

Company		Kerr McGee Oil & Gas Onshore LP	
Well		Howard 3C-29HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Company		Kerr McGee Oil & Gas Onshore LP	
Well		Howard 3C-29HZ	
Field		Wattenberg	
County		Weld	
State		Colorado	
Location:		API #: 05-123-37868	
Lat / Lon: 40.008137 / -104.917192		Other Services	
SEC 32 TWP 1N RGE 67W		Gauge ring	
Permanent Datum		Ground Level	
Log Measured From		Kelly Bushing	
Drilling Measured From		Kelly Bushing	
Elevation		5049'	
K.B. 5065'		D.F. 5064'	
G.L. 5049'			
Date	26-Sept-2014		
Run Number	Two		
Depth Driller	15438 FT		
Depth Logger	7814 FT		
Bottom Logged Interval	7808 FT		
Top Log Interval	Surface		
Open Hole Size	9.625"		
Type Fluid	Water		
Density / Viscosity	8.34 lbm/gal		
Max. Recorded Temp.	229° F		
Estimated Cement Top	296 FT		
Time Well Ready	ROA		
Time Logger on Bottom	8:30		
Equipment Number	HD-0255		
Location	Fl. Lupton, CO		
Recorded By	J. Raby		
Witnessed By	Sonny Secura		
Borehole Record		Tubing Record	
Run Number	Bit	From	To
	Size	Weight	From To
Casing Record	Size (in)	Wgt (lbs/ft)	Grade
Surface Casing	9.625	36	Surface
Intermediate #1	7	26	Surface
Intermediate #2			
Liner	4.5	11.6	7182 FT
			15432 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.

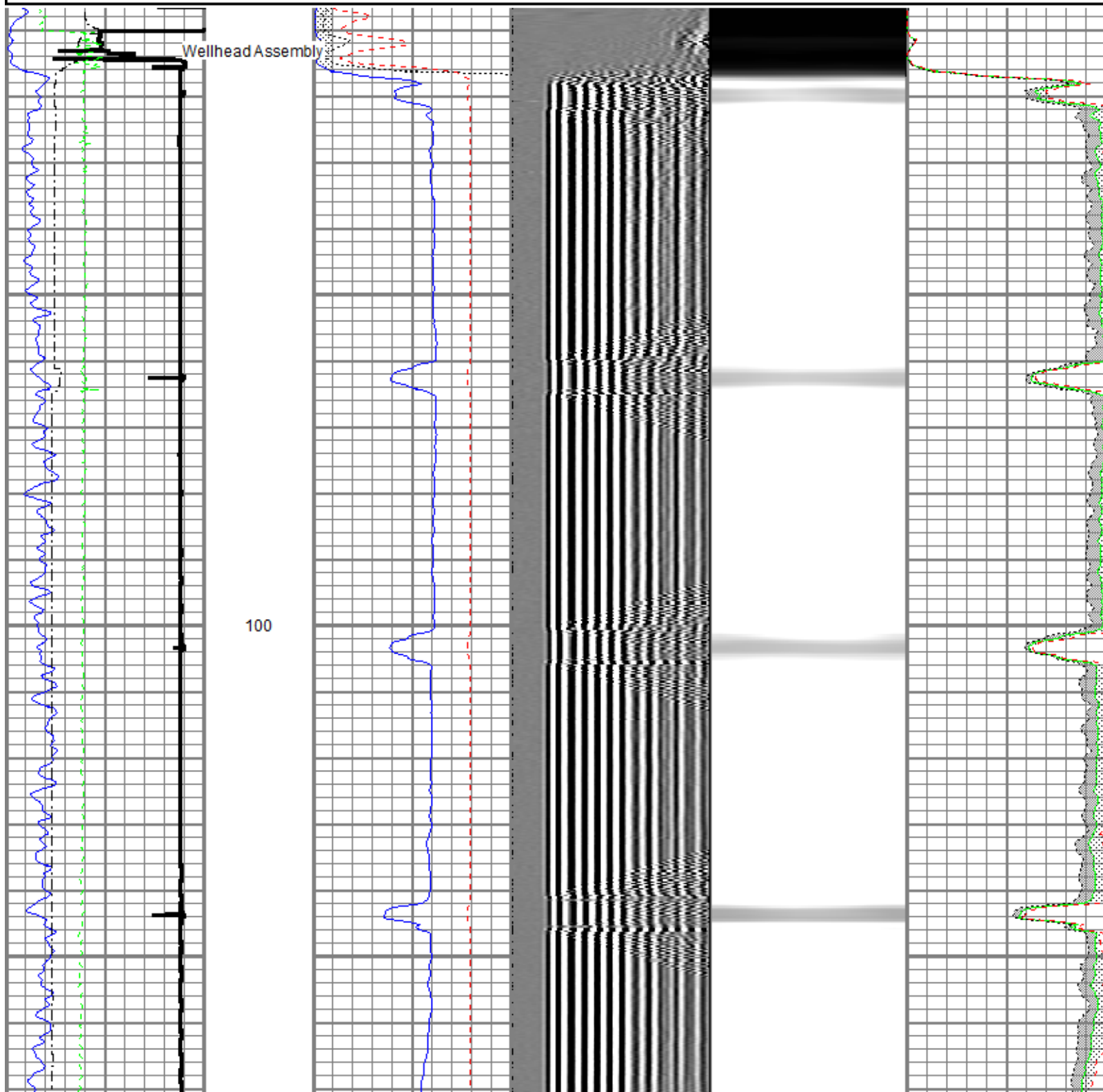
Comments

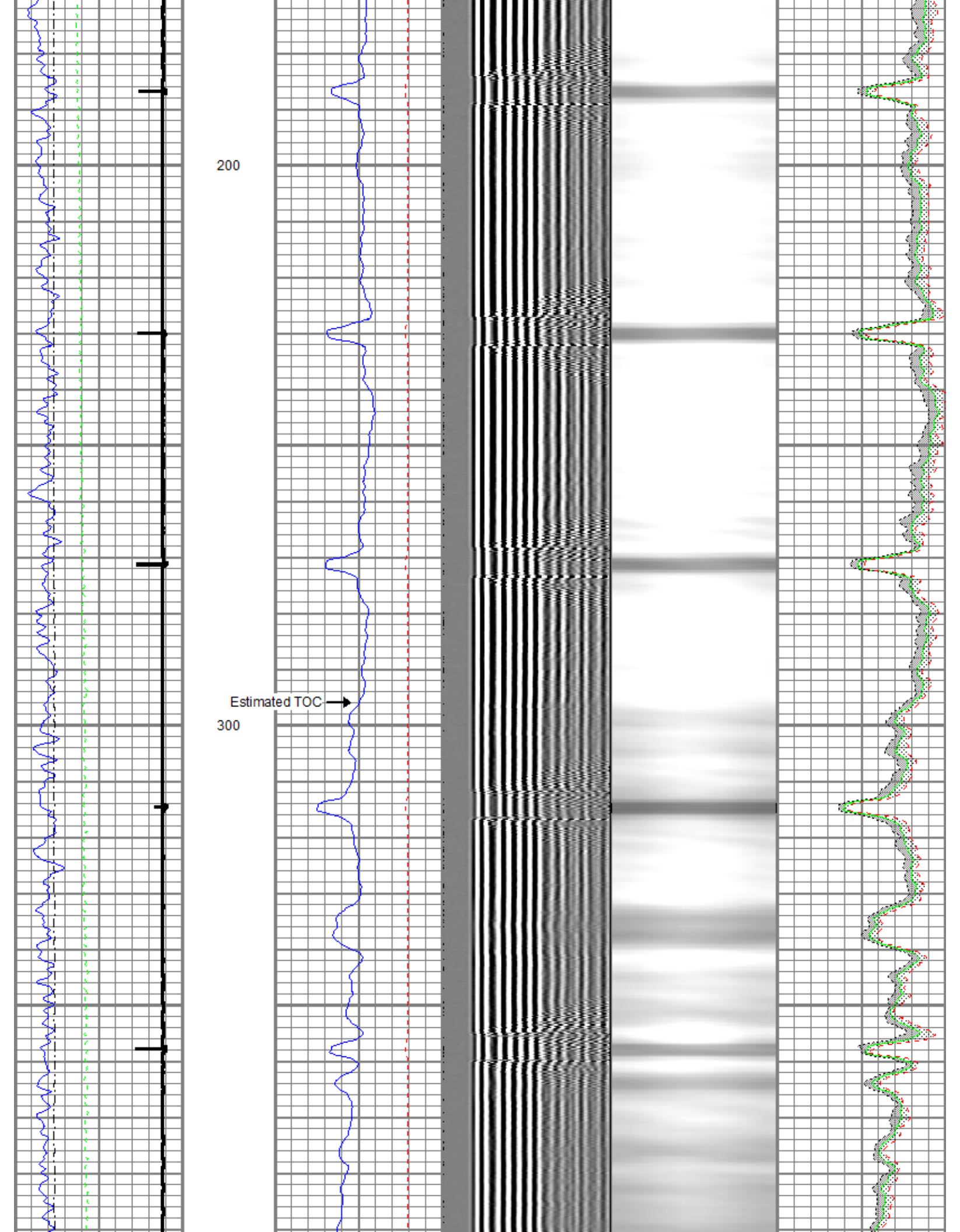
Log ran as per customer request.
 Depth reference to Casing Tally reported Liner Top at 7182 FT.
 Adjusted -2 FT to correlate to liner top.
 Gauge Ring/Junk Basket ran to 7836 FT.
 Log ran from as deep as possible to surface.
 Log ran with 2800 PSI surface induced pressure.
 Logging tools were clean and free of any debris upon completion of operations.

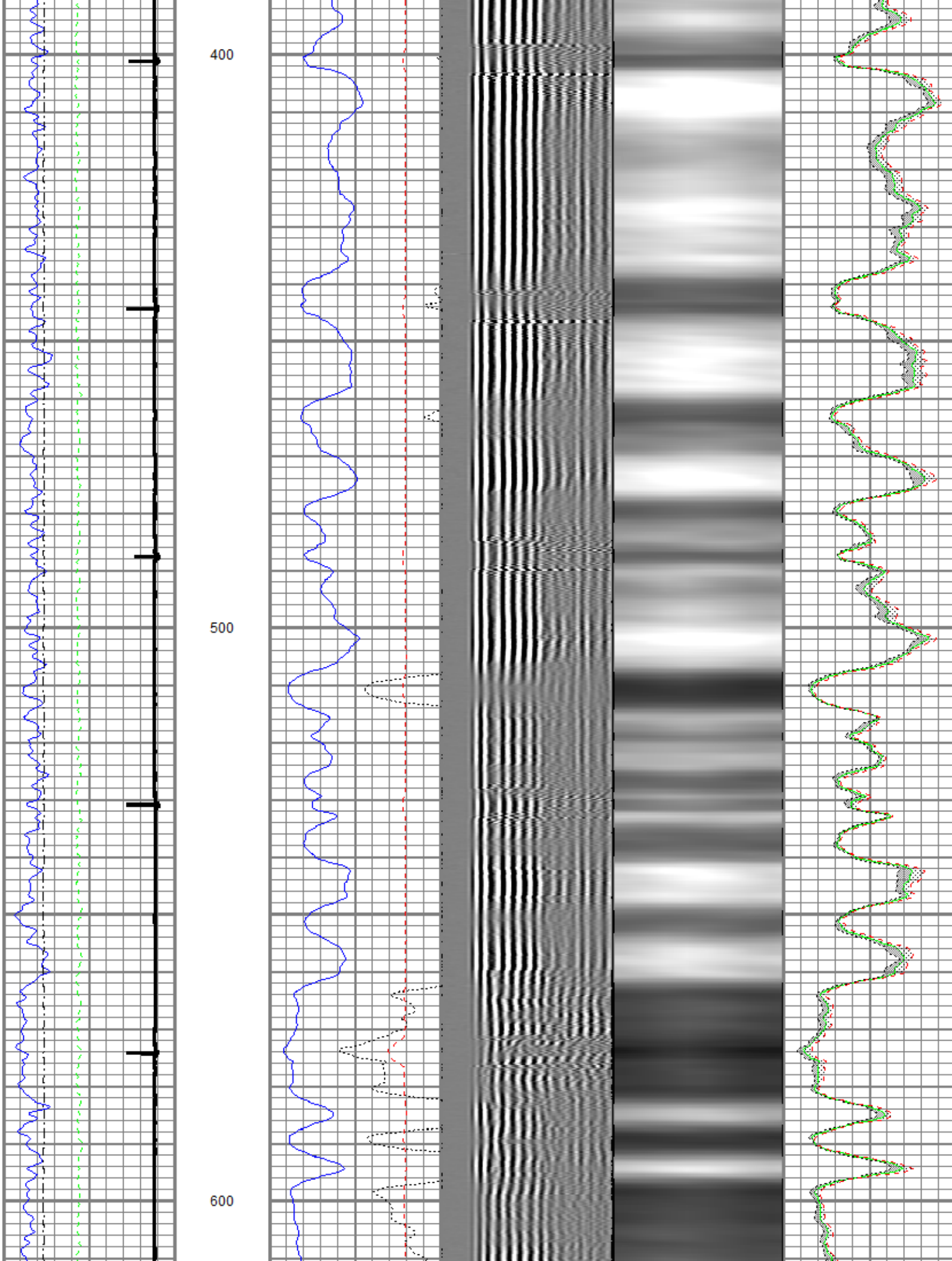
Thank you for choosing FMC Technologies Completion Services, Inc.!!

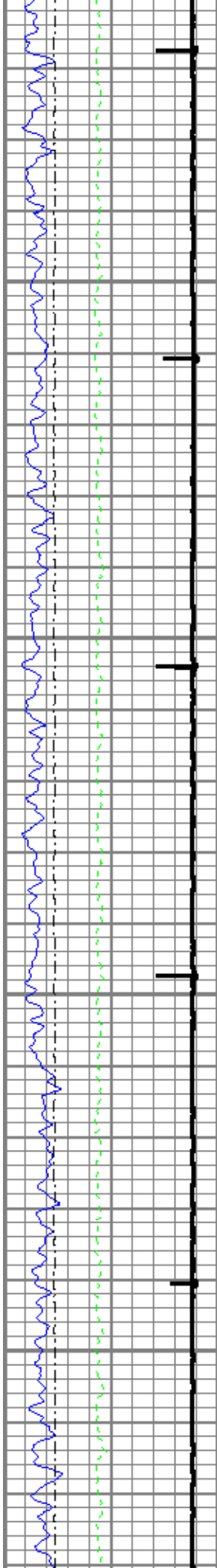
Database File: anadarko_howard 3c-29hz_rcbl mit_26-sept-2014.db
 Dataset Pathname: pass10
 Presentation Format: rbt4_mit
 Dataset Creation: Fri Sep 26 09:01:57 2014 by Log SCH 111116
 Charted by: Depth in Feet scaled 1:240

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



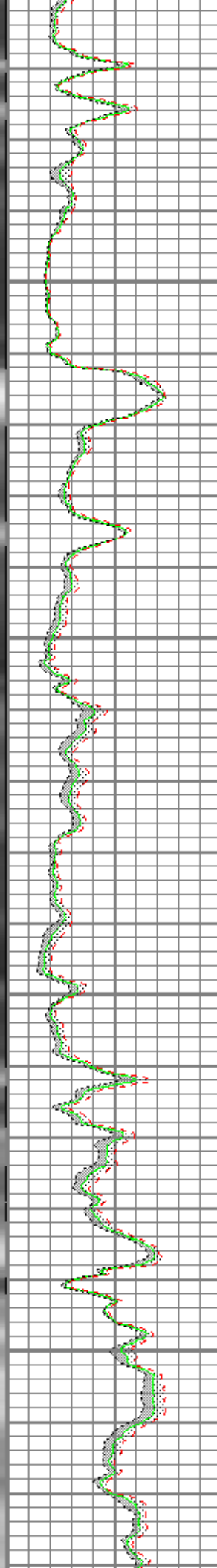
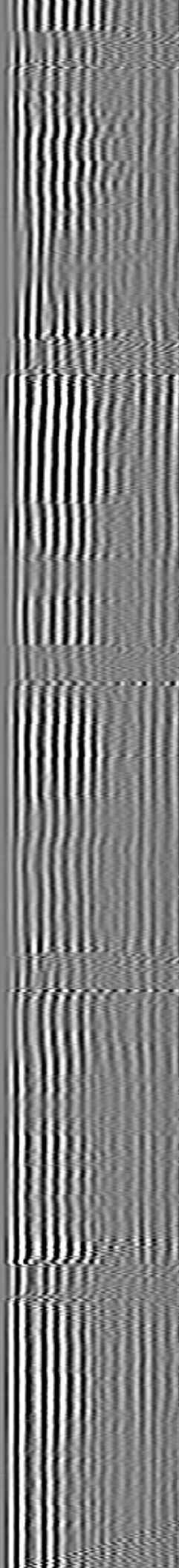
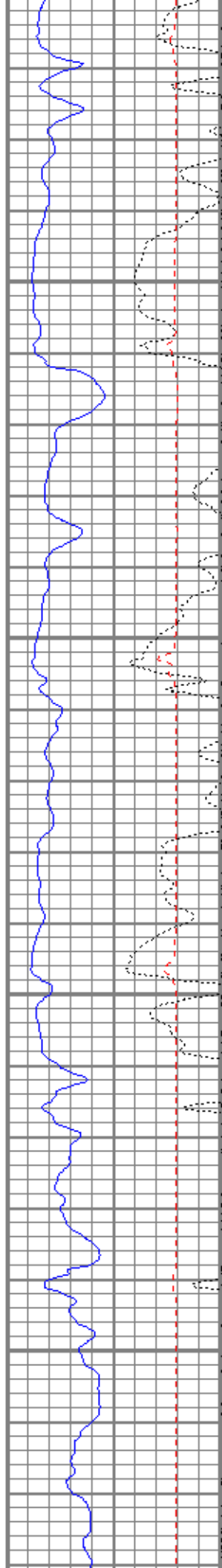


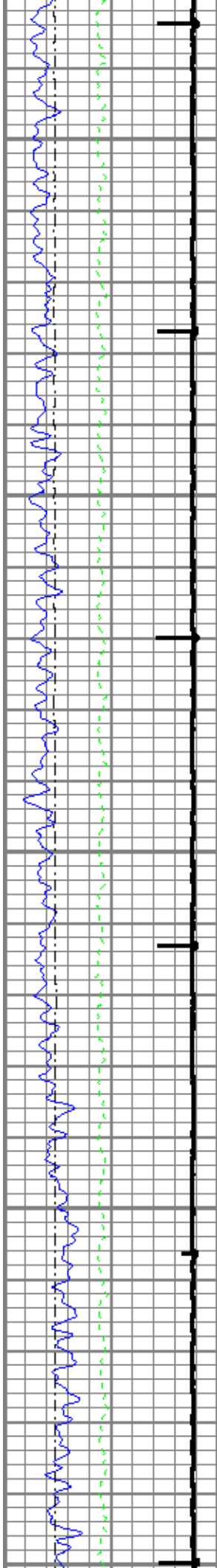




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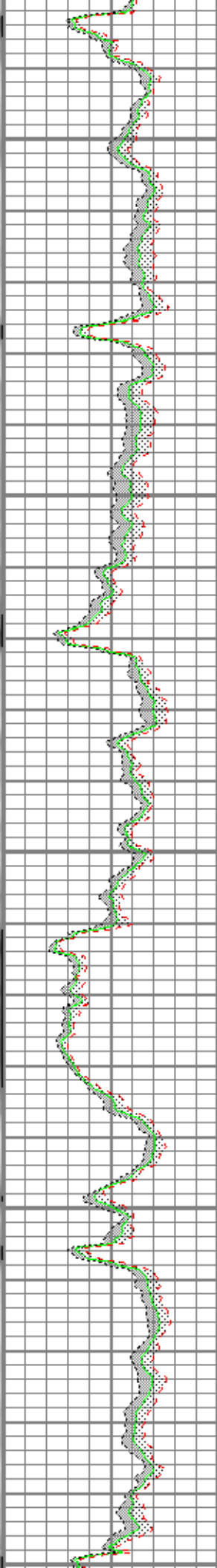
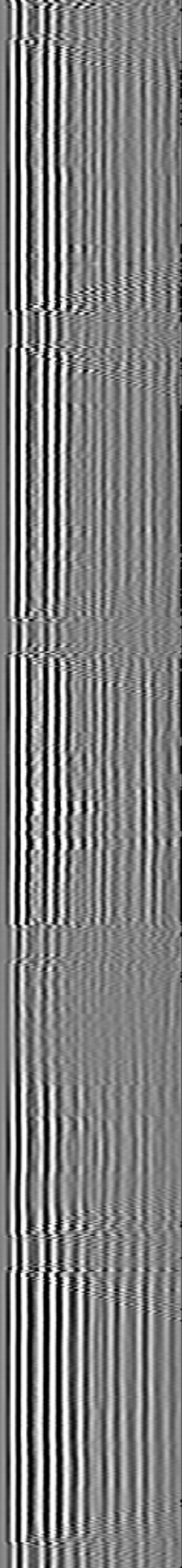
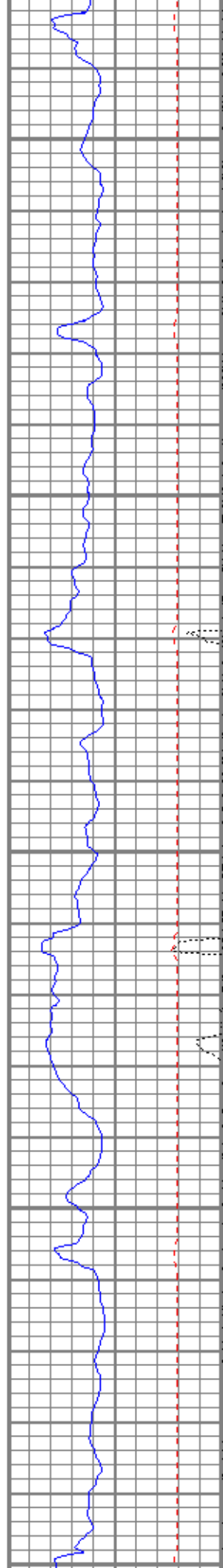
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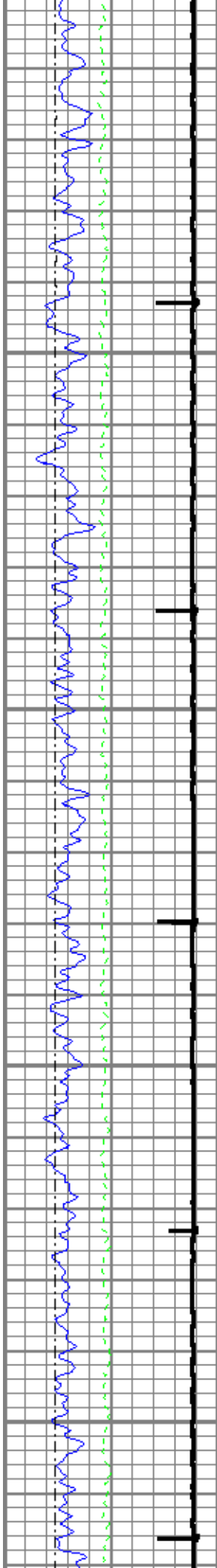




