



FILE NO:

COMPANY

LARAMIE ENERGY

WELL

GUNDERSON 20-03W

FIELD

BUZZARD CREEK

COUNTY

MESA

STATE COLORADO

API NO:

05077103380000

Ver. 4.06

LOCATION:

SHL: LAT:39.266947N; LONG:107.795317W

OTHER SERVICES

RPM

BHL: LAT:39.267824N; LONG:107.797721W

SEC 20 TWP 9S RGE 93W

PERMANENT DATUM

GL

ELEVATION

7144 FT

LOG MEASURED FROM

KB

30 FT

ABOVE P.D.

DRILL. MEAS. FROM

KB

ELEVATIONS:

KB 7174 FT

DF 7173 FT

GL 7144 FT

DATE

10-AUG-2017

RUN

TRIP

1

1

SERVICE ORDER

US125136

DEPTH DRILLER

7508 FT

DEPTH LOGGER

7420 FT

BOTTOM LOGGED INTERVAL

7420 FT

TOP LOGGED INTERVAL

0 FT

TIME STARTED

15:00

TIME FINISHED

18:00

OPERATOR RIG TIME

3

TYPE OF FLUID IN HOLE

WATER

FLUID DENSITY

NA

FLUID SALINITY

NA

FLUID LEVEL

50 FT

LOGGED CEMENT TOP

1478 FT

WELLHEAD PRESSURE

0 PSI

MAXIMUM HOLE DEVIATION

NA

NOMINAL LOGGING SPEED

100 F/MN

MAX. RECORDED TEMP.

240 DEGF

REFERENCE LOG

NA

REFERENCE LOG DATE

NA

EQUIP. NO.

HL-6670

WOODWARD

RECORDED BY

LOHANDLEY

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

SAT DOWN EARLY- 2ND ATTEMPT DOWN PULLED EXCESSIVE WEIGHT
LOGGED WITH 0 PSI ON WELLHEAD

SJ:5600'

SJ:6560'

ALL DATA HAS BEEN DEPTH SHIFTED AND STRETCHED TO CORRELATE WITH THE OPEN HOLE
LOG OVER IT'S ENTIRE LENGTH OF THE LOG.
THIS PROCESS CAN CAUSE THE CASING LENGTHS TO CHANGE FROM THEIR ORIGINAL LOGGED
LENGTHS AND POSITIONS.

CREW: K.WATSON, C.GOLOBY

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	10154957	CENTRALIZED

1

1

GAMMA RAY

1355XA

12670180

CENTRALIZED

MAIN PASS 0 PSI

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1 Patches: 9

Plotted: Thu Aug 10 20:08:06 2017

PARAMETER AND FILTER SUMMARY REPORT					
FILE: /dat1a/LARAMIE_GUNDERSON_20_03W/n012g02.prm LOGGING MODE: DEPTH DIRECTION: UP TOP DEPTH: 19.250 ft BOTTOM DEPTH: 7417.750 ft					
SYMMETRIC FILTER					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
GR	FILTER ()	medium (1)		TOP	BOTTOM
AMPLITUDE	FILTER ()	medium (1)		"	"
TRAVEL TIME	FILTER ()	medium (1)		"	"
RAL CCL PROCESSING					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM
ANALOG RAL PROCESSING					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	180	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	180	us	"	"
	AMP WINDOW START (fgp3*)	180	us	"	"
	AMP WINDOW START (fgp4*)	180	us	"	"
	AMP WINDOW START (fgp5*)	180	us	"	"
	AMP WINDOW START (fgp6*)	180	us	"	"
	AMP WINDOW START (fgp7*)	180	us	"	"
	AMP WINDOW START (fgp8*)	180	us	"	"
	AMP WINDOW START (fgpn*)	180	us	"	"
	AMP WINDOW LENGTH	31	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-75	us	"	"
	TOOL DELAY (str2*)	-75	us	"	"
	TOOL DELAY (str3*)	-75	us	"	"
	TOOL DELAY (str4*)	-75	us	"	"
	TOOL DELAY (str5*)	-75	us	"	"
	TOOL DELAY (str6*)	-75	us	"	"
	TOOL DELAY (str7*)	-75	us	"	"
	TOOL DELAY (str8*)	-75	us	"	"
	TOOL DELAY (strn*)	-75	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 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	"	"

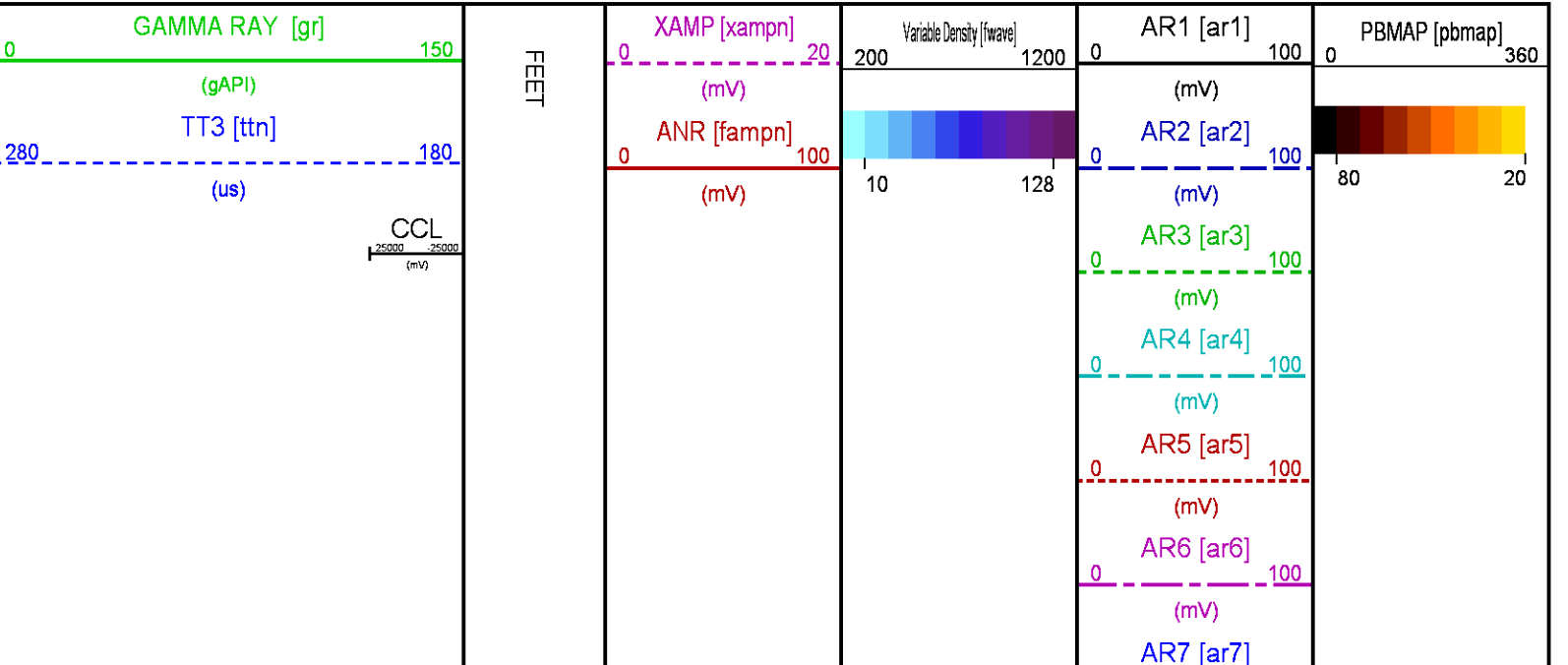
CURVE DESCRIPTION REPORT

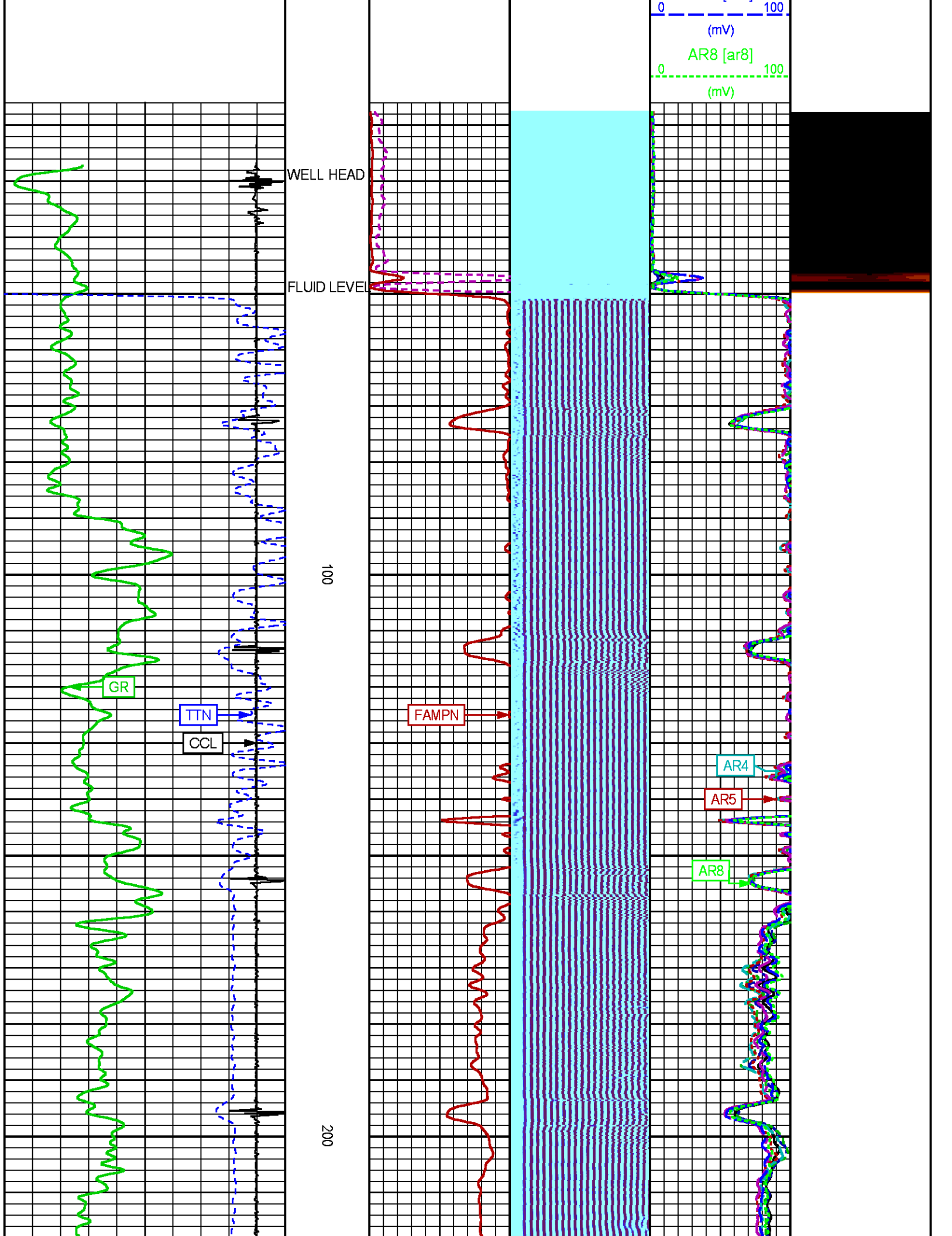
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R1
F1:AR2	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R2
F1:AR3	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R3
F1:AR4	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R4
F1:AR5	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R5
F1:AR6	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R6
F1:AR7	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R7
F1:AR8	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE T-R8
F1:CCL	Aug 10 16:13:30 2017	CASING COLLAR LOCATOR
F1:FAMPN	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Aug 10 16:13:30 2017	FAR WAVE FORM
F1:GR	Aug 10 16:13:30 2017	GAMMA RAY
F1:PBMAP	Aug 10 16:13:30 2017	PERCENT BOND CEMENT MAP
F1:TTN	Aug 10 16:13:30 2017	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Aug 10 16:13:30 2017	FIXED GATE AMPLITUDE NEAR RECEIVER TIMES FIVE

