



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company				Kerr-McGee Oil & Gas Onshore, L.P.			
Well				Lansdown State 4C-21HZ			
Field				Wattenberg			
County				Weld			
State				Colorado			
Location:				API # : 05-123-39043			
Permanent Datum				SHL: 919' FSL, 622' FWL, SWSW			
Log Measured From				Lat / Long: 40.11887 / -104.78948			
Drilling Measured From				SEC 21 TWP 2N RGE 66W			
Ground Level				Elevation 4,935'			
Kelly Bushing				16 FT			
Kelly Bushing				K.B. 4,951'			
				D.F. 4,950'			
				G.L. 4,935'			
Elevation				Plug MIT Gauge ring			
Date				31-MAY-14			
Run Number				Three			
Depth Driller				---			
Depth Logger				6,928 FT			
Bottom Logged Interval				6,928 FT			
Top Log Interval				Surface			
Open Hole Size				8.750"			
Type Fluid				Water			
Density / Viscosity				8.34 lbm/gal			
Max. Recorded Temp.				215°F			
Estimated Cement Top				206 FT			
Time Well Ready				ROA			
Time Logger on Bottom				14:45			
Equipment Number				HD-0119			
Location				Fort Lupton, CO			
Recorded By				H. Raby			
Witnessed By				Kent Evers			
Borehole Record				Tubing Record			
Run Number				Bit From To Size Weight From To			
Casing Record				Size (in) Wgt (lbs/ft) Grade Top Bottom			
Surface Casing				9 5/8" 36 J-55 LTC Surface 1,242 FT			
Intermediate #1				7" 26 P-110 Surface 7,868 FT			
Intermediate #2				4 1/2" 11.6 HCP-110 6,901 FT ---			
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

Log ran as per Customer request.  
Depth reference to Casing Talley reported Liner top @ 6,901 FT.  
Adjusted log 16.0 FT to correlate with Liner Top.  
Log ran to surface.  
Log ran with 2800 PSI surface induced pressure.  
No debris found on logging tools upon completion of operations.  
  
Thank you for choosing FMC Technologies Completion Services, Inc.!!



Main Pass

Recorded with 2800 PSI surface induced pressure.

Database File: 0512339043\_anadarko\_lansdown state 4c-21hz\_05-31-14\_mit\_rbl.db

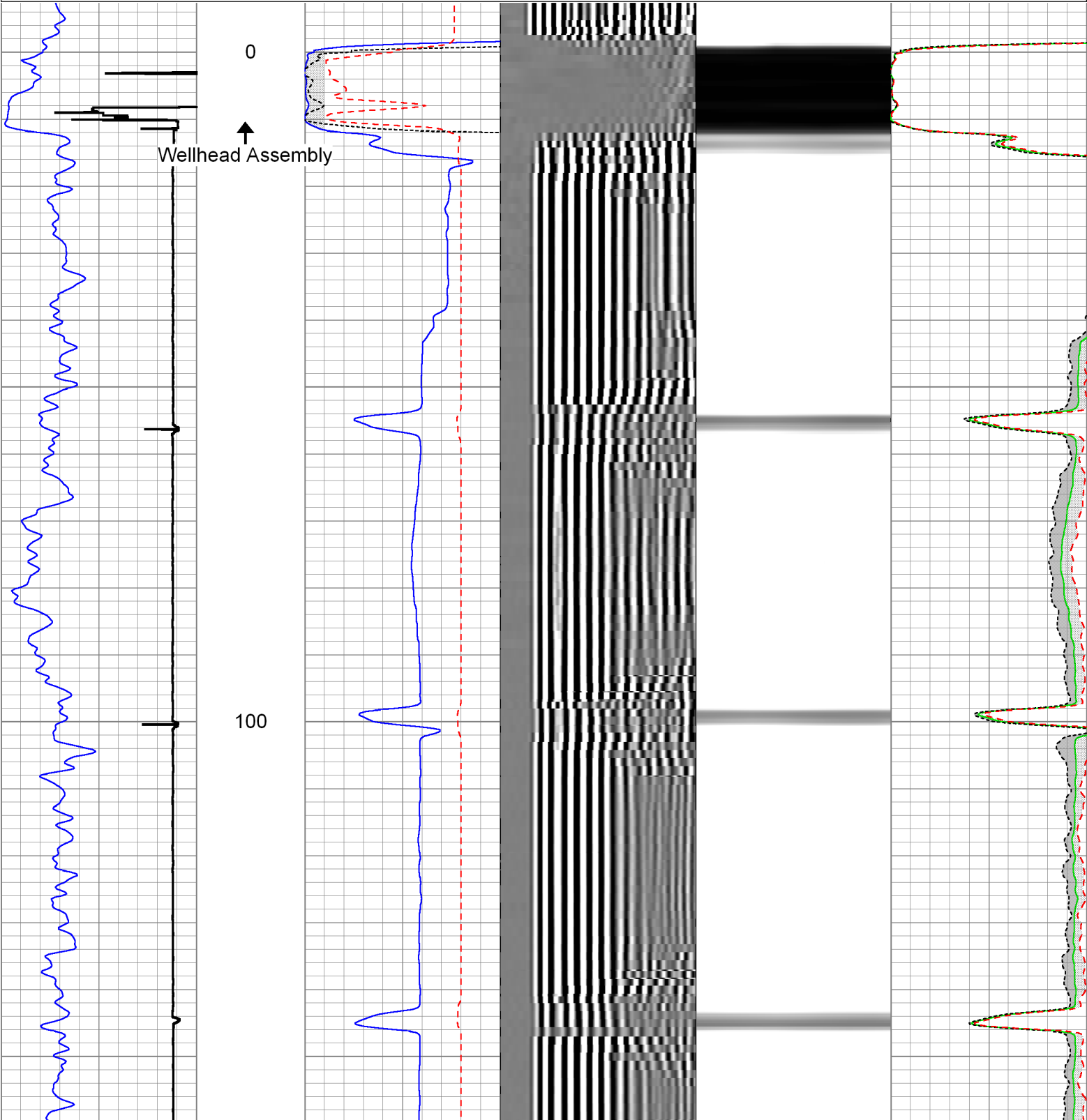
Dataset Pathname: pass5

Presentation Format: rbt004

Dataset Creation: Sat May 31 14:41:06 2014 by Log SCH 111116

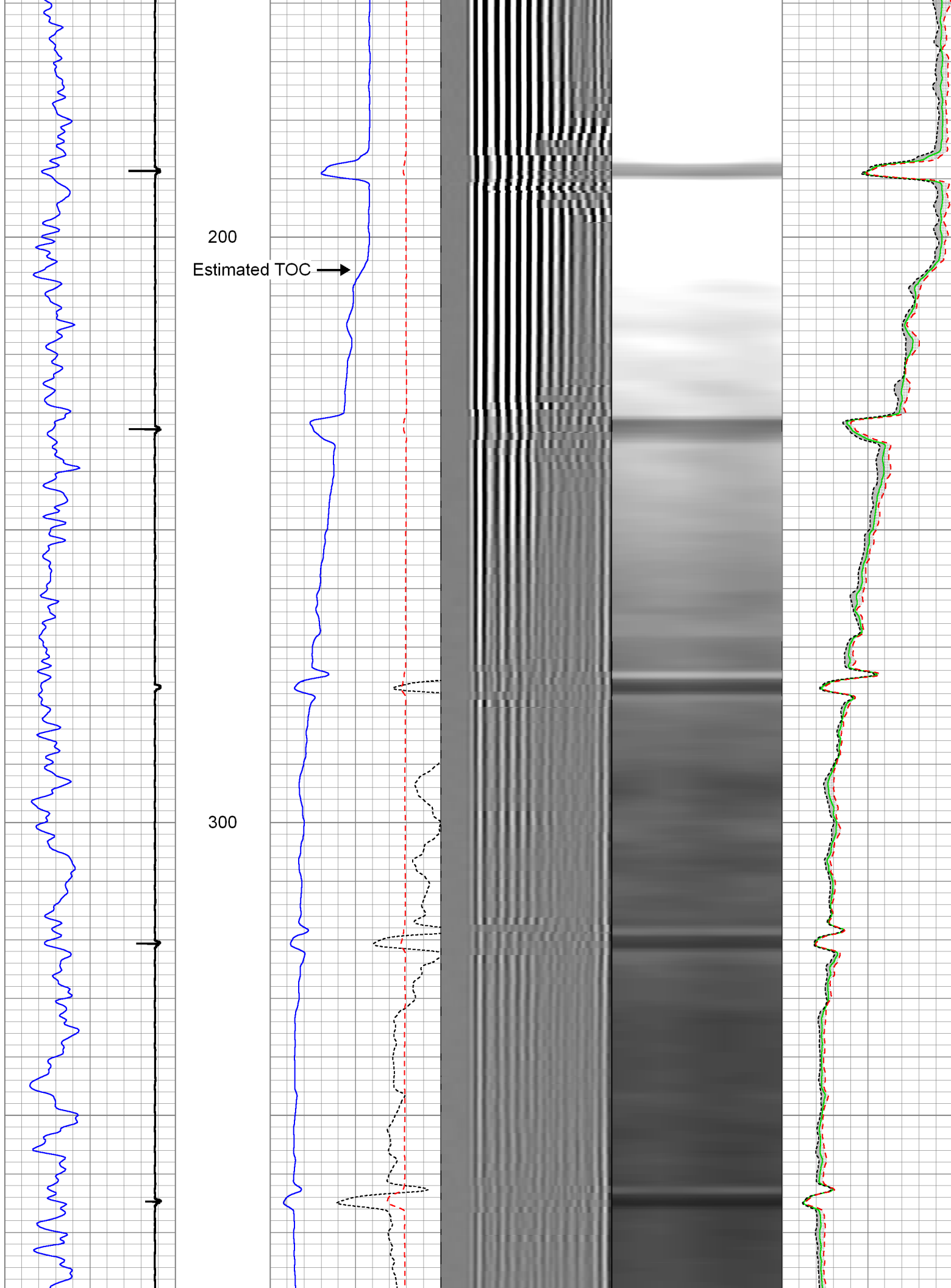
Charted by: Depth in Feet scaled 1:240

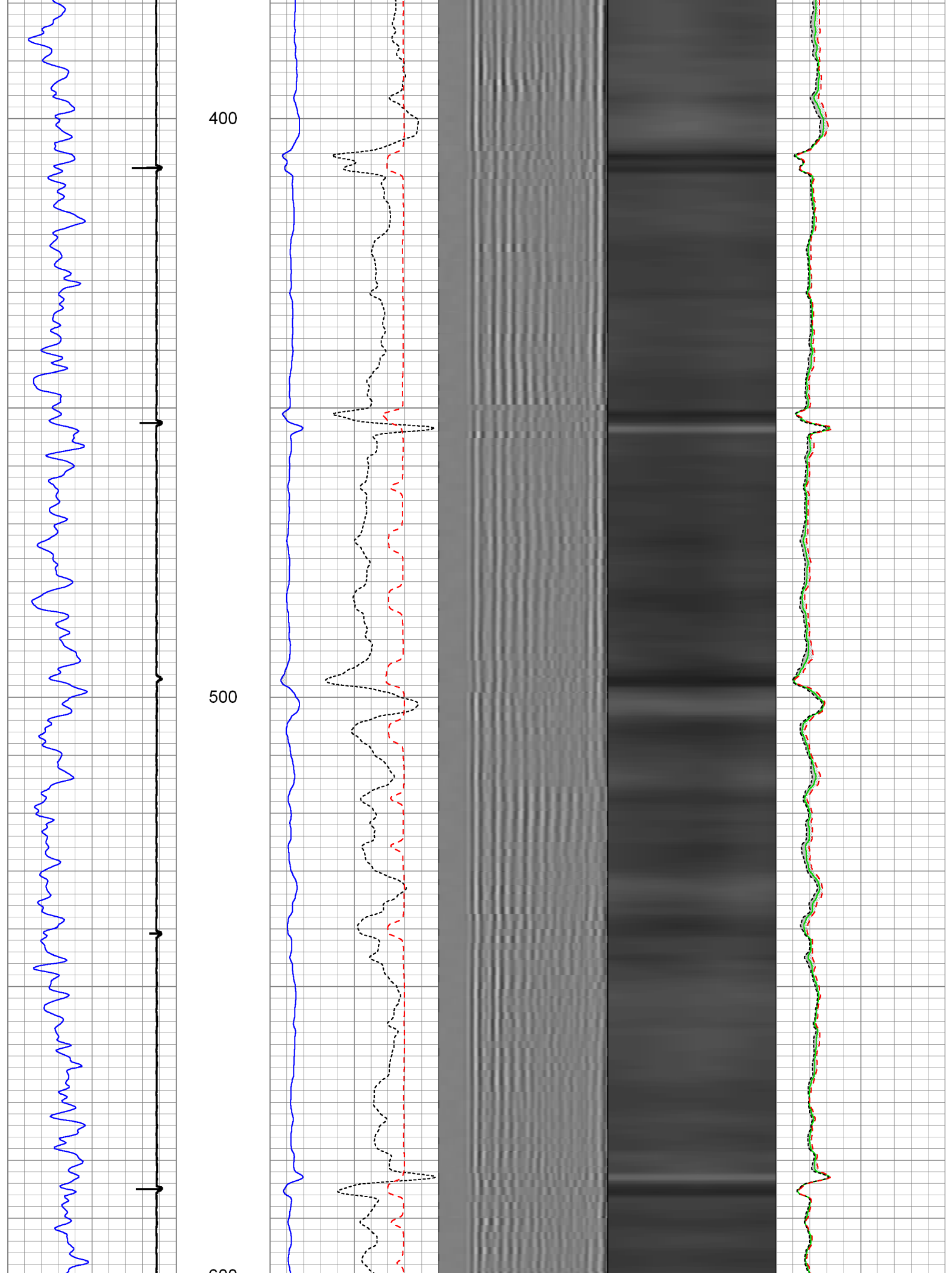
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum Amplitude
	0 (mV) 20			0 100
	3' Travel Time			Maximum Amplitude
	650 (usec) 150			0 100



