



RADIAL CEMENT BOND LOG

FILE NO:

COMPANY

Laramie

WELL

Bruton 30-04E

API NO:

FIELD

Vega

05077104620000

COUNTY

MESA

STATE COLORADO

Version

LOCATION:

SHL: LAT:39.2526639N;LONG:107.8142667
BHL: LAT:39.2528550N;LONG:107.8069120

OTHER SERVICES

SEC 30

TWP 19S

RGE 93W

RPM

PERMANENT DATUM

GL

ELEVATION

7512 FT

LOG MEASURED FROM

KB

30 FT

ABOVE P.D.

DRILL. MEAS. FROM

KB

ELEVATIONS:

KB 7542 FT

DF 7541 FT

GL 7512 FT

DATE

29-Oct-2017

RUN

TRIP

1

1

SERVICE ORDER

US129606

DEPTH DRILLER

8132 FT

DEPTH LOGGER

8026 FT

BOTTOM LOGGED INTERVAL

8026 FT

TOP LOGGED INTERVAL

30 FT

TIME STARTED

1:00

TIME FINISHED

4:00

OPERATOR RIG TIME

3HRS

TYPE OF FLUID IN HOLE

FRESH WATER

FLUID DENSITY

NA

FLUID SALINITY

NA

FLUID LEVEL

56 FT

LOGGED CEMENT TOP

964 FT

WELLHEAD PRESSURE

0 PSI

MAXIMUM HOLE DEVIATION

NA

NOMINAL LOGGING SPEED

90 FMIN

MAX. RECORDED TEMP.

234 DEGF

REFERENCE LOG

NA

REFERENCE LOG DATE

NA

EQUIP. NO.

HL6670

WOODWARD

RECORDED BY

C.COFFELT

WITNESSED BY

CHUCK MALLARY

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

REMARKS

RUN 1 TRIP 1: *2 OPERATIONS IN WELLBORE*

OPERATION 1: RAL/GR/CCL RUN CENTRALIZED

LOGGED WITH 0 PSI ON WELLHEAD

SJ:7131'- 7152'

SJ: 6110'- 6132'

CREW: M.MENTZER,K.REED,C.BAYNE,L.LUM

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426 XA	10218497	CENTRALIZED
1	1	GR/CCL	1355 XA	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: Mon Nov 06 11:16:20 2017

PARAMETER AND FILTER SUMMARY REPORT

File: C:\dat1a\LARAMIE_BRUTON_30_04E1\p012g02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 14.750 ft BOTTOM DEPTH: 8024.750 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*)	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*)	107	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	2	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	217.967	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	142	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

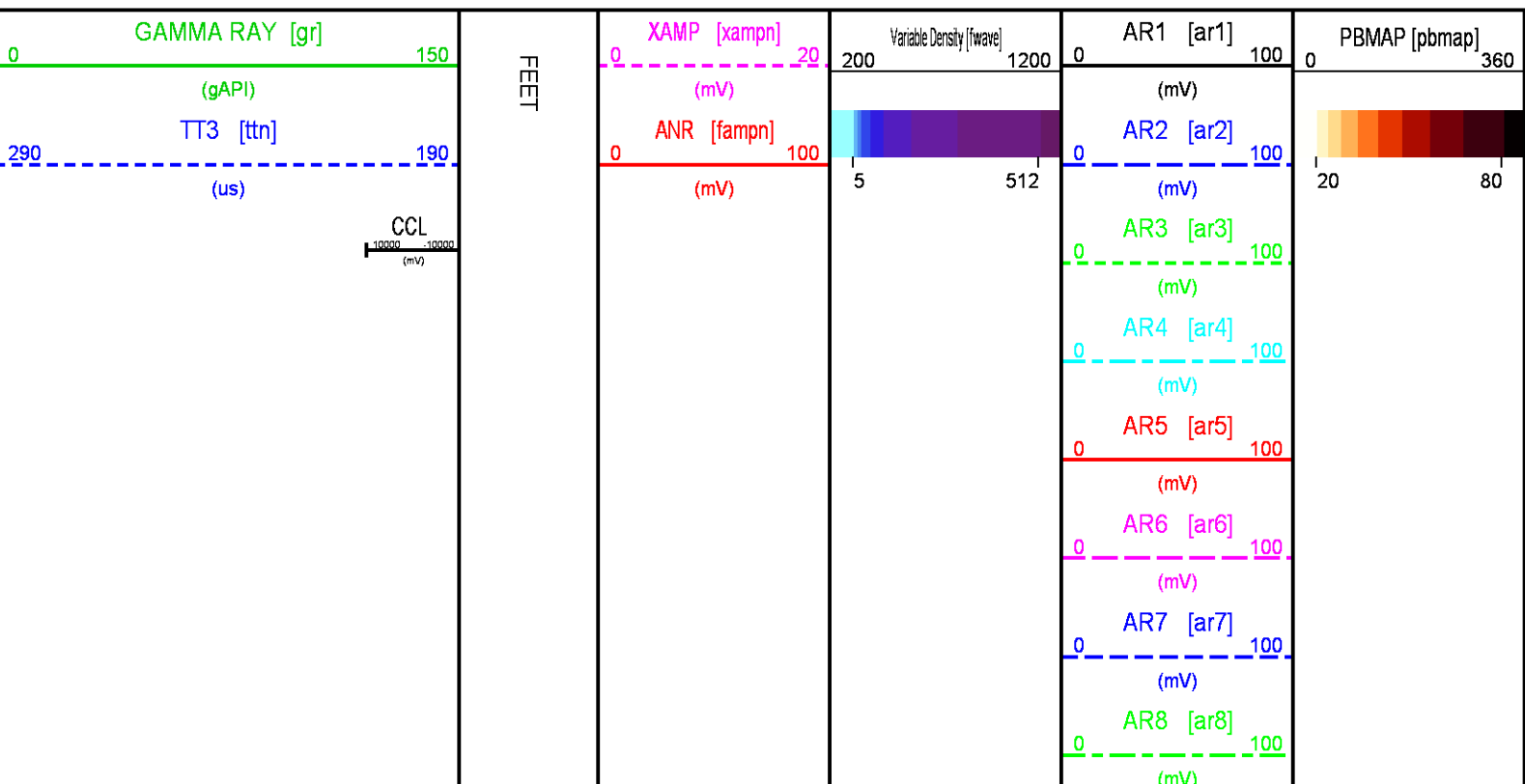
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

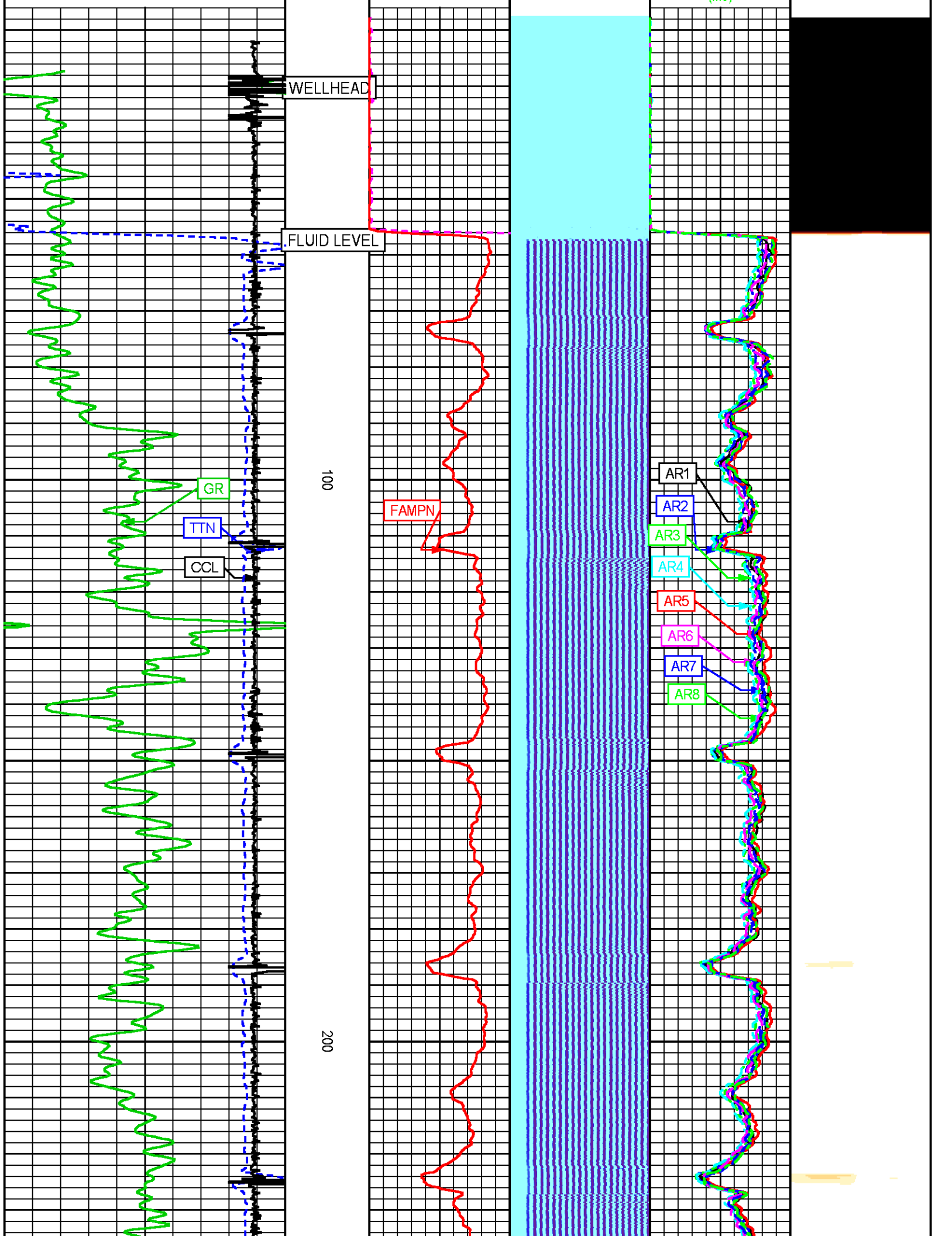
CURVE MEASURE POINT OFFSET

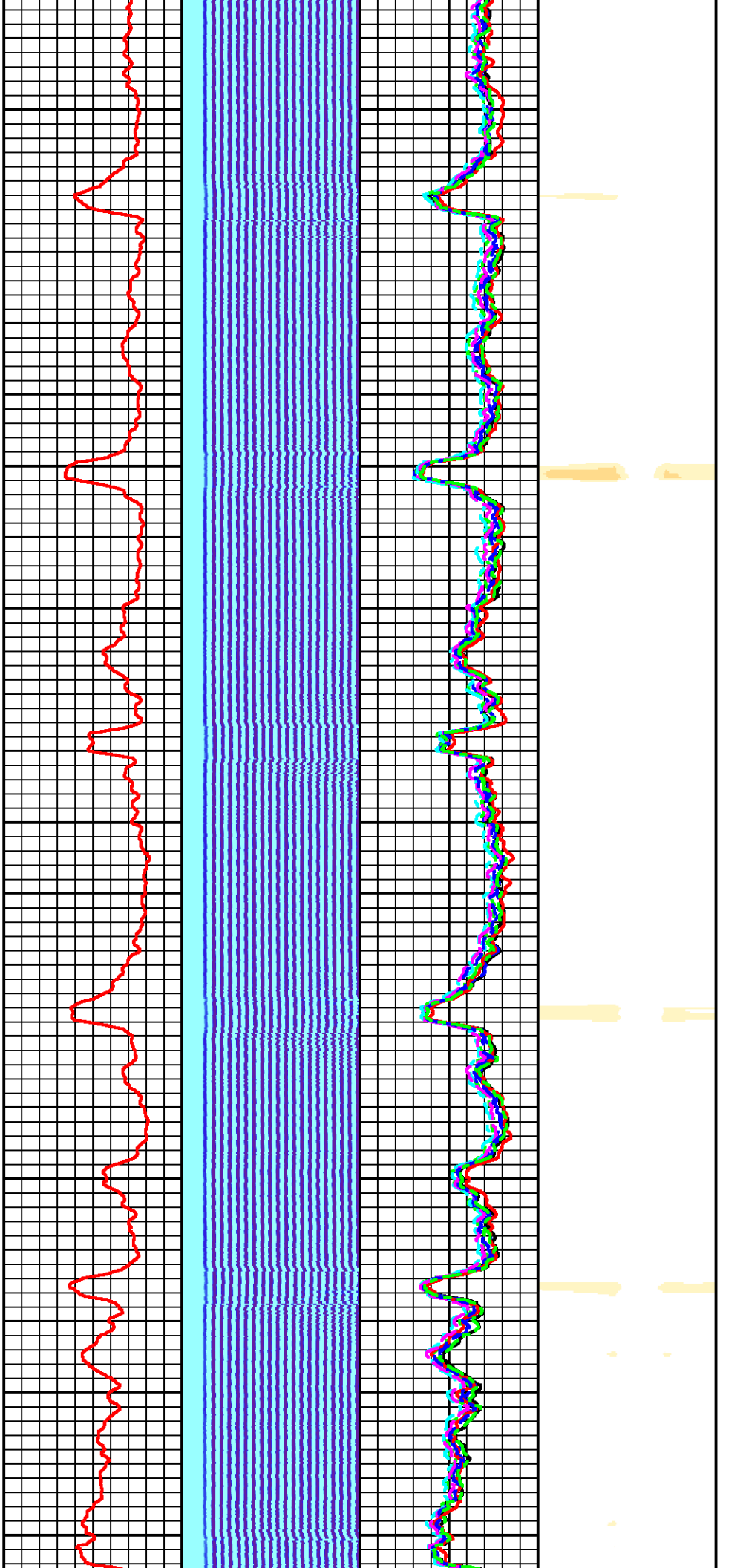
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

Presentation : BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_04E1\LARAMIE_RAL+RAL_MN_04E.fvpdf [5"/100' Scale]
Plot Interval : 17.5 - 8036.75 Feet

Data File 1 : F1 : BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_04E1\RAL_MN_04E.xtf
Created On : N/A
Company : Laramie
Well : Bruton 30-04E
Field : vega
File Interval : 14.75 - 8038 Feet
OCT : p012g

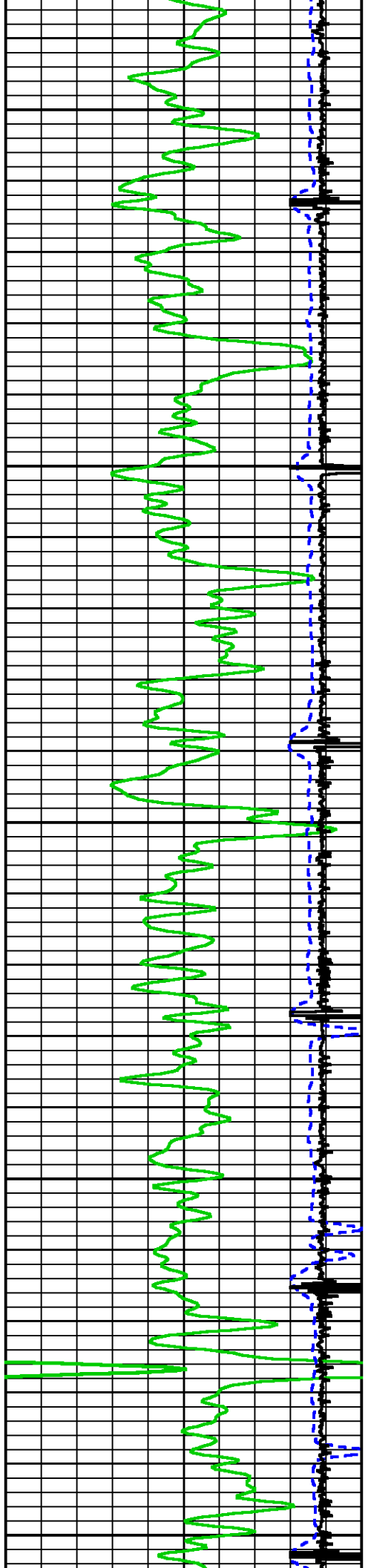


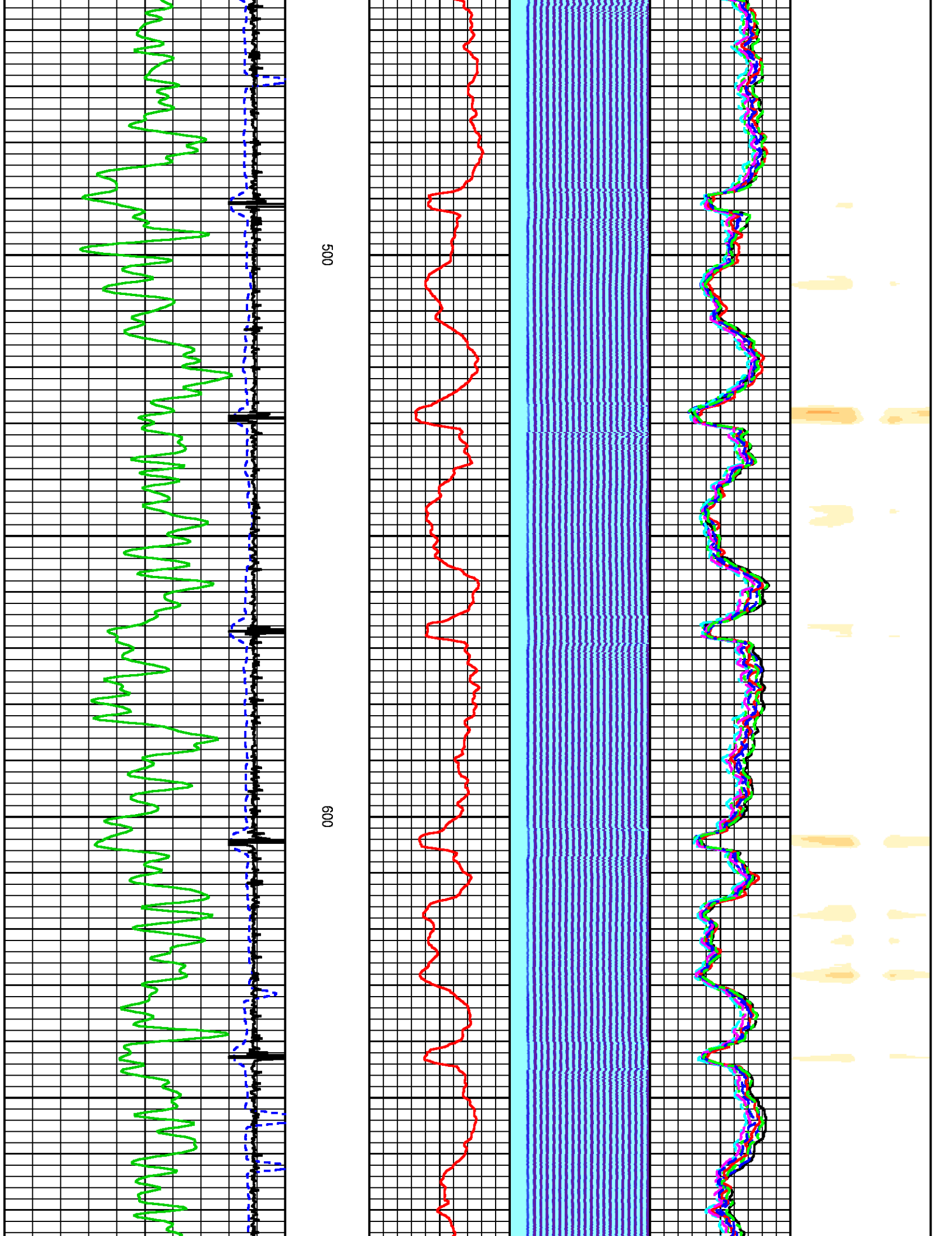


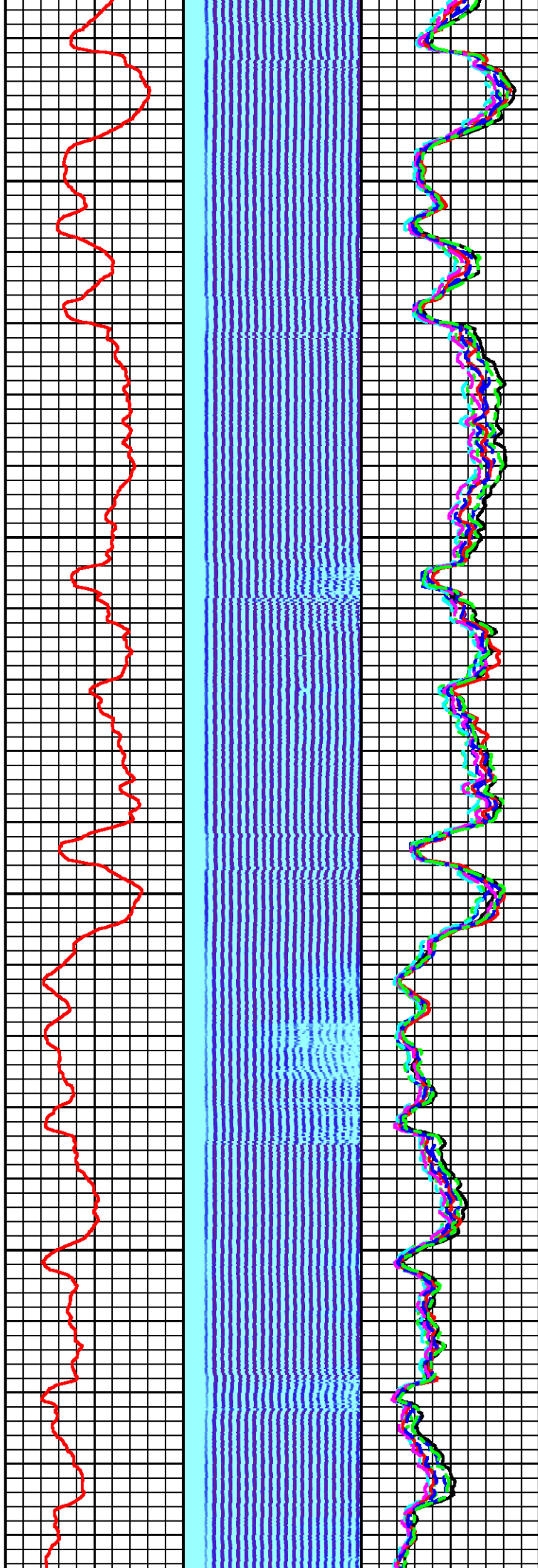
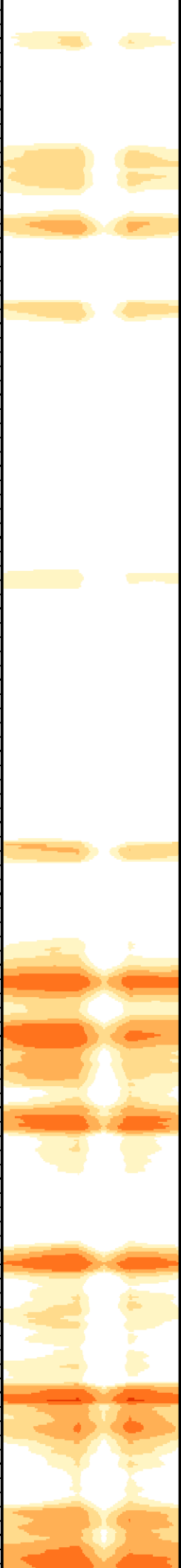


