



# RADIAL CEMENT BOND LOG

FILE NO:		COMPANY		LARAMIE ENERGY	
API NO: 05077104320000		WELL FIELD COUNTY		BRUTON 19-03W VEGA MESA	
Version		LOCATION:		STATE COLORADO	
		SHL: LAT:39.262847N; LONG:107.815145W		OTHER SERVICES RPM	
		BHL: LAT:39.267838N; LONG:107.816209W			
		SEC 19 TWP 9S RGE 93W			
PERMANENT DATUM		GL	ELEVATION	ELEVATIONS:	
LOG MEASURED FROM		KB	24 FT	KB 7286 FT	
DRILL MEAS. FROM		KB		DF 7286 FT	
				GL 7262 FT	
DATE	TRIP	27-OCT-2017			
RUN	1	1			
SERVICE ORDER	US128843				
DEPTH DRILLER	7856 FT				
DEPTH LOGGER	7780 FT				
BOTTOM LOGGED INTERVAL	7780 FT				
TOP LOGGED INTERVAL	24 FT				
TIME STARTED	14:00				
TIME FINISHED	16:30				
OPERATOR RIG TIME	2.5 HOURS				
TYPE OF FLUID IN HOLE	WATER				
FLUID DENSITY	NA				
FLUID SALINITY	NA				
FLUID LEVEL	48 FT				
LOGGED CEMENT TOP	1020 FT				
WELLHEAD PRESSURE	0 PSI				
MAXIMUM HOLE DEVIATION	NA				
NOMINAL LOGGING SPEED	100 F/MN				
MAX. RECORDED TEMP.	235 DEGF				
REFERENCE LOG	NA				
REFERENCE LOG DATE	NA				
EQUIP. NO.	LOCATION	HL-6670 WOODWARD			
RECORDED BY	S.YASSA				
WITNESSED BY	MR. CHUCK MALLARY				

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 1 TRIP 1: \*2 OPERATIONS IN WELL\*

\*\*OPERATION 1: RAL/GR/CCL RUN CENTRALIZED\*\*

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 6942' - 6965'

SJ: 5953' - 5975'

CREW: C.GOLOBY , J.PENA

## EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	10404539	CENTRALIZED
1	1	GAMMA RAY	1355XA	12670180	CENTRALIZED

# MAIN PASS 0 PSI

ECLIPS 7.0w PC-ECLIPS General Release Rel 7.0w Fri Jun 09 11:02:06 Central Daylight Time 2017  
Patches: 1

Plotted: Sat Oct 28 09:11:56 2017

## PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\dat1a\BRUTON\_19\_03W\p012gR01.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 3.250 ft BOTTOM DEPTH: 7799.250 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1) light (2a)		TOP 5607.250	5607.250 BOTTOM
TRAVEL TIME	FILTER ()	medium (1)		TOP	BOTTOM

### RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0.00		TOP	BOTTOM

### ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	185	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	185	us	"	"
	AMP WINDOW START (fgp3*)	185	us	"	"
	AMP WINDOW START (fgp4*)	185	us	"	"
	AMP WINDOW START (fgp5*)	185	us	"	"
	AMP WINDOW START (fgp6*)	185	us	"	"
	AMP WINDOW START (fgp7*)	185	us	"	"
	AMP WINDOW START (fgp8*)	185	us	"	"
	AMP WINDOW START (fgpn*)	185	us	"	"
TRAVEL TIME WINDOW (NEAR)	AMP WINDOW LENGTH	30	us	"	"
	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	2	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-66	us	"	"
	TOOL DELAY (str2*)	-66	us	"	"
	TOOL DELAY (str3*)	-66	us	"	"
	TOOL DELAY (str4*)	-66	us	"	"
	TOOL DELAY (str5*)	-66	us	"	"
	TOOL DELAY (str6*)	-66	us	"	"
	TOOL DELAY (str7*)	-66	us	"	"
	TOOL DELAY (str8*)	-66	us	"	"
BASELINE NOISE (NEAR)	TOOL DELAY (strn*)	-66	us	"	"
	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

### PERCENT BOND CEMENT MAP

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE AMP REC 5	80	mV	"	"
	FREE AMP REC 6	80	mV	"	"
	FREE AMP REC 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	2	mV	"	"
	FULL BOND AMP REC 2	2	mV	"	"

FULL BOND AMP REC 2	2	mV	"	"
FULL BOND AMP REC 3	2	mV	"	"
FULL BOND AMP REC 4	2	mV	"	"
FULL BOND AMP REC 5	2	mV	"	"
FULL BOND AMP REC 6	2	mV	"	"
FULL BOND AMP REC 7	2	mV	"	"
FULL BOND AMP REC 8	2	mV	"	"

## CURVE DESCRIPTION REPORT

CURVE NAME CREATION DATE

CURVE DESCRIPTION

F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
F1:AR8	N/A	FIXED GATE AMPLITUDE T-R8
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:FAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	N/A	FAR WAVE FORM
F1:GR	N/A	GAMMA RAY
F1:PBMAP	N/A	PERCENT BOND CEMENT MAP
F1:TTN	N/A	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

## CURVE MEASURE POINT OFFSET

CURVE OFFSET (ft)

CURVE OFFSET (ft)

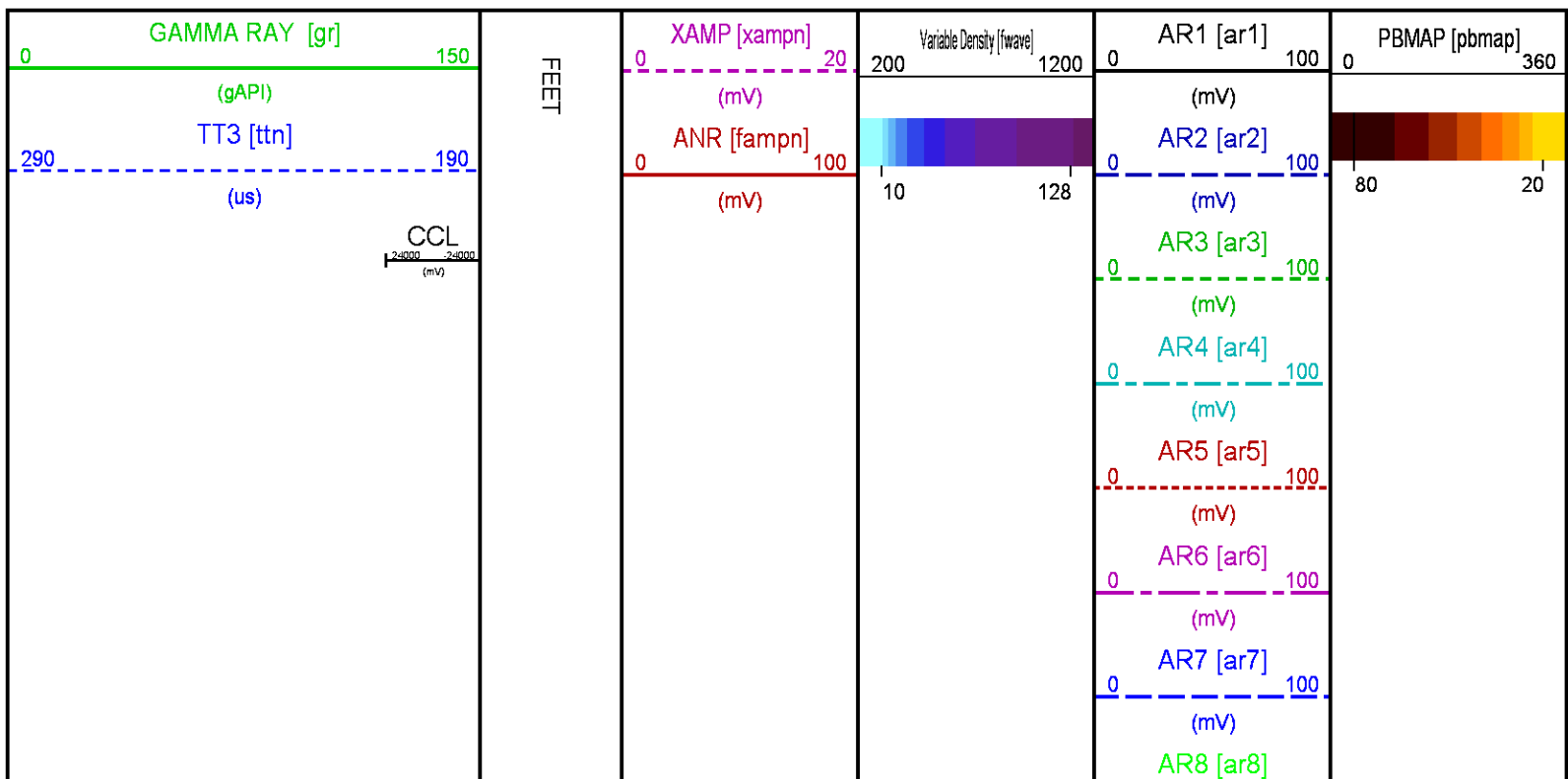
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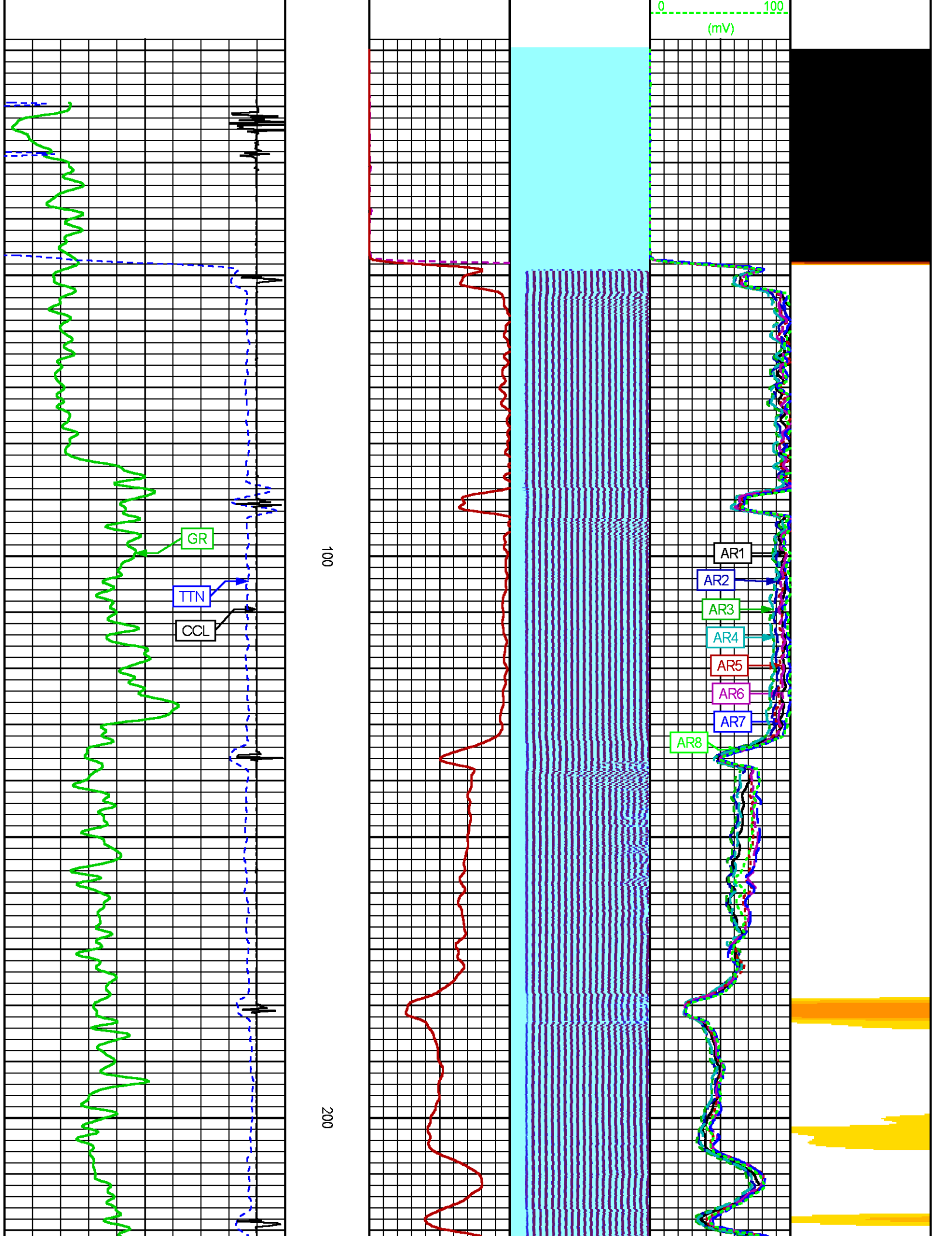
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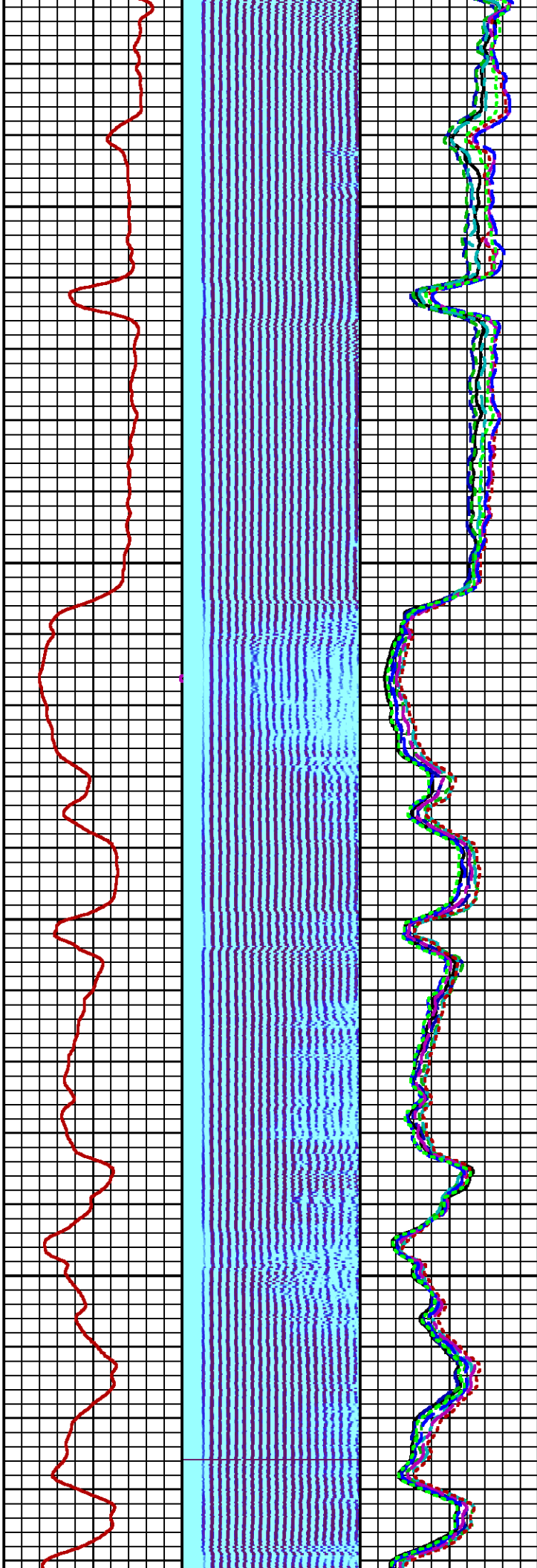
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

Presentation : BHI78FR4H2:C:\dat1a\BRUTON\_19\_03W\BRUTON\_19\_03W\_RAL\_MAIN.fvpdf [5"/100' Scale]  
Plot Interval : 9.5 - 7814.5 Feet

Data File 1 : F1 : BHI78FR4H2:C:\dat1a\BRUTON\_19\_03W\BRUTON\_19\_03W\_RAL\_MAIN.xtf  
Created On : N/A  
Company : LARAMIE ENERGY II LLC  
Well : BRUTON 19-03W  
Field : VEGA  
File Interval : 3.25 - 7815.75 Feet  
OCT : p012g

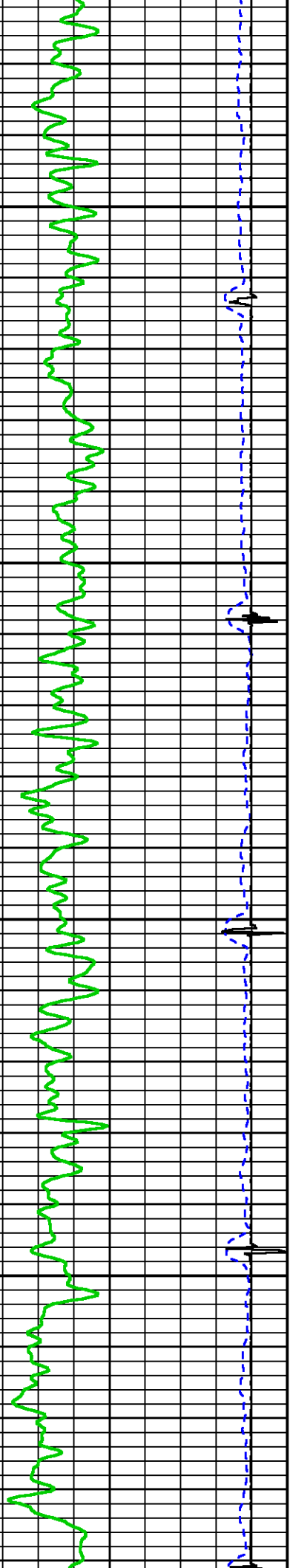


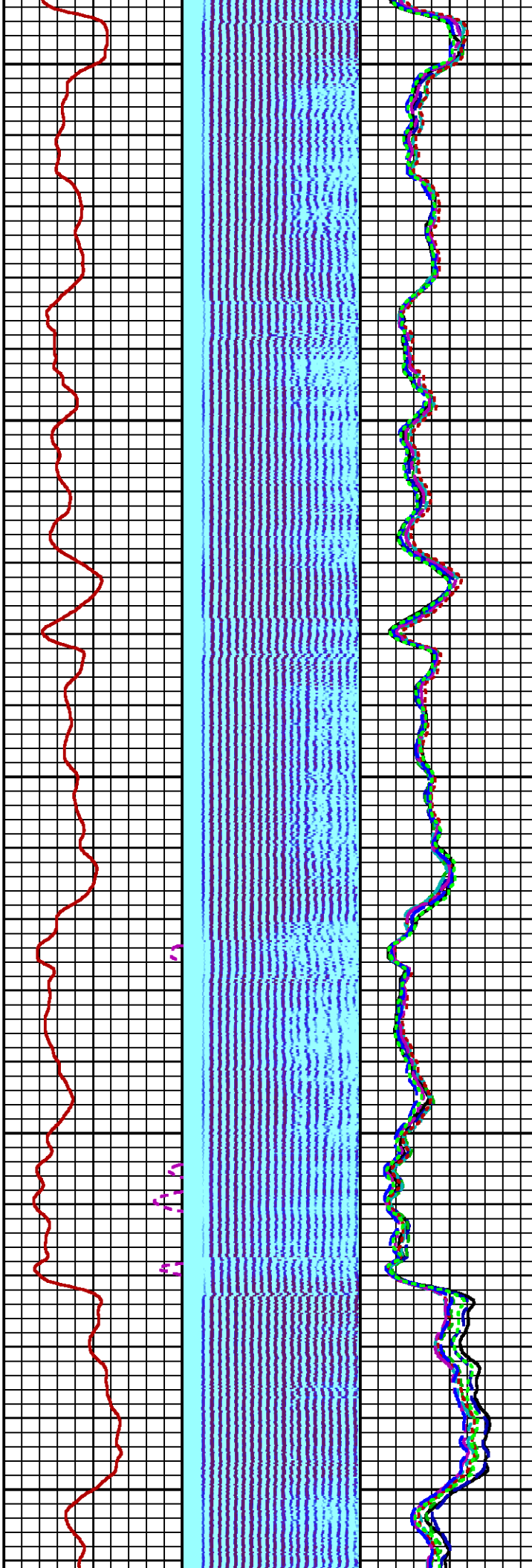




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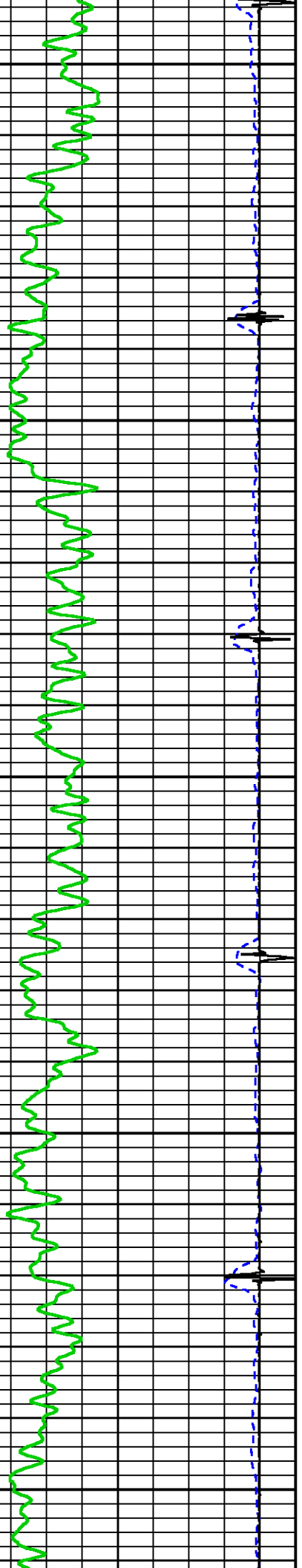
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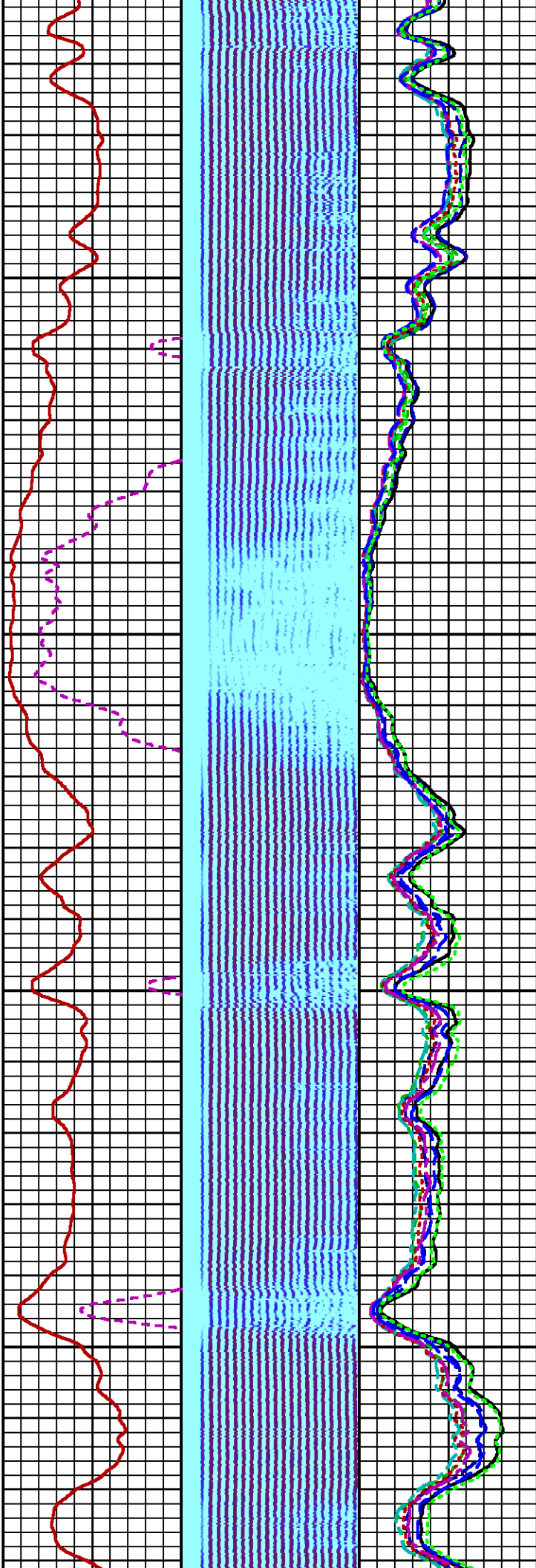
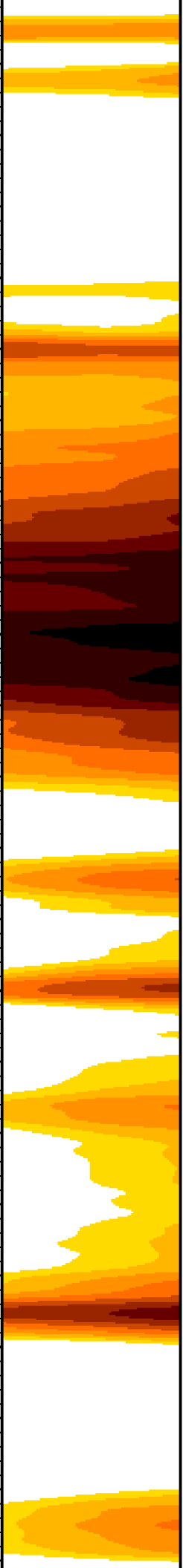


