



RADIAL CEMENT BOND LOG

FILE NO: CH138182
 COMPANY: LARAMIE ENERGY LLC
 WELL: CC 0697-03-12W
 FIELD: GRAND VALLEY
 COUNTY: GARFIELD STATE: COLORADO
 API NO: 05045237960000

Ver. 4.10
 LOCATION: SHL: 2826' FNL & 1321' FWL
 BHL: 2826' FNL & 1321' FWL
 SEC 3 TWP 6S RGE 97W
 OTHER SERVICES: RPM

PERMANENT DATUM: GL ELEVATION 8438 FT
 LOG MEASURED FROM: KB 30 FT ABOVE P.D.
 DRILL. MEAS. FROM: KB
 ELEVATIONS: KB 8468 FT, DF, GL 8438 FT

DATE	29-Jun-2018	
RUN	TRIP	1
SERVICE ORDER	US138182	
DEPTH DRILLER	9622 FT	
DEPTH LOGGER	9540 FT	
BOTTOM LOGGED INTERVAL	9540 FT	
TOP LOGGED INTERVAL	30 FT	
TIME STARTED	8:30	
TIME FINISHED	11:30	
OPERATOR RIG TIME	3 HRS	
TYPE OF FLUID IN HOLE	WATER	
FLUID DENSITY	NA	
FLUID SALINITY	NA	
FLUID LEVEL	61 FT	
LOGGED CEMENT TOP	2804 FT	
WELLHEAD PRESSURE	0 PSI	
MAXIMUM HOLE DEVIATION	NA	
NOMINAL LOGGING SPEED	100 FMN	
MAX. RECORDED TEMP.	253 DEGF	
REFERENCE LOG	NA	
REFERENCE LOG DATE	NA	
EQUIP. NO.	LOCATION	ML-4291 GRAND JCT.
RECORDED BY	T. NEWELL	
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: *2 OPERATIONS IN WELLBORE*

OPERATION 1: RAL/GR/CCL RUN CENTRALIZED

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 7435' - 7454'
 SJ: 8958' - 8979'

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	11871500	CENTRALIZED
1	1	GR/CCL	1355XA	12670180	CENTRALIZED

RAL MAIN PASS 0 PSI

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

Patches: 4

Plotted: Fri Jun 29 12:48:33 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_CC_0697-03-12W/p012g02.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 13.750 ft BOTTOM DEPTH: 9540.500 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*)	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*)	199	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	" "
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	" "
	NOISE WINDOW LENGTH	25	us	" "

PERCENT BOND CEMENT MAP

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP BOTTOM
	FREE AMP REC 2	80	mV	" "
	FREE AMP REC 3	80	mV	" "
	FREE AMP REC 4	80	mV	" "
	FREE AMP REC 5	80	mV	" "
	FREE AMP REC 6	80	mV	" "
	FREE AMP REC 7	80	mV	" "
	FREE AMP REC 8	80	mV	" "
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	2	mV	" "
	FULL BOND AMP REC 2	2	mV	" "
	FULL BOND AMP REC 3	2	mV	" "
	FULL BOND AMP REC 4	2	mV	" "

FULL BOND AMP REC 5	2	mV	"	"
FULL BOND AMP REC 6	2	mV	"	"
FULL BOND AMP REC 7	2	mV	"	"
FULL BOND AMP REC 8	2	mV	"	"

CURVE DESCRIPTION REPORT

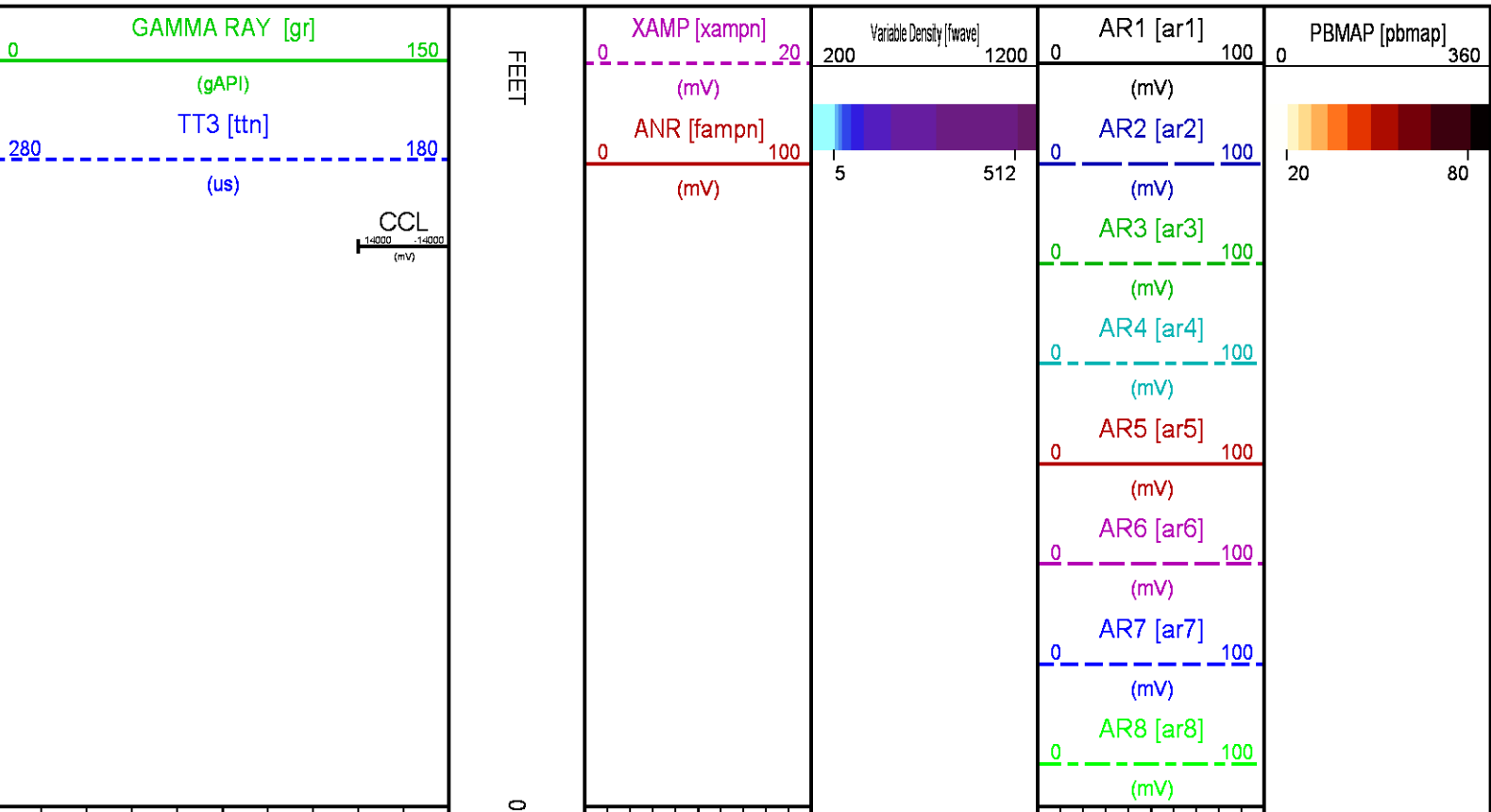
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

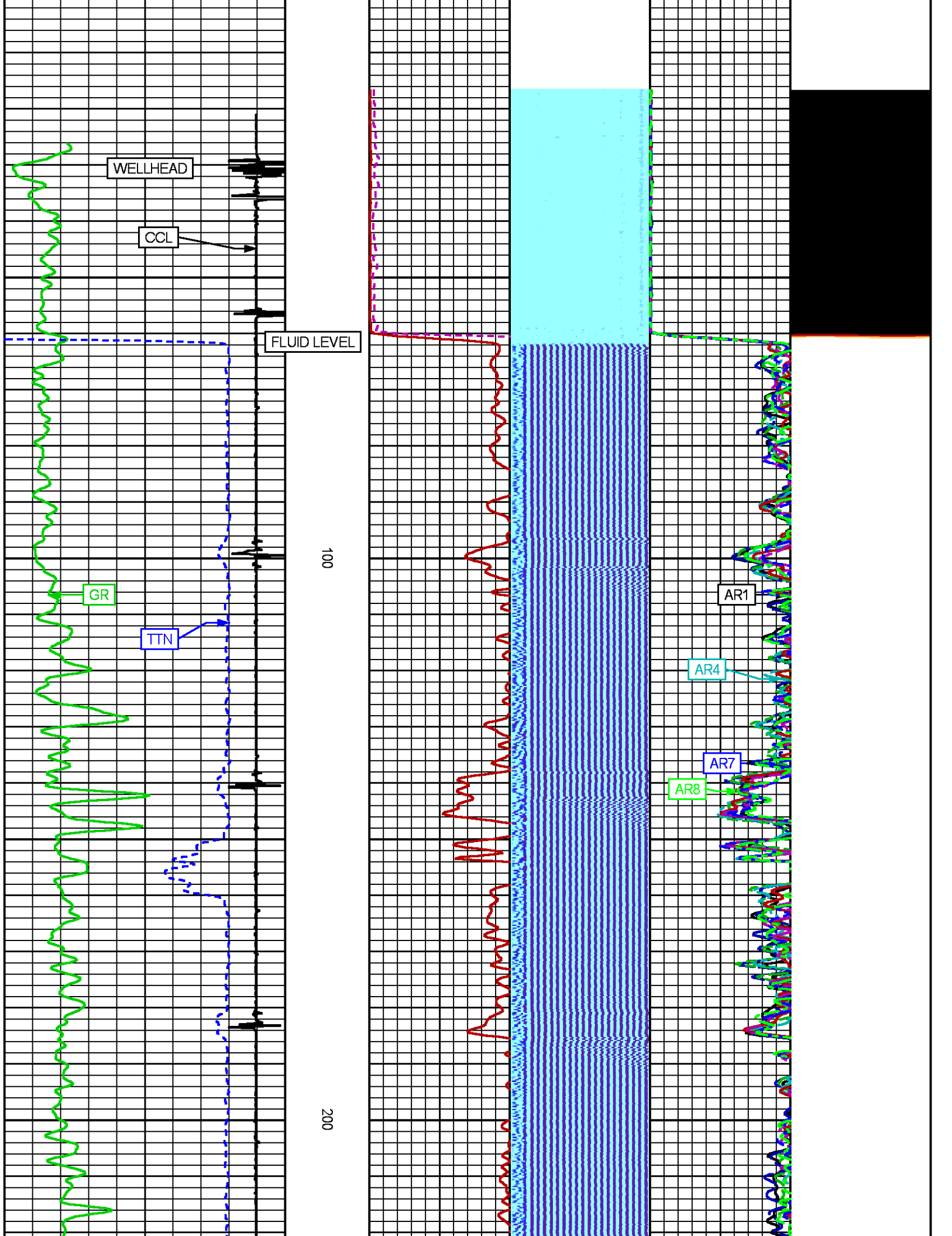
CURVE MEASURE POINT OFFSET

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

Presentation : SysA:/dat1a/LARAMIE_CC_0697-03-12W/12W_RAL_MAIN.fvpdf [5"/100' Scale]
Plot Interval : 0 - 9552.5 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_CC_0697-03-12W/12W_RAL_MAIN.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : CC 0697-03-12W
Field : GRAND VALLEY
File Interval : 13.75 - 9553.75 Feet
OCT : p012g





WELLHEAD

CCL

FLUID LEVEL

GR

TTN

AR1

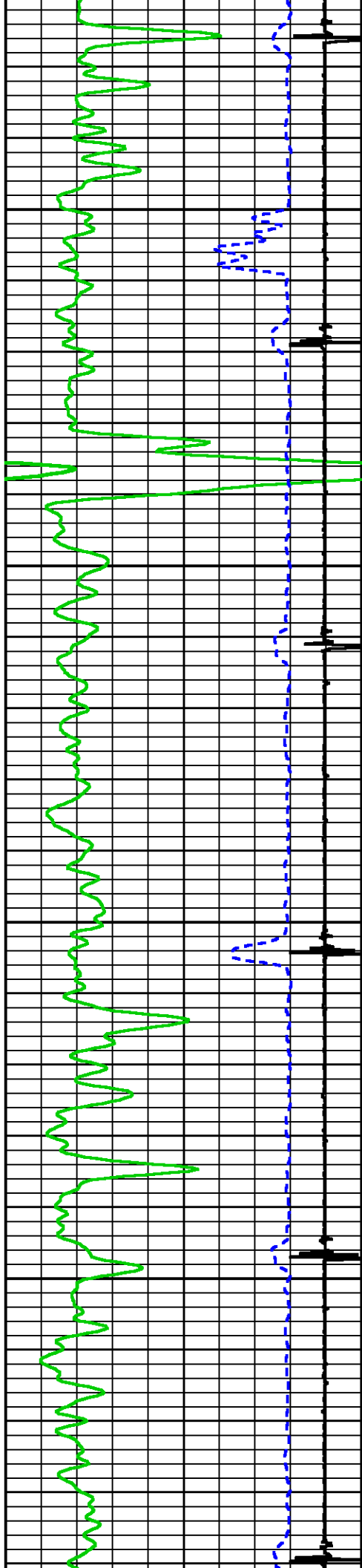
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AR7

AR8

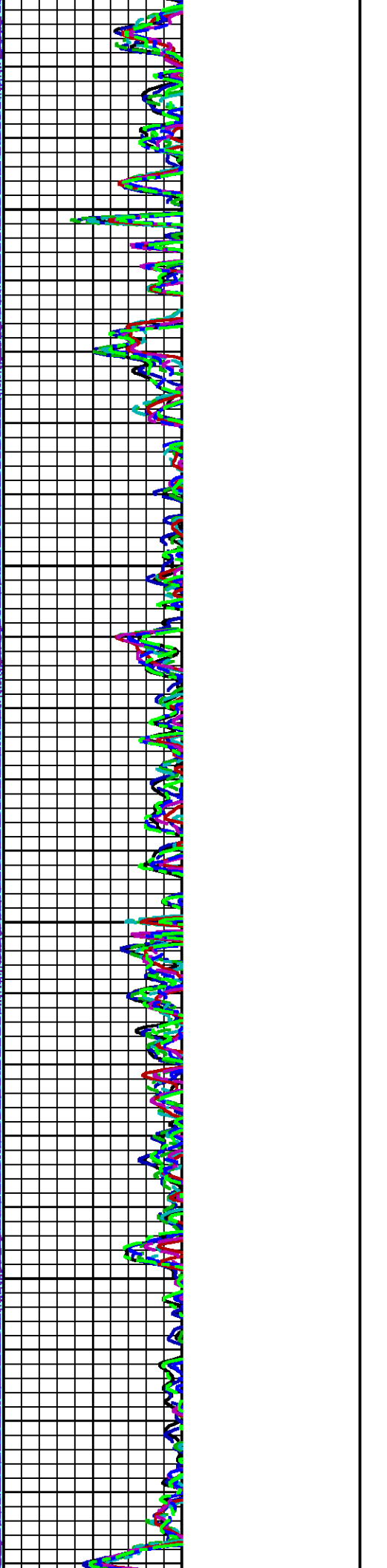
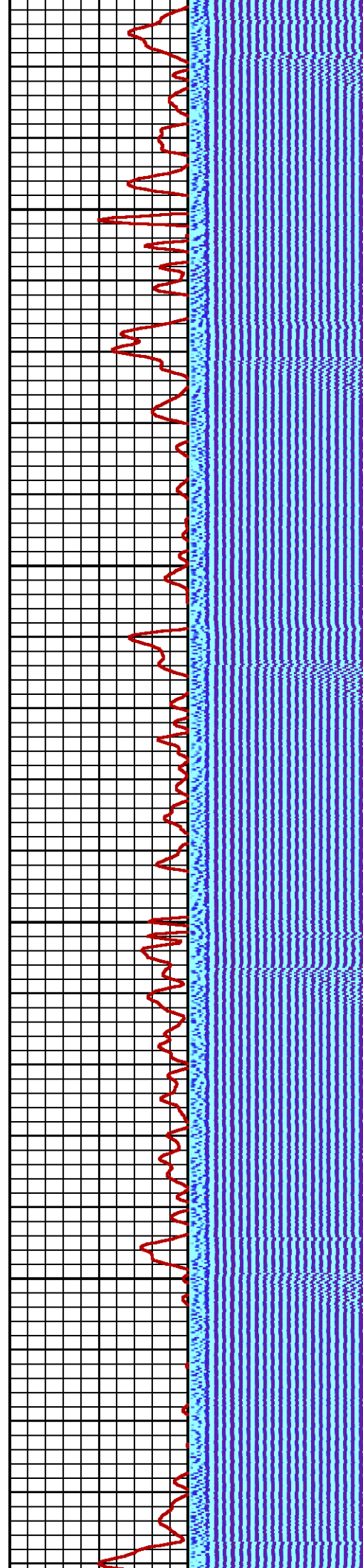
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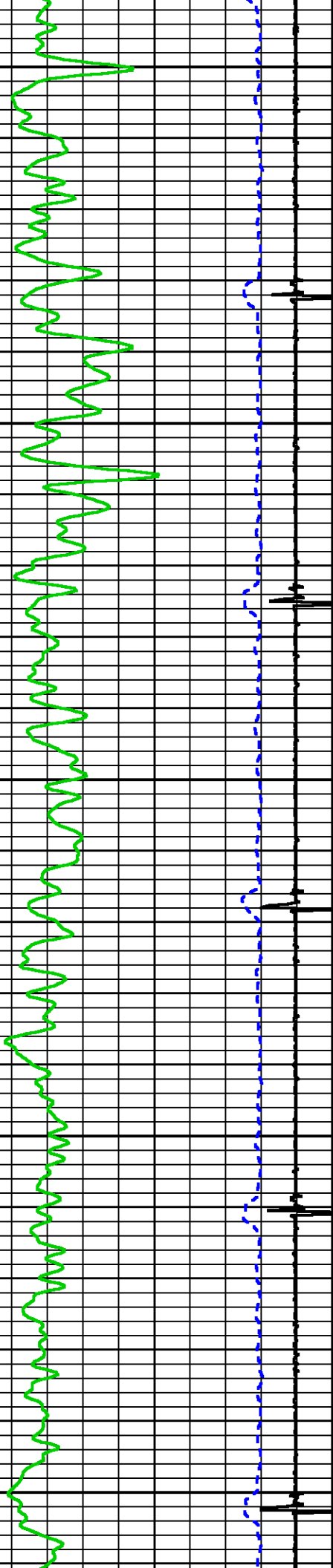
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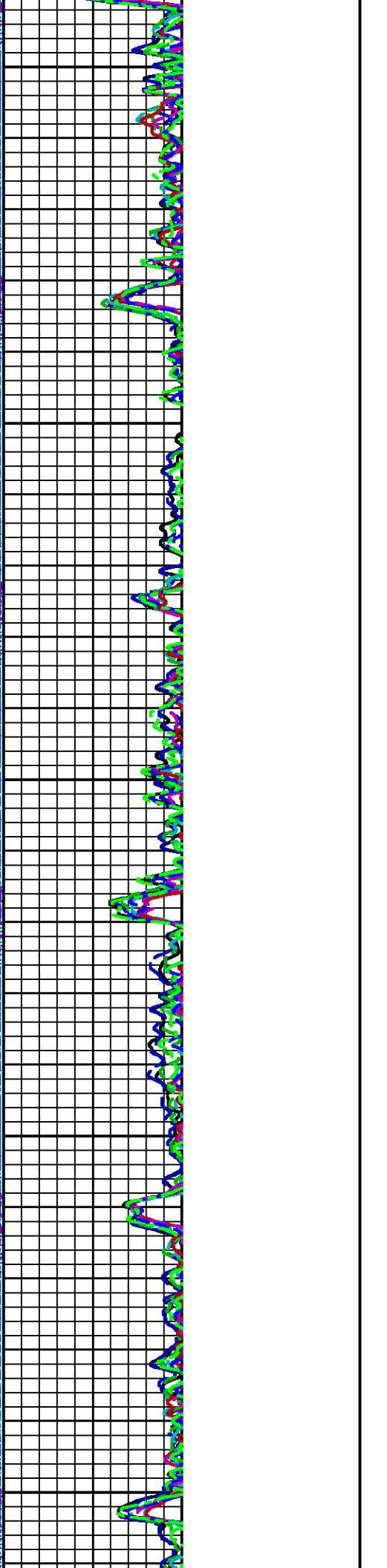
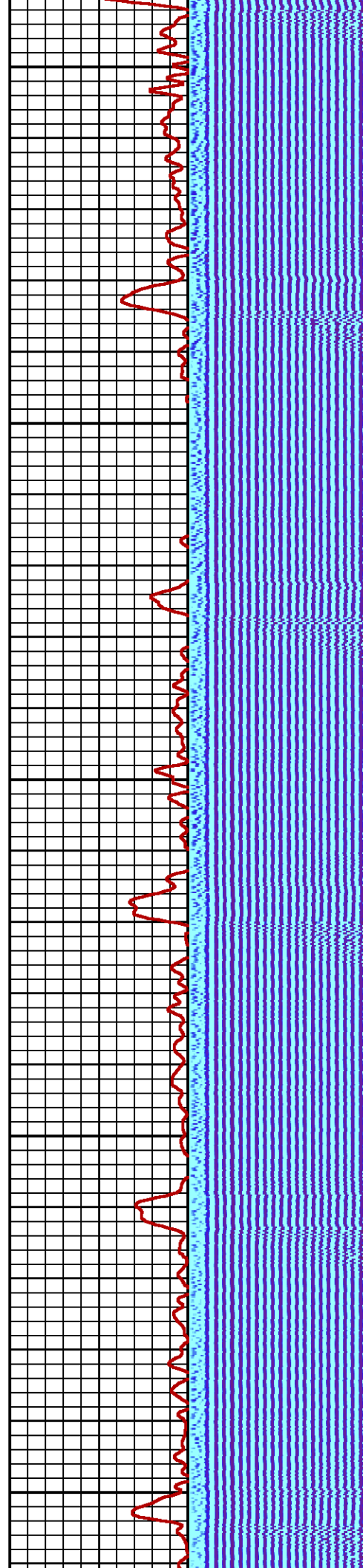
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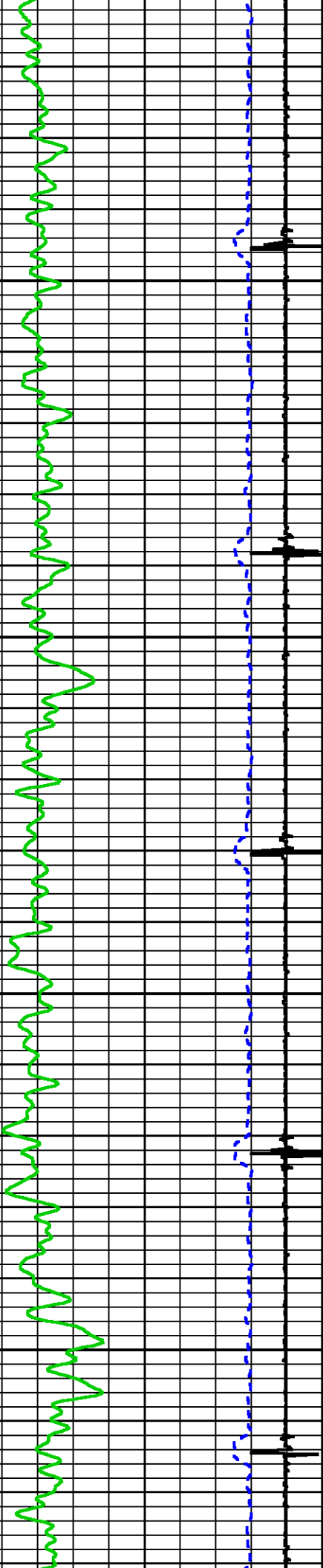




