



RADIAL CEMENT BOND LOG

FILE NO:

COMPANY

LARAMIE ENERGY LLC

WELL

BRUTON 30-03W

FIELD

VEGA

API NO:
05077104460000

COUNTY

MESA

STATE COLORADO

Version

LOCATION:

SHL: LAT:39.252683N; LONG: 107.814261W
BHL: LAT:39.253624N; LONG: 107.816227W

OTHER SERVICES
RPM

SEC 30 TWP 9S RGE 93W

PERMANENT DATUM GL ELEVATION 7512 FT
LOG MEASURED FROM KB 30 FT ABOVE P.D.
DRILL MEAS. FROM KB

ELEVATIONS:
KB 7542 FT
DF 7541 FT
GL 7512 FT

DATE 02-Nov-2017

RUN 1 TRIP 1

SERVICE ORDER US128858

DEPTH DRILLER 7664 FT

DEPTH LOGGER 7591 FT

BOTTOM LOGGED INTERVAL 7591 FT

TOP LOGGED INTERVAL 30 FT

TIME STARTED 16:00

TIME FINISHED 19:00

OPERATOR RIG TIME 3 HRS

TYPE OF FLUID IN HOLE WATER

FLUID DENSITY NA

FLUID SALINITY NA

FLUID LEVEL 54 FT

LOGGED CEMENT TOP 1566 FT

WELLHEAD PRESSURE 0 PSI

MAXIMUM HOLE DEVIATION NA

NOMINAL LOGGING SPEED 90 FMIN

MAX. RECORDED TEMP. 232 DEGF

REFERENCE LOG NA

REFERENCE LOG DATE NA

EQUIP. NO. LOCATION HL-6670 WOODWARD

RECORDED BY C.COFFELT

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: *TWO OPERATIONS IN WELLBORE*

OPERATION 1: RAL/GR/CCL RUN CENTRALIZED

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 6762' - 6784'

SJ: 5674' - 5696'

CREW: M.MENTZER, K.REED

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426 XA	10218497	CENTRALIZED
1	1	GR/CCL	1355 XA	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 Nov 02 19:32:23 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\dat1a\LARAMIE_BRUTON_30_03W\p012g03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 7.500 ft BOTTOM DEPTH: 1092.250 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*)	2	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-69	us	"	"
	TOOL DELAY (str2*)	-69	us	"	"
	TOOL DELAY (str3*)	-69	us	"	"
	TOOL DELAY (str4*)	-69	us	"	"
	TOOL DELAY (str5*)	-69	us	"	"
	TOOL DELAY (str6*)	-69	us	"	"
	TOOL DELAY (str7*)	-69	us	"	"
	TOOL DELAY (str8*)	-69	us	"	"
	TOOL DELAY (strn*)	-69	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	"	"

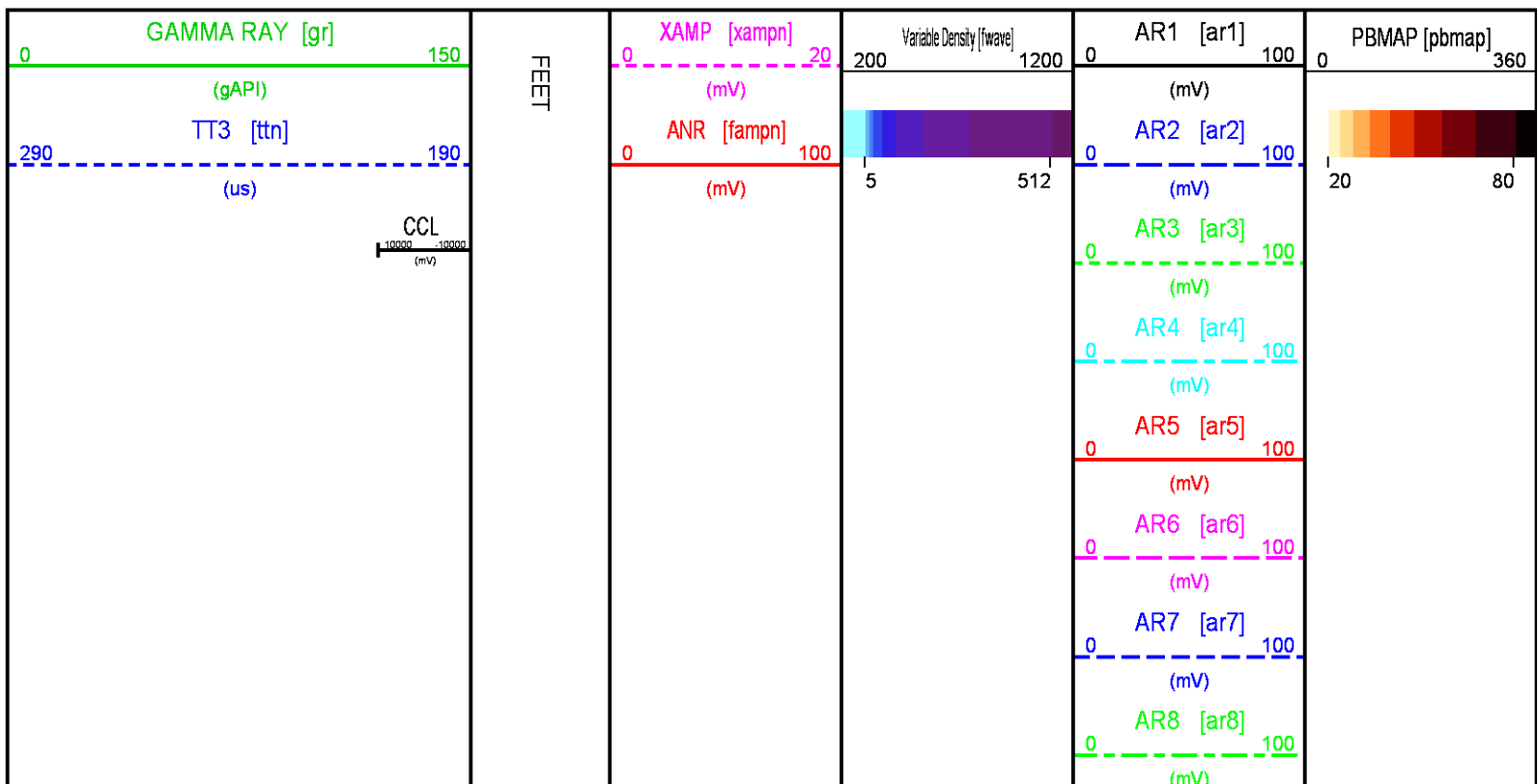
CURVE DESCRIPTION REPORT

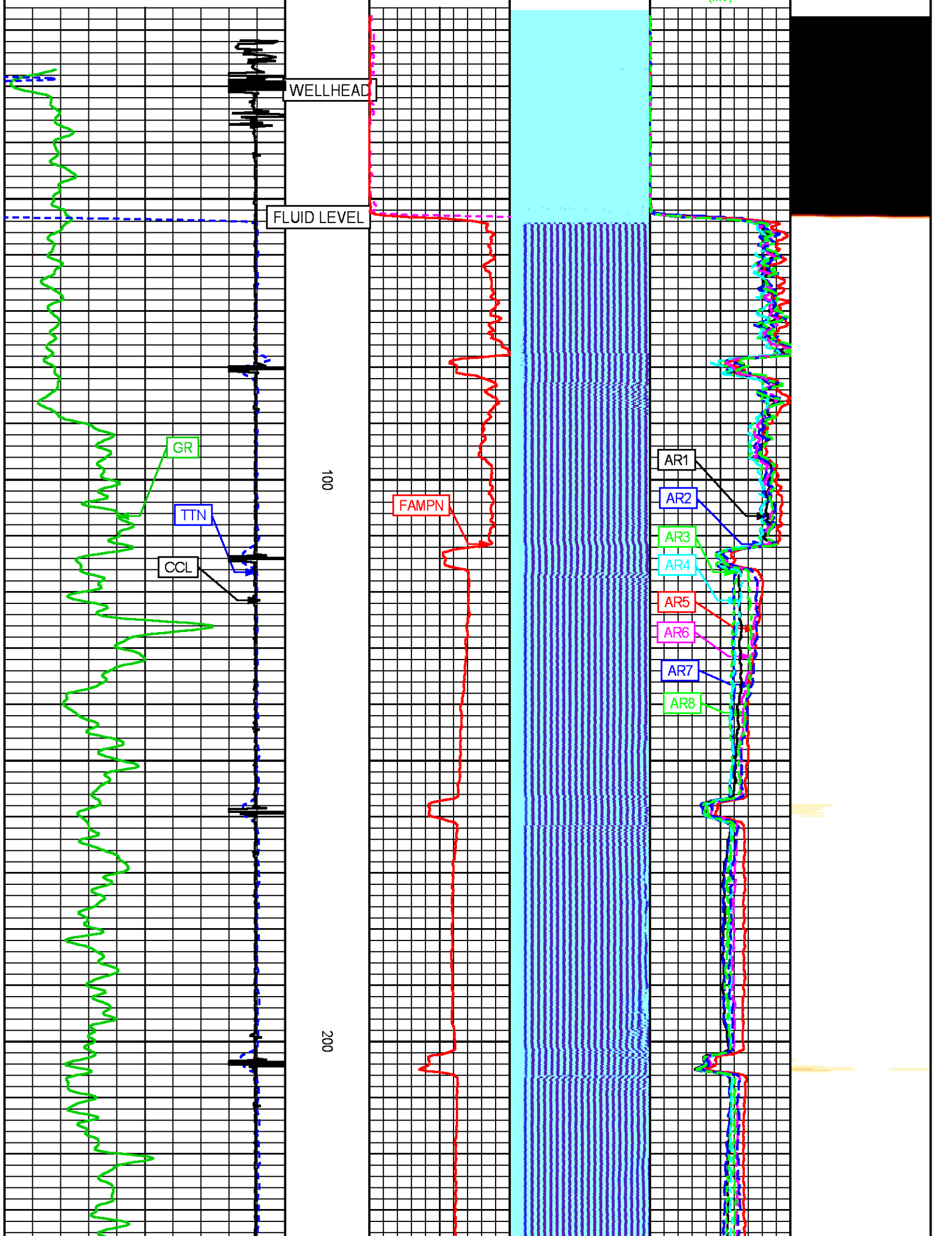
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

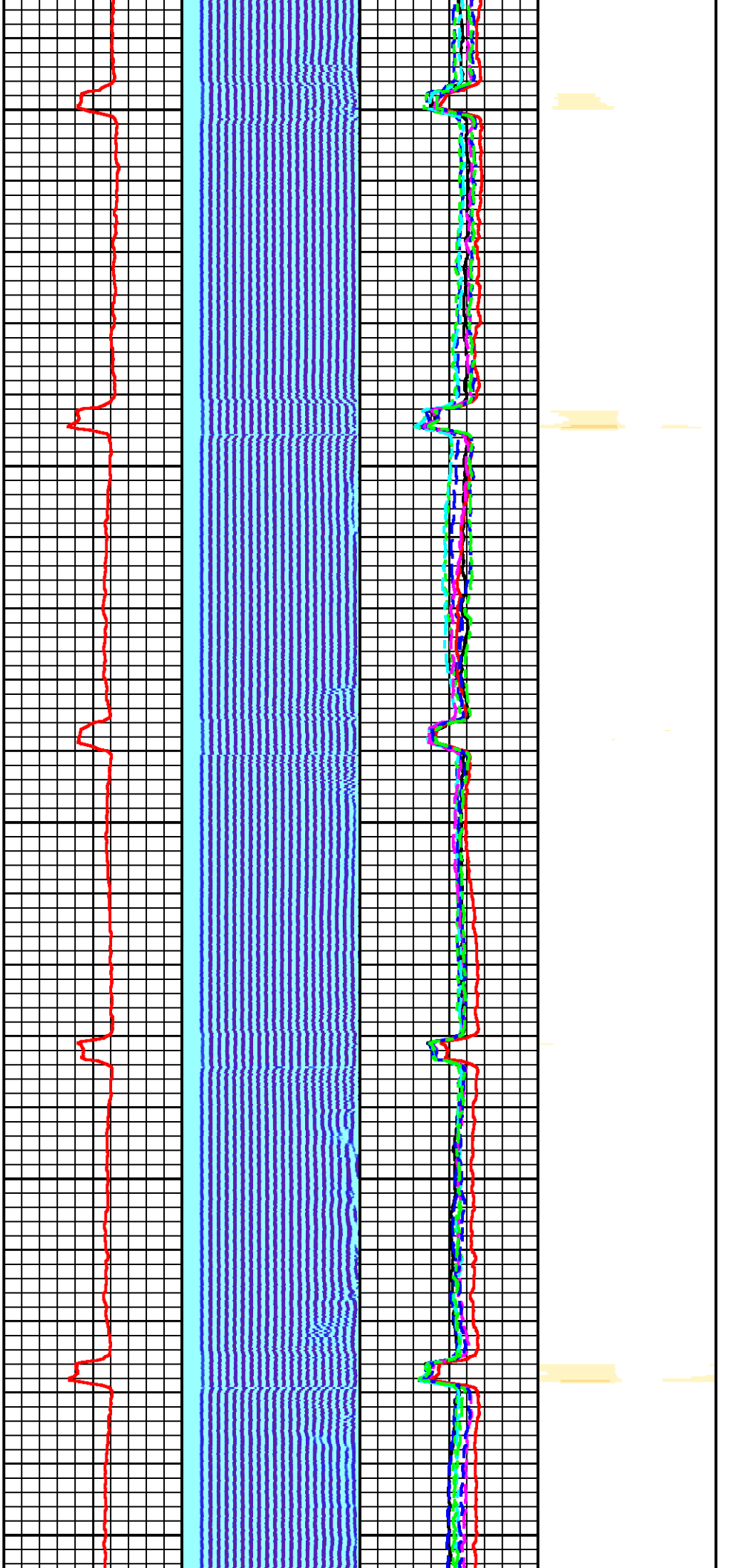
CURVE MEASURE POINT OFFSET

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		

Presentation	: BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_03W\LARAMIE_RAL+RAL_MN_03W.fvpdf [5"/100' Scale]
Plot Interval	: 16.5 - 7598.75 Feet
Data File 1	: F1 : BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_03W\RAL_MN_03W.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: BRUTON 30-03W
Field	: VEGA
File Interval	: -3.5 - 7598.75 Feet
OCT	: p012g

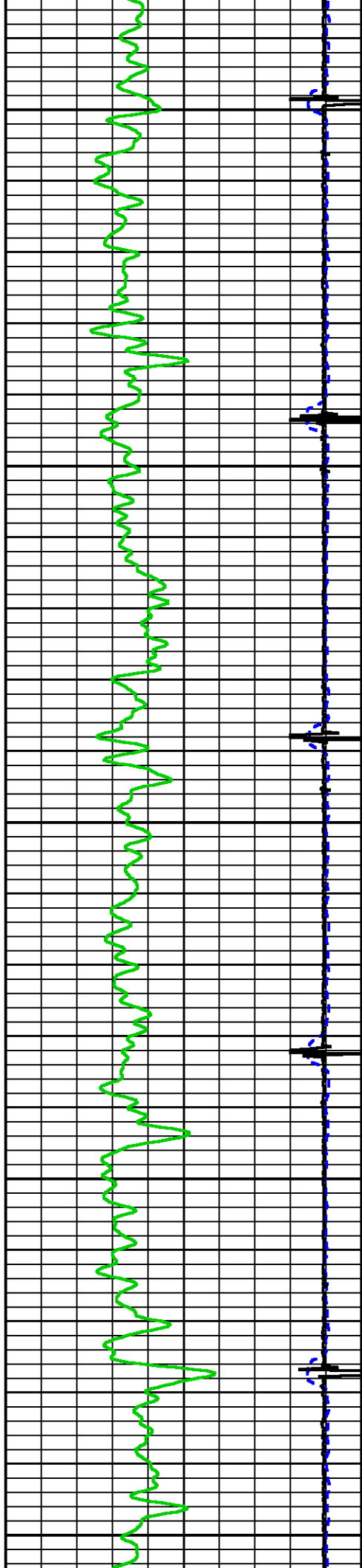


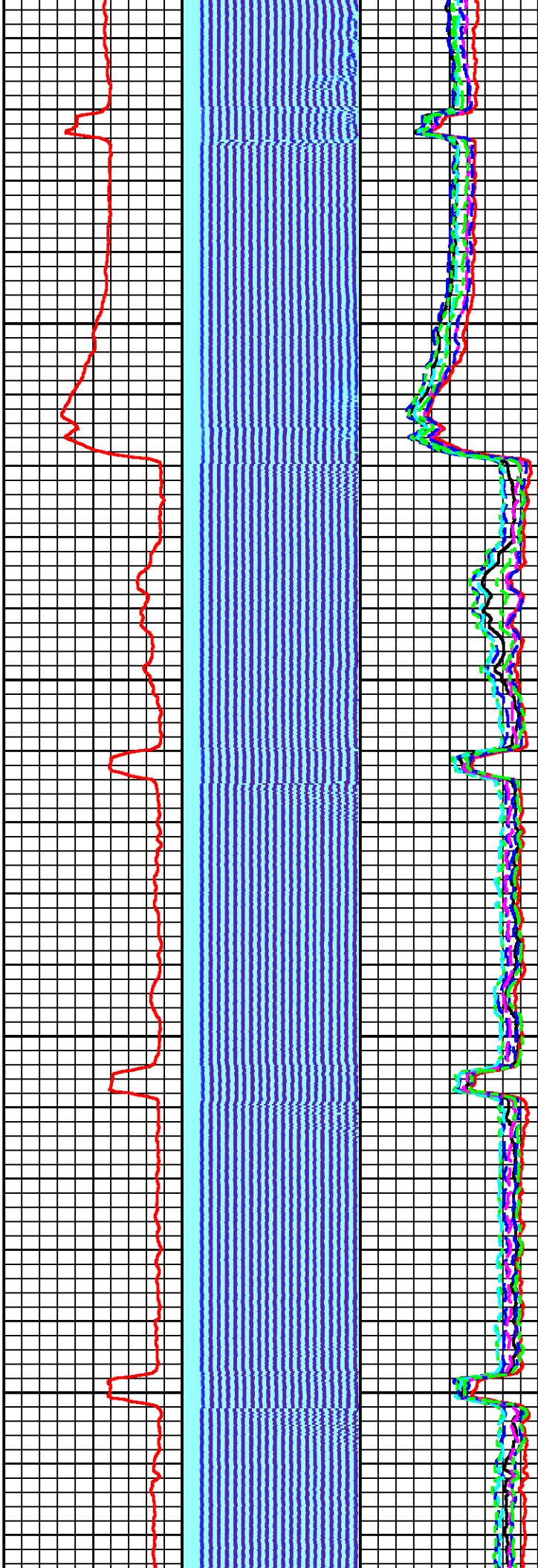
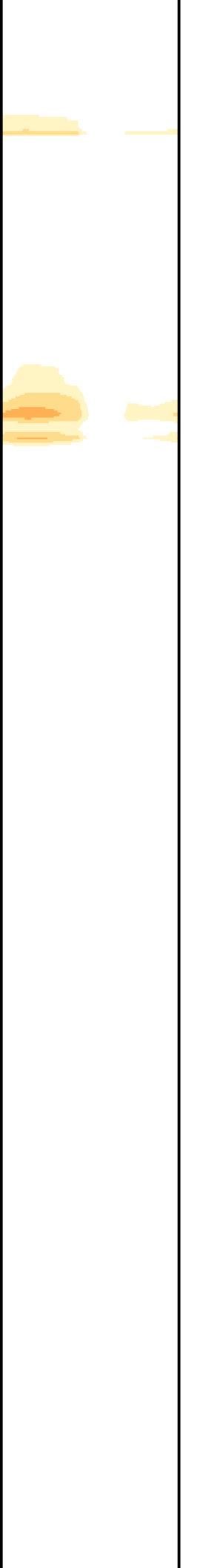




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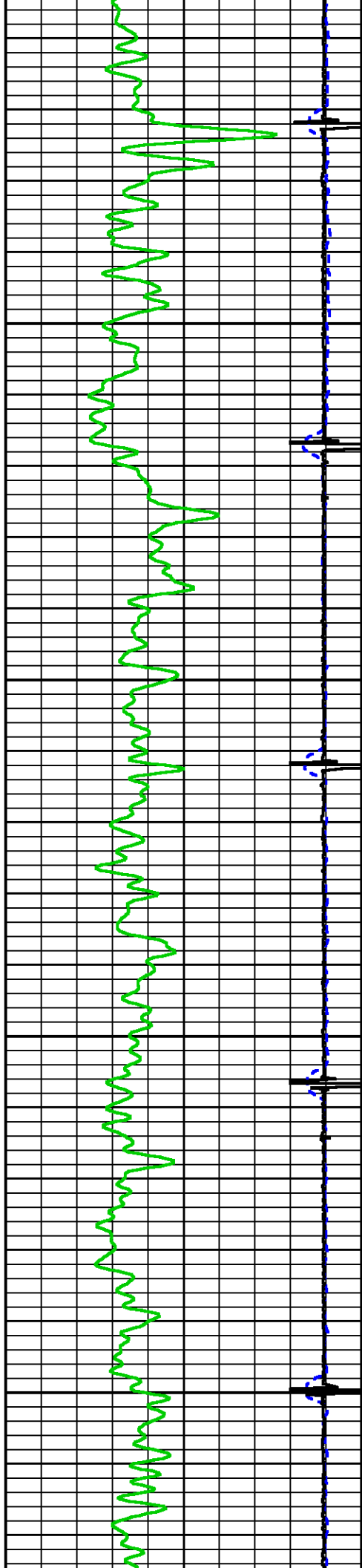
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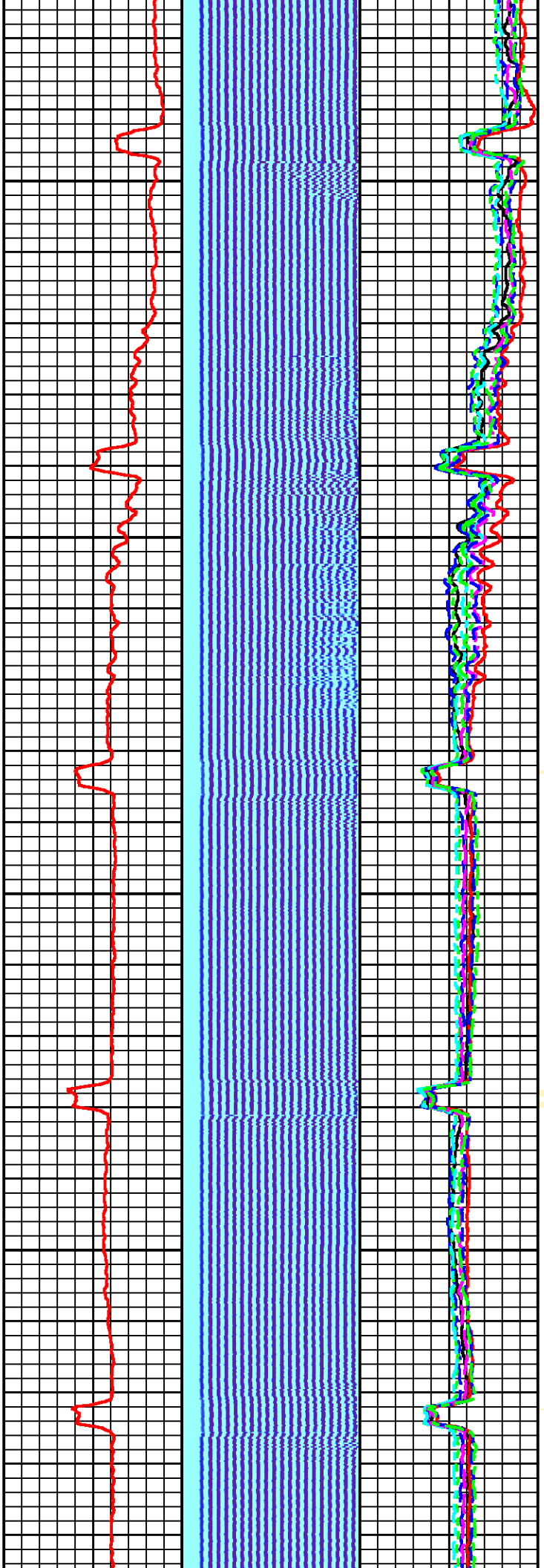