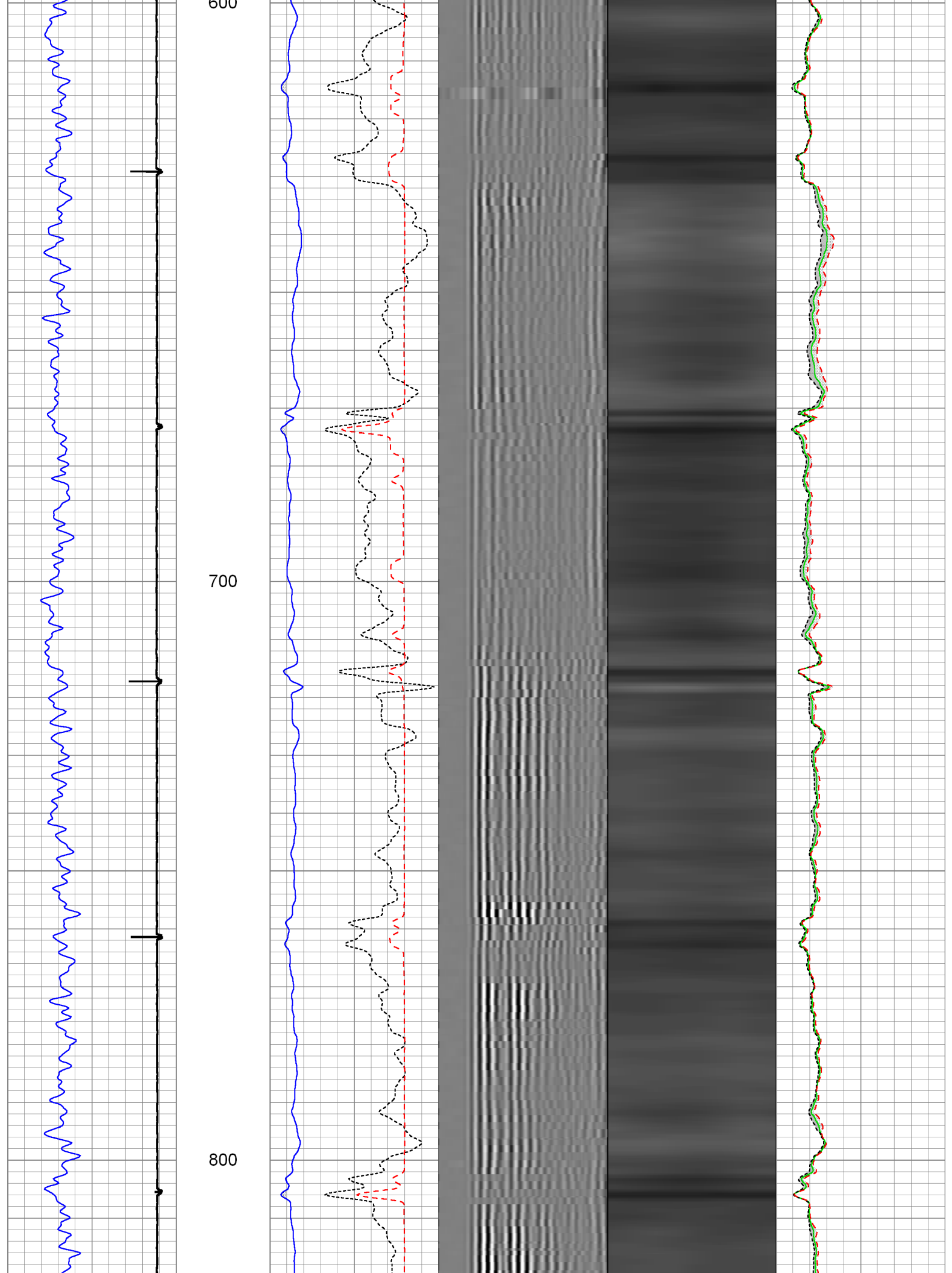
200  
Estimated TOC →

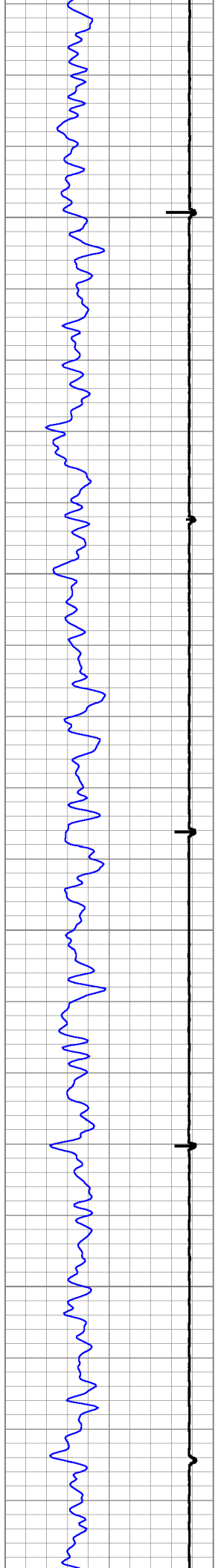
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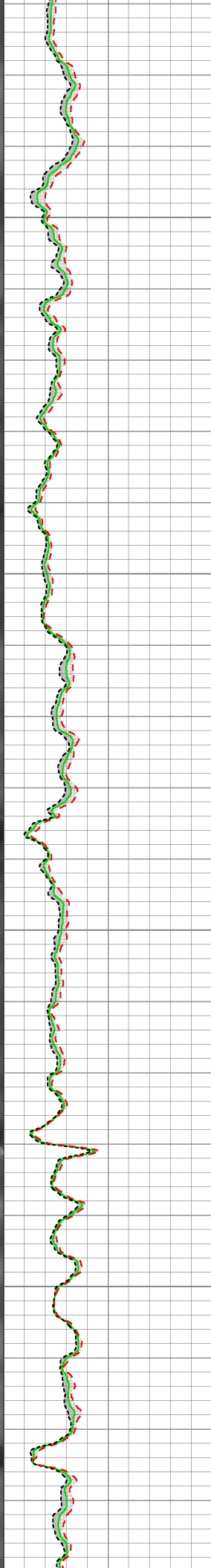
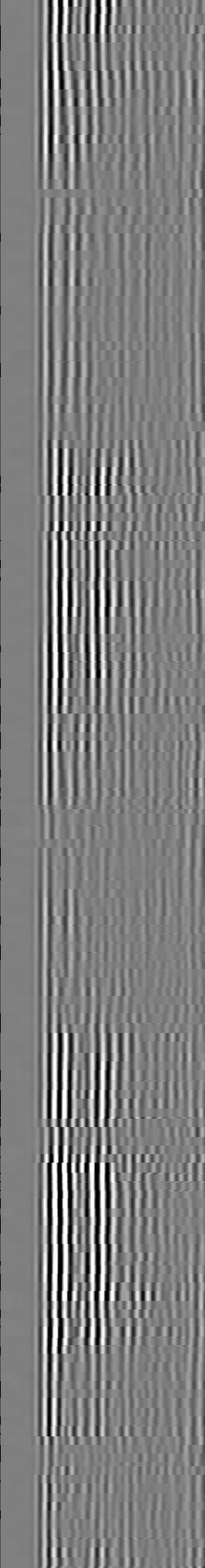
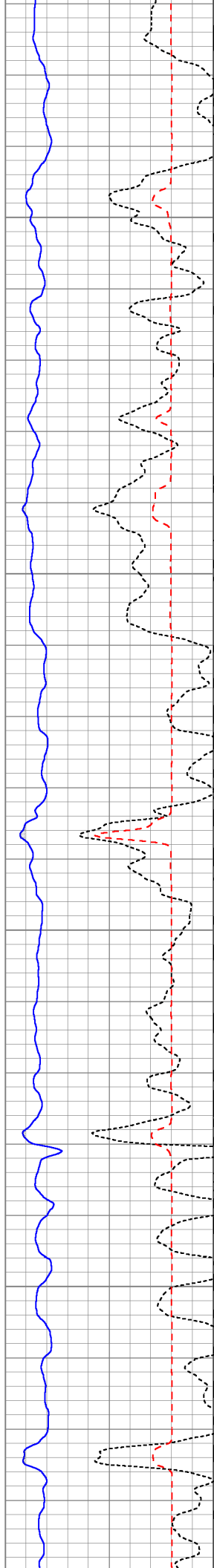


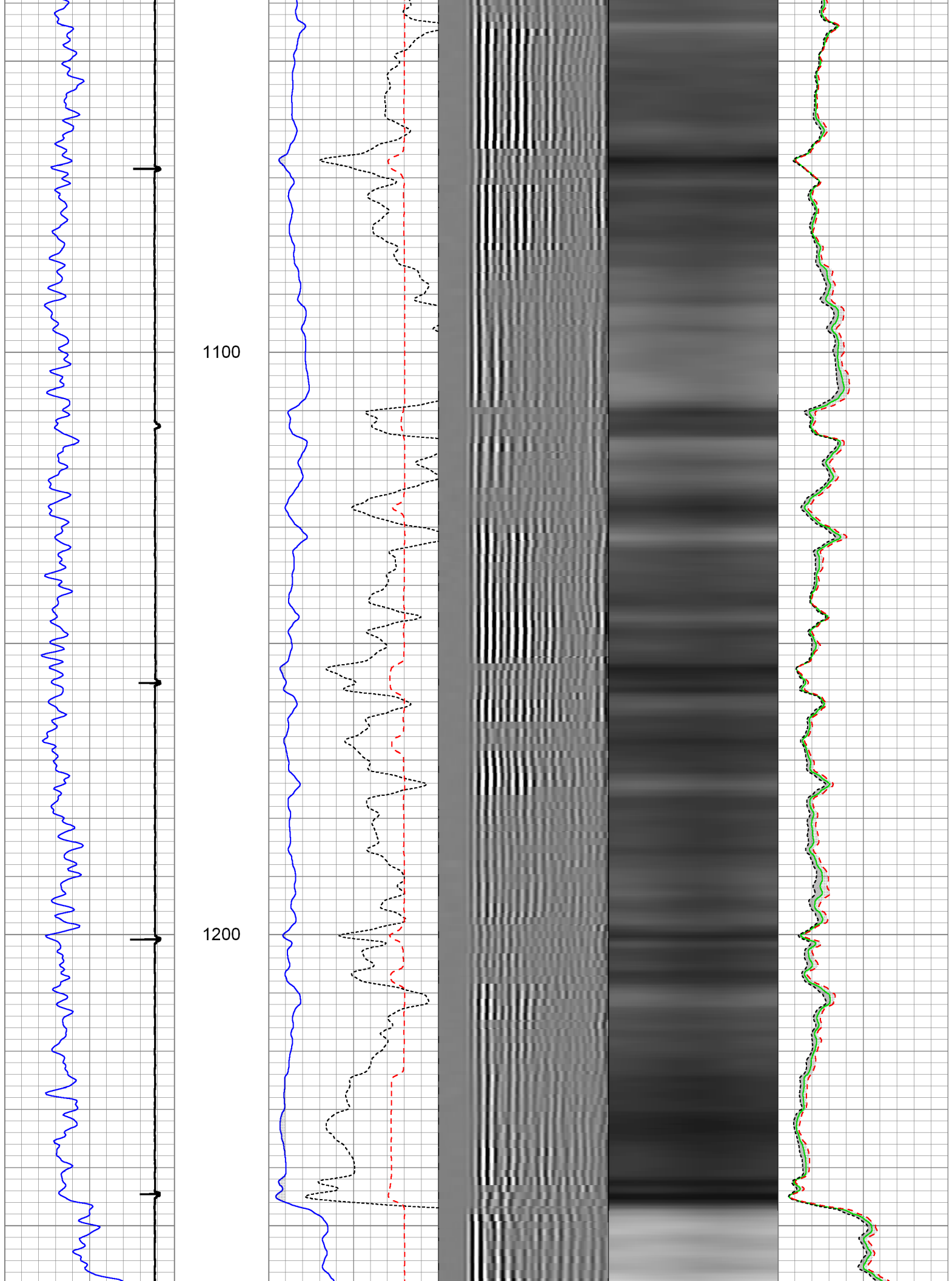




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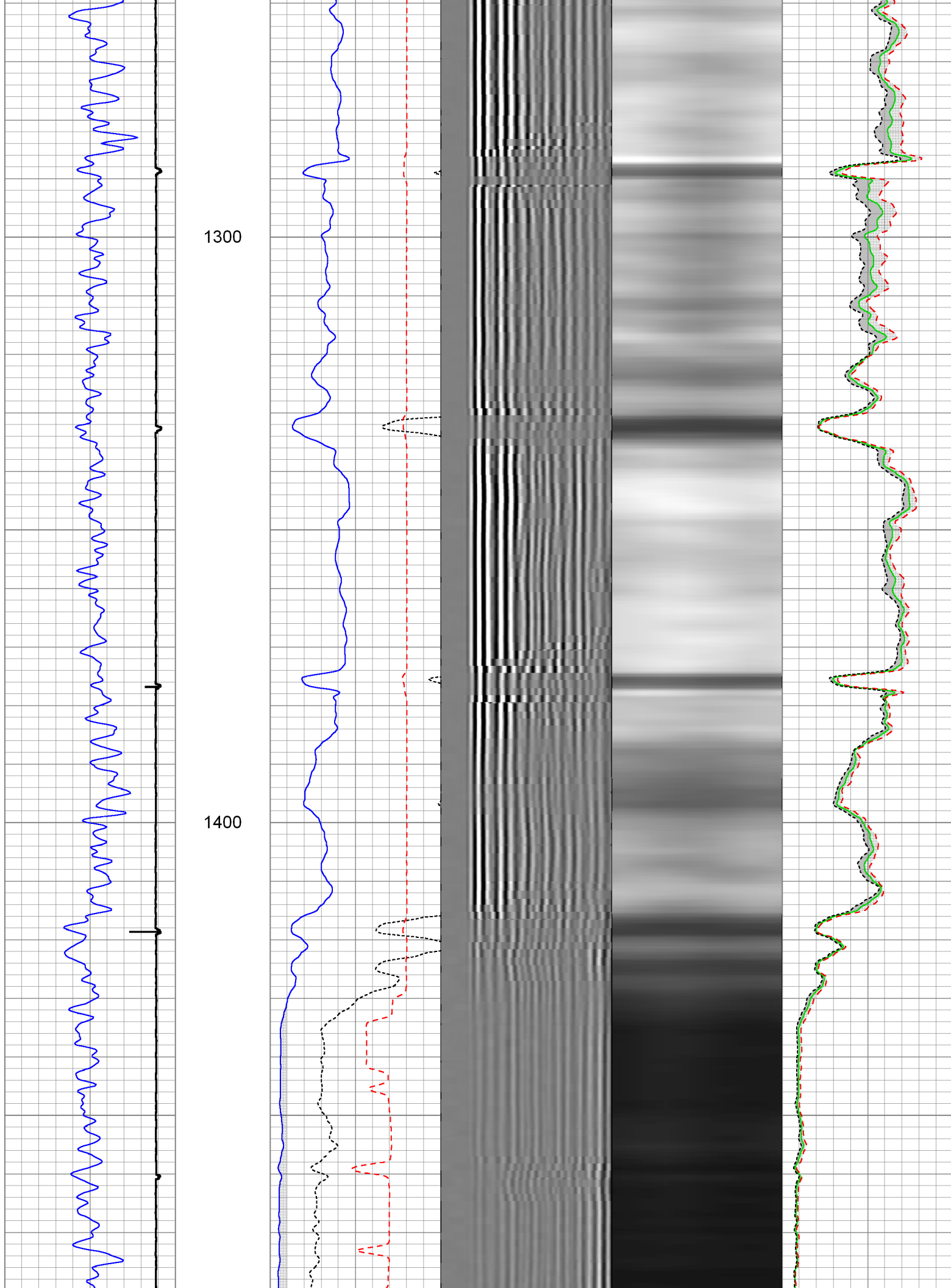
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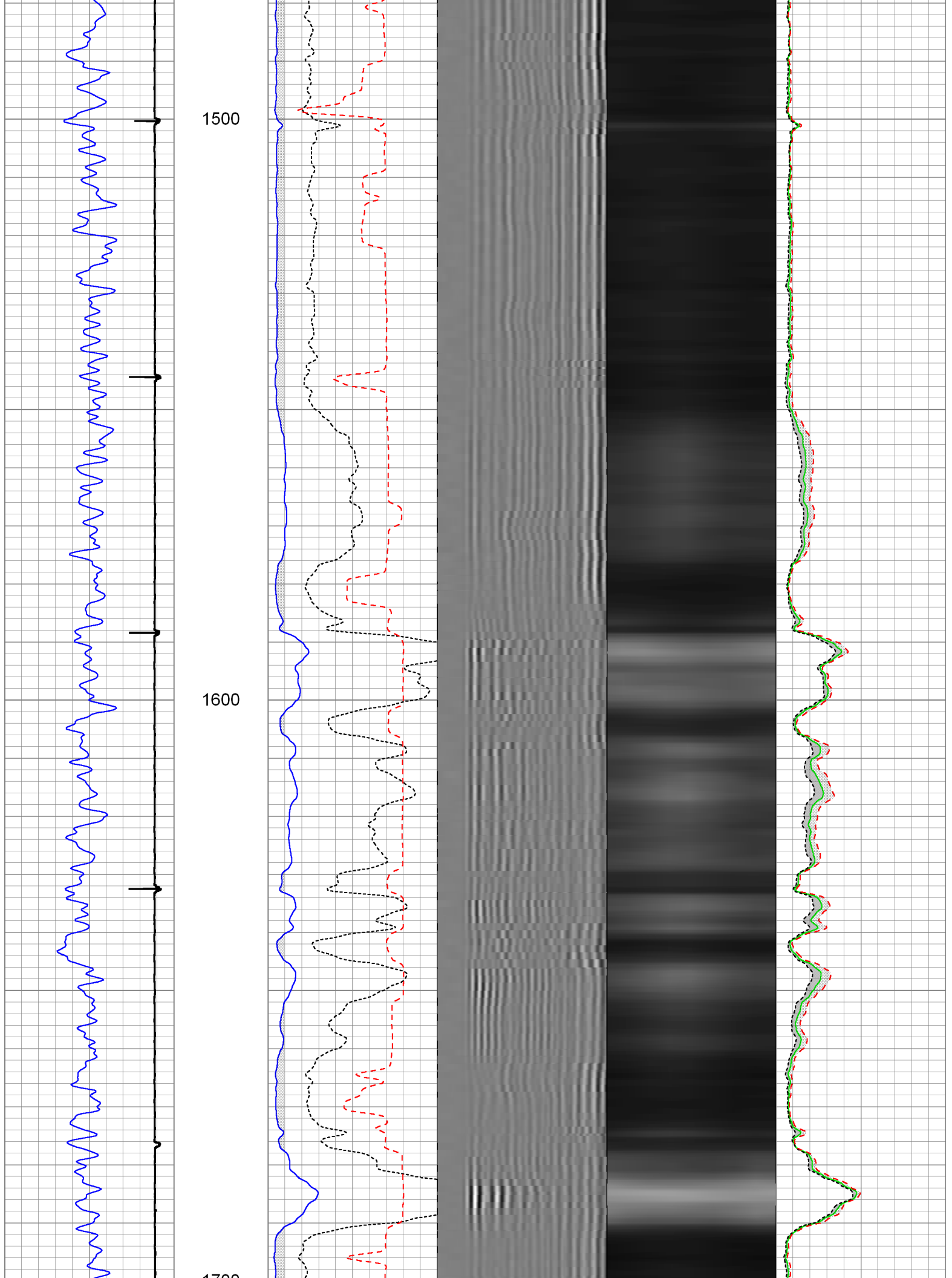




