



FILE NO: COMPANY LARAMIE ENERGY

WELL BRUTON 19-20E

API NO: FIELD VEGA

05077103780000 COUNTY MESA STATE COLORADO

Ver. 4.06 LOCATION: OTHER SERVICES

SHL: LAT:39.255232N; LONG:107.806537W

BHL: LAT:39.256513N; LONG:107.807083W

SEC 19 TWP 9S RGE 93W

PERMANENT DATUM GL ELEVATION 7425 FT

LOG MEASURED FROM KB 24 FT ABOVE P.D.

DRILL. MEAS. FROM KB ELEVATIONS: KB 7449 FT DF 7448 FT GL 7425 FT

DATE 20-JUL-2017

RUN 1 TRIP 1

SERVICE ORDER US125410

DEPTH DRILLER 7663 FT

DEPTH LOGGER 7636 FT

BOTTOM LOGGED INTERVAL 7636 FT

TOP LOGGED INTERVAL 24 FT

TIME STARTED 14:30

TIME FINISHED 16:30

OPERATOR RIG TIME 2 HRS

TYPE OF FLUID IN HOLE WATER

FLUID DENSITY NA

FLUID SALINITY NA

FLUID LEVEL 50 FT

LOGGED CEMENT TOP 1951 FT

WELLHEAD PRESSURE 0 PSI

MAXIMUM HOLE DEVIATION NA

NOMINAL LOGGING SPEED 100 F/MN

MAX. RECORDED TEMP. 239 DEGF

REFERENCE LOG NA

REFERENCE LOG DATE NA

EQUIP. NO. LOCATION HL-6670 WOODWARD

RECORDED BY M.MENTZER

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: 6734' - 6756'

SJ: 5738' - 5759'

CREW: D.HUTCHINSON, J.PENA

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426 XA	10218497	CENTRALIZED
1	1	GR/CCL	1355 XA	1260180	CENTRALIZED

MAIN PASS 0 PSI

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013

Updates: 1 Patches: 9

Plotted: Thu Jul 20 17:28:42 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LAREME_BRUTON_19_20E/n012g02.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 3.750 ft BOTTOM DEPTH: 7628.000 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		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	187	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	187	us	"	"
	AMP WINDOW START (fgp3*)	187	us	"	"
	AMP WINDOW START (fgp4*)	187	us	"	"
	AMP WINDOW START (fgp5*)	187	us	"	"
	AMP WINDOW START (fgp6*)	187	us	"	"
	AMP WINDOW START (fgp7*)	187	us	"	"
	AMP WINDOW START (fgp8*)	187	us	"	"
	AMP WINDOW START (fgpn*)	187	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-67	us	"	"
	TOOL DELAY (str2*)	-67	us	"	"
	TOOL DELAY (str3*)	-67	us	"	"
	TOOL DELAY (str4*)	-67	us	"	"
	TOOL DELAY (str5*)	-67	us	"	"
	TOOL DELAY (str6*)	-67	us	"	"
	TOOL DELAY (str7*)	-67	us	"	"
	TOOL DELAY (str8*)	-67	us	"	"
	TOOL DELAY (strn*)	-67	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	"	"

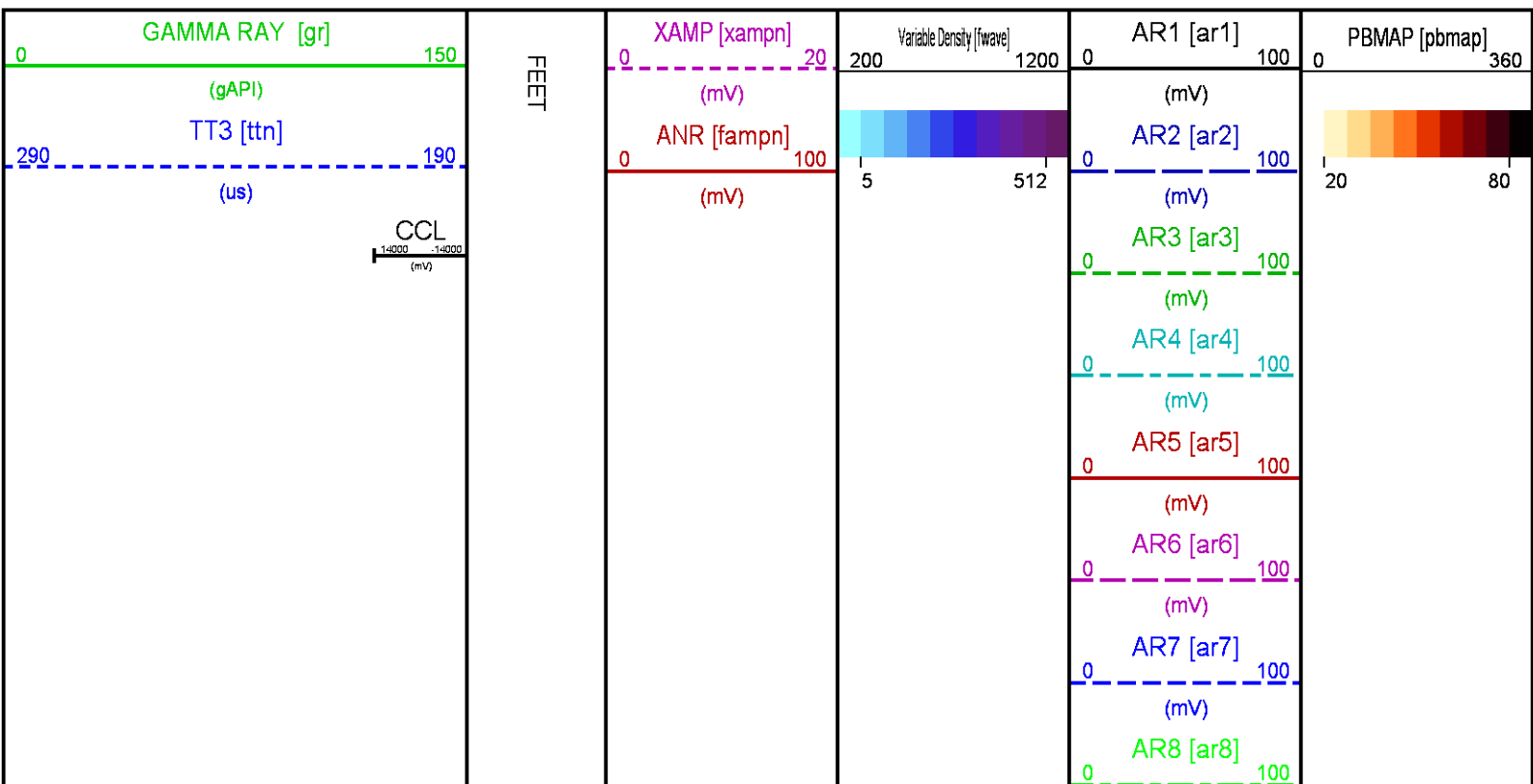
CURVE DESCRIPTION REPORT

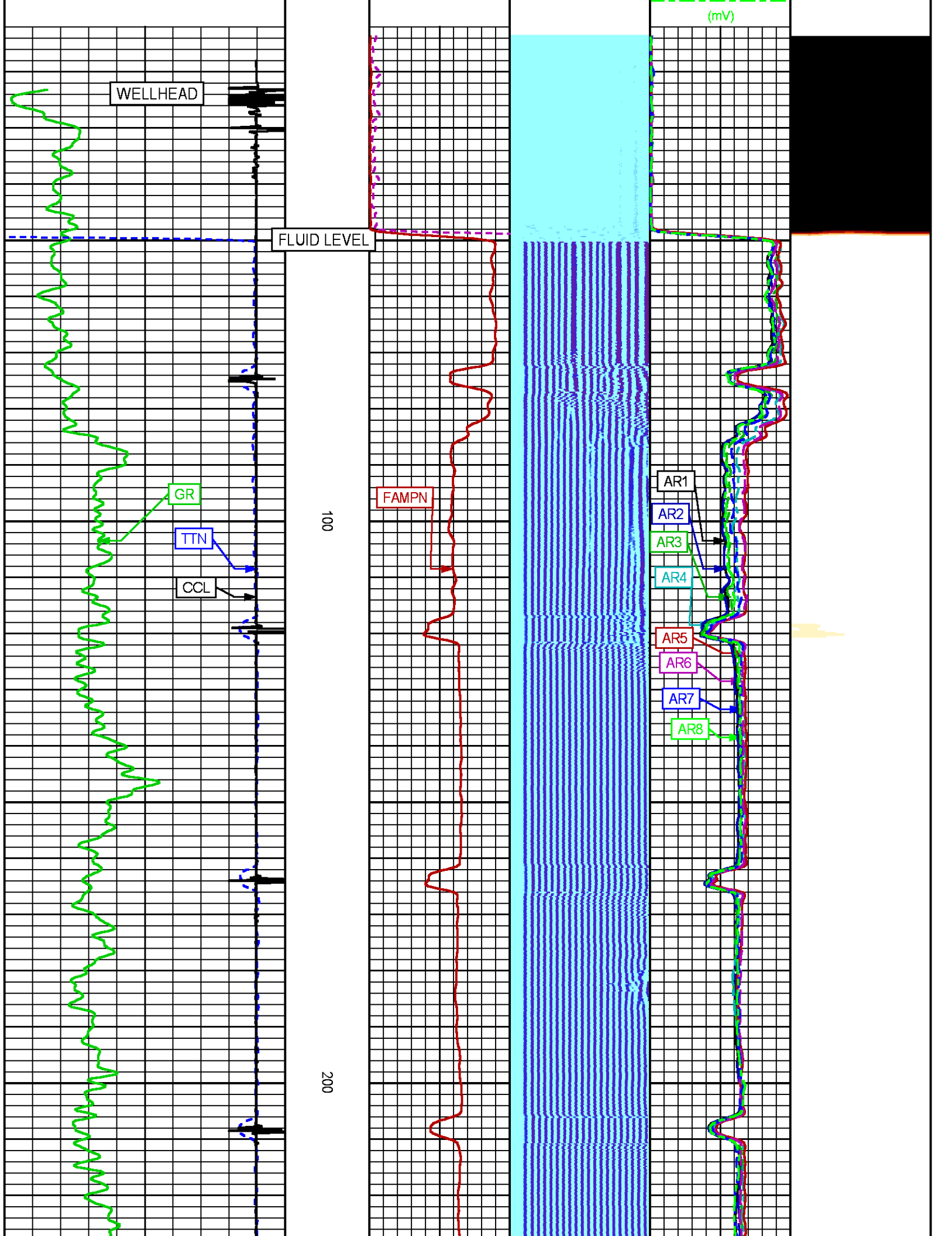
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R1
F1:AR2	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R2
F1:AR3	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R3
F1:AR4	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R4
F1:AR5	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R5
F1:AR6	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R6
F1:AR7	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R7
F1:AR8	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE T-R8
F1:CCL	Jul 20 15:48:13 2017	CASING COLLAR LOCATOR
F1:FAMPN	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Jul 20 15:48:13 2017	FAR WAVE FORM
F1:GR	Jul 20 15:48:13 2017	GAMMA RAY
F1:PBMAP	Jul 20 15:48:13 2017	PERCENT BOND CEMENT MAP
F1:TTN	Jul 20 15:48:13 2017	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Jul 20 15:48:13 2017	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

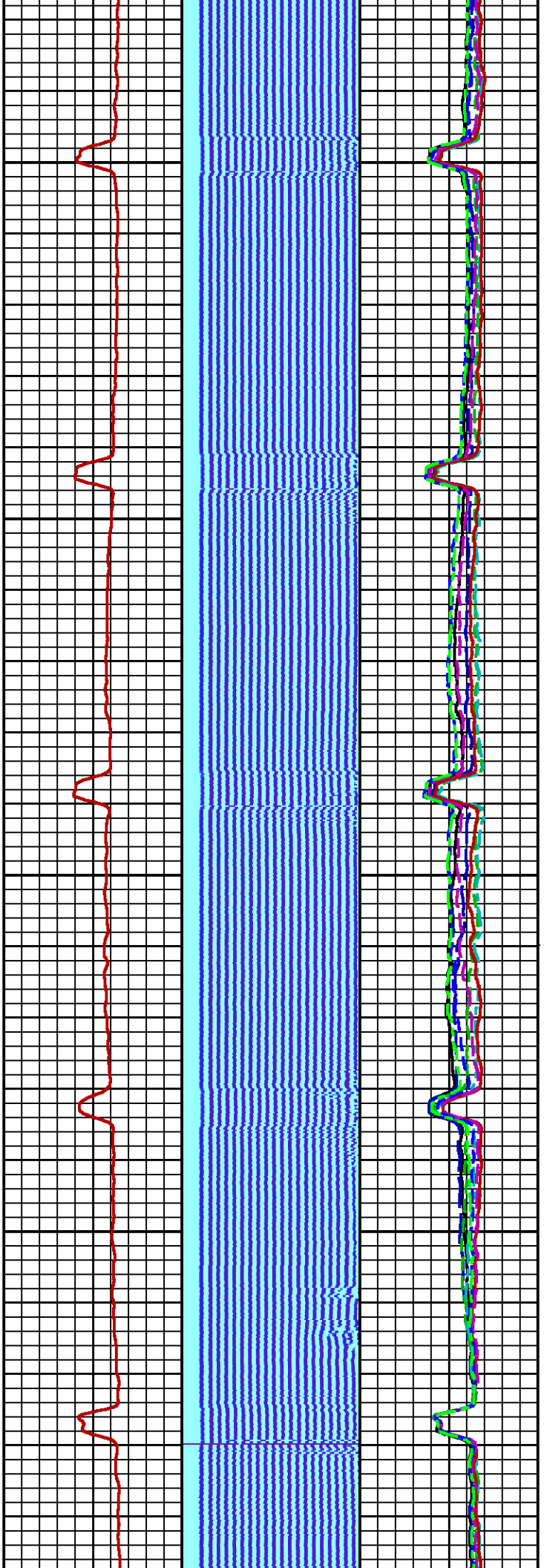
CURVE MEASURE POINT OFFSET

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	: cpu100:ral_all+01-MAIN-BRUTON_19_20E_RAL_MN-5.fvpdf [5"/100' Scale]
Plot Interval	: 13.5 - 7646.75 Feet
Data File 1	: F1 : cpu100:/dat1a/LAREME_BRUTON_19_20E/BRUTON_19_20E_RAL_MN.xtf
Created On	: Jul 20 15:48:13 2017
Company	: LARAMIE ENERGY
Well	: BRUTON 19-20E
Field	: VEGA
File Interval	: 12.5 - 7648 Feet
OCT	: n012g

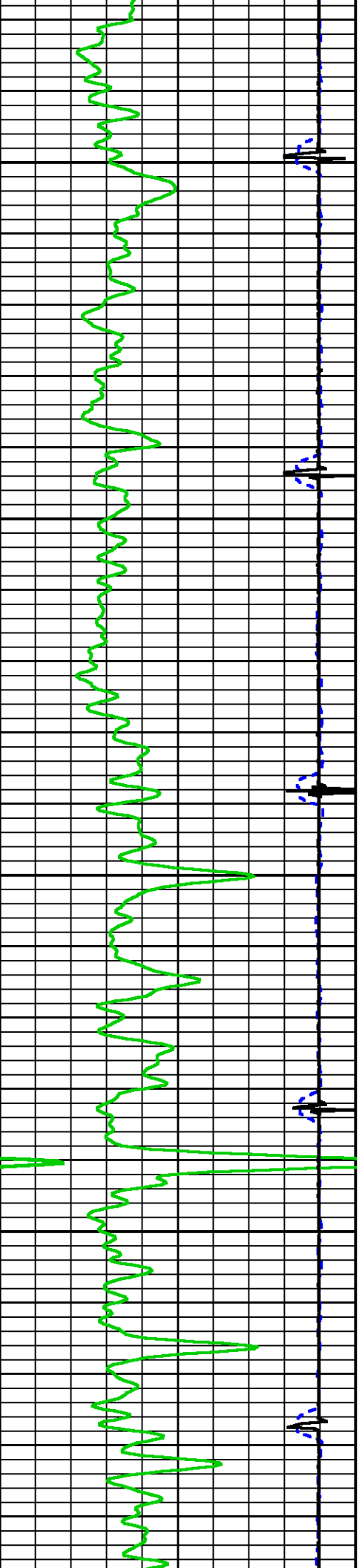


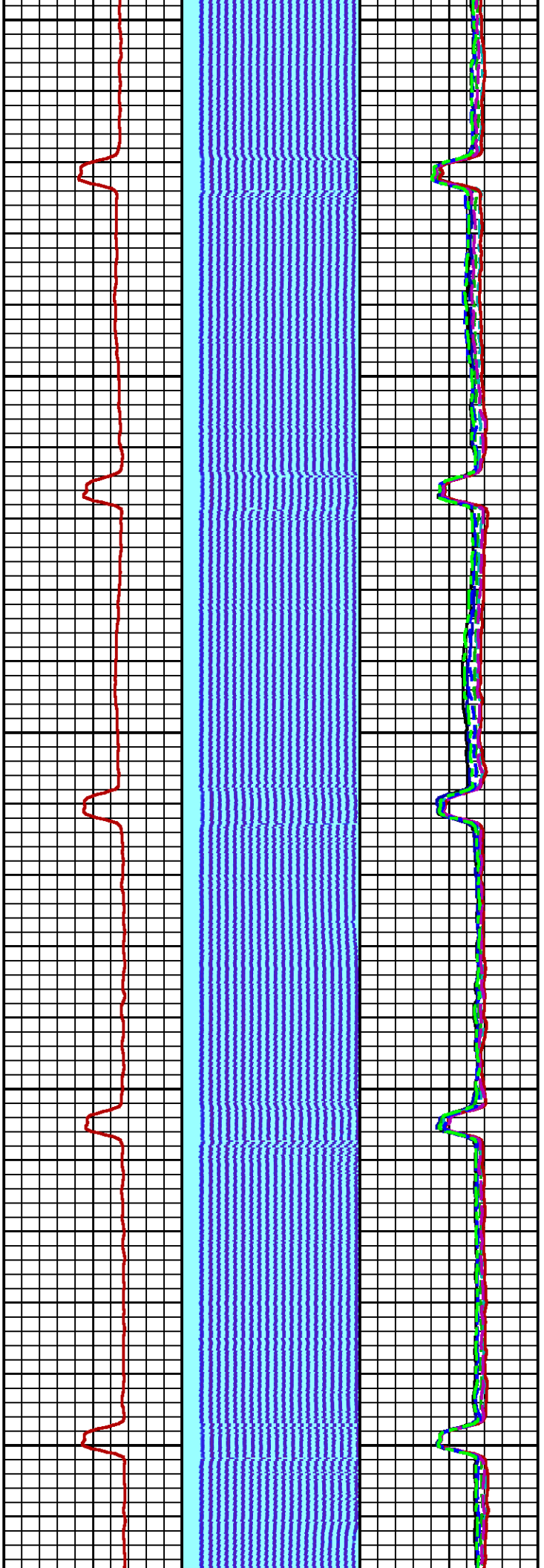




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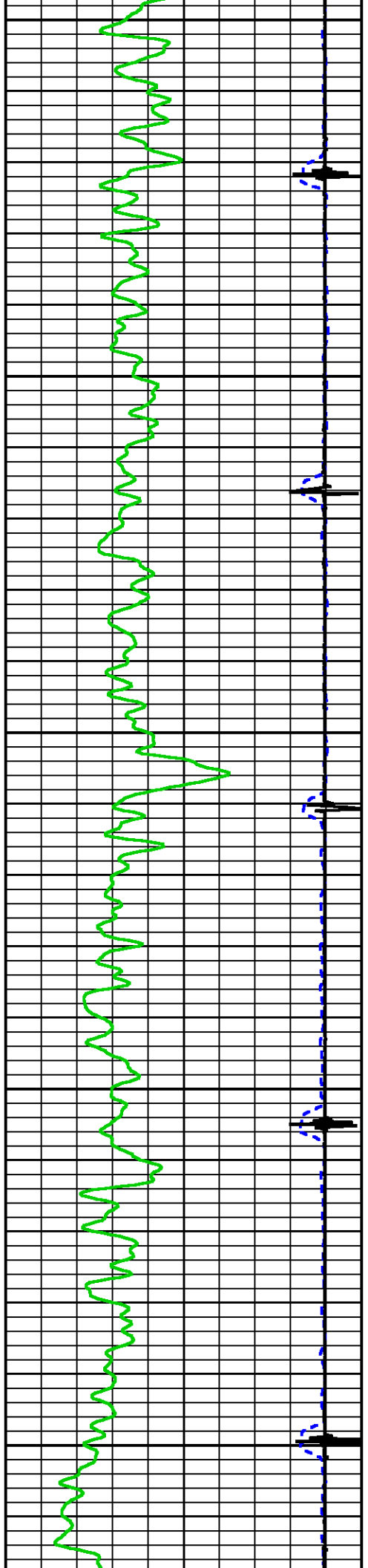
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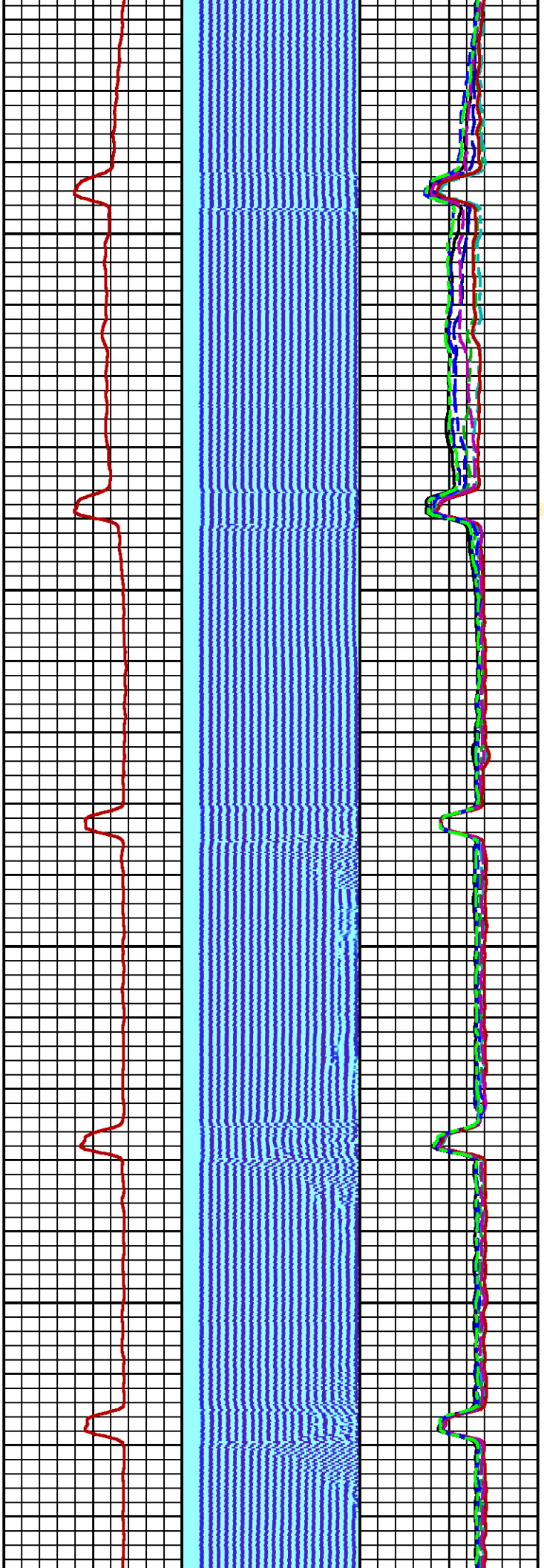