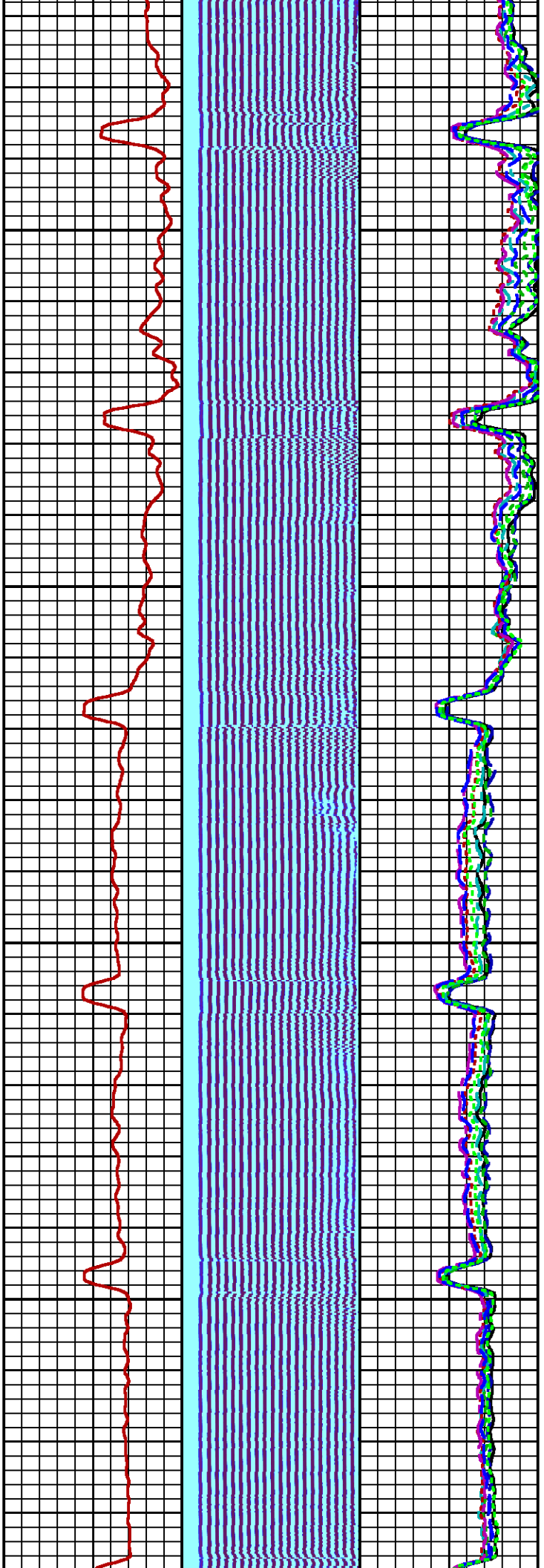
CURVE MEASURE POINT OFFSET

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	: cpu100:/dat1a/LARAMIE_GUNDERSON_20_03W/RAL_MAIN+01-MAIN-MAINRAL-5.fvpdf [5"/100' Scale]
Plot Interval	: 17.5 - 7425.25 Feet
Data File 1	: F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_03W/MAINRAL.xtf
Created On	: Aug 10 16:13:30 2017
Company	: LARAMIE ENERGY LLC
Well	: GUNDERSON 20-03W
Field	: MESA
File Interval	: 16.5 - 7426.5 Feet
OCT	: n012g

