



# RADIAL CEMENT BOND LOG

FILE NO:	<b>COMPANY</b> <u>LARAMIE ENERGY</u>	
API NO:	<b>WELL</b> <u>BRUTON 19-05W</u>	
05077104240000	<b>FIELD</b> <u>VEGA</u>	
	<b>COUNTY</b> <u>MESA</u>	<b>STATE</b> <u>COLORADO</u>
Version	<b>LOCATION:</b> SHL: LAT:39.262806N; LONG:107.815139W BHL: LAT:39.266494N; LONG:107.816242W SEC <u>19</u> TWP <u>9S</u> RGE <u>93W</u>	<b>OTHER SERVICES</b> RPM
PERMANENT DATUM	GL <u>                    </u> ELEVATION <u>7262 FT</u>	ELEVATIONS: KB 7286 FT DF 7286 FT GL 7262 FT
LOG MEASURED FROM	KB <u>24 FT</u> ABOVE P.D.	
DRILL. MEAS. FROM	KB <u>                    </u>	

DATE	24-OCT-2017	
RUN	TRIP	1
SERVICE ORDER	US128847	
DEPTH DRILLER	7707 FT	
DEPTH LOGGER	7660 FT	
BOTTOM LOGGED INTERVAL	7660 FT	
TOP LOGGED INTERVAL	24 FT	
TIME STARTED	16:30	
TIME FINISHED	19:00	
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	2720 FT	
WELLHEAD PRESSURE	0 PSI	
MAXIMUM HOLE DEVIATION	NA	
NOMINAL LOGGING SPEED	100 F/MN	
MAX. RECORDED TEMP.	233 DEGF	
REFERENCE LOG	NA	
REFERENCE LOG DATE	NA	
EQUIP. NO.	LOCATION	
RECORDED BY	S. YASSA	WOODWARD
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

RUN 1 TRIP 1: \*2 OPERATIONS IN WELL\*

\*\*OPERATION 1: RAL/GR/CCL RUN CENTRALIZED\*\*

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 6802' - 6824'

SJ: 5798' - 5820'

CREW: C.GOLOBY , J.PENA

## 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 10:05:46 2017

## PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\dat1a\BRUTON\_19\_05Wp012g02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 13.250 ft BOTTOM DEPTH: 7611.250 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 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*)	5	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	"	"

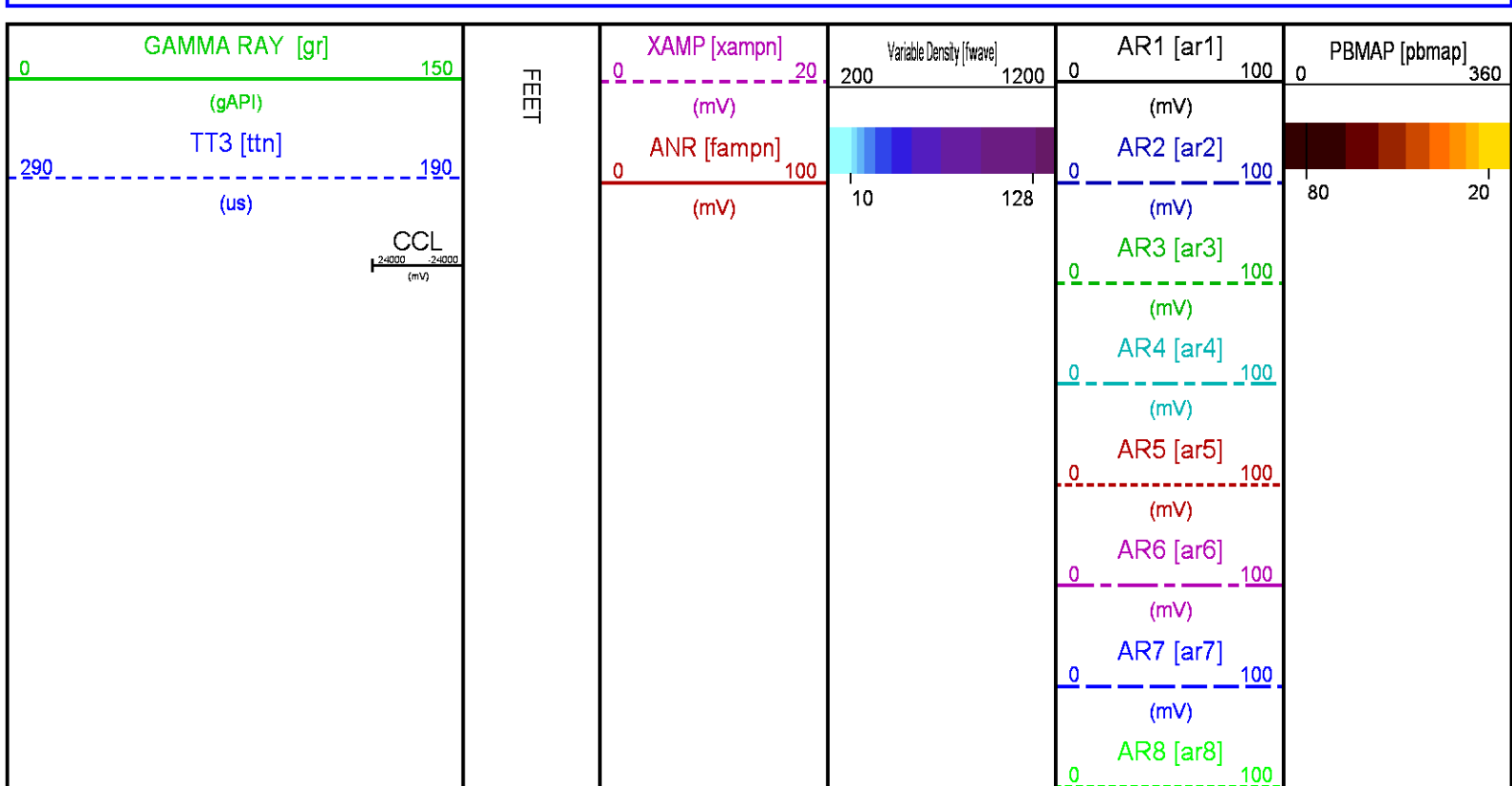
## CURVE DESCRIPTION REPORT

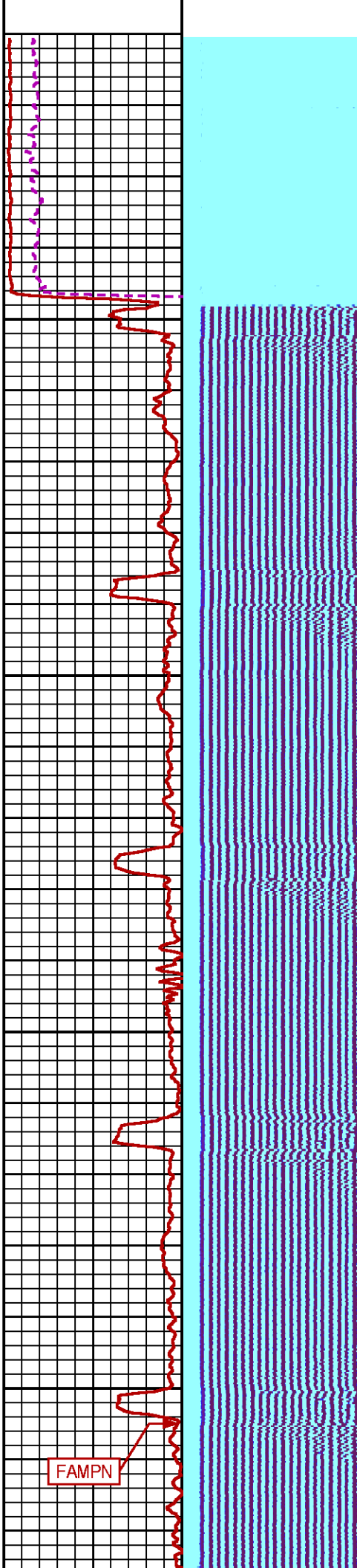
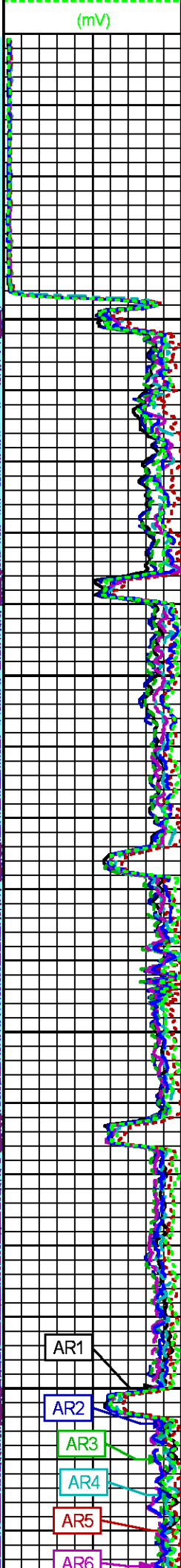
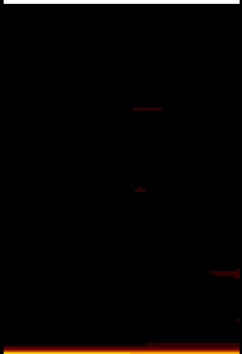
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

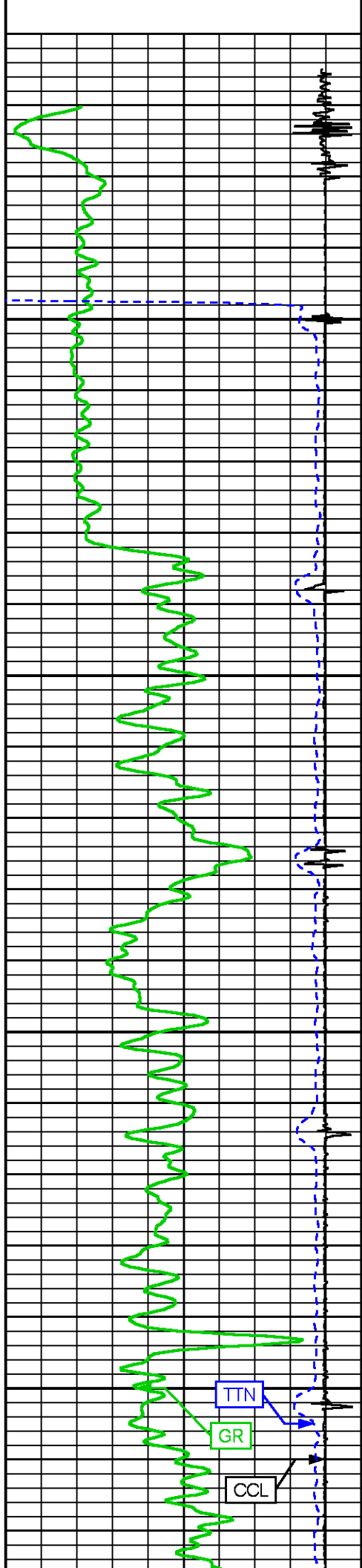
<b>Presentation</b>	: BHI78FR4H2:C:\dat1a\BRUTON_19_05W\BRUTON_19_05W_RAL_MAIN.fvpdf [5"/100" Scale]
<b>Plot Interval</b>	: 10.5 - 7617.75 Feet
<b>Data File 1</b>	: F1 : BHI78FR4H2:C:\dat1a\BRUTON_19_05W\BRUTON_19_05W_RAL_MAIN.xtf
<b>Created On</b>	: N/A
<b>Company</b>	: LARAMIE ENERGY II LLC
<b>Well</b>	: BRUTON 19-05W
<b>Field</b>	: VEGA
<b>File Interval</b>	: 9.5 - 7619 Feet
<b>OCT</b>	: p012g

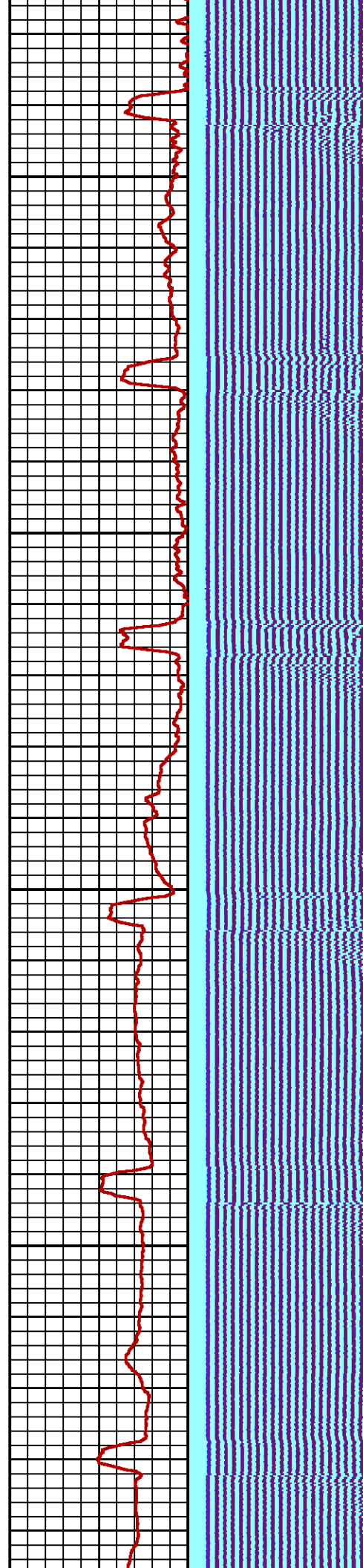
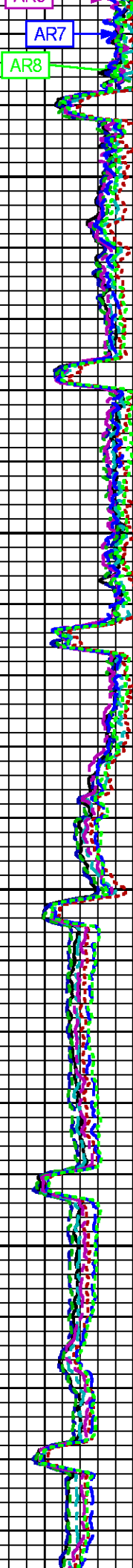




100

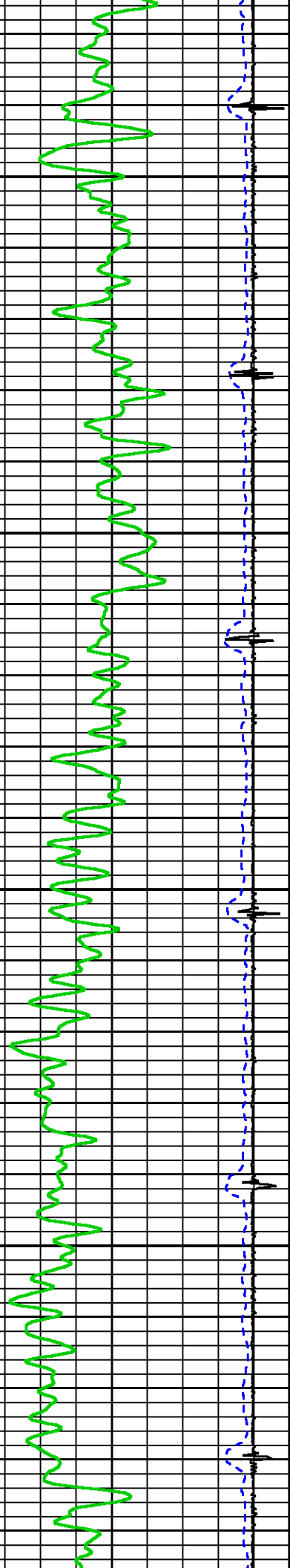
200

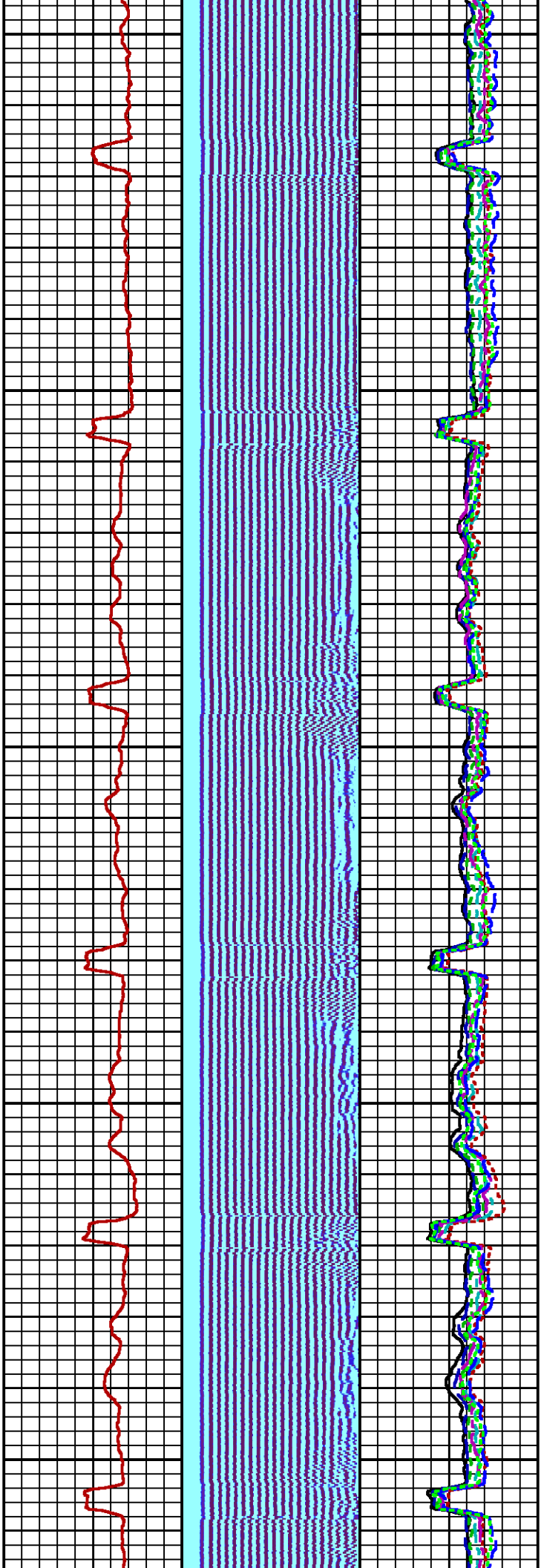




300

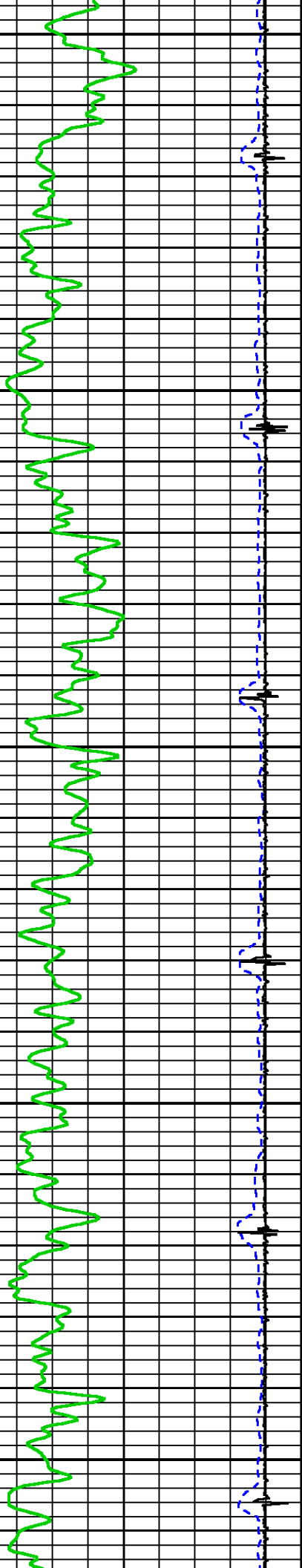
400



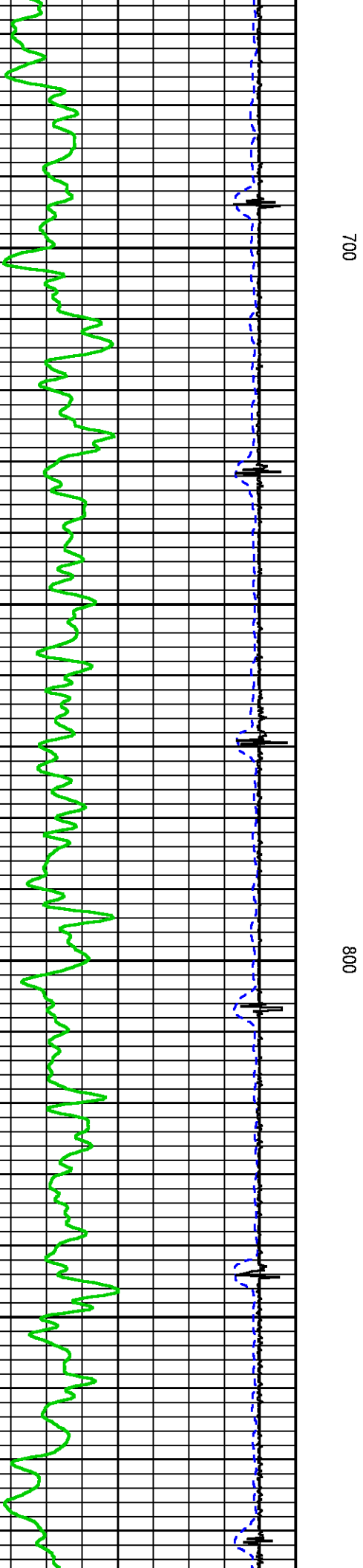
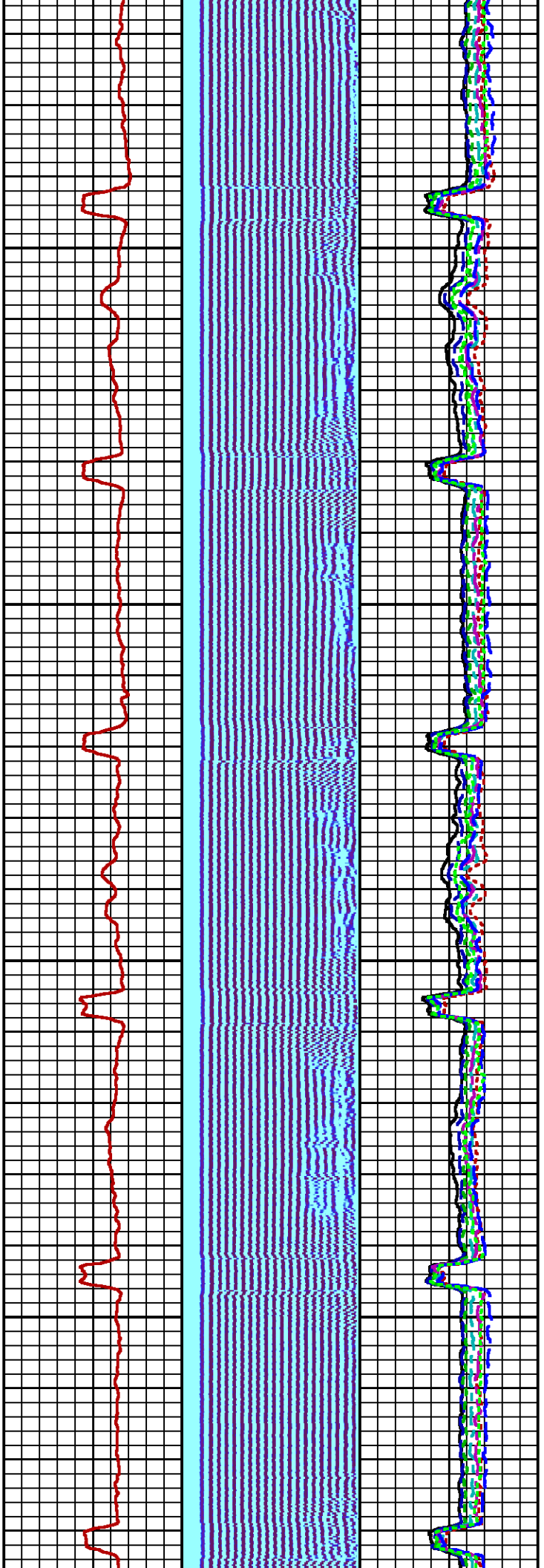