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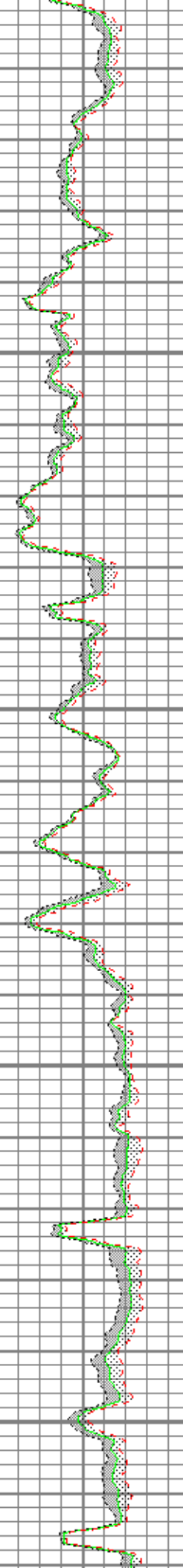
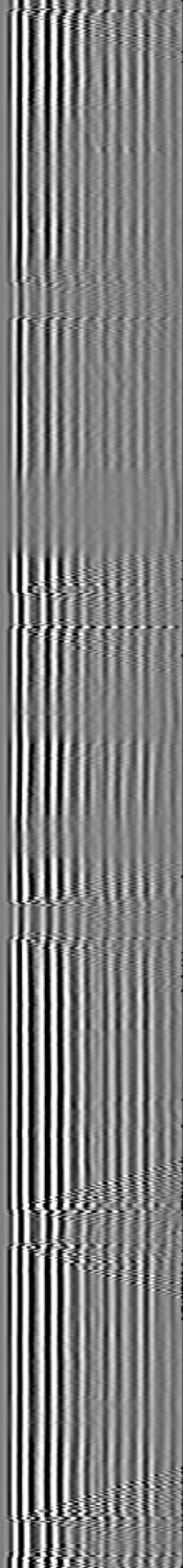
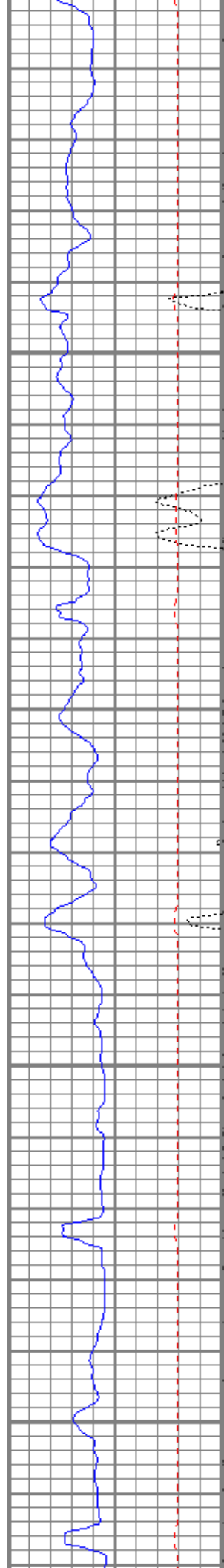
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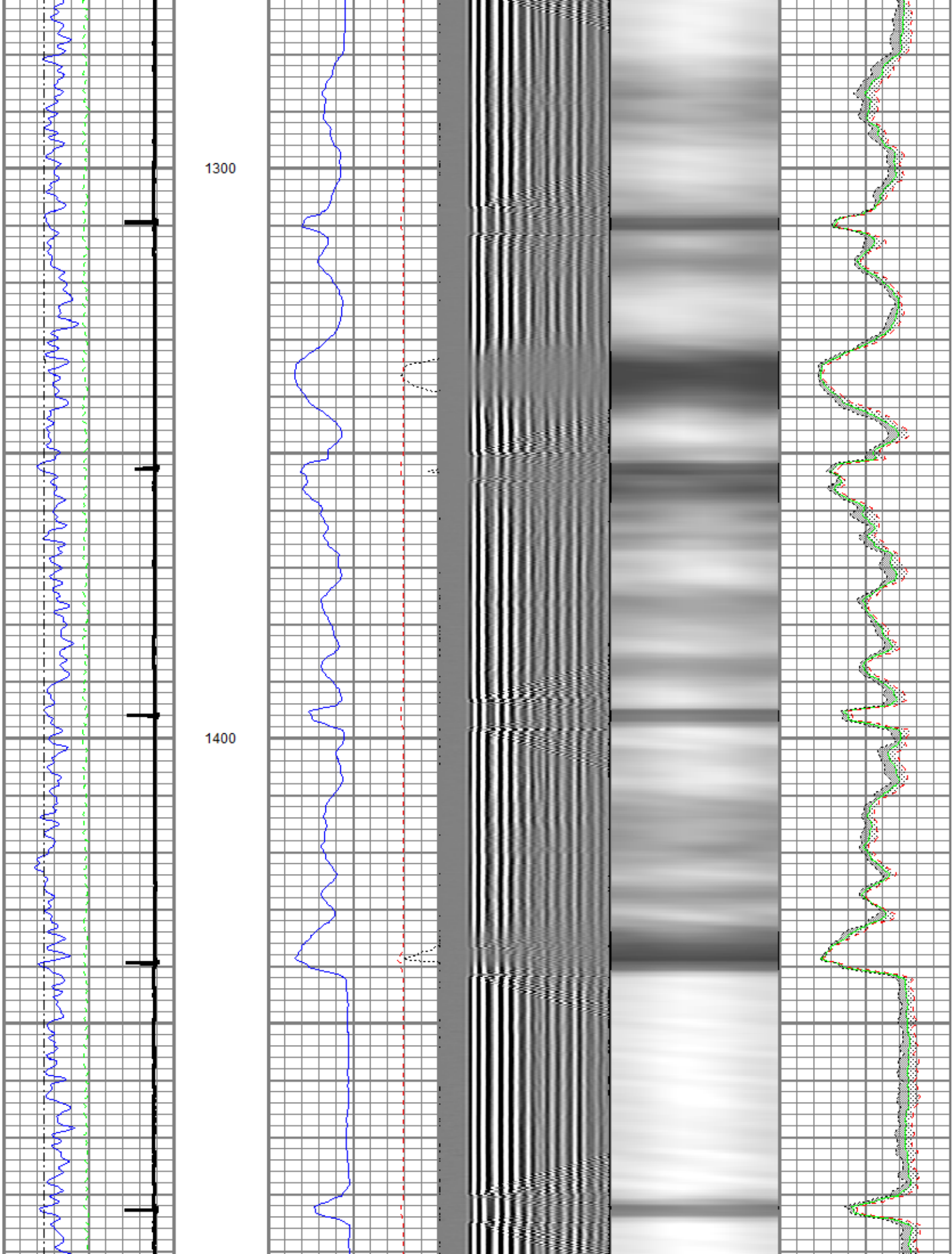


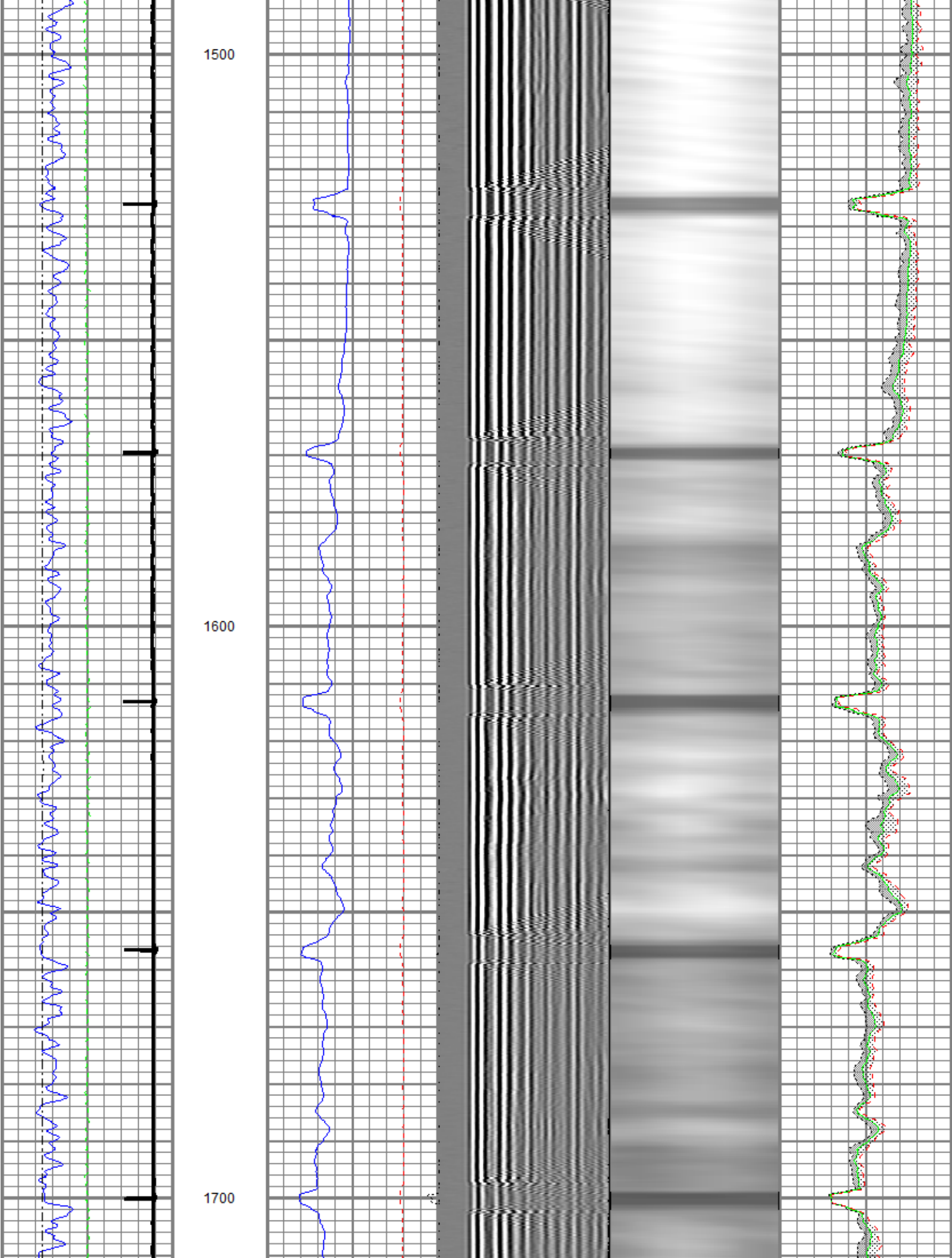


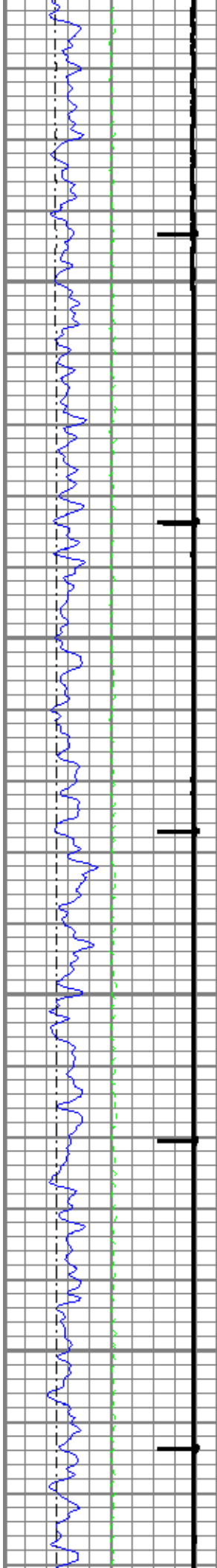
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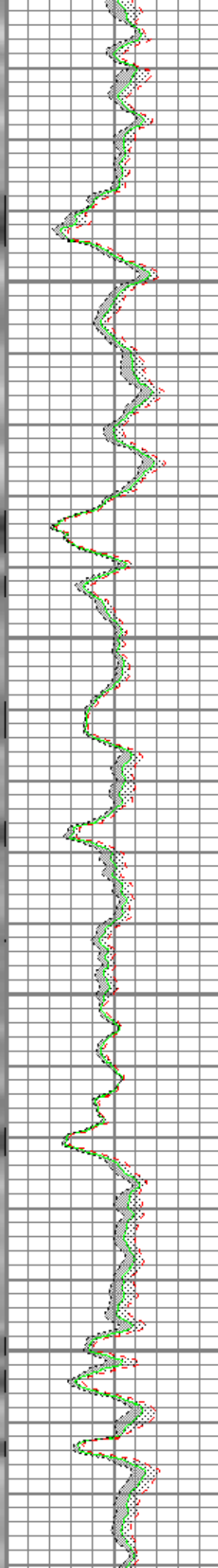
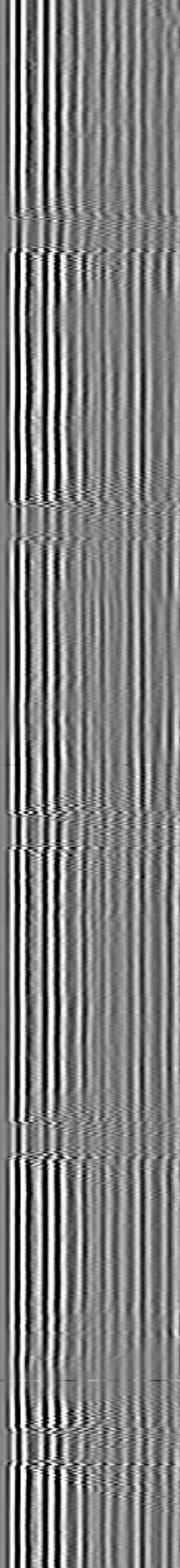
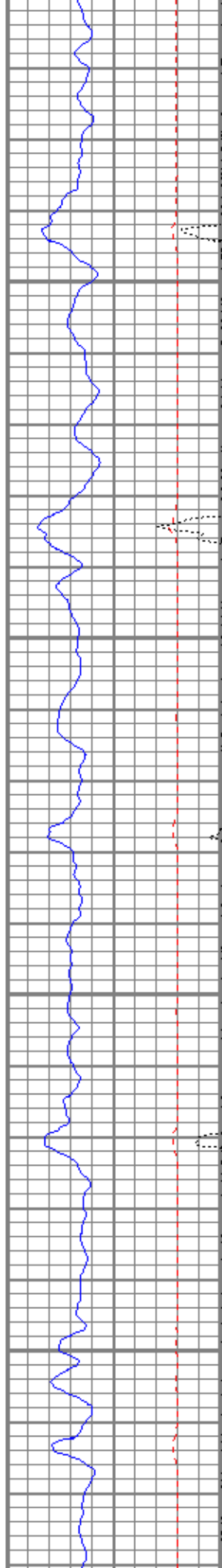


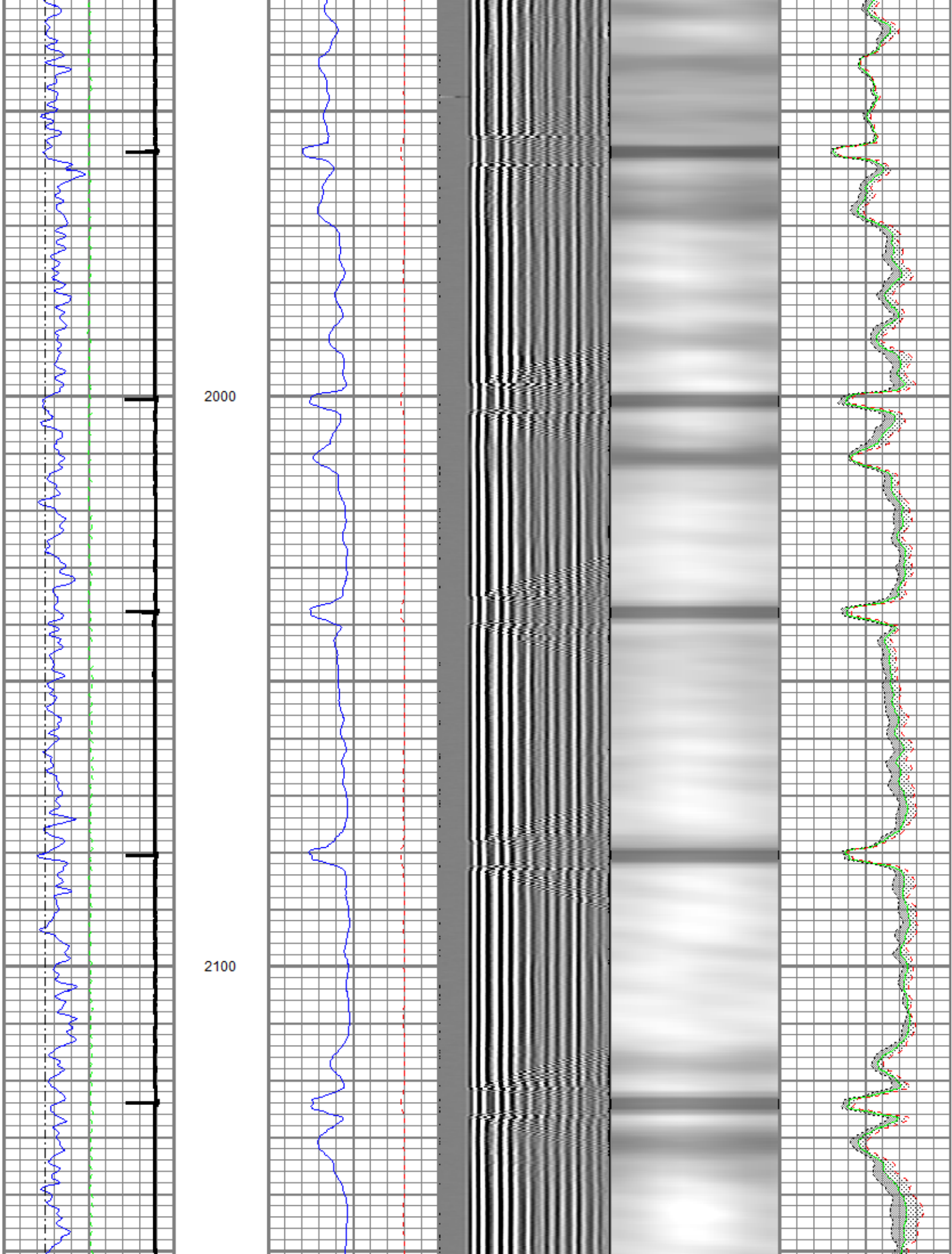


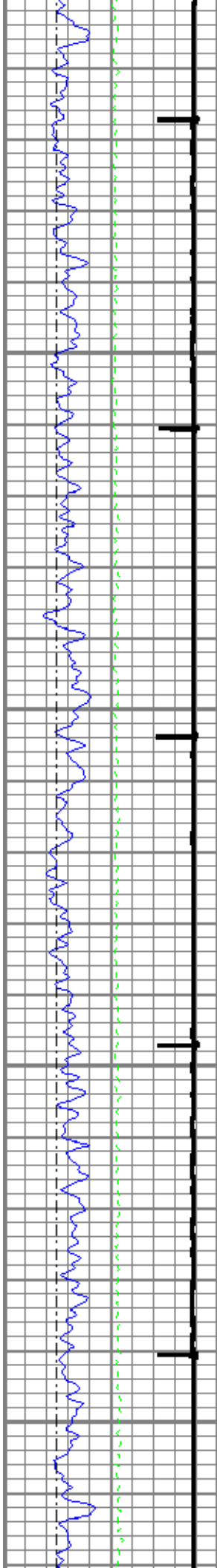


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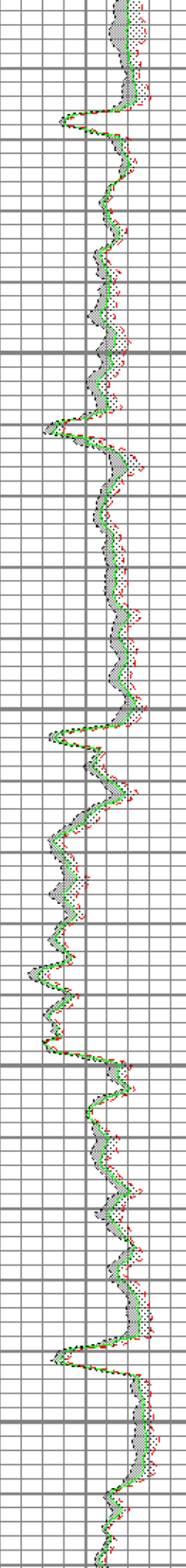
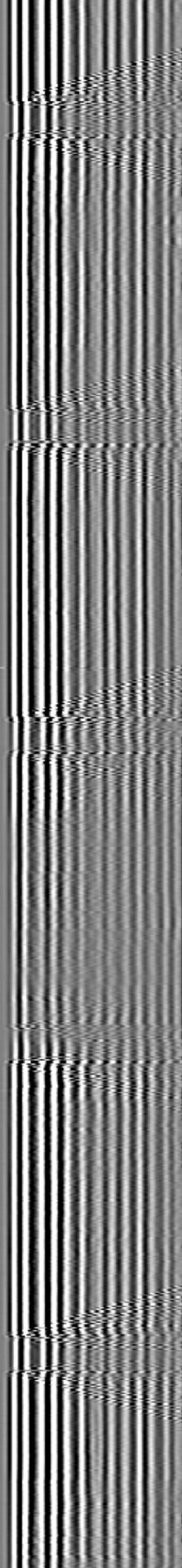
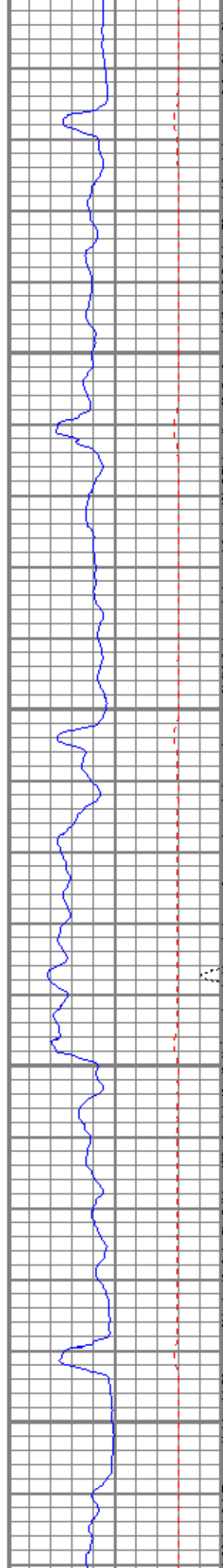


