



RADIAL CEMENT BOND LOG

FILE NO:		COMPANY		LARAMIE ENERGY	
API NO: 05077104380000		WELL FIELD COUNTY		BRUTON 19-05E VEGA MESA STATE COLORADO	
Version		LOCATION:		OTHER SERVICES	
		SHL: LAT:39.262811N; LONG:107.815104W BHL: LAT:39.266477N; LONG:107.806918W SEC 19 TWP 9S RGE 93W		RPM	
PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM		GL ELEVATION 7262 FT KB 24 FT ABOVE P.D. KB		ELEVATIONS: KB 7286 FT DF 7286 FT GL 7262 FT	
DATE	24-OCT-2017				
RUN	TRIP	1	1		
SERVICE ORDER	US128846				
DEPTH DRILLER	8226 FT				
DEPTH LOGGER	8132 FT				
BOTTOM LOGGED INTERVAL	8132 FT				
TOP LOGGED INTERVAL	24 FT				
TIME STARTED	14:00				
TIME FINISHED	16:30				
OPERATOR RIG TIME	2.5 HOURS				
TYPE OF FLUID IN HOLE	WATER				
FLUID DENSITY	NA				
FLUID SALINITY	NA				
FLUID LEVEL	50 FT				
LOGGED CEMENT TOP	2050 FT				
WELLHEAD PRESSURE	0 PSI				
MAXIMUM HOLE DEVIATION	NA				
NOMINAL LOGGING SPEED	100 F/MN				
MAX. RECORDED TEMP.	237 DEGF				
REFERENCE LOG	NA				
REFERENCE LOG DATE	NA				
EQUIP. NO.	LOCATION	HL-6670	WOODWARD		
RECORDED BY	S.YASSA				
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	
<p>RUN 1 TRIP 1: *2 OPERATIONS IN WELL*</p> <p>**OPERATION 1: RAL/GR/CCL RUN CENTRALIZED**</p> <p>LOGGED WITH 0 PSI ON WELLHEAD</p> <p>SJ: 7333' - 7355' SJ: 6324' - 6346'</p> <p>CREW: C.GOLOBY , J.PENA</p>	

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	10218496	CENTRALIZED
1	1	GAMMA RAY	1355XA	12670180	CENTRALIZED

MAIN PASS 0 PSI

ECLIPS 7.0w PC-ECLIPS General Release Rel 7.0w Fri Jun 09 11:02:06 Central Daylight Time 2017
Patches: 1

Plotted: Wed Oct 25 10:10:13 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\dat1a\BRUTON_19_05E\p012g02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4.000 ft BOTTOM DEPTH: 8130.000 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	light (2a)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"
TENSION	FILTER ()	medium (1)		"	"

RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0.00		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	185	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	185	us	"	"
	AMP WINDOW START (fgp3*)	185	us	"	"
	AMP WINDOW START (fgp4*)	185	us	"	"
	AMP WINDOW START (fgp5*)	185	us	"	"
	AMP WINDOW START (fgp6*)	185	us	"	"
	AMP WINDOW START (fgp7*)	185	us	"	"
	AMP WINDOW START (fgp8*)	185	us	"	"
	AMP WINDOW START (fgpn*)	185	us	"	"
	AMP WINDOW LENGTH	30	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	6	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-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	"	"
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	"	"

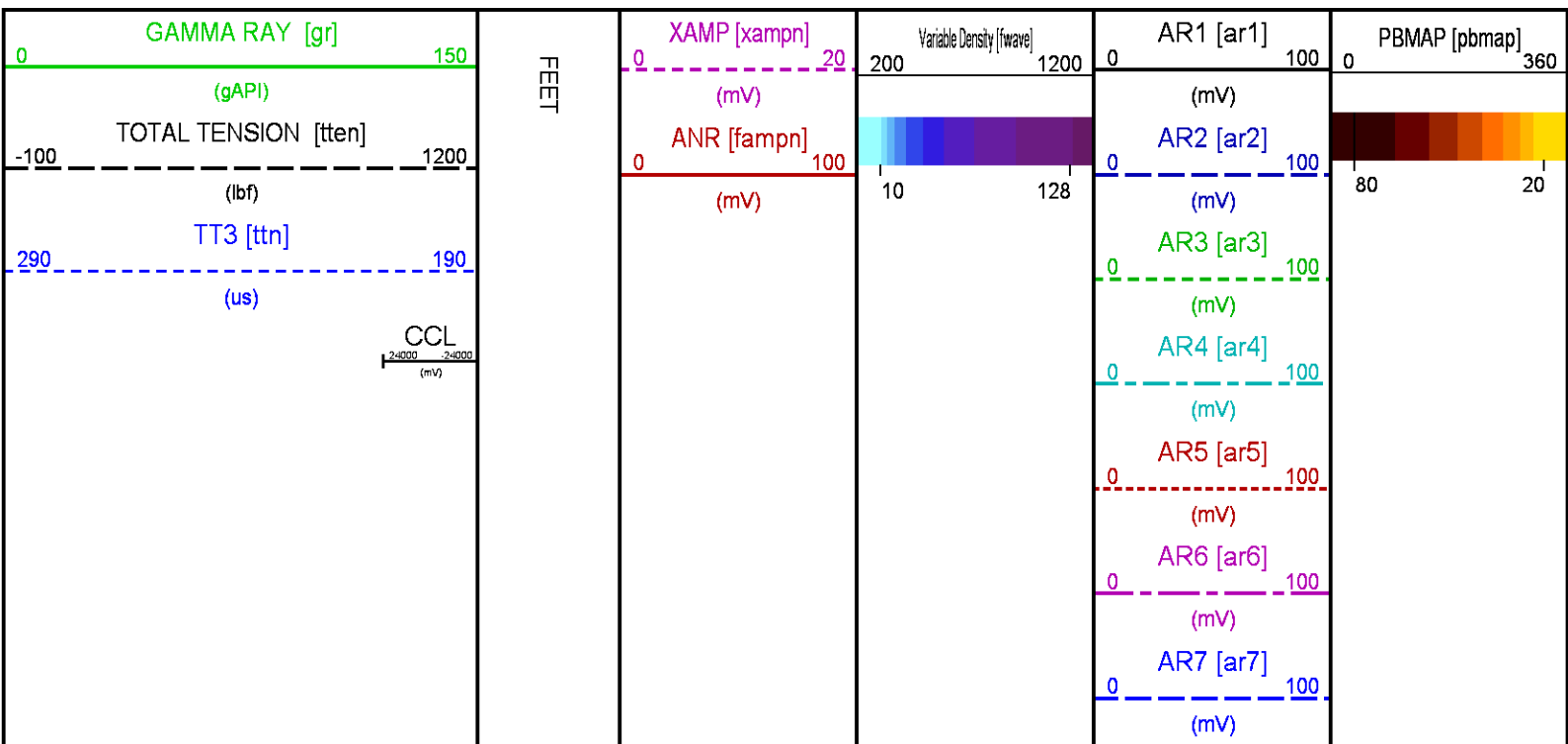
CURVE DESCRIPTION REPORT

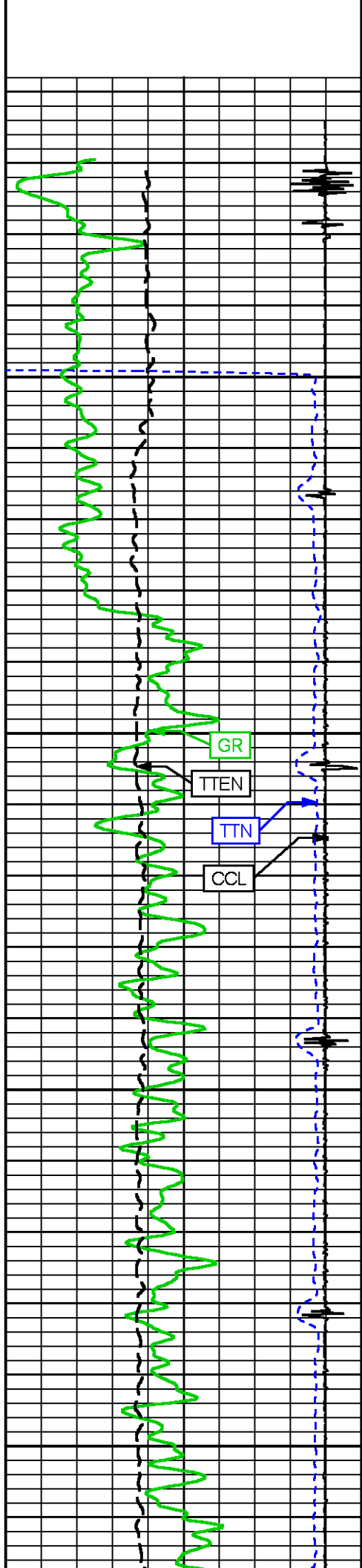
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
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:TTEN	N/A	TOTAL TENSION
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	TTN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25	XAMPN	-11.25
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTEN	0.00		

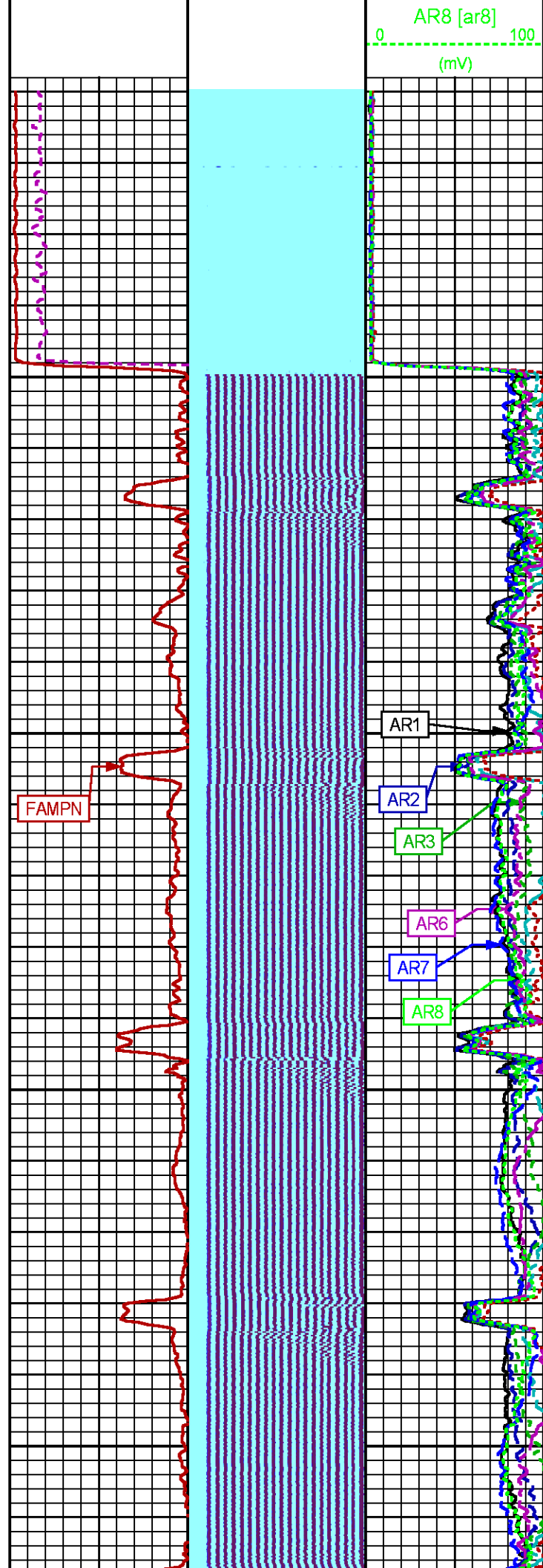
Presentation	: BHI78FR4H2:C:\dat1a\BRUTON_19_05E\BRUTON_19_05E_RAL_MAIN.fvpdf [5"/100' Scale]
Plot Interval	: 9.75 - 8144.75 Feet
Data File 1	: F1 : BHI78FR4H2:C:\dat1a\BRUTON_19_05E\BRUTON_19_05E_RAL_MAIN.xtf
Created On	: N/A
Company	: LARAMIE ENERGY II LLC
Well	: BRUTON 19-05E
Field	: VEGA
File Interval	: 4 - 8146 Feet
OCT	: p012g





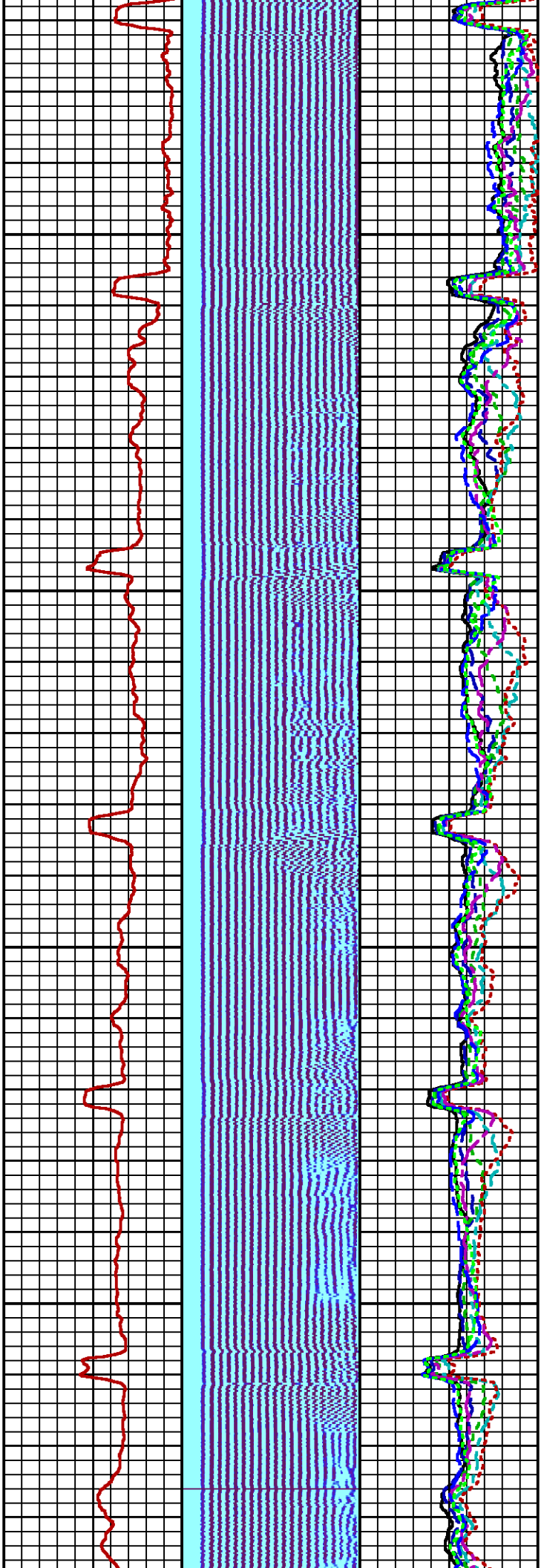
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200



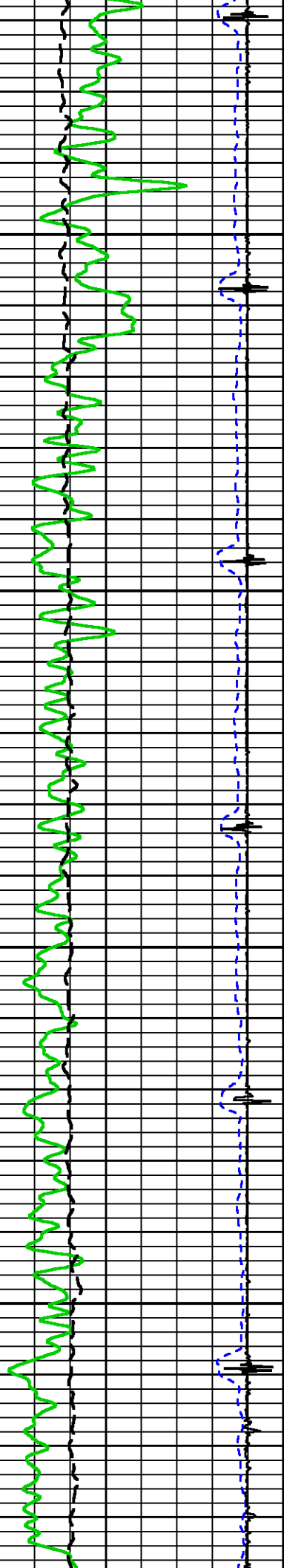
AR8 [ar8]
(mV)

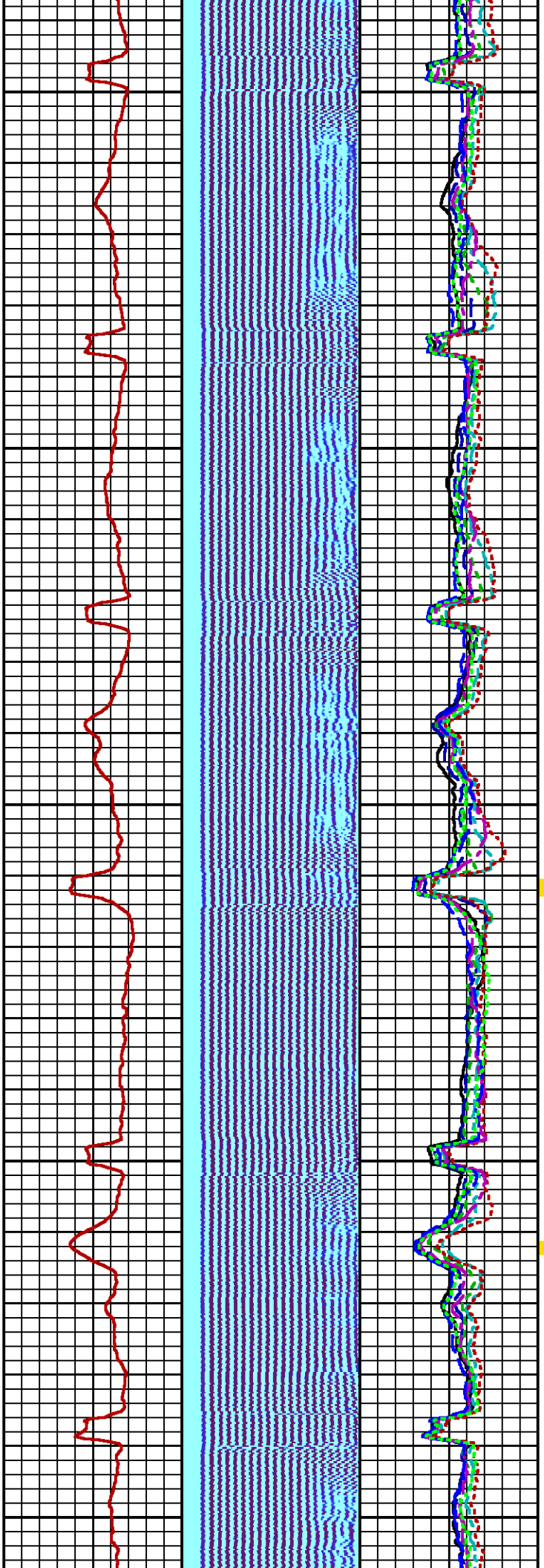
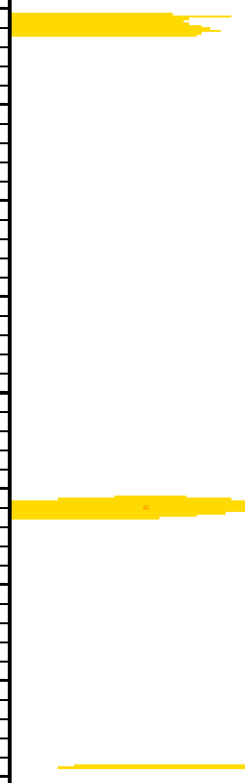




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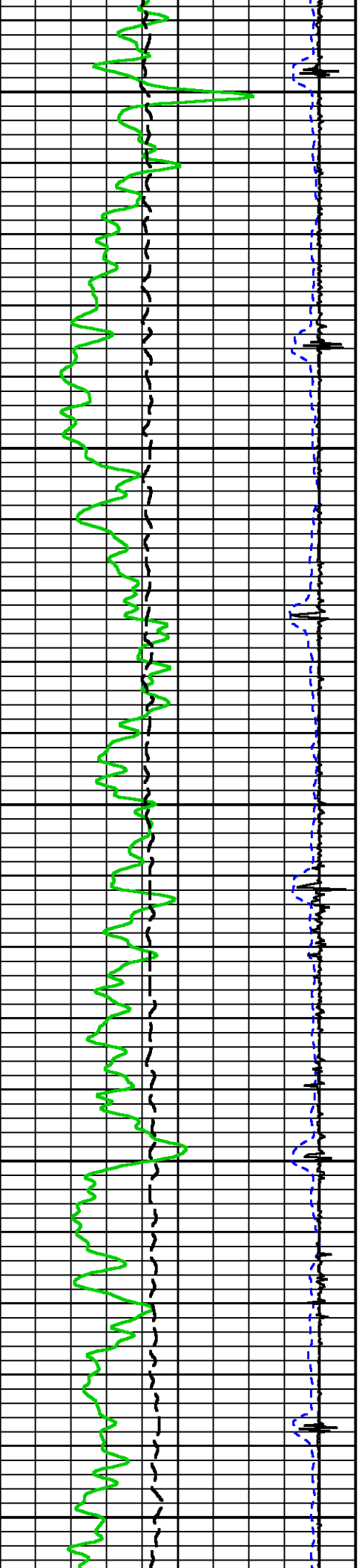
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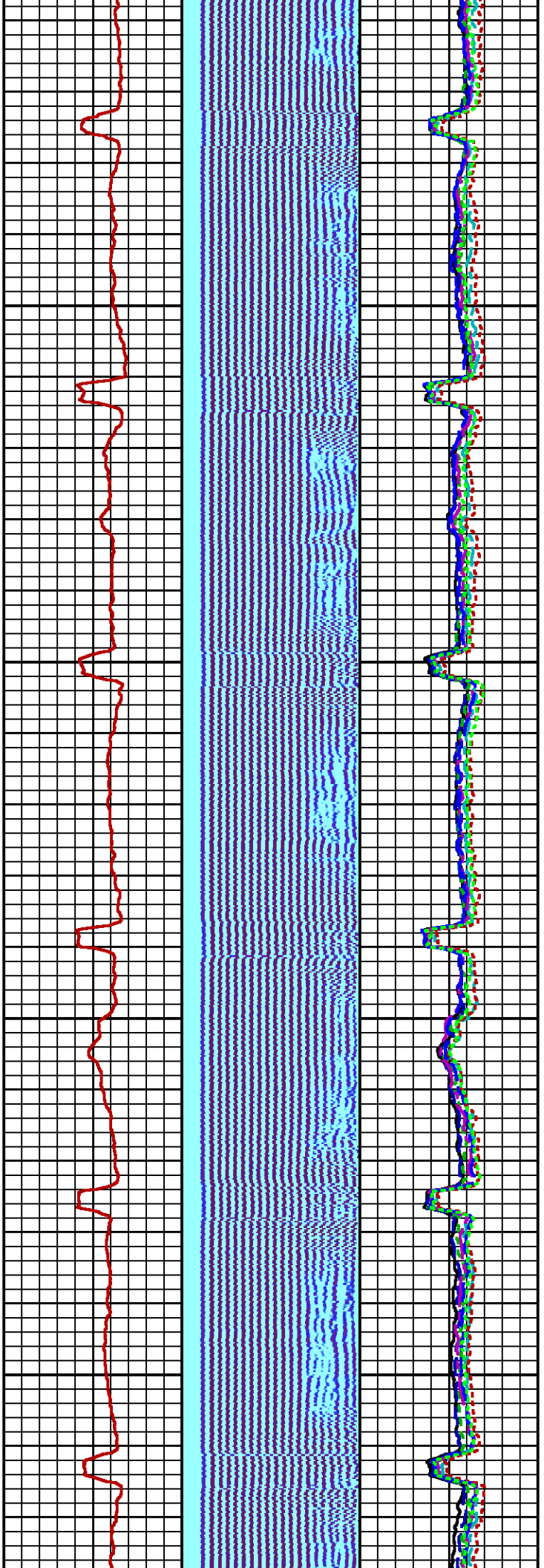




