



**Weatherford**

Dual Resistivity - Sonic

Density - Neutron

1:200

COMPANY	Santos & Partners		
WELL	Marmbulligan 1		
FIELD	Marmbulligan		
PROVINCE/COUNTY			
COUNTRY/STATE	Northern Territory		
LOCATION	OT Downs Basin		
Latitude	16°11'58.80" S	Other Services	
Longitude	134°46'18.80" E	Dipmeter Acoustic Scanner	
Permanent Datum , Elevation 130 metres			
Log Measured From GL			
Drilling Measured From Surface			
Date	14-SEPT-2016		
Run Number	1		
Service Order			
Depth Driller	674.80	metres	
Depth Logger	675.32	metres	
First Reading	675.20	metres	
Last Reading	5.00	metres	
Casing Driller	106.70	metres	
Casing Logger	106.80	metres	
Bit Size	3.875	inches	
Hole Fluid Type	KCL		
Density / Viscosity	1.08 g/c3	31.00	
PH / Fluid Loss			
Sample Source	TANKS		
Rm @ Measured Temp	0.066 @ 25.0	ohm-m	
Rmf @ Measured Temp	0.061 @ 25.0	ohm-m	
Rmc @ Measured Temp	0.099 @ 25.0	ohm-m	
Source Rmf / Rmc	CALC	CALC	
Rm @ BHT	0.041 @ 56.0	ohm-m	
Time Since Circulation	1 HRS 15 MIN		
Max Recorded Temp	56.00	deg C	
Equipment / Base	377	EMD	
Recorded By	Duncan Hinton		
Witnessed By	Paul McGliveray	Nick Howlett	
STOP CIRC	12:00 14-SEPT-2016		

BOREHOLE RECORD			Last Edited: 15-SEP-2016 02:07
Bit Size inches	Depth From metres	Depth To metres	
8.500	0.00	107.70	
3.780	107.70	674.80	
CASING RECORD			
Type	Size inches	Depth From metres	Shoe Depth metres
SURFACE	4.500	0.00	106.70
			Weight pounds/ft
			11.42

REMARKS
# RUN NUMBER 1 IS THE PRIMARY DEPTH REFERENCE LOG. ALL OTHER RUNS ARE CORRELATED BACK TO THIS LOG.
# CUSTOMER SCALES AND INTERVALS LOGGED
# RUN 1: SQD, VO4 - Tool Bridged at 109.7M - POOH and wait on wiper trip
# RUN 2: DUMMY - Tool Bridged at 135.1M - POOH and wait on wiper trip
# RUN 3: SQD, VO4 - TIME ON BOTTOM 13:30 / 14 SEPT 2016 - VO4/SQD - 341/433 - Calibrated 3 August 2016 - MAX TEMP ON RUN 56 DEG C

# RUN 4: RR5  
- TIME ON BOTTOM 17:00 / 14 SEPT 2016  
- RR5 - 595 - Calibrated 5 Aug 2016

# RUN 5: MS2  
- TIME ON BOTTOM 19:00 / 14 SEPT 2016  
- MS2 - 422  
- MAX TEMP ON RUN 56 DEG C

# RUN 6: DD6  
- TIME ON BOTTOM 22:05 / 14 SEPT 2016  
- DD6 - 733 - Calibrated 3 August 2016  
- MAX TEMP ON RUN 56 DEG C

# RUN 7: NN2  
- TIME ON BOTTOM 01:10 / 15 SEPT 2016  
- NN2 - 549 - Calibrated 3 August 2016  
- MAX TEMP ON RUN 56 DEG C

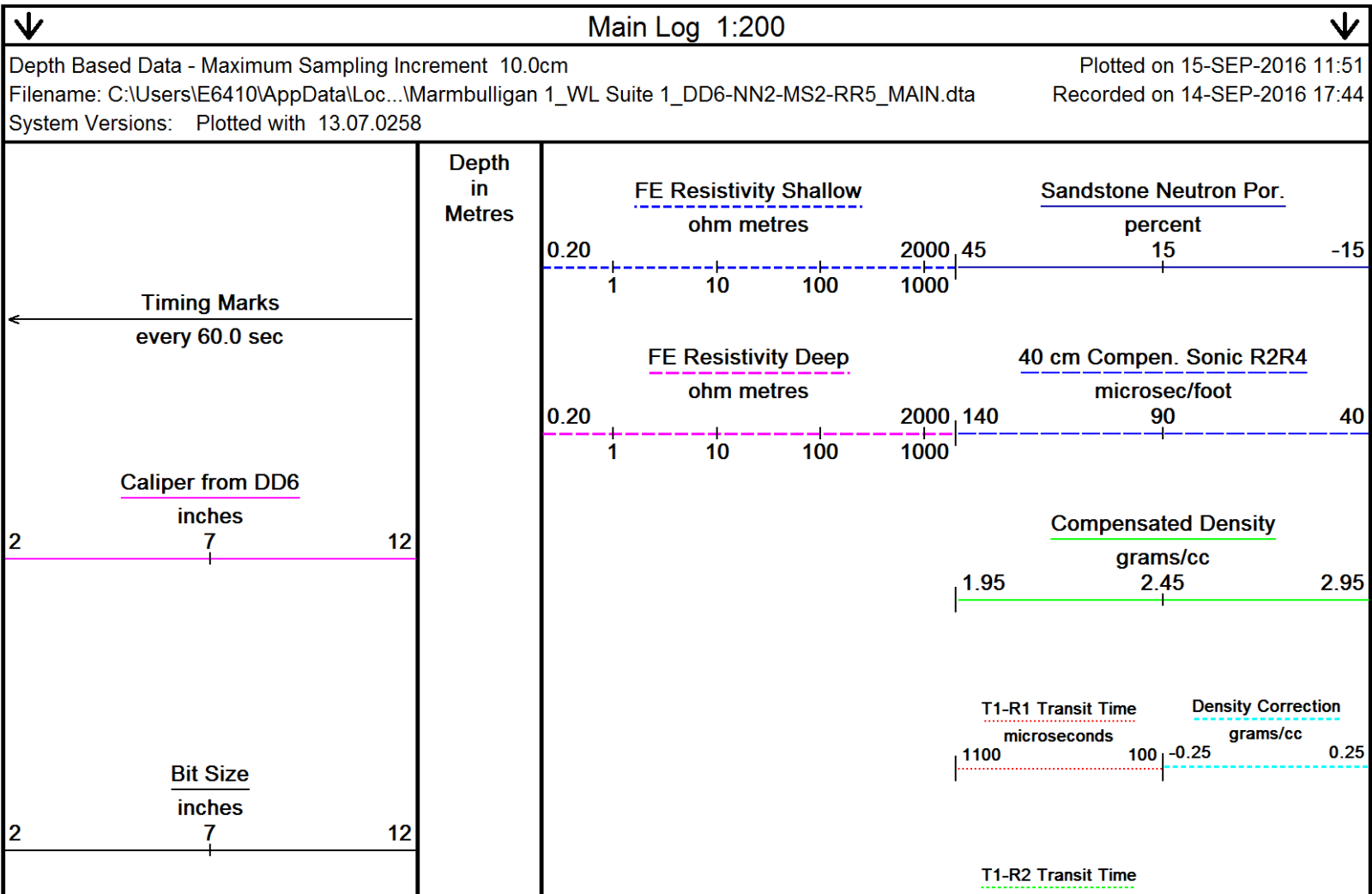
# RUN 8: ATV  
- TIME ON BOTTOM 04:20 / 15 SEPT 2016  
- ATV - 100804

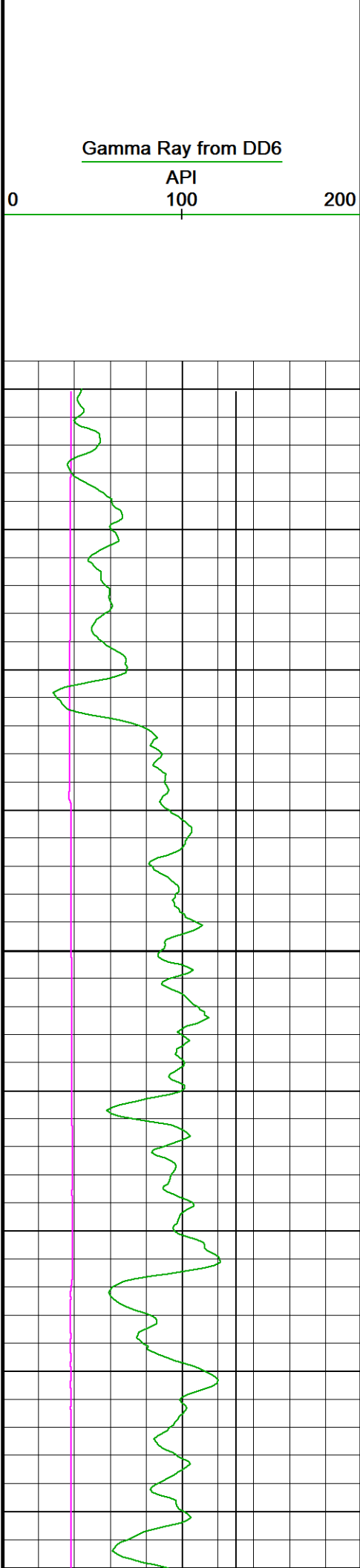
# RIG: FORACO 12

# NO REPEAT SECTION LOGGED AS PER CLIENT REQUIRMENT

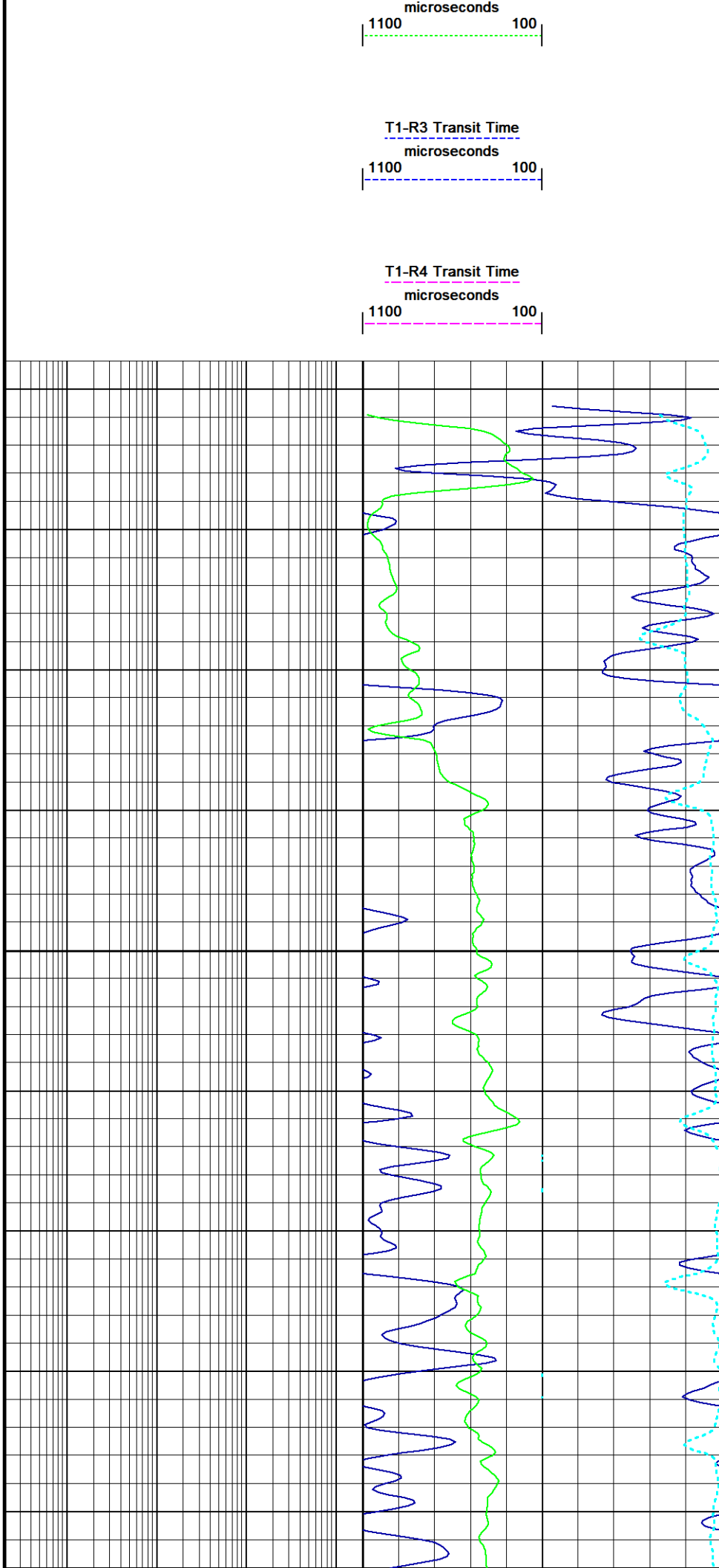
# LOGGING CREW: ENGINEER - D. HINTON; N. HOWLETT

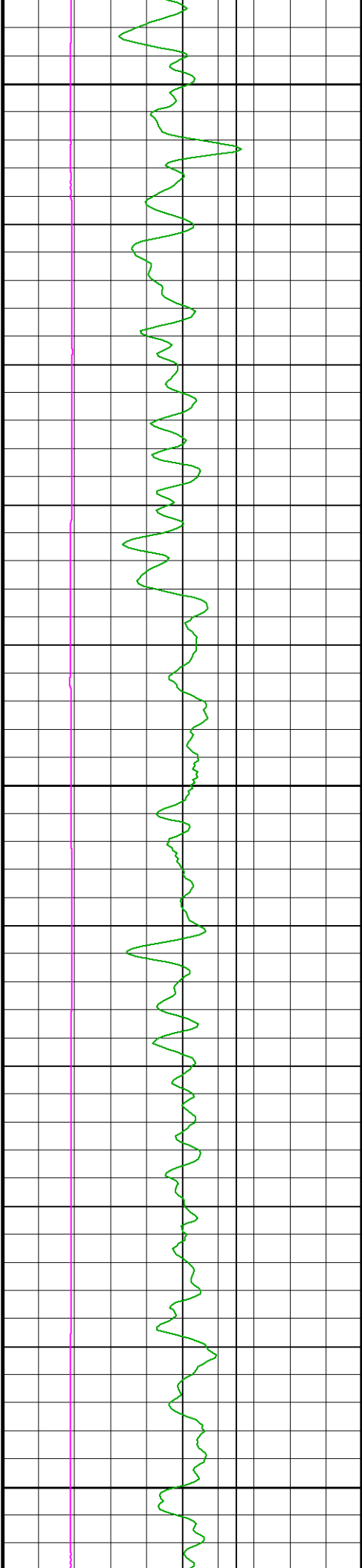
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, 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 in our price schedule.





Replay  
Scale  
1:200





50

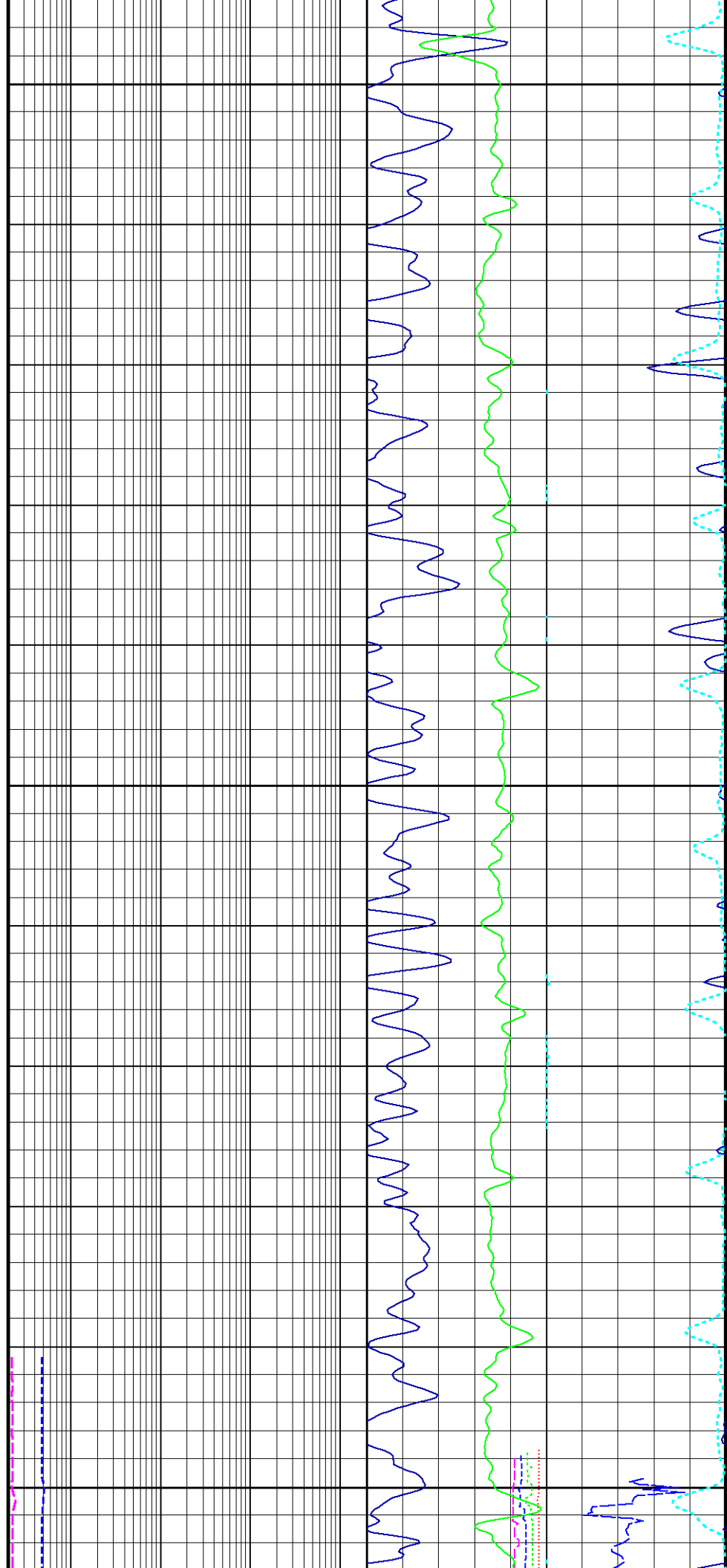
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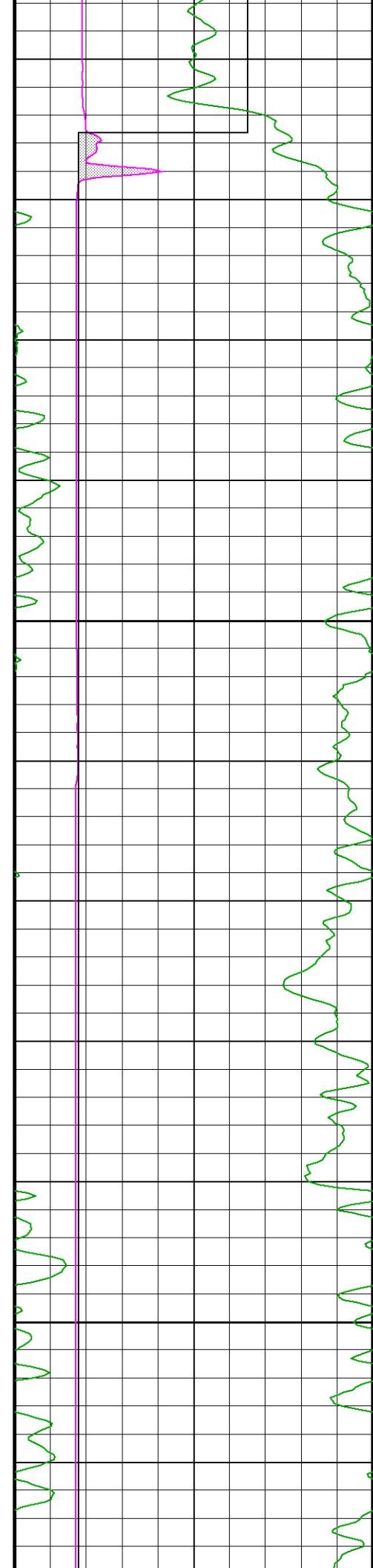
70

