



RADIAL CEMENT BOND LOG

FILE NO:	COMPANY	LARAMIE ENERGY II LLC
API NO:	WELL	NICHOLS 0994-24-01E
0507710406000	FIELD	VEGA
	COUNTY	MESA
	STATE	COLORADO

Ver. 4.10	LOCATION:	OTHER SERVICES
	SHL 1790 FNL 2780 FEL	RPM
	BHL 125 FNL 2780 FEL	
	SEC 24 TWP 9S RGE 94W	

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

DATE	13-Mar-2018
RUN	1
TRIP	1
SERVICE ORDER	US133006J
DEPTH DRILLER	7837 FT
DEPTH LOGGER	7785 FT
BOTTOM LOGGED INTERVAL	7784 FT
TOP LOGGED INTERVAL	0 FT
TIME STARTED	11:00
TIME FINISHED	15:00
OPERATOR RIG TIME	LOGGER
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	50 FT
LOGGED CEMENT TOP	4557 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	90 FMIN
MAX. RECORDED TEMP.	236 DEGF
REFERENCE LOG	NA
REFERENCE LOG DATE	NA
EQUIP. NO.	4291
LOCATION	R. ZUNIGA
GRAND JCT	
WITNESSED BY	NA

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: RAL/GR/CCL RUN CENTRALIZED

LOGGED WITH 0 PSI AT WELLHEAD

SJ: 6010-6028
SJ: 6935-6954

TOP OF CEMENT COULD NOT BE DETERMINED USING AS PER CUSTOMER REQUEST.

CREW: R. ZUNIGA, J. PENA, A. SHAHNOOSHI

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	10417452	CENTRALIZED
1	1	GR/CCL	1355XA	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: Tue Mar 13 16:52:02 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-01E/p012g02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 9.500 ft BOTTOM DEPTH: 7782.250 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	4000.00		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*)	169	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*)	-72	us	"	"
	TOOL DELAY (str2*)	-72	us	"	"
	TOOL DELAY (str3*)	-72	us	"	"
	TOOL DELAY (str4*)	-72	us	"	"
	TOOL DELAY (str5*)	-72	us	"	"
	TOOL DELAY (str6*)	-72	us	"	"
	TOOL DELAY (str7*)	-72	us	"	"
	TOOL DELAY (str8*)	-72	us	"	"
	TOOL DELAY (strn*)	-72	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	110	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	"	"

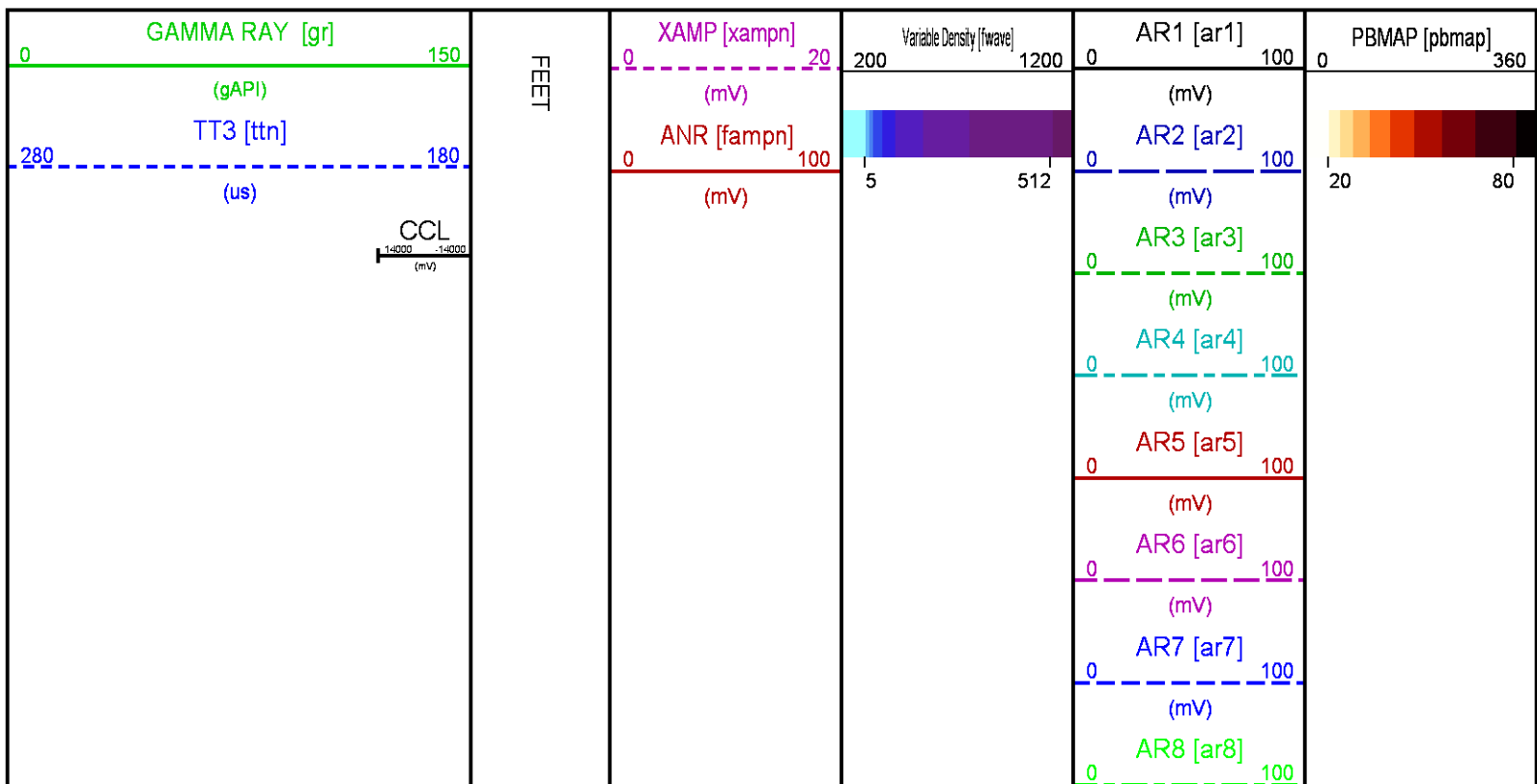
CURVE DESCRIPTION REPORT

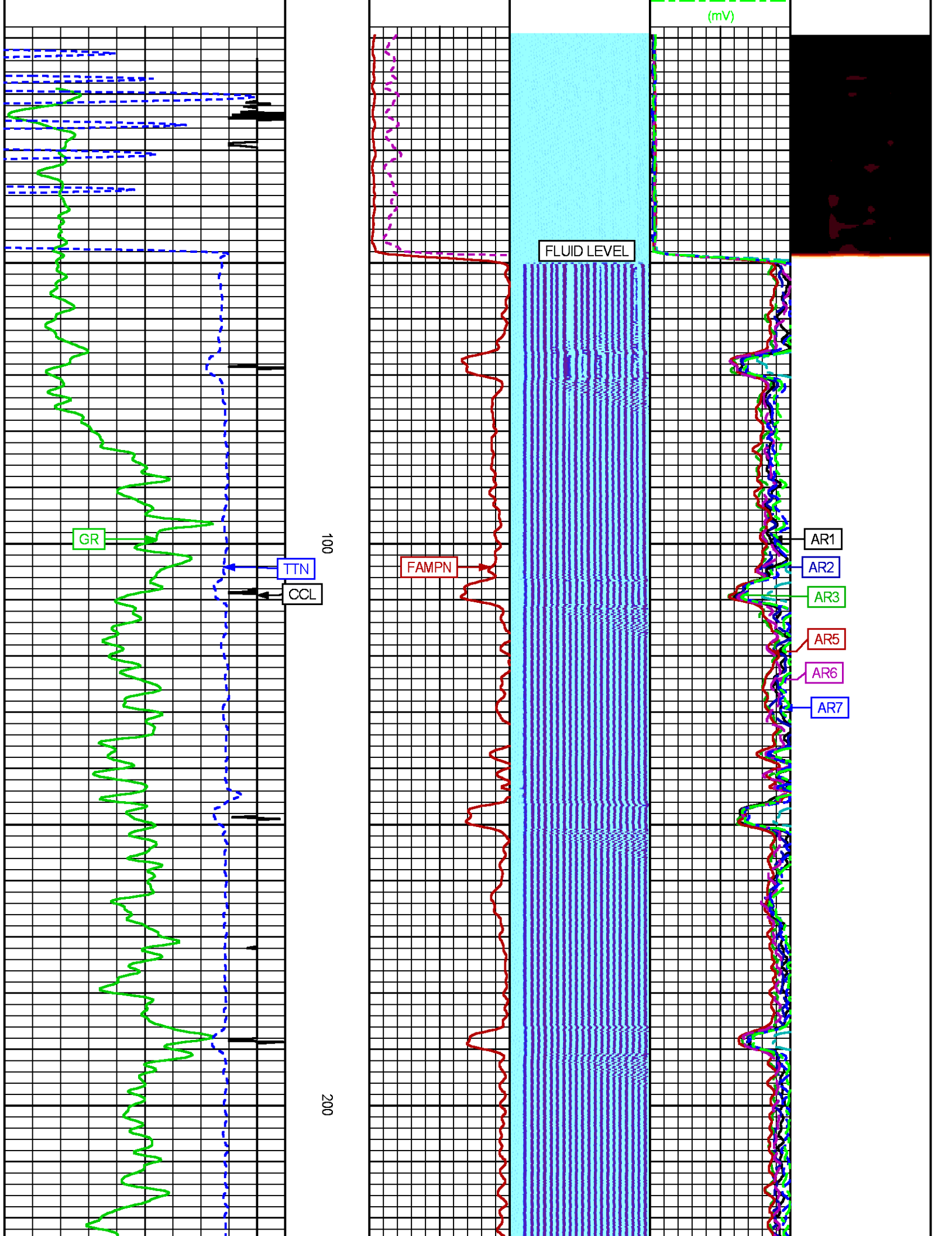
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

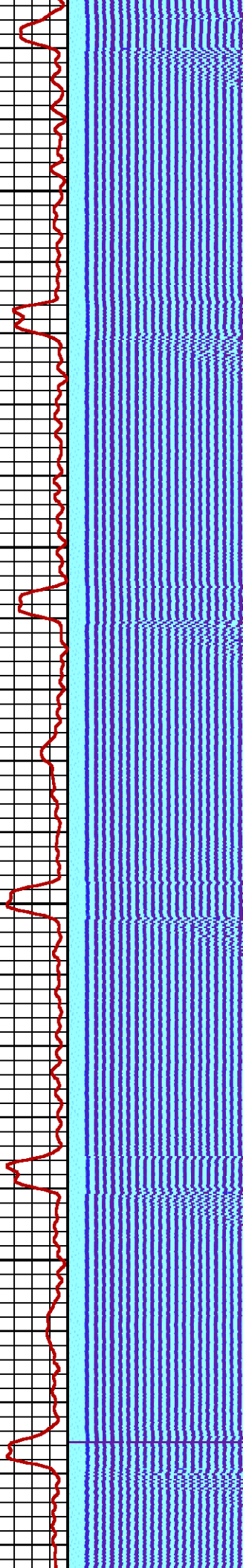
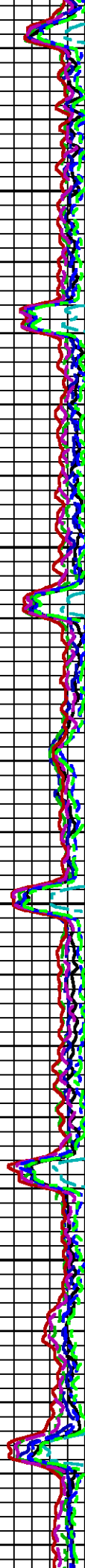
CURVE MEASURE POINT OFFSET

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		

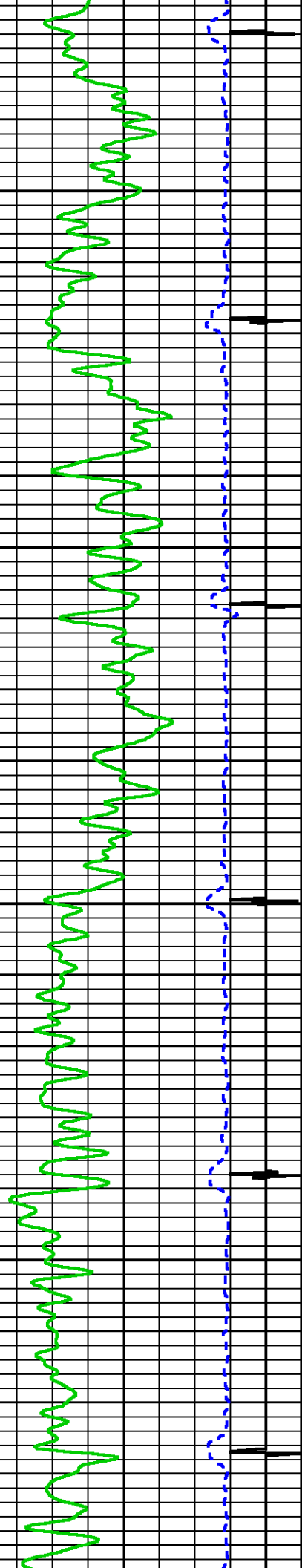
Presentation	: SysA:LARAMIE_RAL_MAIN.fvpdf [5"/100' Scale]
Plot Interval	: 9.25 - 7791 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-01E/RAL_MAIN.xtf
Created On	: N/A
Company	: LARAMIE ENERGY II LLC
Well	: NICHOLS 0994-24-01W
Field	: VEGA
File Interval	: 8.25 - 7792.25 Feet
OCT	: p012g

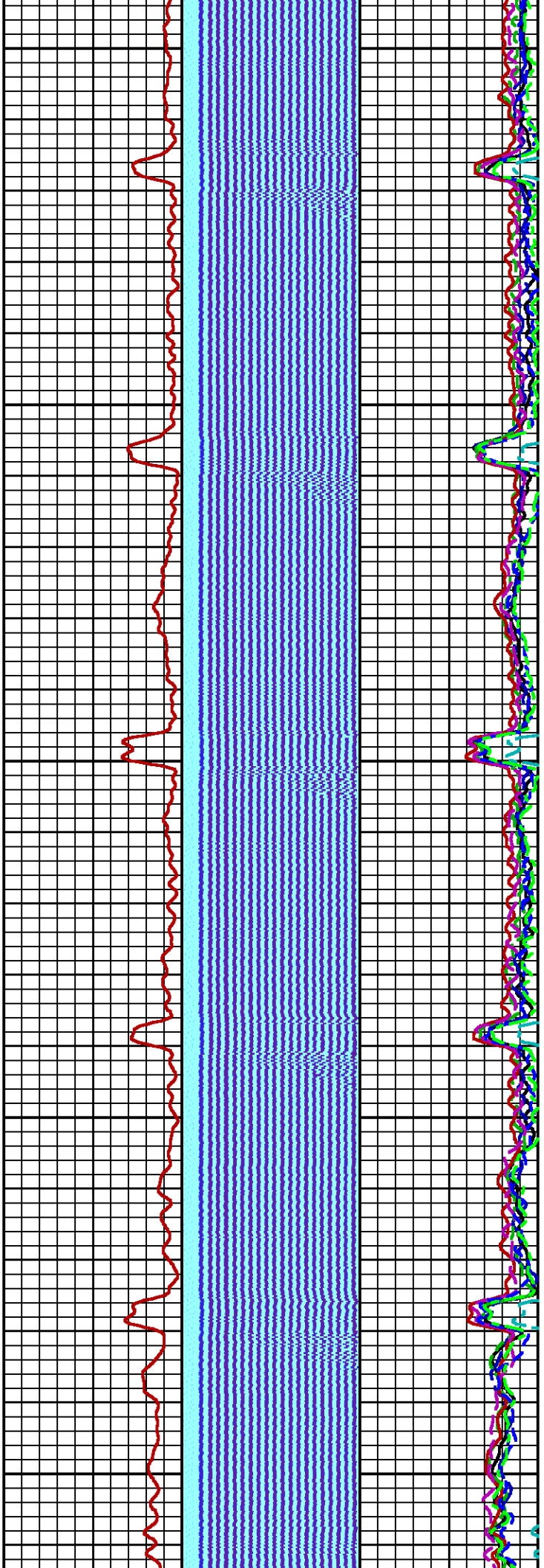






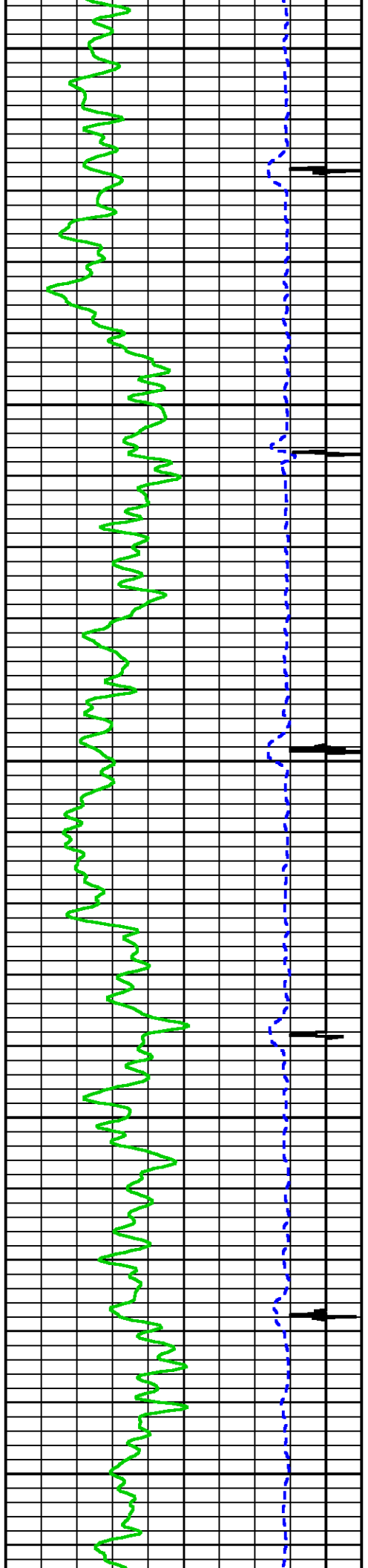
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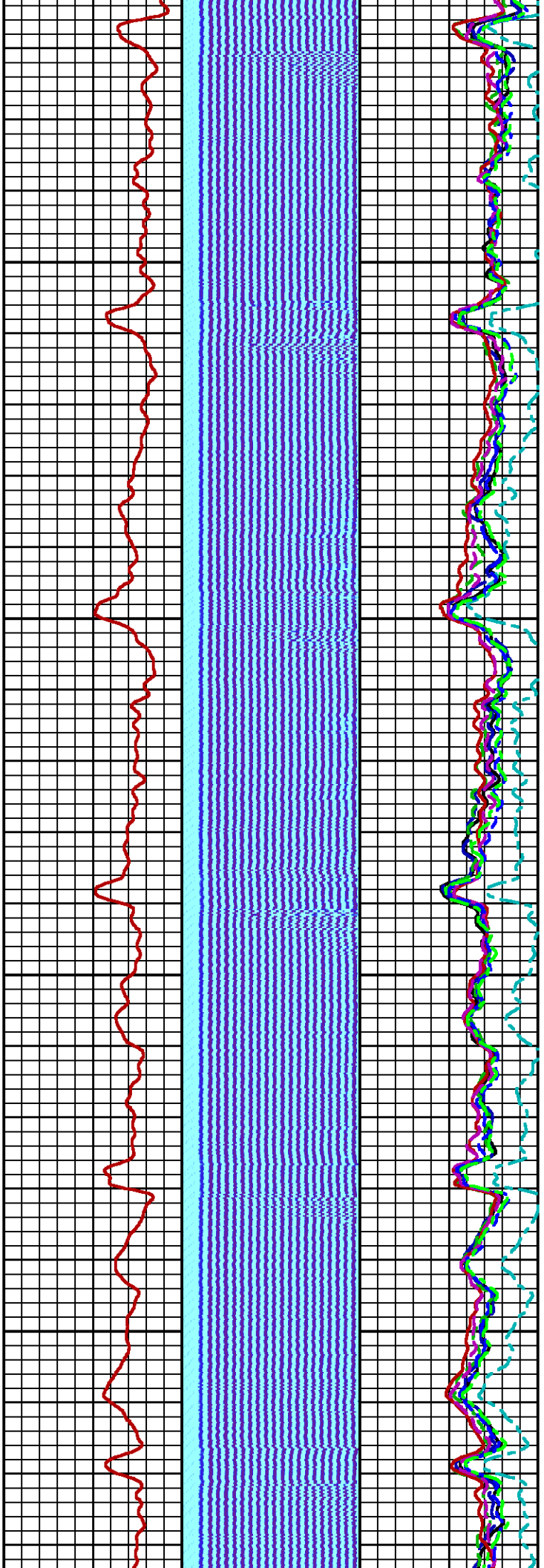




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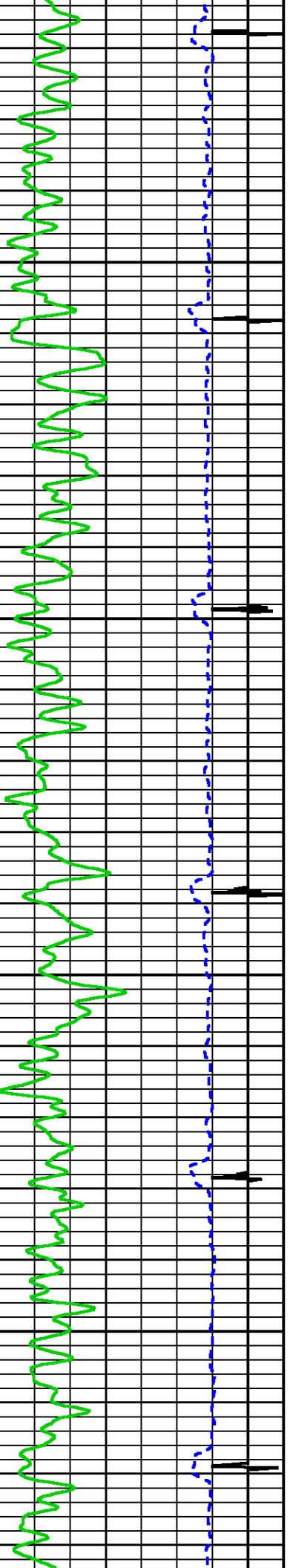
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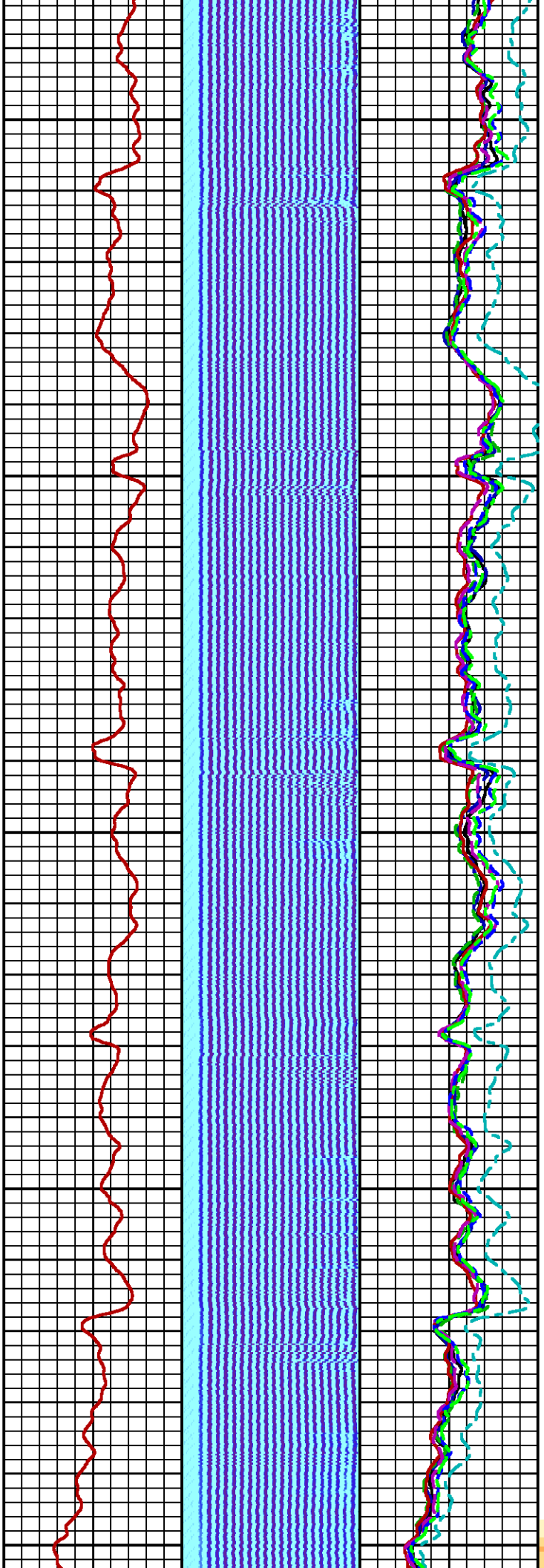




