



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

Company Kerr-McGee Oil and Gas Onshore, L.P.  
Well Kerr 28N-12HZX  
Field Wattenberg  
County Weld  
State Colorado

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Location: API #: 05-123-38982-01

SEC 13 TWP 2N RGE 67W

Permanent Datum Ground Level Elevation 4884'  
Log Measured From Kelly Bushing 16 FT  
Drilling Measured From Kelly Bushing

Other Services  
Gauge Ring  
MIT  
Elevation  
K.B. 4900'  
D.F. 4899'  
G.L. 4884'

Date 06-Feb-2015

Run Number Two  
Depth Driller 16385 FT  
Depth Logger 7280 FT  
Bottom Logged Interval 7275 FT  
Top Log Interval Surface  
Open Hole Size 8-3/4"  
Type Fluid Water  
Density / Viscosity 8.34 lbm/gal  
Max. Recorded Temp. 224°F  
Estimated Cement Top Surface  
Time Well Ready ROA  
Time Logger on Bottom 09:08  
Equipment Number HD-0134  
Location Ft. Lupton, CO  
Recorded By J. Morrison  
Witnessed By Rick Dunford

Borehole 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	Surface	1069 FT
Intermediate #1	7	26	HCP-110	Surface	7638 FT
Intermediate #2					
Liner	4-1/2	11.6	P-110	6569 FT	16381 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

Log ran as per Customer request.  
Depth referenced to Casing Tally reported Liner Top at 6569 FT.  
Gauge Ring/Junk Basket ran to 7250 FT.  
Adjusted log -14.5 FT to correlate with Liner Top.  
Log ran from as deep as possible to surface.  
Log ran with 2800 PSI surface induced pressure.  
No debris found on logging tools after run.  
  
Thank you for Choosing FMC Technologies Completion Services, Inc.!!

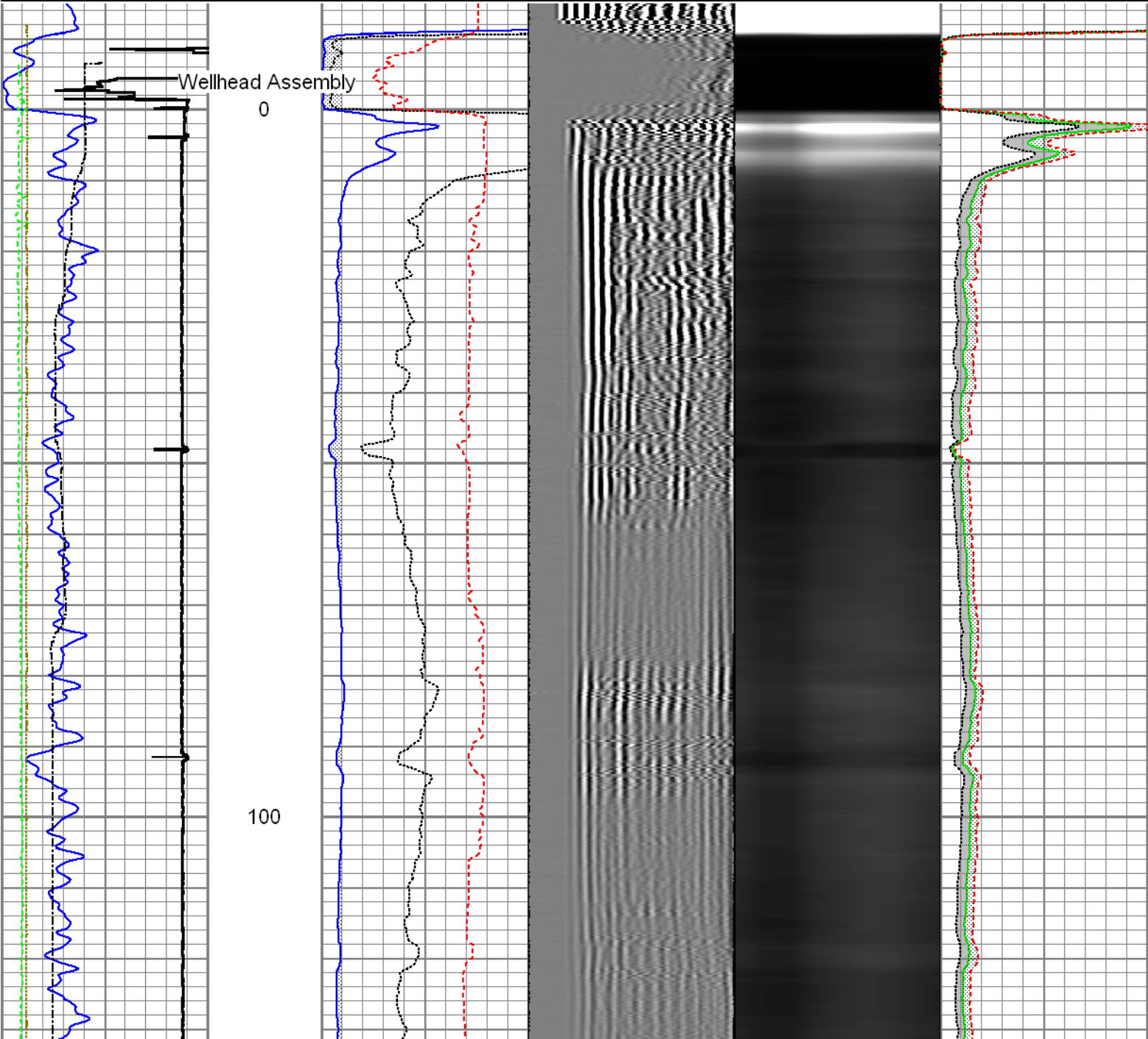


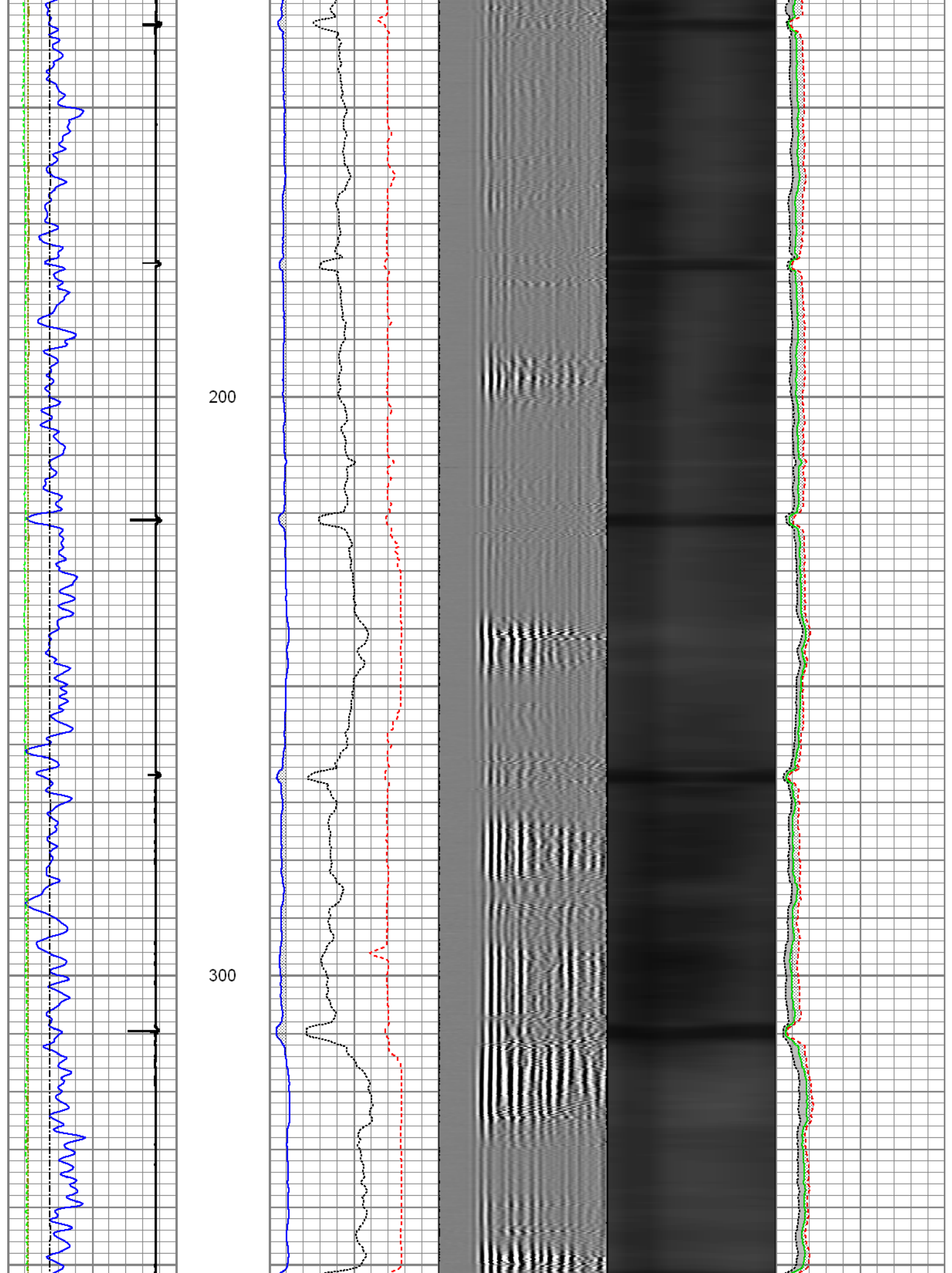
Main Pass: 7"

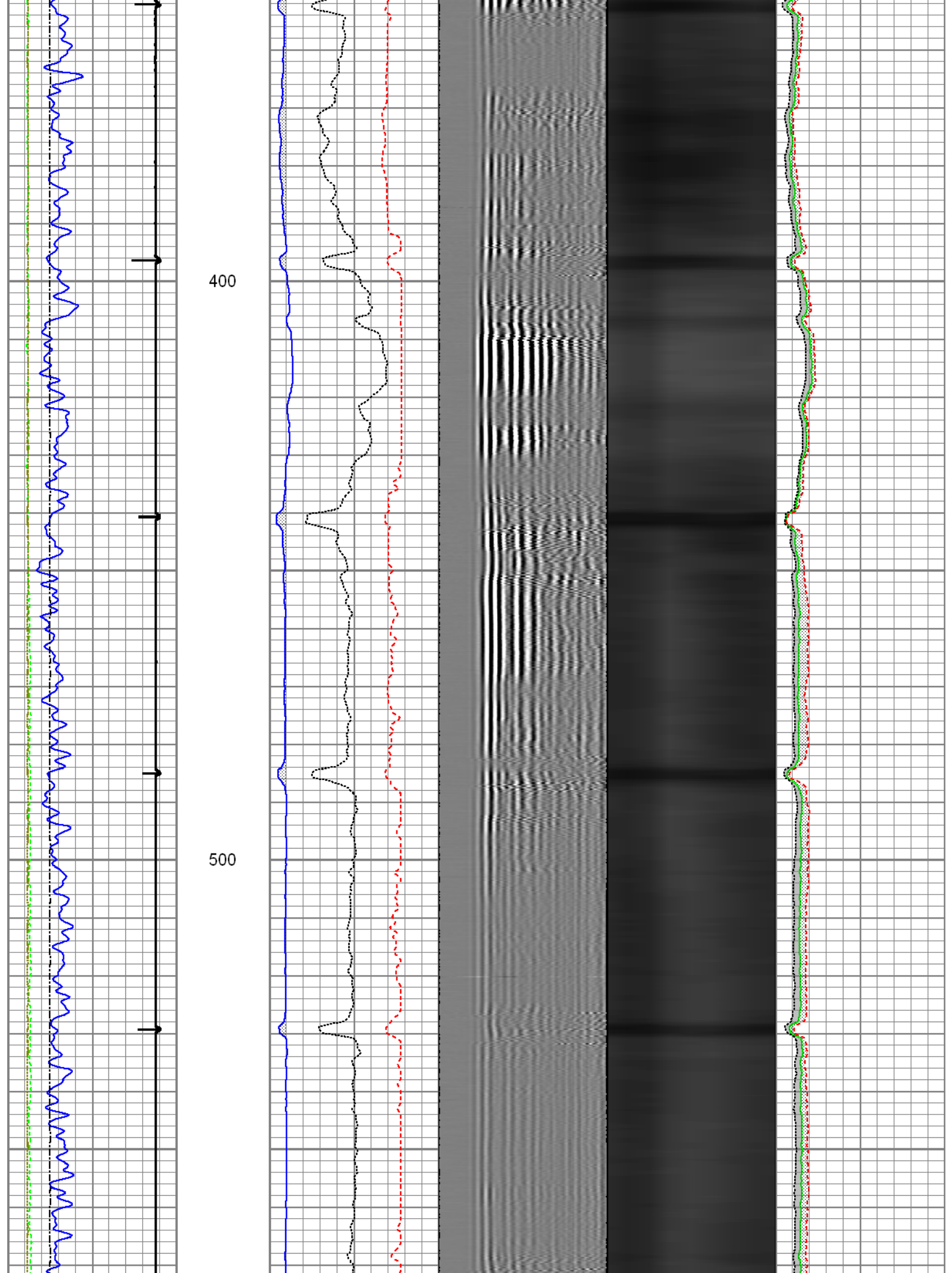
Recorded with 2800 PSI Surface Induced Pressure

Database File: 0512338982\_anadarko\_kerr 28n-12hzx\_02-06-15\_mit\_rbl.db  
Dataset Pathname: pass7  
Presentation Format: rbt4\_mit  
Dataset Creation: Fri Feb 06 09:33:43 2015 by Log 7.0 B1  
Charted by: Depth in Feet scaled 1:240

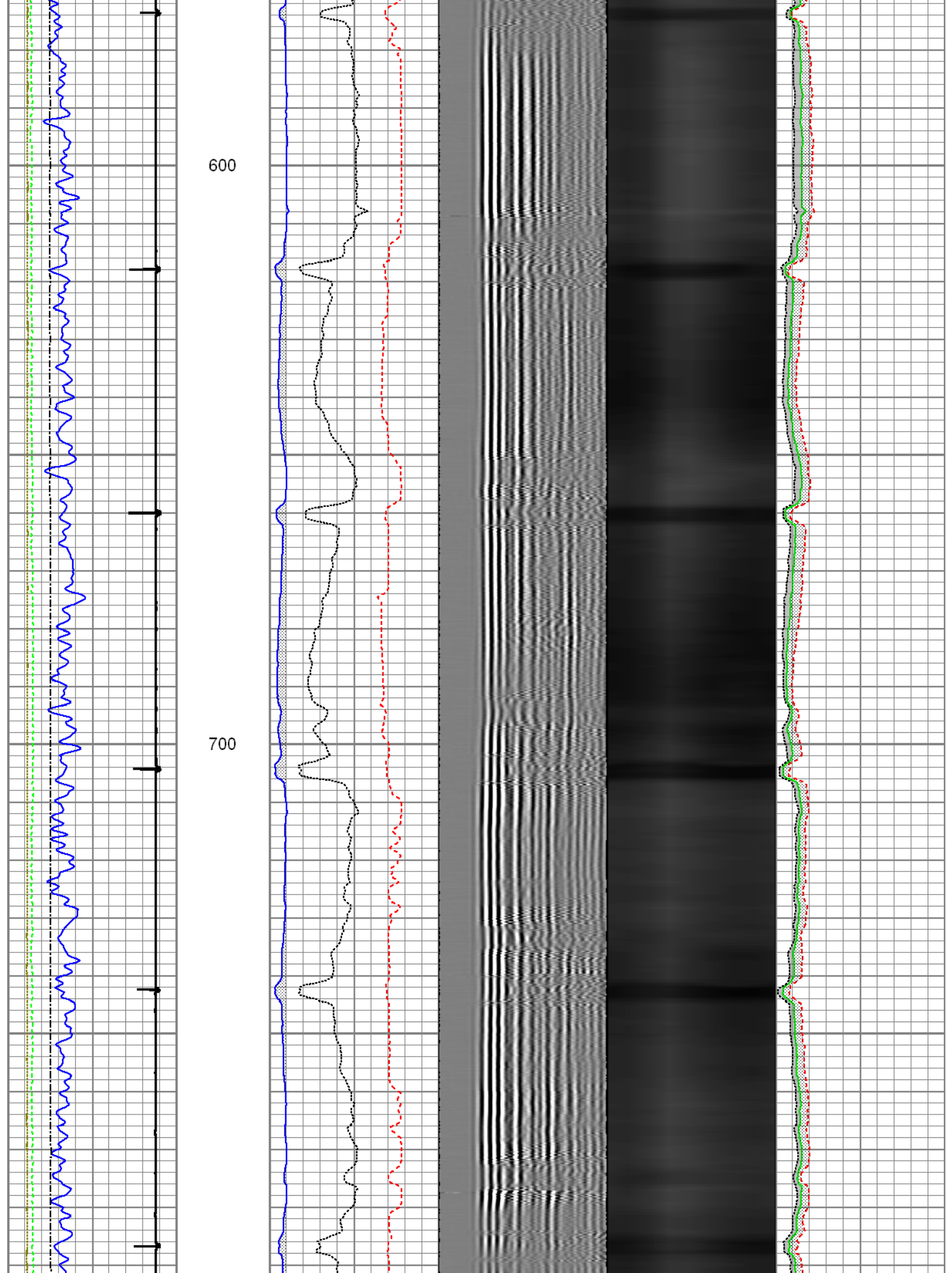
Gamma Ray	3' Amplitude	5' Variable Density Log	Sector Map	Average Amplitude
0 (GAPI) 120	0 (mV) 100	200 1200		0 100
Casing Collar Locator	3' Amplitude x 5			Mimimum Amplitude
Line Speed	0 (mV) 20			0 100
-100 (ft/min) 100	3' Travel Time			Maximum Amplitude
Line Tension	650 (usec) 150			0 100
0 (lb) 2000				
Wellbore Deviation				
-10 (°) 90				

