



RADIAL CEMENT BOND LOG

FILE NO:	COMPANY	LARAMIE ENERGY II LLC
API NO:	WELL	NICHOLS 0994-24-02E
05077104210000	FIELD	VEGA
	COUNTY	MESA
	STATE	COLORADO

Ver. 4.10	LOCATION:	OTHER SERVICES
	SHL 1797 FNL 2783 FEL	RPM
	BHL 348 FNL 1531 FEL	
	SEC 24 TWP 9S RGE 94W	

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

DATE	11-Mar-2018
RUN	1
TRIP	1
SERVICE ORDER	US132926J
DEPTH DRILLER	7759 FT
DEPTH LOGGER	7704 FT
BOTTOM LOGGED INTERVAL	7703 FT
TOP LOGGED INTERVAL	0 FT
TIME STARTED	1130
TIME FINISHED	1400
OPERATOR RIG TIME	LOGGER
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	49 FT
LOGGED CEMENT TOP	2288 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: 6002-6021
SJ: 6895-6914

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: Sun Mar 11 19:06:44 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-02E/p012gR01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 12.500 ft BOTTOM DEPTH: 7792.000 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	4000.00		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	30	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	177	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	102	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	"	"

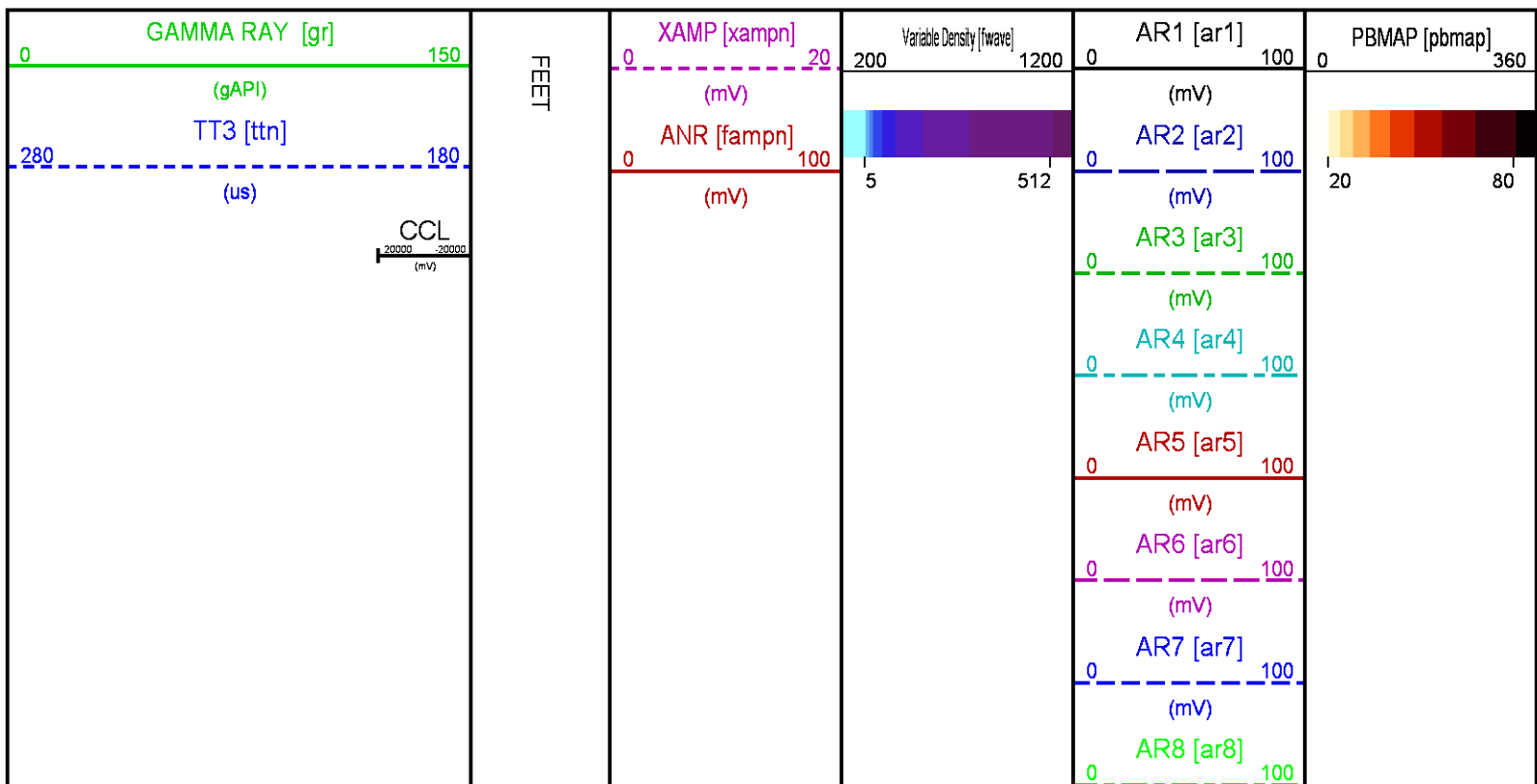
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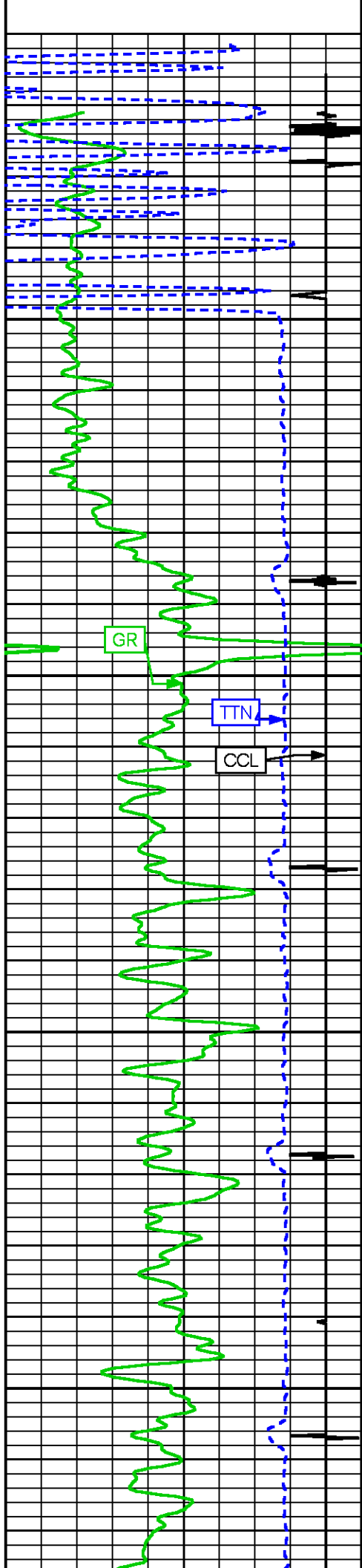
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

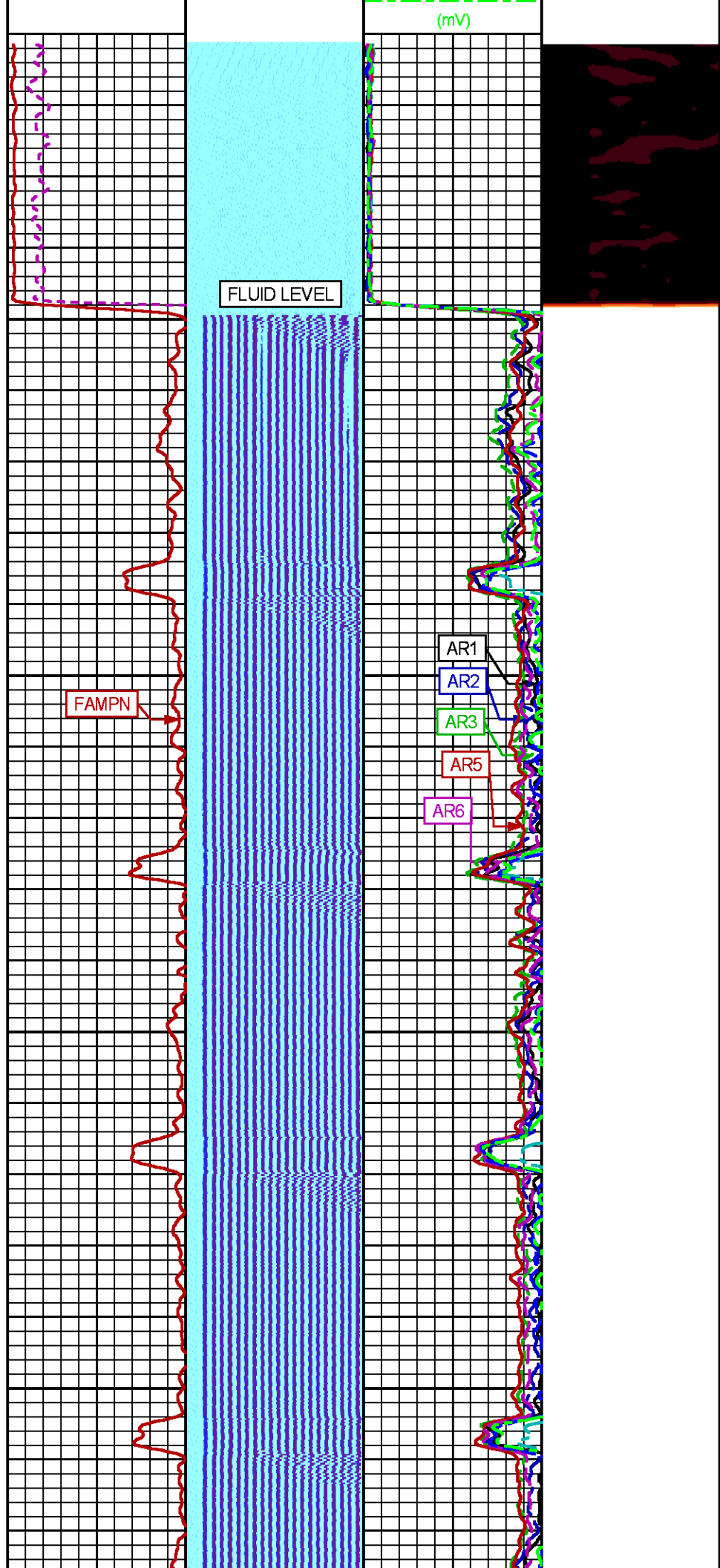
Presentation	: SysA:/dat1a/LARAMIE_NICHOLS_0994-24-02E/LARAMIE_RALMAIN.fvpdf [5"/100' Scale]
Plot Interval	: 11.25 - 7720 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-02E/RAL_MAIN.xtf
Created On	: N/A
Company	: LARAMIE ENERGY II LLC
Well	: NICHOLS 0994-24-02E
Field	: VEGA
File Interval	: 10.25 - 7801 Feet
OCT	: p012g



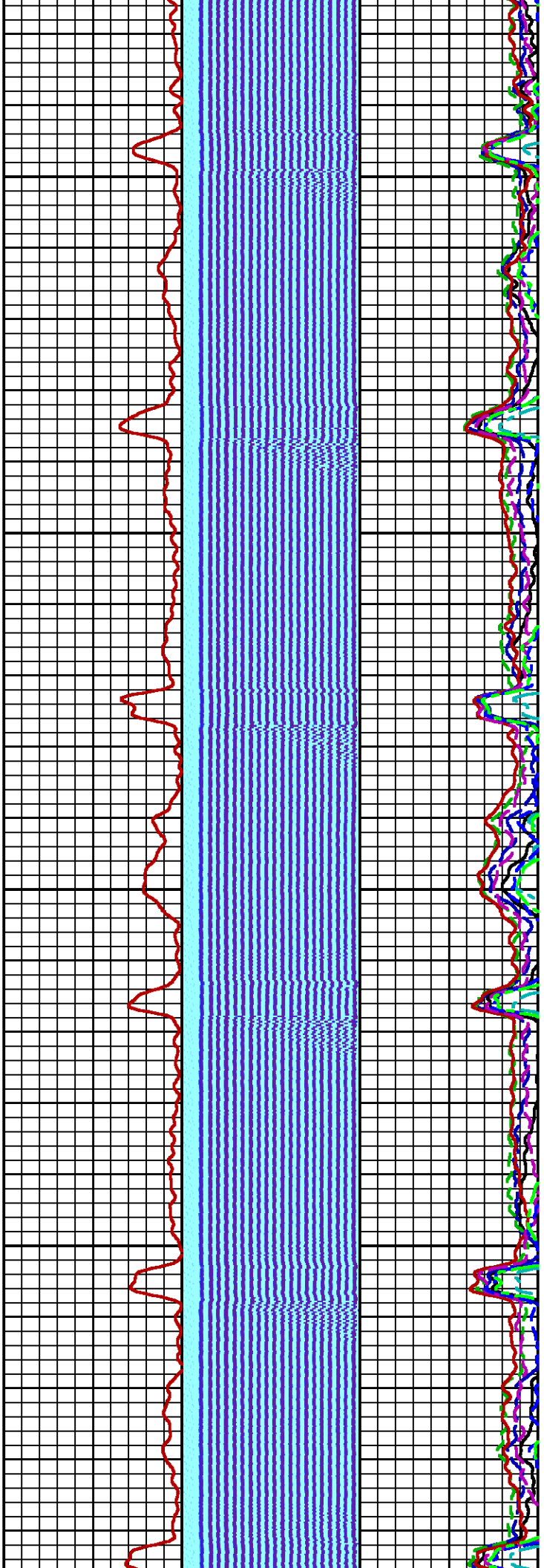


100

200

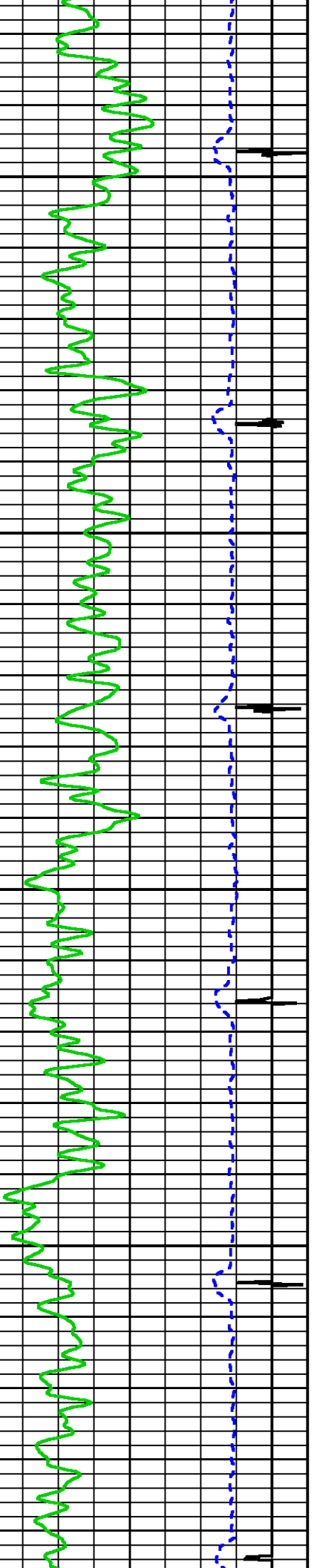


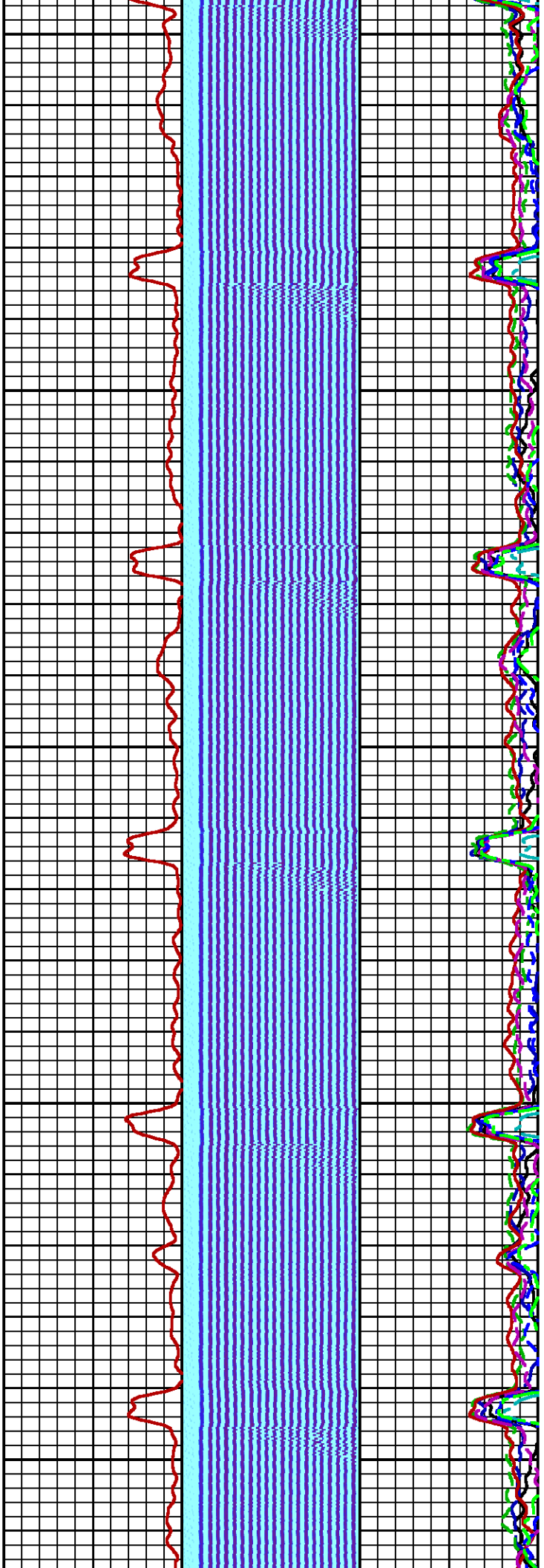
(mV)



300

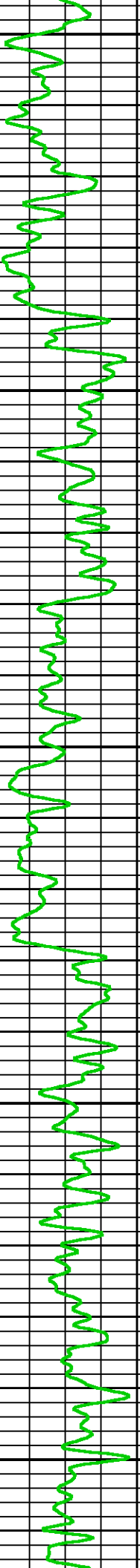
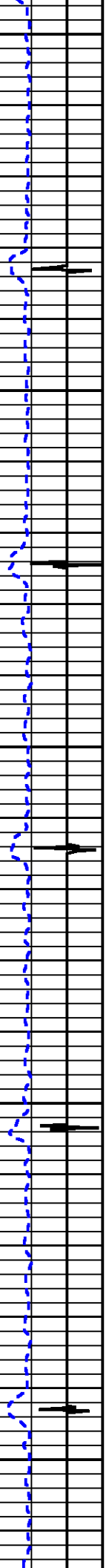
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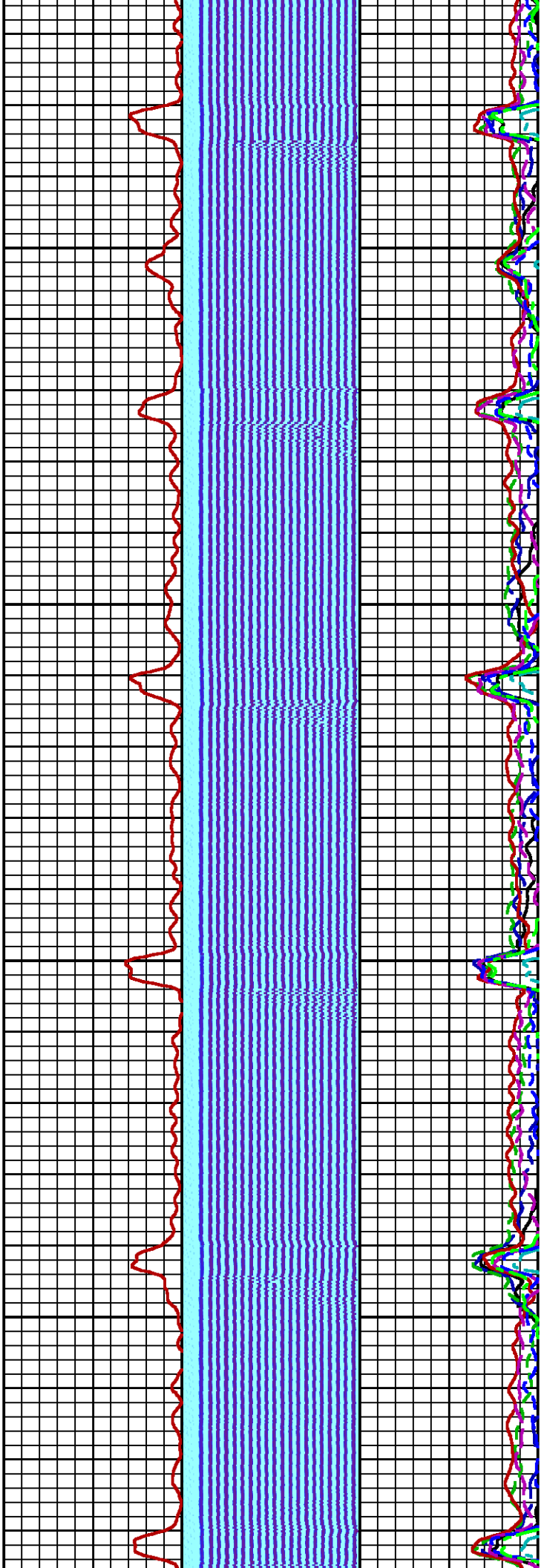