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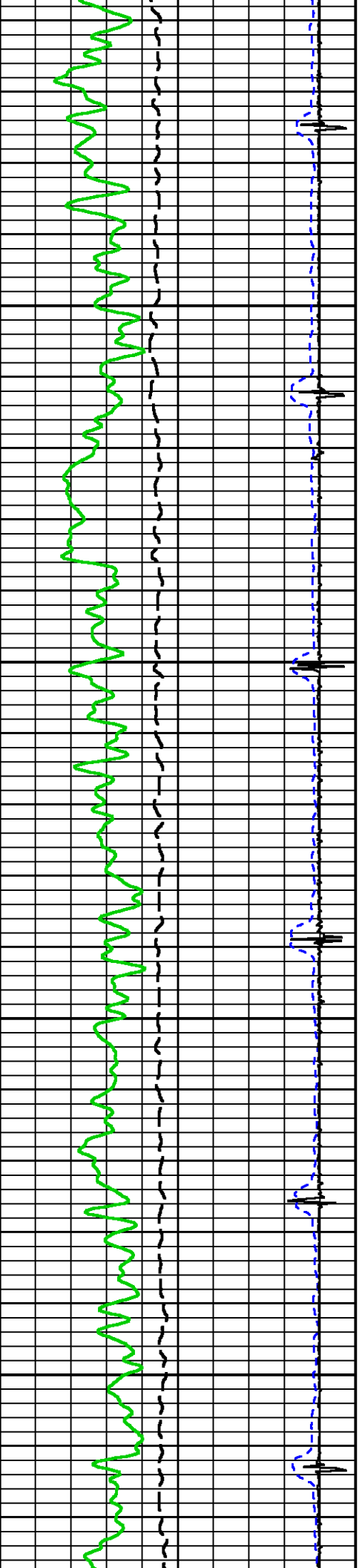
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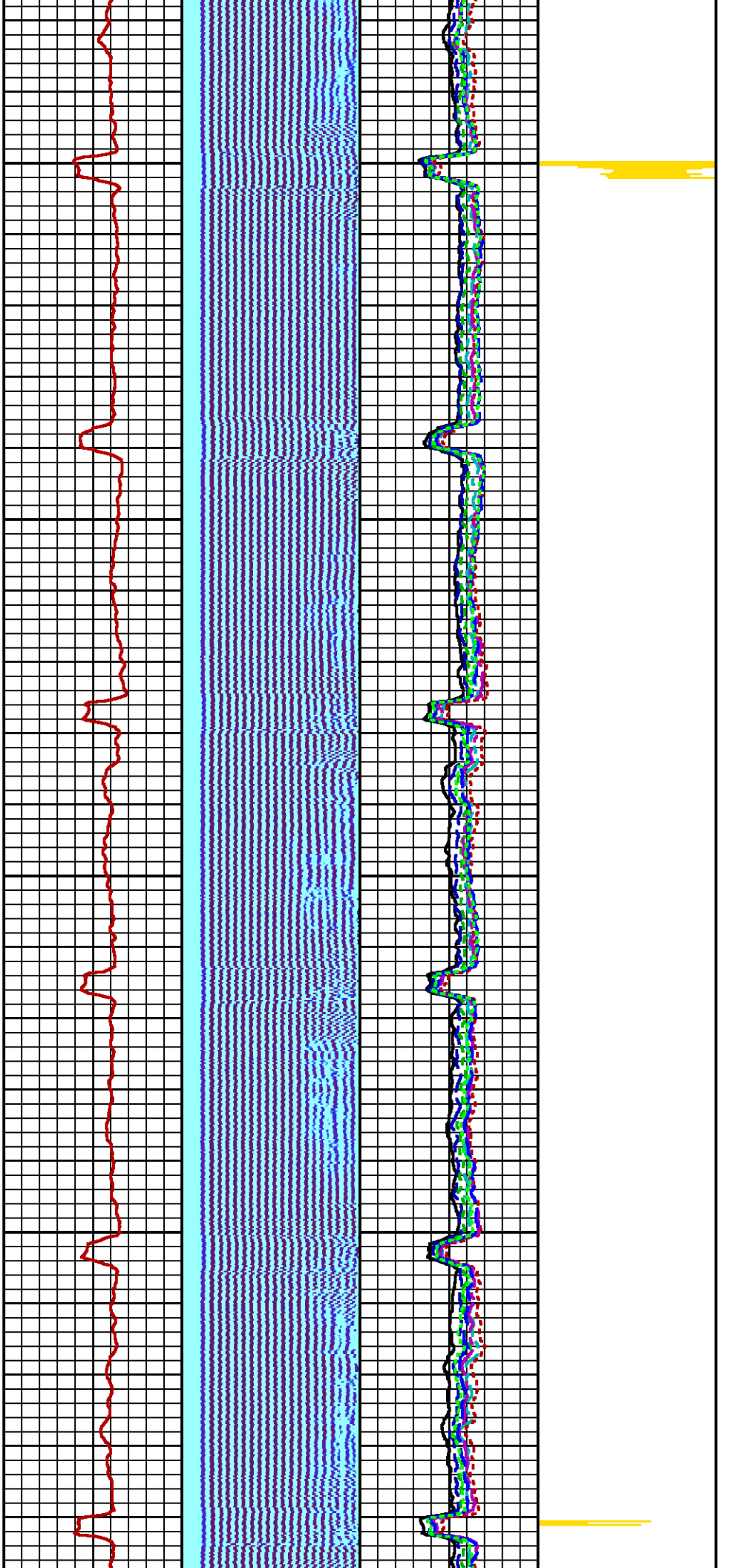




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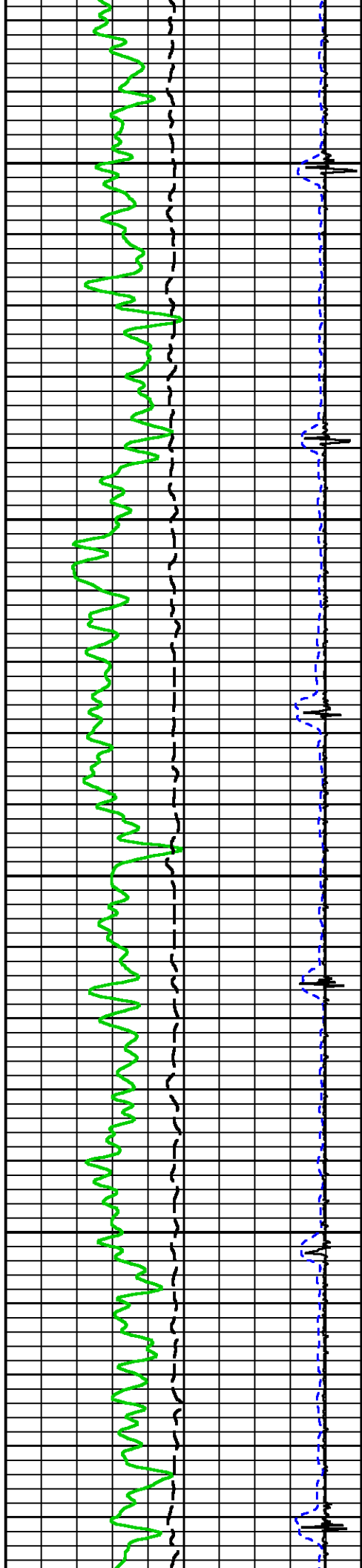
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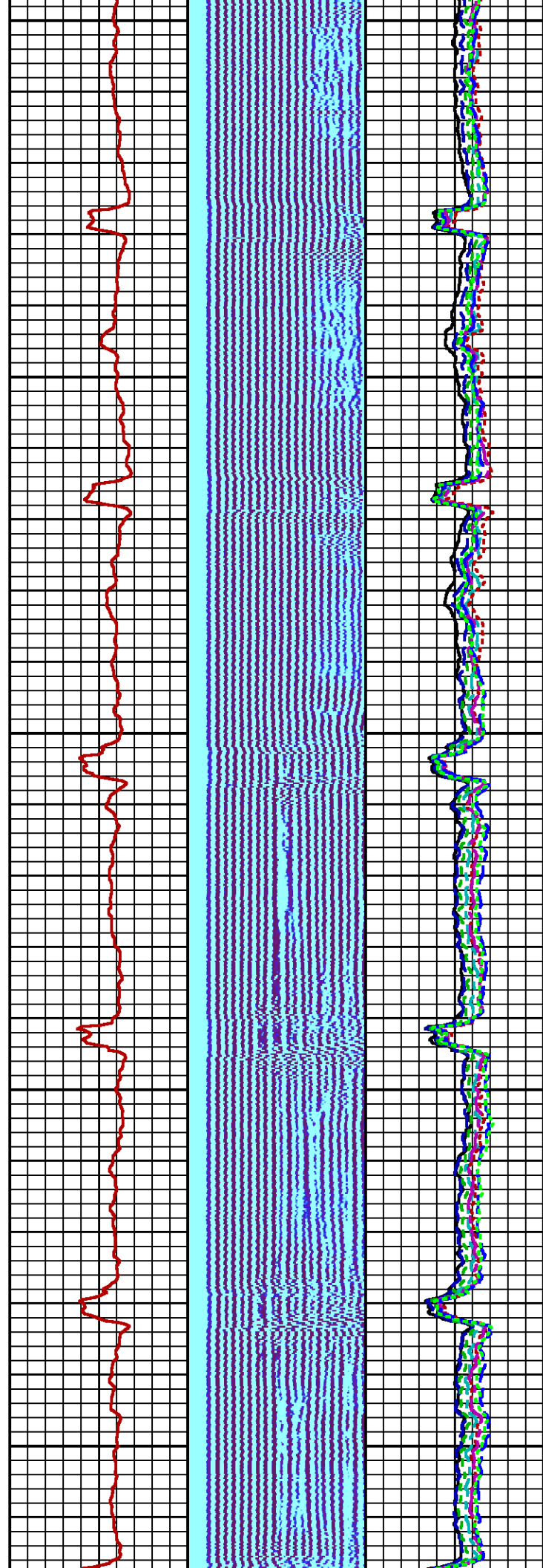
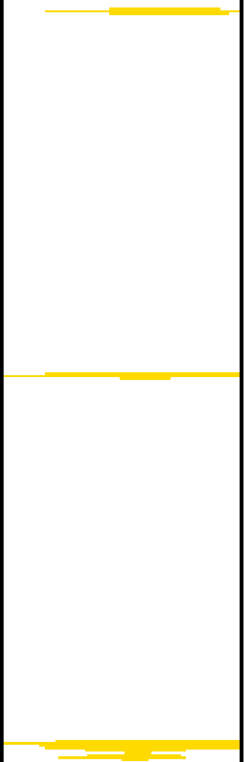




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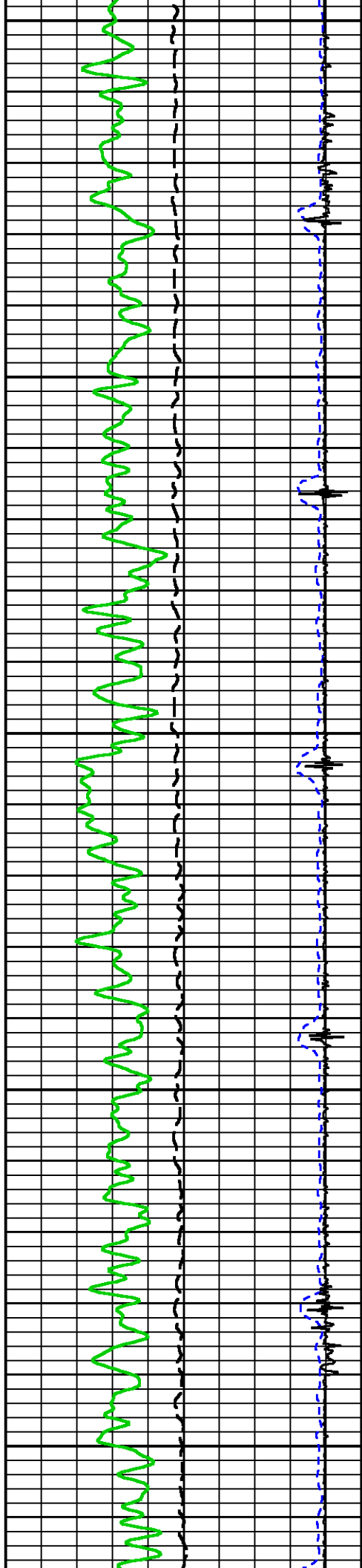


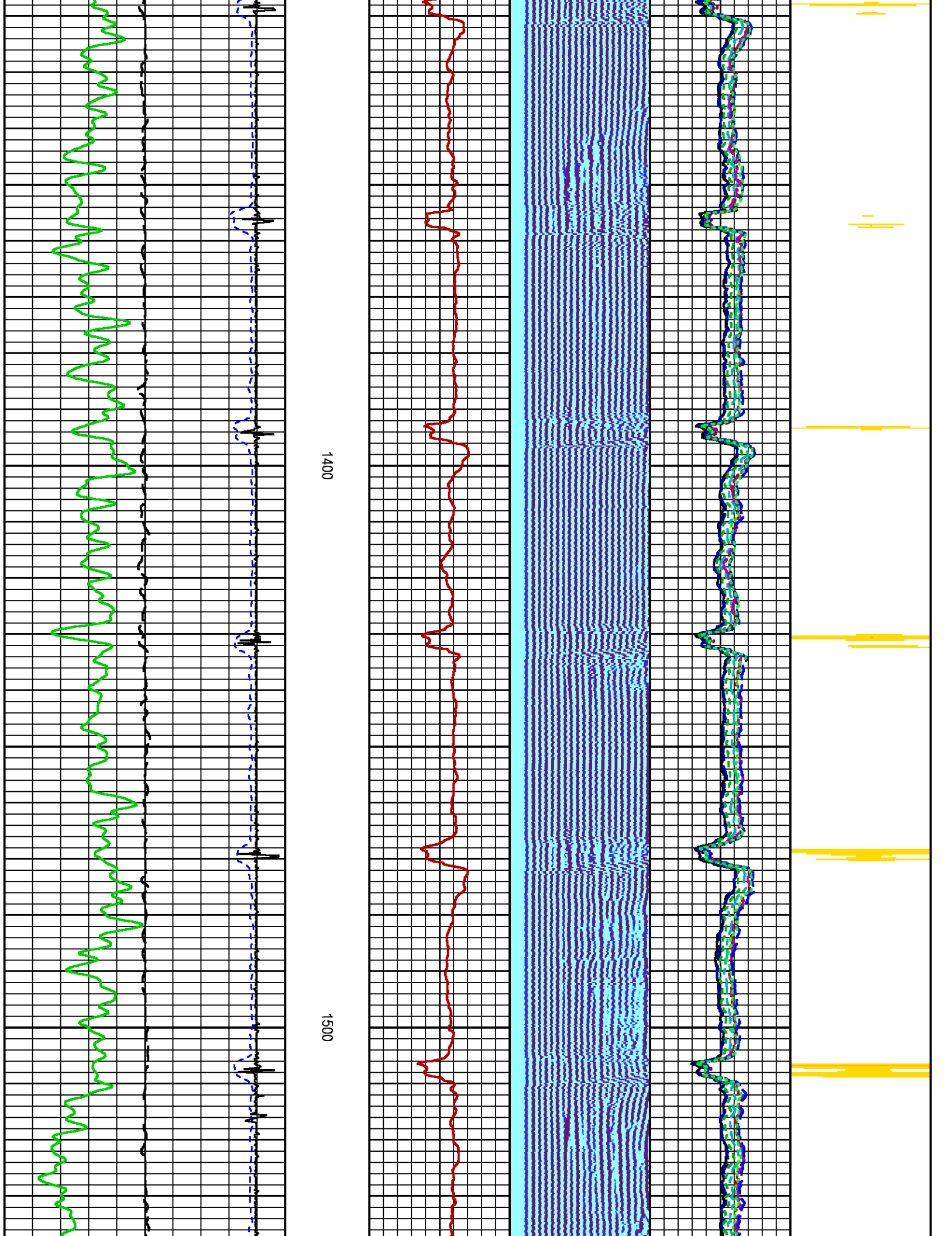


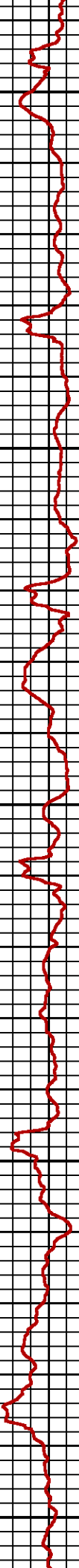
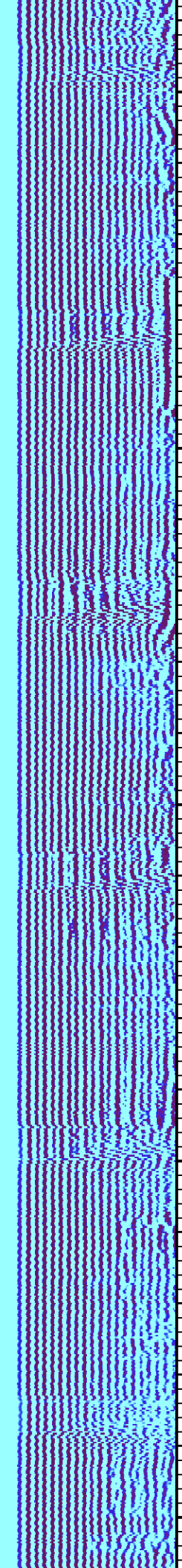
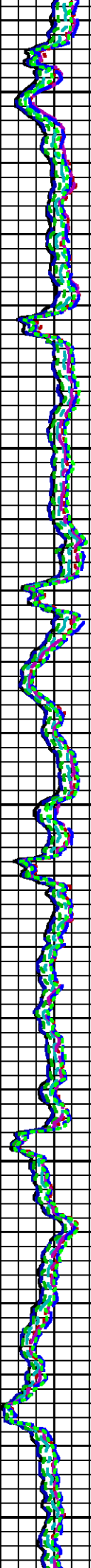
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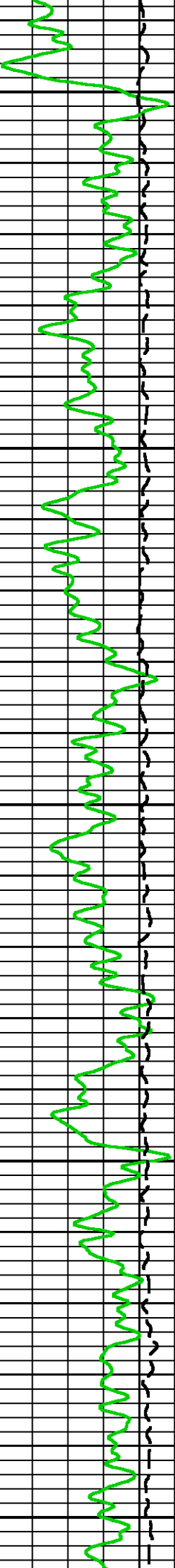
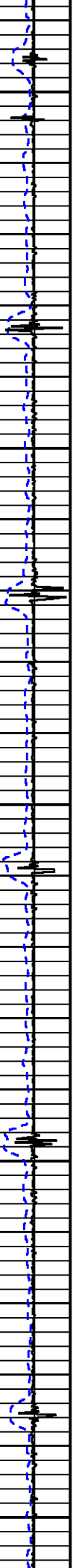


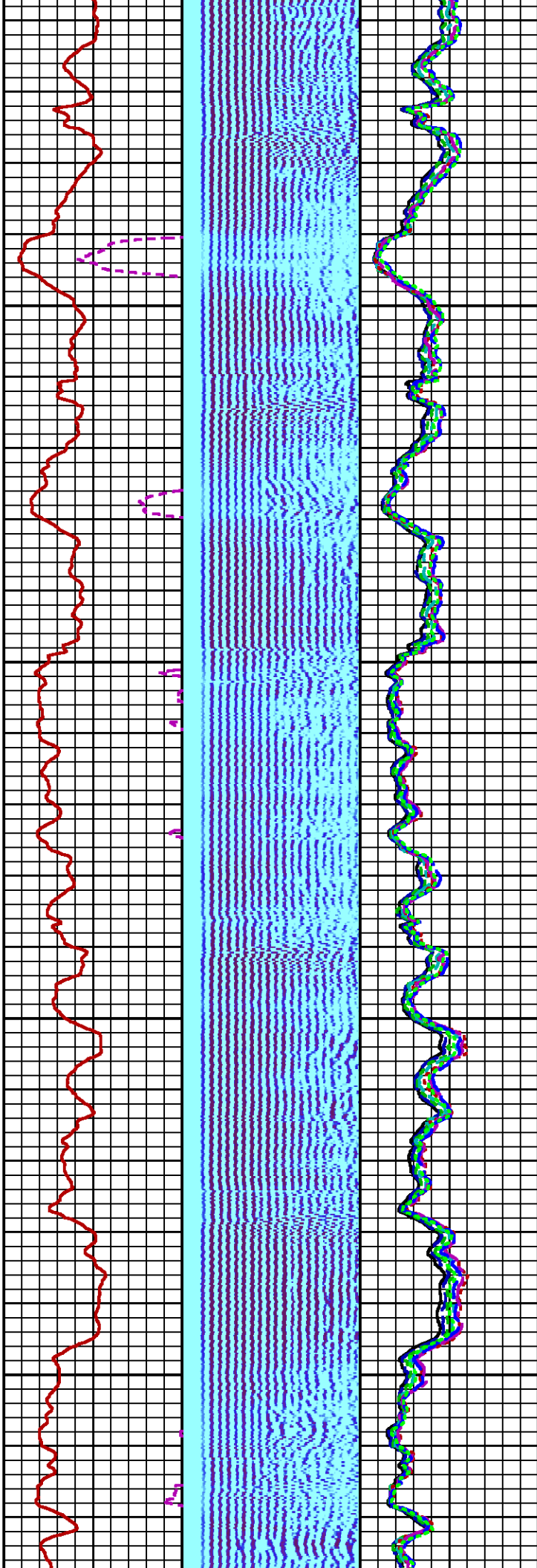
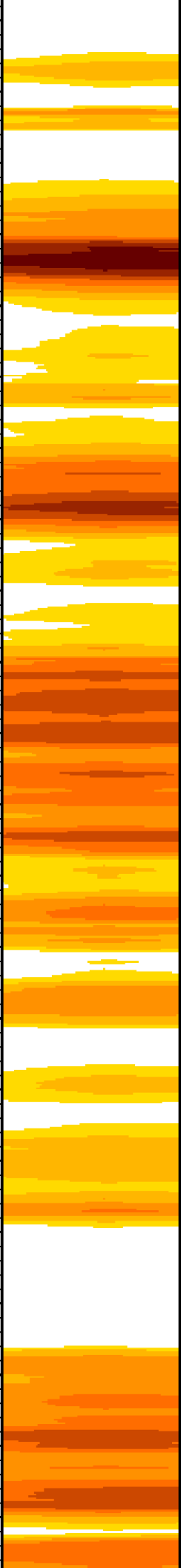




