



**MICRO LATEROLOG
RT EXPLORER
GAMMA RAY LOG
TRIM SUB**

FILE NO: MD11798	COMPANY HOLLY FRONTIER - NAVAJO
API NO: 30-015-44677	WELL NAVAJO REFINING WDW #4
	FIELD ARTESIA
	COUNTY EDDY
	STATE NEW MEXICO

Ver. 4.10	LOCATION: 1217' FSL & 2443' FWL SECTION 23, T17S, R27E N.M.P.M. SURVEY	OTHER SERVICES STAR
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PERMANENT DATUM	GL	ELEVATION	3565.8 FT	ELEVATIONS:
LOG MEASURED FROM	KB	20 FT	ABOVE P.D.	KB 3565.8 FT
DRILL. MEAS. FROM	KB			DF 3584.8 FT
				GL 3565.8 FT

DATE	16-JUN-2018		29-JUN-2018	
RUN	TRIP	2	1	3
SERVICE ORDER		134536		134542
DEPTH DRILLER		9739 FT		10360 FT
DEPTH LOGGER		9740 FT		10360 FT
BOTTOM LOGGED INTERVAL		9740 FT		10360 FT
TOP LOGGED INTERVAL		1680 FT		9740 FT
CASING DRILLER		13.375 IN	@ 1680 FT	13.375 IN @ 1680 FT
CASING LOGGER		1680 FT		1680 FT
BIT SIZE		12.25 IN		12.25 IN
TYPE OF FLUID IN HOLE		WBM		WBM
DENSITY	VISCOSITY	9.8 LB/G	46 CP	9.7 LB/G 44 CP
PH	FLUID LOSS	10	N/A	10 N/A
SOURCE OF SAMPLE	FLOWLINE			FLOWLINE
RM AT MEAS. TEMP.		0.036 OHMM	@ 75 DEGF	0.091 OHMM @ 75 DEGF
RMF AT MEAS. TEMP.		0.031 OHMM	@ 75 DEGF	0.077 OHMM @ 75 DEGF
RMC AT MEAS. TEMP.		0.048 OHMM	@ 75 DEGF	0.122 OHMM @ 75 DEGF
SOURCE OF RMF	RMC	MEASURED	MEASURED	MEASURED
RM AT BHT		0.066 OHMM	@ 132 DEGF	0.193 OHMM @ 167 DEGF
TIME SINCE CIRCULATION		8 HRS		9 HRS
MAX. RECORDED TEMP.		135 DEGF		168 DEGF
EQUIP. NO.	LOCATION	HL6845	MIDLAND, TX	HL6690 MIDLAND, TX
RECORDED BY		JKOSKI		JKOSKI
WITNESSED BY		RCOOK		KCOOK

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 2 TRIP 1: DATA TIED INTO RUN 1 DATA

BOREHOLE AND CEMENT VOLUME PRESENTED (TOTAL VOLUME LESS 9.625" CASING)
1 SMALL TICK = 10 CUBIC FEET
1 MEDIUM TICK = 100 CUBIC FEET
1 LARGE TICK = 1000 CUBIC FEET

PORZC AND CNC RECORDED AND PRESENTED ON A LIMESTONE MATRIX
CNC IS CALIPER AND CASING CORRECTED

RIG: PATRIOT #4
CREW: J. ESPINOZA / R. SANCHEZ

RUN 3 TRIP 1: DATA TIED INTO RUN 2 DATA

BOREHOLE AND CEMENT VOLUME PRESENTED (TOTAL VOLUME LESS THAN 9.625" CASING)
1 SMALL TICK = 10 CU. FT
1 MEDIUM TICK = 100 CU. FT
1 LARGE TICK = 1000 CU. FT

PORZC & CNC RECORDED ON A LIMESTONE MATRIX
CNC IS CASING AND CALIPER CORRECTED

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	TTRM	3981XA	10570248	FREE
1	1	COMM	3514XA	Z173226	FREE
1	1	GAMMA	1329XA	Z179409	D.CENT
1	1	CN	2446XA	Z154181	D.CENT
1	1	ZDL	2234XA	10495292	PAD DEVICE
1	1	DBL KNUCK	3939XA	10335551	FREE
1	1	6CAL	4243XA	12408673	CENTRALIZED
1	1	RTEX	1249XA	12554838	CENTRALIZED
1	1	MLL	1243XA	13647991	PAD DEVICE

INSTRUMENT CONFIGURATION

Source File: /dat1a/md11798R3/p87cc~wsp-tdg

CABLEHEAD

Diameter : 3.38"
Length : 5.50'
Weight : 24 lbs
Series : CABL338
Mnemonic : CBLH
Volume Disp. : 9.7 L

TTRM SUB

Diameter : 3.63"
Length : 3.83'
Weight : 62 lbs
Series : 3981XA
Mnemonic : TTRM

WTS COMMON REMOTE

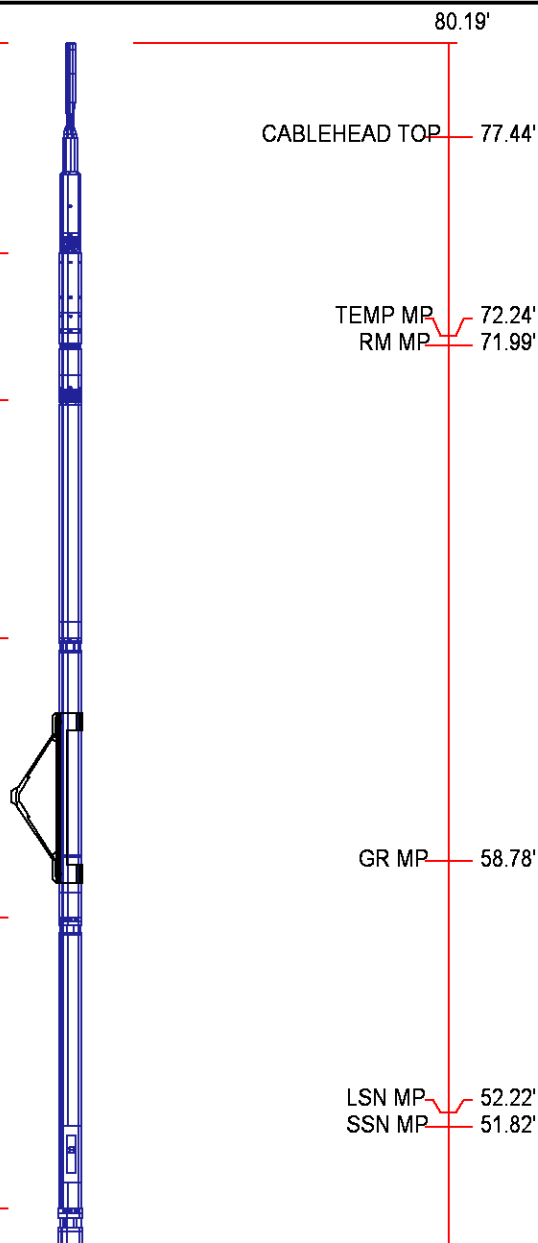
Diameter : 3.63"
Length : 6.36'
Weight : 126 lbs
Series : 3514XB
Mnemonic : WTS
Volume Disp. : 13.0 L

DIGITAL SPECTRALOG

Diameter : 3.63"
Length : 7.31'
Weight : 130 lbs
Series : 1329XA
Mnemonic : DSL
Volume Disp. : 14.9 L
Measure Point: 1.60': GR MP

COMPENSATED NEUTRON

Diameter : 3.63"
Length : 7.59'
Weight : 150 lbs
Series : 2446XA
Mnemonic : CN
Volume Disp. : 15.4 L
Measure Point: 2.63': LSN MP
Measure Point: 2.24': SSN MP



Z-DENSILOG

Diameter : 4.88"
Length : 11.22'
Weight : 360 lbs
Series : 2234XA
Mnemonic : ZDL
Volume Disp.: 41.3 L
Measure Point: 3.19': CAL MP
Measure Point: 2.47': LSD MP
Measure Point: 2.07': SSD MP

CAL MP 41.56'
LSD MP 40.84'
SSD MP 40.44'

MASS ISOLATION SUB

Diameter : 3.63"
Length : 2.09'

KNUCKLE JOINT (DOUBLE)

Diameter : 3.38"
Length : 4.65'
Weight : 90 lbs
Series : 3939XA
Mnemonic : KNJT

4 ARM BOW SPRING CENTRALIZER

Diameter : 3.38"
Length : 4.12'
Weight : 72 lbs
Series : 4341XA
Mnemonic : CENT

WTS RT EXPLORER

Diameter : 4.00"
Length : 14.00'
Weight : 246 lbs
Series : 1249XA
Mnemonic : RTEX
Volume Disp.: 34.6 L
Measure Point: 7.09': RTEX MP

RTEX MP 20.60'

WTS MICROLATEROLOG

Diameter : 4.00"
Length : 11.25'
Weight : 258 lbs
Series : 1243XA
Mnemonic : MLL
Volume Disp.: 27.8 L
Measure Point: 1.55': MP

MP 3.82'

MASS ISOLATION SUB

Diameter : 3.63"
Length : 2.09'

BULL PLUG 2 5/8

0.00'

TOTAL LENGTH: 80.19'
TOTAL WEIGHT: 1642 lbs
MAX DIAMETER: 0'4.88"
TOTAL VOLUME DISPLACEMENT: 188.4 L (1.2 bbl) Est.

MAIN LOG 2"/100FT SCALE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
 Updates: 32 Patches: 4

Plotted: Fri Jun 29 10:17:09 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/md11798R3/p87cc03.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 9691.591 ft BOTTOM DEPTH: 9691.591 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TTRM	FILTER ()	medium (1)		TOP	BOTTOM
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
TENSION GR	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
CALIPER	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
RTeX	FILTER ()	light (2a)		"	"
	FILTER (.h)	light (2a)		"	"
	FILTER (.i)	light (2a)		"	"
CALA (3rd CALIPER)	FILTER (.i)	medium(1)		"	"
MLL	FILTER ()	light (2a)		"	"
	FILTER (.i)	light (2a)		"	"
	FILTER (.j)	light (2a)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
X-Y COMBINED CALIPER PROCESSING	X-Y Caliper	X-Axis		TOP	BOTTOM
BIT SIZE	BIT SIZE	12.250	in	"	"
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	"	"
	at BH REF DEPTH	0.0	ft	"	"
	with TEMP GRADIENT	1.200	0.01 degF/ft	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (calmu*)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mlr1c*)	12.250	in	"	"
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	TOOL MEASURED		"	"

RTeX PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RTeX ADAPTIVE BOREHOLE CORRECTION	BOREHOLE CORRECTION Rxo Source	ON MICROLATEROLOG		TOP "	BOTTOM "

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CALX	N/A	CALIPER FROM X-AXIS OF XY CALIPER(S)
F1:GR	N/A	GAMMA RAY
F1:MLR1C	N/A	RTeX SHALLOW RESISTIVITY 1, ADAPTIVE BOREHOLE CORRECTION
F1:MLR2C	N/A	RTeX SHALLOW RESISTIVITY 2, ADAPTIVE BOREHOLE CORRECTION
F1:MLR3C	N/A	RTeX MEDIUM RESISTIVITY 3, ADAPTIVE BOREHOLE CORRECTION
F1:MLR4C	N/A	RTeX DEEP RESISTIVITY 4, ADAPTIVE BOREHOLE CORRECTION
F1:RMLL	N/A	RESISTIVITY

F1:TEN

N/A

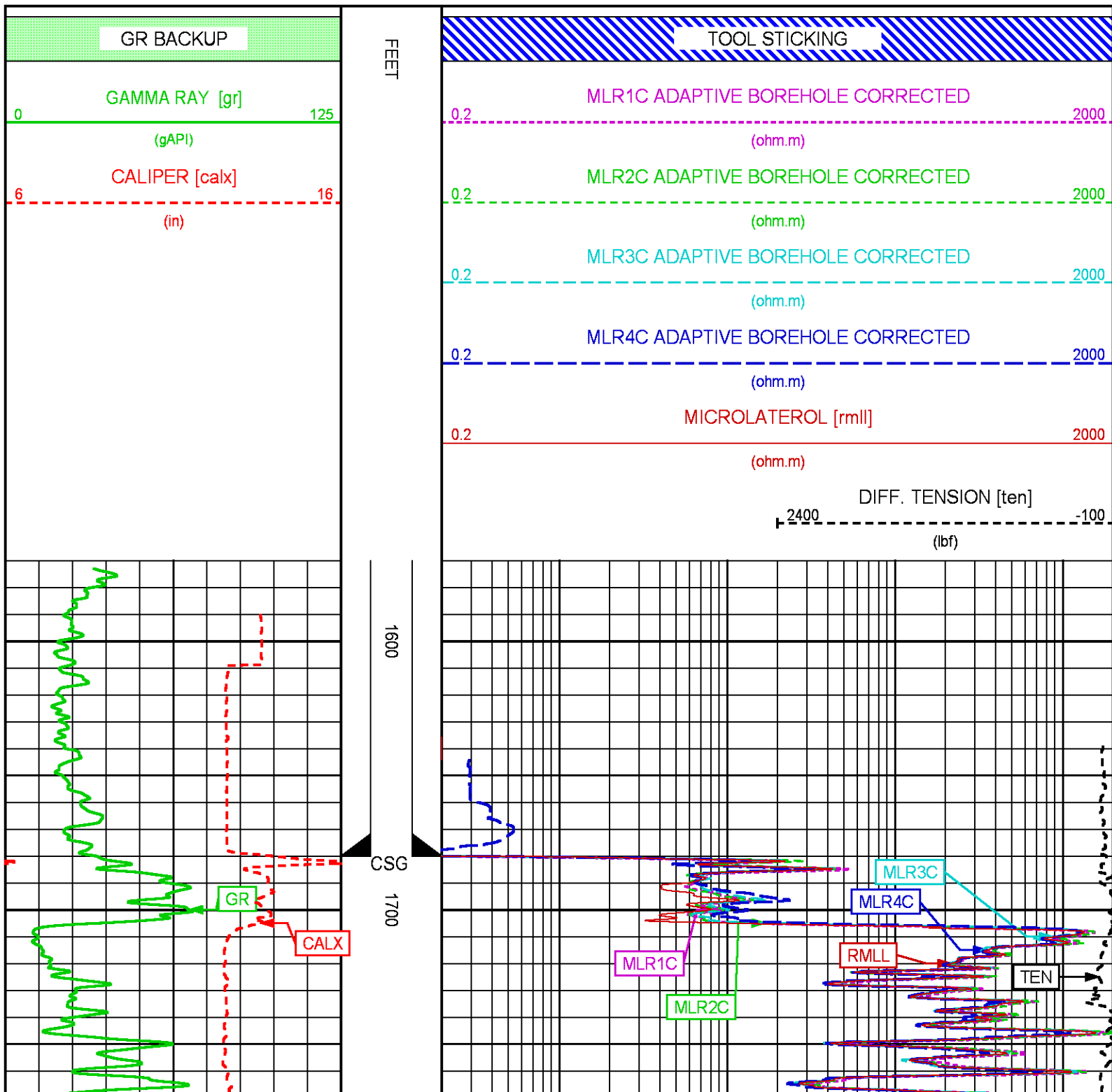
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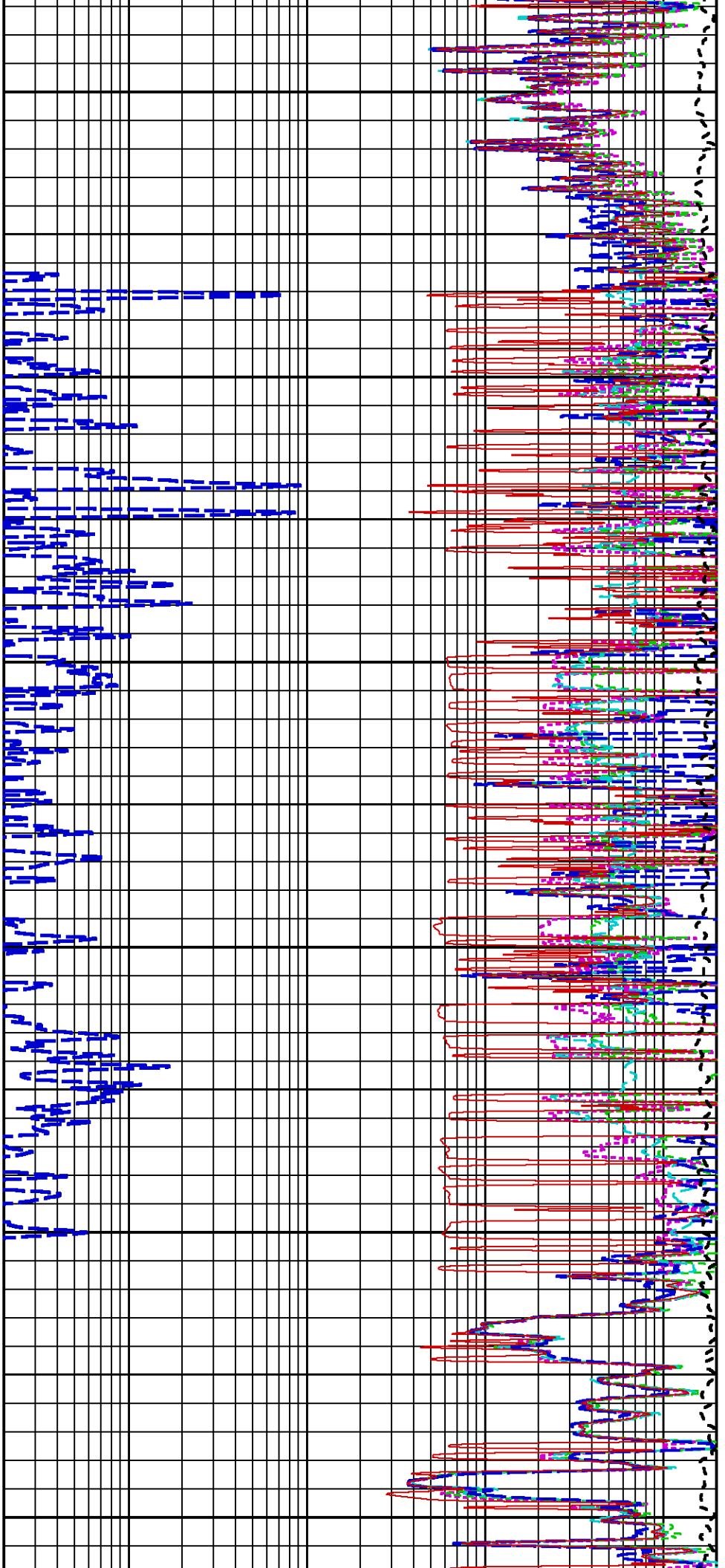
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CALX	-49.00	MLR1C	-20.50	MLR3C	-20.50	RMLL	-3.50
GR	-66.25	MLR2C	-20.50	MLR4C	-20.50	TEN	0.00

Presentation : HL6690:/dat1a/md11798R3/RTEX_TX_2.fvpdf [2"/100' Scale]
Plot Interval : 1573 - 10373.2 Feet

Data File 1 : F1 : HL6690:/dat1a/md11798R3/R2.xtf
Created On : N/A
Company : HOLLY FRONTIER - NAVAJO
Well : NAVAJO REFINING WDW #4
Field : ARTESIA
File Interval : 1558.5 - 10373.2 Feet
OCT : p87cc