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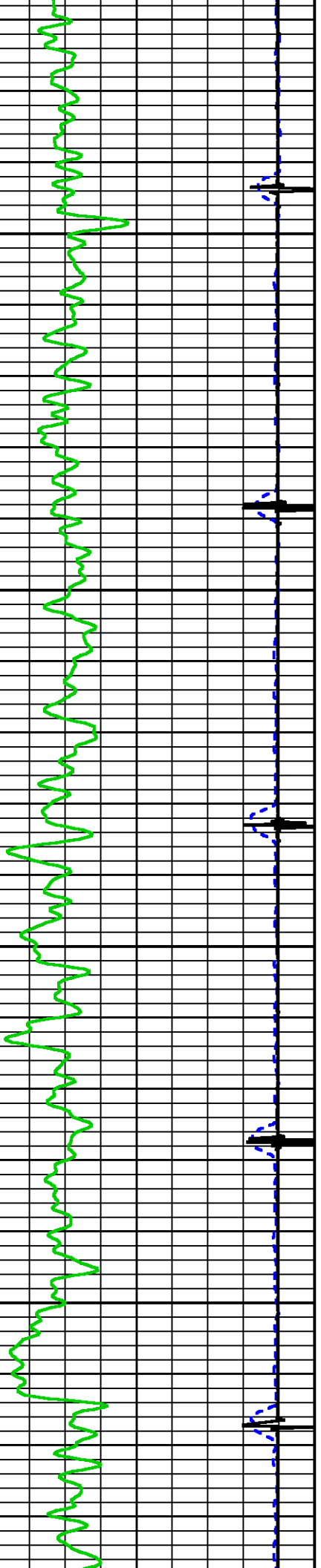
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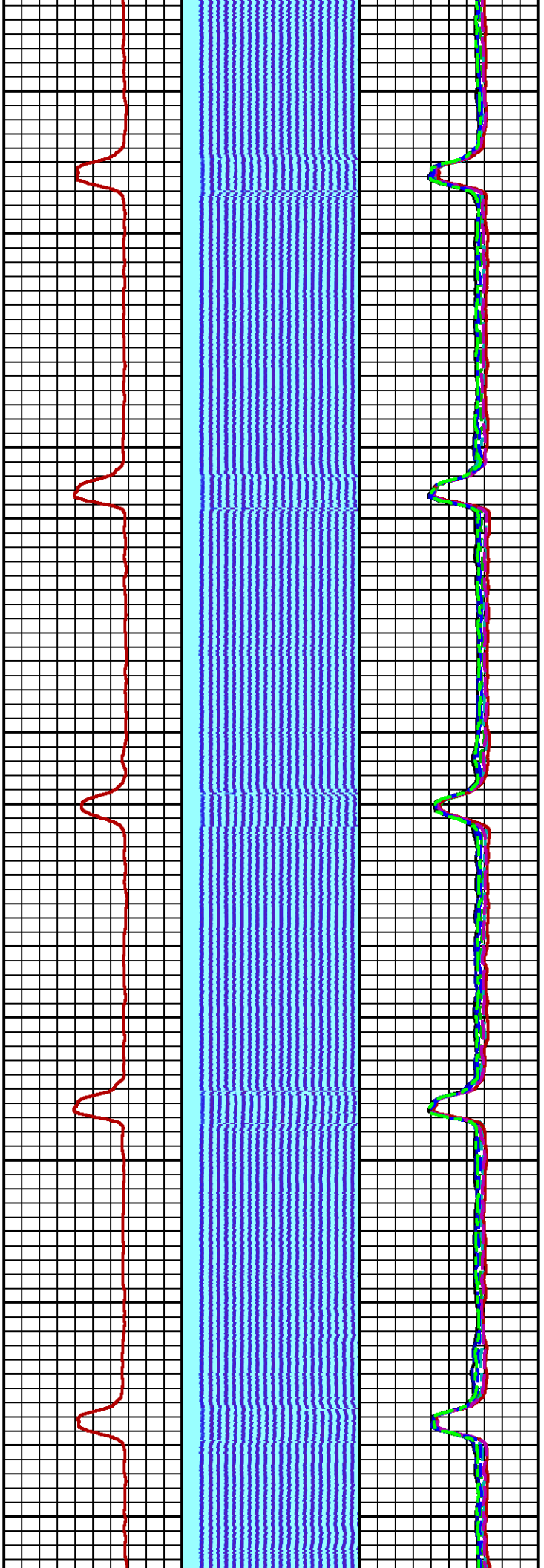




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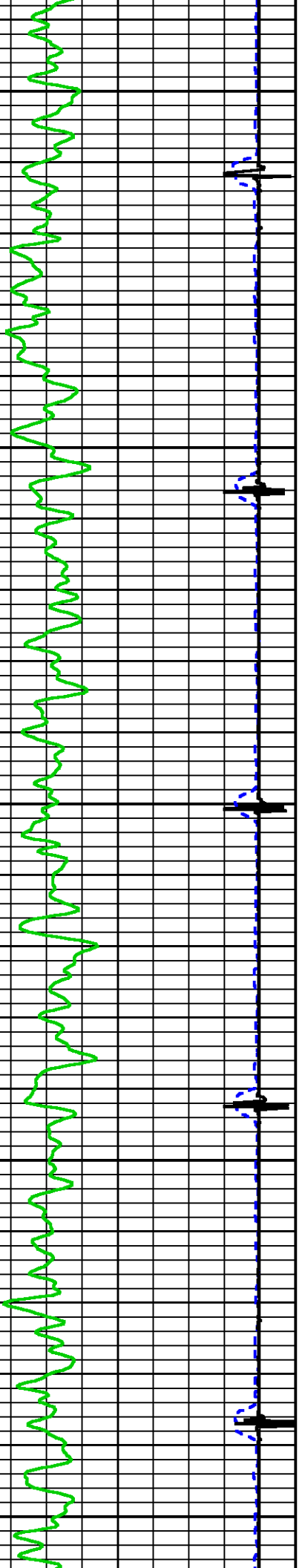


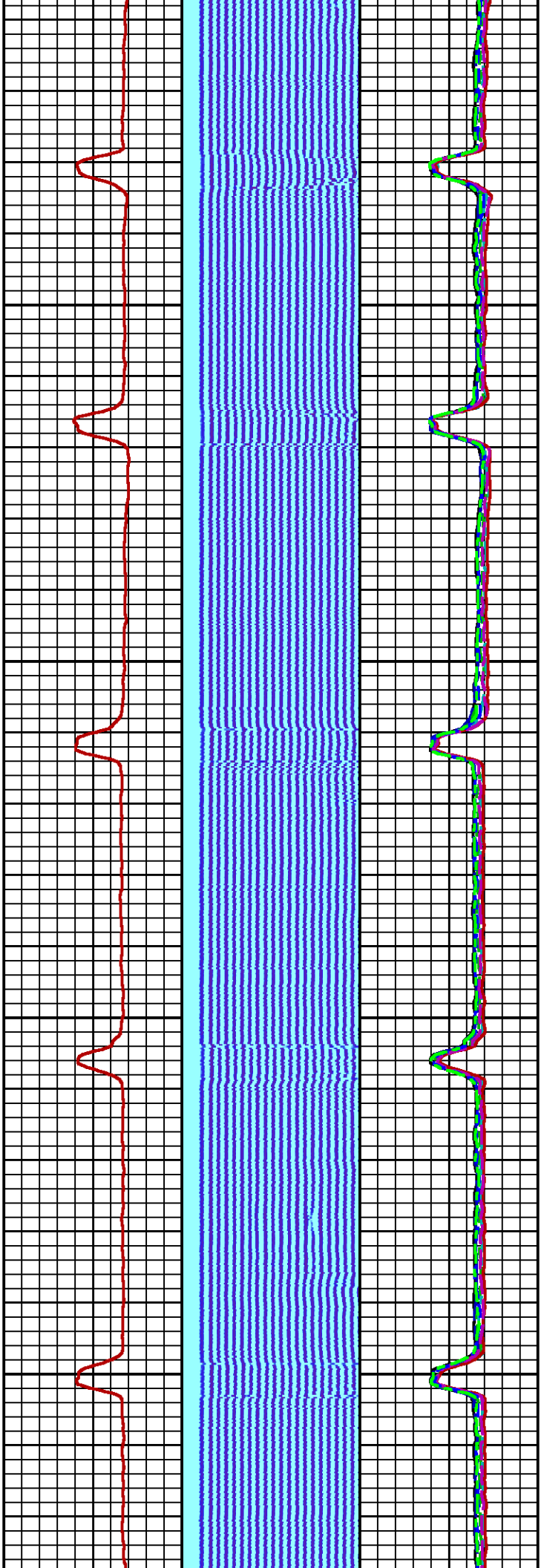


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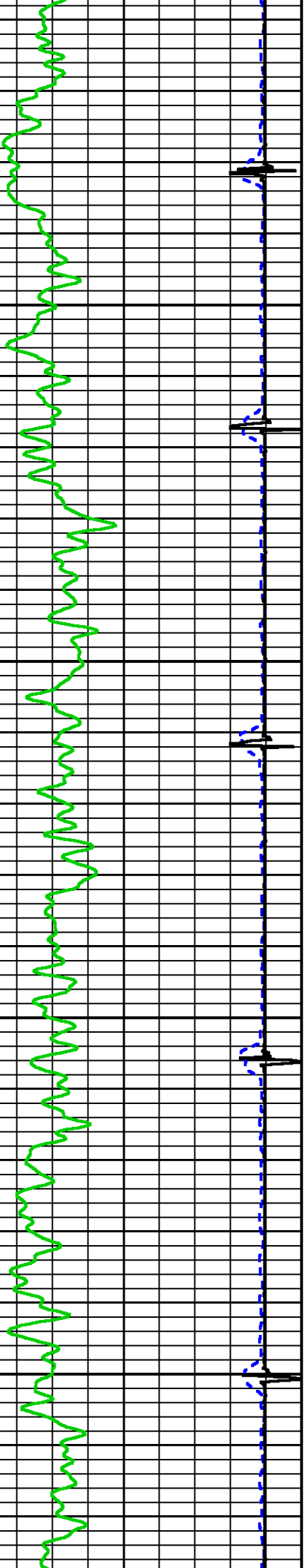
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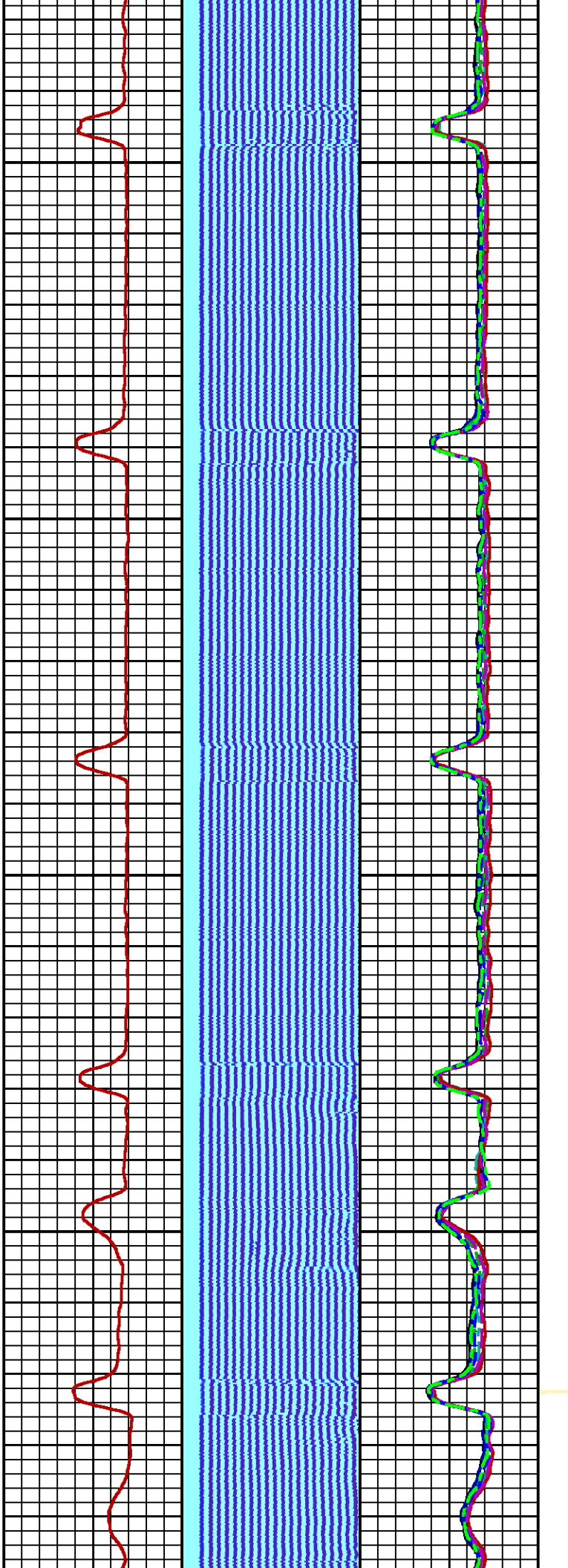




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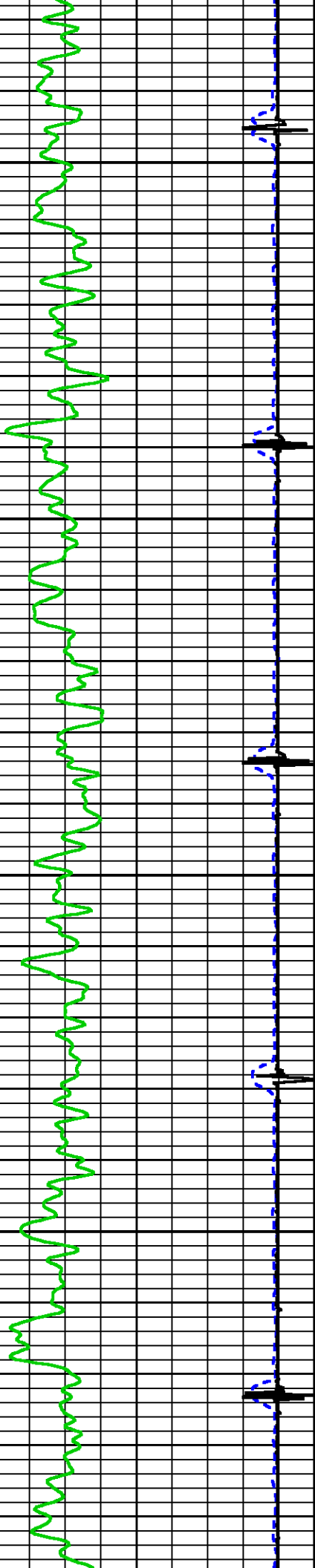
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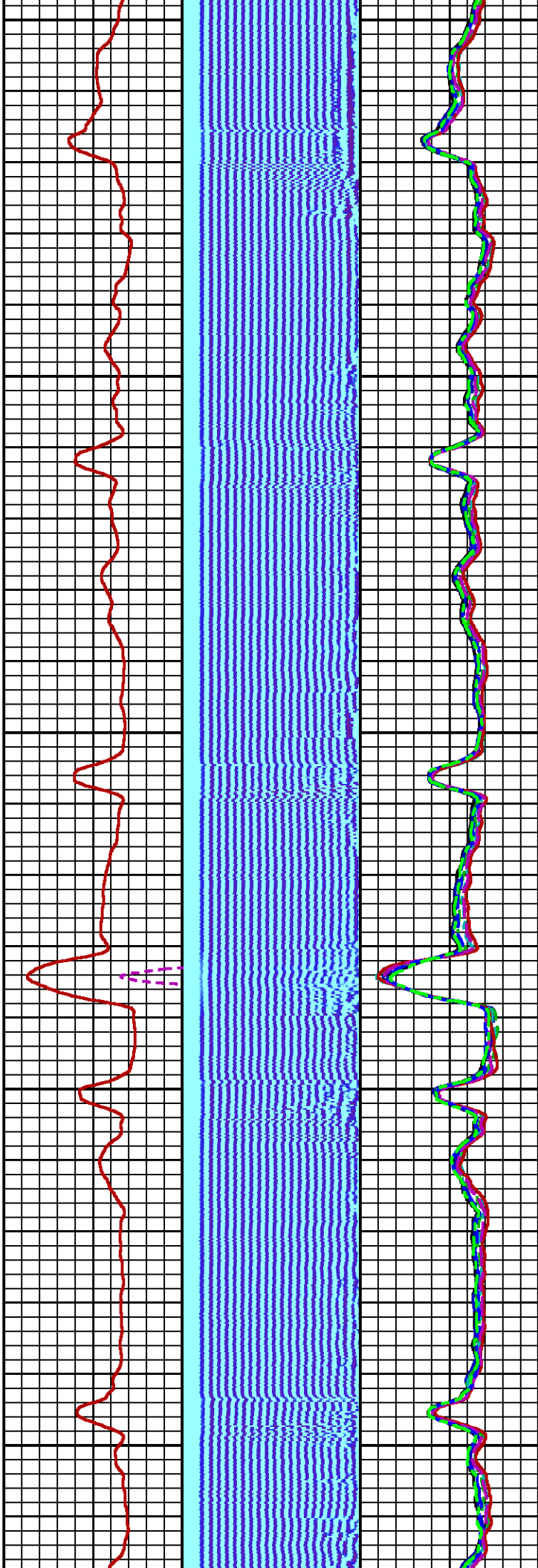




