



# RADIAL CEMENT BOND LOG

FILE NO:

COMPANY

LARAMIE ENERGY

WELL

BRUTON 19-04E

API NO:

FIELD

VEGA

05077104280000

COUNTY

MESA

STATE COLORADO

Version

LOCATION:

SHL: LAT:39.262830N; LONG:107.815107W

BHL: LAT:39.267147N; LONG:107.806900W  
SEC 19 TWP 9S RGE 93W

OTHER SERVICES

RPM

PERMANENT DATUM

GL

ELEVATION

7262 FT

LOG MEASURED FROM

KB

24 FT

ABOVE P.D.

DRILL. MEAS. FROM

KB

ELEVATIONS:

KB 7286 FT

DF 7286 FT

GL 7262 FT

DATE

26-OCT-2017

RUN

TRIP

1

1

SERVICE ORDER

US128845

DEPTH DRILLER

8410 FT

DEPTH LOGGER

8218 FT

BOTTOM LOGGED INTERVAL

8218 FT

TOP LOGGED INTERVAL

24 FT

TIME STARTED

09:30

TIME FINISHED

12:00

OPERATOR RIG TIME

2.5 HOURS

TYPE OF FLUID IN HOLE

WATER

FLUID DENSITY

NA

FLUID SALINITY

NA

FLUID LEVEL

50 FT

LOGGED CEMENT TOP

2509 FT

WELLHEAD PRESSURE

0 PSI

MAXIMUM HOLE DEVIATION

NA

NOMINAL LOGGING SPEED

100 F/MIN

MAX. RECORDED TEMP.

238 DEGF

REFERENCE LOG

NA

REFERENCE LOG DATE

NA

EQUIP. NO.

HL-6670

RECORDED BY

S.YASSA

LOCATION

WOODWARD

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: 7410' - 7432'

SJ: 6424' - 6432'

CREW: C.GOLOBY , J.PENA

## EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	10218496	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: Thu Oct 26 13:46:05 2017

## PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\dat1a\BRUTON\_19\_04\p012g02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 6.500 ft BOTTOM DEPTH: 8244.500 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*)	6	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
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 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	"	"

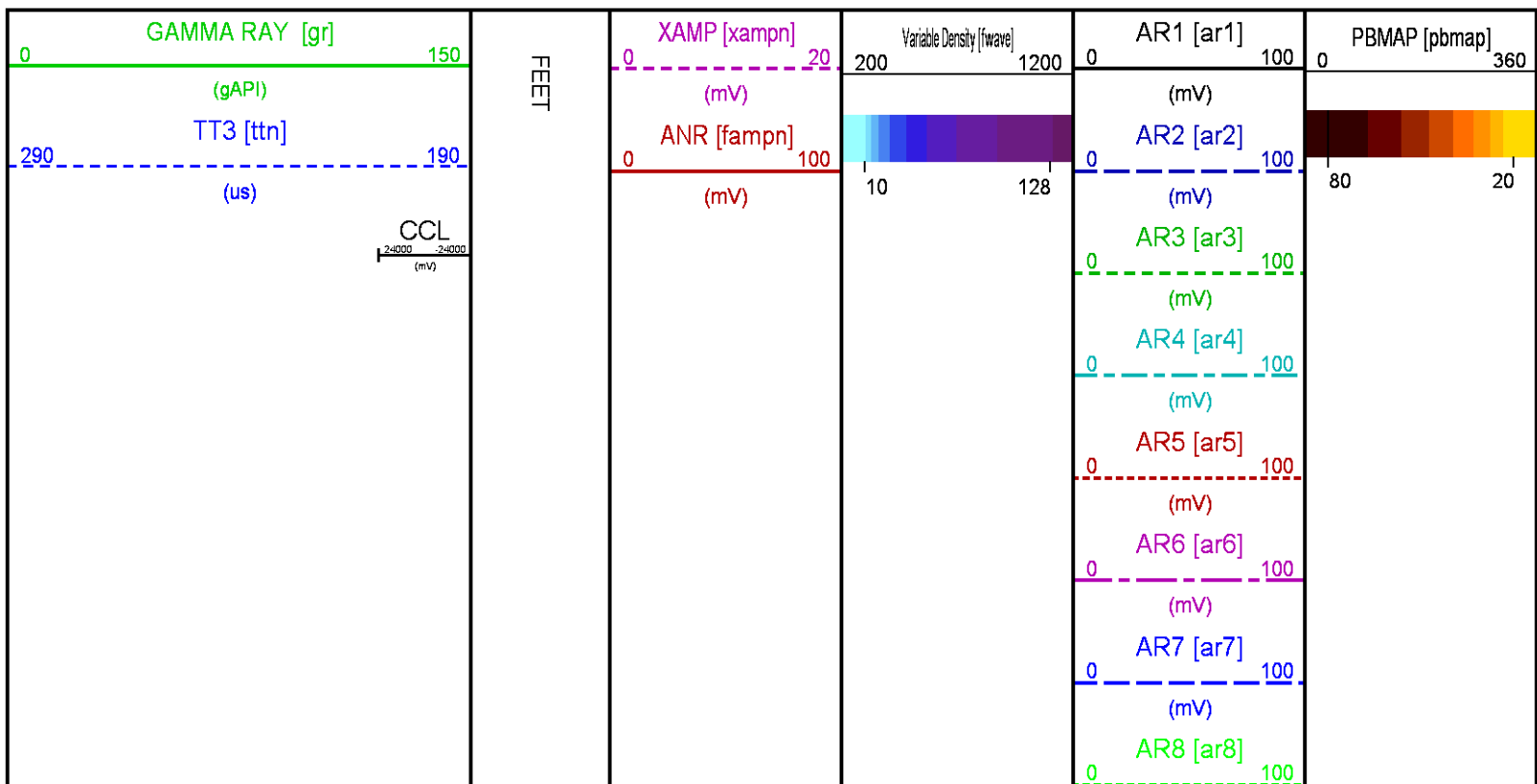
## CURVE DESCRIPTION REPORT

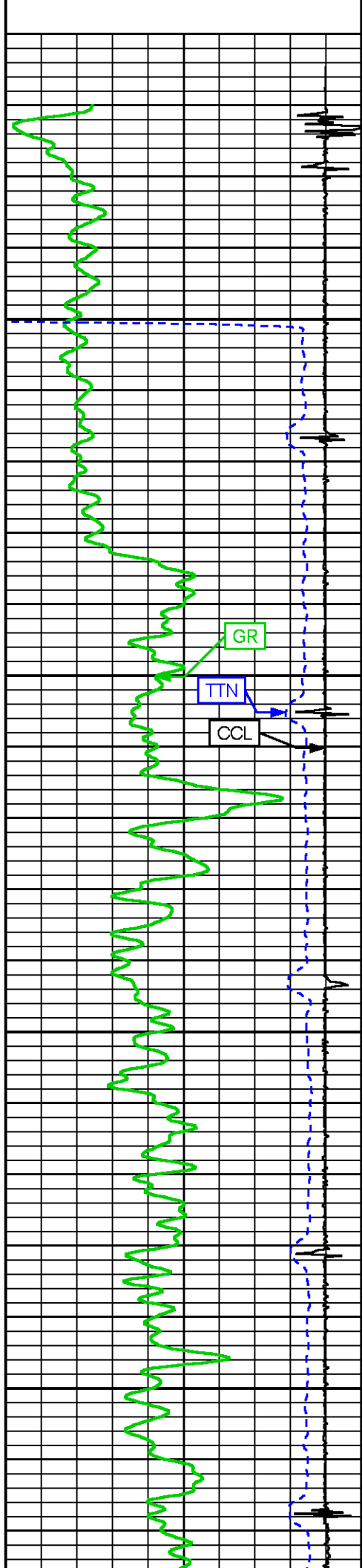
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
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		

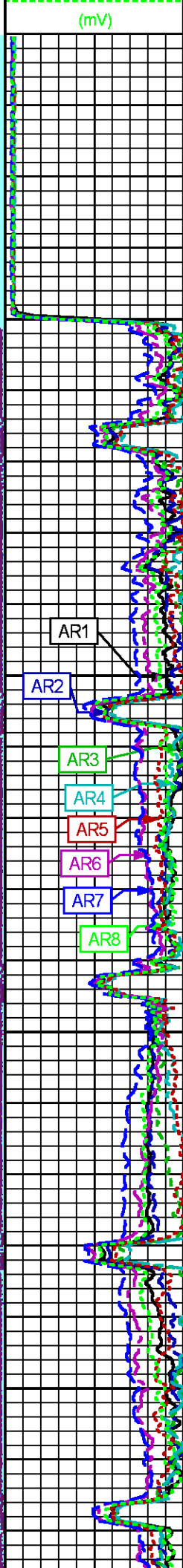
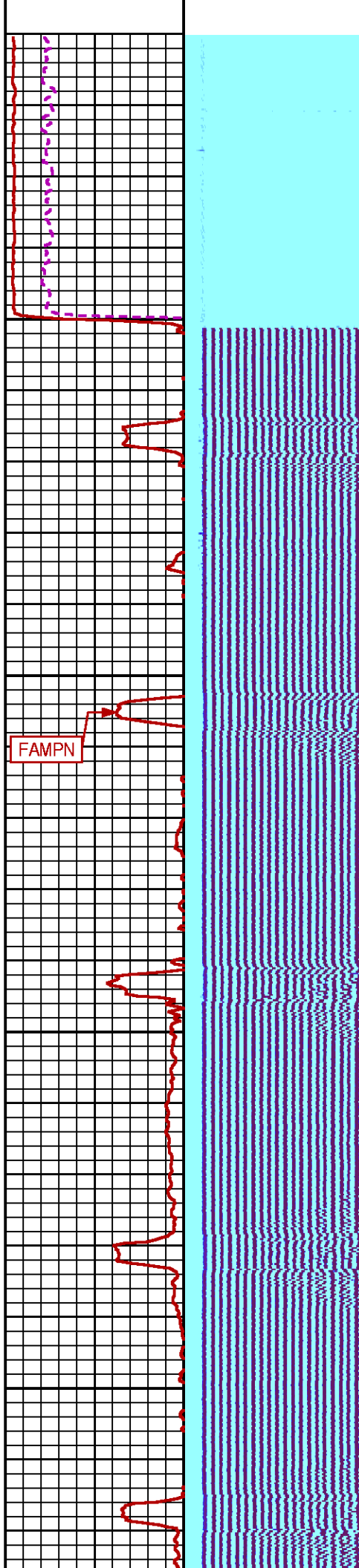
<b>Presentation</b>	: BHI78FR4H2:C:\dat1a\BRUTON_19_04E\BRUTON_19_04E_RAL_MAIN.fvpdf [5"/100' Scale]
<b>Plot Interval</b>	: 10.25 - 8257.5 Feet
<b>Data File 1</b>	: F1 : BHI78FR4H2:C:\dat1a\BRUTON_19_04E\BRUTON_19_04E_RAL_MAIN.xtf
<b>Created On</b>	: N/A
<b>Company</b>	: LARAMIE ENERGY II LLC
<b>Well</b>	: BRUTON 19-04E
<b>Field</b>	: VEGA
<b>File Interval</b>	: 6.5 - 8258.75 Feet
<b>OCT</b>	: p012g

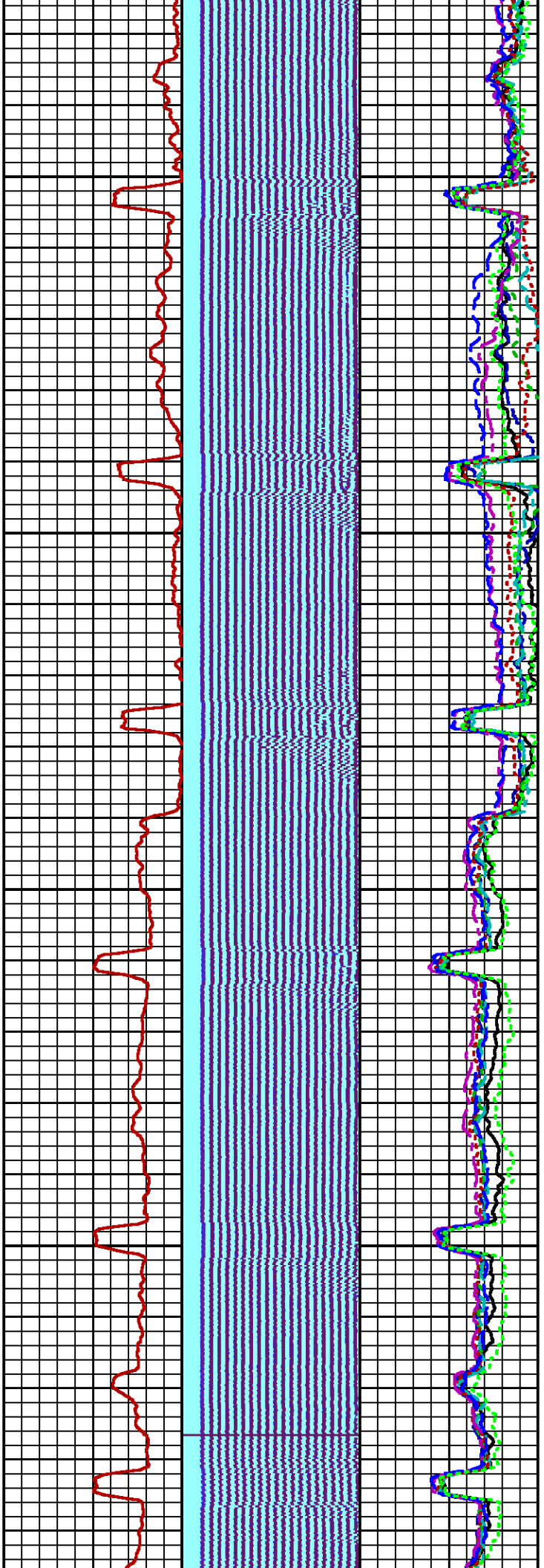




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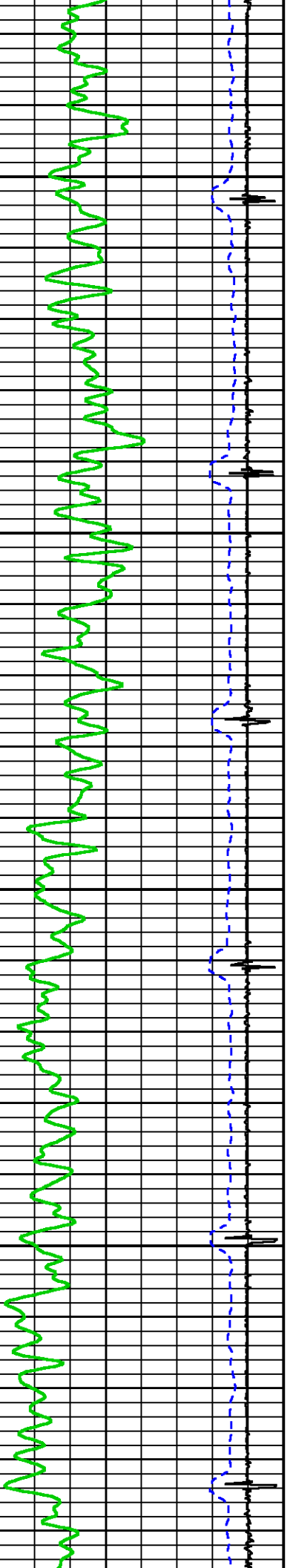
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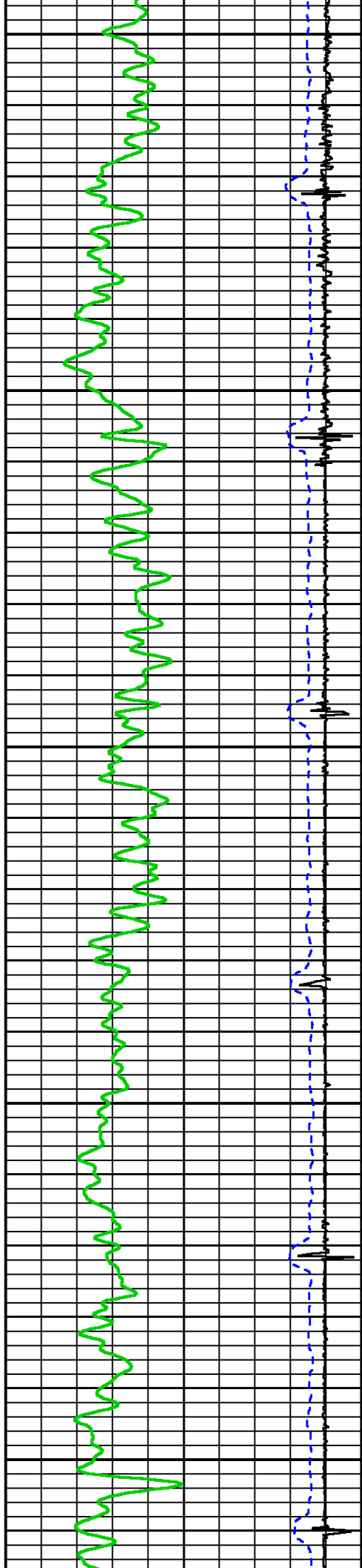




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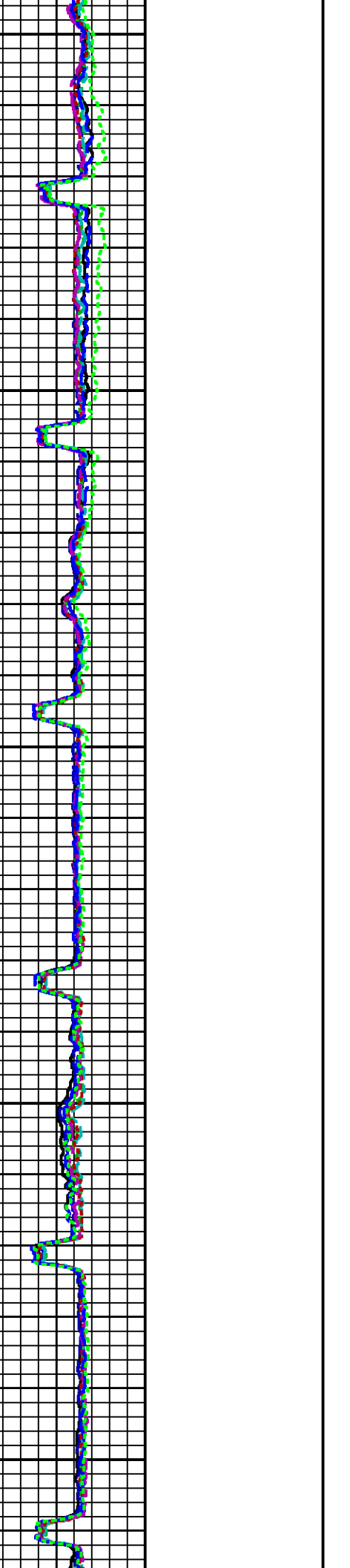
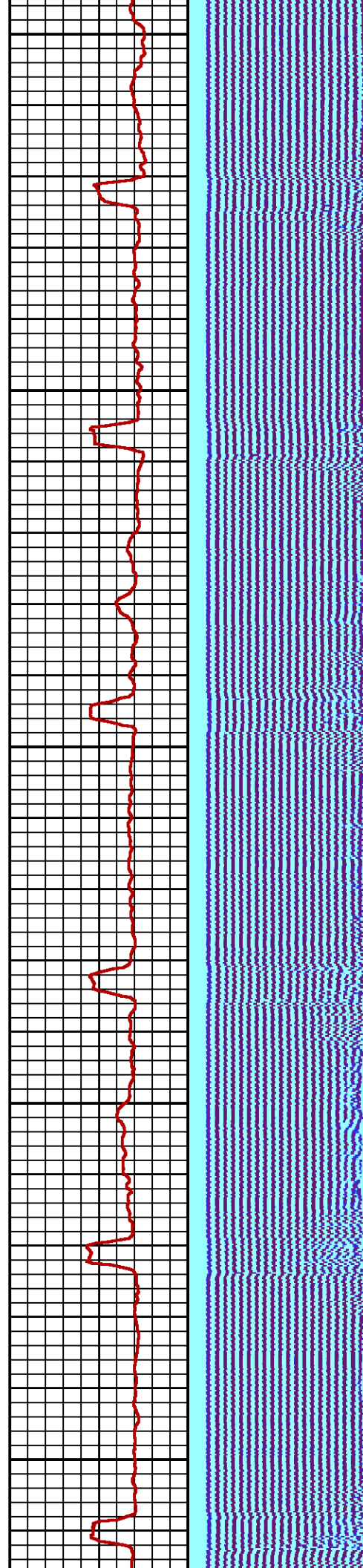
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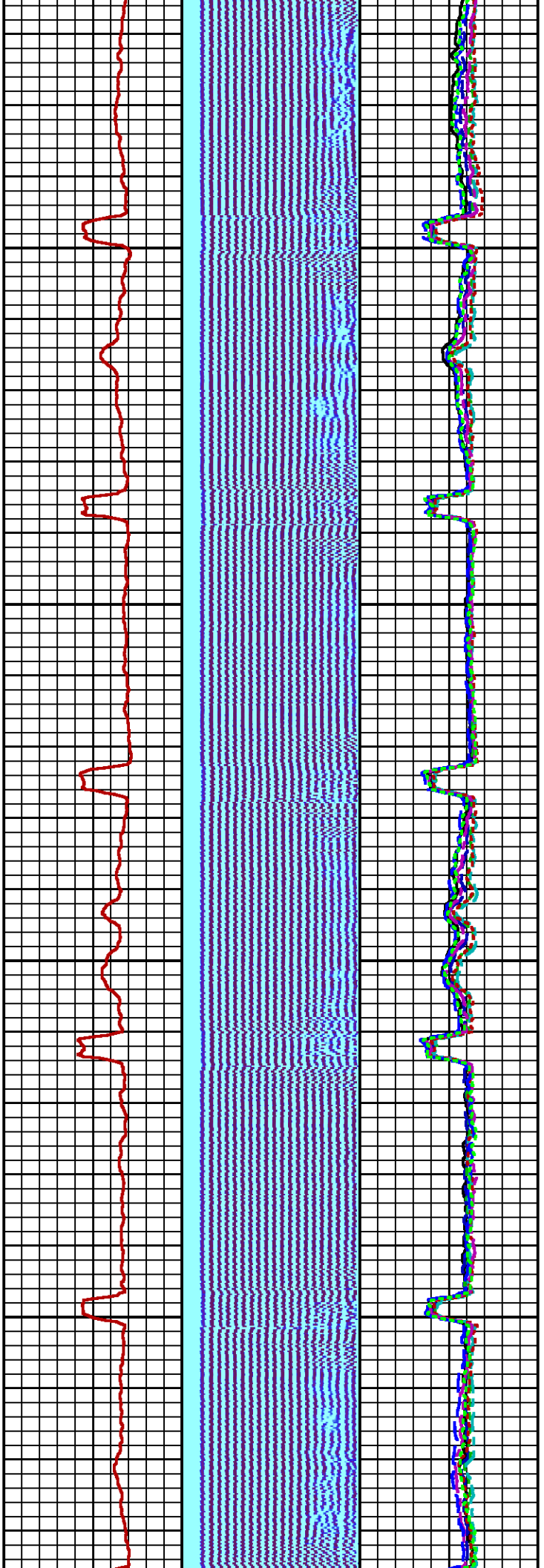