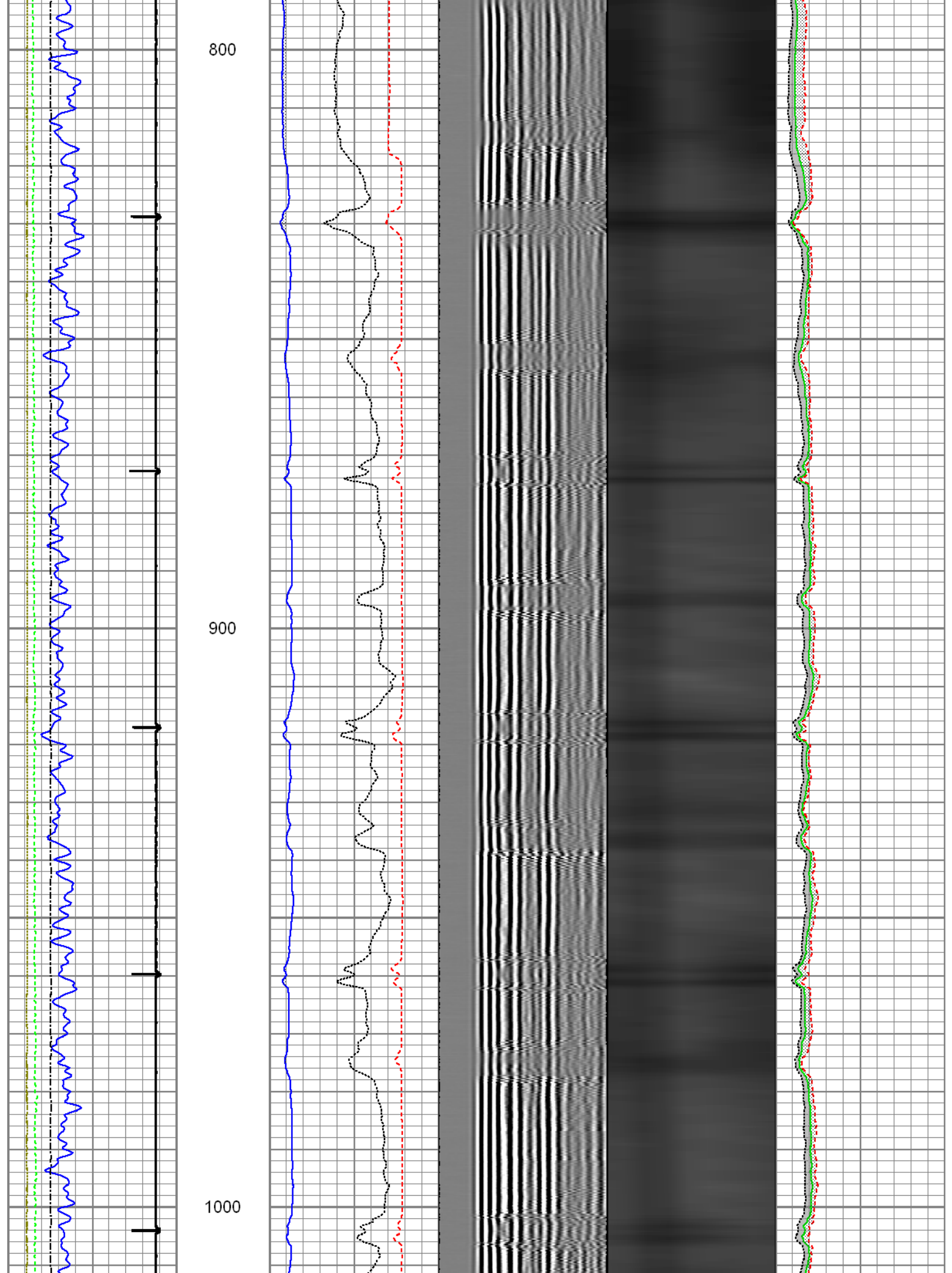


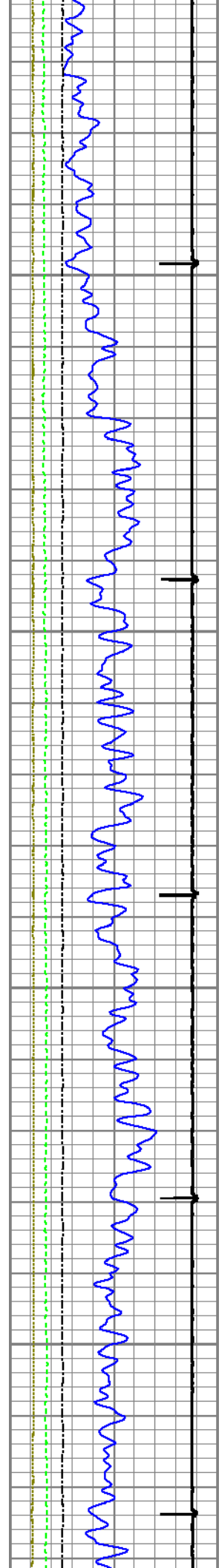






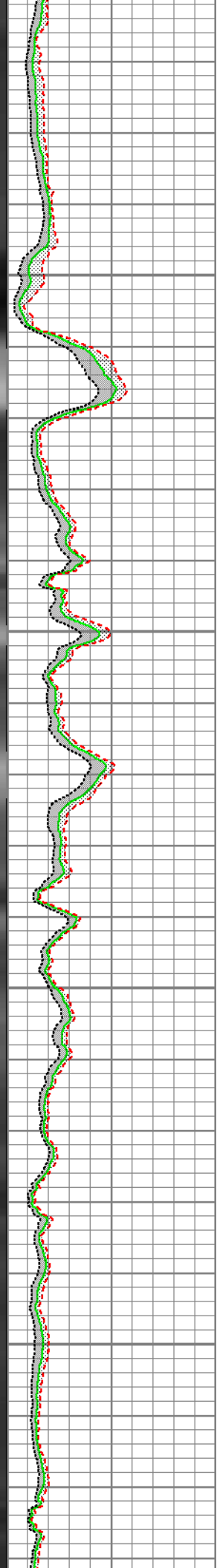
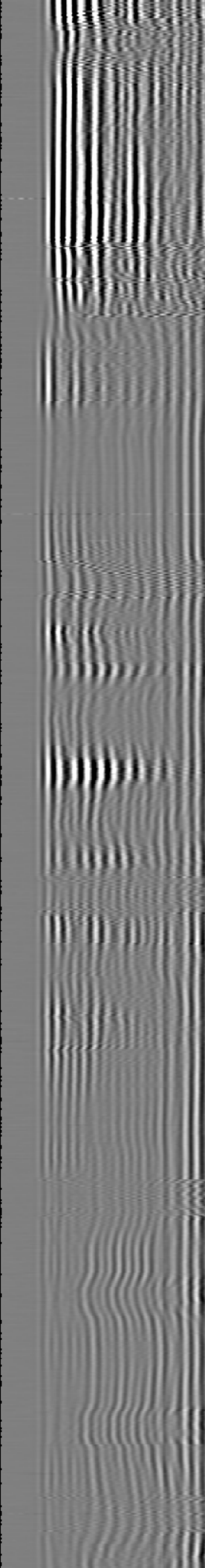
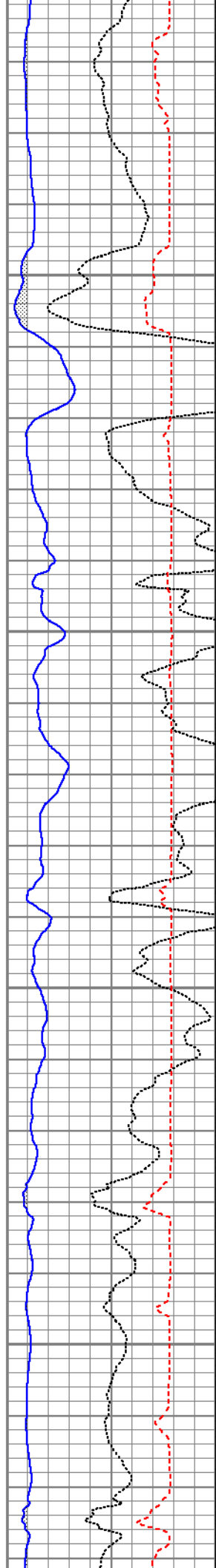


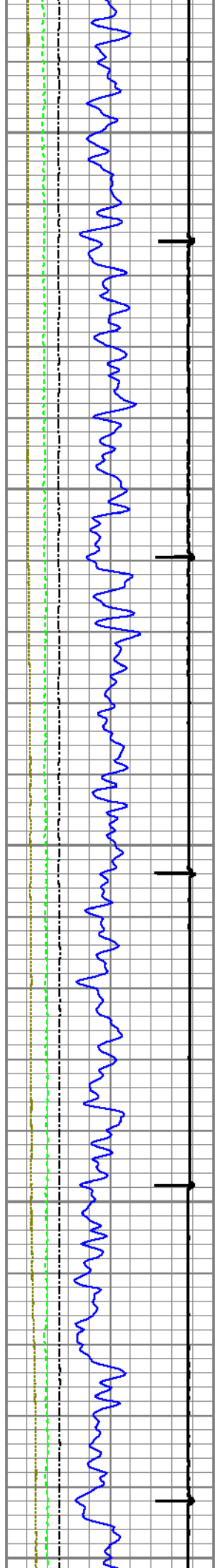




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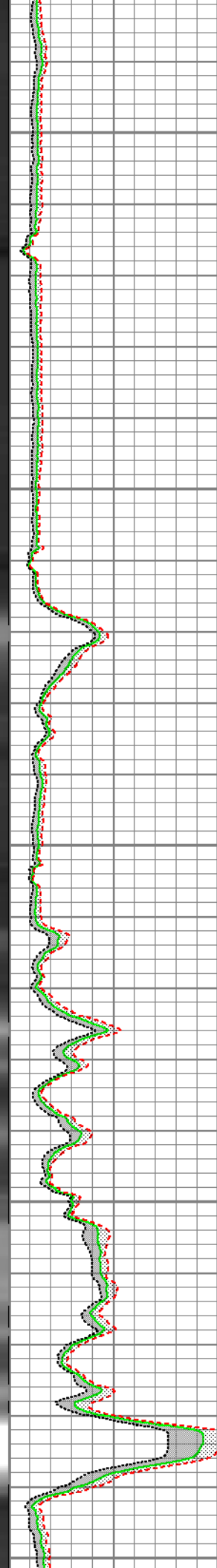
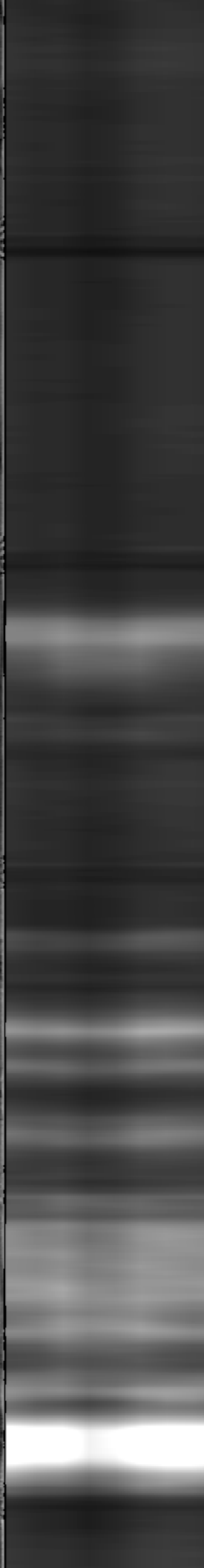
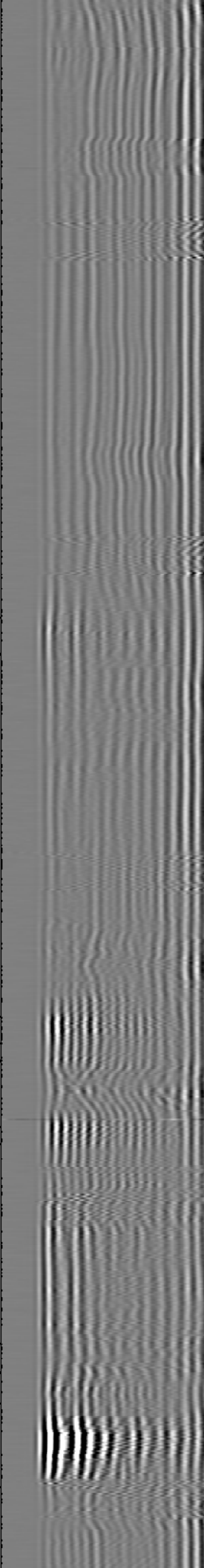
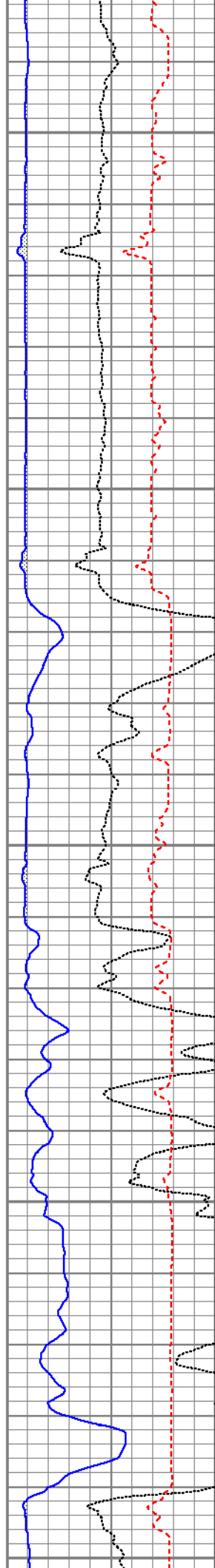
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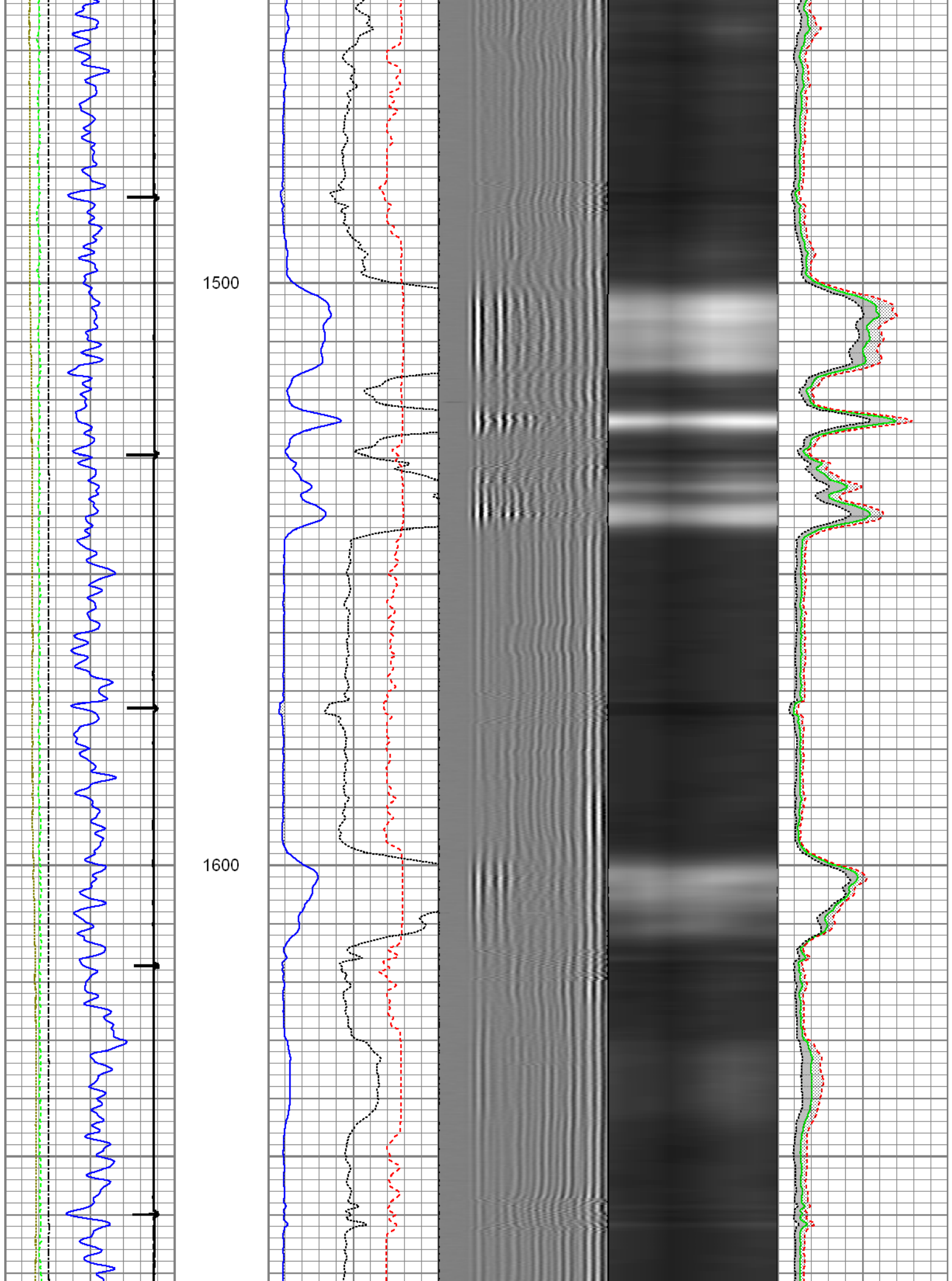