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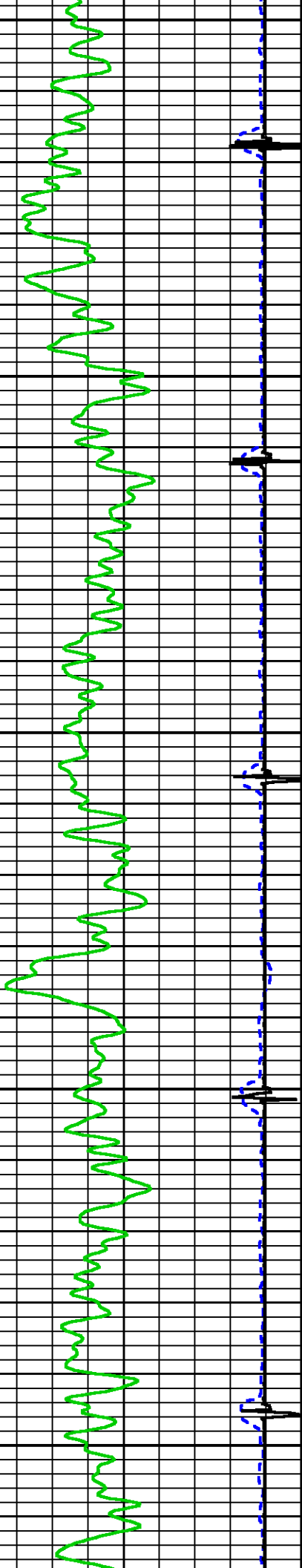
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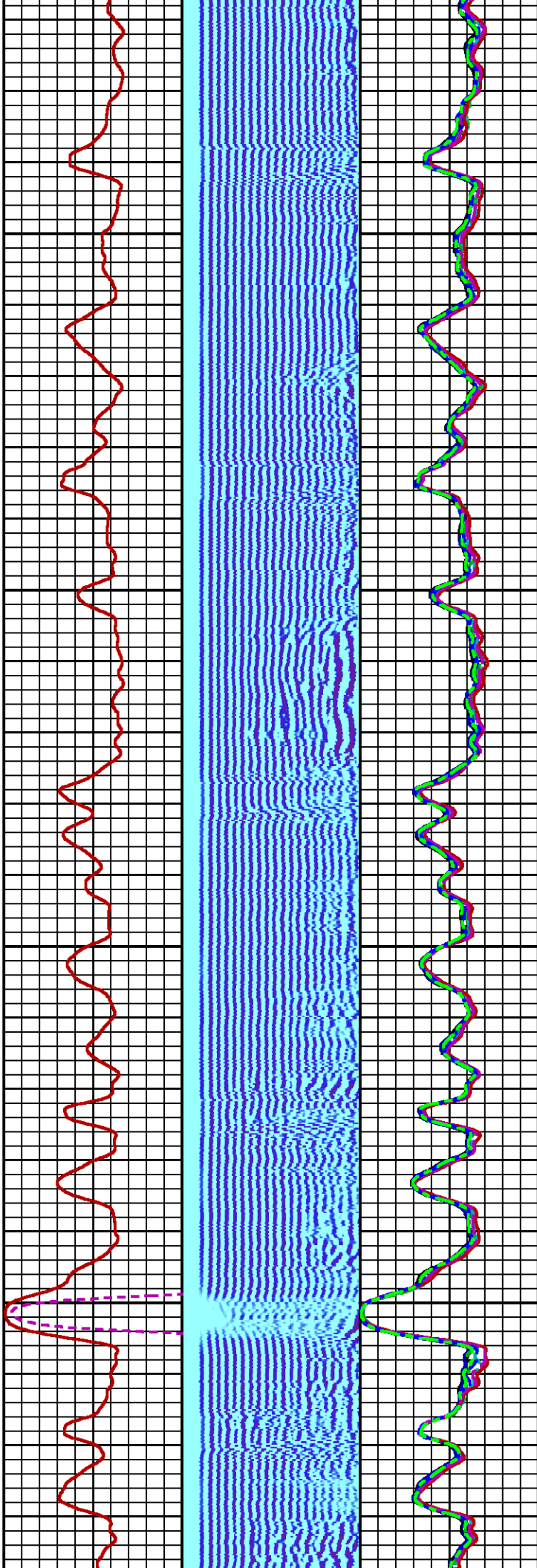




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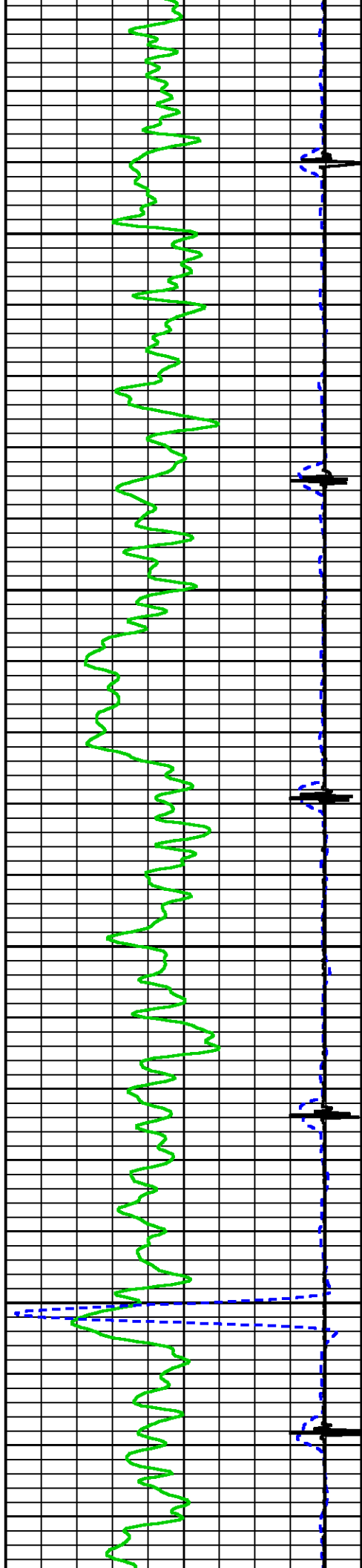
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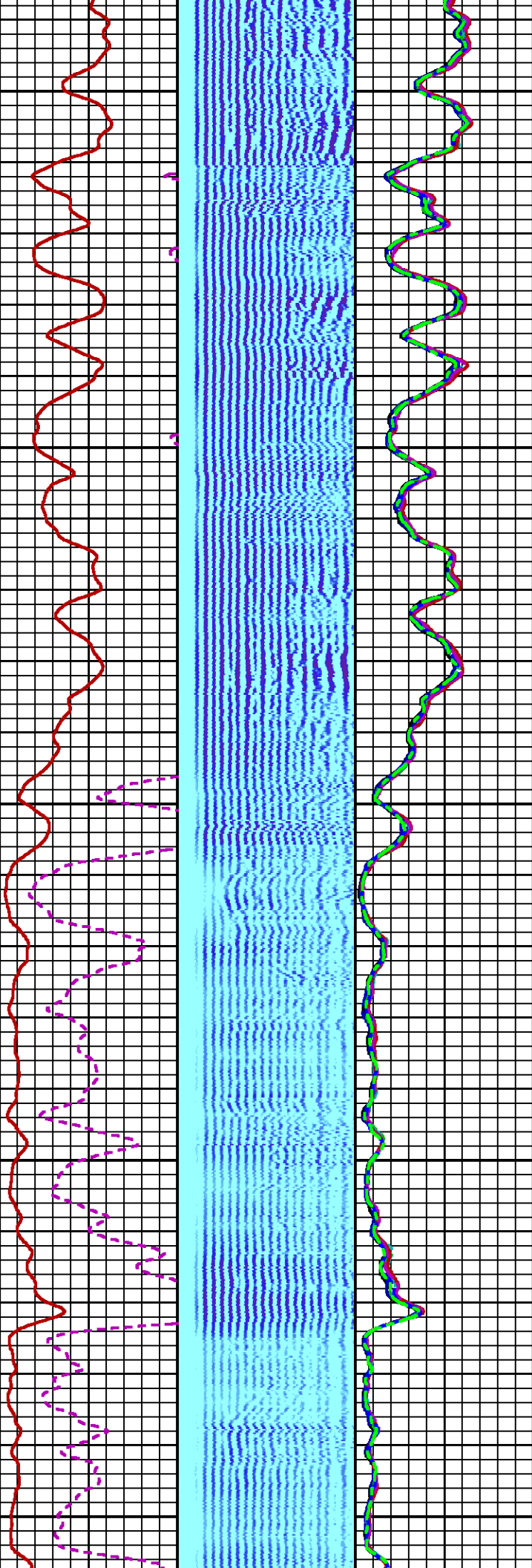
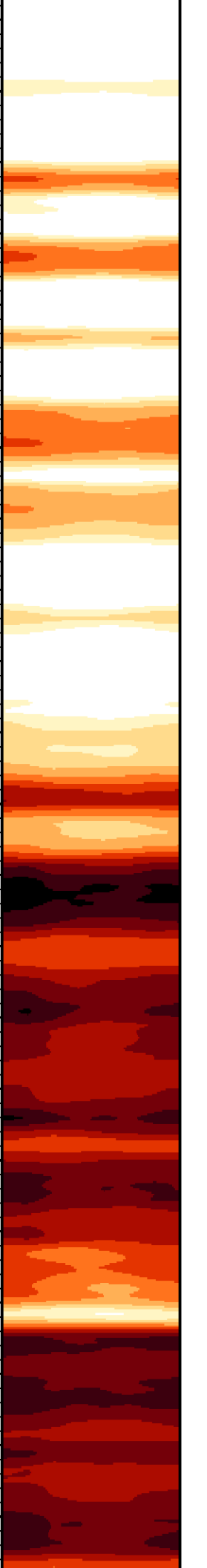




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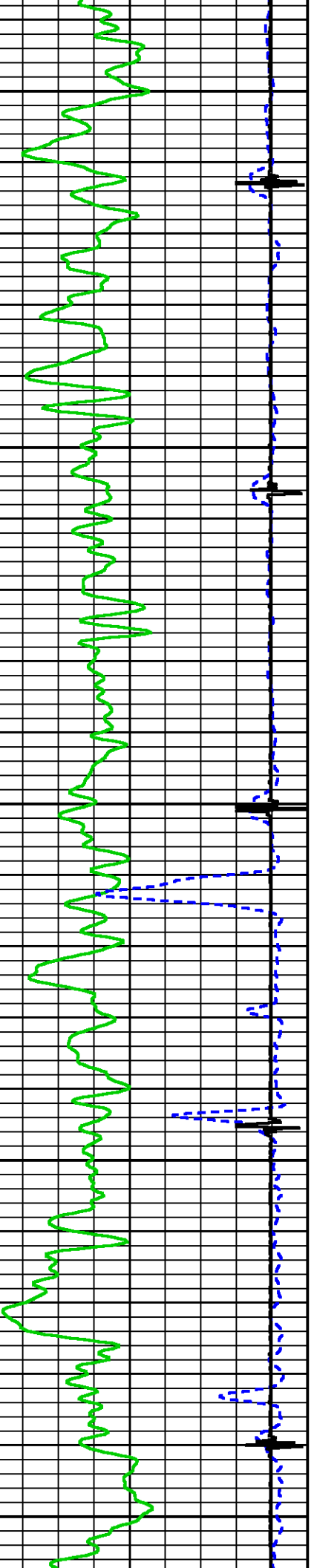


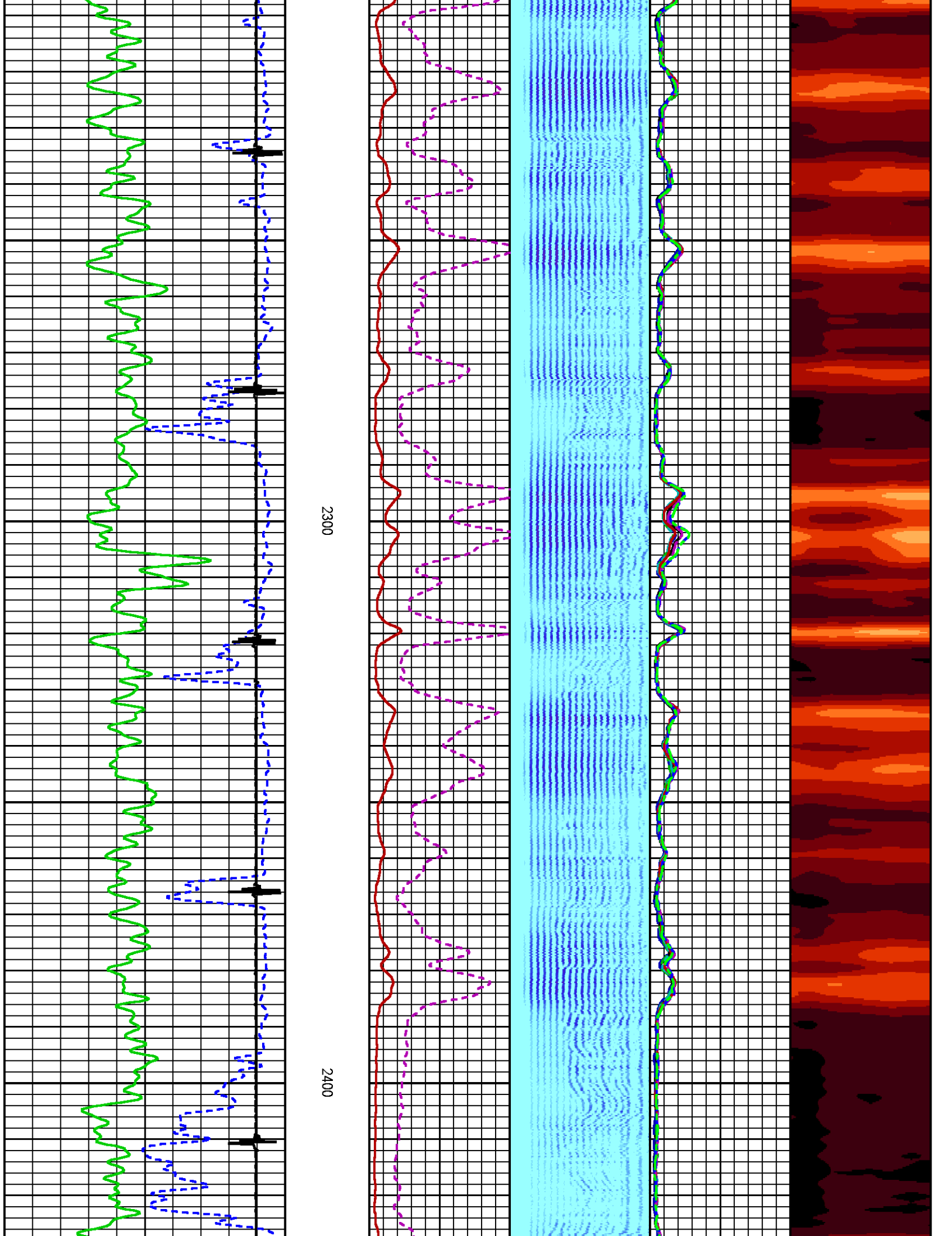


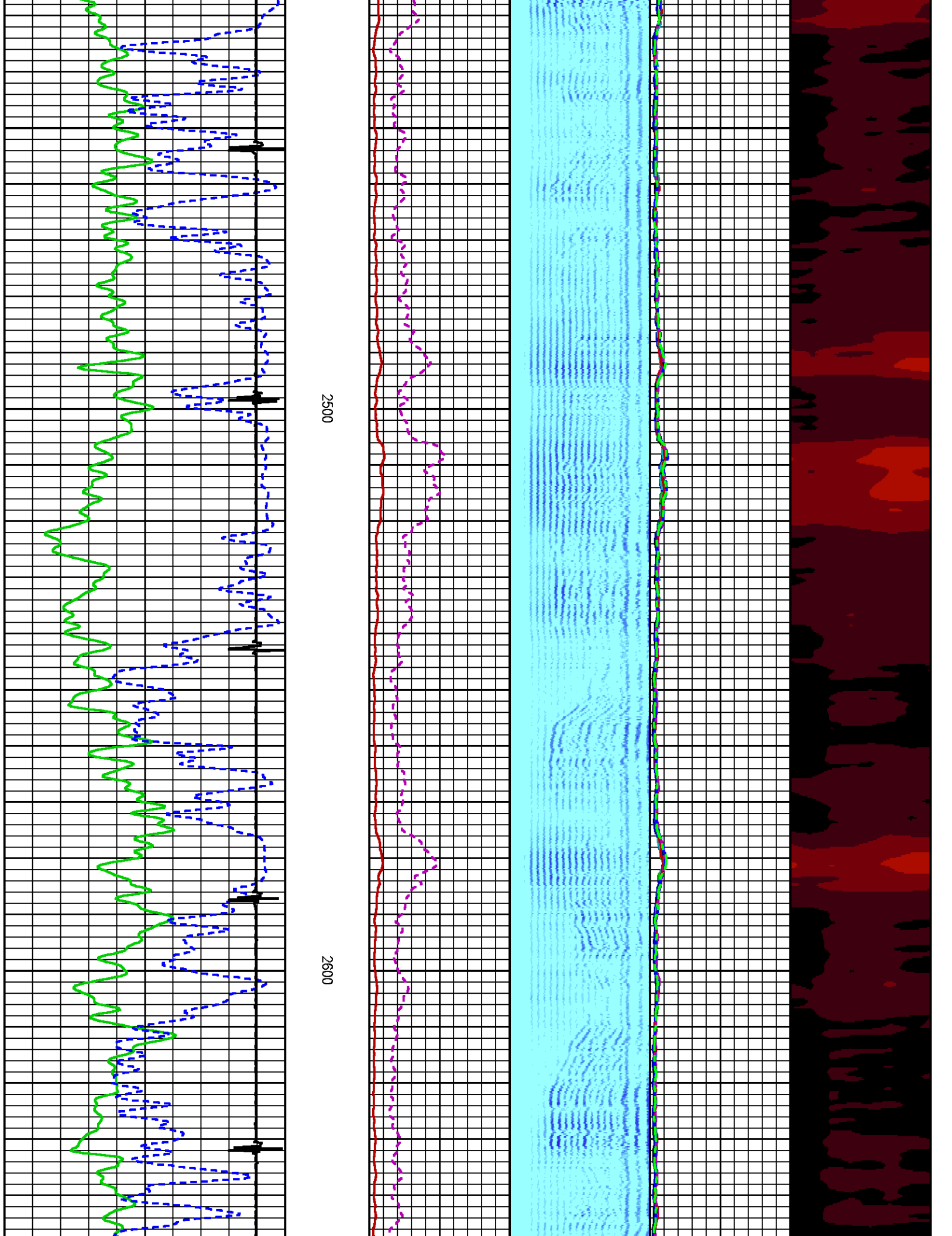
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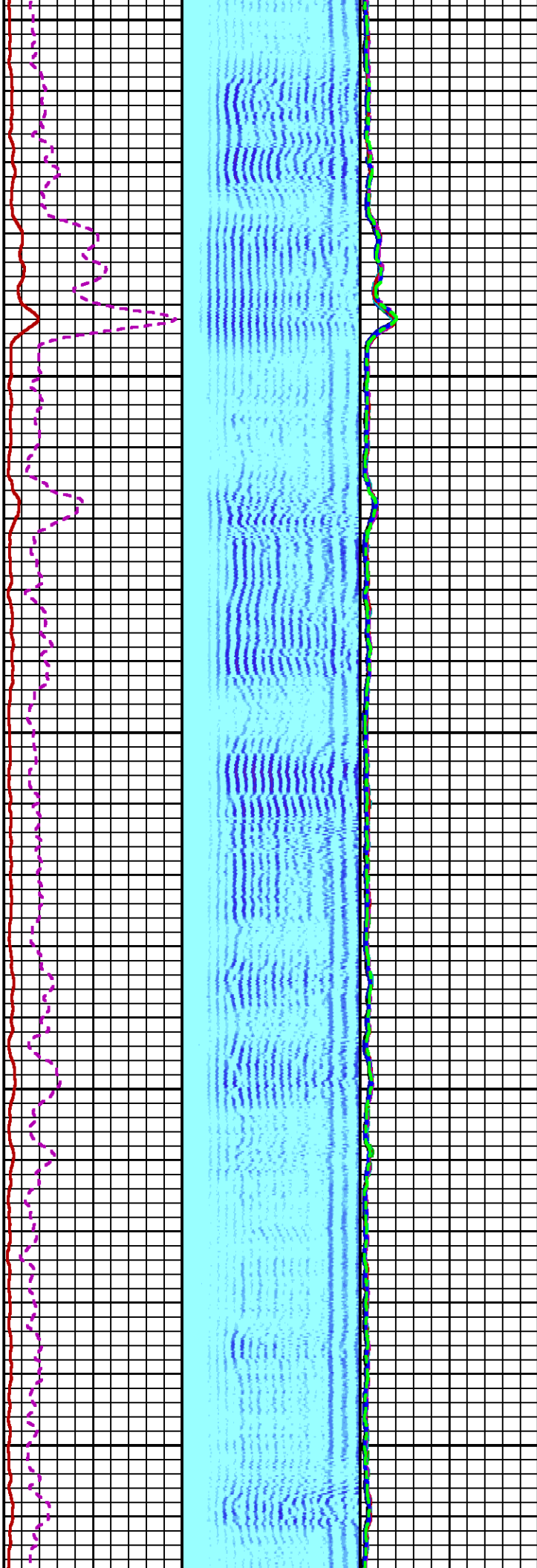
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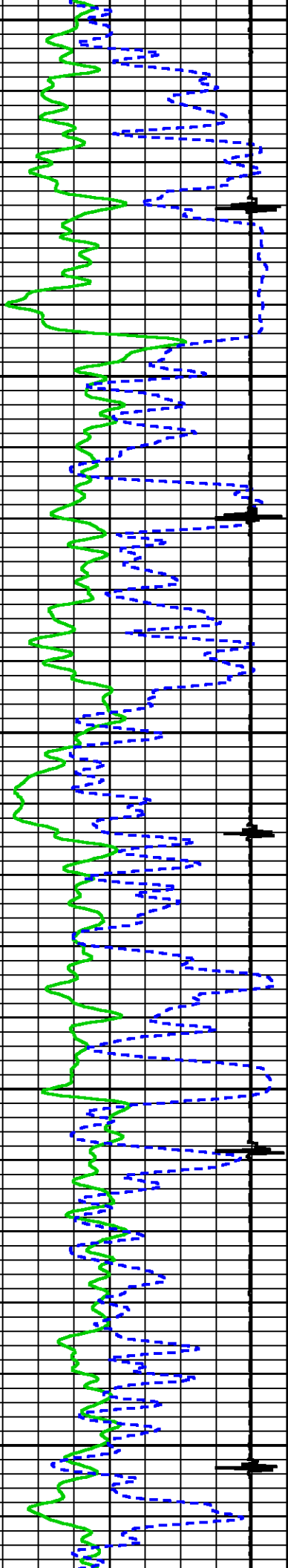


