



**Multifinger Imaging Caliper
Gamma Ray
Casing Collar Log**

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Pioneer 23-12
Field Wattenberg
County Weld **State** Colorado

Company Kerr-McGee Oil & Gas Onshore, L.P.
Well Pioneer 23-12
Field Wattenberg
County Weld
State Colorado

Location: SEC 12 TWP 2N RGE 65 W
 API #: 05-123-28177
 Other Services: BP, DB
 Permanent Datum: Ground Level
 Elevation: ---
 Log Measured From: Kelly Bushing
 Drilling Measured From: Kelly Bushing
 K.B.: ---
 D.F.: ---
 G.L.: ---

Date	26-July-2018	
Run Number	One	
Depth Driller	---	
Depth Logger	1155 FT	
Bottom Logged Interval	1150 FT	
Top Log Interval	Surface	
Open Hole Size	---	
Type Fluid	Water	
Density / Viscosity	8.34 lbm/gal	
Max. Recorded Temp.	81°F	
E. estimated Cement Top	---	
Time Well Ready	ROA	
Time Logger on Bottom	09:35	
E. equipment Number	HD-363	
Location	Fort Lupton, CO	
Recorded By	M Hayes	
Witnessed By	Jamie Robinson	
Run Number	Borehole Record	
	Bit	From To
Casing Record	Size (in)	Wgt (lbs/ft)
Surface Casing	Size (in)	Wgt (lbs/ft)
Intermediate #1	Size (in)	Wgt (lbs/ft)
Intermediate #2	Size (in)	Wgt (lbs/ft)
Liner	Size (in)	Wgt (lbs/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
 Correlated To Jpoint At 1116 Ft.
 Adjusted +19
 Logging tools Had Resin Type debris upon completion of operations

Thank you for choosing Reliance Oilfield Services, LLC!!

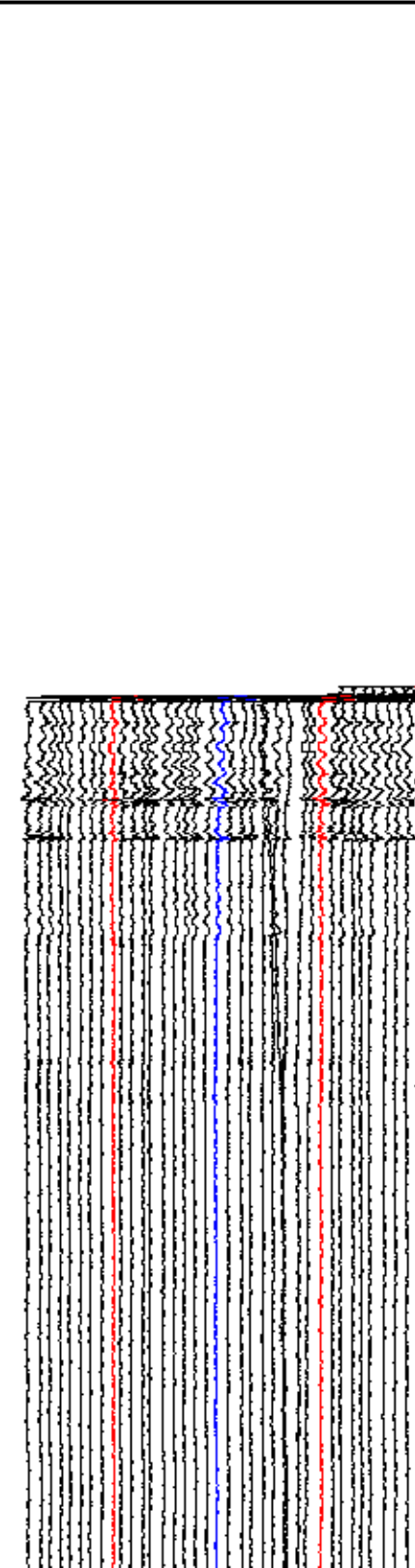
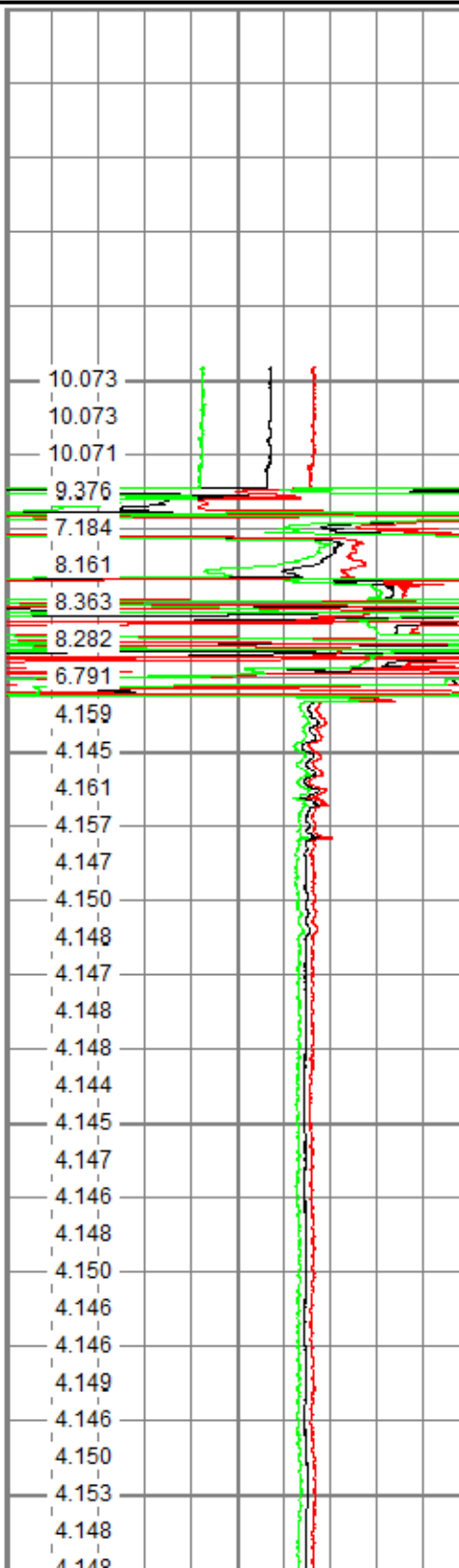
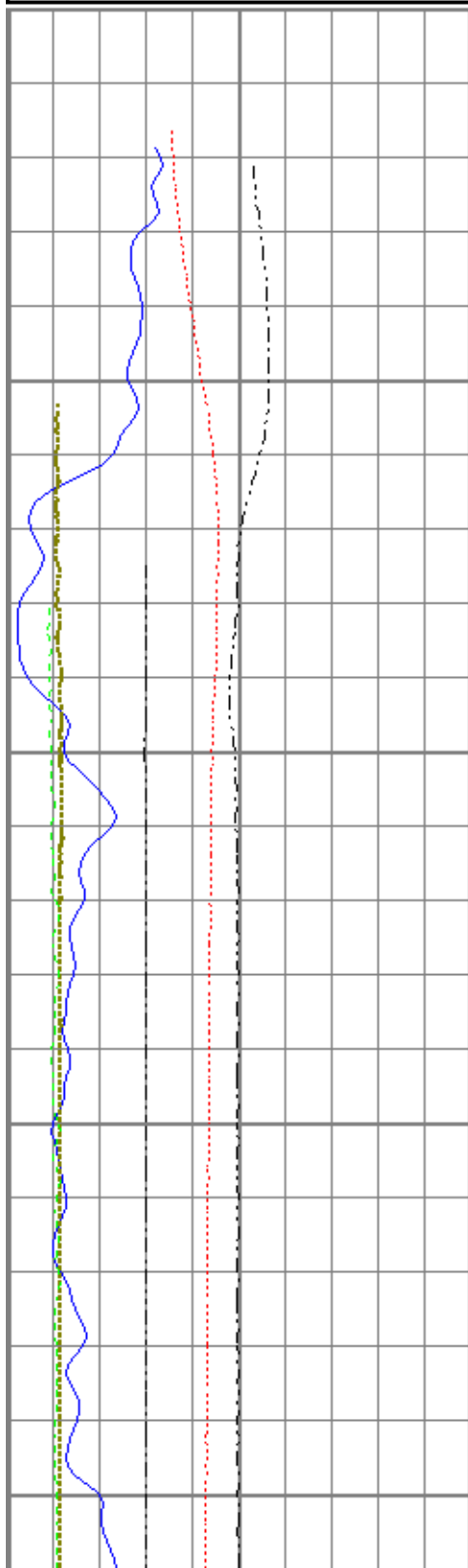
Recorded With No Surface Induced Pressure

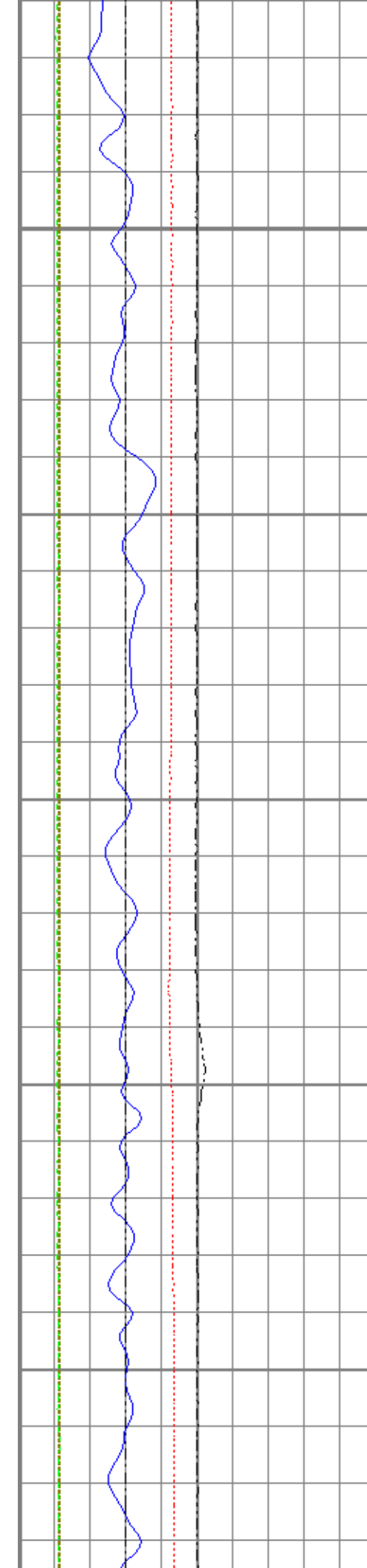
Database File anadarko_pioneer23-12_july-26-2018.db
 Dataset Pathname pass-60scale
 Presentation Format ros_45mit40sx_vert
 Dataset Creation Thu Jul 26 12:31:21 2018
 Charted by Depth in Feet scaled 1:60

0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20

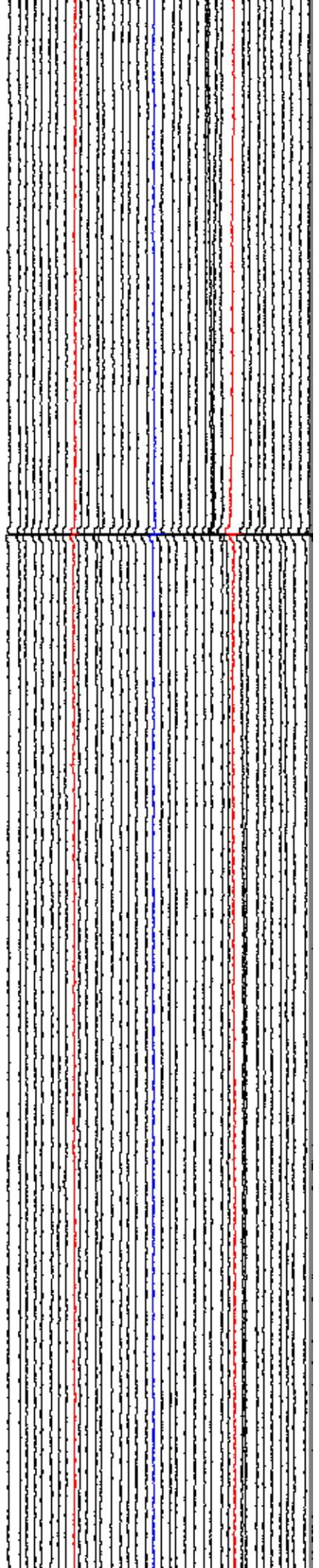
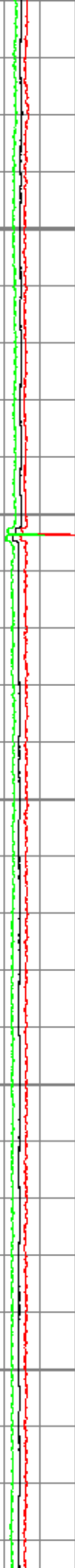
3.5	Average Diameter (in)	4.5
3.5	Maximum Diameter (in)	4.5
3.5	Minimum Diameter (in)	4.5
AVEDIA (in)		

Caliper #10
Caliper #20
Caliper #30



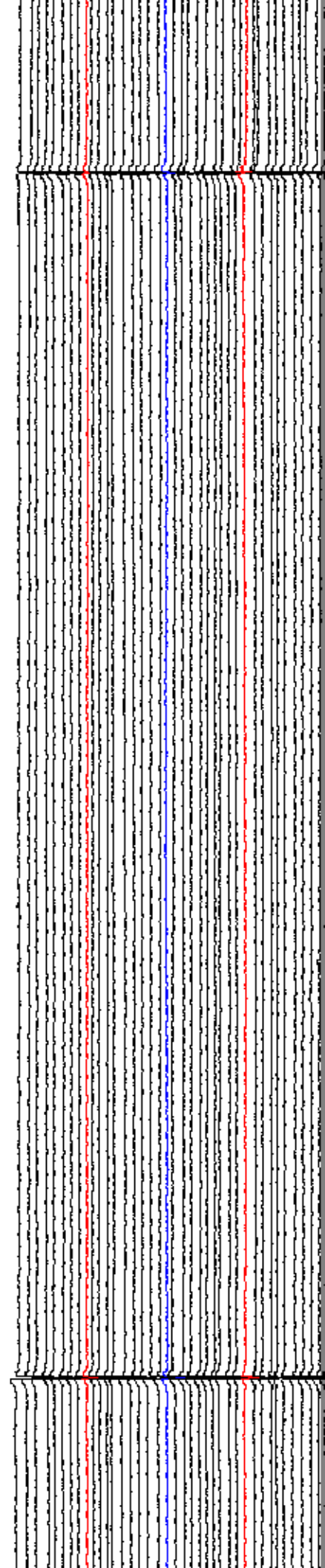
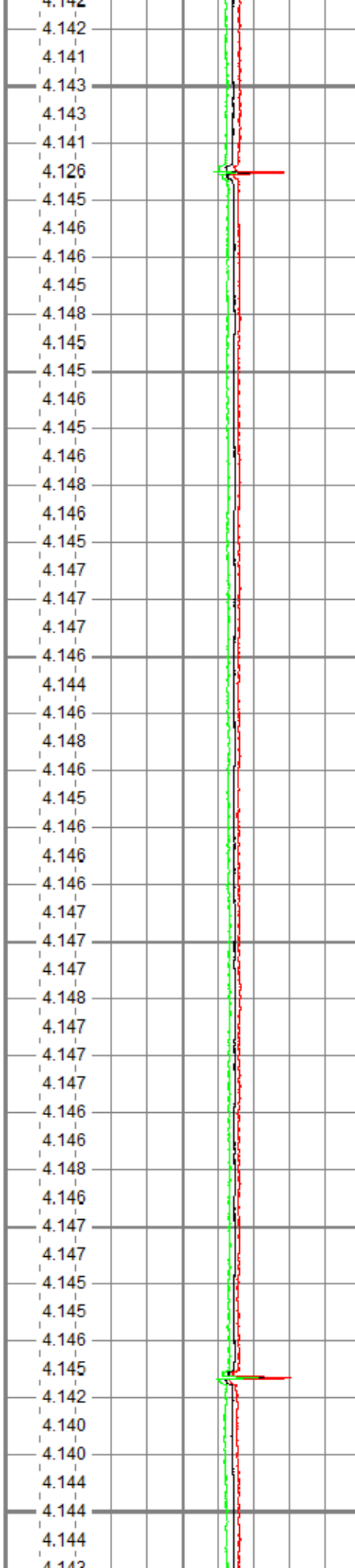