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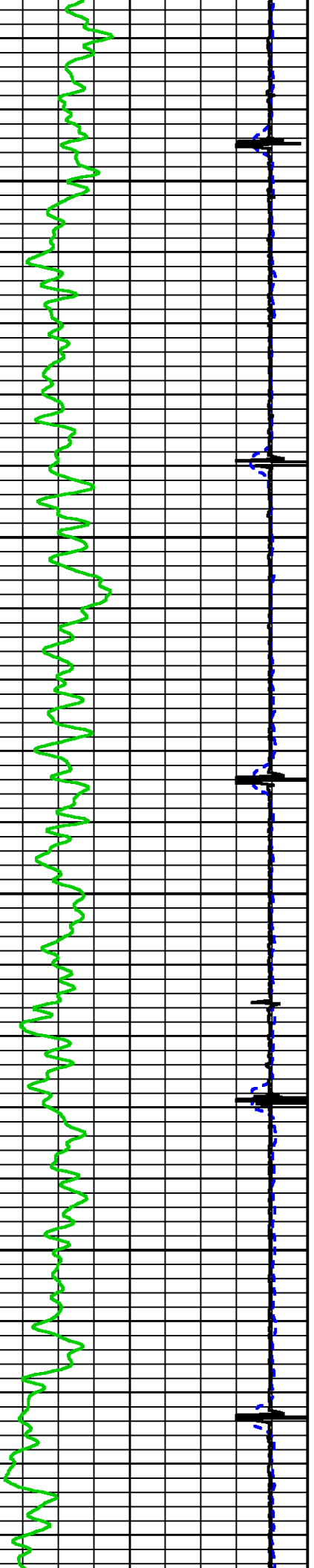
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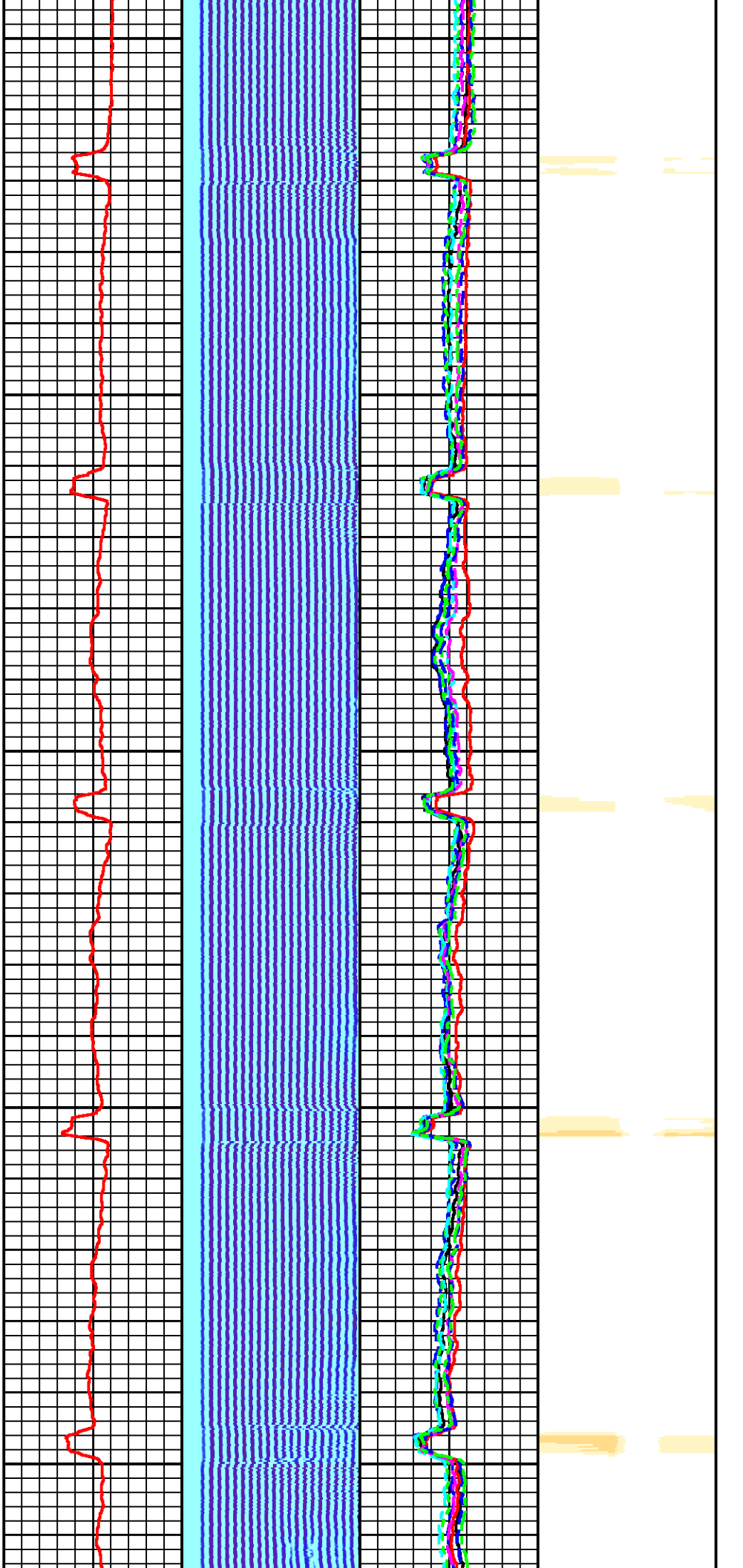




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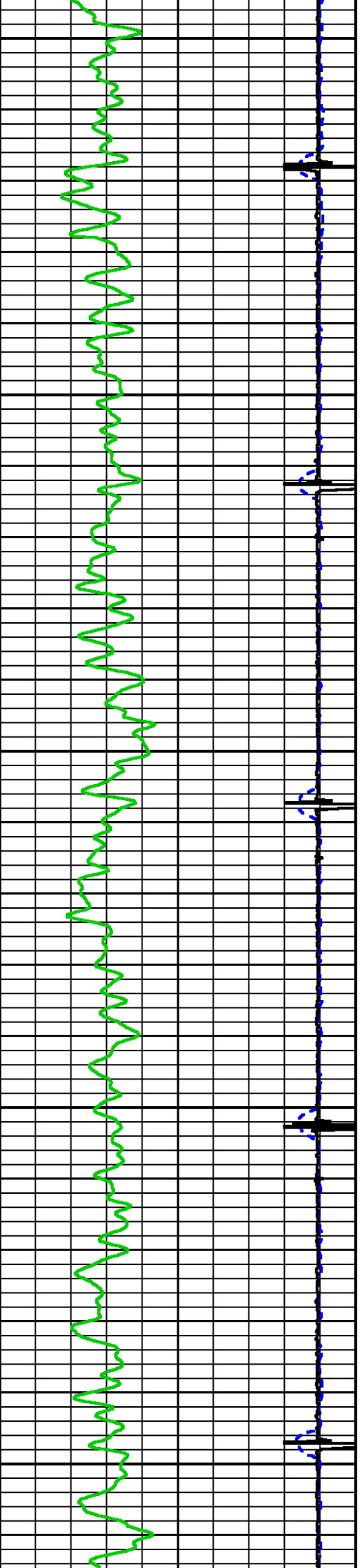


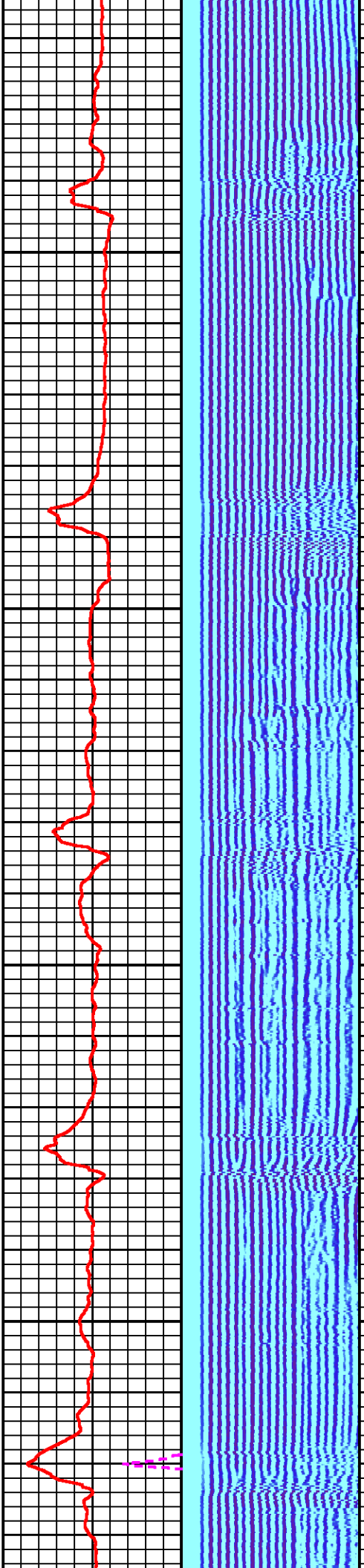
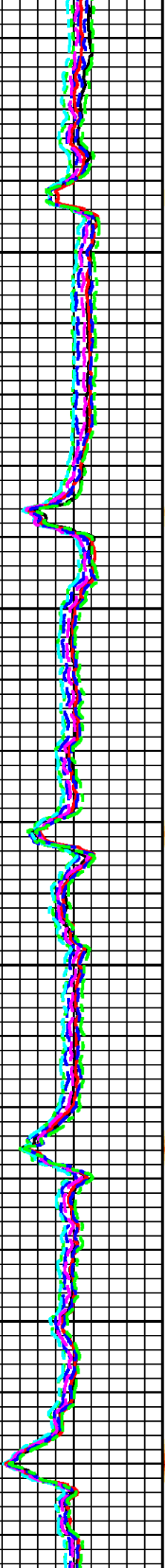
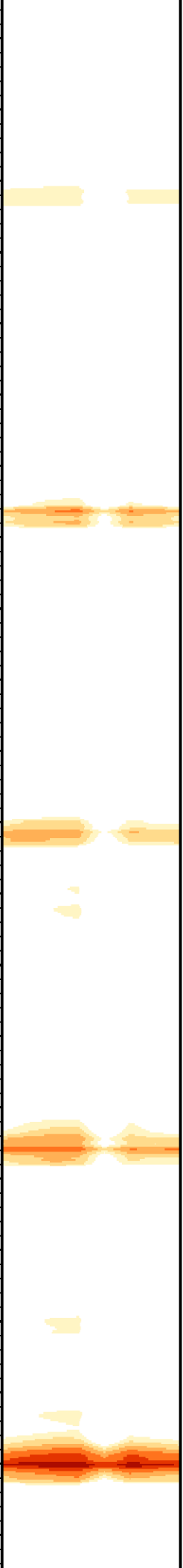


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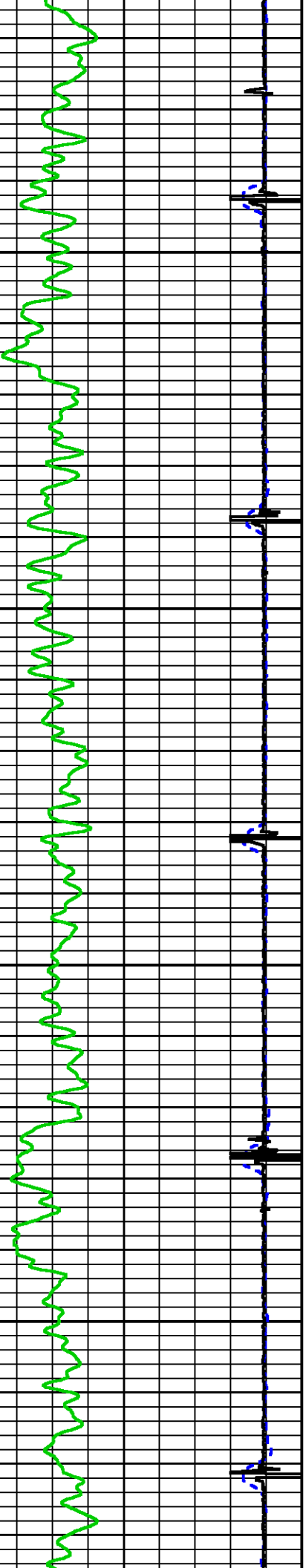
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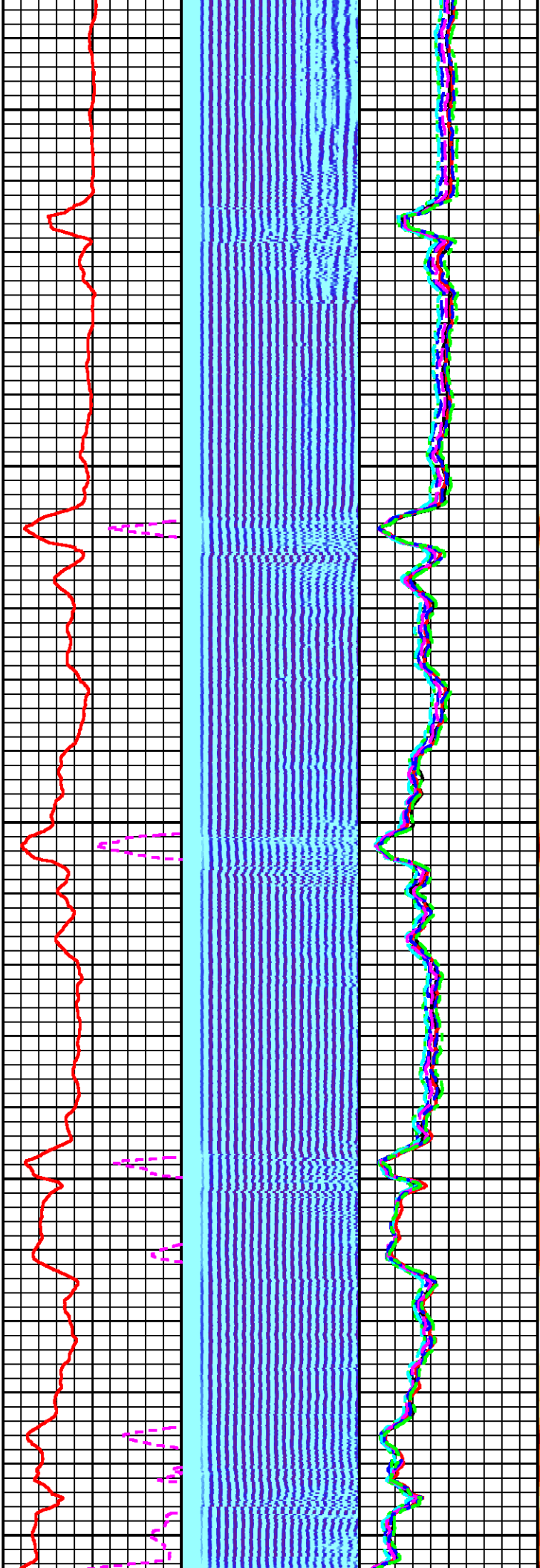
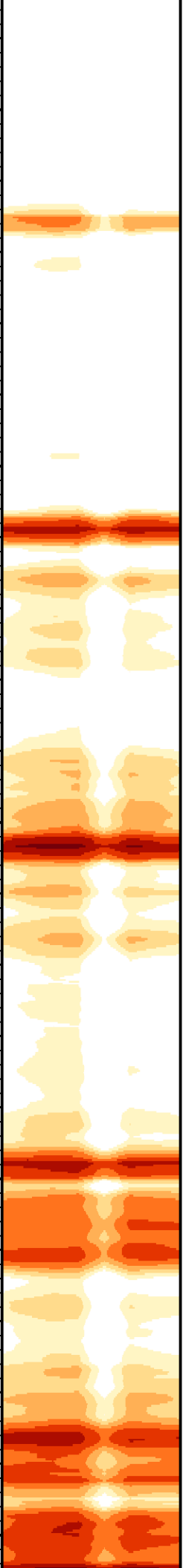




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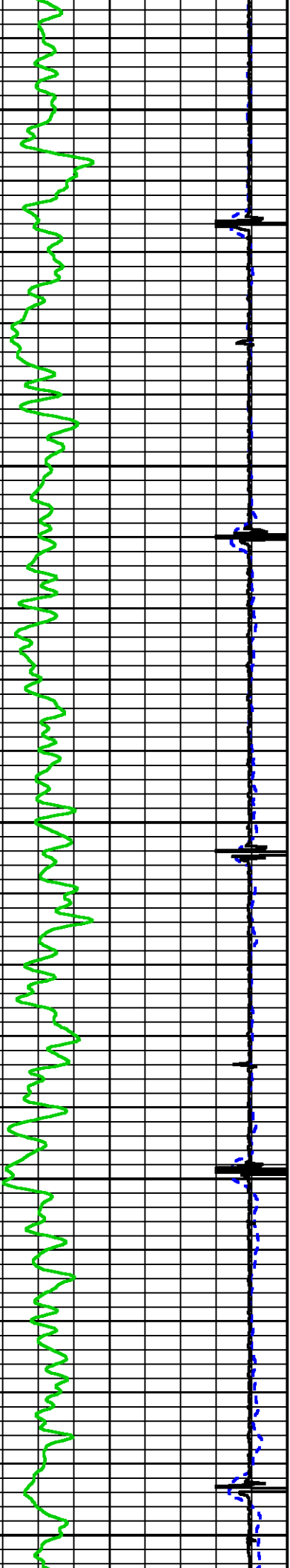
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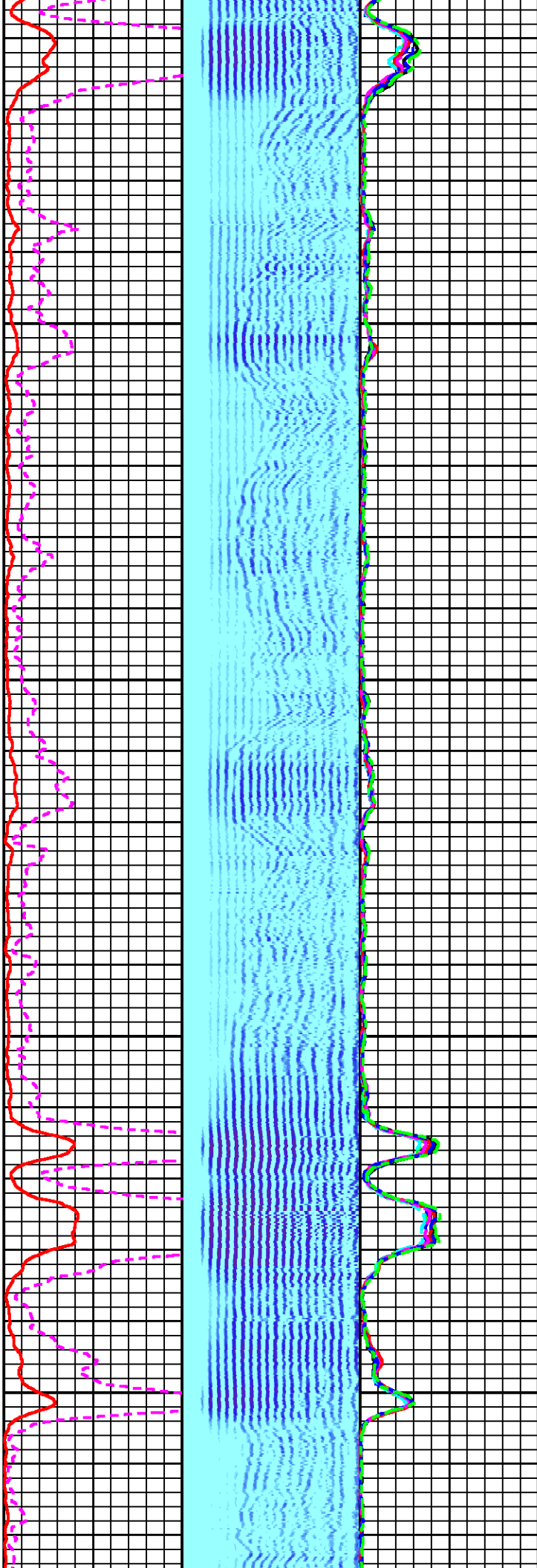
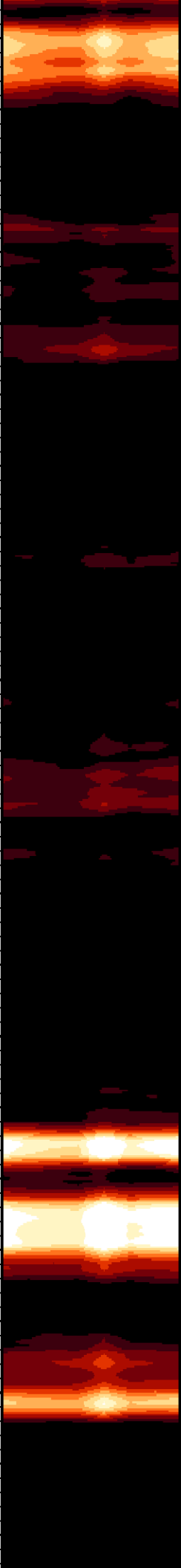