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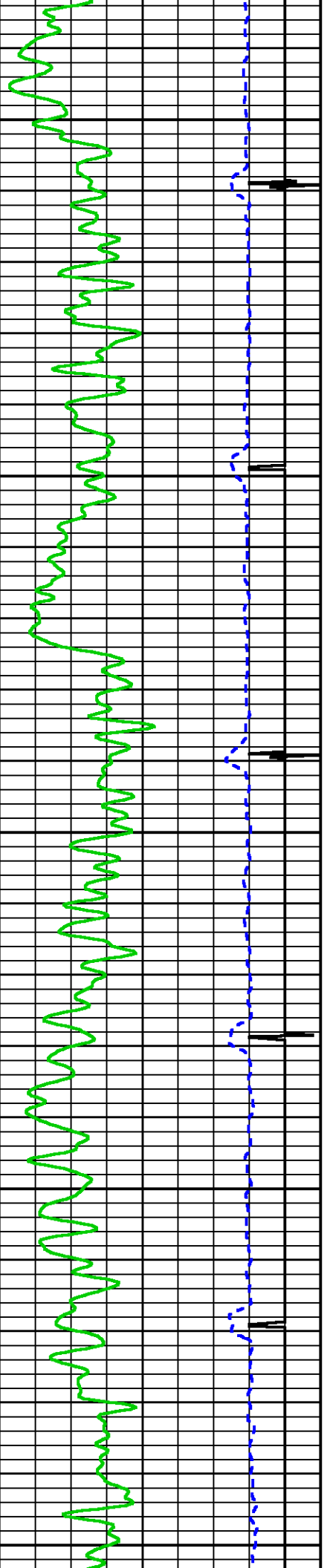


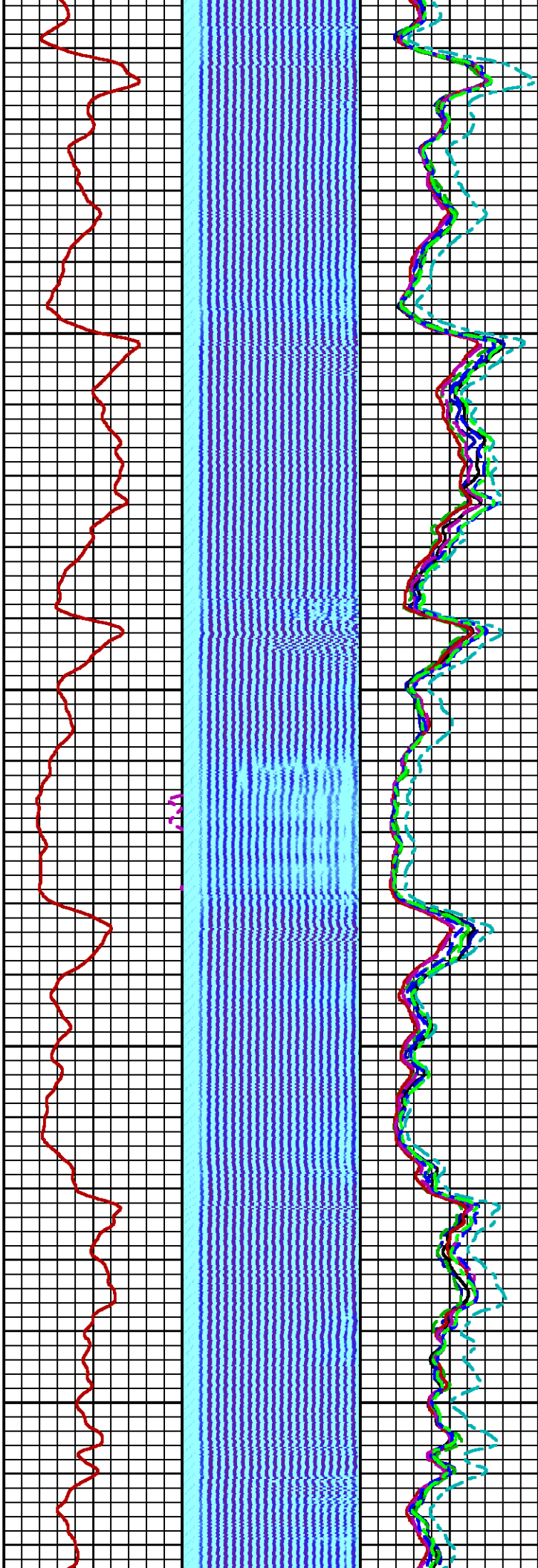
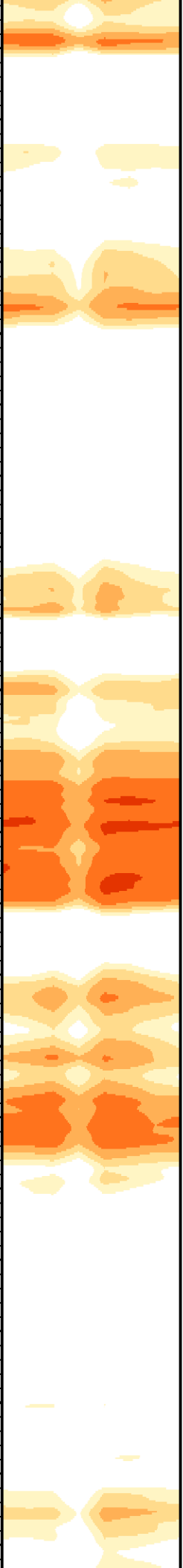


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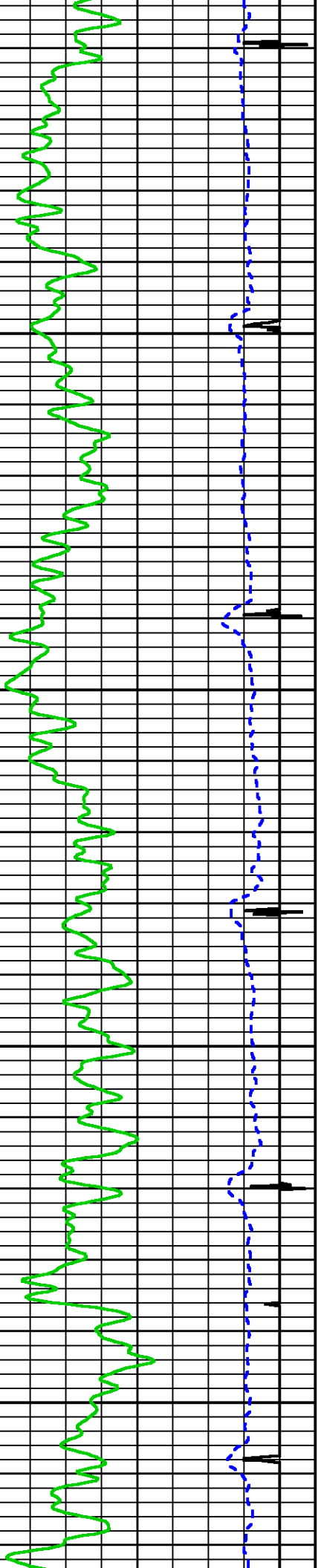
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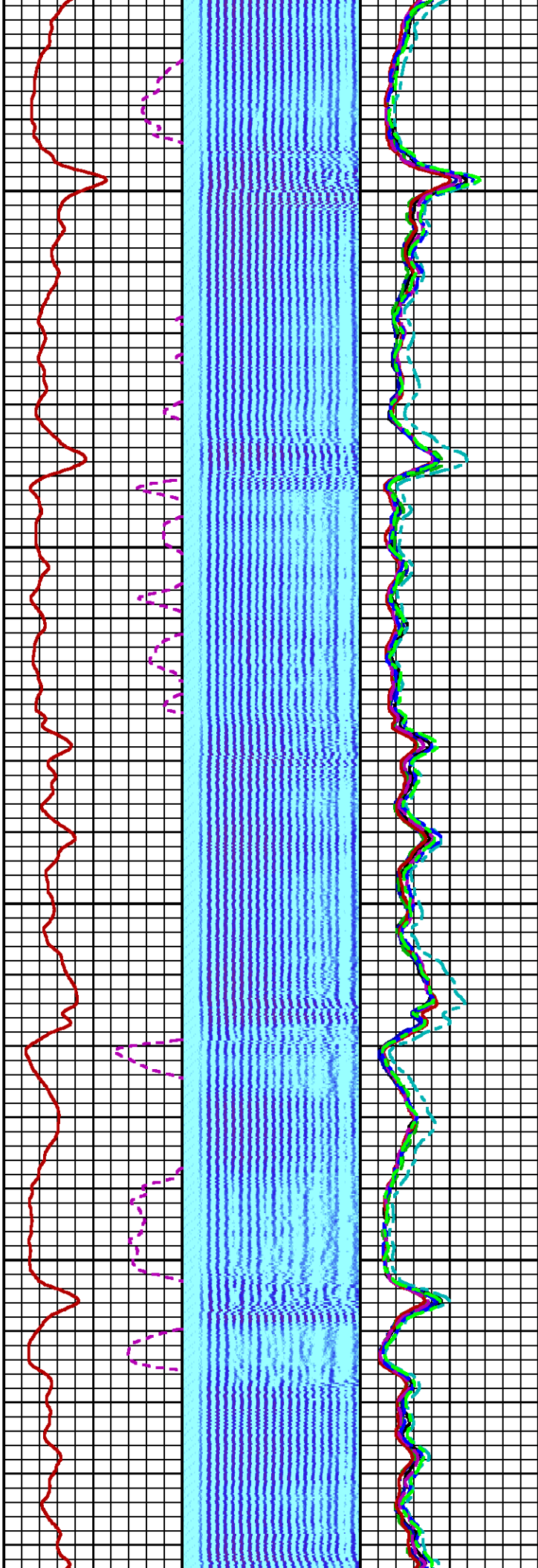




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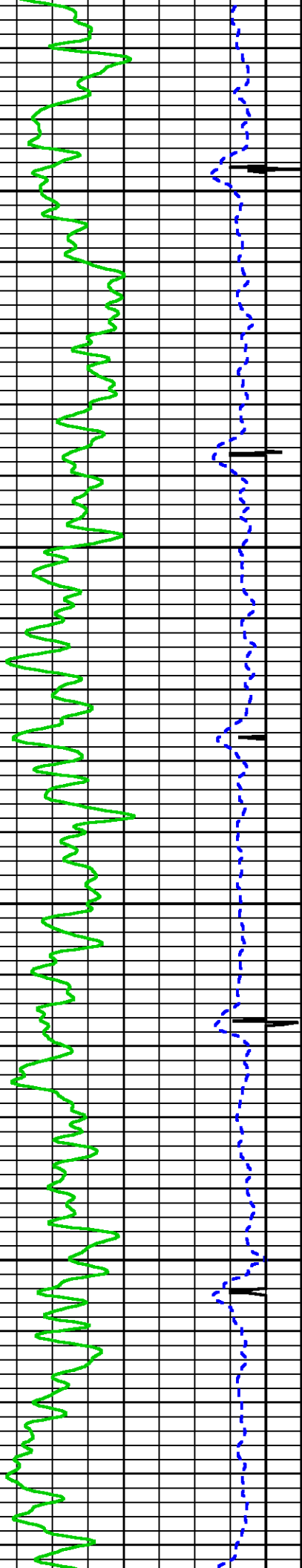
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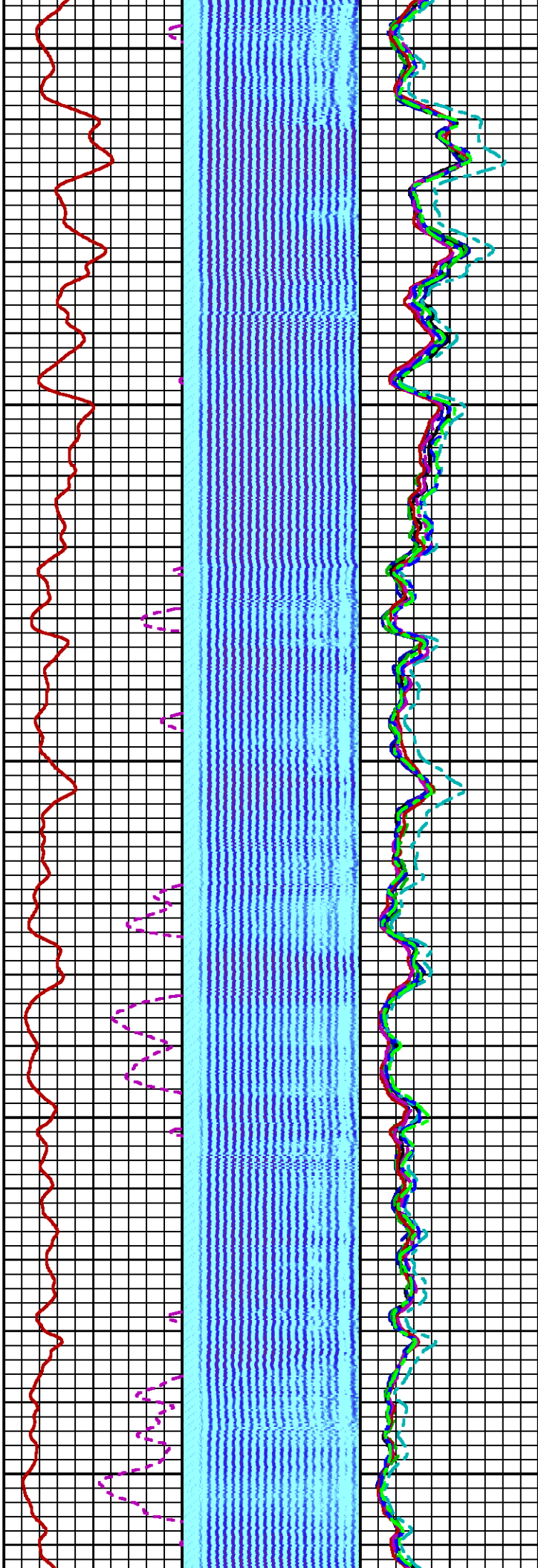
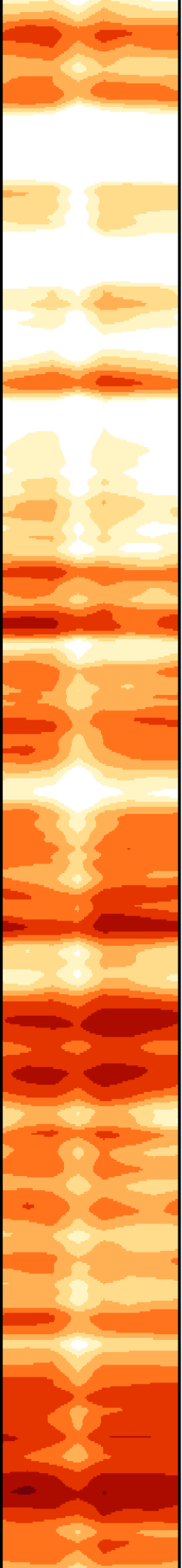




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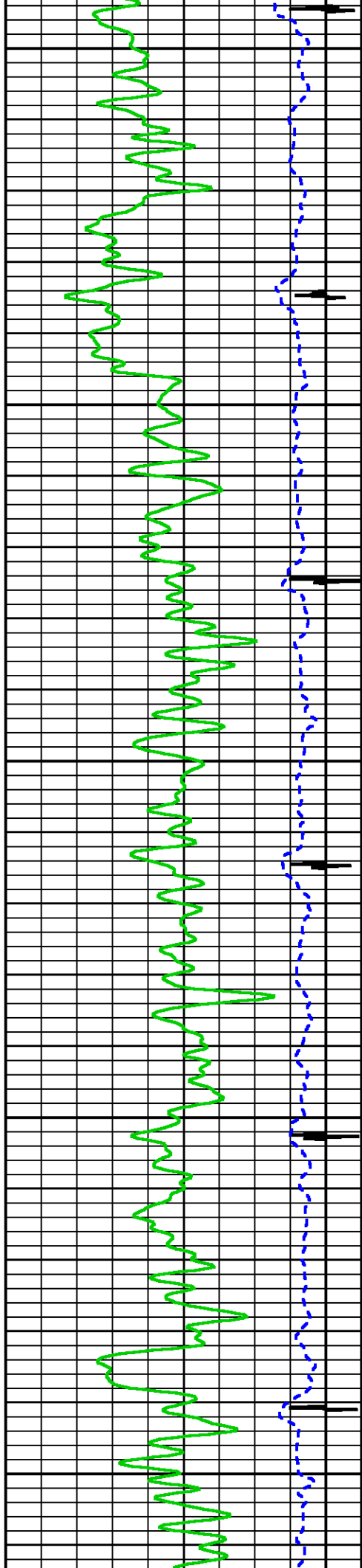
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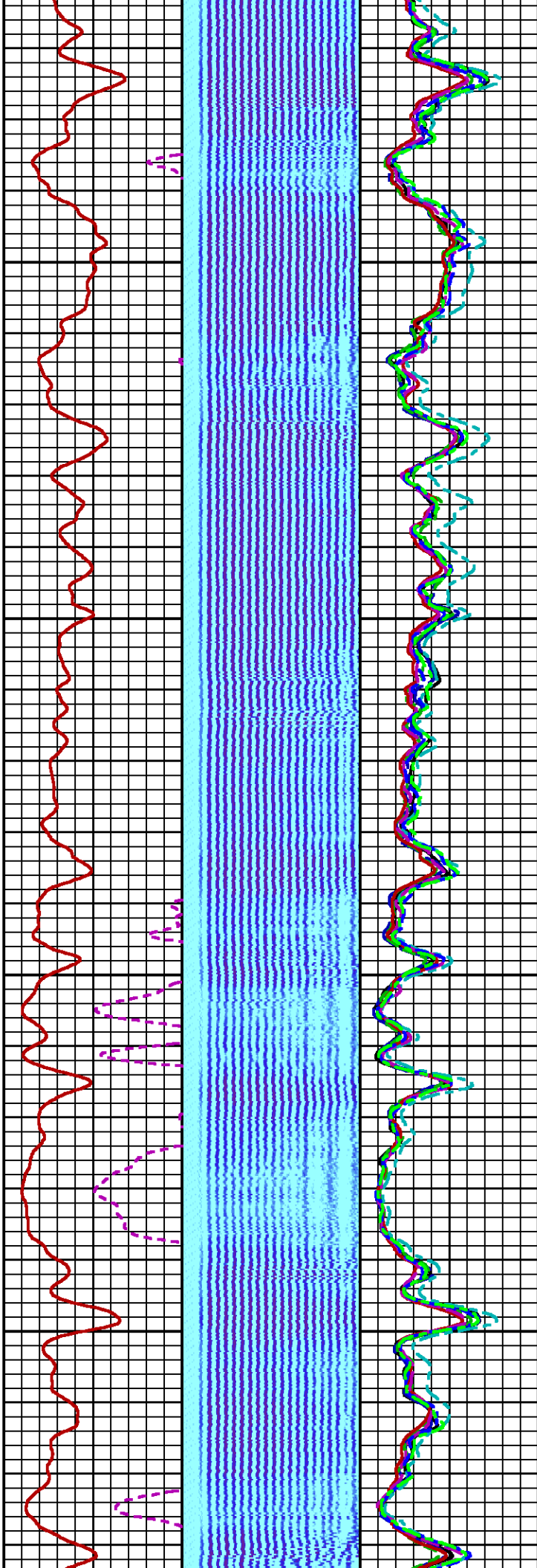
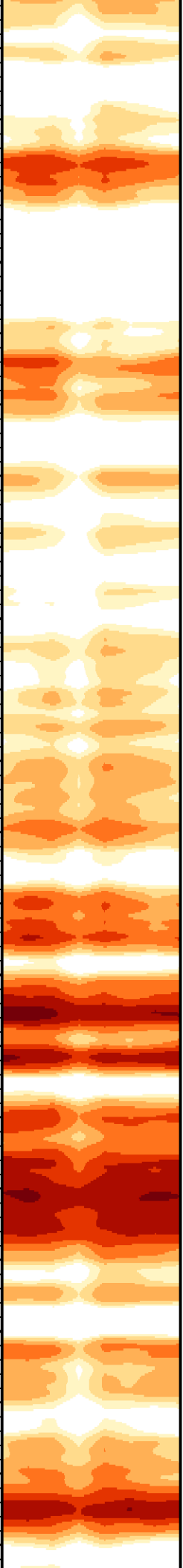




