



RADIAL CEMENT BOND LOG

FILE NO: COMPANY LARAMIE ENERGY LLC

WELL NICHOLS 0994-24-05W

API NO: FIELD VEGA

05077104070000 COUNTY MESA STATE COLORADO

Ver. 4.10 LOCATION: SHL: 39.264531 N; 107.830722 W OTHER SERVICES RPM

BHL: 39.266392 N; 107.835341 W

SEC 24 TWP 9 S RGE 94 W

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

ELEVATIONS:
KB 7161 FT
DF 7160 FT
GL 7137 FT

DATE 25-Jan-2018

RUN 1 TRIP 1

SERVICE ORDER US132018

DEPTH DRILLER 7468 FT

DEPTH LOGGER 7388 FT

BOTTOM LOGGED INTERVAL 7388 FT

TOP LOGGED INTERVAL 24 FT

TIME STARTED 15:30

TIME FINISHED 18:00

OPERATOR RIG TIME 2.5 HRS

TYPE OF FLUID IN HOLE FRESH WATER

FLUID DENSITY NA

FLUID SALINITY NA

FLUID LEVEL 48 FT

LOGGED CEMENT TOP 1991 FT

WELLHEAD PRESSURE 0 PSI

MAXIMUM HOLE DEVIATION NA

NOMINAL LOGGING SPEED 90 FMIN

MAX. RECORDED TEMP. 233 DEGF

REFERENCE LOG NA

REFERENCE LOG DATE NA

EQUIP. NO. LOCATION ML-4291 GRAND JUNCT

RECORDED BY M.MENTZER

WITNESSED BY MR. MATT SETTLES

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: 5665' - 5685'

SJ: 6560' - 6580'

CREW: J.PENA, C.GOLOBY

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	10417452	CENTRALIZED
1	1	GR/CCL	1355XA	11871507	CENTRALIZED

MAIN PASS 0 PSI

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

Patches: 2

Plotted: Thu Jan 25 19:18:22 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994_24_05W/p012g02.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: -0.250 ft BOTTOM DEPTH: 7372.078 ft

SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1) light (2a)		TOP 6945.750	BOTTOM
TRAVEL TIME	FILTER ()	medium (1)		TOP	BOTTOM

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*)	184	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	184	us	"	"
	AMP WINDOW START (fgp3*)	184	us	"	"
	AMP WINDOW START (fgp4*)	184	us	"	"
	AMP WINDOW START (fgp5*)	184	us	"	"
	AMP WINDOW START (fgp6*)	184	us	"	"
	AMP WINDOW START (fgp7*)	184	us	"	"
	AMP WINDOW START (fgp8*)	184	us	"	"
	AMP WINDOW START (fgpn*)	184	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*)	6	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-66	us	"	"
	TOOL DELAY (str2*)	-66	us	"	"
	TOOL DELAY (str3*)	-66	us	"	"
	TOOL DELAY (str4*)	-66	us	"	"
	TOOL DELAY (str5*)	-66	us	"	"
	TOOL DELAY (str6*)	-66	us	"	"
	TOOL DELAY (str7*)	-66	us	"	"
	TOOL DELAY (str8*)	-66	us	"	"
	TOOL DELAY (strn*)	-66	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 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	"	"

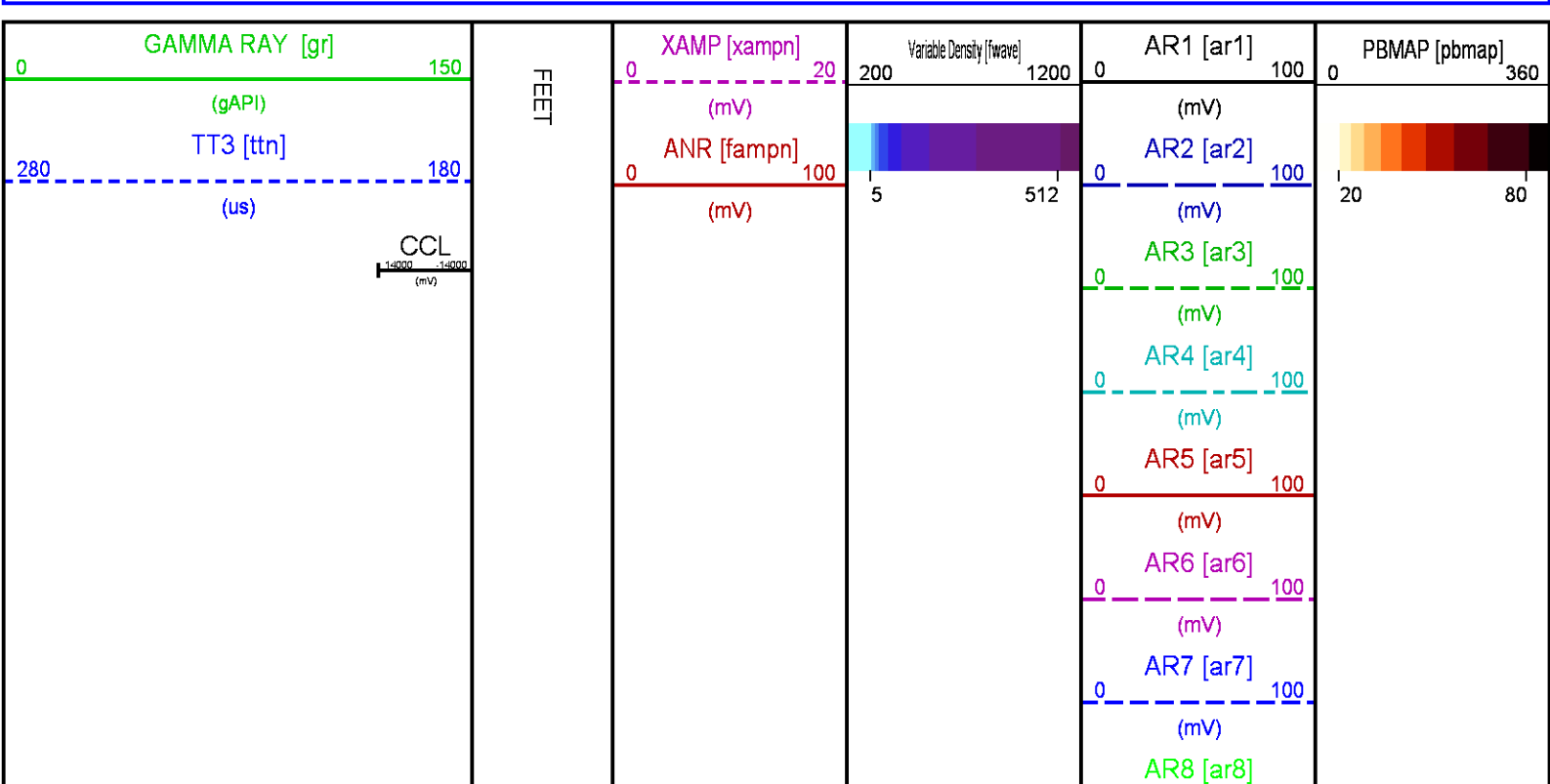
CURVE DESCRIPTION REPORT

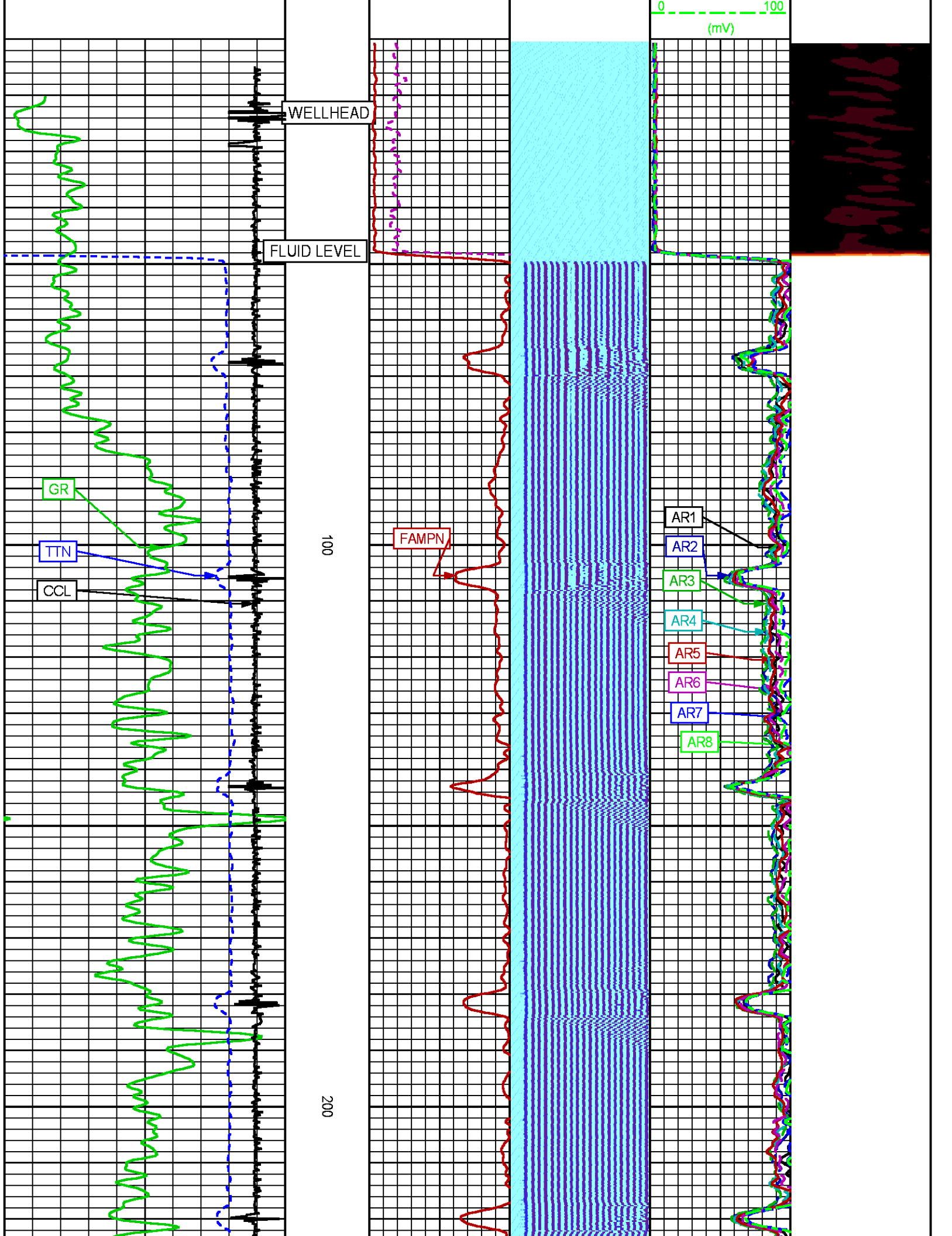
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

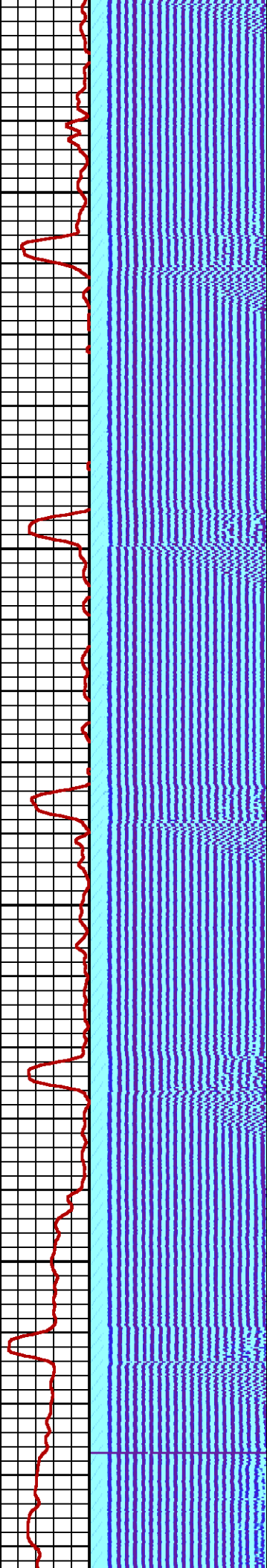
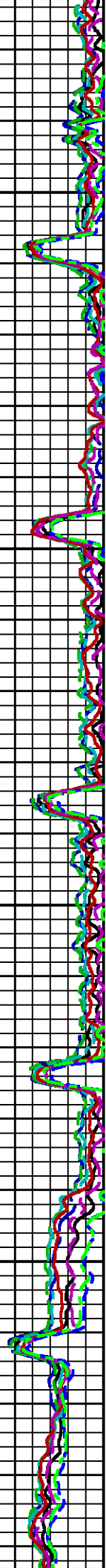
CURVE MEASURE POINT OFFSET

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_NICHOLS_0994_24_05W/LARAMIE_RAL+01-MAIN-RAL_MN_05W-5.fvpdf [5"/100' Scale]
Plot Interval	: 10.5 - 7391.75 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_05W/RAL_MN_05W.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: NICHOLS 0994-24-5W
Field	: VEGA
File Interval	: -0.25 - 7393 Feet
OCT	: p012g