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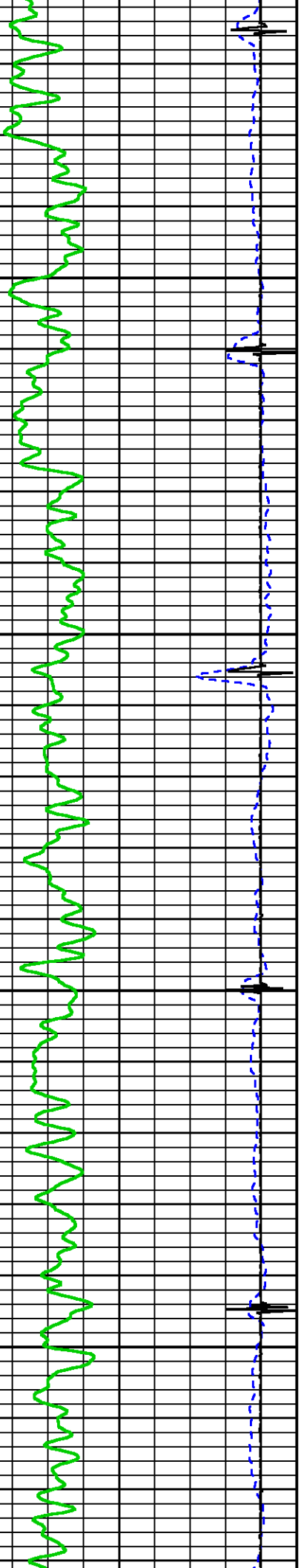


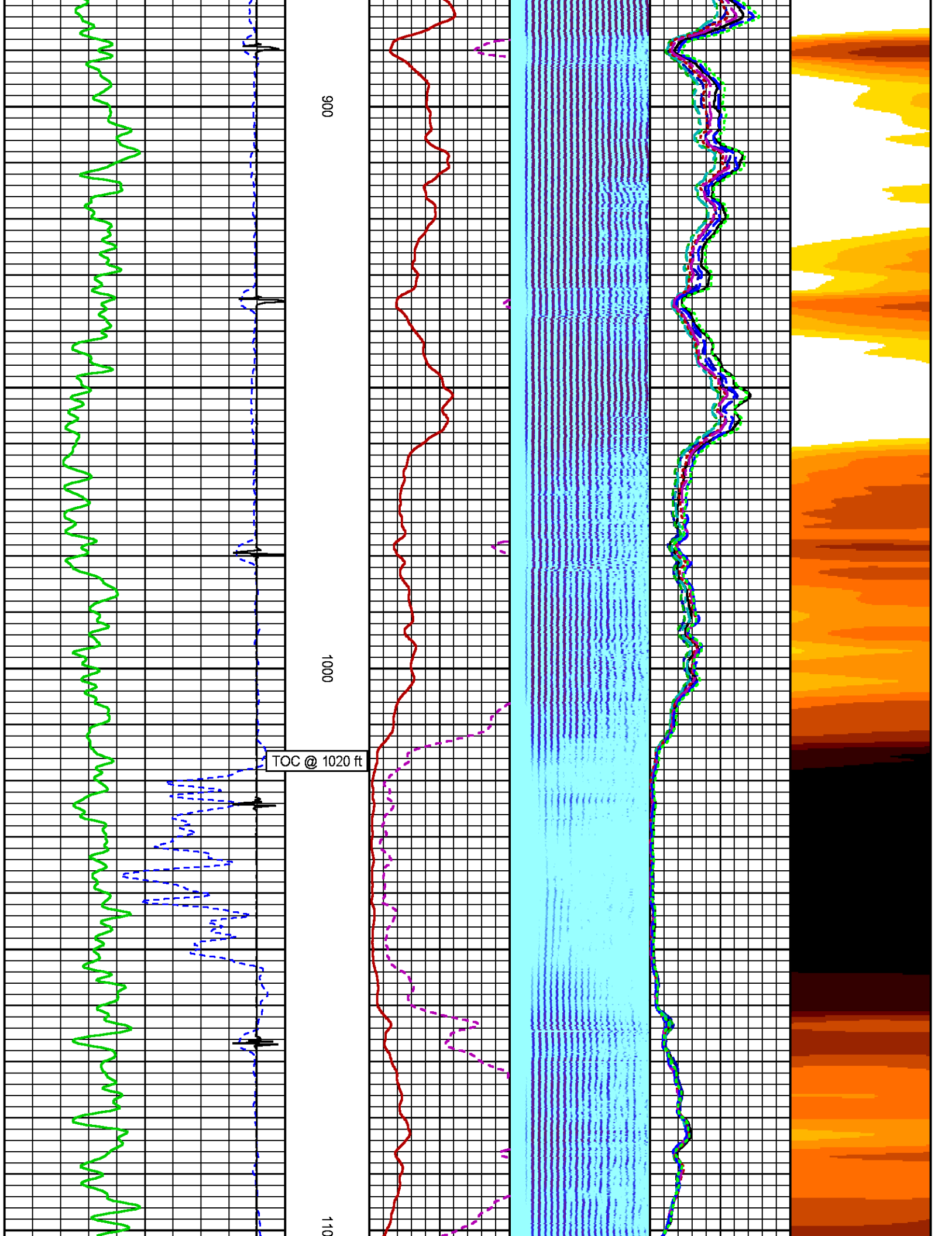




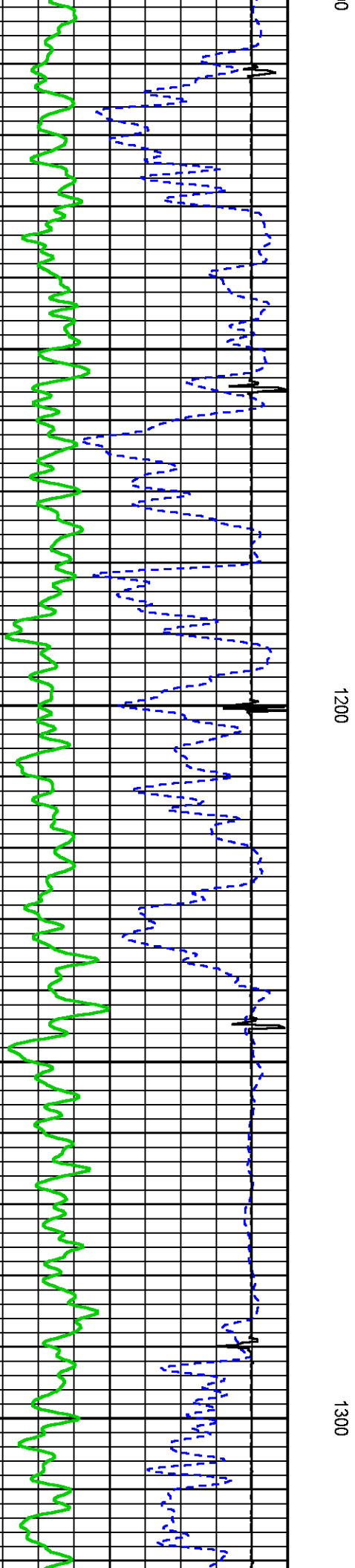
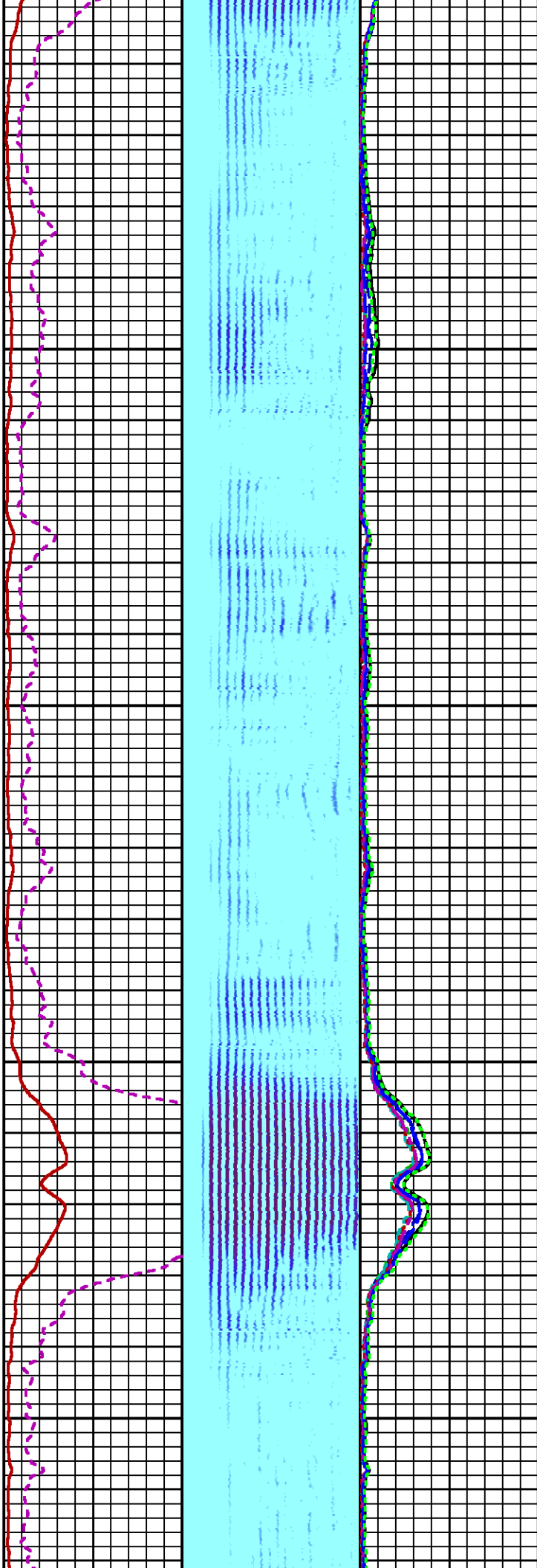
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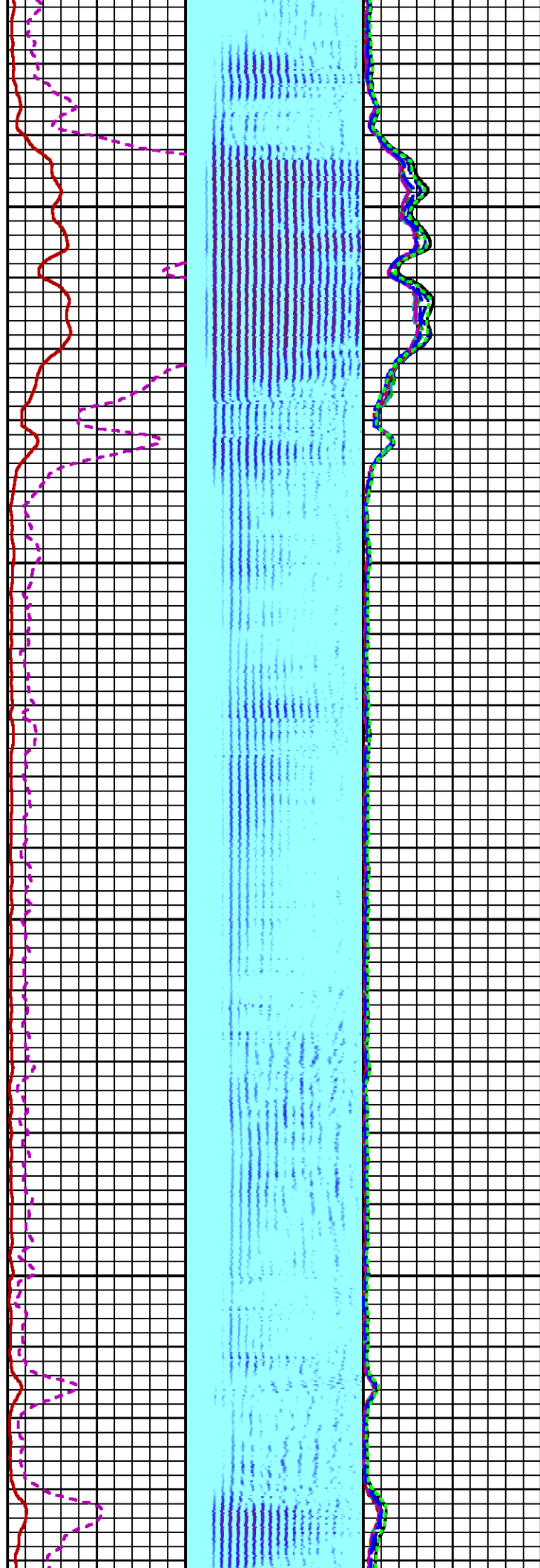
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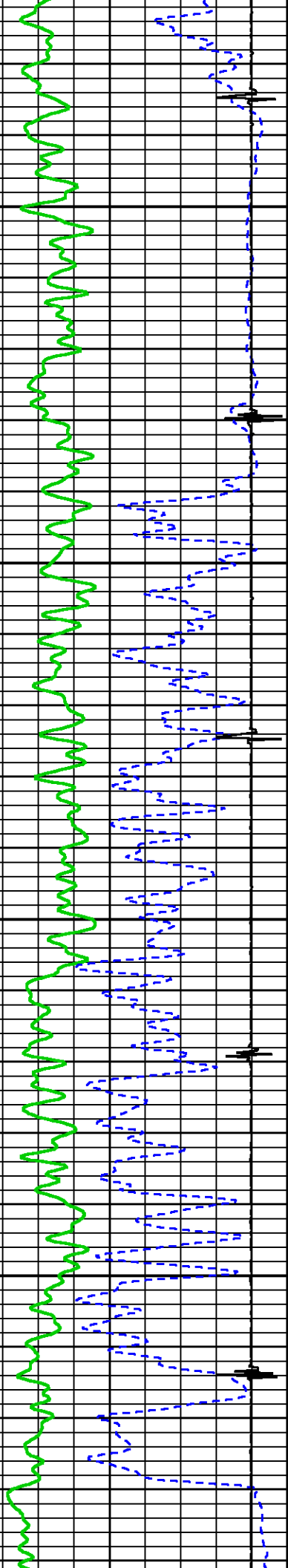


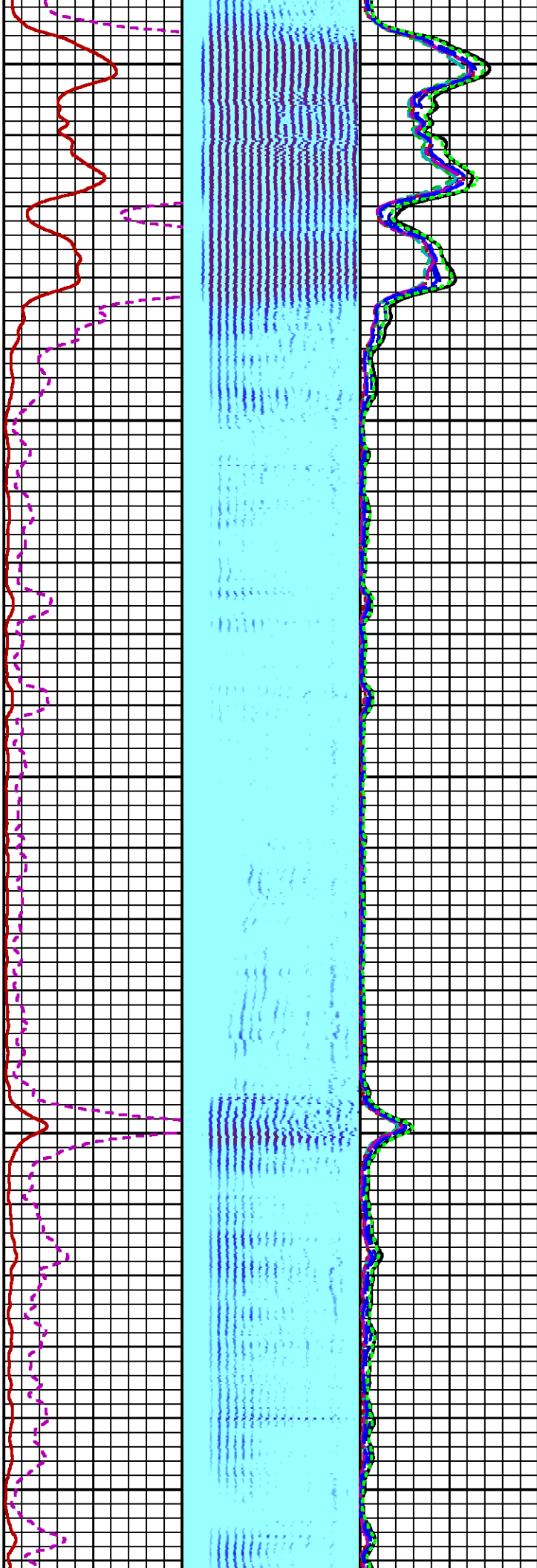




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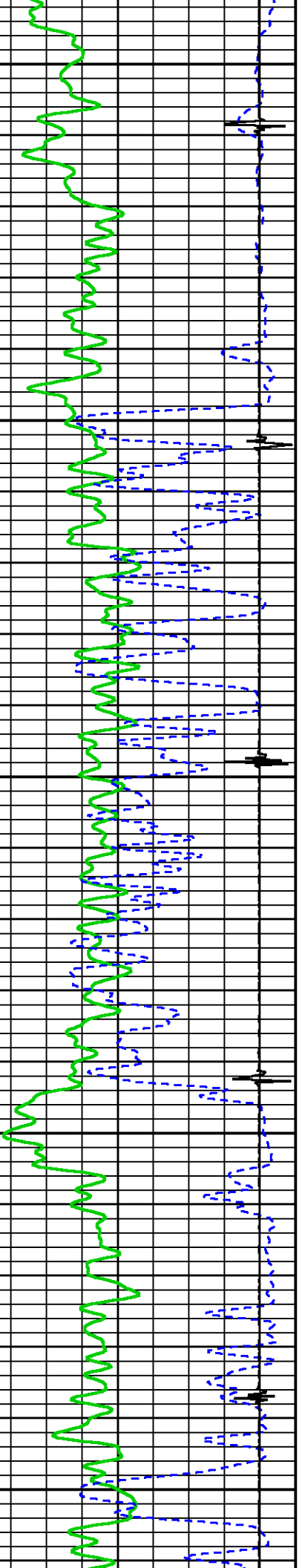
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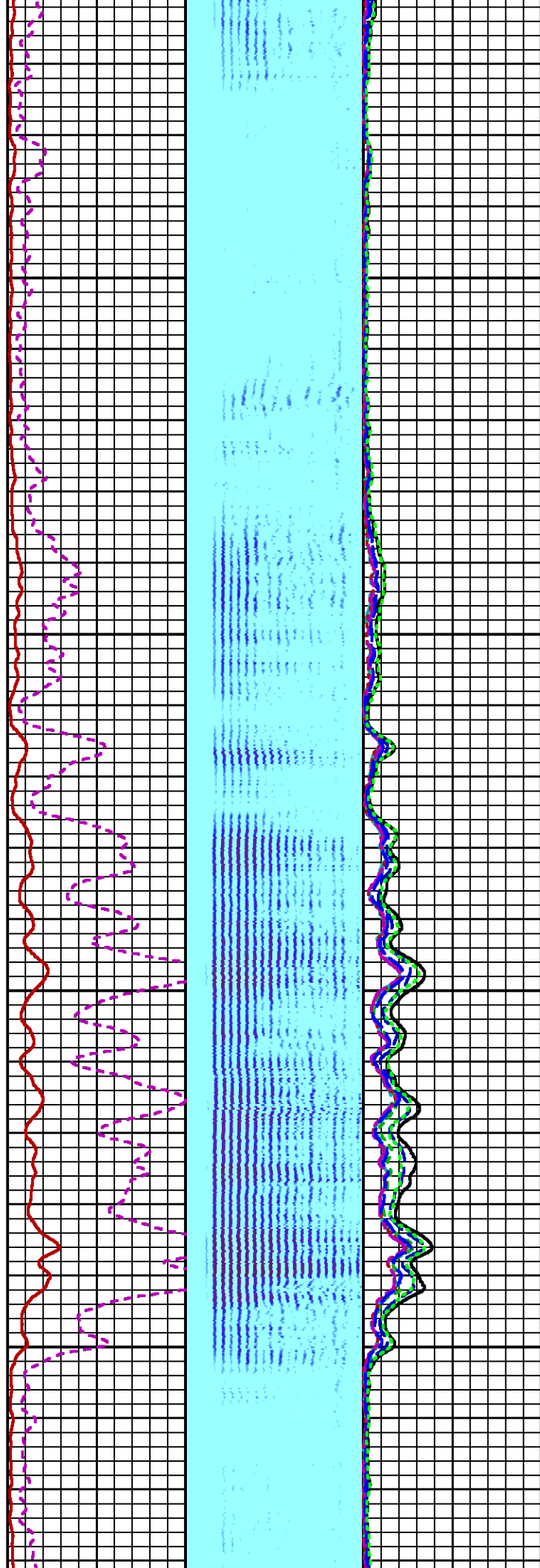
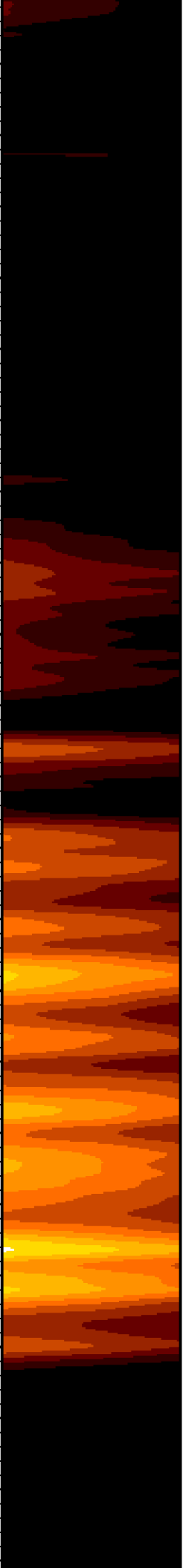




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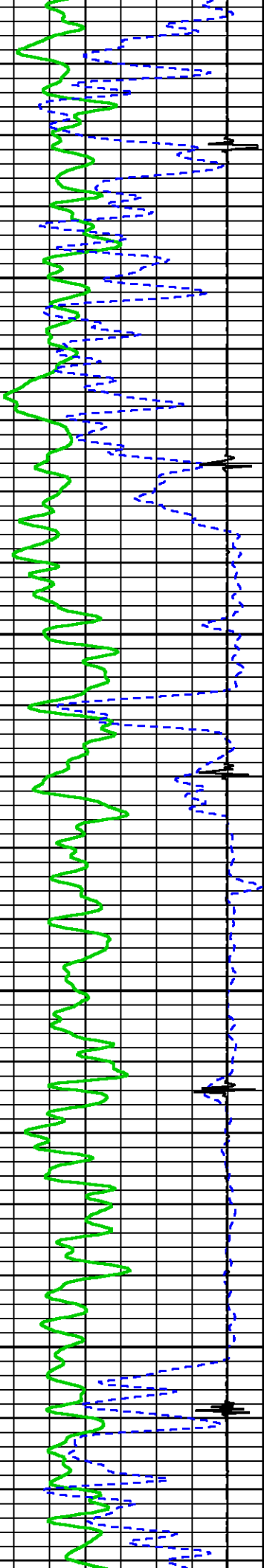
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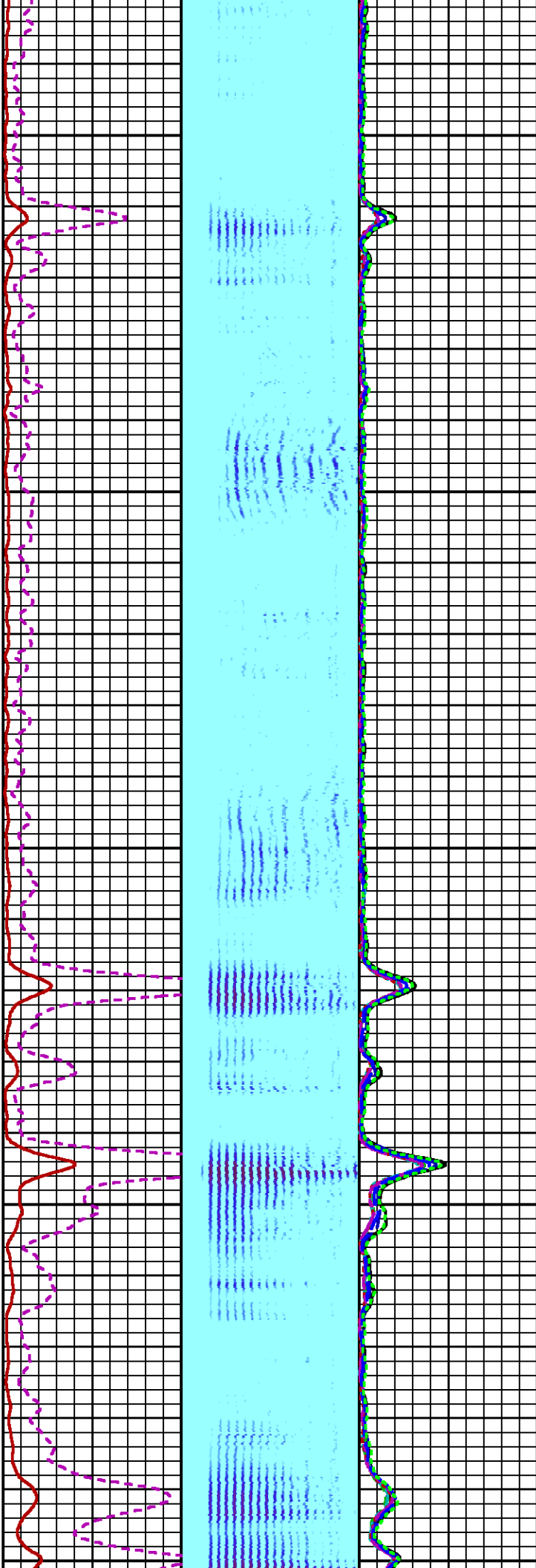
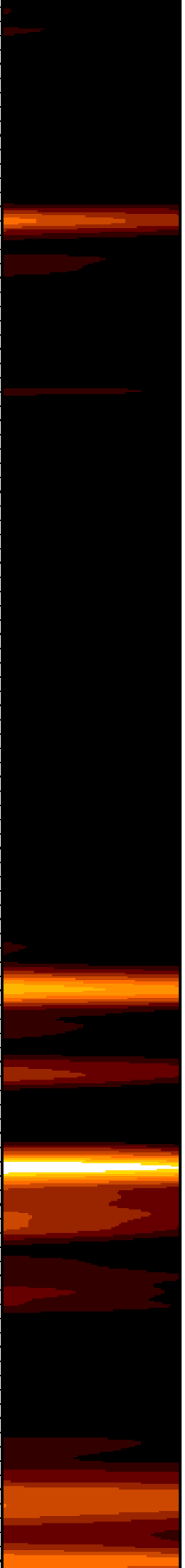