80

90

100





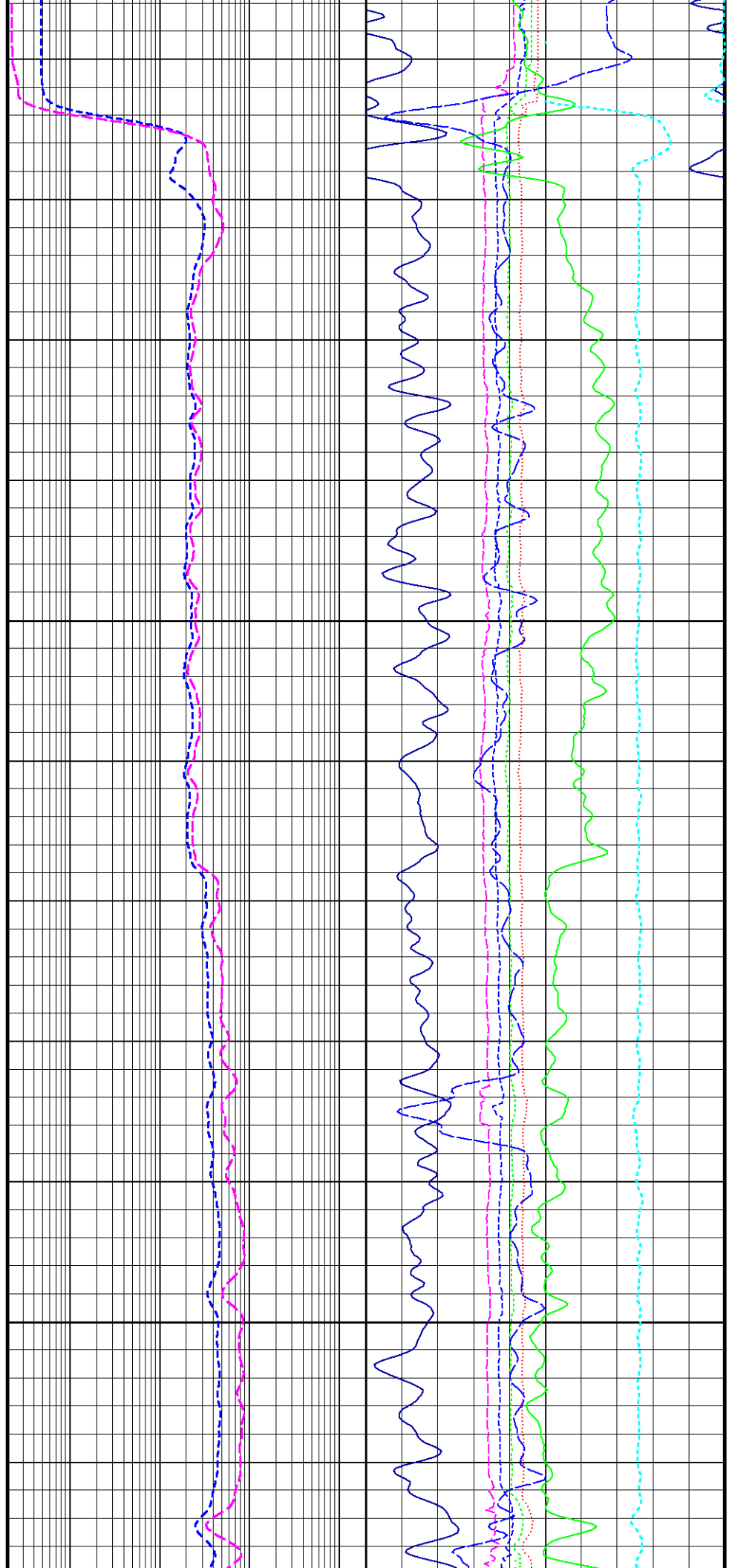
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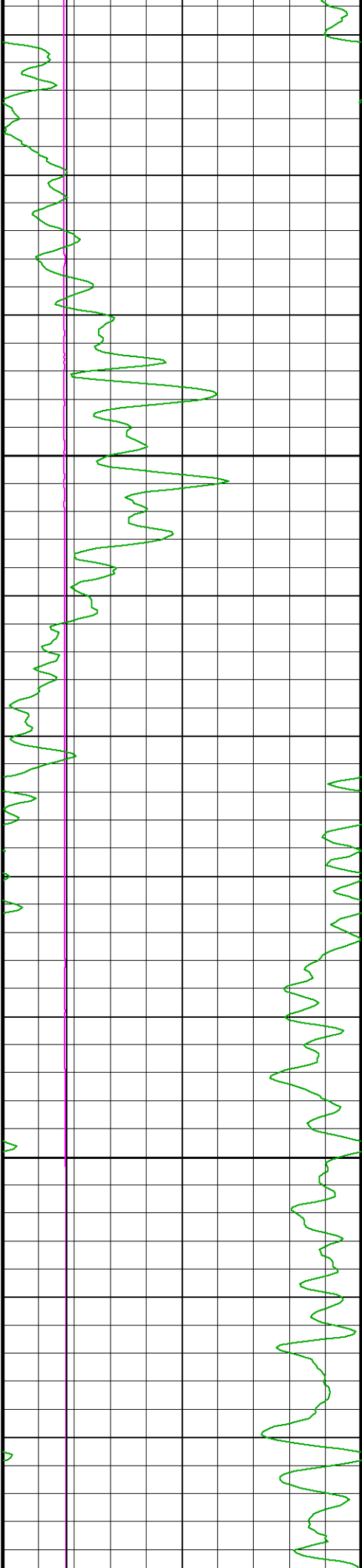
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130

140

150





160

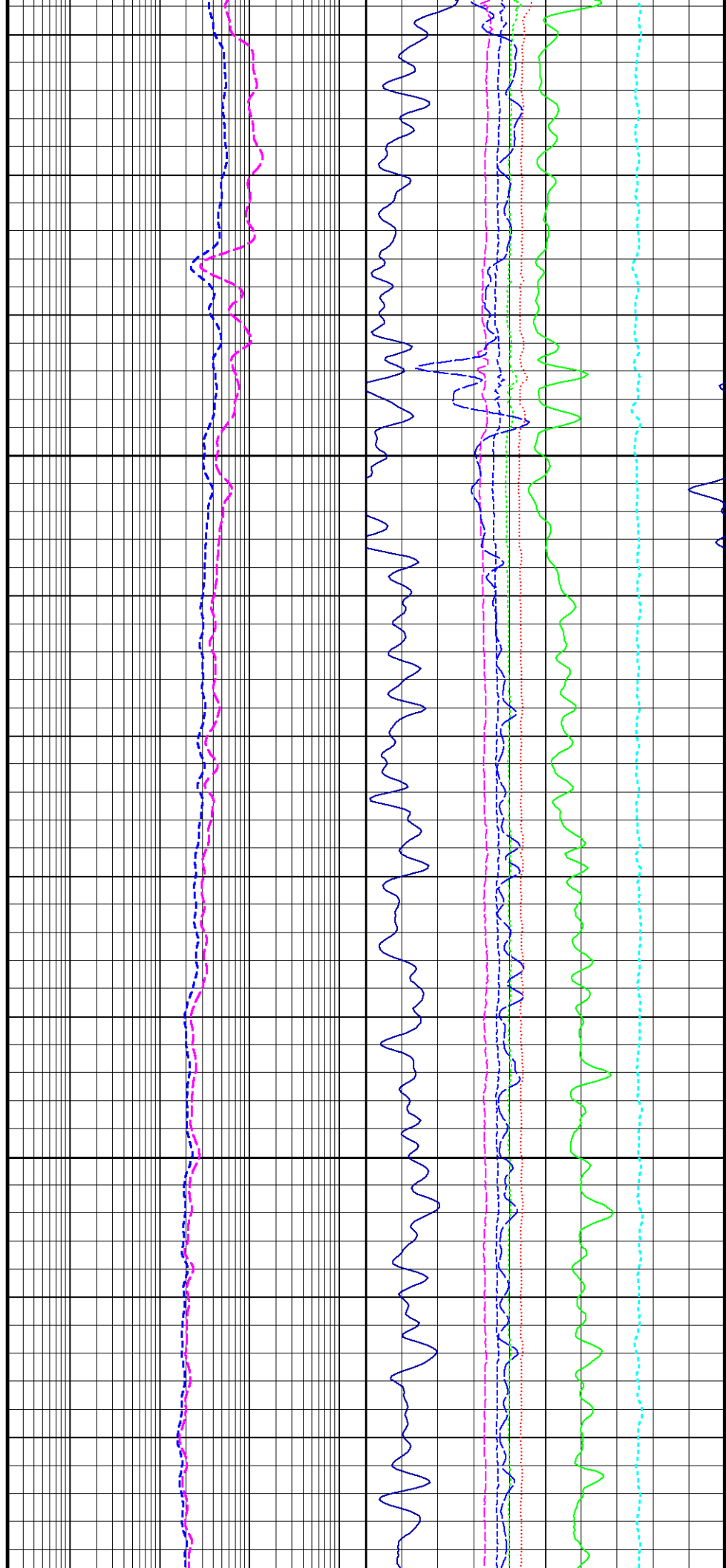
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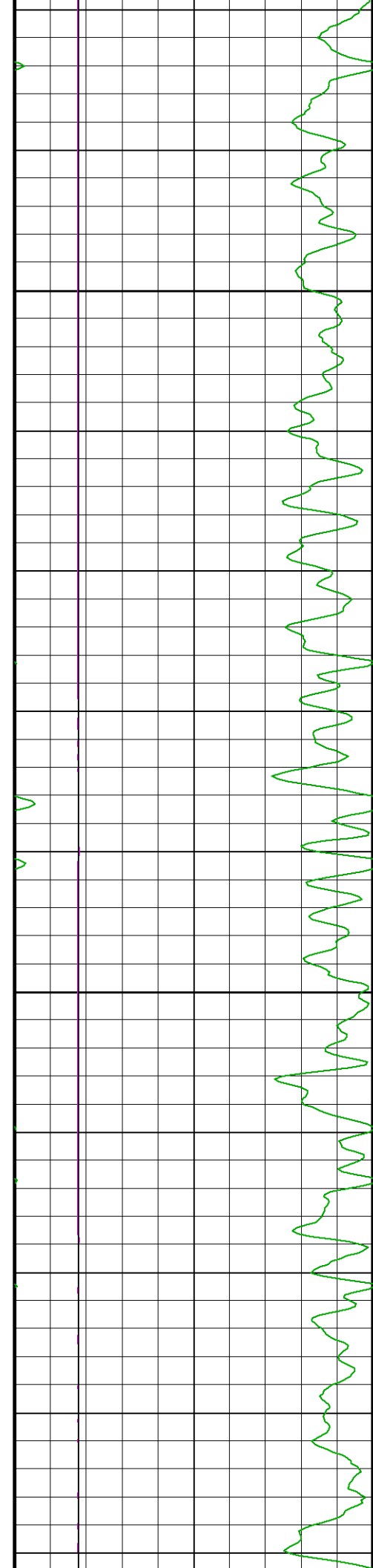
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190

200

210





220

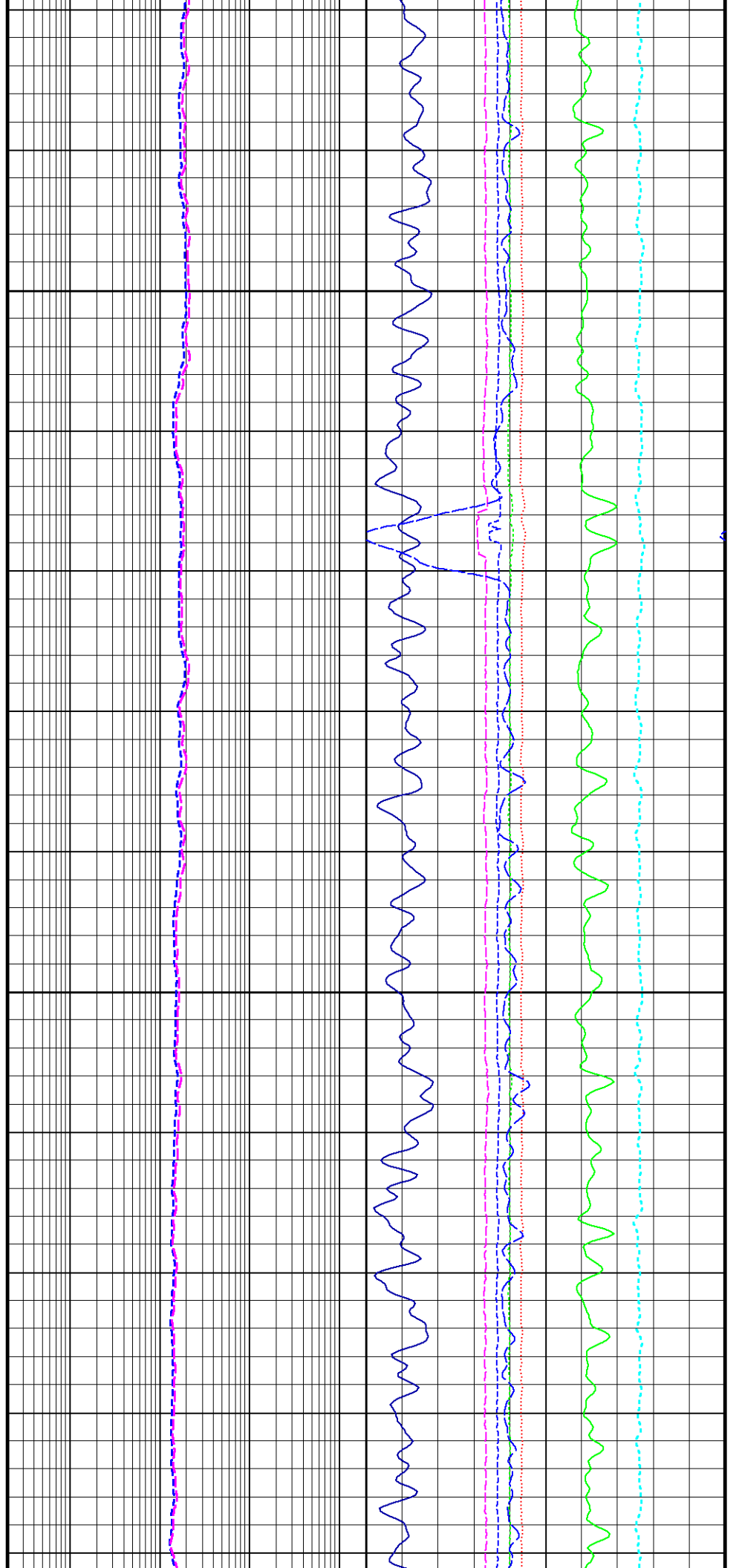
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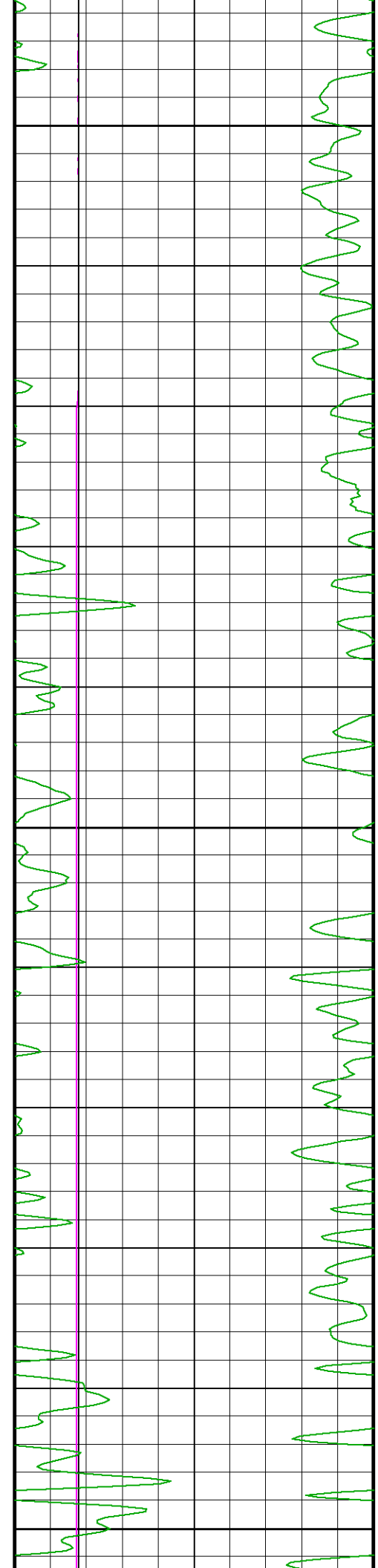
240

