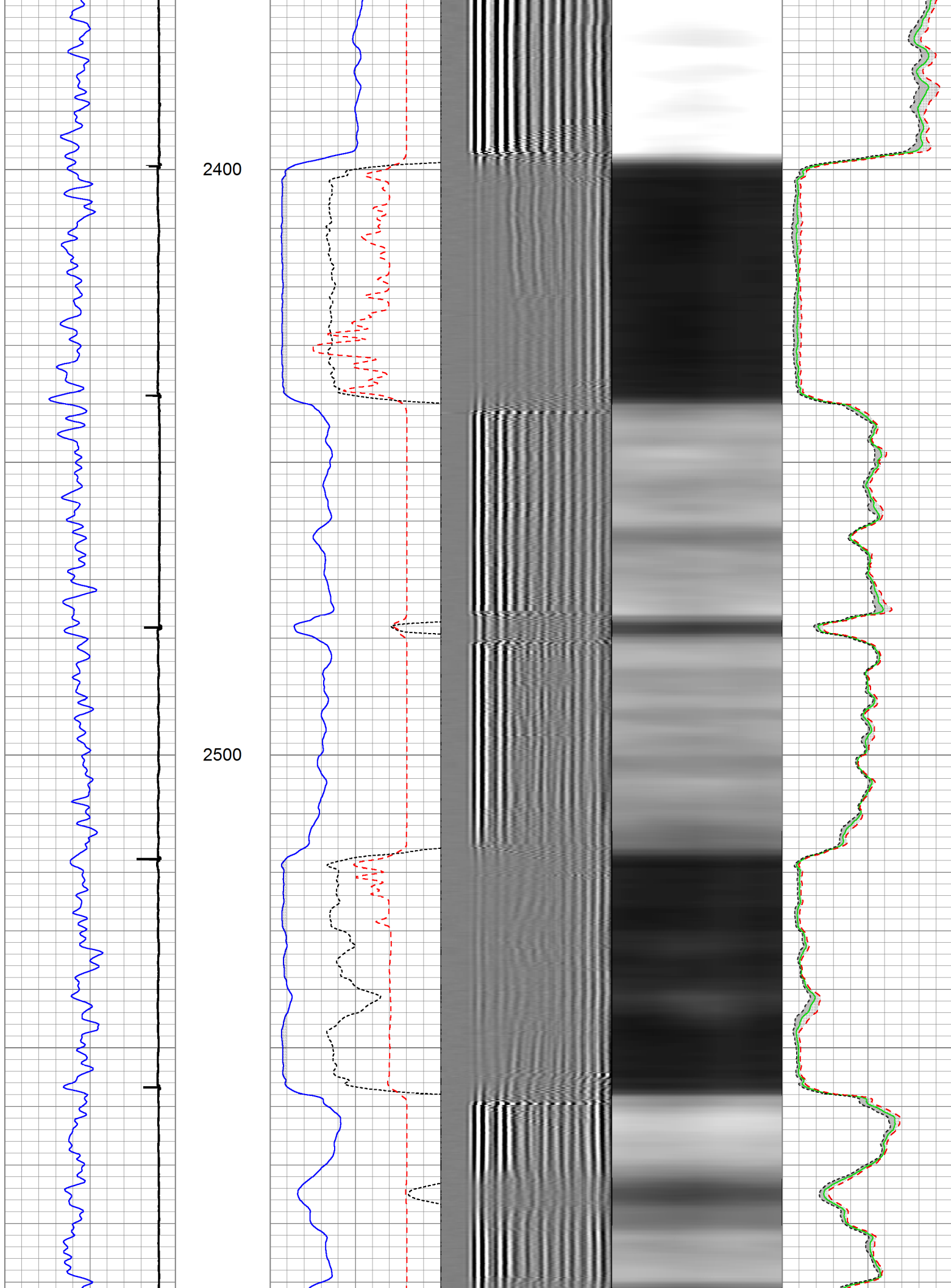


2200

2300



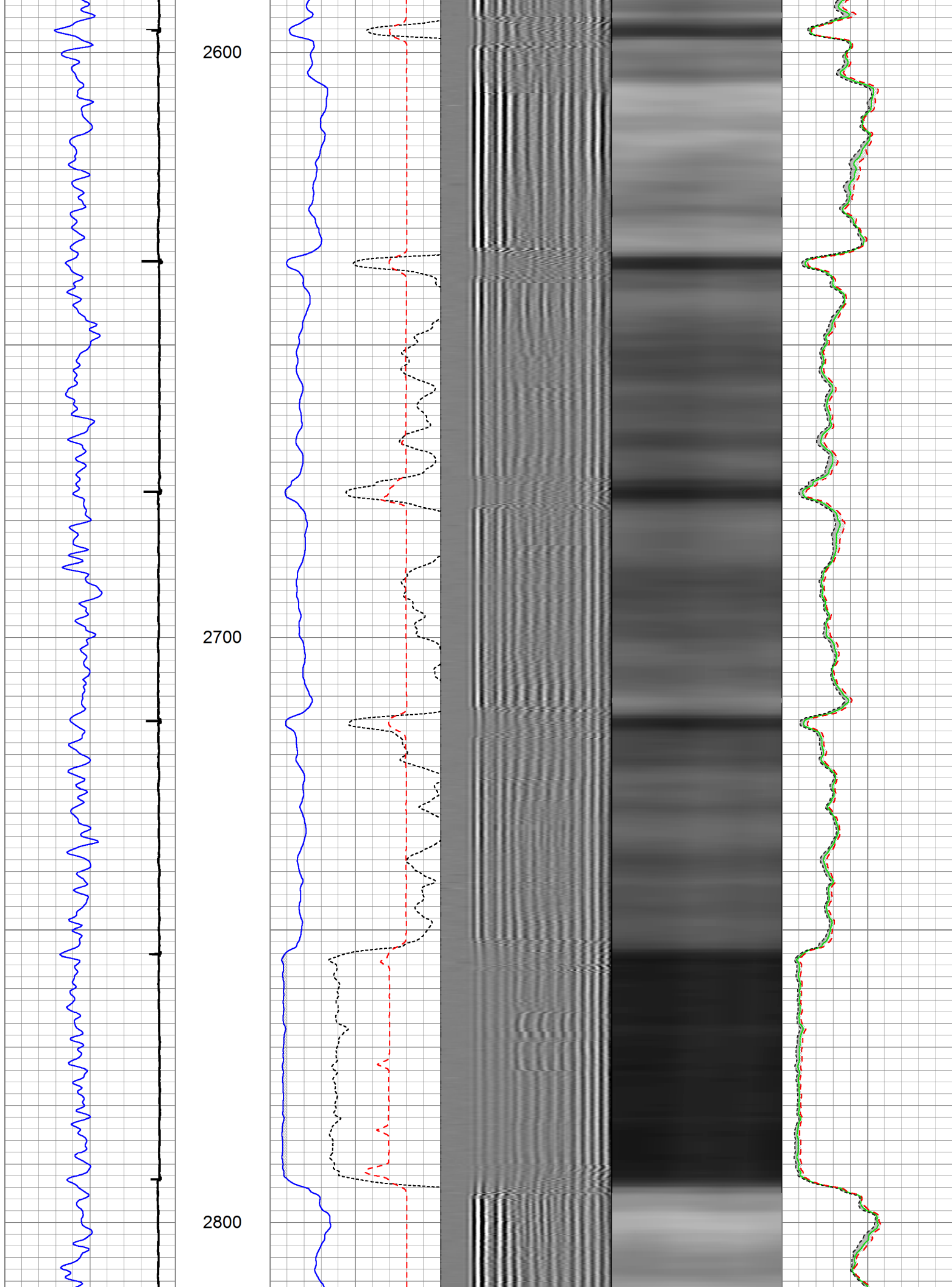


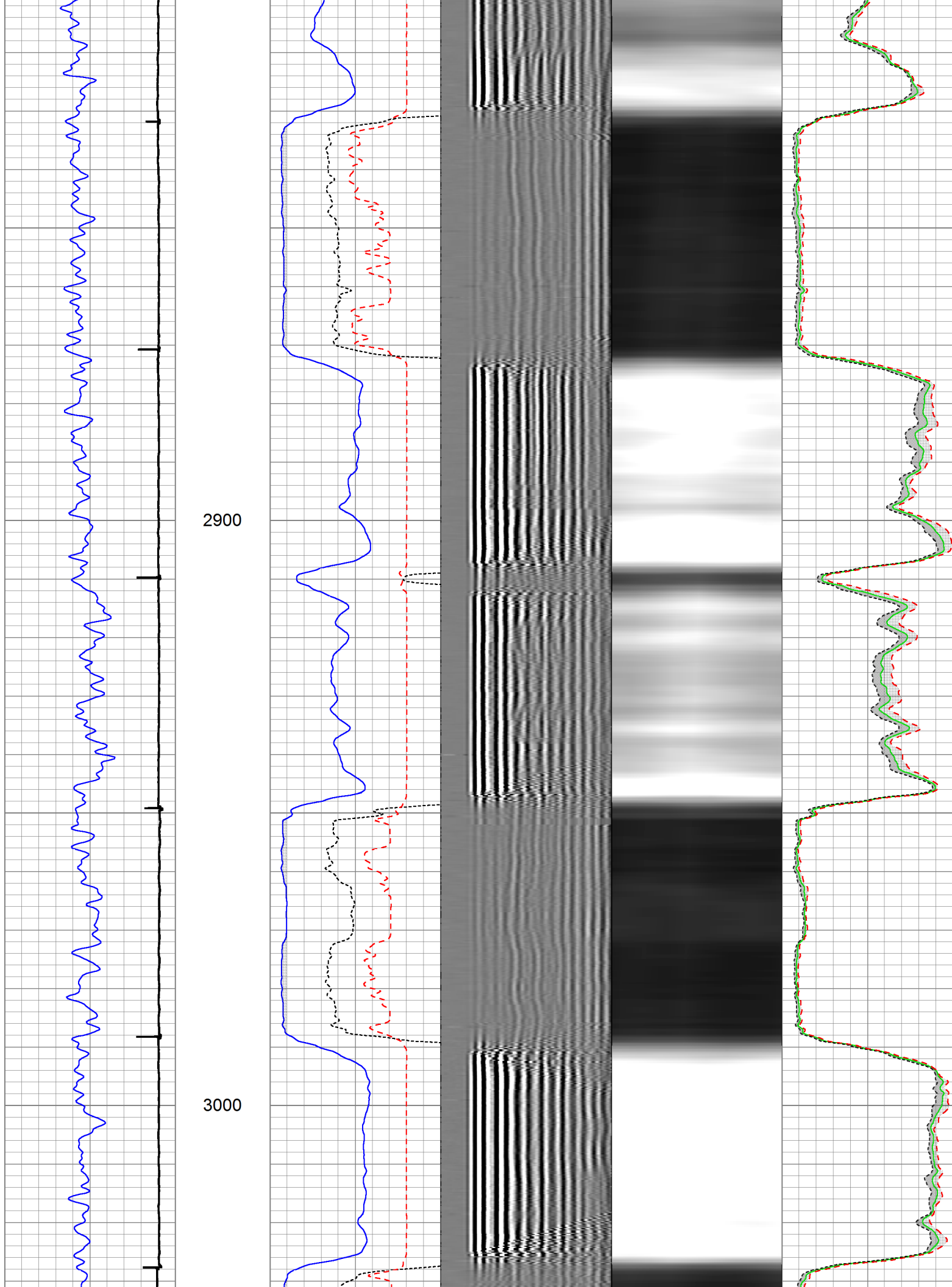