1800

1900

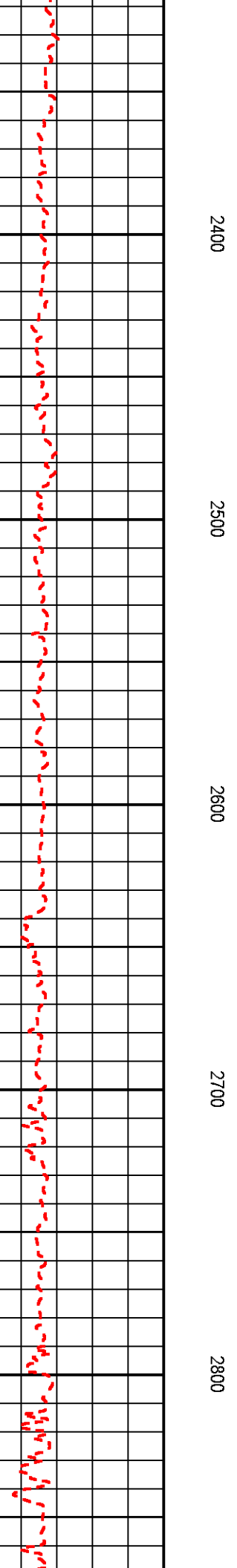
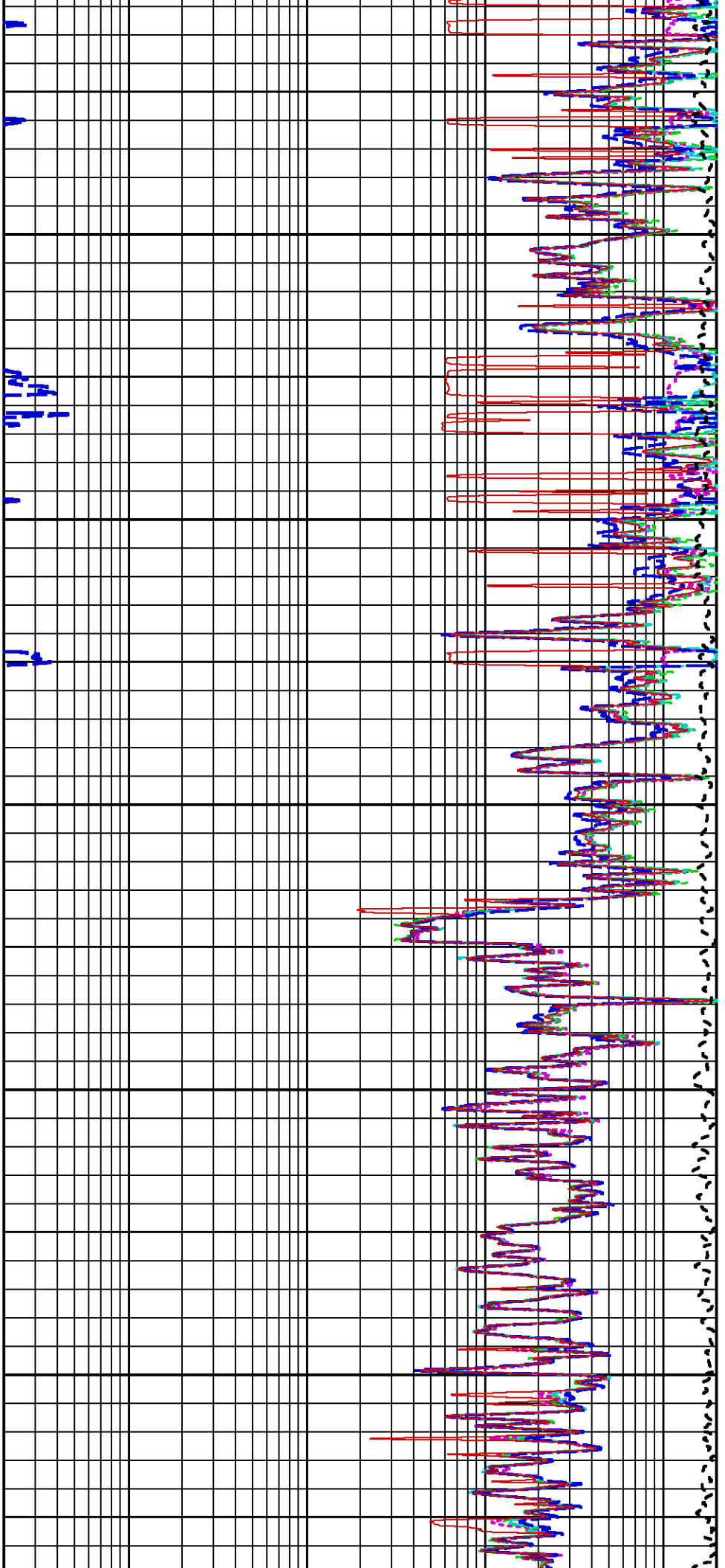
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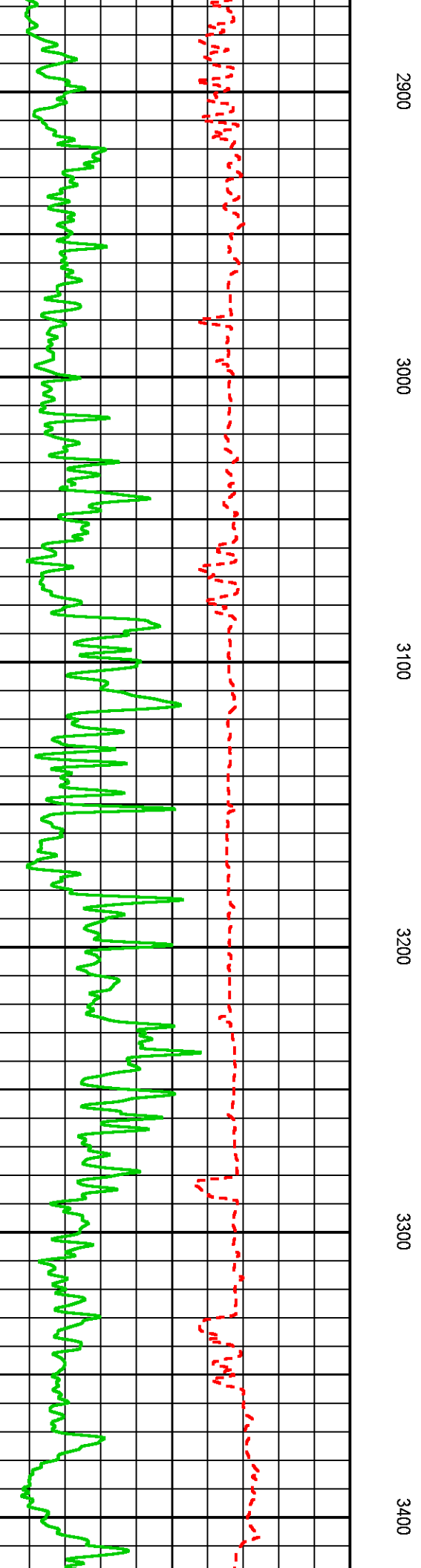
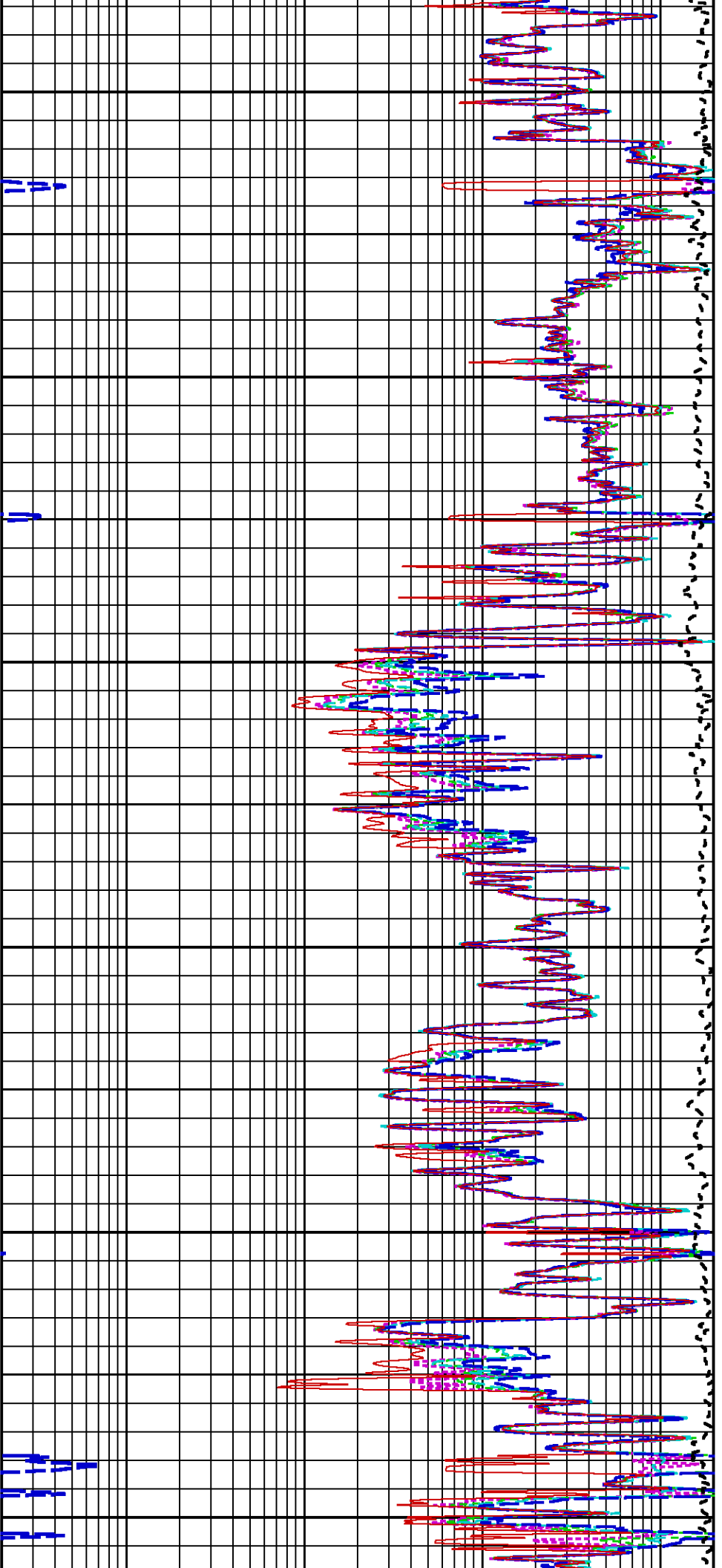
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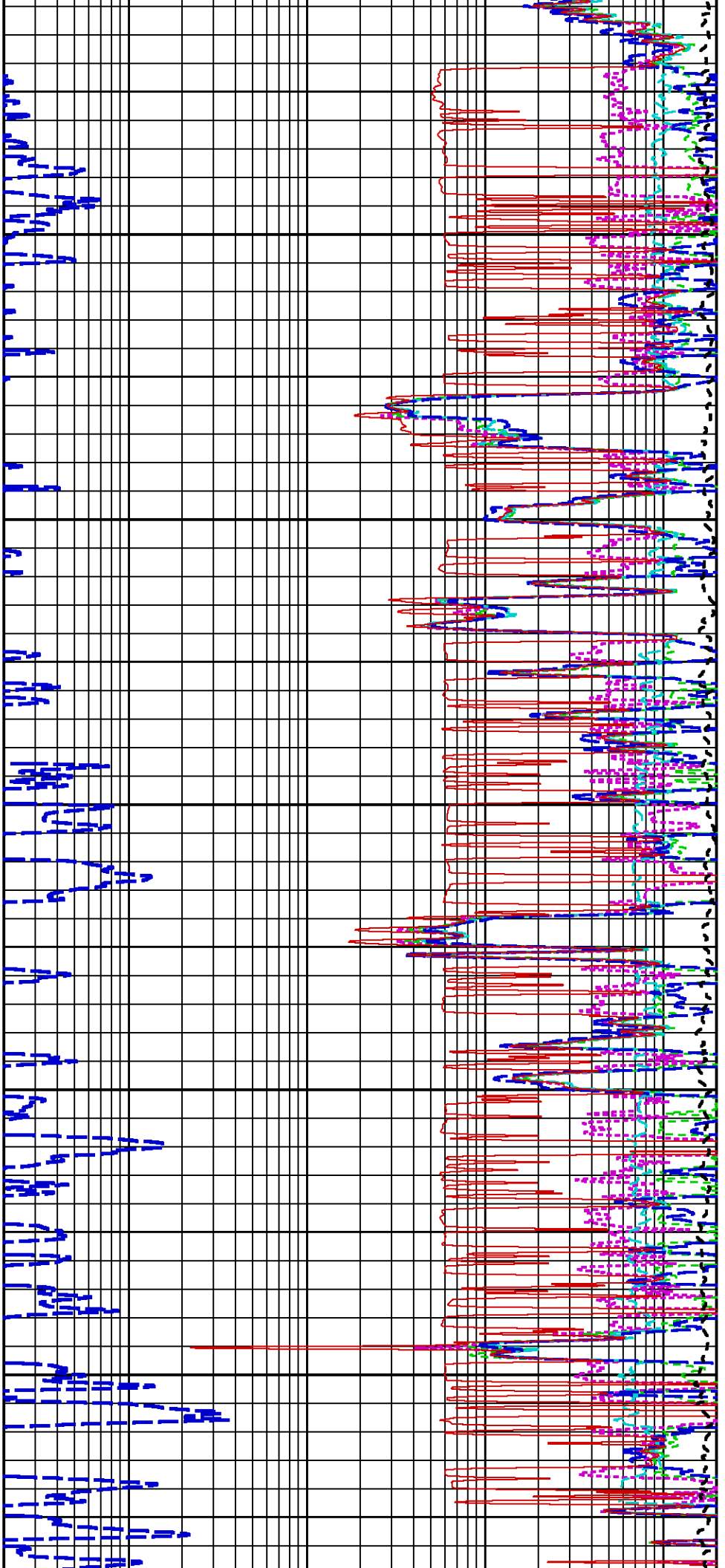
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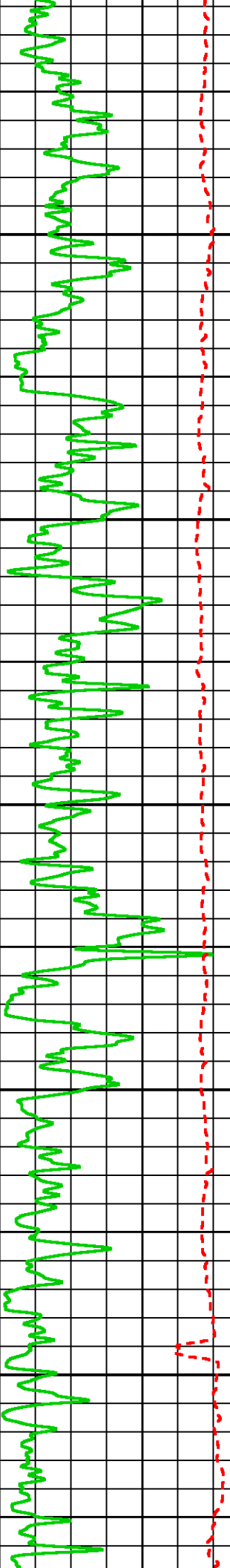
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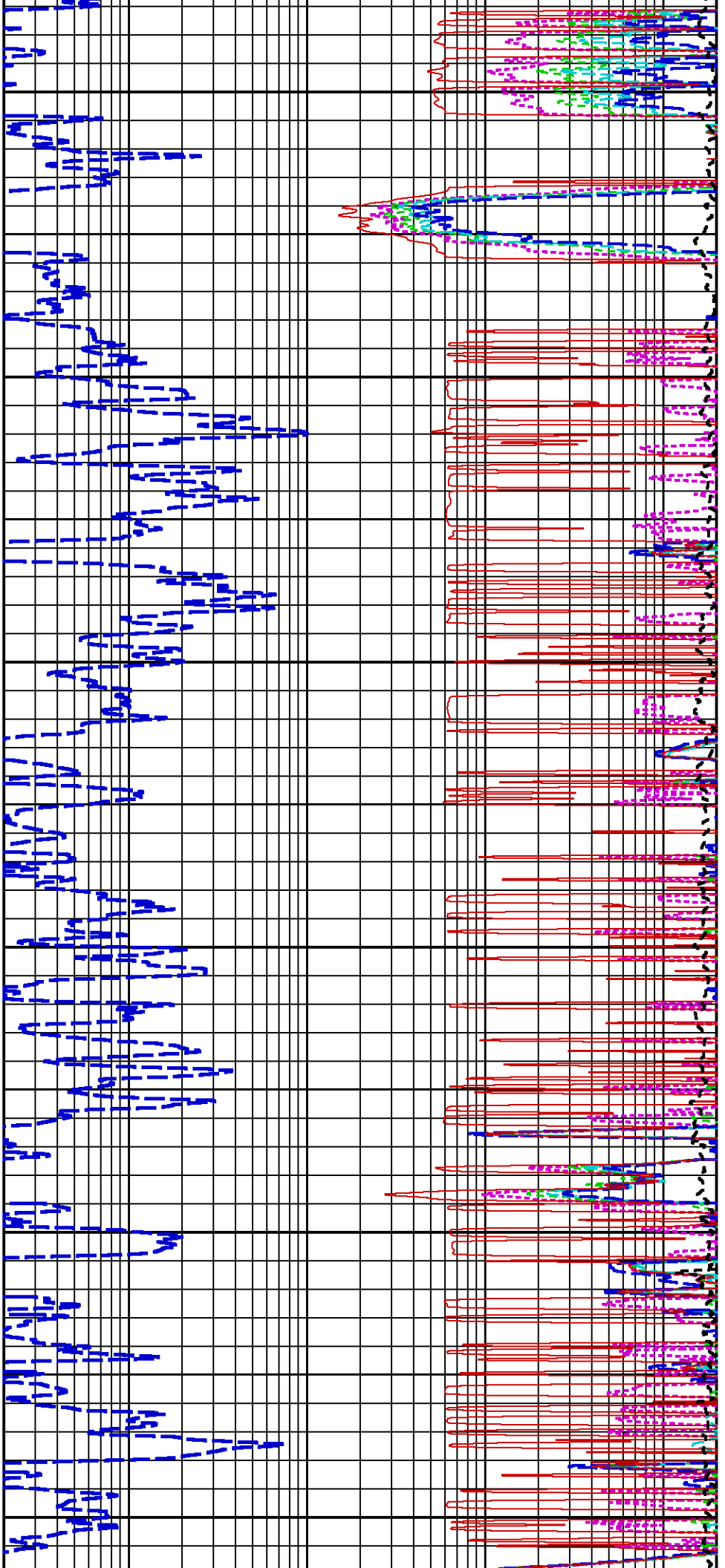
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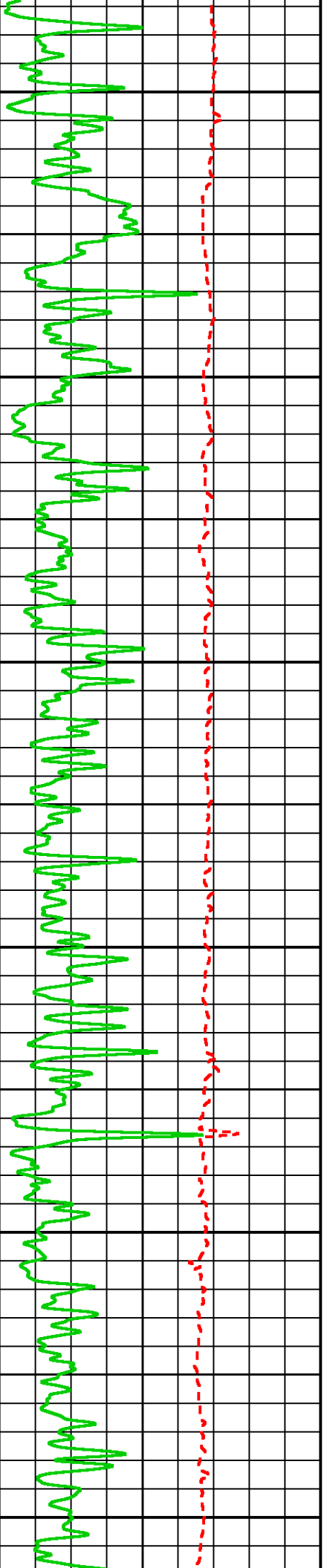
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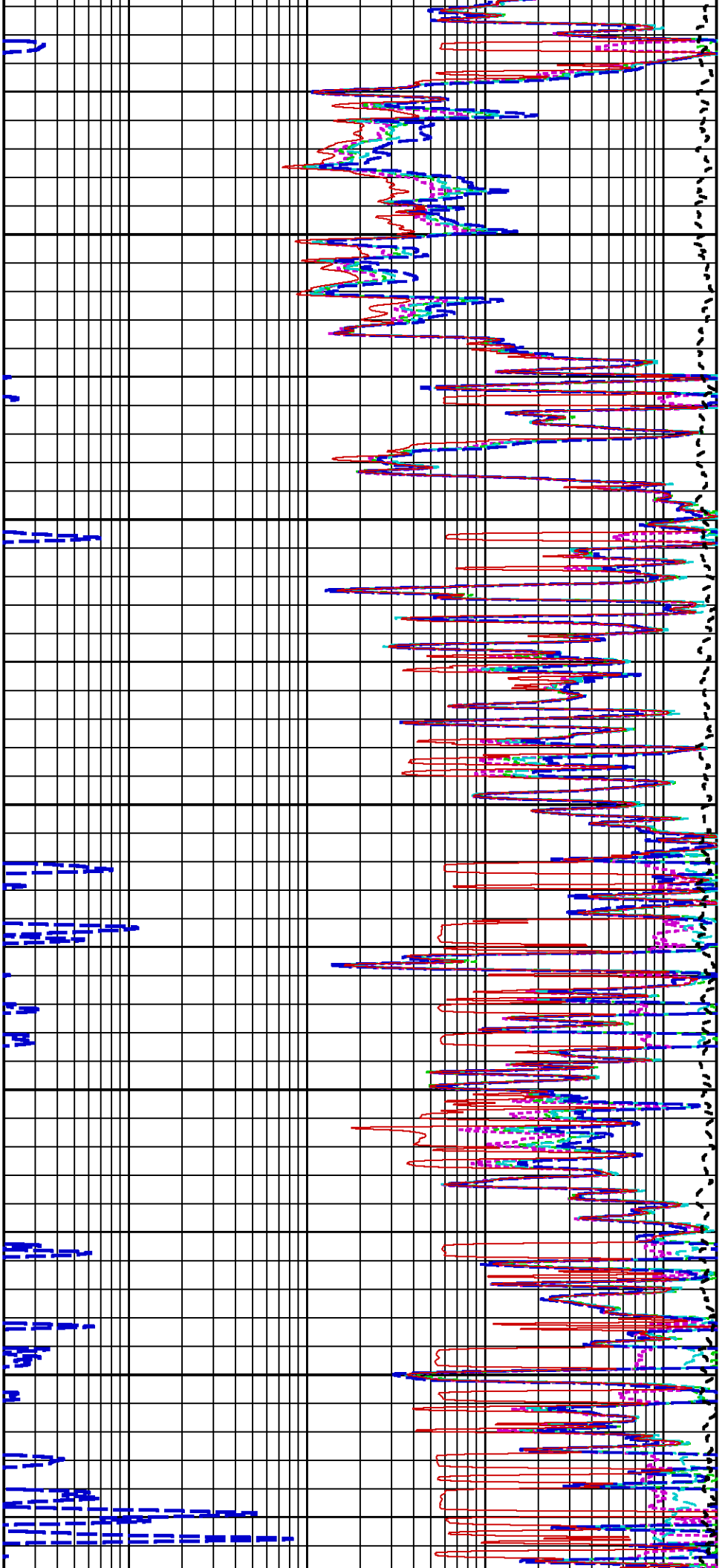
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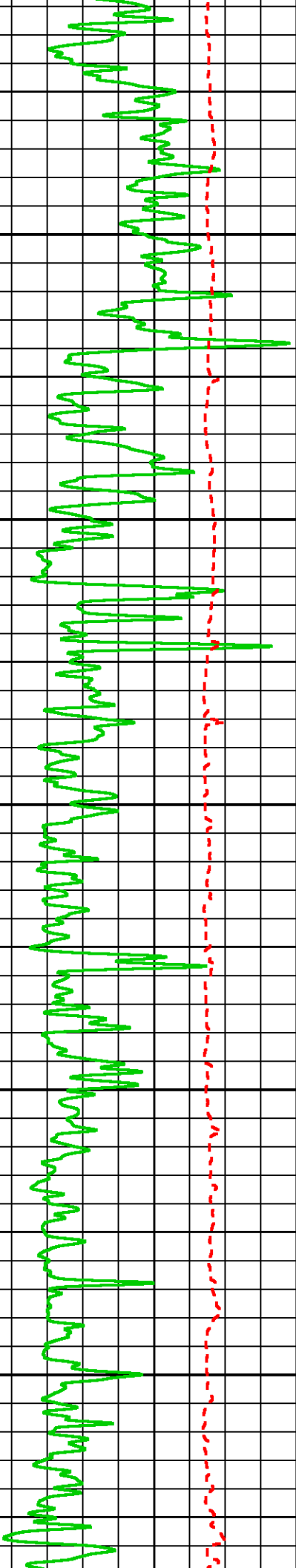
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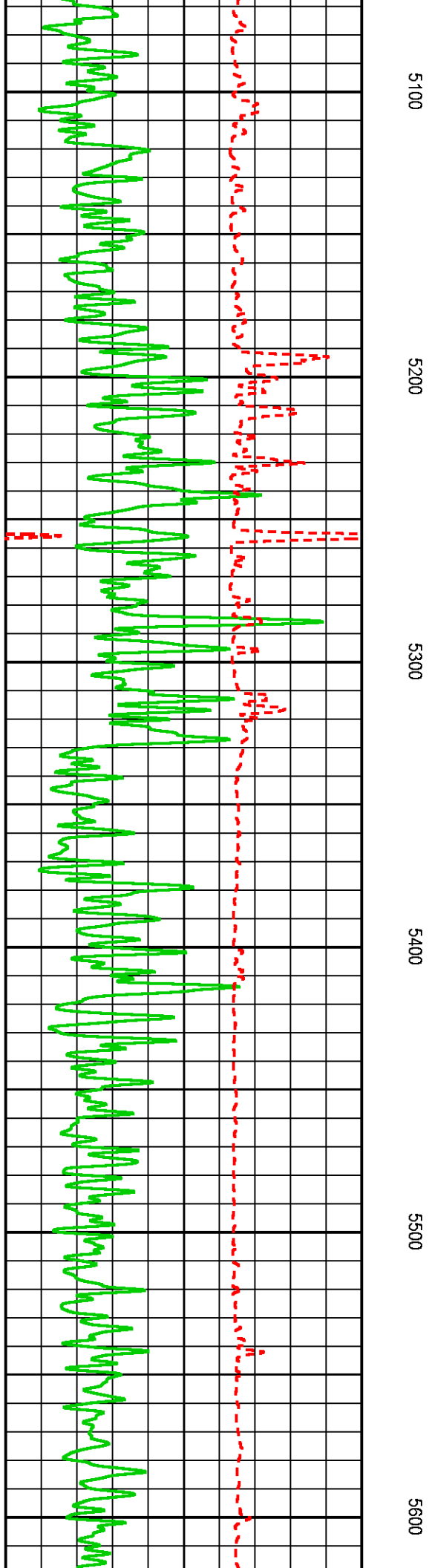
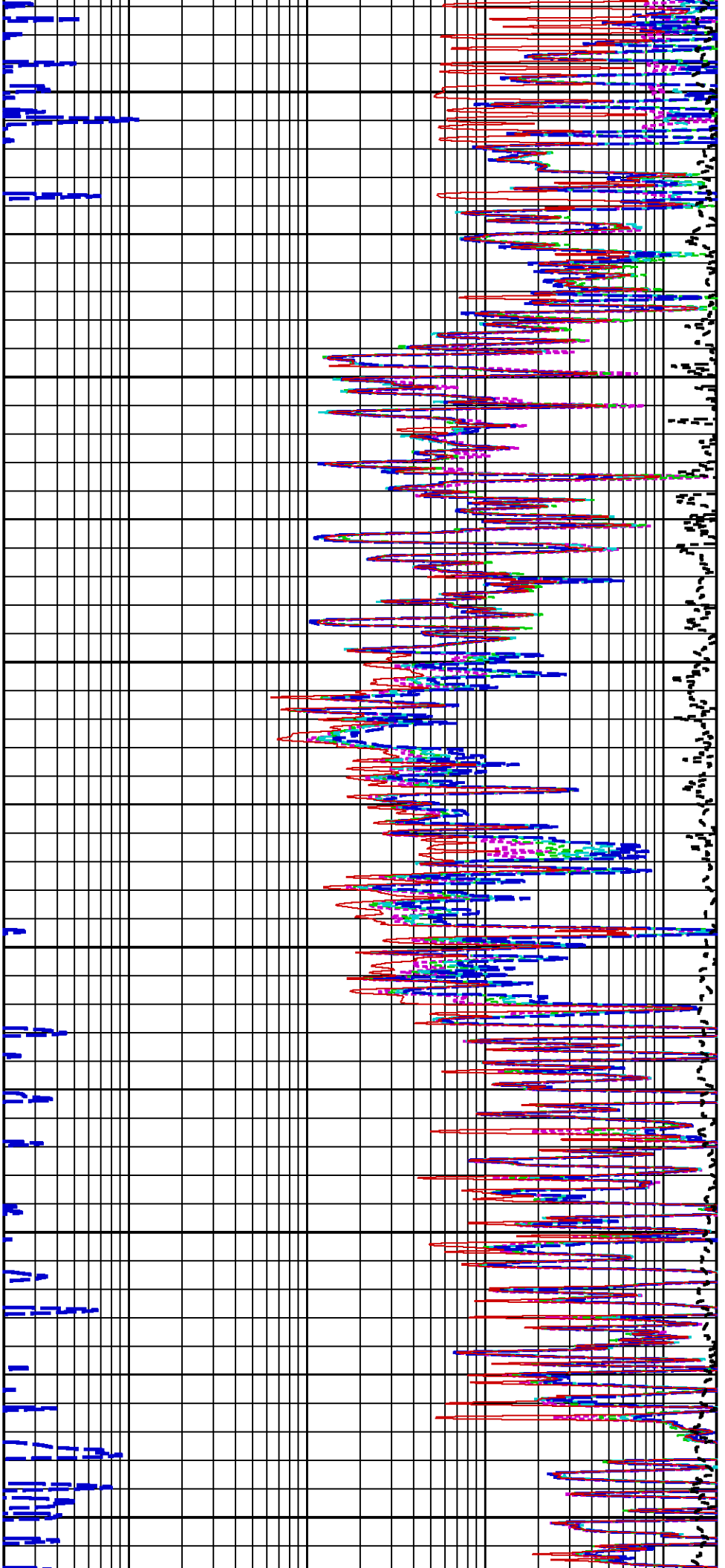
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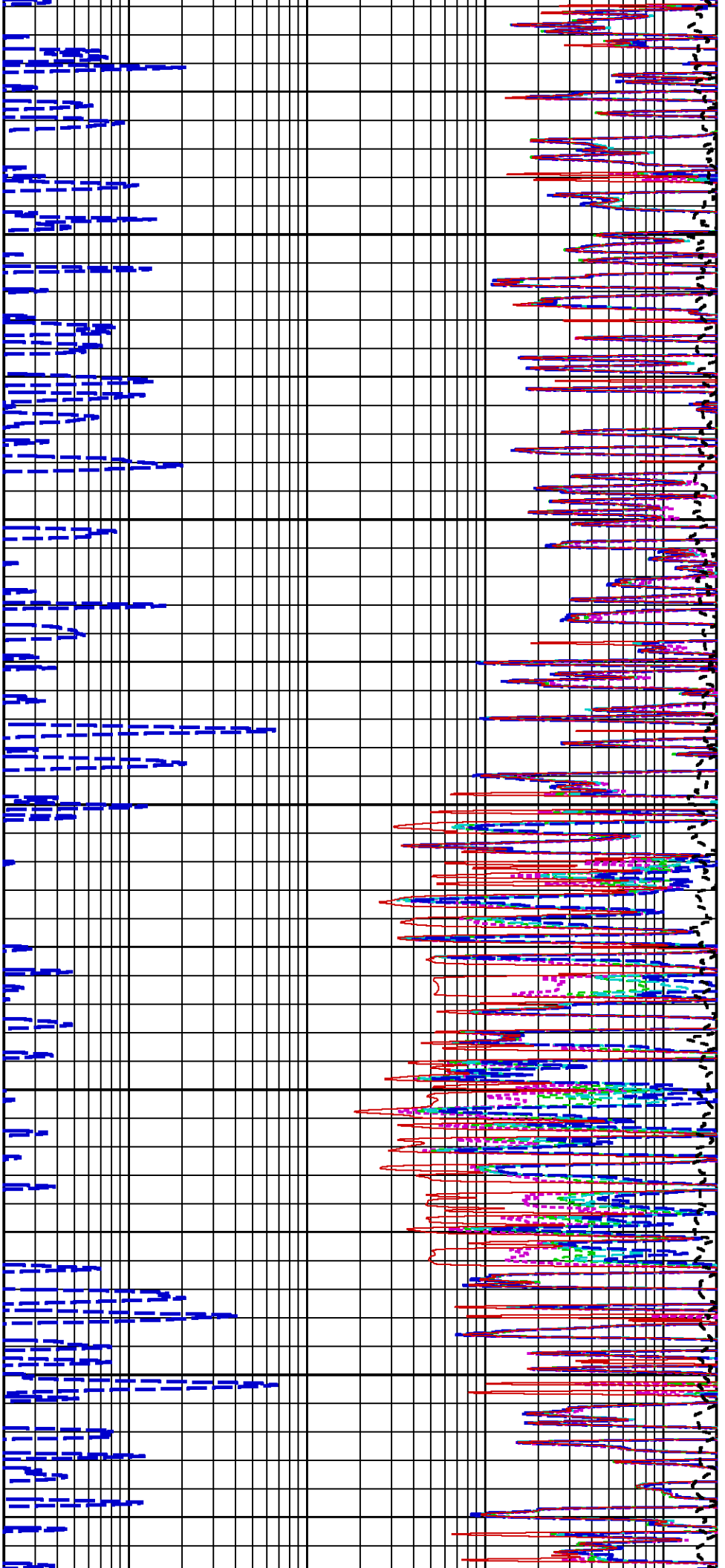
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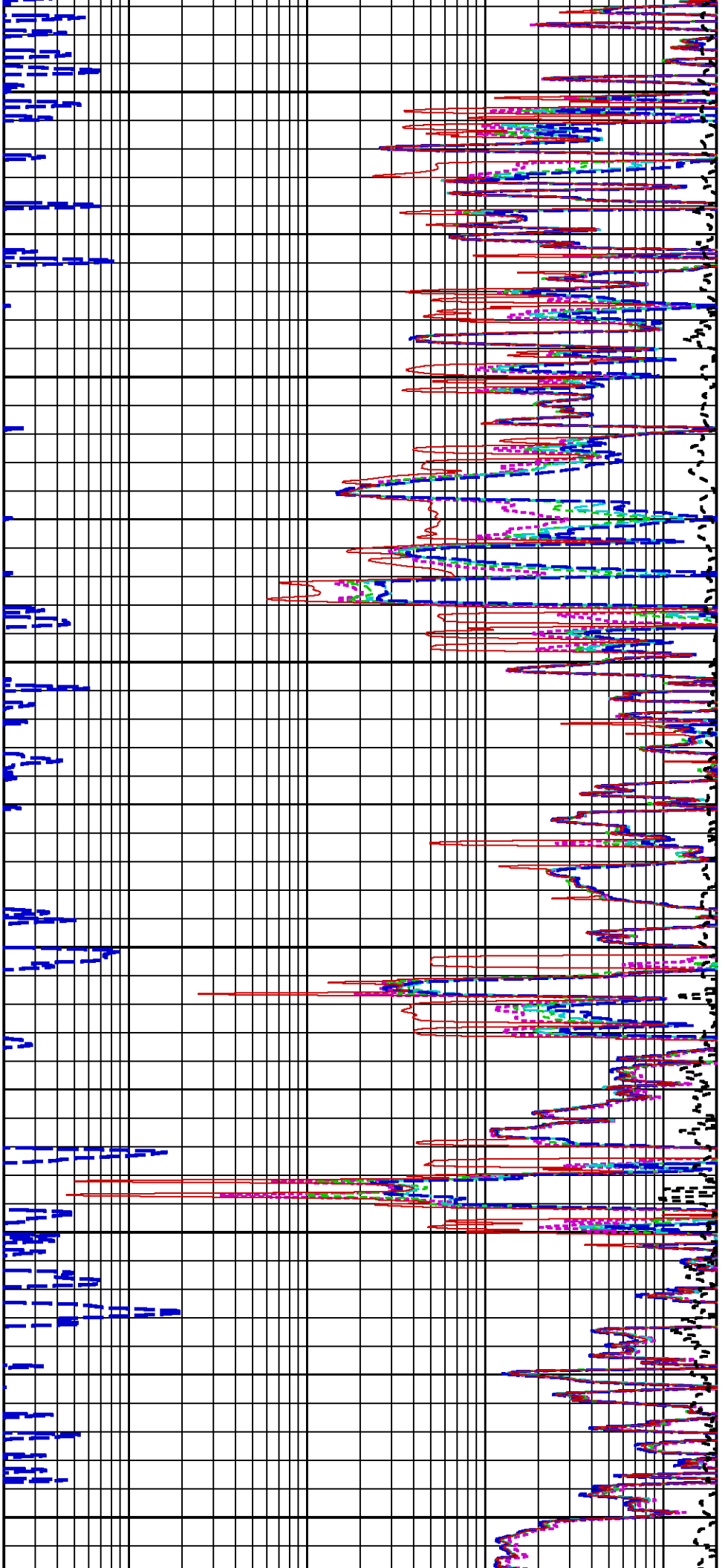
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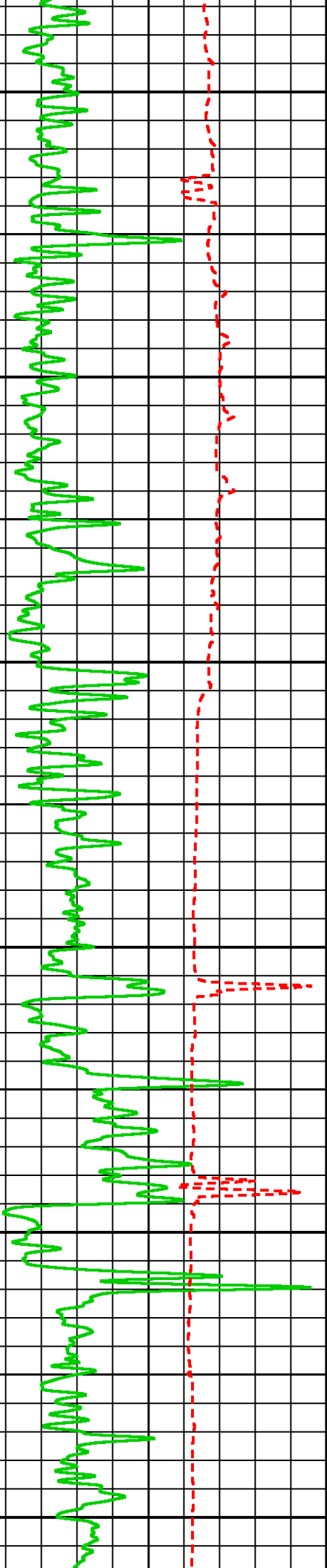
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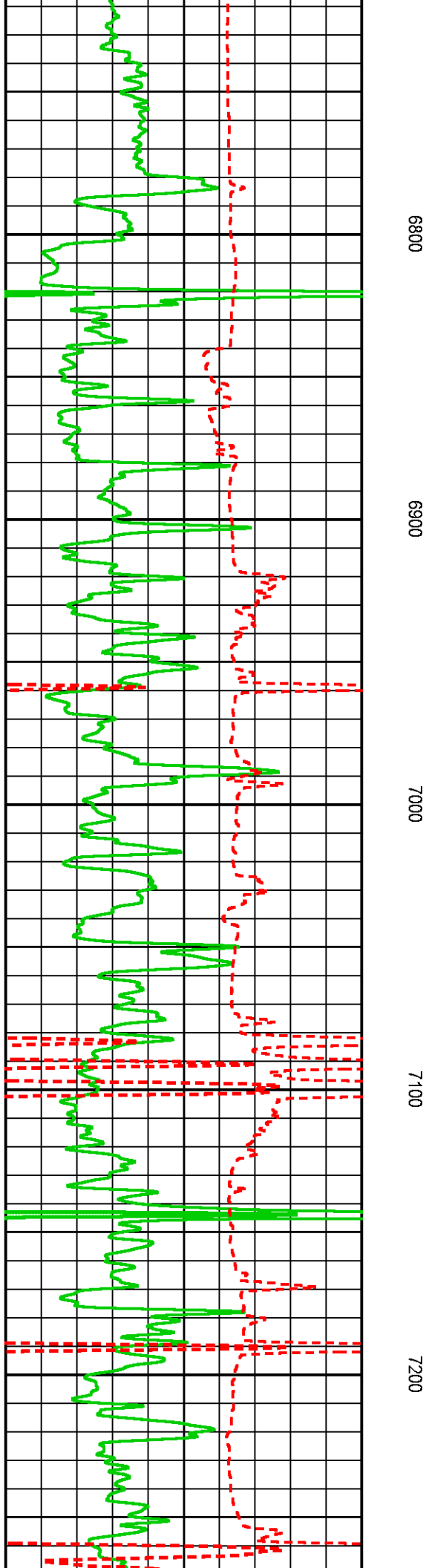
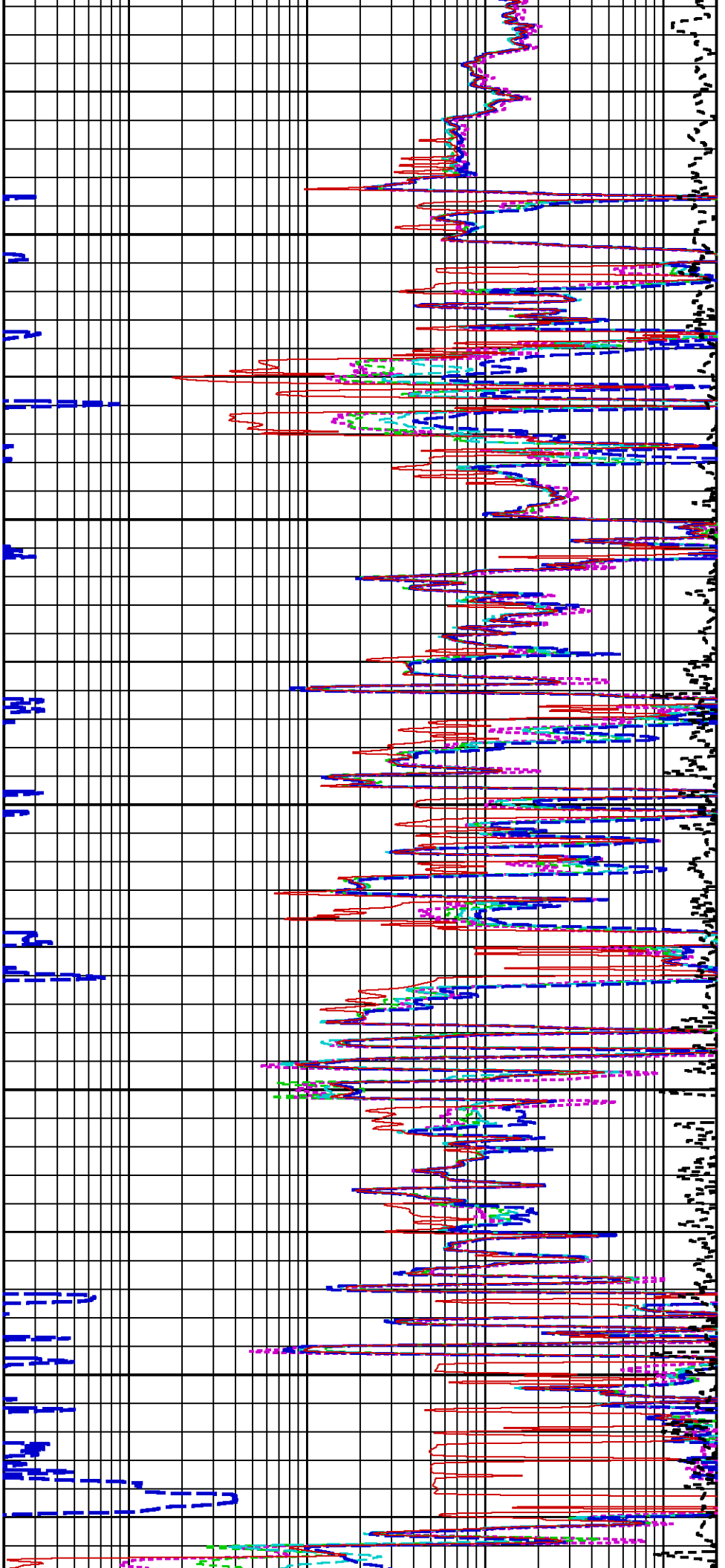
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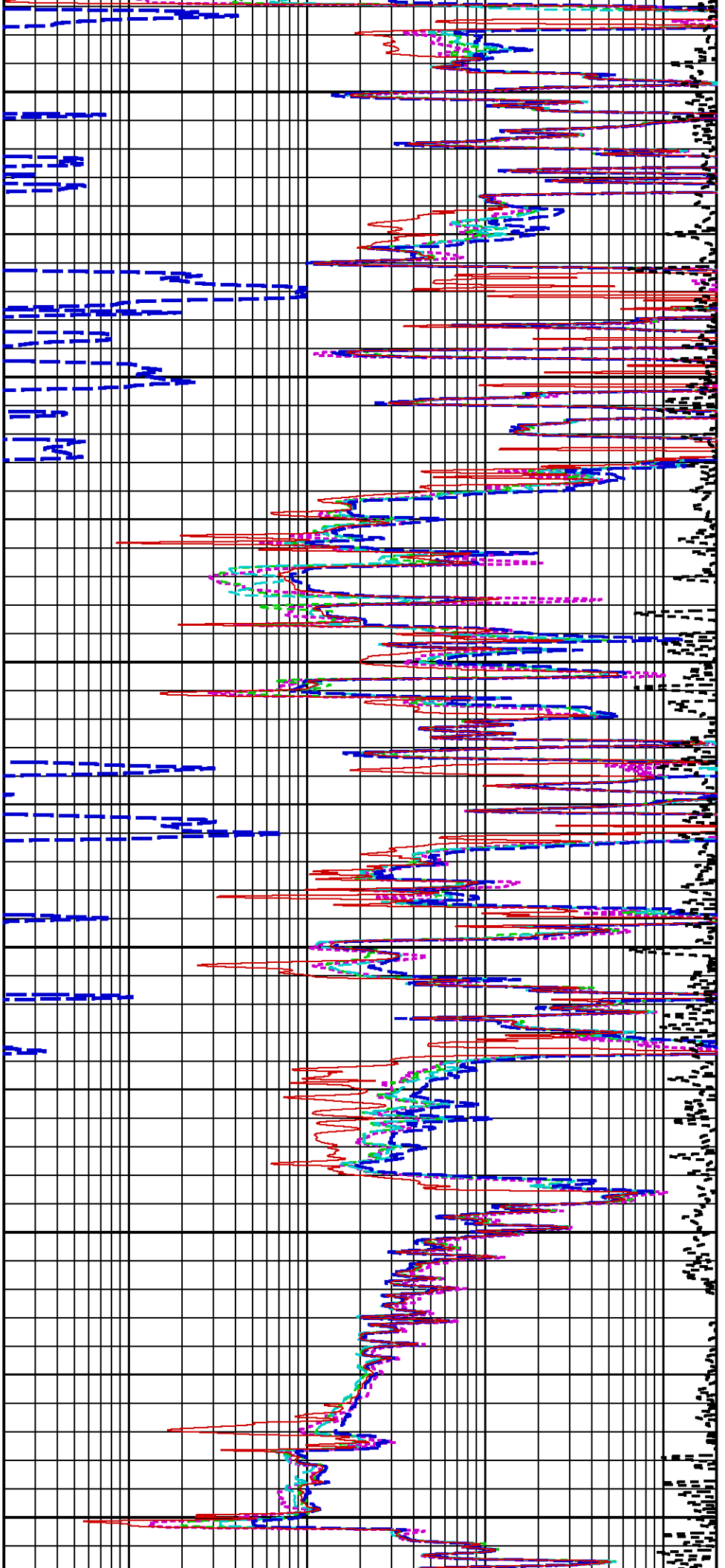




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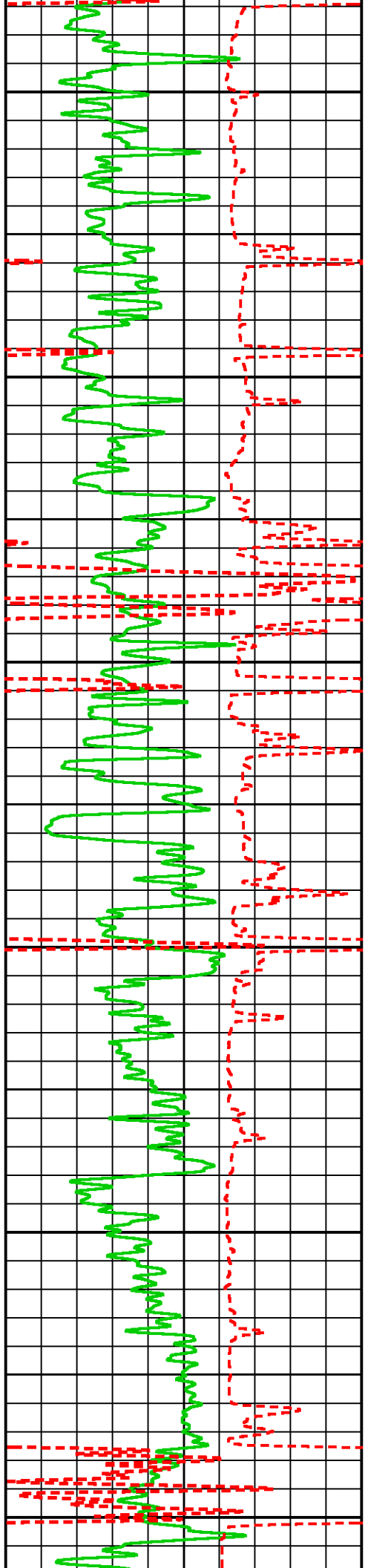
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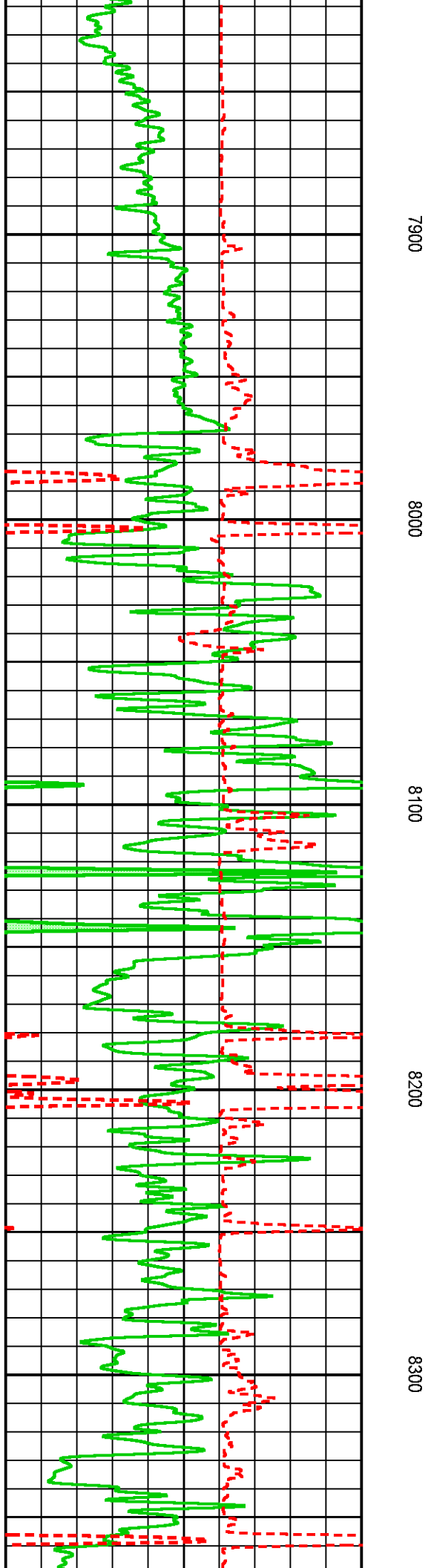
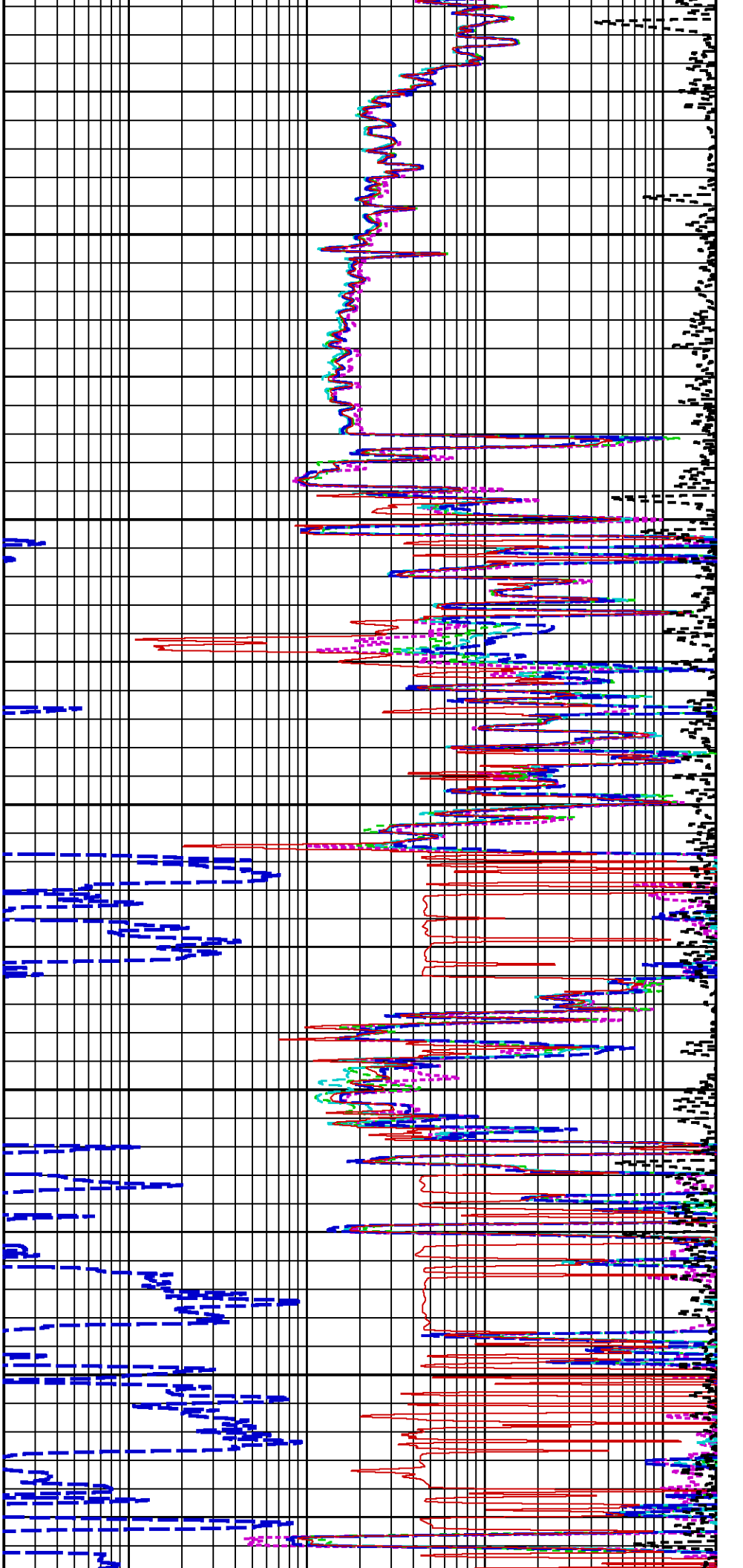
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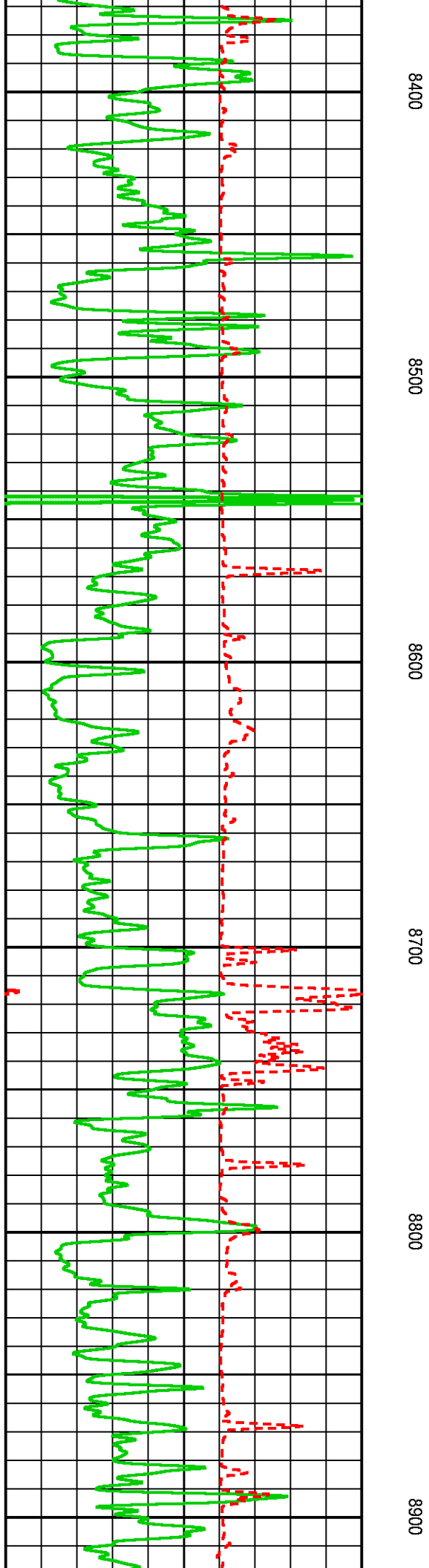
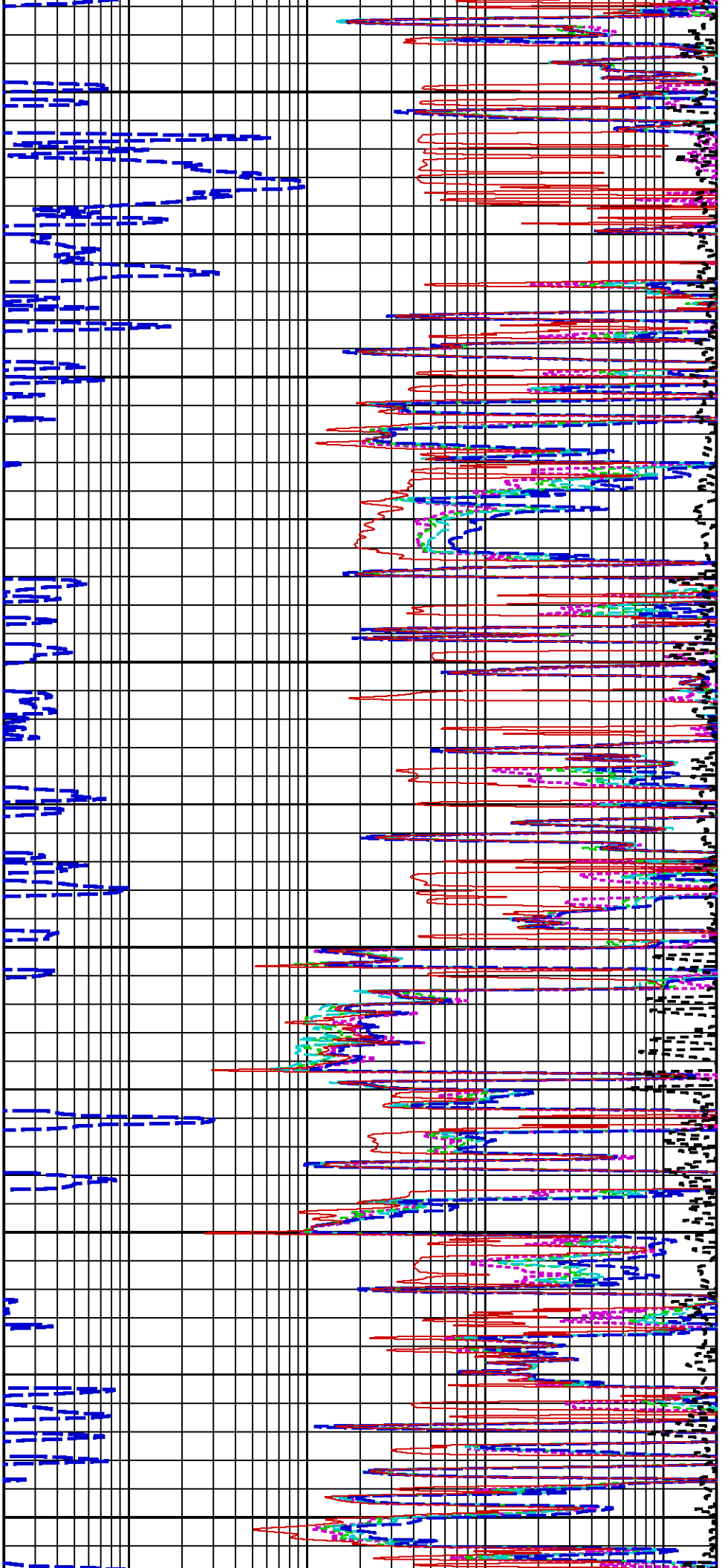
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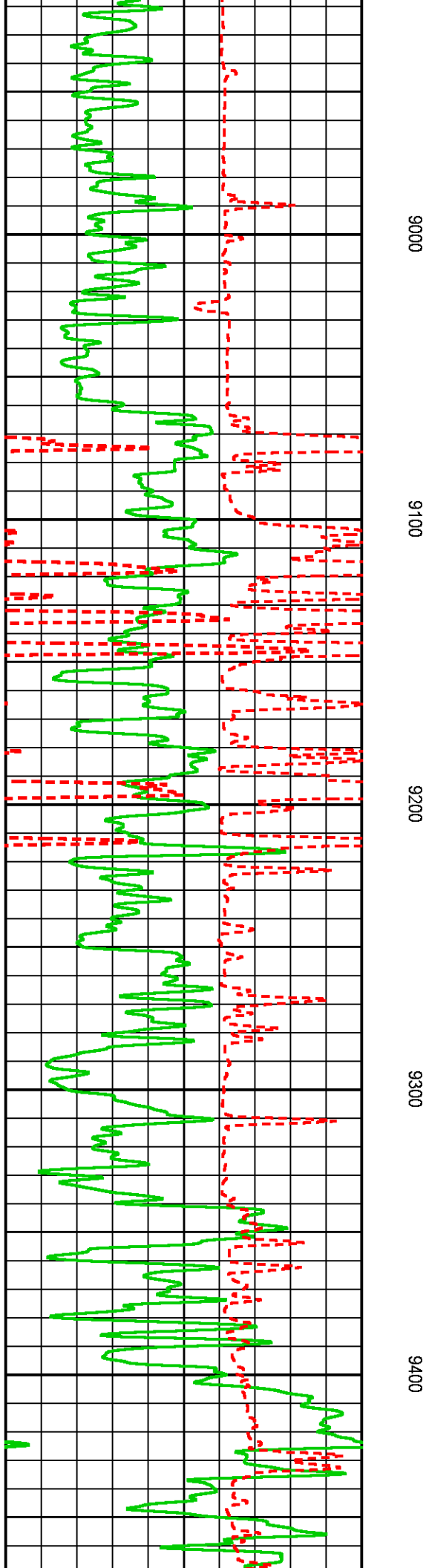
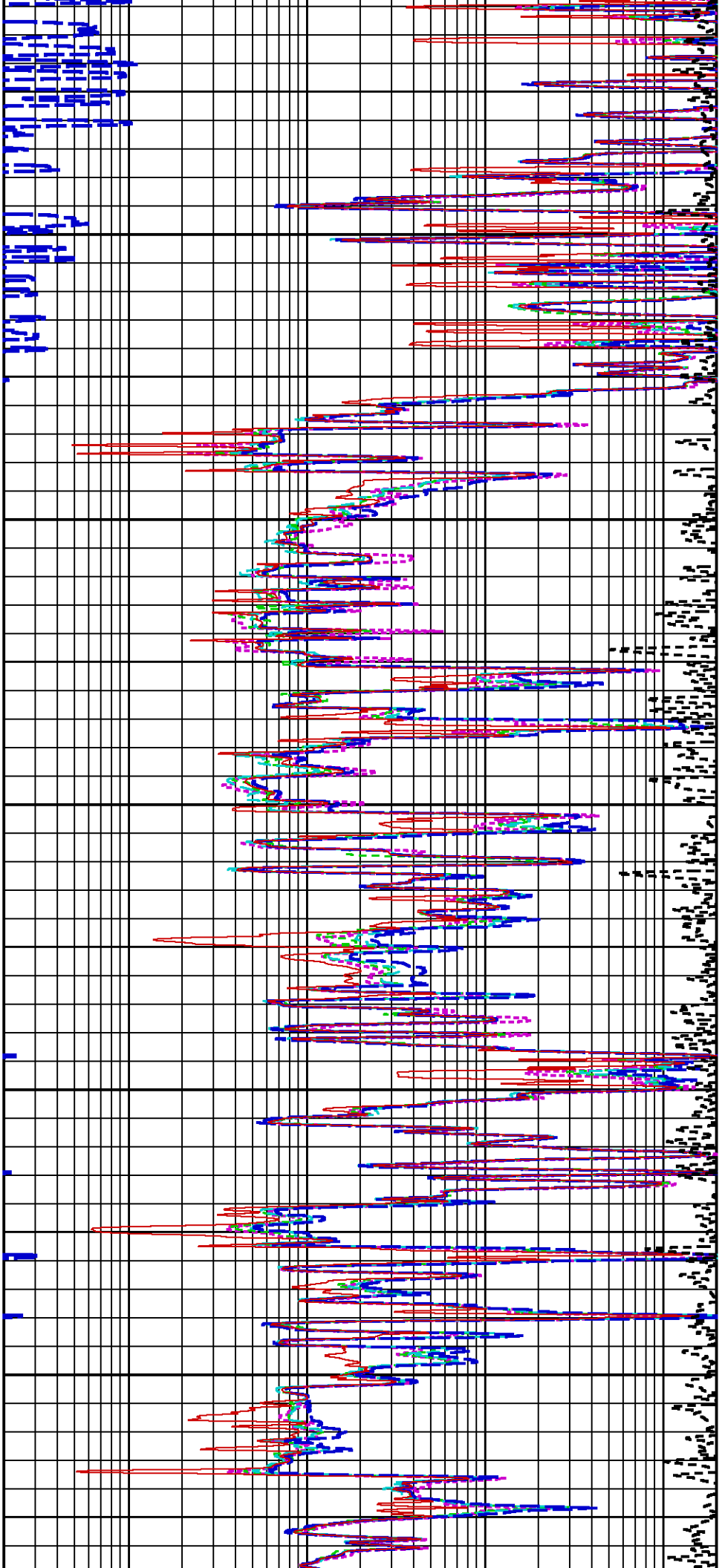
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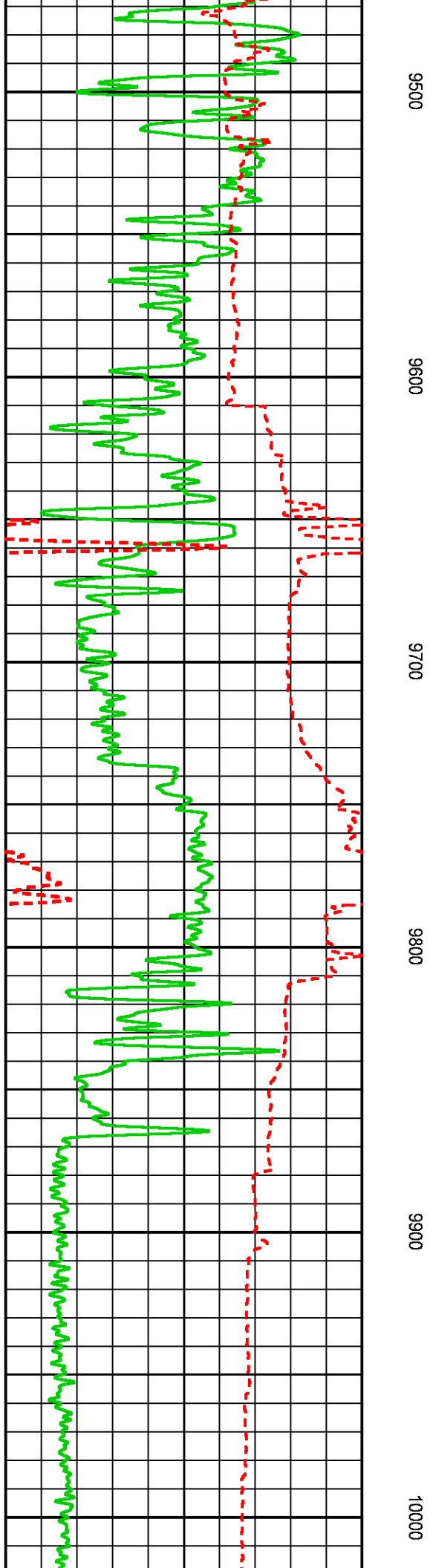
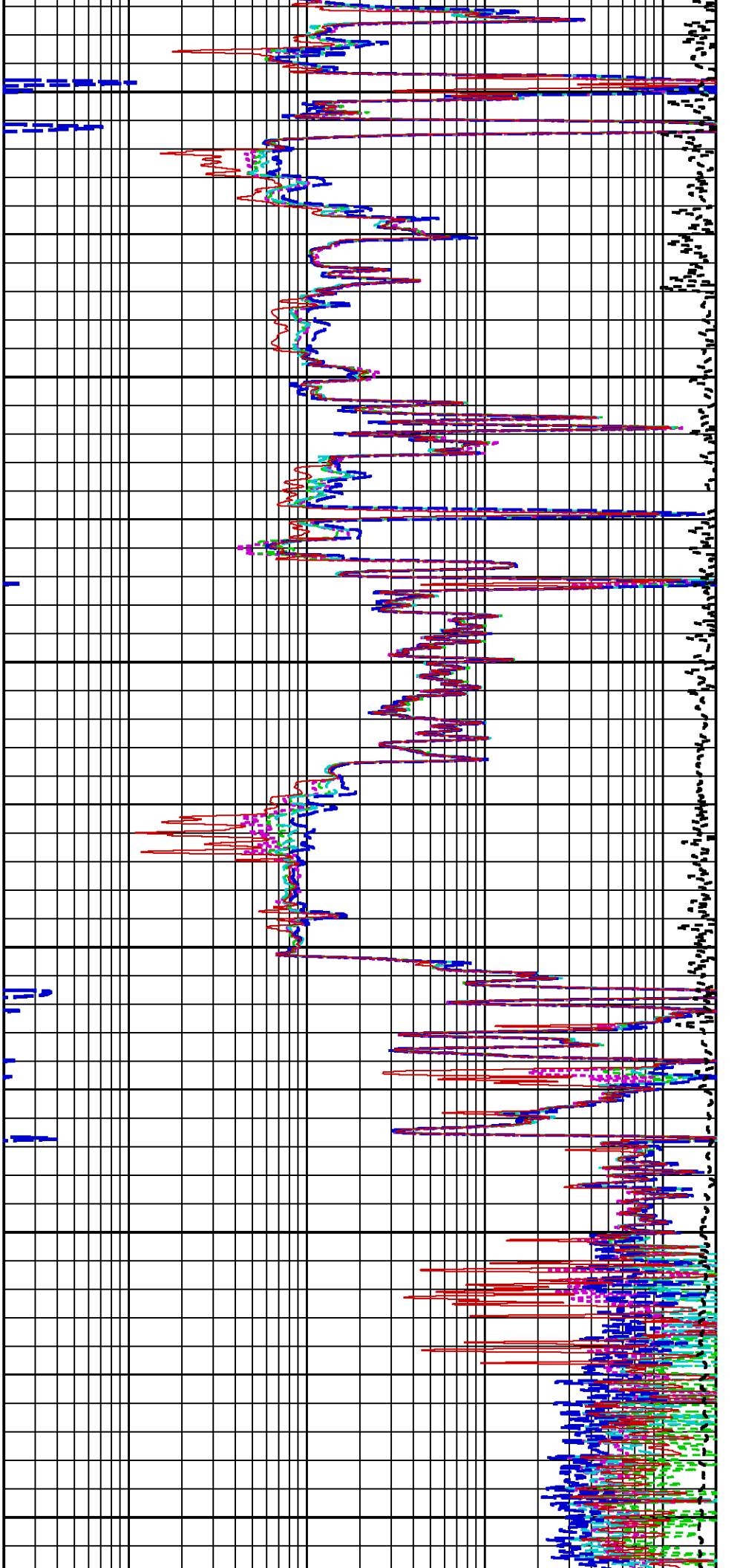
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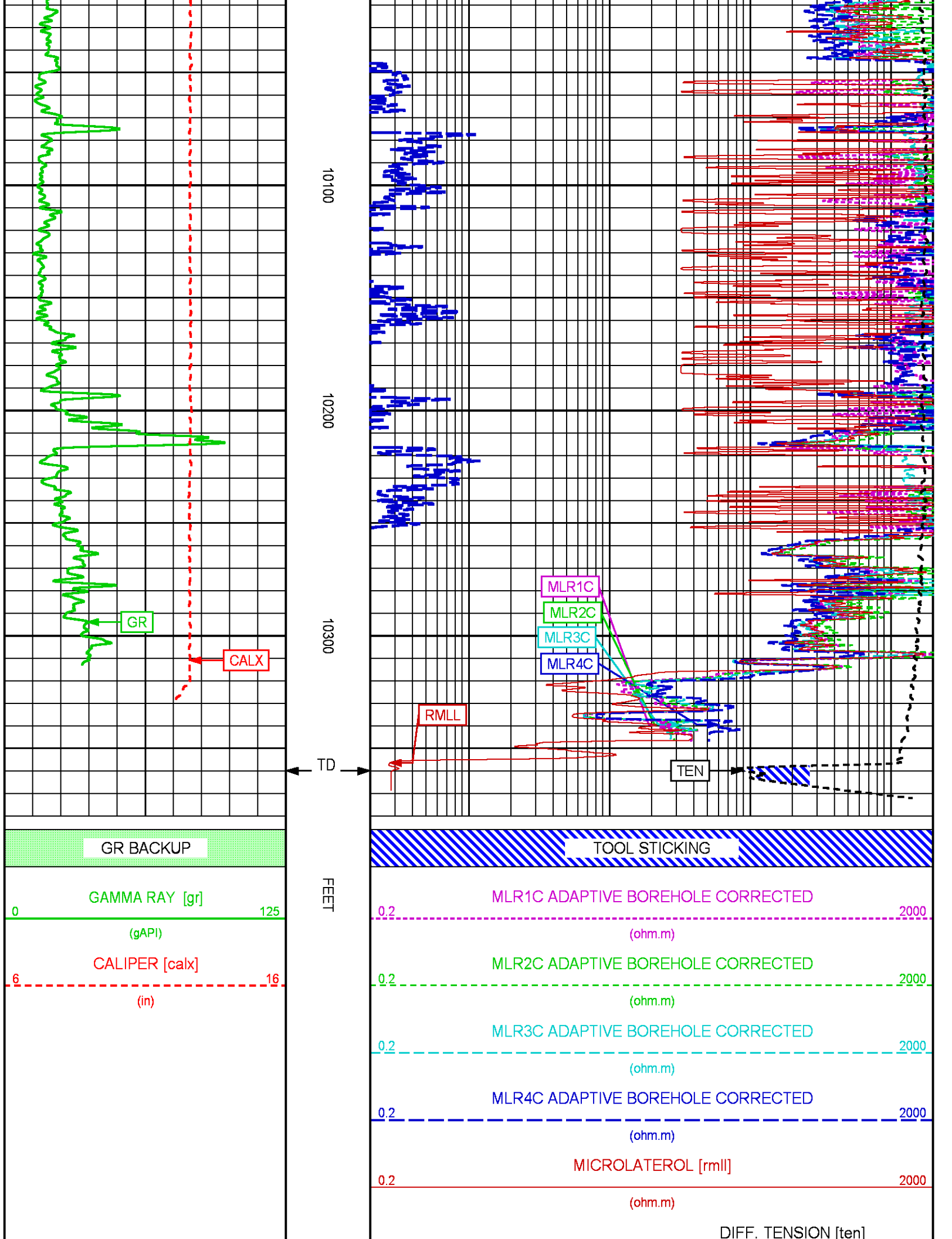