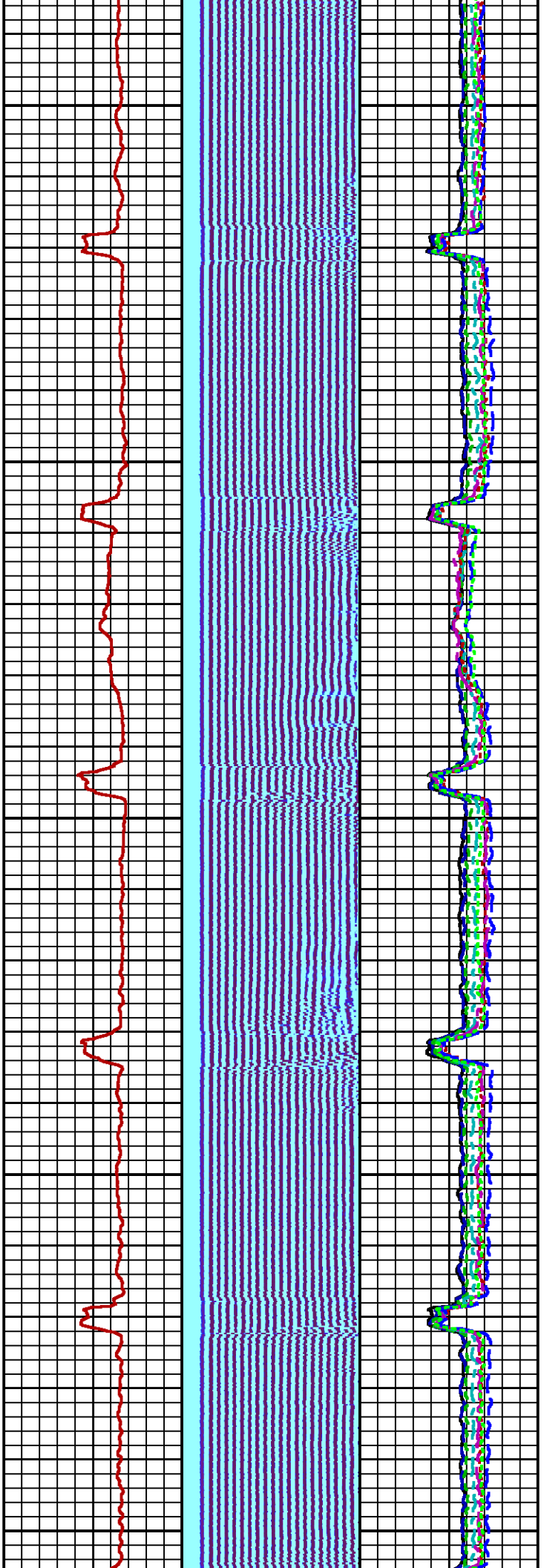
500

600





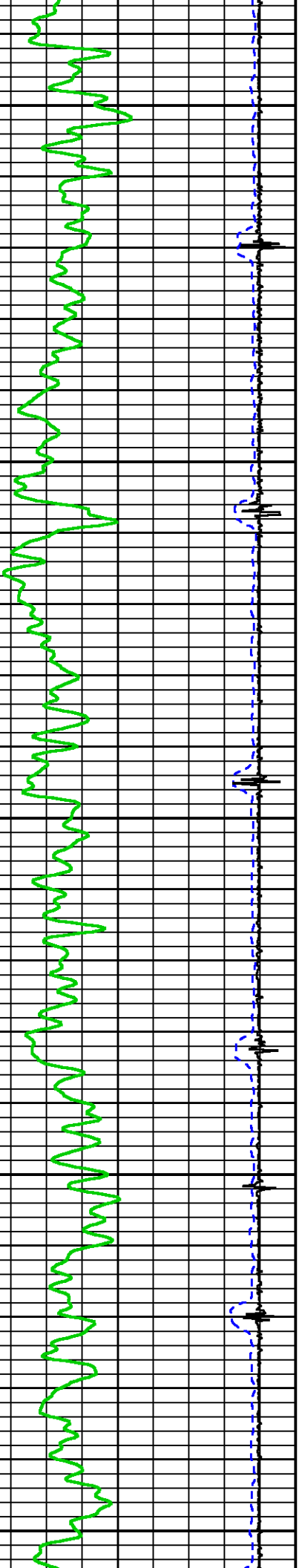




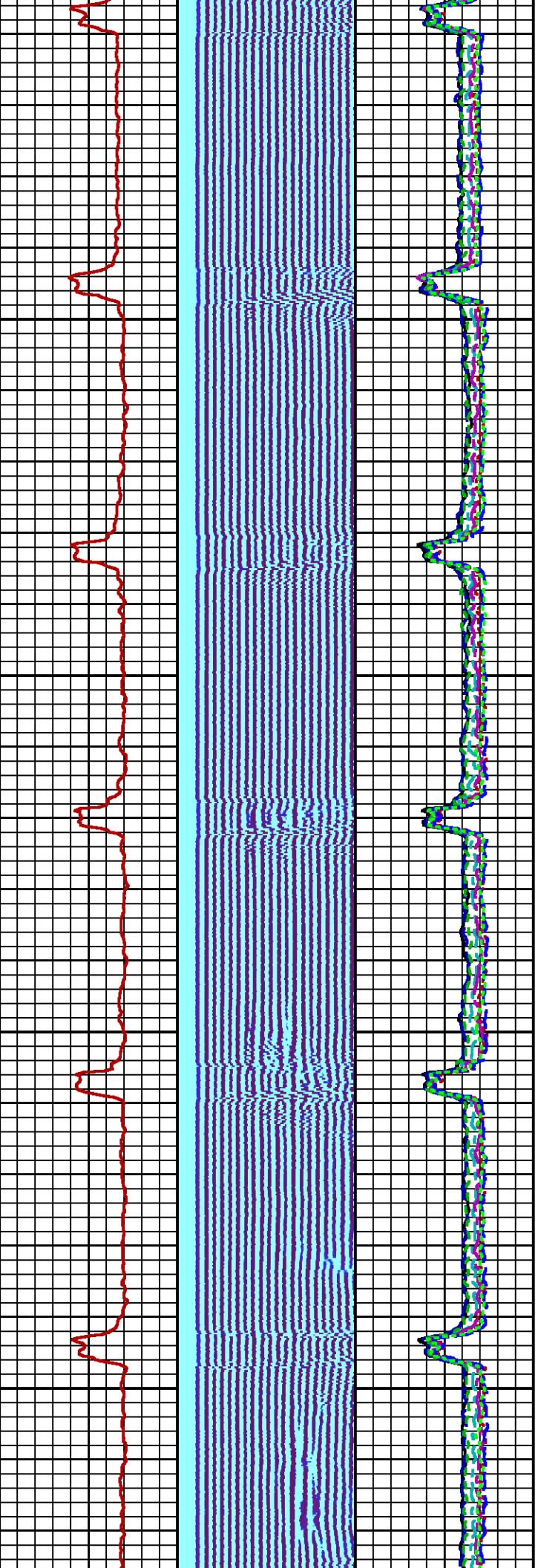
900

1000

1100

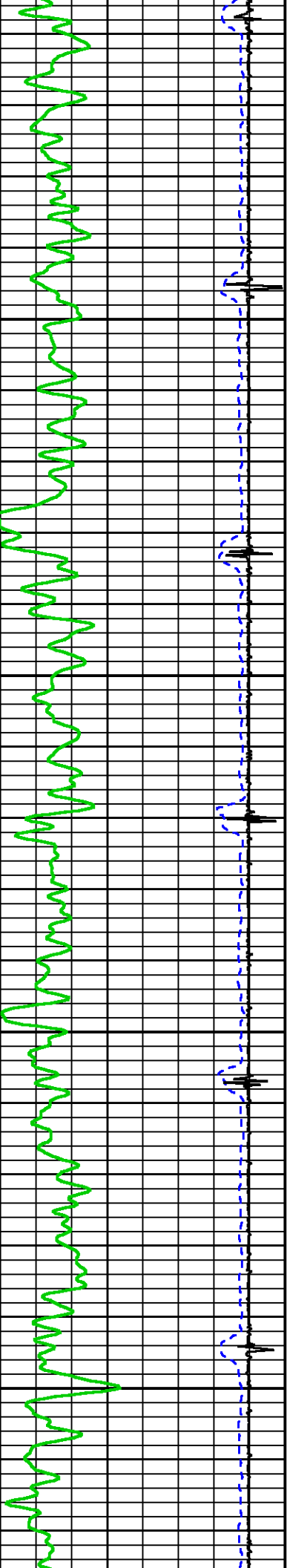


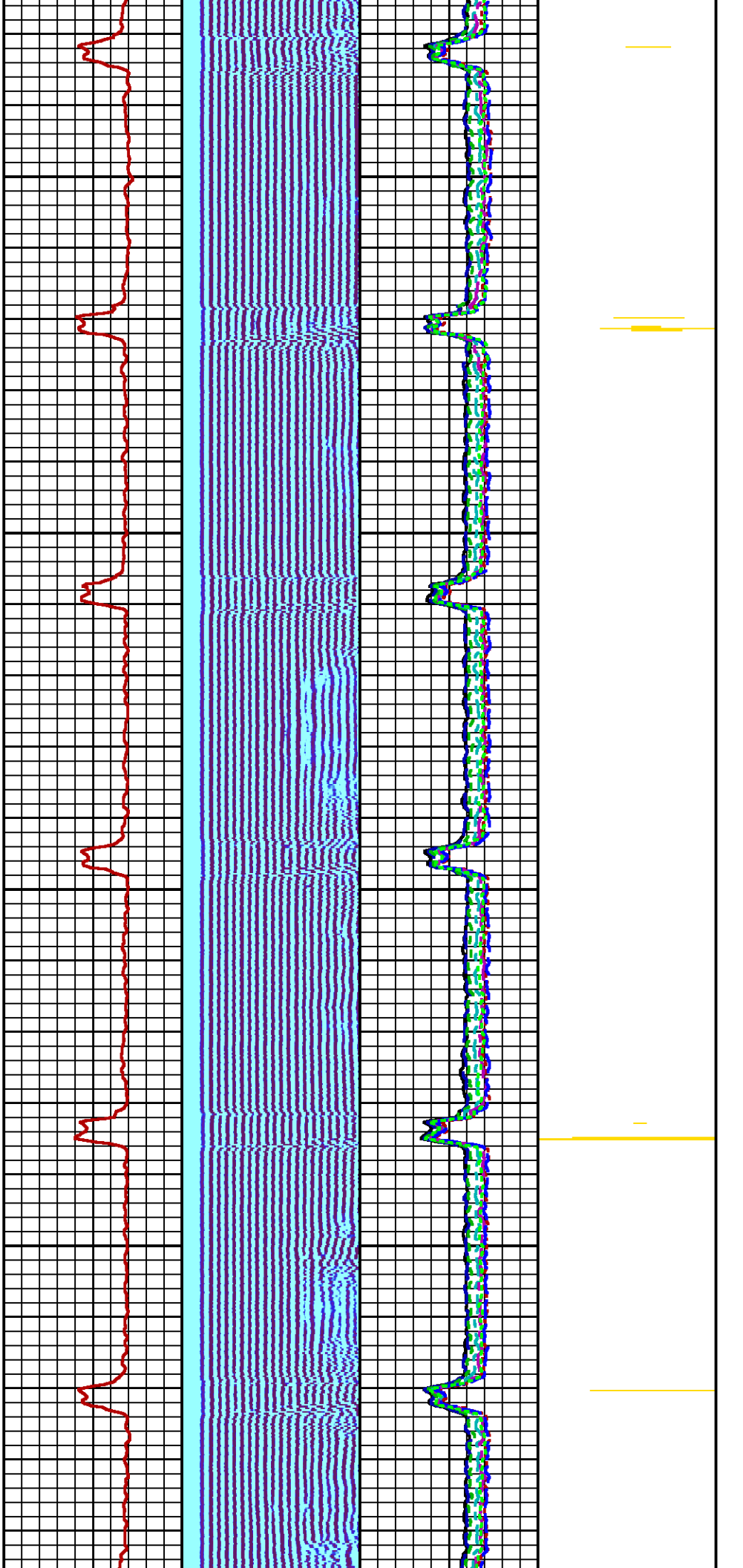




1200

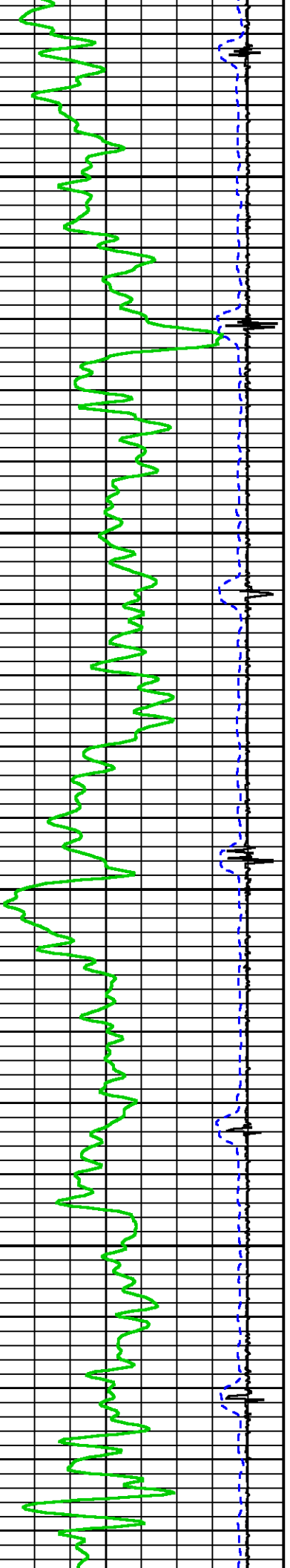
1300

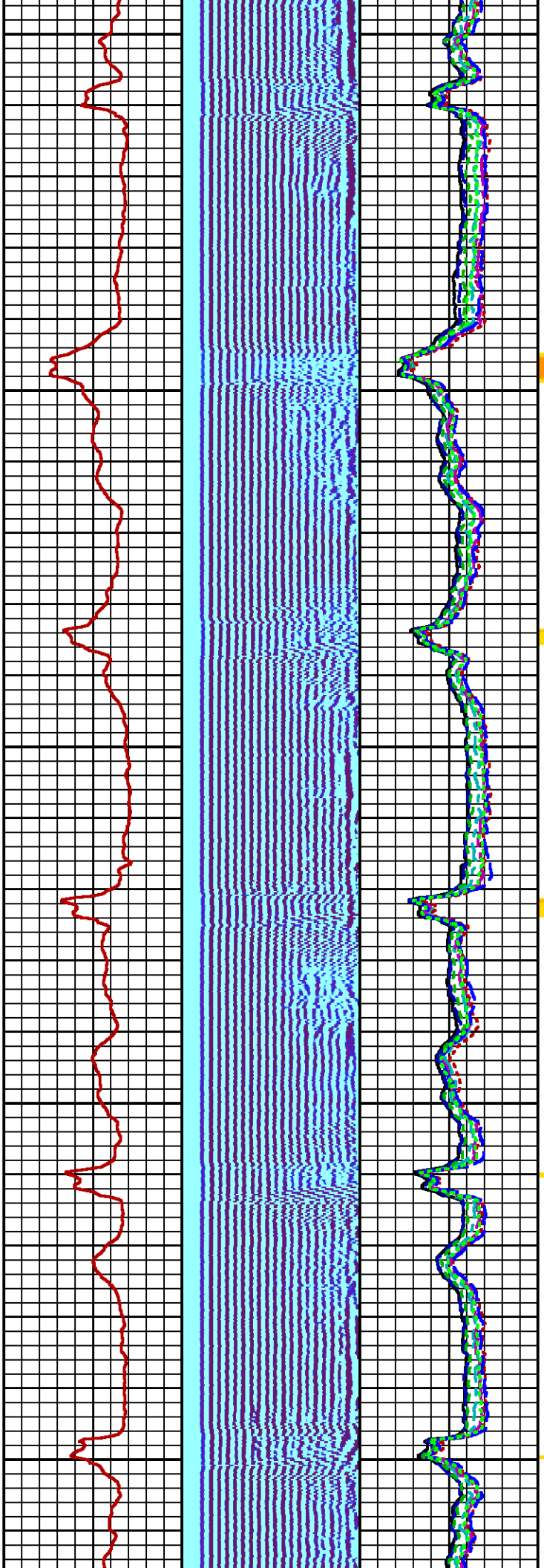
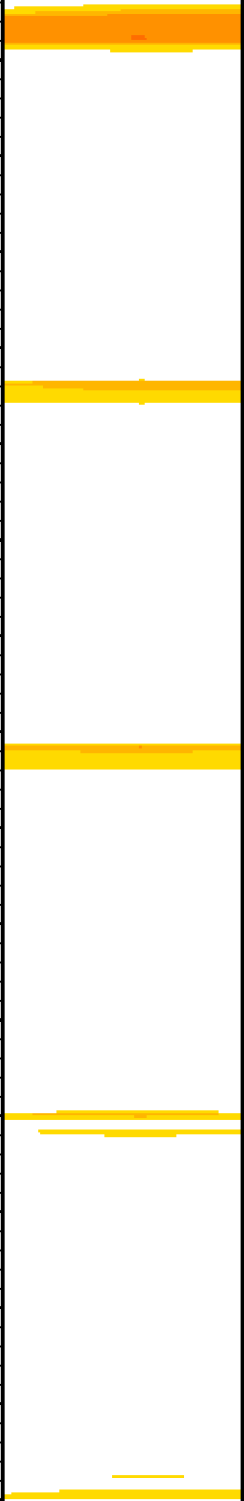




1400

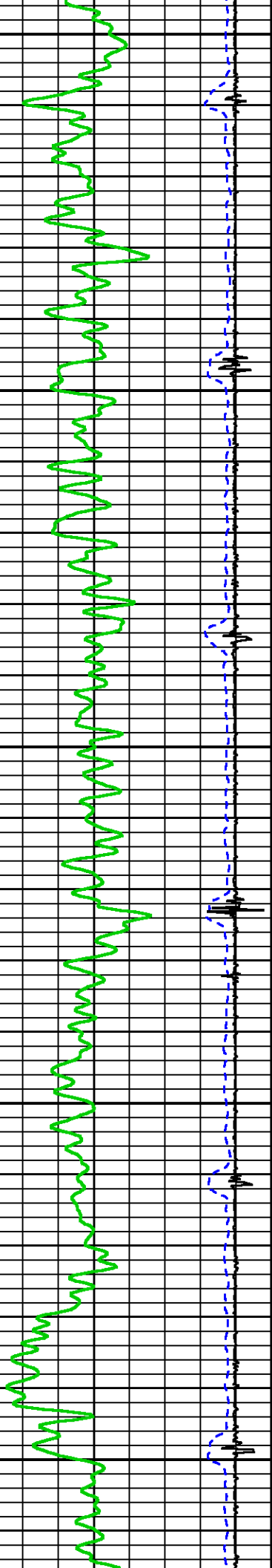
1500

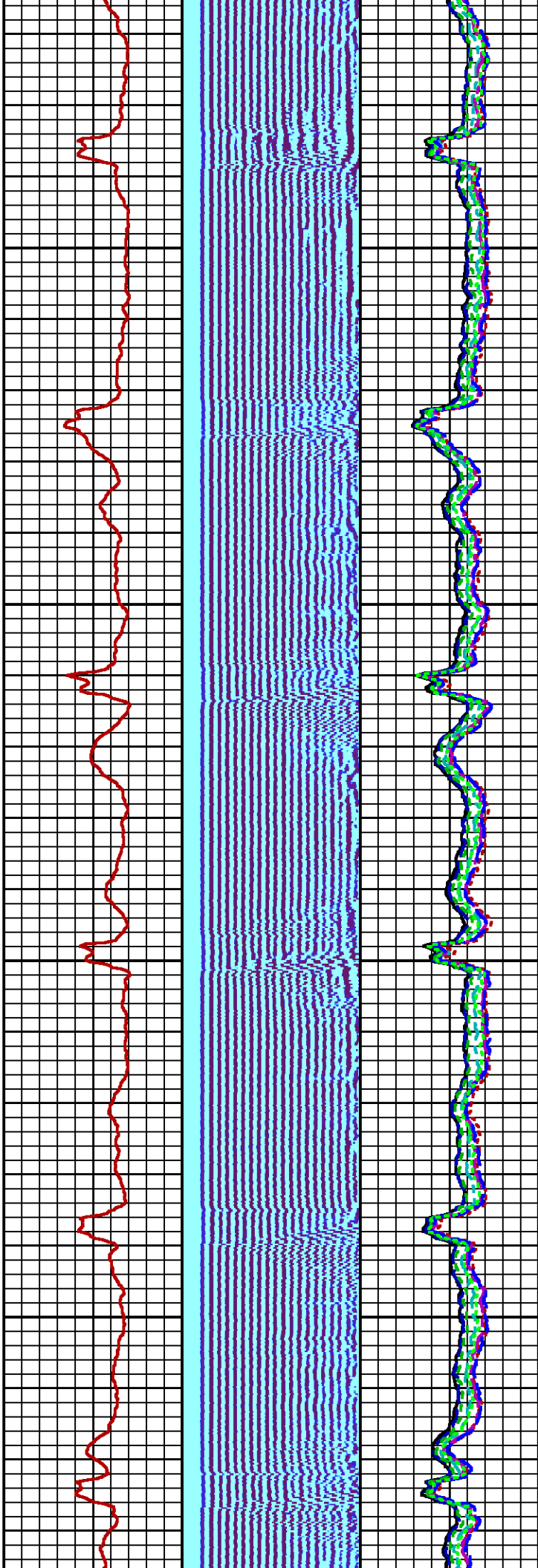
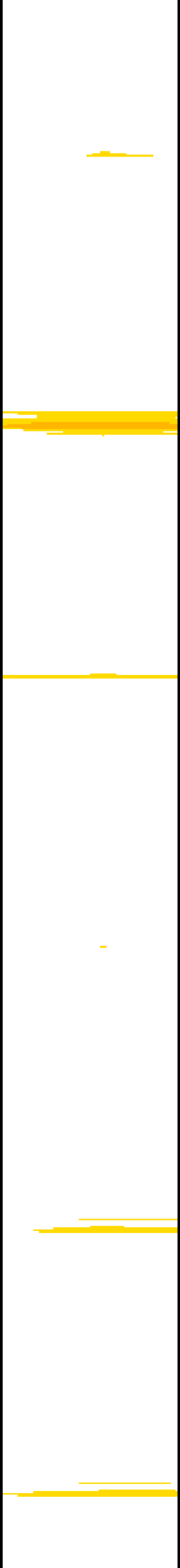