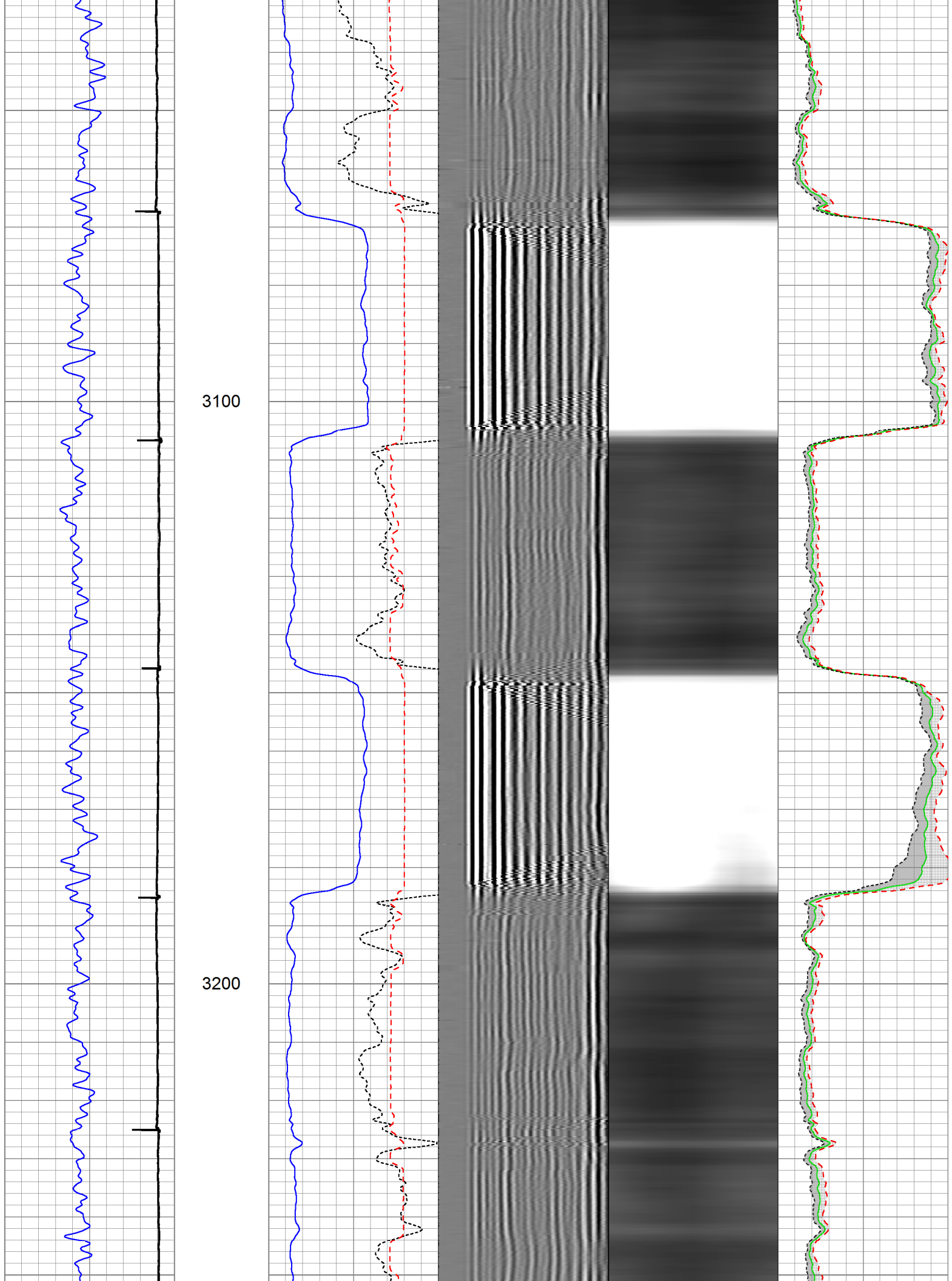
2600

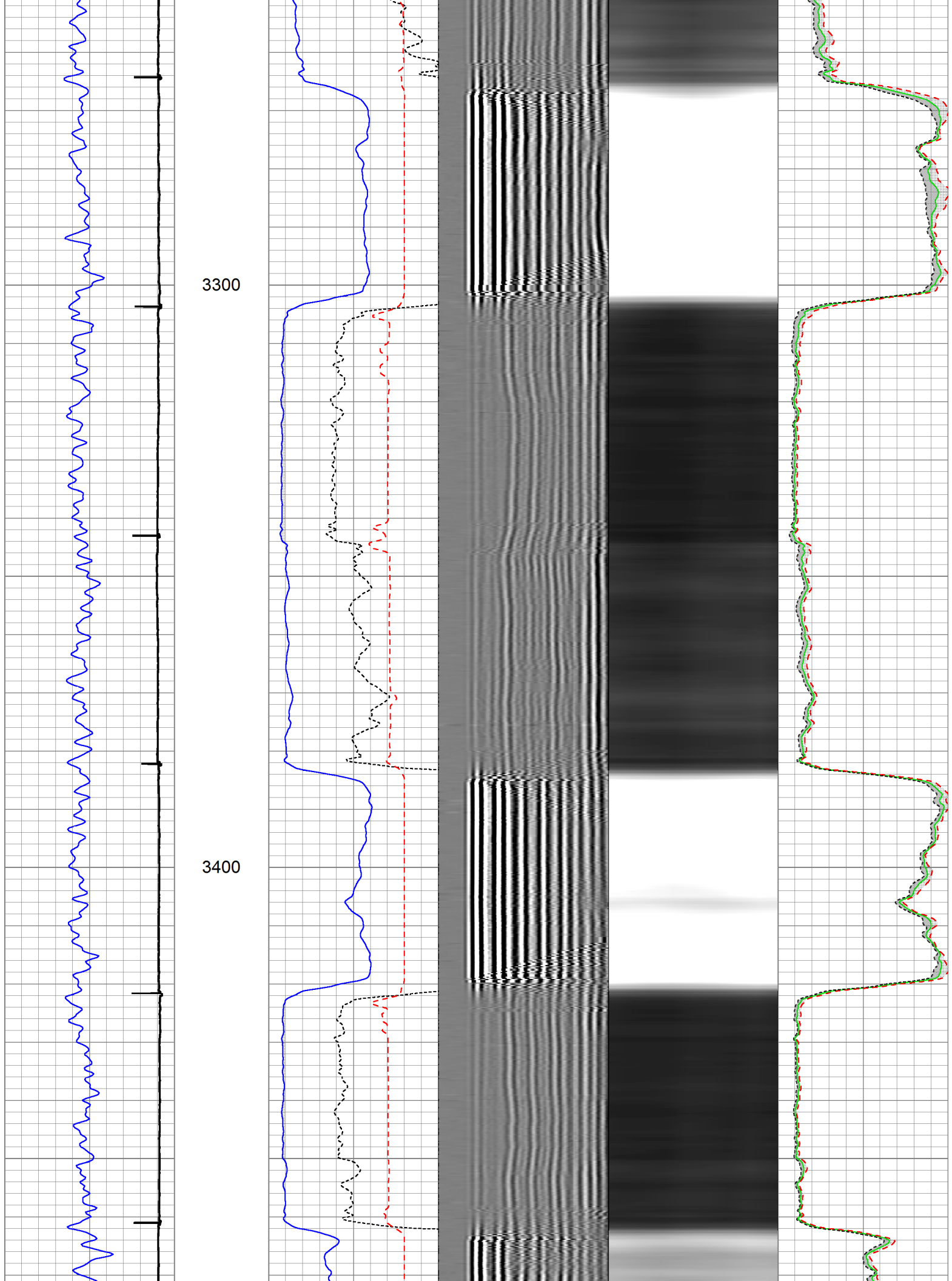
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2800