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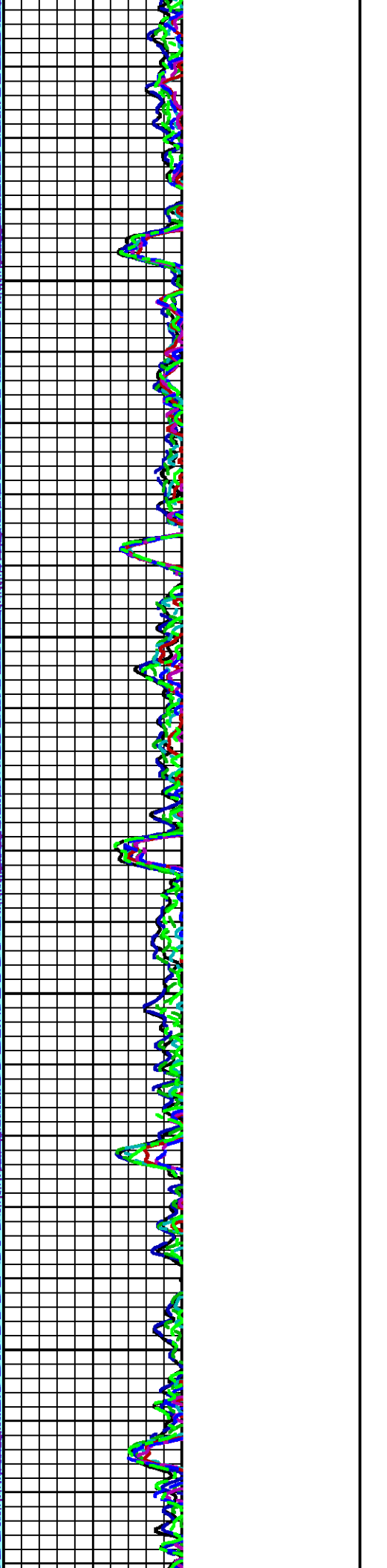
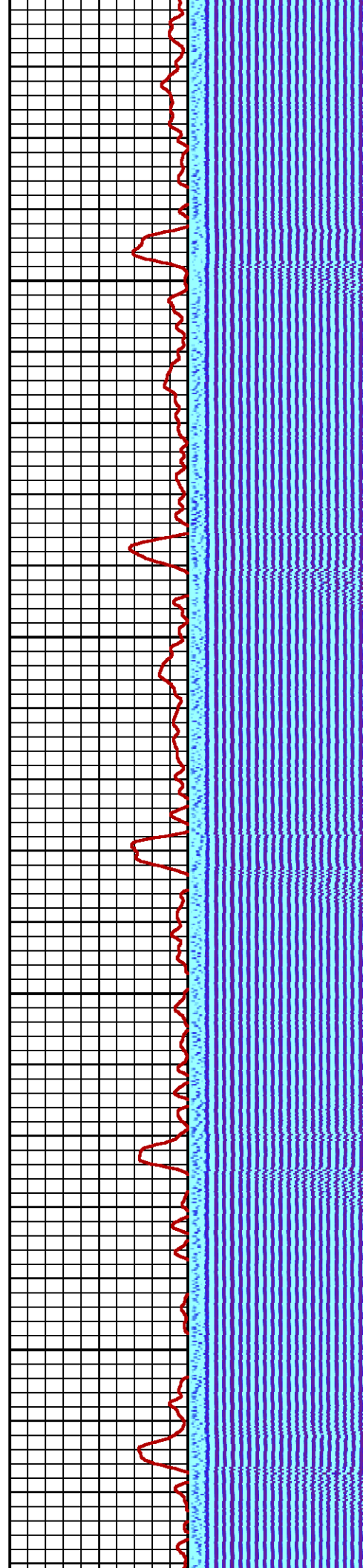
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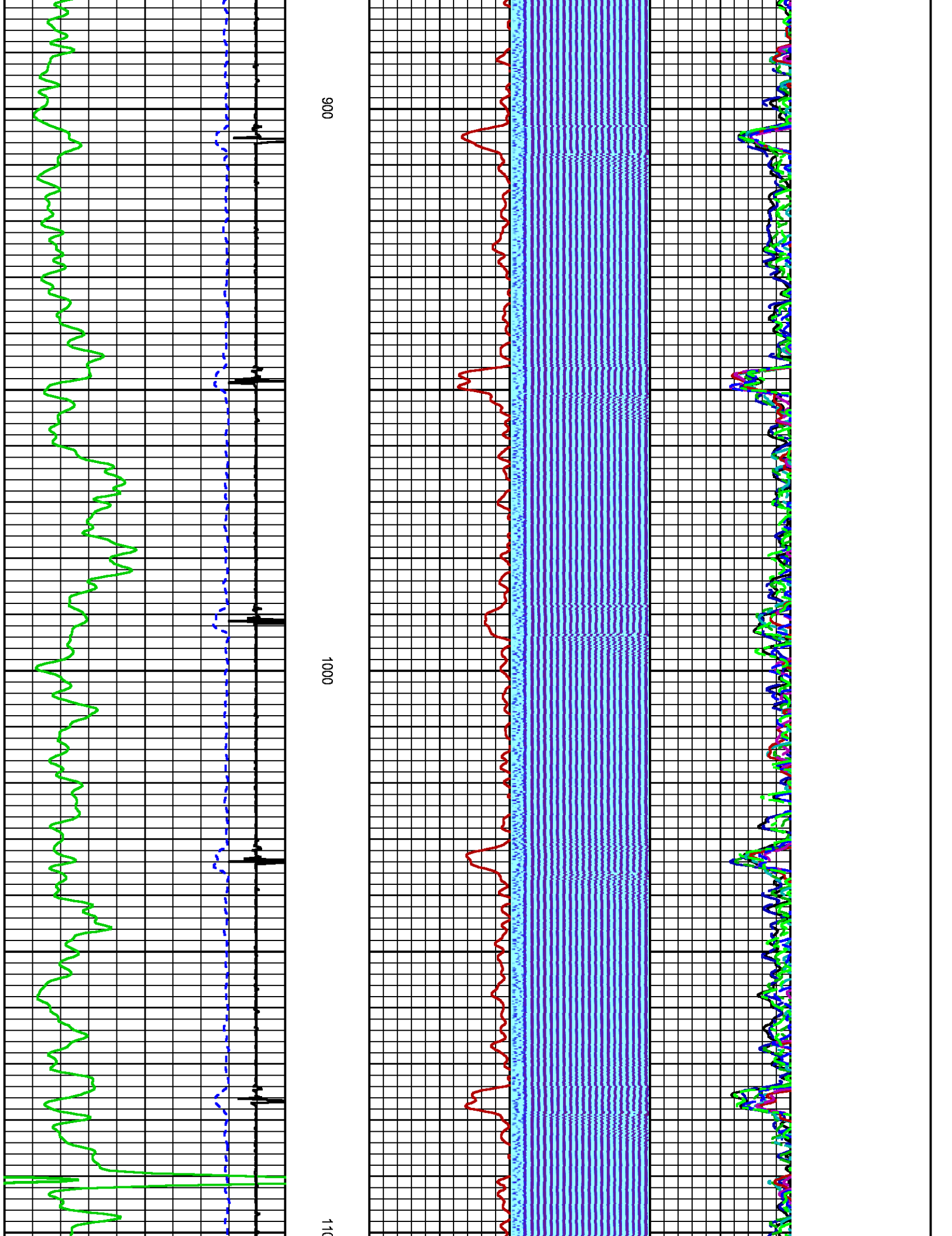


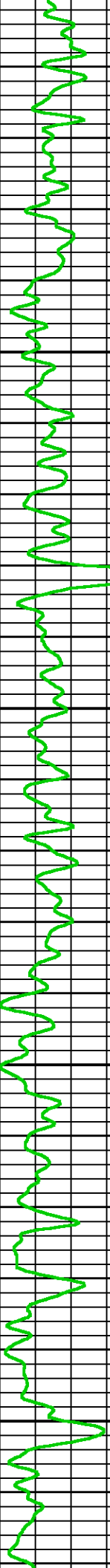
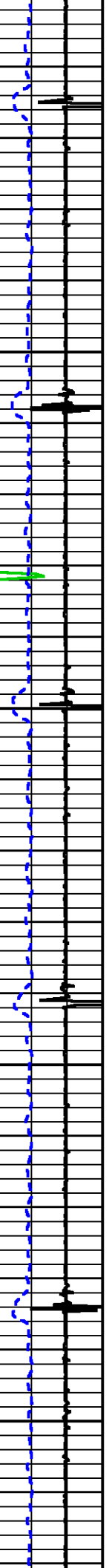
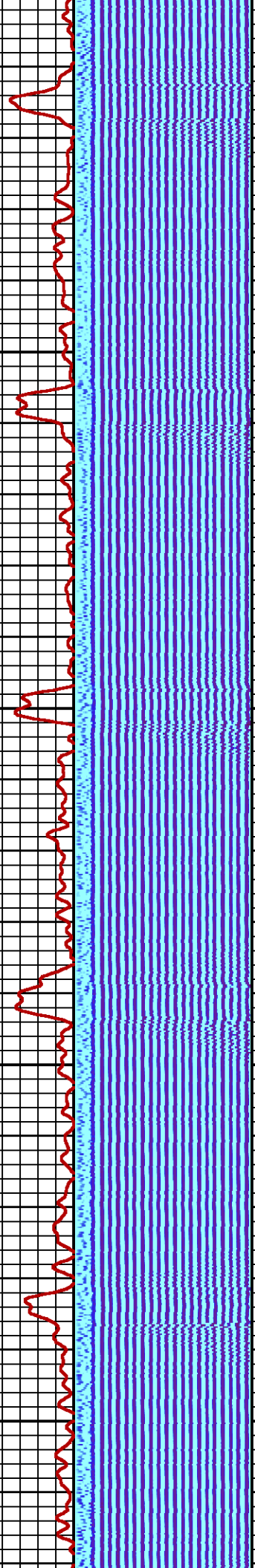
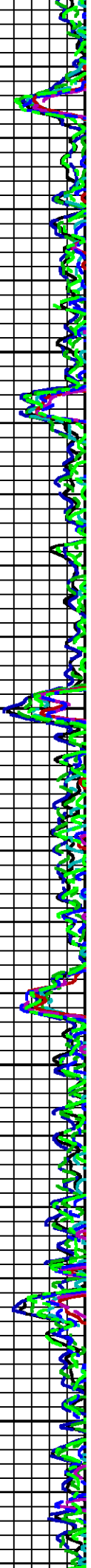


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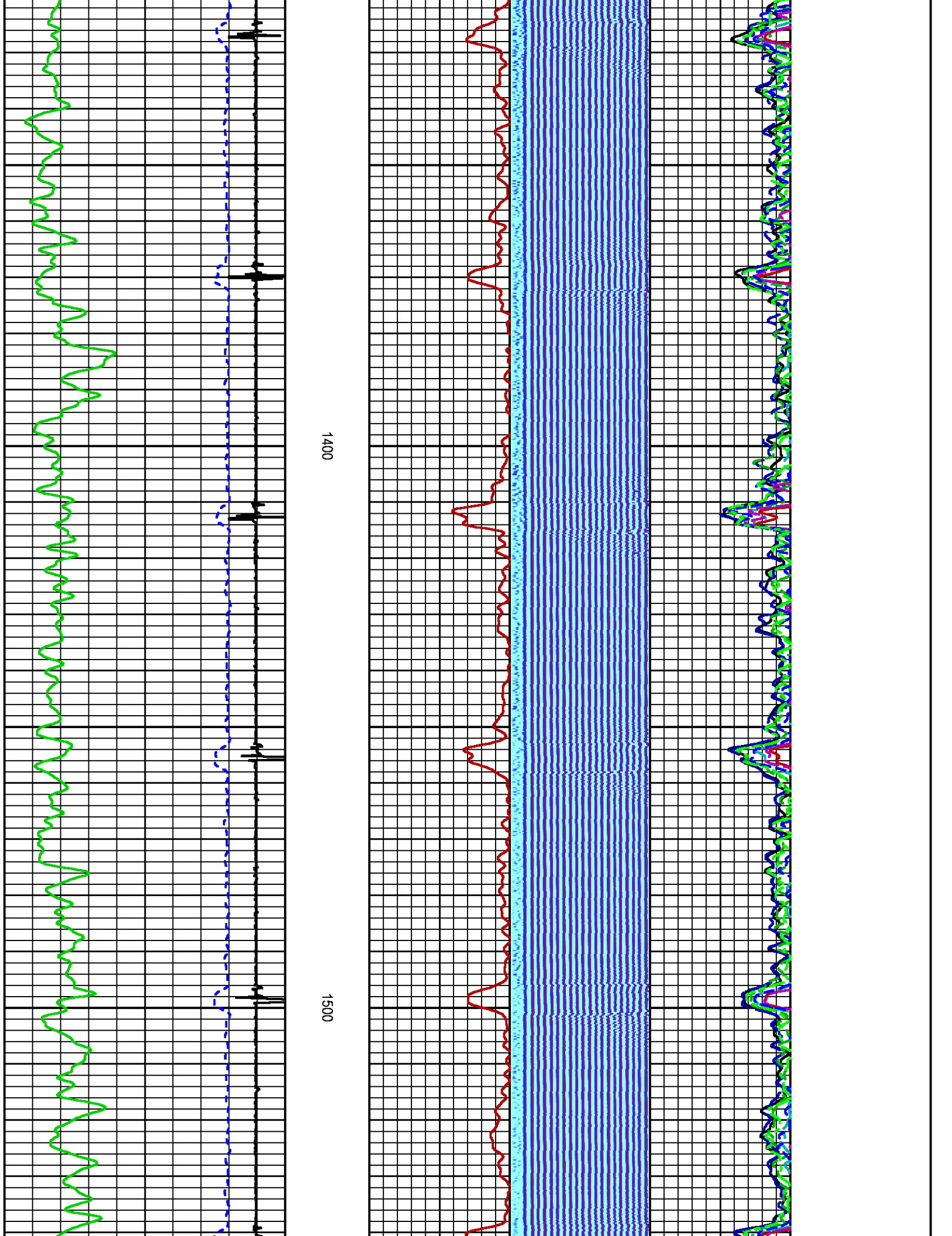


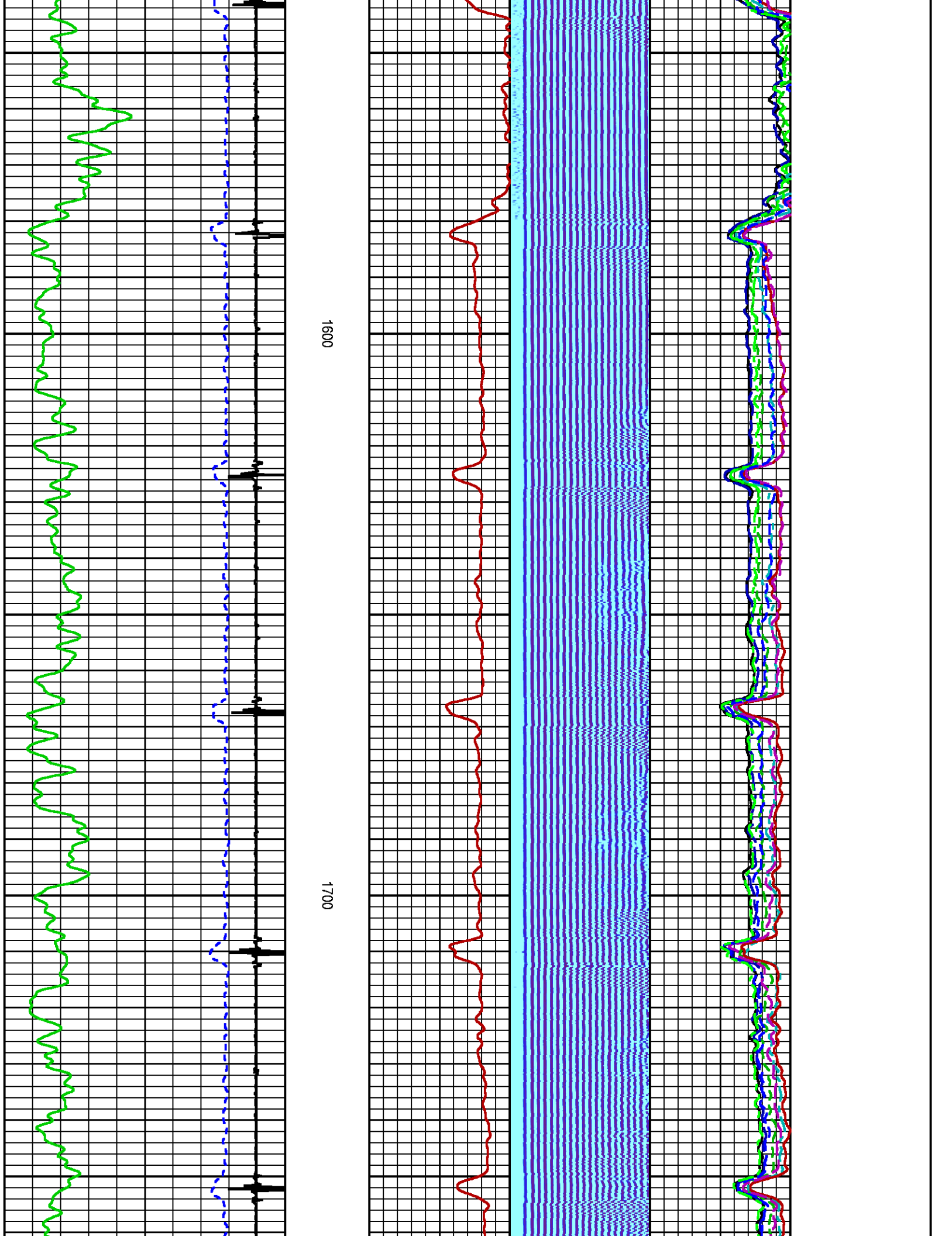


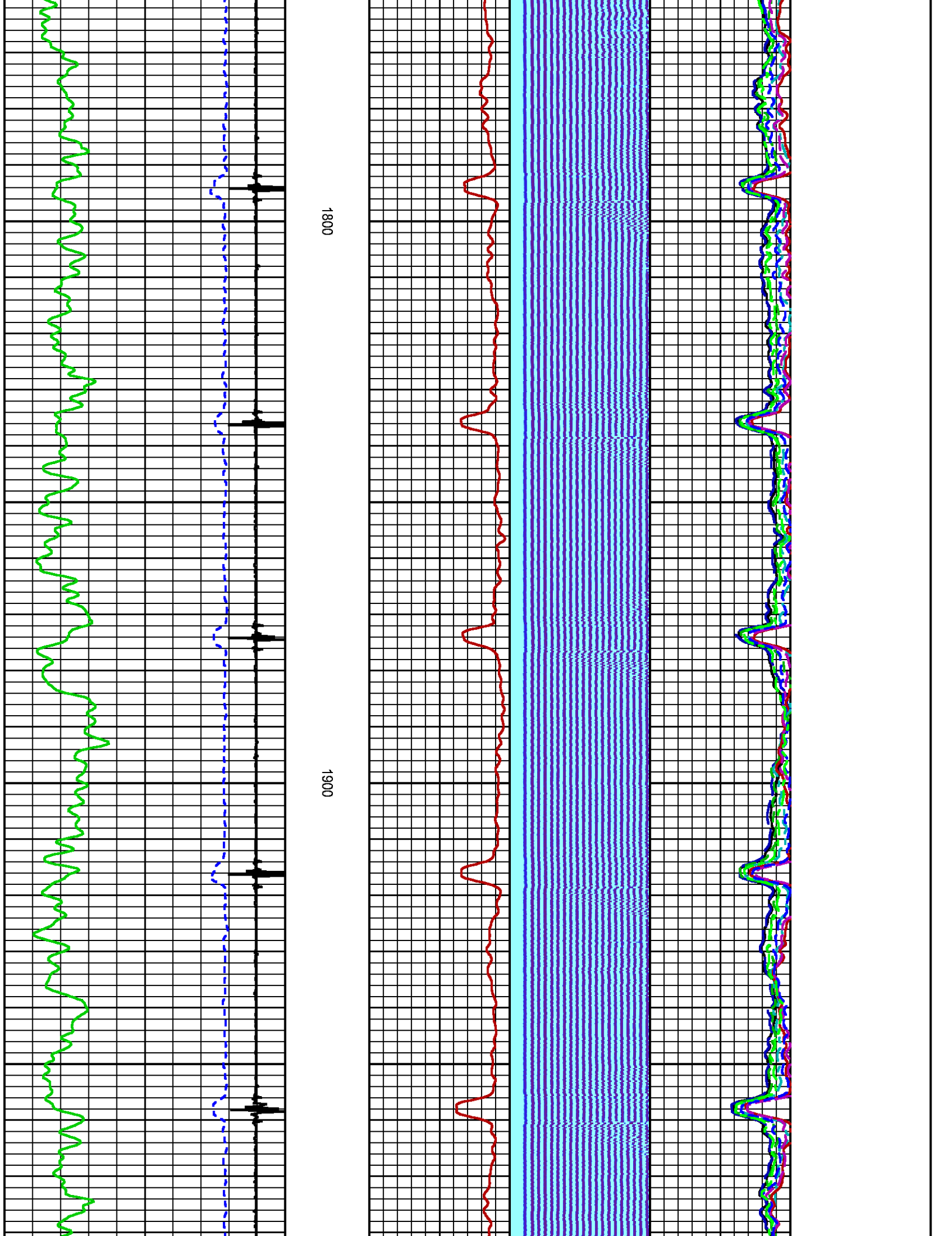
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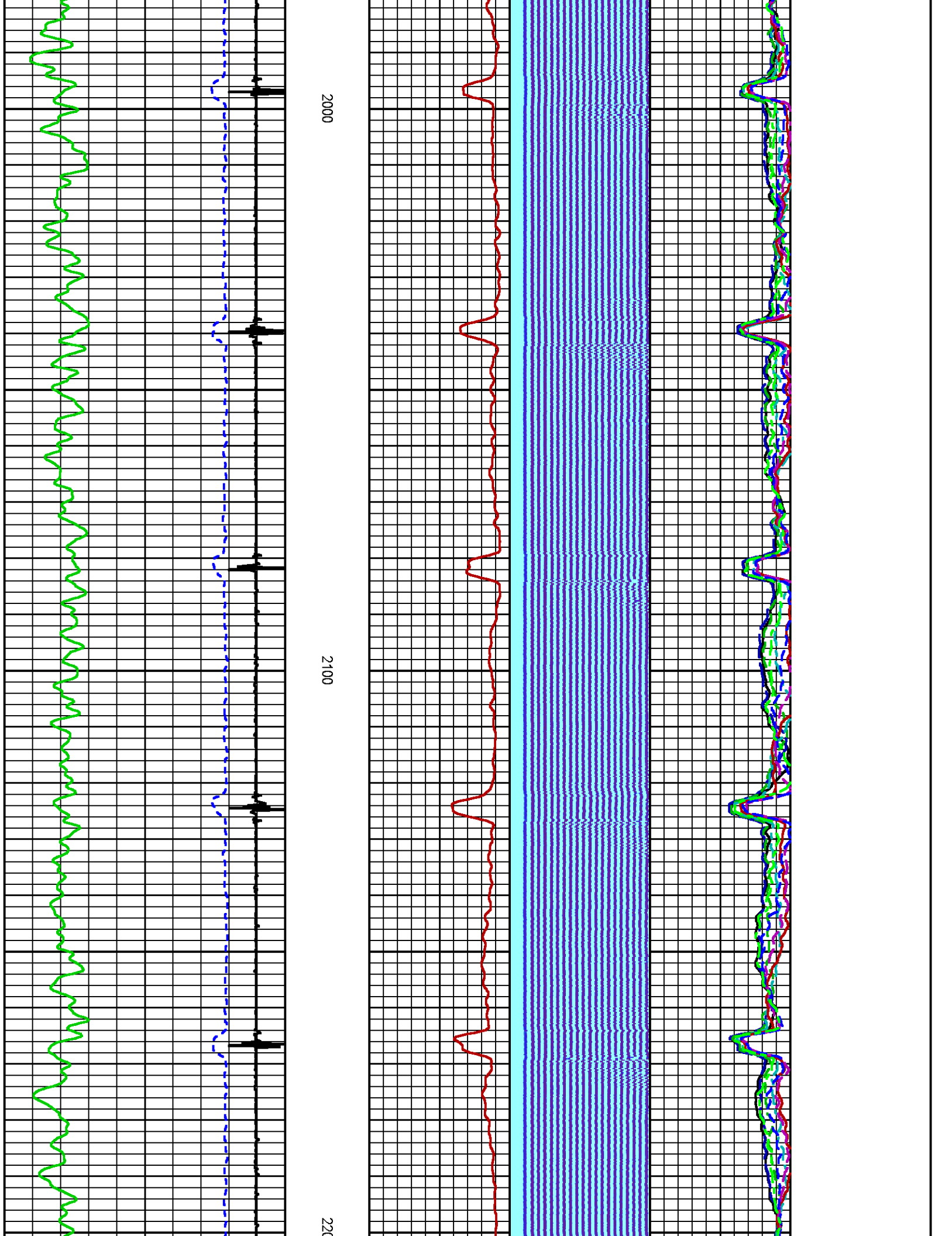
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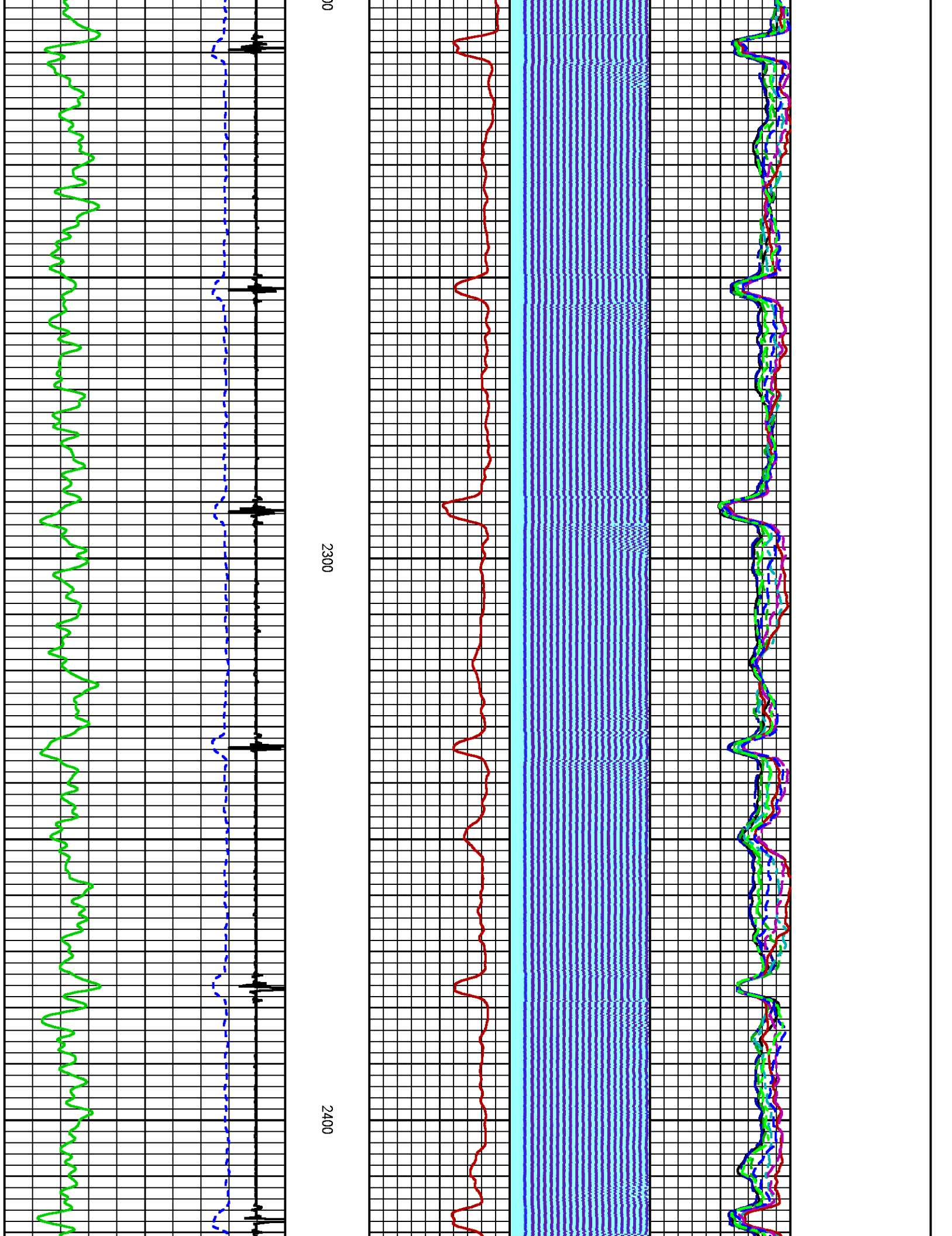
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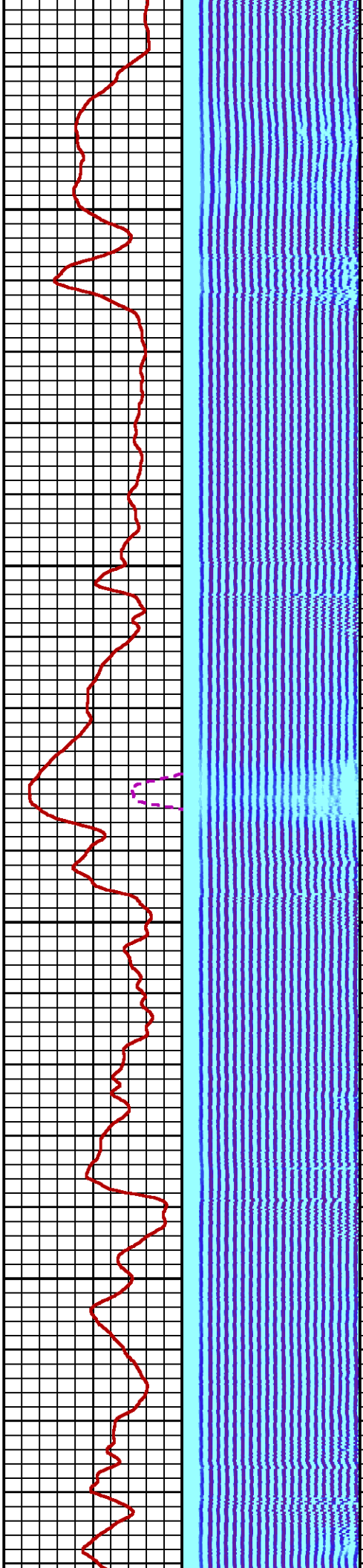
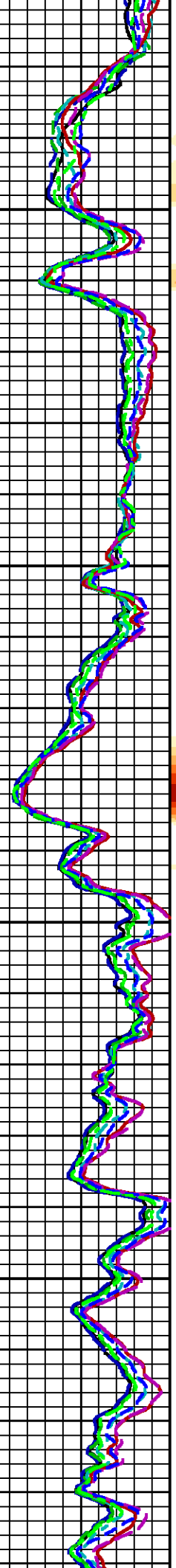
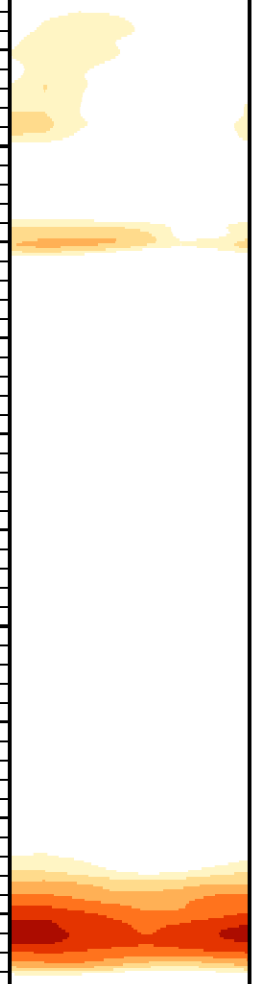