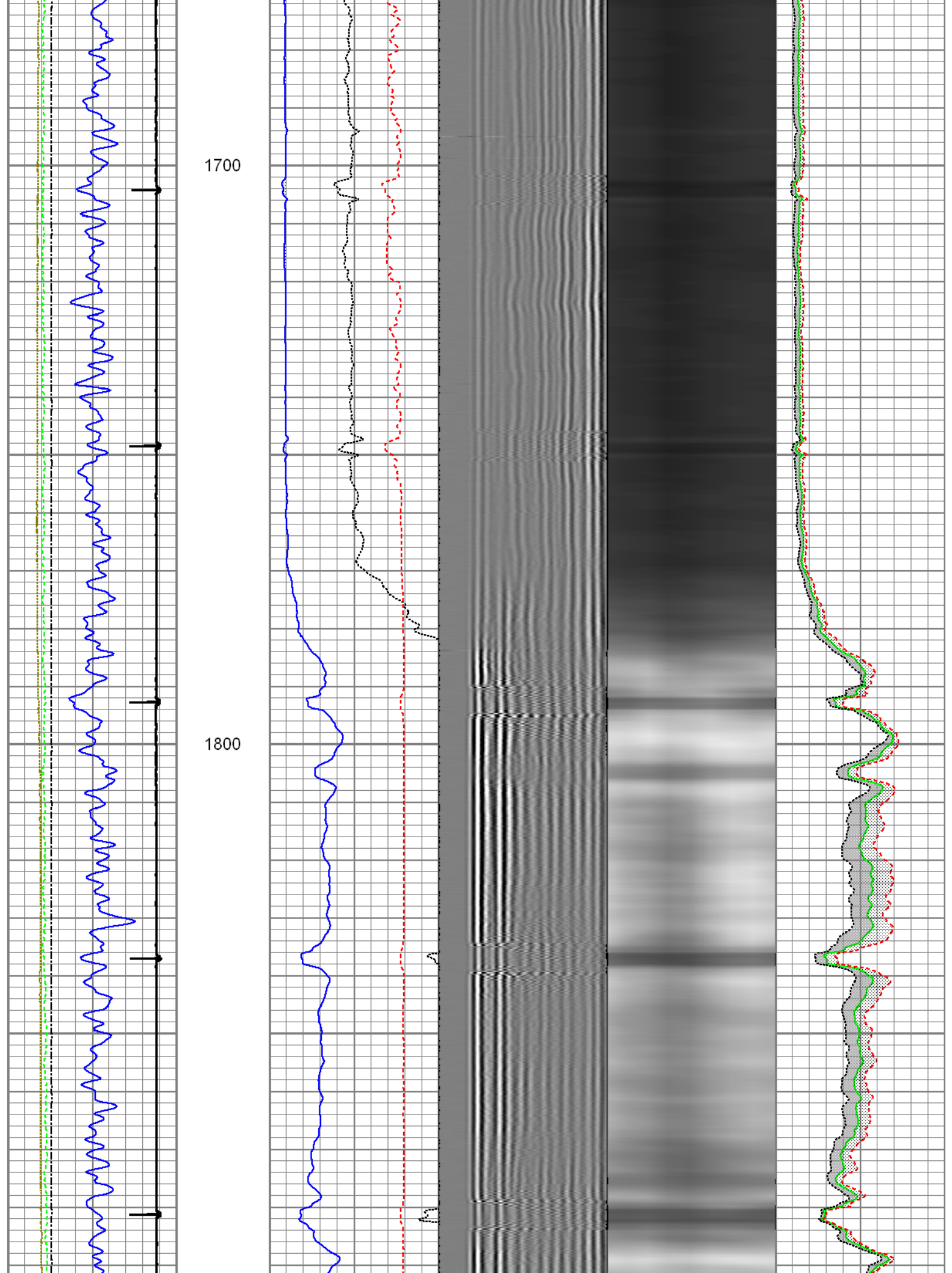
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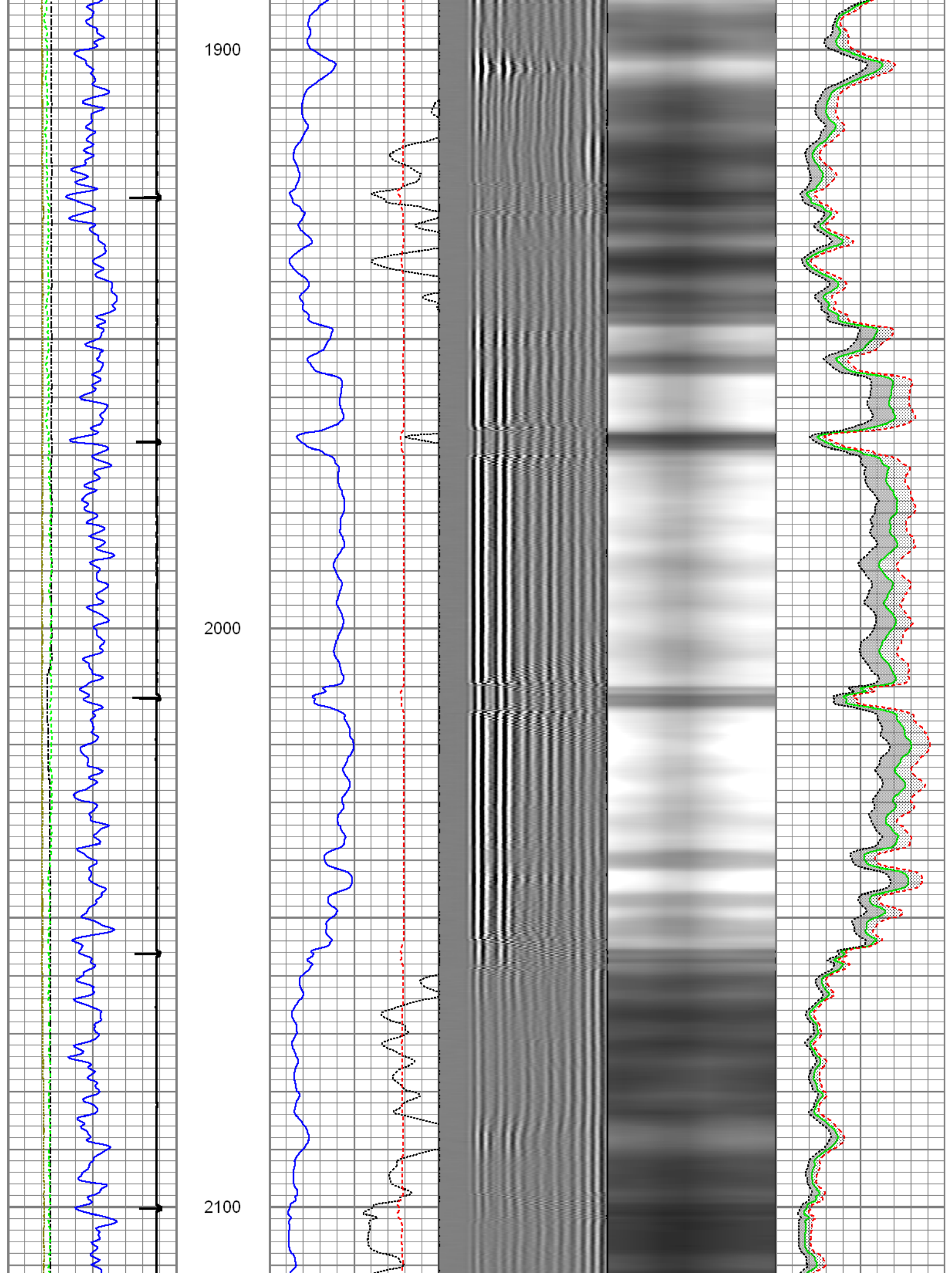
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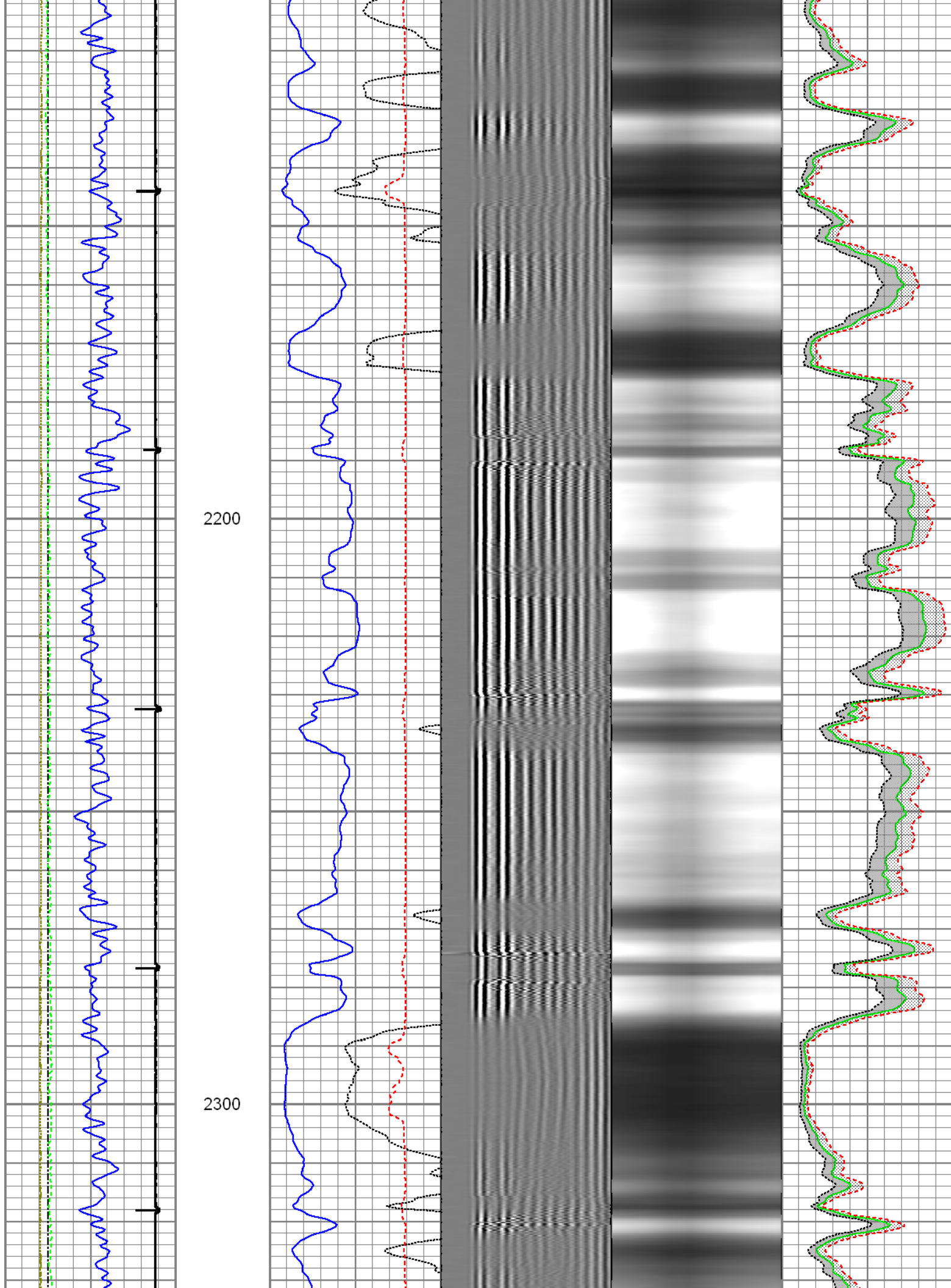




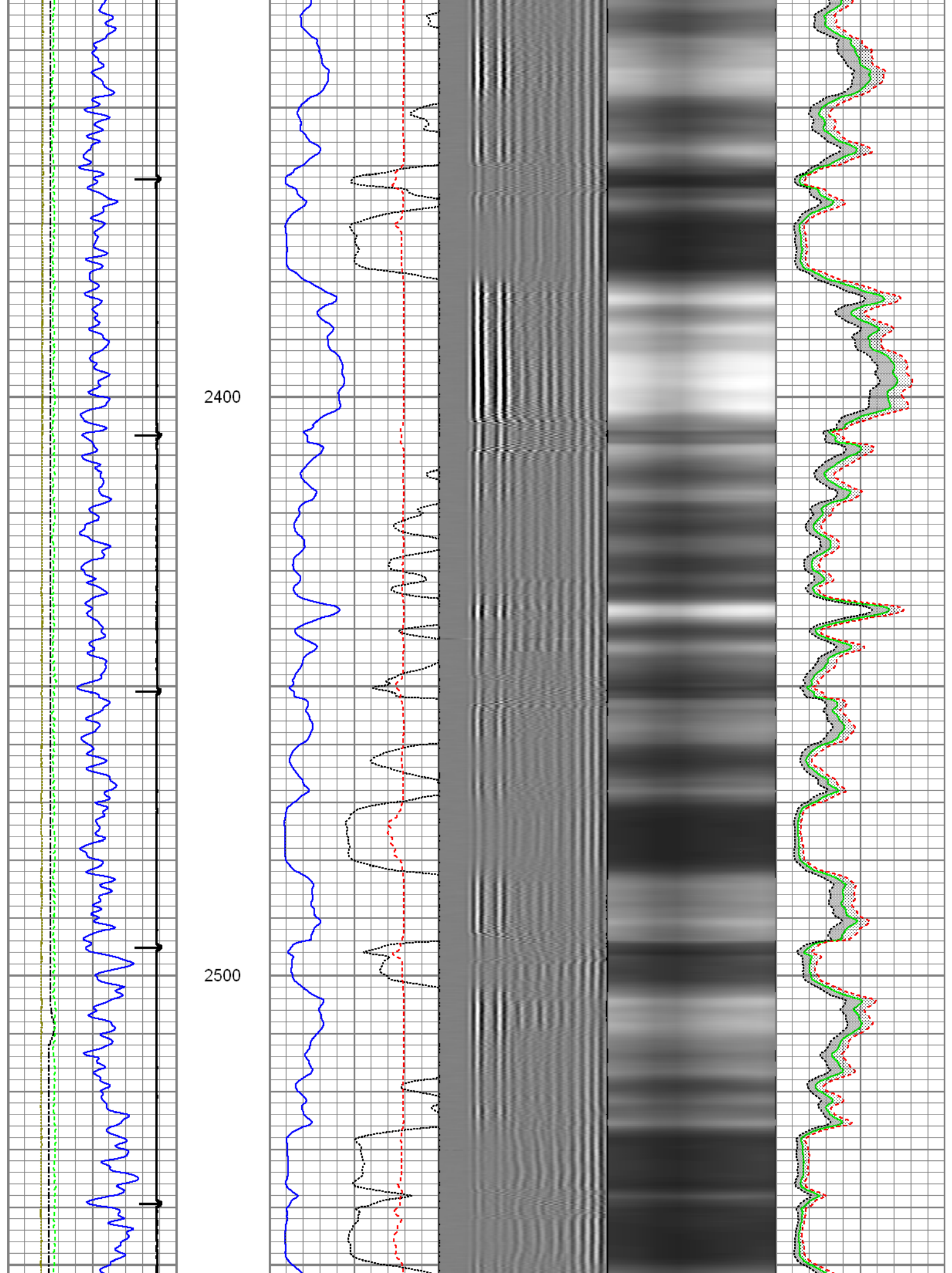


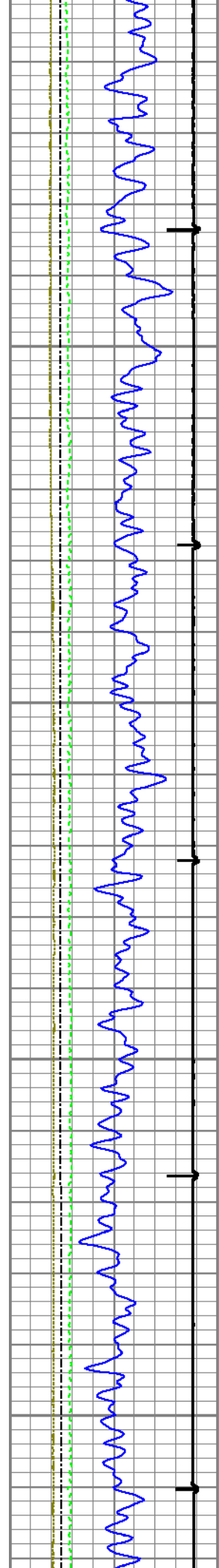
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2300



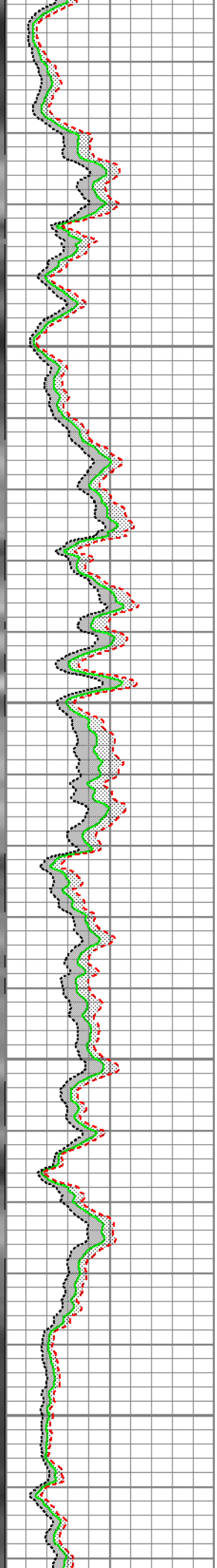
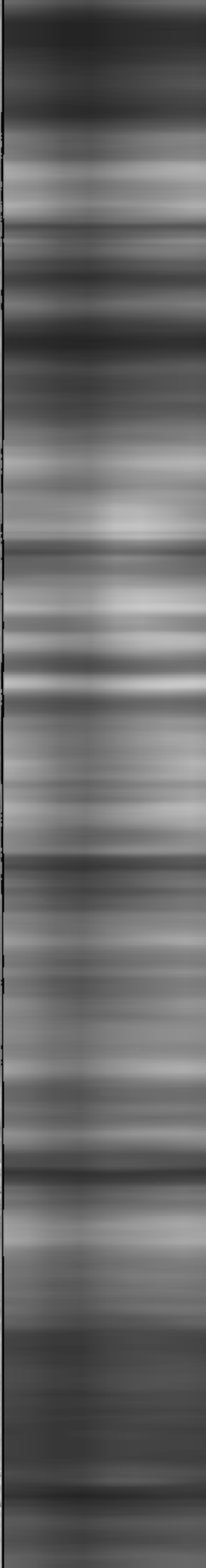
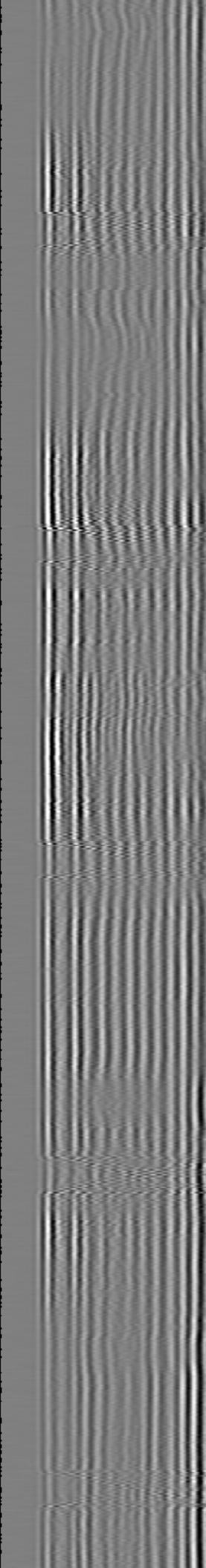
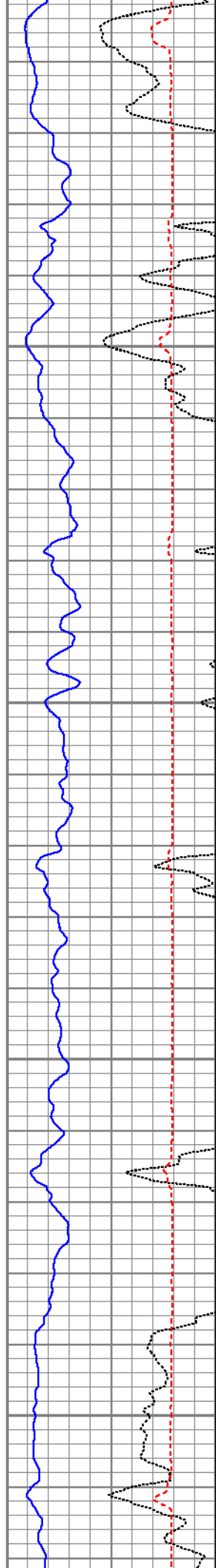