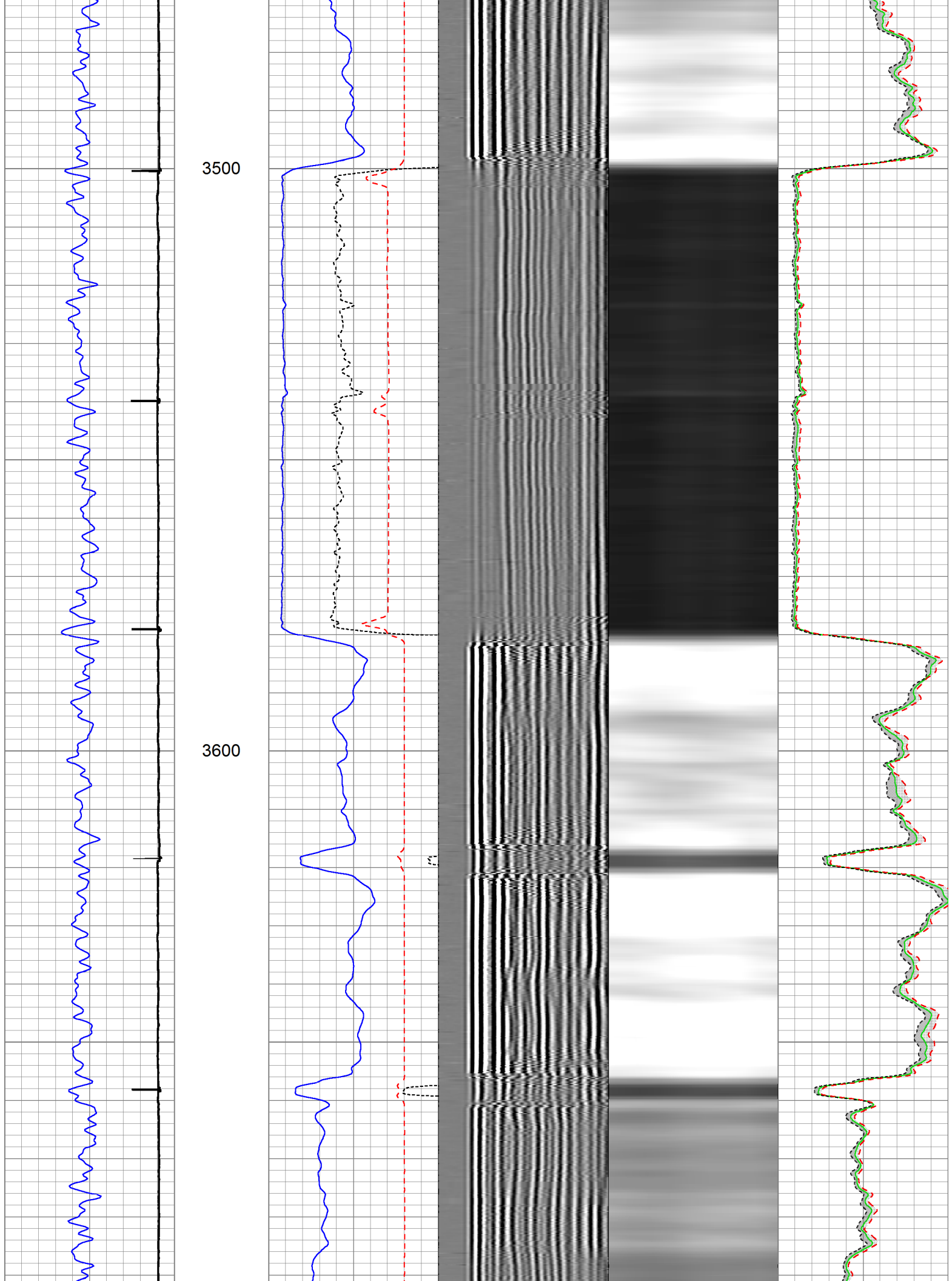








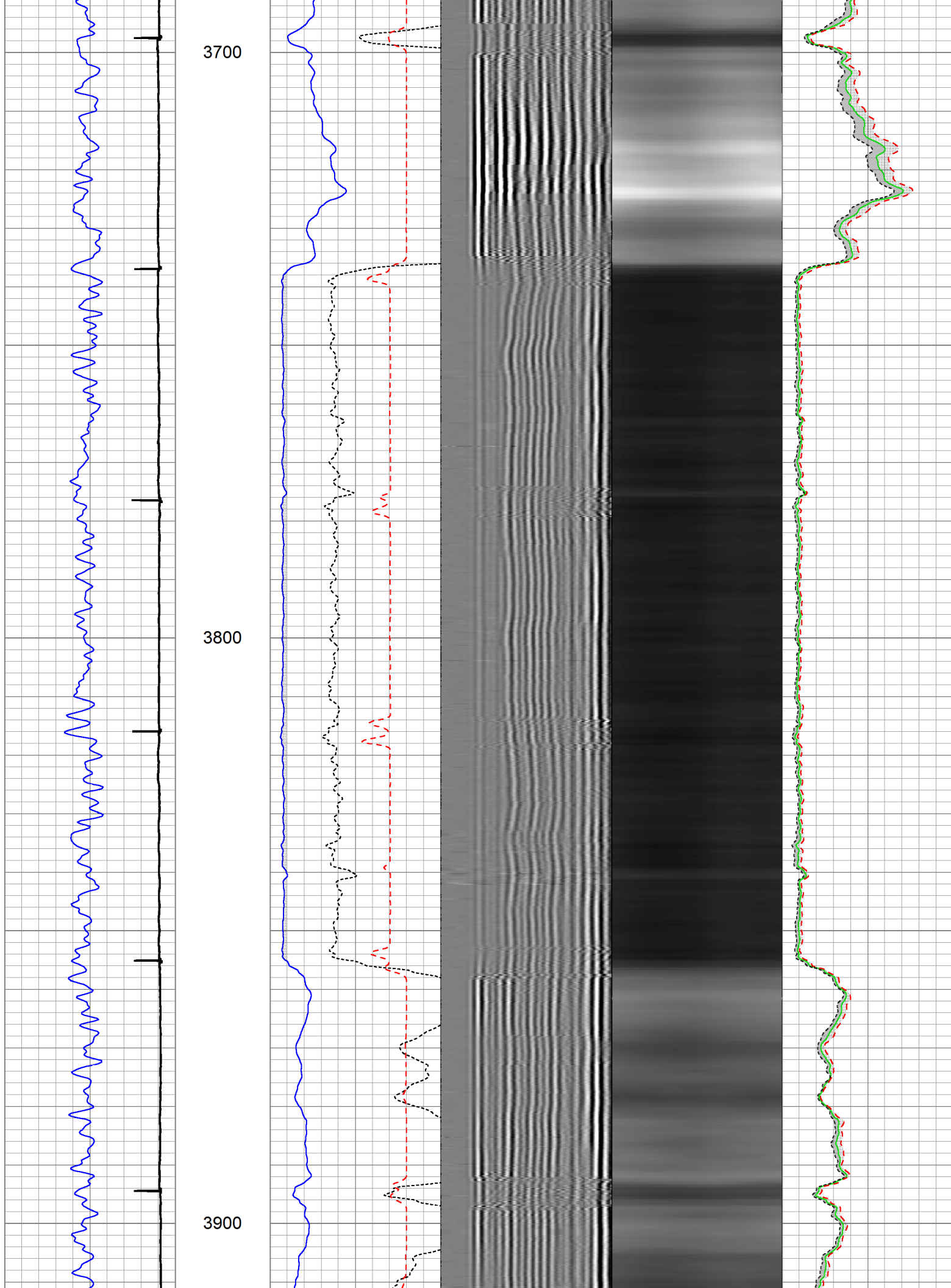


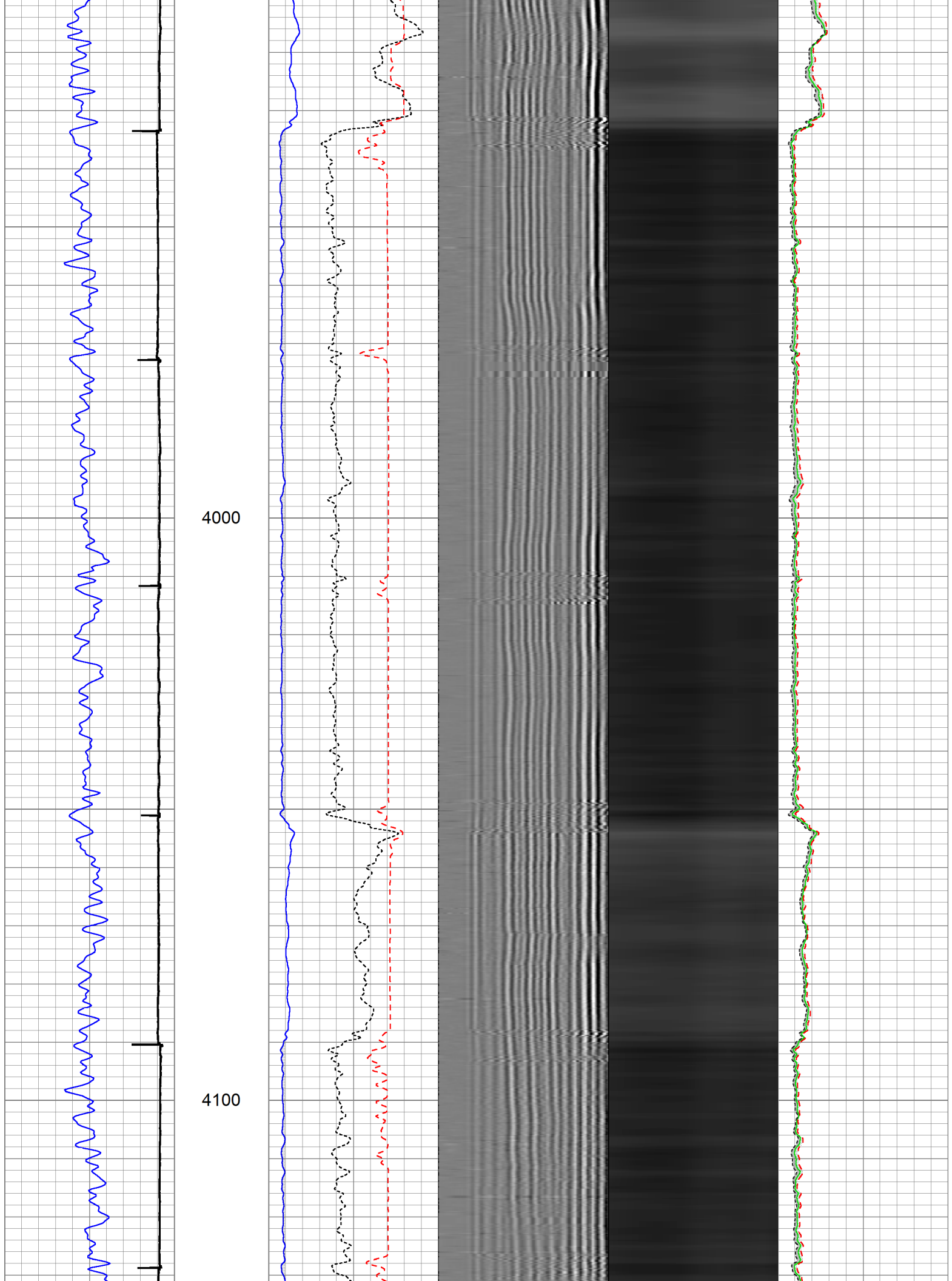


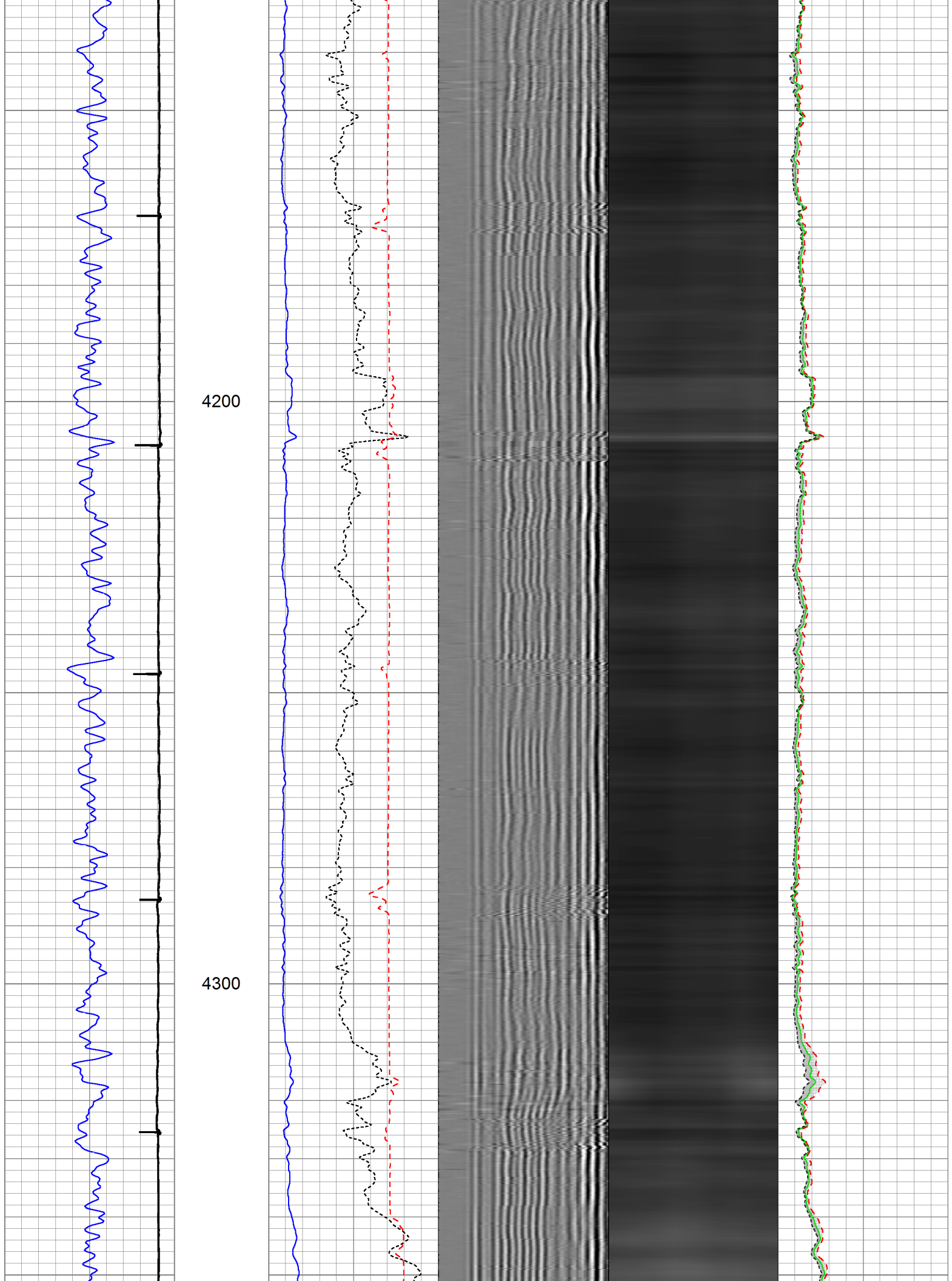
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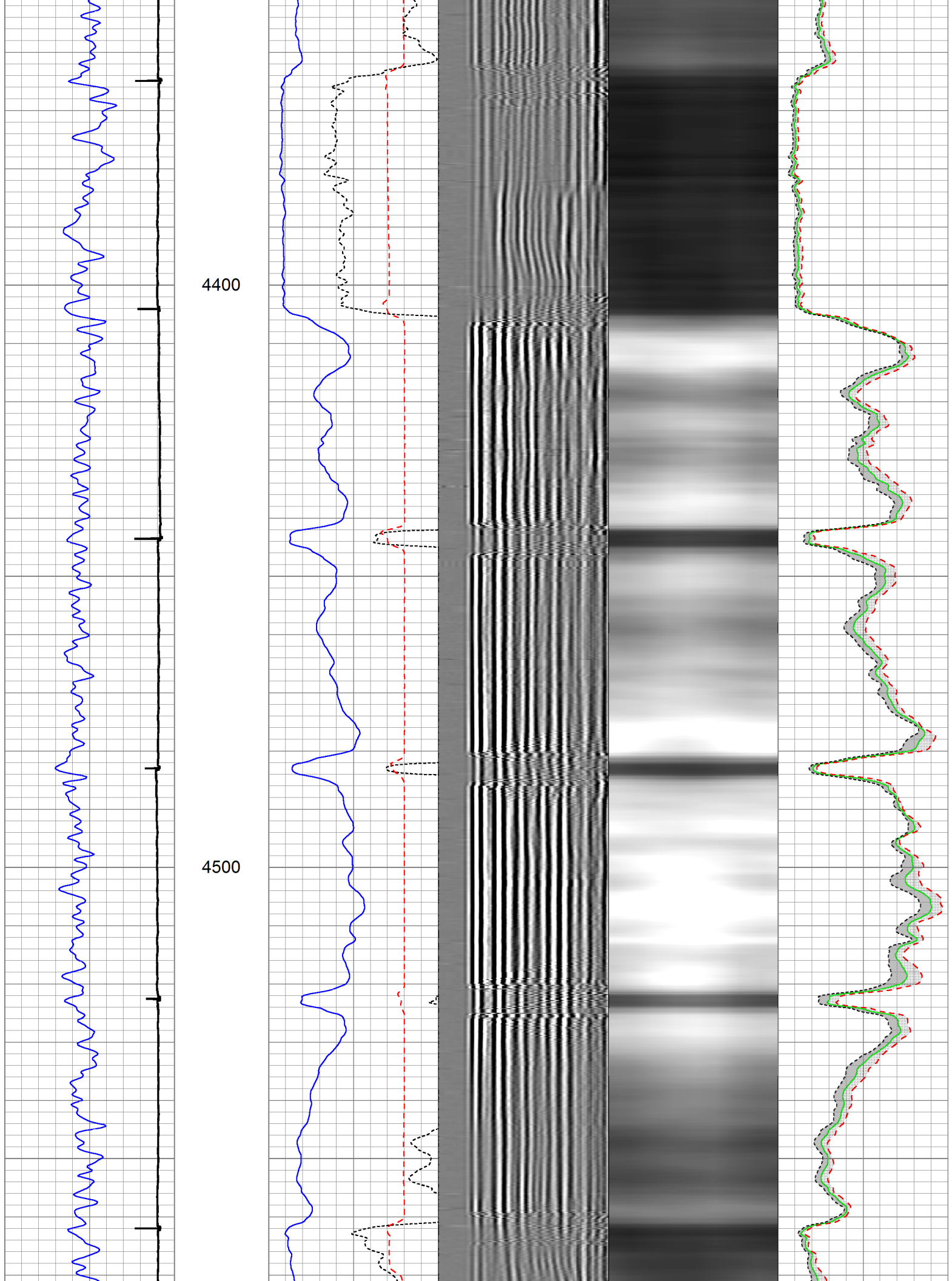
3800