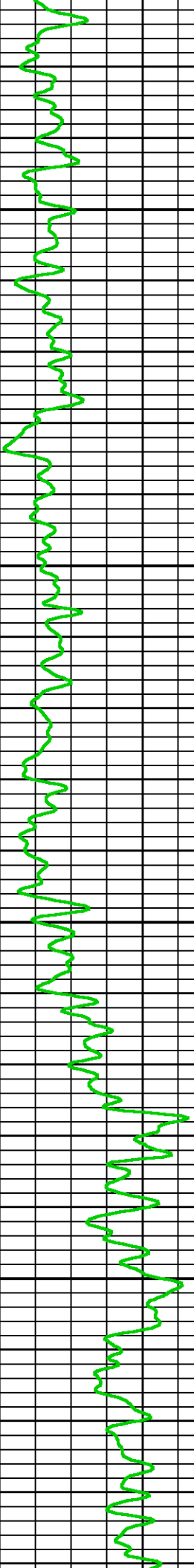
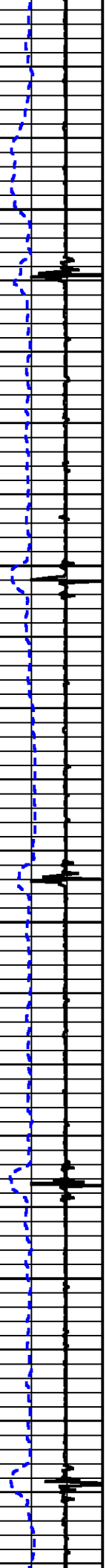


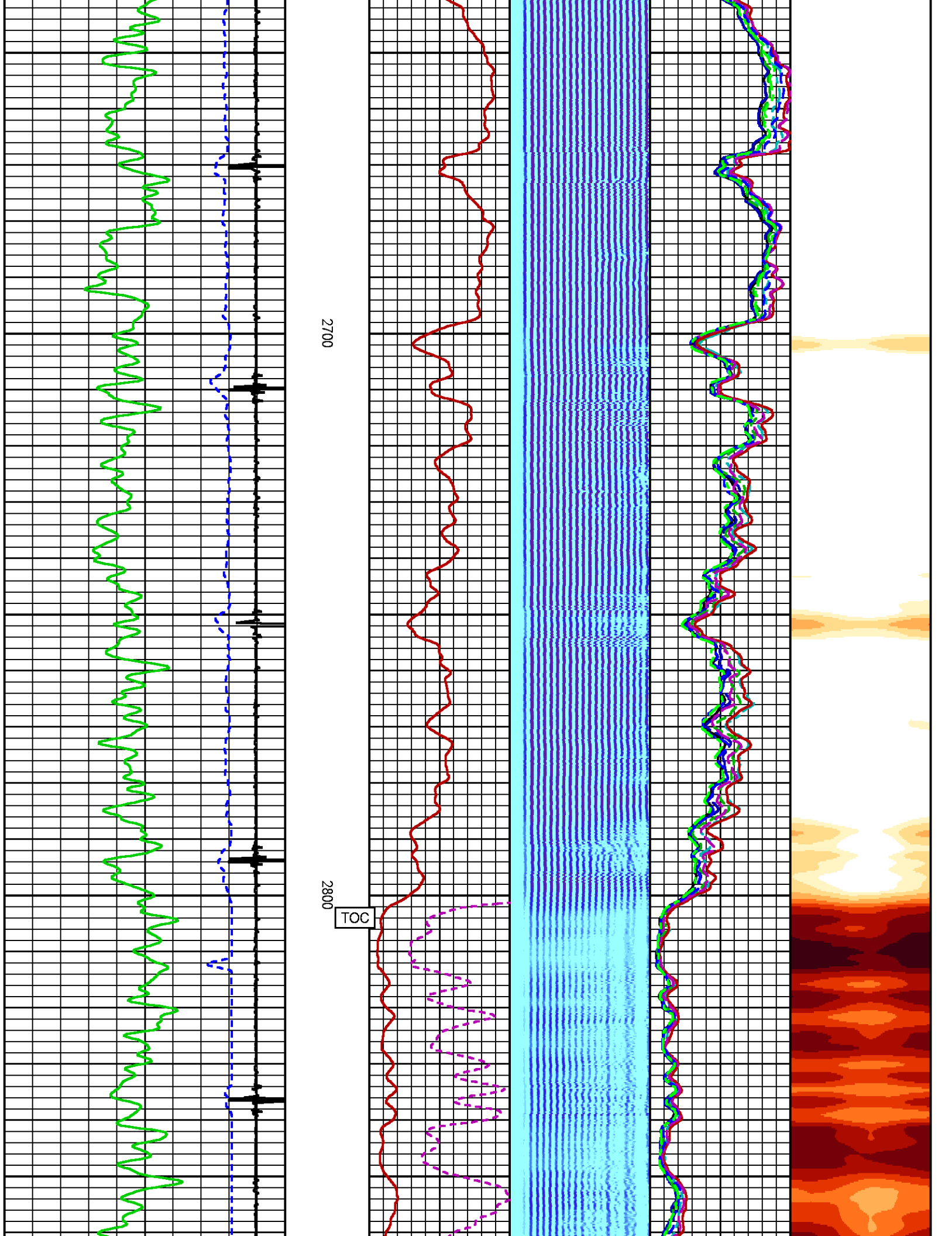


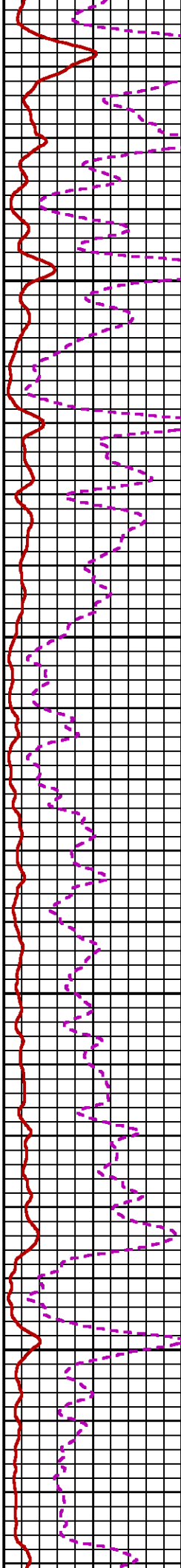
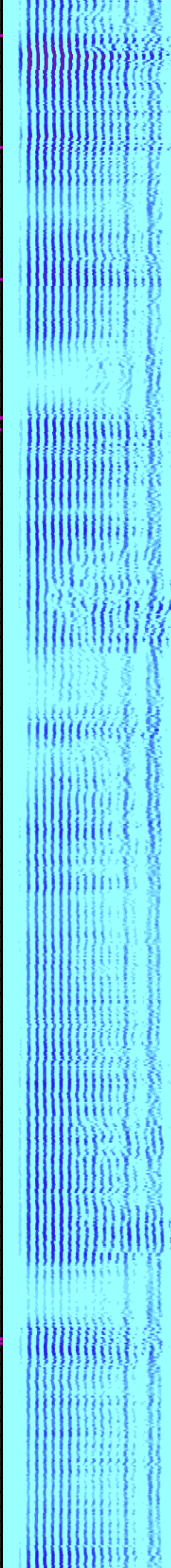
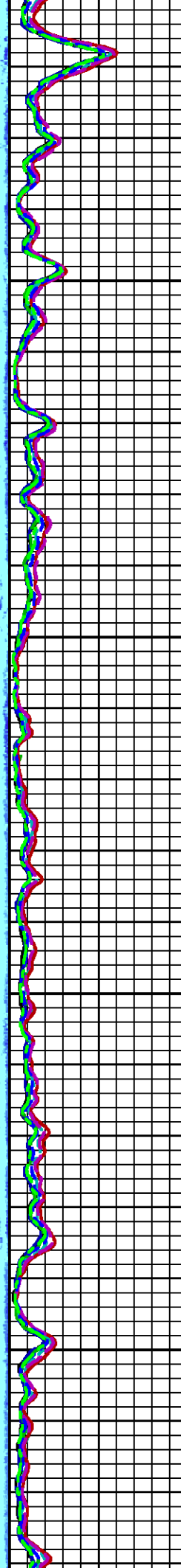
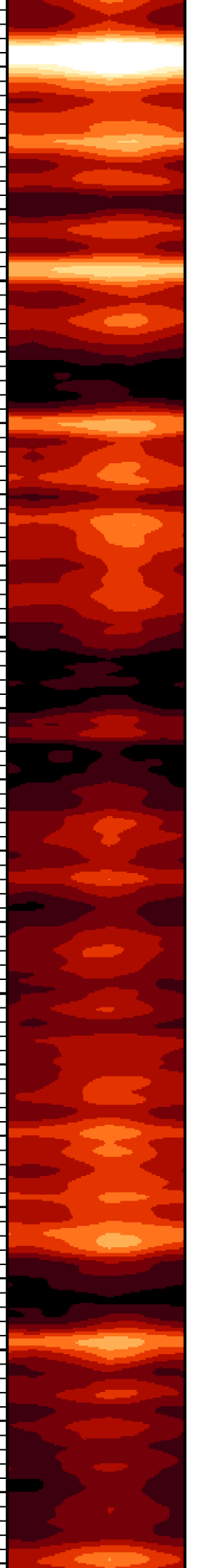


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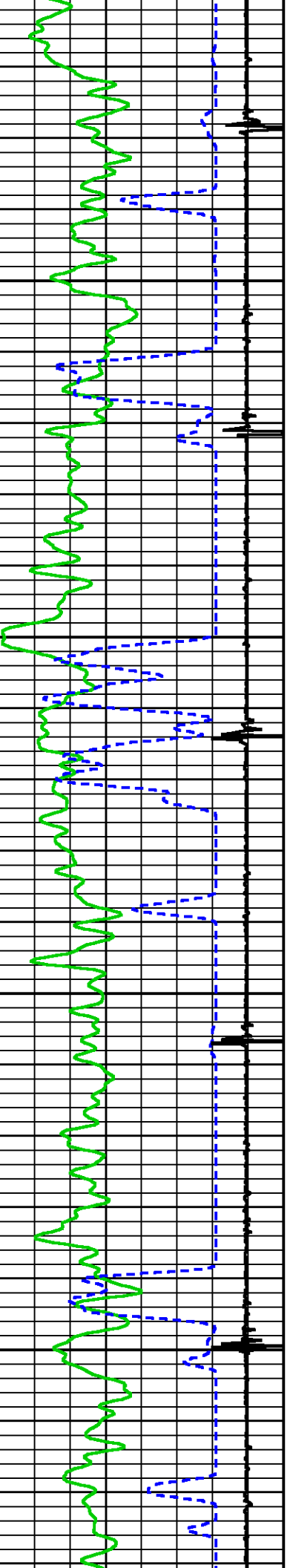


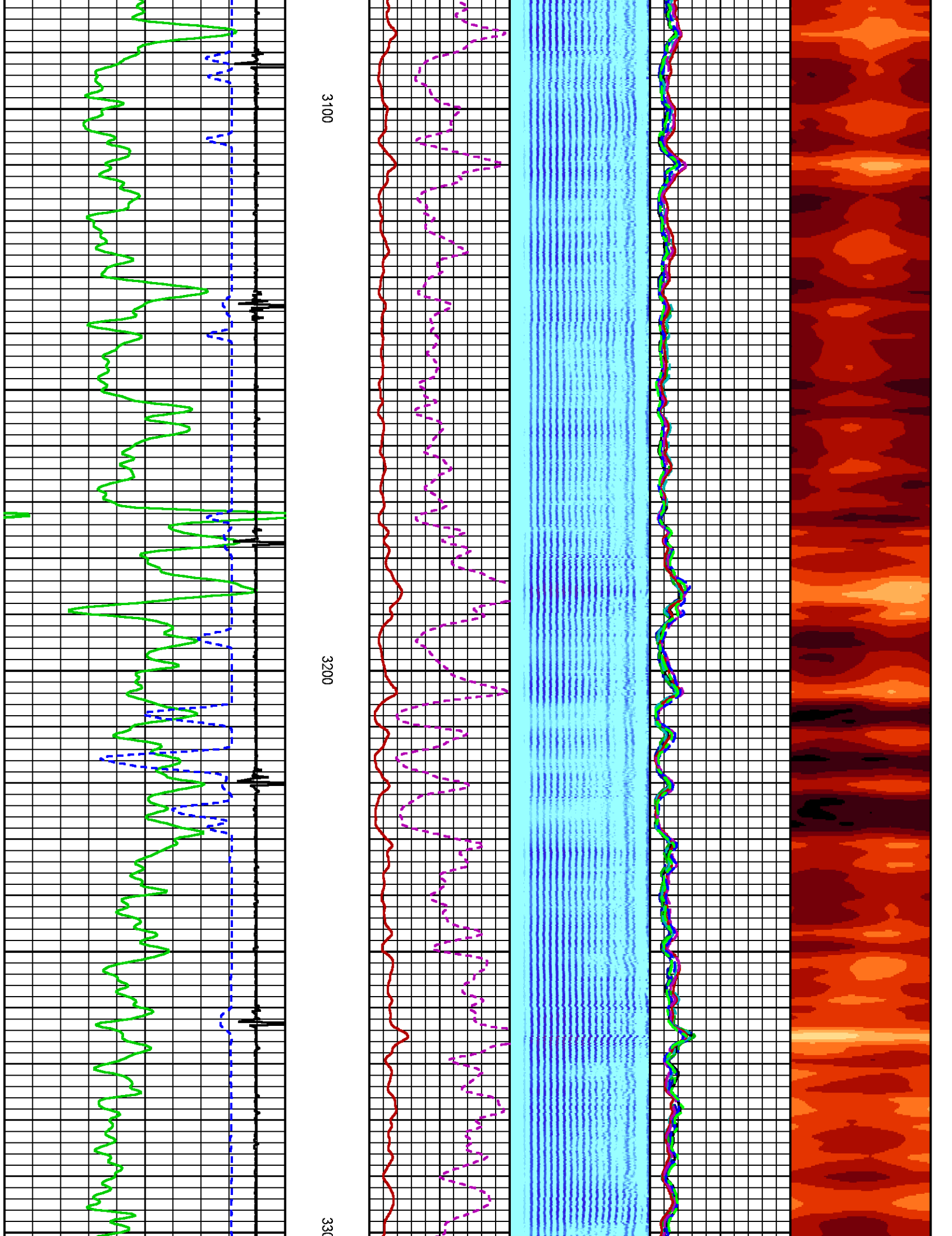




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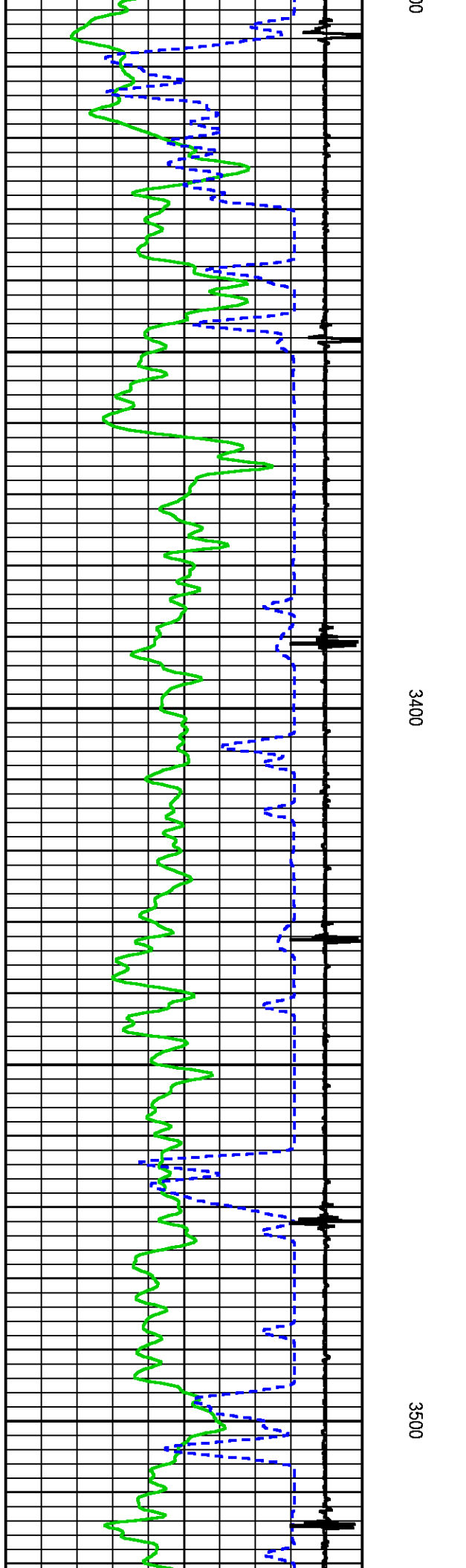
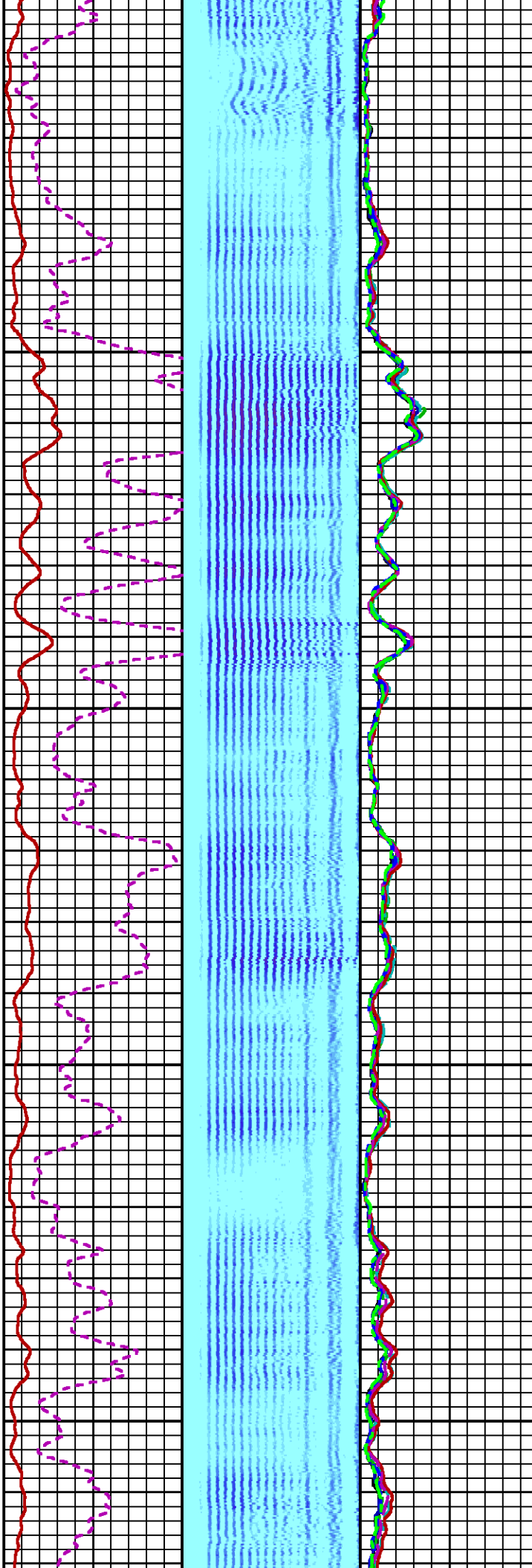
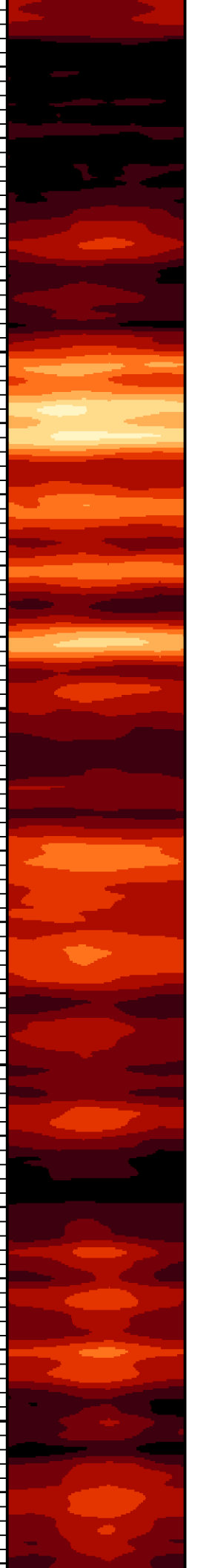


