



Radial Cement Bond  
Gamma Ray  
Casing Collar Log

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

Well Newby 27N-33HZ

Field Wattenberg

County Weld State Colorado

Location: API #: 05-123-44566

SEC 33 TWP 3N RGE 68W

Permanent Datum Ground Level Elevation 4895'

Log Measured From Kelly Bushing 32 FT

Drilling Measured From Kelly Bushing

Other Services  
MIT  
JBGR

Elevation

K.B. 4927'

D.F. ---

G.L. 4895'

Date 15-MAR-2018

Run Number Two

Depth Driller 12703 FT

Depth Logger 7524 FT

Bottom Logged Interval 7519 FT

Top Log Interval Surface

Open Hole Size ---

Type Fluid Water

Density / Viscosity 8.34 lb/gal

Max. Recorded Temp. 228°F

Estimated Cement Top See Log

Time Well Ready ROA

Time Logger on Bottom 14.10

Equipment Number HD-363

Location Fort Lupton, CO

Recorded By Greg Lueck

Witnessed By John McCarthy

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 804 FT

Intermediate #1 7 26 P-110 Surface 6140 FT

Intermediate #2 4 1/2 11.6 HCP-110 5888 FT

Liner 12697 FT

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

Log ran as per customer request  
Depth referenced to Casing Tally reported Liner Top at 5888 FT  
Adjusted +3 FT to correlate with Liner Top  
Gauge Ring/Junk Basket ran to 7596 FT with no debris  
Log ran from as deep as possible in heel to Surface  
Recorded with 2800 PSI Surface Induced Pressure  
Logging tools were clean and free of debris upon completion of operations  
Thank you for choosing Reliance Oilfield Services, LLC!!

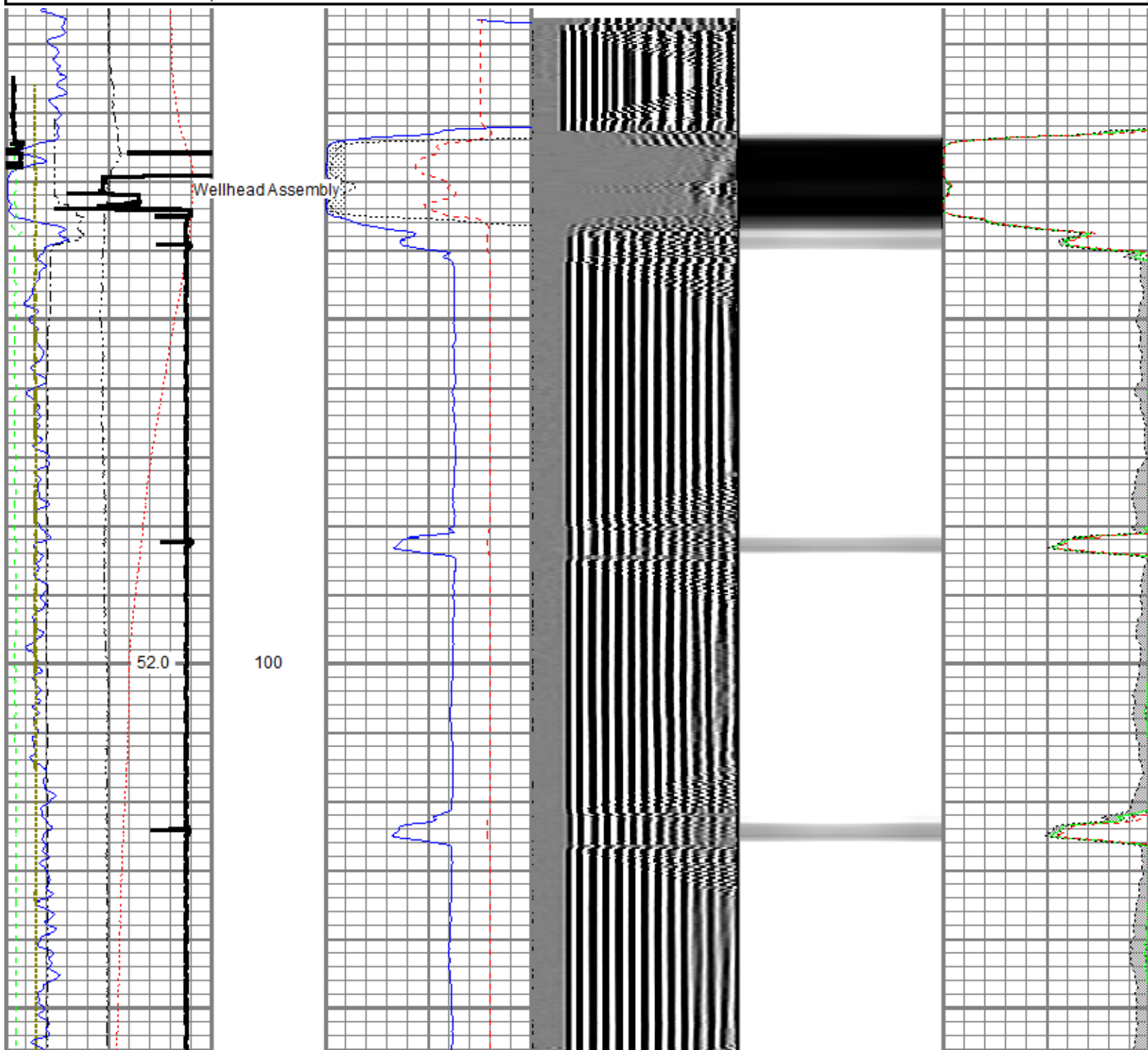
Main Pass

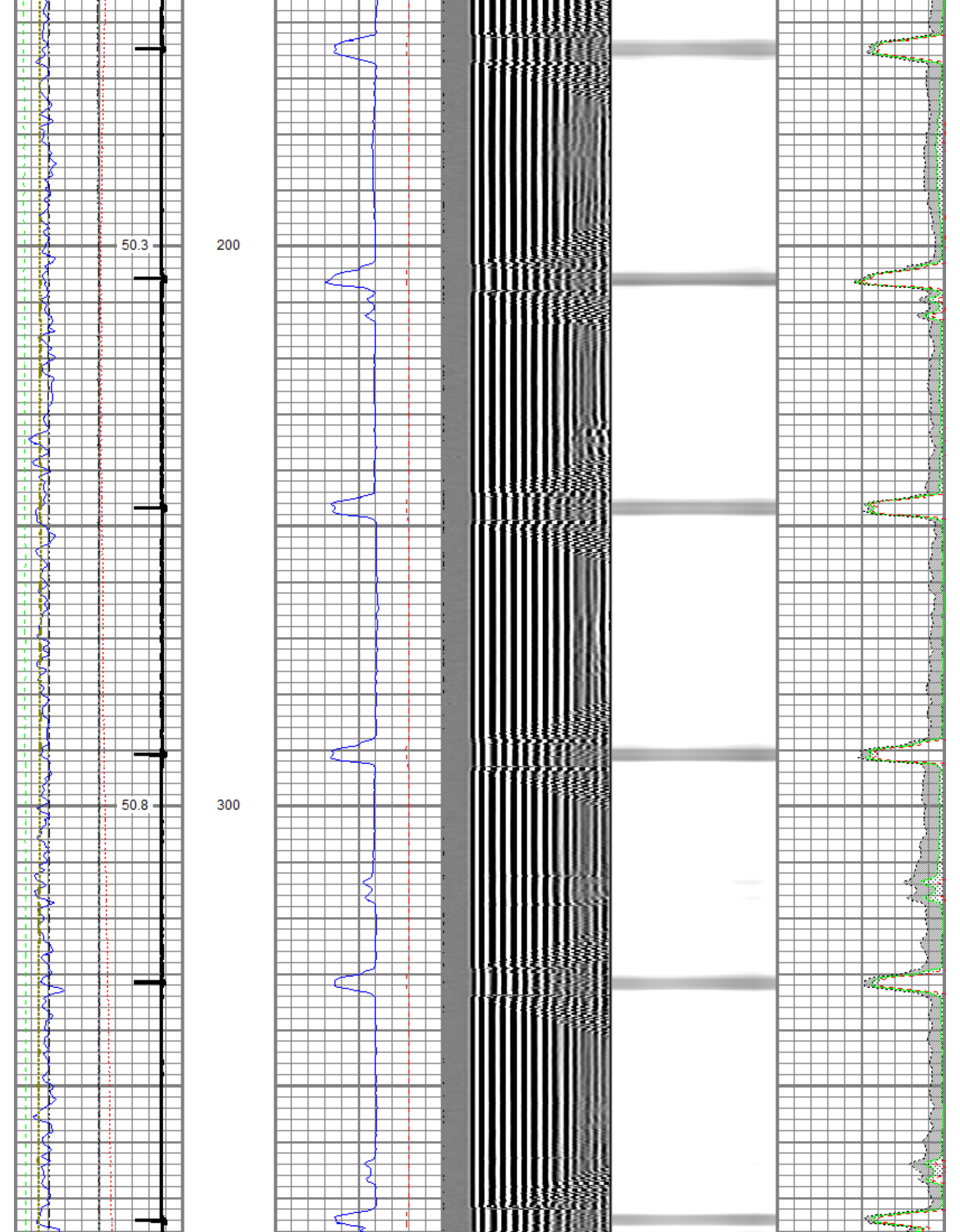


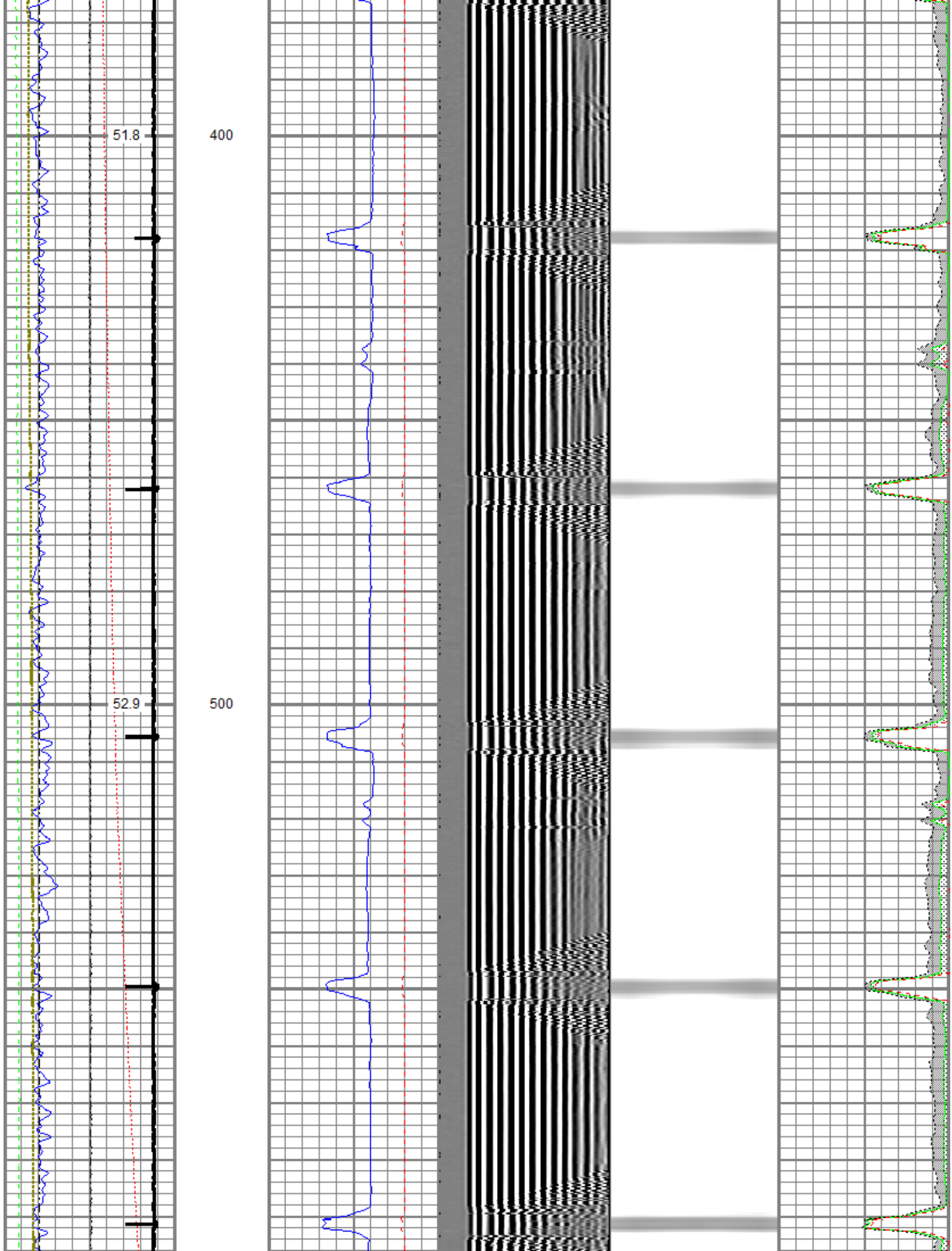
Recorded With 2800 PSI Surface Induced Pressure

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 Presentation Format ros\_rbt\_mit\_sx  
 Dataset Creation Thu Mar 15 14:33:05 2018  
 Charted by Depth in Feet scaled 1:240

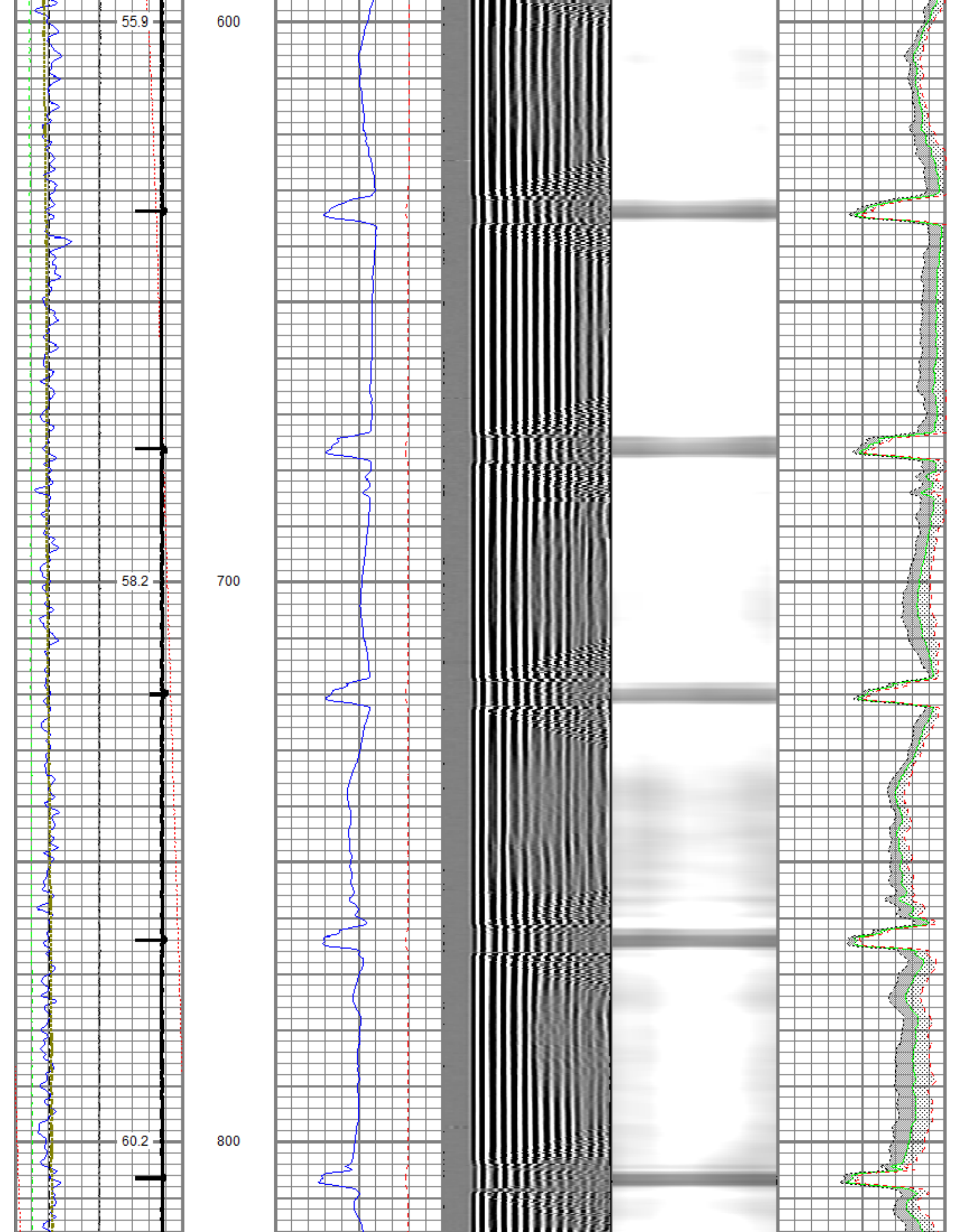
Gamma Ray	0	3' Amplitude (mV) 100	5' Variable Density Log	Sector Map	0	Average Amplitude 100
(GAPI) 120		3' Amplitude x 5	200			Minimum Amplitude
Line Speed	0	(mV) 20			0	100
(ft/min) 100		3' Travel Time				Maximum Amplitude
Line Tension (lb) 2000	0	650 (usec) 150			0	100
Differential Temperature						
(degF) 2						
Temperature (degF) 20						
Casing Collar Locator						
Deviation (deg) 90						