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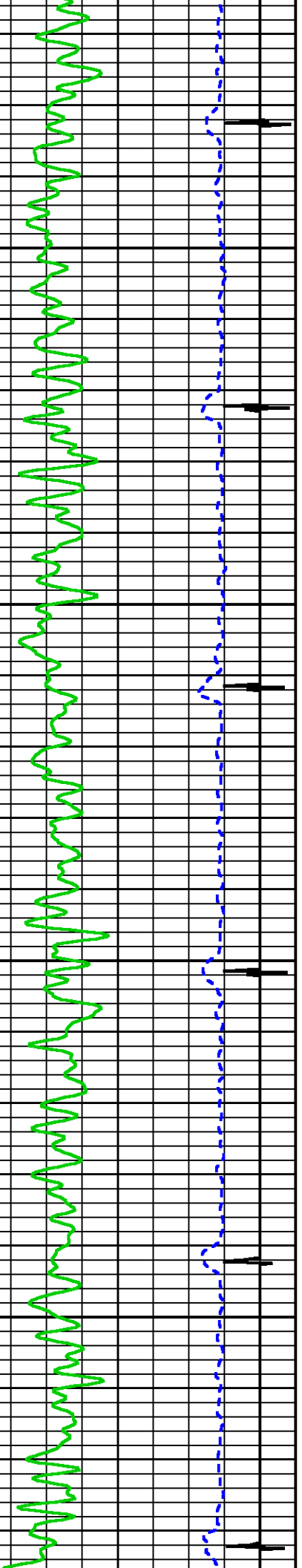
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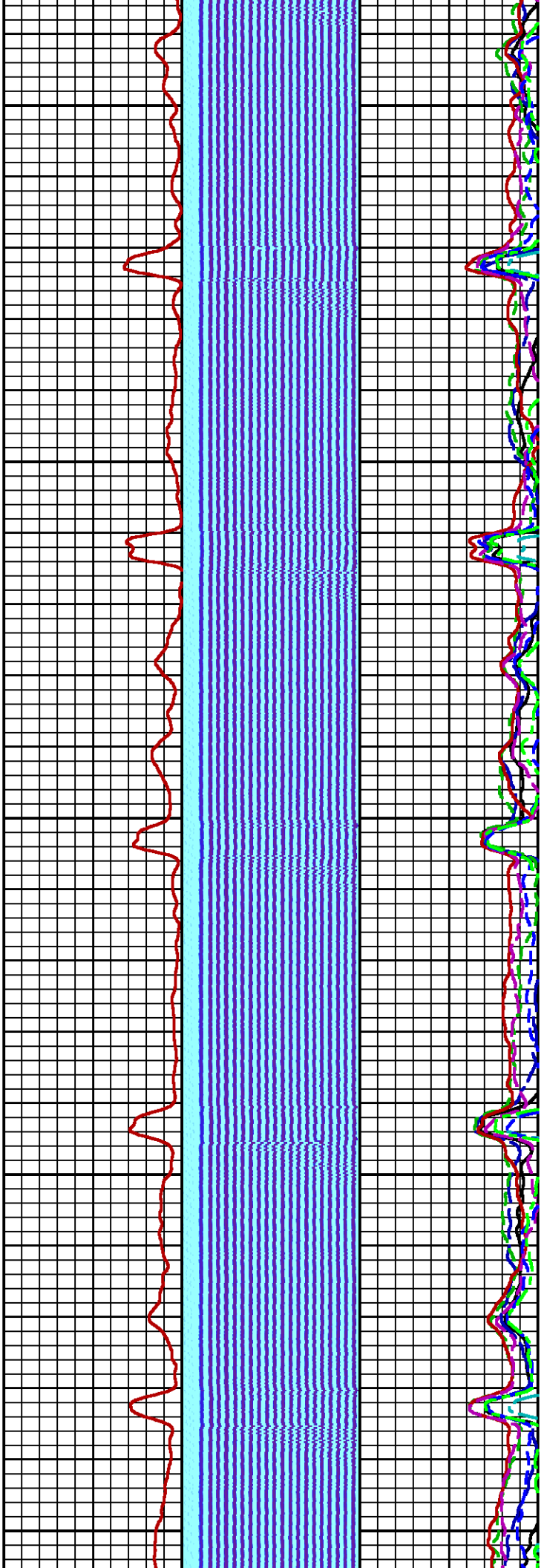




700

800

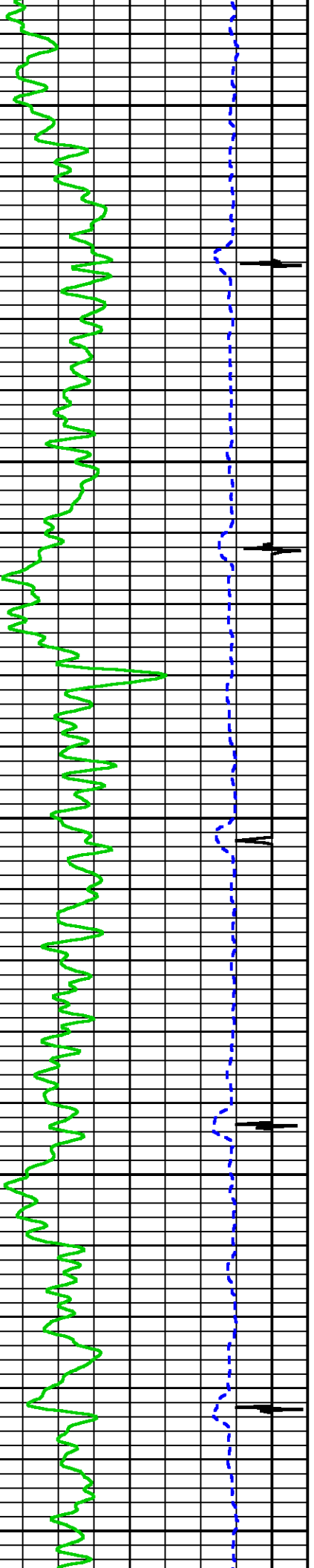


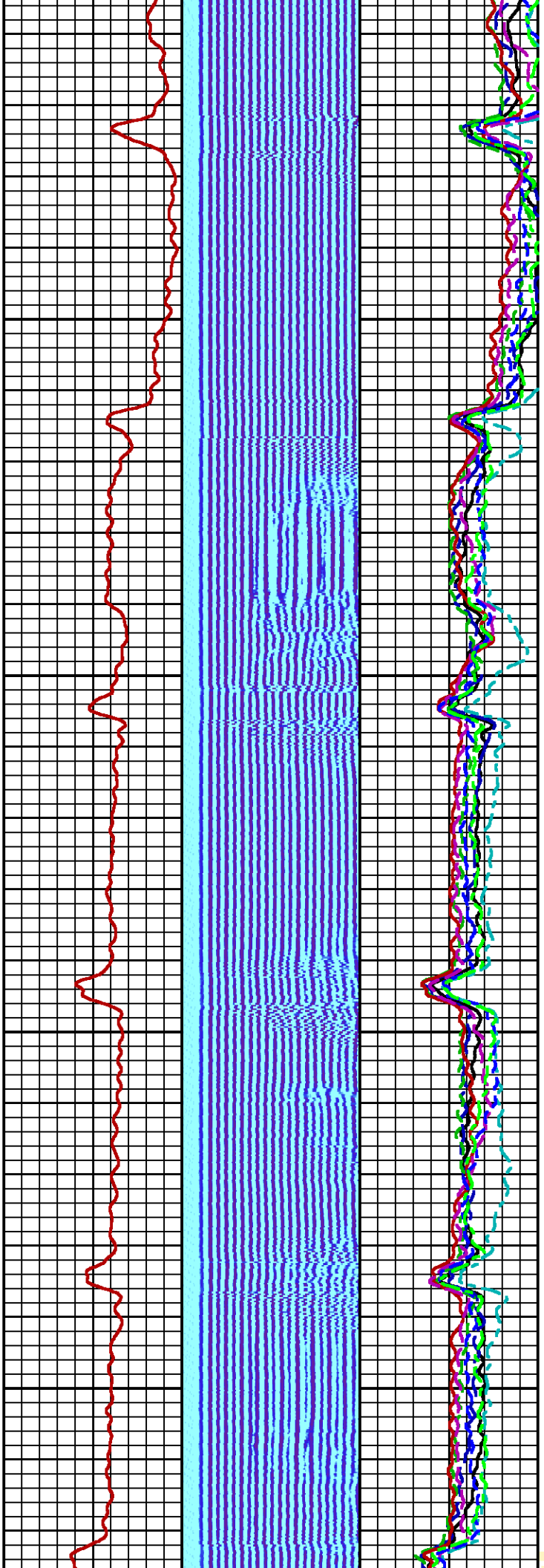


900

1000

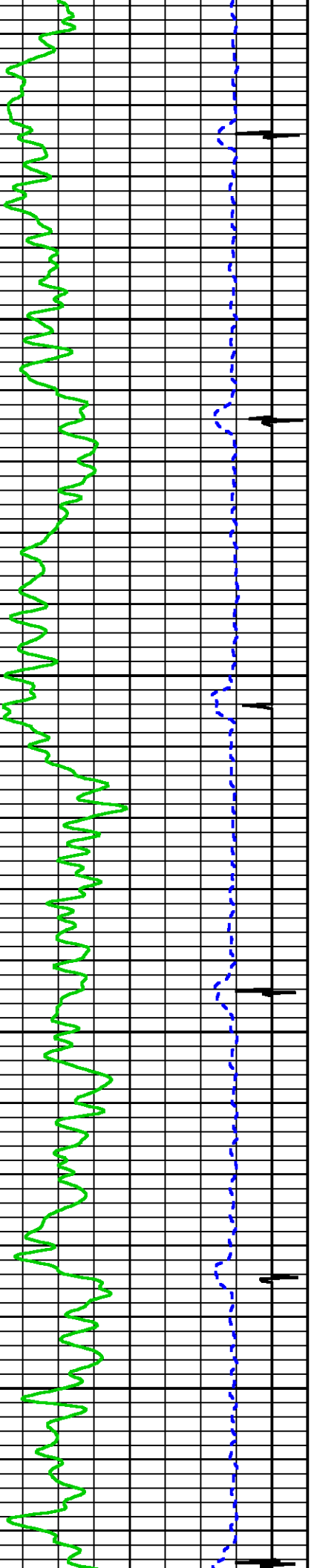
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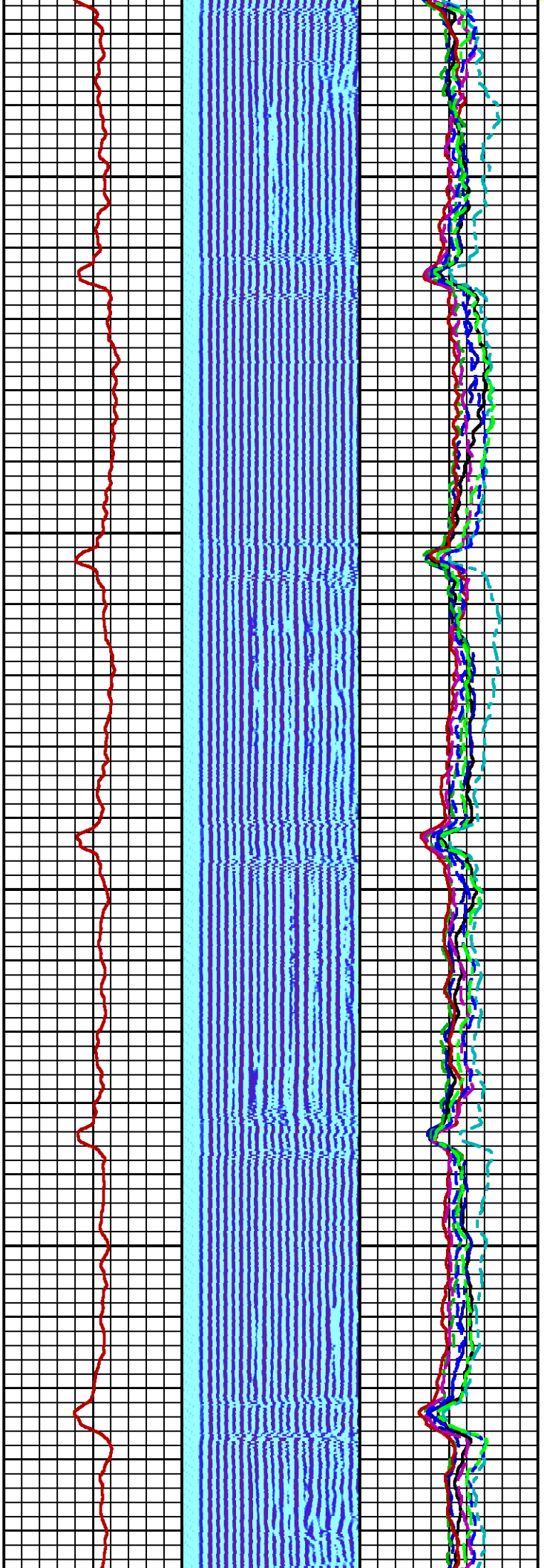




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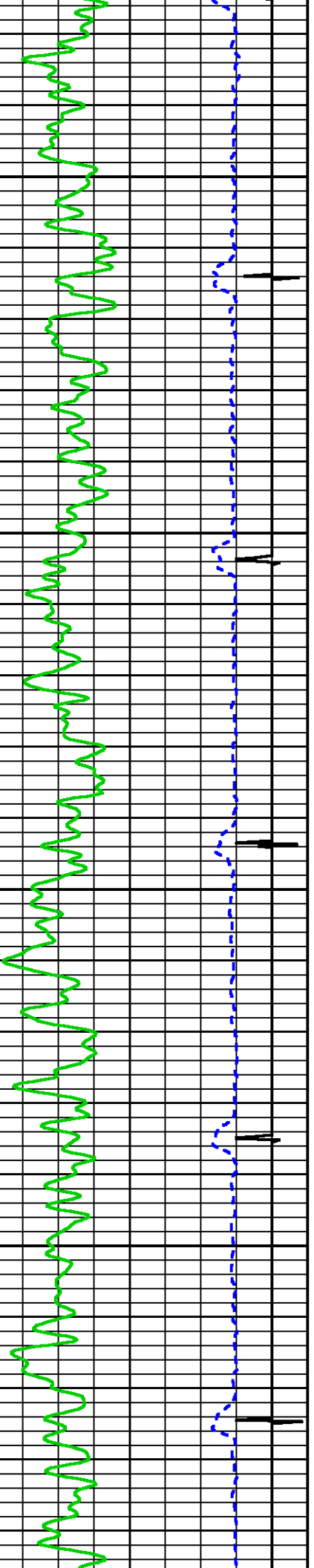
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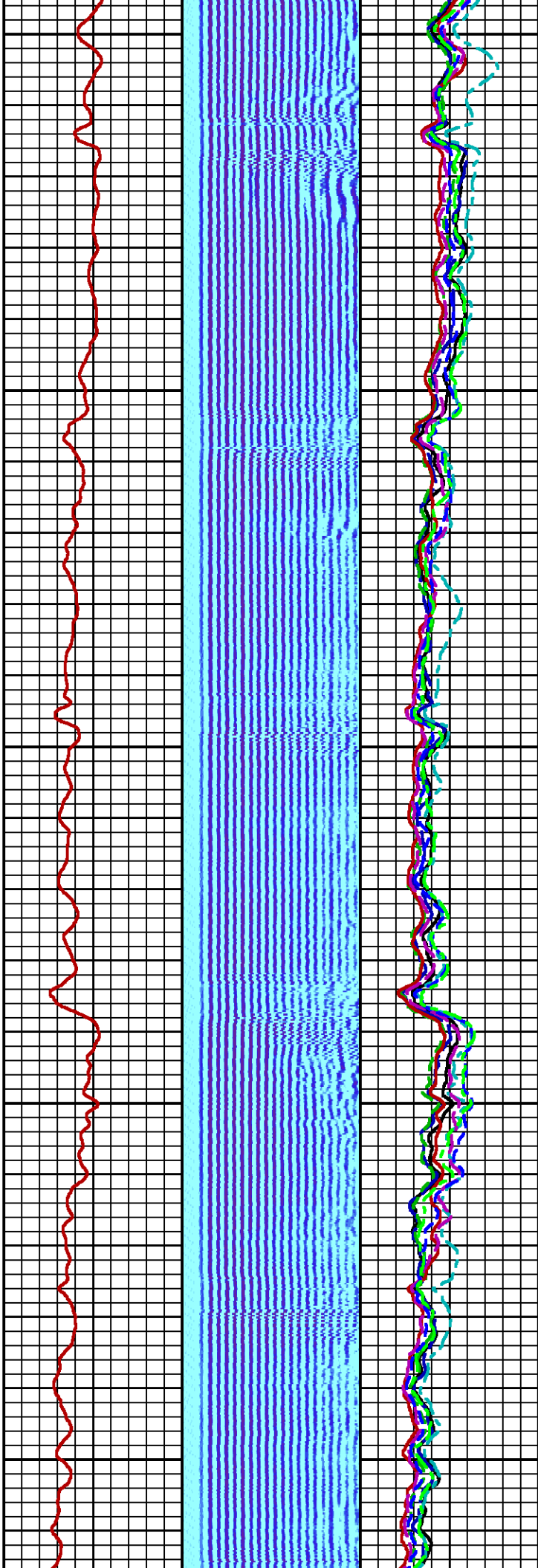
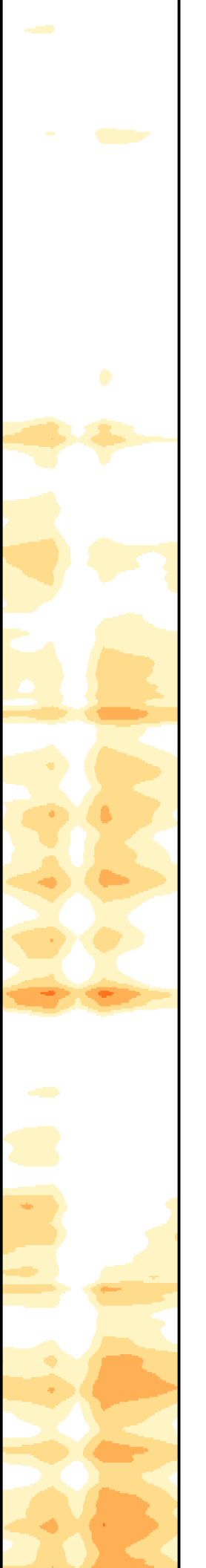




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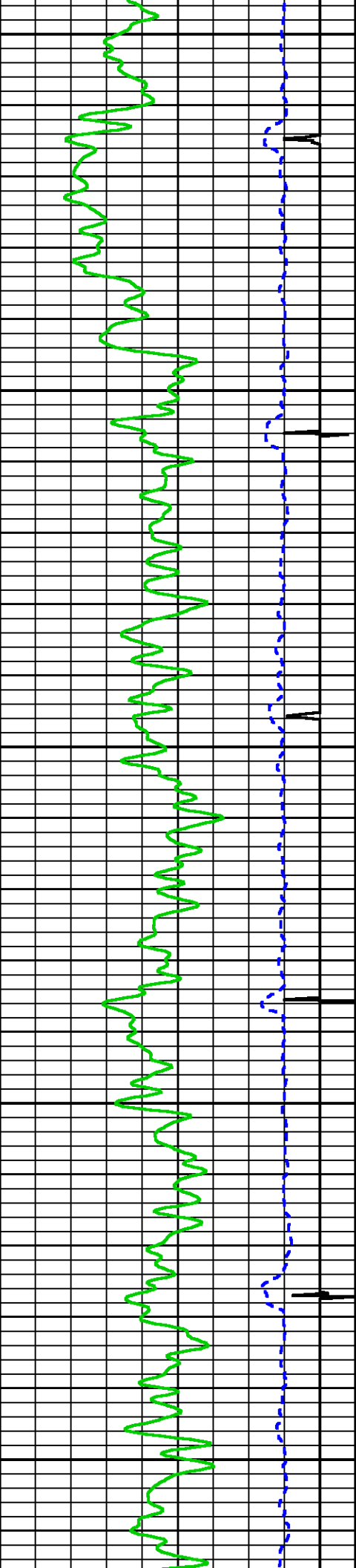
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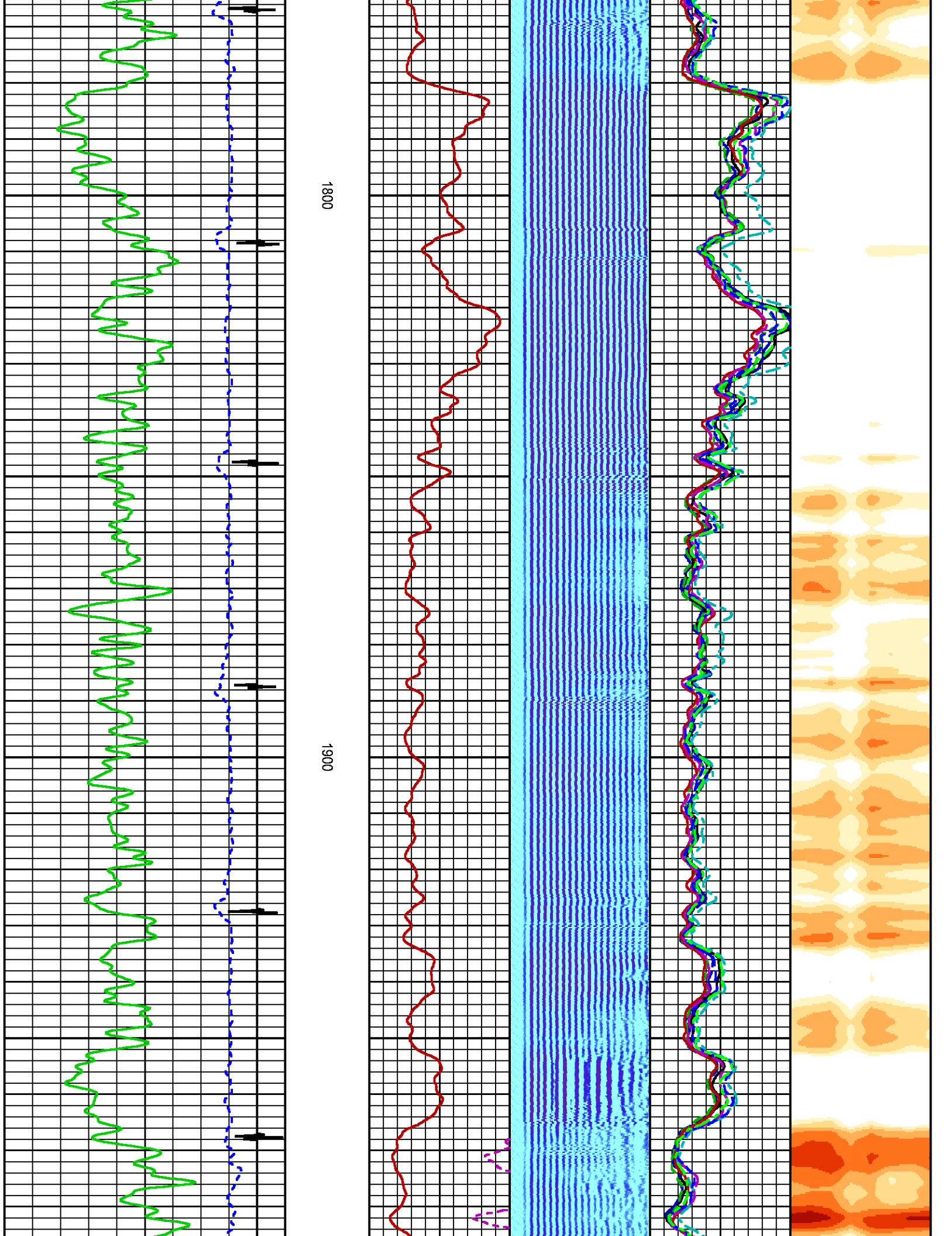