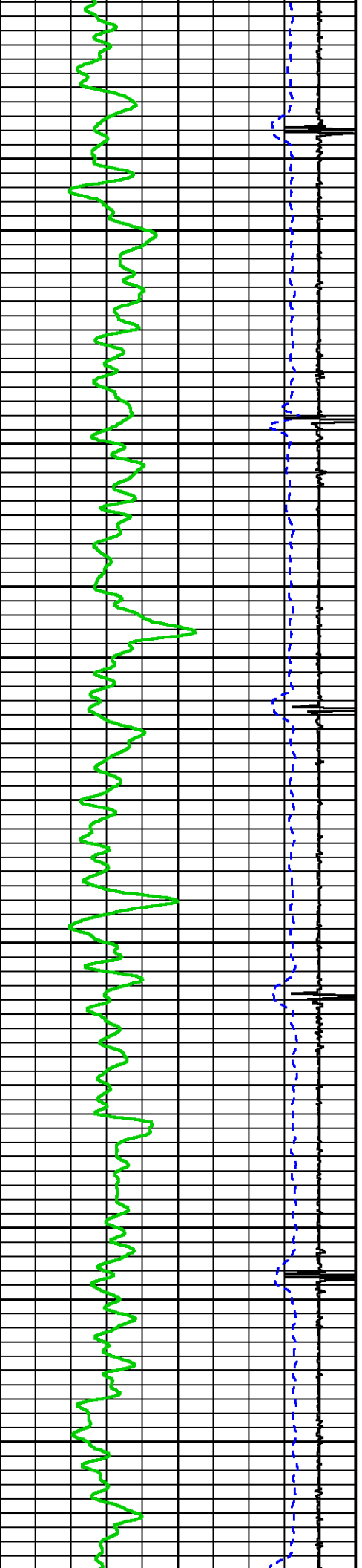


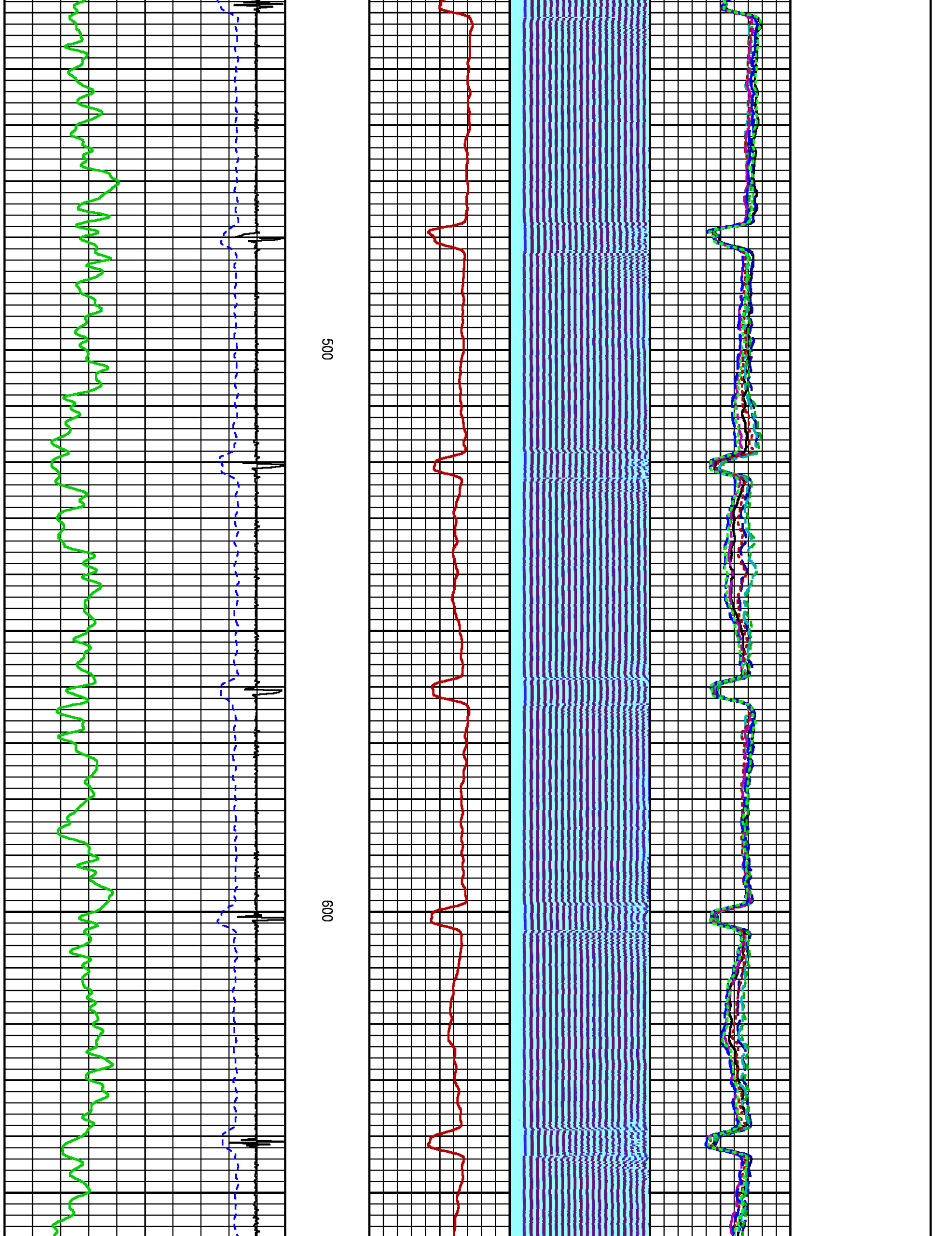


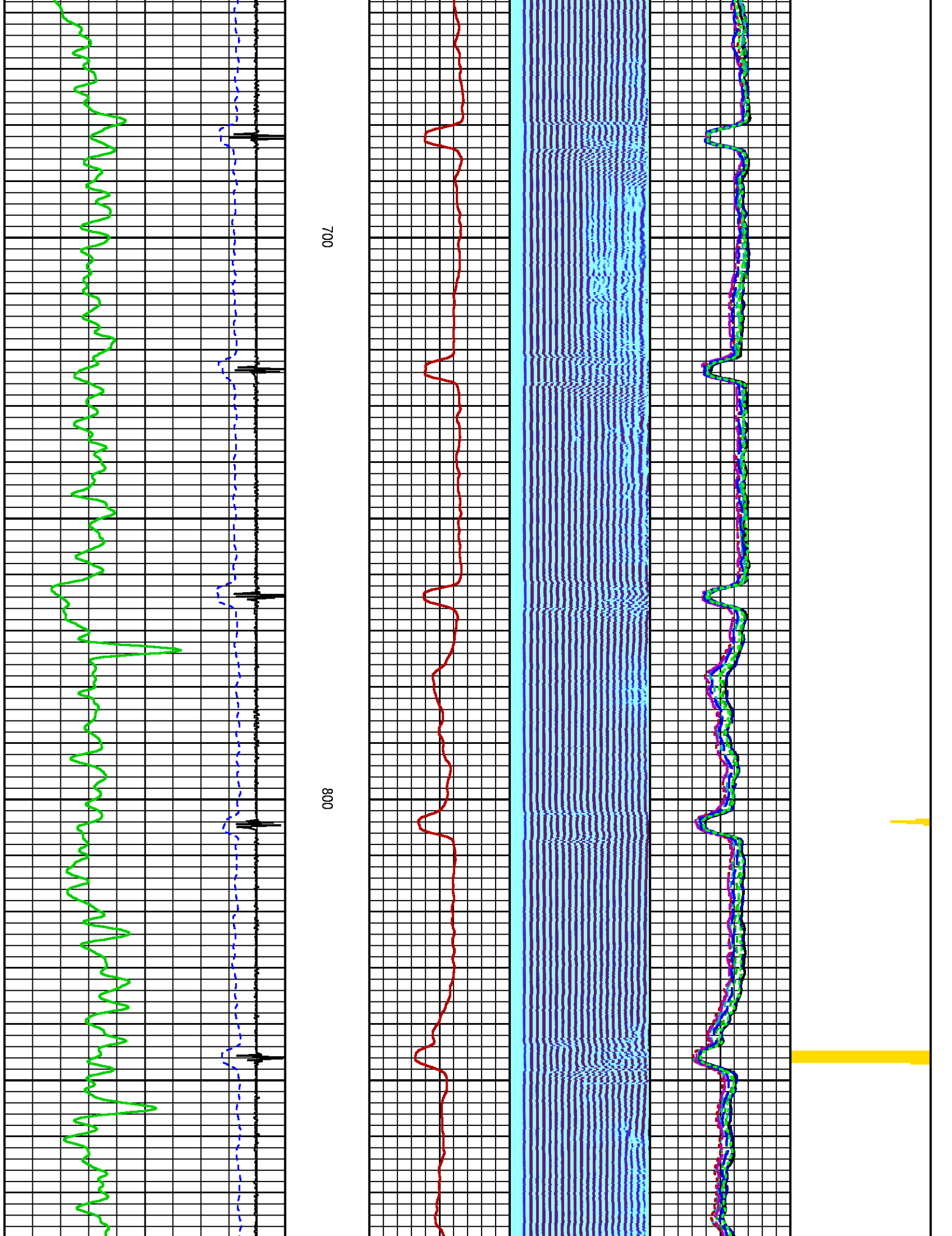


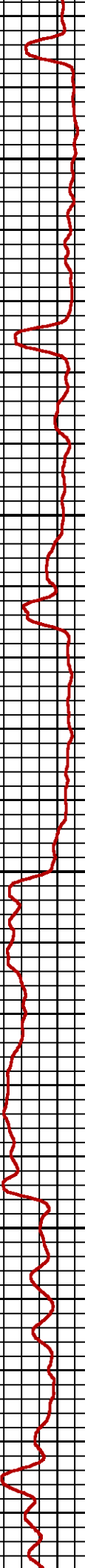
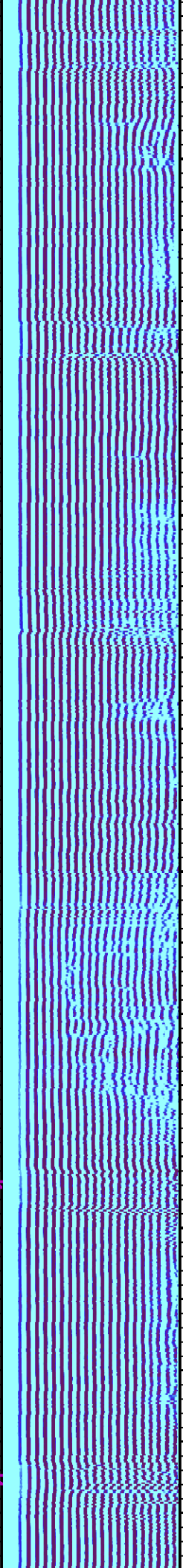
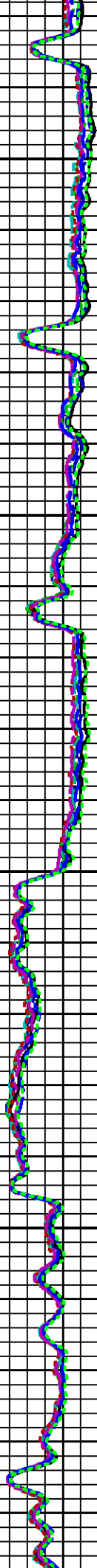
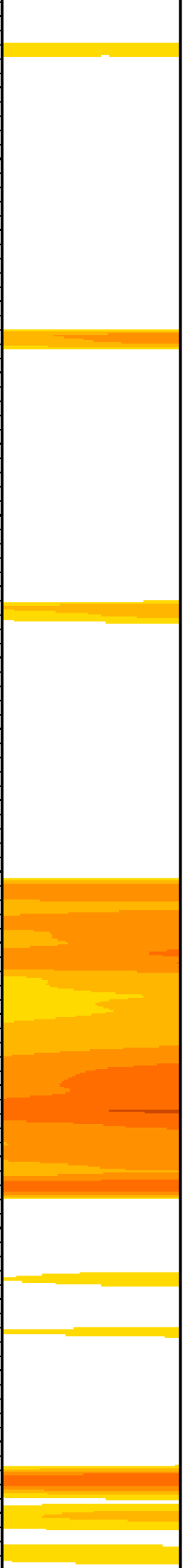
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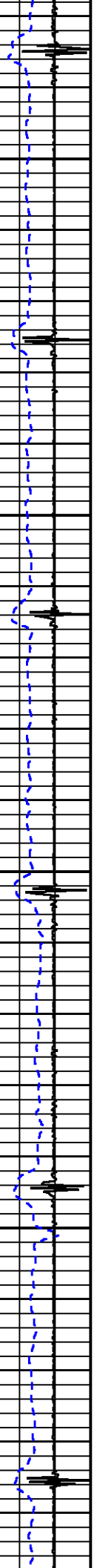


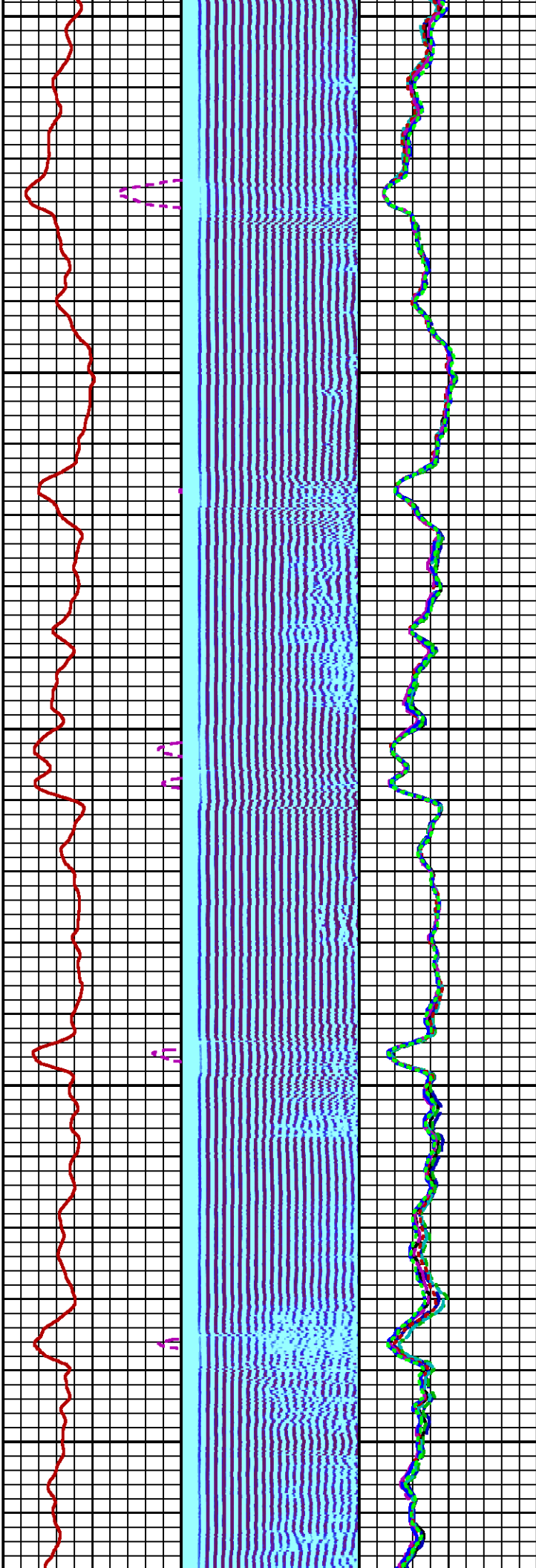




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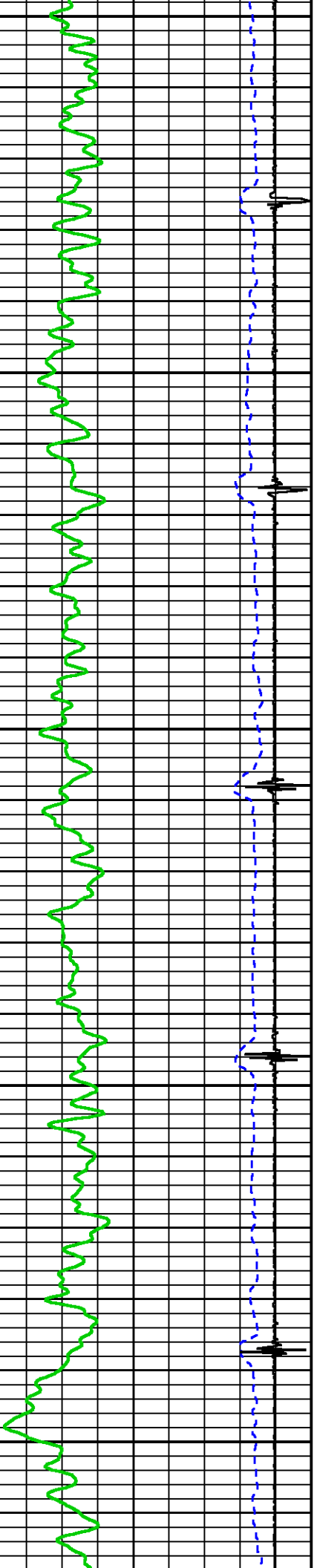


