



RADIAL CEMENT BOND LOG

FILE NO:	COMPANY	LARAMIE ENERGY LLC
API NO:	WELL	NICHOLS 0994-24-04E
05077104200000	FIELD	VEGA
	COUNTY	MESA
	STATE	COLORADO

Ver. 4.10	LOCATION:	OTHER SERVICES
	SHL: 39.264540 N; 107.830679 W	RPM
	BHL: 39.267392 N; 107.826029 W	
	SEC 24 TWP 9 S RGE 94 W	

PERMANENT DATUM	GL	ELEVATION	7137 FT	ELEVATIONS: KB 7161 FT DF 7160 FT GL 7137 FT
LOG MEASURED FROM	KB	24 FT	ABOVE P.D.	
DRILL. MEAS. FROM	KB			

DATE	26-Jan-2018
RUN	1
TRIP	1
SERVICE ORDER	US132019
DEPTH DRILLER	7633 FT
DEPTH LOGGER	7541 FT
BOTTOM LOGGED INTERVAL	7541 FT
TOP LOGGED INTERVAL	24 FT
TIME STARTED	10:30
TIME FINISHED	13:00
OPERATOR RIG TIME	2.5 HRS
TYPE OF FLUID IN HOLE	FRESH WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	48 FT
LOGGED CEMENT TOP	1840 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	90 FMIN
MAX. RECORDED TEMP.	237 DEGF
REFERENCE LOG	NA
REFERENCE LOG DATE	NA
EQUIP. NO.	ML-4291
LOCATION	GRAND JUNCT
RECORDED BY	M.MENTZER
WITNESSED BY	MR. MATT SETTLES

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 WELLBORE*

OPERATION 1: RAL/GR/CCL RUN CENTRALIZED

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 5827' - 5847'
SJ: 6717' - 6737'

CREW: J.PENA, C.GOLOBY

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426 XA	10417452	CENTRALIZED
1	1	GR/CCL	1355 XA	11871507	CENTRALIZED

MAIN PASS 0 PSI

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Patches: 2

Plotted: Fri Jan 26 13:39:16 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994_24_04E/p012g02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 3.250 ft BOTTOM DEPTH: 7529.500 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1)		"	"
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*)	-64	us	"	"
	TOOL DELAY (str2*)	-64	us	"	"
	TOOL DELAY (str3*)	-64	us	"	"
	TOOL DELAY (str4*)	-64	us	"	"
	TOOL DELAY (str5*)	-64	us	"	"
	TOOL DELAY (str6*)	-64	us	"	"
	TOOL DELAY (str7*)	-64	us	"	"
	TOOL DELAY (str8*)	-64	us	"	"
	TOOL DELAY (strn*)	-64	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	"	"

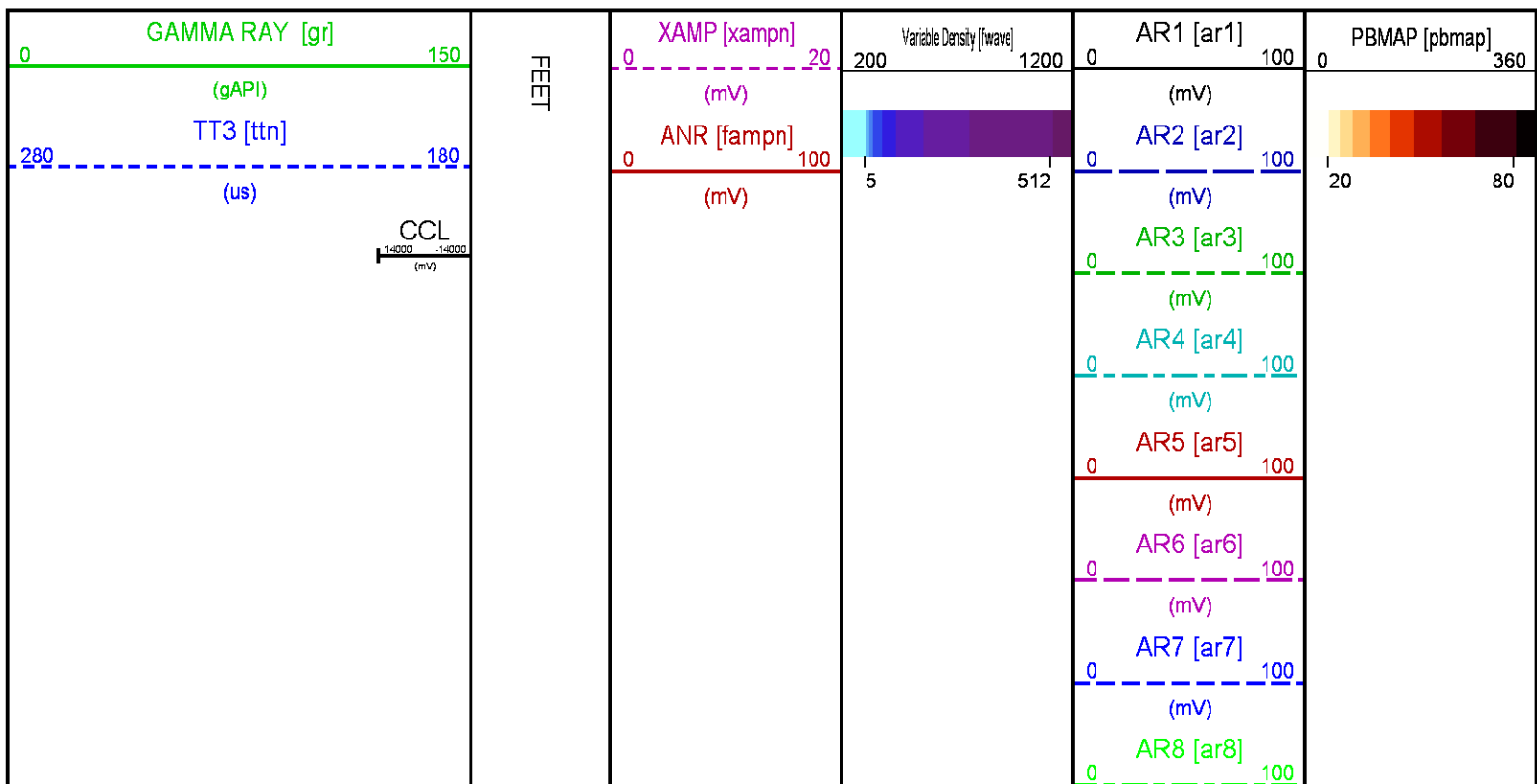
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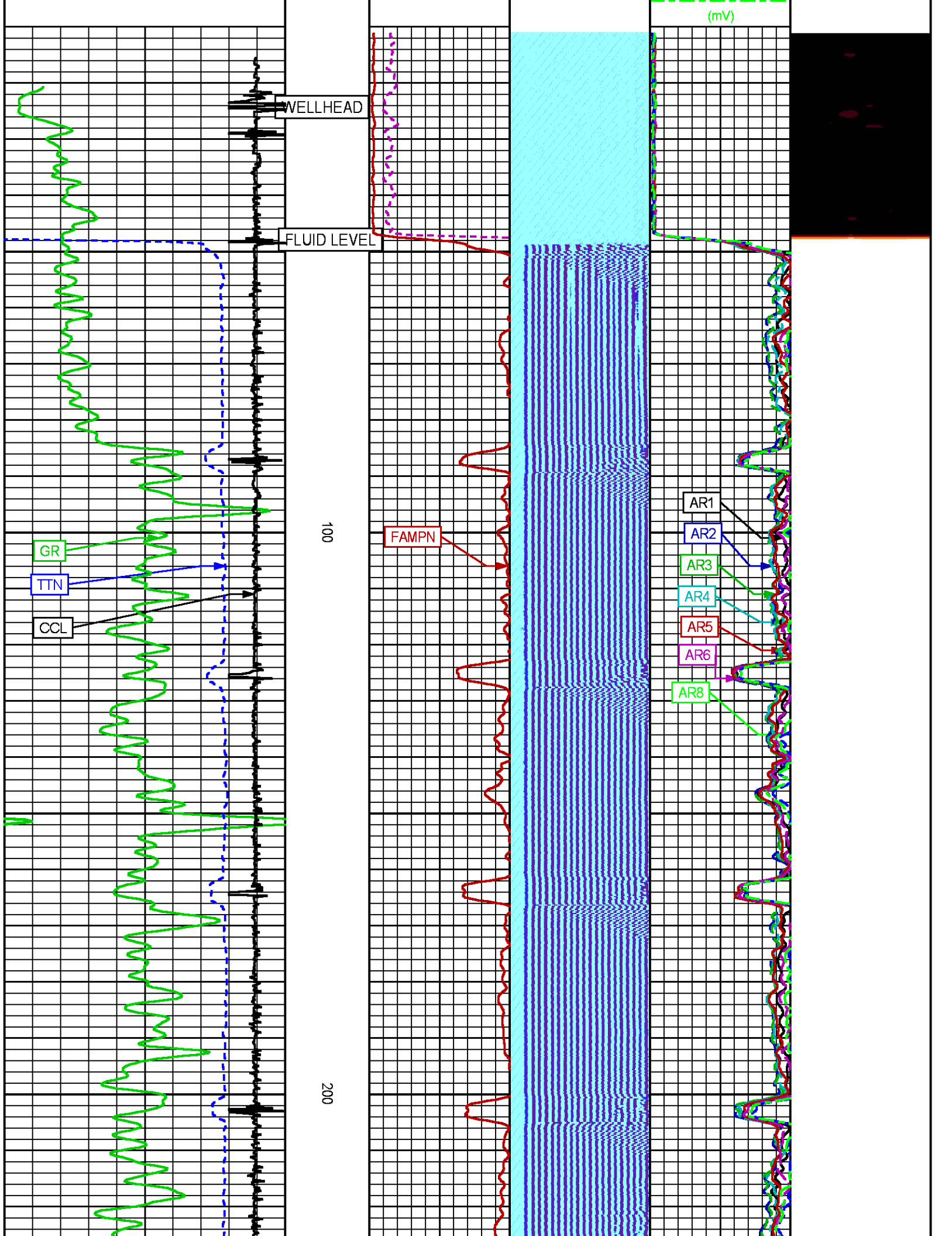
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

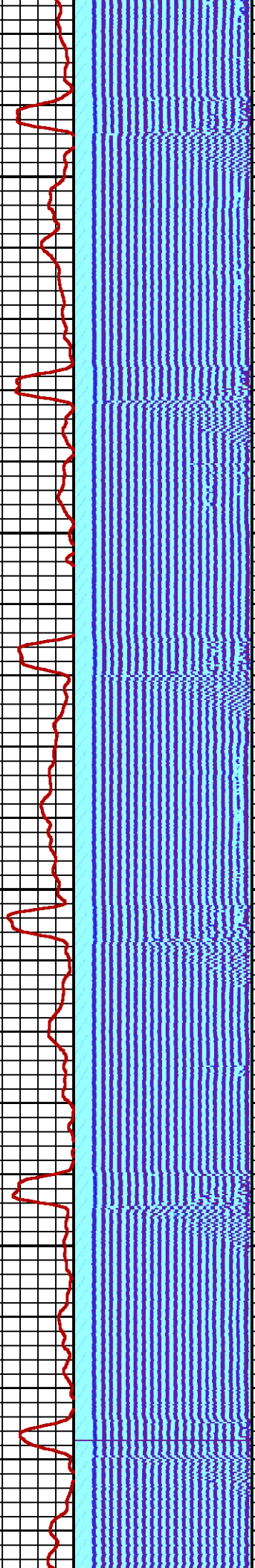
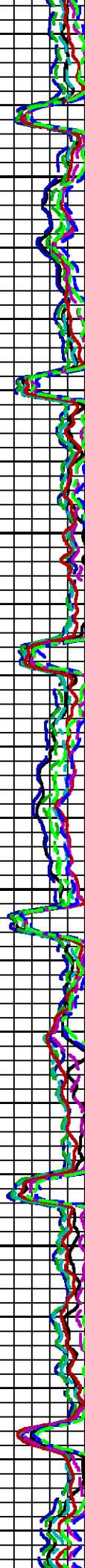
CURVE MEASURE POINT OFFSET

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	: SysA:/dat1a/LARAMIE_NICHOLS_0994_24_04E/LARAMIE_RAL+01-MAIN-RAL_MN_04E-5.fvpdf [5"/100' Scale]
Plot Interval	: 11 - 7546.25 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_04E/RAL_MN_04E.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: NICHOLS 0994-24-4E
Field	: VEGA
File Interval	: 3.25 - 7547.5 Feet
OCT	: p012g

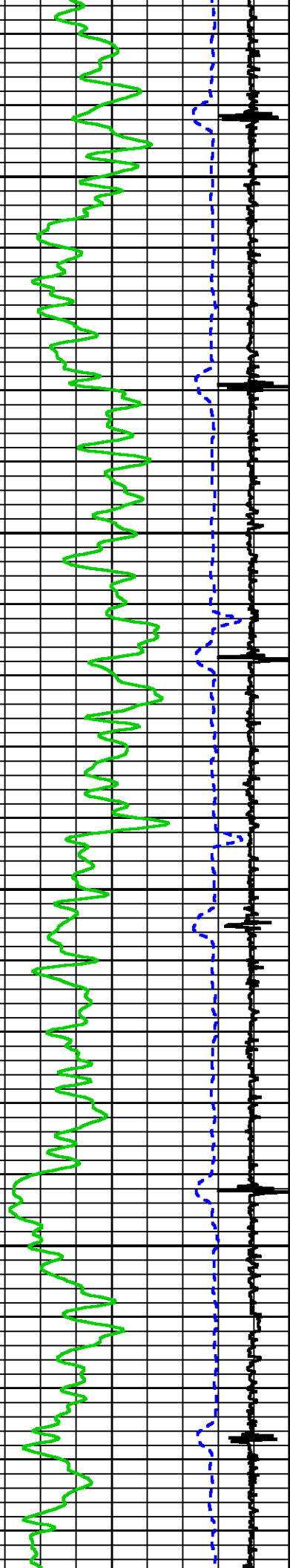


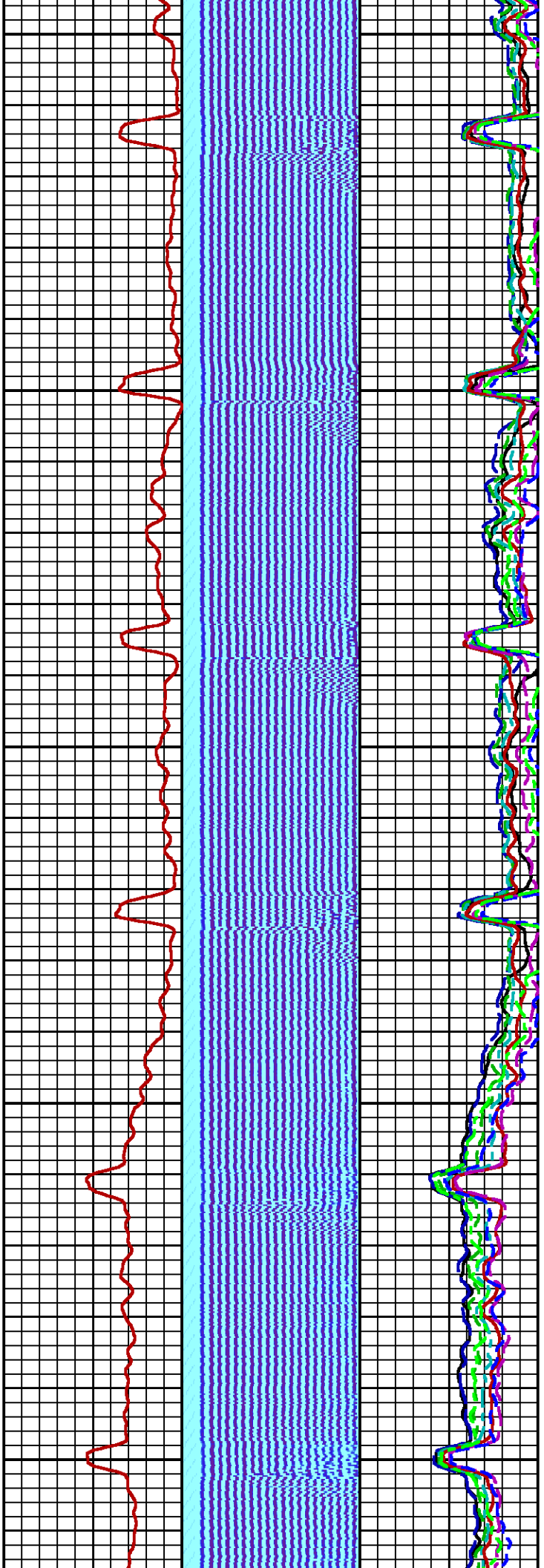




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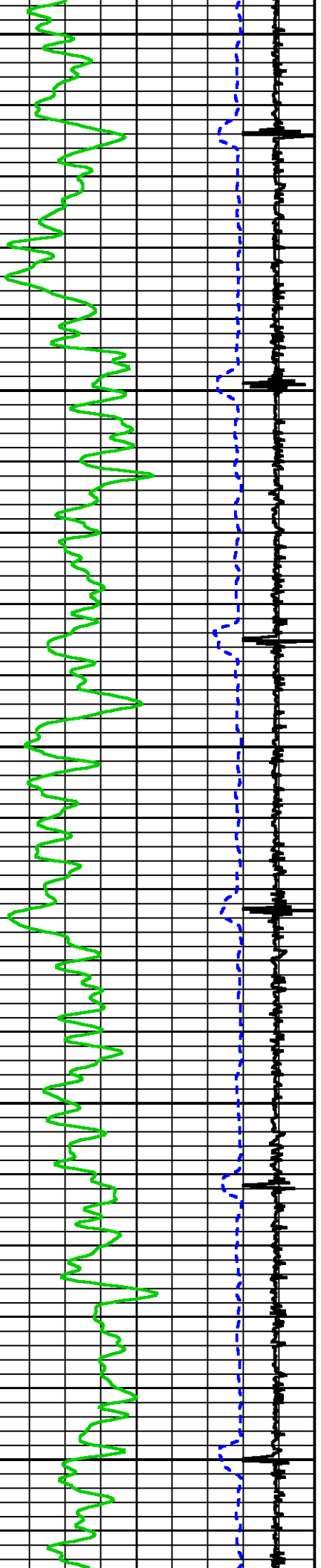
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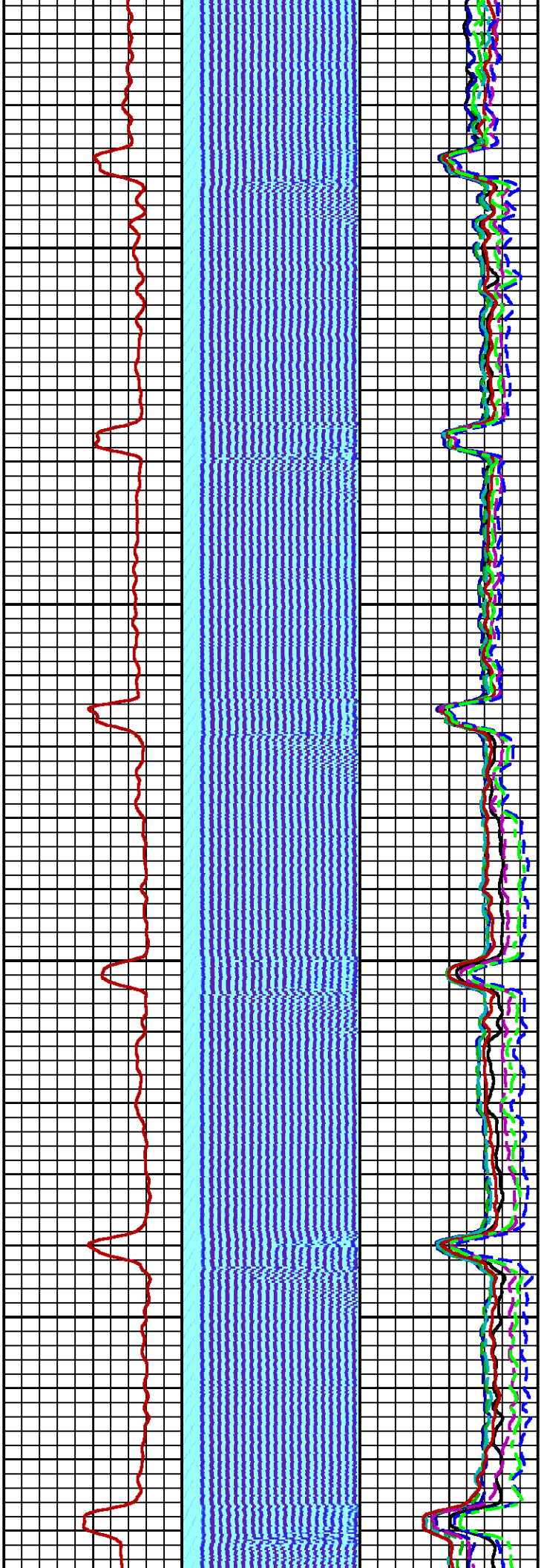