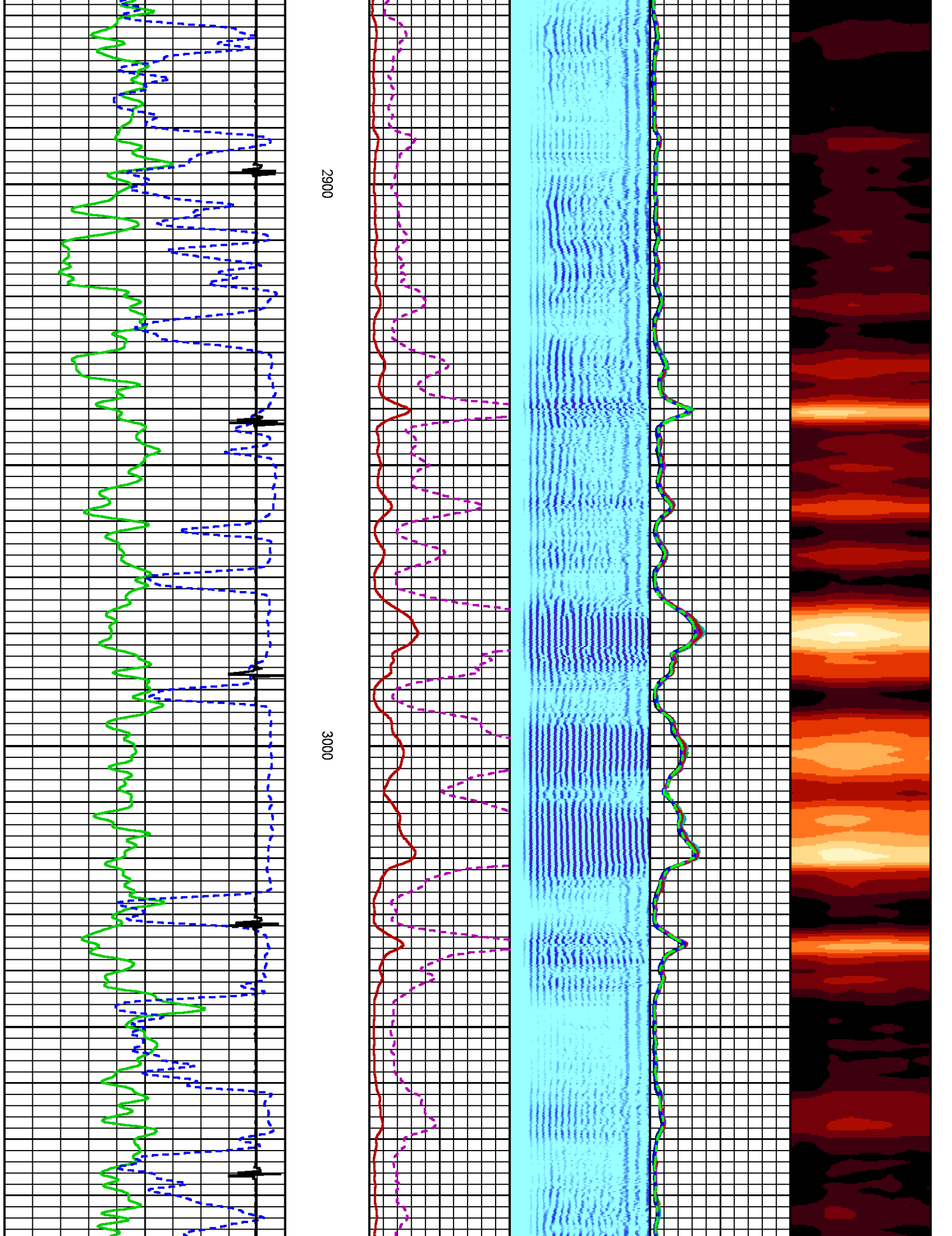


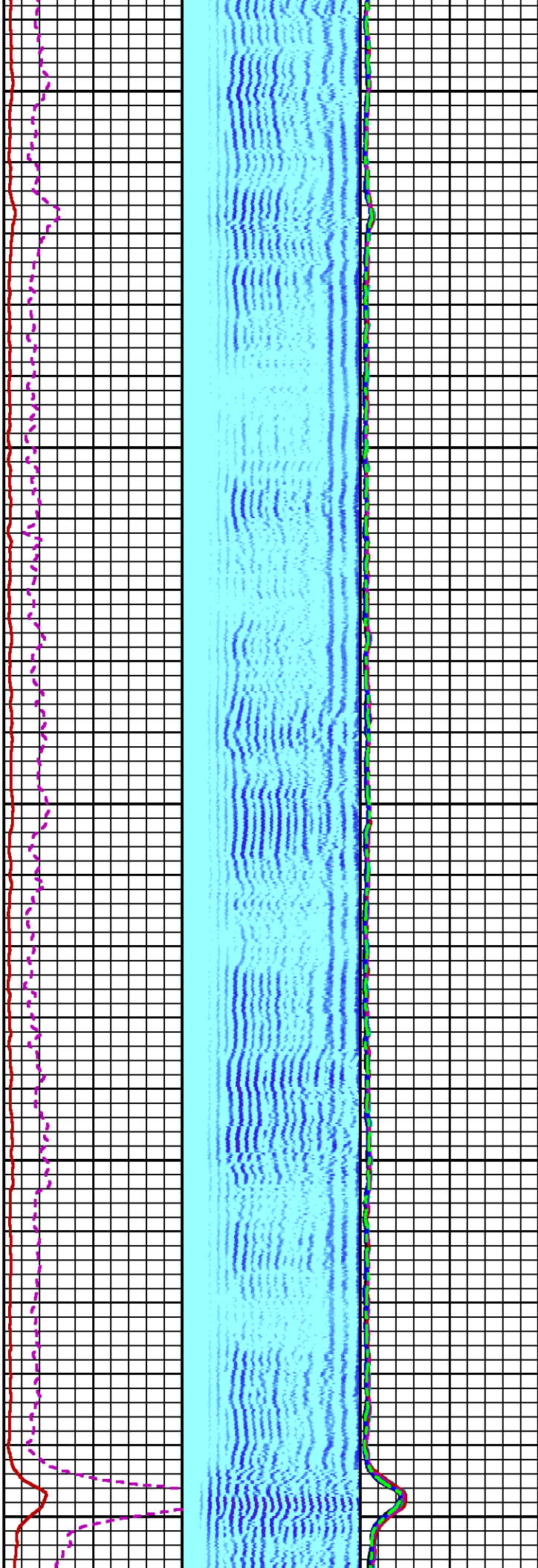


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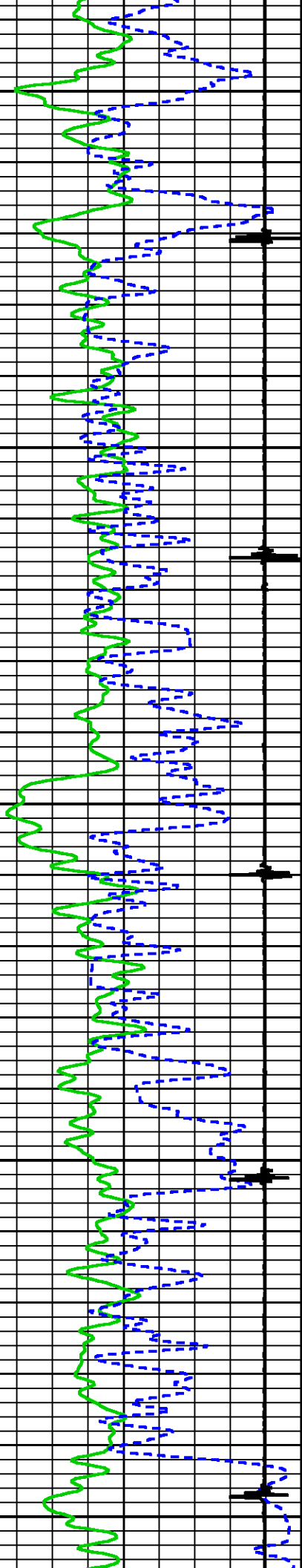


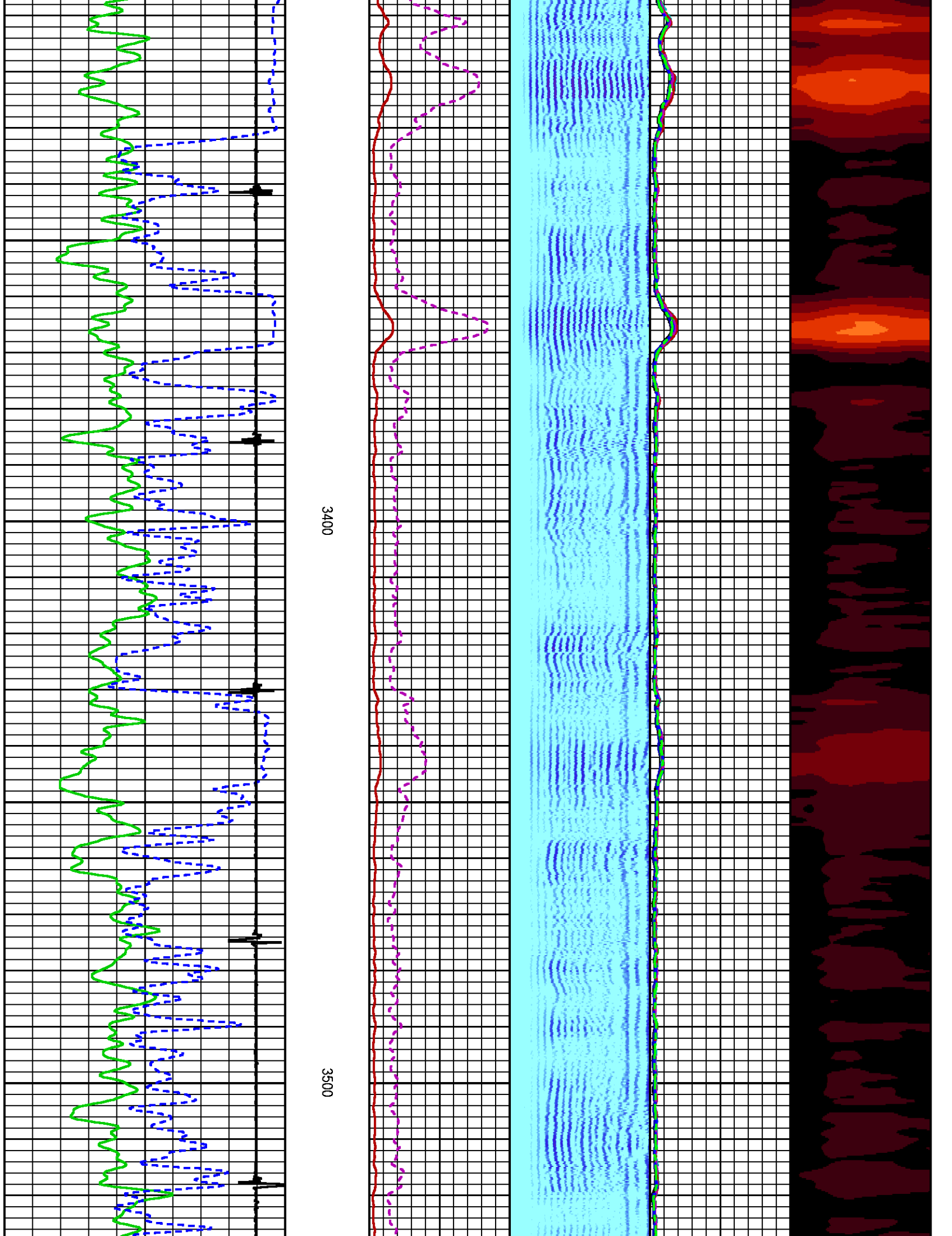


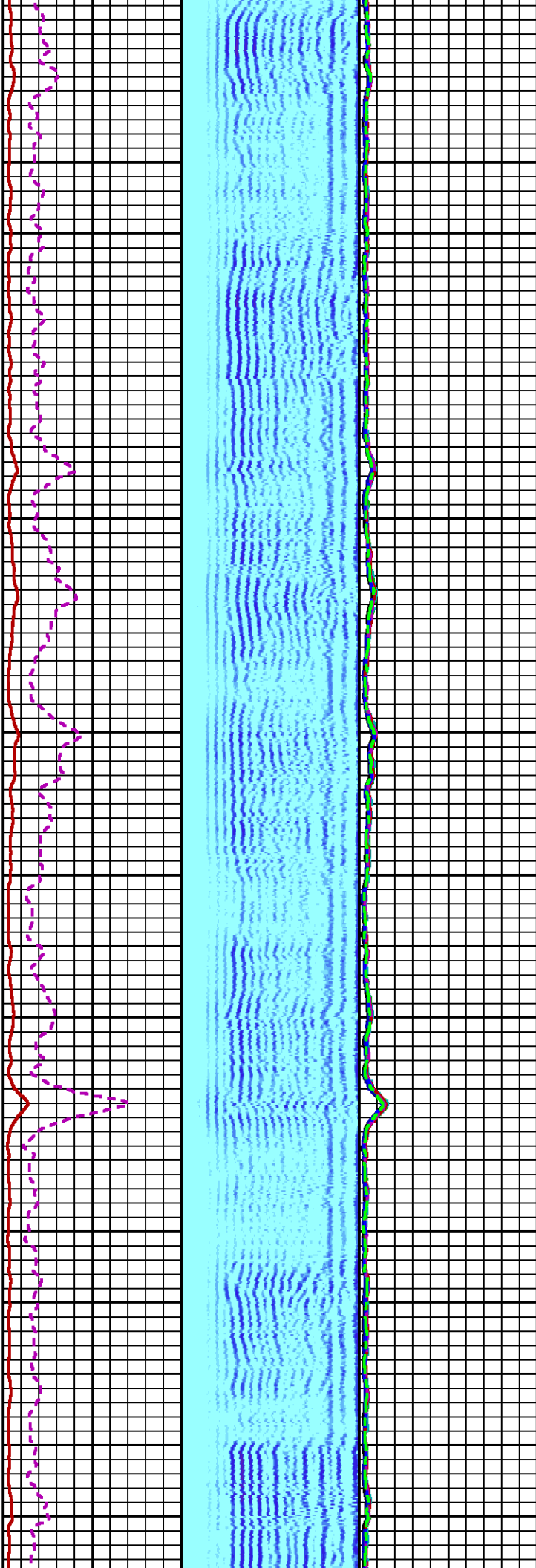
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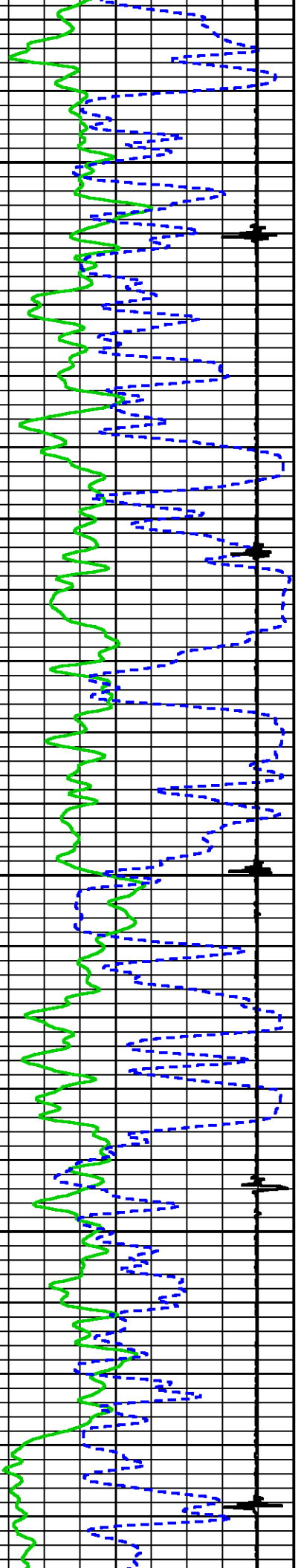


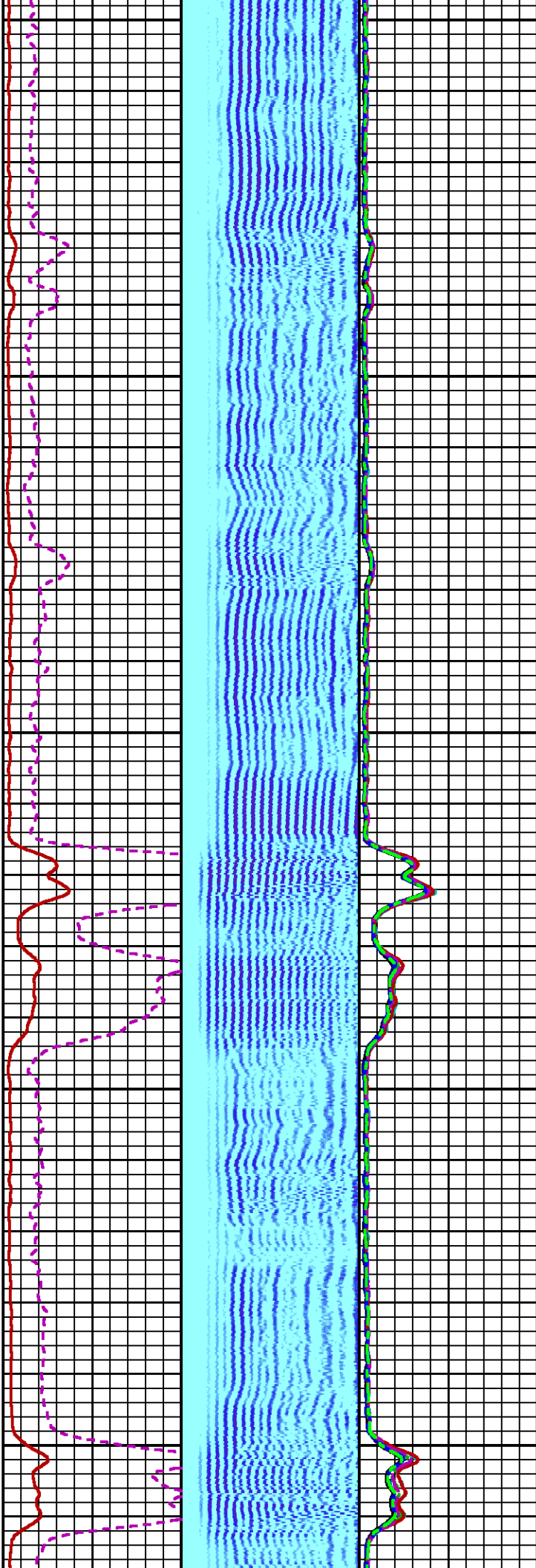




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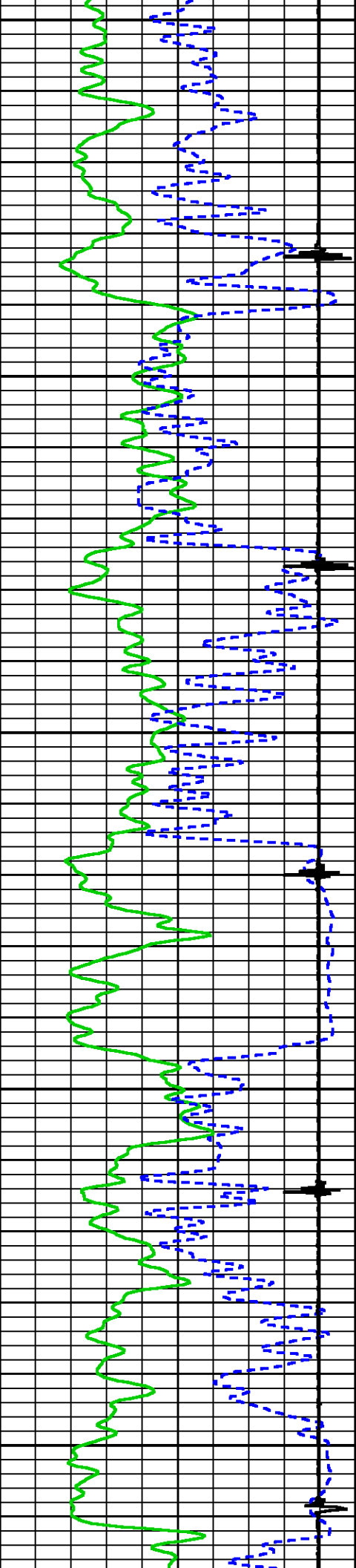
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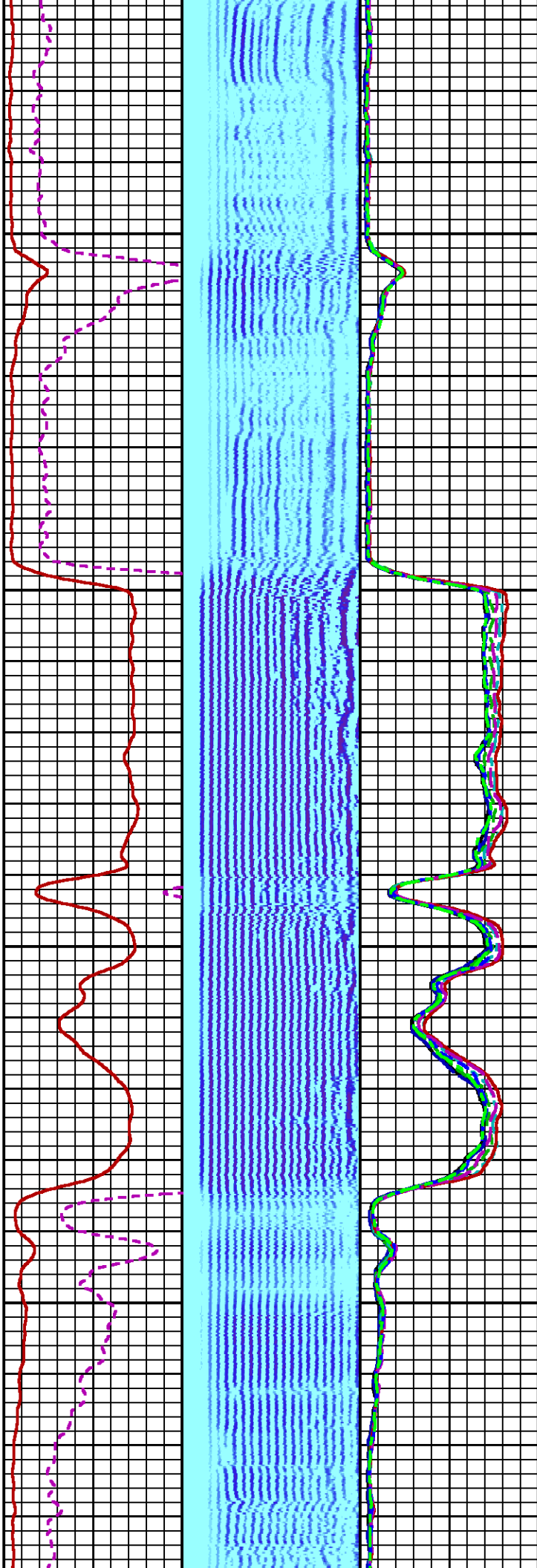
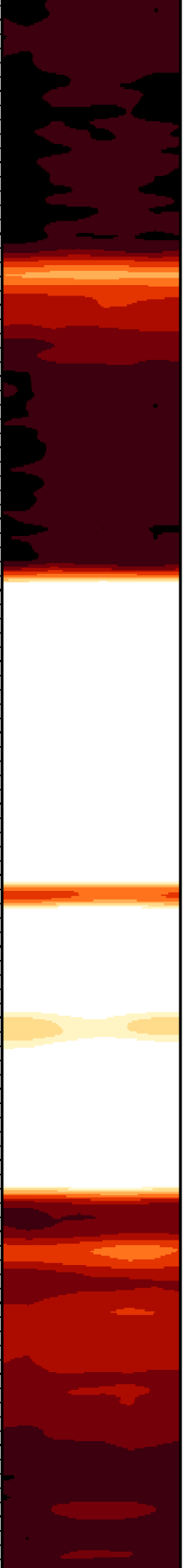