1600

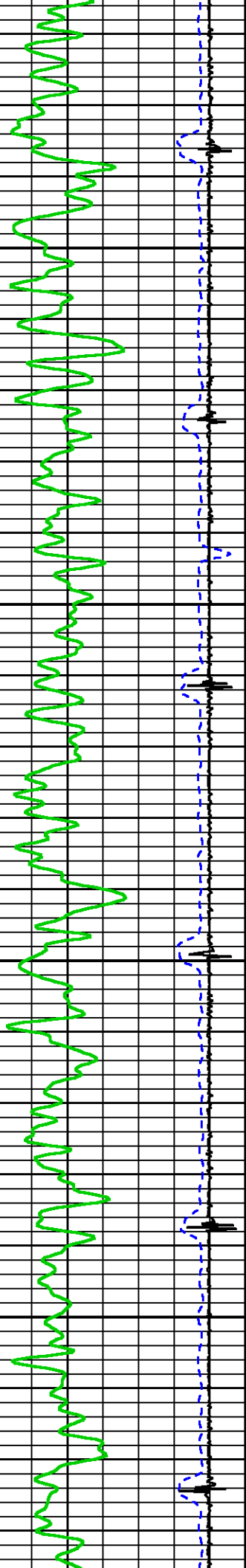
1700



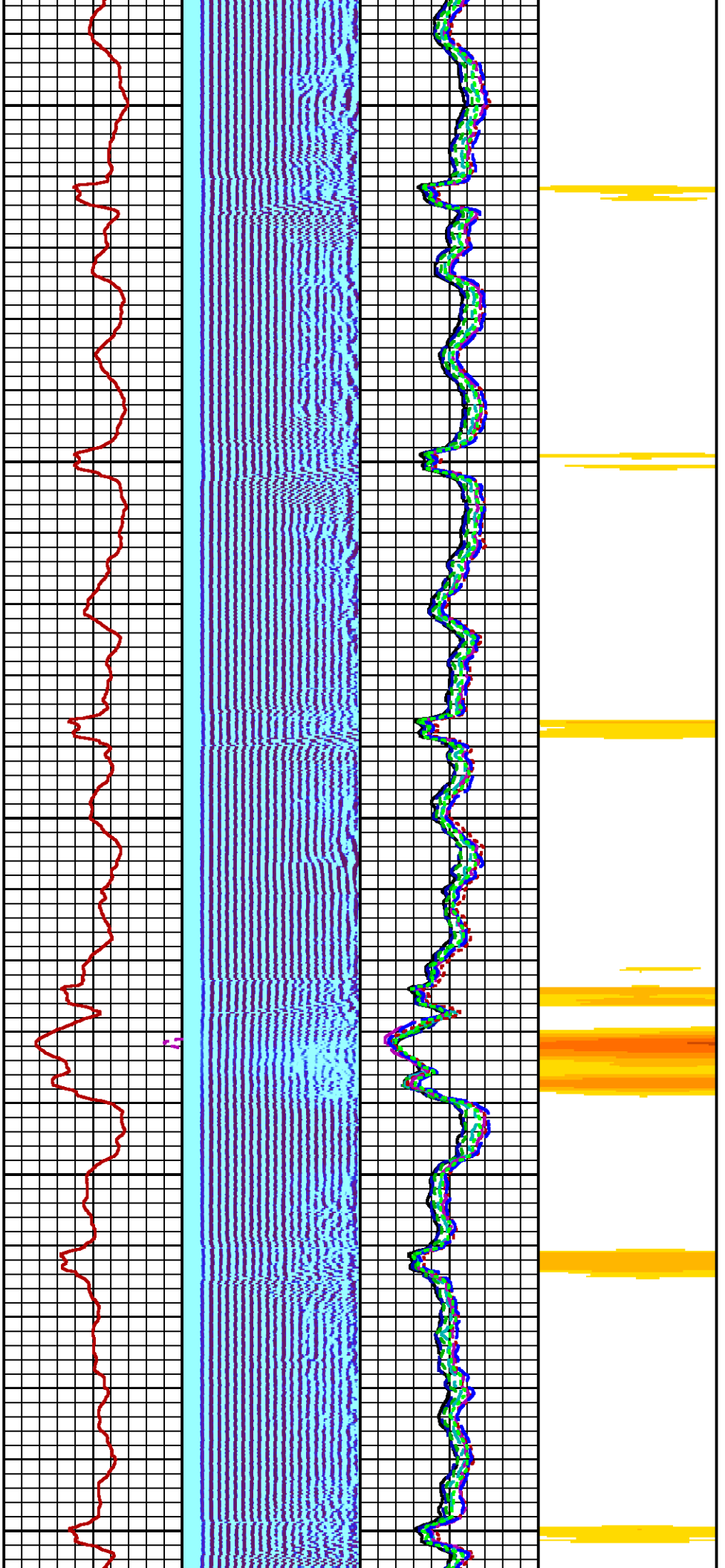


1800

1900



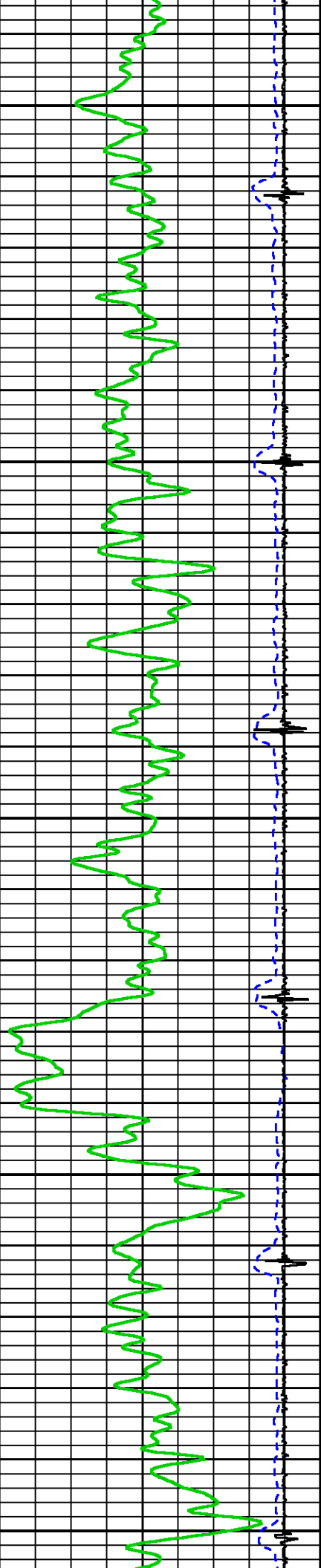




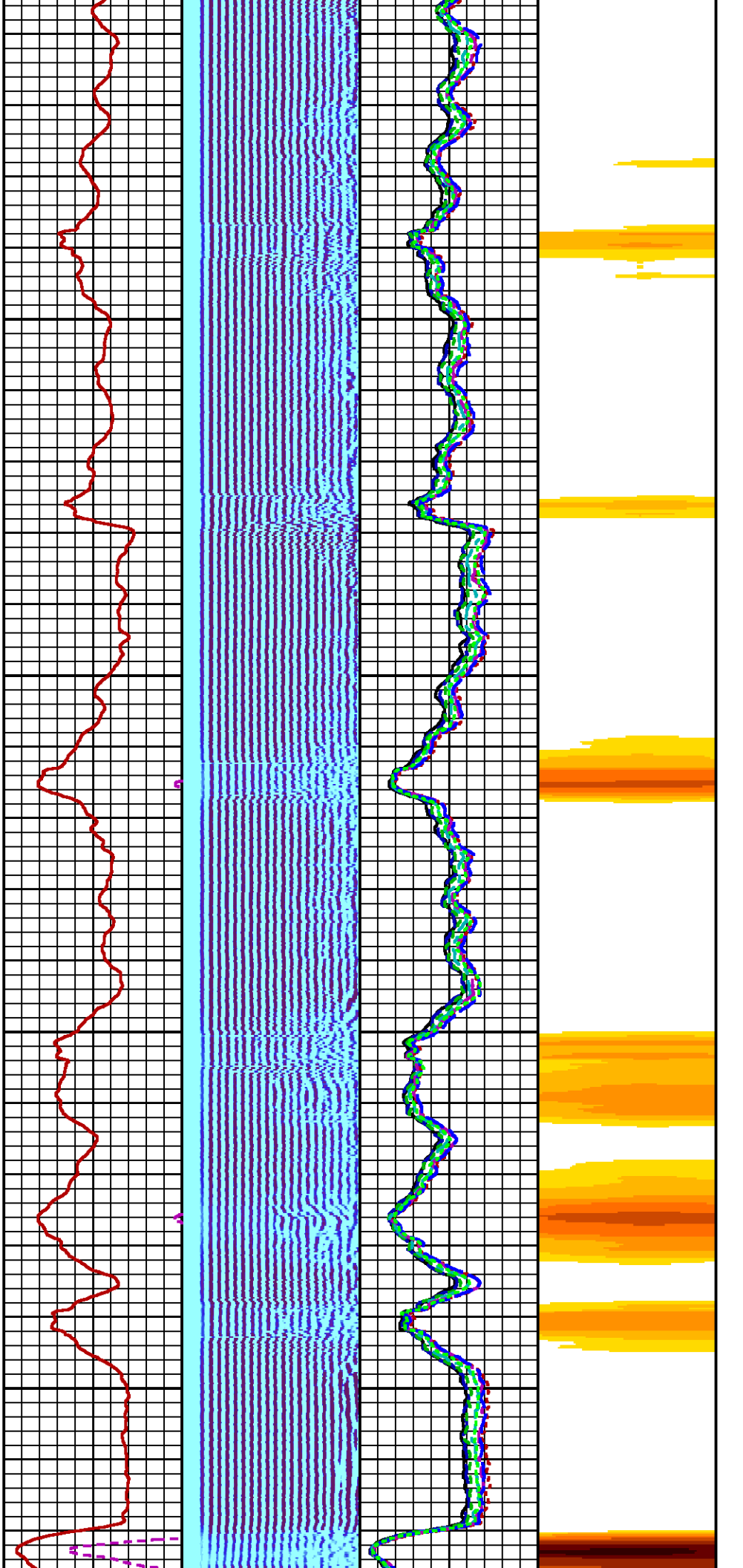
2000

2100

2200

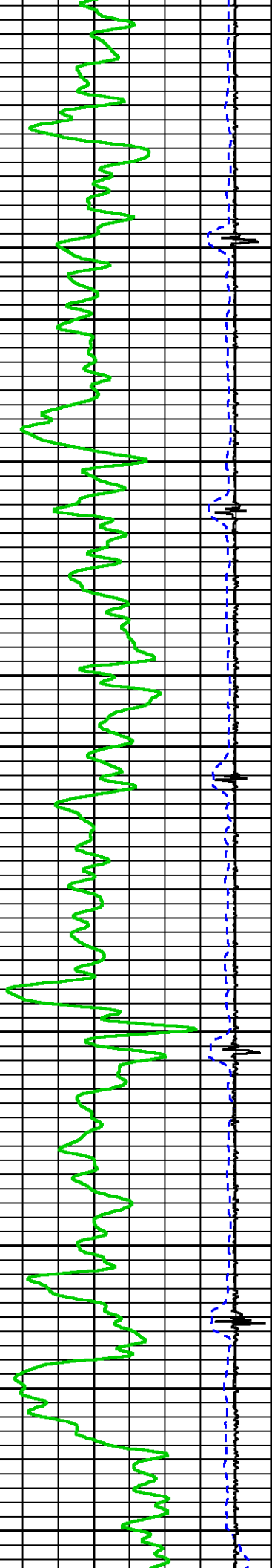


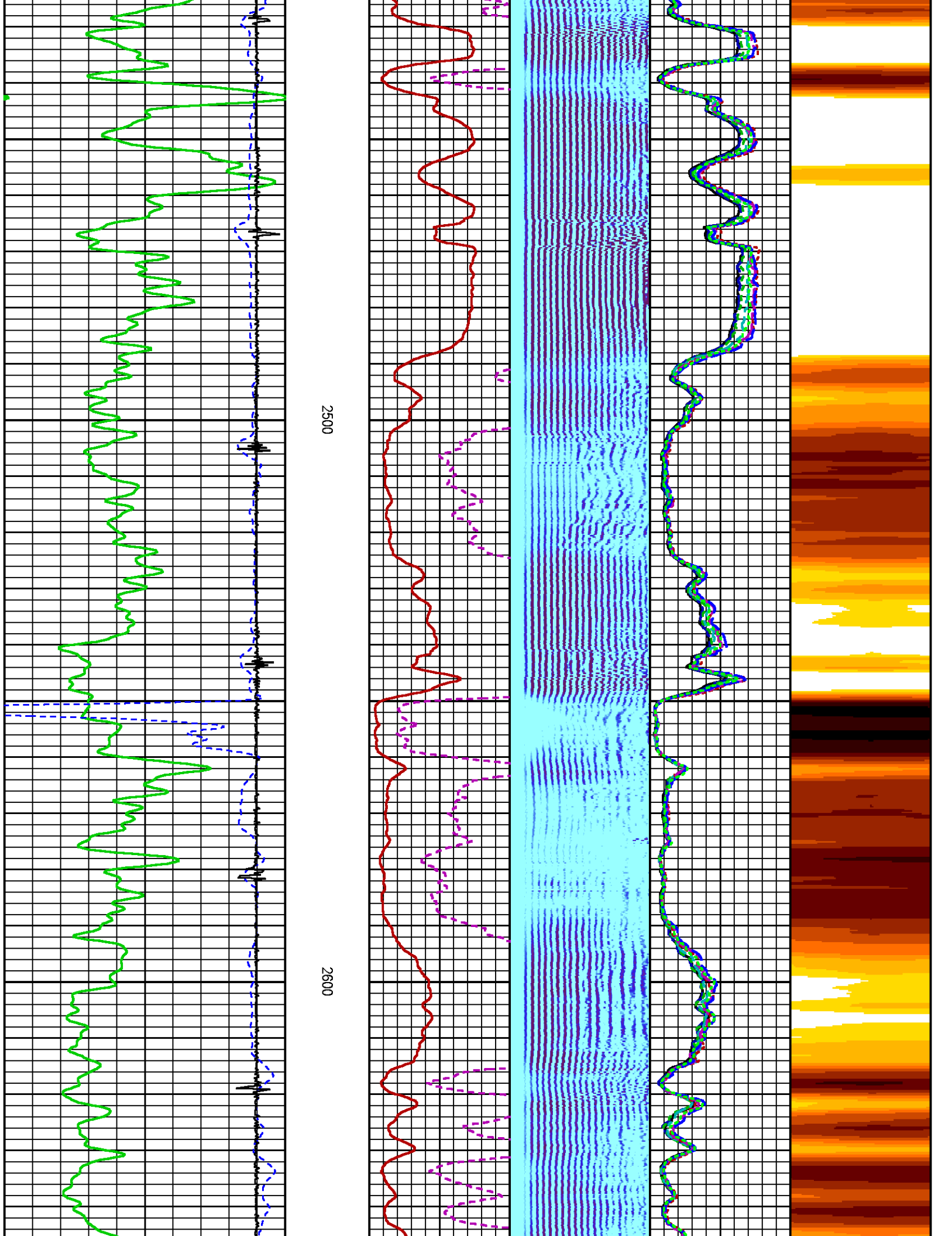


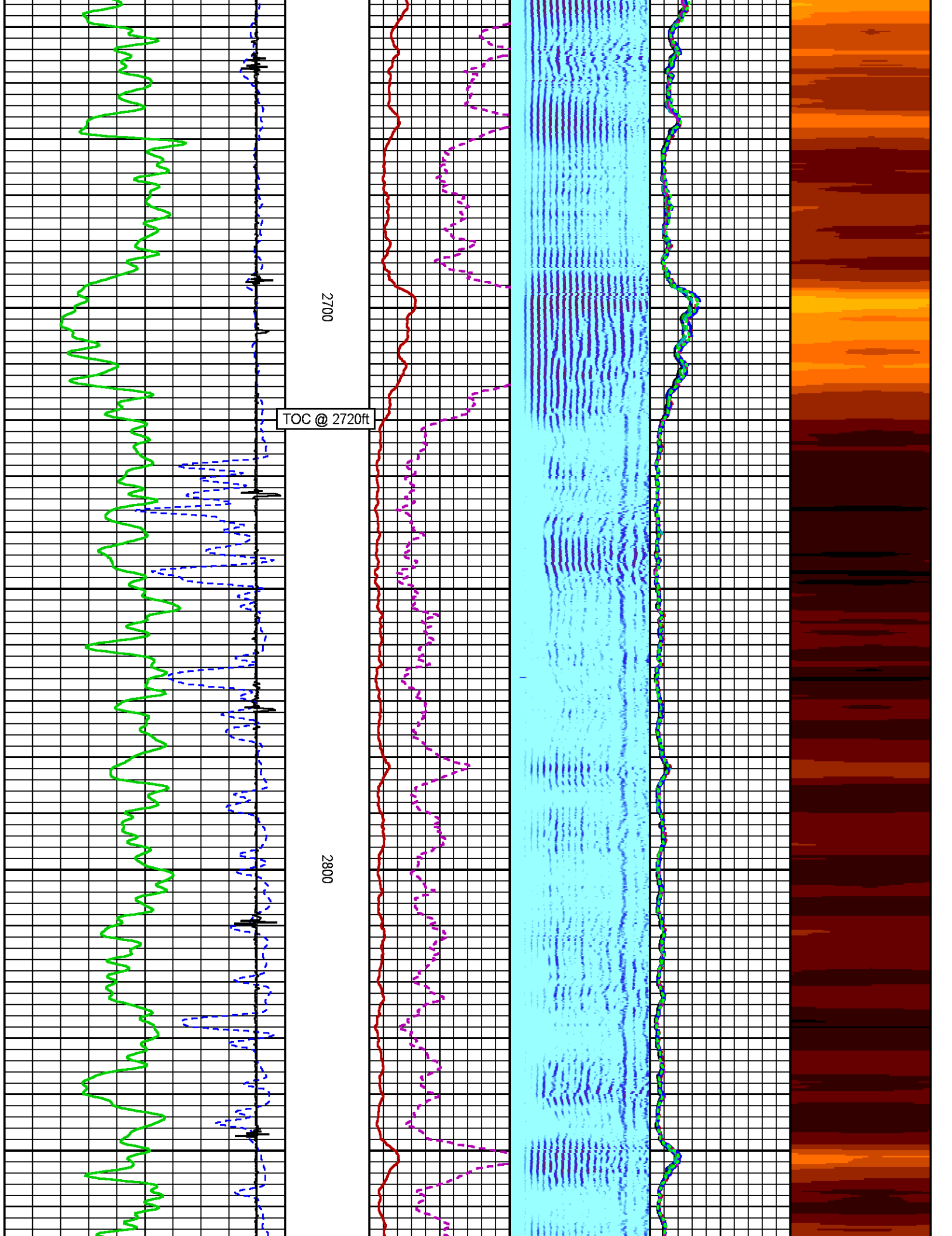


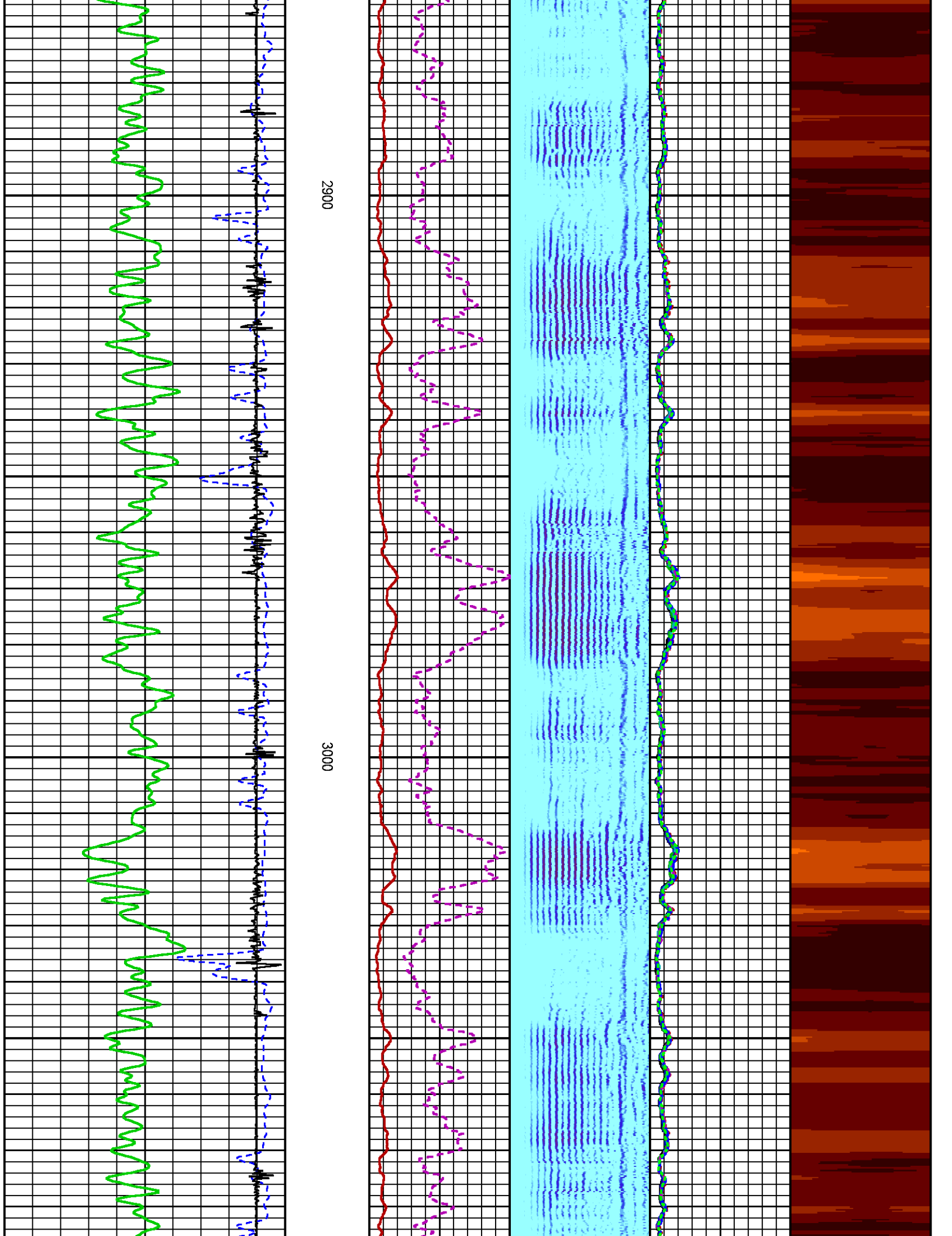
2300

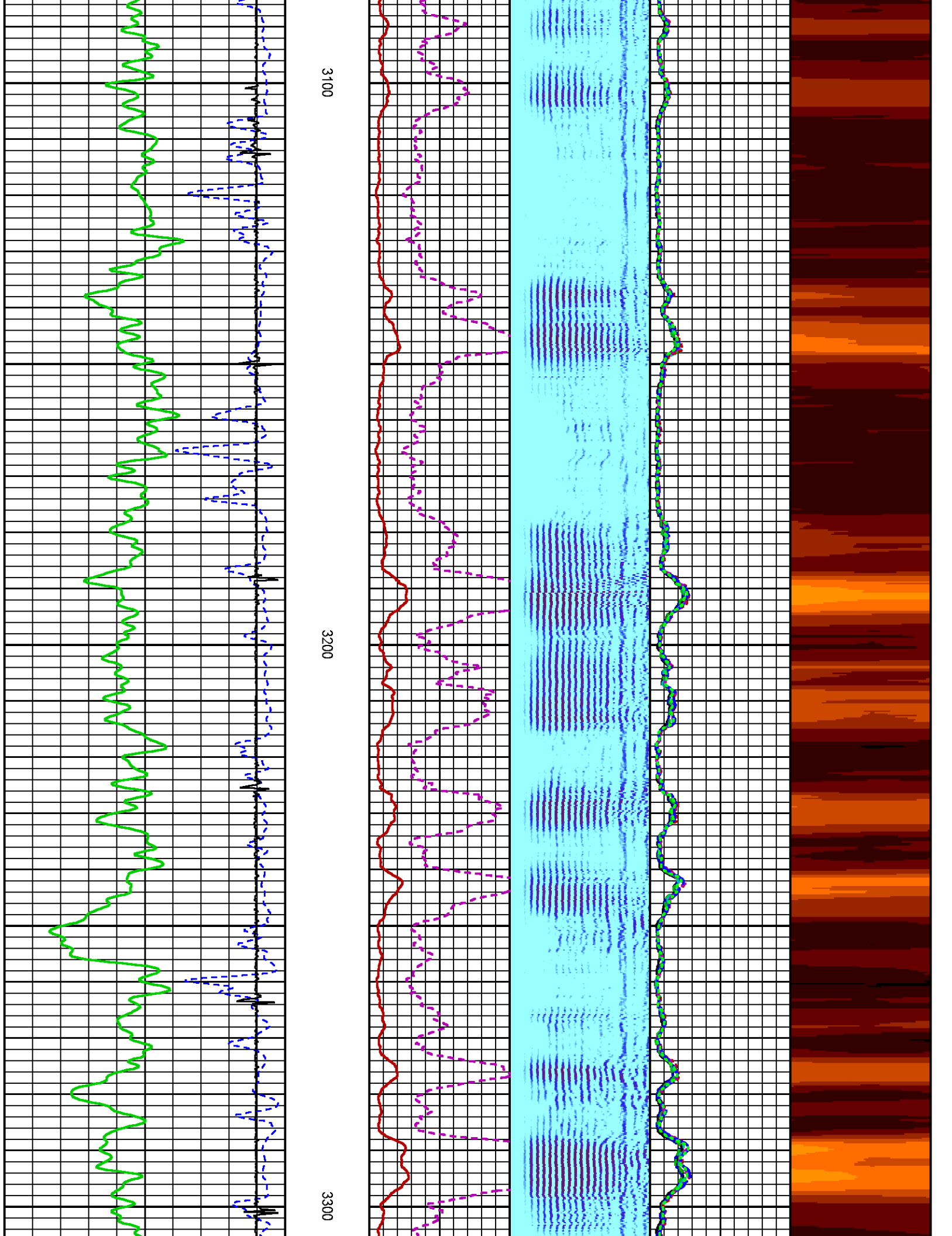