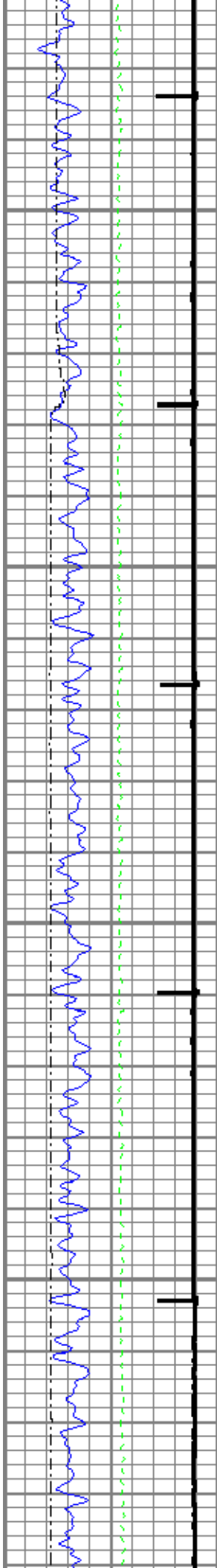




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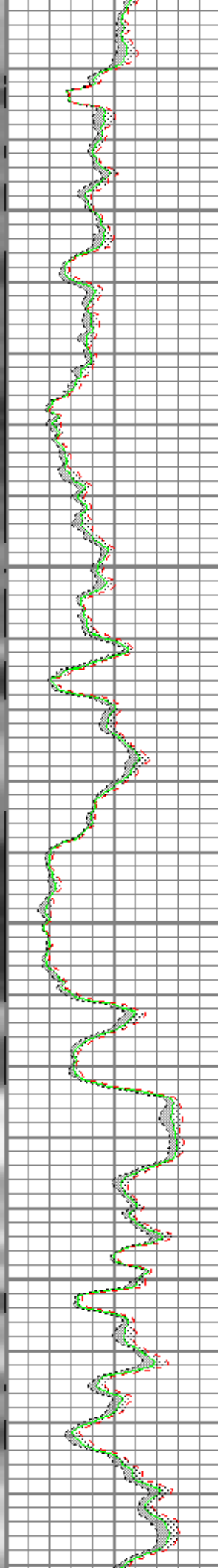
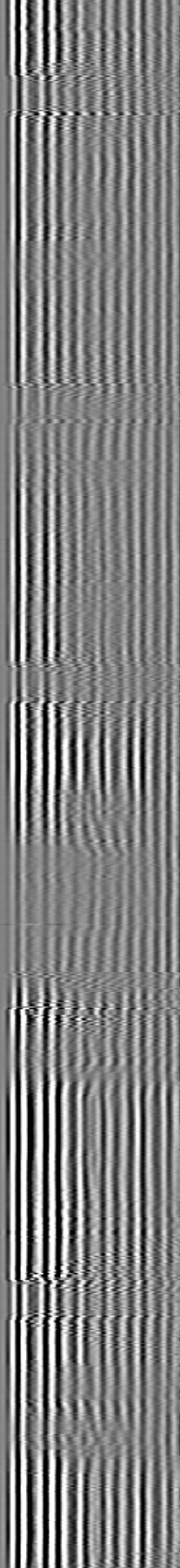
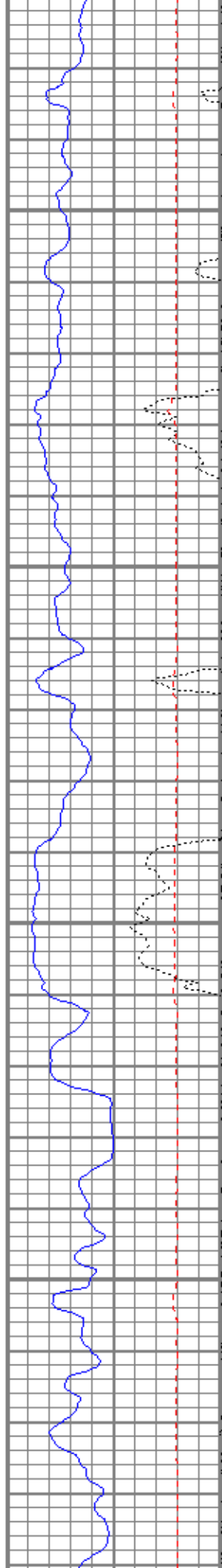
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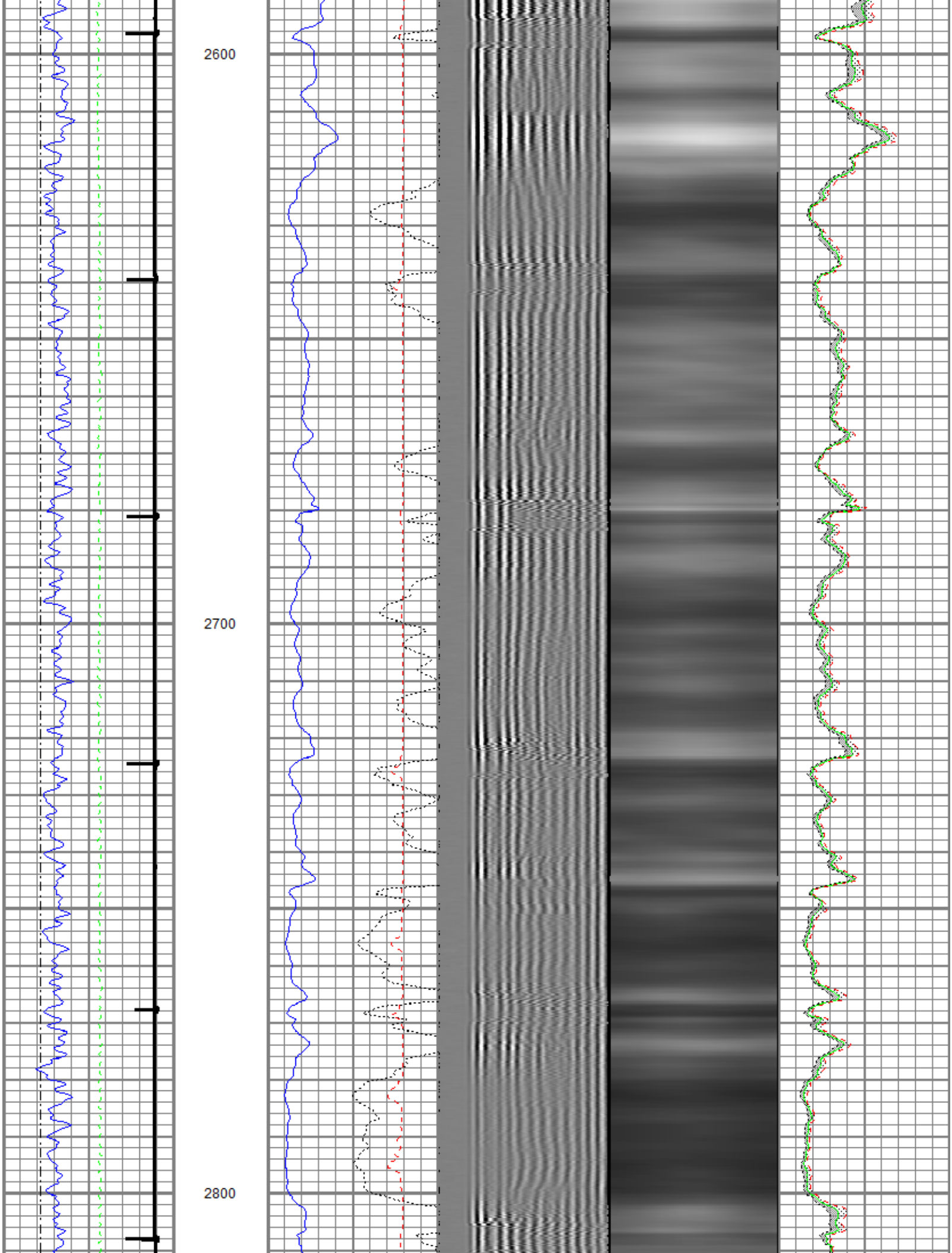


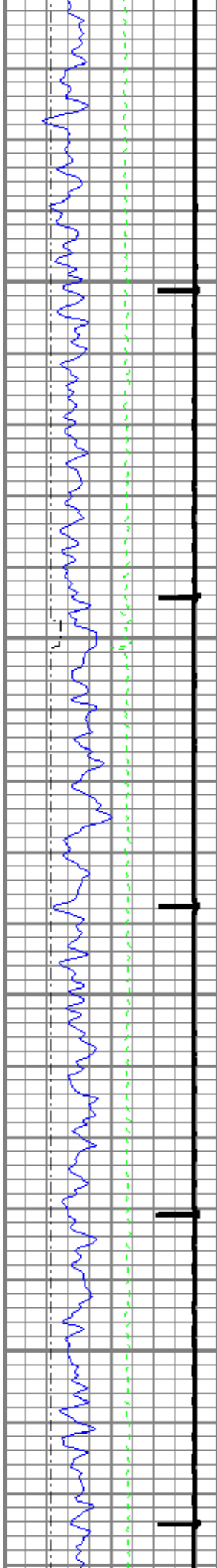


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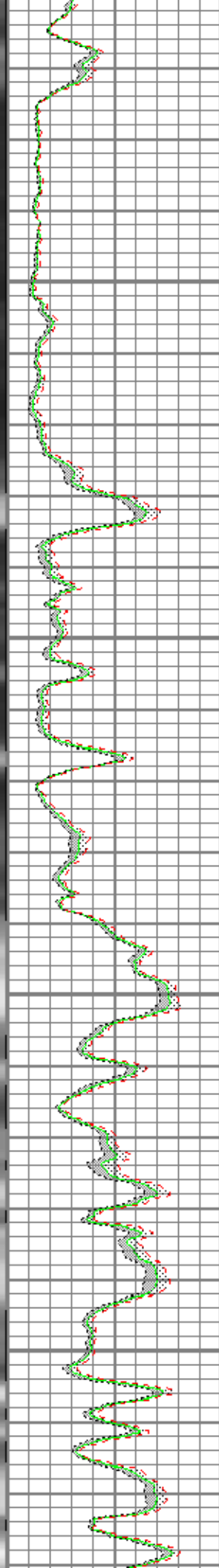
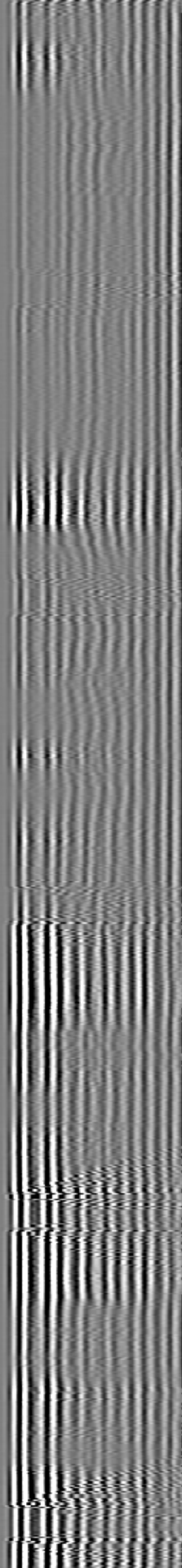
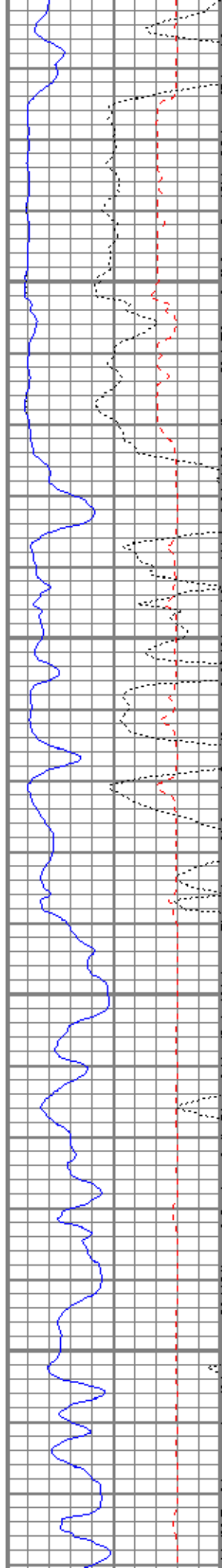


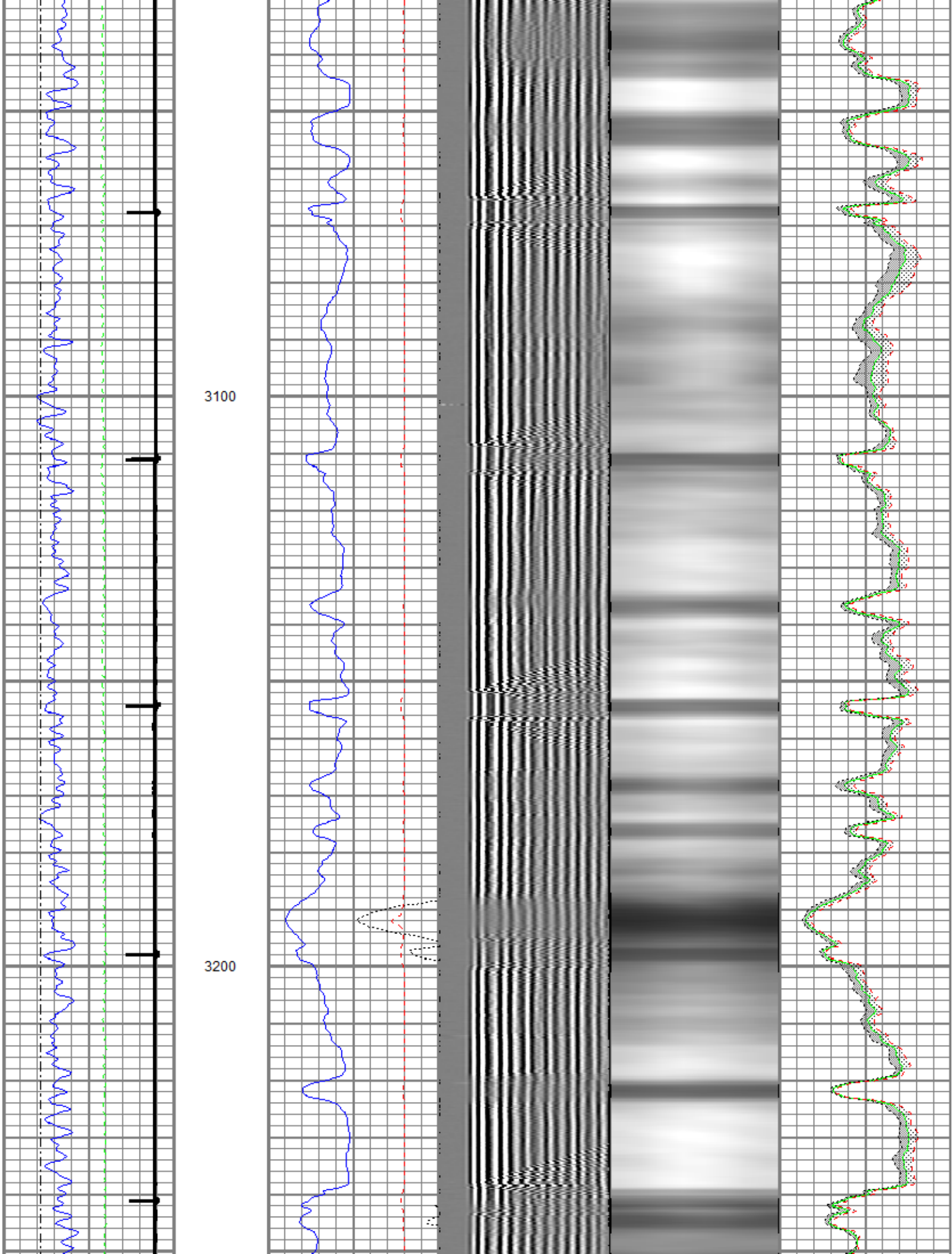


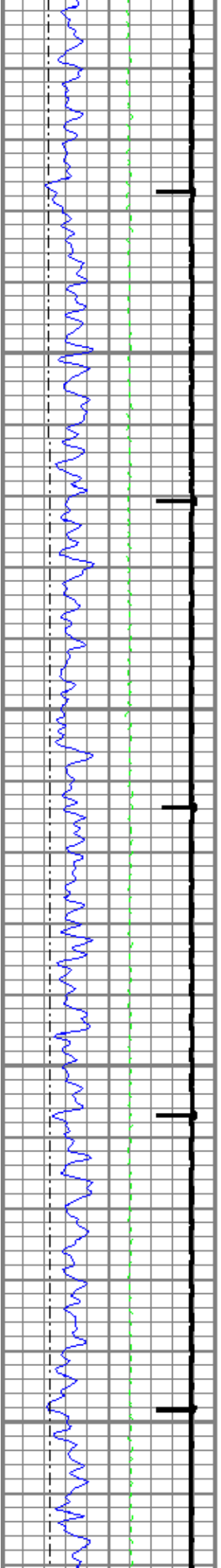


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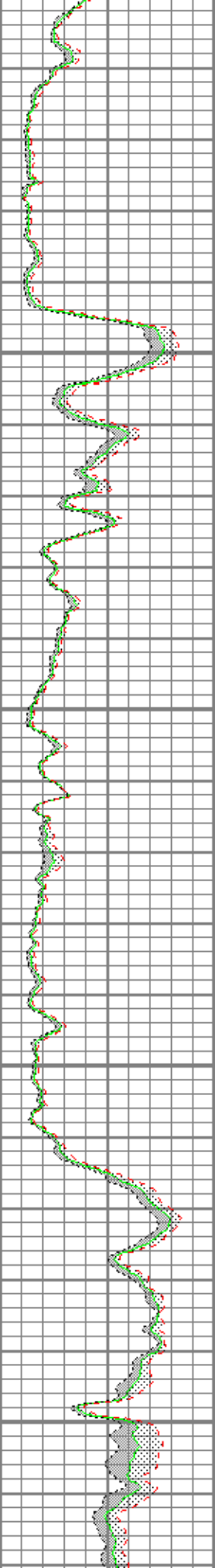
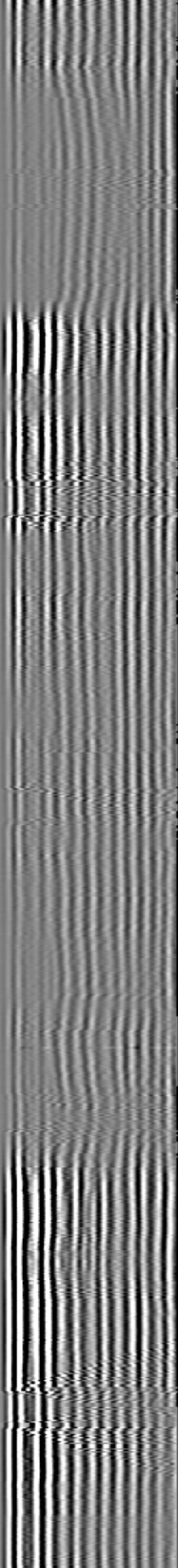
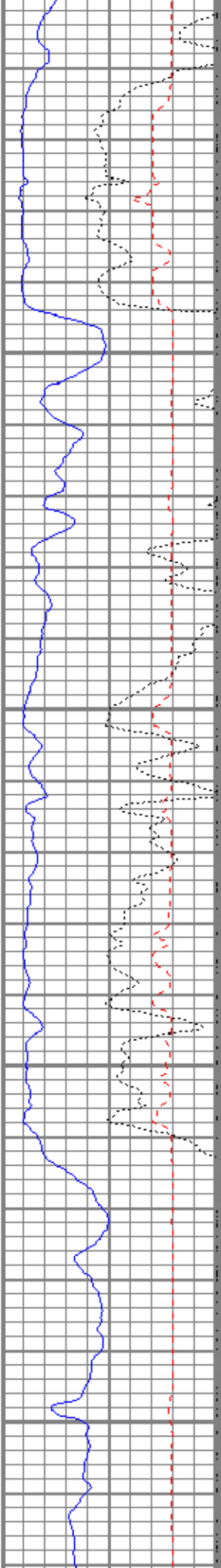