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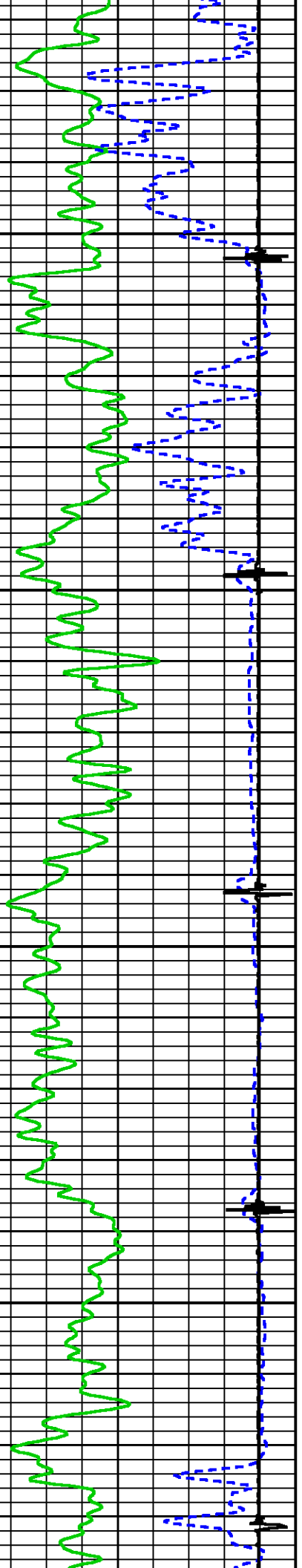
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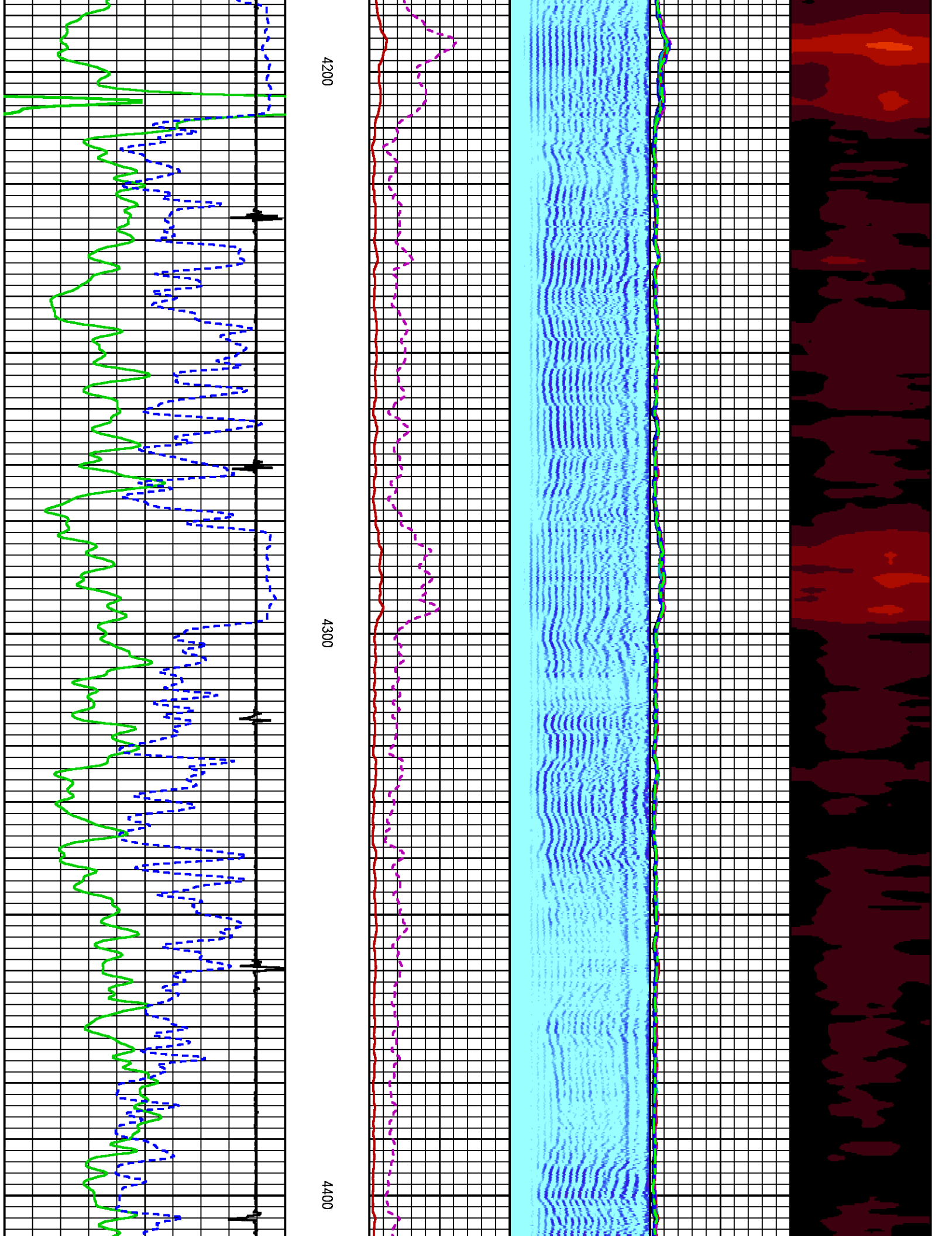


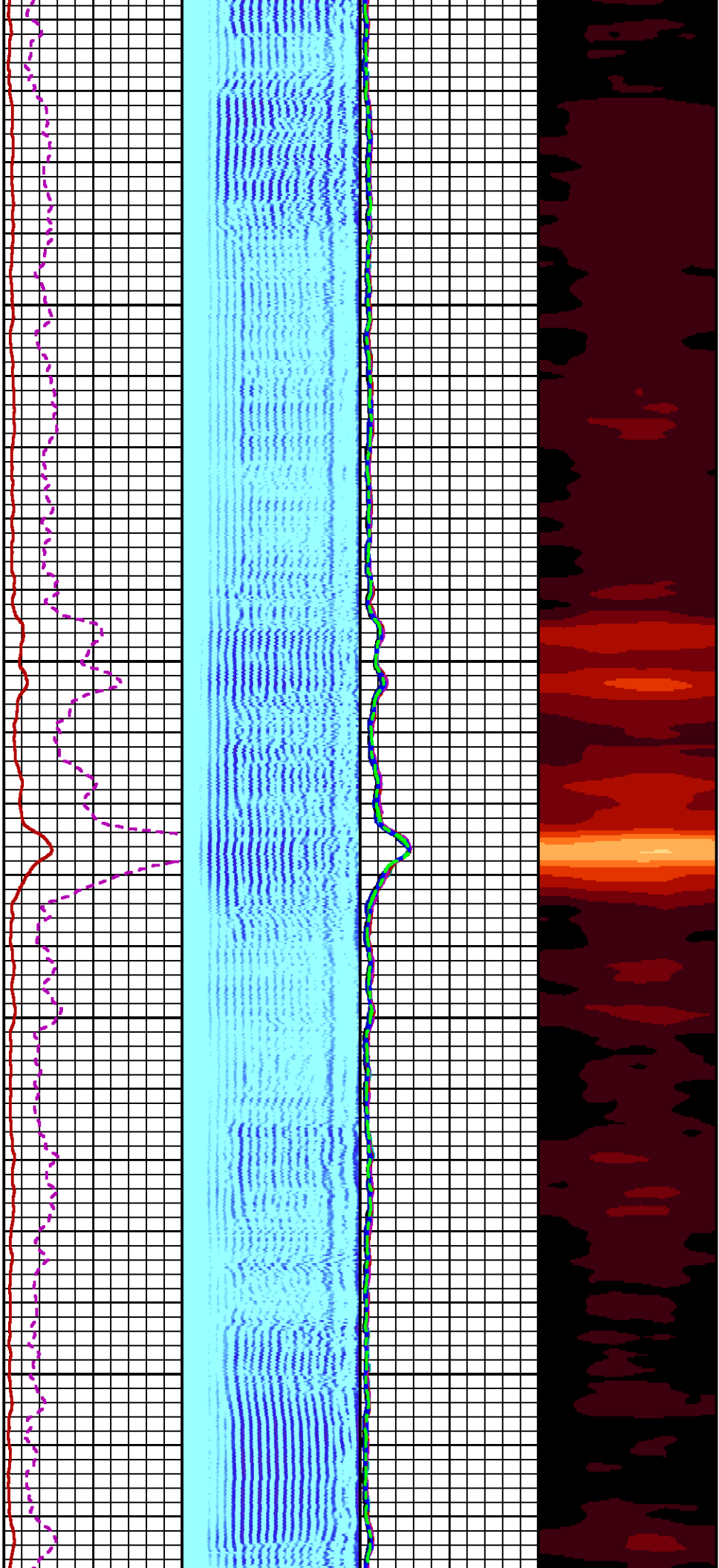


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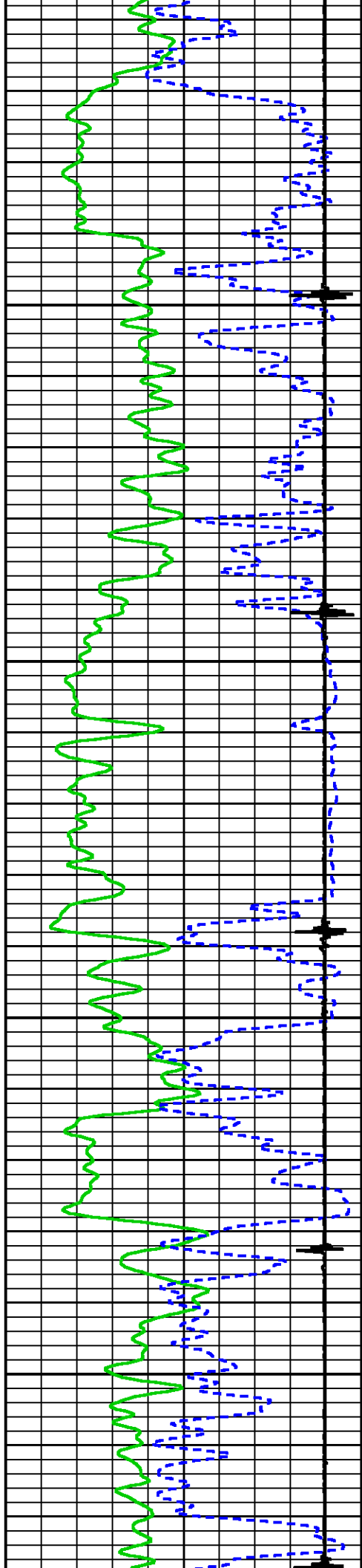


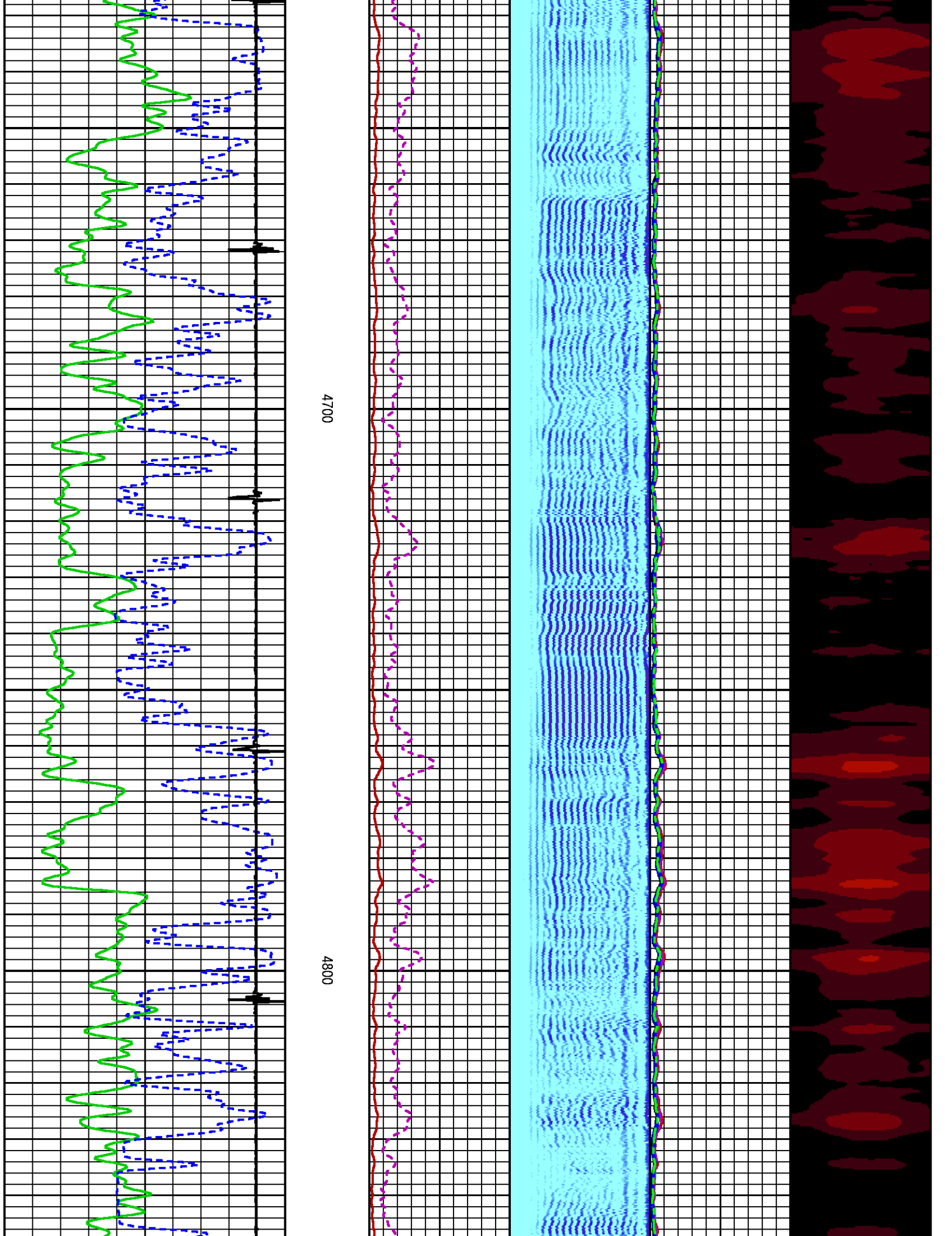


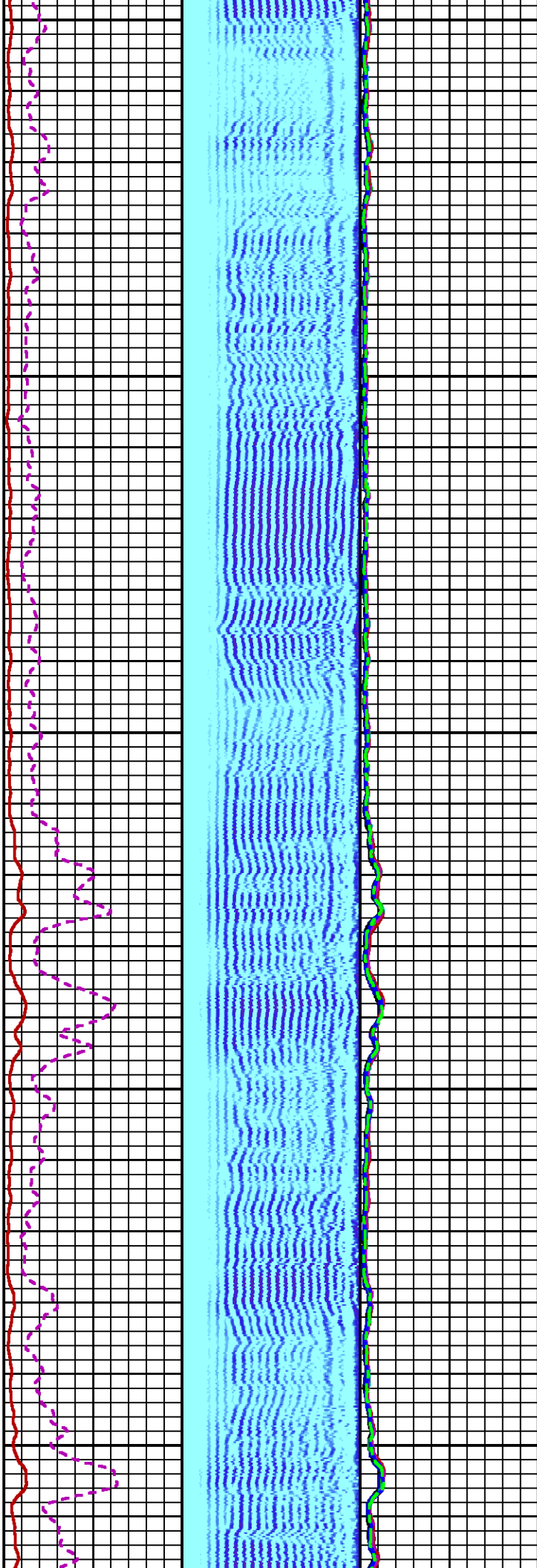


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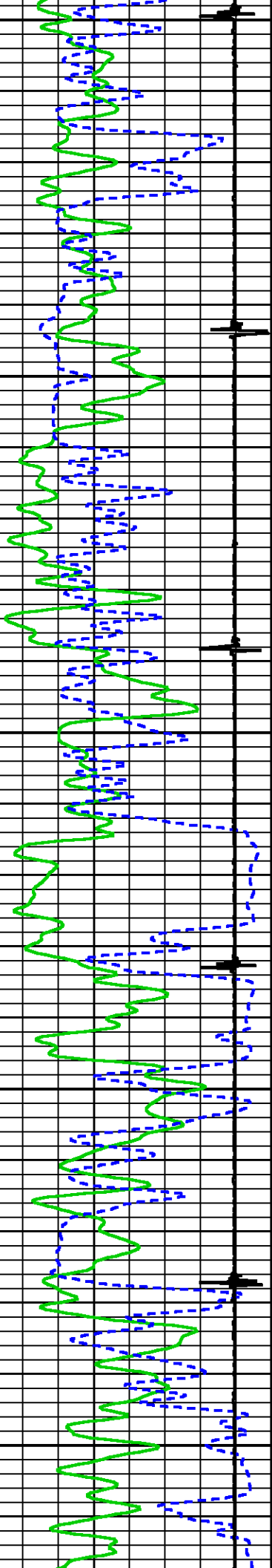