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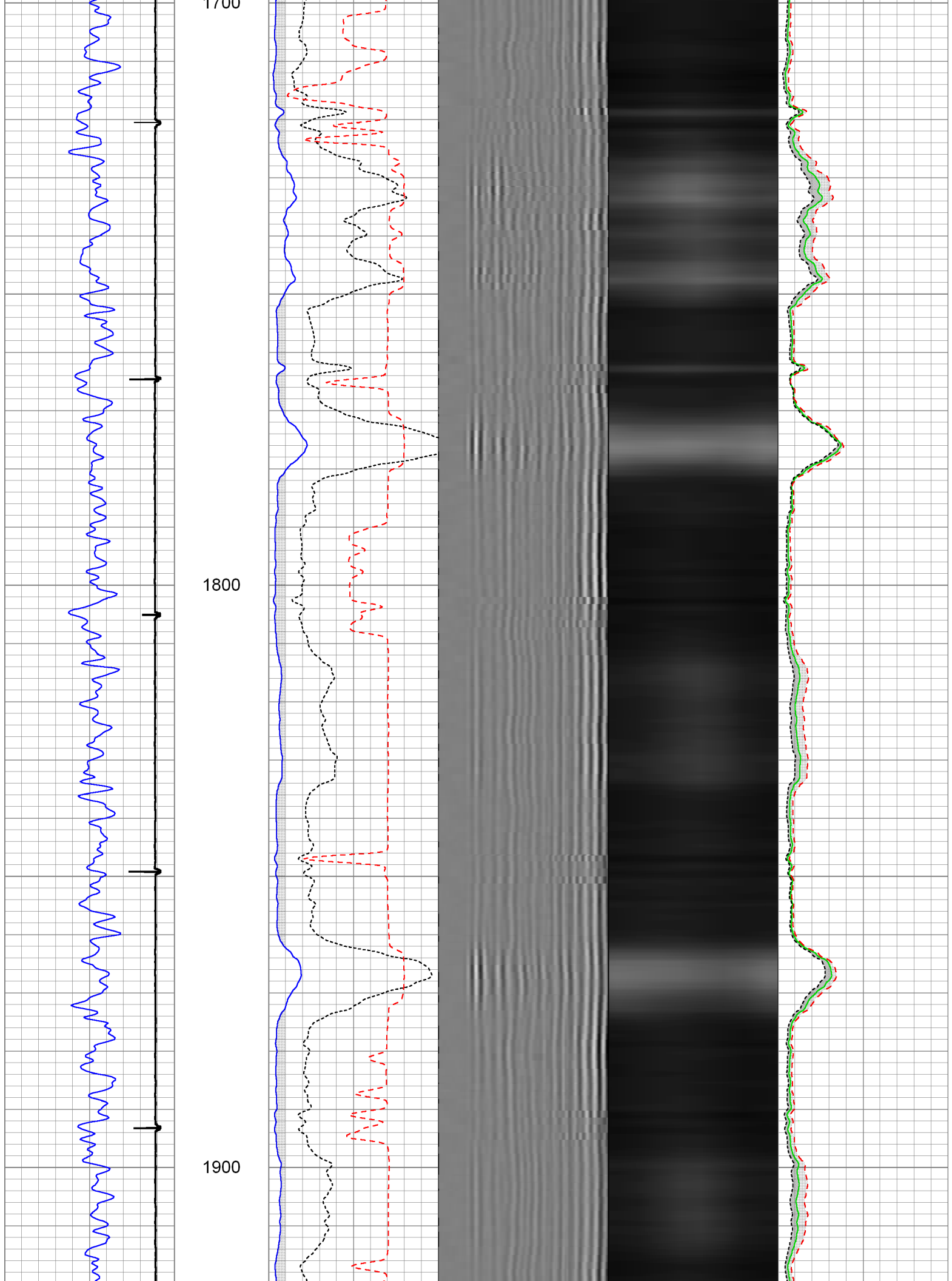




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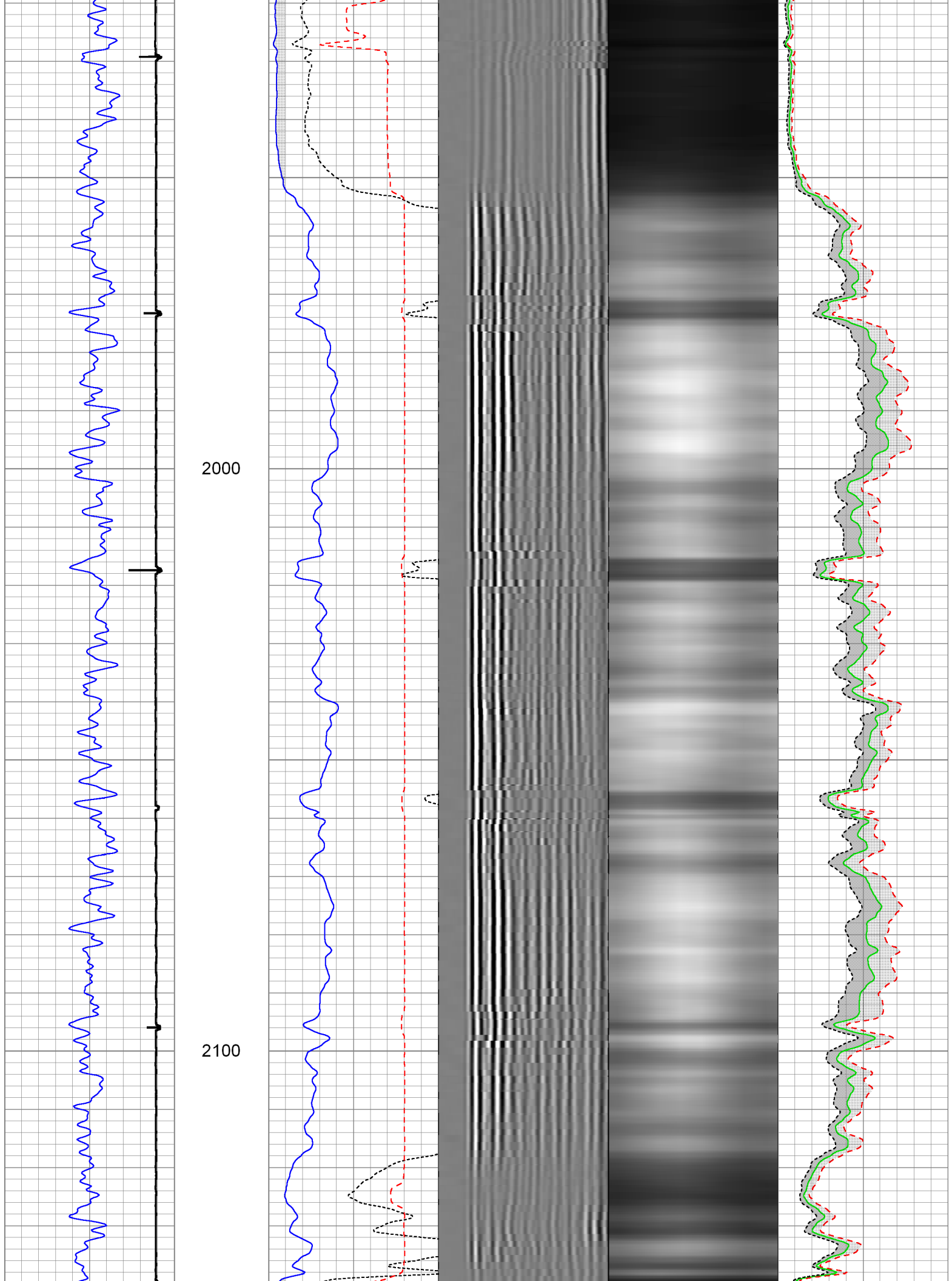
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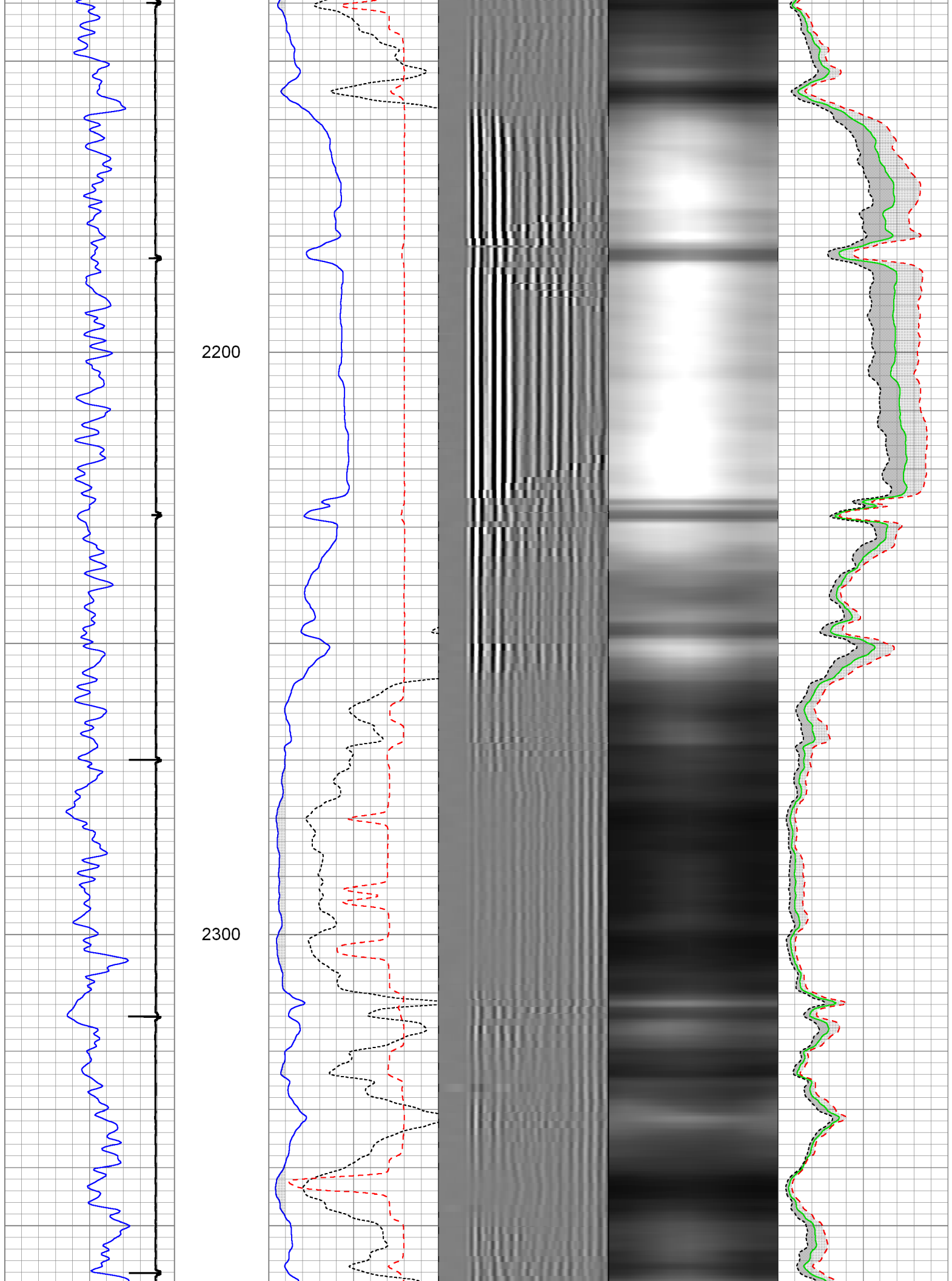


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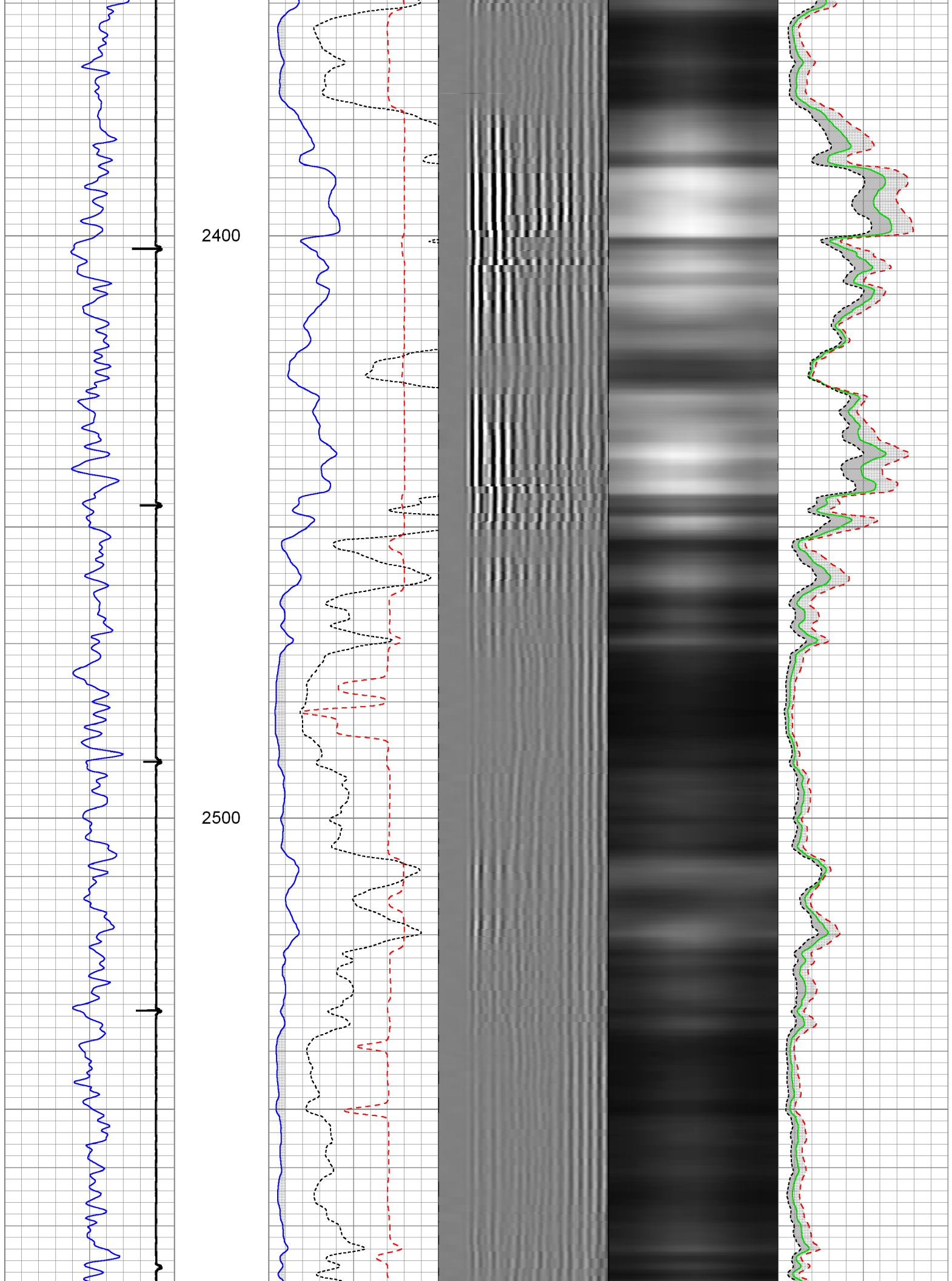
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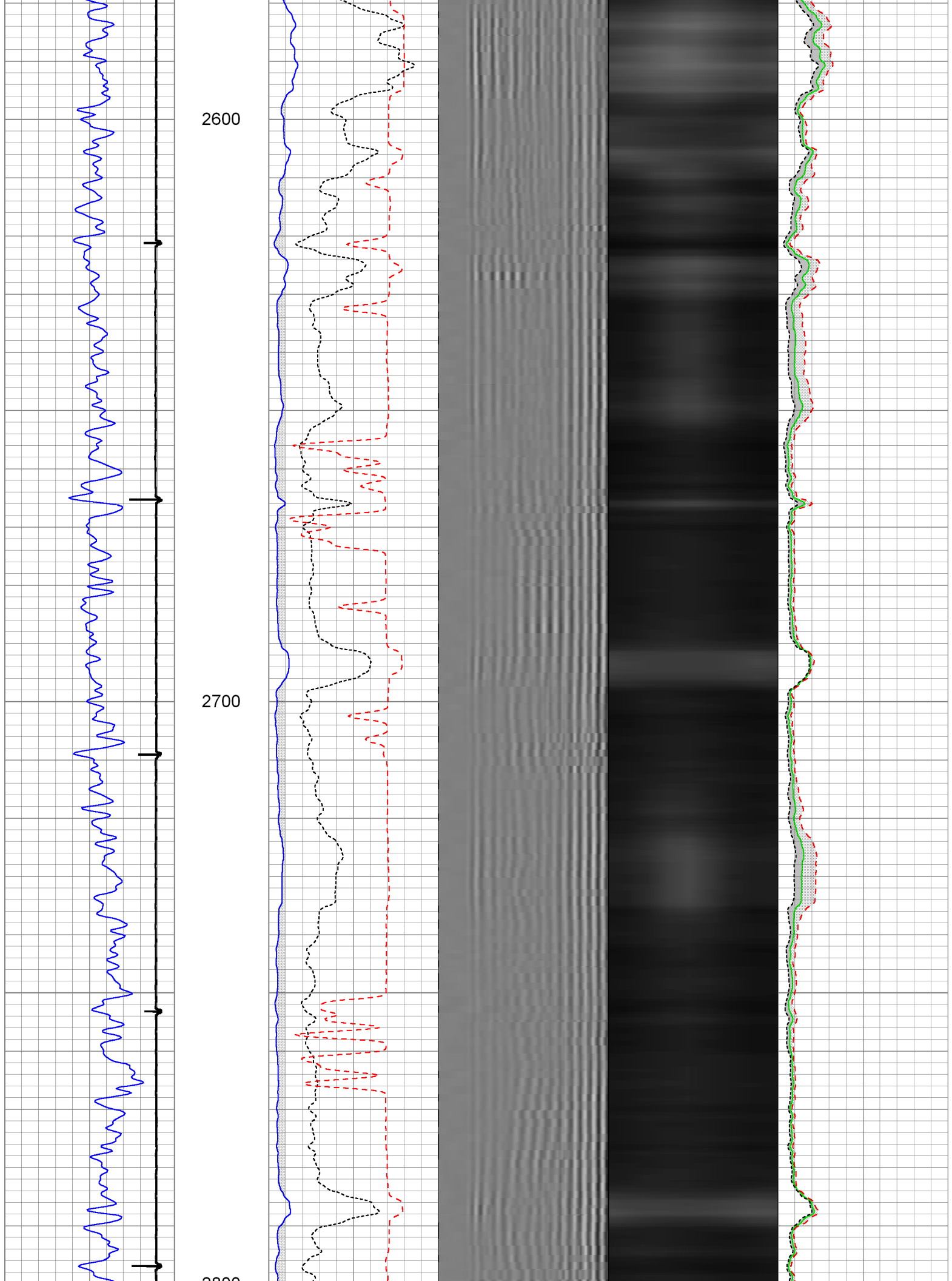