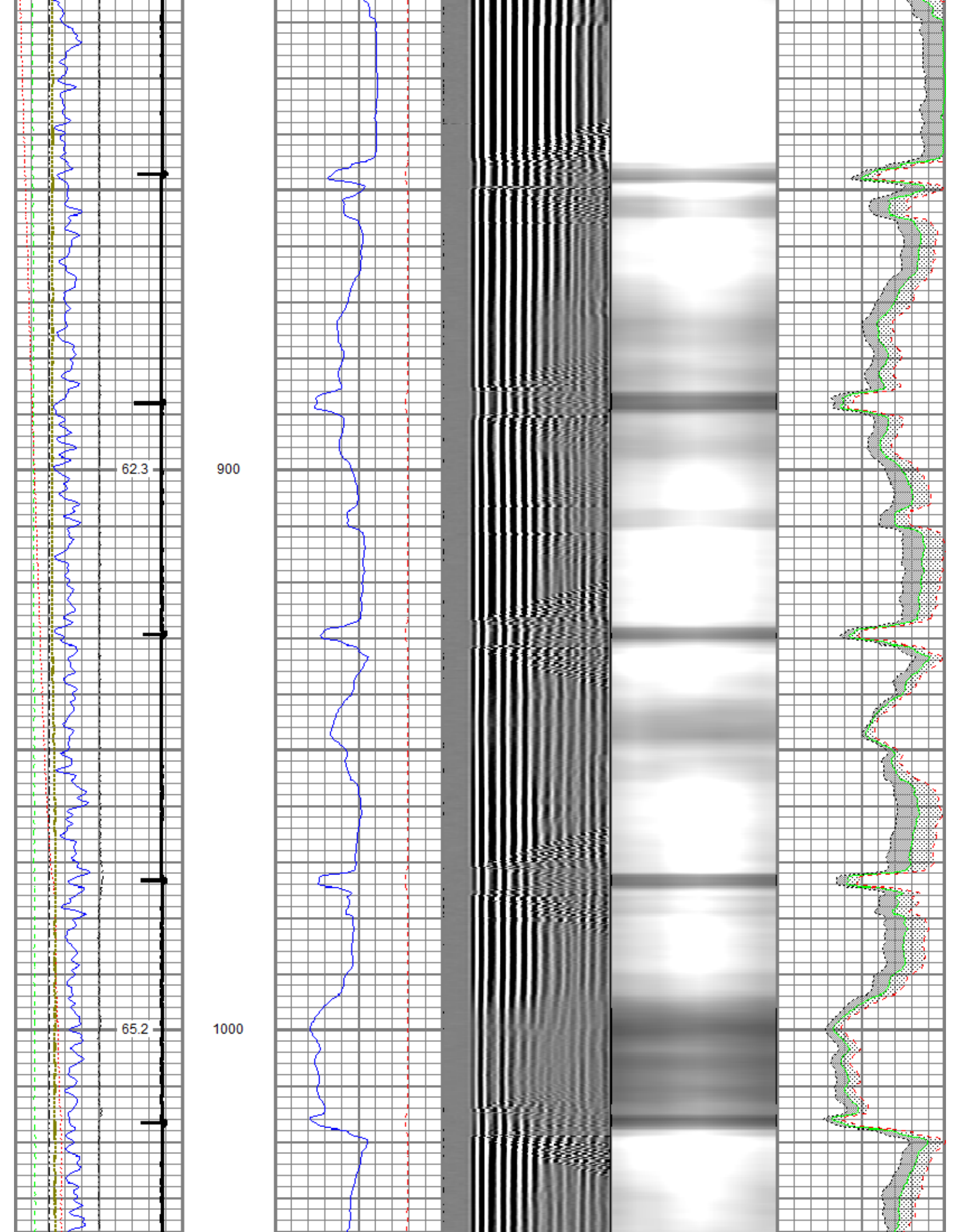


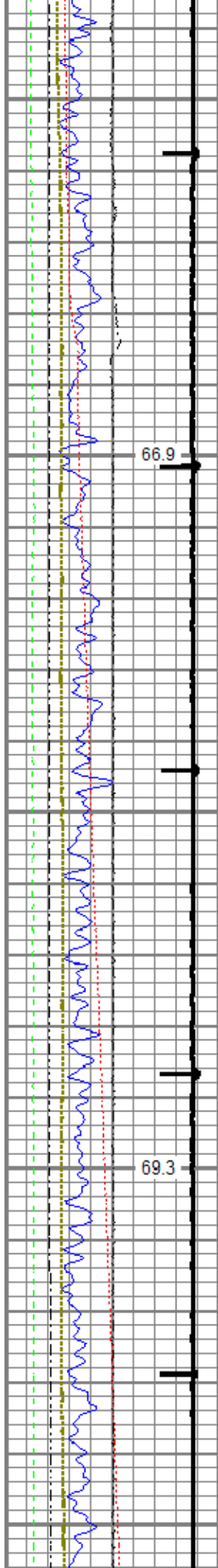






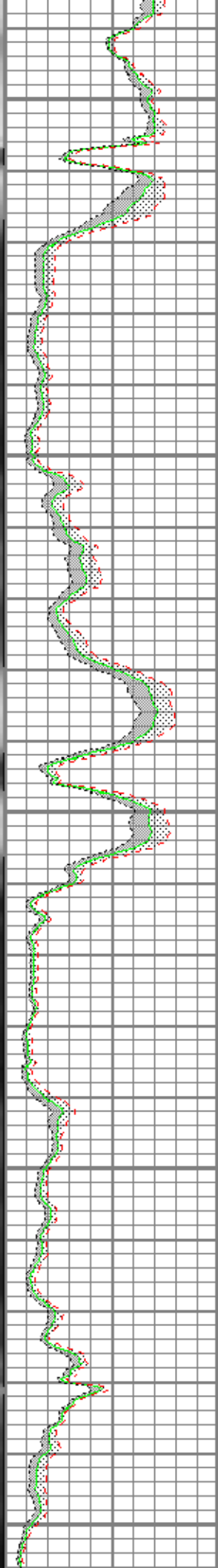
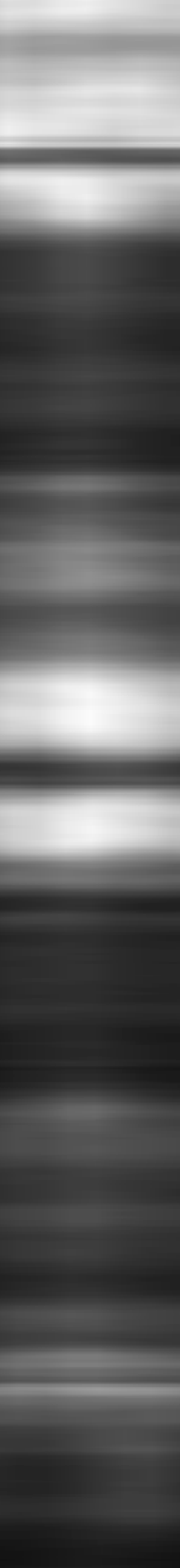
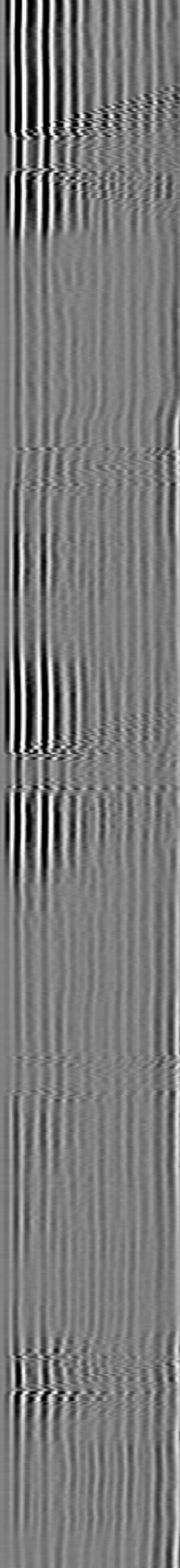
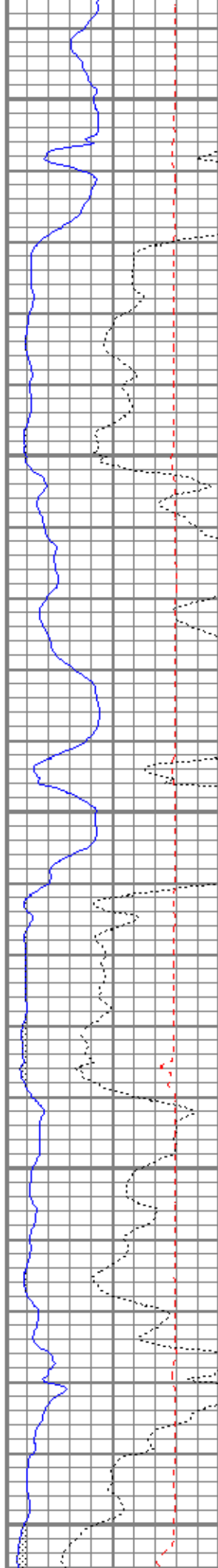


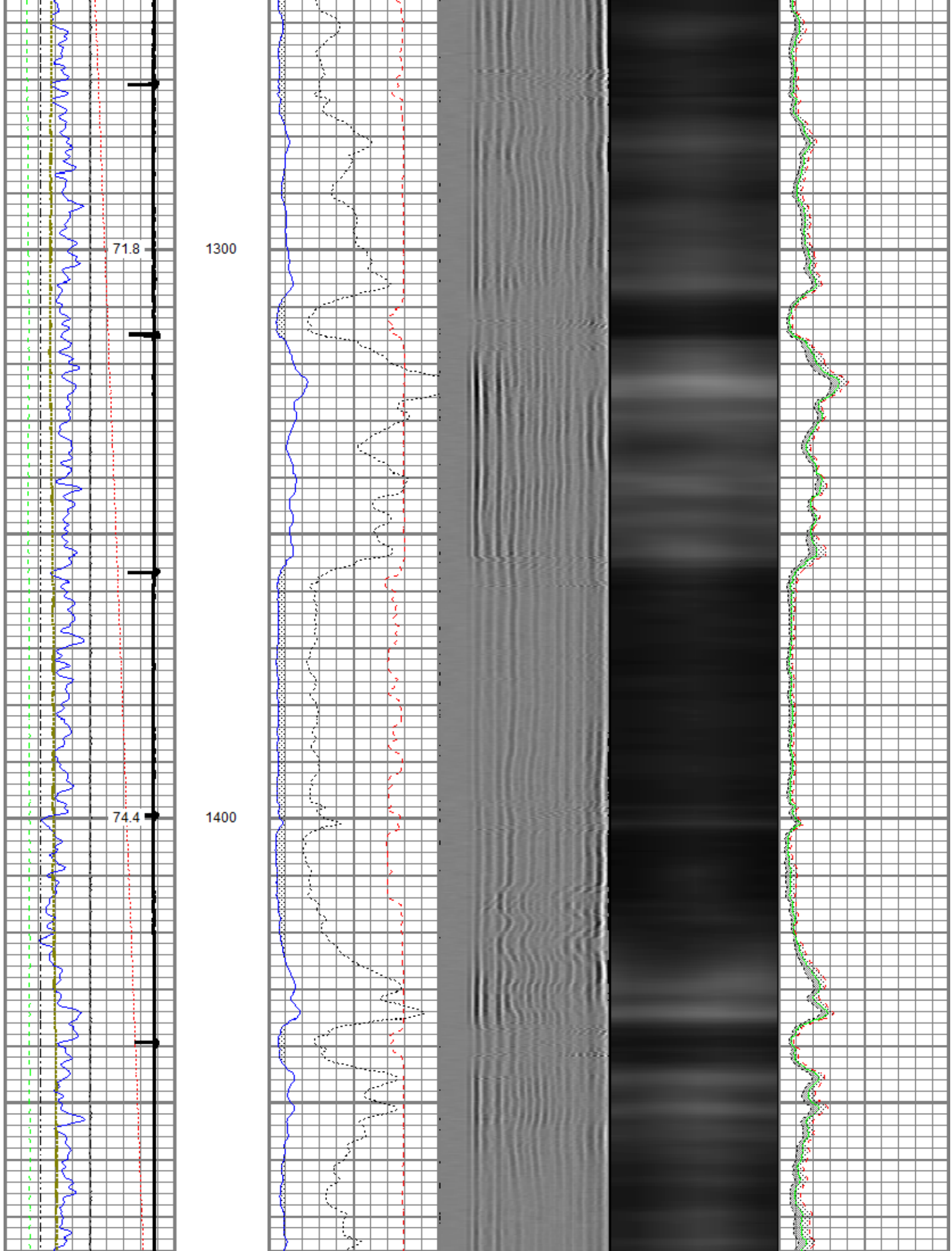




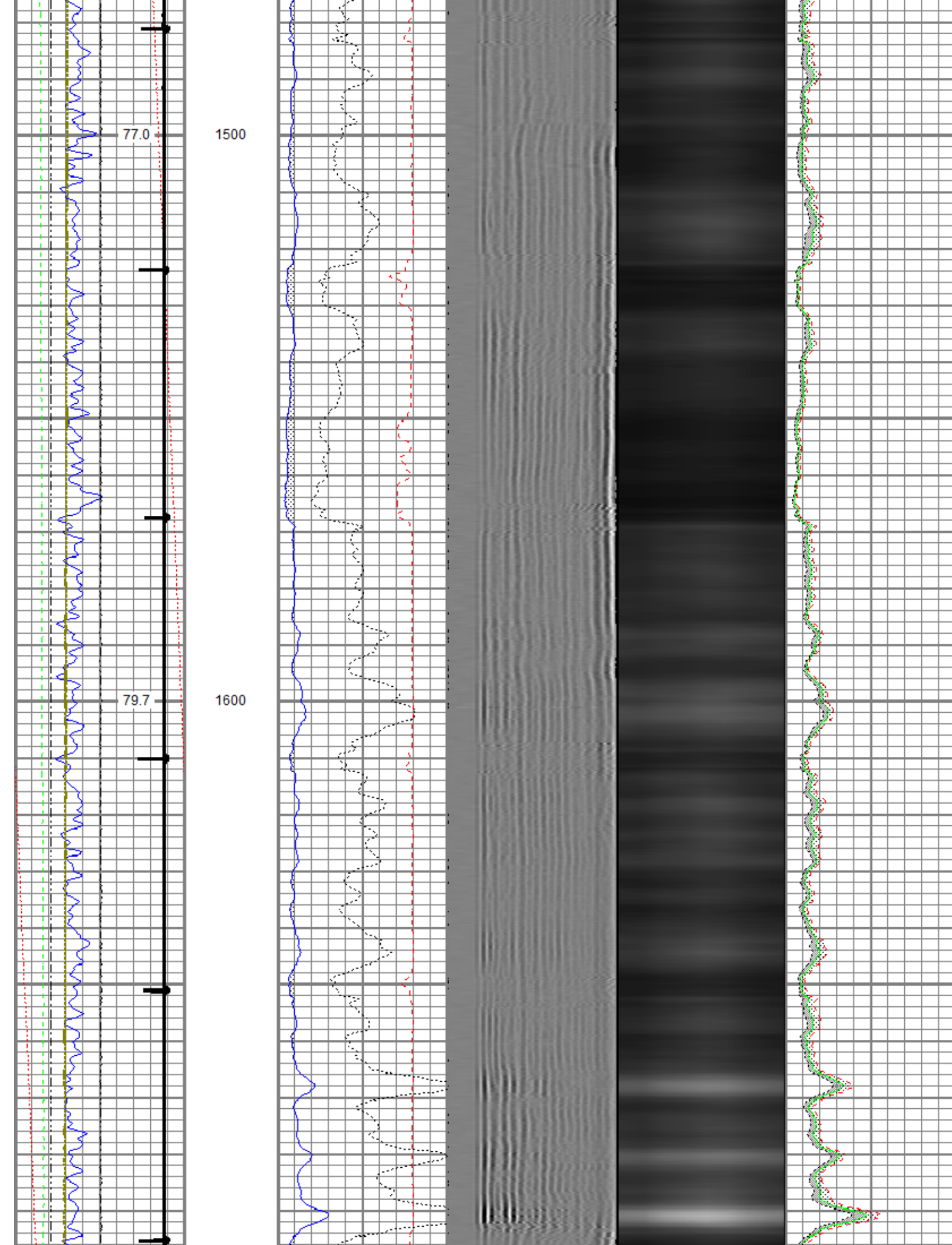
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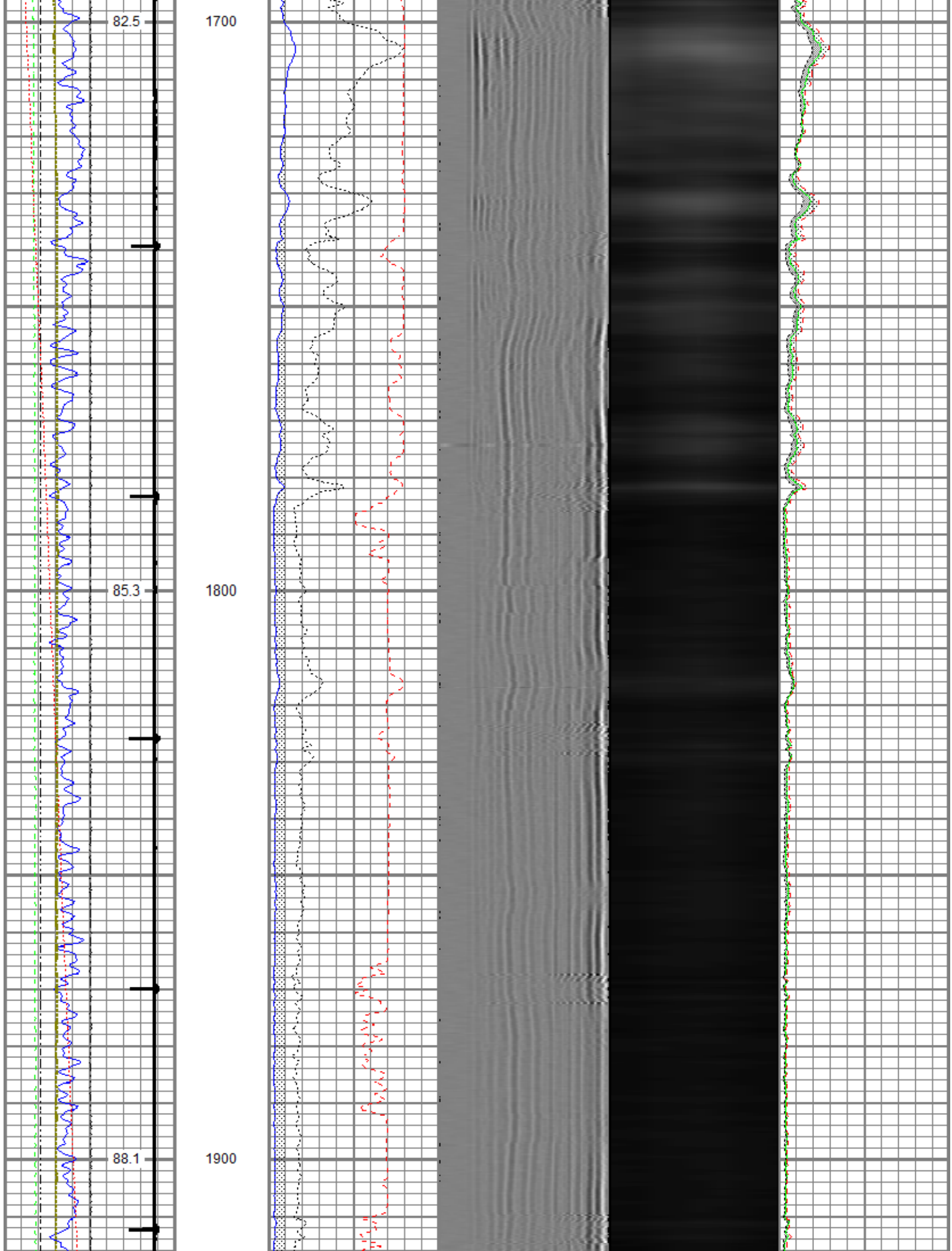
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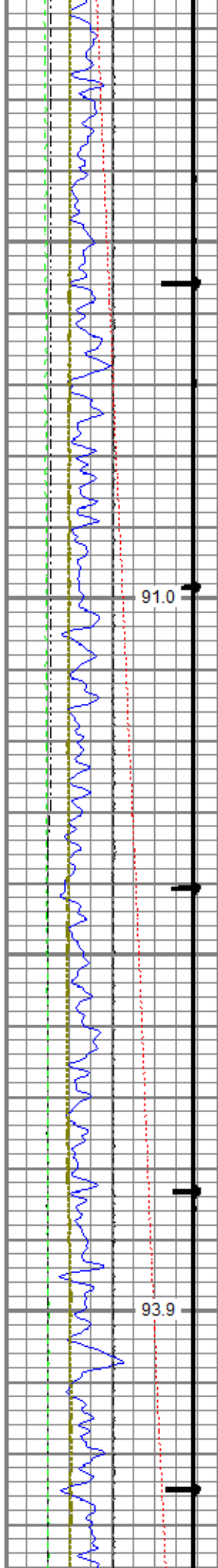