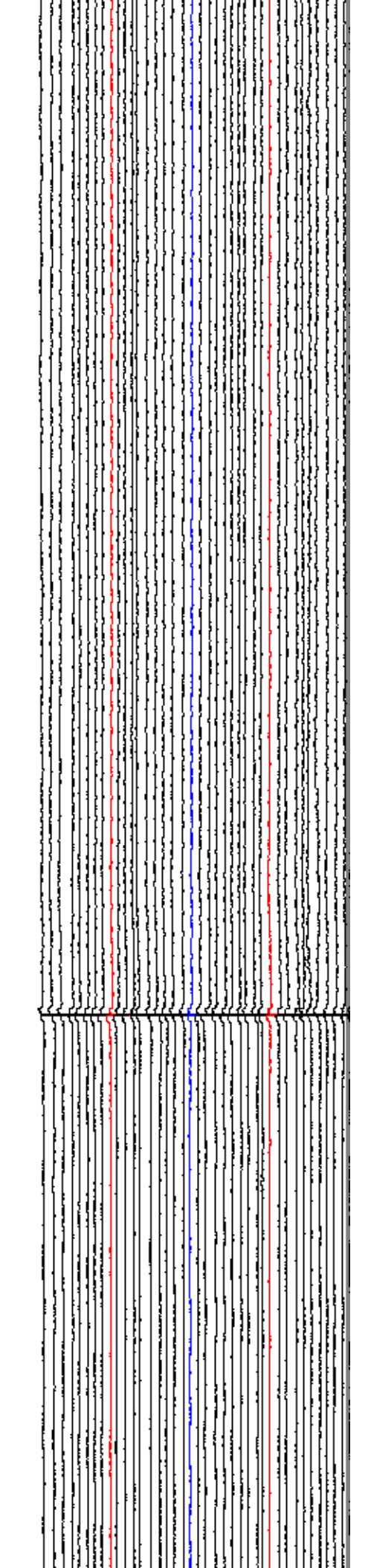
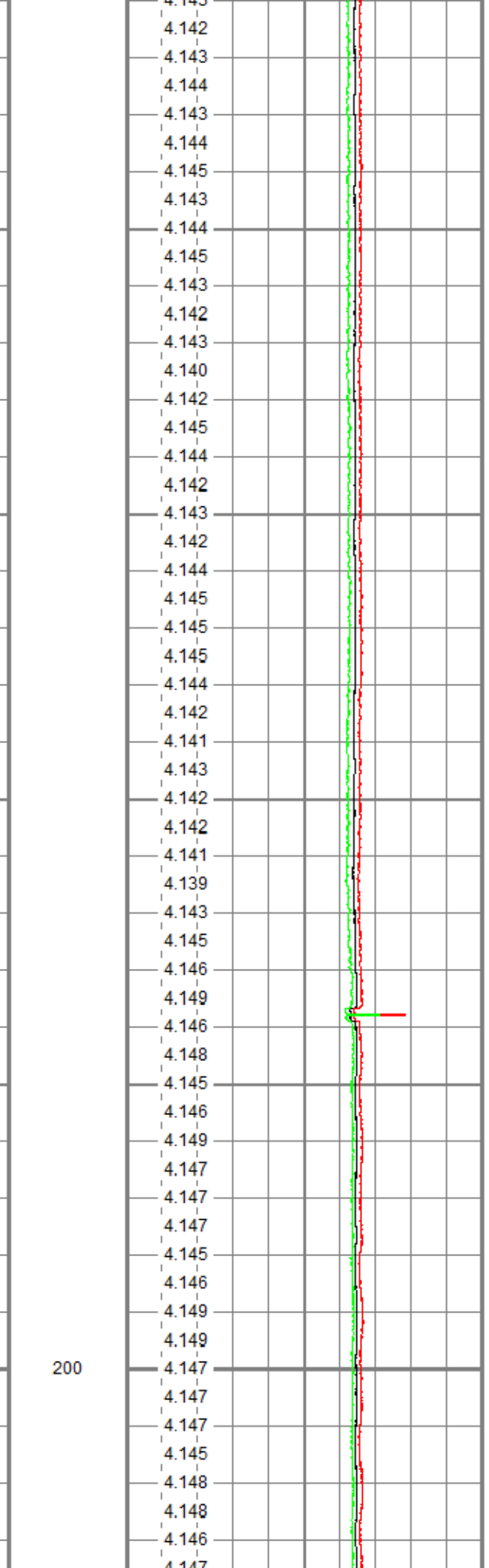
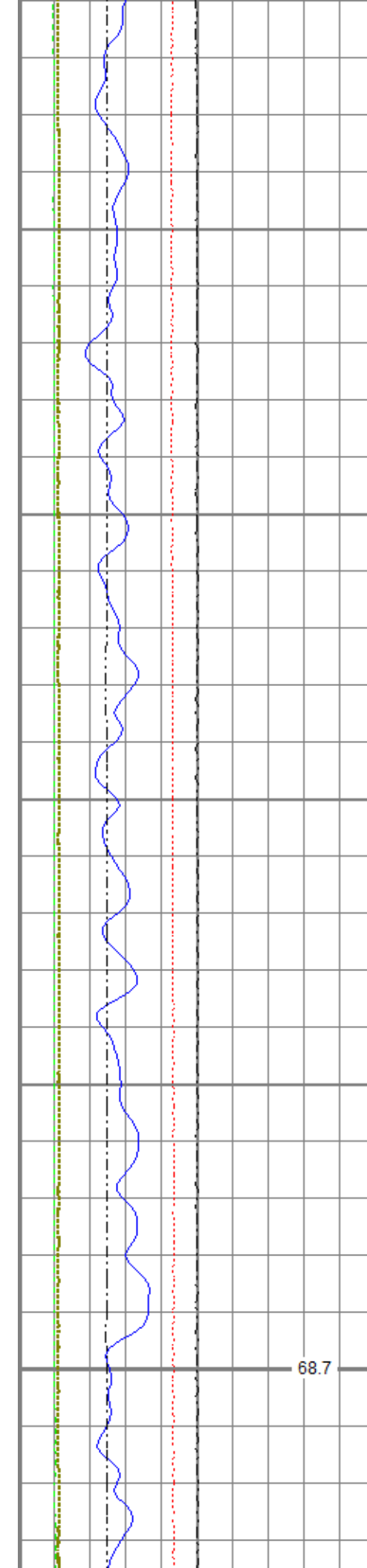
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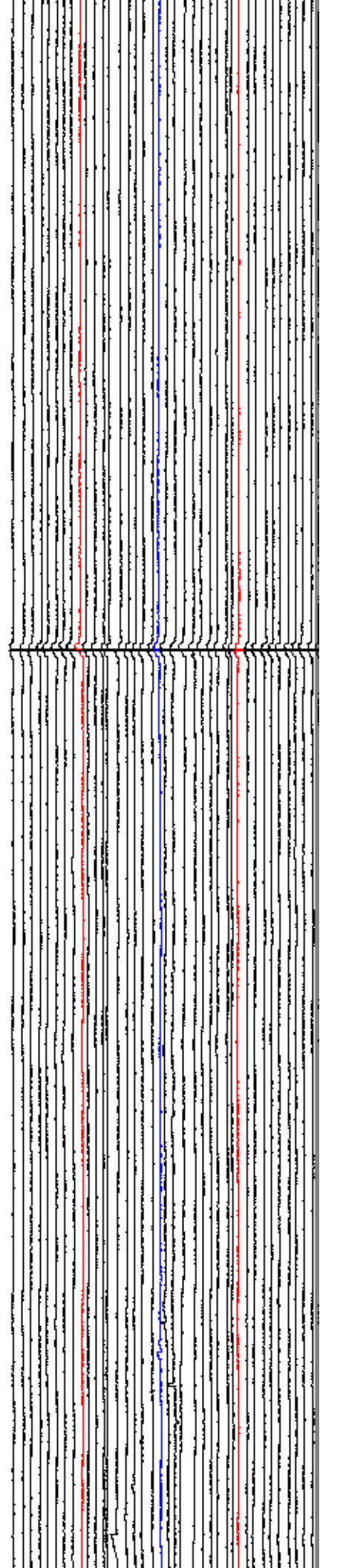
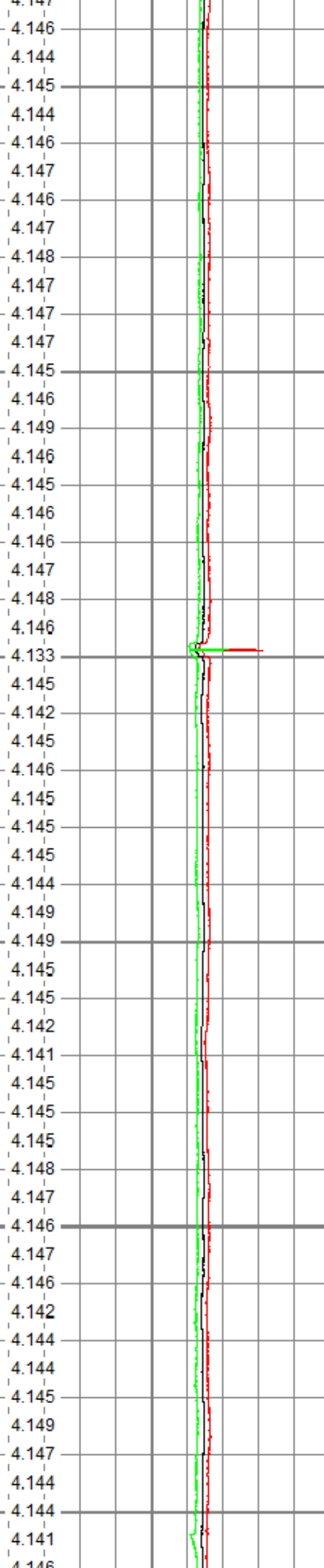
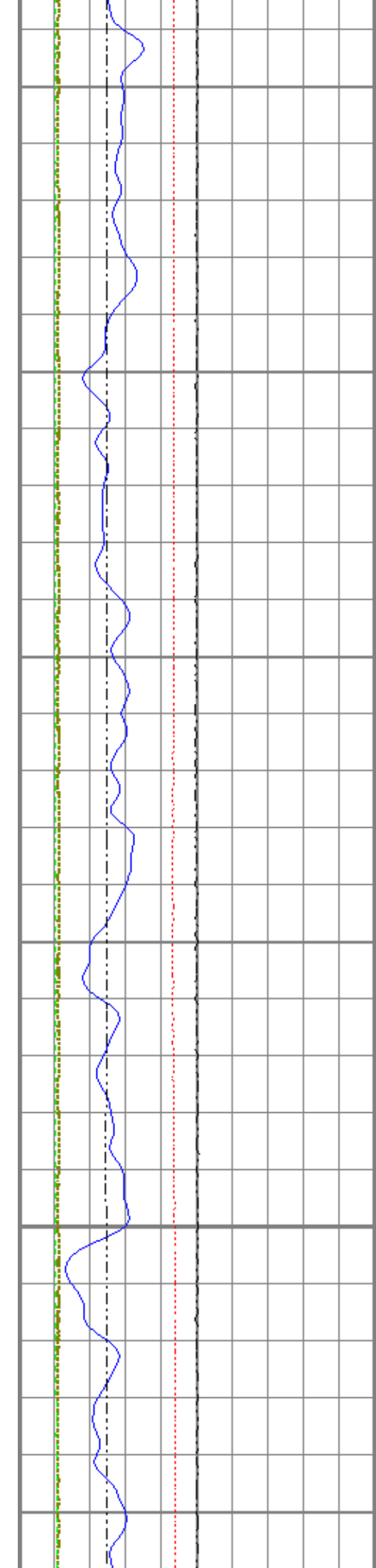
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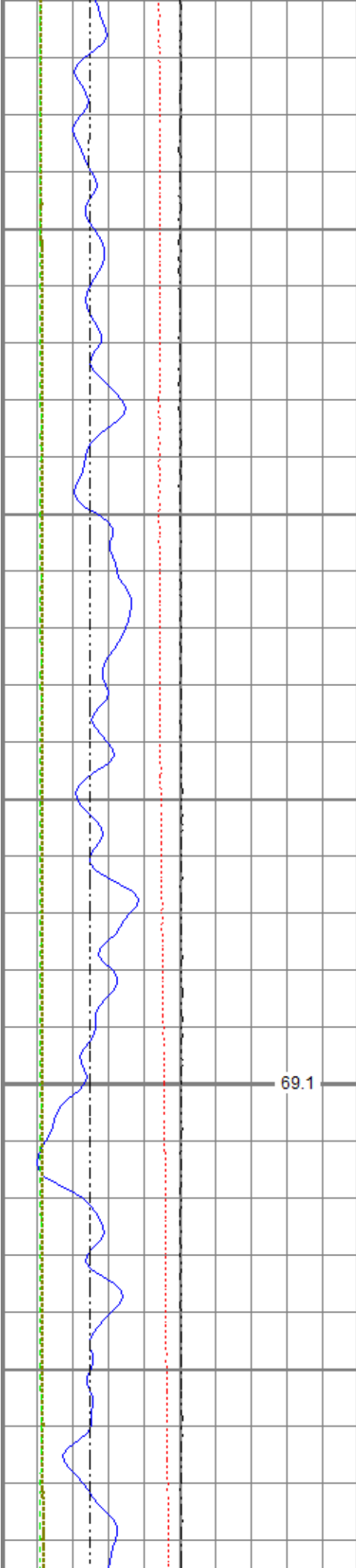




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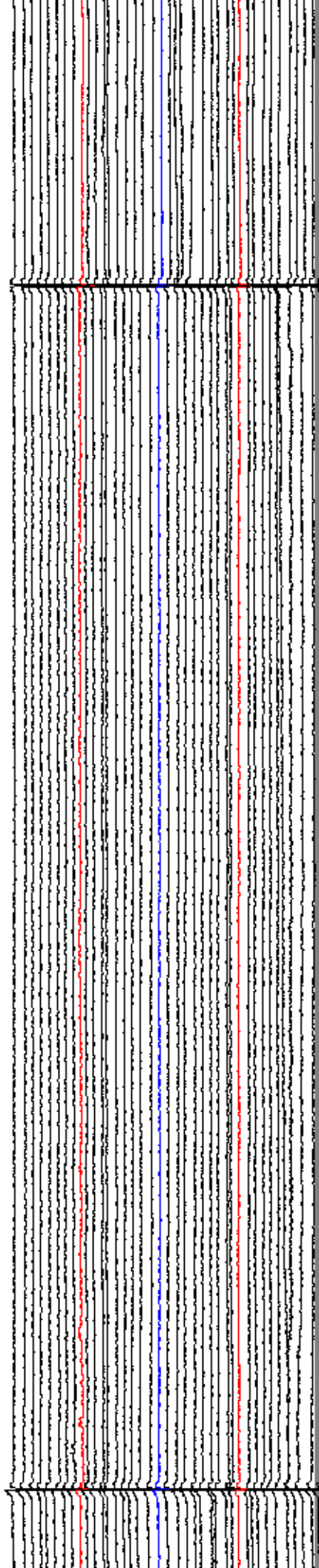
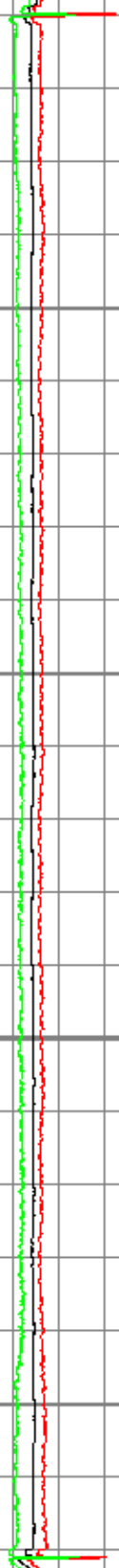
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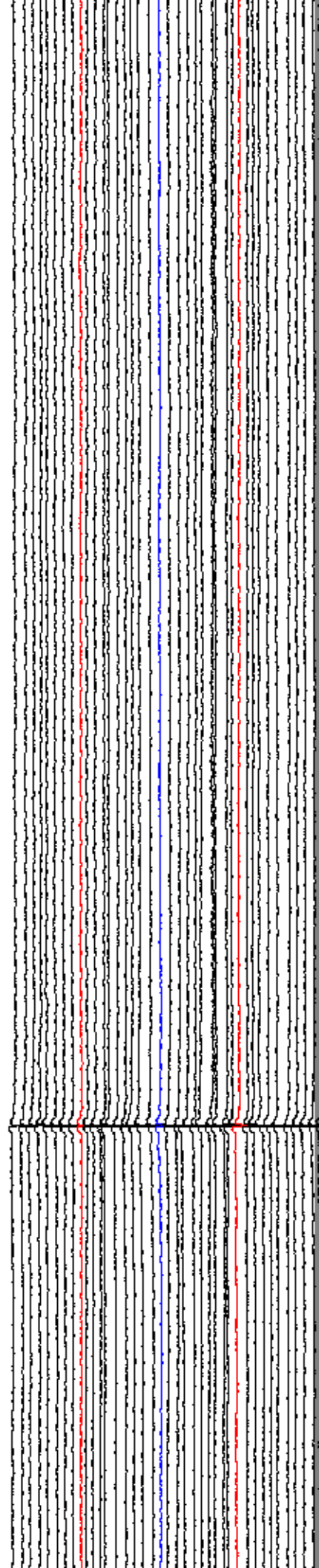
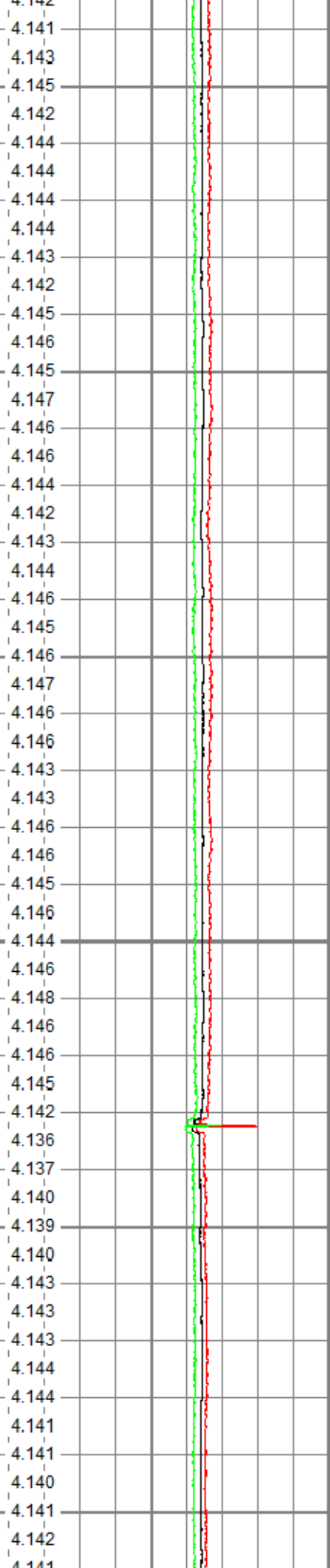
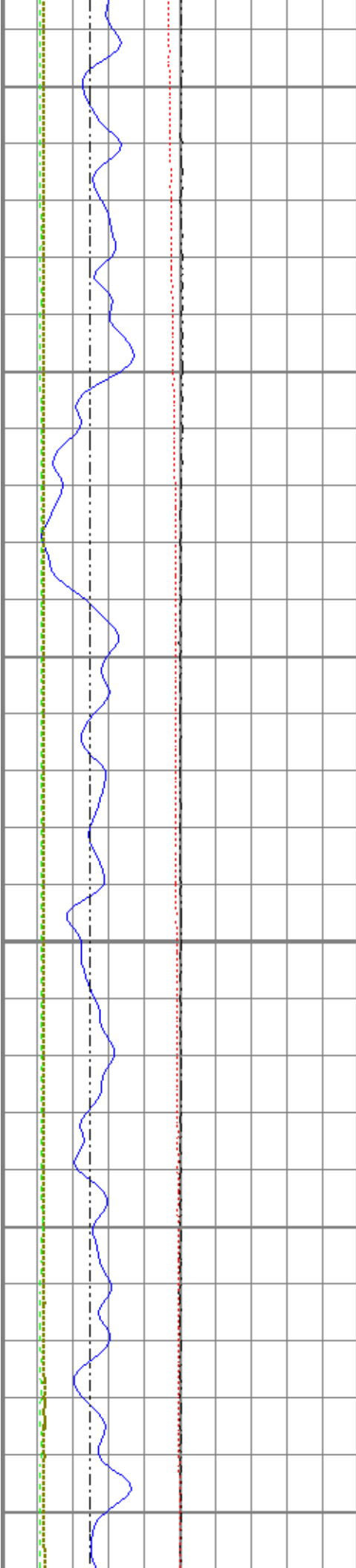