2400



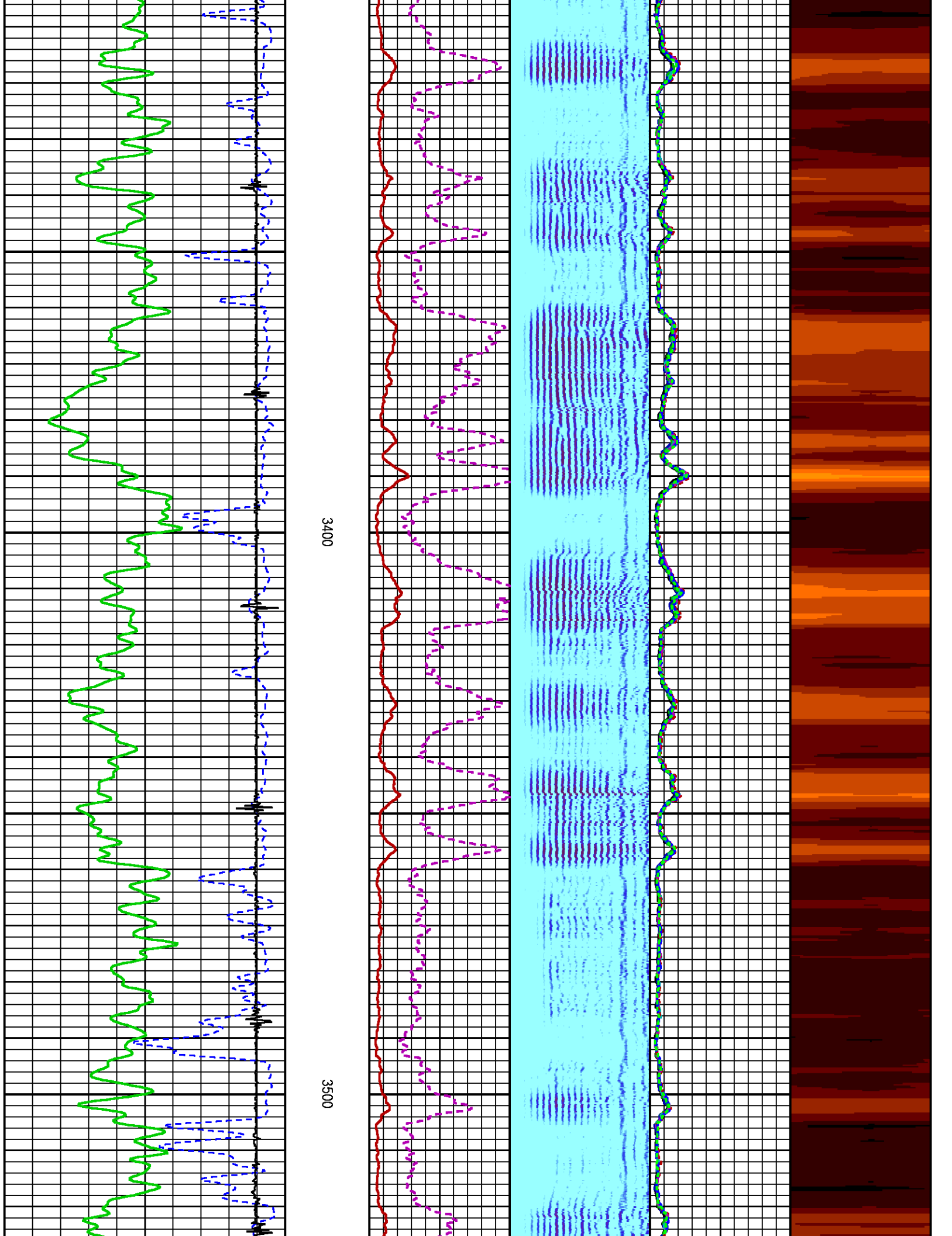


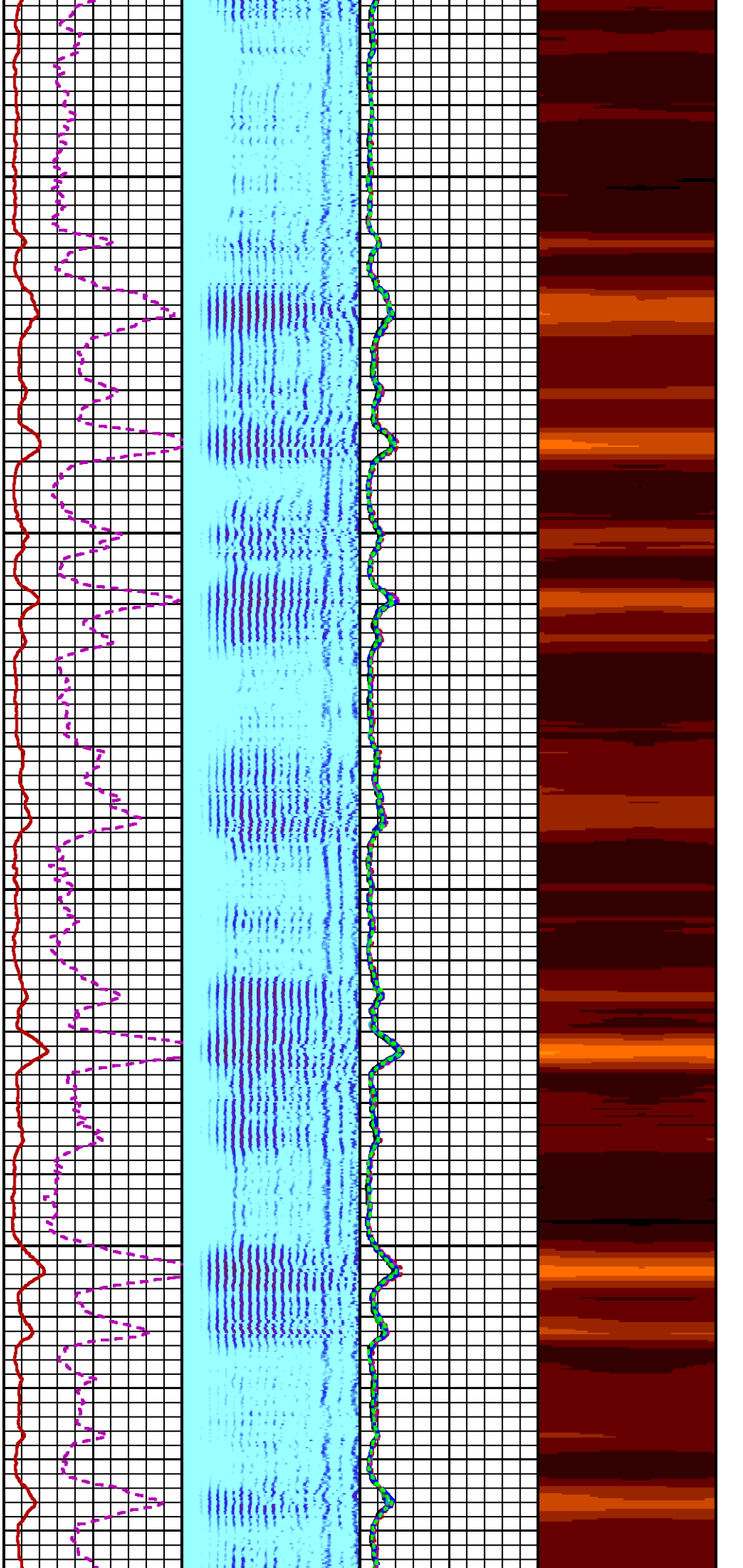






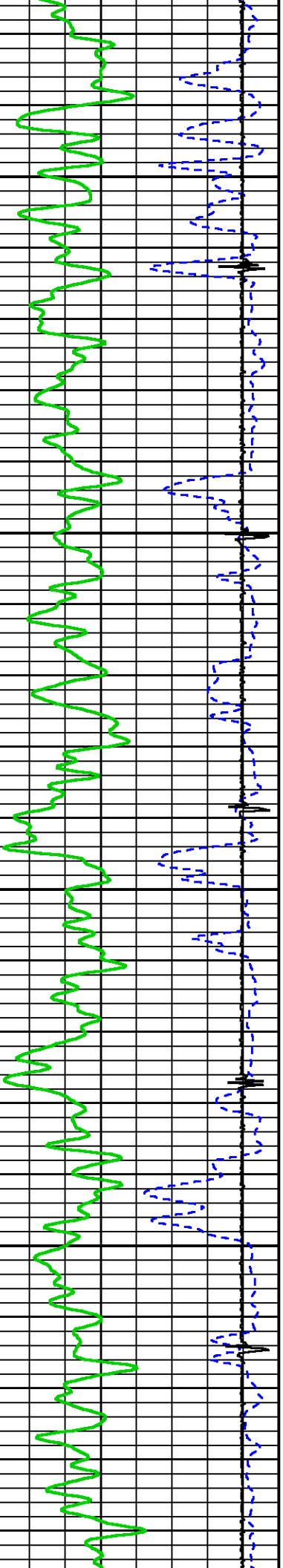


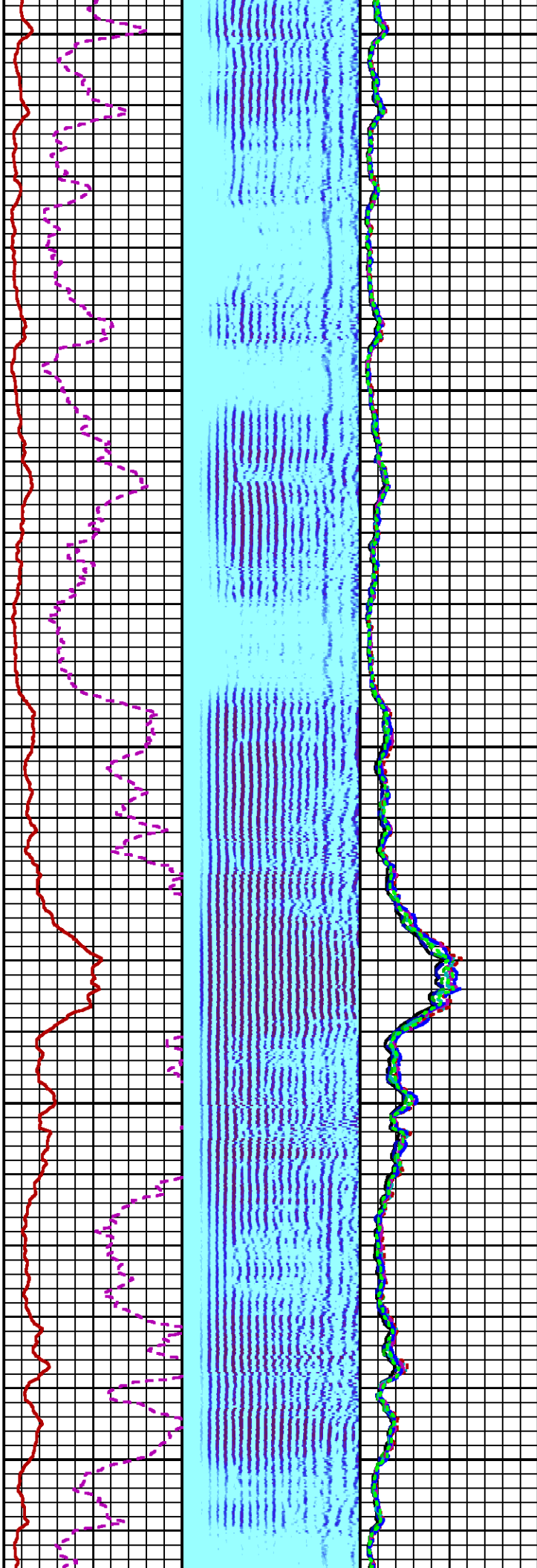




3600

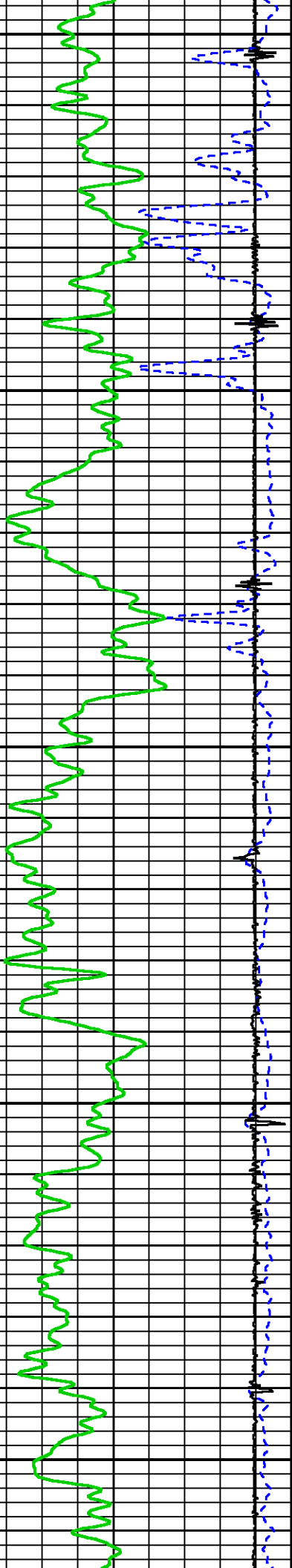
3700

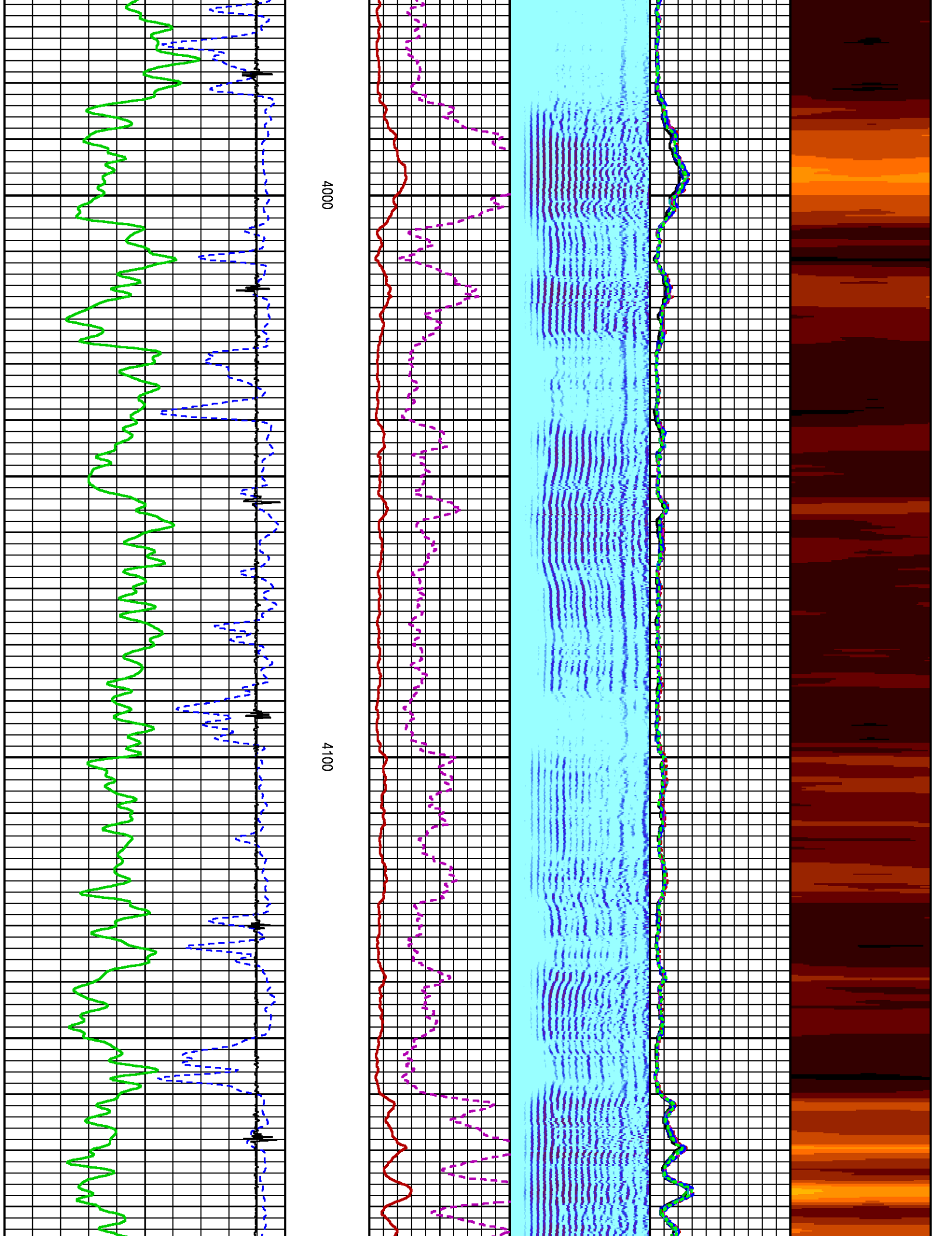


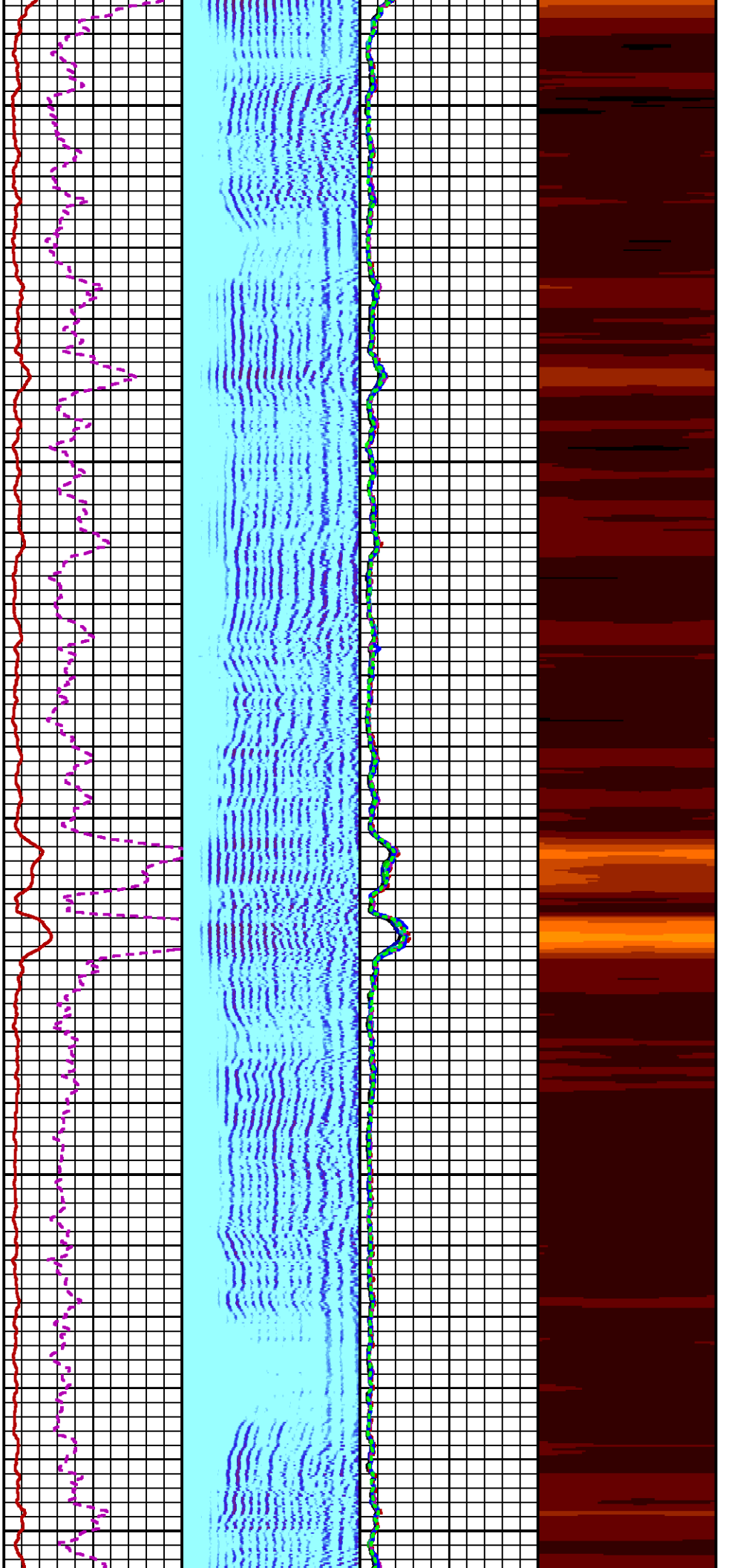


3800

3900





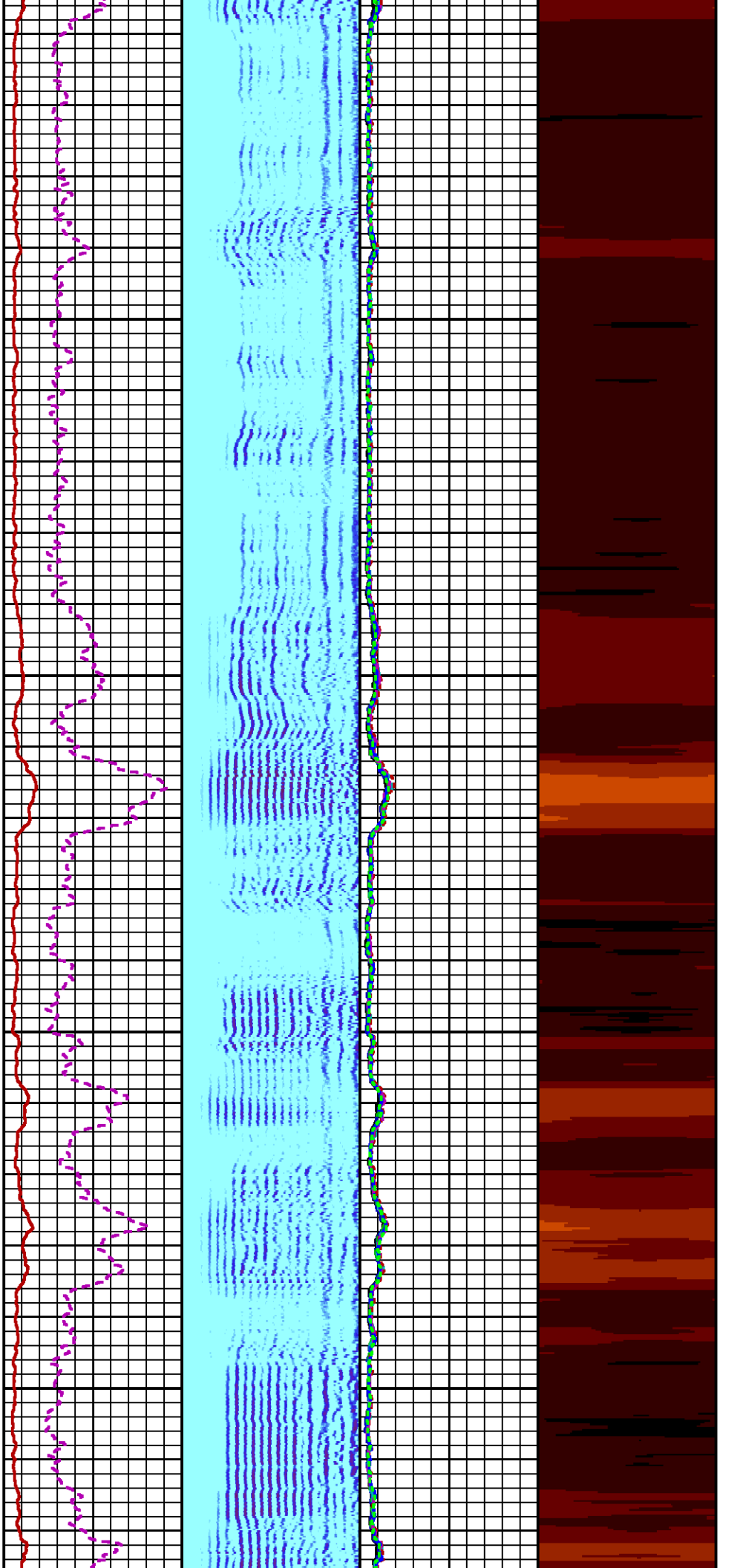


4200

4300

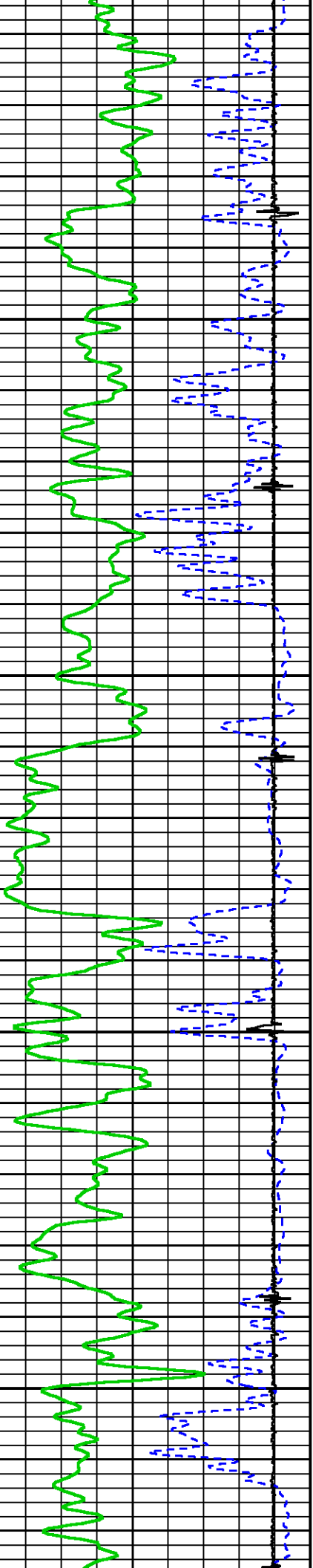