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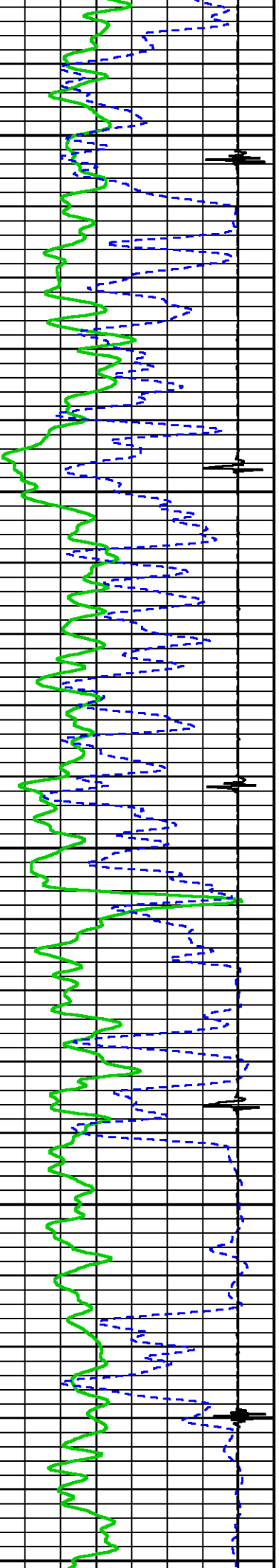


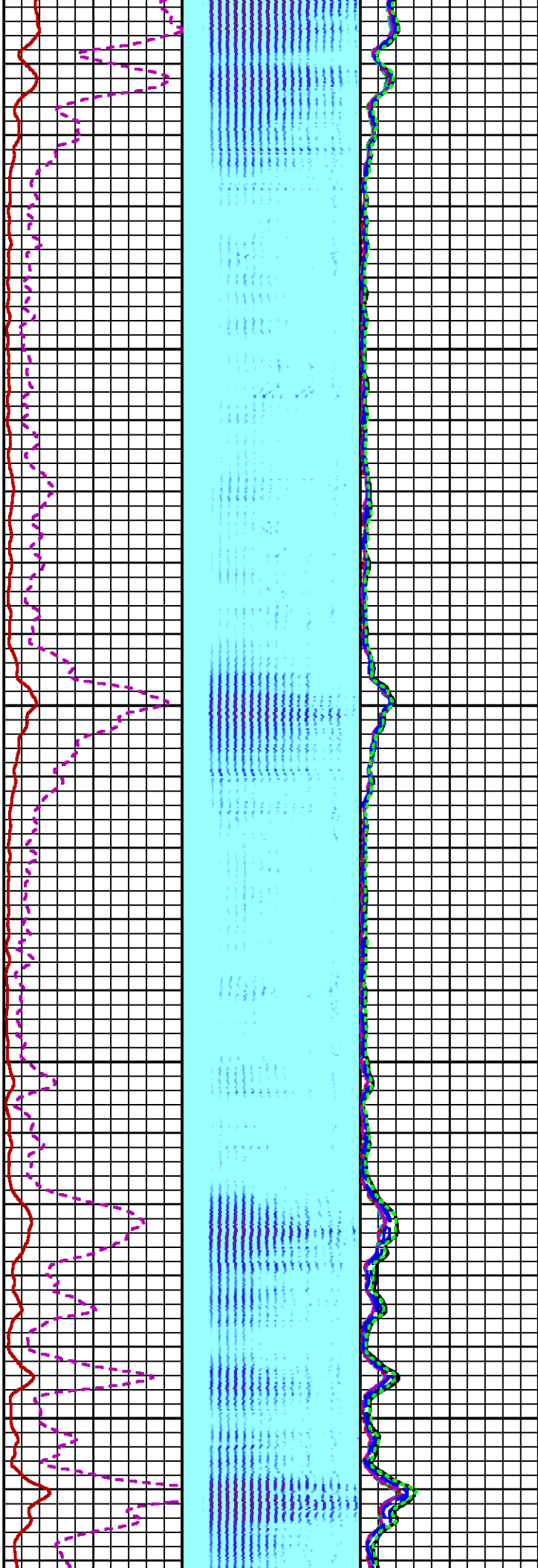


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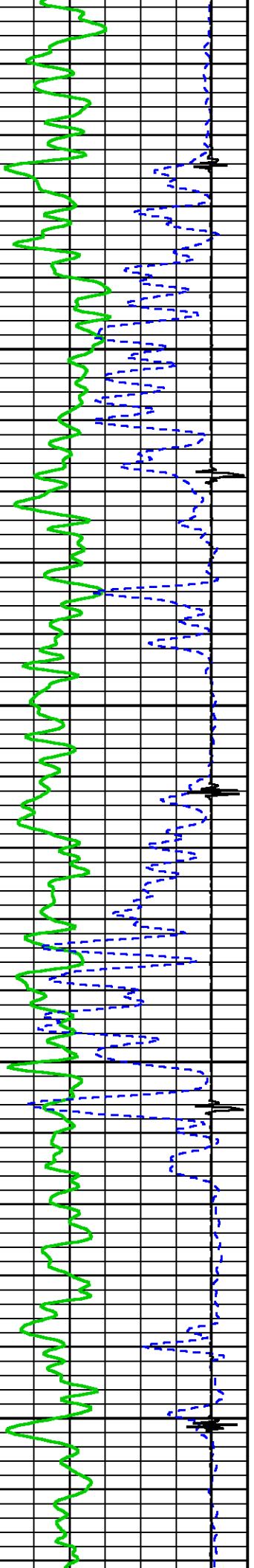
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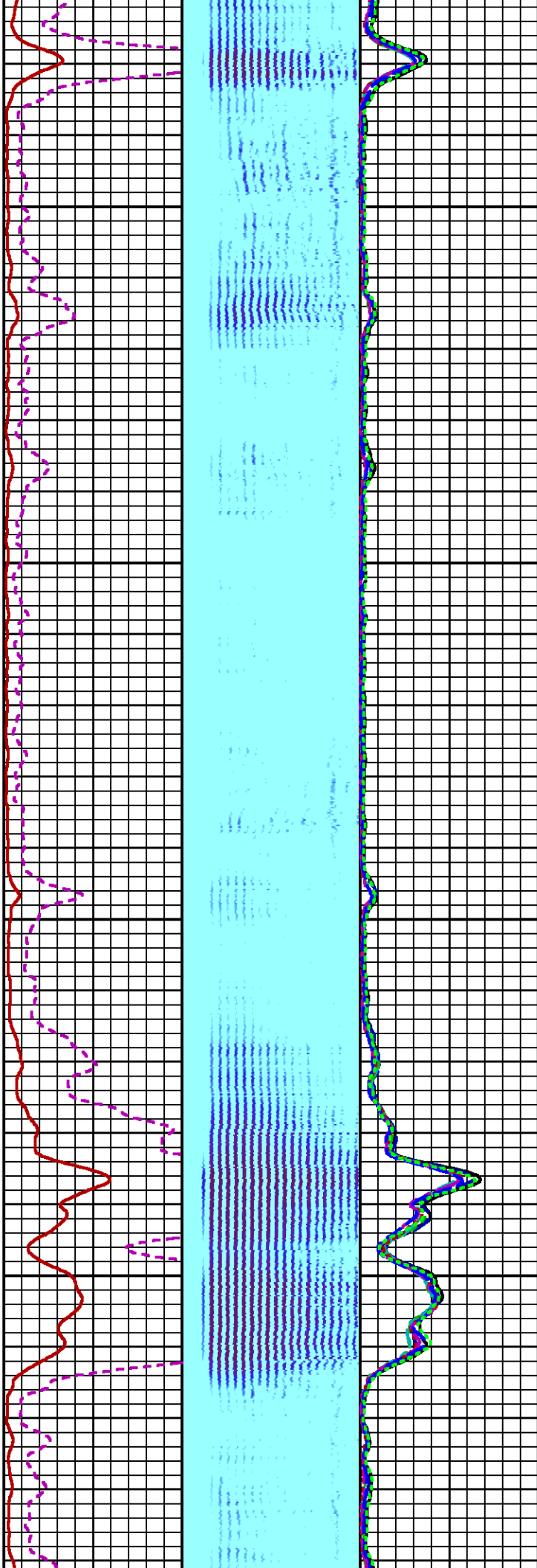




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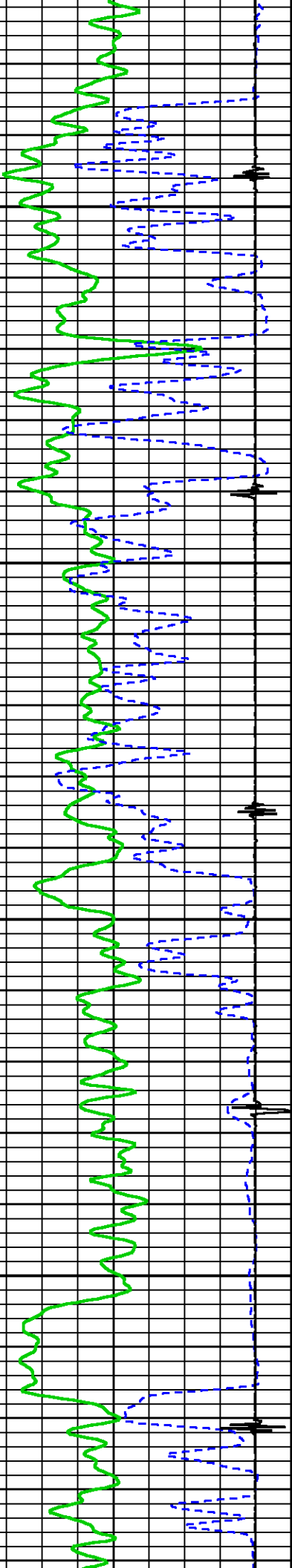


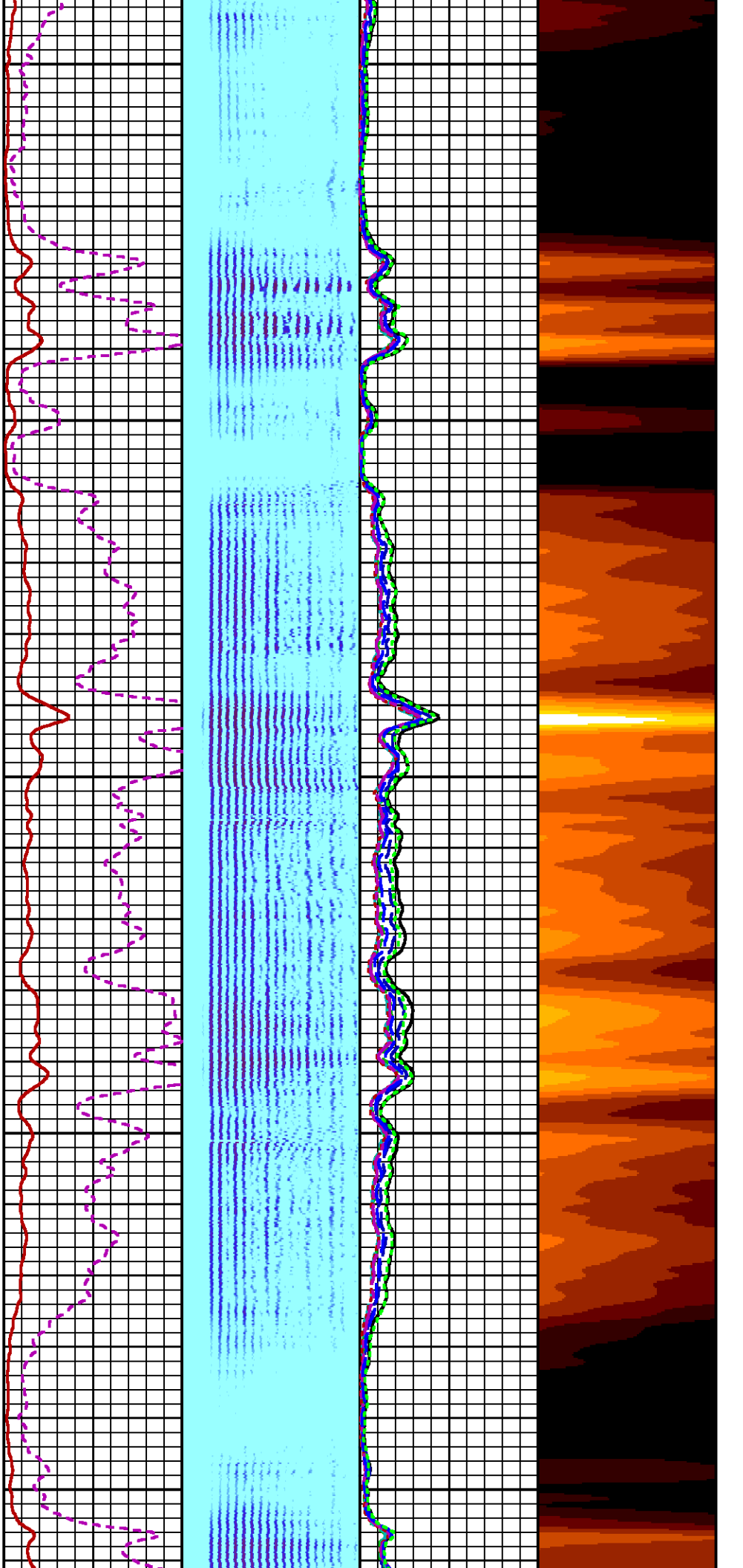




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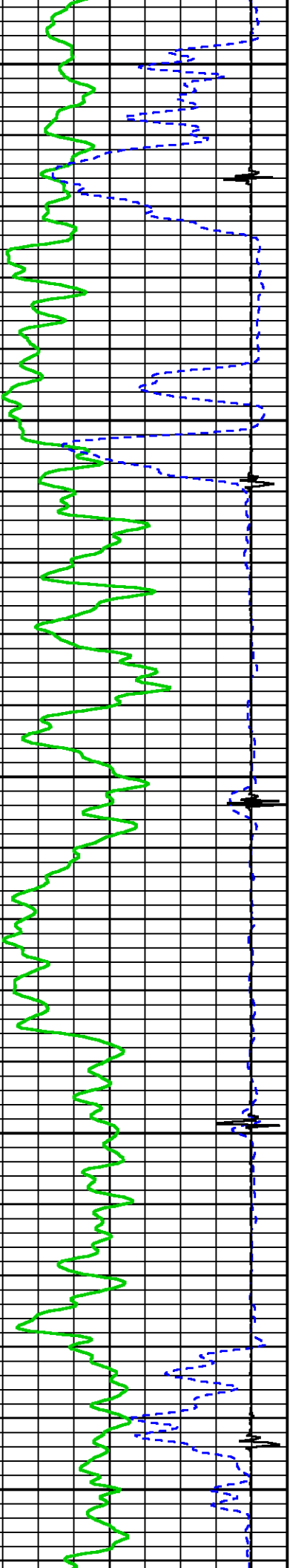
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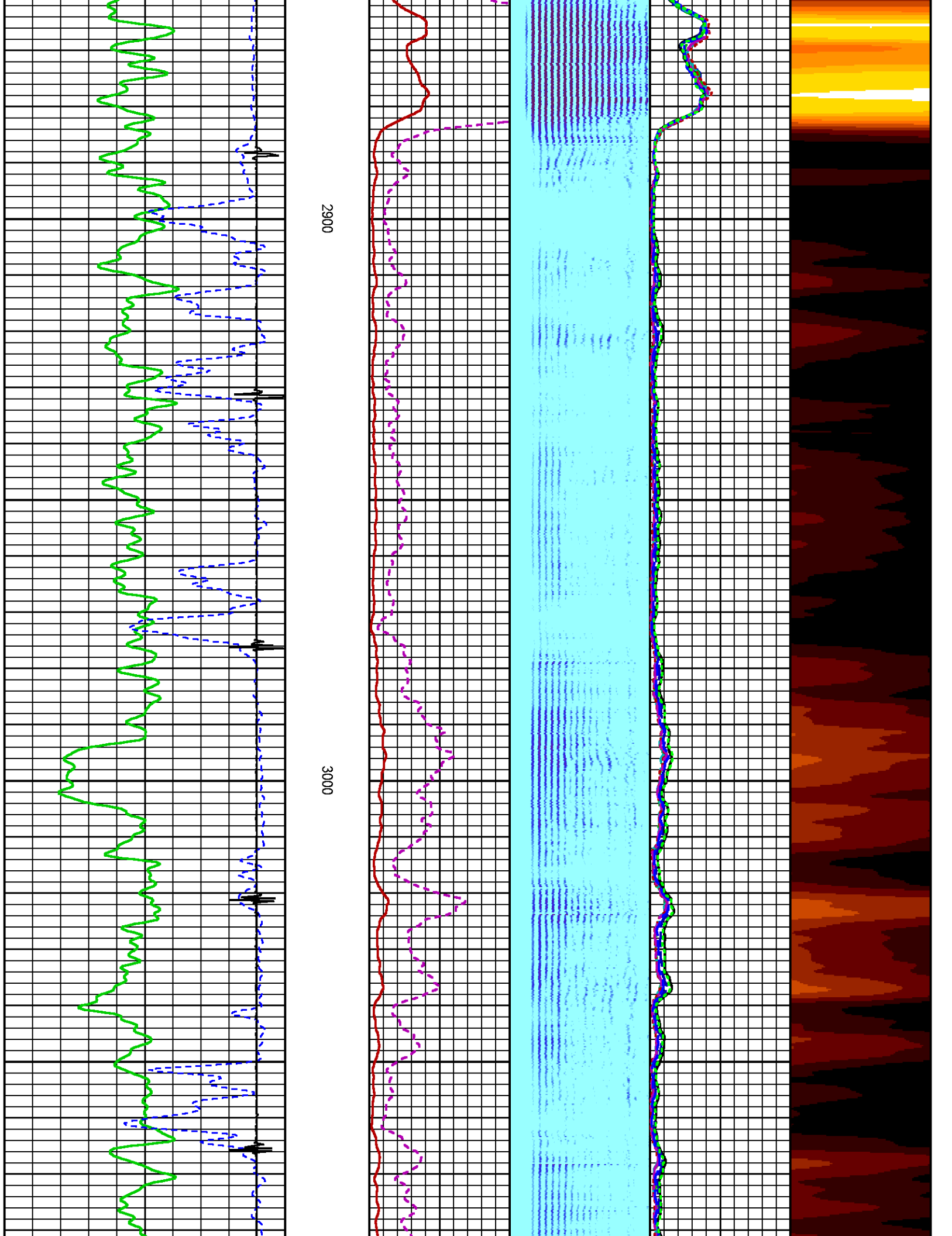


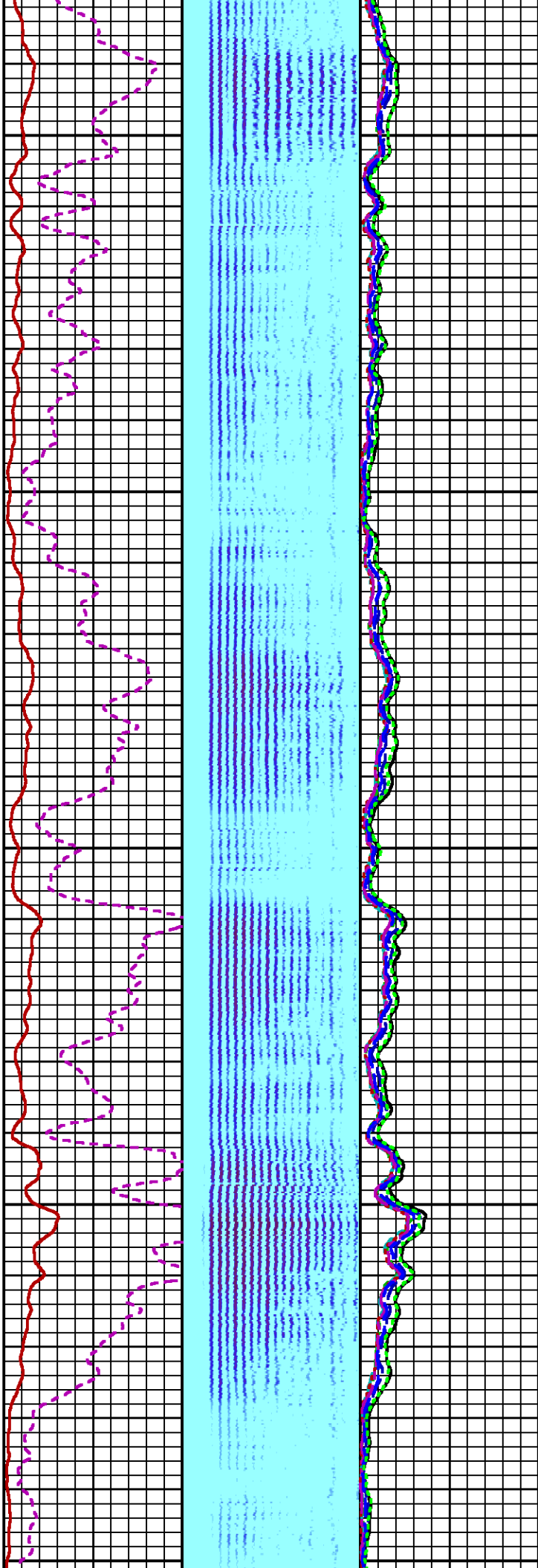
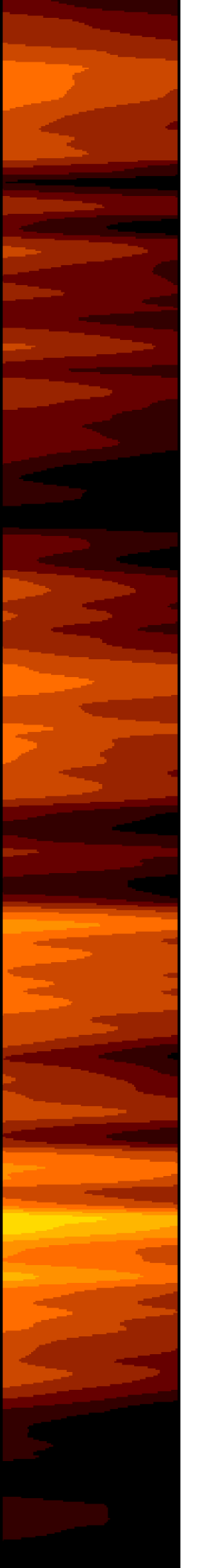