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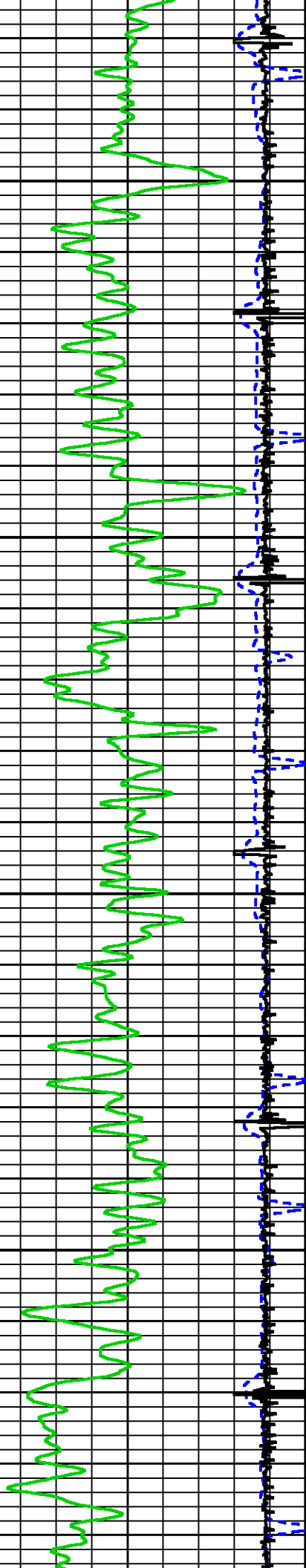


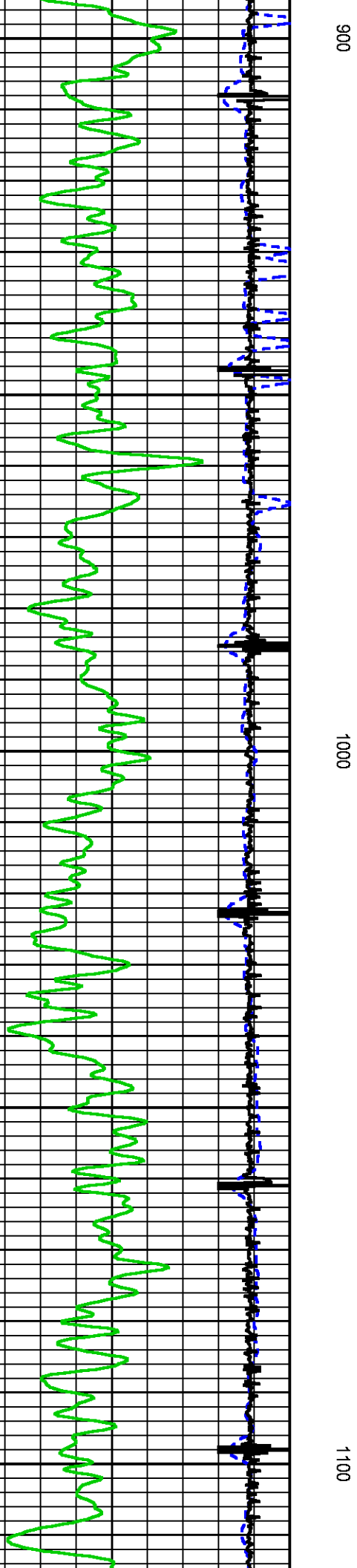
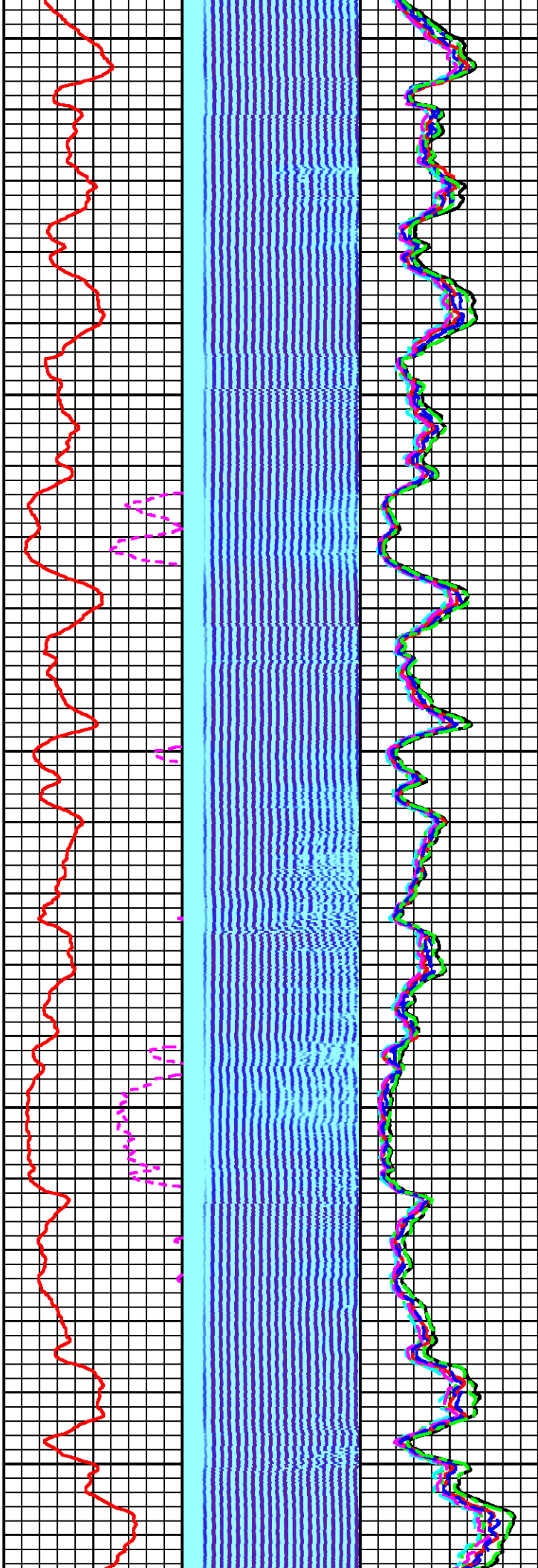
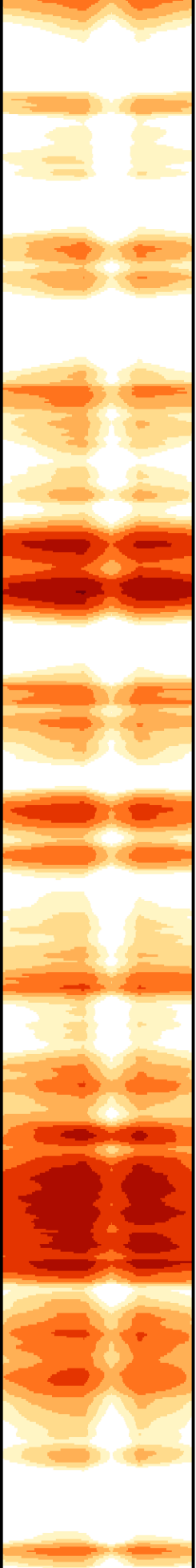


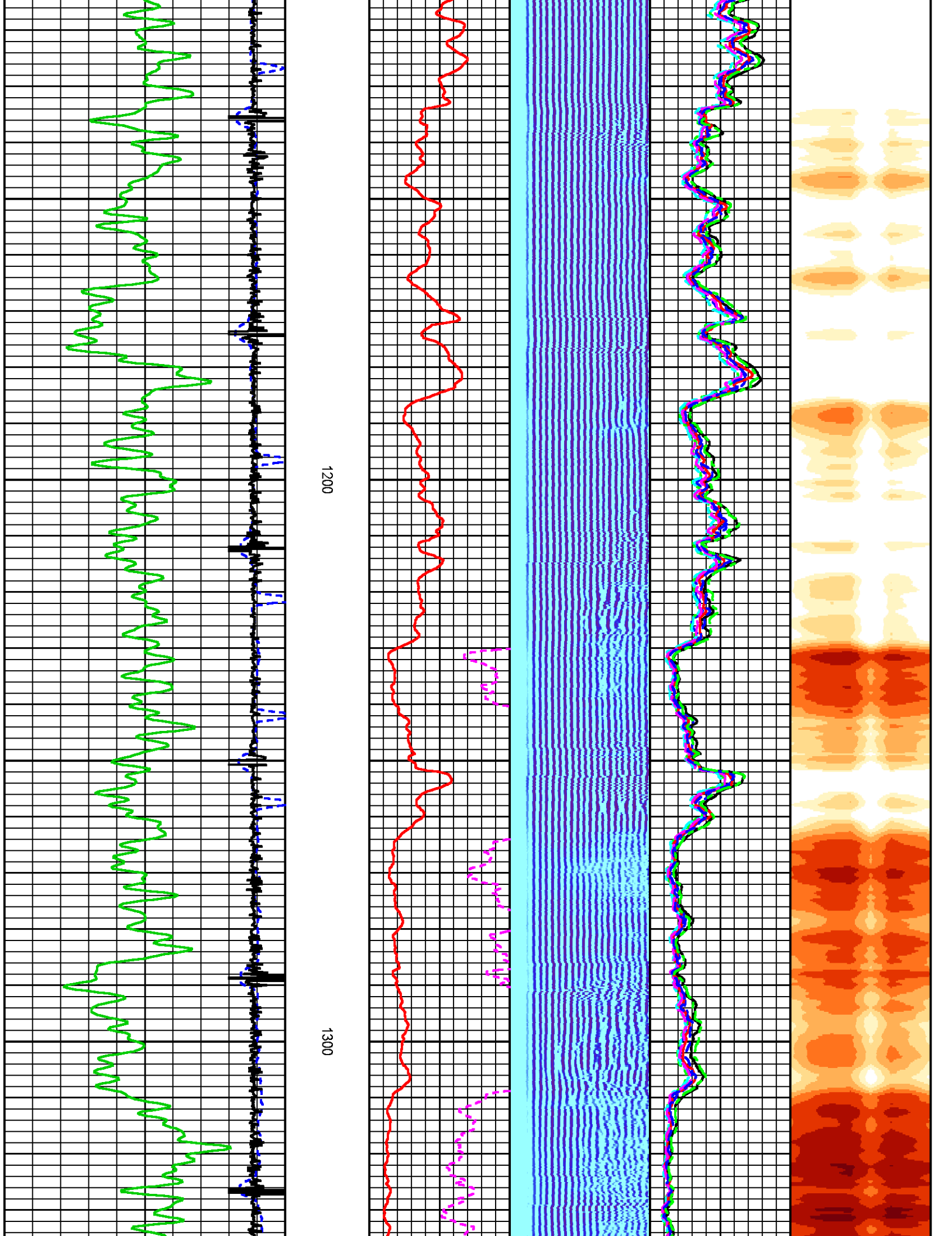


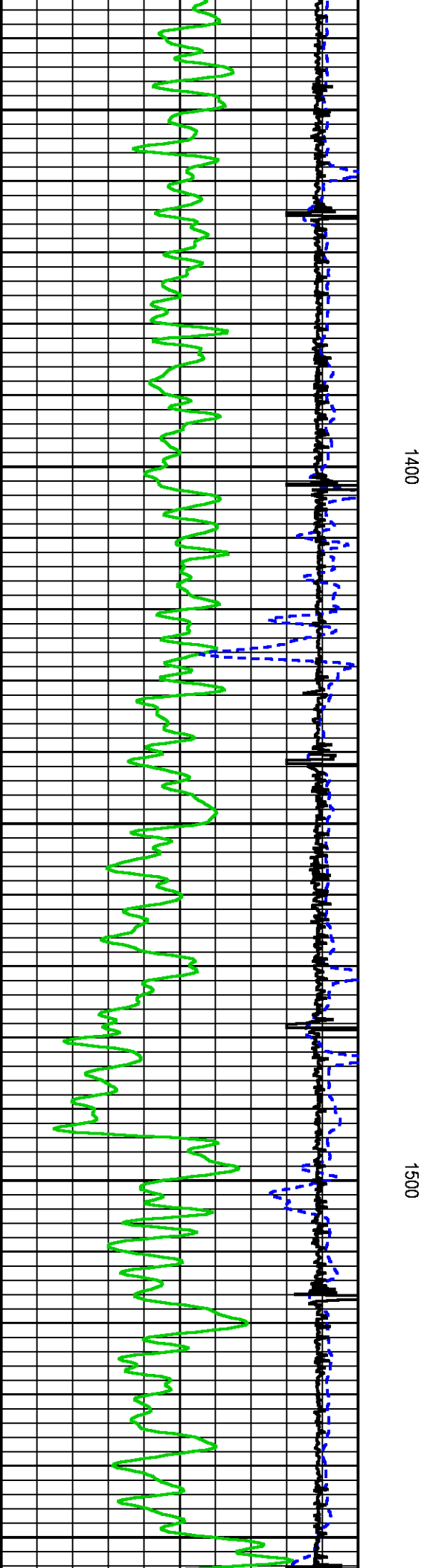
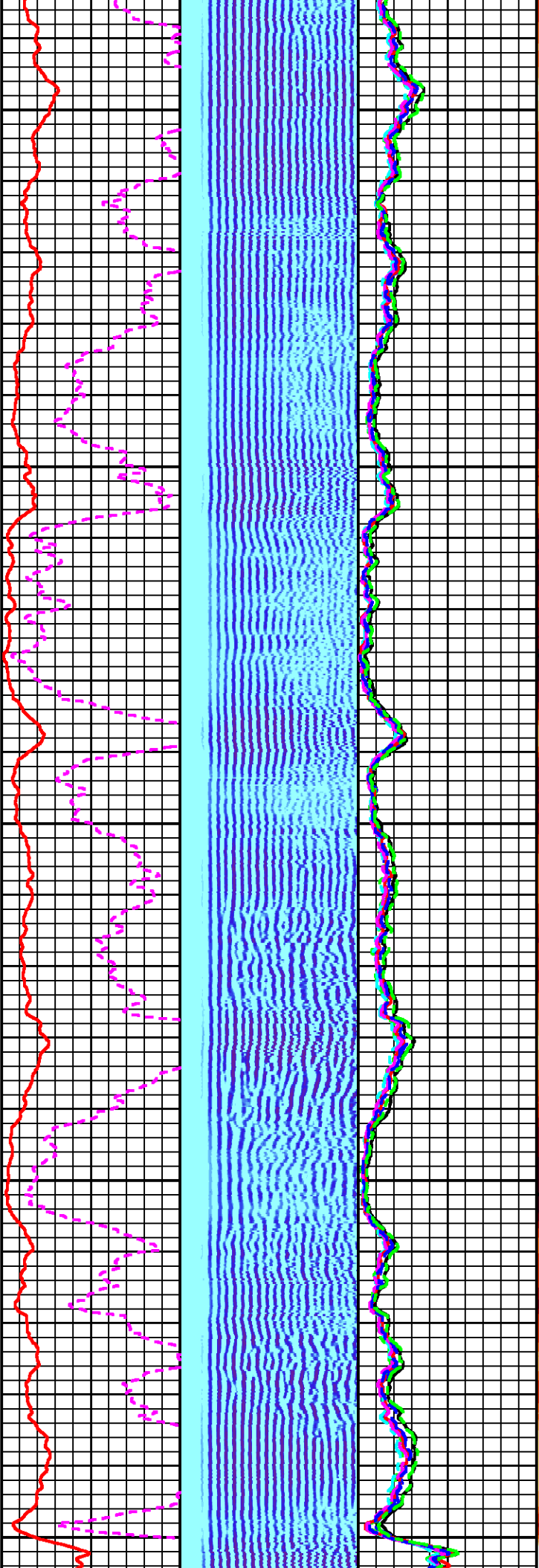
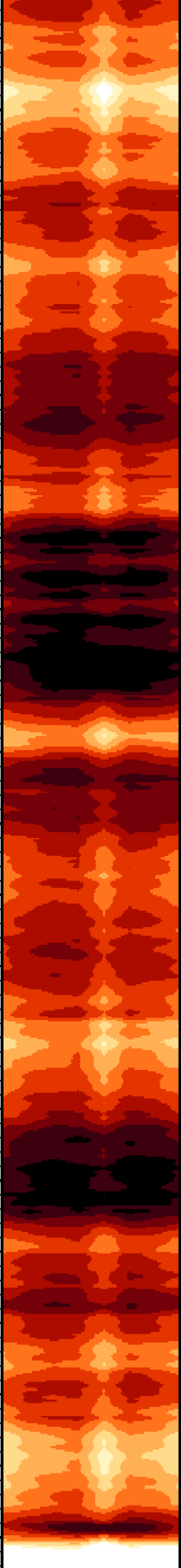
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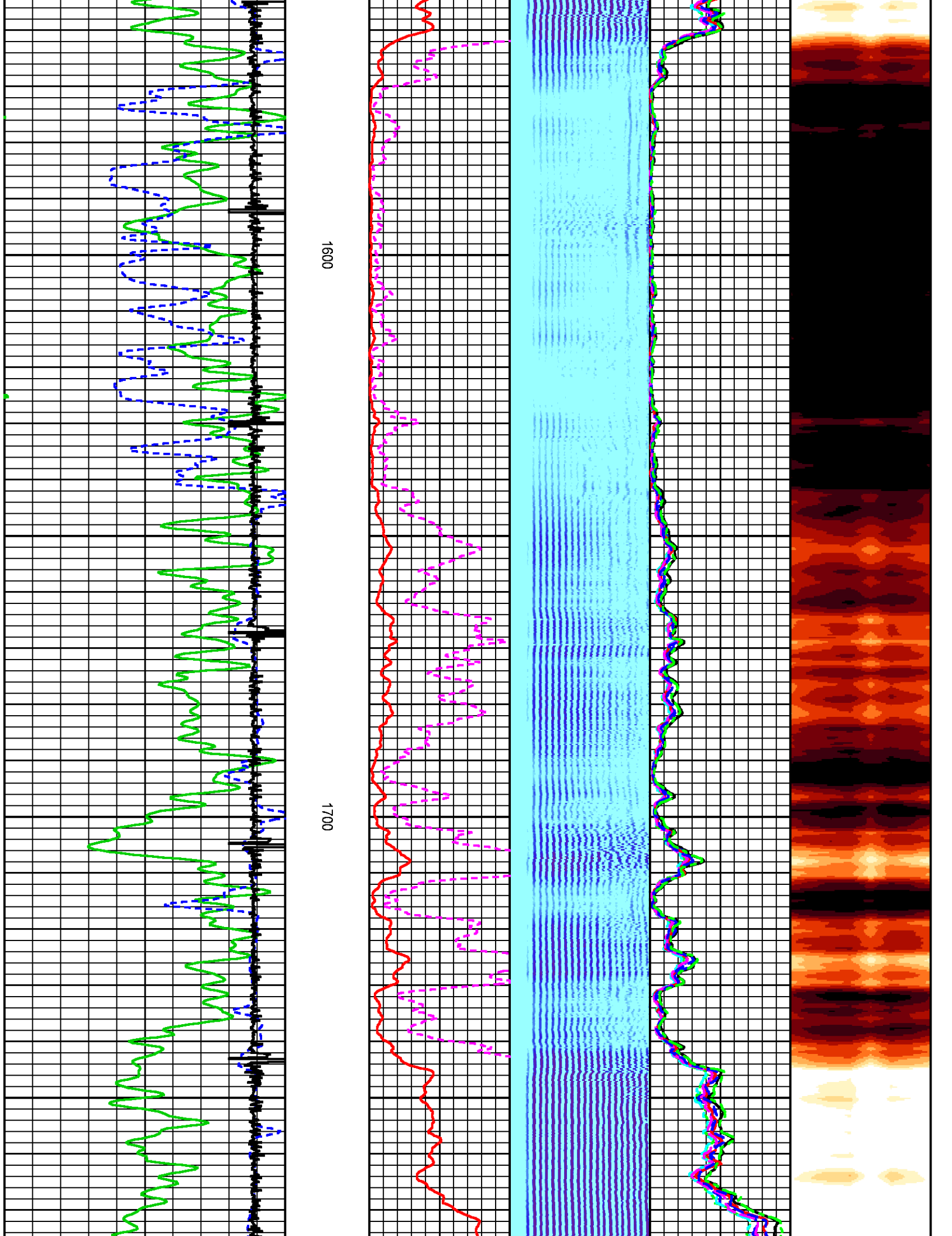
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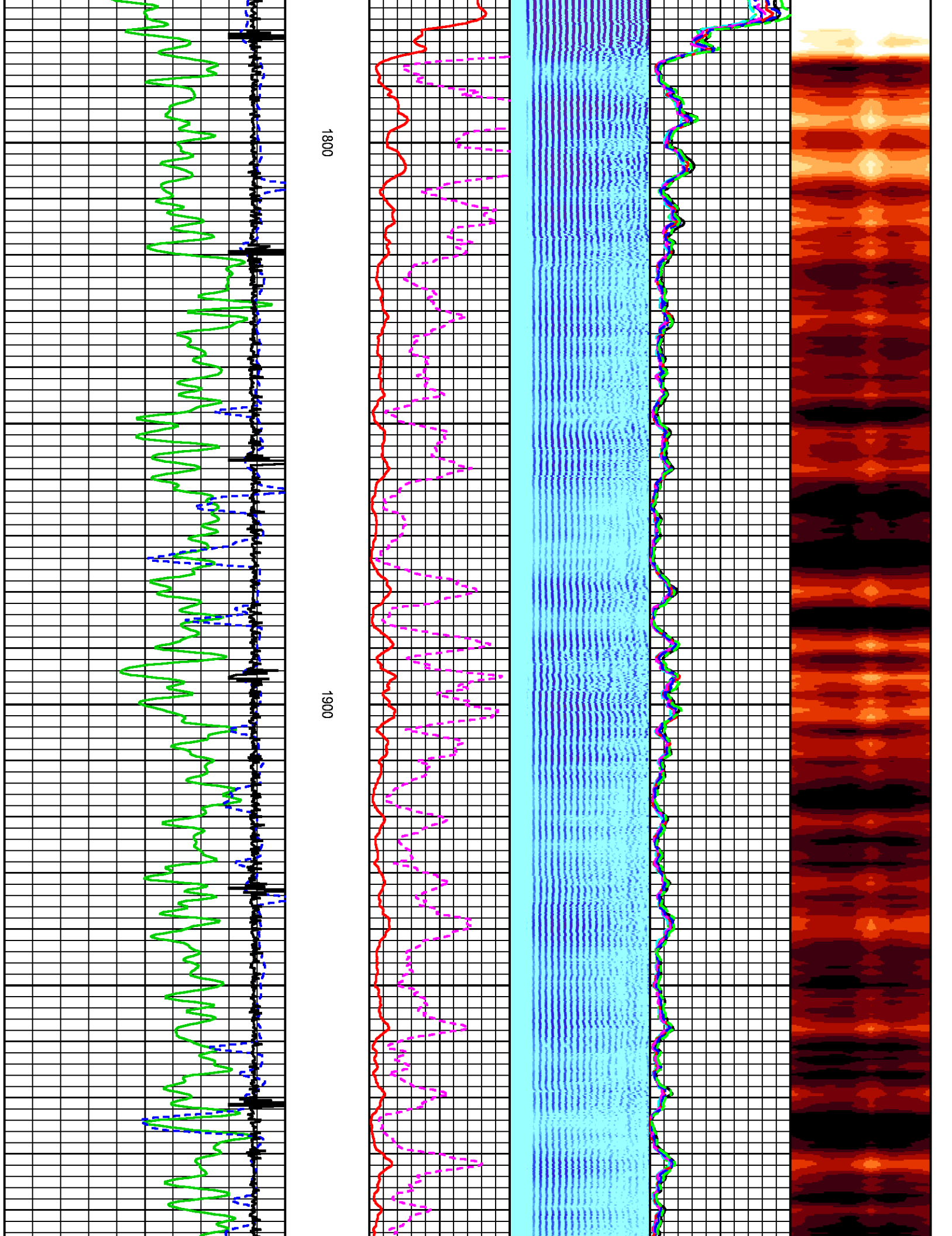