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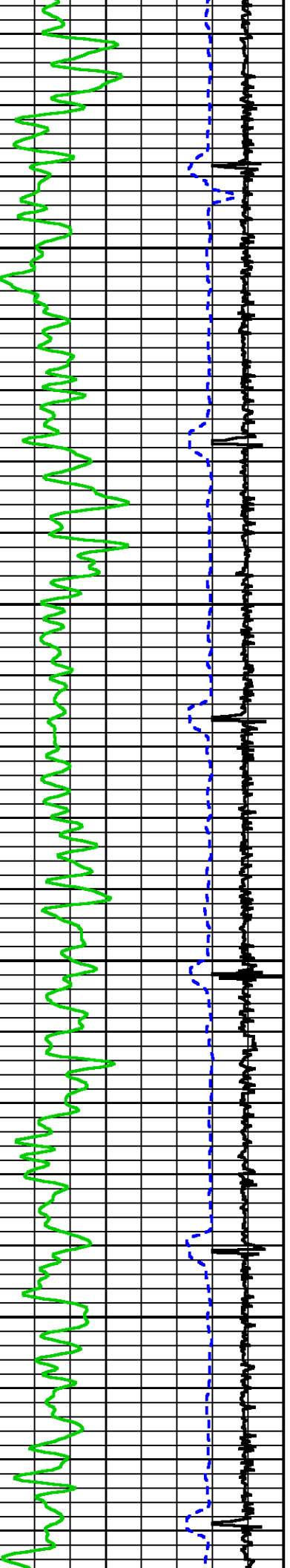
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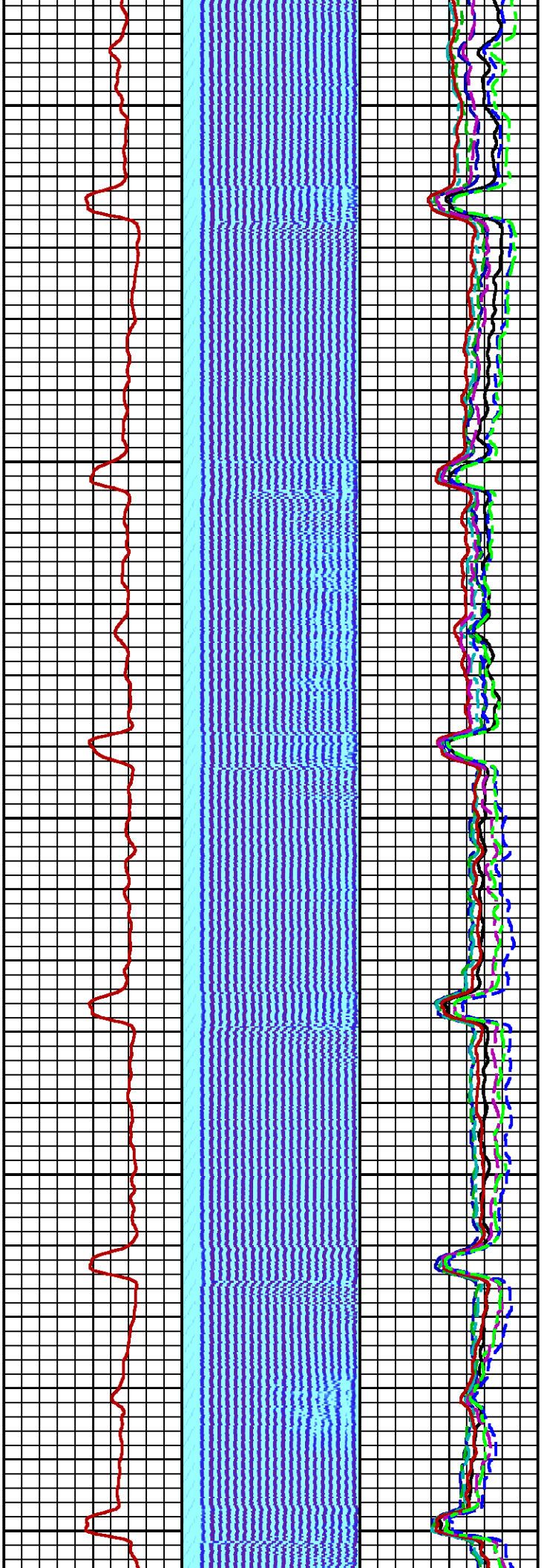




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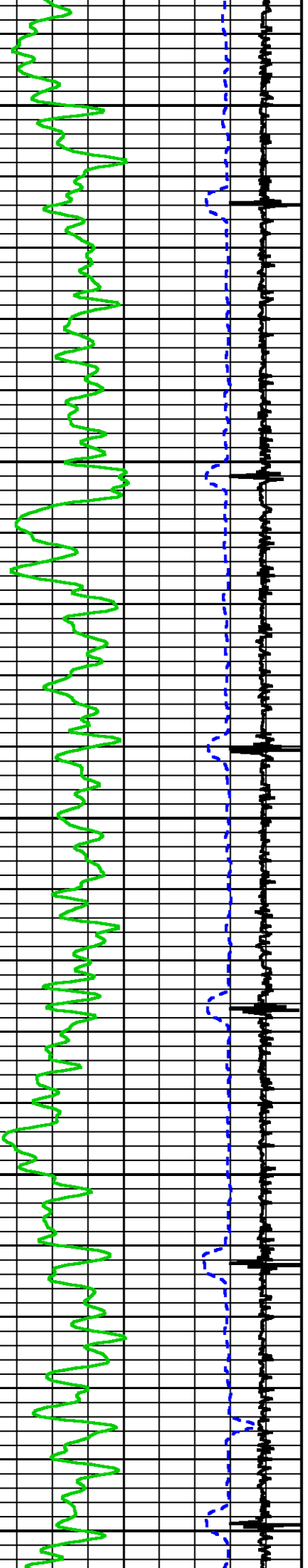


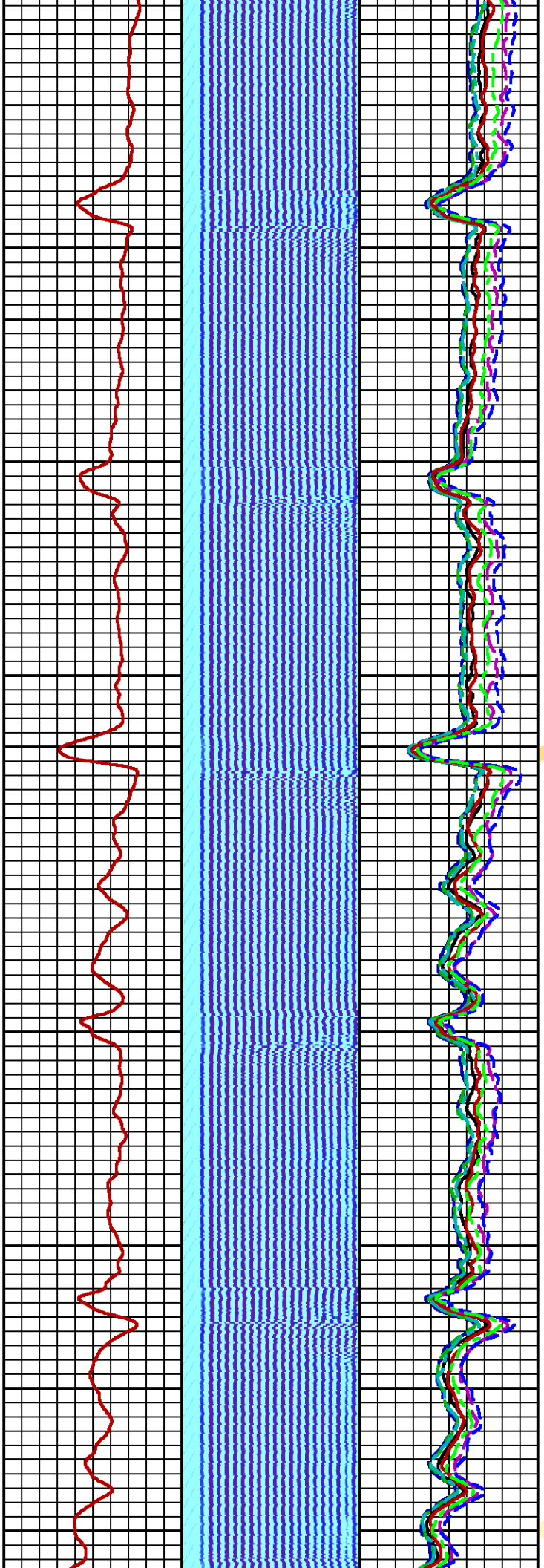


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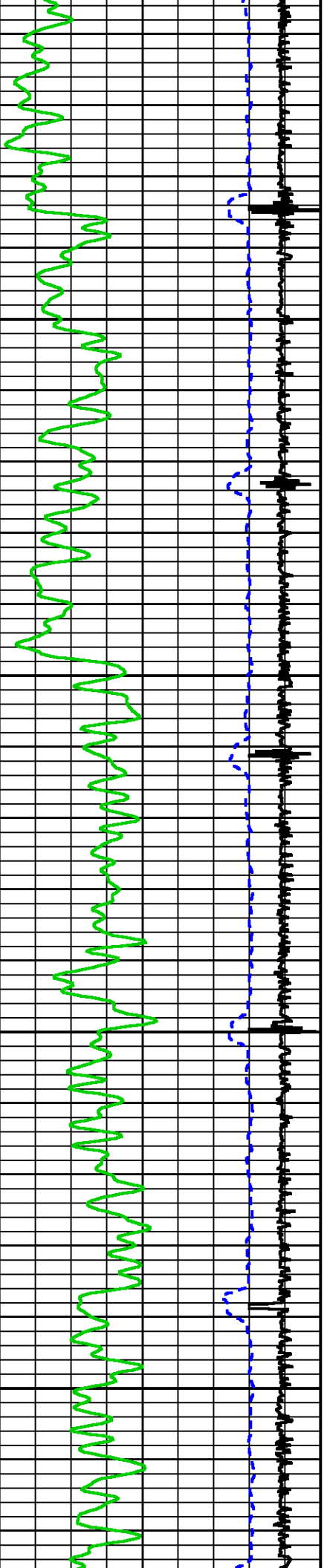
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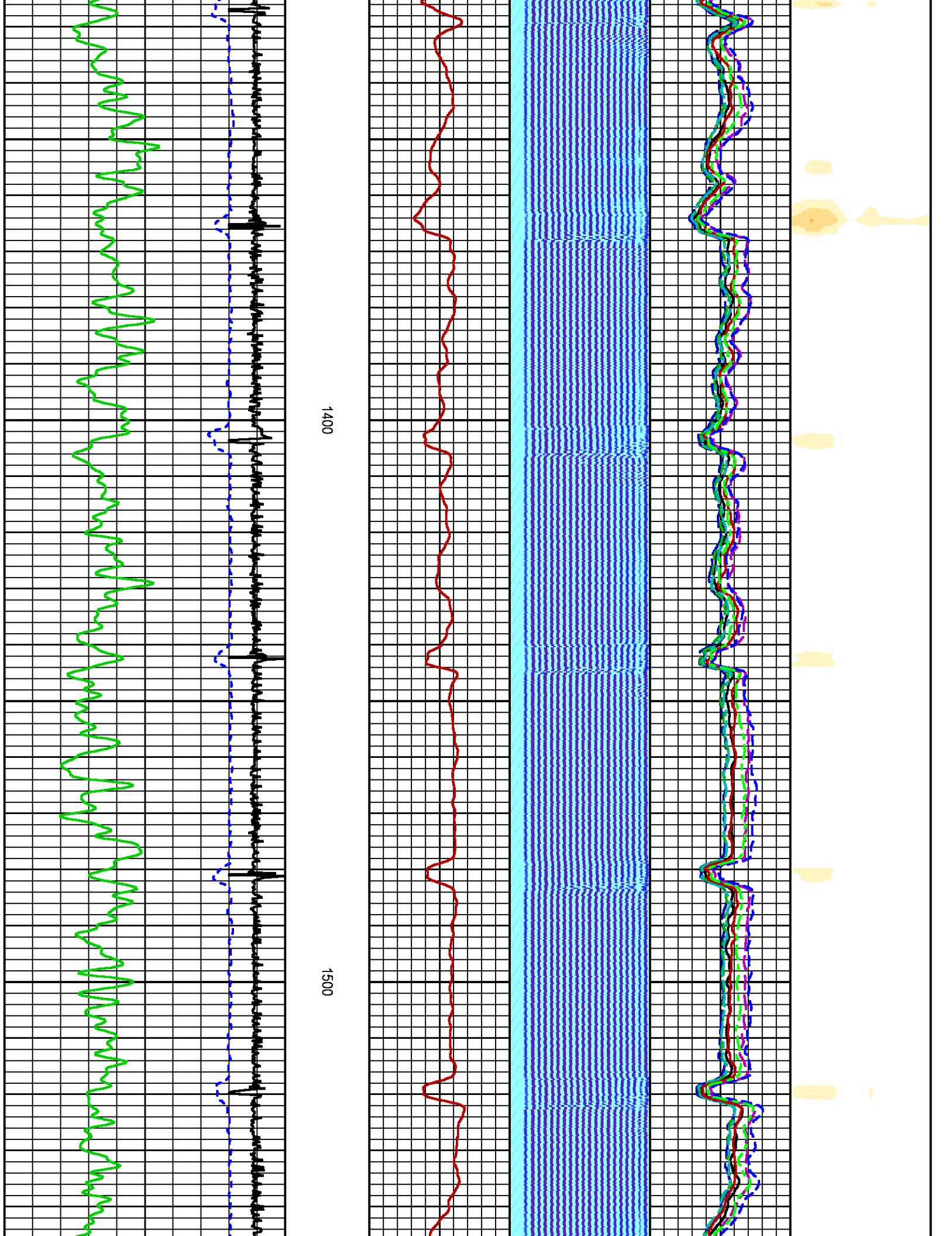


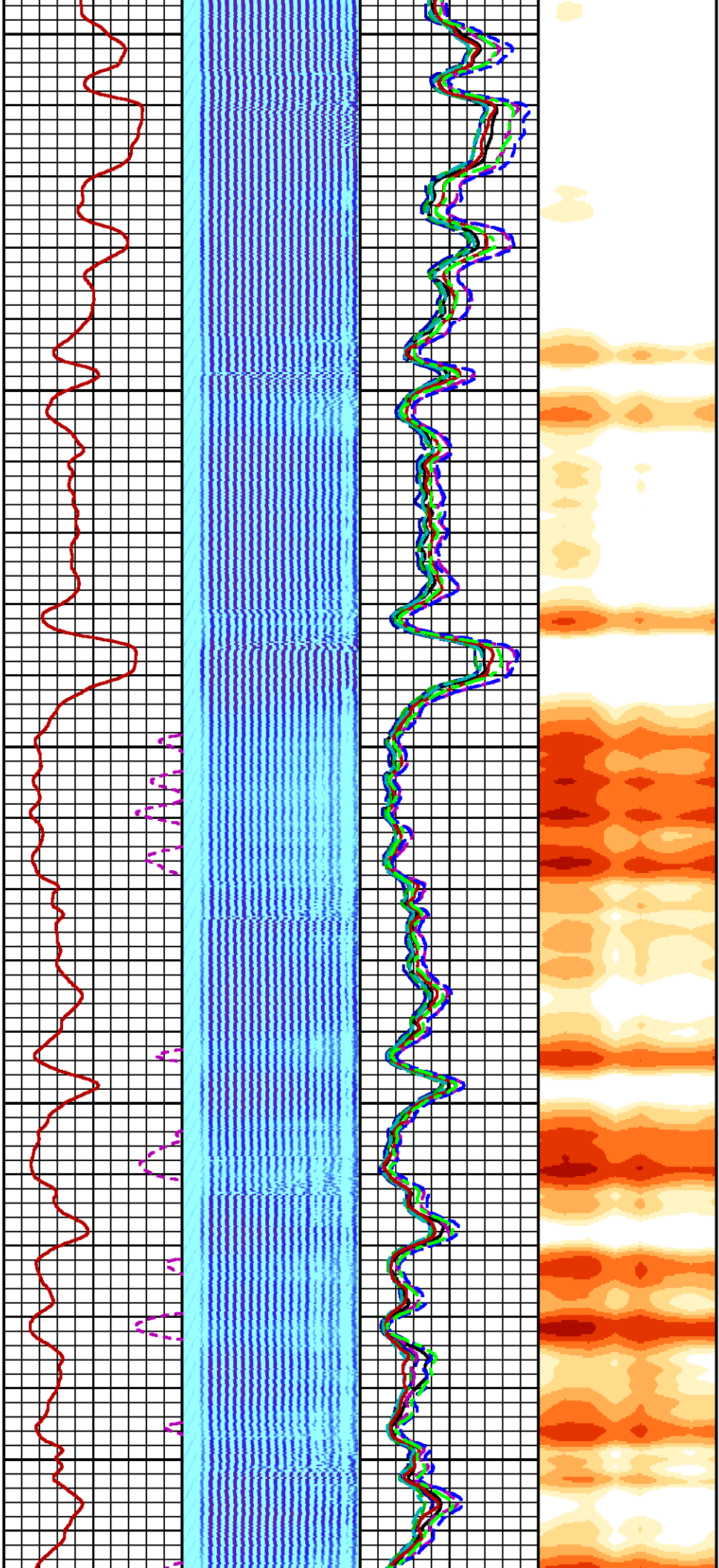


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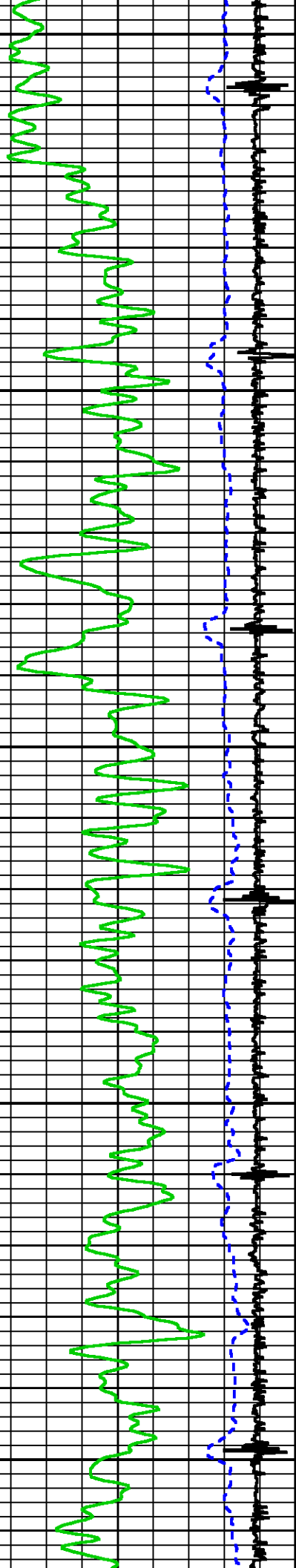