3900

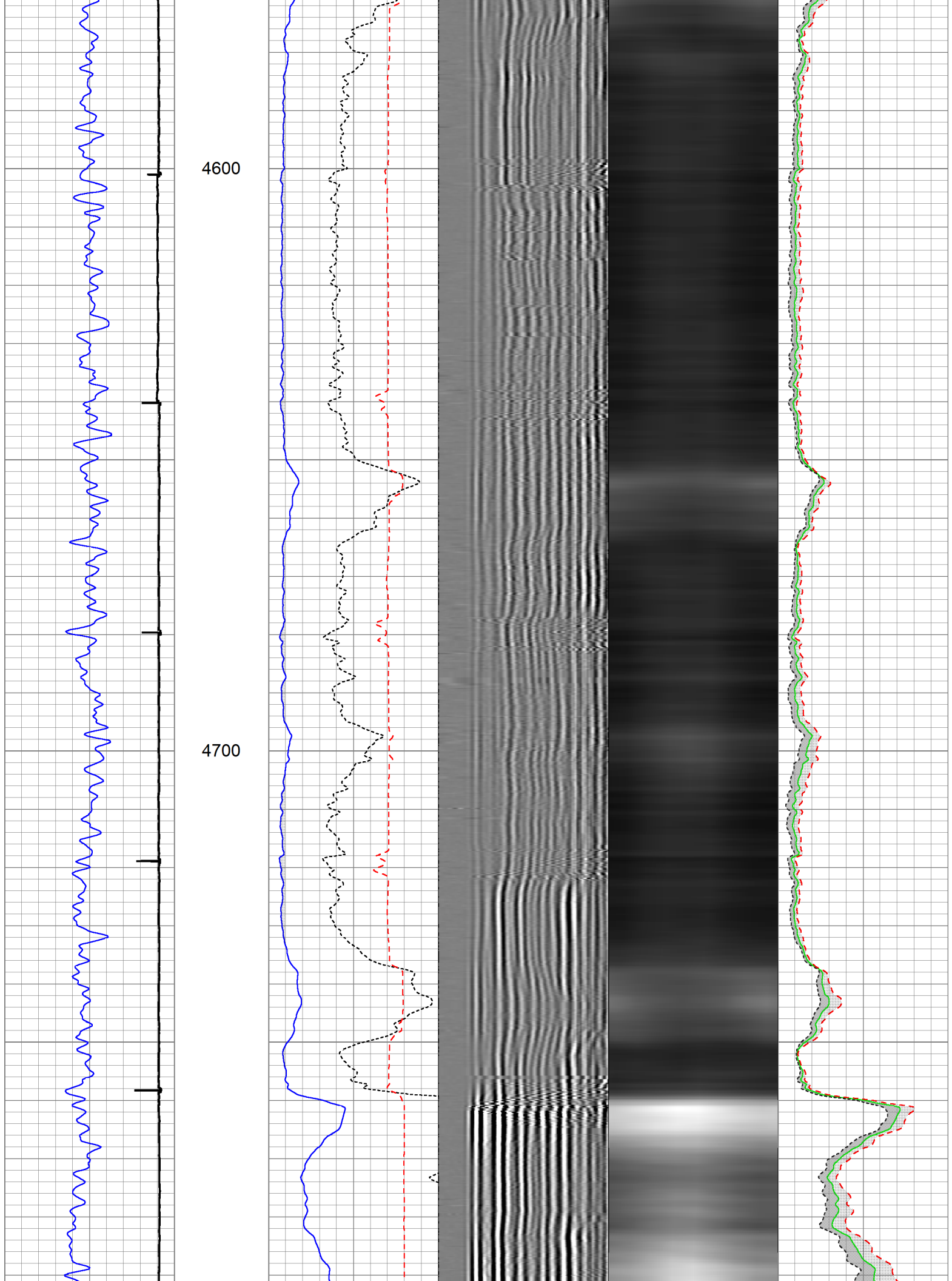








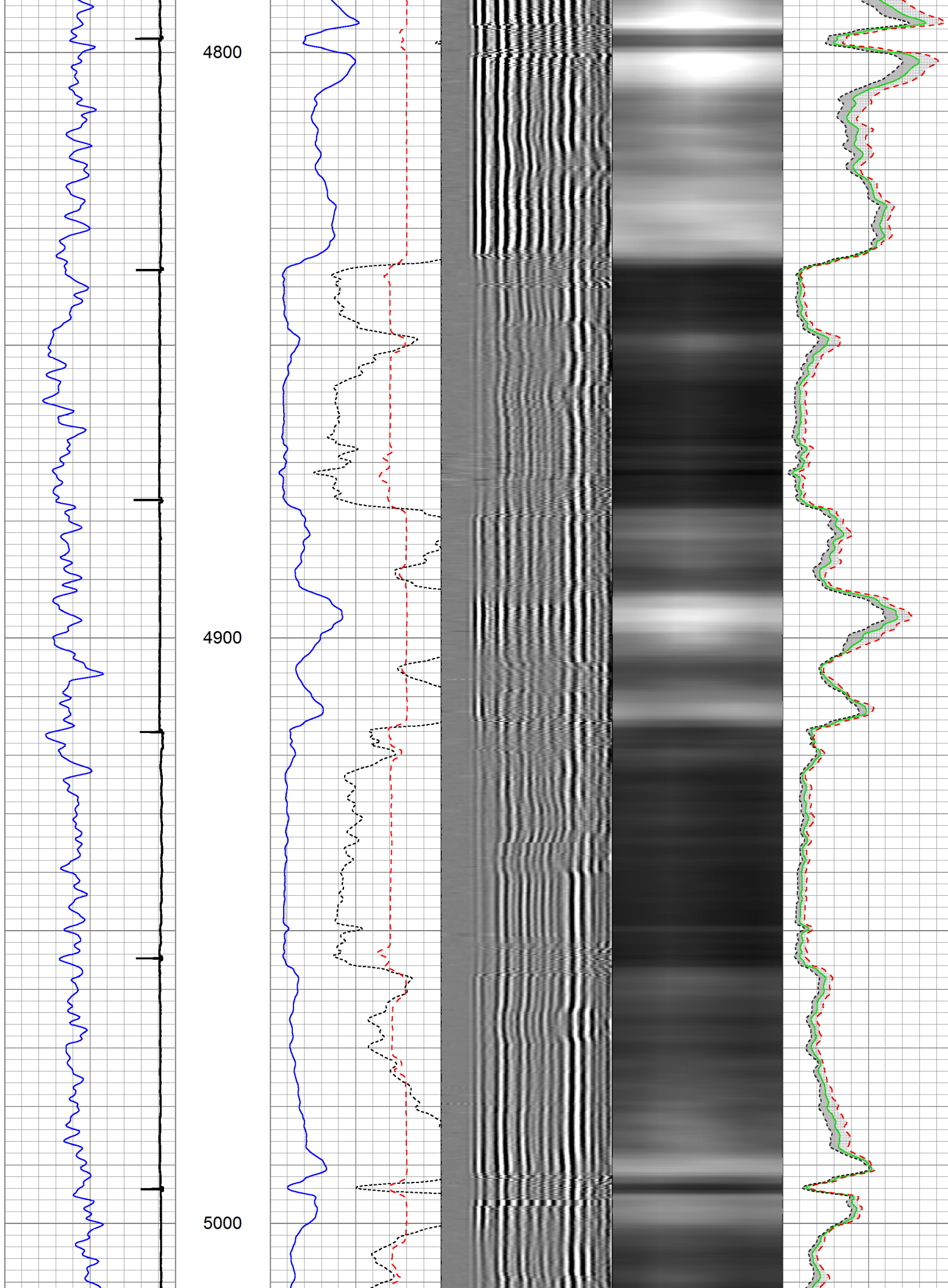


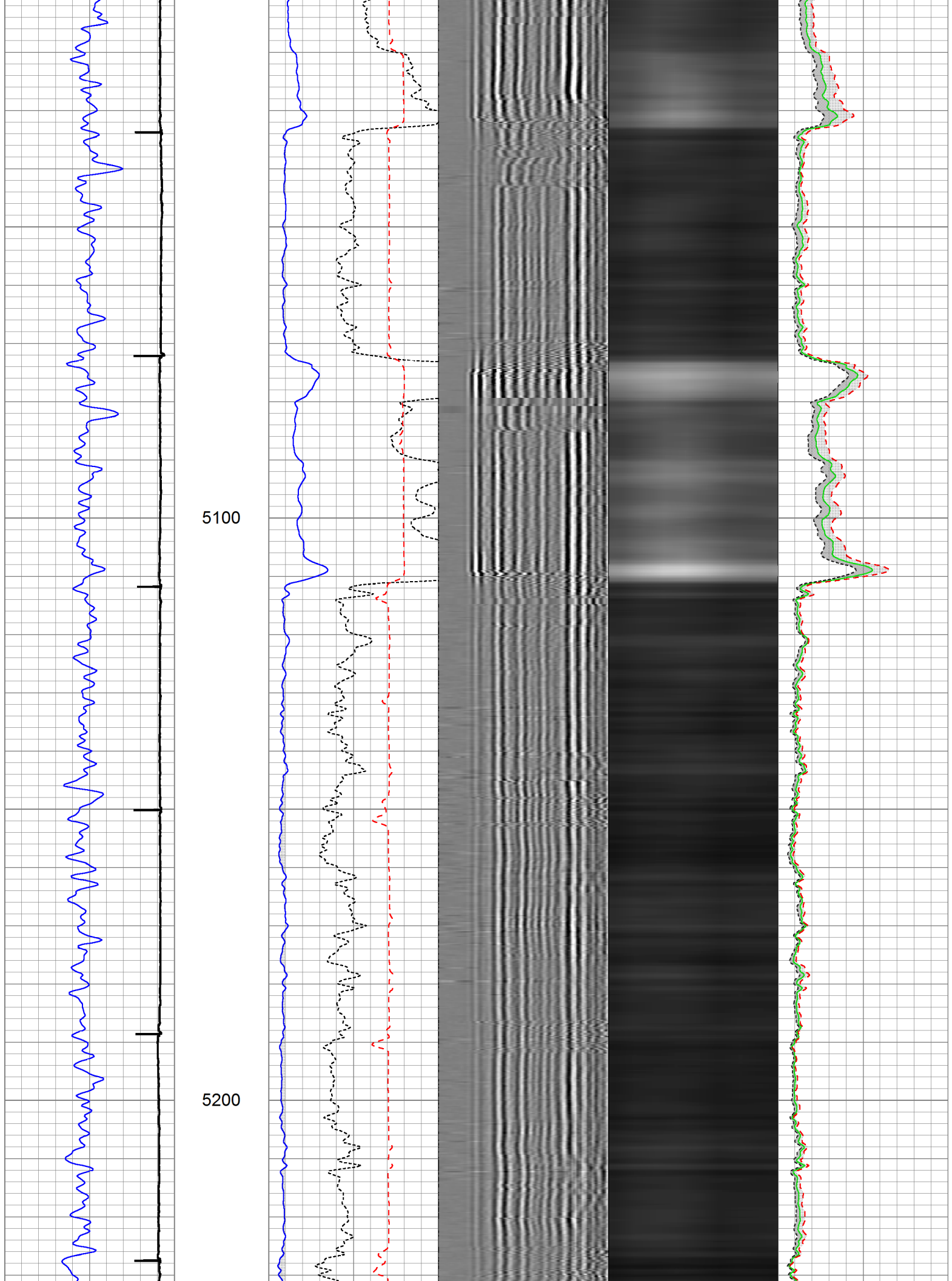


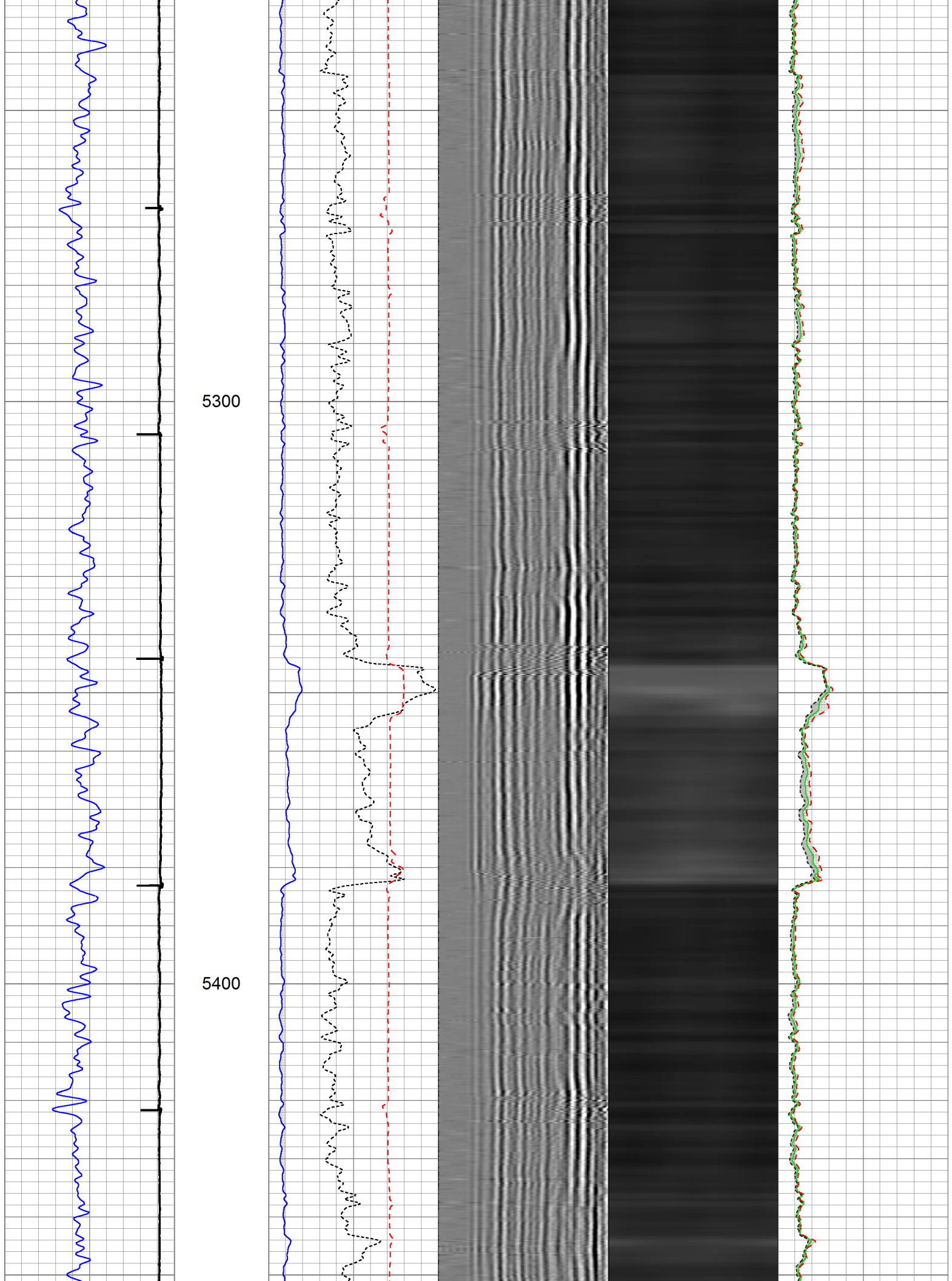
4800

4900

5000



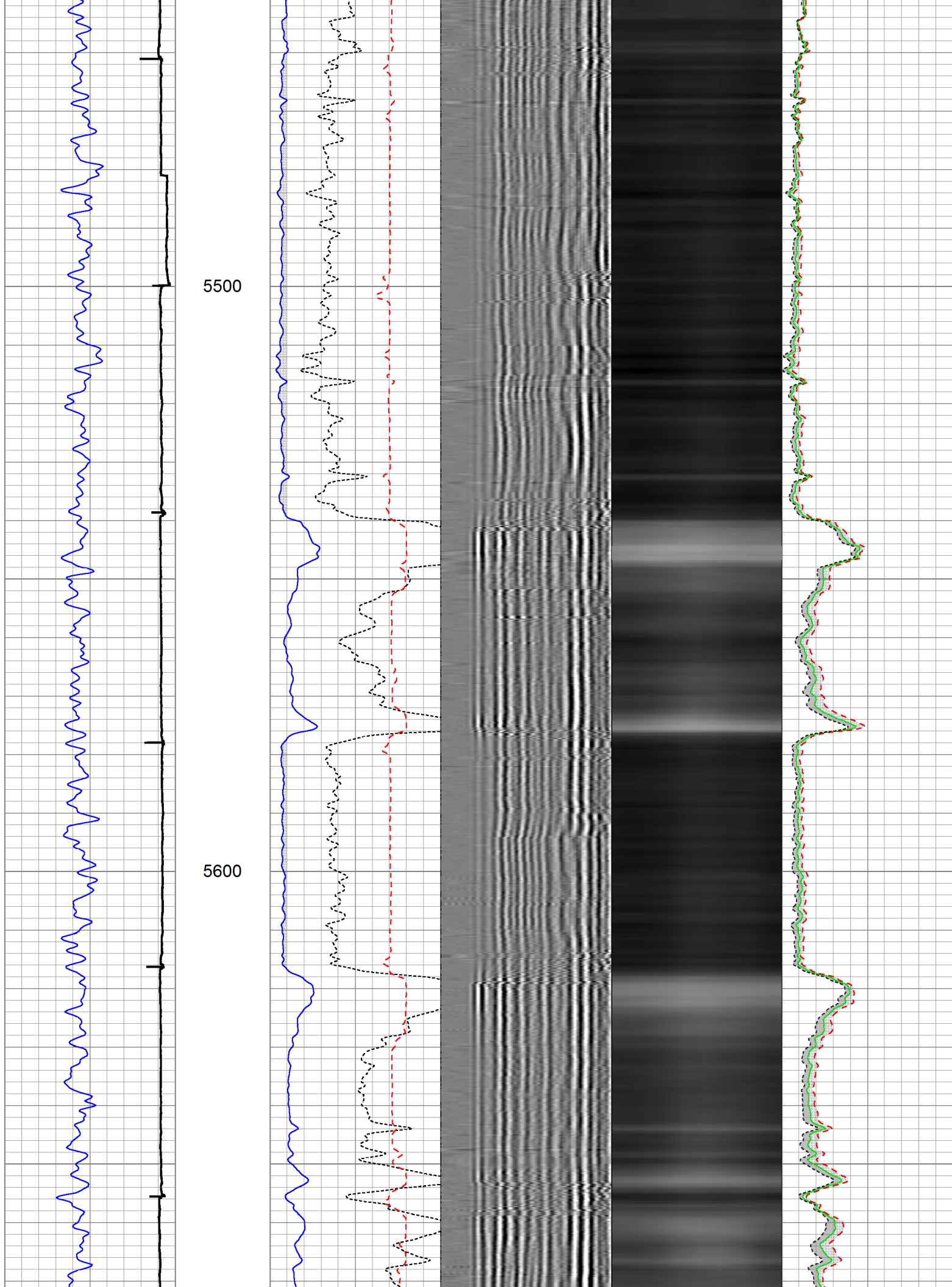






5500

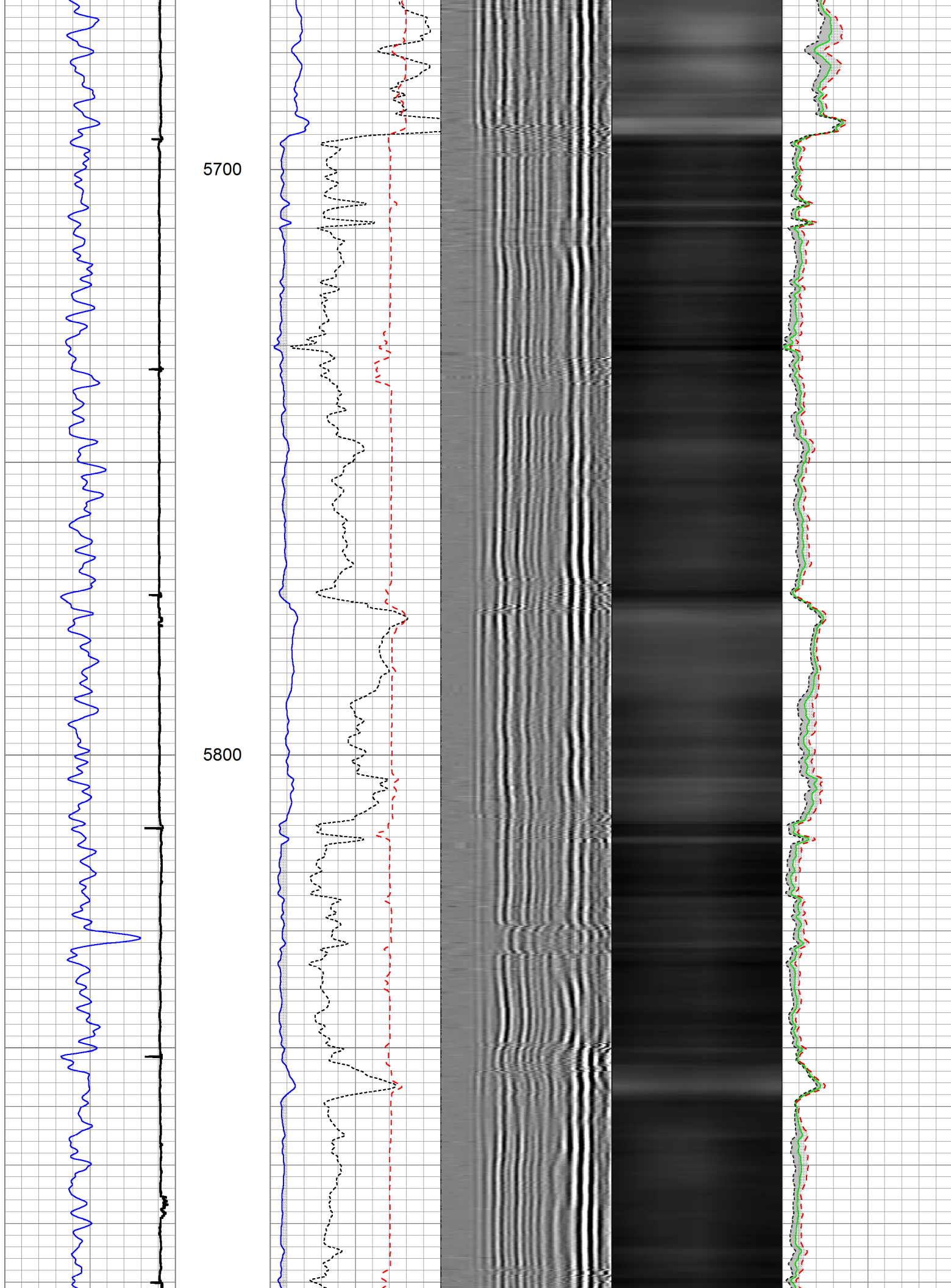
5600





5700

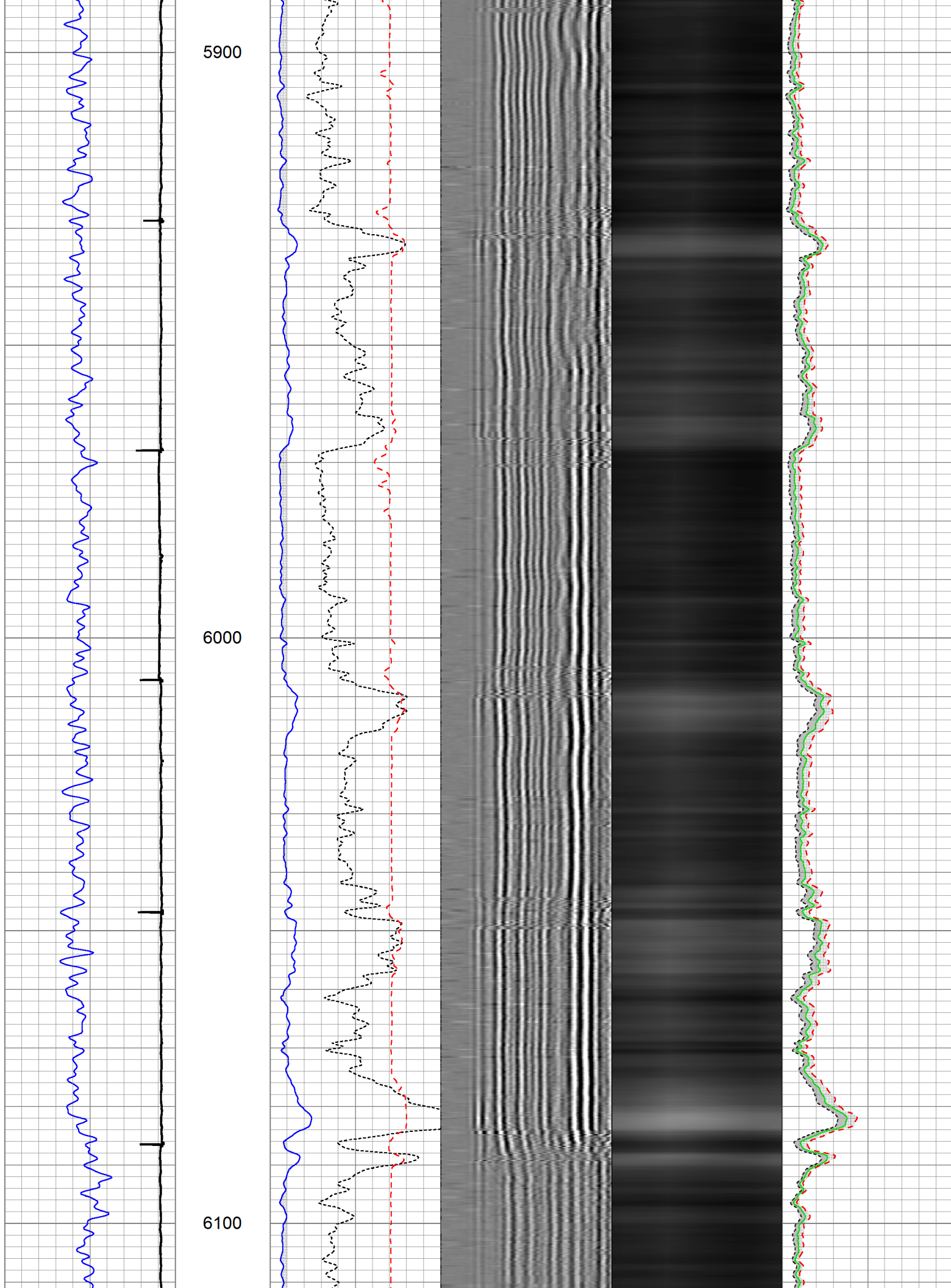
5800



5900

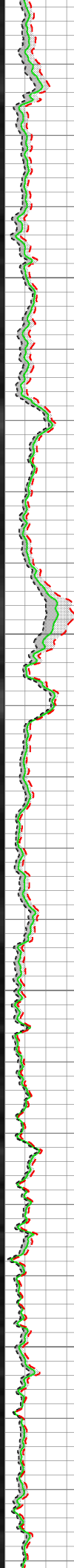
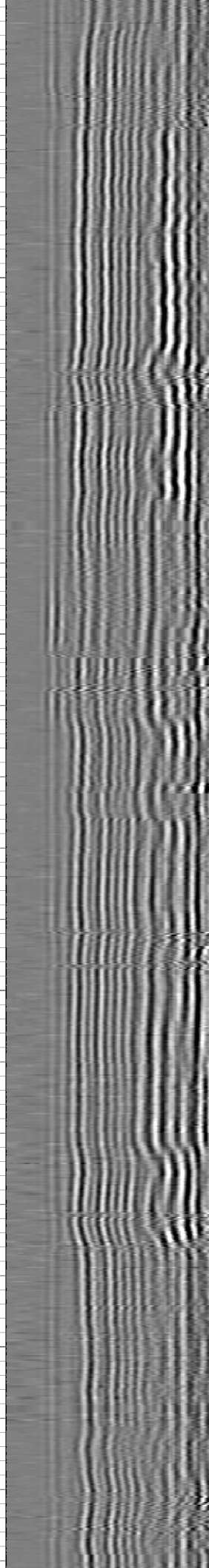