MAIN LOG 5"/100FT SCALE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Updates: 32 Patches: 4

Plotted: Fri Jun 29 10:14:25 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/md11798R3/p87cc03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 9691.591 ft BOTTOM DEPTH: 9691.591 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TTRM	FILTER ()	medium (1)		TOP	BOTTOM
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
TENSION	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
GR	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
CALIPER	FILTER ()	medium (1)		"	"
	FILTER (.h)	medium (1)		"	"
	FILTER (.i)	medium (1)		"	"
RTeX	FILTER ()	light (2a)		"	"
	FILTER (.h)	light (2a)		"	"
	FILTER (.i)	light (2a)		"	"
CALA (3rd CALIPER)	FILTER (.i)	medium(1)		"	"
MLL	FILTER ()	light (2a)		"	"
	FILTER (.i)	light (2a)		"	"
	FILTER (.j)	light (2a)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
X-Y COMBINED CALIPER PROCESSING	X-Y Caliper	X-Axis		TOP	BOTTOM
BIT SIZE	BIT SIZE	12.250	in	"	"
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	"	"
	at BH REF DEPTH	0.0	ft	"	"
	with TEMP GRADIENT	1.200	0.01 degF/ft	"	"
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (calmu*)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mlr1c*)	12.250	in	"	"
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	TOOL MEASURED		"	"

RTeX PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RTeX ADAPTIVE BOREHOLE CORRECTION	BOREHOLE CORRECTION	ON		TOP	BOTTOM
	Rxo Source	MICROLATEROLOG		"	"

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CALX	N/A	CALIPER FROM X-AXIS OF XY CALIPER(S)

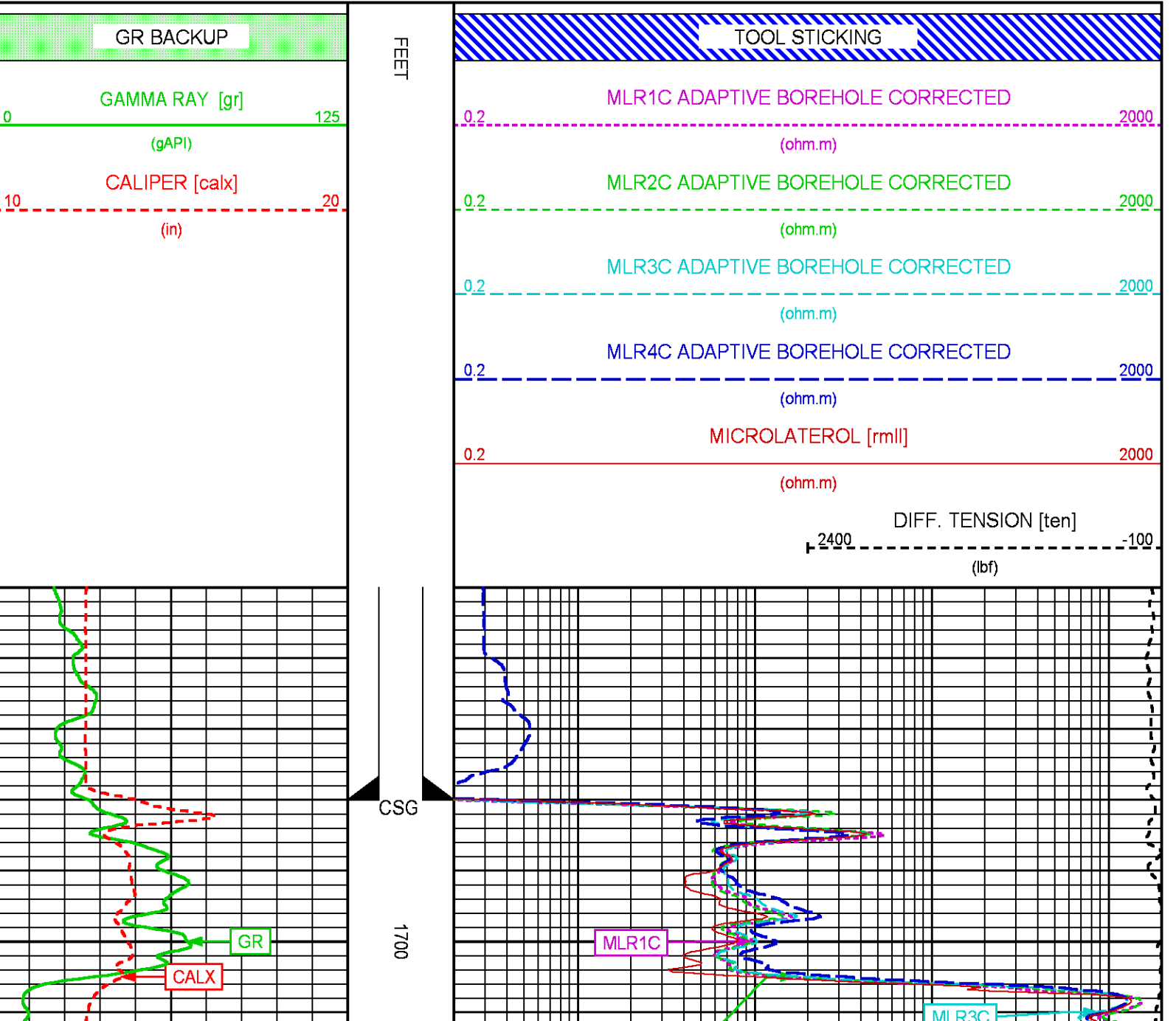
F1:GR	N/A	GAMMA RAY
F1:MLR1C	N/A	RTEX SHALLOW RESISTIVITY 1, ADAPTIVE BOREHOLE CORRECTION
F1:MLR2C	N/A	RTEX SHALLOW RESISTIVITY 2, ADAPTIVE BOREHOLE CORRECTION
F1:MLR3C	N/A	RTEX MEDIUM RESISTIVITY 3, ADAPTIVE BOREHOLE CORRECTION
F1:MLR4C	N/A	RTEX DEEP RESISTIVITY 4, ADAPTIVE BOREHOLE CORRECTION
F1:RMLL	N/A	RESISTIVITY
F1:TEN	N/A	DIFFERENTIAL TENSION

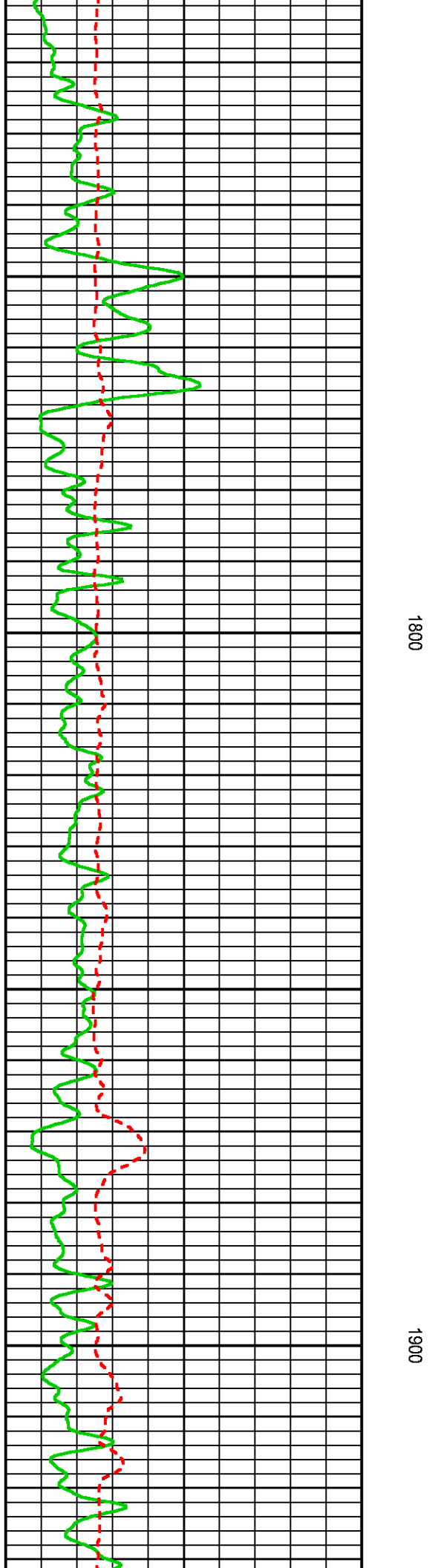
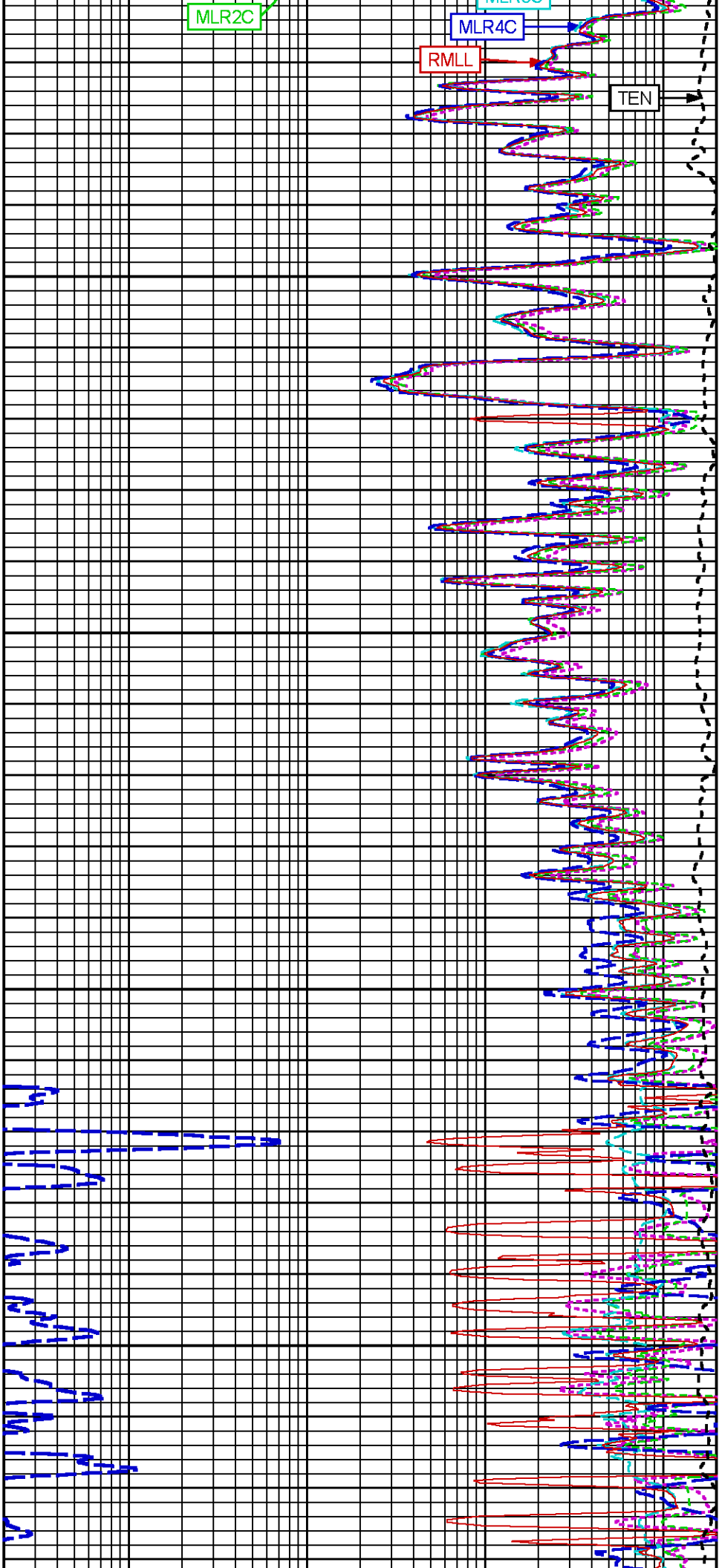
CURVE MEASURE POINT OFFSET

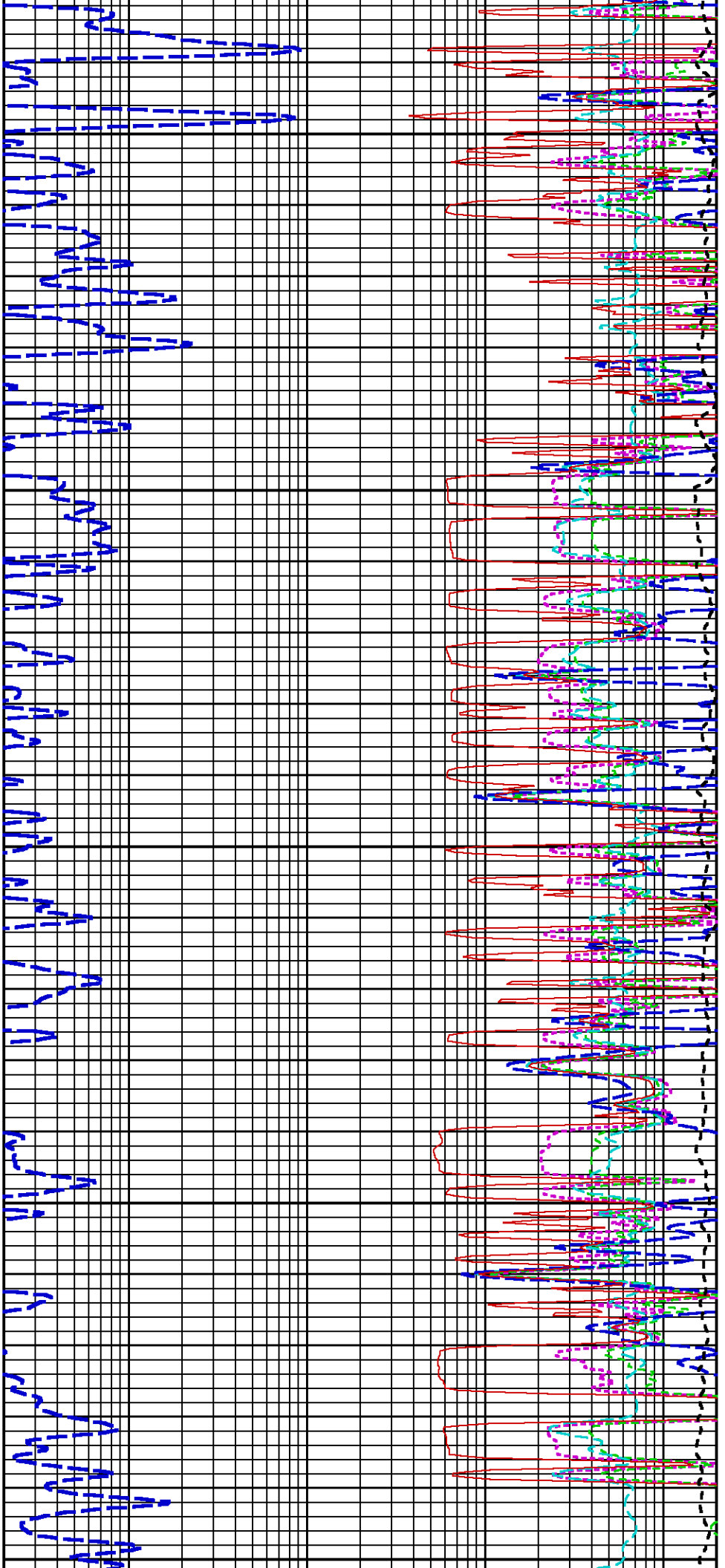
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CALX	-49.00	MLR1C	-20.50	MLR3C	-20.50	RMLL	-3.50
GR	-66.25	MLR2C	-20.50	MLR4C	-20.50	TEN	0.00

Presentation : HL6690:/dat1a/md11798R3/RTEX_TX_5.fvpdf [5"/100' Scale]
Plot Interval : 1650 - 10373.2 Feet

Data File 1 : F1 : HL6690:/dat1a/md11798R3/R2.xtf
Created On : N/A
Company : HOLLY FRONTIER - NAVAJO
Well : NAVAJO REFINING WDW #4
Field : ARTESIA
File Interval : 1558.5 - 10373.2 Feet
OCT : p87cc

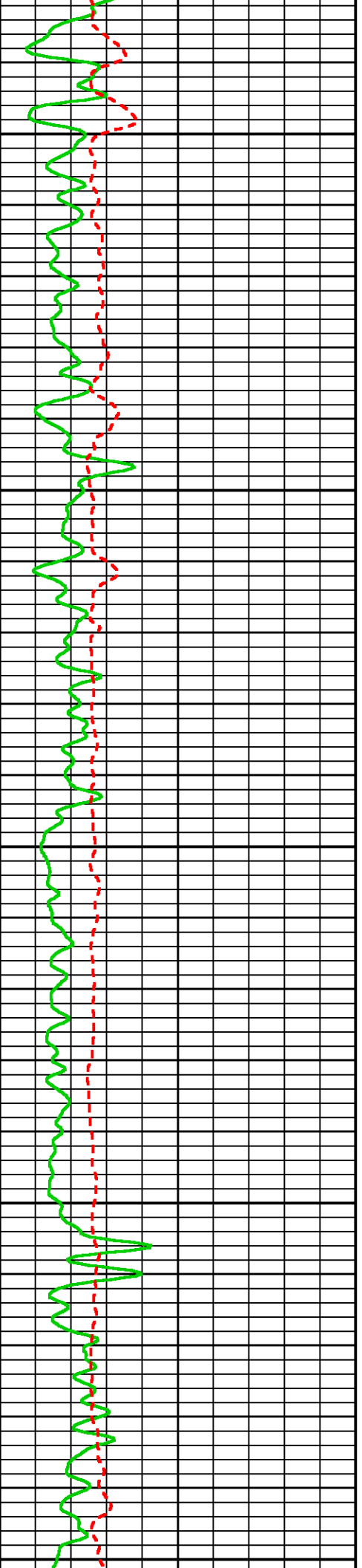


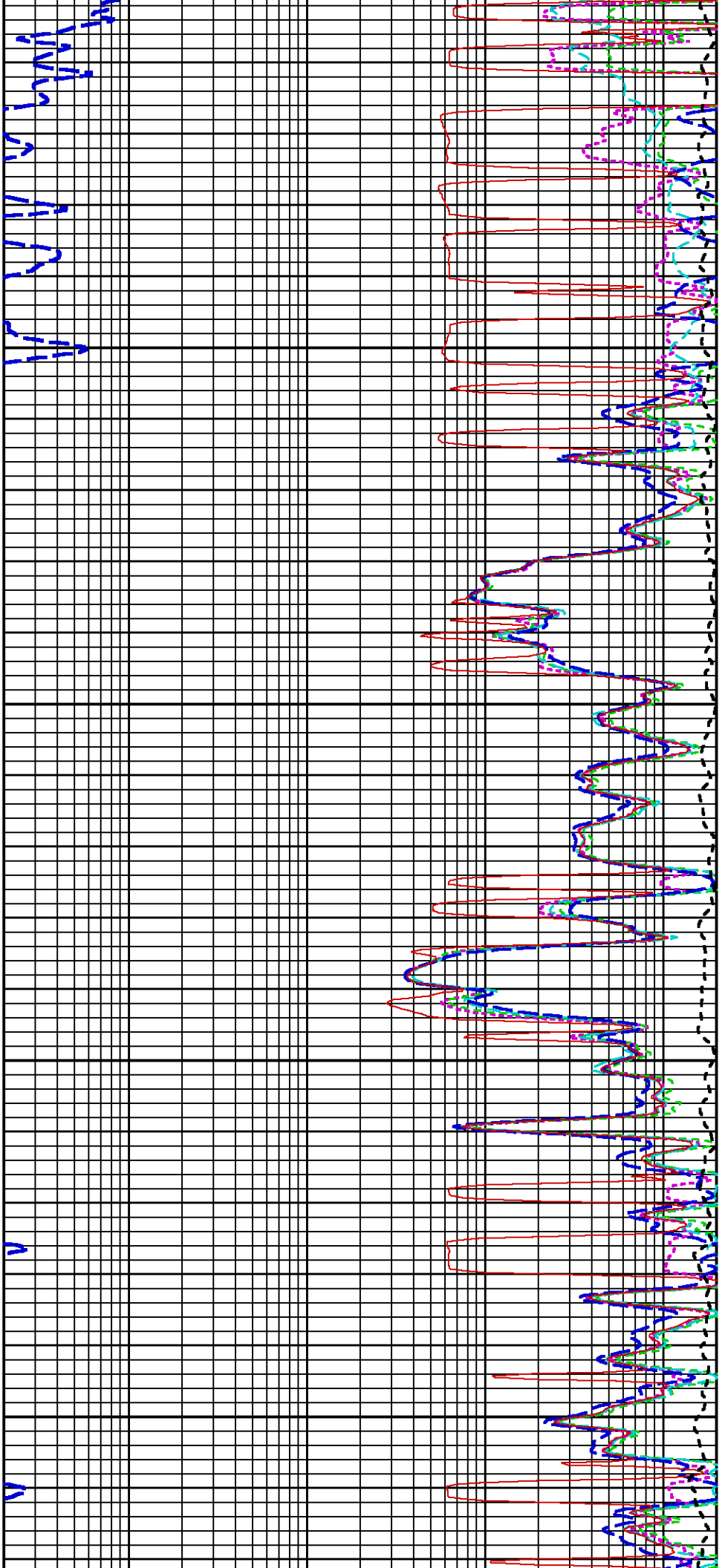




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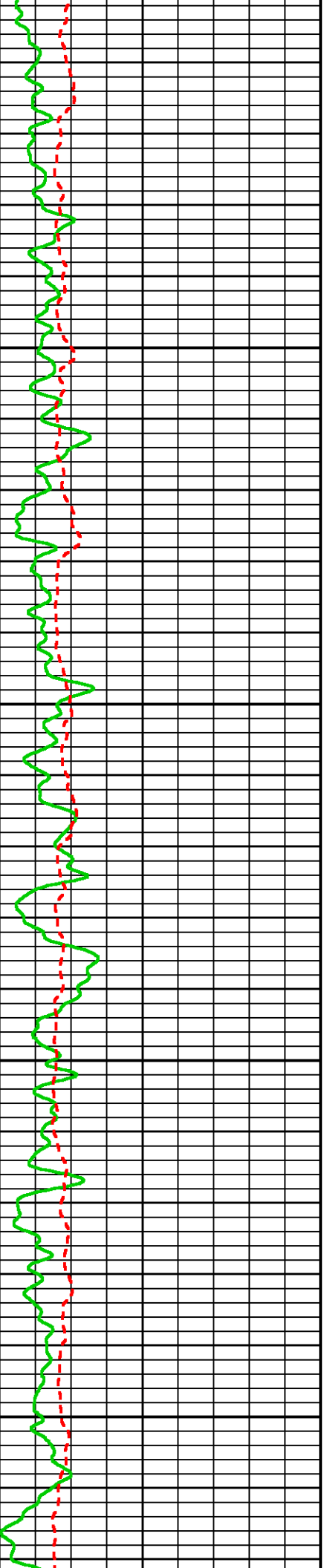
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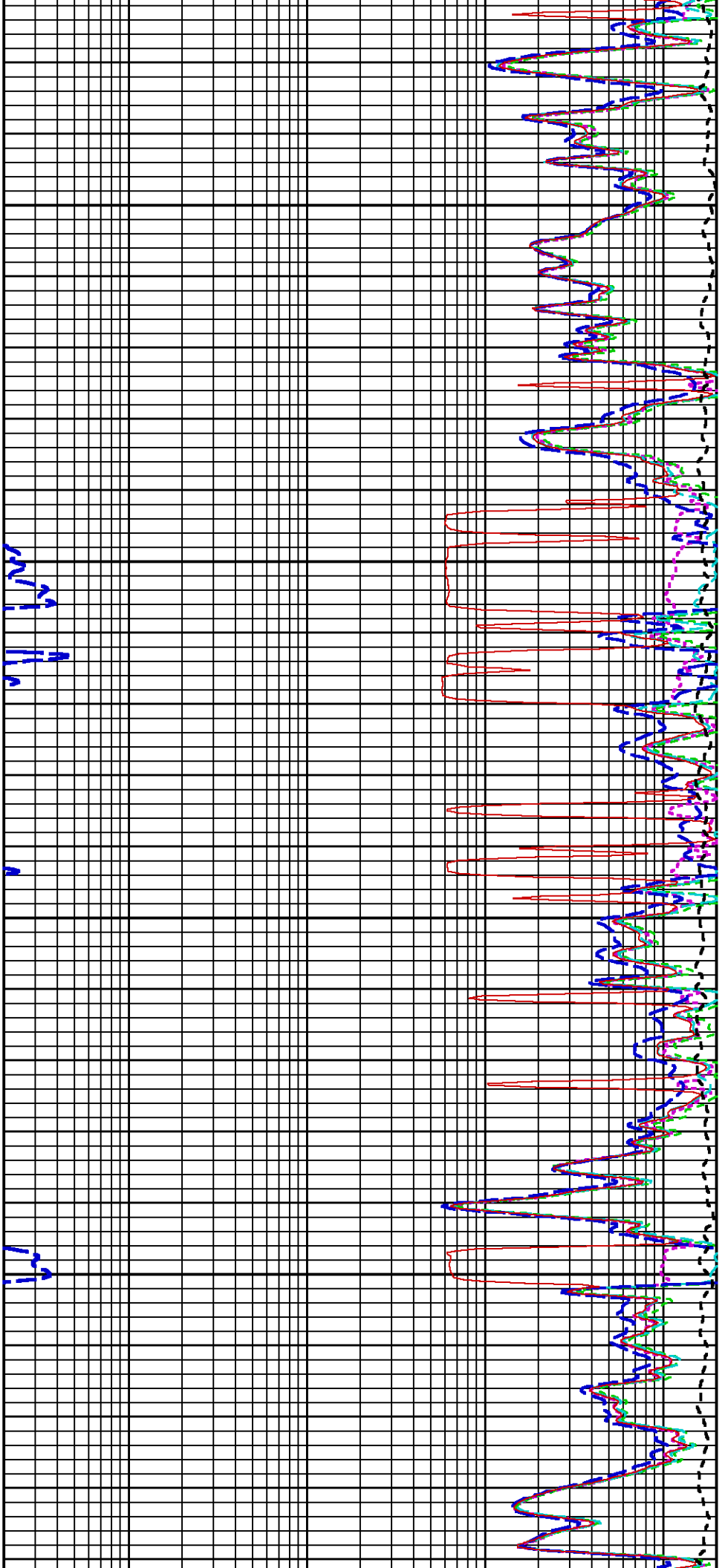




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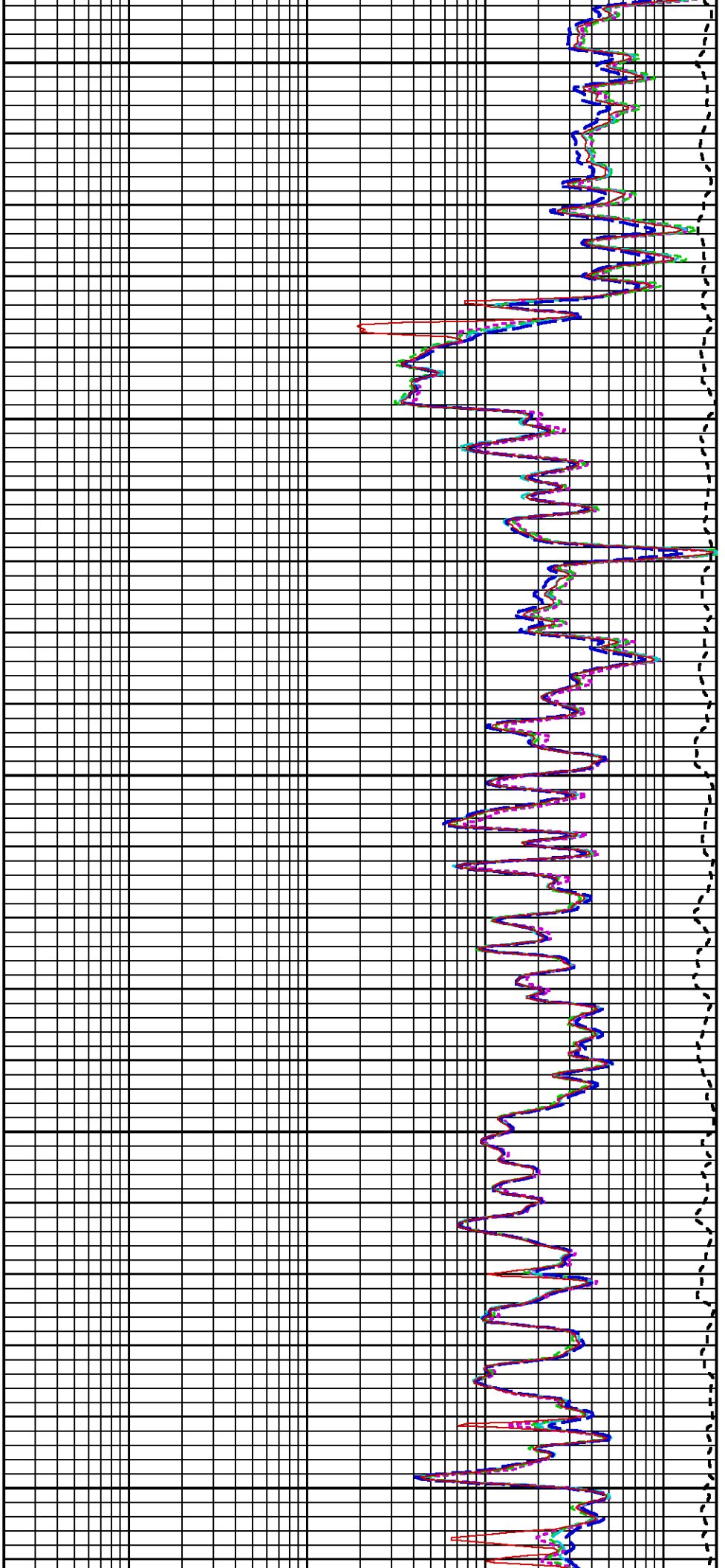
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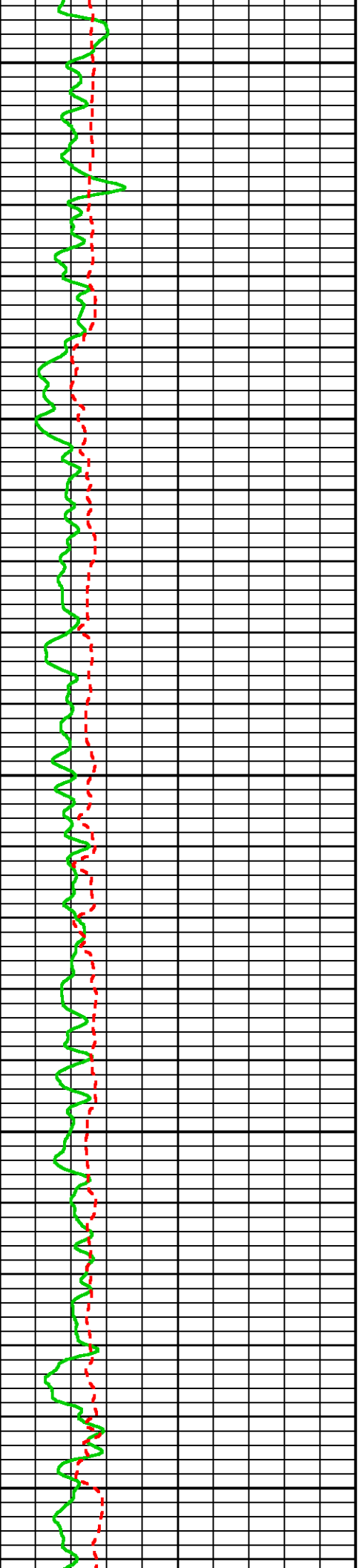
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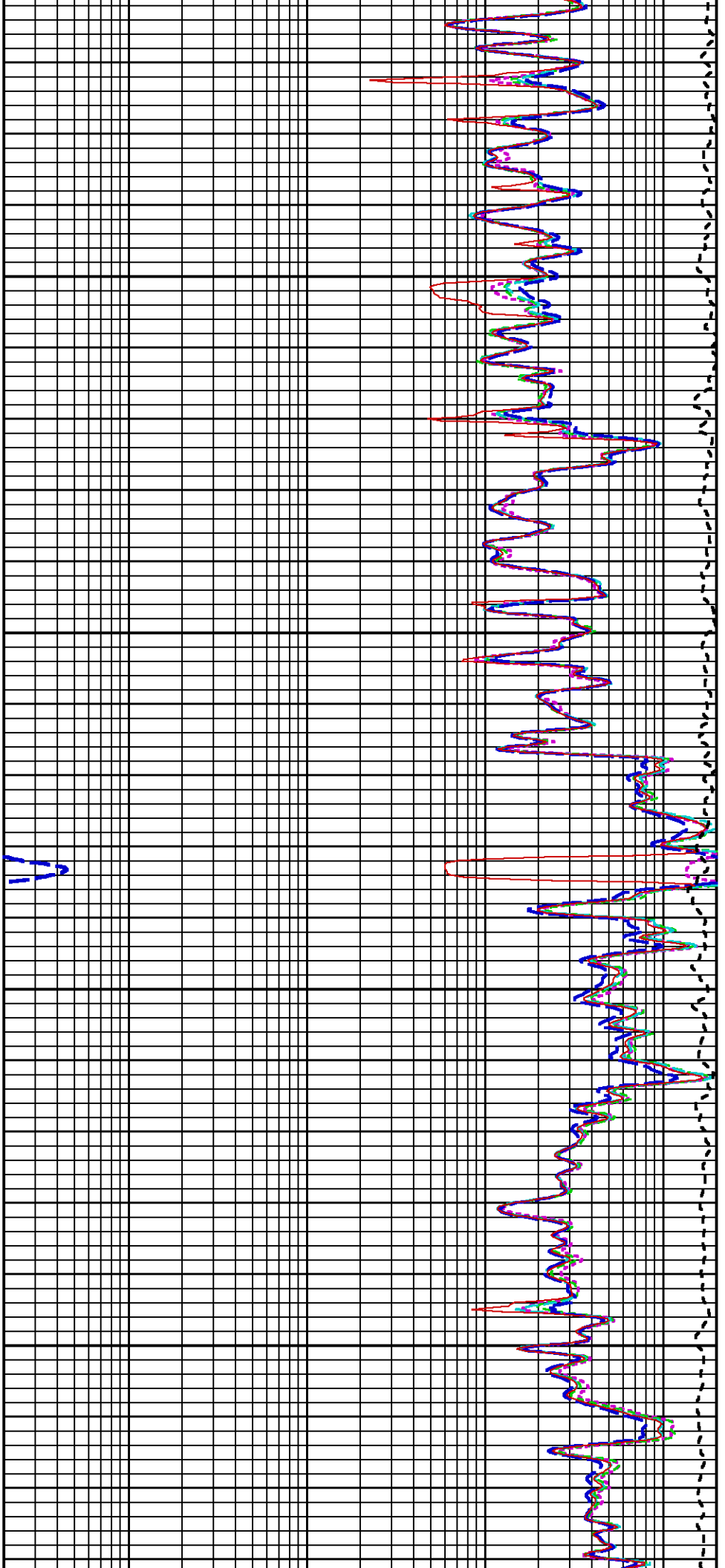