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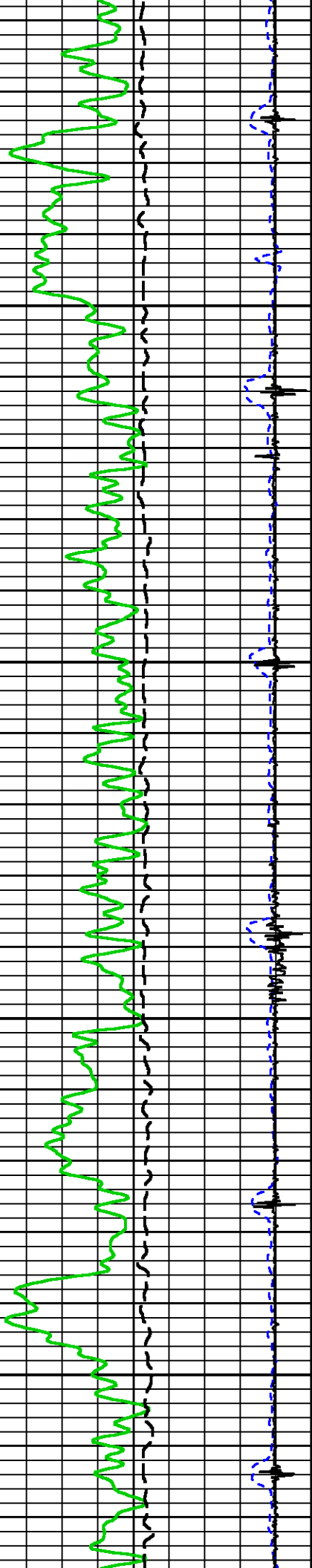
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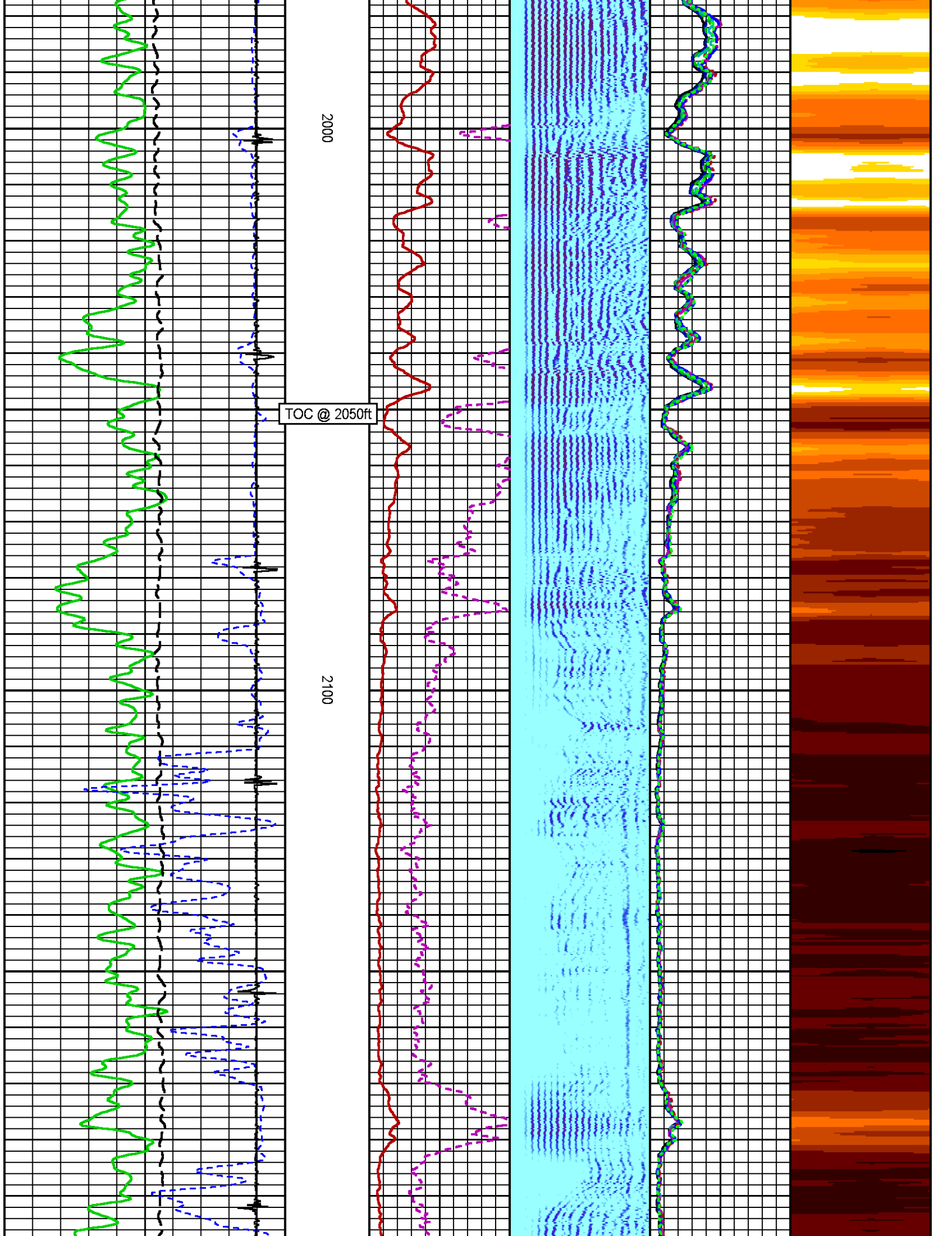


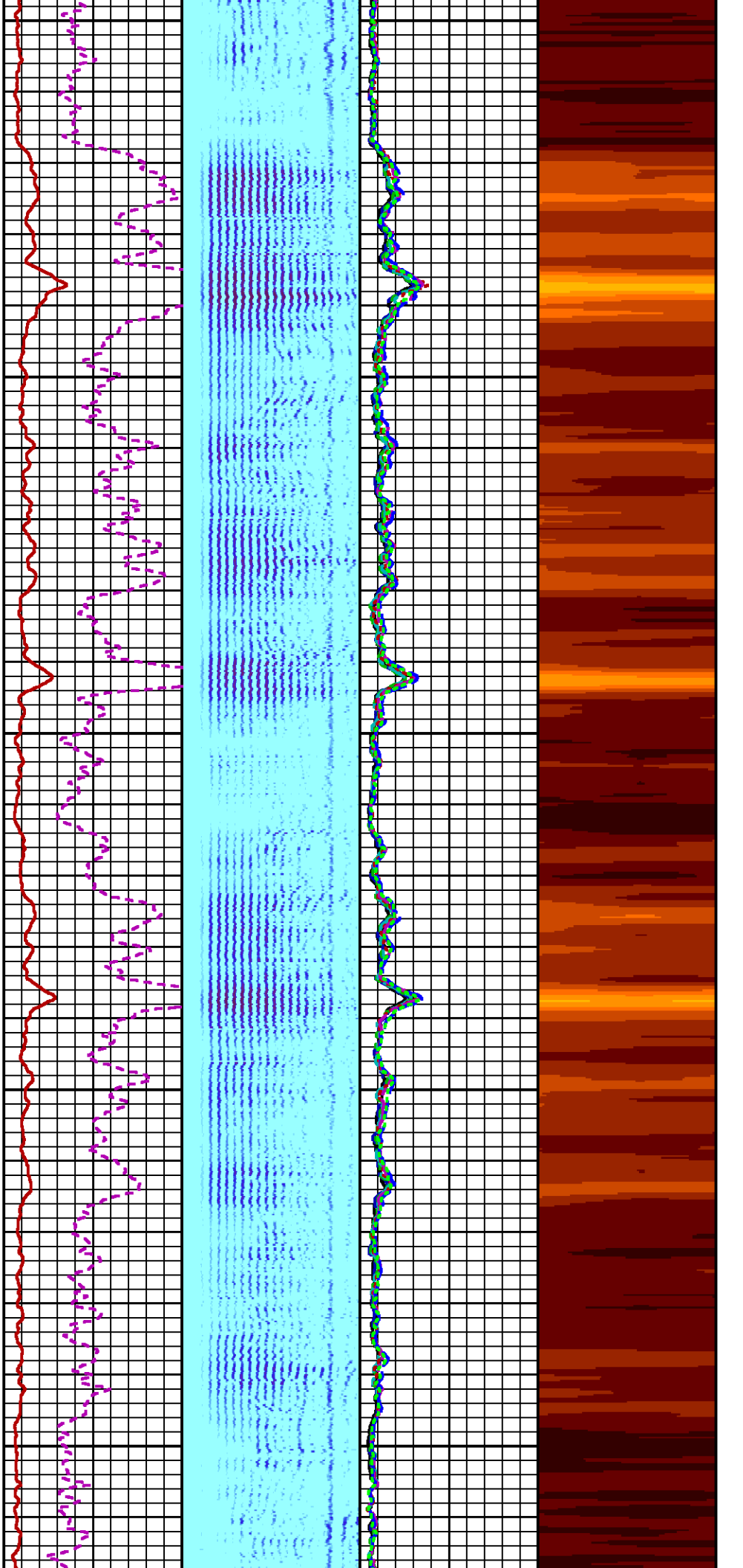


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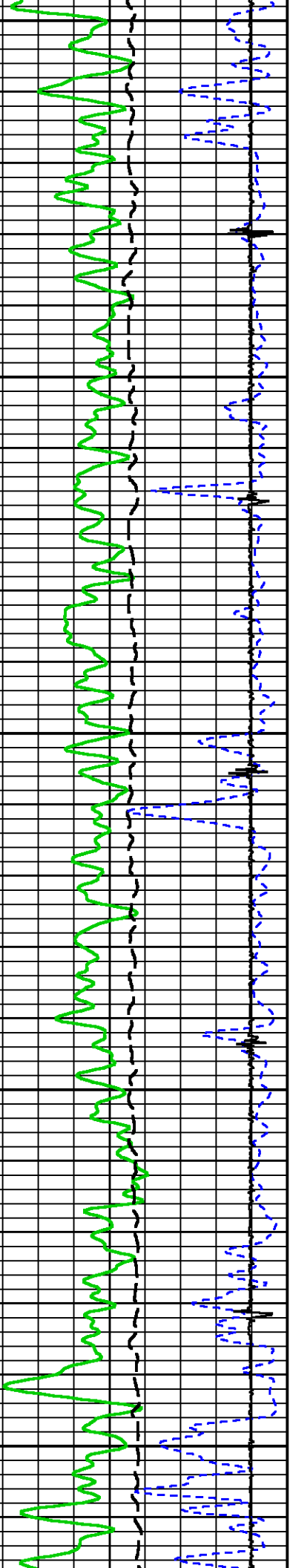


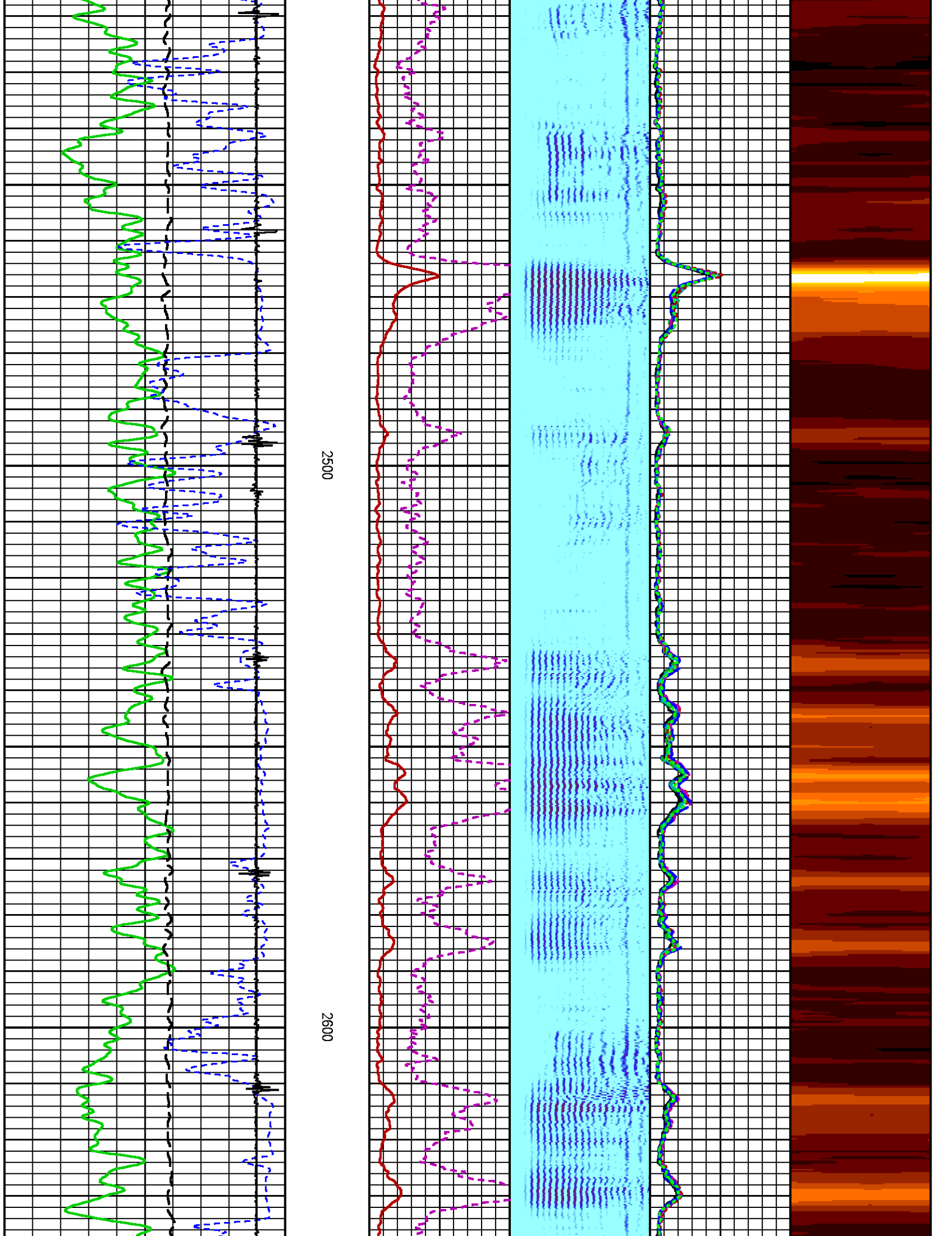


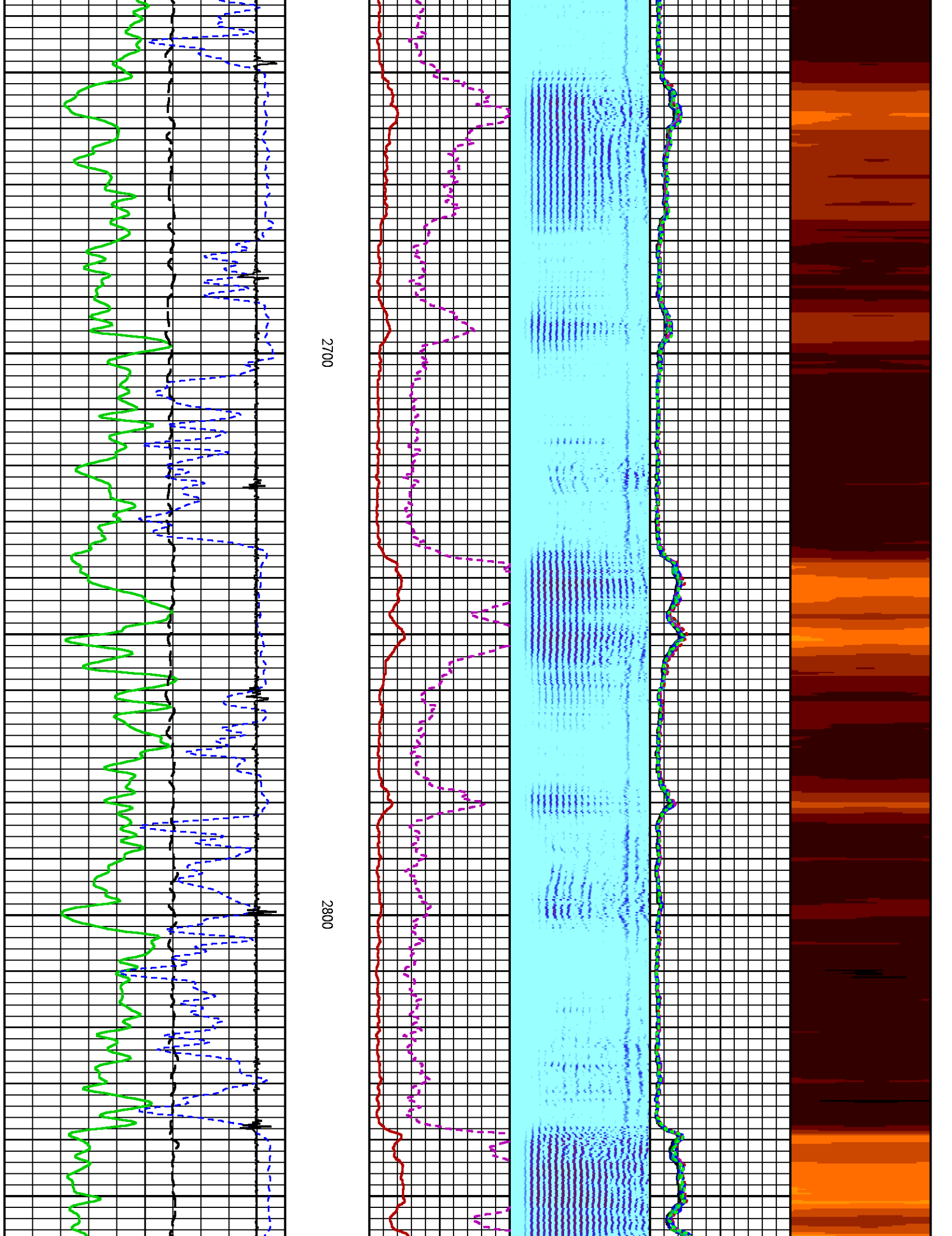
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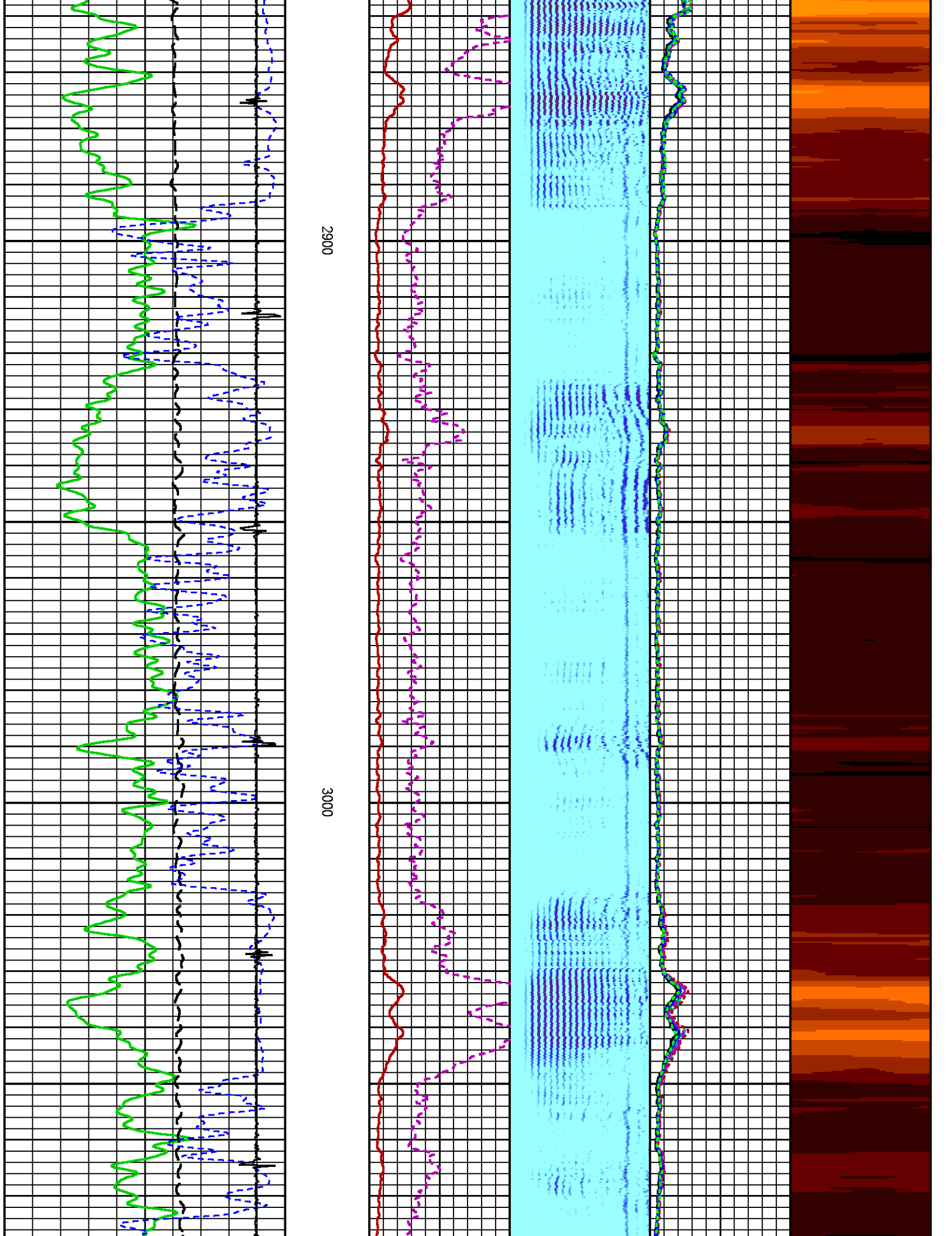
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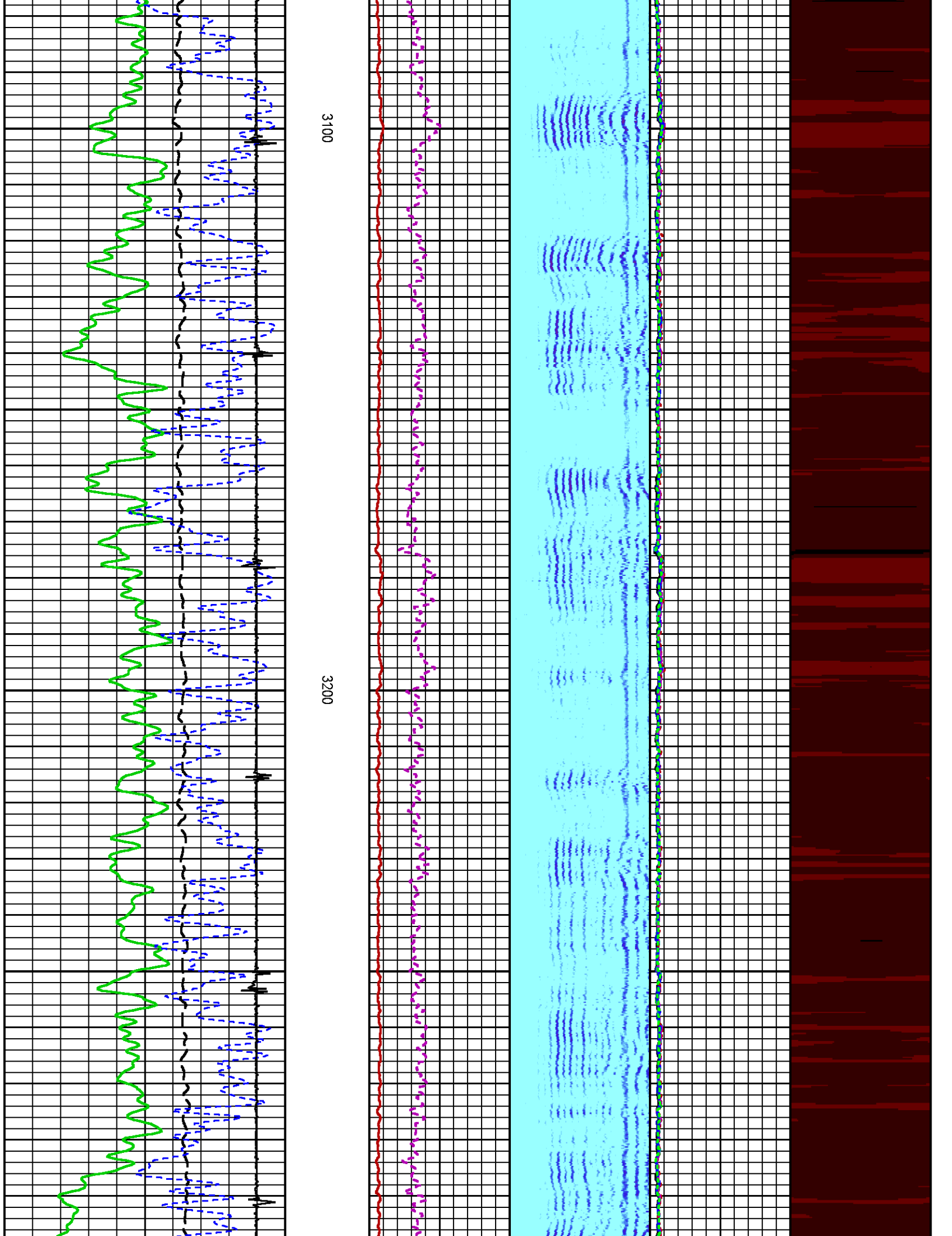
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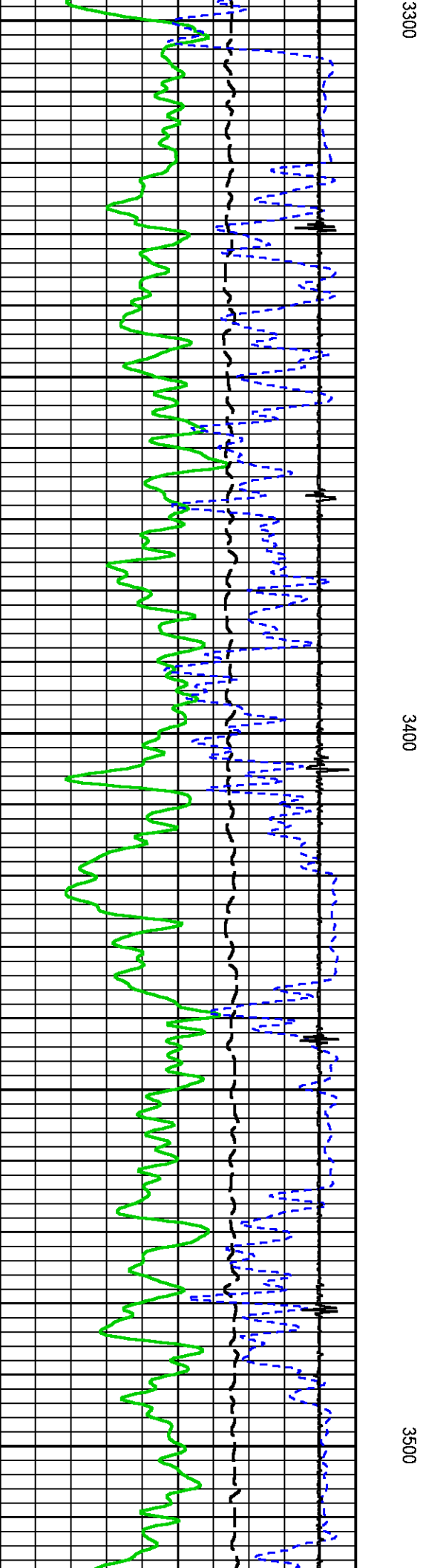
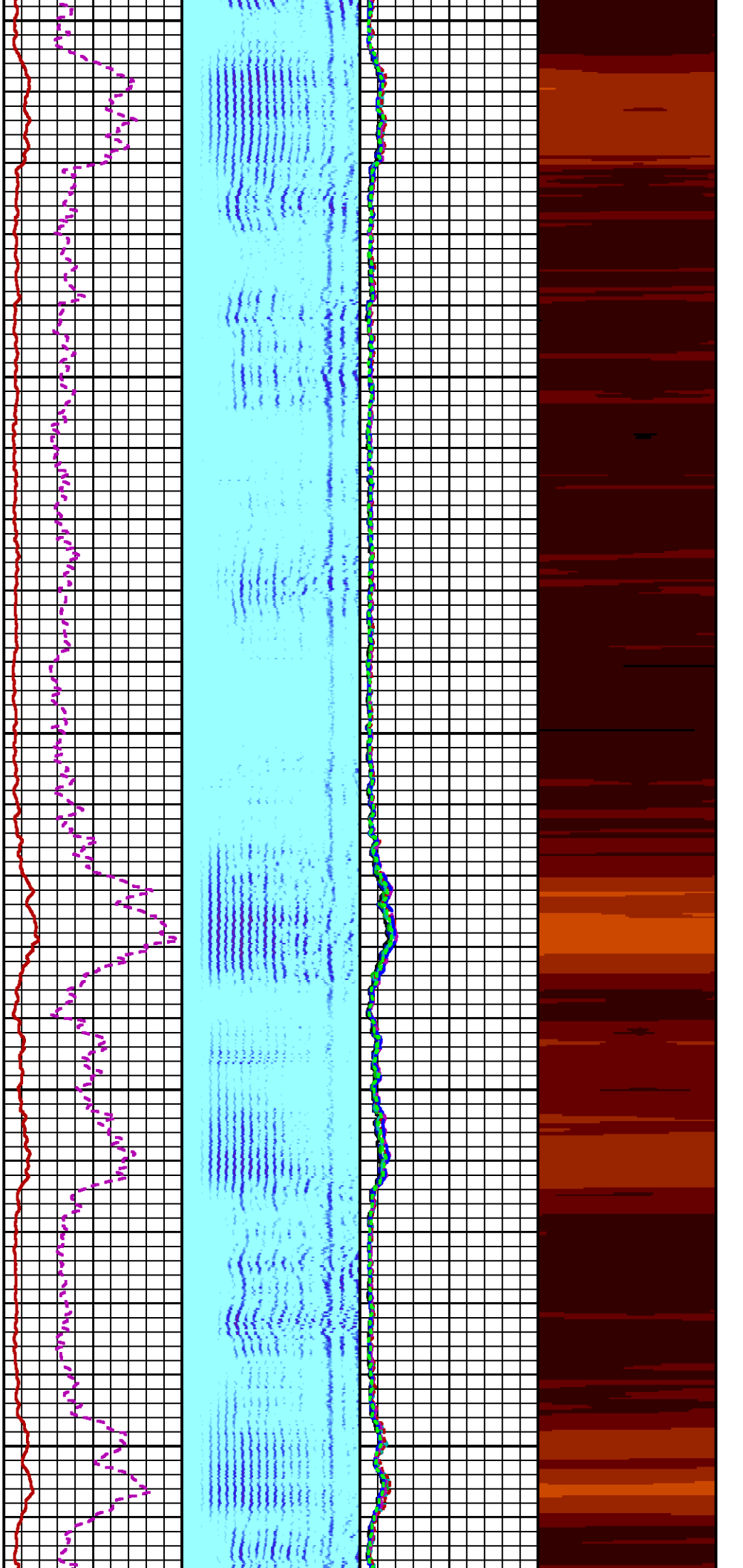