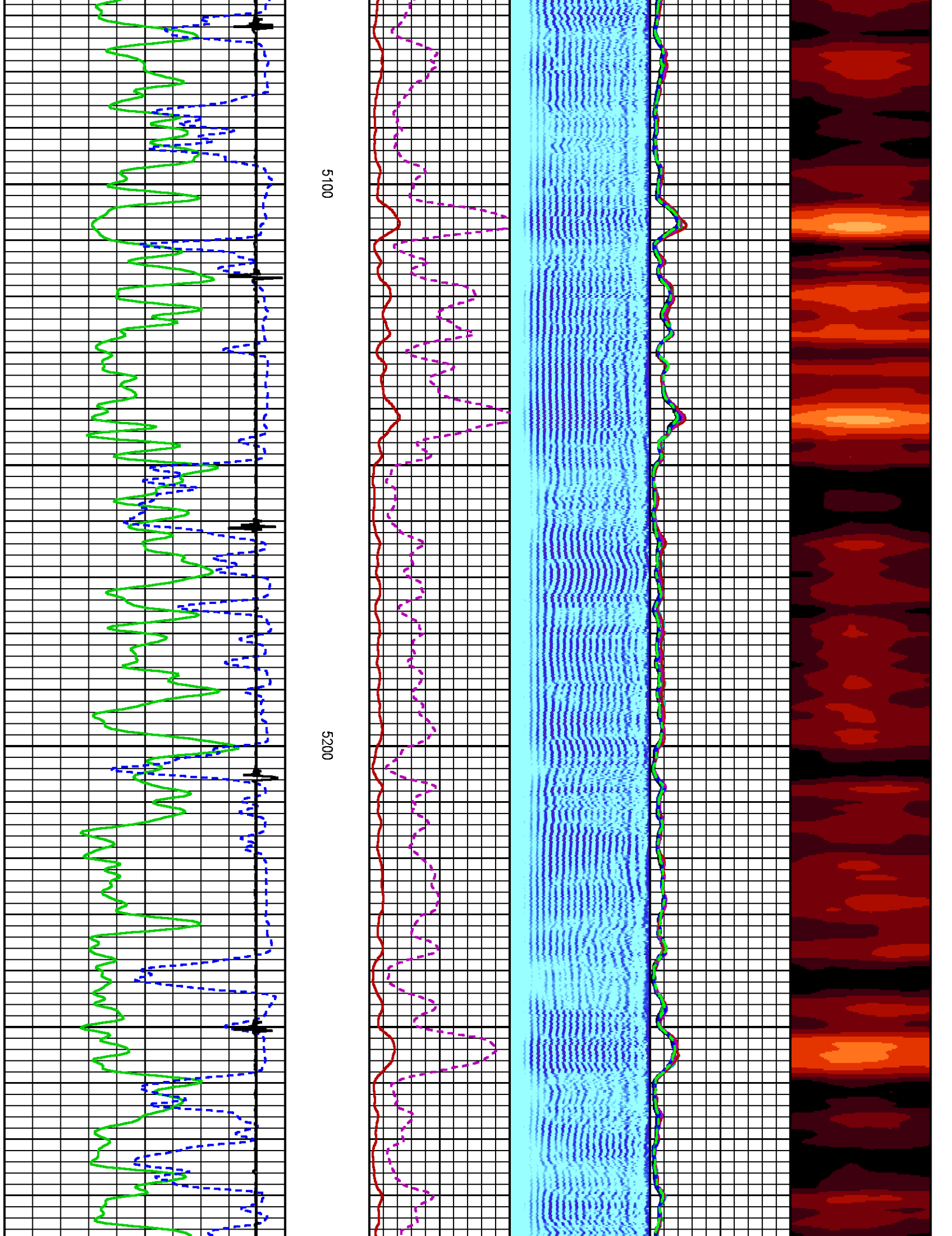


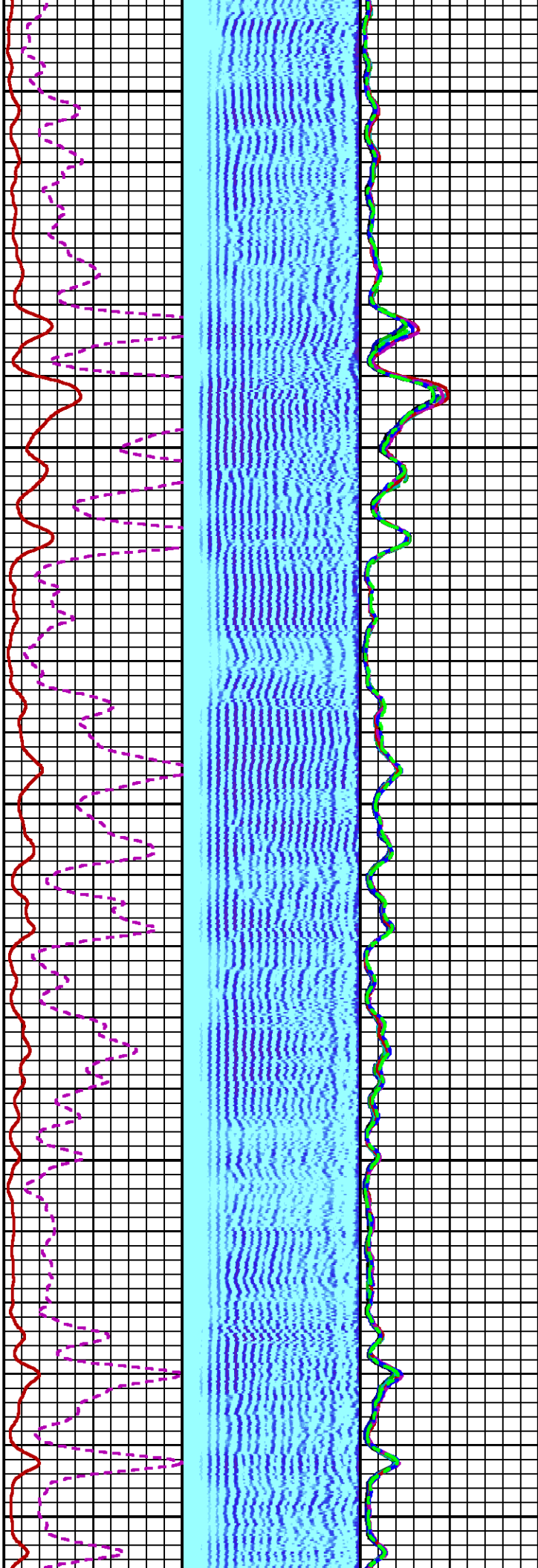
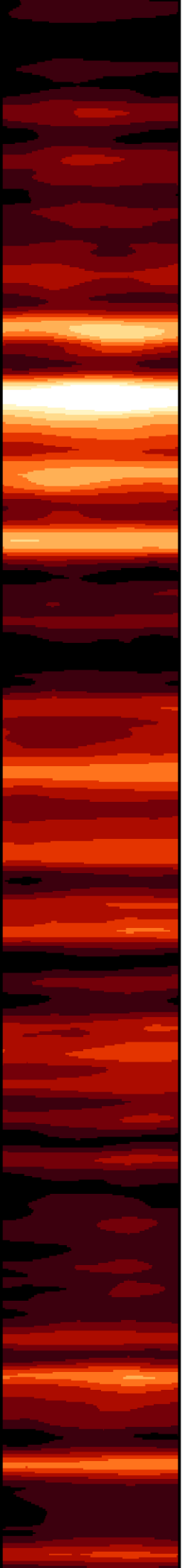


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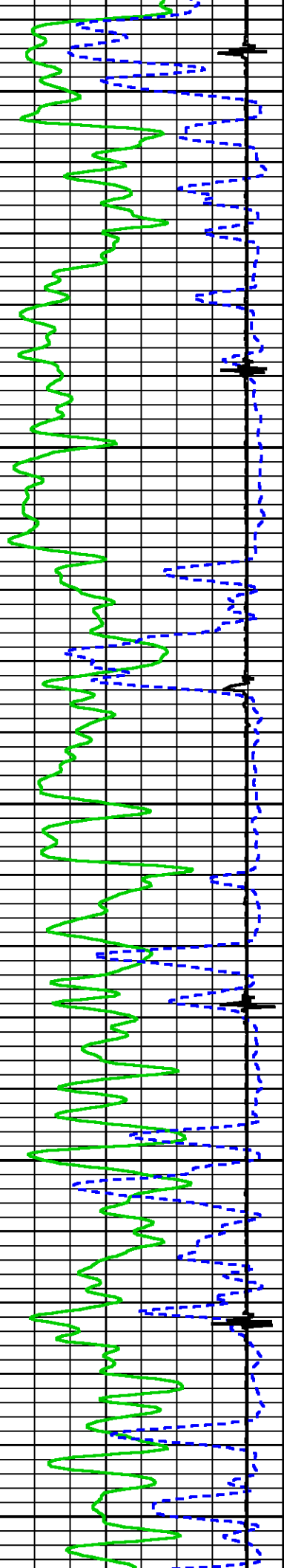


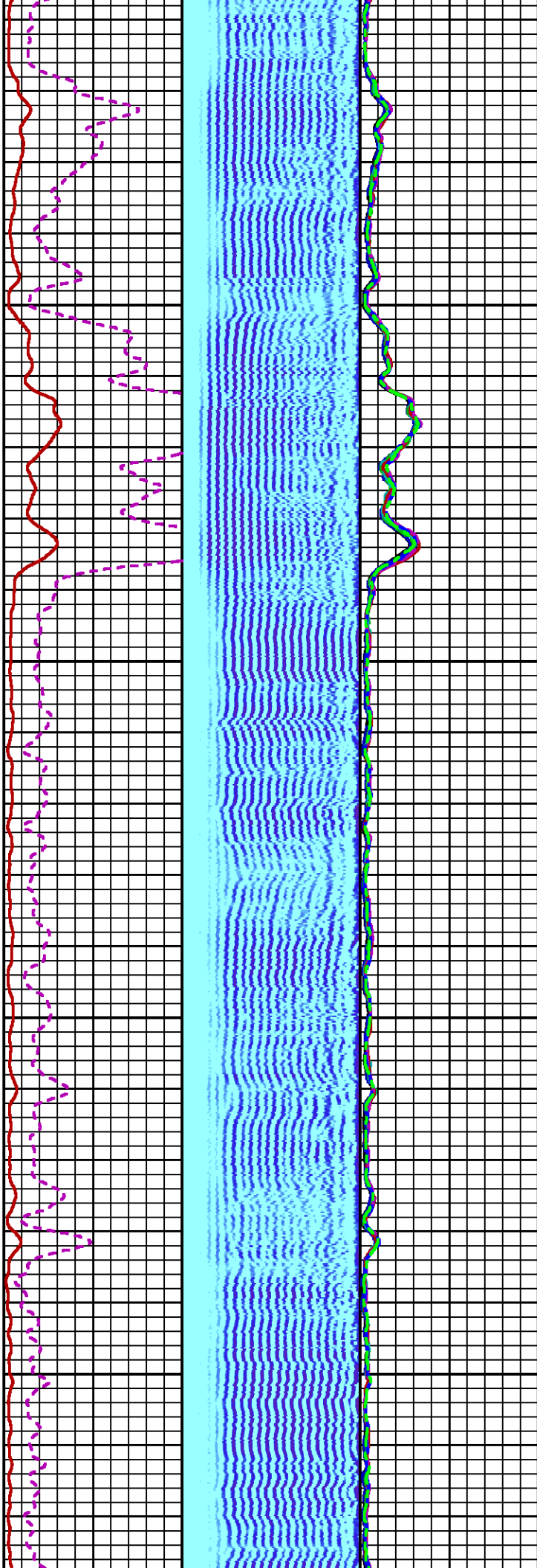


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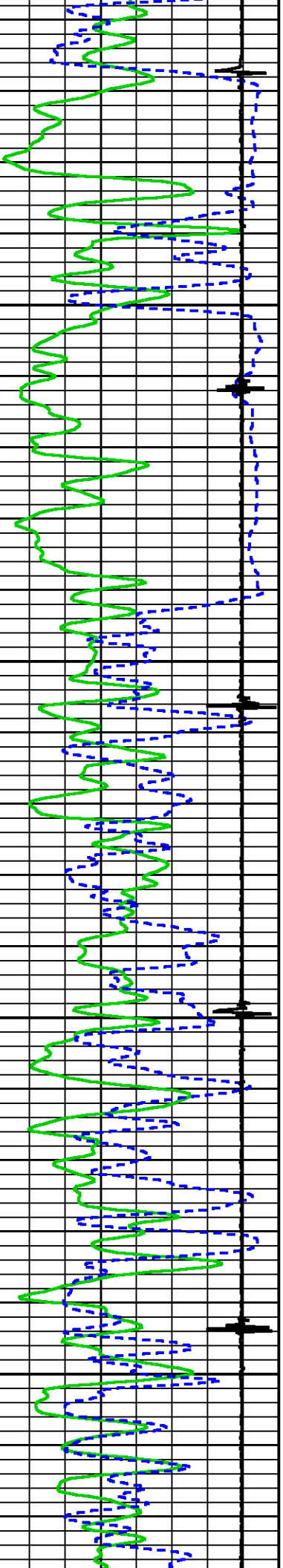
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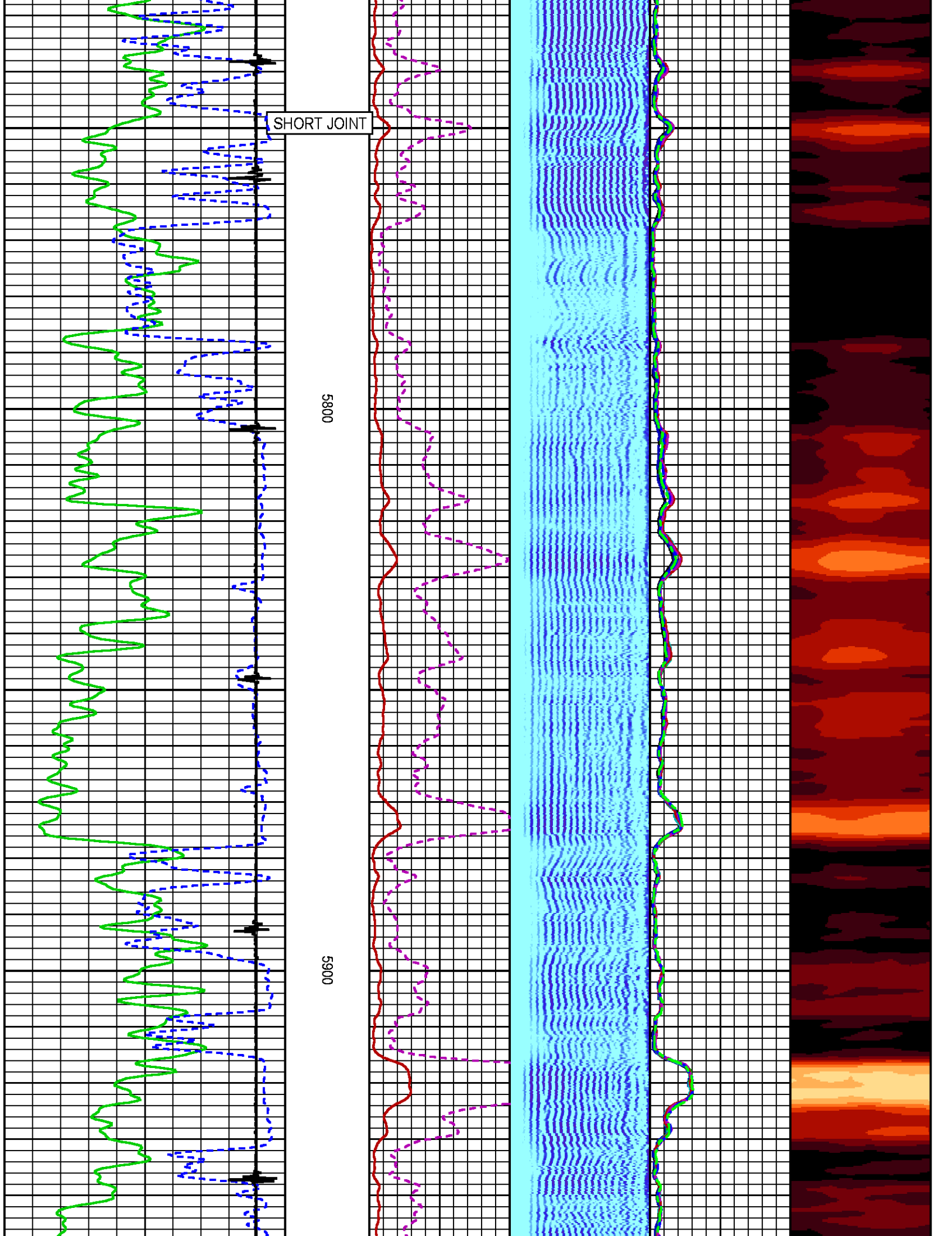