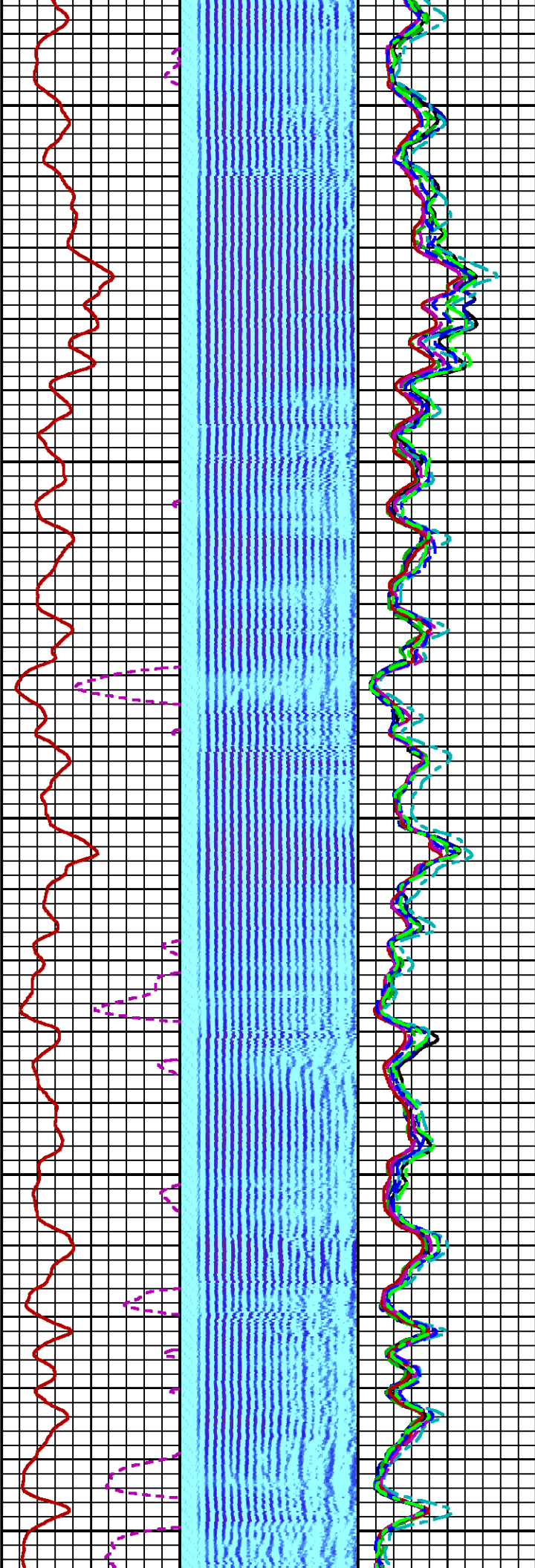
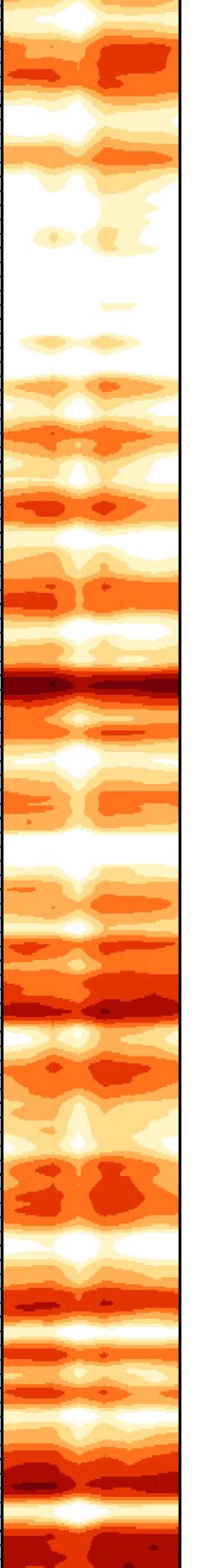


1600

1700



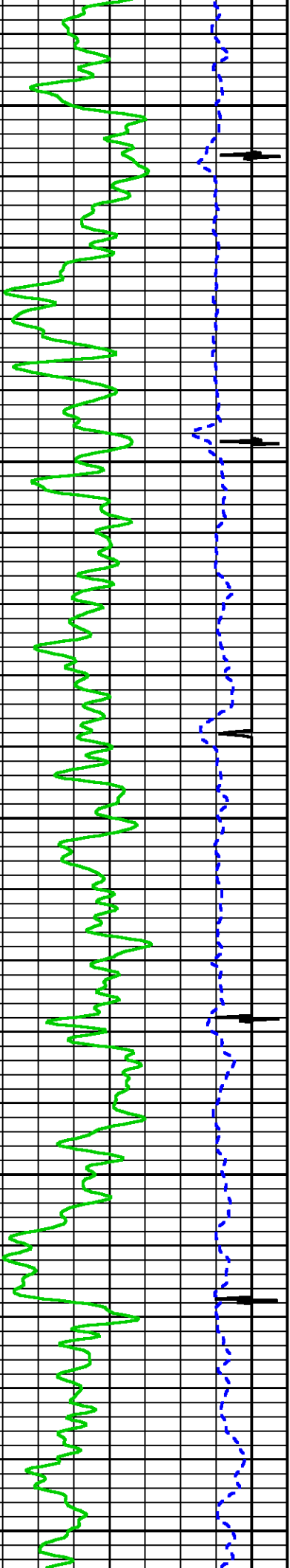


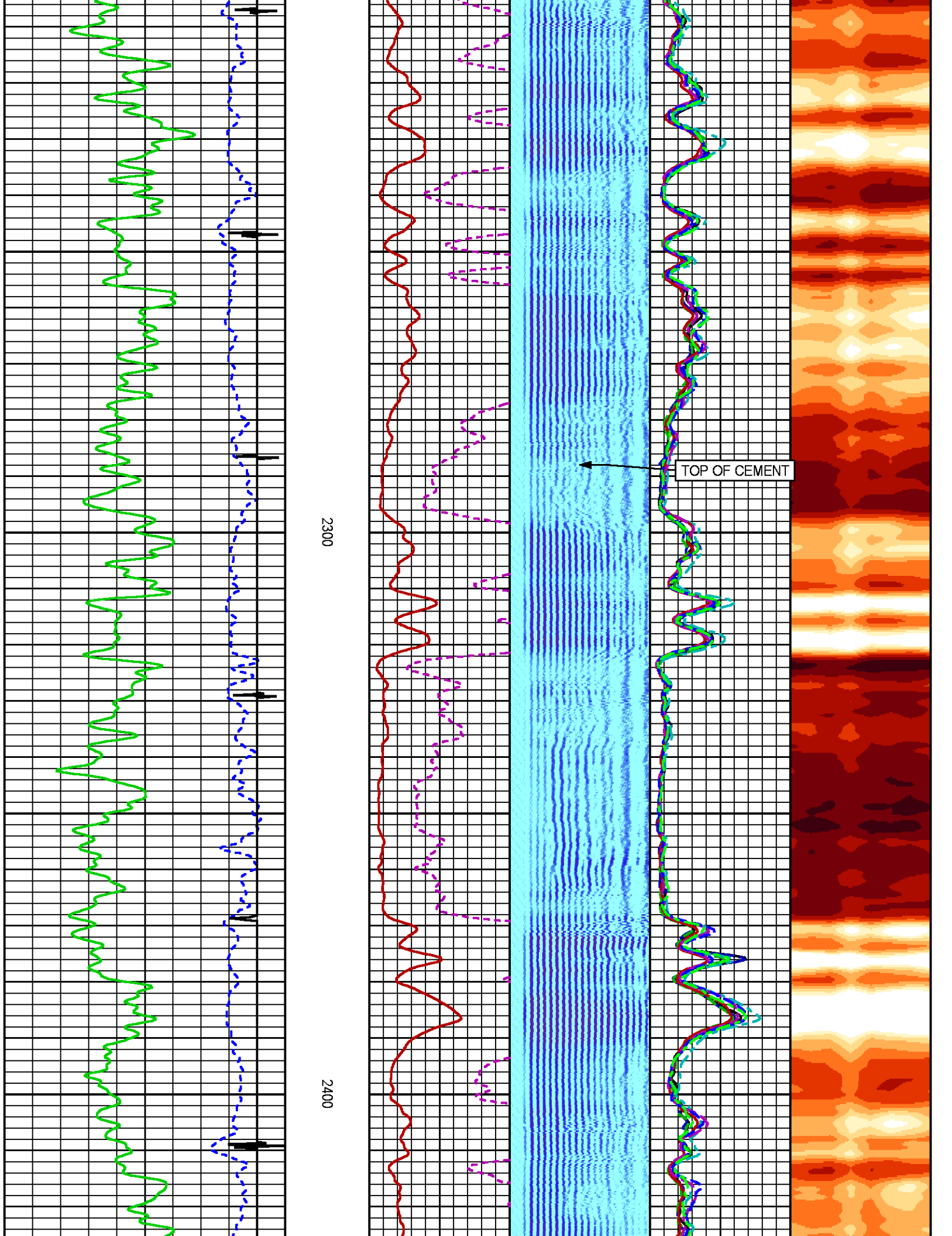


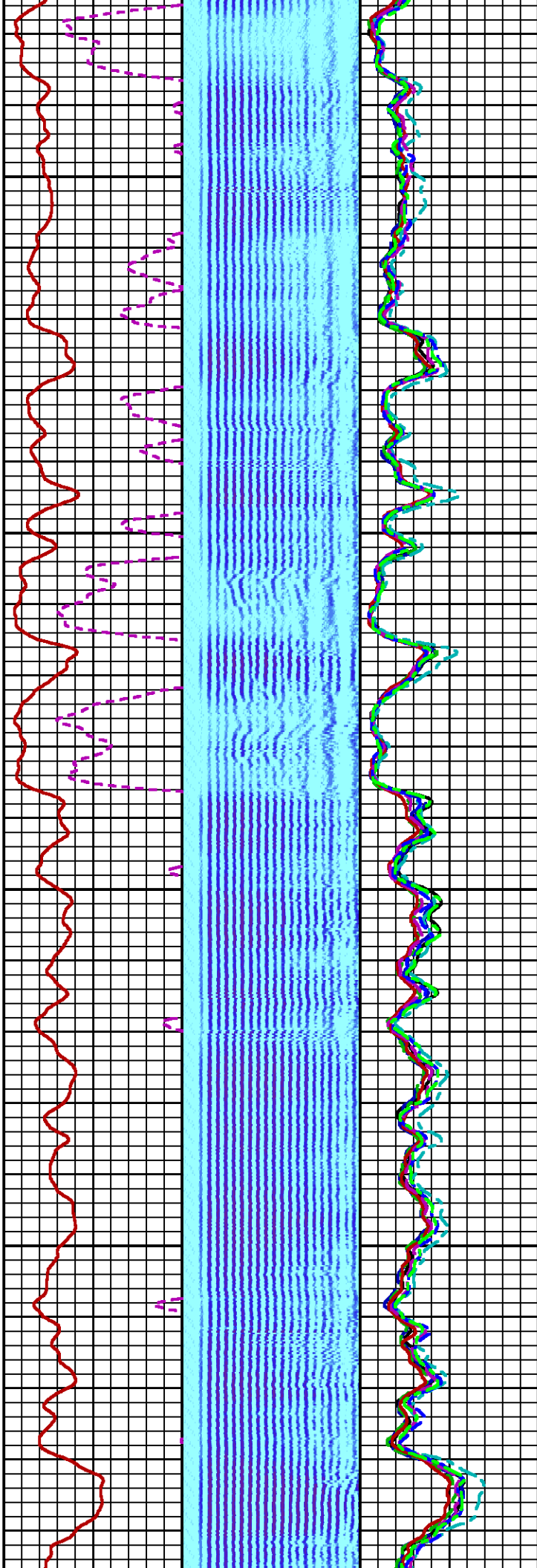
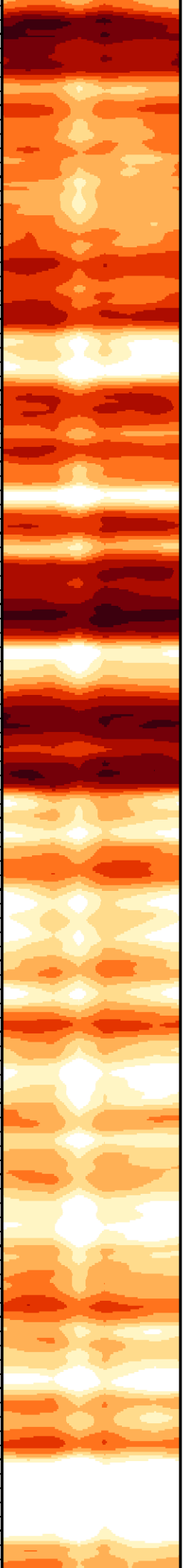
2000

2100

2200

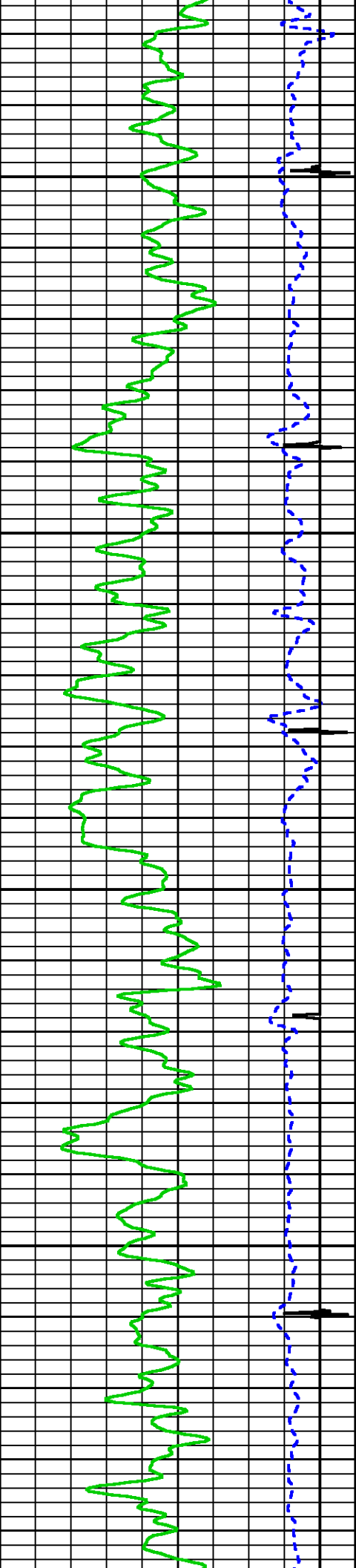


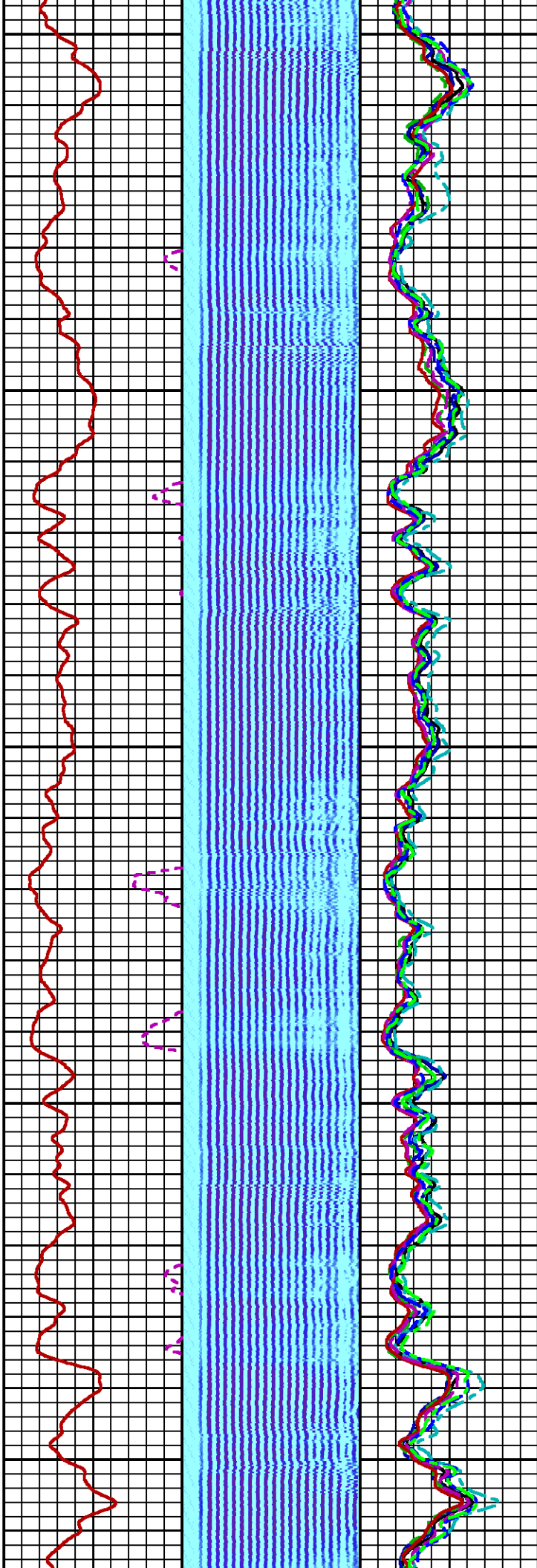
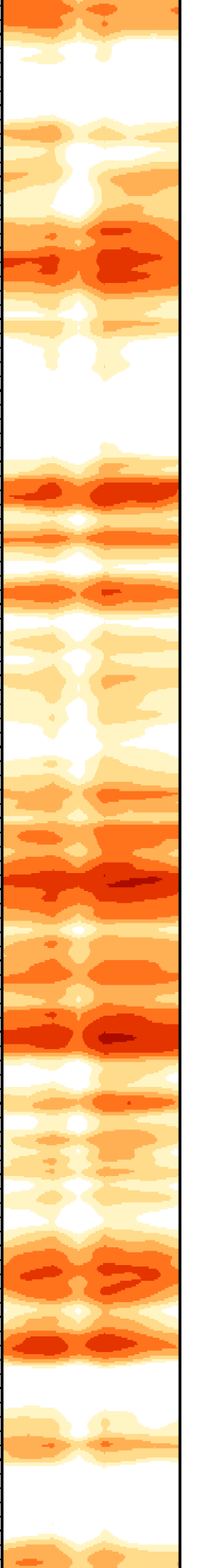




2500

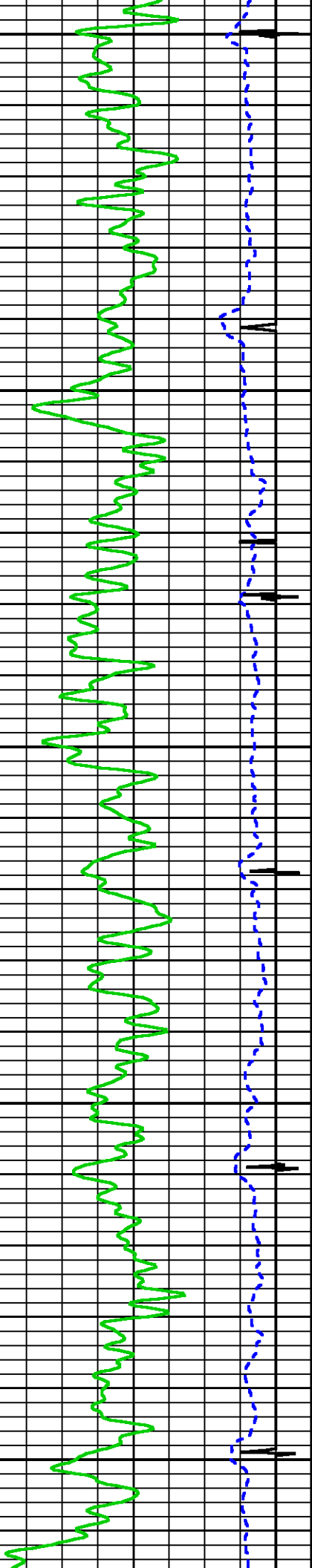
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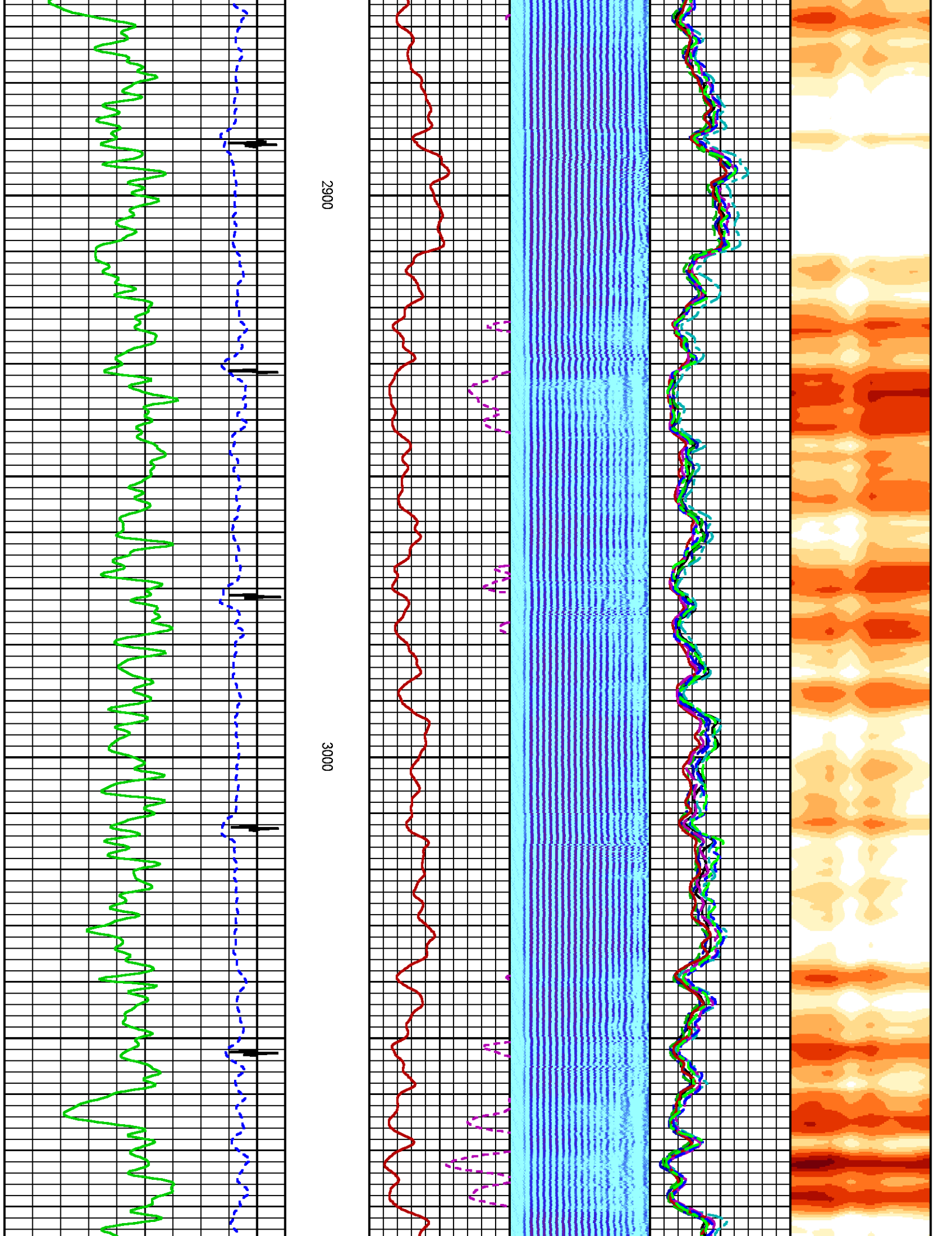