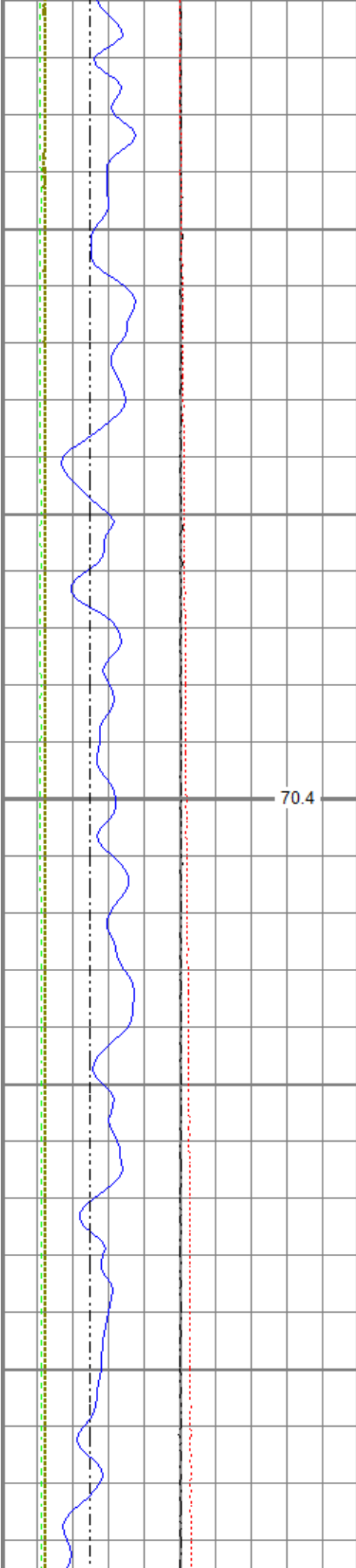


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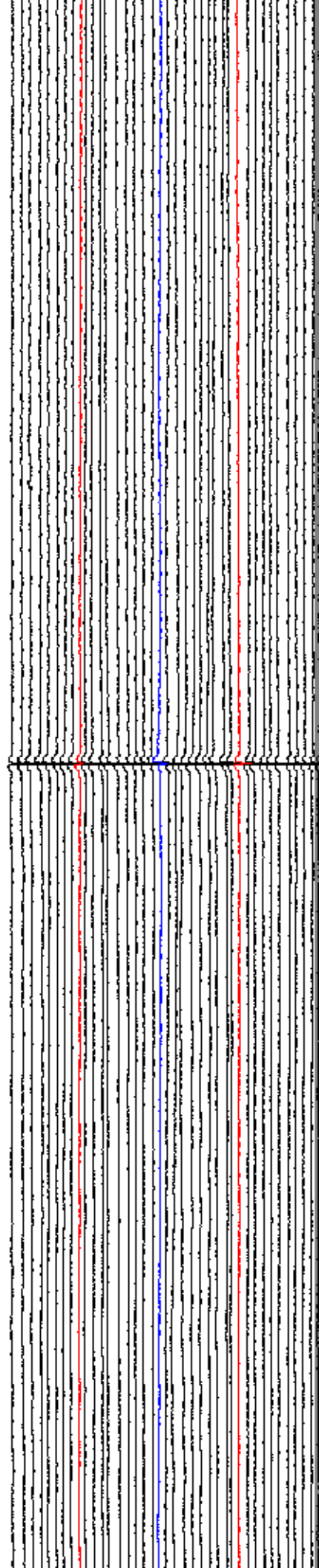


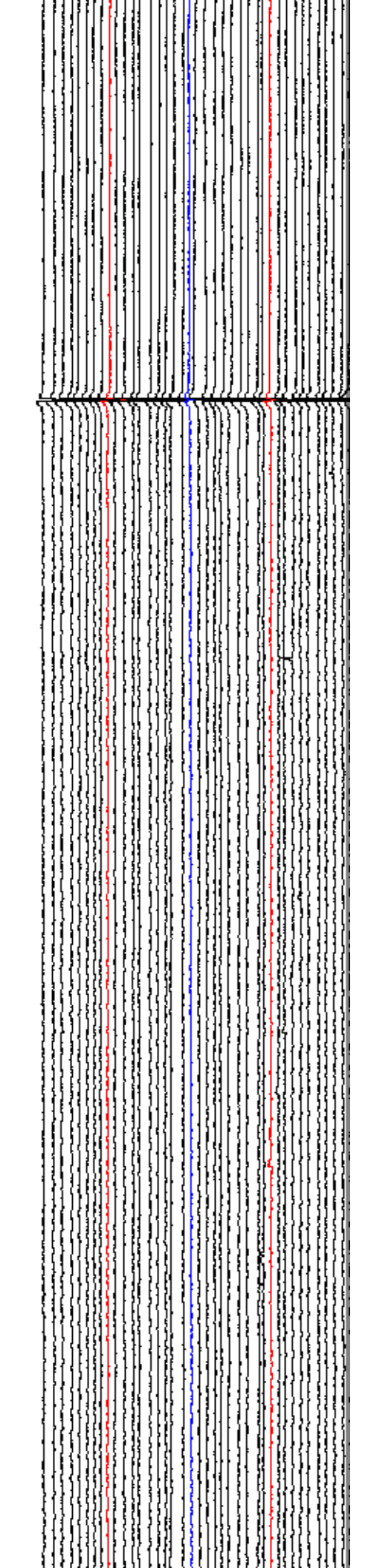
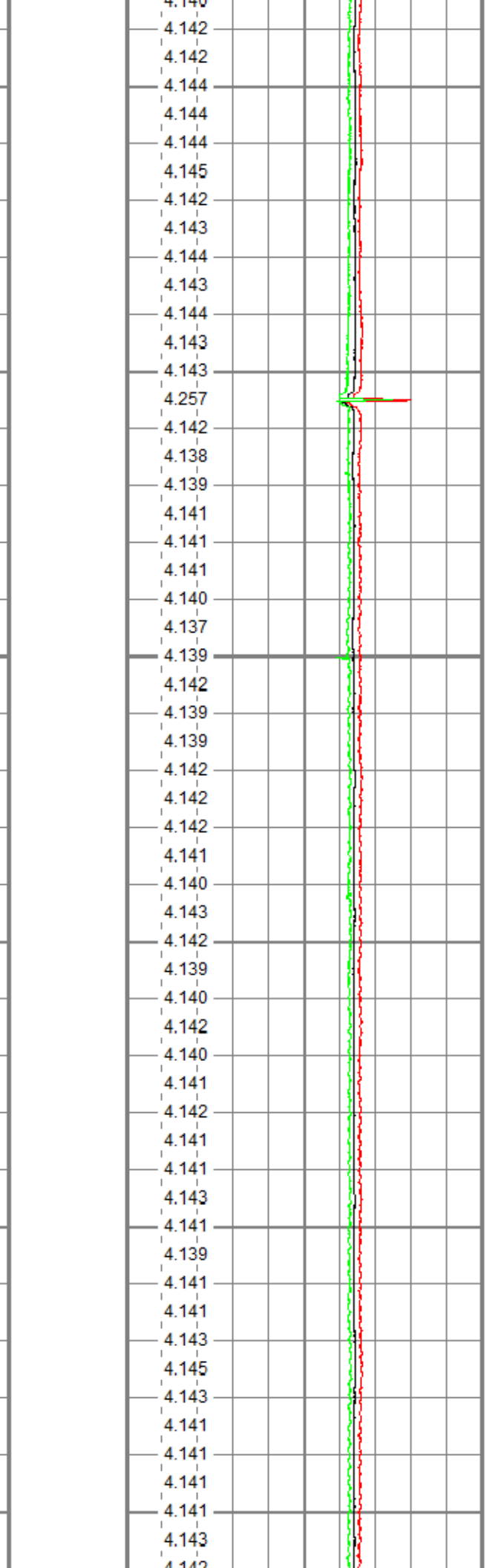
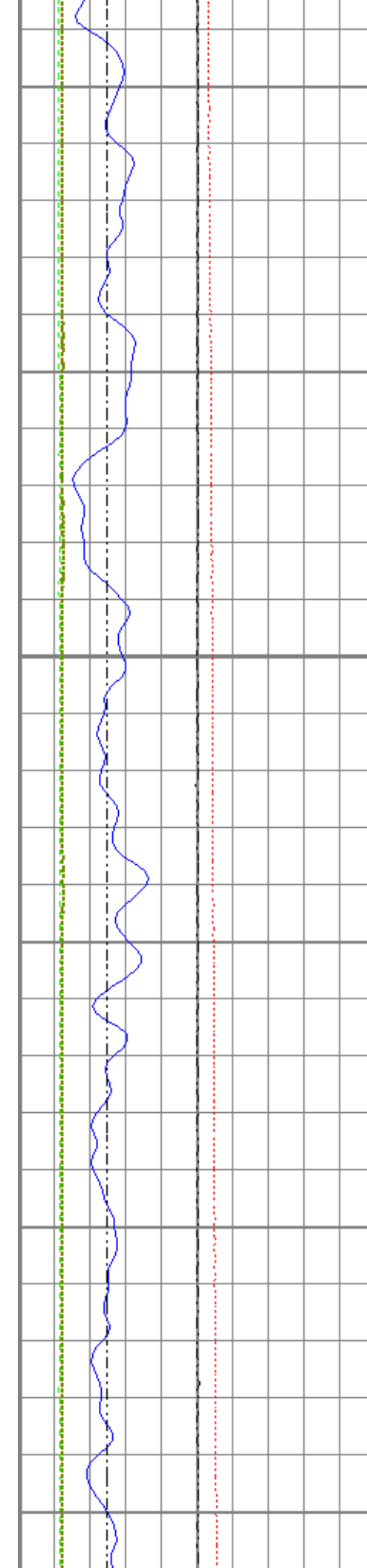


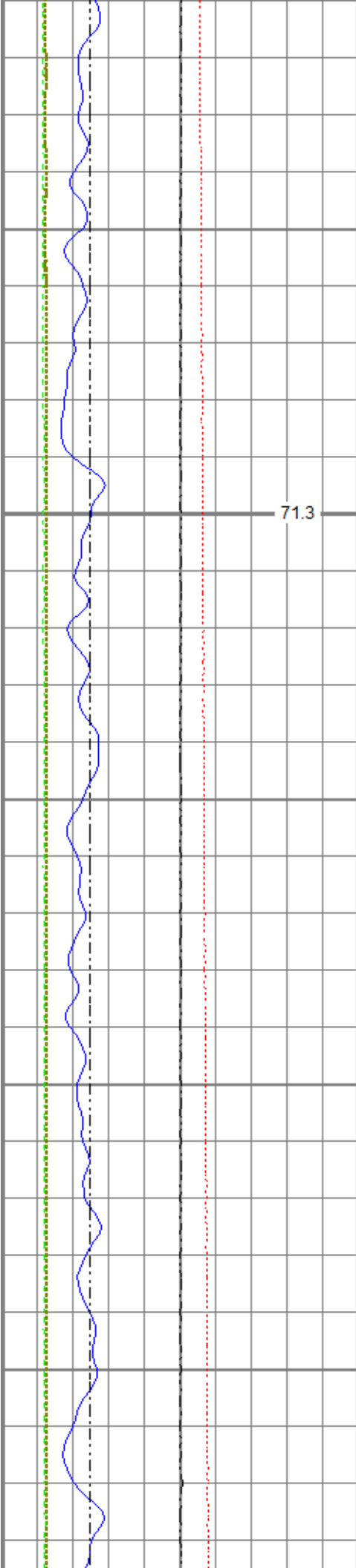


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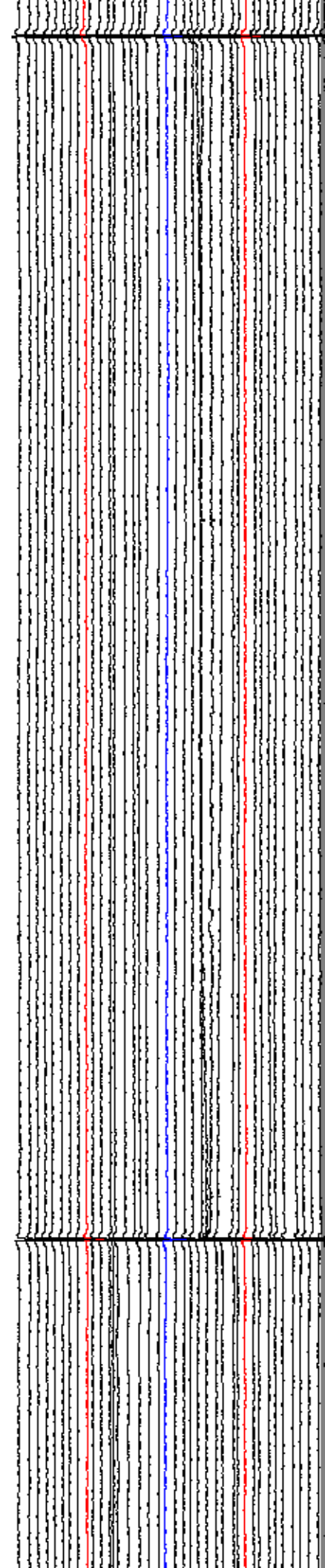
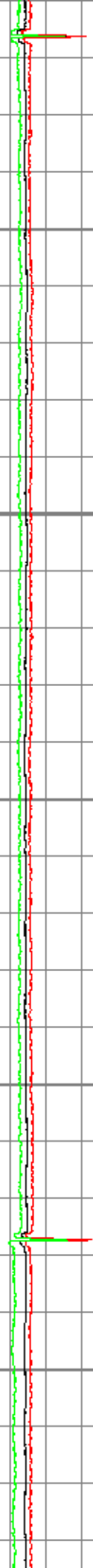


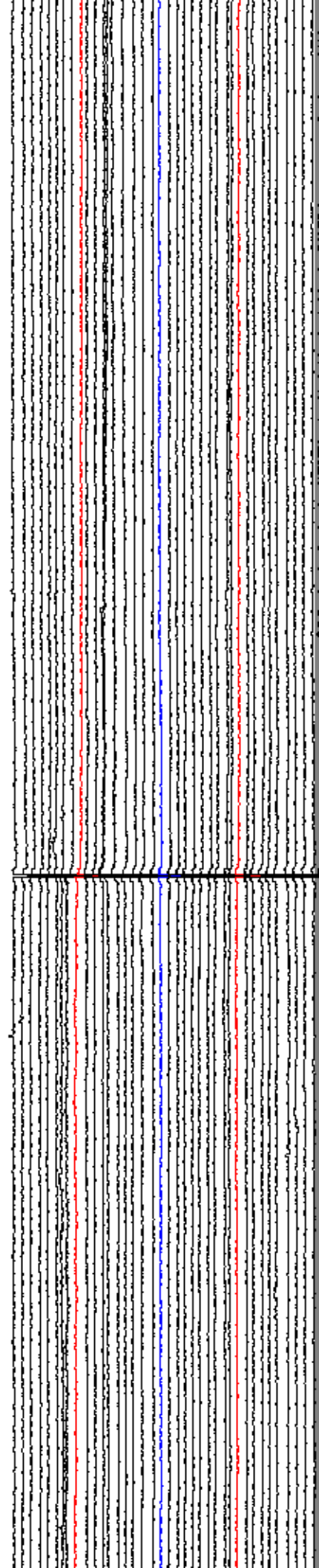
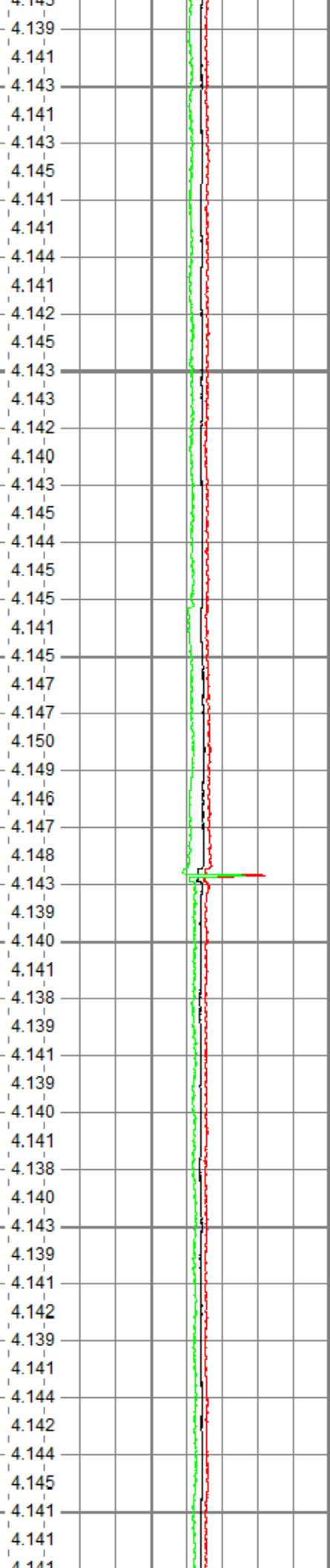
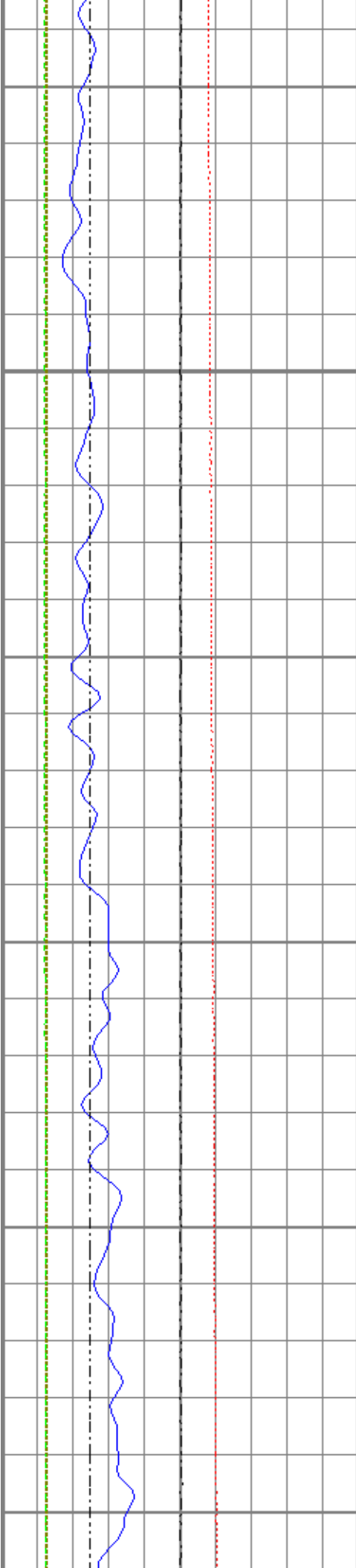