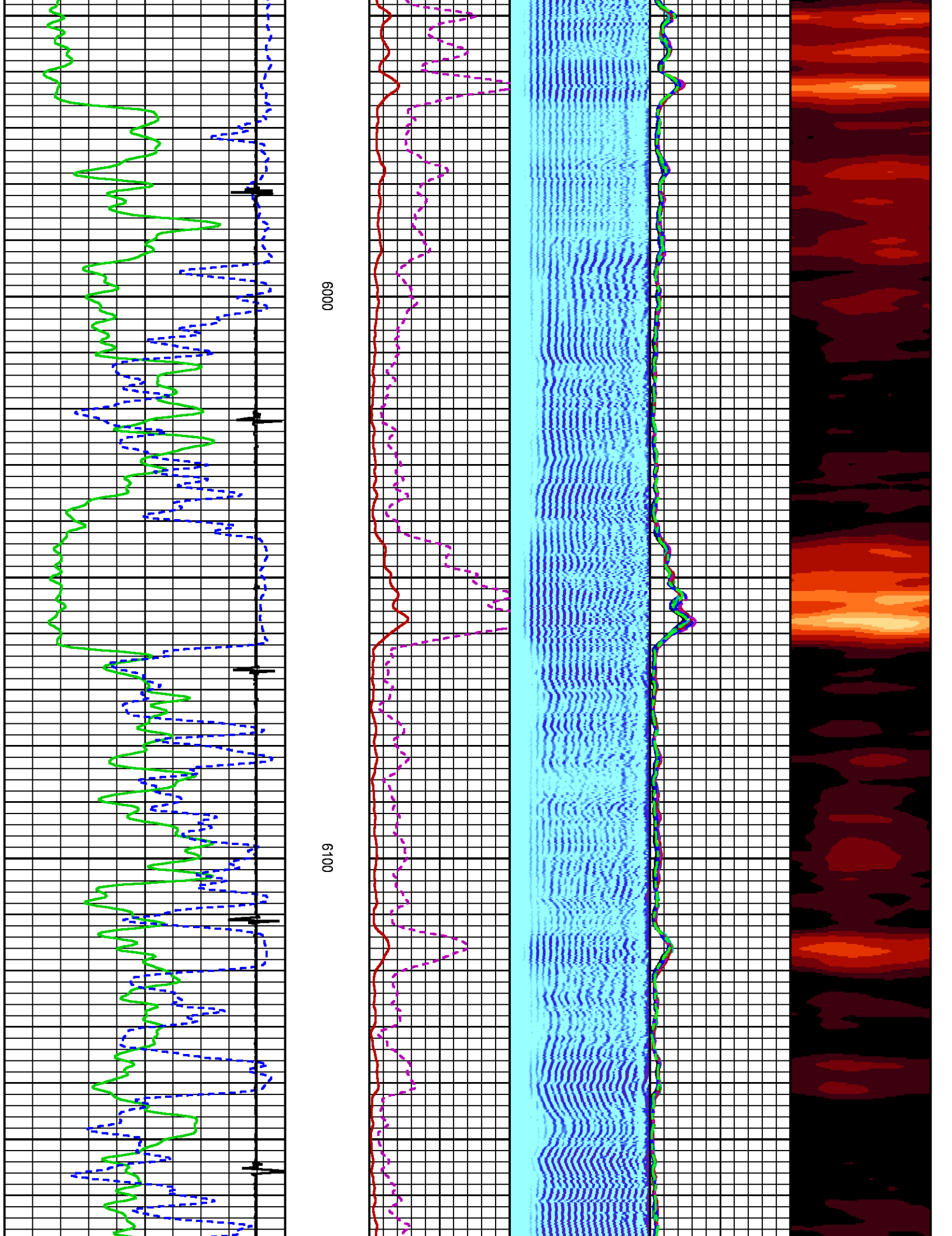


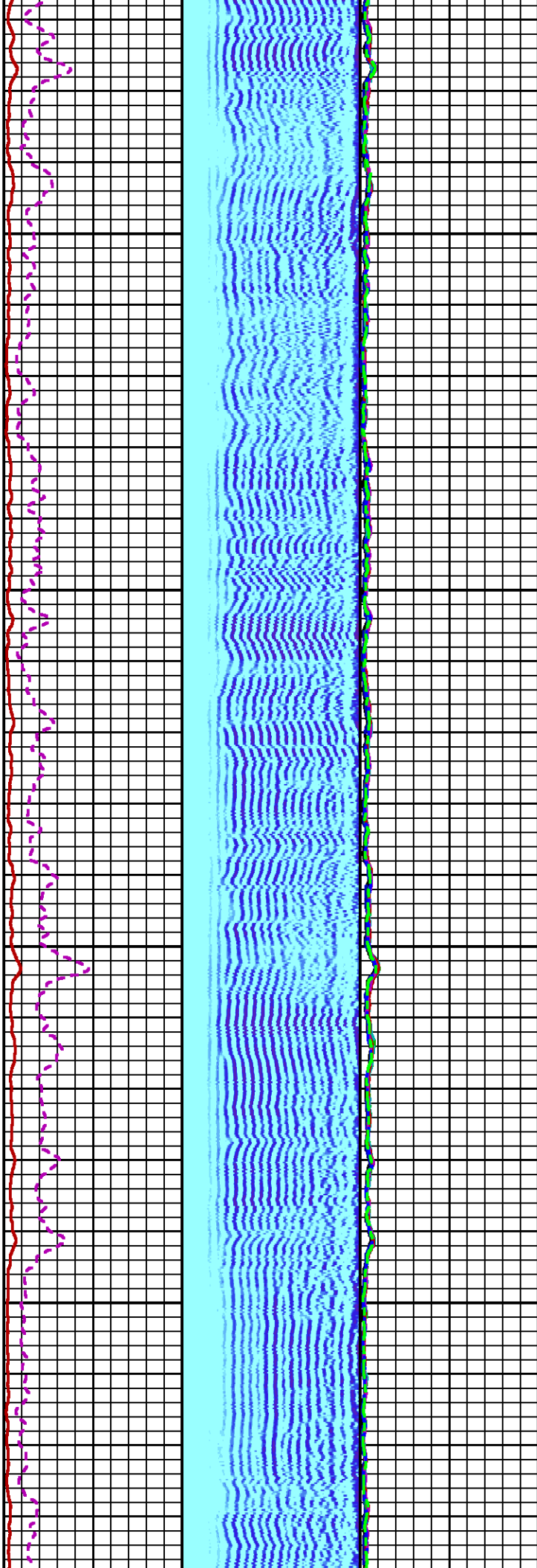
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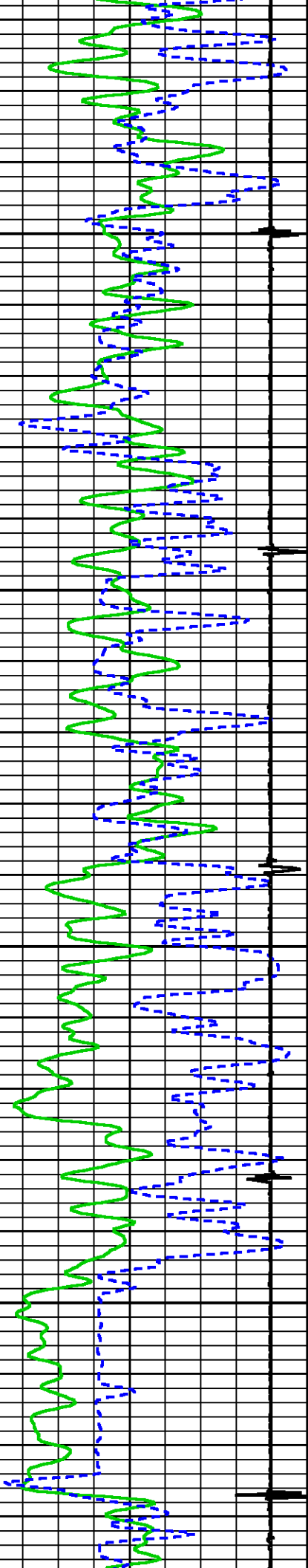


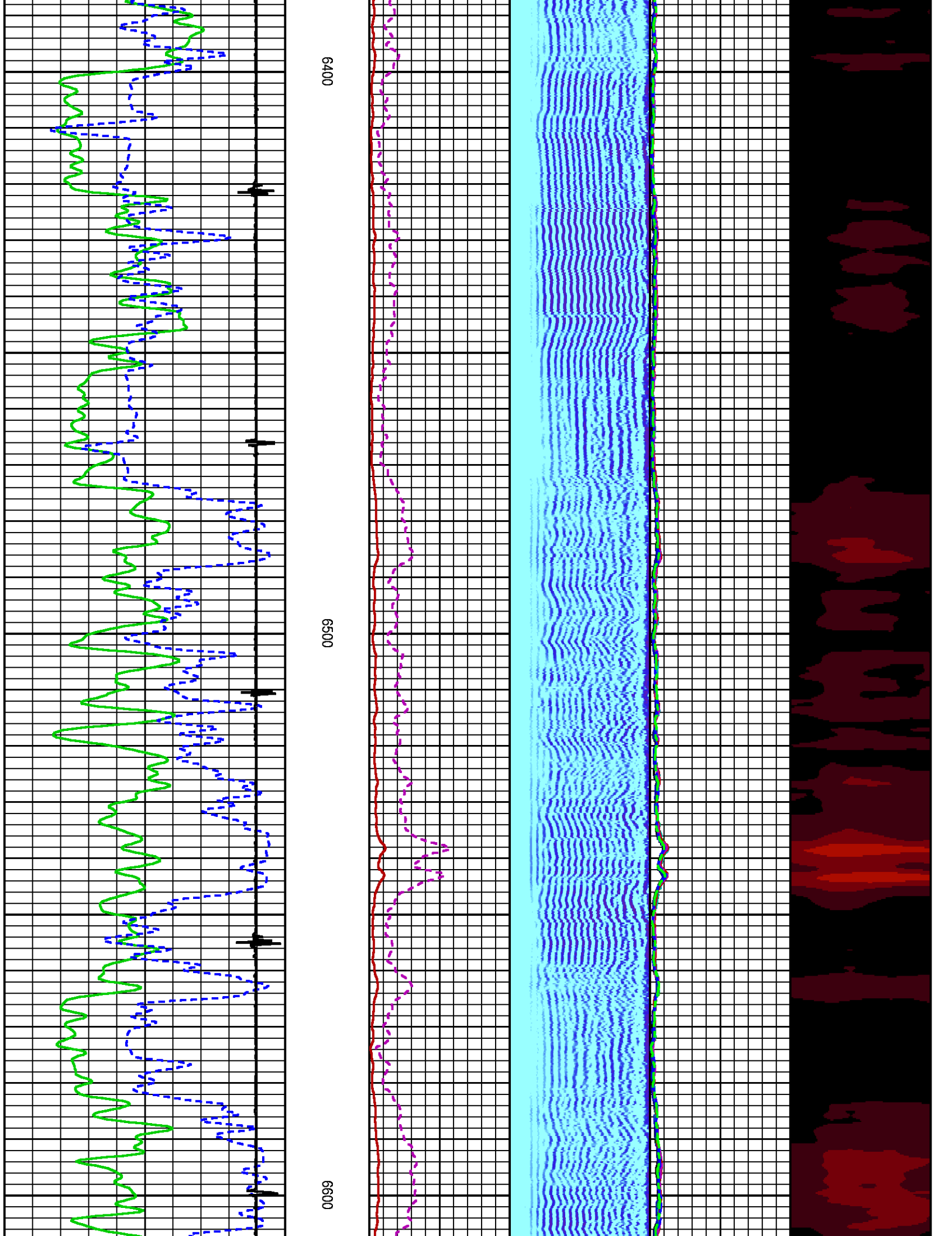


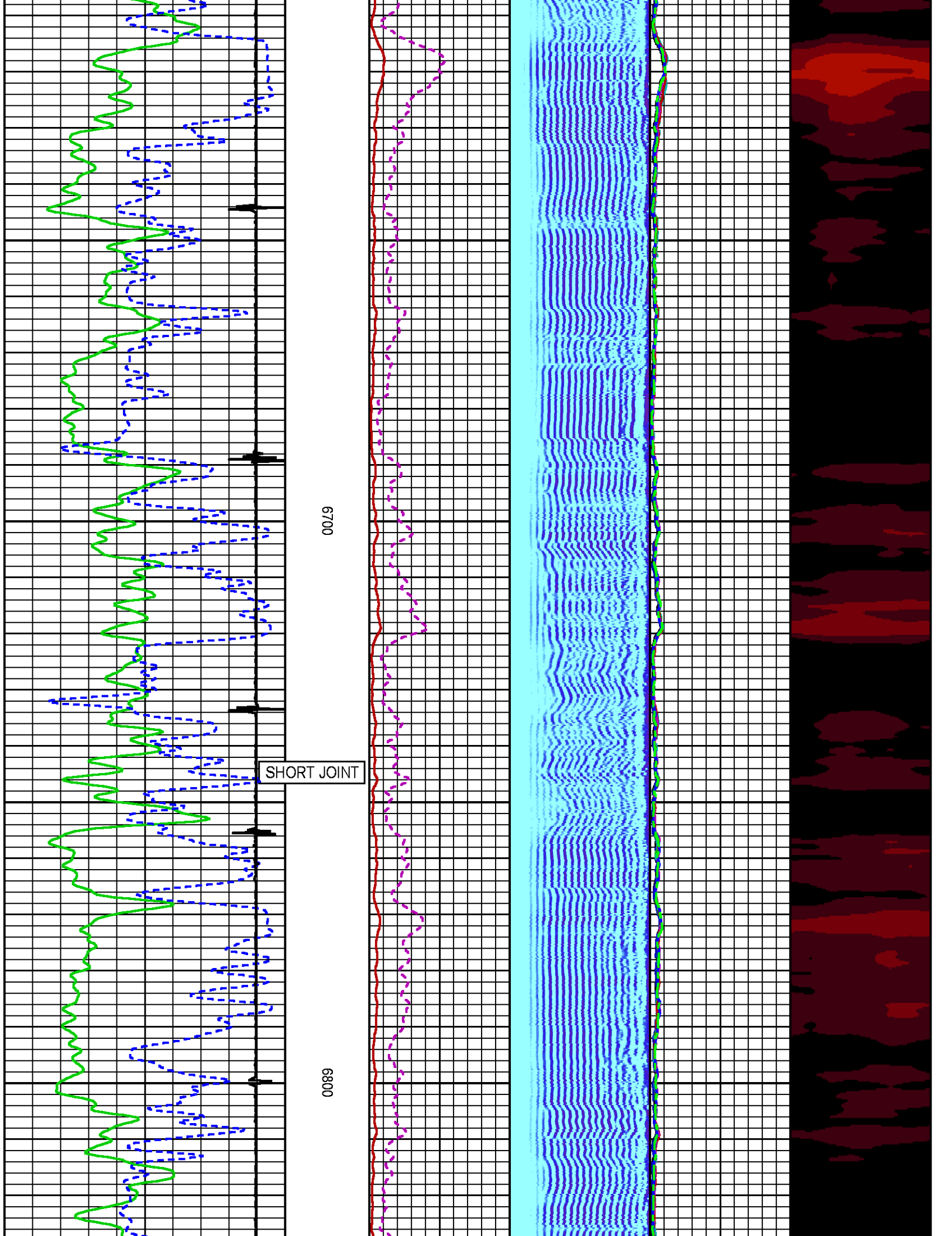


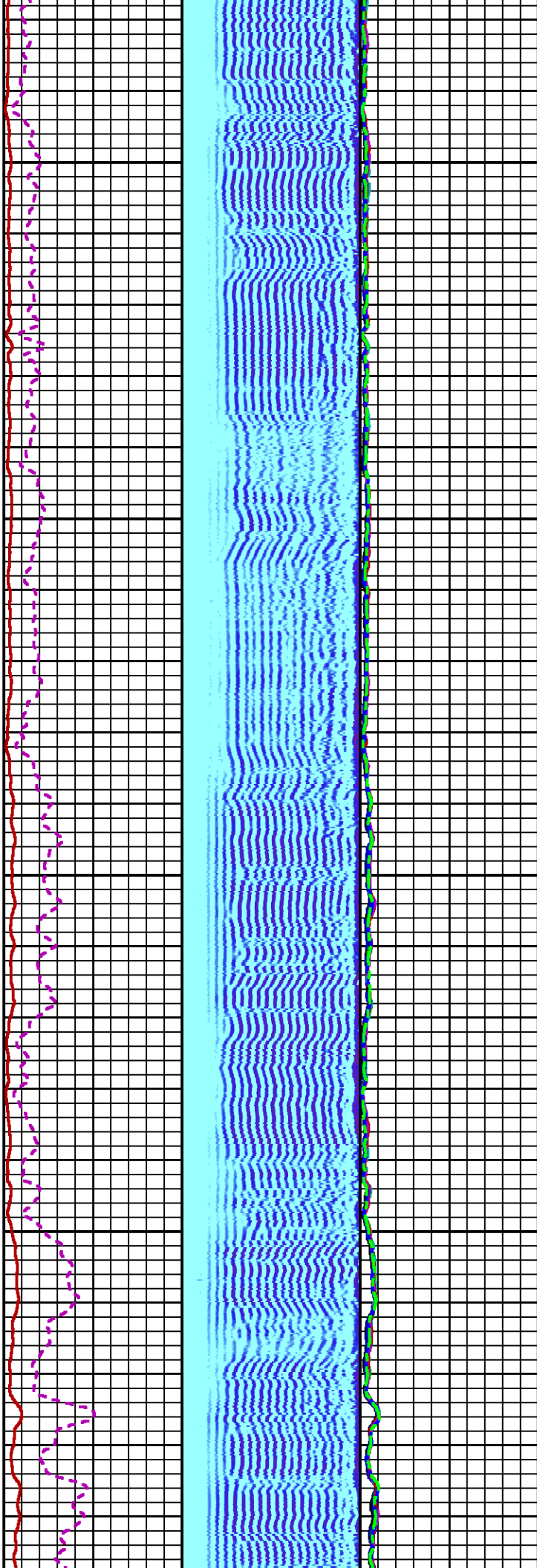
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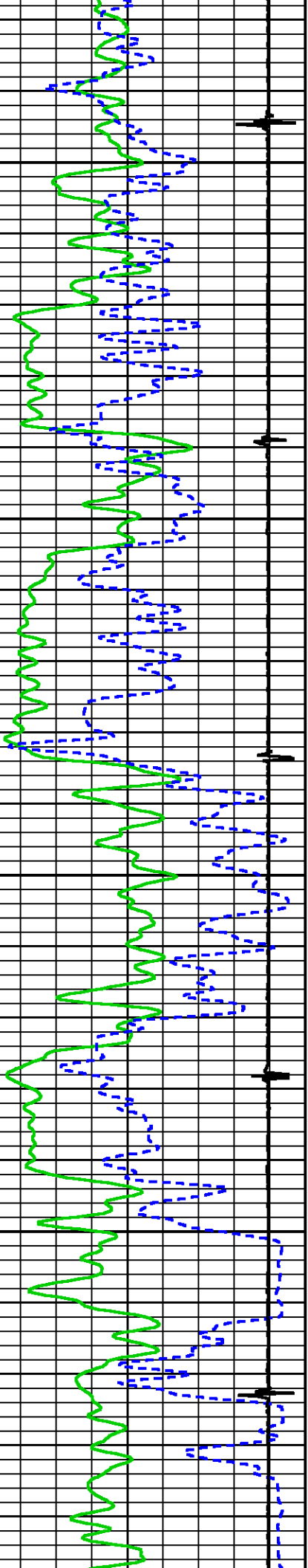


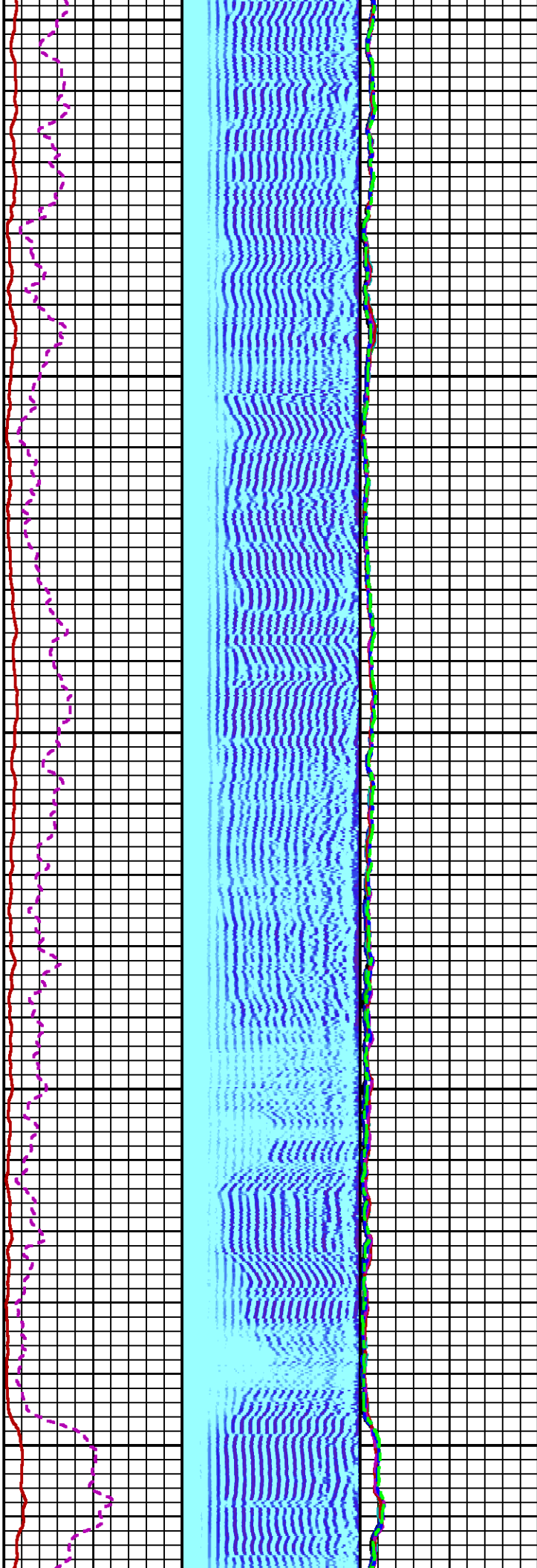




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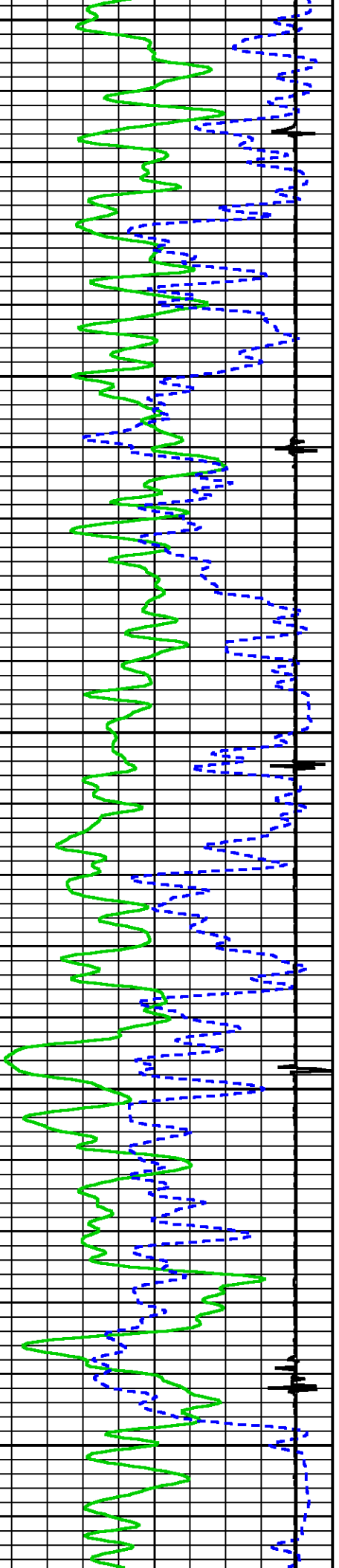
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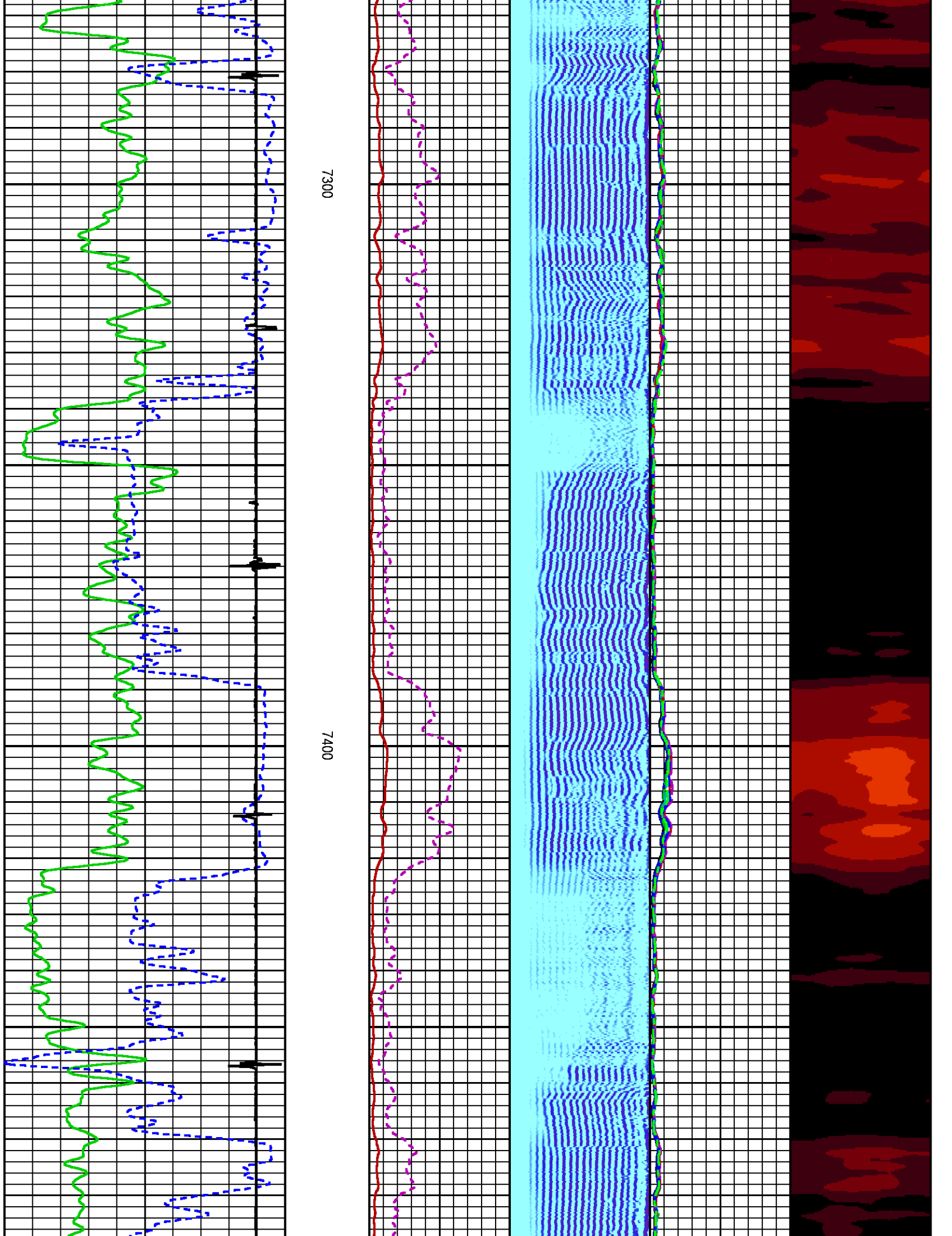