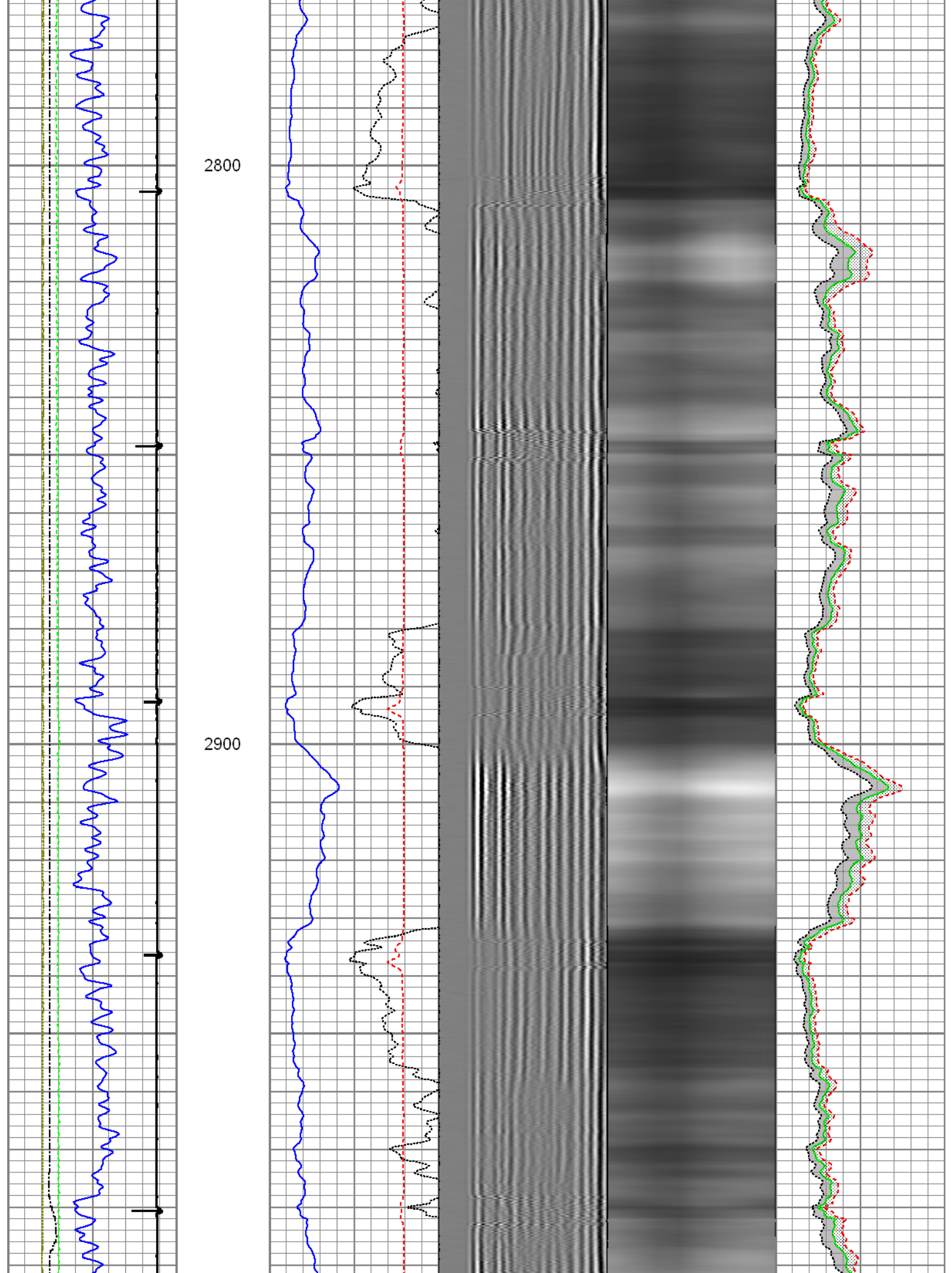




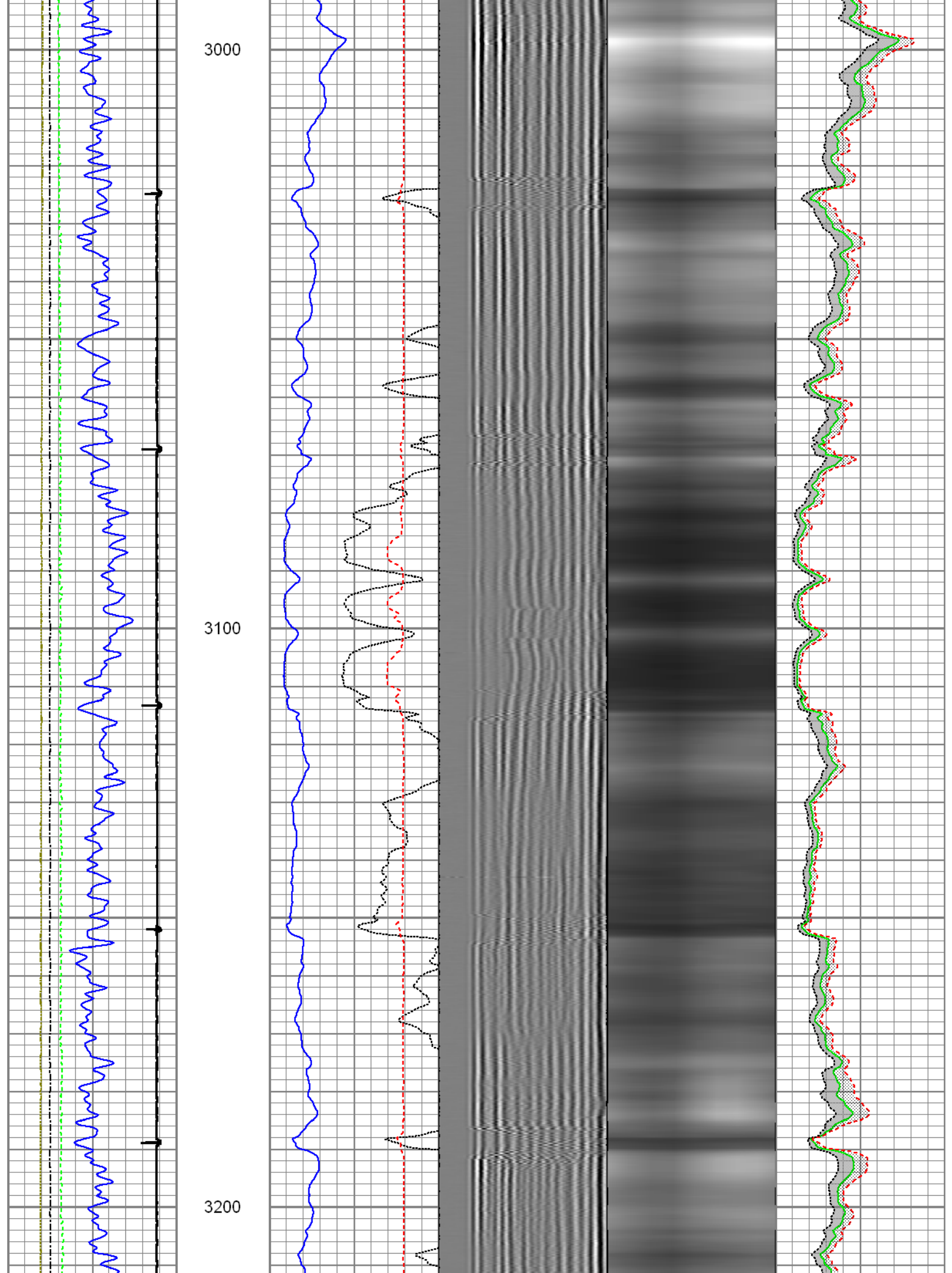
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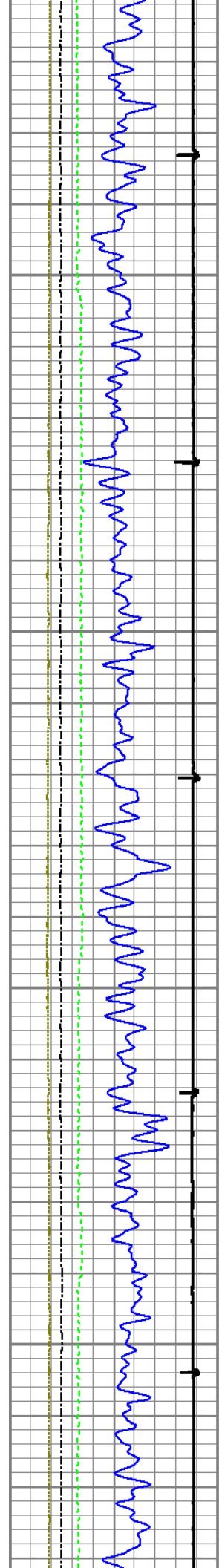






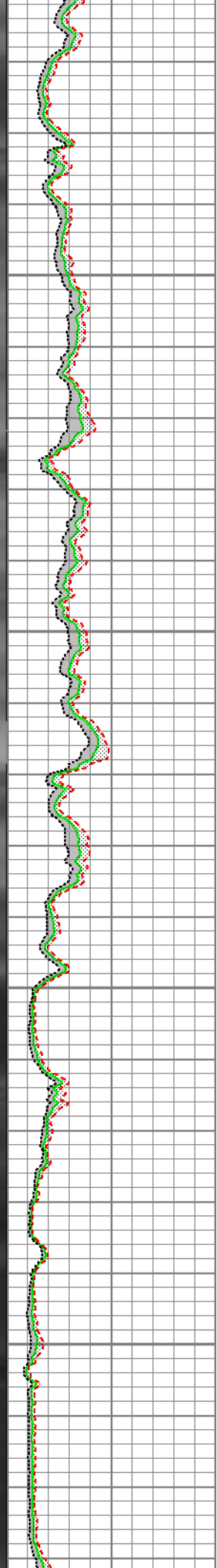
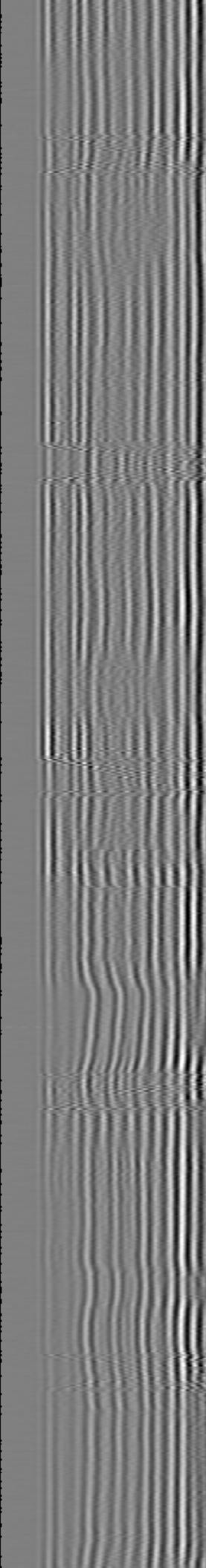
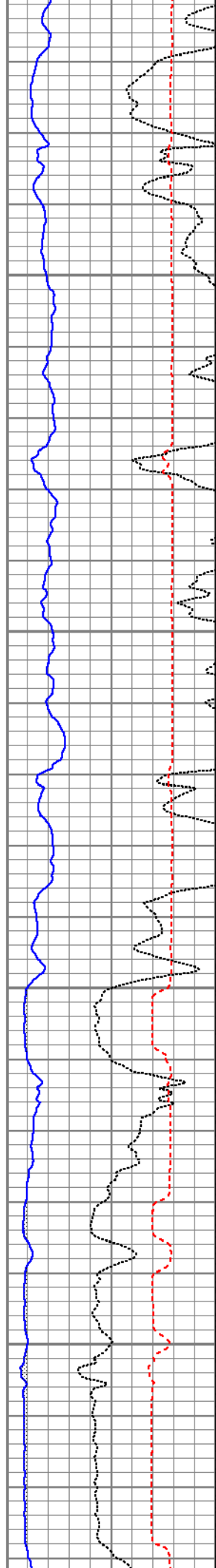


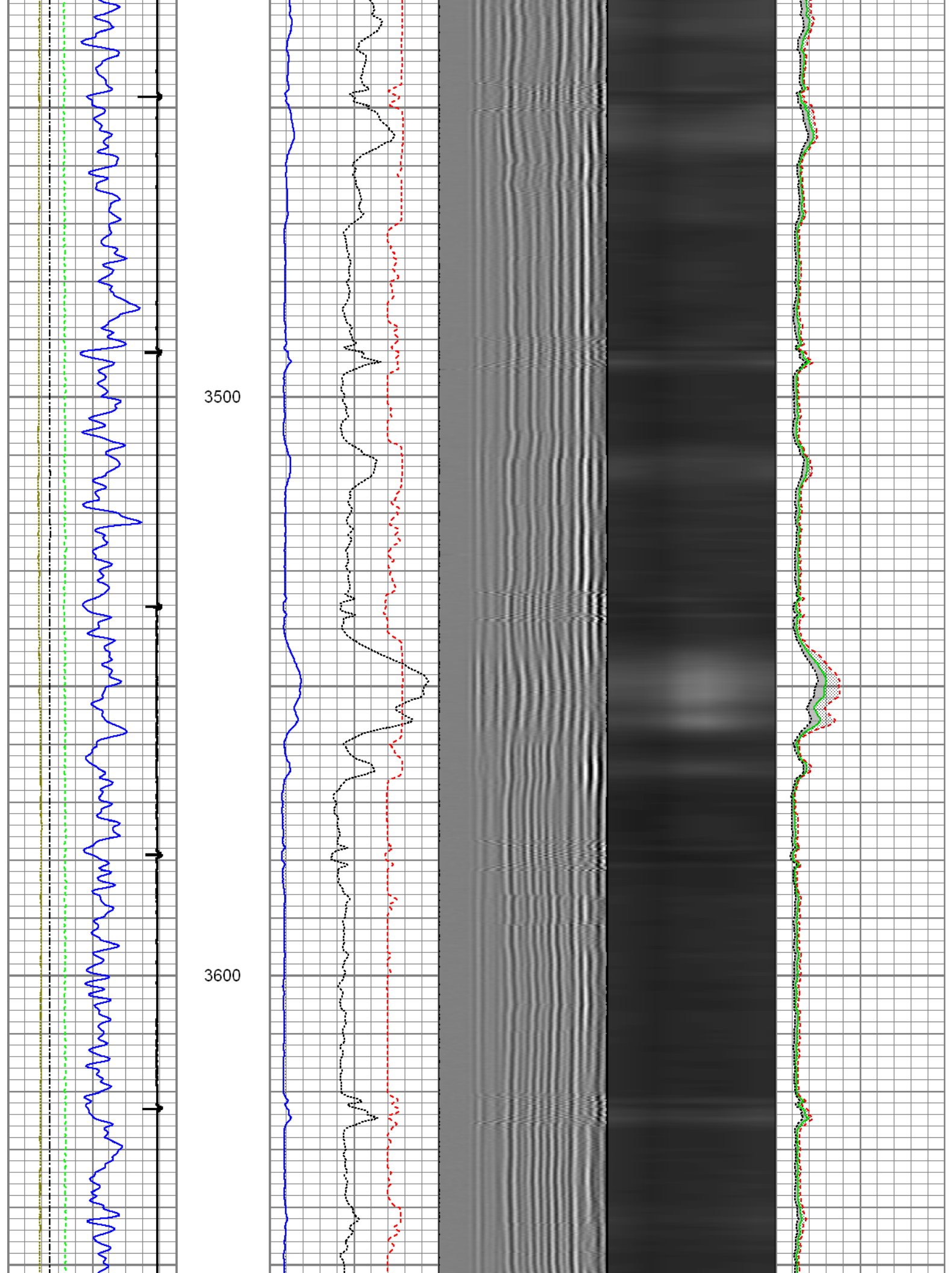




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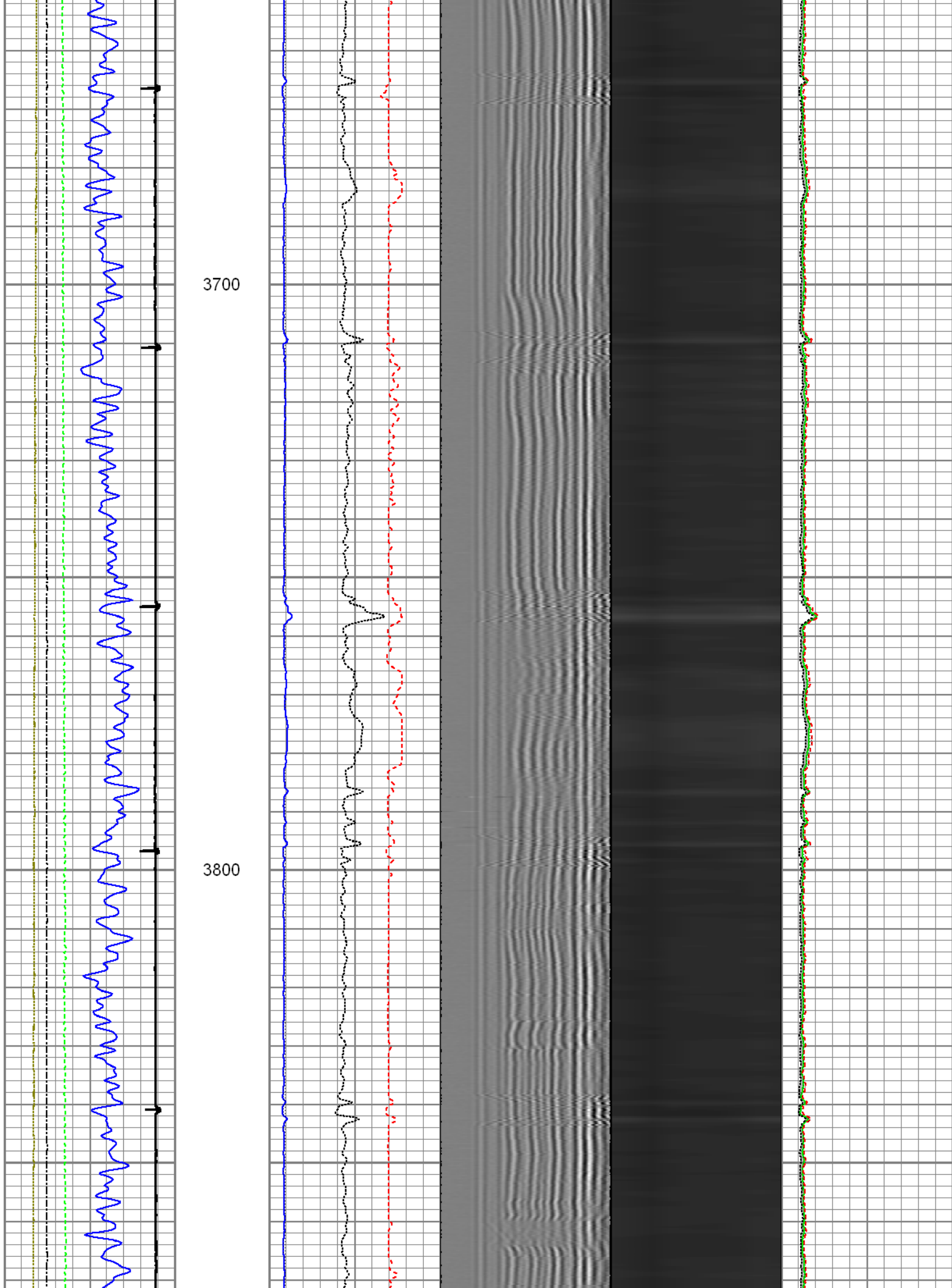
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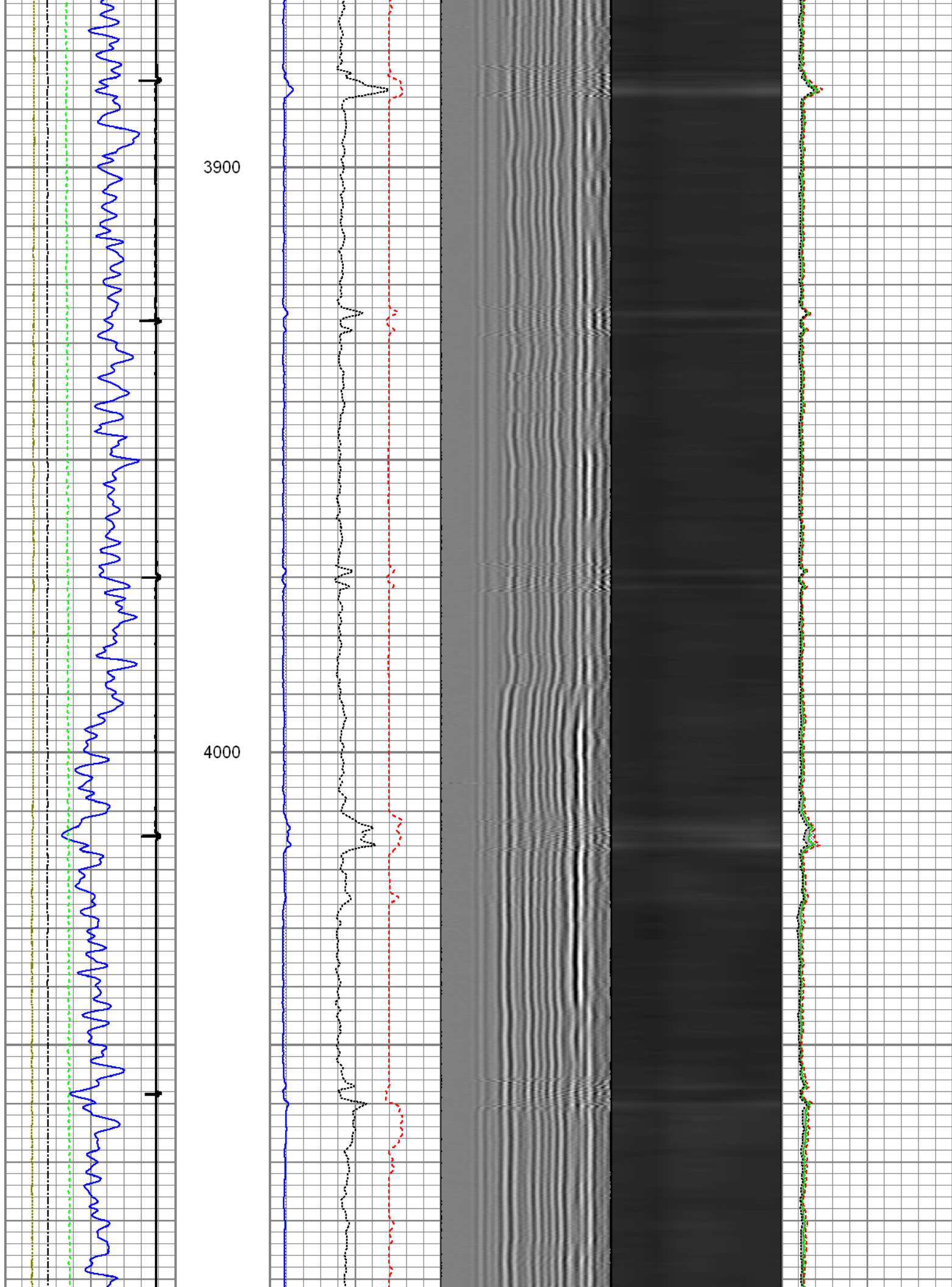
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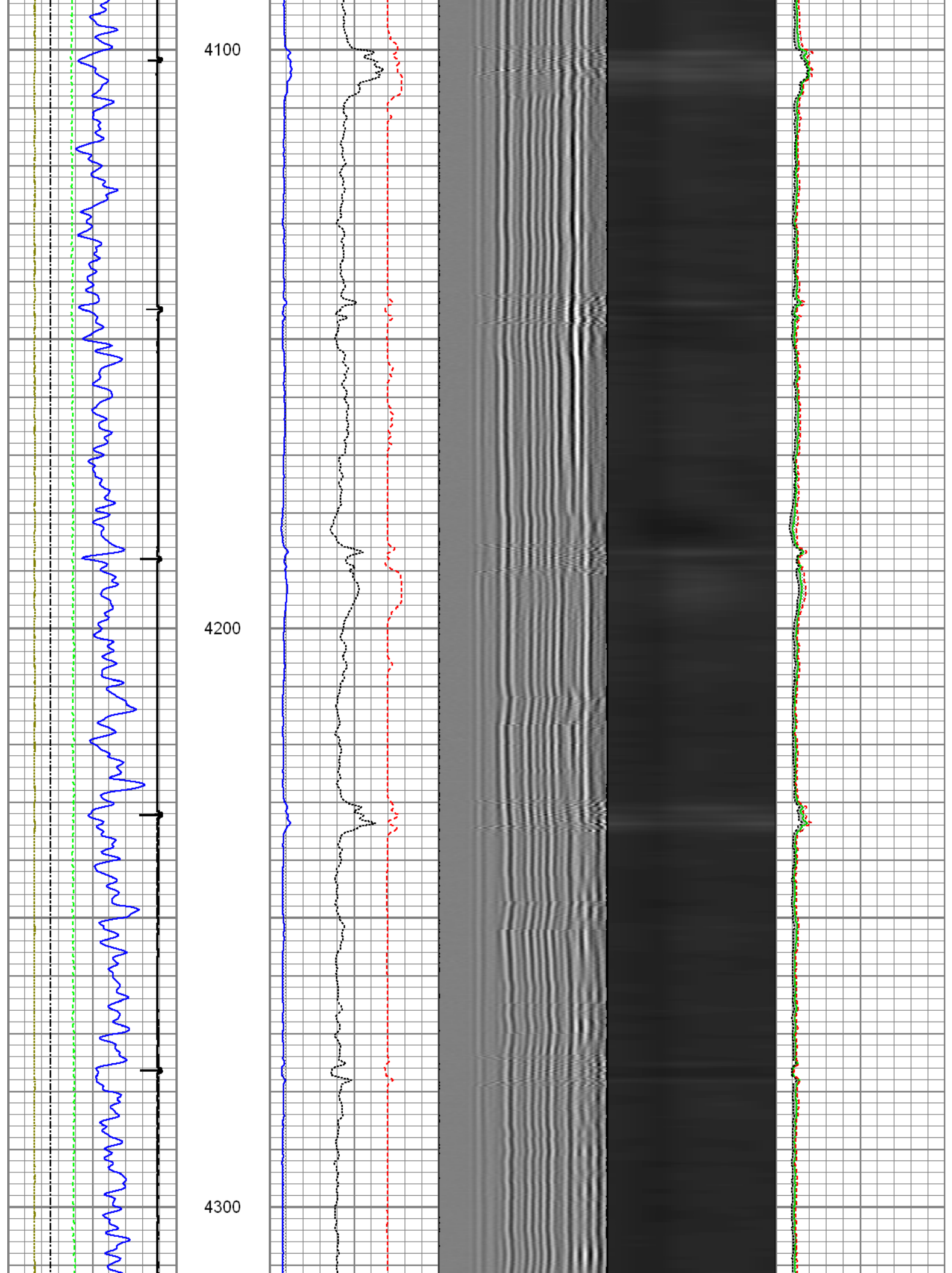