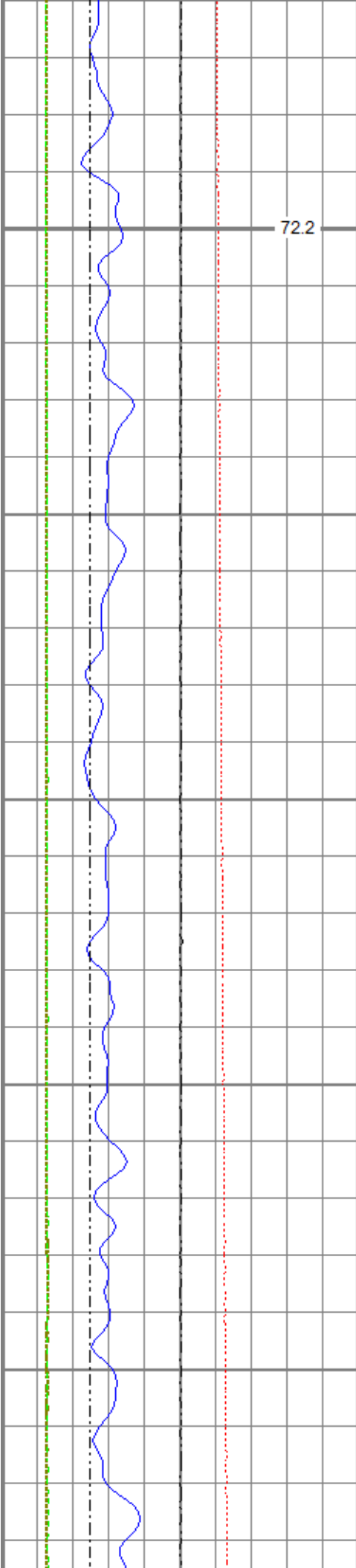
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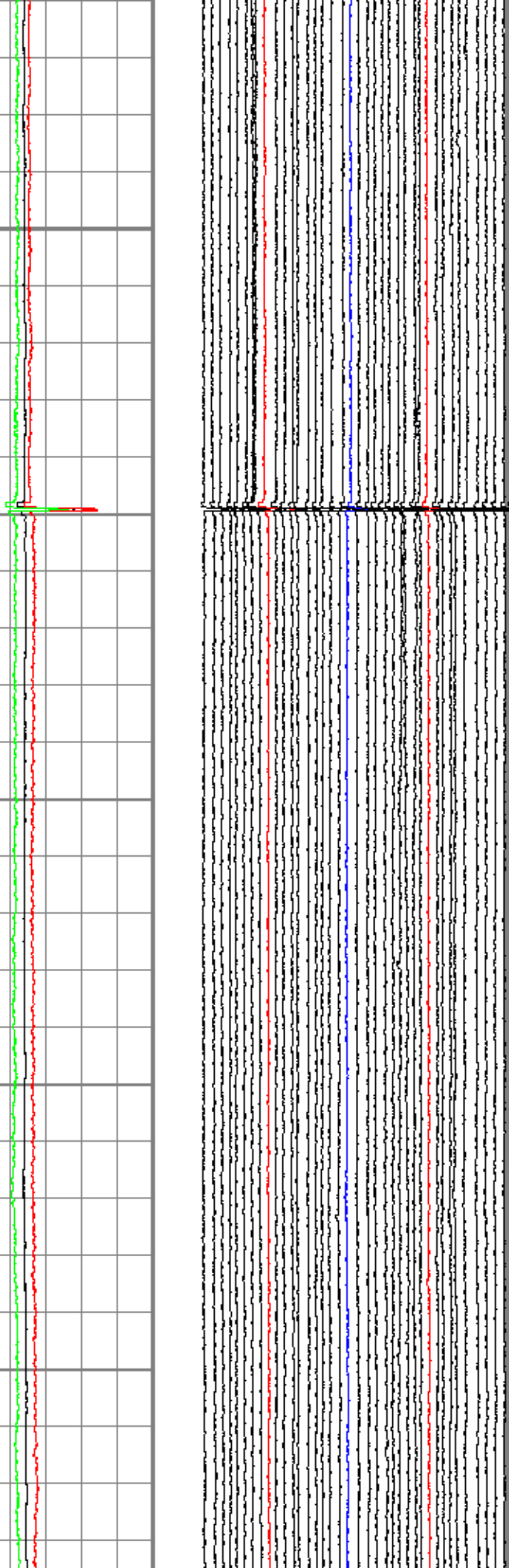


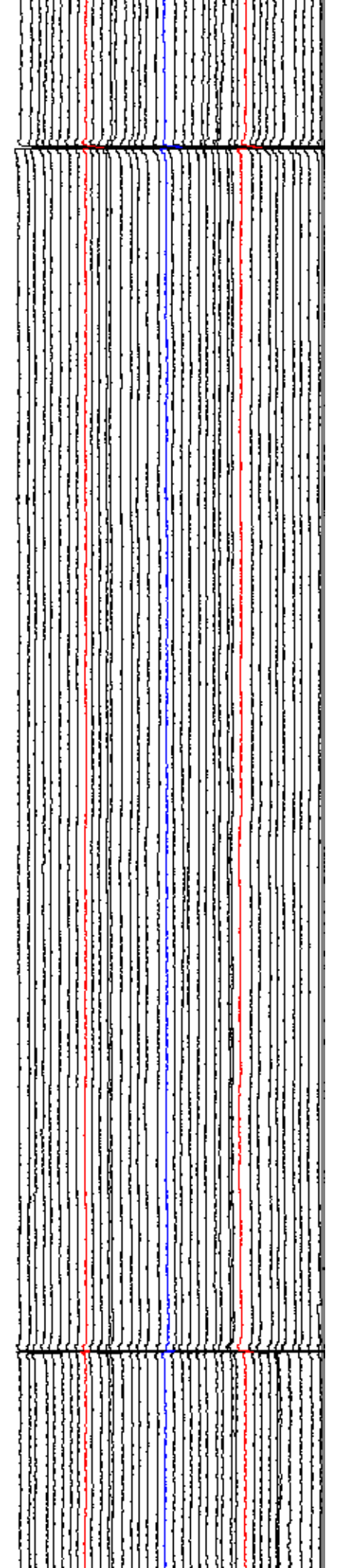
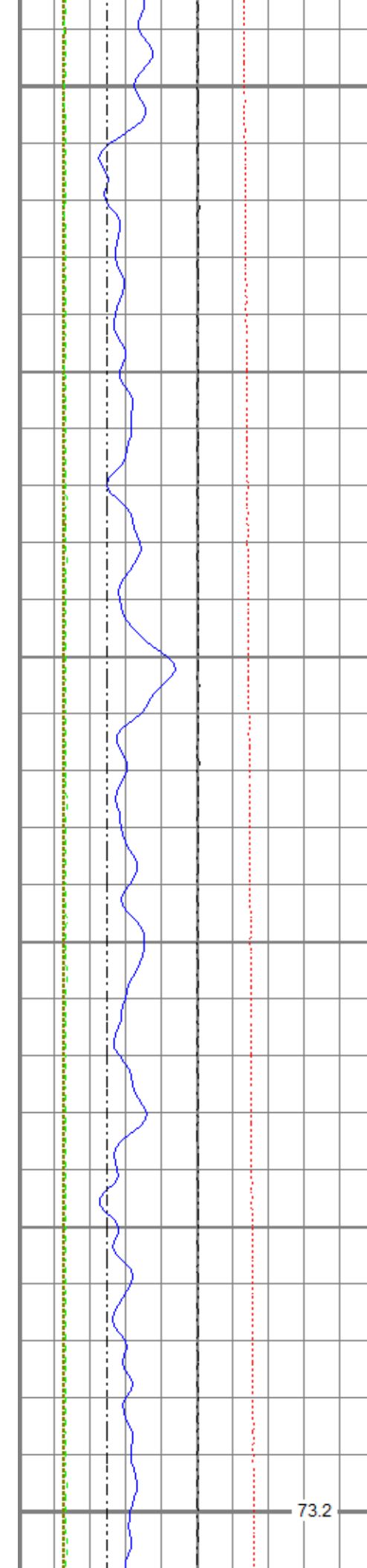


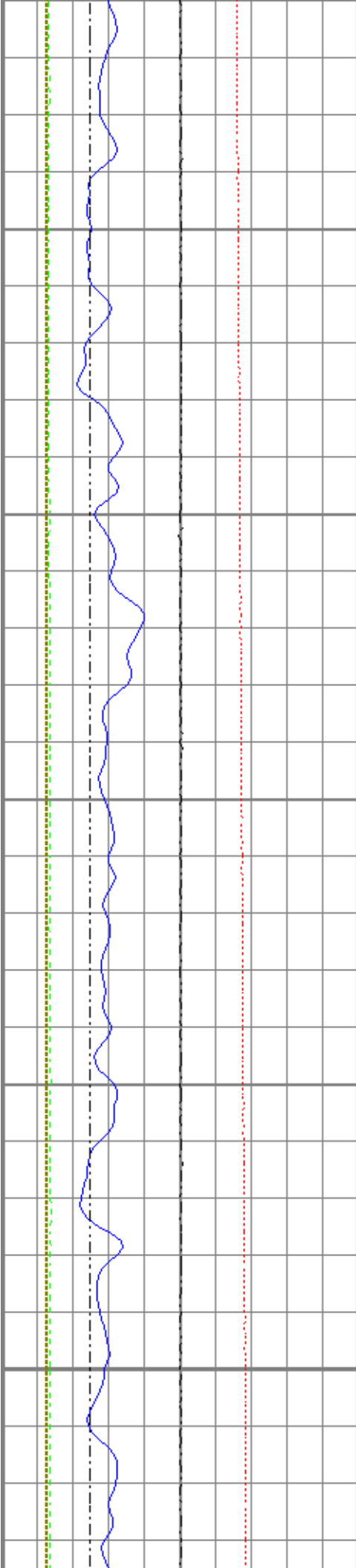


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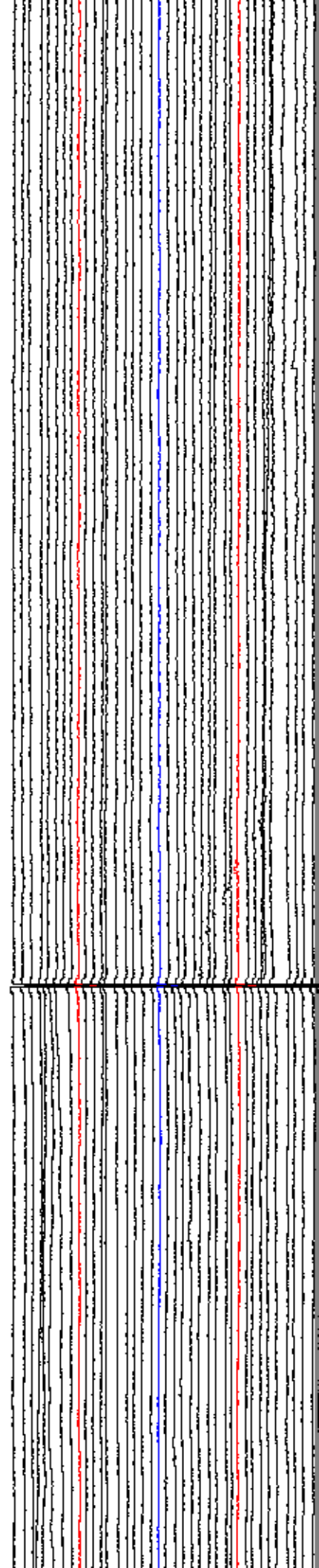
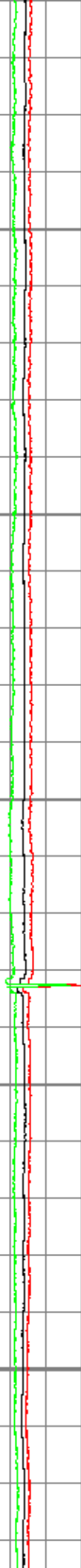
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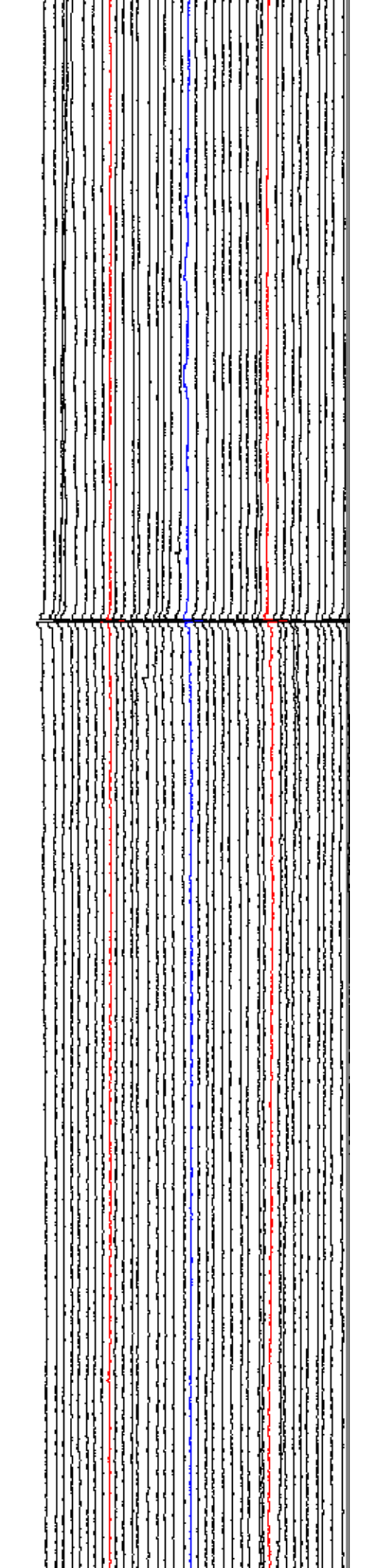
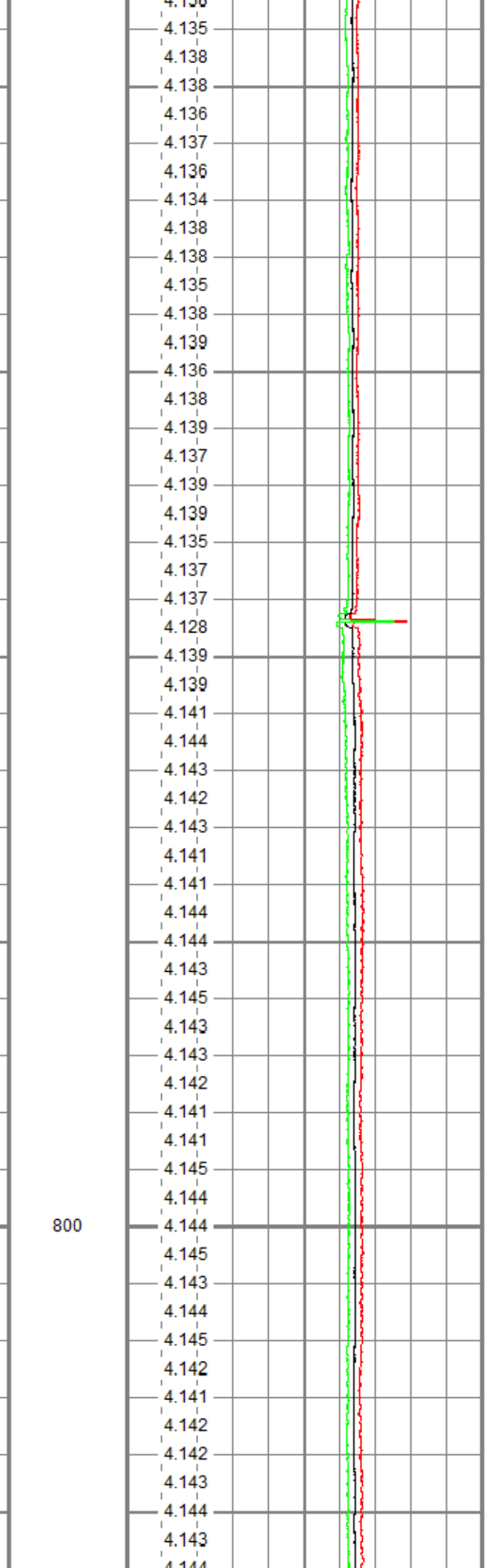
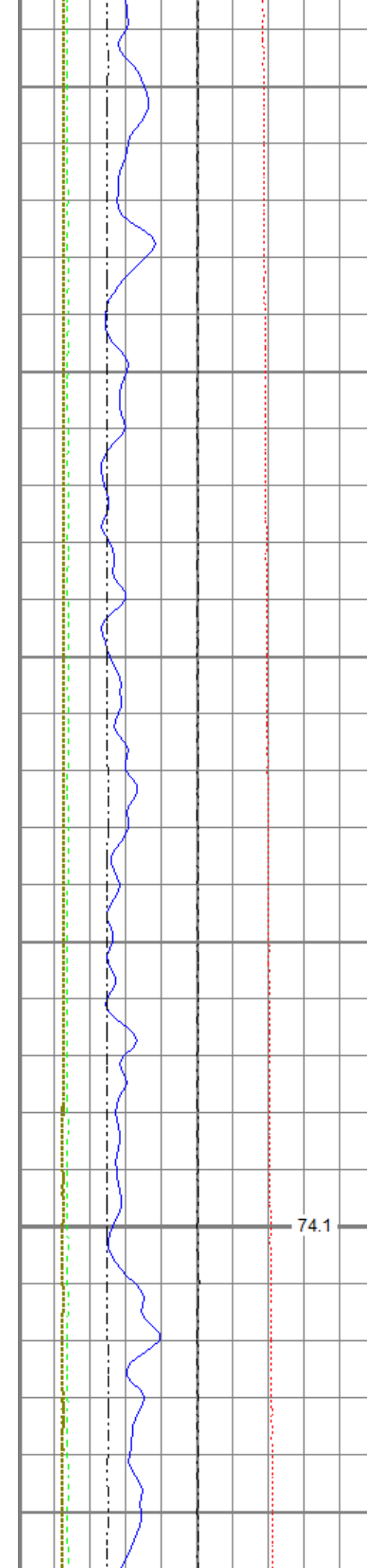