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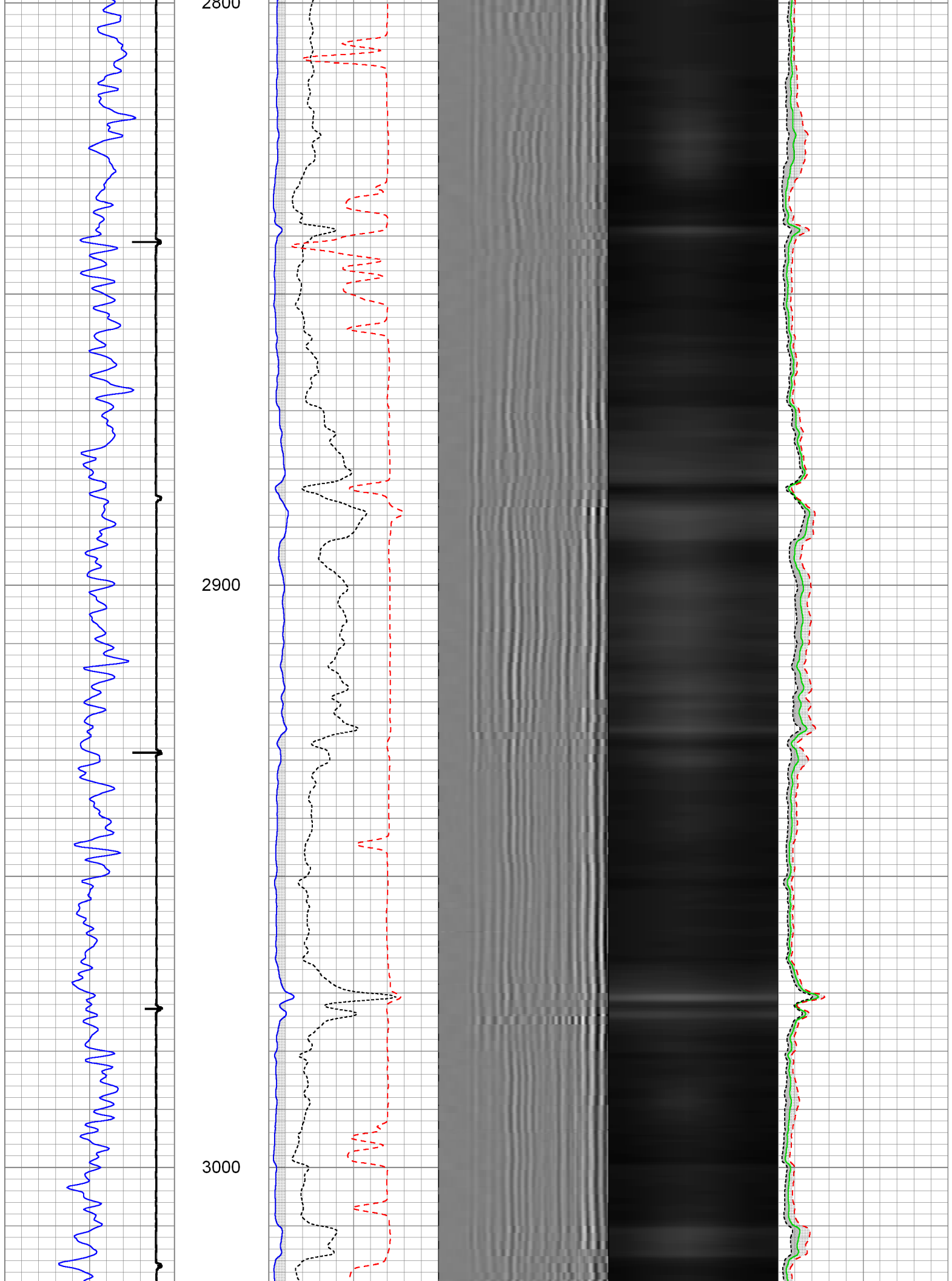
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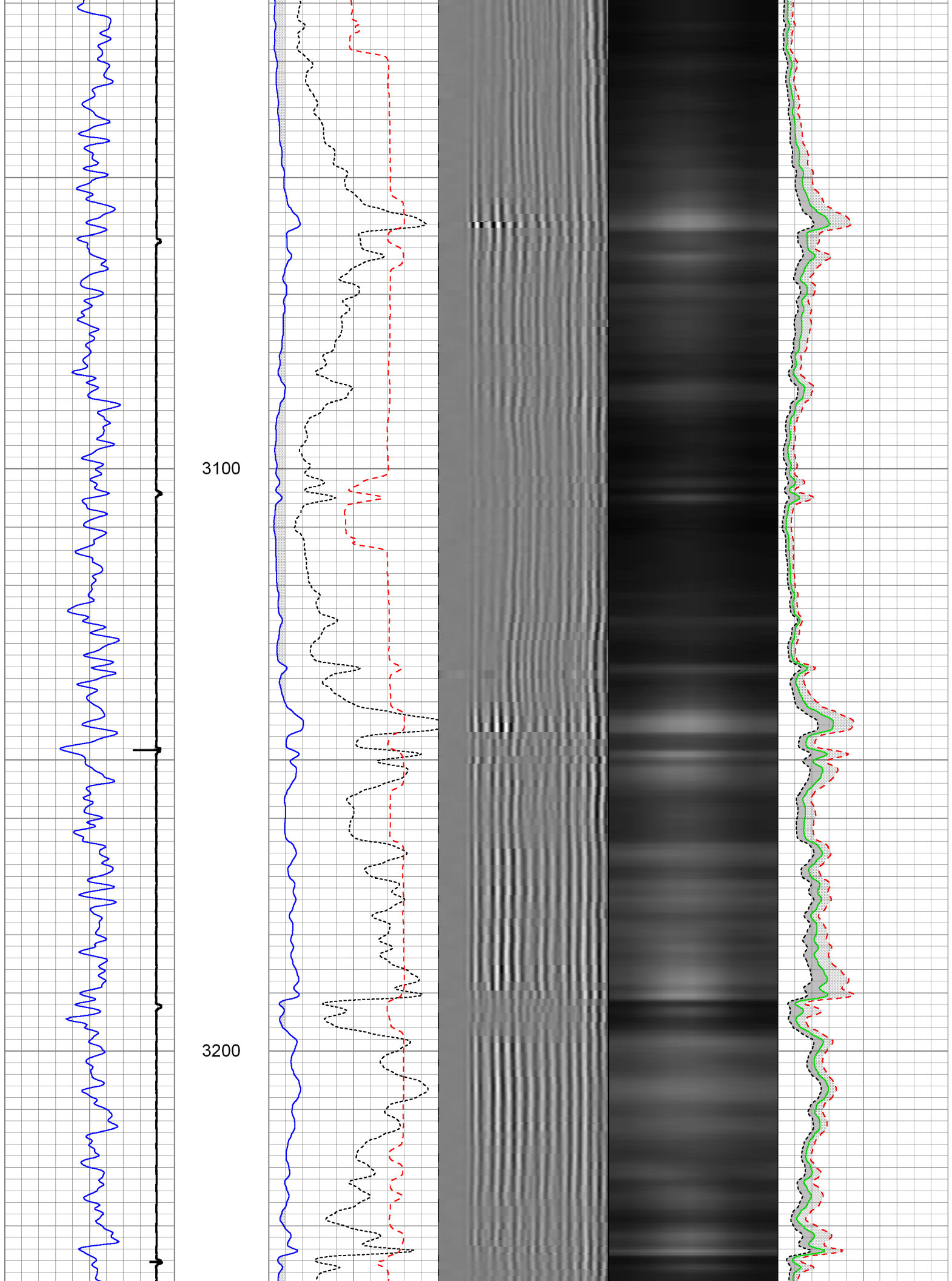


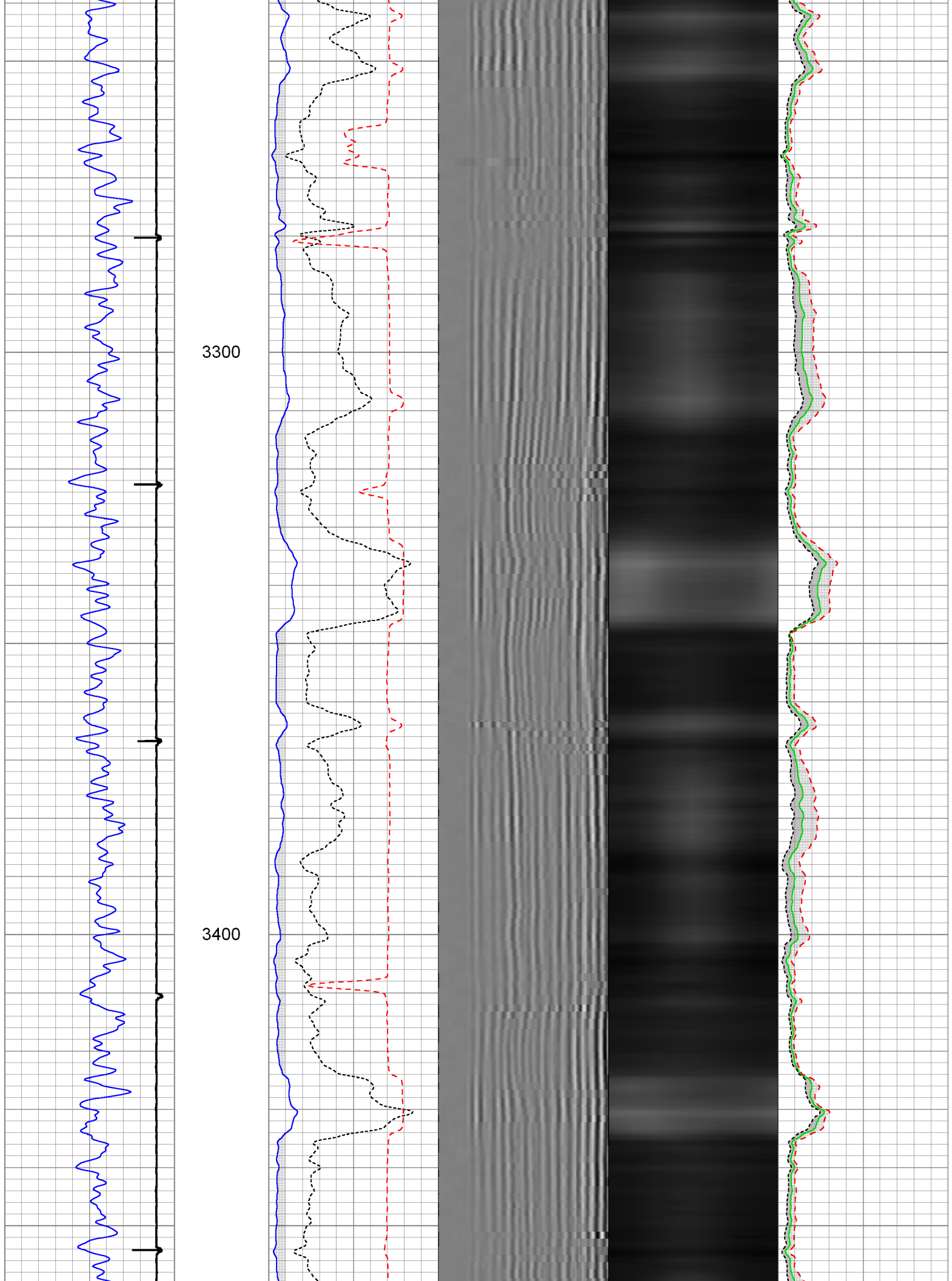
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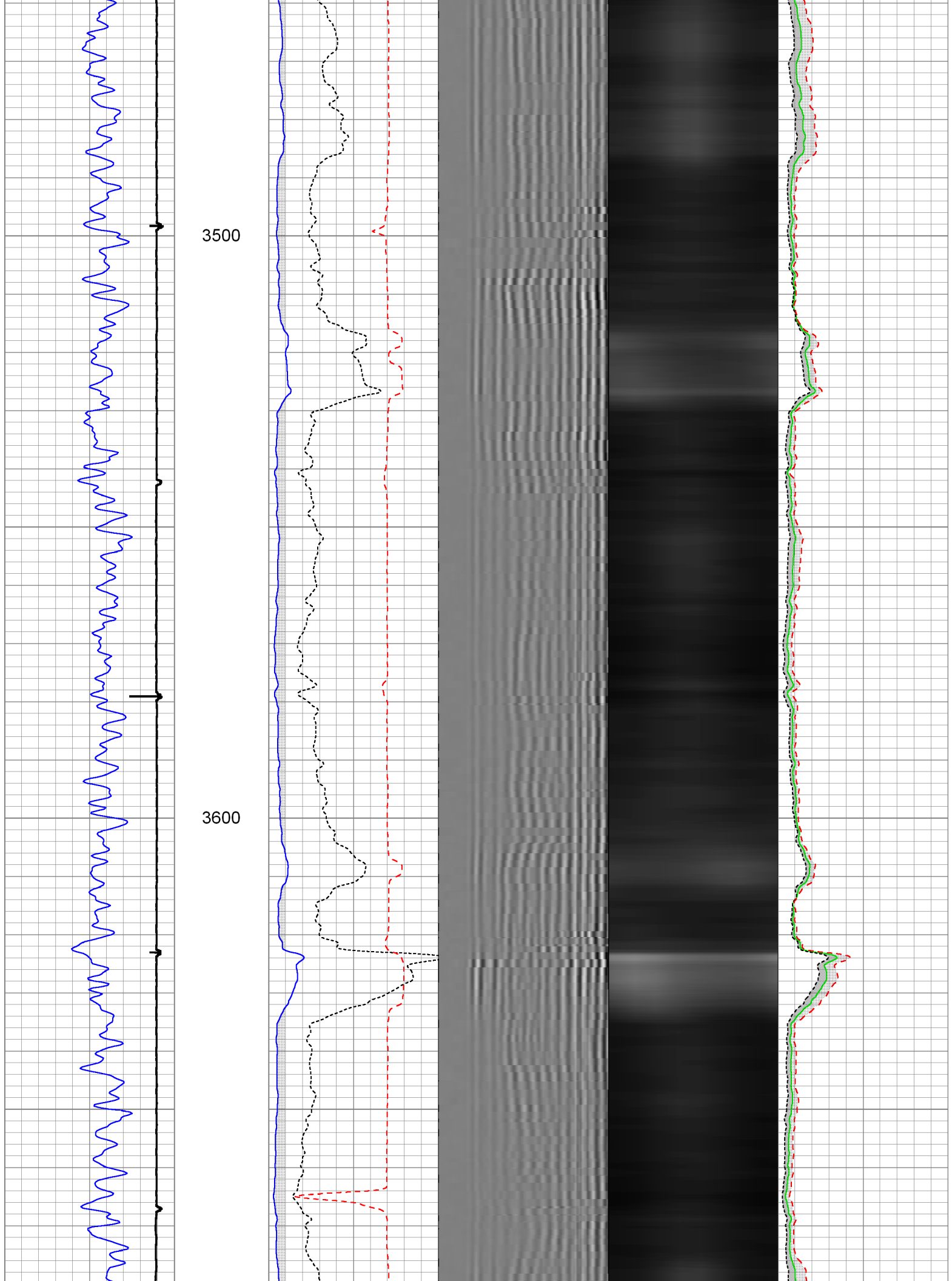
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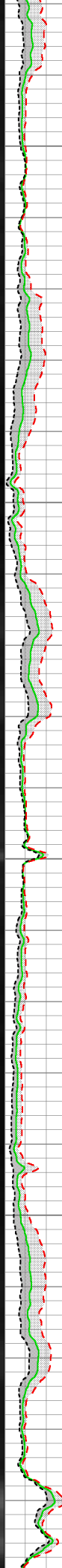
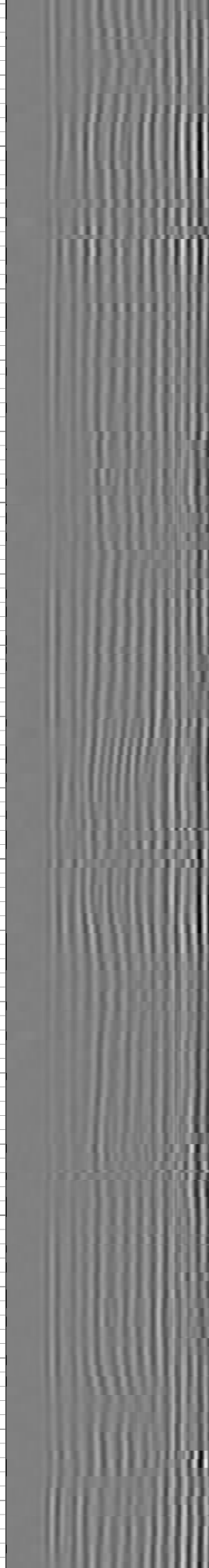
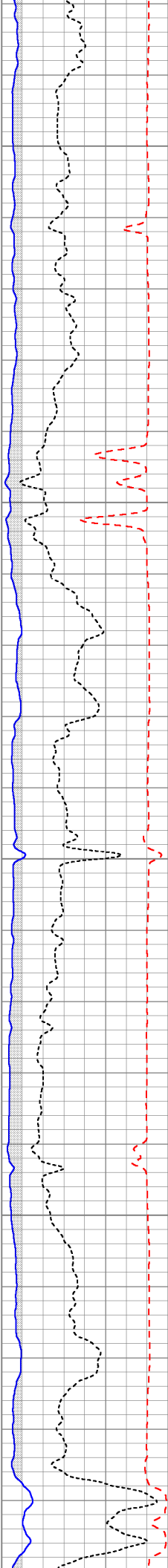
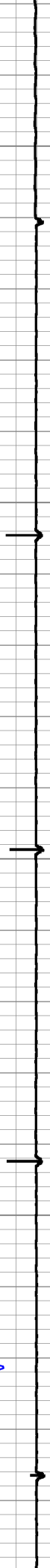
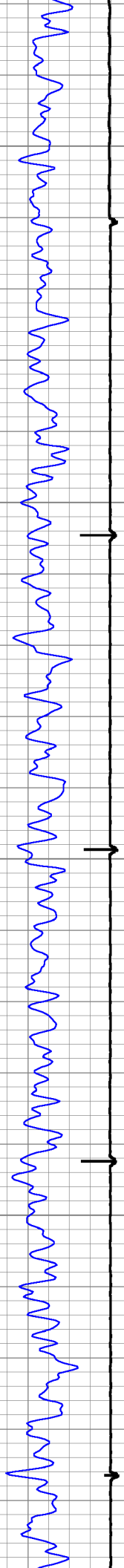