250

260

270





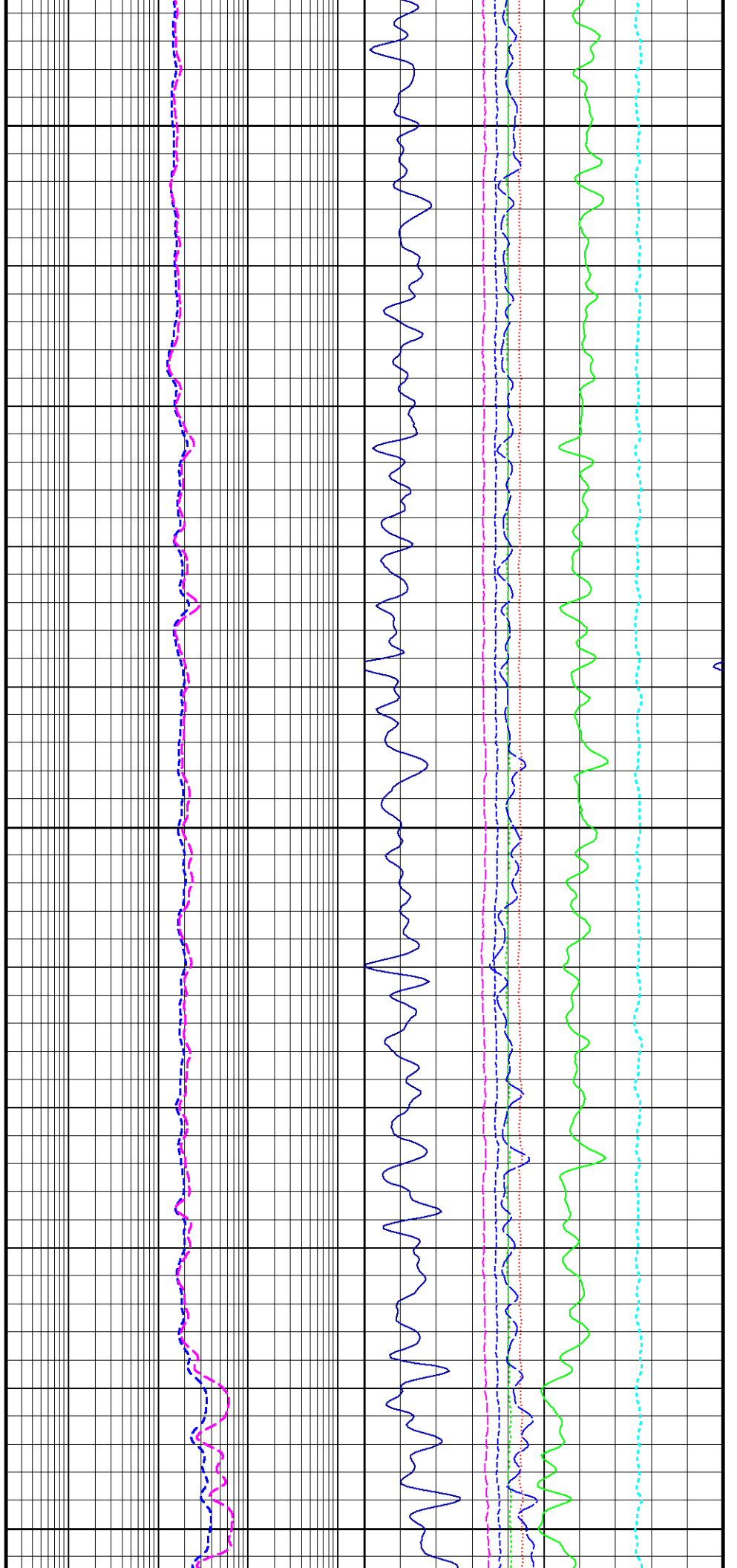
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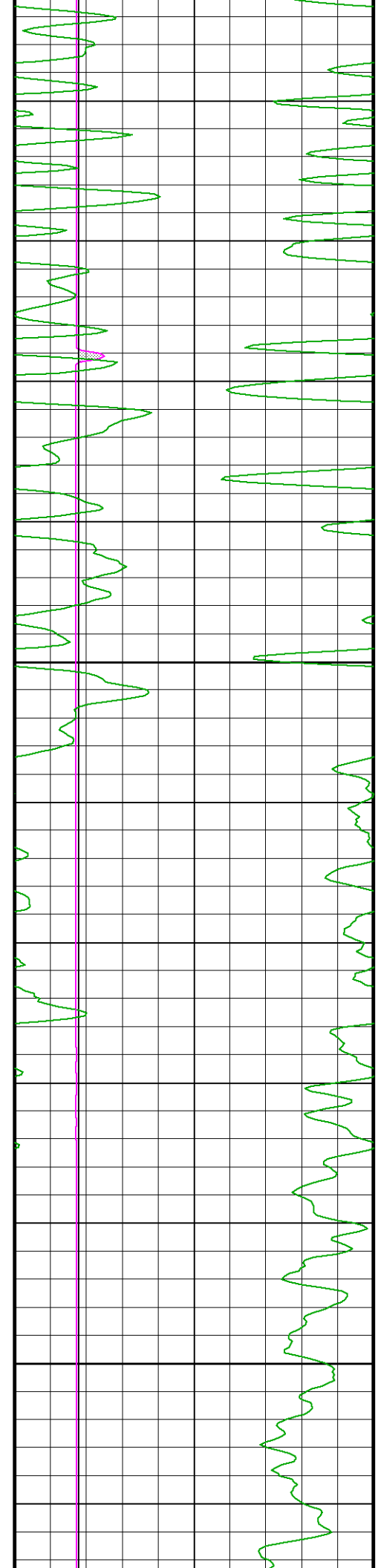
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310

320







330

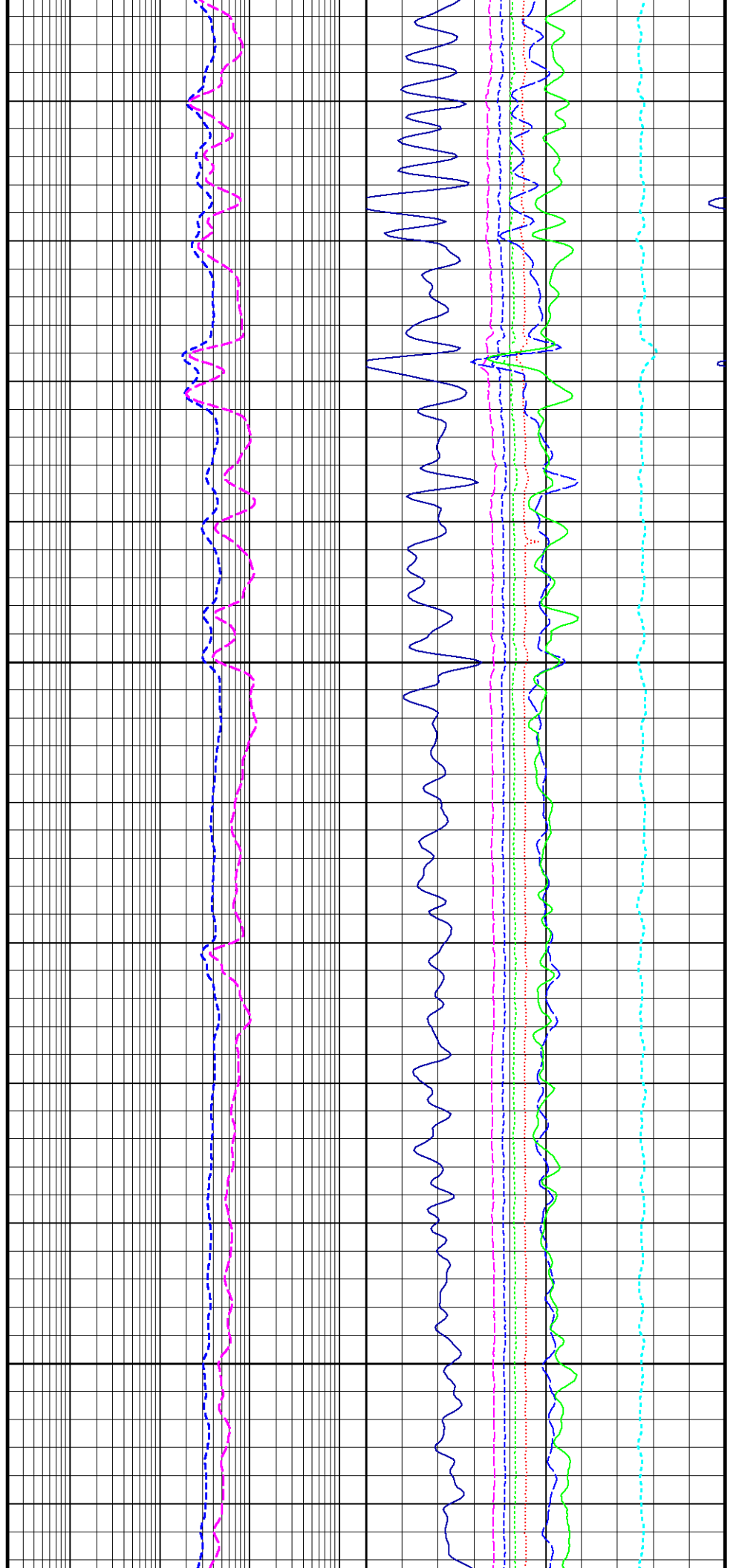
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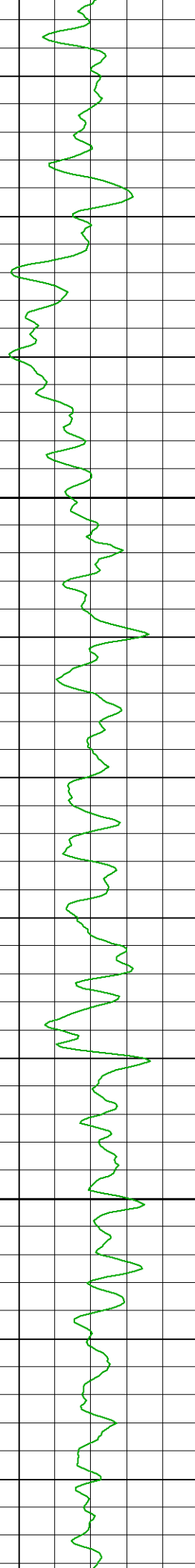
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360

370

380





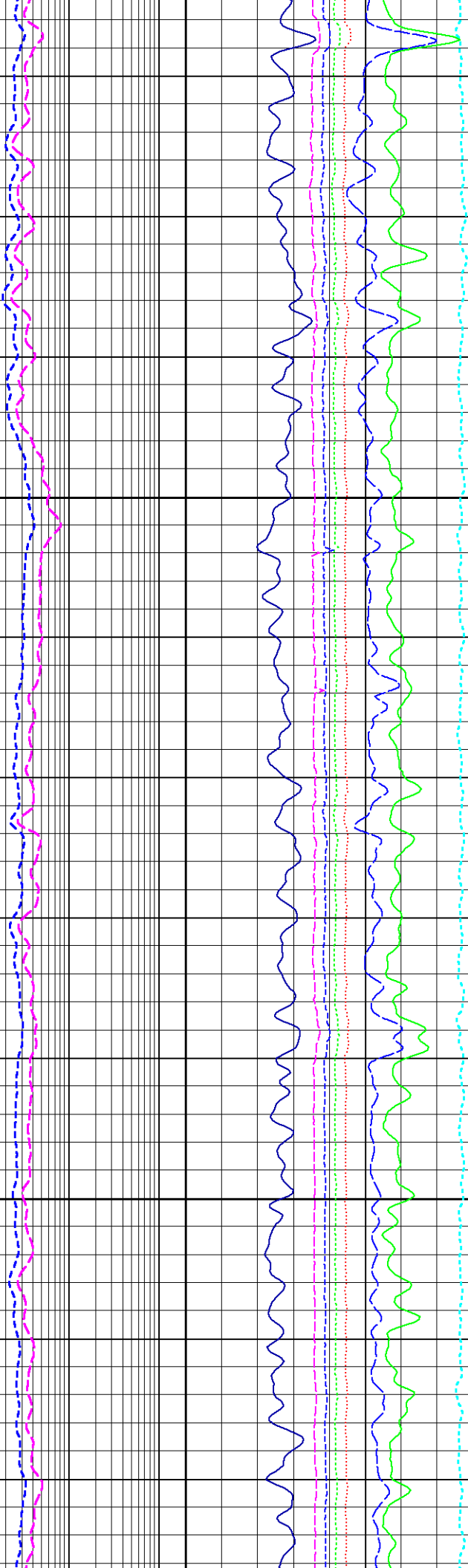
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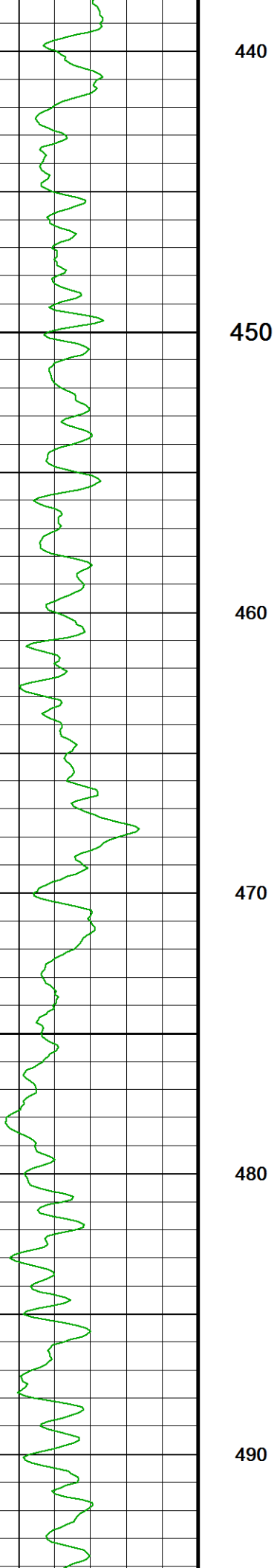
400

410

420

430





440

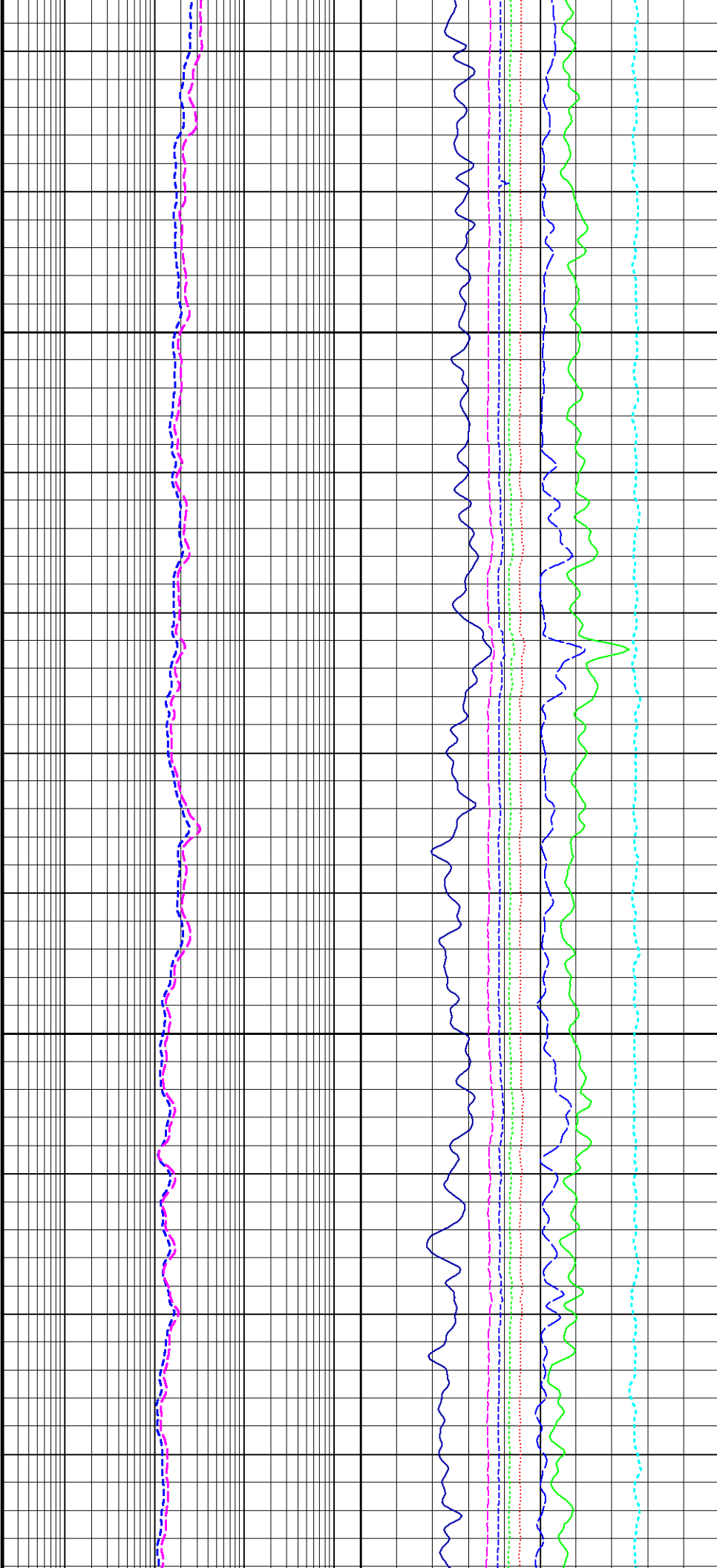
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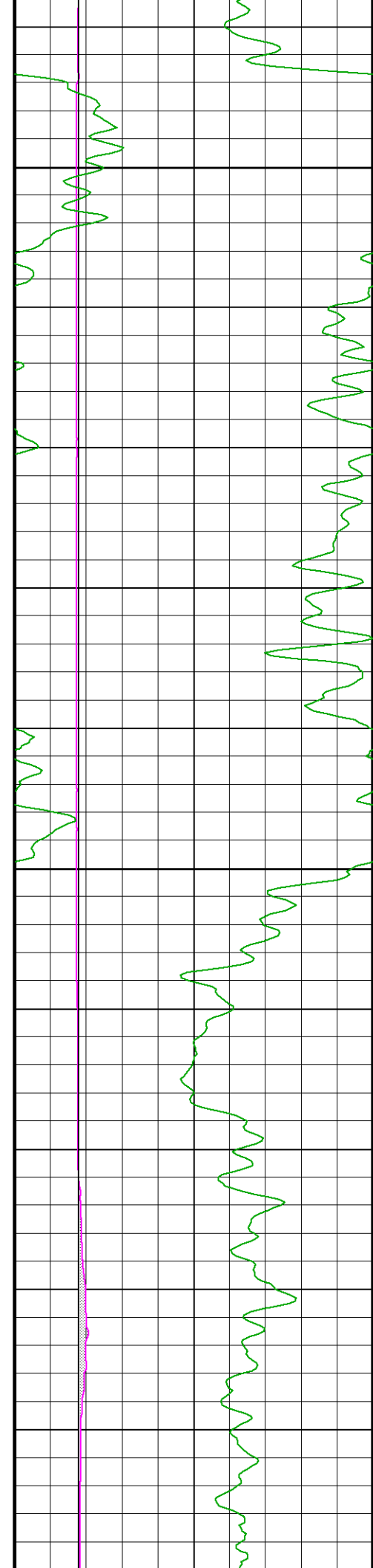
460