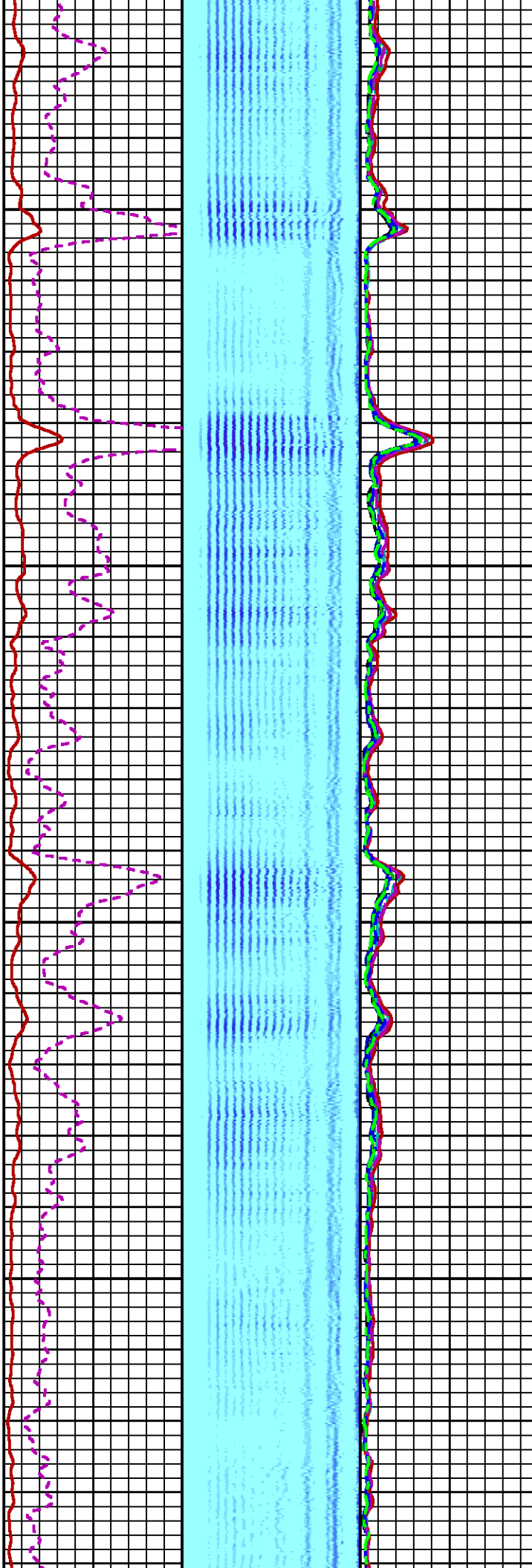
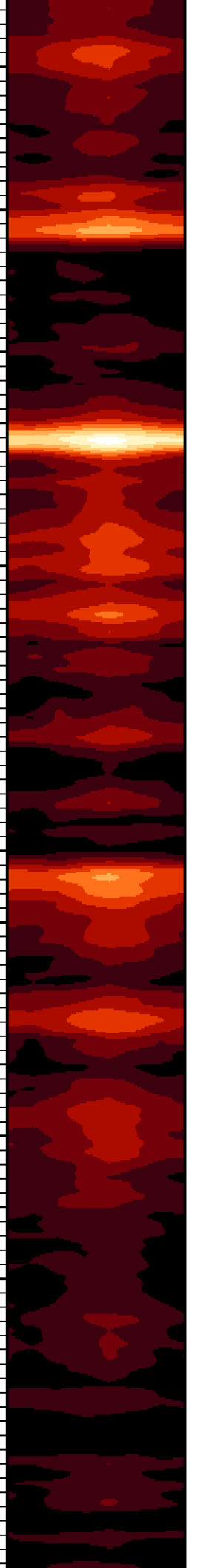


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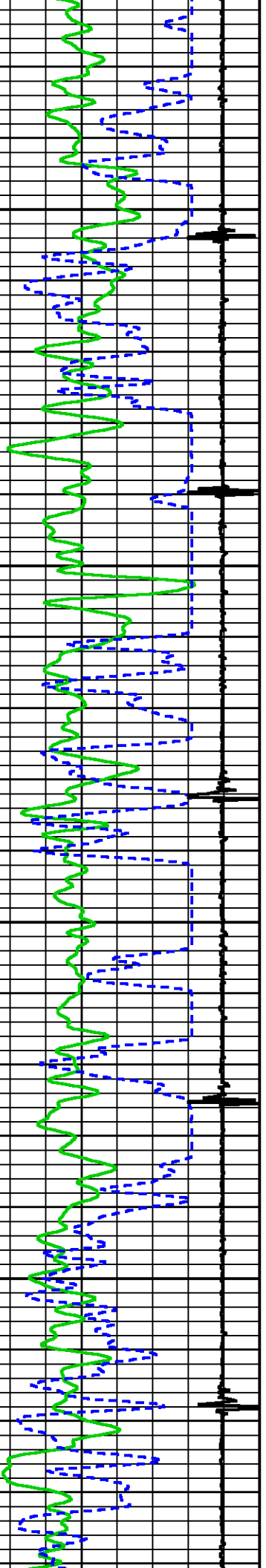
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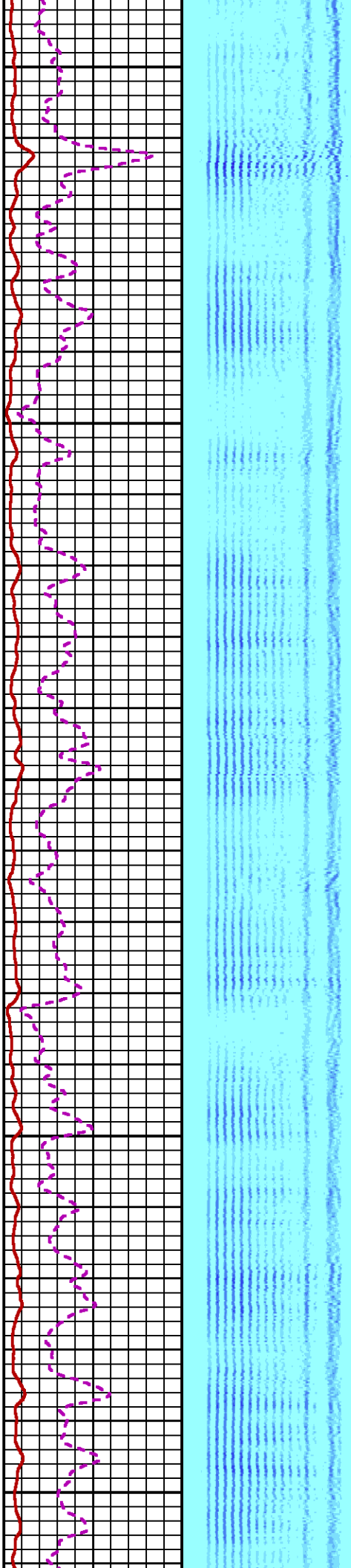
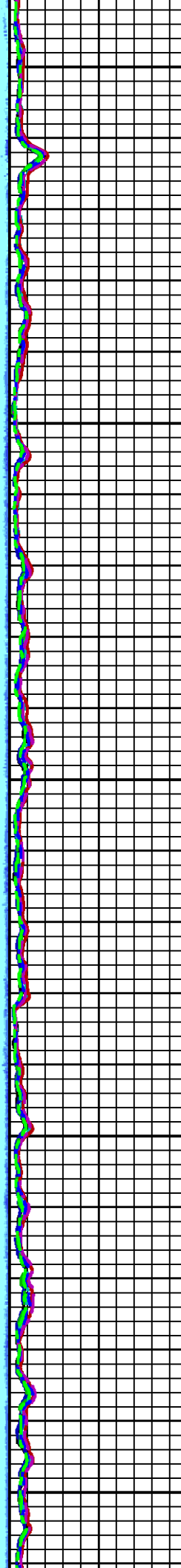
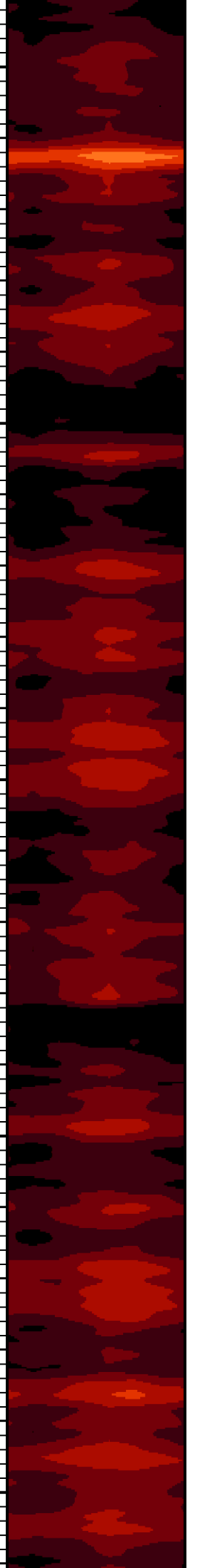




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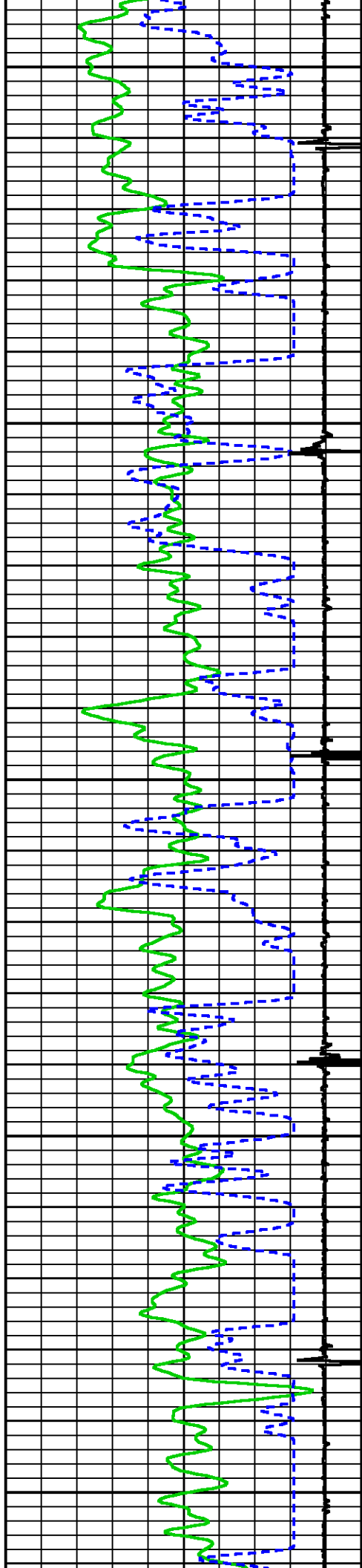
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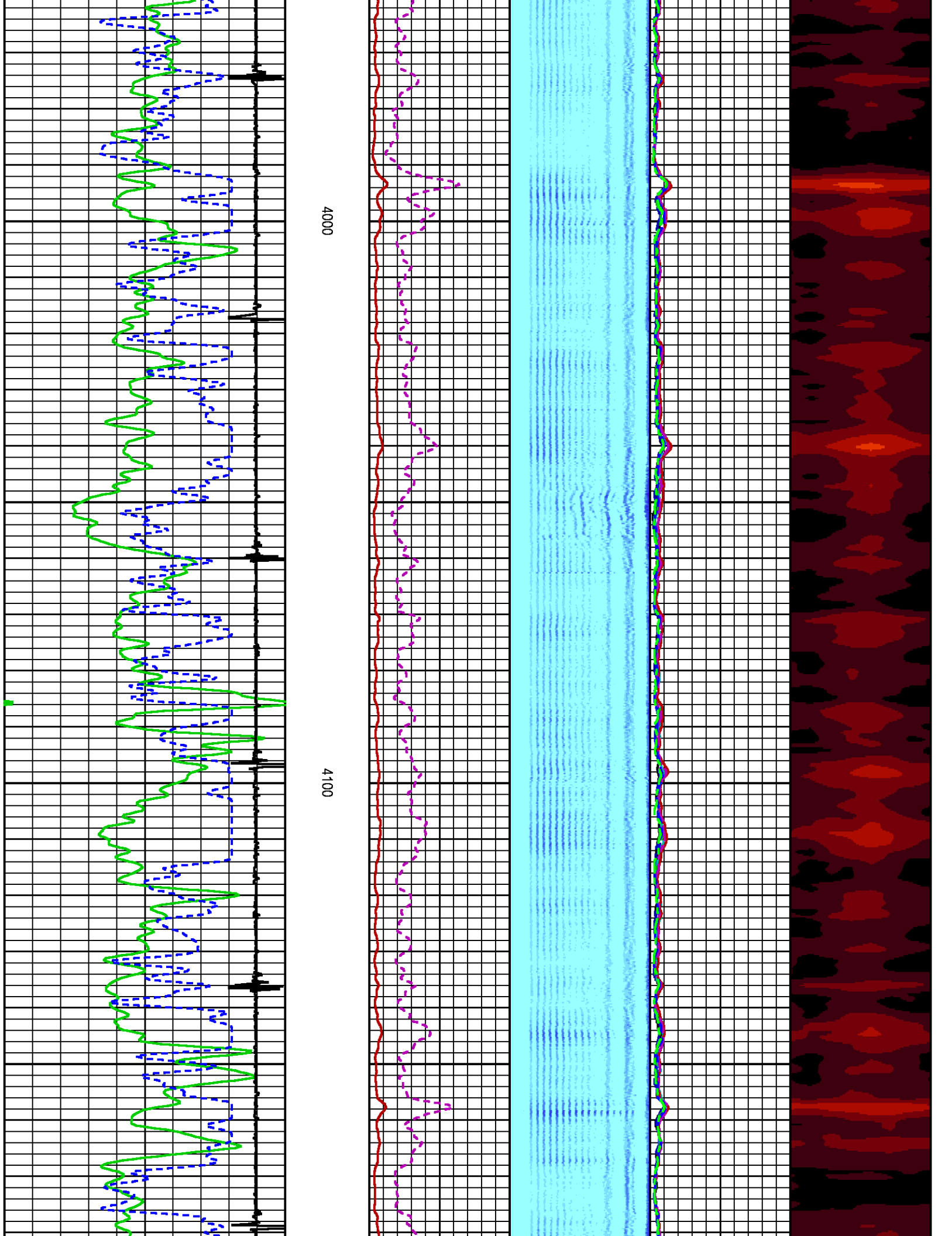


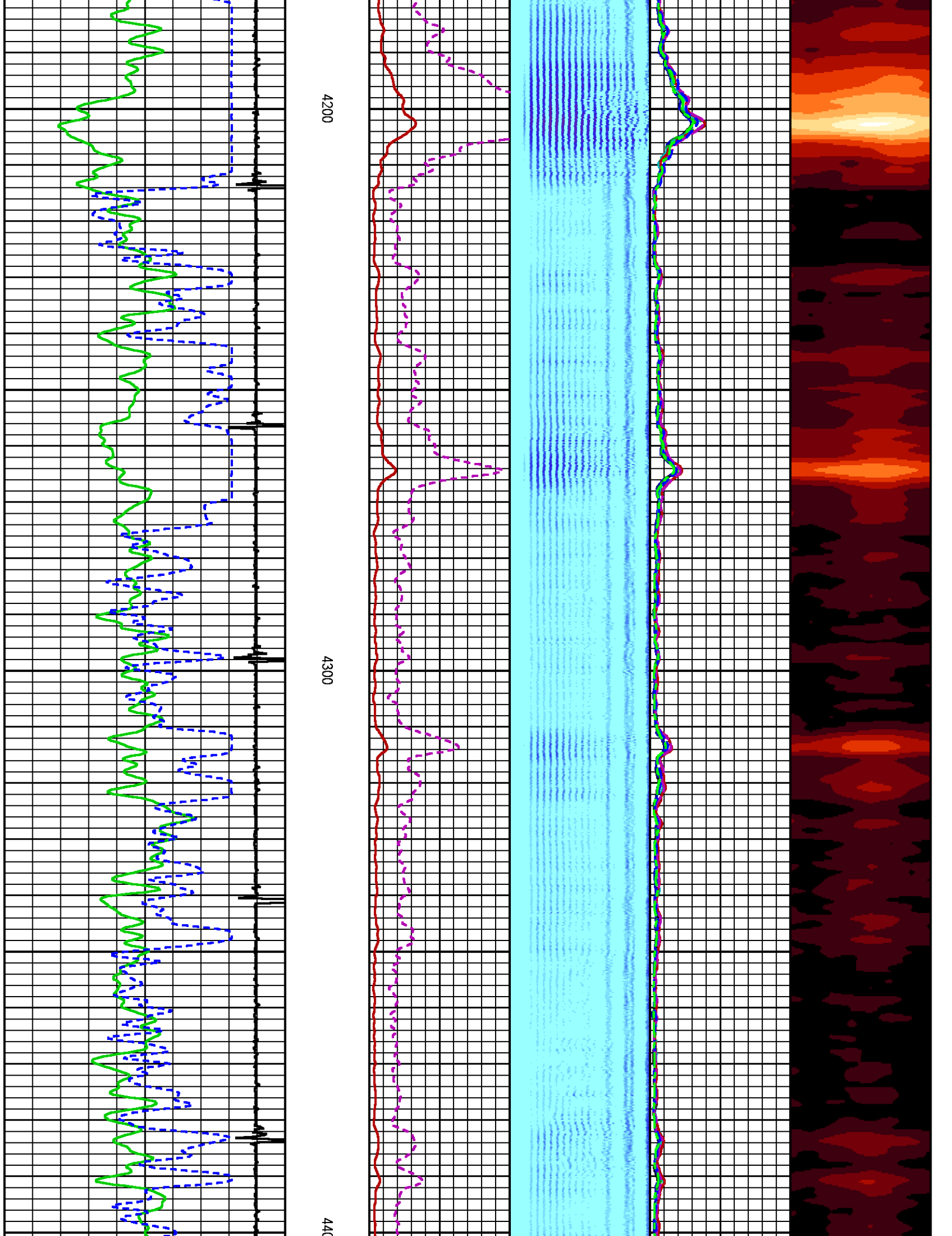


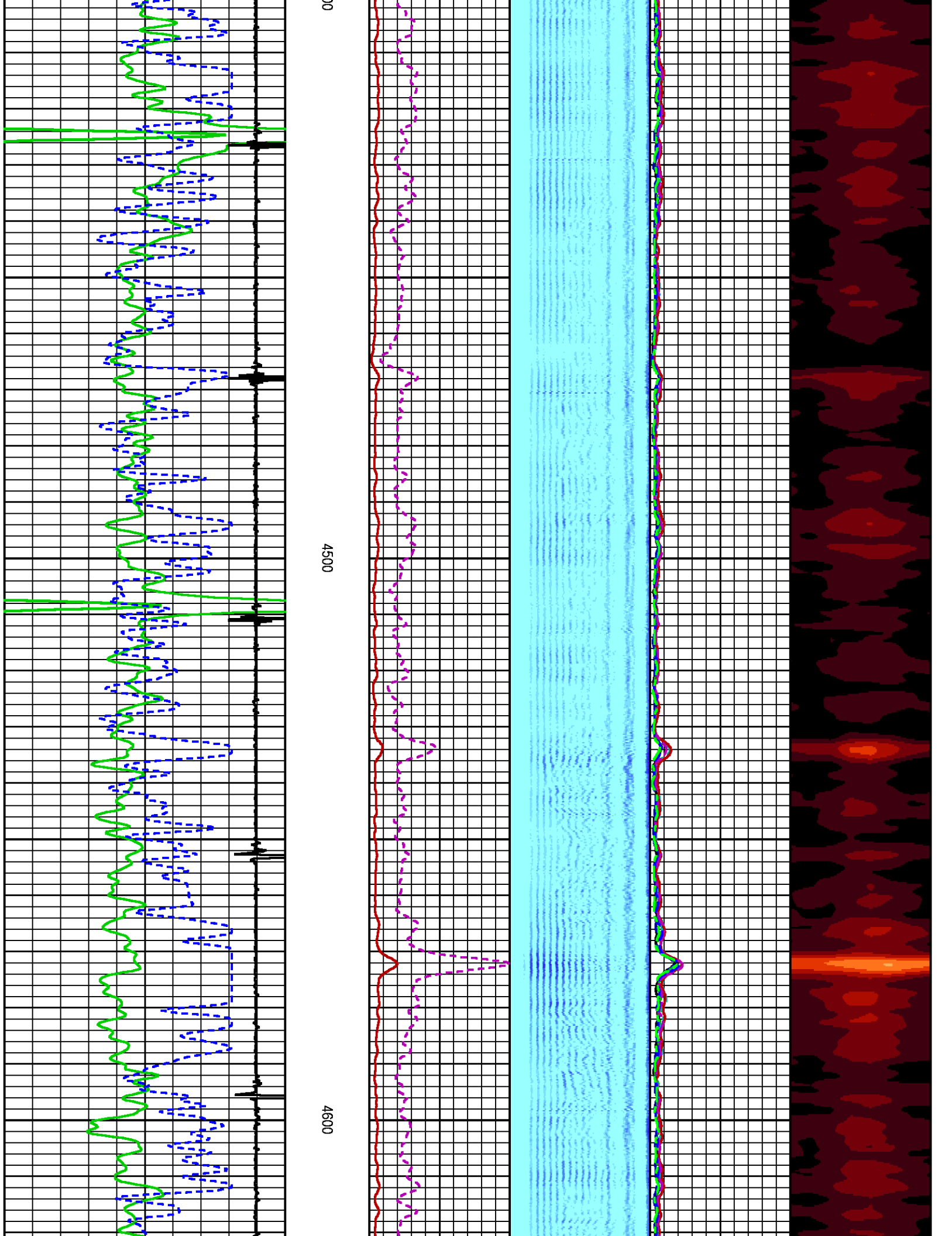
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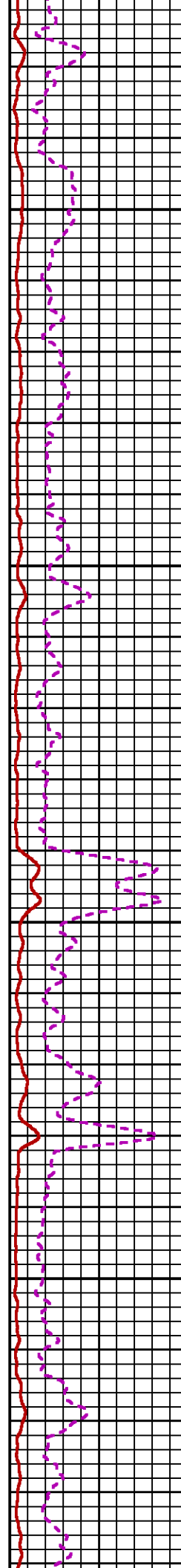
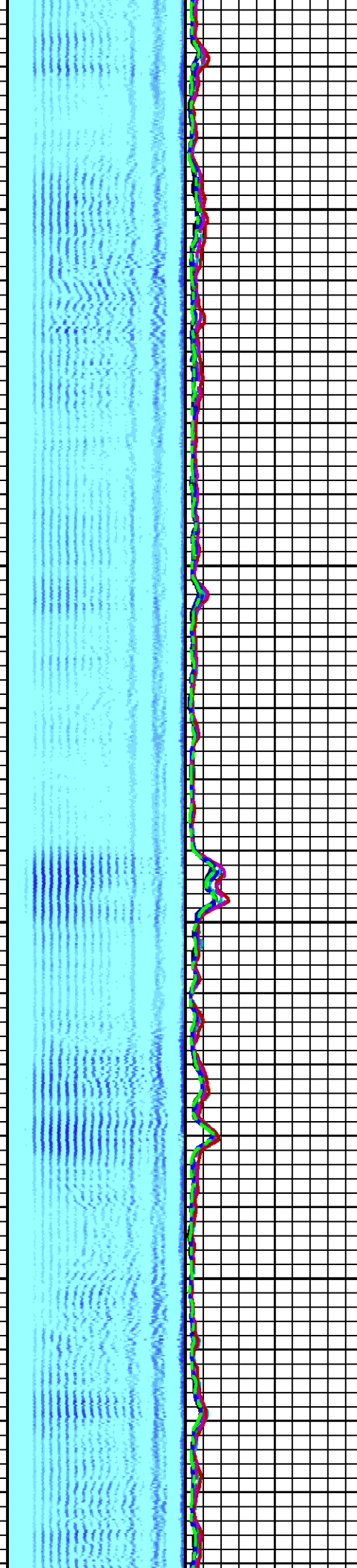
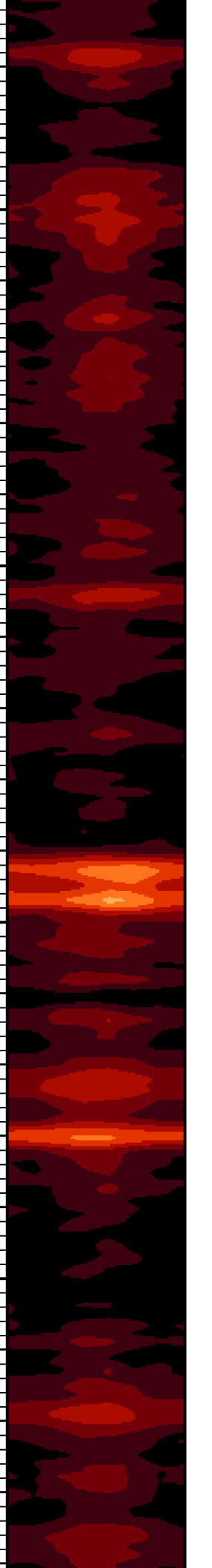
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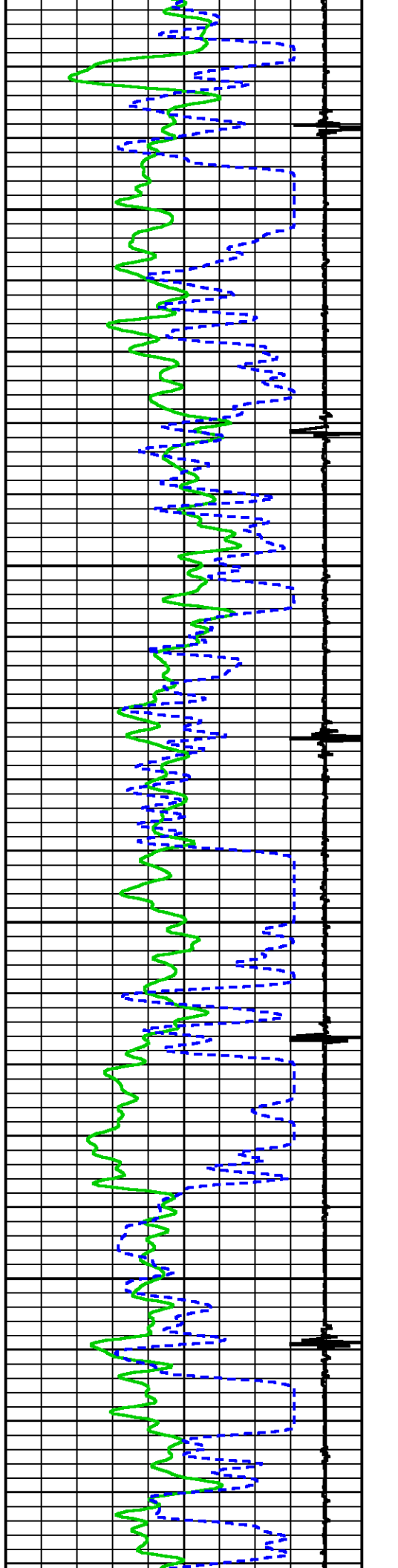