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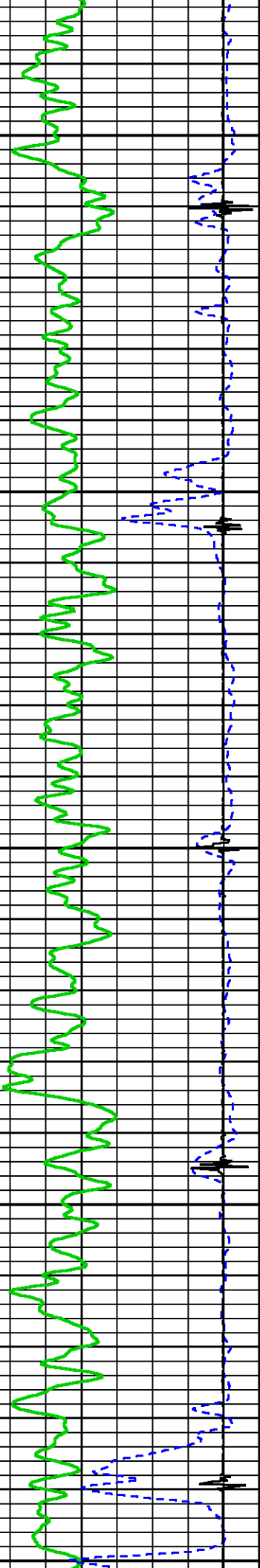


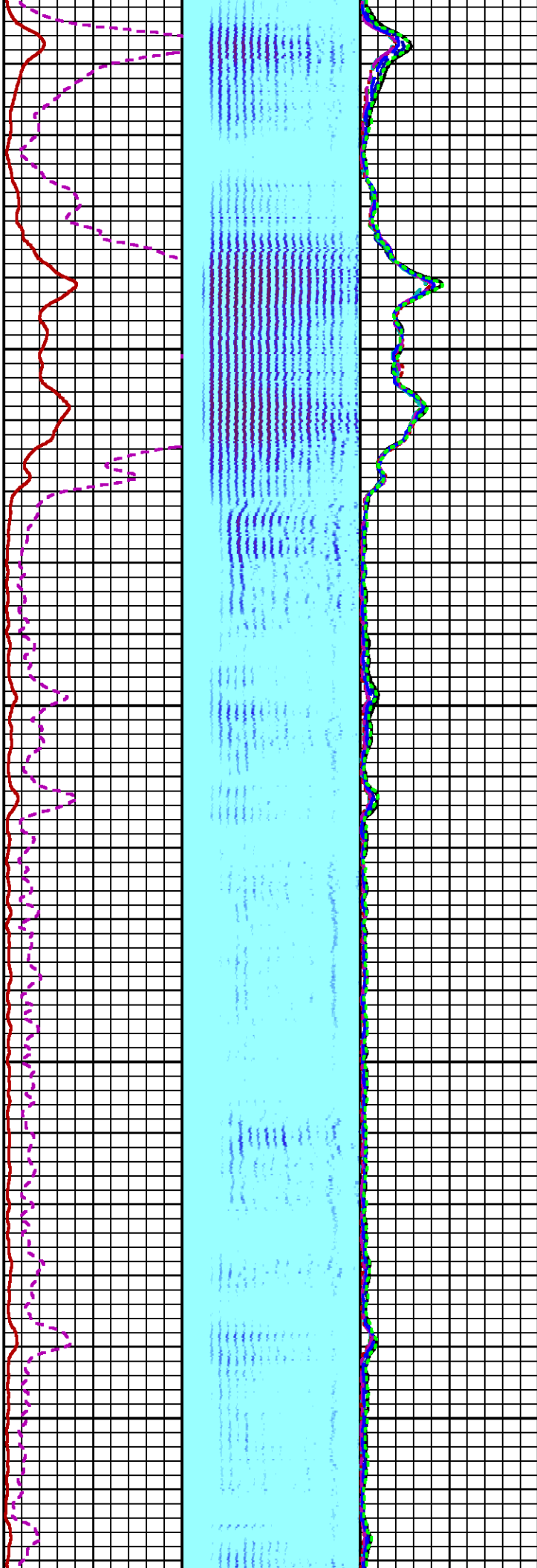
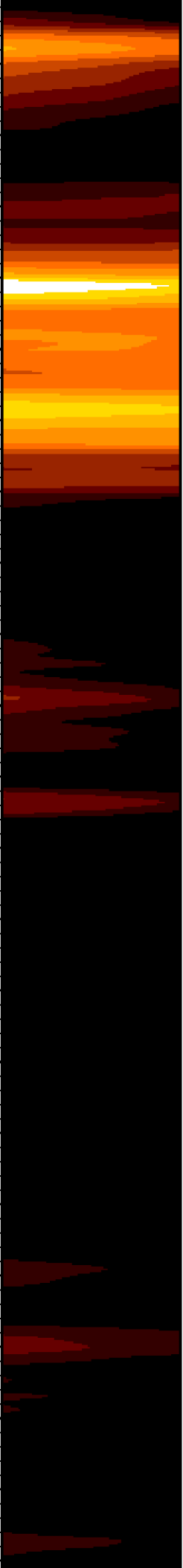


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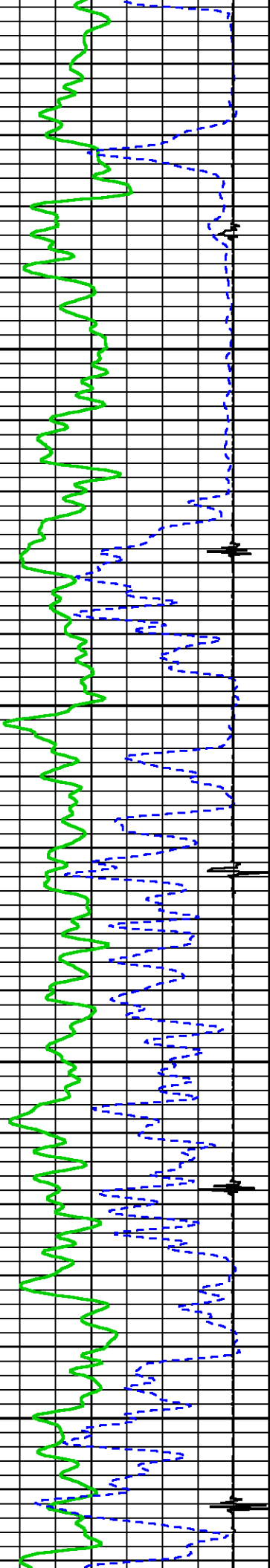
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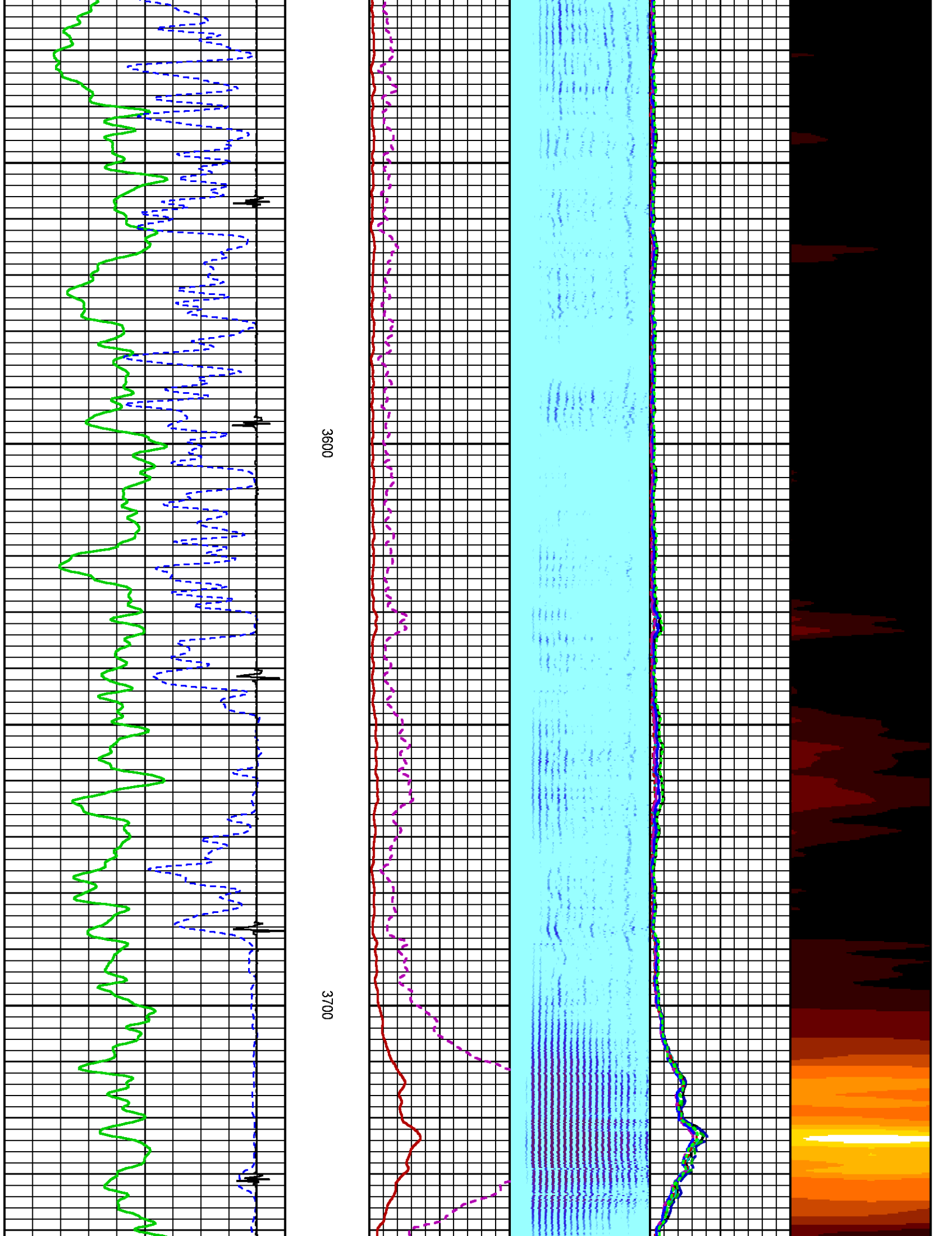
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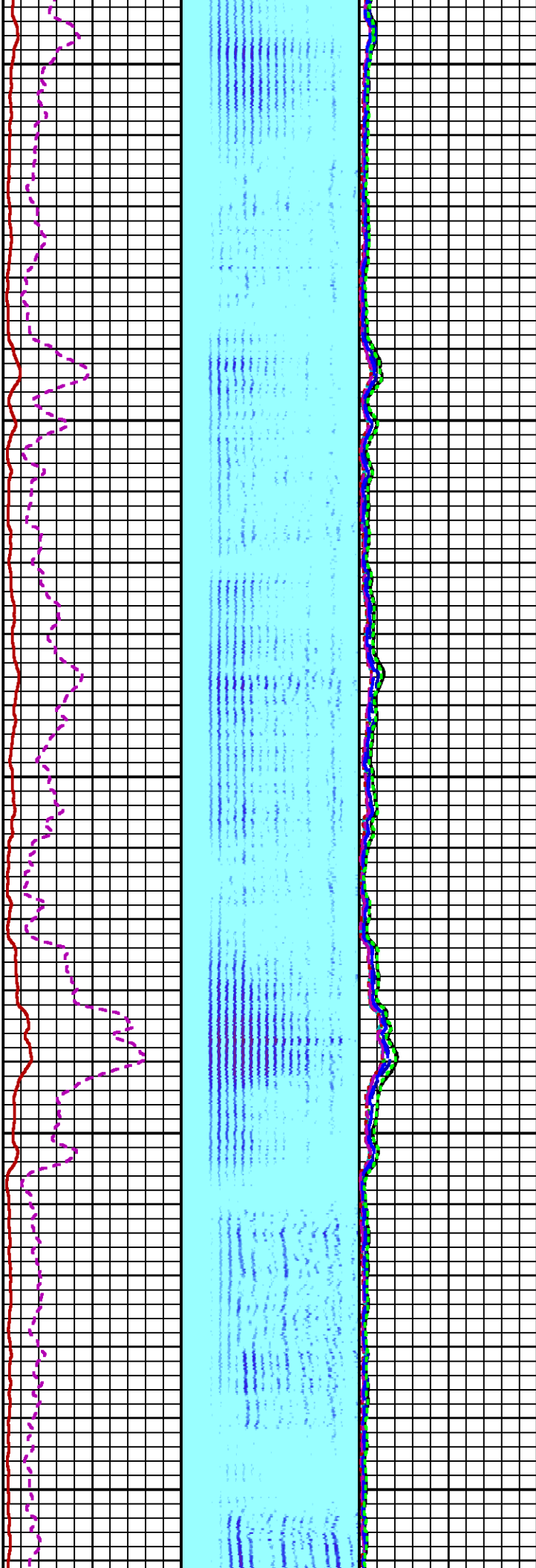
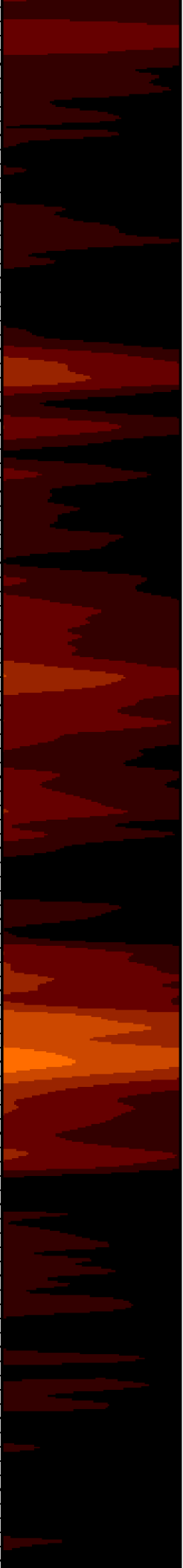


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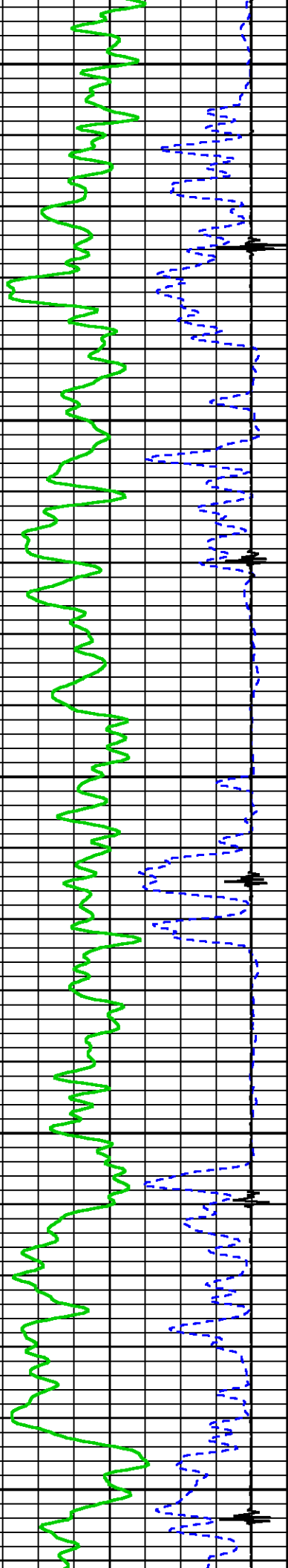


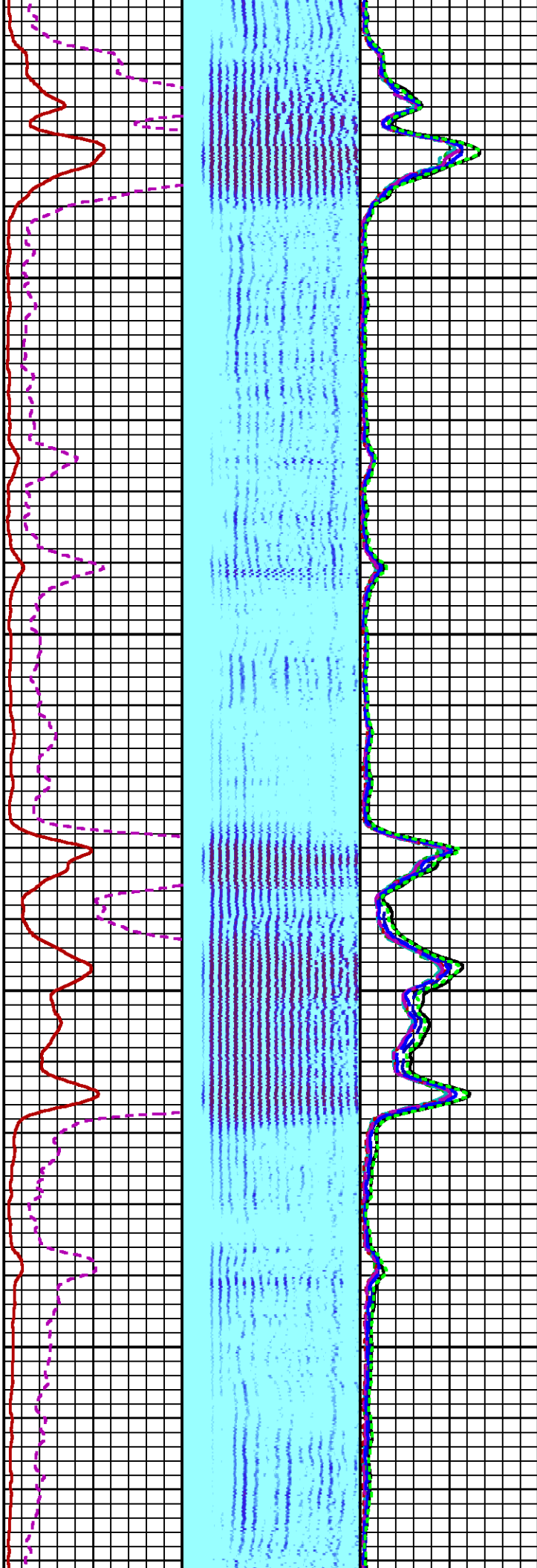




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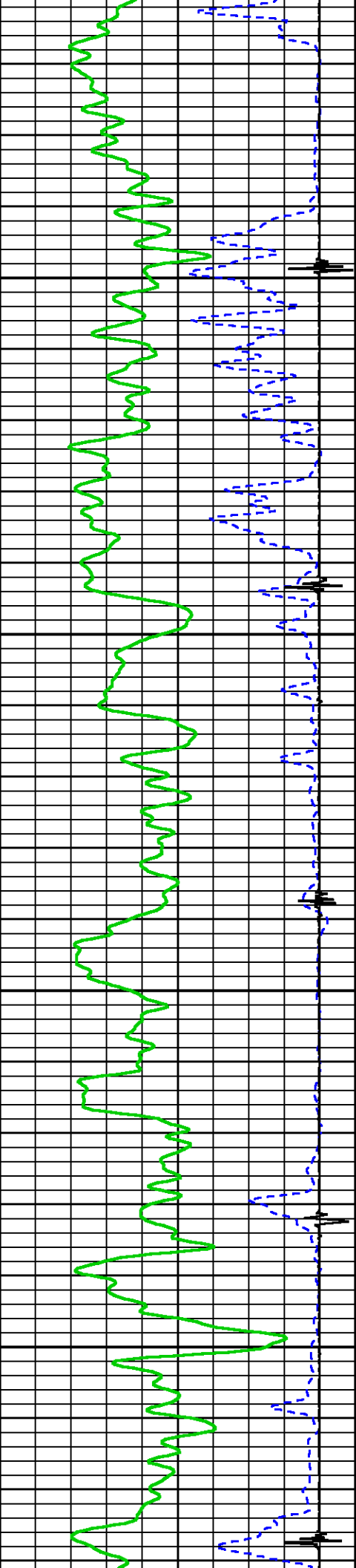
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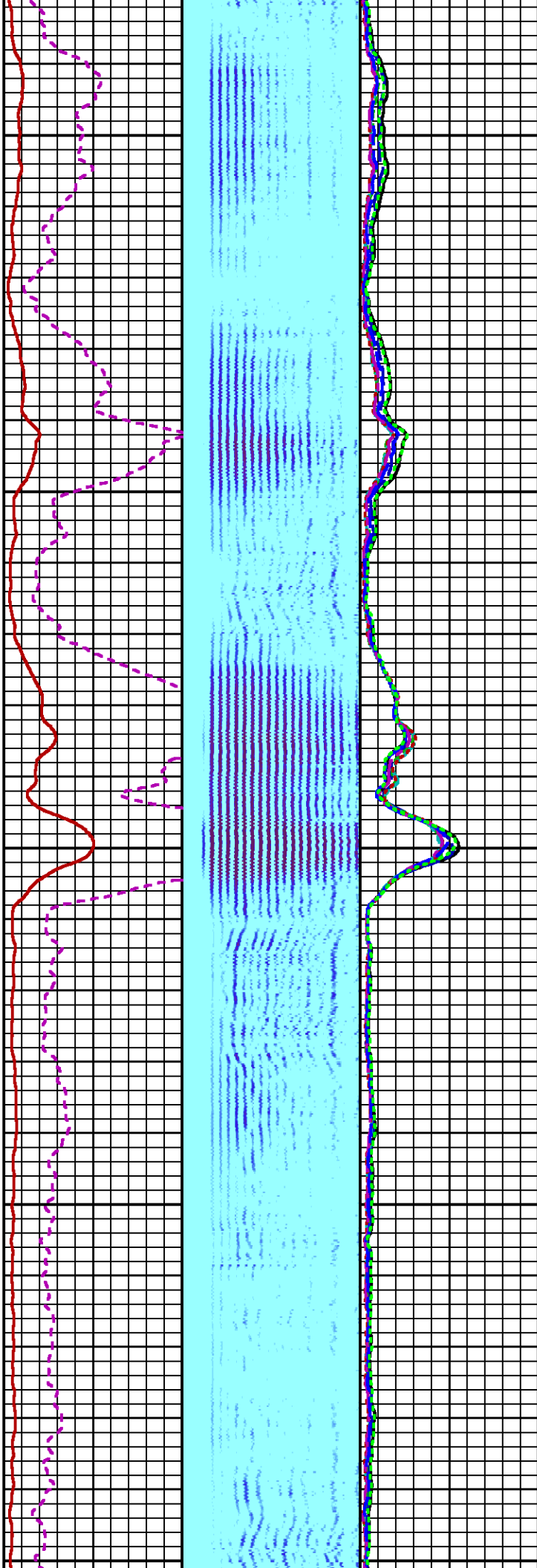
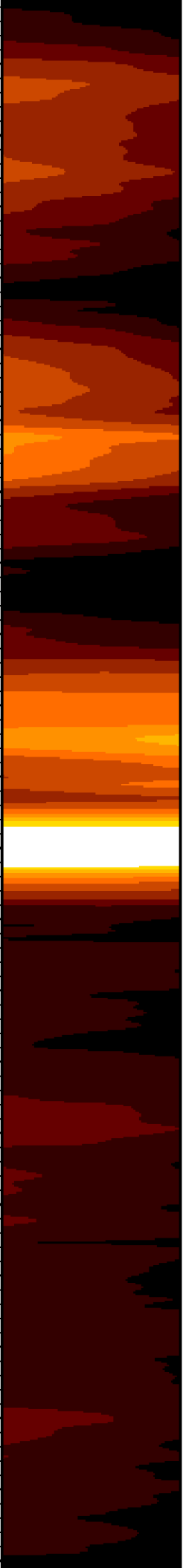




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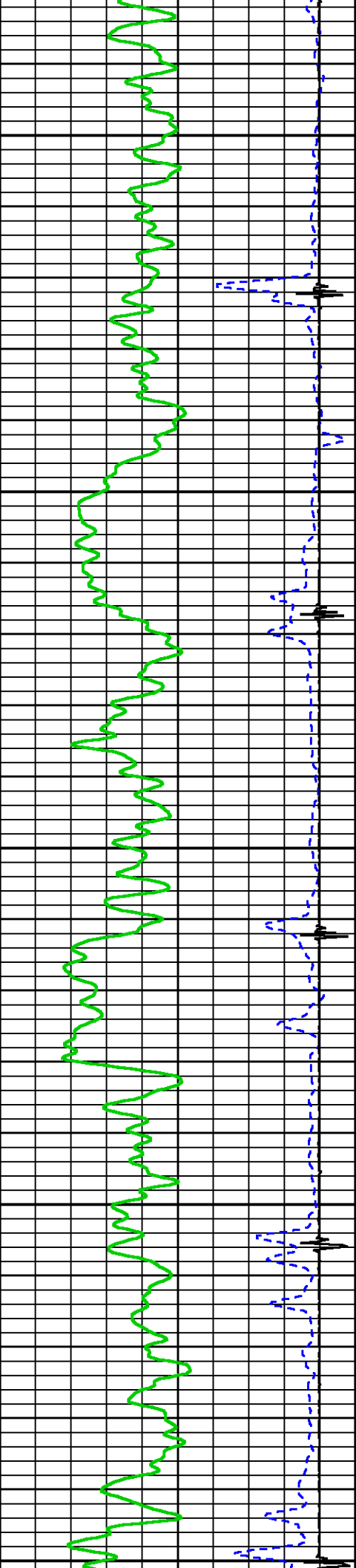