470

480

490





500

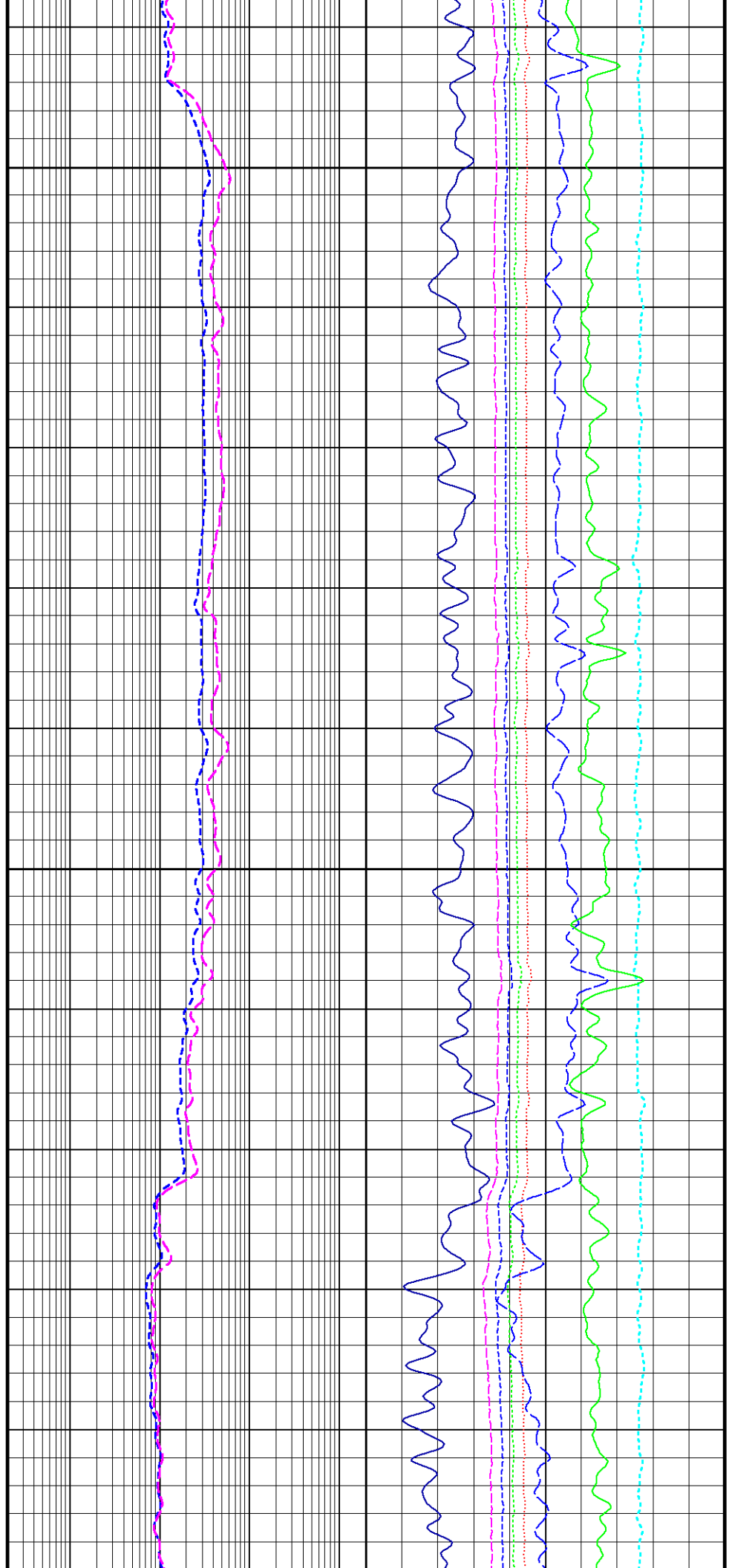
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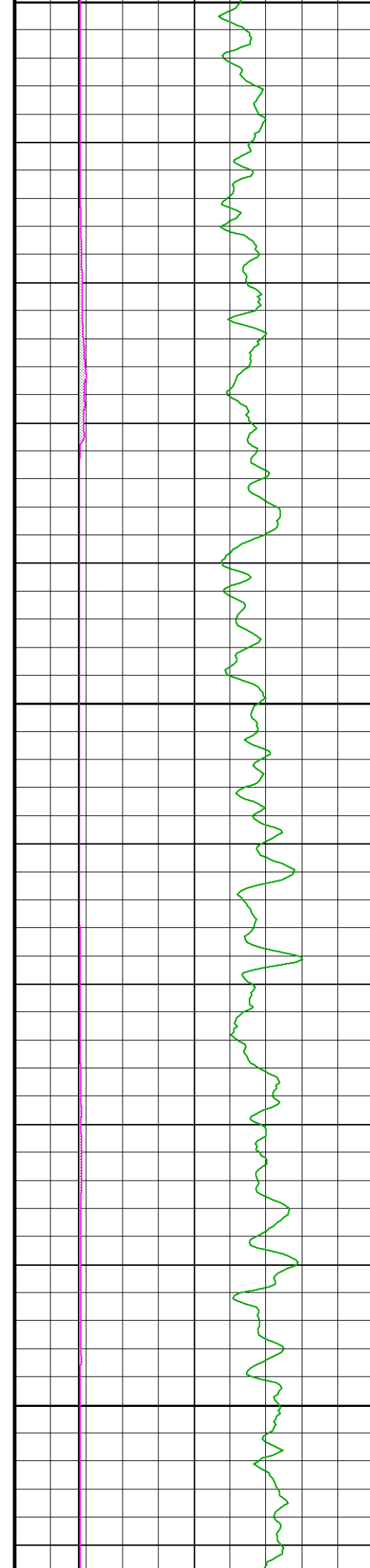
520

530

540

550





550

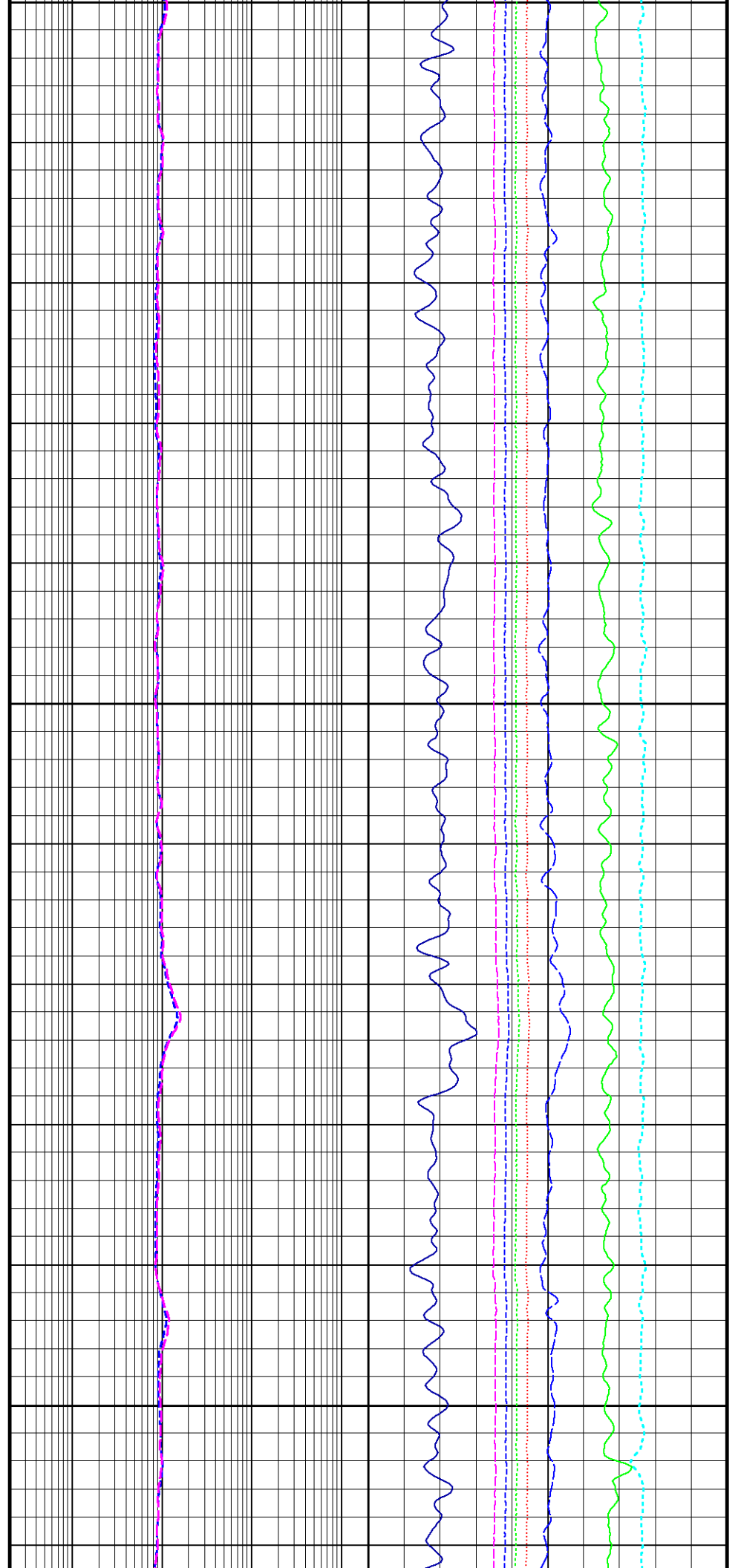
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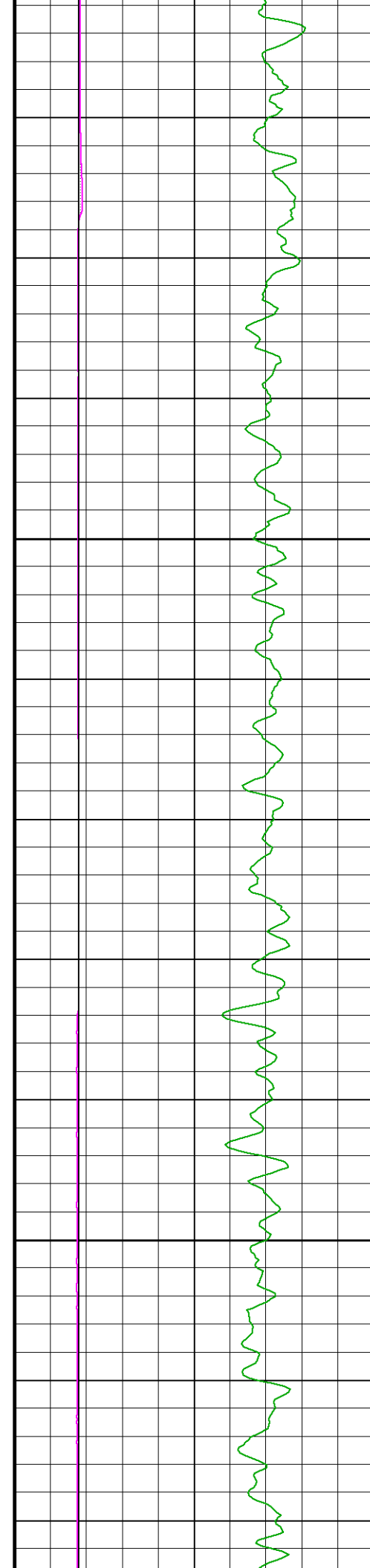
570

580

590

600





610

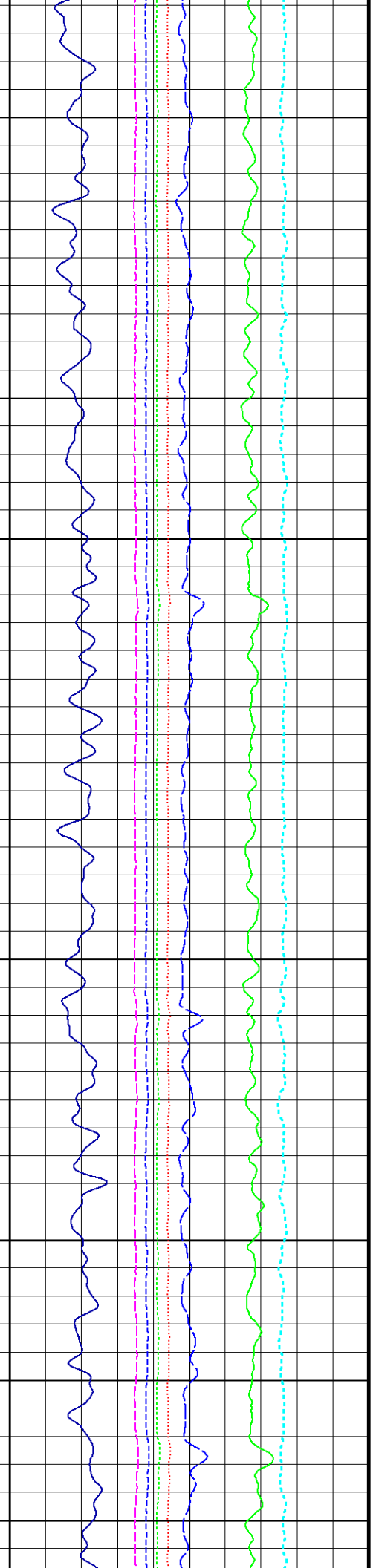
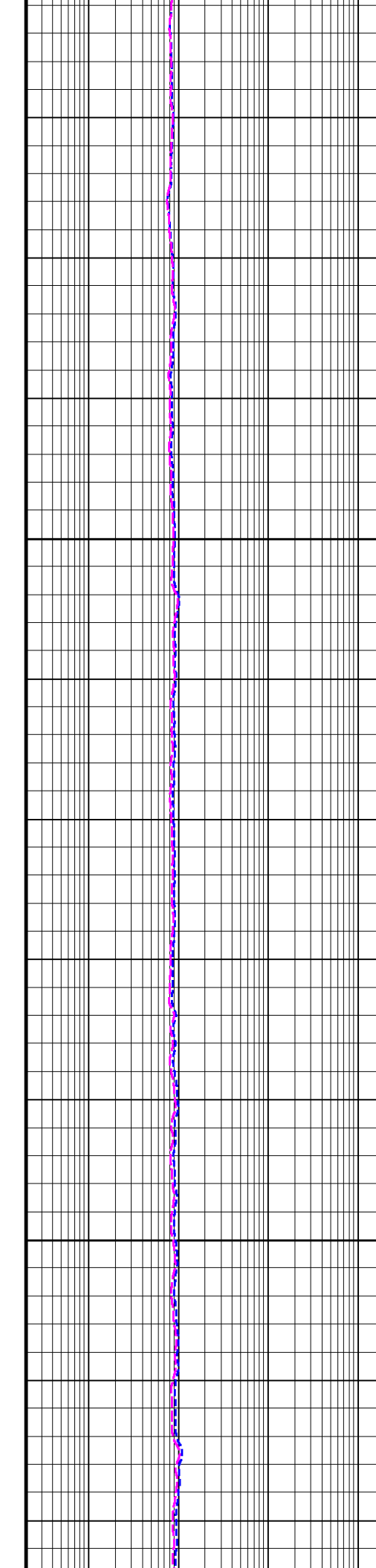
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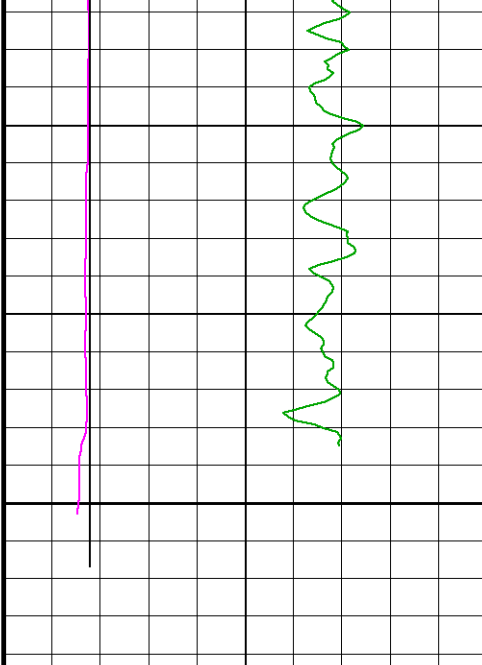
630

640

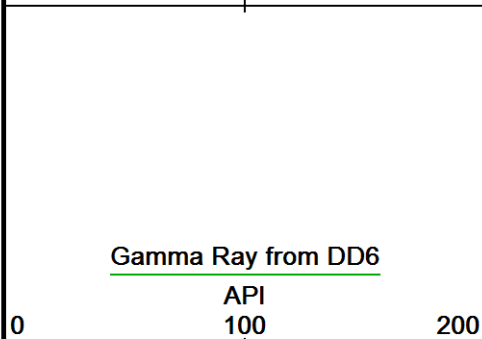
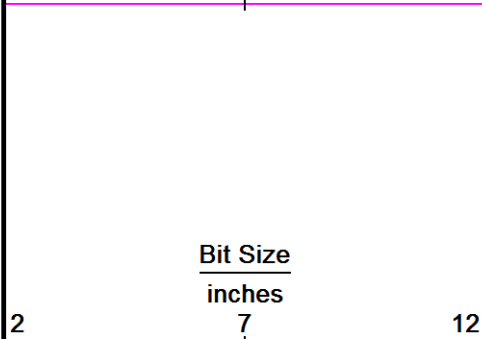
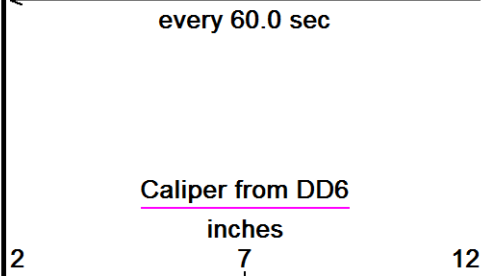
650