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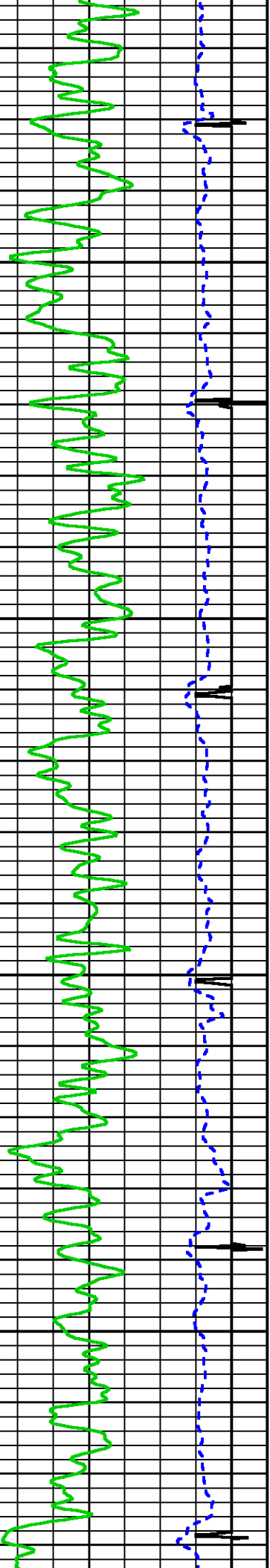
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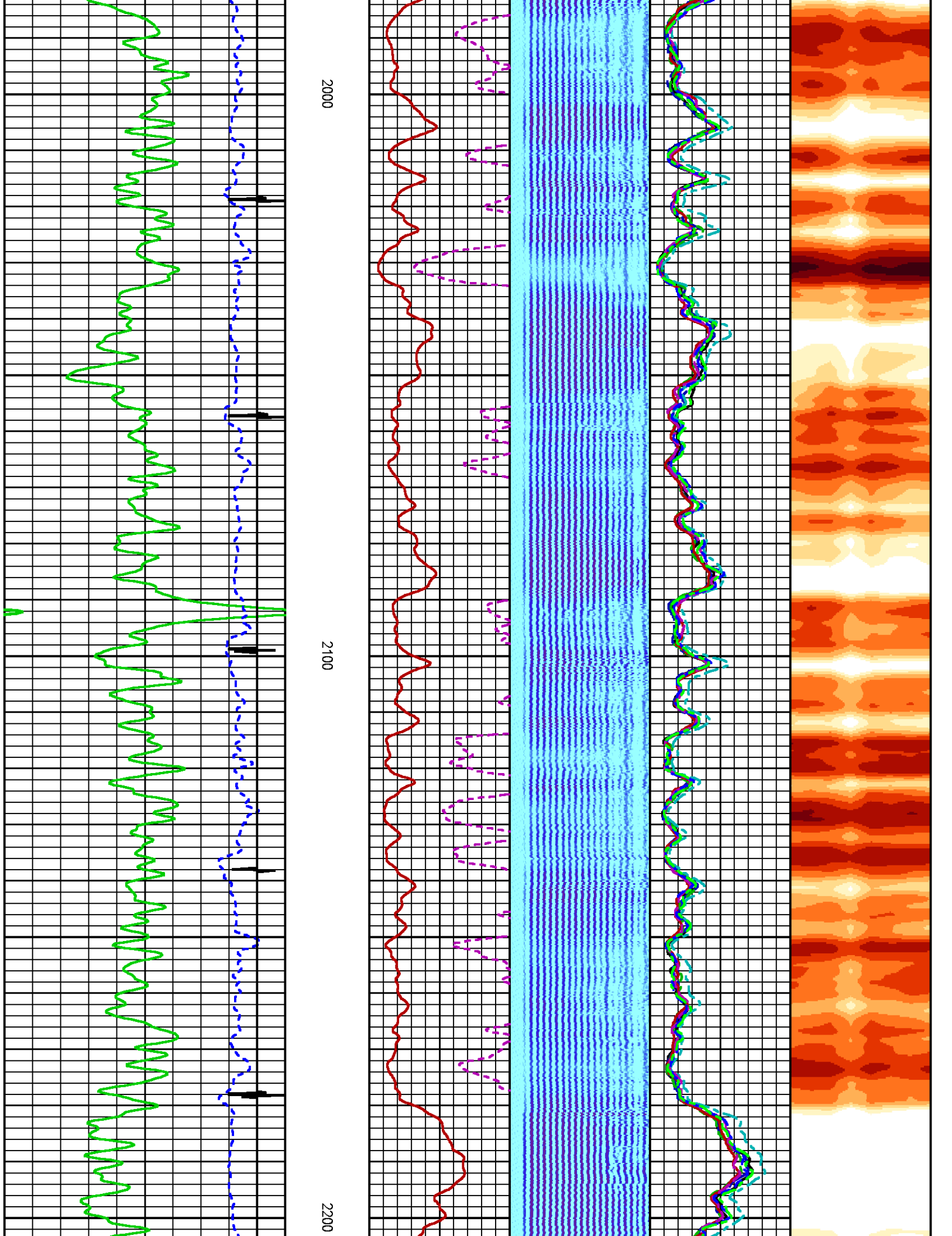


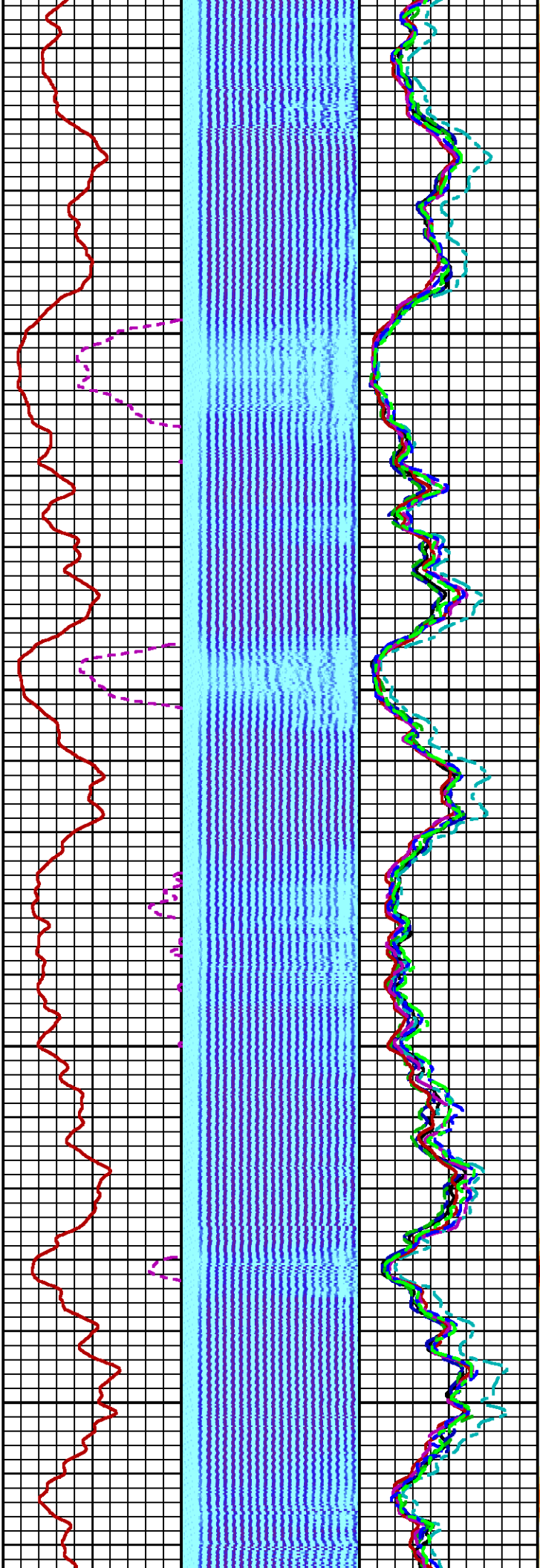
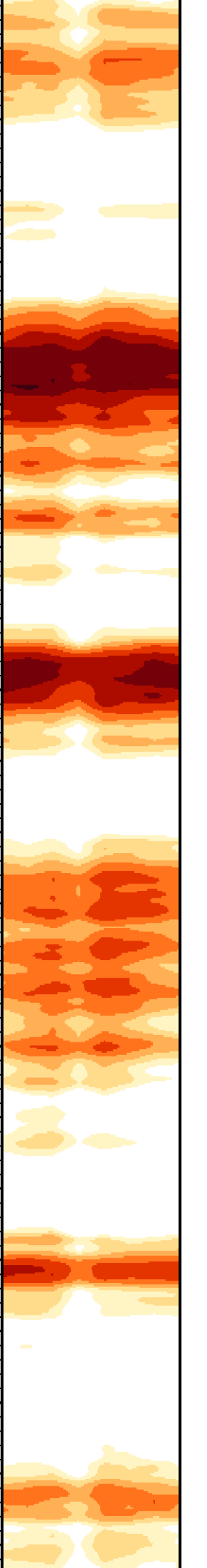


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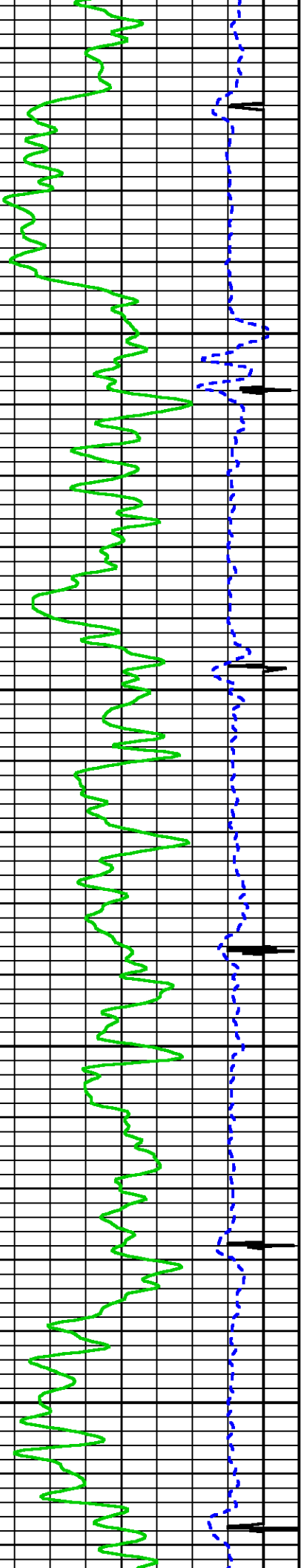


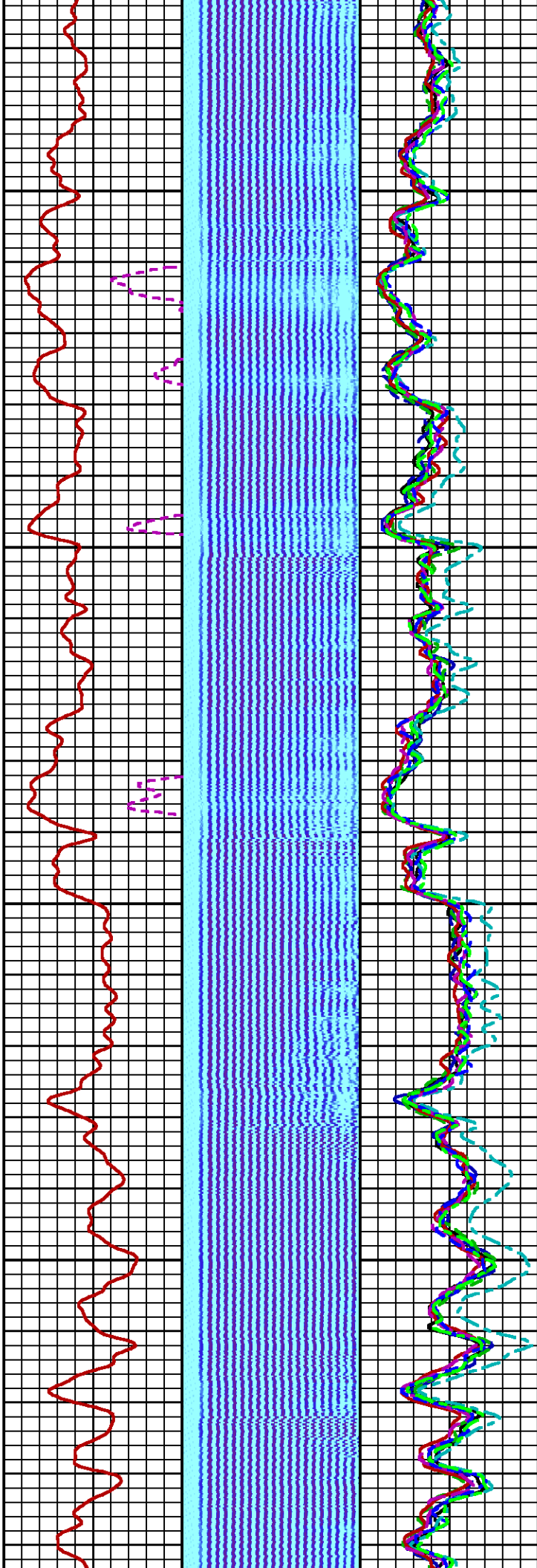
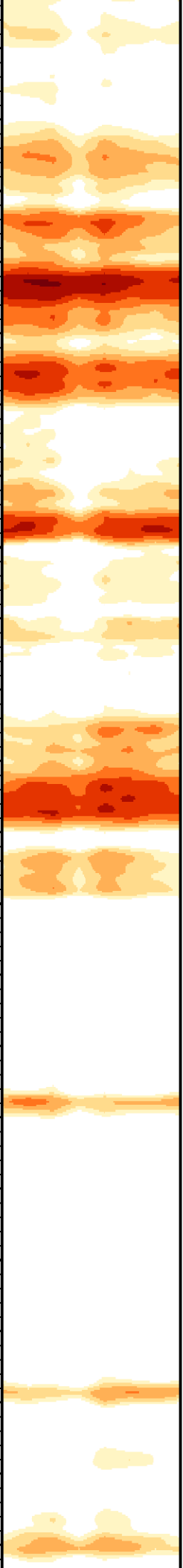




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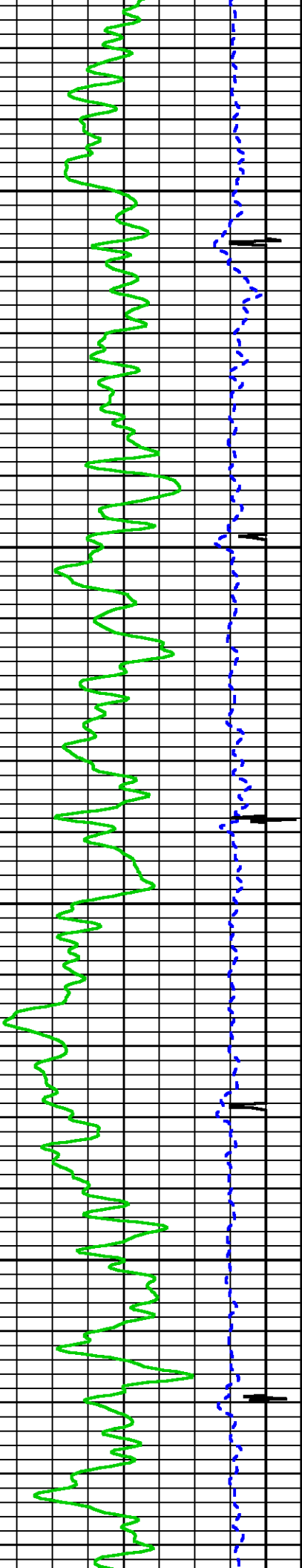
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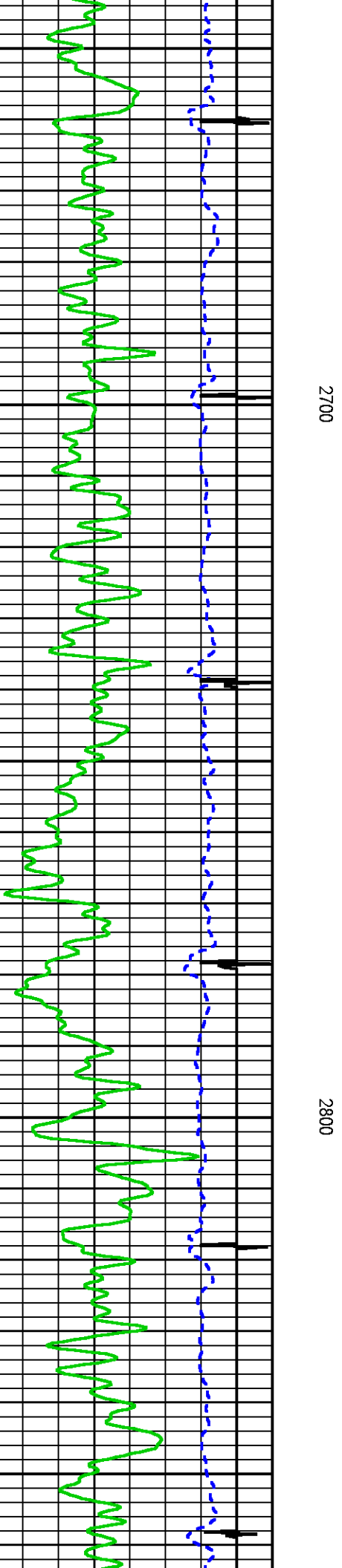
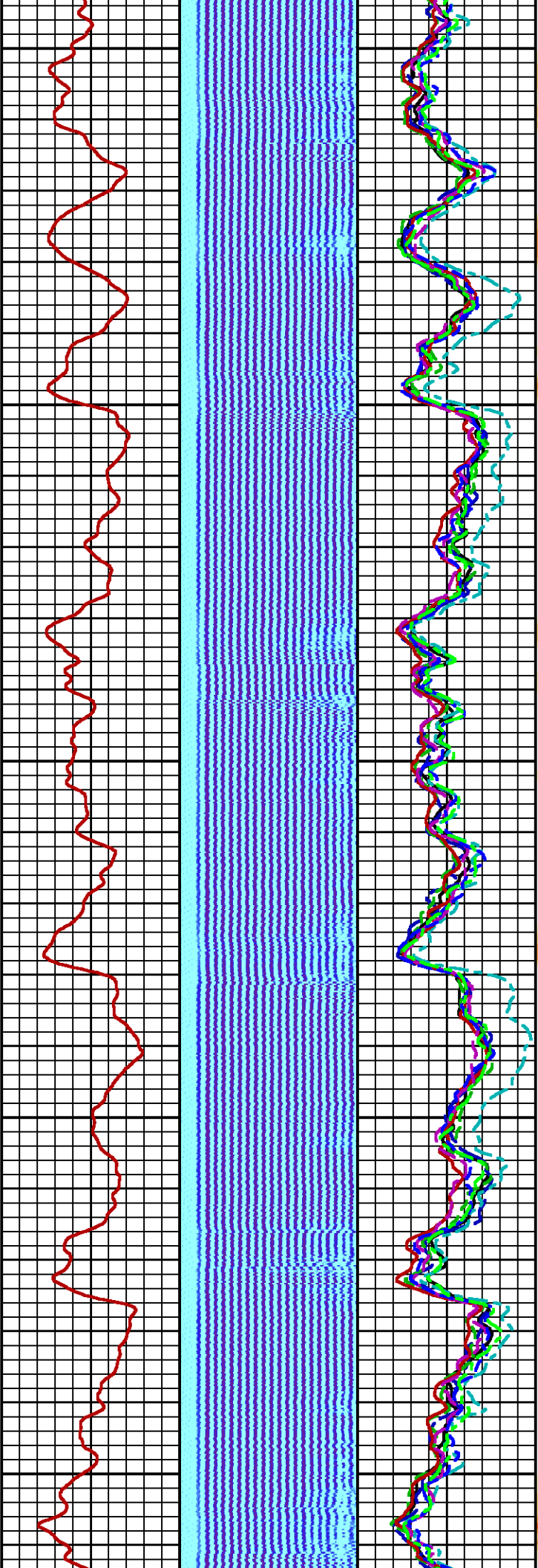


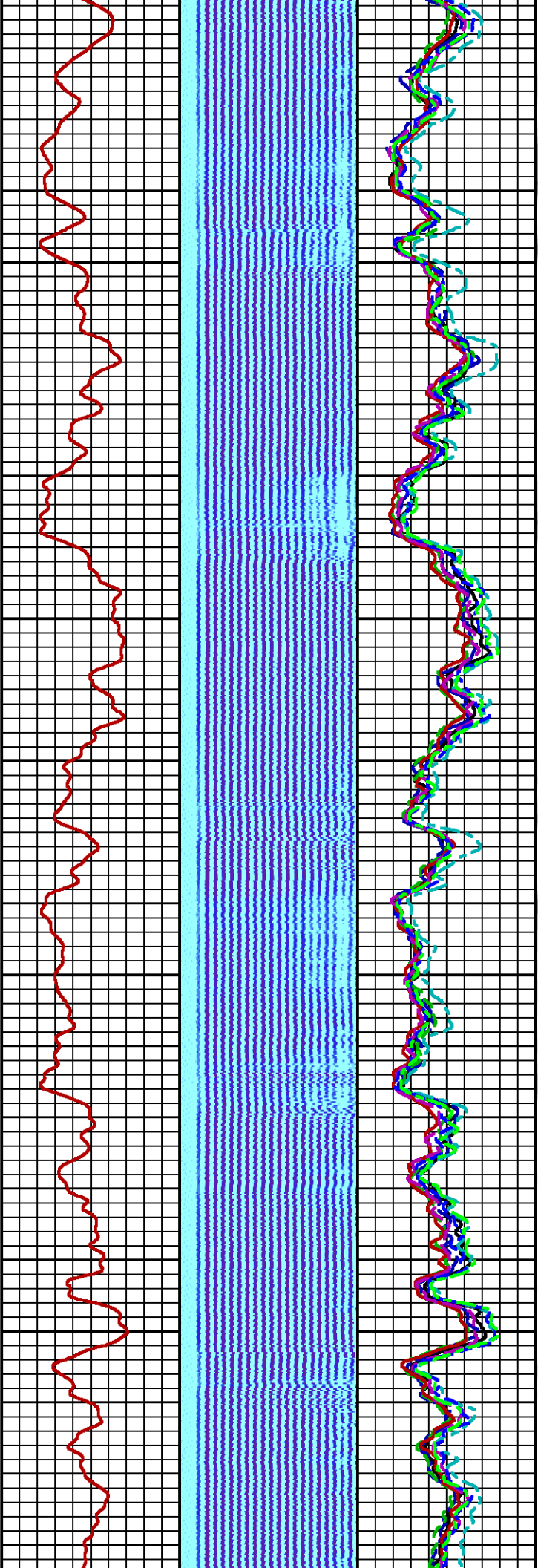
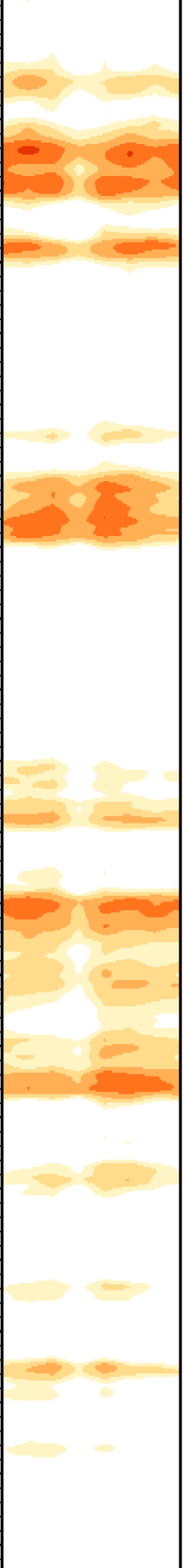