4400

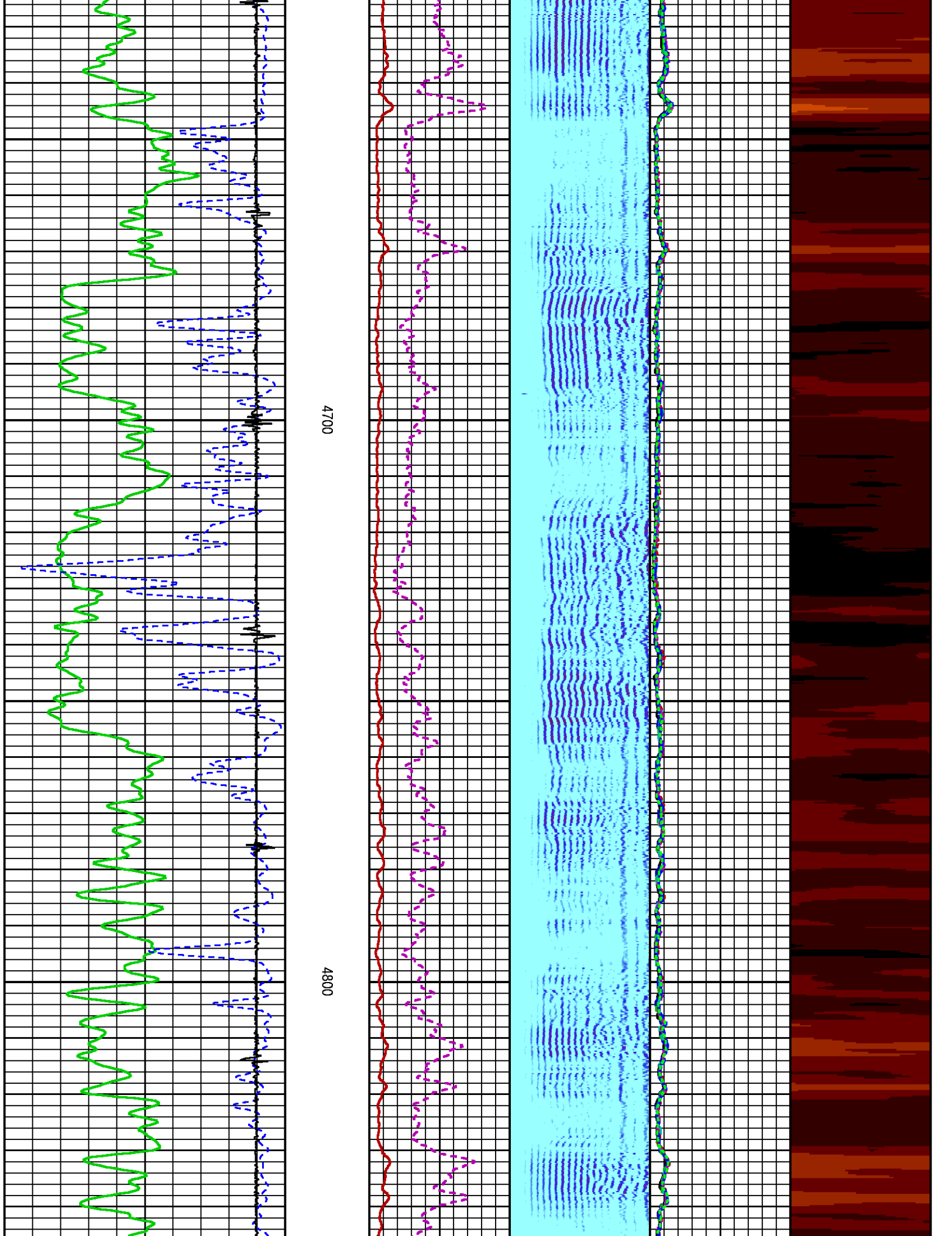


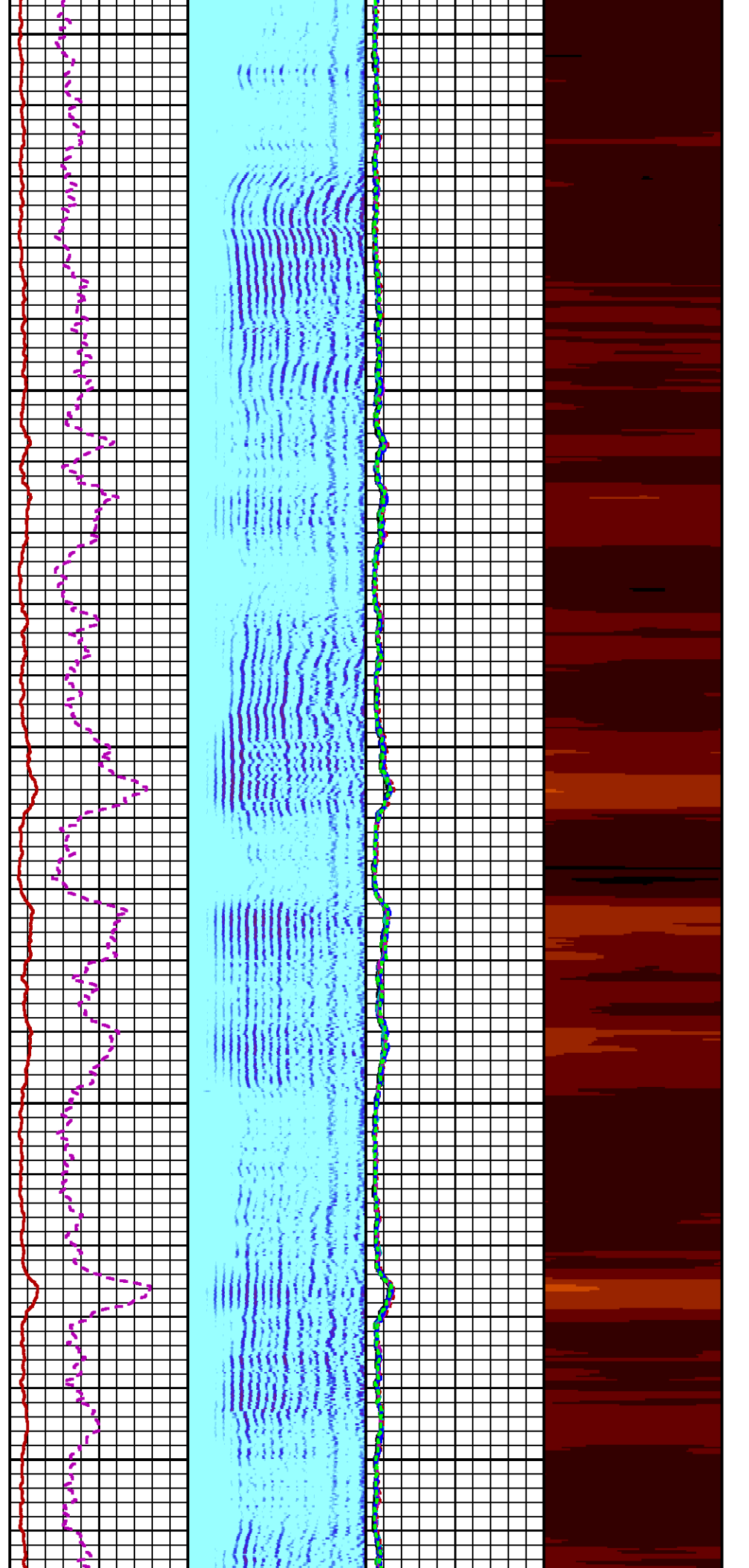


4500

4600

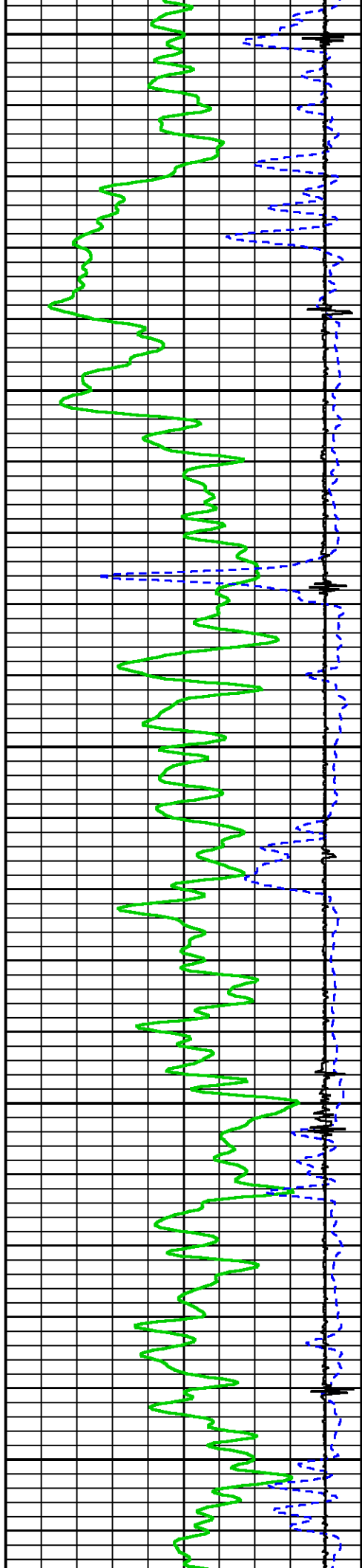


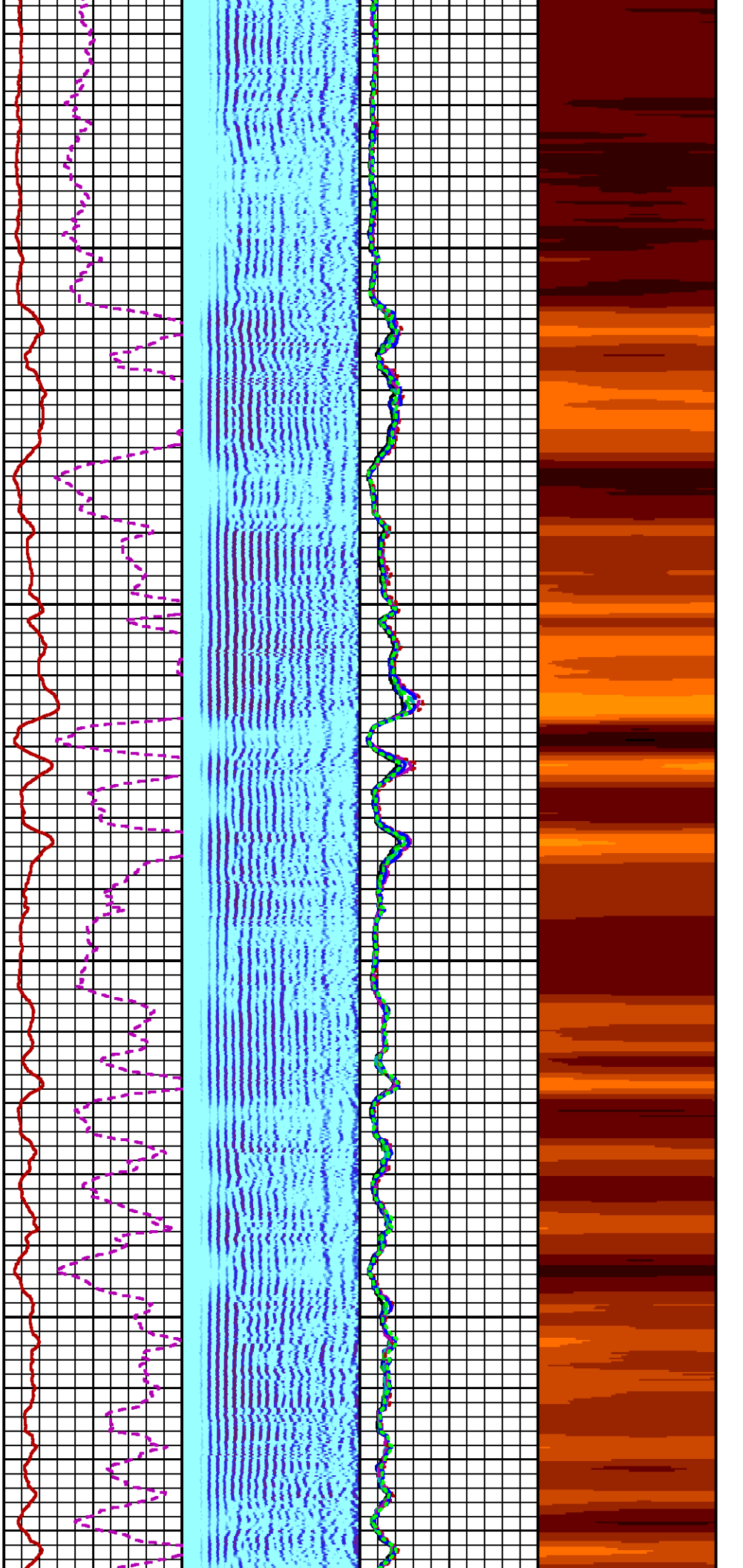




4900

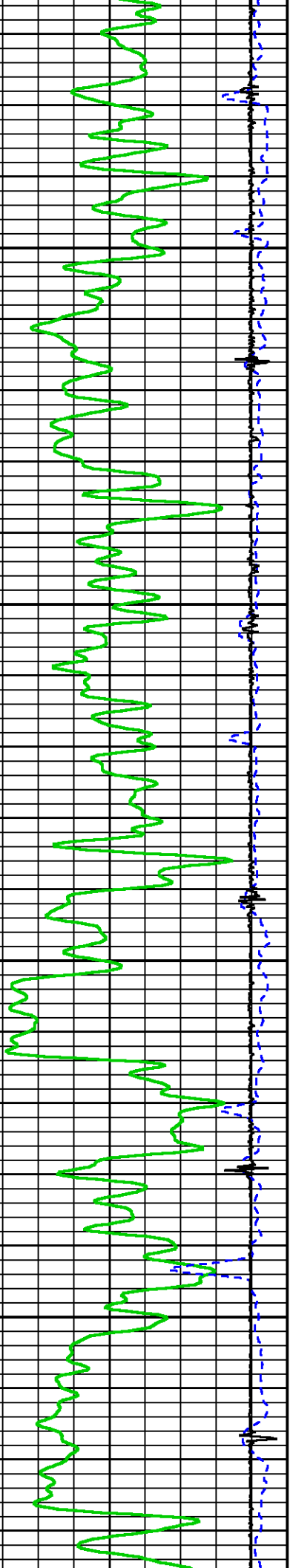
5000

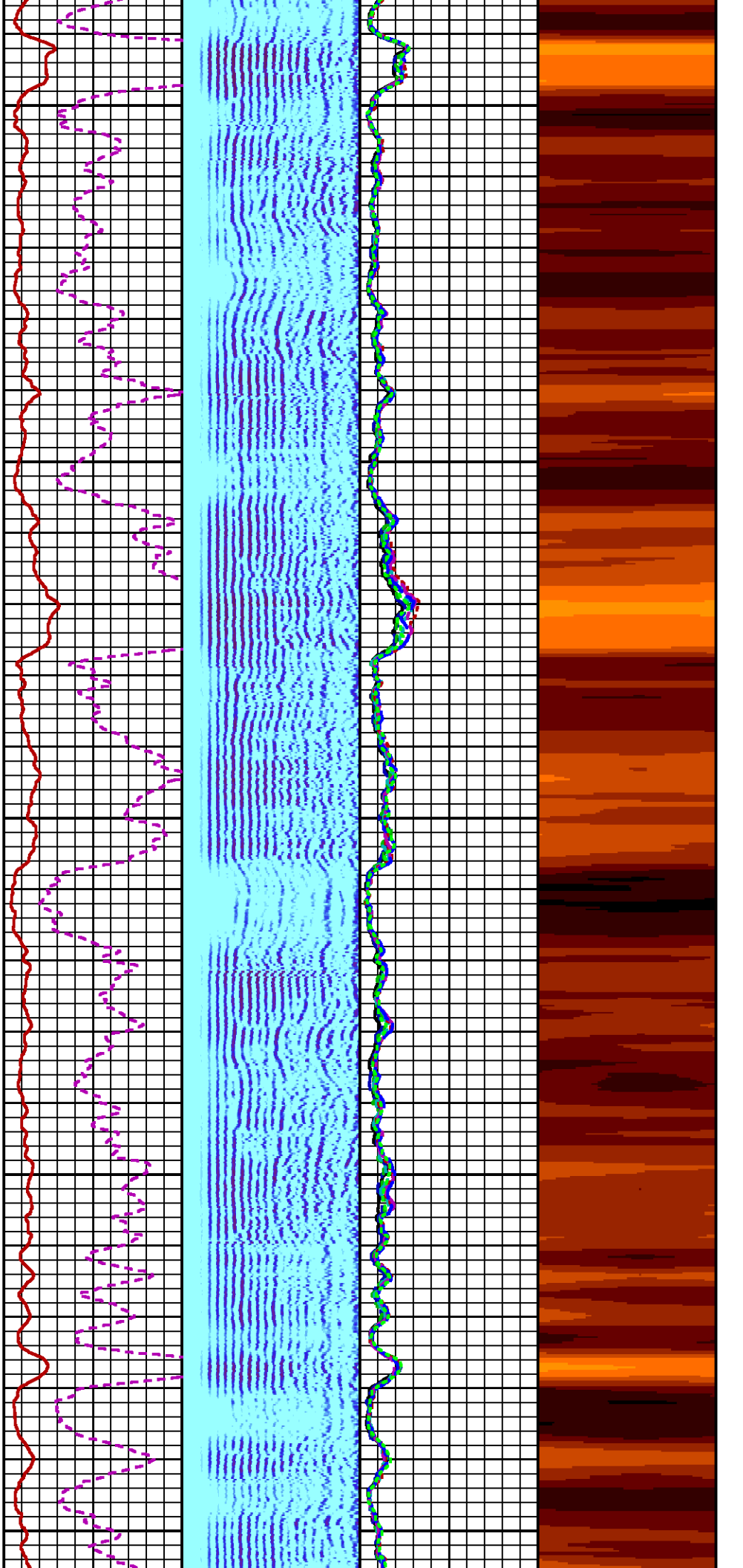




5100

5200

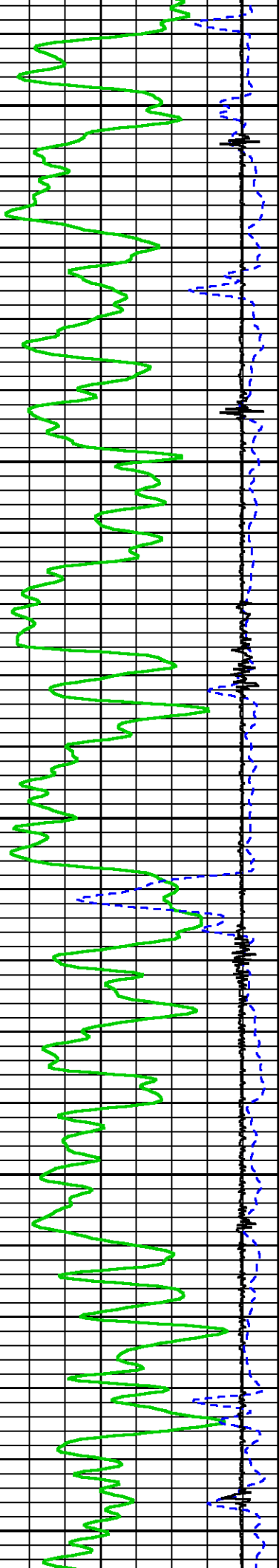




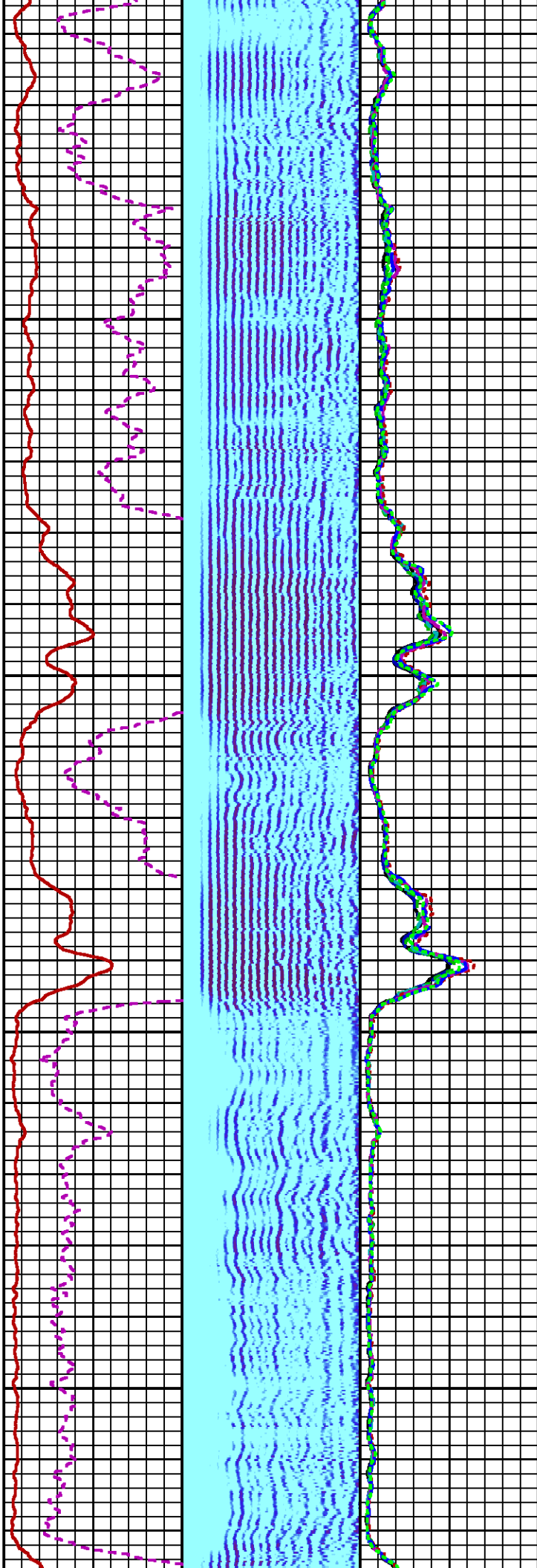
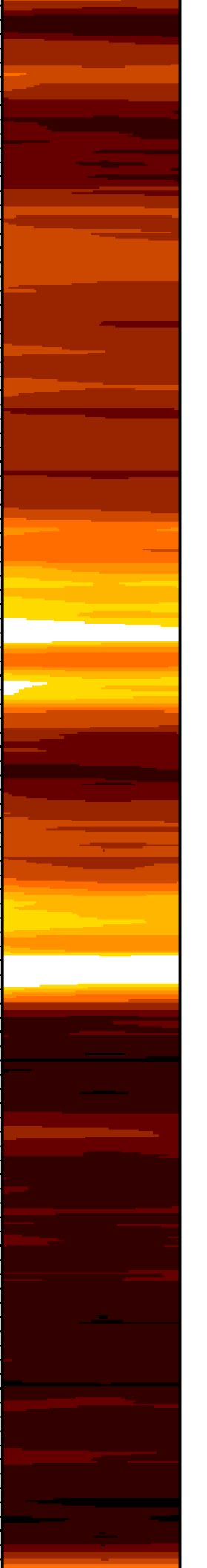
5300