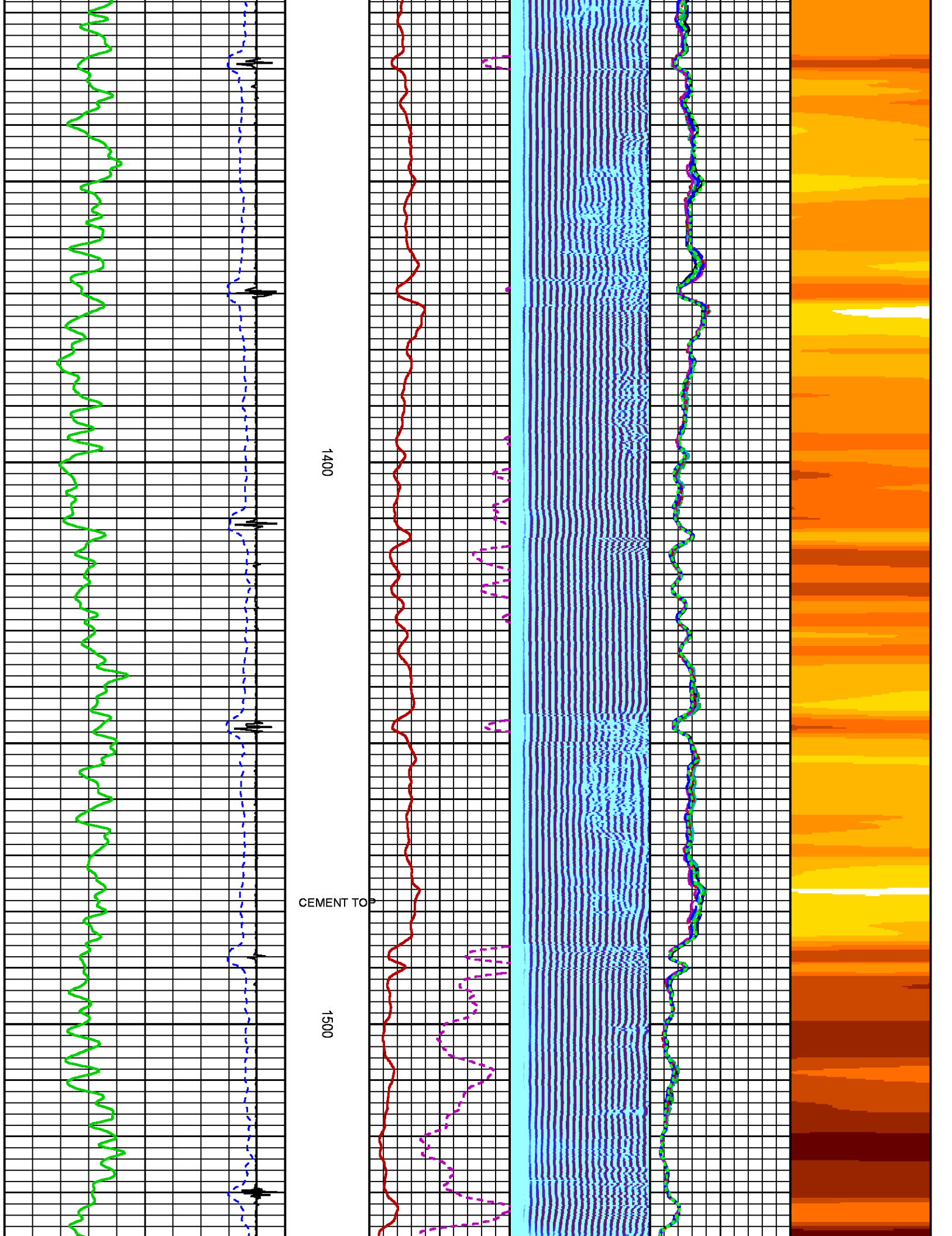


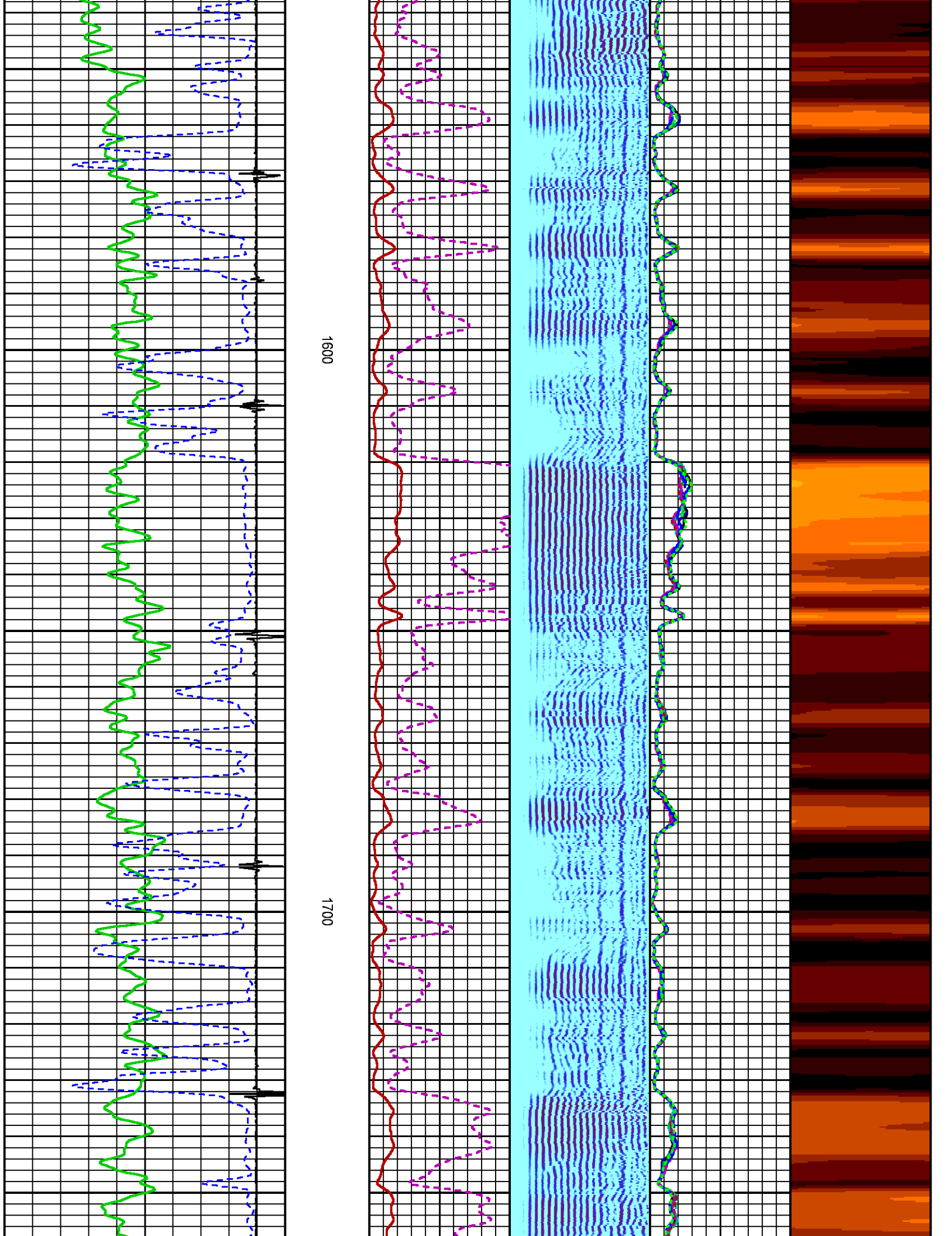
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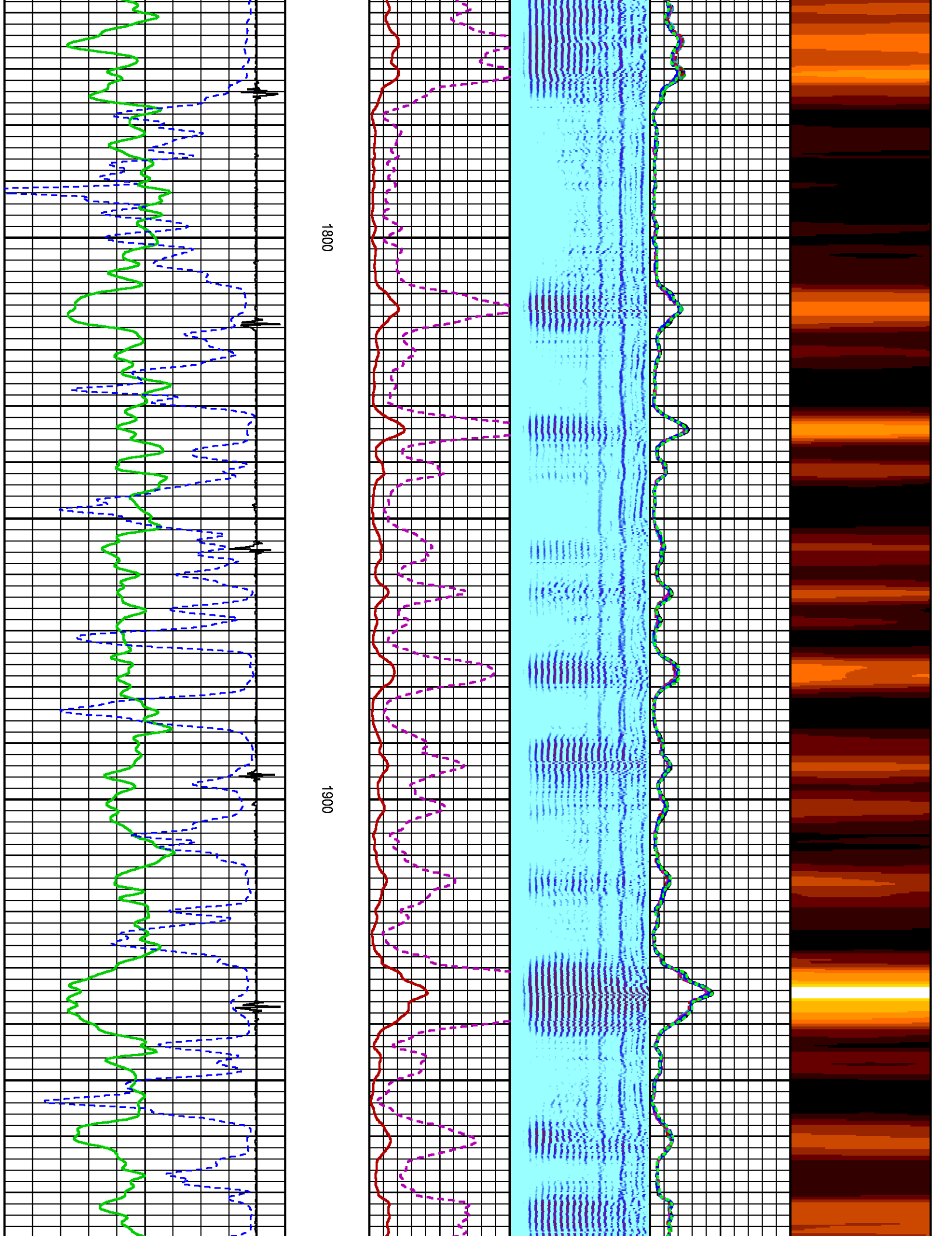