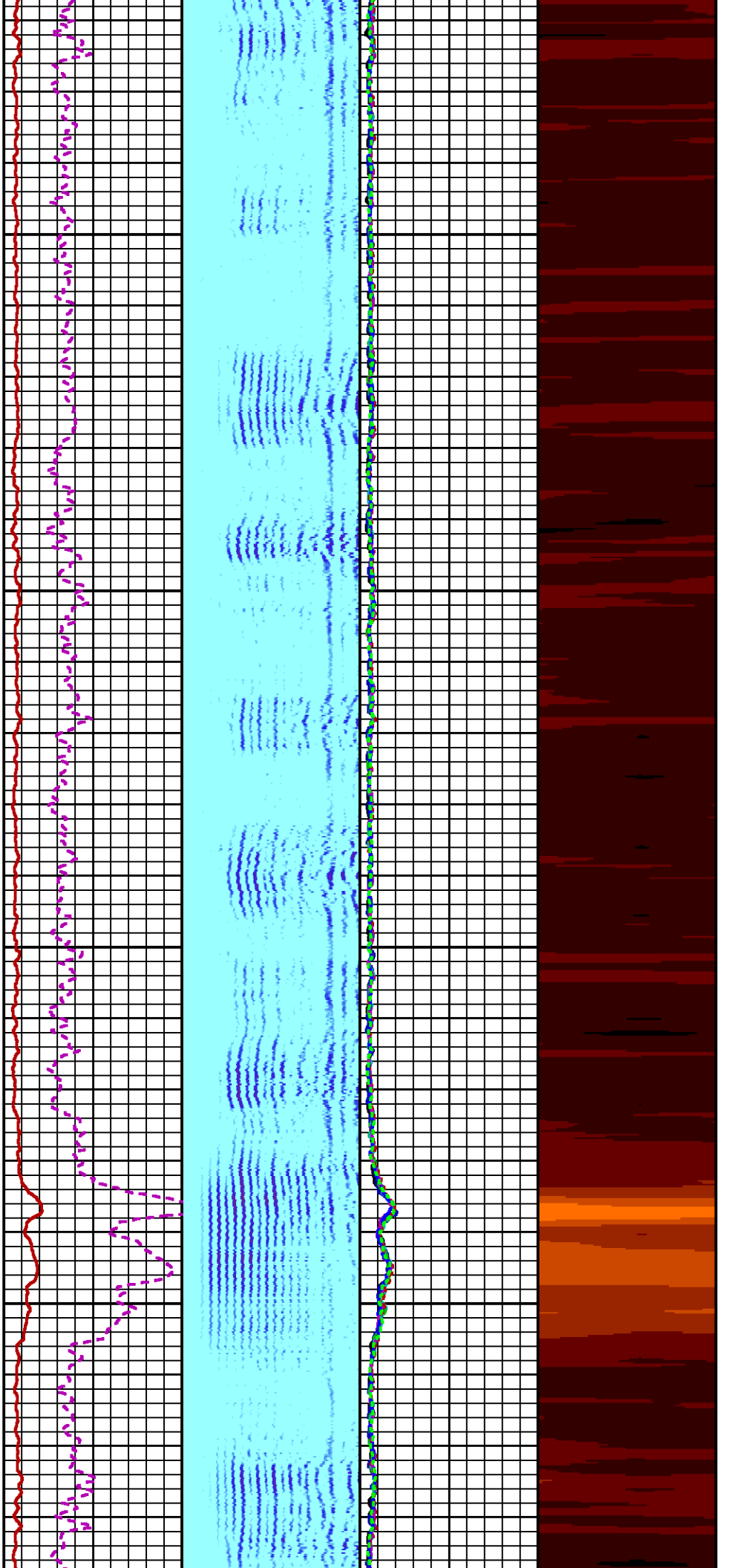






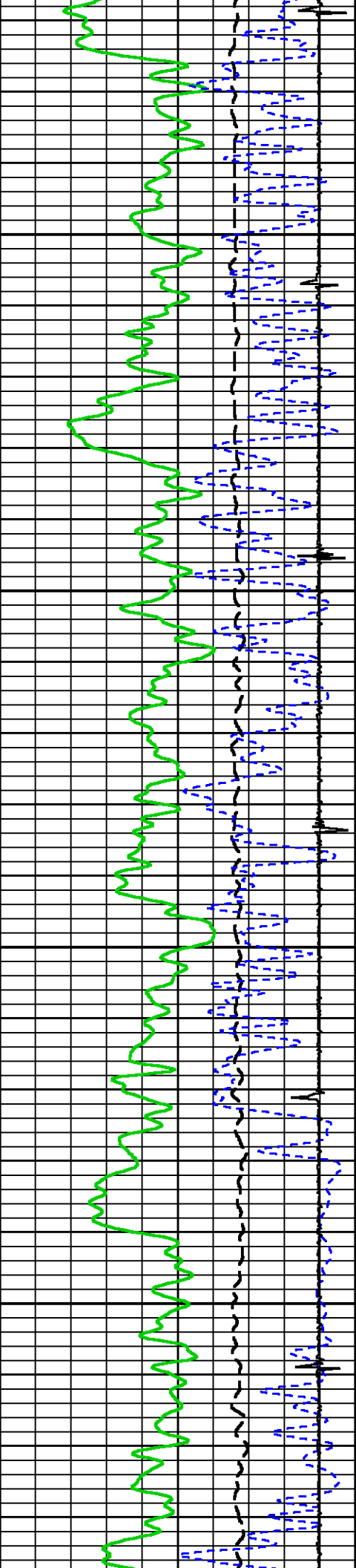


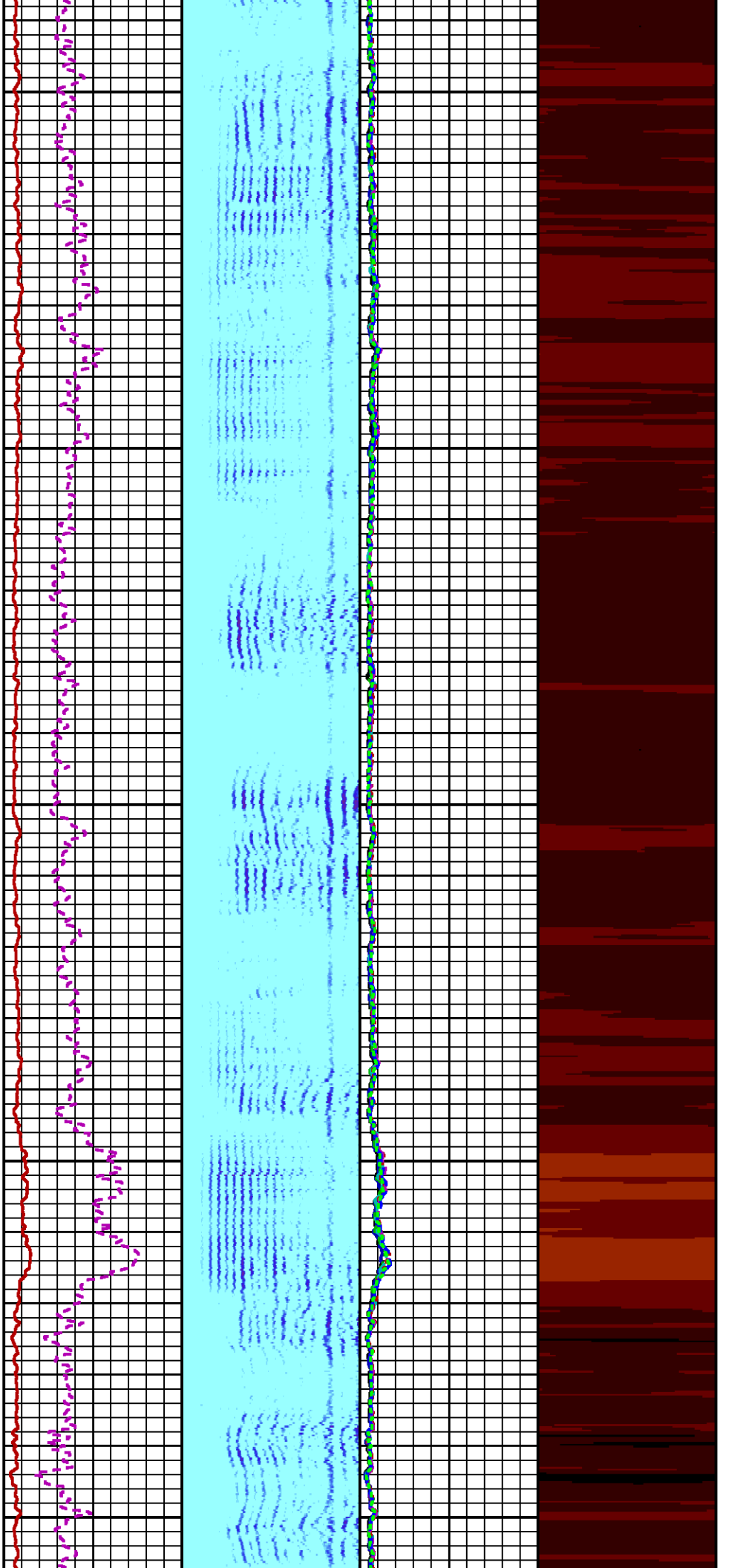




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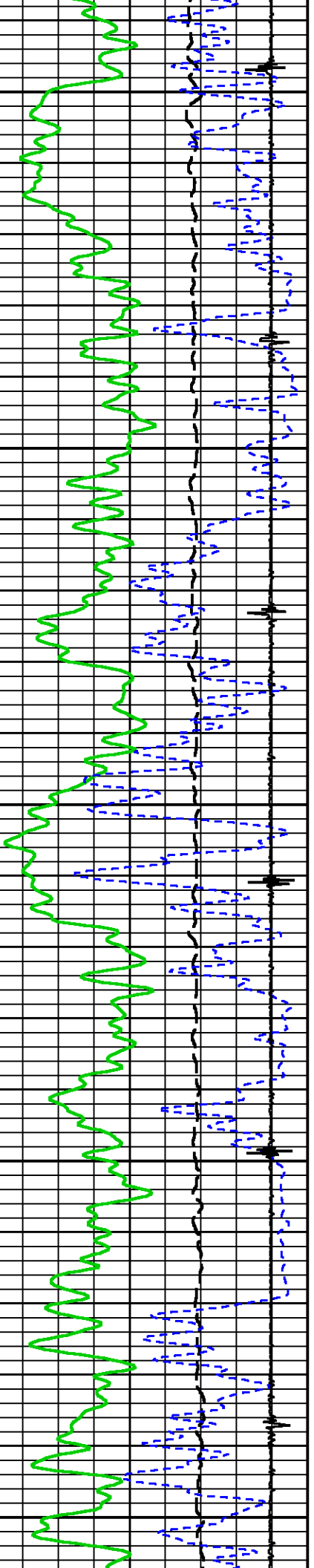
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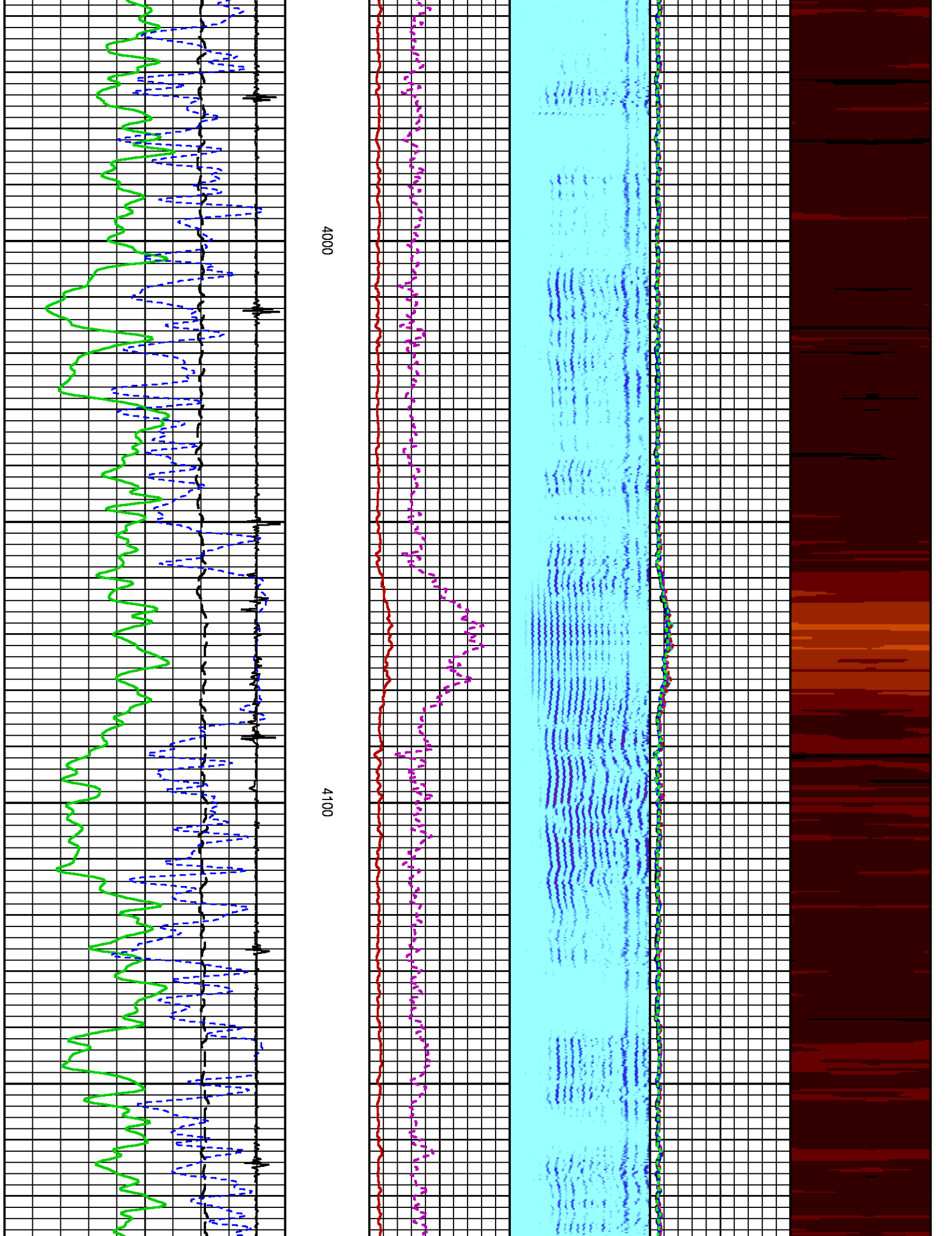