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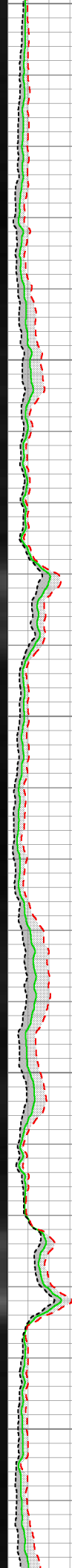
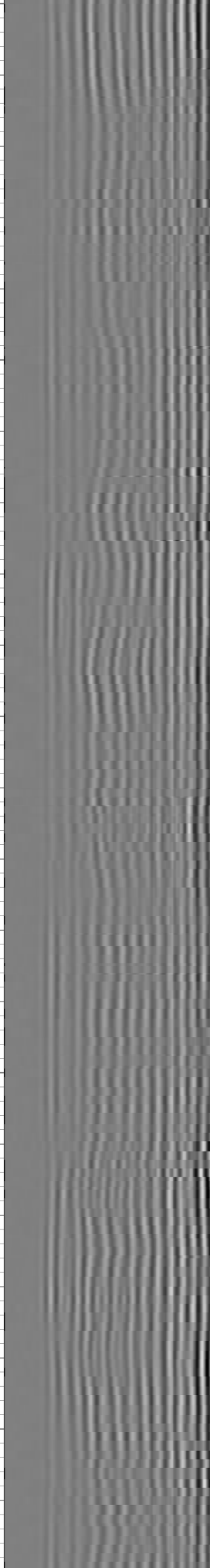
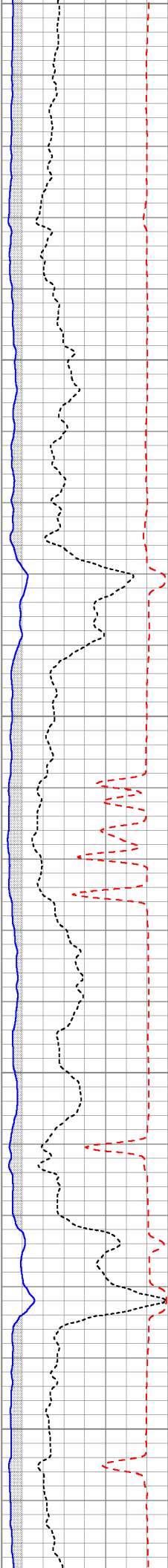
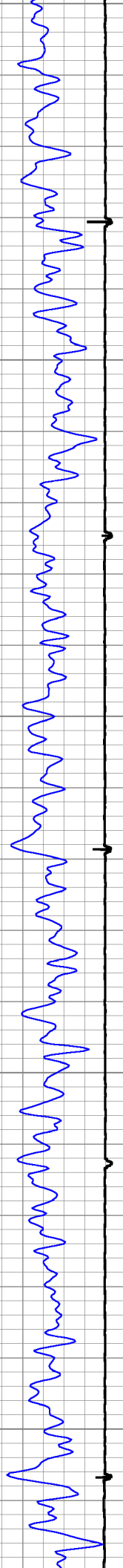




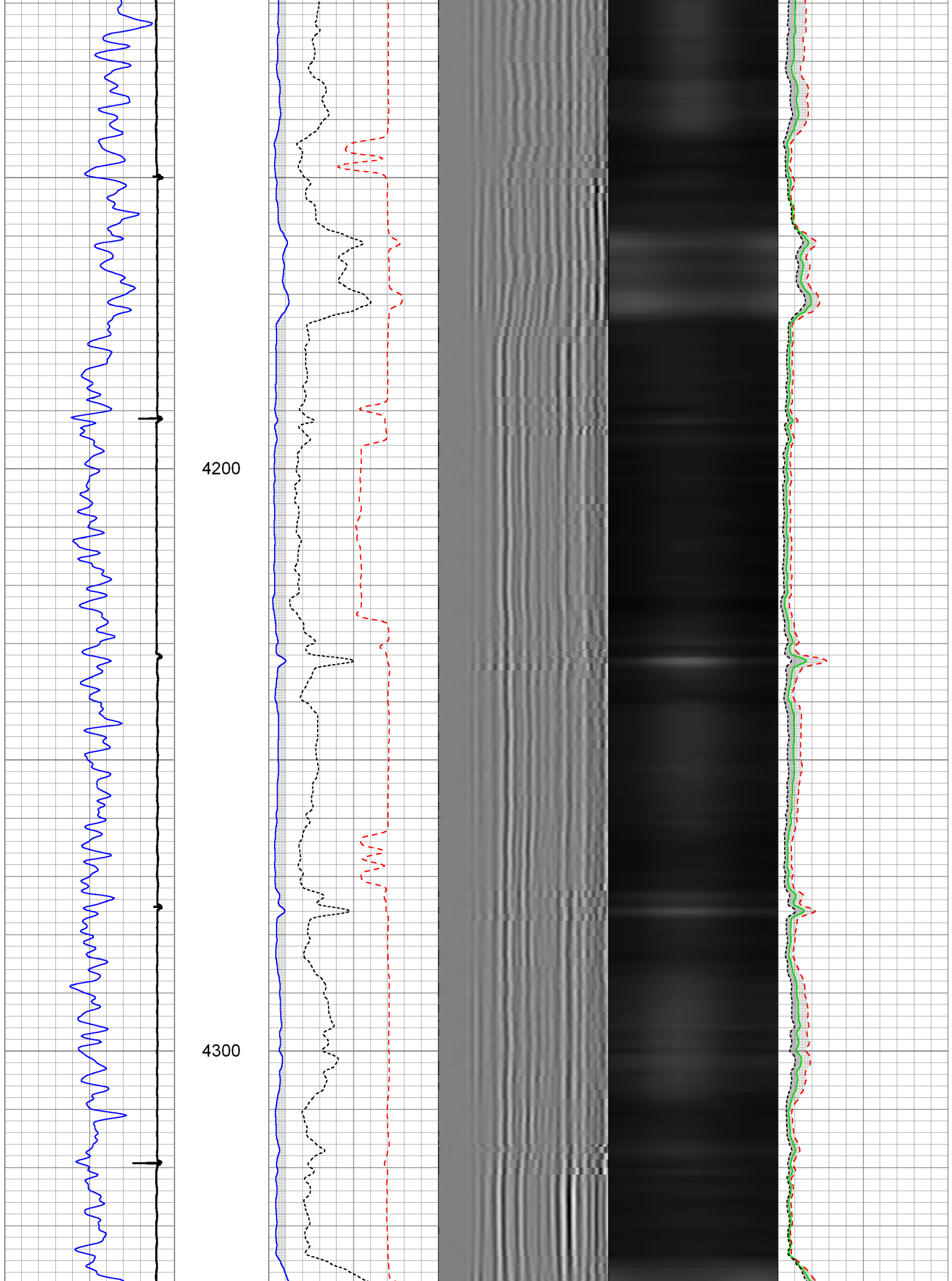
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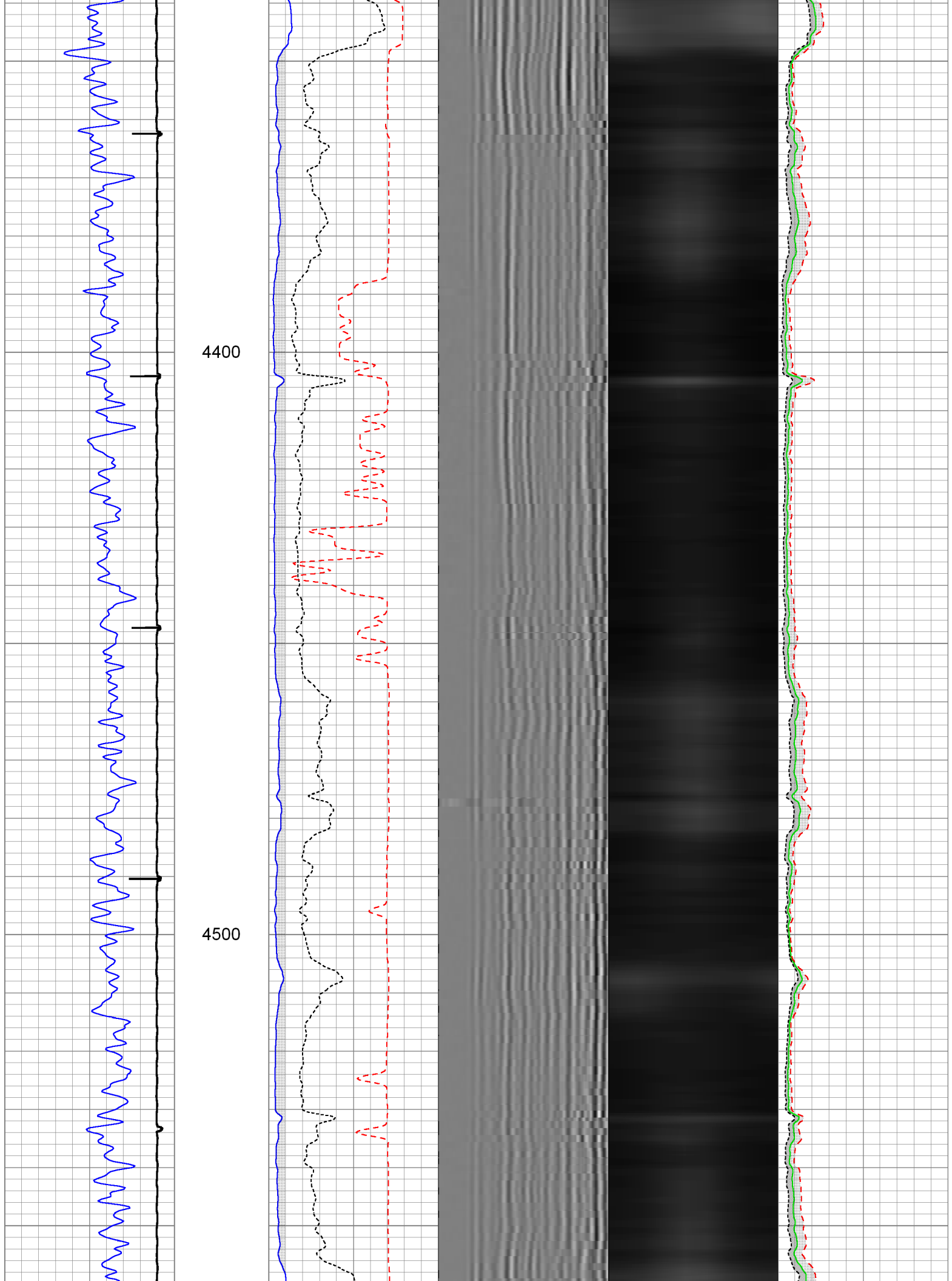
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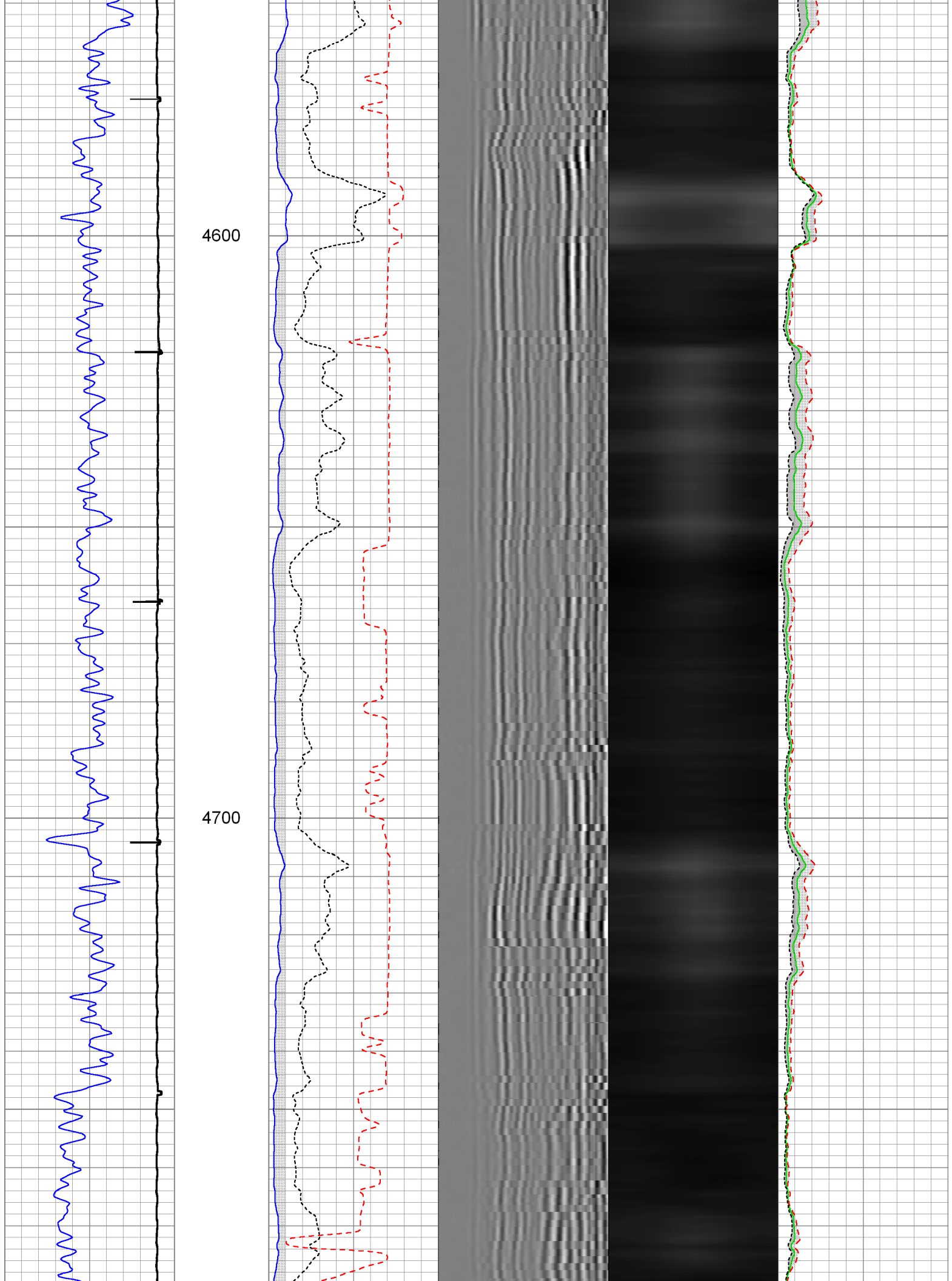
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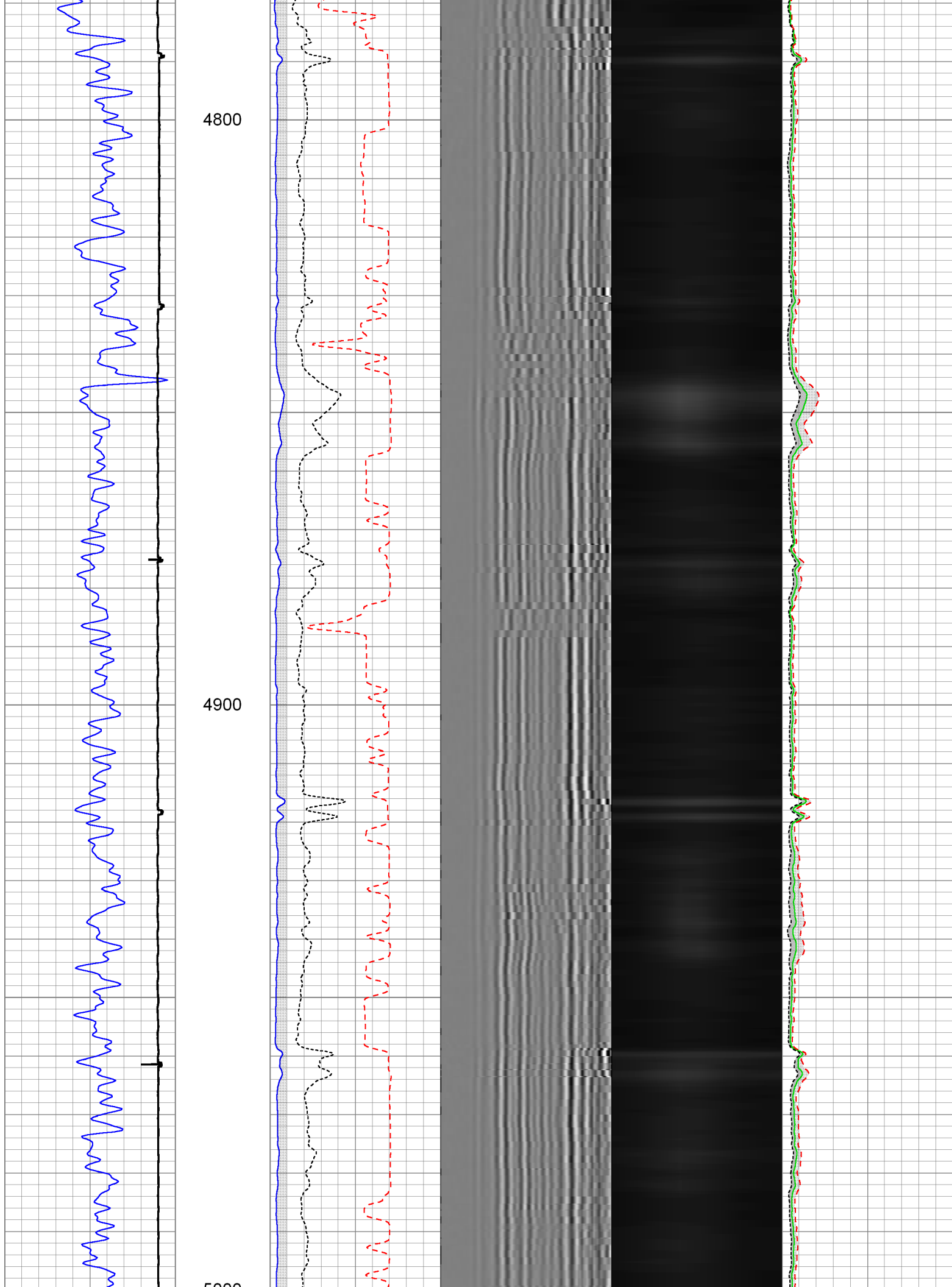