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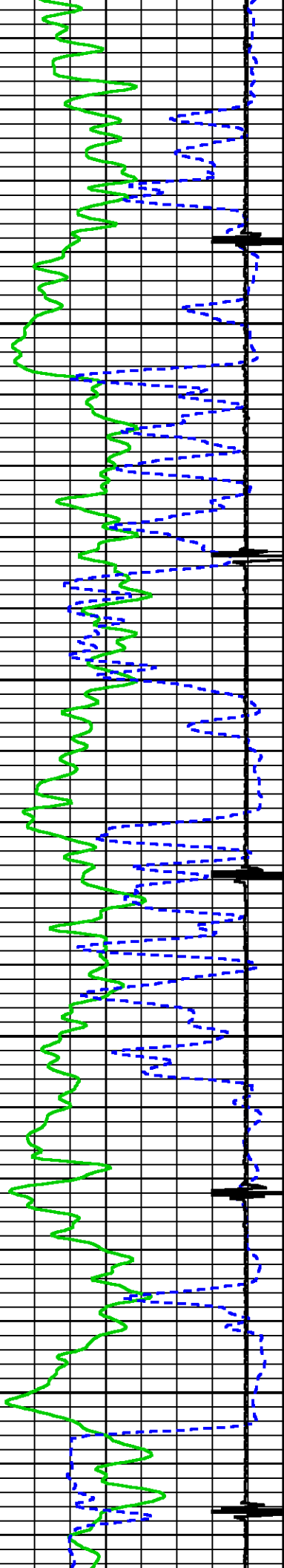
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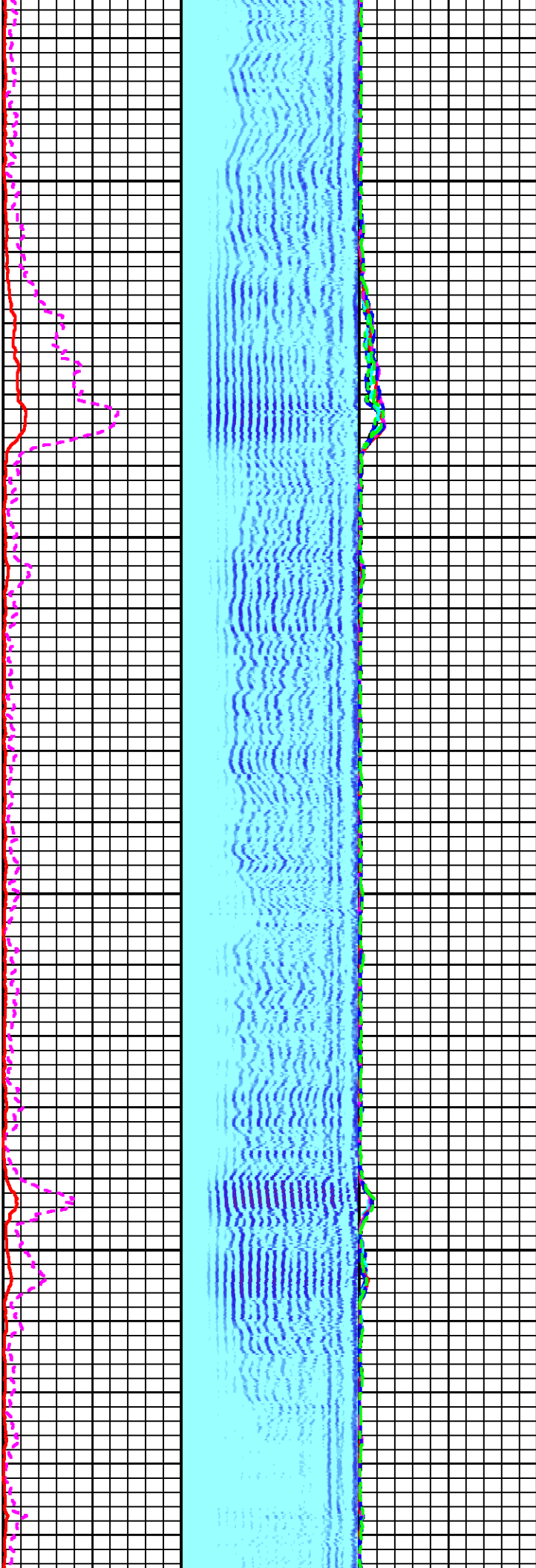




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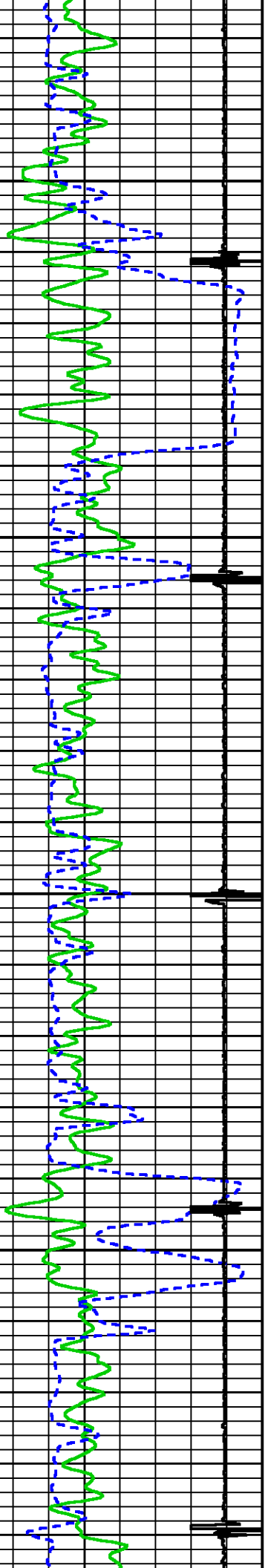
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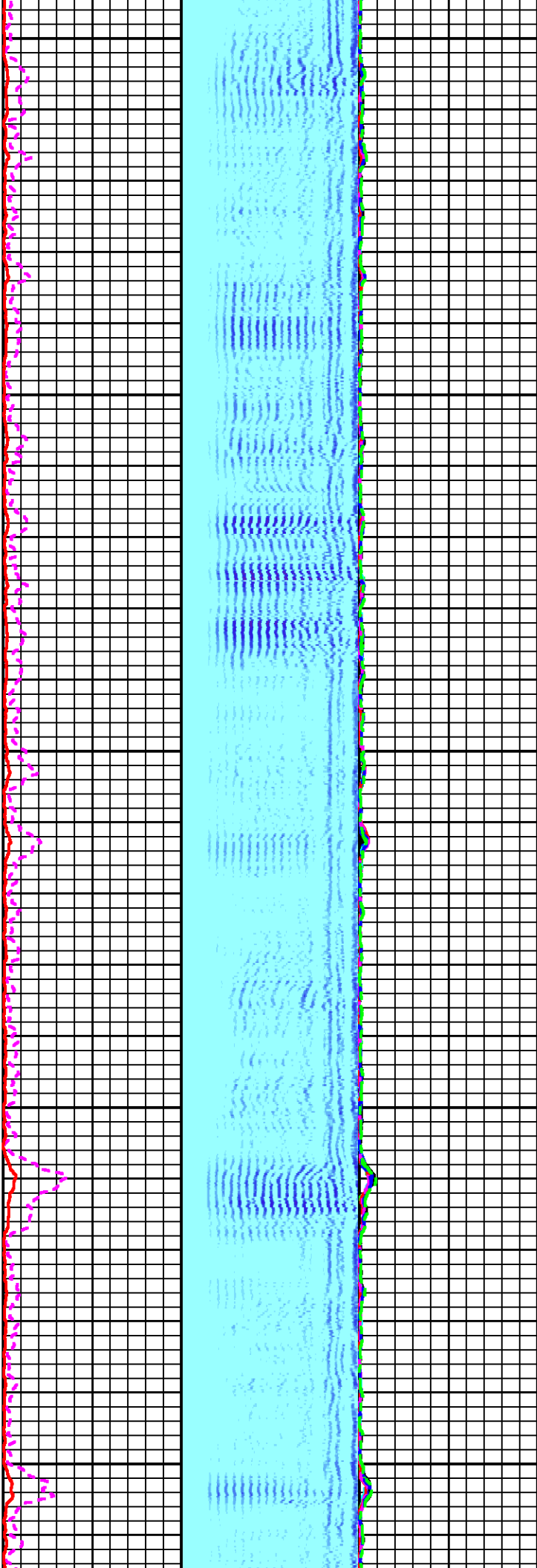




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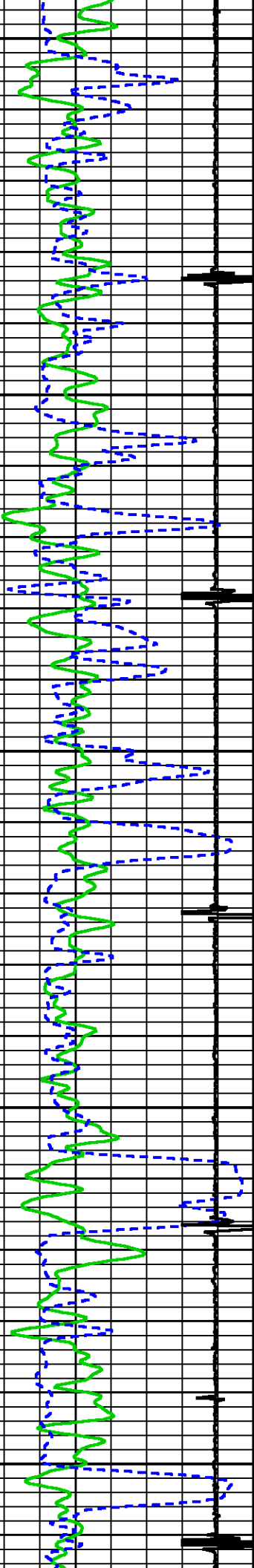


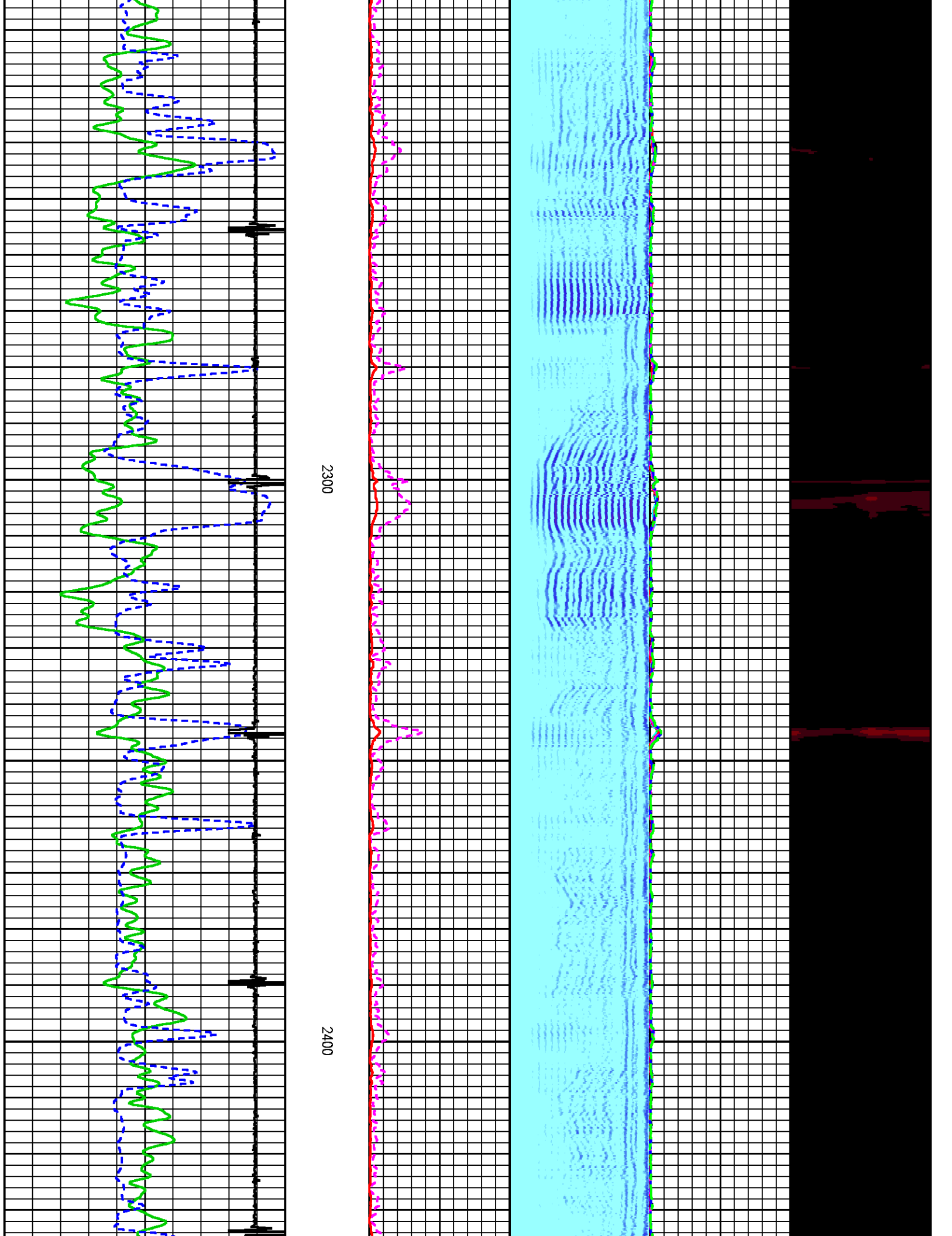


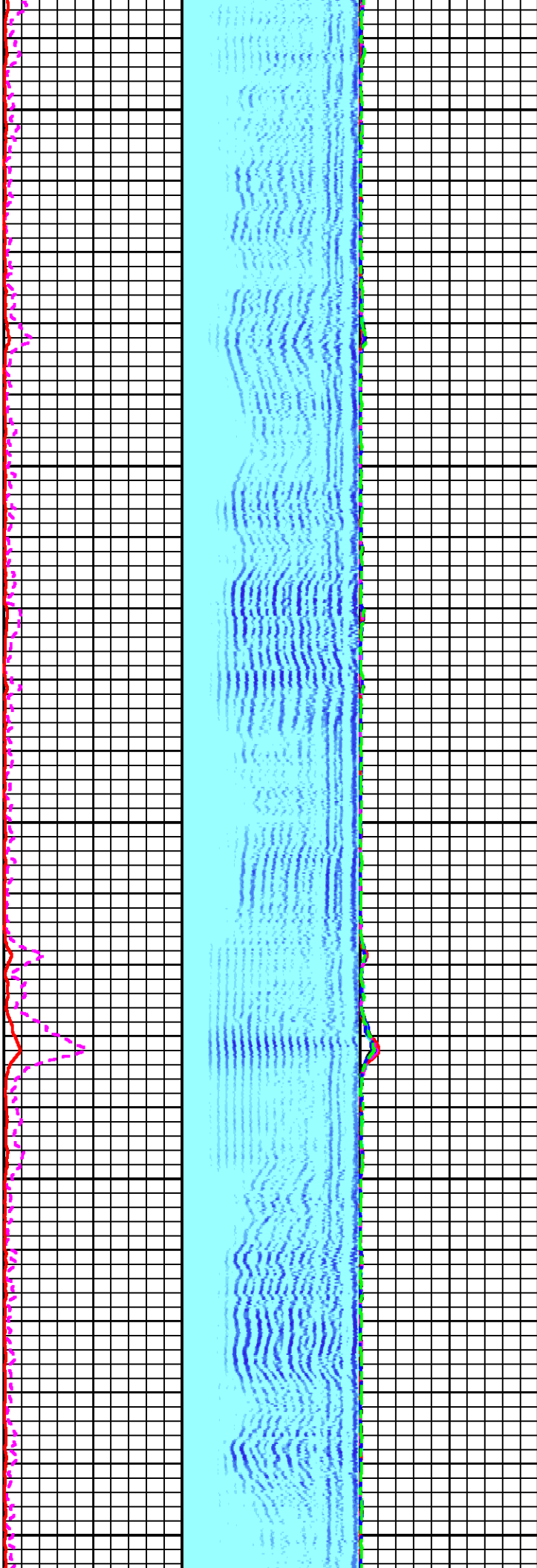
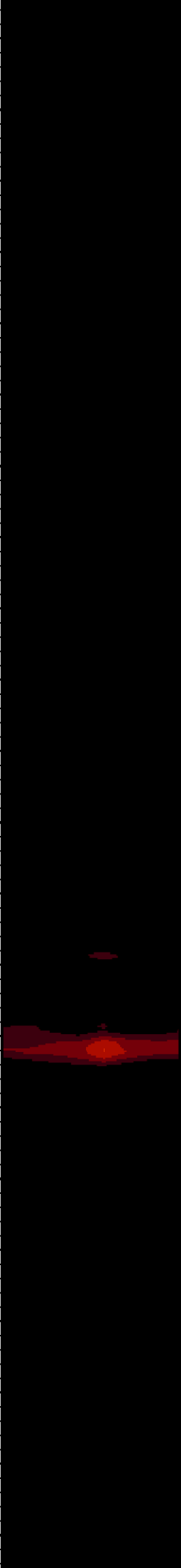
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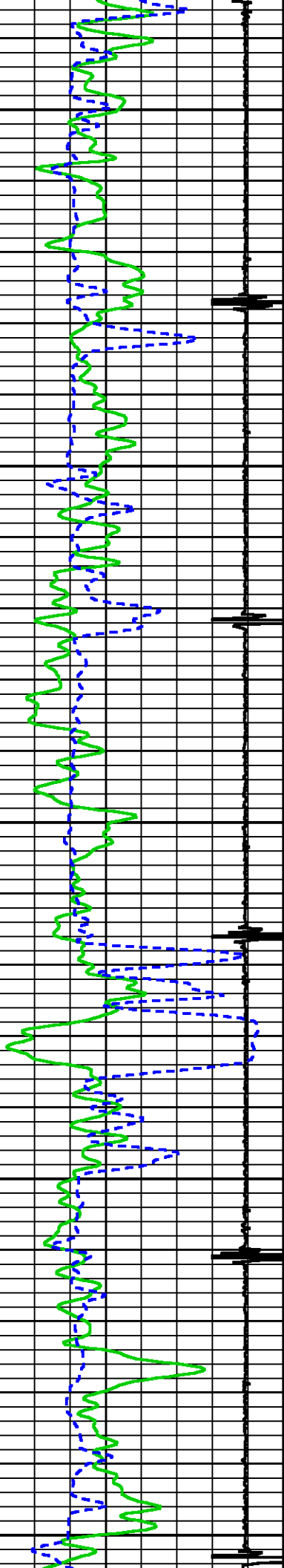


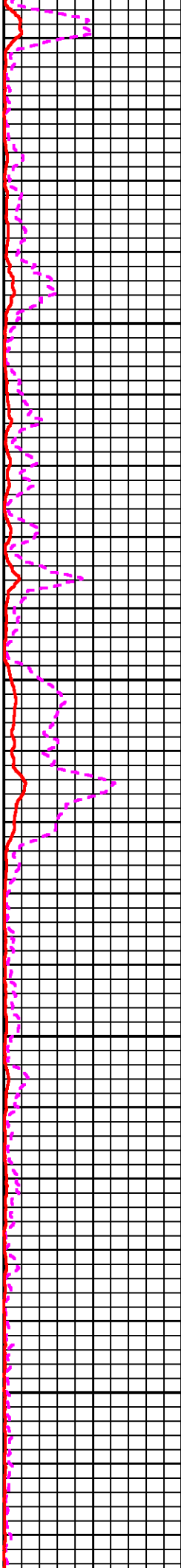
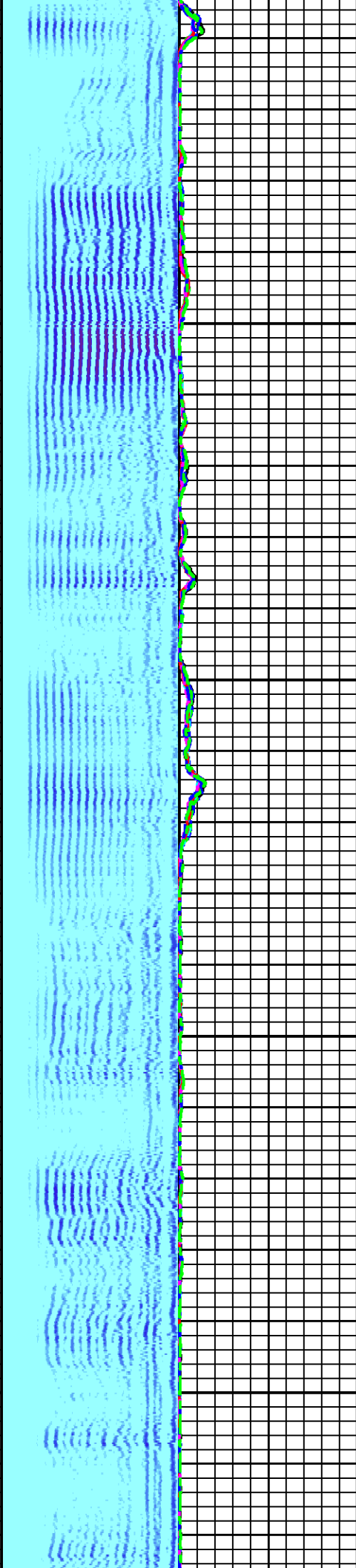
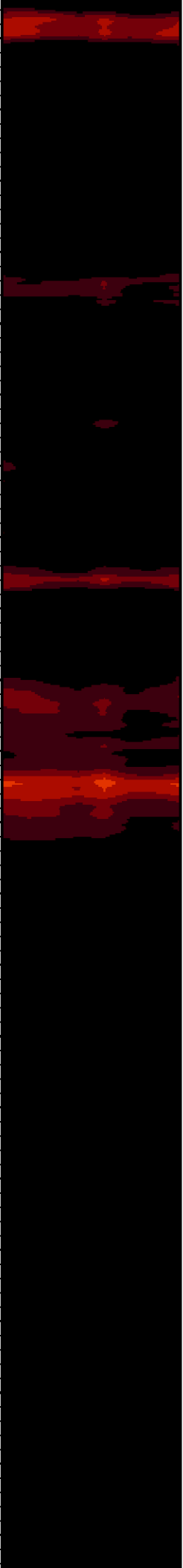