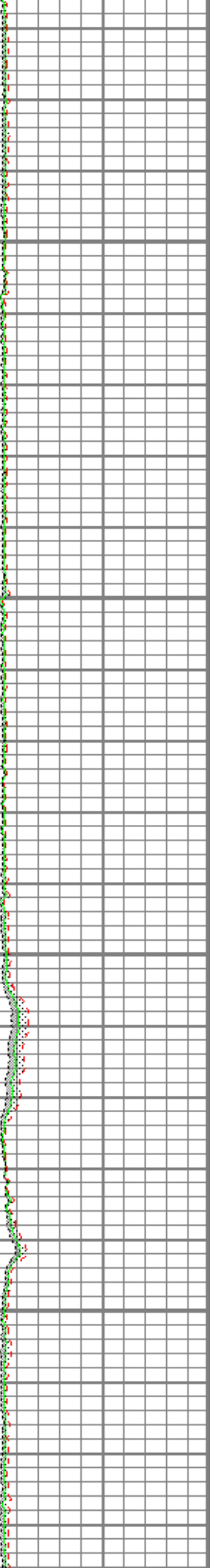
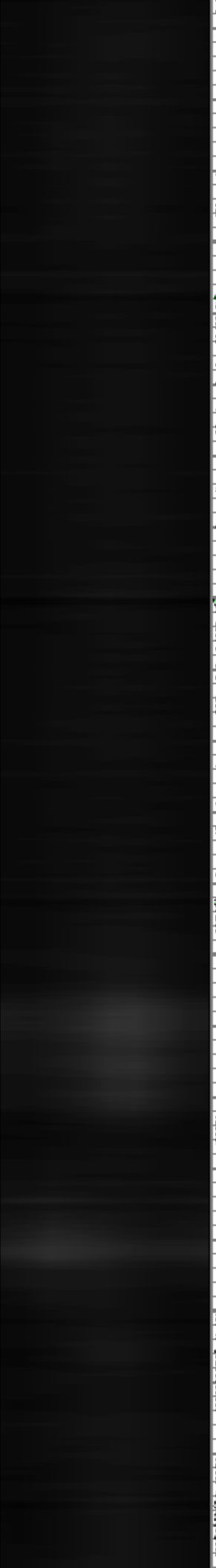
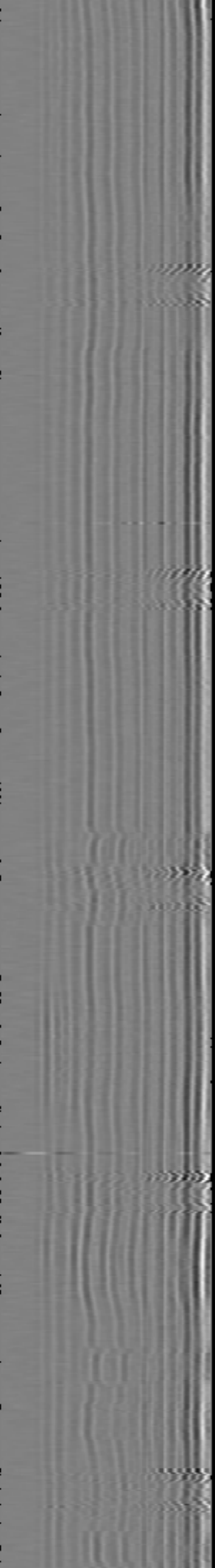
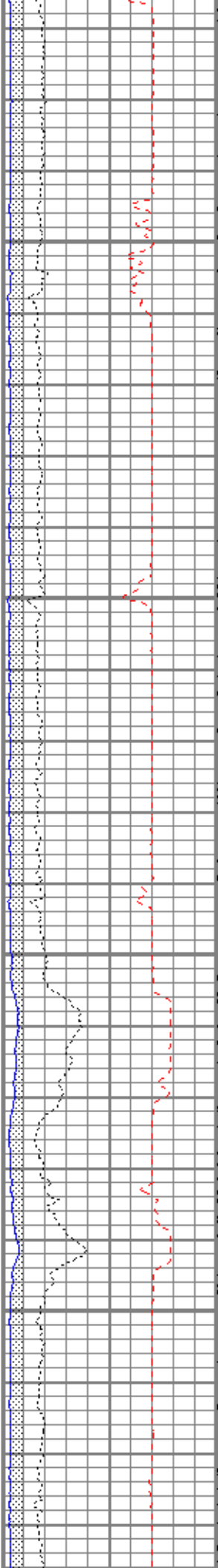


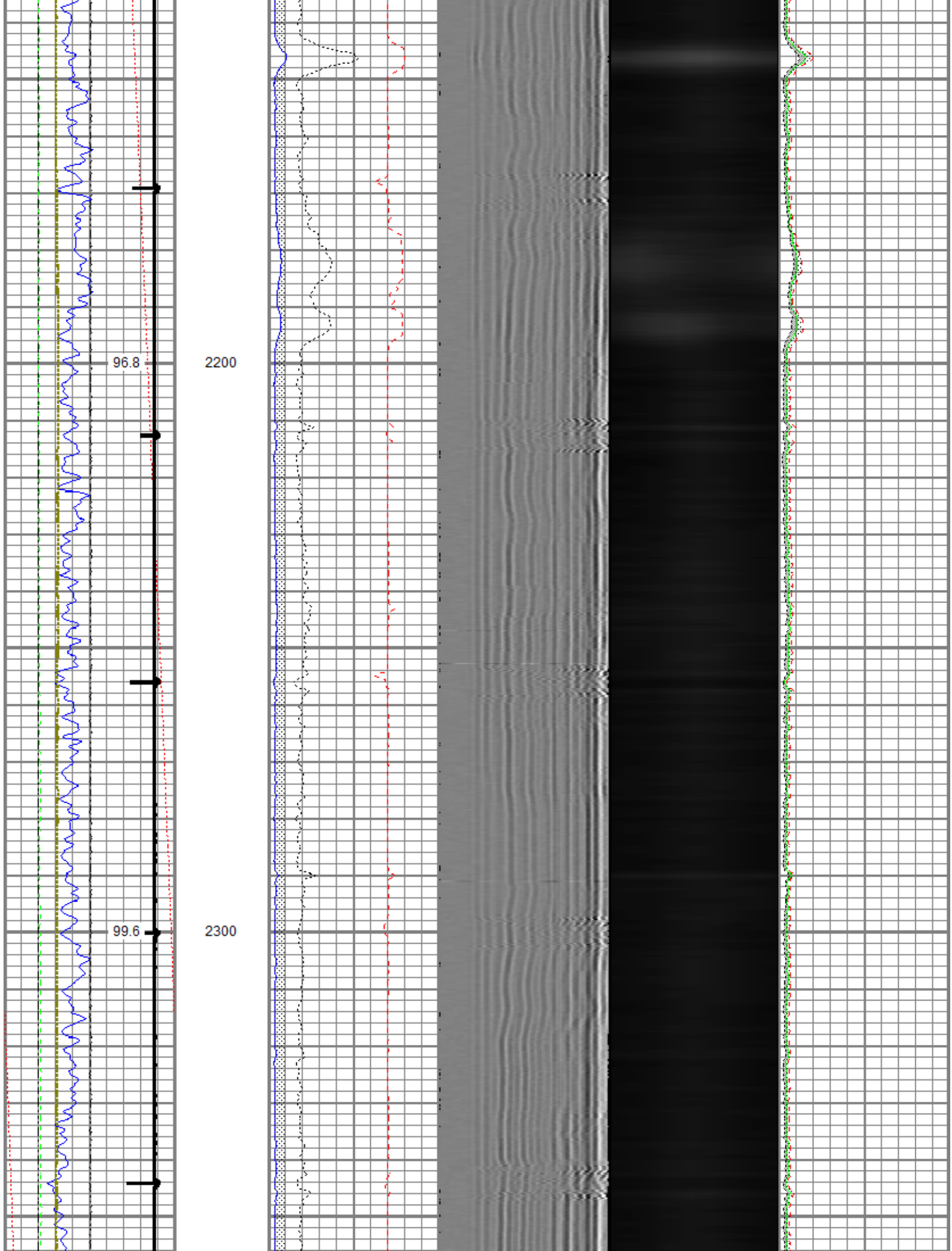
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2000

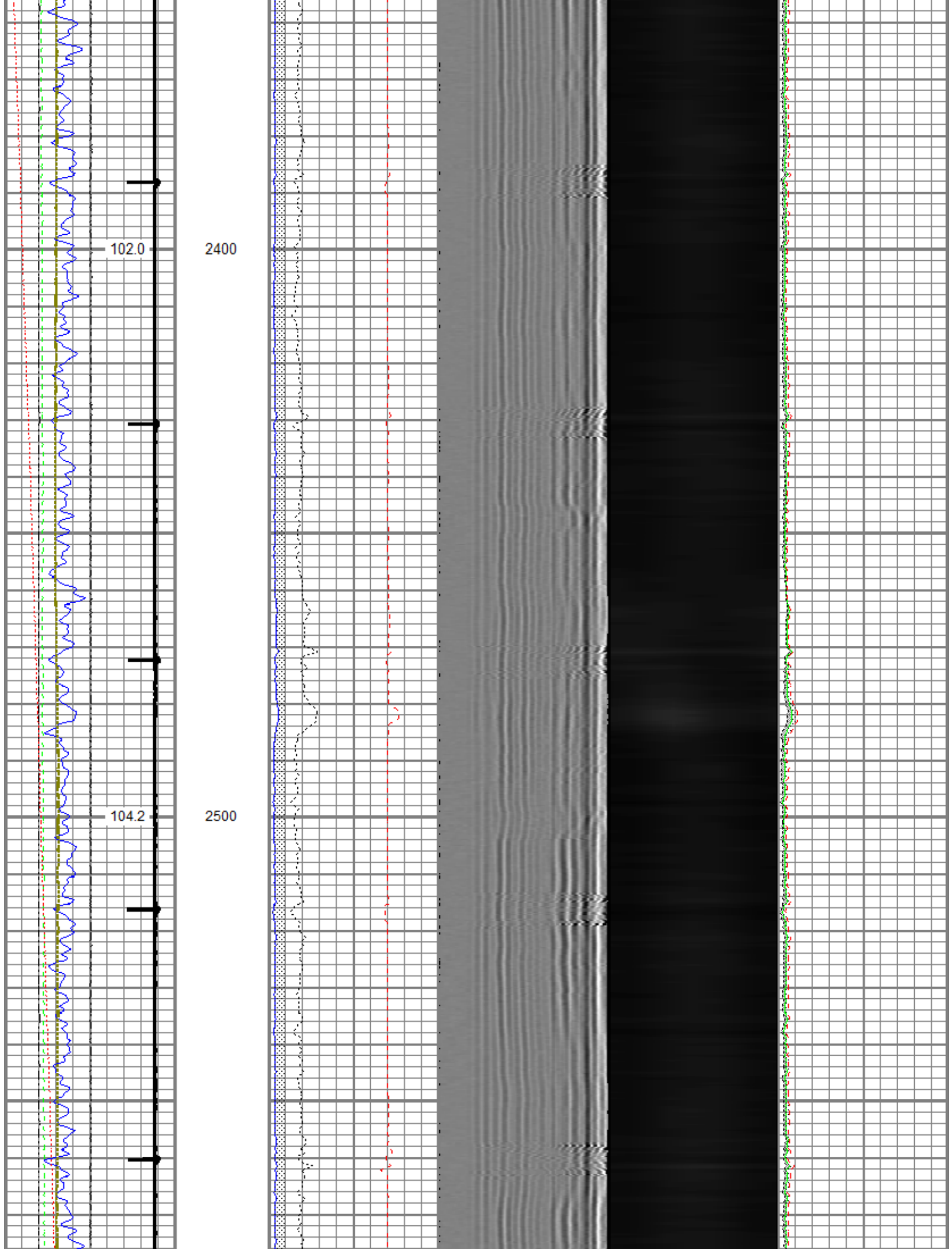
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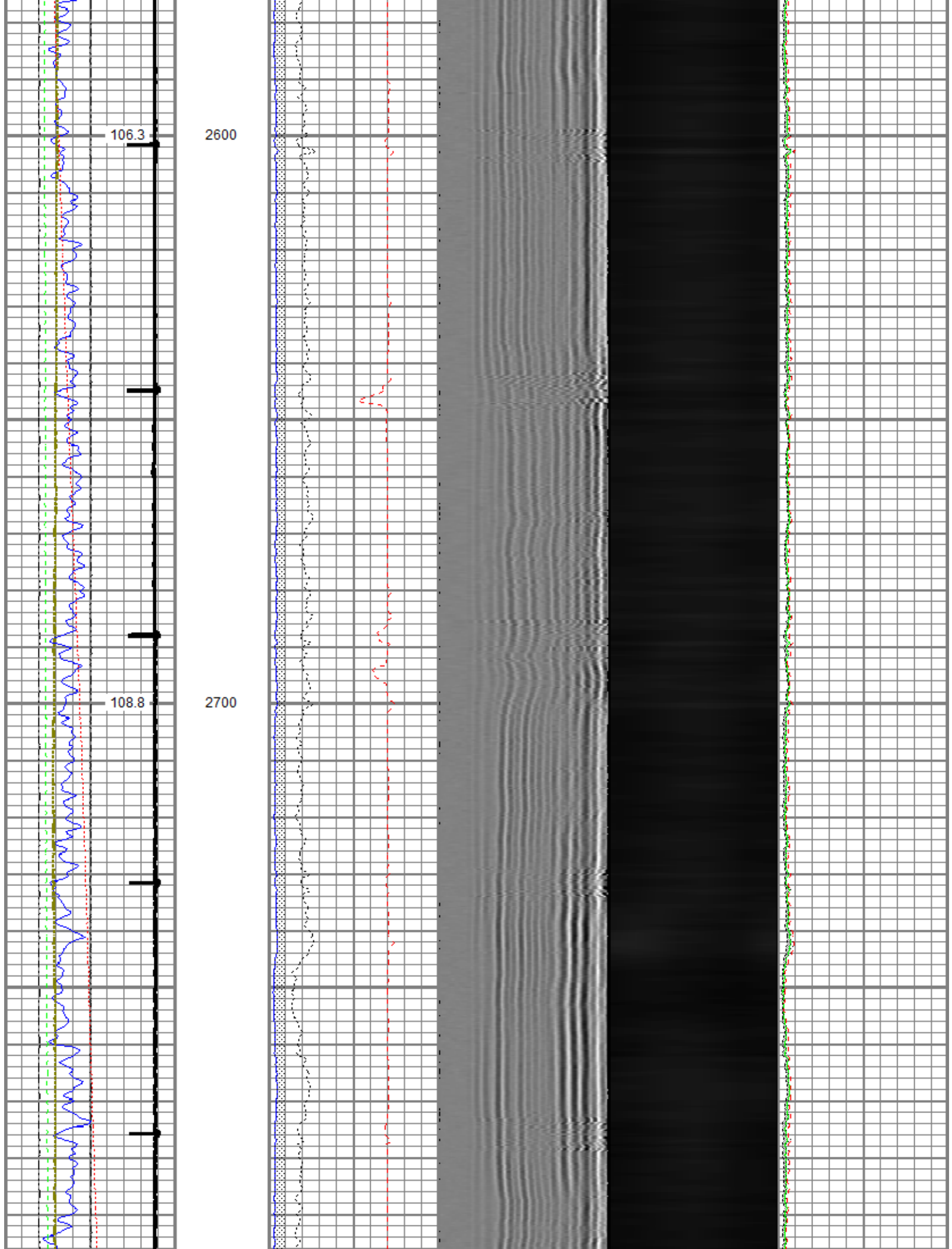
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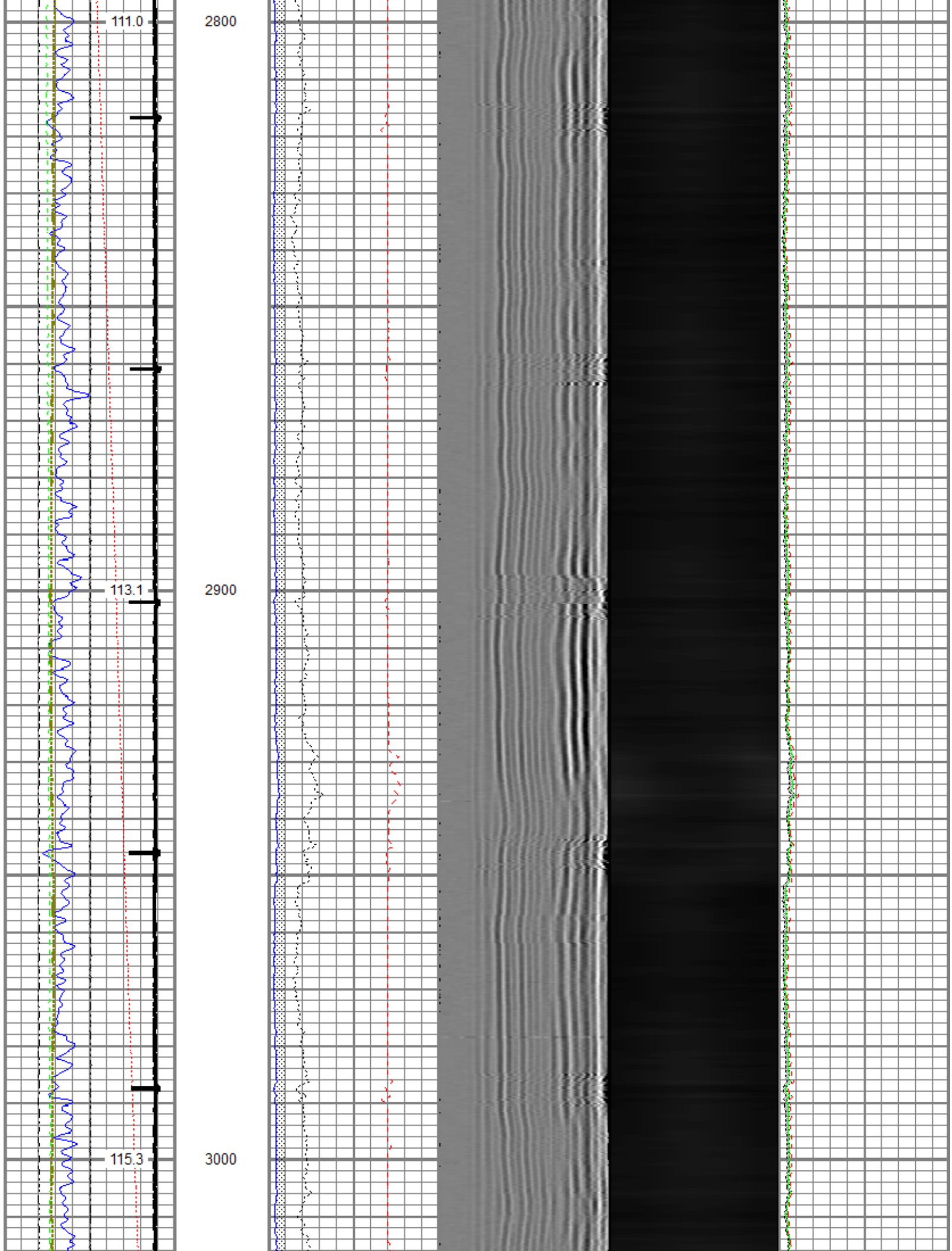