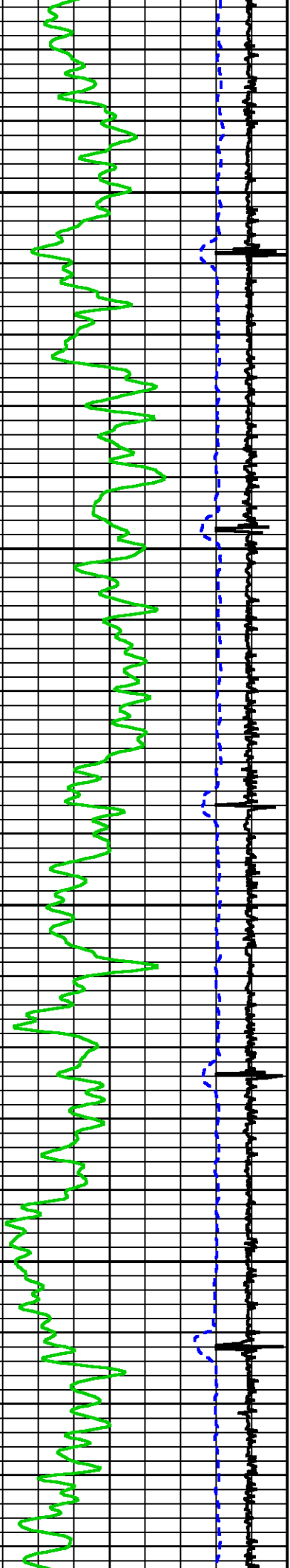


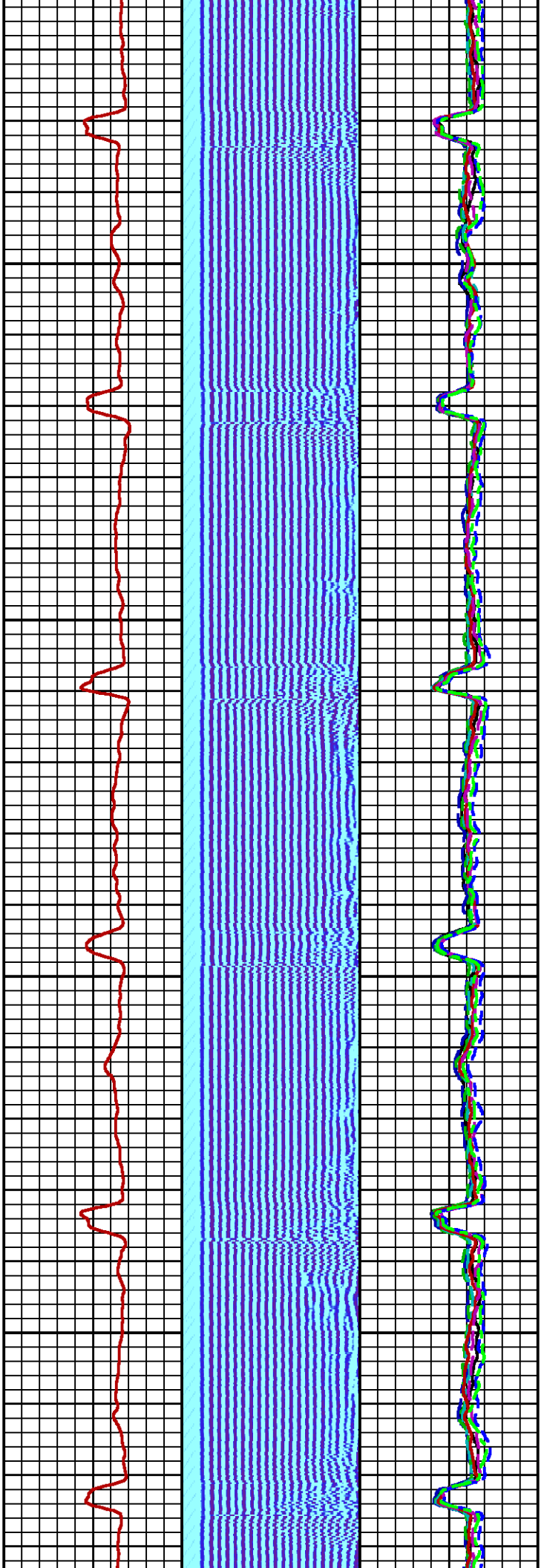




300

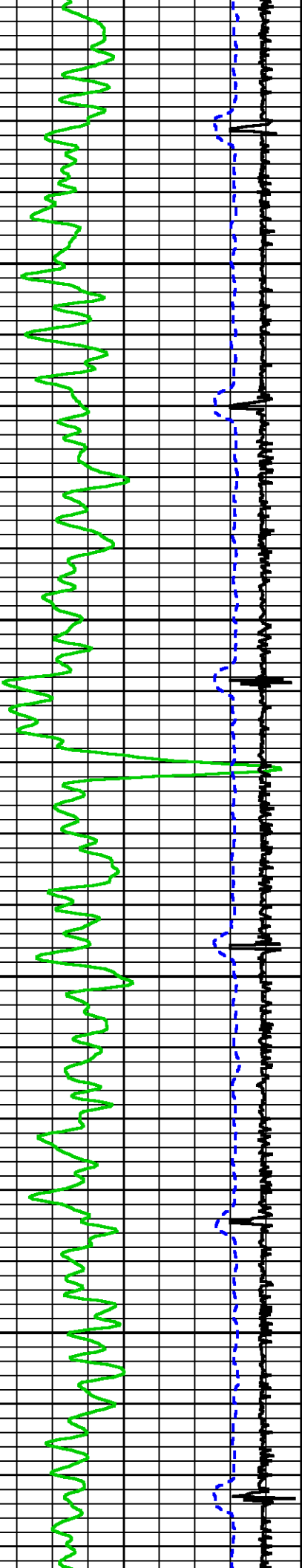
400

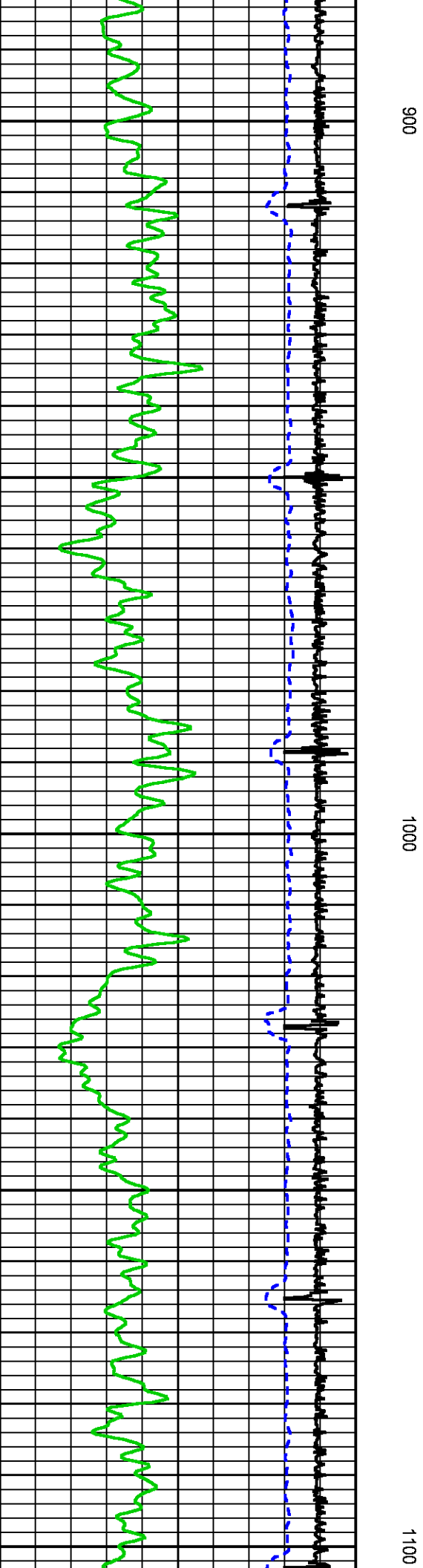
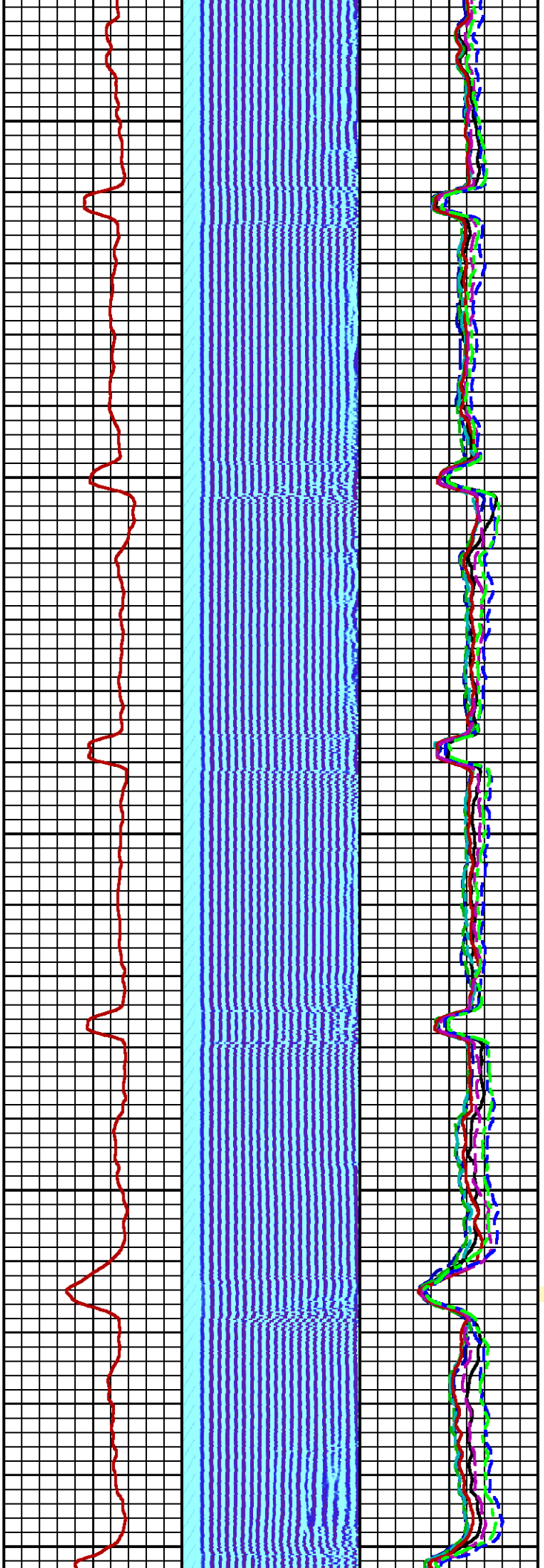


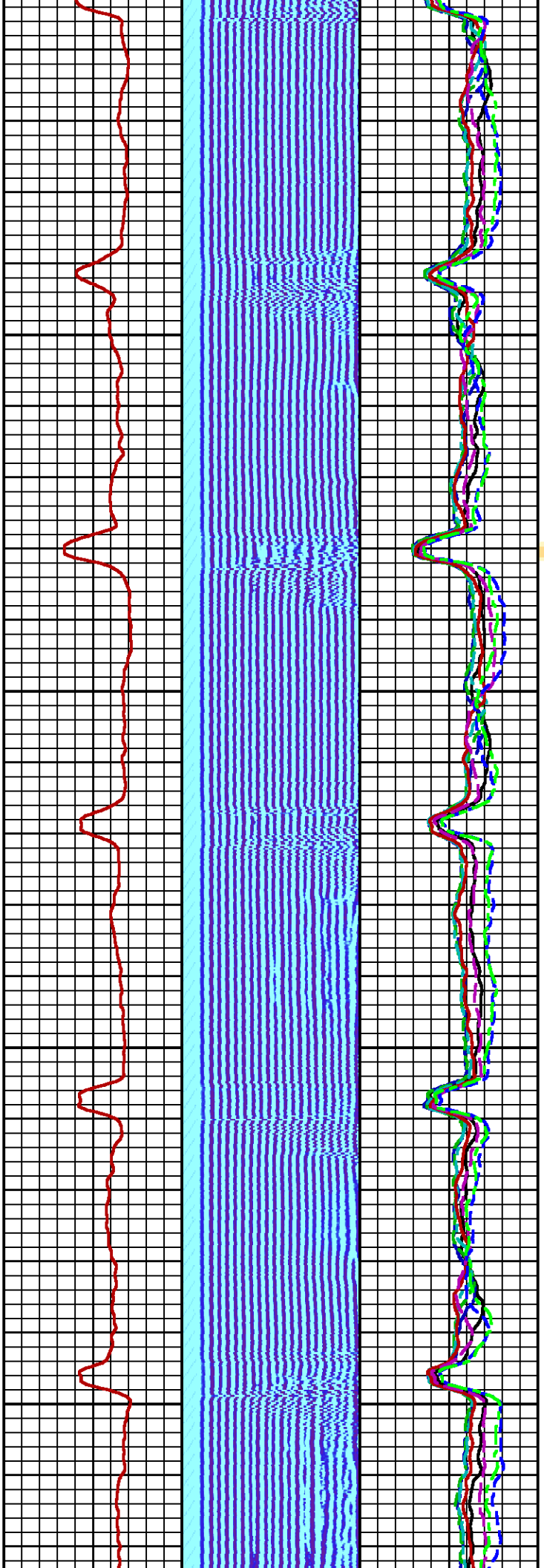


700

800

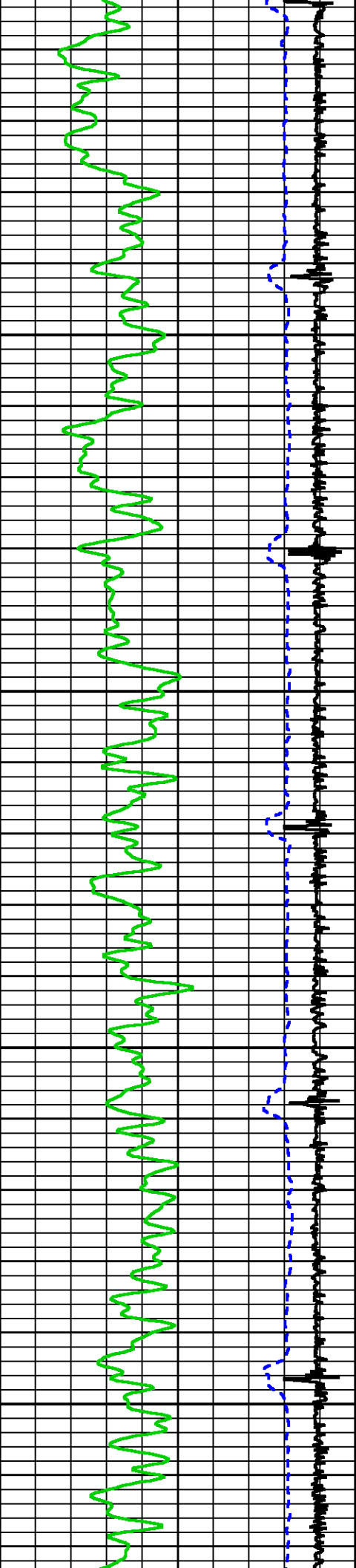


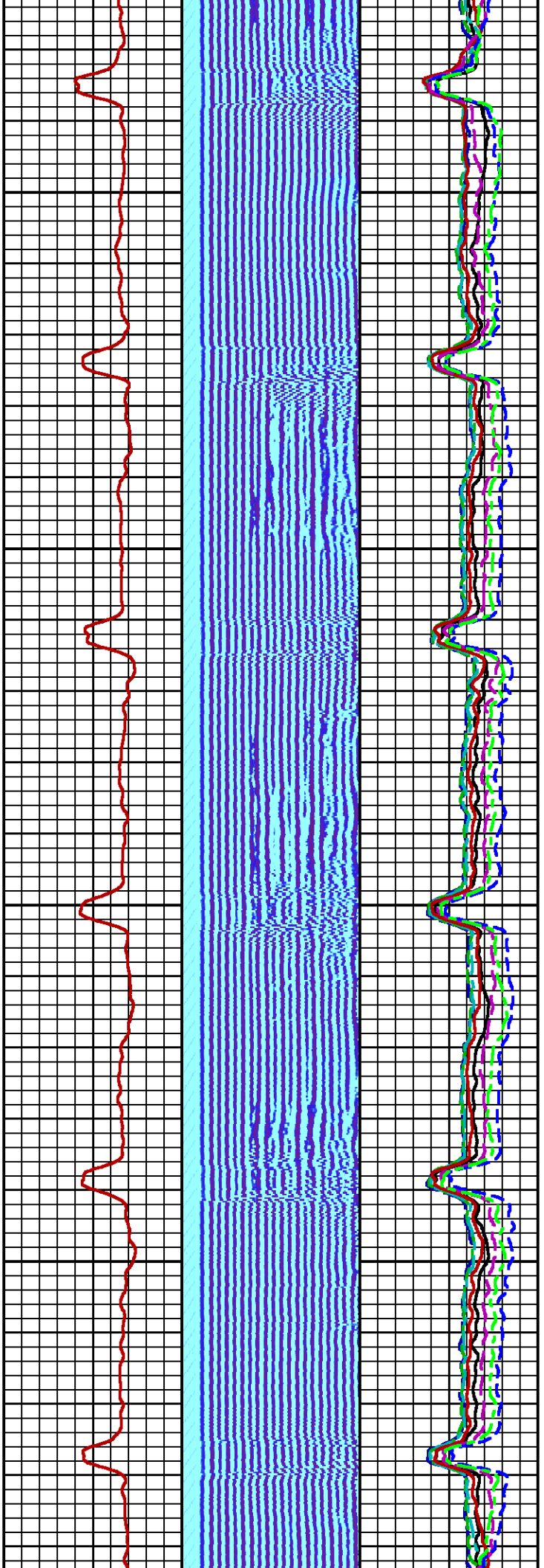




1200

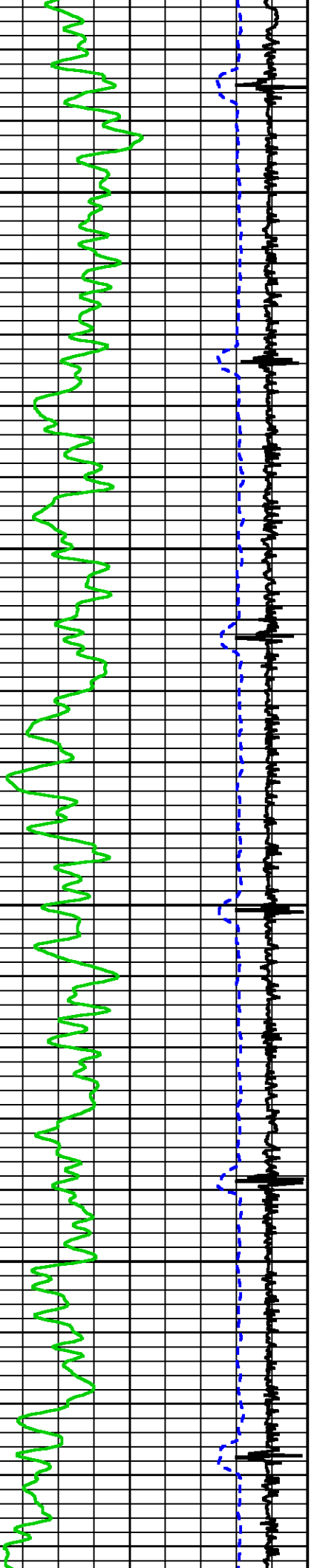
1300

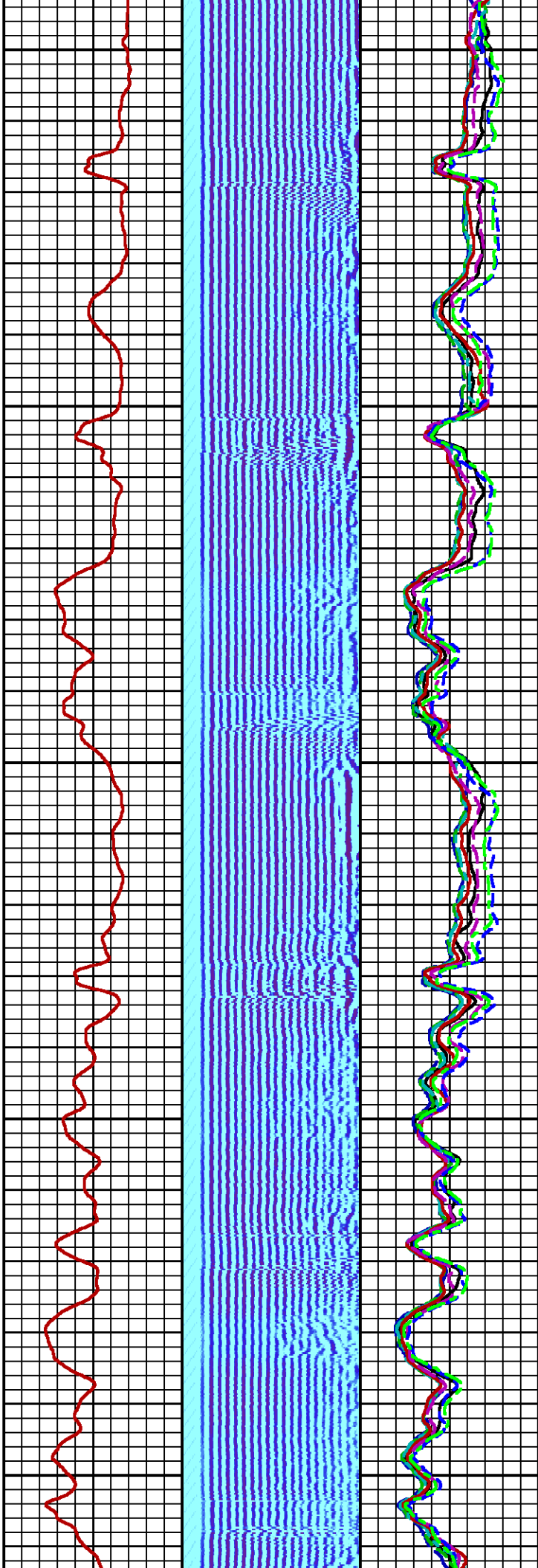
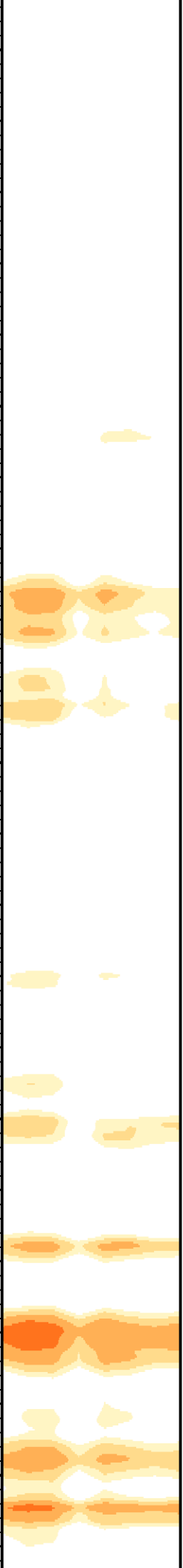