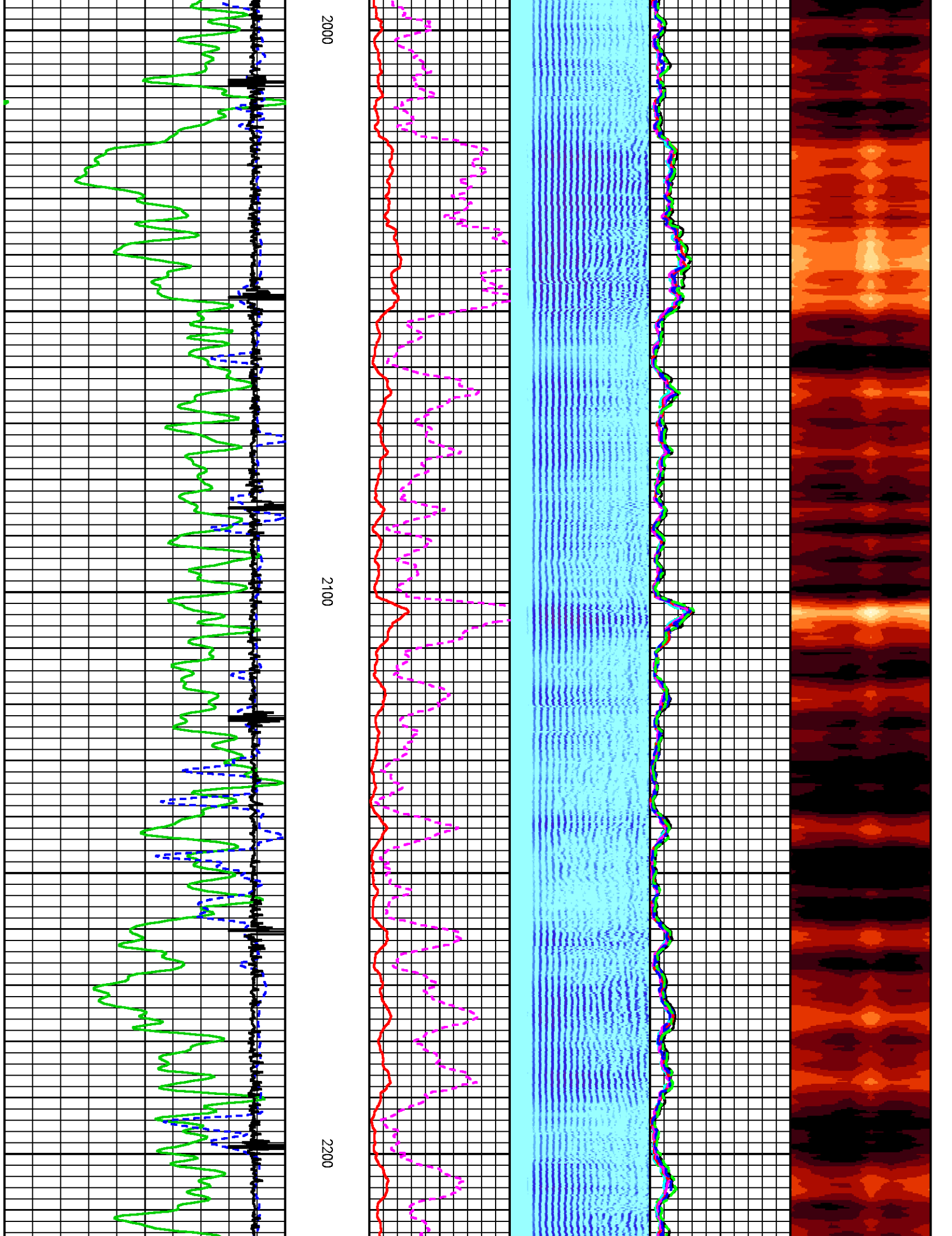


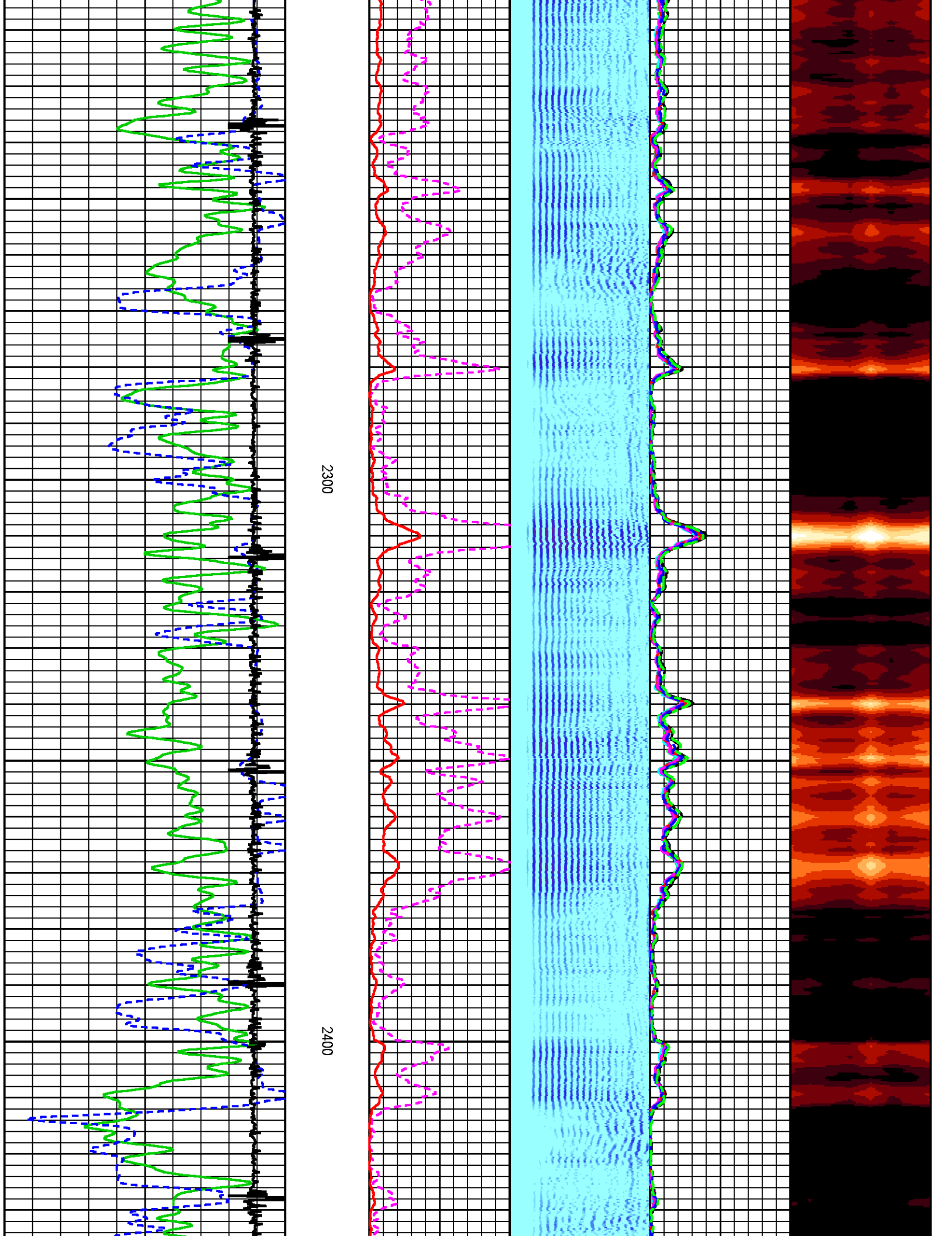


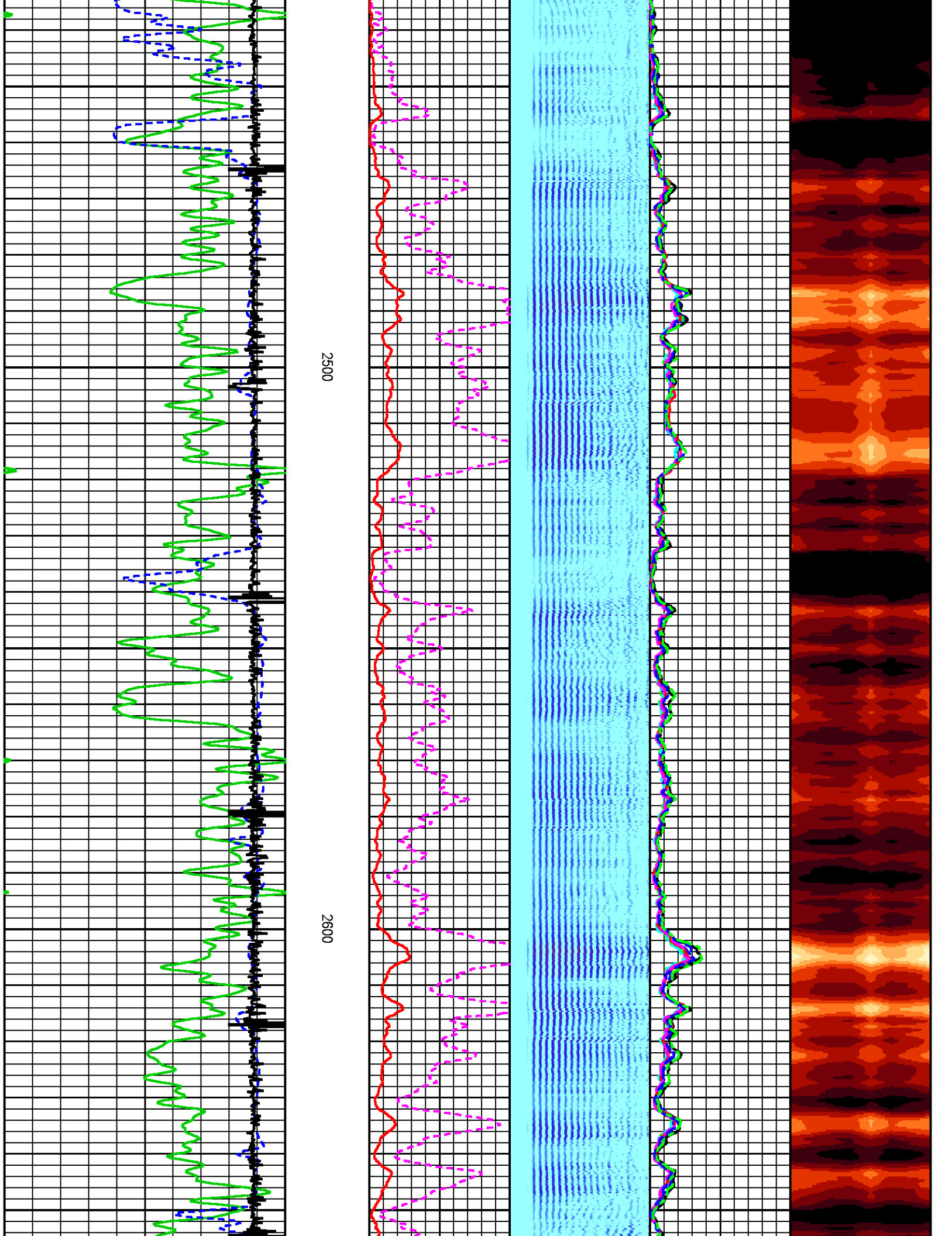


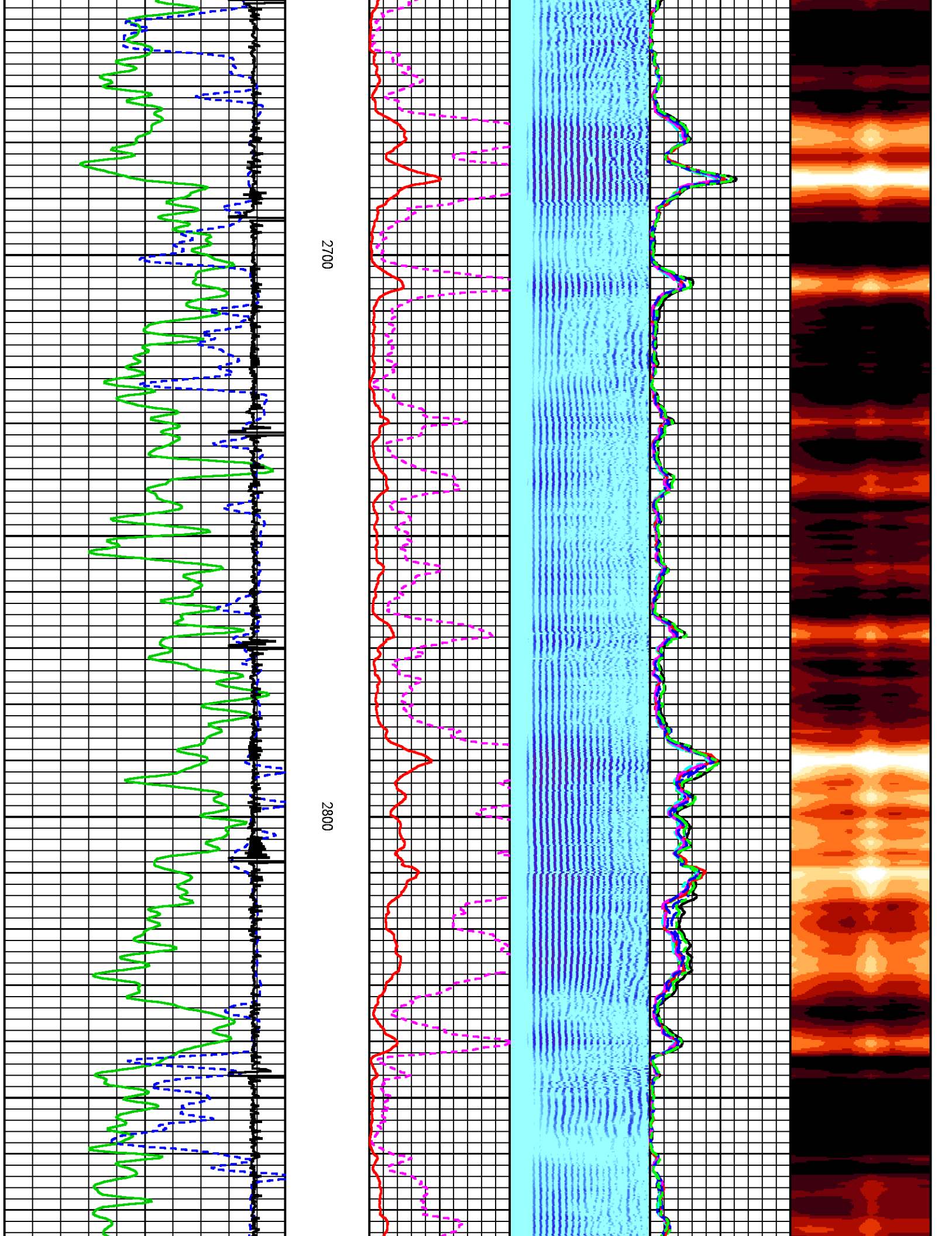


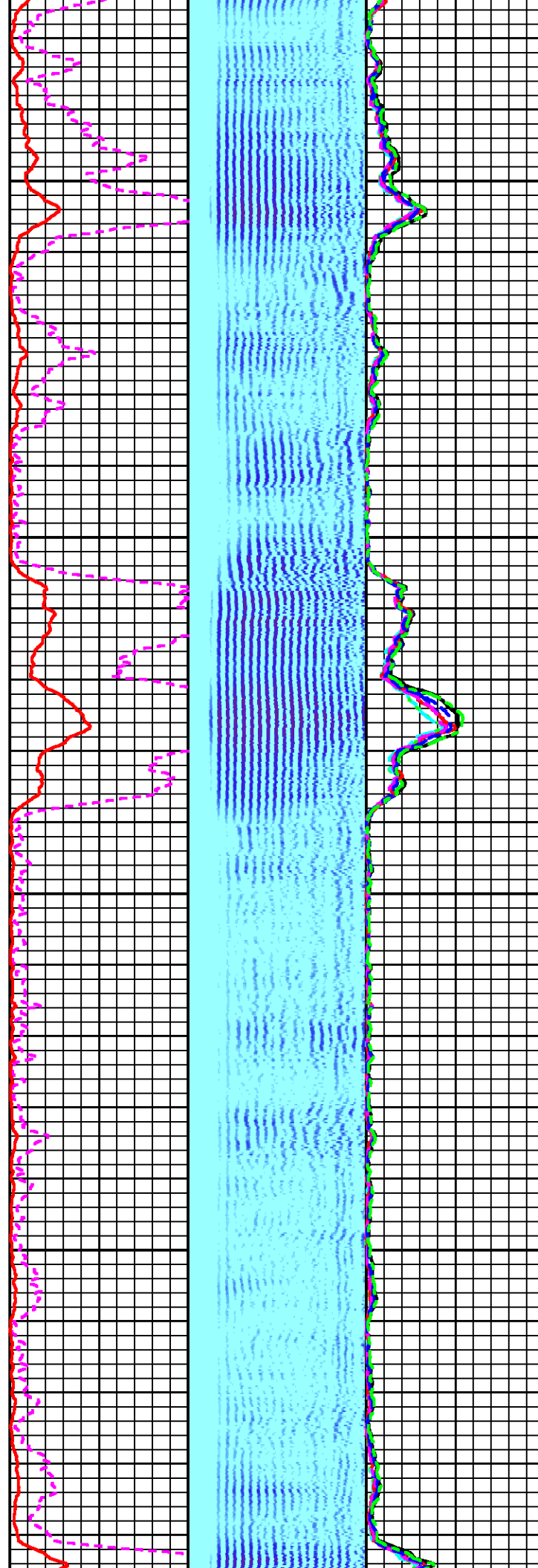
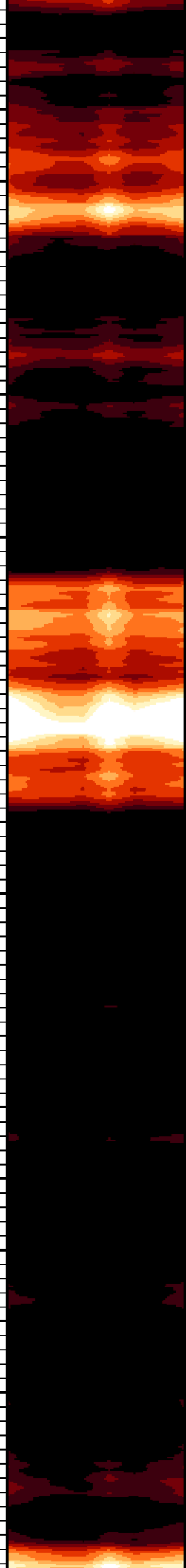