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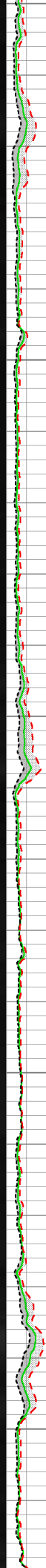
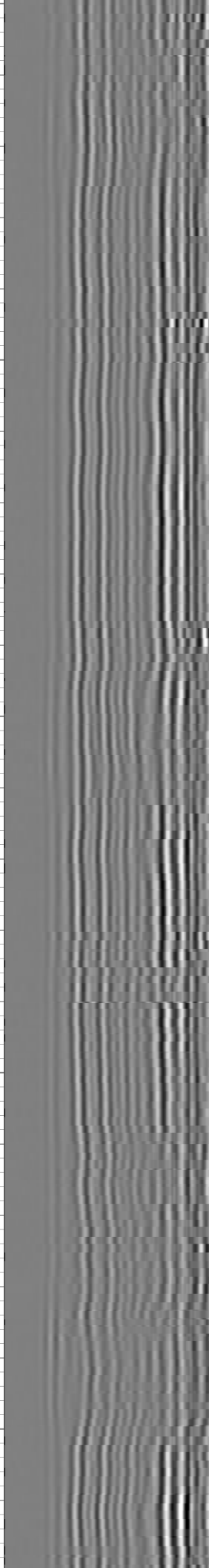
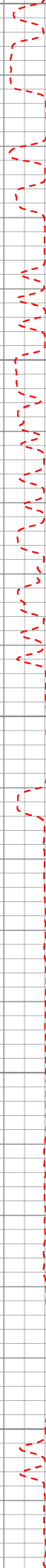
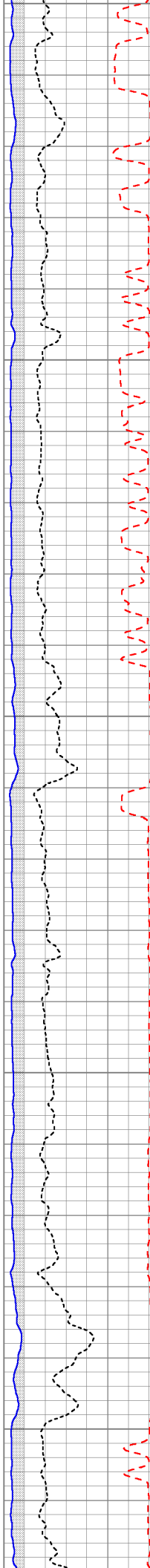
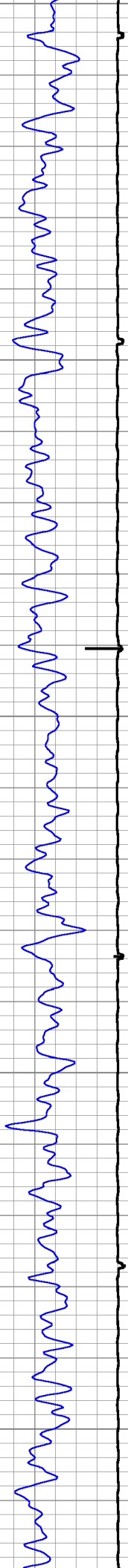
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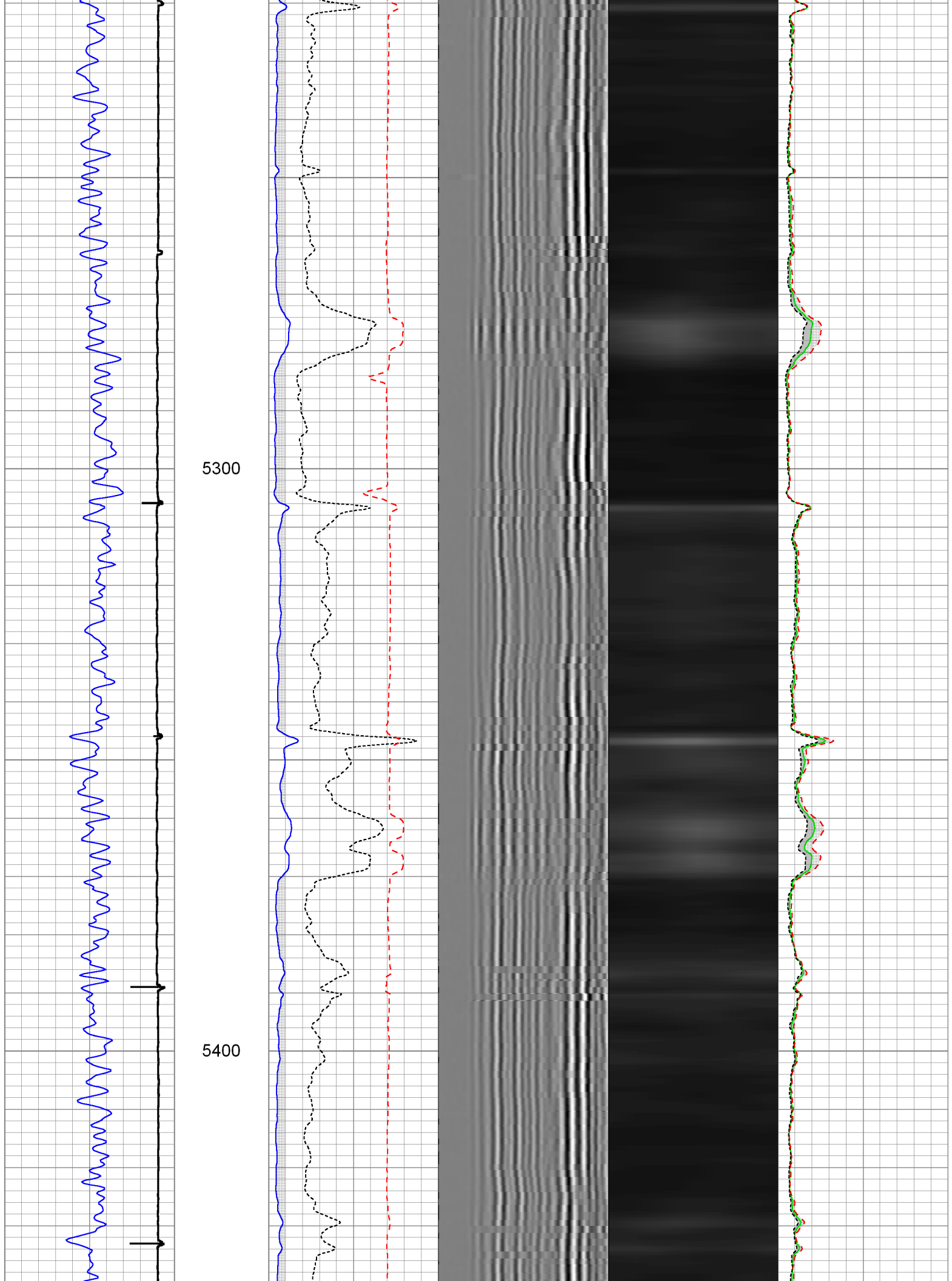


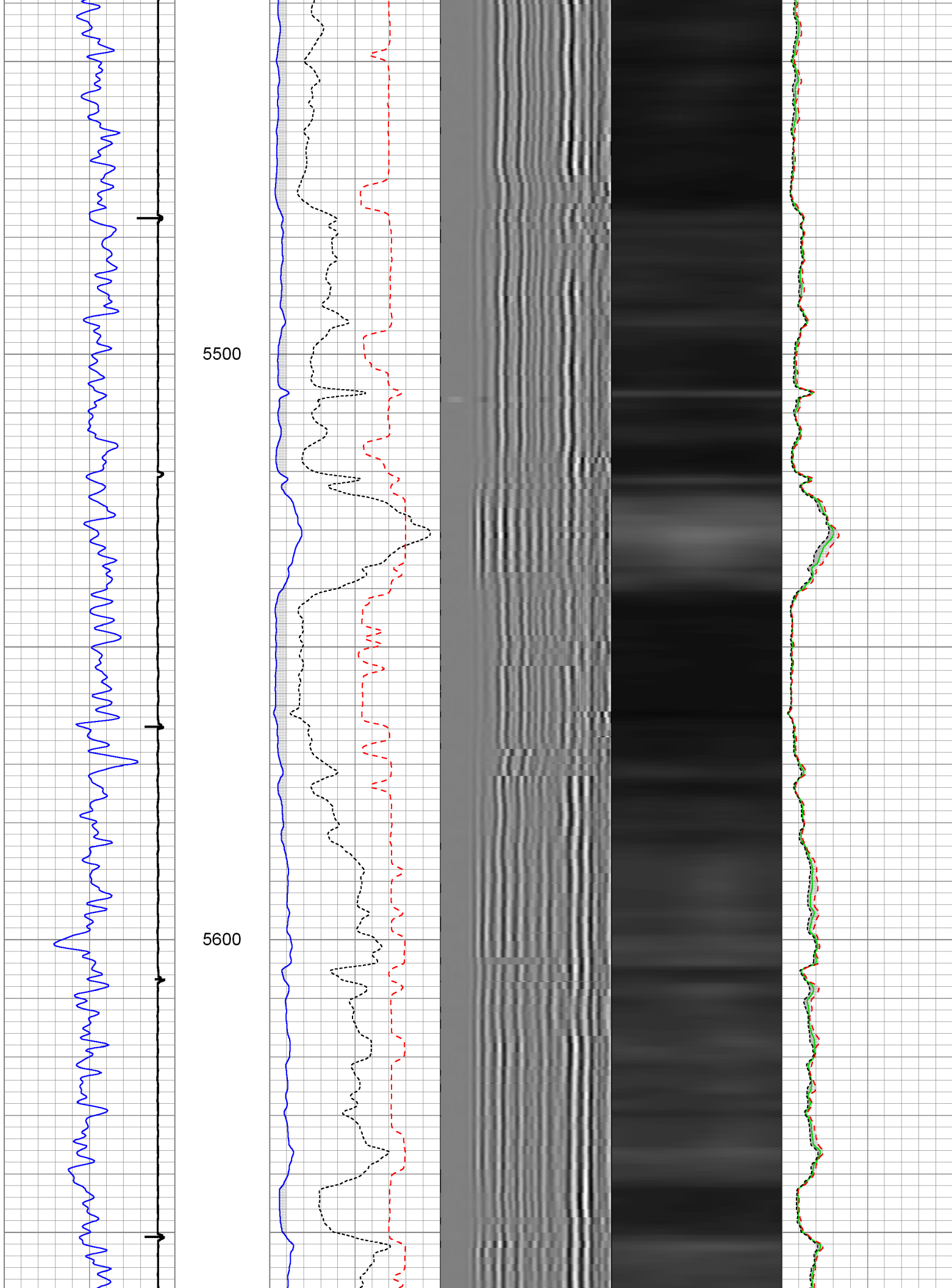
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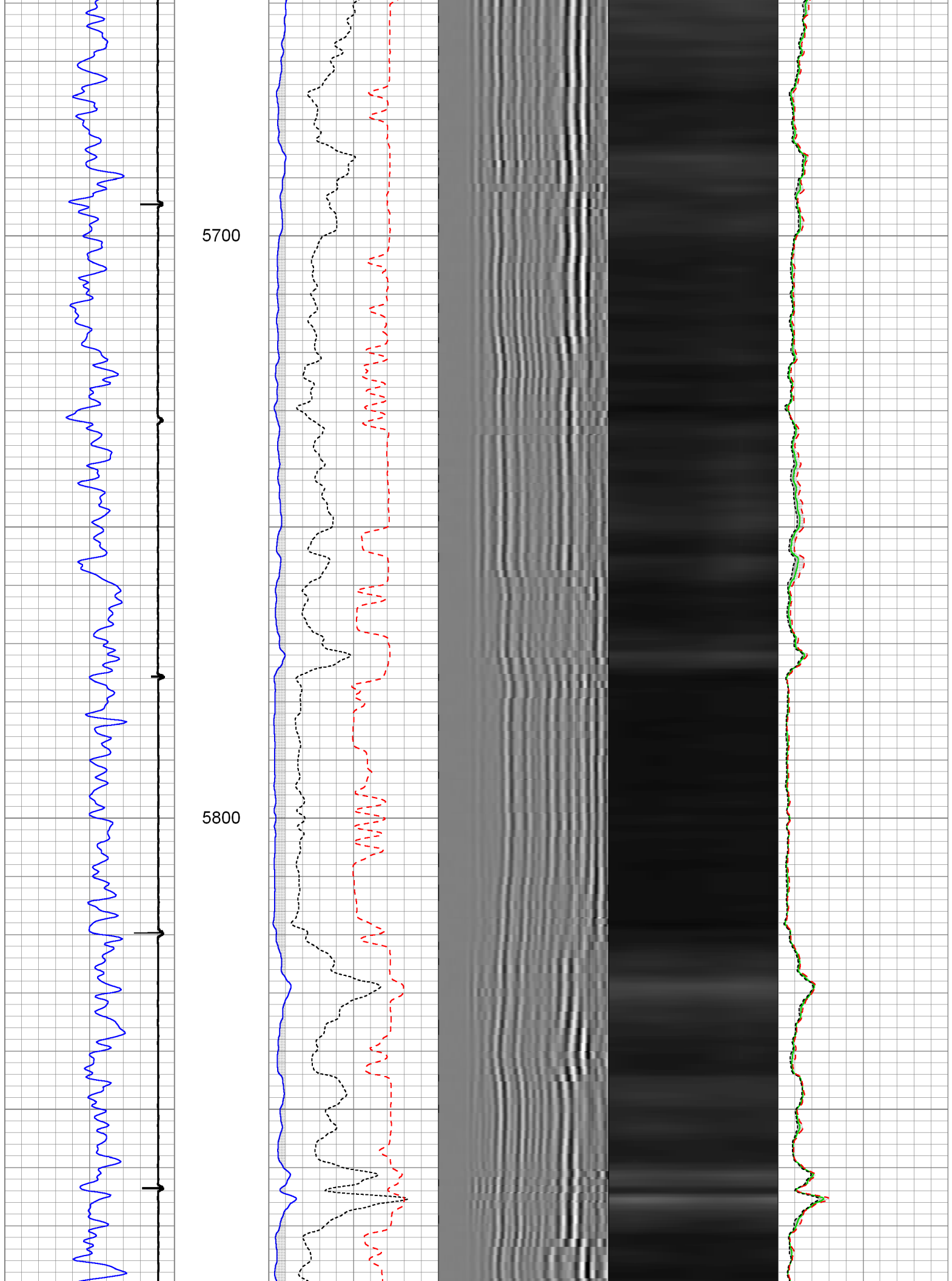
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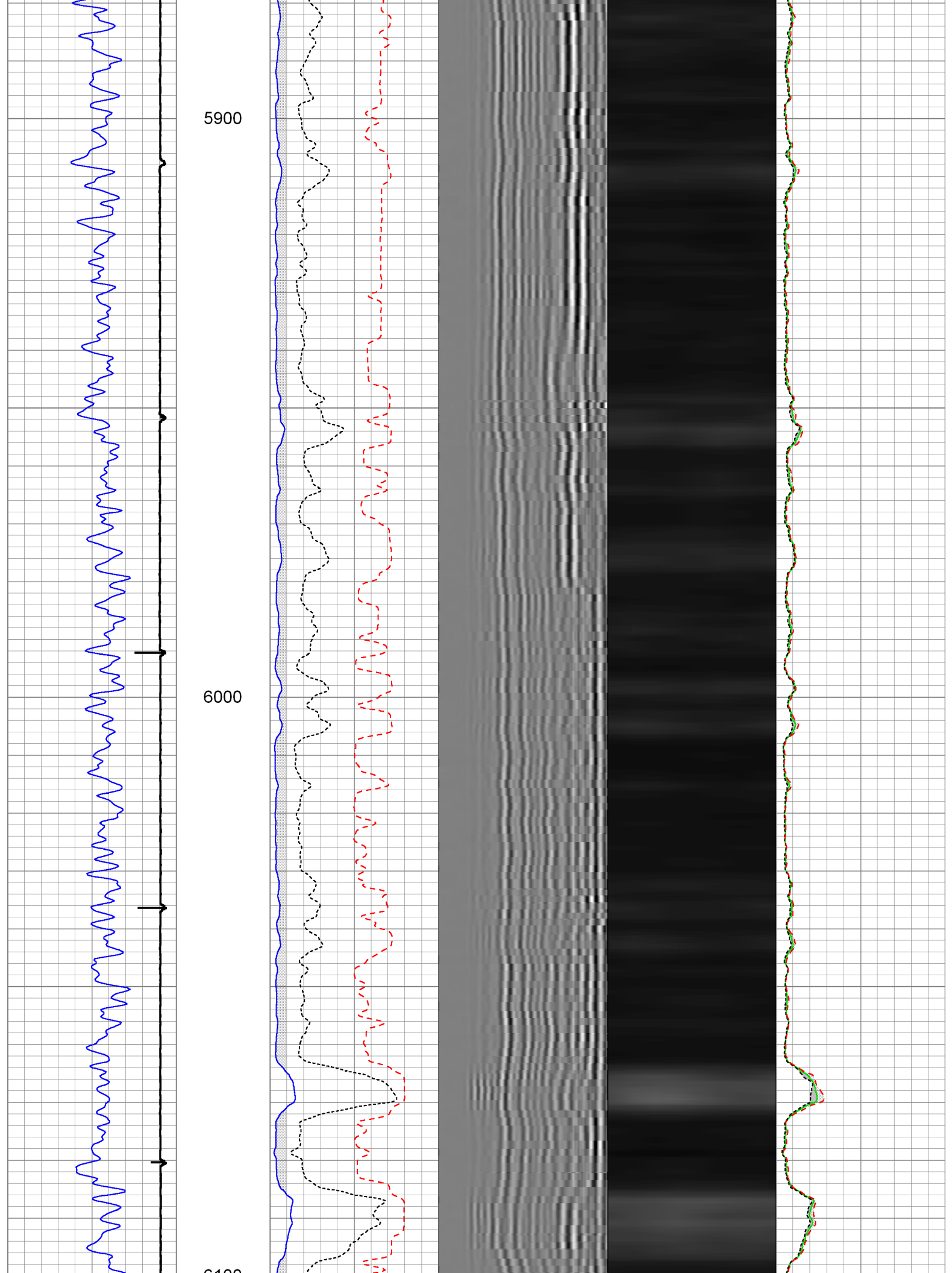