1400

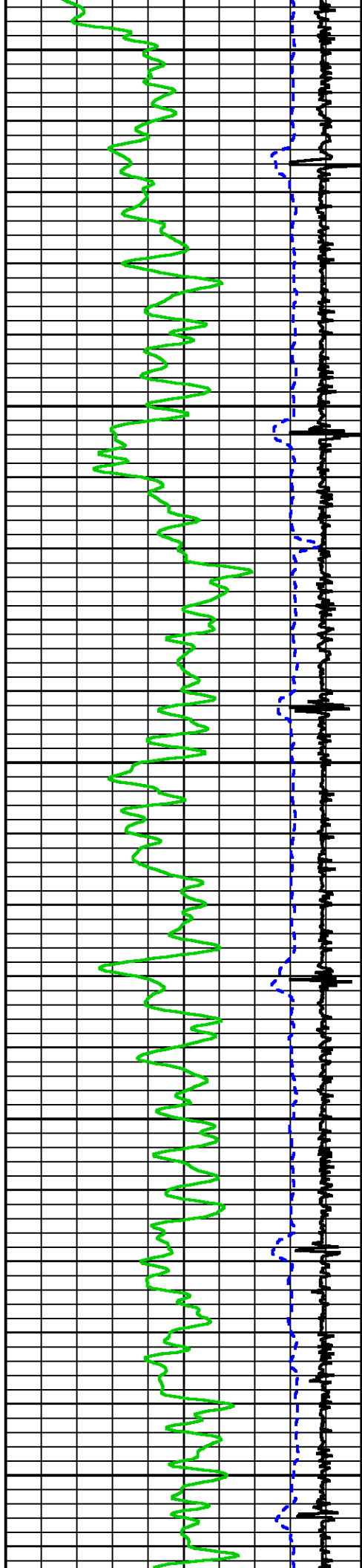
1500

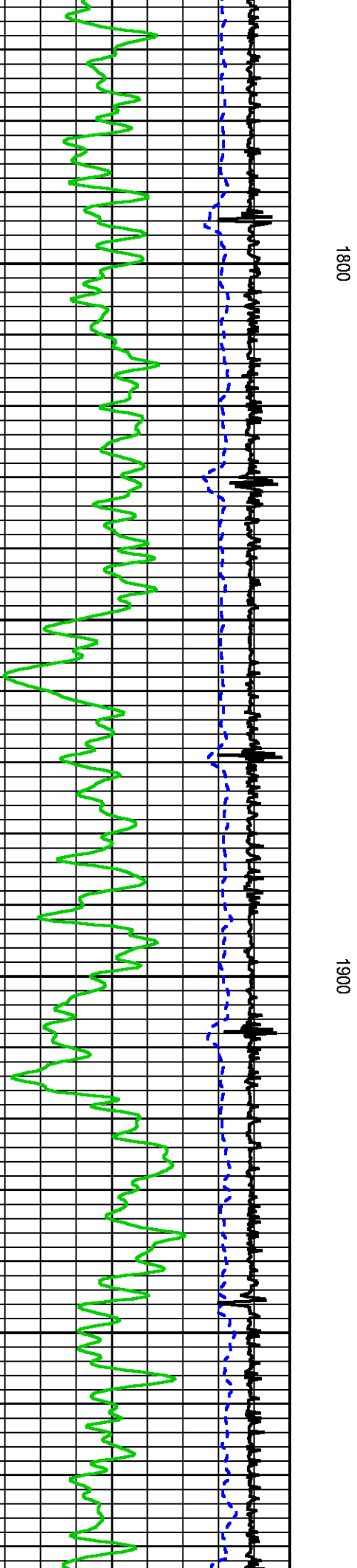
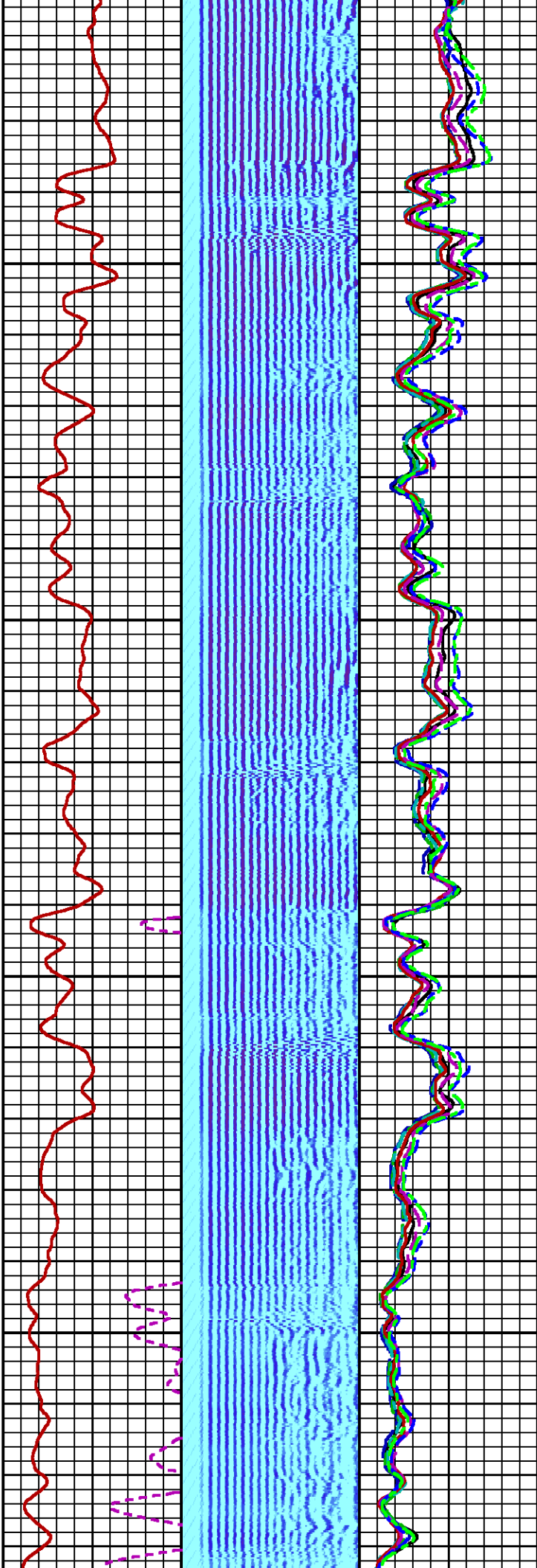
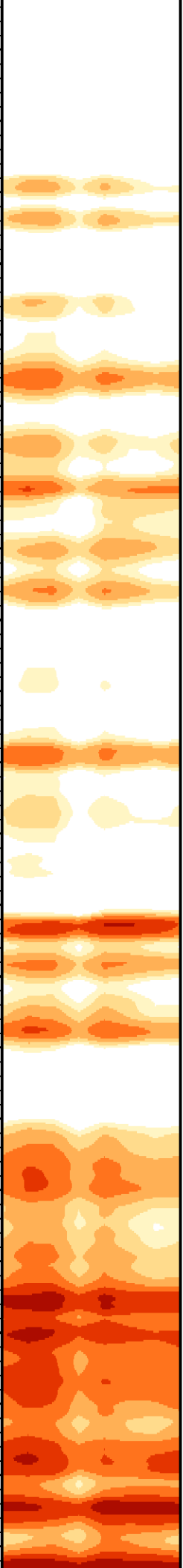