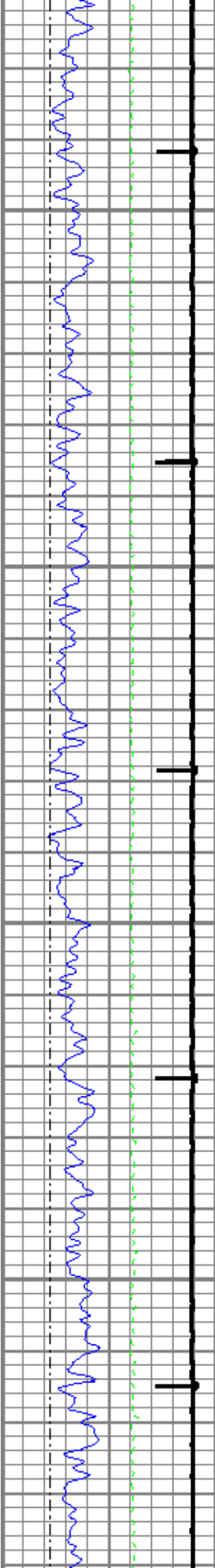




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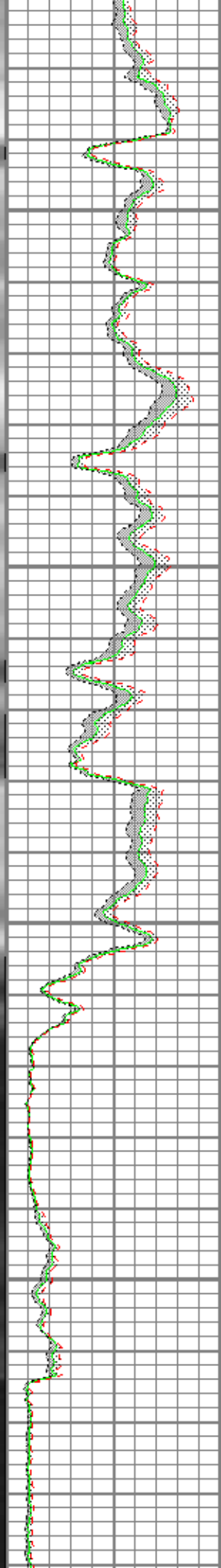
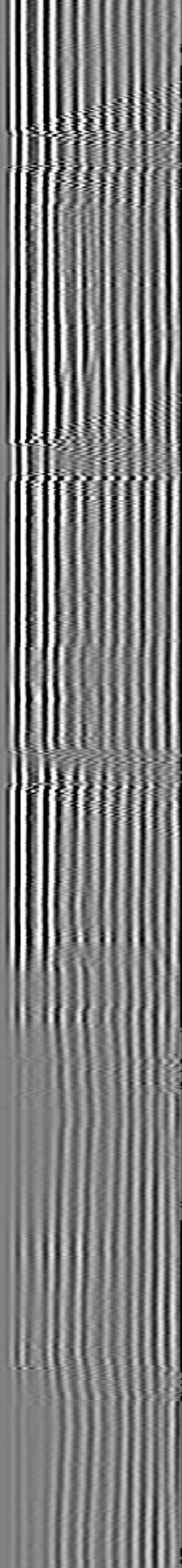
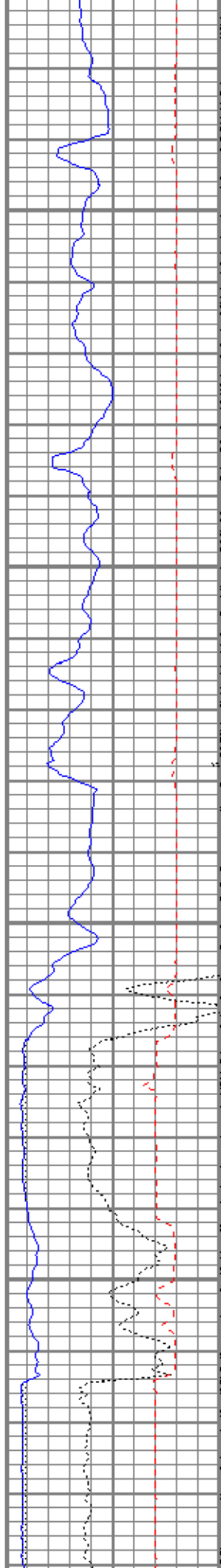
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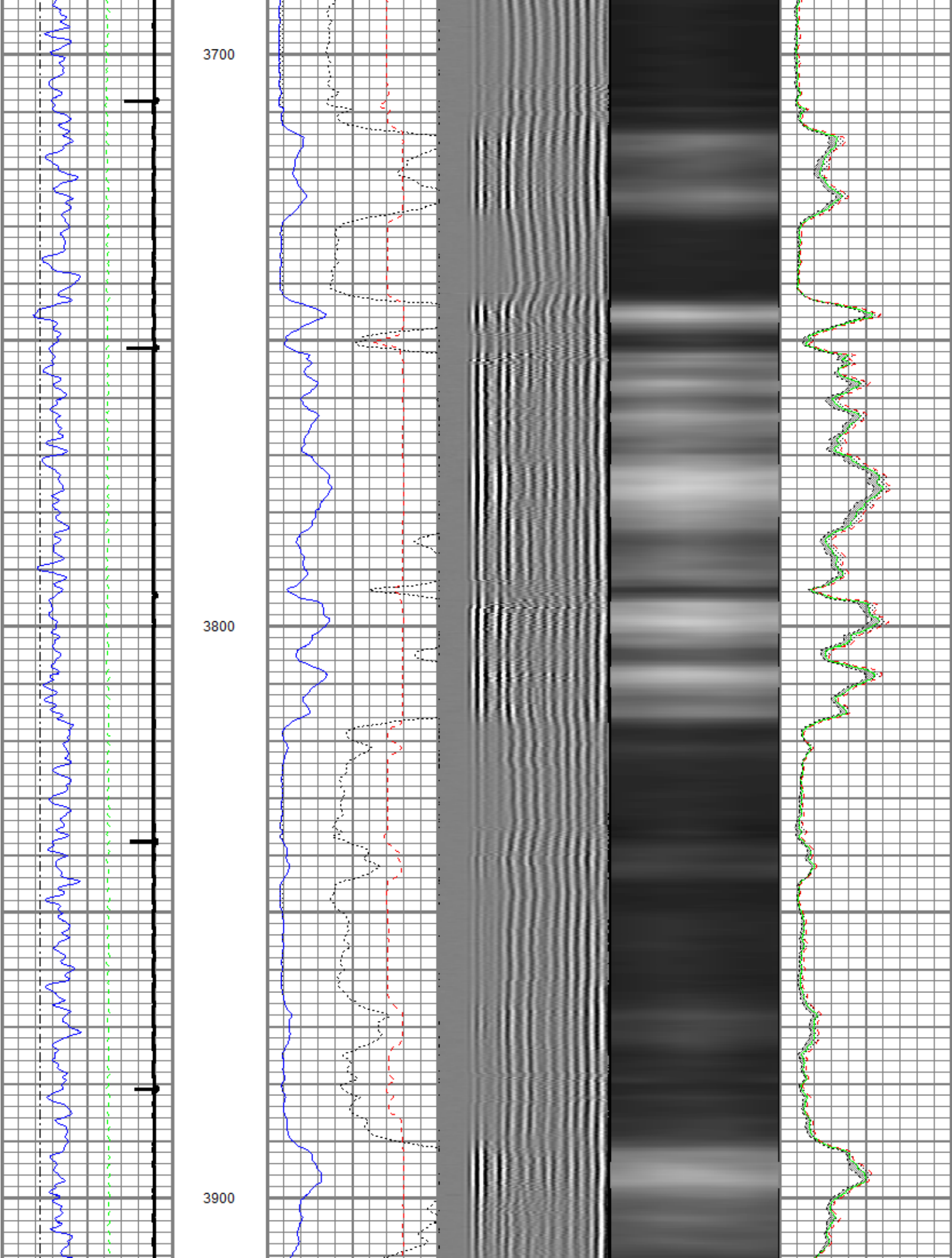


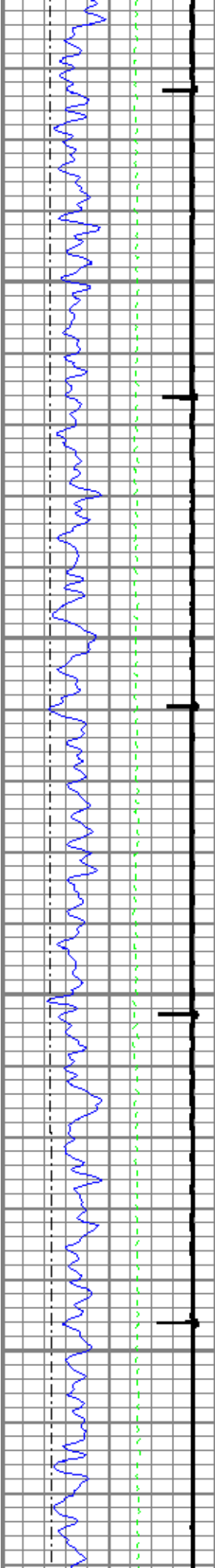


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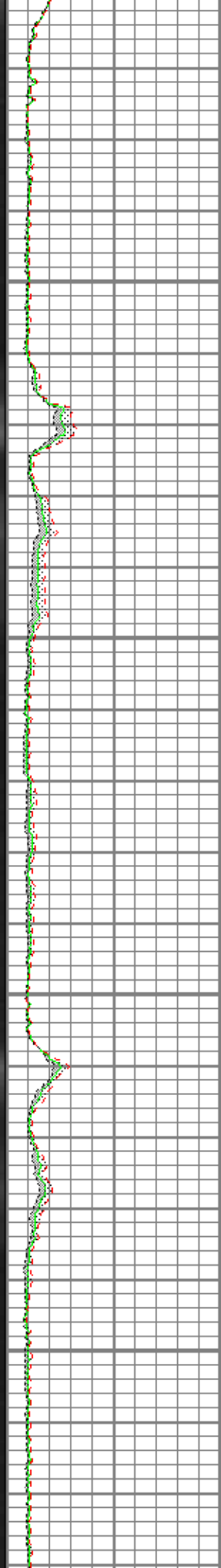
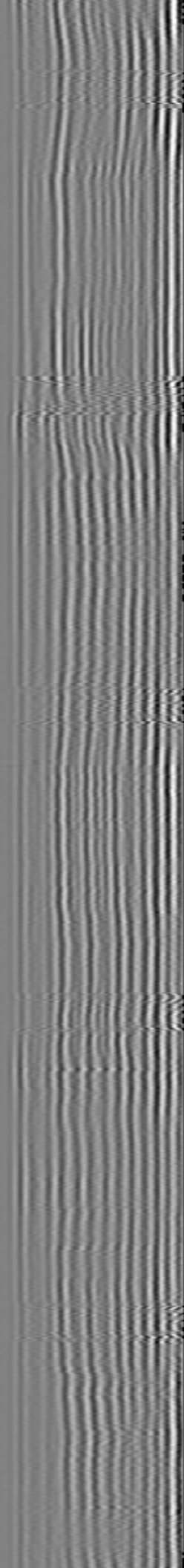
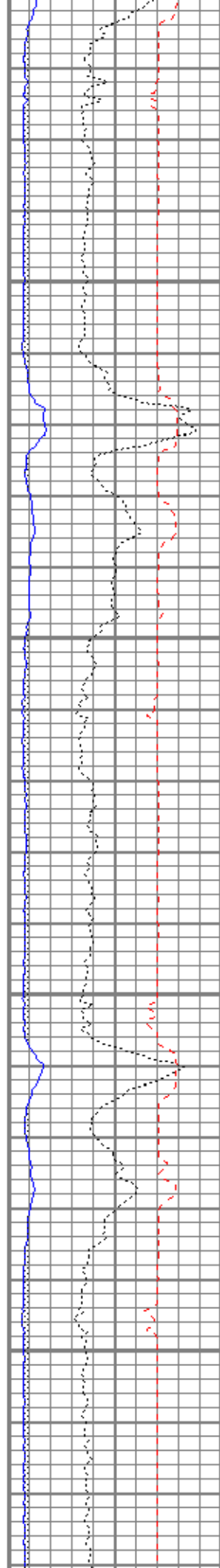


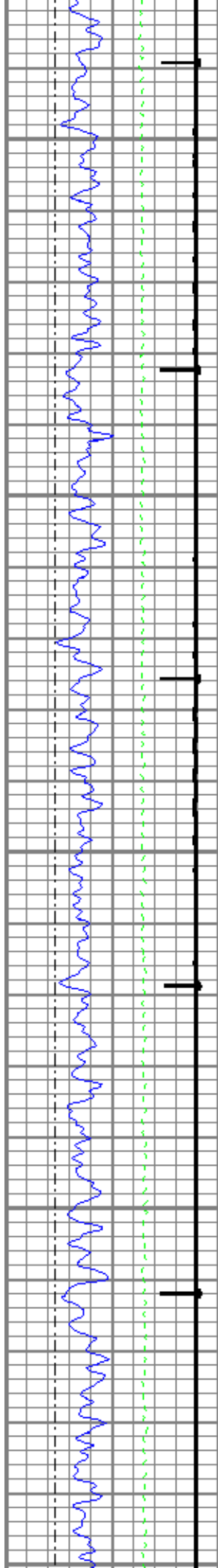




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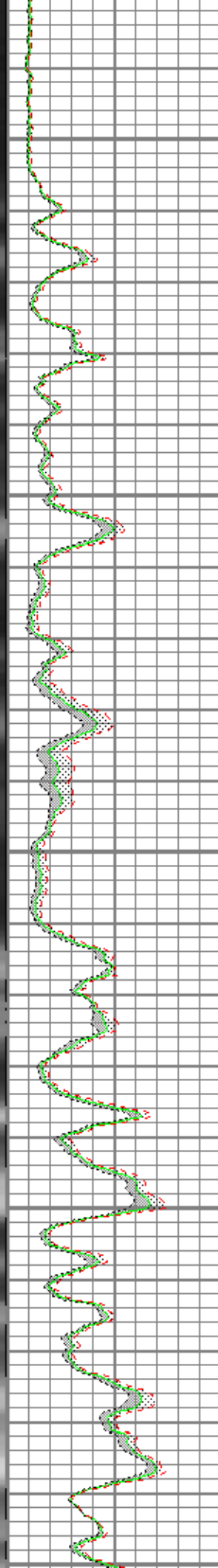
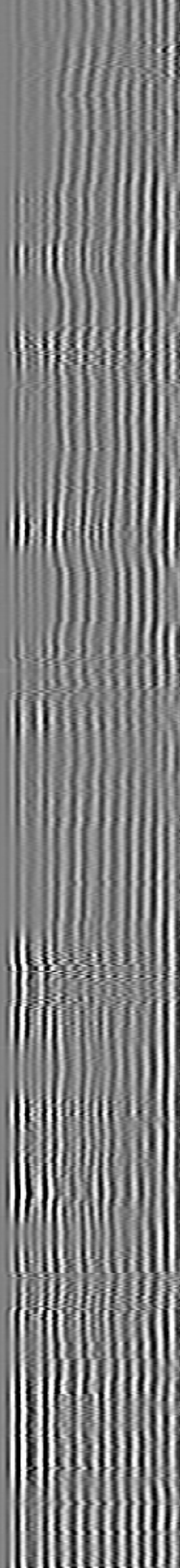
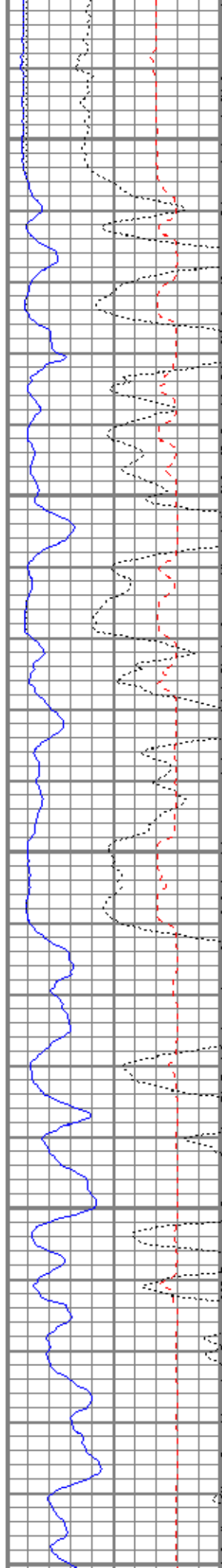
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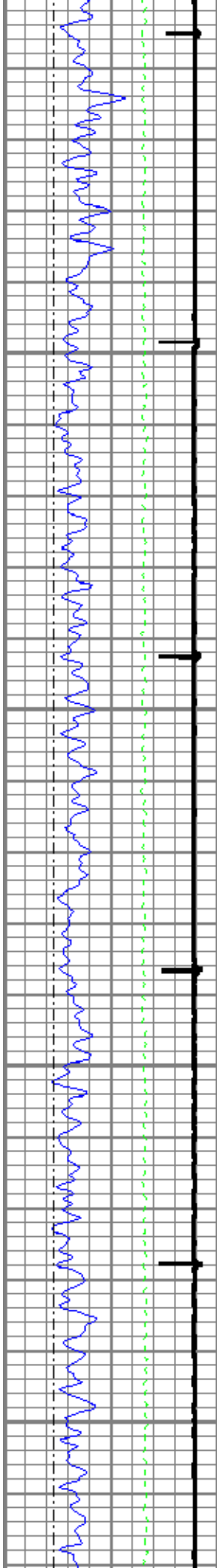