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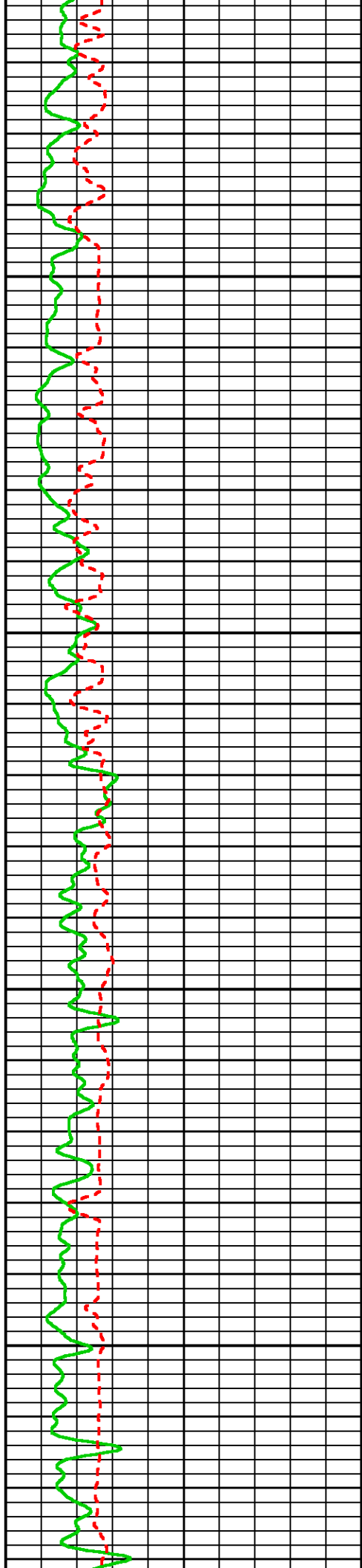
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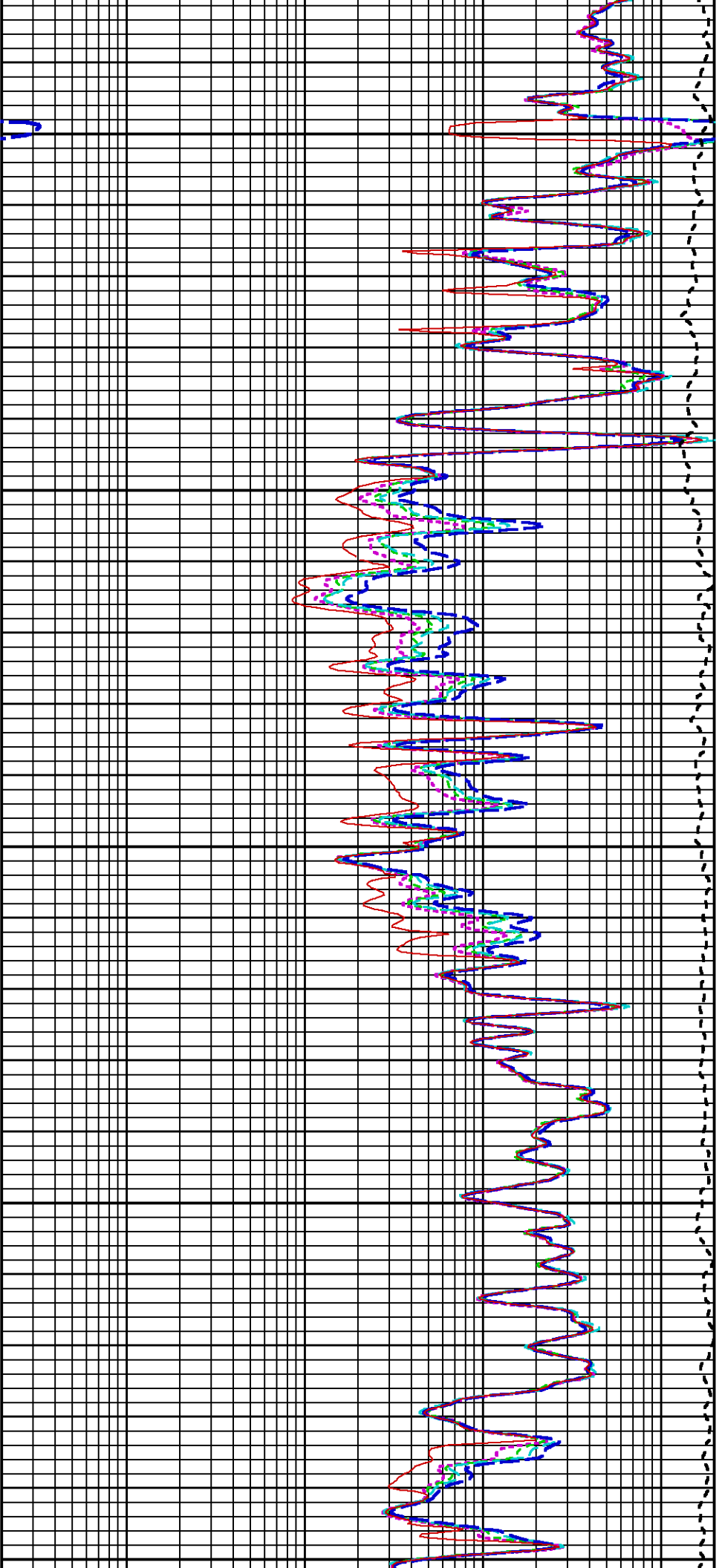




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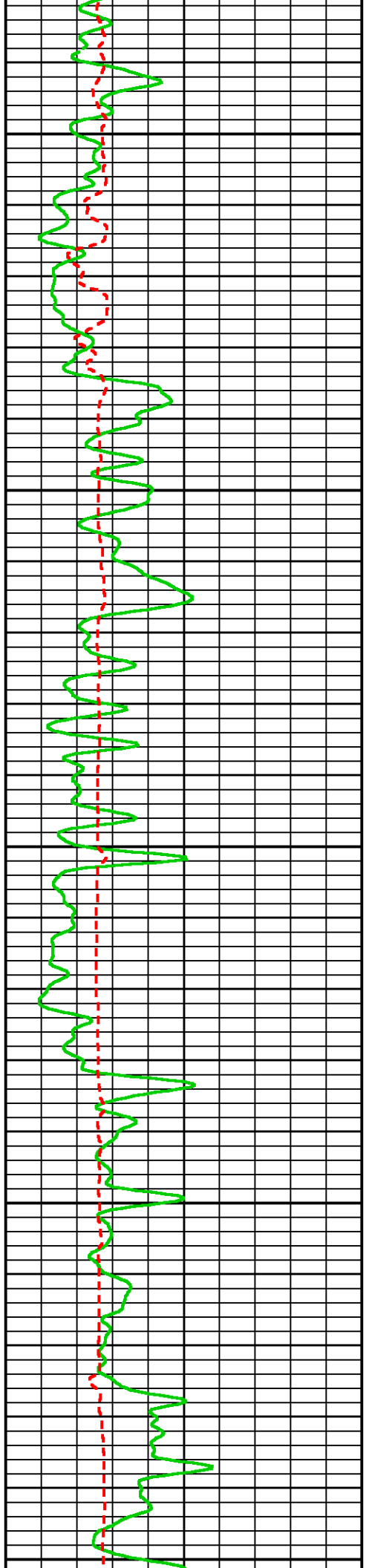
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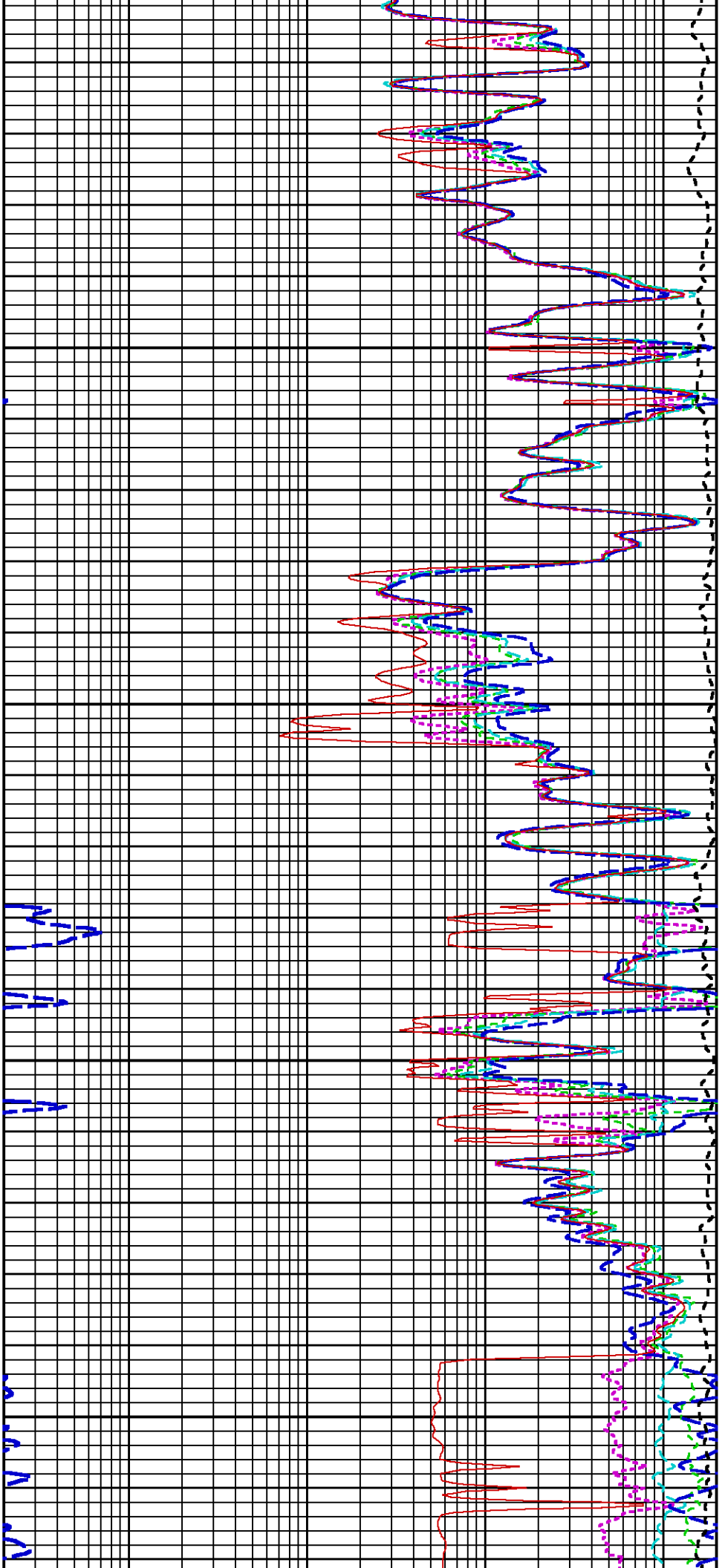




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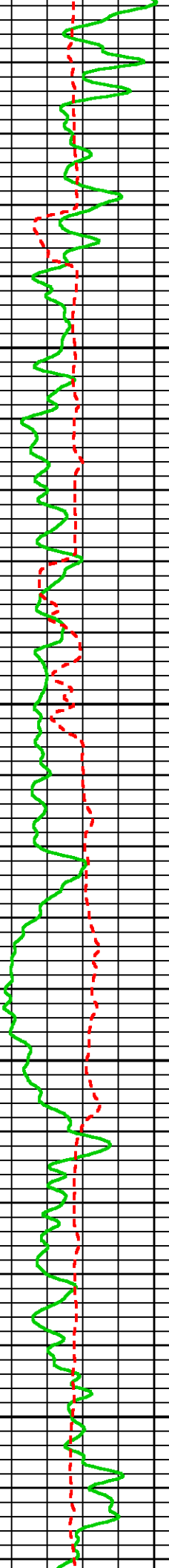
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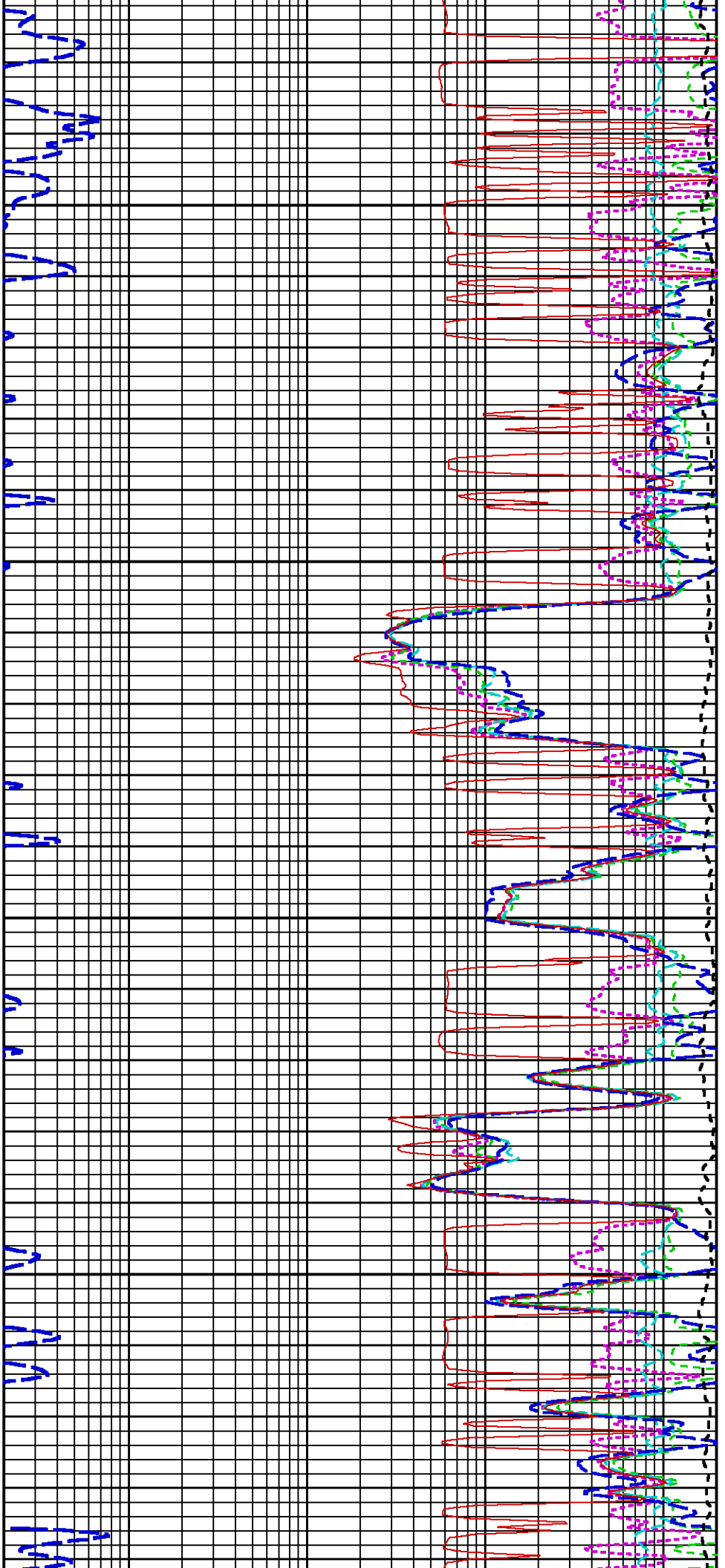




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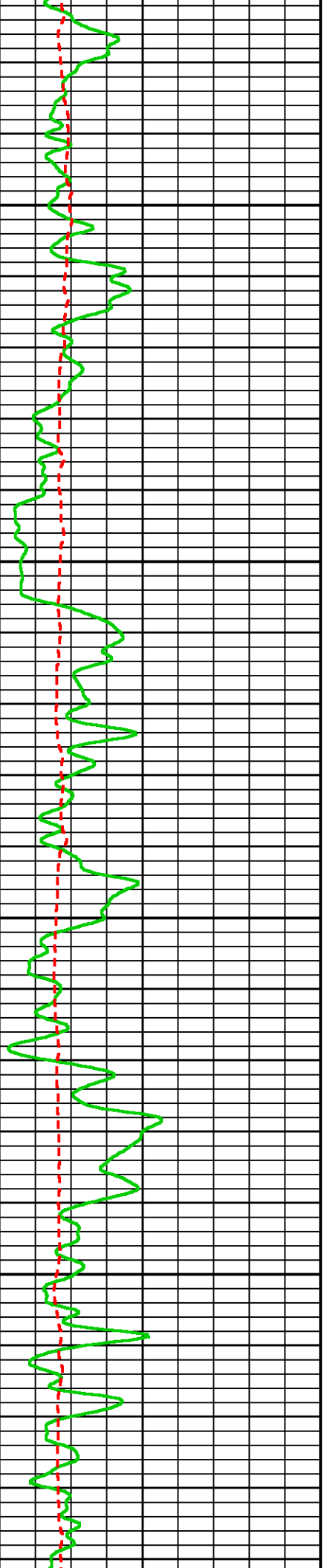
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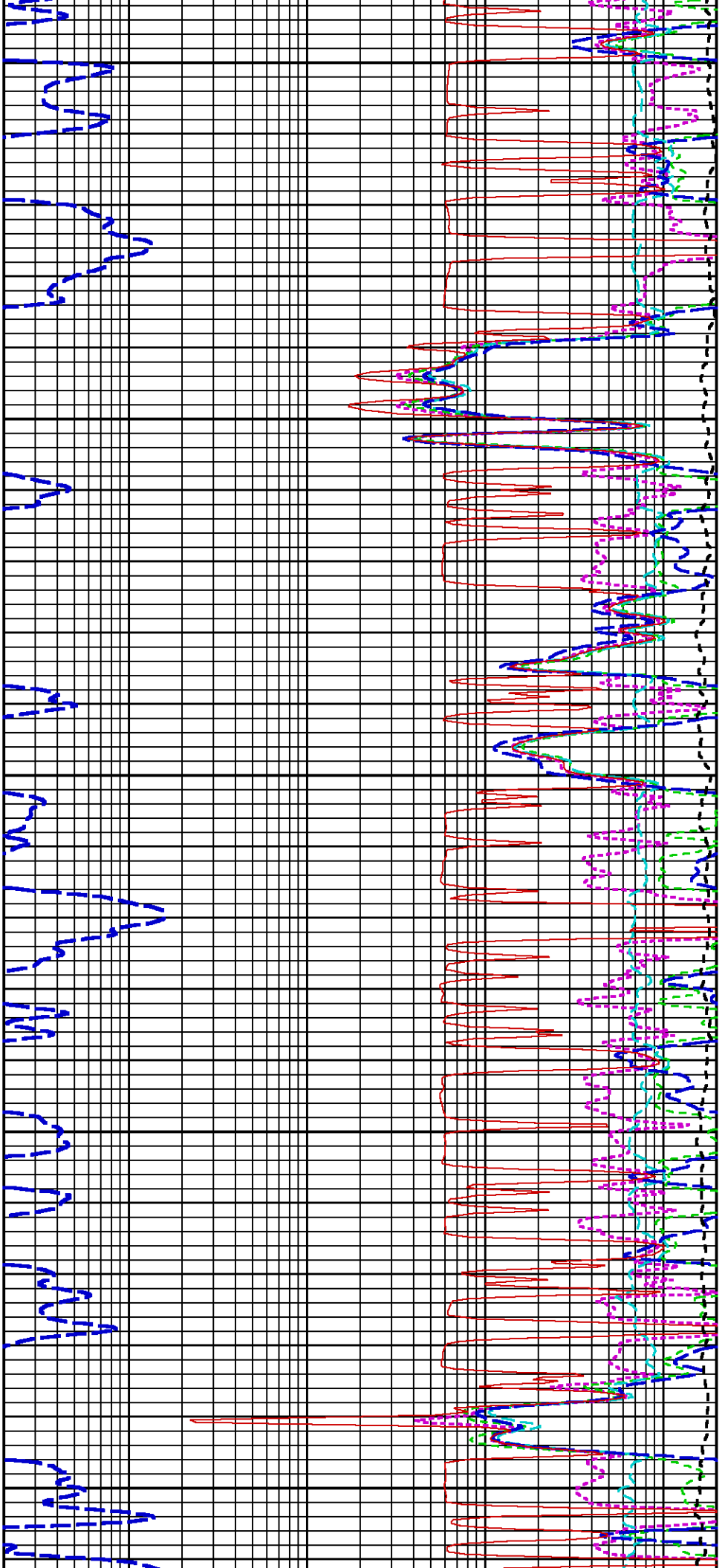




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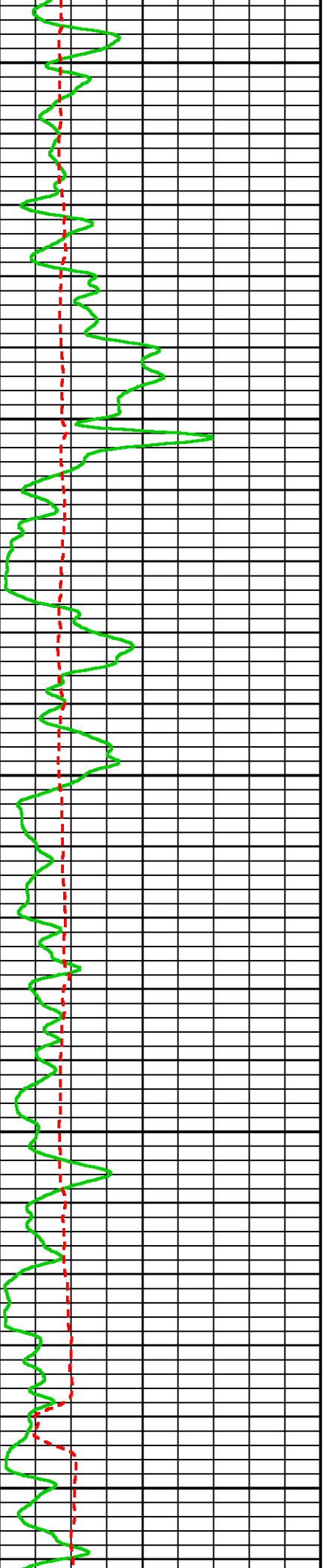


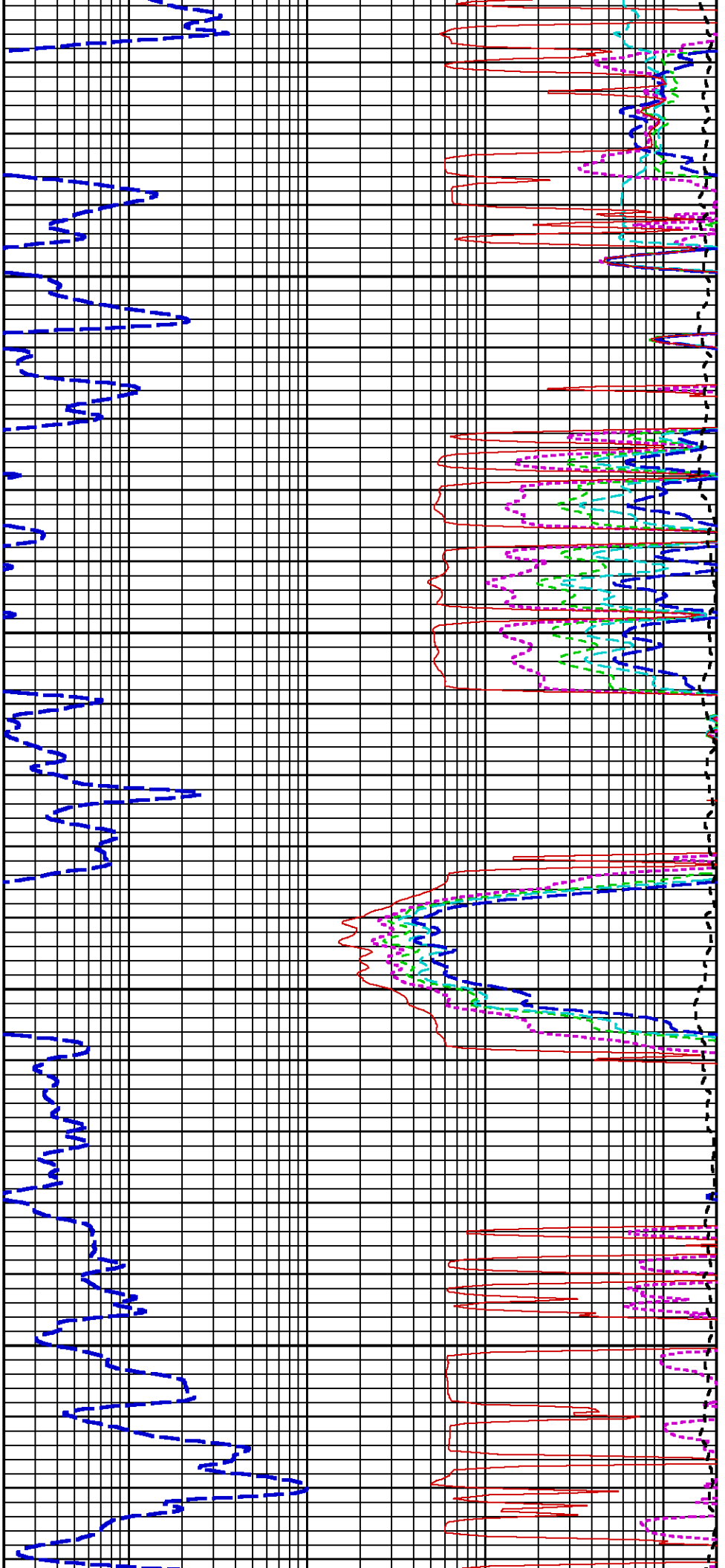


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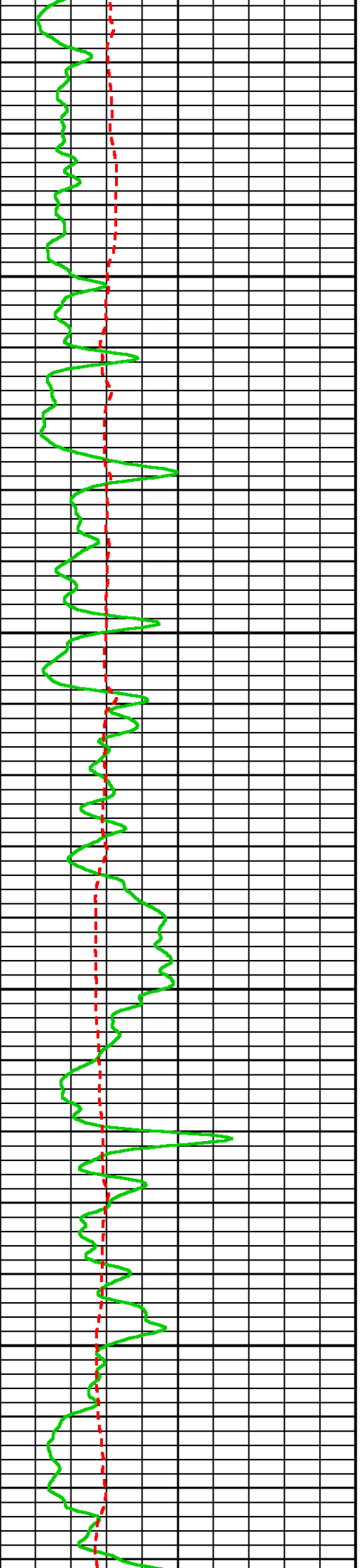
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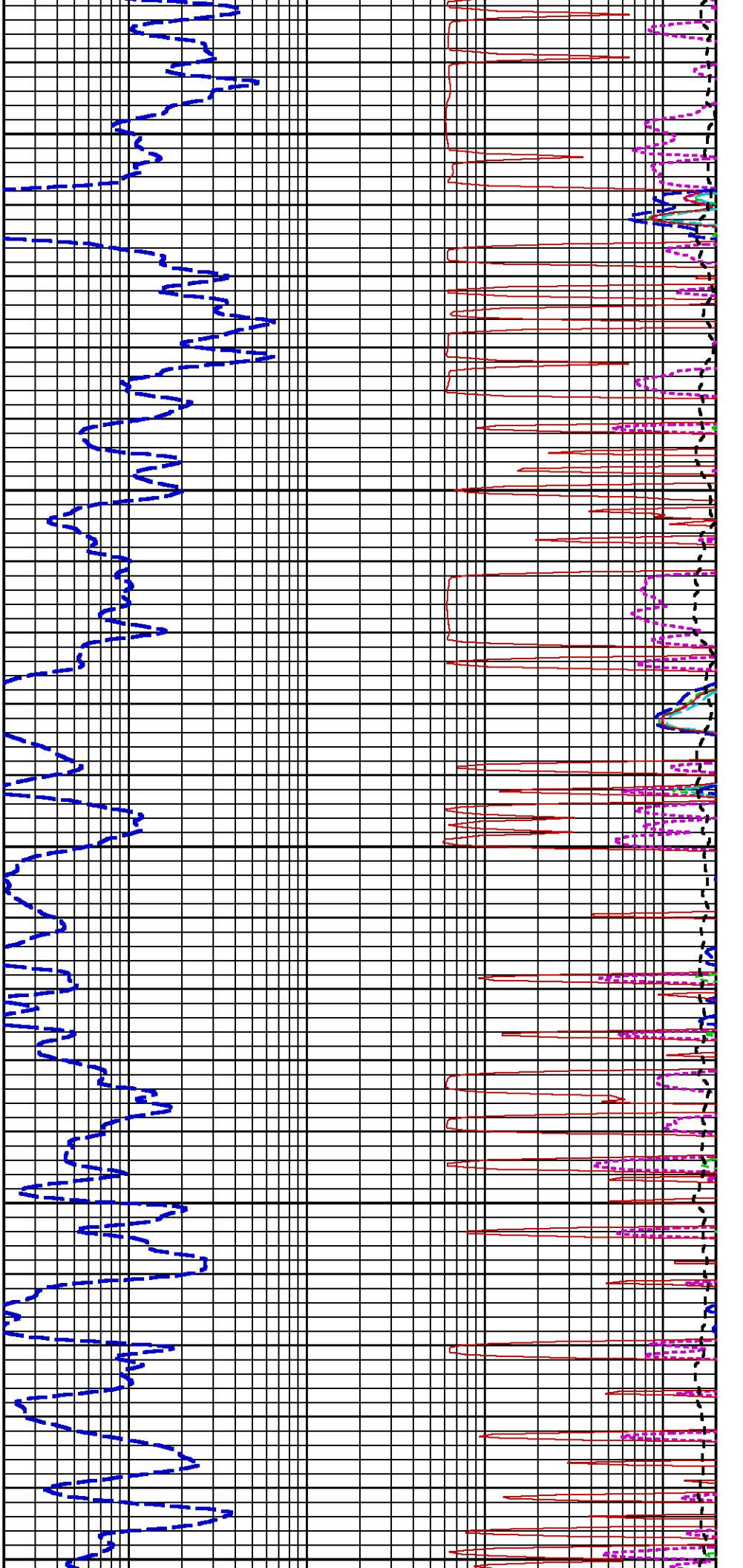




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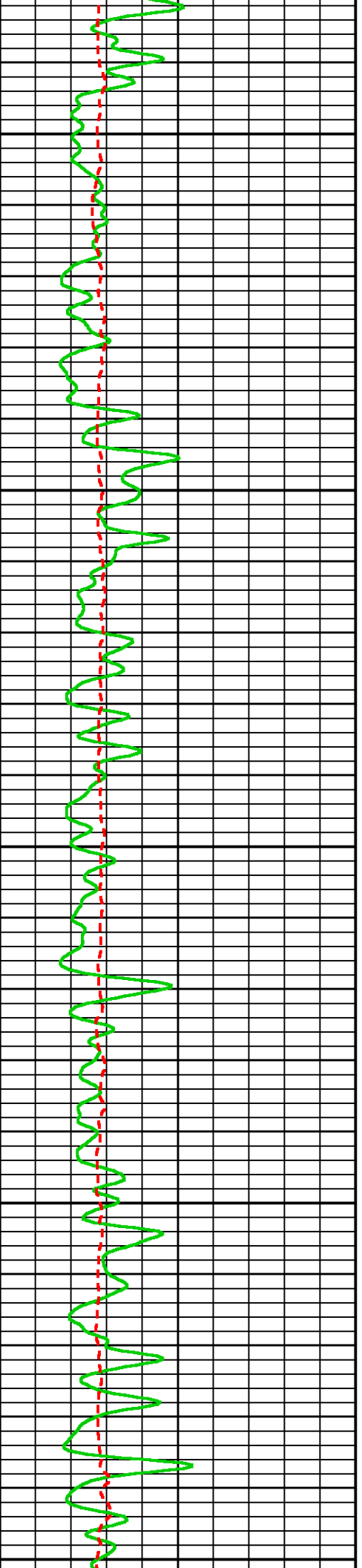
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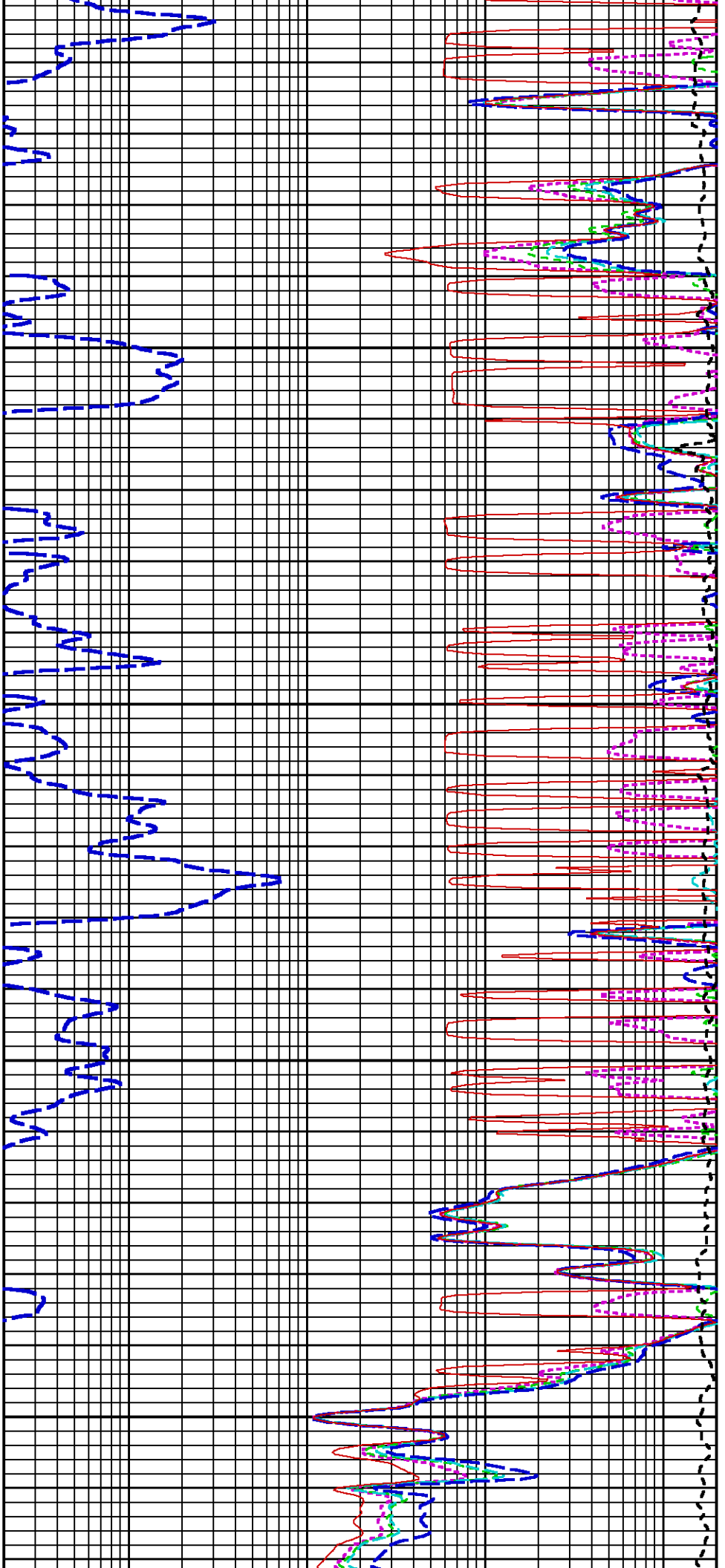




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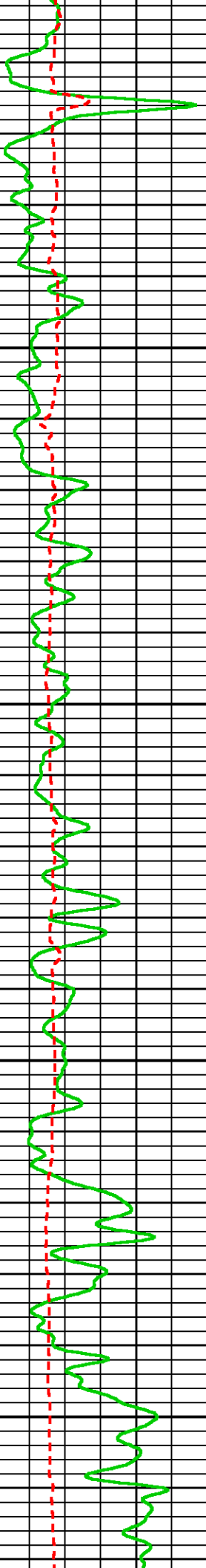
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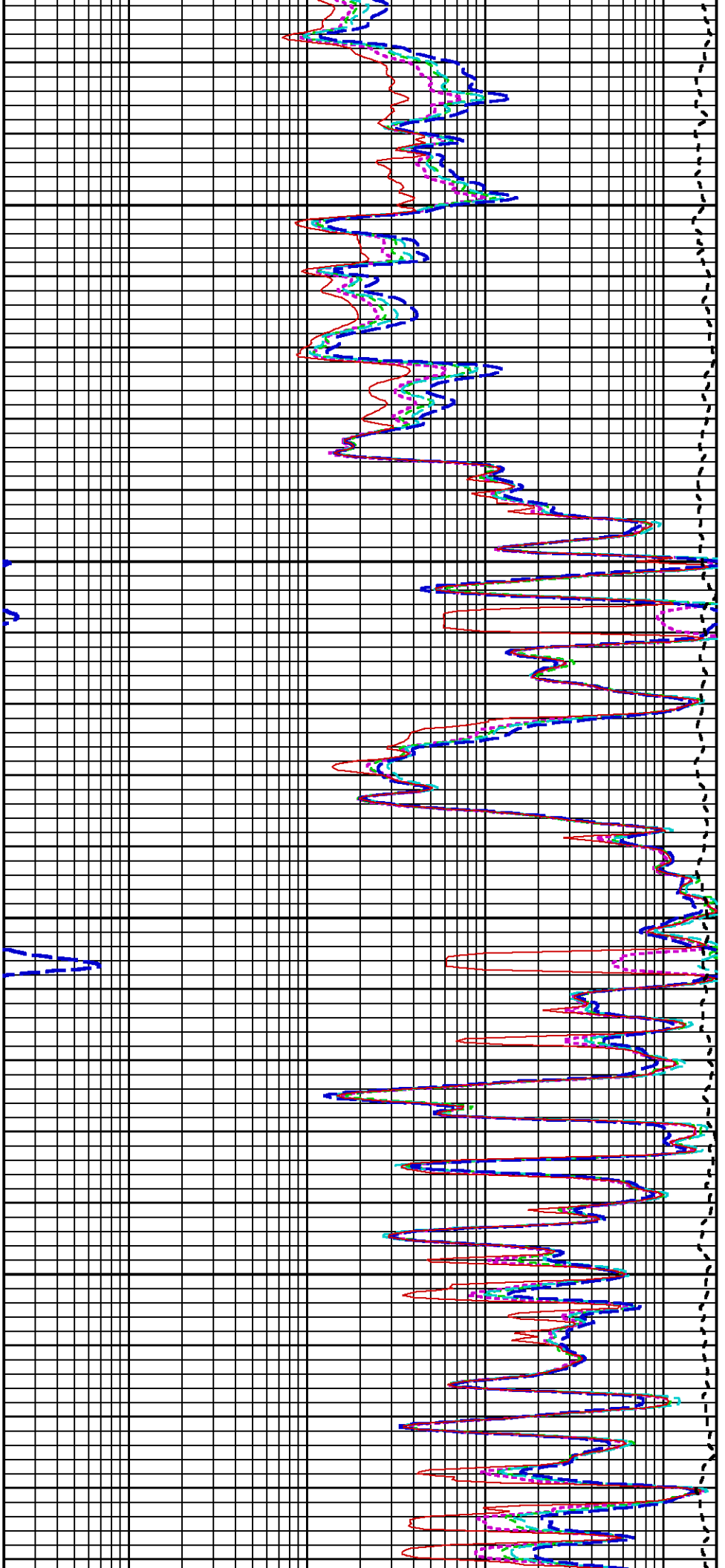