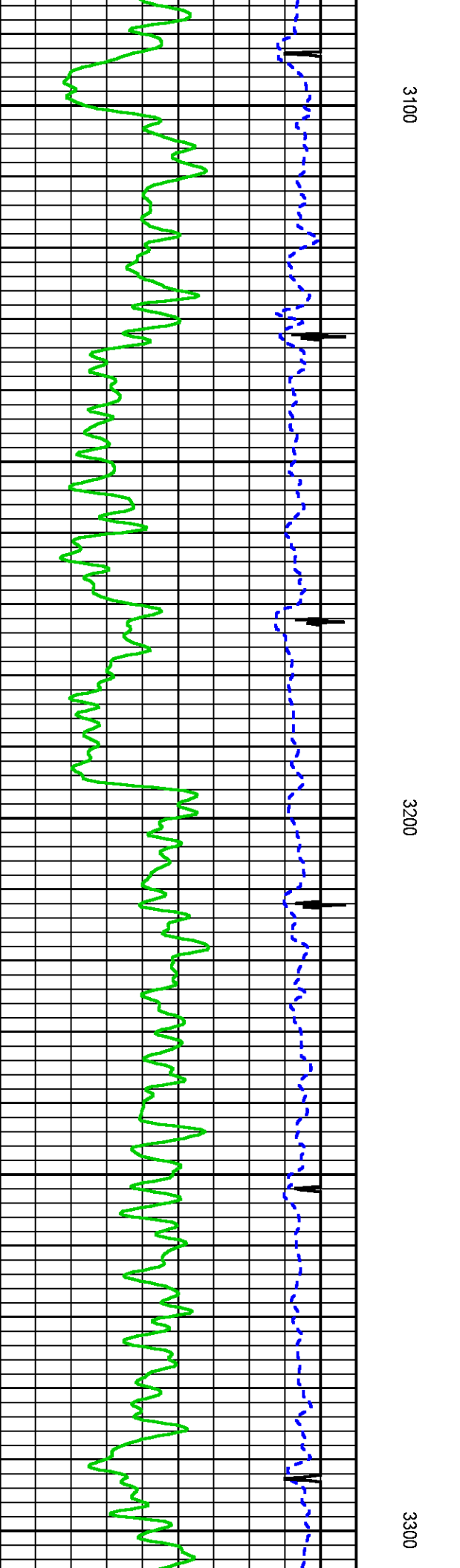
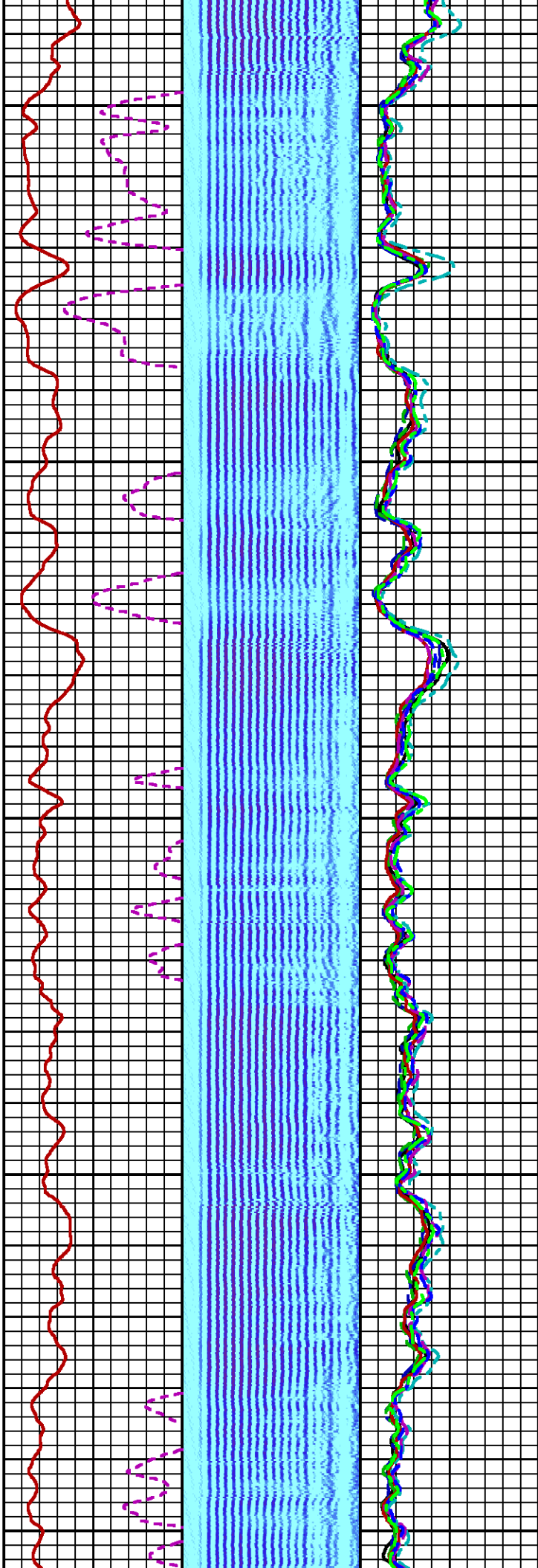
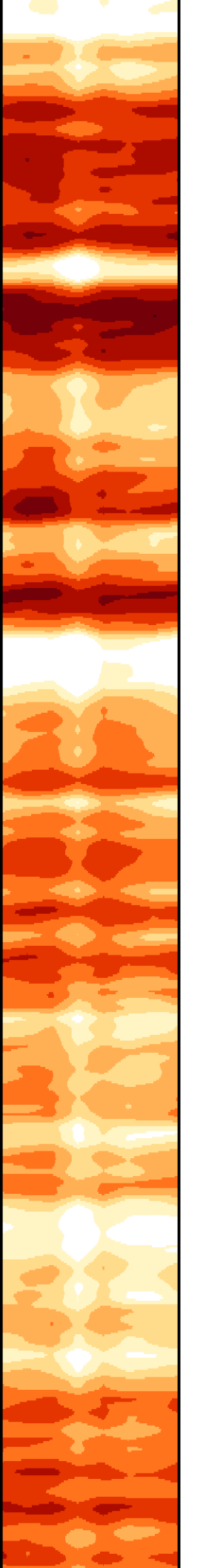


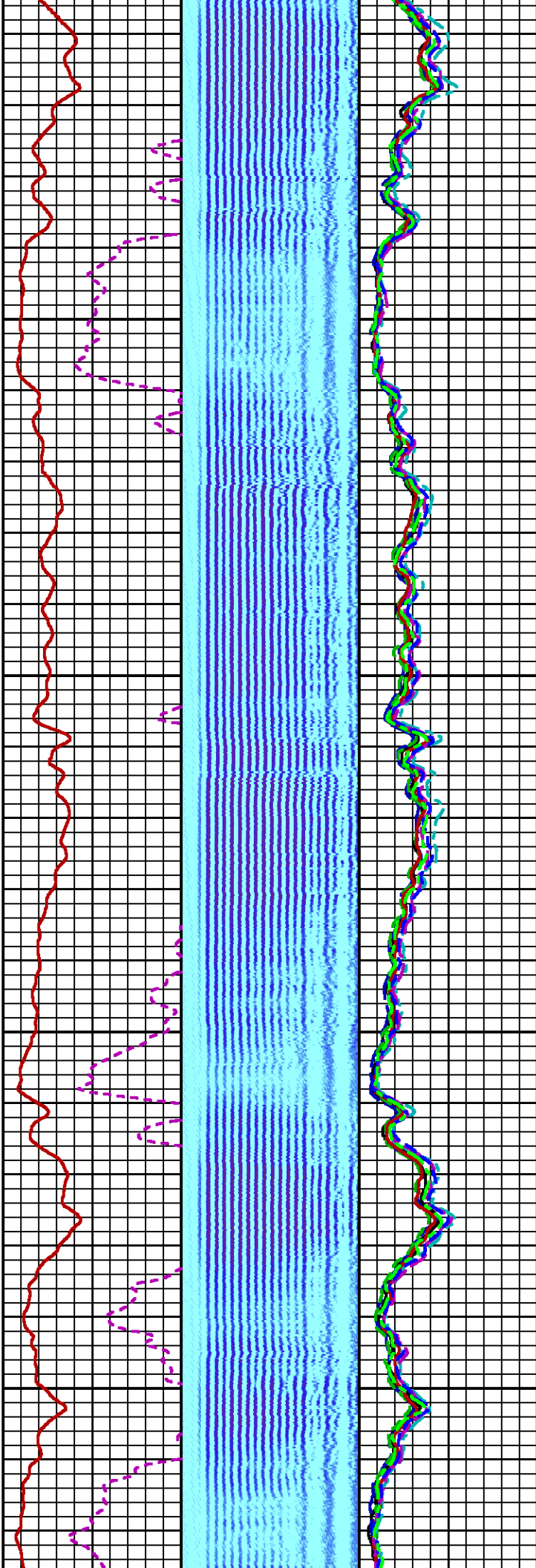
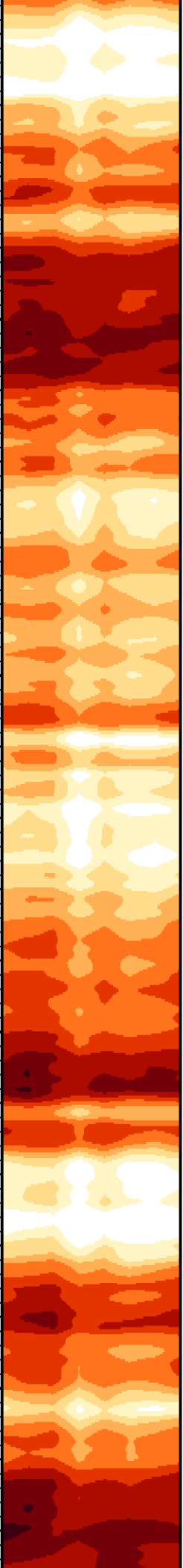
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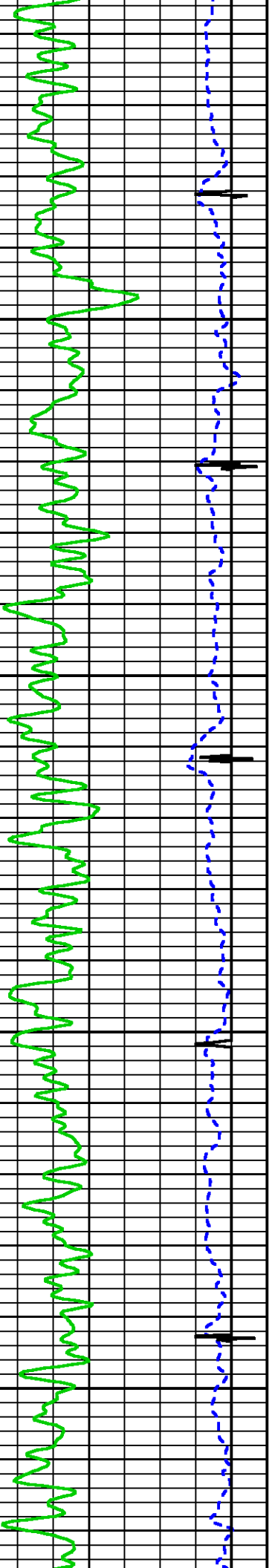