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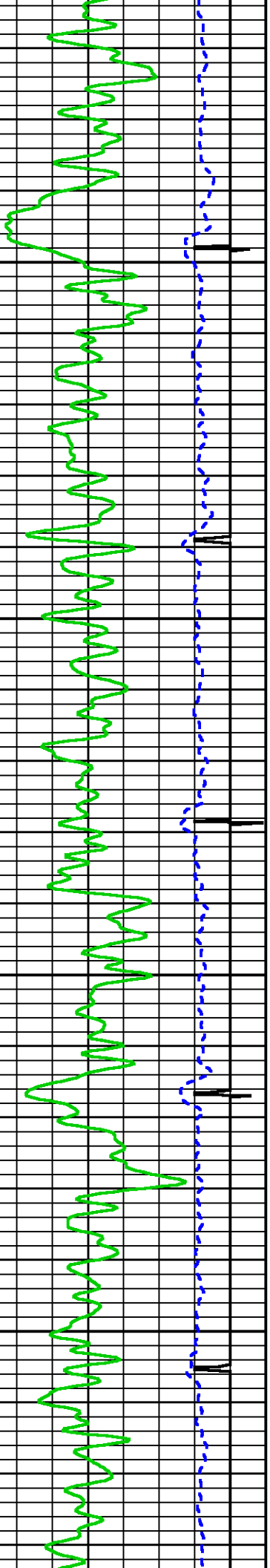


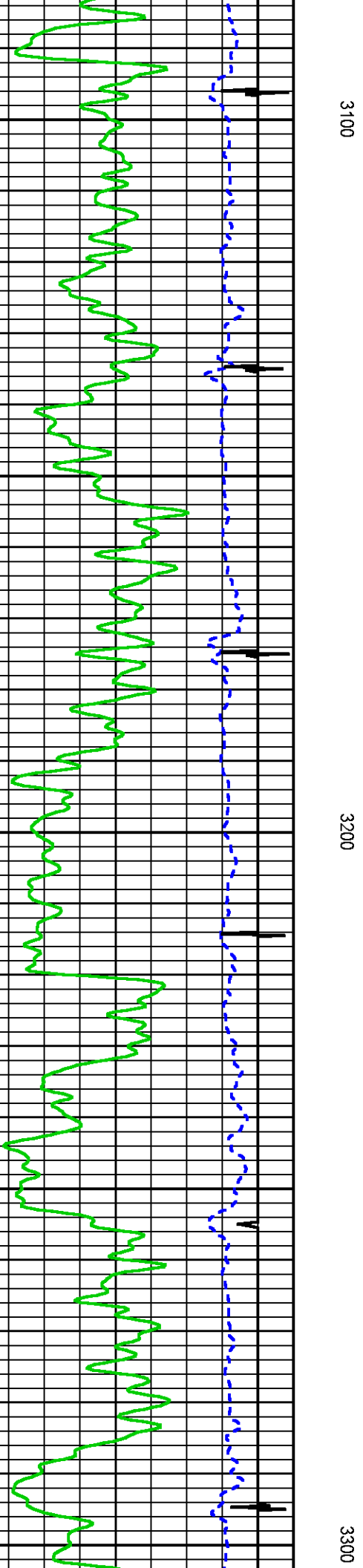
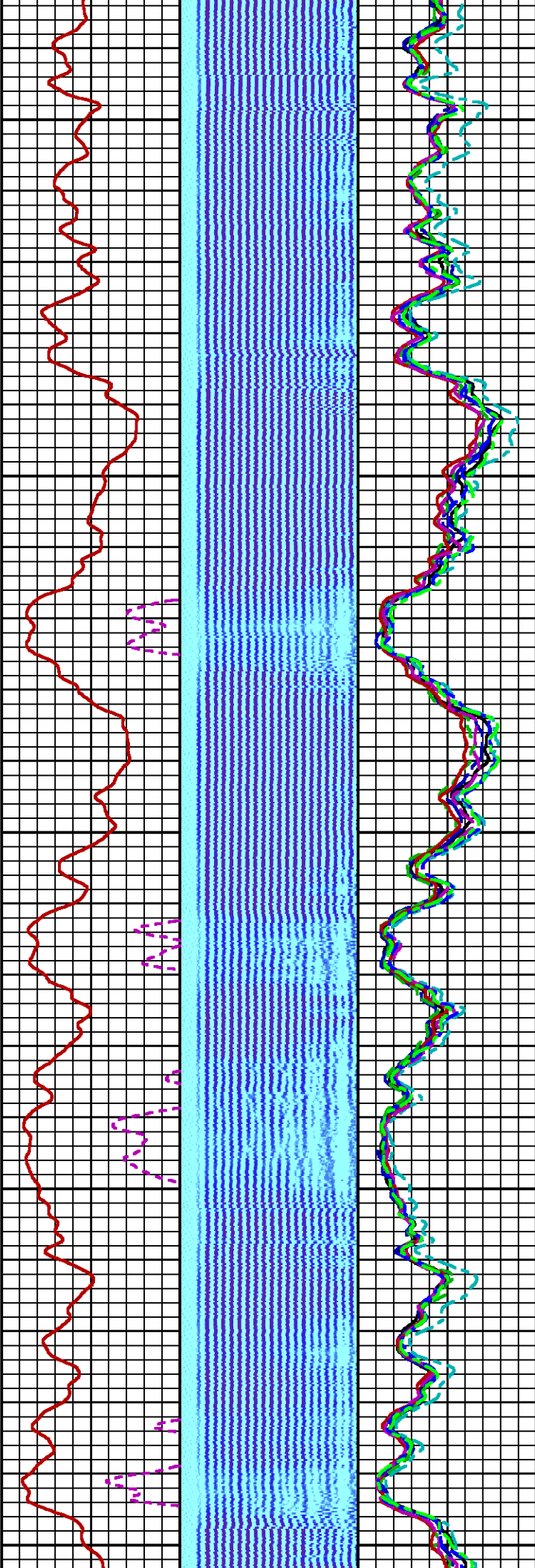
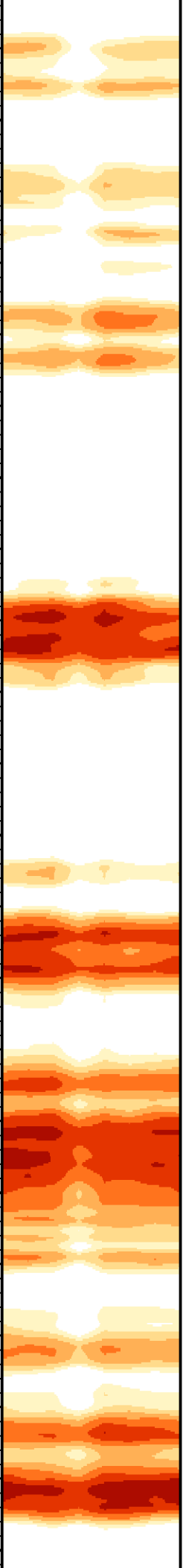


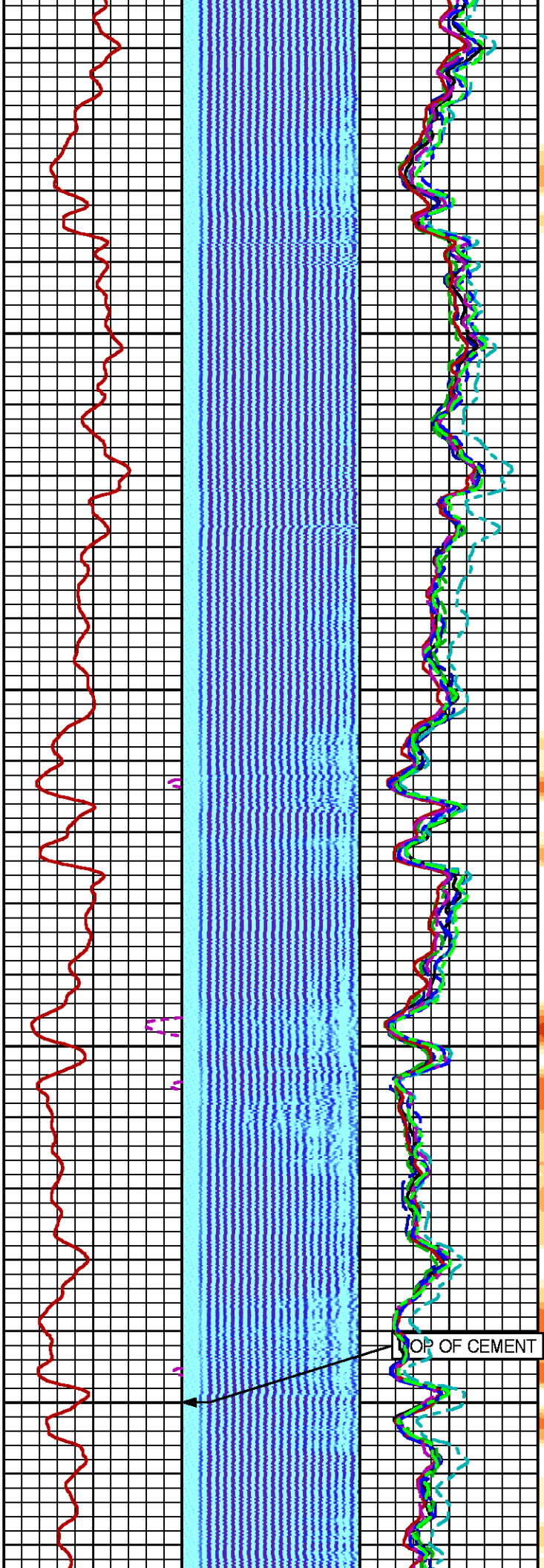
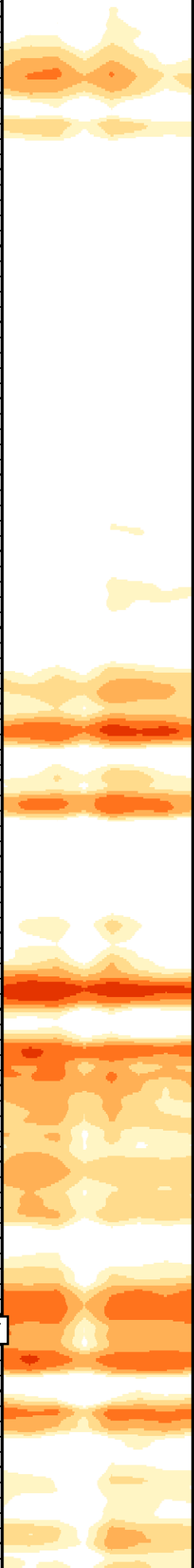


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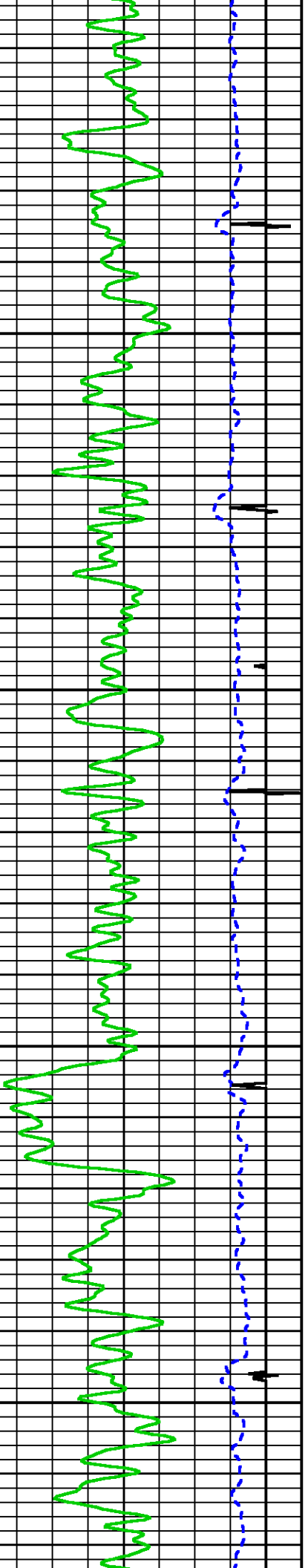
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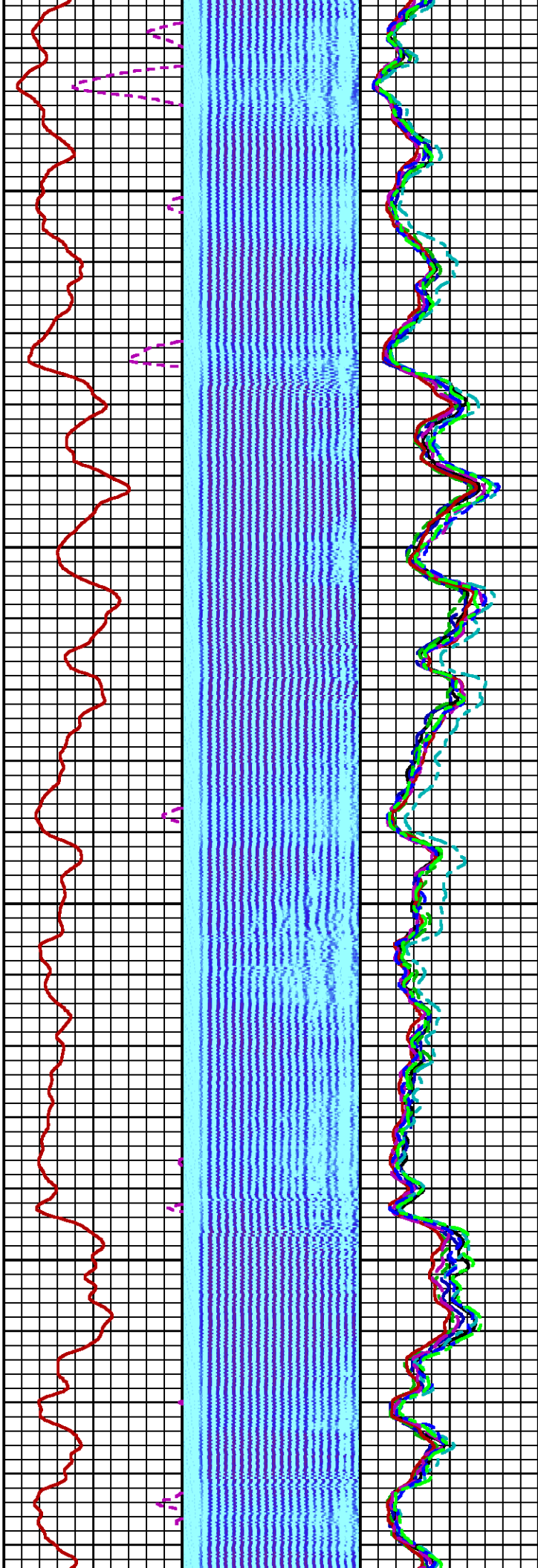
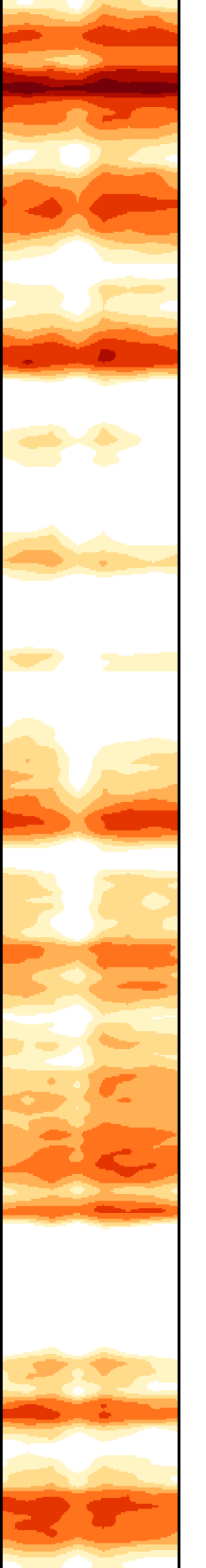






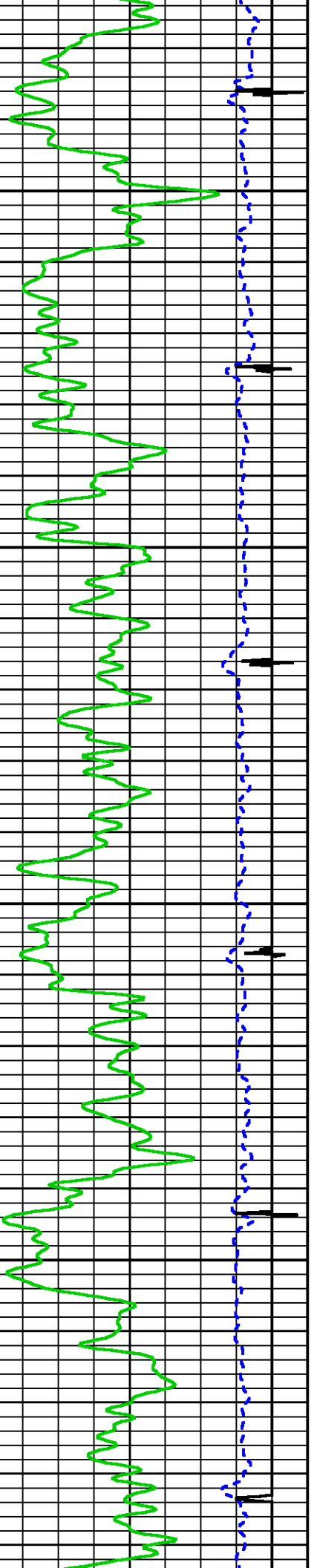
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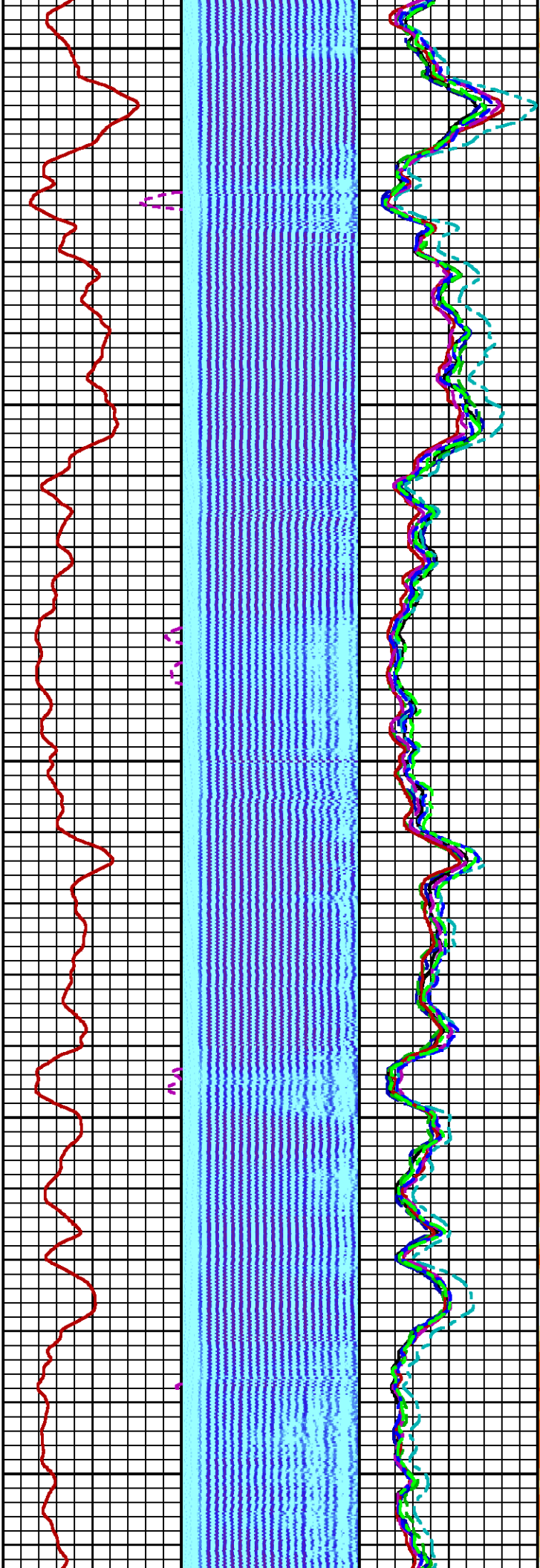
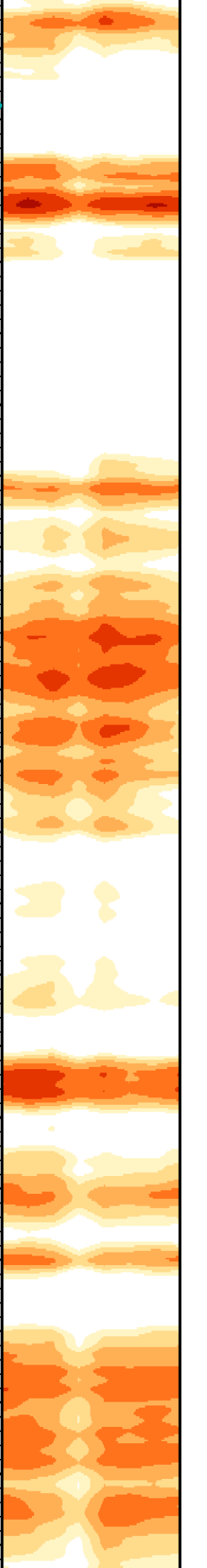