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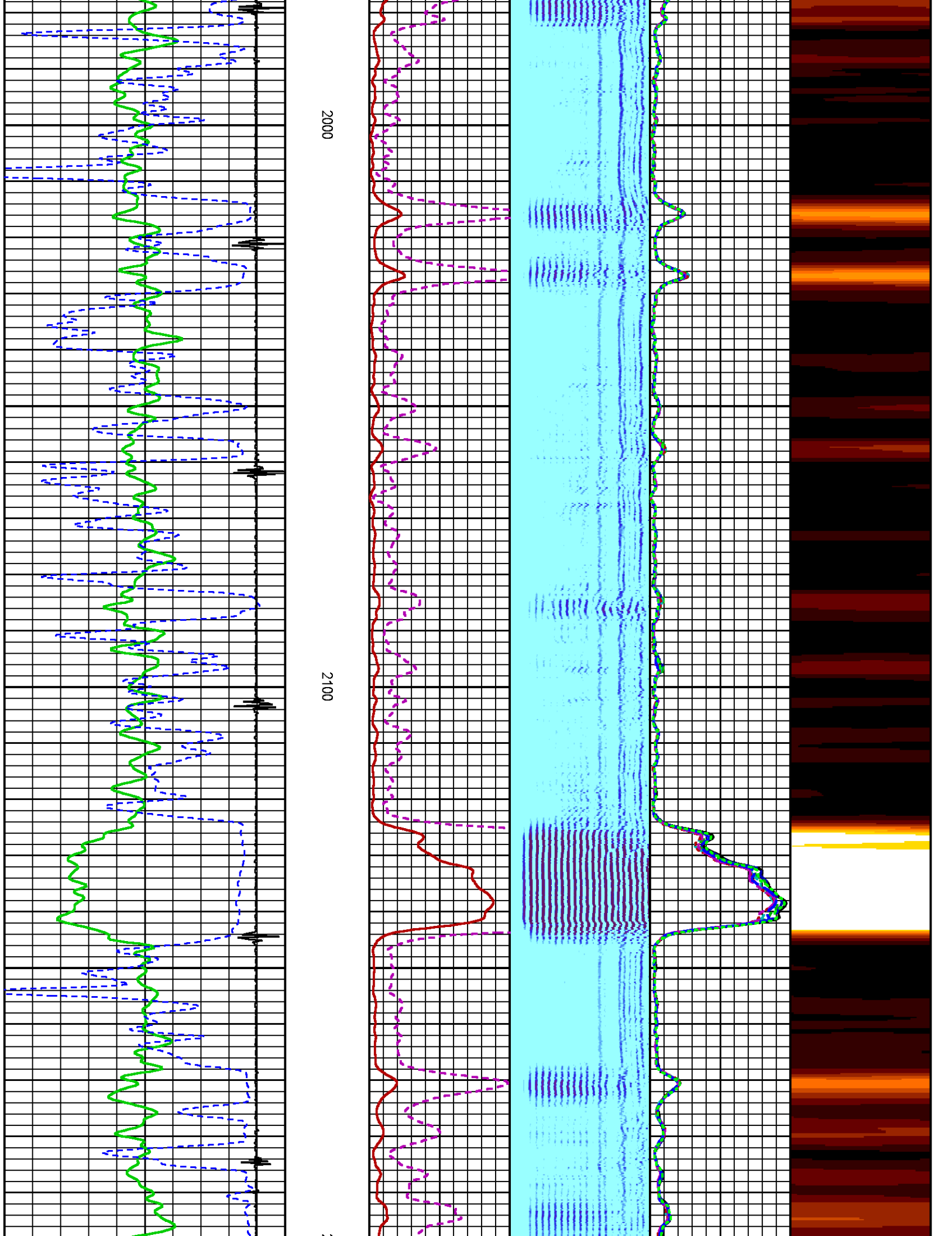
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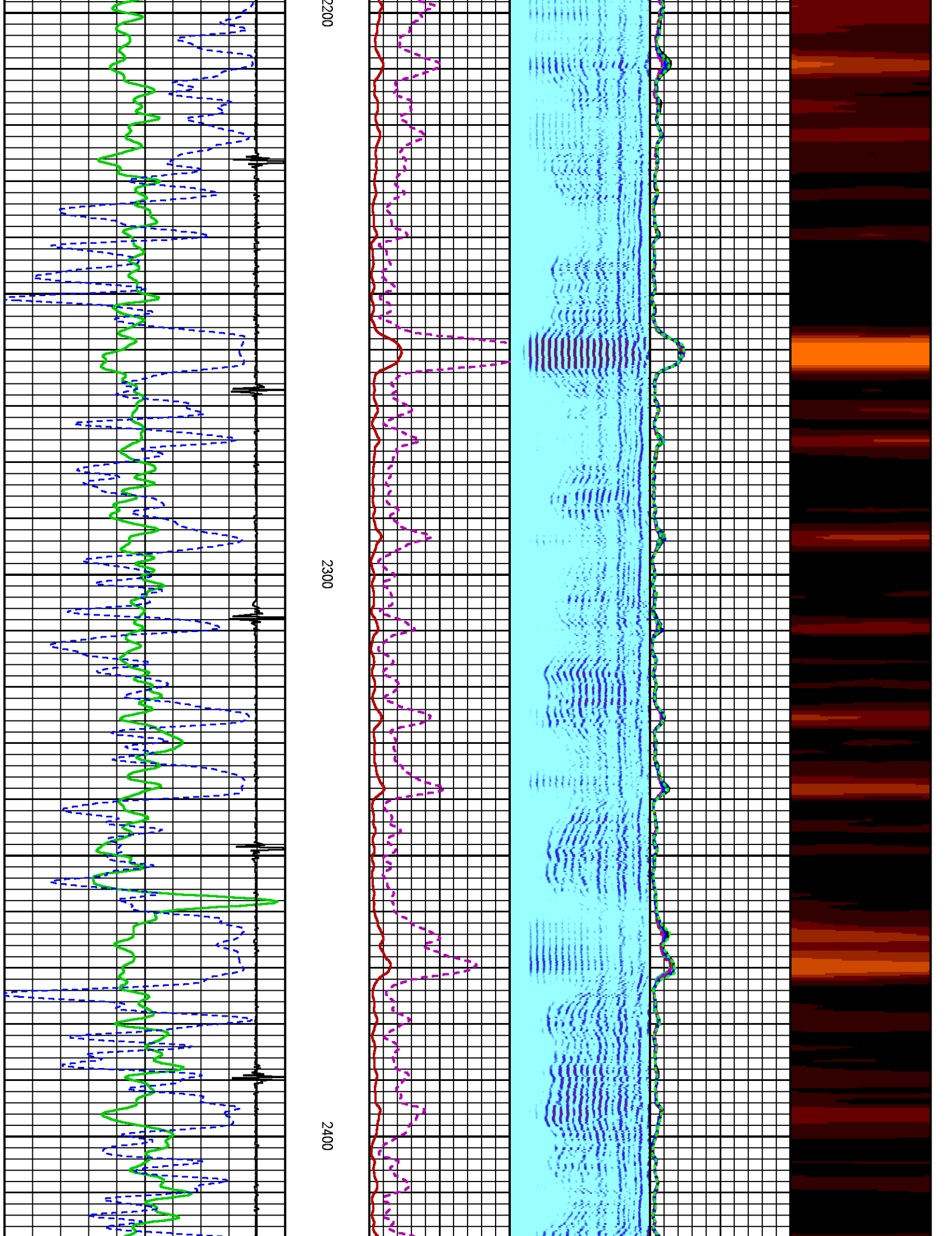