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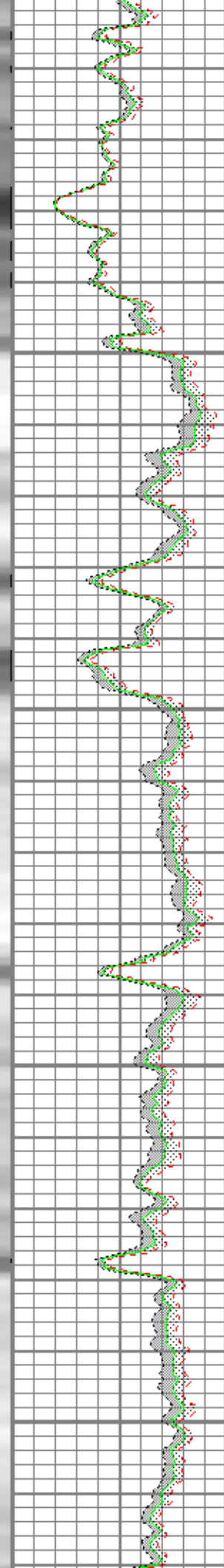
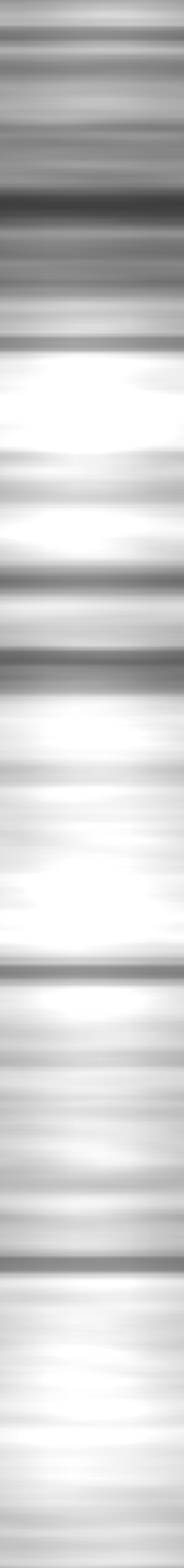
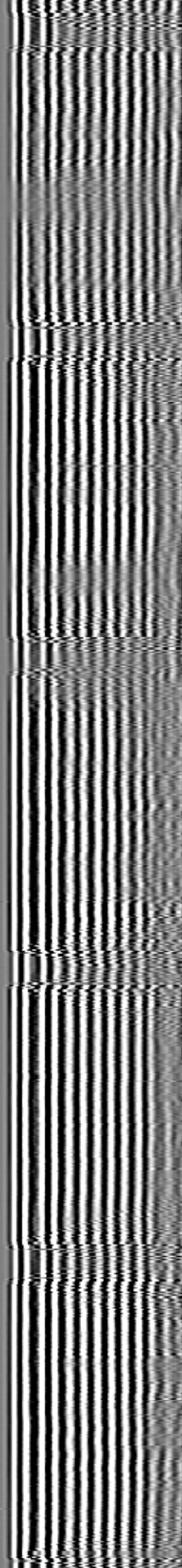
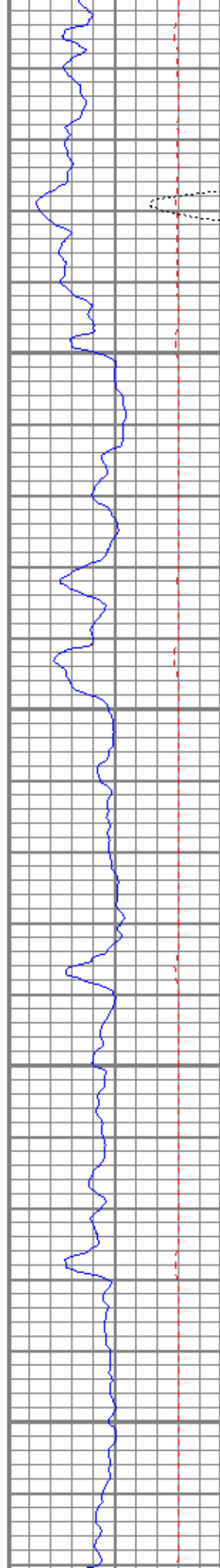
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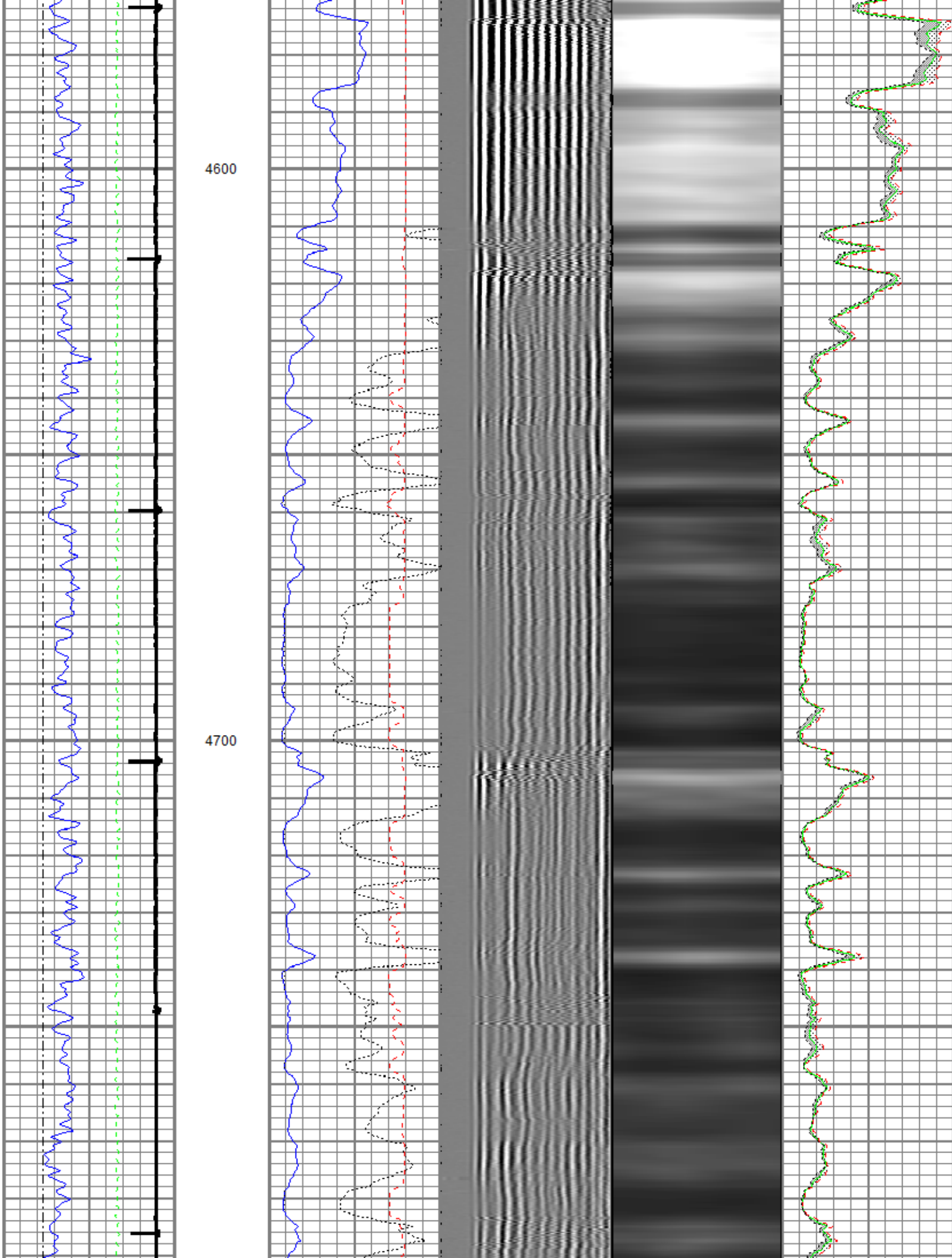


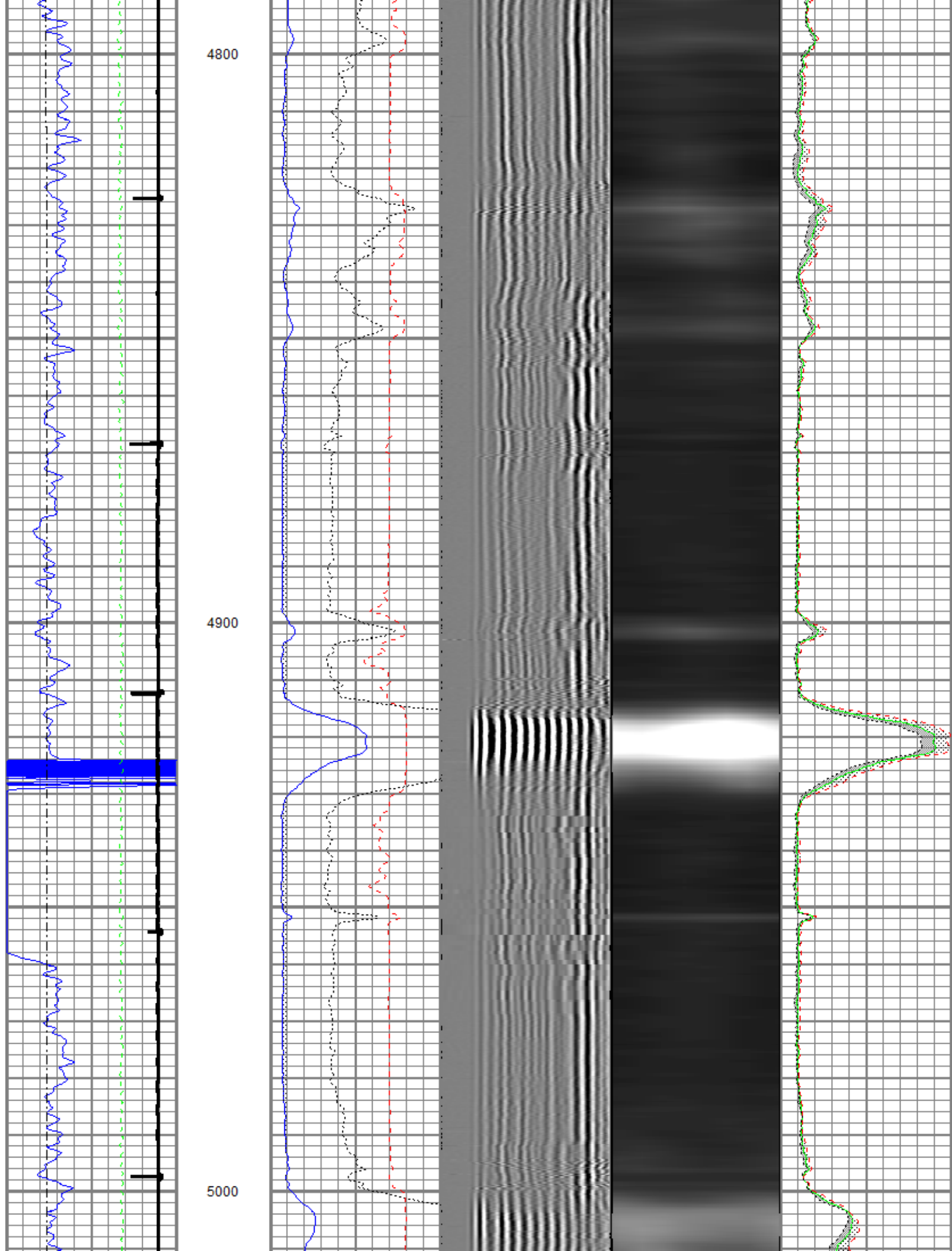


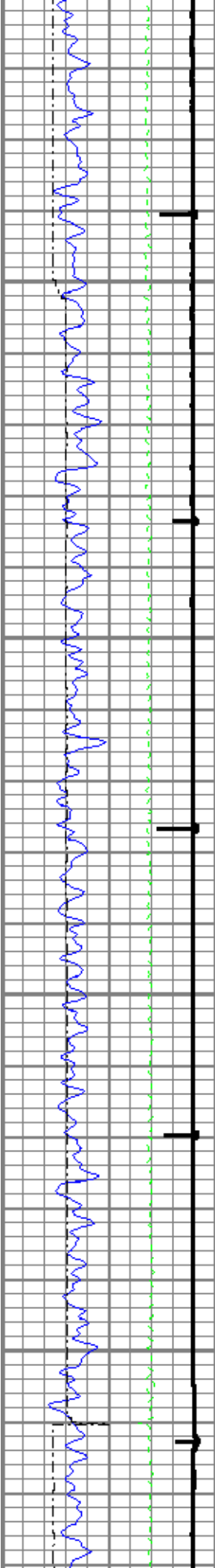
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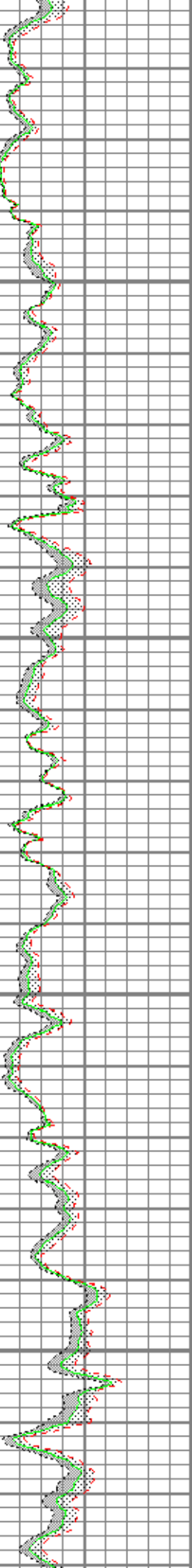
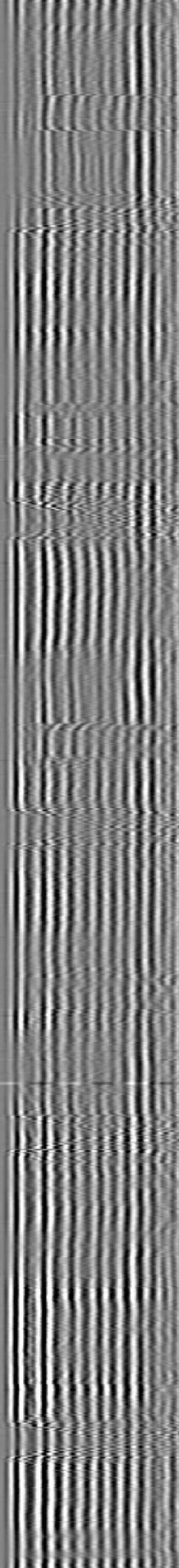
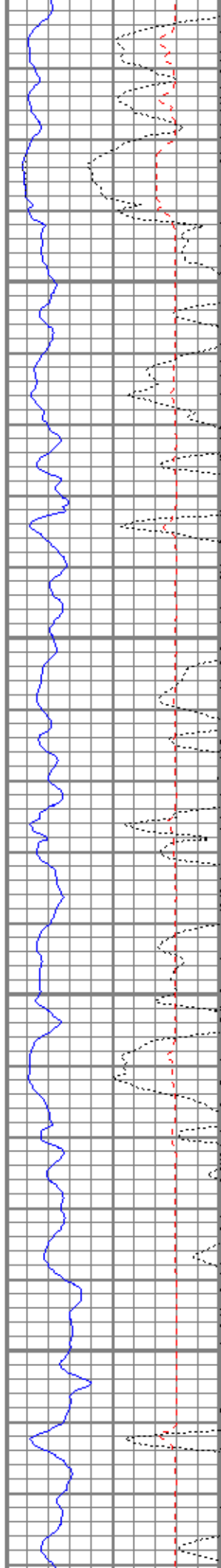


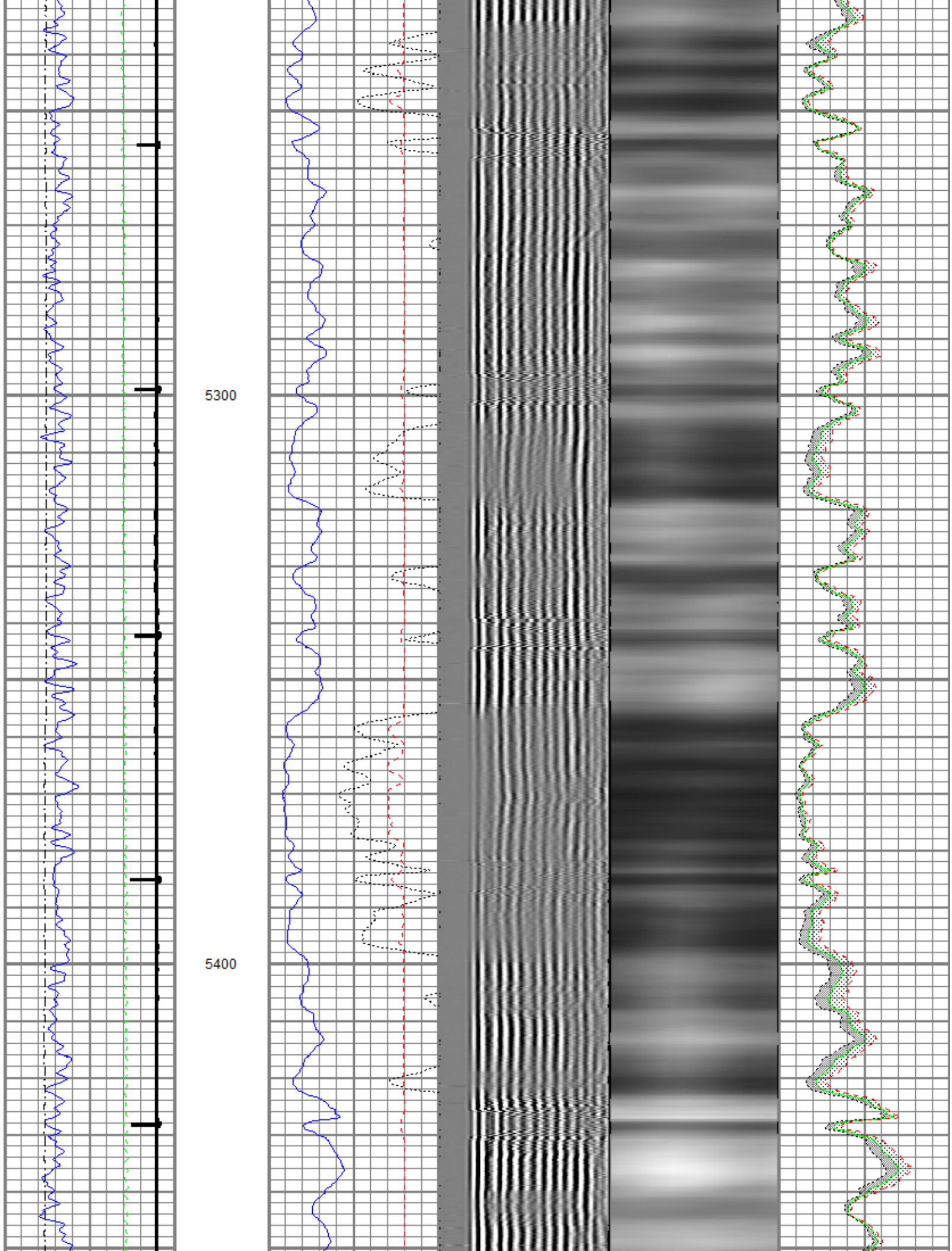


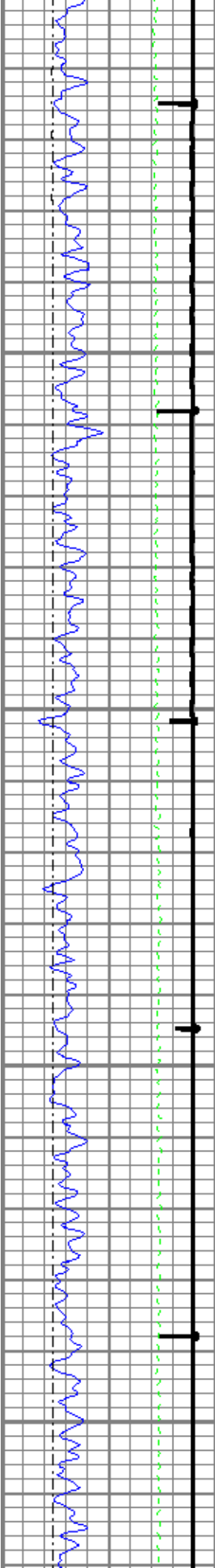


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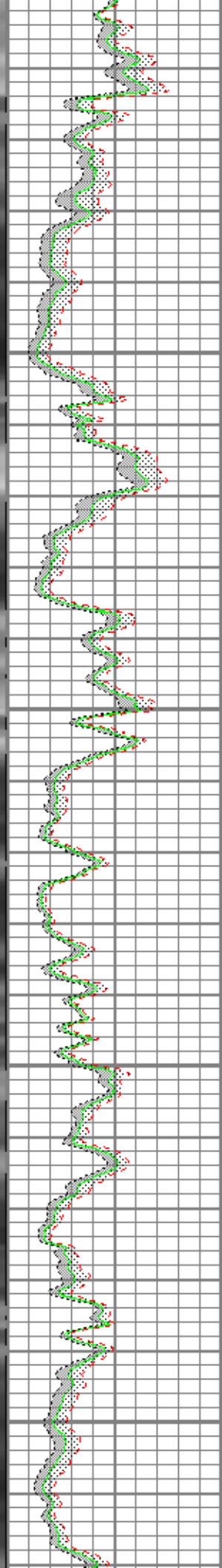
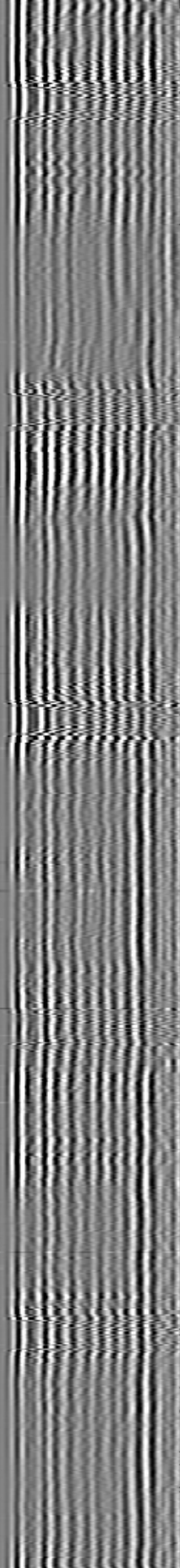
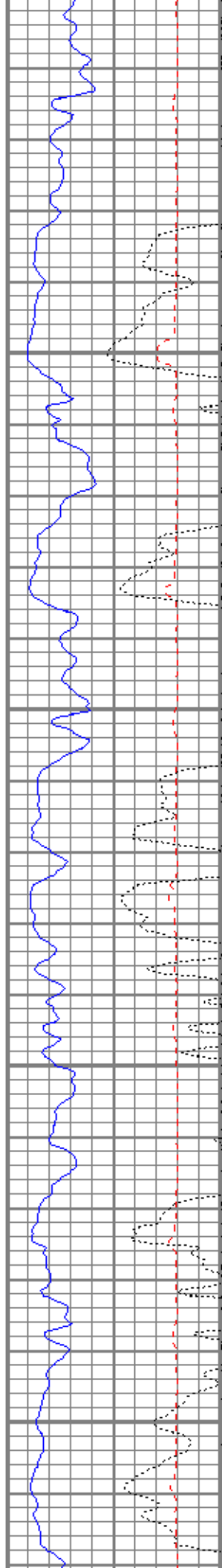