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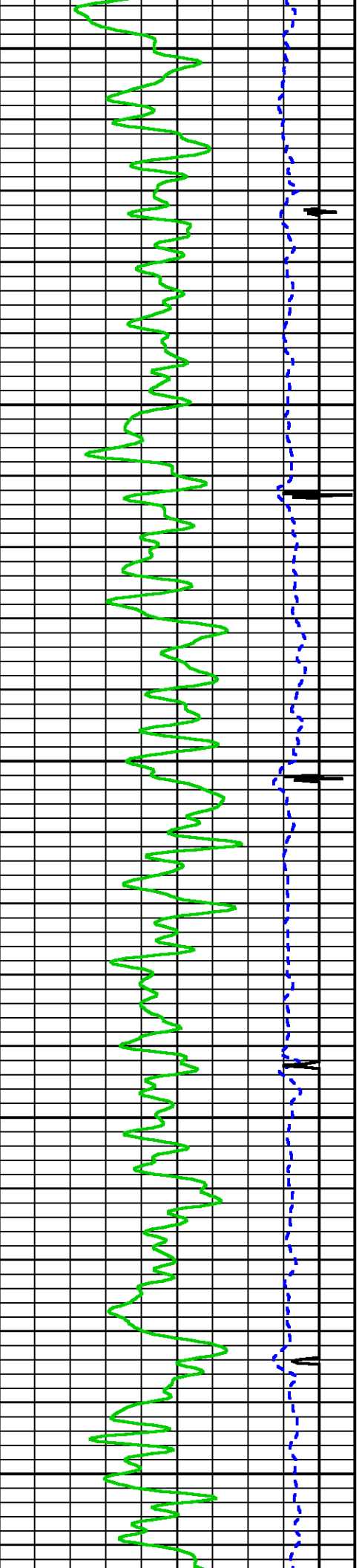
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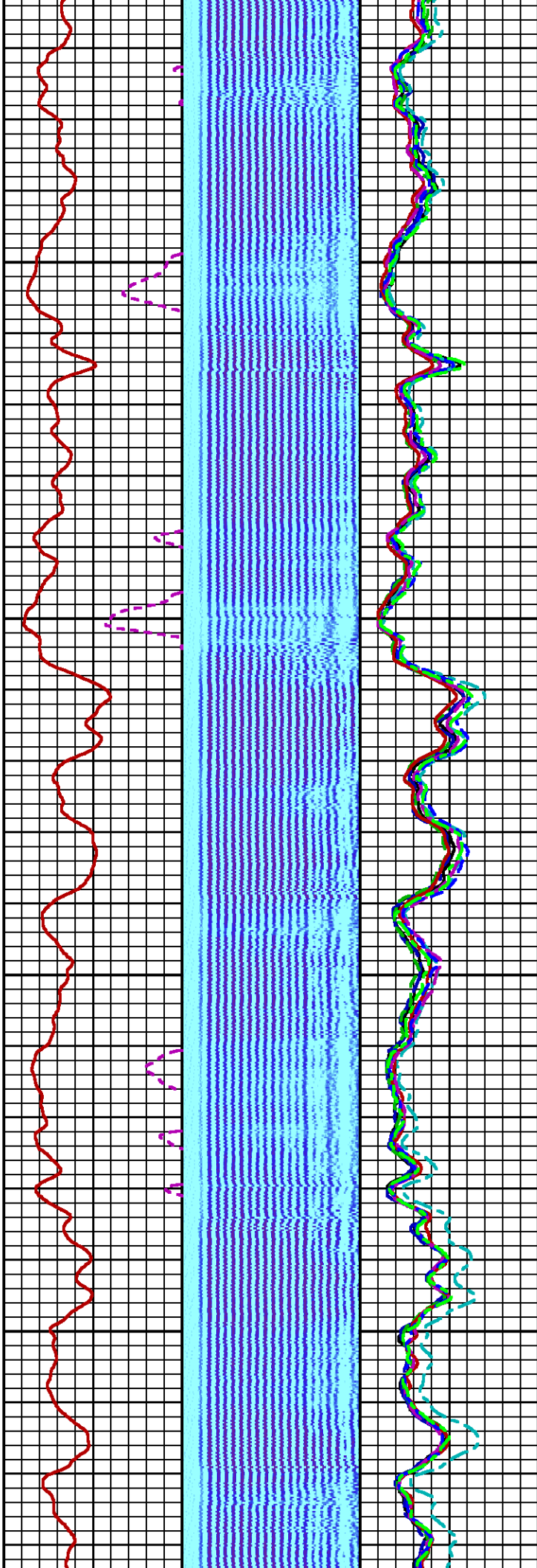
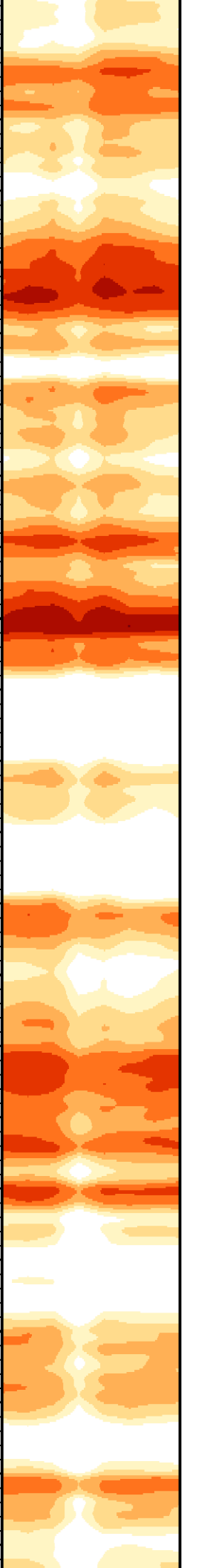




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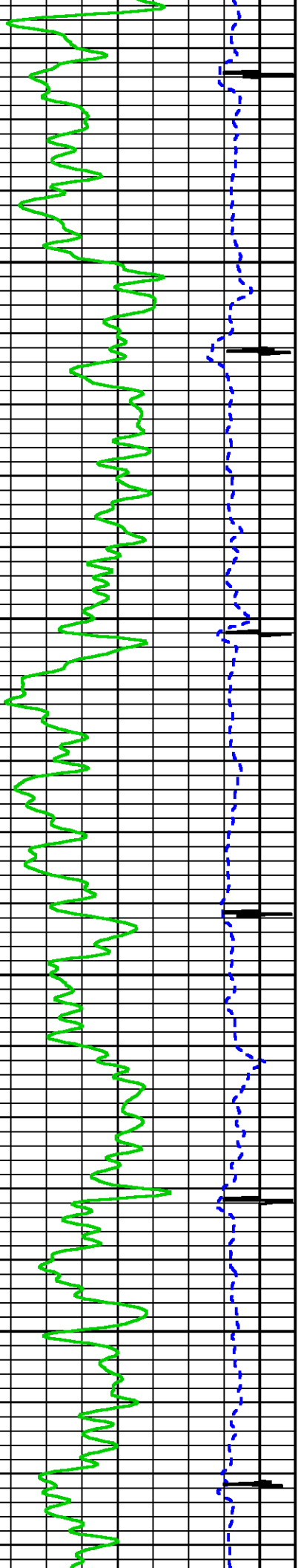
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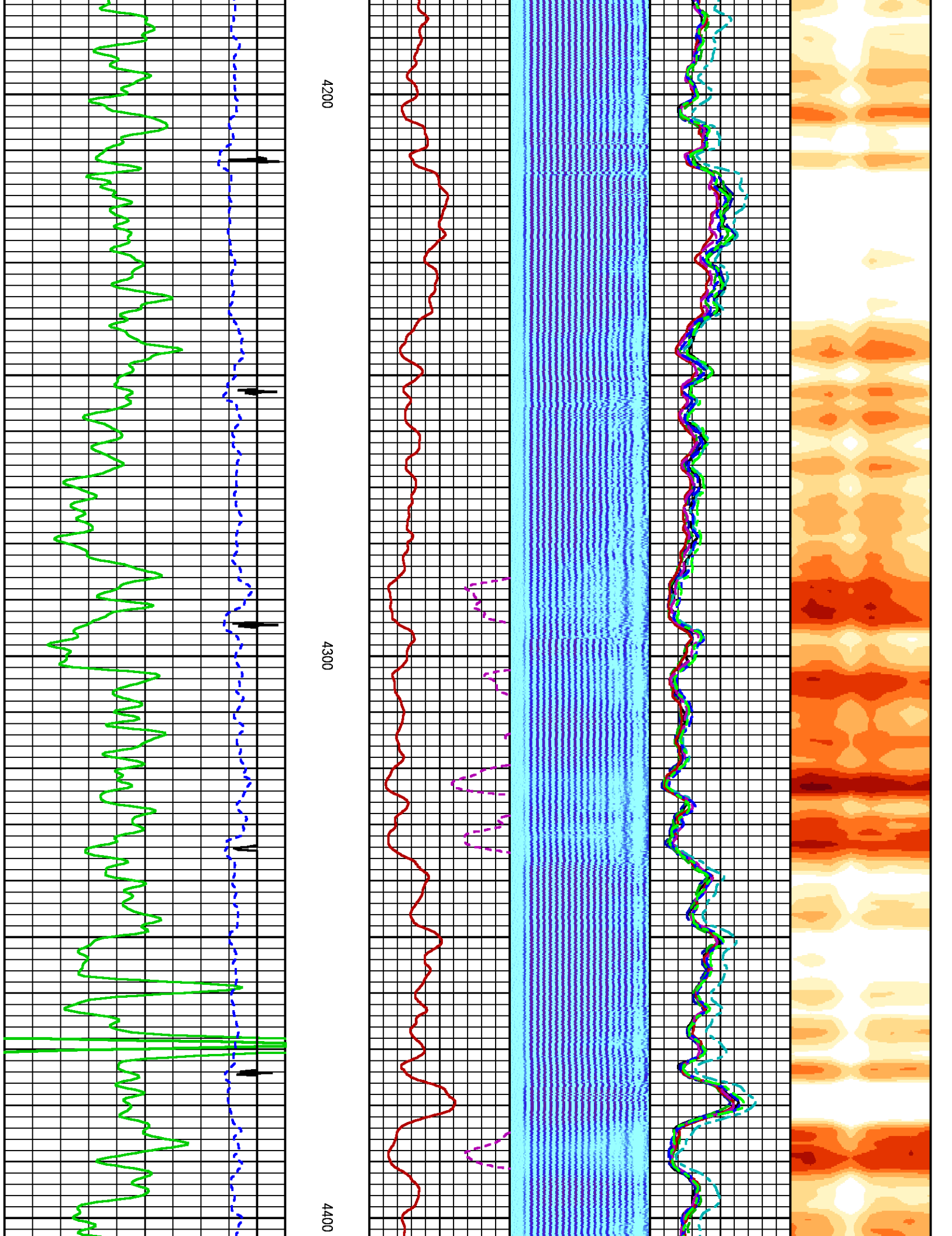


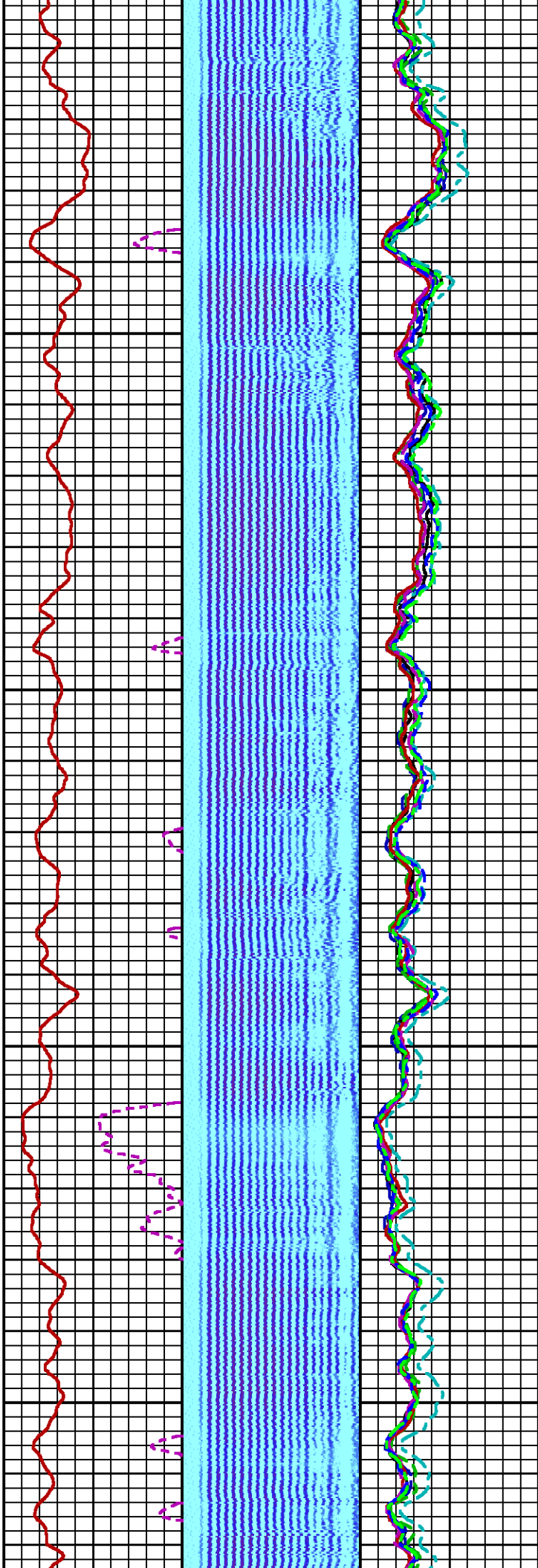
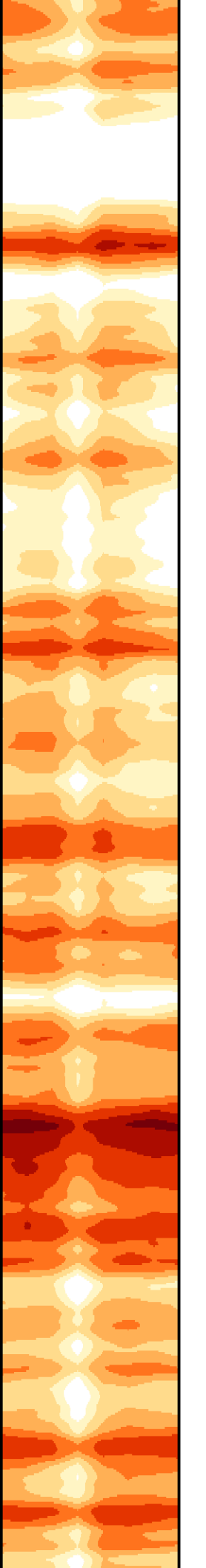


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4.100

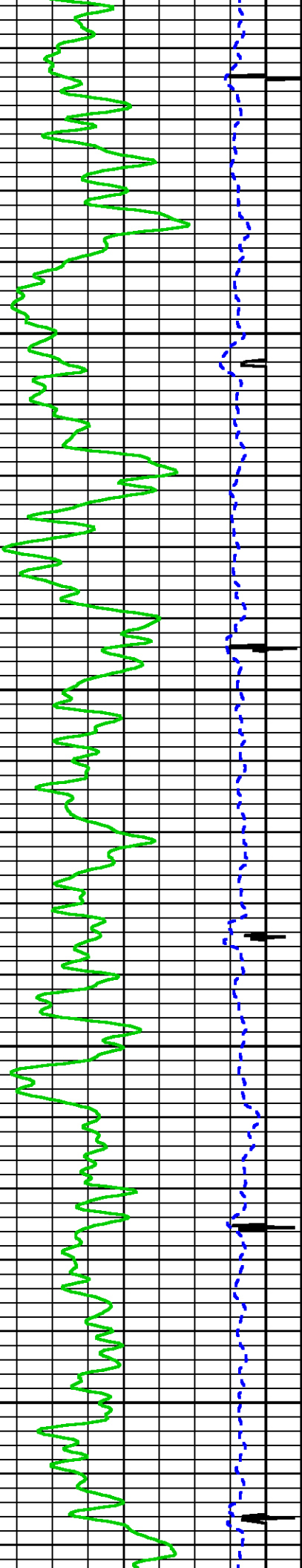


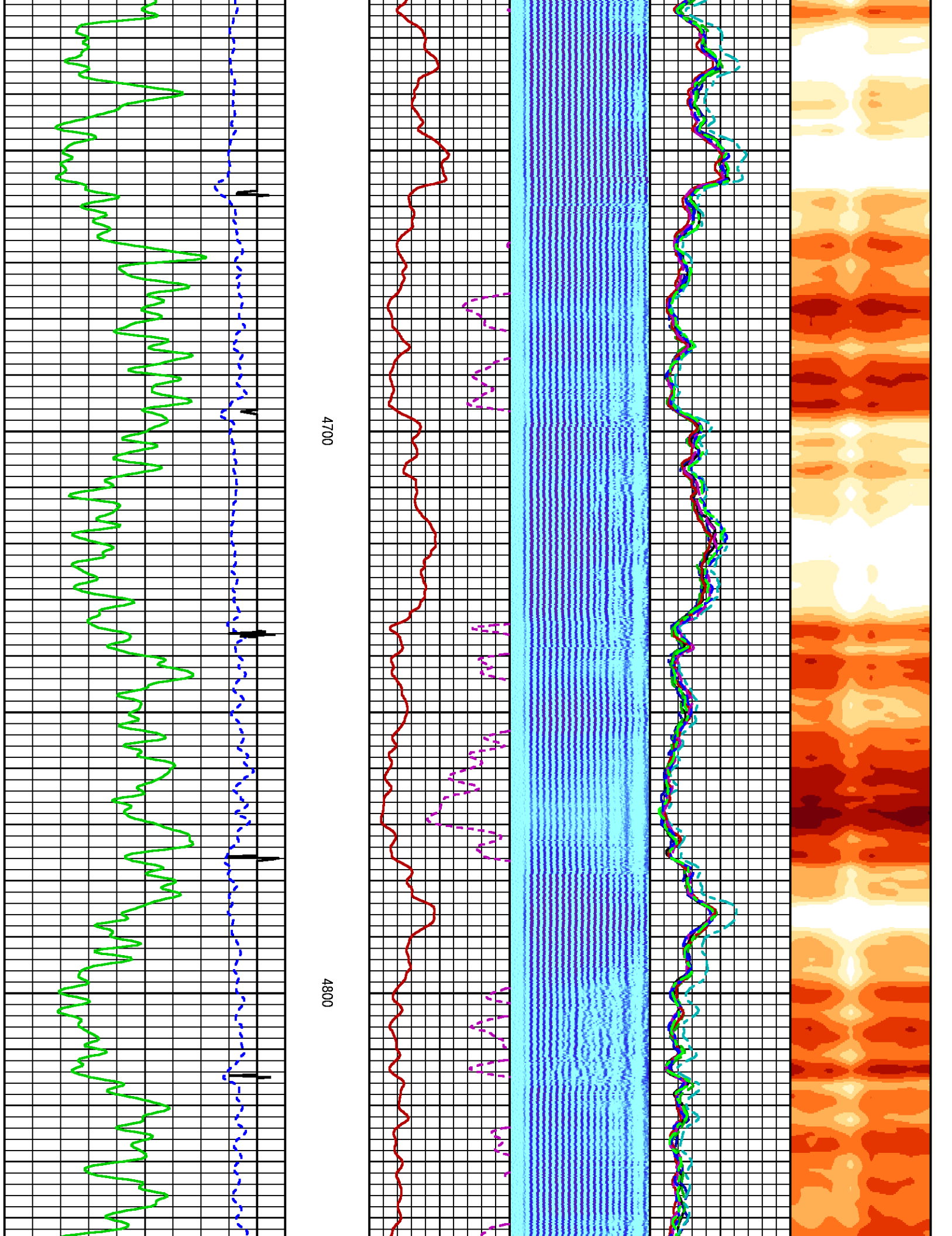


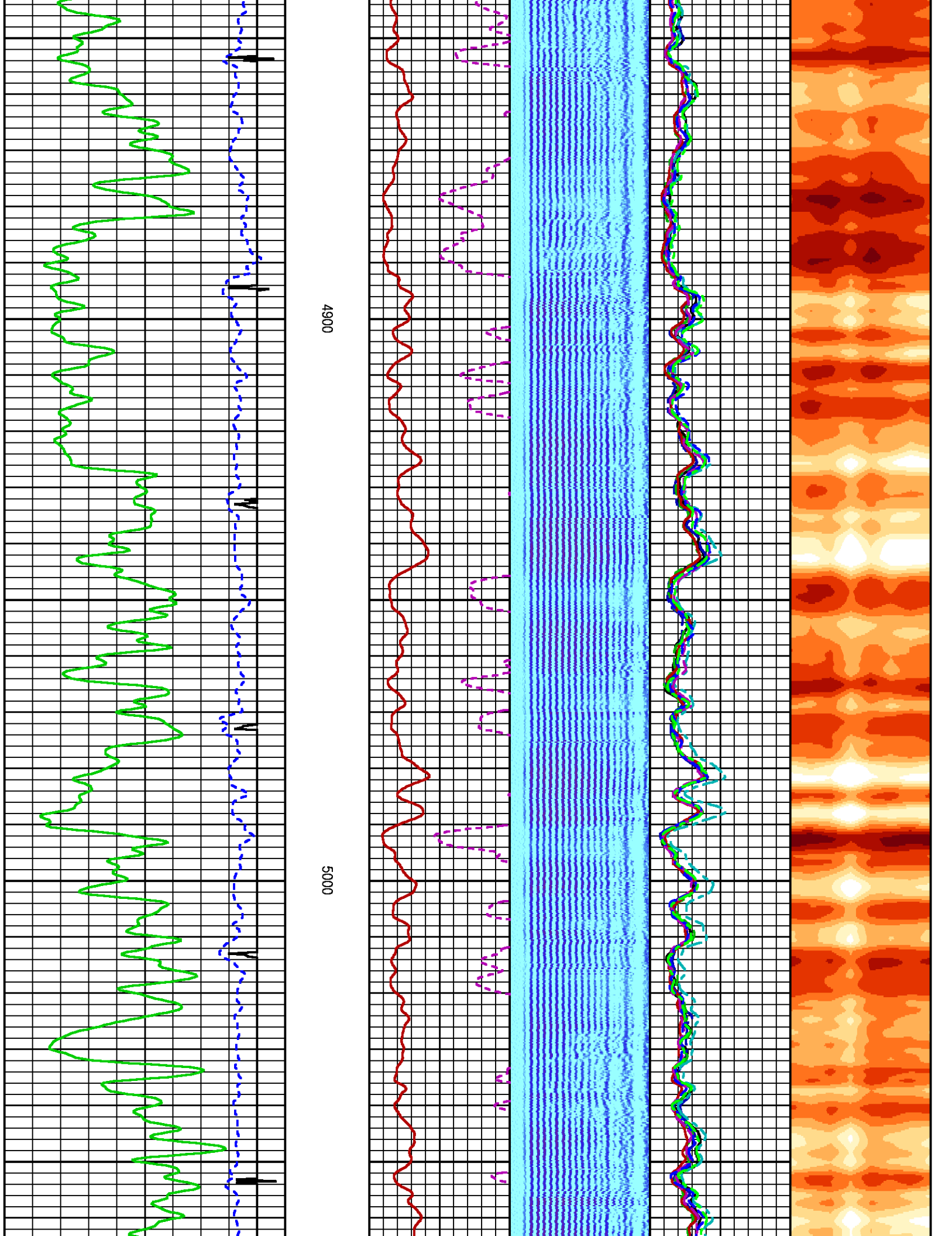


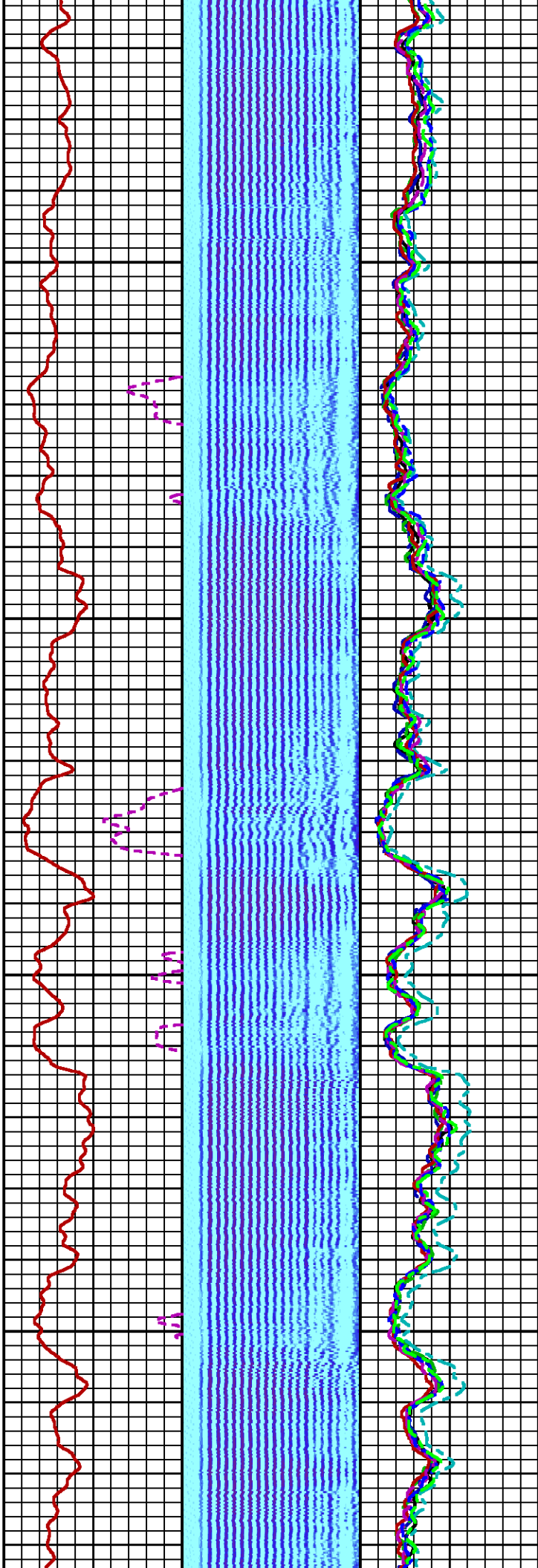
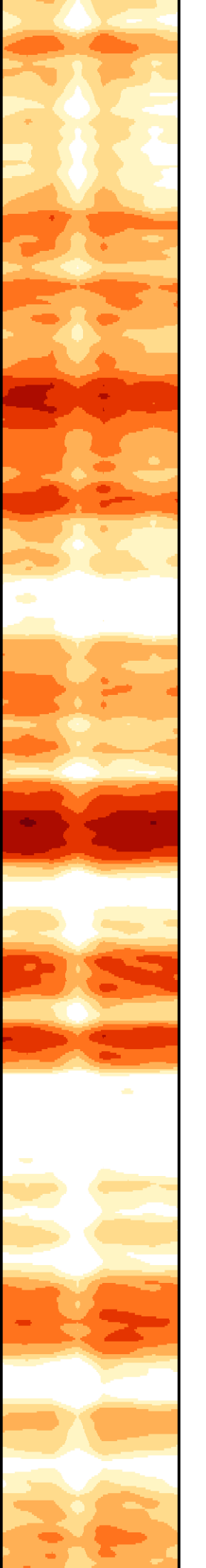
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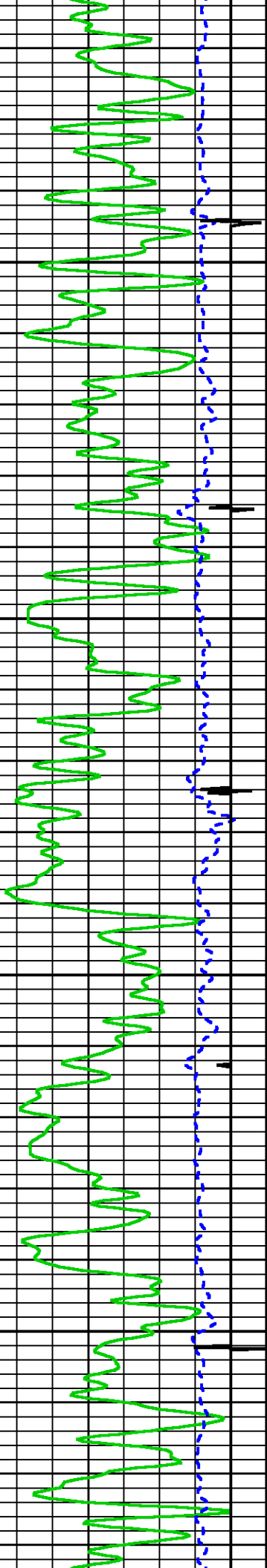