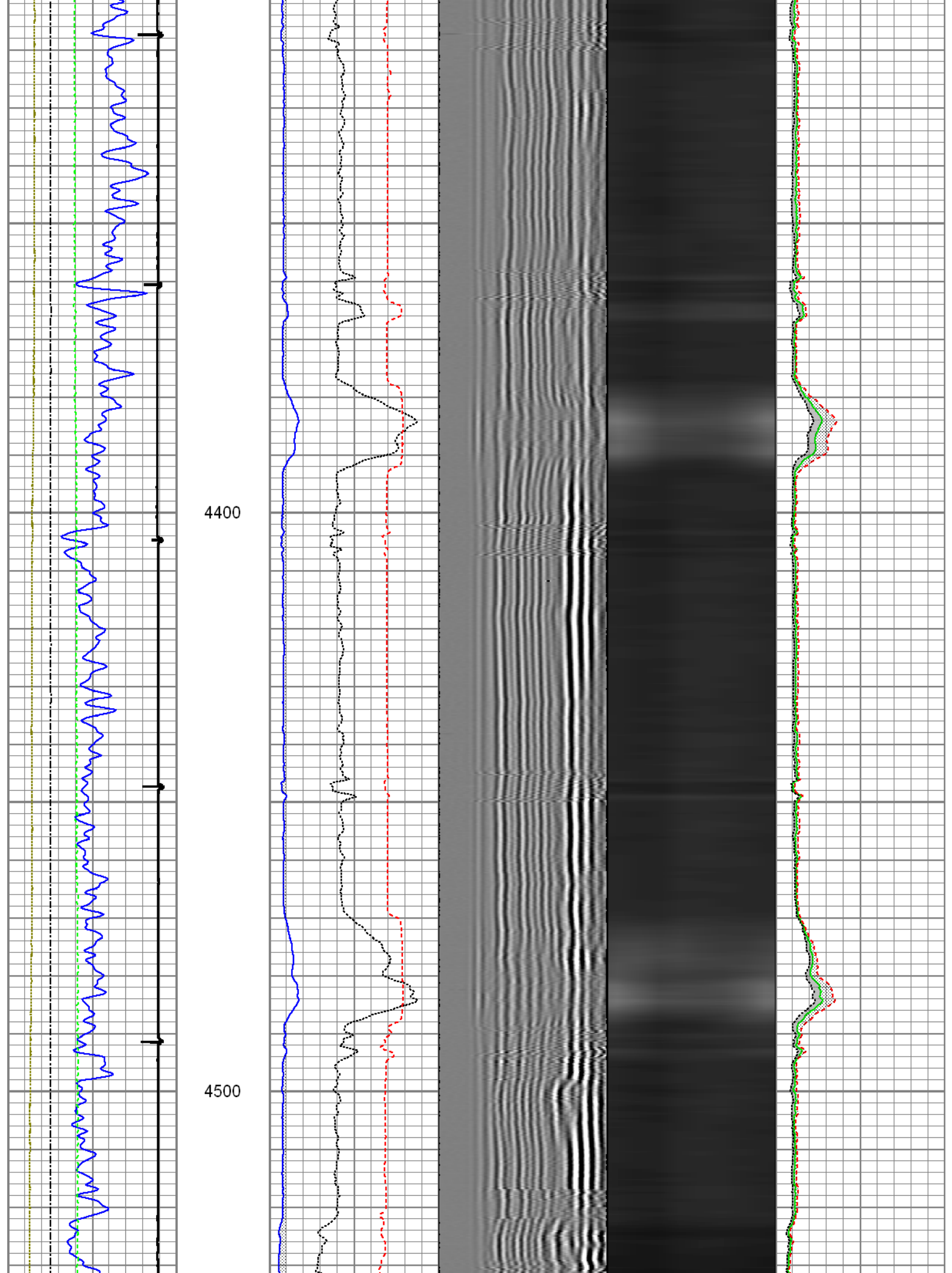
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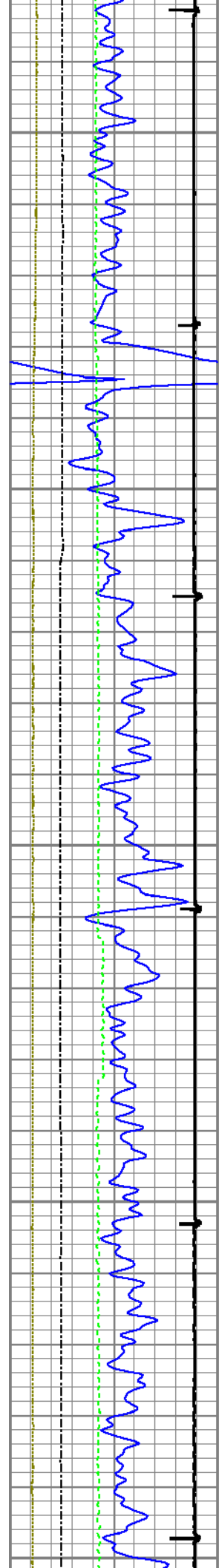
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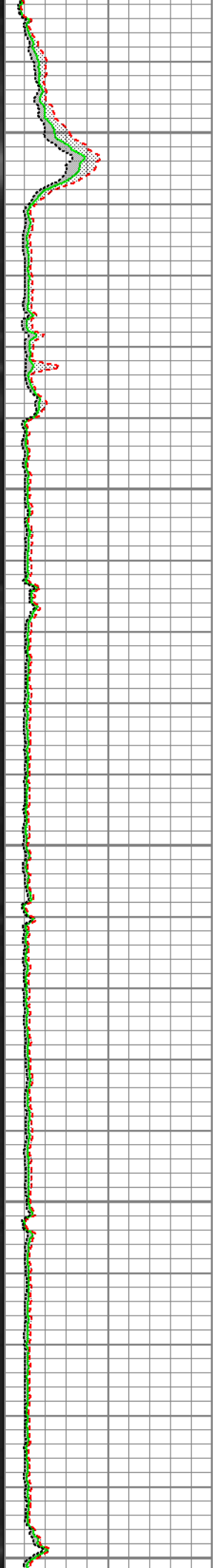
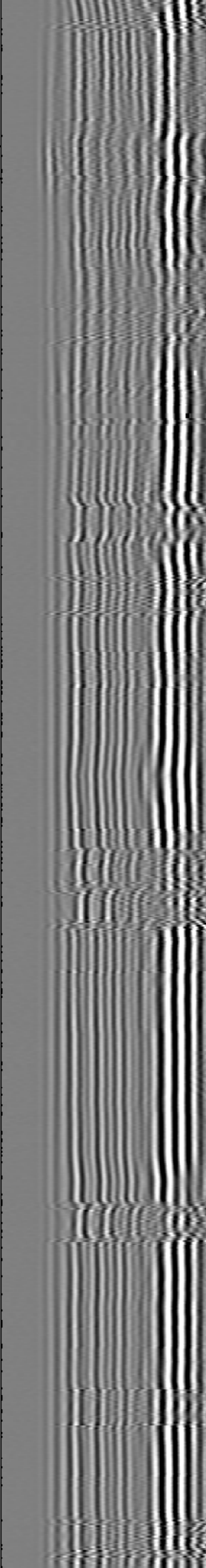
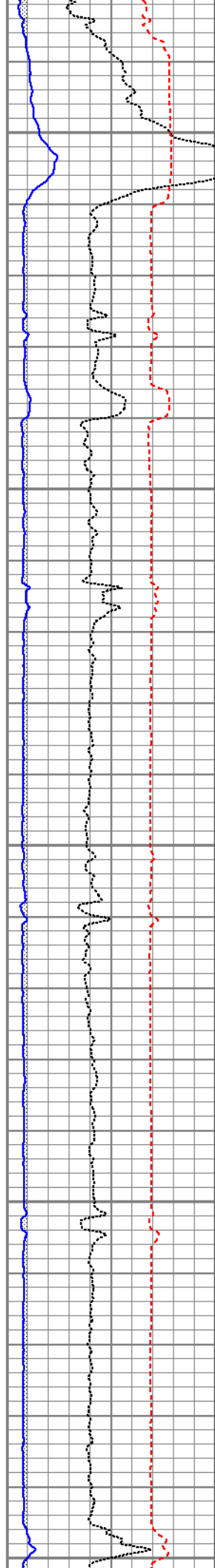


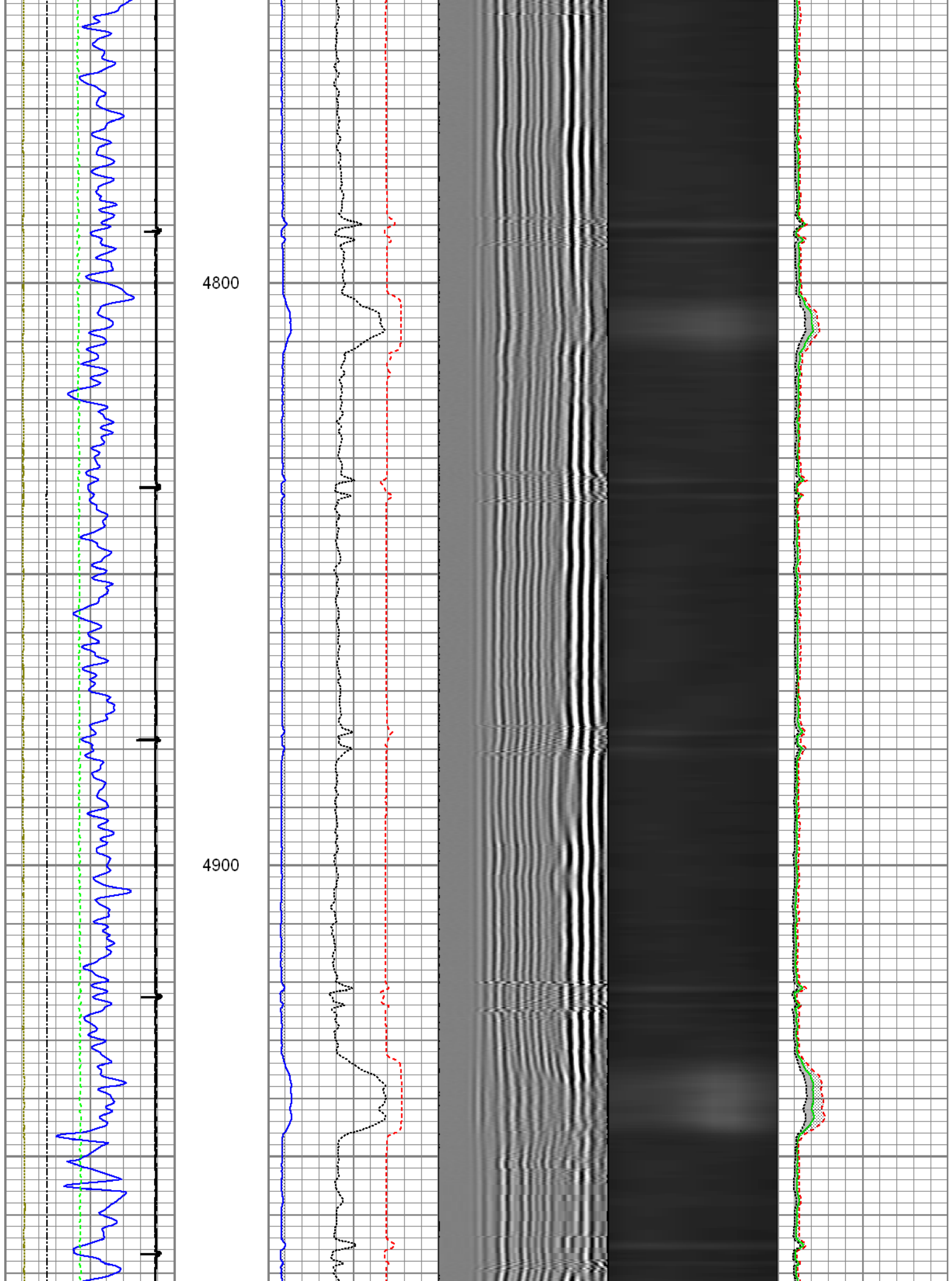




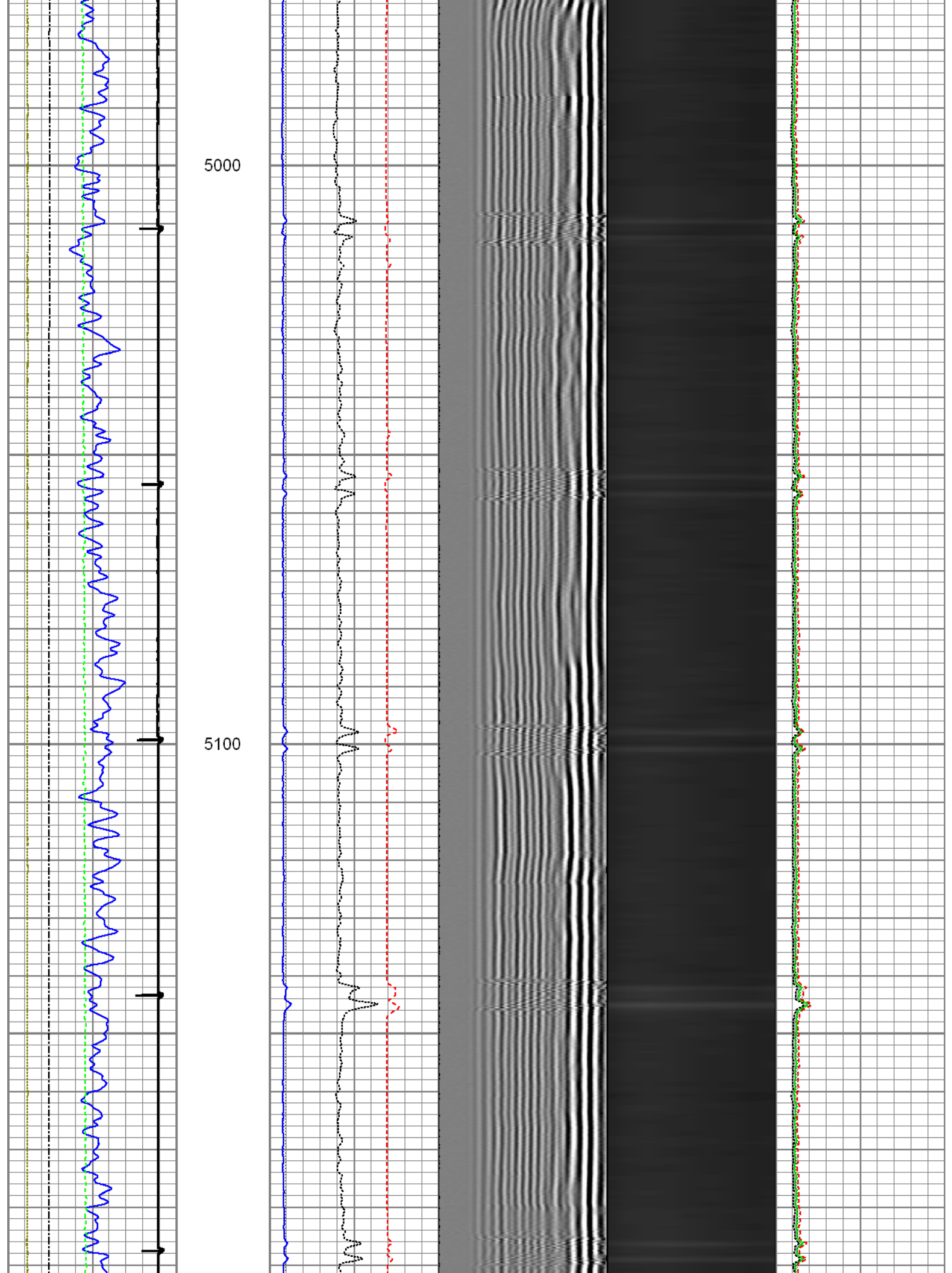
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4700