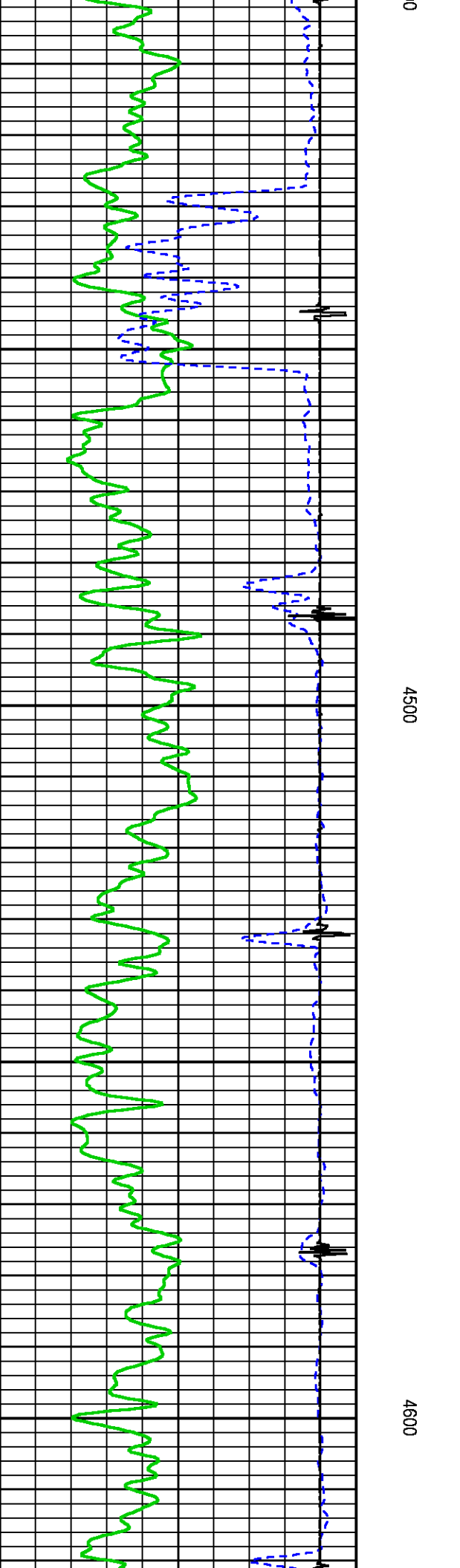
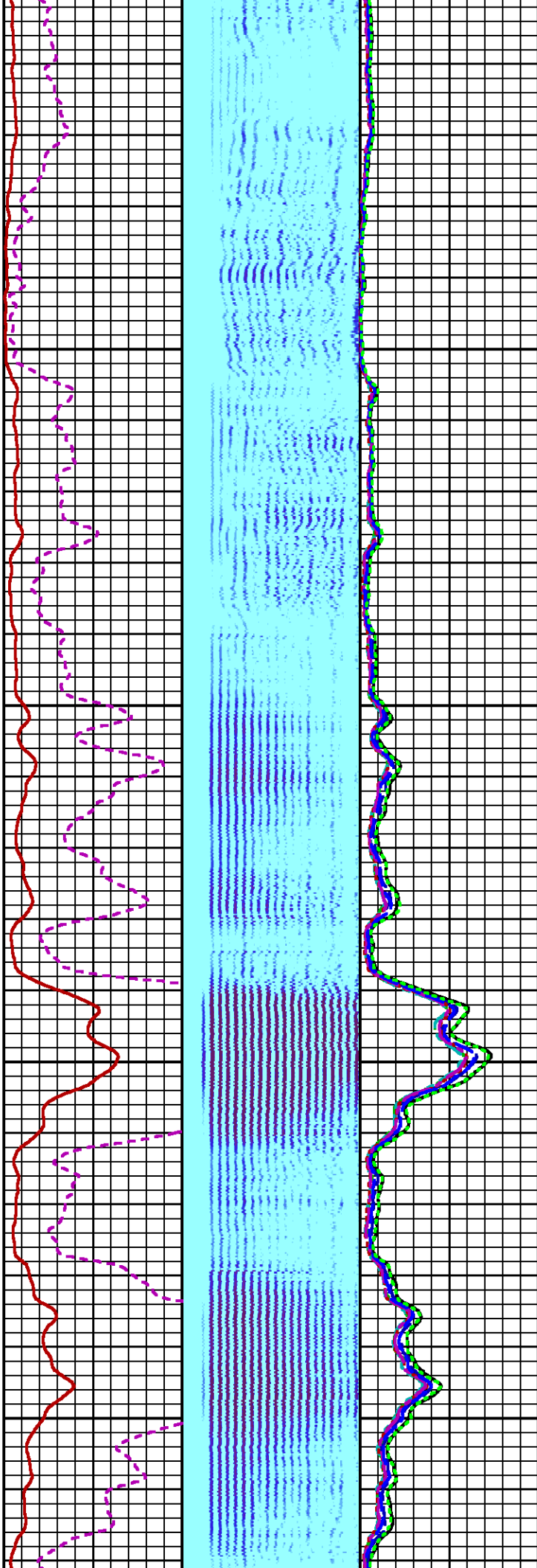
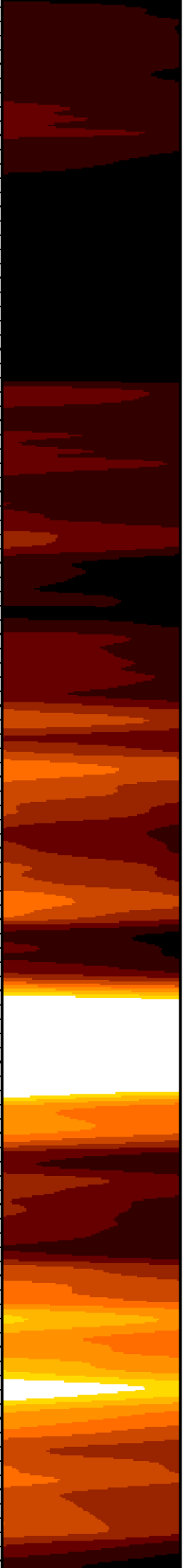


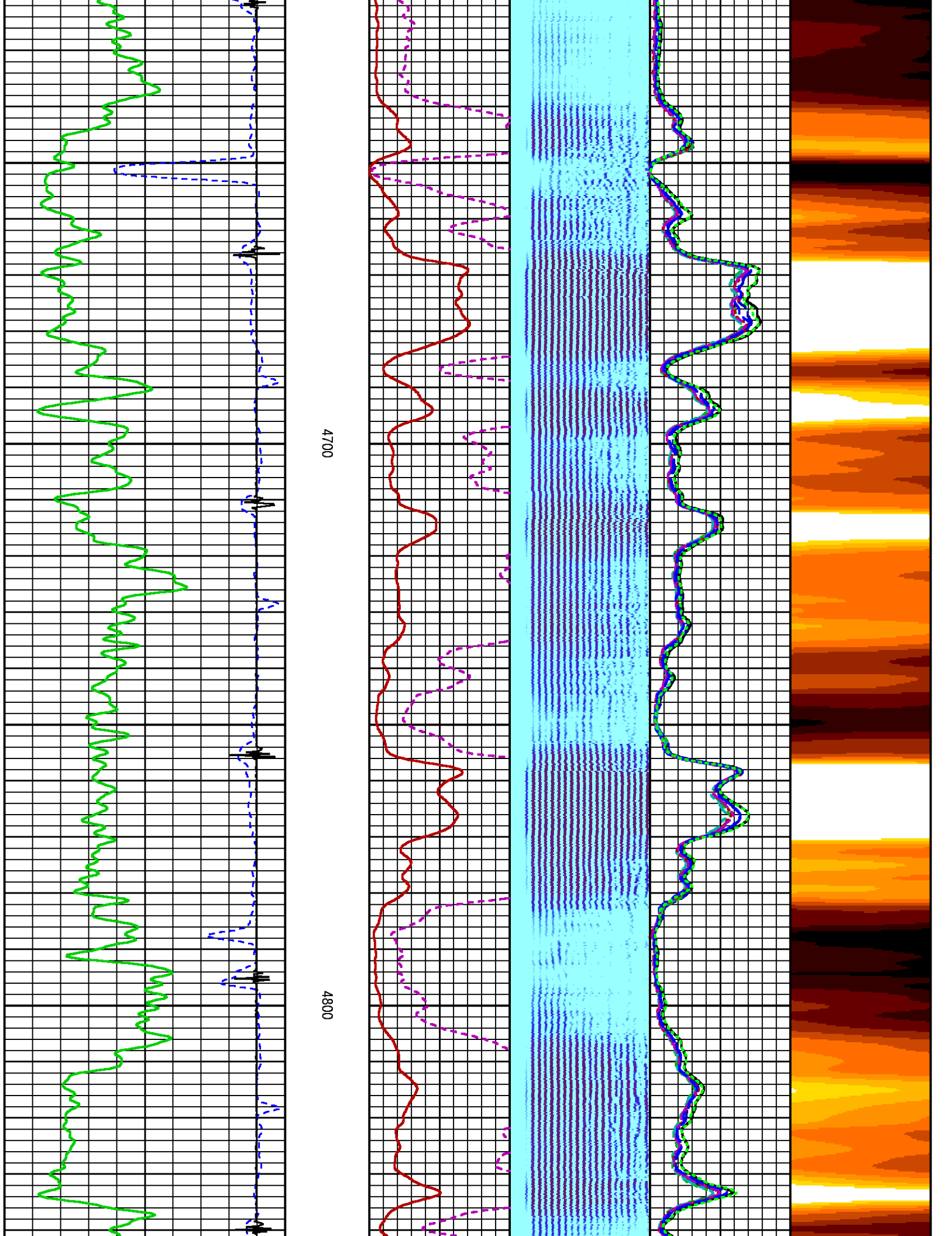
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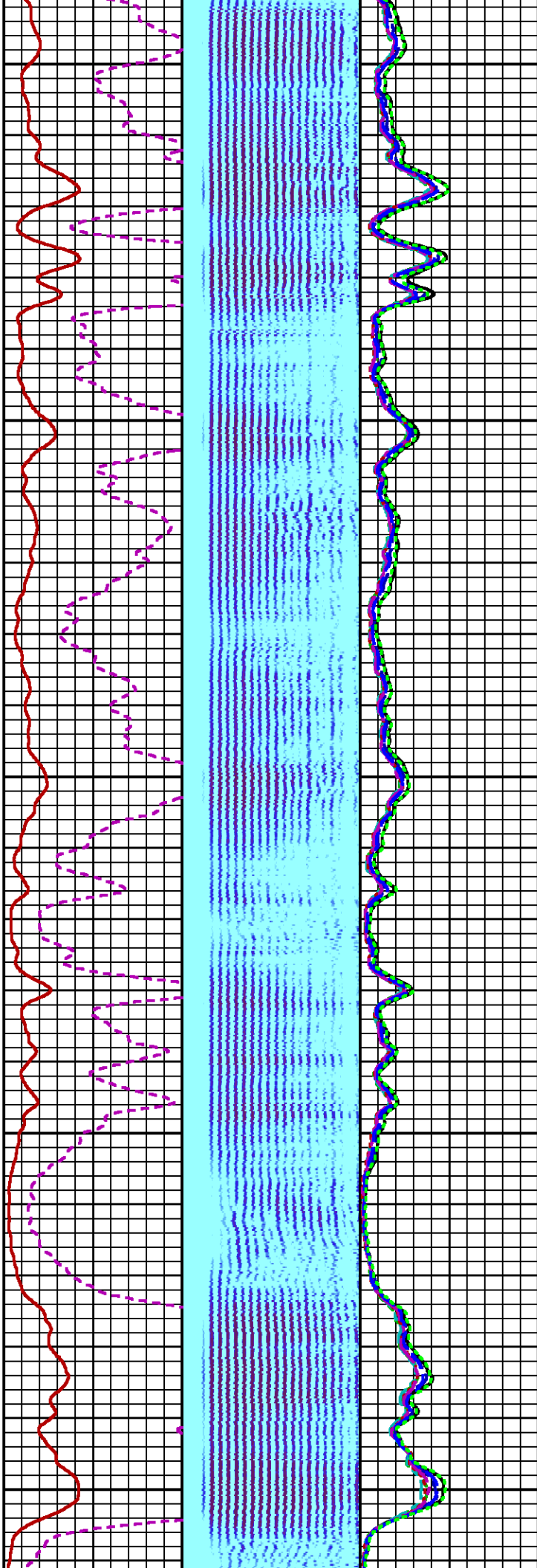
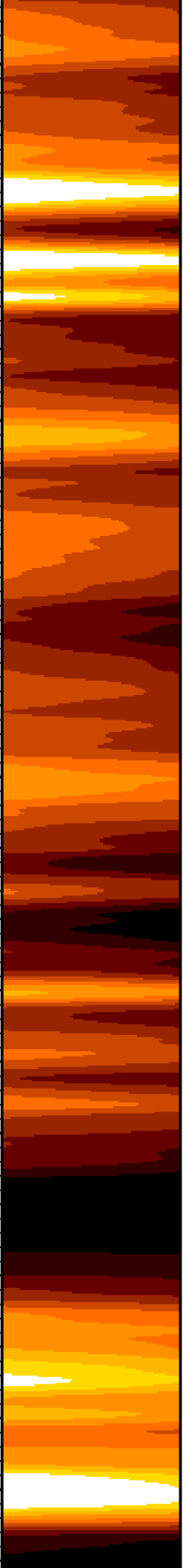
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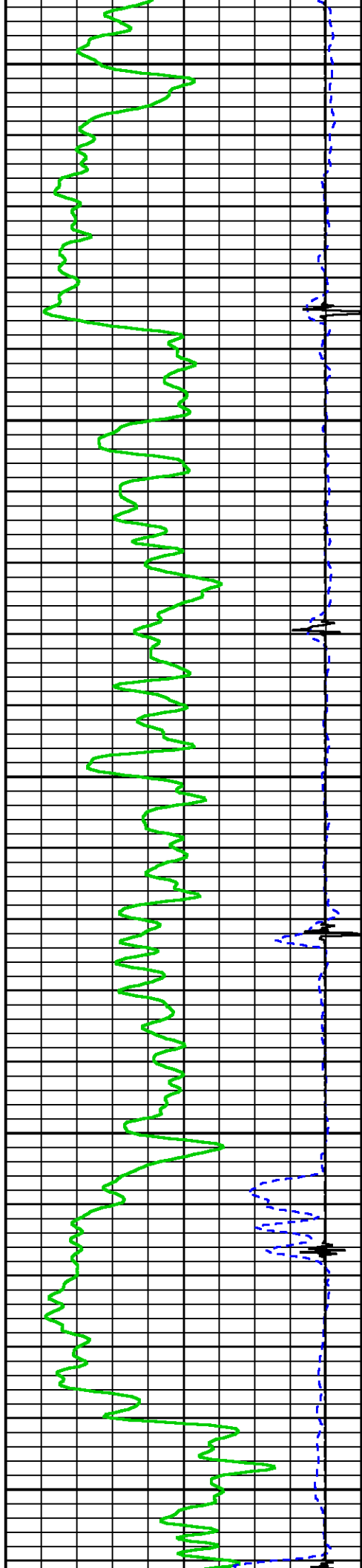




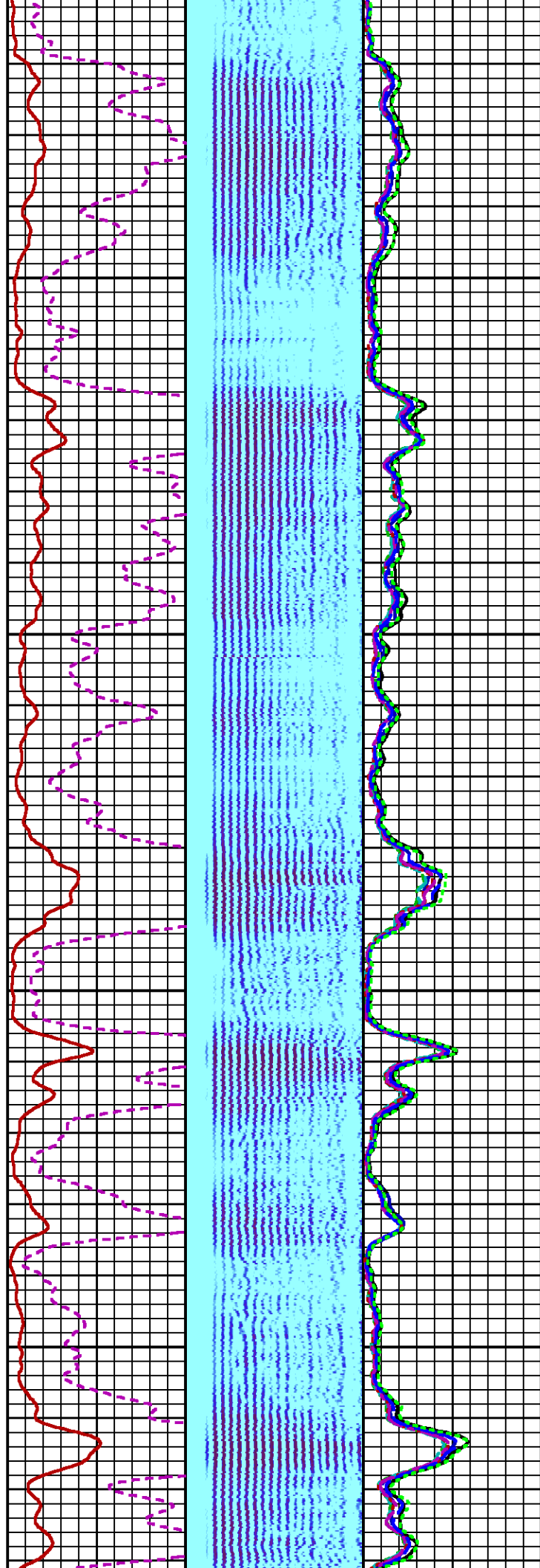
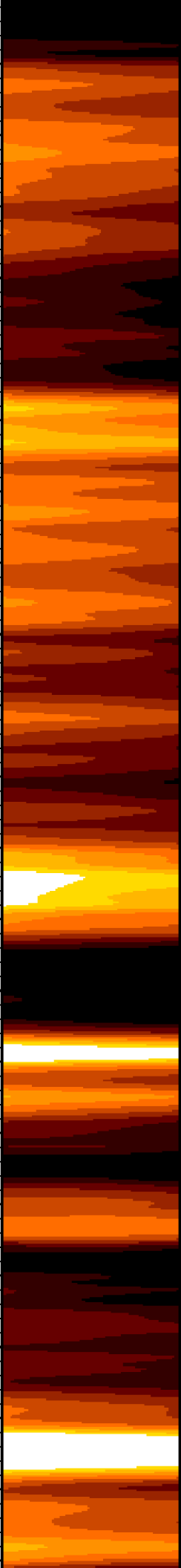


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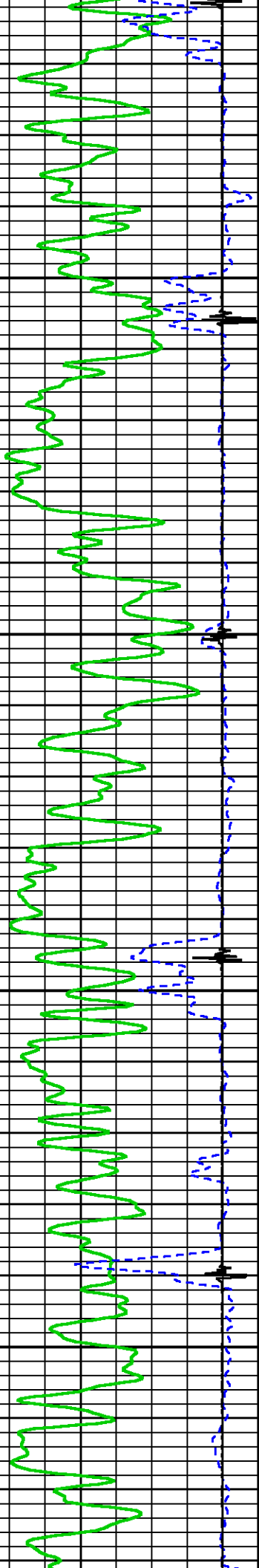