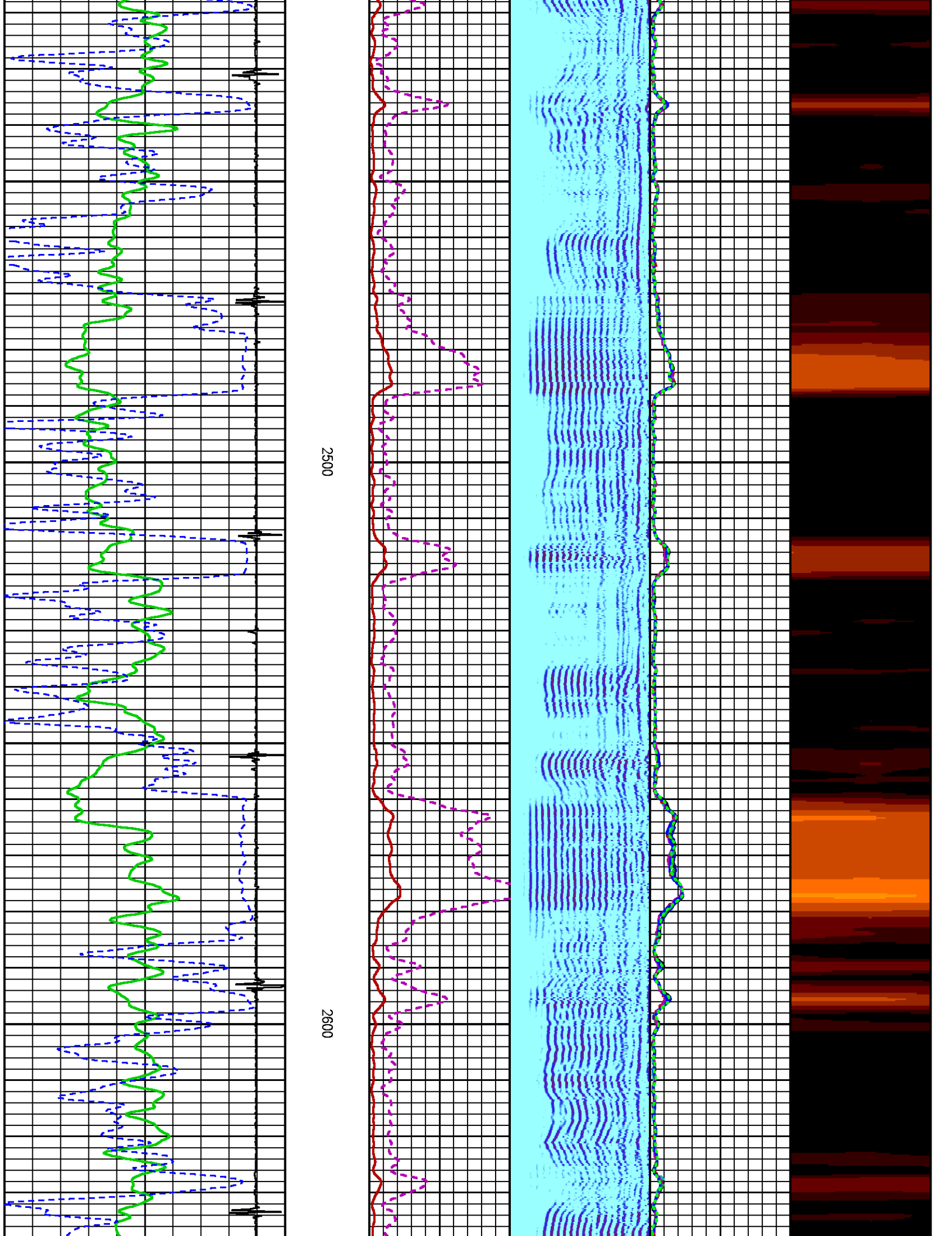


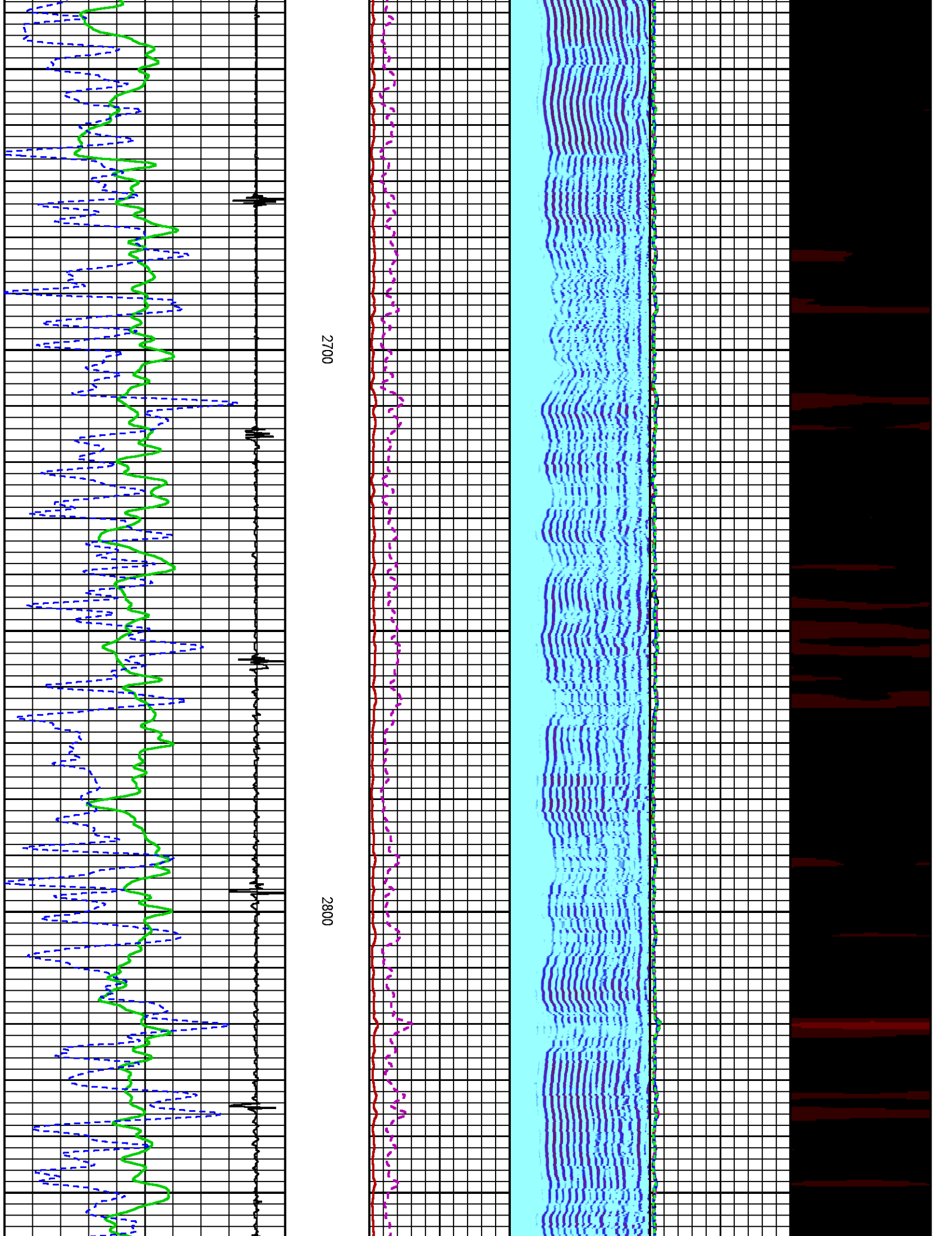


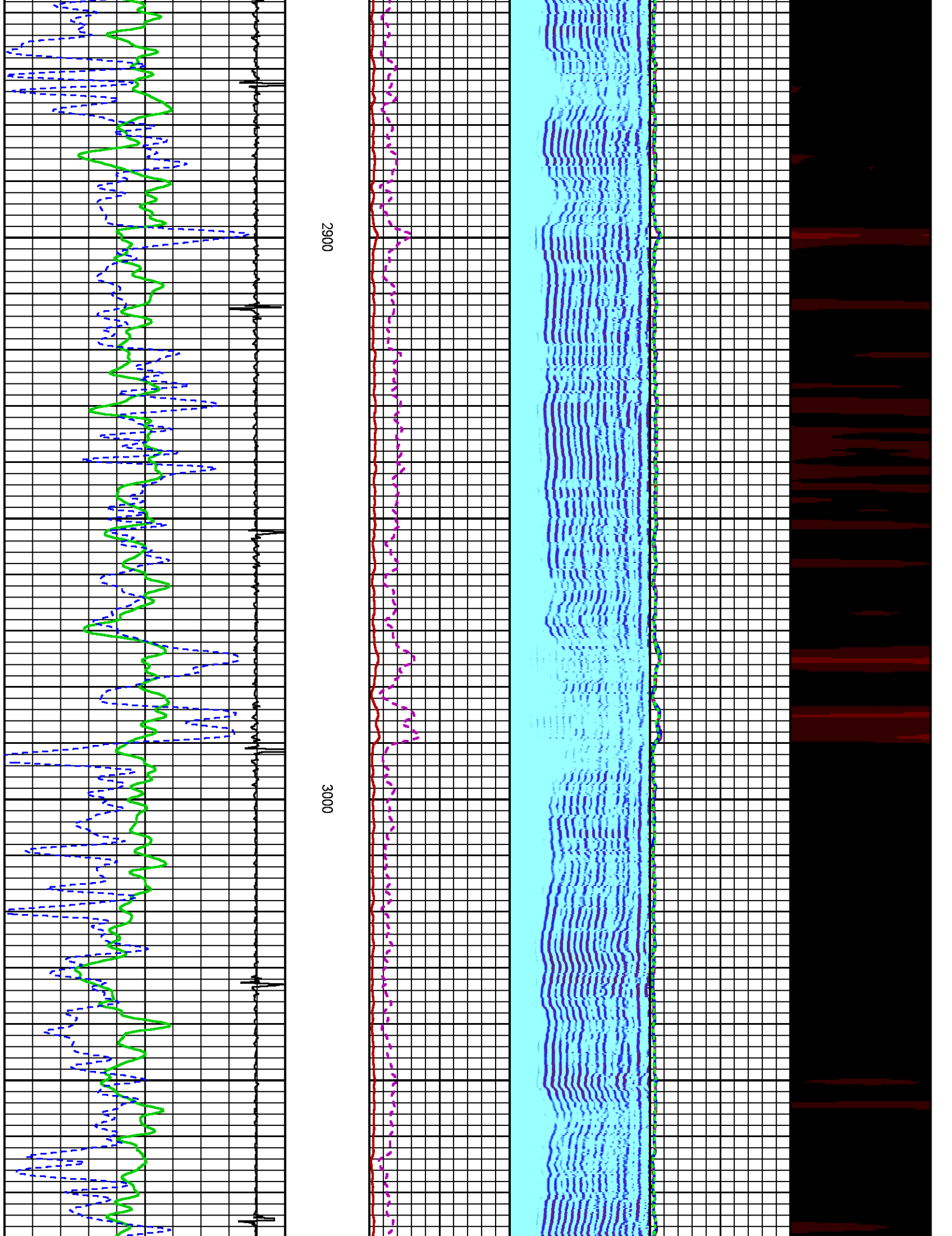


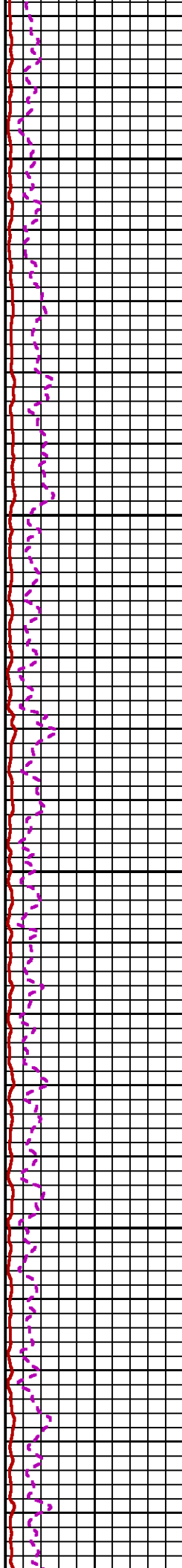
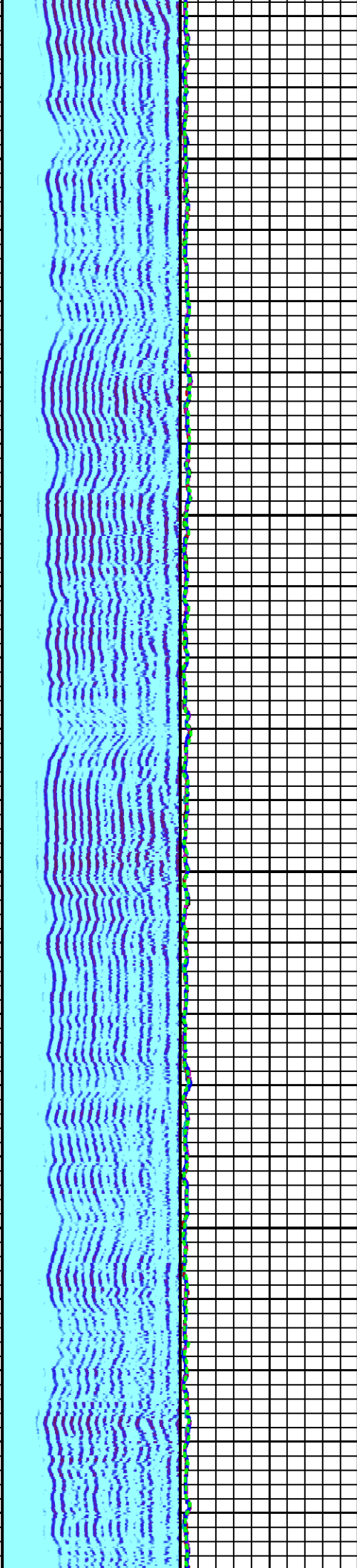