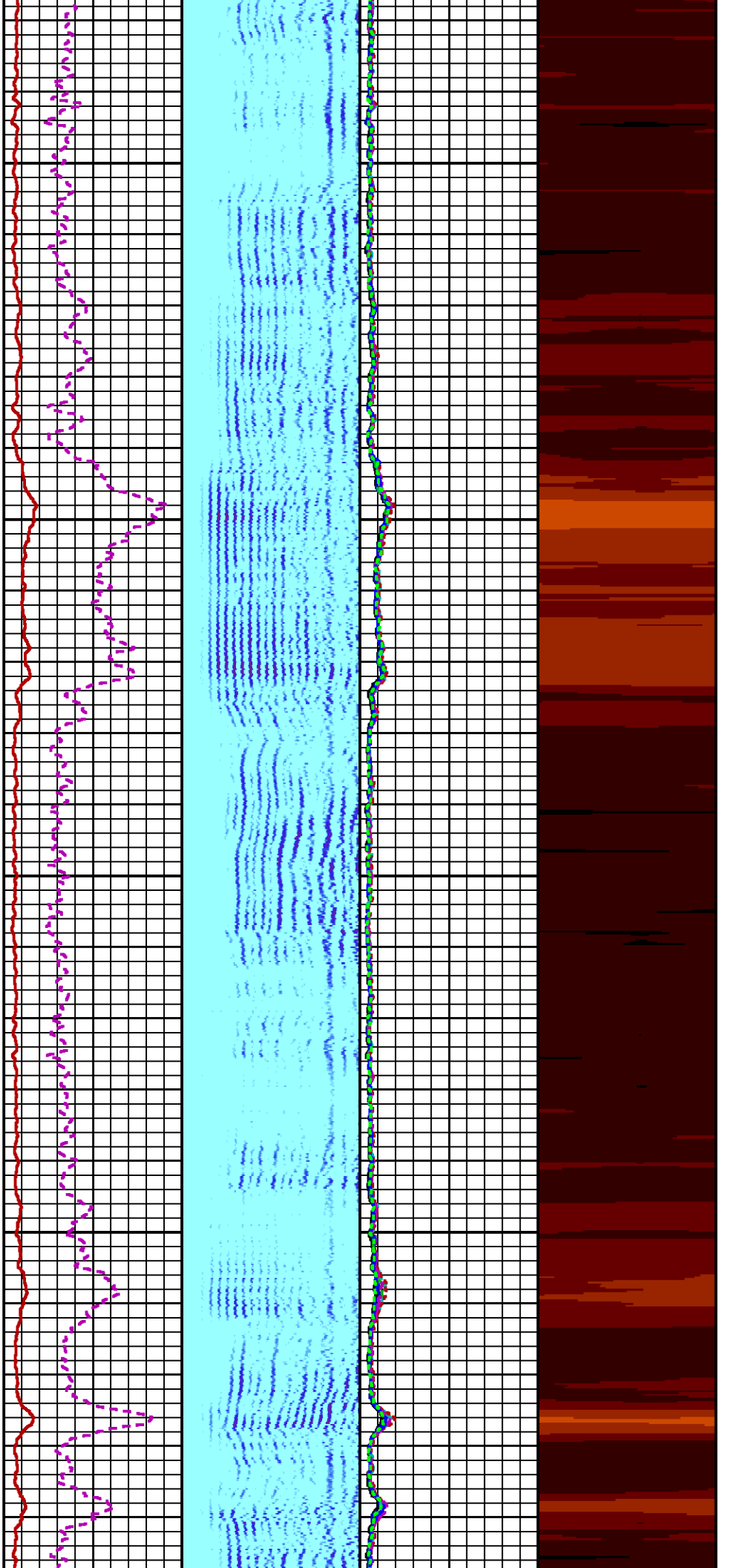


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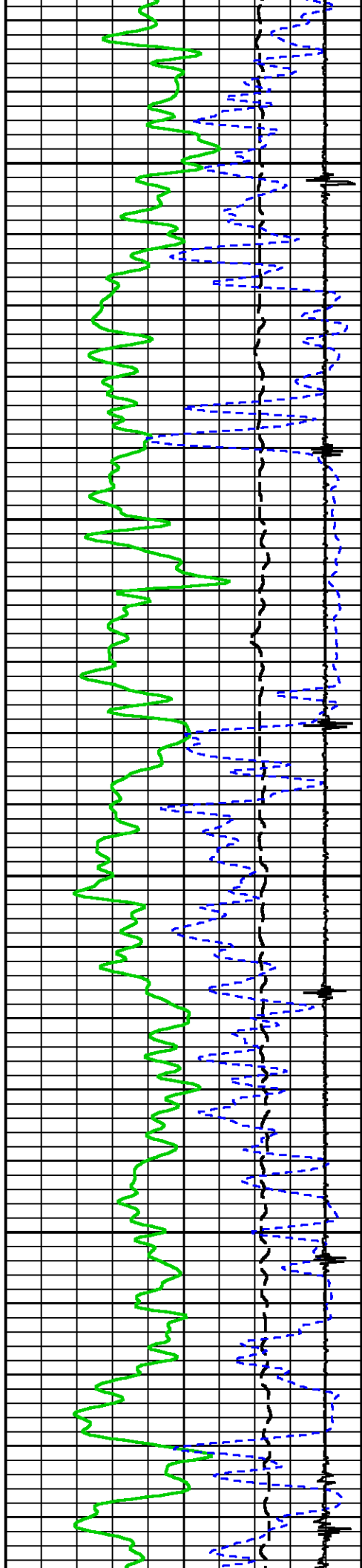


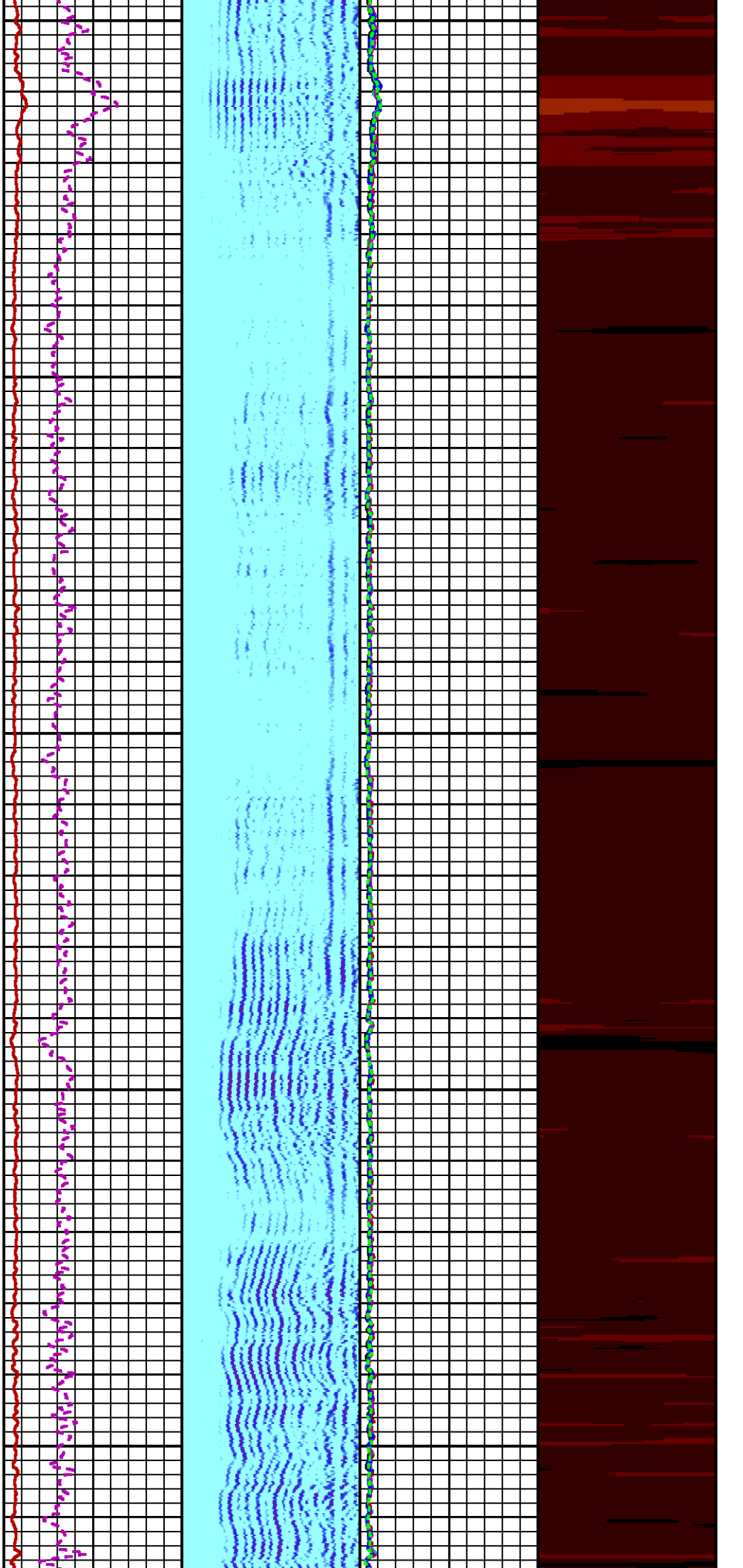




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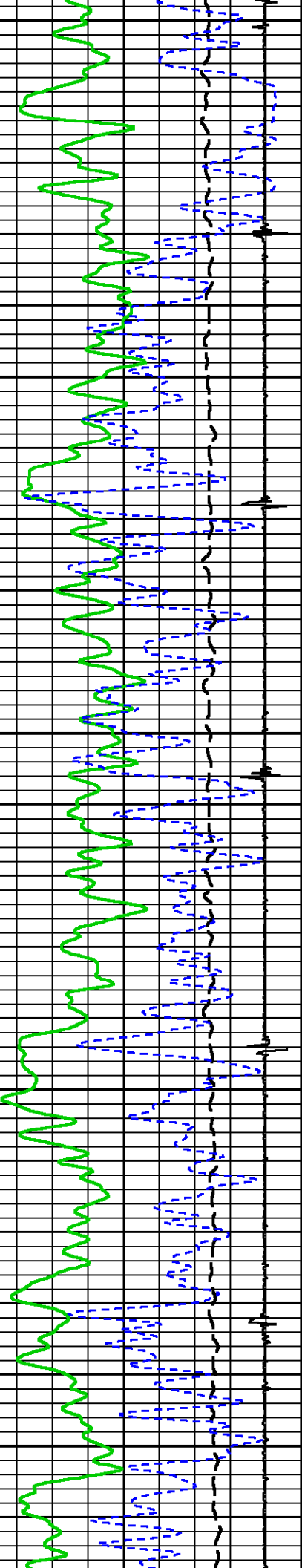


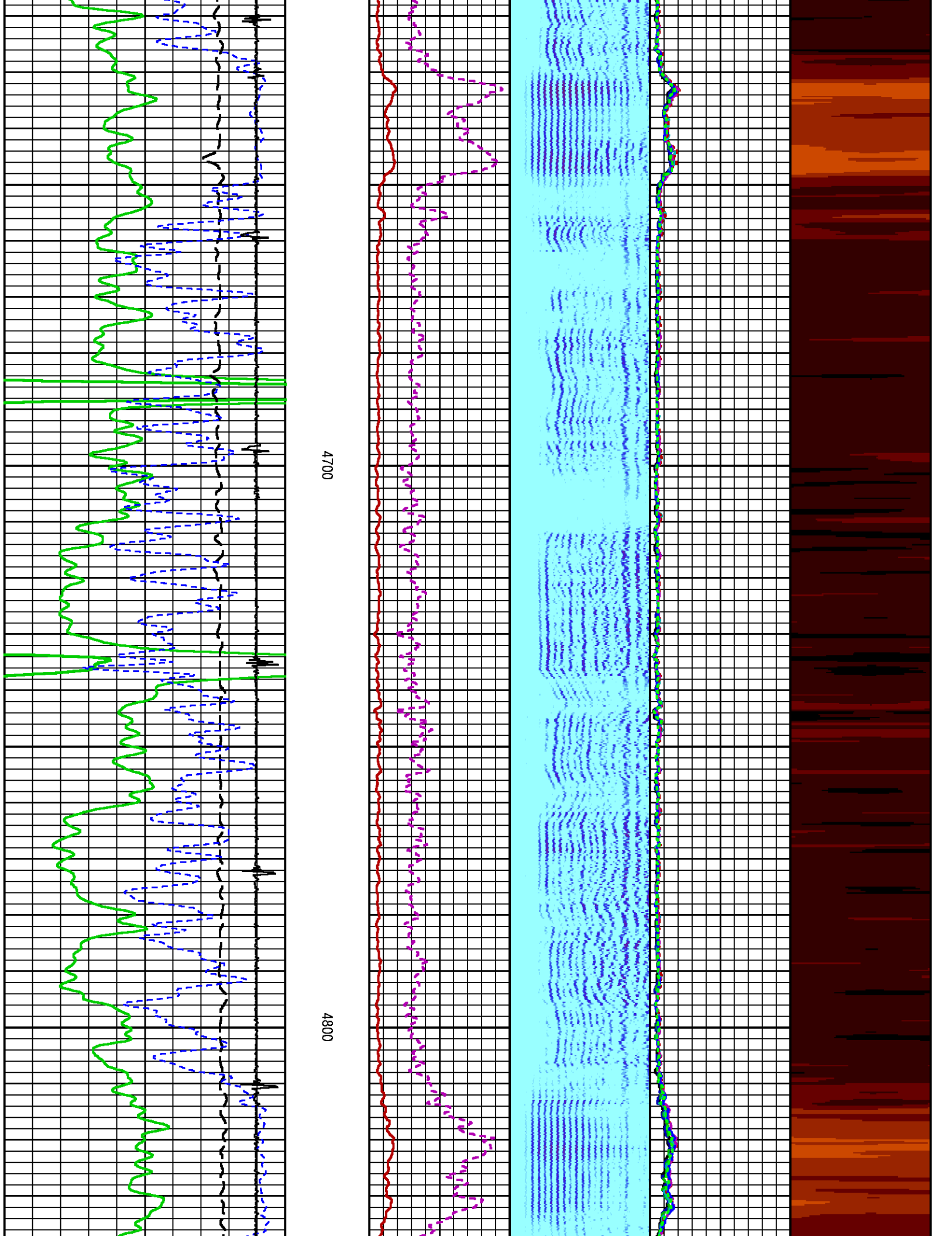


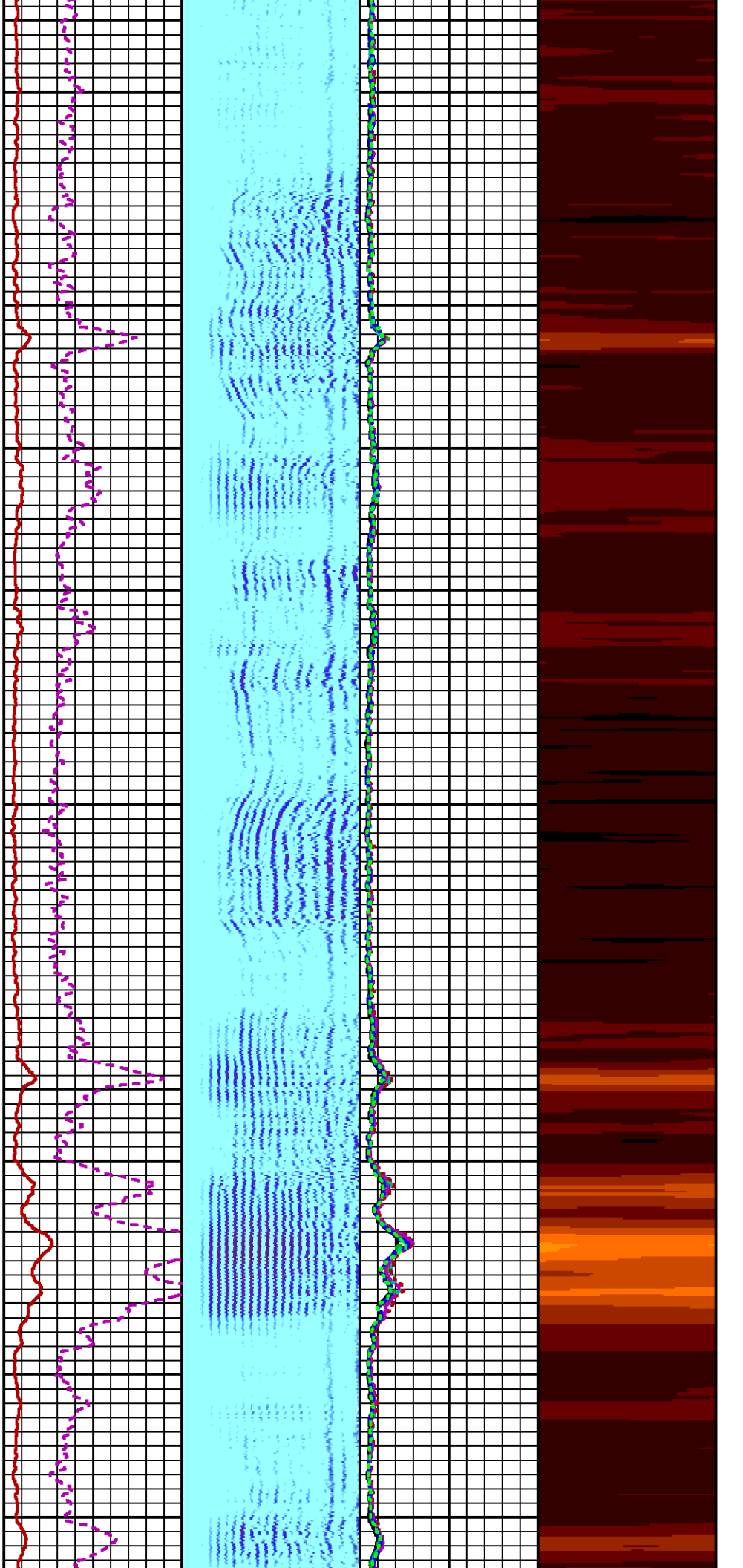
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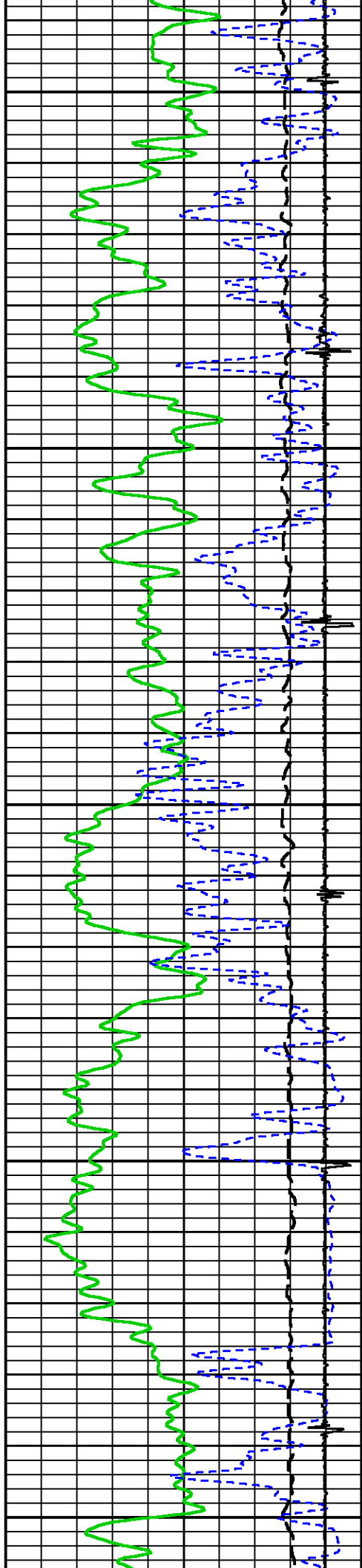