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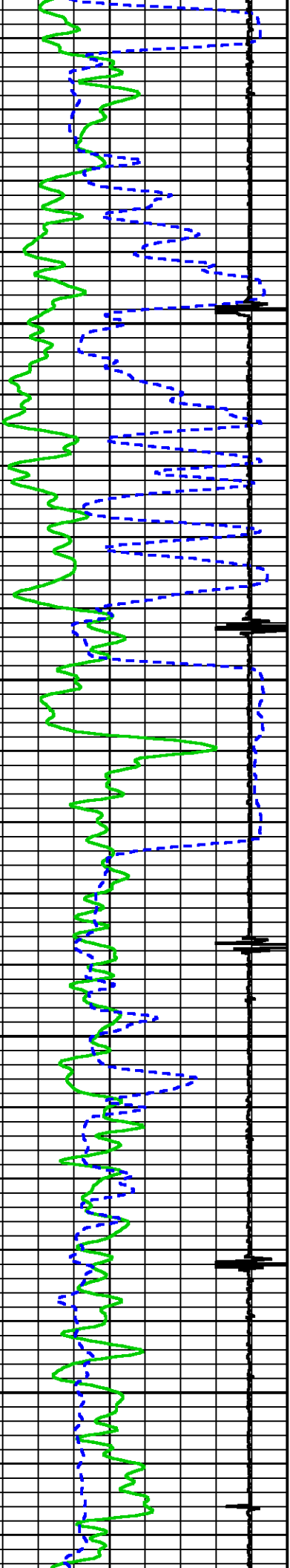
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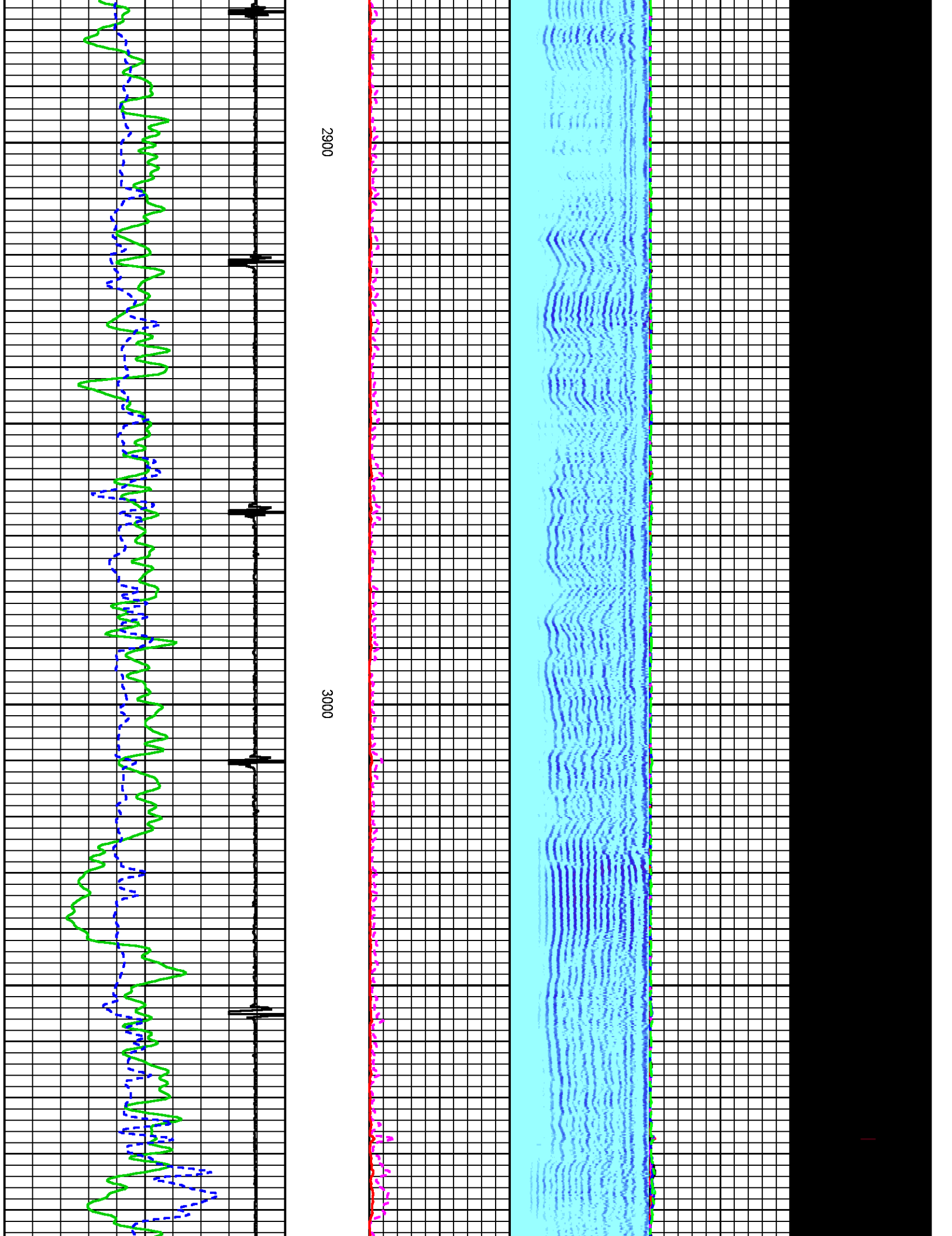


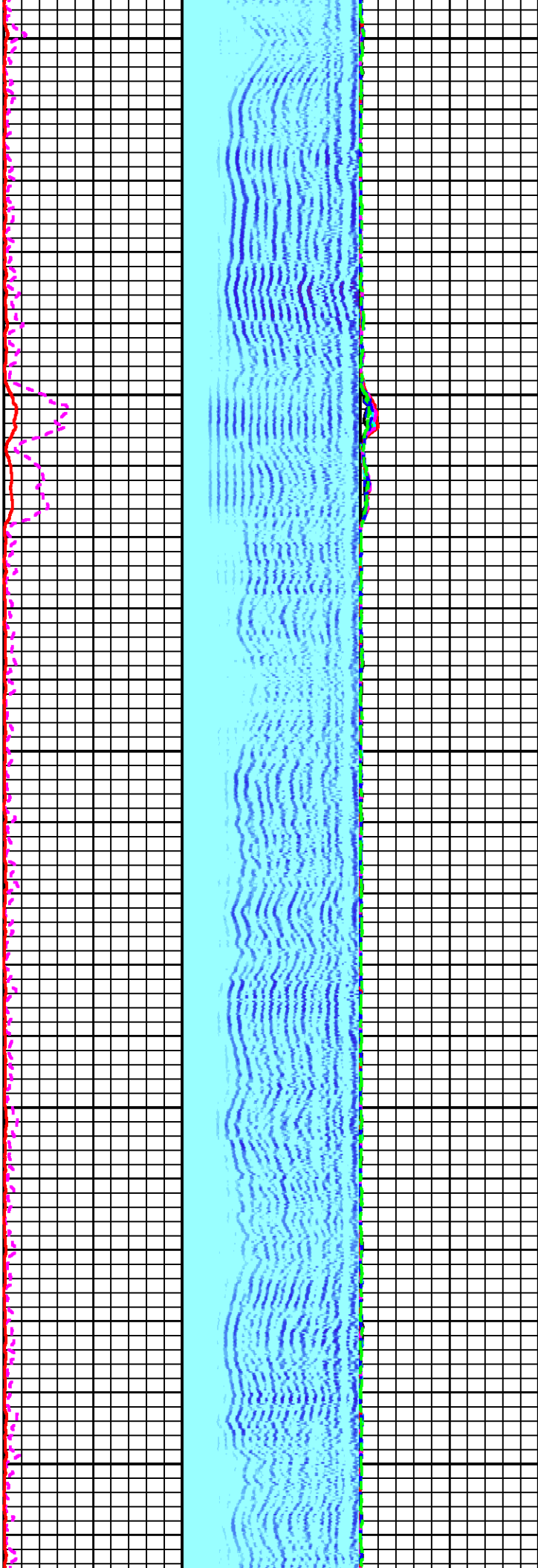
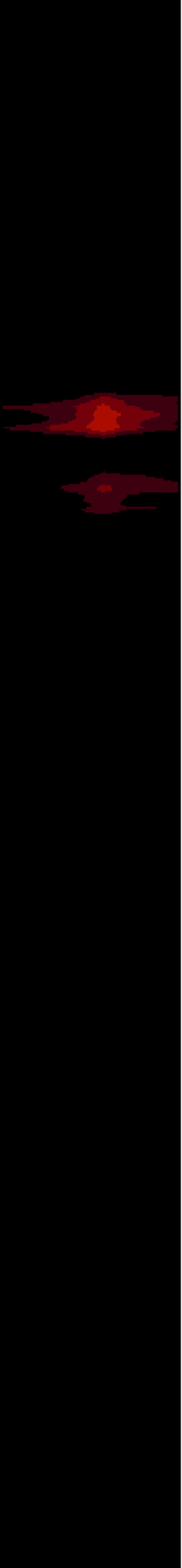


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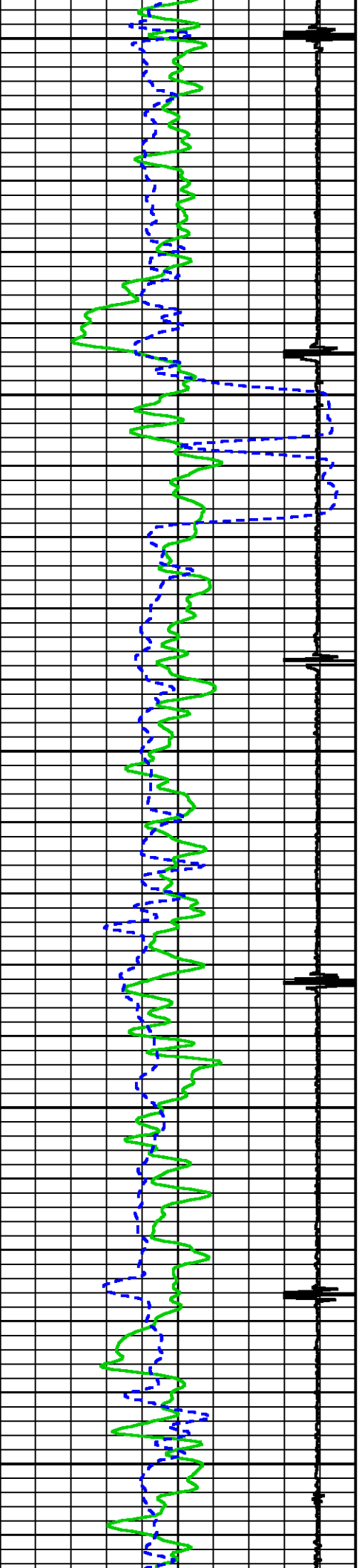


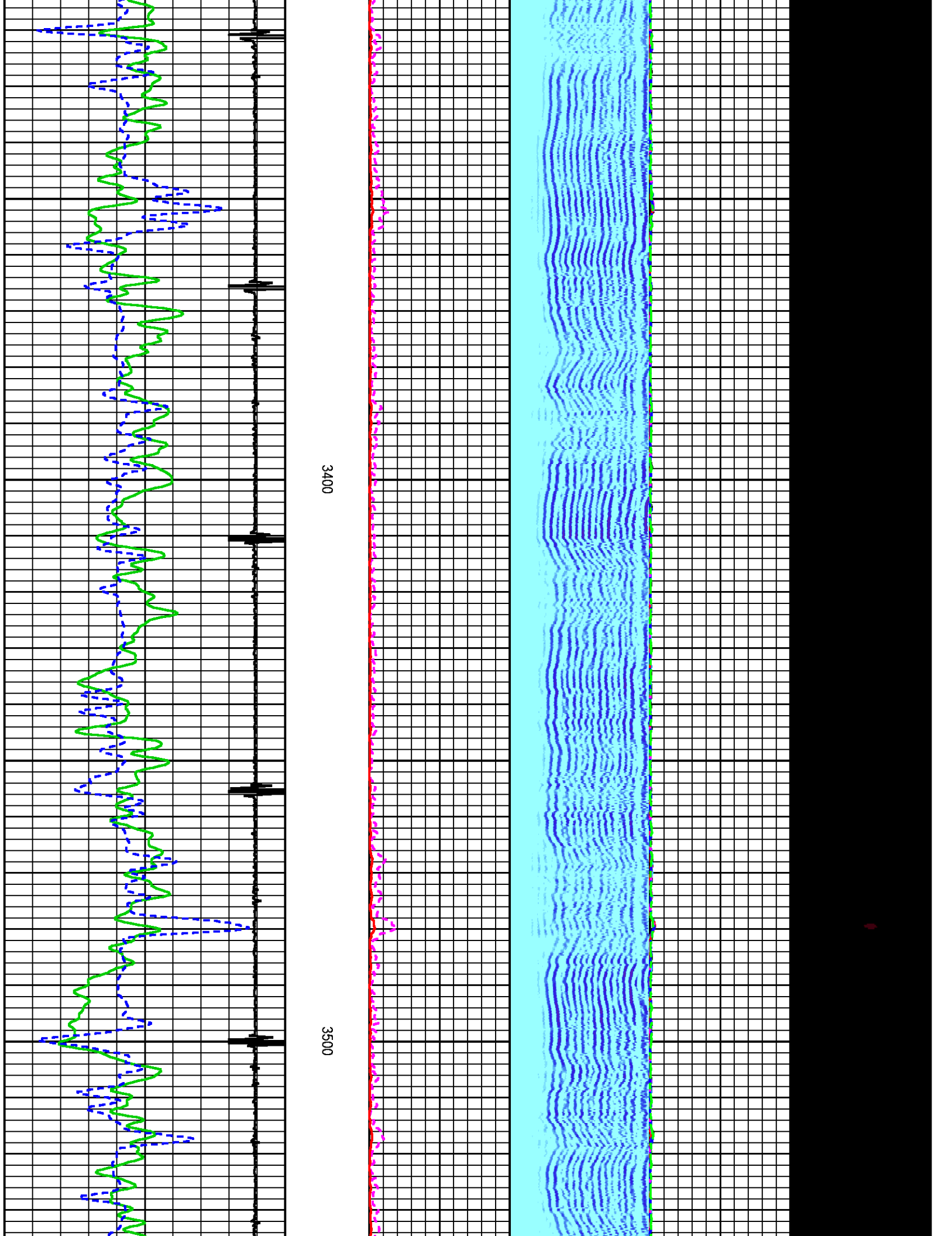


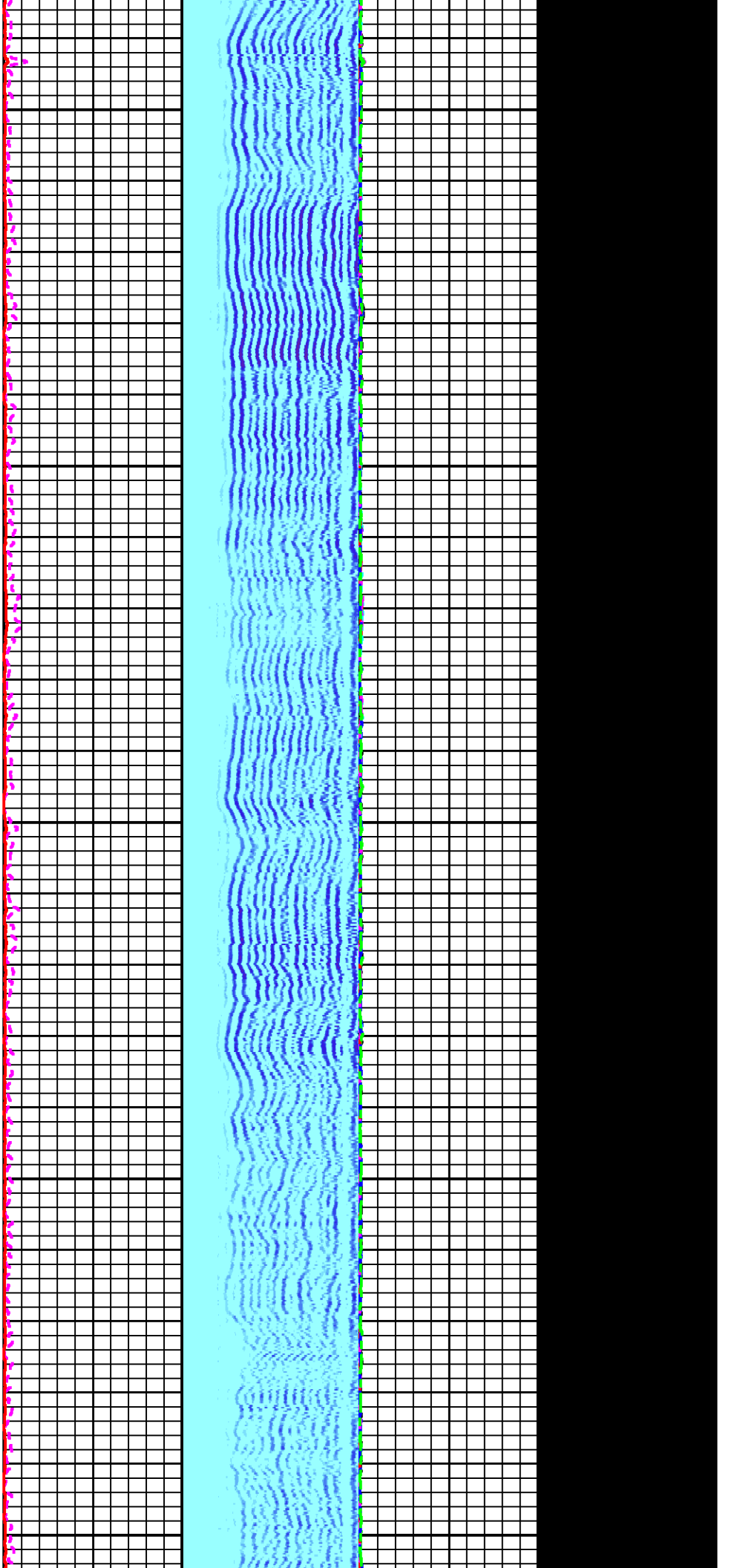
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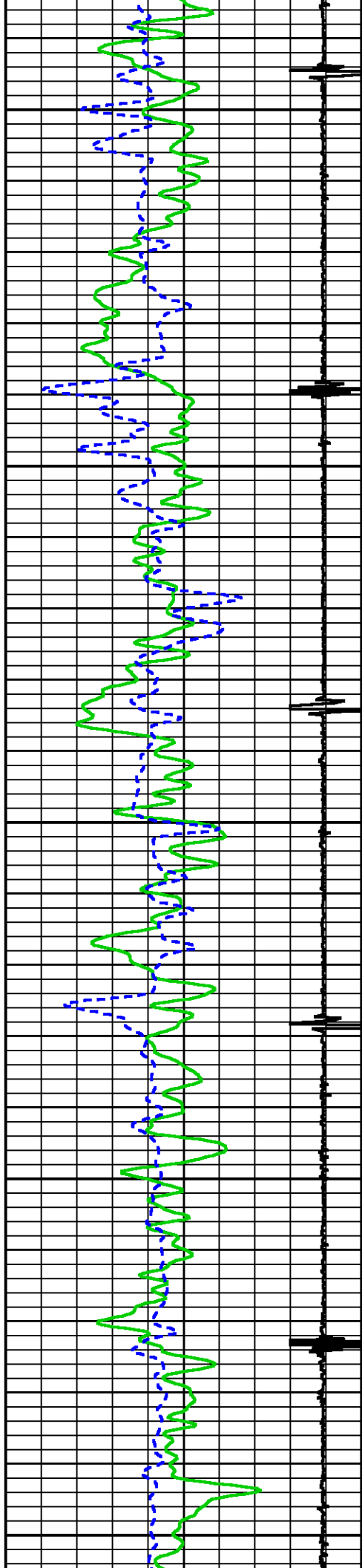