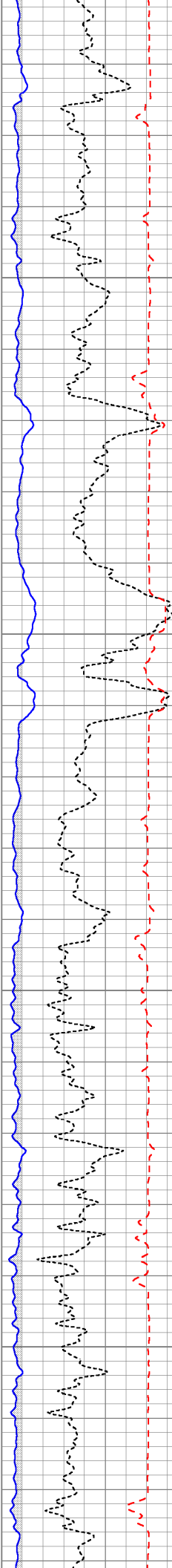
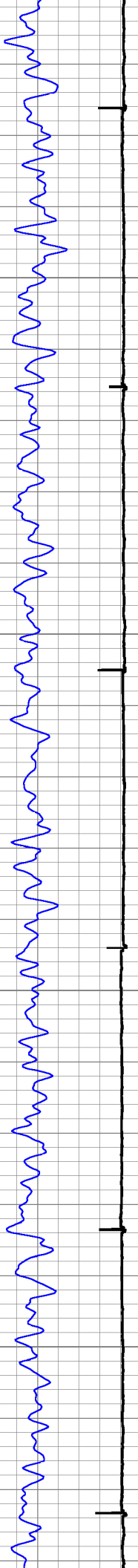
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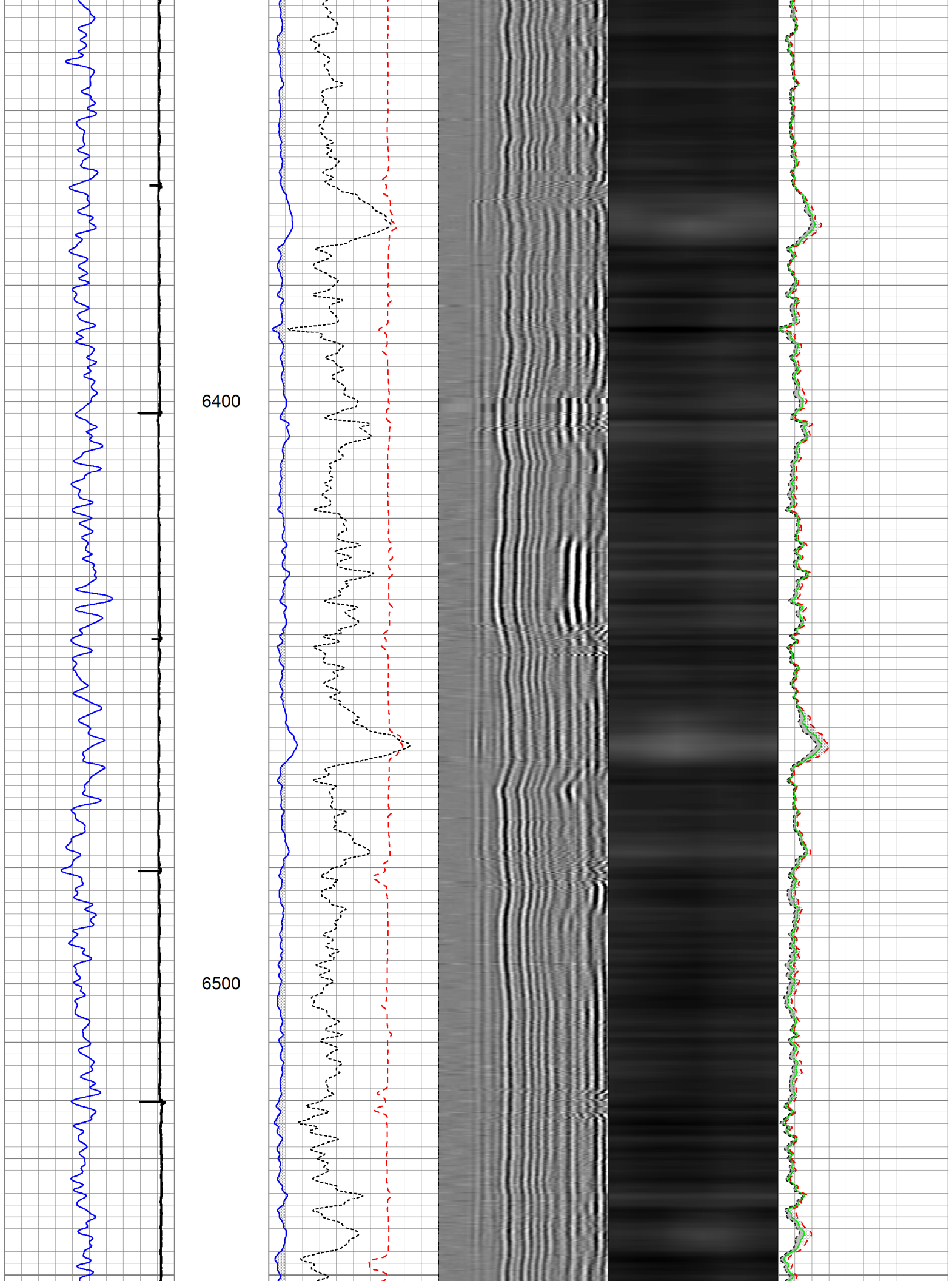
6100



6200

6300

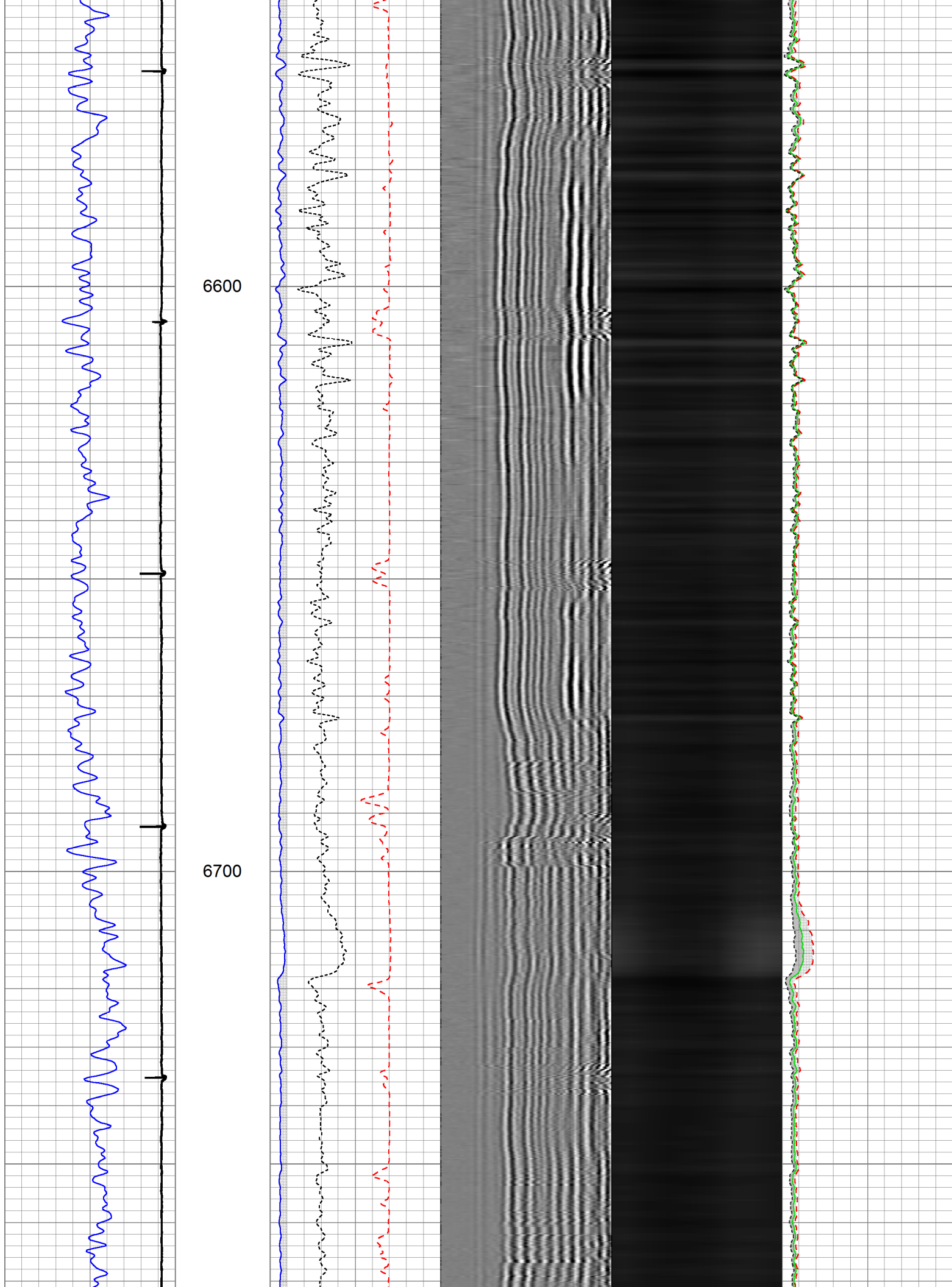




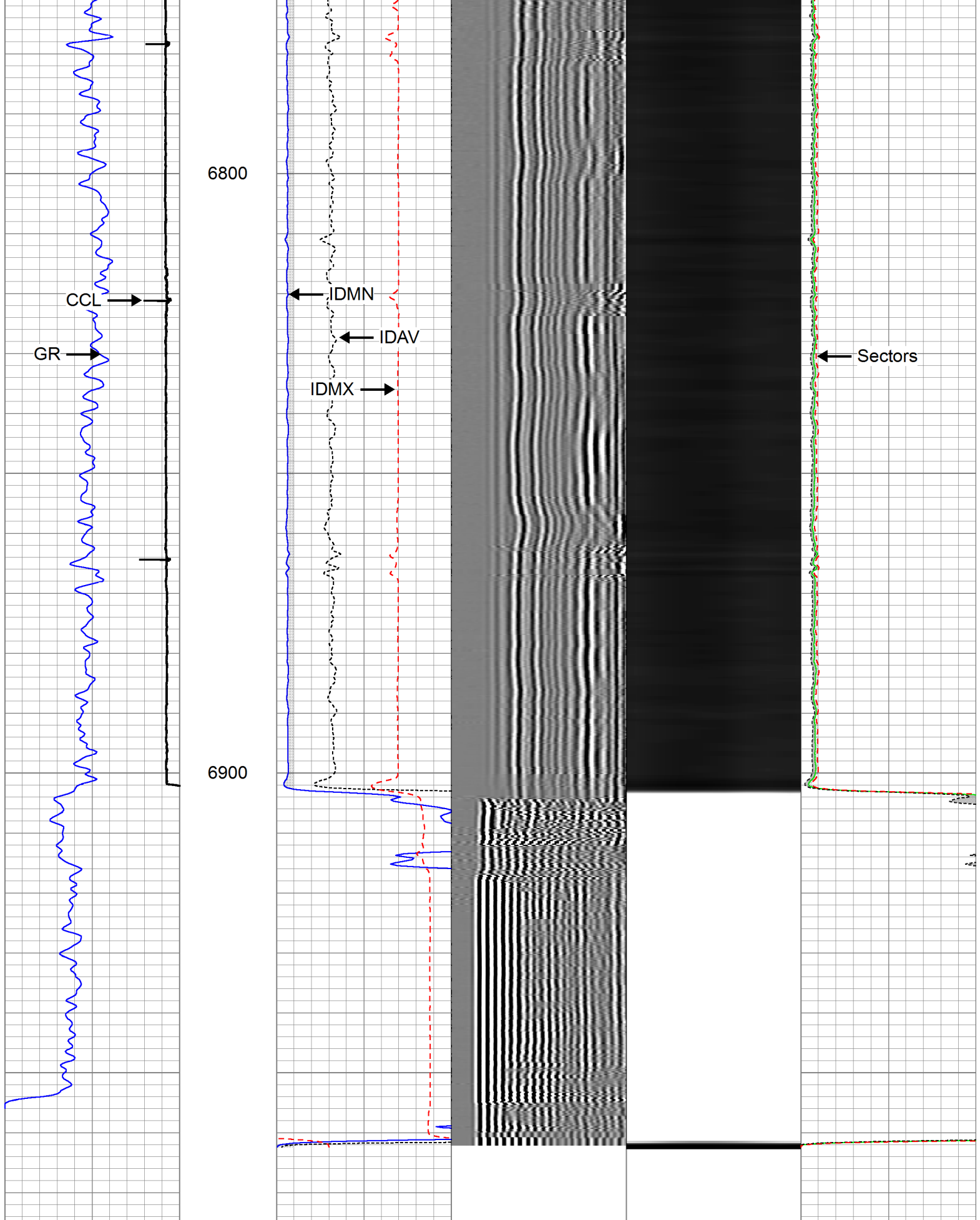


6600

6700







Gamma Ray (GAPI)	3' Amplitude (mV)	5' Variable Density Log	Sector Map	Average Amplitude
0150	0100	2001200		0100
Casing Collars	3' Amplitude x 5			Minimum Amplitude

0	(mV)	20
3' Travel Time		
650	(usec)	150

0	100
Maximum Amplitude	
0	100



# Main Pass 4.5 IN

Logged with 2600 PSI Induced Pressure at Surface

Database File: c:\warrior\data\anadarko\_grenemyer 13n-3hz\fixed\_0512338342\_anadarko\_grenemyer 13n-2hz\_  
Dataset Pathname: main4.5  
Presentation Format: rbl\_w\_te  
Dataset Creation: Thu Feb 27 12:36:21 2014 by Log Sondex V7.03  
Charted by: Depth in Feet scaled 1:240