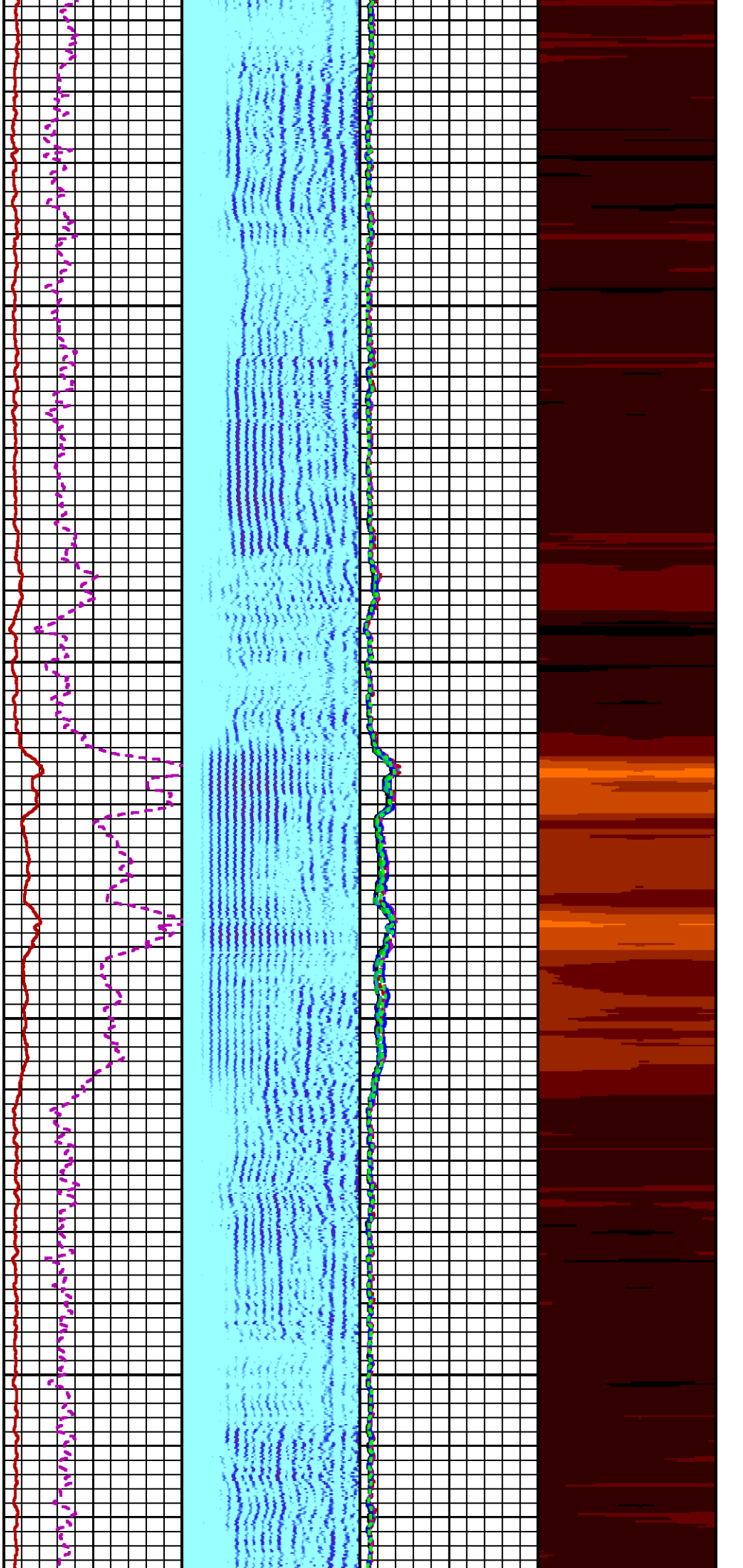




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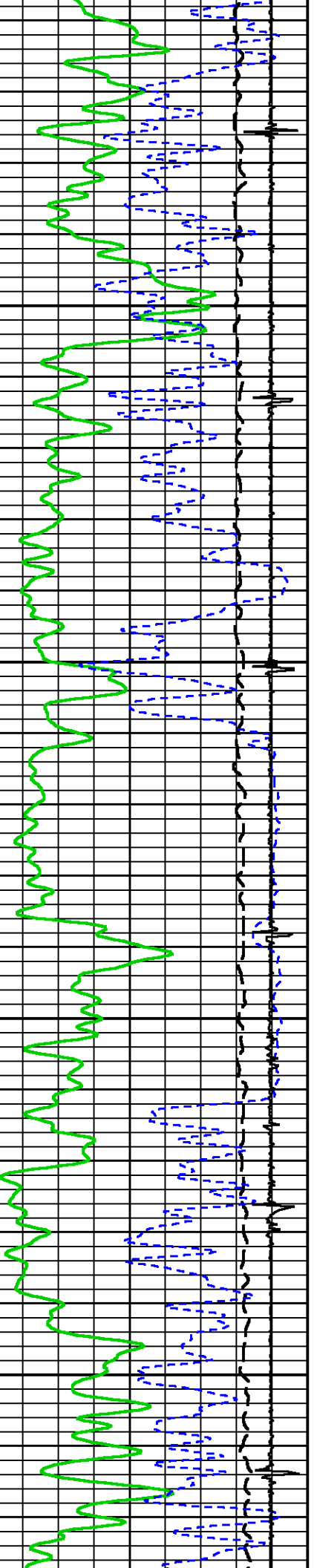
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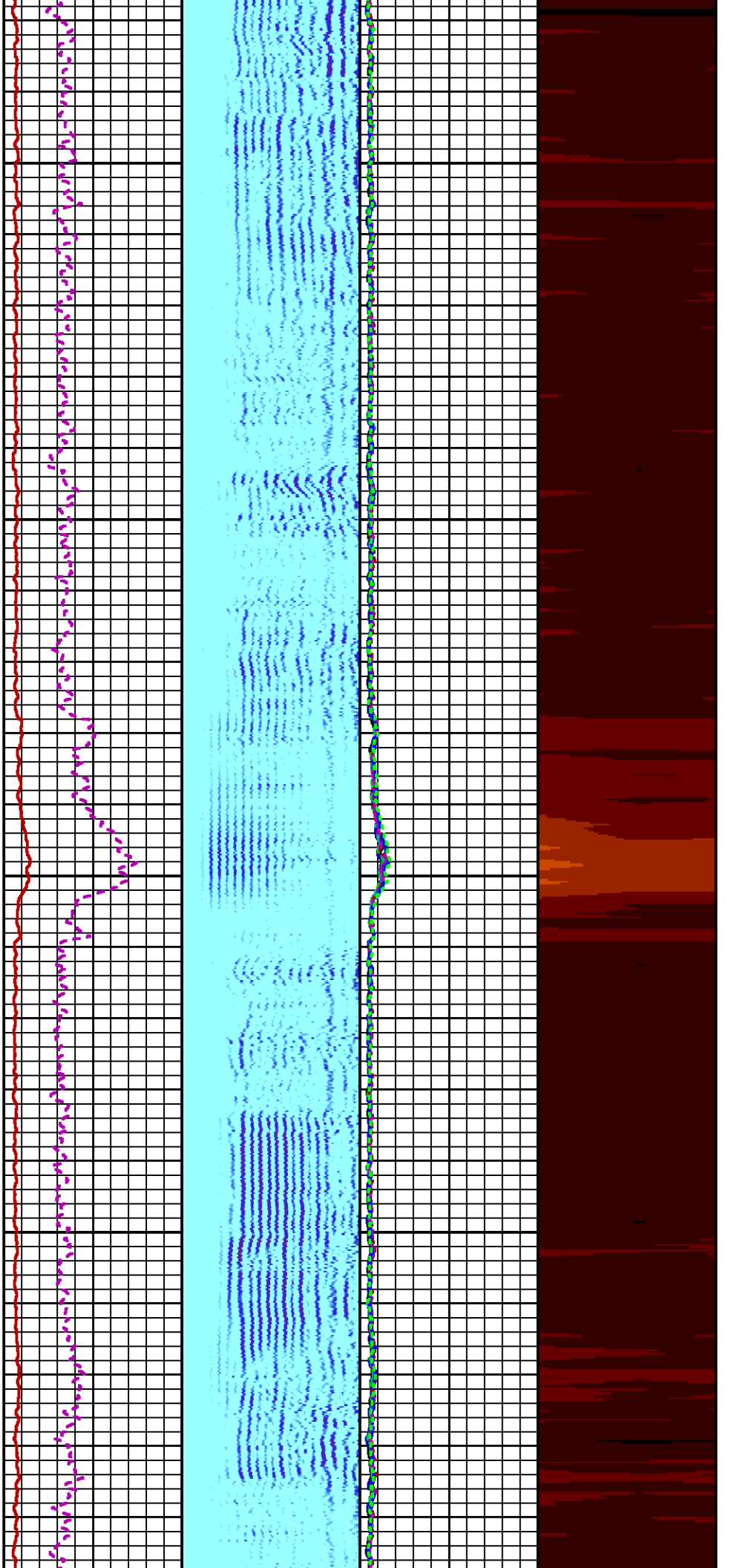




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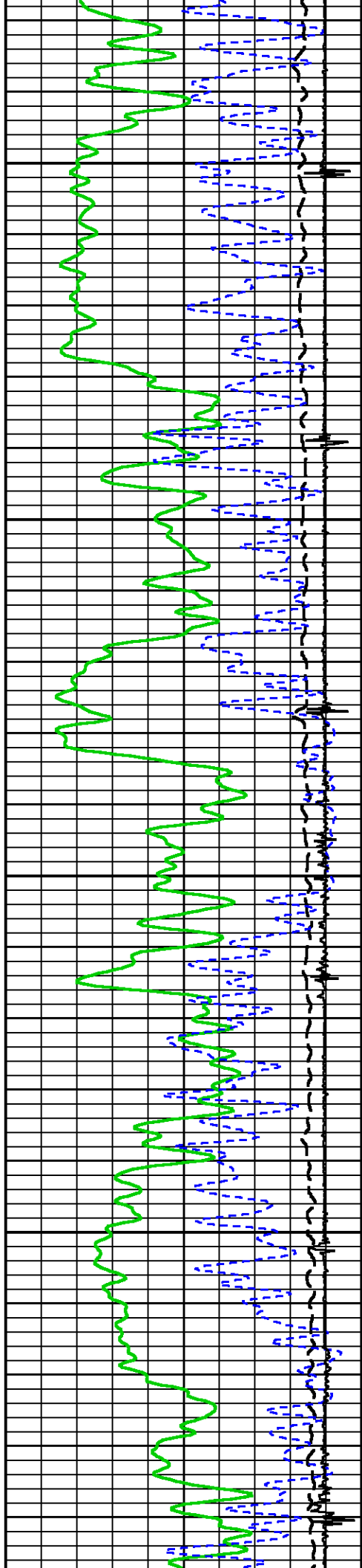
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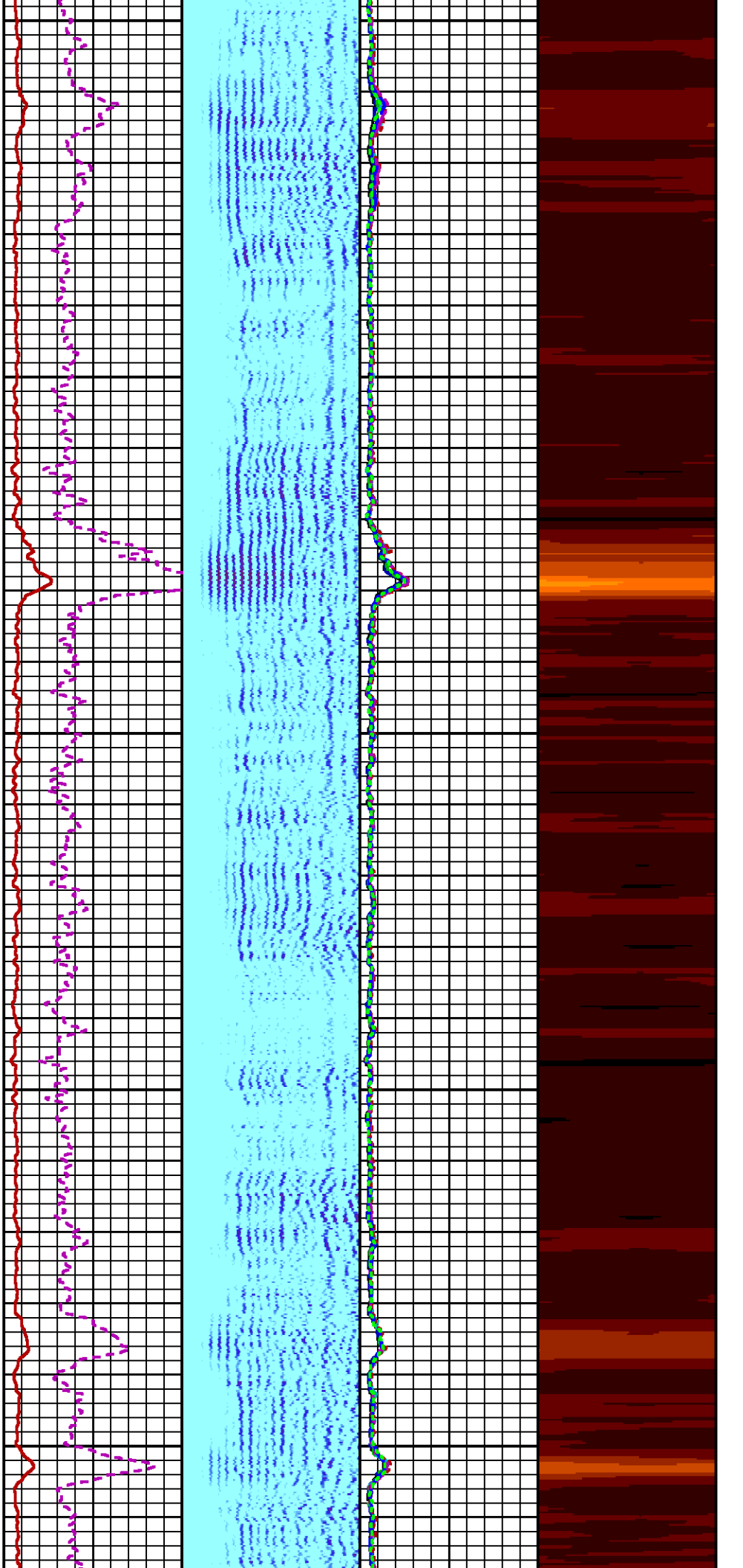




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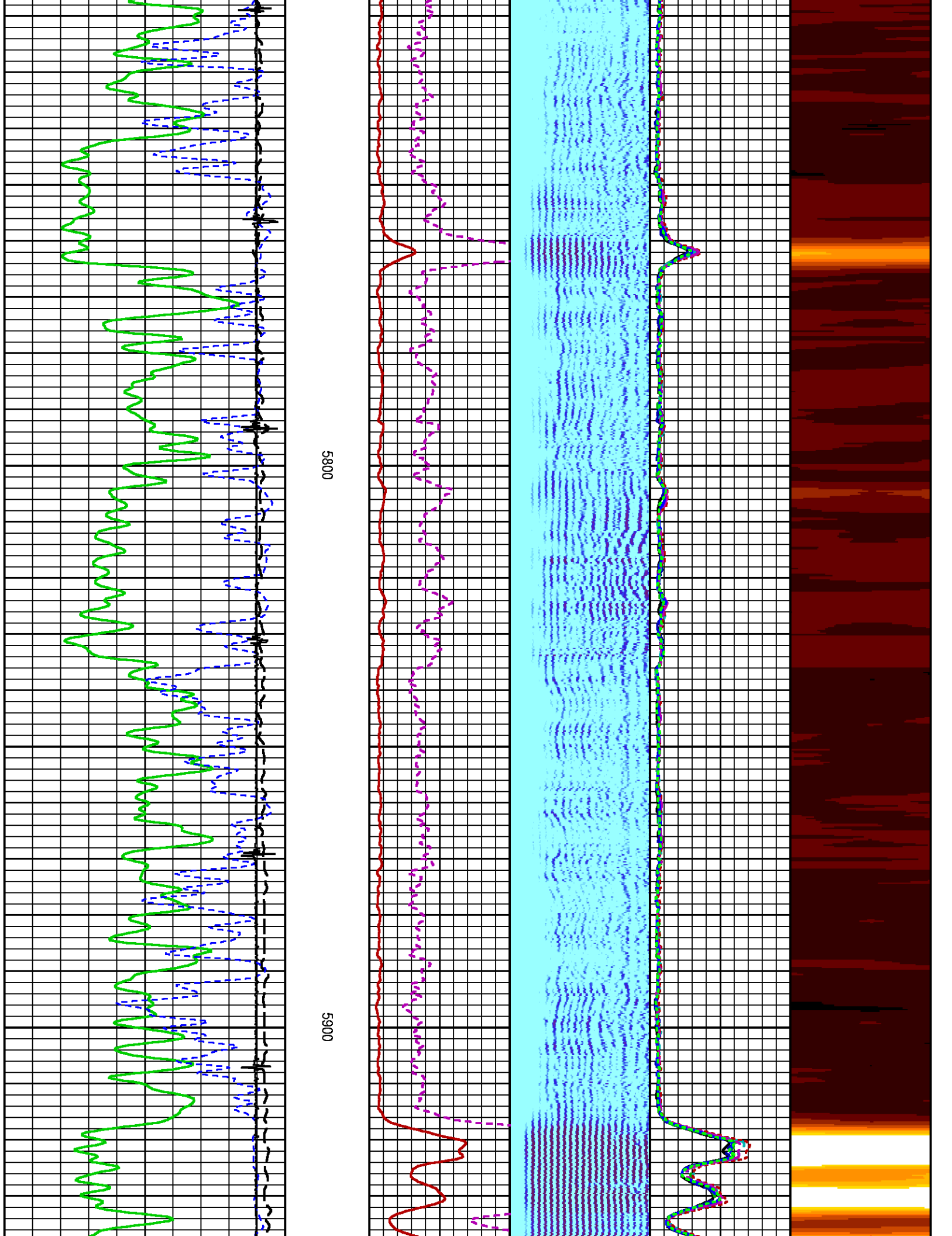