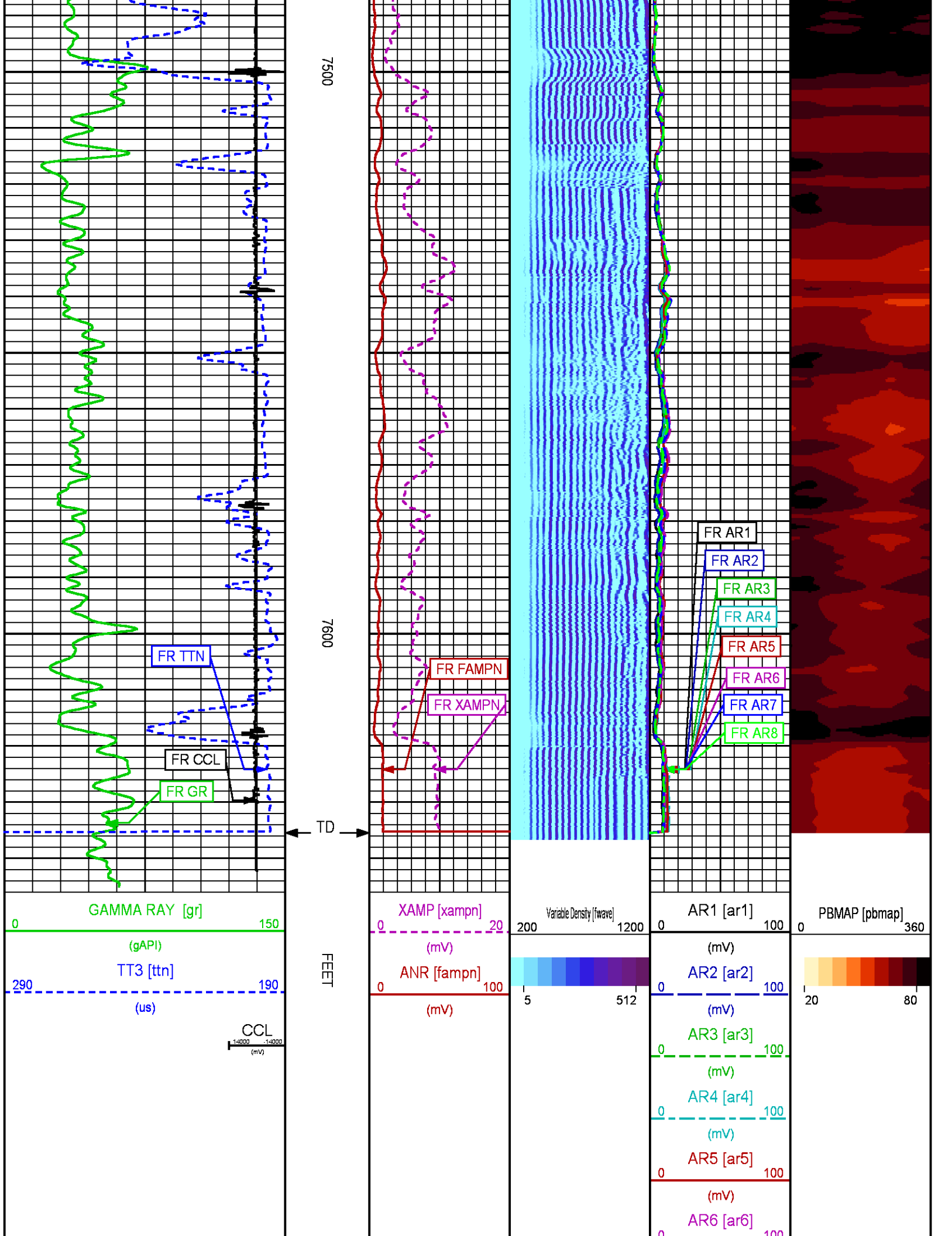


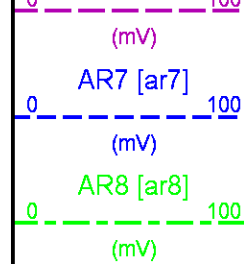
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7200









REPEAT PASS 0 PSI

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
 Updates: 1 Patches: 9

Plotted: Thu Jul 20 15:55:46 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LAREME_BRUTON_19_20E/n012g01.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 7346.750 ft BOTTOM DEPTH: 7630.000 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		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	187	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	187	us	"	"
	AMP WINDOW START (fgp3*)	187	us	"	"
	AMP WINDOW START (fgp4*)	187	us	"	"
	AMP WINDOW START (fgp5*)	187	us	"	"
	AMP WINDOW START (fgp6*)	187	us	"	"
	AMP WINDOW START (fgp7*)	187	us	"	"
	AMP WINDOW START (fgp8*)	187	us	"	"
	AMP WINDOW START (fgpn*)	187	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-67	us	"	"
	TOOL DELAY (str2*)	-67	us	"	"
	TOOL DELAY (str3*)	-67	us	"	"
	TOOL DELAY (str4*)	-67	us	"	"
	TOOL DELAY (str5*)	-67	us	"	"
	TOOL DELAY (str6*)	-67	us	"	"
	TOOL DELAY (str7*)	-67	us	"	"
	TOOL DELAY (str8*)	-67	us	"	"
	TOOL DELAY (strn*)	-67	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

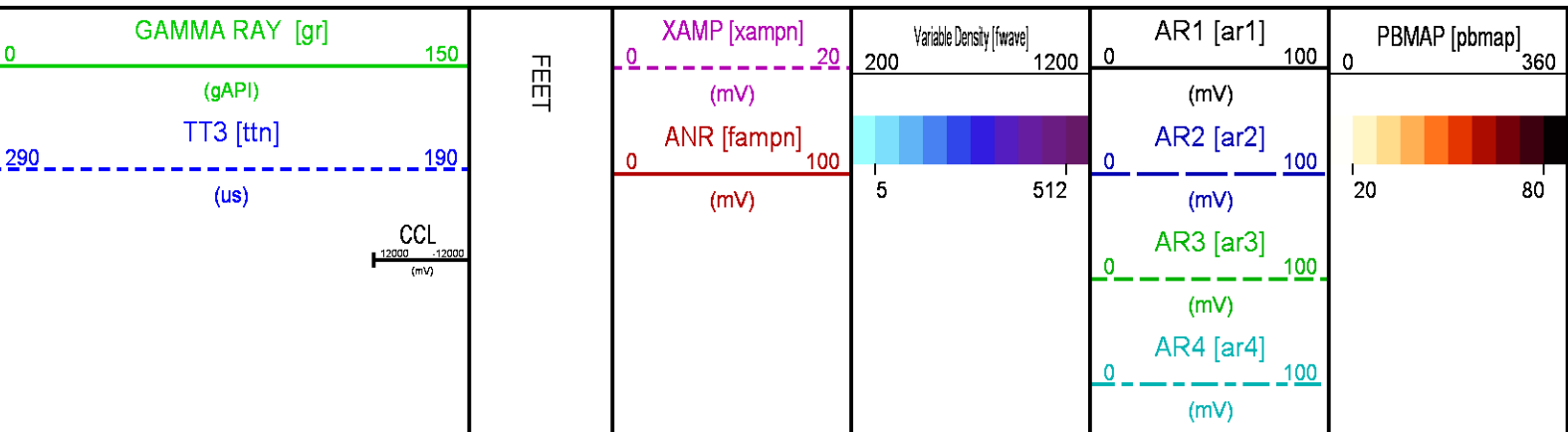
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R1
F1:AR2	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R2
F1:AR3	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R3
F1:AR4	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R4
F1:AR5	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R5
F1:AR6	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R6
F1:AR7	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R7
F1:AR8	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE T-R8
F1:CCL	Jul 20 15:42:09 2017	CASING COLLAR LOCATOR
F1:FAMPN	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Jul 20 15:42:09 2017	FAR WAVE FORM
F1:GR	Jul 20 15:42:09 2017	GAMMA RAY
F1:PBMAP	Jul 20 15:42:09 2017	PERCENT BOND CEMENT MAP
F1:TTN	Jul 20 15:42:09 2017	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Jul 20 15:42:09 2017	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

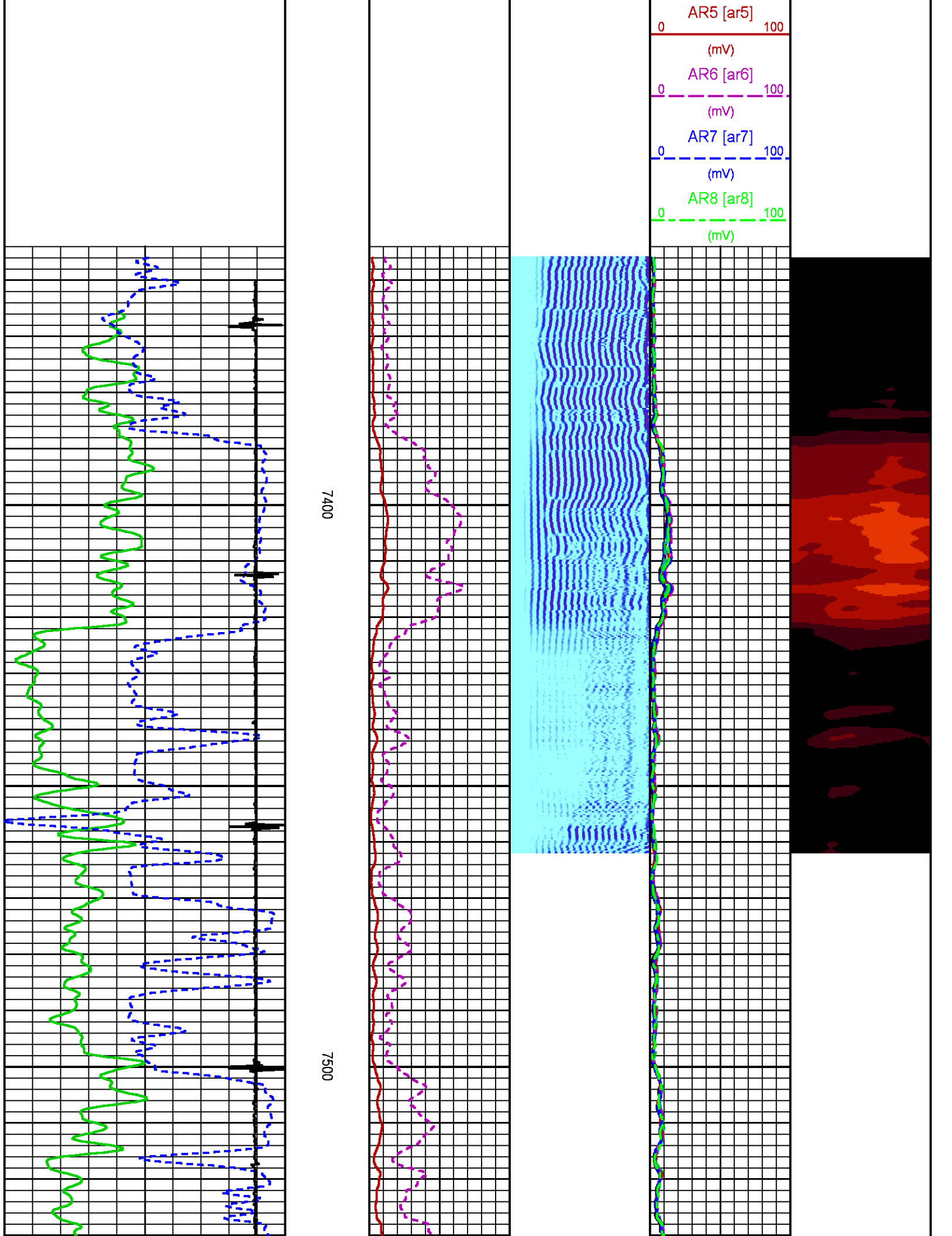
CURVE MEASURE POINT OFFSET

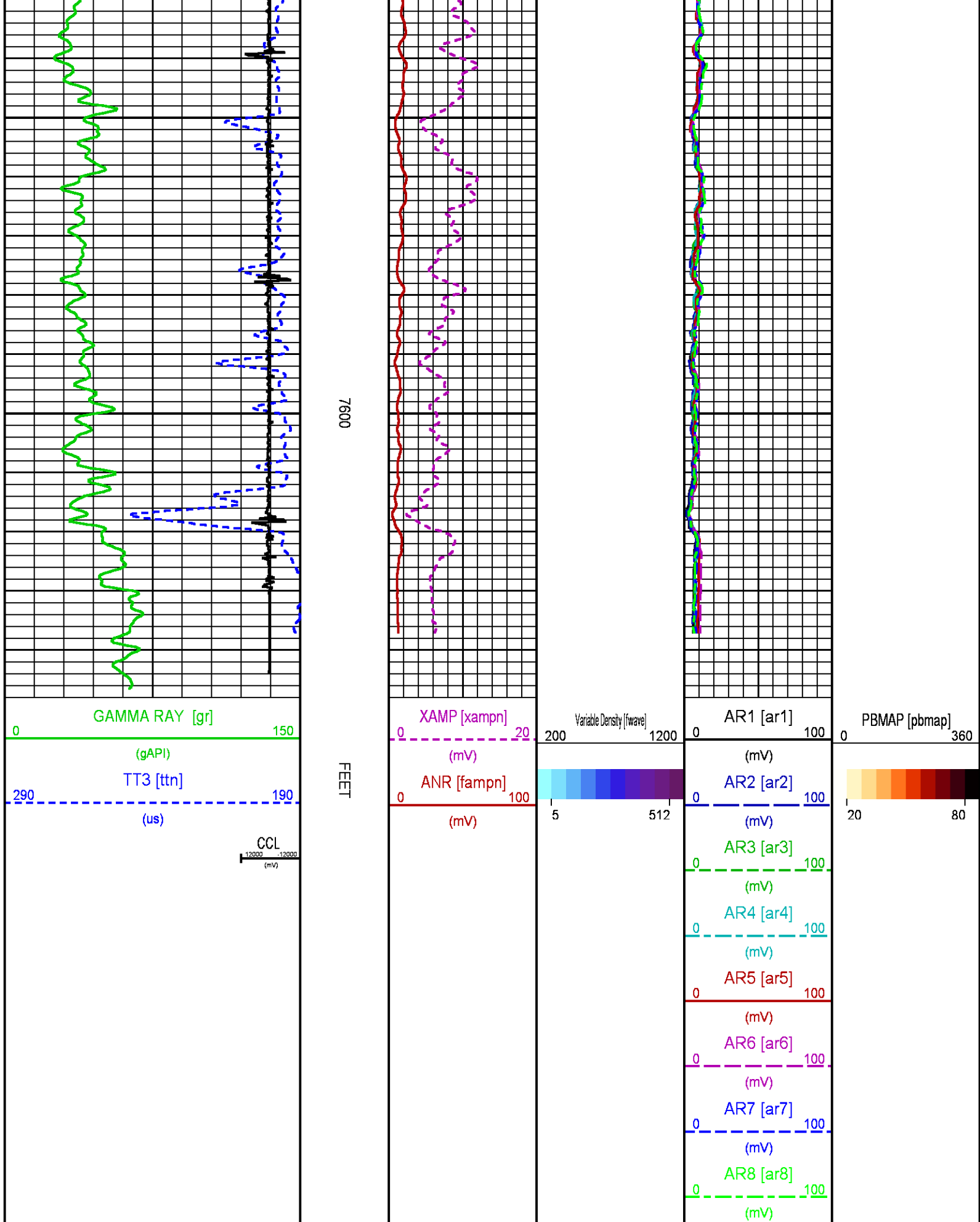
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	11.25	AR5	11.25	CCL	5.75	XAMPN	11.25
AR2	11.25	AR6	11.25	FAMPN	11.25		
AR3	11.25	AR7	11.25	GR	1.75		
AR4	11.25	AR8	11.25	TTN	11.25		

Presentation : cpu100:ral_all+01-REPEAT-BRUTON_19_20E_RAL_RPT-5.fvpdf [5"/100' Scale]
Plot Interval : 7336.25 - 7628.75 Feet

Data File 1 : F1 : cpu100:/dat1a/LAREME_BRUTON_19_20E/BRUTON_19_20E_RAL_RPT.xtf
Created On : Jul 20 15:42:09 2017
Company : LARAMIE ENERGY
Well : BRUTON 19-20E
Field : VEGA
File Interval : 7335.25 - 7630 Feet
OCT : n012g







CALIBRATION / VERIFICATION SUMMARY

Source File: \dat1a\AREME_BRUTON_19_20E\m012g.tp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10218497

DATE/TIME PERFORMED: Thu Jul 20 15:13:13 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

RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA 10218497

DATE/TIME PERFORMED: Thu Jul 20 15:14:21 2017

DAYS SINCE CAL: 0

UNIT #: 3880TA HL6670

CABLE #: 6670SM SMALL6670

	NEAR (mV)	R1 (mV)	R2 (mV)	R3 (mV)	R4 (mV)	R5 (mV)	R6 (mV)	R7 (mV)	R8 (mV)	FAR (mV)	CAL (mV)
ZERO	-0.14	-0.11	-0.05	0.01	0.02	-0.02	-0.01	-0.13	-0.05	0.28	-0.00
AMP AIR	0.89	0.40	0.16	0.96	1.00	0.98	1.32	0.99	0.78	0.87	99.82
SHOP M FACTOR	1.08	SHOP A FACTOR	0.00	WIRELINE FACTOR	1.00						

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

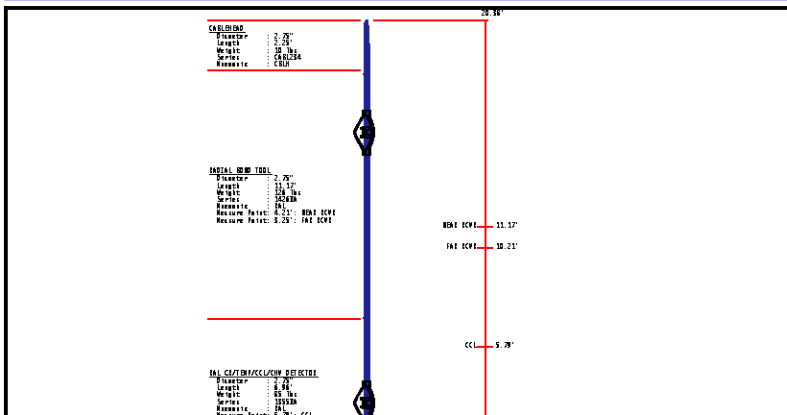
UNIT #: 3880TA HL6670

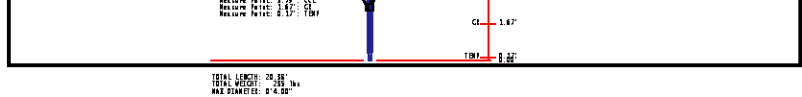
VERI JIG #: 4702NK DA_228

	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
						56.00 - 103.00

INSTRUMENT CONFIGURATION

Source File: \dat1a\AREME_GUNDERSON_20_02\WIRAL55-1dg





COMPANY LARAMIE ENERGY
WELL BRUTON 19-20E
FIELD VEGA
COUNTY MESA STATE COLORADO

FILE NO: _____
API NO: 05077103780000

LOCATION:
SHL: LAT:39.255232N;LONG:107.806537W
BHL: LAT:39.256513N;LONG:107.807083W
SEC 19 TWP 9S RGE 93W

ELEVATIONS:
KB 7449 FT
DF 7448 FT
GL 7425 FT

DATE 20-JUL-2017