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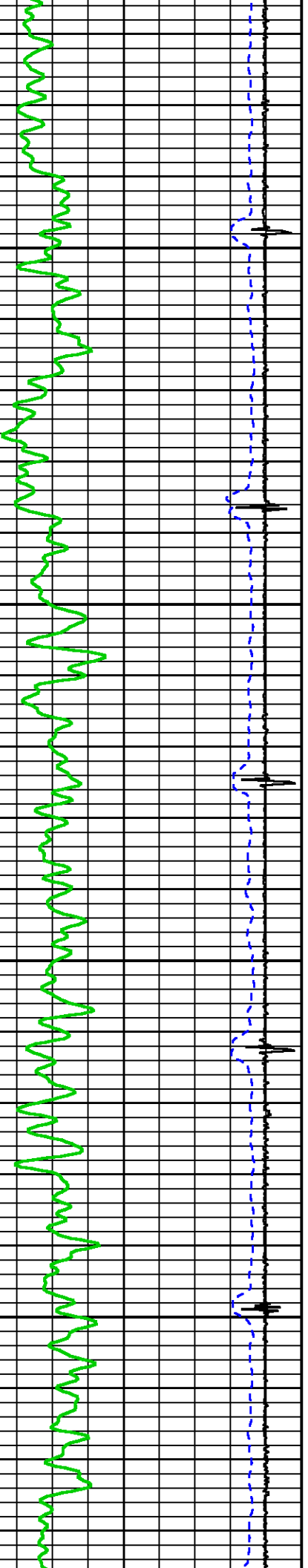


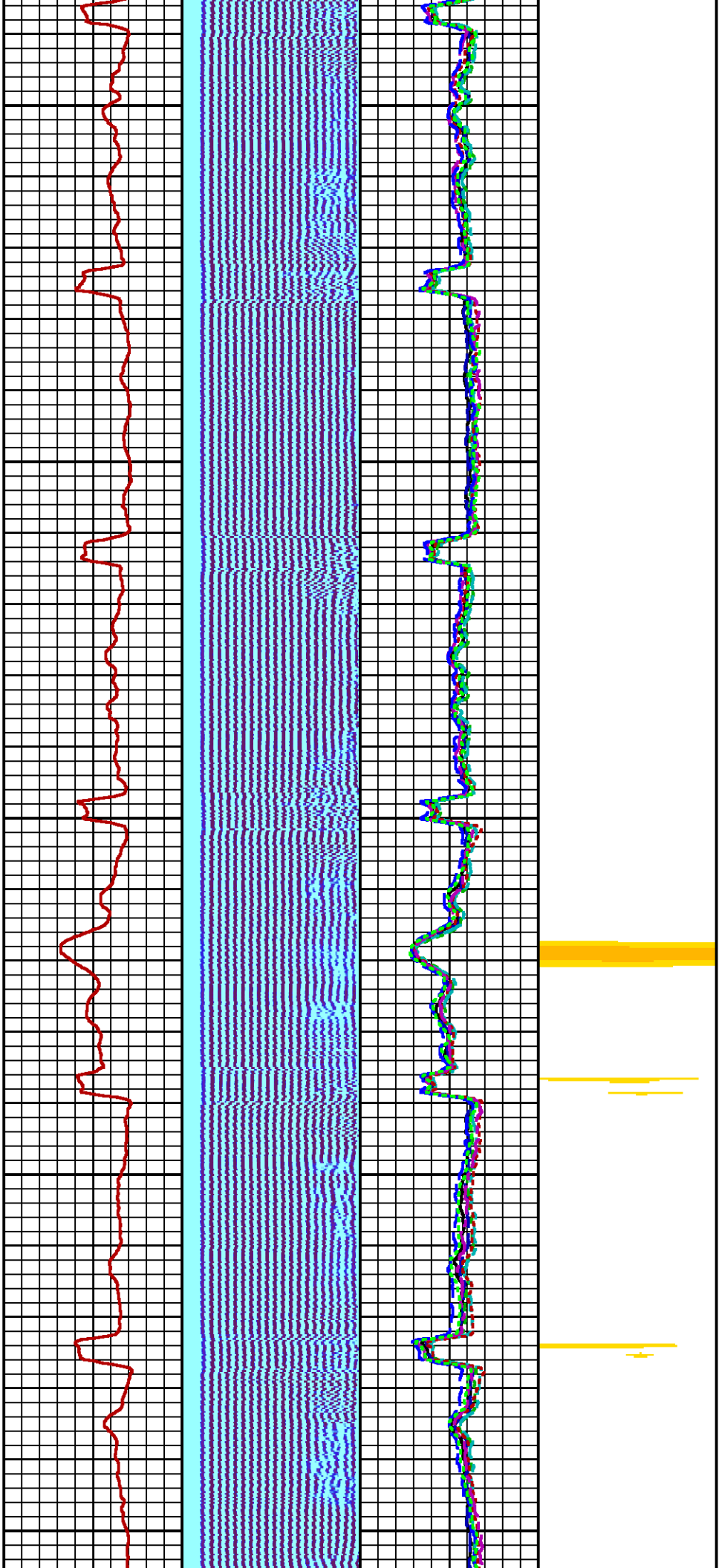




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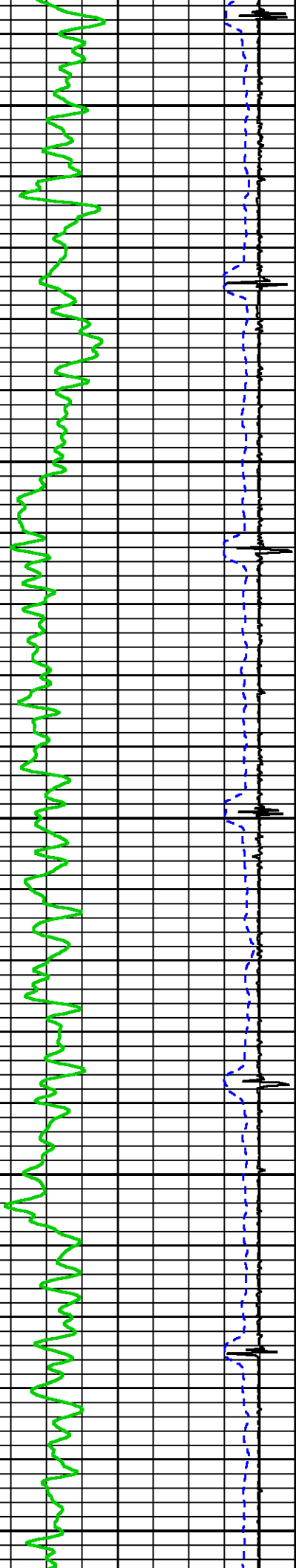




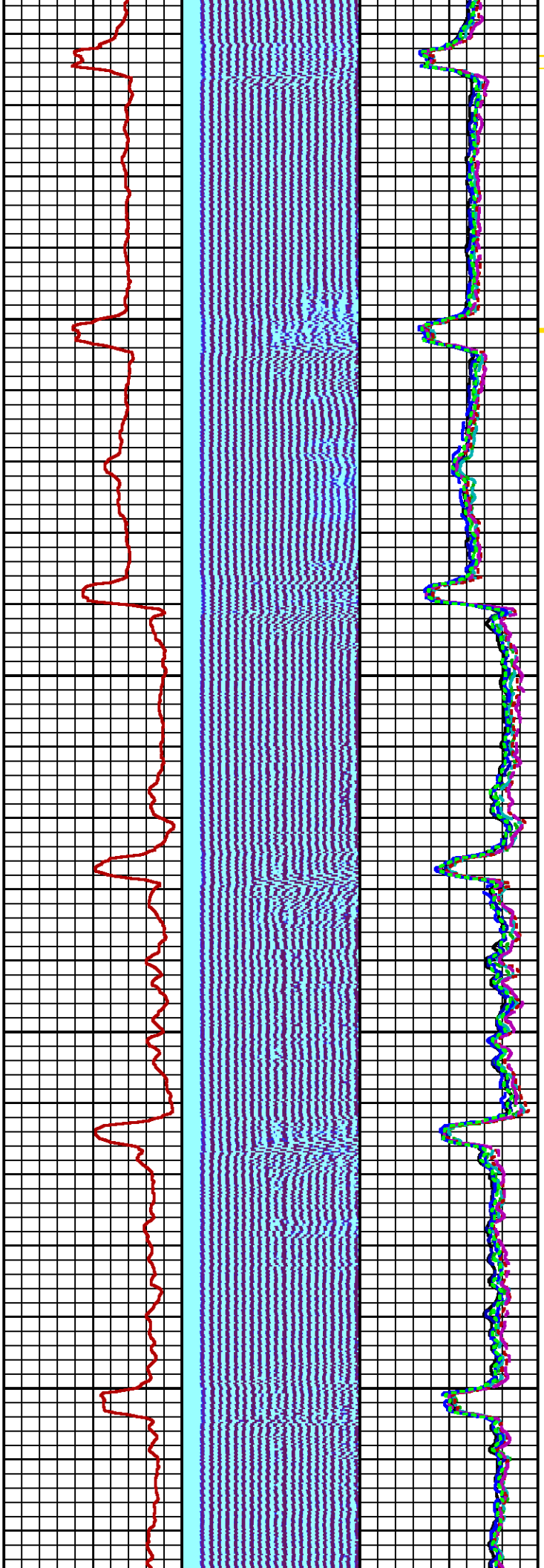
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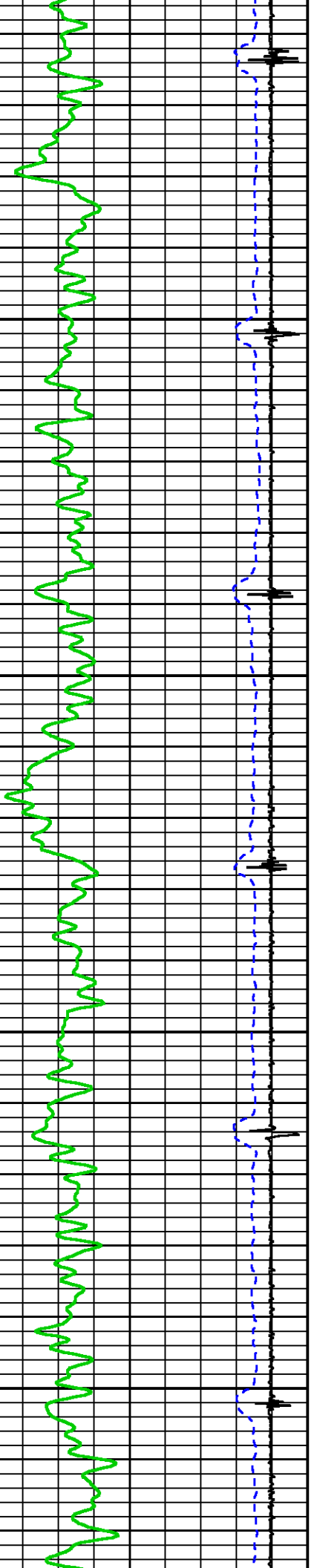


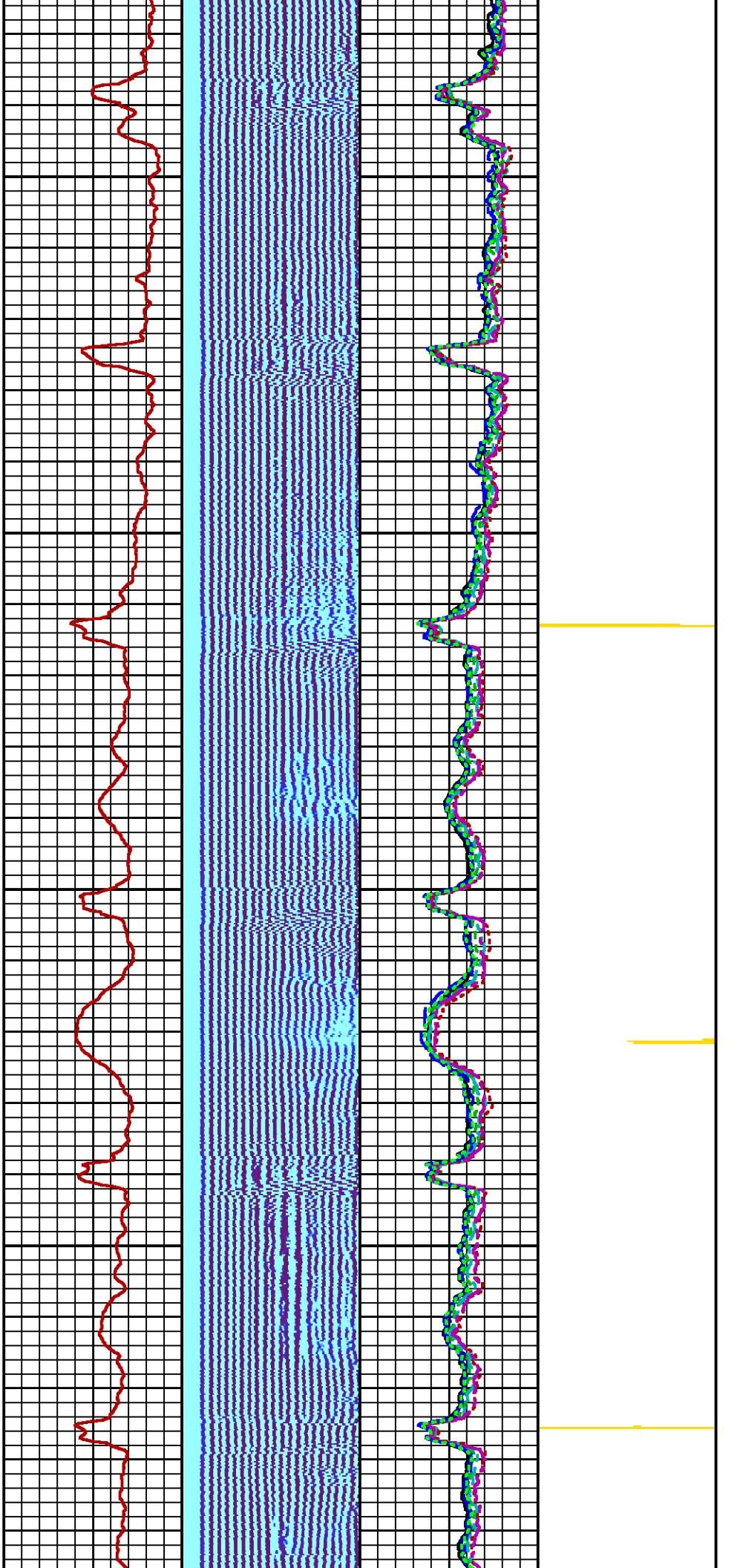




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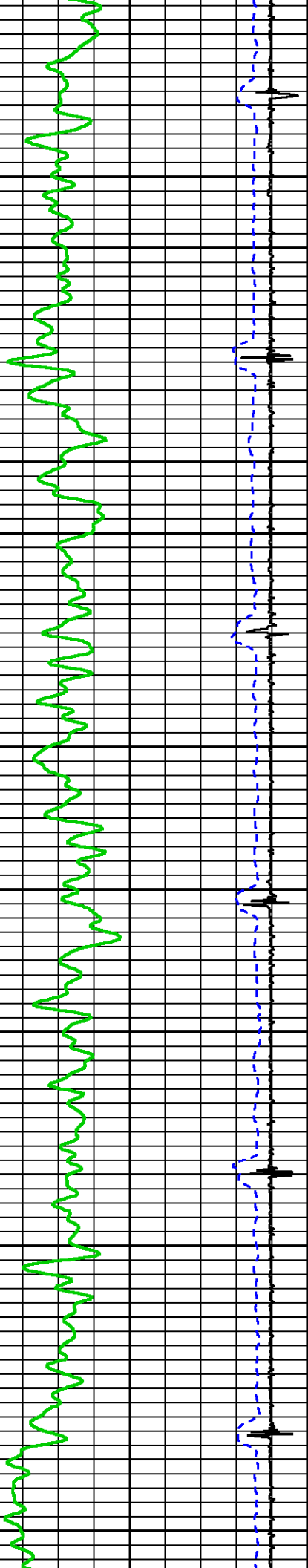
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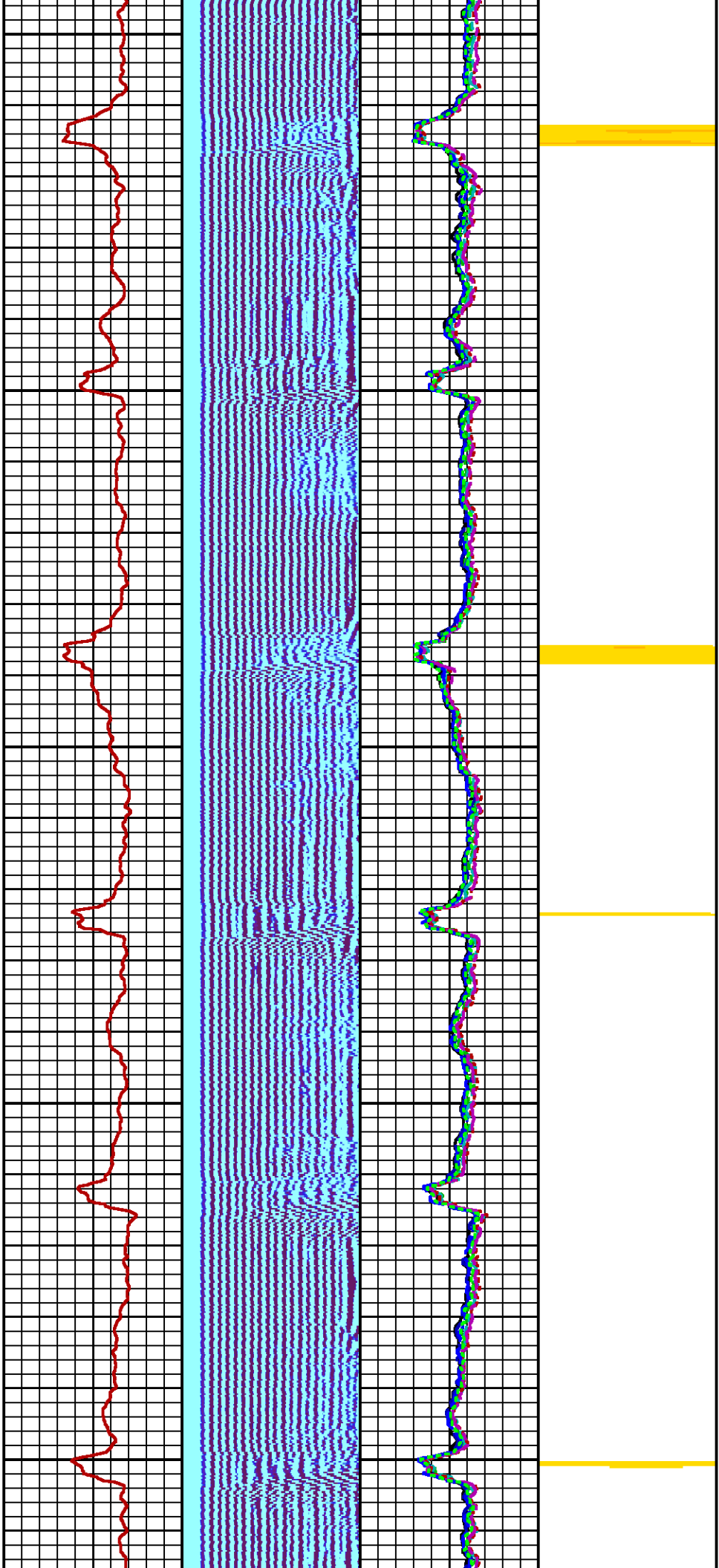




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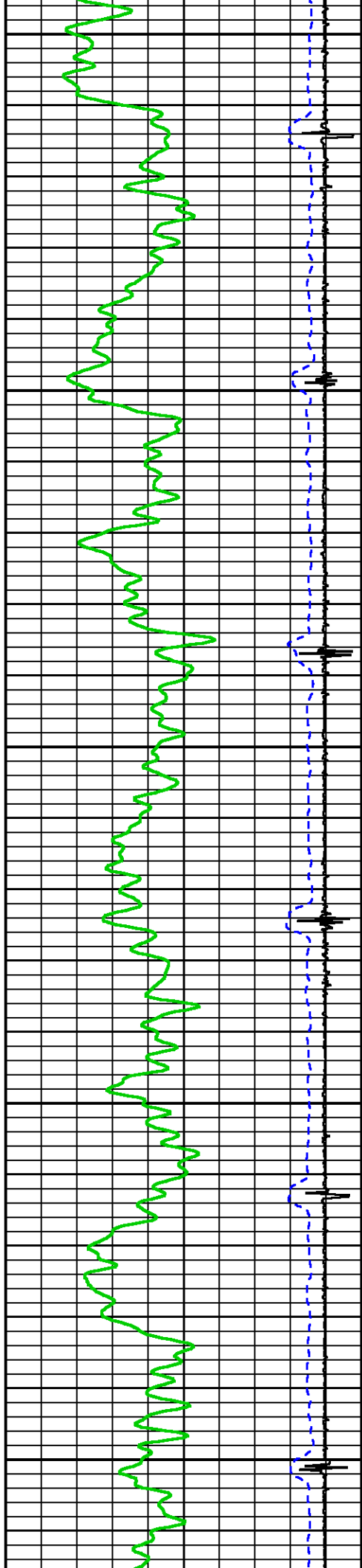
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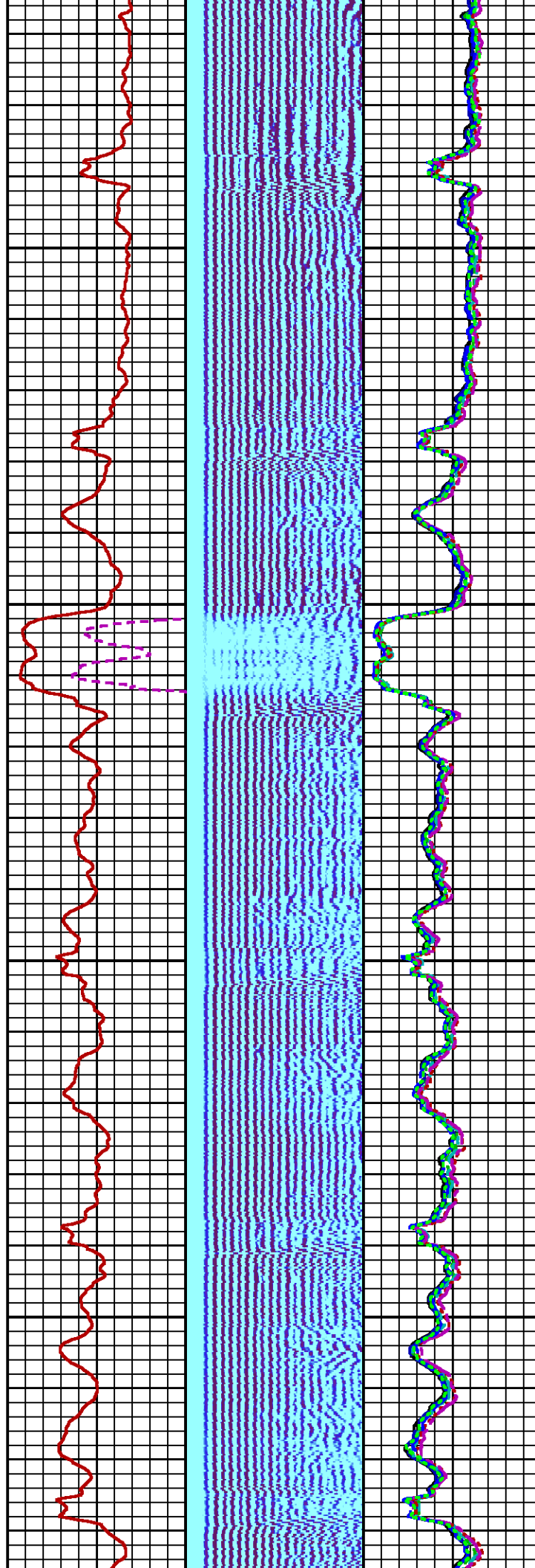