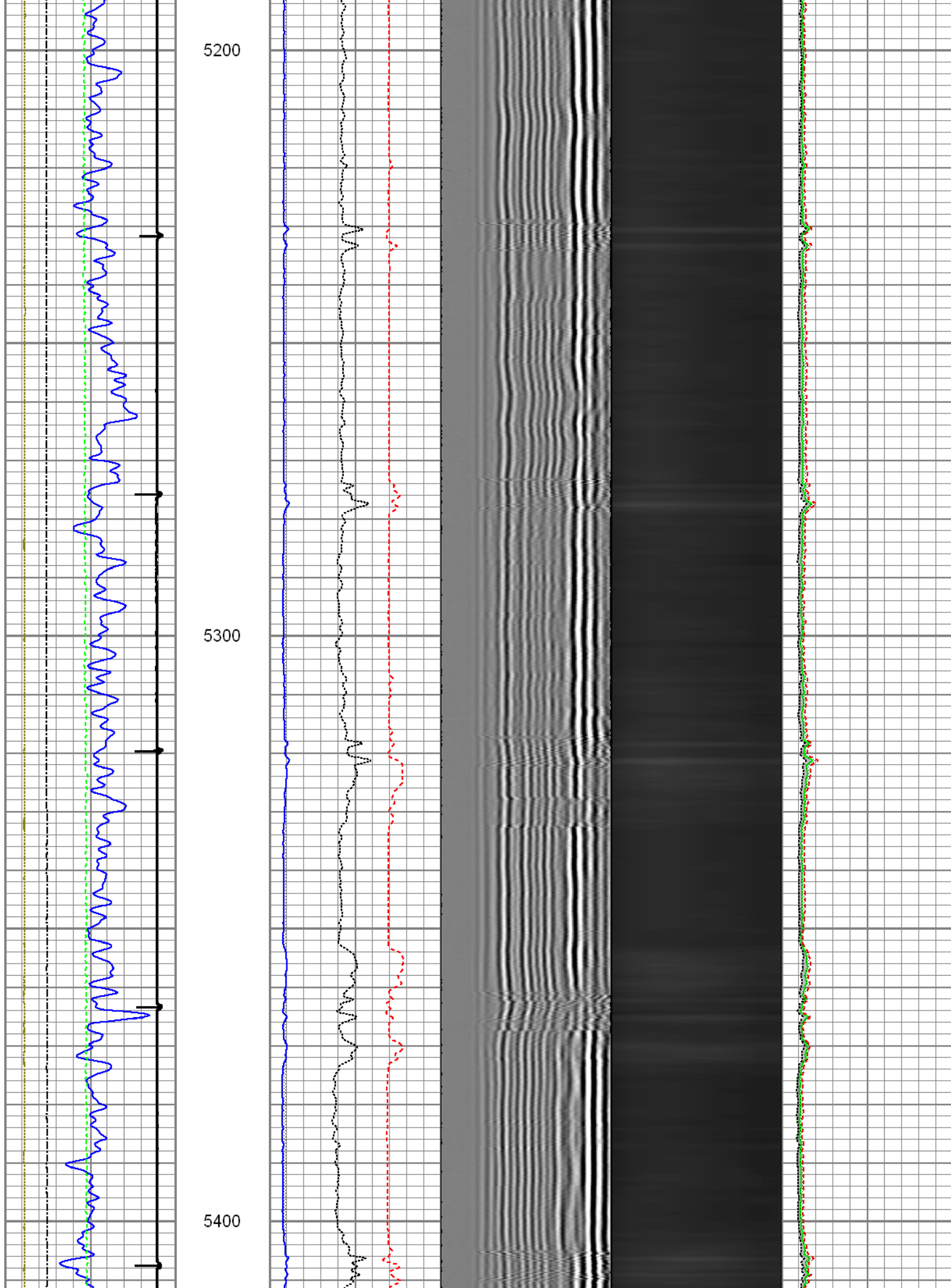


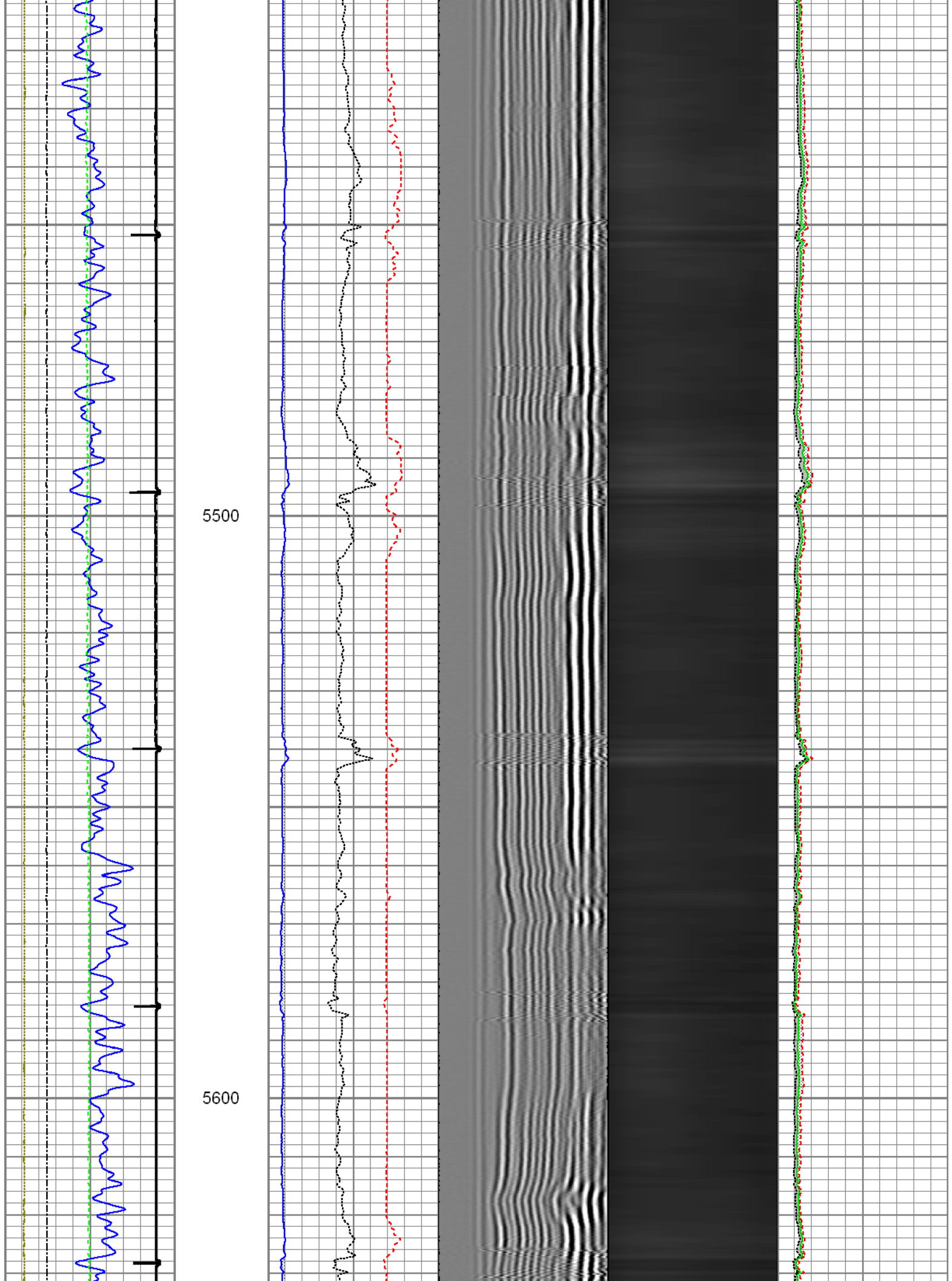


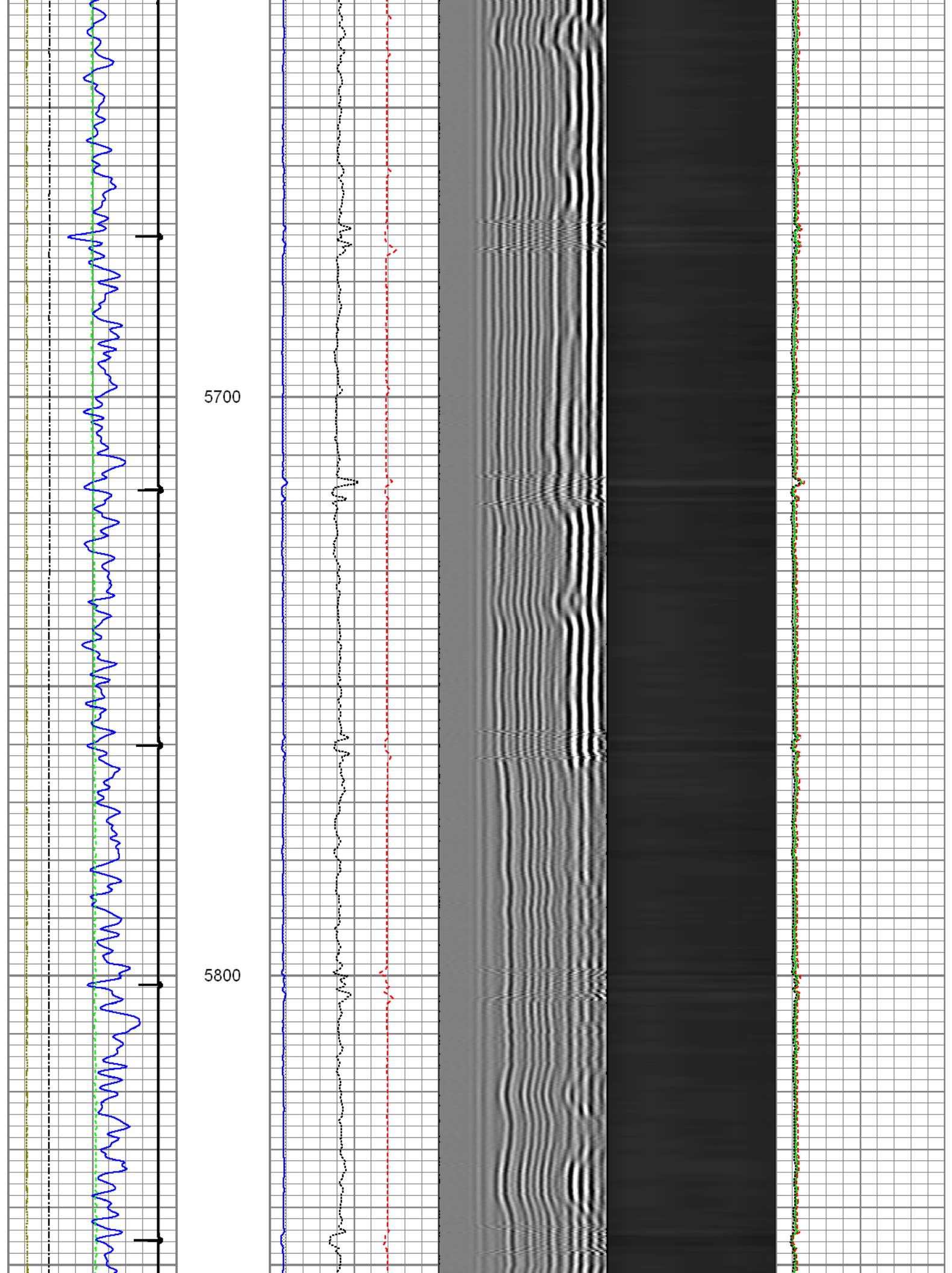
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5300

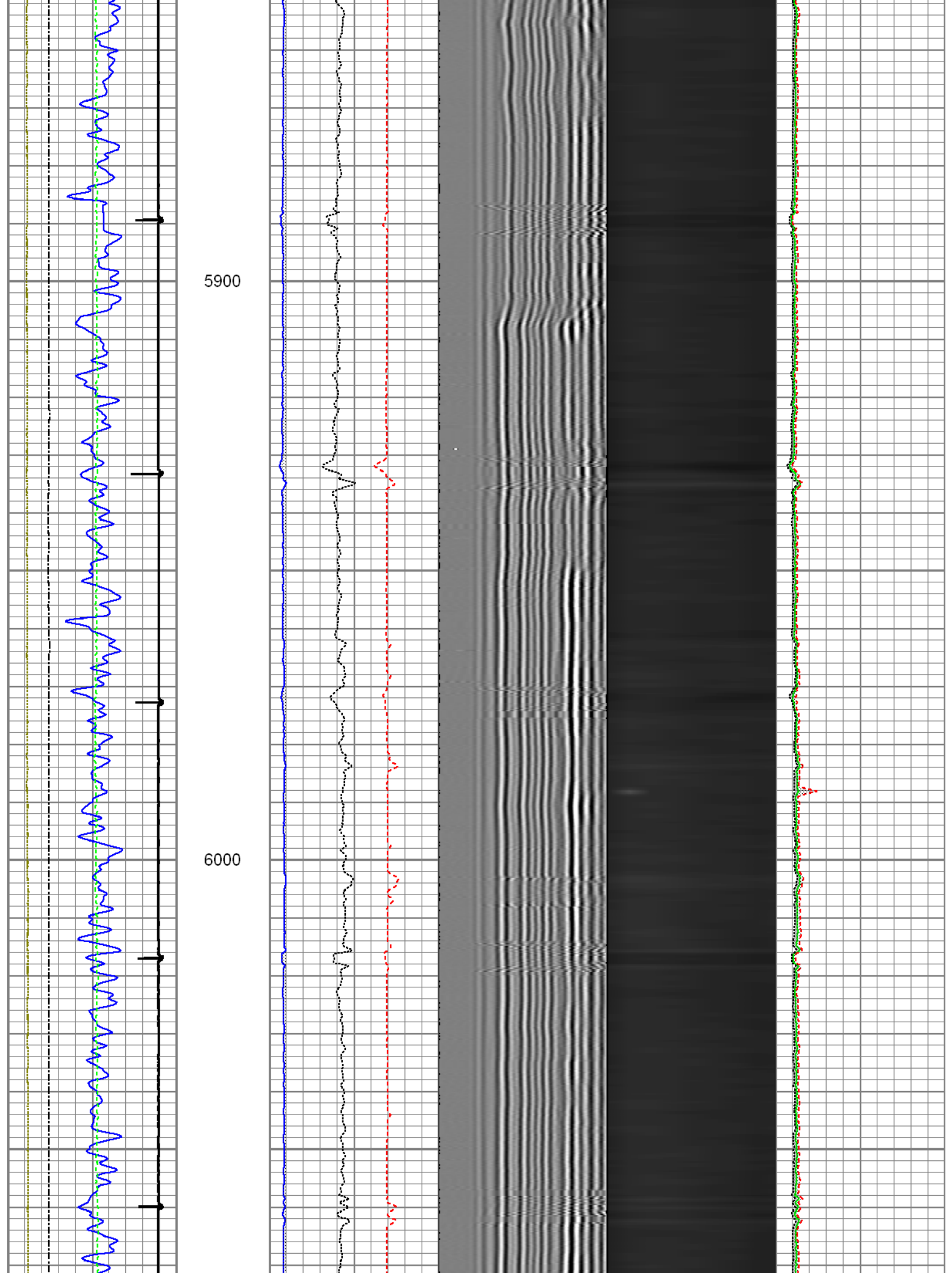
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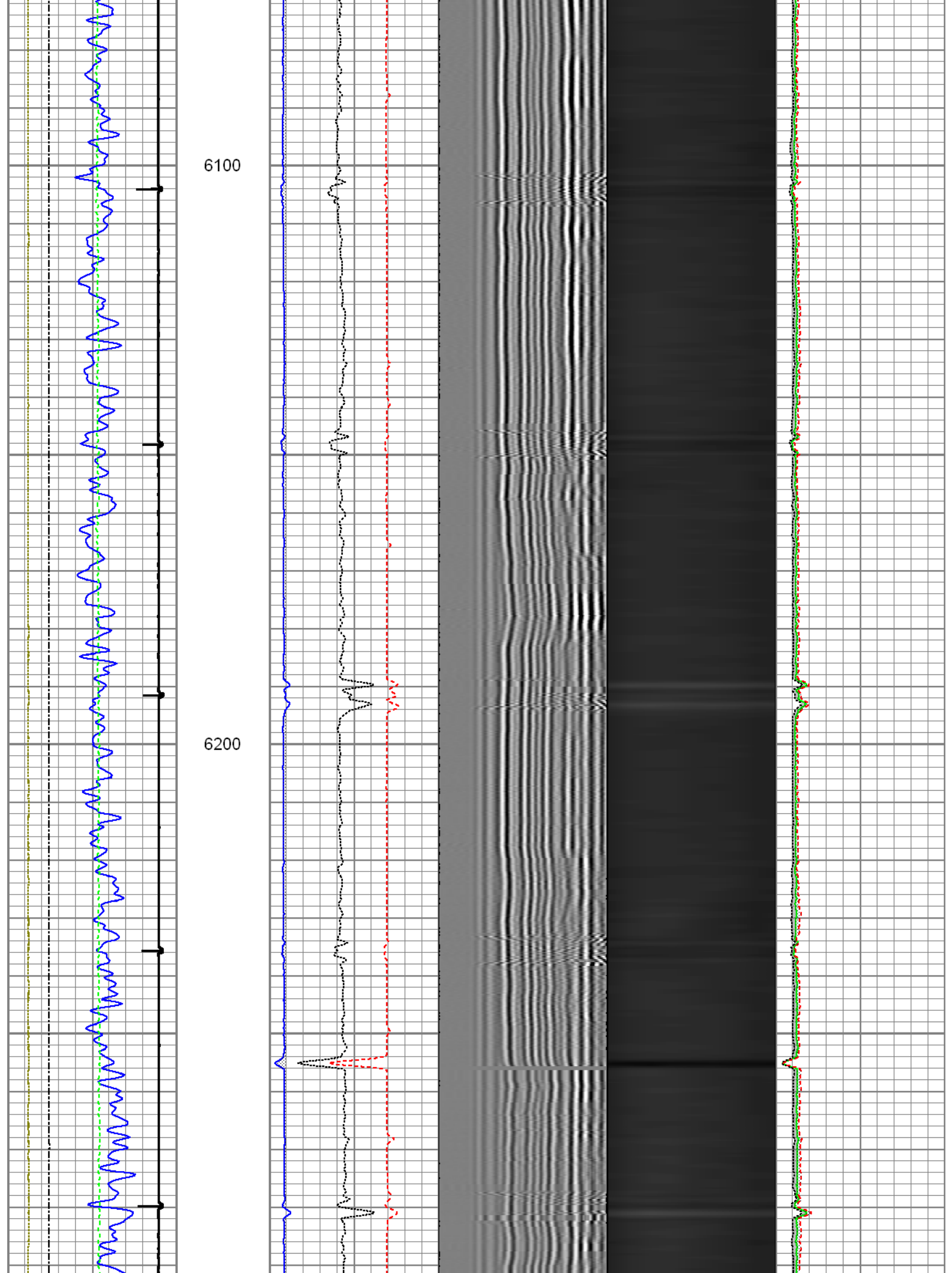