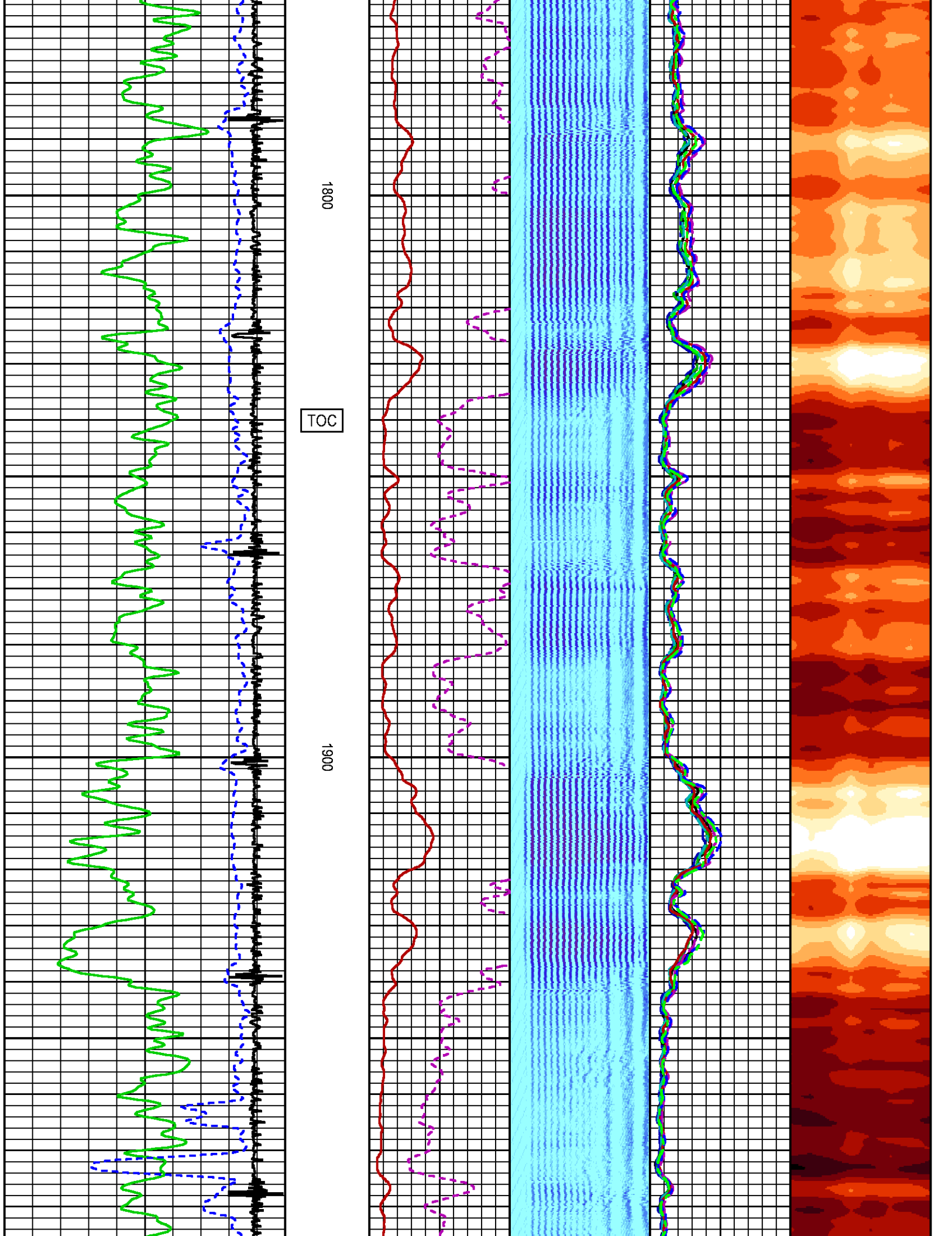


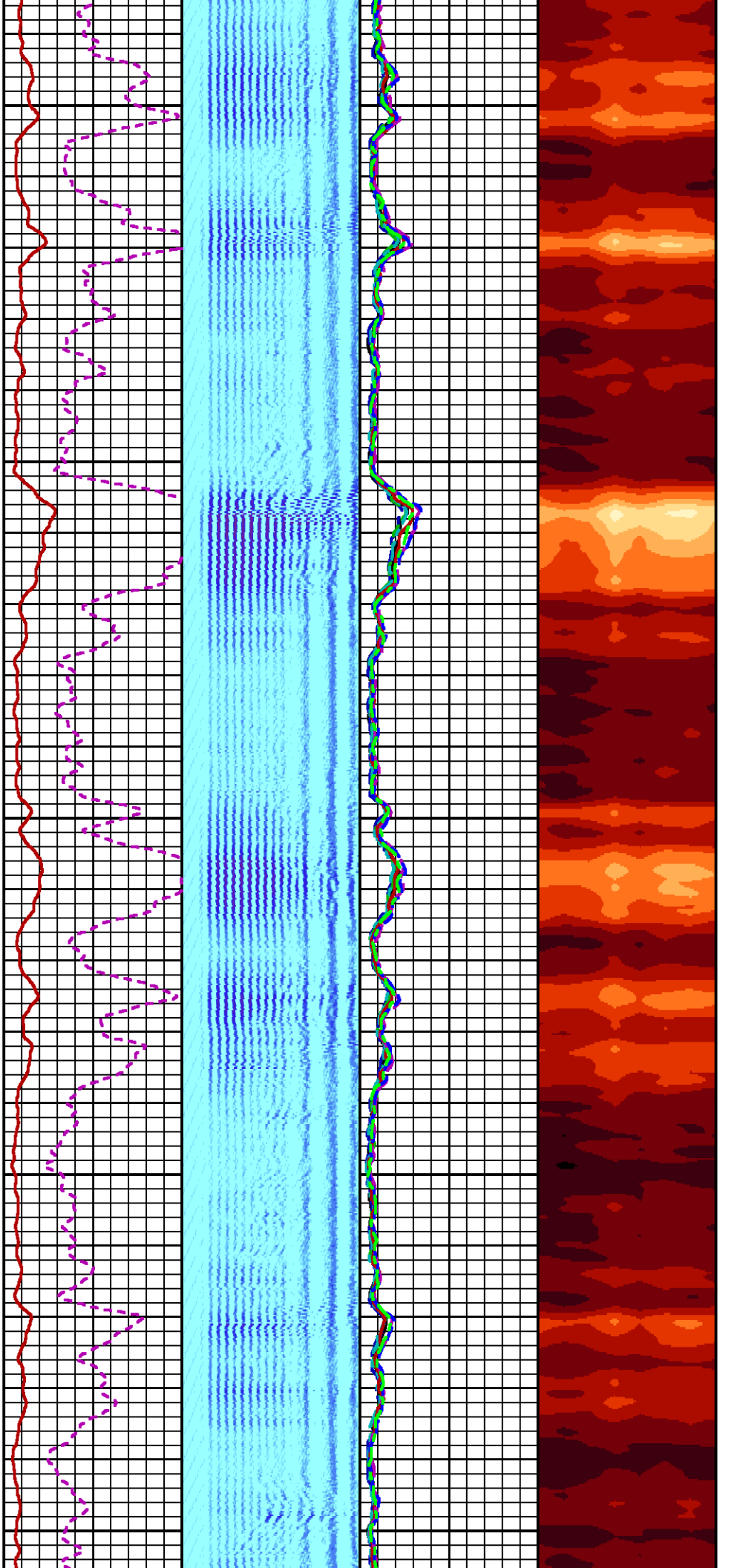


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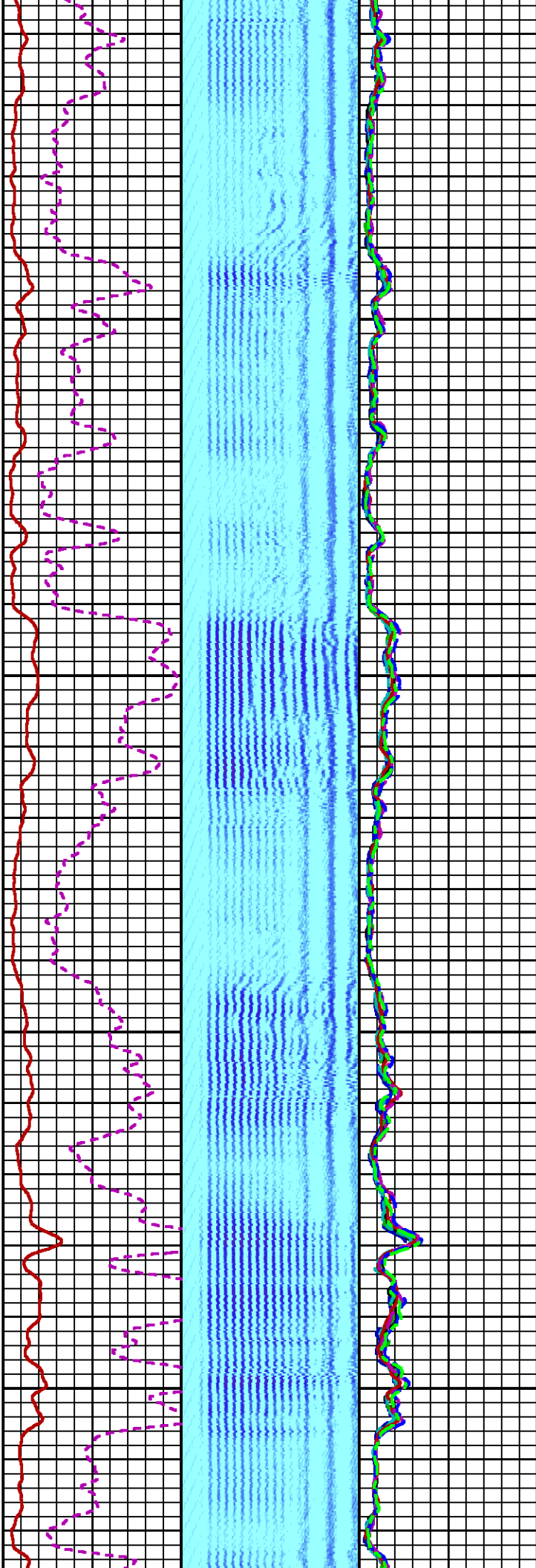




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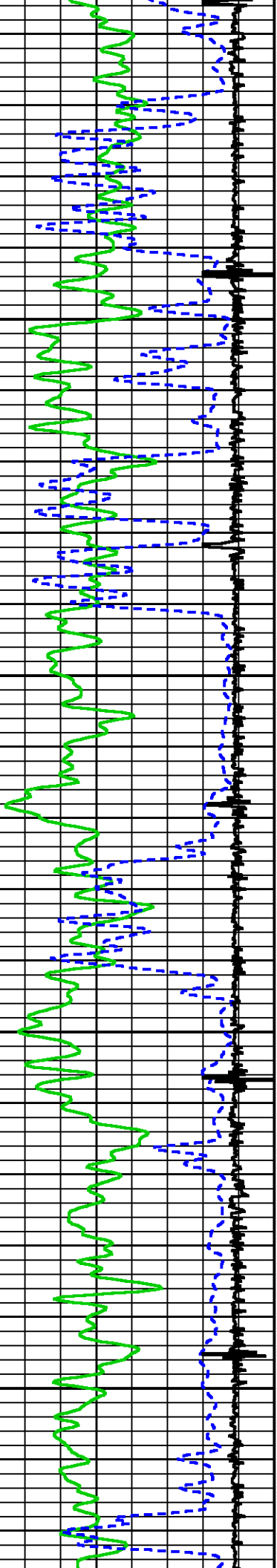
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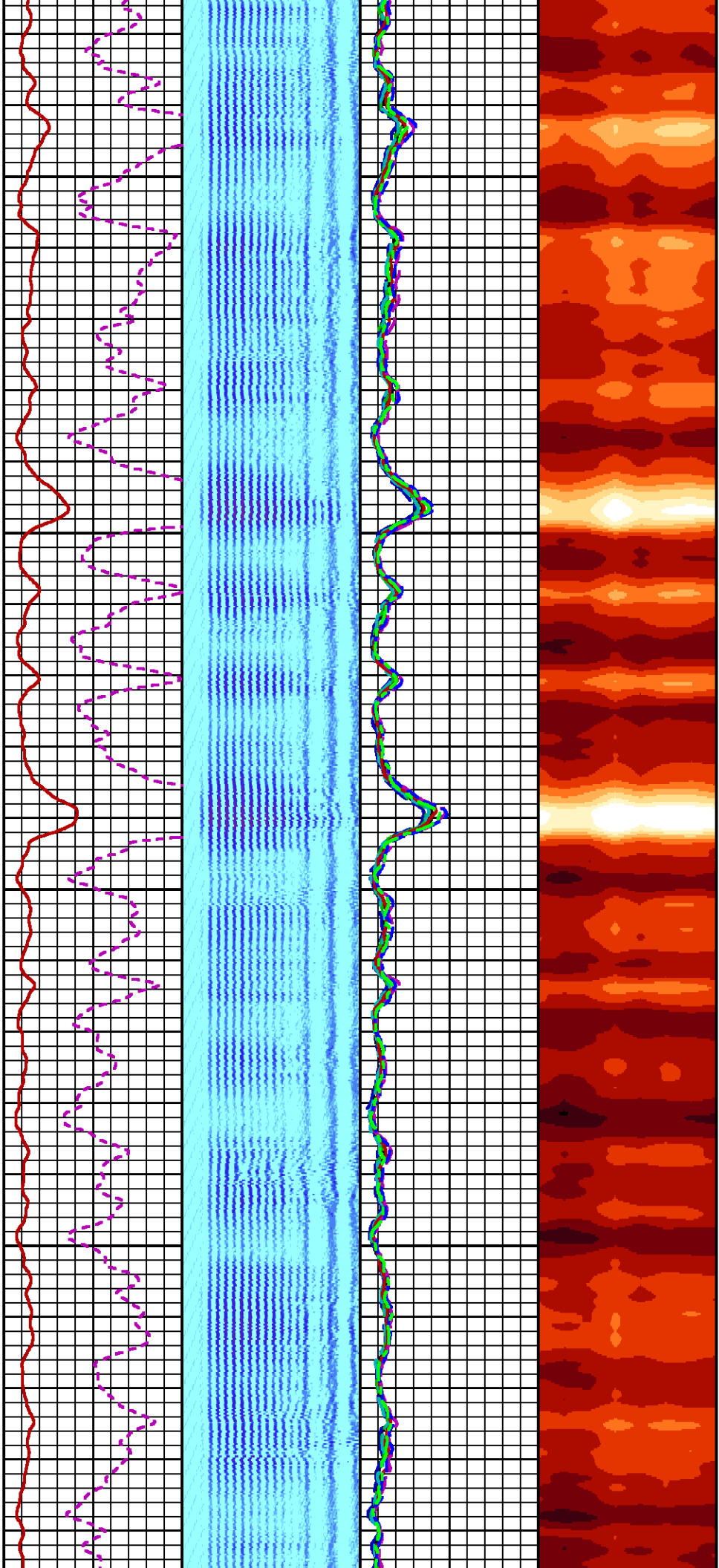
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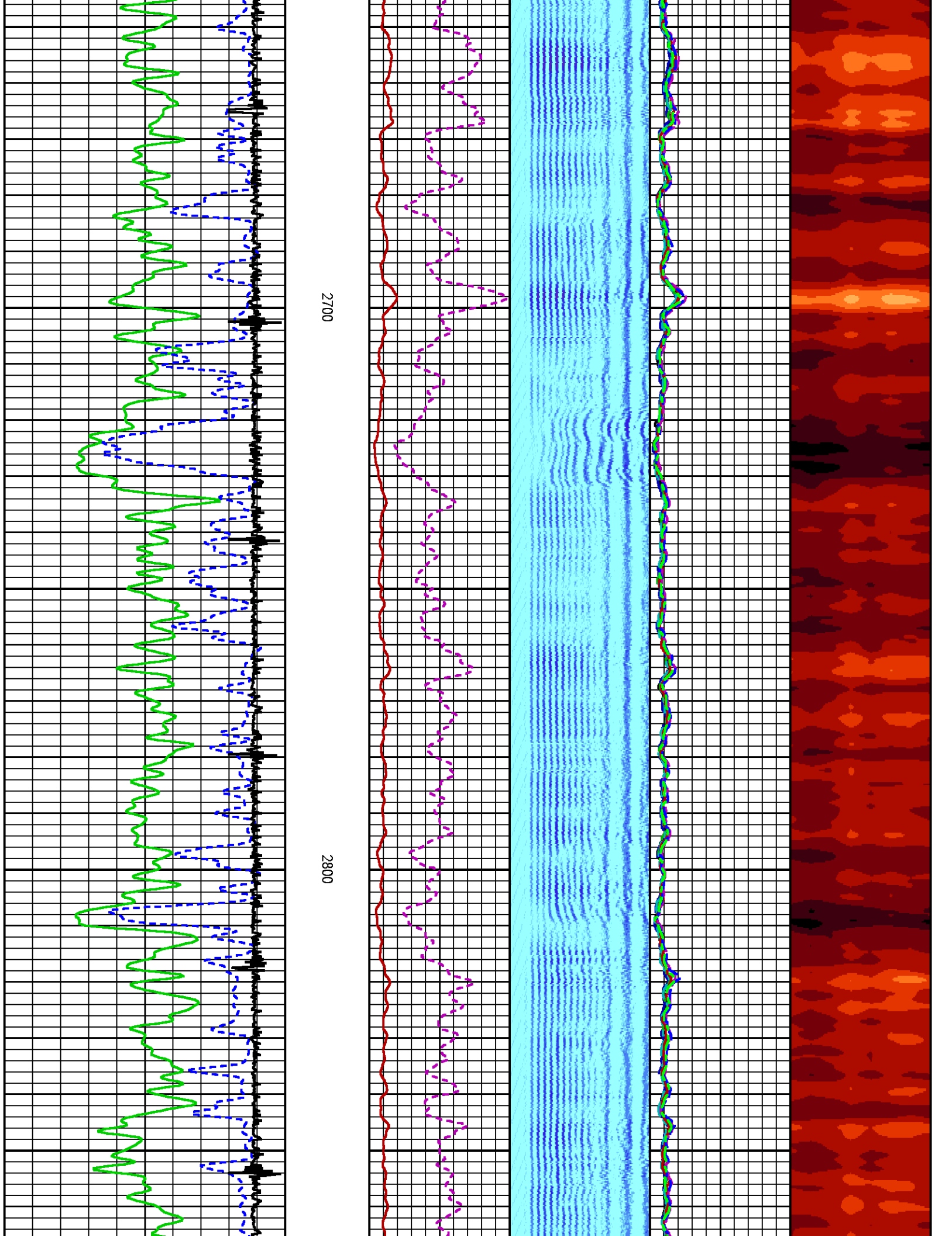
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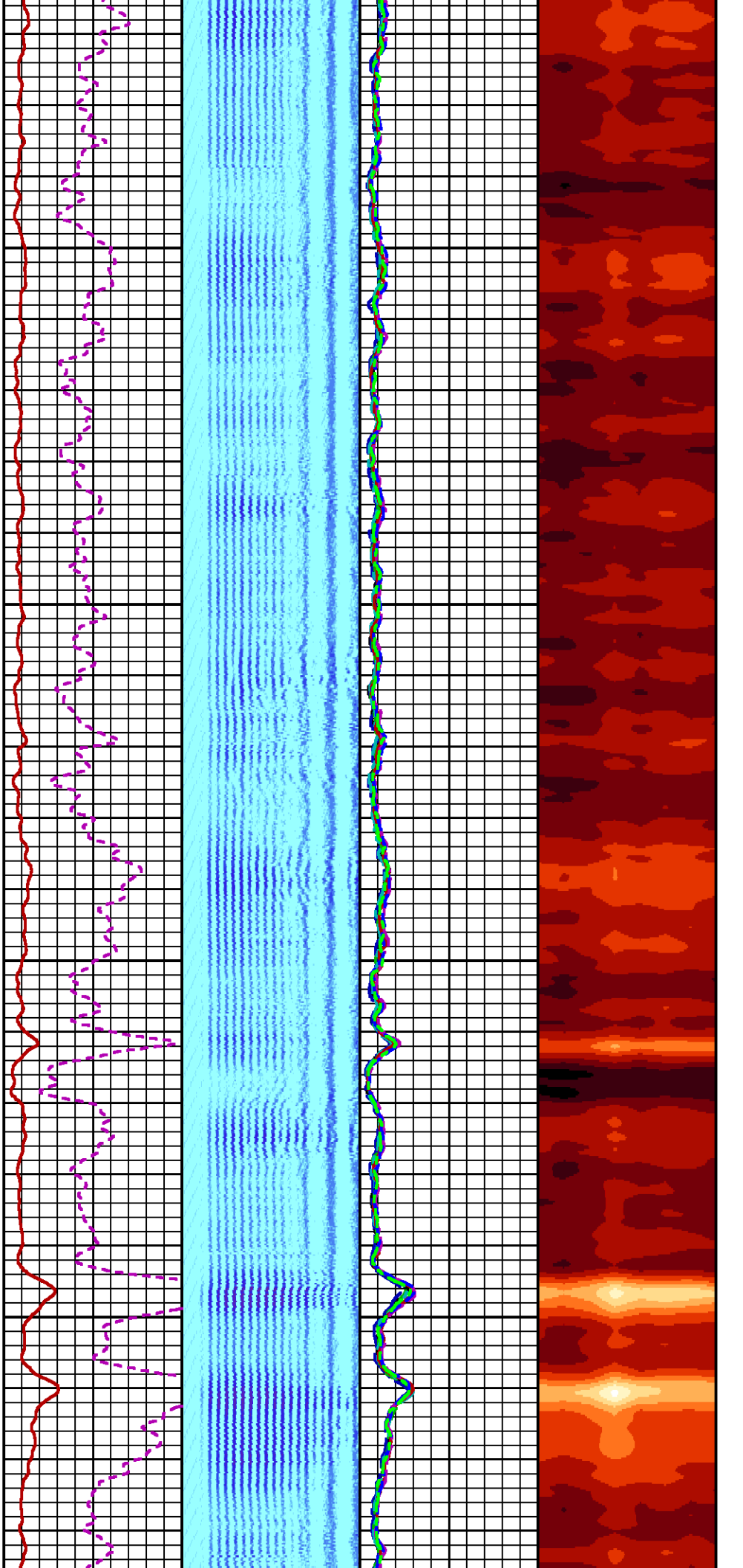




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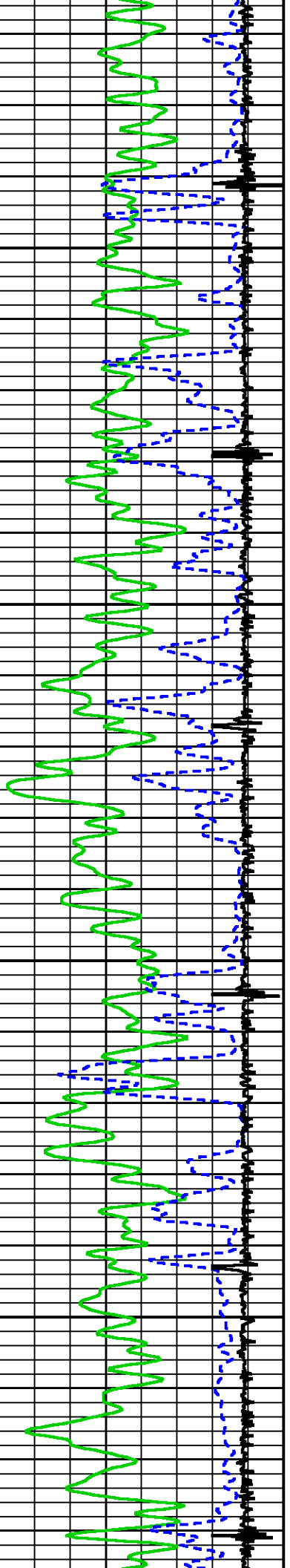
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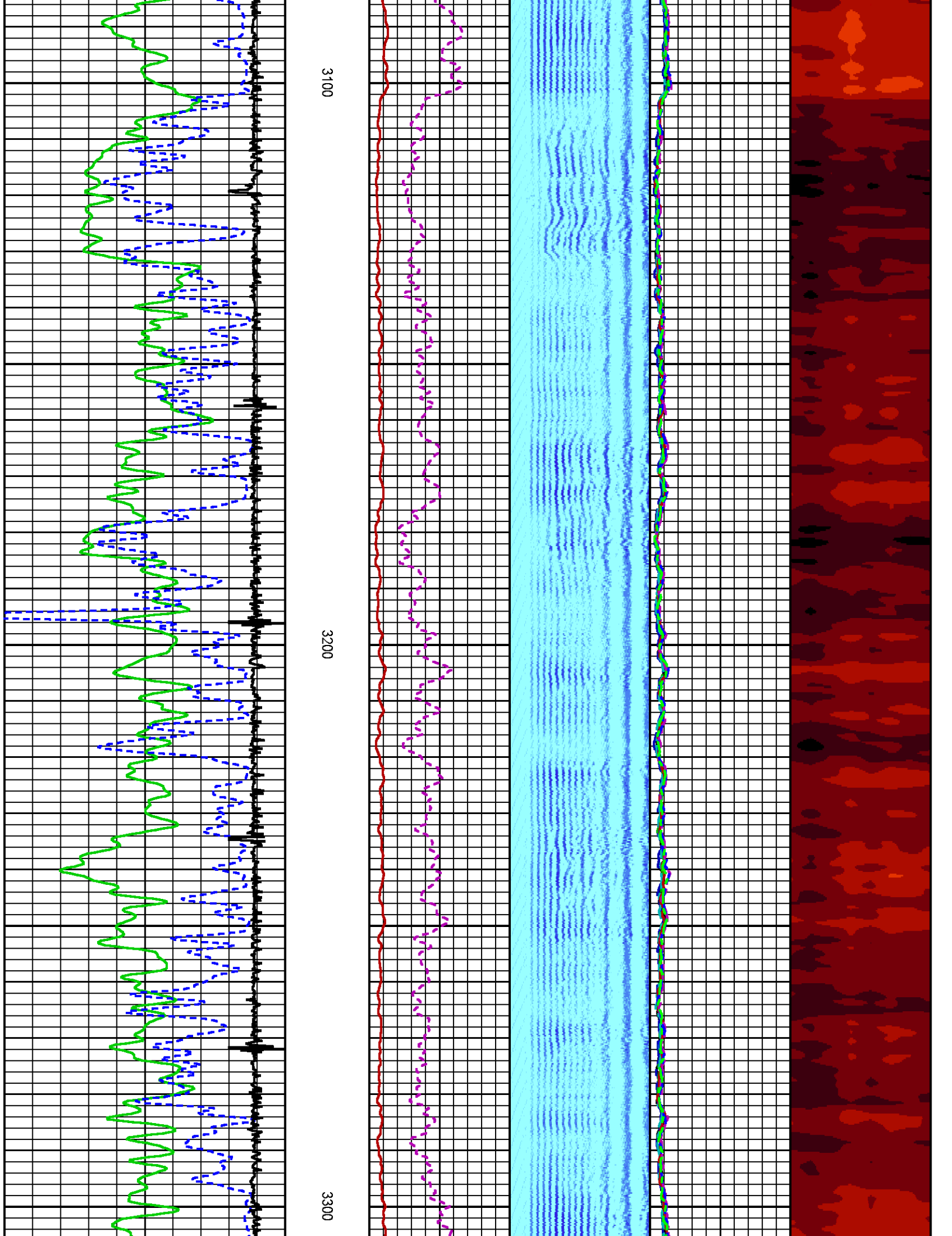