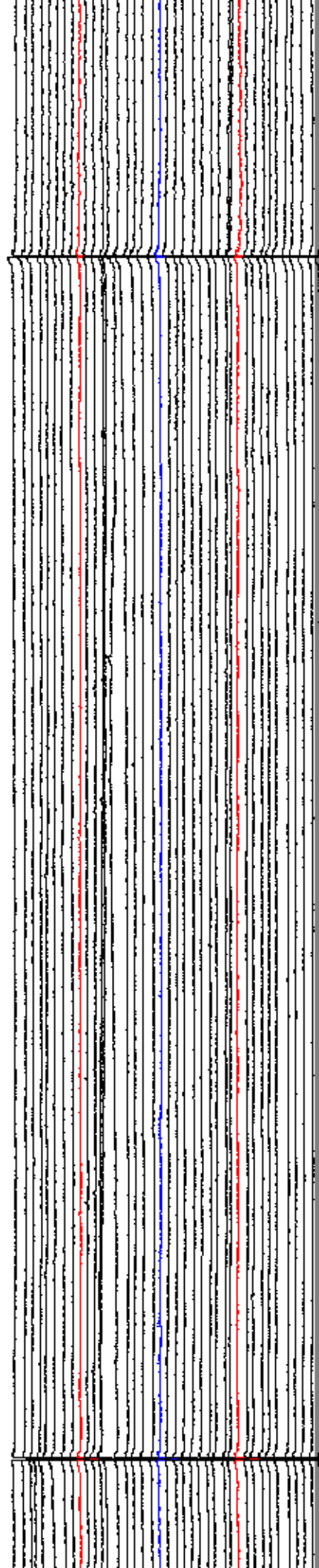
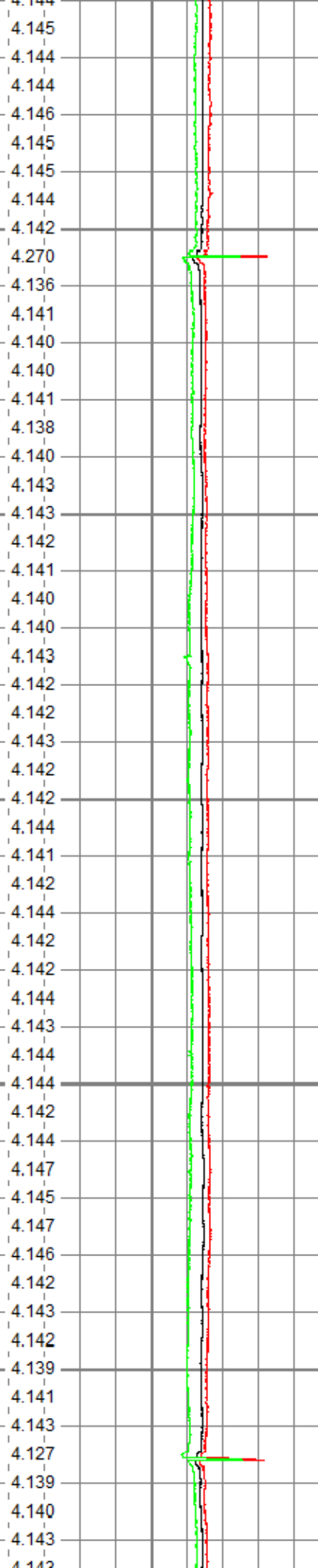
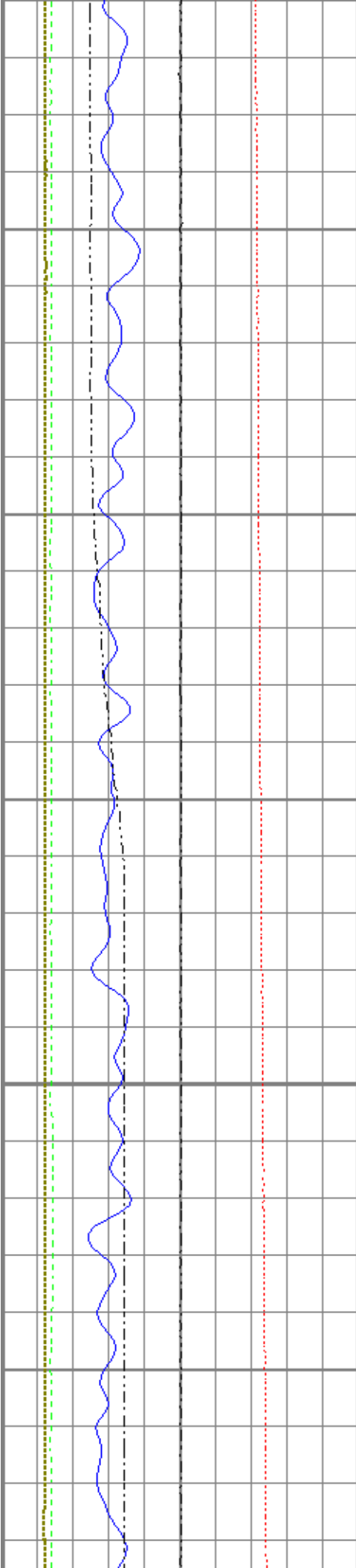


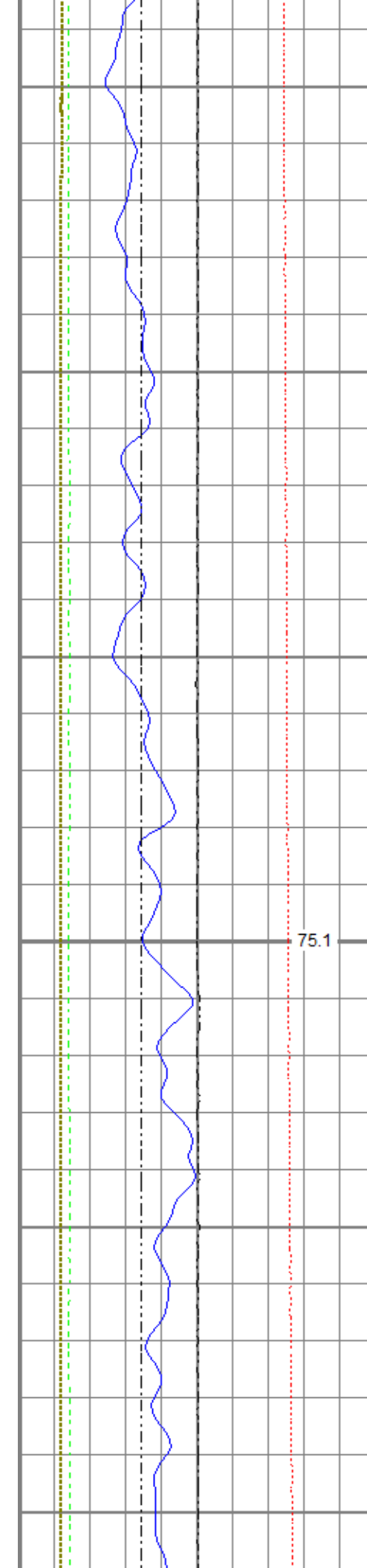


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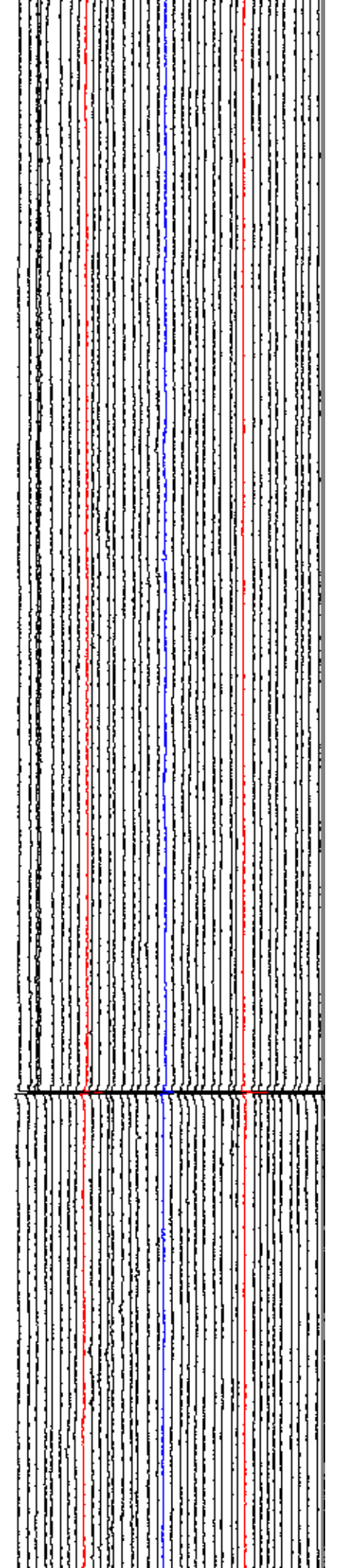
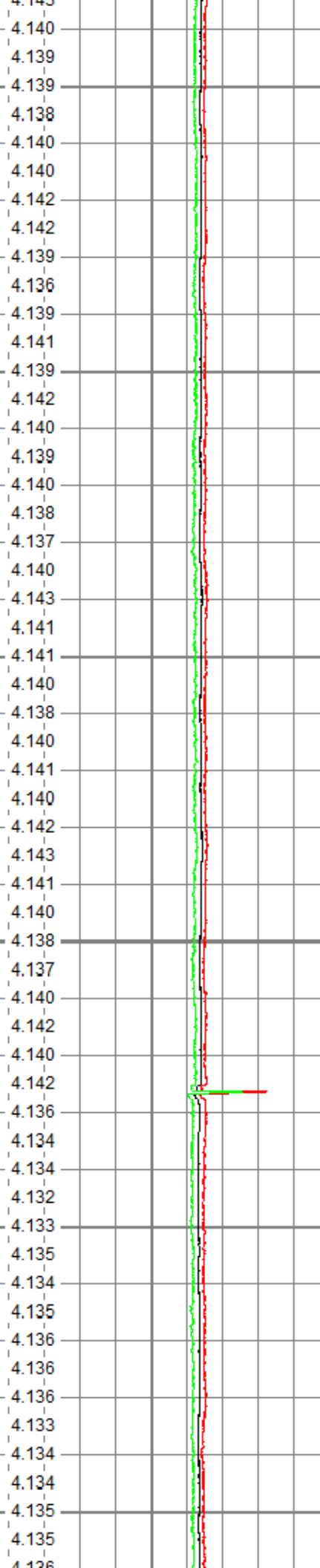


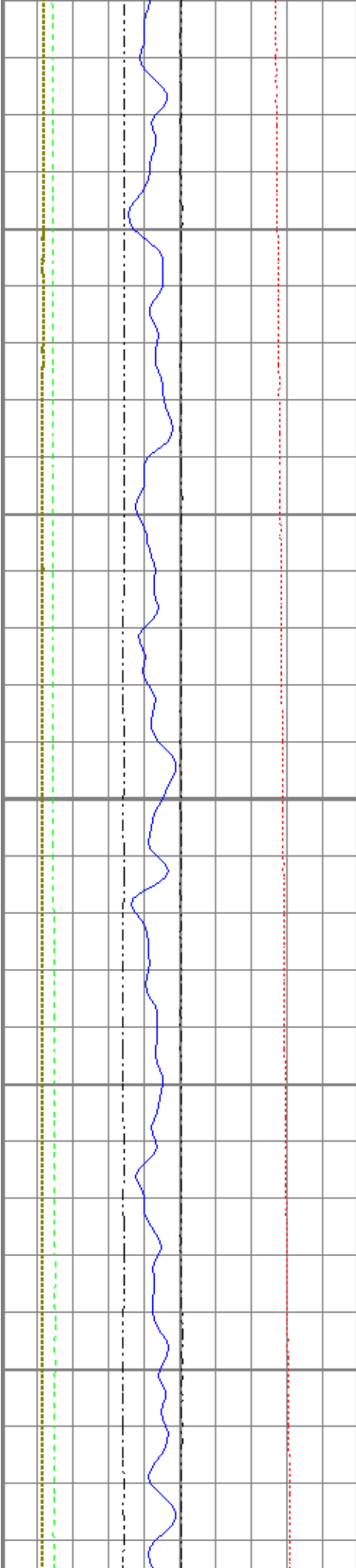




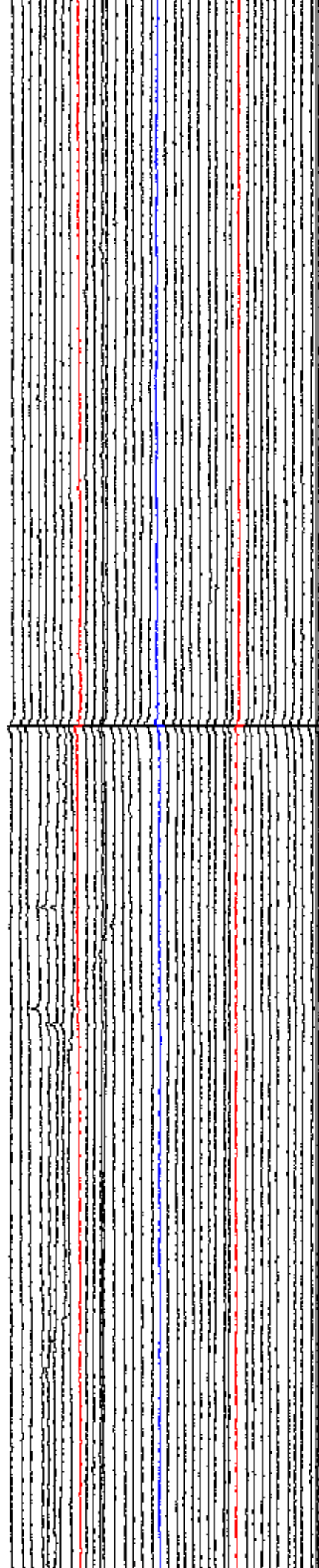
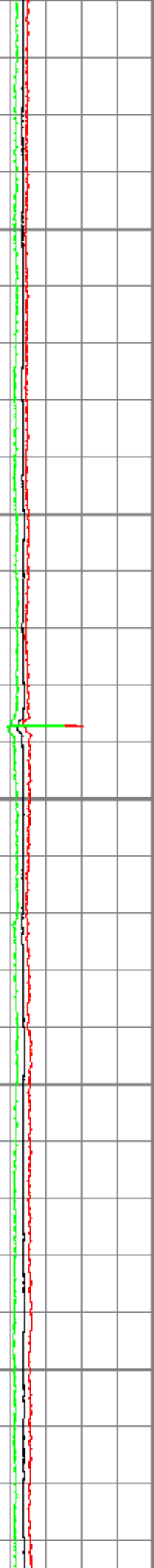
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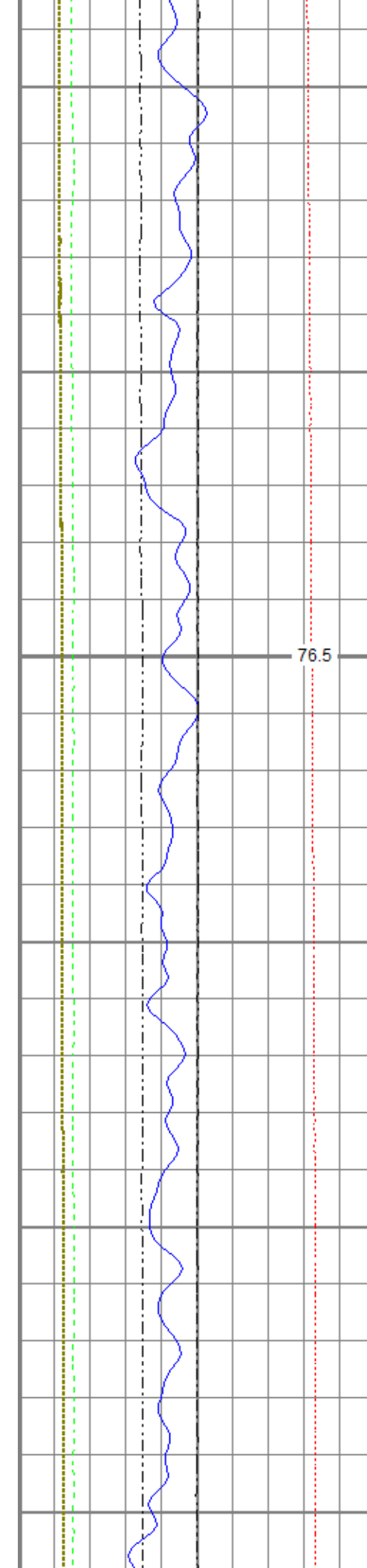
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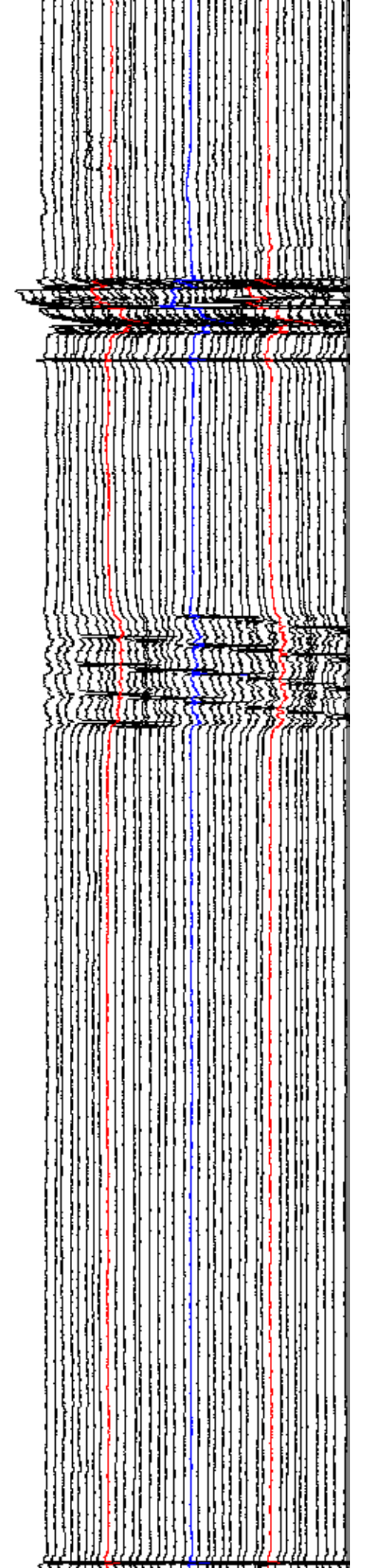
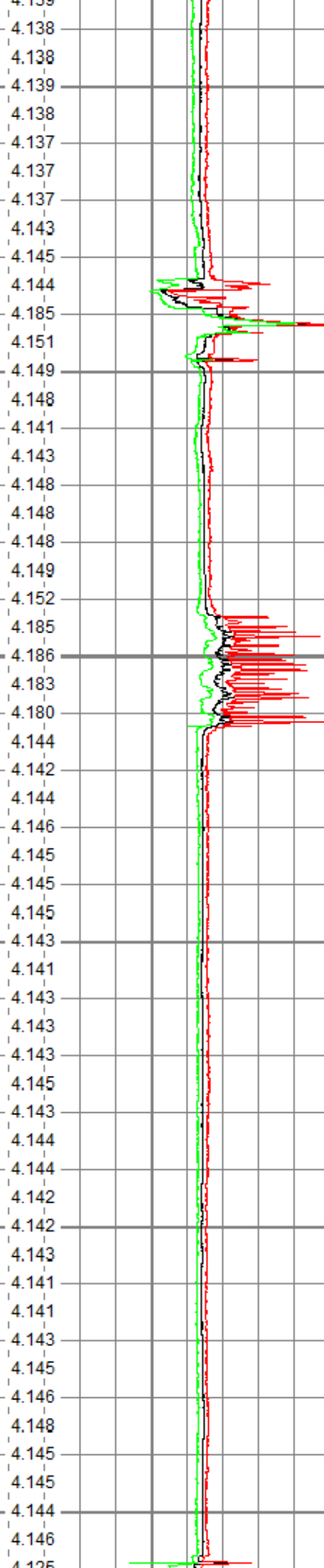