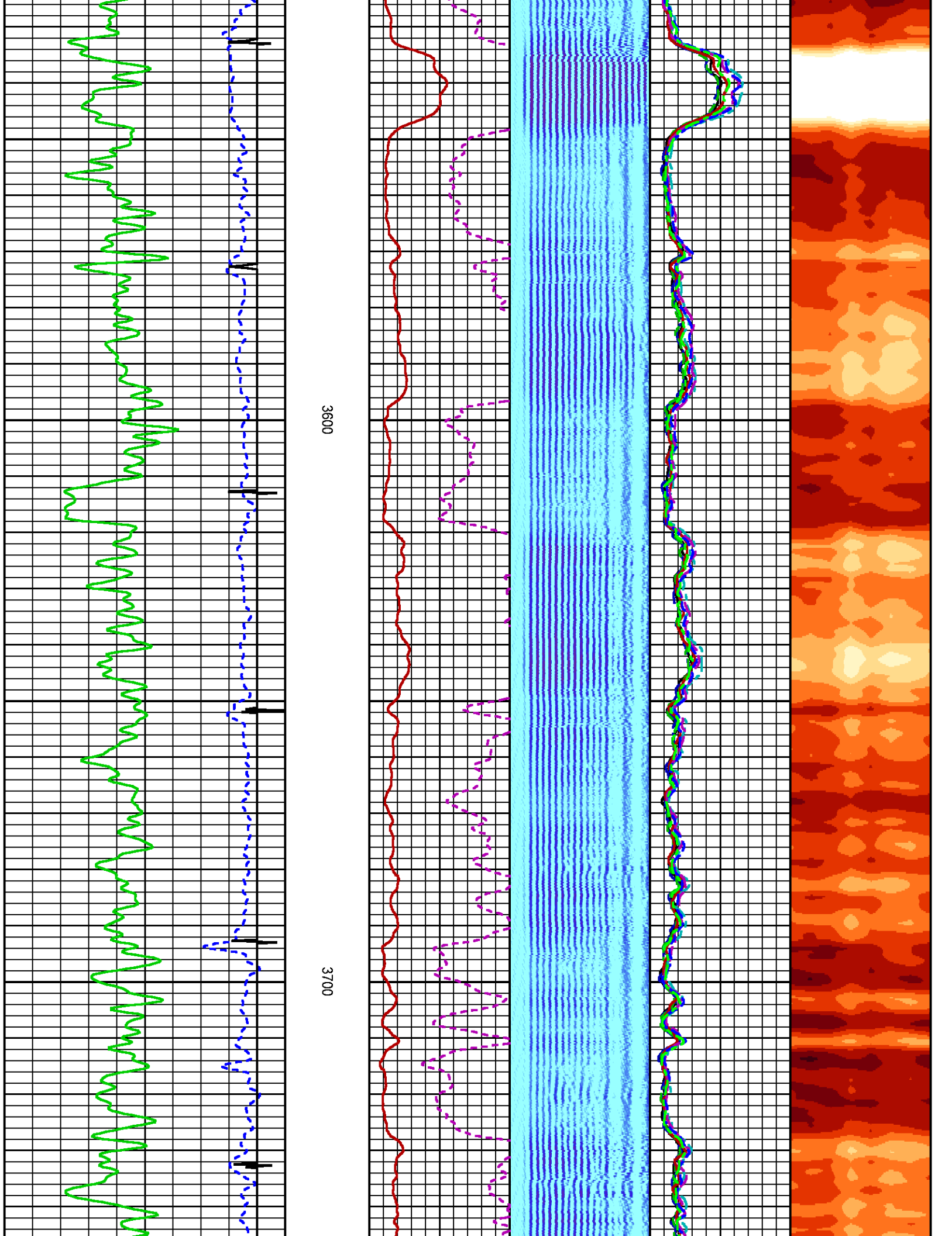


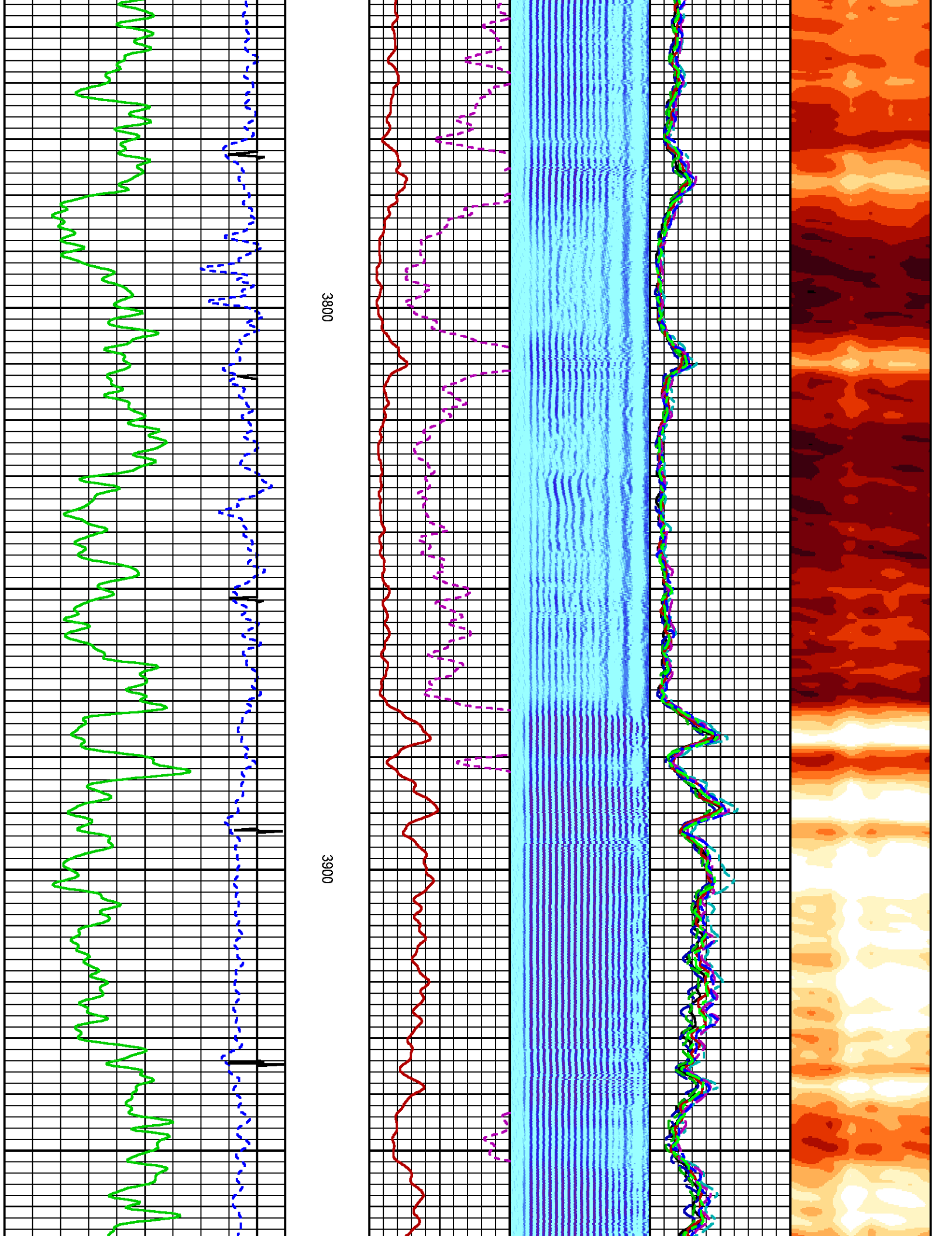


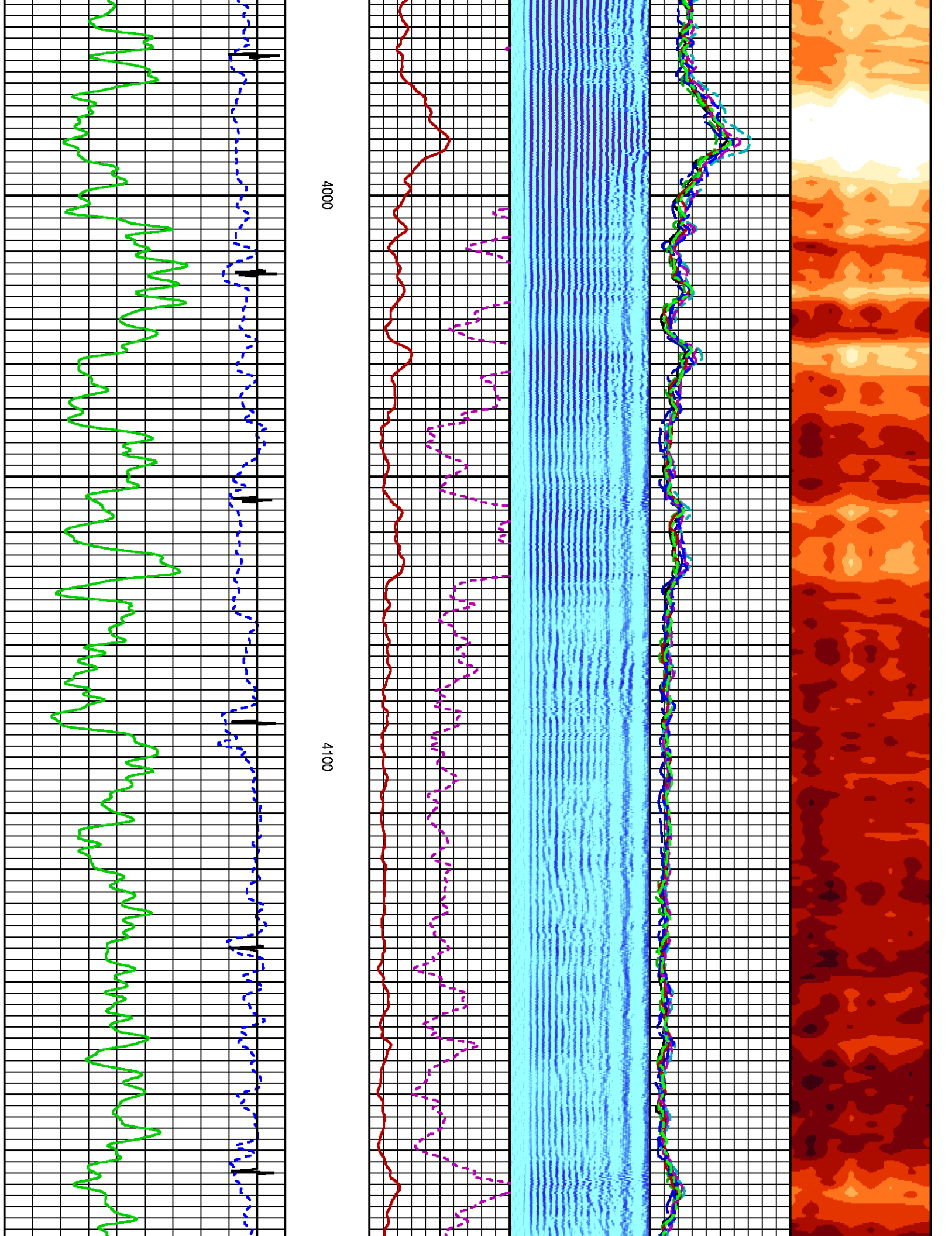
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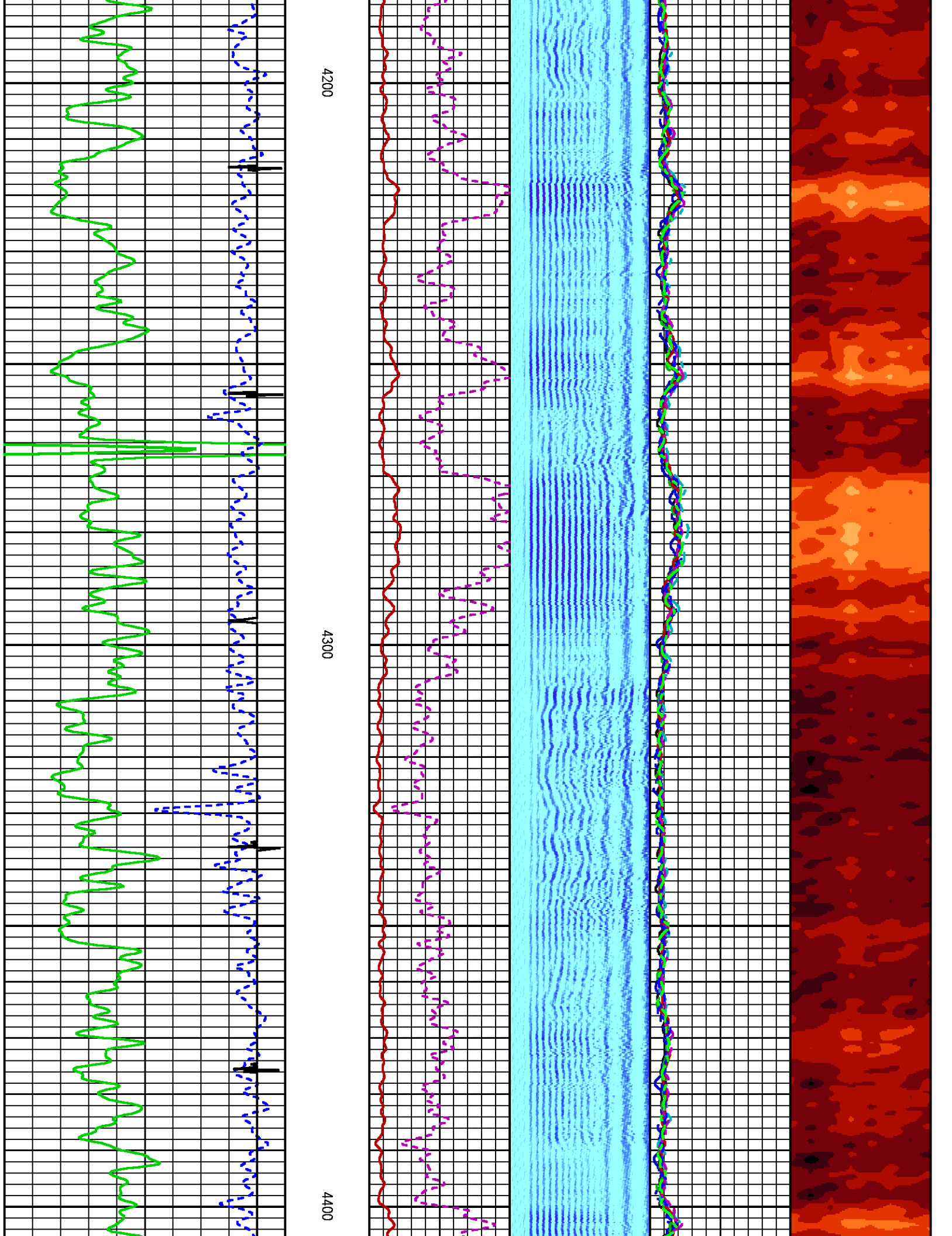
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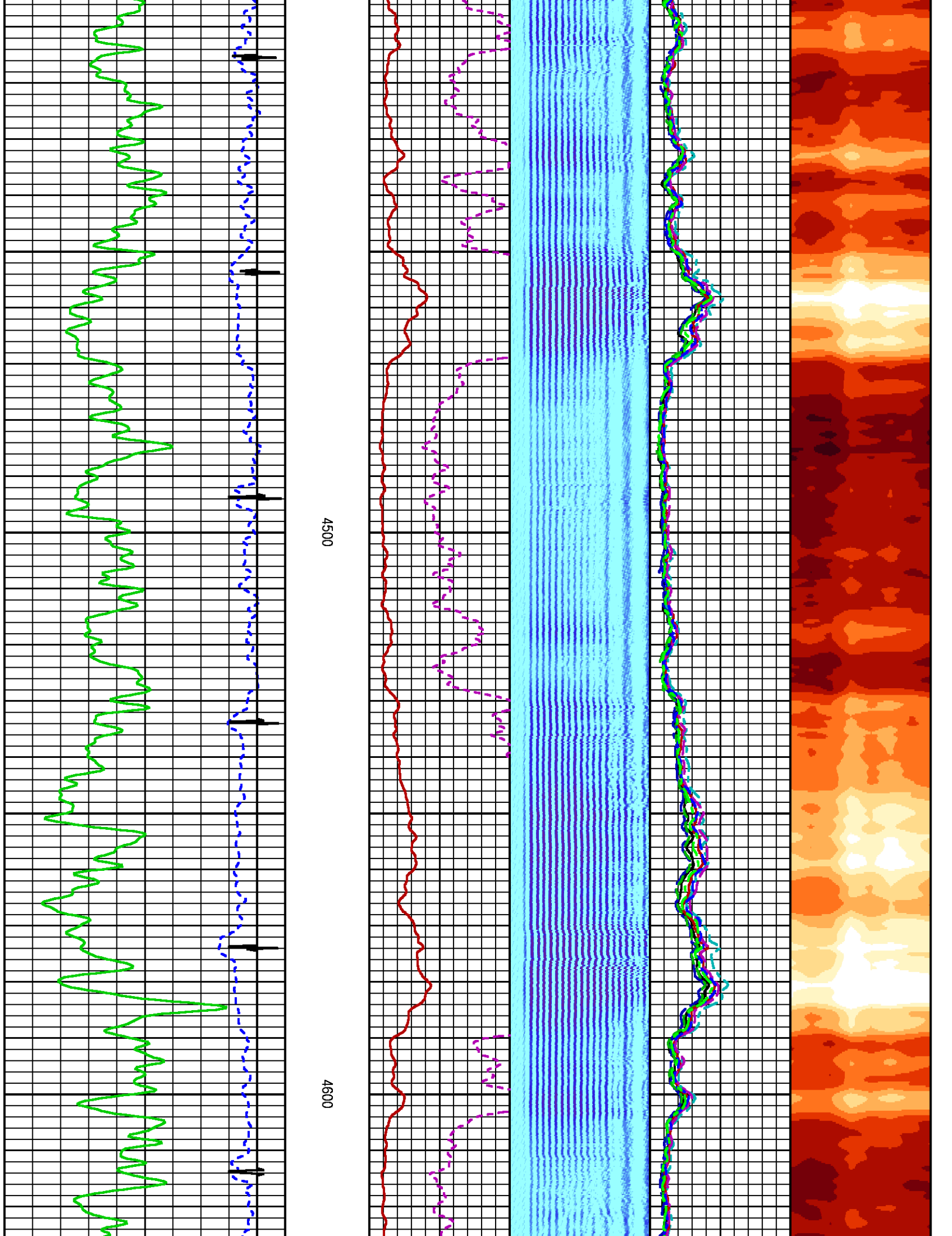