660





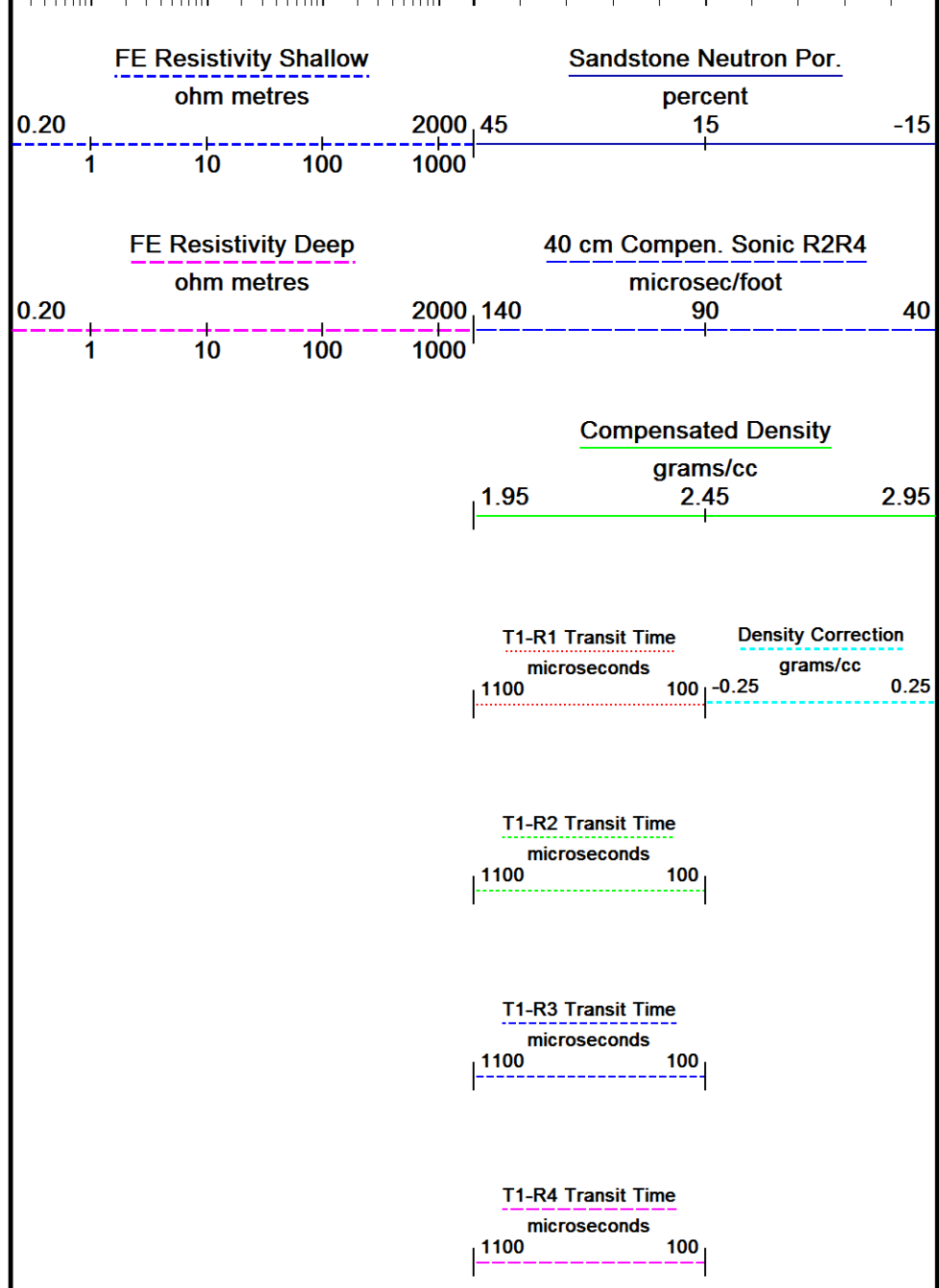
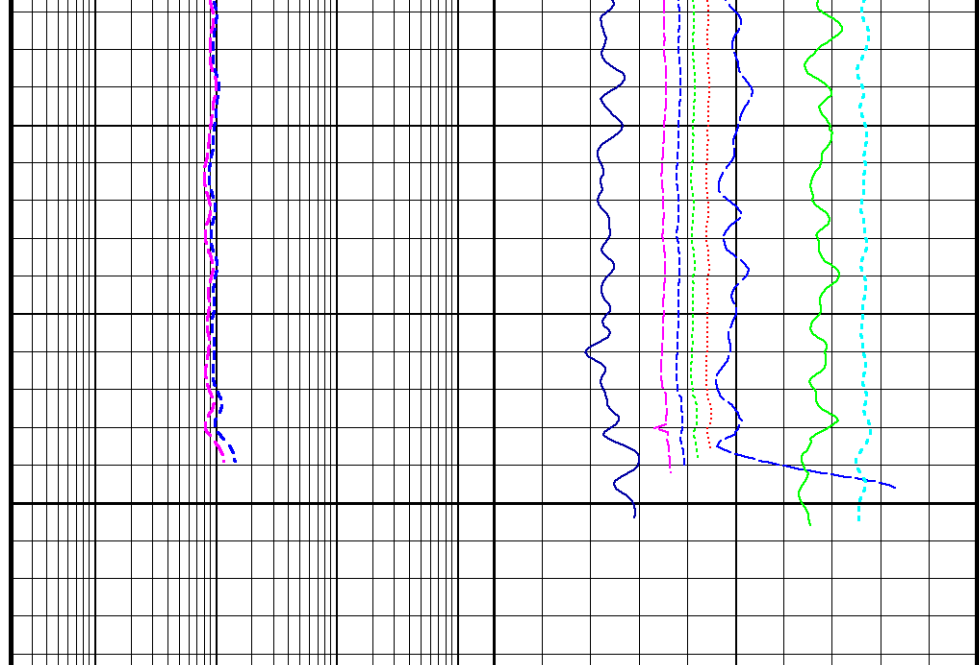
← Timing Marks  
every 60.0 sec



670

679  
Depth  
in  
Metres

Replay  
Scale  
1:200



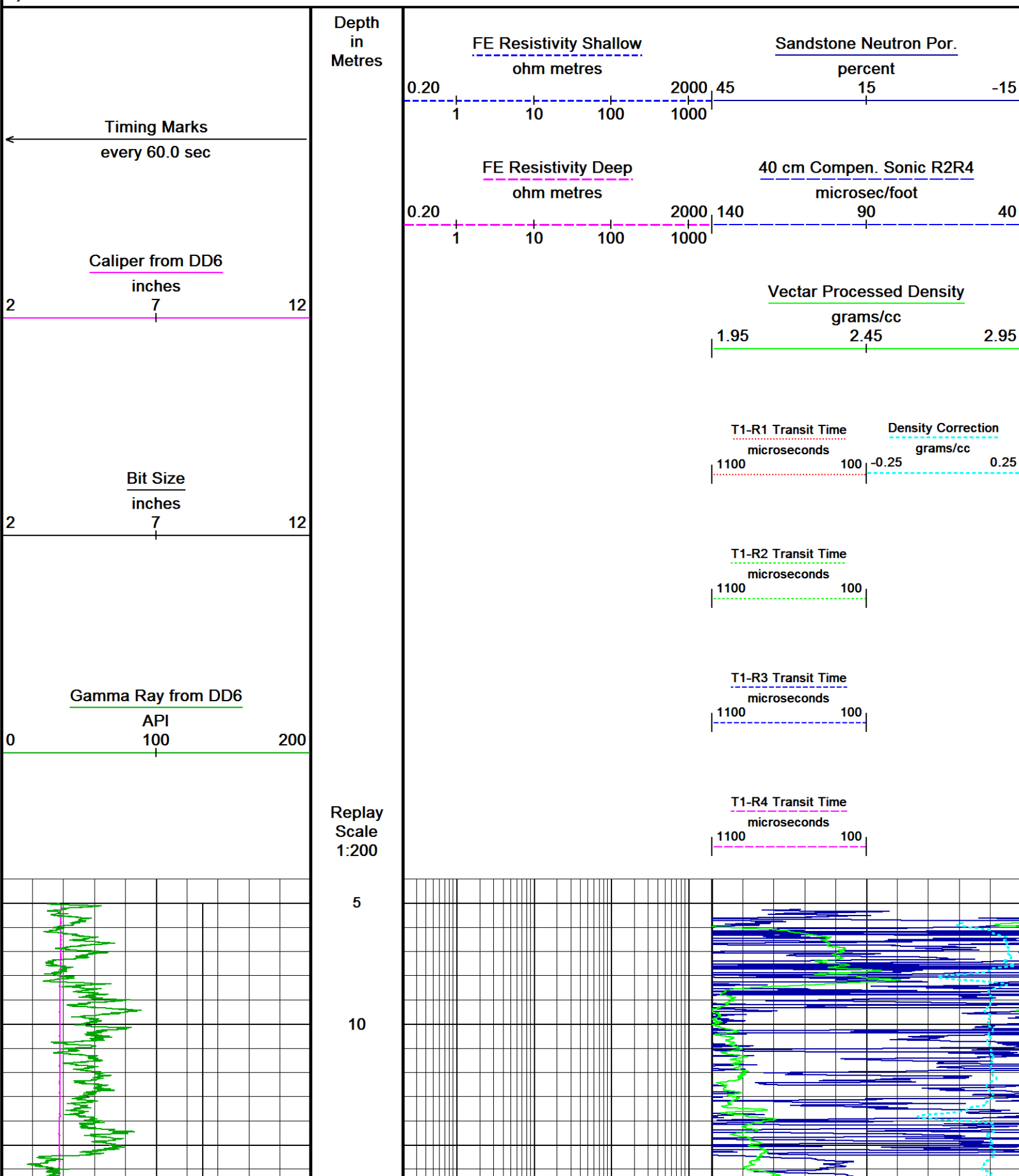
↓

Depth  
in  
Metres

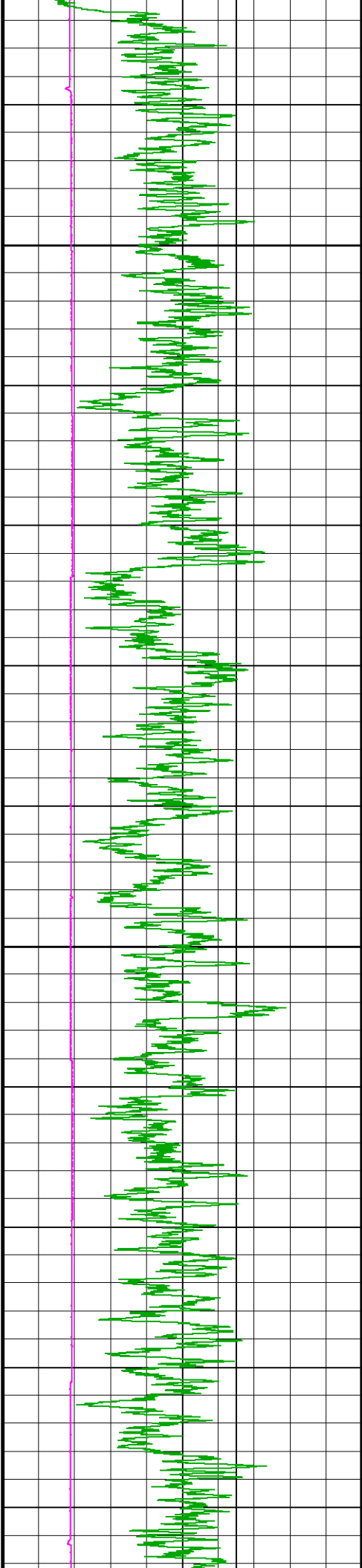
Replay  
Scale  
1:200

10

**T1-R4 Transit Time**  
microseconds







20

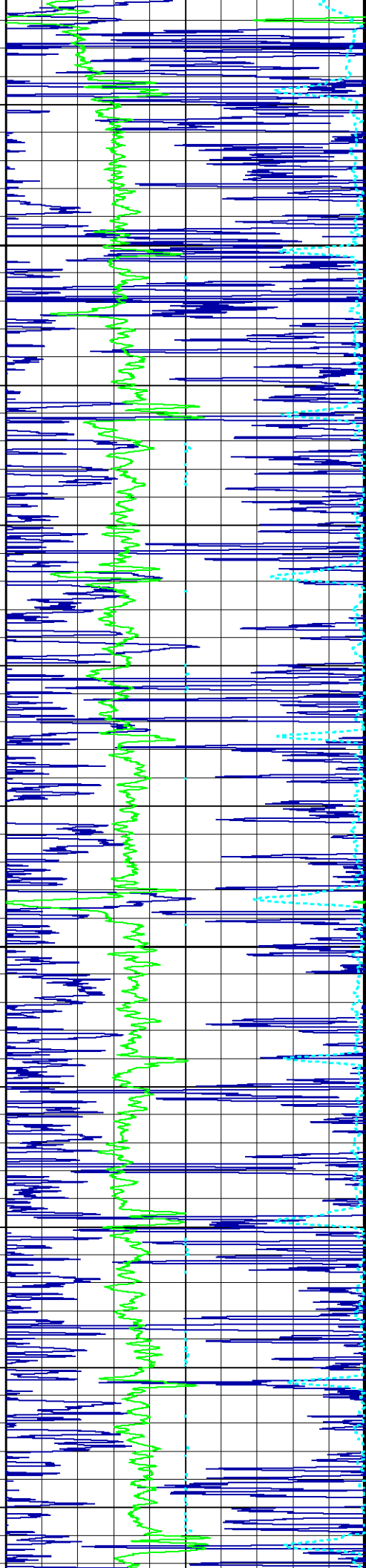
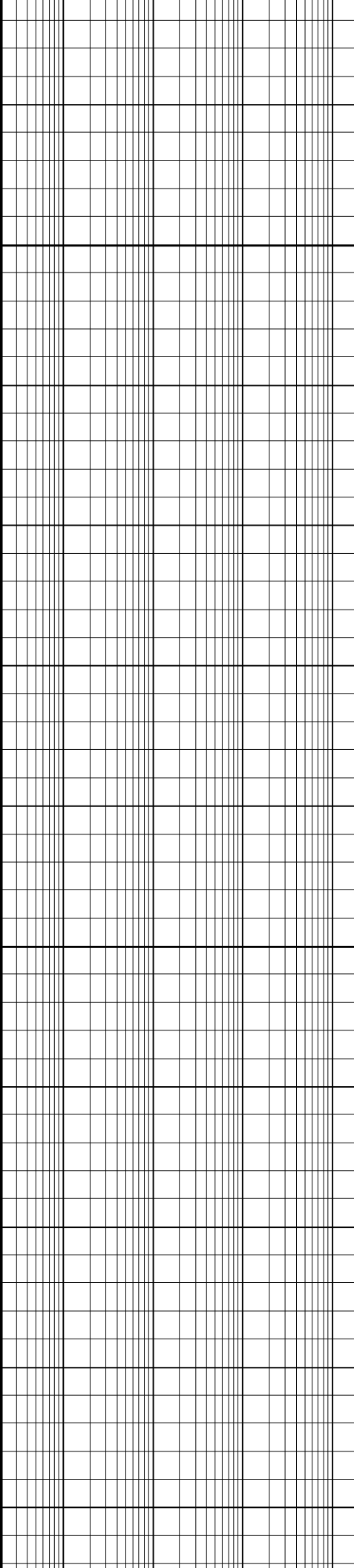
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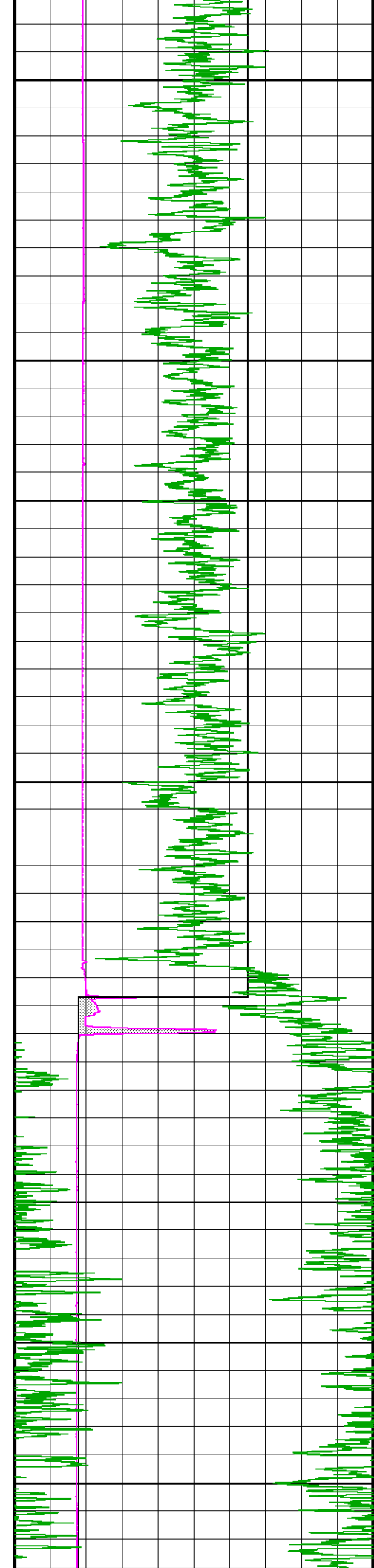
40