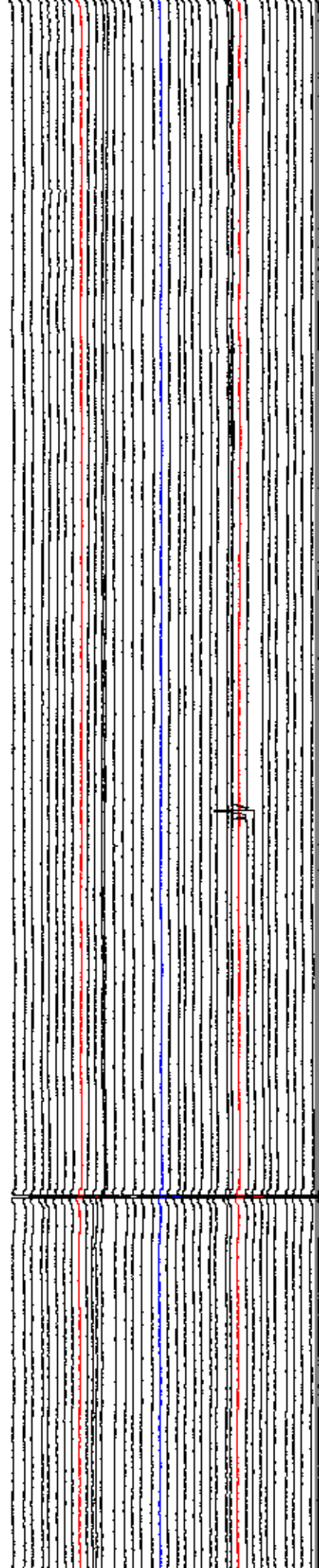
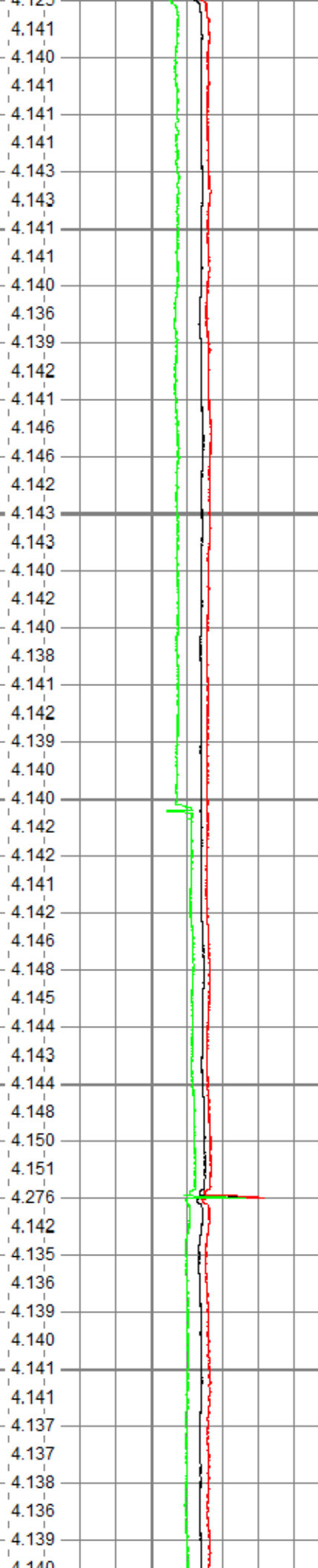
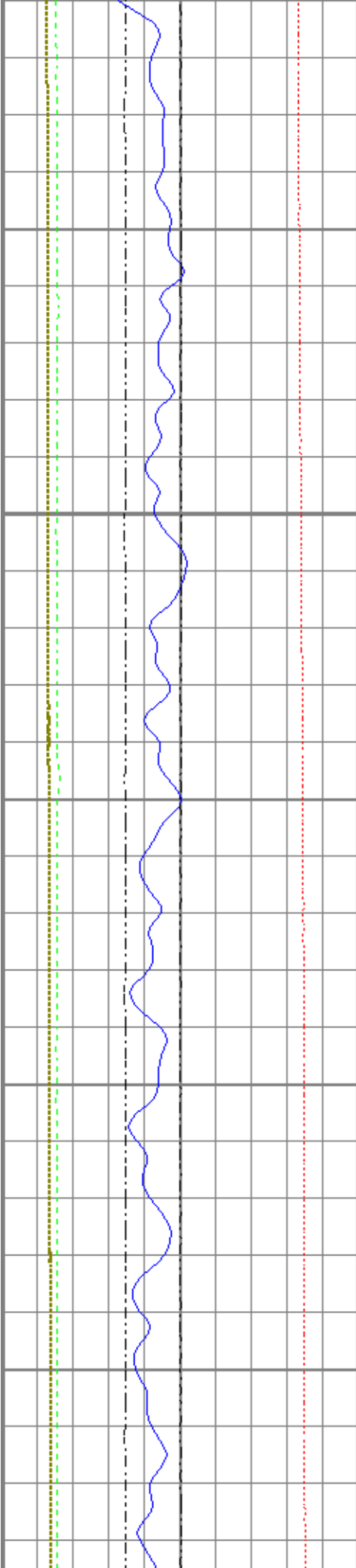
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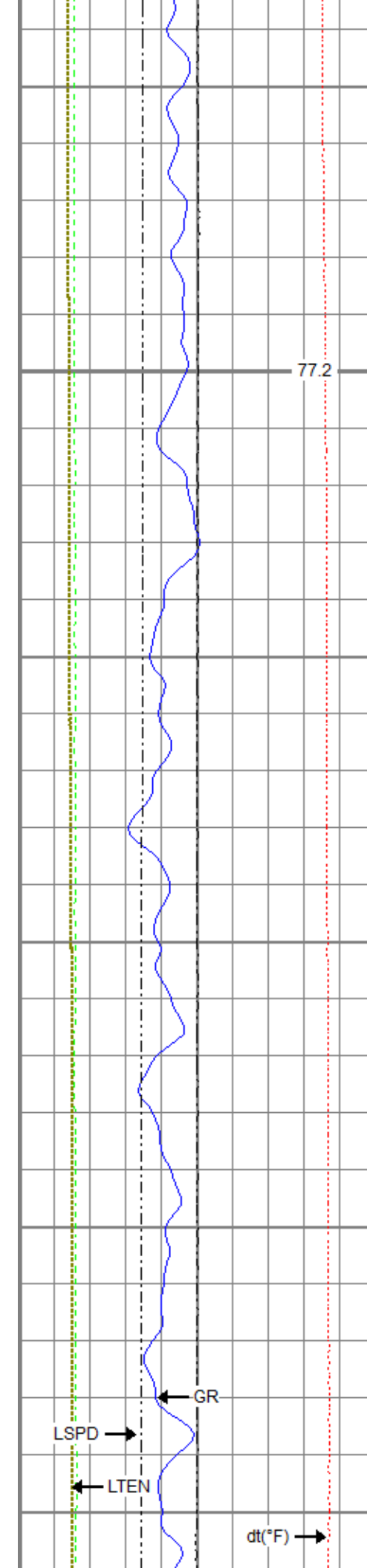


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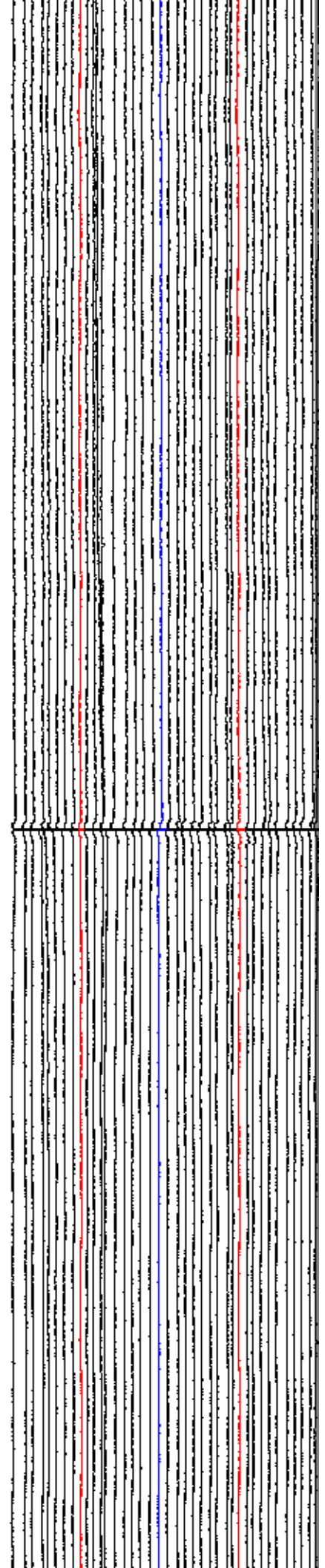
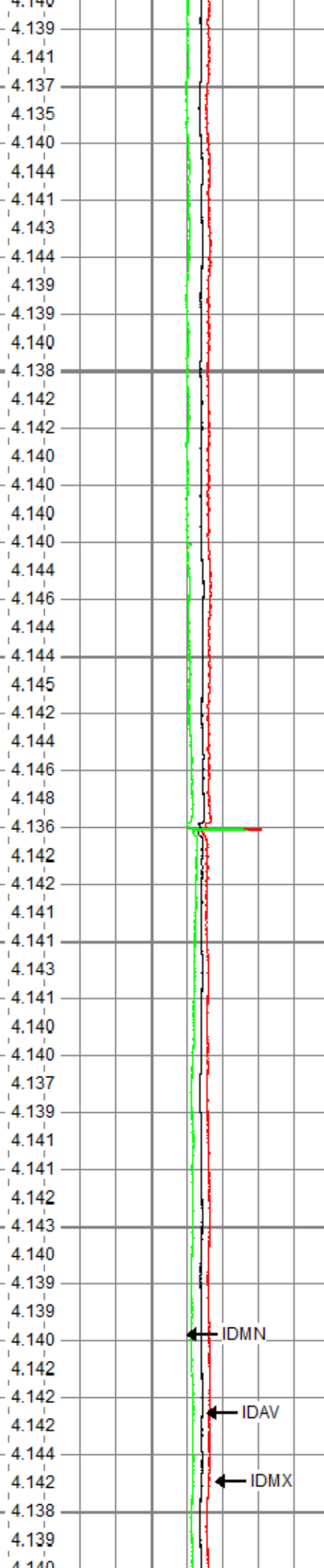


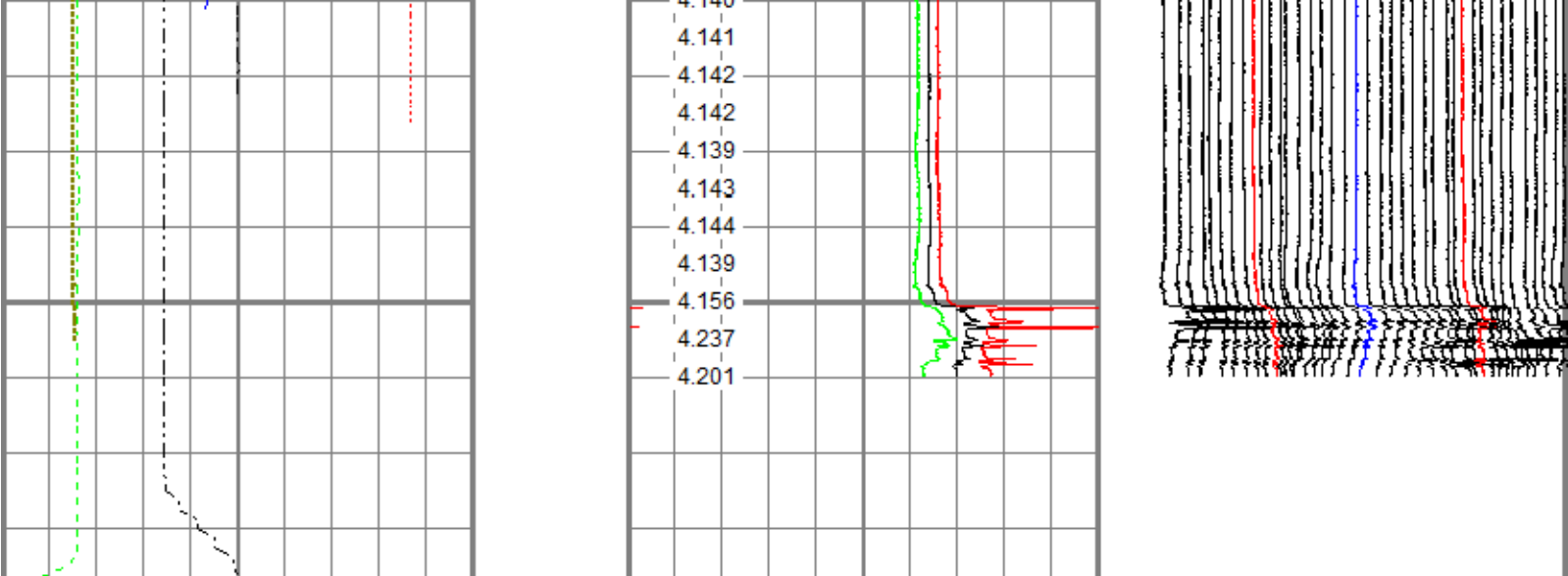


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4.142
4.139
4.140
4.140
4.142
4.142
4.141
4.142
4.146
4.148
4.145
4.144
4.143
4.144
4.148
4.150
4.151
4.276
4.142
4.135
4.136
4.139
4.140
4.141
4.141
4.137
4.137
4.138
4.136
4.139
4.140



1100





0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20

3.5	Average Diameter (in)	4.5
3.5	Maximum Diameter (in)	4.5
3.5	Minimum Diameter (in)	4.5
AVEDIA (in)		

Caliper #10
Caliper #20
Caliper #30



Main Pass - 240 Scale

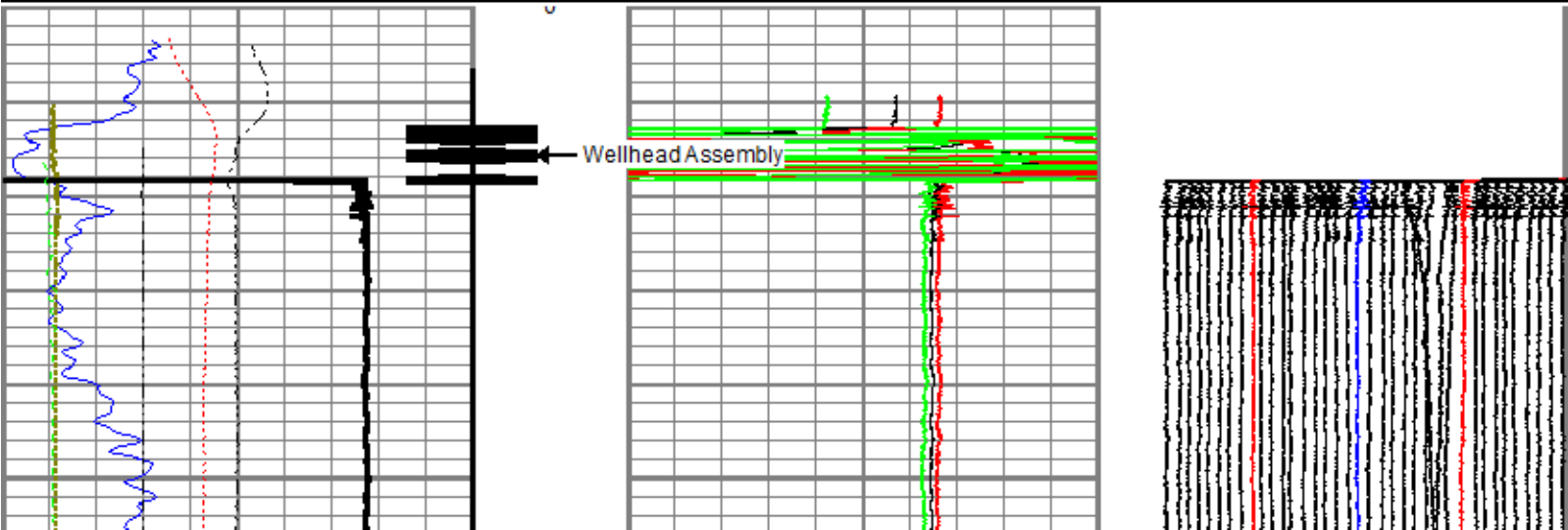
Recorded With No Surface Induced Pressure