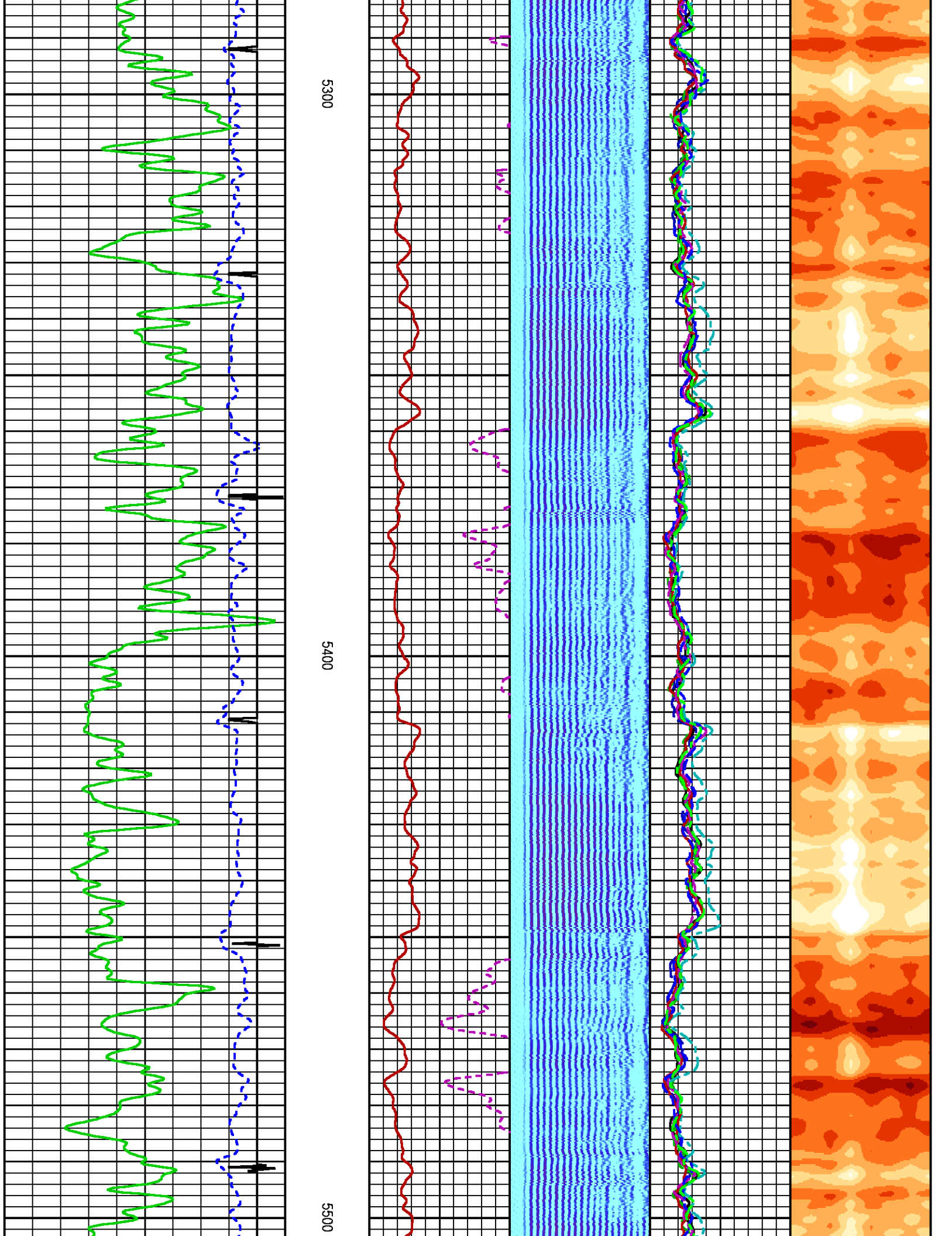


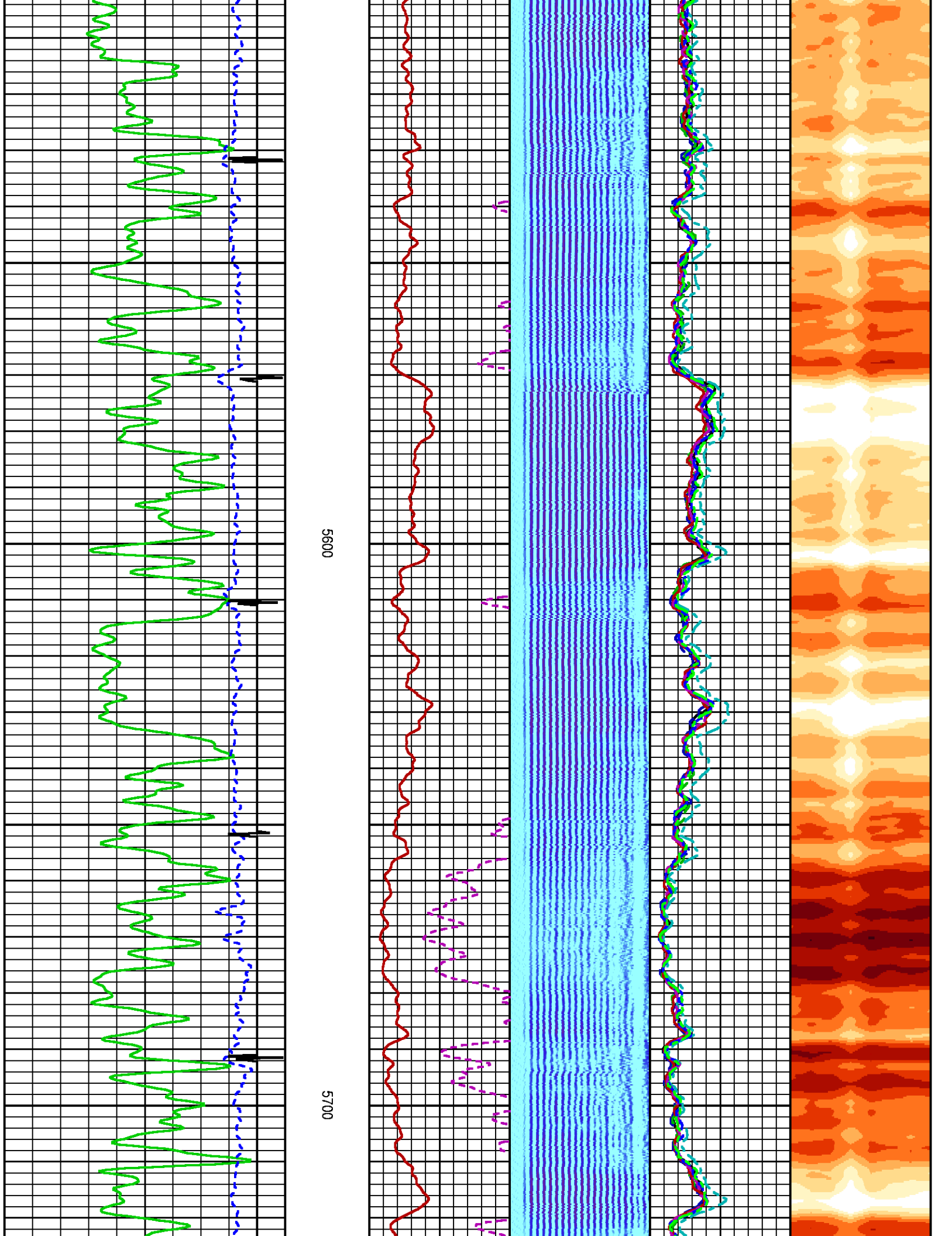


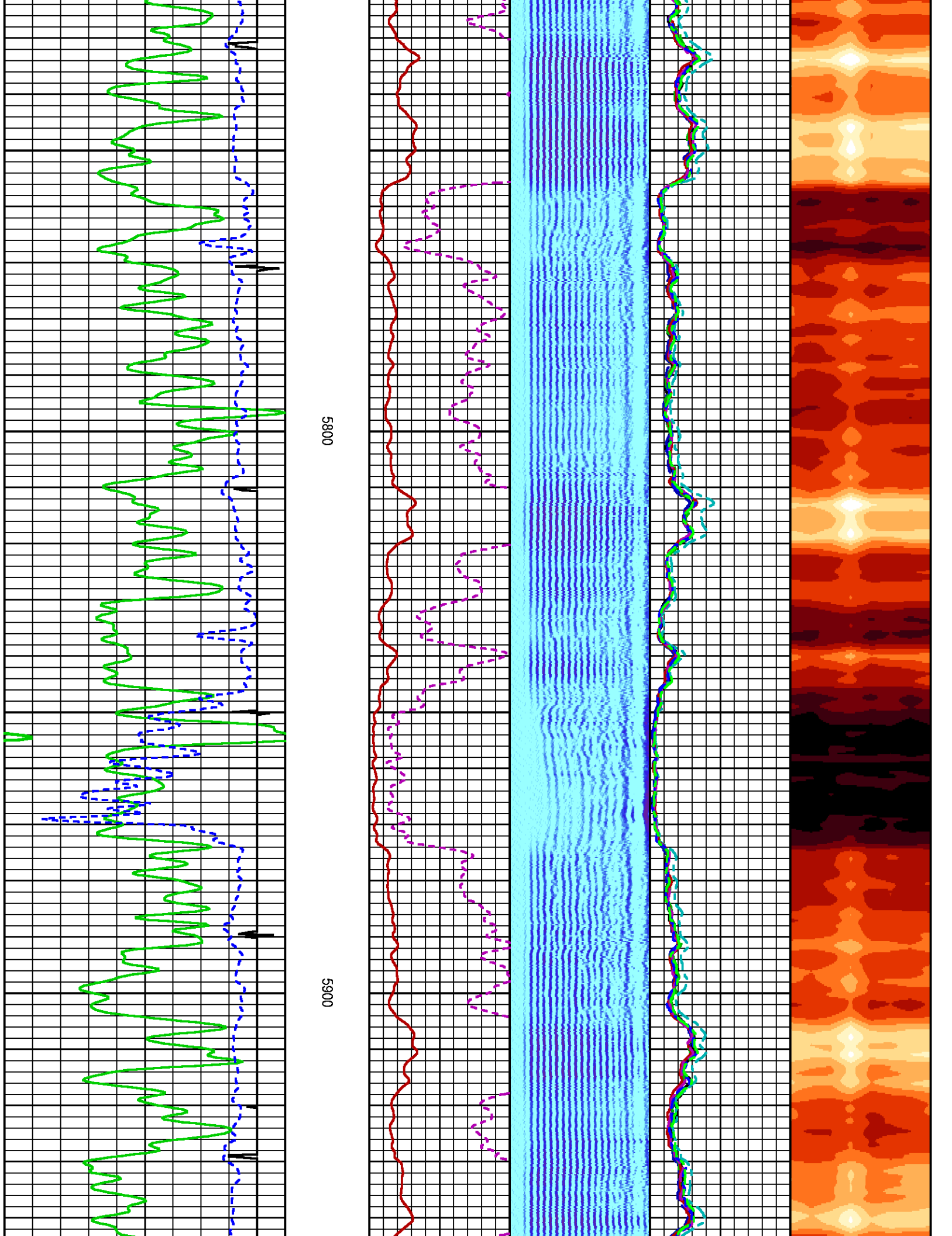
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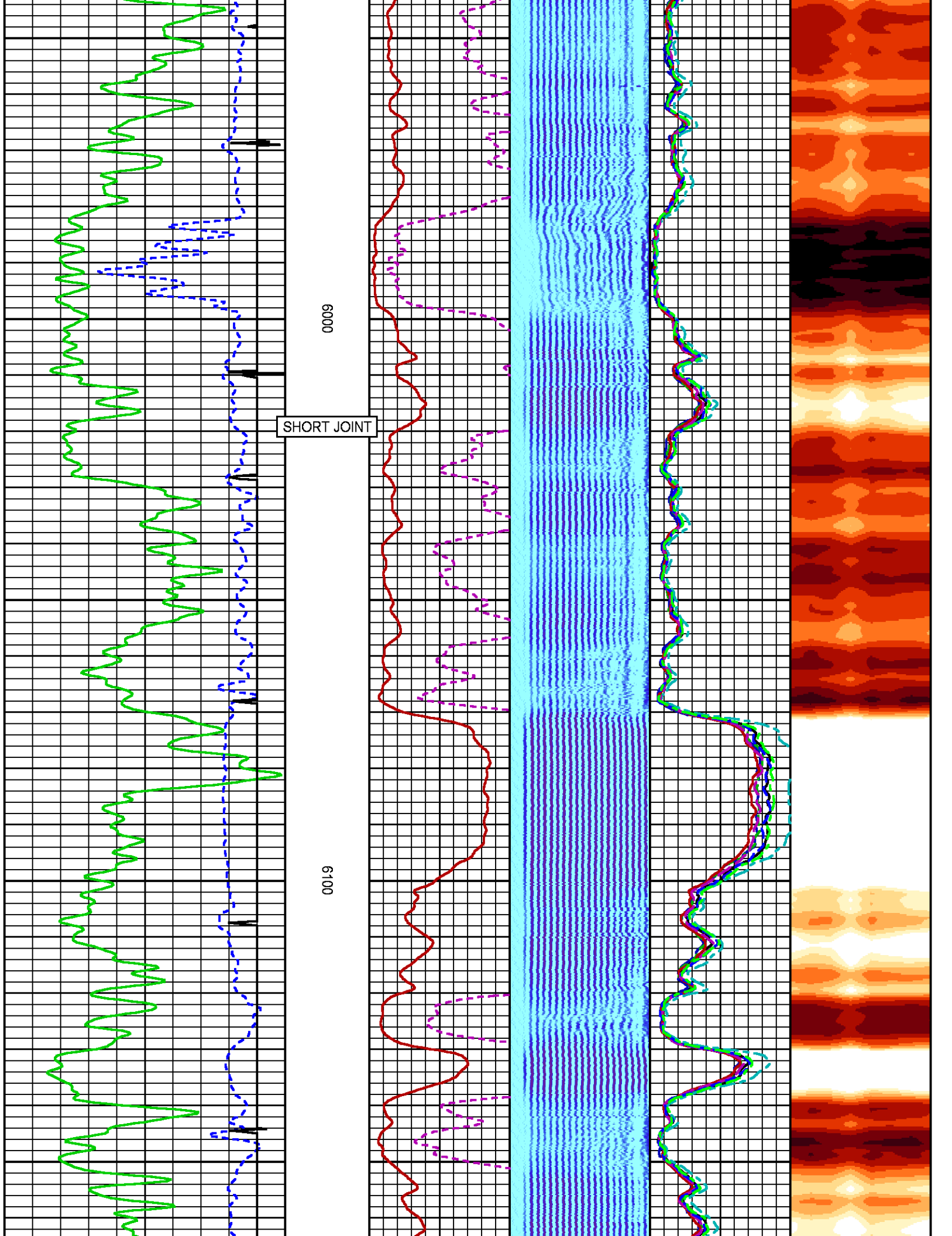
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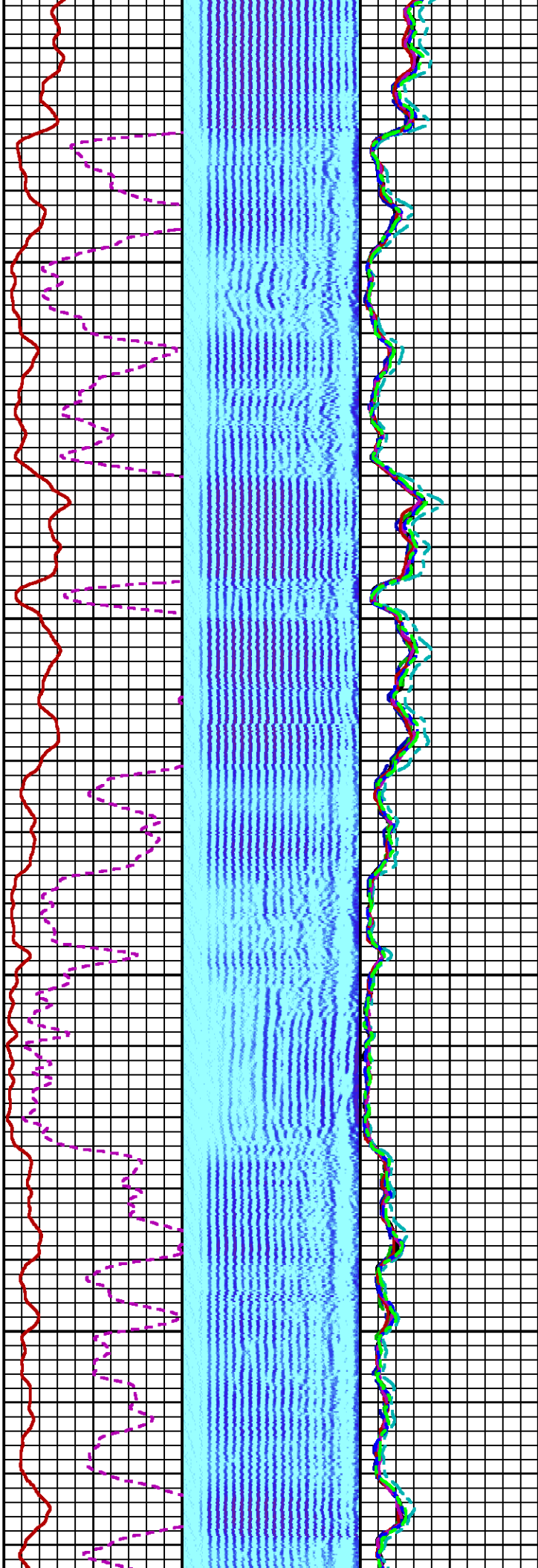