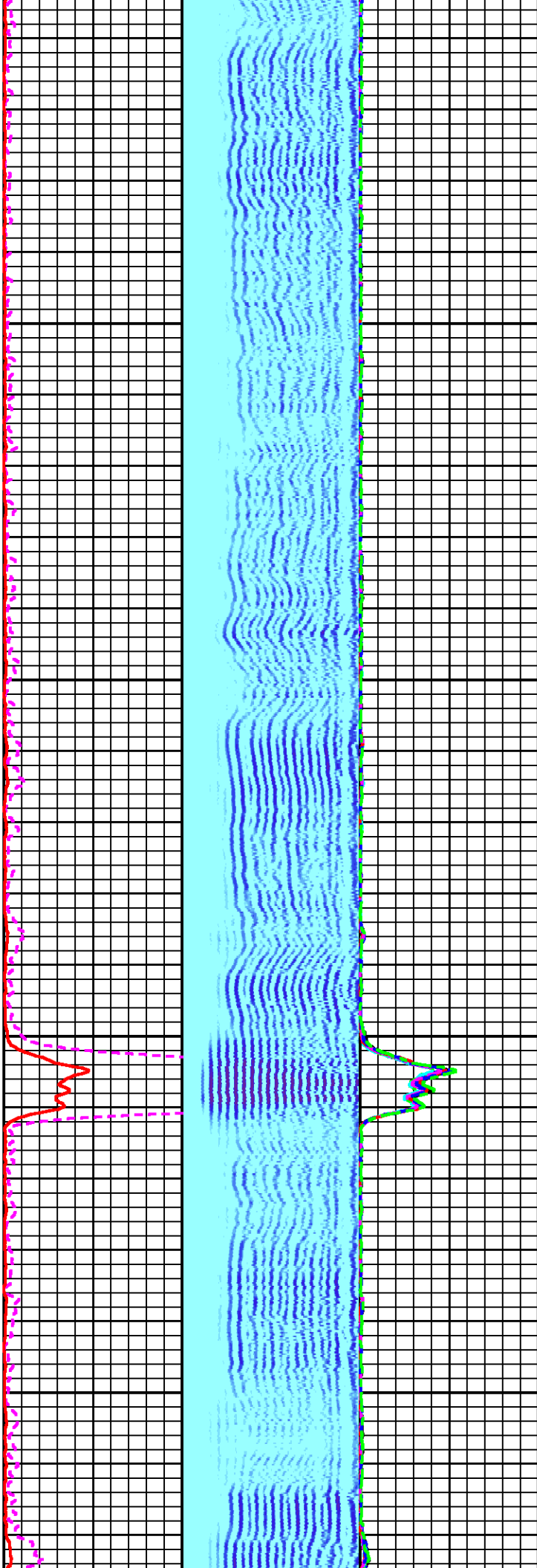




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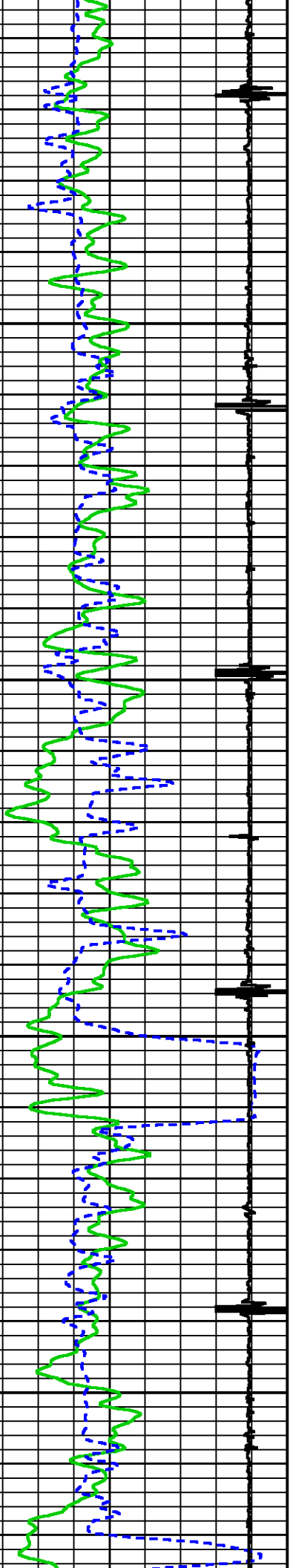
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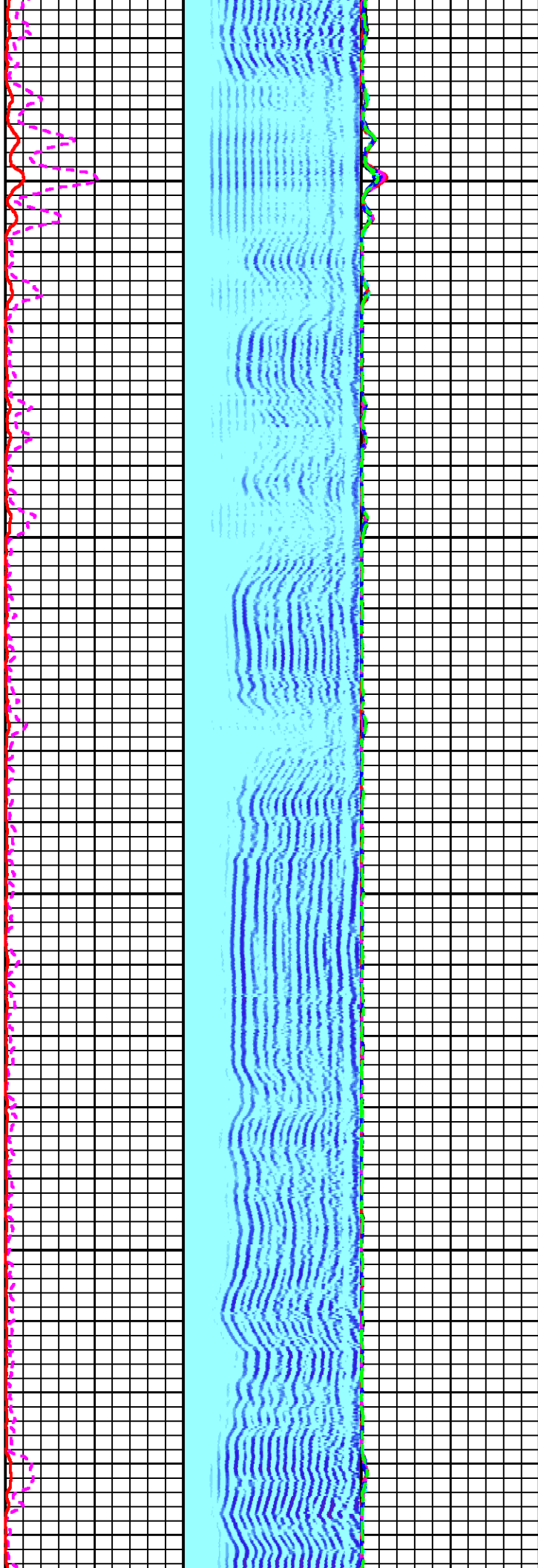
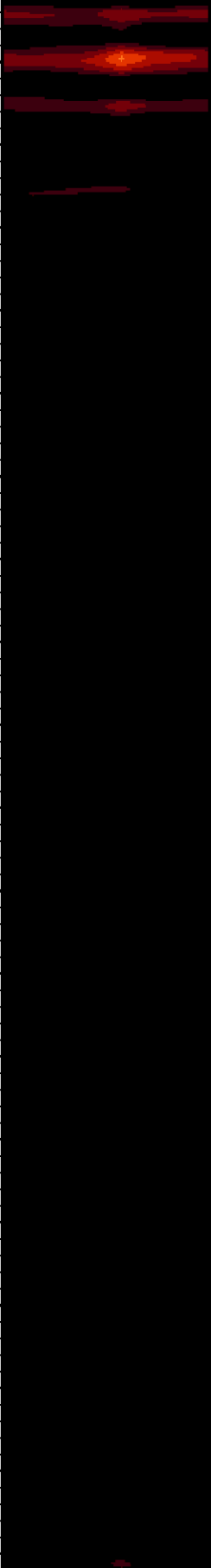




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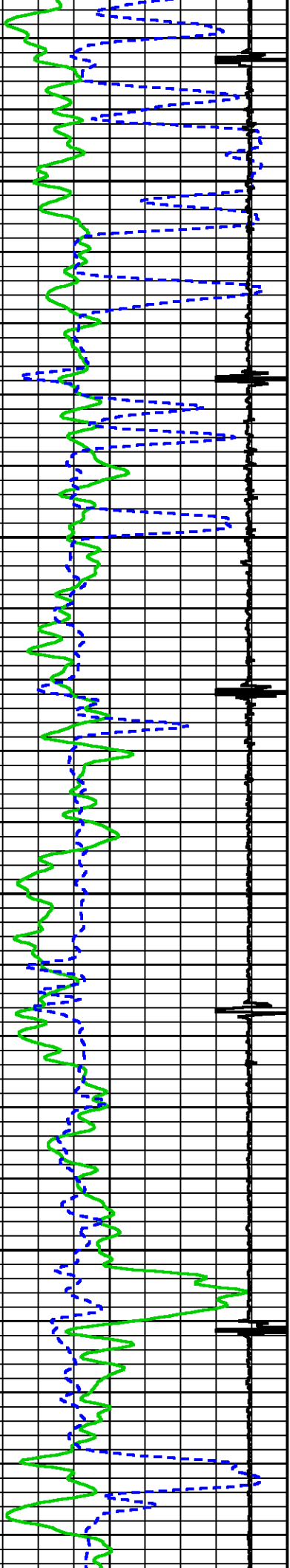
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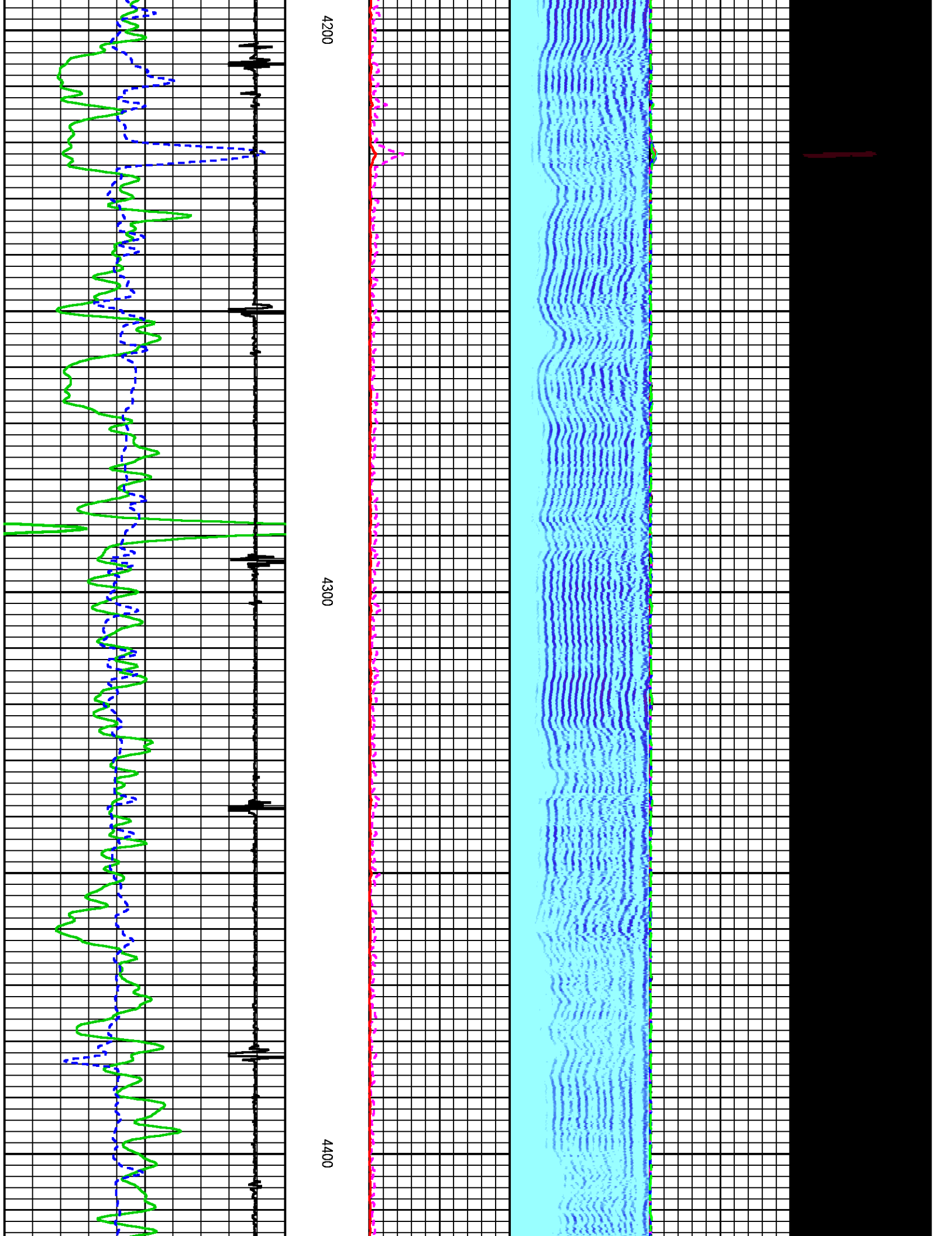


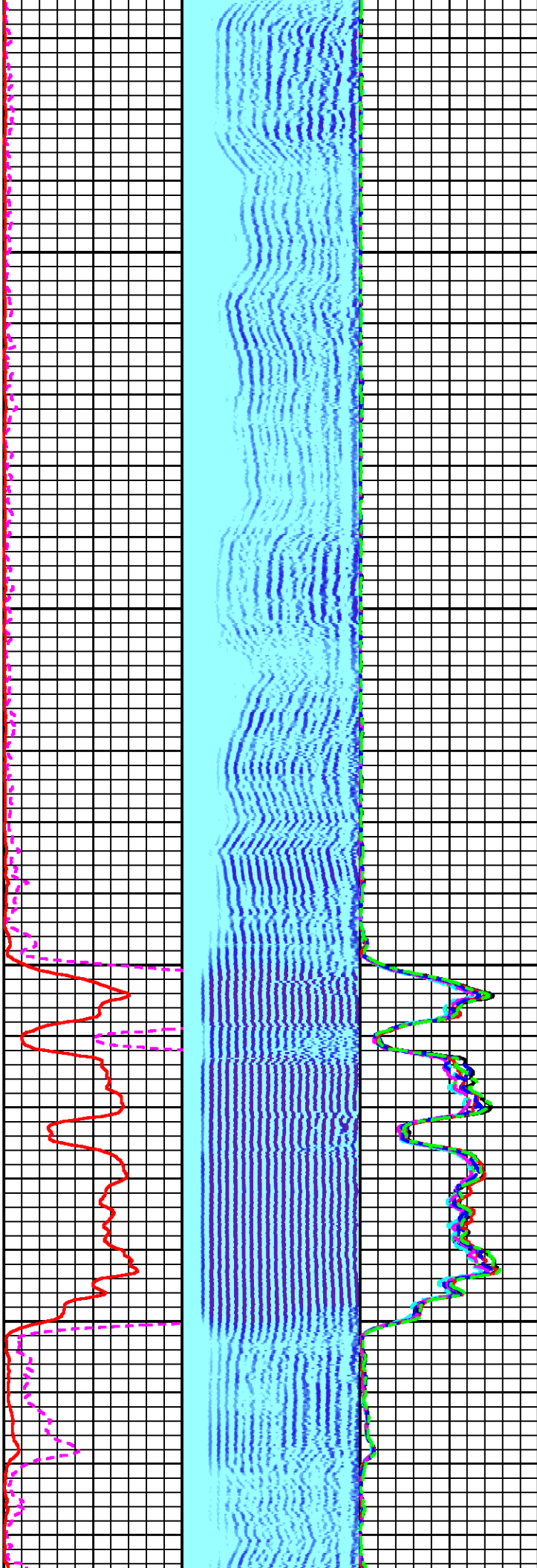
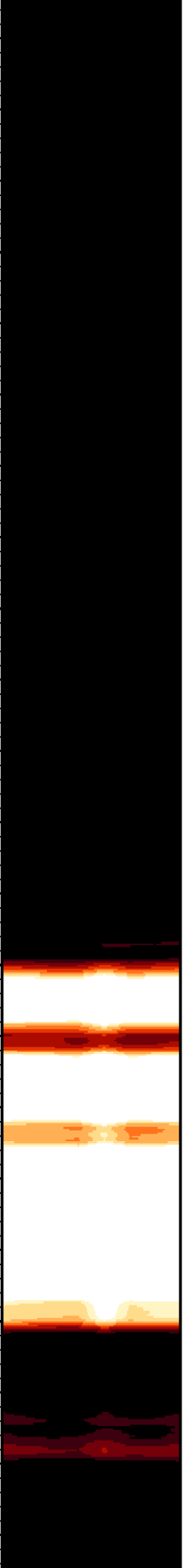


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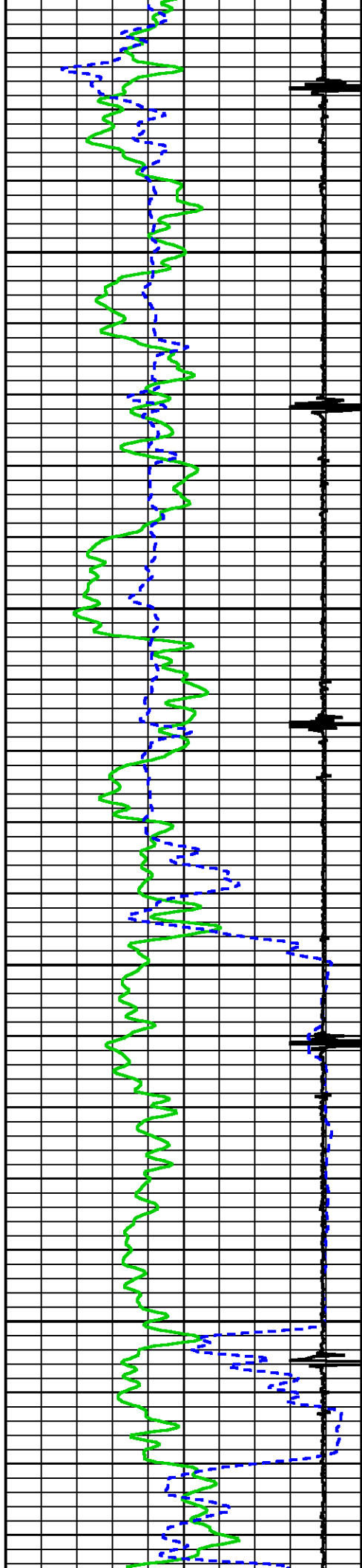


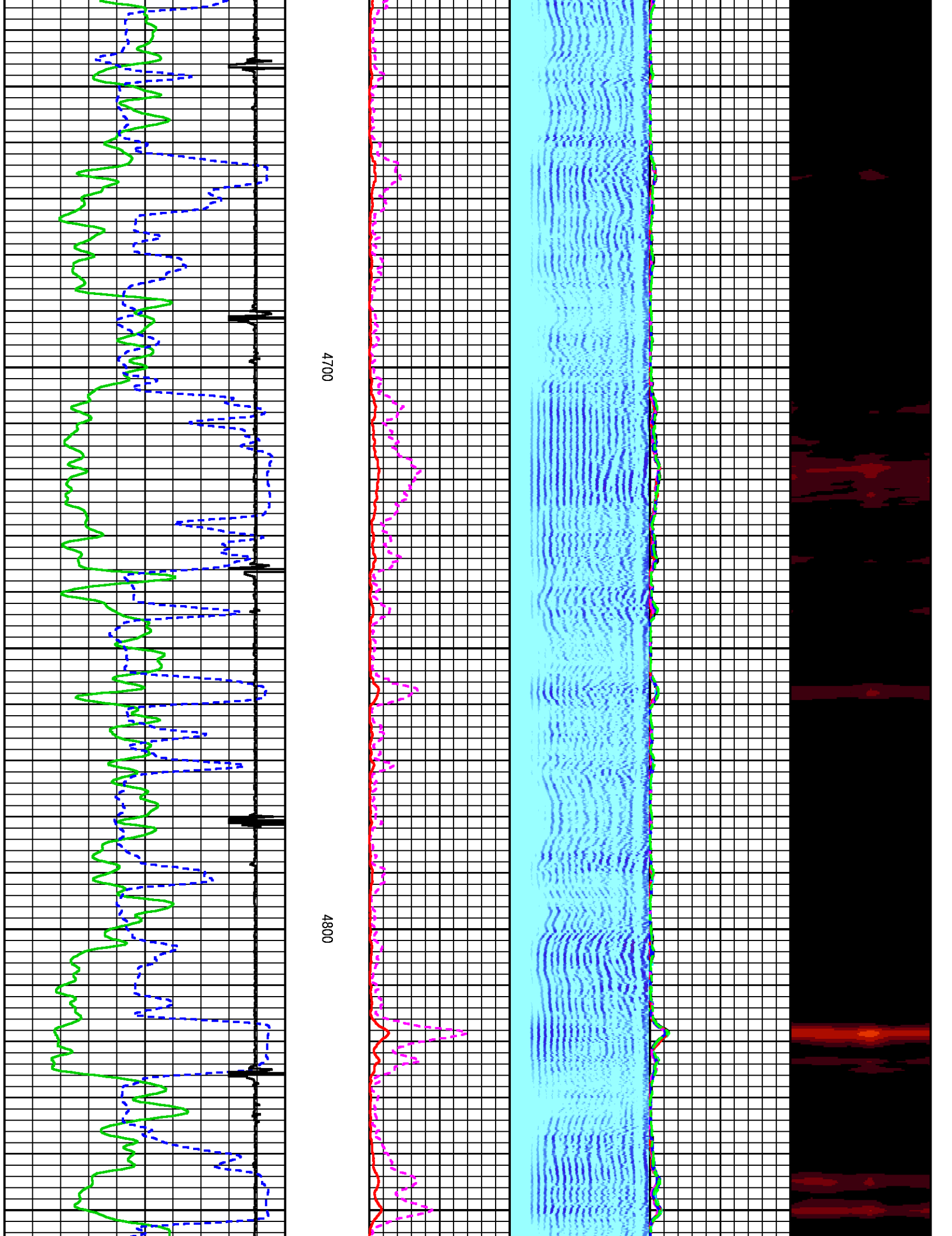


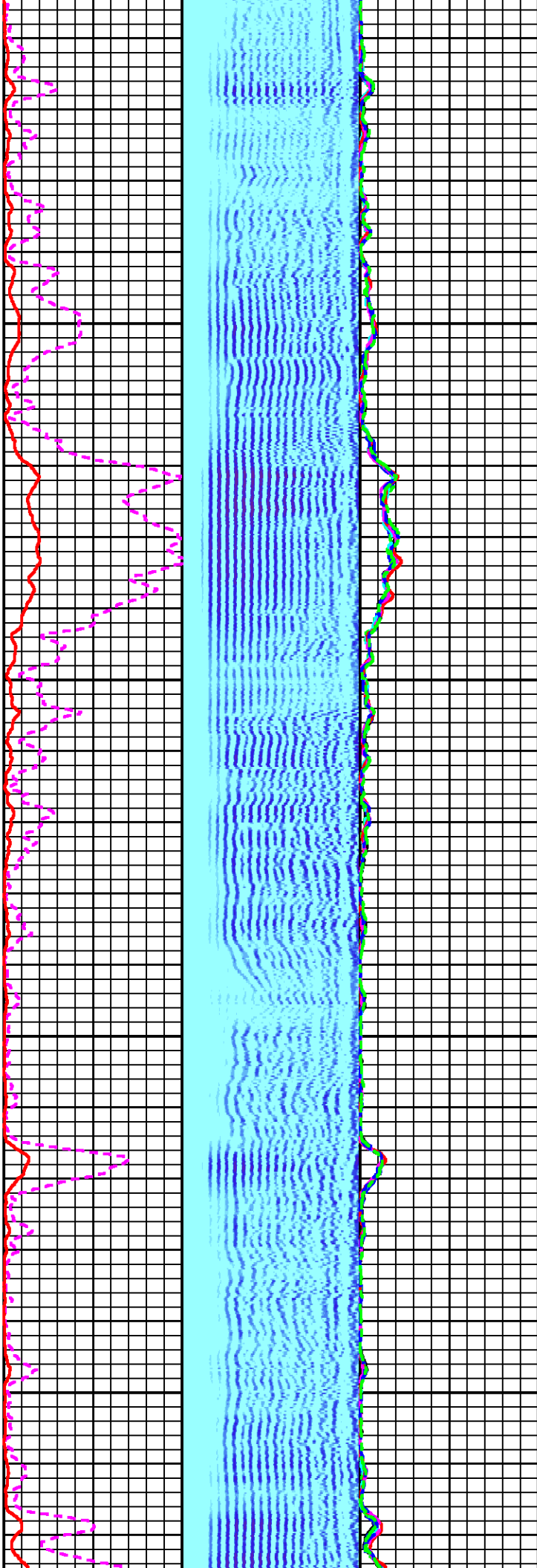


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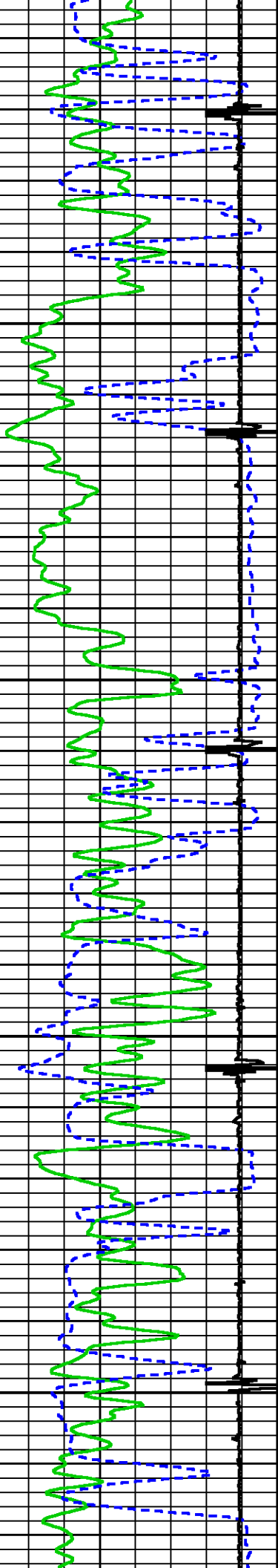