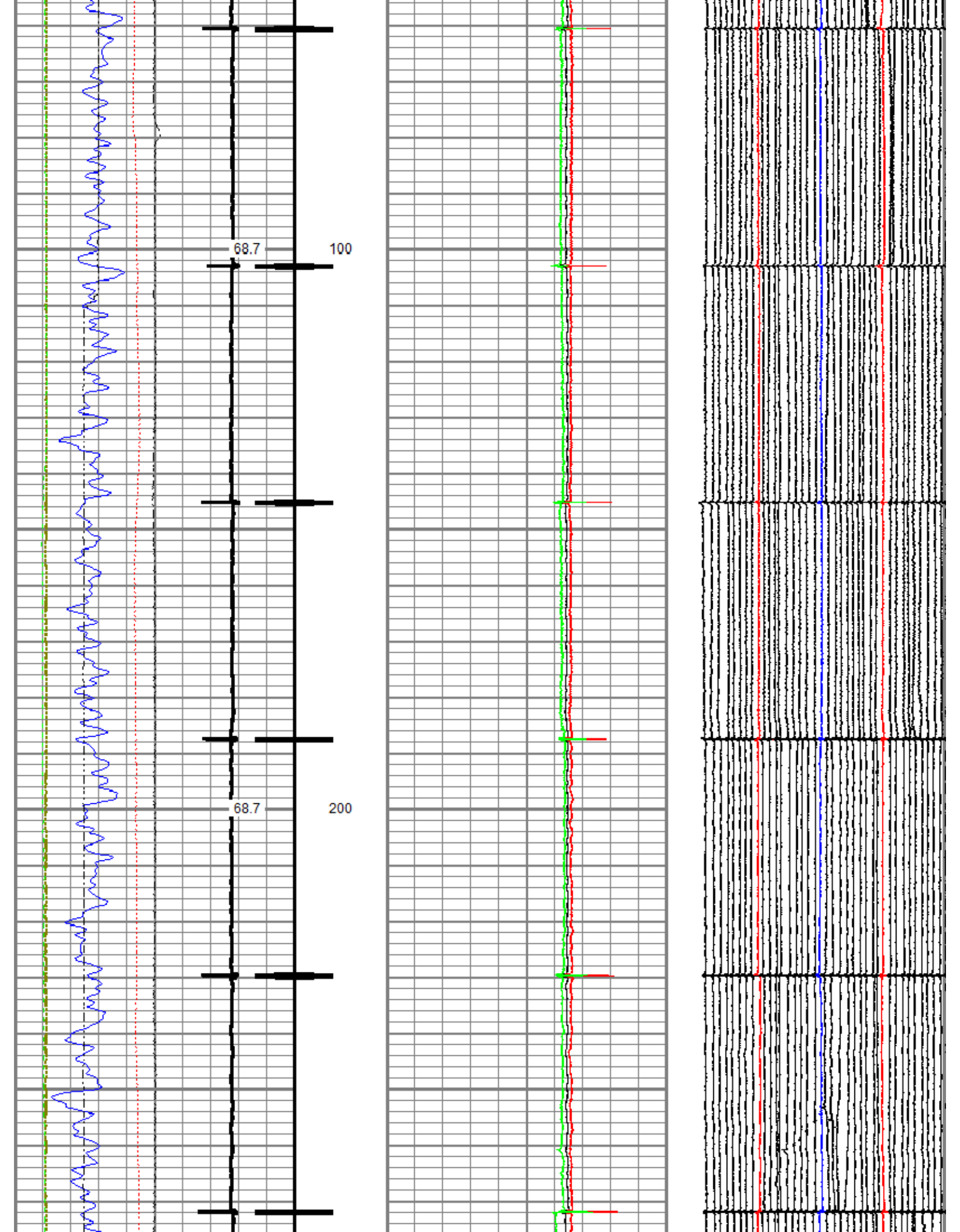
Database File anadarko_pioneer23-12_july-26-2018.db
 Dataset Pathname pass11
 Presentation Format ros_45mit40sx11-6
 Dataset Creation Thu Jul 26 11:56:26 2018
 Charted by Depth in Feet scaled 1:240

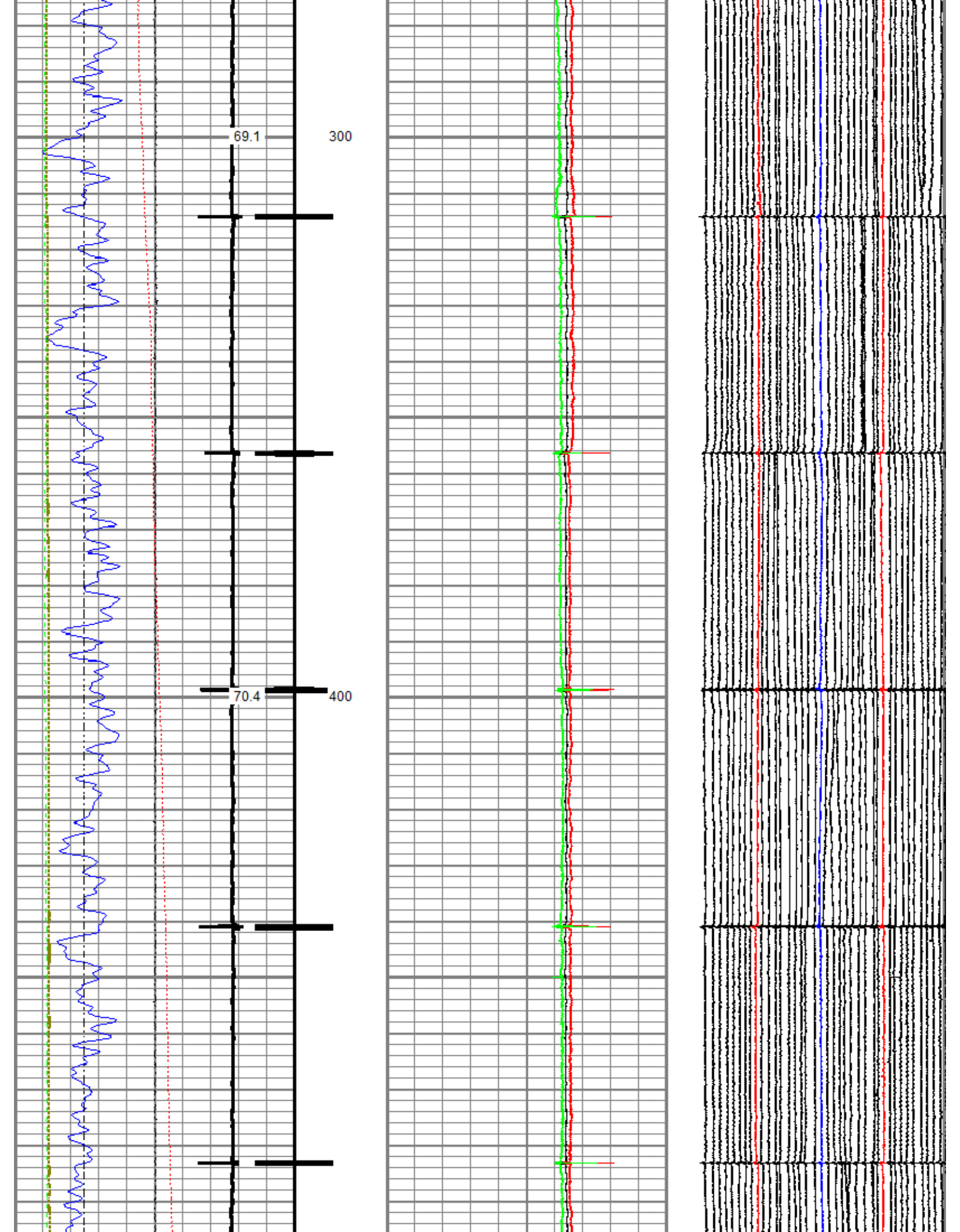
0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
Casing Collar Locator		
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20

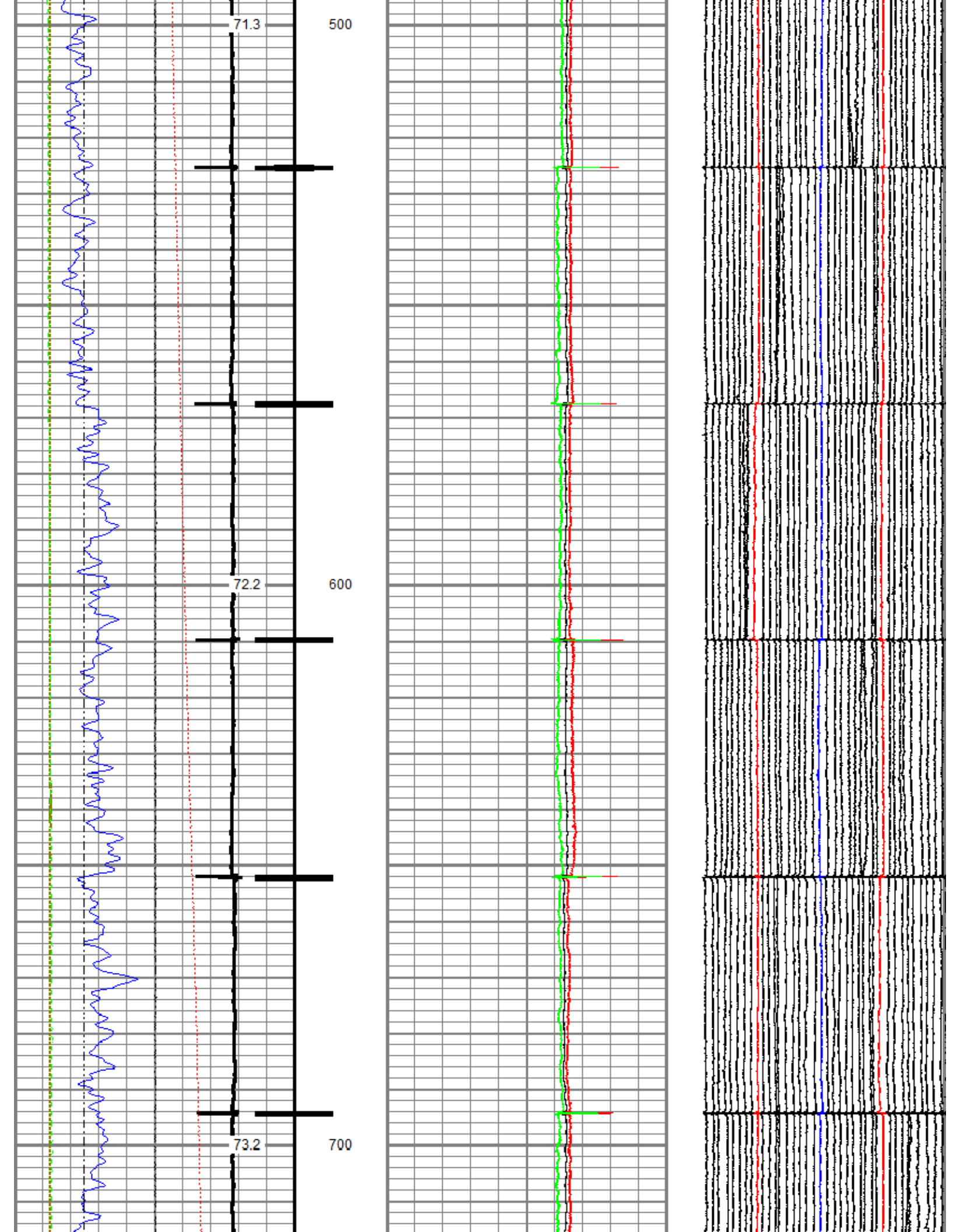
3.5	Average Diameter (in)	4.5
3.5	Maximum Diameter (in)	4.5
3.5	Minimum Diameter (in)	4.5

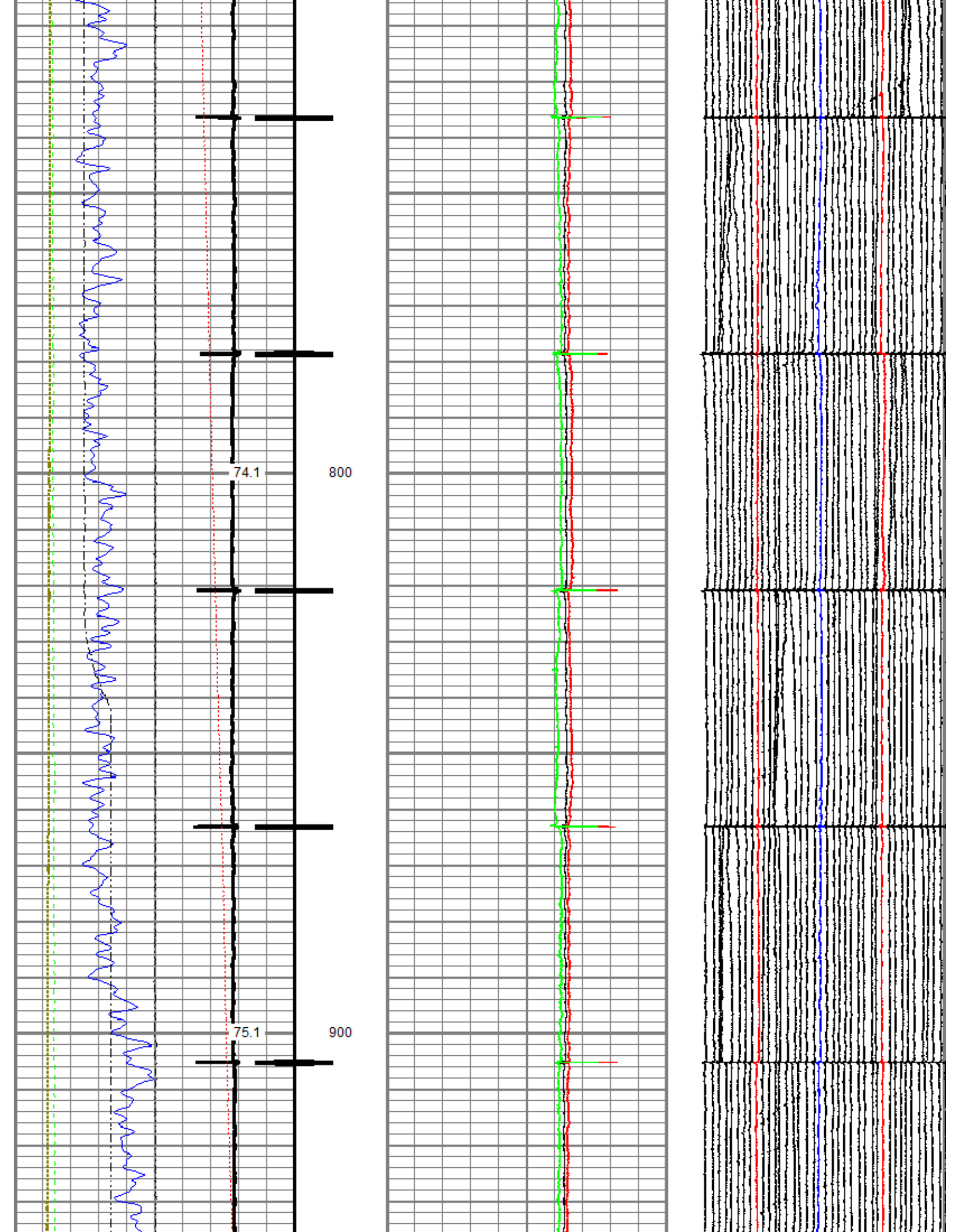
Caliper #10
Caliper #20
Caliper #30

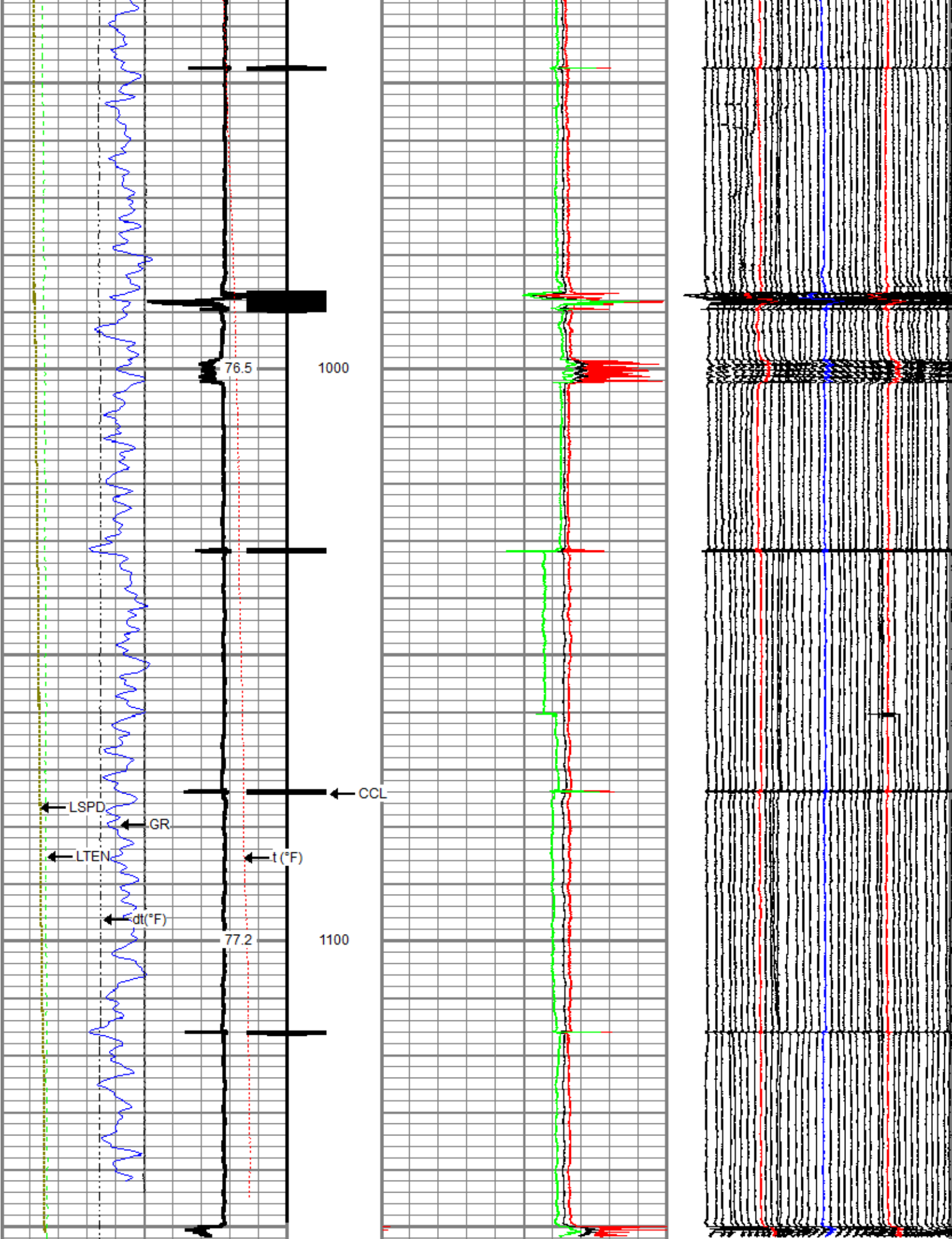












0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
Casing Collar Locator		
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20