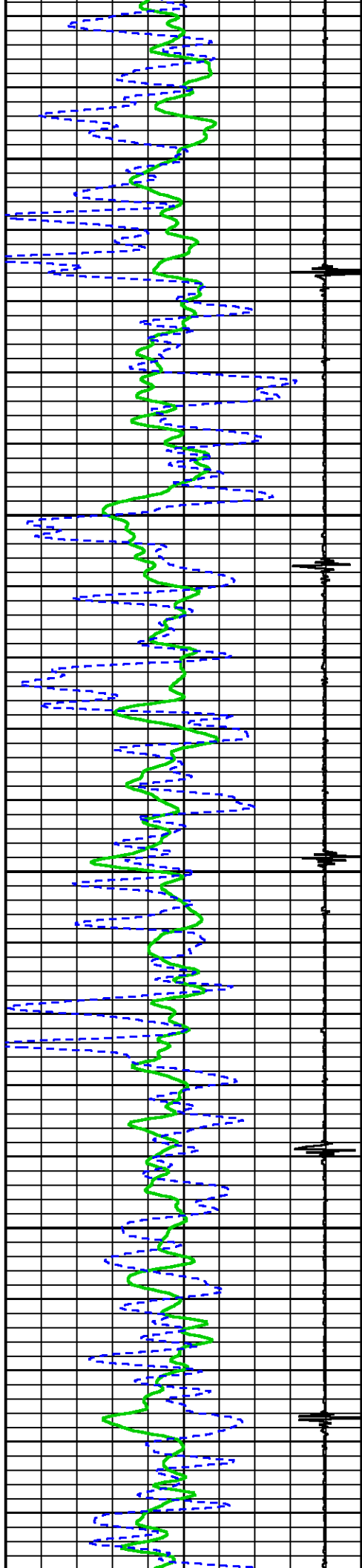


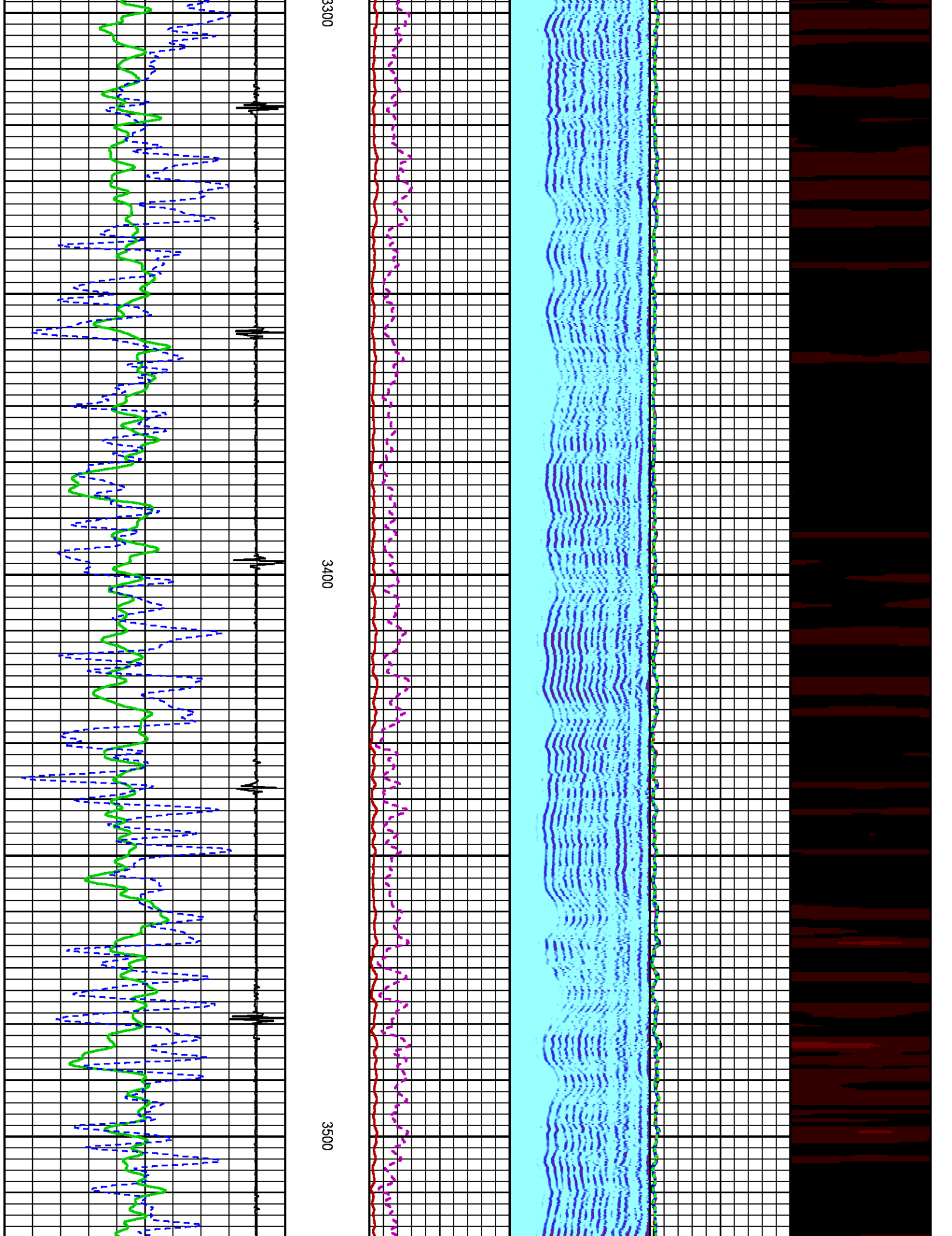


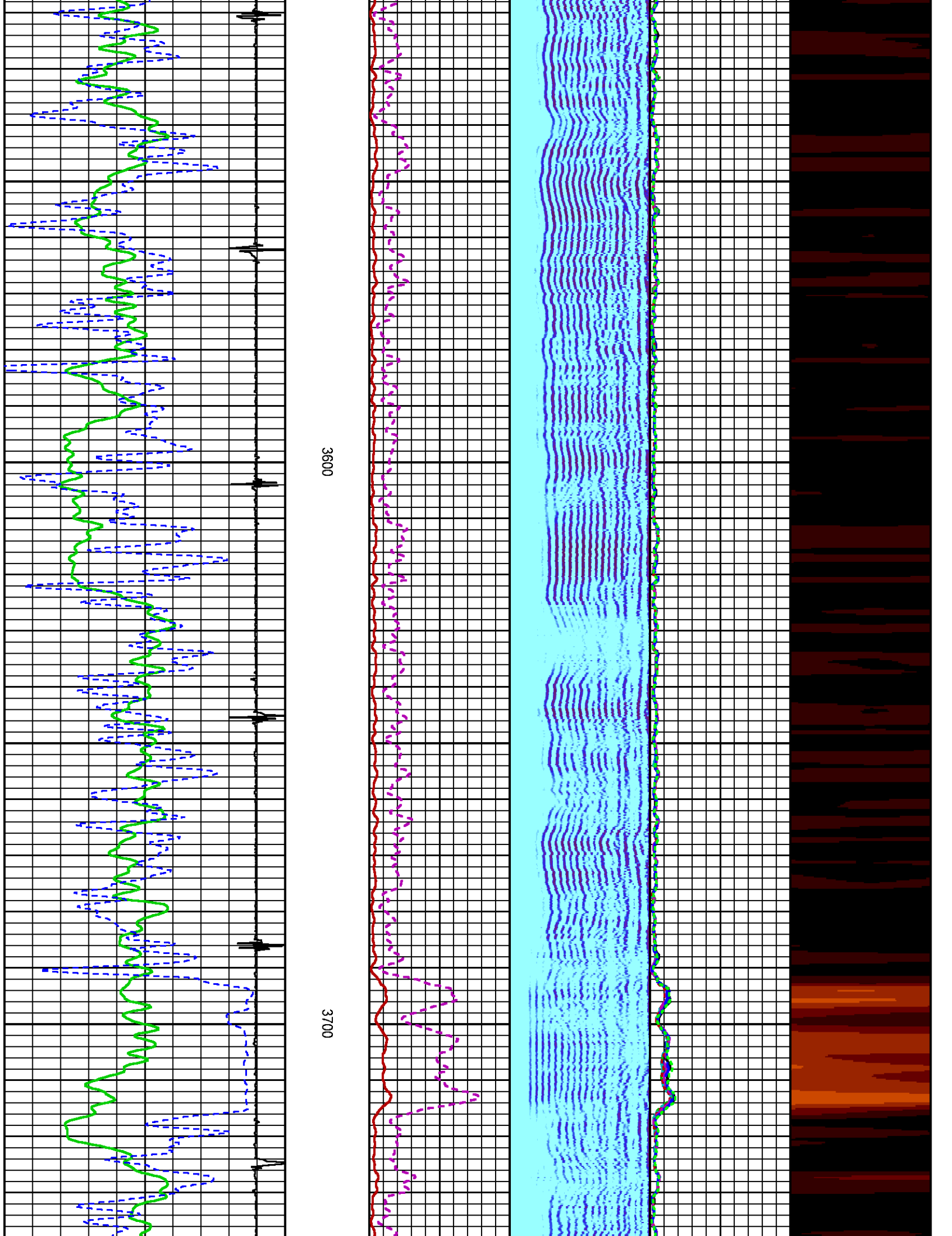


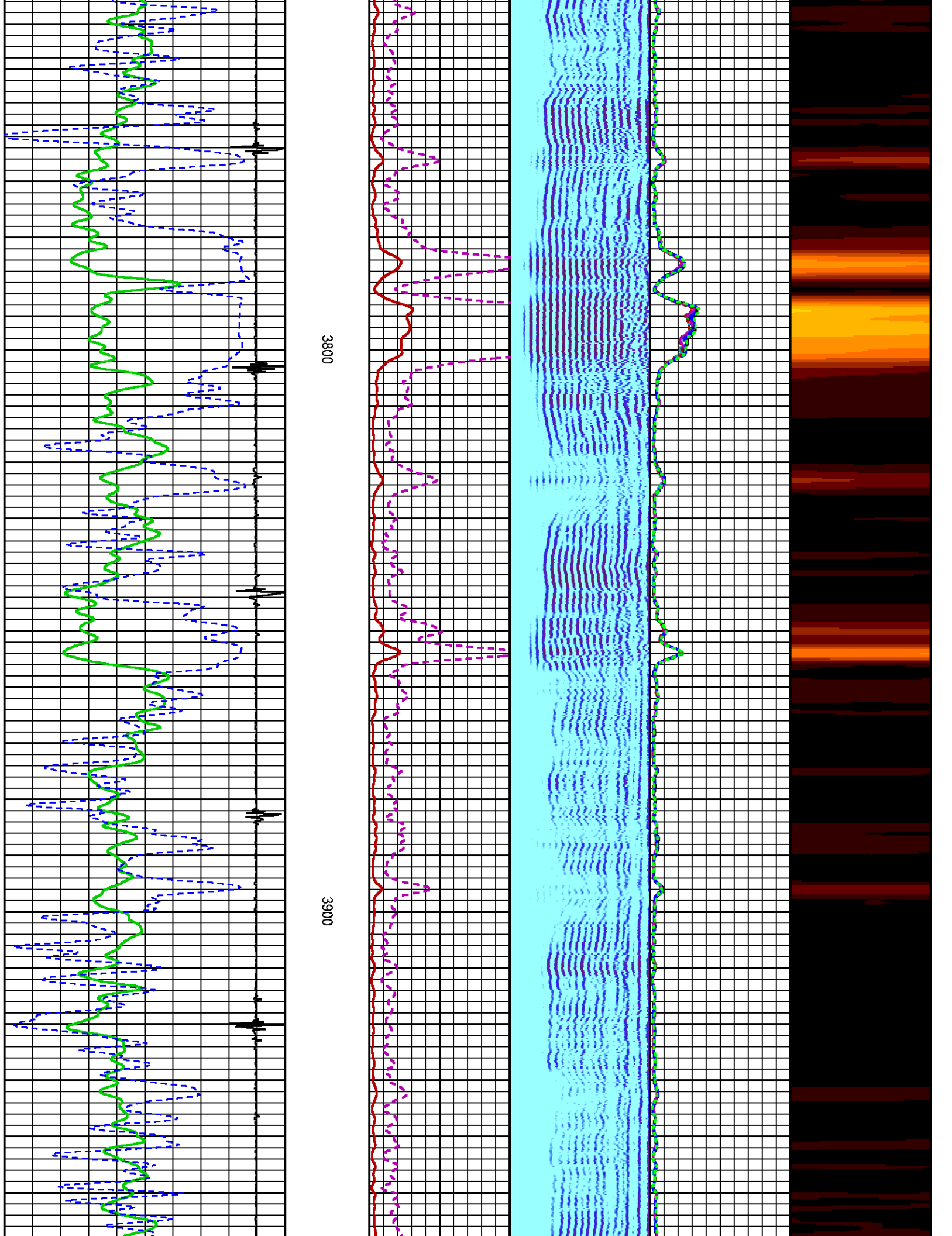