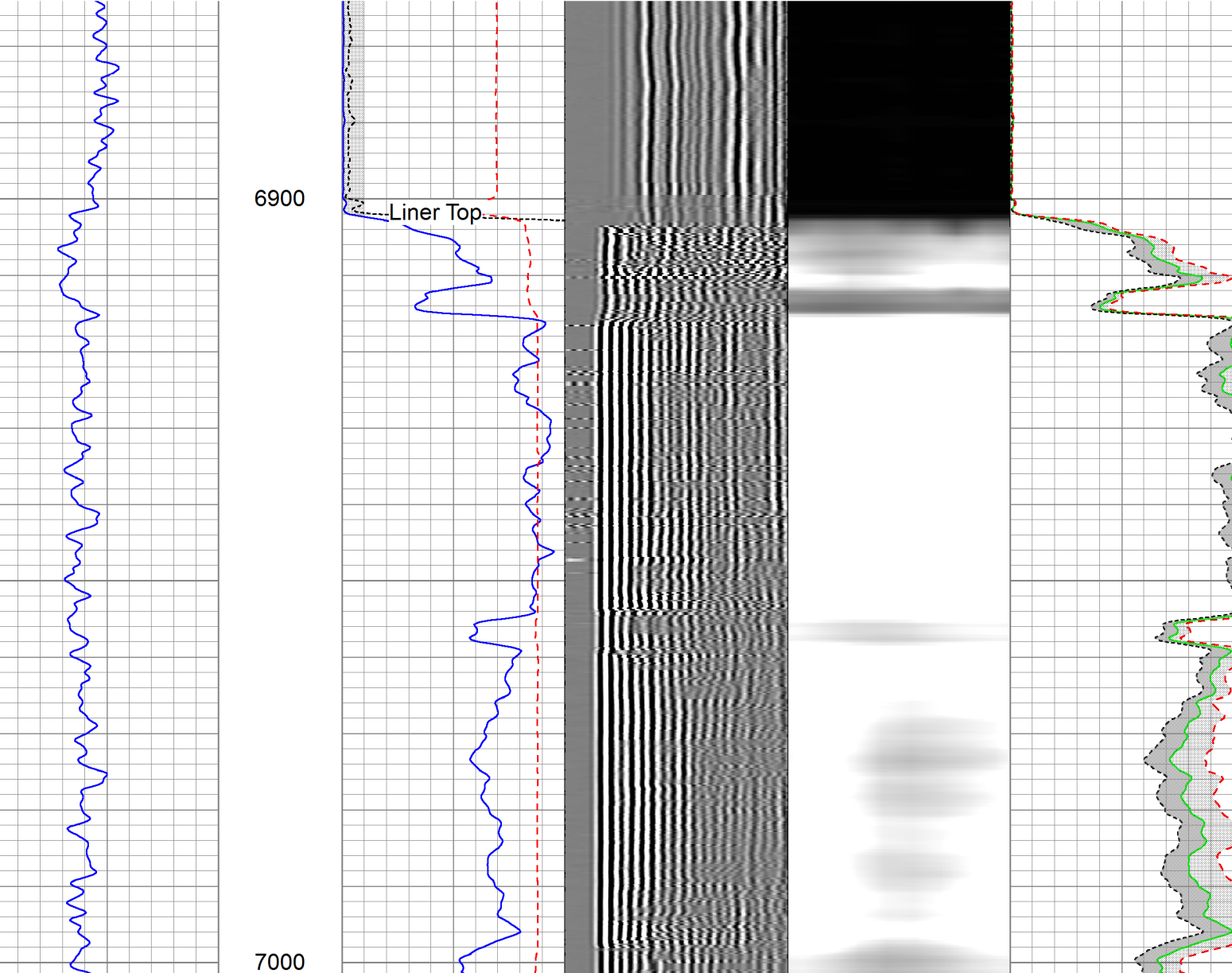
Gamma Ray
0 (GAPI) 150

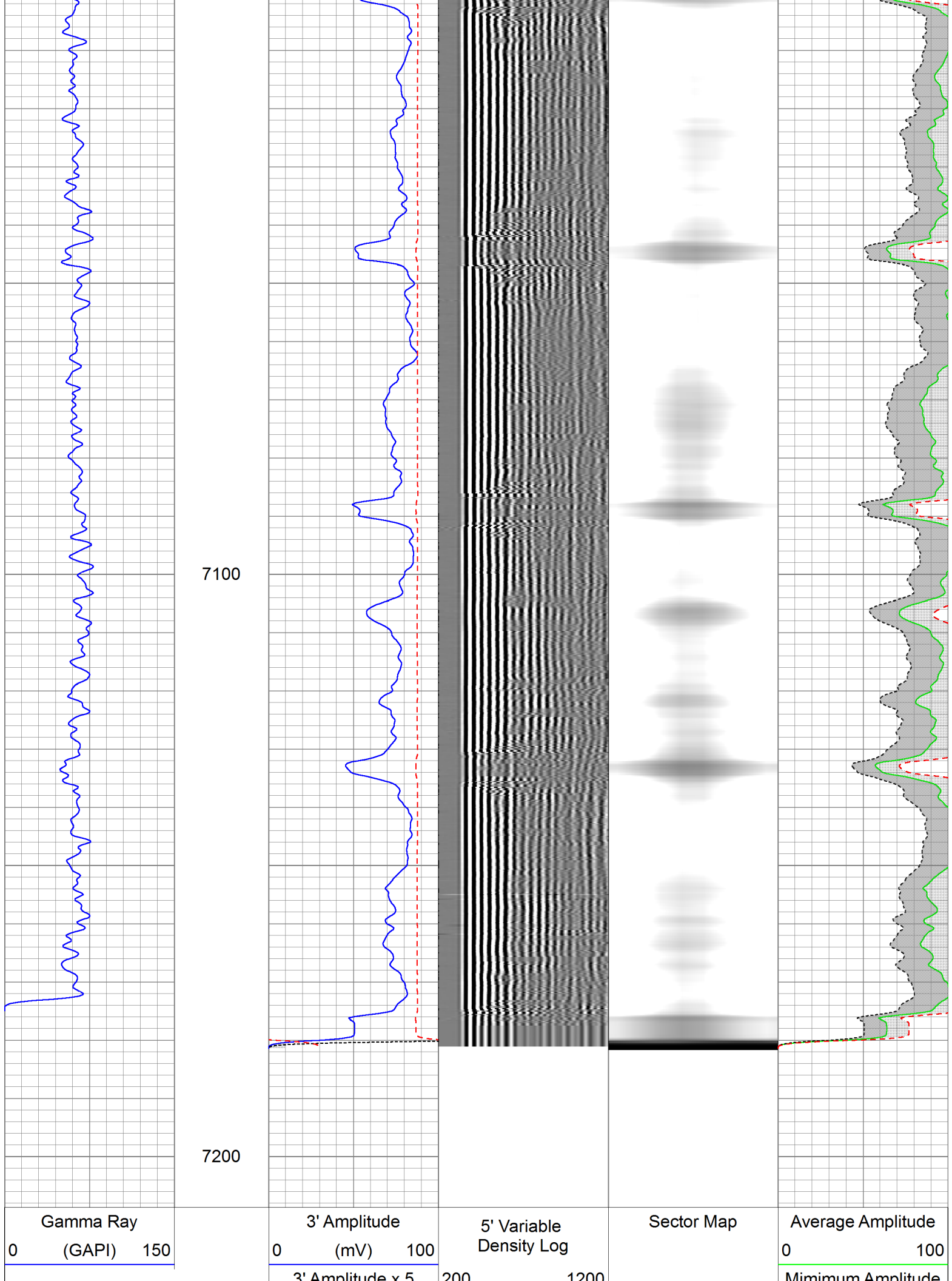
3' Amplitude
0 (mV) 100
3' Amplitude x 5
200 1200
0 (mV) 20
3' Travel Time
650 (usec) 150