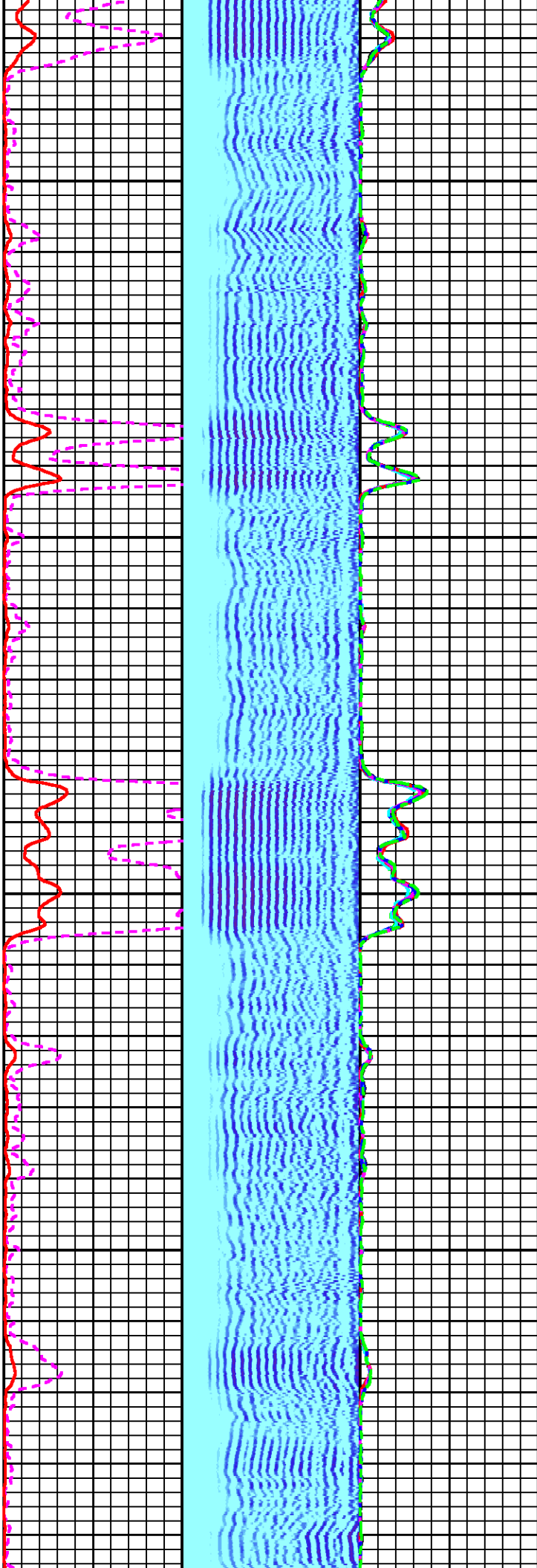




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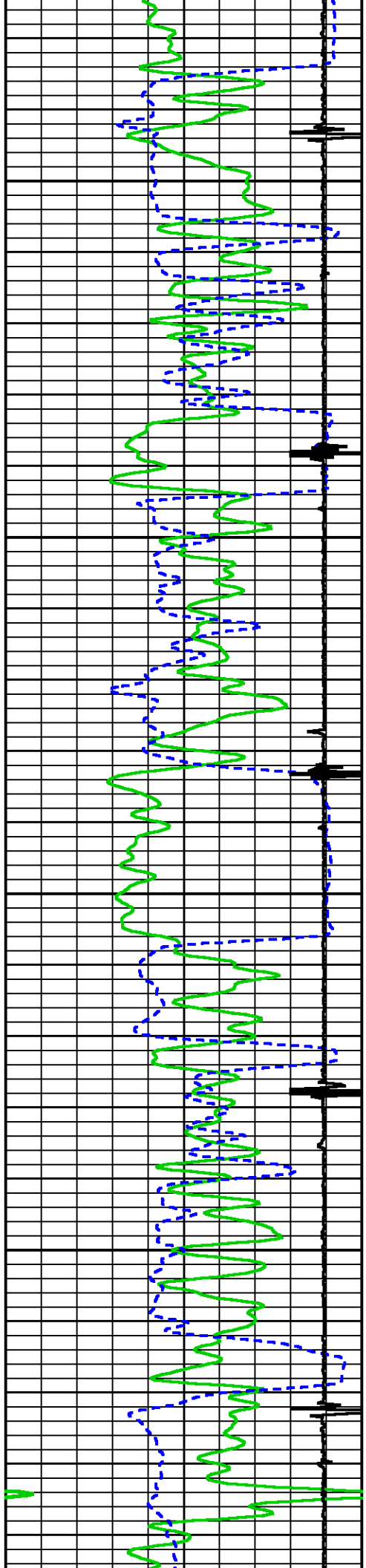
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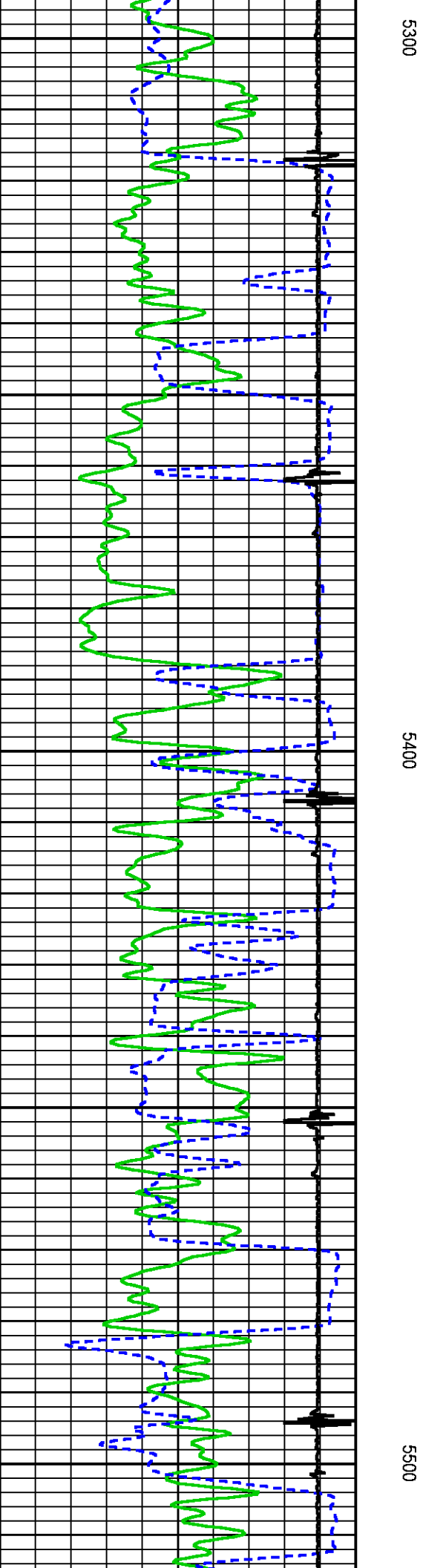
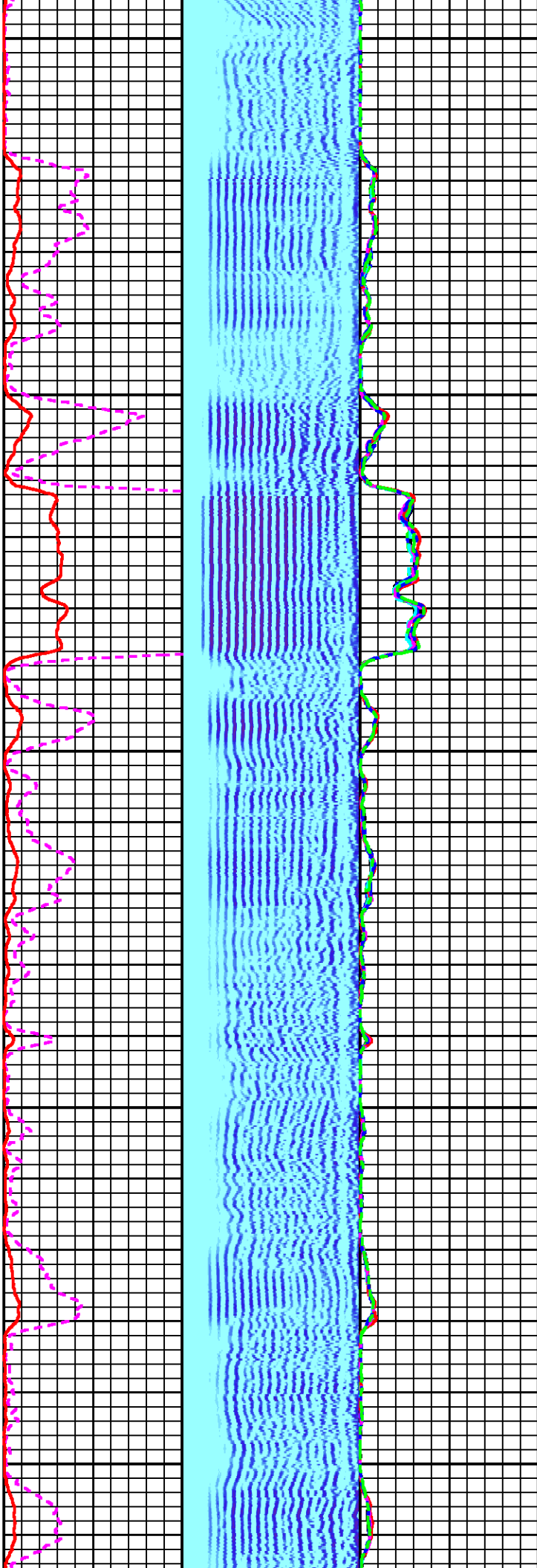


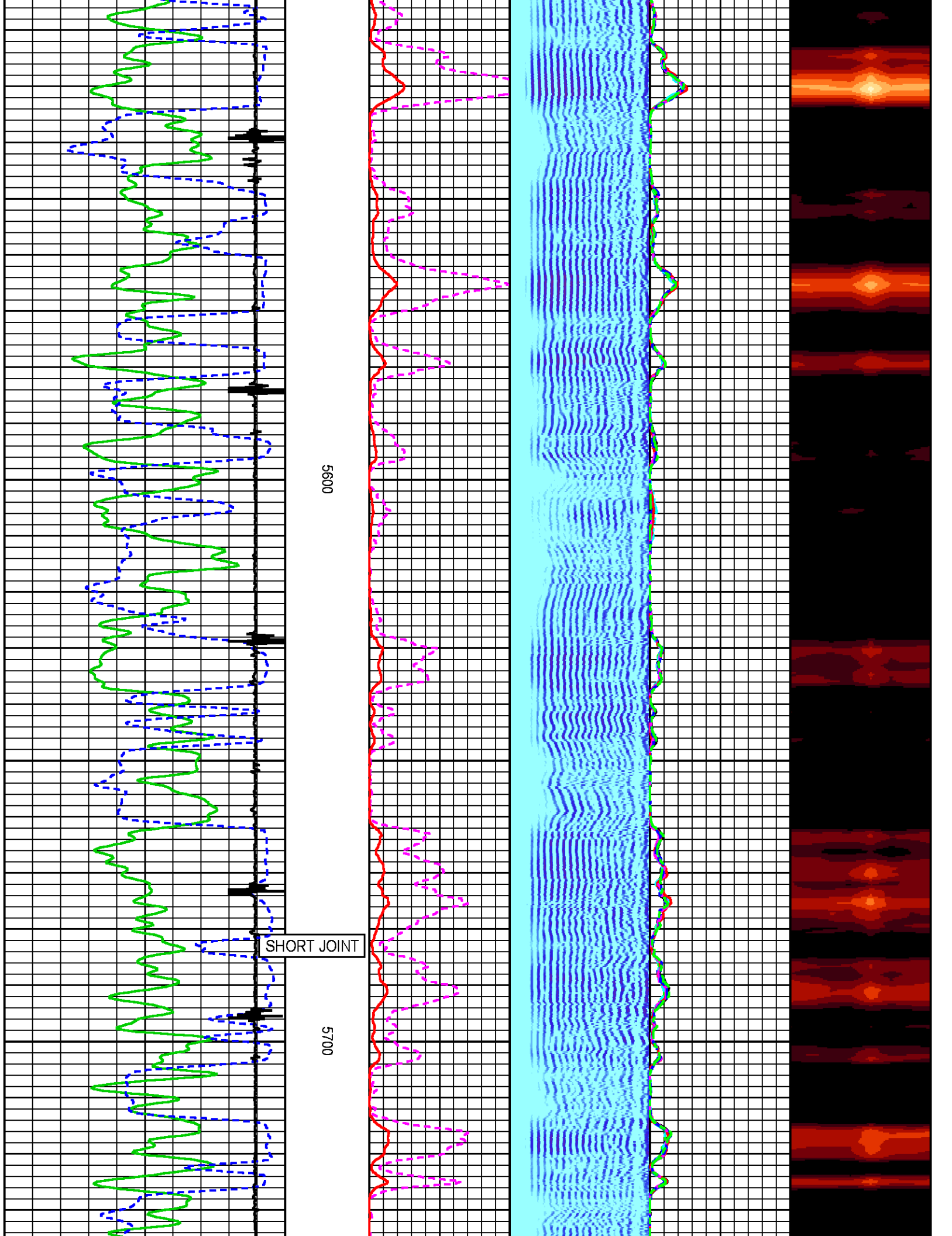


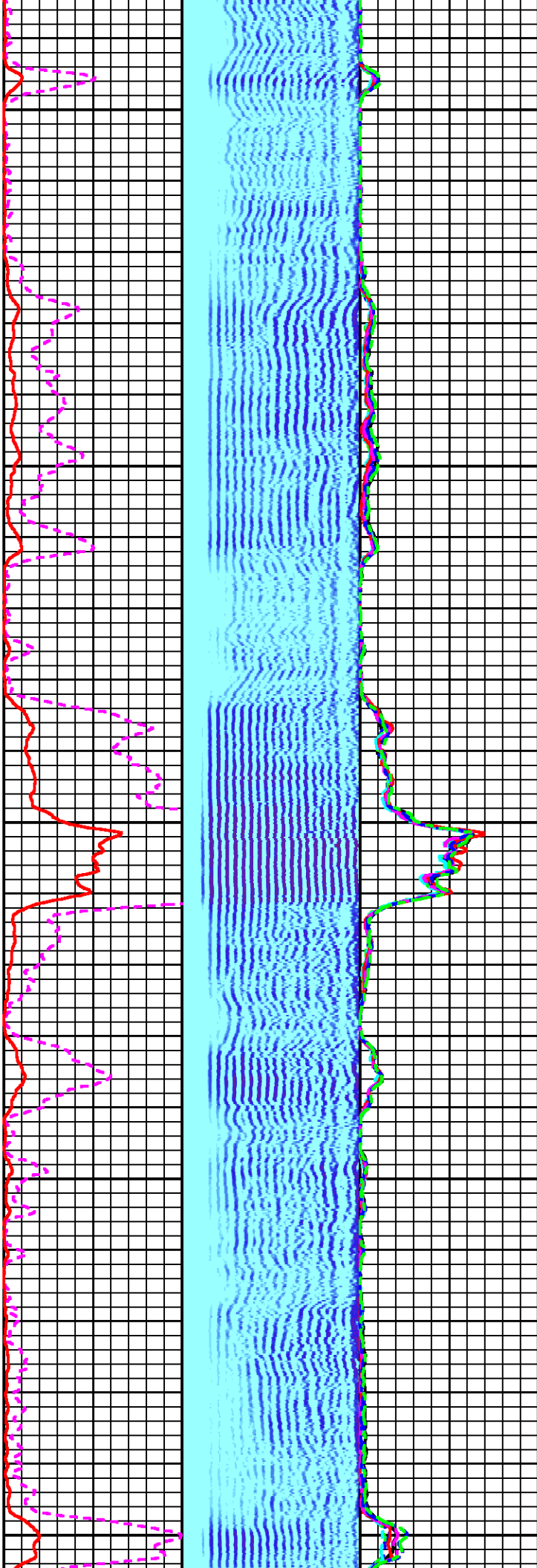
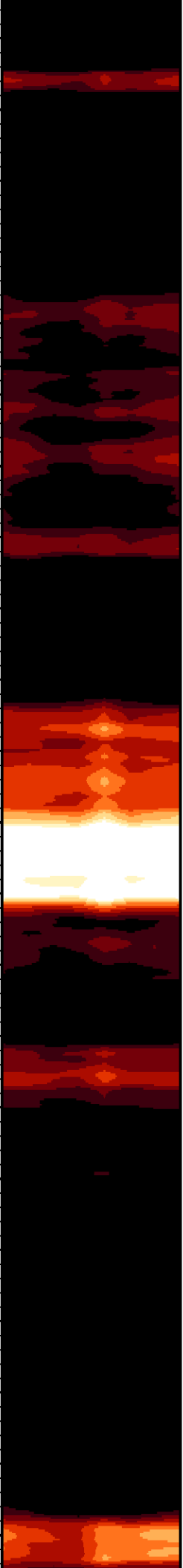
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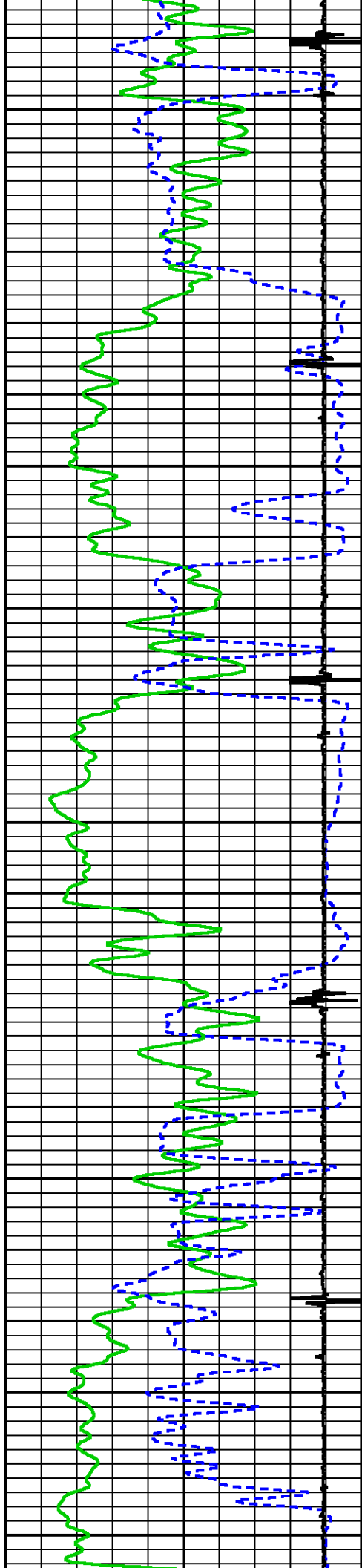