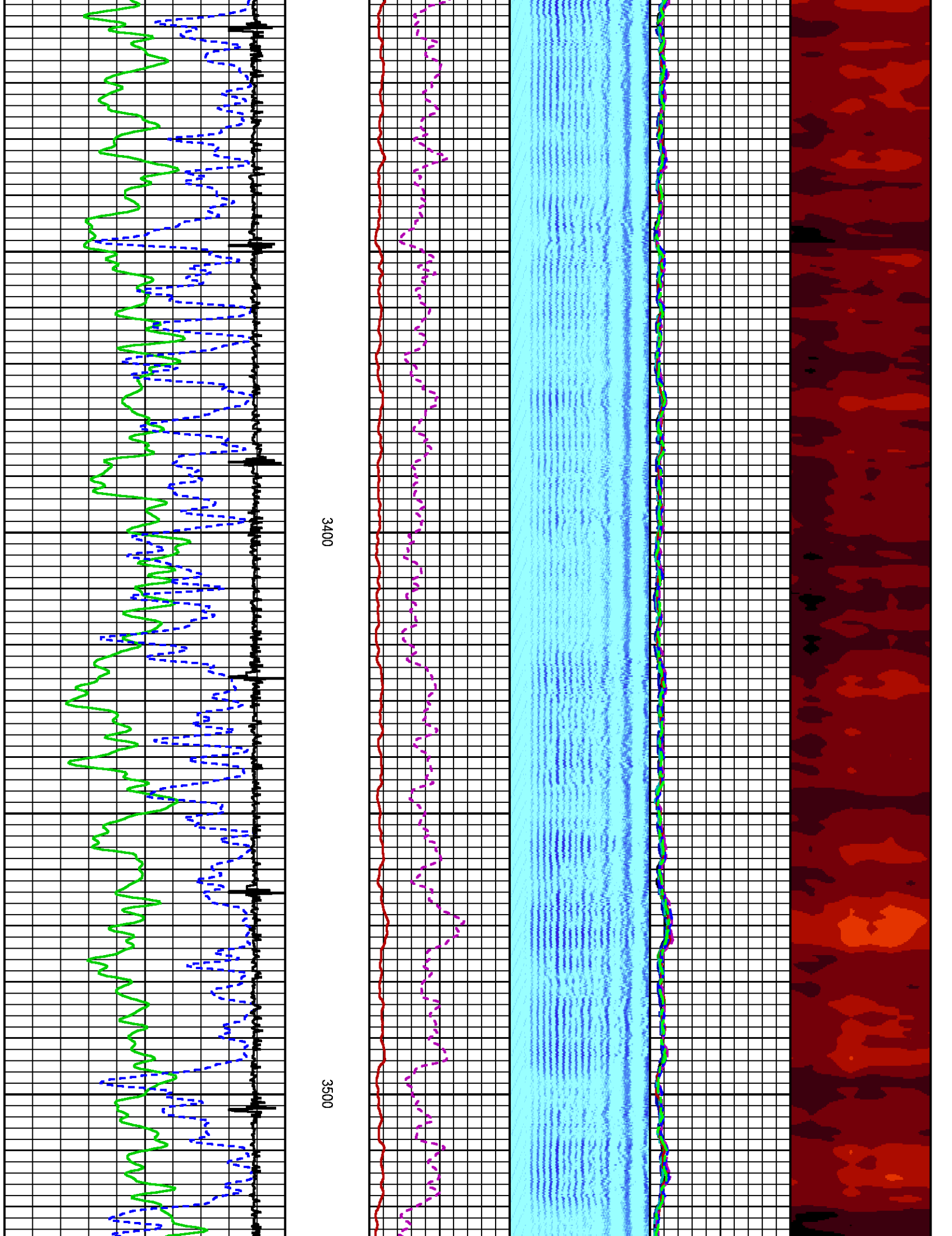


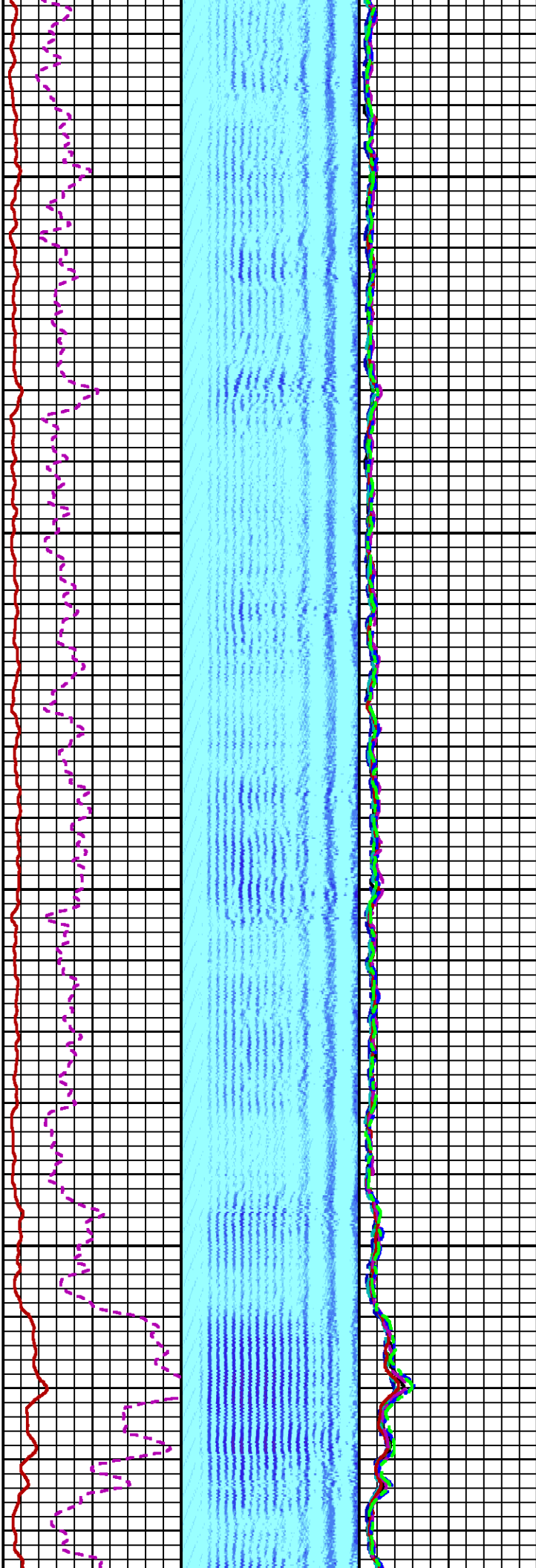
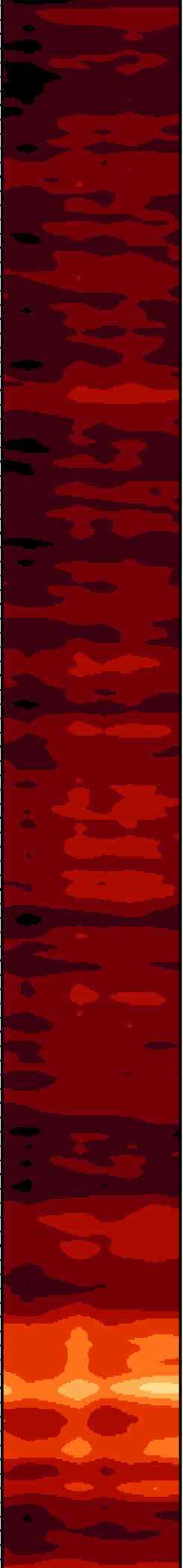
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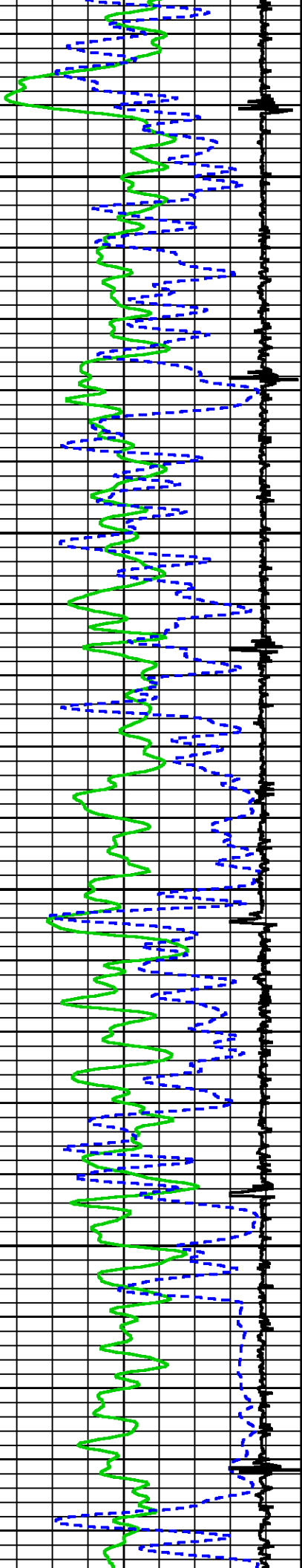


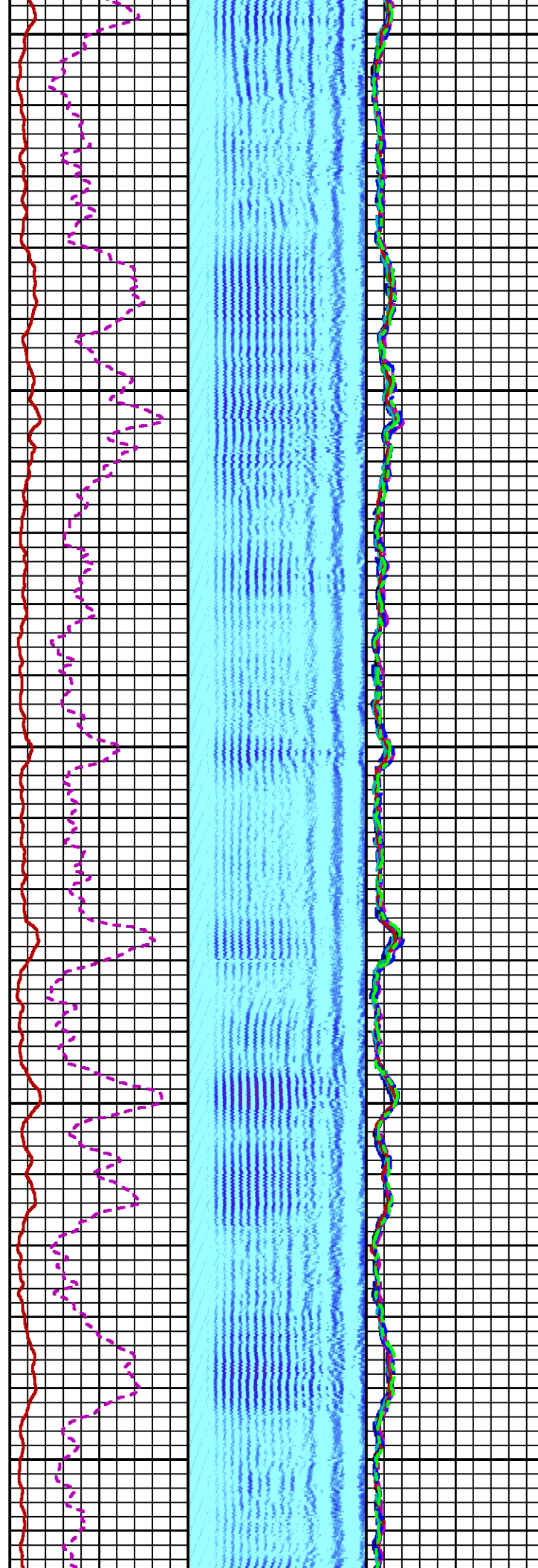
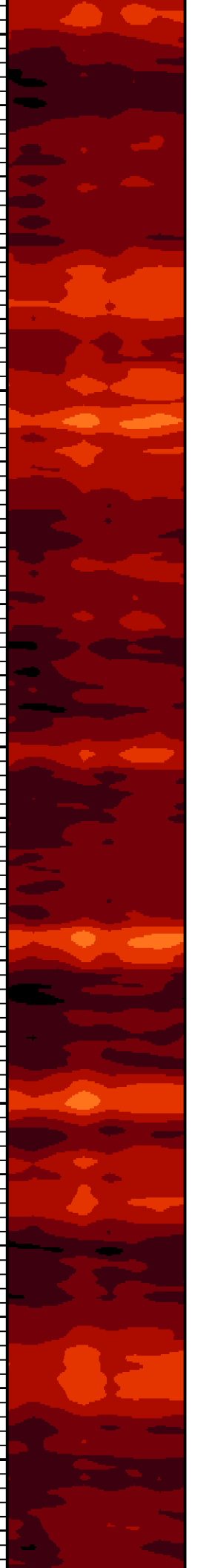




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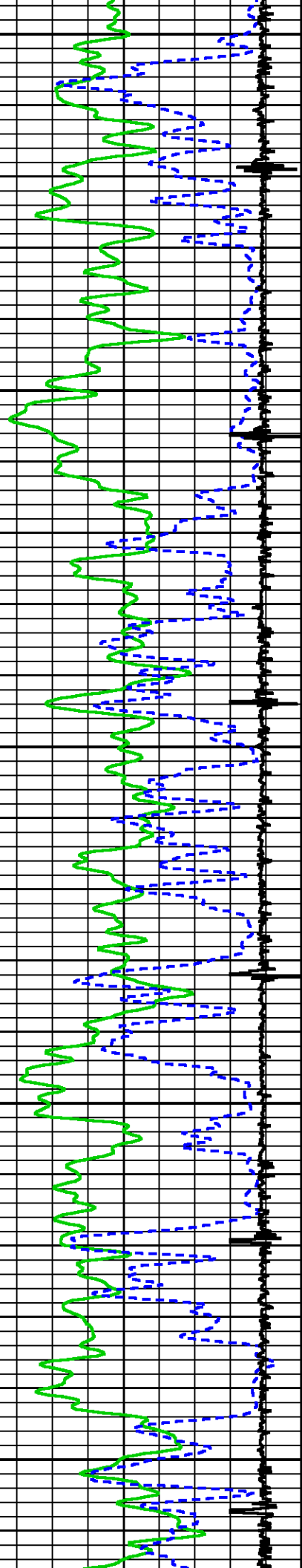
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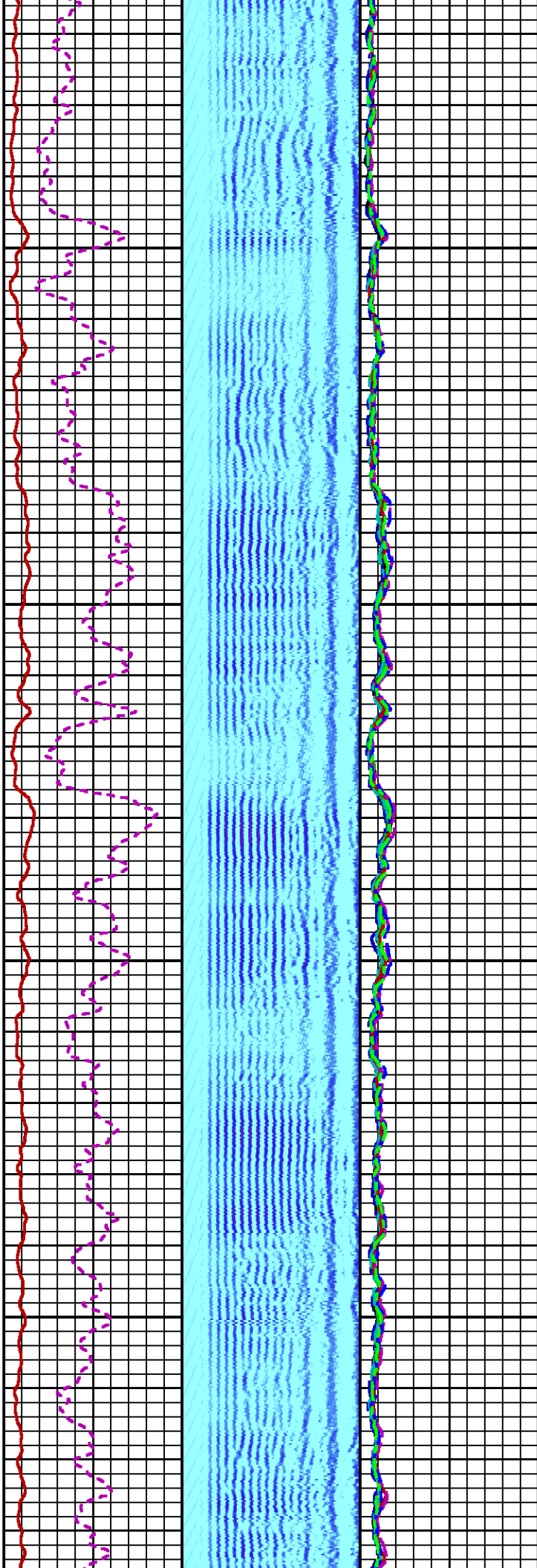




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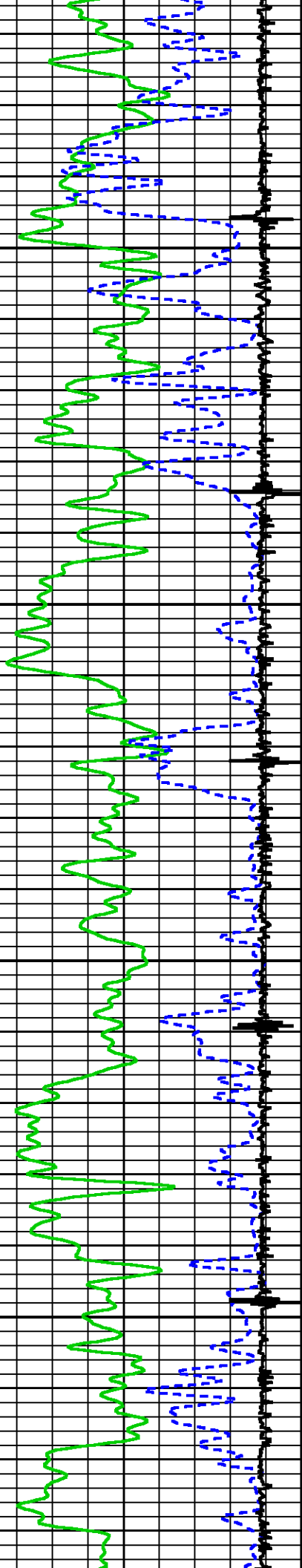
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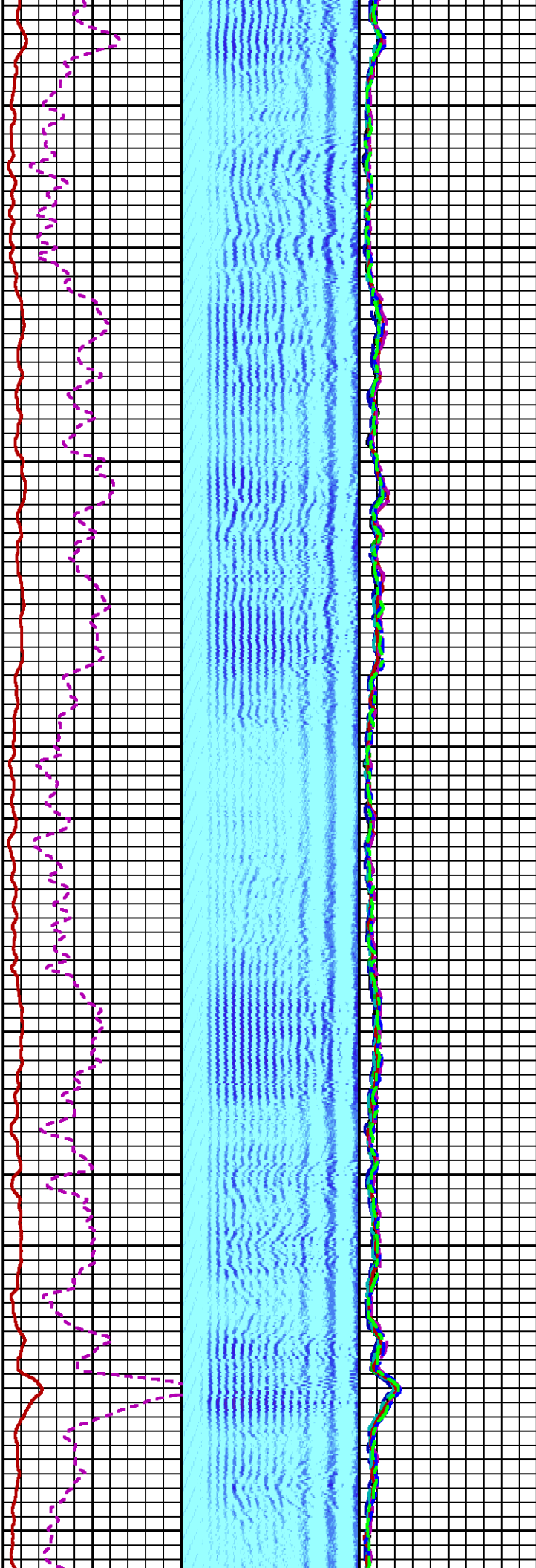