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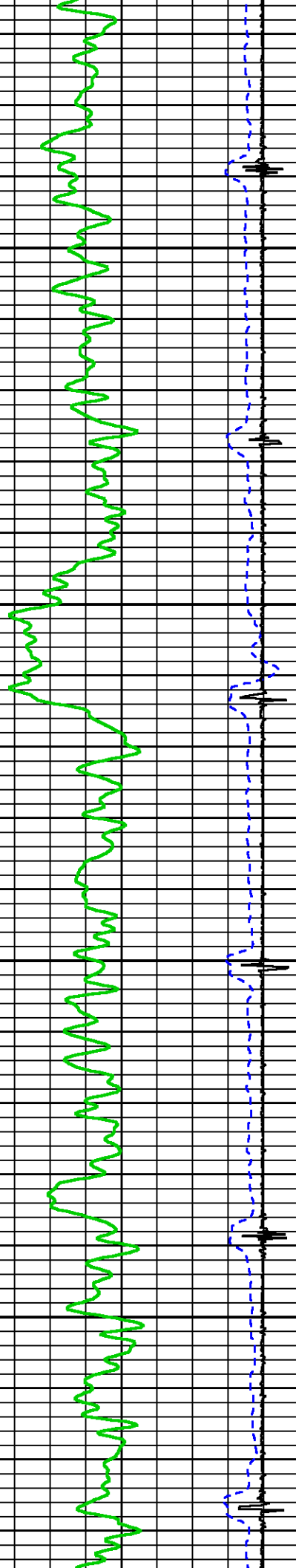
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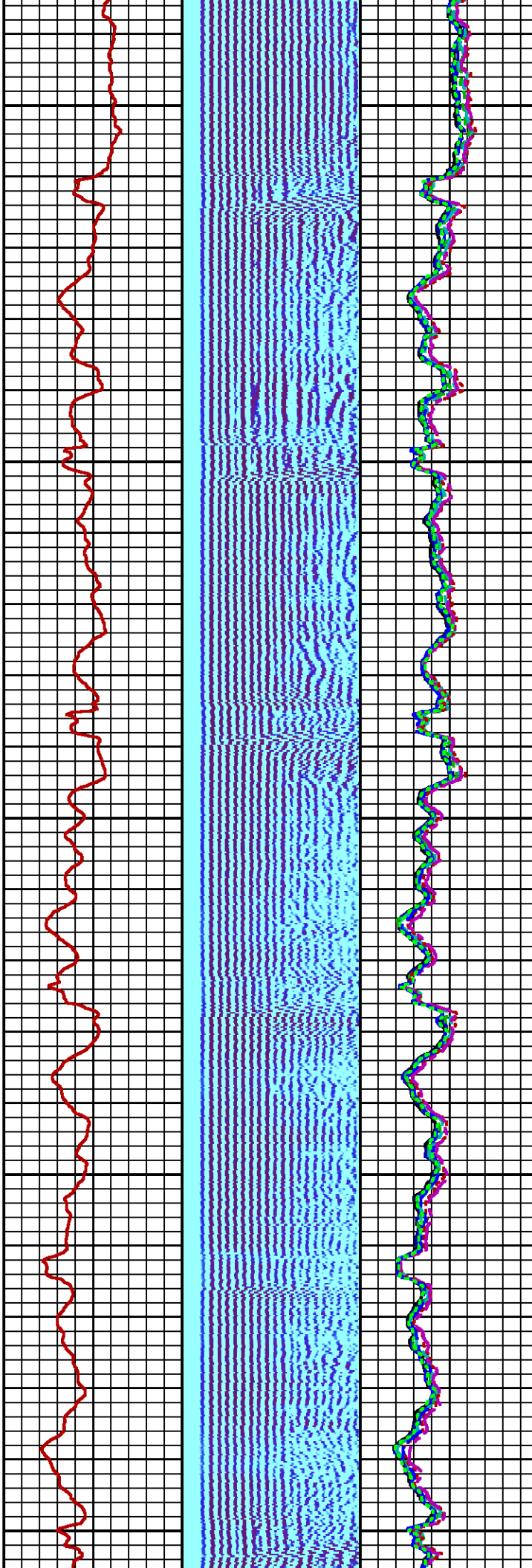


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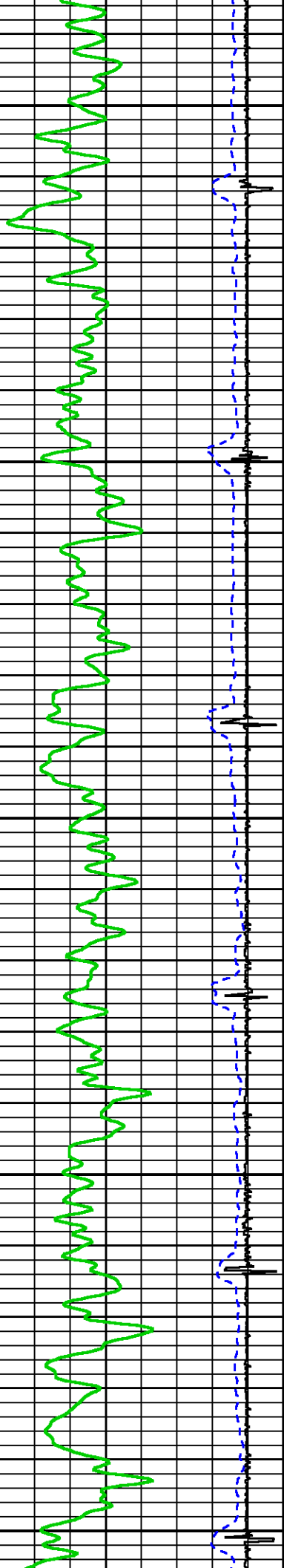




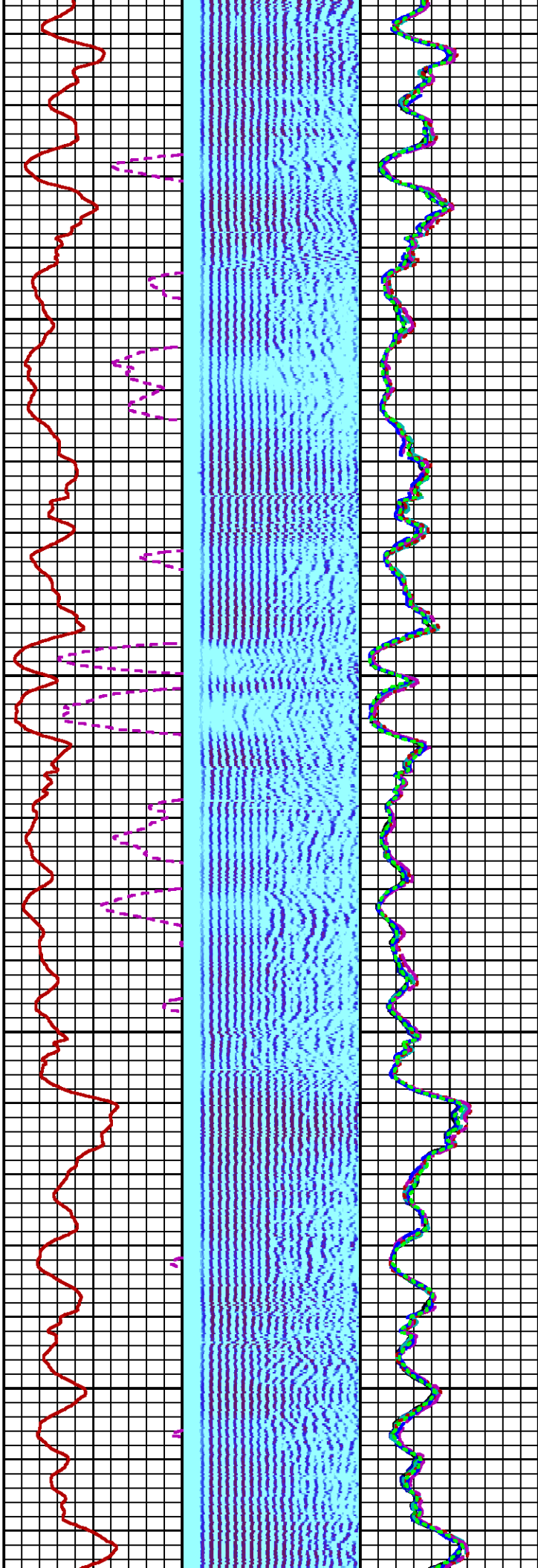
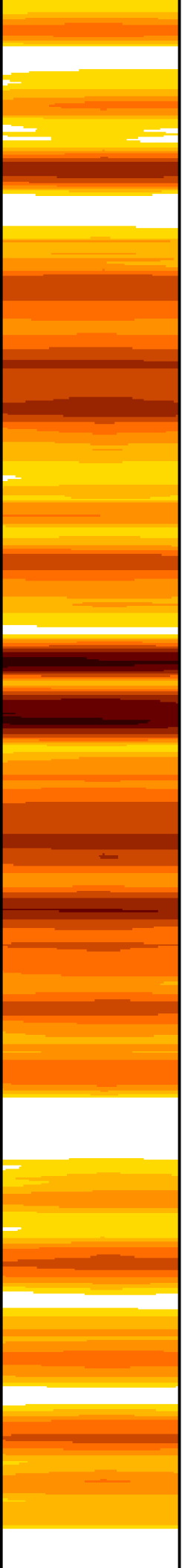
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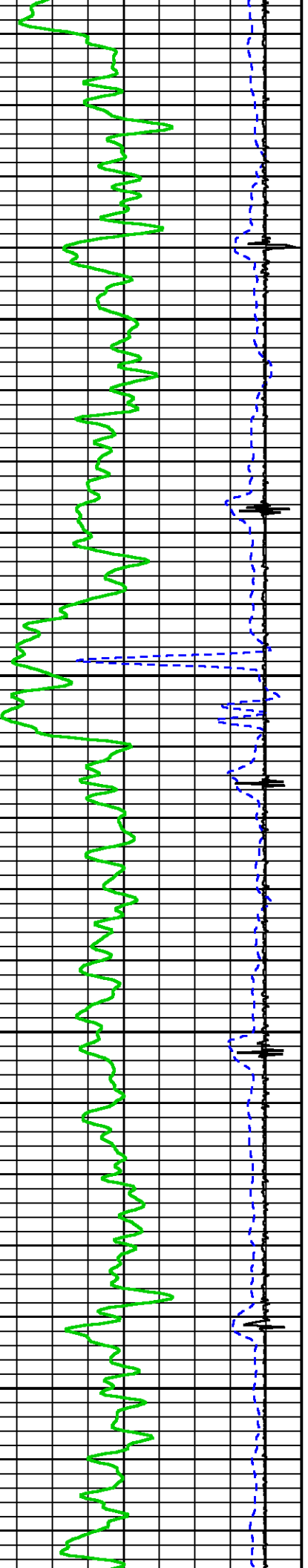


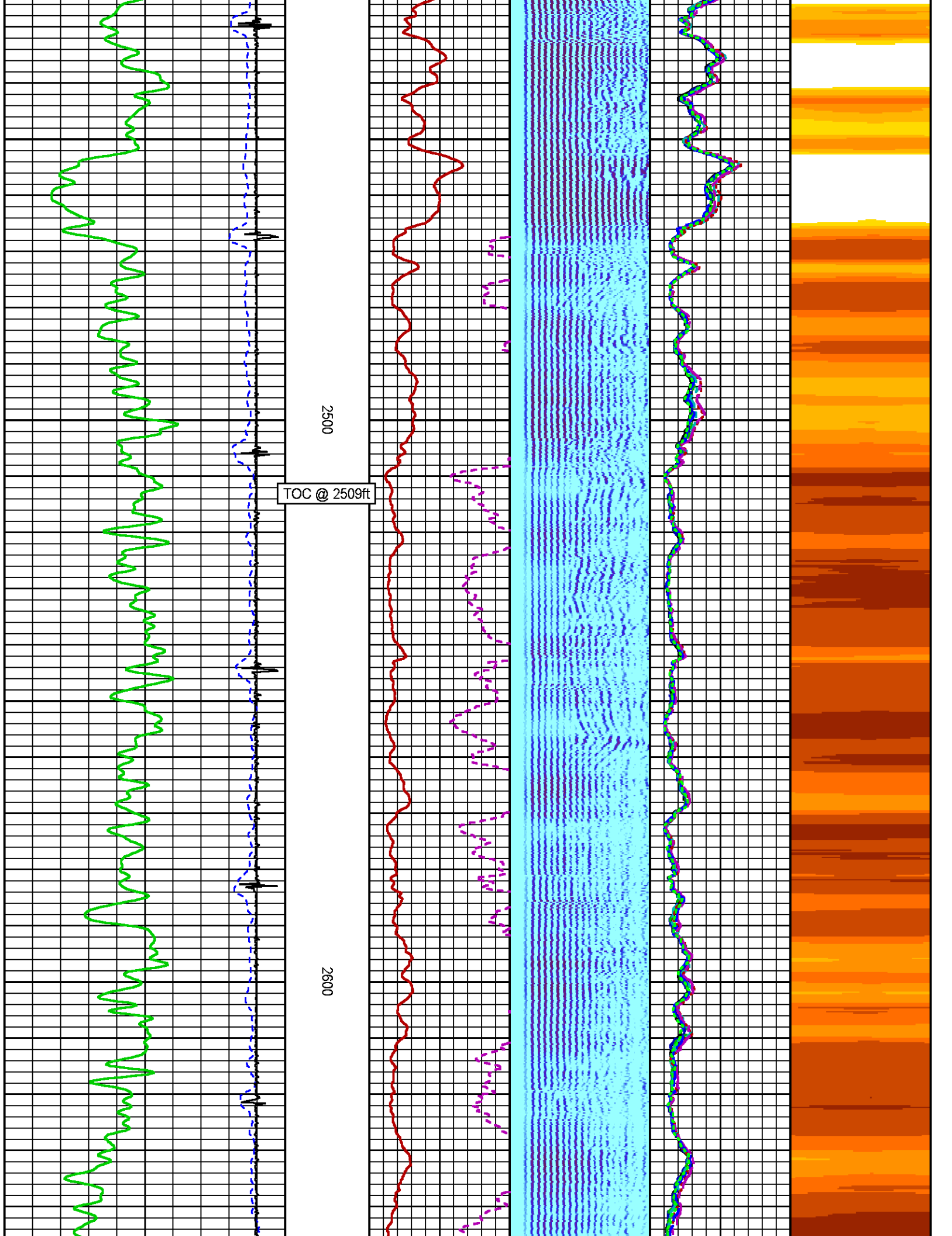


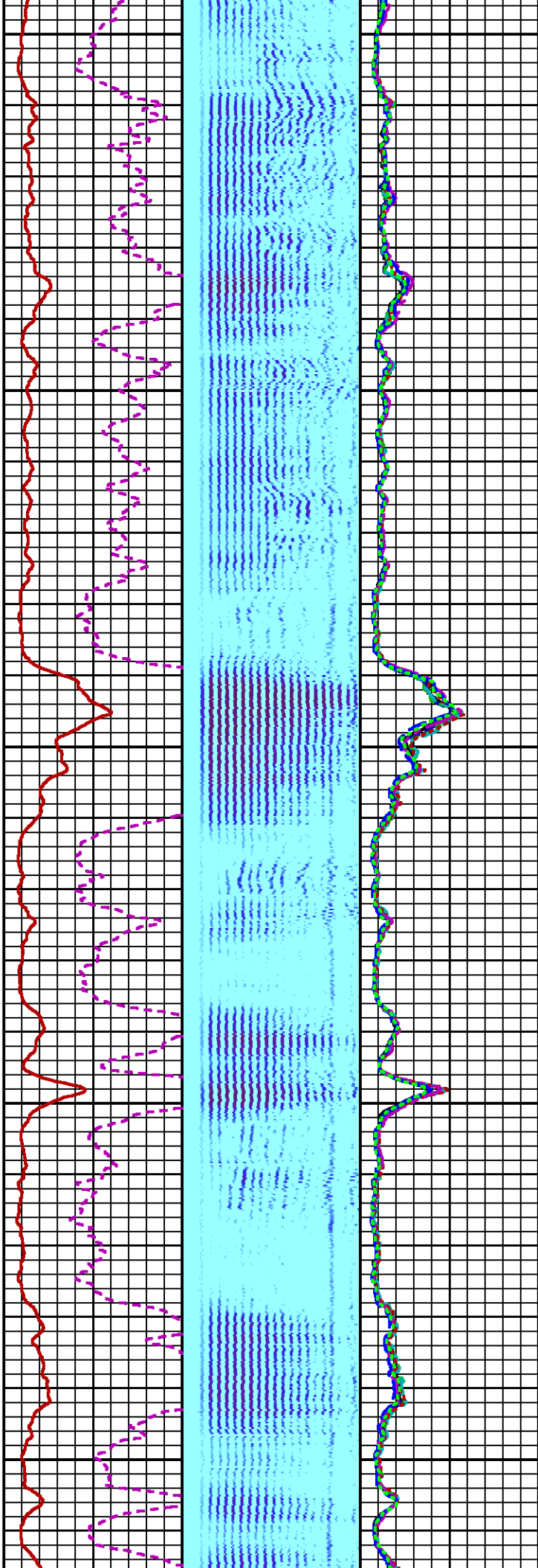


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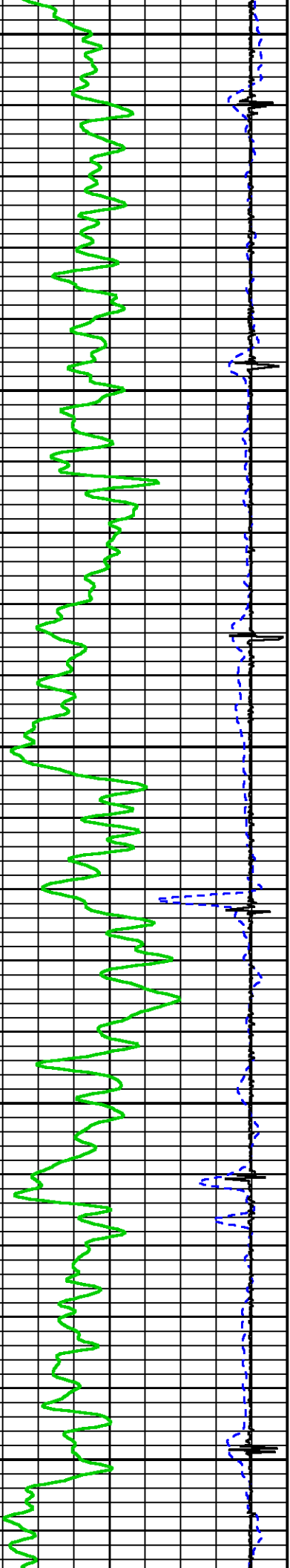