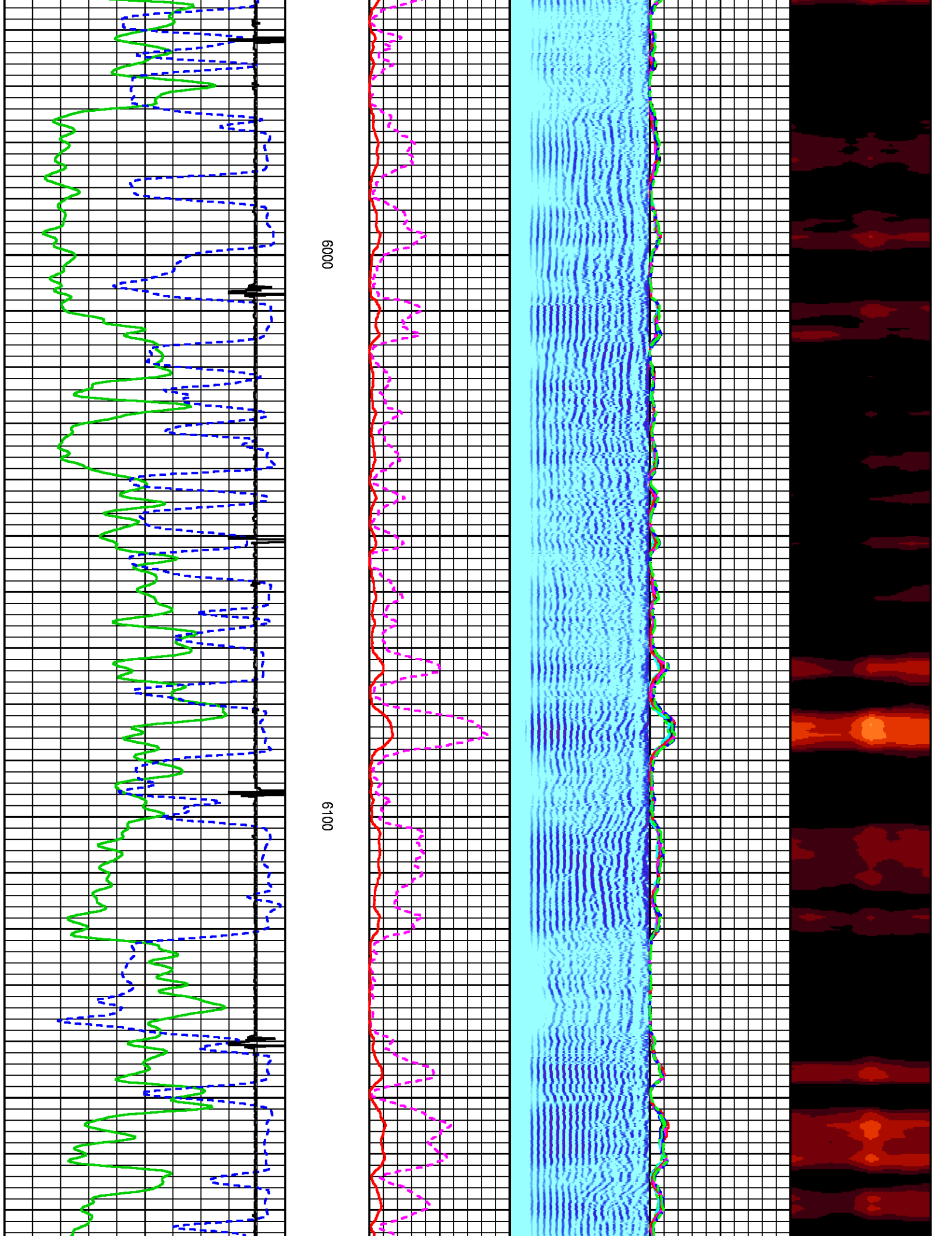


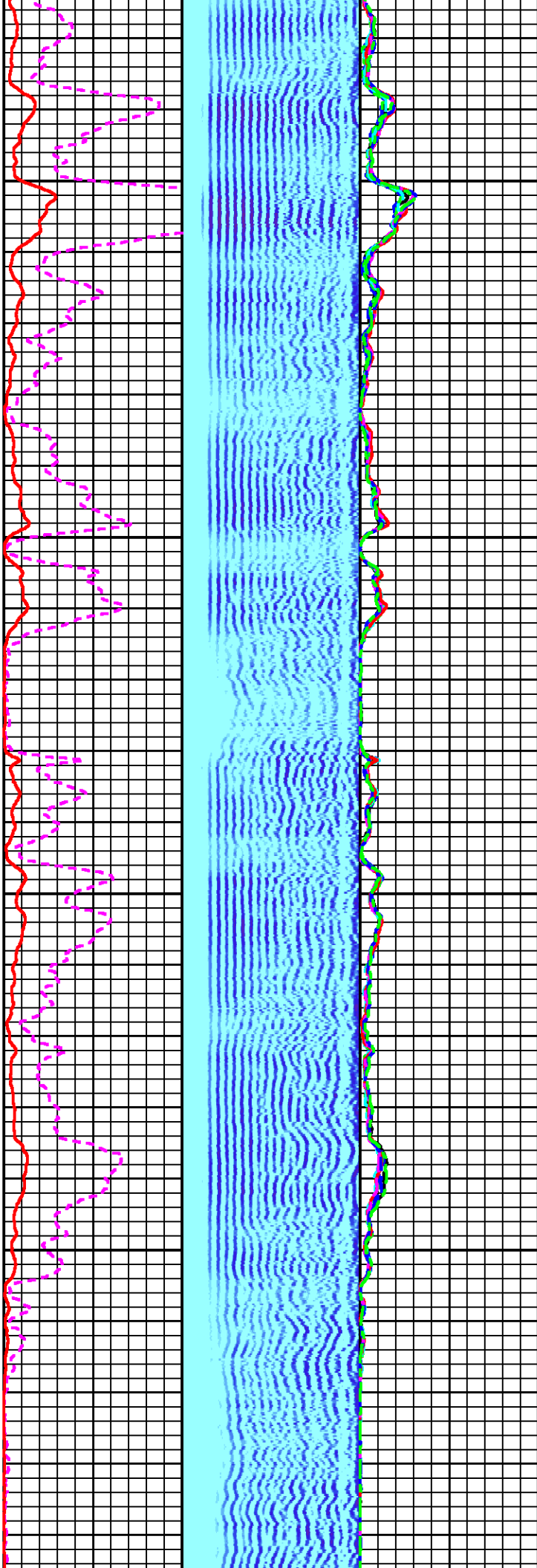
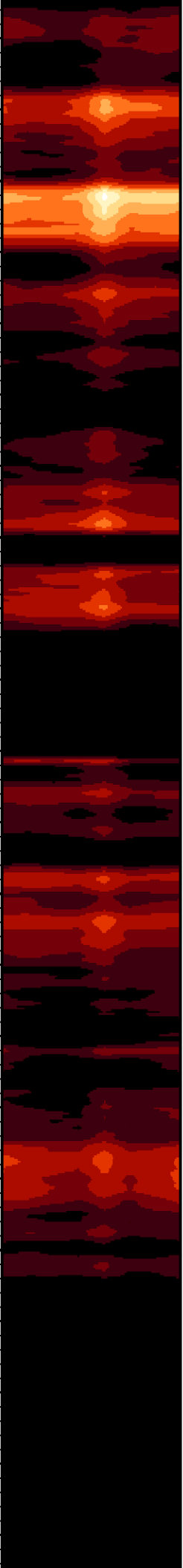


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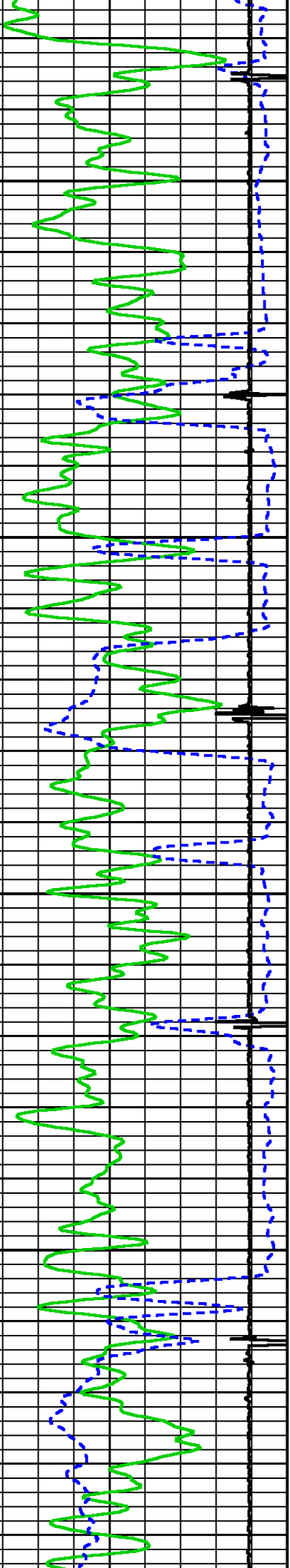