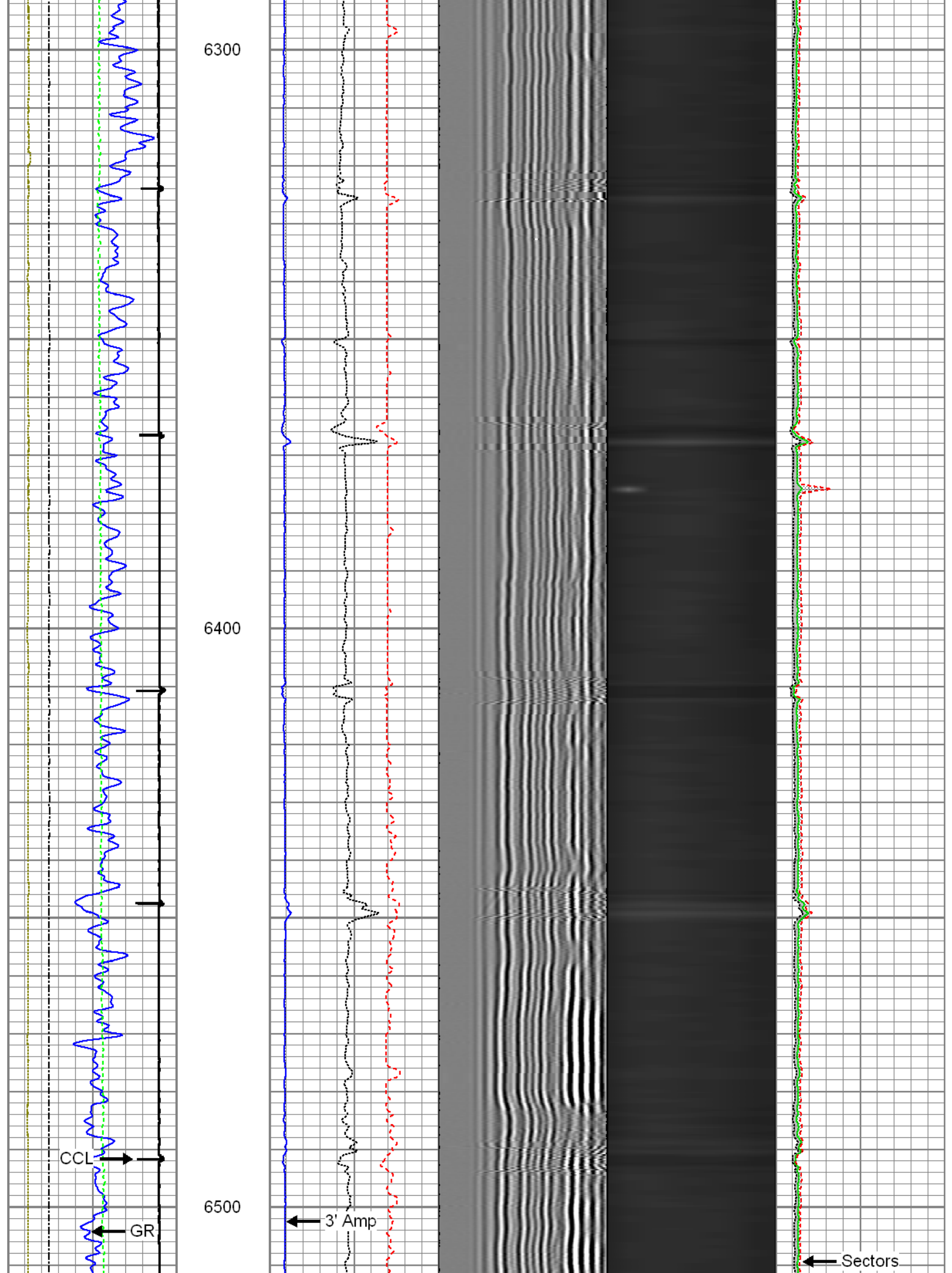


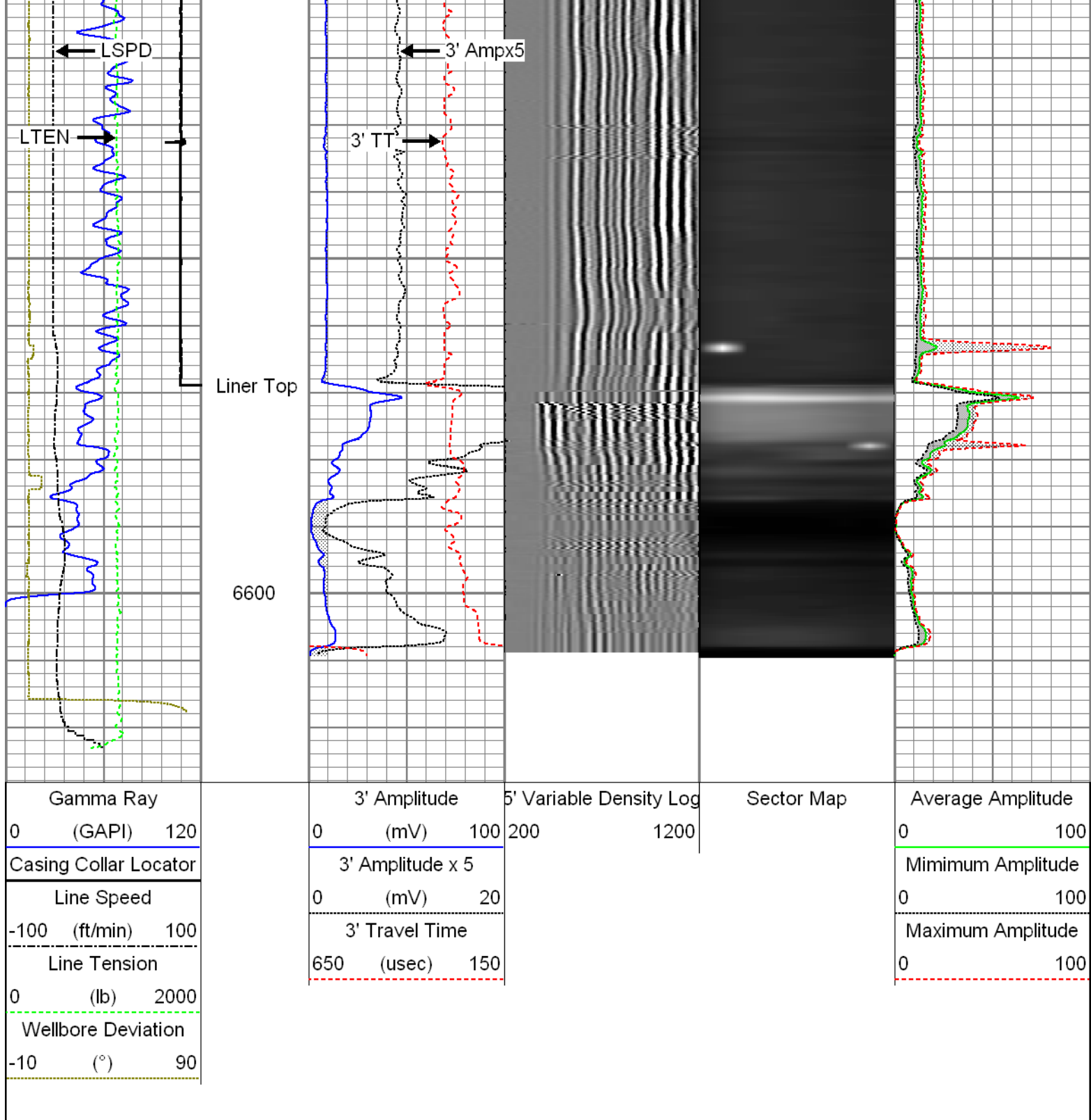








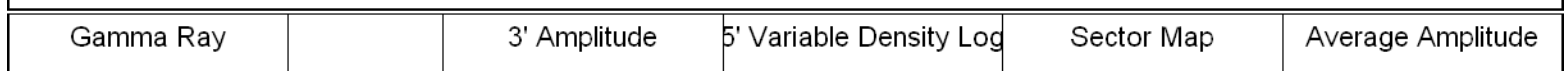




Main Pass: 4.5"

Recorded with 2800 PSI Surface Induced Pressure

Database File: 0512338982\_anadarko\_kerr 28n-12hcx\_02-06-15\_mit\_rbl.db  
 Dataset Pathname: pass6  
 Presentation Format: rbt4\_mit  
 Dataset Creation: Fri Feb 06 09:08:44 2015 by Log 7.0 B1  
 Charted by: Depth in Feet scaled 1:240



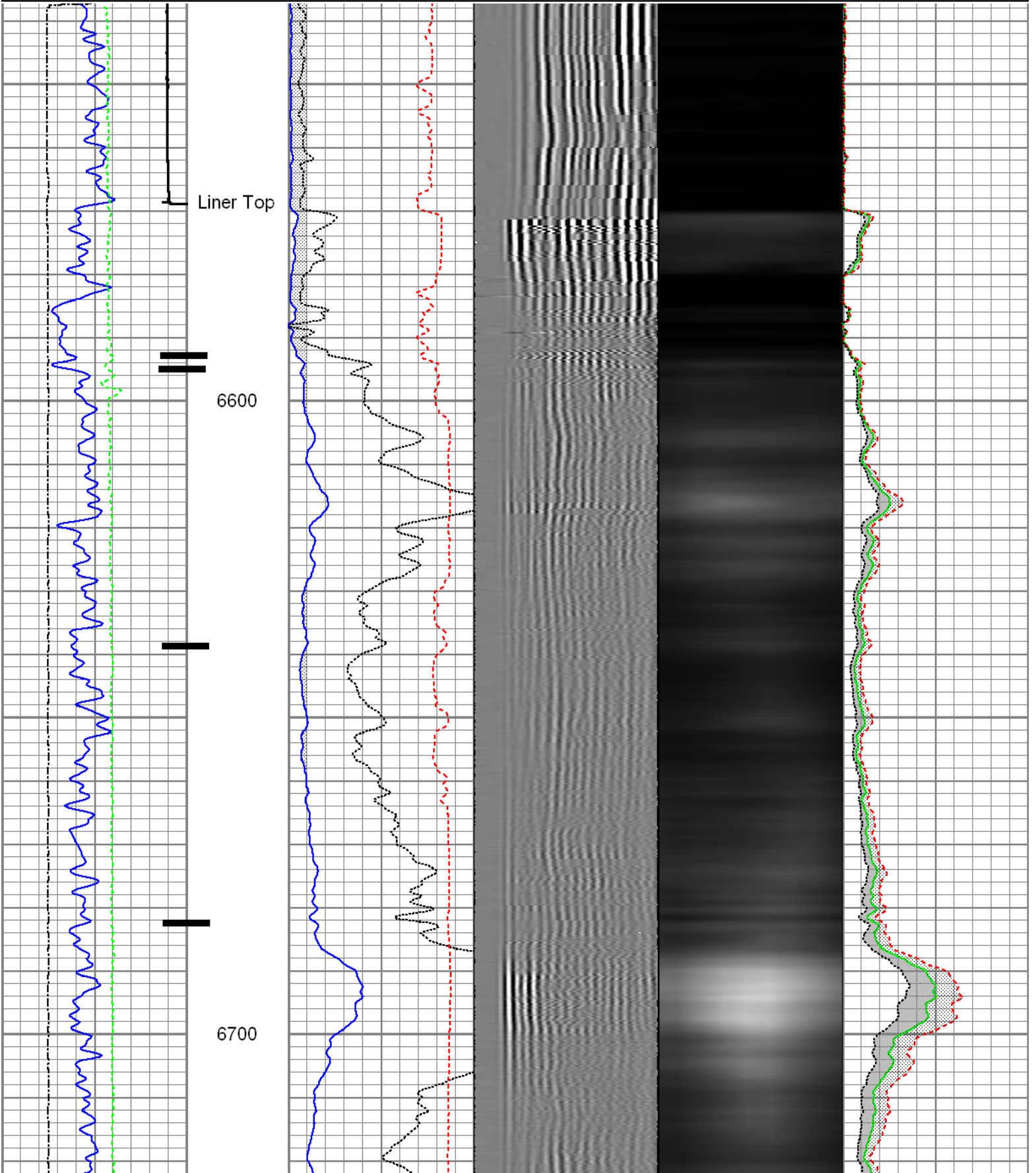


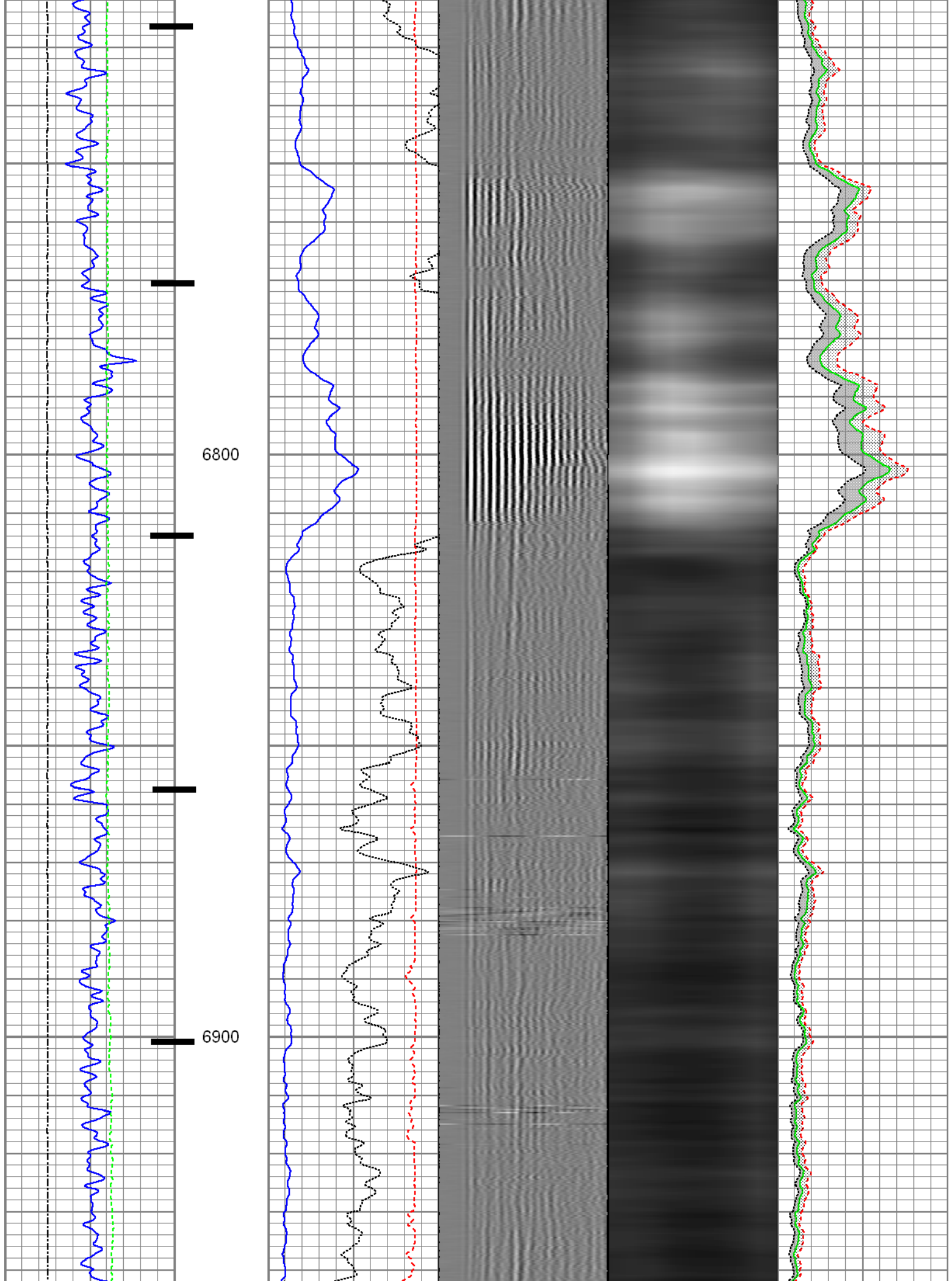
0	(GAPI)	120
Casing Collar Locator		
Line Speed		
-100	(ft/min)	100
Line Tension		
0	(lb)	2000

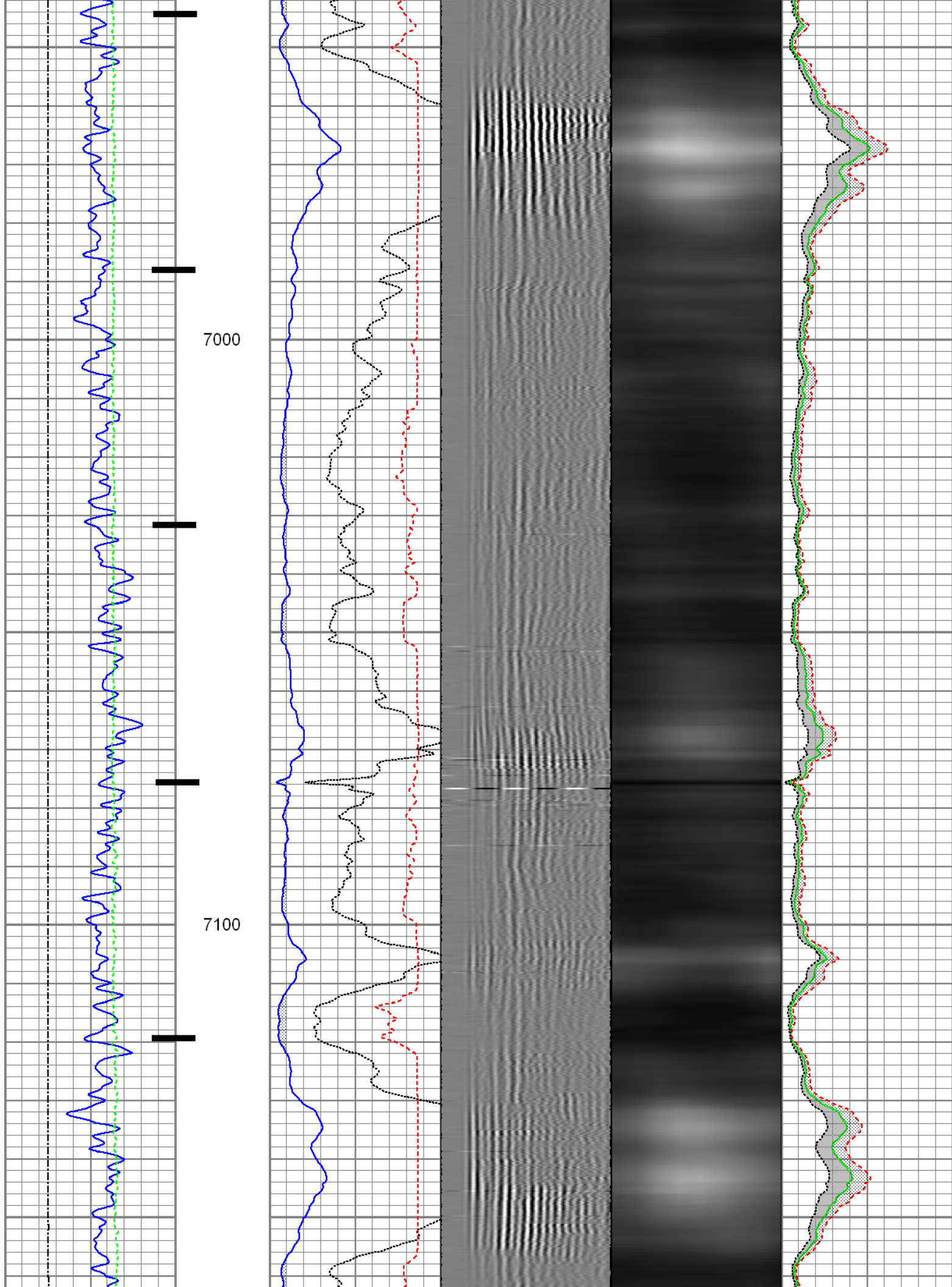
0	(mV)	100
3' Amplitude x 5		
0	(mV)	20
3' Travel Time		
650	(usec)	150