50

60

70





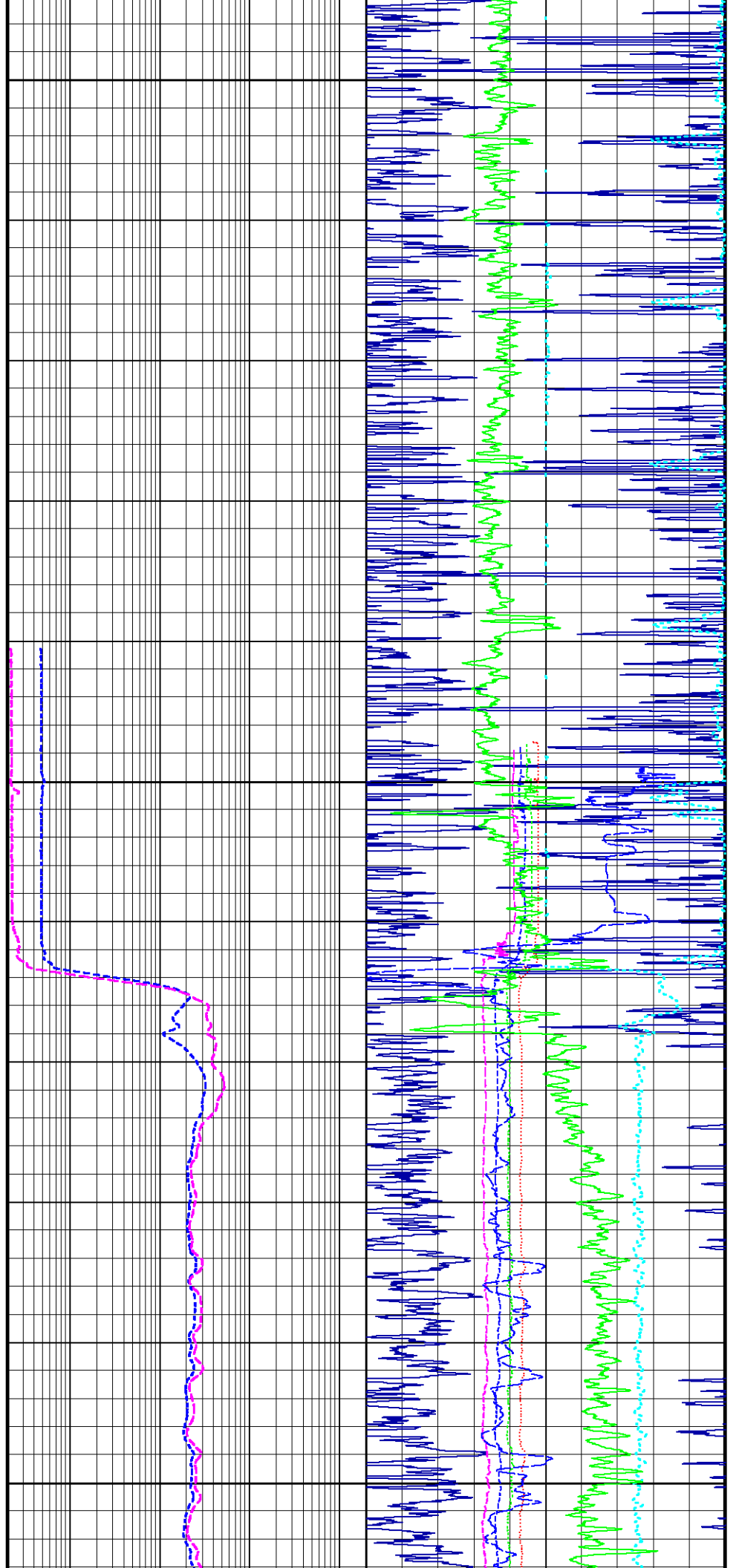
80

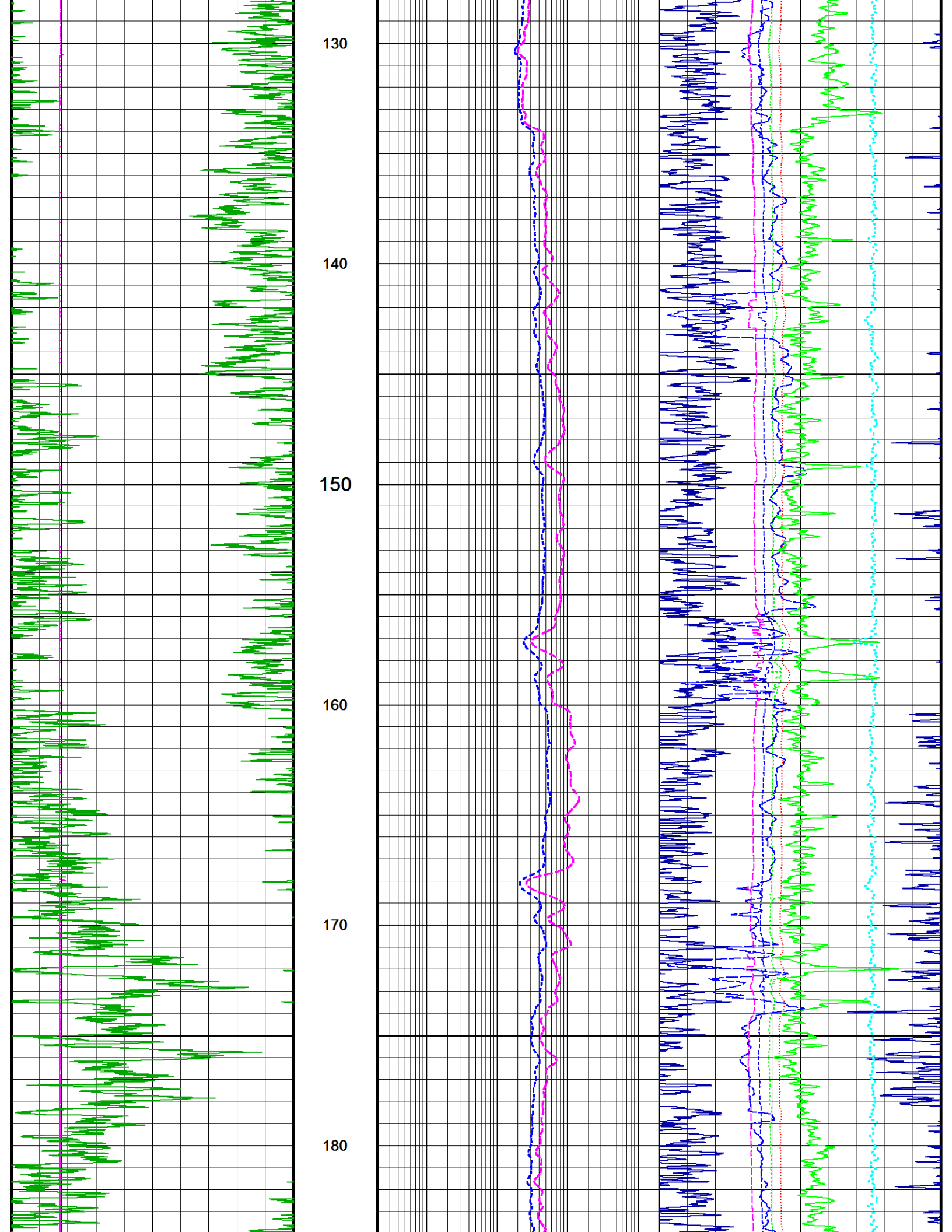
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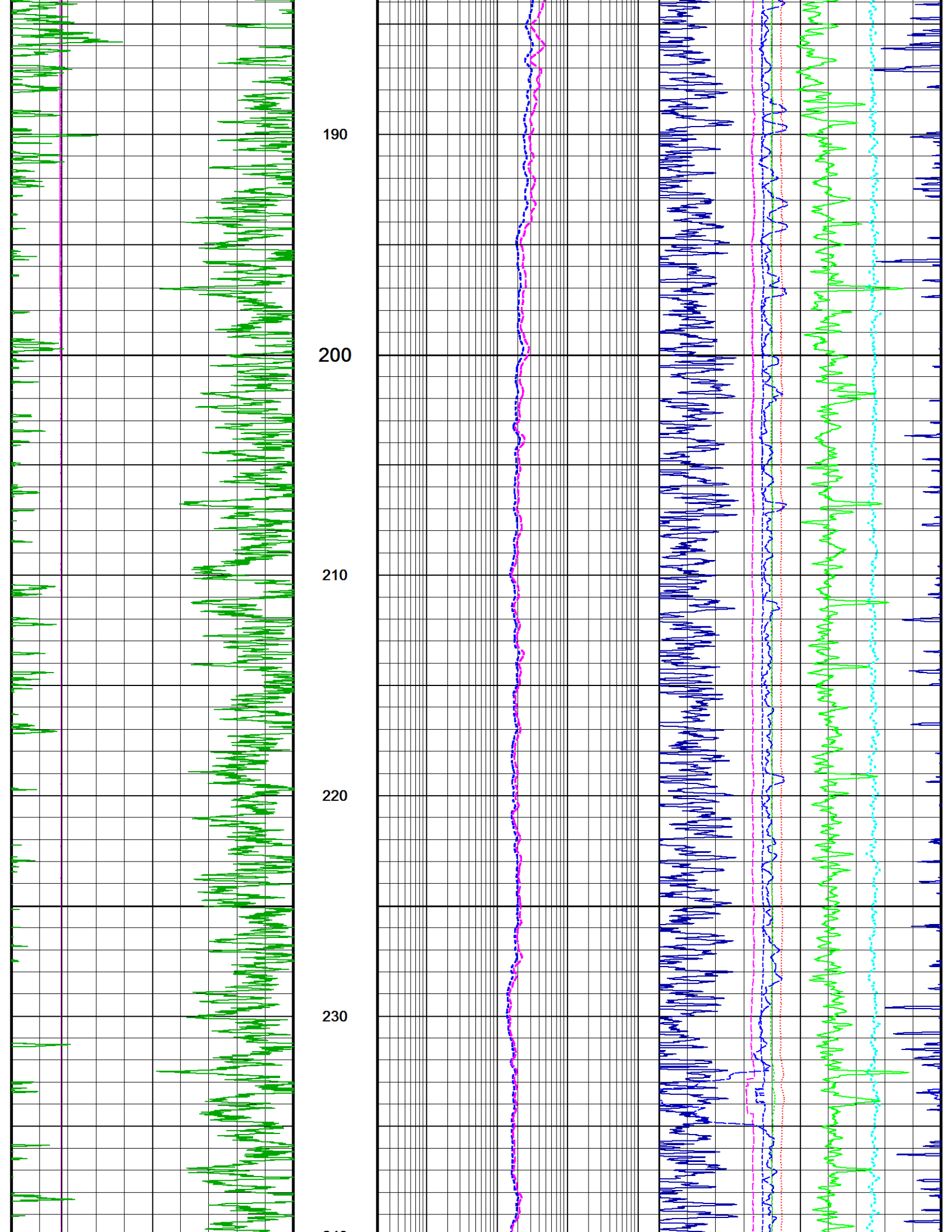
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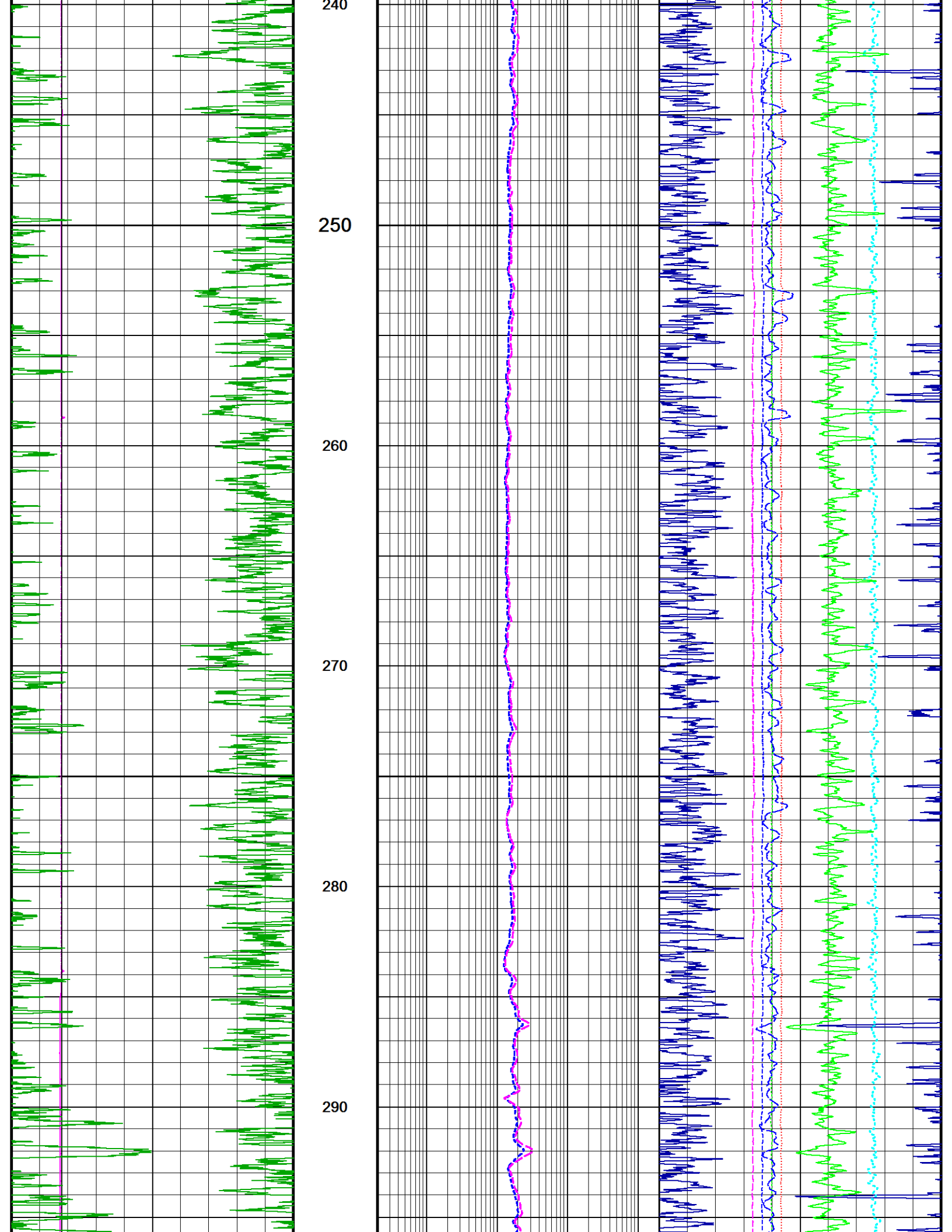
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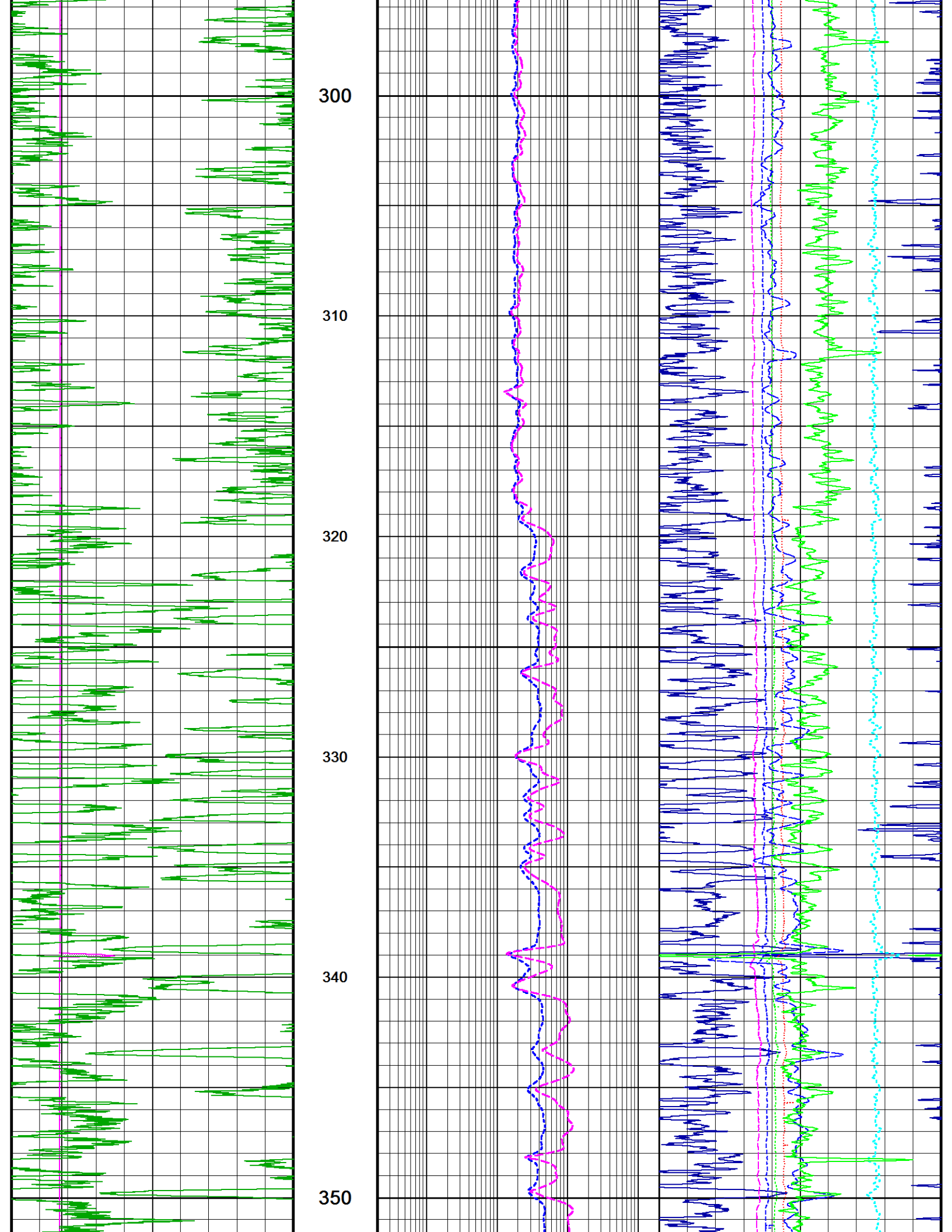
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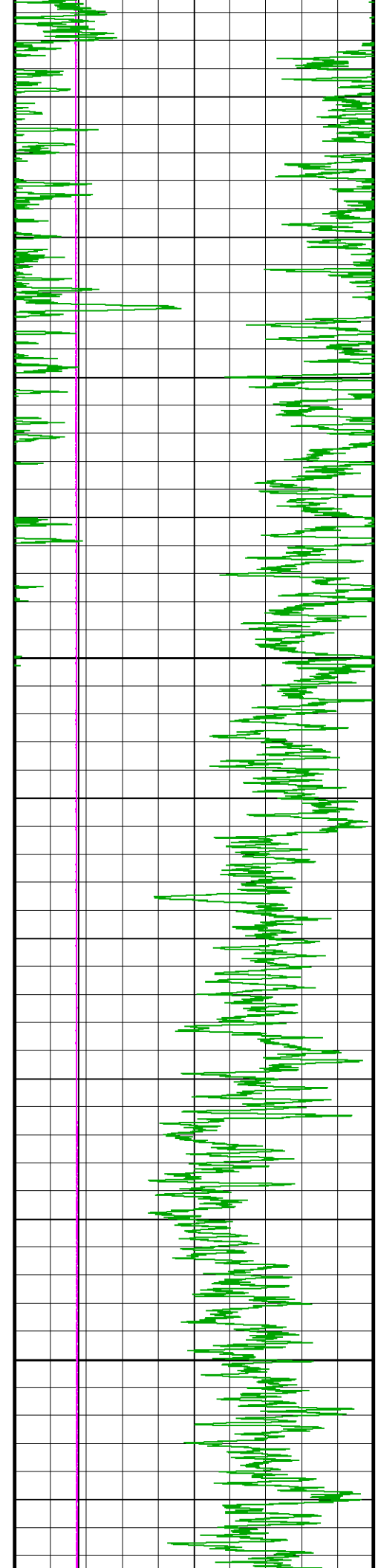












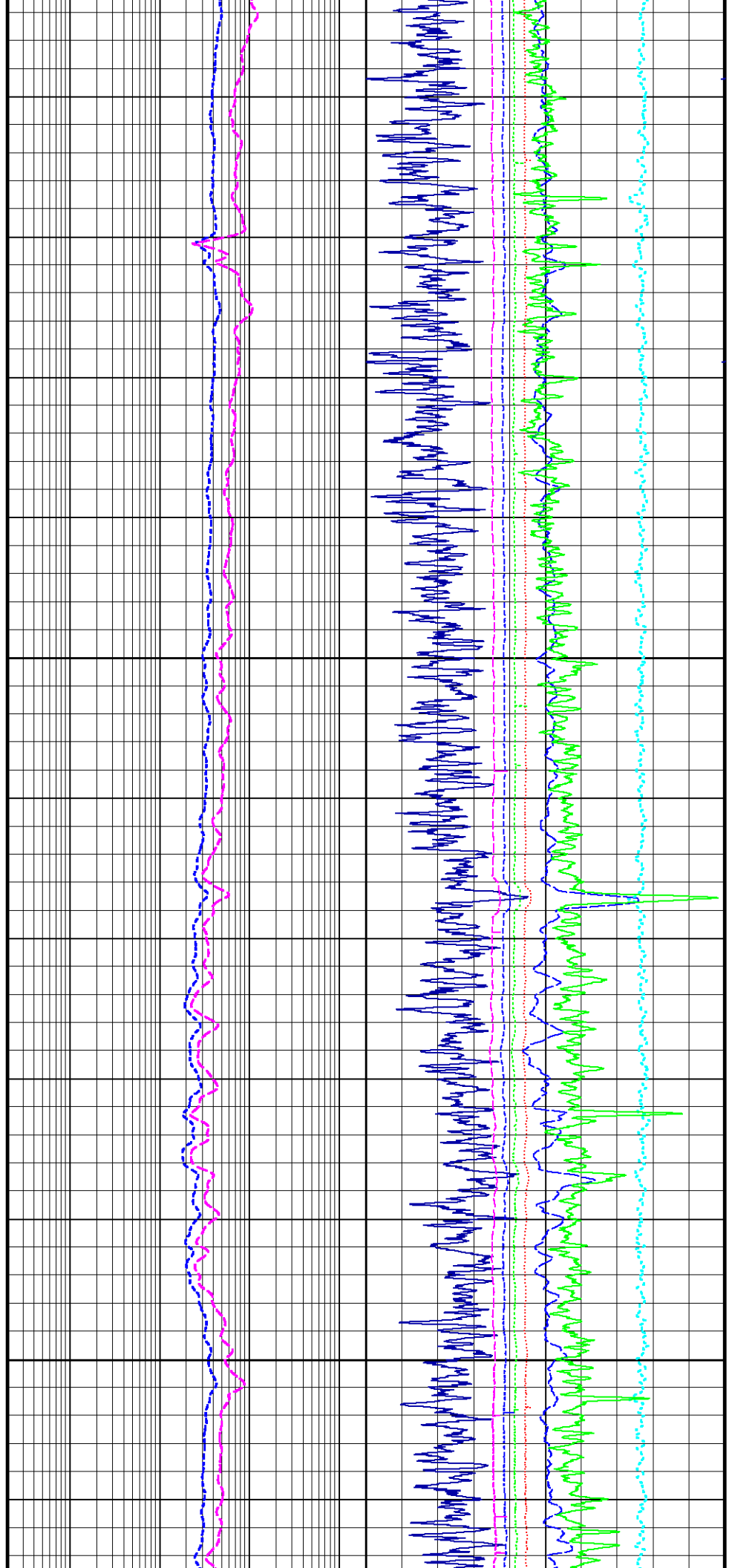
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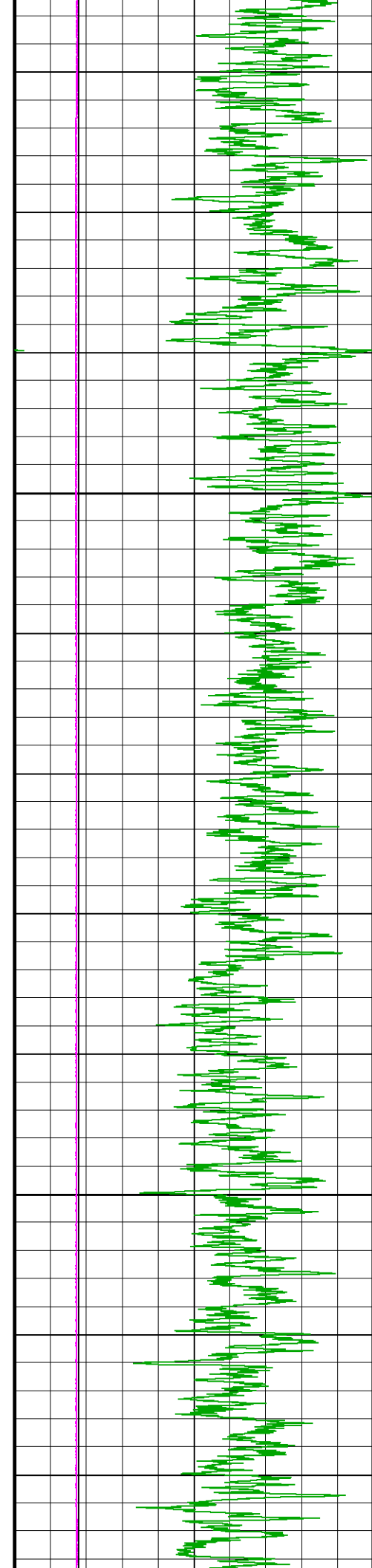
370