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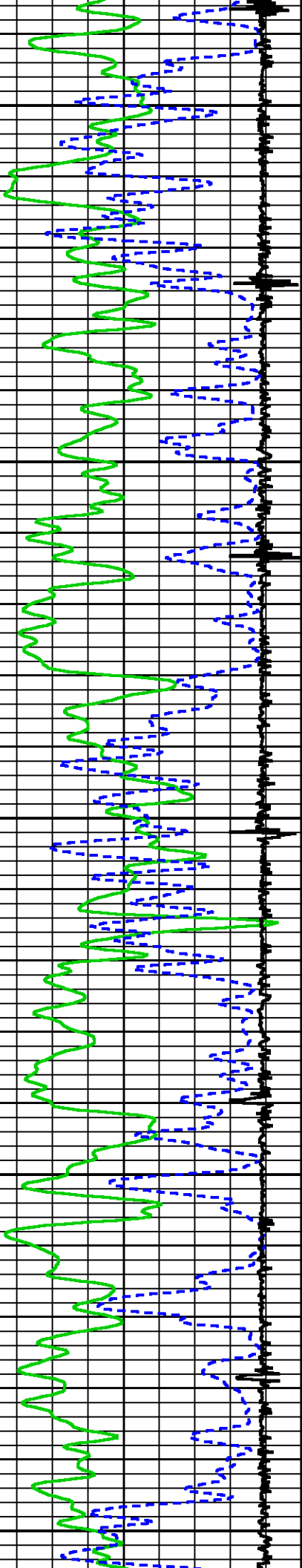


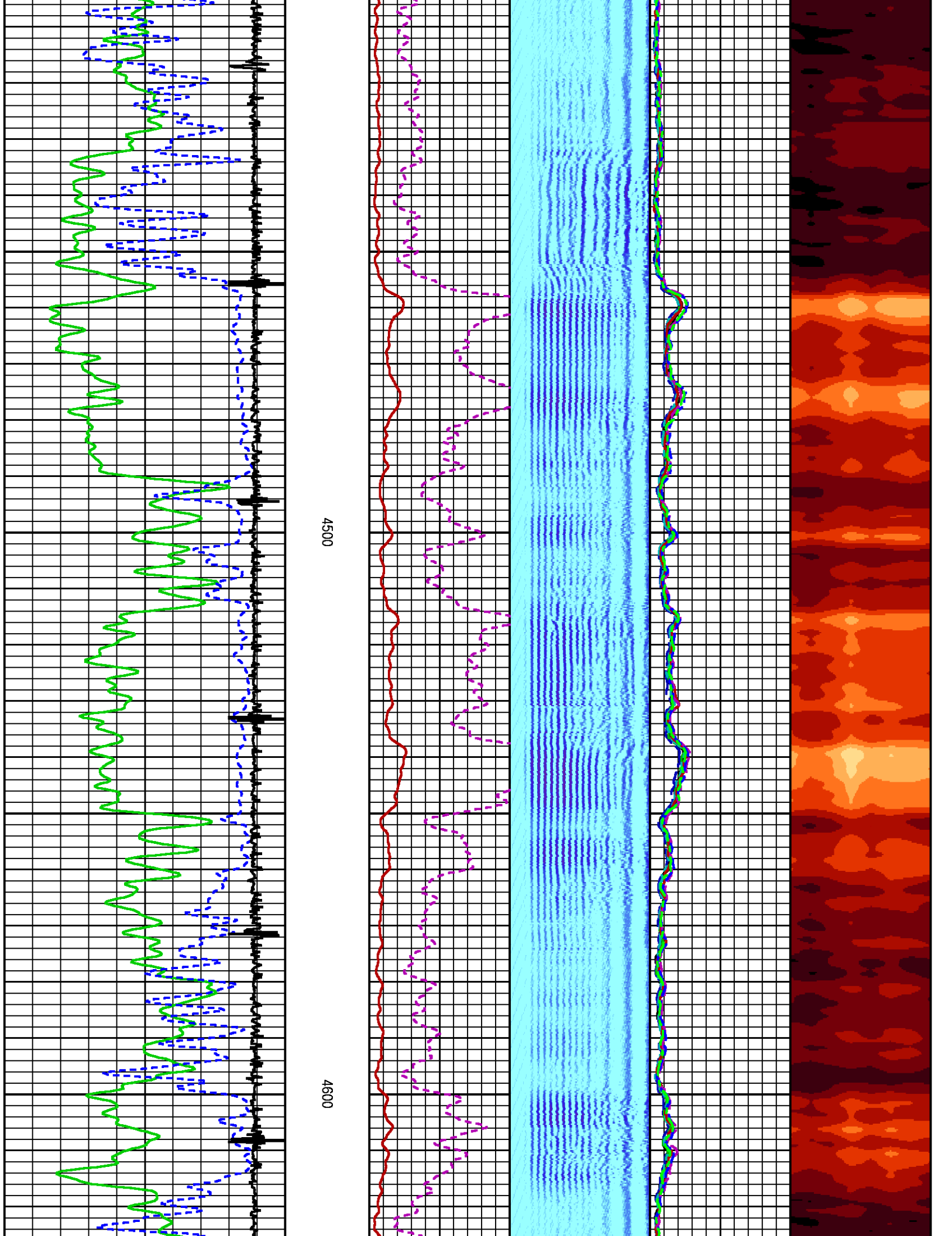


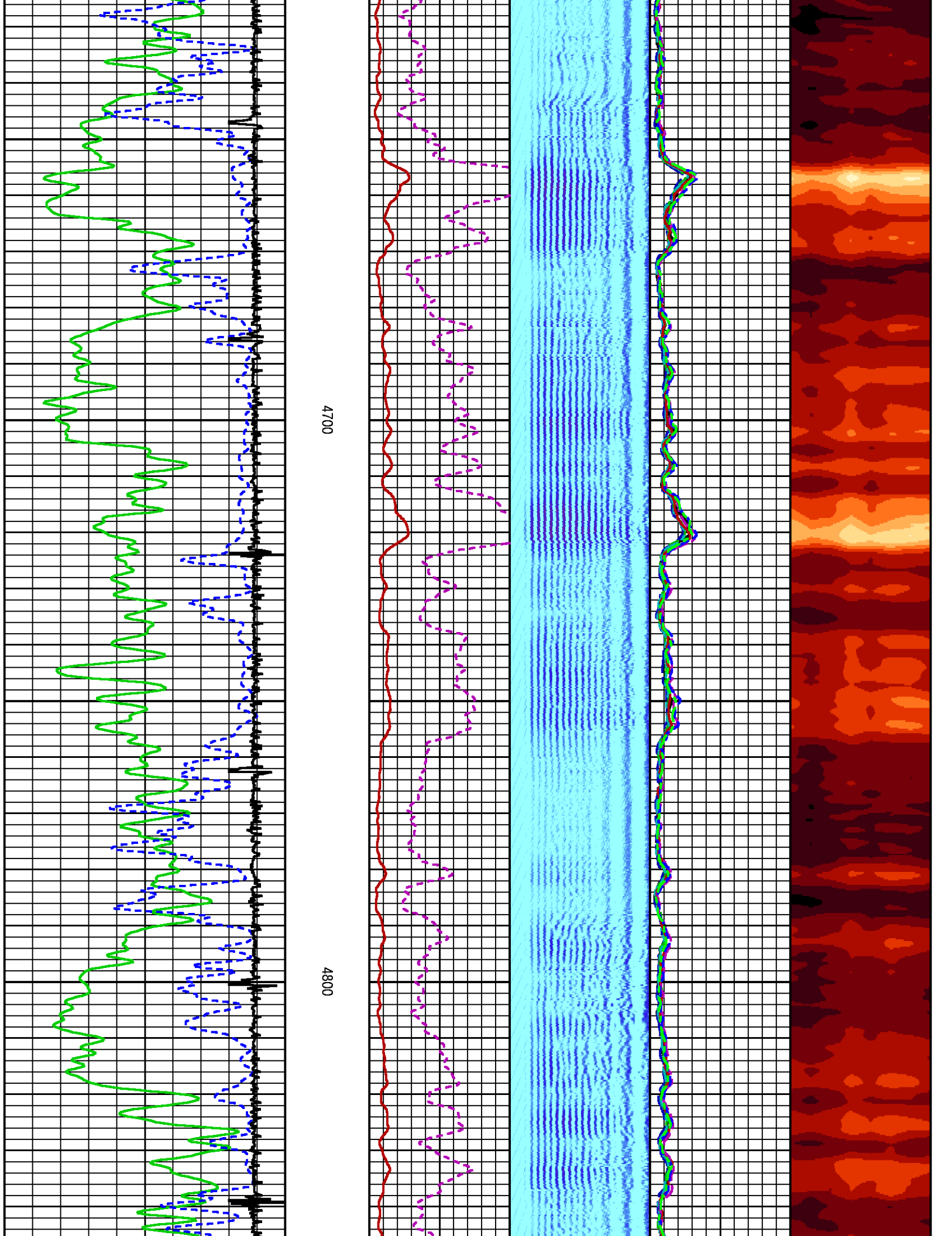
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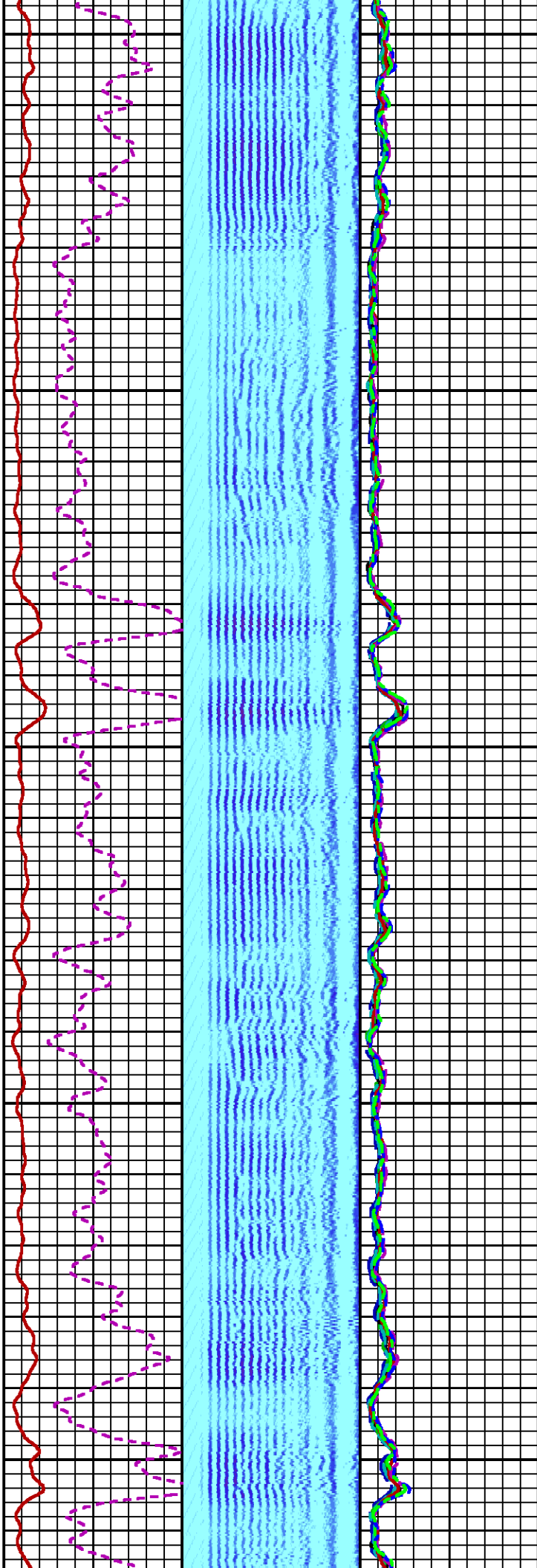
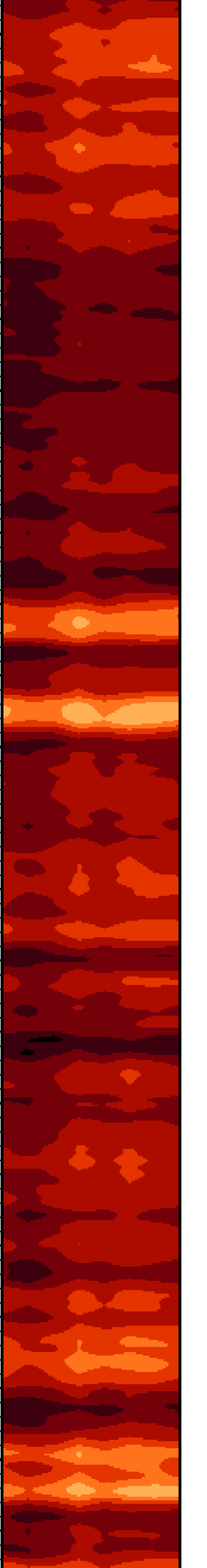
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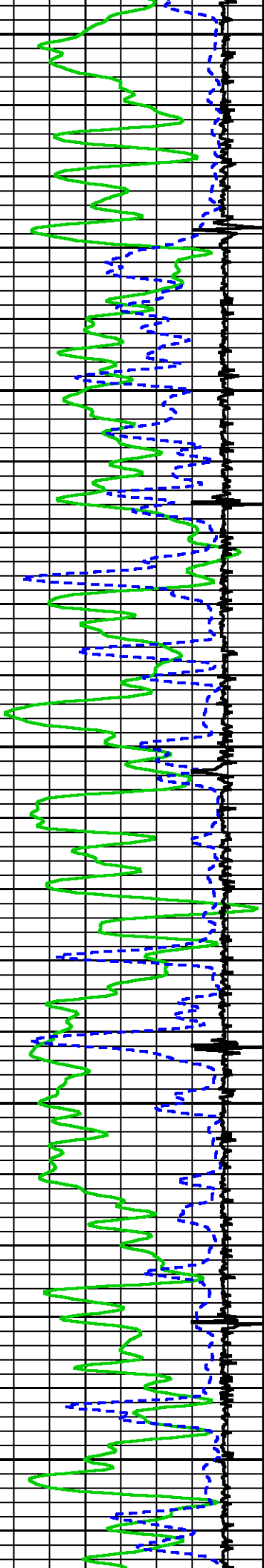