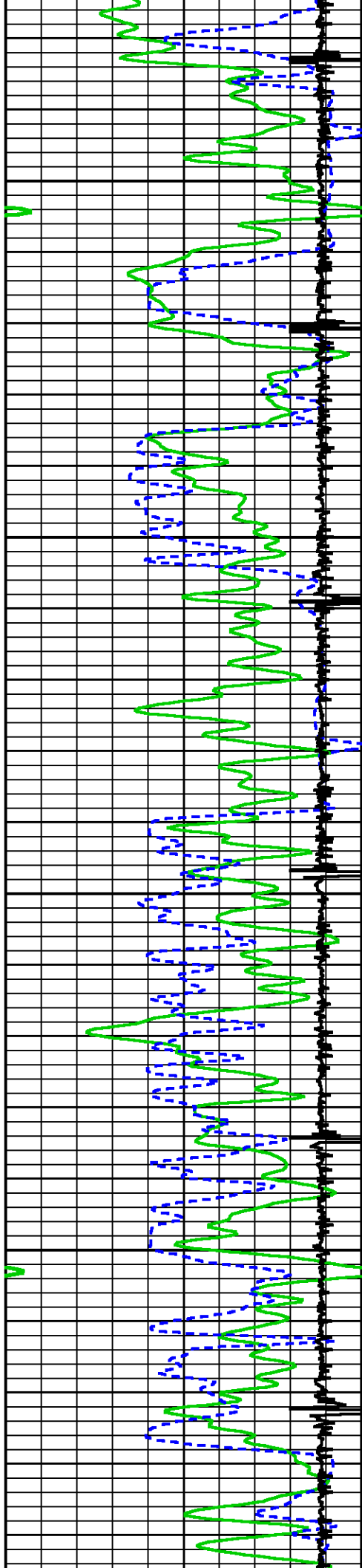


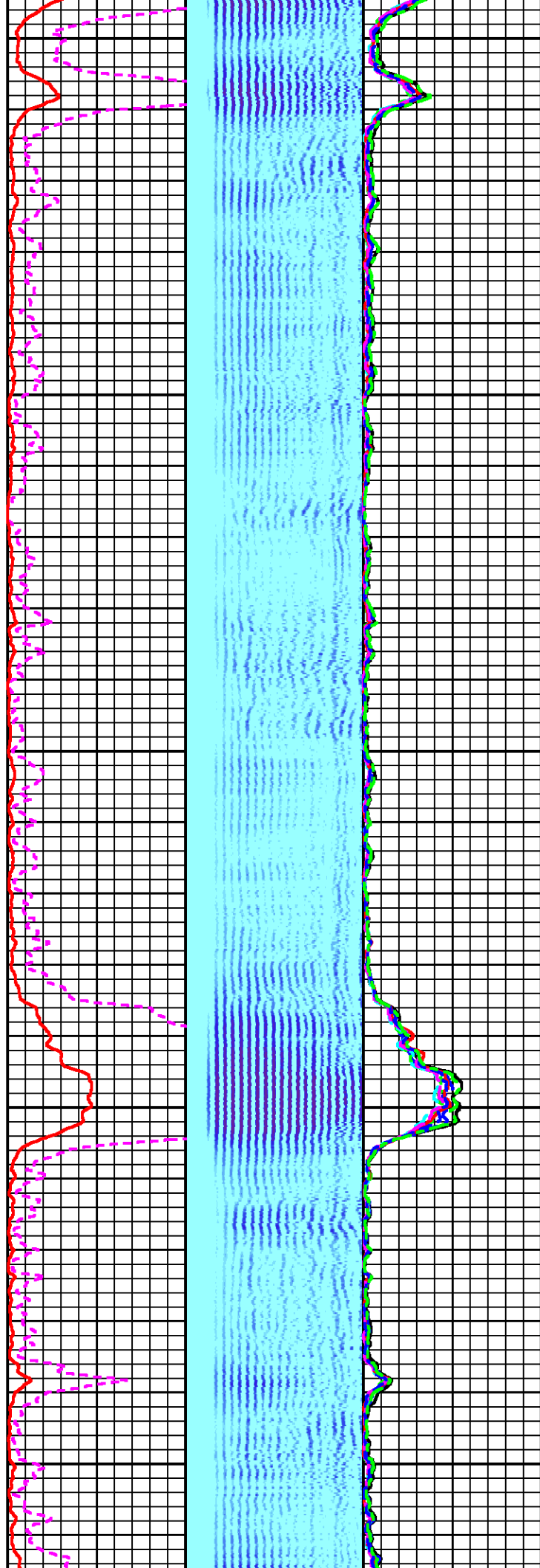




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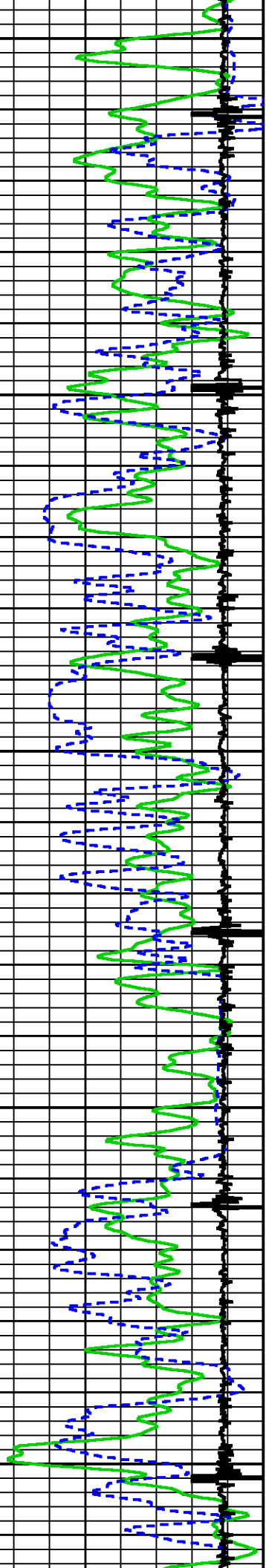


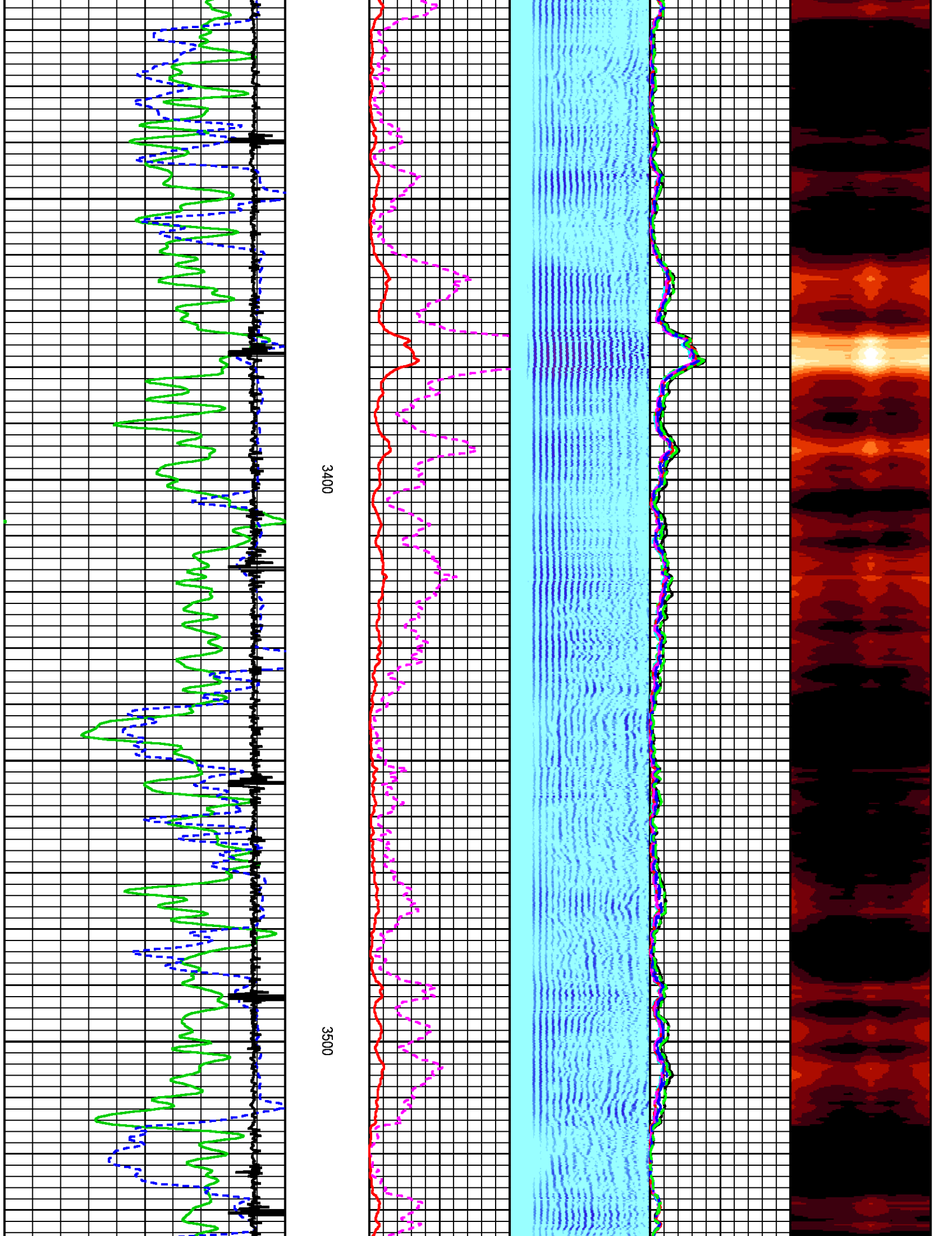


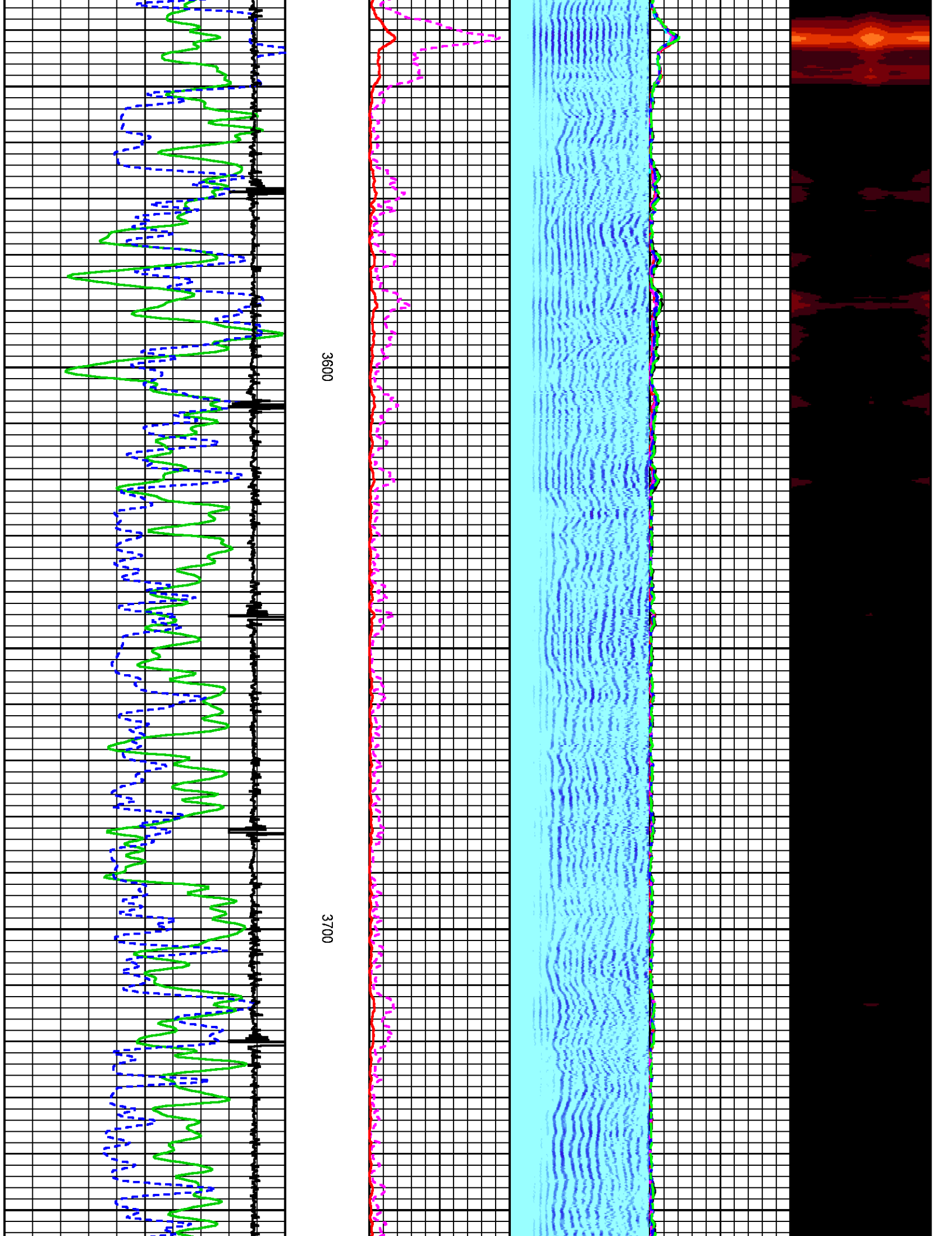
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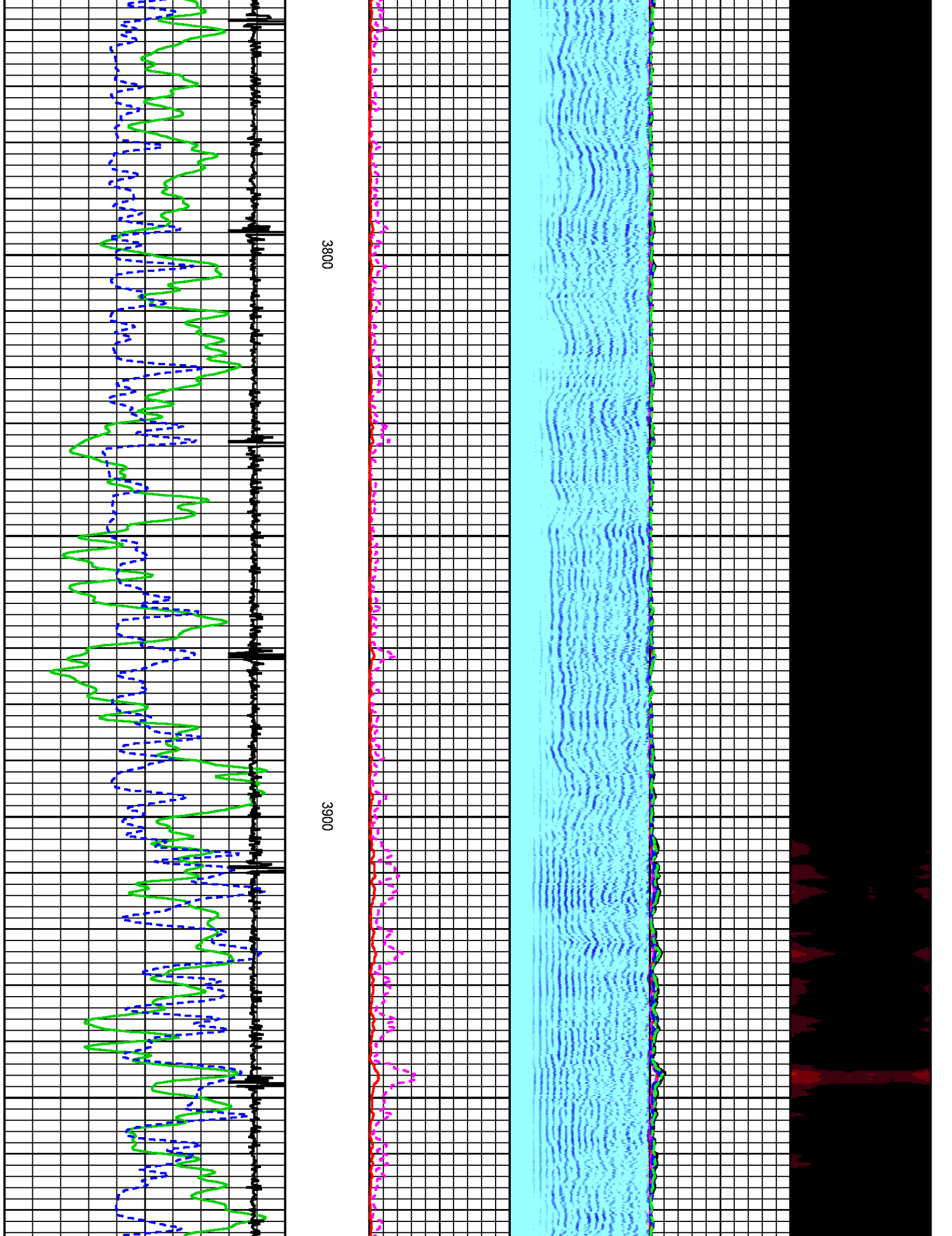
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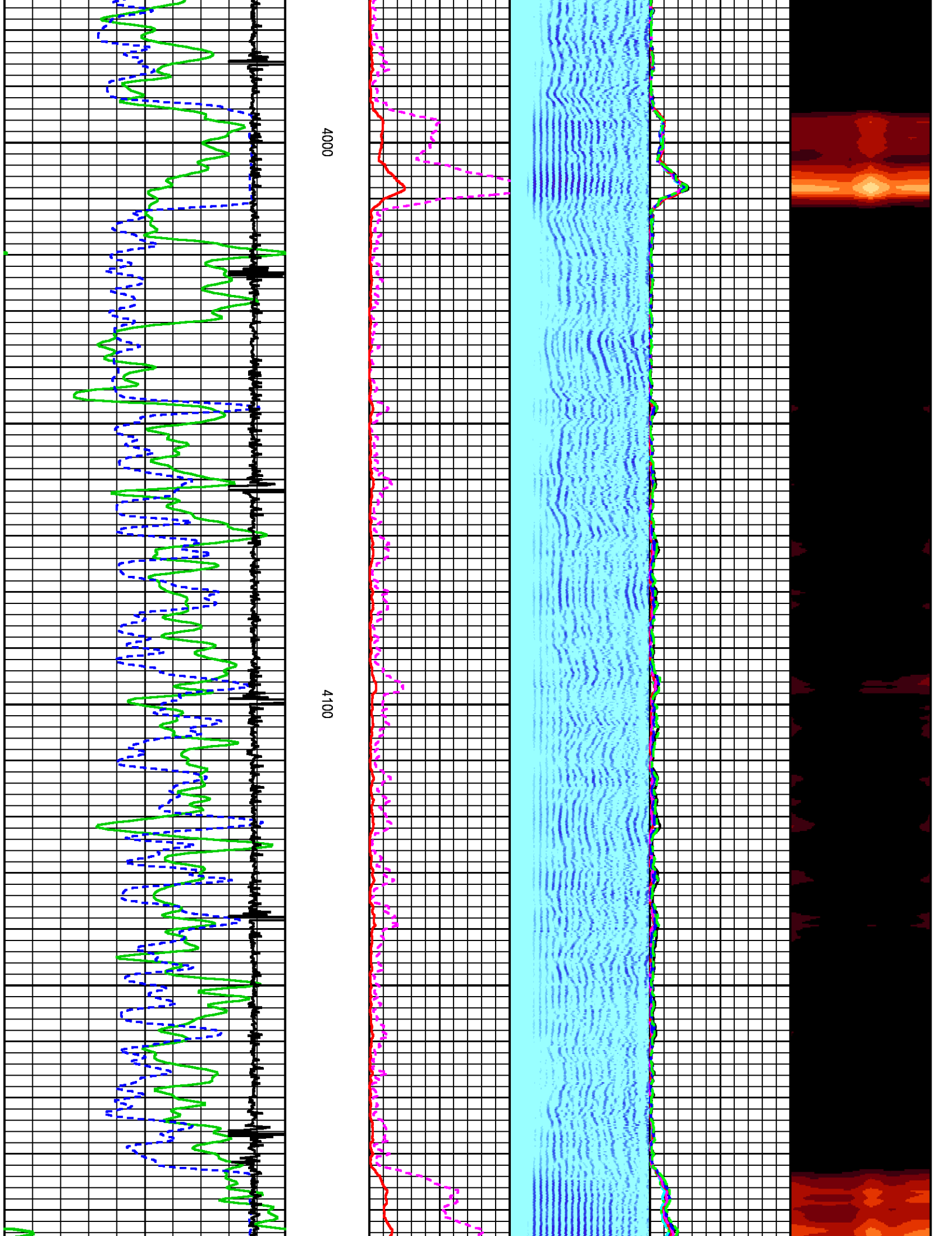
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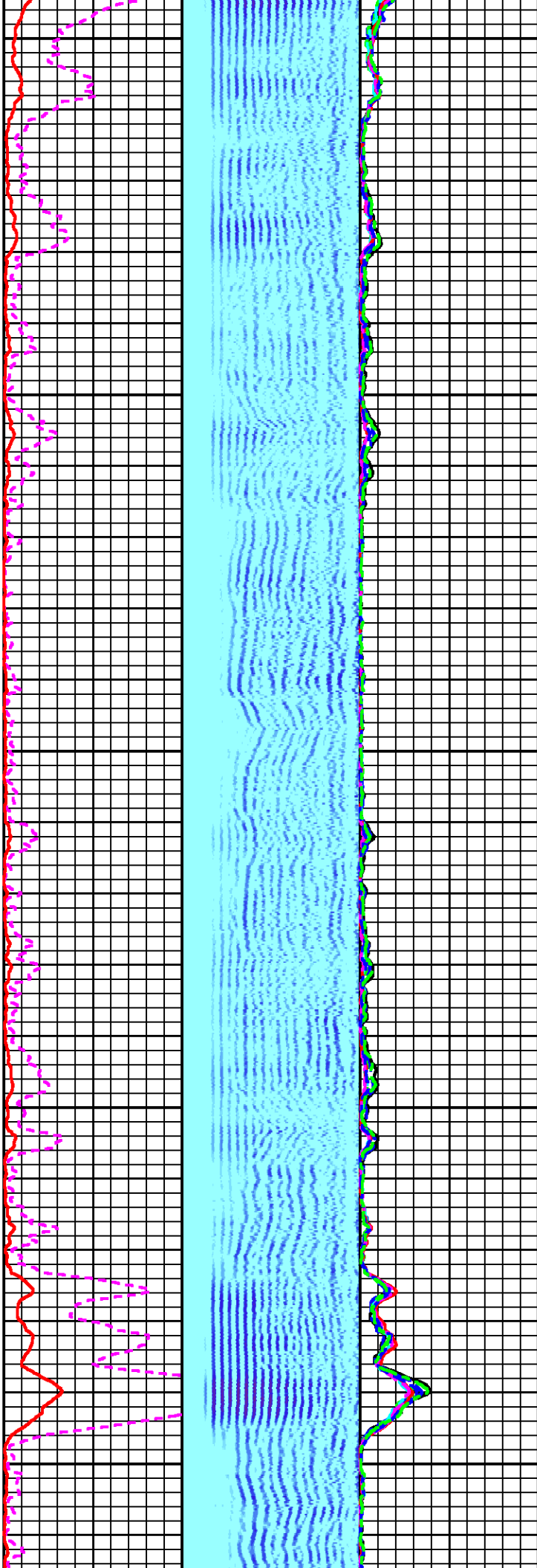