380

390

400





410

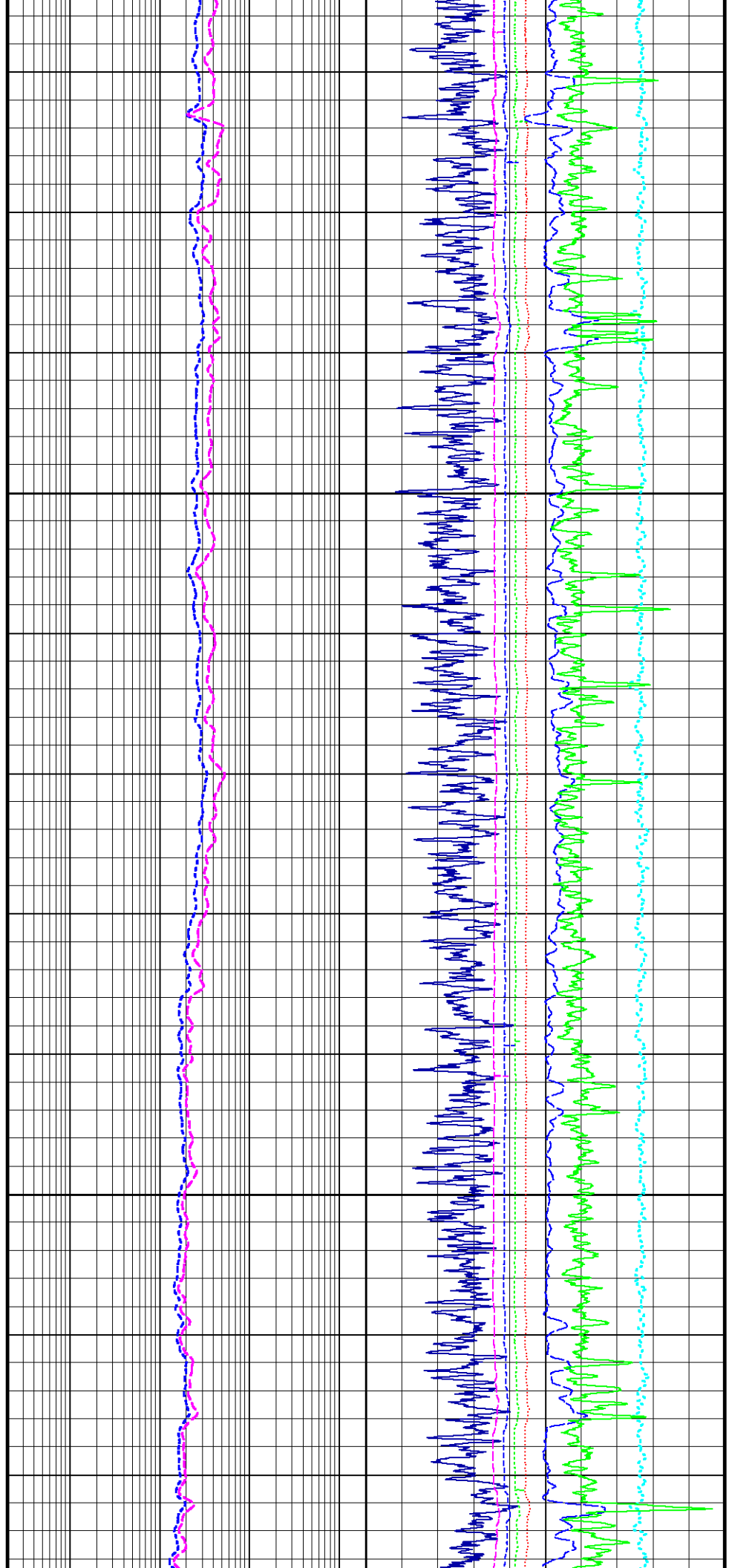
420

430

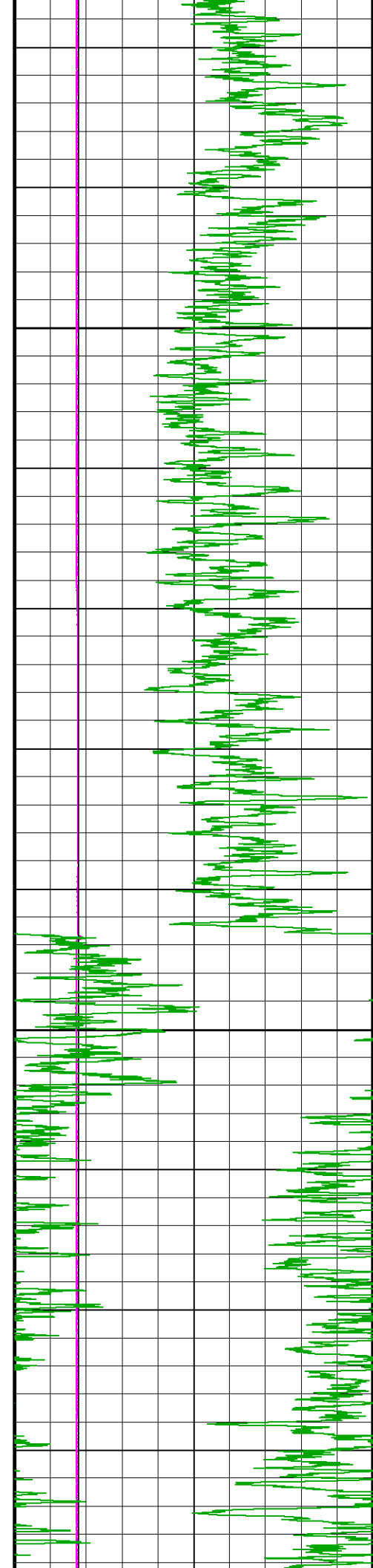
440

450

460







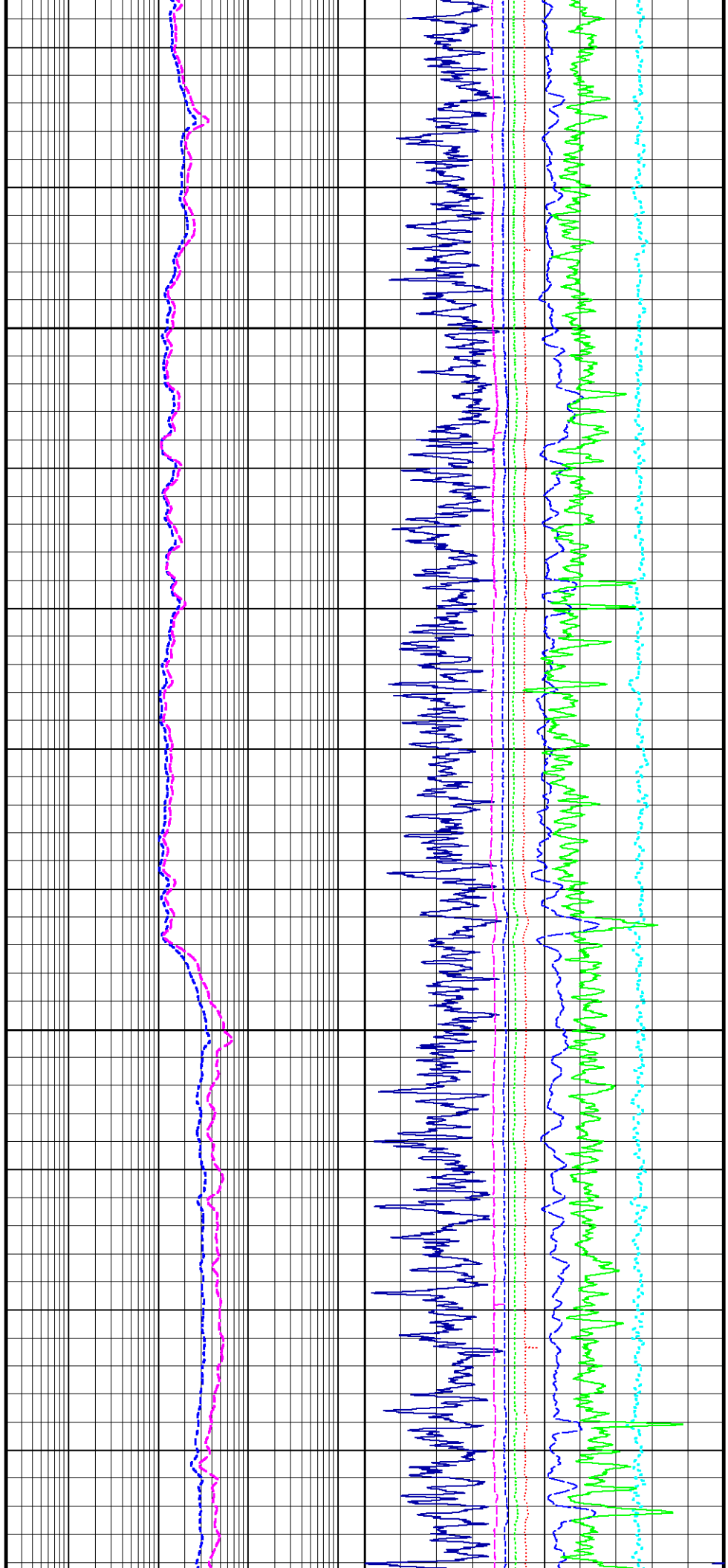
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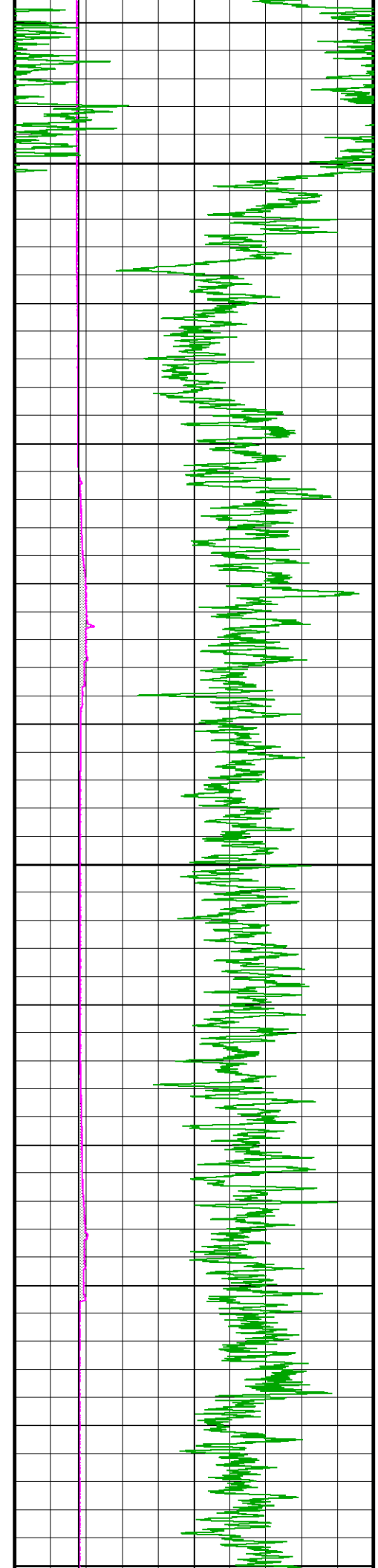
480

490

500

510





520

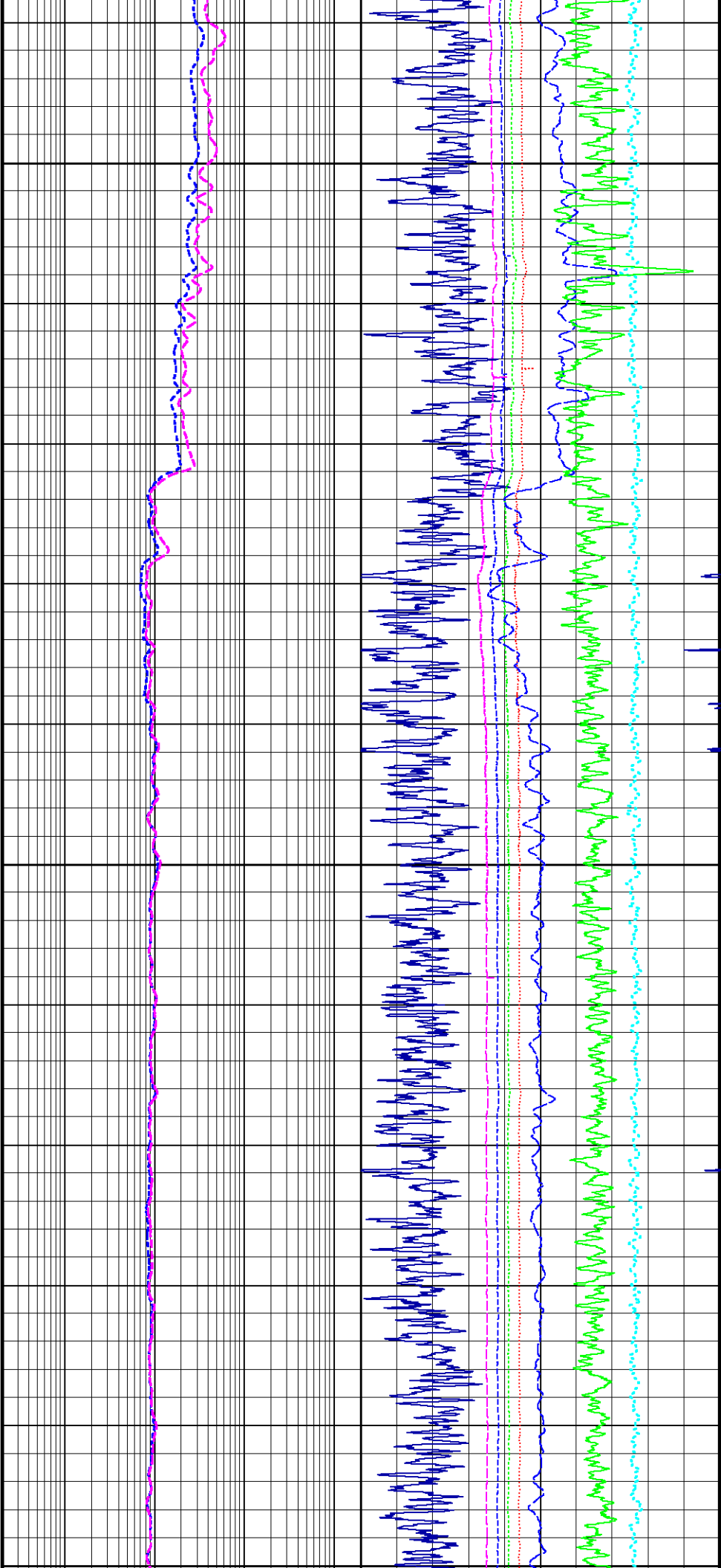
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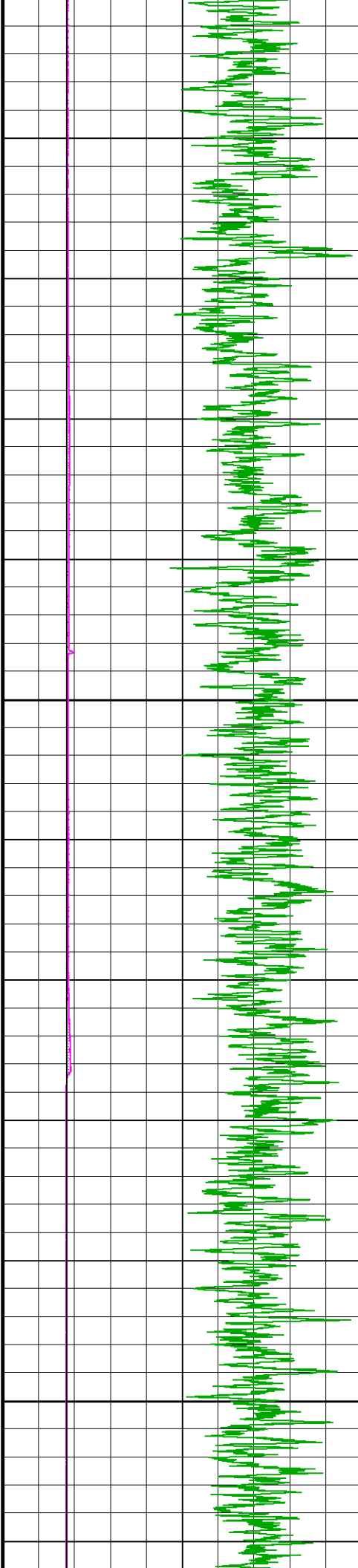
540