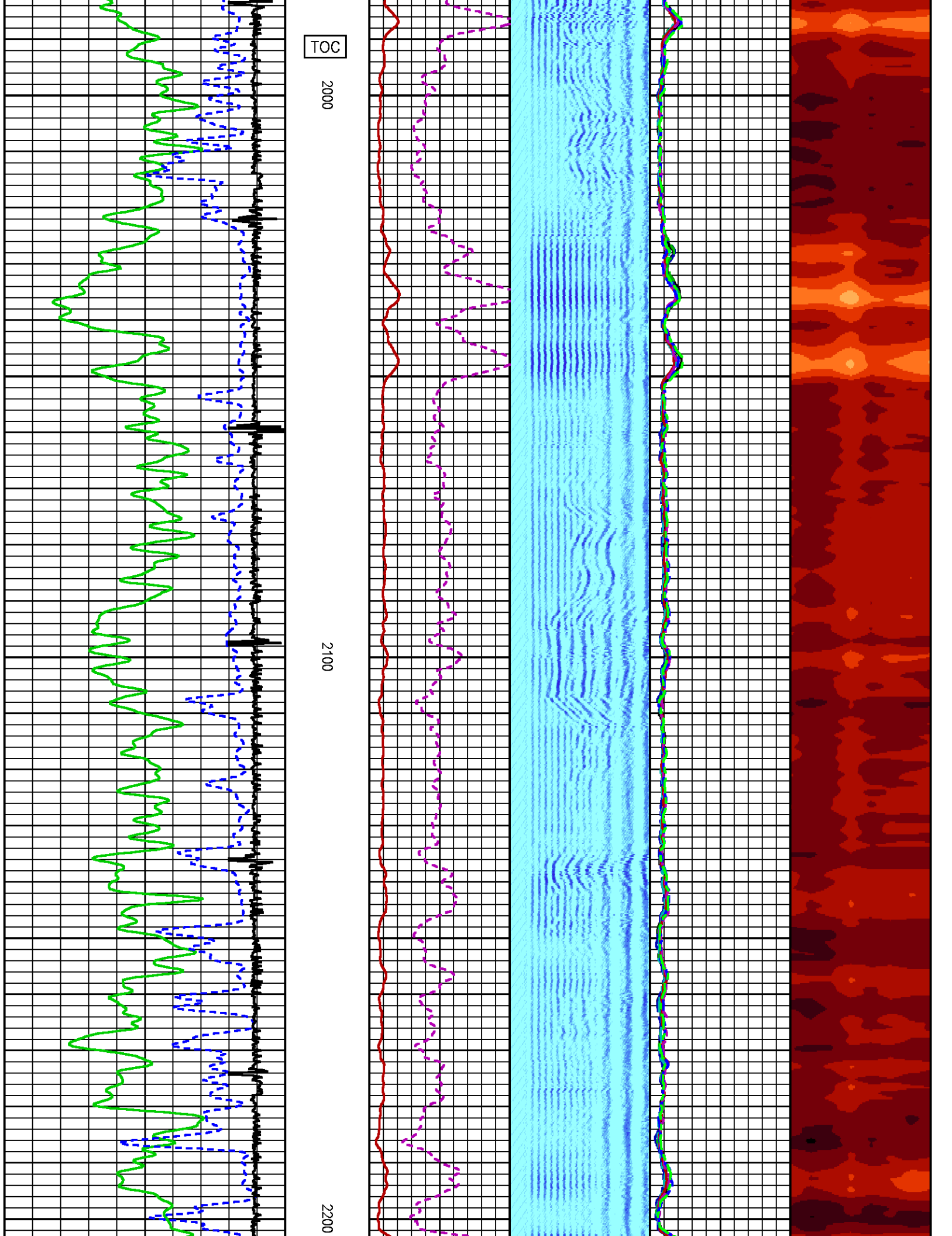


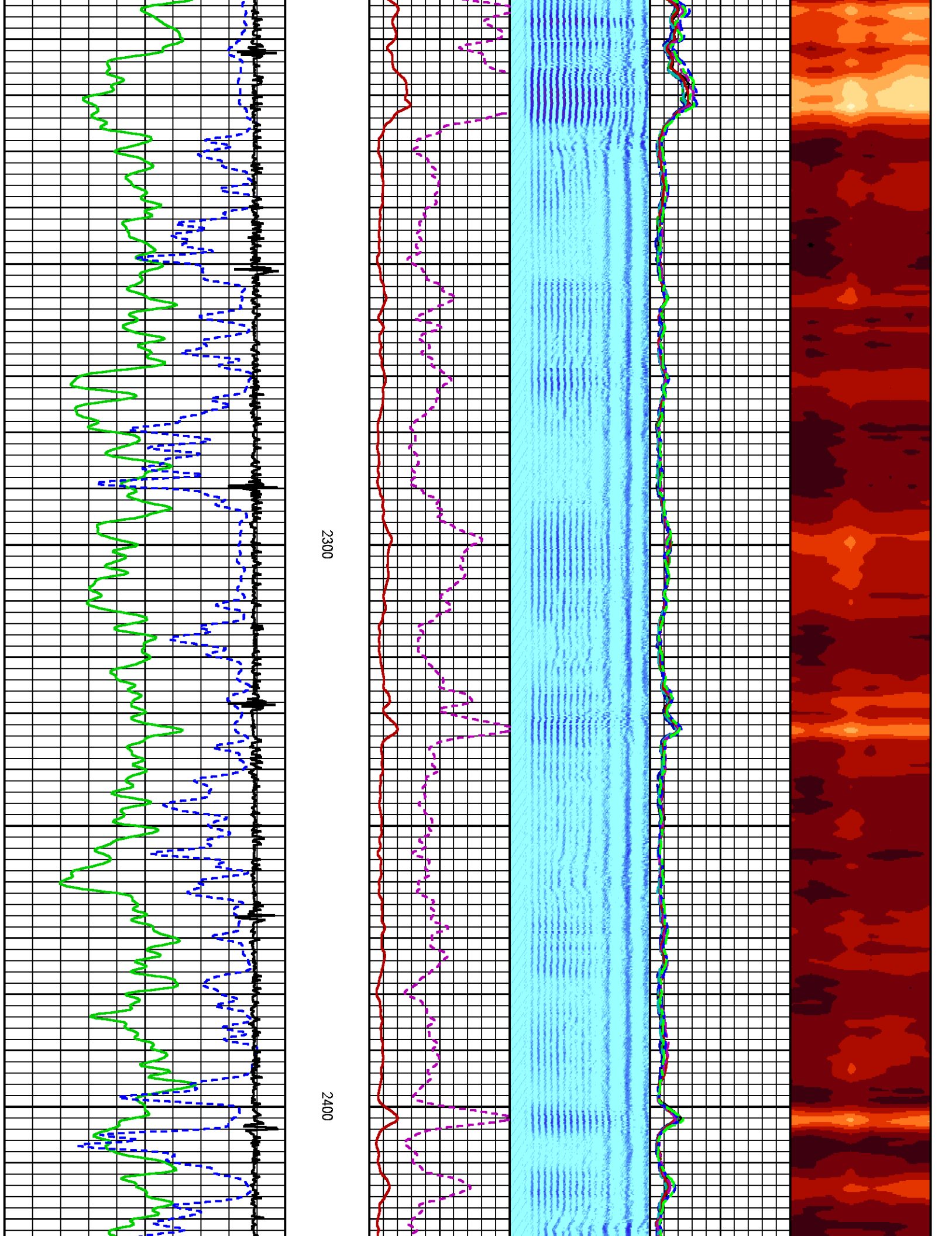
1600

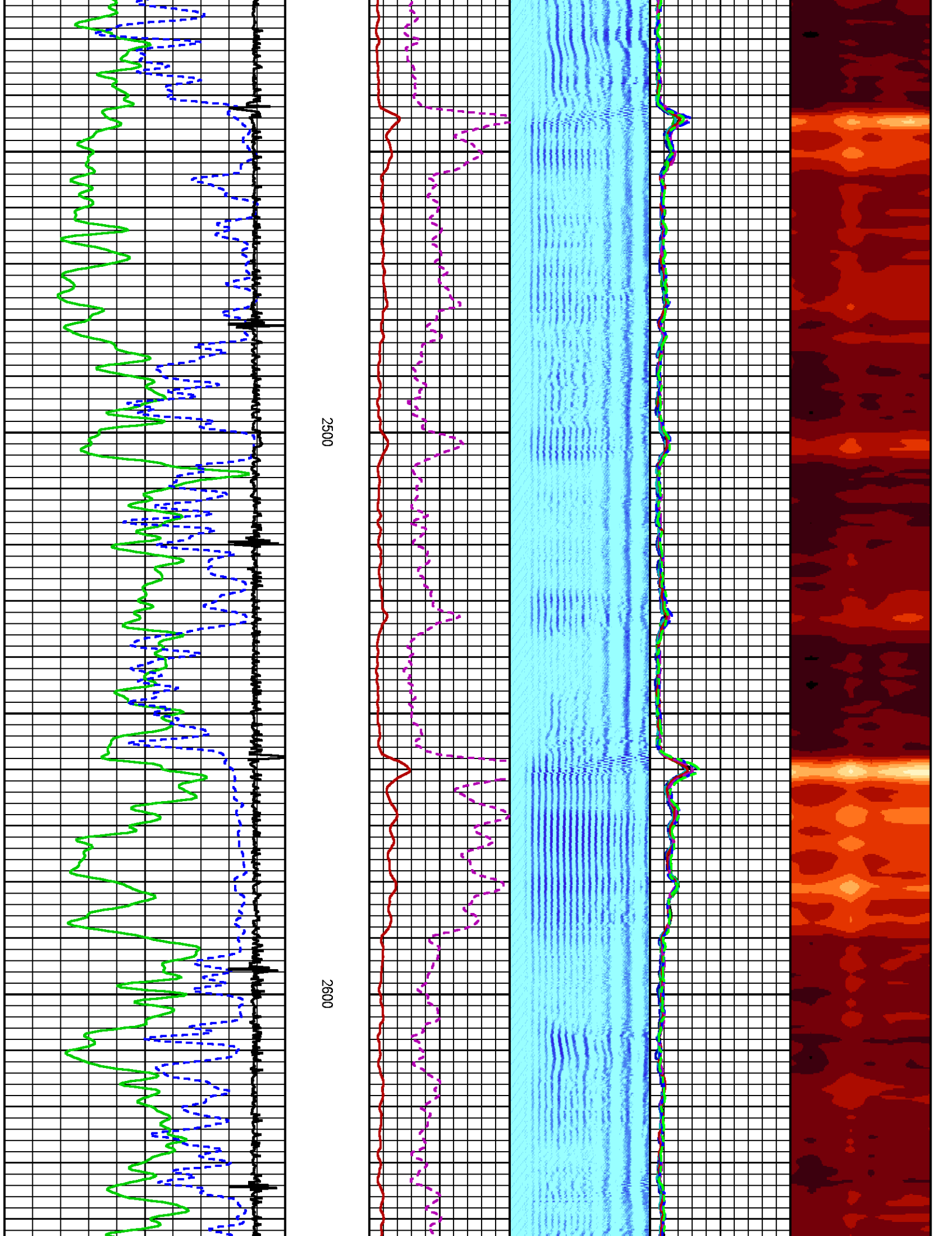
1700

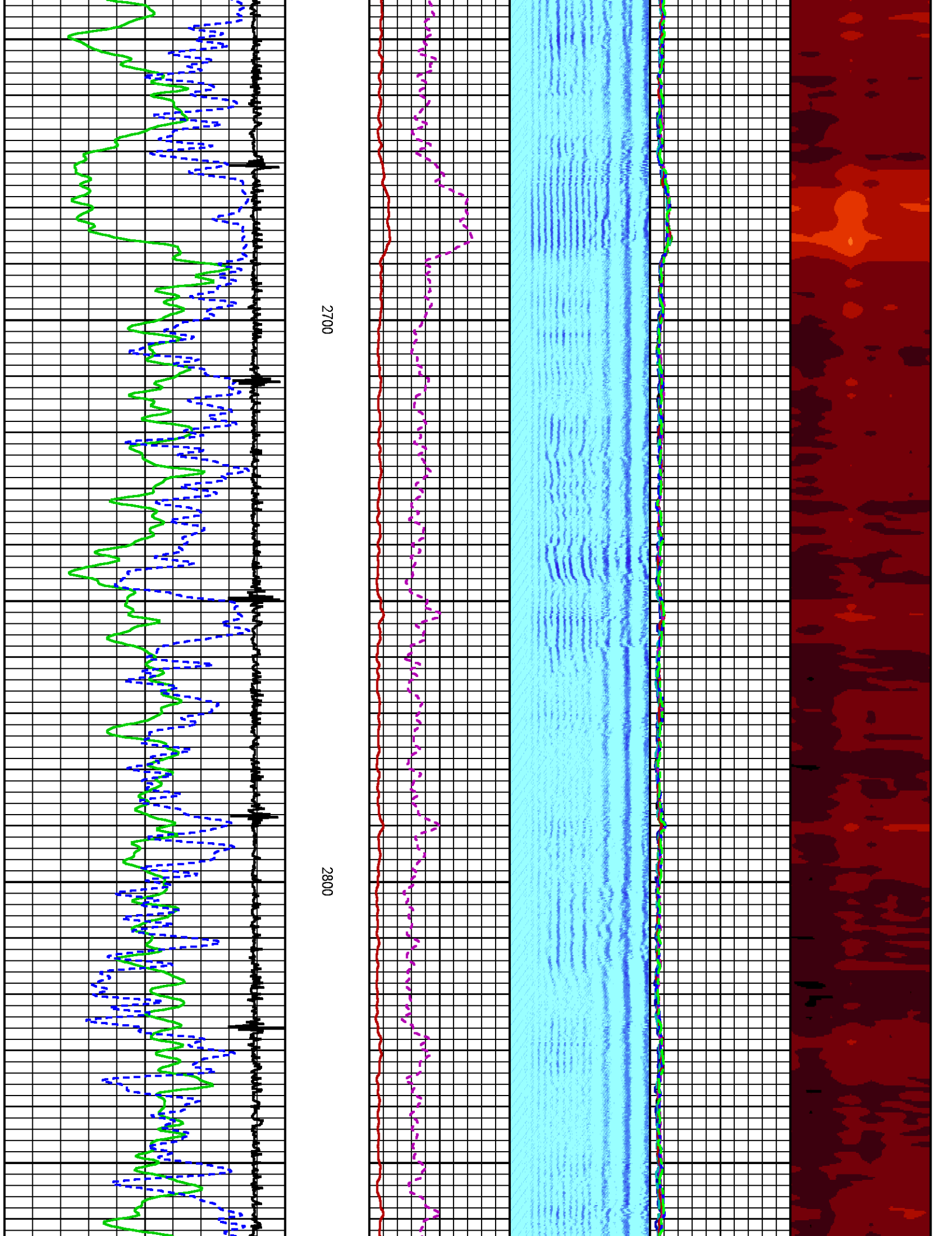


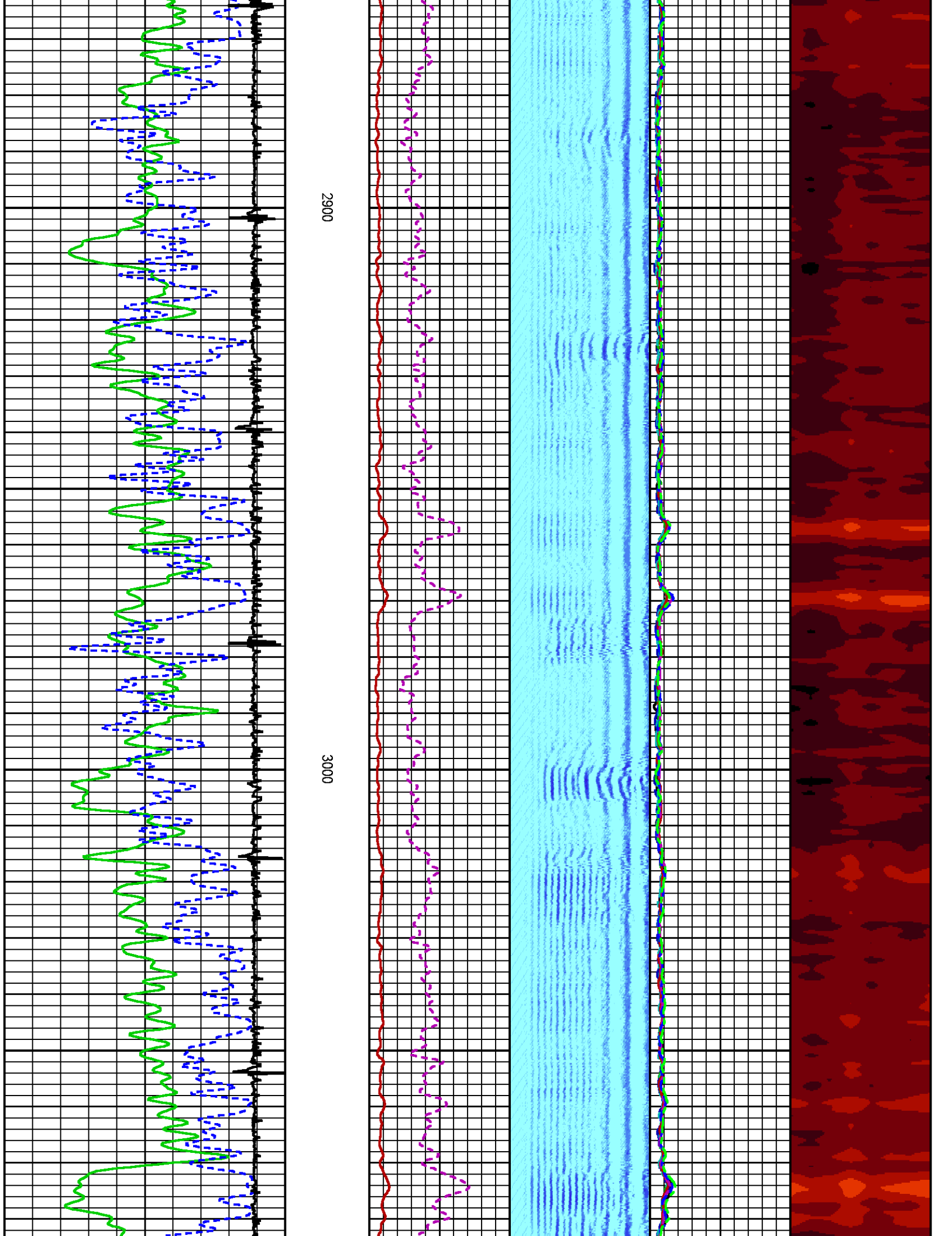


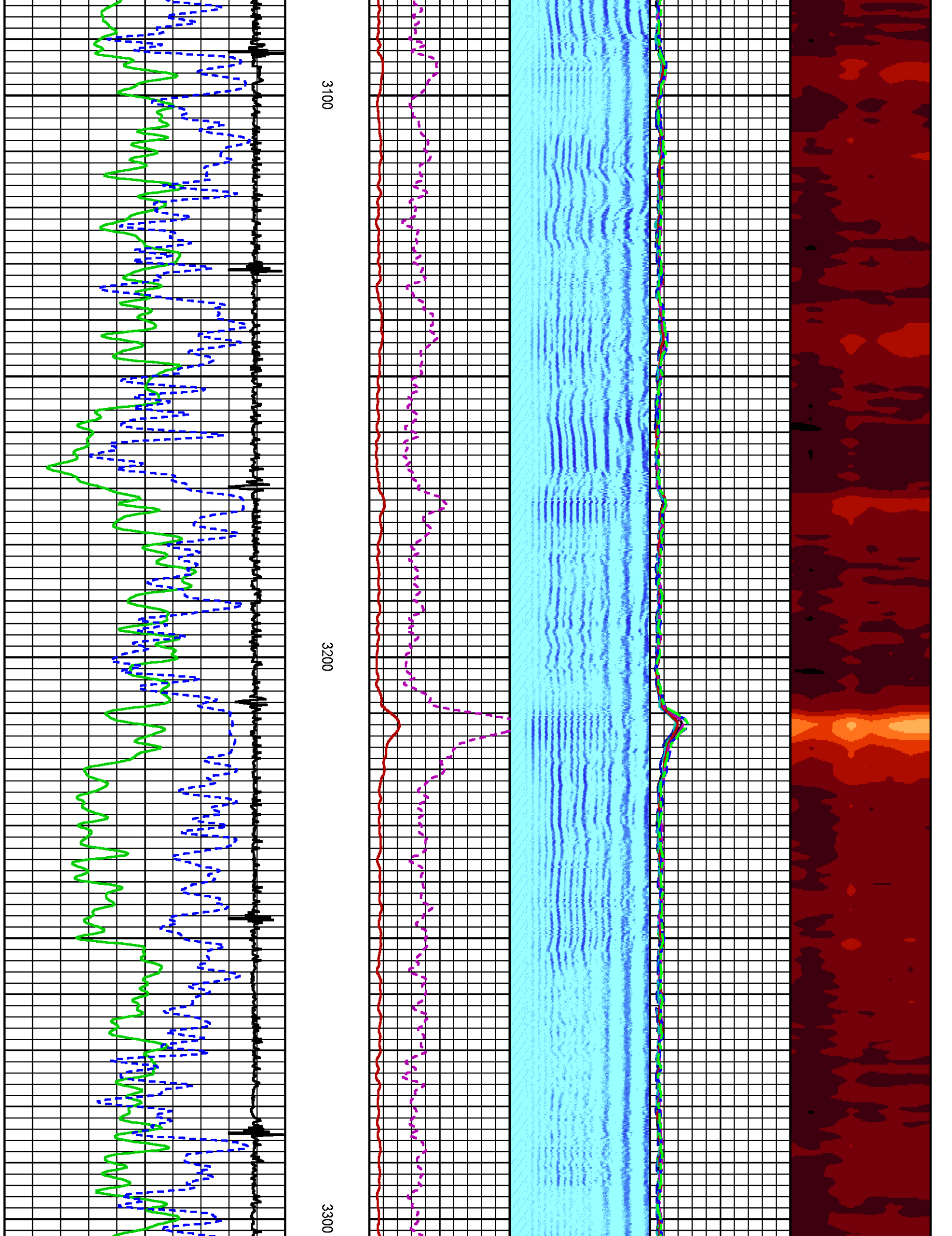


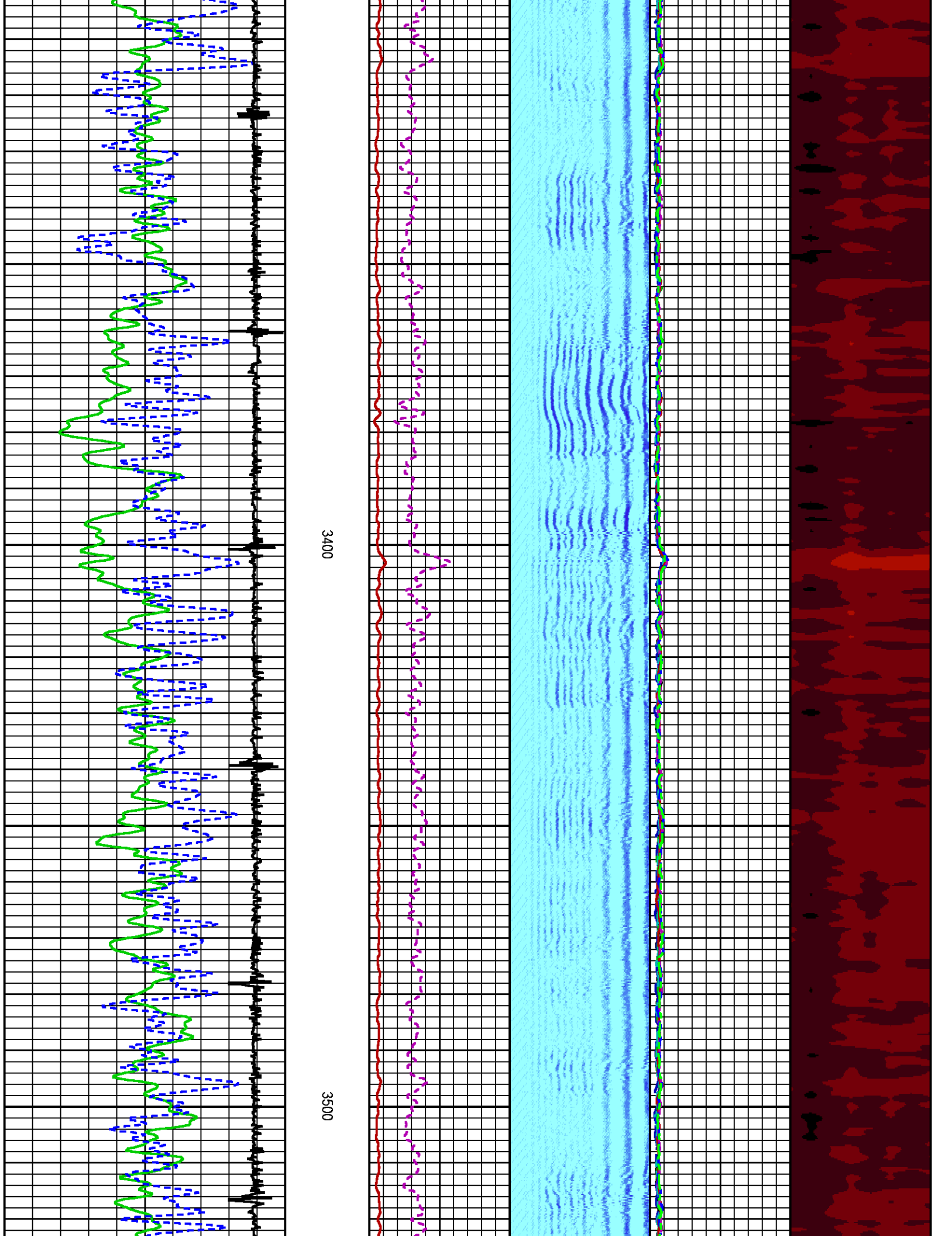