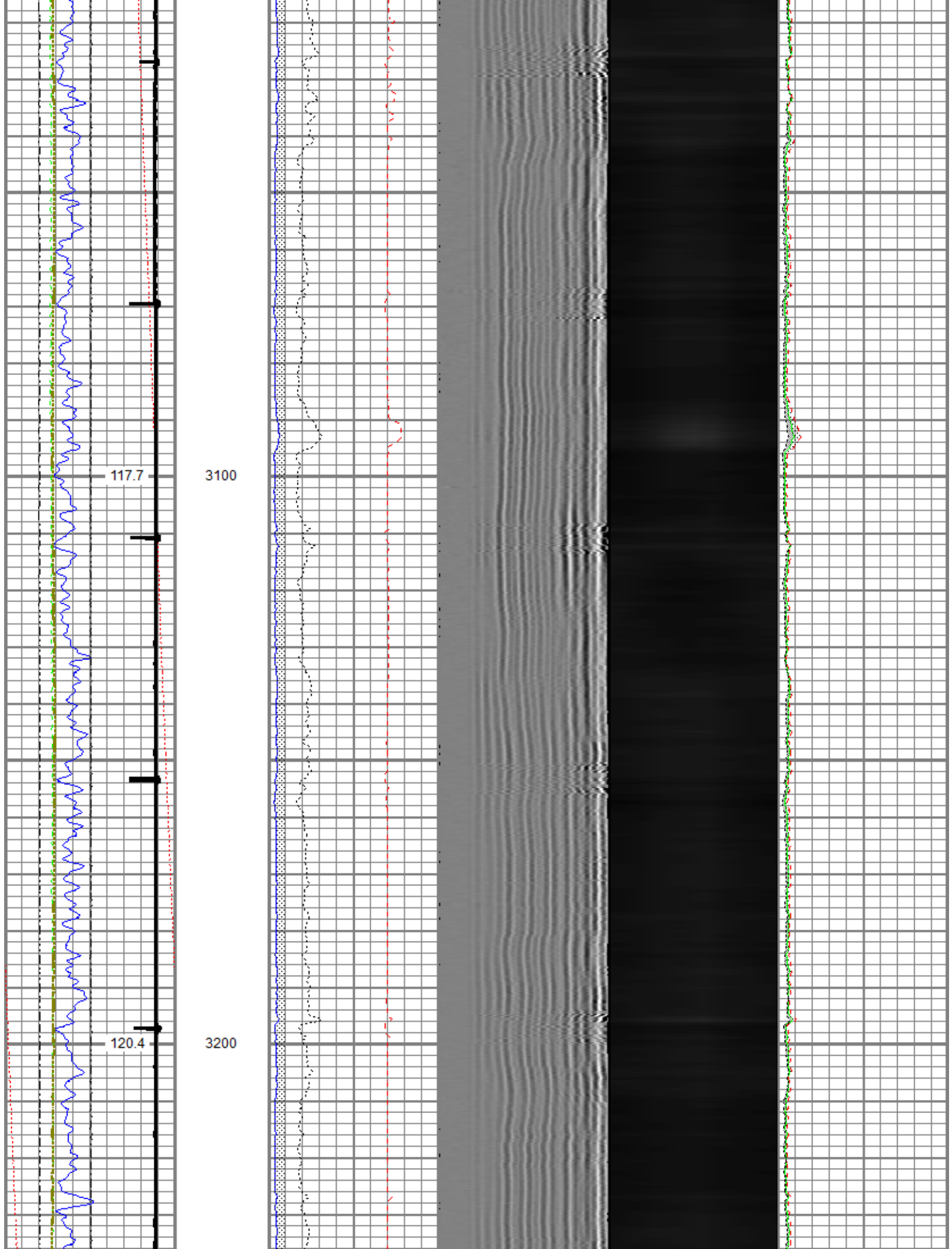




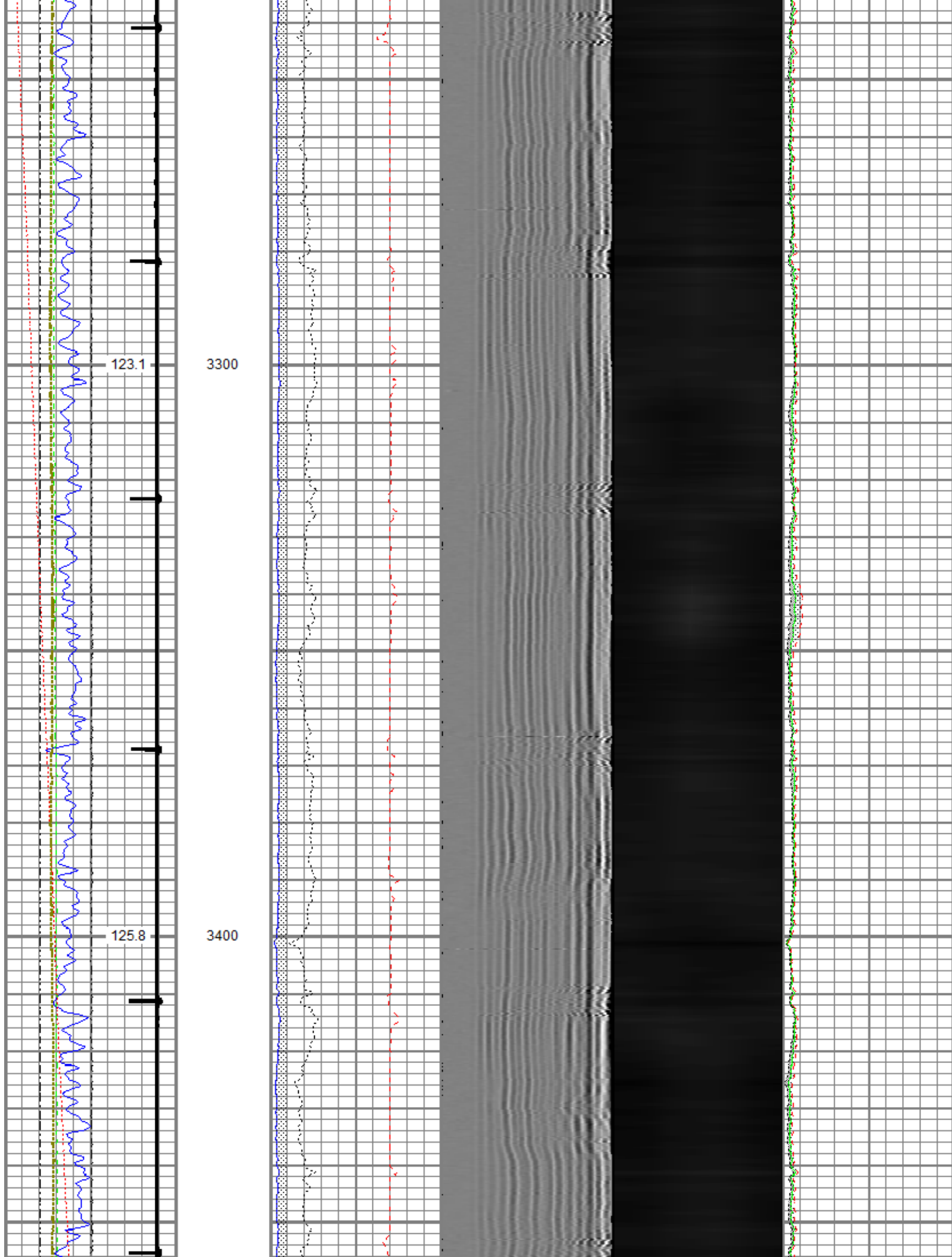


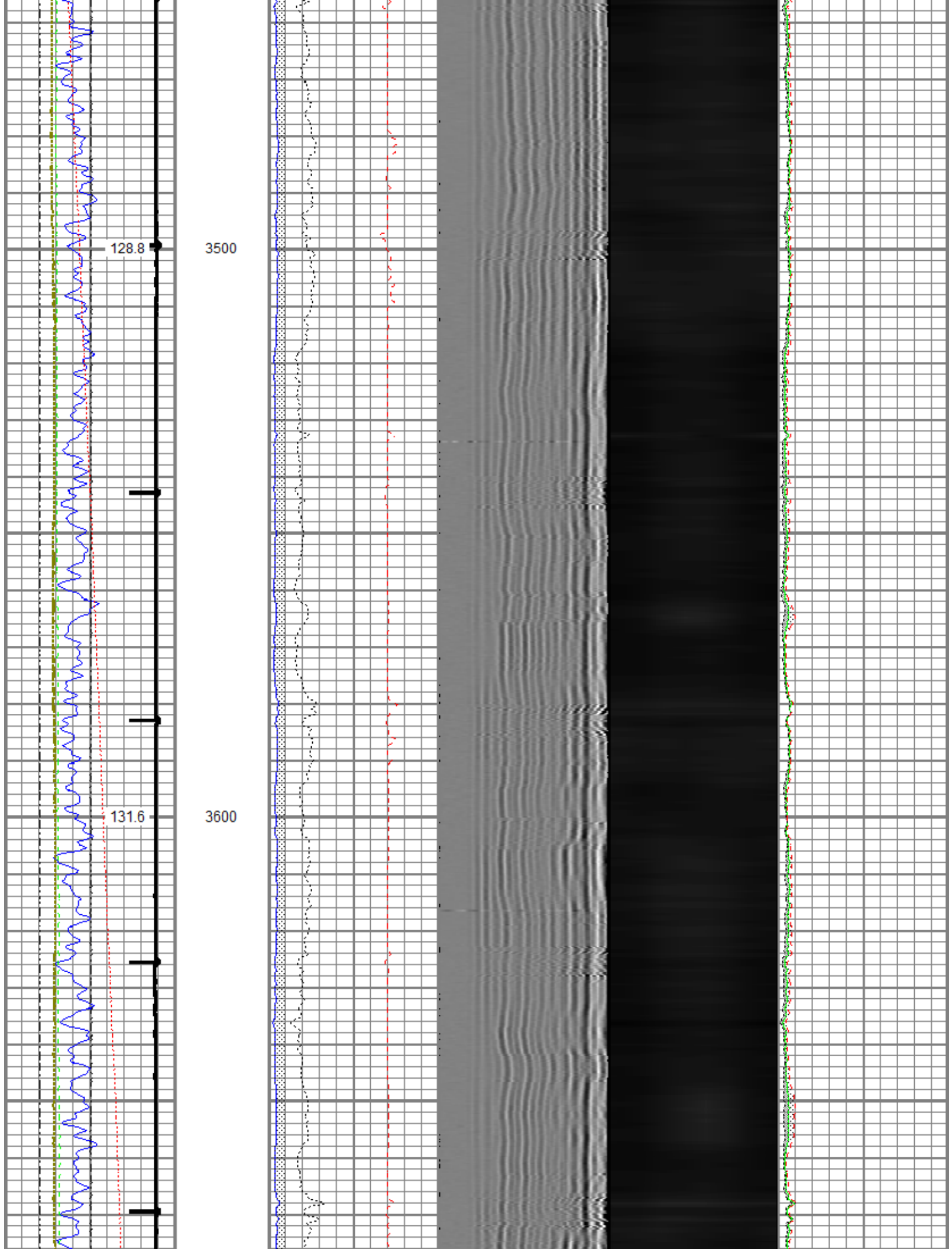


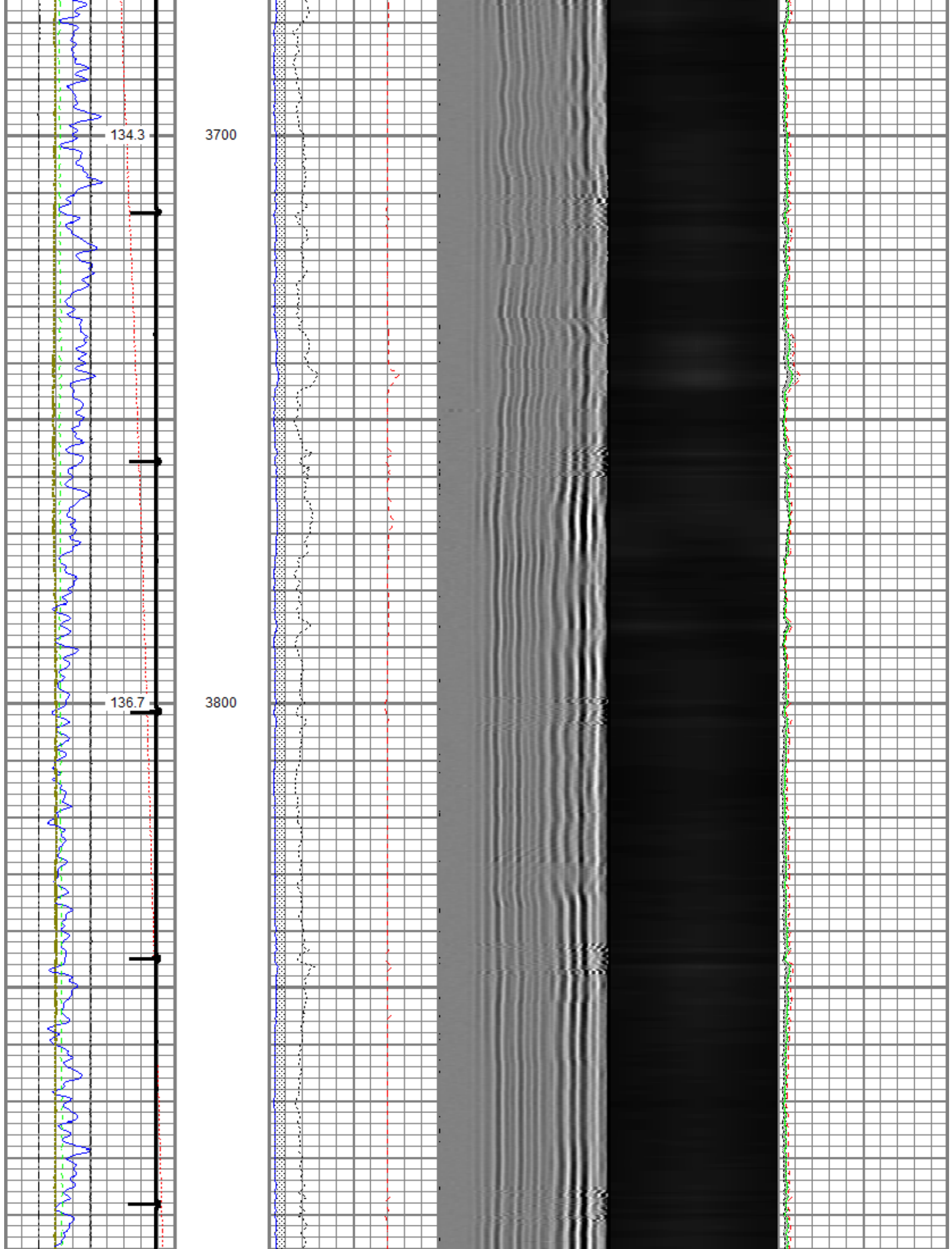


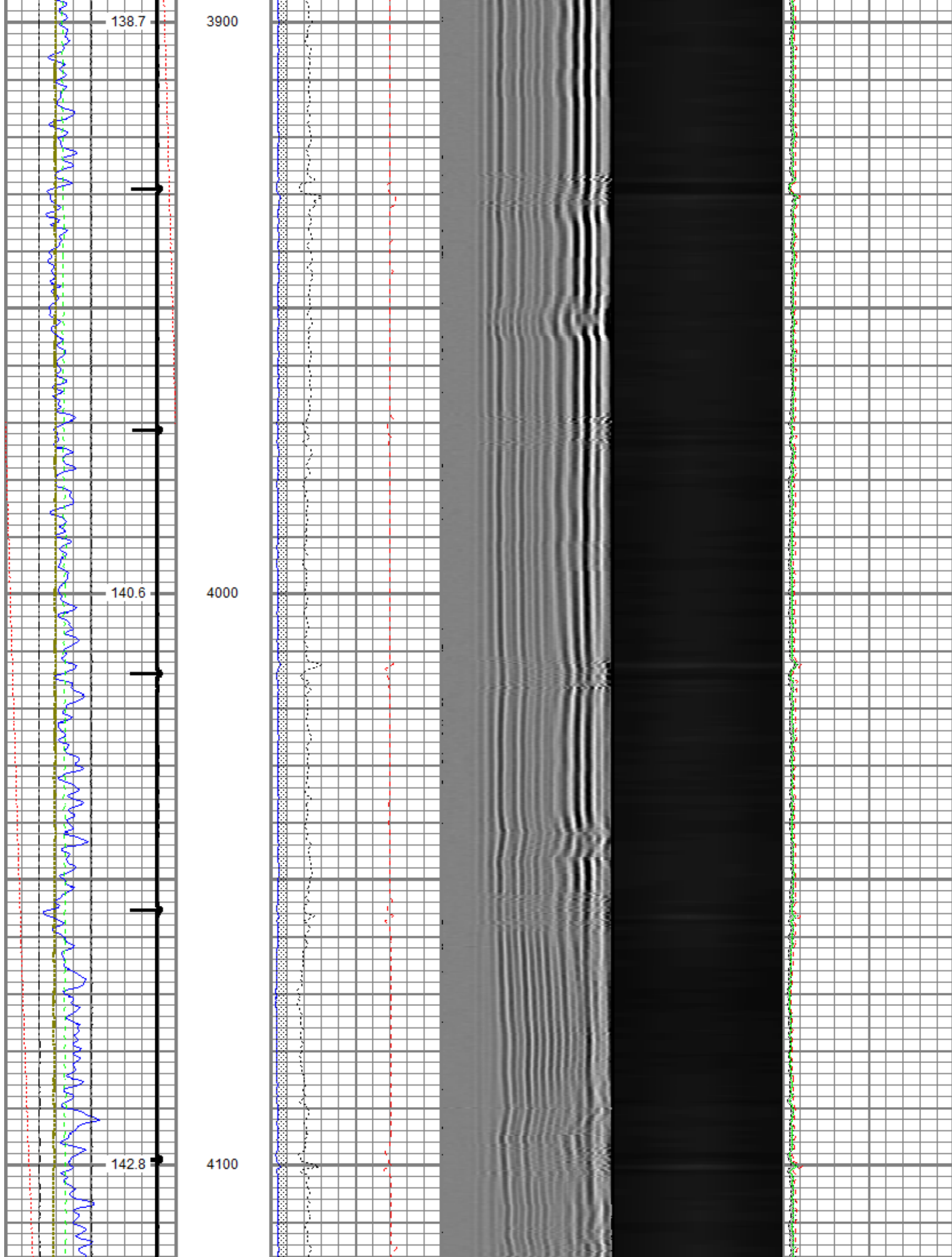




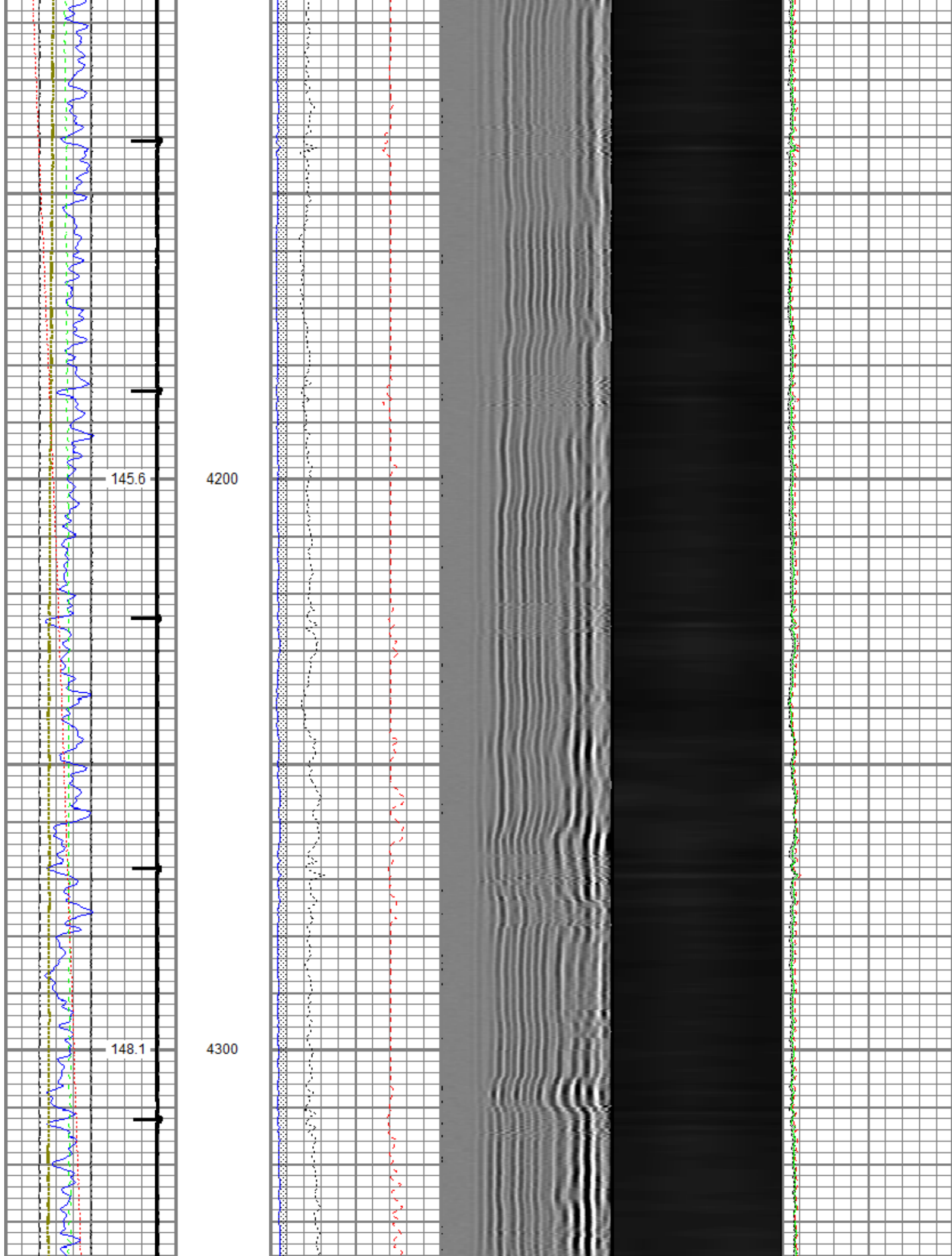


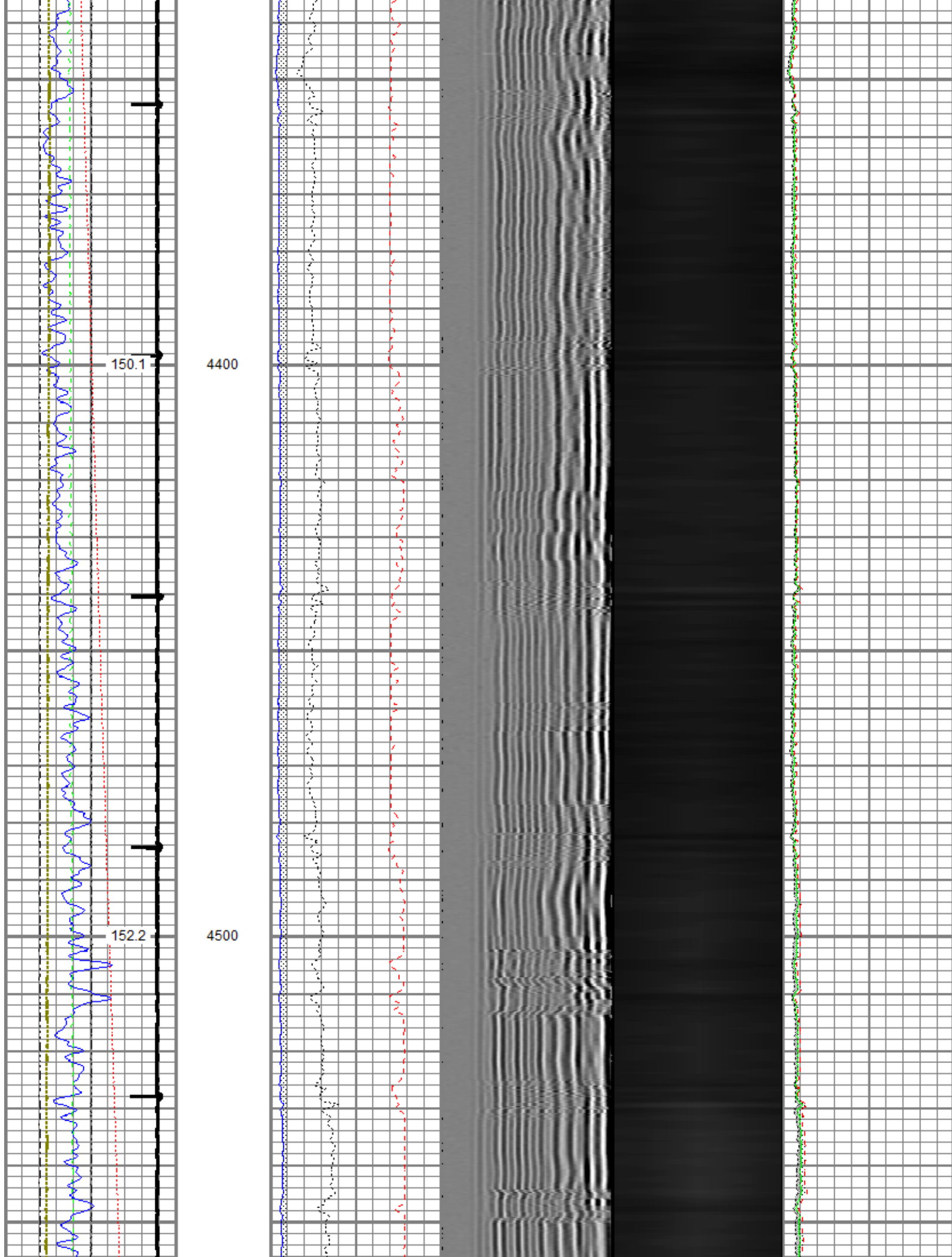