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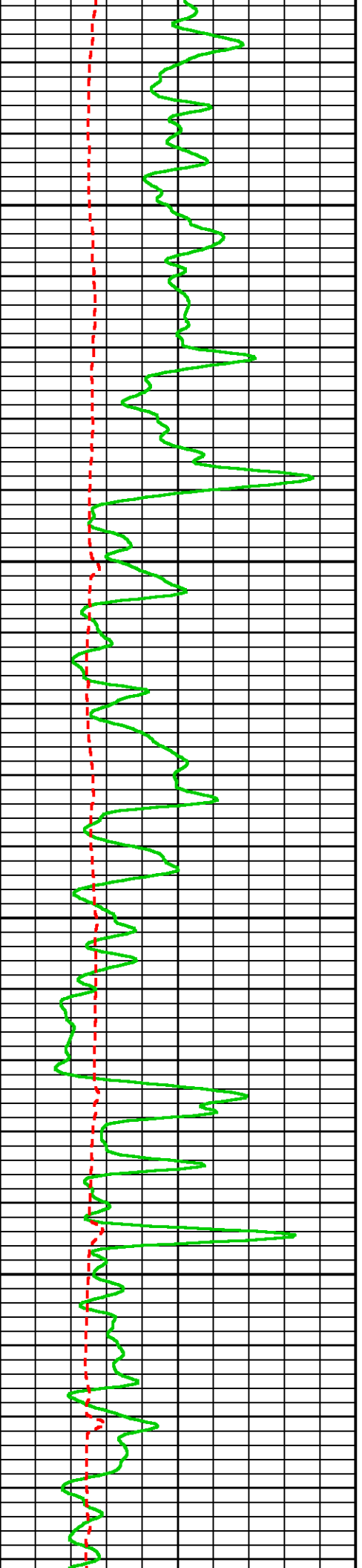
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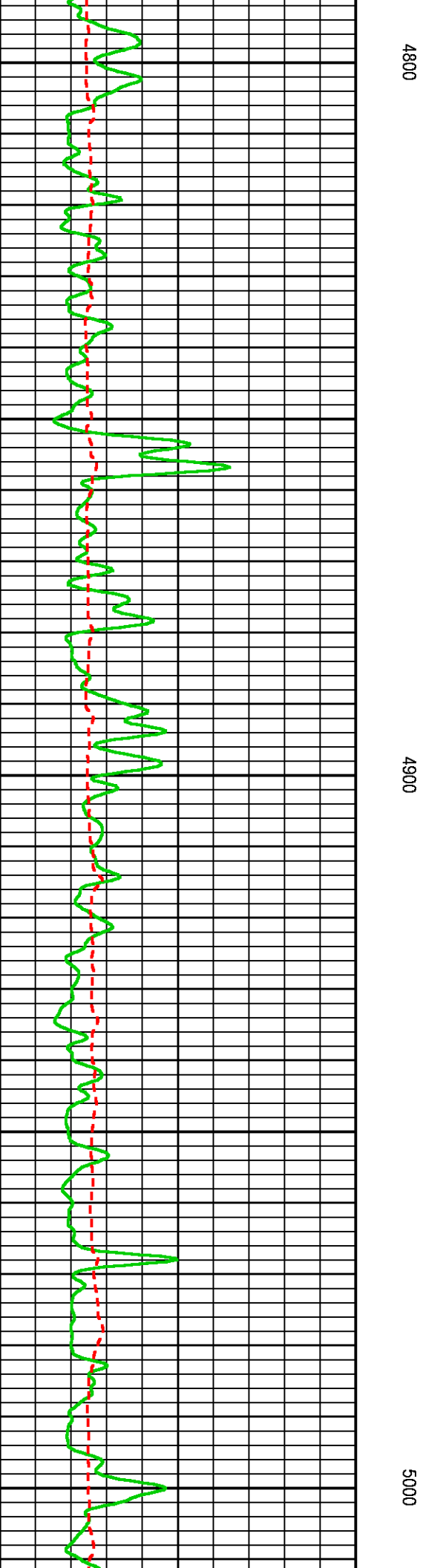
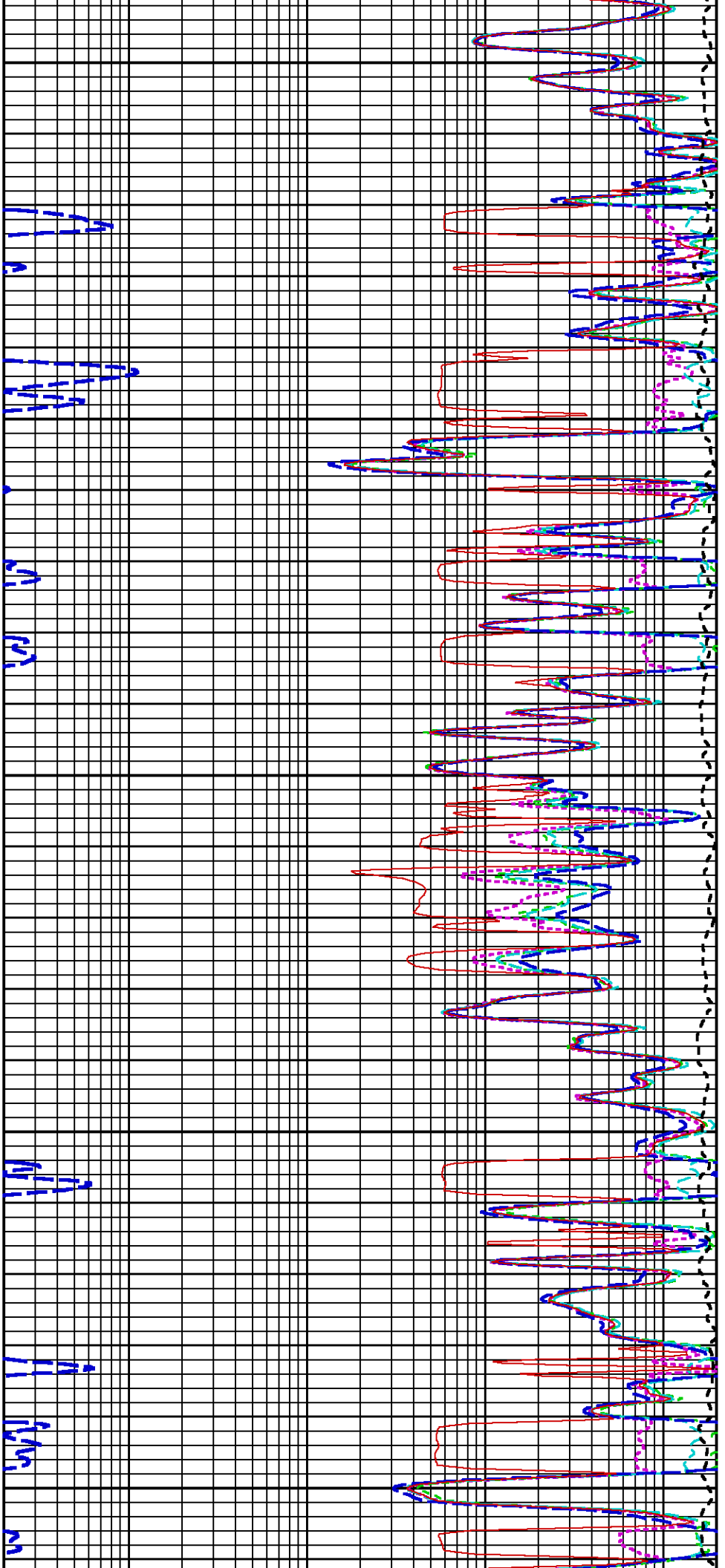


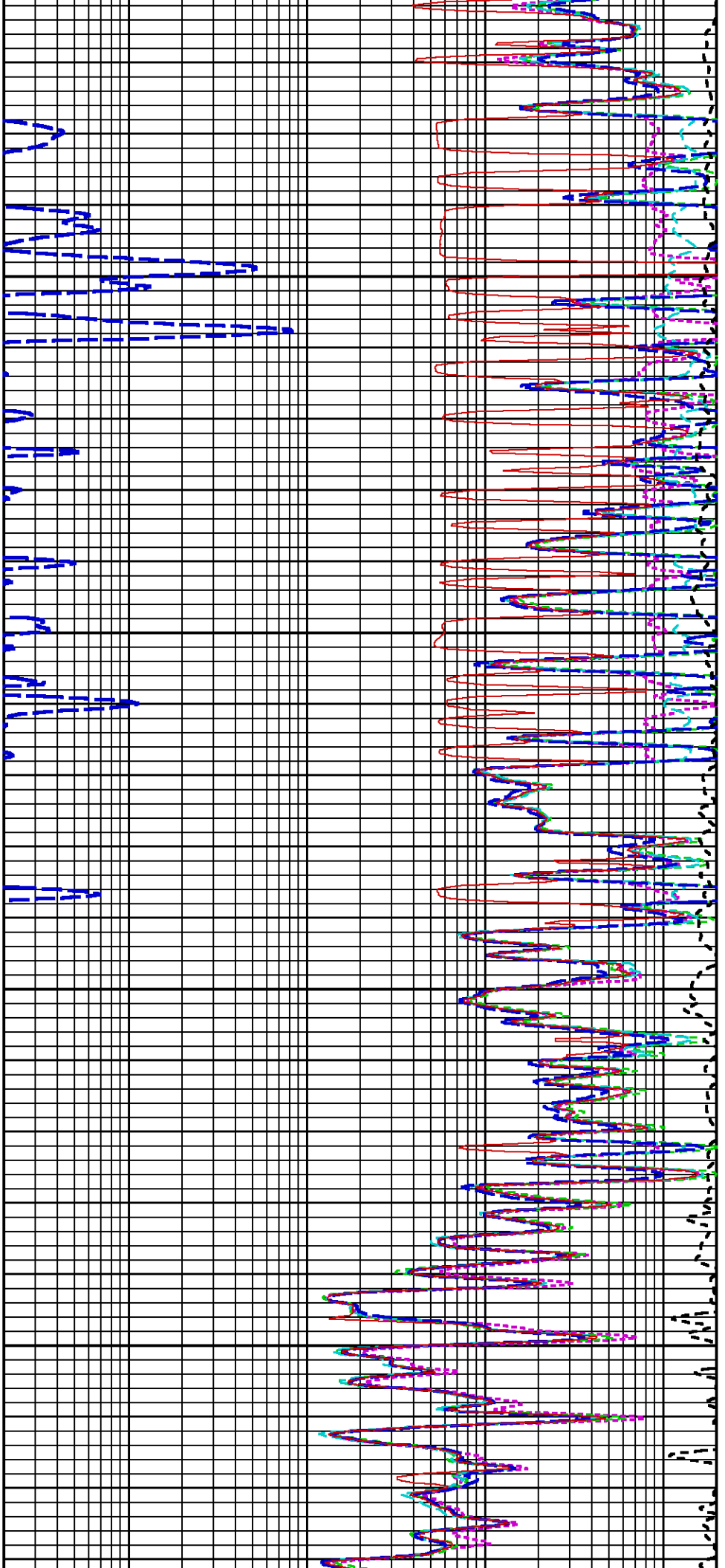


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4700

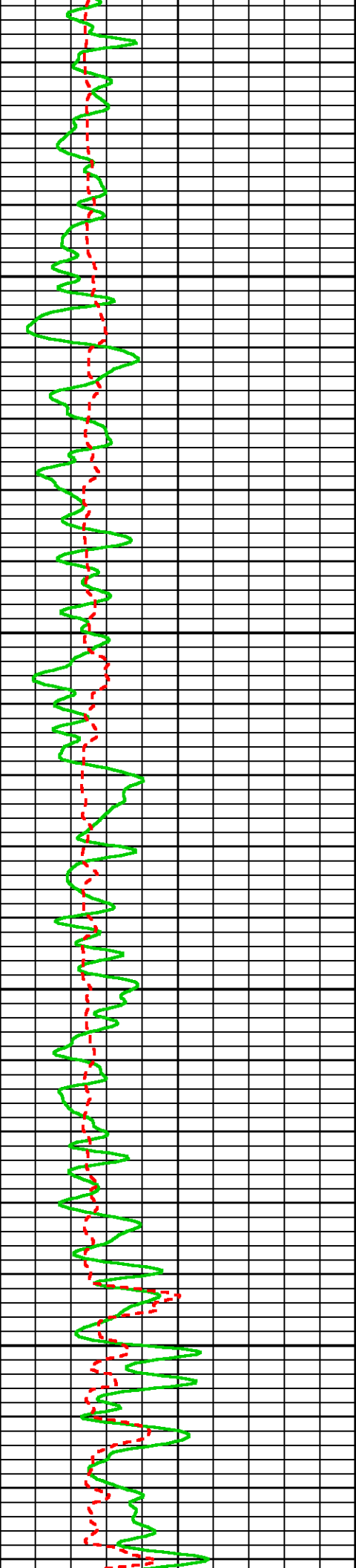


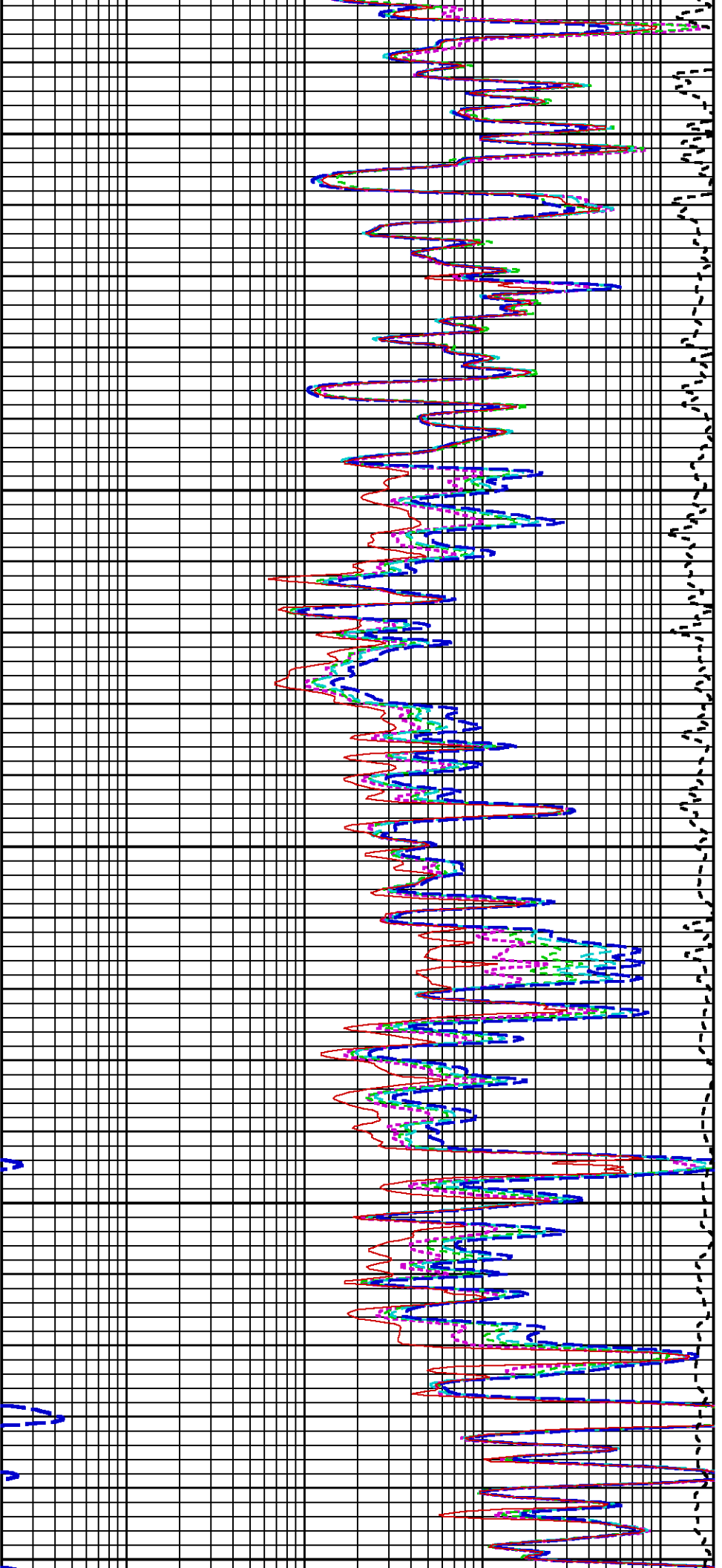




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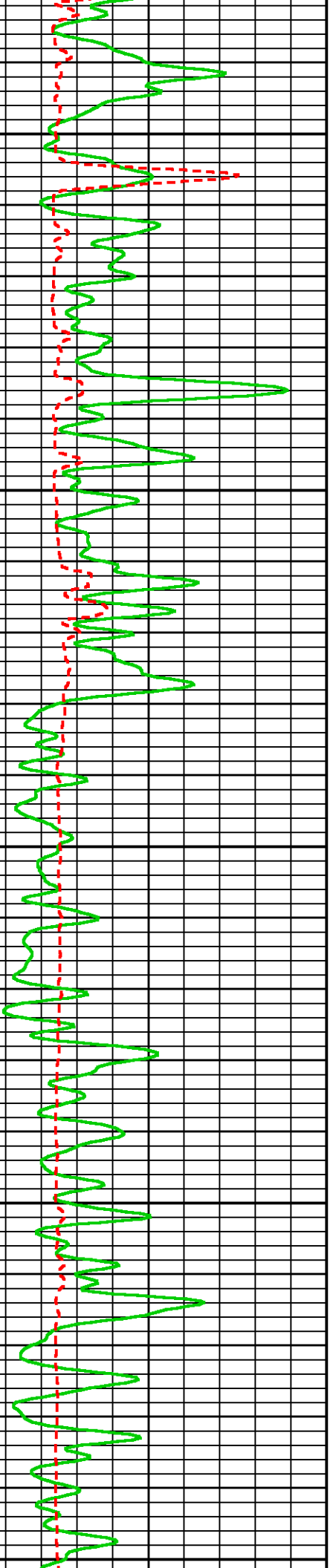
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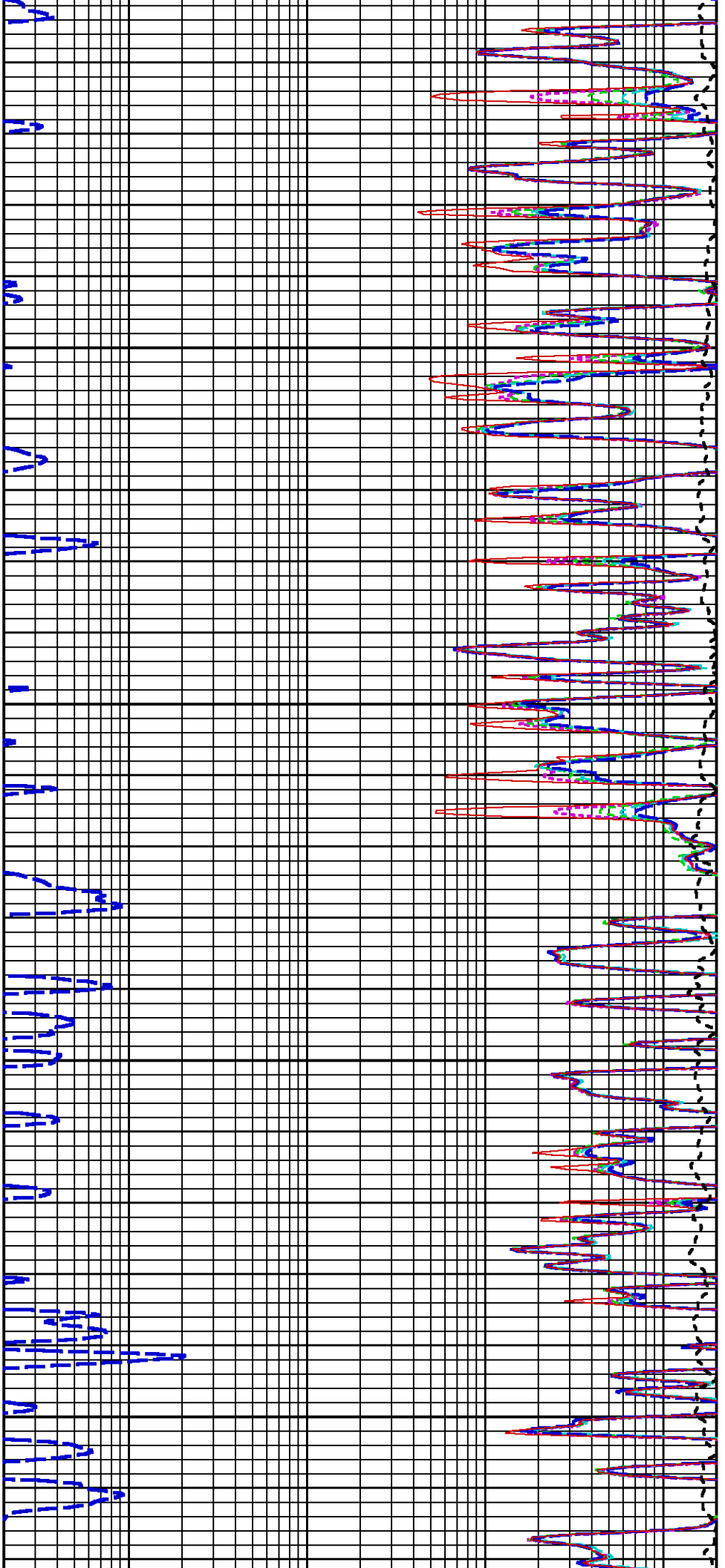




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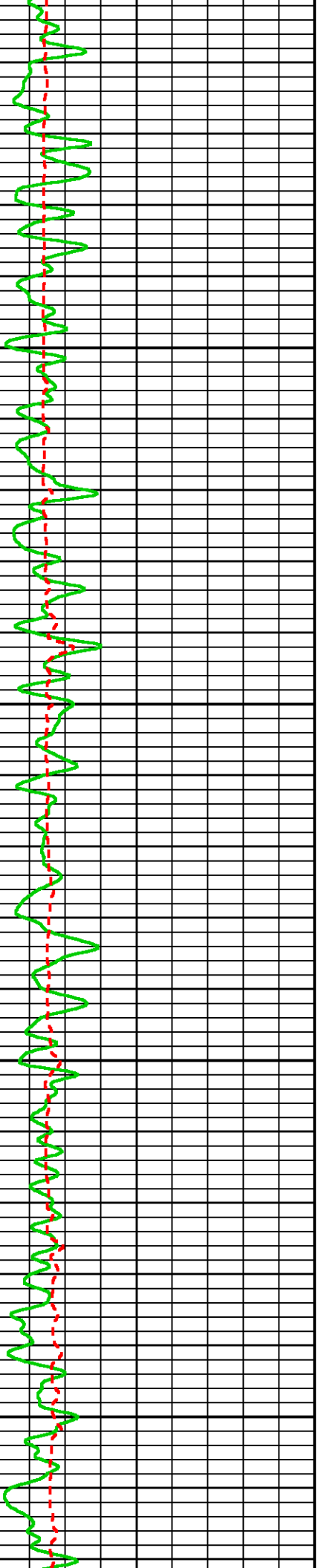
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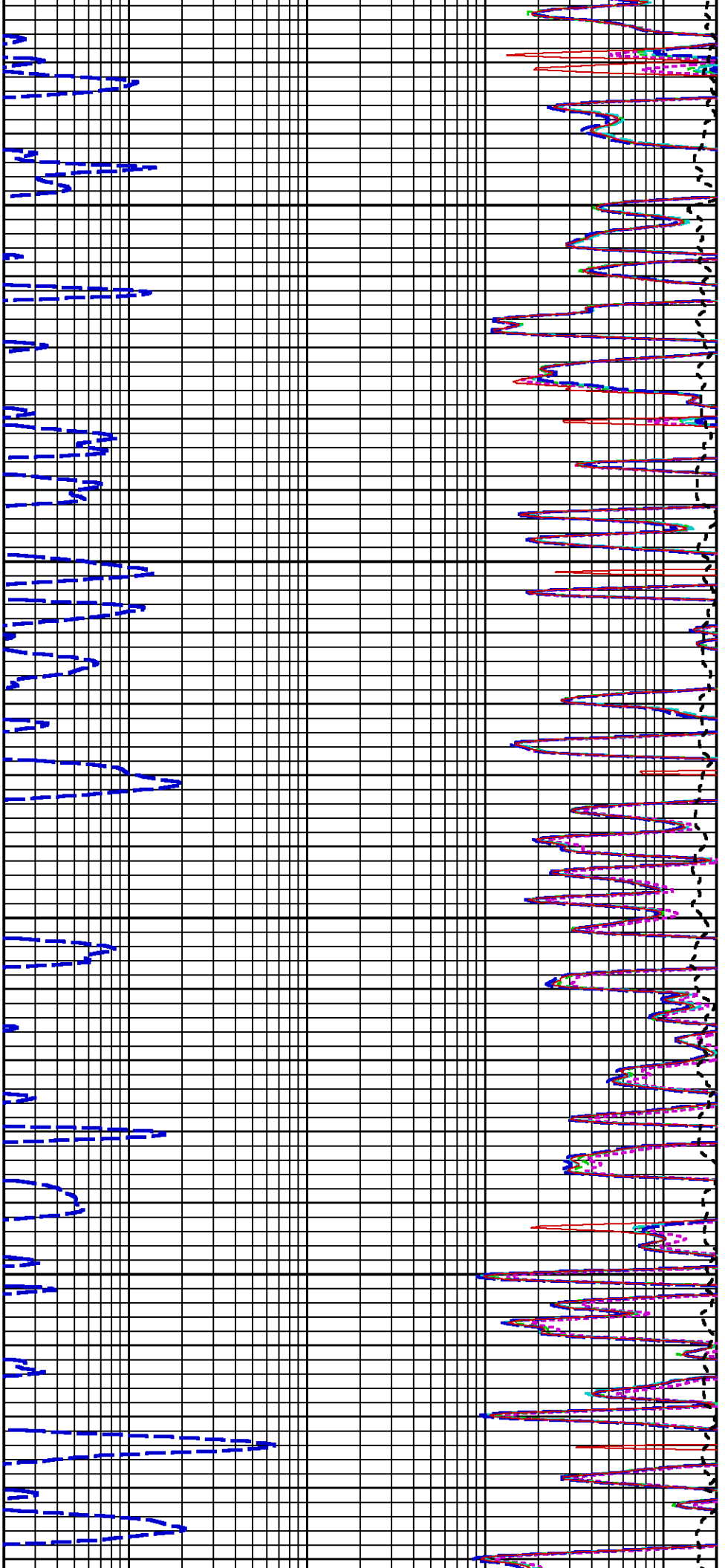




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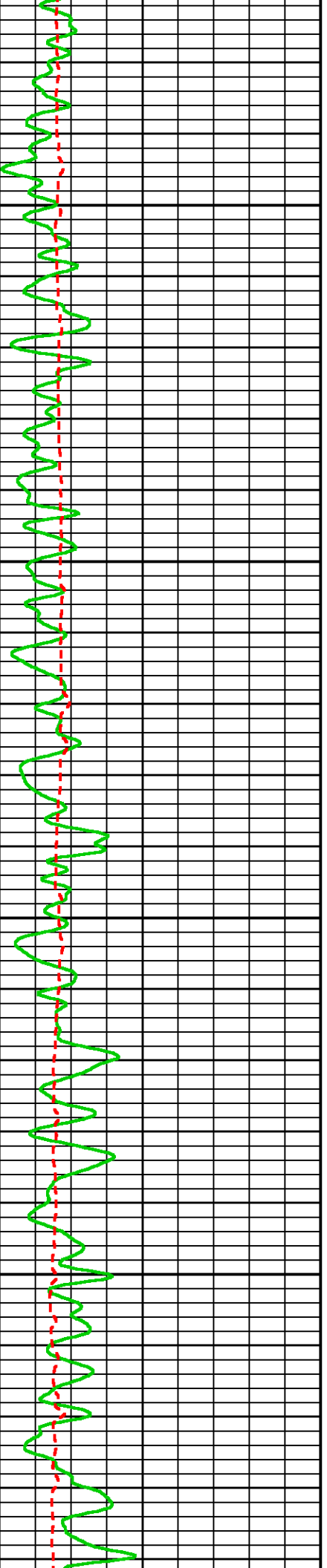
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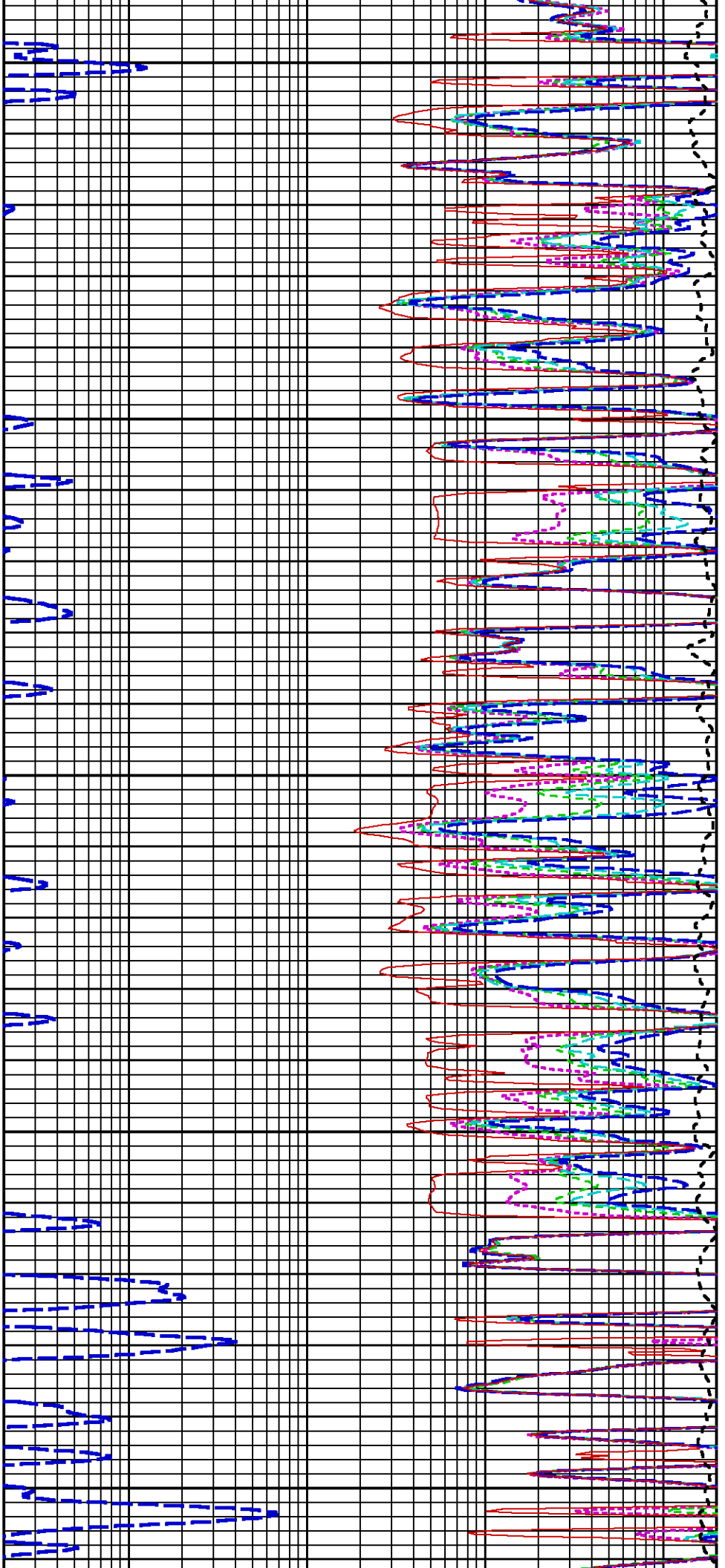




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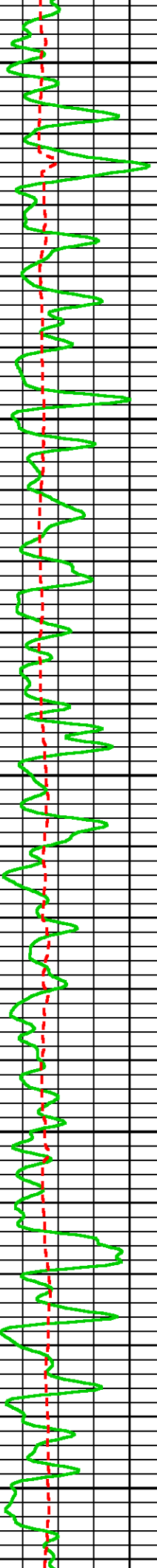


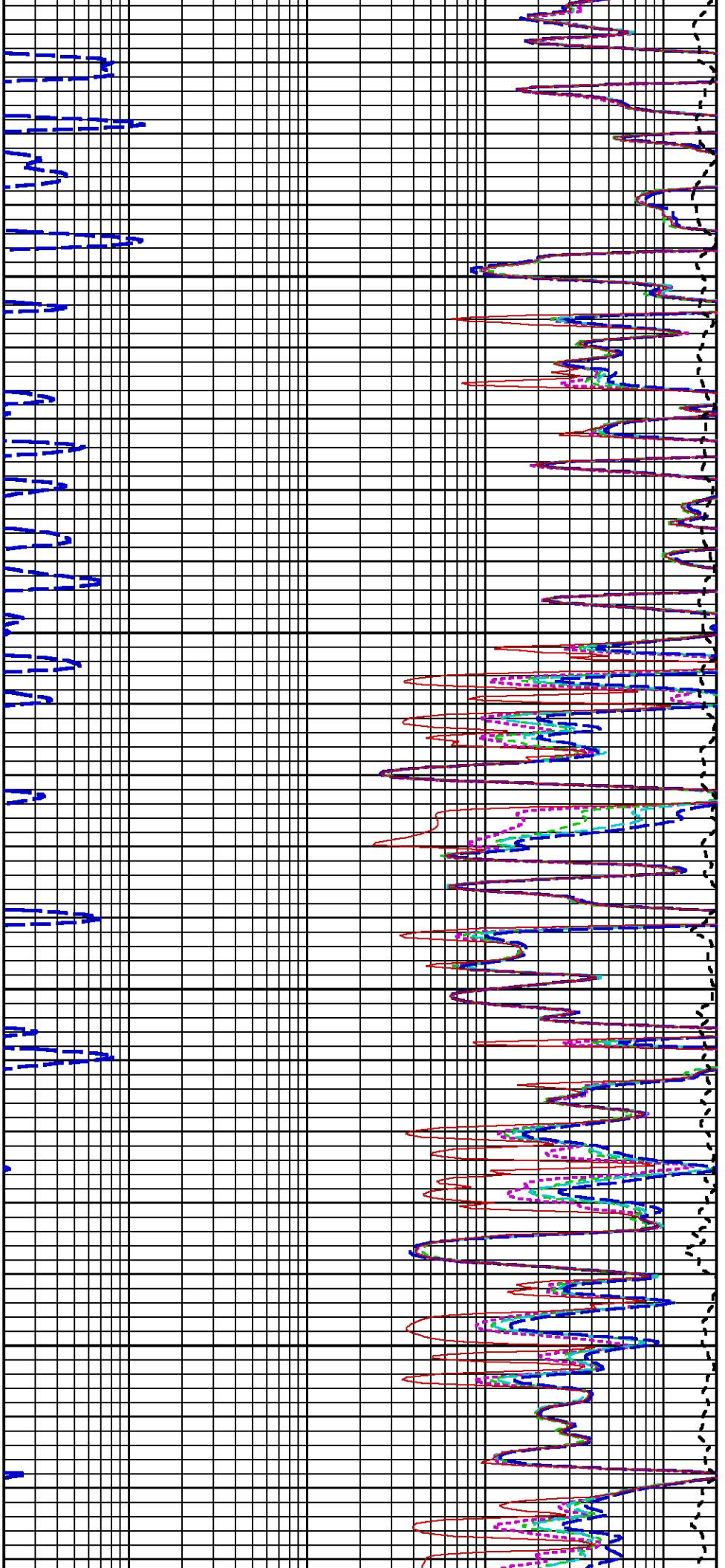


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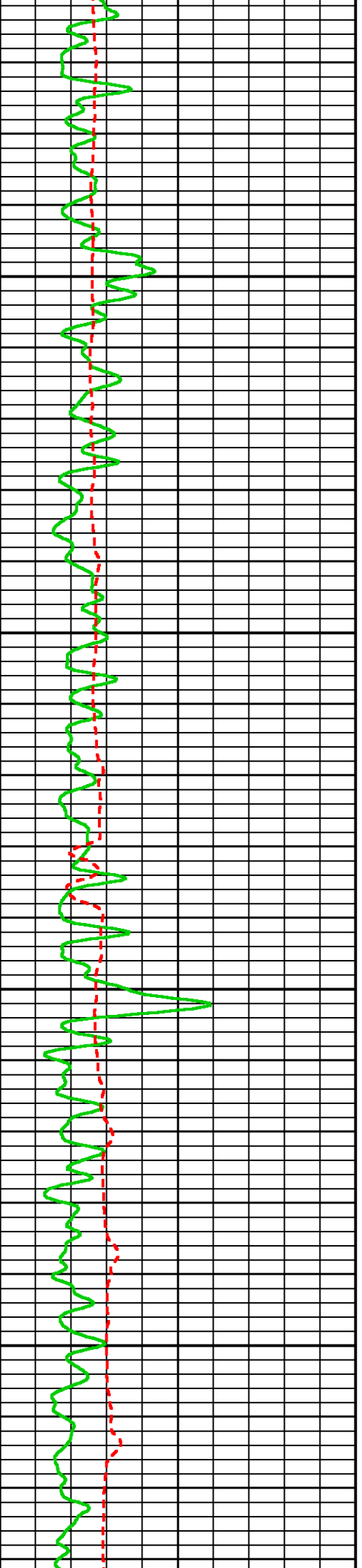
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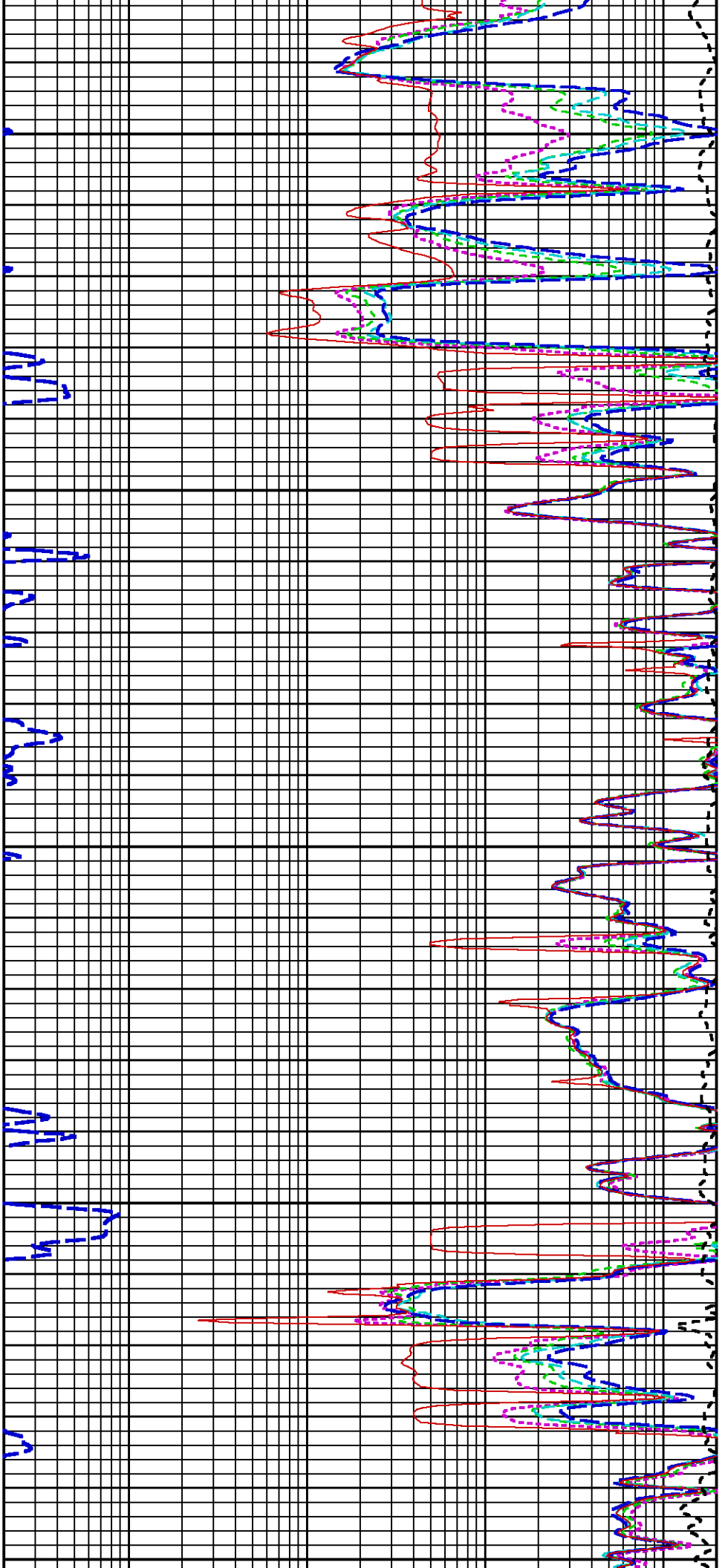