5' Variable Density Log
200 1200

Sector Map

Average Amplitude
0 100
Mimimum Amplitude
0 100
Maximum Amplitude
0 100





0	(mV)	20
3' Travel Time		
650	(usec)	150

0	100
Maximum Amplitude	
0	100

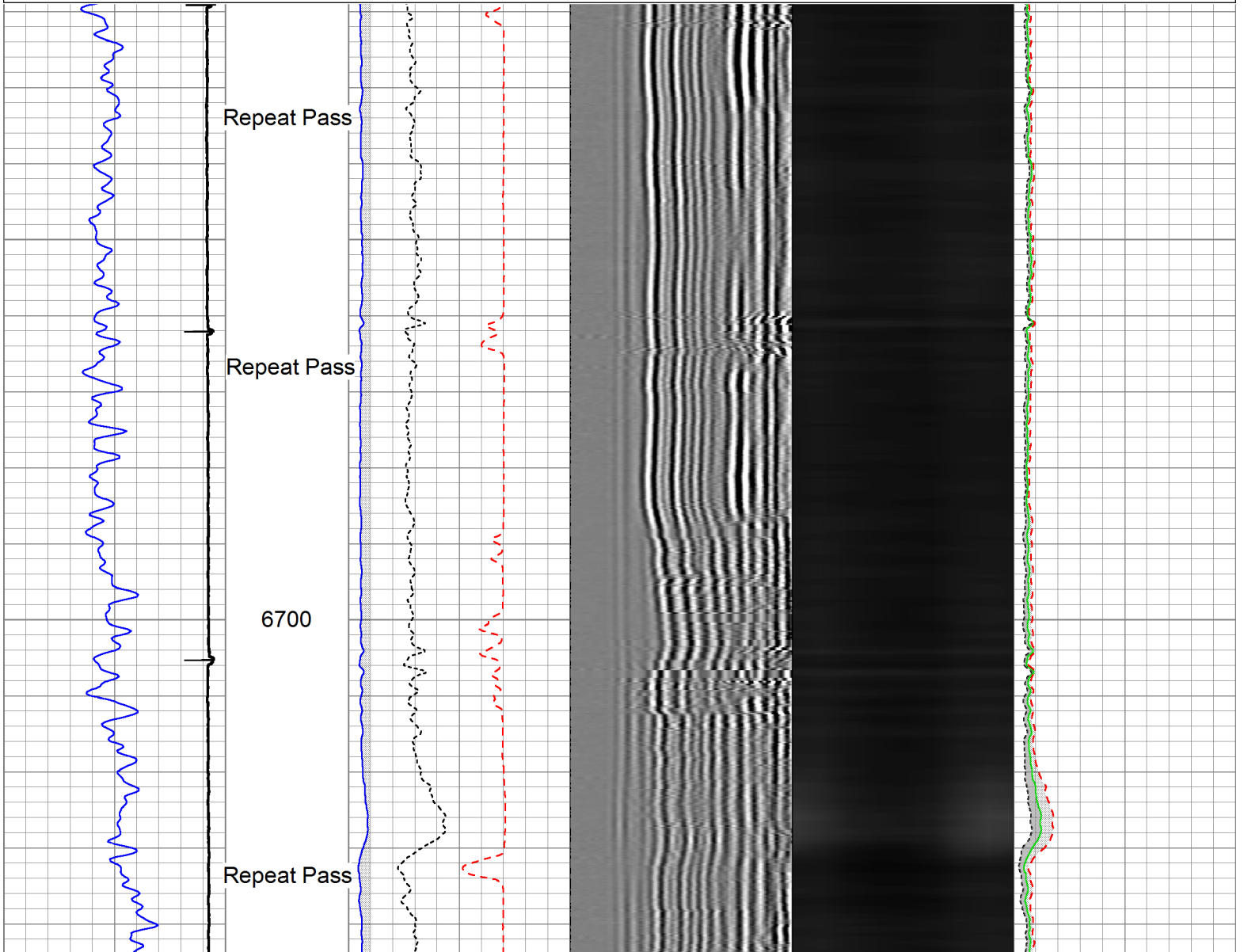


## Repeat Pass

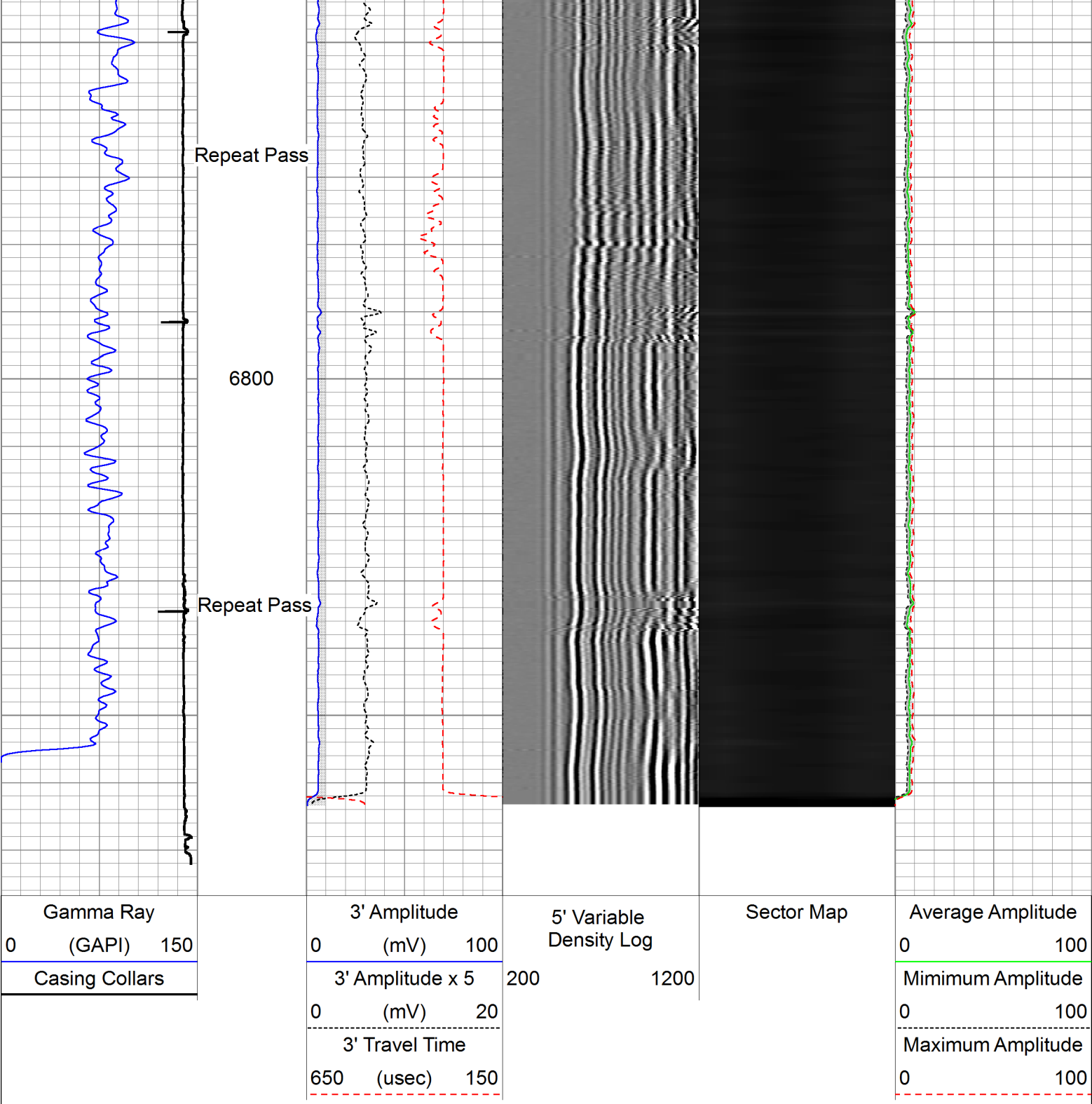
Logged with 2600 PSI Induced Surface Pressure

Database File: c:\warrior\data\anadarko\_grenemyer 13n-3hz\fixed\_0512338342\_anadarko\_grenemyer 13n-2hz  
Dataset Pathname: repeat2  
Presentation Format: rbl\_w\_te  
Dataset Creation: Thu Feb 27 12:09:20 2014 by Log Sondex V7.03  
Charted by: Depth in Feet scaled 1:240

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







Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	21.48		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 (000008) Production Roller Centraliser (3 Arm)	1.92	1.69	7.00



				Production Roller Centraliser (3 Arm)			
WVF3FT	14.72						
WVFS1	14.72			RBT-004 (1066in7)	9.47	3.13	140.00
WVFS2	14.72			Radial Bond Tool (UW 3 1/8)			
WVFS3	14.72						
WVFS4	14.72						
WVFS5	14.72						
WVFS6	14.72						
WVFS7	14.72						
WVFS8	14.72						
CBLTEMP	14.72						
CBLROT	14.72						
WVF5FT	13.72						
				PRC-057 (000007)	2.74	2.75	32.00
				Production Roller Centraliser (4 Arm)			
MIT	4.65			MIT-027 (211111)	4.54	2.75	61.10
				Multifinger Imaging Tool (UW 40F)			
TSTAMP	0.00			PRC-017 (000002)	2.01	1.69	7.00
ITEMPX	0.00			Production Roller Centraliser (3 Arm)			
HVOLTX	0.00			BUL-001 (000001)	0.30	1.69	1.50
				Bullnose			
Dataset: FIXED_0512338342_Anadarko_Grenemyer 13N-2HZ_02-27-14_MIT_RBL.db: field/well/run1/main7 Total Length: 25.53 ft Total Weight: 266.60 lb O.D.: 3.13 in							

Calibration Report	
Database File:	C:\Warrior\Data\Anadarko_Grenemyer 13N-3HZ\FIXED_0512338342_Anadarko_Grenemyer 13N-
Dataset Pathname:	calpass
Dataset Creation:	Thu Feb 27 16:10:30 2014 by Log Sondex V7.03
Multi-finger Imaging Tool Calibration Report	
Serial Number:	211111
Number of Fingers:	40
Tool Model:	027

Inclinometer Calibration Report	
Performed:	Wed Nov 30 15:23:46 2005

Calibration Angle:

45

Vertical:		Inc X	Inc Y
Finger 1 up:		1934	1950
Finger 31 up:		1958	2277
Finger 21 up:		1593	1959
Finger 11 up:		1908	1606
		2263	1911
Sensitivity ratio:	0.998734		
X-axis angle:	274.18		
Deviation const.:	335.932		

## Finger Calibration Report

Performed:	Thu Feb 27 08:28:51 2014
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Ring size:	4		5		6		7
(in)		Sens		Sens		Sens	
Finger 01:	1049	403.0	1452	421.0	1873	399.0	2272
Finger 02:	1057	389.0	1446	417.0	1863	397.0	2260
Finger 03:	1084	380.0	1464	414.0	1878	389.0	2267
Finger 04:	1054	378.0	1432	421.0	1853	407.0	2260
Finger 05:	1068	369.0	1437	417.0	1854	404.0	2258
Finger 06:	1055	366.0	1421	424.0	1845	416.0	2261
Finger 07:	1182	328.0	1510	380.0	1890	380.0	2270
Finger 08:	1088	343.0	1431	418.0	1849	414.0	2263
Finger 09:	1070	348.0	1418	417.0	1835	426.0	2261
Finger 10:	1078	348.0	1426	419.0	1845	433.0	2278
Finger 11:	1093	345.0	1438	415.0	1853	429.0	2282
Finger 12:	1246	305.0	1551	364.0	1915	375.0	2290
Finger 13:	1152	323.0	1475	396.0	1871	431.0	2302
Finger 14:	1238	307.0	1545	370.0	1915	402.0	2317
Finger 15:	1102	343.0	1445	419.0	1864	469.0	2333
Finger 16:	1185	327.0	1512	399.0	1911	432.0	2343
Finger 17:	1122	345.0	1467	410.0	1877	474.0	2351
Finger 18:	1108	346.0	1454	416.0	1870	484.0	2354
Finger 19:	1108	353.0	1461	416.0	1877	489.0	2366
Finger 20:	1193	348.0	1541	388.0	1929	462.0	2391
Finger 21:	1163	367.0	1530	407.0	1937	478.0	2415
Finger 22:	1164	369.0	1533	401.0	1934	471.0	2405
Finger 23:	1136	370.0	1506	412.0	1918	494.0	2412
Finger 24:	1289	346.0	1635	355.0	1990	417.0	2407
Finger 25:	1244	364.0	1608	377.0	1985	423.0	2408
Finger 26:	1289	359.0	1648	352.0	2000	398.0	2398
Finger 27:	1267	368.0	1635	360.0	1995	411.0	2406
Finger 28:	1292	375.0	1667	355.0	2022	393.0	2415
Finger 29:	1290	368.0	1658	353.0	2011	383.0	2394
Finger 30:	1269	371.0	1640	356.0	1996	391.0	2387
Finger 31:	1285	382.0	1667	366.0	2033	376.0	2409
Finger 32:	1292	376.0	1668	348.0	2016	357.0	2373
Finger 33:	1126	418.0	1544	409.0	1953	421.0	2374
Finger 34:	1186	402.0	1588	388.0	1976	386.0	2362
Finger 35:	1259	393.0	1652	367.0	2019	362.0	2381
Finger 36:	1220	387.0	1607	372.0	1979	362.0	2341
Finger 37:	1119	410.0	1529	404.0	1933	395.0	2328
Finger 38:	1135	396.0	1531	394.0	1925	375.0	2300
Finger 39:	1056	406.0	1462	416.0	1878	405.0	2283
Finger 40:	1073	393.0	1466	413.0	1879	392.0	2271

## Post Survey Calibration Check

Performed:	Thu Feb 27 16:09:57 2014
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Ring size:	4	Nom.	5	Nom.	6	Nom.	7	Nom.
(in)		wear		wear		wear		wear
Finger 01:	4.001	0.001	4.995	-0.002	5.985	-0.007	6.992	-0.004
Finger 02:	4.009	0.005	5.004	0.002	5.993	-0.003	7.001	0.000
Finger 03:	3.997	-0.002	4.997	-0.002	5.993	-0.003	7.006	0.003

Finger 04:	3.994	-0.003	5.001	0.001	5.994	-0.003	6.996	-0.002
Finger 05:	3.993	-0.003	4.998	-0.001	5.987	-0.007	6.985	-0.008
Finger 06:	4.001	0.000	4.999	-0.000	5.996	-0.002	6.990	-0.005
Finger 07:	3.991	-0.004	4.989	-0.006	5.991	-0.005	6.994	-0.003
Finger 08:	3.996	-0.002	5.001	0.001	6.001	0.001	6.997	-0.002
Finger 09:	4.000	0.000	4.999	-0.000	5.997	-0.002	6.990	-0.005
Finger 10:	3.998	-0.001	4.995	-0.003	5.997	-0.001	6.989	-0.006
Finger 11:	4.009	0.004	4.997	-0.002	5.992	-0.004	6.996	-0.002
Finger 12:	3.997	-0.002	5.002	0.001	5.998	-0.001	7.001	0.001
Finger 13:	3.990	-0.005	5.002	0.001	5.994	-0.003	7.000	-0.000
Finger 14:	4.003	0.002	5.006	0.003	5.989	-0.005	6.999	-0.000
Finger 15:	3.994	-0.003	4.995	-0.002	5.994	-0.003	7.001	0.000
Finger 16:	3.994	-0.003	5.005	0.003	5.990	-0.005	6.999	-0.001
Finger 17:	4.006	0.003	4.999	-0.001	5.989	-0.005	6.985	-0.008
Finger 18:	3.986	-0.007	4.997	-0.002	5.982	-0.009	6.989	-0.006
Finger 19:	4.000	0.000	5.024	0.012	5.986	-0.007	6.985	-0.008
Finger 20:	3.991	-0.004	4.995	-0.003	5.990	-0.005	6.995	-0.002
Finger 21:	4.005	0.002	4.998	-0.001	5.985	-0.007	6.988	-0.006
Finger 22:	3.988	-0.006	4.988	-0.006	5.968	-0.016	6.969	-0.016
Finger 23:	4.001	0.001	4.999	-0.001	5.992	-0.004	7.008	0.004
Finger 24:	3.993	-0.003	4.992	-0.004	5.992	-0.004	7.001	0.001
Finger 25:	3.996	-0.002	4.998	-0.001	5.988	-0.006	6.999	-0.001
Finger 26:	4.000	-0.000	5.003	0.002	6.001	0.001	6.987	-0.007
Finger 27:	3.995	-0.002	4.996	-0.002	5.998	-0.001	6.984	-0.008
Finger 28:	4.007	0.003	5.001	0.001	6.003	0.001	7.000	-0.000
Finger 29:	4.001	0.001	4.998	-0.001	6.001	0.000	6.983	-0.009
Finger 30:	3.998	-0.001	4.998	-0.001	6.011	0.005	7.020	0.010
Finger 31:	3.993	-0.004	5.006	0.003	5.985	-0.008	6.991	-0.004
Finger 32:	3.999	-0.000	4.996	-0.002	6.001	0.001	7.008	0.004
Finger 33:	3.999	-0.001	4.993	-0.004	5.993	-0.003	6.996	-0.002
Finger 34:	3.996	-0.002	4.997	-0.002	5.990	-0.005	7.003	0.002
Finger 35:	3.998	-0.001	5.018	0.009	5.973	-0.014	6.967	-0.016
Finger 36:	3.999	-0.001	5.005	0.003	5.992	-0.004	7.008	0.004
Finger 37:	3.996	-0.002	4.996	-0.002	5.983	-0.009	6.980	-0.010
Finger 38:	3.986	-0.007	4.993	-0.003	5.978	-0.011	6.990	-0.005
Finger 39:	3.992	-0.004	5.000	0.000	5.992	-0.004	6.981	-0.009
Finger 40:	3.995	-0.002	5.005	0.002	5.988	-0.006	6.991	-0.005
Average:	3.997	-0.001	4.999	-0.000	5.991	-0.004	6.994	-0.003

Segmented Cement Bond Log Calibration Report
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Serial Number:	1066in7		
Tool Model:	004		
Calibration Casing Diameter:	7.000	in	
Calibration Depth:	1311.828	ft	

Master Calibration, performed Thu Feb 27 09:29:31 2014:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.002	0.584	0.800	62.165	105.544	0.550
5FT	0.007	0.563	0.800	62.165	110.506	-0.013
S1	0.012	0.537	0.000	100.000	190.401	-2.324
S2	0.015	0.548	0.000	100.000	187.598	-2.874
S3	0.018	0.569	0.000	100.000	181.653	-3.293
S4	0.016	0.597	0.000	100.000	172.065	-2.787
S5	0.005	0.615	0.000	100.000	164.067	-0.897
S6	0.001	0.620	0.000	100.000	161.712	-0.197
S7	0.006	0.603	0.000	100.000	167.458	-0.989
S8	0.002	0.562	0.000	100.000	178.452	-0.379

# 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	Grenemyer 13N-3HZ
Field	Wattenberg
County	Weld
State	Colorado