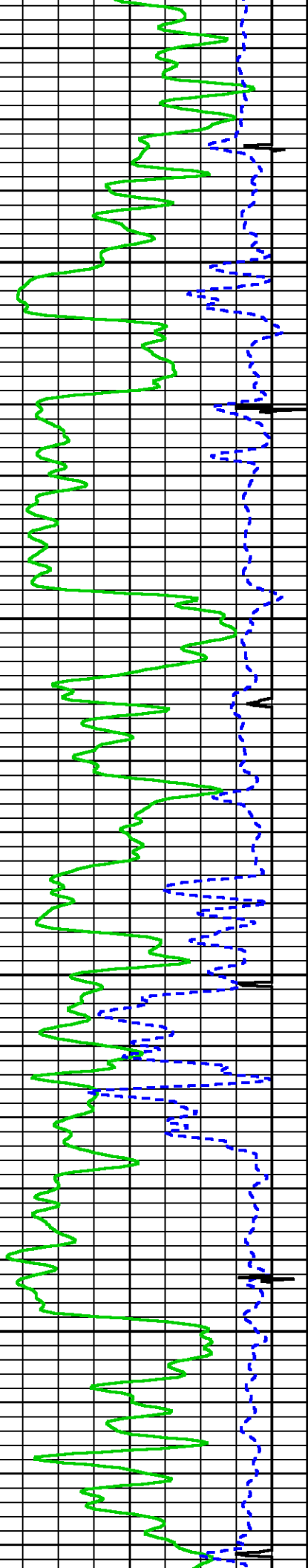


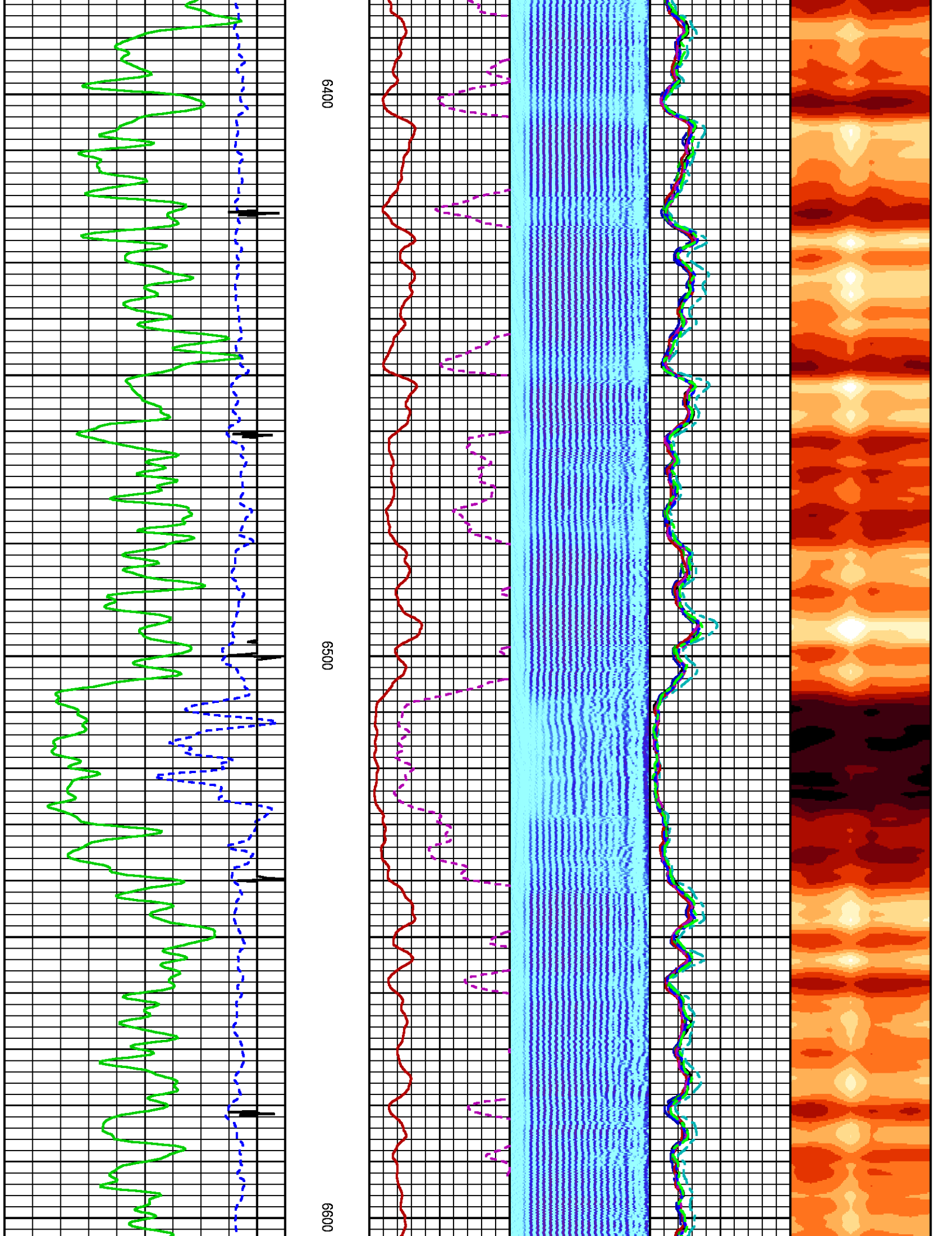


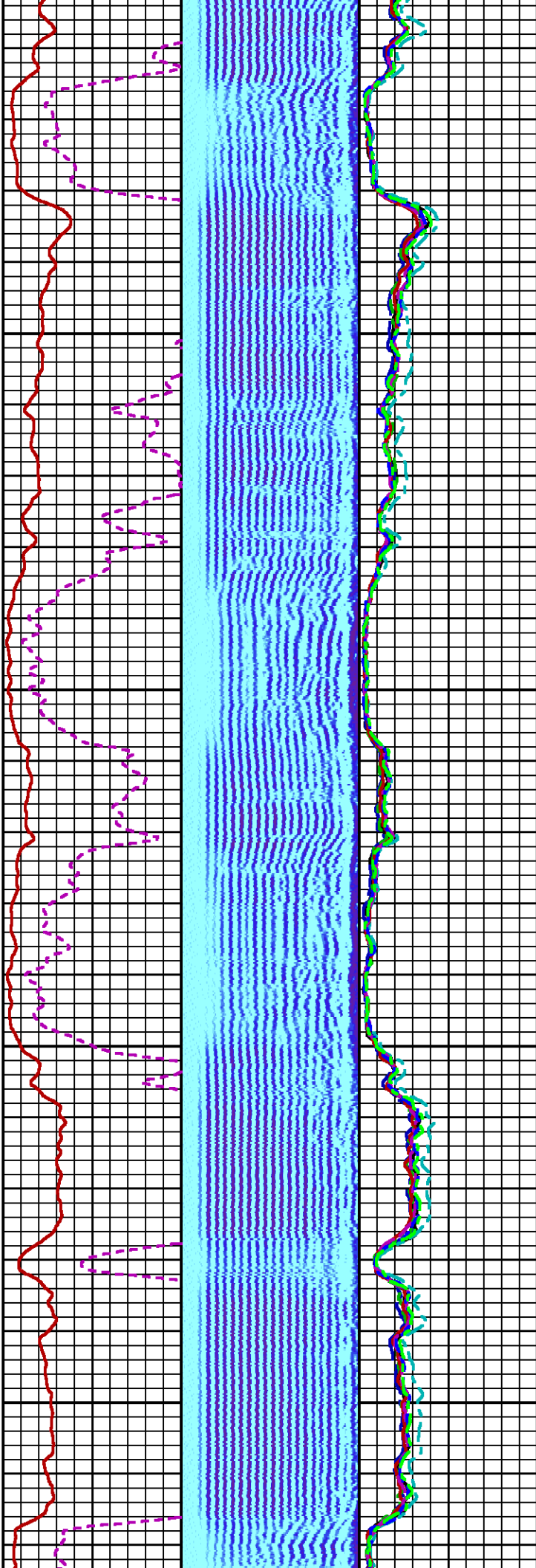
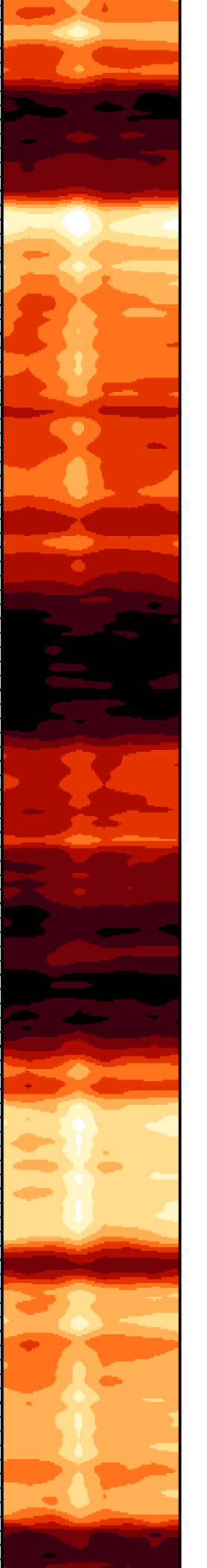