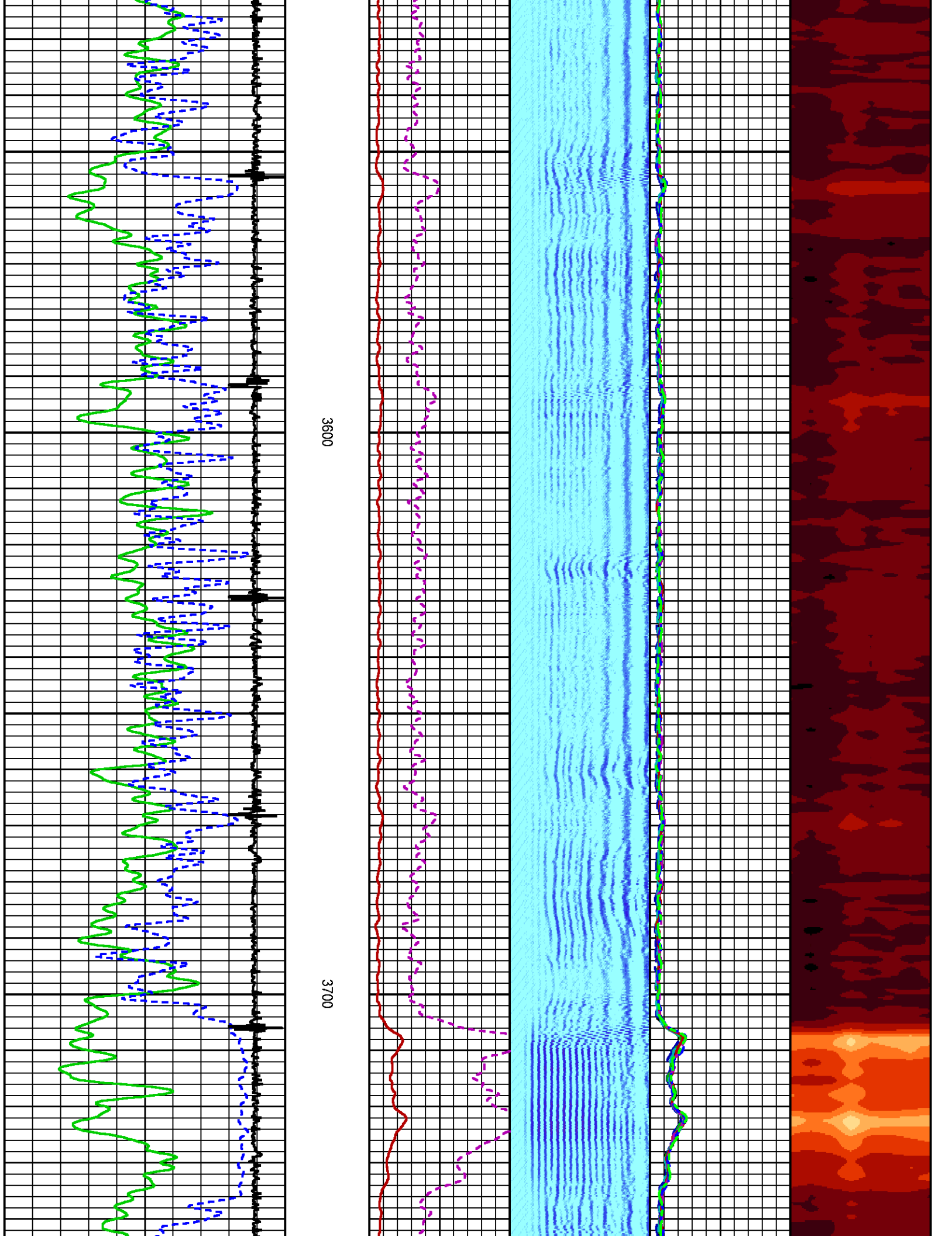


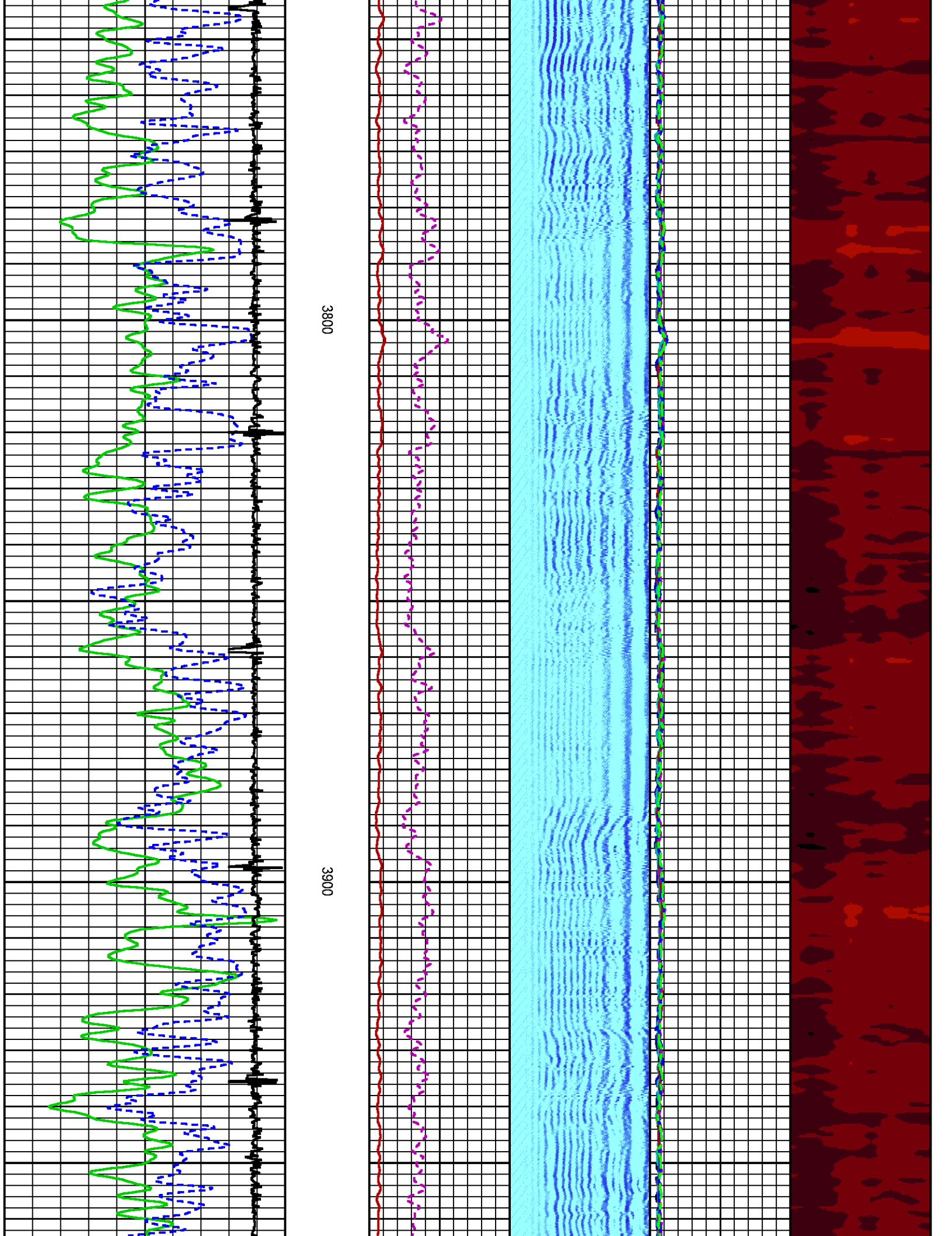


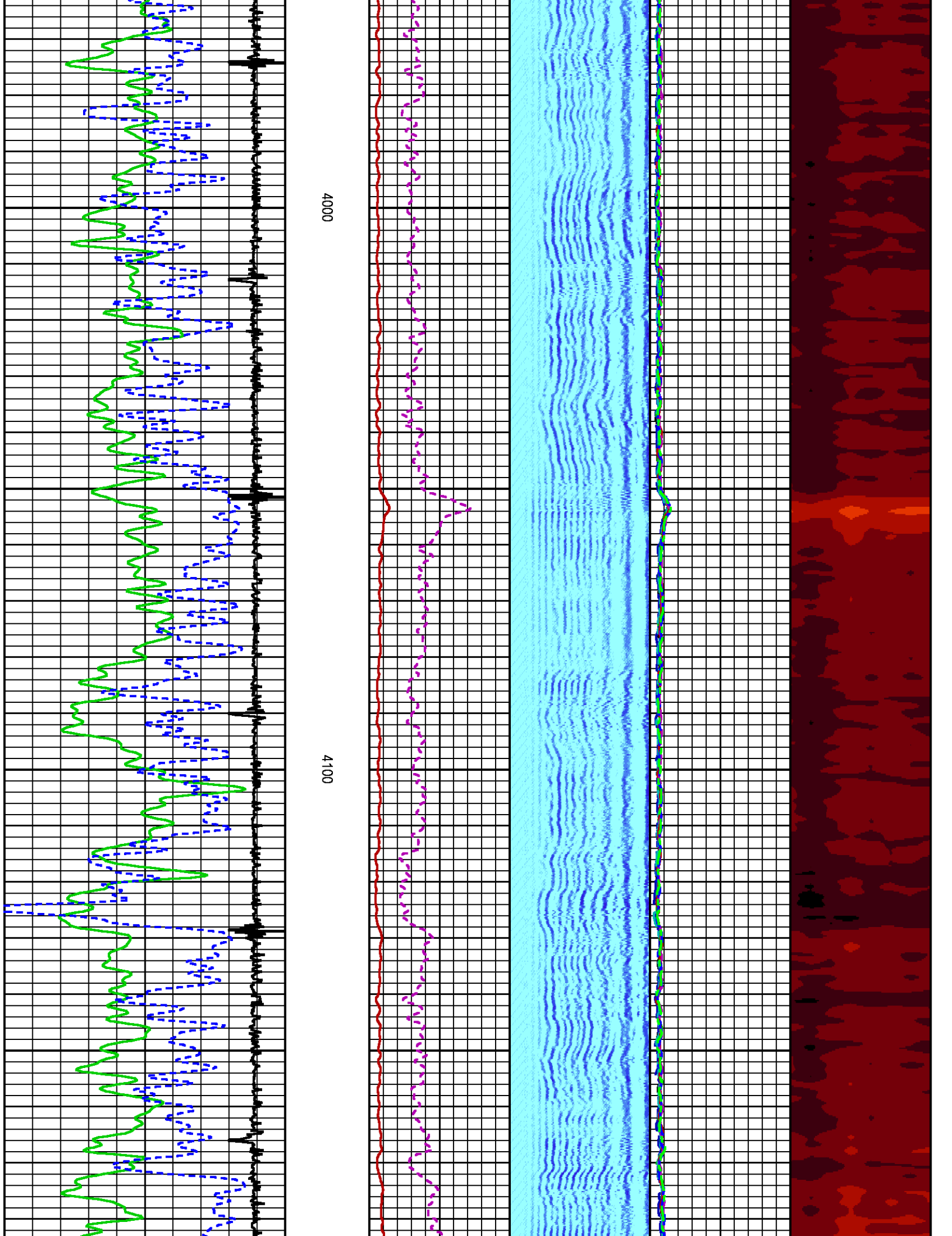


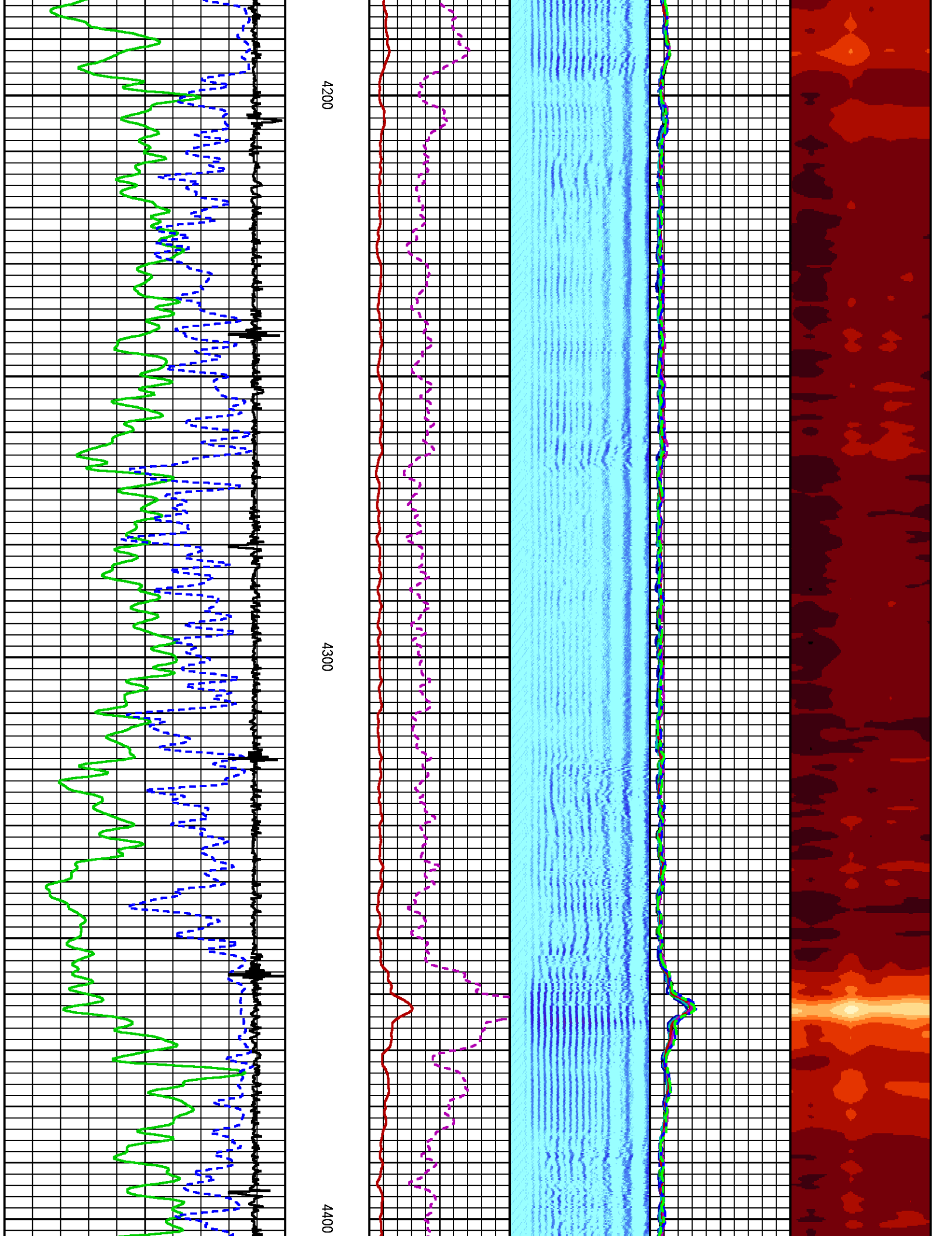


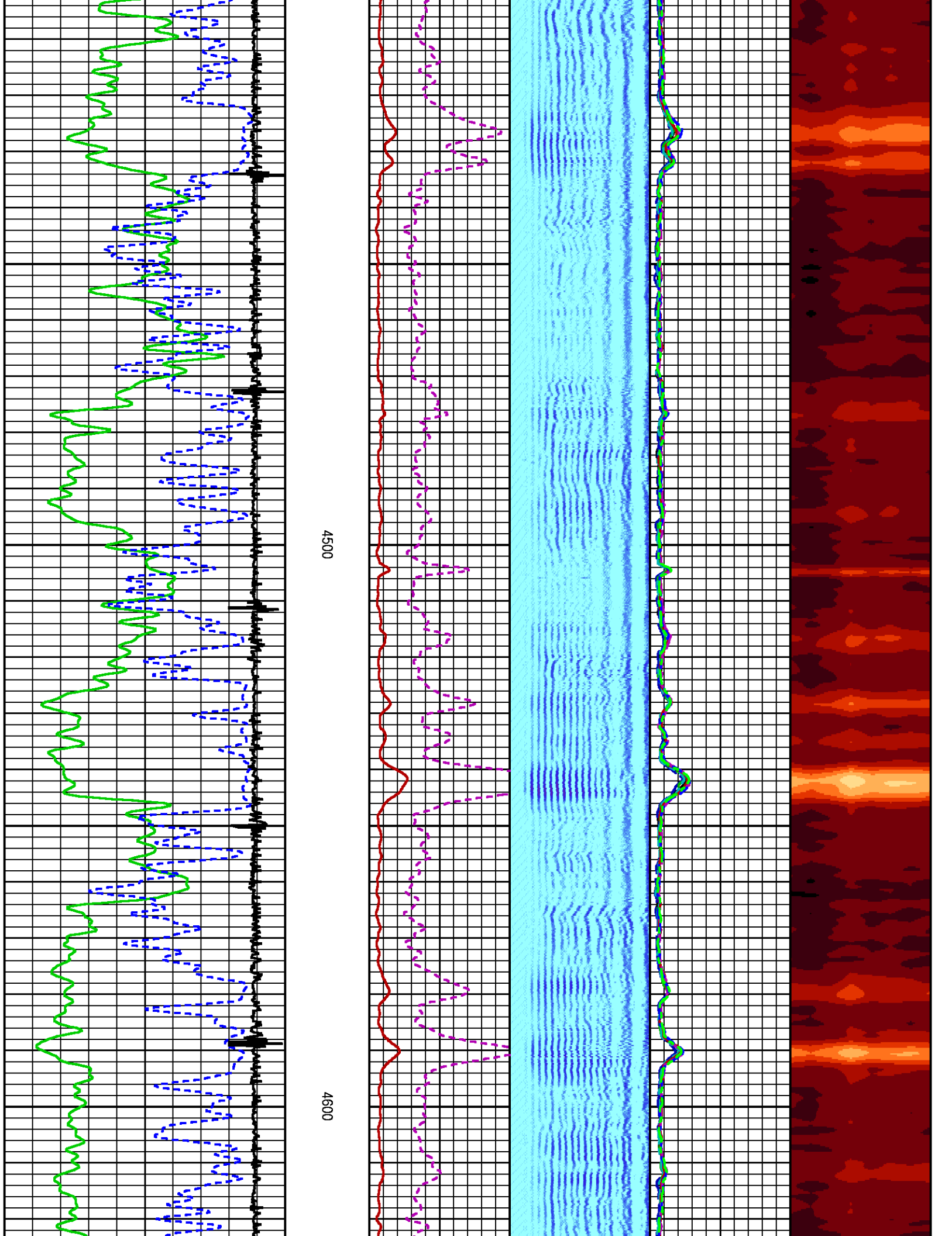


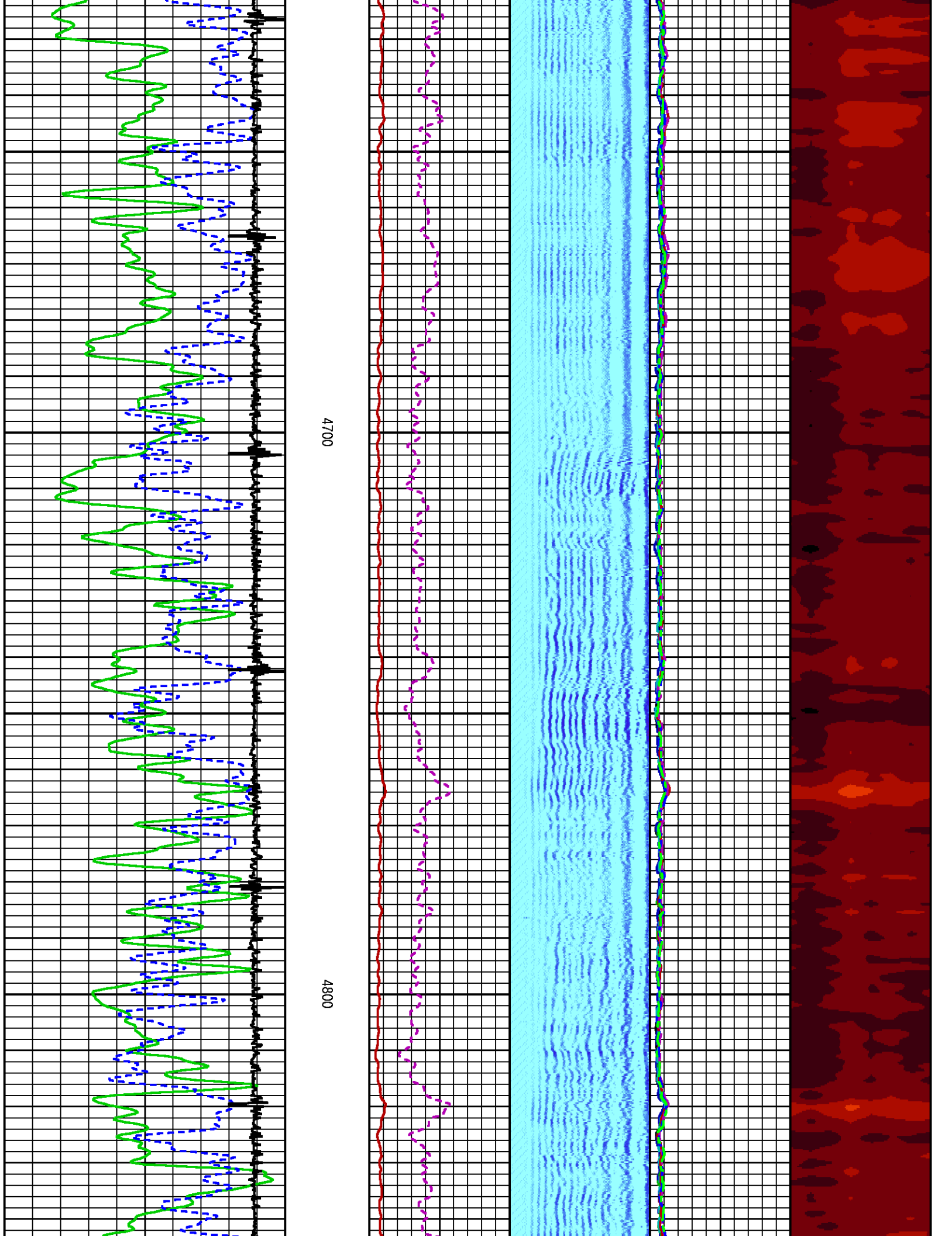


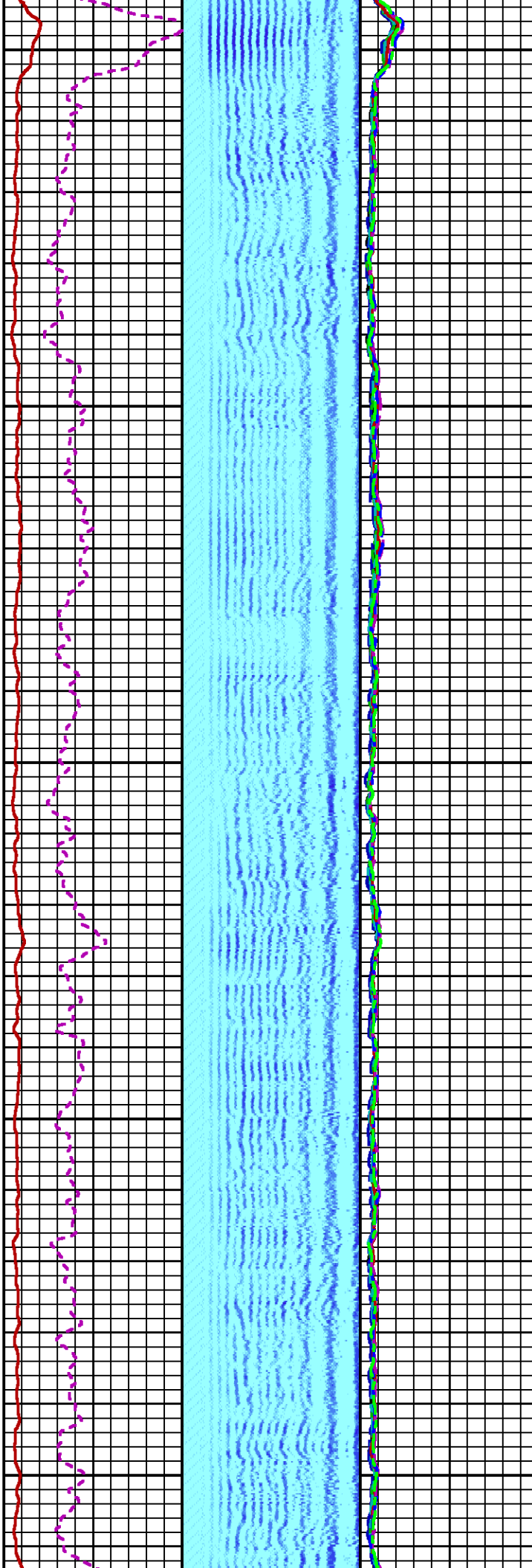
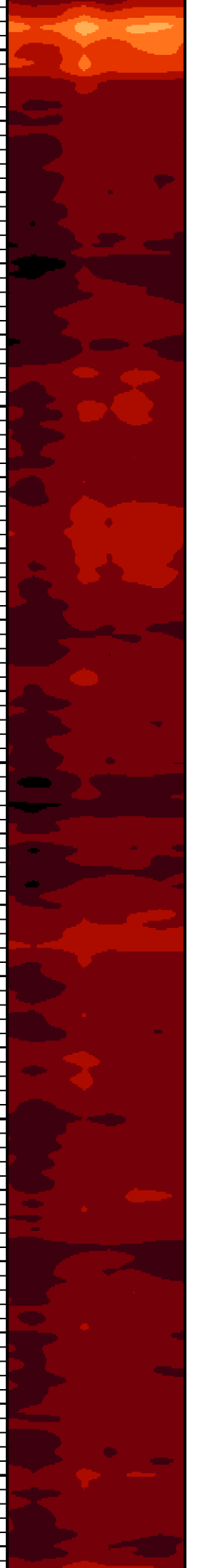