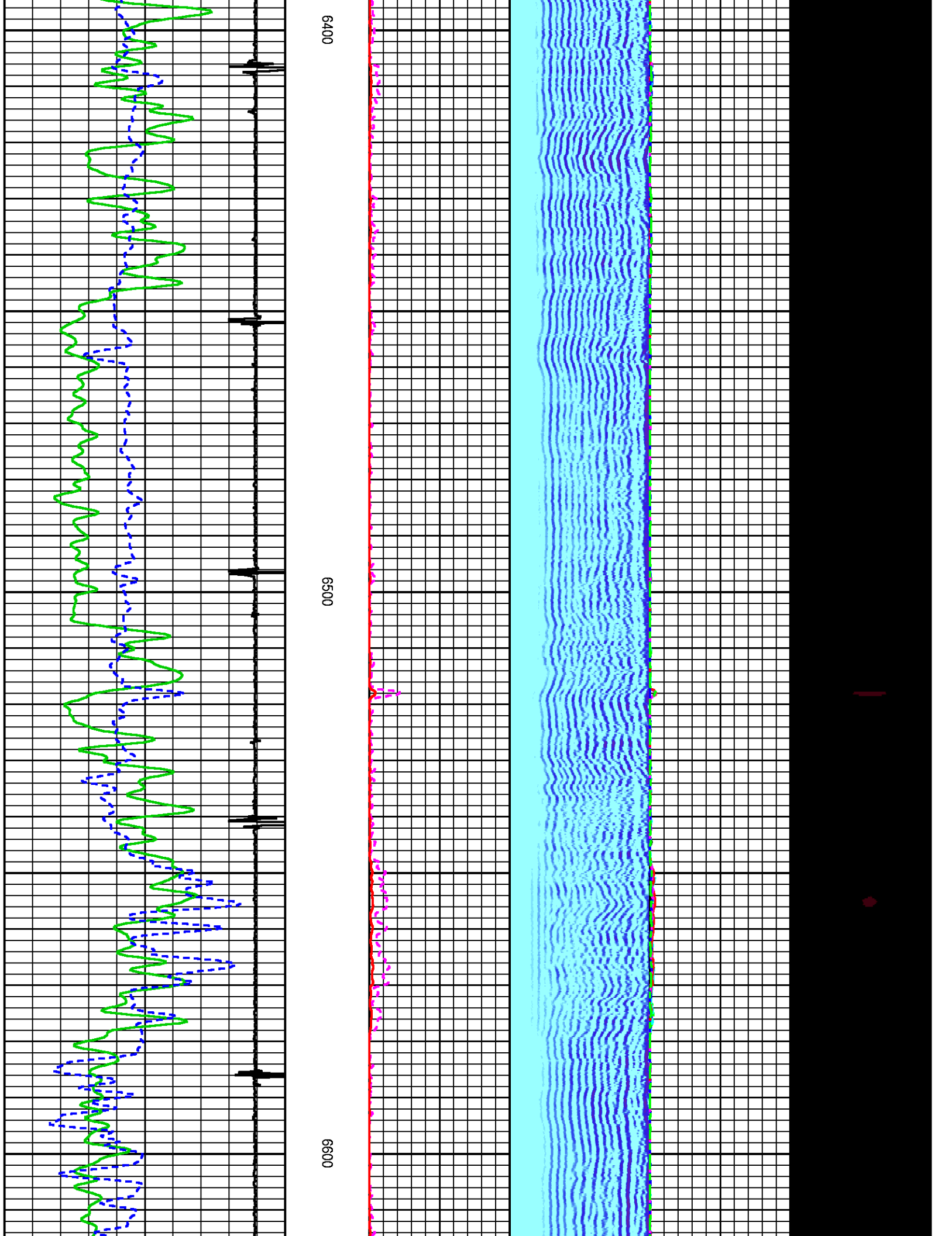


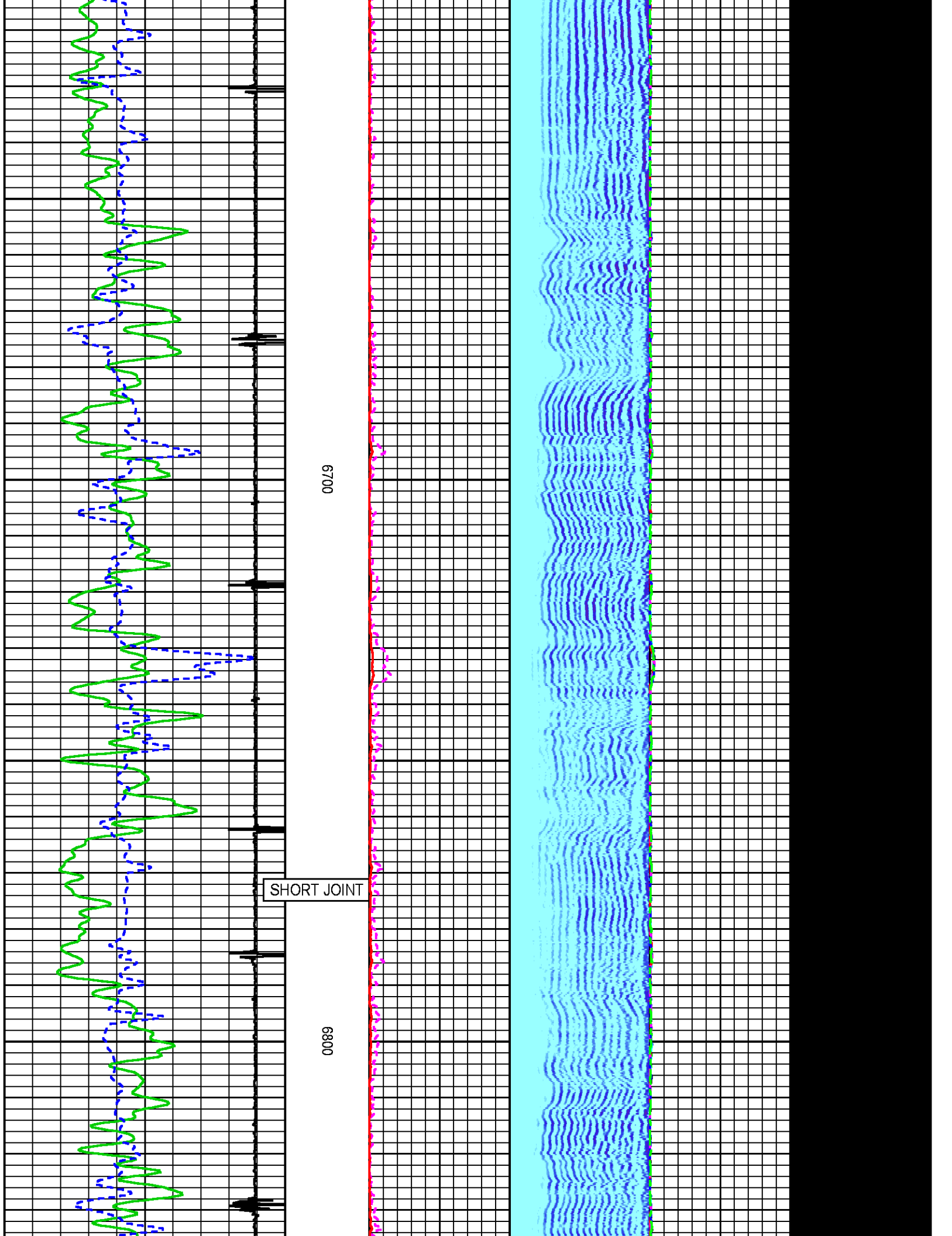


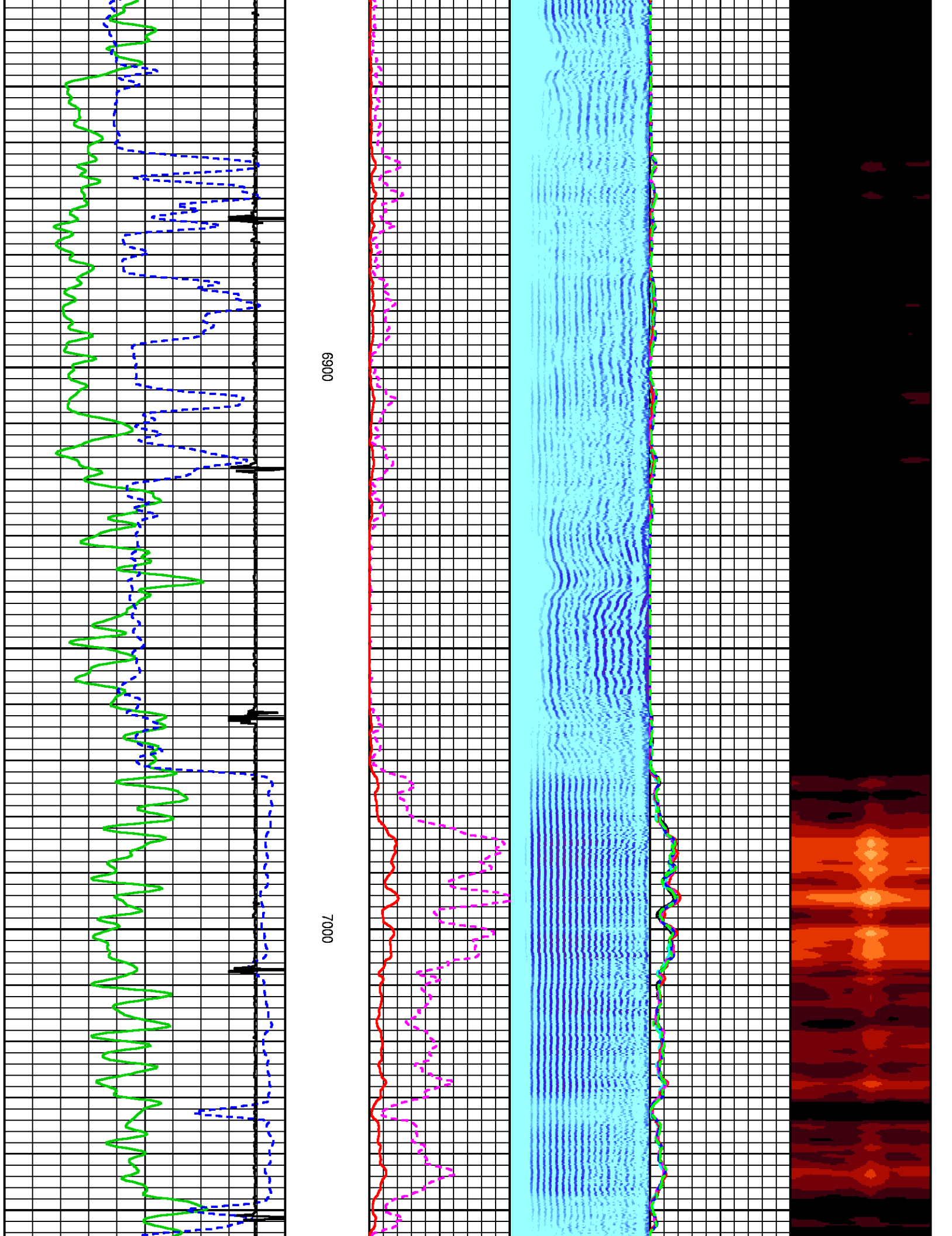
6200

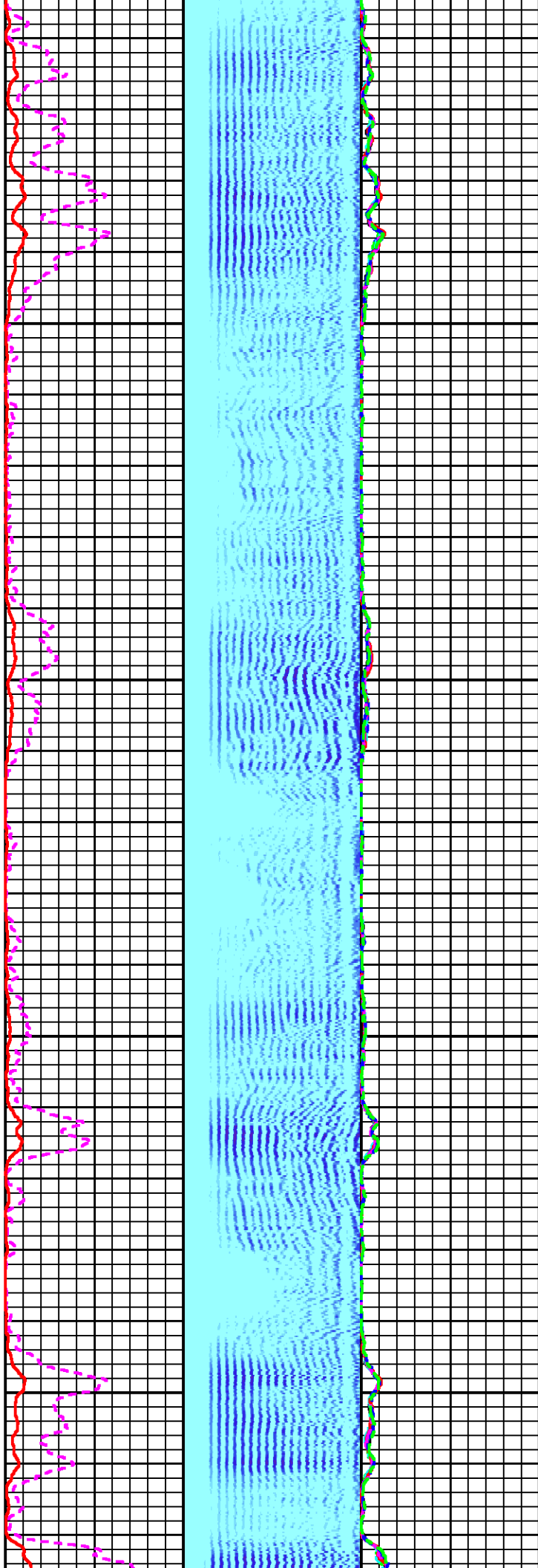
6300





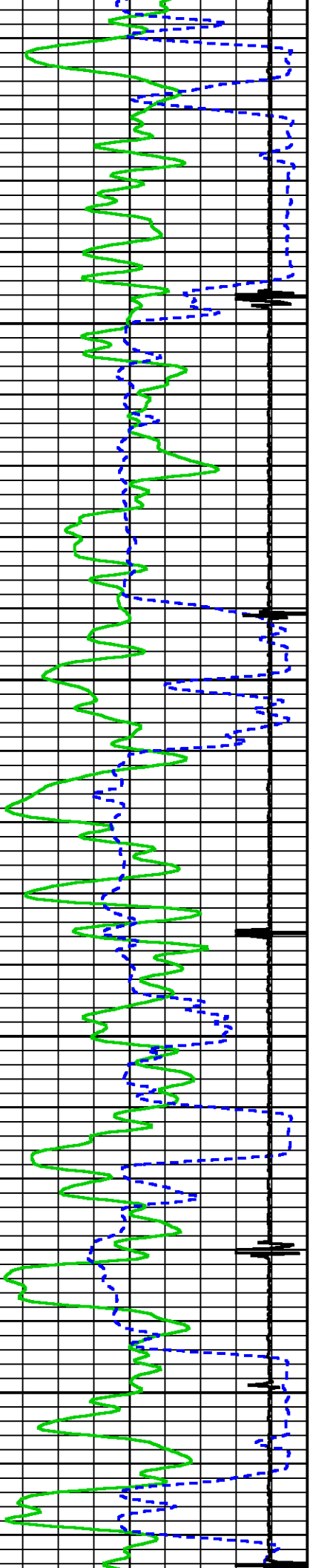


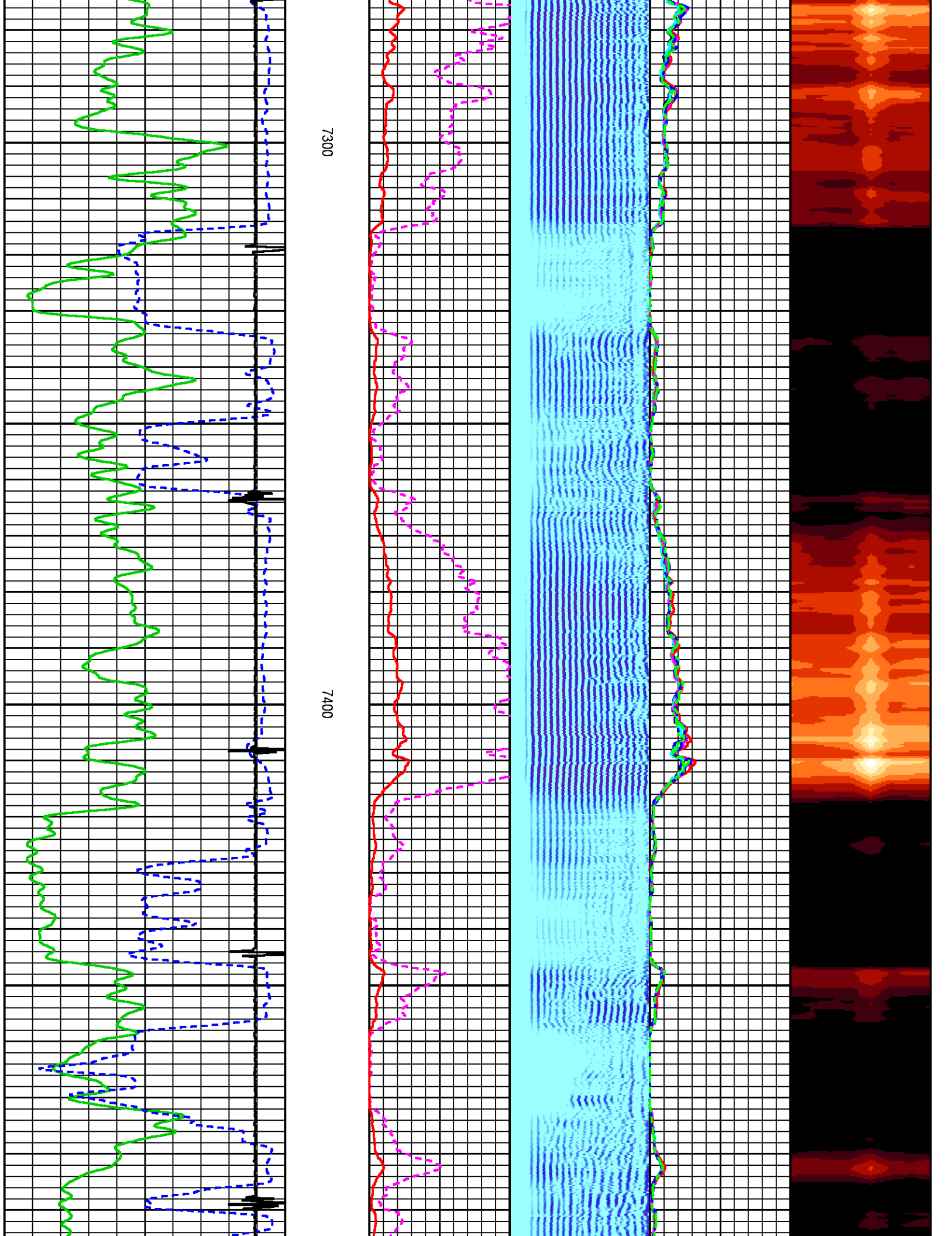


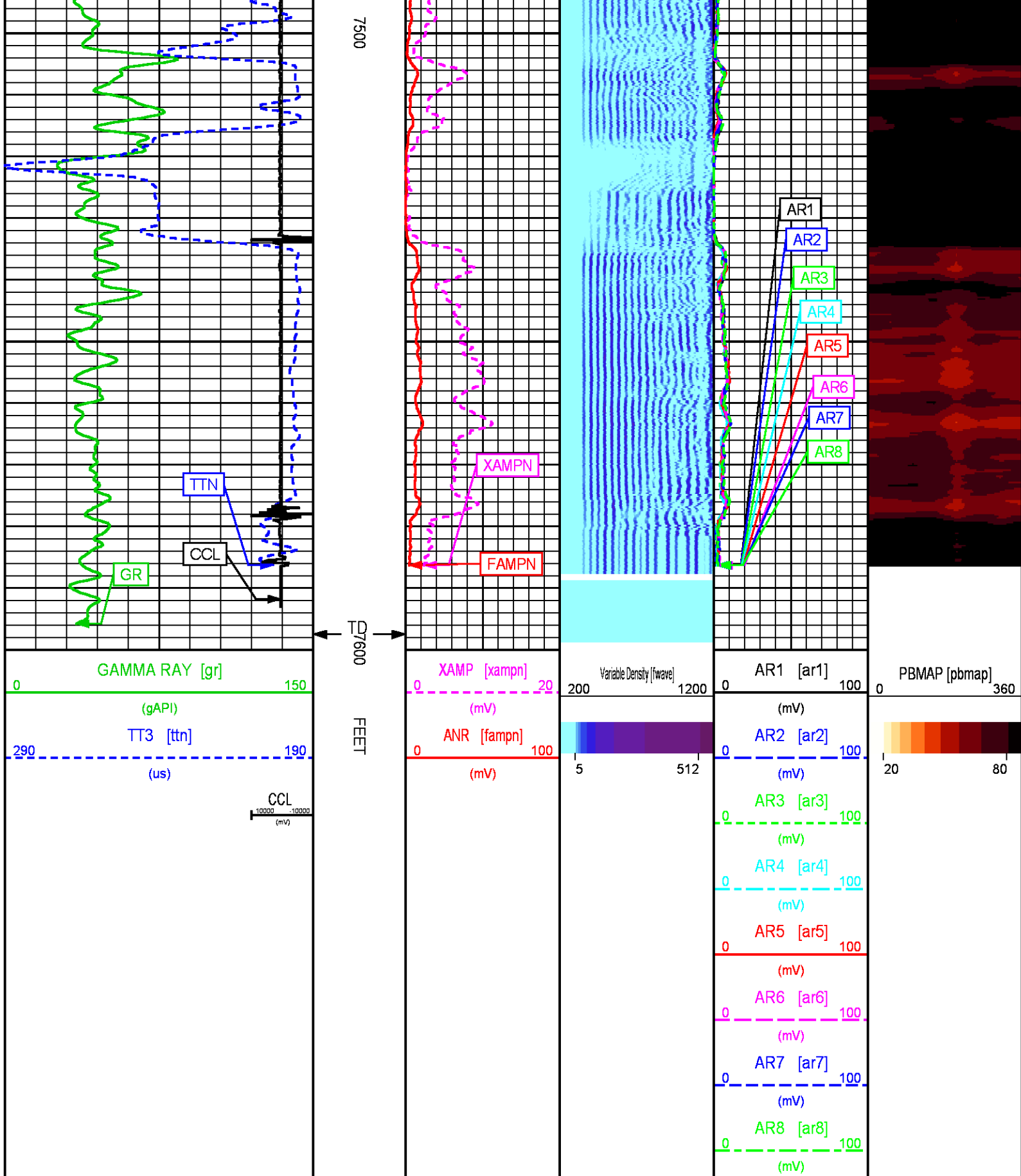


7100

7200







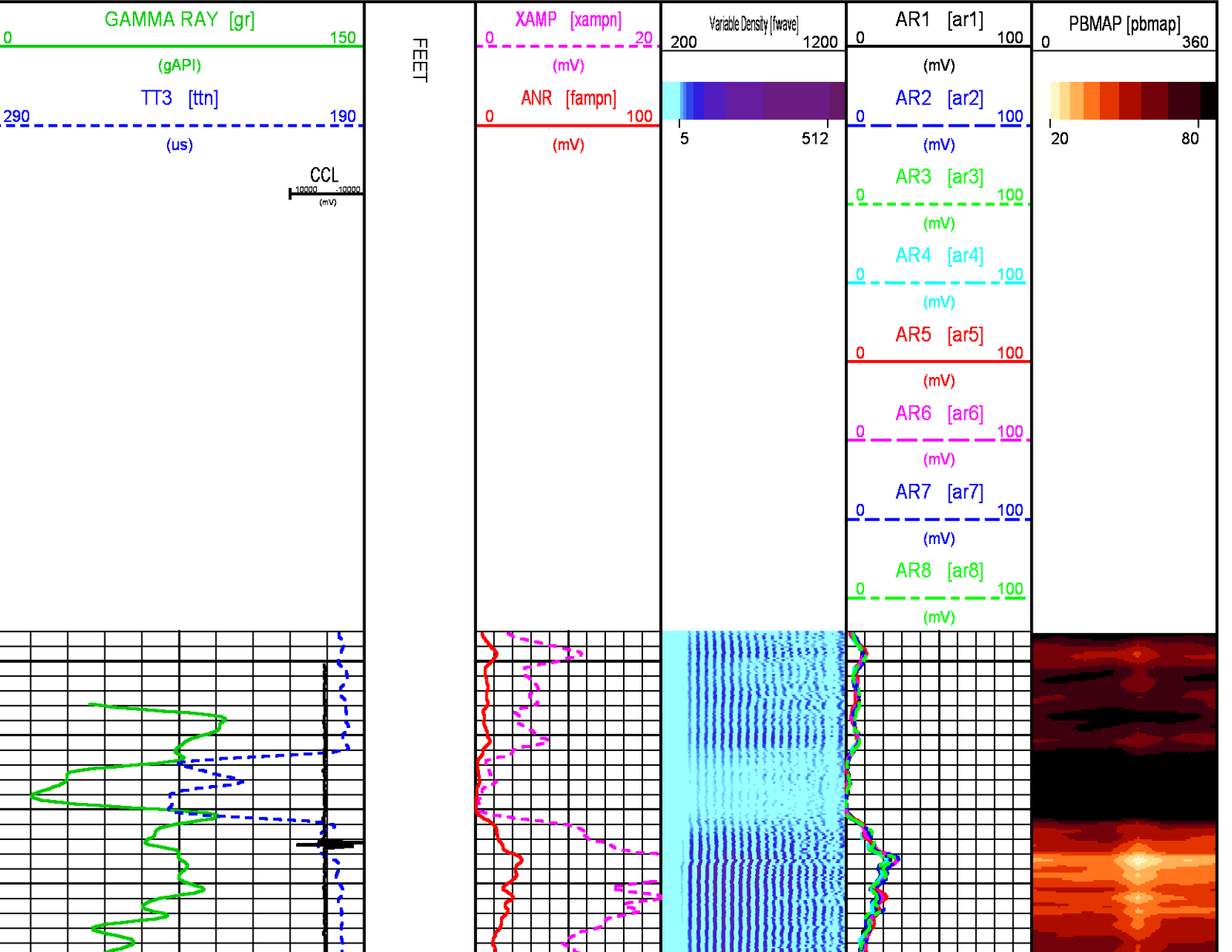
<div> <div>FILE: C:\dat1a\LARAMIE_BRUTON_30_03Wp012g01.prm</div> <div>LOGGING MODE: DEPTH DIRECTION: UP</div> <div>TOP DEPTH: 7236.500 ft BOTTOM DEPTH: 7582.000 ft</div> </div>					
SYMMETRIC FILTER					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	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*)	2	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-69	us	"	"
	TOOL DELAY (str2*)	-69	us	"	"
	TOOL DELAY (str3*)	-69	us	"	"
	TOOL DELAY (str4*)	-69	us	"	"
	TOOL DELAY (str5*)	-69	us	"	"
	TOOL DELAY (str6*)	-69	us	"	"
	TOOL DELAY (str7*)	-69	us	"	"
	TOOL DELAY (str8*)	-69	us	"	"
	TOOL DELAY (strn*)	-69	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			

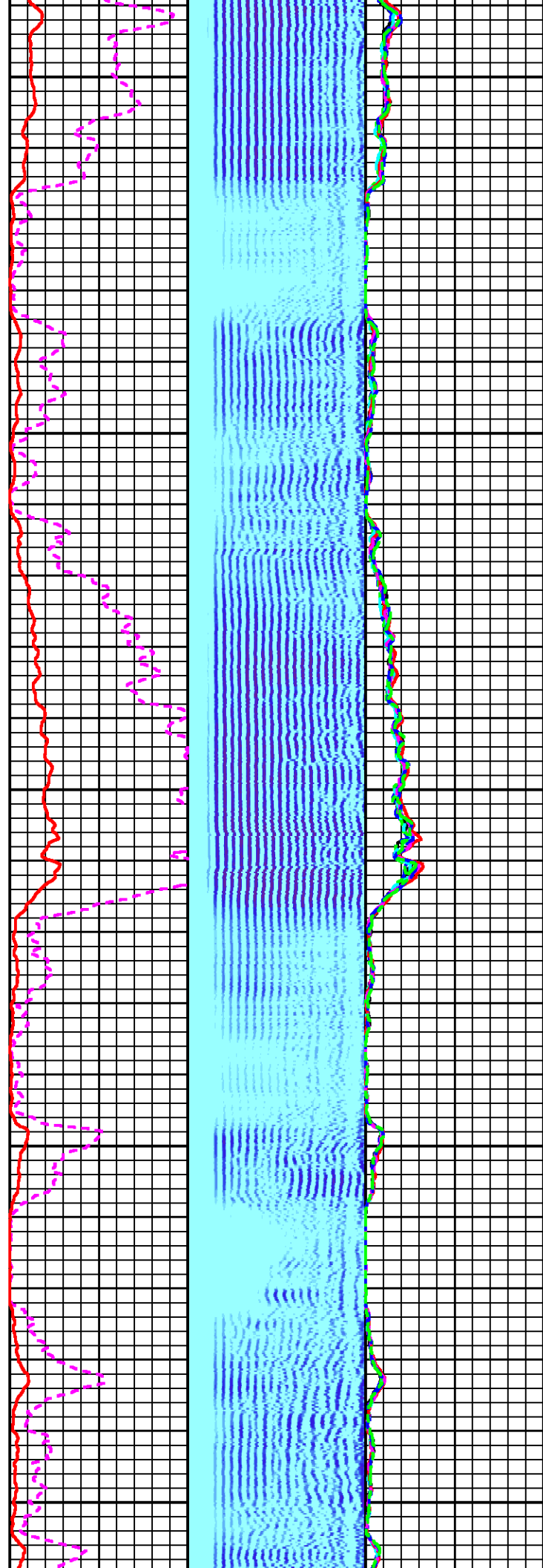
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
F1:AR8	N/A	FIXED GATE AMPLITUDE T-R8
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:FAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	N/A	FAR WAVE FORM
F1:GR	N/A	GAMMA RAY
F1:PBMAP	N/A	PERCENT BOND 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		

Presentation	: BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_03W\LARAMIE_RAL+RAL_RPT_03W.fvpdf [5"/100' Scale]
Plot Interval	: 7226 - 7580.75 Feet
Data File 1	: F1 : BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_03W\RAL_RPT_03W.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: BRUTON 30-03W
Field	: VEGA
File Interval	: 7225 - 7582 Feet
OCT	: p012g

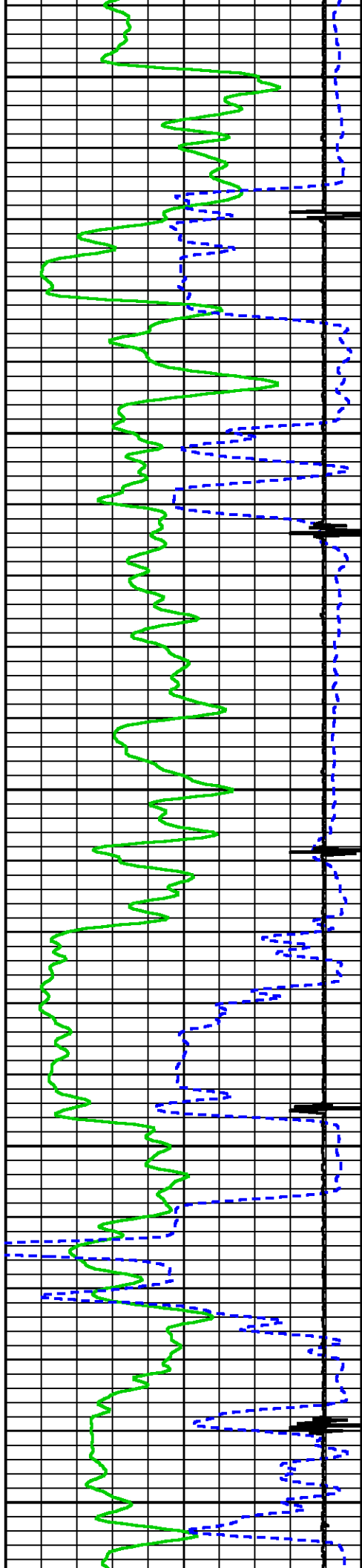


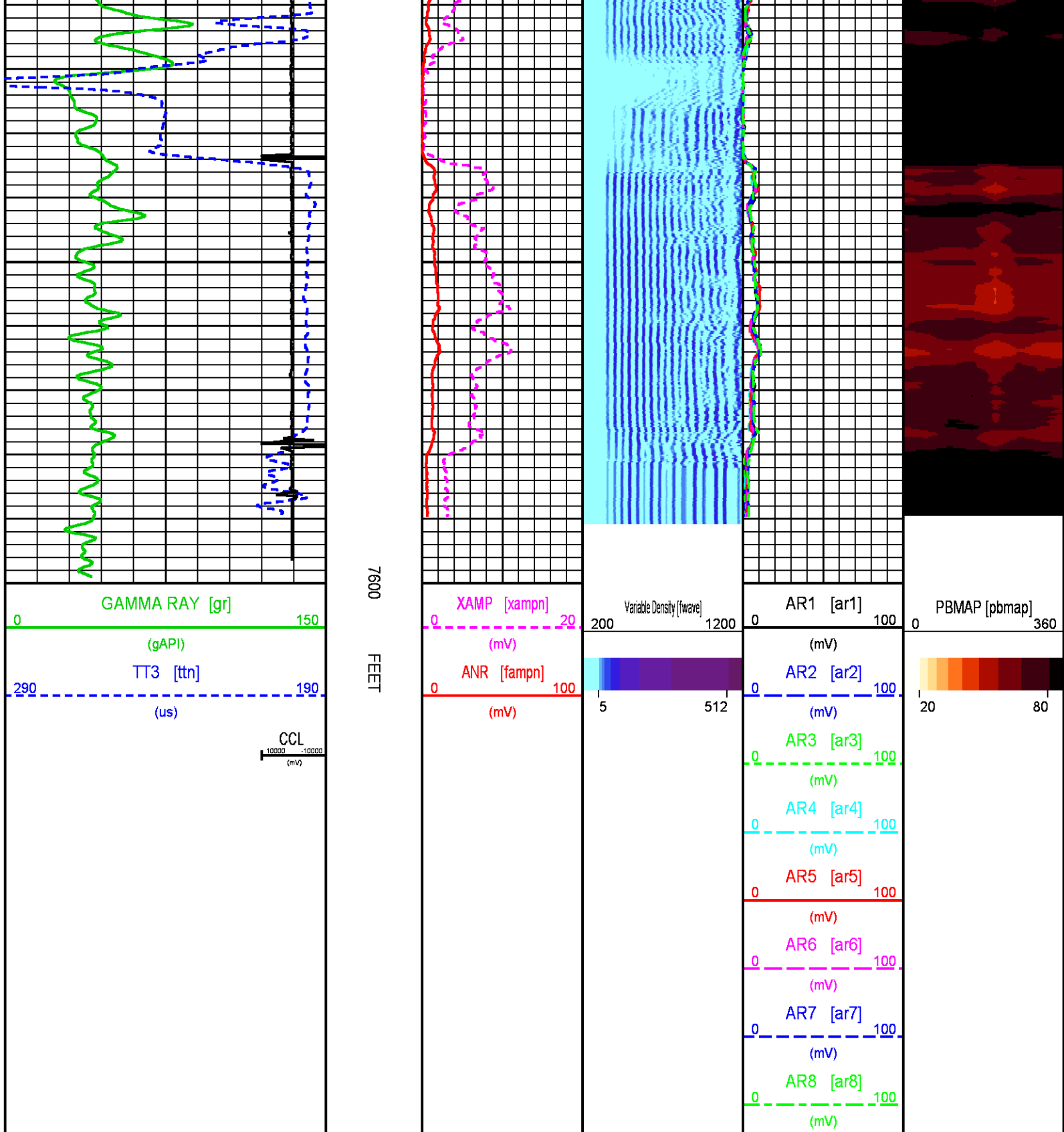


7300

7400

7500





CALIBRATION / VERIFICATION SUMMARY

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10218497

DATE/TIME PERFORMED: Sat Oct 28 23:59:13 2017

UNIT #: 3880TA HL6670

	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)	-0.11	-0.09	-0.10	0.02	0.01	-0.05	-0.00	-0.07	-0.08	-0.32	0.00
AMP FLUID (mV)	93	94	93	92	92	92	94	94	94	147	92
TT (us)	200	200	199	199	199	199	199	199	201	311	200
M FACTOR	1.07	1.07	1.07	1.09	1.08	1.08	1.07	1.06	1.07	1.02	1.08

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1355XA 12670180

DATE/TIME PERFORMED: Fri Dec 23 11:53:22 2016

UNIT #: 3880TA HL6670

CALB JIG #: 4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	75.82	247.07	171.2	0.584	44.28	144.28	100

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1355XA 12670180

DATE/TIME PERFORMED: Fri Dec 23 11:54:47 2016

UNIT #: 3880TA HL6670

VERI JIG #: 4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	77.11	254.76	0.584	45.03	148.77	103.74
						90.00 110.00

TEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 1355XA 12670180

DATE/TIME PERFORMED: Thu May 25 10:45:34 2017

UNIT #: 3882TD HL6741

T(0)

T(1)

T(2)

T(3)

Corr Coeff for Temp

0.000000E+00

1.000000E-01

0.000000E+00

0.000000E+00

INSTRUMENT CONFIGURATION

Source File: C:\dat1a\LARAMIE_BRUTON_30_05W\ral-tdg.meta

CABLEHEAD

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

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

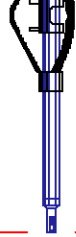
20.38'

NEAR RCVR 11.17'

FAR RCVR 10.21'

CCL 5.79'

Mnemonic : RAL
Measure Point: 5.79': CCL
Measure Point: 1.67': GR
Measure Point: 0.17': TEMP



GR 1.67'

TEMP 0.17'

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

**BAKER
HUGHES**
a GE company



ECLIPS

COMPANY LARAMIE ENERGY LLC

WELL BRUTON 30-03W

FIELD VEGA

COUNTY MESA **STATE** COLORADO

FILE NO:

API NO:

05077104460000

LOCATION:

SHL: LAT:39.252683N;LONG: 107.814261W

BHL: LAT:39.253624N;LONG:107.816227W

ELEVATIONS:

KB 7542 FT

DF 7541 FT

GL 7512 FT

SEC 30 **TWP** 9S **RGE** 93W

DATE 02-Nov-2017