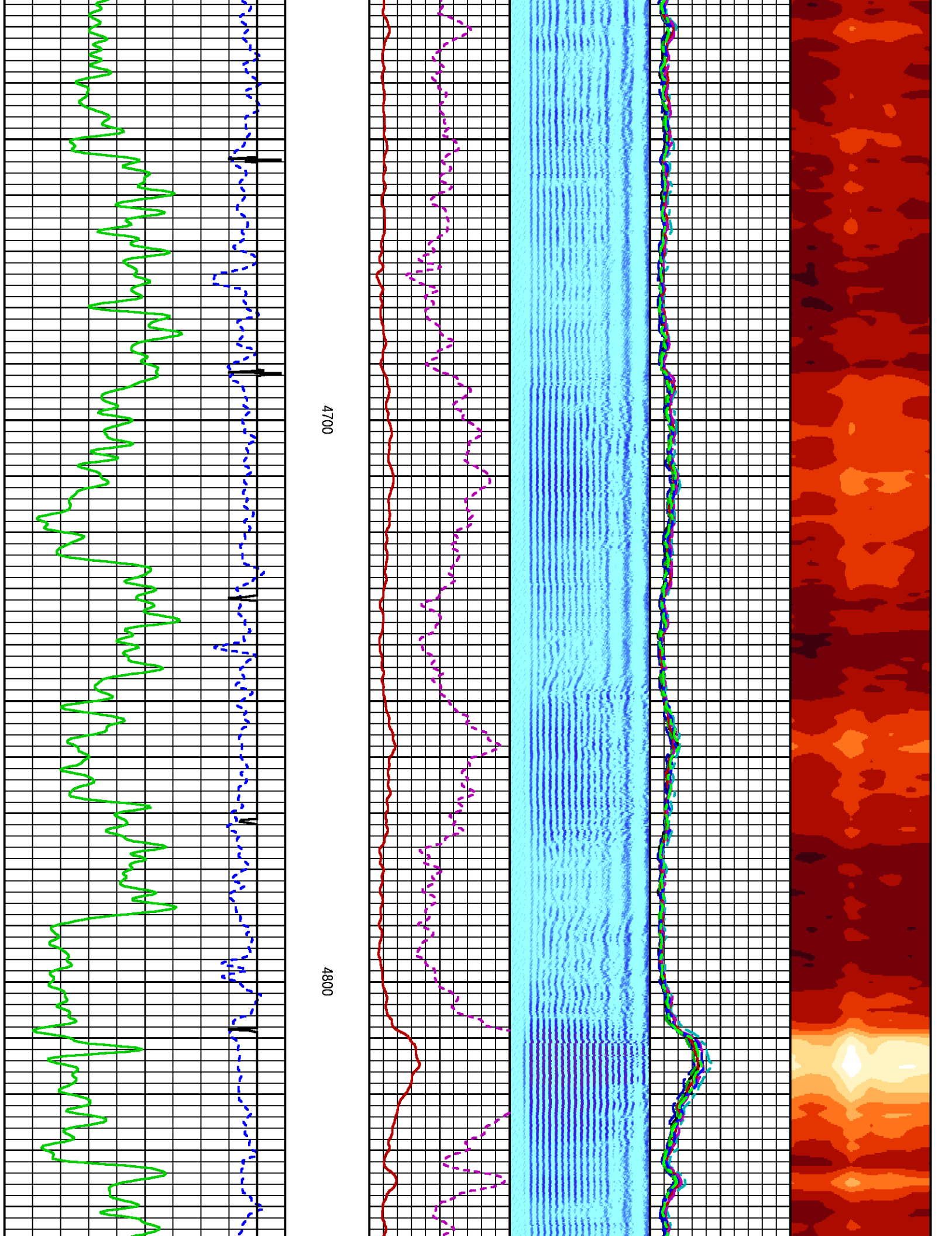


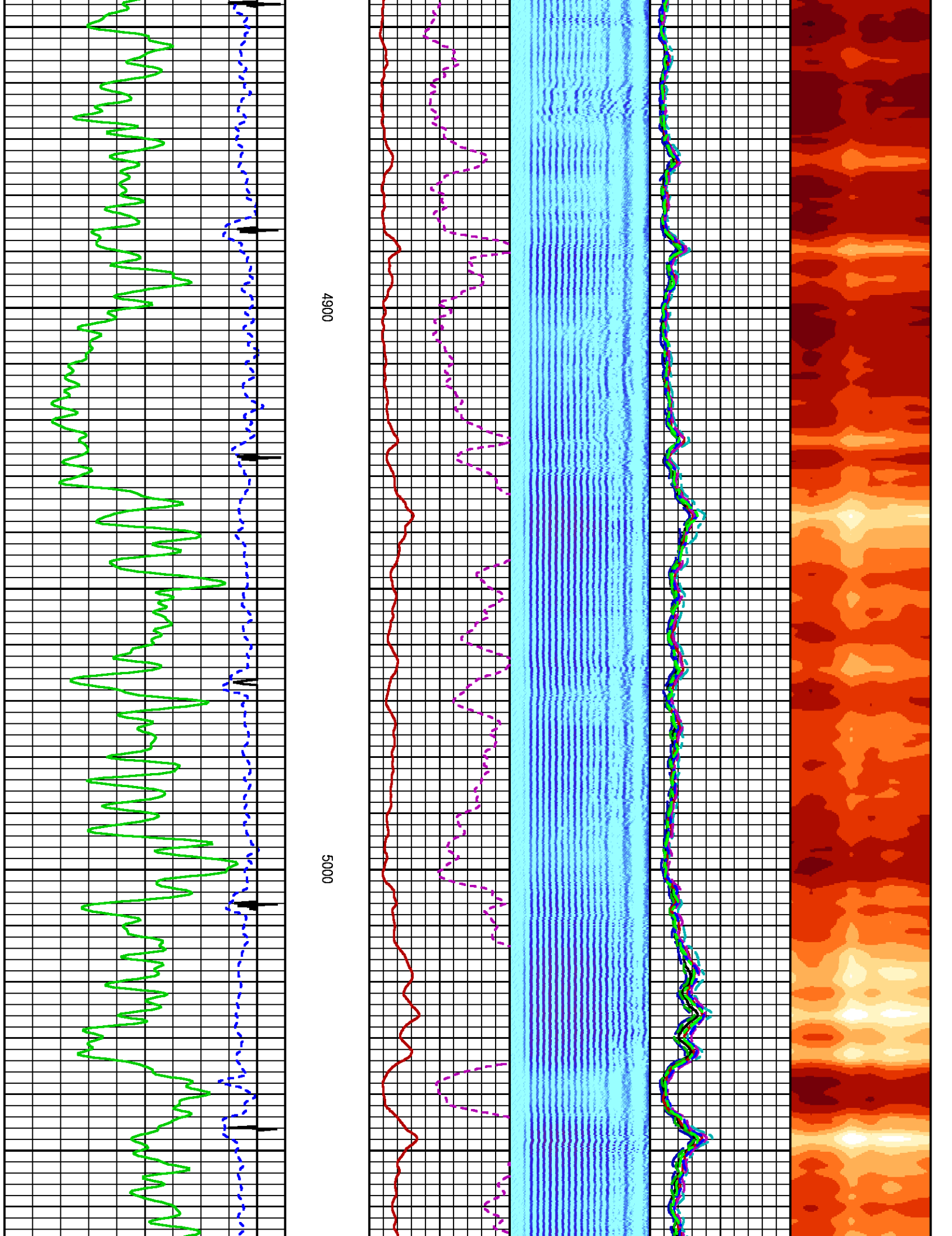


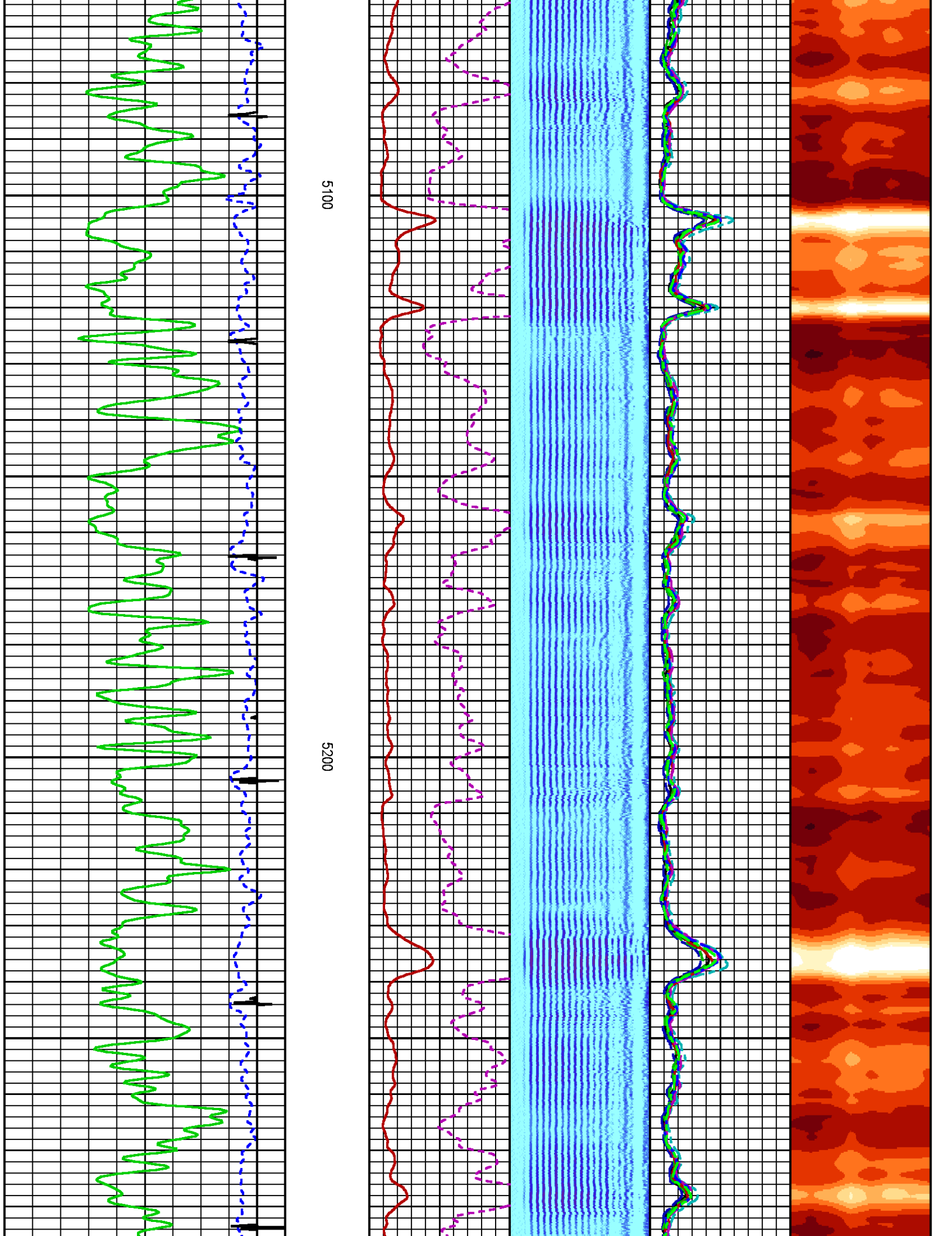


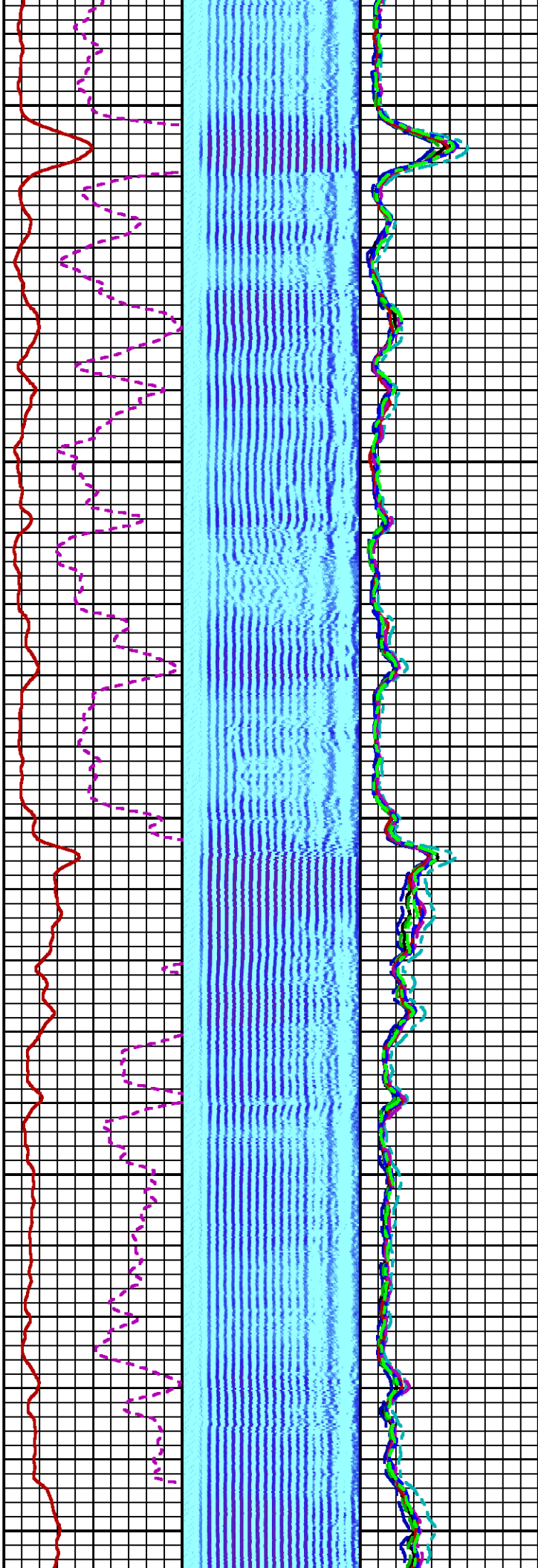








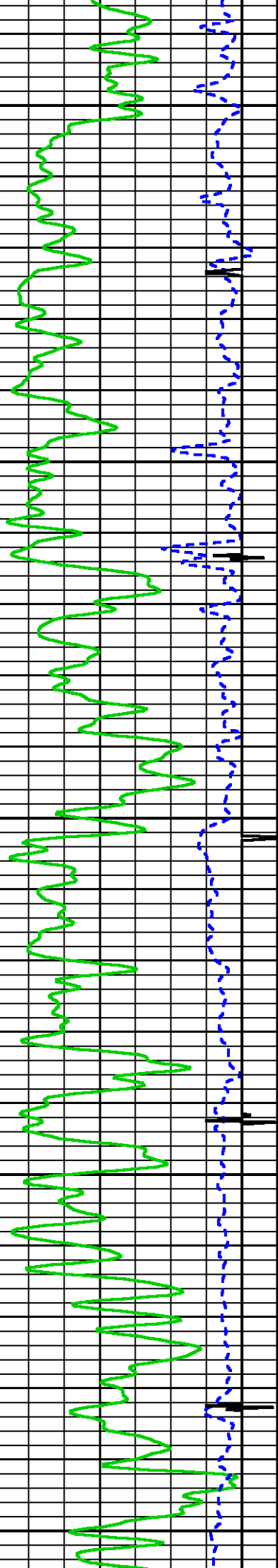


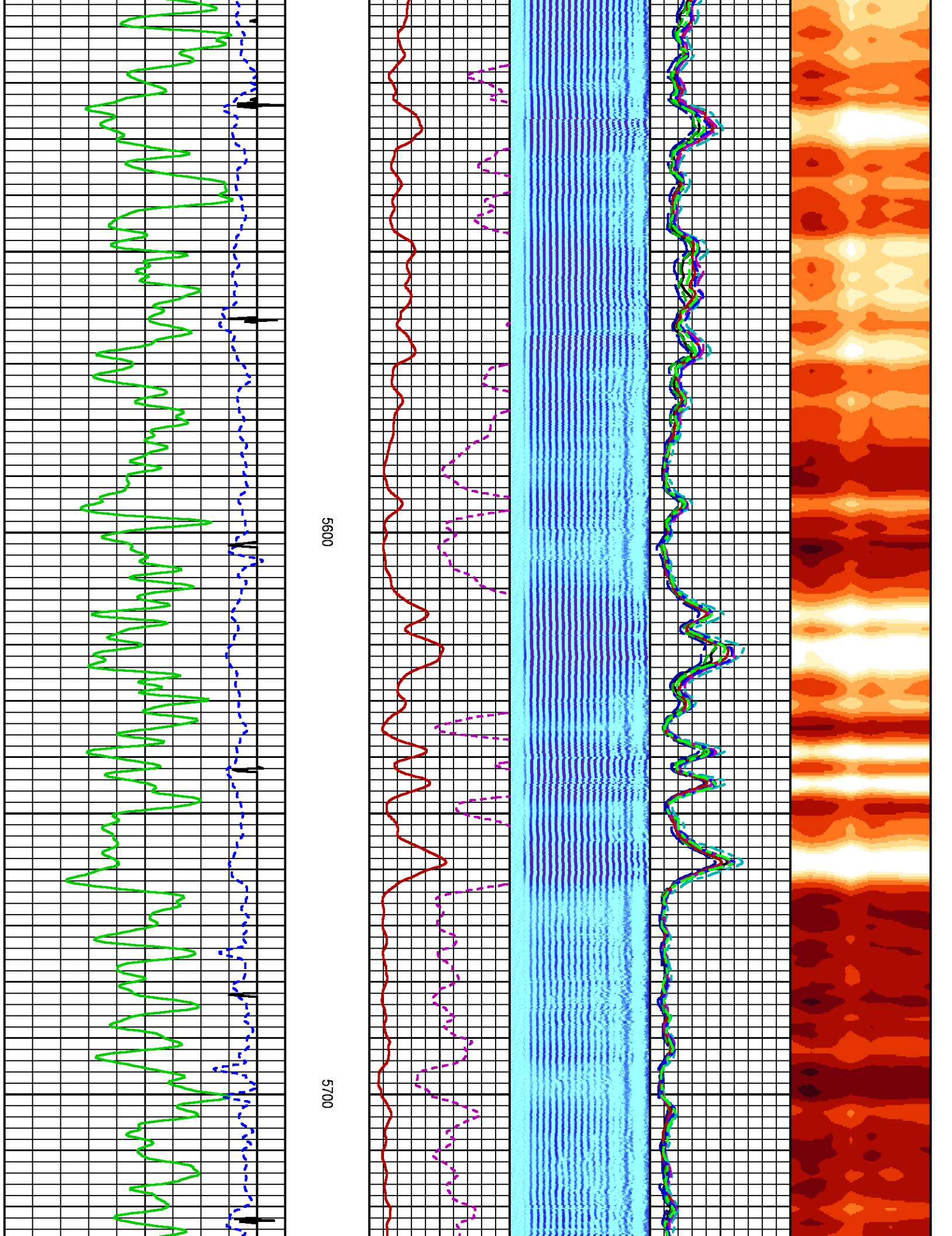


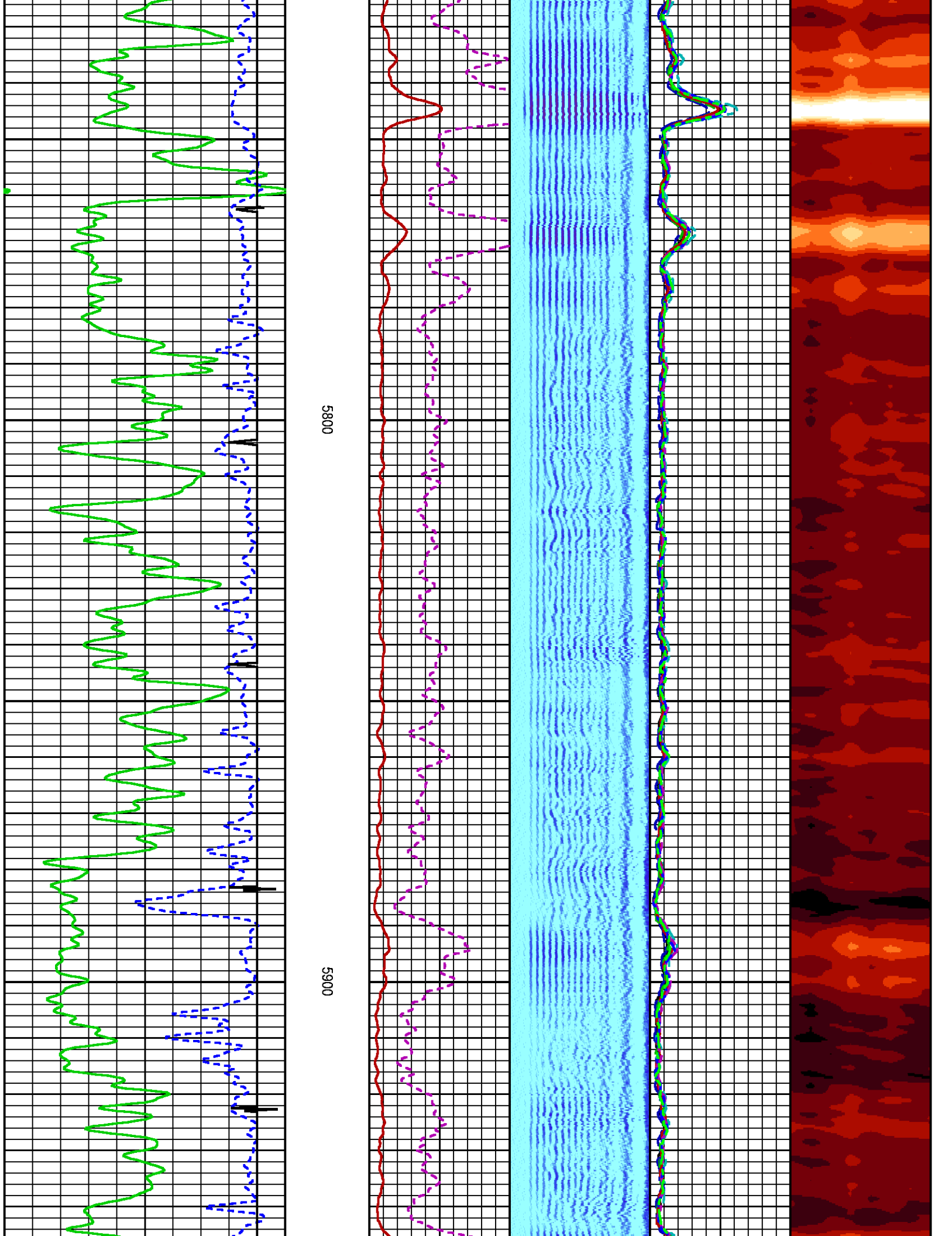
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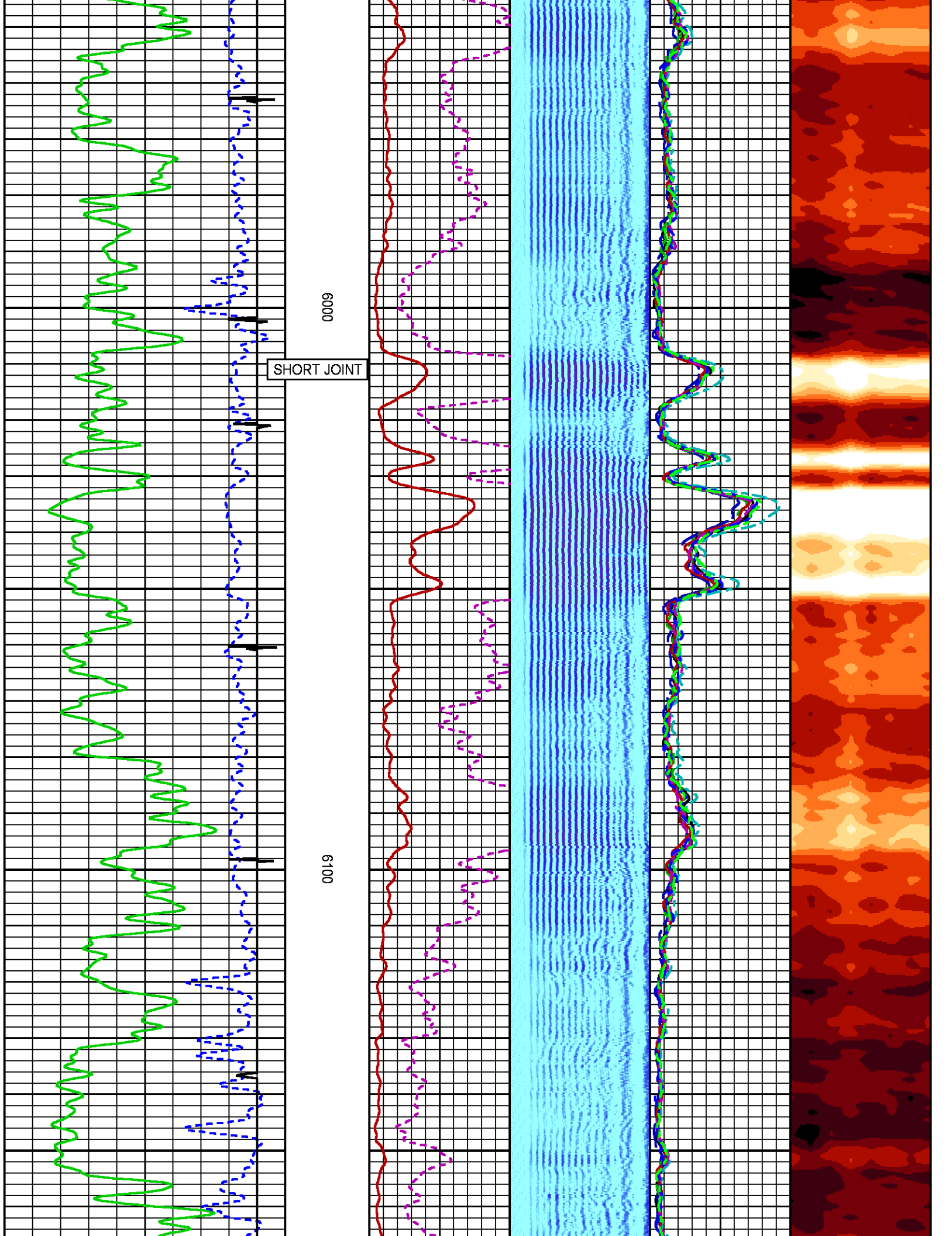
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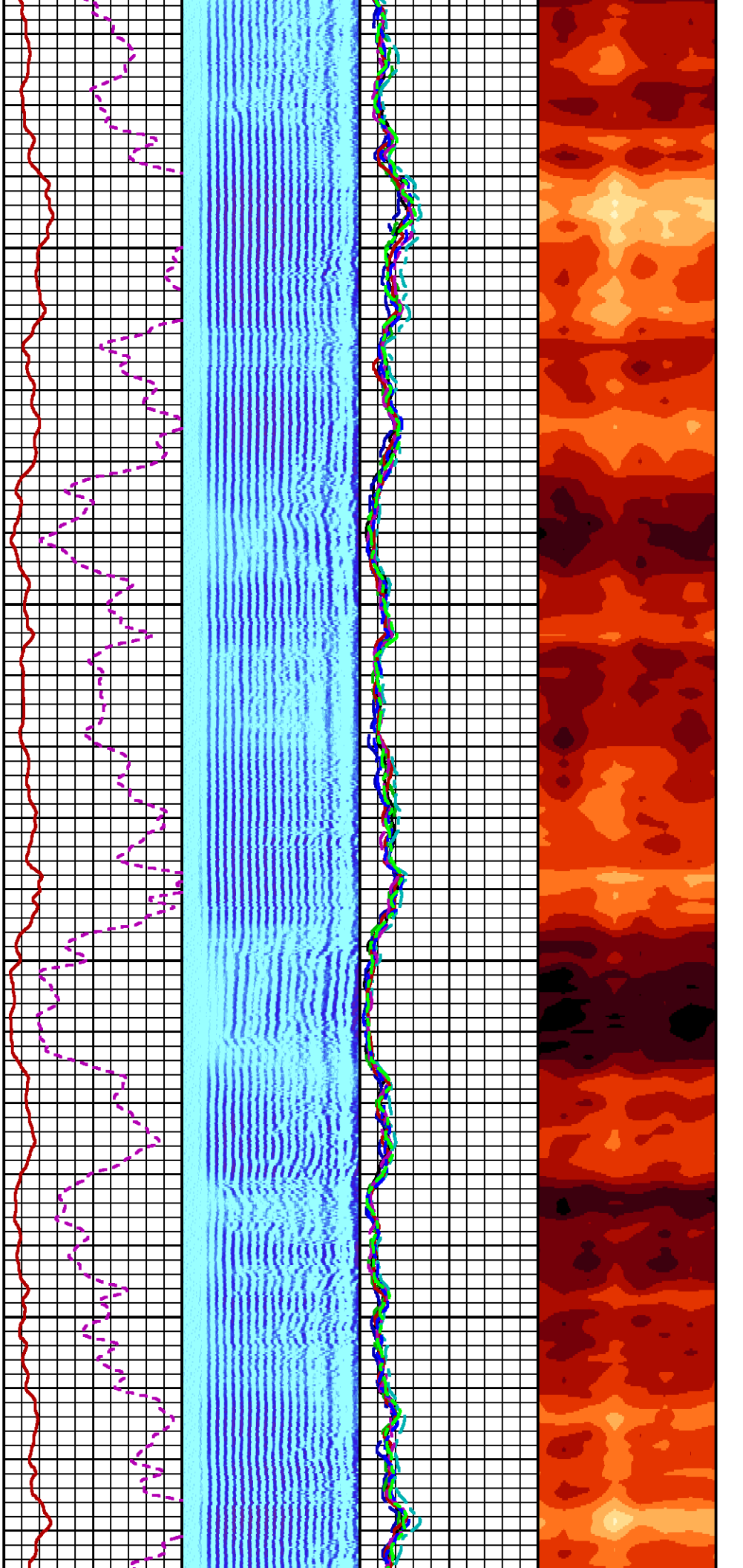
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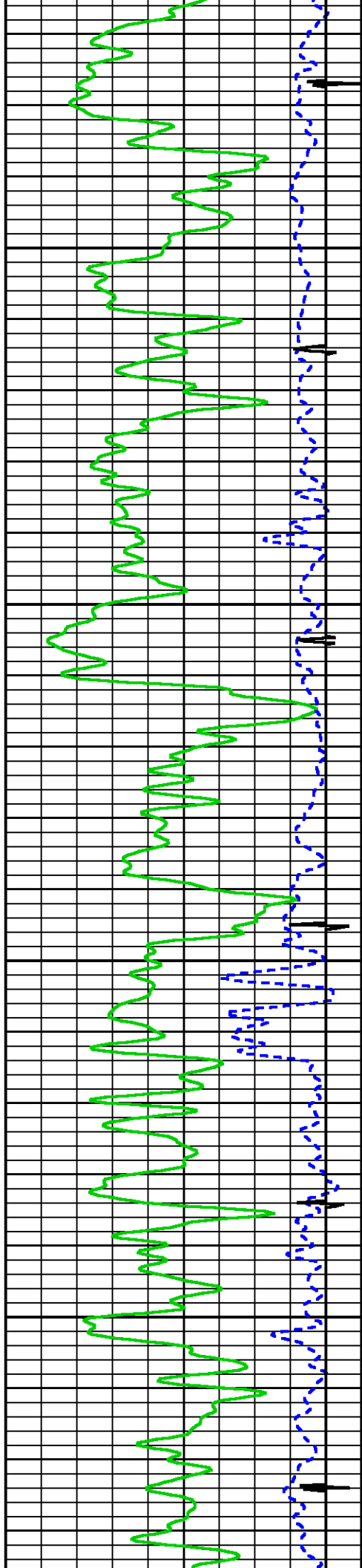