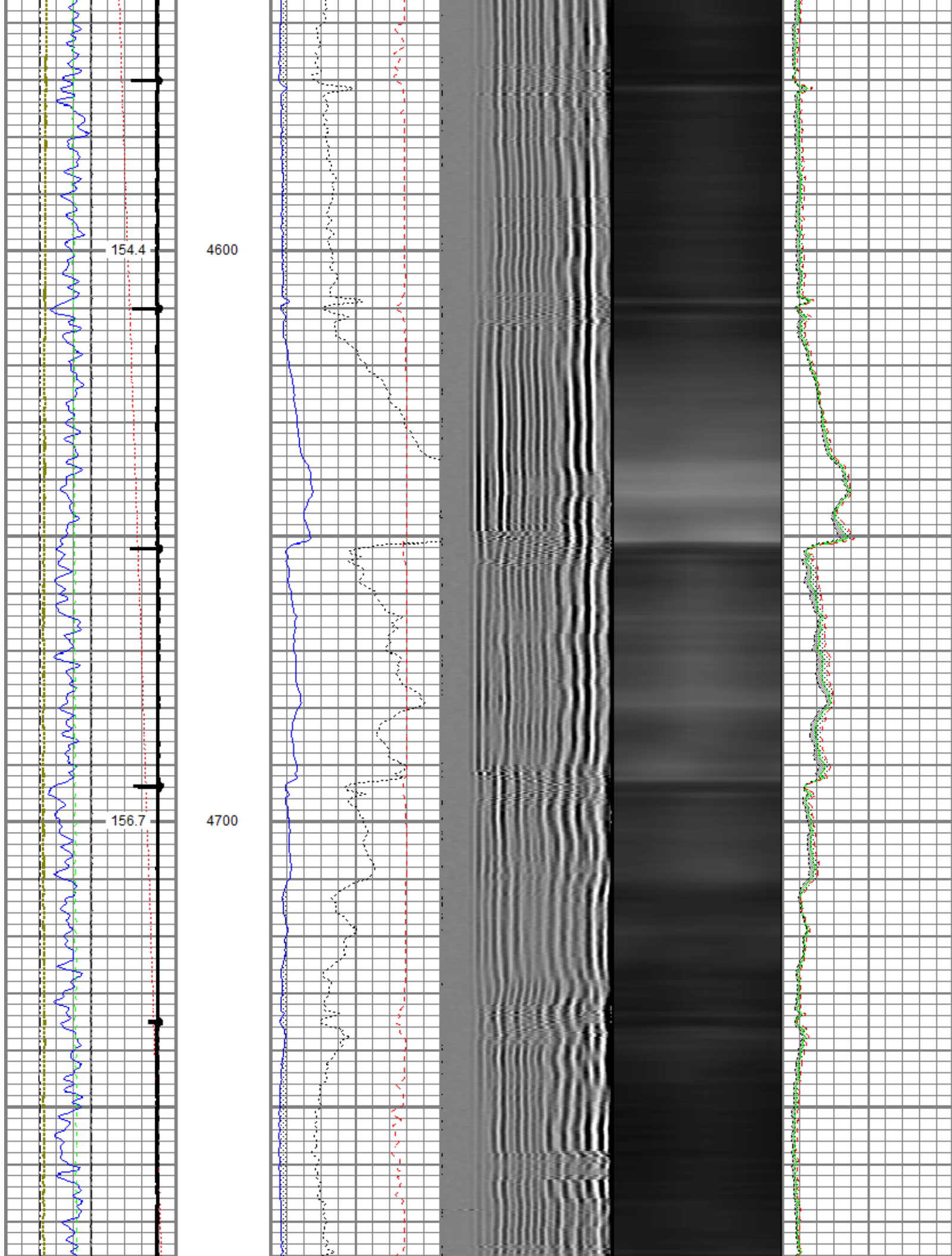


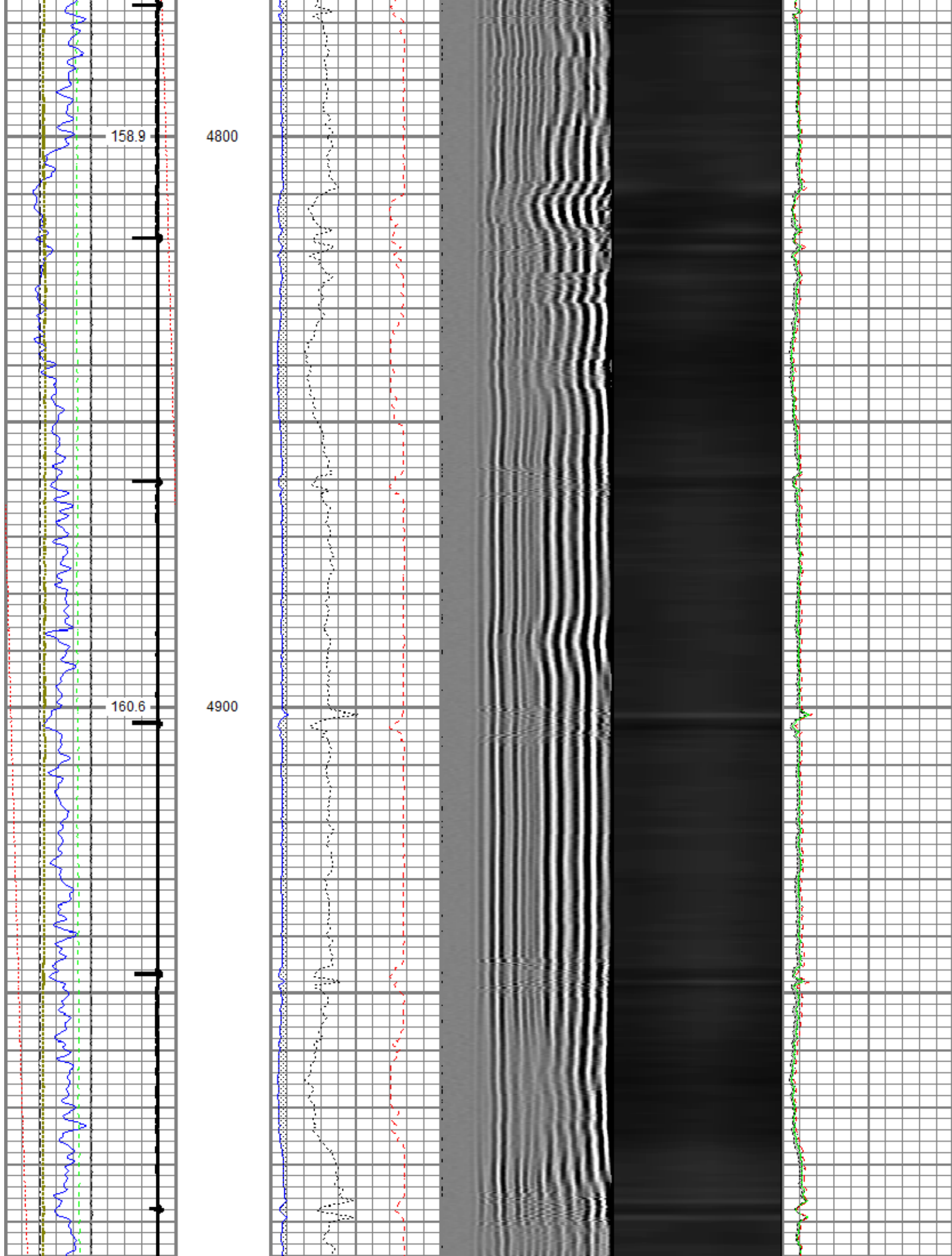




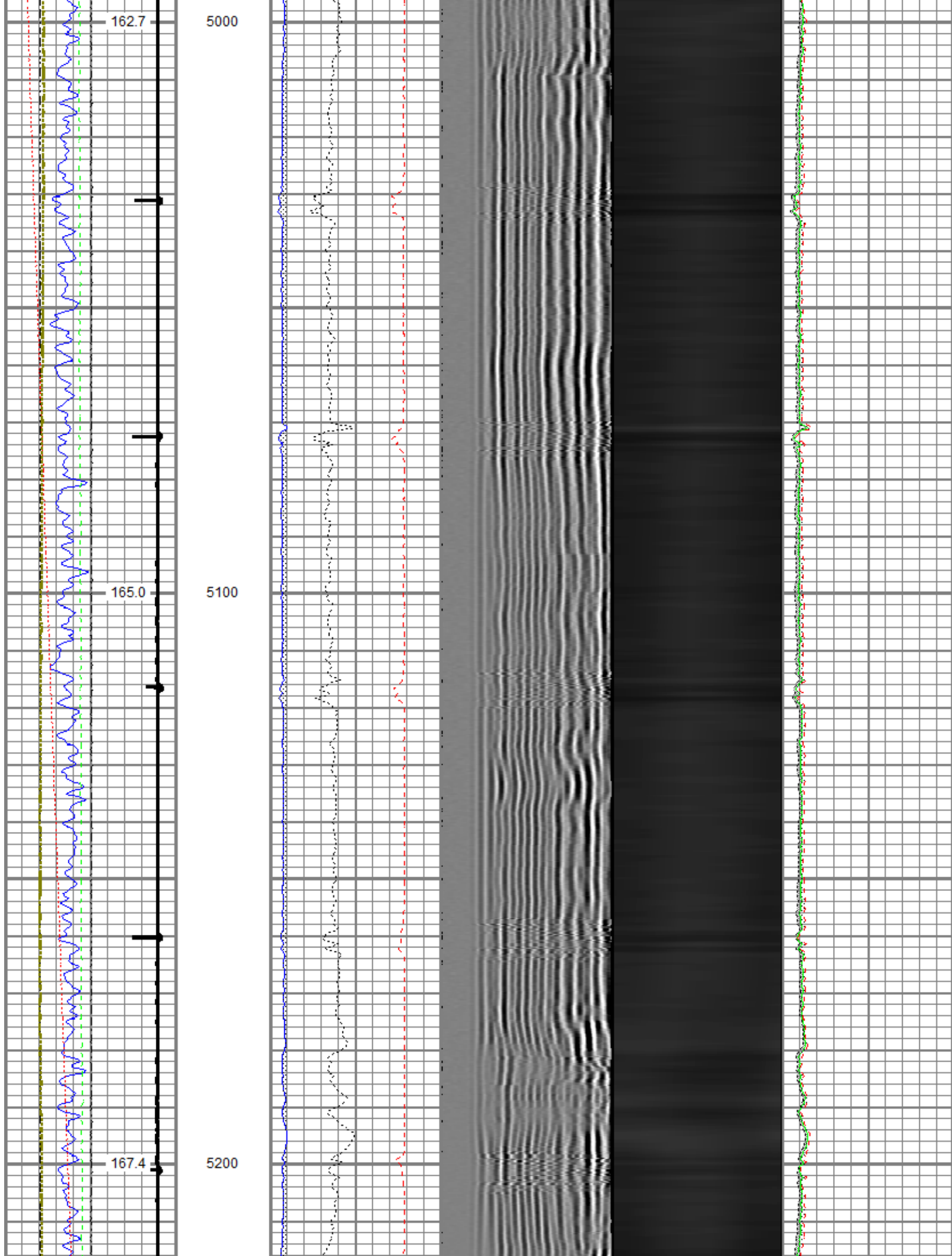


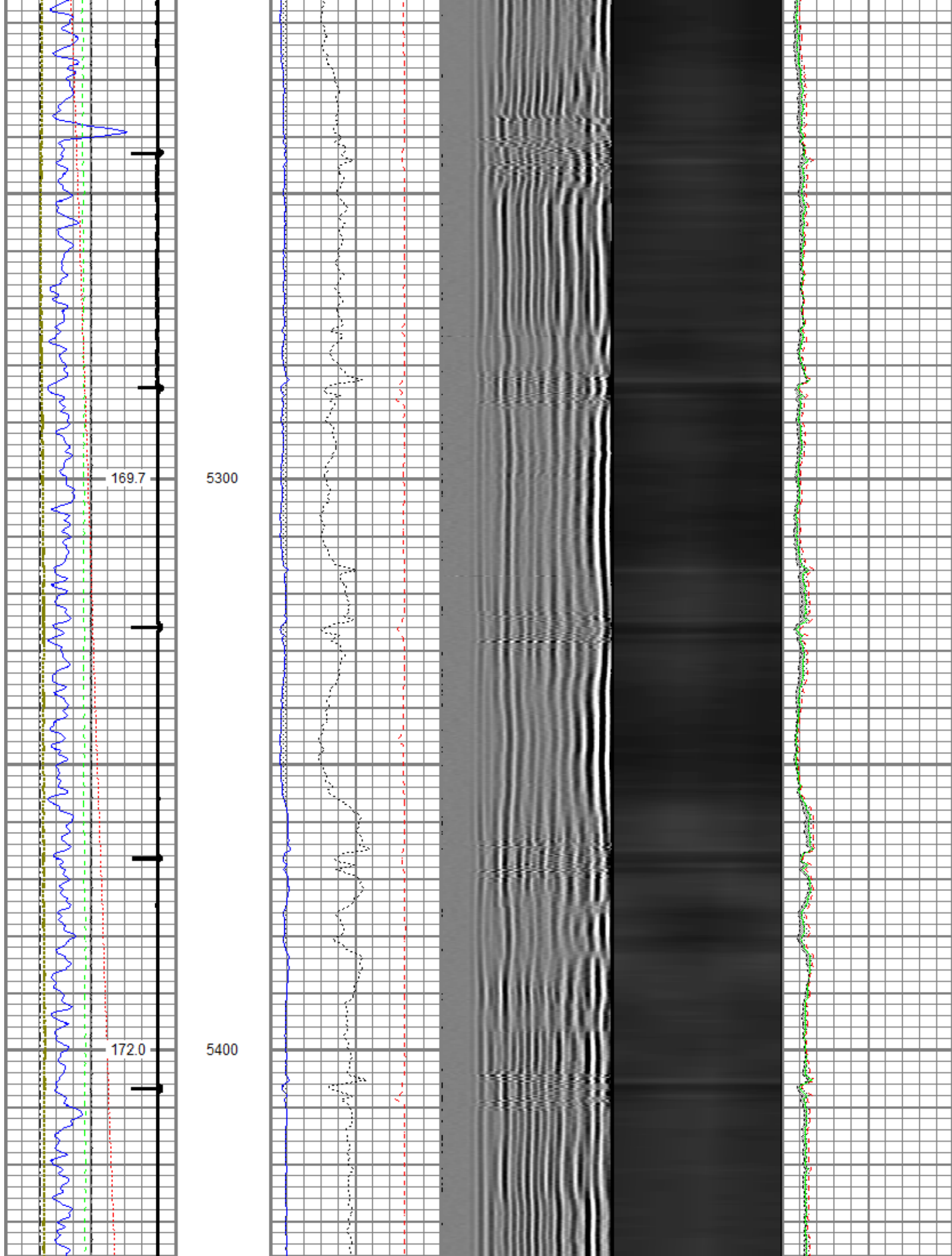


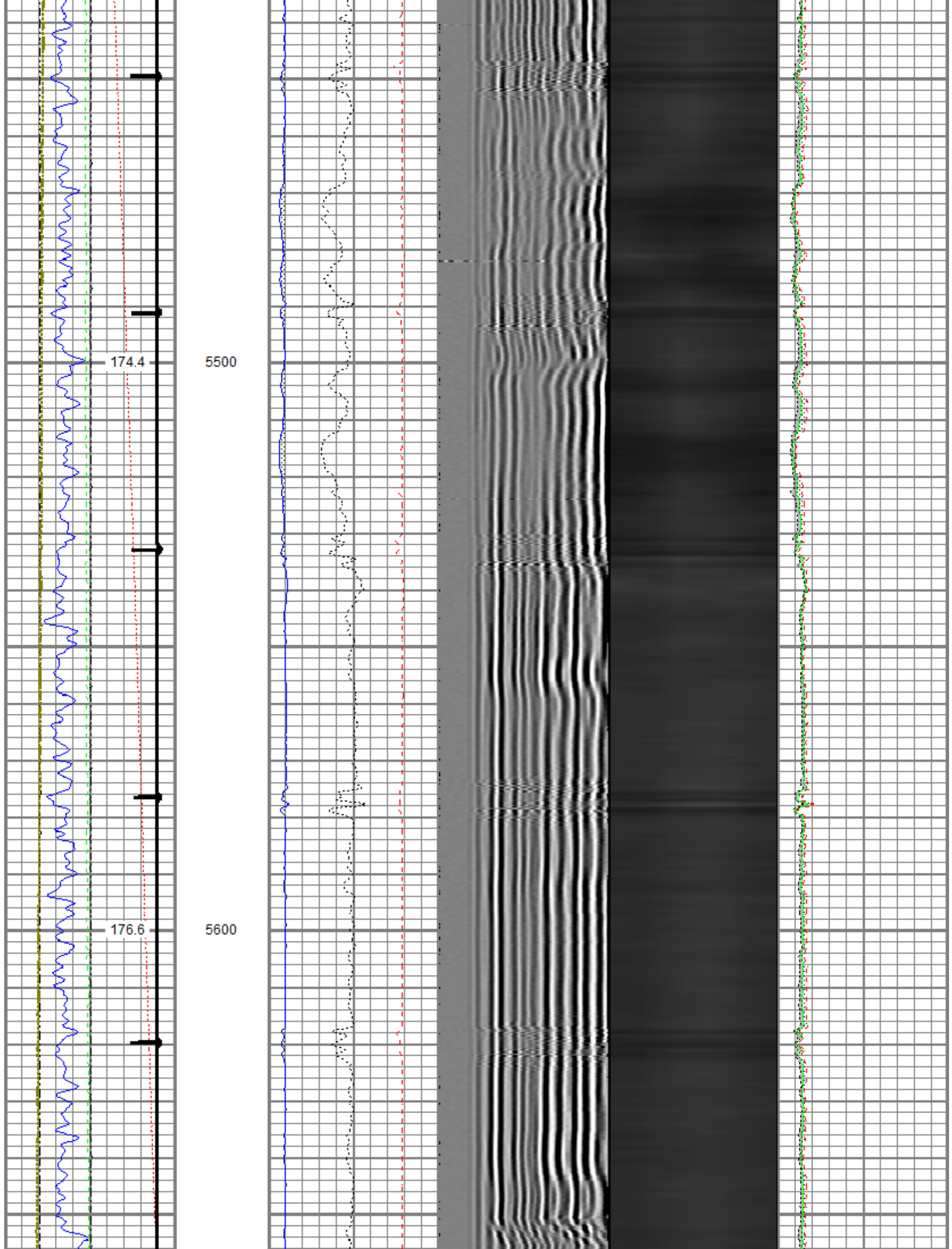


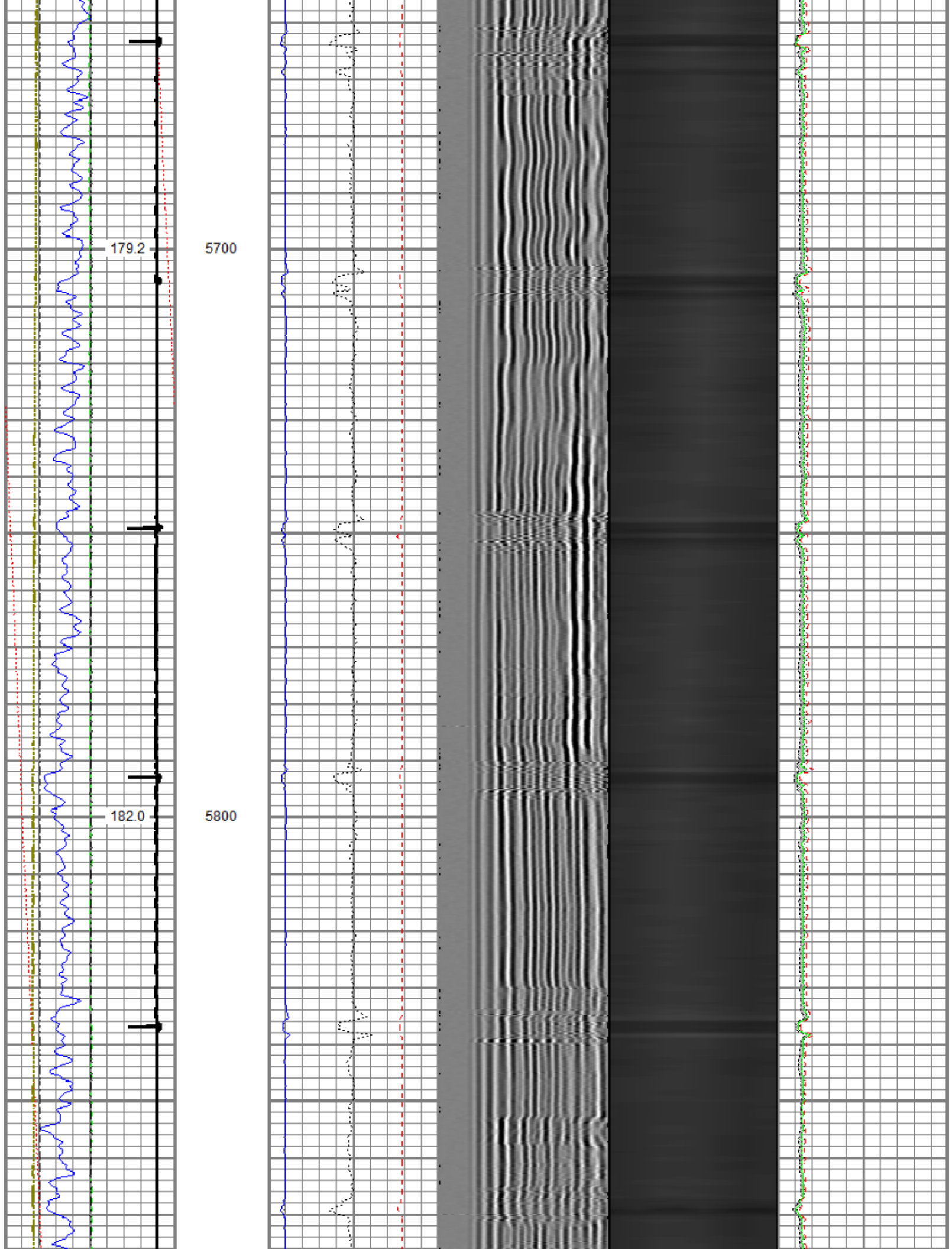




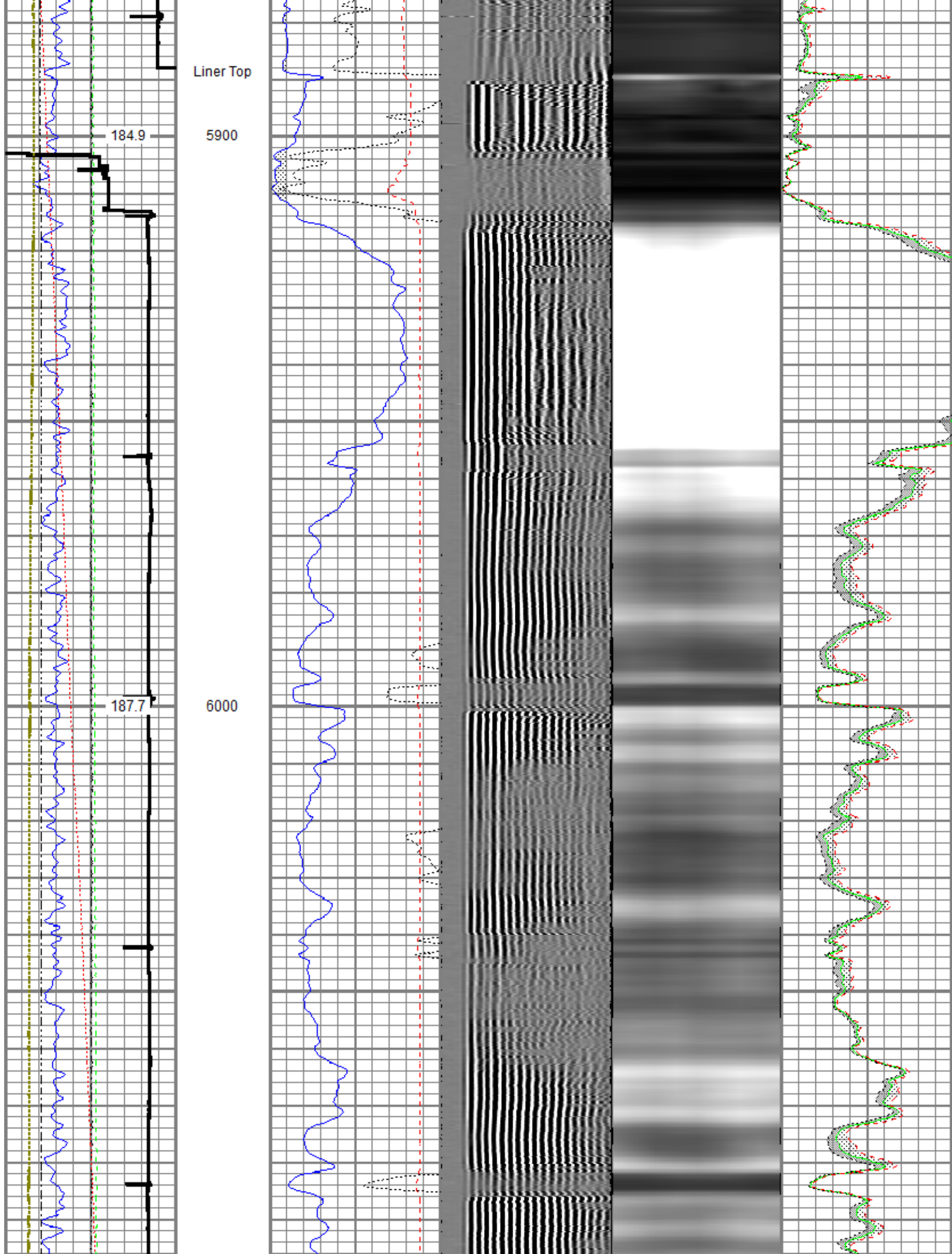