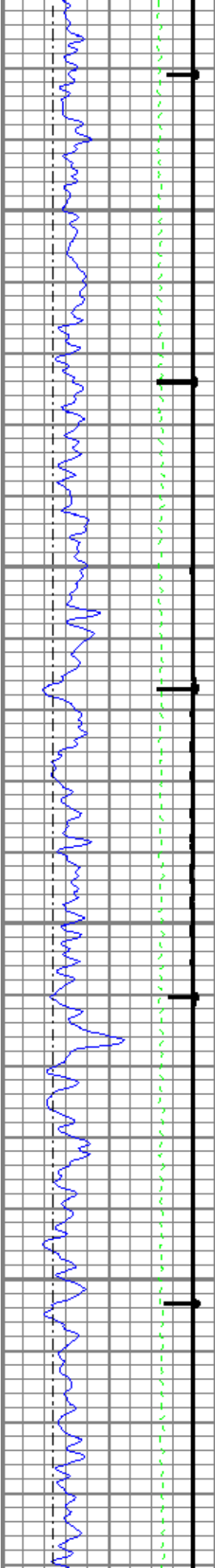




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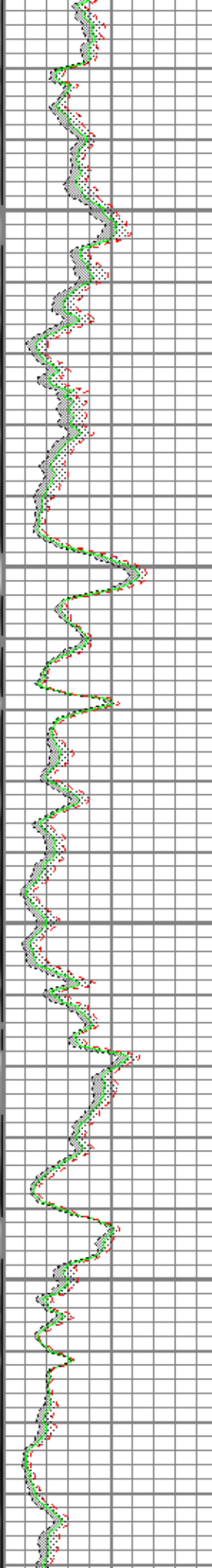
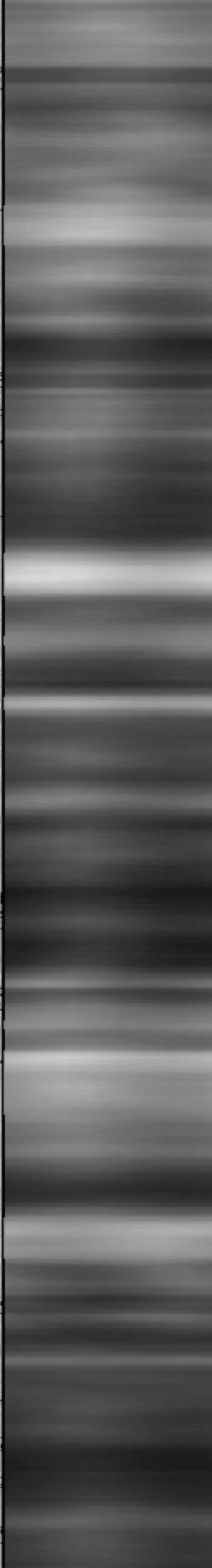
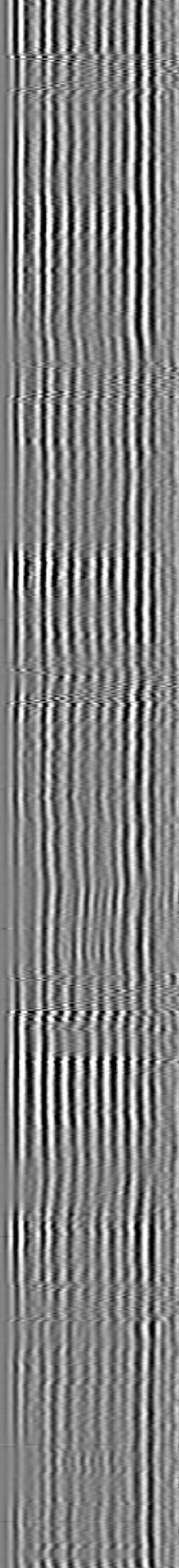
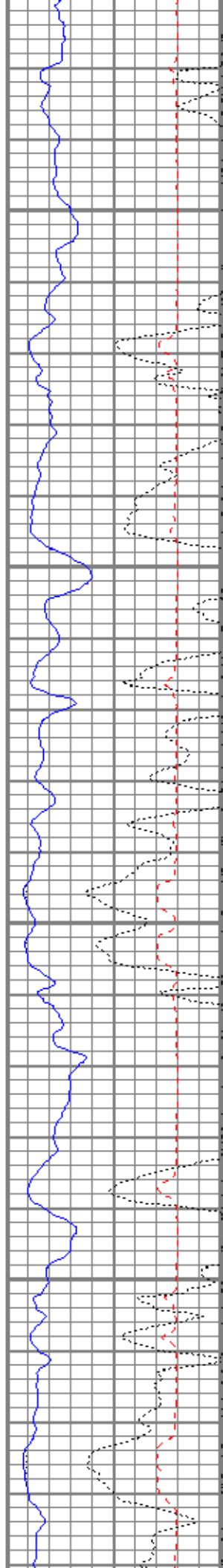
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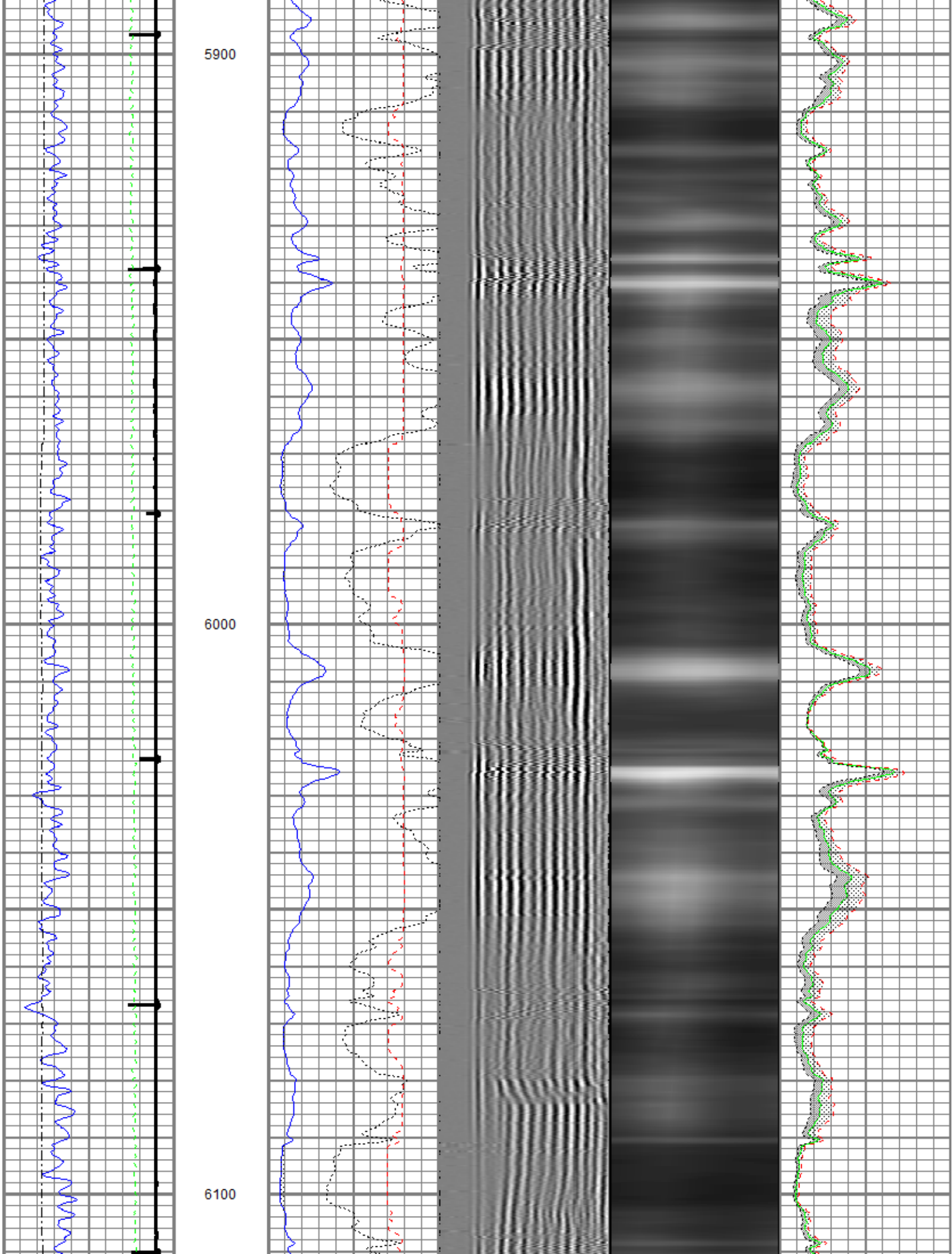


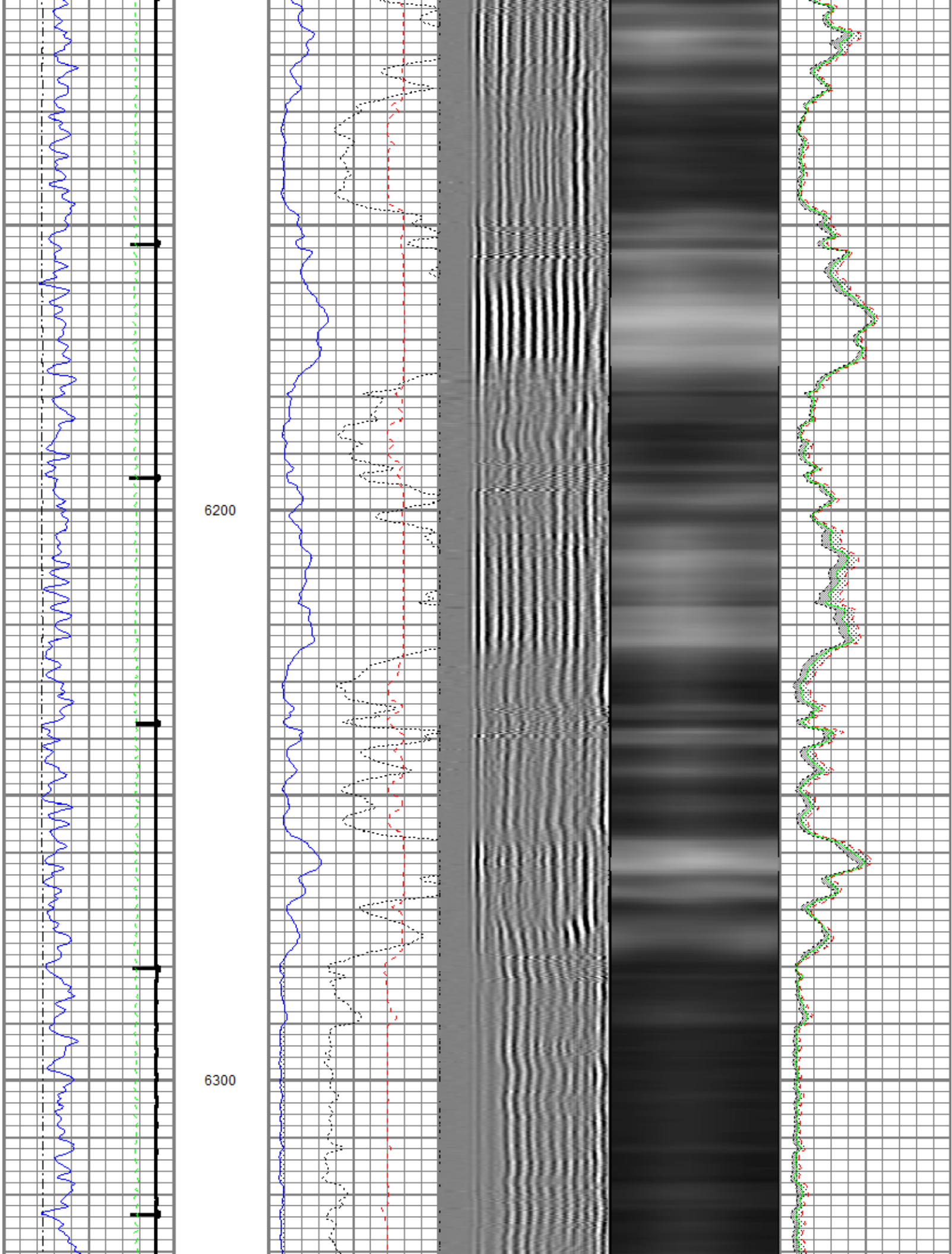


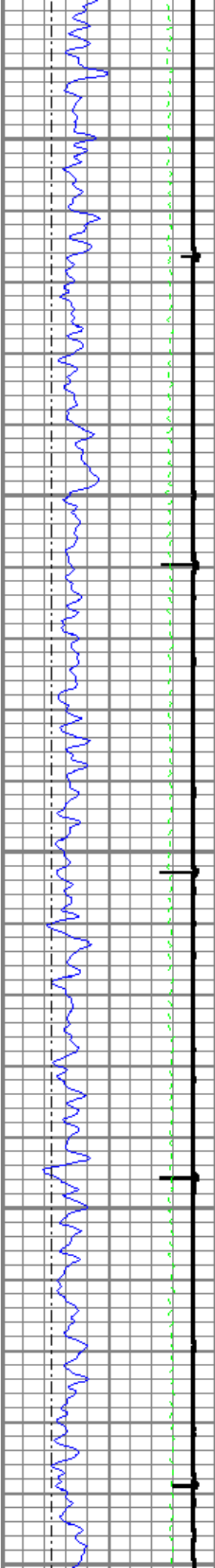
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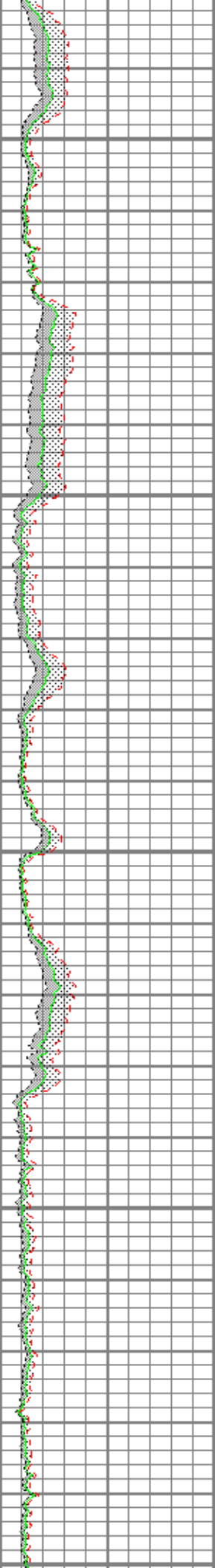
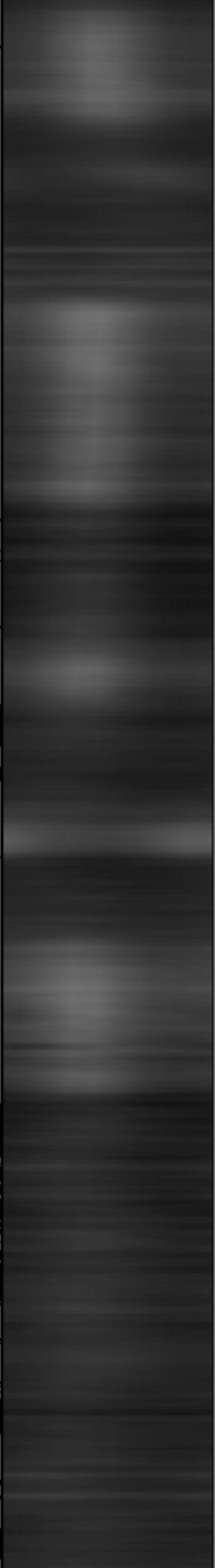
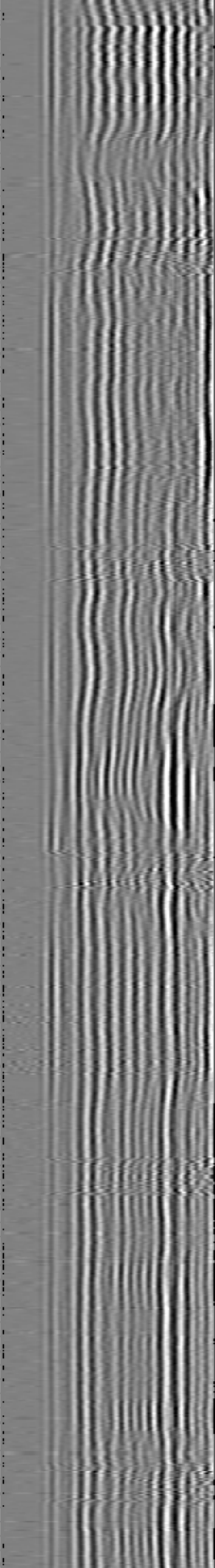
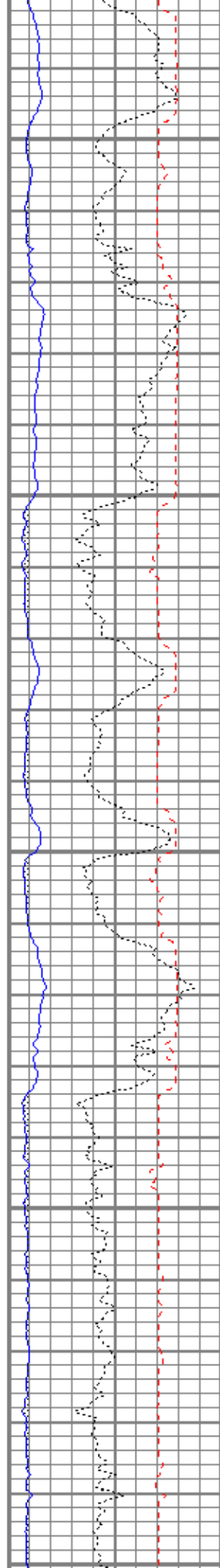


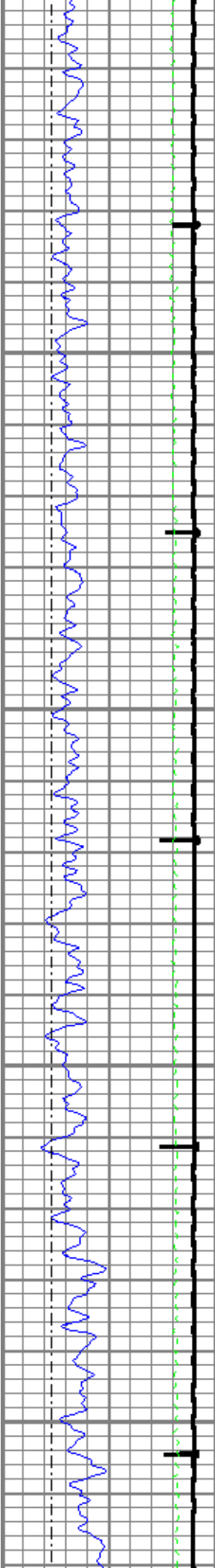




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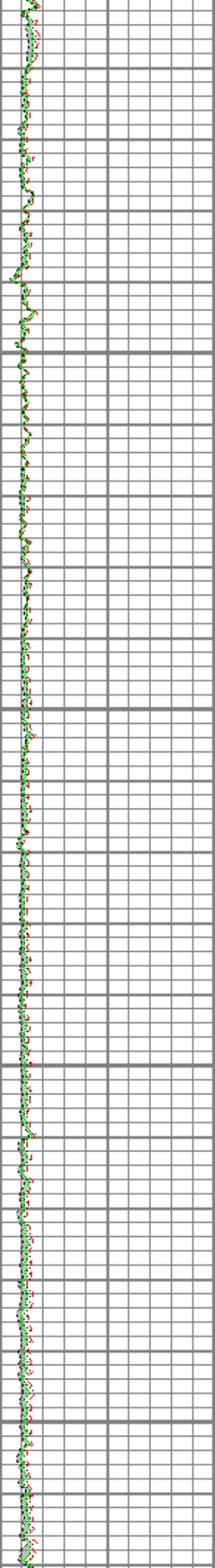
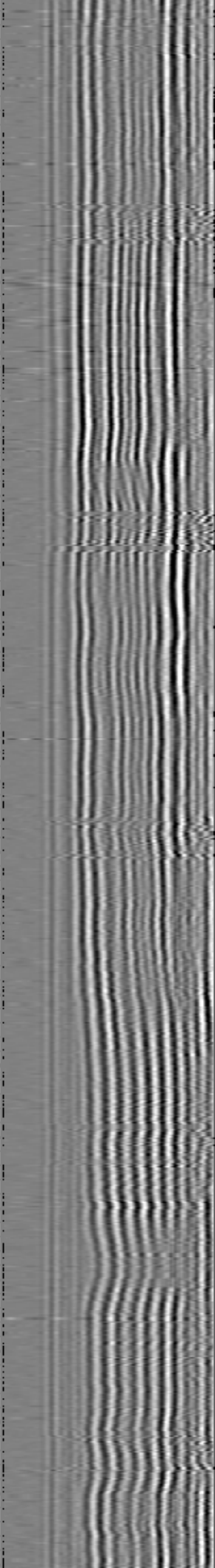
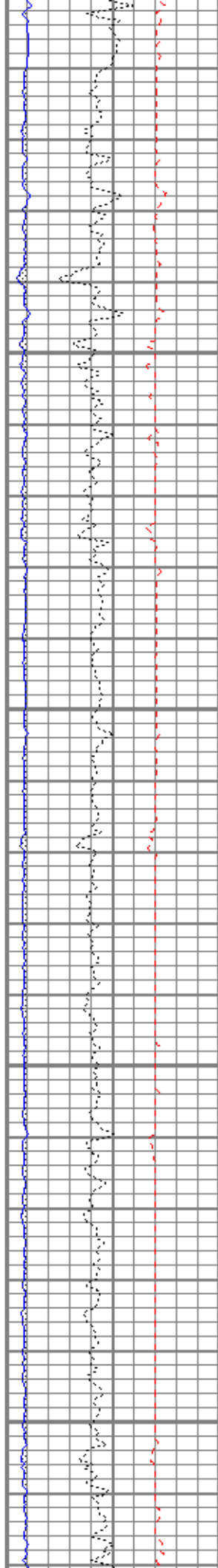
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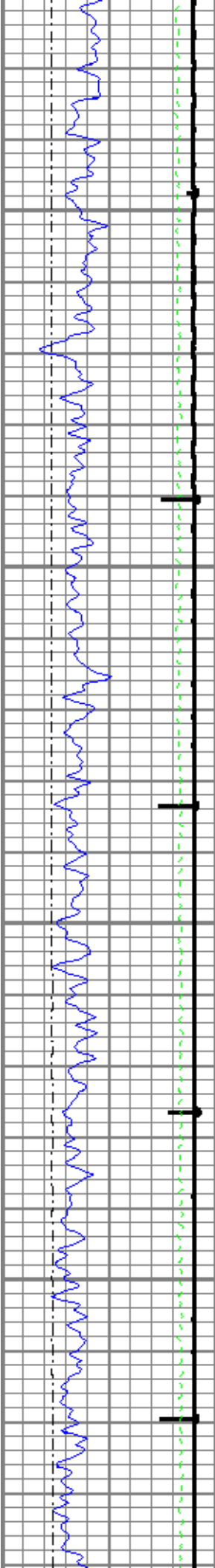