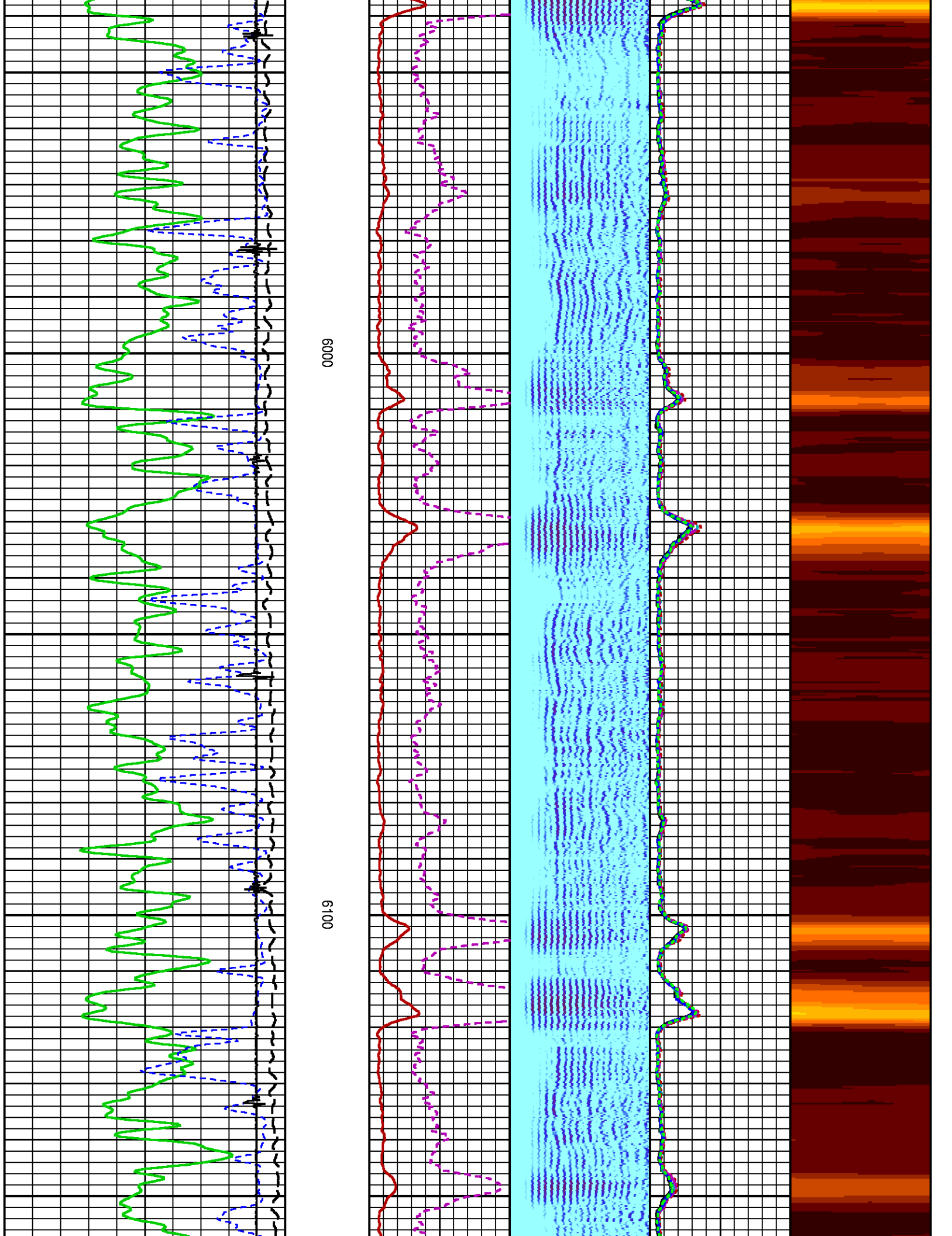


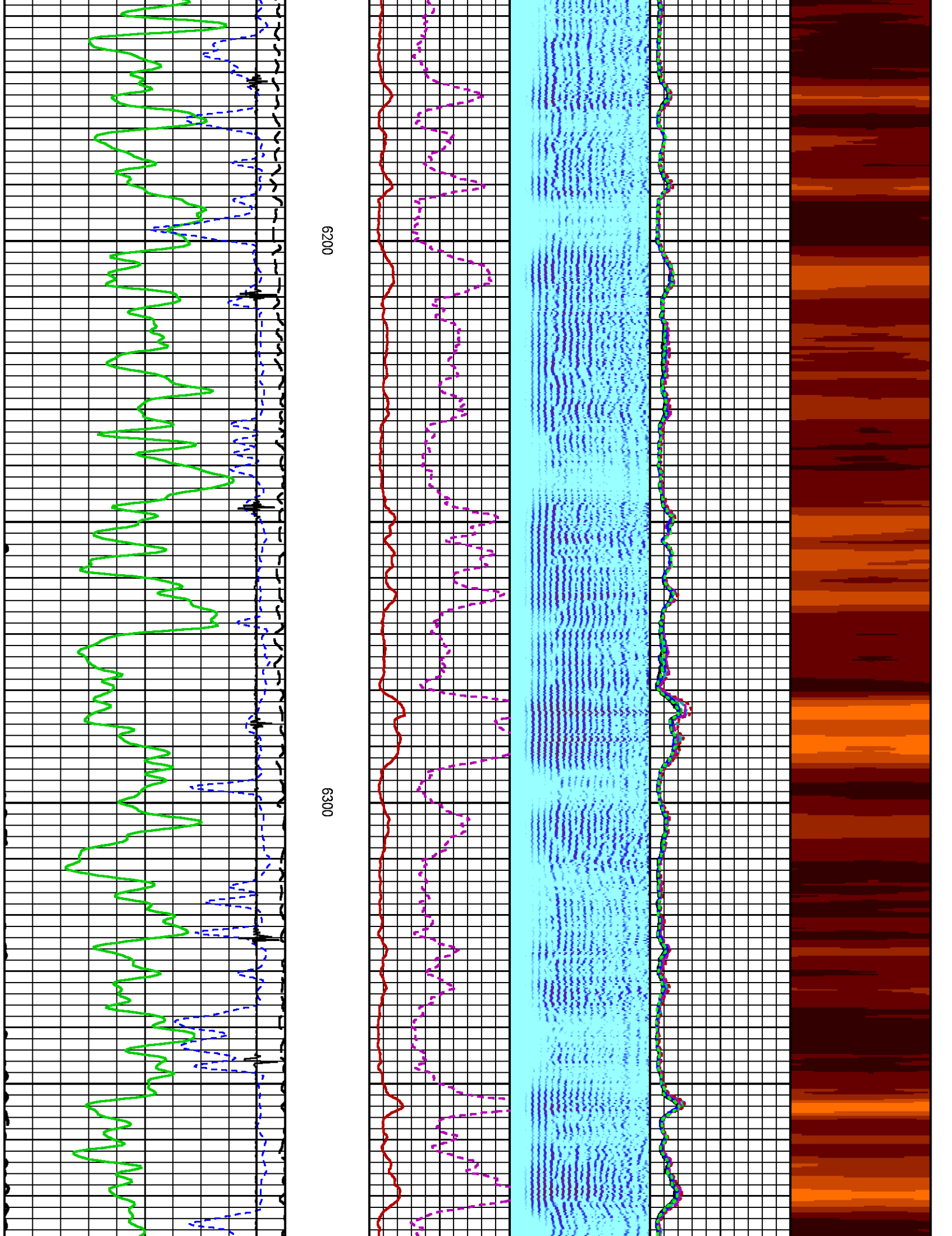
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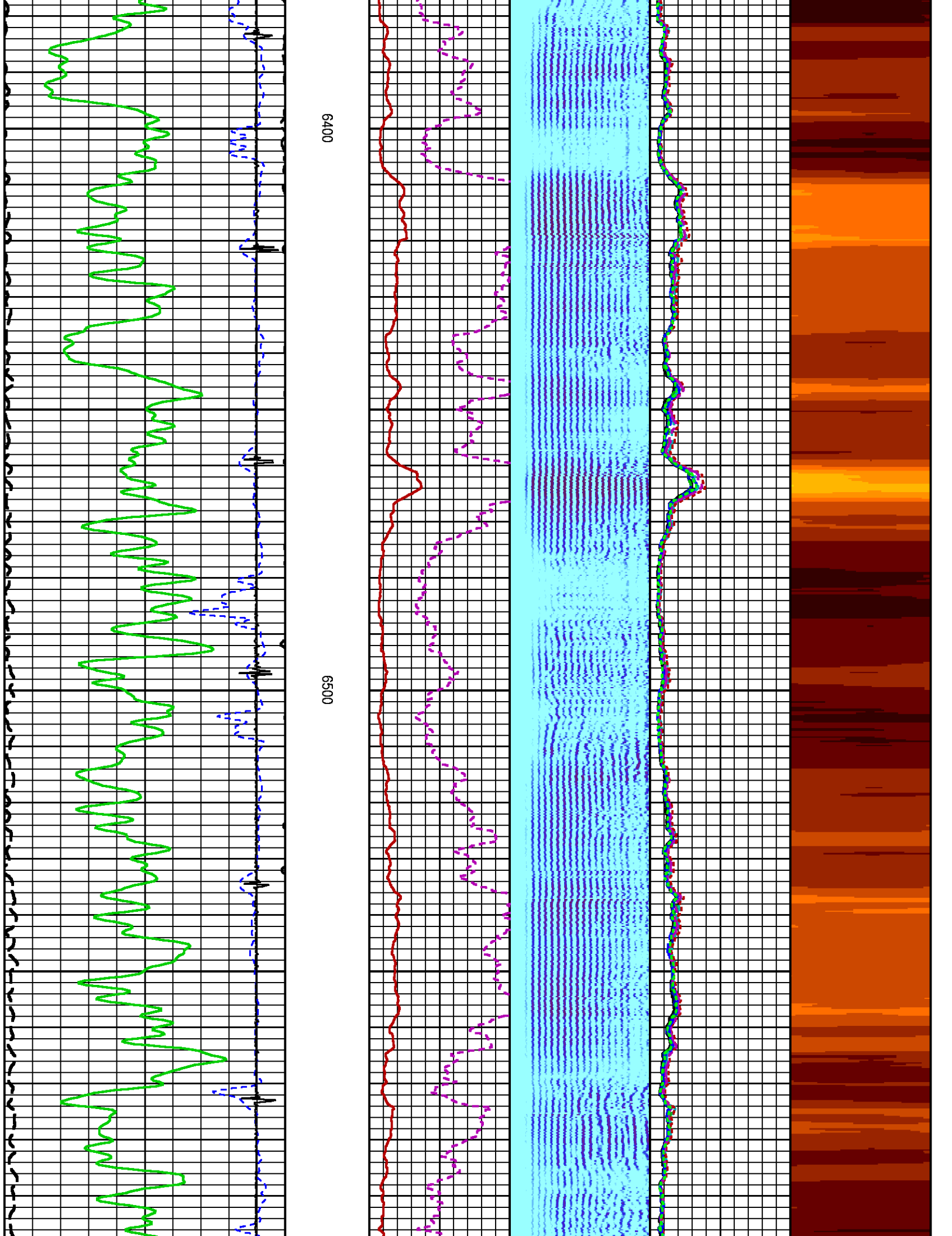
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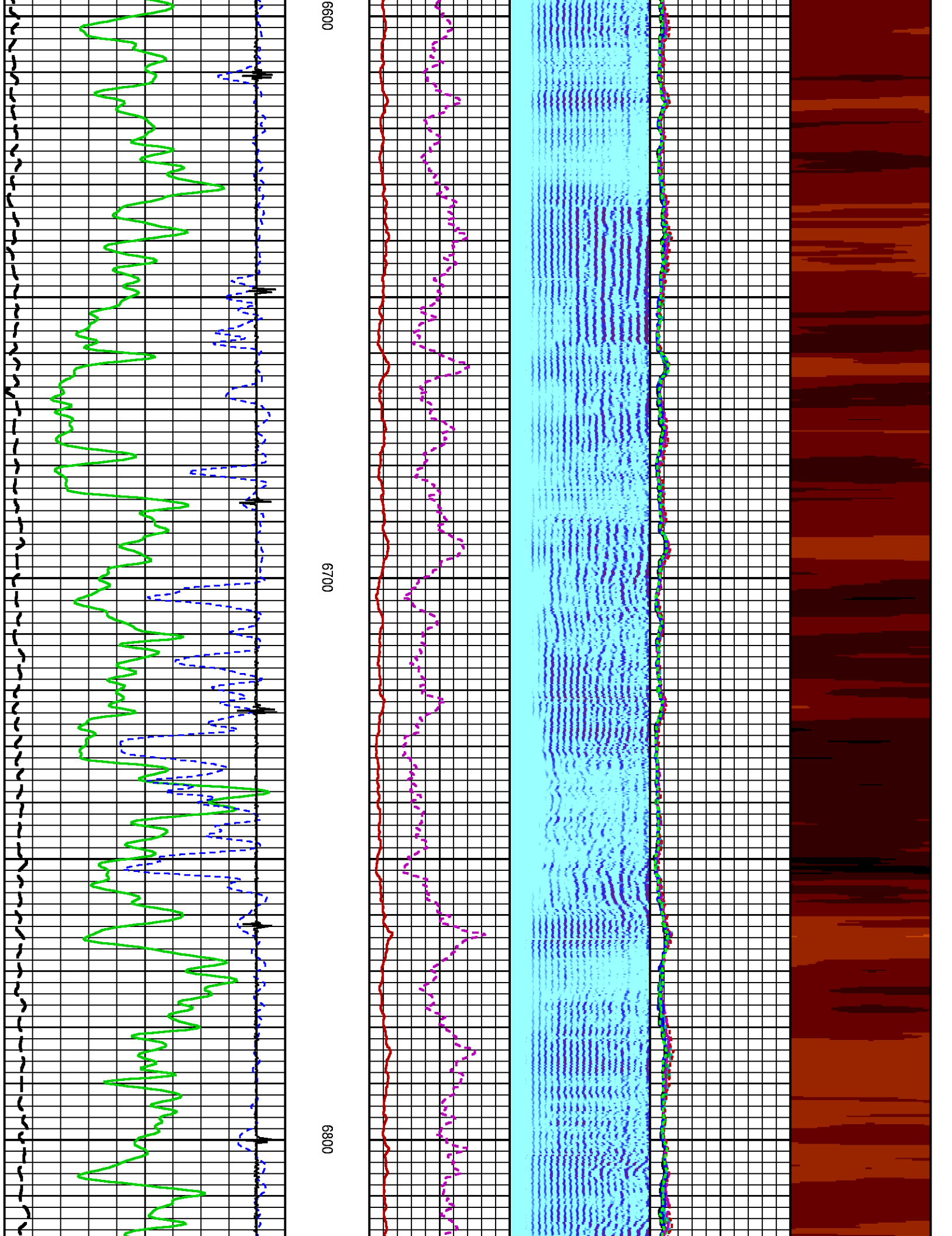
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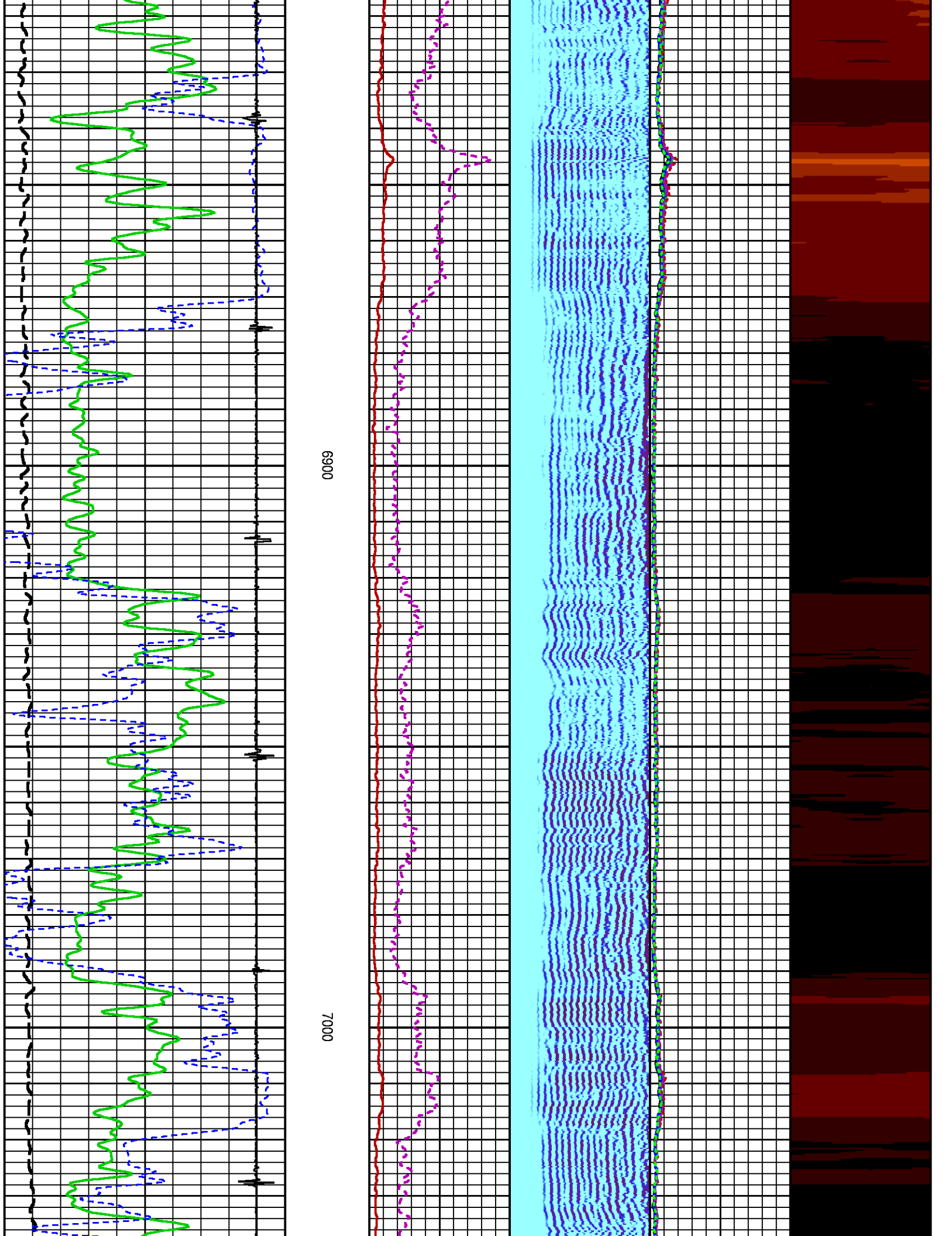


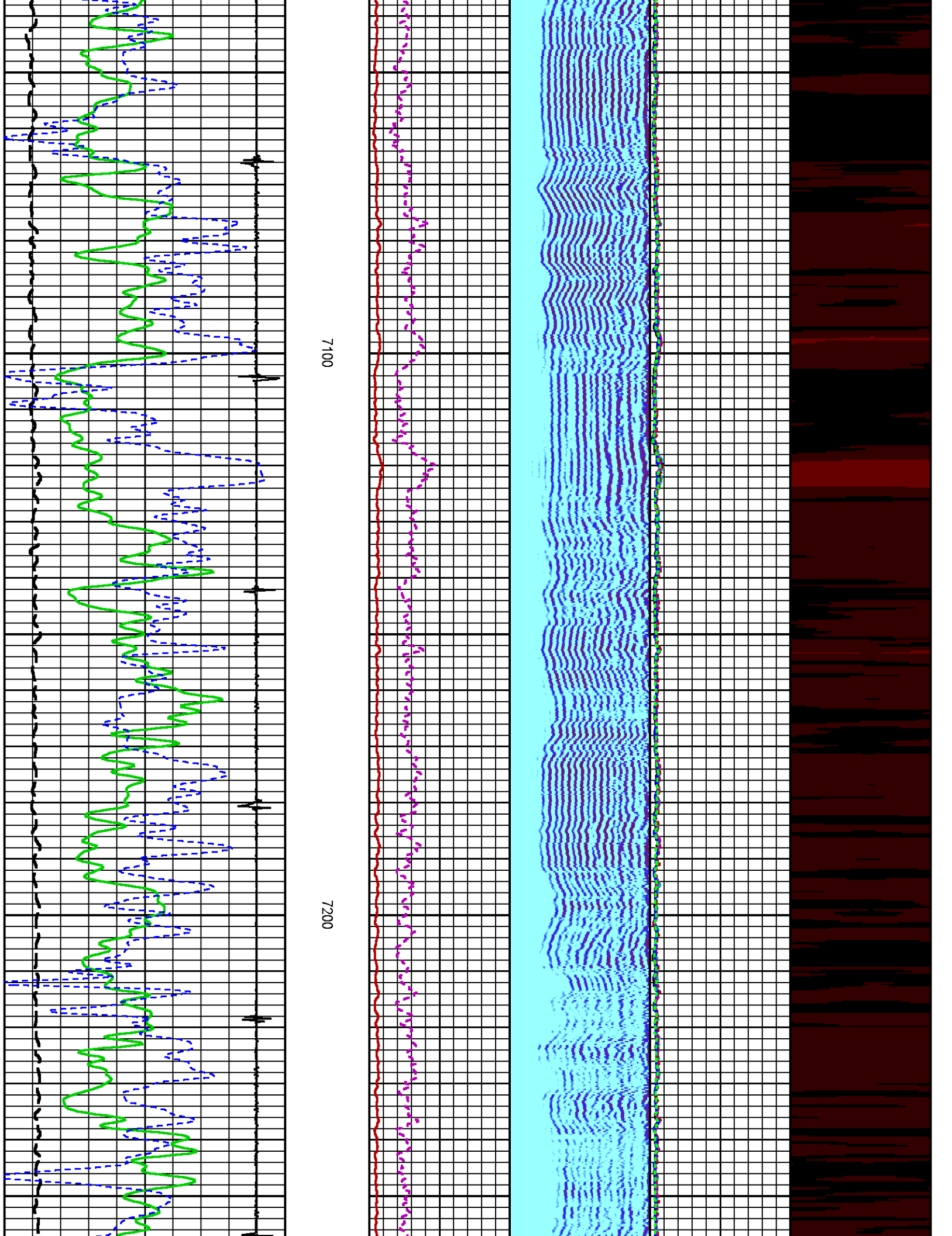


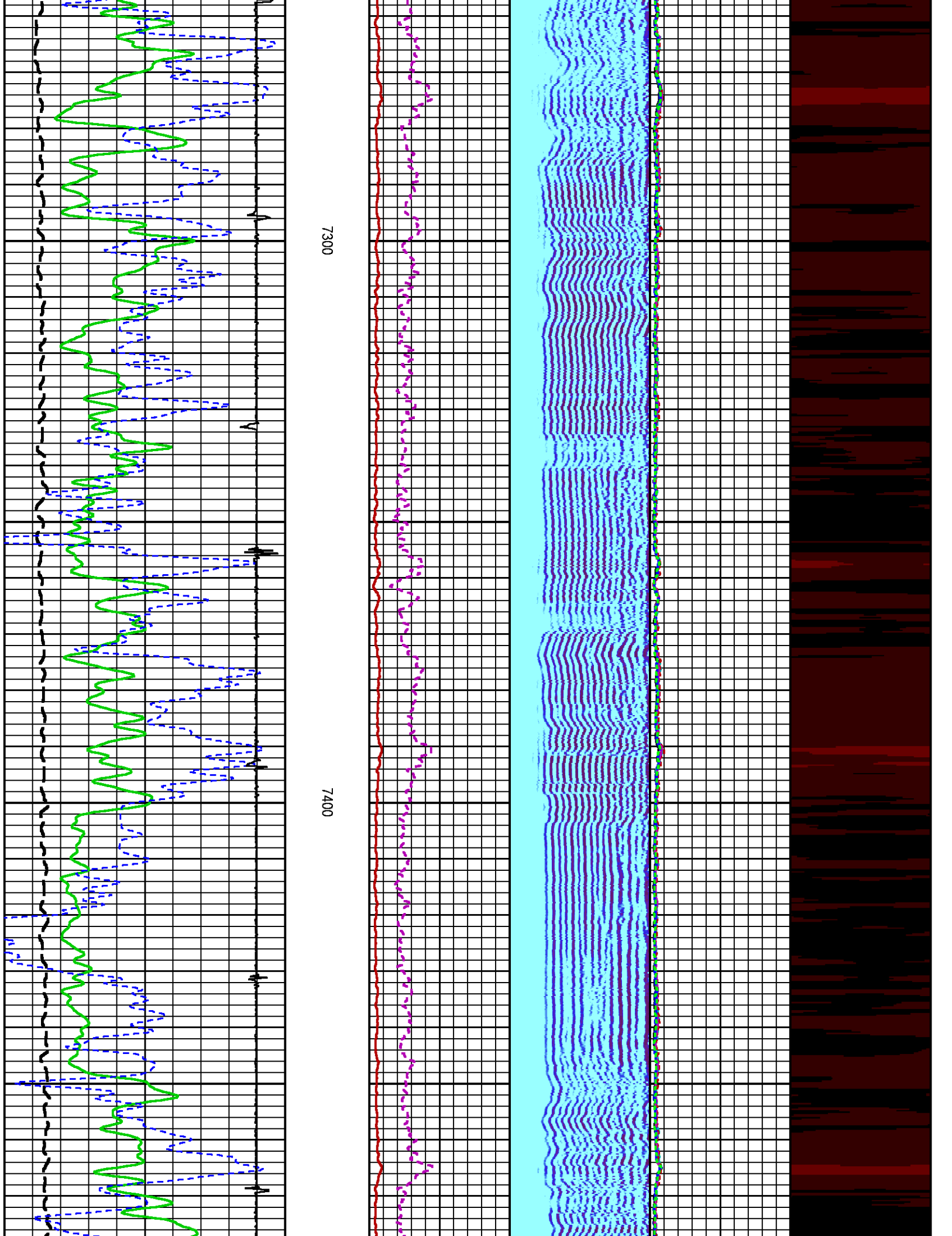


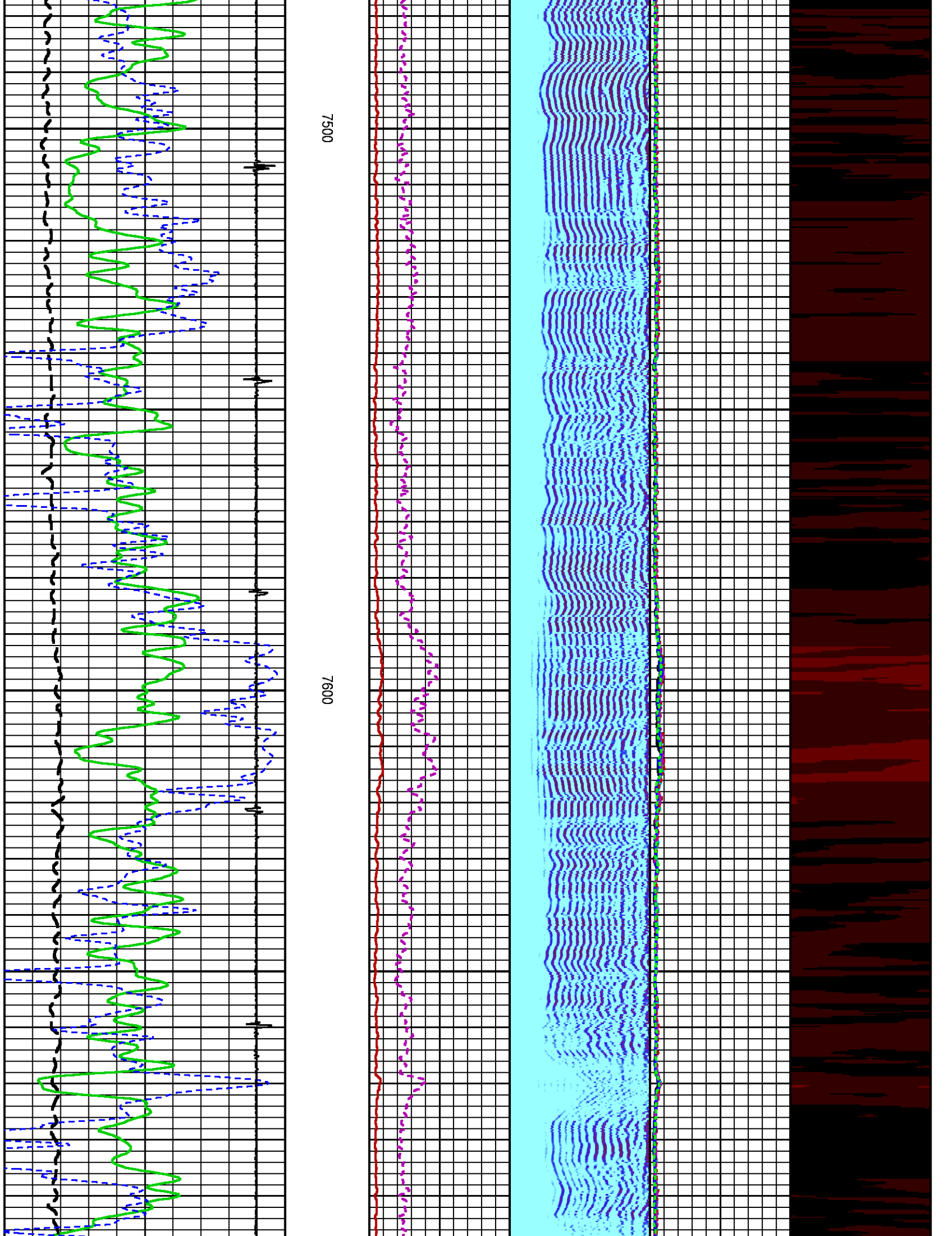


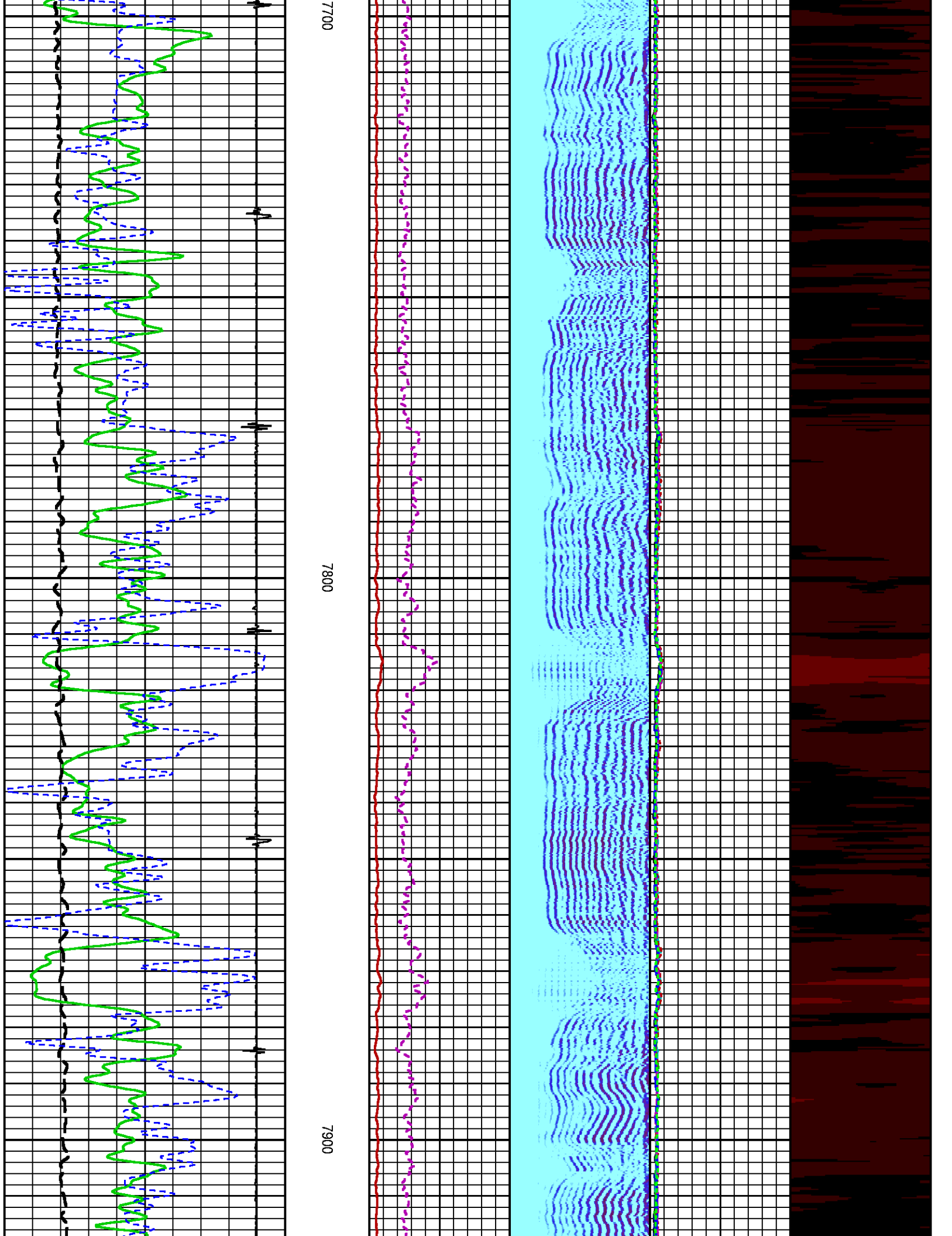


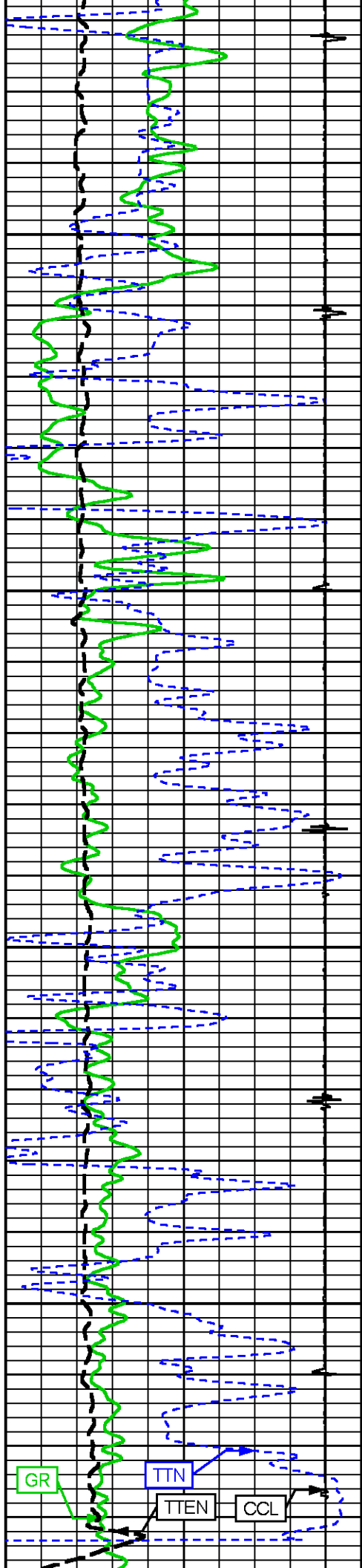






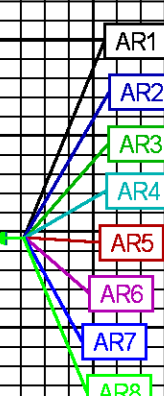
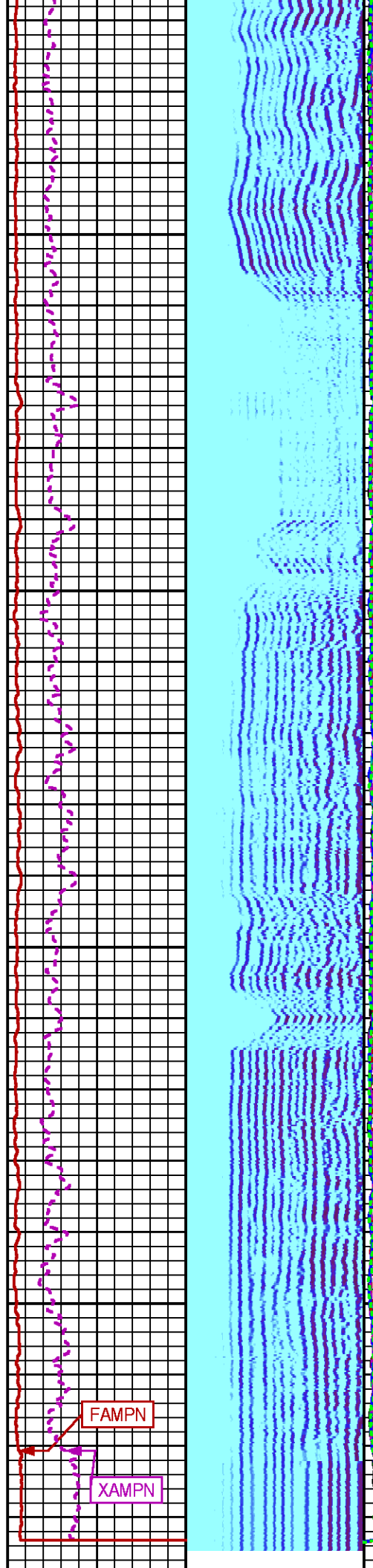