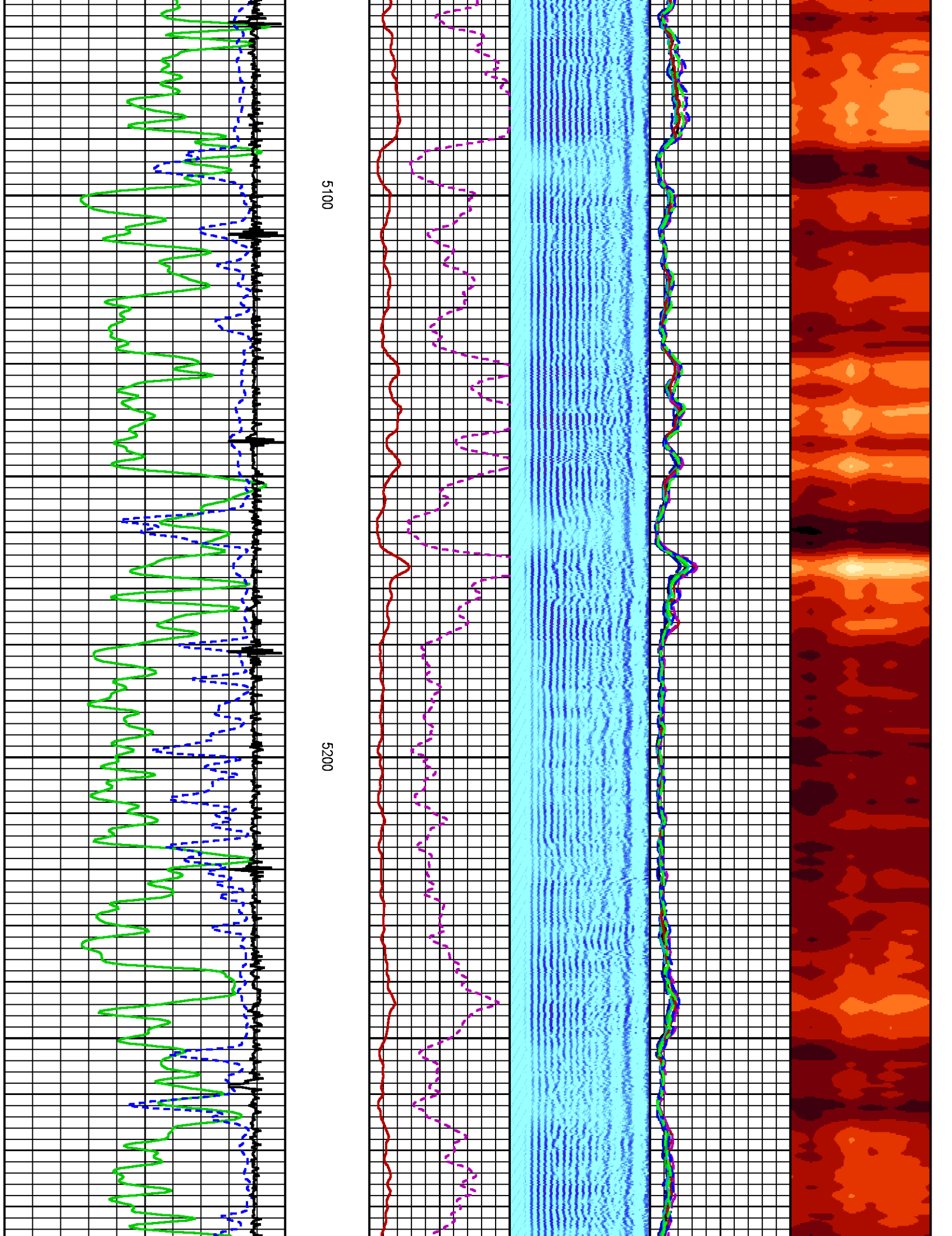


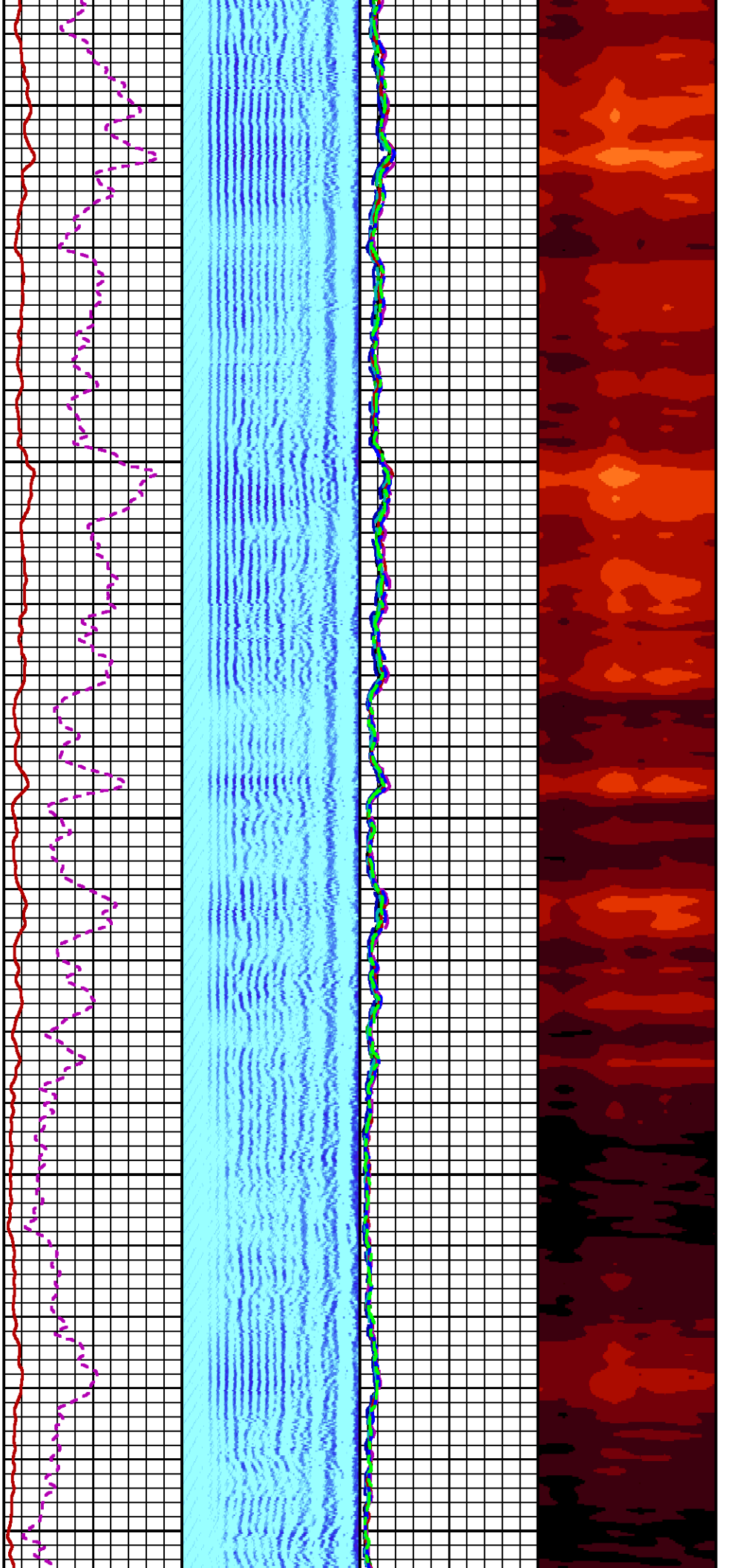


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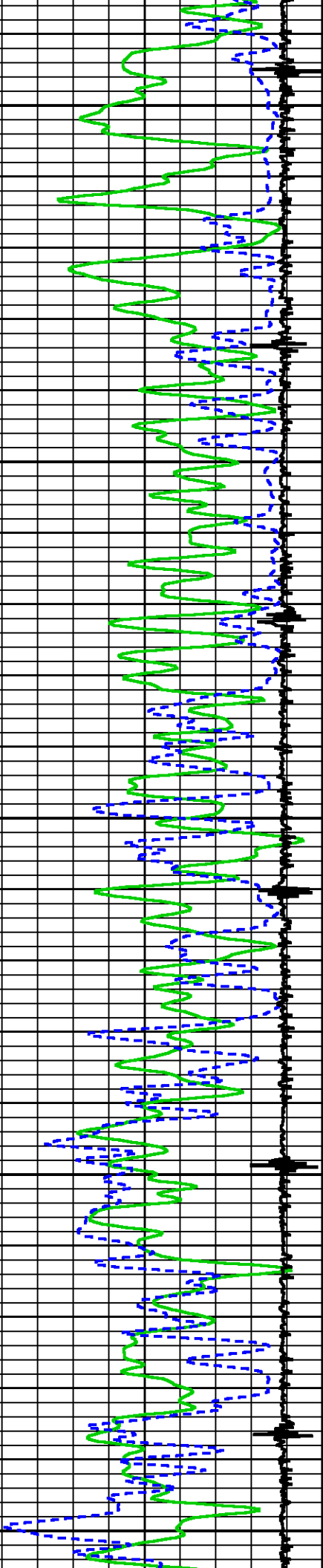


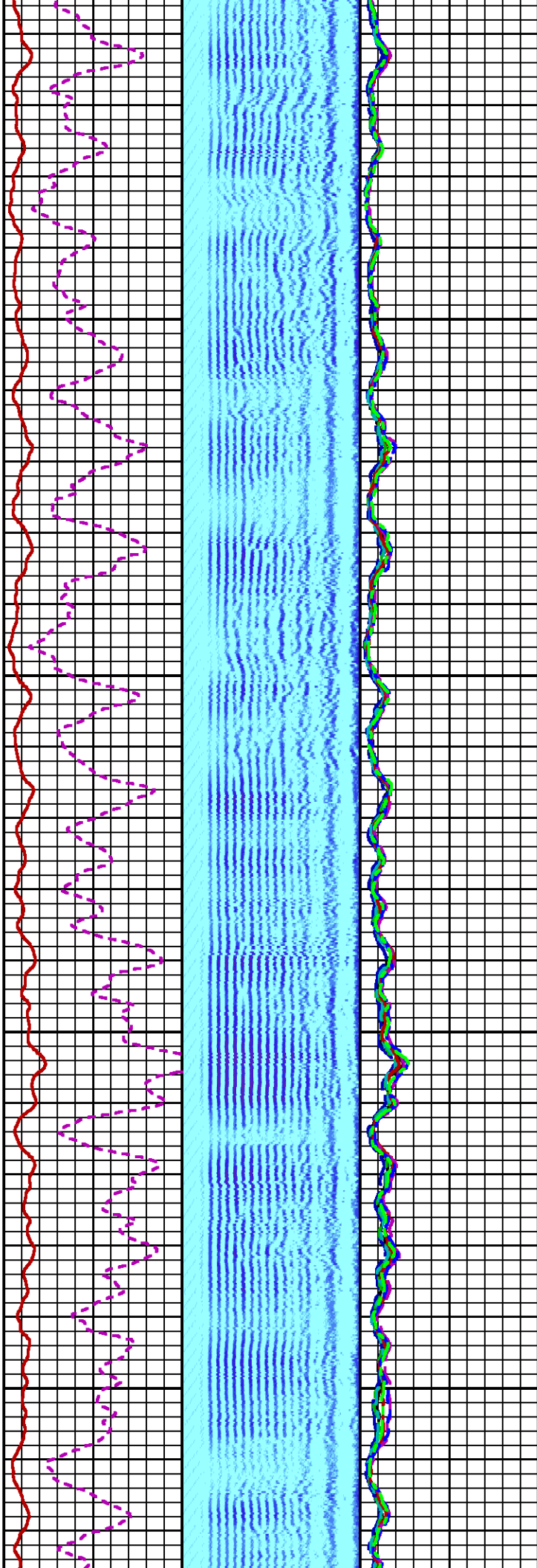
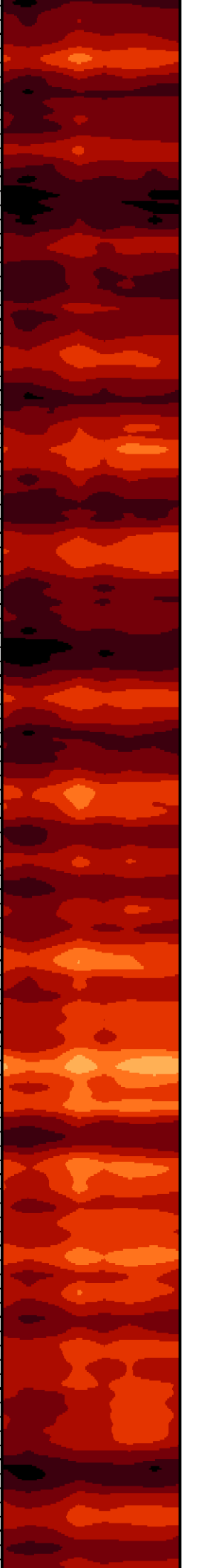


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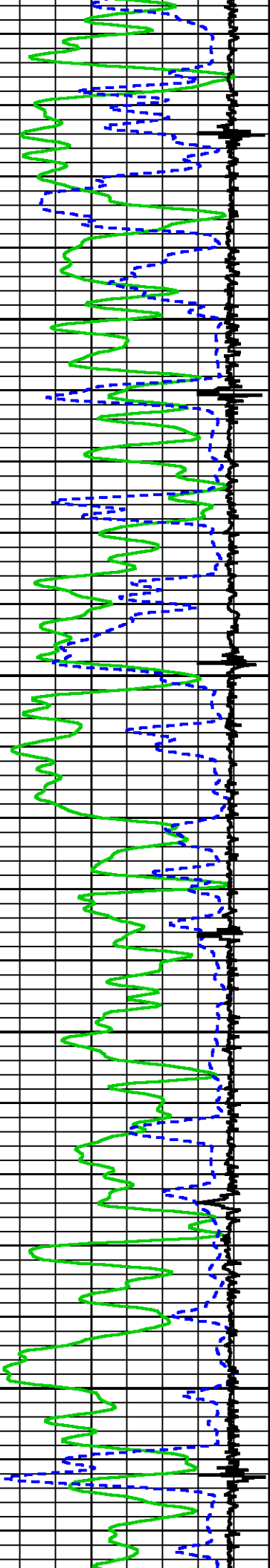
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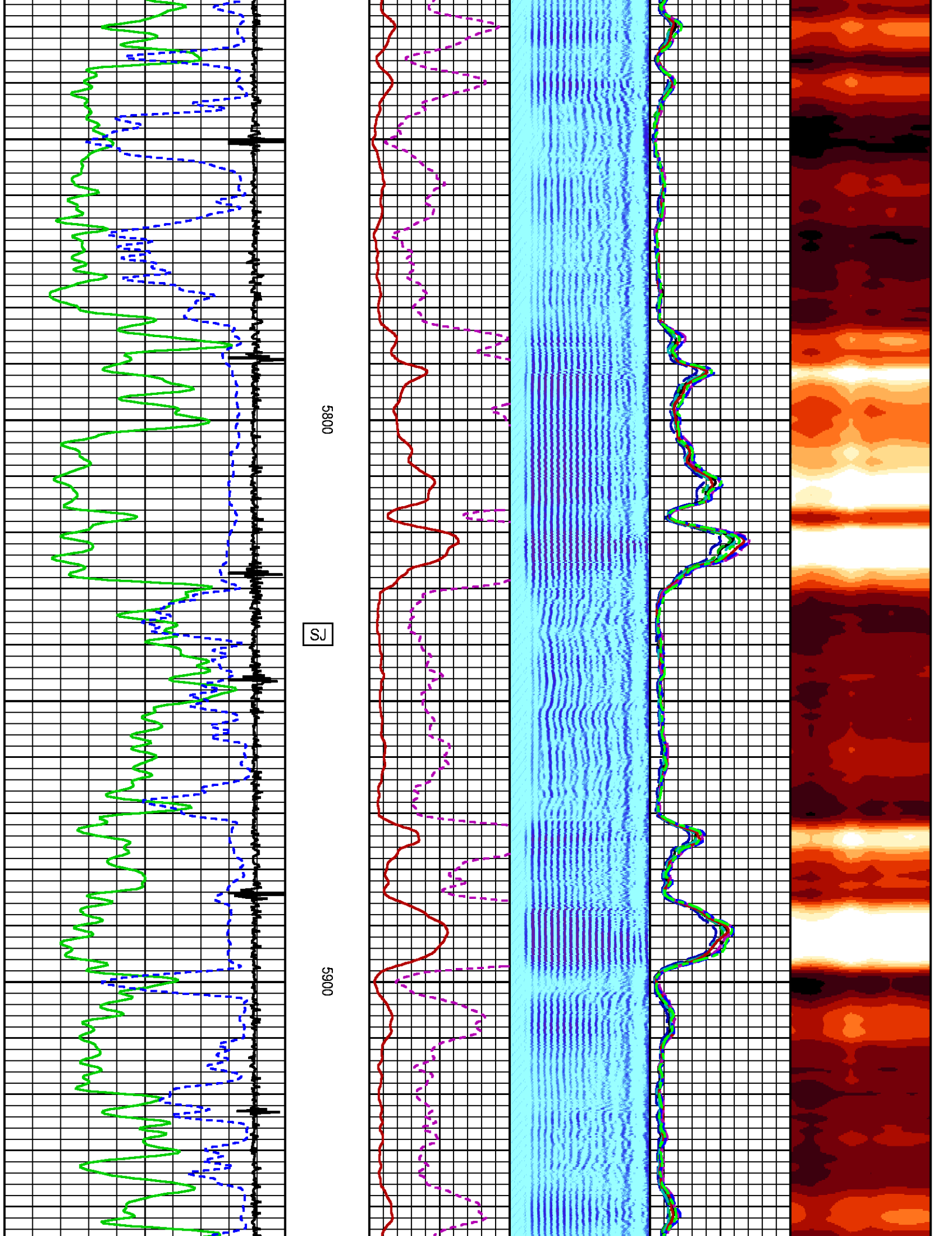


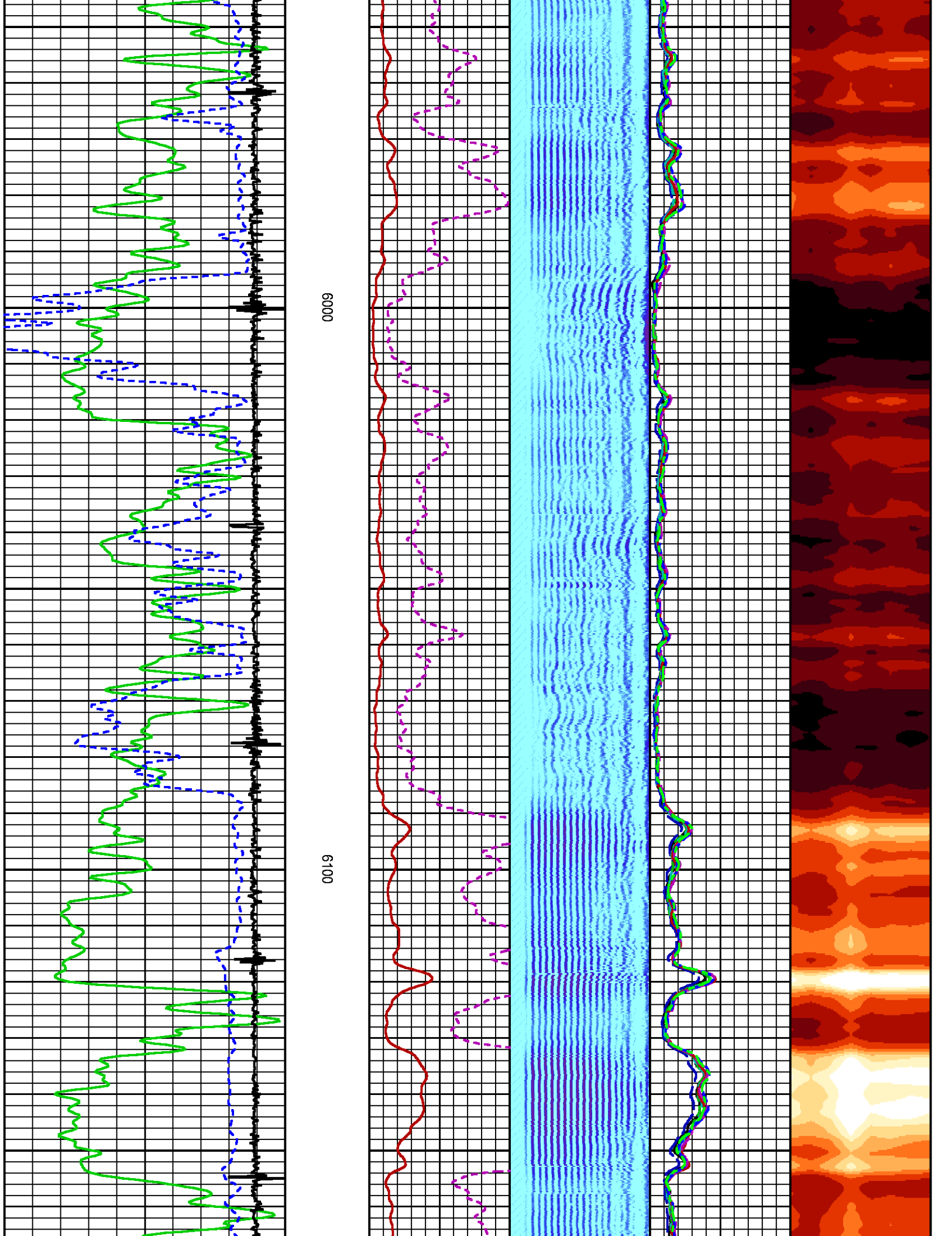


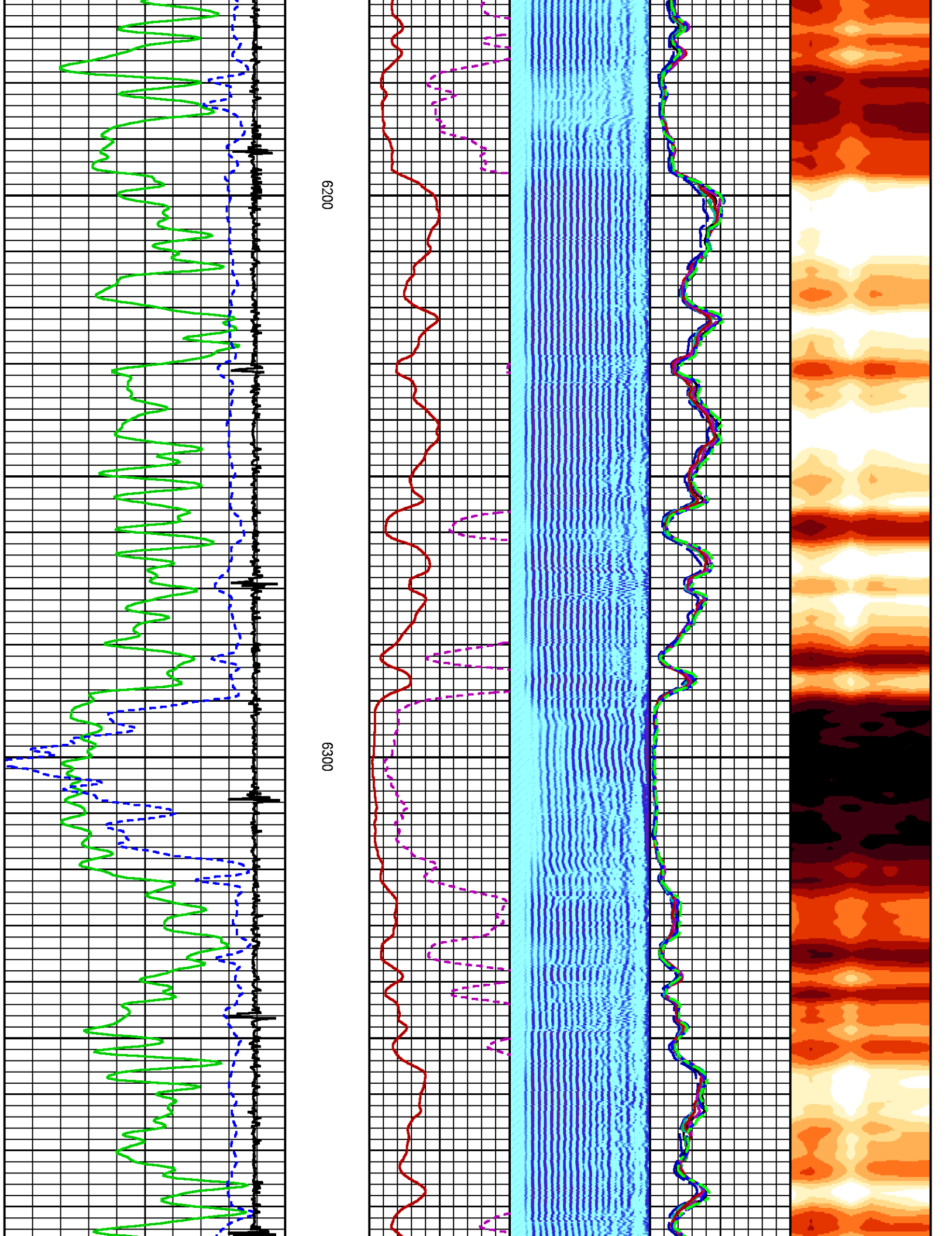
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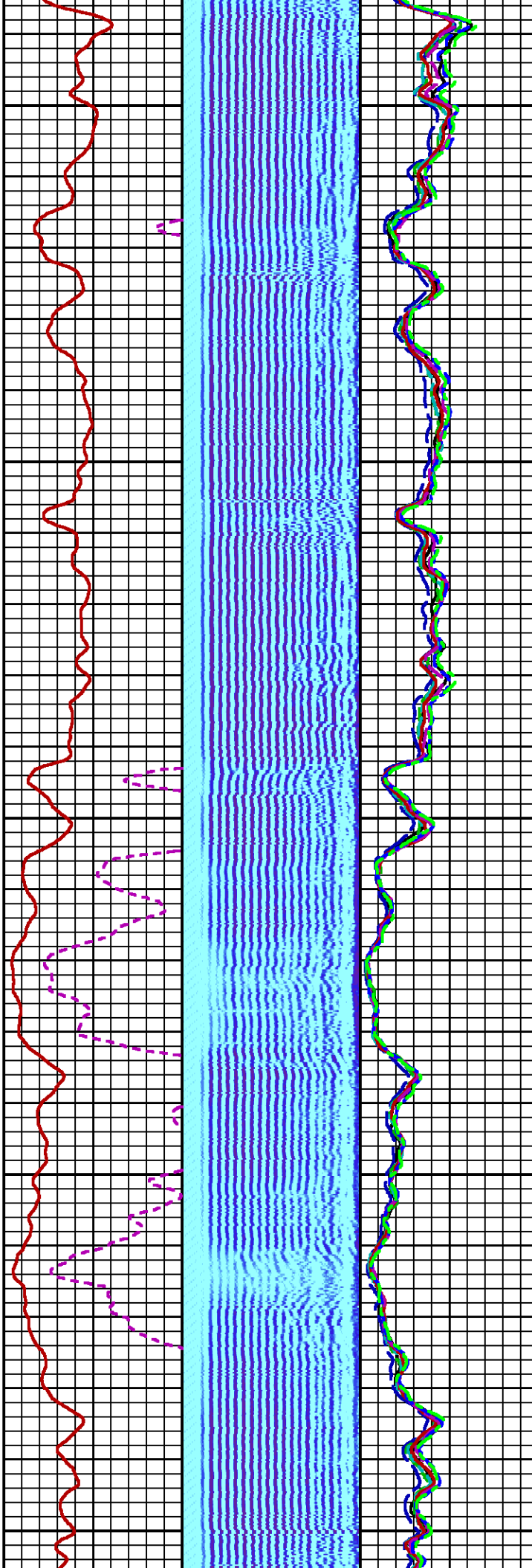
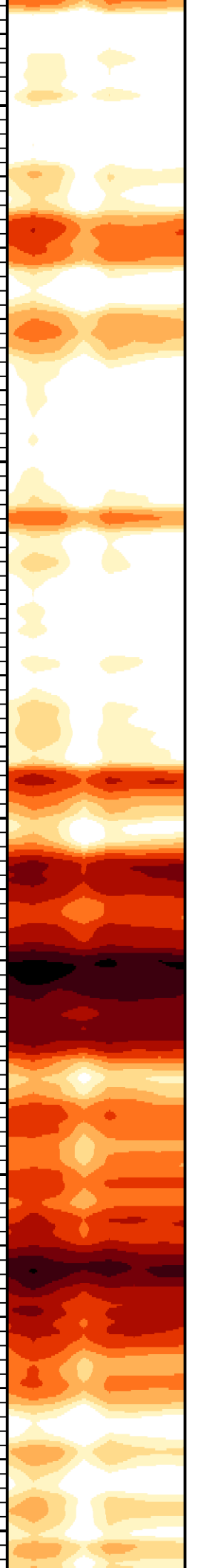
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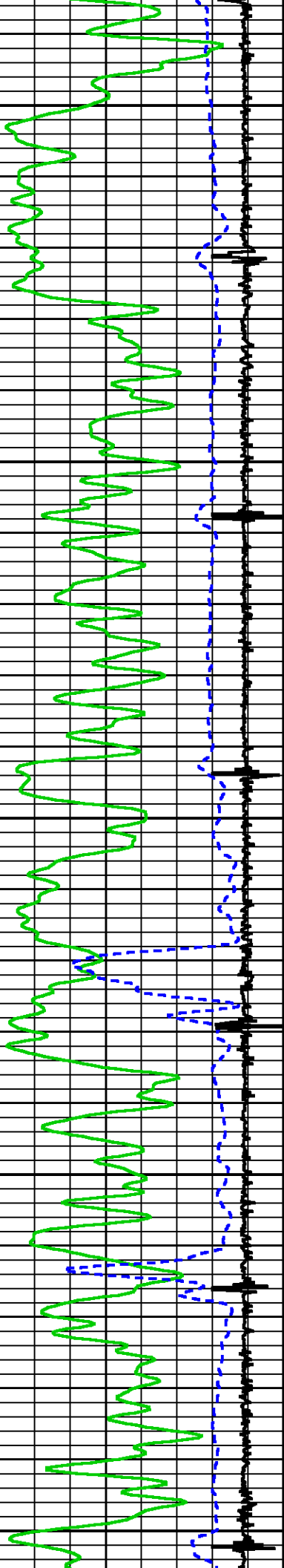