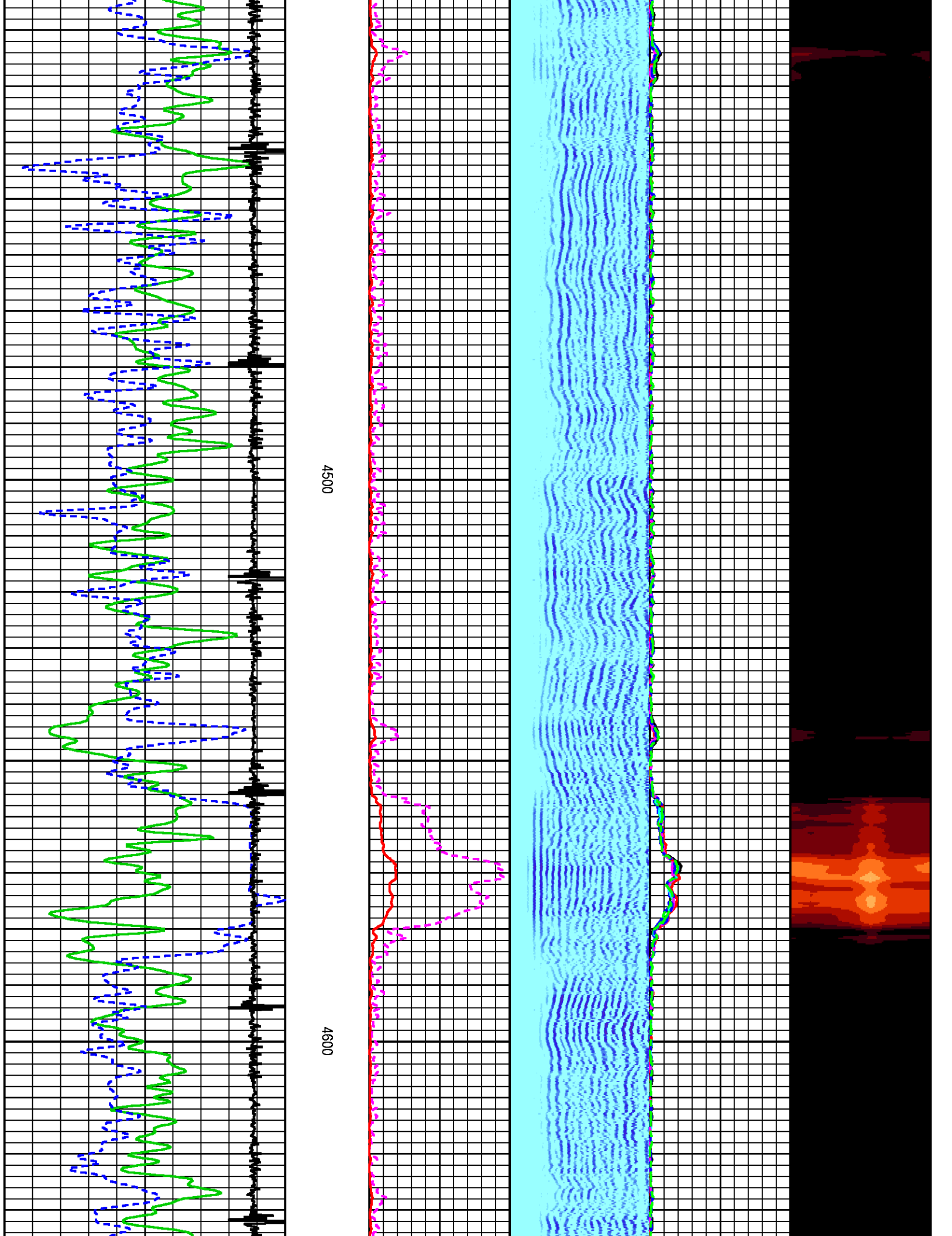


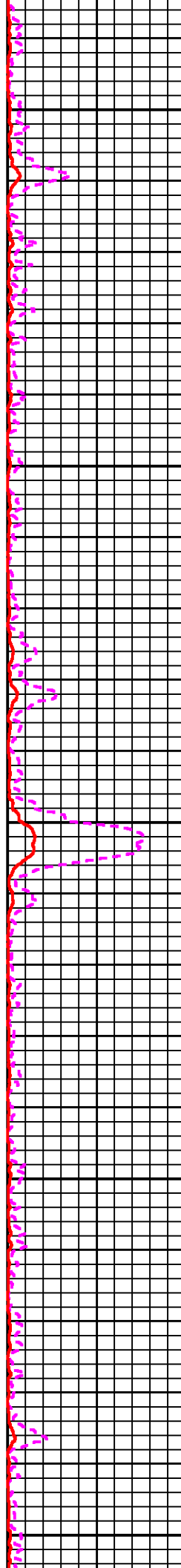
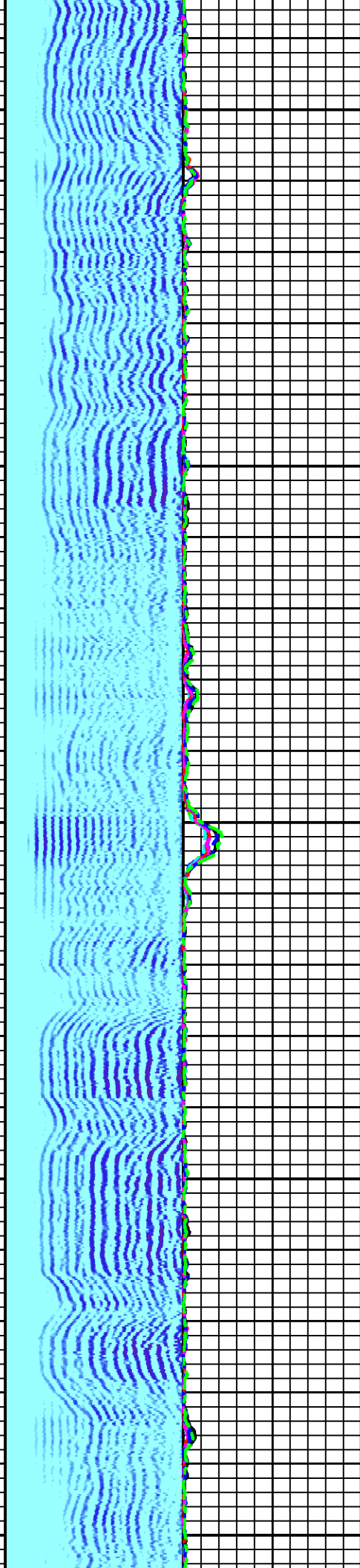
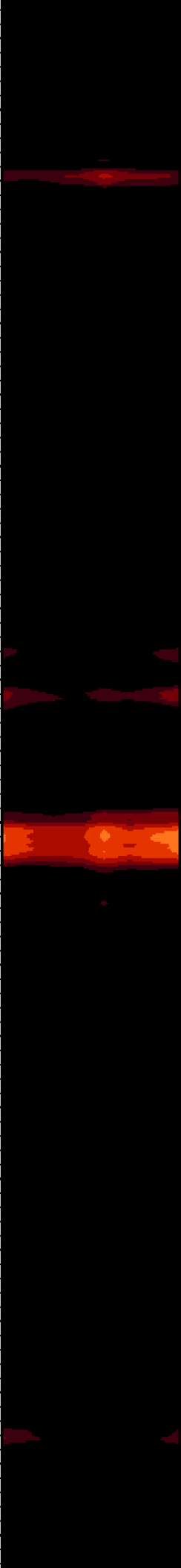


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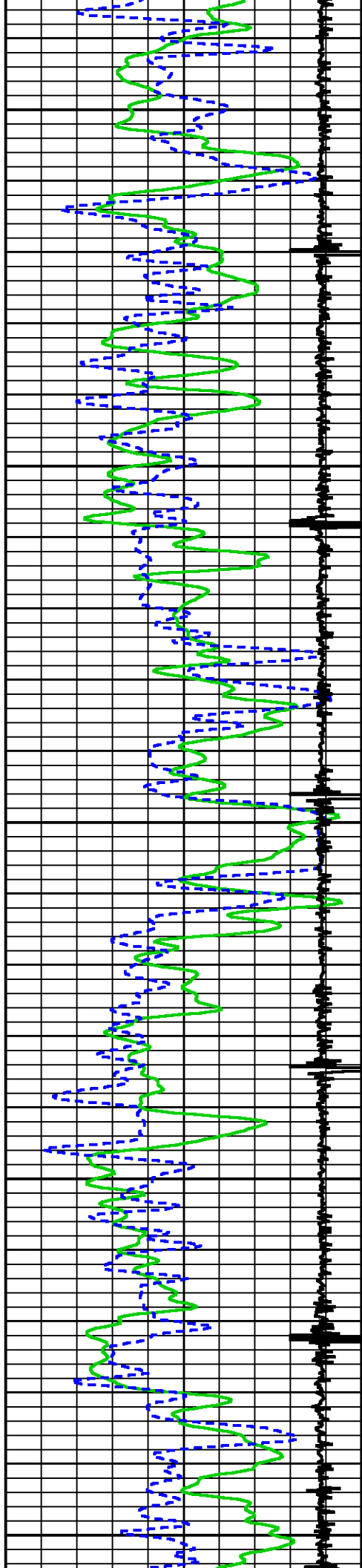
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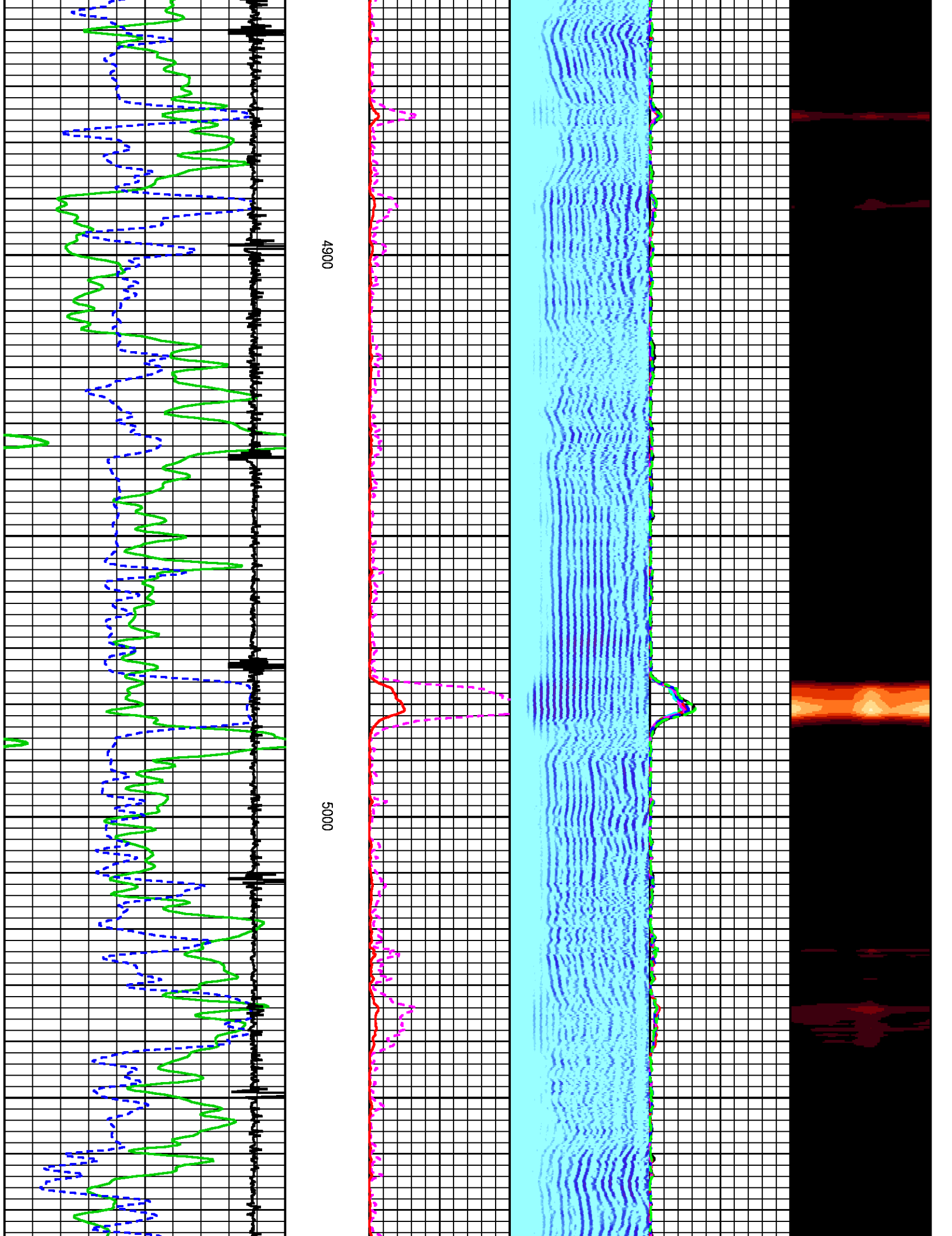