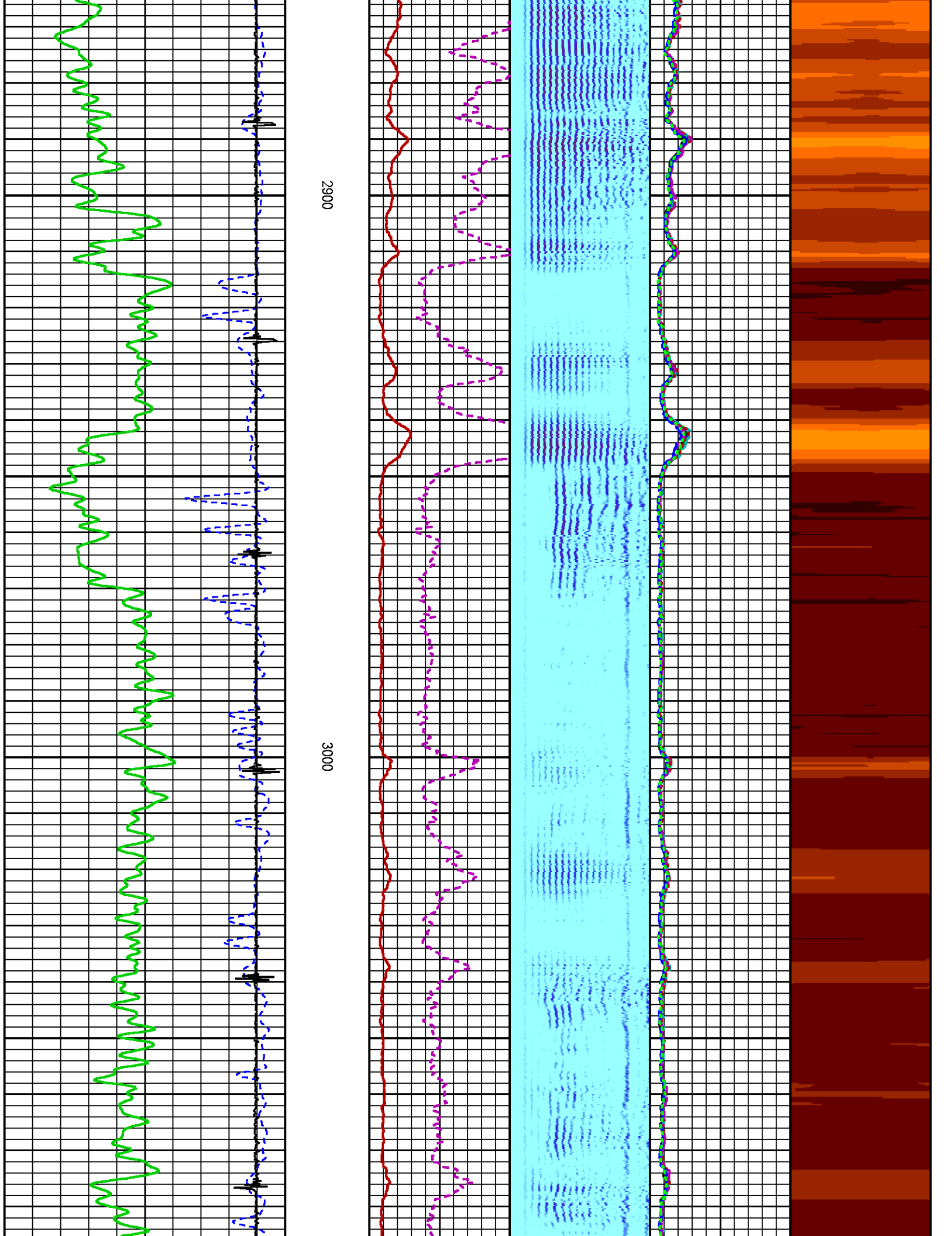


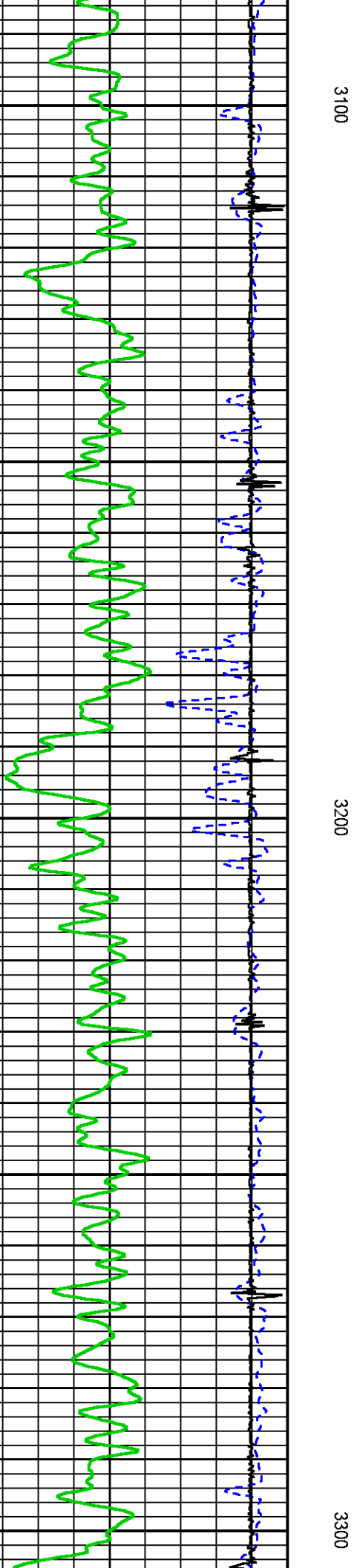
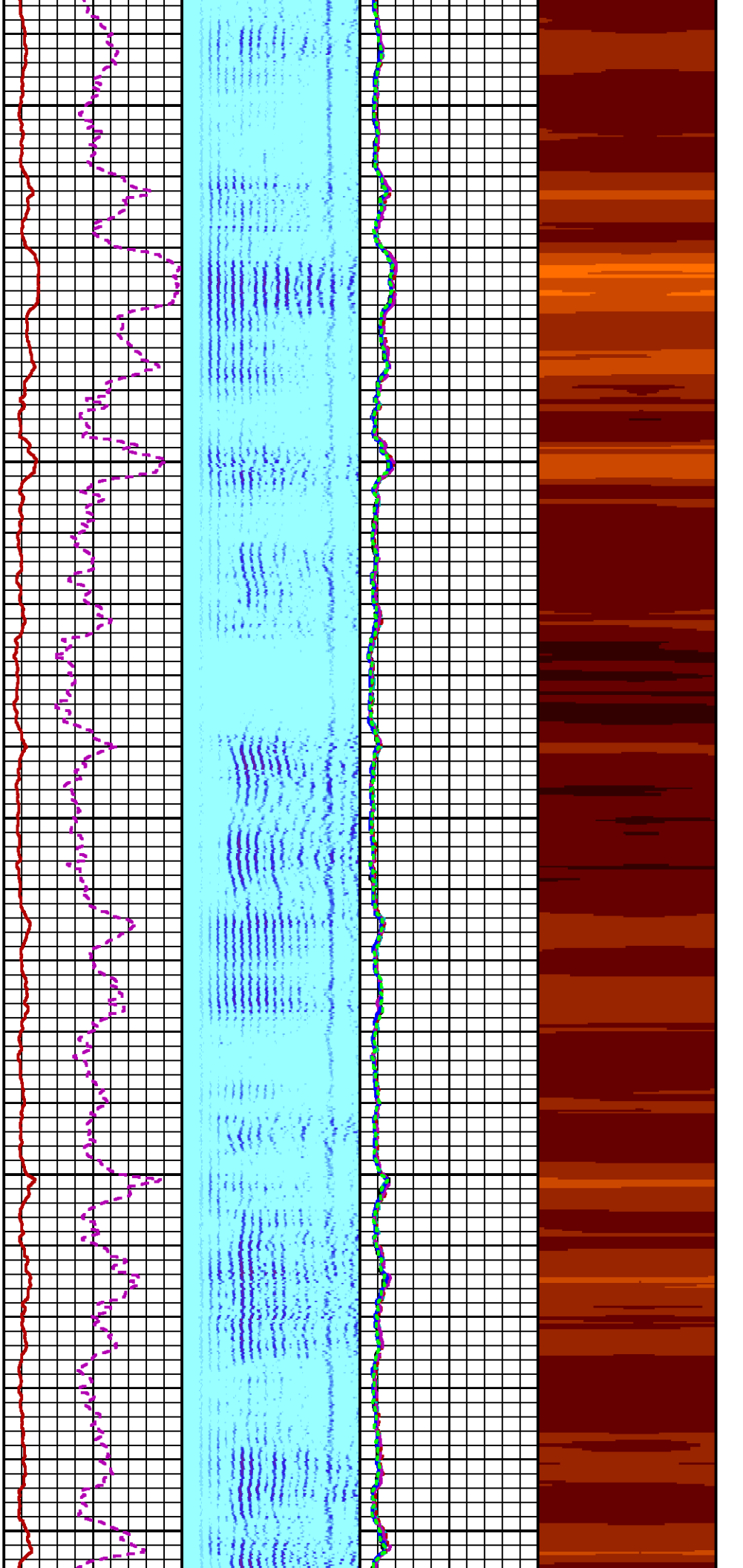


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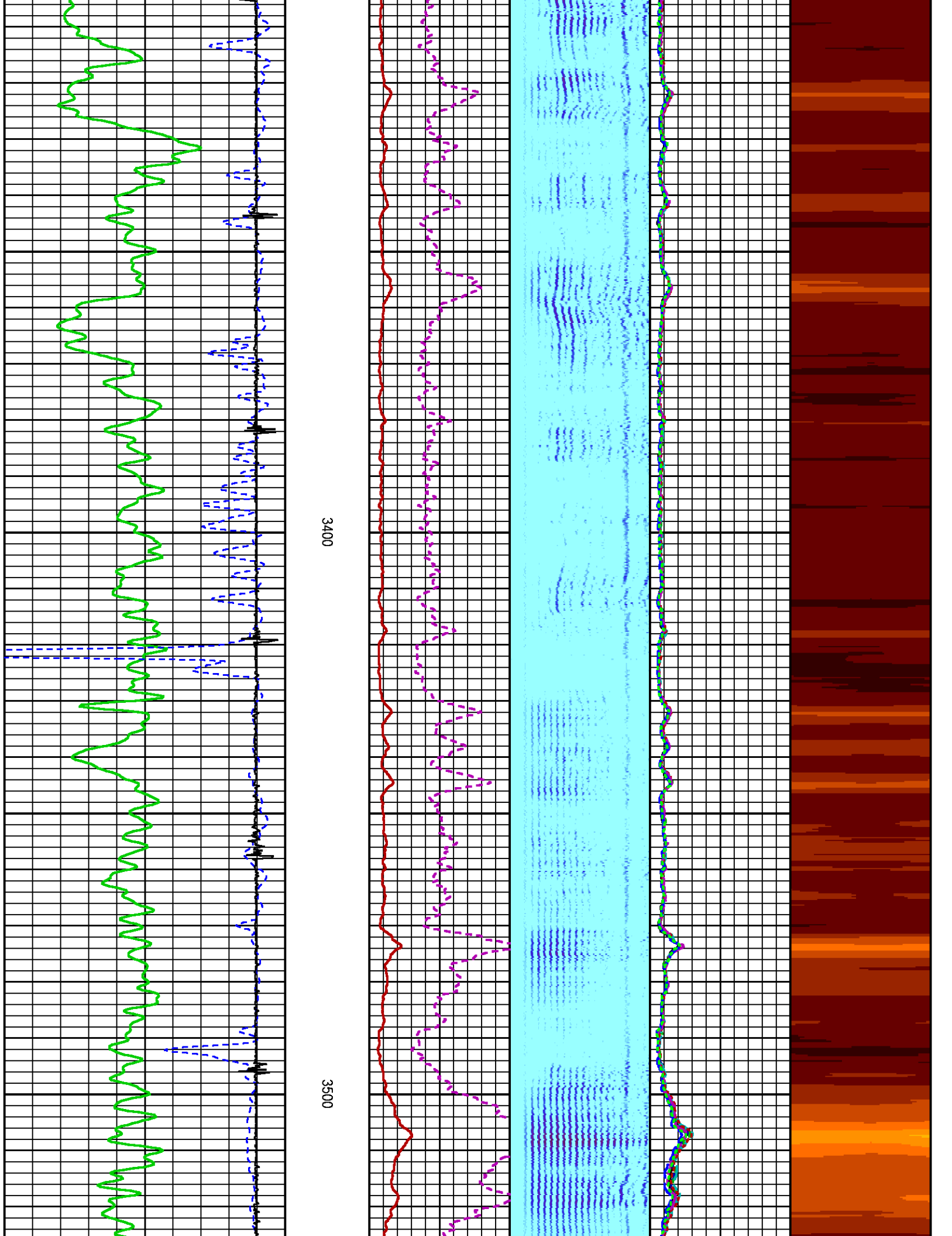
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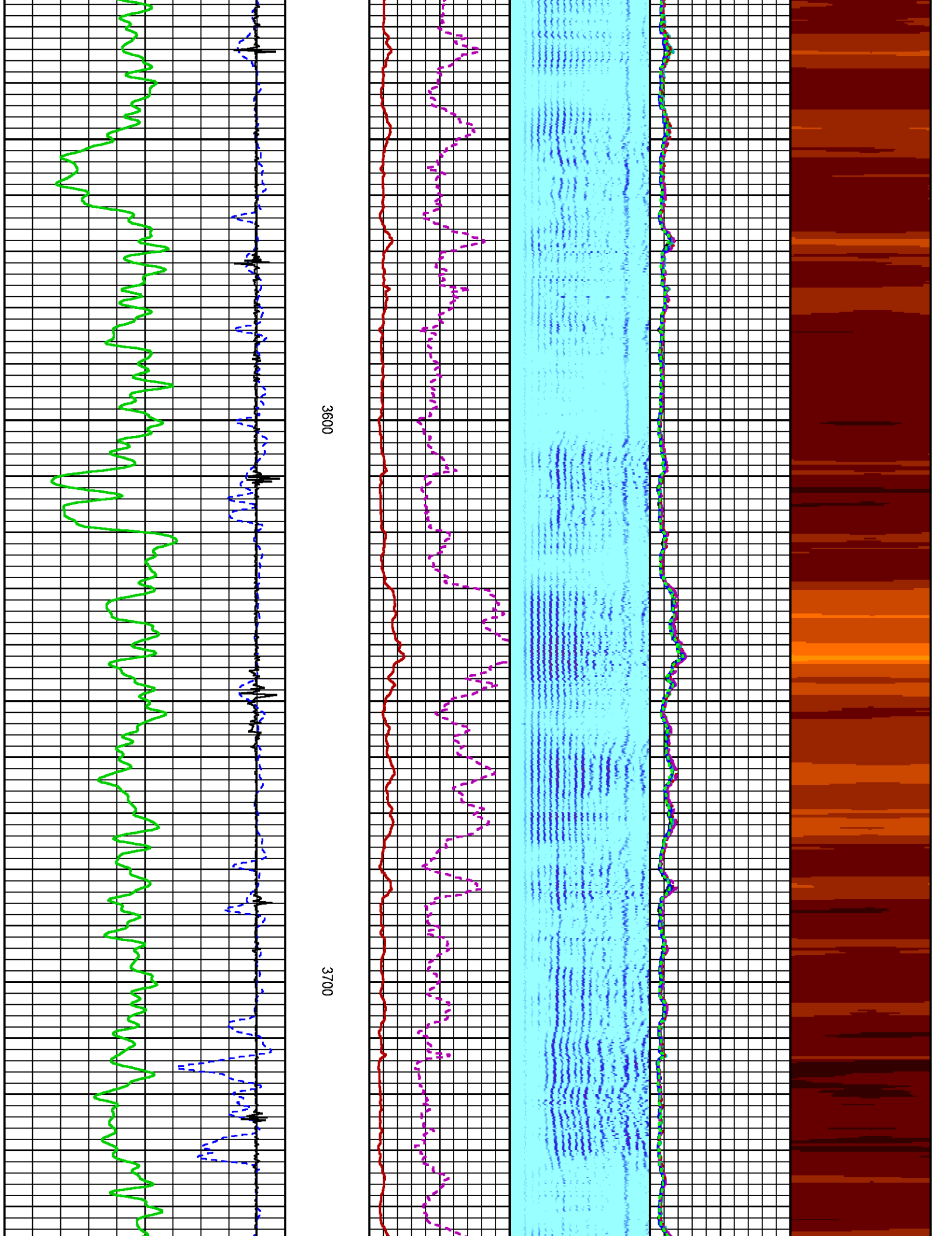