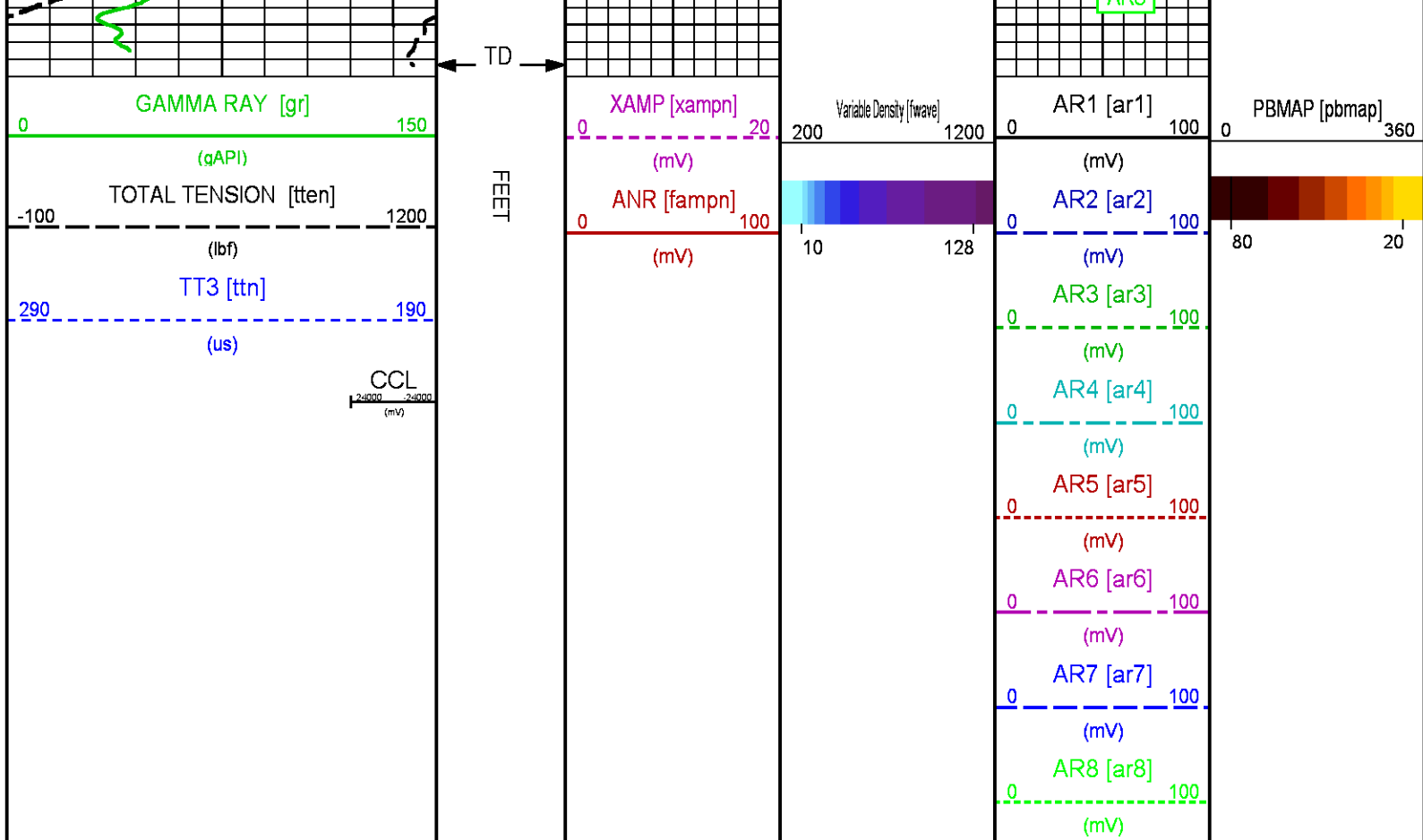




8000

8100





REPEAT PASS 0 PSI

ECLIPS 7.0w PC-ECLIPS General Release Rel 7.0w Fri Jun 09 11:02:06 Central Daylight Time 2017
Patches: 1

Plotted: Tue Oct 24 17:36:16 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\dat1a\BRUTON_19_05Elp012g01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 7798.750 ft BOTTOM DEPTH: 8147.000 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	light (2a)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"

RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0.00		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	185	us	TOP	BOTTOM
	AMP WINDOW STOP (fgp2)	185		"	"

	AMP WINDOW START (fgp2*)	185	us	"	"
	AMP WINDOW START (fgp3*)	185	us	"	"
	AMP WINDOW START (fgp4*)	185	us	"	"
	AMP WINDOW START (fgp5*)	185	us	"	"
	AMP WINDOW START (fgp6*)	185	us	"	"
	AMP WINDOW START (fgp7*)	185	us	"	"
	AMP WINDOW START (fgp8*)	185	us	"	"
	AMP WINDOW START (fgpn*)	185	us	"	"
	AMP WINDOW LENGTH	30	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	6	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-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	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

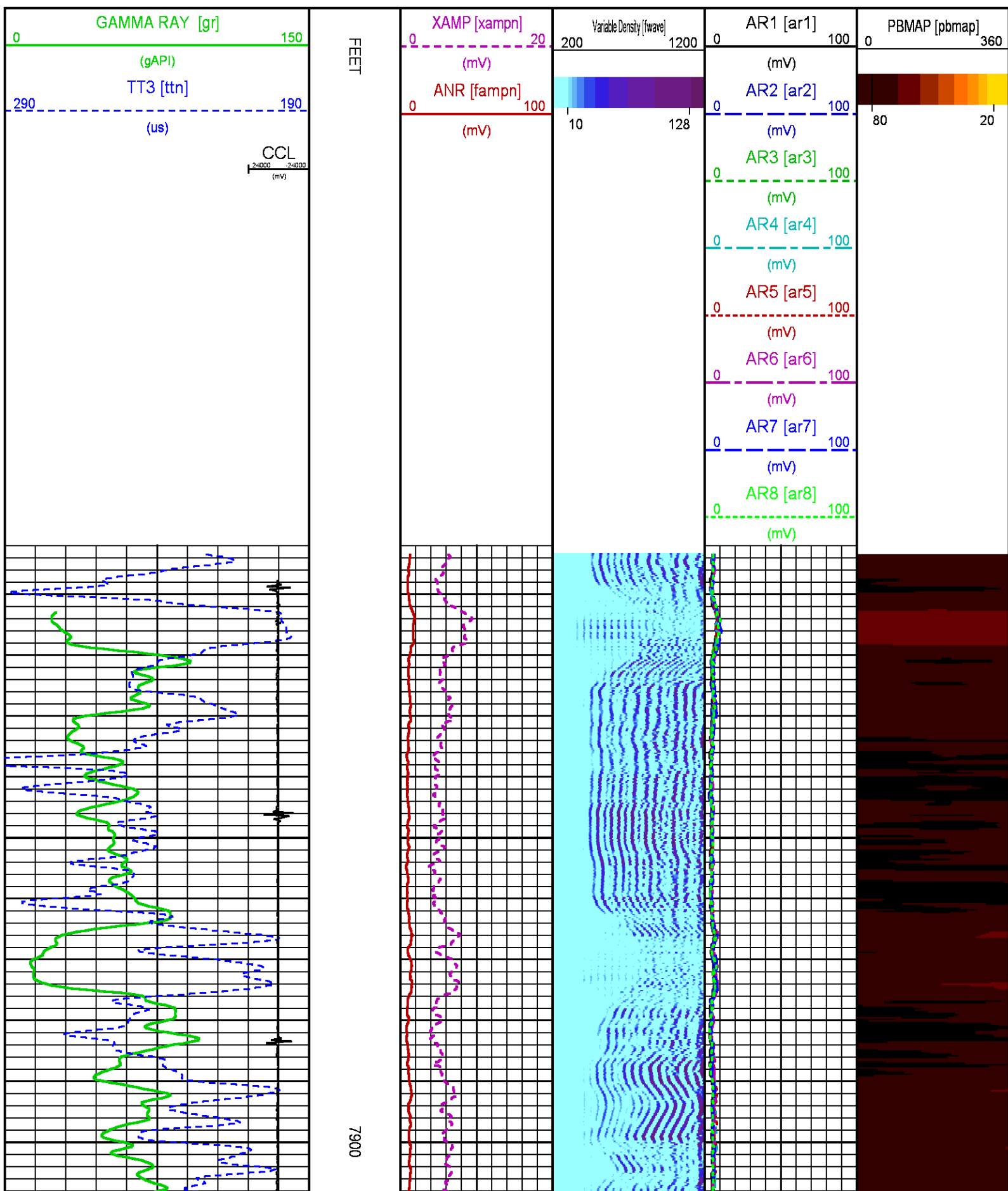
PERCENT BOND CEMENT MAP					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE AMP REC 5	80	mV	"	"
	FREE AMP REC 6	80	mV	"	"
	FREE AMP REC 7	80	mV	"	"
	FREE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

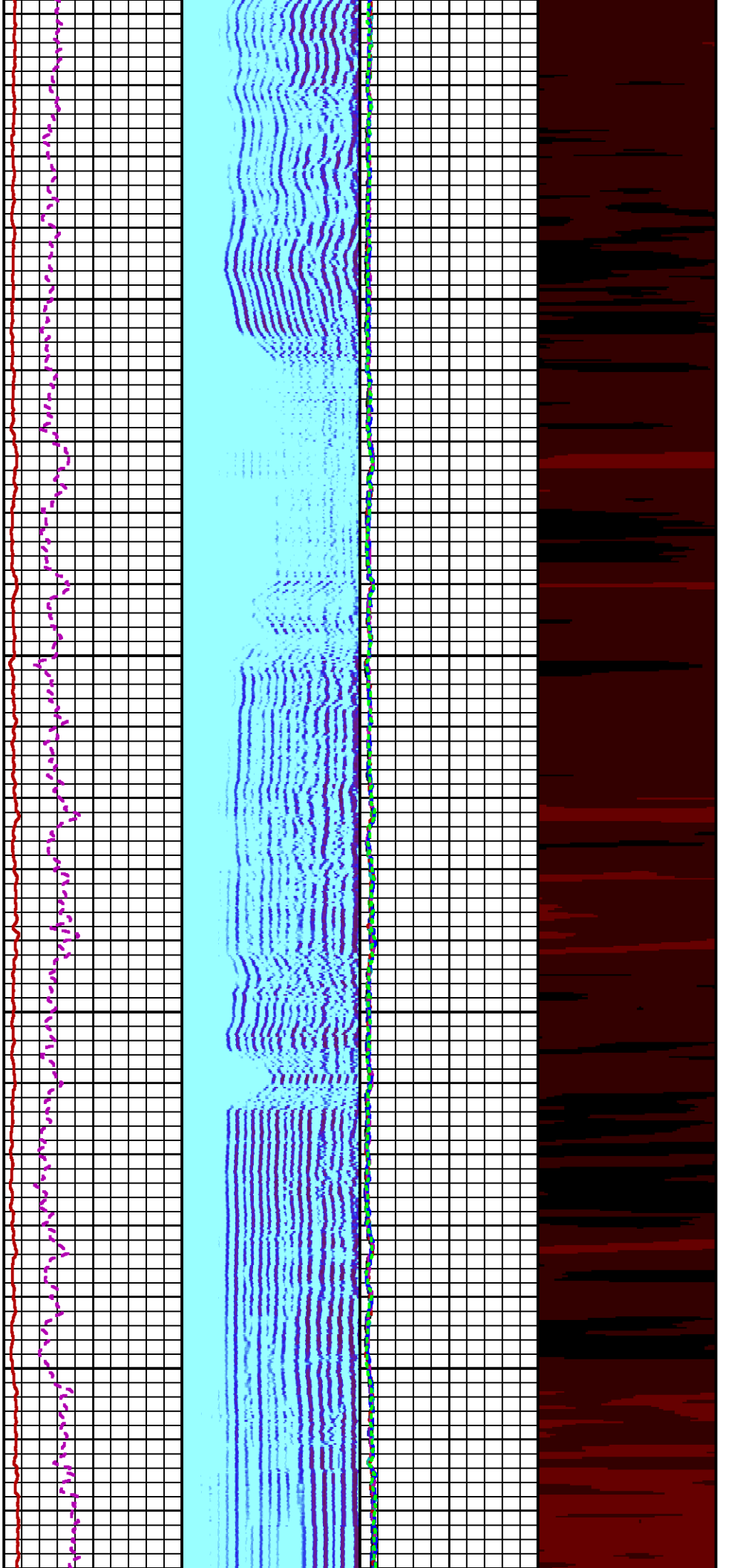
CURVE DESCRIPTION REPORT		
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	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	: BHI78FR4H2:C:\dat1a\BRUTON_19_05E\BRUTON_19_05E_RAL_REPEAT.fvpdf [5"/100' Scale]
Plot Interval	: 7803.25 - 8160.75 Feet

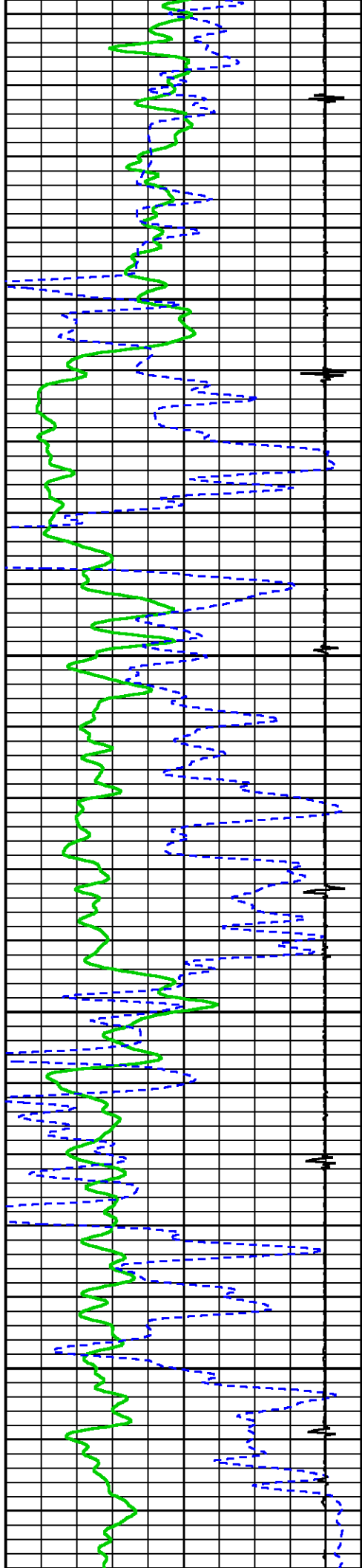
Data File 1 : F1 : BHI78FR4H2:C:\dat1a\BRUTON_19_05E\BRUTON_19_05E_RAL_RPT.xtf
Created On : N/A
Company : LARAMIE ENERGY II LLC
Well : BRUTON 19-05E
Field : VEGA
File Interval : 7798.5 - 8162 Feet
OCT : p012g

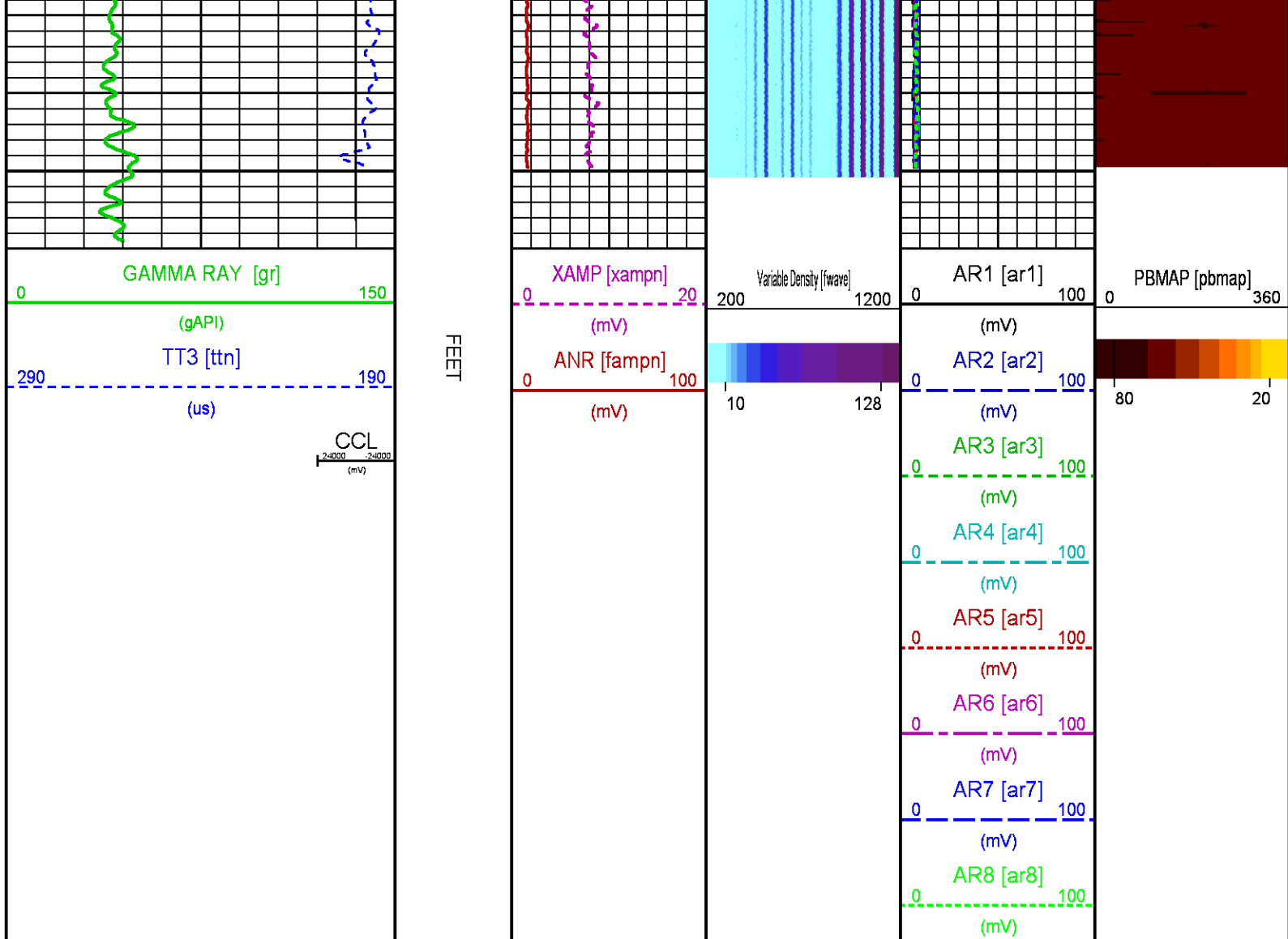




8000

8100





CALIBRATION / VERIFICATION SUMMARY

Source File: C:\dat1a\BRUTON_19_05Ep012g.tp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10218496

DATE/TIME PERFORMED: Mon Oct 23 14:27:12 2017

UNIT #: CHANGE ME

	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)	0.05	0.11	0.07	0.06	0.04	0.05	0.12	0.15	0.03	0.96	0.01
AMP FLUID (mV)	87	86	85	85	86	87	88	88	87	115	85
TT (us)	184	194	194	199	193	188	191	197	192	299	202
M FACTOR	1.16	1.17	1.18	1.17	1.16	1.14	1.14	1.14	1.15	1.31	1.18

INSTRUMENT CONFIGURATION

Source File: C:\dat1a\BRUTON_19_05\RAL-tdg.meta

CABLEHEAD

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

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



20.38'

NEAR RCVR 11.17'

FAR RCVR 10.21'

CCL 5.79'

GR 1.67'

TEMP 0.17'

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

**BAKER
HUGHES**
a GE company



COMPANY LARAMIE ENERGY

WELL BRUTON 19-05E

FIELD VEGA

COUNTY MESA **STATE** COLORADO

FILE NO:

API NO:

05077104380000

LOCATION:

SHL: LAT:39.262811N;LONG:107.815104W

BHL: LAT:39.266477N;LONG:107.806918W

SEC 19 TWP 9S RGE 93W

ELEVATIONS:

KB 7286 FT

DF 7286 FT

GL 7262 FT

DATE 24-OCT-2017