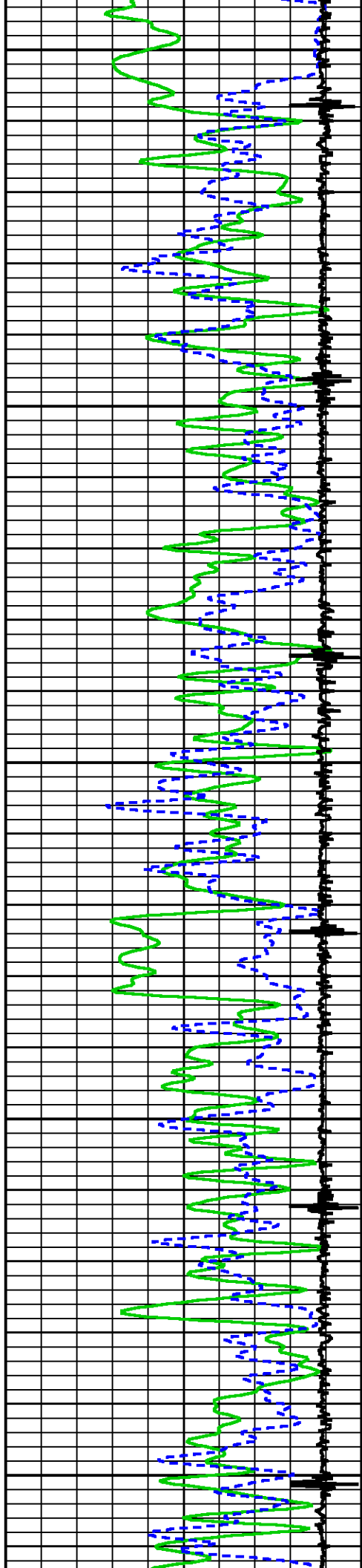


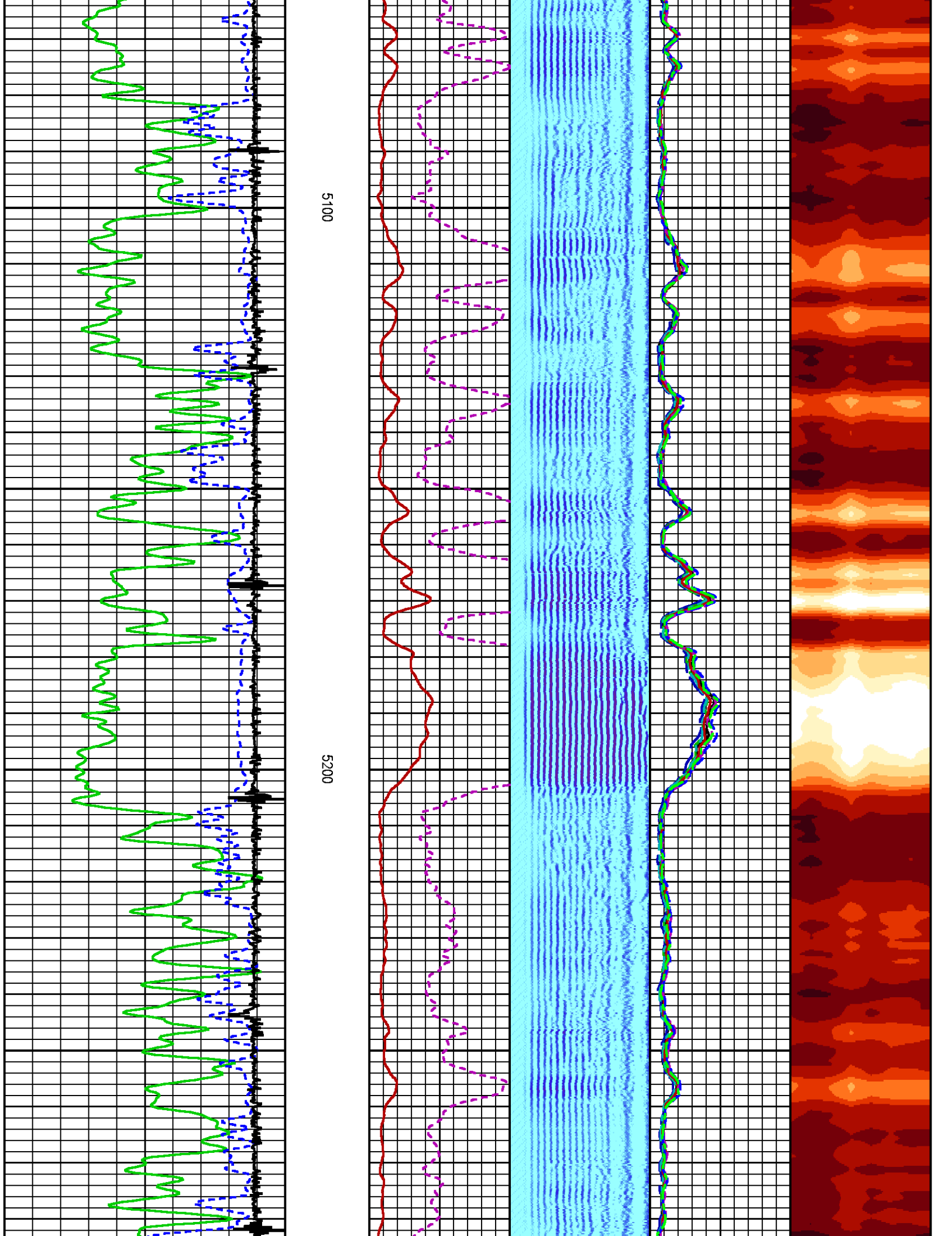


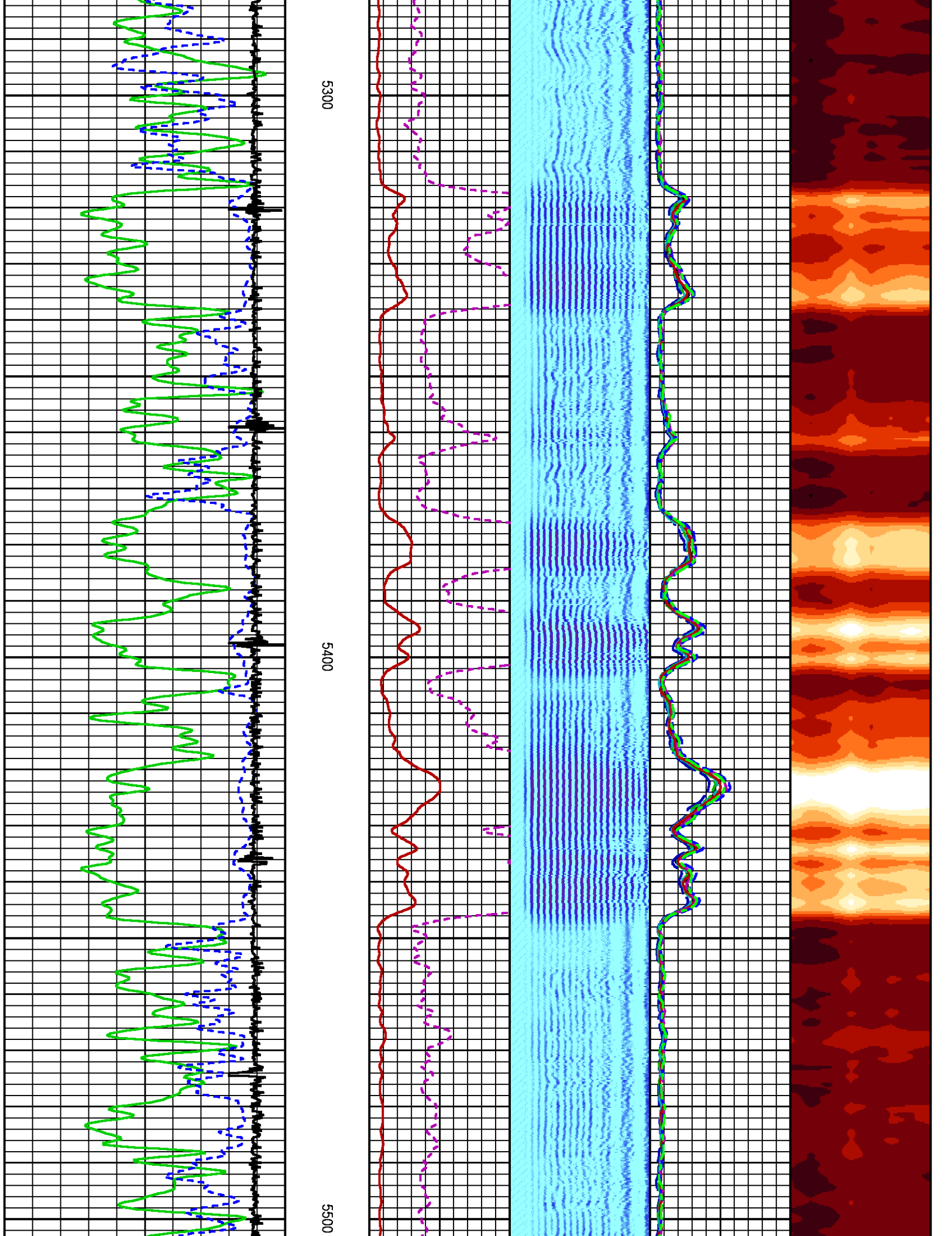


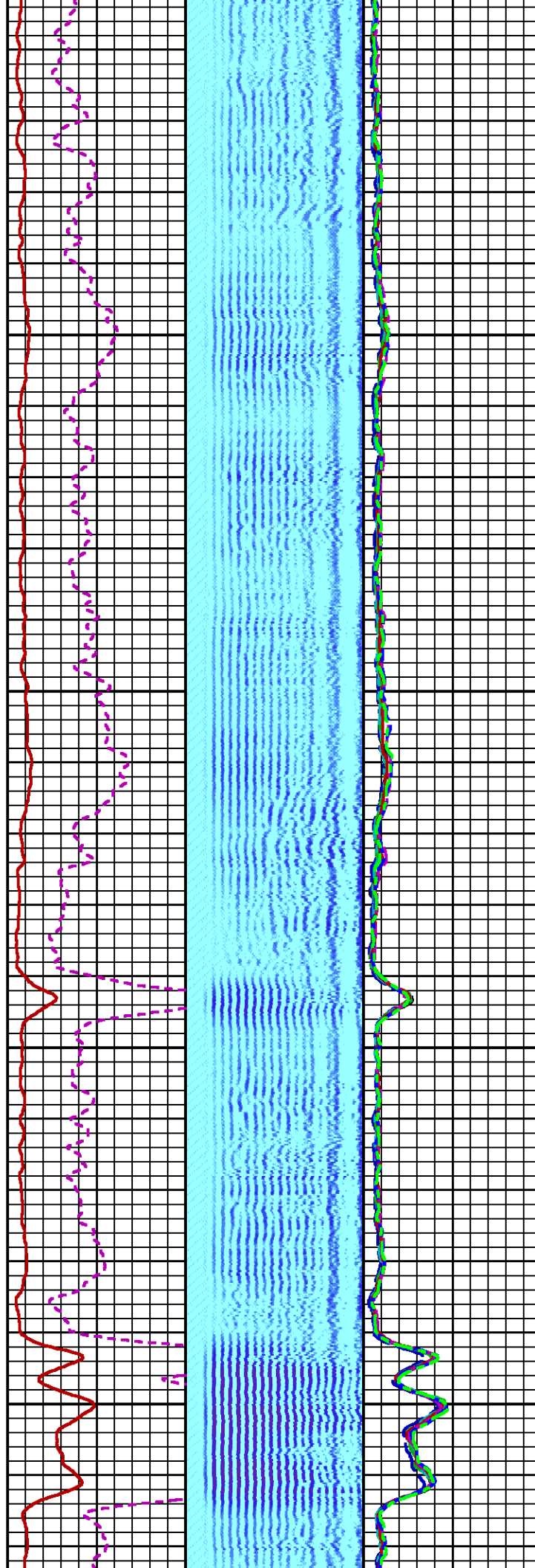
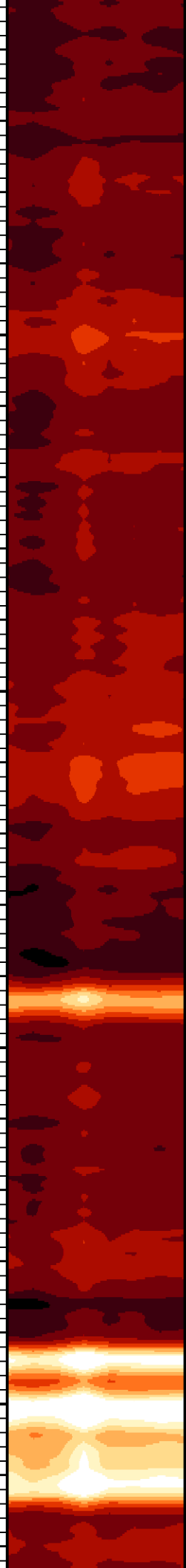
4900

5000





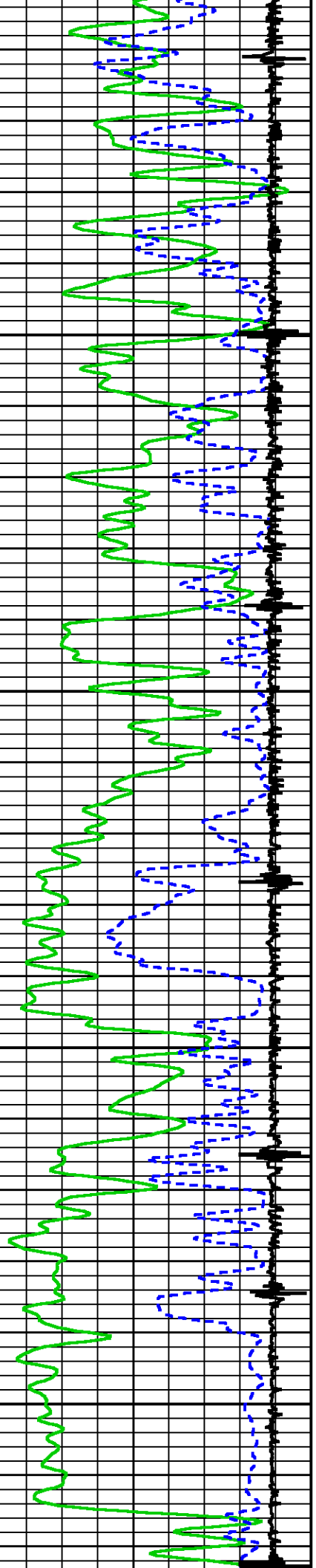


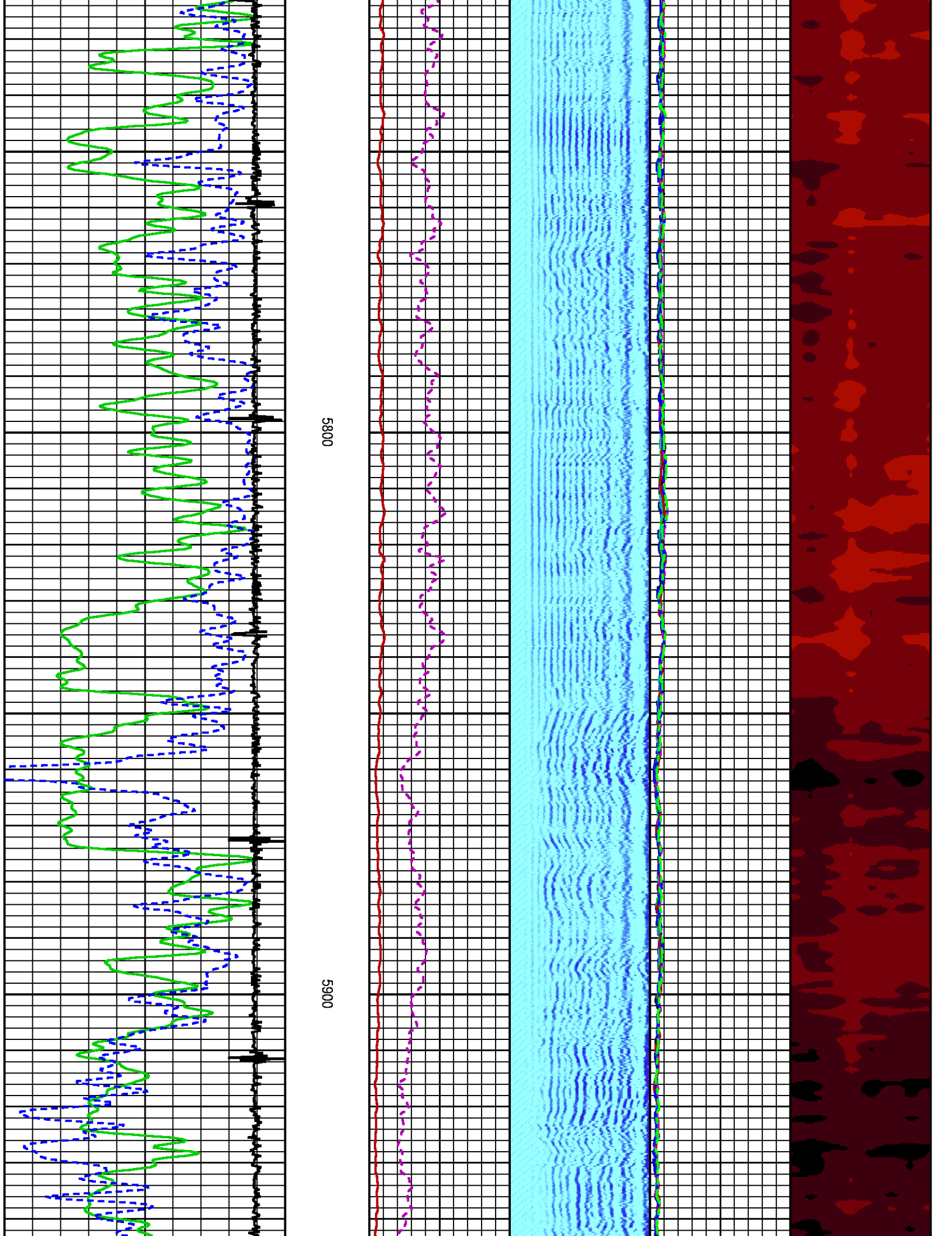


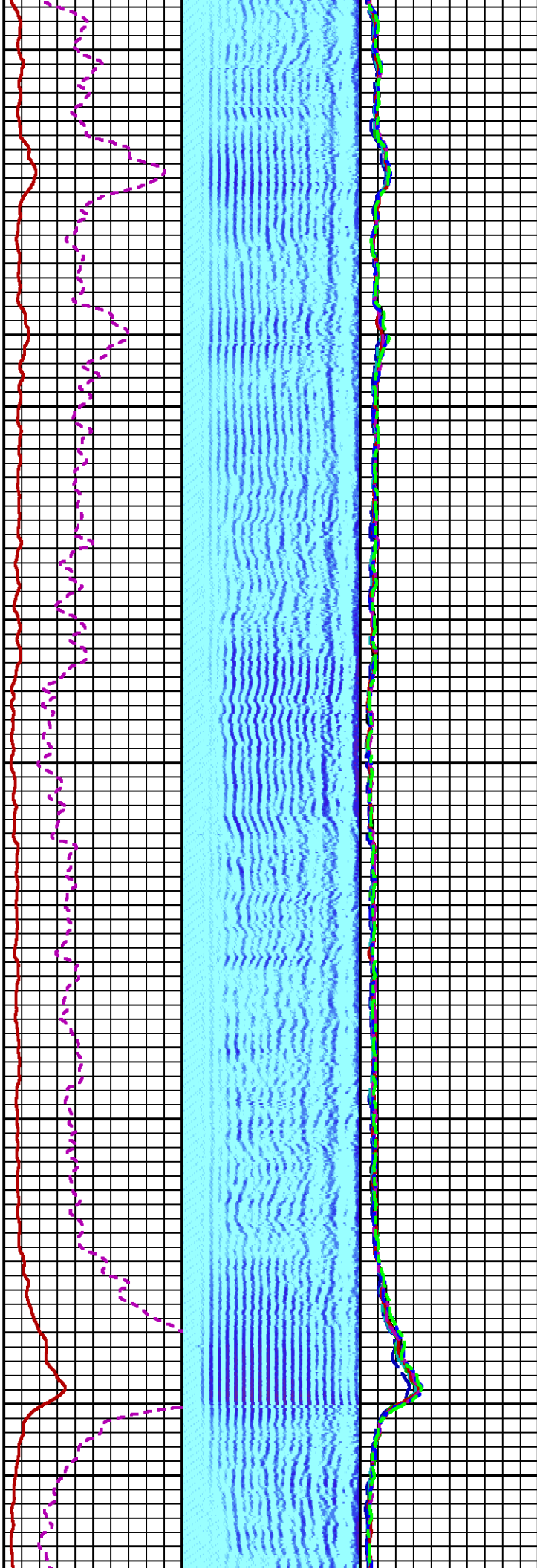
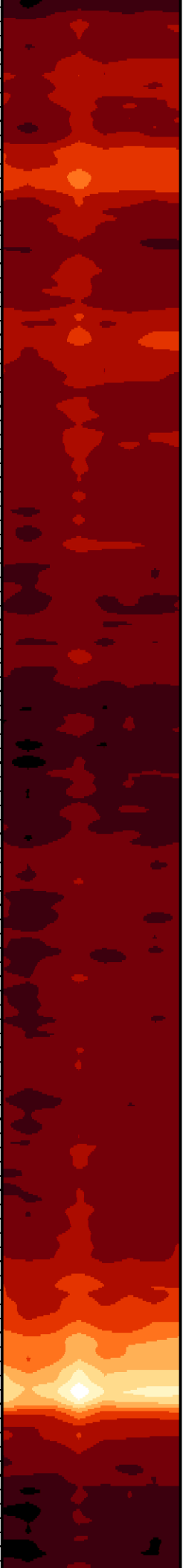
5600