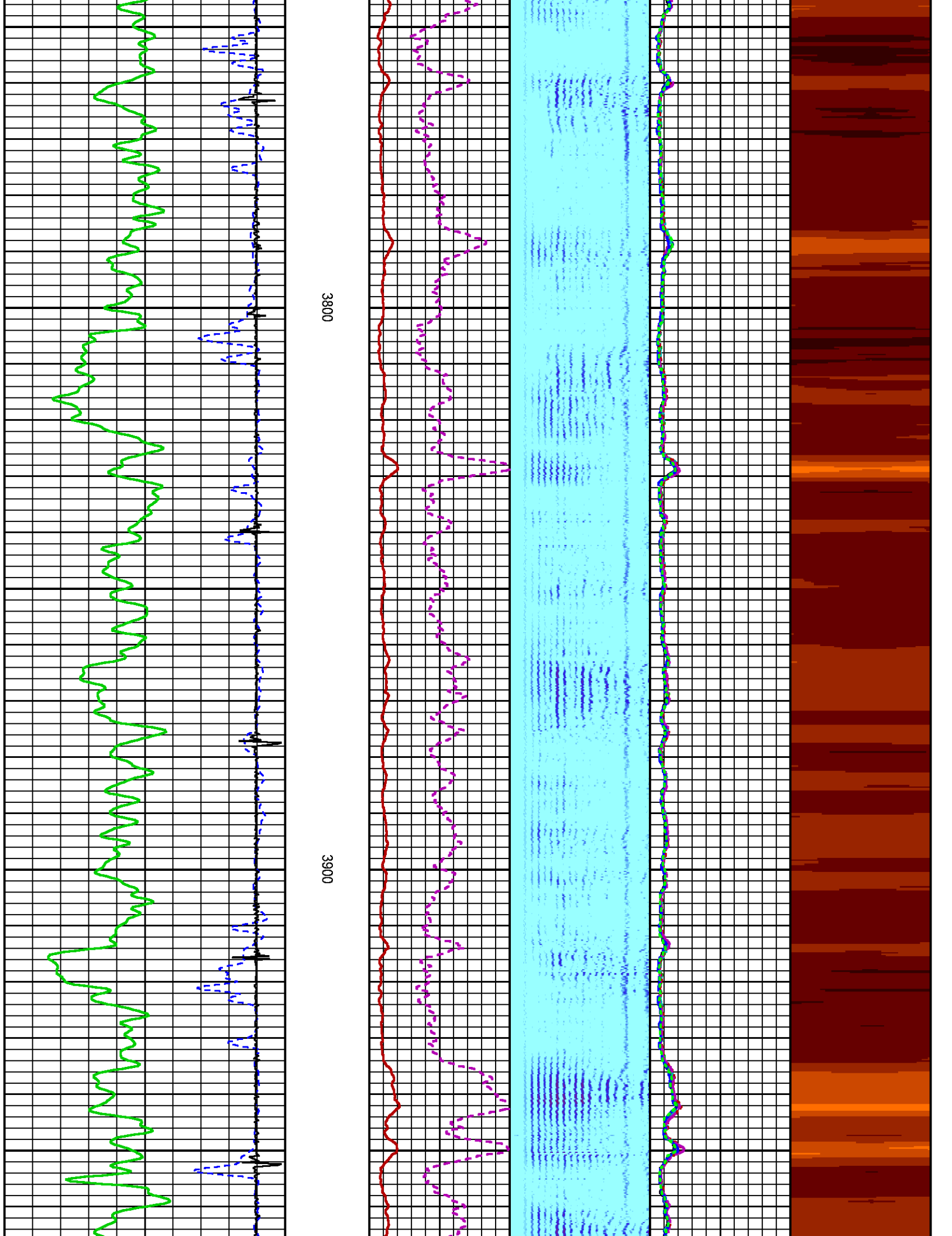


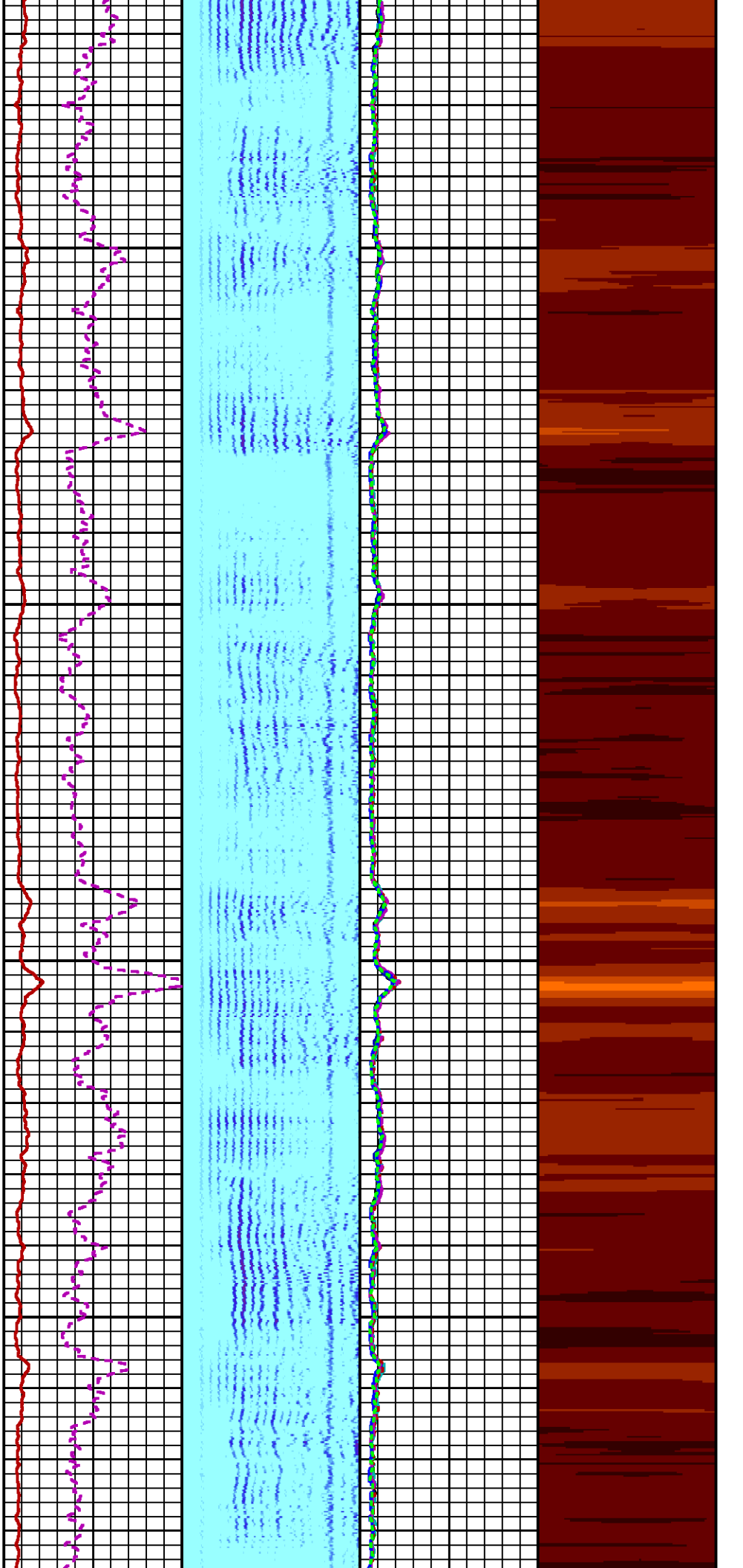






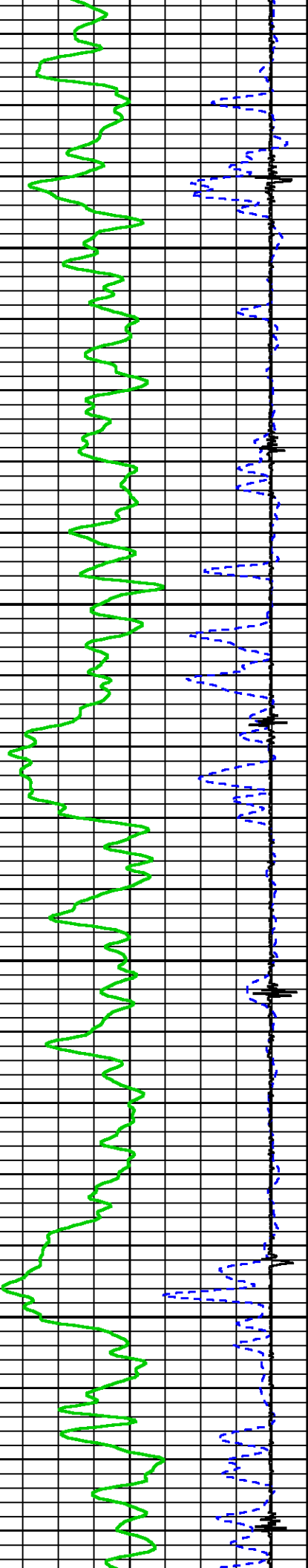


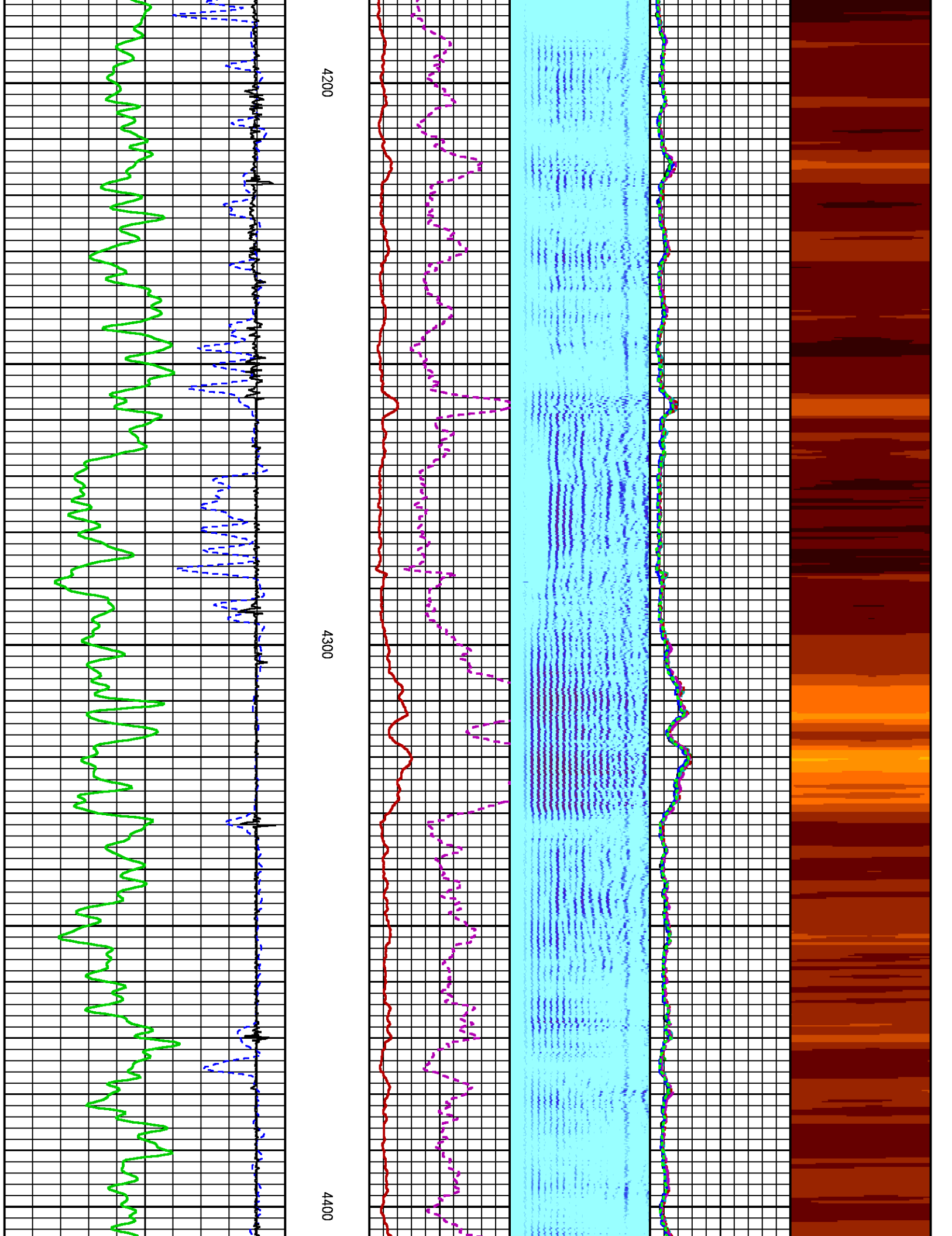




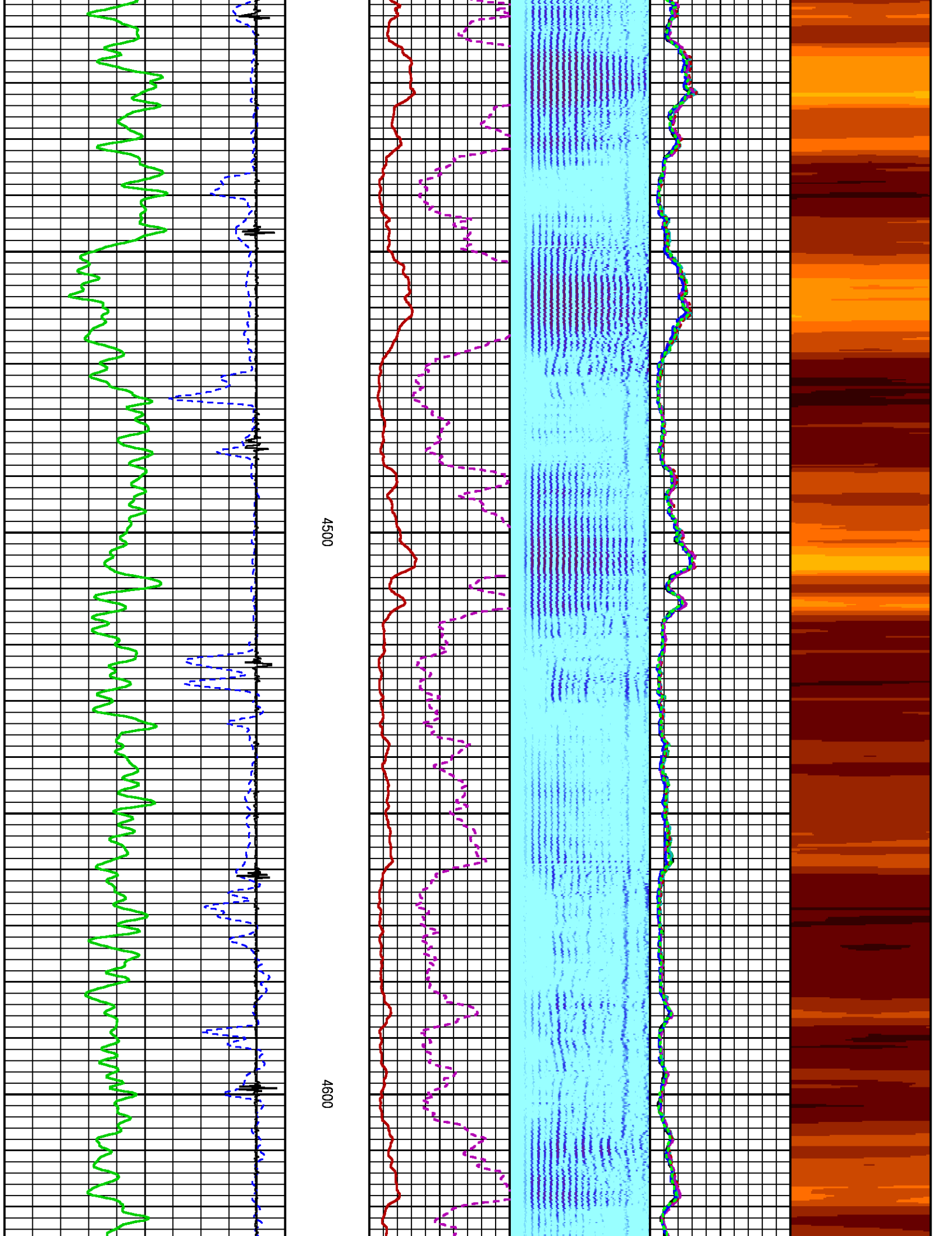
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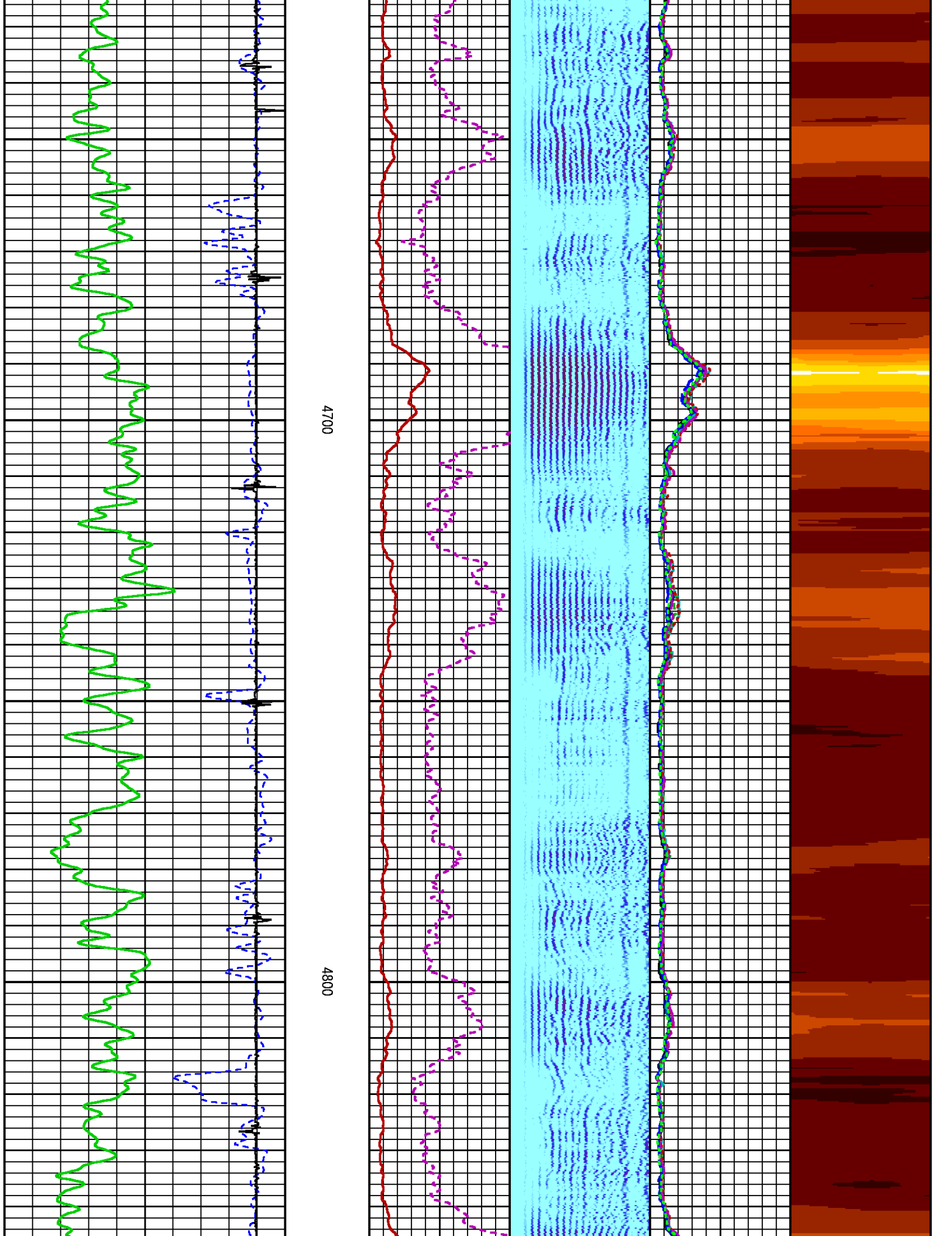
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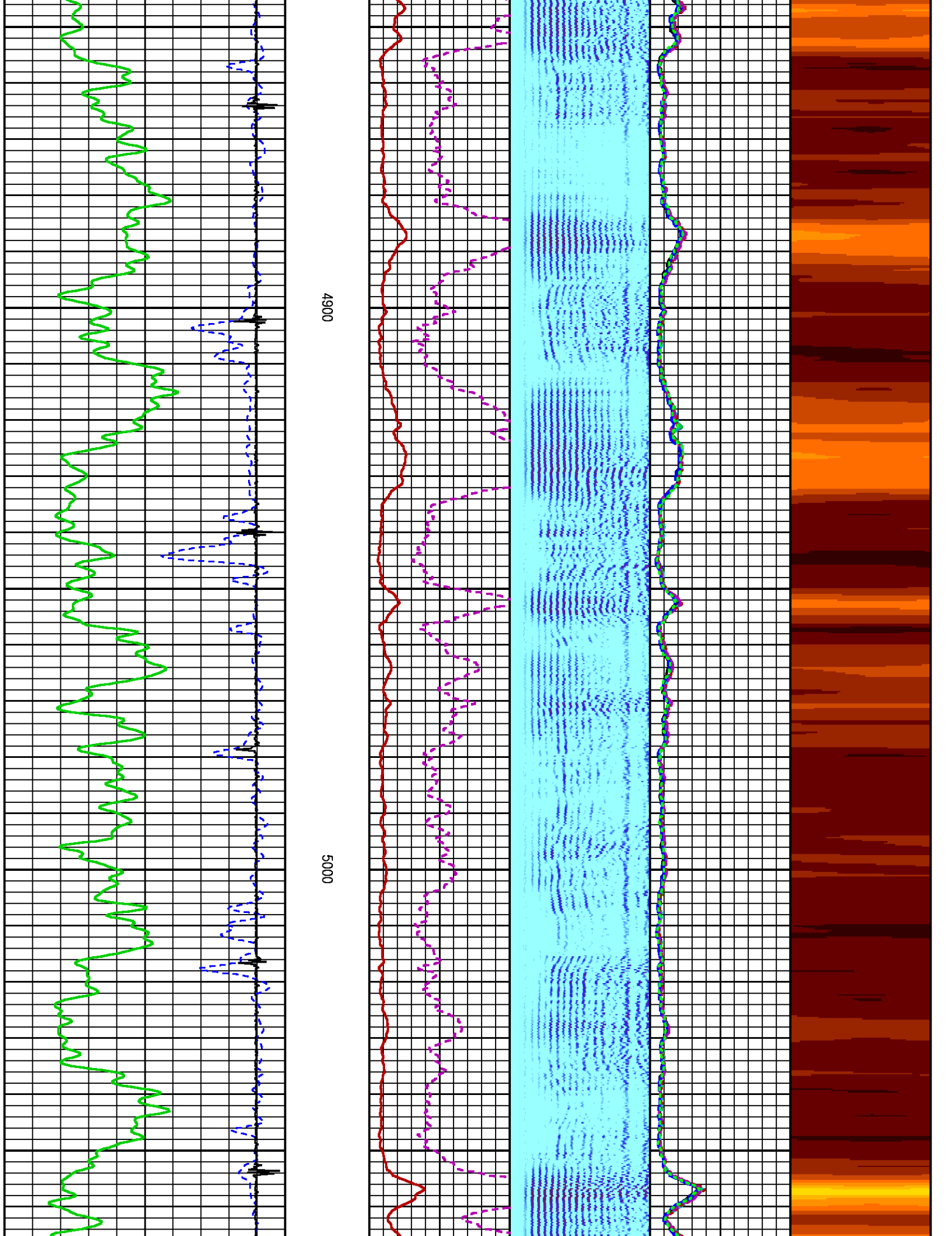


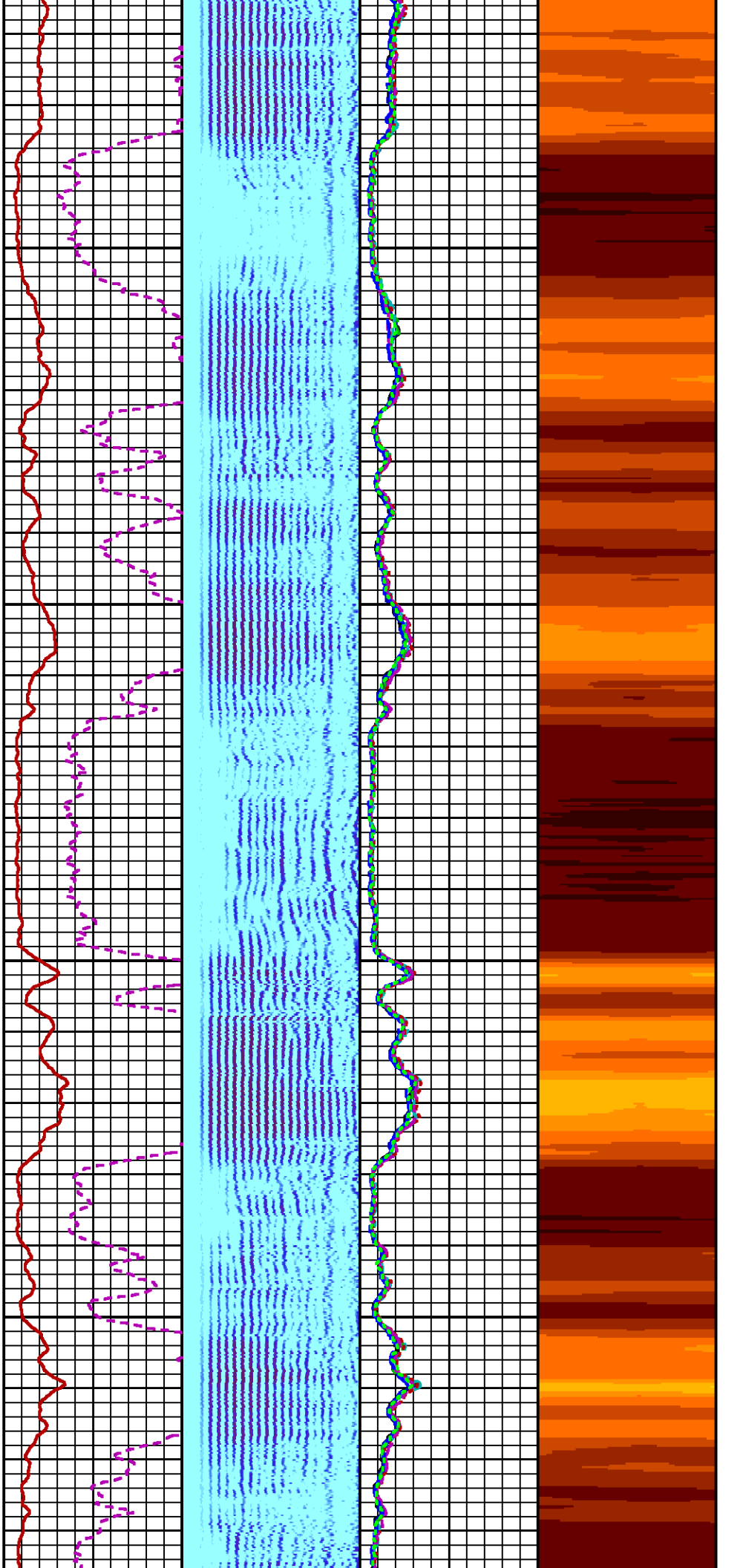






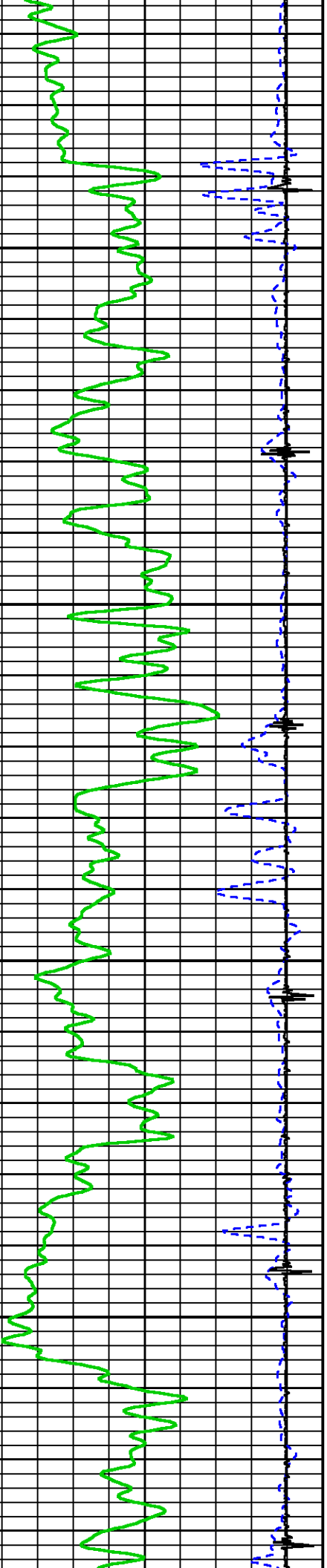


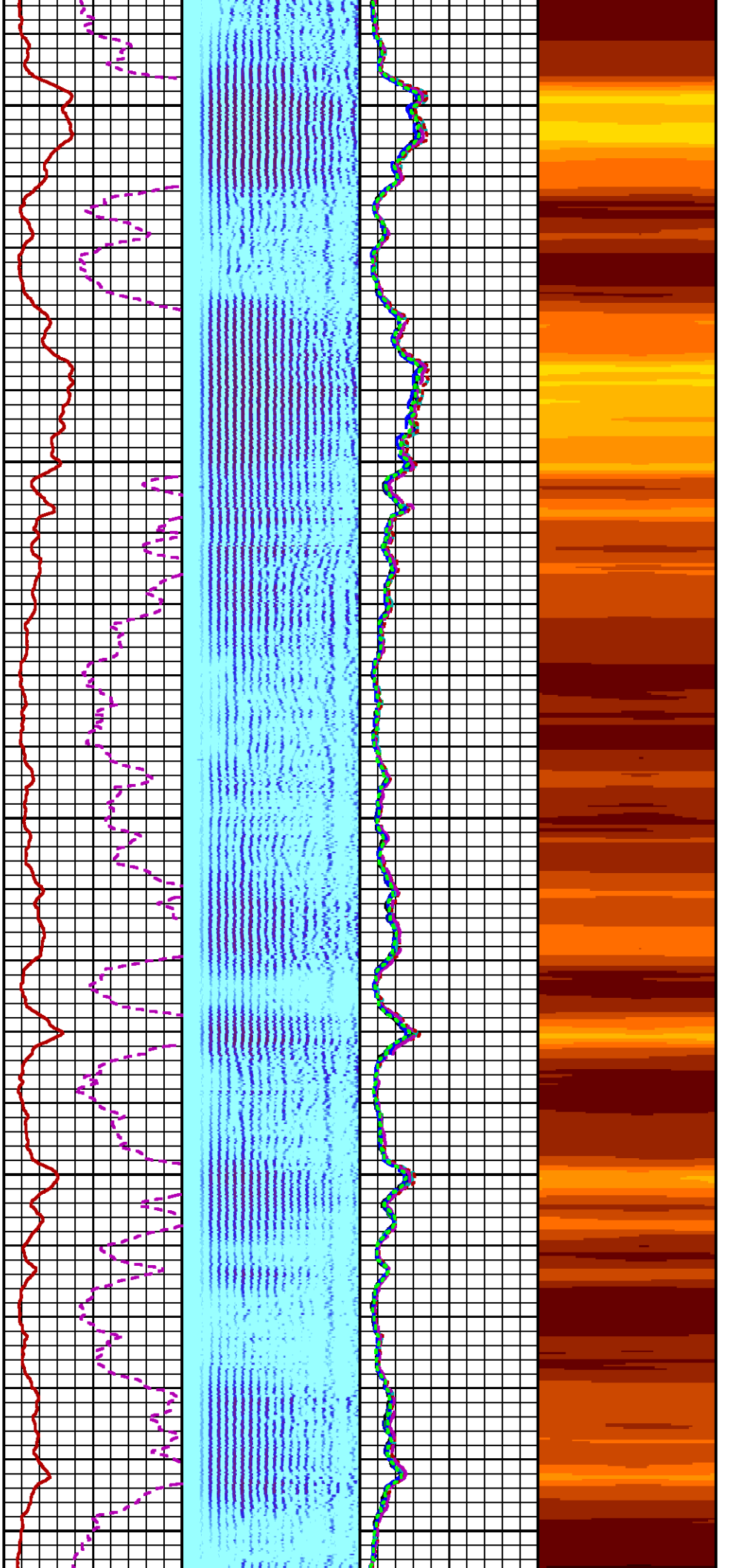




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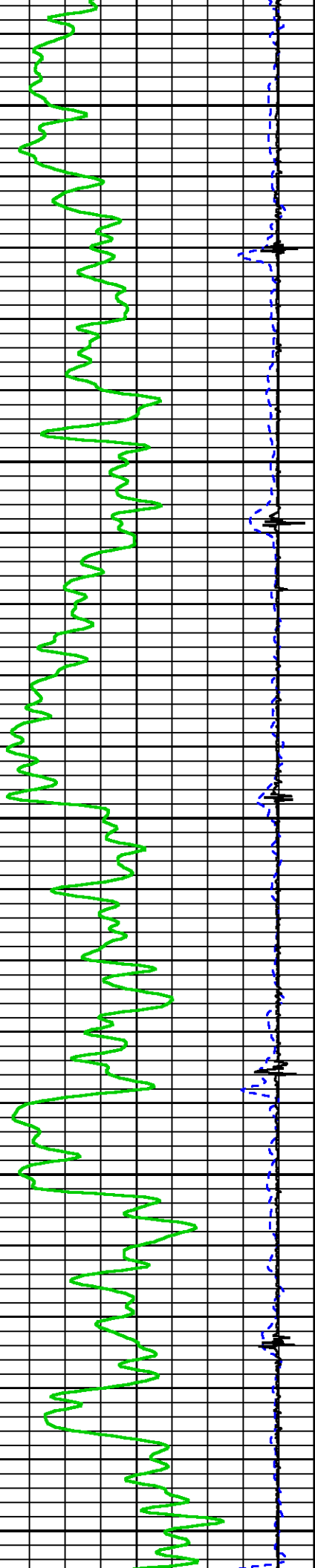