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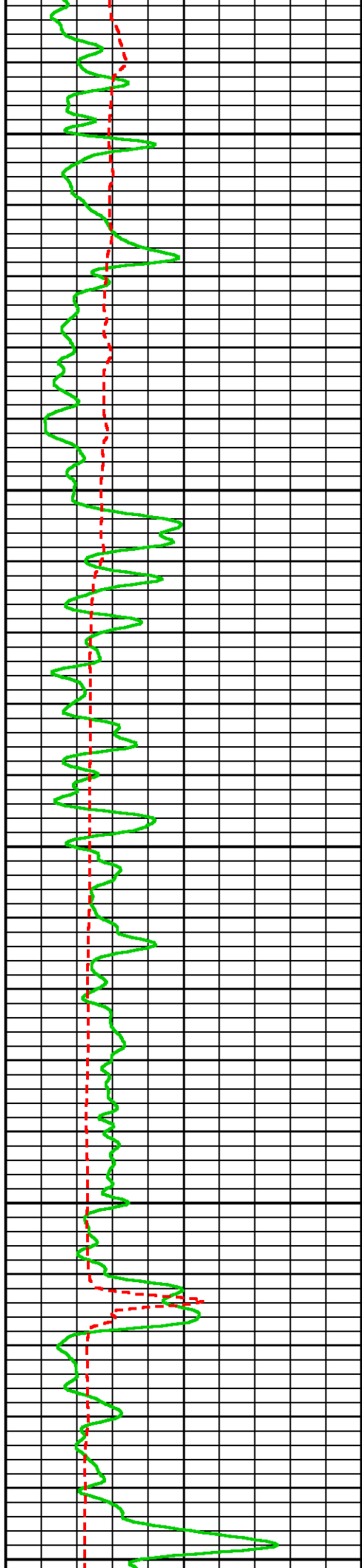
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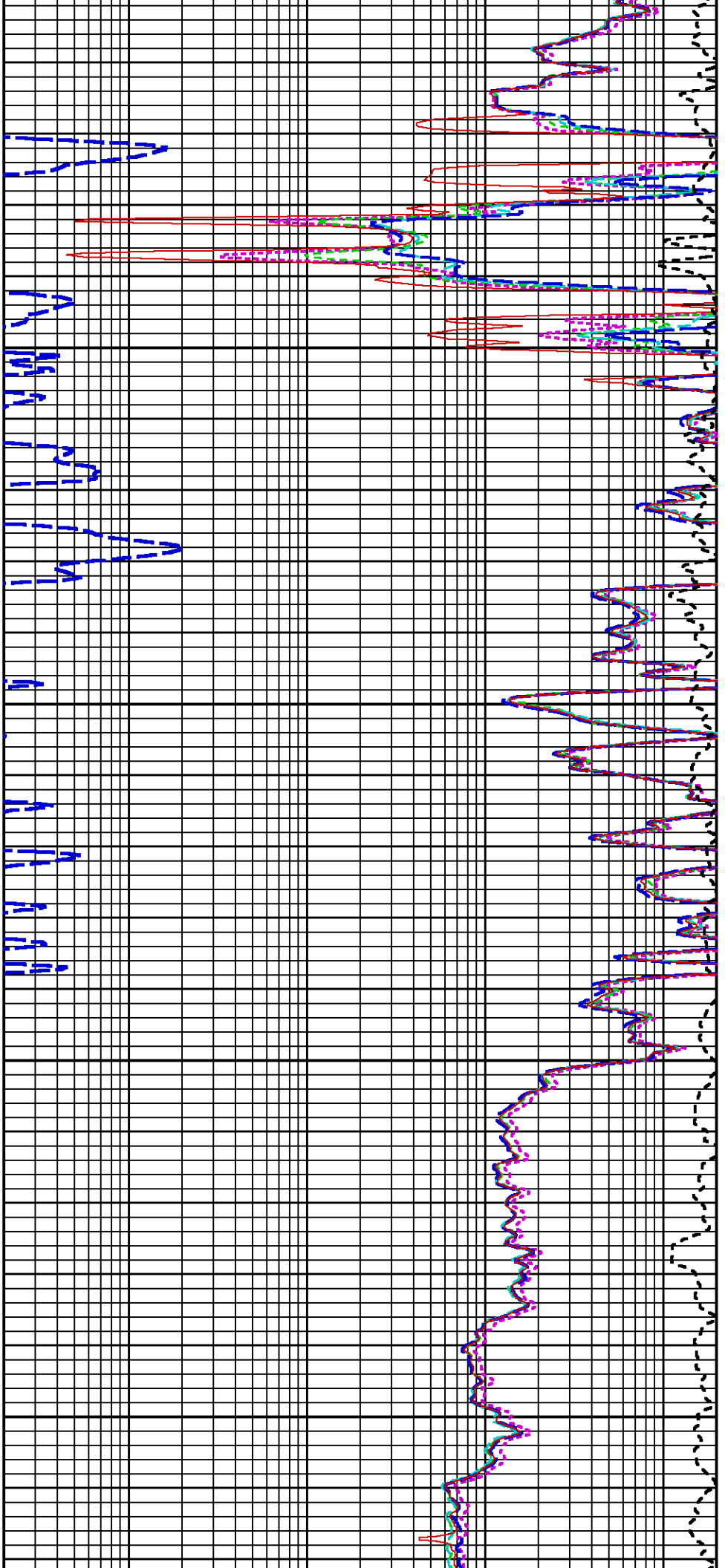




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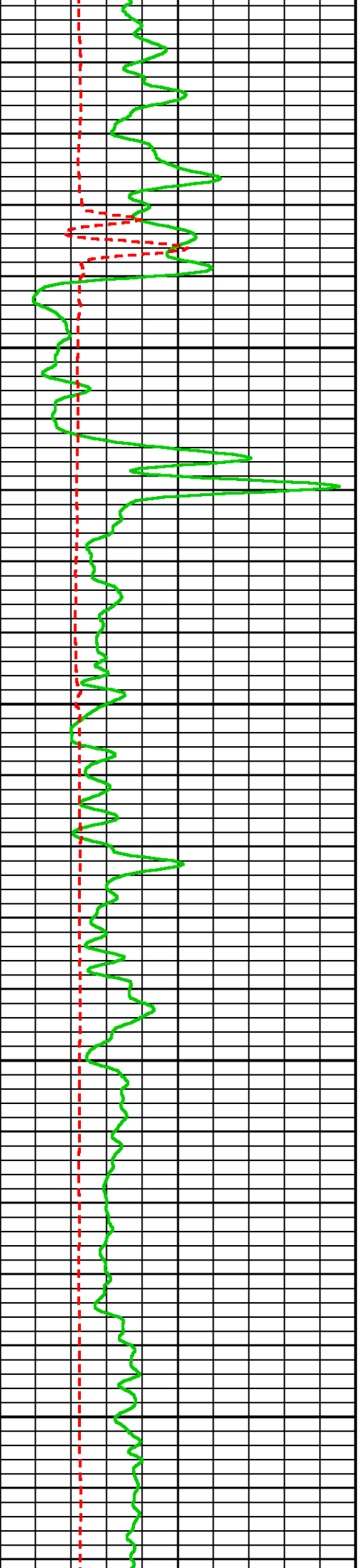
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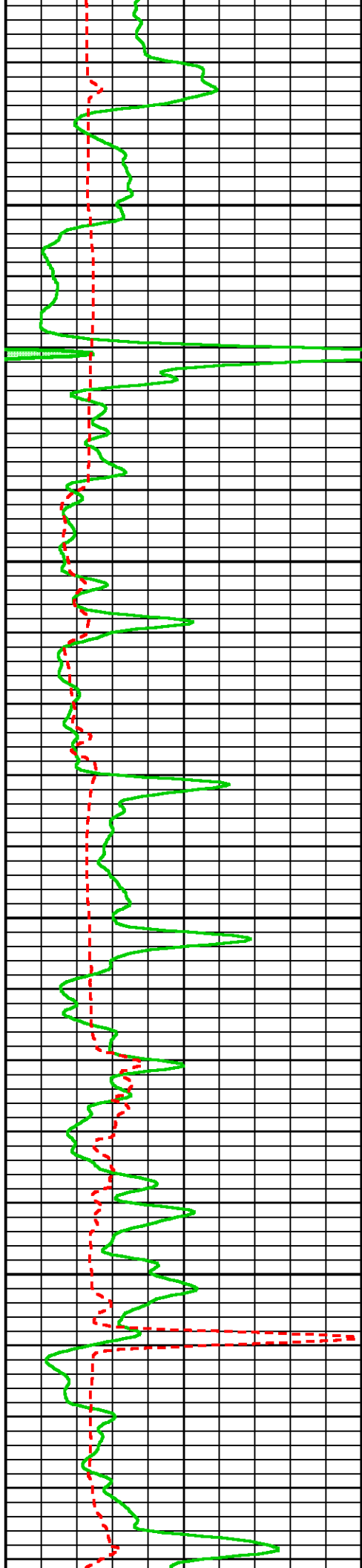




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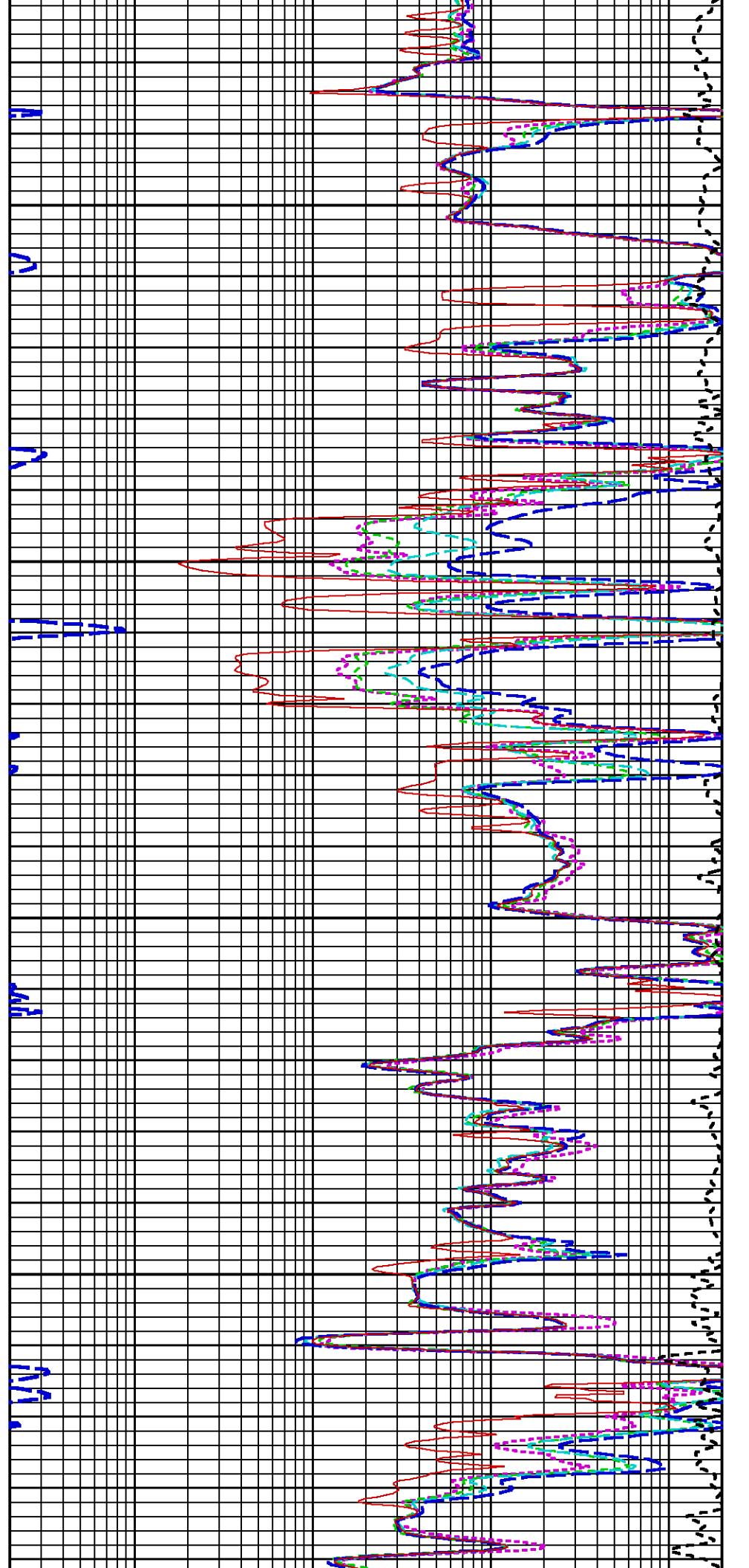
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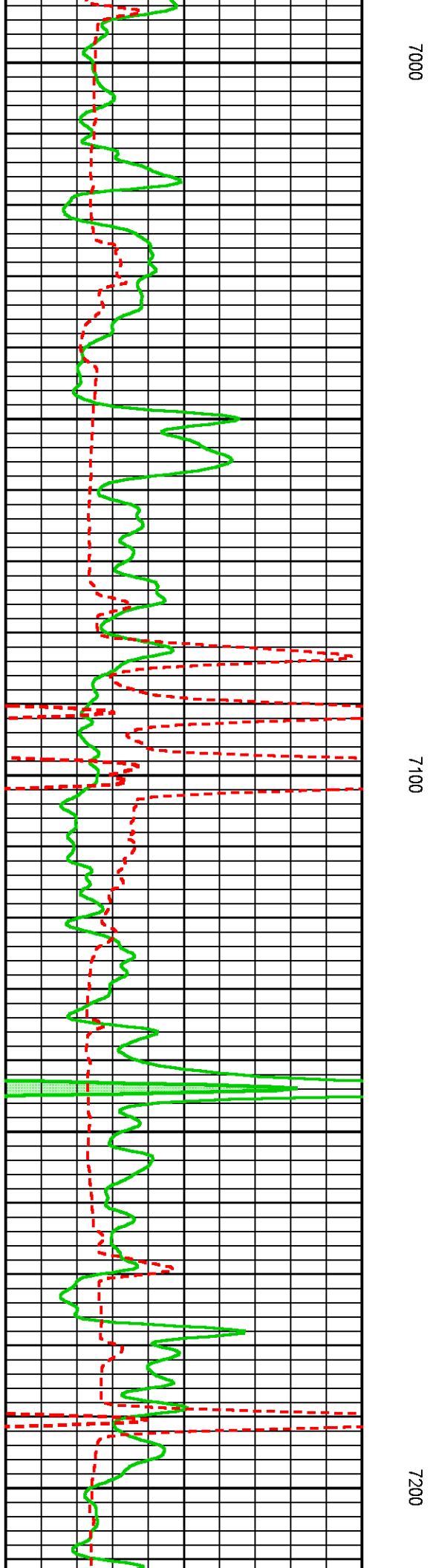
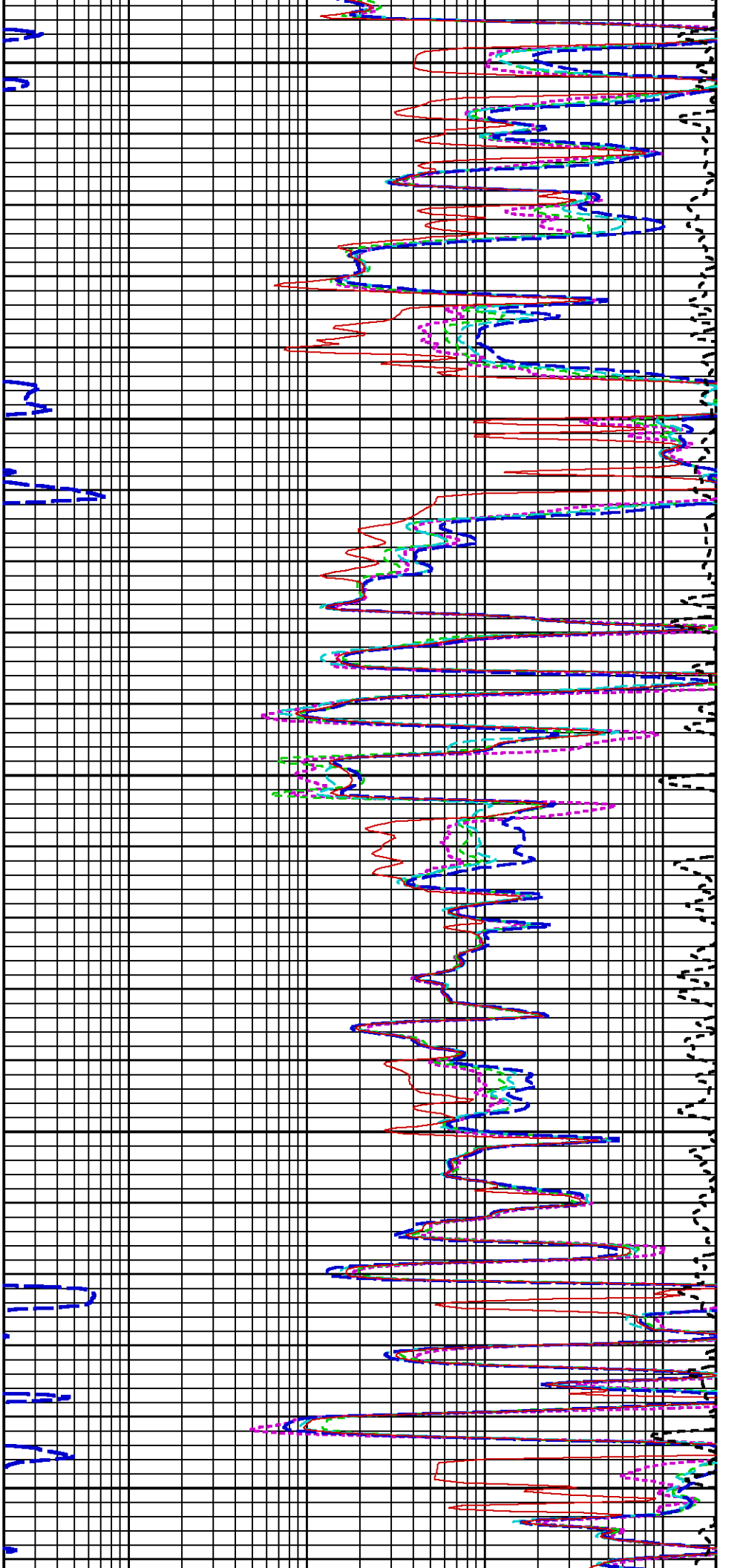


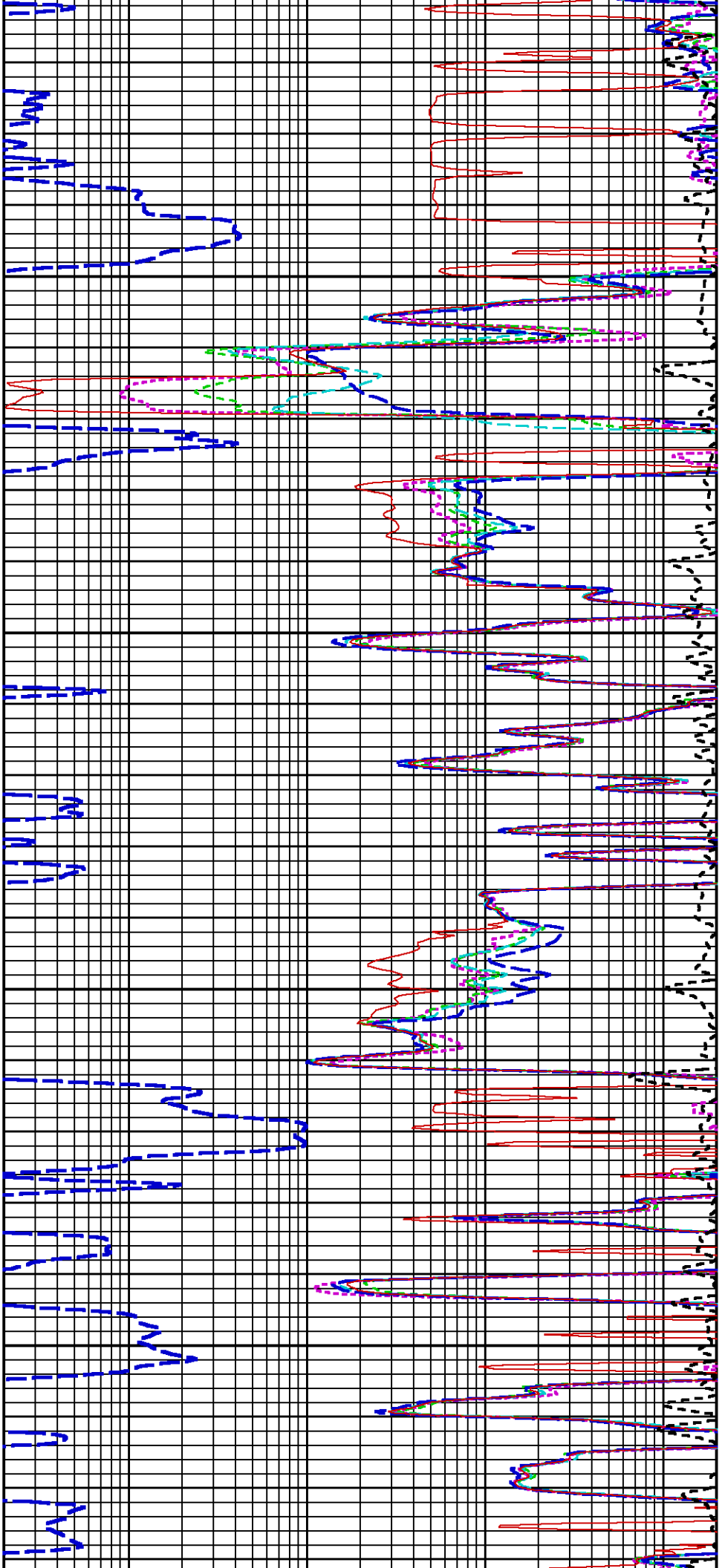


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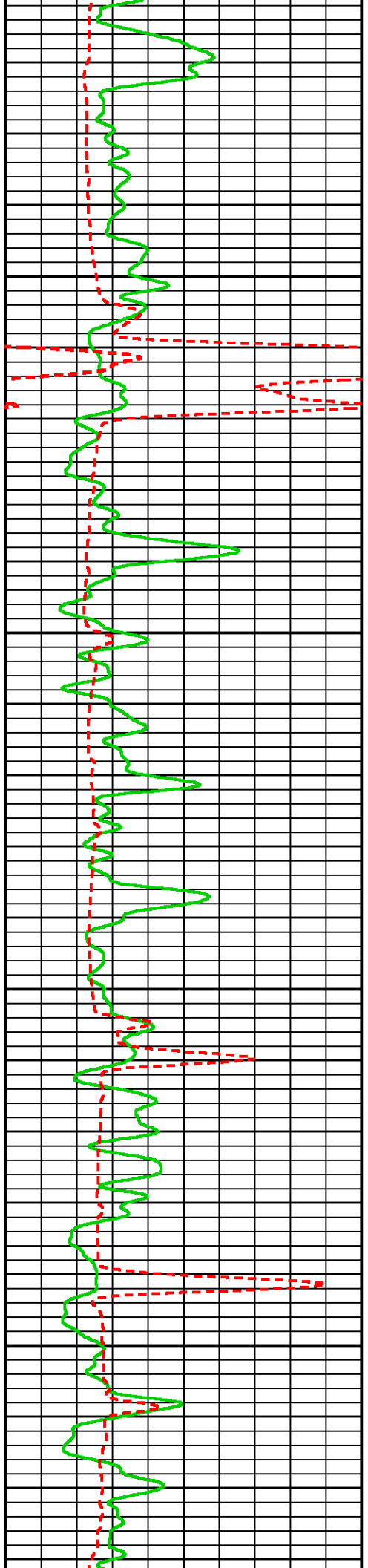


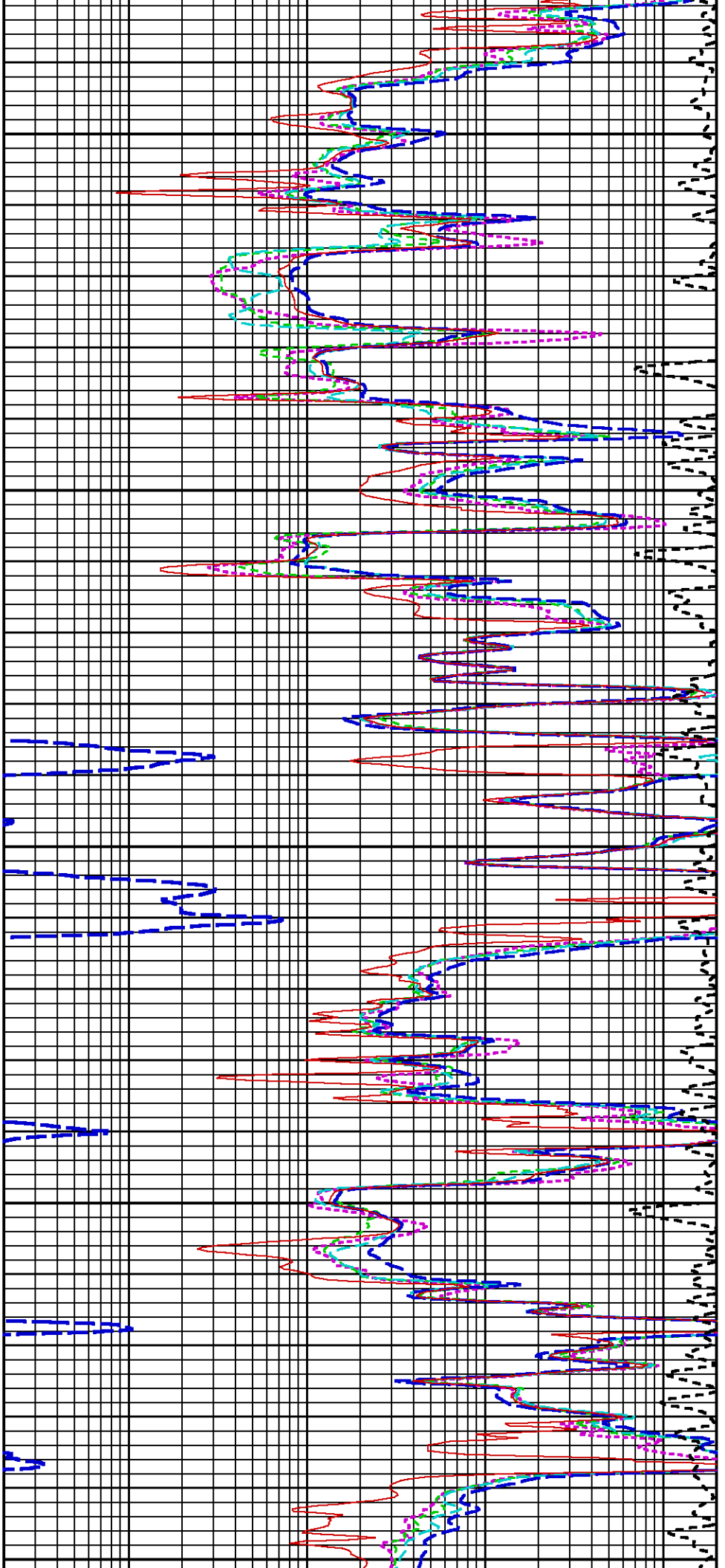




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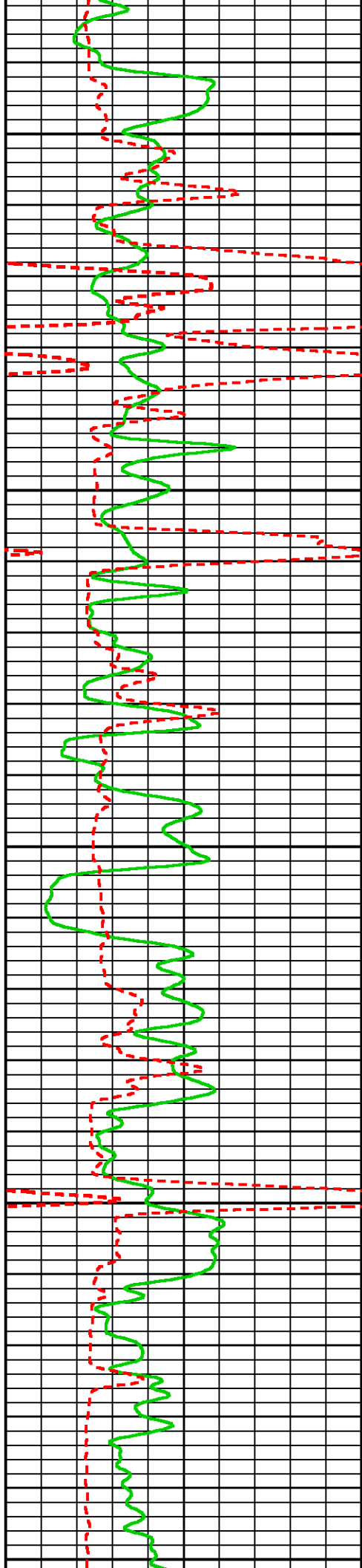
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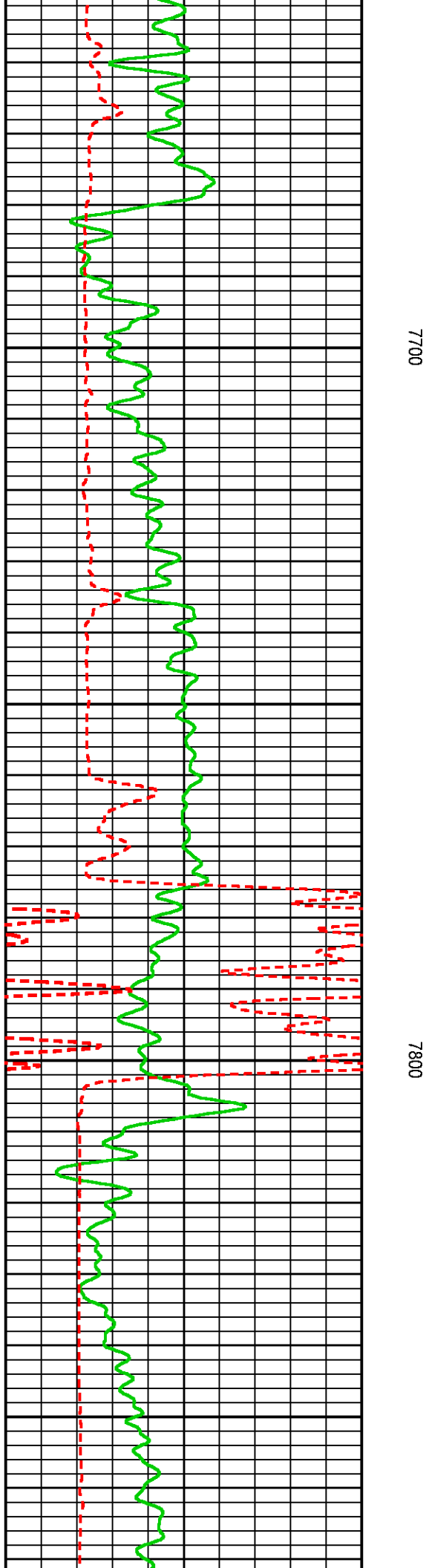
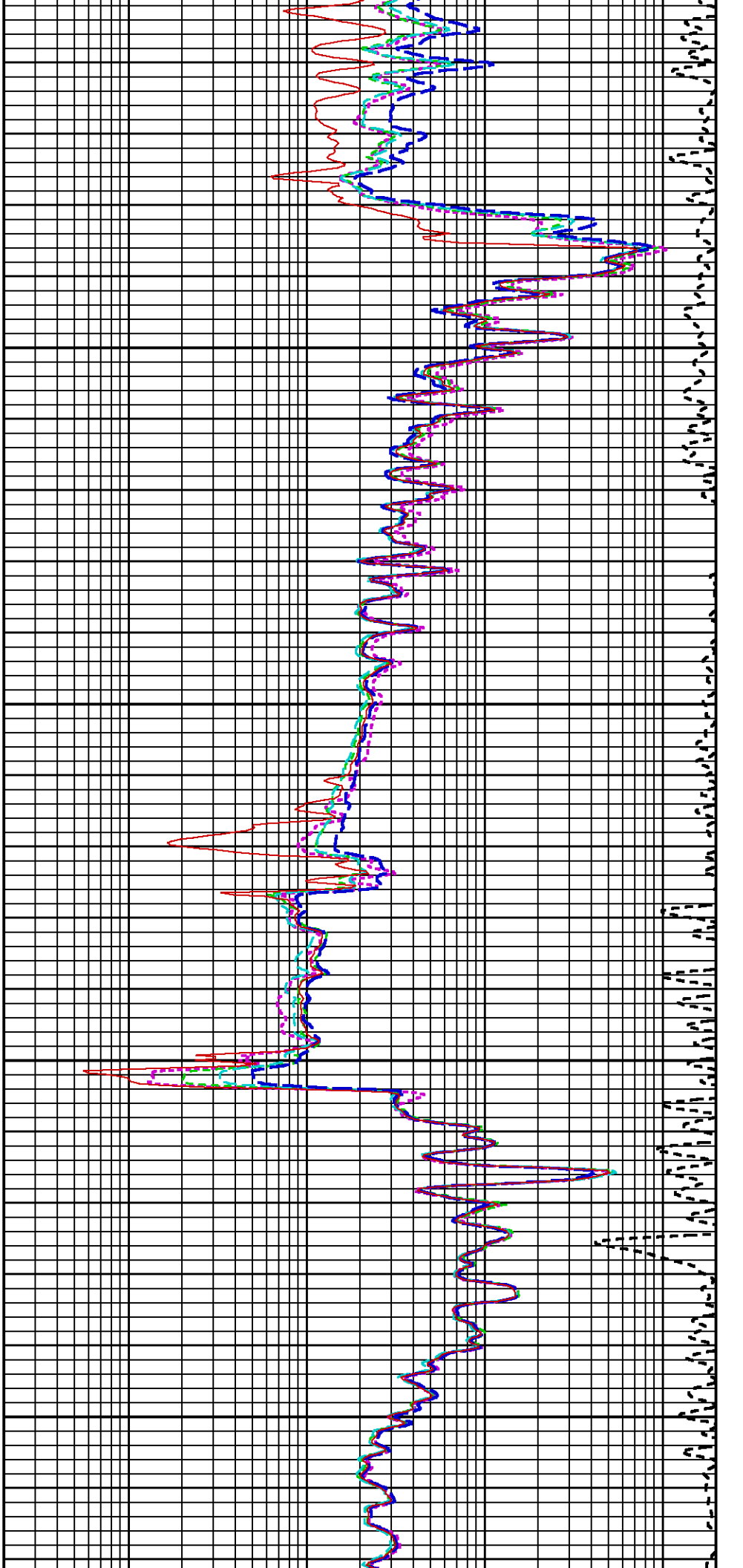


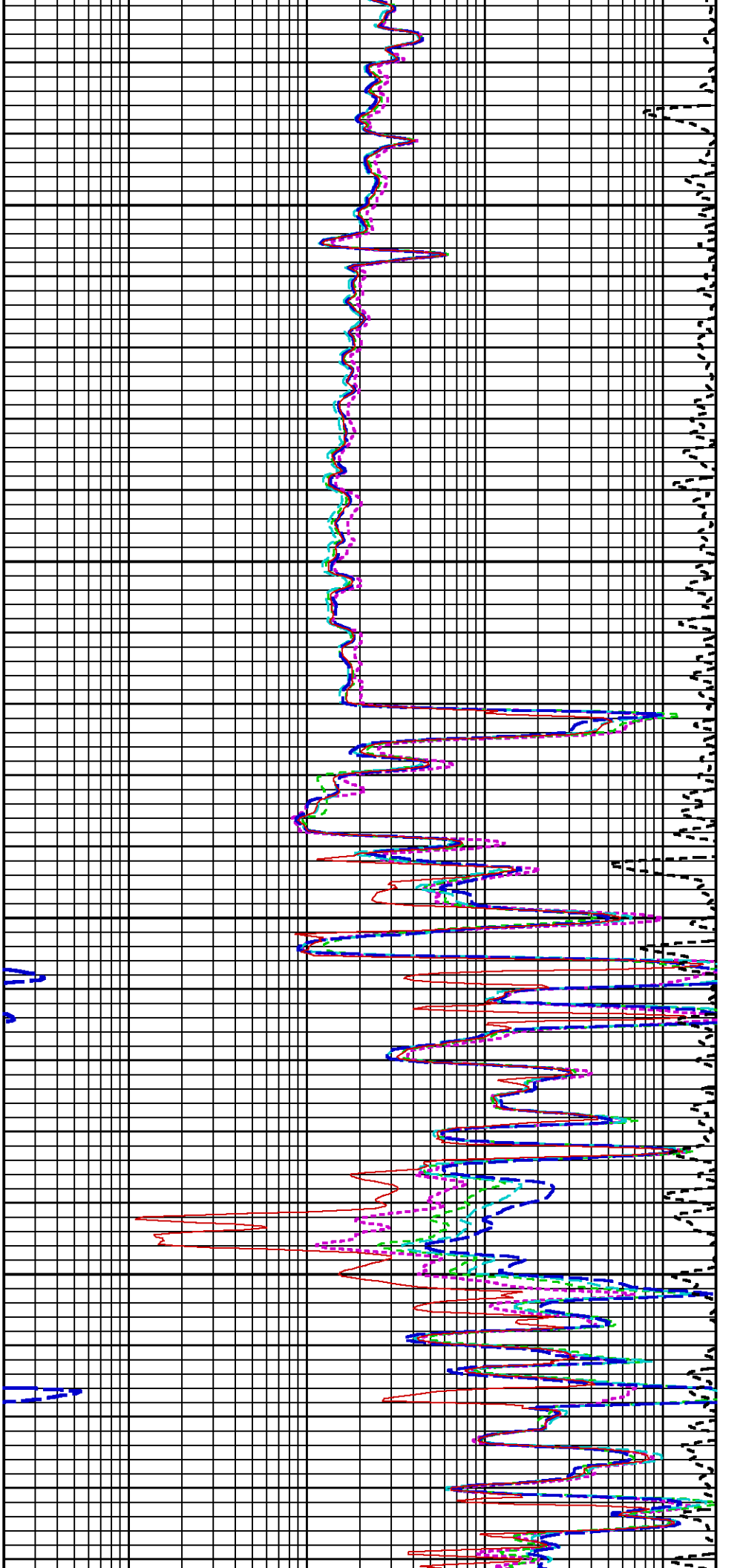


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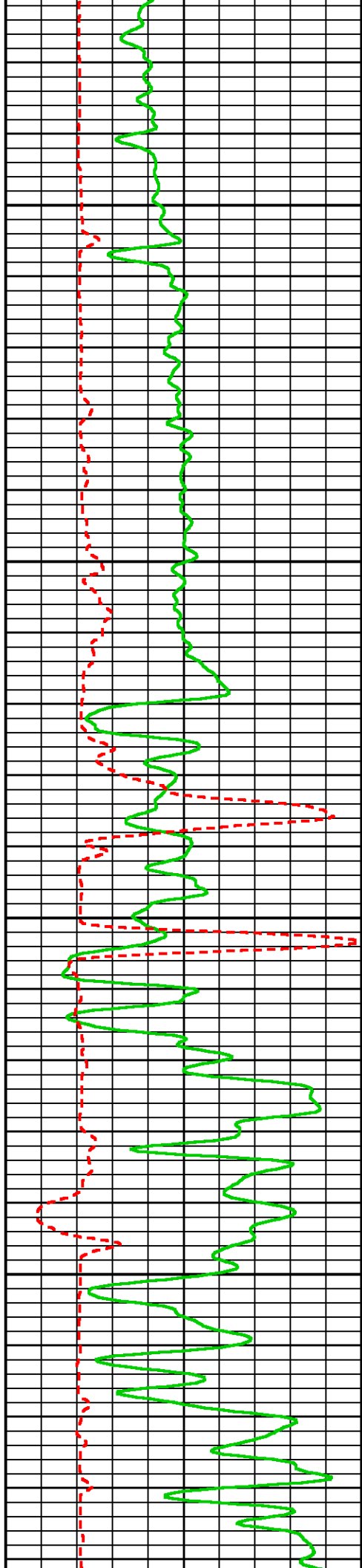


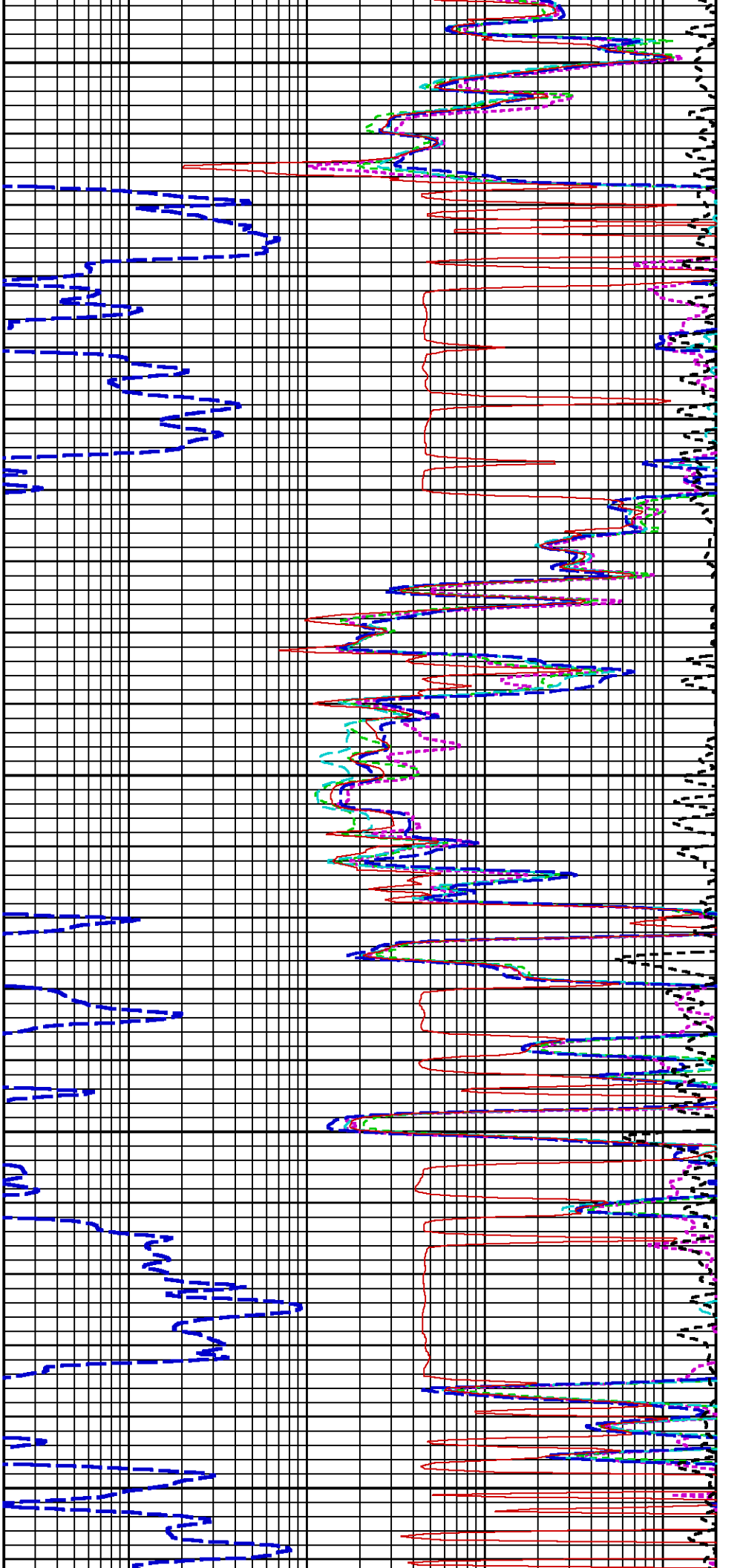




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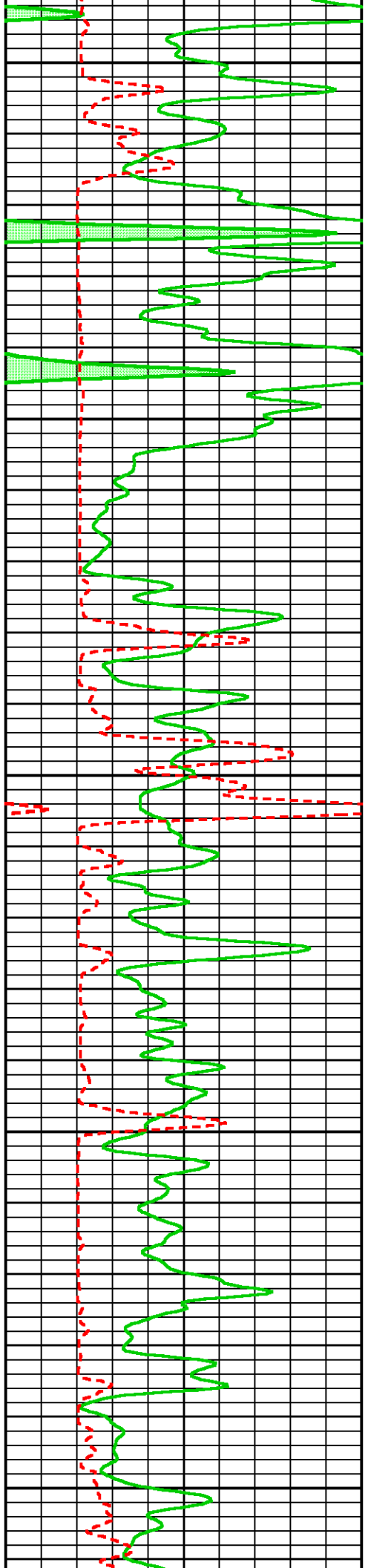