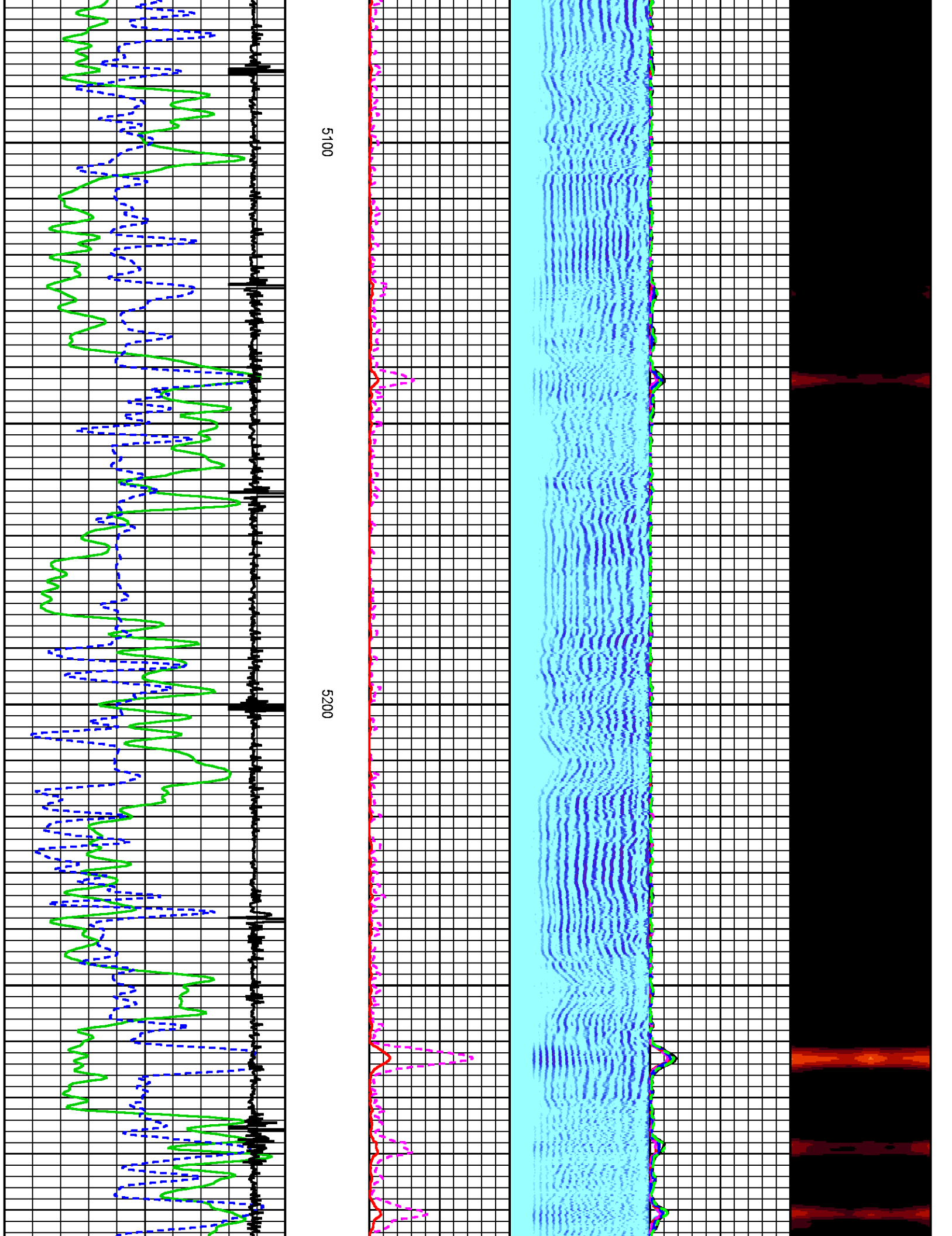


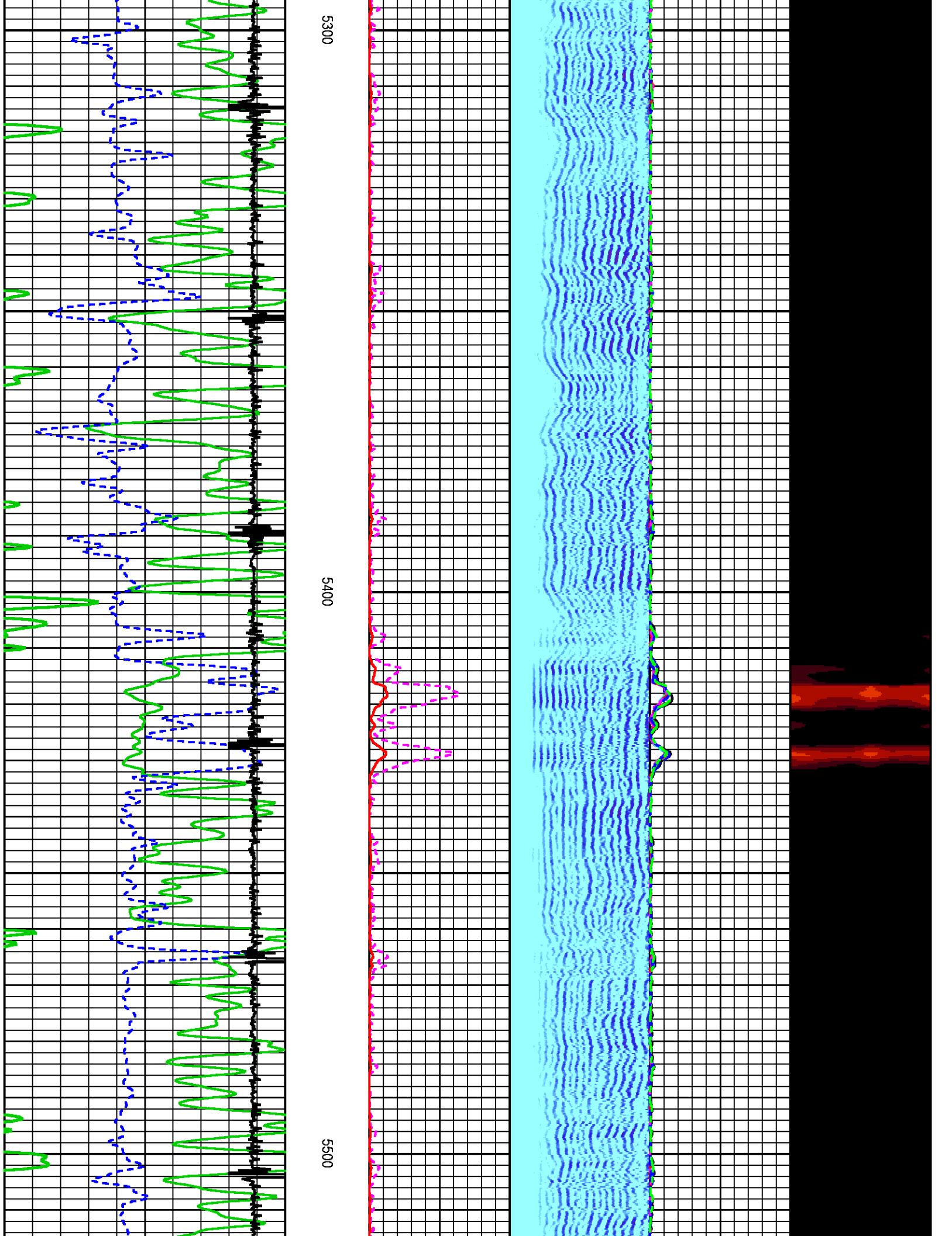
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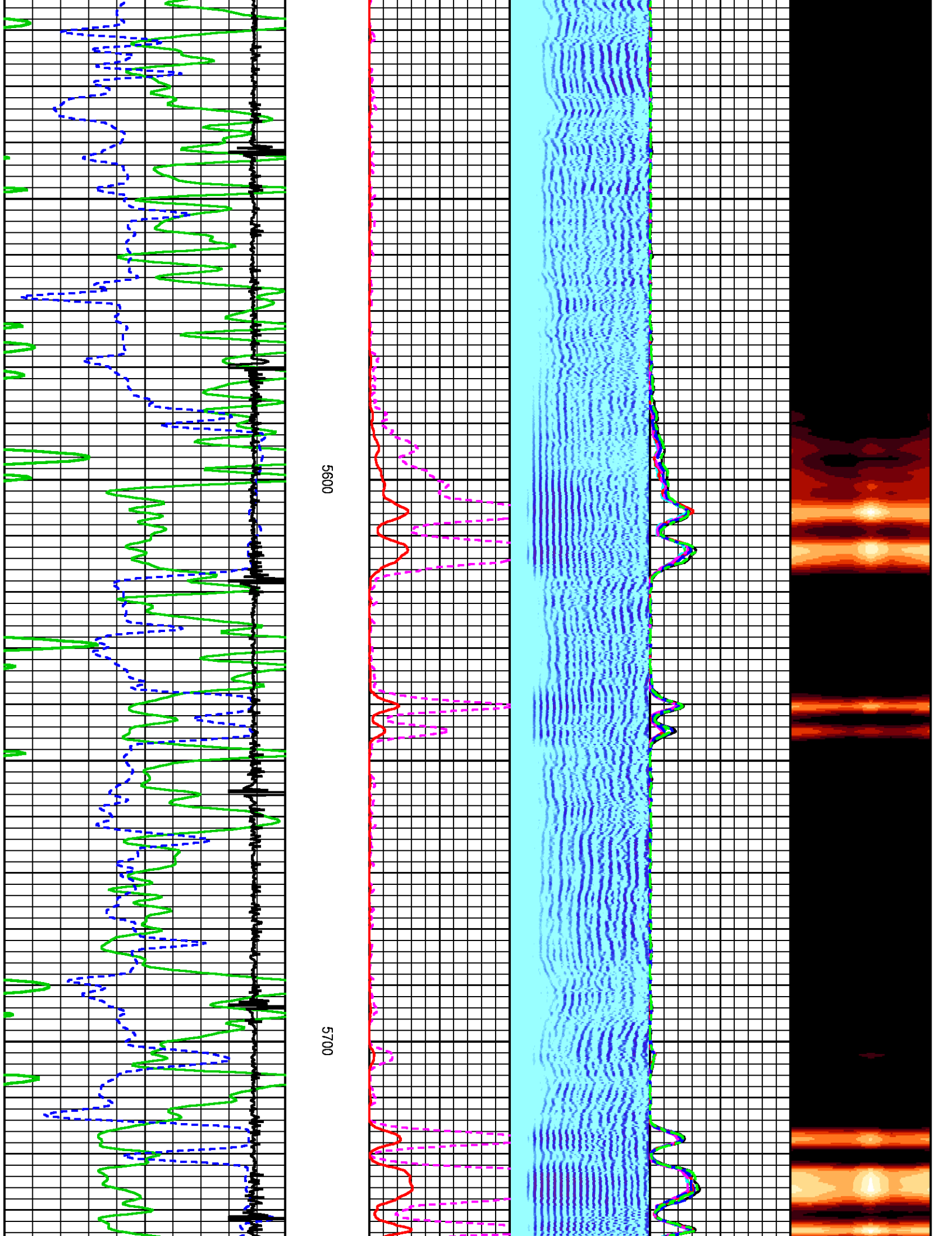
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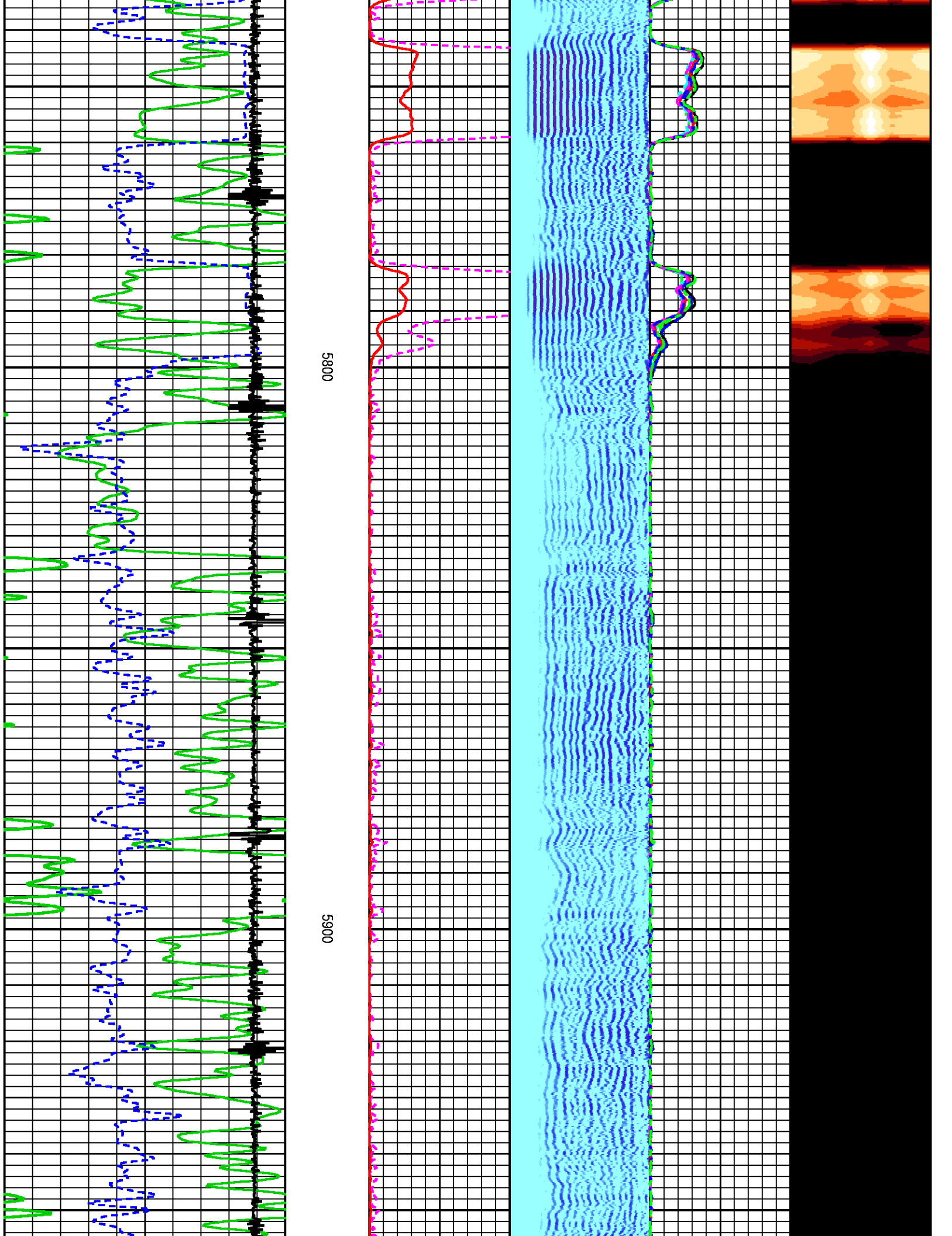