5700

SJ

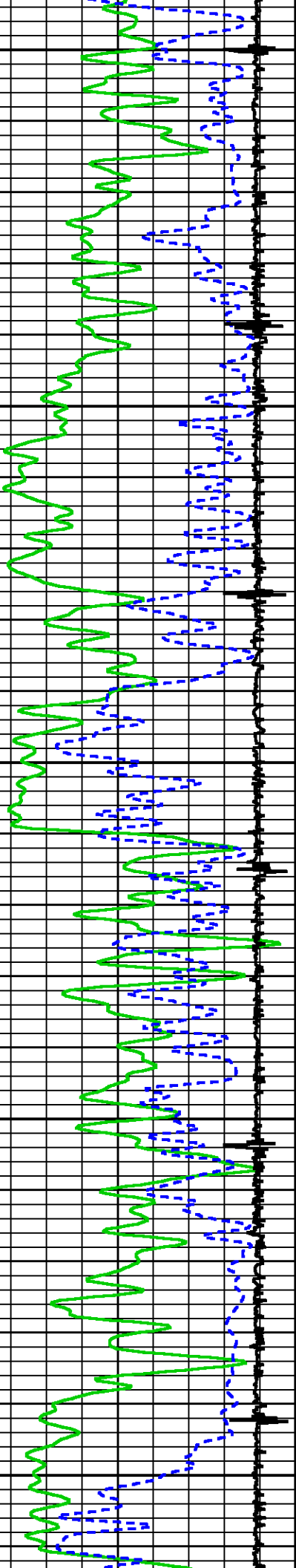


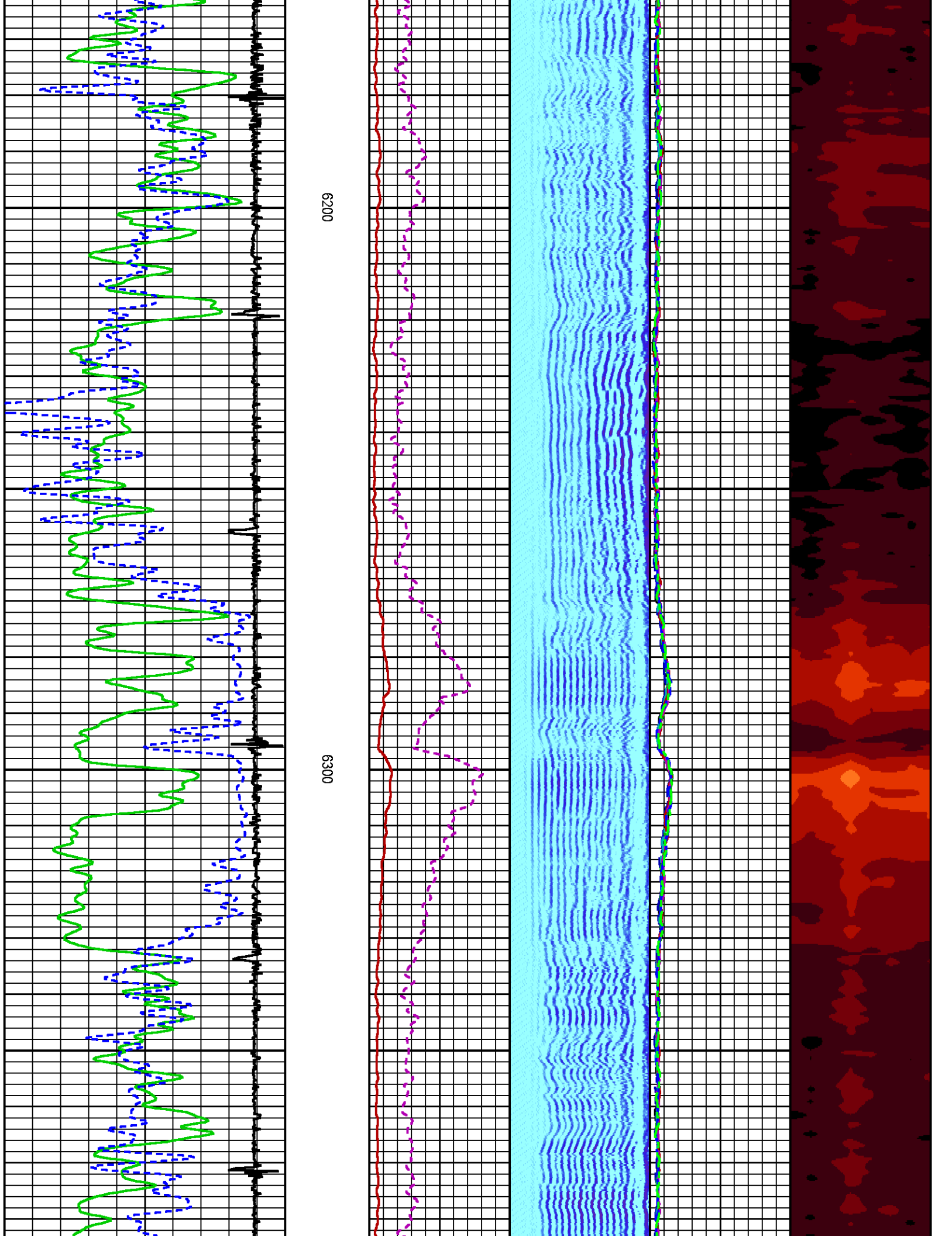


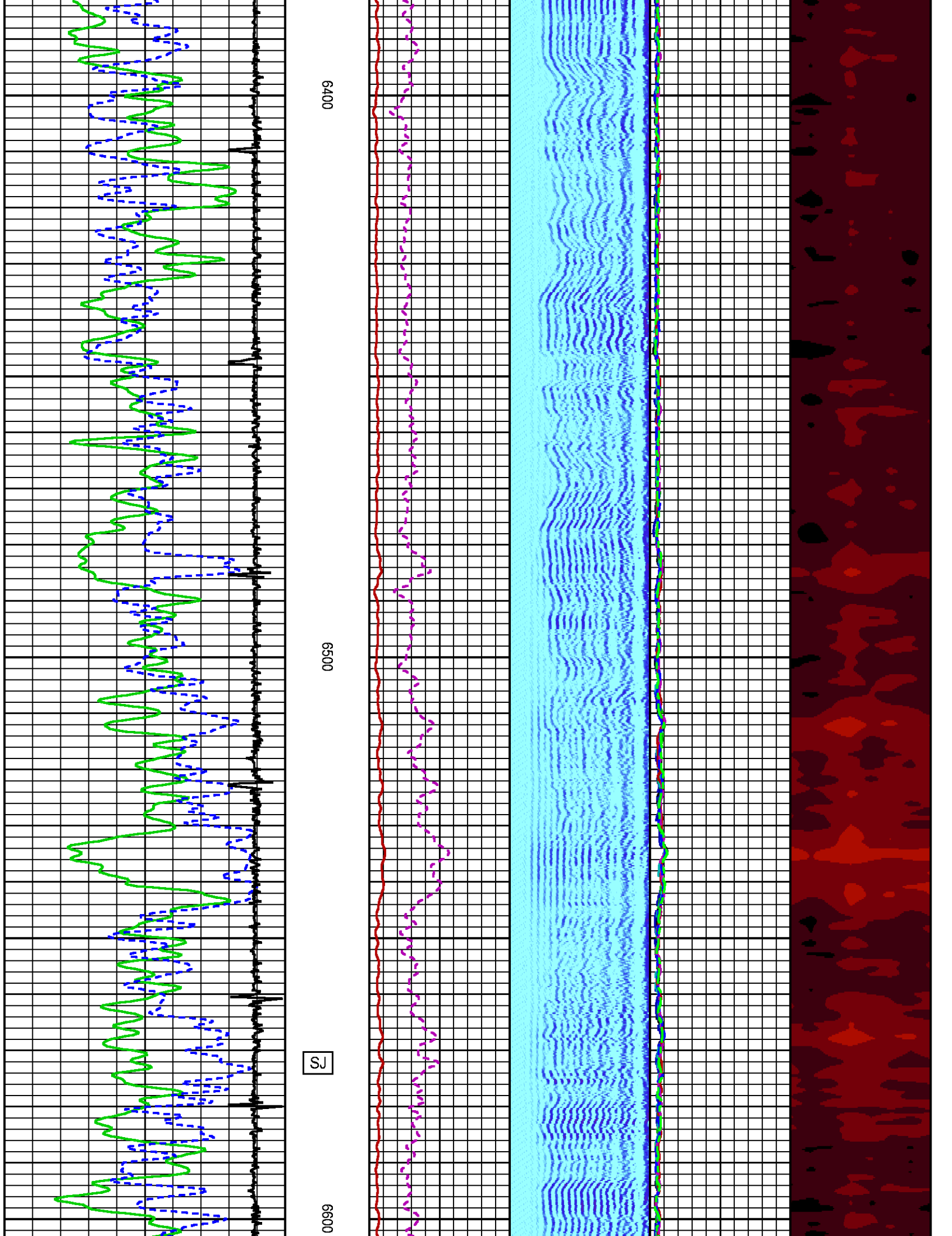


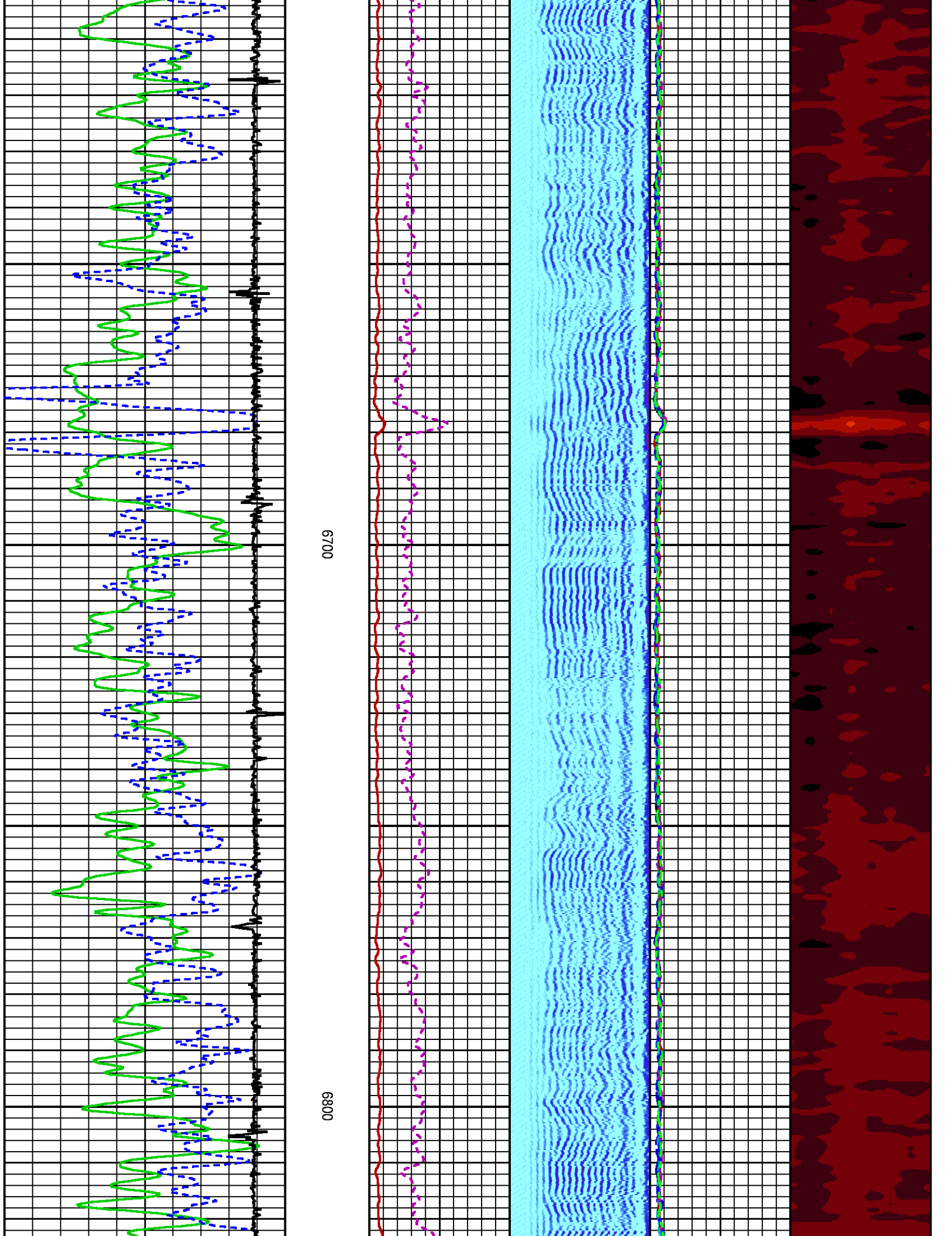
6000

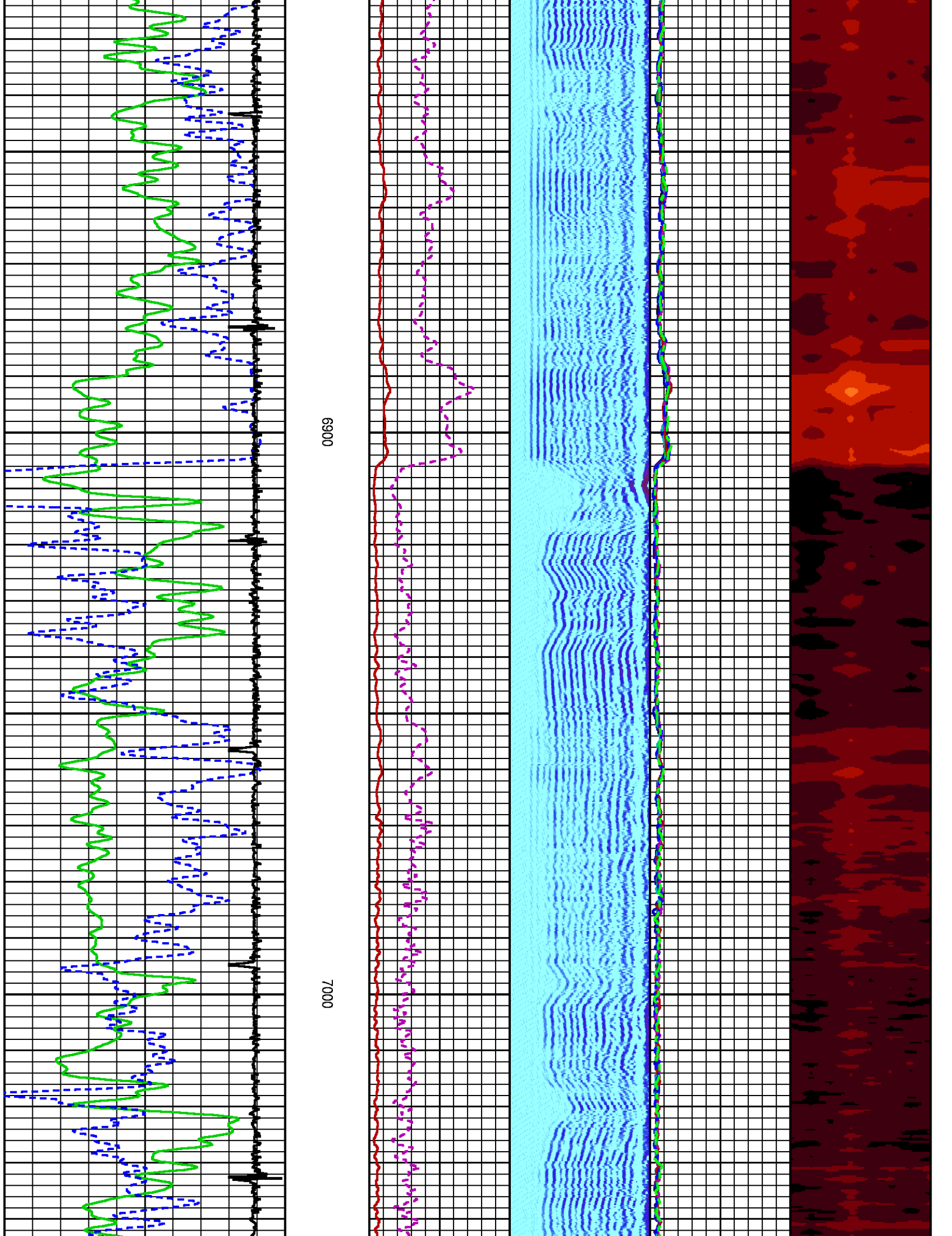
6100

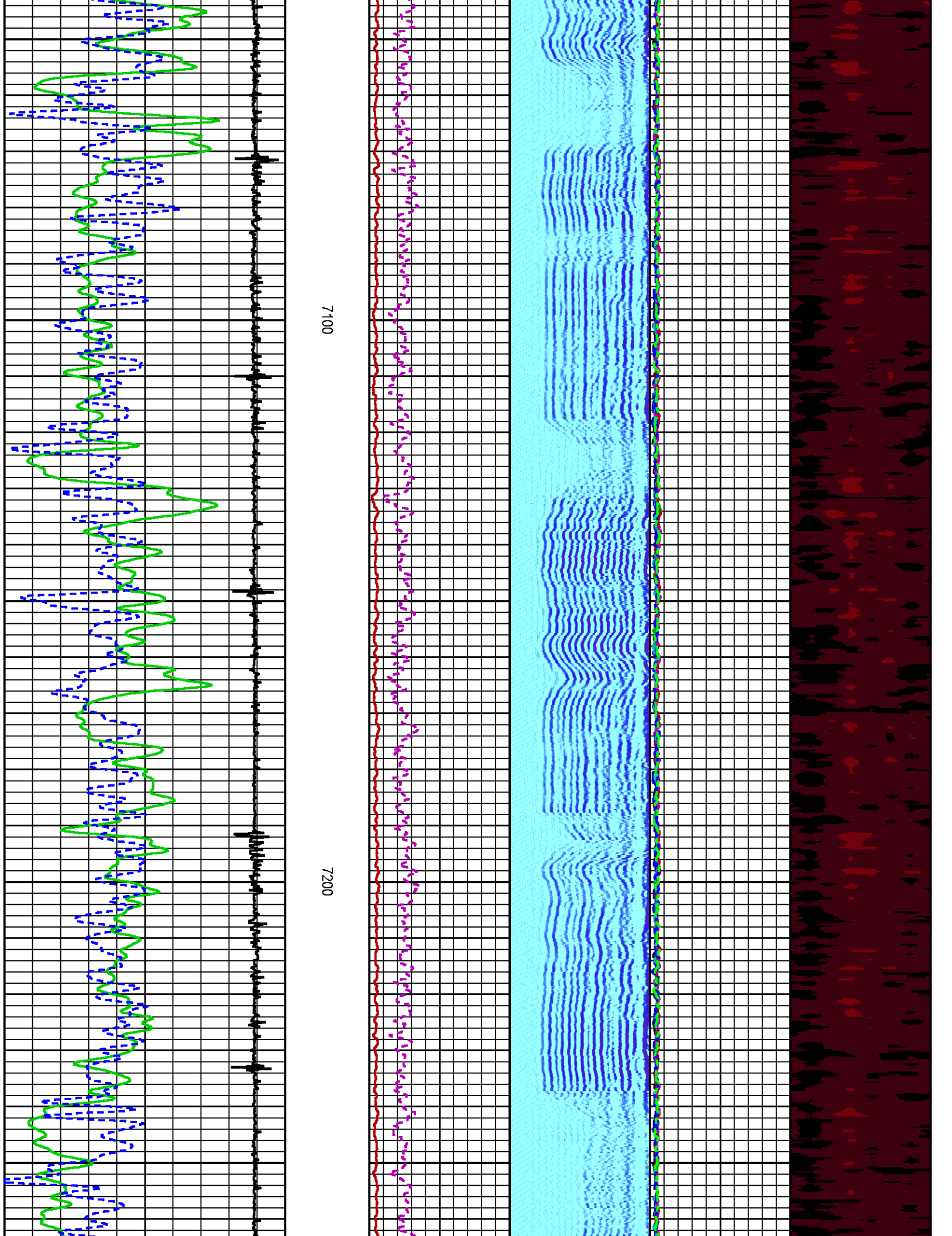


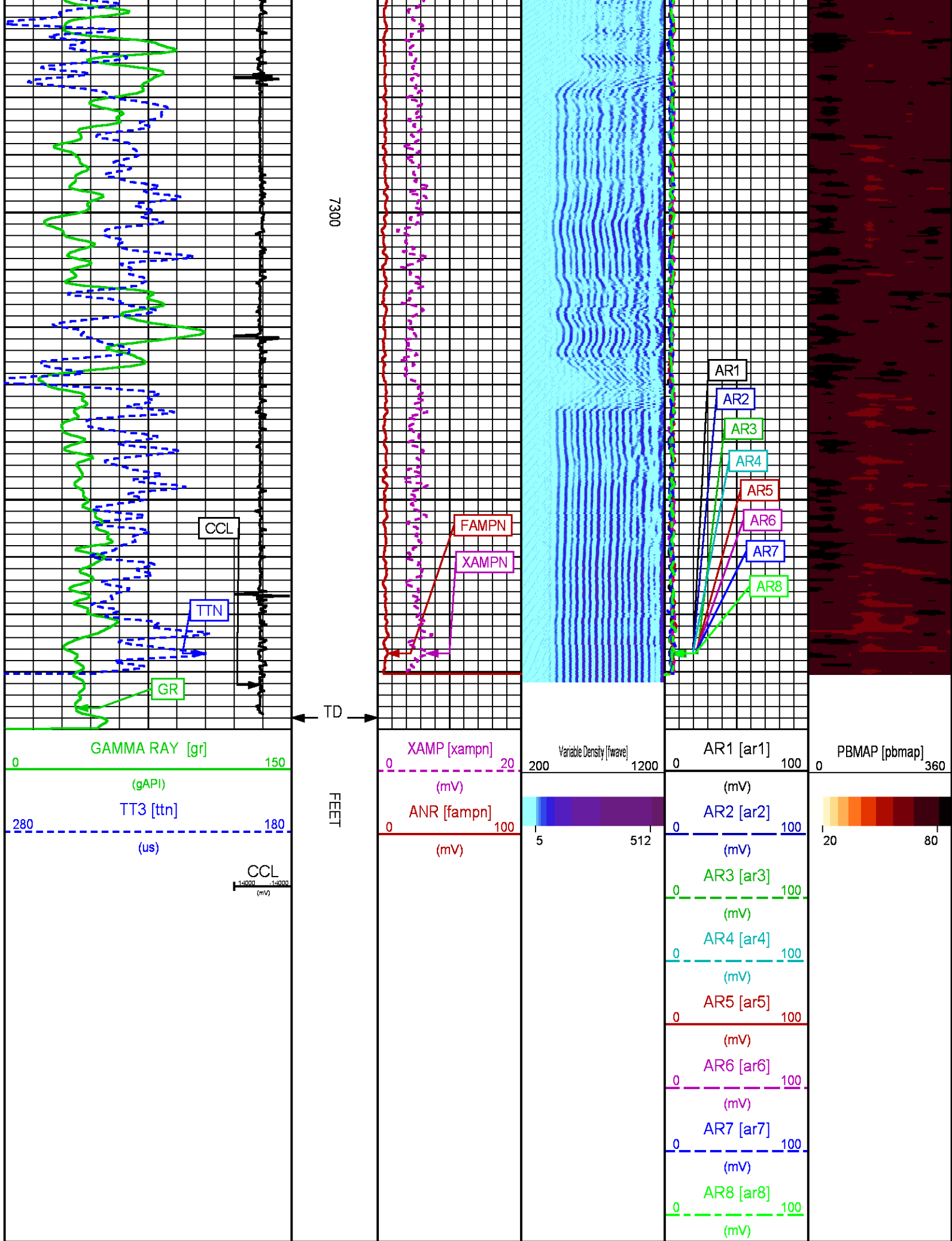












REPEAT PASS 0 PSI

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

Patches: 2

Plotted: Thu Jan 25 19:19:17 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994_24_05W/p012g01.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 7106.250 ft BOTTOM DEPTH: 7378.750 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*)	184	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	184	us	"	"
	AMP WINDOW START (fgp3*)	184	us	"	"
	AMP WINDOW START (fgp4*)	184	us	"	"
	AMP WINDOW START (fgp5*)	184	us	"	"
	AMP WINDOW START (fgp6*)	184	us	"	"
	AMP WINDOW START (fgp7*)	184	us	"	"
	AMP WINDOW START (fgp8*)	184	us	"	"
	AMP WINDOW START (fgpn*)	184	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*)	6	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-66	us	"	"
	TOOL DELAY (str2*)	-66	us	"	"
	TOOL DELAY (str3*)	-66	us	"	"
	TOOL DELAY (str4*)	-66	us	"	"
	TOOL DELAY (str5*)	-66	us	"	"
	TOOL DELAY (str6*)	-66	us	"	"
	TOOL DELAY (str7*)	-66	us	"	"
	TOOL DELAY (str8*)	-66	us	"	"
	TOOL DELAY (strn*)	-66	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	"	"

FREE AMP REC 0	0	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	"	"

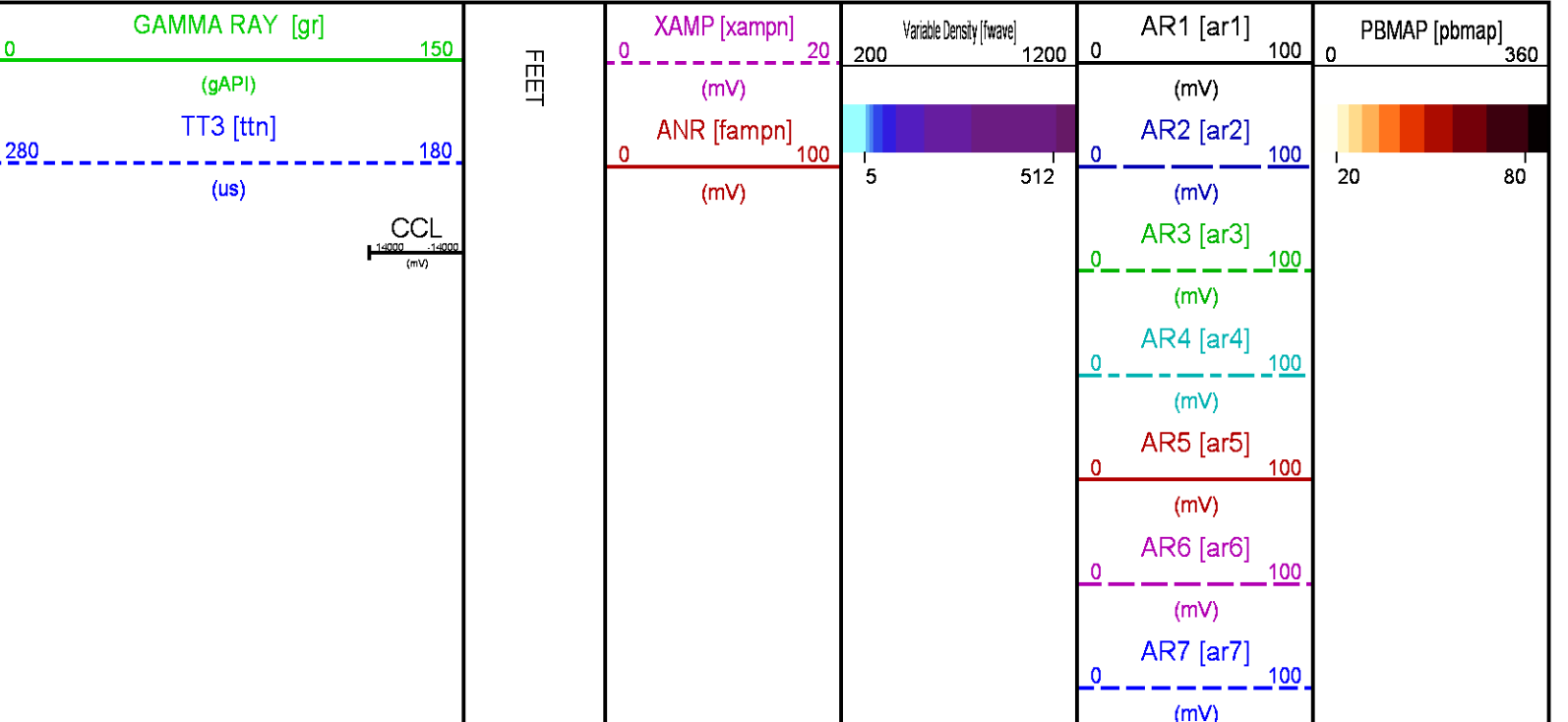
CURVE DESCRIPTION REPORT

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

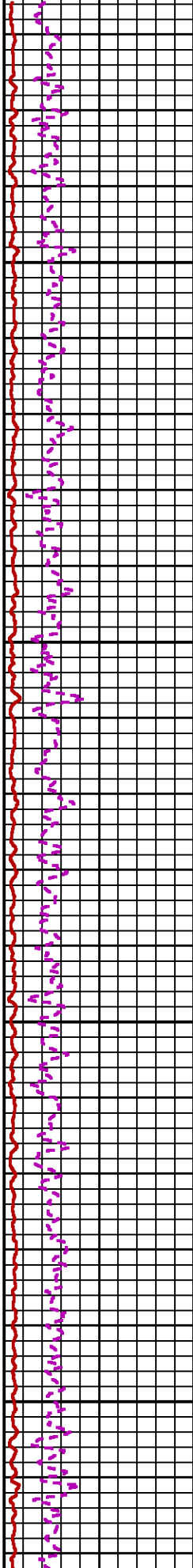
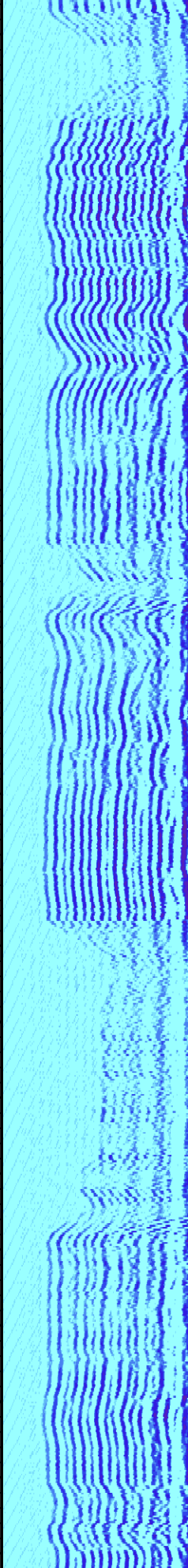
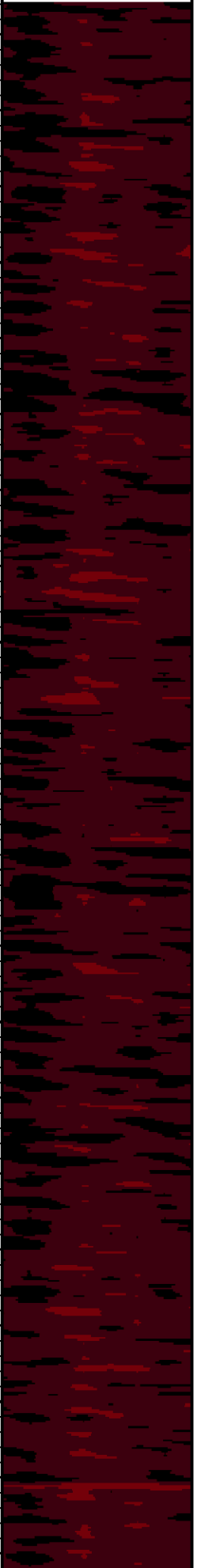
CURVE MEASURE POINT OFFSET

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_NICHOLS_0994_24_05W/LARAMIE_RAL+01-REPEAT-RAL_RPT_05W-5.fvpdf [5"/100' Scale]
Plot Interval	: 7115.5 - 7397.75 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_05W/RAL_RPT_05W.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: NICHOLS 0994-24-5W