6200

6300

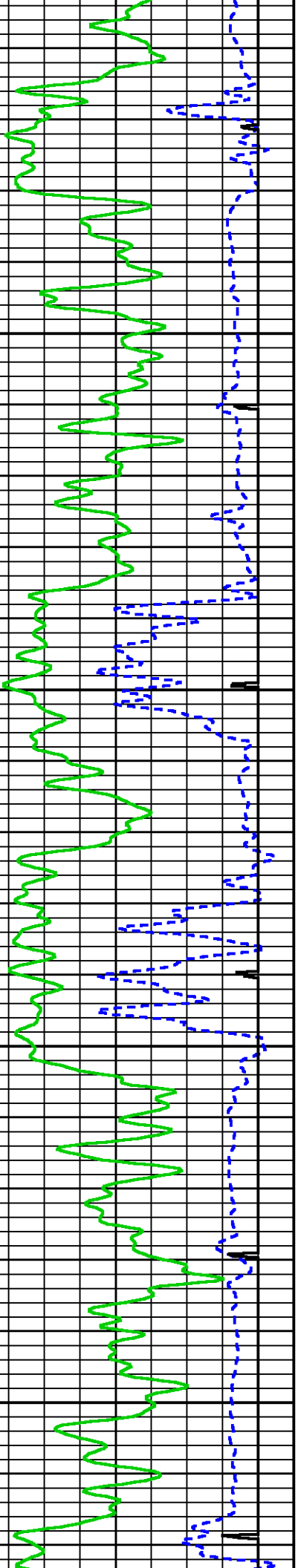


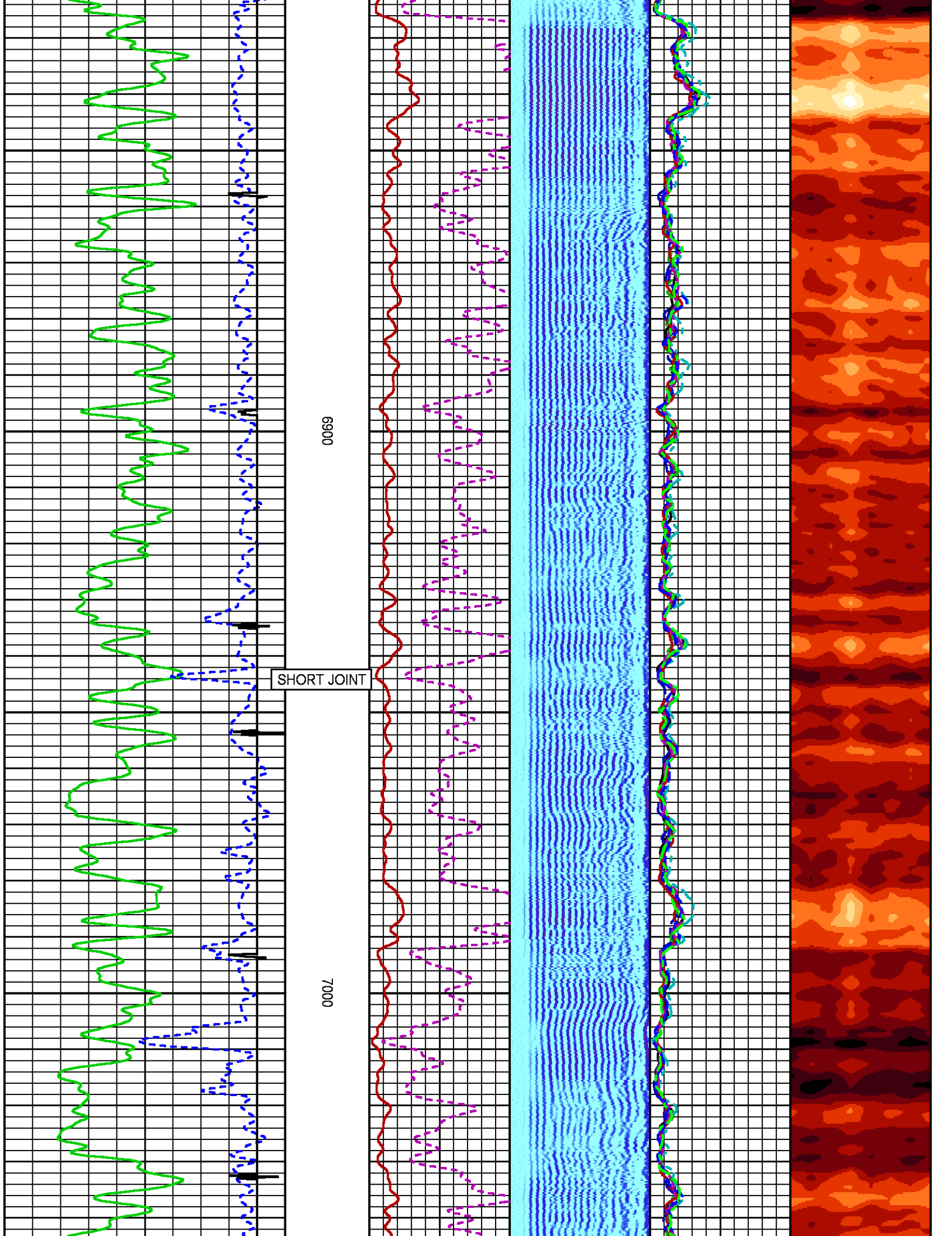


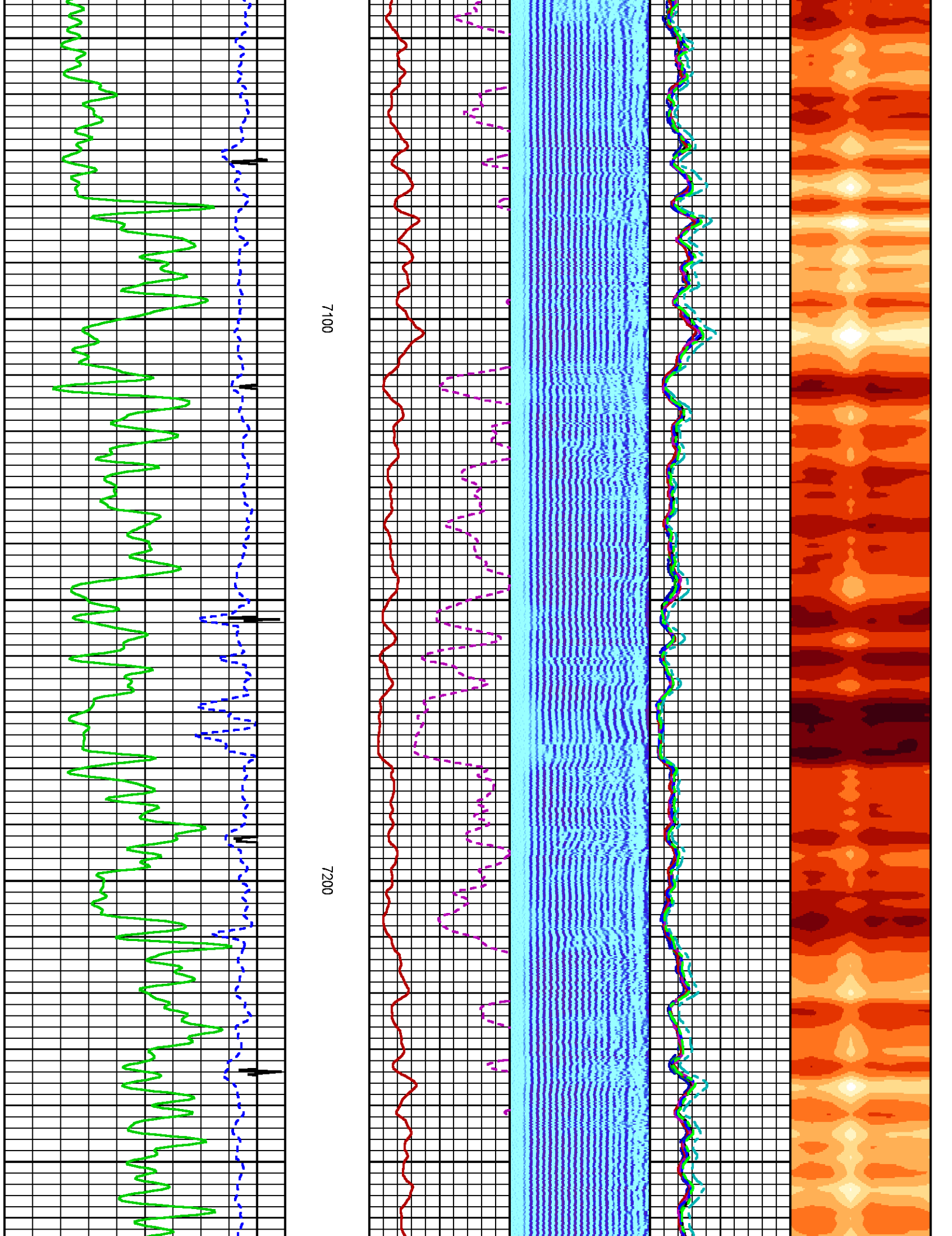


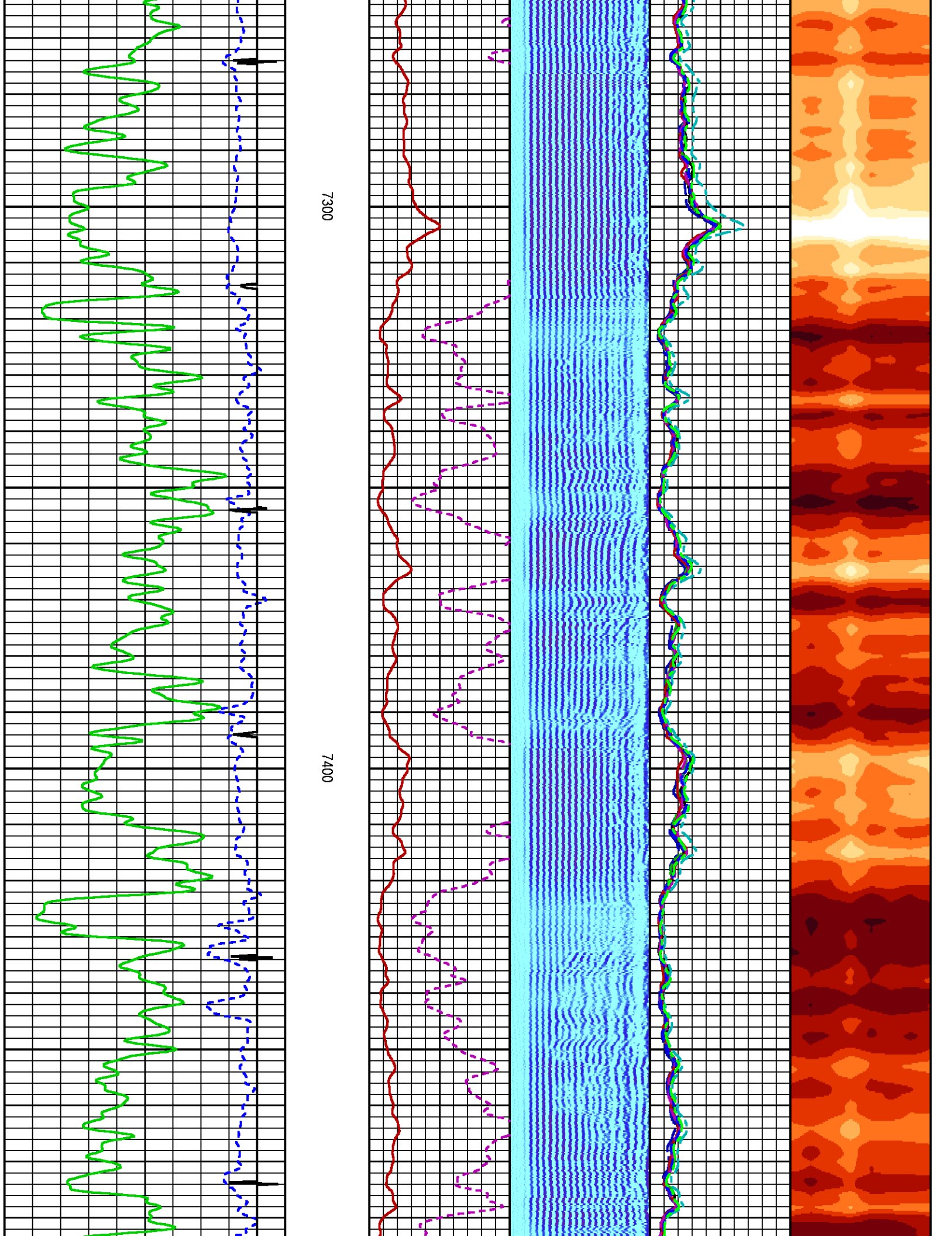
6700

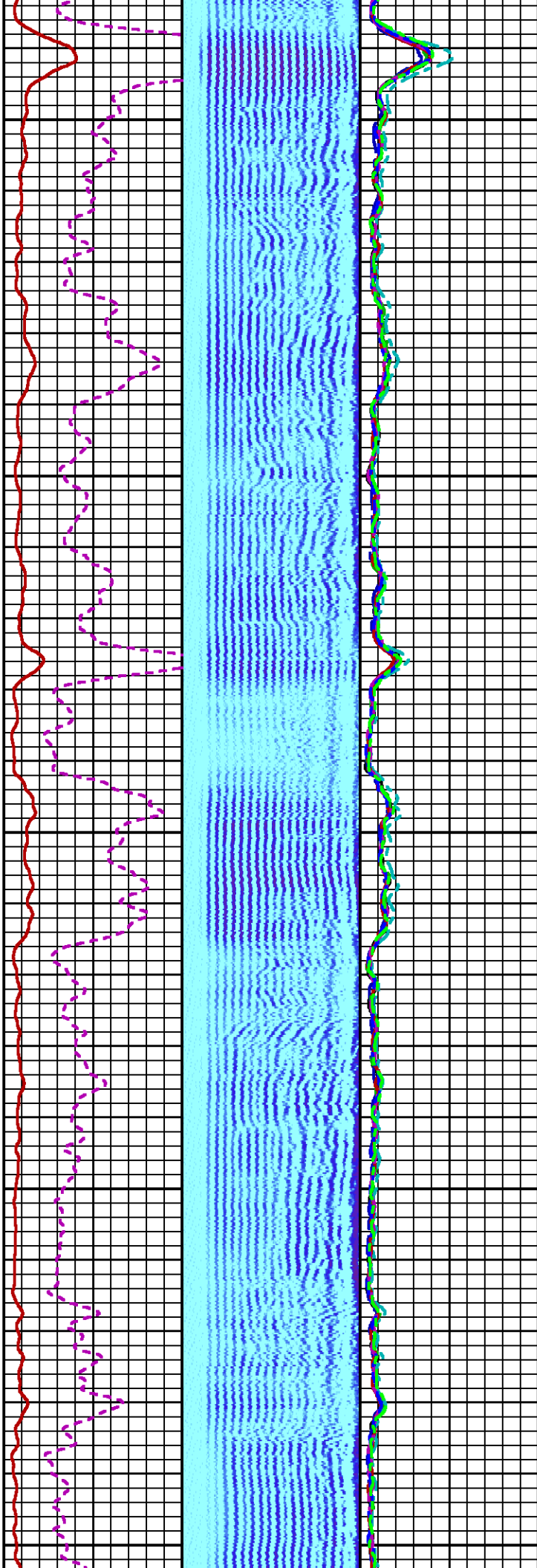
6800







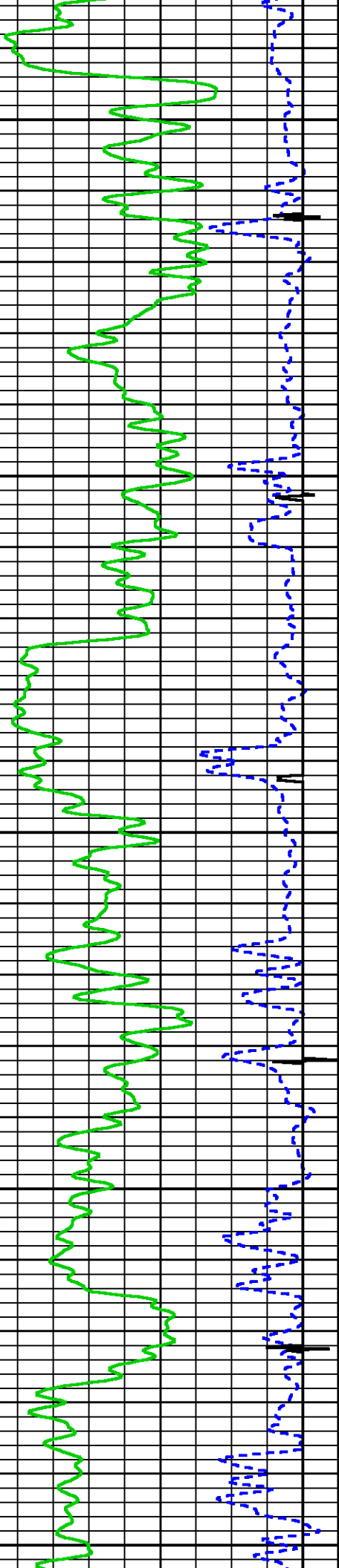


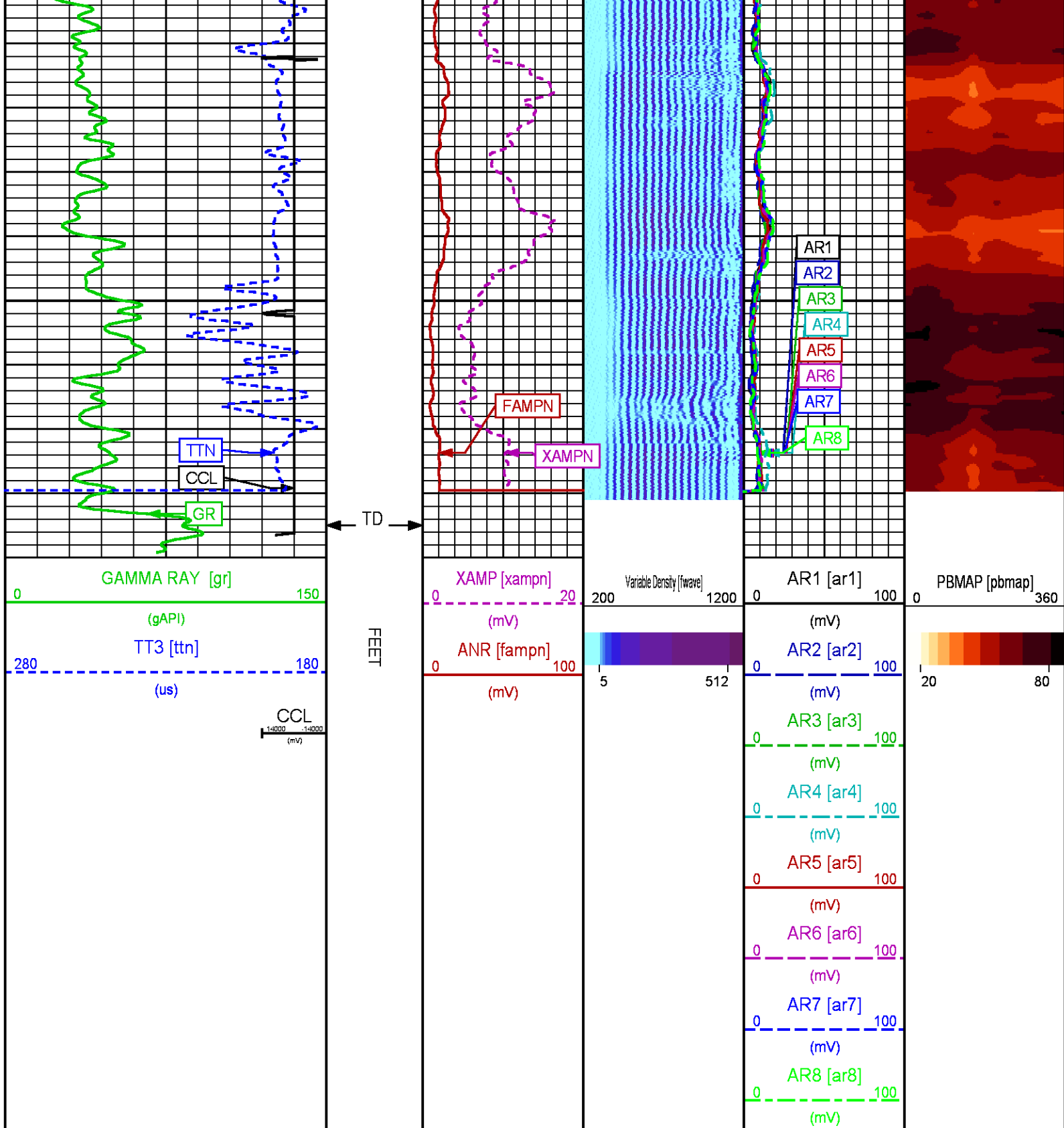


7500

7600

7700





REPEAT PASS 0 PSI

PARAMETER AND FILTER SUMMARY REPORT					
FILE: /dat1a/LARAMIE_NICHOLS_0994-24-01E/p012g01.prm LOGGING MODE: DEPTH DIRECTION: UP TOP DEPTH: 7415.500 ft BOTTOM DEPTH: 7818.413 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	4000.00		TOP	BOTTOM
ANALOG RAL PROCESSING					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	185	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	185	us	"	"
	AMP WINDOW START (fgp3*)	185	us	"	"
	AMP WINDOW START (fgp4*)	185	us	"	"
	AMP WINDOW START (fgp5*)	185	us	"	"
	AMP WINDOW START (fgp6*)	185	us	"	"
	AMP WINDOW START (fgp7*)	185	us	"	"
	AMP WINDOW START (fgp8*)	185	us	"	"
	AMP WINDOW START (fgpn*)	185	us	"	"
TRAVEL TIME WINDOW (NEAR)	AMP WINDOW LENGTH	30	us	"	"
	TT WINDOW START (ttn*)	169	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*)	-72	us	"	"
	TOOL DELAY (str2*)	-72	us	"	"
	TOOL DELAY (str3*)	-72	us	"	"
	TOOL DELAY (str4*)	-72	us	"	"
	TOOL DELAY (str5*)	-72	us	"	"
	TOOL DELAY (str6*)	-72	us	"	"
	TOOL DELAY (str7*)	-72	us	"	"
	TOOL DELAY (str8*)	-72	us	"	"
BASELINE NOISE (NEAR)	TOOL DELAY (strn*)	-72	us	"	"
	NOISE WINDOW START	110	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			

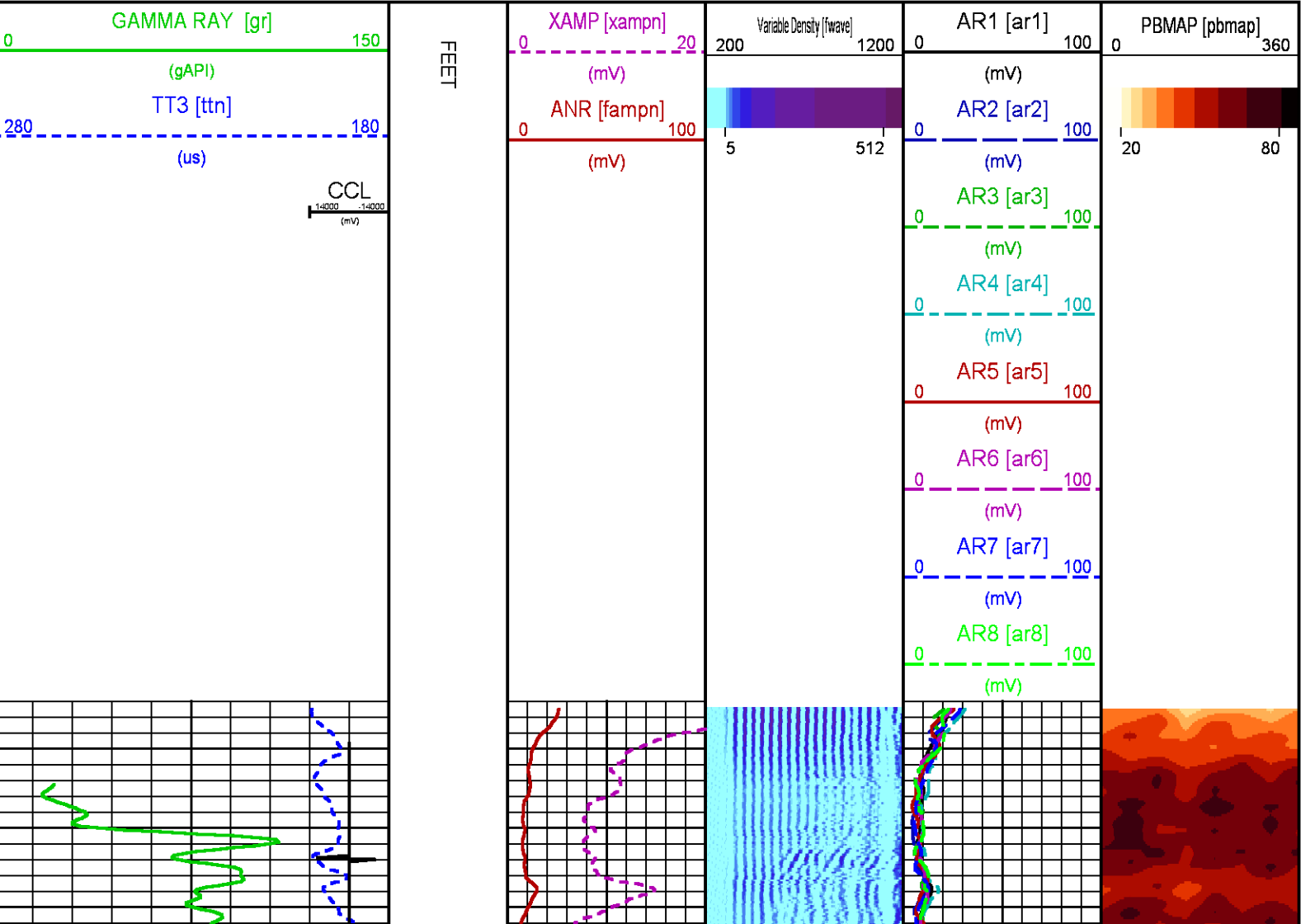
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
F1:AR8	N/A	FIXED GATE AMPLITUDE T-R8
F1:CCL	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

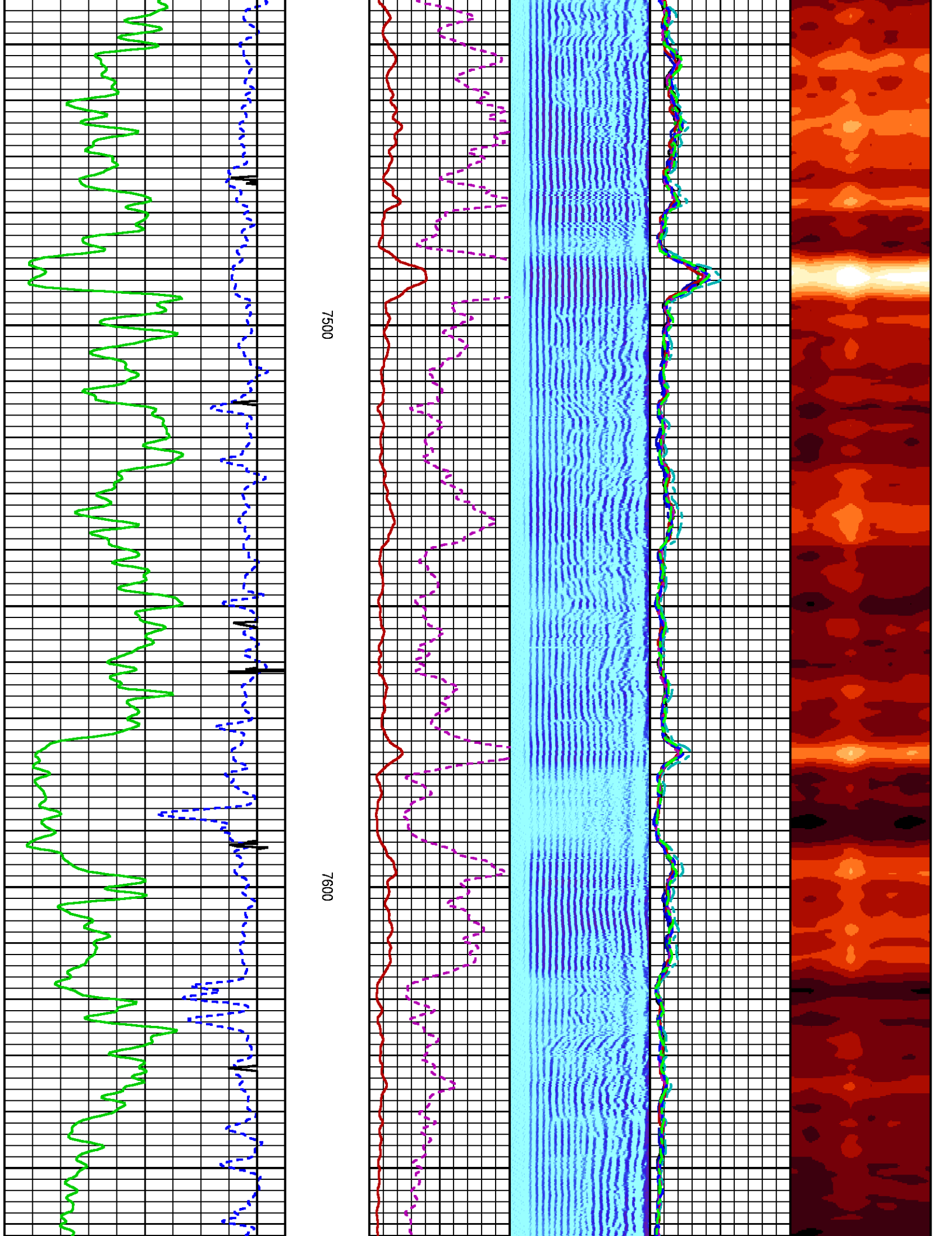
CURVE MEASURE POINT OFFSET

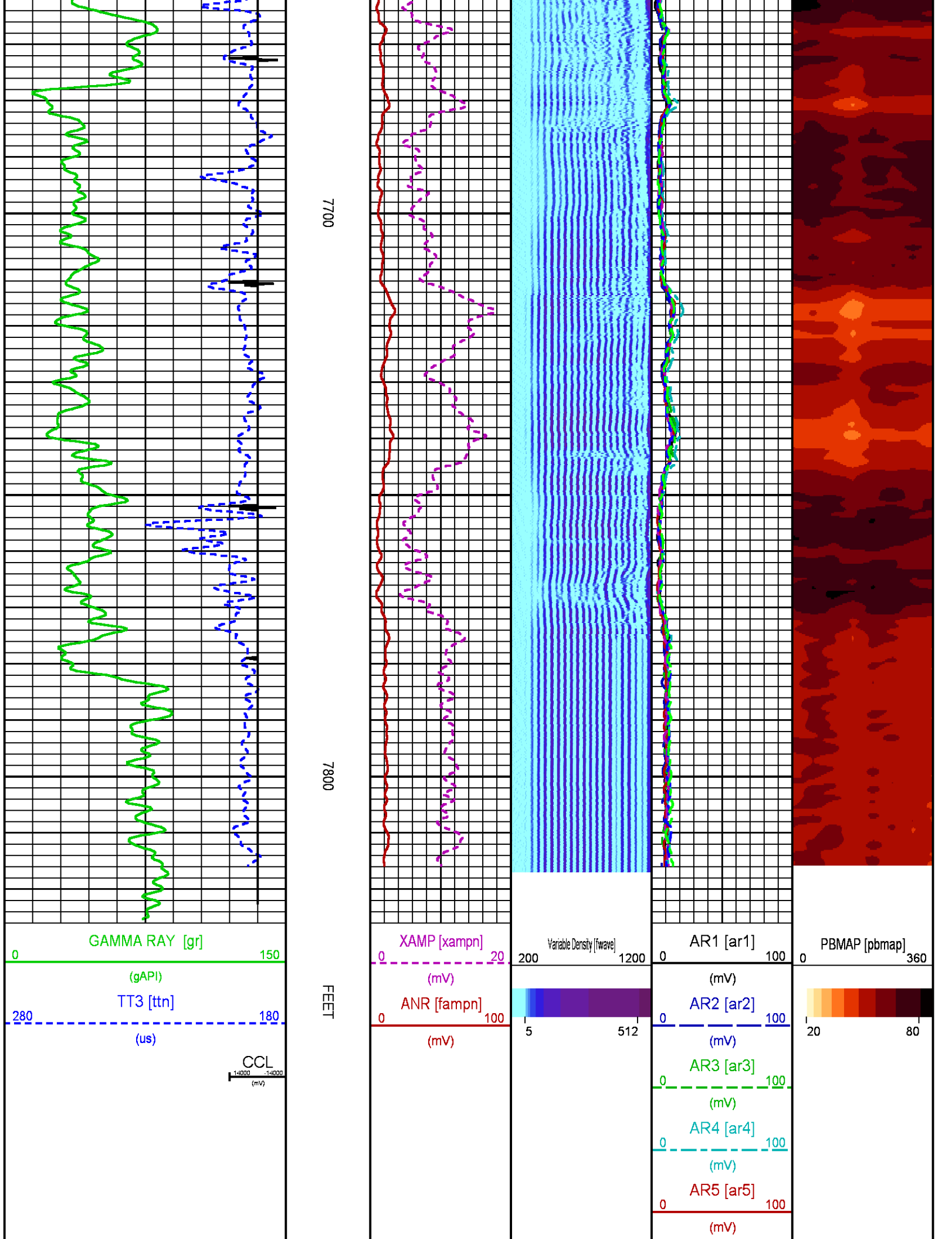
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

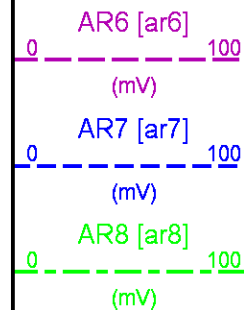
Presentation : SysA:LARAMIE_RALRPT.fvpdf [5"/100' Scale]
Plot Interval : 7404.75 - 7817 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-01E/RAL_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY II LLC
Well : NICHOLS 0994-24-01W
Field : VEGA
File Interval : 7403.75 - 7818.25 Feet
OCT : p012g









CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_NICHOLS_0994-24-01E/p012g.tp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10417452

DATE/TIME PERFORMED: Tue Mar 13 13:24:12 2018

UNIT #: 5753XD 111111

	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)	-0.02	-0.03	-0.08	0.04	0.06	-0.07	-0.06	-0.00	-0.01	0.25	0.07
AMP FLUID (mV)	43	43	43	43	41	42	43	43	43	55	43
TT (us)	216	216	216	217	215	216	215	214	216	323	216
M FACTOR	2.34	2.32	2.33	2.35	2.43	2.36	2.34	2.31	2.31	2.72	2.34

RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA 10417452

DATE/TIME PERFORMED: Tue Mar 13 13:26:32 2018

DAYS SINCE CAL: 0

UNIT #: 5753XD 111111

CABLE #: ML4291 SMALLINE

	NEAR (mV)	R1 (mV)	R2 (mV)	R3 (mV)	R4 (mV)	R5 (mV)	R6 (mV)	R7 (mV)	R8 (mV)	FAR (mV)	CAL (mV)
ZERO	-0.09	0.11	-0.09	-0.06	-0.06	0.01	0.04	0.07	-0.10	0.34	0.06
AMP AIR	3.82	3.22	3.11	3.57	3.86	3.62	4.19	3.05	3.80	3.98	100.32

	SHOP M FACTOR	SHOP A FACTOR	WIREFLINE FACTOR
	2.34	0.00	1.00

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1355XA 11871507

DATE/TIME PERFORMED: Fri Nov 17 14:10:53 2017

UNIT #: 3882TD HL6728

CALB JIG #: 4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	59.07	162.98	103.9	0.962	56.84	156.84	100

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1355XA 11871507

DATE/TIME PERFORMED: Fri Nov 17 14:12:49 2017

UNIT #: 3882TD HL6728

VERI JIG #: 4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	59.07	162.98	0.962	56.84	156.84	0.22

GR 59.73 170.53 0.962 57.49 164.11 106.63
90.00 110.00

TEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 1355XA 11871507

DATE/TIME PERFORMED: Fri Nov 17 14:01:05 2017

UNIT #: 3882TD HL6728

	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: /dat1a/LARAMIE_NICHOLS_0994-24-01E/p012g~~tdg

CABLEHEAD

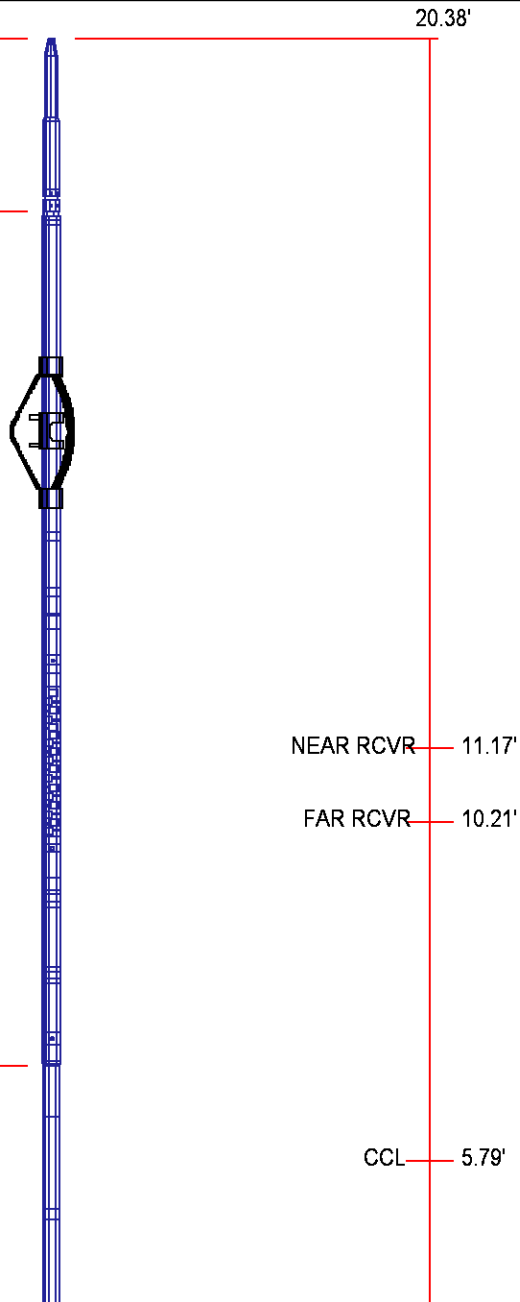
Diameter : 2.75"
Length : 2.25'
Weight : 10 lbs
Series : CABL234
Mnemonic : CBLH

RADIAL BOND TOOL

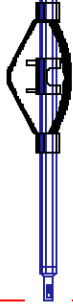
Diameter : 2.75"
Length : 11.17'
Weight : 126 lbs
Series : 1426XA
Mnemonic : RAL
Measure Point: 4.21': NEAR RCVR
Measure Point: 3.25': FAR RCVR

RAL GR/TEMP/CCL/CHV DETECTOR

Diameter : 2.75"
Length : 2.25'



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



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 II LLC
WELL NICHOLS 0994-24-01E
FIELD VEGA
COUNTY MESA **STATE** COLORADO

FILE NO: _____
API NO: 0507710406000

LOCATION:

SHL 1790 FNL 2780 FEL
 BHL 125 FNL 2780 FEL

SEC 24 TWP 9S RGE 94W

ELEVATIONS:

KB 7161 FT
 DF
 GL 7137 FT

DATE 13-Mar-2018