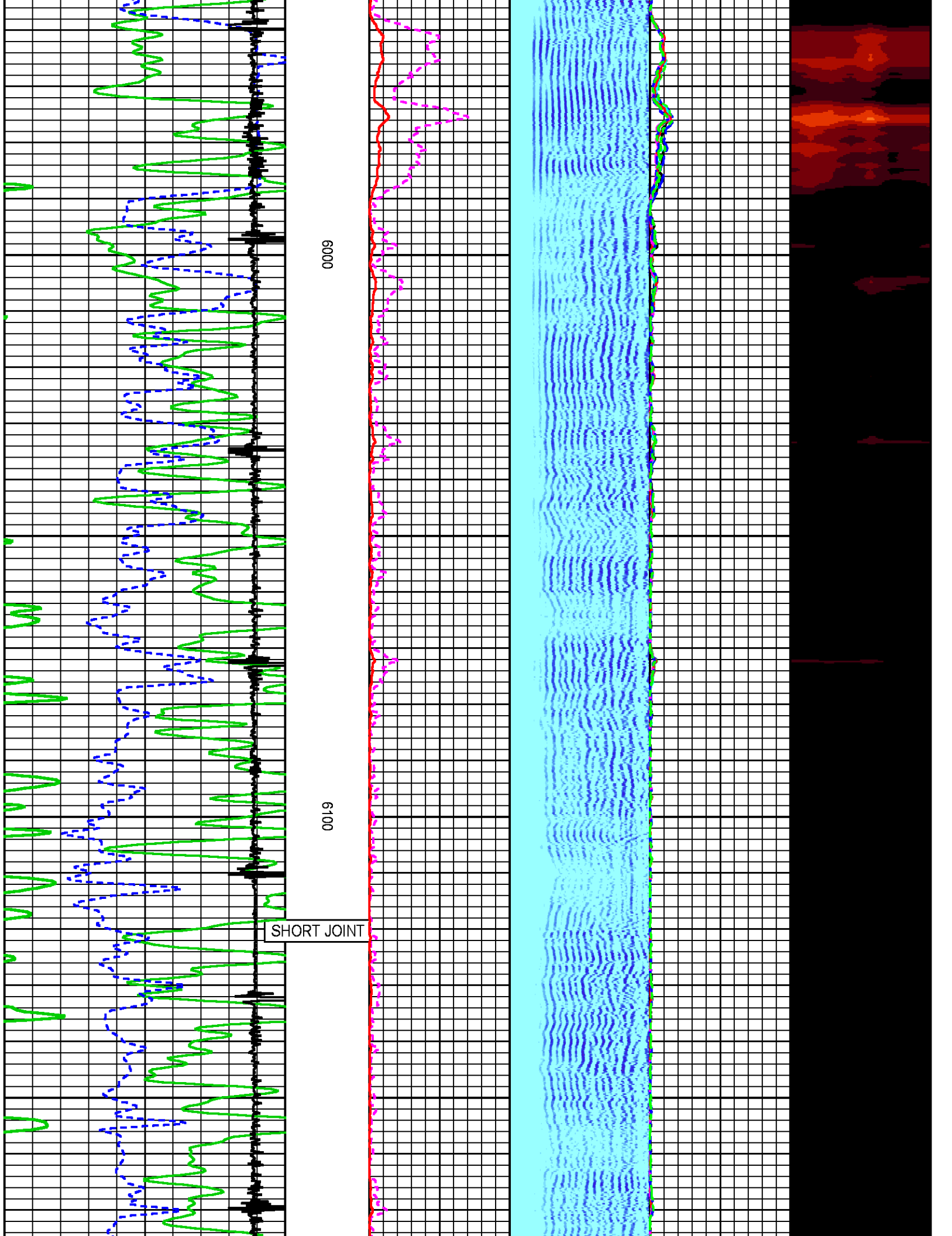


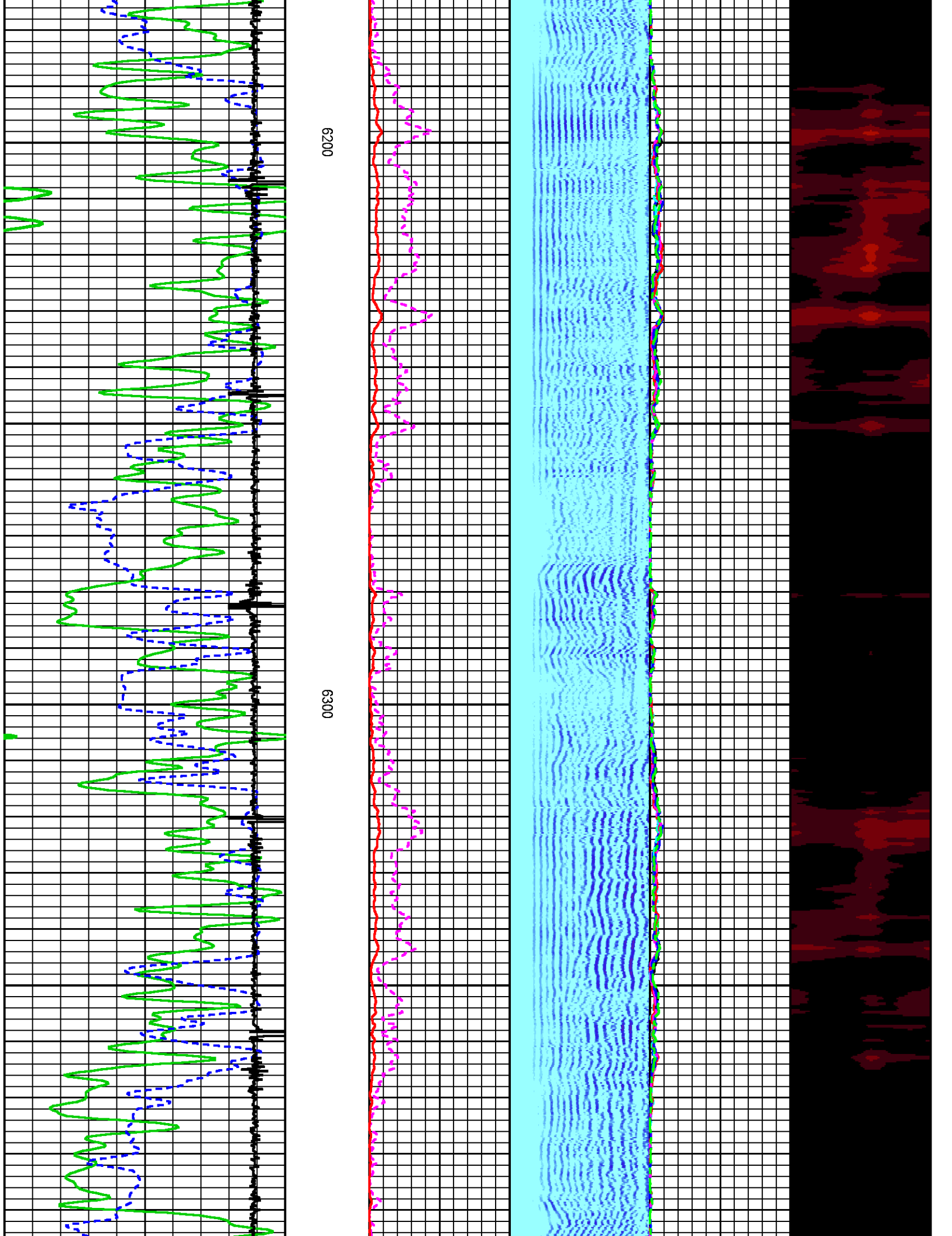


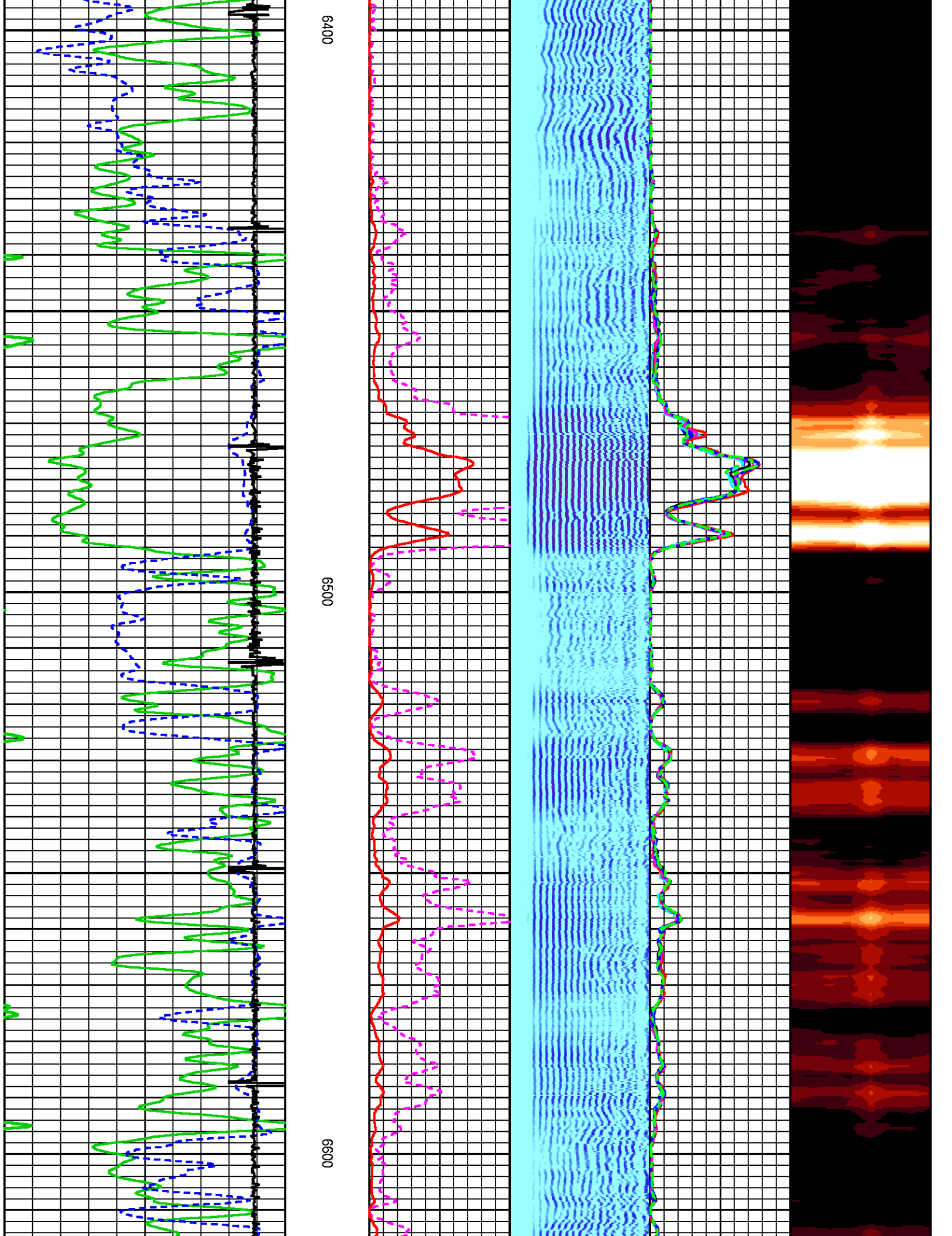


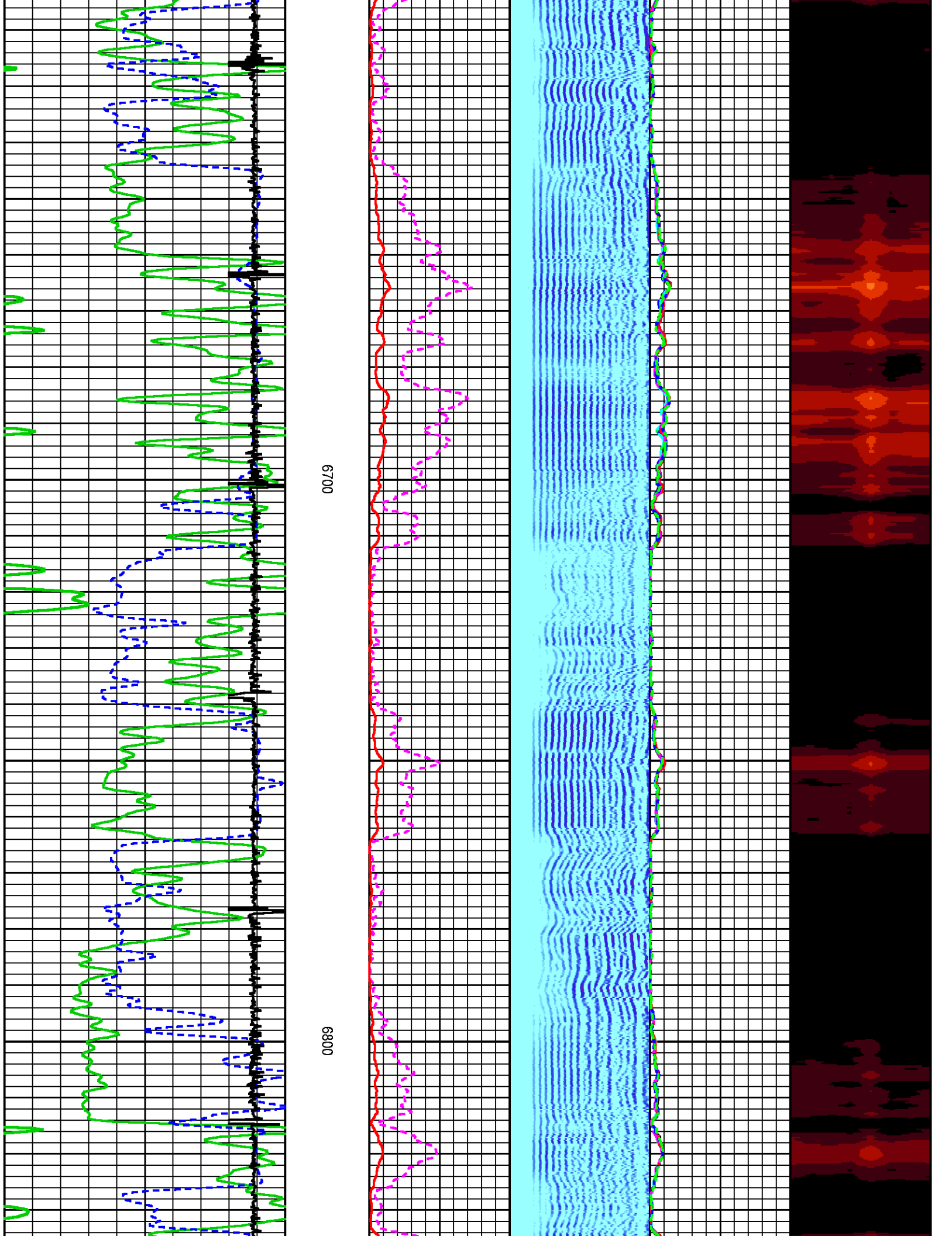


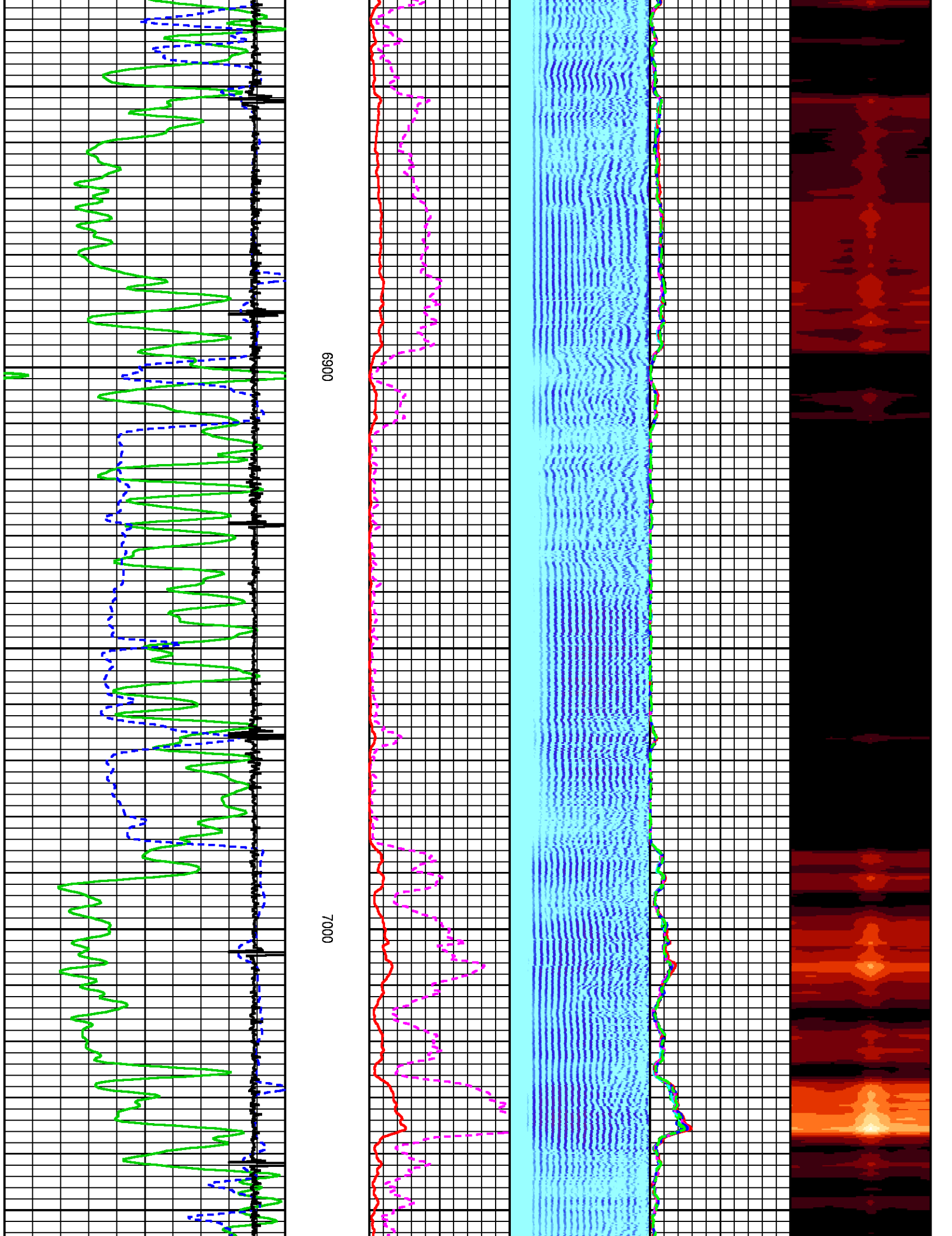


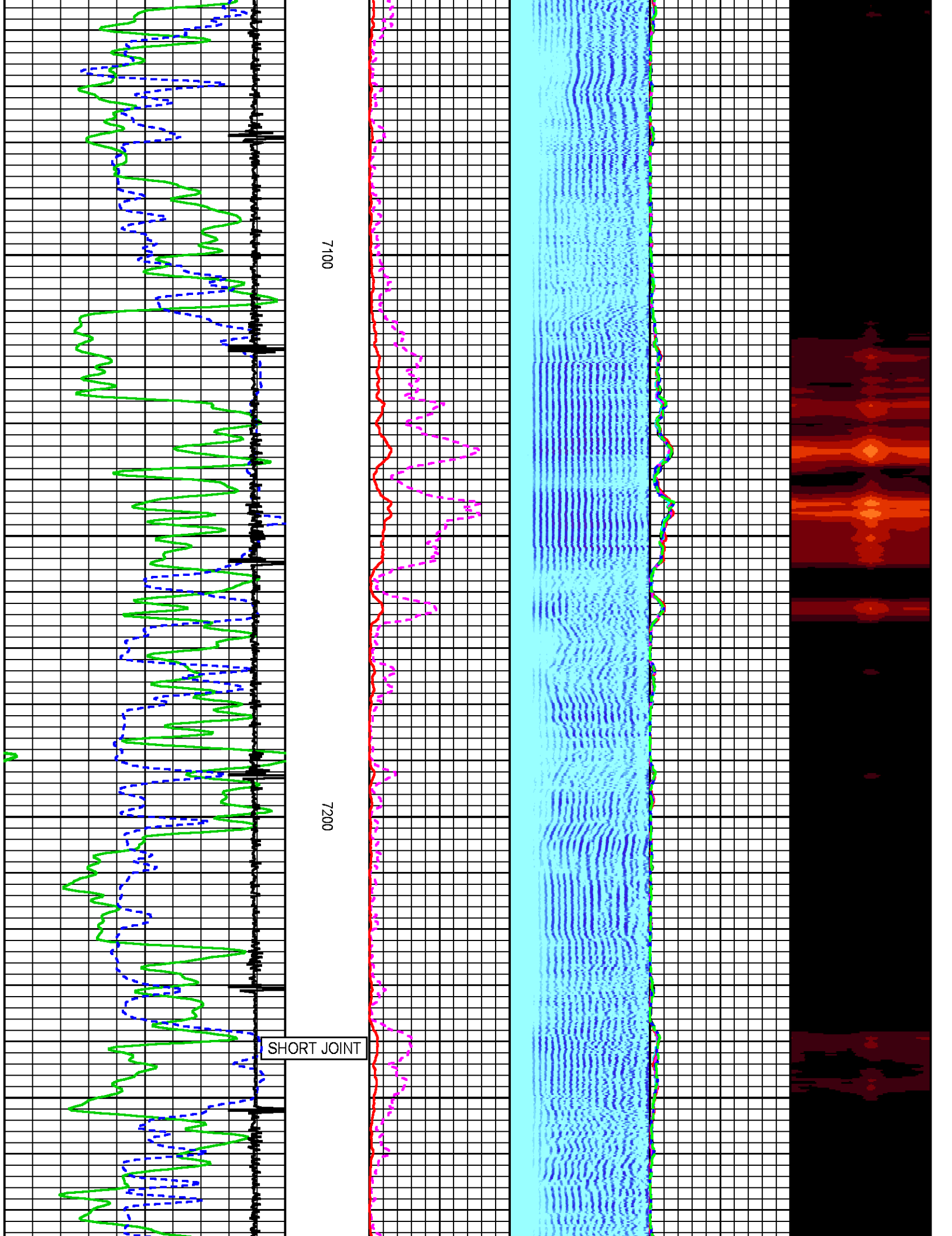


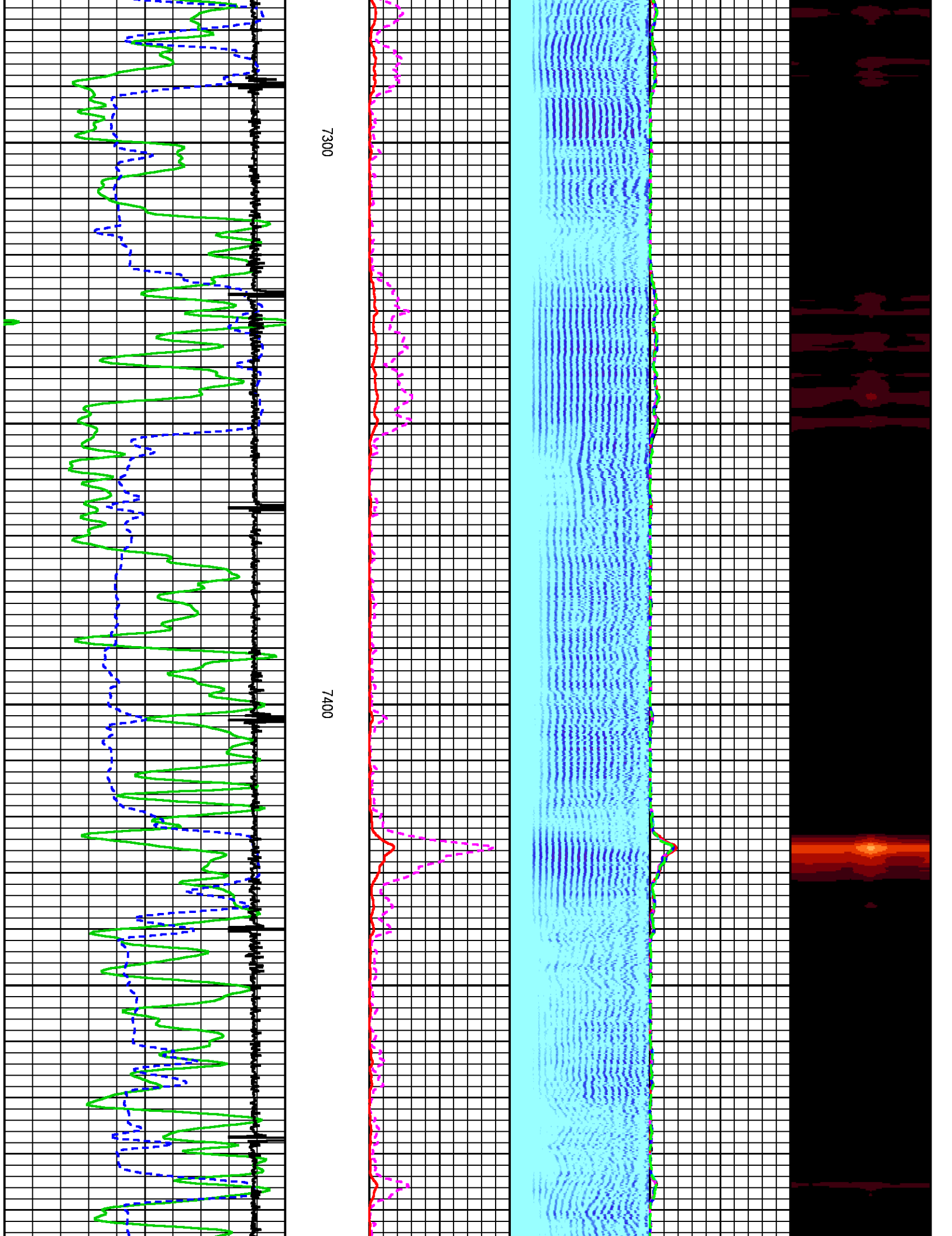


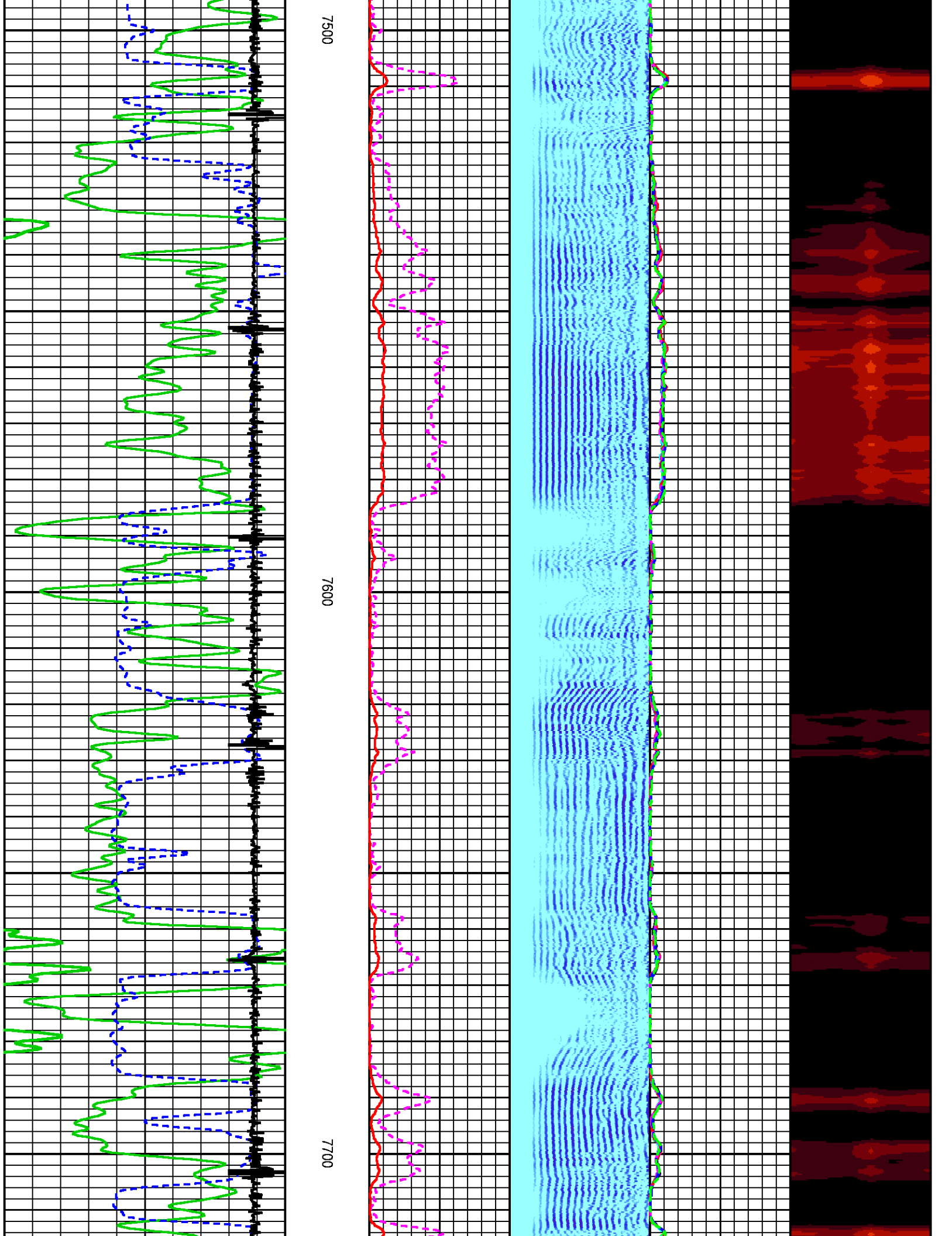


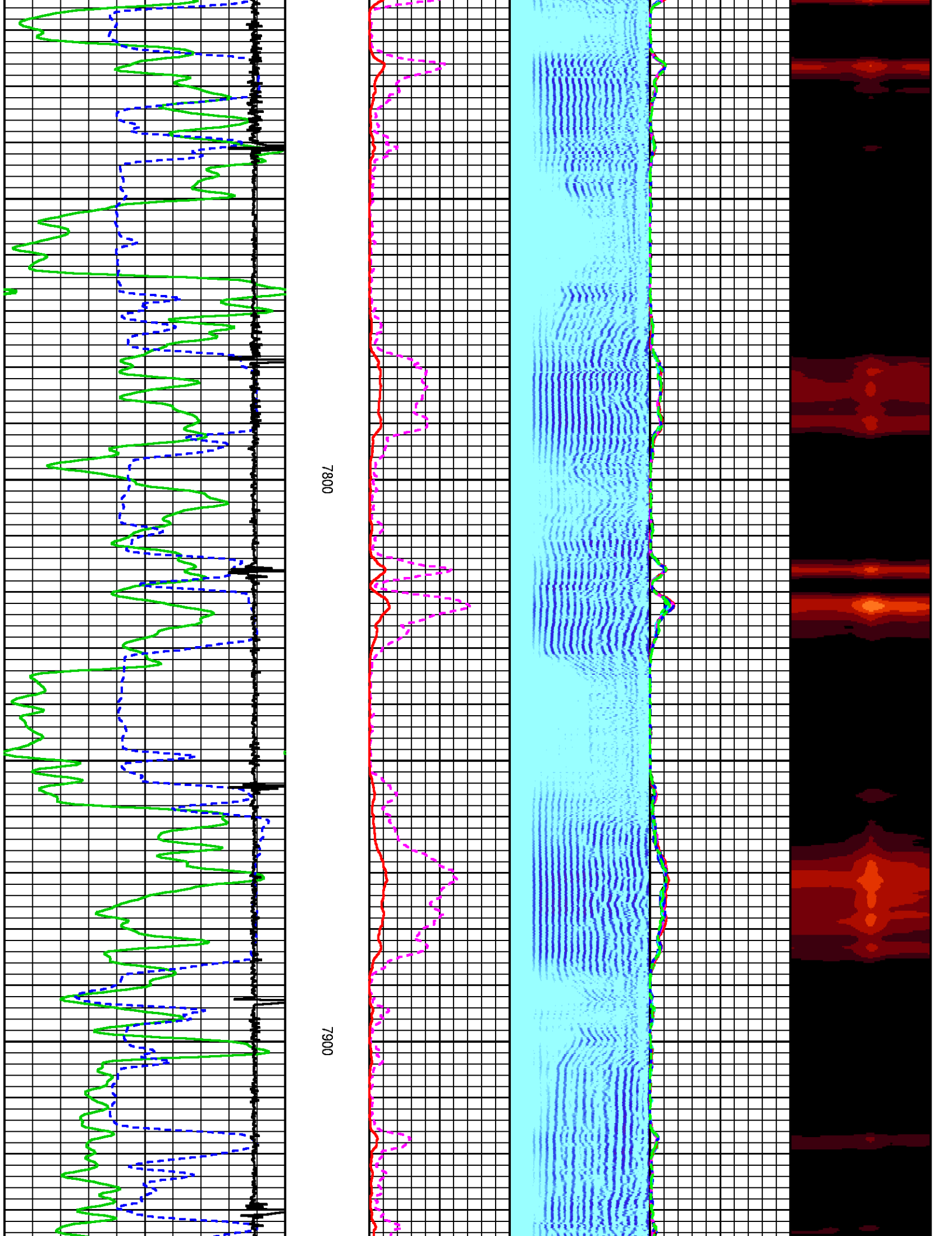


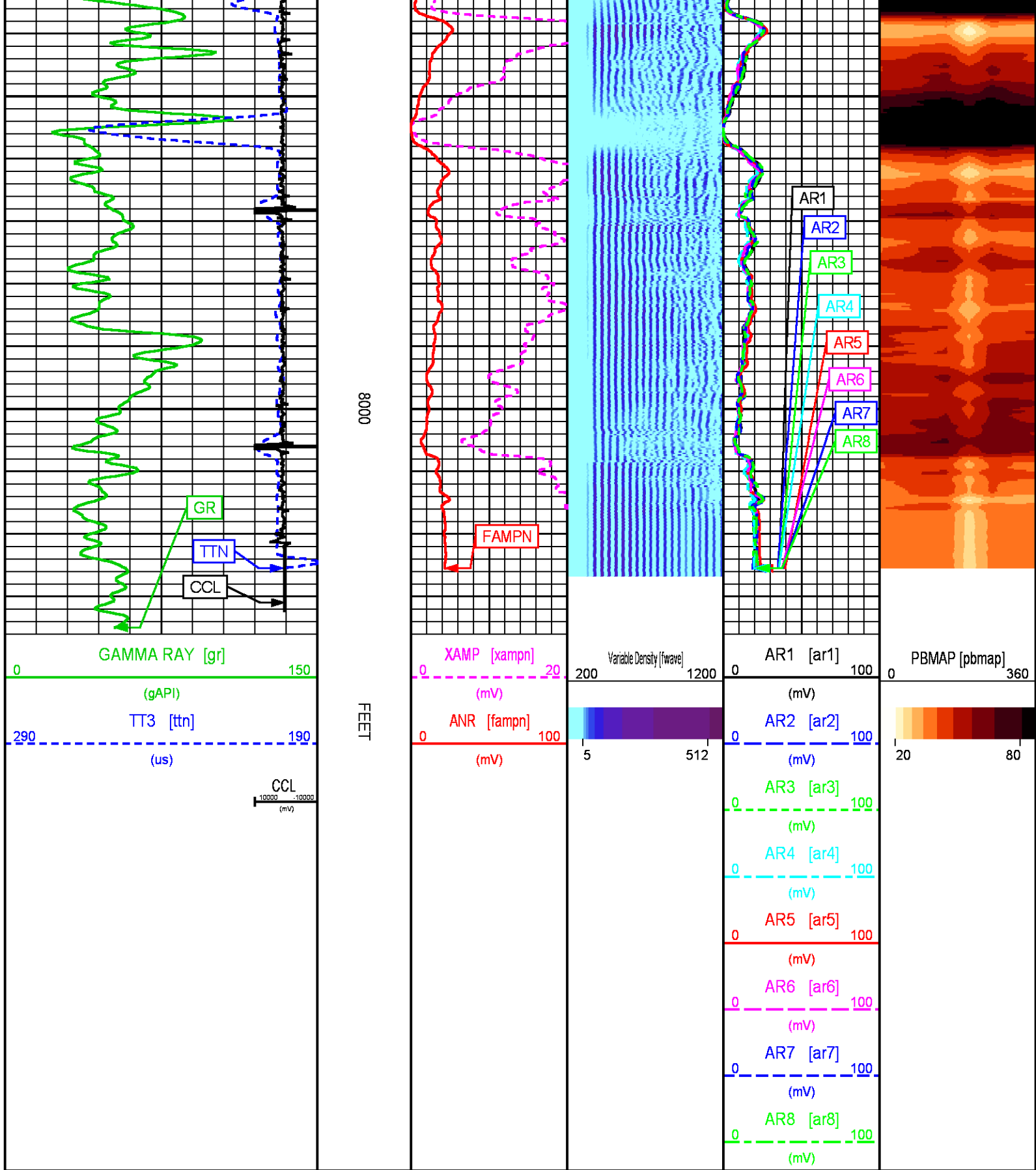












REPEAT PASS 0 PSI

Plotted: Sun Oct 29 06:22:50 2017

PARAMETER AND FILTER SUMMARY REPORT					
File: C:\dat1a\LARAMIE_BRUTON_30_04E1\p012g01.prm LOGGING MODE: DEPTH DIRECTION: UP TOP DEPTH: 7794.000 ft BOTTOM DEPTH: 8061.000 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*)	187	us	TOP	BOTTOM
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	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*)	107	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	2	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	217.967	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	142	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	"	"

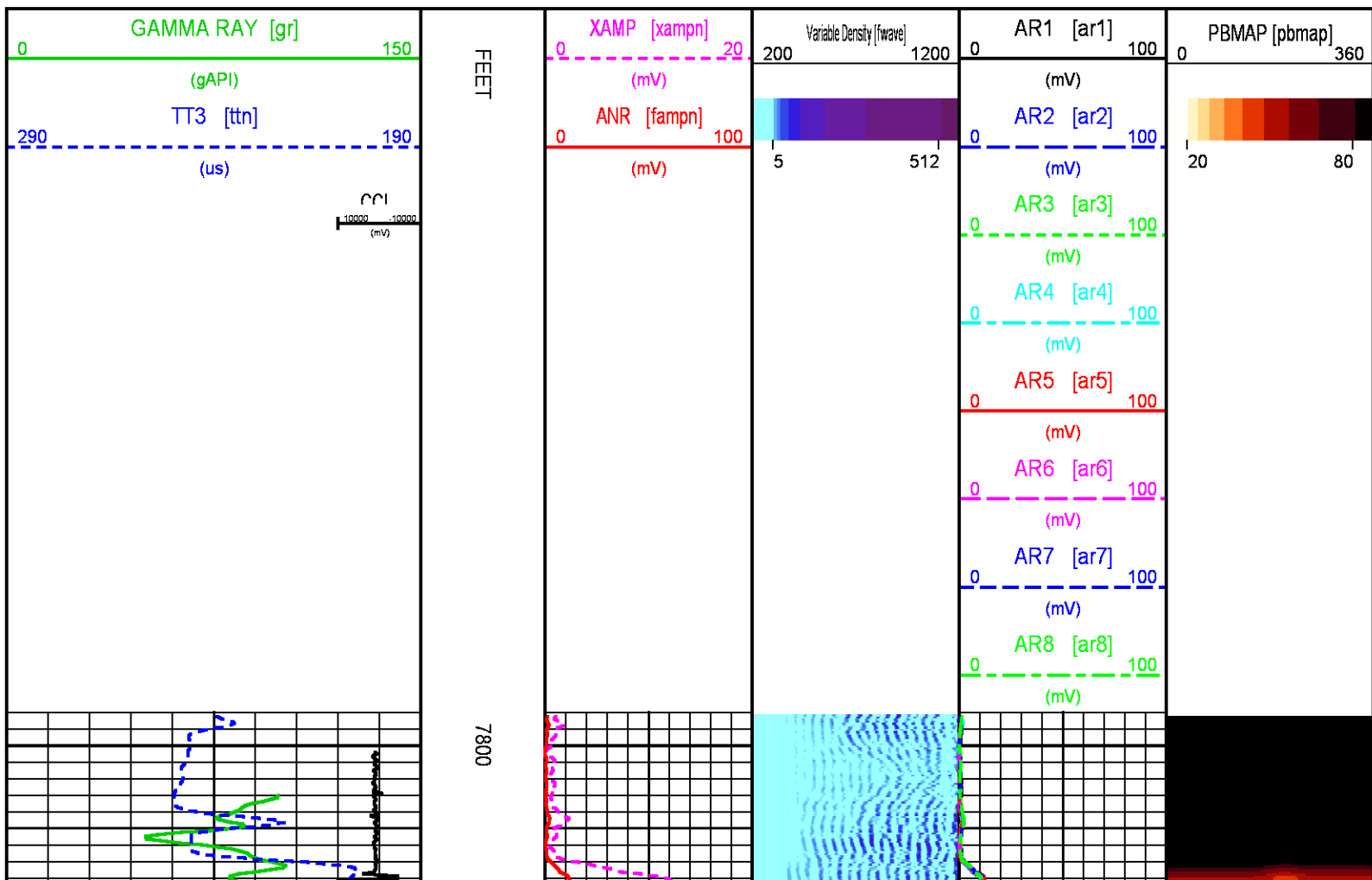
CURVE DESCRIPTION REPORT

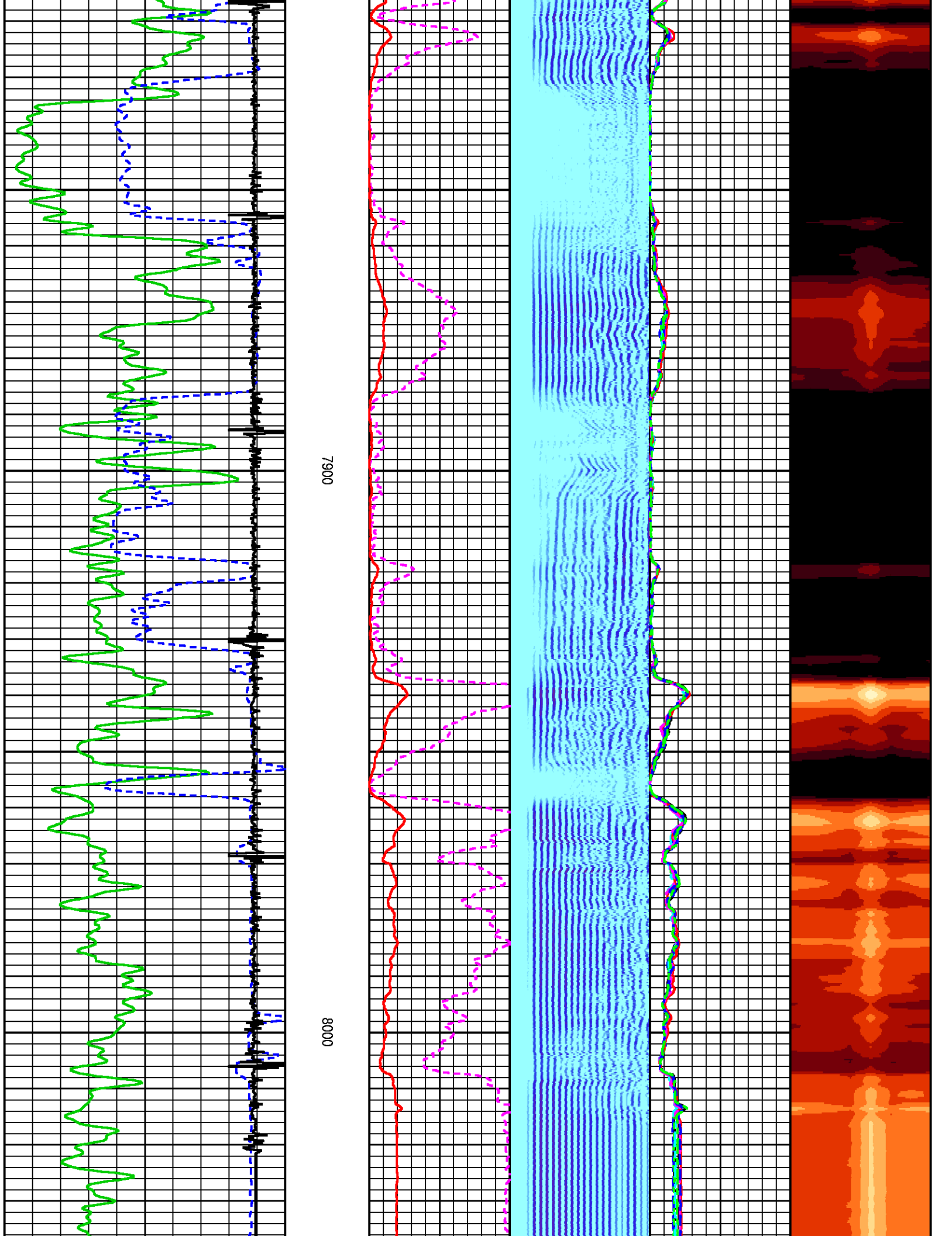
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

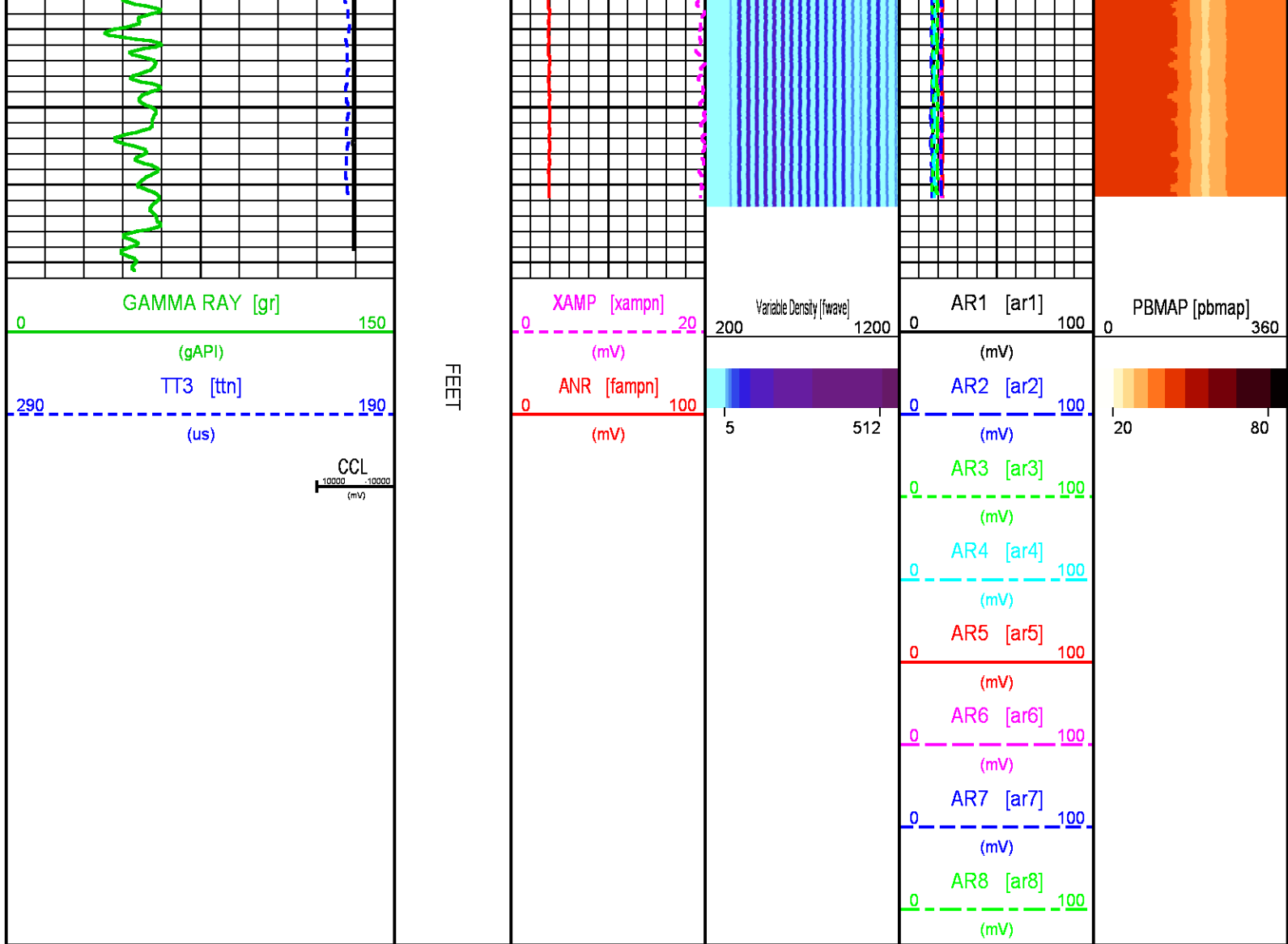
CURVE MEASURE POINT OFFSET

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	: BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_04E1\LARAMIE_RAL+RAL_RPT_04E.fvpdf [5"/100' Scale]
Plot Interval	: 7796.25 - 8072.75 Feet
Data File 1	: F1 : BHIH2LZZF2:C:\dat1a\LARAMIE_BRUTON_30_04E1\RAL_RPT_04E.xtf
Created On	: N/A
Company	: Laramie
Well	: Bruton 30-04E
Field	: vega
File Interval	: 7793.5 - 8074 Feet
OCT	: p012g







CALIBRATION / VERIFICATION SUMMARY