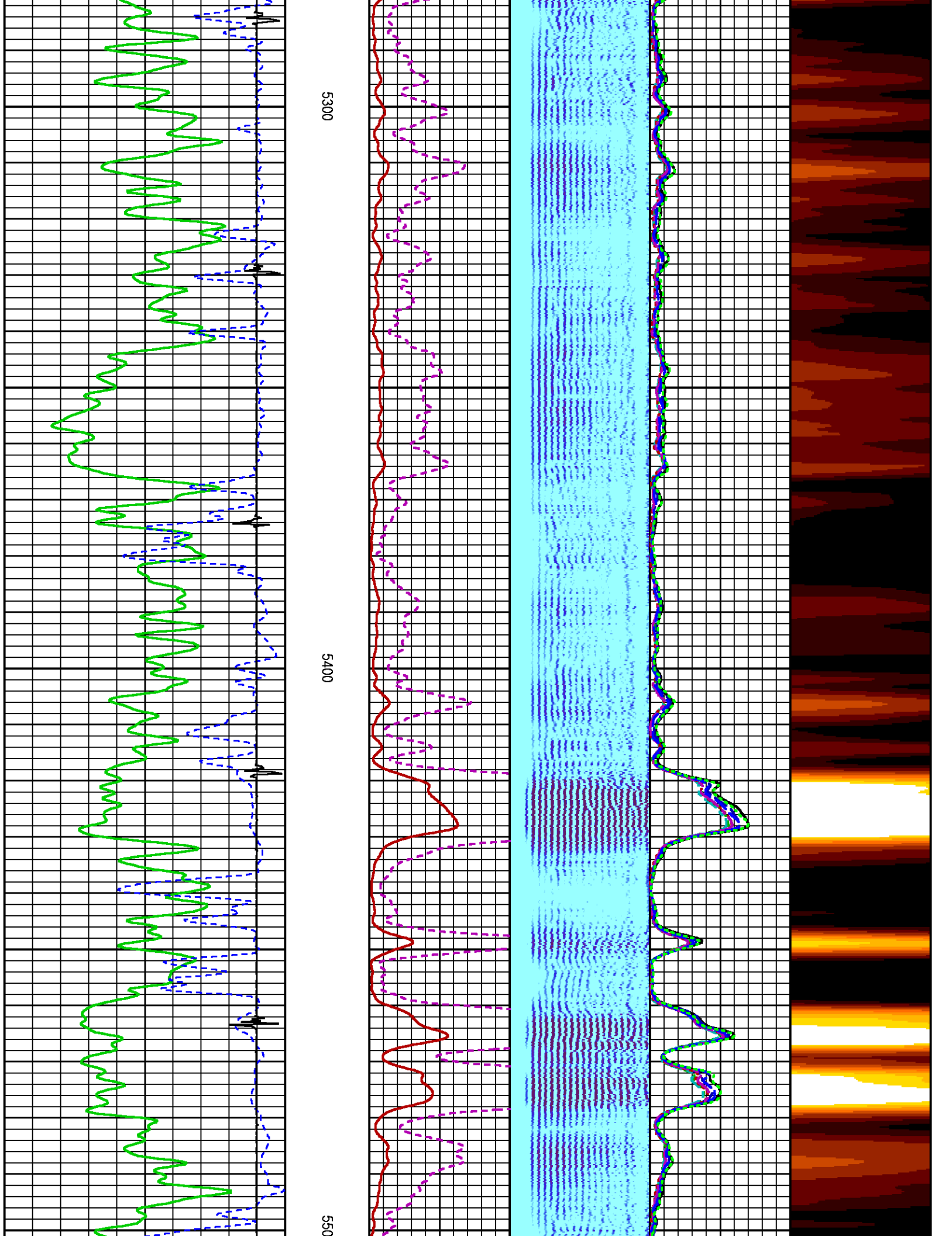


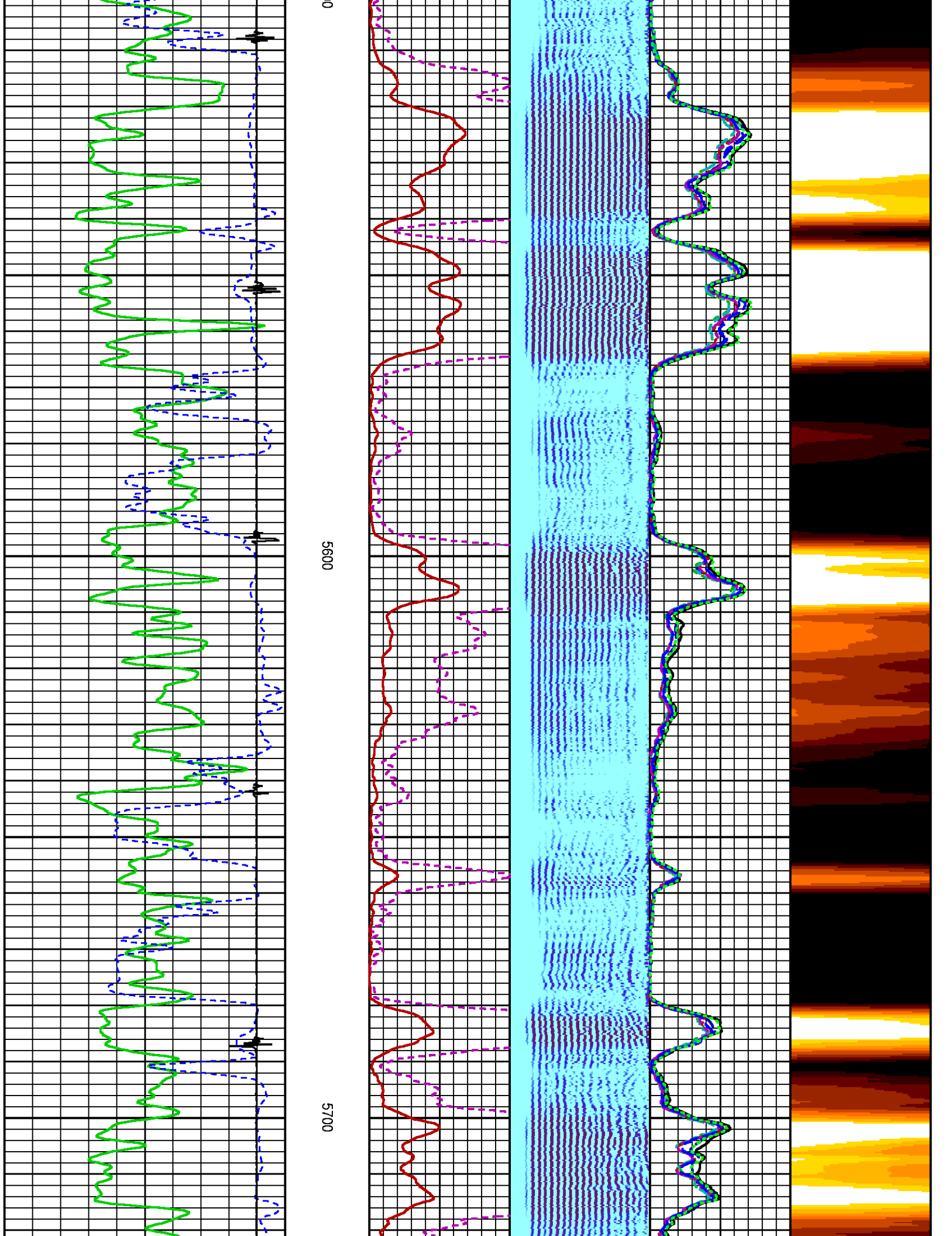


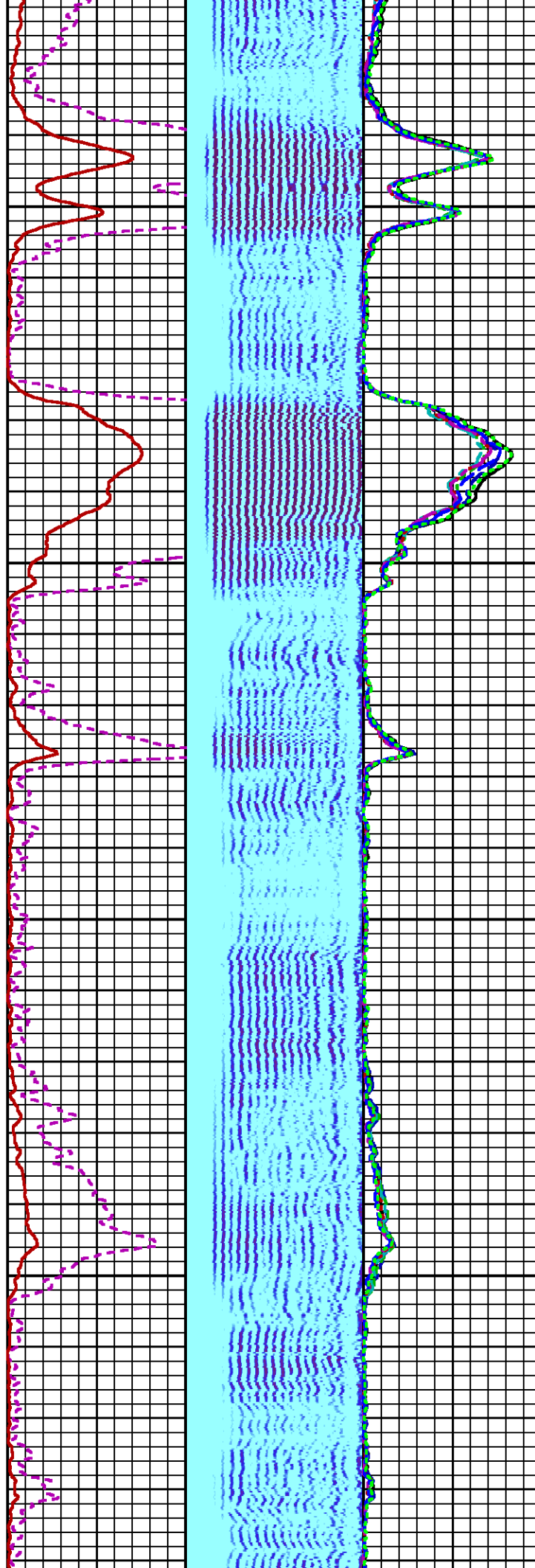
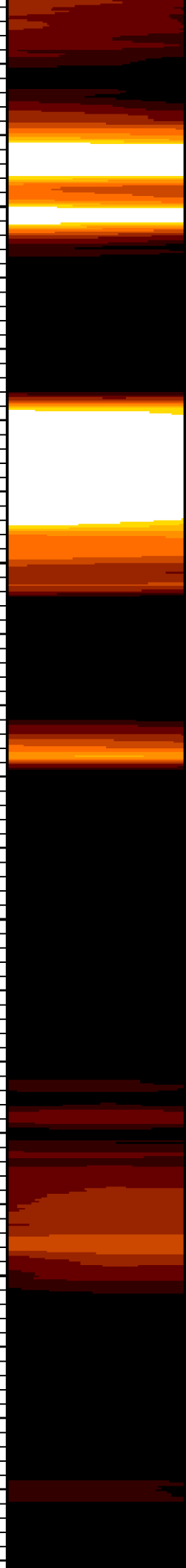
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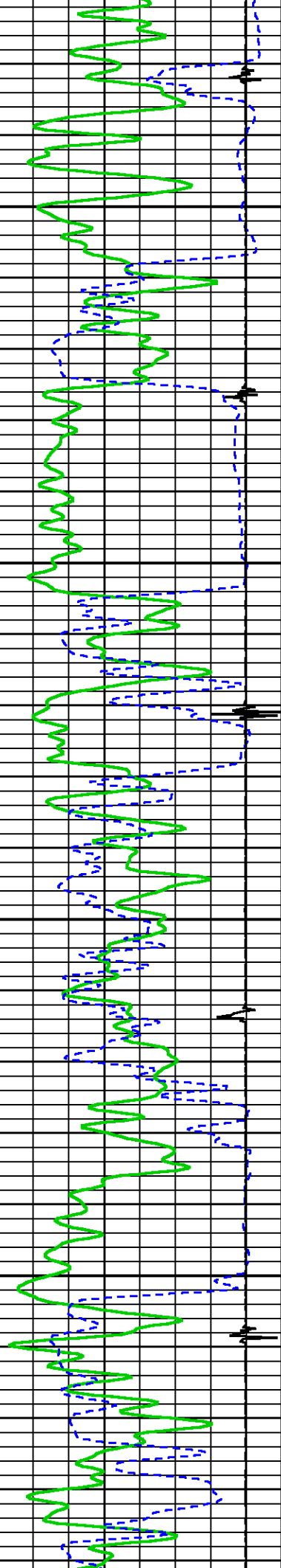




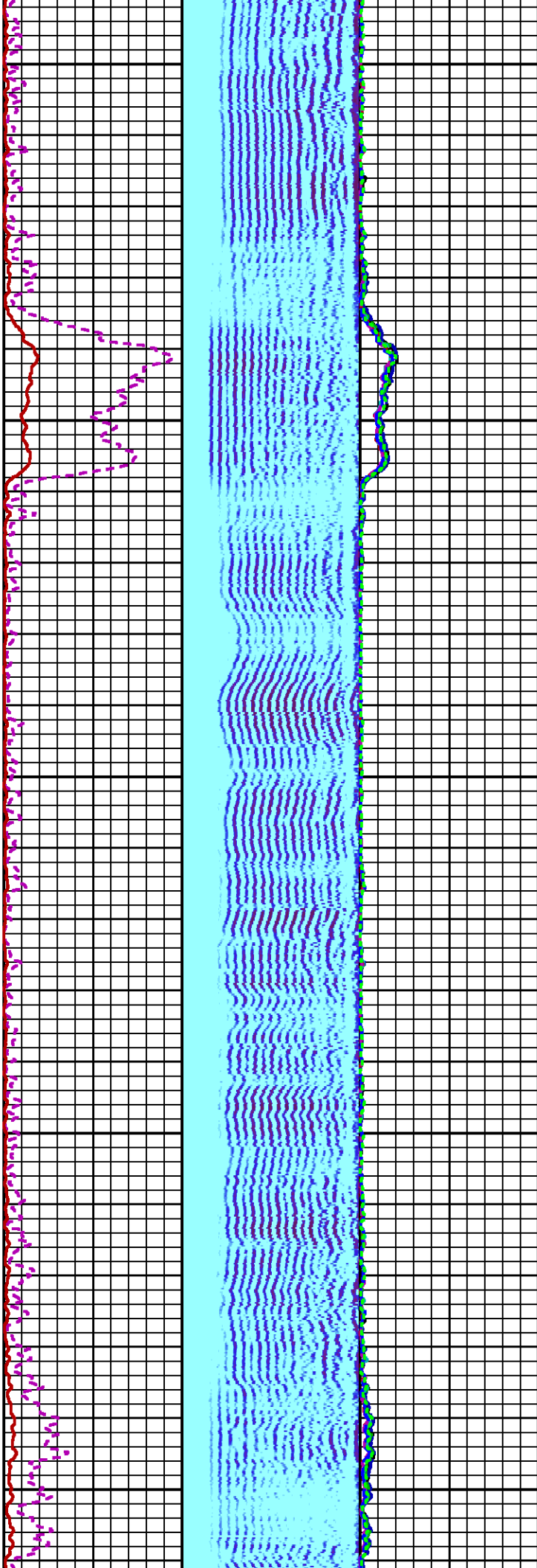
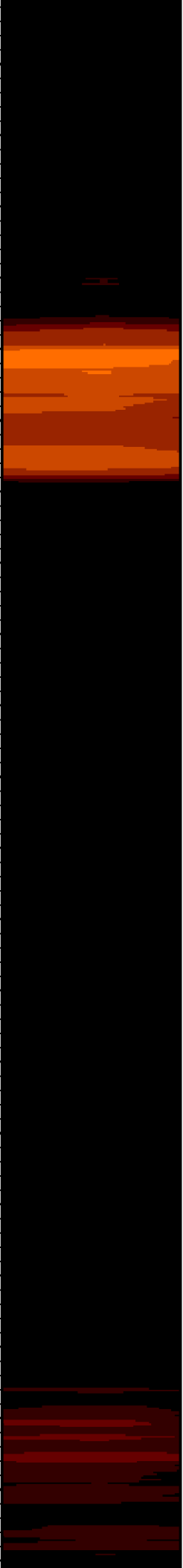


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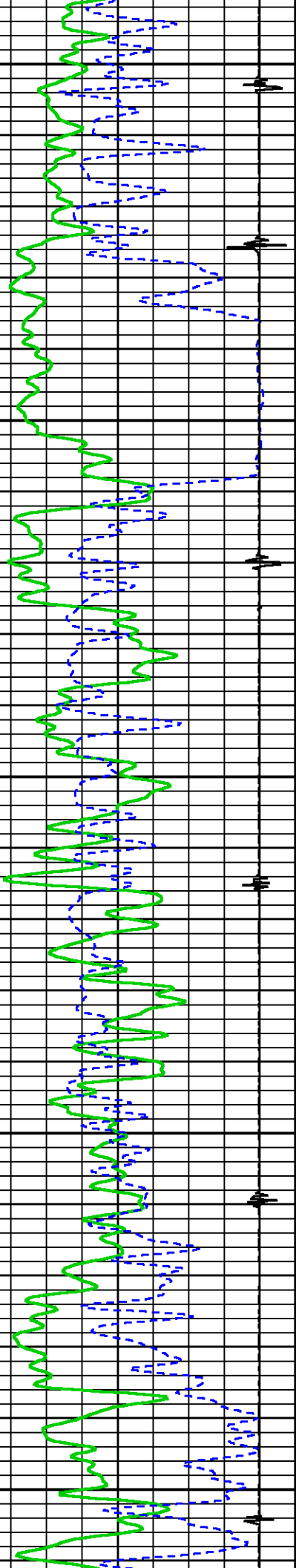


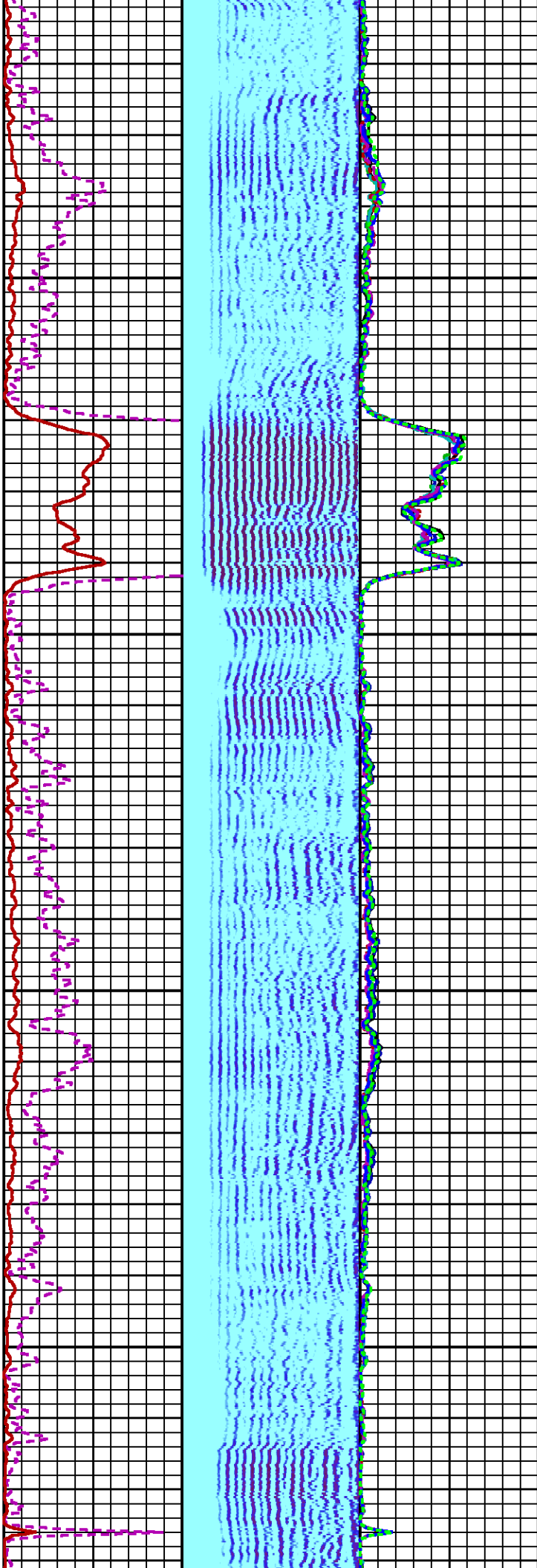
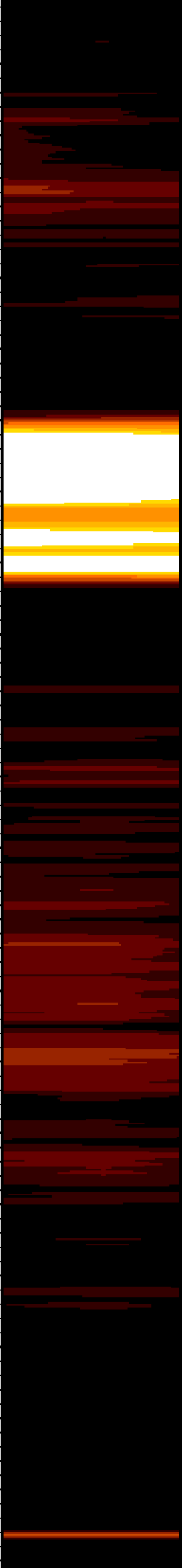




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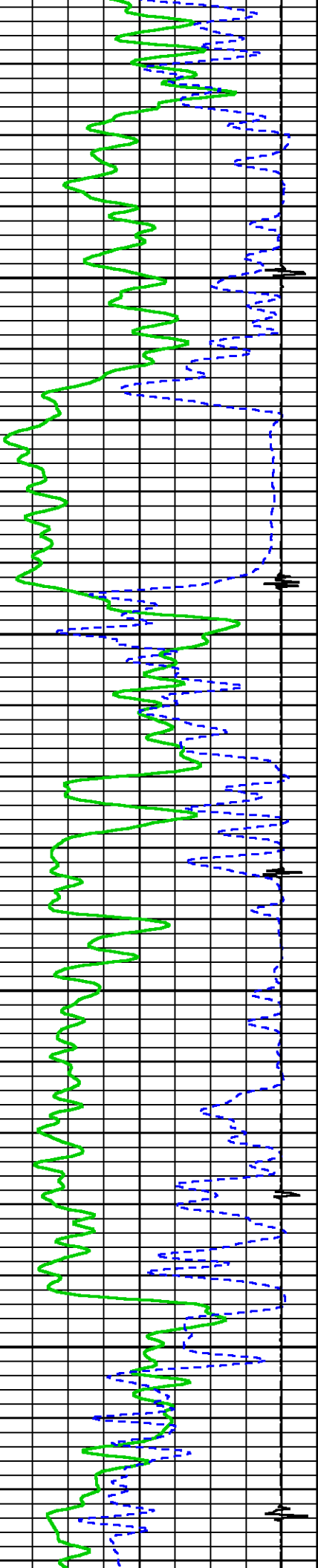
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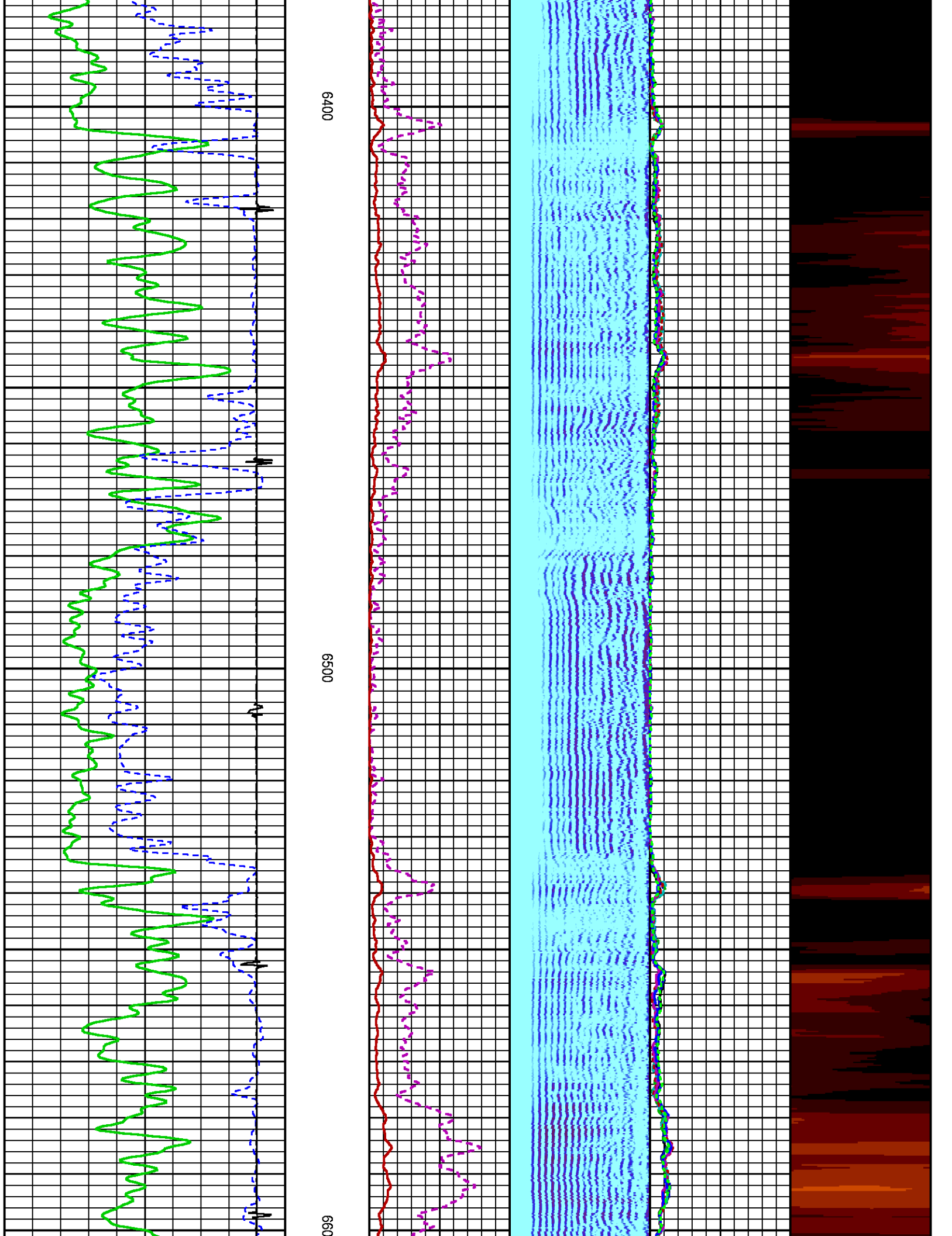


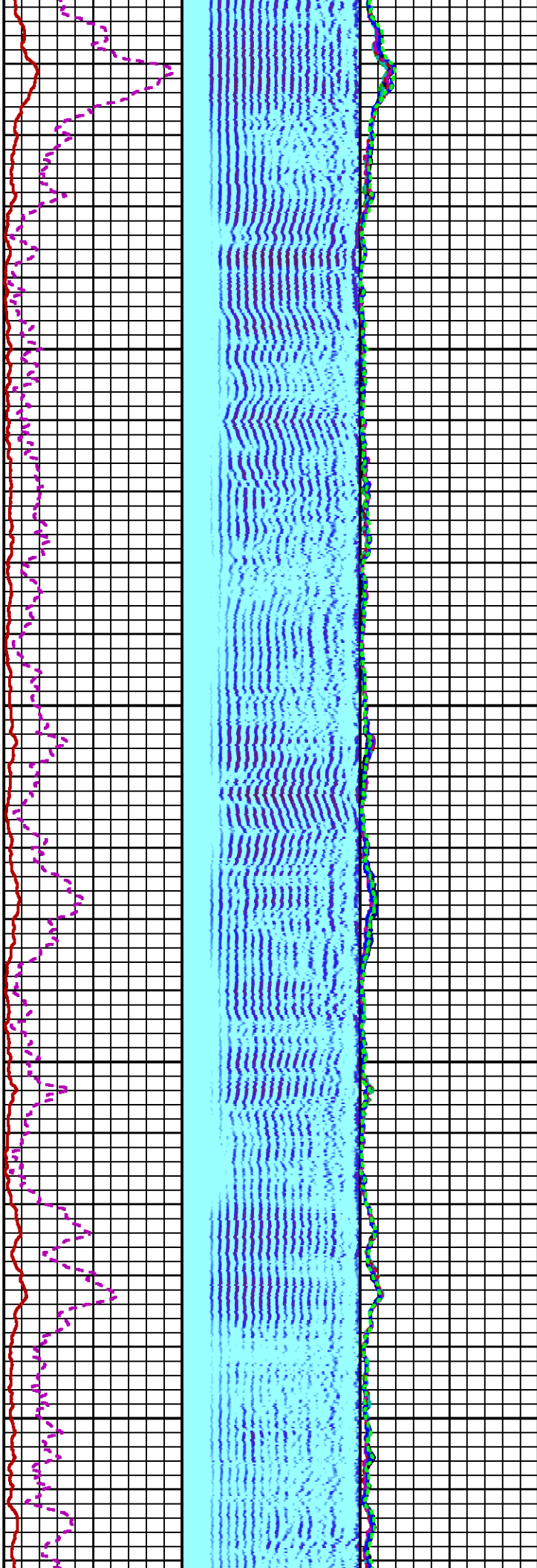
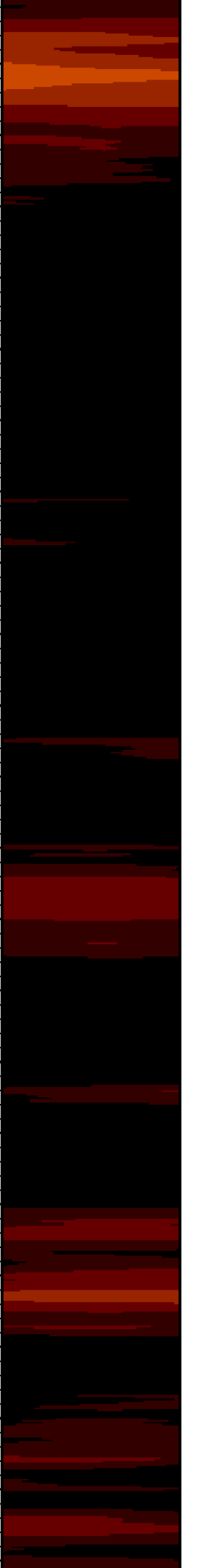
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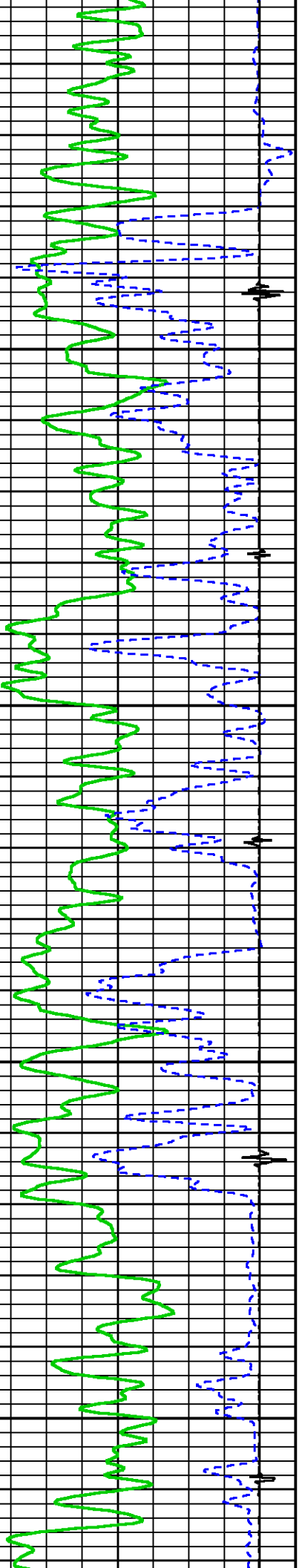