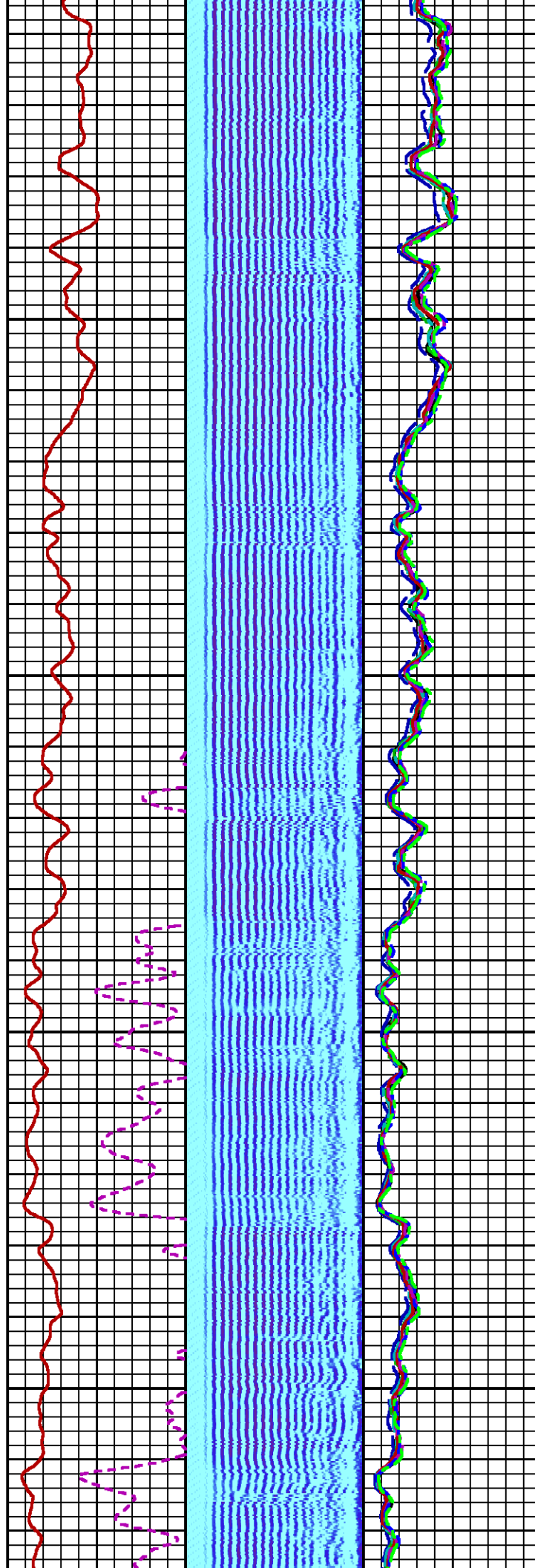
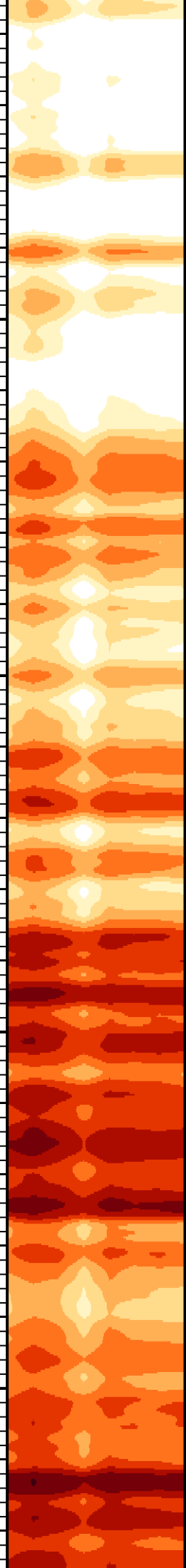


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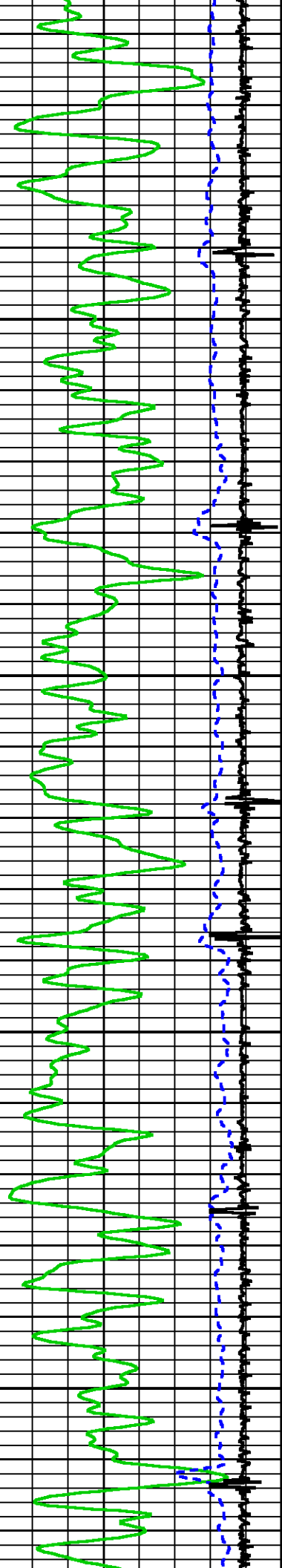


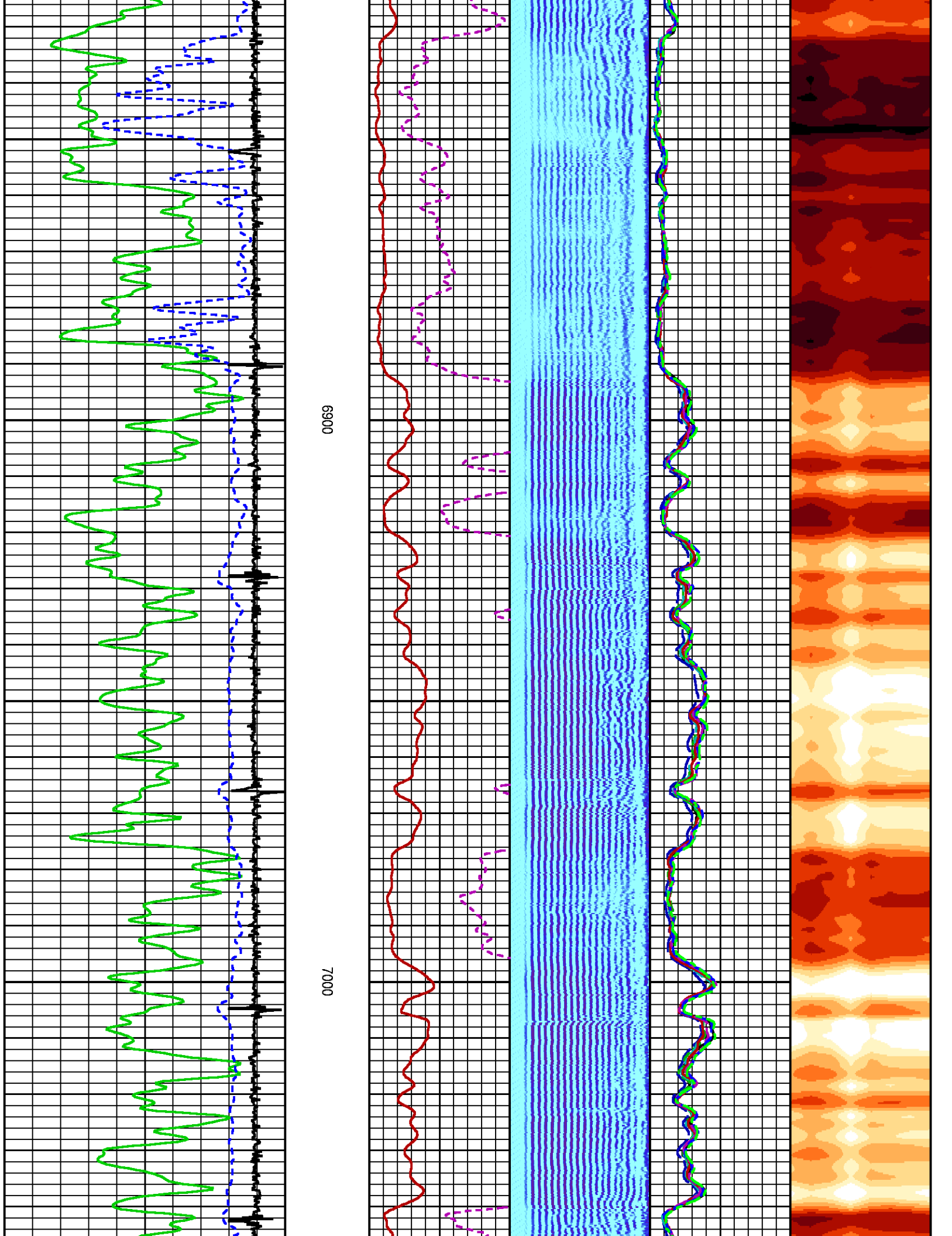


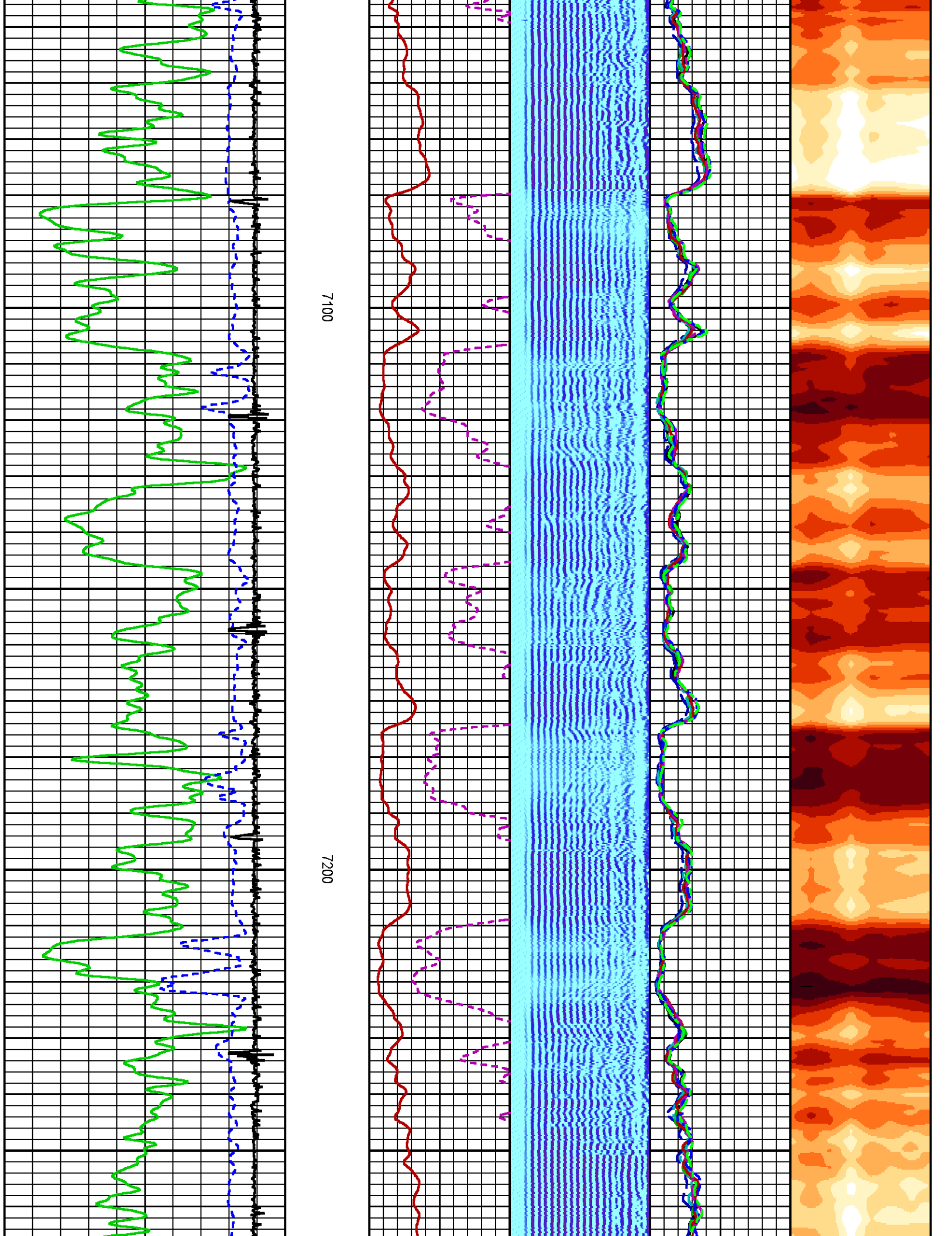
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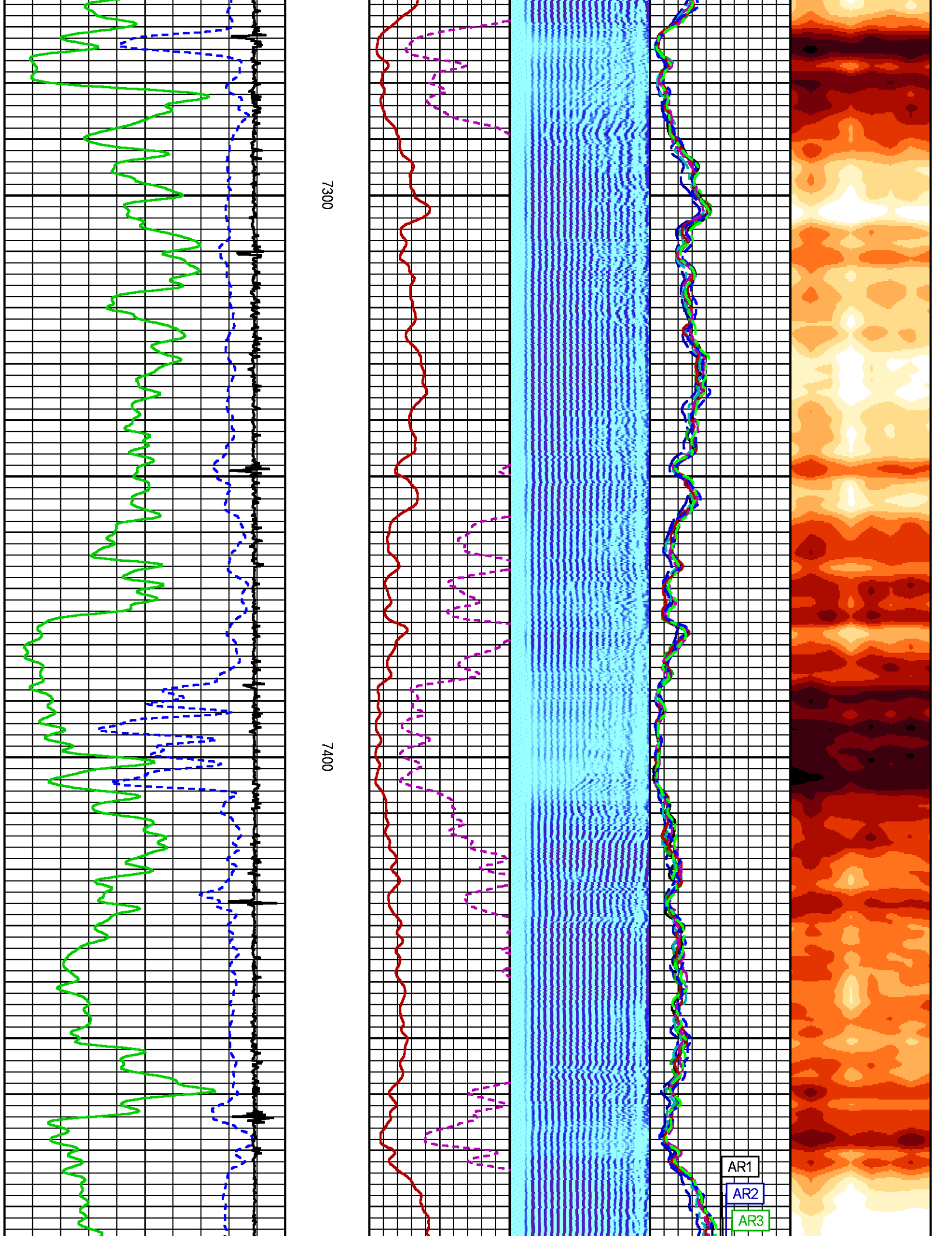
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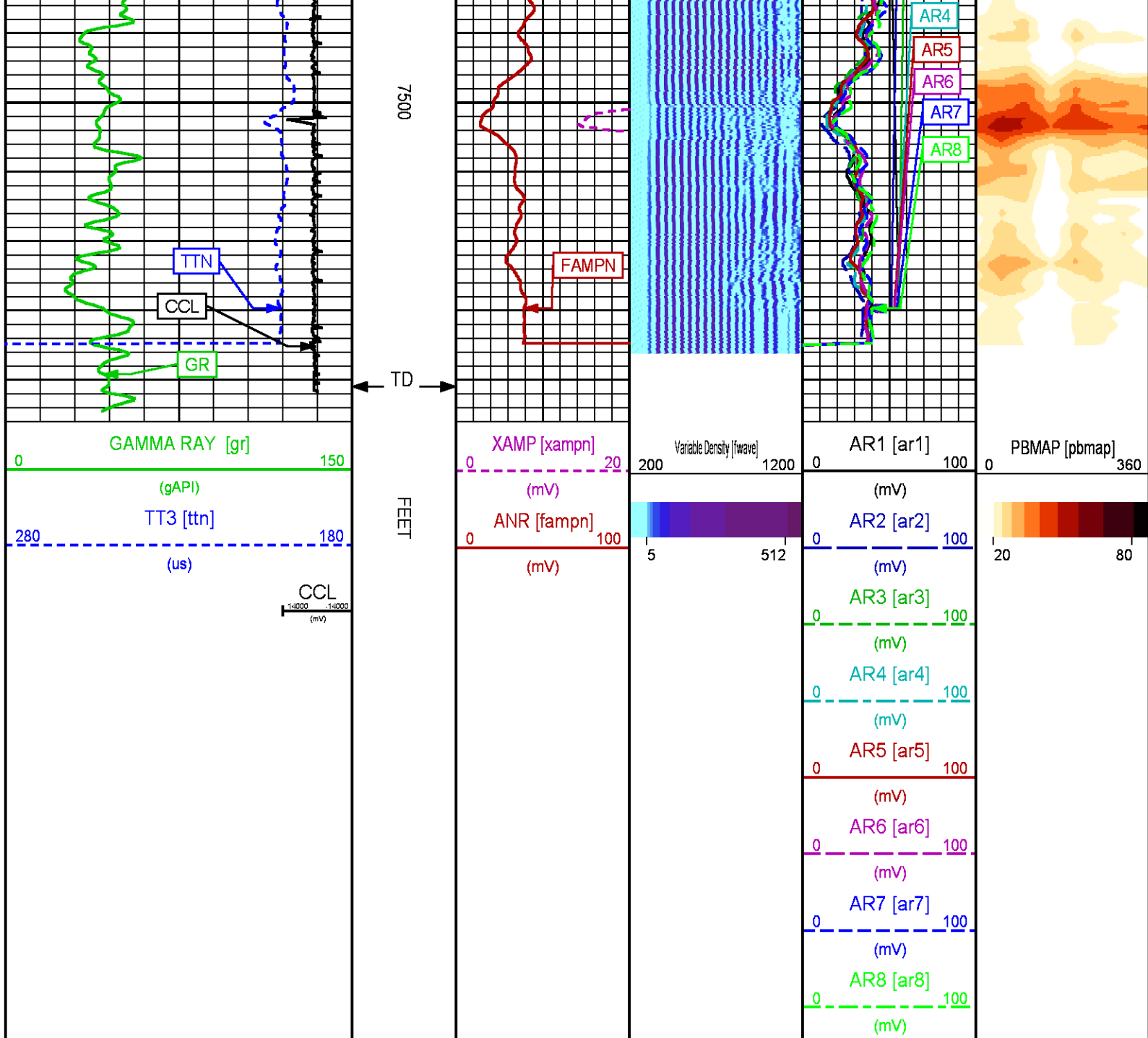
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REPEAT PASS 0 PSI