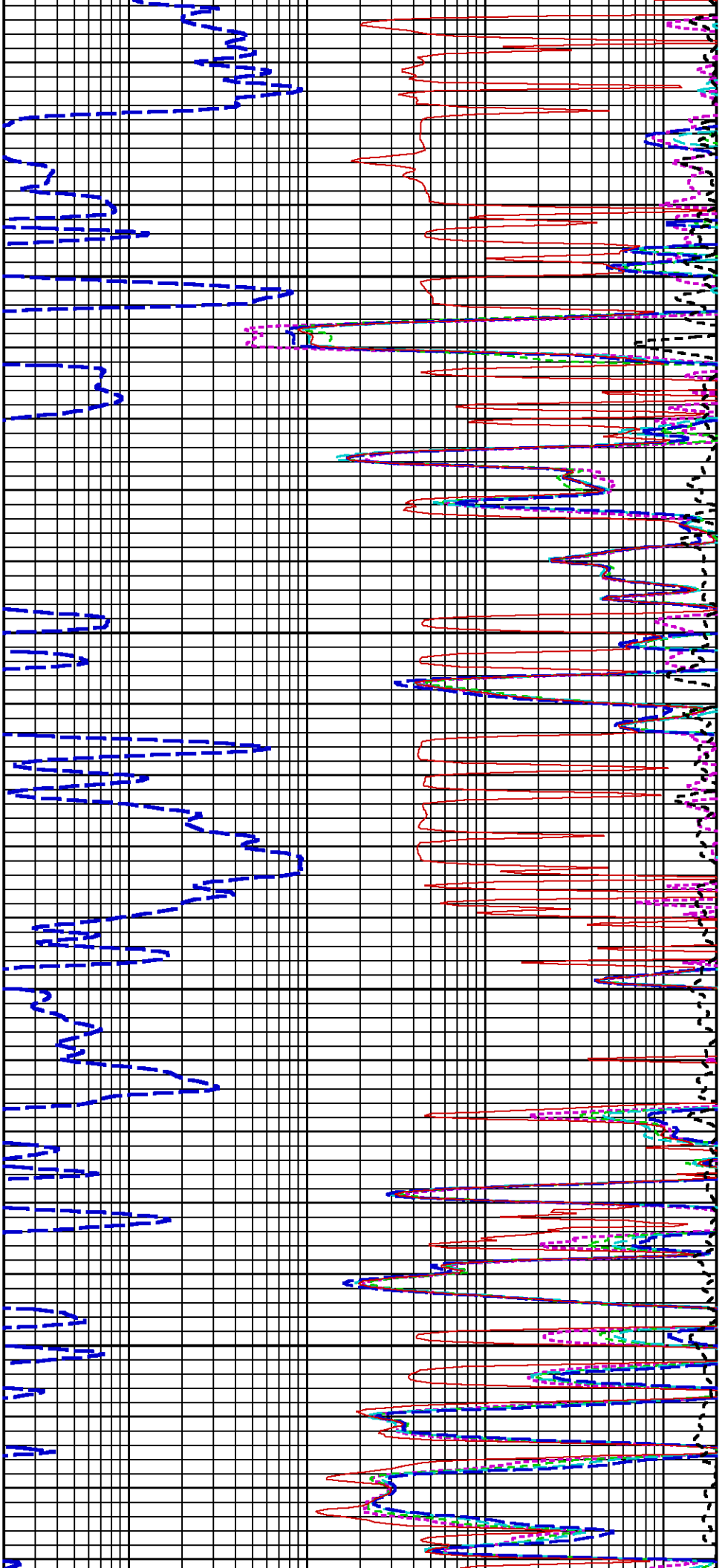


8100

8200

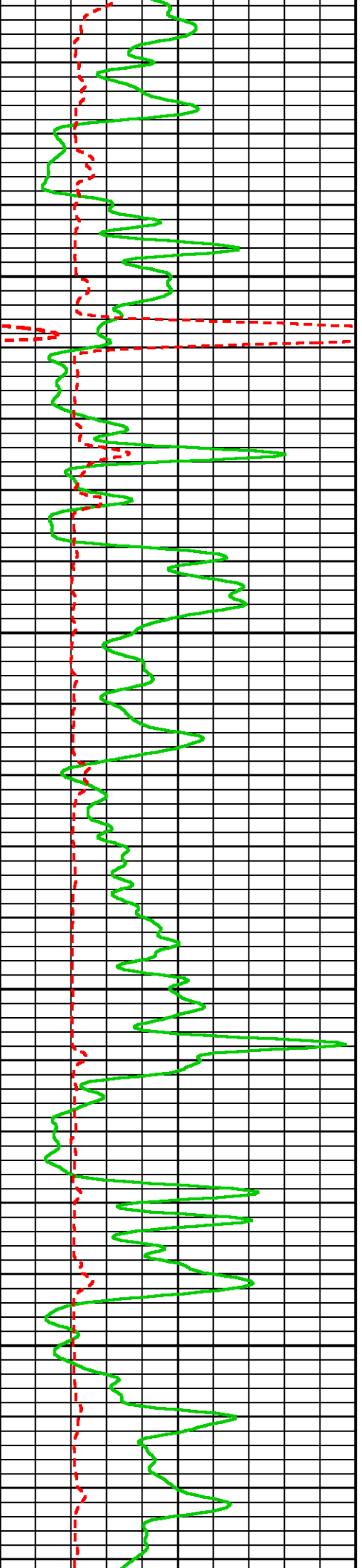
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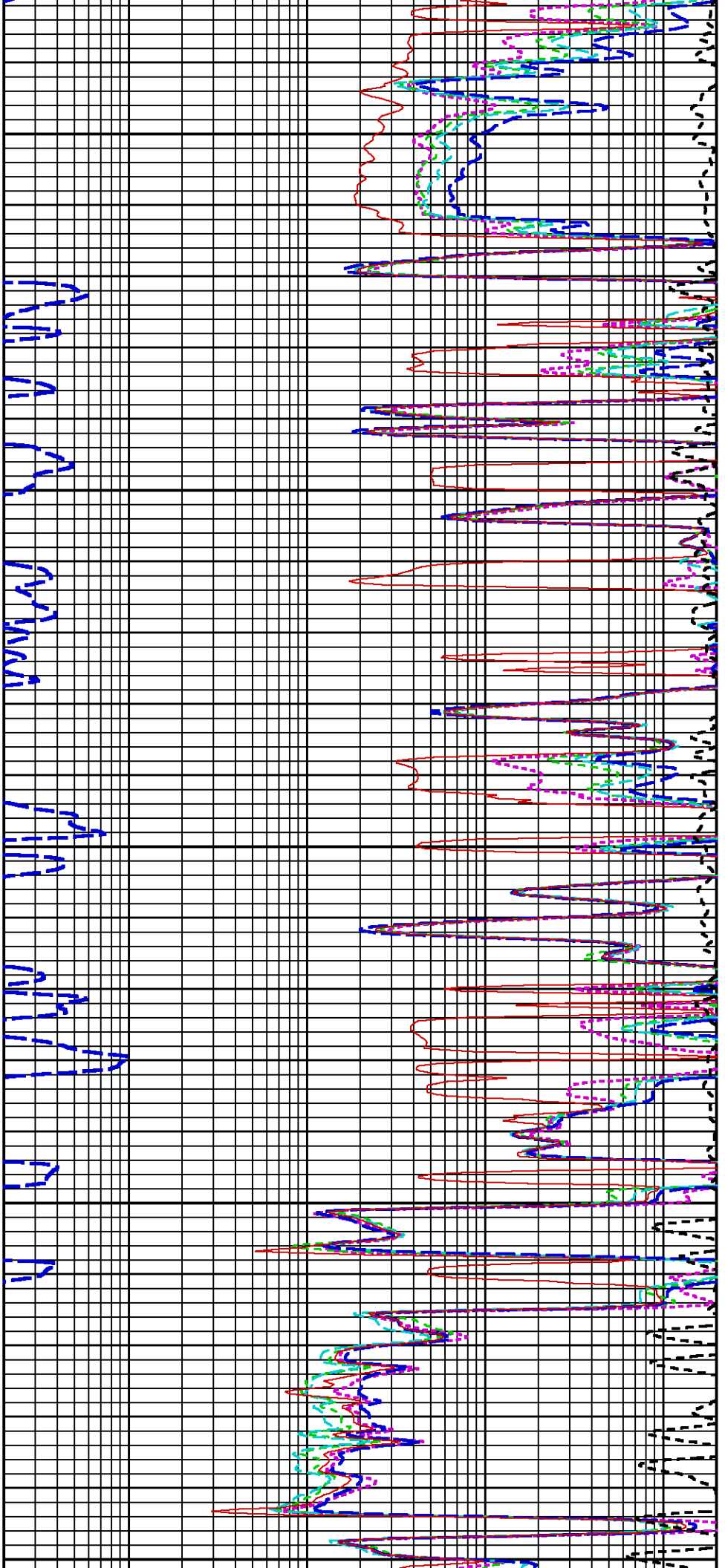




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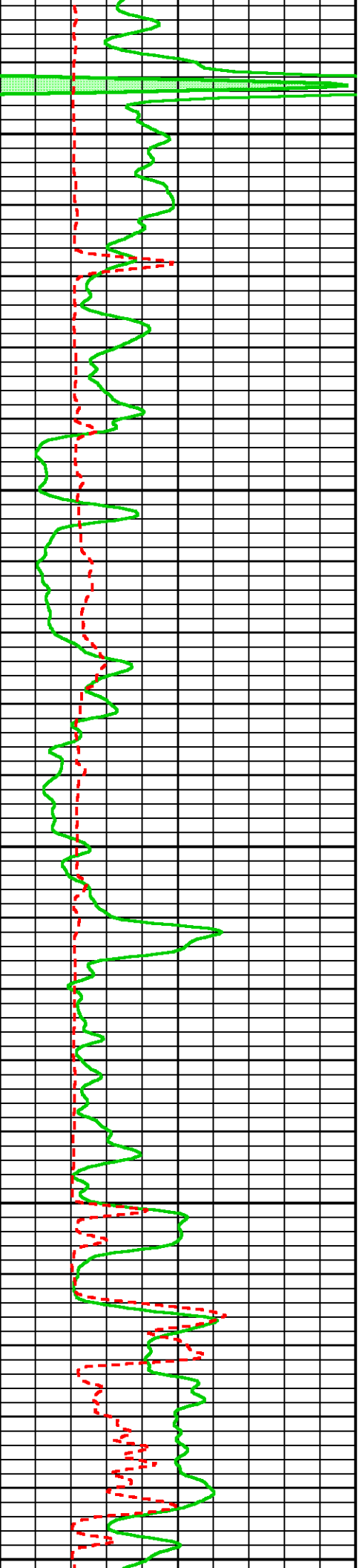
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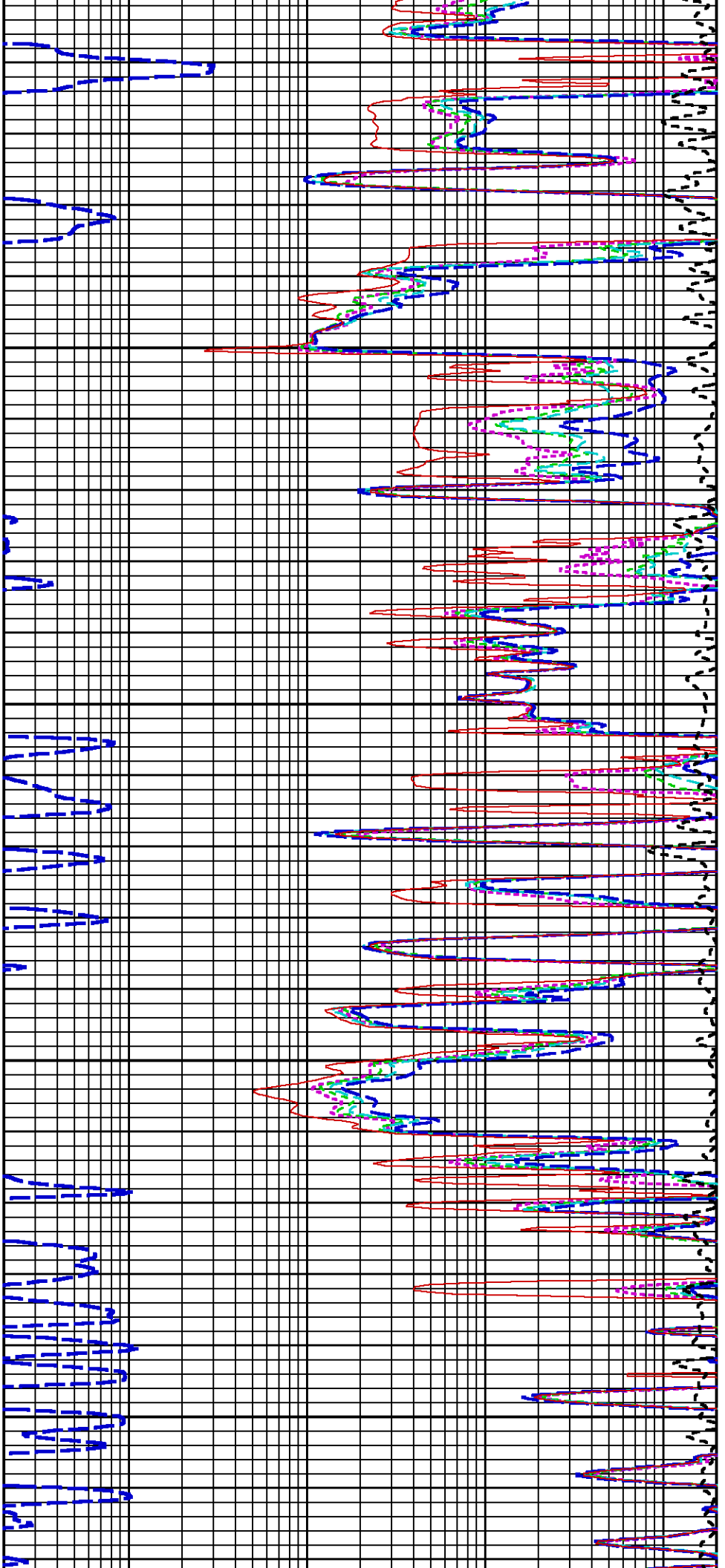




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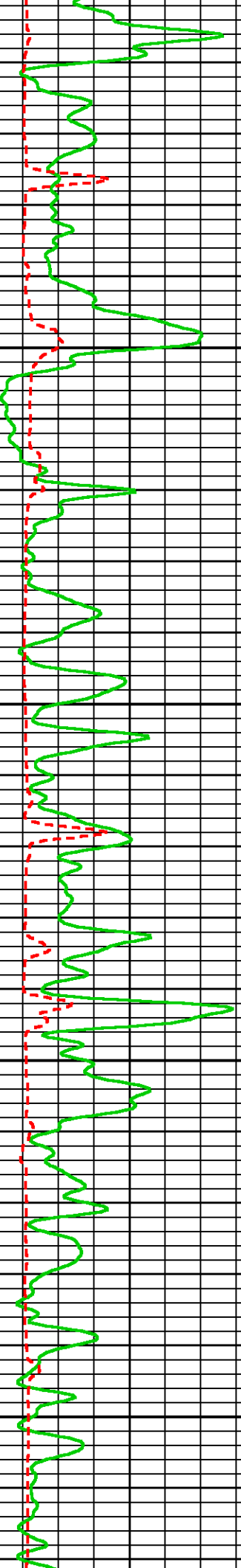
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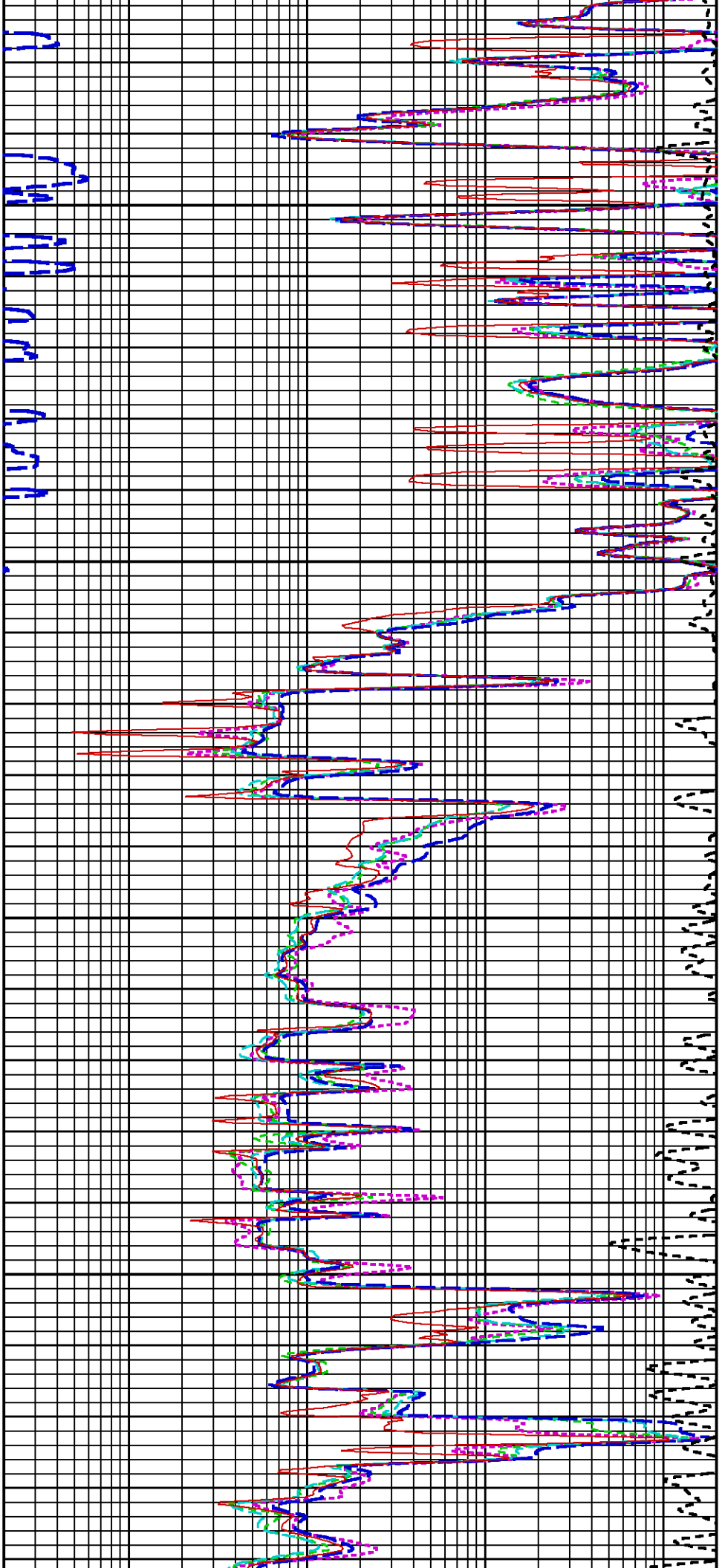




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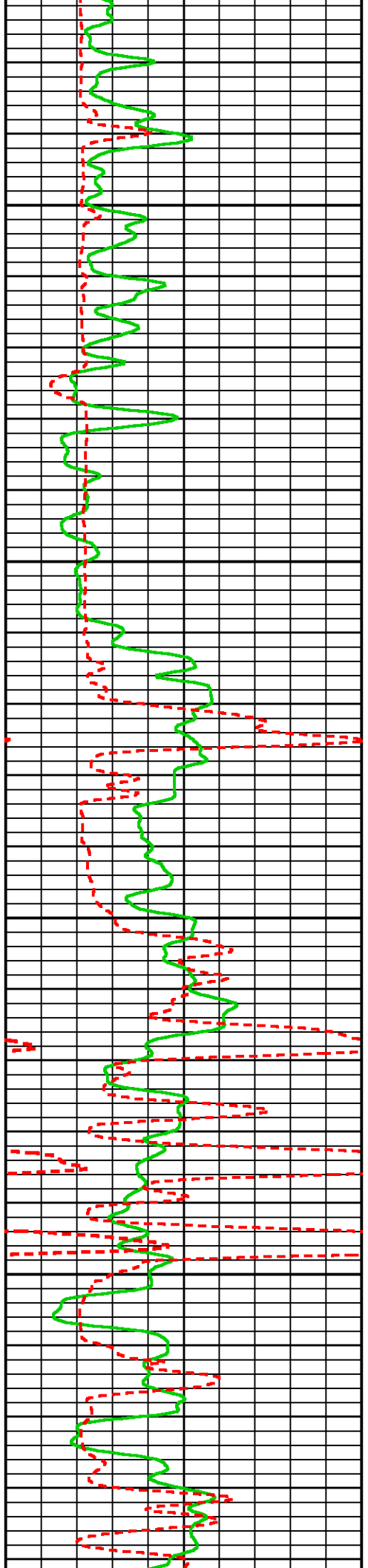
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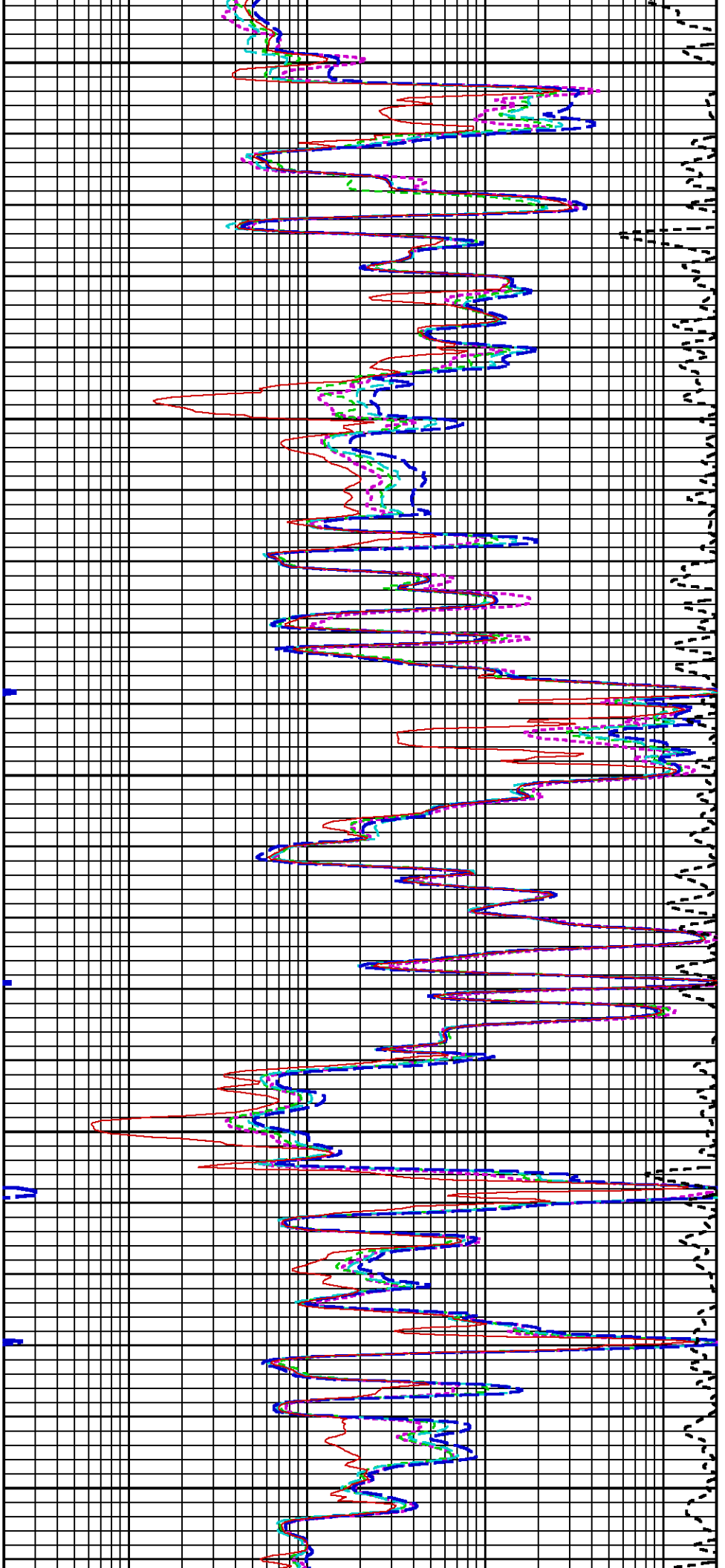




9000

9100

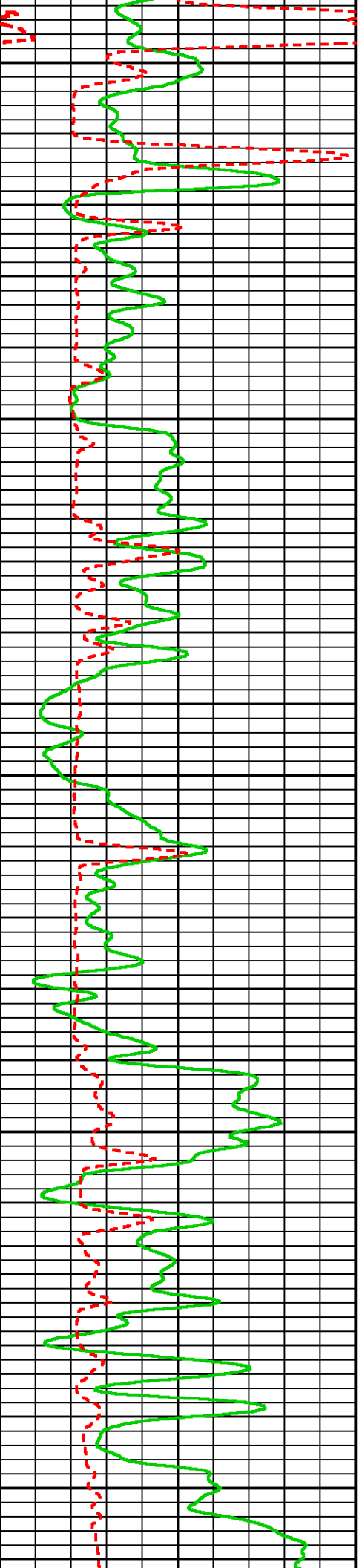


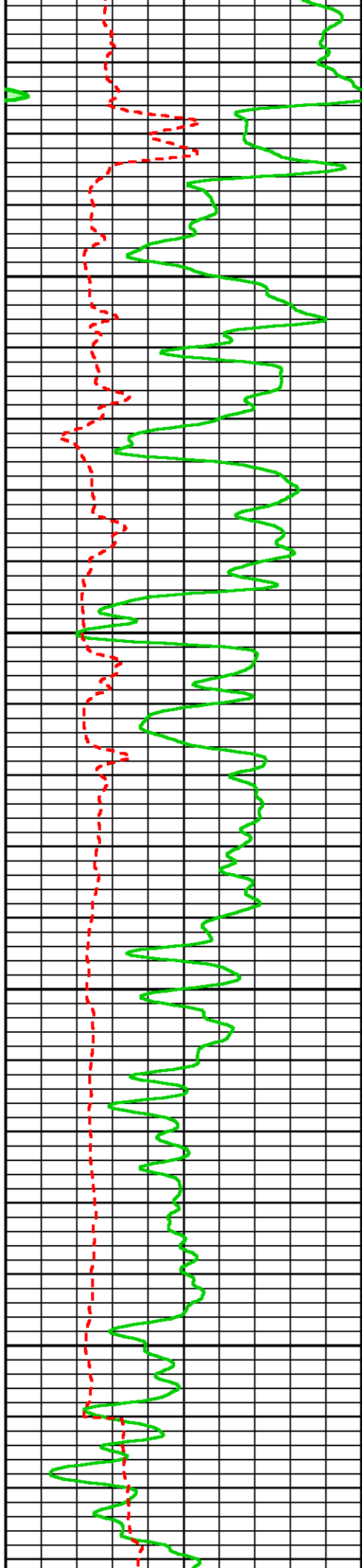


9200

9300

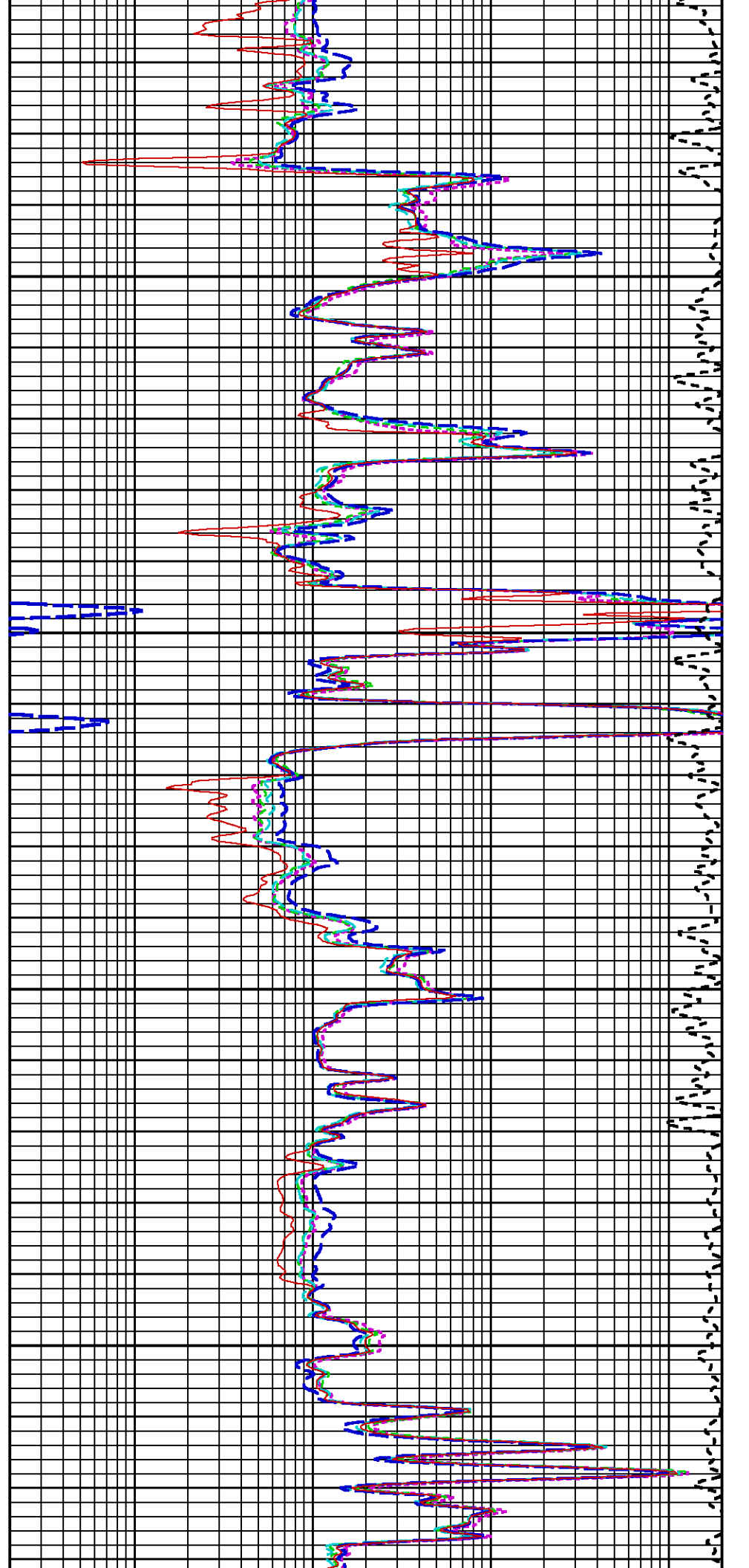
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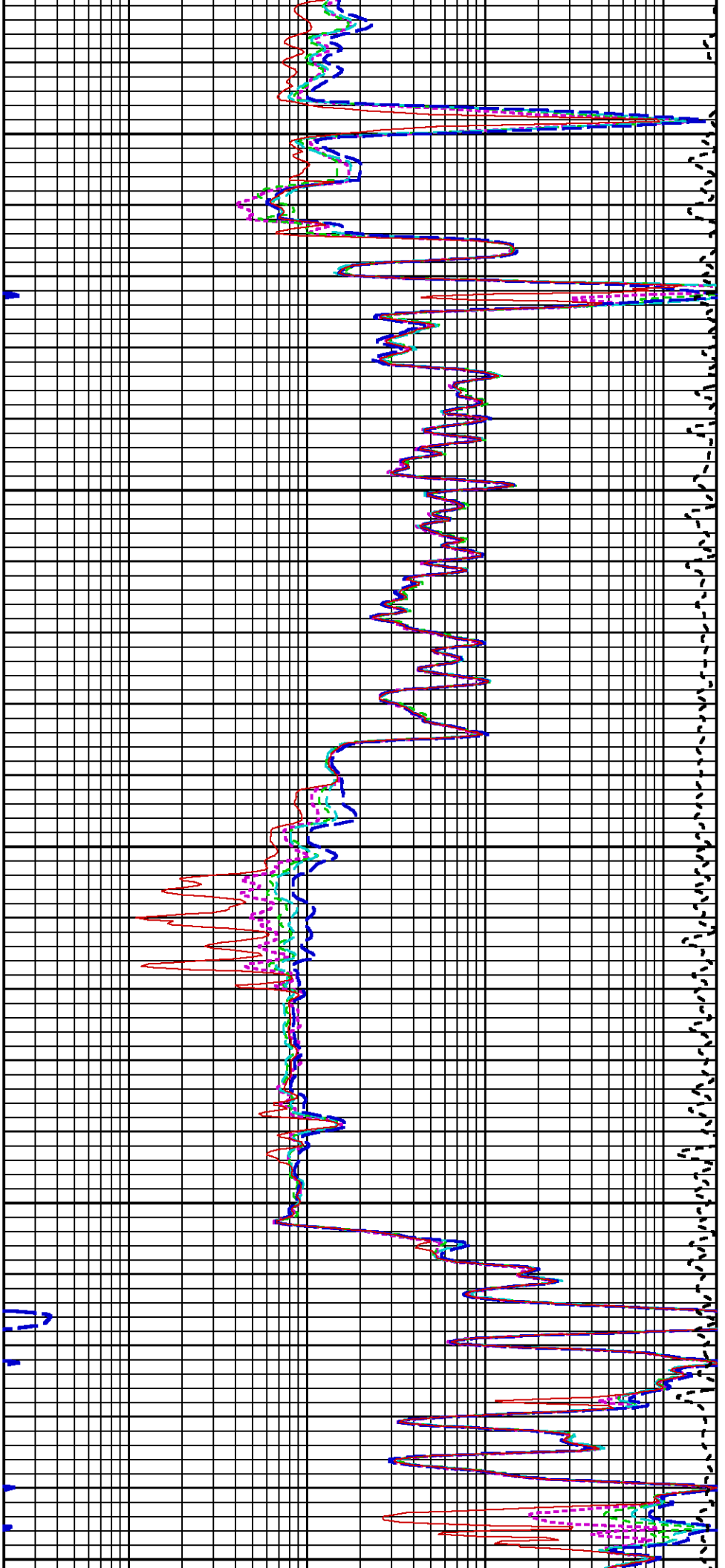




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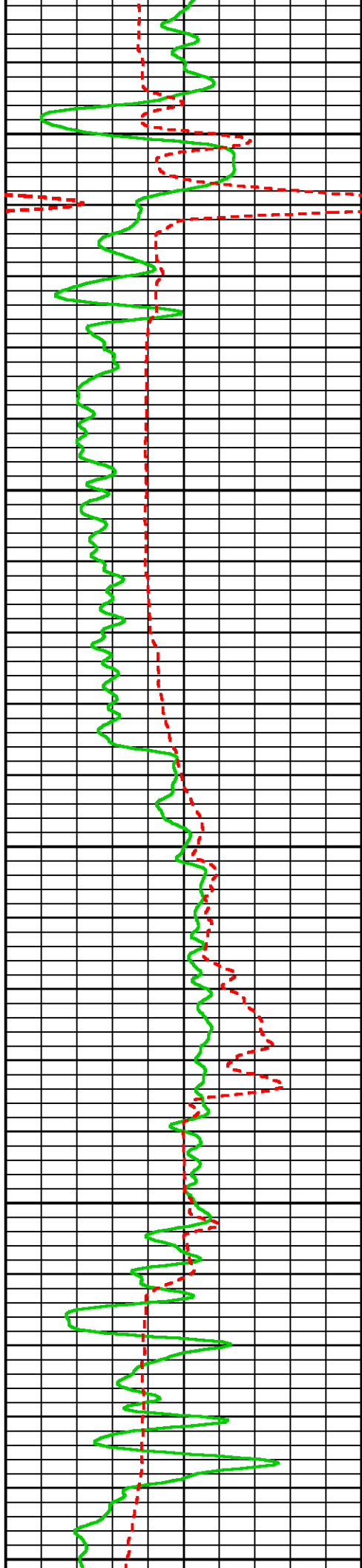
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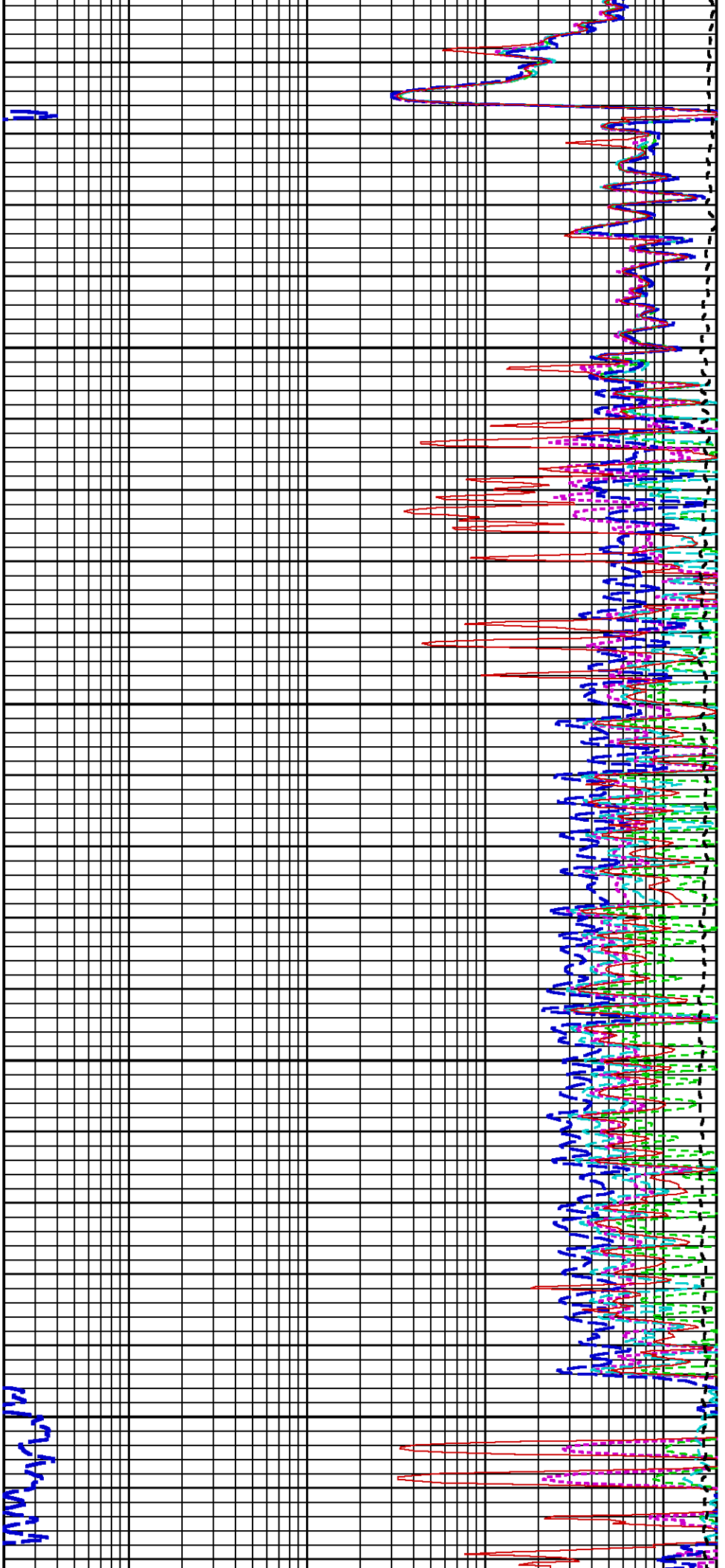