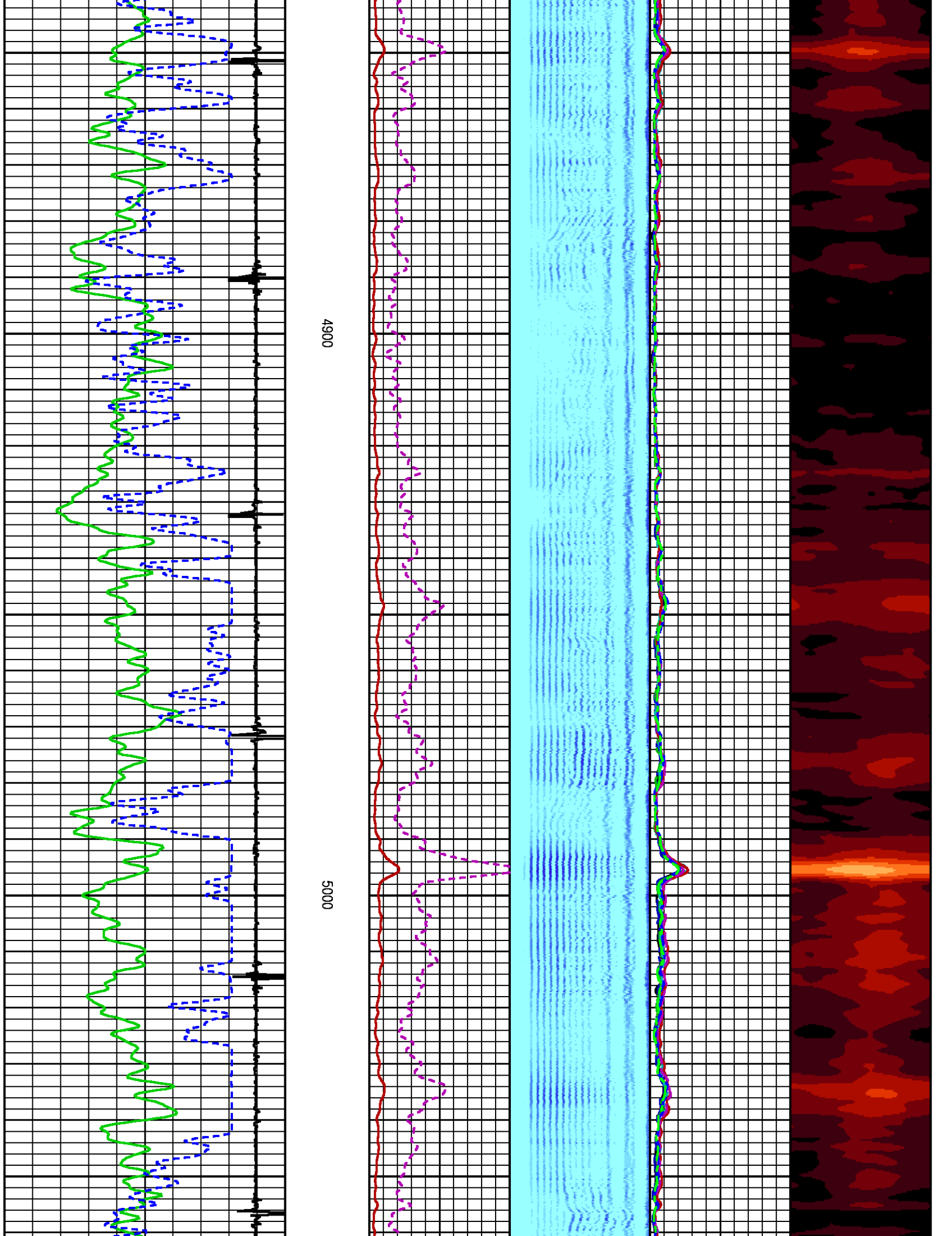


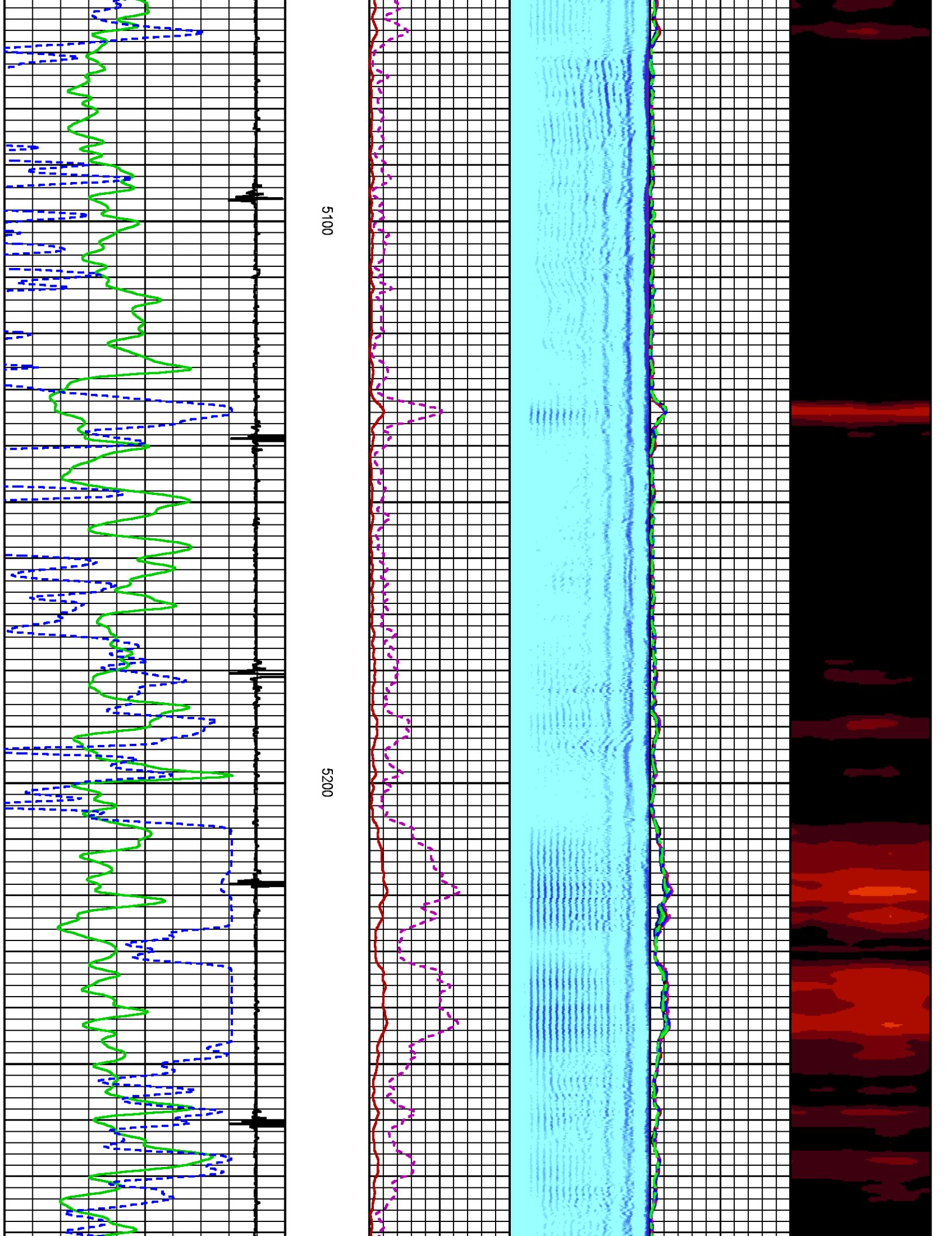


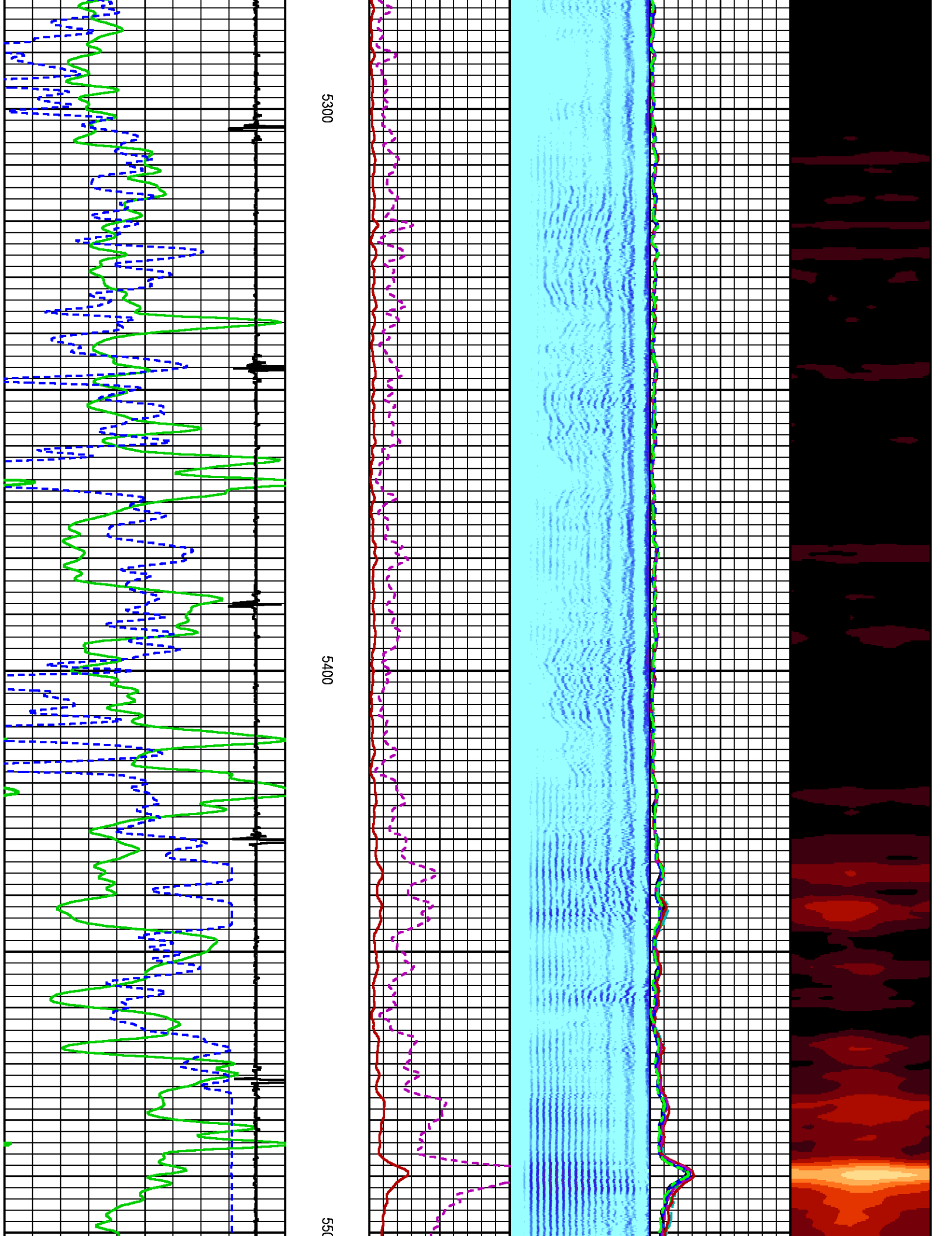
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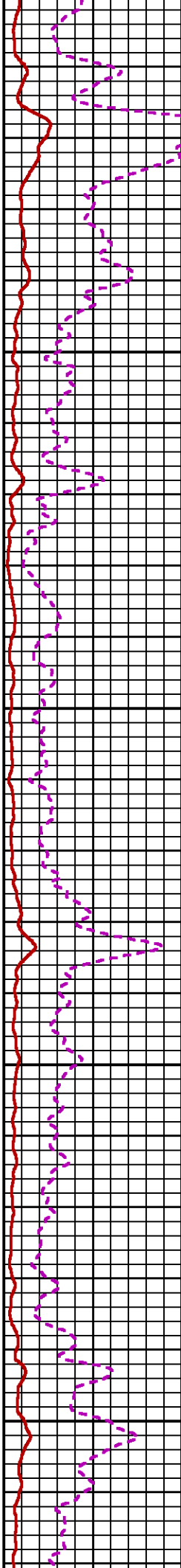
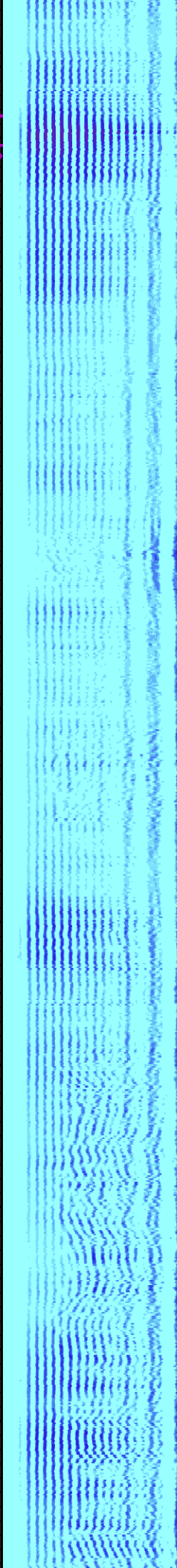
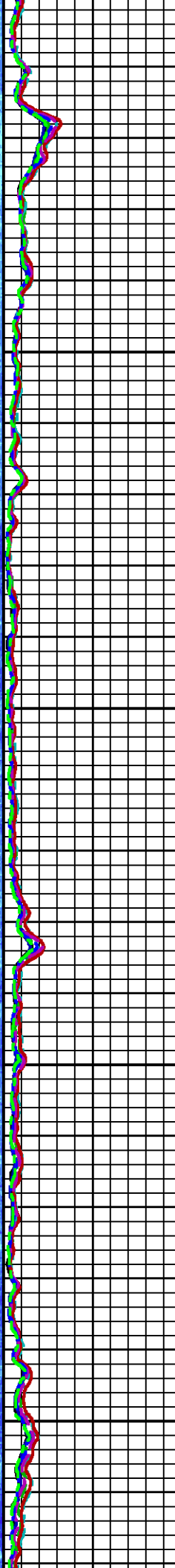
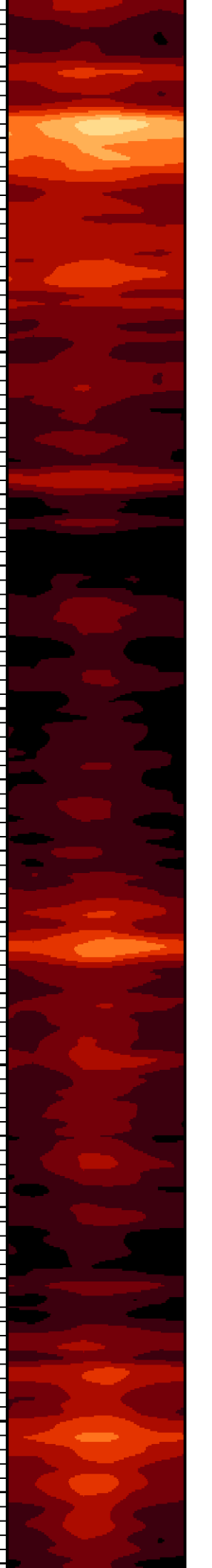
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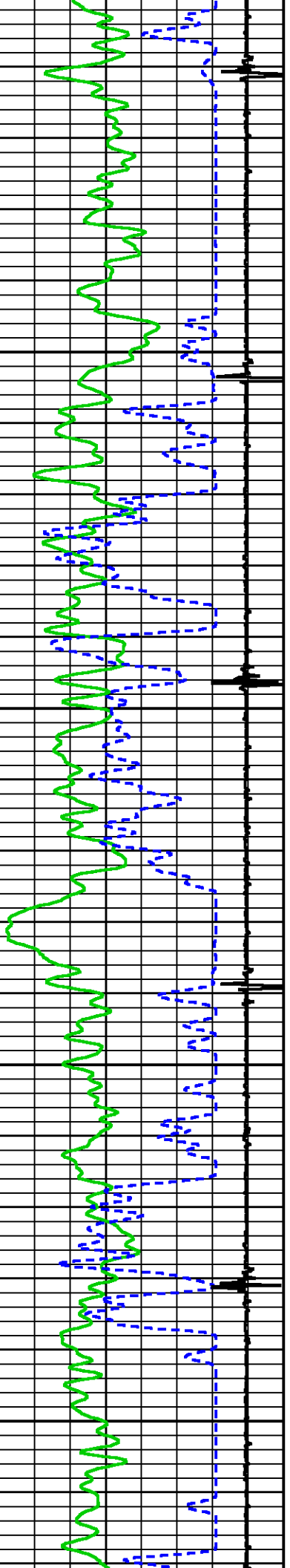


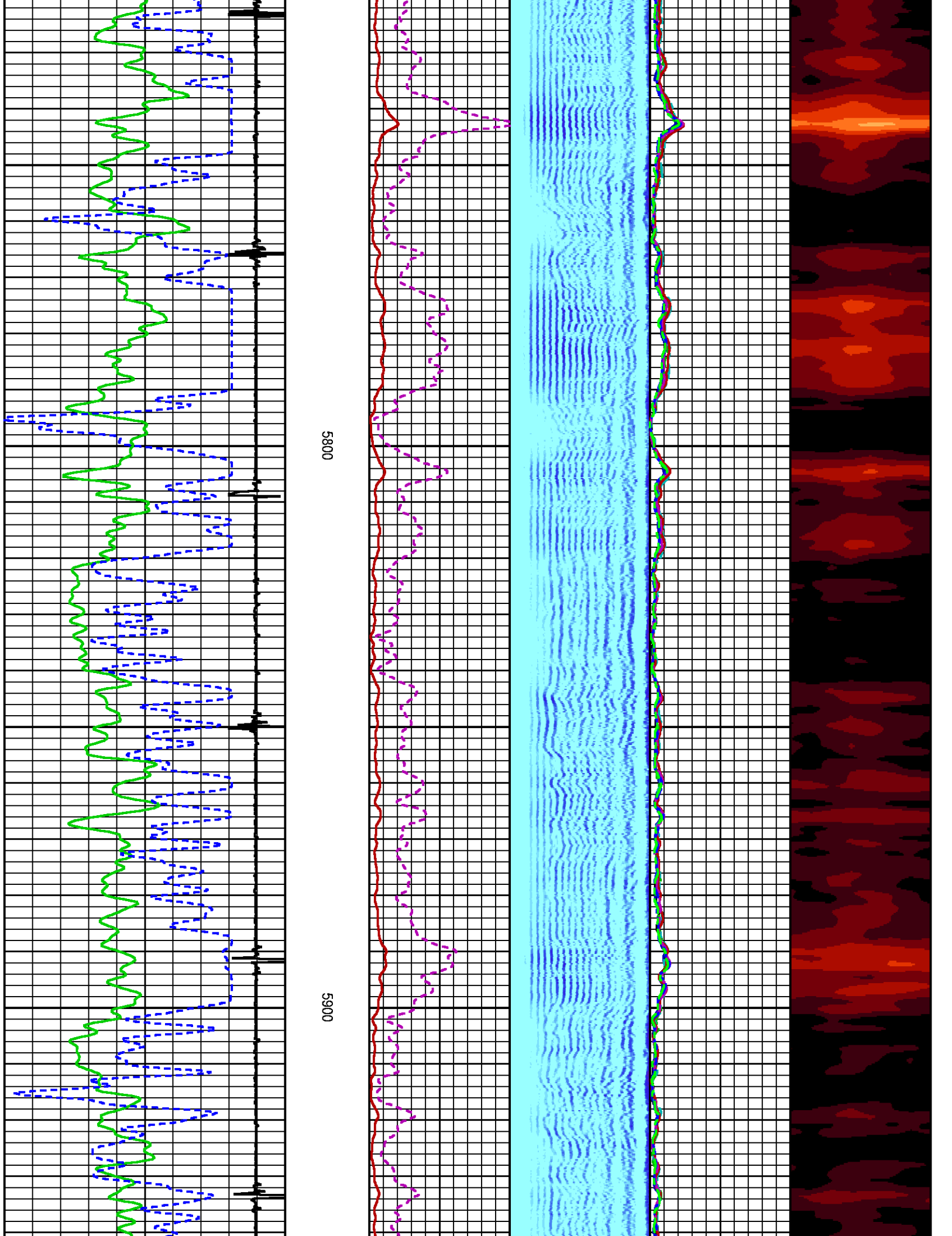


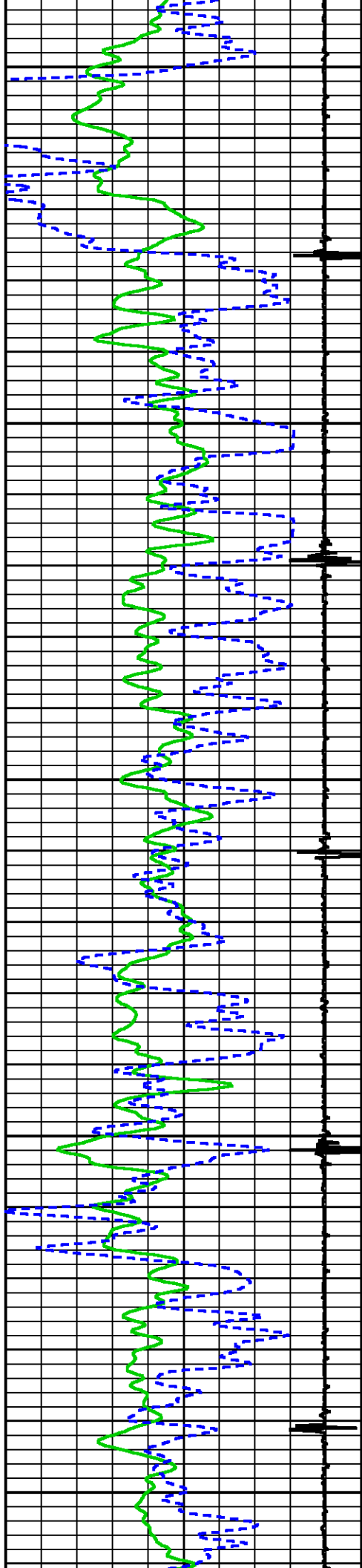




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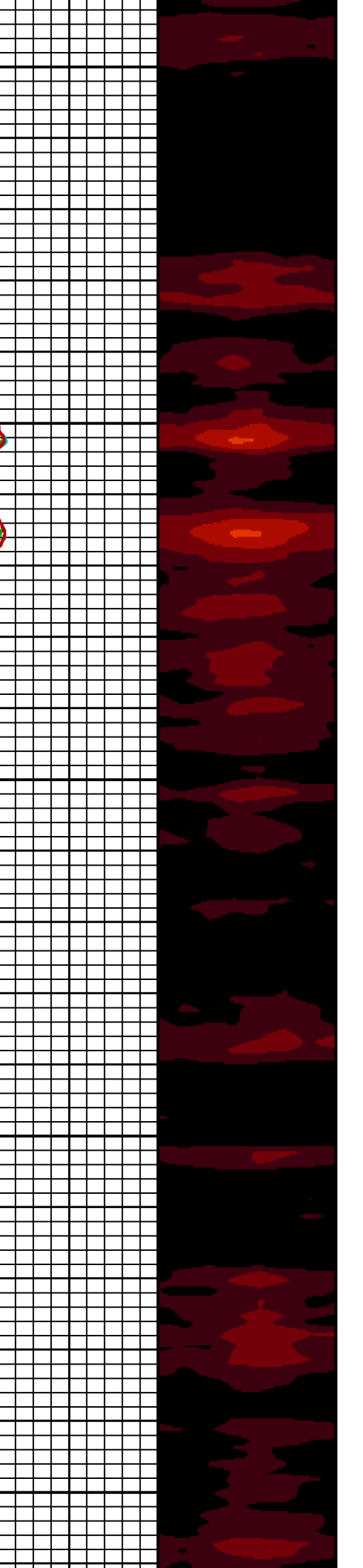
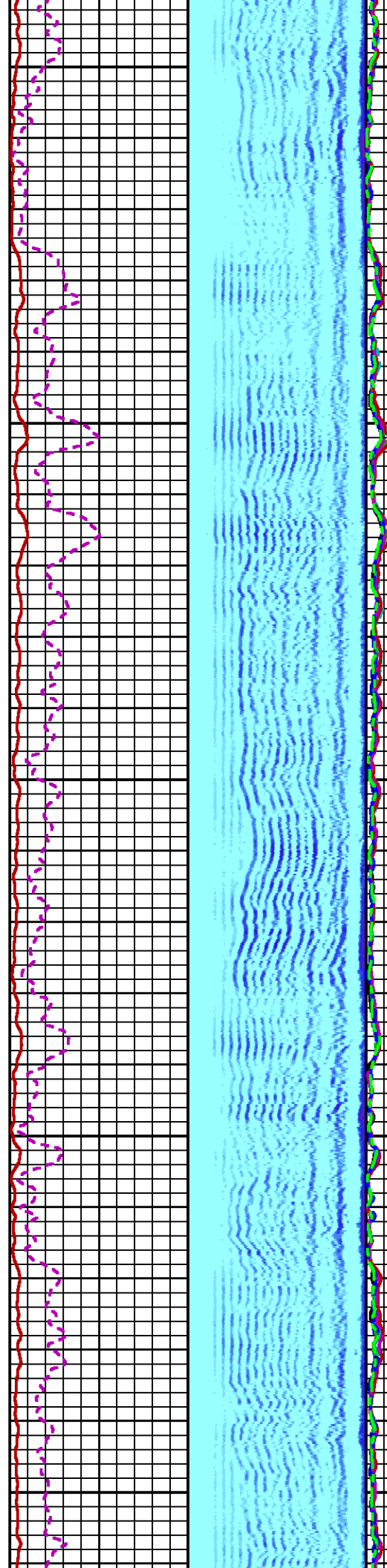