550

560

570





580

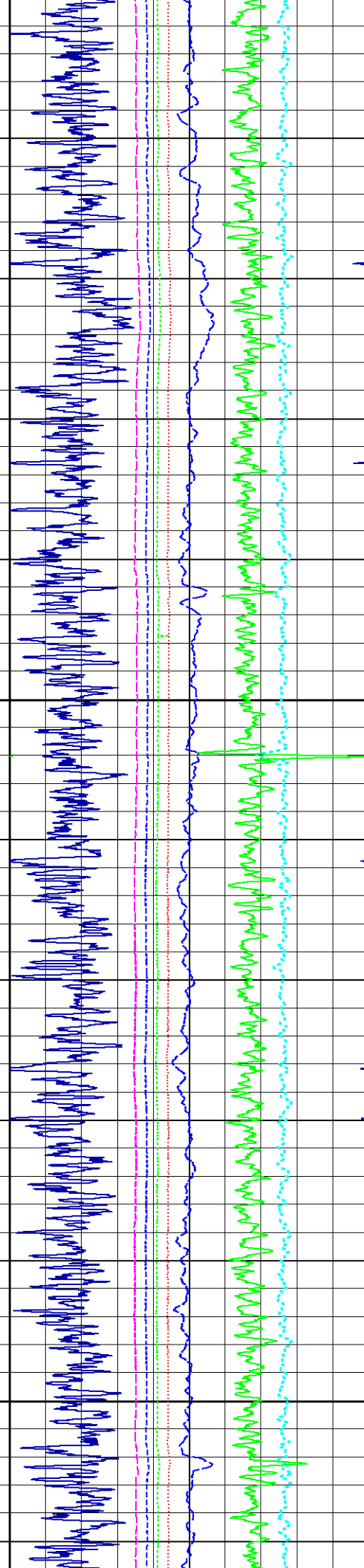
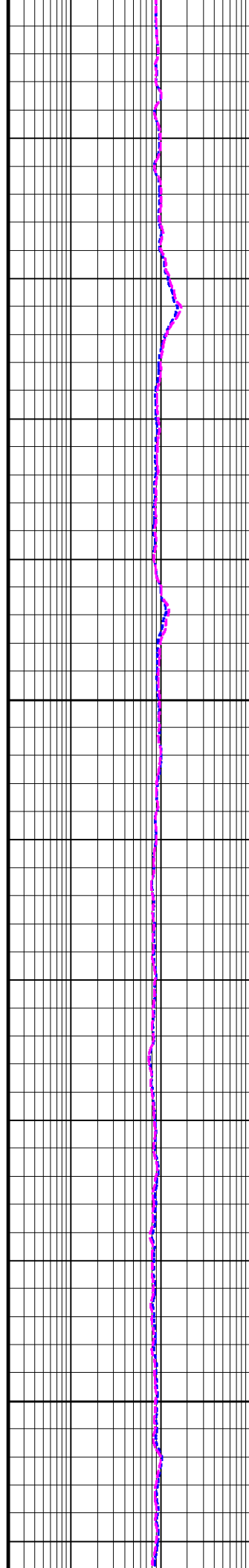
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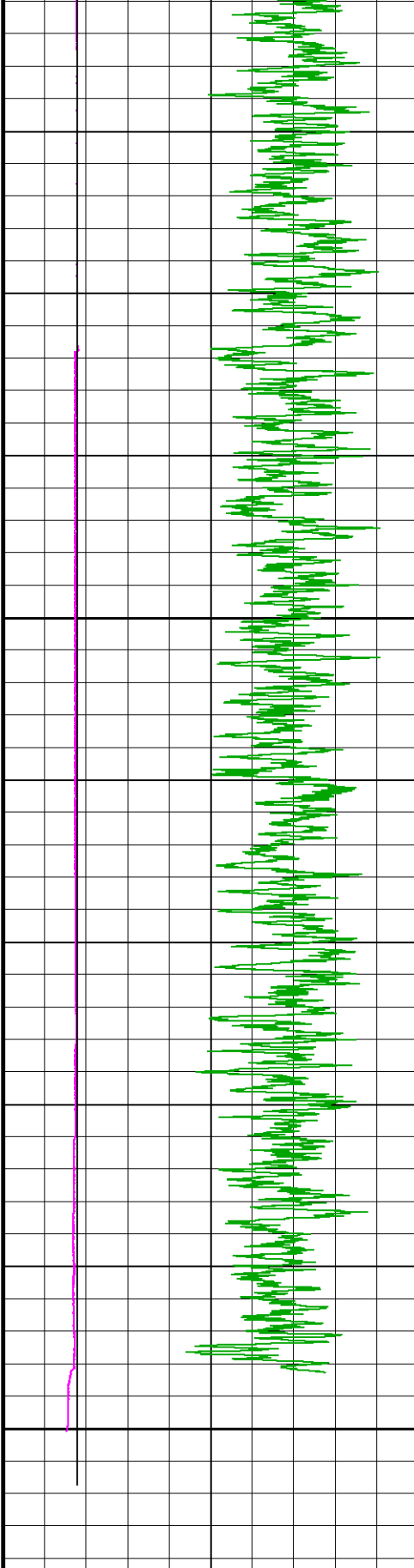
600

610

620

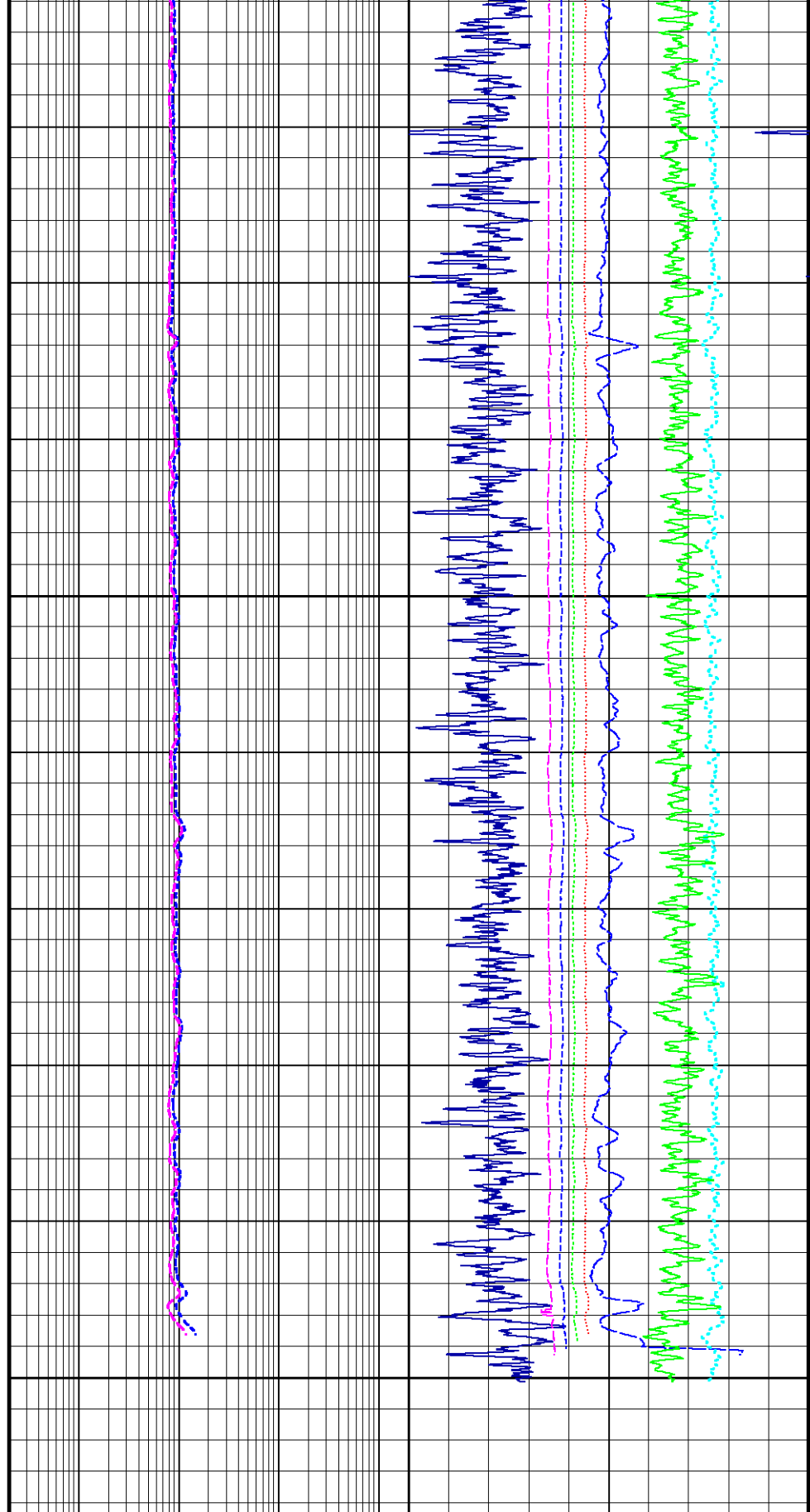
630





640  
650  
660  
670

679  
Depth  
in  
Metres



FE Resistivity Shallow  
ohm metres

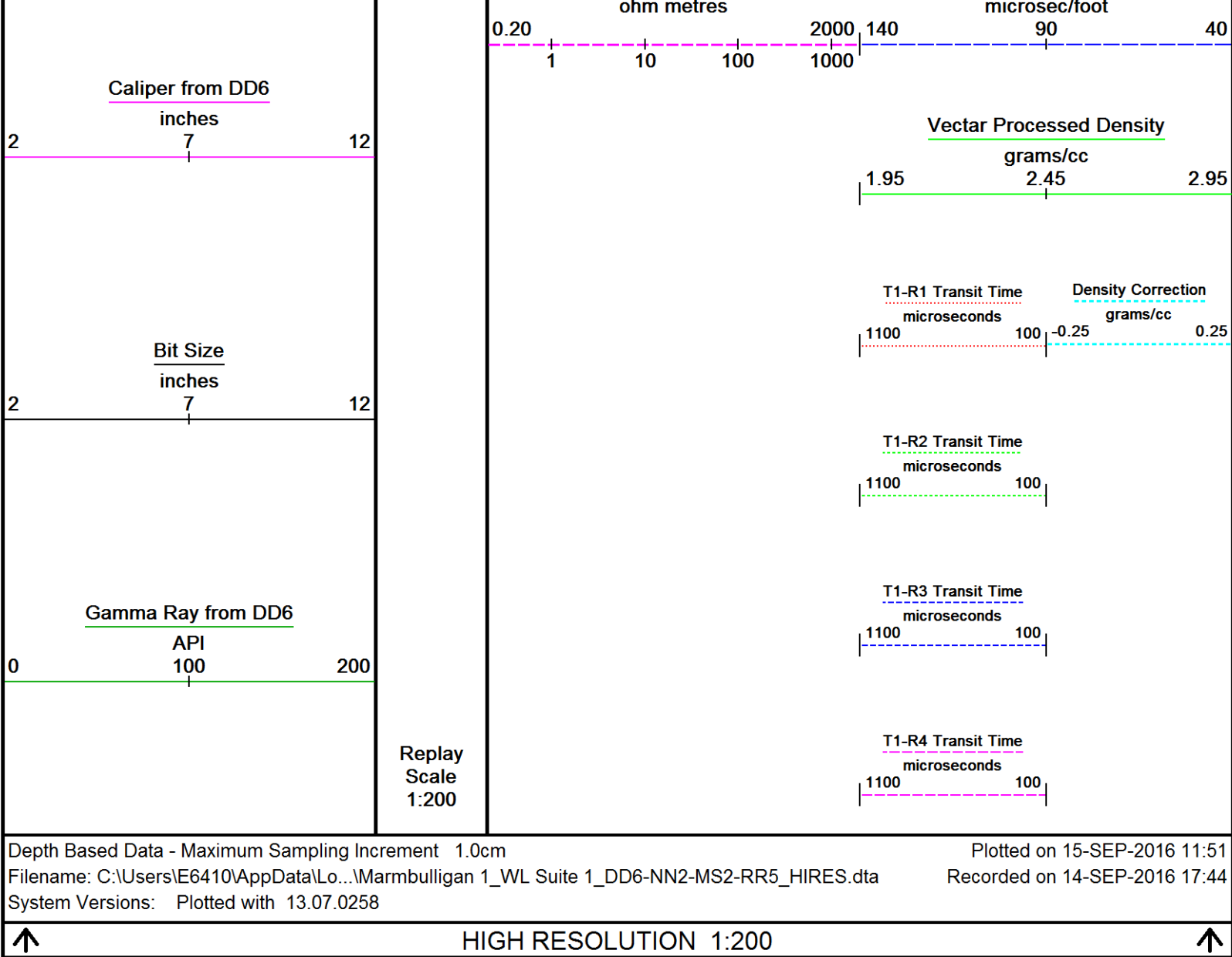
Sandstone Neutron Por.  
percent

0.20 1 10 100 1000 2000 45

15 -15

FE Resistivity Deep

40 cm Compen. Sonic R2R4



BEFORE SURVEY CALIBRATION				
C:\Users\E6410\AppData\Local\Temp\Weatherford PreView0\0\Marmbulligan 1_WL Suite 1_DD6-NN2-MS2-RR5_MAIN.dta				
Caliper Calibration DD6-A.A 733			Base Calibration on 17-AUG-2016,18:35 Field Calibration on	
Base Calibration				
Reading No	Measured		Calibrator Size (in)	
1	2136		3.00	
2	2597		4.00	
3	3008		5.00	
4	3462		6.00	
5	3930		7.00	
6	5145		9.00	
Field Calibration				
	Measured Caliper (in)		Actual Caliper (in)	

Density Calibration DD6-A.A 733					Base Calibration on 17-AUG-2016,18:41 Field Check on	
Base Calibration						
Wet Hole		Measured		Calibrated (sdu)		
		Brd	Lsd	Brd	Lsd	
Reference 1		3413	1983	36843	17425	
Reference 2		1161	42	13911	455	
Dry Hole		Measured		Calibrated (sdu)		

Reference 1	1	2	3	4
Reference 2	5	6	7	8
Field Check at Base			Calibrated (sdu)	
			0.0	0.0
Field Check			Calibrated (sdu)	

Density Constants DD6-A.A 733			Last Edited on 17-AUG-2016,18:29	
Processing Type	DD3			
Density Source Id	8246CN			
Aluminium Calibrator Number	000			
Caliper Source for Processing	Caliper from Density			
Gamma Strip Coefficient	0.50			
Mud Density	1.11		gm/cc	
Mud Filtrate Density	1.00		gm/cc	
BRD Scaler	-0.50			
LSD Scaler	1.50			
Matrix Density (gm/cc)	Depth (m)			
2.71	0.00			
0.00	0.00			
0.00	0.00			
0.00	0.00			
0.00	0.00			
0.00	0.00			
0.00	0.00			
0.00	0.00			
0.00	0.00			
Wet Hole Normalisation	Measured g/cc		Calibrated g/cc	
DENB Point 1	1.00		1.00	
DENB Point 2	3.00		3.00	
DENL Point 1	1.00		1.00	
DENL Point 2	3.00		3.00	
Dry Hole Normalisation	Measured g/cc		Calibrated g/cc	
DENB Point 1	1.00		1.00	
DENB Point 2	3.00		3.00	
DENL Point 1	1.00		1.00	
DENL Point 2	3.00		3.00	

Gamma Calibration DD6-A.A 733			Field Calibration on 17-AUG-2016,18:27	
	Measured		Calibrated (API)	
Background	9		15	
Calibrator (Gross)	296		470	
Calibrator (Net)	287		455	

Gamma Constants DD6-A.A 733			Last Edited on 17-AUG-2016,18:27	
Gamma Calibrator Number	428			

General Constants All 000			Last Edited on 14-SEP-2016,22:55	
General Parameters				
Mud Resistivity	0.066		ohm-metres	
Mud Resistivity Temperature	25.000		degrees C	
Water Level	0.000		metres	
Borehole Fluid Processing	Wet Hole			
Hole/Annular Volume and Differential Caliper Parameters				
HVOL Method	Single Caliper			
HVOL Caliper 1	Caliper from DD6			
HVOL Caliper 2	N/A			
Annular Volume Diameter	3.000		inches	
Caliper for Differential Caliper	None			

Rwa Parameters		N/A
Porosity used		N/A
Resistivity used		N/A
RWA Constant A		N/A
RWA Constant M		N/A
SW/APOR Tool Source		
Sonic Constants MS2-A.A 422		Last Edited on 12-SEP-2016,19:34
Maximum Boundary Contrast	100.00	micro-sec/ft
Fluid Transit Time	189.00	micro-sec/ft
Limestone Transit Time	47.50	micro-sec/ft
Sandstone Transit Time	55.50	micro-sec/ft
Dolomite Transit Time	43.50	micro-sec/ft
Sonic for Porosities	DTCA-60 cm Compensated Sonic R1R4	
Hunt-Raymer Constant	83.13	micro-sec/ft
Transit Time for UCS Curve	DTCC-20 cm Compensated Sonic R3R4	
UCS Constant	196.09	kpsi
UCS Exponent	0.0410	feet/sec
Transmitter-Receiver 1 Offset	24.00	inches
Transmitter-Receiver 2 Offset	32.00	inches
Transmitter-Receiver 3 Offset	40.00	inches
Transmitter-Receiver 4 Offset	48.00	inches
Neutron Calibration NN2-A 549		Base Calibration on 15-SEP-2016,01:32
Base Calibration Reading	Short Measured	Long Measured
1	110	48
	Calibrated	Calibrated
	1235	57
Neutron Constants NN2-A 549		Last Edited on 15-SEP-2016,03:26
Neutron Source Id	1009N	
Neutron Calibrator Number – Short	56.8	
Neutron Calibrator Number – Long	1235	
Porosity Equation Type	1 Curie	
Caliper Source for Processing	BIT	
FE Calibration RR5-A.A 595		Field Calibration on 14-SEP-2016,17:34
	Measured (cps)	Calibrated (ohm-m)
	Shallow	Deep
Reference 1	4520.00	2.76
Reference 2	3020.00	1.92
	Deep	Shallow
	4475.00	2758.00
	2975.00	1918.00
FE Constants RR5-A.A 595		Last Edited on 14-SEP-2016,15:53
Rt Constant PEN1 (deep > shallow)	2.100	
Rt Constant PEN2 (deep < shallow)	1.900	
Shallow K Factor	0.197	
Deep K Factor	0.137	
Tool standoff	Zero	
Caliper for hole size correction	Bit Size	
Caliper Value hole size correction	N/A	inches
Mud Resistivity hole size correction	Temperature Corr Constant	
Temperature for Rm Corr.	25.000	Deg C

COMPANY	Santos & Partners				
WELL	Marmbulligan 1				
FIELD	Marmbulligan				
PROVINCE/COUNTY					
COUNTRY/STATE	Northern Territory				
Elevation Kelly Bushing		metres	First Reading	675.20	metres
Elevation Drill Floor	175.00	metres	Depth Driller	674.80	metres
Elevation Ground Level	175.00	metres	Depth Logger	675.32	metres