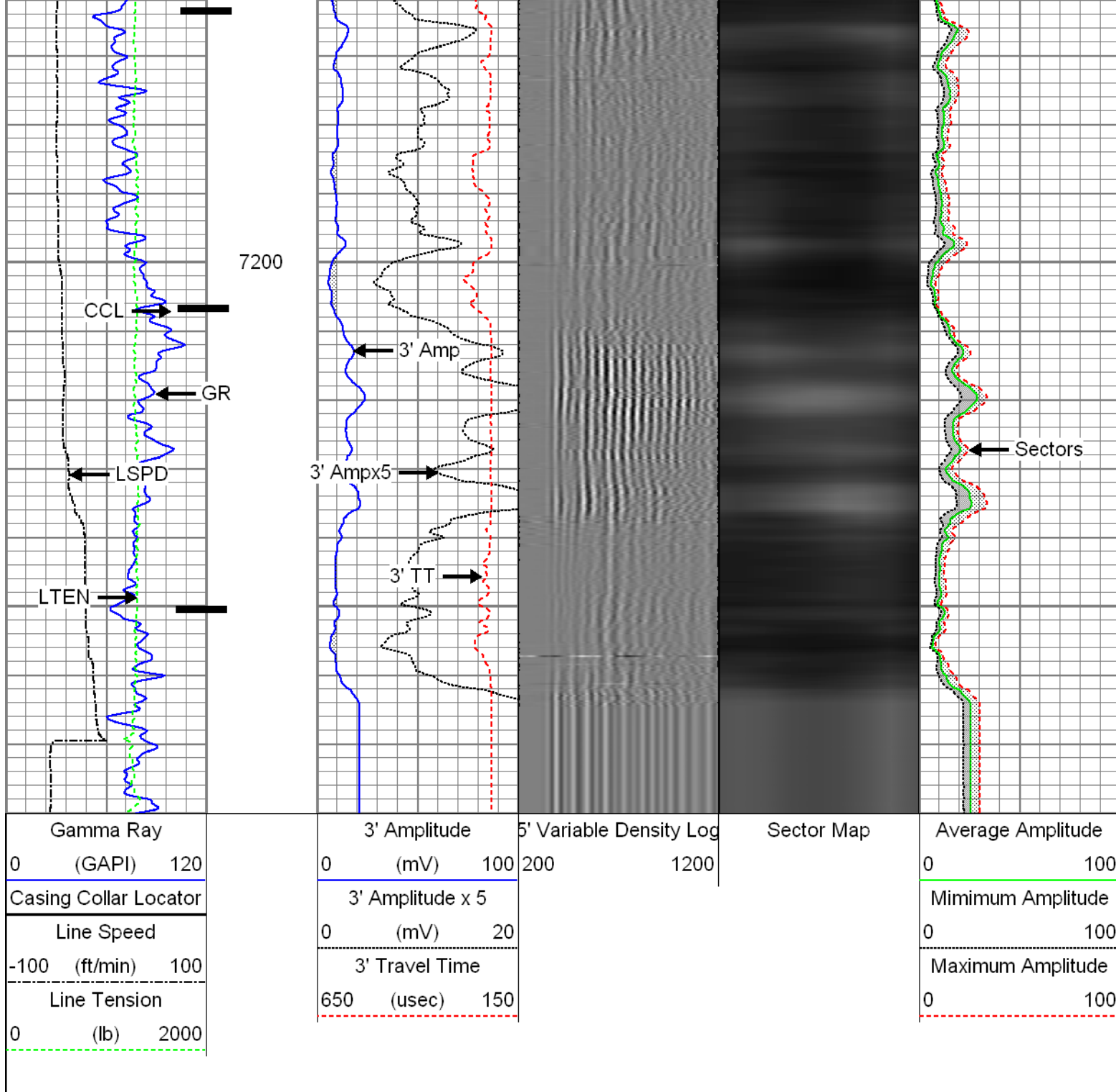
200 1200

0	100
Minimum Amplitude	
0	100
Maximum Amplitude	
0	100









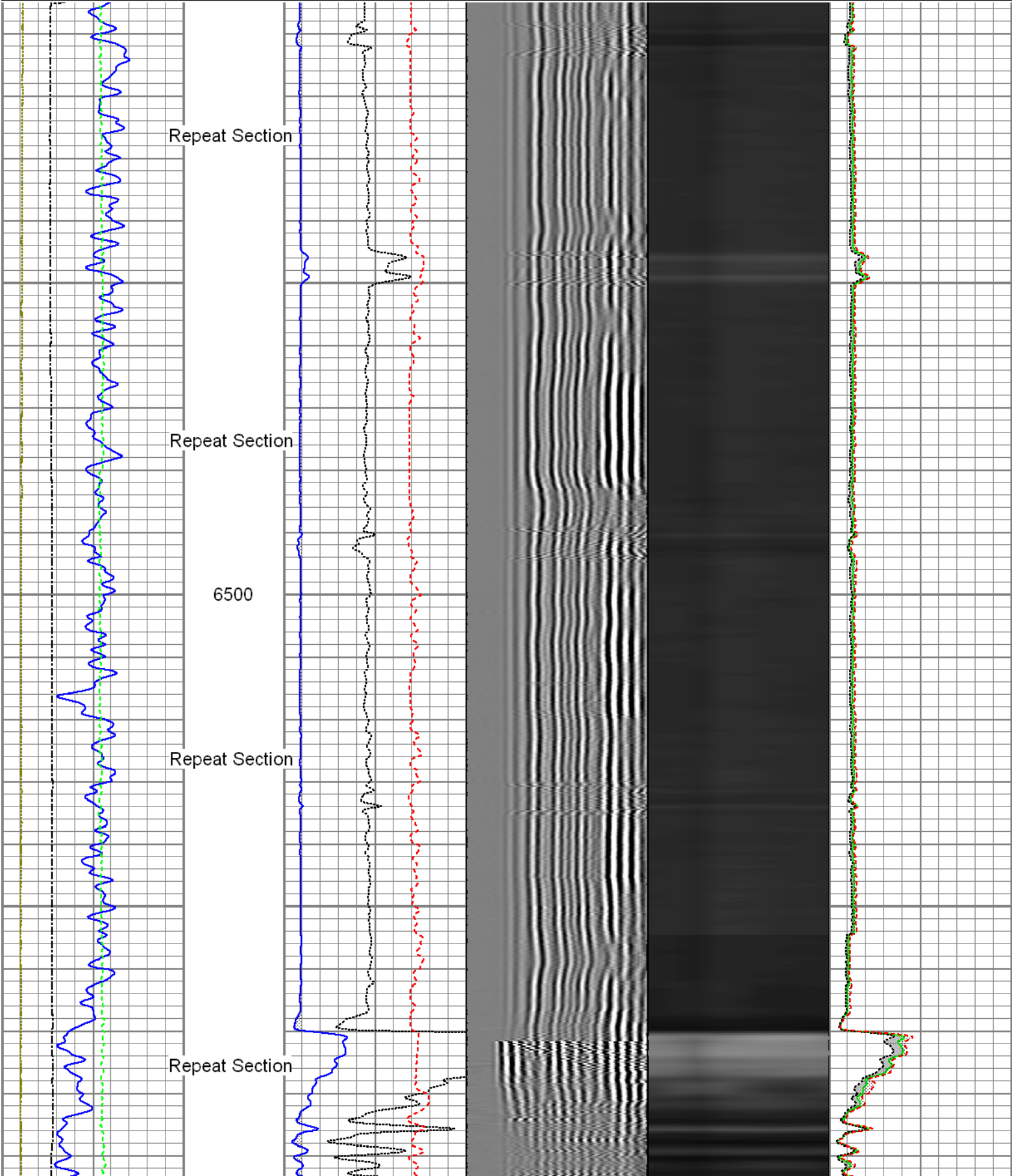
<b>FMC Technologies</b>		Repeat Section		
		Recorded with 2800 PSI Surface Induced Pressure		
Database File: 0512338982_anadarko_kerr 28n-12hzx_02-06-15_mit_rbl.db Dataset Pathname: pass4 Presentation Format: rbt4_mit Dataset Creation: Fri Feb 06 08:50:12 2015 by Log 7.0 B1 Charted by: Depth in Feet scaled 1:240				
Gamma Ray 0 (GAPI) 120	3' Amplitude 0 (mV) 100	5' Variable Density Log 200 1200	Sector Map	Average Amplitude 0 100
Line Speed	3' Amplitude x 5			Minimum Amplitude

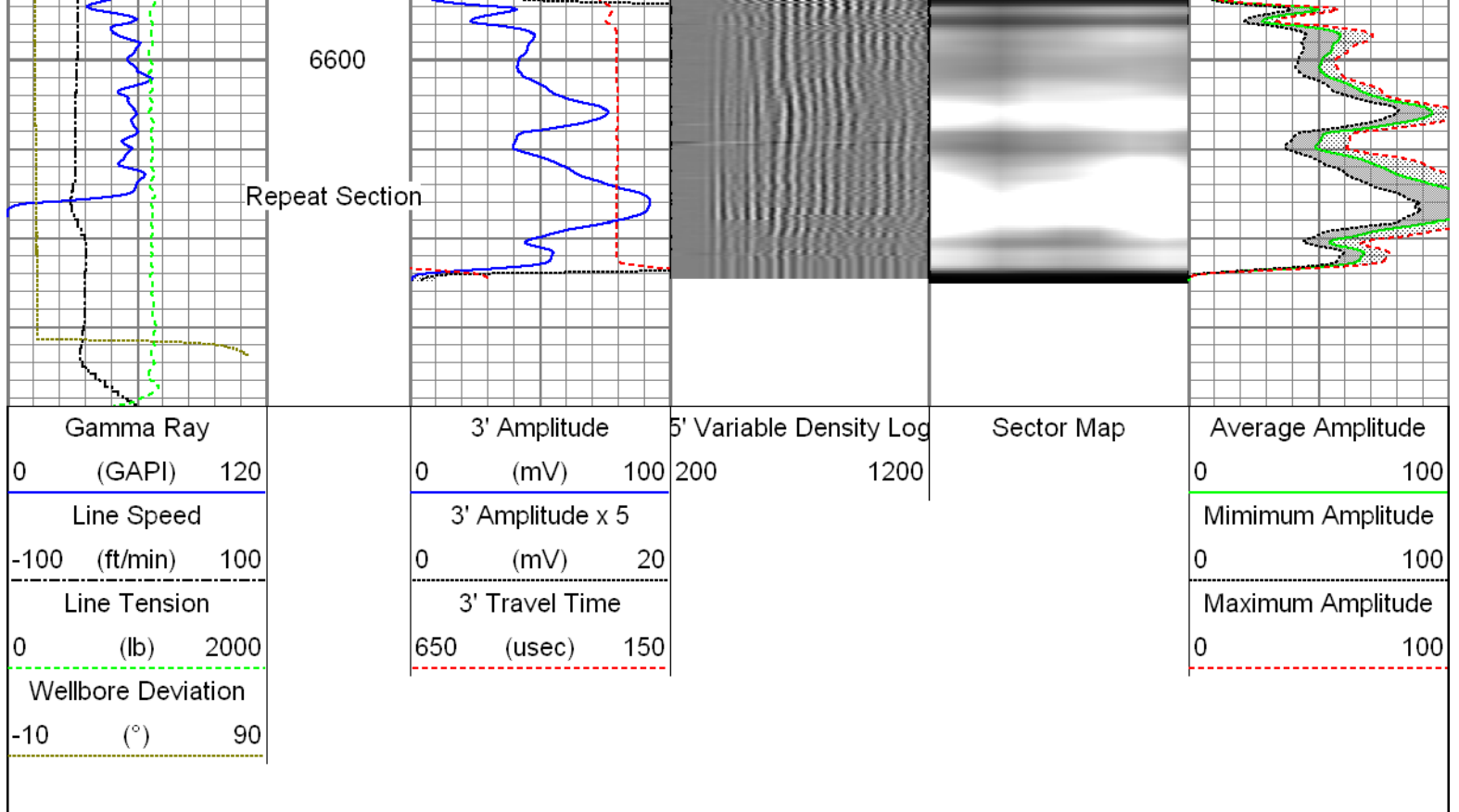


-100	(ft/min)	100
Line Tension		
0	(lb)	2000
Wellbore Deviation		
-10	(°)	90

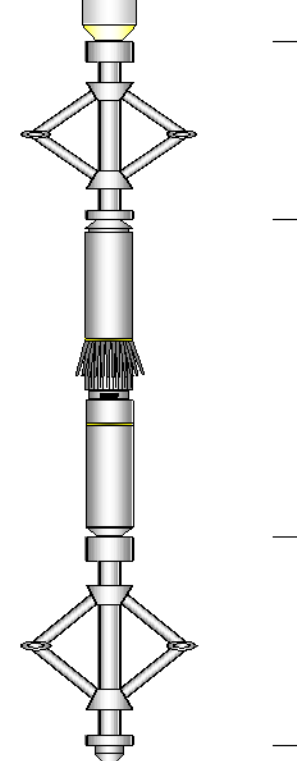
0	(mV)	20
3' Travel Time		
650	(usec)	150

0		100
Maximum Amplitude		
0		100





Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	22.81		T_CH14375_1_GO Titan 1-7/16" Assembled Electric Cable Head with 1" Fishing Neck	1.03	1.44	4.00
			UW_AGS-UW_AGS_001 (215017) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00
			UW_XTU-UW_XTU_002 (10024281) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50
			UW_PGR-UW_PGR_020 (10024555) Production Gamma Ray	1.93	1.69	9.50
			UW_PRC #4 -DSSRAC (081) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
WV3FT	15.42		UW_RBT-UW_RBT_004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	15.42					
WVFS2	15.42					
WVFS3	15.42					
WVFS4	15.42					
WVFS5	15.42					
WVFS6	15.42					
WVFS7	15.42					
WVFS8	15.42					
GRTEMP	15.42					

CBLTEMP	15.42		UW_PRC-DSSRAC (082) 2-3/4" DSS 5 Arm Roller Centralizer	2.55	2.75	32.00
CBLROT	15.42					
WVF5FT	14.42					
MIT	5.41		UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
			UW_PRC #3 -UW_PRC_057 (1038) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
TSTAMP	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
Dataset: 0512338982_Anadarko_Kerr 28N-12HZX_02-06-15_MIT_RBL.db: field/well/run1/pass7 Total Length: 27.05 ft Total Weight: 319.30 lb O.D. 3.13 in						

Calibration Report			
Database File:	0512338982_anadarko_kerr 28n-12hzx_02-06-15_mit_rbl.db		
Dataset Pathname:	pass7		
Dataset Creation:	Fri Feb 06 09:33:43 2015 by Log 7.0 B1		
Multi-finger Imaging Tool Calibration Report			
Serial Number:	10014703		
Number of Fingers:	40		
Tool Model:	UW_MIT40_042		
Inclinometer Calibration Report			
Performed:	Fri Sep 20 11:47:48 2013		
Calibration Angle:	45		
	Inc X	Inc Y	
Vertical:	1963	1960	
Finger 1 up:	1748	1727	
Finger 31 up:	2195	1742	
Finger 21 up:	2178	2188	
Finger 11 up:	1727	2173	
Sensitivity ratio:	1.00706		
X-axis angle:	132.825		
Deviation const.:	317.775		

Finger Calibration Report		
Performed:	Fri Feb 06 07:32:49 2015	
Ring size:	4	5
(in)	Sens	Sens
Finger 01:	1092 377.0	1469 379.0
Finger 02:	1046 382.0	1428 393.0
Finger 03:	1048 372.0	1420 377.0
Finger 04:	1017 385.0	1402 400.0
Finger 05:	1024 364.0	1388 370.0
		6
		Sens
		7
		Sens
		2252
		2251
		2223
		2248
		2173

Finger 06:	1032	379.0	1411	385.0	1796	432.0	2228
Finger 07:	1038	375.0	1413	376.0	1789	423.0	2212
Finger 08:	1006	374.0	1380	389.0	1769	441.0	2210
Finger 09:	1081	379.0	1460	379.0	1839	413.0	2252
Finger 10:	1067	379.0	1446	384.0	1830	422.0	2252
Finger 11:	1006	373.0	1379	386.0	1765	431.0	2196
Finger 12:	1114	370.0	1484	367.0	1851	390.0	2241
Finger 13:	1057	367.0	1424	385.0	1809	423.0	2232
Finger 14:	1024	380.0	1404	403.0	1807	438.0	2245
Finger 15:	991	377.0	1368	407.0	1775	439.0	2214
Finger 16:	1027	370.0	1397	399.0	1796	426.0	2222
Finger 17:	1073	365.0	1438	389.0	1827	402.0	2229
Finger 18:	1114	368.0	1482	395.0	1877	406.0	2283
Finger 19:	1060	373.0	1433	406.0	1839	413.0	2252
Finger 20:	986	370.0	1356	415.0	1771	425.0	2196
Finger 21:	1047	362.0	1409	401.0	1810	407.0	2217
Finger 22:	1037	368.0	1405	409.0	1814	408.0	2222
Finger 23:	1090	373.0	1463	410.0	1873	405.0	2278
Finger 24:	1059	341.0	1400	380.0	1780	376.0	2156
Finger 25:	1080	377.0	1457	420.0	1877	405.0	2282
Finger 26:	1029	360.0	1389	406.0	1795	402.0	2197
Finger 27:	1199	389.0	1588	418.0	2006	397.0	2403
Finger 28:	1076	358.0	1434	398.0	1832	396.0	2228
Finger 29:	1020	366.0	1386	414.0	1800	410.0	2210
Finger 30:	992	364.0	1356	414.0	1770	415.0	2185
Finger 31:	1218	395.0	1613	423.0	2036	410.0	2446
Finger 32:	1007	365.0	1372	399.0	1771	395.0	2166
Finger 33:	1194	408.0	1602	433.0	2035	423.0	2458
Finger 34:	978	365.0	1343	400.0	1743	409.0	2152
Finger 35:	1131	393.0	1524	417.0	1941	422.0	2363
Finger 36:	1029	353.0	1382	376.0	1758	390.0	2148
Finger 37:	1078	382.0	1460	396.0	1856	418.0	2274
Finger 38:	1092	369.0	1461	382.0	1843	401.0	2244
Finger 39:	1069	357.0	1426	365.0	1791	393.0	2184
Finger 40:	994	386.0	1380	408.0	1788	443.0	2231

Segmented Cement Bond Log Calibration Report						
Serial Number:		10013454				
Tool Model:		UW_RBT_004				
Calibration Casing Diameter:		7.000	in			
Calibration Depth:		235.071	ft			
Master Calibration, performed Fri Feb 06 08:02:40 2015:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.002	0.515	0.800	62.165	118.820	0.989
5FT	-0.003	0.454	0.800	62.165	134.244	1.205
S1	-0.001	0.534	0.000	100.000	186.700	0.262
S2	-0.004	0.534	0.000	100.000	185.992	0.695
S3	-0.003	0.525	0.000	100.000	189.341	0.525
S4	-0.004	0.502	0.000	100.000	197.889	0.725
S5	-0.002	0.486	0.000	100.000	205.206	0.351
S6	-0.004	0.498	0.000	100.000	199.319	0.723
S7	-0.002	0.508	0.000	100.000	195.967	0.478
S8	-0.002	0.524	0.000	100.000	189.815	0.456
Gamma Ray Calibration Report						



TCR Meas. SW- CR\_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 and Gas Onshore, L.P.

Well Kerr 28N-12HZX

Field Wattenberg

County Weld

State Colorado