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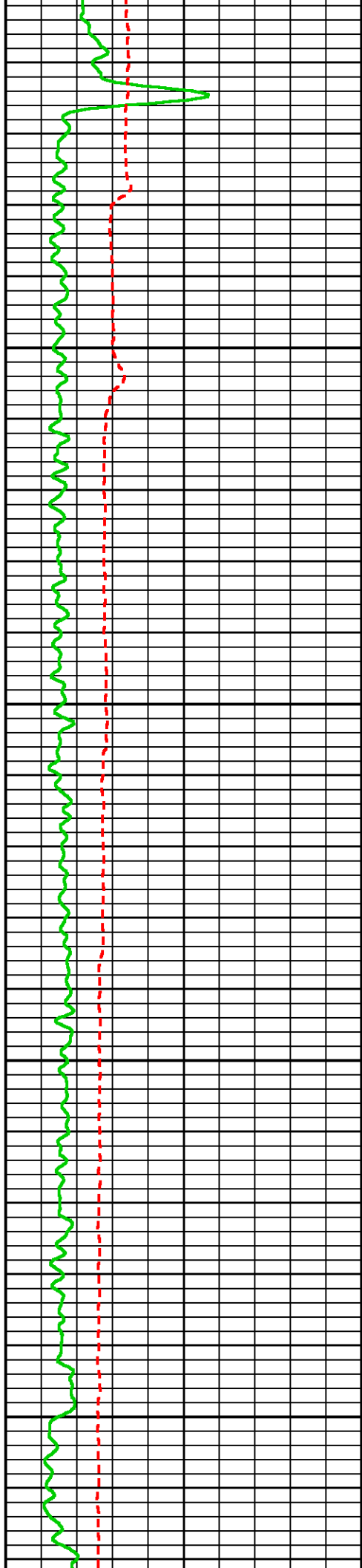
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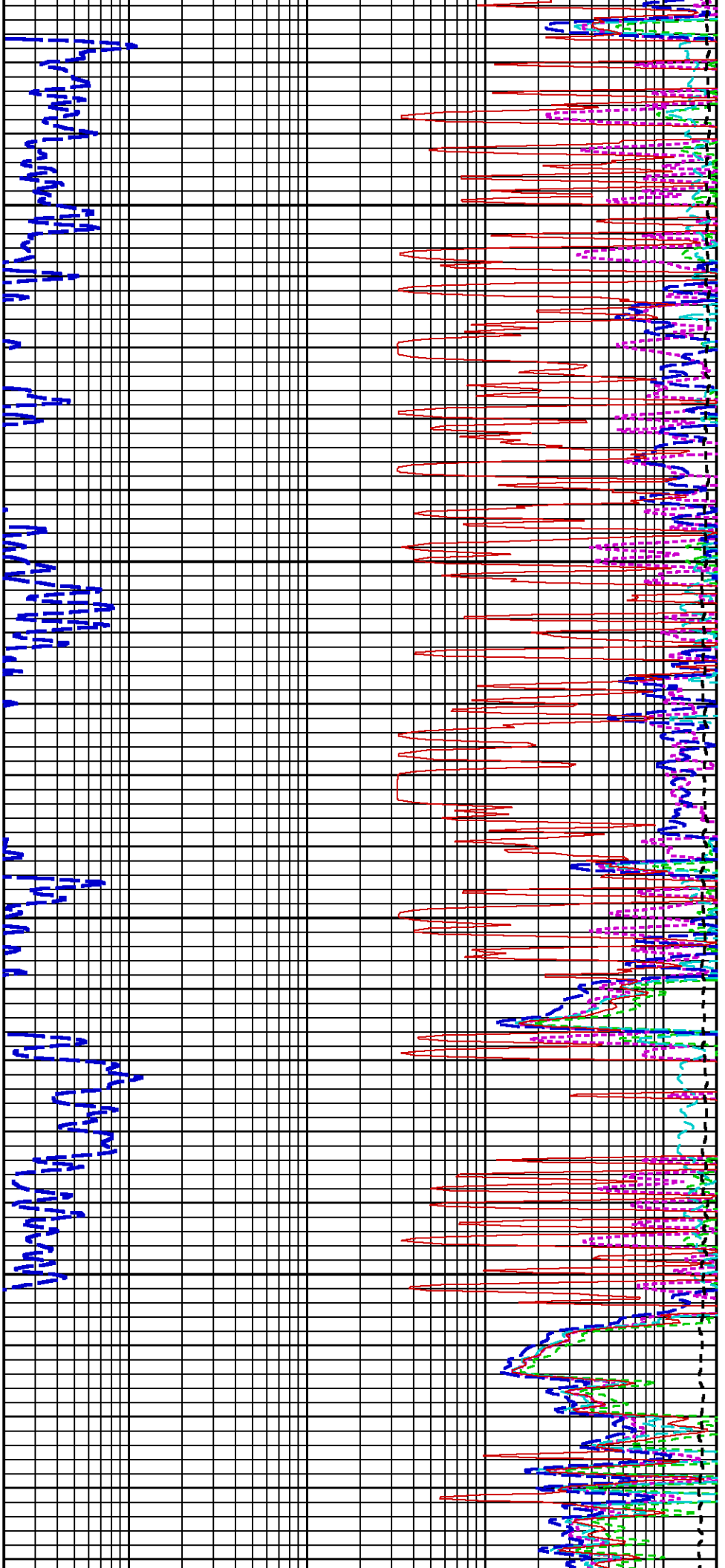




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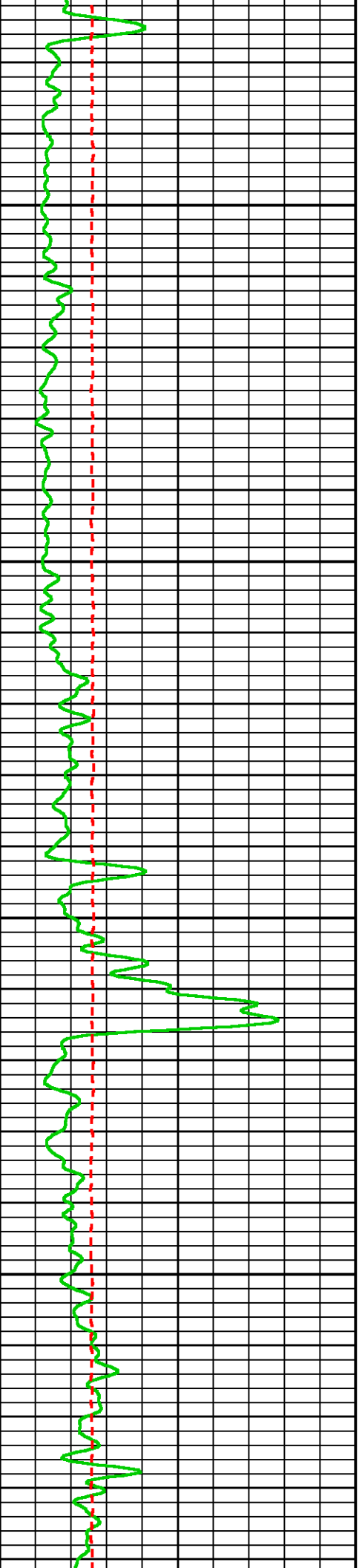
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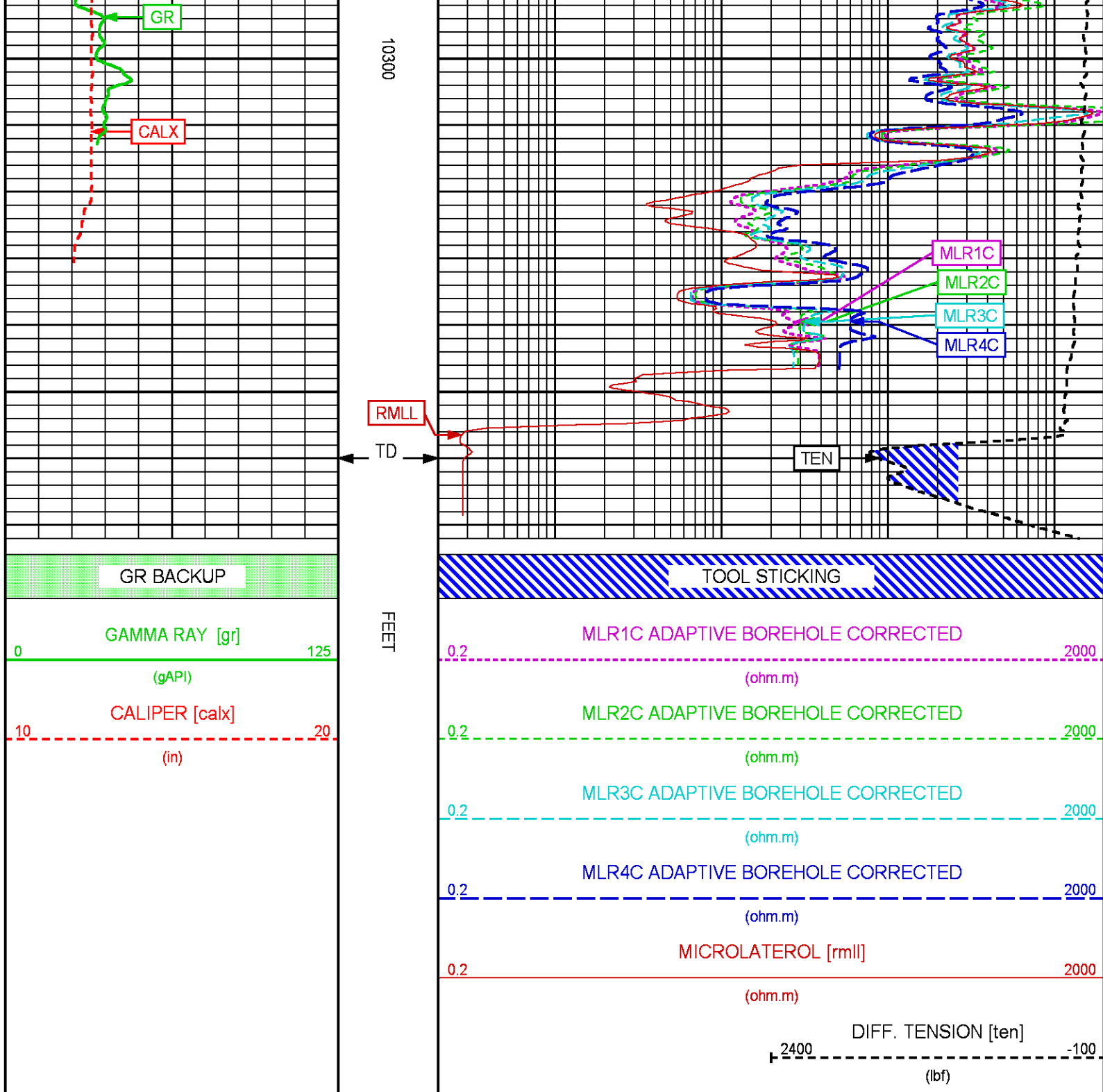




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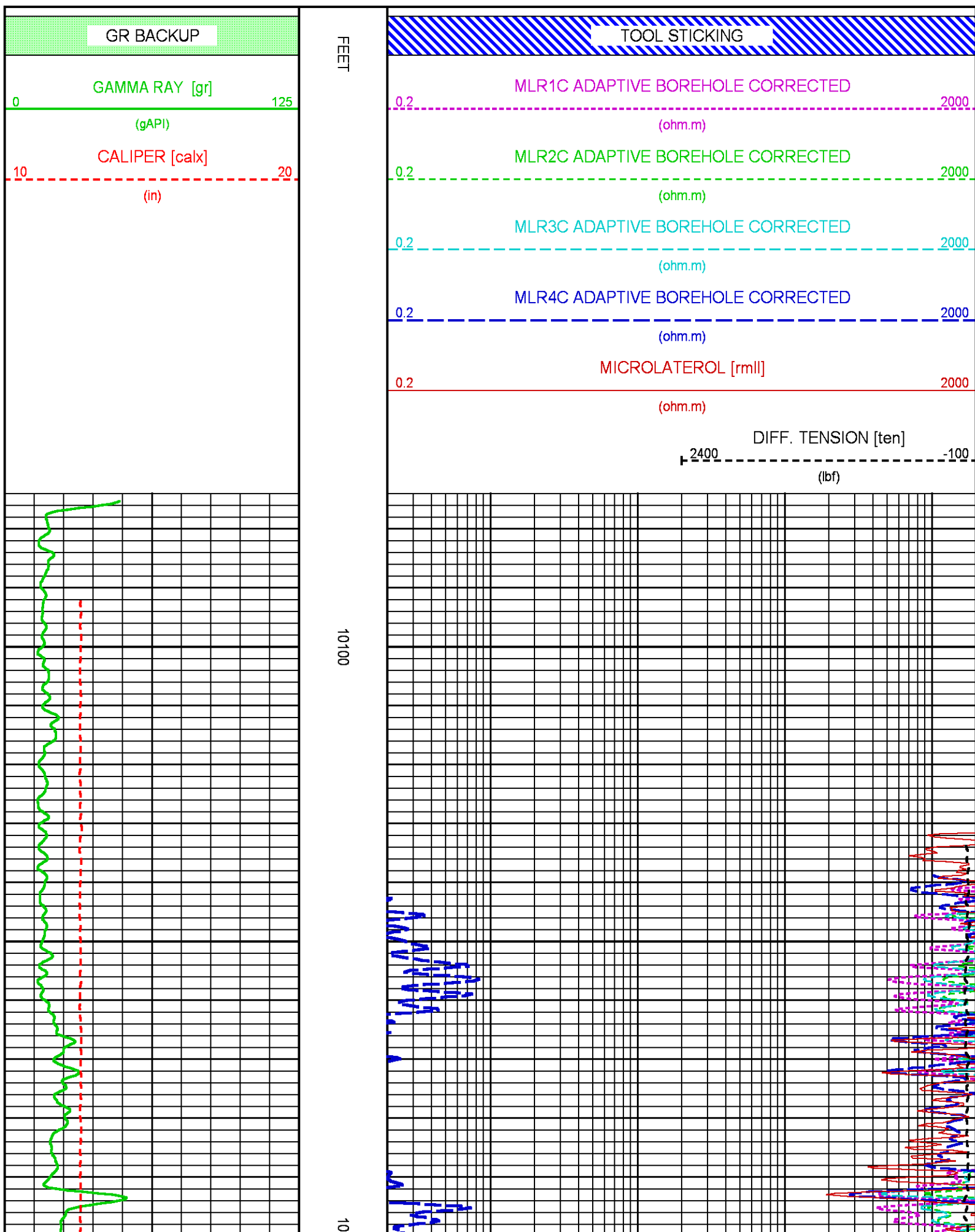


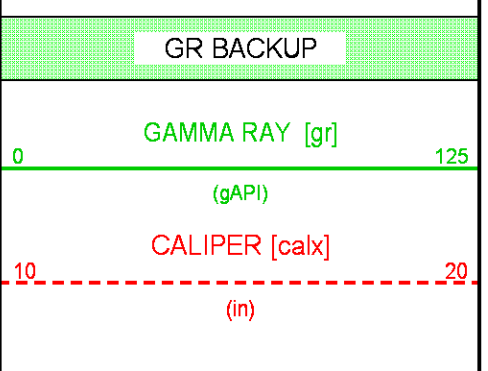
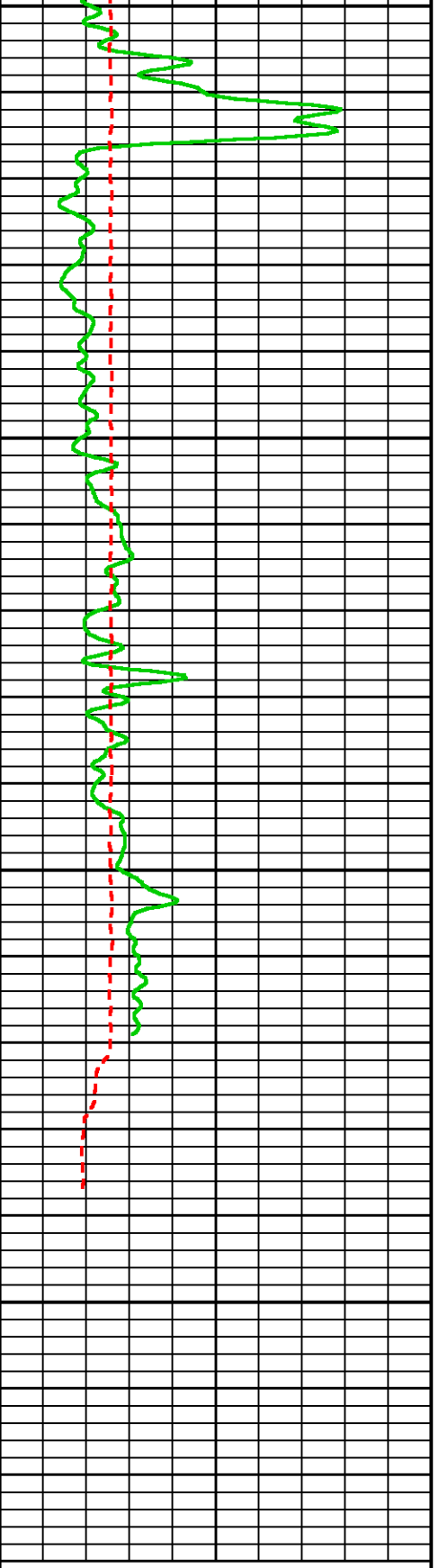
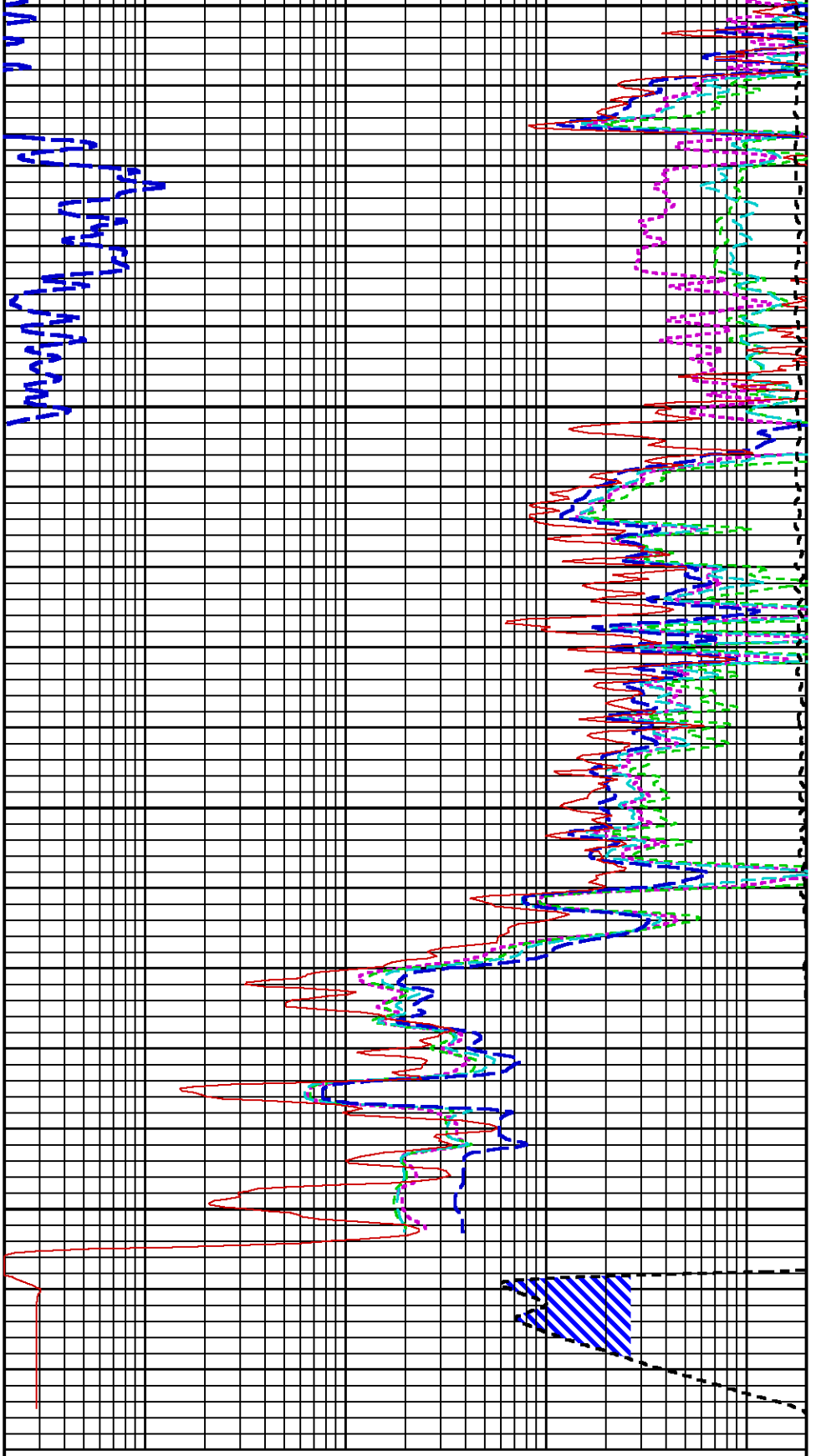


REPEAT LOG 5"/100FT SCALE

FILE: /dat1a/md11798R3/p87cc06.prm LOGGING MODE: DEPTH DIRECTION: UP TOP DEPTH: 10130.750 ft BOTTOM DEPTH: 10377.550 ft							
SYMMETRIC FILTER							
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)			
TTRM	FILTER ()	medium (1)		TOP	BOTTOM		
	FILTER (.h)	medium (1)		"	"		
	FILTER (.i)	medium (1)		"	"		
TENSION	FILTER ()	medium (1)		"	"		
	FILTER (.h)	medium (1)		"	"		
	FILTER (.i)	medium (1)		"	"		
GR	FILTER ()	medium (1)		"	"		
	FILTER (.h)	medium (1)		"	"		
	FILTER (.i)	medium (1)		"	"		
CALIPER	FILTER ()	medium (1)		"	"		
	FILTER (.h)	medium (1)		"	"		
	FILTER (.i)	medium (1)		"	"		
RTeX	FILTER ()	light (2a)		"	"		
	FILTER (.h)	light (2a)		"	"		
	FILTER (.i)	light (2a)		"	"		
CALA (3rd CALIPER)	FILTER (.i)	medium(1)		"	"		
MLL	FILTER ()	light (2a)		"	"		
	FILTER (.i)	light (2a)		"	"		
	FILTER (.j)	light (2a)		"	"		
BOREHOLE & CEMENT							
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)			
X-Y COMBINED CALIPER PROCESSING	X-Y Caliper	X-Axis		TOP	BOTTOM		
BIT SIZE	BIT SIZE	12.250	in	"	"		
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"		
	MUD SAMPLE RES	0.162	ohm.m	"	"		
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	"	"		
	at BH REF DEPTH	0.0	ft	"	"		
	with TEMP GRADIENT	1.200	0.01 degF/ft	"	"		
BOREHOLE CORR DIAMETER SOURCE	CALIPER/FIXED DIA. (calmu*)	USE CALIPER		"	"		
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mlr1c*)	12.250	in	"	"		
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	TOOL MEASURED		"	"		
RTeX PROCESSING							
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)			
RTeX ADAPTIVE BOREHOLE CORRECTION	BOREHOLE CORRECTION	ON		TOP	BOTTOM		
	Rxo Source	MICROLATEROLOG		"	"		
CURVE DESCRIPTION REPORT							
CURVE NAME	CREATION DATE	CURVE DESCRIPTION					
F1:CALX	N/A	CALIPER FROM X-AXIS OF XY CALIPER(S)					
F1:GR	N/A	GAMMA RAY					
F1:MLR1C	N/A	RTEX SHALLOW RESISTIVITY 1, ADAPTIVE BOREHOLE CORRECTION					
F1:MLR2C	N/A	RTEX SHALLOW RESISTIVITY 2, ADAPTIVE BOREHOLE CORRECTION					
F1:MLR3C	N/A	RTEX MEDIUM RESISTIVITY 3, ADAPTIVE BOREHOLE CORRECTION					
F1:MLR4C	N/A	RTEX DEEP RESISTIVITY 4, ADAPTIVE BOREHOLE CORRECTION					
F1:RMLL	N/A	RESISTIVITY					
F1:TEN	N/A	DIFFERENTIAL TENSION					
CURVE MEASURE POINT OFFSET							
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CALX	-41.50	MLR1C	-20.50	MLR3C	-20.50	RMLL	-3.50
GR	-58.50	MLR2C	-20.50	MLR4C	-20.50	TEN	0.00
Presentation : HL6690:/dat1a/md11798R3/RTEX_TX_5REPEAT.fvpdf [5"/100' Scale] Plot Interval : 10075.2 - 10379.5 Feet Data File 1 : F1 : HL6690:/dat1a/md11798R3/RR3.xtf Created On : N/A Company : HOLLY FRONTIER - NAVAJO Well : NAVAJO REFINING WDW #4							

Field : ARTESIA
File Interval : 10060.5 - 10379.5 Feet
OCT : p87cc

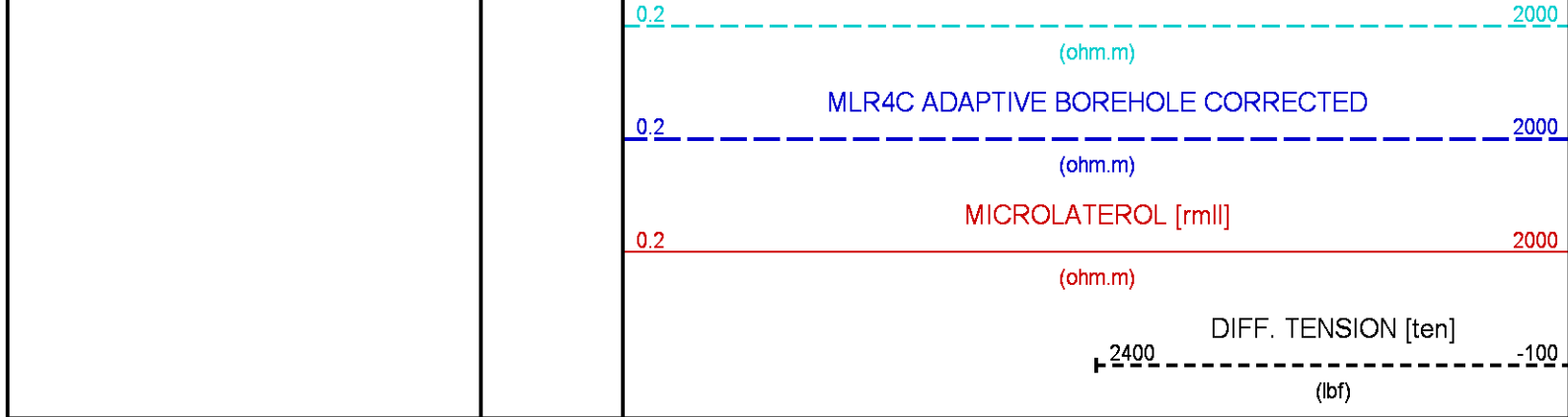




200

10300

FEET



CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/md11798R3/p87cc.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1329XA 179409

DATE/TIME PERFORMED: Wed May 23 12:06:32 2018

UNIT #: 3882TD HL6690

CALB JIG #: 4702NK DA-434

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	278.98	1190.93	912.0 830.0 980.0	0.164	45.89	195.89	150

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1329XA 179409

DATE/TIME PERFORMED: Wed May 23 12:12:49 2018

UNIT #: 3882TD HL6690

VERI JIG #: 4702NK DA-434

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	282.71	1184.62	0.164	46.50	194.85	148.35 140.00 160.00

CAL PRIMARY CALIBRATION SUMMARY

TOOL #: 2234XA 10495292

DATE/TIME PERFORMED: Wed May 23 10:56:44 2018

UNIT #: 3882TD HL6690

	SMALL RING	LARGE RING	MULT	ADD	SMALL RING	LARGE RING
					(in)	(in)
CALIPER	925.2	1411.6	0.00874	-0.20909	7.875	12.125

CAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 2234XA 10495292 DATE/TIME PERFORMED: Fri Jun 29 01:51:38 2018 DAYS SINCE CAL: 36

UNIT #: 3882TD HL6690

	I.D.	MULT	ADD	I.D.
				(in)
CALIPER	1450.0	0.00874	-0.05461	12.615

RTEX_RES PRIMARY CALIBRATION SUMMARY

TOOL #: 1249XA 12554838 DATE/TIME PERFORMED: Fri Jun 29 03:05:58 2018

UNIT #: 3882TD HL6690

CAL FACTORS	F1	F2	F3	F4
MIOL Real	1.00 0.97 1.03	1.00 0.97 1.03	1.00 0.97 1.03	1.00 0.97 1.03
MIOL Quad	-0.01 -0.05 0.05	-0.01 -0.05 0.05	-0.01 -0.05 0.05	-0.01 -0.05 0.05
MIOM Real	20.1 19.5 20.7	20.1 19.5 20.7	20.1 19.5 20.7	20.1 19.5 20.7
MIOM Quad	-0.136 -1.050 1.050	-0.248 -1.050 1.050	-0.211 -1.050 1.050	-0.173 -1.050 1.050
MIOH Real	404 392 416	404 392 416	404 392 416	404 392 416
MIOH Quad	0.54 -21.10 21.10	-6.62 -21.10 21.10	-4.52 -21.10 21.10	-2.24 -21.10 21.10
MVML Real	1.000 0.999 1.001	1.000 0.999 1.001	1.000 0.999 1.001	1.000 0.999 1.001
MVML Quad	0.000 -0.001 0.001	0.000 -0.001 0.001	0.000 -0.001 0.001	0.000 -0.001 0.001
MVMH Real	10.08 9.79 10.39	10.08 9.79 10.39	10.08 9.79 10.39	10.08 9.79 10.39
MVMH Quad	0.001 -0.528 0.528	0.004 -0.528 0.528	0.003 -0.528 0.528	0.002 -0.528 0.528

MLL PRIMARY CALIBRATION SUMMARY

TOOL #: 1243XA 13546566 DATE/TIME PERFORMED: Fri Jun 29 03:05:55 2018

UNIT #: 3882TD HL6690

	Raw Low ohm	Raw High ohm	Mult	Add	K-factor	Eng Low (ohm.m)	Eng High (ohm.m)
RESISTIVITY	101.15	100668.1	0.993	-0.484	0.01429	1.43	1428.6
	95.00 105.00	95000.0 105000.0				1.36 1.50	1360.0 1500.0

BAKER
HUGHES
a GE company



ECLIPS

COMPANY
WELL
FIELD
COUNTY

HOLLY FRONTIER - NAVAJO
NAVAJO REFINING WDW #4
ARTESIA
EDDY

STATE NEW MEXICO

FILE NO:

MD11798

API NO:

30-015-44677

LOCATION:

1217' FSL & 2443' FWL
SECTION 23, T17S, R27E
N.M.P.M. SURVEY

ELEVATIONS:

KB 3585.8 FT
DF 3584.8 FT
GL 3565.8 FT

DATE 16-JUN-2018

MAIN LOG 1"/100FT SCALE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Updates: 32 Patches: 4

Plotted: Fri Jun 28 10:17:20 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/md11798/R3/p87/c03.prm
LOGGING MODE: DEPTH: 9691.591 ft DIRECTION: UP
TOP DEPTH: 9691.591 ft BOTTOM DEPTH: 9691.591 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
TTRM	FILTER (f)	medium (1)		TOP	BOTTOM
	FILTER (h)	medium (1)		"	"
	FILTER (j)	medium (1)		"	"
TENSION GR	FILTER (f)	medium (1)		"	"
	FILTER (h)	medium (1)		"	"
	FILTER (j)	medium (1)		"	"
CALIPER	FILTER (f)	medium (1)		"	"
	FILTER (h)	medium (1)		"	"
	FILTER (j)	medium (1)		"	"
RT+X	FILTER (f)	light (2a)		"	"
	FILTER (h)	light (2a)		"	"
	FILTER (j)	light (2a)		"	"
CALA (3rd CALIPER)	FILTER (f)	medium(1)		"	"
MLL	FILTER (f)	light (2a)		"	"
	FILTER (h)	light (2a)		"	"
	FILTER (j)	light (2a)		"	"

BOREHOLE & CEMENT

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
X-Y COMBINED CALIPER PROCESSING	X-Y Caliper	X-Axis		TOP	BOTTOM
	BIT SIZE	12.250	in	"	"
MUD SAMPLE RESISTIVITY	MUD SAMPLE TEMP	77.0	degF	"	"
	MUD SAMPLE RES	1.000	ohm.m	"	"
BOREHOLE TEMP from GRADIENT	Known BH REF TEMP	77.0	degF	"	"
	at BH REF DEPTH	0.0	ft	"	"
BOREHOLE CORR DIAMETER SOURCE	with TEMP GRADIENT	1.200	0.01 degF/ft	"	"
	CALIPER/FIXED DIA. (calmu*)	USE CALIPER		"	"
BOREHOLE CORR DIAMETER	FIXED DIAMETER (mlr1e*)	12.250	in	"	"
BH MUD RESISTIVITY SOURCE	RMUD SOURCE	TOOL MEASURED		"	"

RTeX PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RT+X ADAPTIVE BOREHOLE CORRECTION	BOREHOLE CORRECTION	ON		TOP	BOTTOM
	Rxo Source	MICROLATEROLOG		"	"

CURVE DESCRIPTION REPORT

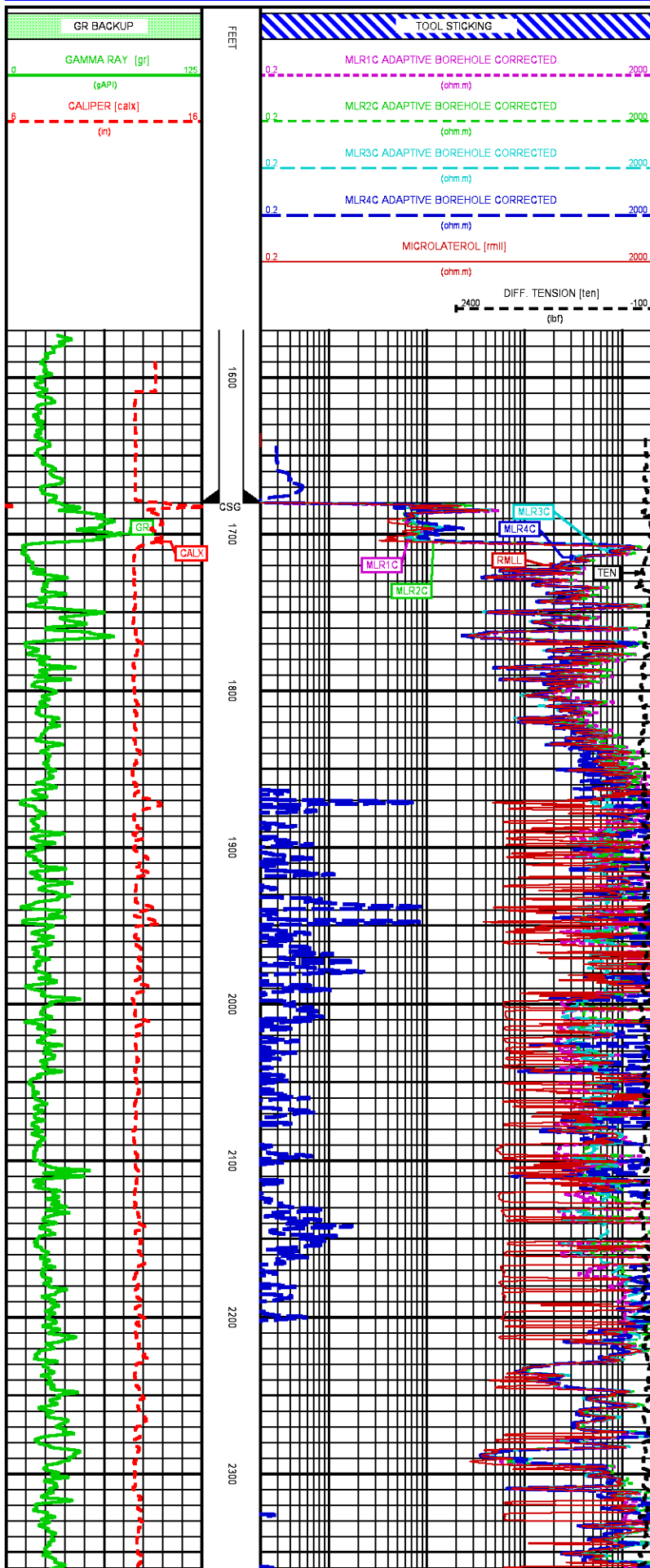
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CALX	N/A	CALIPER FROM X-AXIS OF XY CALIPER(S)
F1:GR	N/A	GAMMA RAY
F1:MLR1C	N/A	RTEX SHALLOW RESISTIVITY 1, ADAPTIVE BOREHOLE CORRECTION
F1:MLR2C	N/A	RTEX SHALLOW RESISTIVITY 2, ADAPTIVE BOREHOLE CORRECTION
F1:MLR3C	N/A	RTEX MEDIUM RESISTIVITY 3, ADAPTIVE BOREHOLE CORRECTION
F1:MLR4C	N/A	RTEX DEEP RESISTIVITY 4, ADAPTIVE BOREHOLE CORRECTION
F1:RMLL	N/A	RESISTIVITY
F1:TEN	N/A	DIFFERENTIAL TENSION

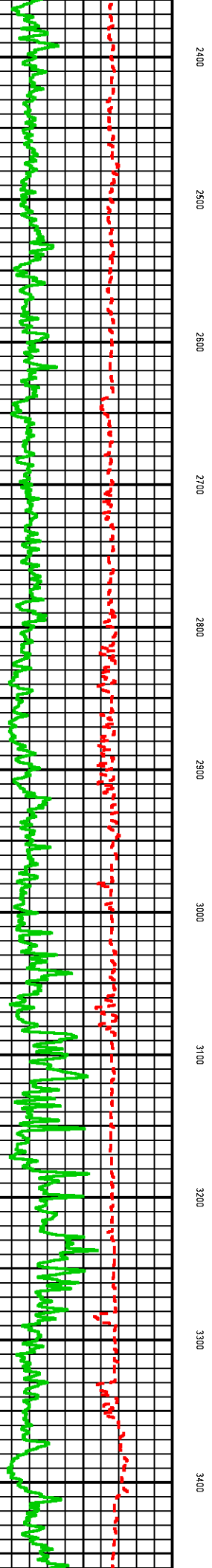
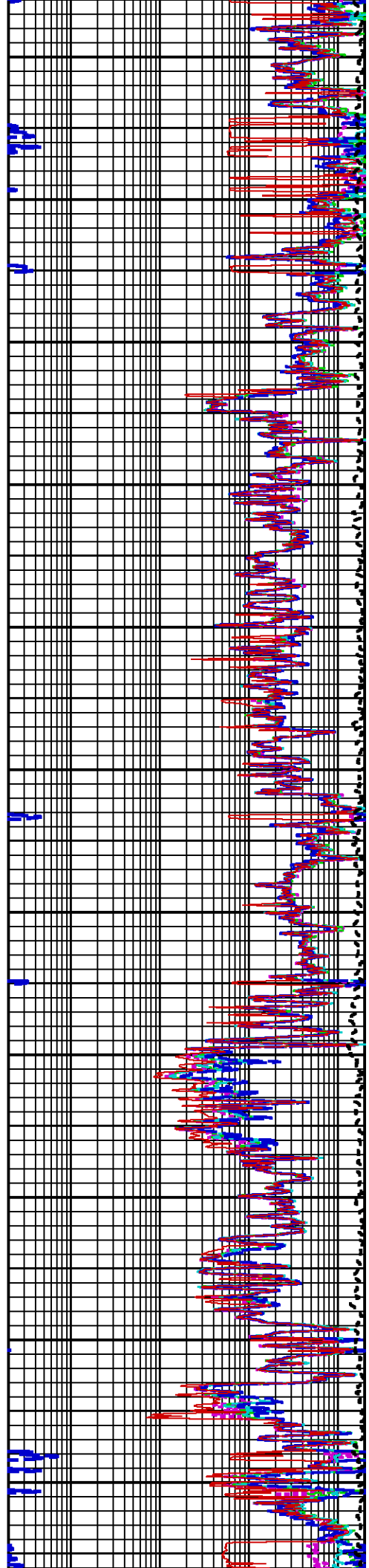
CURVE MEASURE POINT OFFSET

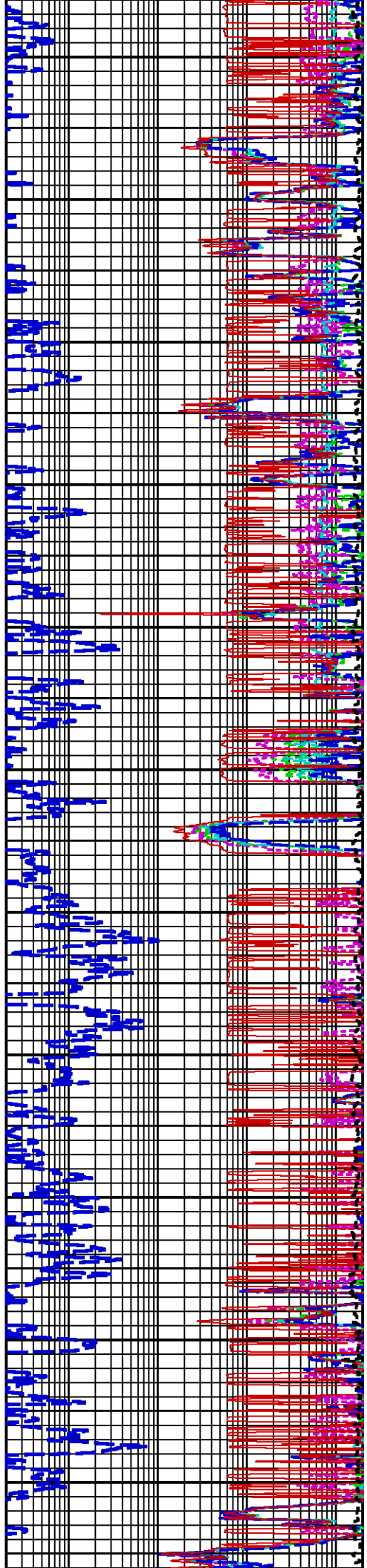
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
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CALX	-49.00	MLR1C	-20.50	MLR3C	-20.50	RMLL	-3.50
GR	-66.25	MLR2C	-20.50	MLR4C	-20.50	TEN	0.00

Presentation Plot Interval	: HL6690:/data/md11798R3/RTEX_TX_1.fvpdf [2"/100' Scale]
Data File 1	: F1 : HL6690:/data/md11798R3/R2.xtf
Created On	: N/A
Company	: HOLLY FRONTIER - NAVAJO
Well	: NAVAJO REFINING WDW #4
Field	: ARTESIA
File Interval	: 1558.5 - 10373.2 Feet
OCF	: p87.cc







3500

3600

3700

3800

3900

4000

4100

4200

4300

4400

4500