Source File: C:\dat1a\LARAMIE_BRUTON_30_05W\ral.tp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10218497

DATE/TIME PERFORMED: Sat Oct 28 23:59:13 2017

UNIT #: 3880TA HL6670

	NEAR (mV)	RADIAL (mV)	FAR (mV)
TARGETS	100.00	100.00	150.00

NEAR R1 R2 R3 R4 R5 R6 R7 R8 FAR CAL

ZERO (mV)	-0.11	-0.09	-0.10	0.02	0.01	-0.05	-0.00	-0.07	-0.08	-0.32	0.00
AMP FLUID (mV)	93	94	93	92	92	92	94	94	94	147	92
TT (us)	200	200	199	199	199	199	199	199	201	311	200
M FACTOR	1.07	1.07	1.07	1.09	1.08	1.08	1.07	1.06	1.07	1.02	1.08

GR PRIMARY CALIBRATION SUMMARY						
TOOL #:	1355XA 12670180			DATE/TIME PERFORMED:	Fri Dec 23 11:53:22 2016	
	UNIT #:	3880TA HL6670		CALB JIG #:	4702NK DA_228	
	BACKGROUND (cts)	CALBRTR ON (cts)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)
GR	75.82	247.07	171.2	0.584	44.28	144.28
						CALBRTR (gAPI)
						100

GR PRIMARY VERIFICATION SUMMARY						
TOOL #:	1355XA 12670180			DATE/TIME PERFORMED:	Fri Dec 23 11:54:47 2016	
	UNIT #:	3880TA HL6670		VERI JIG #:	4702NK DA_228	
	BACKGROUND (cts)	CALBRTR ON (cts)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	77.11	254.76	0.584	45.03	148.77	103.74
						90.00 110.00

TEMP PRIMARY CALIBRATION SUMMARY				
TOOL #:	1355XA 12670180			DATE/TIME PERFORMED: Thu May 25 10:45:34 2017
	UNIT #:	3882TD HL6741		
	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: C:\dat1a\LARAMIE_BRUTON_30_05W\ral-tdg.meta

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



20.38'

NEAR RCVR 11.17'

FAR RCVR 10.21'

CCL 5.79'

GR 1.67'

TEMP 0.17'



FIELD <u>vega</u>		API NO: <u>05077104620000</u>
COUNTY <u>MESA</u>	STATE <u>COLORADO</u>	
LOCATION: SHL: LAT:39.2526639N;LONG:107.8142667 BHL: LAT:39.2528550N;LONG:107.8069120		ELEVATIONS: KB 7542 FT DF 7541 FT GL 7512 FT
SEC <u>30</u>	TWP <u>T9S</u>	DATE <u>29-Oct-2017</u>
RGE <u>93W</u>		