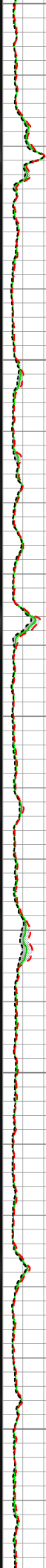
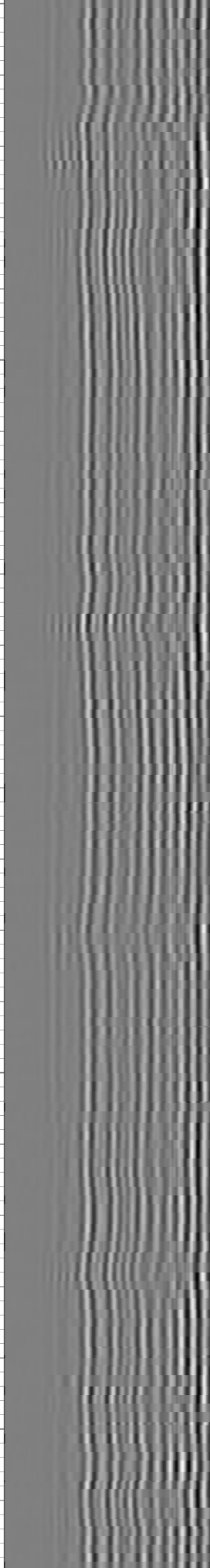
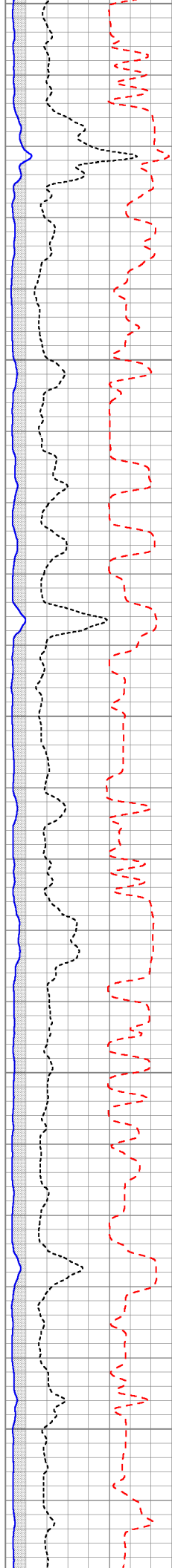


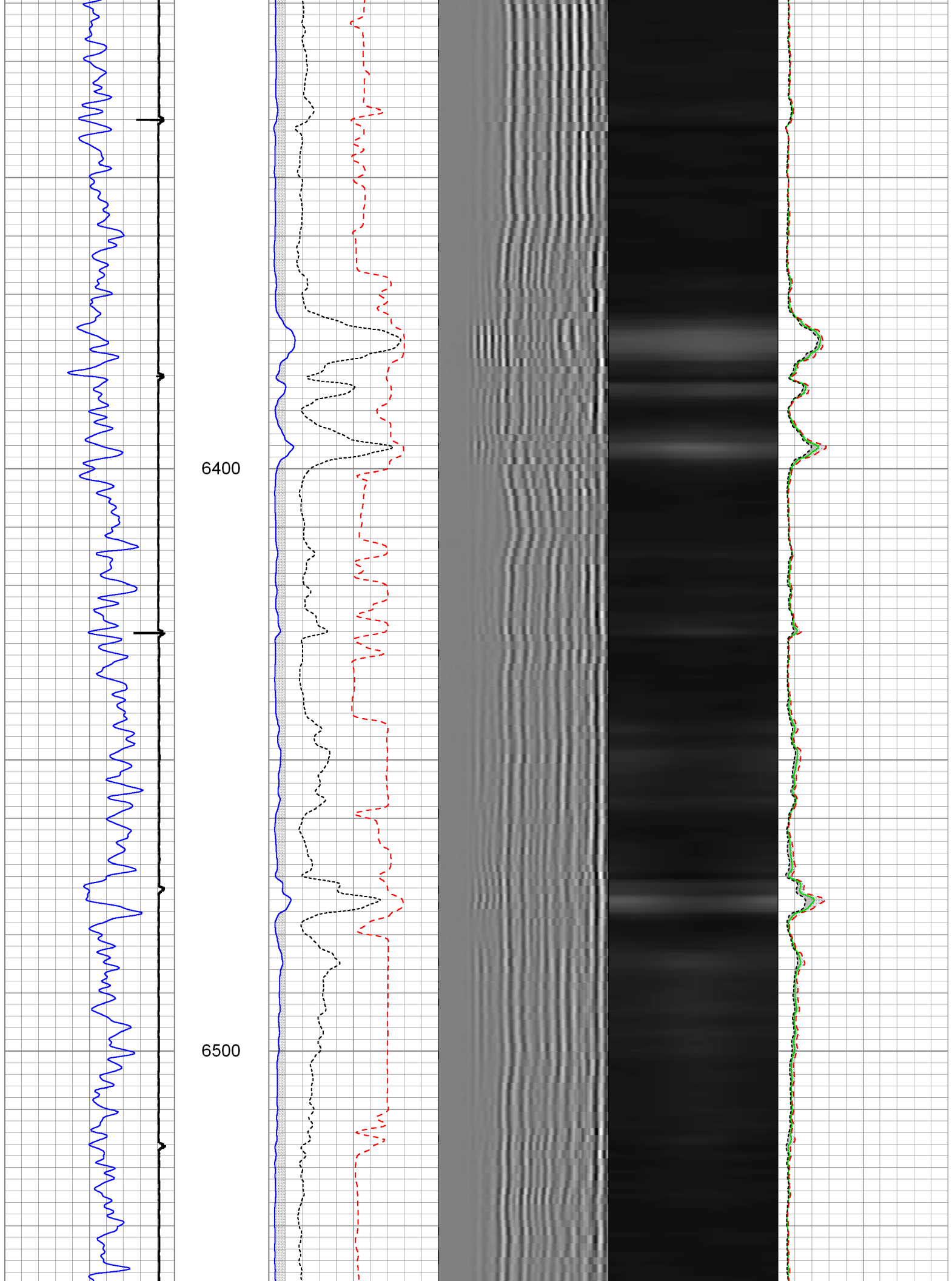


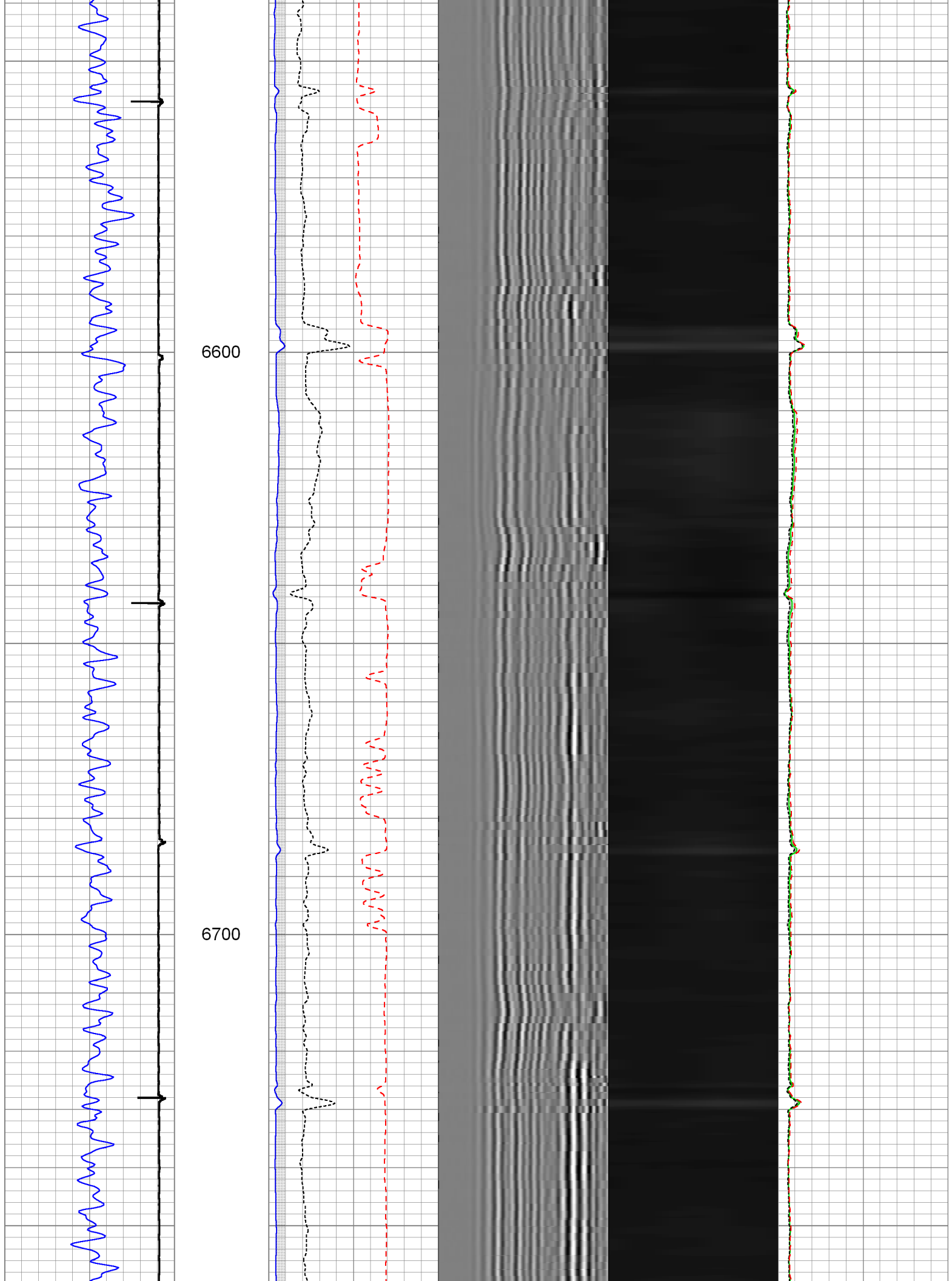
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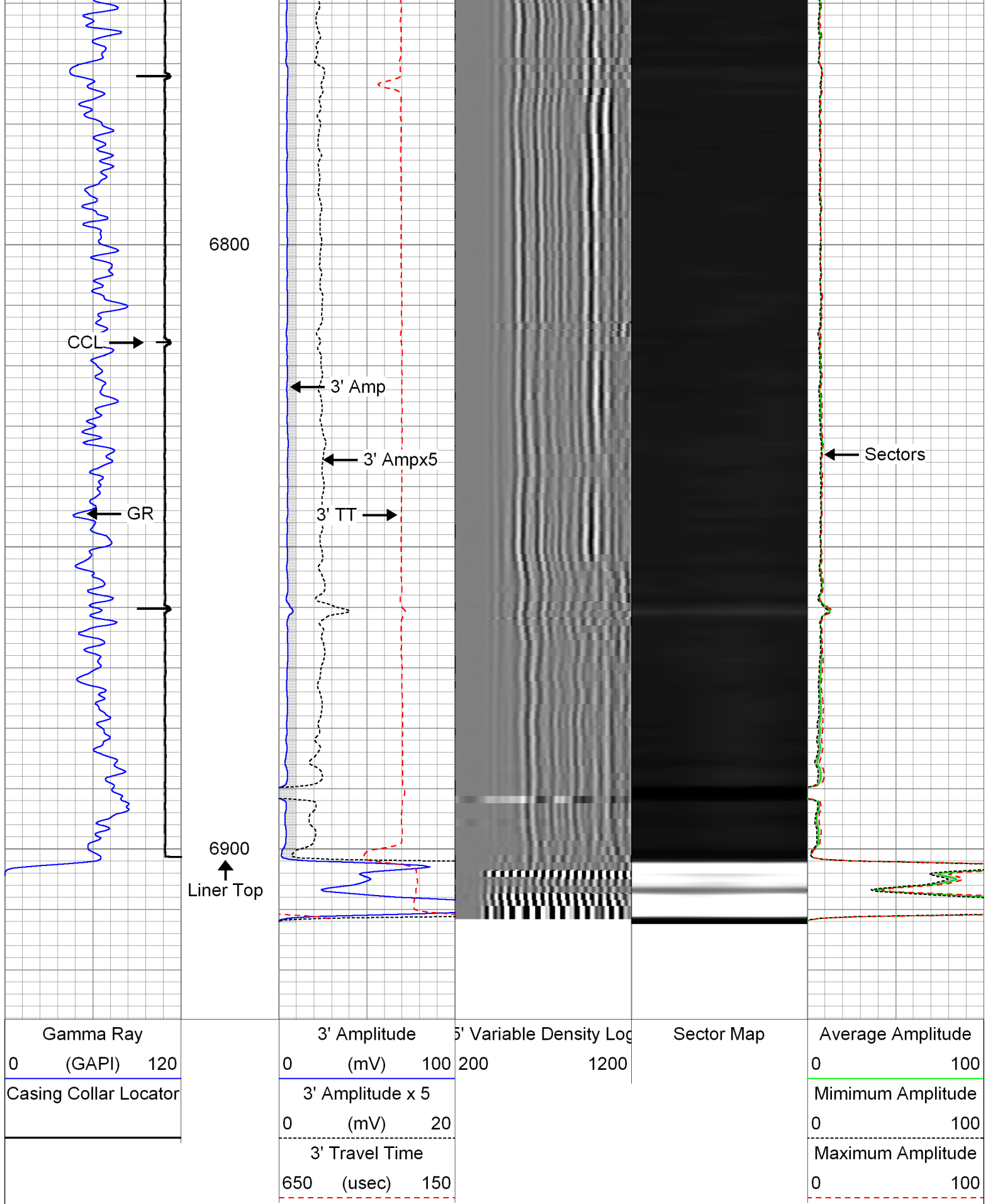
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6300