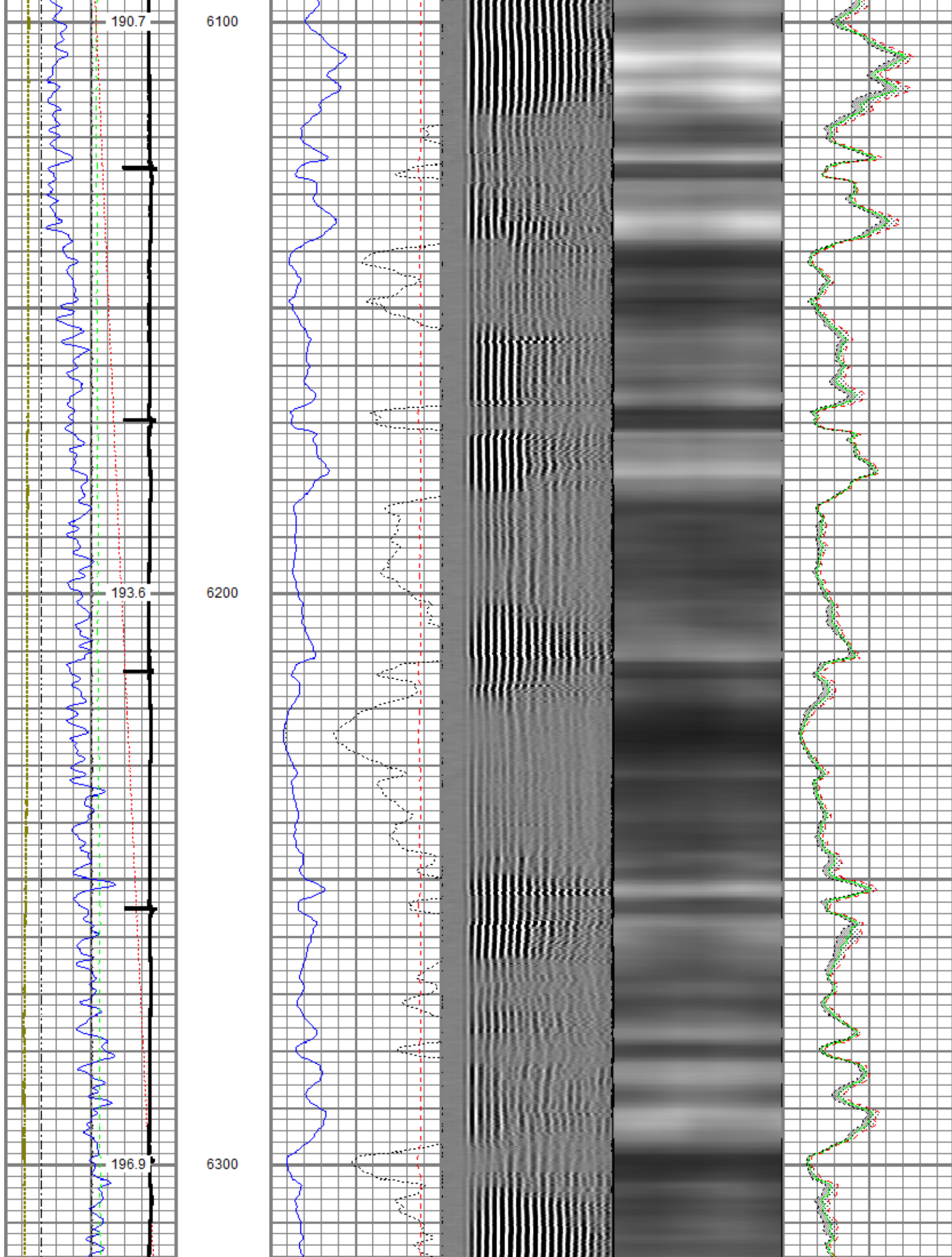


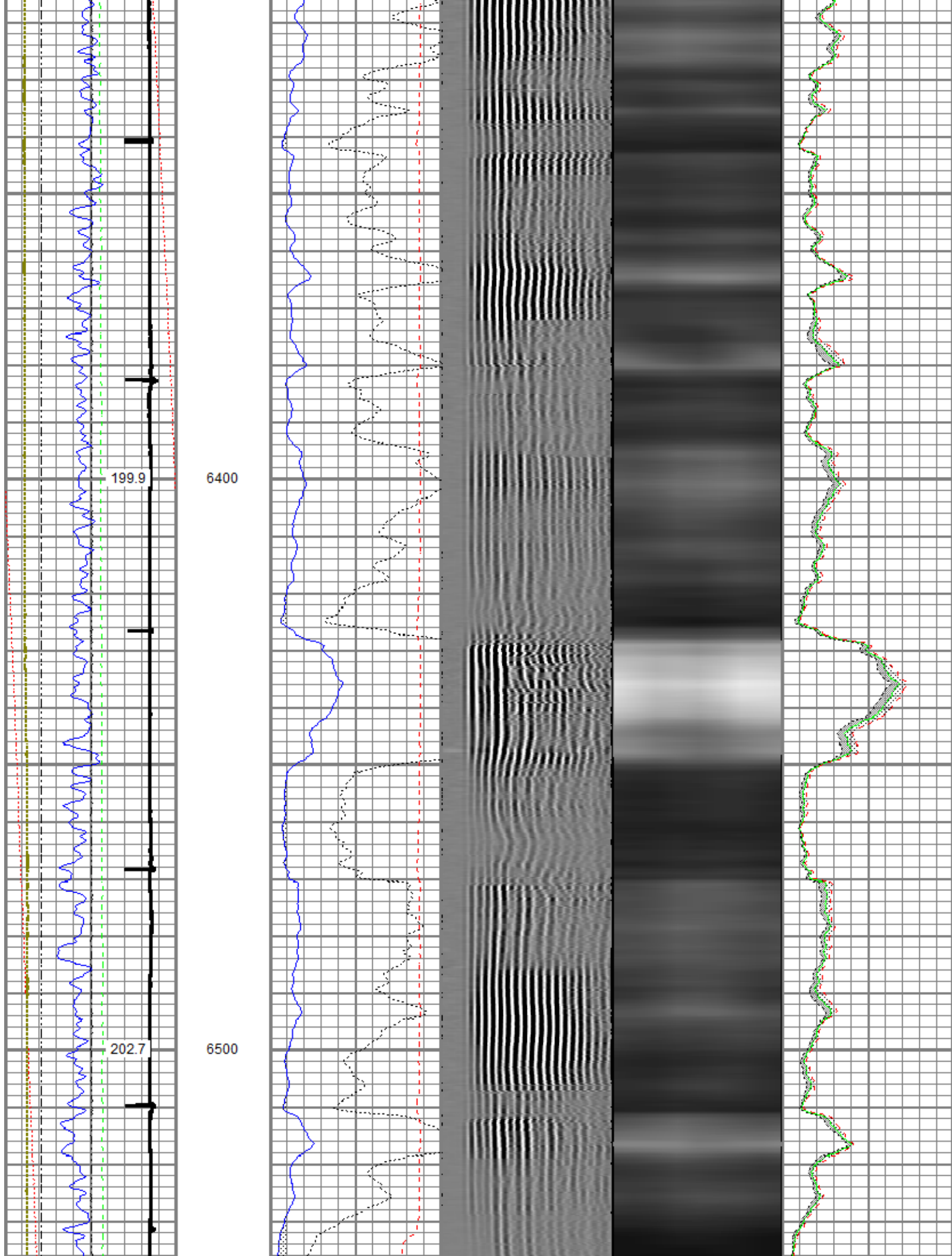




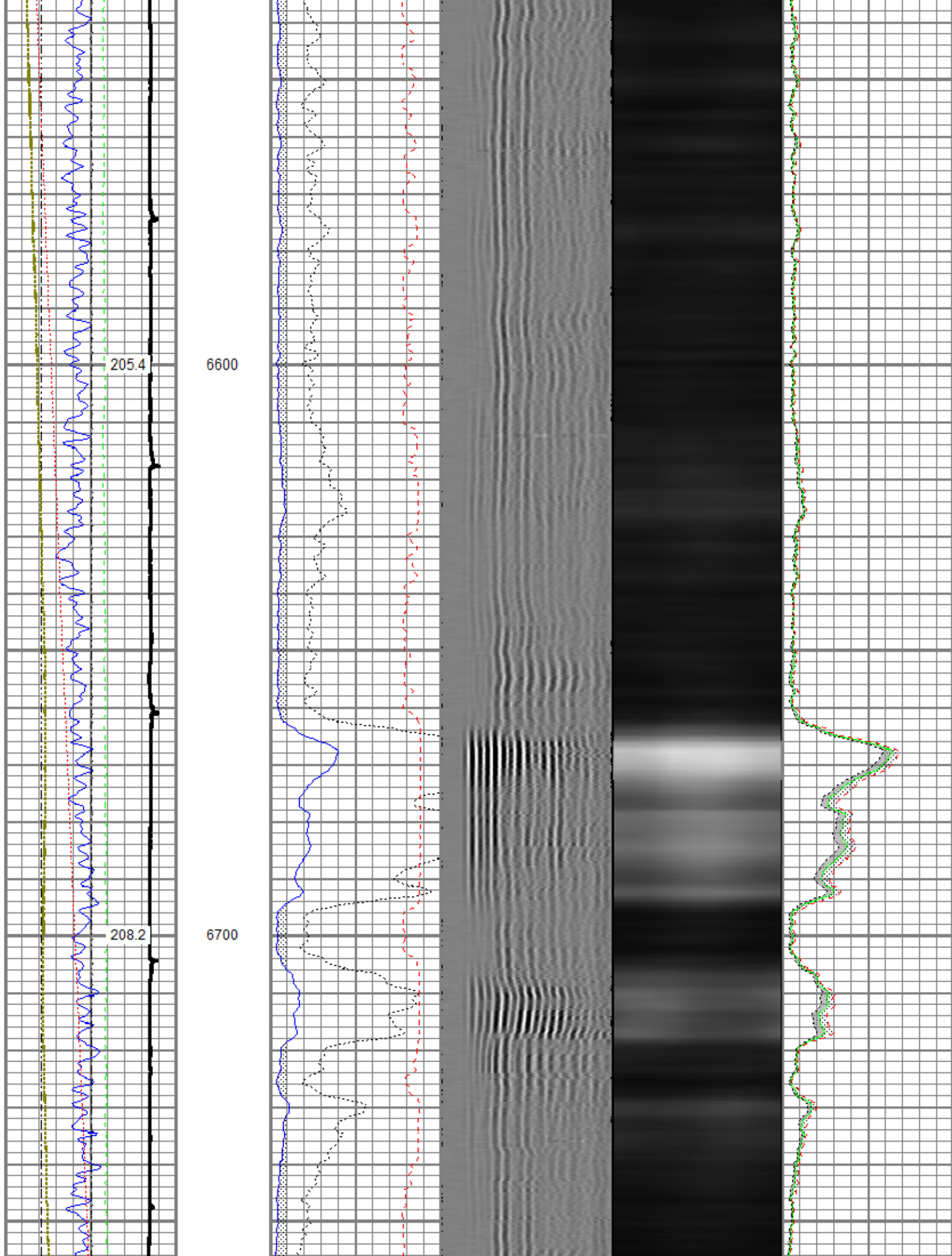




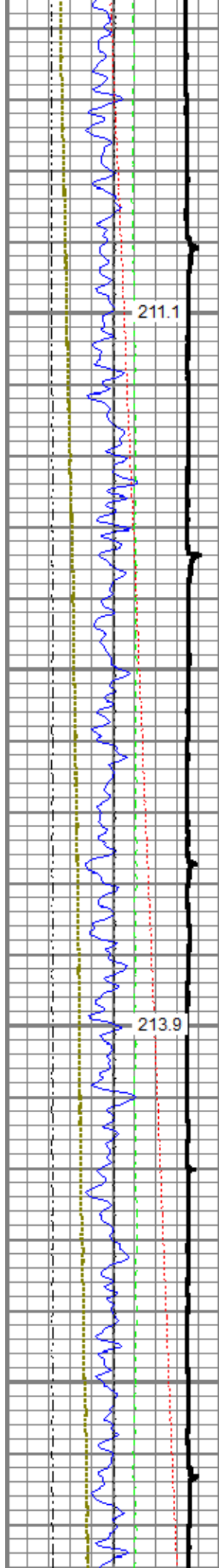






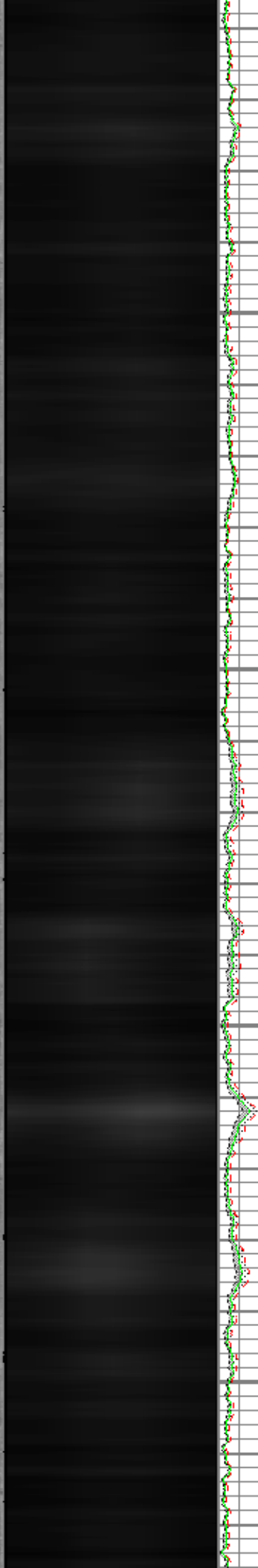
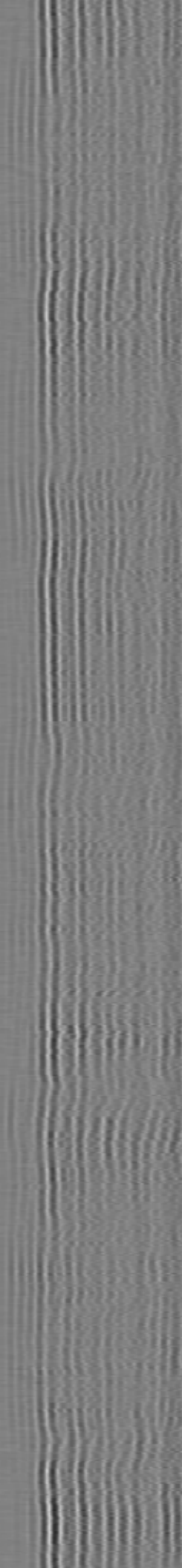
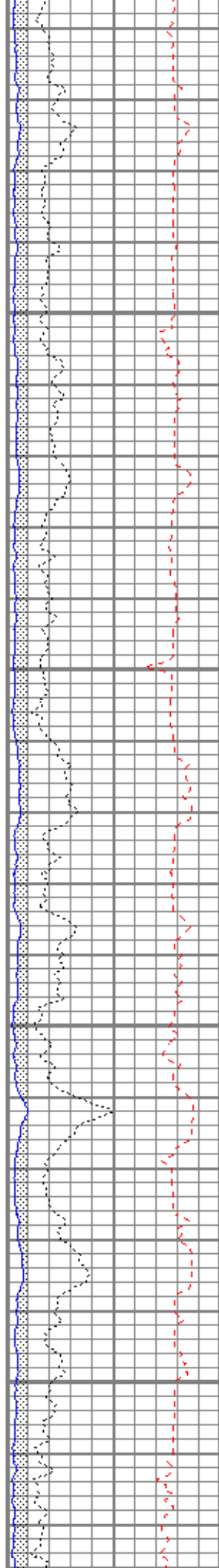