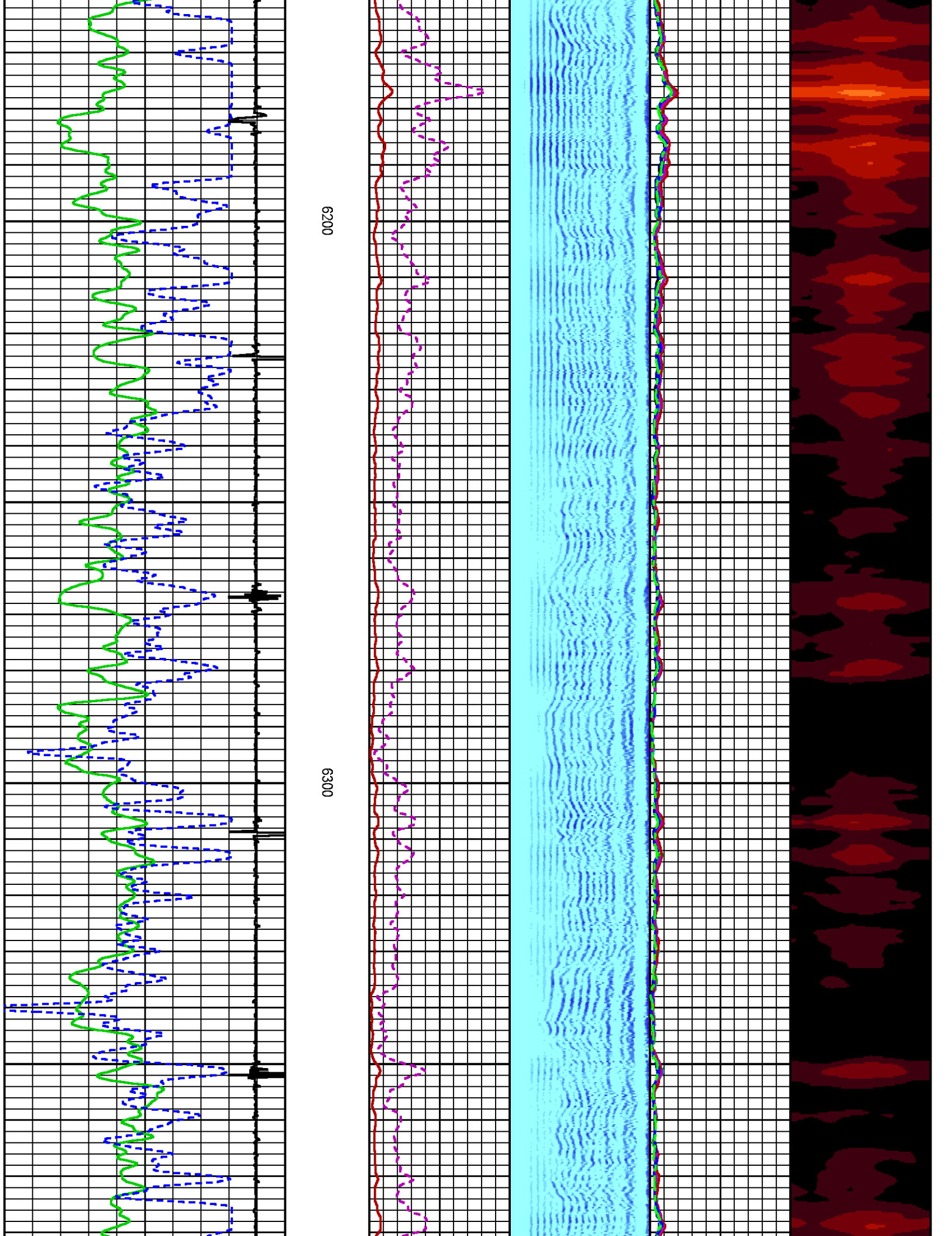


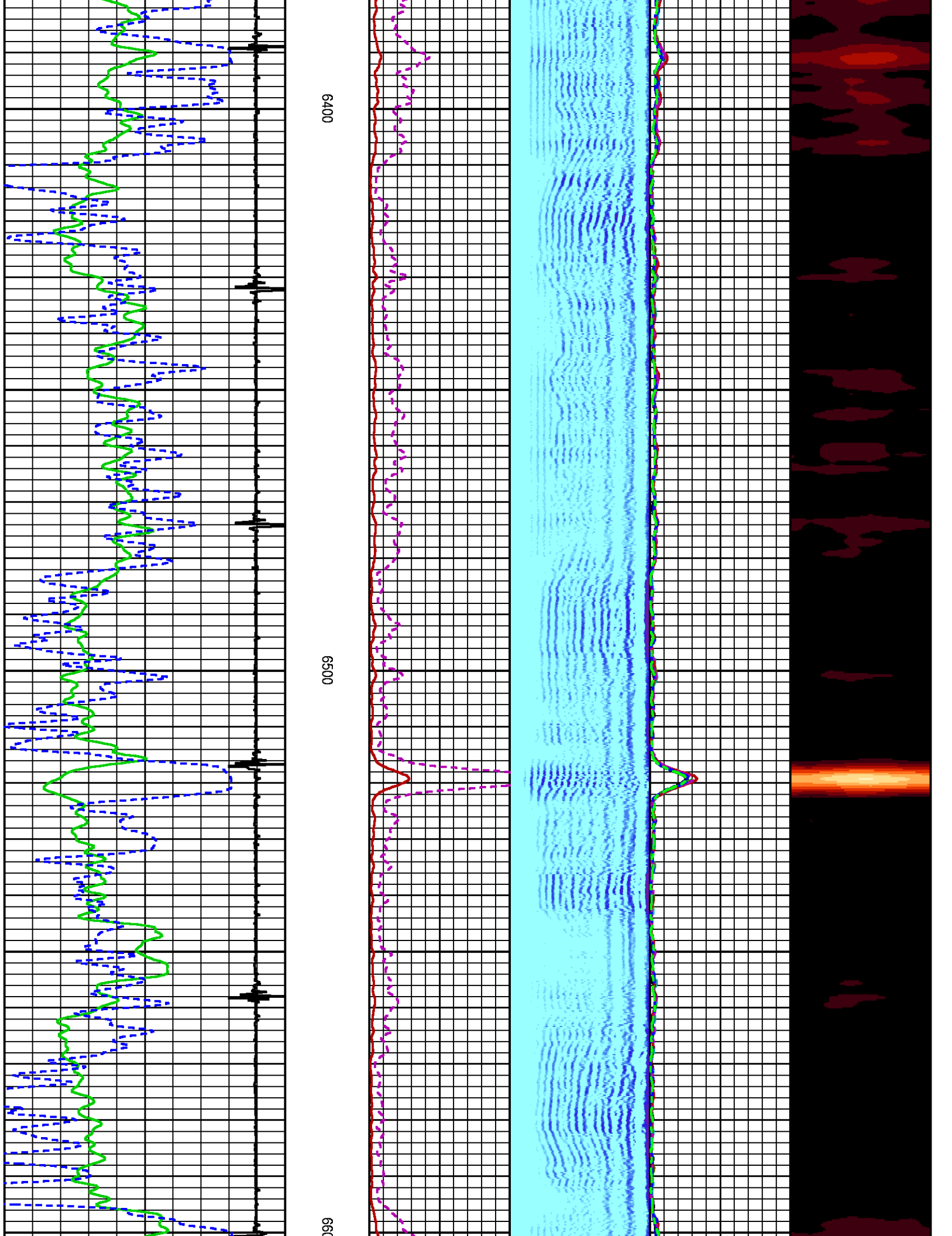


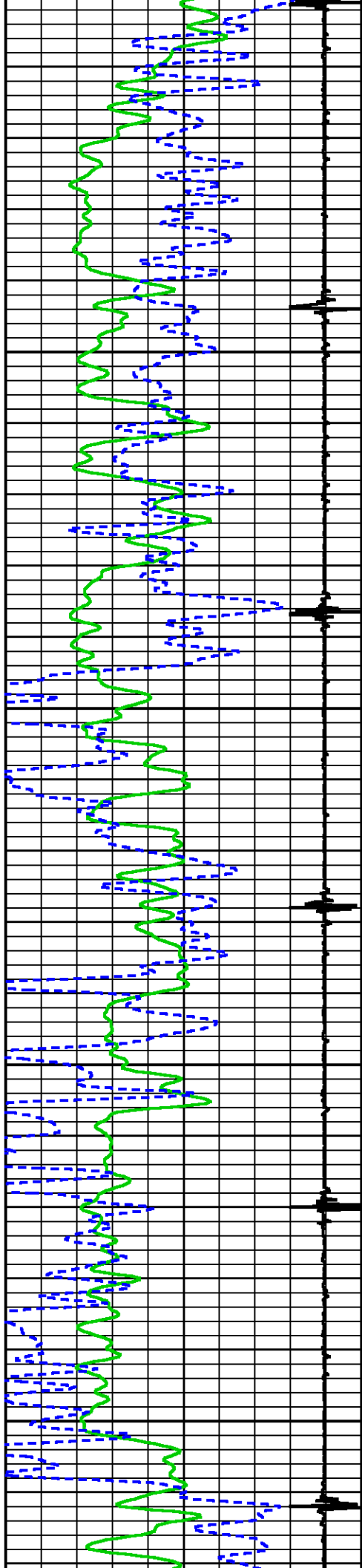
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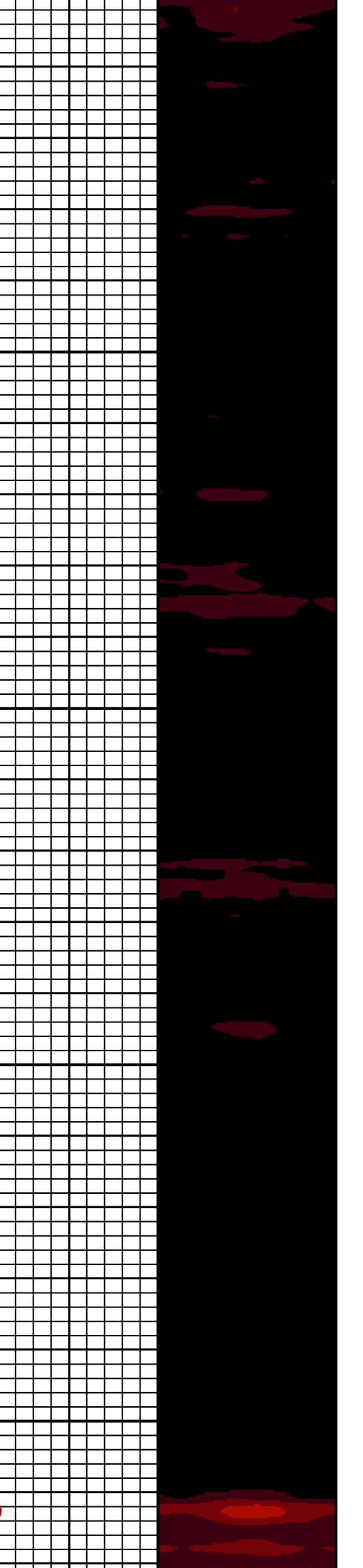
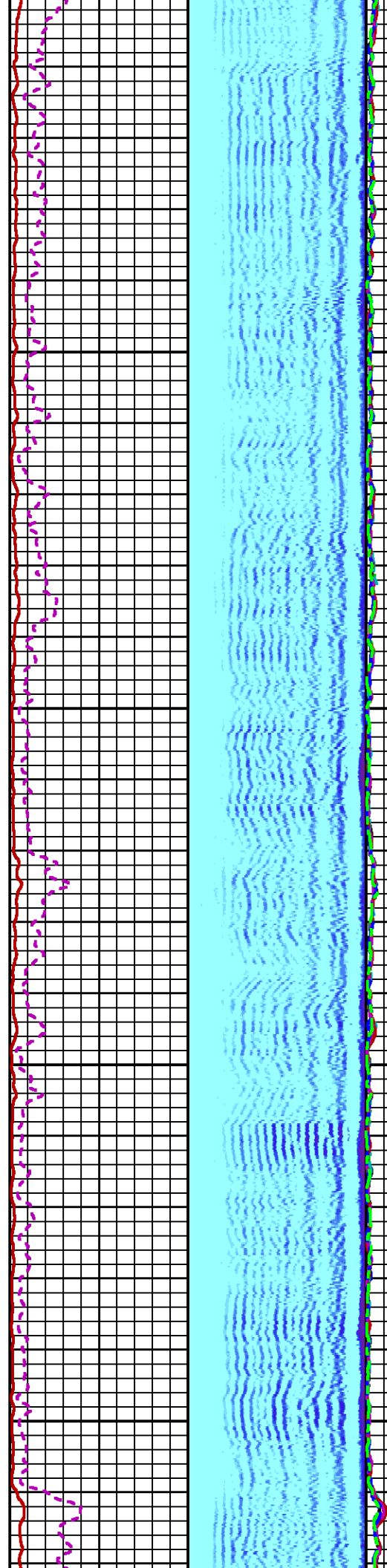


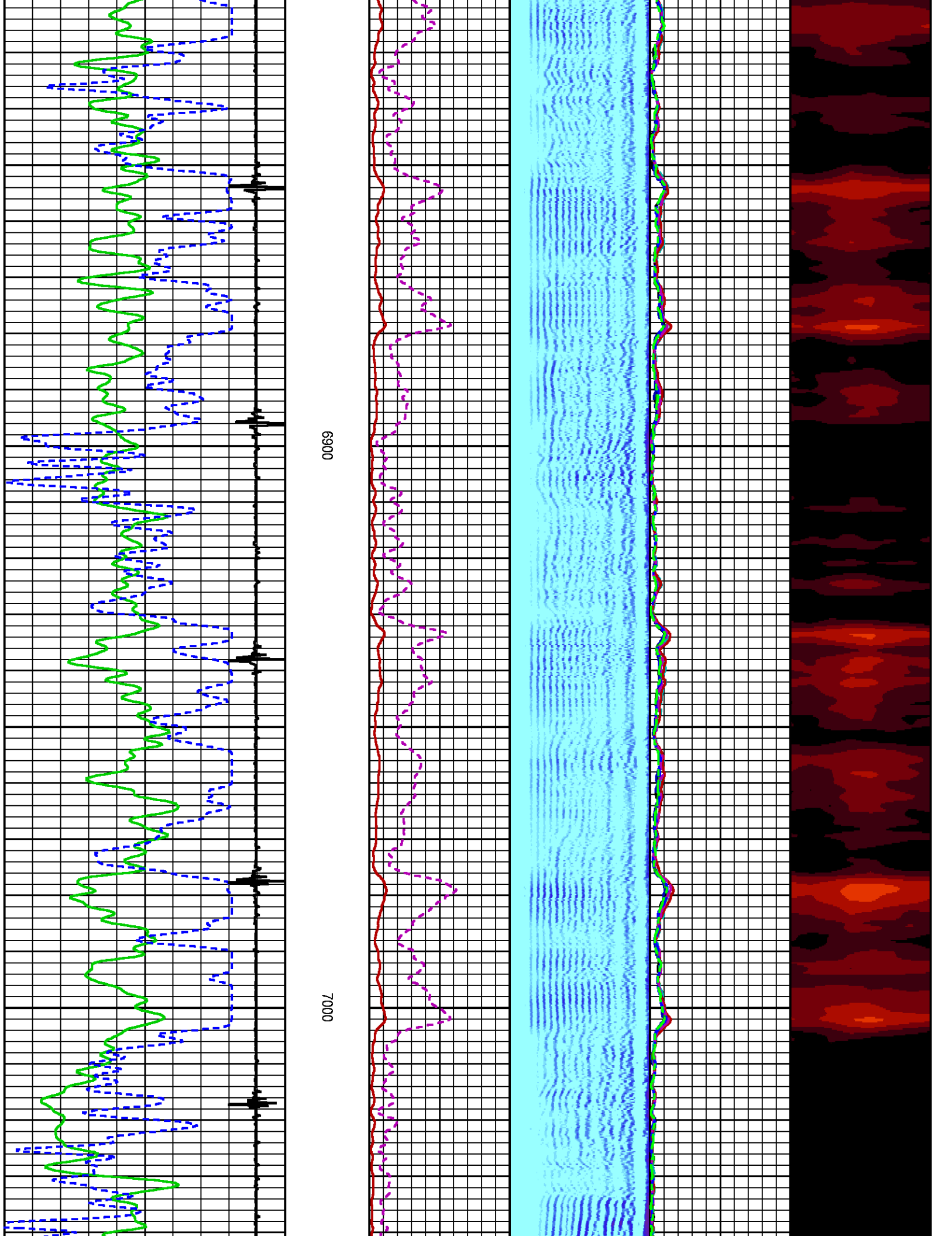






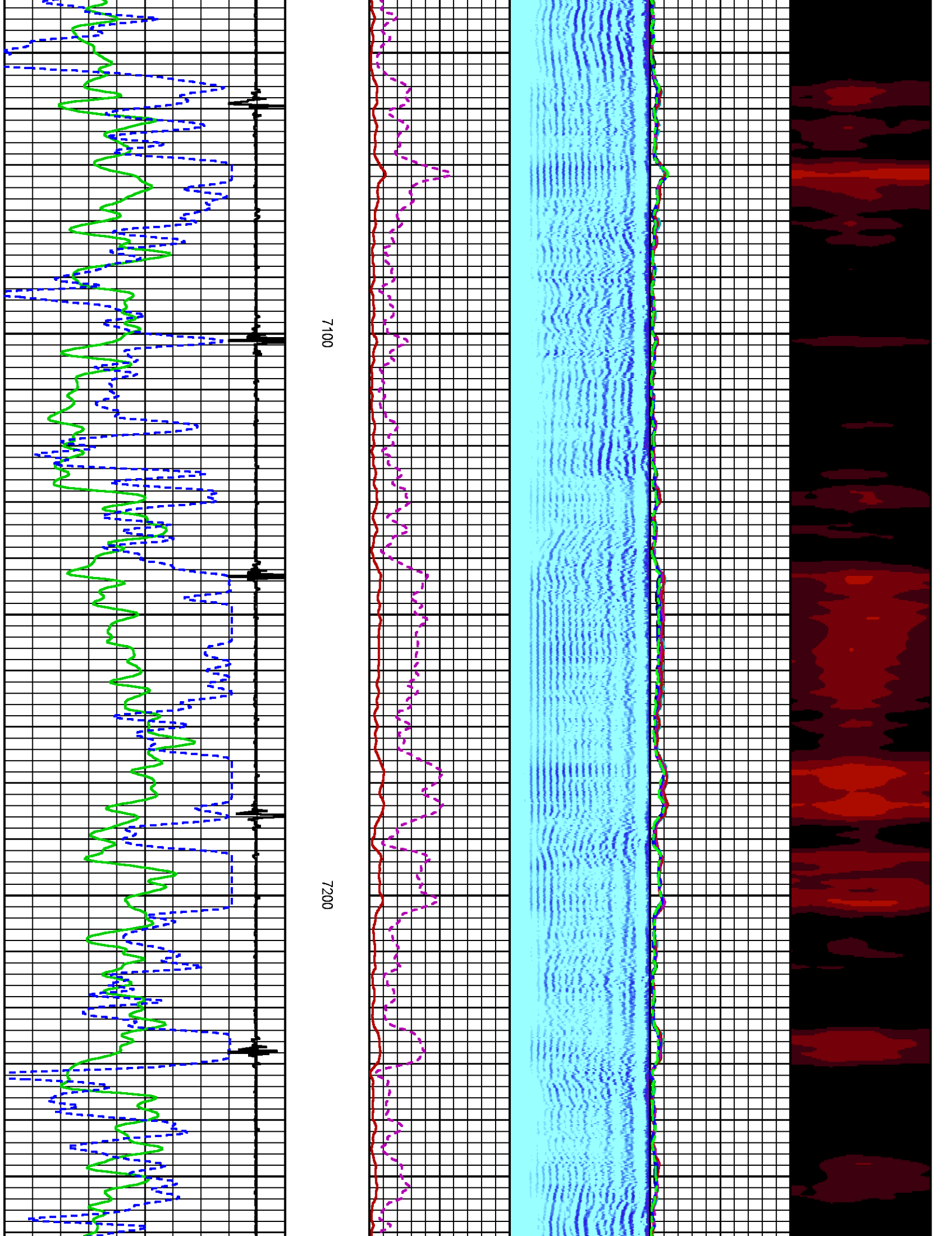
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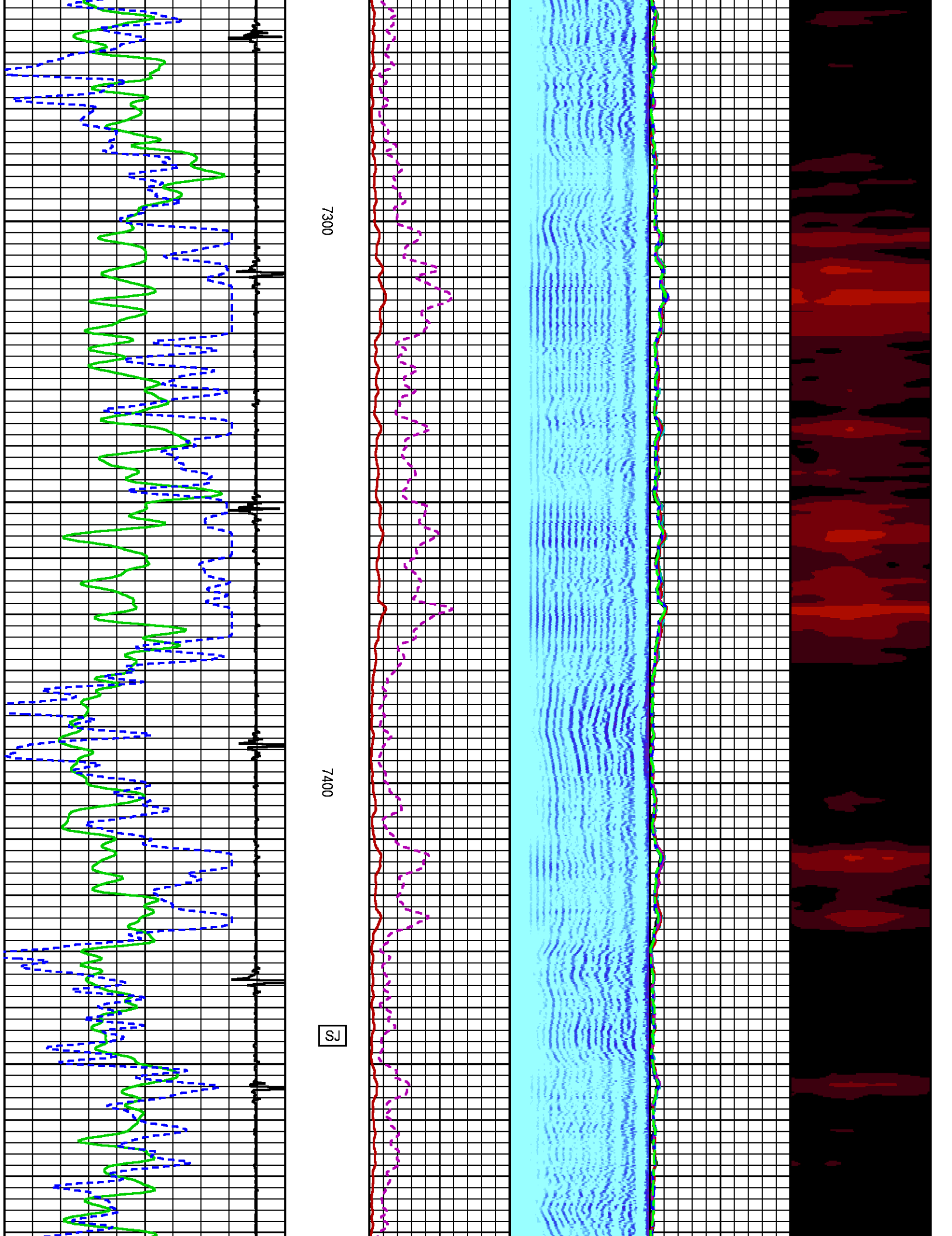