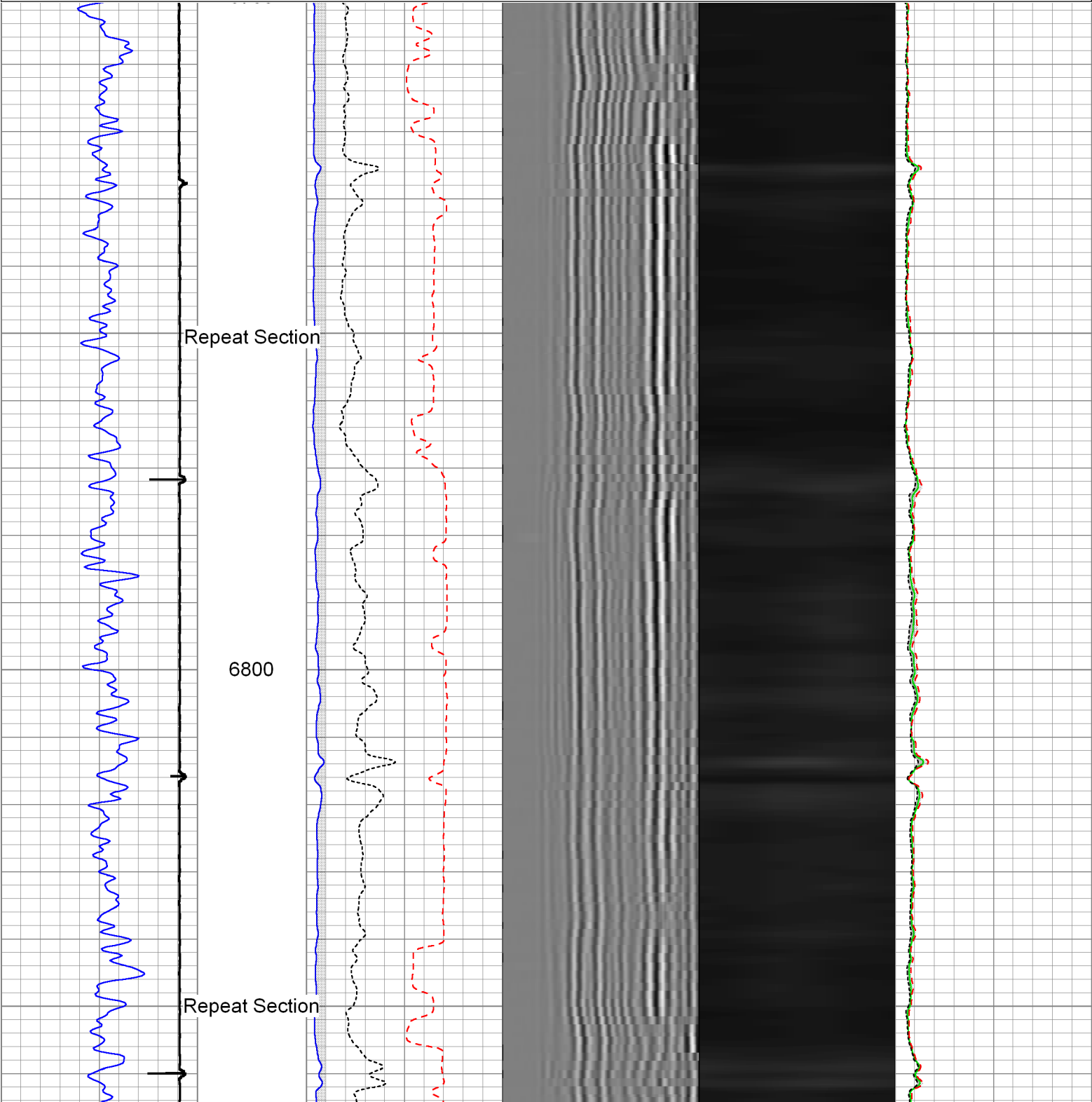


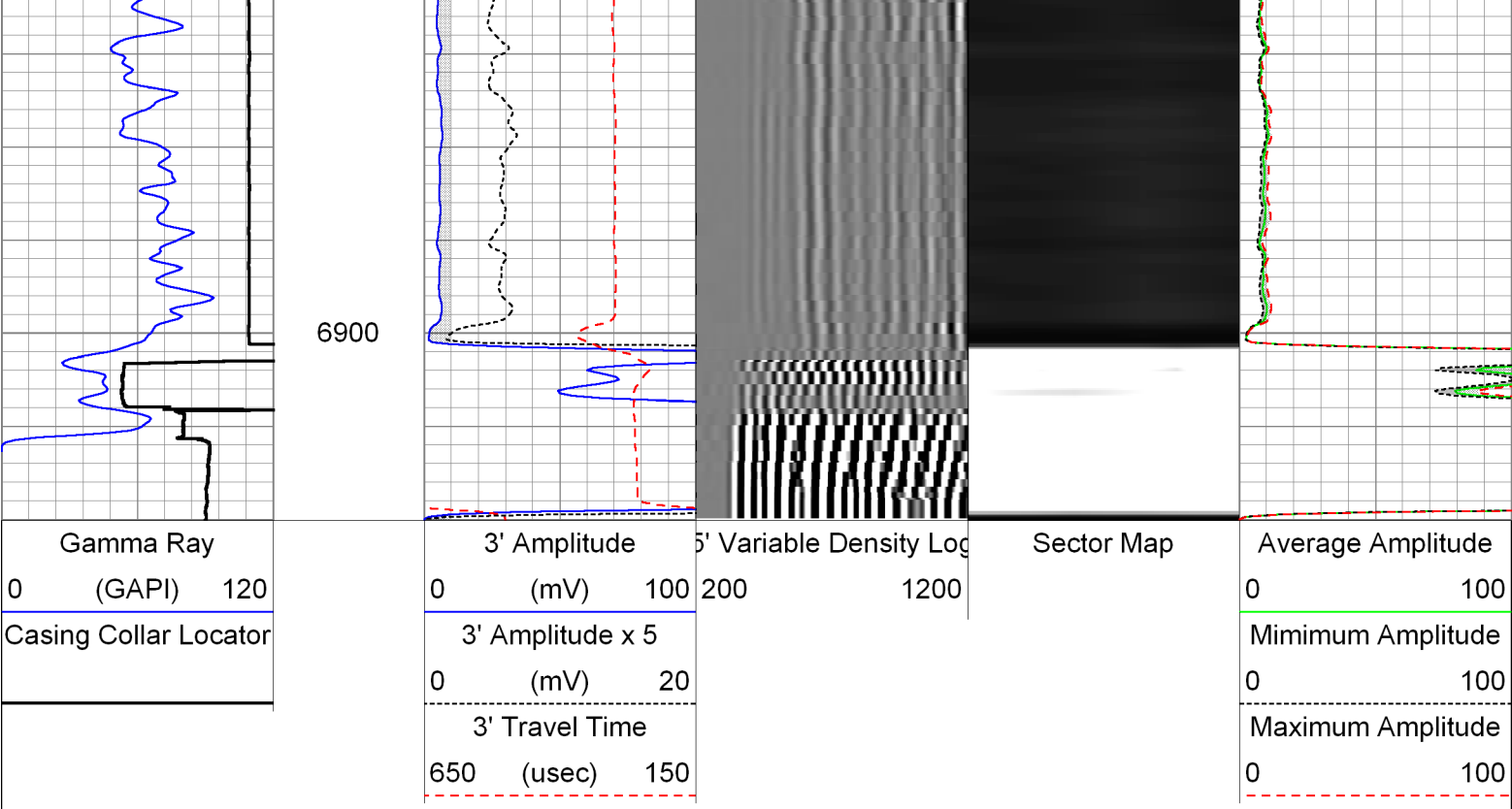


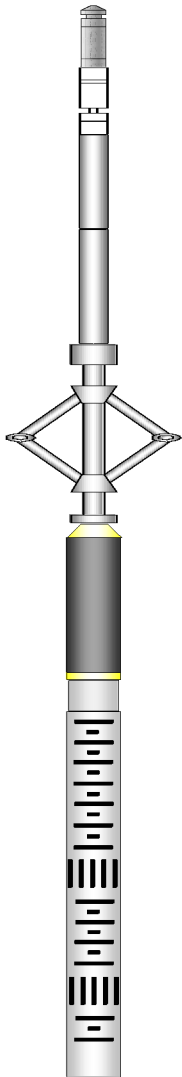
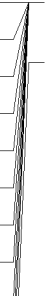


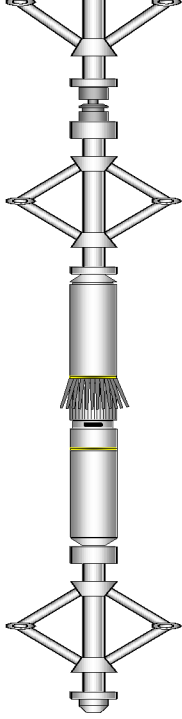
Database File: 0512339043\_anadarko\_lansdown state 4c-21hz\_05-31-14\_mit\_rbl.db  
Dataset Pathname: pass4  
Presentation Format: rbt4\_mit  
Dataset Creation: Sat May 31 14:31:35 2014 by Log SCH 111116  
Charted by: Depth in Feet scaled 1:240

Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Minimum 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	26.35		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			UW_PSJ-PSJ_008 (10018474) Sondex 1-11/16" Ultrawire Swivel Joint	0.91	1.69	9.00
			UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (211461) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (050836) Production Gamma Ray	1.93	1.69	9.50
			UW_PRC #4 -UW_PRC_057 (1101) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
WVFS3FT	18.53		UW_RBT-UW_RBT_004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	18.53					
WVFS2	18.53					
WVFS3	18.53					
WVFS4	18.53					
WVFS5	18.53					
WVFS6	18.53					
WVFS7	18.53					
WVFS8	18.53					
CBLTEMP	18.53					
CBLROT	18.53					
UW_PRC-UW_PRC_057 (1037)	18.53		UW_PRC-UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00

WVF5FT	17.53		UW_PRC-UW_PRC_037 (10018069) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.55	2.75	32.00
			UW_PKJ-PKJ_013 (10018069) Sondex 1-11/16" Ultrawire Knuckle Joint	0.57	1.69	3.50
			UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
MIT	4.97		UW_MIT-UW_MIT40_042 (10012912) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #3 -DSSRAC (083) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
TSTAMP	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512339043_Anadarko_Lansdown State 4C-21HZ_05-31-14_MIT_RBL.db: field/well/run1/pass5 Total Length: 31.51 ft Total Weight: 363.80 lb O.D. 3.13 in						

Calibration Report	
Database File:	0512339043_Anadarko_Lansdown State 4C-21HZ_05-31-14_MIT_RBL.db
Dataset Pathname:	pass6
Dataset Creation:	Sat May 31 17:01:34 2014 by Log SCH 111116

Multi-finger Imaging Tool Calibration Report
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Serial Number:	10012912
Number of Fingers:	40
Tool Model:	UW_MIT40_042

Inclinometer Calibration Report		
Performed:	Mon Jul 15 09:39:36 2013	
Calibration Angle:	45	
	Inc X	Inc Y
Vertical:	1968	1974
Finger 1 up:	1740	1744
Finger 31 up:	2215	1741
Finger 21 up:	2205	2224
Finger 11 up:	1731	2217
Sensitivity ratio:	0.992868	
X-axis angle:	134.307	
Deviation const.:	335.589	

Finger Calibration Report							
Performed:				Sat May 31 13:57:05 2014			
Ring size:	4	5	6	7			
(in)							
	Sens	Sens	Sens	Sens			
Finger 01:	1059 350.0	1409 389.0	1798 402.0	2200			
Finger 02:	1186 361.0	1547 390.0	1937 396.0	2333			
Finger 03:	1073 368.0	1441 407.0	1848 419.0	2267			
Finger 04:	1092 351.0	1443 393.0	1836 411.0	2247			
Finger 05:	1099 362.0	1461 402.0	1863 411.0	2274			
Finger 06:	1093 361.0	1454 401.0	1855 409.0	2264			



Finger 07:	1086	365.0	1451	402.0	1853	410.0	2263
Finger 08:	1110	358.0	1468	406.0	1874	400.0	2274
Finger 09:	1098	362.0	1460	396.0	1856	404.0	2260
Finger 10:	1096	360.0	1456	398.0	1854	401.0	2255
Finger 11:	1111	360.0	1471	391.0	1862	400.0	2262
Finger 12:	1106	358.0	1464	393.0	1857	403.0	2260
Finger 13:	1114	360.0	1474	386.0	1860	396.0	2256
Finger 14:	1091	363.0	1454	397.0	1851	408.0	2259
Finger 15:	1057	368.0	1425	406.0	1831	420.0	2251
Finger 16:	1071	367.0	1438	404.0	1842	421.0	2263
Finger 17:	1040	363.0	1403	403.0	1806	428.0	2234
Finger 18:	1116	363.0	1479	389.0	1868	403.0	2271
Finger 19:	1085	359.0	1444	390.0	1834	412.0	2246
Finger 20:	1054	363.0	1417	401.0	1818	426.0	2244
Finger 21:	1074	370.0	1444	397.0	1841	413.0	2254
Finger 22:	1037	369.0	1406	400.0	1806	429.0	2235
Finger 23:	1010	369.0	1379	408.0	1787	441.0	2228
Finger 24:	1065	365.0	1430	387.0	1817	406.0	2223
Finger 25:	1023	369.0	1392	405.0	1797	436.0	2233
Finger 26:	1148	361.0	1509	376.0	1885	399.0	2284
Finger 27:	1087	370.0	1457	398.0	1855	421.0	2276
Finger 28:	1118	361.0	1479	382.0	1861	409.0	2270
Finger 29:	1070	370.0	1440	406.0	1846	432.0	2278
Finger 30:	1084	365.0	1449	394.0	1843	423.0	2266
Finger 31:	1111	363.0	1474	388.0	1862	416.0	2278
Finger 32:	1091	375.0	1466	403.0	1869	427.0	2296
Finger 33:	1150	363.0	1513	377.0	1890	394.0	2284
Finger 34:	1126	358.0	1484	386.0	1870	411.0	2281
Finger 35:	1061	374.0	1435	412.0	1847	440.0	2287
Finger 36:	1082	367.0	1449	399.0	1848	424.0	2272
Finger 37:	1118	364.0	1482	392.0	1874	412.0	2286
Finger 38:	1144	357.0	1501	386.0	1887	397.0	2284
Finger 39:	1139	355.0	1494	384.0	1878	399.0	2277
Finger 40:	1097	363.0	1460	397.0	1857	411.0	2268

Post Survey Calibration Check								
Performed: Sat May 31 17:01:27 2014								
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	3.997	-0.001	5.005	0.002	6.002	0.001	7.002	0.001
Finger 02:	4.000	-0.000	5.004	0.002	6.000	-0.000	6.997	-0.002
Finger 03:	4.005	0.003	5.005	0.003	6.003	0.002	7.005	0.002
Finger 04:	3.994	-0.003	5.005	0.003	6.004	0.002	6.999	-0.000
Finger 05:	3.995	-0.002	5.001	0.000	6.003	0.001	7.001	0.001
Finger 06:	3.996	-0.002	5.001	0.001	5.995	-0.002	6.992	-0.004
Finger 07:	3.999	-0.000	5.000	0.000	6.003	0.002	7.002	0.001
Finger 08:	3.996	-0.002	4.997	-0.001	5.976	-0.012	6.997	-0.002
Finger 09:	3.996	-0.002	5.003	0.001	5.999	-0.001	6.999	-0.001
Finger 10:	3.998	-0.001	5.001	0.000	5.994	-0.003	6.998	-0.001
Finger 11:	3.997	-0.001	5.004	0.002	6.004	0.002	7.006	0.003
Finger 12:	3.995	-0.002	5.002	0.001	6.001	0.000	7.000	0.000
Finger 13:	3.999	-0.001	5.002	0.001	6.002	0.001	7.002	0.001
Finger 14:	3.998	-0.001	5.003	0.002	6.000	0.000	7.000	-0.000
Finger 15:	3.997	-0.001	5.002	0.001	6.002	0.001	7.001	0.001
Finger 16:	3.998	-0.001	5.002	0.001	6.003	0.002	7.002	0.001
Finger 17:	3.996	-0.002	5.005	0.002	6.003	0.001	7.001	0.001
Finger 18:	4.021	0.011	5.017	0.008	6.004	0.002	7.006	0.003
Finger 19:	3.994	-0.003	4.997	-0.002	5.997	-0.001	7.001	0.000
Finger 20:	3.995	-0.003	5.001	0.000	5.996	-0.002	7.000	0.000
Finger 21:	3.982	-0.009	5.006	0.003	6.008	0.004	7.004	0.002
Finger 22:	3.998	-0.001	5.002	0.001	6.000	-0.000	6.999	-0.001
Finger 23:	3.998	-0.001	5.000	0.000	5.999	-0.001	6.998	-0.001
Finger 24:	3.996	-0.002	4.997	-0.001	5.996	-0.002	6.998	-0.001
Finger 25:	3.997	-0.001	5.002	0.001	5.997	-0.001	7.000	-0.000
Finger 26:	4.002	0.001	4.998	-0.001	5.996	-0.002	7.002	0.001

Finger 27:	4.001	0.001	5.007	0.003	5.996	-0.002	7.000	-0.000
Finger 28:	3.998	-0.001	4.997	-0.002	5.997	-0.001	7.000	-0.000
Finger 29:	3.996	-0.002	5.006	0.003	5.995	-0.002	6.996	-0.002
Finger 30:	4.000	-0.000	5.001	0.001	6.006	0.003	6.995	-0.002
Finger 31:	3.992	-0.004	4.996	-0.002	5.998	-0.001	6.996	-0.002
Finger 32:	4.004	0.002	5.020	0.010	6.007	0.003	7.024	0.012
Finger 33:	3.999	-0.001	5.000	0.000	6.000	0.000	6.993	-0.003
Finger 34:	3.997	-0.002	5.001	0.000	5.995	-0.002	7.001	0.000
Finger 35:	3.995	-0.002	4.999	-0.000	5.998	-0.001	6.998	-0.001
Finger 36:	4.000	-0.000	5.003	0.002	6.002	0.001	7.003	0.001
Finger 37:	3.997	-0.002	5.003	0.001	5.999	-0.000	7.001	0.001
Finger 38:	3.990	-0.005	5.002	0.001	5.998	-0.001	7.004	0.002
Finger 39:	4.001	0.000	4.998	-0.001	5.998	-0.001	6.995	-0.003
Finger 40:	4.000	-0.000	5.005	0.003	6.005	0.003	7.008	0.004
Average:	3.998	-0.001	5.002	0.001	6.000	-0.000	7.001	0.000

### Segmented Cement Bond Log Calibration Report

Serial Number:	1066
Tool Model:	UW_RBT_004
Calibration Casing Diameter:	7.000 in
Calibration Depth:	173.715 ft

Master Calibration, performed Sat May 31 14:10:38 2014:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.004	0.684	0.000	62.165	91.402	-0.335
5FT	-0.001	0.721	0.000	62.165	86.125	0.105
S1	0.005	0.663	0.000	100.000	152.059	-0.755
S2	0.004	0.681	0.000	100.000	147.559	-0.540
S3	0.004	0.688	0.000	100.000	146.064	-0.535
S4	0.003	0.698	0.000	100.000	143.932	-0.469
S5	0.004	0.693	0.000	100.000	145.107	-0.577
S6	0.004	0.690	0.000	100.000	145.716	-0.534
S7	0.004	0.694	0.000	100.000	144.925	-0.598
S8	0.004	0.674	0.000	100.000	149.274	-0.629

### Gamma Ray Calibration Report

Serial Number:	050836
Tool Model:	UW_PGR_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	Lansdown State 4C-21HZ
Field	Wattenberg
County	Weld
State	Colorado