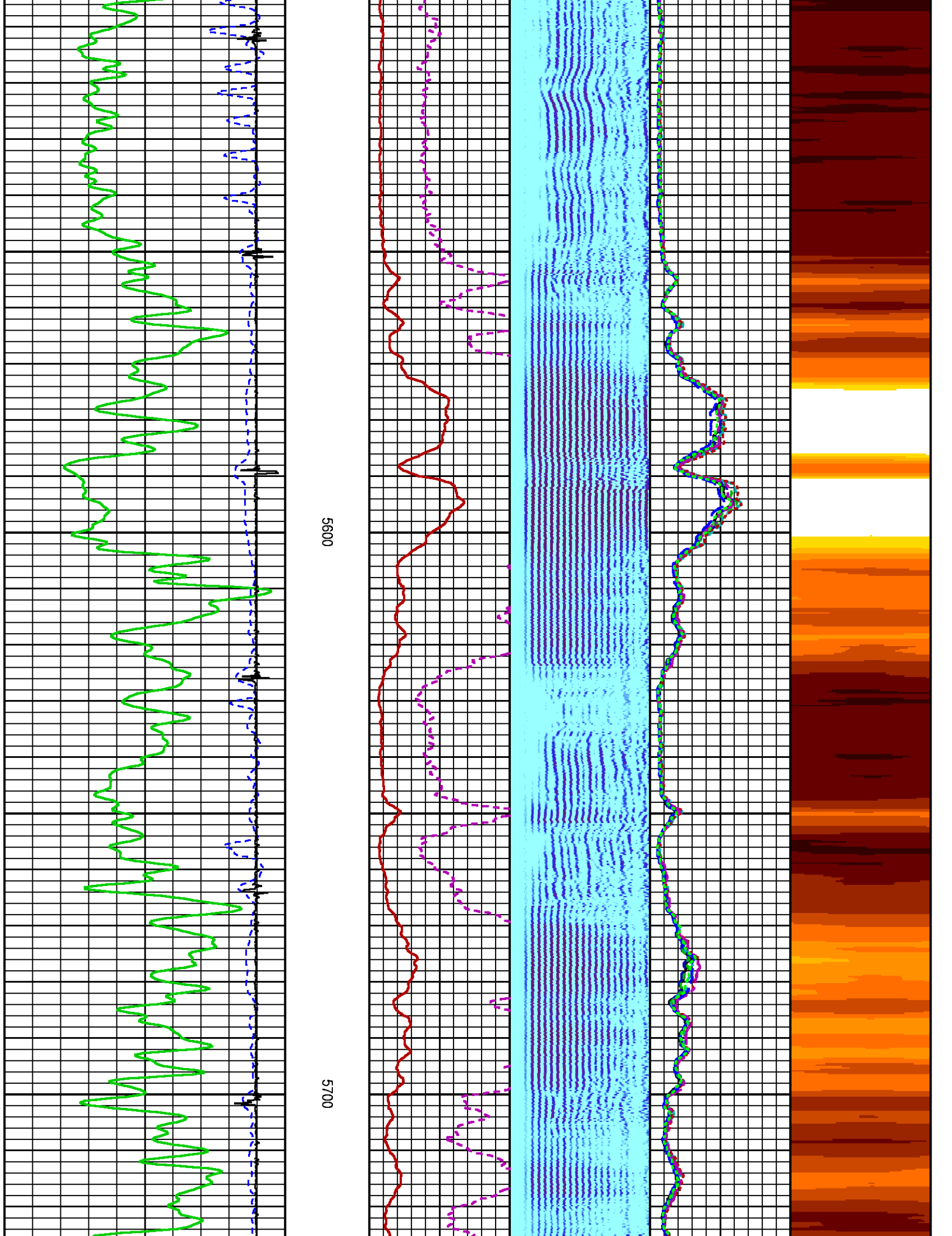
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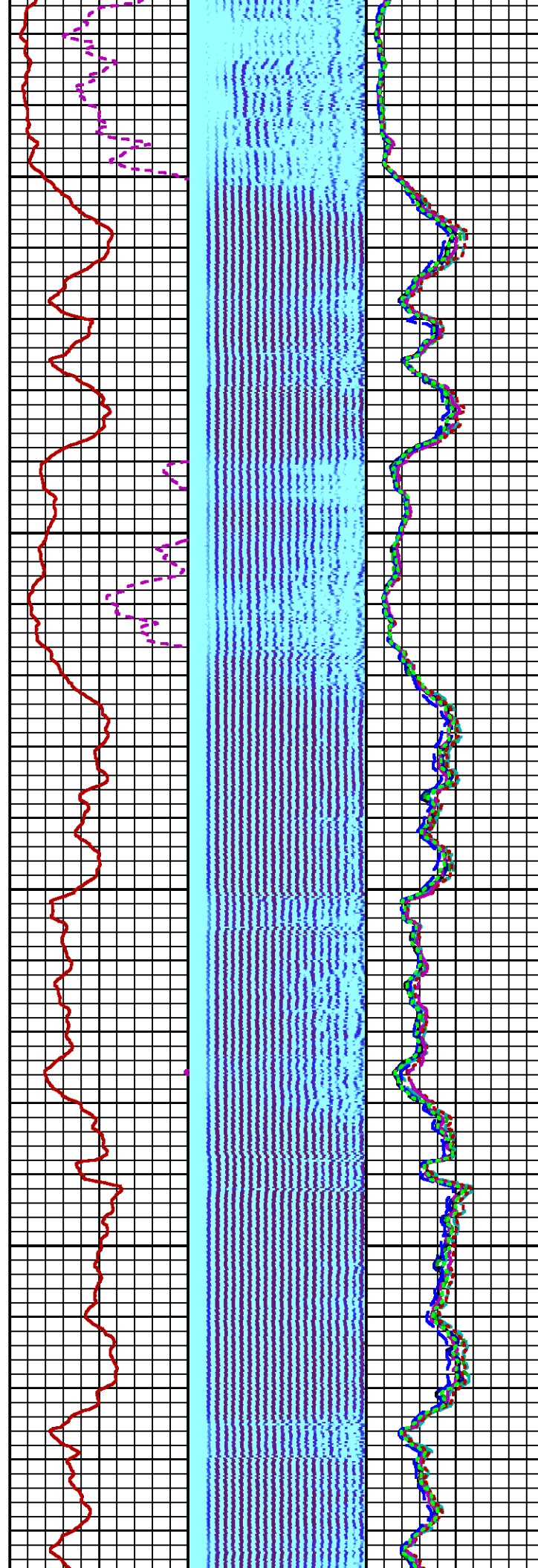
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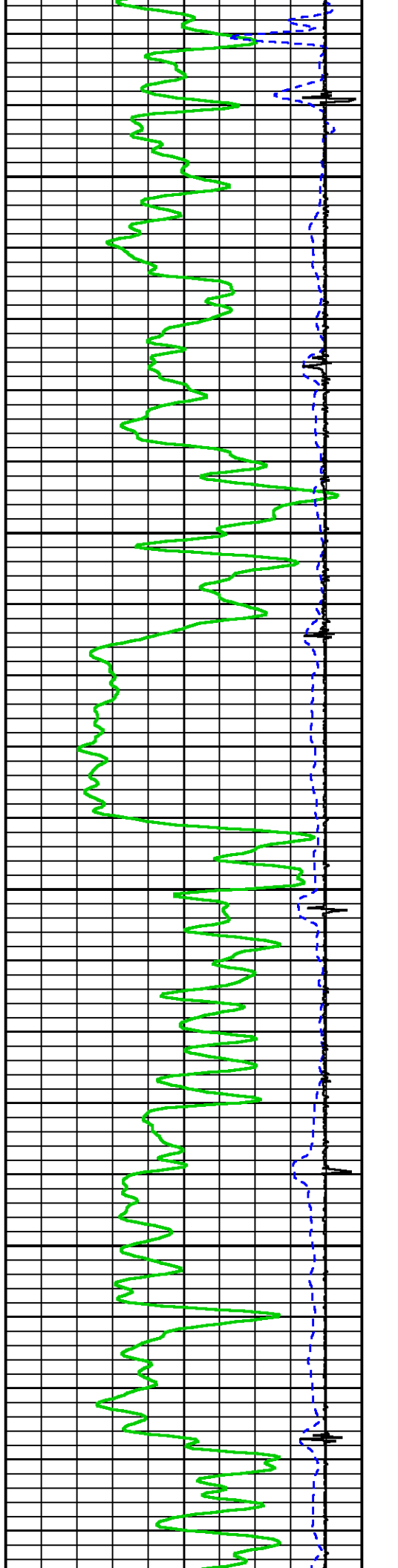


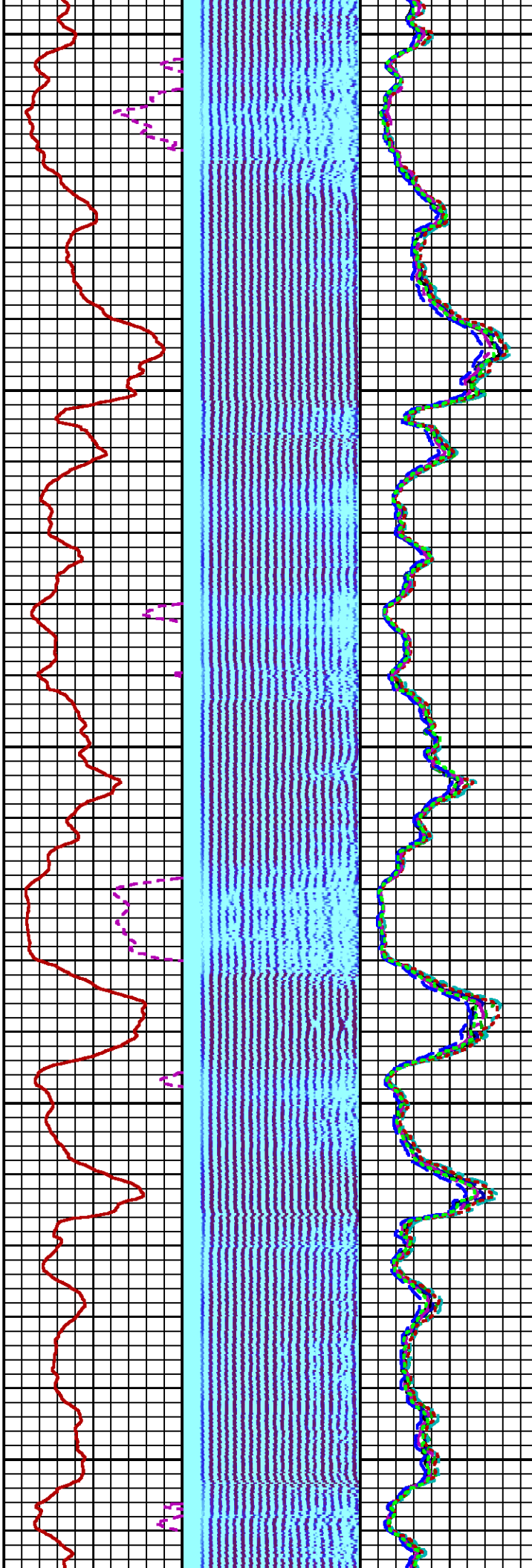
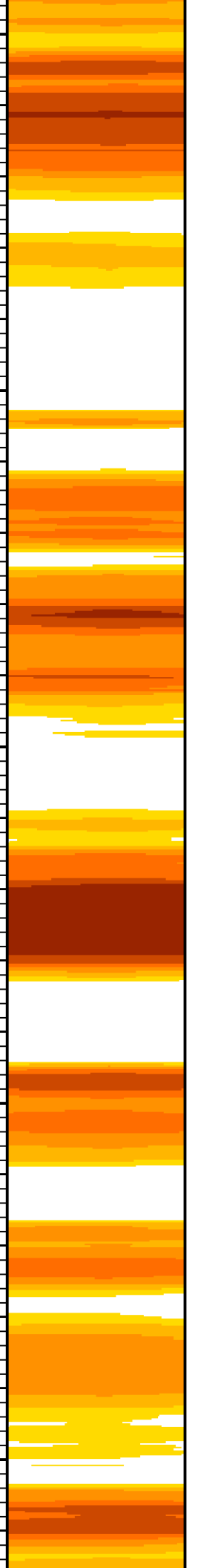




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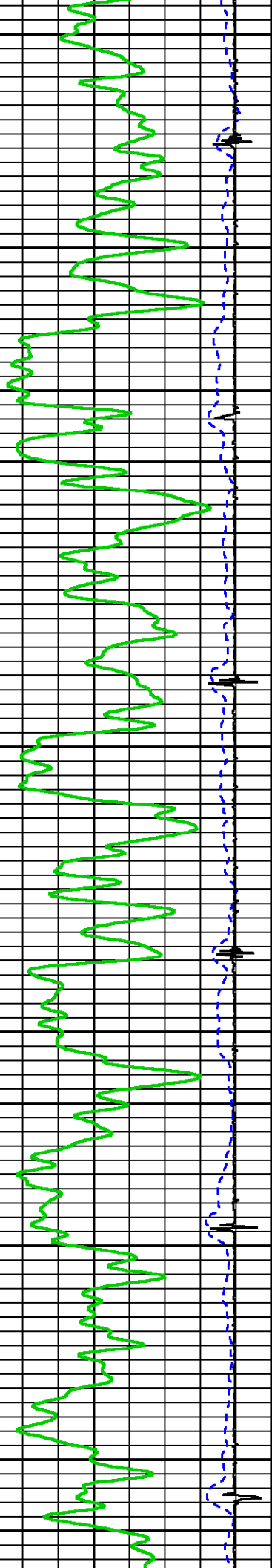
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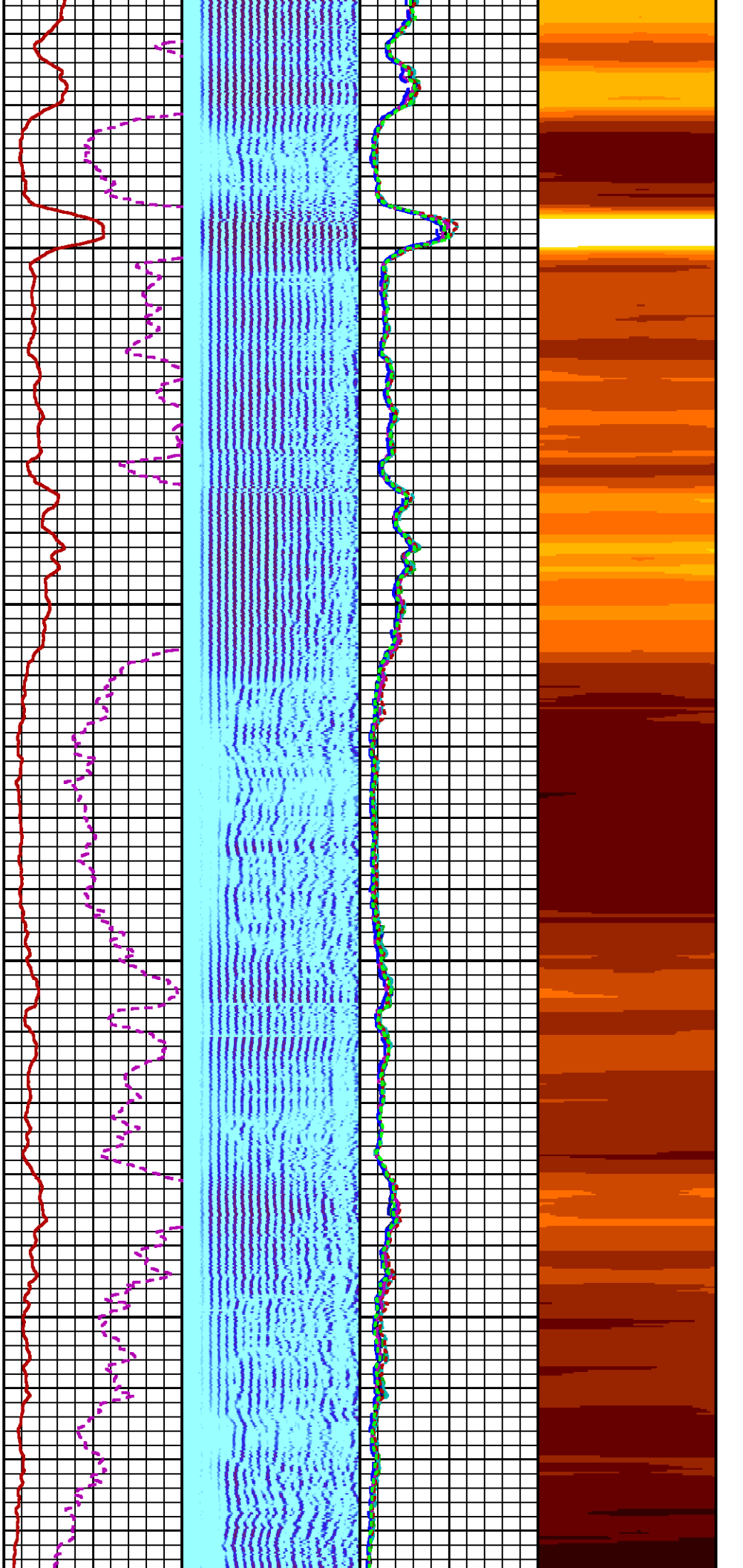




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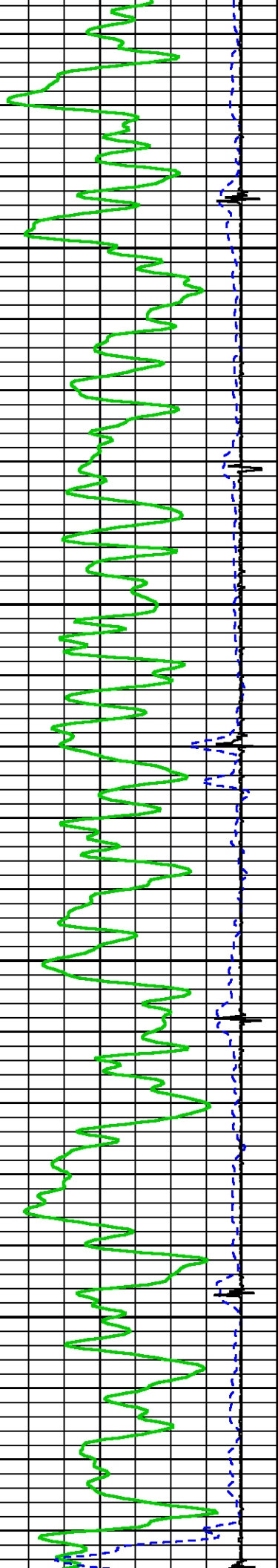
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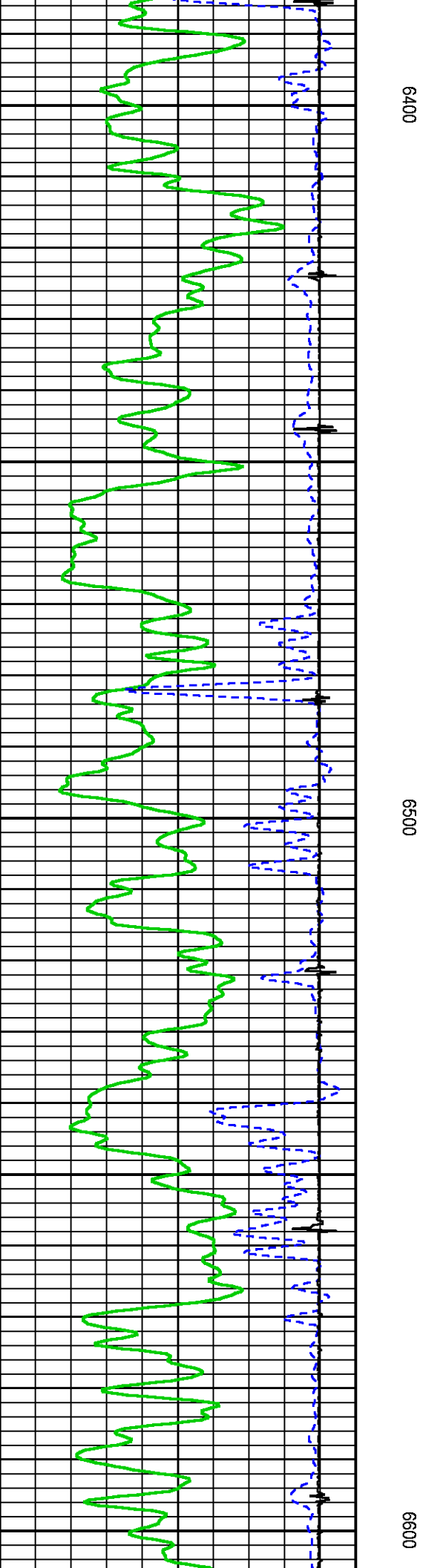
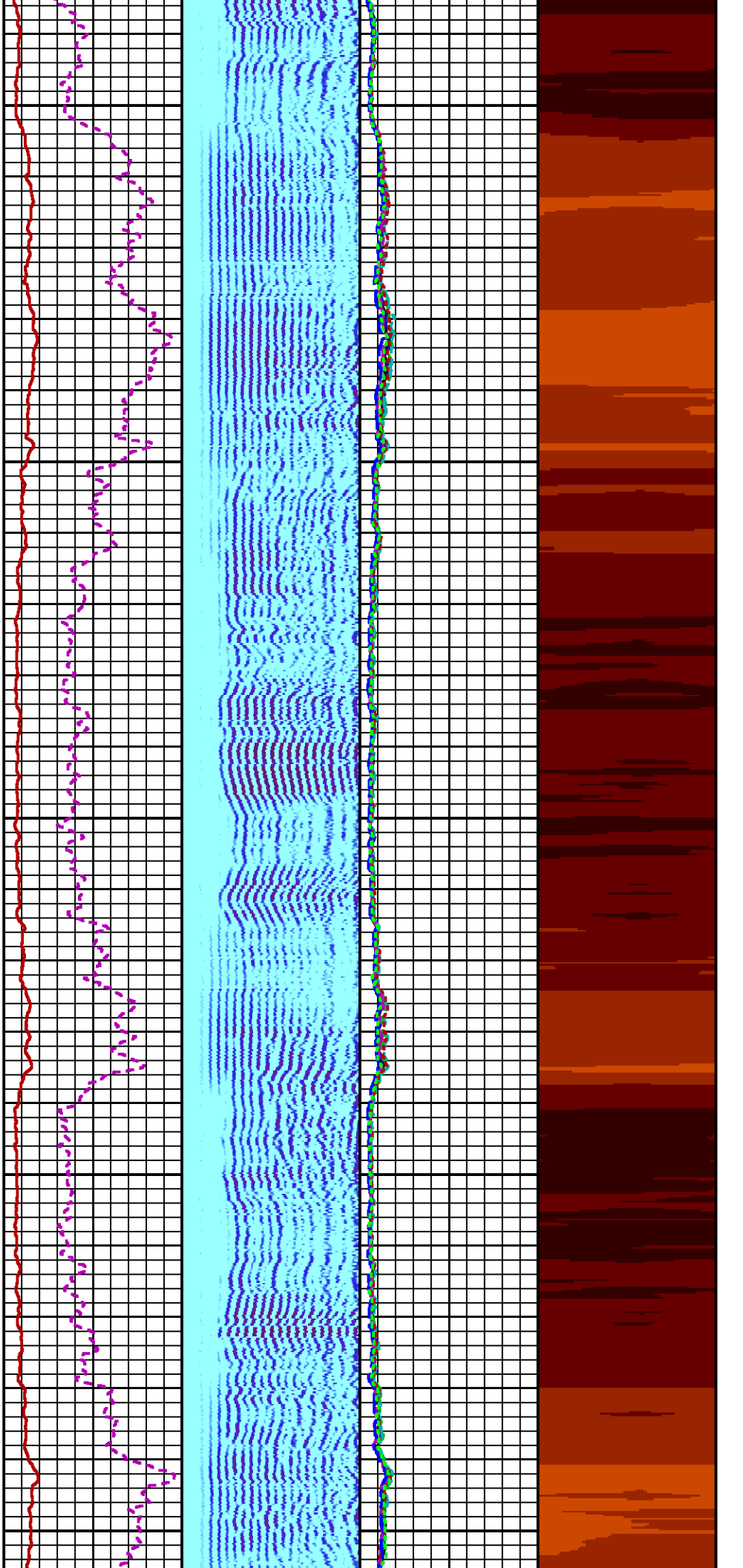