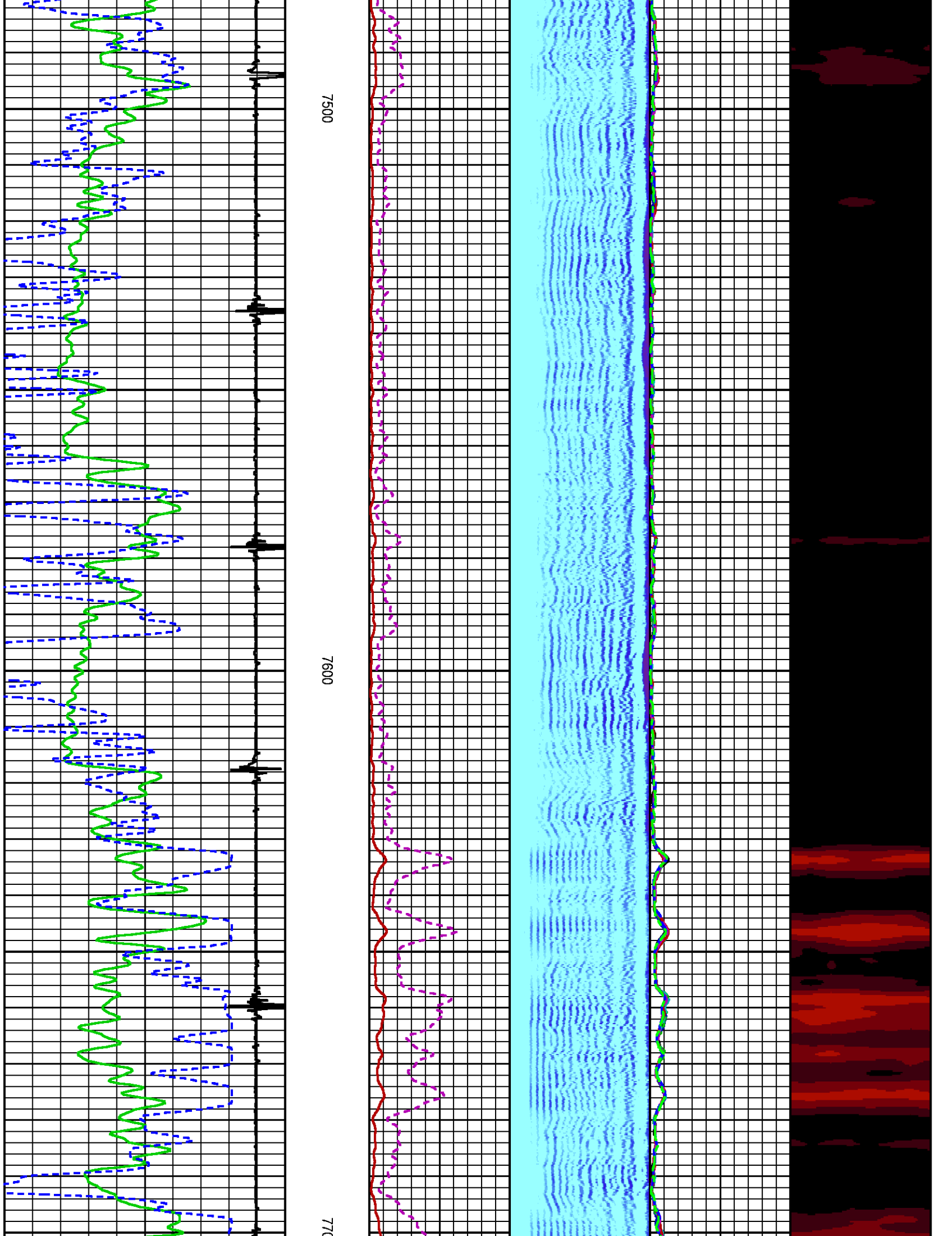


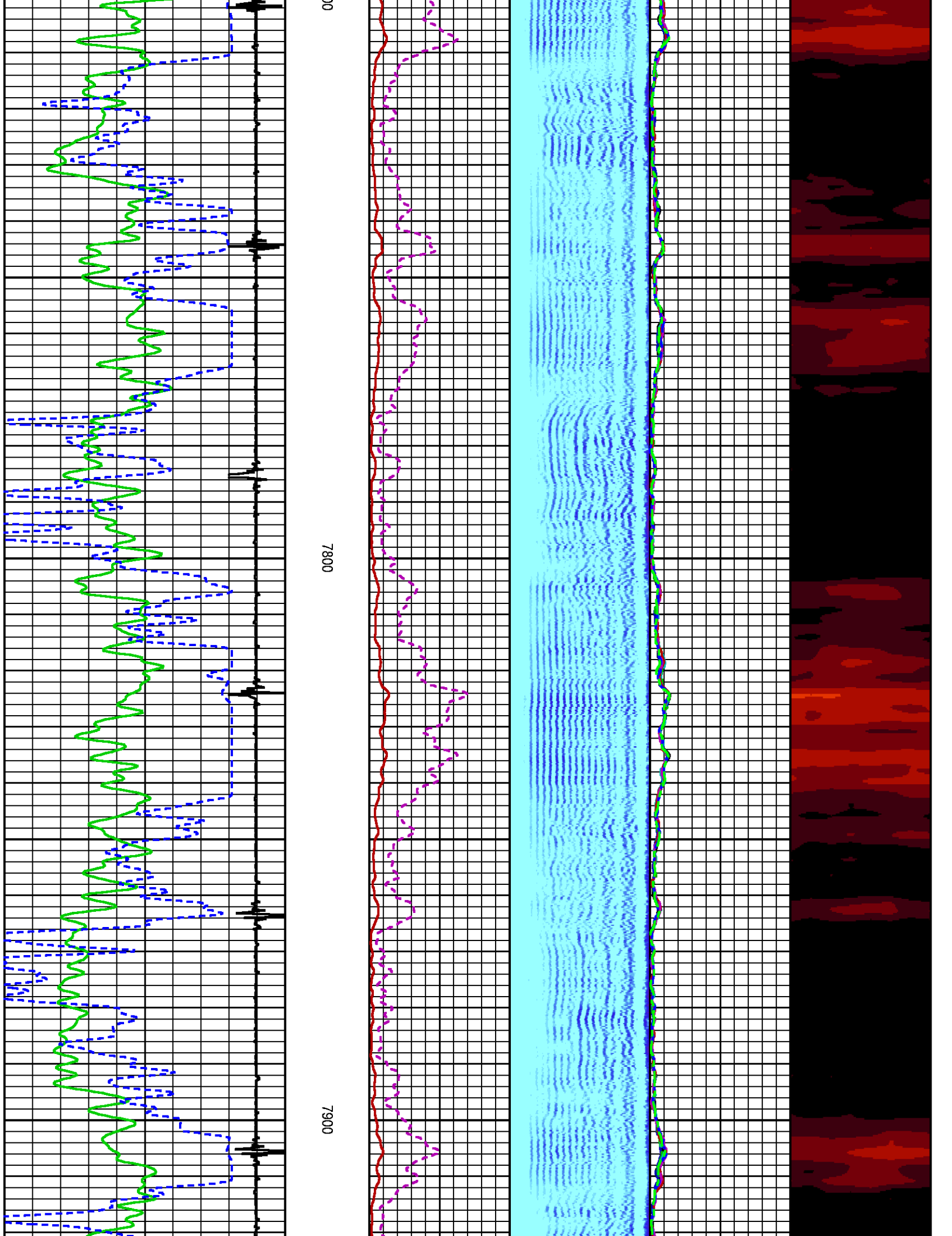
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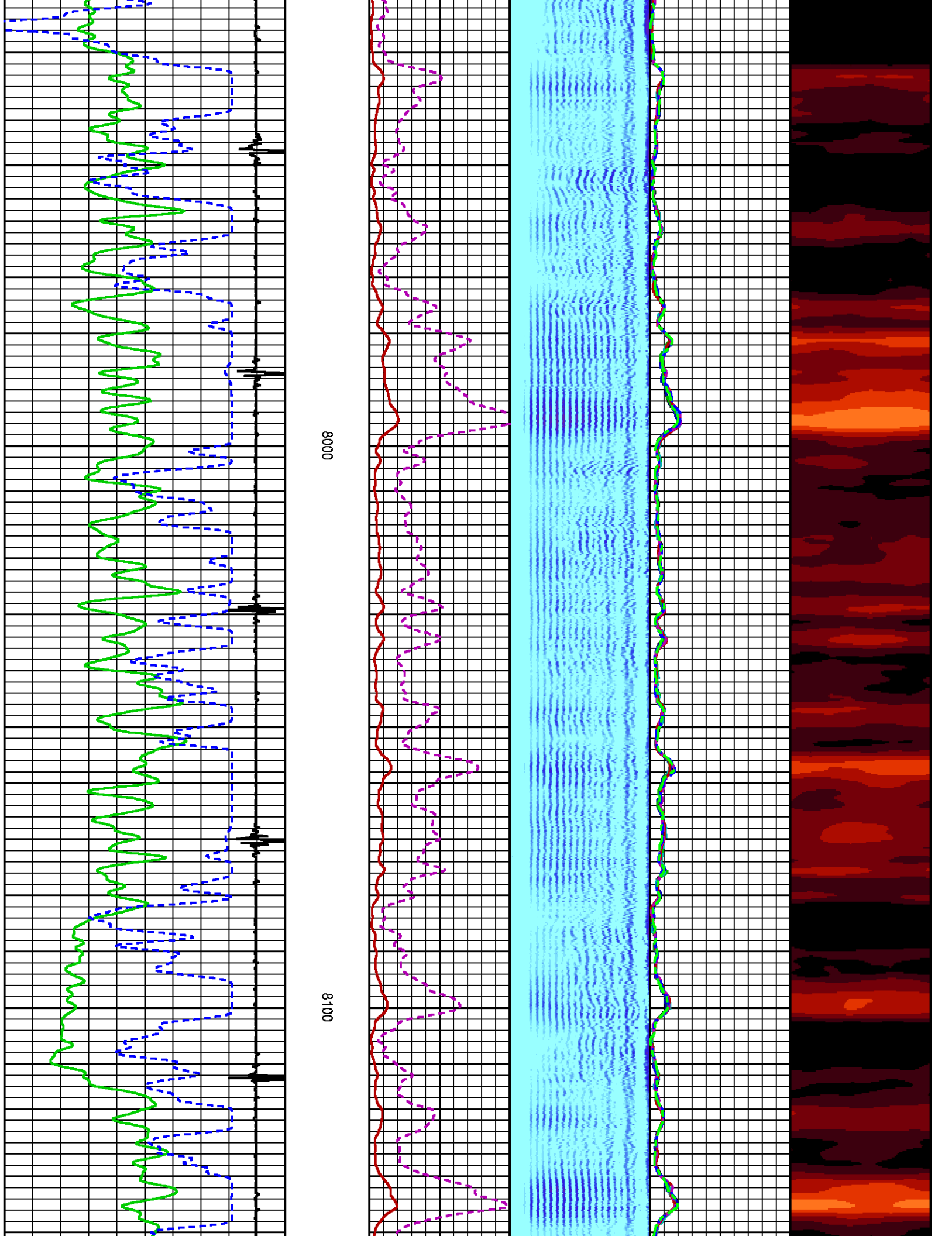
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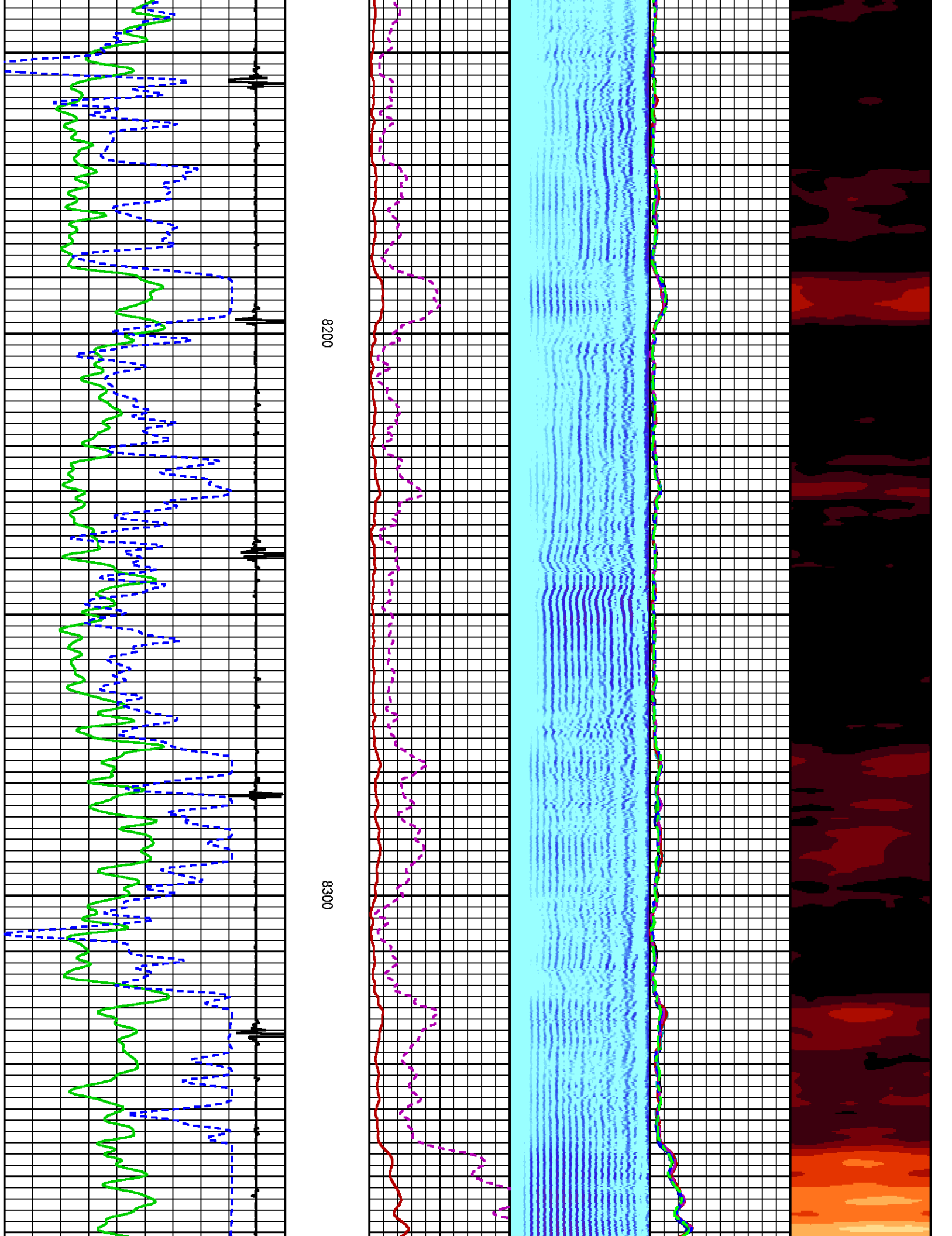