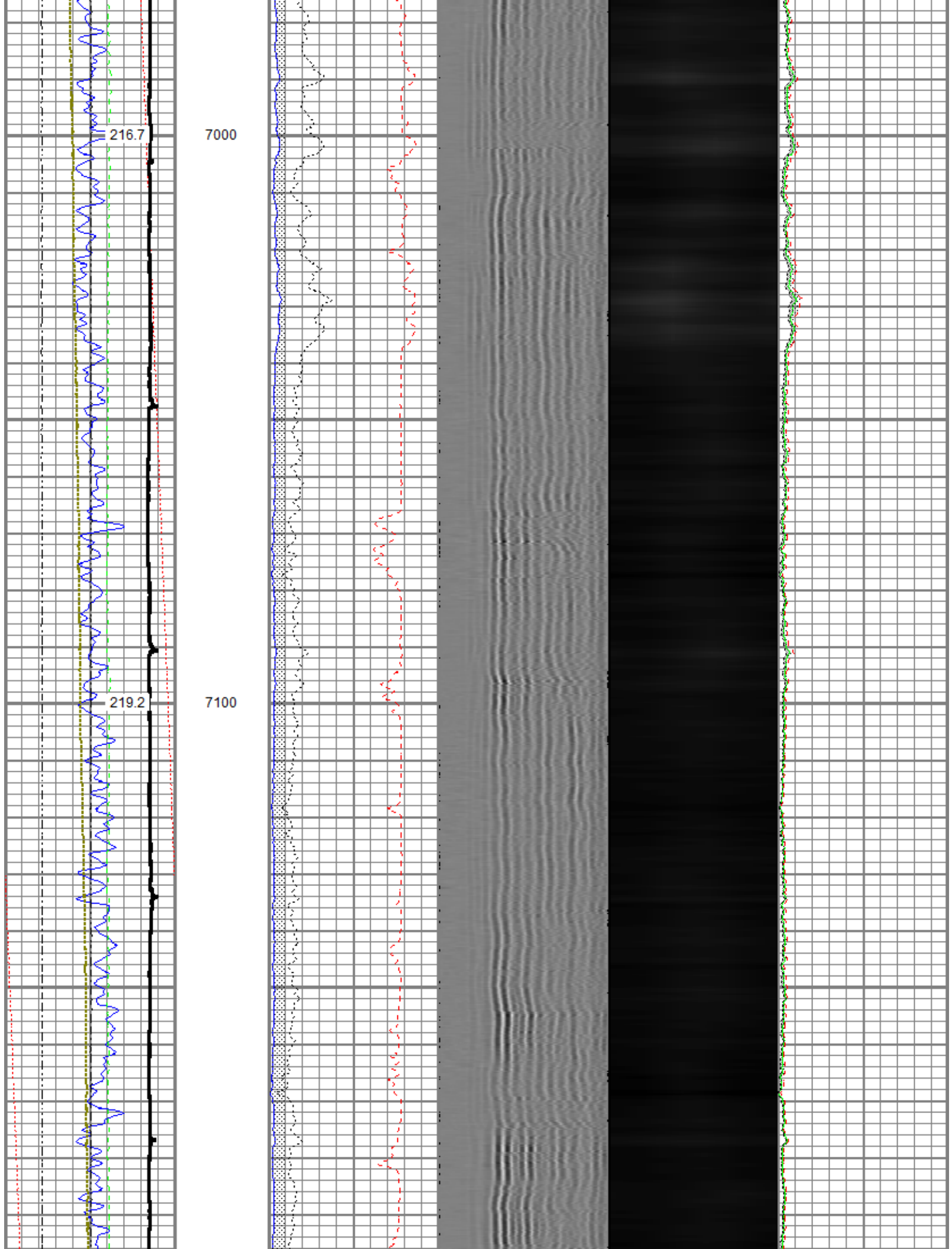


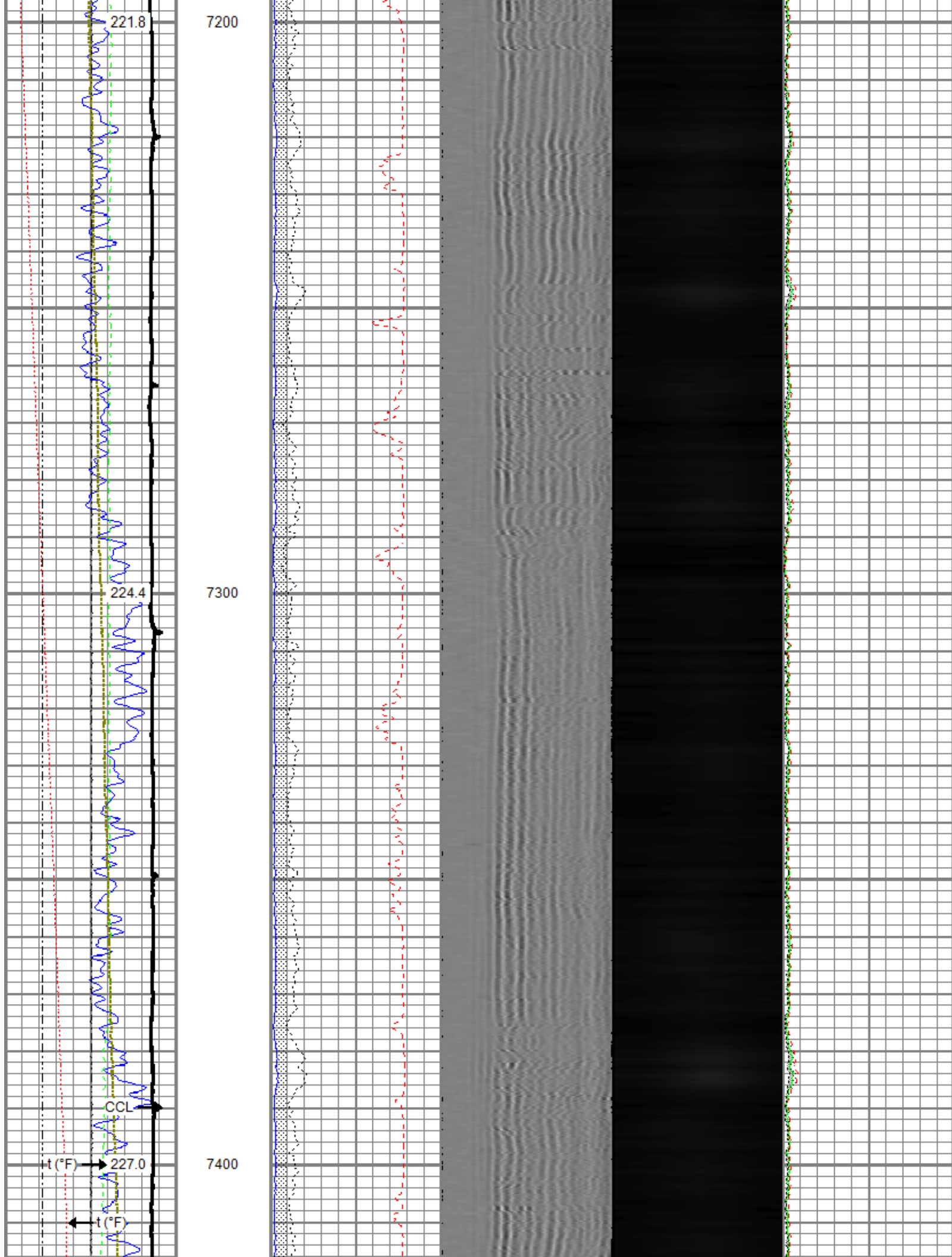


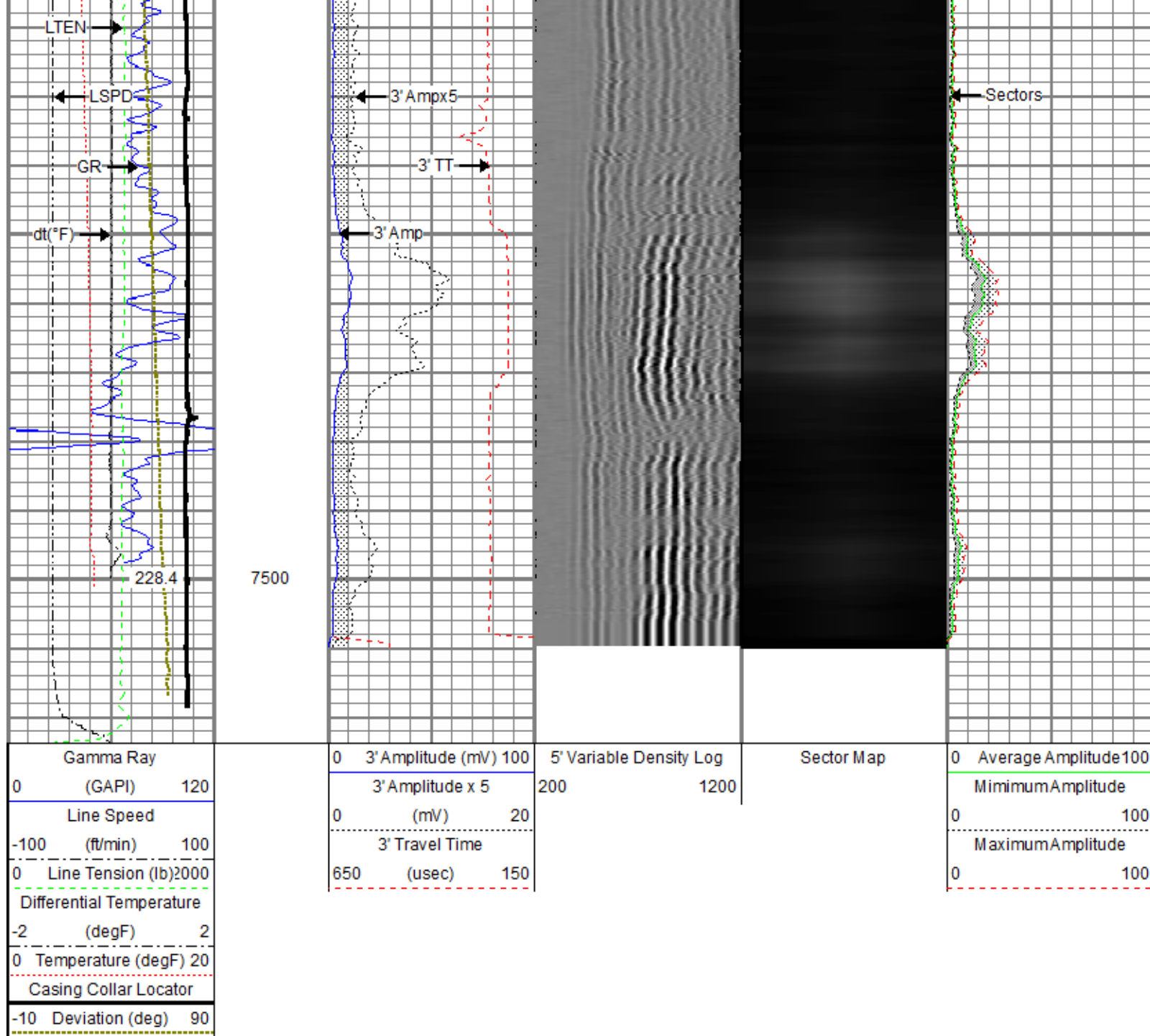
6800

6900





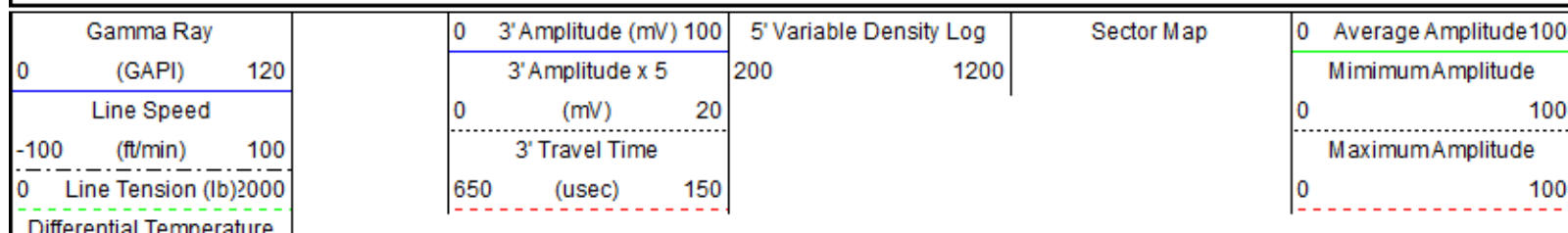




## Repeat Pass

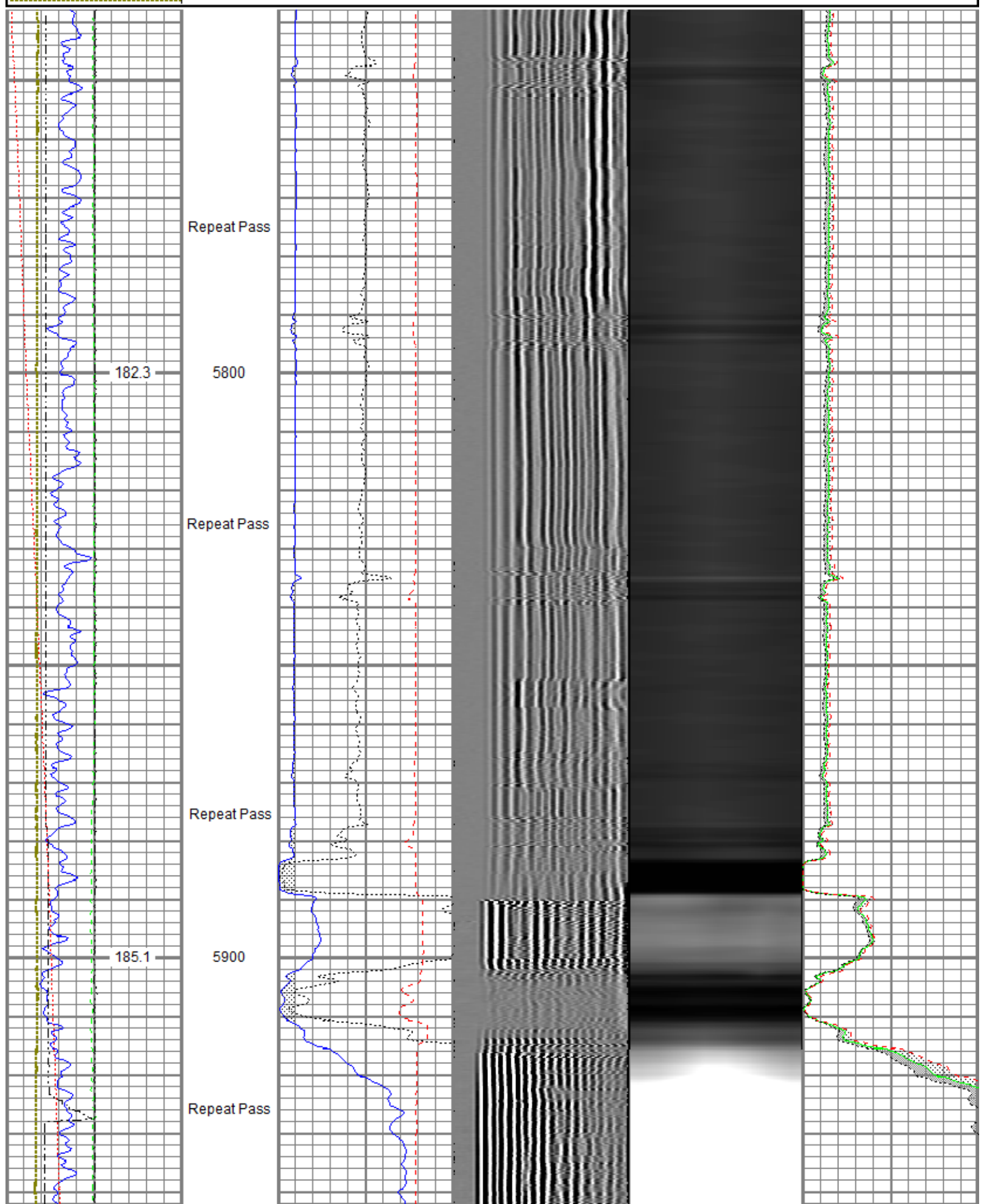
Recorded With 2800 PSI Surface Induced Pressure

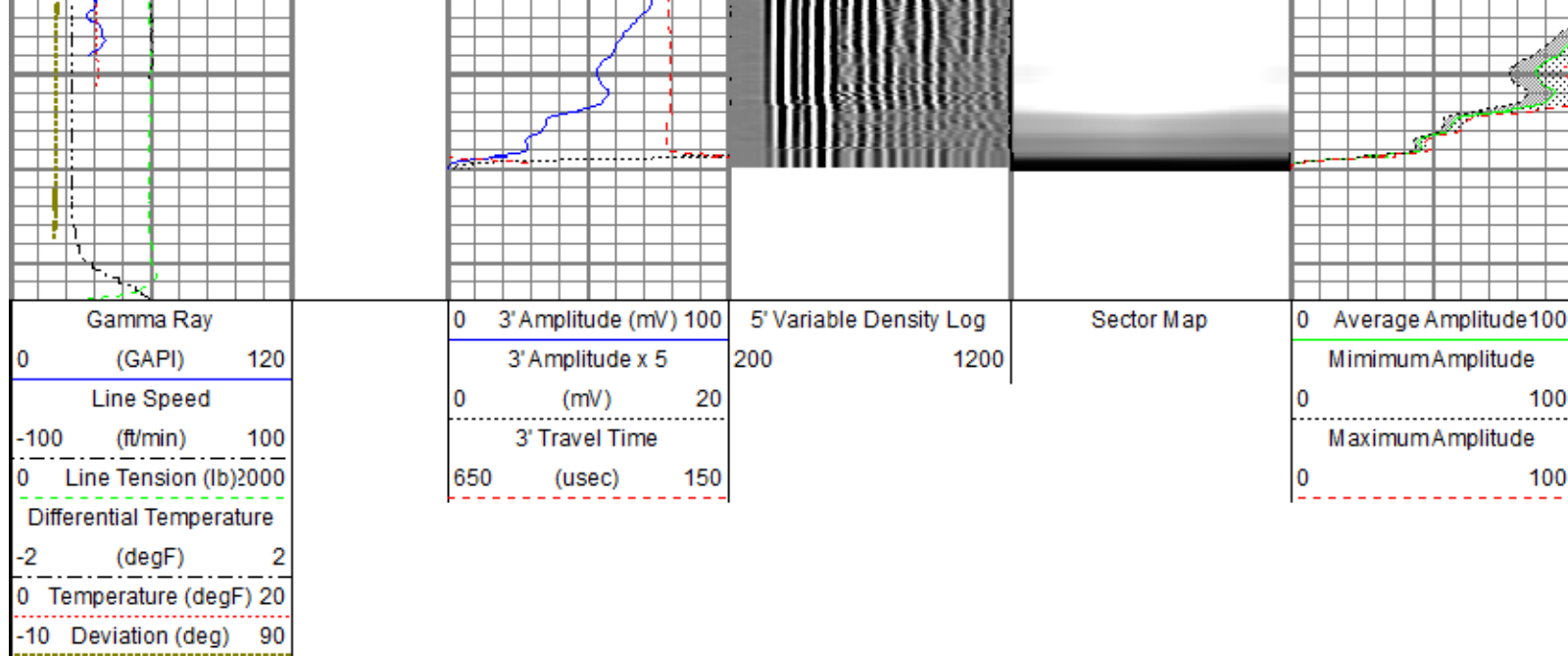
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 Charted by Depth in Feet scaled 1:240



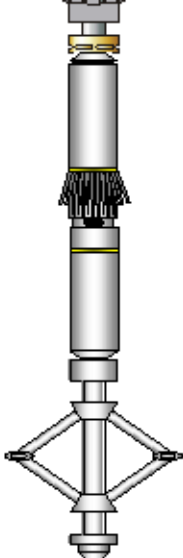


Differential Temperature		
-2	(degF)	2
0	Temperature (degF)	20
-10	Deviation (deg)	90





Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
GR	23.58		Titan CHD-14375 GO	1.03	1.44	3.60	
			Titan 1-7/16" Assembled Electric Cable Head w/ 1" Fishing Neck				
			UW AGS-001 (211461) Sondex Adapter - GO Box to Sondex Pin	0.21	1.69	1.00	
			UW XTU-002 (10017430) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50	
TEMP	22.18		UW PGR-020 (211727) Production Gamma Ray	1.92	1.69	9.50	
			UW PRT-016 (10025100) Platinum Resistance Thermometer	1.04	1.69	5.20	
			UW CENT-DSS RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00	
CBLROT	15.15		UW RBT-004 (10013454) Sondex Ultrawire 3-1/8" Radial Bond Tool	9.48	3.13	140.00	
CBLTEMP	15.15						
WVFS8	15.15						
WVFS7	15.15						
WVFS6	15.15						
WVFS5	15.15						
WVFS4	15.15						
WVFS3	15.15						
WVFS2	15.15						
WVFS1	15.15						
WVF3FT	15.15						
WVF5FT	14.15						
CBLTEMP	10.02		UW CENT-DSS RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00	

MIT	5.27		UW MIT-40 042 E (10014703) 40 Multifinger Imaging Tool Ext.	4.54	2.75	65.00
			UW CENT-PRC 057 4 Arm 2-3/4" Production Roller Centralizer	2.71	2.75	32.00
TSTAMP	0.00		UW BUL-006 (031422) Sondex Ultrawire Bullnose Terminator Sub	0.22	1.69	1.20
Dataset: 0512344566_Anadarko_Newby 27N-33HZ_RBL_03-15-18.db: field/well/log/pass10 Total length: 27.83 ft Total weight: 328.00 lb O.D.: 3.13 in						

Calibration Report			
Database File	C:\ProgramData\Warrior\Data\0512344566_Anadarko_Newby 27N-33HZ_MIT_RBL_03-15-18\0512344566_Anadarko_Newby 2		
Dataset Pathname	log/pass11		
Dataset Creation	Thu Mar 15 17:06:10 2018		
Multifinger Imaging Tool Calibration Report			
Serial Number:		10014703	
Number of Fingers:		40	
Tool Model:		40 042 E	
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:				Thu Mar 15 12:57:03 2018			
Ring size:	4	5	6	7			
(in)							
	Sens	Sens	Sens				
Finger 01:	1061 361.0	1422 386.0	1808 403.0	2211			
Finger 02:	1059 379.0	1438 409.0	1847 430.0	2277			
Finger 03:	1053 368.0	1421 401.0	1822 430.0	2252			
Finger 04:	997 374.0	1371 422.0	1793 455.0	2248			
Finger 05:	1035 357.0	1392 391.0	1783 414.0	2197			
Finger 06:	1038 373.0	1411 409.0	1820 432.0	2252			
Finger 07:	1044 371.0	1415 400.0	1815 424.0	2239			
Finger 08:	1023 371.0	1394 418.0	1812 450.0	2262			
Finger 09:	1103 376.0	1479 400.0	1879 412.0	2291			
Finger 10:	1056 369.0	1425 403.0	1828 428.0	2256			
Finger 11:	1038 365.0	1403 405.0	1808 434.0	2242			
Finger 12:	1133 359.0	1492 378.0	1870 388.0	2258			
Finger 13:	1076 358.0	1434 398.0	1832 426.0	2258			
Finger 14:	1048 369.0	1417 413.0	1830 441.0	2271			
Finger 15:	1010 366.0	1376 416.0	1792 448.0	2240			
Finger 16:	1067 355.0	1422 402.0	1824 426.0	2250			

Finger 10:	1007	353.0	1422	402.0	1824	420.0	2230
Finger 17:	1106	349.0	1455	386.0	1841	404.0	2245
Finger 18:	1132	349.0	1481	390.0	1871	408.0	2279
Finger 19:	916	540.0	1456	395.0	1851	419.0	2270
Finger 20:	1008	352.0	1360	408.0	1768	431.0	2199
Finger 21:	1090	345.0	1435	391.0	1826	415.0	2241
Finger 22:	1086	349.0	1435	394.0	1829	413.0	2242
Finger 23:	1119	350.0	1469	394.0	1863	413.0	2276
Finger 24:	1096	319.0	1415	361.0	1776	383.0	2159
Finger 25:	1108	352.0	1460	398.0	1858	414.0	2272
Finger 26:	1041	340.0	1381	388.0	1769	413.0	2182
Finger 27:	1213	363.0	1576	397.0	1973	408.0	2381
Finger 28:	1080	330.0	1410	373.0	1783	405.0	2188
Finger 29:	1047	344.0	1391	396.0	1787	413.0	2200
Finger 30:	1031	342.0	1373	396.0	1769	424.0	2193
Finger 31:	1248	371.0	1619	403.0	2022	418.0	2440
Finger 32:	1014	344.0	1358	380.0	1738	402.0	2140
Finger 33:	1107	373.0	1480	412.0	1892	431.0	2323
Finger 34:	989	349.0	1338	390.0	1728	418.0	2146
Finger 35:	1144	374.0	1518	411.0	1929	429.0	2358
Finger 36:	1061	342.0	1403	376.0	1779	397.0	2176
Finger 37:	950	564.0	1514	413.0	1927	433.0	2360