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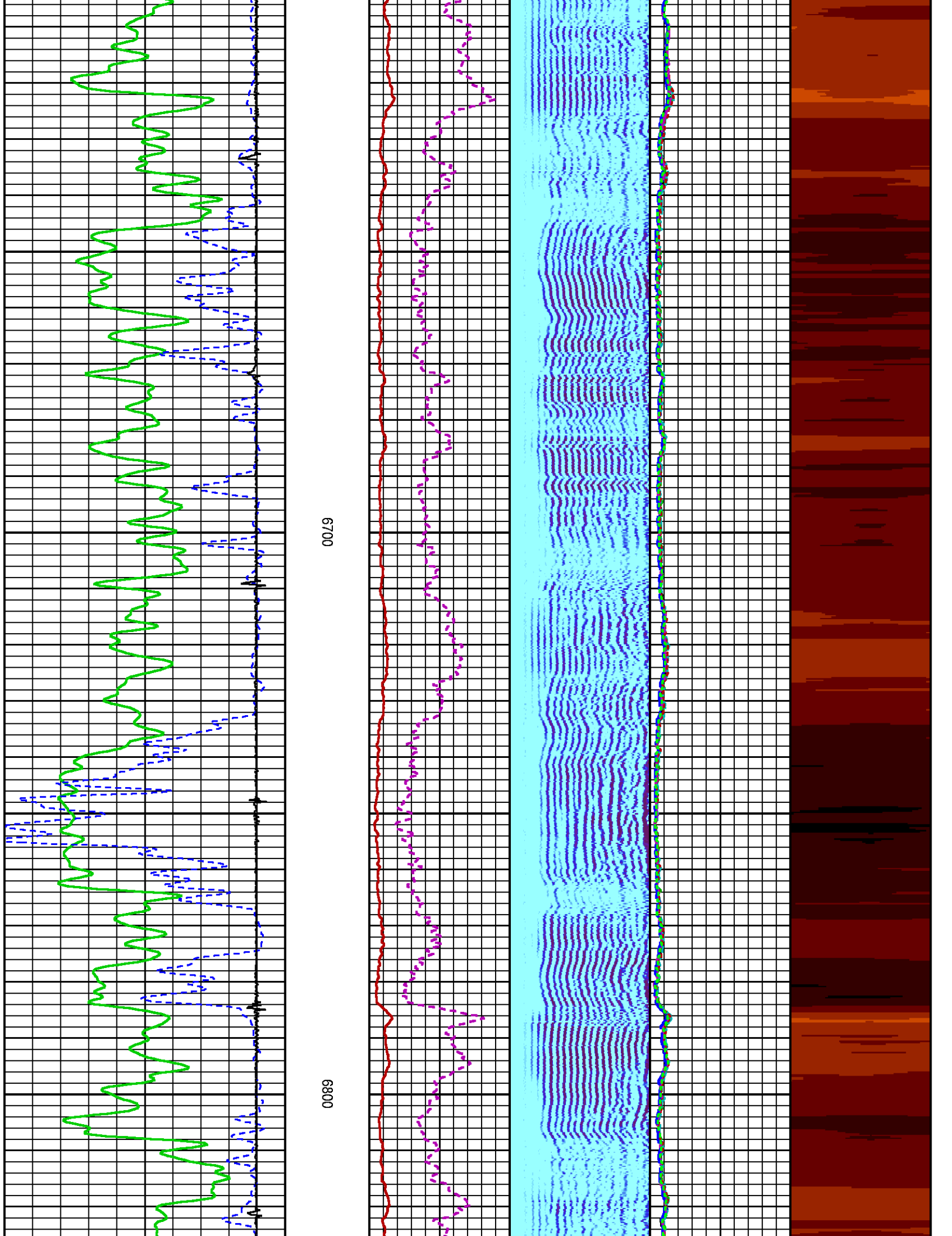
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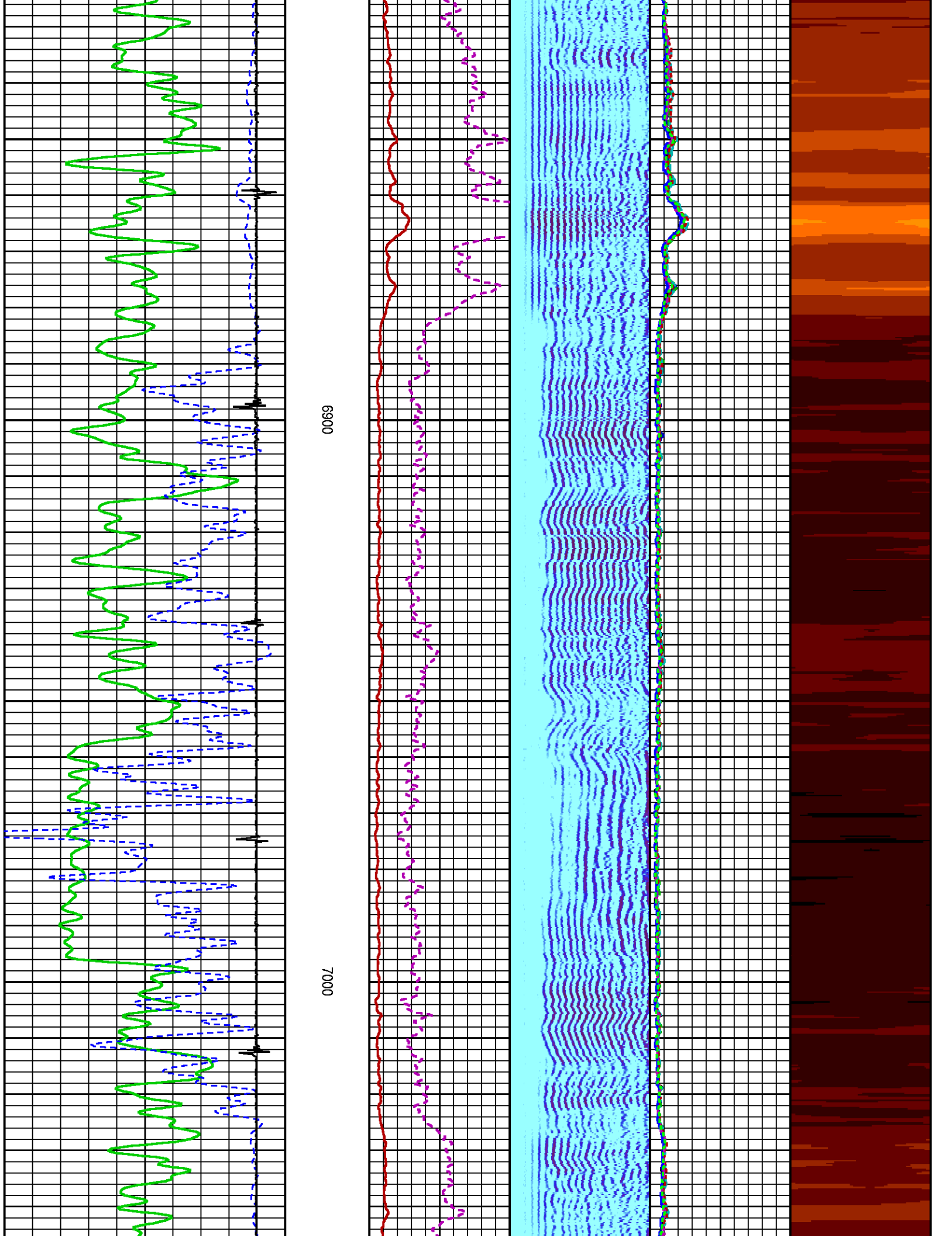


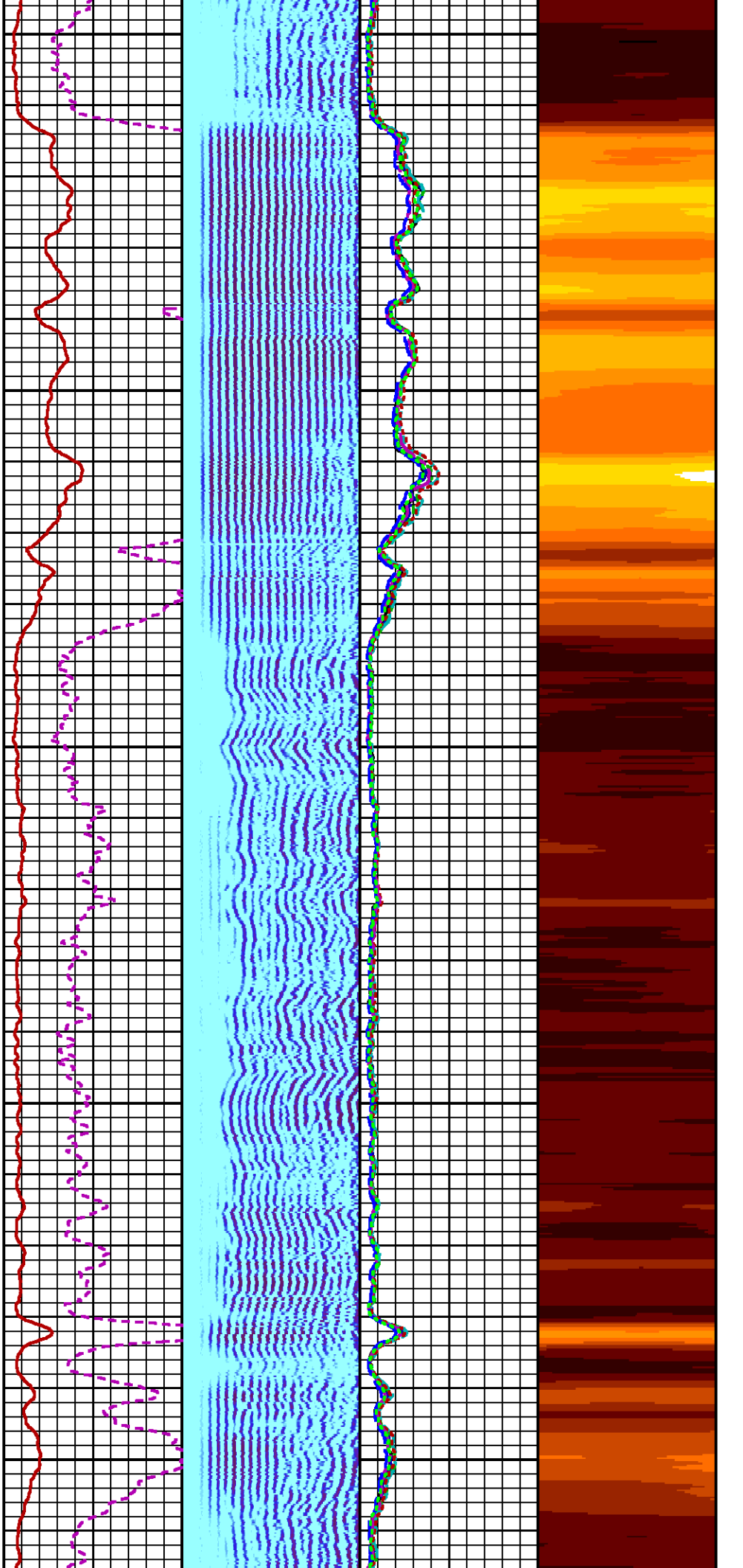






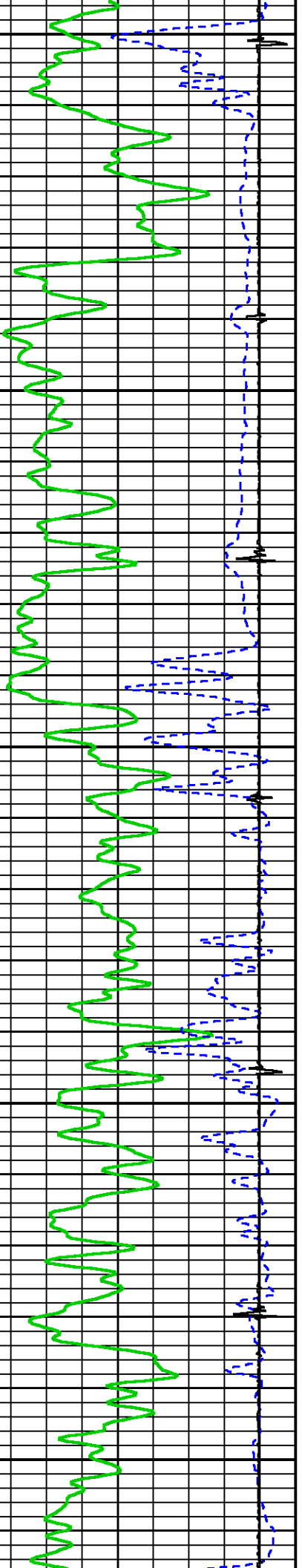


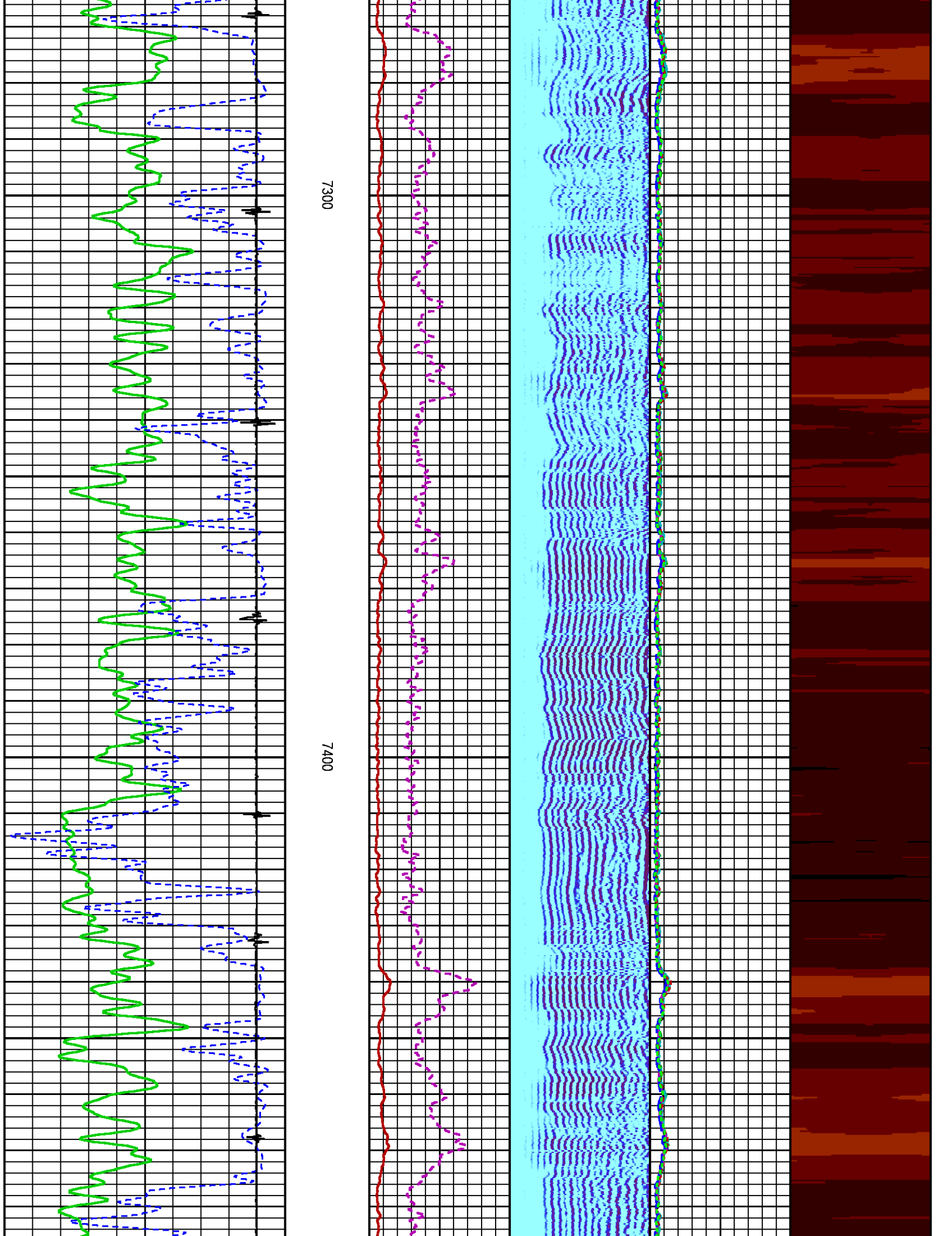




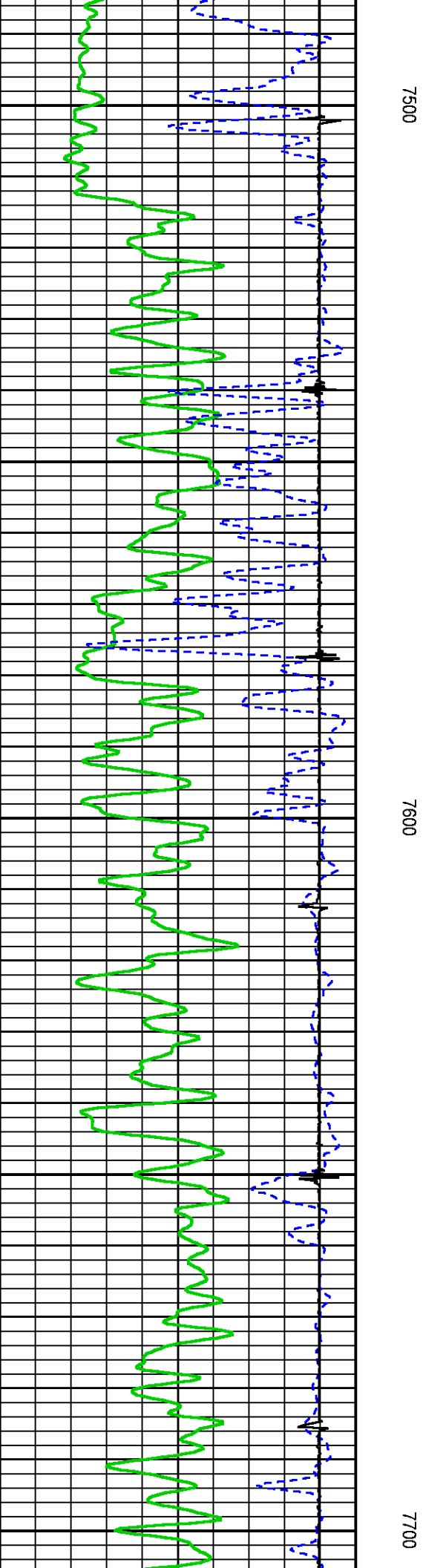
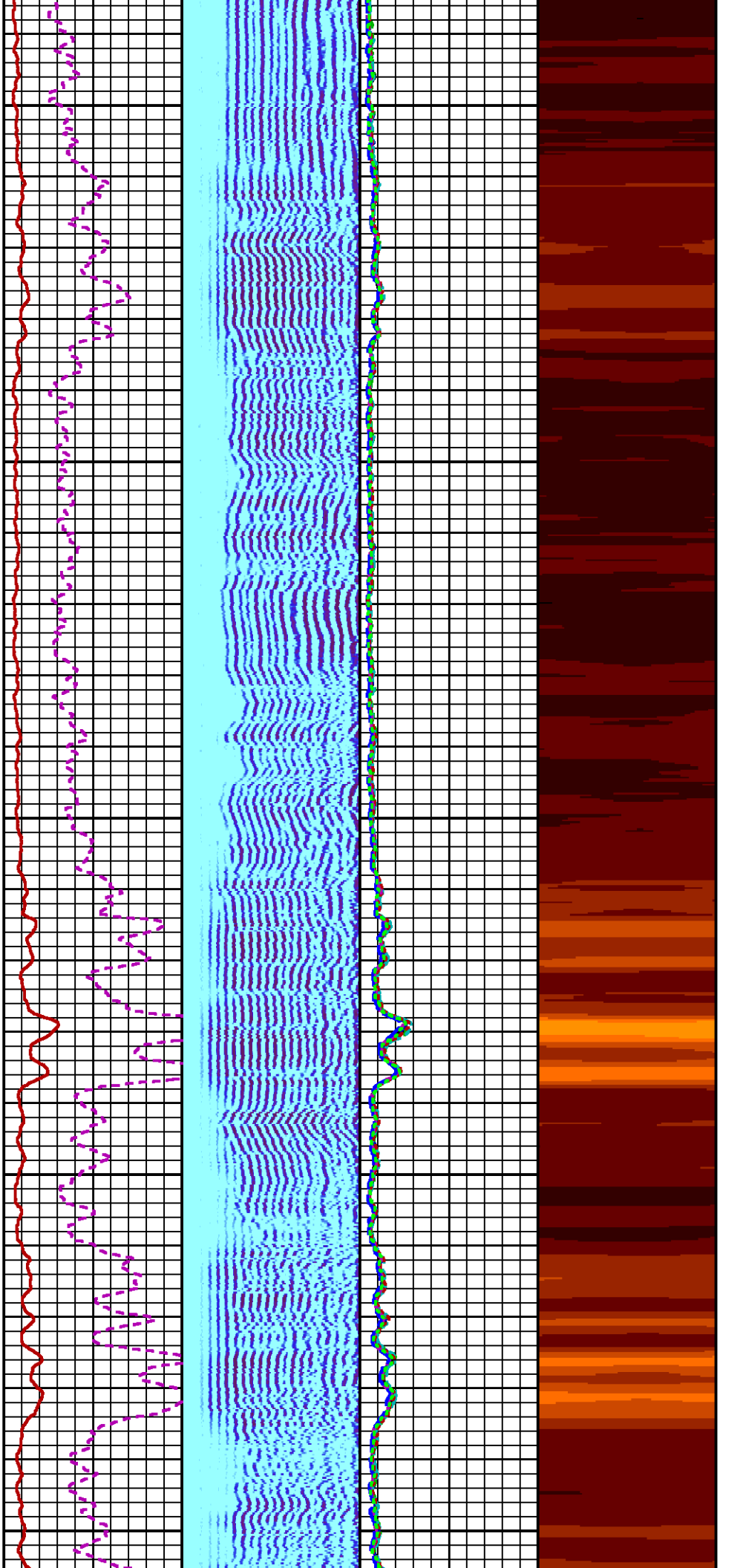
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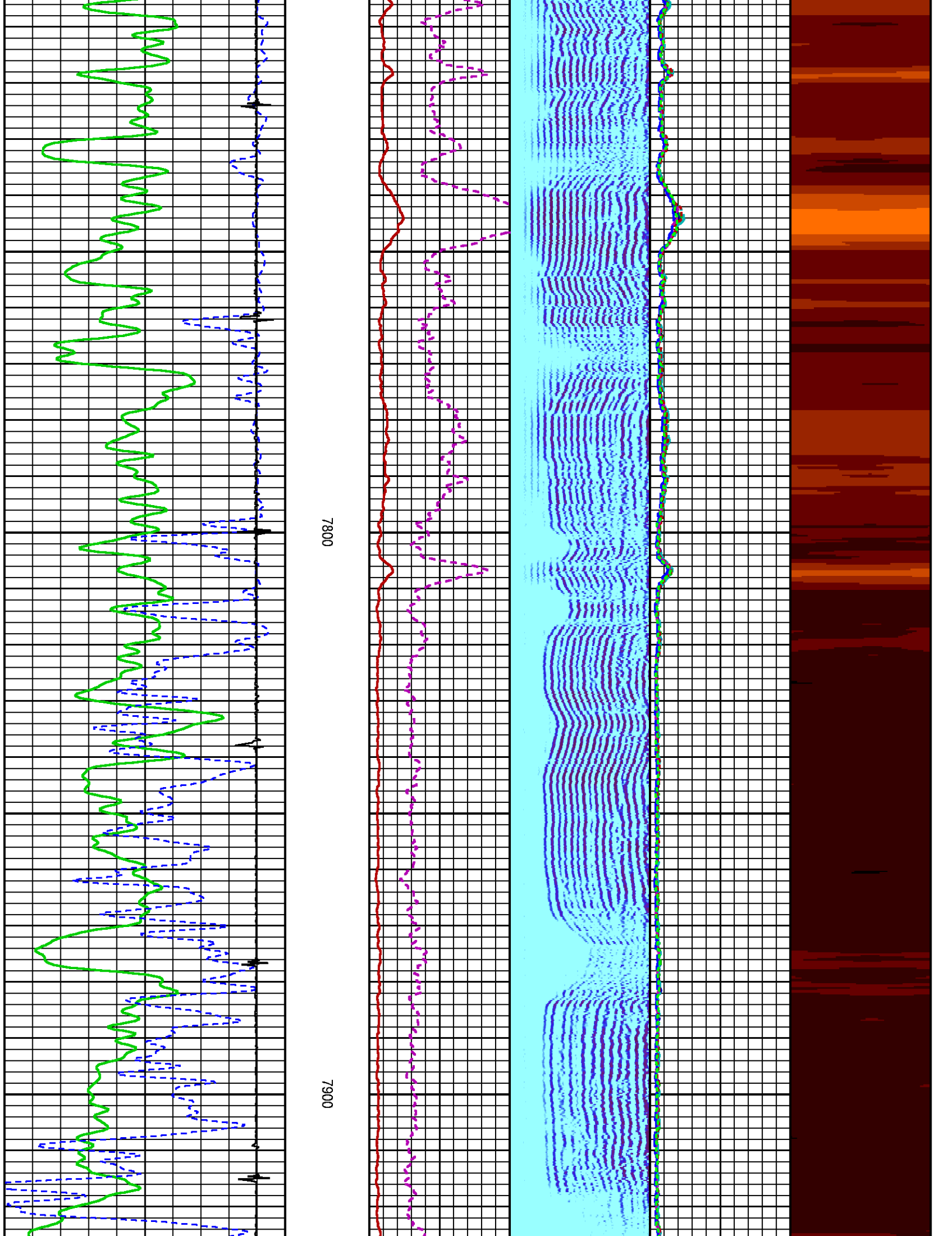