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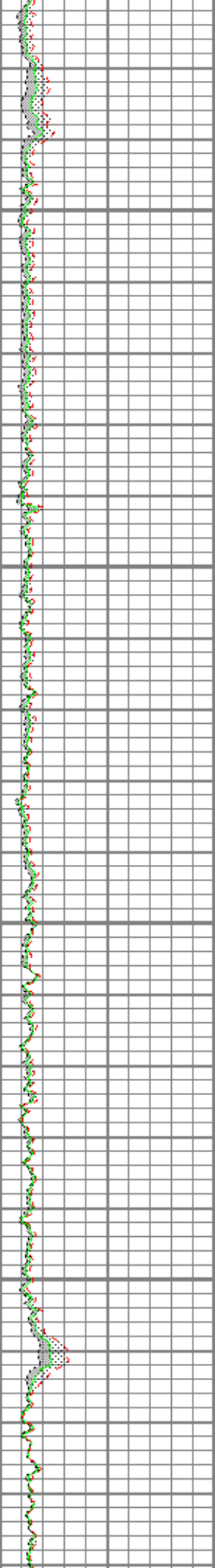
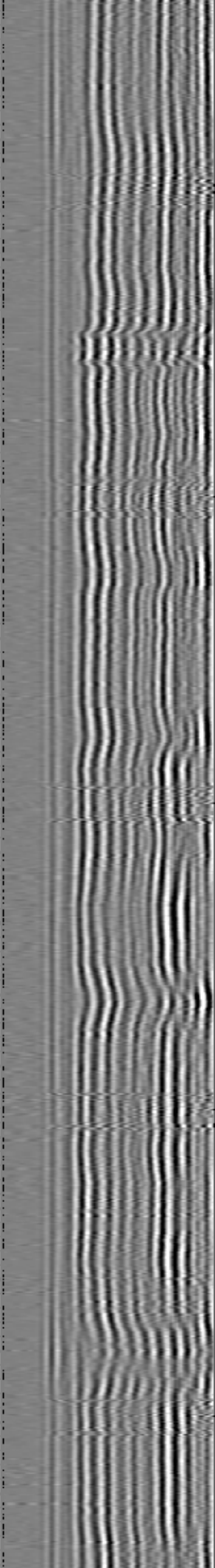
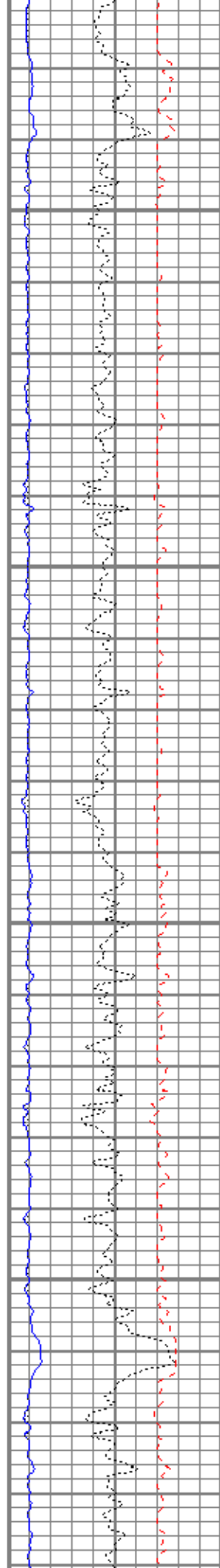
6700

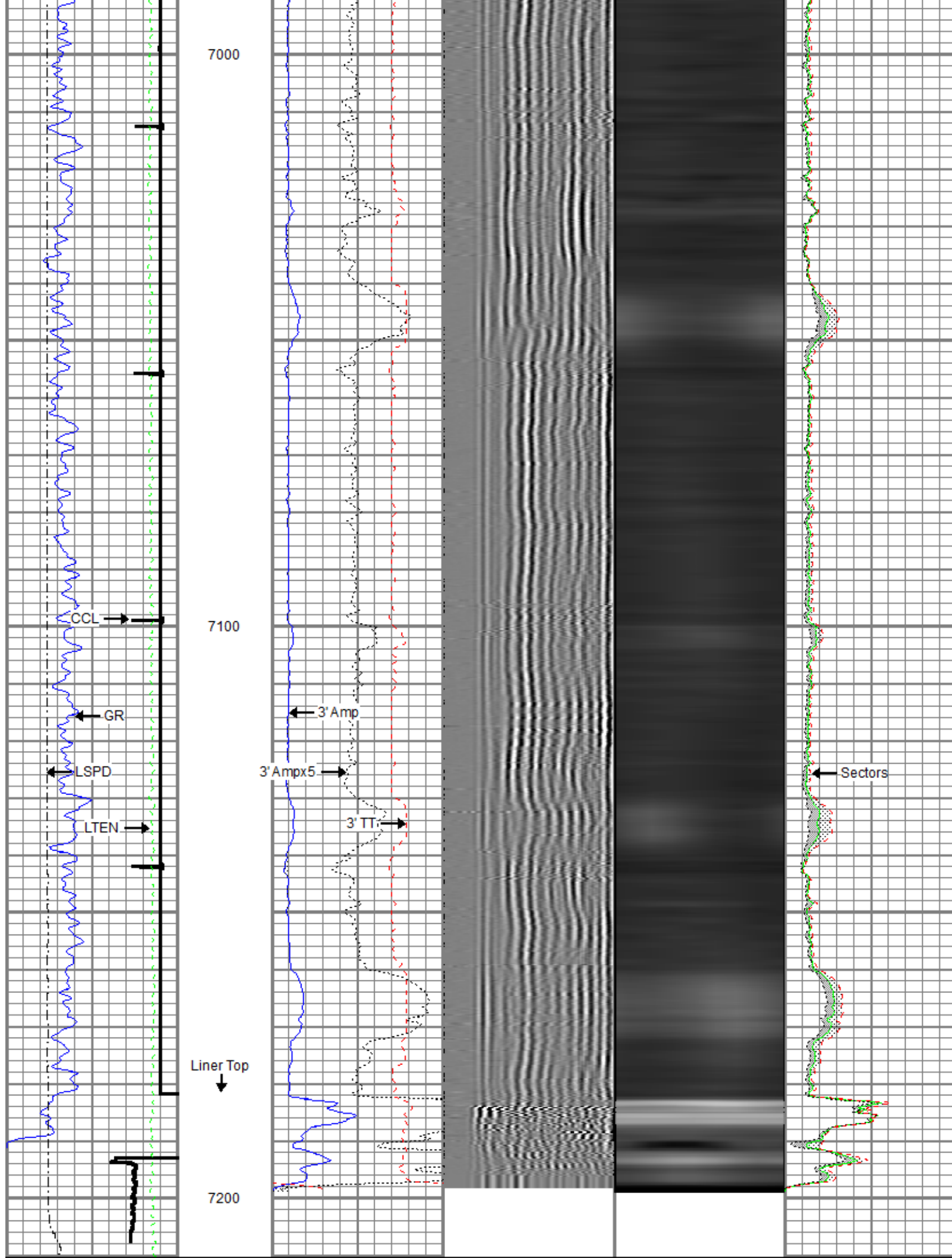





6800

6900





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	0	(mV) 20			0	100
Line Speed		3' Travel Time				Maximum Amplitude
-100 (ft/min) 100		650 (usec) 150			0	100
0 Line Tension (lb) 2000						

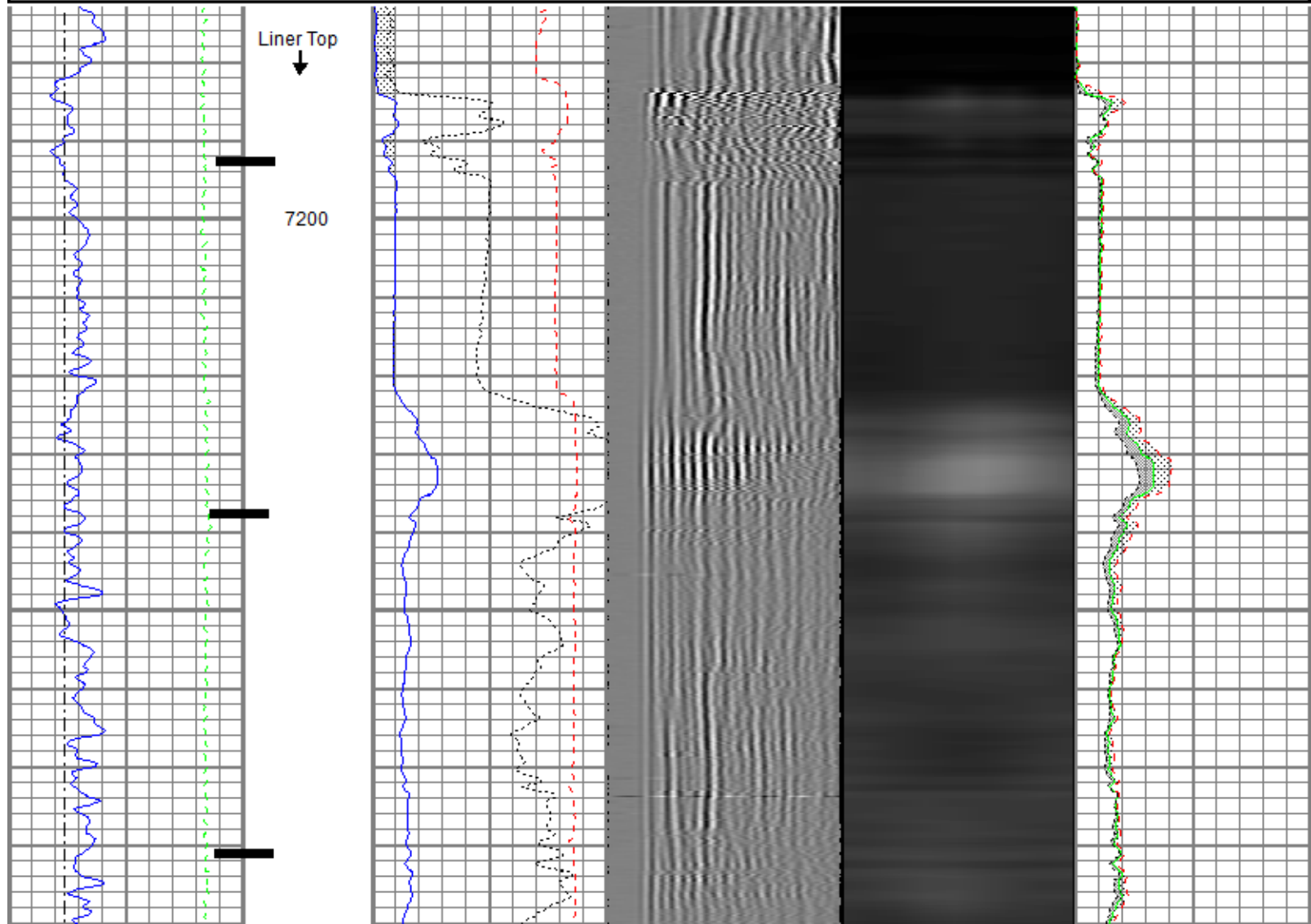


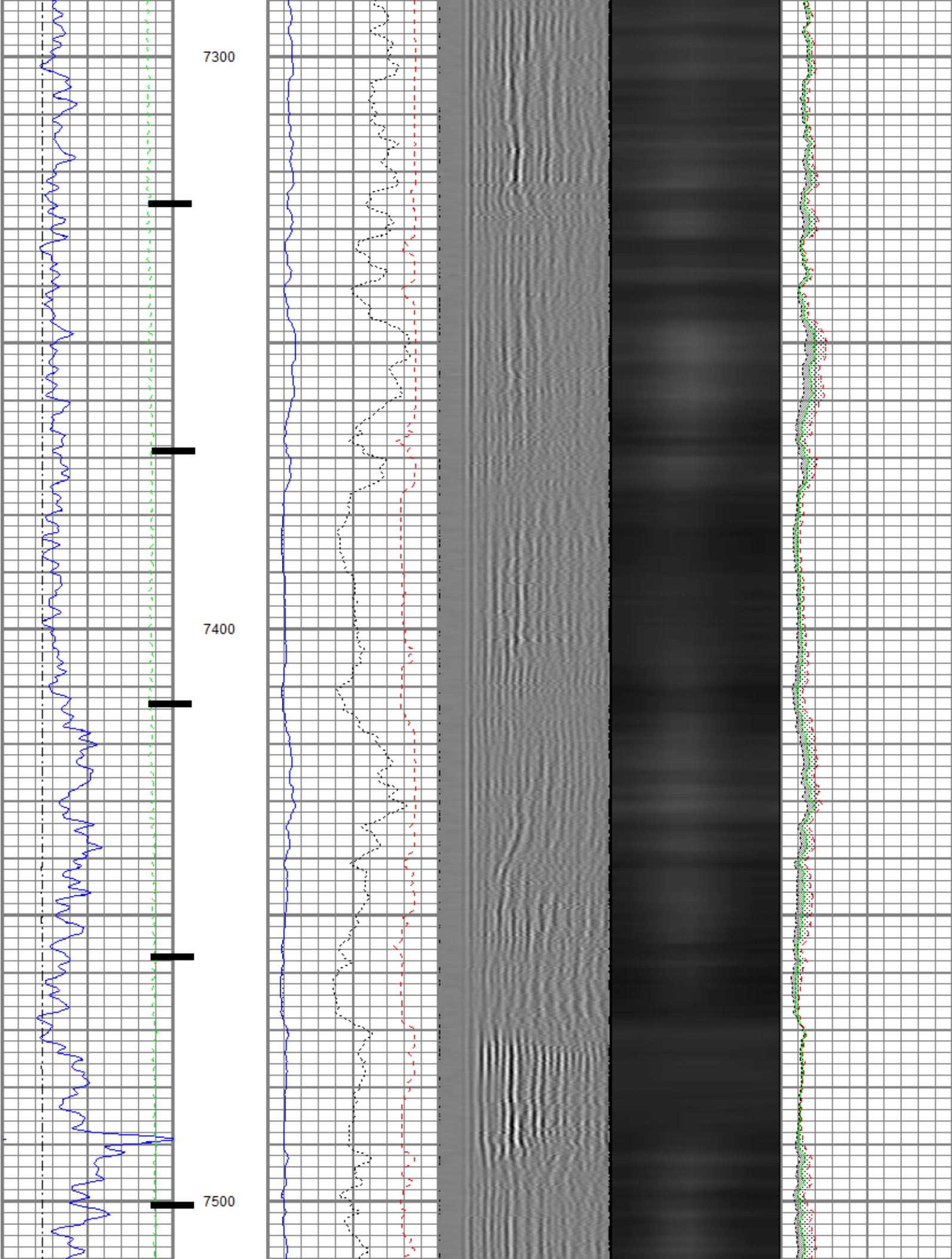
4.5" Main Pass

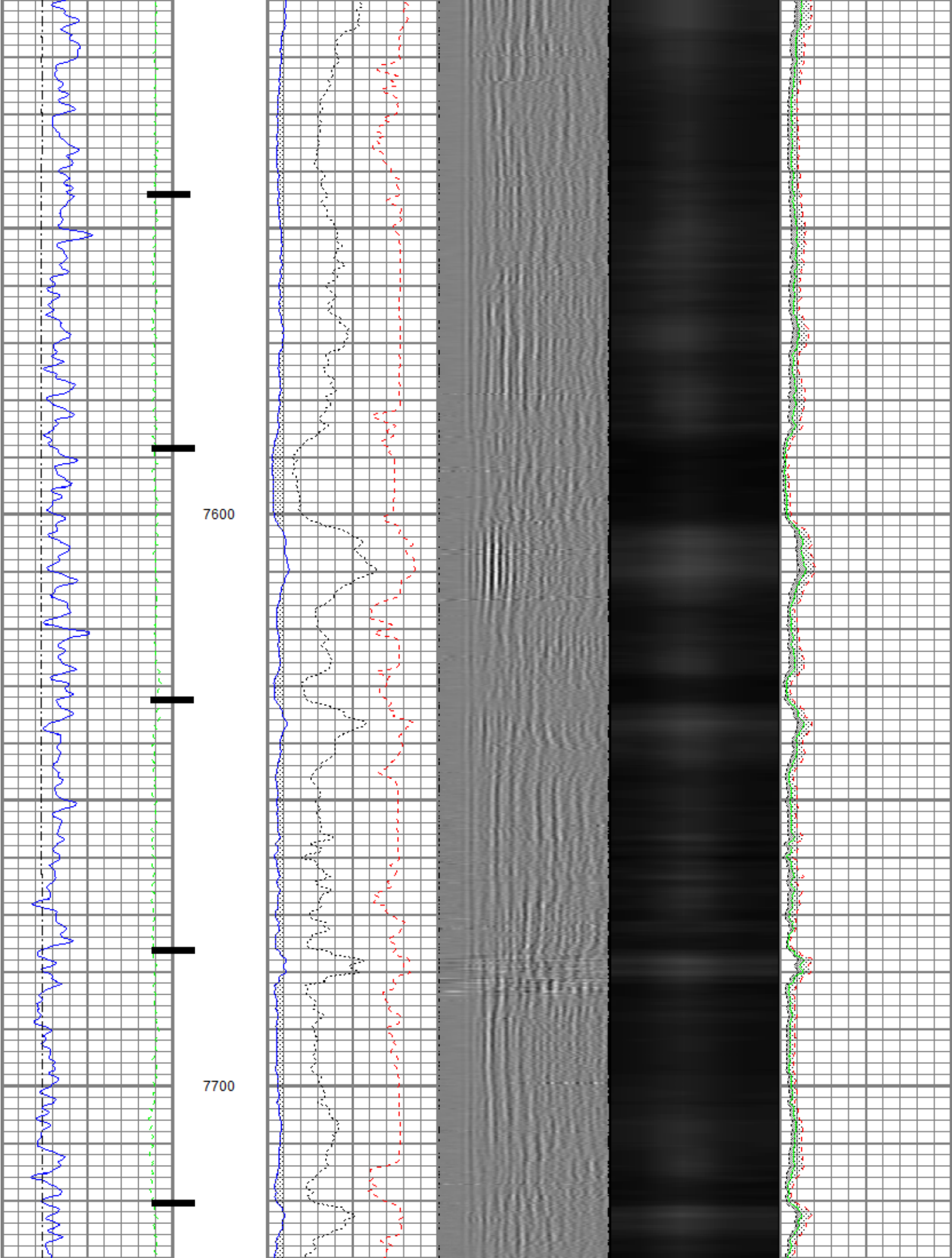
Recorded with 2800 PSI surface induced pressure.