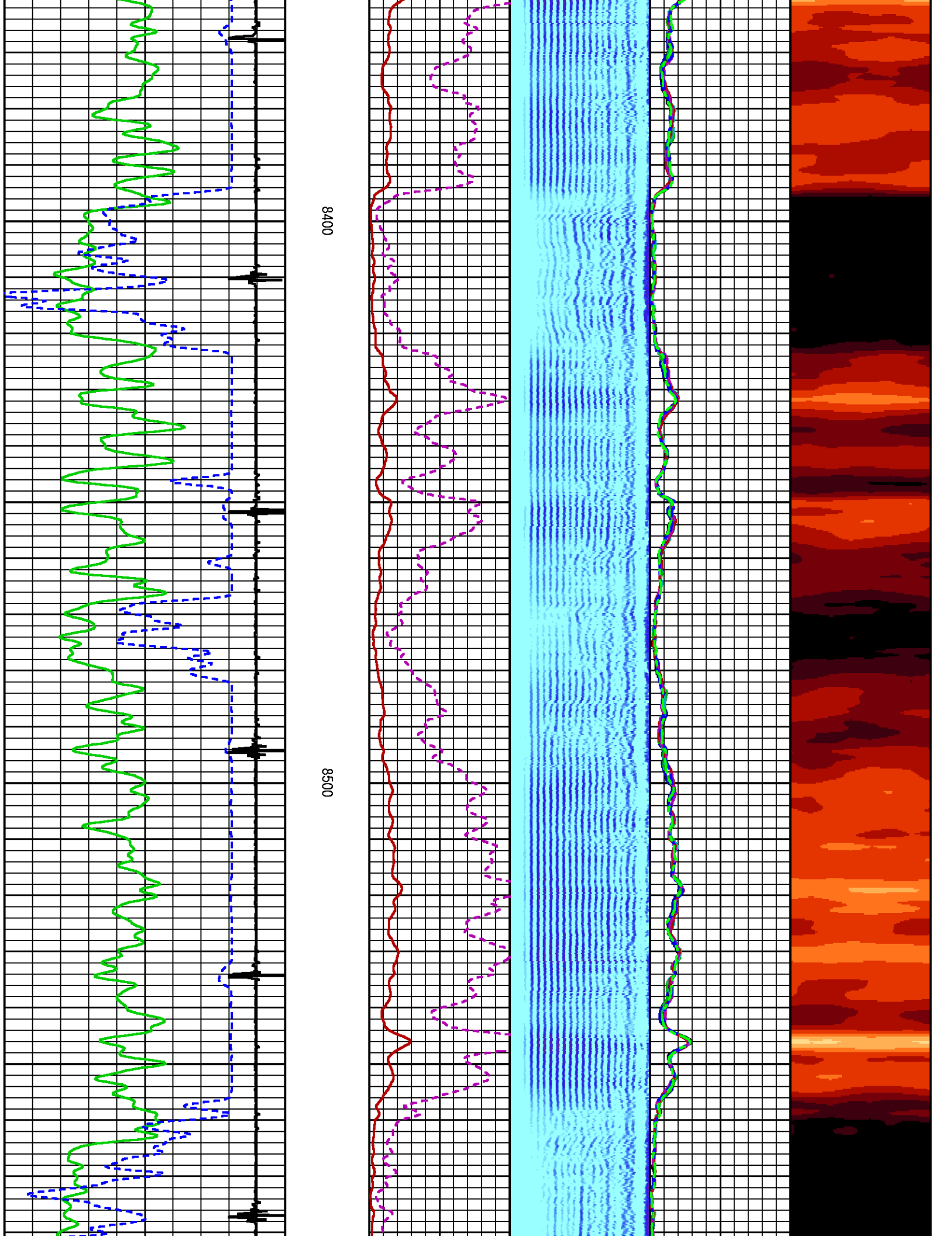


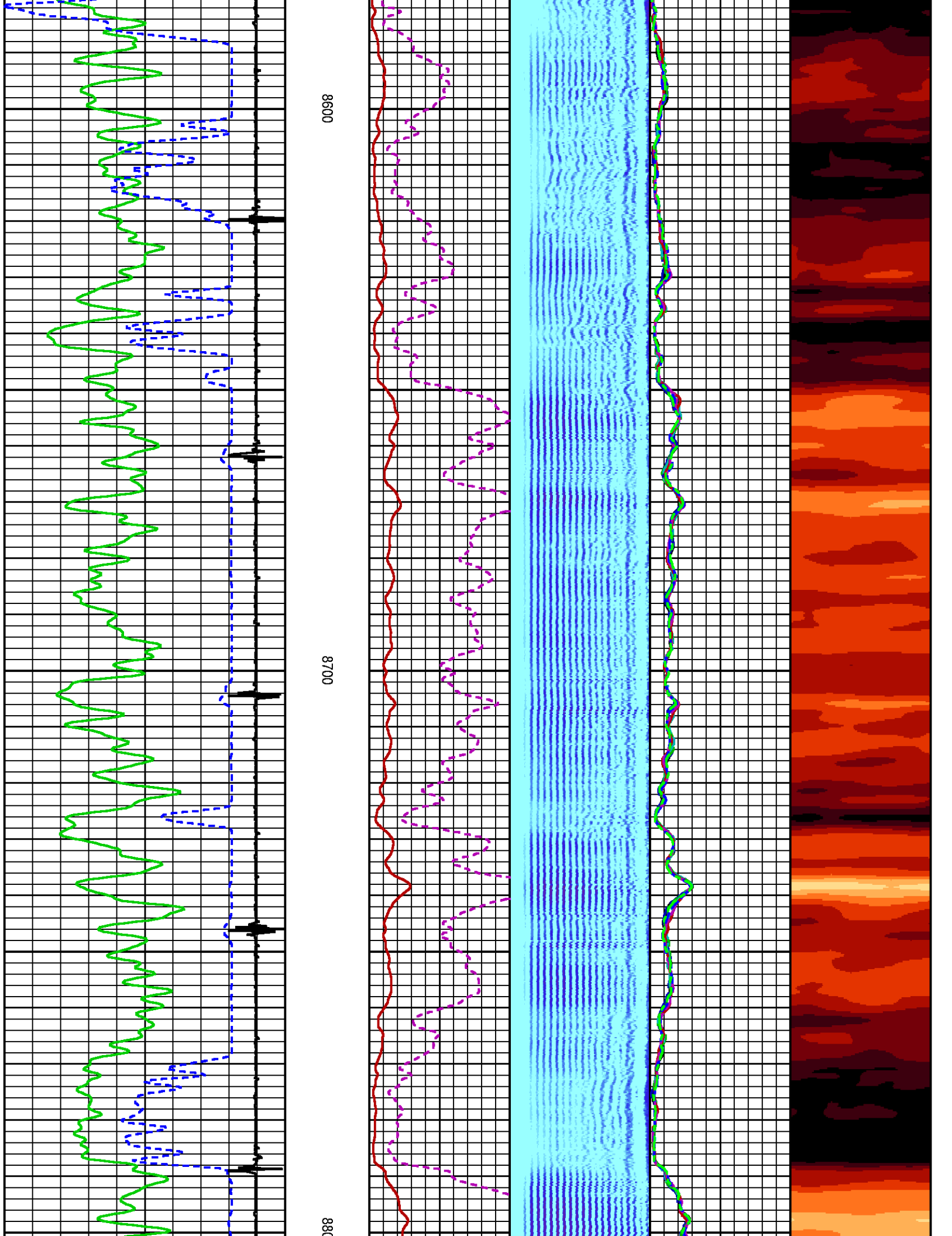


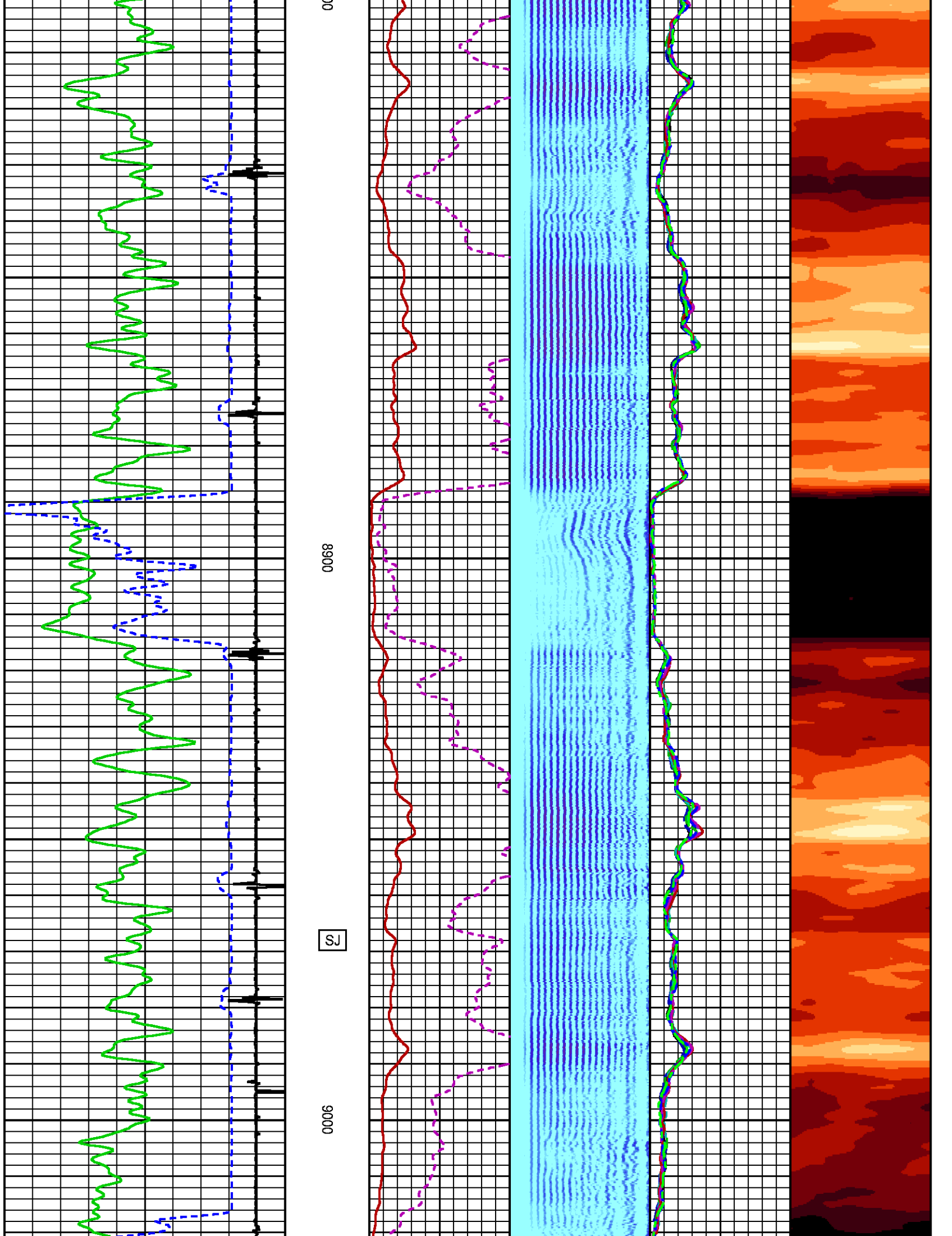


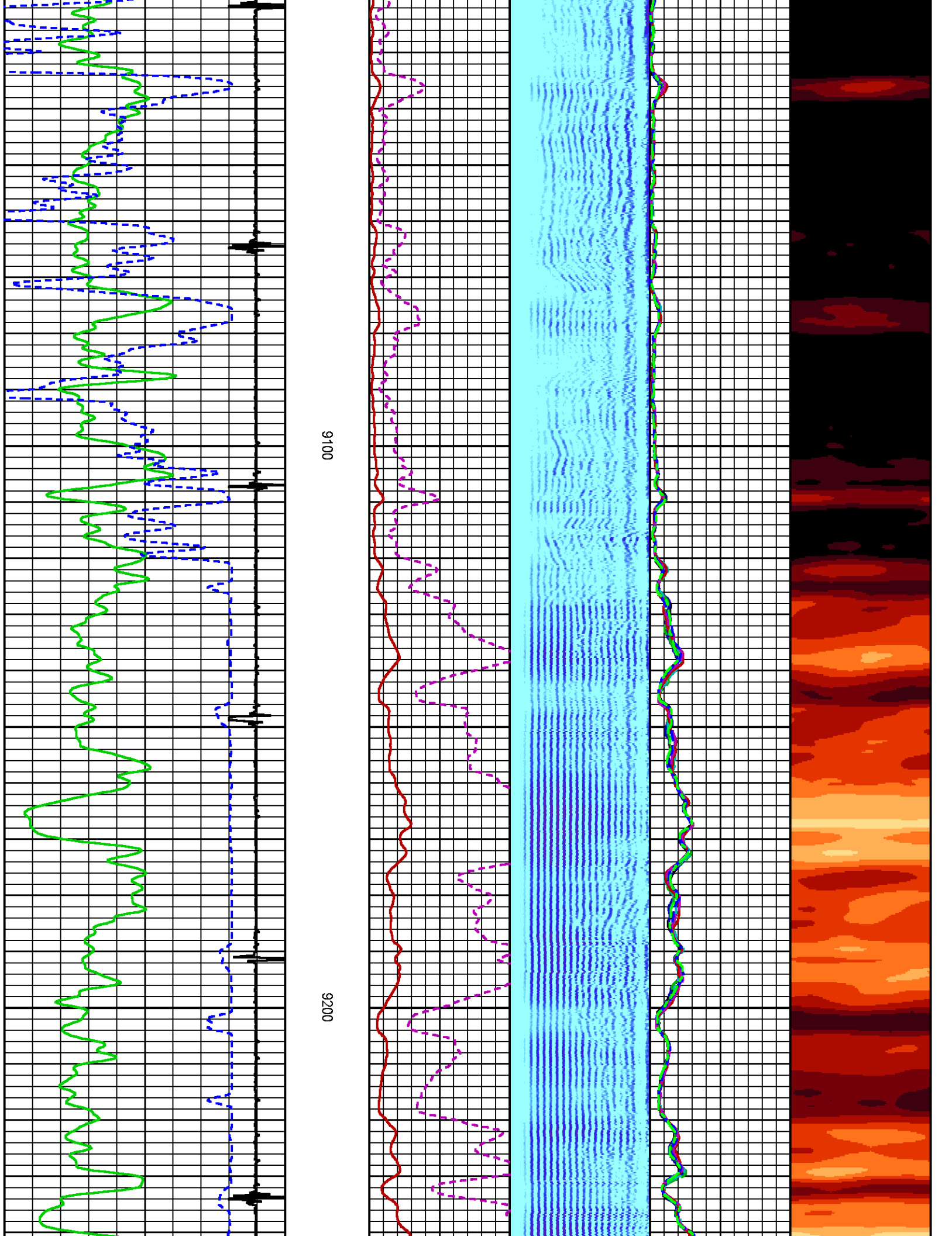


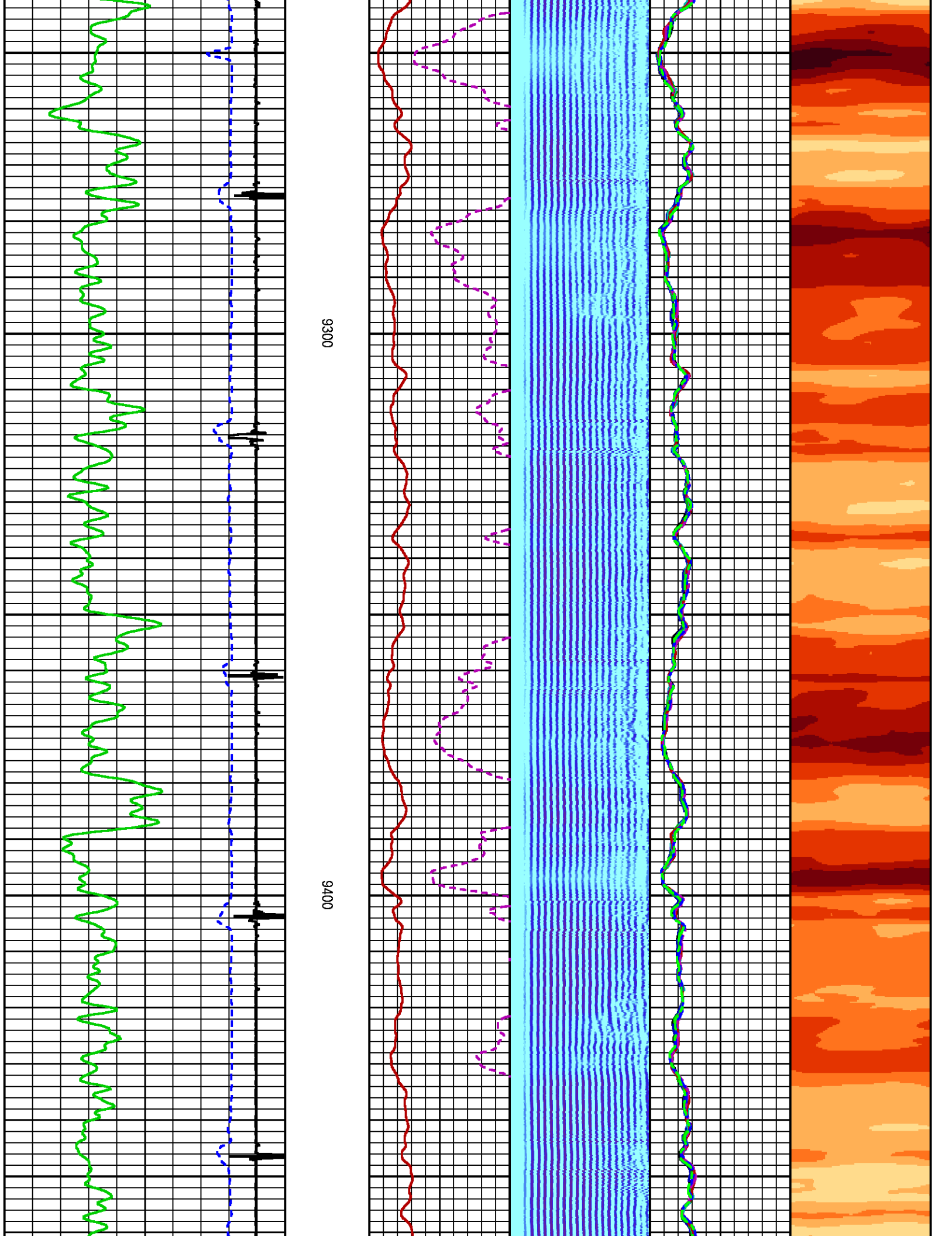


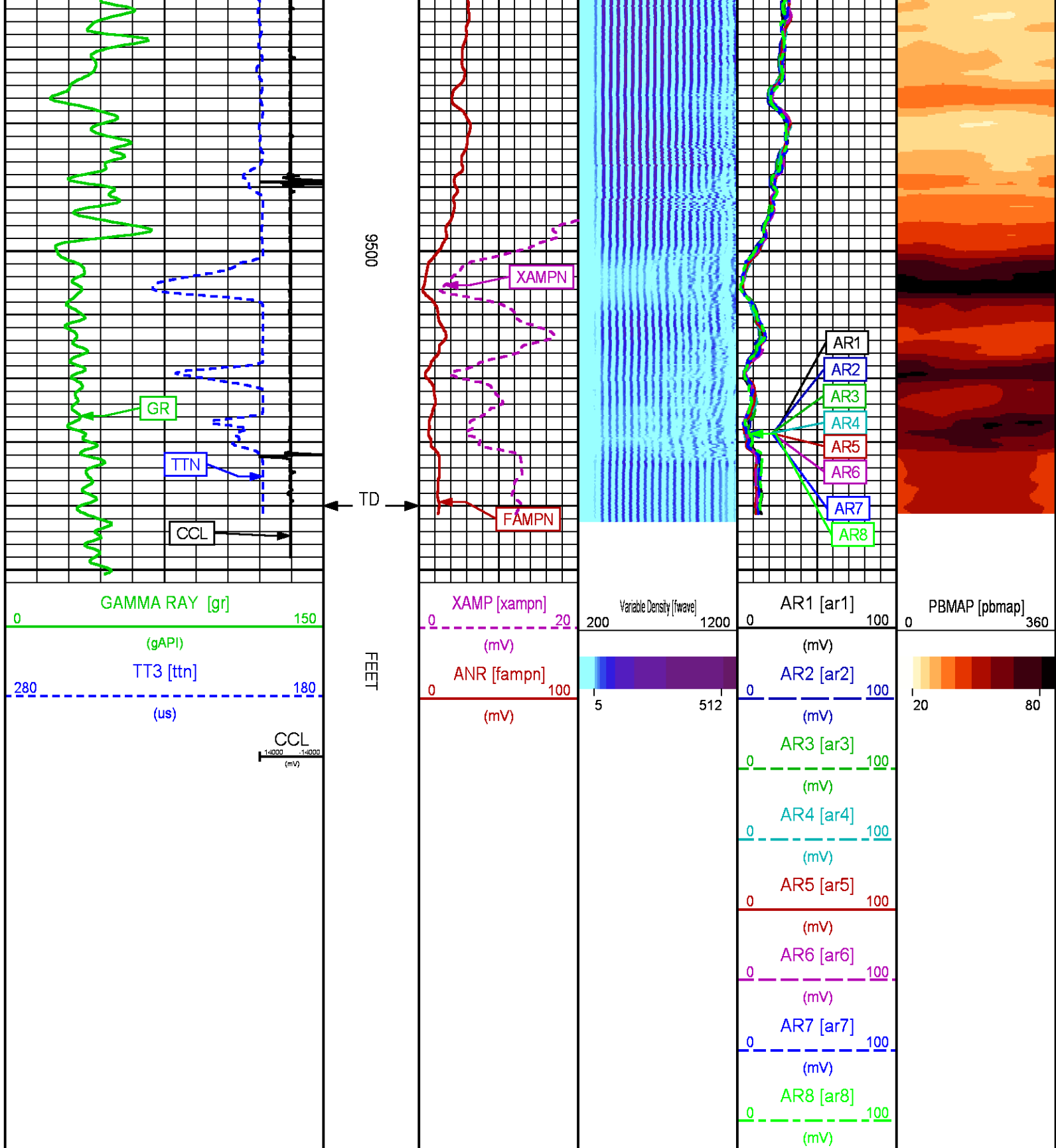












Plotted: Fri Jun 29 12:49:21 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_CC_0697-03-12W/p012g01.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 9314.000 ft BOTTOM DEPTH: 9616.500 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*)	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*)	199	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	"	"
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:

CURVE NAME CREATION DATE CURVE DESCRIPTION

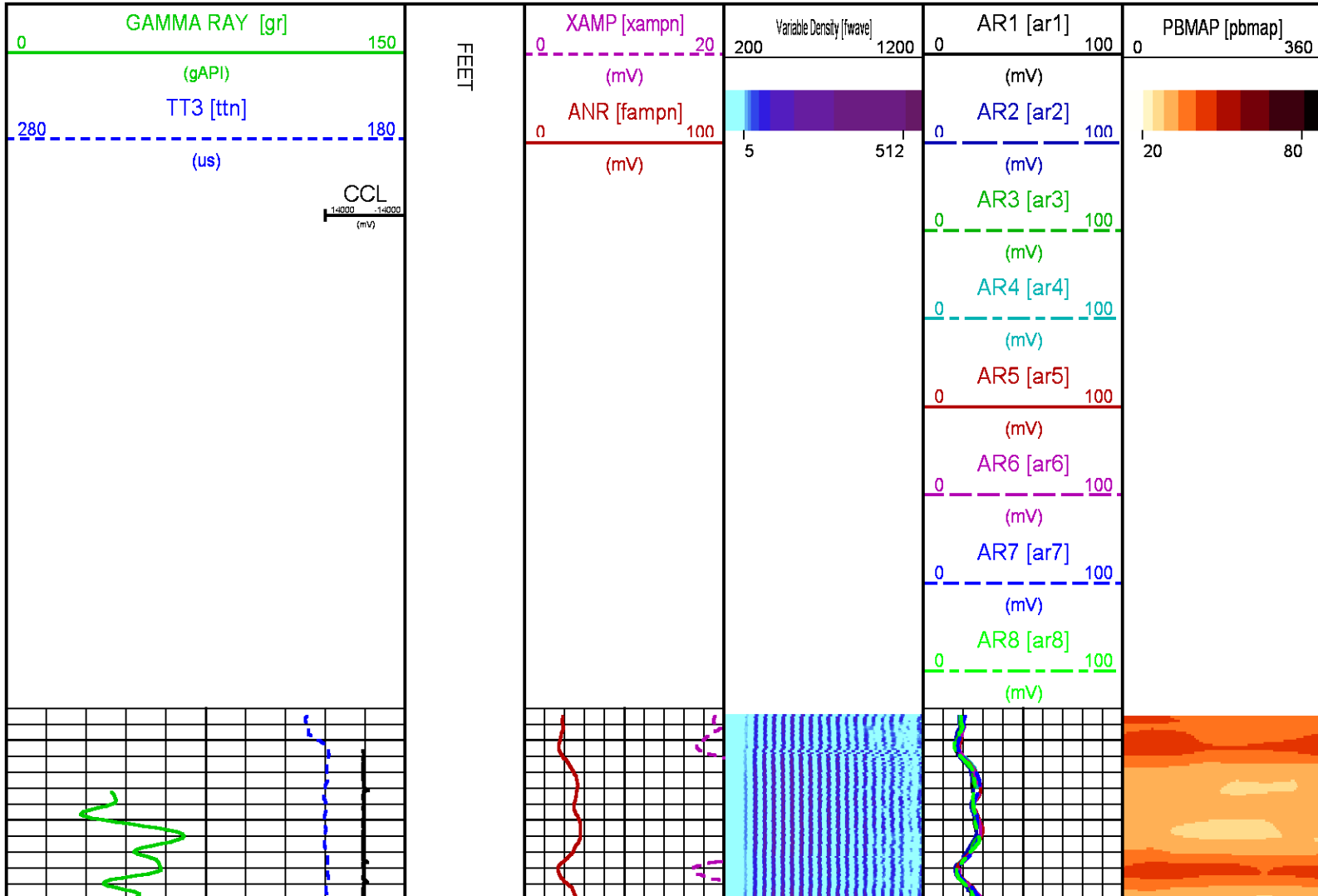
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
F1:AR8	N/A	FIXED GATE AMPLITUDE T-R8
F1:CCL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

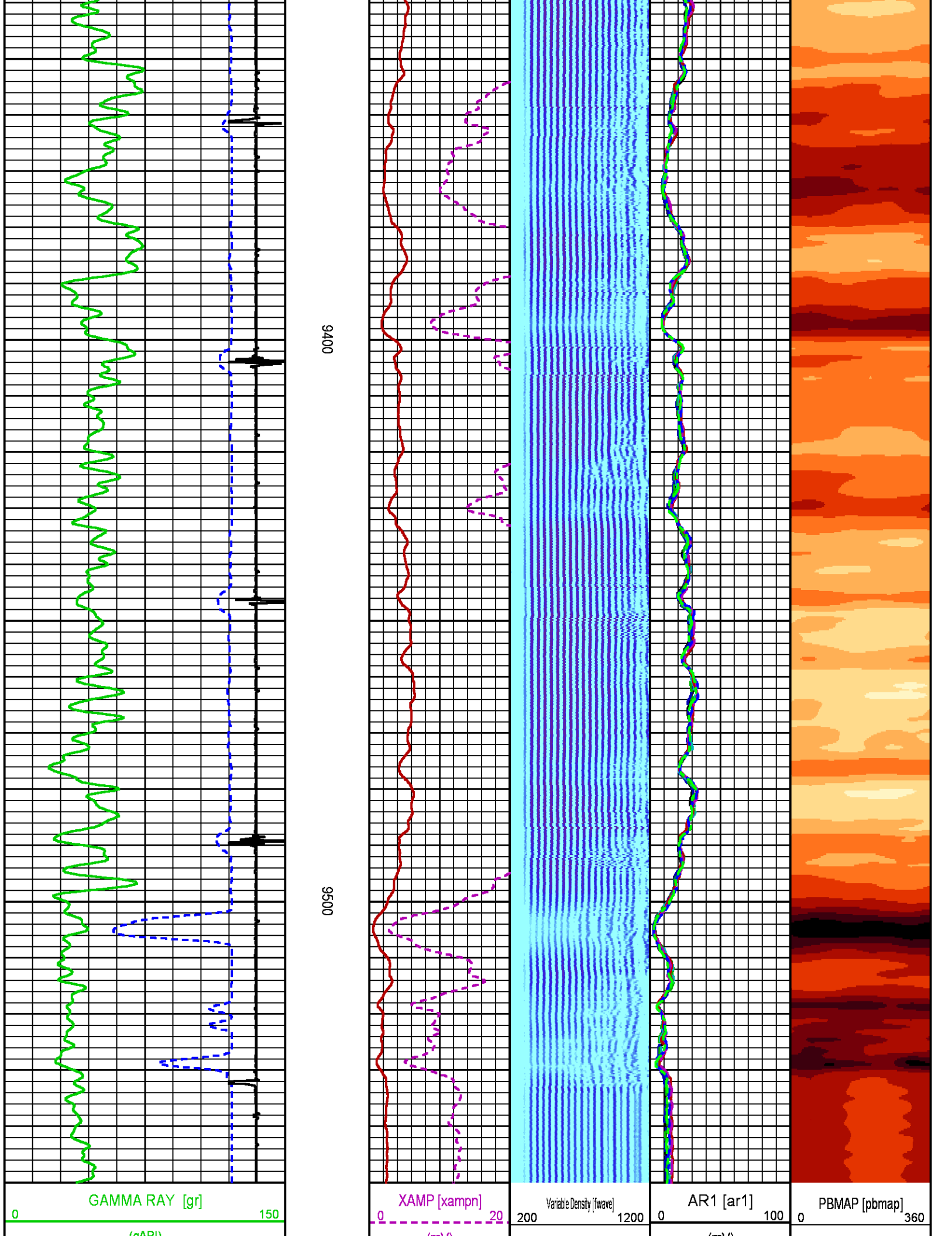
CURVE MEASURE POINT OFFSET

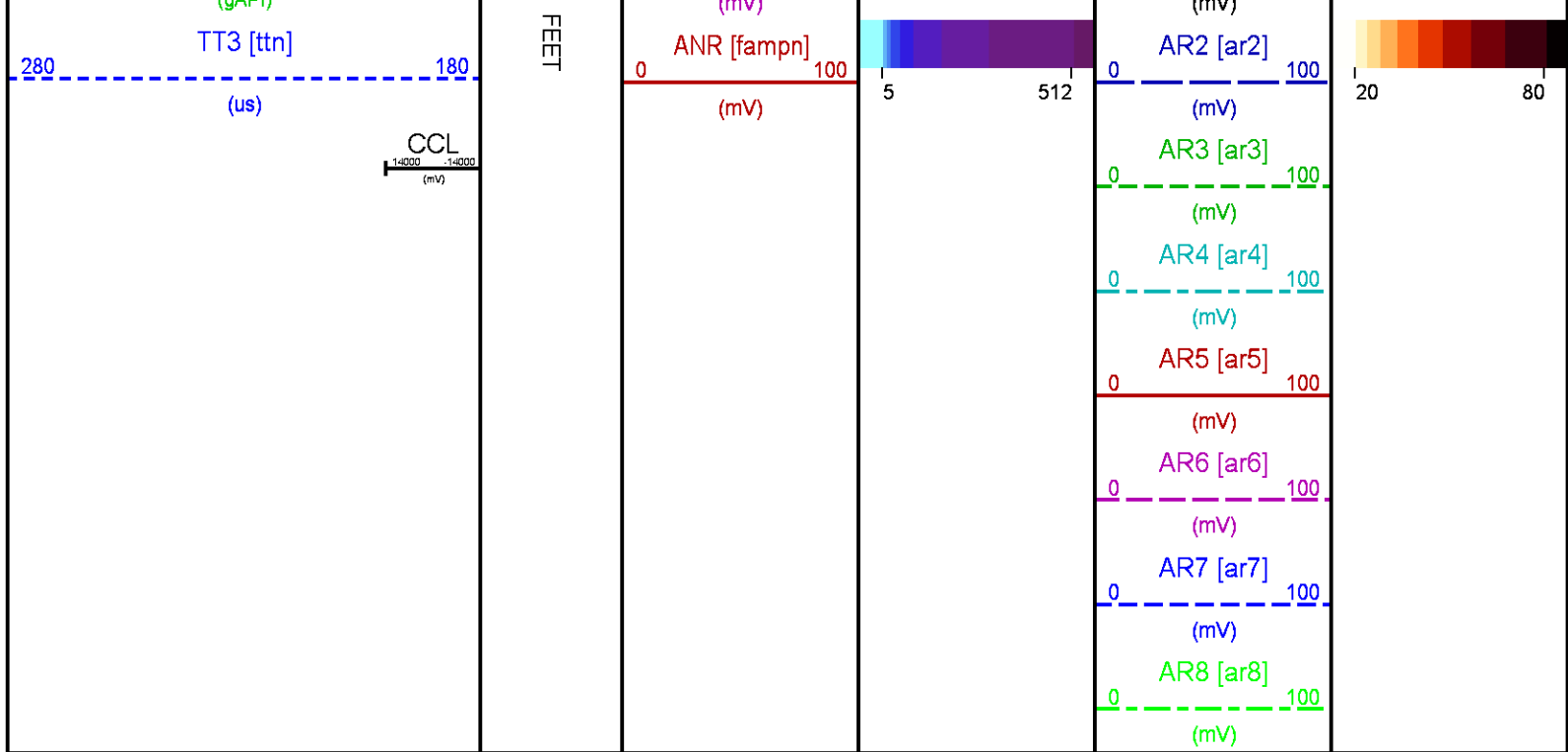
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

Presentation : SysA:/dat1a/LARAMIE_CC_0697-03-12W/12W_RAL_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 9316.75 - 9550 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_CC_0697-03-12W/12W_RAL_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : CC 0697-03-12W
Field : GRAND VALLEY
File Interval : 9314 - 9629.75 Feet
OCT : p012g







CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_CC_0697-03-12W/p012g.tp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 11871500

DATE/TIME PERFORMED: Fri Jun 29 09:45:10 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)	-0.30	-0.13	-0.00	-0.22	-0.13	-0.12	-0.04	0.31	-0.01	-0.45	-0.00
AMP FLUID (mV)	41	40	40	41	41	41	41	40	40	55	40
TT (us)	217	218	217	217	217	216	216	216	218	325	218
M FACTOR	2.40	2.48	2.48	2.44	2.42	2.41	2.43	2.51	2.52	2.70	2.51

RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA 11871500

DATE/TIME PERFORMED: Fri Jun 29 09:46:28 2018

DAYS SINCE CAL: 0

UNIT #: 5753XD 111111

CABLE #: 4291SM SMALL1

	NEAR (mV)	R1 (mV)	R2 (mV)	R3 (mV)	R4 (mV)	R5 (mV)	R6 (mV)	R7 (mV)	R8 (mV)	FAR (mV)	CAL (mV)
ZERO	-0.74	-0.87	-0.33	-0.92	-0.96	-0.52	-0.68	-0.02	-0.23	-2.33	0.00
AMP AIR	0.77	0.87	0.33	0.99	0.97	0.61	0.76	0.12	0.28	2.80	99.68

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1355XA 12670180 DATE/TIME PERFORMED: Thu Mar 29 16:39:27 2018

UNIT #: 4352 ML4352 CALB JIG #: 4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	41.51	221.16	179.6	0.557	23.11	123.11	100

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1355XA 12670180 DATE/TIME PERFORMED: Thu Mar 29 16:50:56 2018

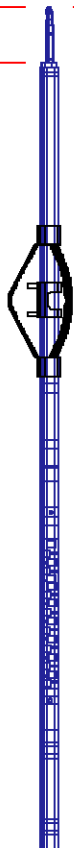
UNIT #: 4352 ML4352 VERI JIG #: 4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	40.09	214.13	0.557	22.32	119.20	96.88
						90.00 110.00

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_NICHOLS_FED_0994_24_20E/p012g~RAL-tdg

A3 CABLEHEAD
Diameter : 1.37"



18.85'

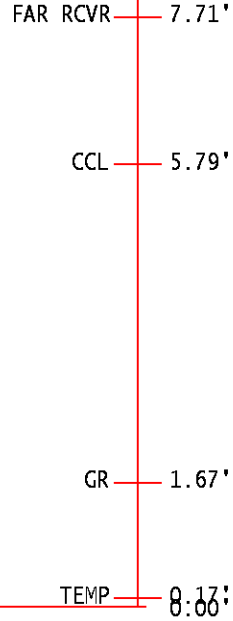
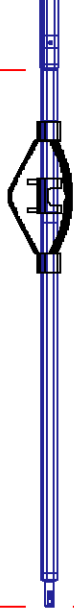
RADIAL BOND TOOL

Diameter : 2.75"
Length : 11.17'
Weight : 126 lbs
Series : 1426XA
Mnemonic : RAL
Measure Point: 5.75': XMTR
Measure Point: 4.21': NEAR MP
Measure Point: 3.25': FAR MP
Measure Point: 2.67': NEAR RCVR
Measure Point: 0.75': FAR RCVR

XMTR — 12.71'
NEAR MP — 11.17'
FAR MP — 10.21'
NEAR RCVR — 9.62'

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



TOTAL LENGTH: 18.85'
 TOTAL WEIGHT: 227 lbs
 MAX DIAMETER: 0'4.00"



COMPANY LARAMIE ENERGY LLC
WELL CC 0697-03-12W
FIELD GRAND VALLEY
COUNTY GARFIELD **STATE** COLORADO

FILE NO:
CH138182
API NO:
05045237960000

LOCATION:
 SHL: 2826' FNL & 1321' FWL
 BHL: 2826' FNL & 1321' FWL
SEC 3 **TWP** 6S **RGE** 97W

ELEVATIONS:
 KB 8468 FT
 DF
 GL 8438 FT
DATE 29-Jun-2018