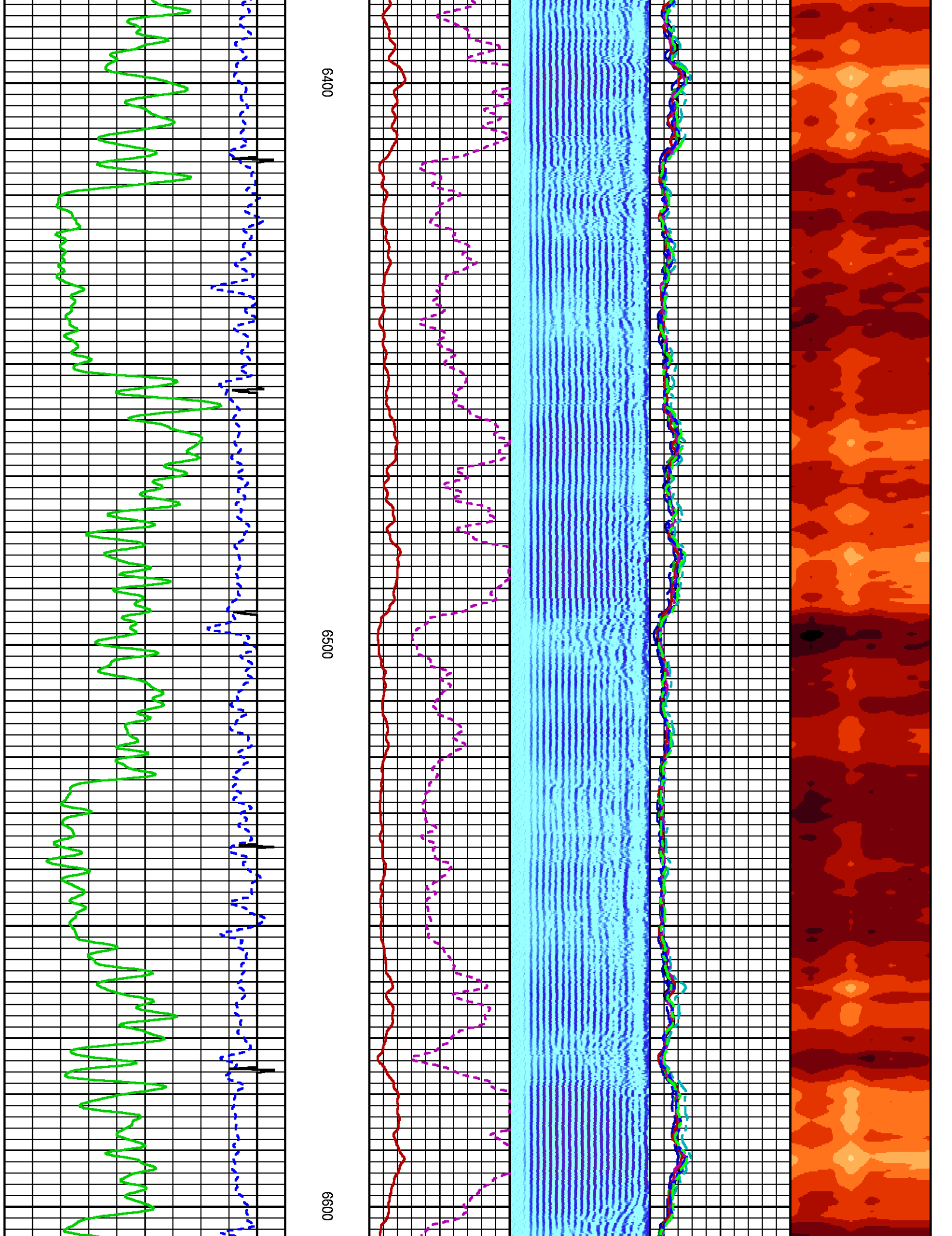


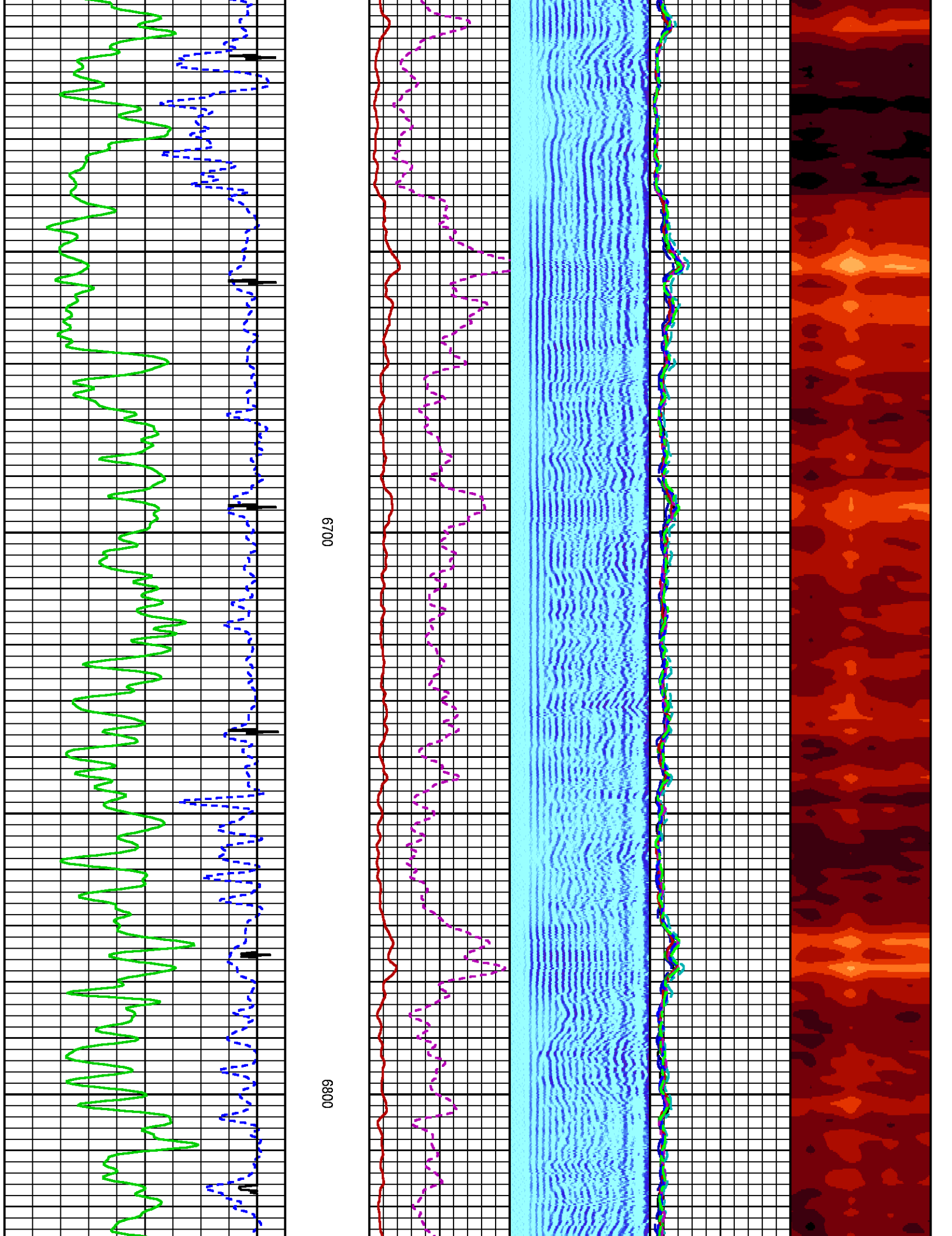


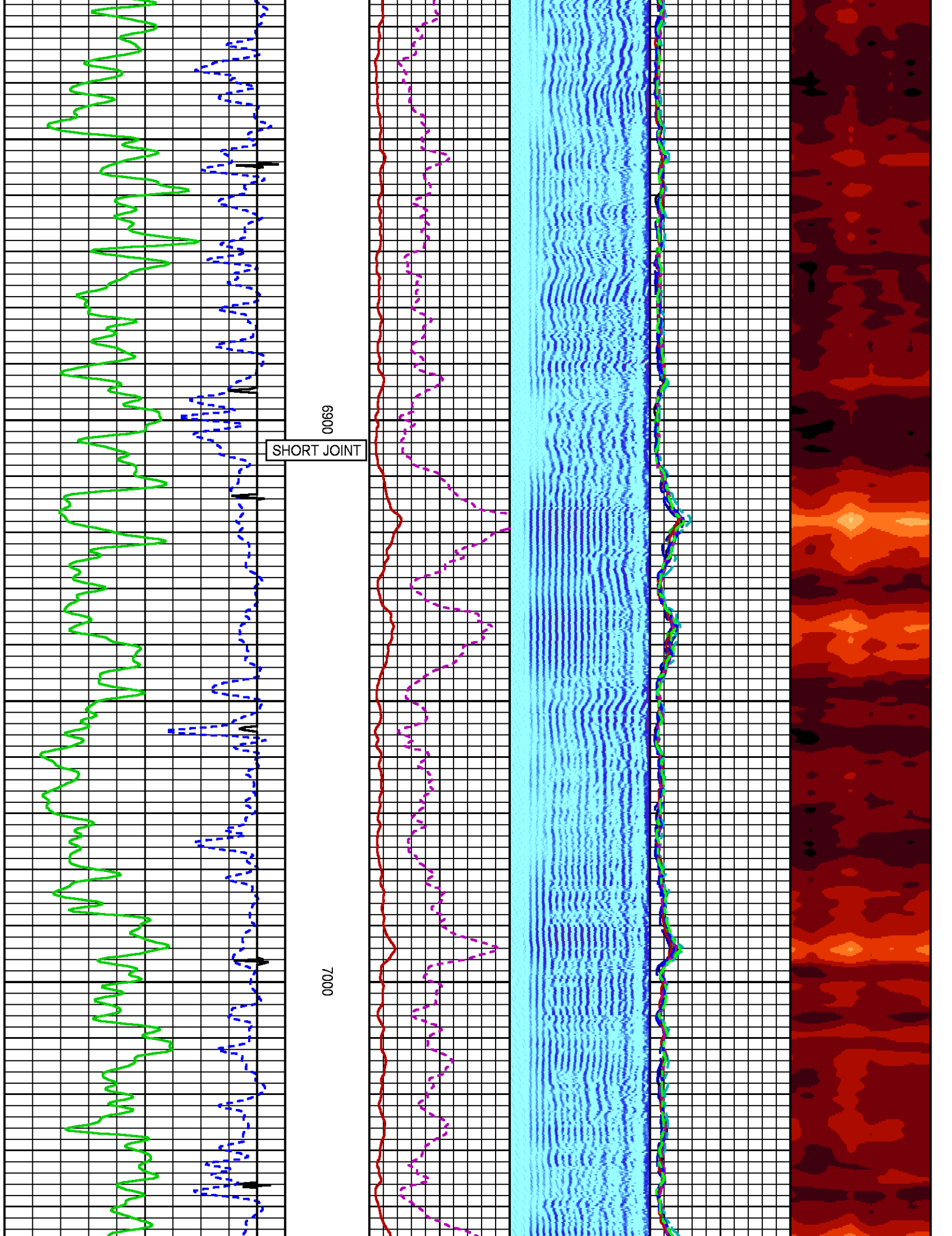
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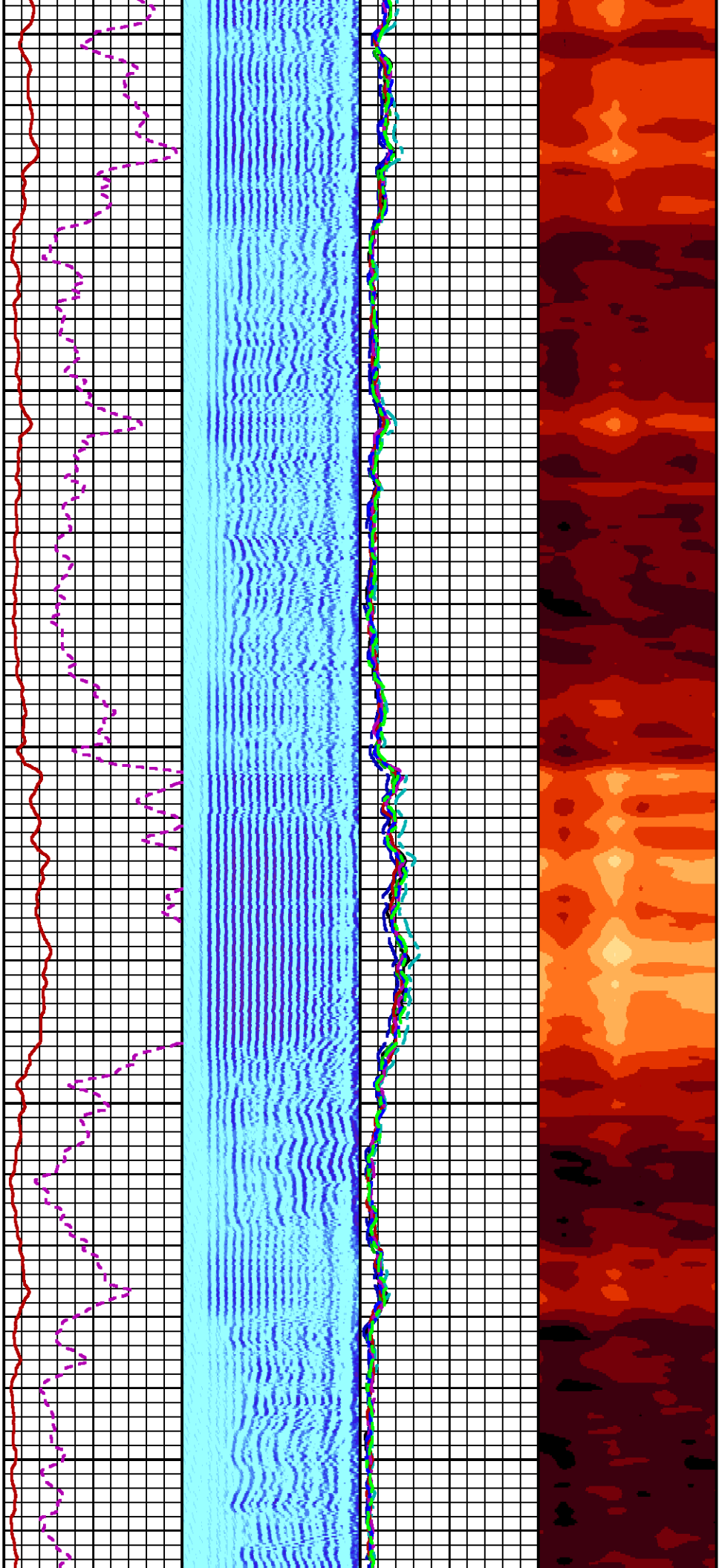
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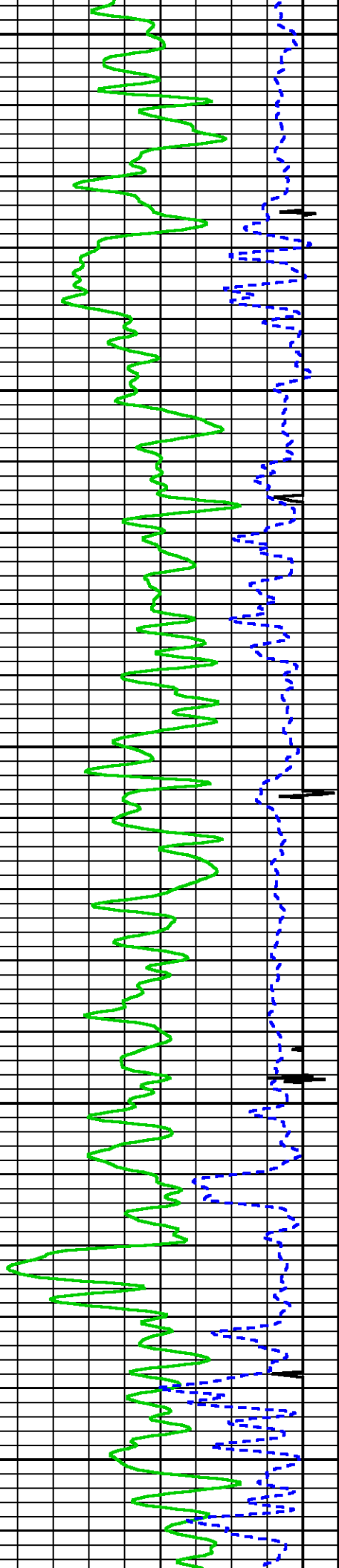


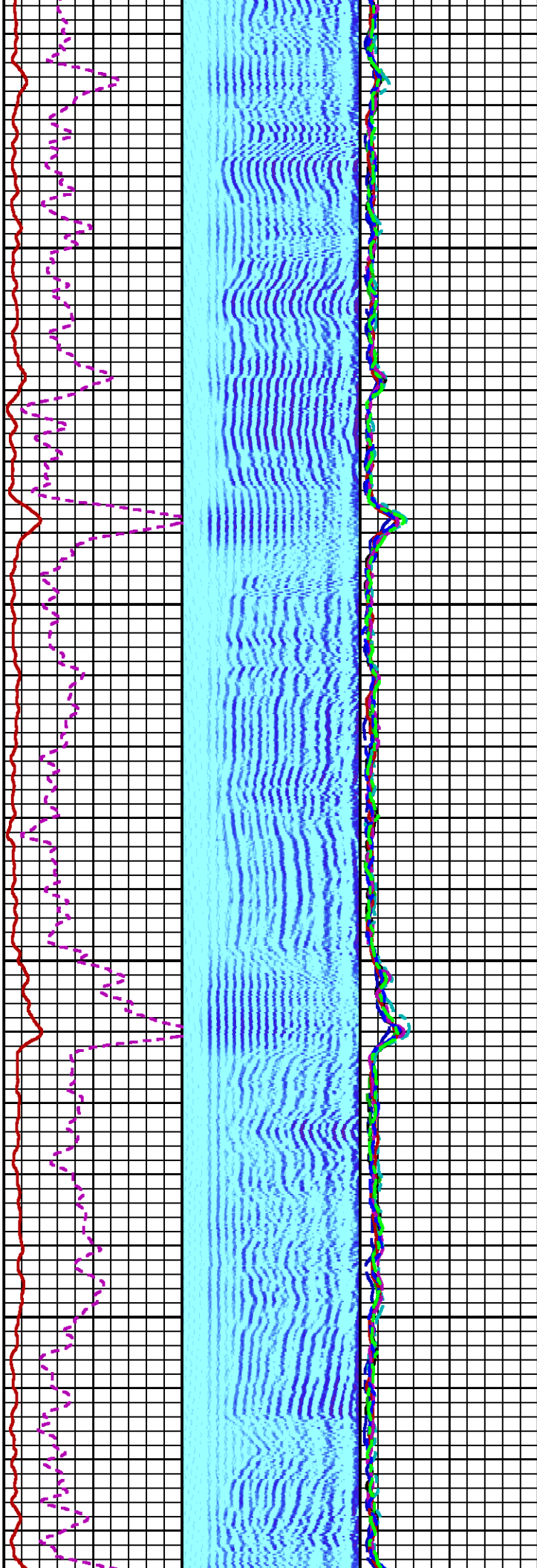




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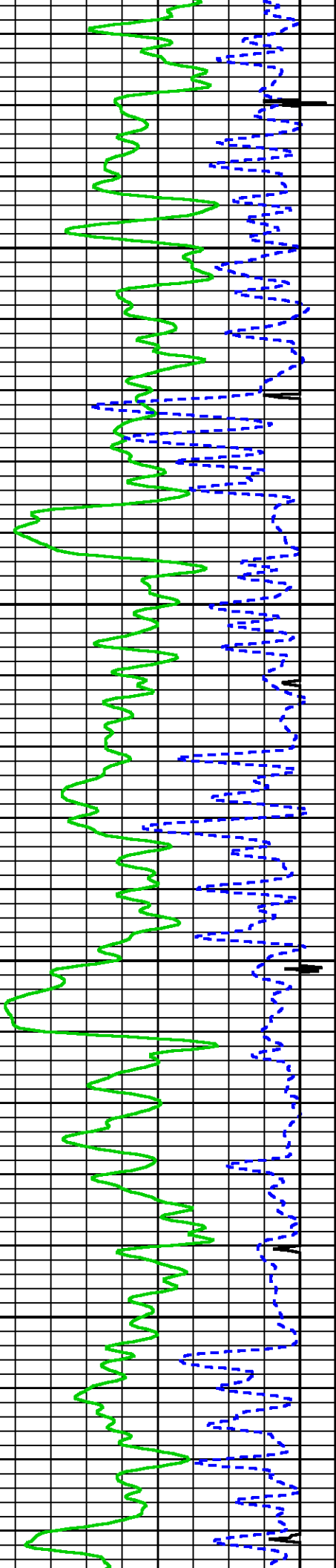
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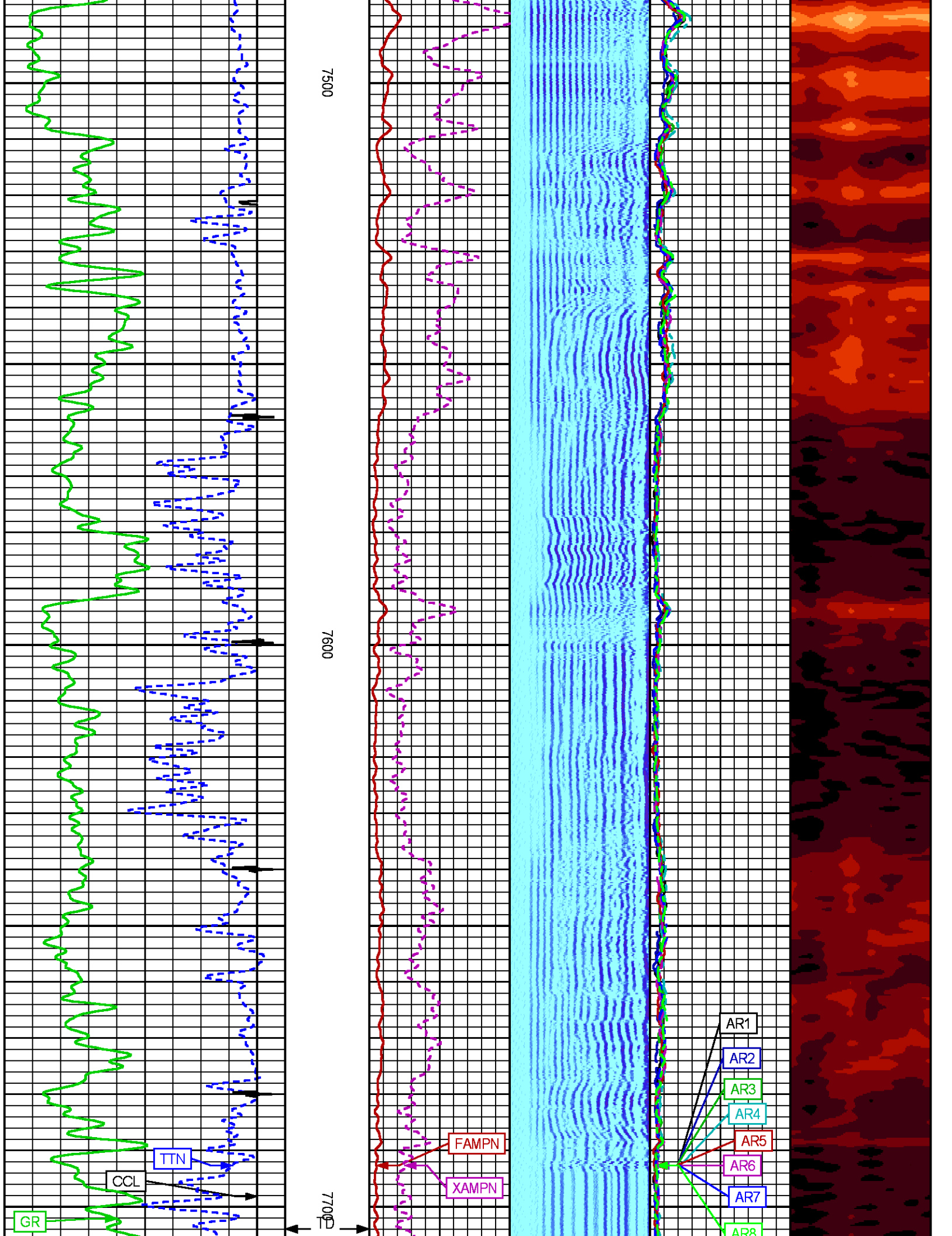