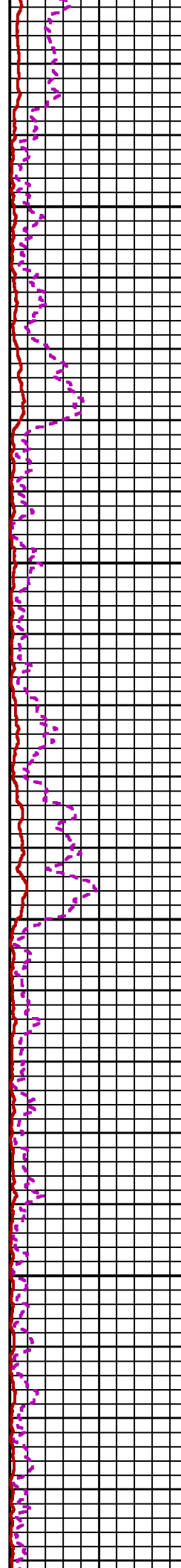
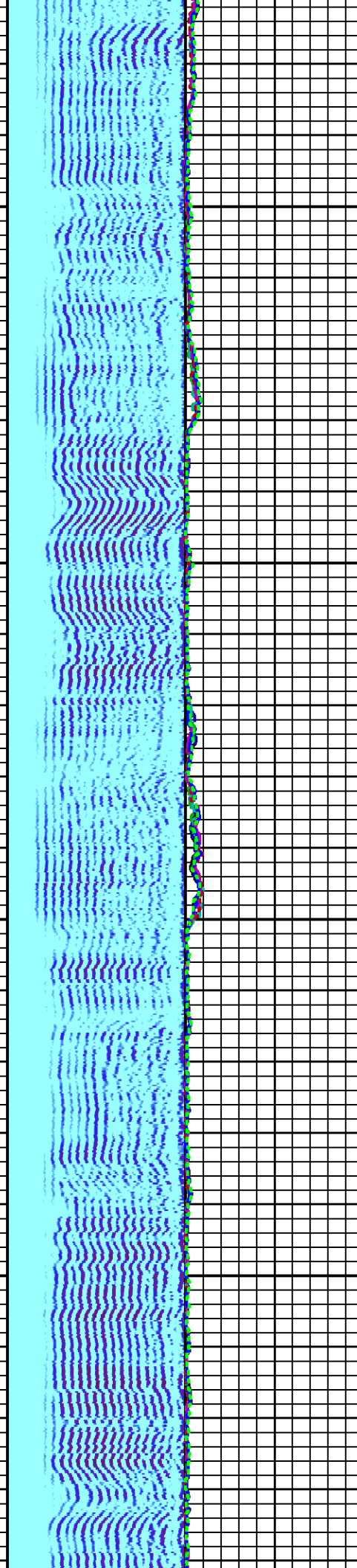
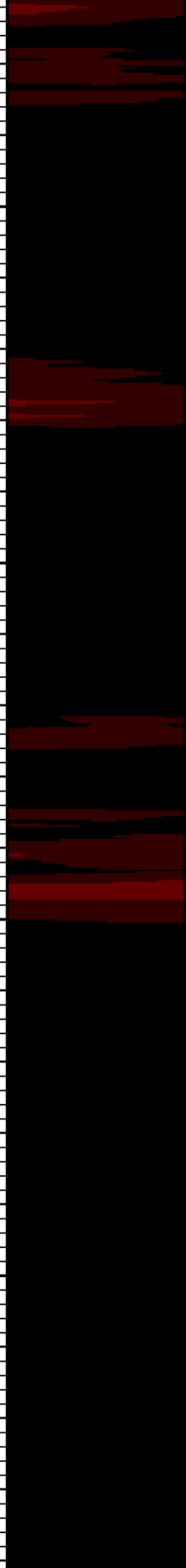






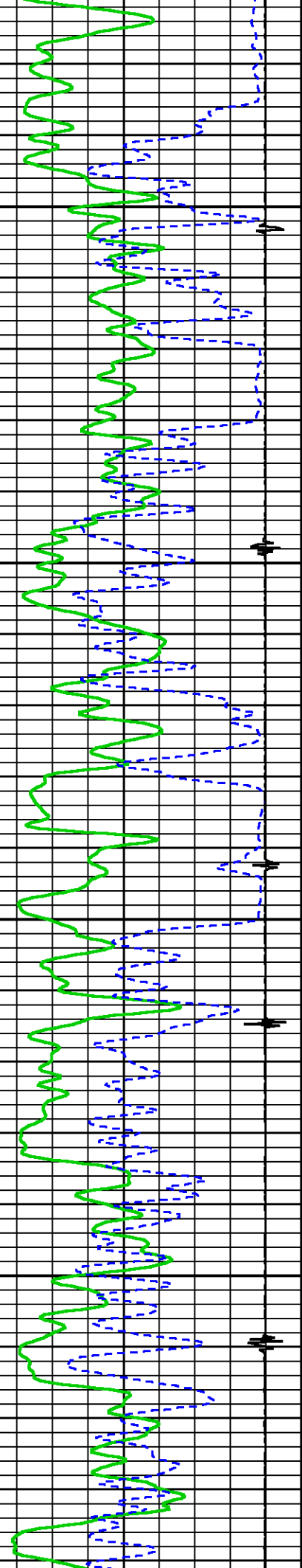
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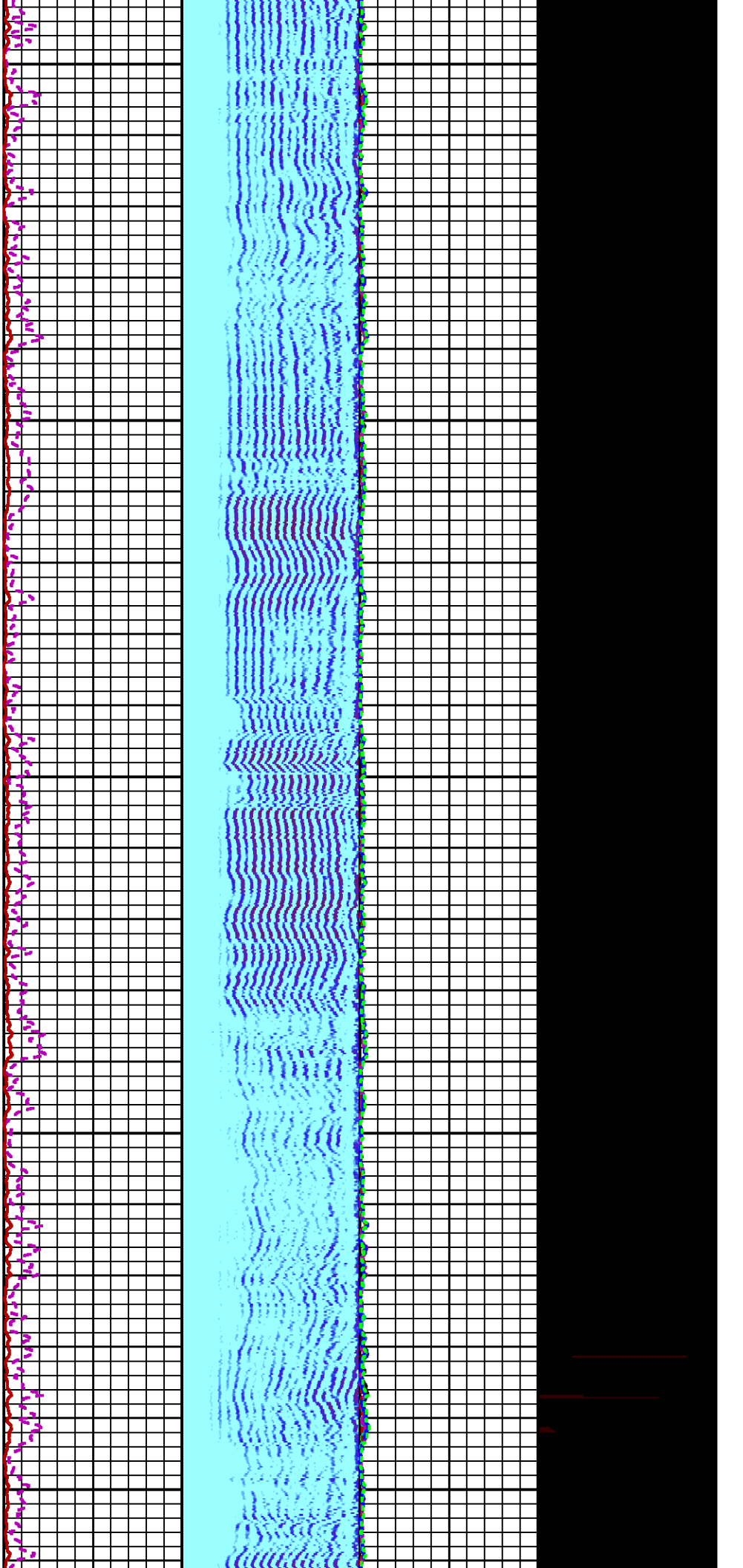




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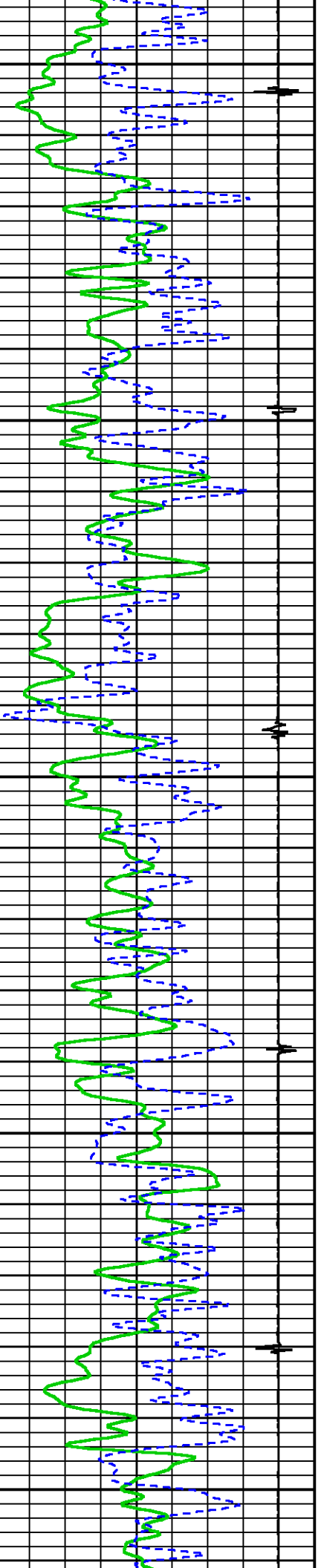
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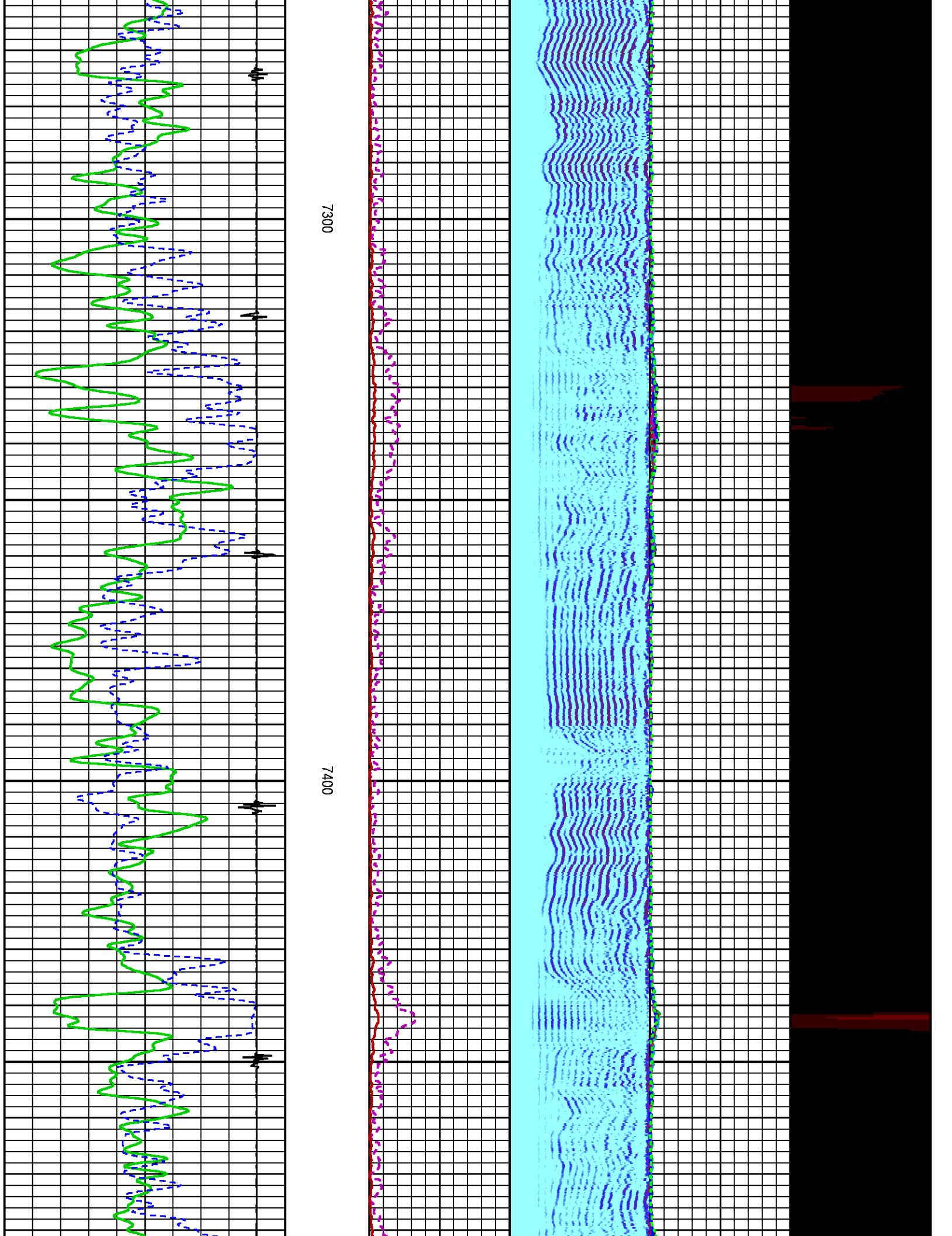




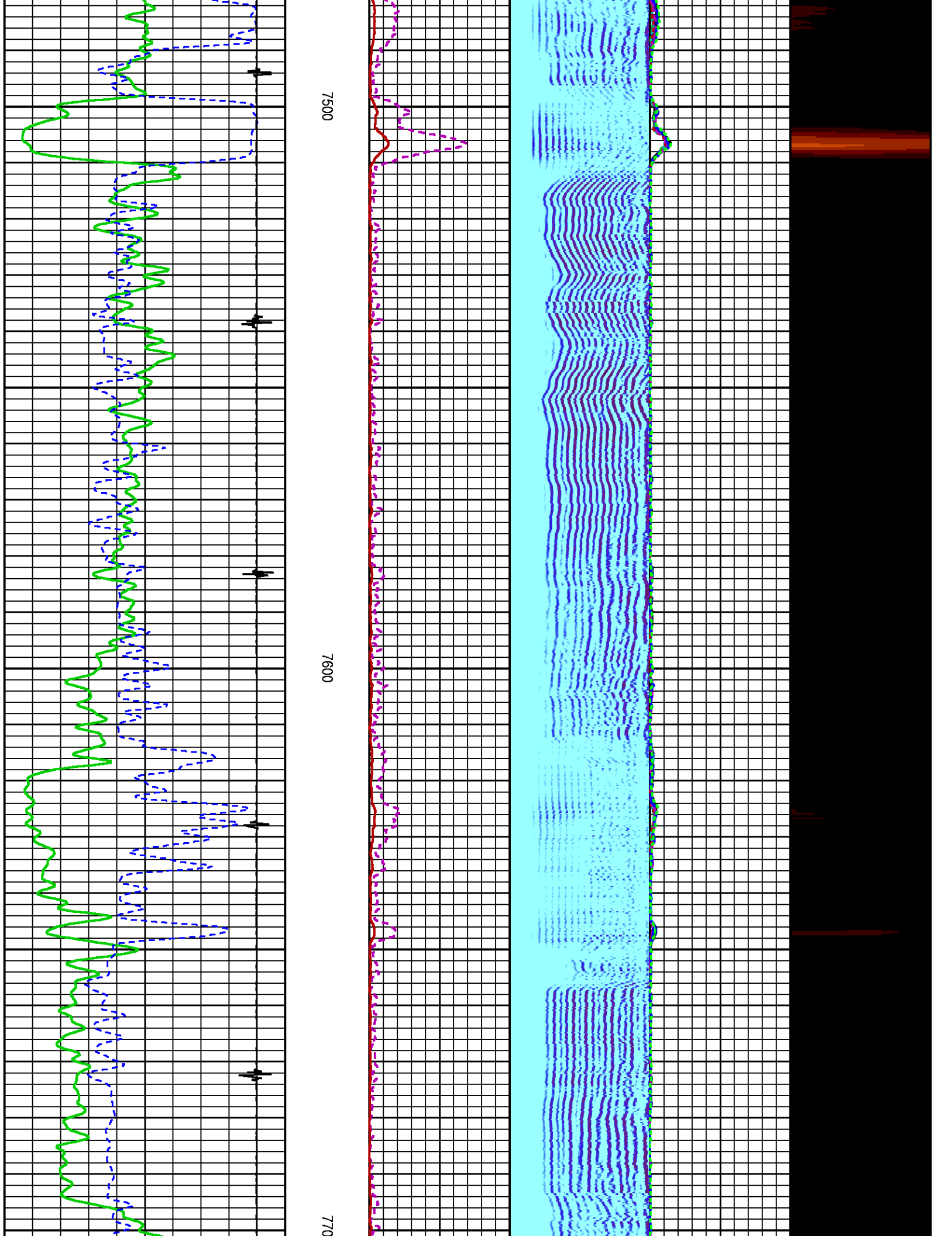
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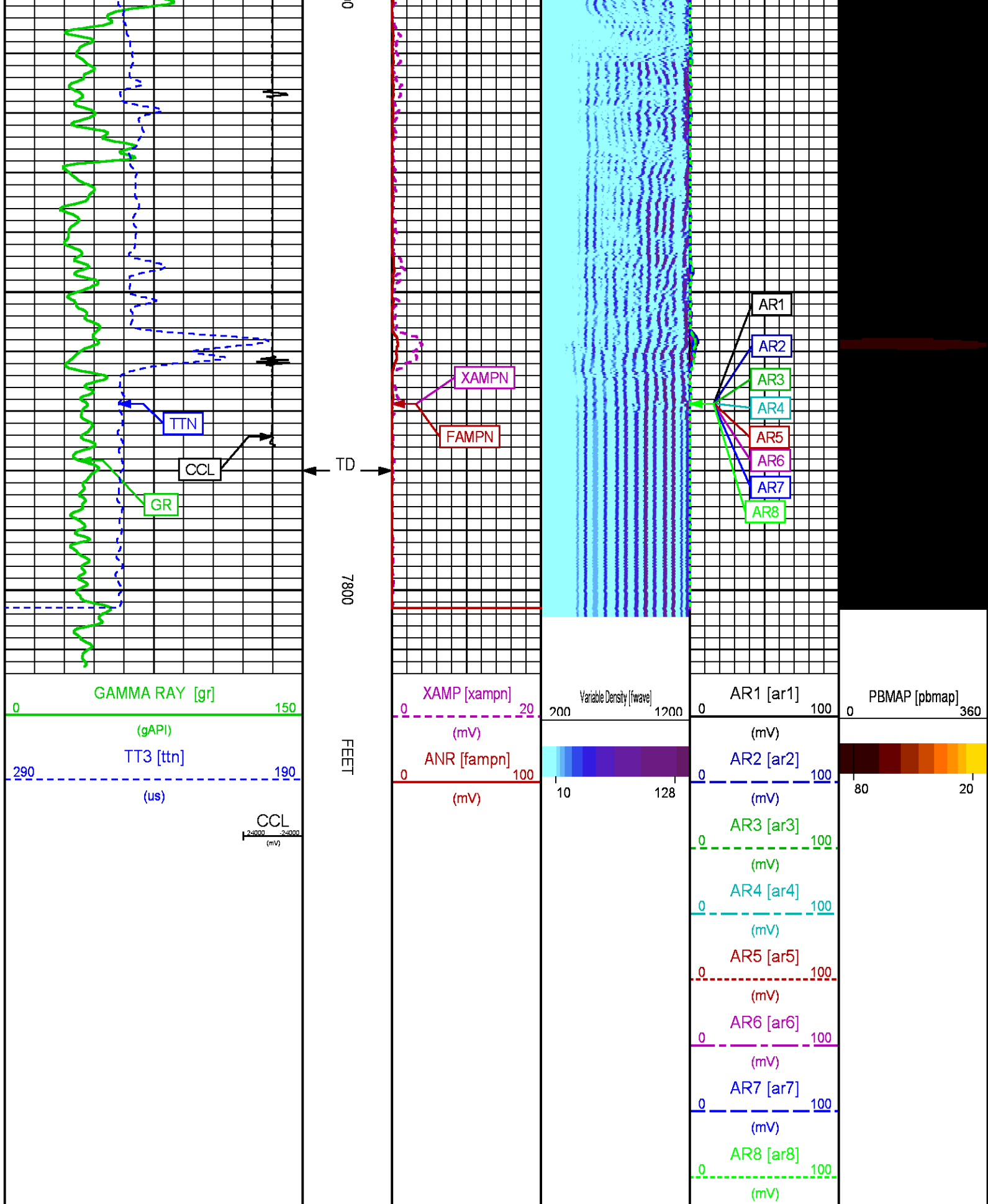












# REPEAT PASS 0 PSI

ECLIPS 7.0w PC-ECLIPS General Release Rel 7.0w Fri Jun 09 11:02:06 Central Daylight Time 2017  
Patches: 1

Plotted: Sat Oct 28 09:12:30 2017

## PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\dat1a\BRUTON\_19\_03W\p012g01.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 7445.500 ft BOTTOM DEPTH: 7788.750 ft

### SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ( )	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ( )	light (2a)		"	"
TRAVEL TIME	FILTER ( )	medium (1)		"	"

### RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0.00		TOP	BOTTOM

### ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	185	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	185	us	"	"
	AMP WINDOW START (fgp3*)	185	us	"	"
	AMP WINDOW START (fgp4*)	185	us	"	"
	AMP WINDOW START (fgp5*)	185	us	"	"
	AMP WINDOW START (fgp6*)	185	us	"	"
	AMP WINDOW START (fgp7*)	185	us	"	"
	AMP WINDOW START (fgp8*)	185	us	"	"
	AMP WINDOW START (fgpn*)	185	us	"	"
	AMP WINDOW LENGTH	30	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	TOP	7594.500
		3	mV	7594.500	7595.000
		2	mV	7595.000	7607.250
		3	mV	7607.250	7609.750
		4	mV	7609.750	7611.000
		5	mV	7611.000	7611.250
		6	mV	7611.250	7611.500
		7	mV	7611.500	7611.750
		9	mV	7611.750	7612.000
		10	mV	7612.000	7612.250
		11	mV	7612.250	7612.500
		12	mV	7612.500	7612.750
		13	mV	7612.750	7613.000
		14	mV	7613.000	7614.750
		4	mV	7614.750	BOTTOM
RAL CASING PARAMETERS	PPT NEAR	200.391	us	TOP	BOTTOM
RAL TOOL DELAY	TOOL DELAY (str1*)	-65	us	"	"
	TOOL DELAY (str2*)	-65	us	"	"
	TOOL DELAY (str3*)	-65	us	"	"
	TOOL DELAY (str4*)	-65	us	"	"
	TOOL DELAY (str5*)	-65	us	"	"
	TOOL DELAY (str6*)	-65	us	"	"
	TOOL DELAY (str7*)	-65	us	"	"
	TOOL DELAY (str8*)	-65	us	"	"
	TOOL DELAY (strn*)	-65	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

### PERCENT BOND CEMENT MAP

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"

	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE AMP REC 5	80	mV	"	"
	FREE AMP REC 6	80	mV	"	"
	FREE AMP REC 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	2	mV	"	"
	FULL BOND AMP REC 2	2	mV	"	"
	FULL BOND AMP REC 3	2	mV	"	"
	FULL BOND AMP REC 4	2	mV	"	"
	FULL BOND AMP REC 5	2	mV	"	"
	FULL BOND AMP REC 6	2	mV	"	"
	FULL BOND AMP REC 7	2	mV	"	"
	FULL BOND AMP REC 8	2	mV	"	"

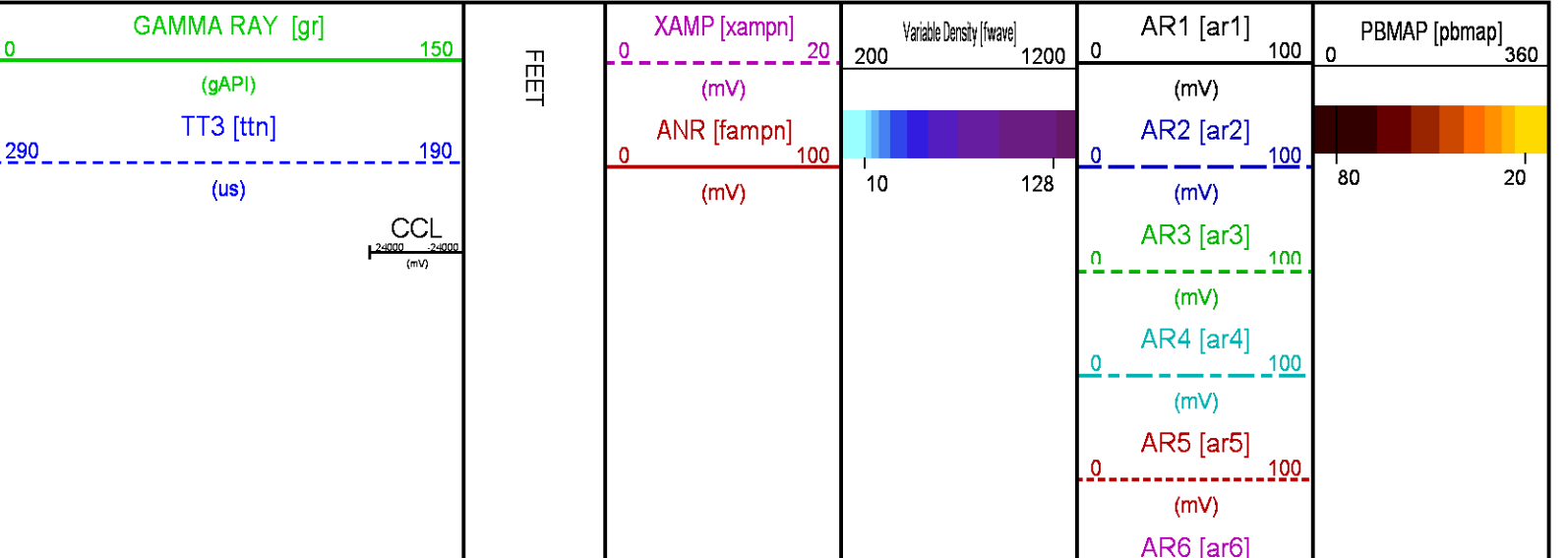
### CURVE DESCRIPTION REPORT

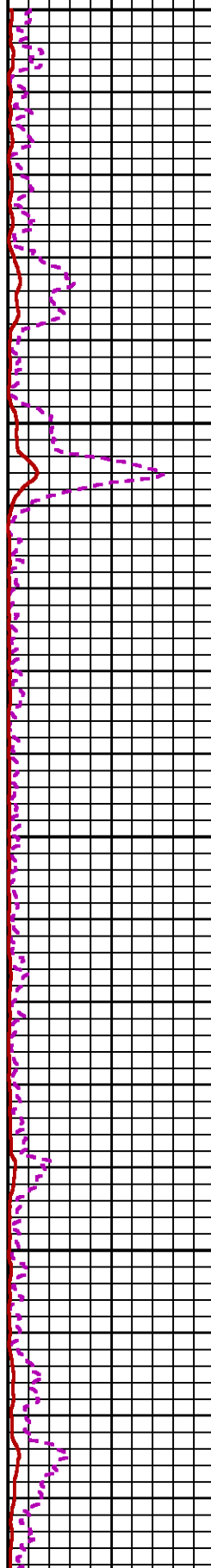
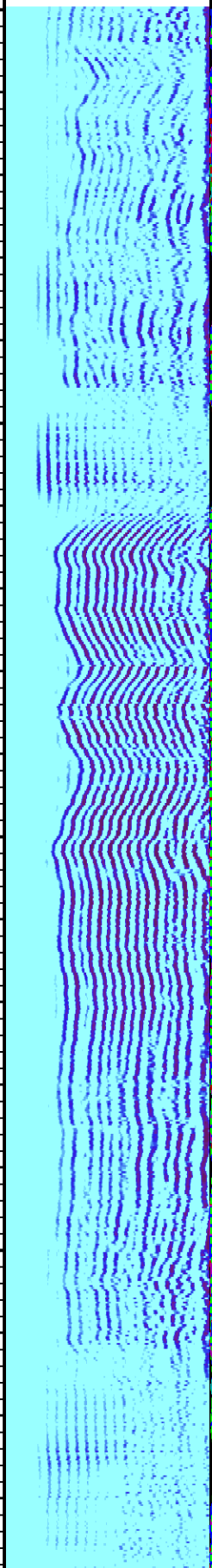
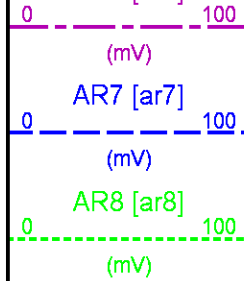
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
F1:AR8	N/A	FIXED GATE AMPLITUDE T-R8
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:FAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	N/A	FAR WAVE FORM
F1:GR	N/A	GAMMA RAY
F1:PBMAP	N/A	PERCENT BOND CEMENT MAP
F1:TTN	N/A	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

### CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

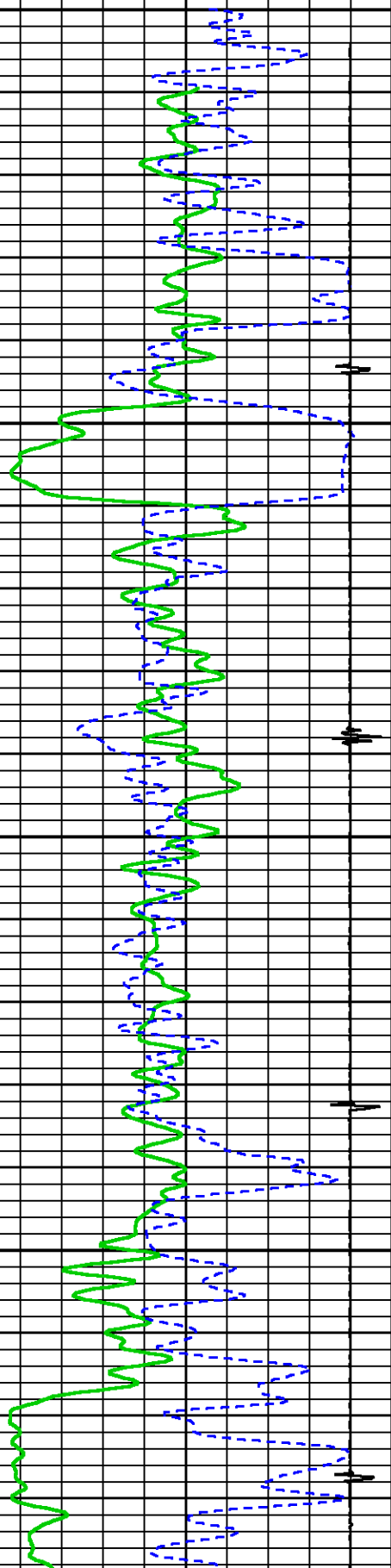
Presentation	: BHI78FR4H2:C:\dat1a\BRUTON_19_03W\BRUTON_19_03W_RAL_RPT.fvpdf [5"/100' Scale]
Plot Interval	: 7449.75 - 7802.5 Feet
Data File 1	: F1 : BHI78FR4H2:C:\dat1a\BRUTON_19_03W\BRUTON_19_03W_RAL_RPT.txtf
Created On	: N/A
Company	: LARAMIE ENERGY II LLC
Well	: BRUTON 19-03W
Field	: VEGA
File Interval	: 7445 - 7803.75 Feet
OCT	: p012g

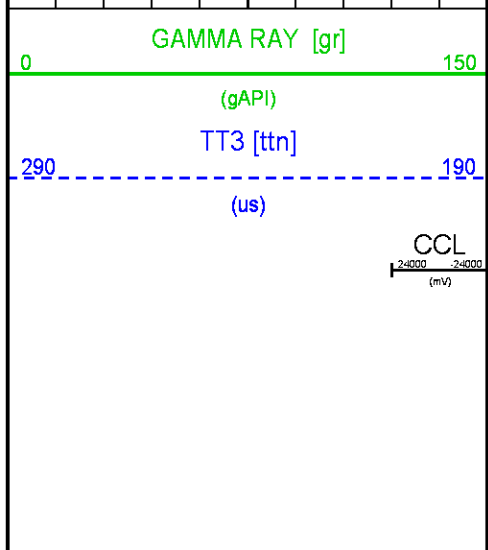
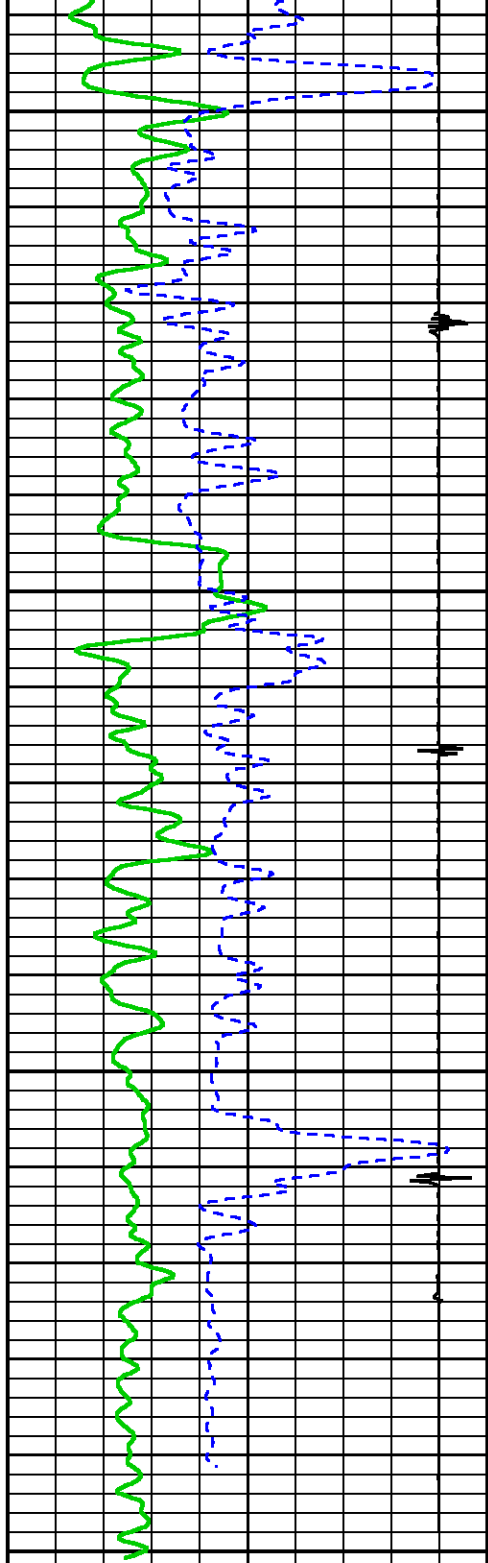




7500

7600

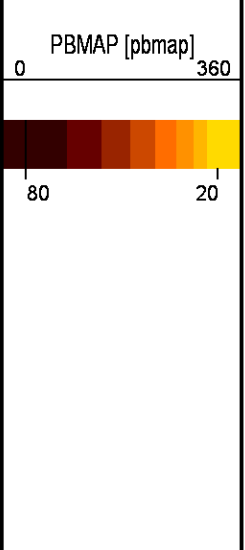
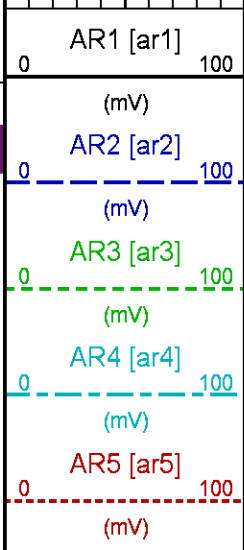
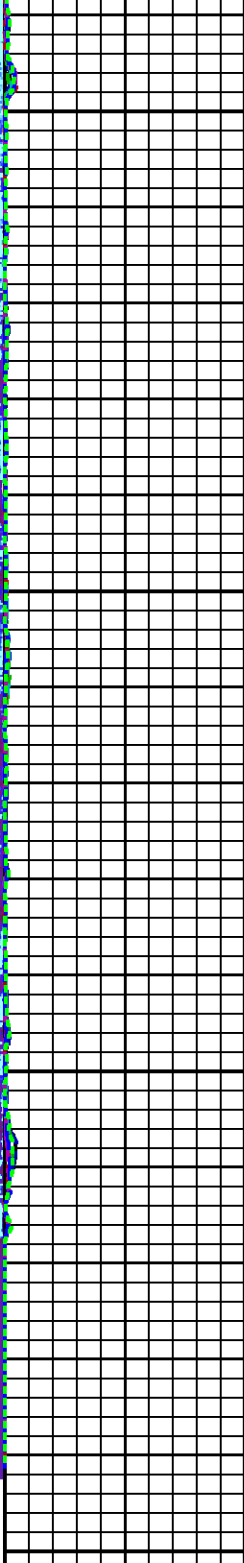
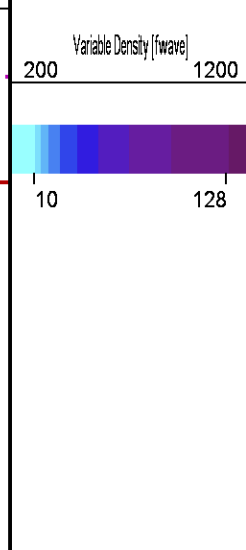
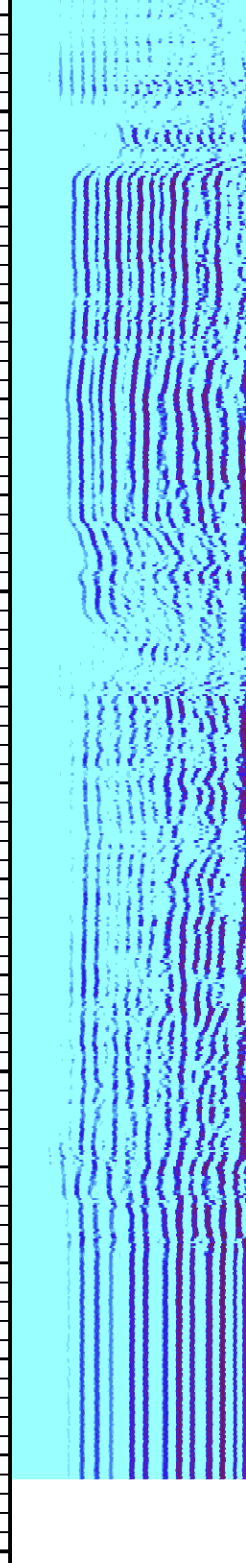
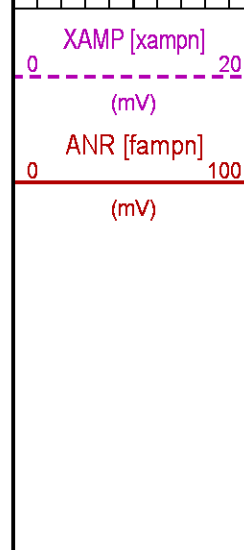
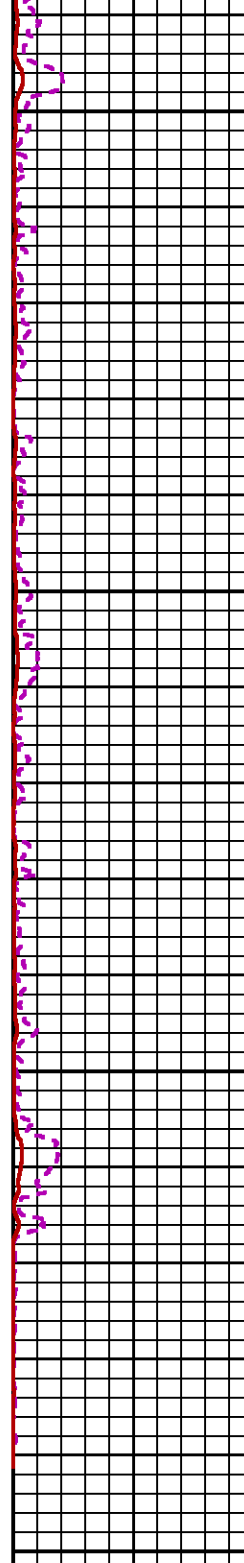


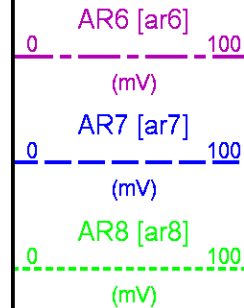


7700

7800

FEET





## CALIBRATION / VERIFICATION SUMMARY

Source File: C:\dat1a\BRUTON\_19\_03Wp012g.tp1

### RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10404539

DATE/TIME PERFORMED: Fri Oct 27 16:50:17 2017

UNIT #: CHANGE ME

	NEAR	RADIAL	FAR
	(mV)	(mV)	(mV)
TARGETS	100.00	100.00	150.00

	NEAR	R1	R2	R3	R4	R5	R6	R7	R8	FAR	CAL
ZERO (mV)	-0.28	-0.28	-0.33	-0.30	-0.29	-0.51	-0.31	-0.25	-0.33	-0.48	-0.01
AMP FLUID (mV)	94	94	93	92	92	95	94	94	94	129	91
TT (us)	200	201	201	200	200	199	199	199	201	316	202
M FACTOR	1.06	1.07	1.07	1.08	1.08	1.05	1.06	1.06	1.06	1.16	1.09

### RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA 10404539

DATE/TIME PERFORMED: Fri Oct 27 16:51:12 2017

DAYS SINCE CAL: 0

UNIT #: CHANGE ME

CABLE #: HL6670 6670SL

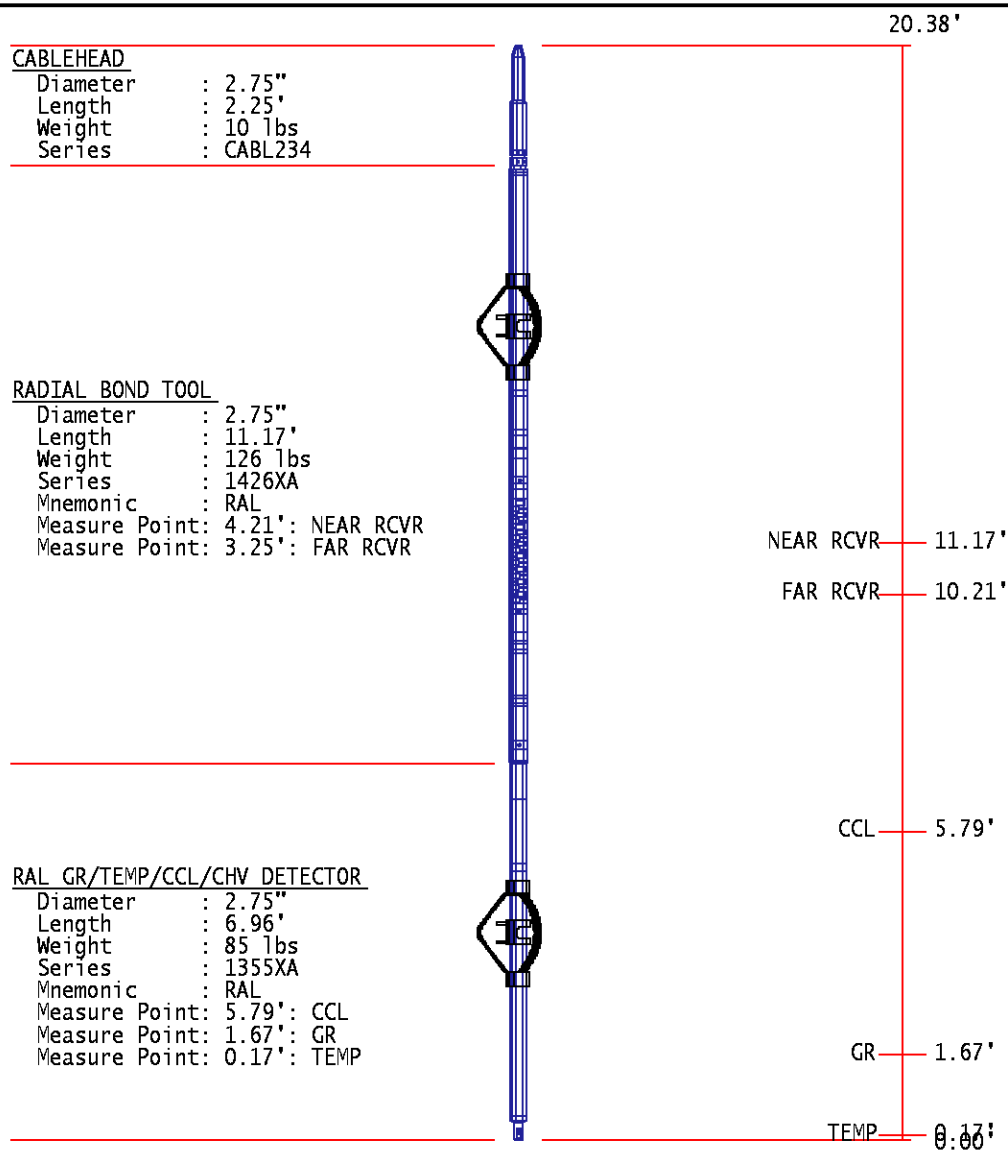
	NEAR	R1	R2	R3	R4	R5	R6	R7	R8	FAR	CAL
	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)
ZERO	-0.21	-0.33	-0.23	-0.34	-0.33	-0.51	-0.28	-0.36	-0.32	-0.34	-0.01
AMP AIR	0.65	0.62	0.73	0.71	0.65	0.67	0.80	0.88	0.61	0.75	99.91



SHOP	SHOP	WIRELINE
M FACTOR	A FACTOR	FACTOR
1.09	0.00	1.00

## INSTRUMENT CONFIGURATION

Source File: C:\dat1a\BRUTON\_19\_03\WAL-tdg.meta



TOTAL LENGTH: 20.38'  
TOTAL WEIGHT: 235 lbs  
MAX DIAMETER: 0'4.00"

**BAKER  
HUGHES**  
a GE company



**COMPANY** LARAMIE ENERGY

**WELL** BRUTON 19-03W

**FIELD** VEGA

**COUNTY** MESA **STATE** COLORADO

**FILE NO:**

**API NO:**

05077104320000

**LOCATION:**

SHL: LAT:39.262847N;LONG:107.815145W

BHL: LAT:39.267838N;LONG:107.816209W

SEC 19 TWP 9S RGE 93W

**ELEVATIONS:**

KB 7286 FT

DF 7286 FT

GL 7262 FT

**DATE** 27-OCT-2017