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Patches: 2

Plotted: Fri Jan 26 12:32:20 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994_24_04E/p012g01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 7250.500 ft BOTTOM DEPTH: 7536.000 ft

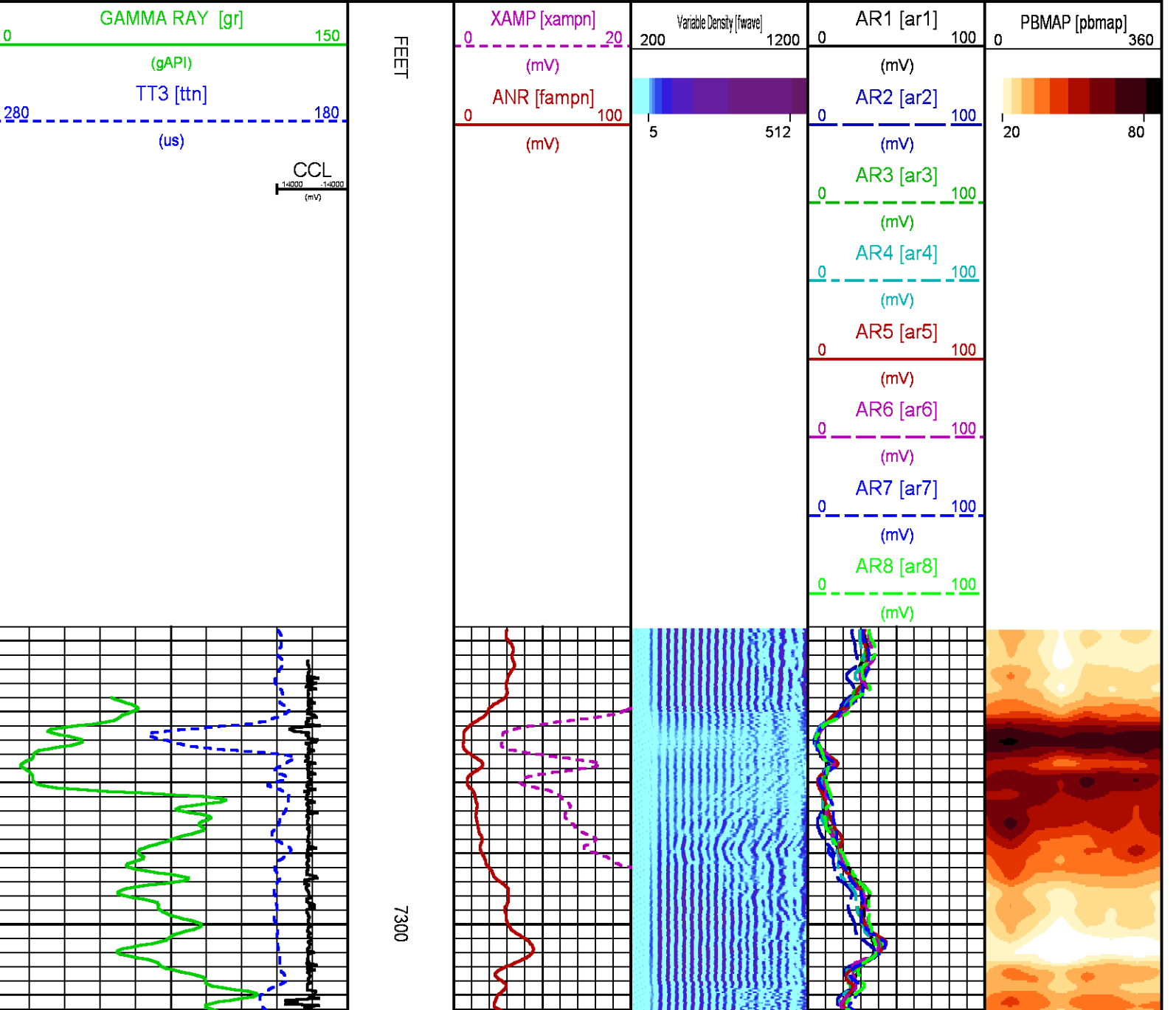
SYMMETRIC FILTER					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"
RAL CCL PROCESSING					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0.00		TOP	BOTTOM
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*)	-64	us	"	"
	TOOL DELAY (str2*)	-64	us	"	"
	TOOL DELAY (str3*)	-64	us	"	"
	TOOL DELAY (str4*)	-64	us	"	"
	TOOL DELAY (str5*)	-64	us	"	"
	TOOL DELAY (str6*)	-64	us	"	"
	TOOL DELAY (str7*)	-64	us	"	"
	TOOL DELAY (str8*)	-64	us	"	"
	TOOL DELAY (strn*)	-64	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:AMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER			

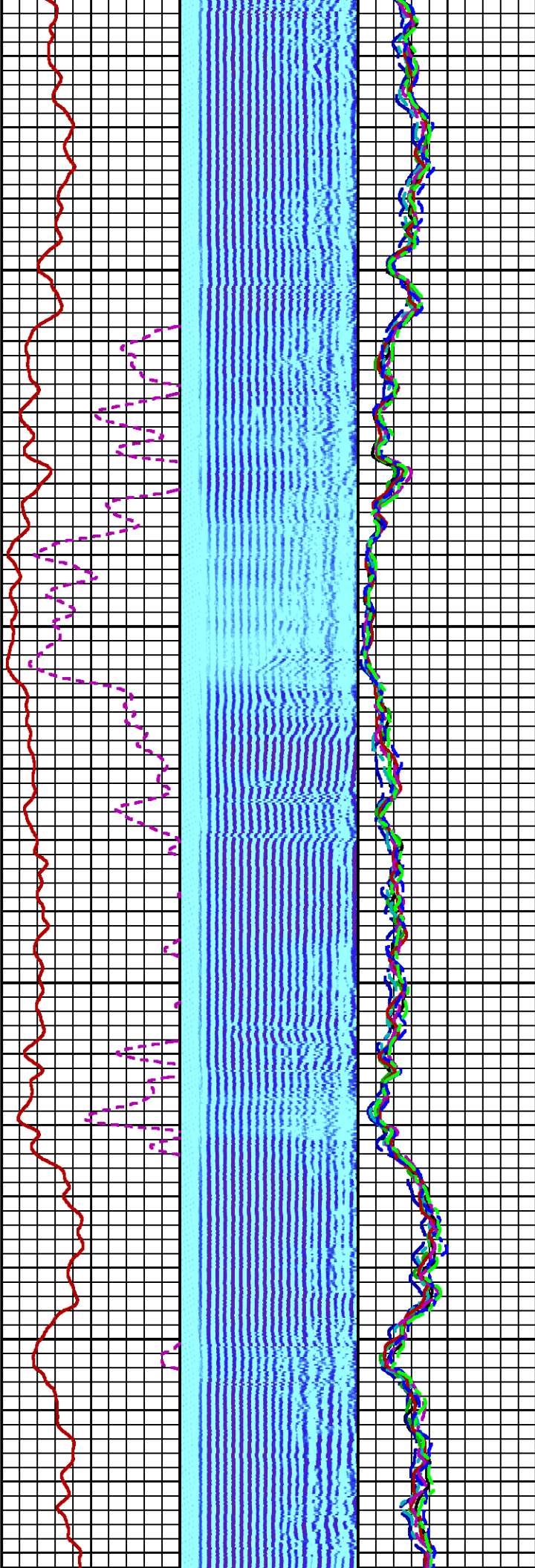
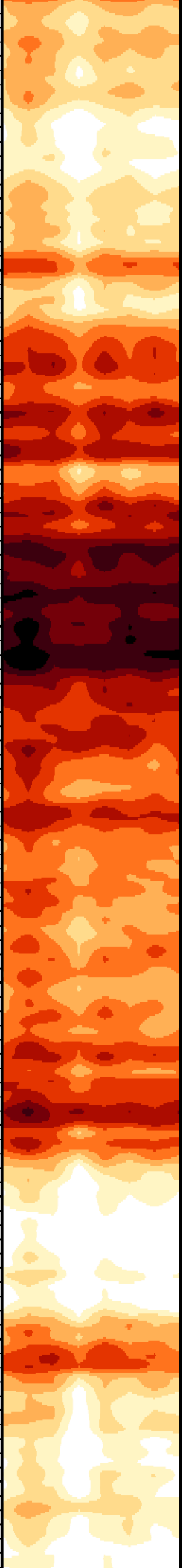
F1:FAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	N/A	FAR WAVE FORM
F1:GR	N/A	GAMMA RAY
F1:PBMAP	N/A	PERCENT BOND CEMENT MAP
F1:TTN	N/A	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

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		

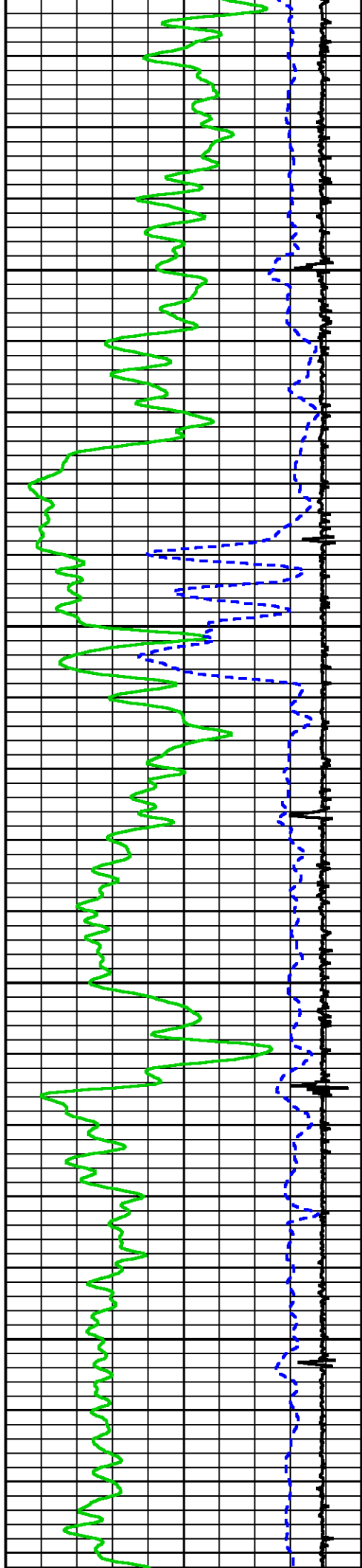
Presentation	: SysA:/dat1a/LARAMIE_NICHOLS_0994_24_04E/LARAMIE_RAL+01-REPEAT-RAL_RPT_04E-5.fvpdf [5"/100' Scale]
Plot Interval	: 7240.25 - 7534.75 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_04E/RAL_RPT_04E.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: NICHOLS 0994-24-4E
Field	: VEGA
File Interval	: 7239.25 - 7536 Feet
OCT	: p012g

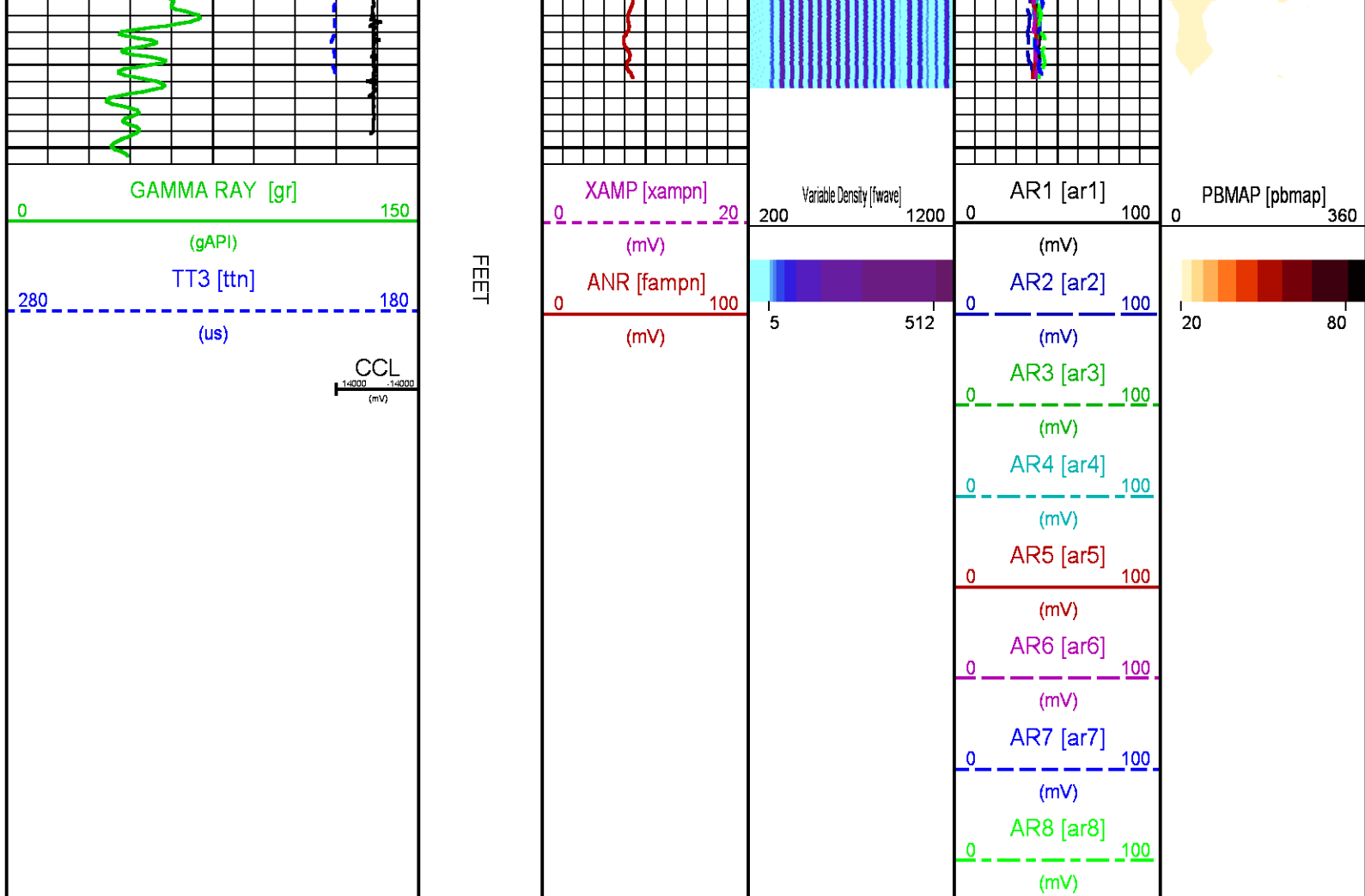




7400

7500





CALIBRATION / VERIFICATION SUMMARY

Source File: Jda11a1.ARAMIE_NICHOLS_0994_24_04Ep012g.lp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA10417452

DATE/TIME PERFORMED: Fri Jan 26 08:45:19 2018

UNIT #: 5753XD111111

	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)	0.03	-0.03	-0.04	0.04	0.01	-0.02	0.00	0.03	0.06	0.23	0.02
AMP FLUID (mV)	43	43	43	42	41	42	42	43	43	55	43
TT (us)	217	216	217	218	217	217	216	215	217	324	217
M FACTOR	2.35	2.33	2.34	2.37	2.45	2.41	2.38	2.34	2.33	2.75	2.35

RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA10417452

DATE/TIME PERFORMED: Fri Jan 26 11:15:21 2018

DAYS SINCE GAL: 0

UNIT #: 5753XD111111

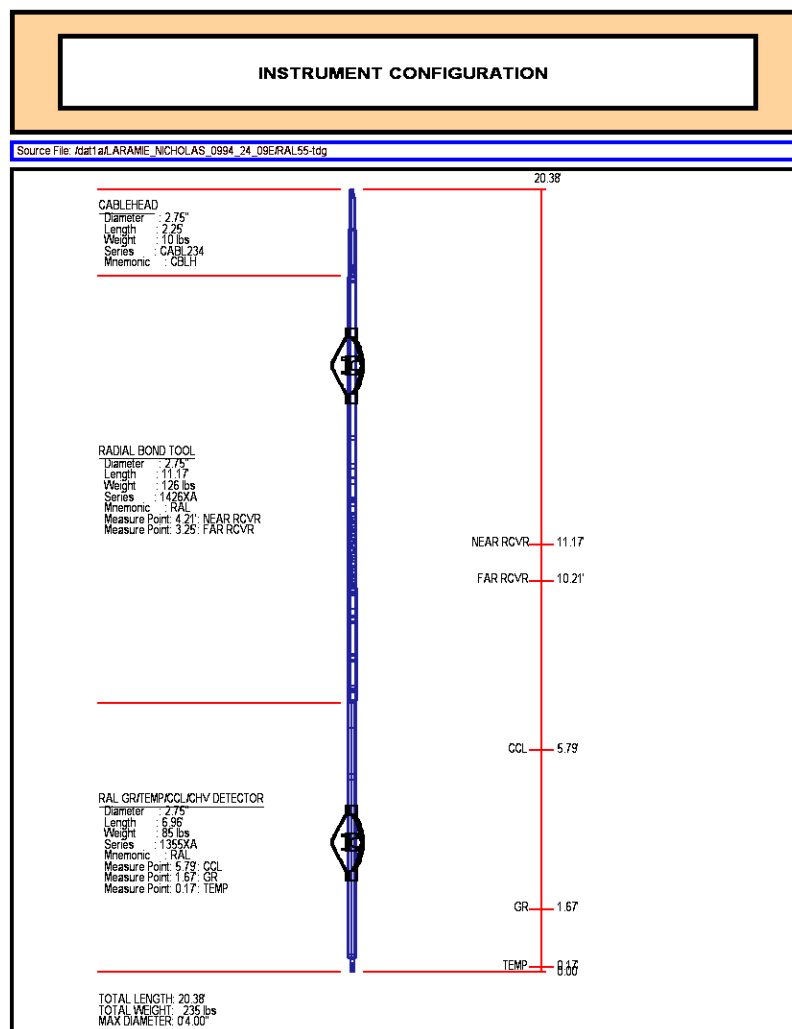
CABLE #: 4291CH SMALLLINE

	NEAR (mV)	R1 (mV)	R2 (mV)	R3 (mV)	R4 (mV)	R5 (mV)	R6 (mV)	R7 (mV)	R8 (mV)	FAR (mV)	CAL (mV)
ZERO	0.06	0.13	0.02	0.05	-0.05	0.03	0.00	0.06	0.01	0.59	0.08
AMP AIR	3.61	2.06	2.13	3.32	3.40	3.24	3.45	2.47	3.03	2.53	100.27

	SHOP M FACTOR	SHOP A FACTOR	WIRELINE FACTOR
	2.35	0.00	1.00

GR PRIMARY CALIBRATION SUMMARY						
TOOL #: 1355XA11871507		DATE/TIME PERFORMED: Fri Nov 17 14:10:53 2017				
UNIT #: 3882TD HL6728		CALB JIG #: 4702NK DA_228				
BACKGROUND	CALBRTR ON	GR DIFF	MULT	BACKGROUND	CALBRTR ON	CALBRTR
(cts)	(cts)	(cts/fs)		(gAPI)	(gAPI)	(gAPI)
GR 59.07	162.98	103.9	0.962	56.84	156.84	100

GR PRIMARY VERIFICATION SUMMARY						
TOOL #: 1355XA11871507		DATE/TIME PERFORMED: Fri Nov 17 14:12:49 2017				
UNIT #: 3882TD HL6728		VERI JIG #: 4702NK DA_228				
BACKGROUND	CALBRTR ON	MULT	BACKGROUND	CALBRTR ON	DIFF.	
(cts)	(cts)		(gAPI)	(gAPI)	(gAPI)	
GR 59.73	170.53	0.962	57.49	164.11	106.63	
					NOISE 110.00	



COMPANY LARAMIE ENERGY LLC

WELL NICHOLS 0994-24-04E

FIELD VEGA

COUNTY MESA **STATE** COLORADO

FILE NO: _____

API NO: 05077104200000

LOCATION:

SHL: 39.264540 N; 107.830679 W

BHL: 39.267392 N; 107.826029 W

SEC 24 TWP 9 S RGE 94 W

ELEVATIONS:

KB 7161 FT

DF 7160 FT

GL 7137 FT

DATE 26-Jan-2018