5400

5500

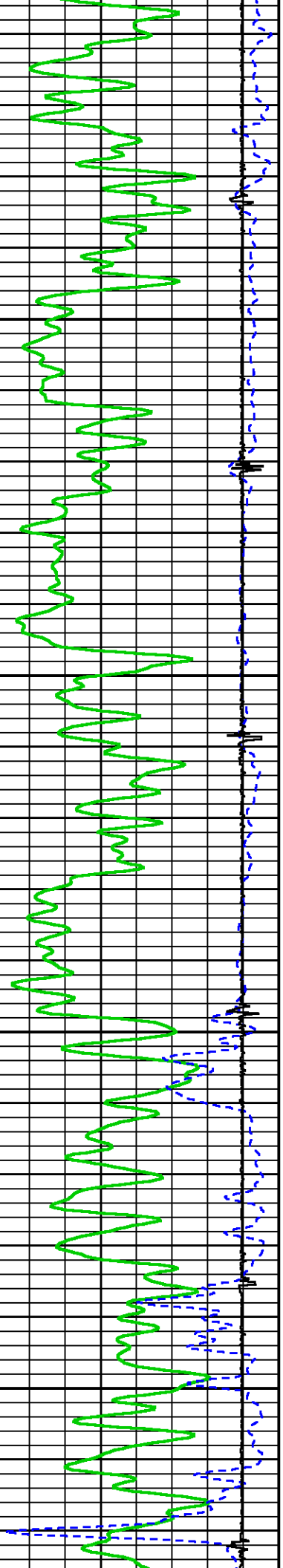


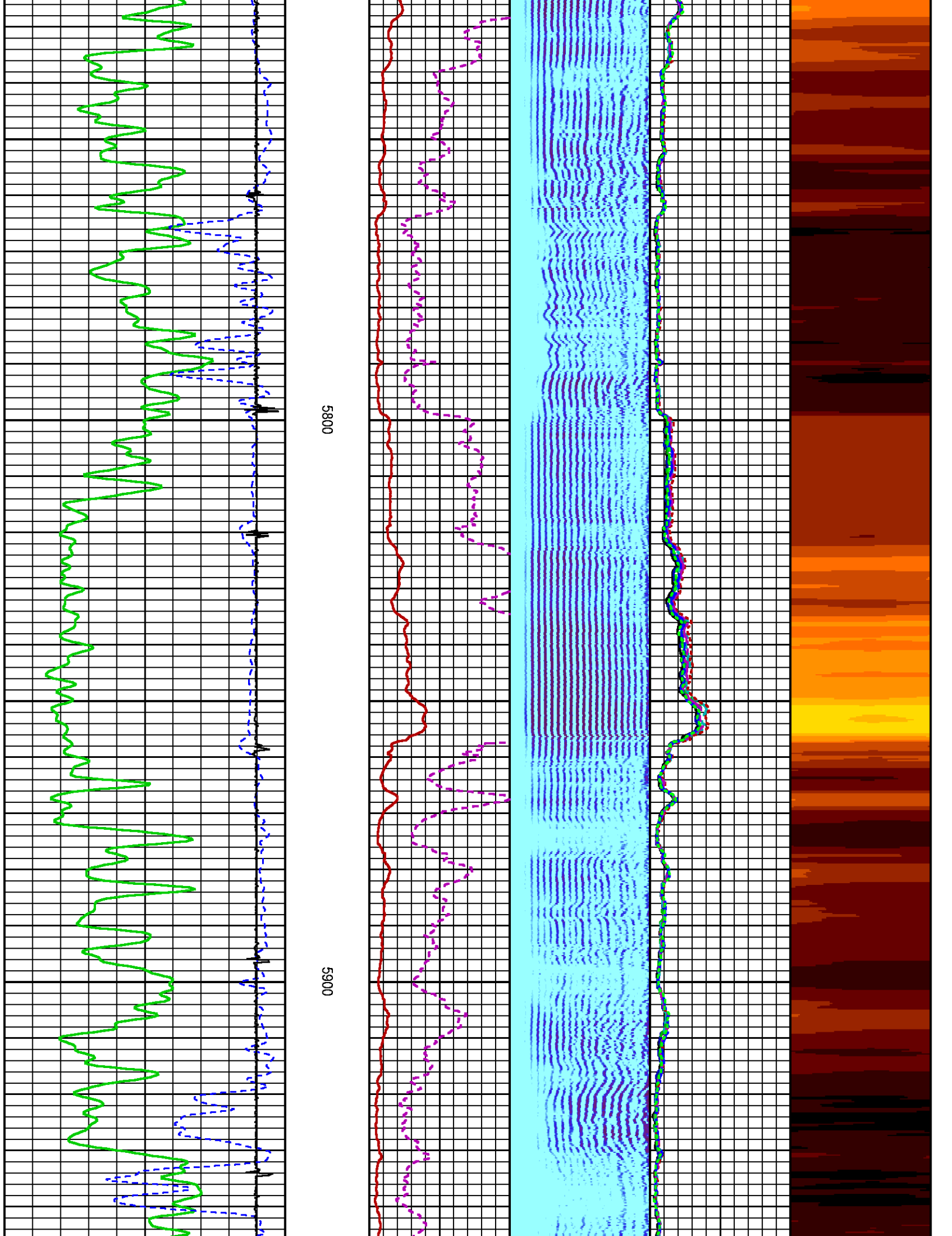


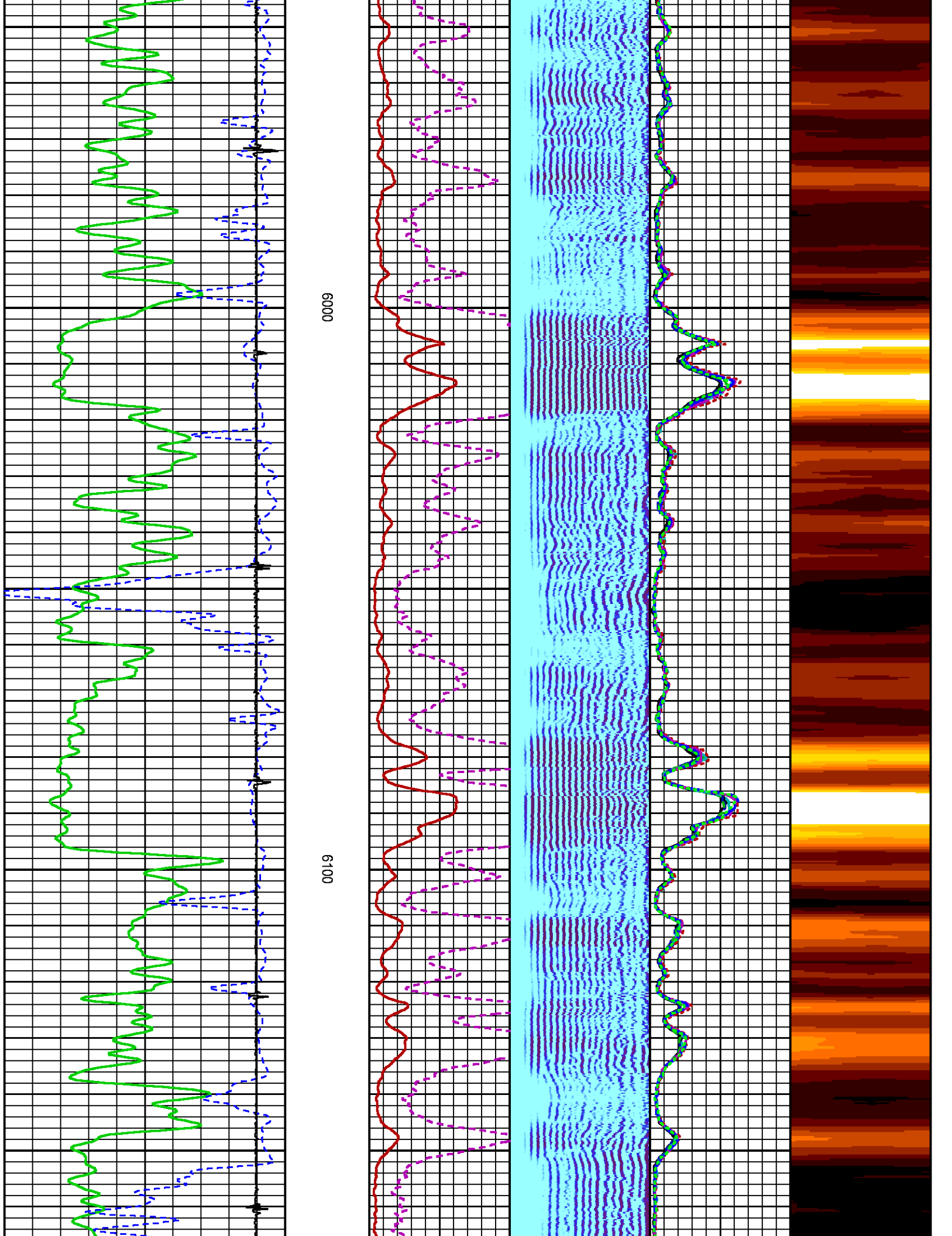


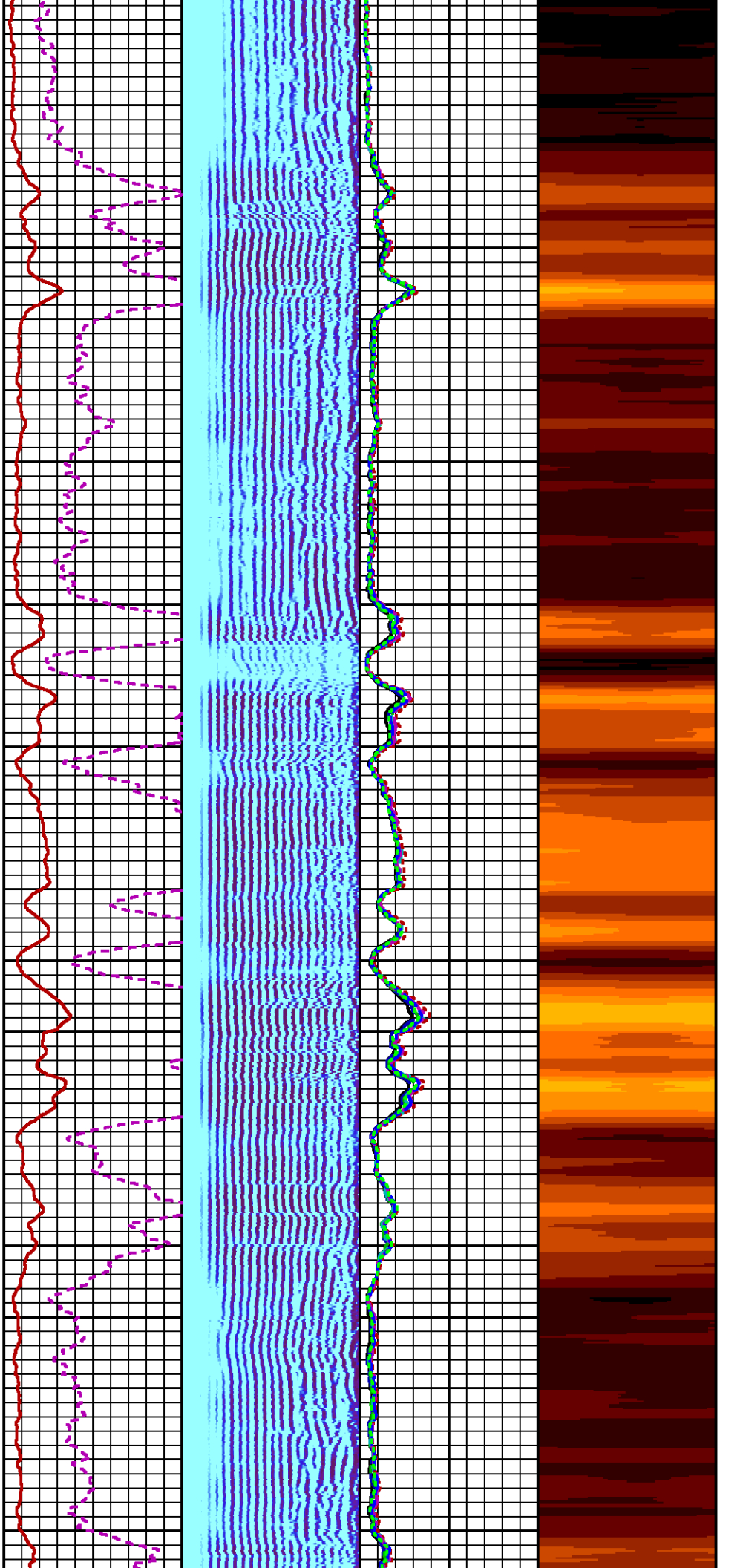
5600

5700



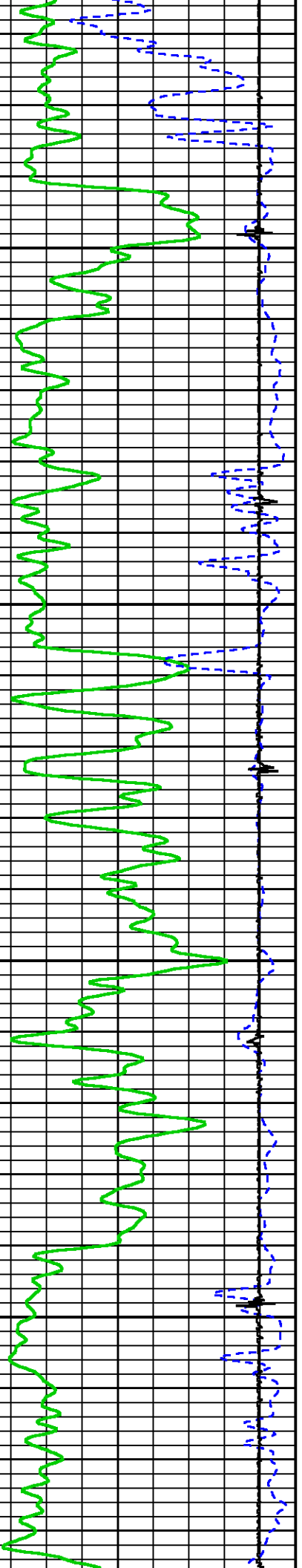




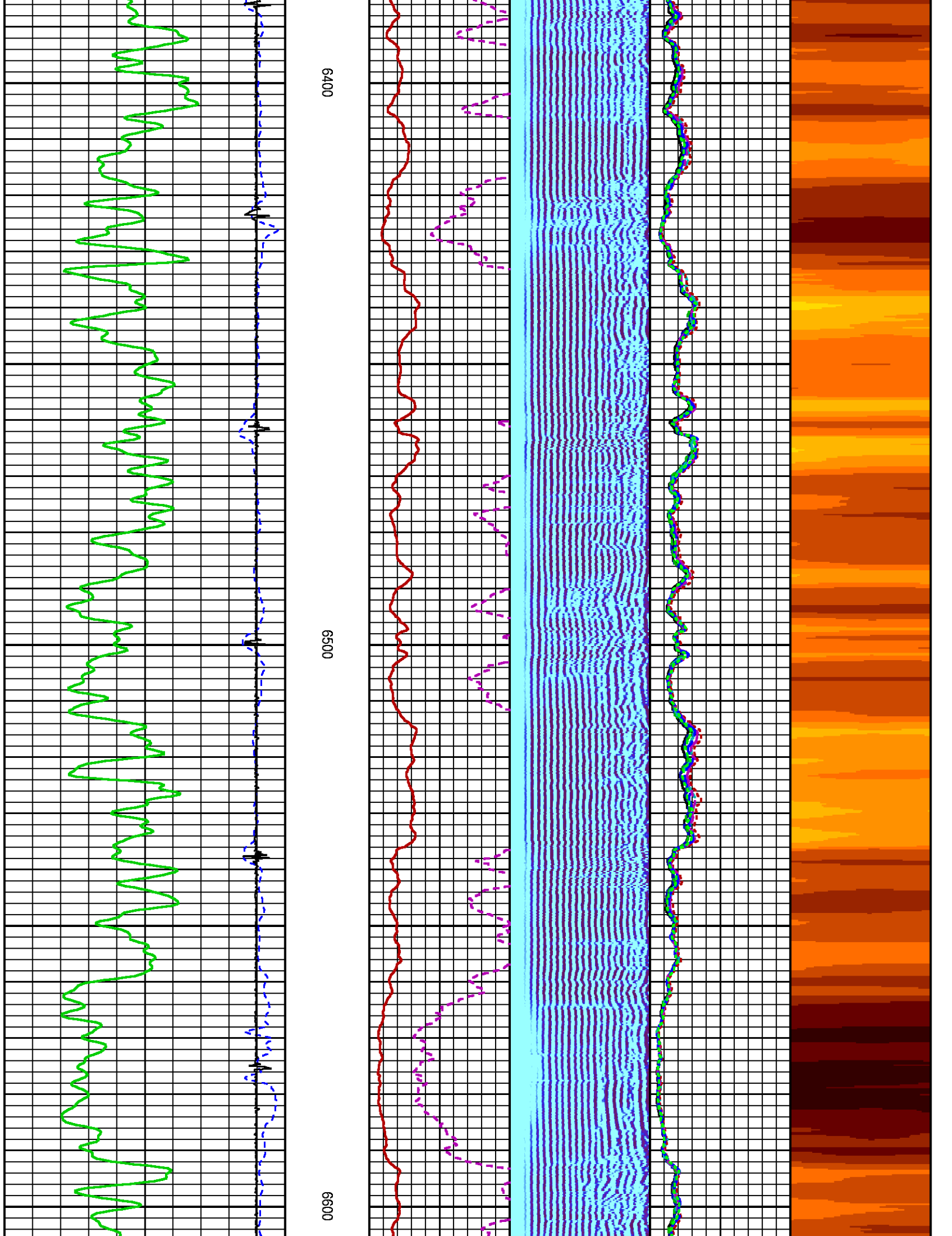


6200

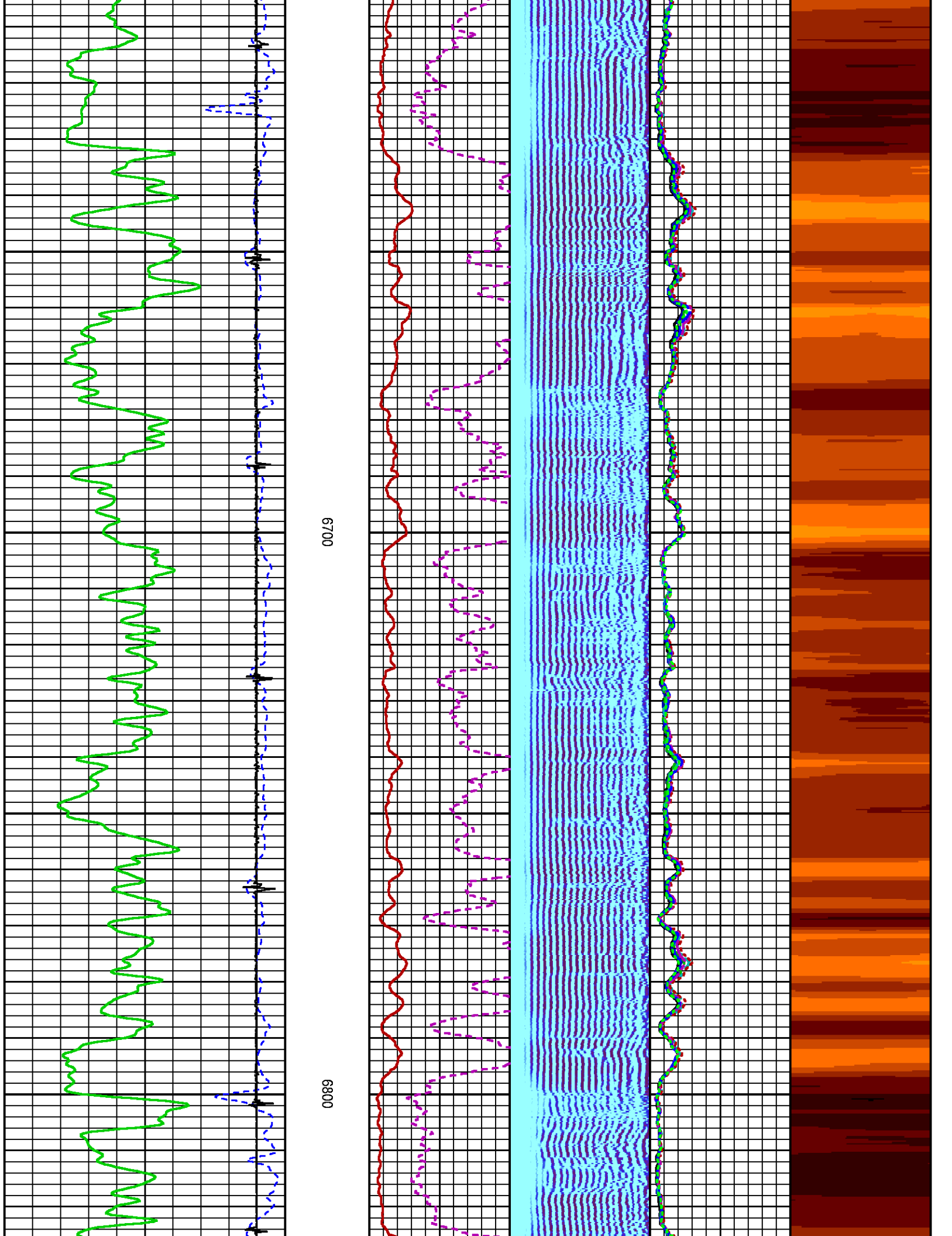
6300

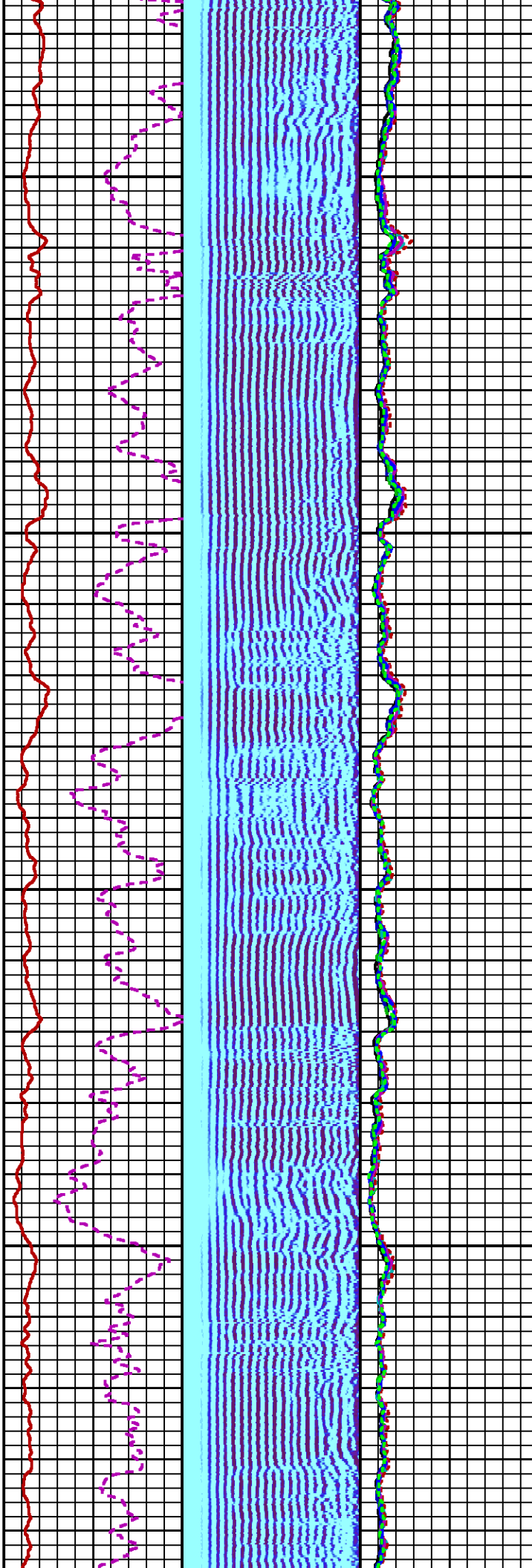
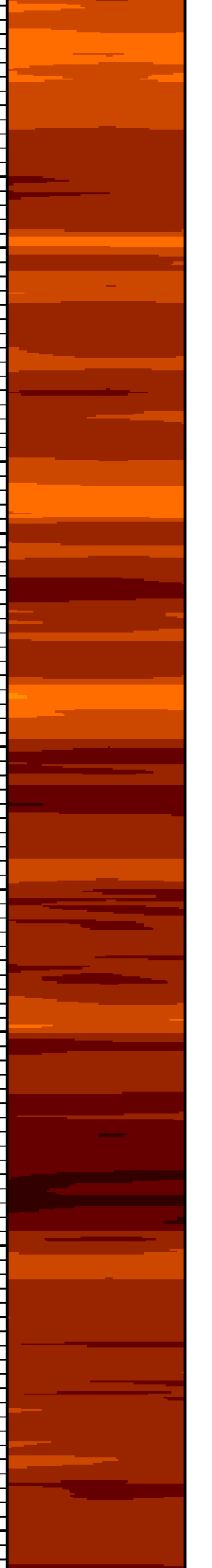






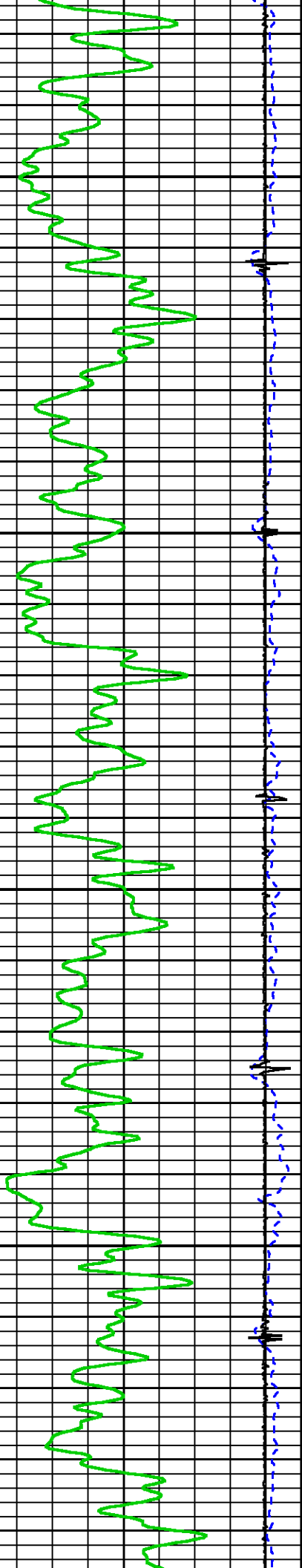


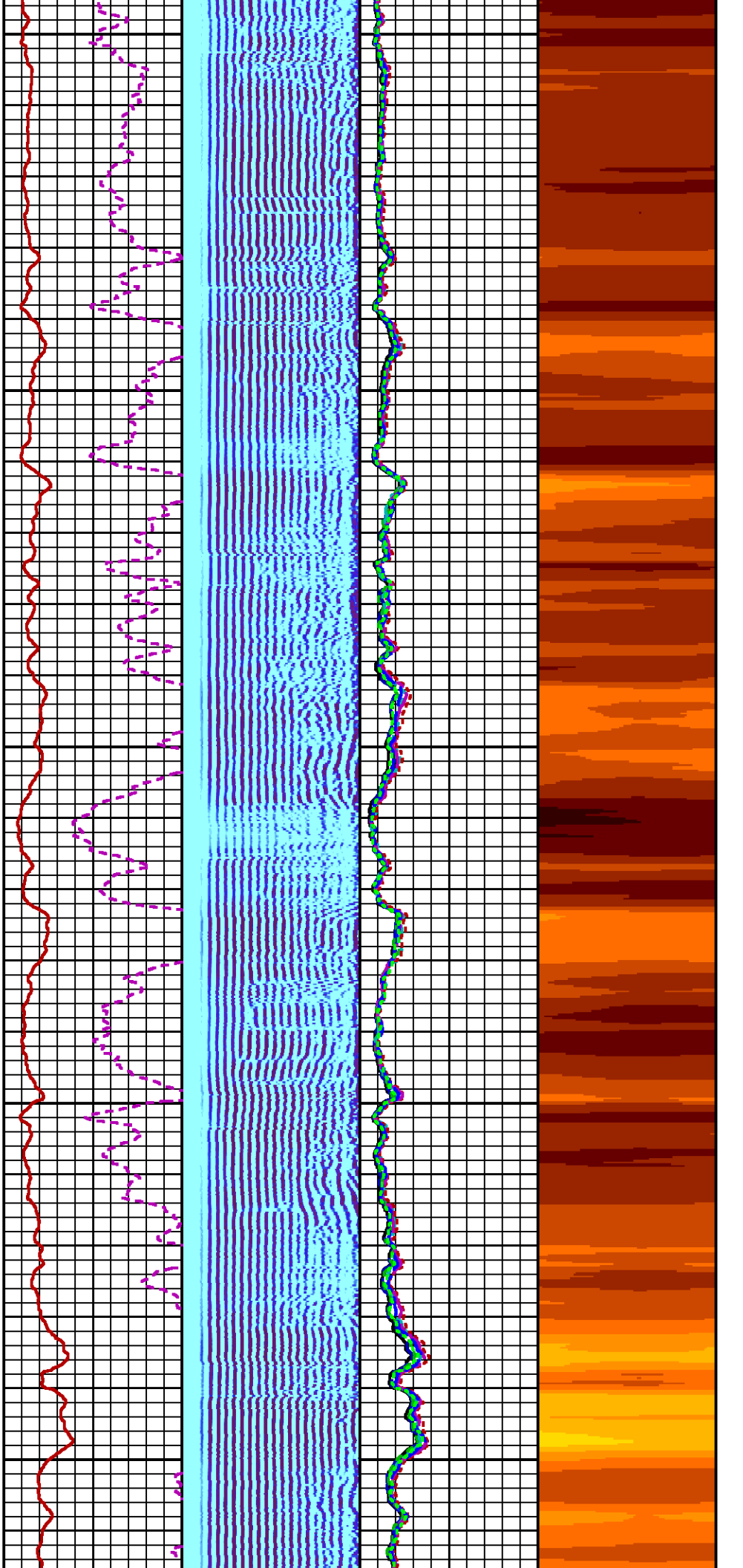




6900

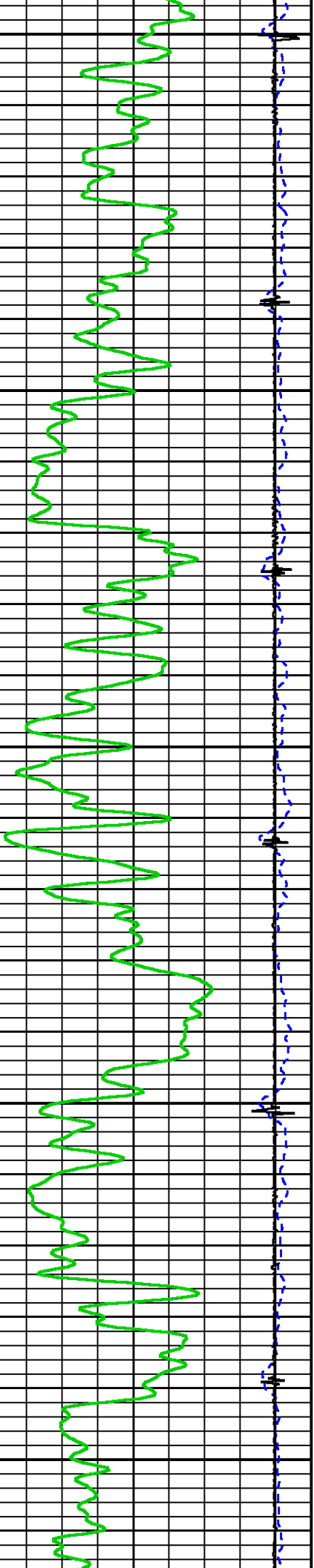
7000

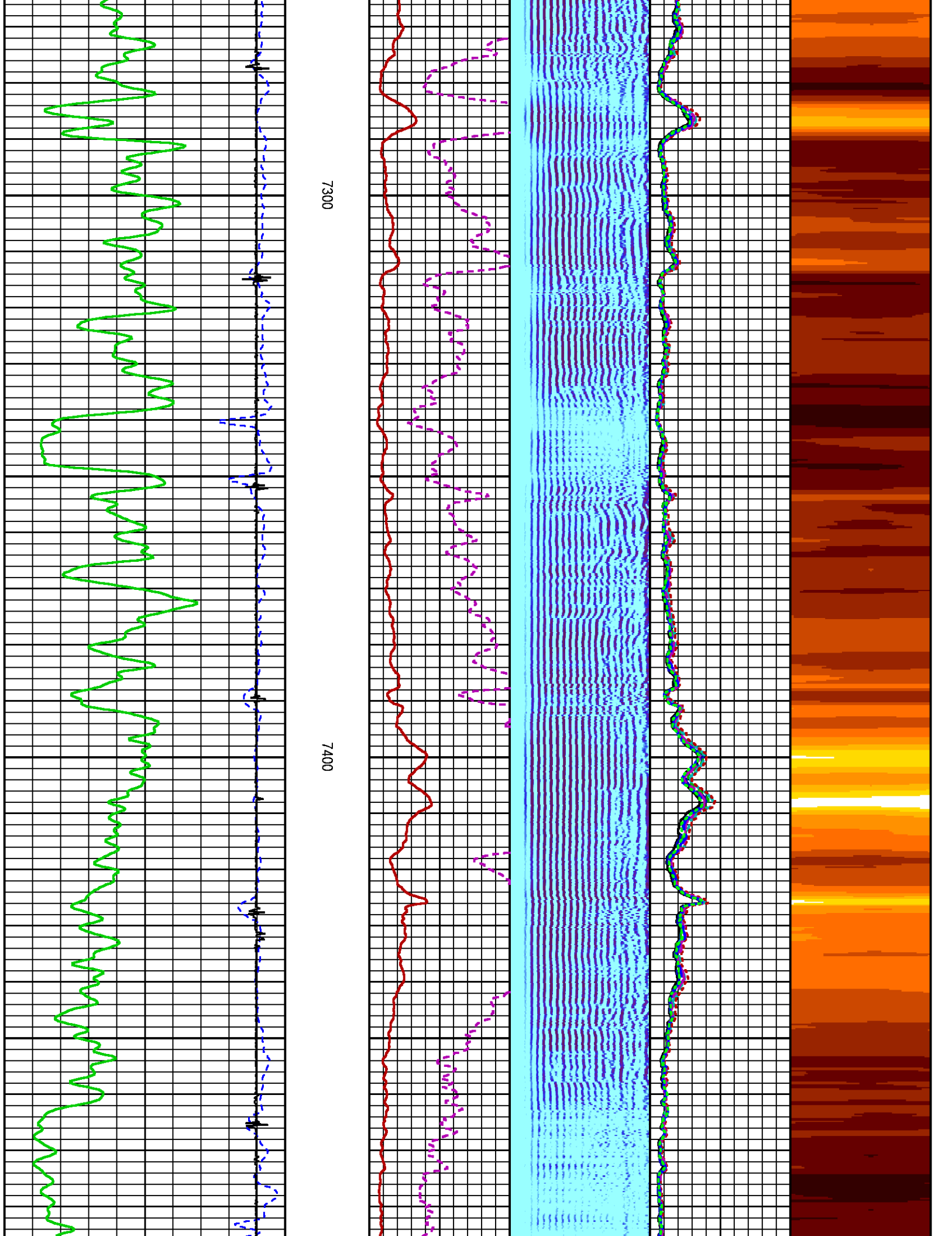




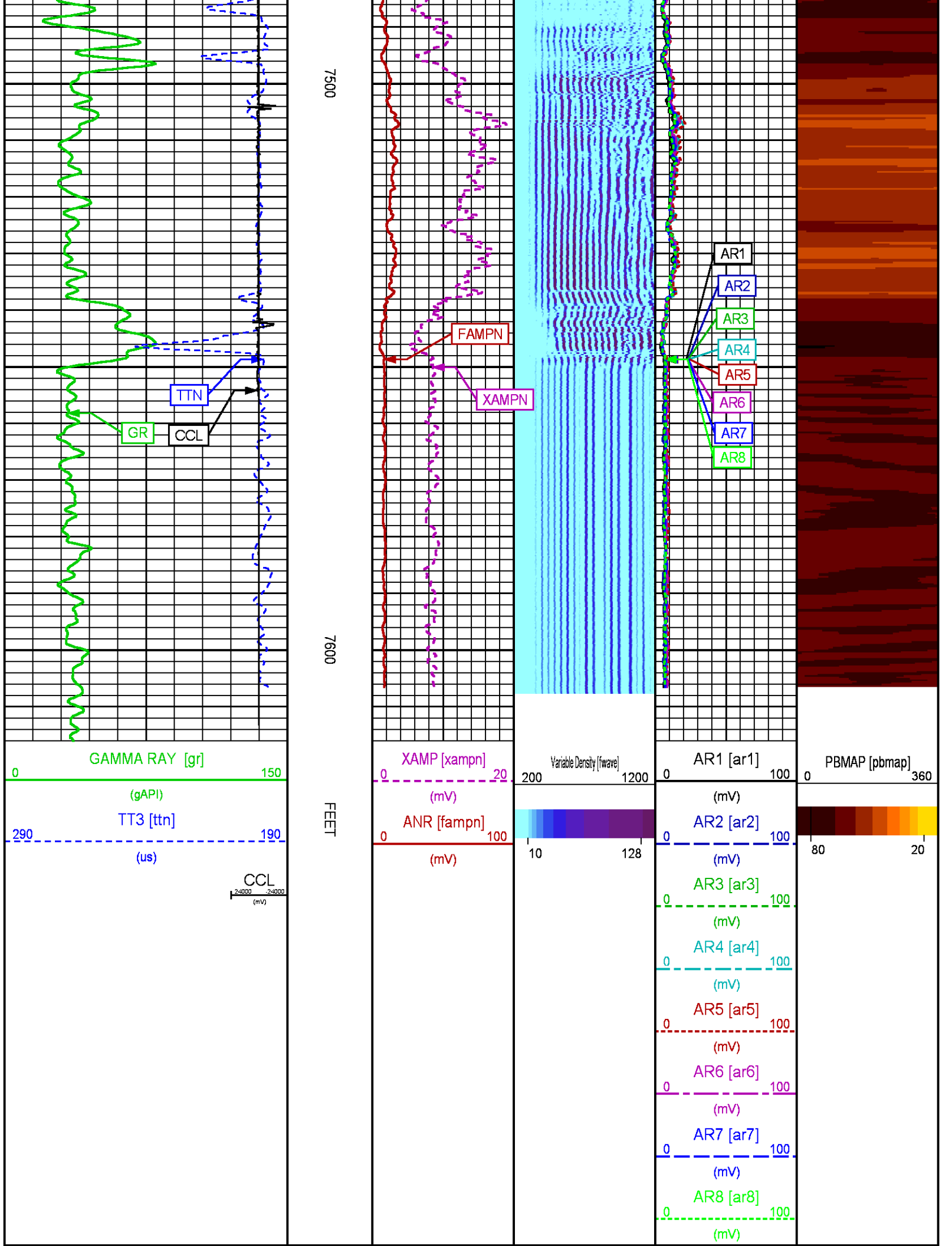
7100

7200











# 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 17:13:52 2017

## PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\data\BRUTON\_19\_05W\p012g01.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 7225.750 ft BOTTOM DEPTH: 7643.500 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 START (fgp2*)	185	us	"	"
	AMP WINDOW START (fgp3*)	185	us	"	"
	AMP WINDOW START (fgp4*)	185	us	"	"
	AMP WINDOW START (fgp5*)	185	us	"	"
	AMP WINDOW START (fgp6*)	185	us	"	"
	AMP WINDOW START (fgp7*)	185	us	"	"
	AMP WINDOW START (fgp8*)	185	us	"	"
	AMP WINDOW START (fgpn*)	185	us	"	"
TRAVEL TIME WINDOW (NEAR)	AMP WINDOW LENGTH	30	us	"	"
	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	5	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)	TOOL DELAY (strn*)	-65	us	"	"
	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 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