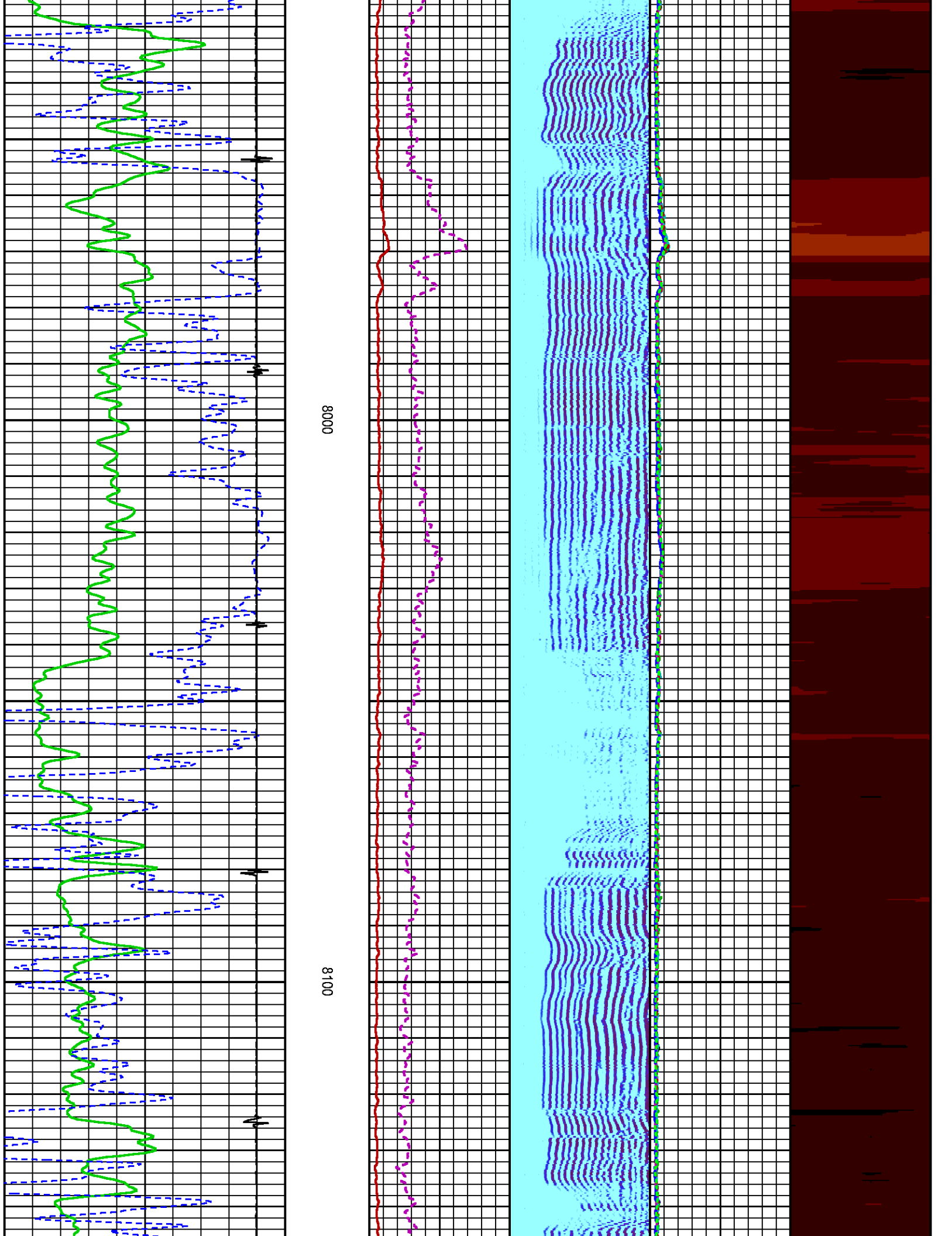


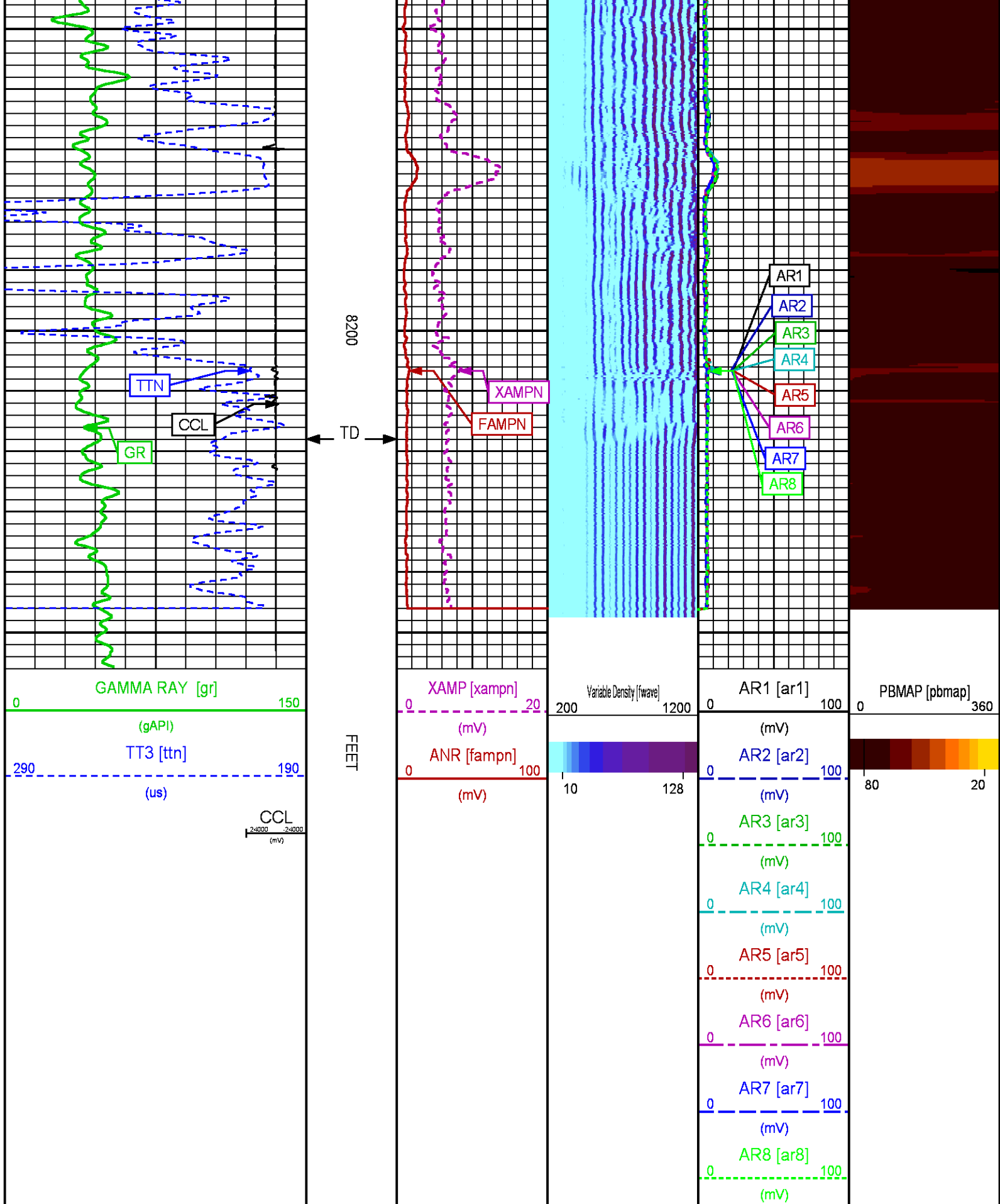












# REPEAT PASS 0 PSI

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

Plotted: Thu Oct 26 13:49:30 2017

## CURVE DESCRIPTION REPORT

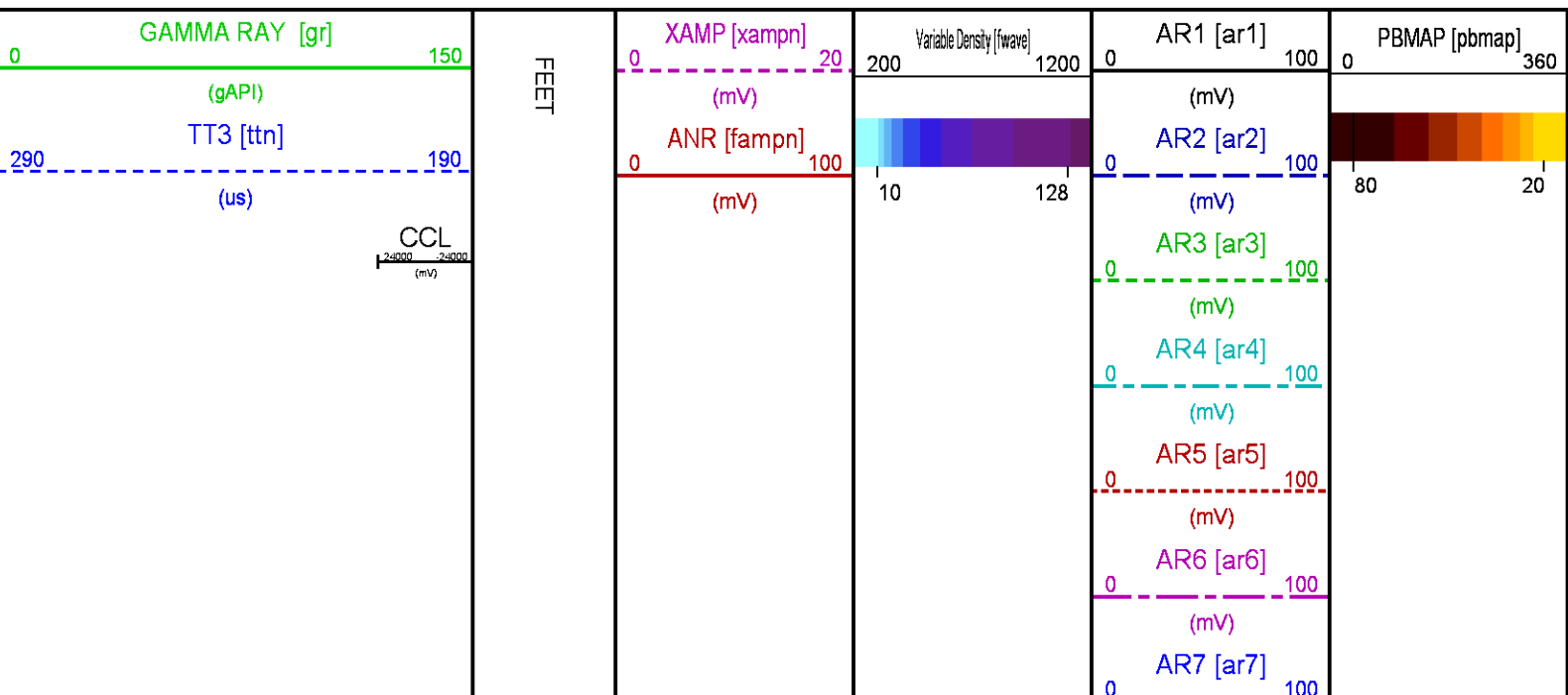
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
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

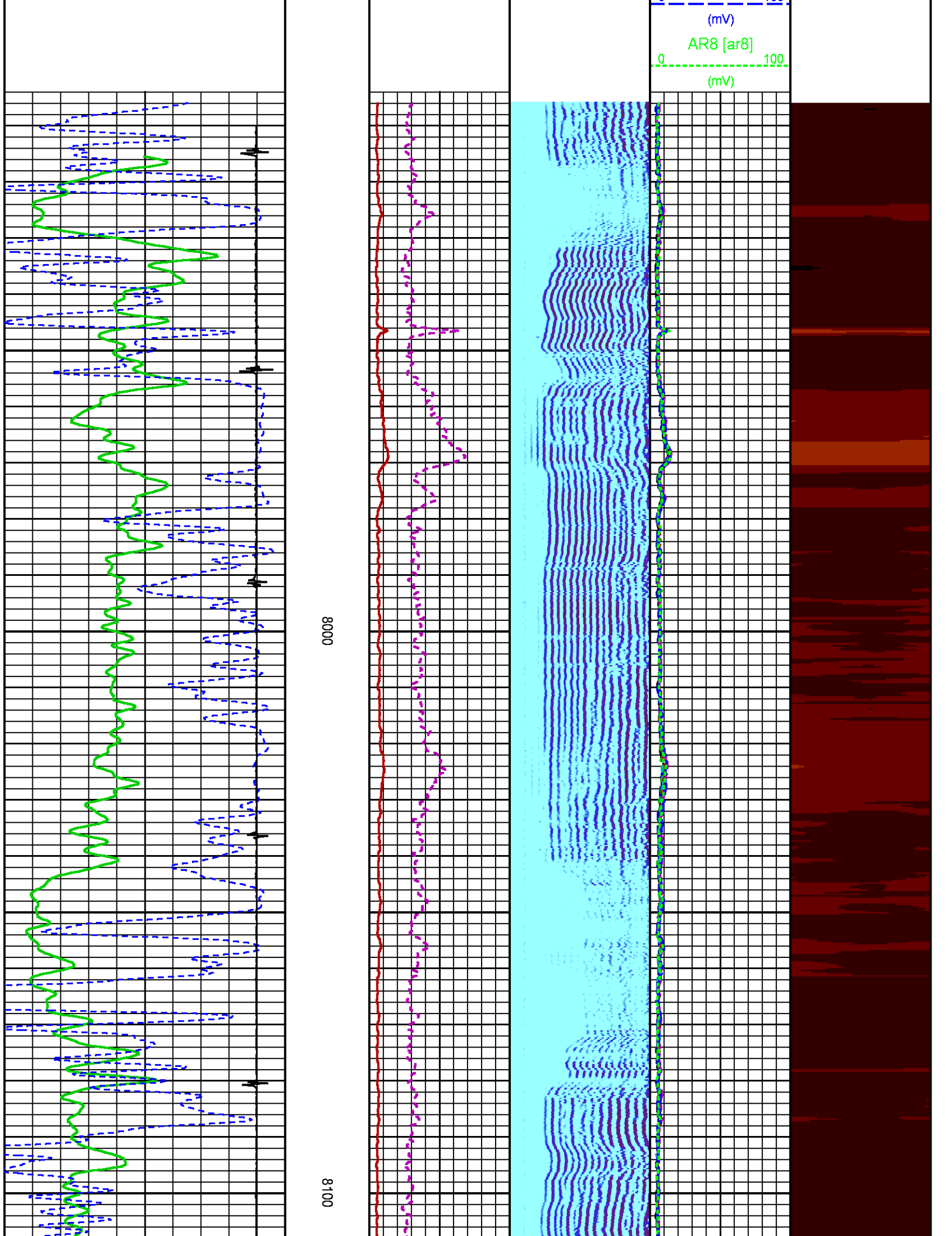
## CURVE MEASURE POINT OFFSET

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		

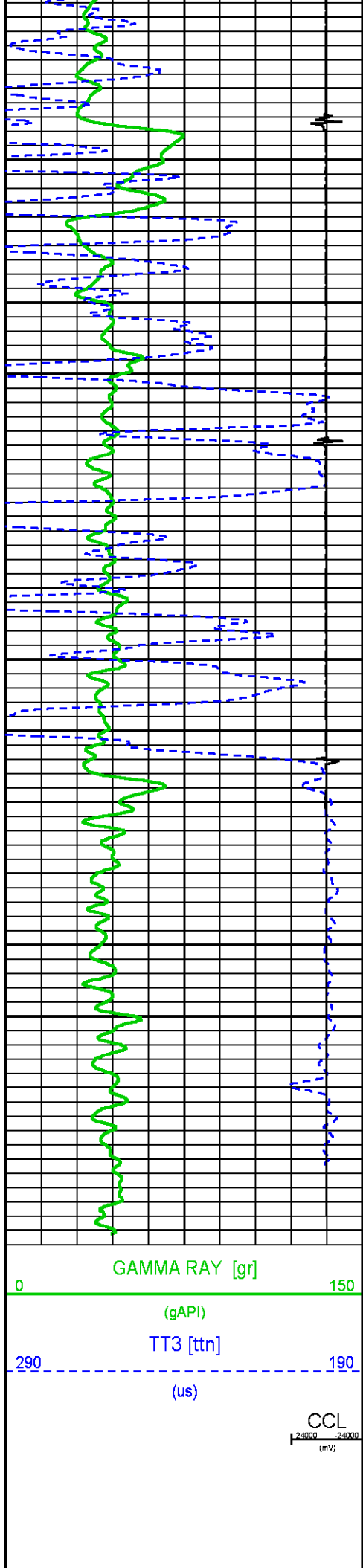
Presentation : BHI78FR4H2:C:\dat1a\BRUTON\_19\_04E\BRUTON\_19\_04E\_RAL\_RPT.fvpdf [5"/100' Scale]  
Plot Interval : 7905.75 - 8282.25 Feet

Data File 1 : F1 : BHI78FR4H2:C:\dat1a\BRUTON\_19\_04E\BRUTON\_19\_04E\_RAL\_RPT.xtf  
Created On : N/A  
Company : LARAMIE ENERGY II LLC  
Well : BRUTON 19-04E  
Field : VEGA  
File Interval : 7903.5 - 8283.5 Feet  
OCT : p012g



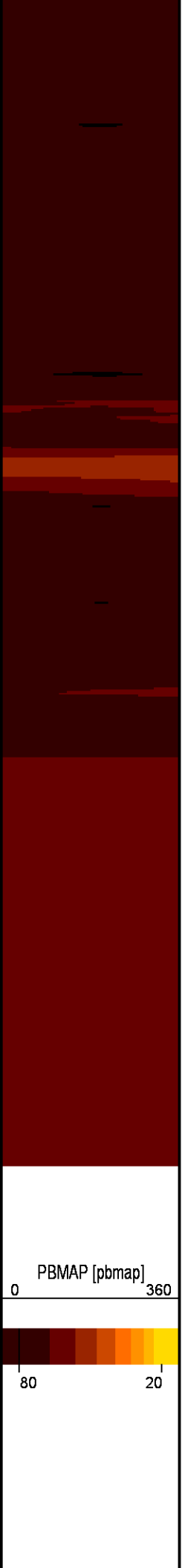
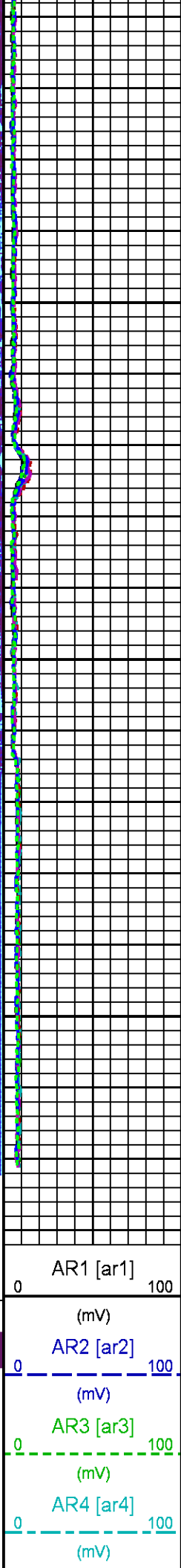
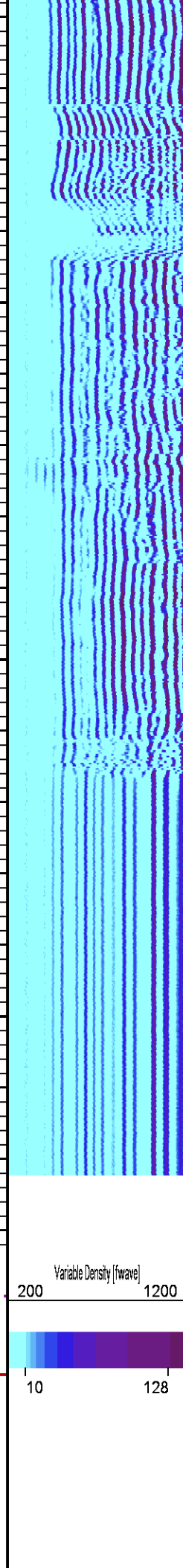
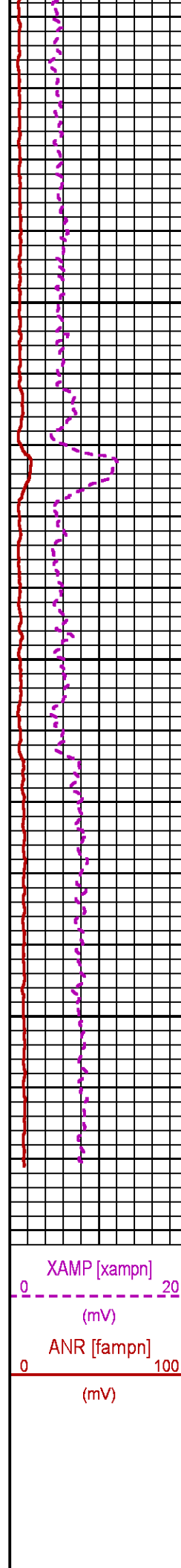


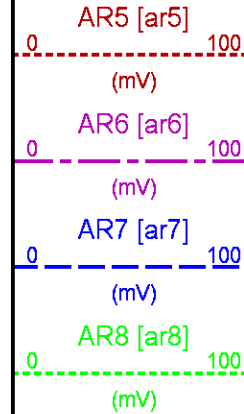




8200

FEET





## CALIBRATION / VERIFICATION SUMMARY

Source File: C:\dat1a\BRUTON\_19\_04Ep012g.tp1

### RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10218496

DATE/TIME PERFORMED: Mon Oct 23 14:27:12 2017

UNIT #: CHANGE ME

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

	NEAR	R1	R2	R3	R4	R5	R6	R7	R8	FAR	CAL
ZERO (mV)	0.05	0.11	0.07	0.06	0.04	0.05	0.12	0.15	0.03	0.96	0.01
AMP FLUID (mV)	87	86	85	85	86	87	88	88	87	115	85
TT (us)	184	194	194	199	193	188	191	197	192	299	202
M FACTOR	1.16	1.17	1.18	1.17	1.16	1.14	1.14	1.14	1.15	1.31	1.18

## INSTRUMENT CONFIGURATION

Source File: C:\dat1a\BRUTON\_19\_04EPAL.tdg.meta

CABLEHEAD

Diameter : 2.75"  
 Length : 2.25'  
 Weight : 10 lbs  
 Series : CABL234

RADIAL BOND TOOL

Diameter : 2.75"  
 Length : 11.17'  
 Weight : 126 lbs  
 Series : 1426XA  
 Mnemonic : RAL  
 Measure Point: 4.21': NEAR RCVR  
 Measure Point: 3.25': FAR RCVR

RAL GR/TEMP/CCL/CHV DETECTOR

Diameter : 2.75"  
 Length : 6.96'  
 Weight : 85 lbs  
 Series : 1355XA  
 Mnemonic : RAL  
 Measure Point: 5.79': CCL  
 Measure Point: 1.67': GR  
 Measure Point: 0.17': TEMP

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



20.38'

NEAR RCVR 11.17'

FAR RCVR 10.21'

CCL 5.79'

GR 1.67'

TEMP 0.17'

**BAKER  
HUGHES**  
a GE company



**COMPANY** LARAMIE ENERGY

**WELL** BRUTON 19-04E

**FIELD** VEGA

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

**FILE NO:**

**API NO:**

05077104280000

**LOCATION:**

SHL: LAT:39.262830N;LONG:107.815107W

BHL: LAT:39.267147N;LONG:107.806900W

**SEC** 19 **TWP** 9S **RGE** 93W

**ELEVATIONS:**

**KB** 7286 FT

**DF** 7286 FT

**GL** 7262 FT

**DATE** 26-OCT-2017