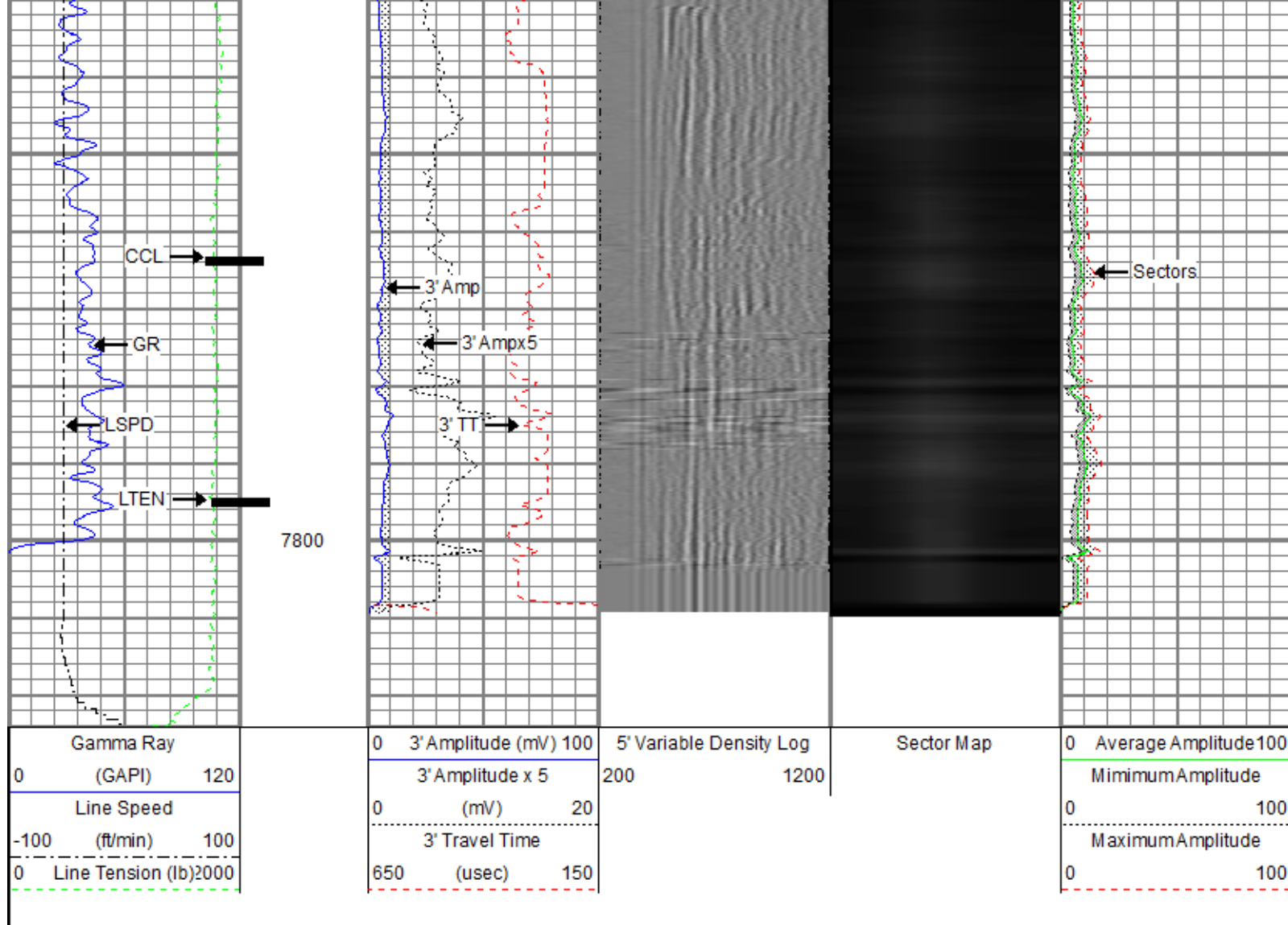
Database File:	anadarko_howard 3c-29hz_rcbl mit_26-sept-2014.db
Dataset Pathname:	pass8
Presentation Format:	rbt4_mit
Dataset Creation:	Fri Sep 26 08:19:48 2014 by Log SCH 111116
Charted by:	Depth in Feet scaled 1:240

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
Line Speed	0	(mV) 20			0	100
-100 (ft/min) 100		3' Travel Time				Maximum Amplitude
0 Line Tension (lb) 2000		650 (usec) 150			0	100



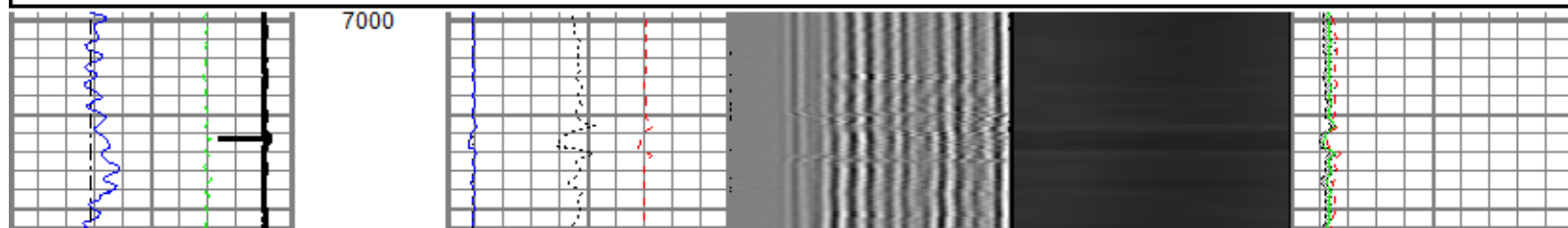
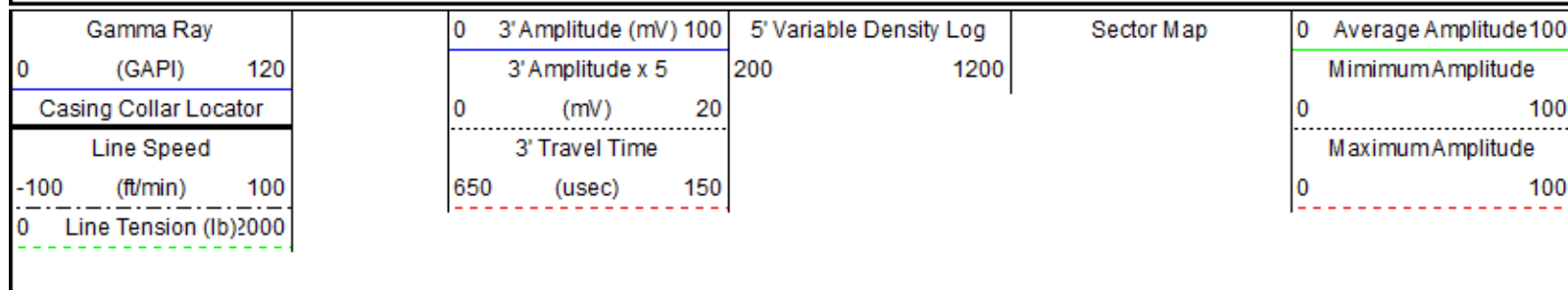






Repeat Pass

Database File: anadarko_howard 3c-29hz_rcbl mit_26-sept-2014.db
 Dataset Pathname: pass6
 Presentation Format: rbt4_mit
 Dataset Creation: Fri Sep 26 08:06:39 2014 by Log SCH 111116
 Charted by: Depth in Feet scaled 1:240



Repeat Section

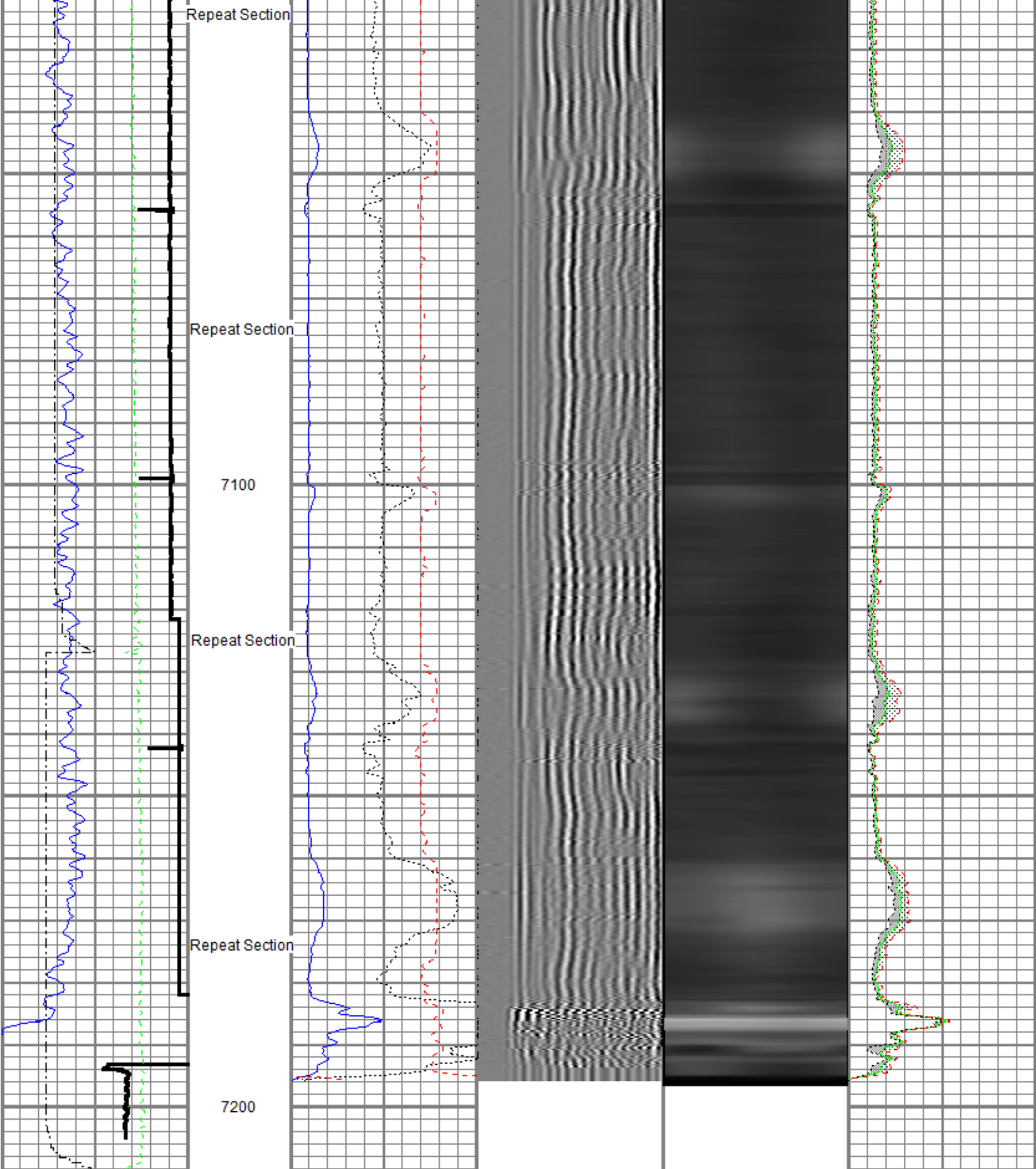
Repeat Section

7100

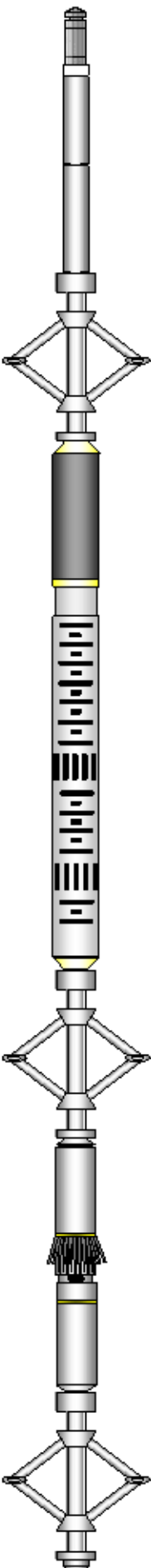
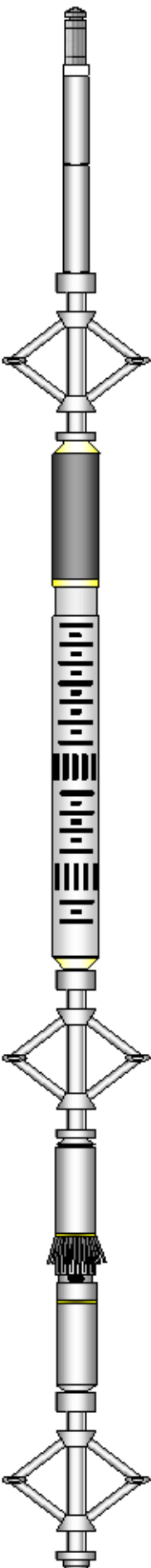
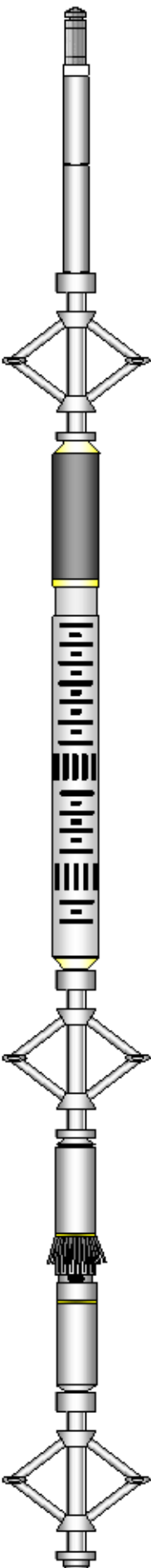
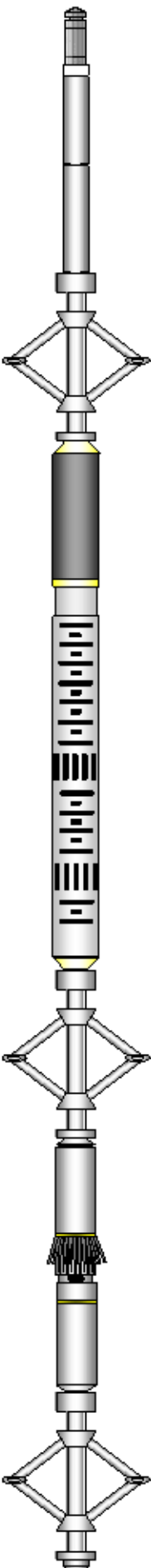
Repeat Section

Repeat Section

7200



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				Minimum Amplitude	
Casing Collar Locator		0 (mV) 20						0 100	
Line Speed		3' Travel Time						Maximum Amplitude	
-100 (ft/min) 100		650 (usec) 150						0 100	
0 Line Tension (lb) 2000									

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	23.67		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 (10010522) 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 #3 -UW_PRC_057 (1037) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
WVFS3FT	15.85		UW_RBT-UW_RBT_004 (1066) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.47	3.13	140.00
WVFS1	15.85					
WVFS2	15.85					
WVFS3	15.85					
WVFS4	15.85					
WVFS5	15.85					
WVFS6	15.85					
WVFS7	15.85					
WVFS8	15.85					
CBLTEMP	15.85					
CBLROT	15.85					
WVFS5FT	14.85		UW_PRC-UW_PRC_057 (1038) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
MIT	5.41		UW_MIT-UW_MIT40_042 (10014703) 40 Multifinger Imaging Tool	4.54	2.75	61.10
TSTAMP	0.00		UW_PRC-UW_PRC_057 (1101) Sondex 2-3/4" 4-Arm Production Roller Centraliser	2.98	2.75	32.00
ITEMPX	0.00		UW_BUL-UW_BUL_006 (218707) Sondex Ultrawire Bullnose Terminator	0.22	1.69	1.20
HVOLTX	0.00					

Dataset: anadarko_howard 3c-29hz_rcbl mit_26-sept-2014.db: field/well/run1/pass10
 Total Length: 27.92 ft
 Total Weight: 319.30 lb

Calibration Report

Database File: anadarko_howard 3c-29hz_rcbl mit_26-sept-2014.db
 Dataset Pathname: pass11
 Dataset Creation: Fri Sep 26 11:45:43 2014 by Log SCH 111116

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 Sep 26 07:17:03 2014

Ring size:	4	5	6	7
(in)	Sens	Sens	Sens	
Finger 01:	1132	351.0	1483	380.0
Finger 02:	1159	368.0	1527	399.0
Finger 03:	1080	352.0	1432	387.0
Finger 04:	1042	359.0	1401	405.0
Finger 05:	1079	344.0	1423	379.0
Finger 06:	1075	360.0	1435	393.0
Finger 07:	1082	350.0	1432	385.0
Finger 08:	1043	357.0	1400	401.0
Finger 09:X	1112	358.0	1470	389.0
Finger 10:X	1151	354.0	1505	384.0
Finger 11:	1125	355.0	1480	394.0
Finger 12:	1230	349.0	1579	367.0
Finger 13:	1142	350.0	1492	398.0
Finger 14:	1064	355.0	1419	404.0
Finger 15:	1054	353.0	1407	407.0
Finger 16:	1137	352.0	1489	396.0
Finger 17:X	1110	342.0	1452	383.0
Finger 18:	1142	341.0	1483	380.0
Finger 19:	1099	352.0	1451	393.0
Finger 20:	1025	347.0	1372	402.0
Finger 21:	1100	339.0	1439	381.0
Finger 22:	1116	349.0	1465	391.0
Finger 23:	1171	322.0	1493	359.0
Finger 24:	1109	357.0	1466	399.0
Finger 25:	1093	345.0	1438	386.0
Finger 26:	1127	344.0	1471	383.0
Finger 27:	1166	340.0	1506	376.0
Finger 28:	1135	357.0	1492	390.0
Finger 29:	1161	361.0	1522	403.0
Finger 30:	1098	350.0	1448	396.0
Finger 31:	1151	353.0	1504	381.0
Finger 32:	1138	364.0	1502	398.0
Finger 33:	1078	349.0	1427	392.0
Finger 34:	1071	357.0	1428	399.0
Finger 35:	1130	346.0	1476	373.0
Finger 36:	1094	360.0	1454	396.0
Finger 37:	1161	349.0	1510	376.0
Finger 38:	1180	349.0	1529	372.0
Finger 39:	1142	361.0	1503	389.0
Finger 40:	1028	368.0	1406	410.0

Finger 40:	1038	308.0	1400	410.0	1810	434.0	2230	
Post Survey Calibration Check								
Performed:			Fri Sep 26 11:45:36 2014					
Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	3.989	-0.005	4.999	-0.000	5.993	-0.004	7.011	0.005
Finger 02:	3.983	-0.008	4.998	-0.001	6.002	0.001	7.009	0.005
Finger 03:	3.986	-0.007	4.992	-0.004	5.989	-0.005	7.005	0.003
Finger 04:	3.975	-0.013	4.984	-0.008	5.985	-0.008	6.996	-0.002
Finger 05:	3.985	-0.007	4.996	-0.002	5.994	-0.003	6.993	-0.003
Finger 06:	3.986	-0.007	4.993	-0.003	5.996	-0.002	7.001	0.000
Finger 07:	3.992	-0.004	4.996	-0.002	5.996	-0.002	7.003	0.001
Finger 08:	3.987	-0.006	4.996	-0.002	5.998	-0.001	7.005	0.002
Finger 09:	-----	-----	-----	-----	-----	-----	-----	-----
Finger 10:	-----	-----	-----	-----	-----	-----	-----	-----
Finger 11:	3.983	-0.009	4.989	-0.006	6.004	0.002	7.002	0.001
Finger 12:	3.983	-0.009	4.992	-0.004	6.003	0.001	7.000	-0.000
Finger 13:	3.986	-0.007	5.000	0.000	6.005	0.003	7.043	0.021
Finger 14:	3.987	-0.007	4.999	-0.001	5.996	-0.002	7.000	-0.000
Finger 15:	3.990	-0.005	5.002	0.001	5.999	-0.001	7.000	0.000
Finger 16:	3.993	-0.004	5.006	0.003	6.004	0.002	6.999	-0.001
Finger 17:	-----	-----	-----	-----	-----	-----	-----	-----
Finger 18:	3.988	-0.006	4.992	-0.004	5.998	-0.001	6.996	-0.002
Finger 19:	3.988	-0.006	4.991	-0.004	5.994	-0.003	6.994	-0.003
Finger 20:	3.988	-0.006	5.000	-0.000	5.992	-0.004	6.998	-0.001
Finger 21:	3.989	-0.005	4.990	-0.005	5.995	-0.003	6.999	-0.000
Finger 22:	3.990	-0.005	4.996	-0.002	6.003	0.001	7.005	0.003
Finger 23:	3.977	-0.011	4.994	-0.003	5.998	-0.001	7.017	0.008
Finger 24:	3.986	-0.007	5.001	0.000	5.996	-0.002	7.007	0.003
Finger 25:	3.989	-0.006	4.996	-0.002	6.004	0.002	7.006	0.003
Finger 26:	3.981	-0.010	4.991	-0.005	5.994	-0.003	7.007	0.004
Finger 27:	3.986	-0.007	4.994	-0.003	5.994	-0.003	7.028	0.014
Finger 28:	3.990	-0.005	4.994	-0.003	5.992	-0.004	7.000	0.000
Finger 29:	3.992	-0.004	4.997	-0.002	6.008	0.004	7.003	0.001
Finger 30:	3.977	-0.011	4.991	-0.004	5.987	-0.007	6.997	-0.001
Finger 31:	3.986	-0.007	4.990	-0.005	5.993	-0.003	6.996	-0.002
Finger 32:	3.995	-0.002	4.990	-0.005	5.996	-0.002	6.997	-0.001
Finger 33:	3.963	-0.019	4.995	-0.003	5.995	-0.002	7.008	0.004
Finger 34:	3.994	-0.003	4.996	-0.002	5.995	-0.003	6.993	-0.003
Finger 35:	3.982	-0.009	5.000	0.000	6.013	0.007	6.970	-0.015
Finger 36:	3.993	-0.003	4.994	-0.003	5.996	-0.002	6.999	-0.001
Finger 37:	3.991	-0.005	4.998	-0.001	6.005	0.003	7.016	0.008
Finger 38:	3.991	-0.004	4.992	-0.004	5.999	-0.000	7.010	0.005
Finger 39:	3.995	-0.003	5.004	0.002	6.009	0.004	7.026	0.013
Finger 40:	3.985	-0.007	4.995	-0.002	5.996	-0.002	7.005	0.002
Average:	3.987	-0.007	4.995	-0.002	5.998	-0.001	7.004	0.002

Segmented Cement Bond Log Calibration Report						
Serial Number:		1066				
Tool Model:		UW_RBT_004				
Calibration Casing Diameter:		7.000	in			
Calibration Depth:		96.633	ft			
Master Calibration, performed Fri Sep 26 07:37:54 2014:						
	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	-0.003	0.784	0.800	62.165	77.982	1.043
5FT	-0.007	0.753	0.800	62.165	80.749	1.391
S1	-0.002	0.749	0.000	100.000	133.236	0.223
S2	-0.004	0.797	0.000	100.000	124.859	0.480
S3	-0.004	0.823	0.000	100.000	120.921	0.453
S4	-0.005	0.824	0.000	100.000	120.716	0.589
S5	-0.003	0.796	0.000	100.000	125.063	0.427
S6	-0.003	0.774	0.000	100.000	128.680	0.449
S7	-0.003	0.766	0.000	100.000	130.038	0.329

S7	-0.003	0.766	0.000	100.000	130.036	0.329
S8	-0.003	0.744	0.000	100.000	133.959	0.370
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 LP				
	Well	Howard 3C-29HZ				
	Field	Wattenberg				
	County	Weld				
	State	Colorado				Country