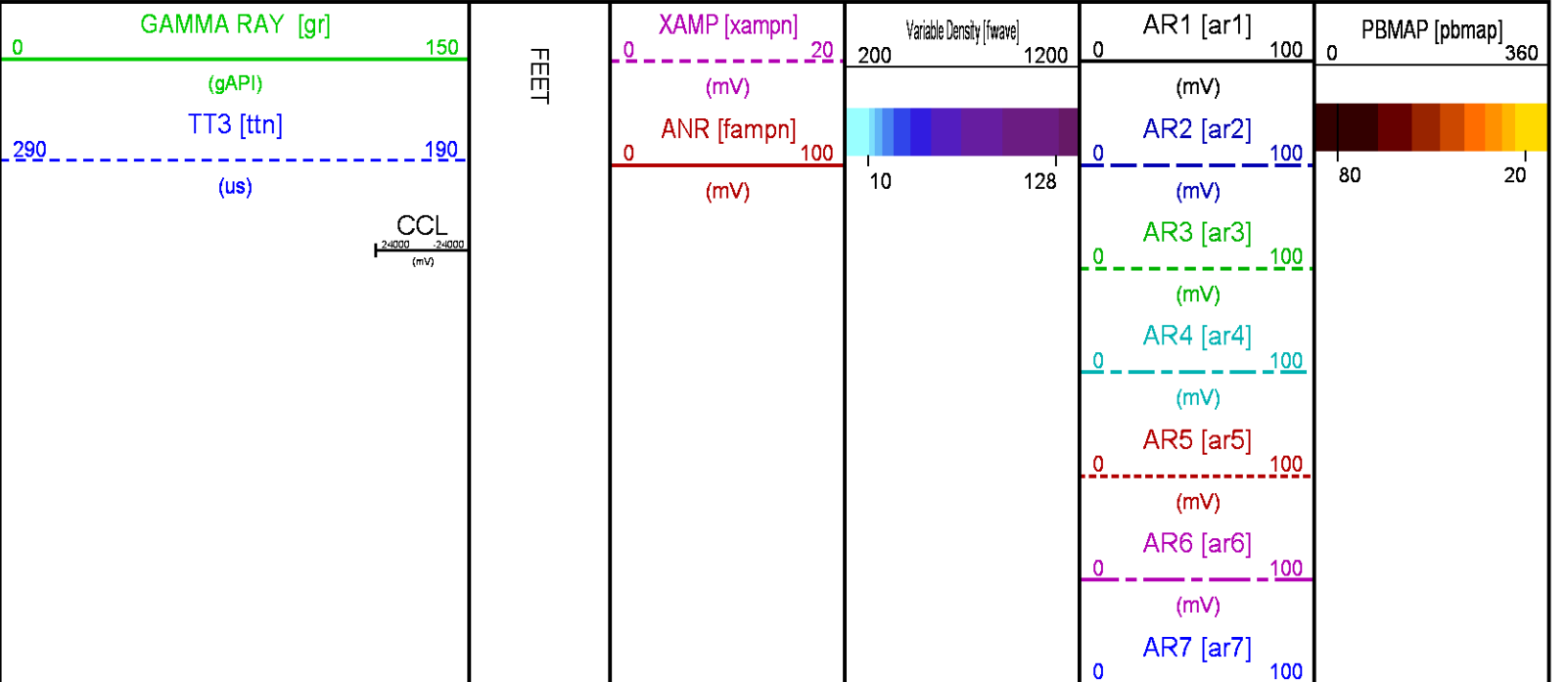
CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
-------	-------------	-------	-------------	-------	-------------	-------	-------------

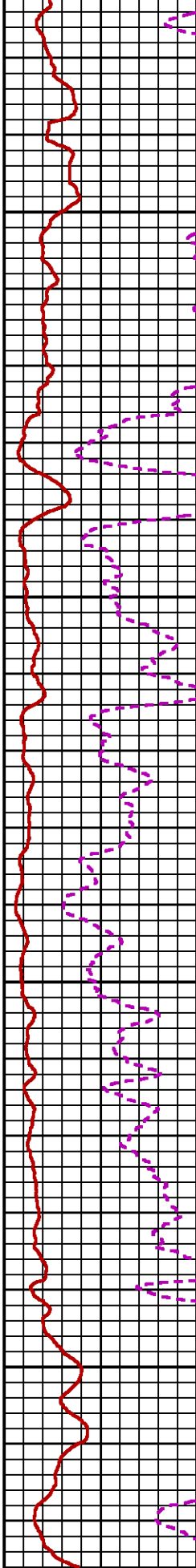
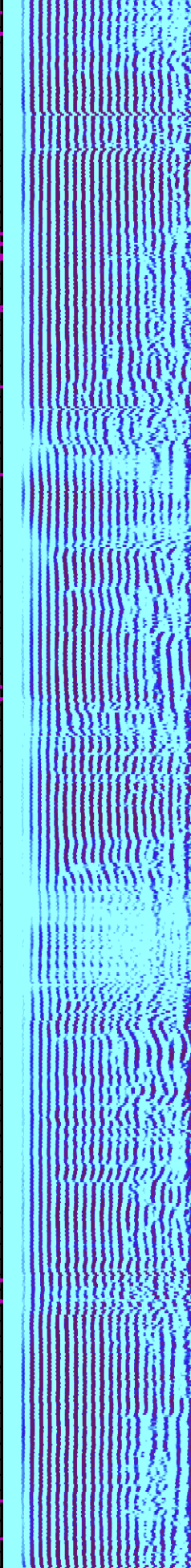
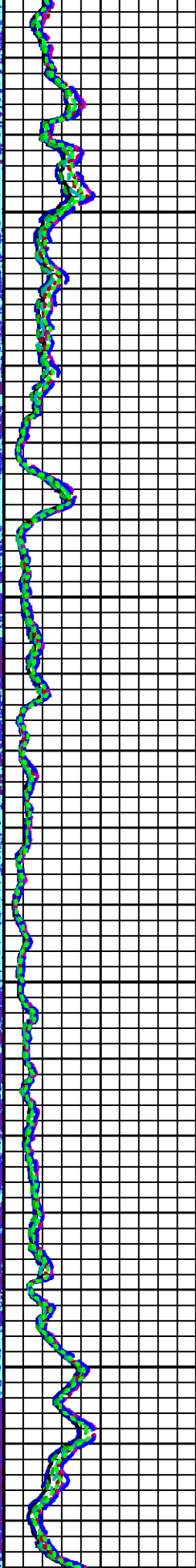
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

Presentation : BHI78FR4H2:C:\dat1a\BRUTON\_19\_05W\BRUTON\_19\_05W\_RAL\_RPT.fvpdf [5"/100' Scale]  
Plot Interval : 7214.75 - 7642 Feet

Data File 1 : F1 : BHI78FR4H2:C:\dat1a\BRUTON\_19\_05W\BRUTON\_19\_05W\RAL\_RPT.xtf  
Created On : N/A  
Company : LARAMIE ENERGY II LLC  
Well : BRUTON 19-05W  
Field : VEGA  
File Interval : 7213.75 - 7643.5 Feet  
OCT : p012g

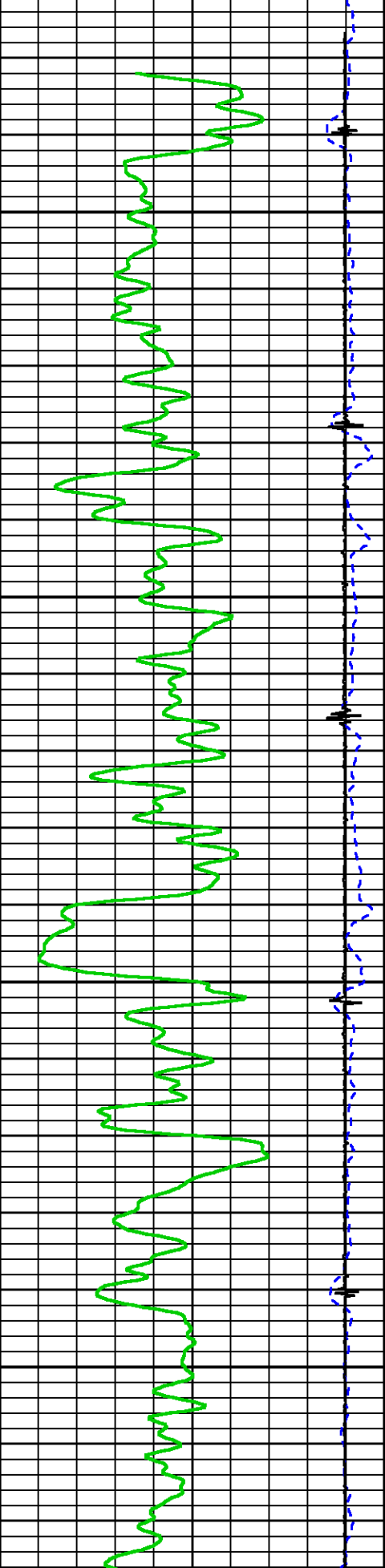


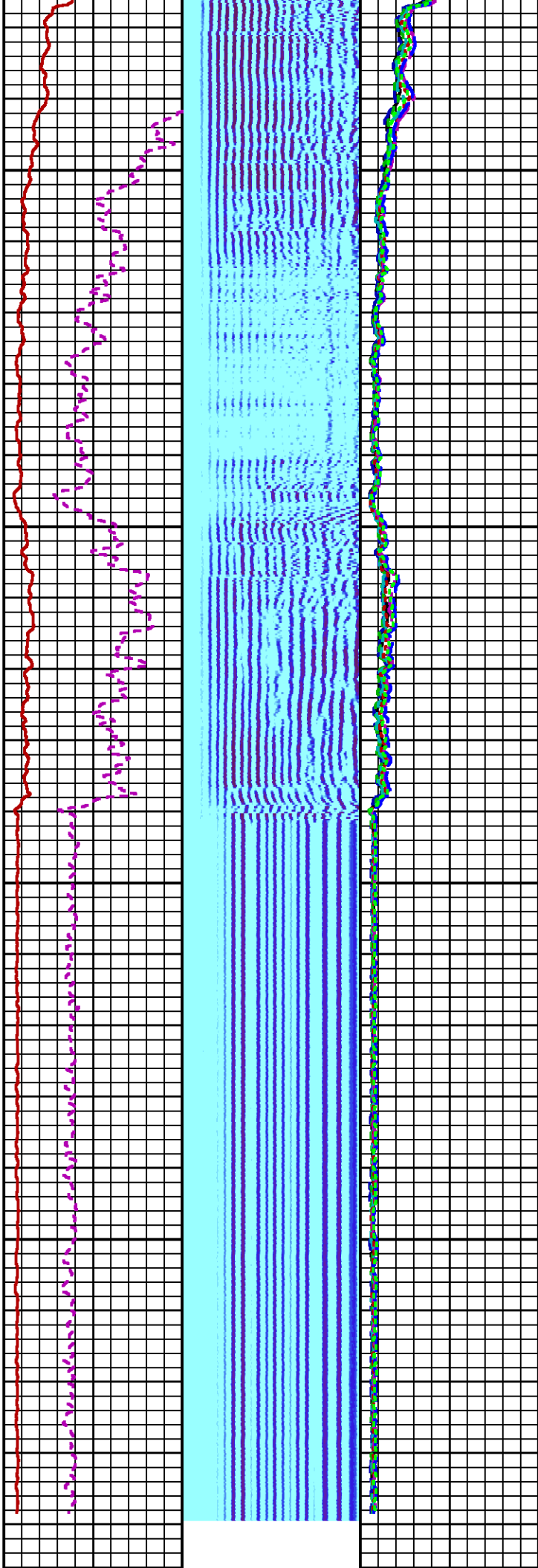
(mV)  
AR8 [ar8]  
0 100  
(mV)



7300

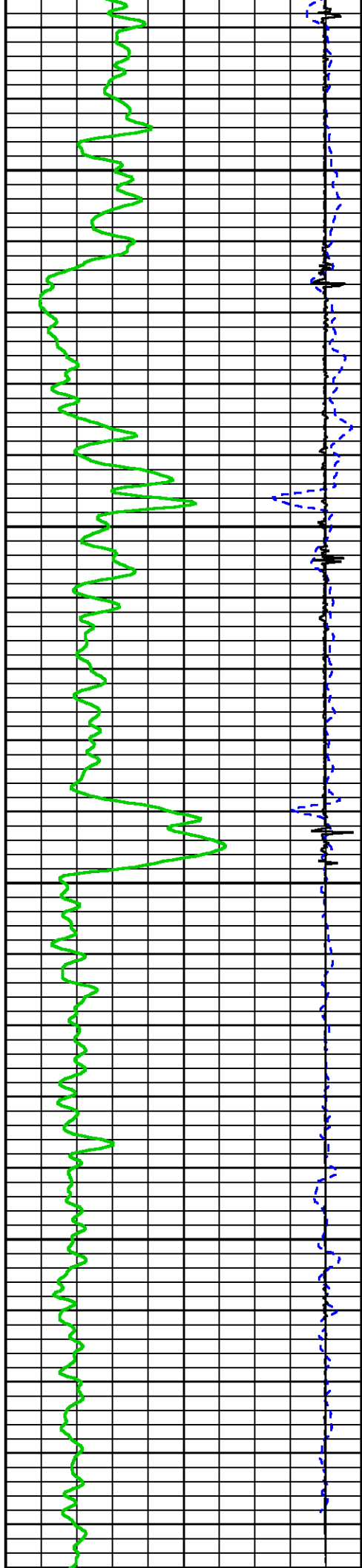
7400

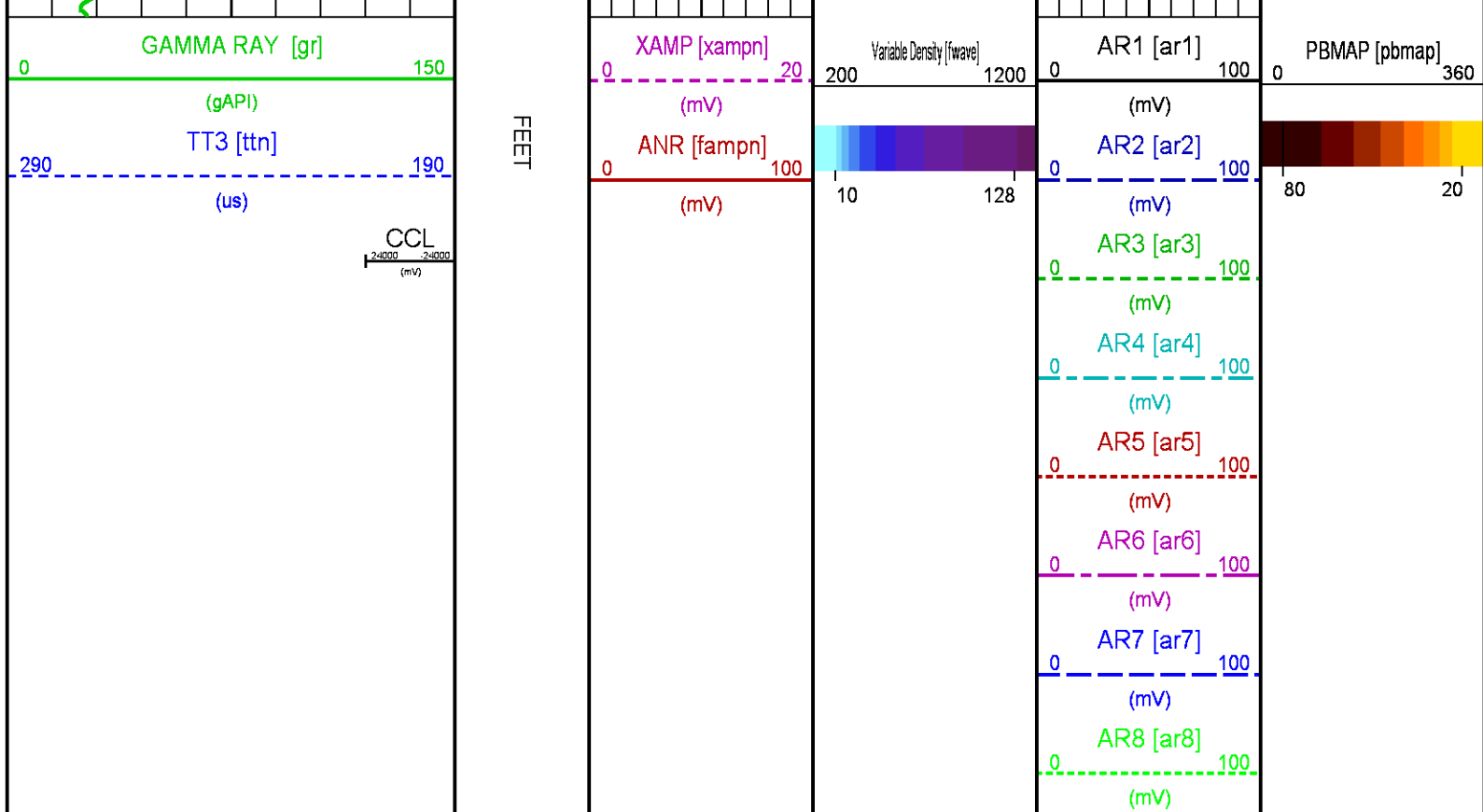




7500

7600





## CALIBRATION / VERIFICATION SUMMARY

Source File: C:\dat1a\BRUTON\_19\_05Wp012g.tp1

## RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 10218496

DATE/TIME PERFORMED: Mon Oct 23 16:41:02 2017

UNIT #: CHANGE ME

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

	NEAR	R1	R2	R3	R4	R5	R6	R7	R8	FAR	CAL
ZERO (mV)	0.01	0.05	0.03	0.06	0.08	0.08	0.09	0.10	0.07	0.67	-0.02
AMP FLUID (mV)	85	84	83	84	85	86	87	86	85	114	84
TT (us)	202	204	204	203	202	201	200	200	203	312	201
M FACTOR	1.17	1.19	1.20	1.19	1.18	1.17	1.16	1.16	1.17	1.32	1.20



## INSTRUMENT CONFIGURATION

Source File: C:\dat1a\BRUTON\_19\_05\WRAL-tdg.meta

### CABLEHEAD

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

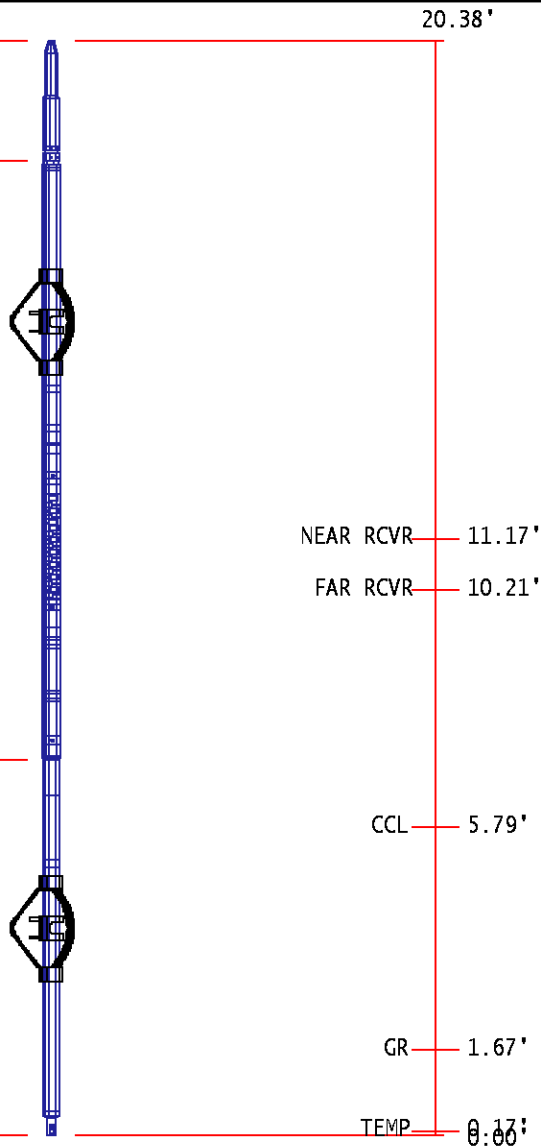
### RADIAL BOND TOOL

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

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



**BAKER  
HUGHES**  
a GE company



**COMPANY** LARAMIE ENERGY

**WELL** BRUTON 19-05W

**FIELD** VEGA

**COUNTY** MESA **STATE** COLORADO

**FILE NO:**

**API NO:**

05077104240000

**LOCATION:**

SHL: LAT:39.262806N;LONG:107.815139W

BHL: LAT:39.266494N;LONG:107.816242W

SEC 19 TWP 9S RGE 93W

**ELEVATIONS:**

KB 7286 FT

DF 7286 FT

GL 7262 FT

**DATE** 24-OCT-2017