Finger 38:	1105	357.0	1462	384.0	1846	405.0	2251
Finger 39:	1048	342.0	1390	366.0	1756	392.0	2148
Finger 40:	978	370.0	1348	415.0	1763	444.0	2207

# Post Survey Calibration Check

Performed:

Thu Mar 15 17:04:16 2018

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	3.987	-0.006	4.981	-0.010	5.988	-0.006	6.998	-0.001
Finger 02:	3.983	-0.008	4.973	-0.014	5.975	-0.012	6.996	-0.002
Finger 03:	3.982	-0.009	4.975	-0.013	5.964	-0.018	6.961	-0.019
Finger 04:	3.987	-0.007	4.985	-0.008	5.985	-0.007	6.990	-0.005
Finger 05:	3.990	-0.005	4.973	-0.013	5.974	-0.013	6.991	-0.004
Finger 06:	3.987	-0.007	4.979	-0.010	5.979	-0.010	6.992	-0.004
Finger 07:	3.989	-0.005	4.978	-0.011	5.985	-0.008	7.005	0.003
Finger 08:	3.986	-0.007	4.984	-0.008	5.982	-0.009	6.980	-0.010
Finger 09:	3.993	-0.004	4.985	-0.008	5.987	-0.006	7.008	0.004
Finger 10:	3.994	-0.003	4.984	-0.008	5.982	-0.009	6.979	-0.010
Finger 11:	3.983	-0.008	4.978	-0.011	5.978	-0.011	6.979	-0.010
Finger 12:	3.987	-0.007	4.979	-0.010	5.983	-0.008	6.997	-0.001
Finger 13:	3.990	-0.005	4.976	-0.012	5.975	-0.012	6.978	-0.011
Finger 14:	3.986	-0.007	4.978	-0.011	5.978	-0.011	6.980	-0.010
Finger 15:	3.988	-0.006	4.979	-0.011	5.983	-0.009	6.982	-0.009
Finger 16:	3.982	-0.009	4.979	-0.010	5.978	-0.011	6.991	-0.004
Finger 17:	3.985	-0.008	4.974	-0.013	5.977	-0.012	6.987	-0.007
Finger 18:	3.984	-0.008	4.976	-0.012	5.975	-0.012	6.980	-0.010
Finger 19:	4.338	0.169	4.970	-0.015	5.975	-0.012	6.985	-0.007
Finger 20:	3.986	-0.007	4.979	-0.011	5.972	-0.014	6.989	-0.005
Finger 21:	3.987	-0.006	4.982	-0.009	5.982	-0.009	6.985	-0.007
Finger 22:	3.984	-0.008	4.974	-0.013	5.972	-0.014	6.990	-0.005
Finger 23:	3.988	-0.006	4.979	-0.010	5.975	-0.012	6.976	-0.012
Finger 24:	3.993	-0.003	4.979	-0.011	5.978	-0.011	6.978	-0.011
Finger 25:	3.986	-0.007	4.983	-0.008	5.983	-0.008	6.997	-0.001
Finger 26:	3.986	-0.007	4.977	-0.012	5.982	-0.009	6.990	-0.005
Finger 27:	3.990	-0.005	4.985	-0.007	5.988	-0.006	6.996	-0.002
Finger 28:	3.989	-0.006	4.982	-0.009	5.991	-0.005	6.996	-0.002
Finger 29:	3.987	-0.007	4.978	-0.011	5.972	-0.014	6.994	-0.003
Finger 30:	3.979	-0.010	4.978	-0.011	5.981	-0.009	6.986	-0.007
Finger 31:	3.994	-0.003	4.983	-0.008	5.984	-0.008	6.987	-0.006
Finger 32:	3.984	-0.008	4.978	-0.011	5.981	-0.010	6.990	-0.005
Finger 33:	3.988	-0.006	4.977	-0.012	5.973	-0.014	6.982	-0.009
Finger 34:	3.987	-0.007	4.975	-0.013	5.978	-0.011	6.985	-0.007
Finger 35:	3.981	-0.010	4.979	-0.010	5.980	-0.010	6.981	-0.010
Finger 36:	3.991	-0.004	4.979	-0.011	5.974	-0.013	6.979	-0.010
Finger 37:	4.296	0.148	4.976	-0.012	5.975	-0.012	6.981	-0.010
Finger 38:	3.987	-0.006	4.976	-0.012	5.977	-0.011	6.985	-0.008
Finger 39:	3.987	-0.006	4.981	-0.010	5.989	-0.006	6.998	-0.001
Finger 40:	3.989	-0.006	4.976	-0.012	5.970	-0.015	6.972	-0.014
Average:	4.004	0.002	4.979	-0.011	5.979	-0.011	6.987	-0.007



## Segmented Cement Bond Log Calibration Report

Serial Number: 10013454  
 Tool Model: 004  
 Calibration Casing Diameter: 7.000 in  
 Calibration Depth: -23.563 ft

Master Calibration, performed Sun Feb 18 16:50:35 2018:

	Raw (v)		Calibrated (mv)		Results	
	Zero	Cal	Zero	Cal	Gain	Offset
3FT	0.004	0.773	0.800	62.165	79.765	0.508
5FT	-0.002	0.768	0.800	62.165	79.625	0.994
S1	0.002	0.769	0.000	100.000	130.421	-0.314
S2	0.002	0.788	0.000	100.000	127.244	-0.242
S3	0.002	0.788	0.000	100.000	127.377	-0.311
S4	0.002	0.788	0.000	100.000	127.241	-0.309
S5	0.002	0.776	0.000	100.000	129.232	-0.316
S6	0.001	0.765	0.000	100.000	130.868	-0.165
S7	0.001	0.750	0.000	100.000	133.531	-0.192
S8	0.002	0.755	0.000	100.000	132.799	-0.258

## Temperature Calibration Report

Serial Number: 10025100  
 Tool Model: 016  
 Performed: Sun Nov 12 14:30:03 2017

Point #	Reading		Reference	
1	13249.00	cps	68.00	degF
2	18454.00	cps	104.00	degF
3	29735.00	cps	176.00	degF
4	41457.00	cps	248.00	degF
5	52851.00	cps	320.00	degF
6	59128.00	cps	356.00	degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF

## Gamma Ray Calibration Report

Serial Number: 211727  
 Tool Model: 020  
 Performed: Sun Nov 12 06:37:04 2017  
 Calibrator Value: 637.0 GAPI  
 Background Reading: 78.8 cps  
 Calibrator Reading: 1069.9 cps  
 Sensitivity: 0.6427 GAPI/cps



**Company** Kerr-McGee Oil & Gas Onshore, L.P.  
**Well** Newby 27N-33HZ  
**Field** Wattenberg  
**County** Weld  
**State** Colorado