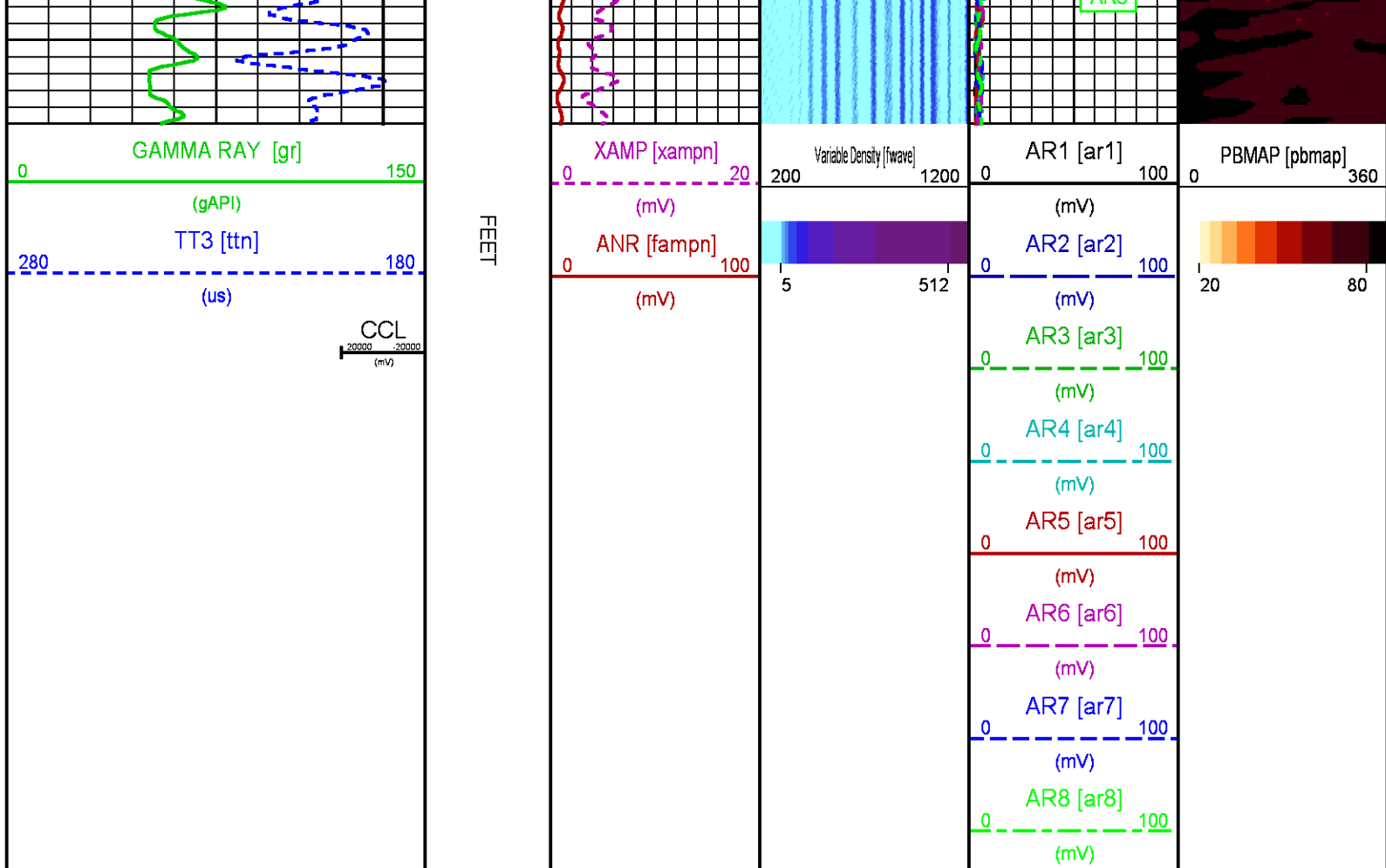


7300

7400







REPEAT PASS 0 PSI

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

Plotted: Sun Mar 11 19:13:18 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-02E/p012g01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 7124.000 ft BOTTOM DEPTH: 7792.000 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	3000.00		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
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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*)	177	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*)	-65	us	"	"
	TOOL DELAY (str2*)	-65	us	"	"
	TOOL DELAY (str3*)	-65	us	"	"
	TOOL DELAY (str4*)	-65	us	"	"
	TOOL DELAY (str5*)	-65	us	"	"
	TOOL DELAY (str6*)	-65	us	"	"
	TOOL DELAY (str7*)	-65	us	"	"
	TOOL DELAY (str8*)	-65	us	"	"
	TOOL DELAY (strn*)	-65	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	118	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	"	"

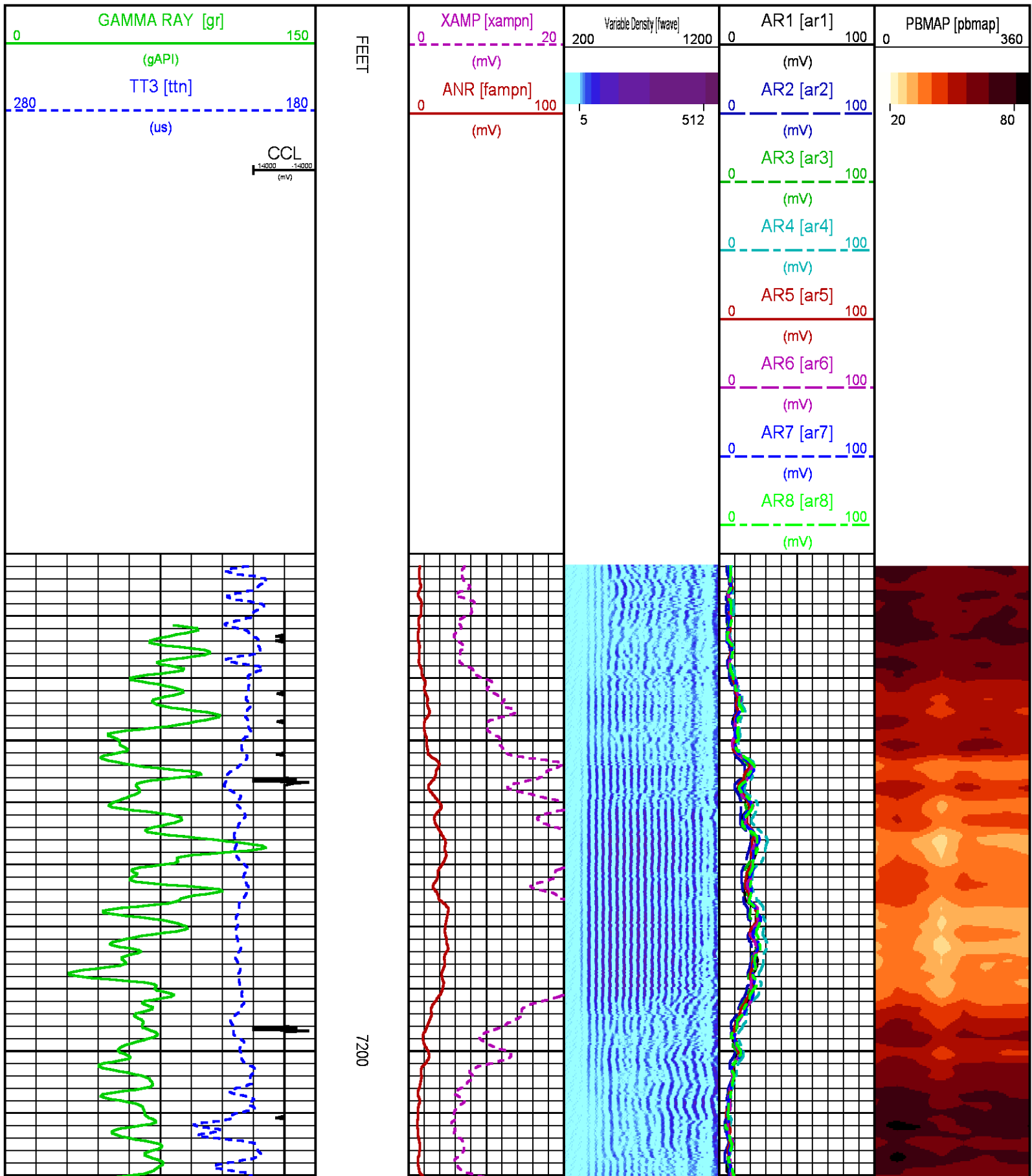
CURVE DESCRIPTION REPORT		
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A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

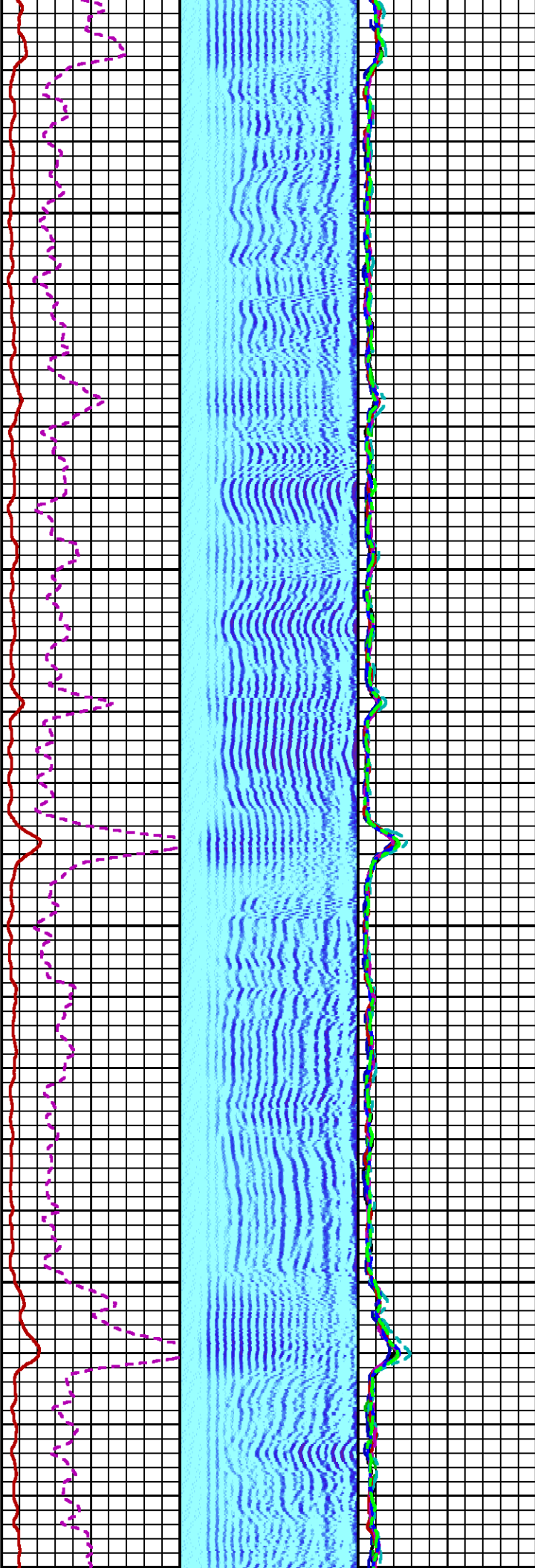
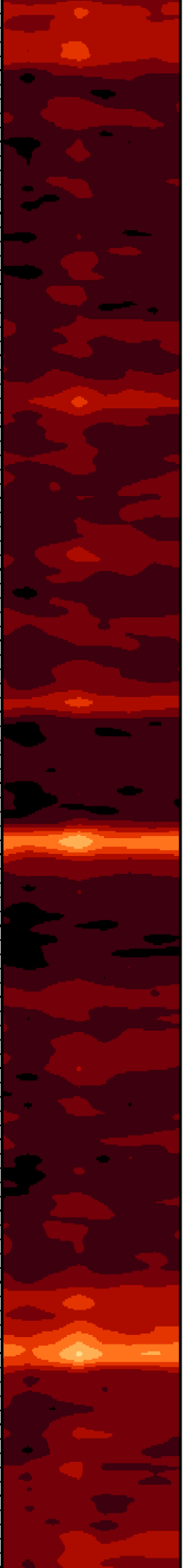
CURVE MEASURE POINT OFFSET					
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75
AR2	-11.25	AR6	-11.25	FAMPN	-11.25
AR3	-11.25	AR7	-11.25	GR	-1.75
AR4	-11.25	AR8	-11.25	TTN	-11.25
				XAMPN	-11.25

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Presentation : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-02E/LARAMIE_RALRPT.fvpdf [5"/100' Scale]
Plot Interval : 7121.75 - 7720 Feet

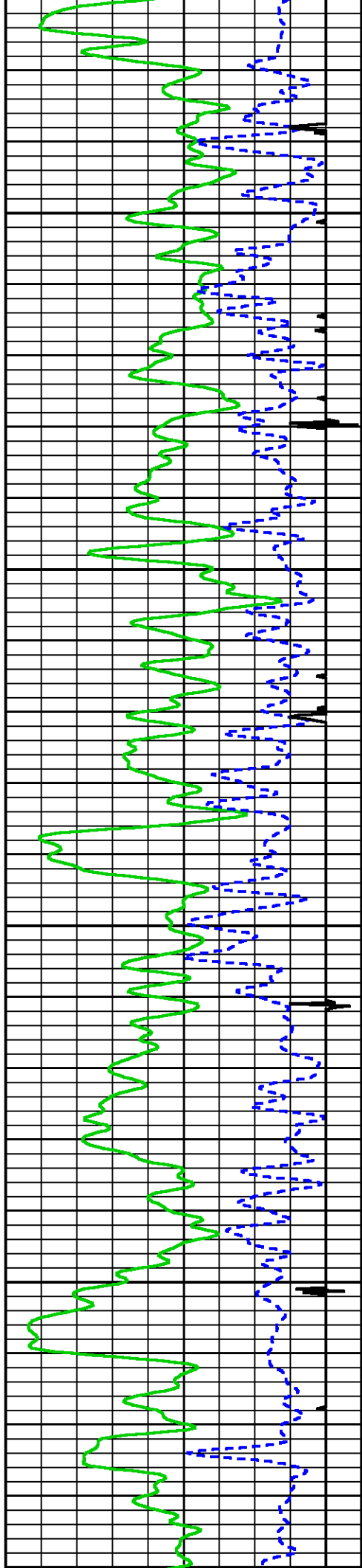
Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-02E/RAL_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY II LLC
Well : NICHOLS 0994-24-02E
Field : VEGA
File Interval : 7120.75 - 7800 Feet
OCT : p012g

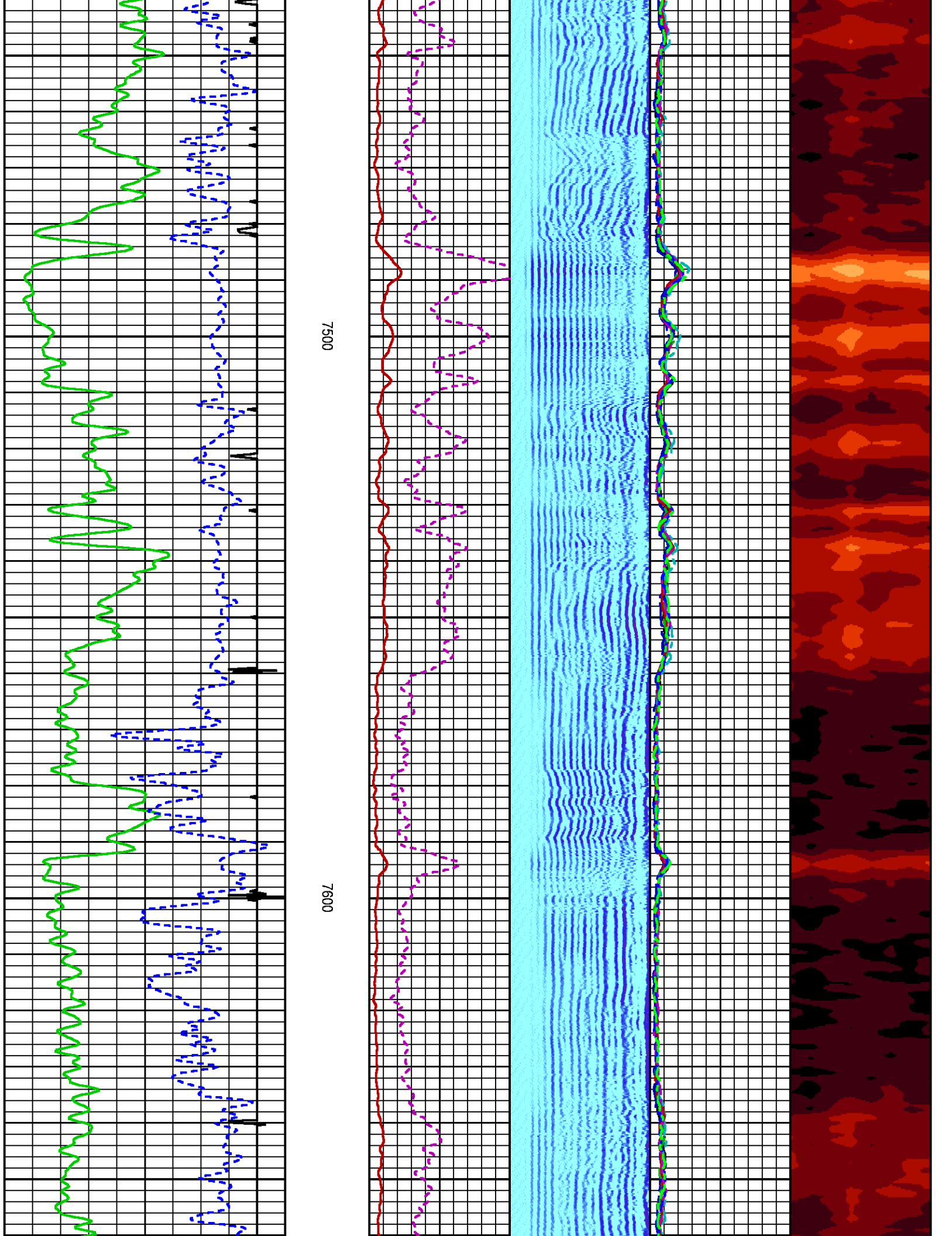


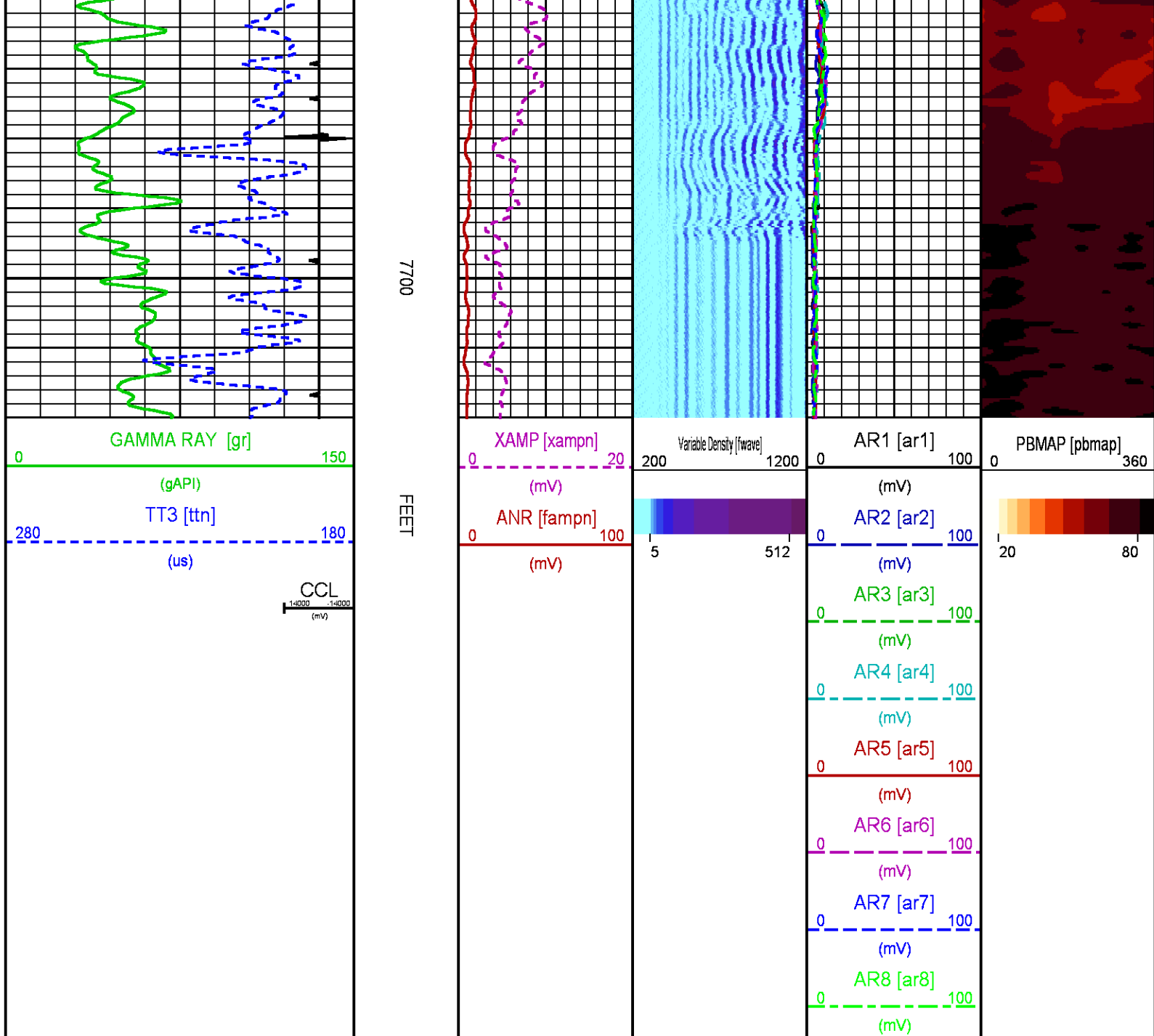


7300

7400







CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_NICHOLS_0994-24-02E/p012g.tp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10417452

DATE/TIME PERFORMED: Sun Mar 11 13:53:08 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)	0.03	-0.02	0.06	0.00	0.08	-0.10	0.00	-0.04	-0.01	0.17	-0.03
AMP FLUID (mV)	42	42	42	42	40	42	42	43	43	55	42

TT (us)	215	215	215	215	214	215	214	213	215	322	215
M FACTOR	2.36	2.35	2.37	2.37	2.47	2.40	2.38	2.34	2.33	2.74	2.36

RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA 10417452 DATE/TIME PERFORMED: Sun Mar 11 13:57:12 2018 DAYS SINCE CAL: 0

UNIT #: 5753XD 111111 CABLE #: ML4291 smallline

	NEAR (mV)	R1 (mV)	R2 (mV)	R3 (mV)	R4 (mV)	R5 (mV)	R6 (mV)	R7 (mV)	R8 (mV)	FAR (mV)	CAL (mV)
ZERO	-0.11	-0.10	-0.08	0.11	-0.09	-0.13	-0.17	-0.10	-0.01	-0.14	-0.06
AMP AIR	3.34	2.90	2.82	3.74	4.02	4.20	4.14	2.84	3.36	4.19	99.82

SHOP M FACTOR	SHOP A FACTOR	WIREFINE FACTOR
2.36	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	59.73	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_0994-24-02E/p012g~tdg

CABLEHEAD
 Diameter : 2.75"
 Length : 2.25'
 Weight : 10 lbs
 Series : CABL234
 Mnemonic : CRI H



20.38'

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

NEAR RCVR 11.17'

FAR RCVR 10.21'

RAL GR/TEMP/CCL/CHV DETECTOR

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

CCL 5.79'

GR 1.67'

TEMP 0.17'
0.00'

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



COMPANY
WELL
FIELD
COUNTY

LARAMIE ENERGY II LLC
NICHOLS 0994-24-02E
VEGA
MESA

STATE COLORADO

FILE NO:

API NO:

05077104210000

LOCATION:

SHL 1797 FNL 2783 FEL
 BHL 348 FNL 1531 FEL

ELEVATIONS:

KB 7161 FT

DF

GL 7137 FT

SEC 24 **TWP** 9S **RGE** 94W

DATE 11-Mar-2018