Field	: VEGA
File Interval	: 7105.75 - 7399 Feet
OCT	: p012g

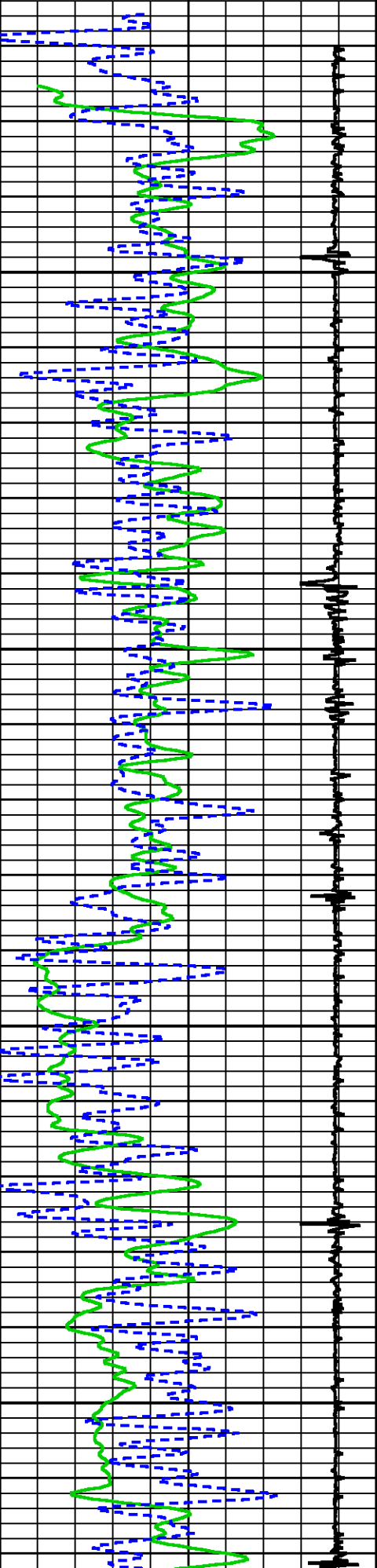


AR8 [ar8]
0 100
(mV)



7200

7300



AMP FLUID (mV)	43	43	43	43	41	42	43	43	44	56	43
TT (us)	215	214	215	215	214	215	214	214	215	328	215
M FACTOR	2.32	2.30	2.34	2.32	2.42	2.38	2.32	2.31	2.29	2.70	2.34

RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA10417452 DATE/TIME PERFORMED: Thu Jan 25 16:47:43 2018 DAYS SINCE CAL: 0

UNIT #: 5753XD111111 CABLE #: 4291CH SMALLLINE

	NEAR	R1	R2	R3	R4	R5	R6	R7	R8	FAR	CAL
	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)
ZERO	0.07	-0.22	0.04	0.08	0.08	-0.08	0.12	-0.01	0.08	0.48	0.16
AMP AIR	3.18	3.51	2.52	3.10	3.23	2.99	3.68	3.52	3.55	5.24	100.20

	SHOP	SHOP	WIRELINE
	M FACTOR	A FACTOR	FACTOR
	2.34	0.00	1.00

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 1355XA11871507 DATE/TIME PERFORMED: Fri Nov 17 14:10:53 2017

UNIT #: 3882TD HL6728 CALB JIG #: 4702NK DA_228

	BACKGROUND	CALBRTR ON	GR DIFF	MULT	BACKGROUND	CALBRTR ON	CALBRTR
	(cts)	(cts)	(cts/s)		(gAPI)	(gAPI)	(gAPI)
GR	59.07	162.98	103.9	0.962	56.84	156.84	100

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 1355XA11871507 DATE/TIME PERFORMED: Fri Nov 17 14:12:49 2017

UNIT #: 3882TD HL6728 VERI JIG #: 4702NK DA_228

	BACKGROUND	CALBRTR ON	MULT	BACKGROUND	CALBRTR ON	DIFF.
	(cts)	(cts)		(gAPI)	(gAPI)	(gAPI)
GR	59.73	170.53	0.962	57.49	164.11	106.63
						90.00 110.00

INSTRUMENT CONFIGURATION

Source File: \dat1\ALARAMIE_NICHOLAS_0994_24_09\ERAL55-1dg

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

20.38

NEAR RCVR 11.17'

FAR RCVR 10.21'

CCL 5.79

GR 1.67

TEMP 0.17

TOTAL LENGTH: 40.38'
TOTAL WEIGHT: 235 lbs
MAX DIAMETER: 04.00"

**BAKER
HUGHES**
a GE company



ECLIPS

COMPANY

LARAMIE ENERGY LLC

WELL

NICHOLS 0994-24-05W

FIELD

VEGA

COUNTY

MESA

STATE

COLORADO

FILE NO:

API NO:

05077104070000

LOCATION:

SHL: 39.264531 N; 107.830722 W

BHL: 39.266392 N; 107.835341 W

SEC

24

TWP

9 S

RGE

94 W

ELEVATIONS:

KB 7161 FT

DF 7160 FT

GL 7137 FT

DATE

25-Jan-2018