3.5	Average Diameter (in)	4.5
3.5	Maximum Diameter (in)	4.5
3.5	Minimum Diameter (in)	4.5

Caliper #10
Caliper #20
Caliper #30



Repeat Section - 240 Scale

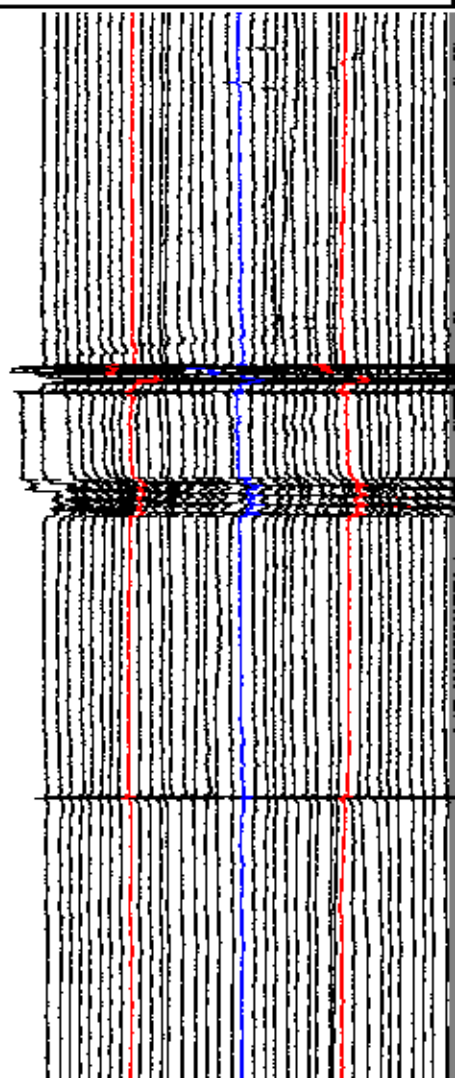
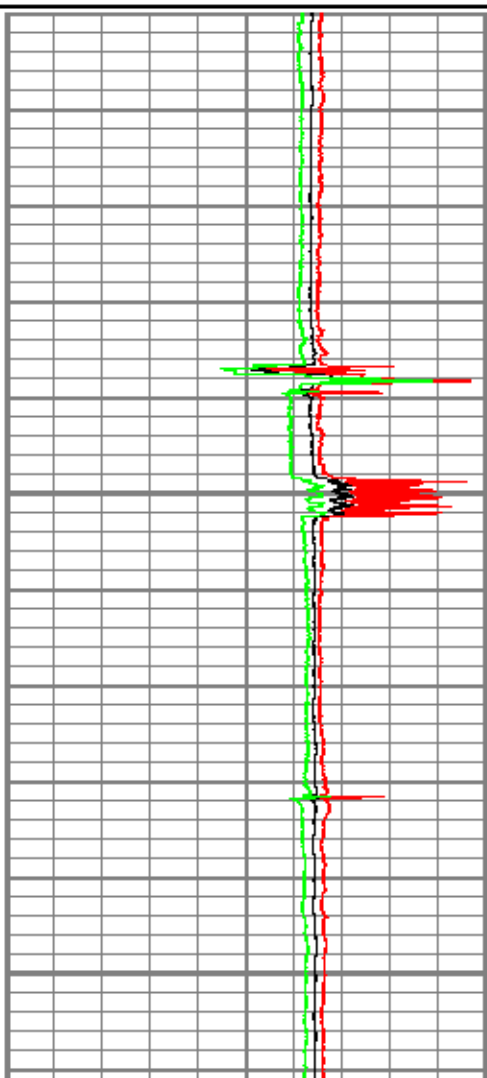
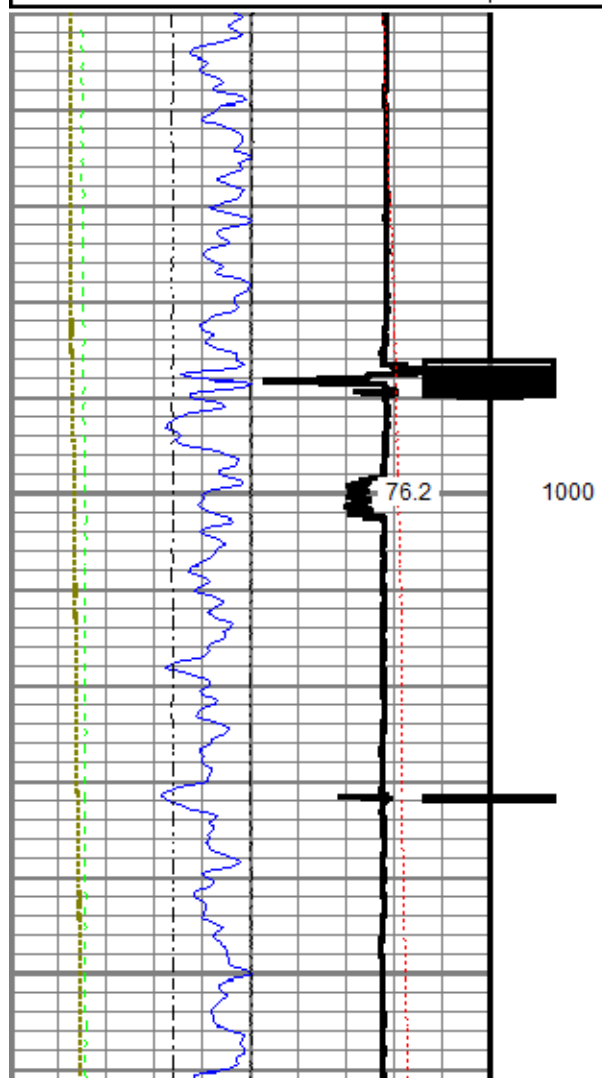
Recorded With No Surface Induced Pressure

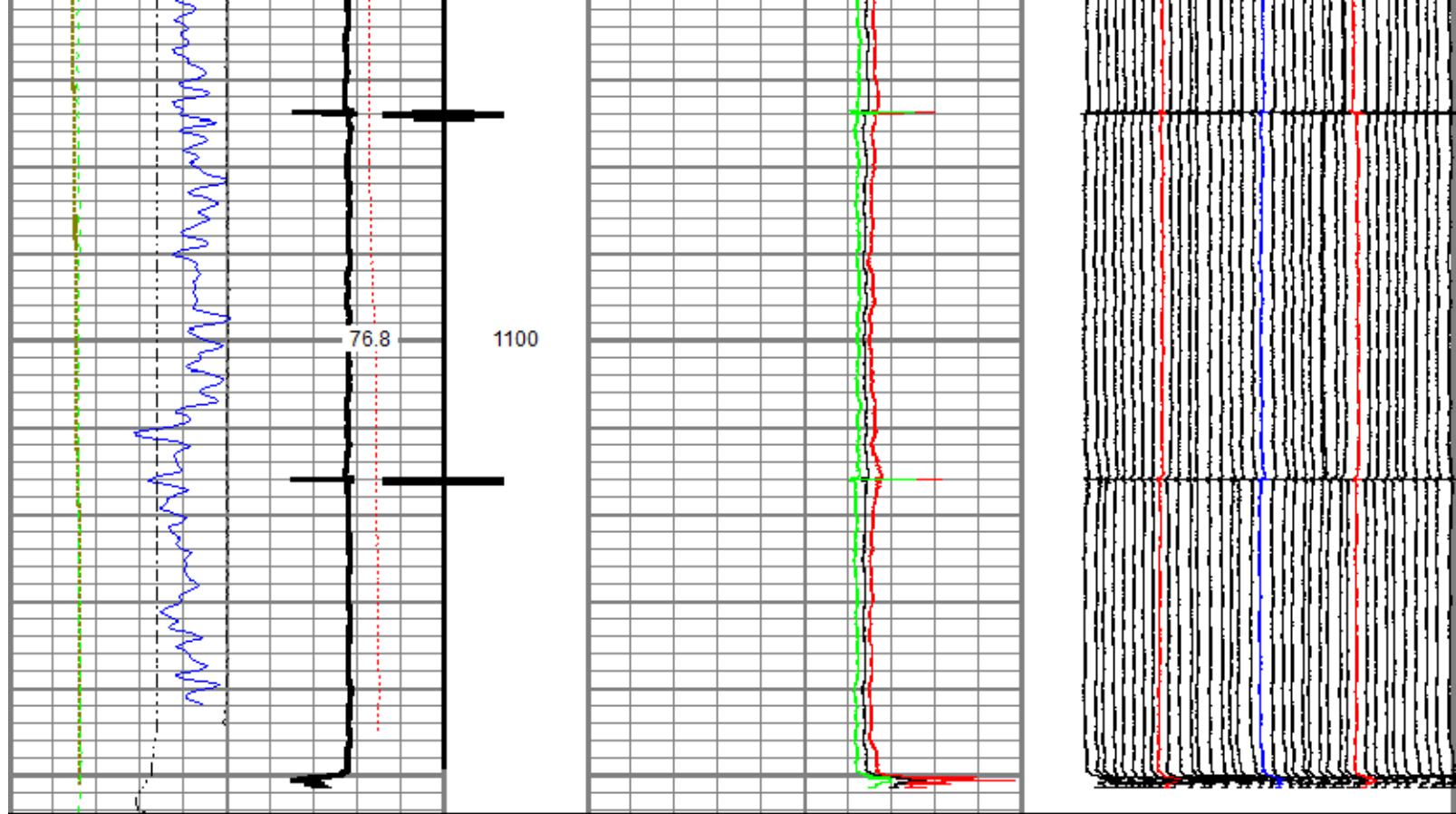
Database File: anadarko_pioneer23-12_july-26-2018.db
 Dataset Pathname: pass9
 Presentation Format: ros_45mit40sx11-6
 Dataset Creation: Thu Jul 26 11:45:28 2018
 Charted by: Depth in Feet scaled 1:240

0	Gamma Ray (GAPI)	120
-100	Line Speed (ft/min)	100
-10	Deviation (deg)	90
Casing Collar Locator		
0	Line Tension (lb)	2000
-2	Differential Temperature (degF)	2
0	Temperature (degF)	20

3.5	Average Diameter (in)	4.5
3.5	Maximum Diameter (in)	4.5
3.5	Minimum Diameter (in)	4.5

Caliper #10
Caliper #20
Caliper #30





0	Gamma Ray (GAPI)	120	3.5	Average Diameter (in)	4.5	Caliper #10
-100	Line Speed (ft/min)	100	3.5	Maximum Diameter (in)	4.5	Caliper #20
-10	Deviation (deg)	90	3.5	Minimum Diameter (in)	4.5	Caliper #30
Casing Collar Locator						
0	Line Tension (lb)	2000				
-2	Differential Temperature (degF)	2				
0	Temperature (degF)	20				

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb)	
GR	13.17		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 CENT-DSS RAC 5 Arm 2-3/4" Roller Centralizer	2.55	2.75	32.00	
			UW XTU-002 (218874) Crossover Ultrawire Toolbus to Ultralink	1.58	1.69	6.50	
			UW PGR-020 (050836) Production Gamma Ray	1.92	1.69	9.50	
TEMP	11.77		UW PRT-016 (10024052) 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
CCL	7.98			UW CCL-028 (10018437) 3-1/8" Ultrawire Casing Collar Locator	1.61	3.13	36.00
MIT	5.27			UW MIT-40 042 E (10012912) 40 Multifinger Imaging Tool Ext.	4.54	2.75	65.00
HVOLTX	0.00			UW CENT-PRC 057 4 Arm 2-3/4" Production Roller Centralizer	2.71	2.75	32.00
ITEMPX	0.00			UW BUL-006 (031422) Sondex Ultrawire Bullnose Terminator Sub	0.22	1.69	1.20
TSTAMP	0.00						

Dataset: anadarko_pioneer23-12_july-26-2018.db: field/well/run1/pass12
 Total length: 19.96 ft
 Total weight: 224.00 lb
 O.D.: 3.13 in

Calibration Report

Database File: anadarko_pioneer23-12_july-26-2018.db
 Dataset Pathname: pass12
 Dataset Creation: Thu Jul 26 12:28:48 2018

Multifinger Imaging Tool Calibration Report

Serial Number: 10012912
 Number of Fingers: 40
 Tool Model: 40 042 E

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: Thu Jul 26 08:21:24 2018

Ring size: (in)	4	Sens	5	Sens	6	Sens	7
Finger 01:	1045	353.0	1398	390.0	1788	411.0	2199
Finger 02:	1194	365.0	1559	390.0	1949	406.0	2355
Finger 03:	1085	373.0	1458	408.0	1866	431.0	2297
Finger 04:	1136	367.0	1503	400.0	1903	420.0	2323
Finger 05:	1148	373.0	1521	402.0	1923	419.0	2342
Finger 06:	1163	373.0	1536	404.0	1940	420.0	2360
Finger 07:	1156	379.0	1535	408.0	1943	418.0	2361
Finger 08:	1196	375.0	1571	399.0	1970	417.0	2387
Finger 09:	1186	378.0	1564	399.0	1963	415.0	2378
Finger 10:	1196	376.0	1572	401.0	1973	413.0	2386
Finger 11:	1193	373.0	1566	394.0	1960	409.0	2369
Finger 12:	1191	375.0	1566	396.0	1962	411.0	2373
Finger 13:	1196	372.0	1568	391.0	1959	398.0	2357
Finger 14:	1174	378.0	1552	401.0	1953	411.0	2364
Finger 15:	1117	381.0	1498	411.0	1909	427.0	2336
Finger 16:	1109	378.0	1487	409.0	1896	424.0	2320
Finger 17:	1009	354.0	1363	394.0	1757	424.0	2181
Finger 18:	1131	362.0	1493	390.0	1883	410.0	2293
Finger 19:	1078	364.0	1442	394.0	1836	414.0	2250
Finger 20:	1052	367.0	1419	402.0	1821	425.0	2246
Finger 21:	1038	368.0	1406	399.0	1805	409.0	2214
Finger 22:	994	367.0	1361	402.0	1763	426.0	2189
Finger 23:	935	357.0	1292	407.0	1699	439.0	2138
Finger 24:	1001	355.0	1356	388.0	1744	404.0	2148
Finger 25:	928	351.0	1279	402.0	1681	434.0	2115
Finger 26:	1041	344.0	1385	377.0	1762	397.0	2159
Finger 27:	969	349.0	1318	394.0	1712	419.0	2131
Finger 28:	991	346.0	1337	381.0	1718	408.0	2126
Finger 29:	921	346.0	1267	396.0	1663	426.0	2089
Finger 30:	950	345.0	1295	389.0	1684	418.0	2102
Finger 31:	983	345.0	1328	383.0	1711	412.0	2123
Finger 32:	1036	372.0	1408	416.0	1824	441.0	2265
Finger 33:	1043	347.0	1390	378.0	1768	391.0	2159
Finger 34:	990	352.0	1342	398.0	1740	423.0	2163
Finger 35:	884	323.0	1207	374.0	1581	412.0	1993
Finger 36:	979	359.0	1338	396.0	1734	430.0	2164
Finger 37:	1041	356.0	1397	392.0	1789	415.0	2204
Finger 38:	1076	352.0	1428	385.0	1813	405.0	2218
Finger 39:	1100	356.0	1456	385.0	1841	407.0	2248
Finger 40:	1071	365.0	1436	399.0	1835	422.0	2257

Post Survey Calibration Check

Performed:

Thu Jul 26 12:28:31 2018

Ring size: (in)	4	Nom. wear	5	Nom. wear	6	Nom. wear	7	Nom. wear
Finger 01:	4.043	0.021	5.036	0.018	6.026	0.013	7.033	0.017
Finger 02:	4.047	0.024	5.043	0.021	6.038	0.019	7.039	0.020
Finger 03:	4.053	0.026	5.043	0.021	6.036	0.018	7.037	0.018
Finger 04:	4.055	0.028	5.047	0.023	6.032	0.016	7.039	0.019
Finger 05:	4.054	0.027	5.041	0.021	6.037	0.018	7.043	0.022
Finger 06:	4.040	0.020	5.044	0.022	6.036	0.018	7.035	0.017
Finger 07:	4.040	0.020	5.046	0.023	6.033	0.016	7.040	0.020
Finger 08:	4.044	0.022	5.037	0.019	6.029	0.015	7.042	0.021
Finger 09:	4.049	0.025	5.044	0.022	6.039	0.020	7.043	0.022
Finger 10:	4.048	0.024	5.041	0.020	6.034	0.017	7.041	0.020
Finger 11:	4.040	0.020	5.038	0.019	6.035	0.018	7.033	0.017
Finger 12:	4.045	0.023	5.035	0.018	6.027	0.013	7.025	0.013
Finger 13:	4.044	0.022	5.031	0.016	6.023	0.011	7.030	0.015
Finger 14:	4.029	0.014	5.017	0.009	6.008	0.004	7.014	0.007
Finger 15:	4.045	0.023	5.039	0.020	6.032	0.016	7.033	0.017
Finger 16:	4.043	0.022	5.041	0.021	6.031	0.015	7.036	0.018
Finger 17:	4.046	0.023	5.038	0.019	6.031	0.015	7.041	0.021
Finger 18:	4.043	0.022	5.042	0.021	6.042	0.021	7.035	0.017
Finger 19:	4.059	0.030	5.045	0.023	6.038	0.019	7.042	0.021
Finger 20:	4.047	0.024	5.038	0.019	6.030	0.015	7.031	0.016
Finger 21:	4.047	0.023	5.040	0.020	6.036	0.018	7.040	0.020
Finger 22:	4.049	0.024	5.041	0.021	6.035	0.017	7.037	0.019
Finger 23:	4.046	0.023	5.045	0.022	6.035	0.018	7.037	0.018
Finger 24:	4.060	0.030	5.050	0.025	6.041	0.020	7.039	0.019
Finger 25:	4.041	0.021	5.046	0.023	6.030	0.015	7.039	0.020

Finger 26:	4.049	0.024	5.043	0.022	6.037	0.018	7.032	0.016
Finger 27:	4.047	0.024	5.041	0.021	6.034	0.017	7.037	0.019
Finger 28:	4.057	0.028	5.047	0.023	6.037	0.019	7.033	0.016
Finger 29:	4.041	0.021	5.032	0.016	6.030	0.015	7.044	0.022
Finger 30:	4.041	0.021	5.034	0.017	6.022	0.011	7.034	0.017
Finger 31:	4.042	0.021	5.036	0.018	6.029	0.014	7.036	0.018
Finger 32:	4.040	0.020	5.033	0.017	6.032	0.016	7.034	0.017
Finger 33:	4.044	0.022	5.039	0.019	6.028	0.014	7.033	0.017
Finger 34:	4.041	0.021	5.037	0.019	6.029	0.015	7.037	0.018
Finger 35:	4.029	0.015	5.027	0.014	6.020	0.010	7.030	0.015
Finger 36:	4.045	0.023	5.034	0.017	6.030	0.015	7.029	0.015
Finger 37:	4.045	0.023	5.041	0.021	6.030	0.015	7.038	0.019
Finger 38:	4.047	0.023	5.041	0.020	6.037	0.018	7.033	0.017
Finger 39:	4.061	0.031	5.047	0.024	6.041	0.021	7.034	0.017
Finger 40:	4.052	0.026	5.042	0.021	6.036	0.018	7.030	0.015
Average:	4.046	0.023	5.040	0.020	6.032	0.016	7.035	0.018

Temperature Calibration Report

Serial Number: 10024052
Tool Model: 016
Performed: Sun Nov 12 14:11:08 2017

Point #	Reading		Reference	
1	12242.00	cps	68.00	degF
2	18329.00	cps	104.00	degF
3	29563.00	cps	176.00	degF
4	41222.00	cps	248.00	degF
5	52988.00	cps	320.00	degF
6	58824.00	cps	356.00	degF
7		cps		degF
8		cps		degF
9		cps		degF
10		cps		degF

Gamma Ray Calibration Report

Serial Number: 050836
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 Pioneer 23-12
Field Wattenberg
County Weld
State Colorado