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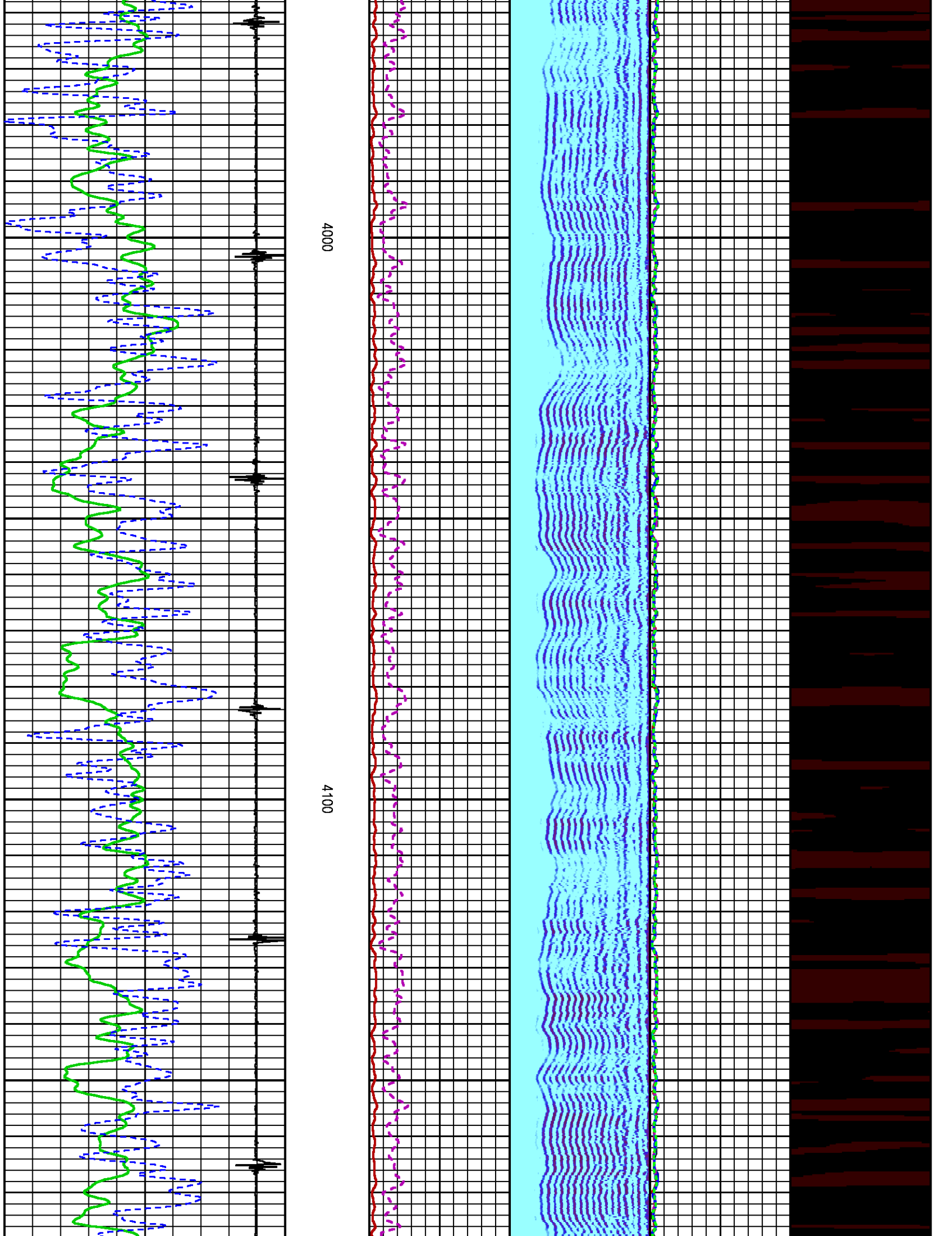
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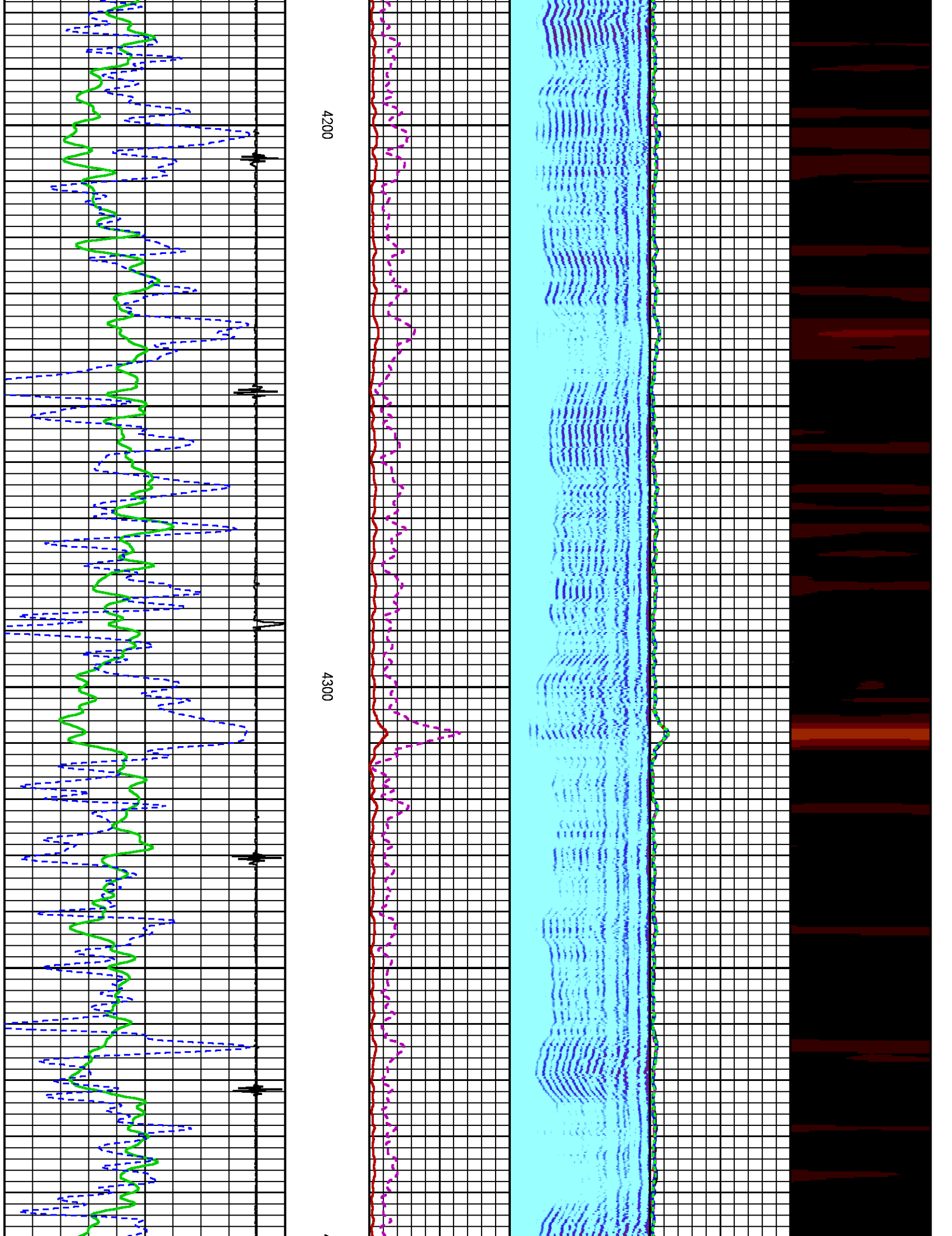


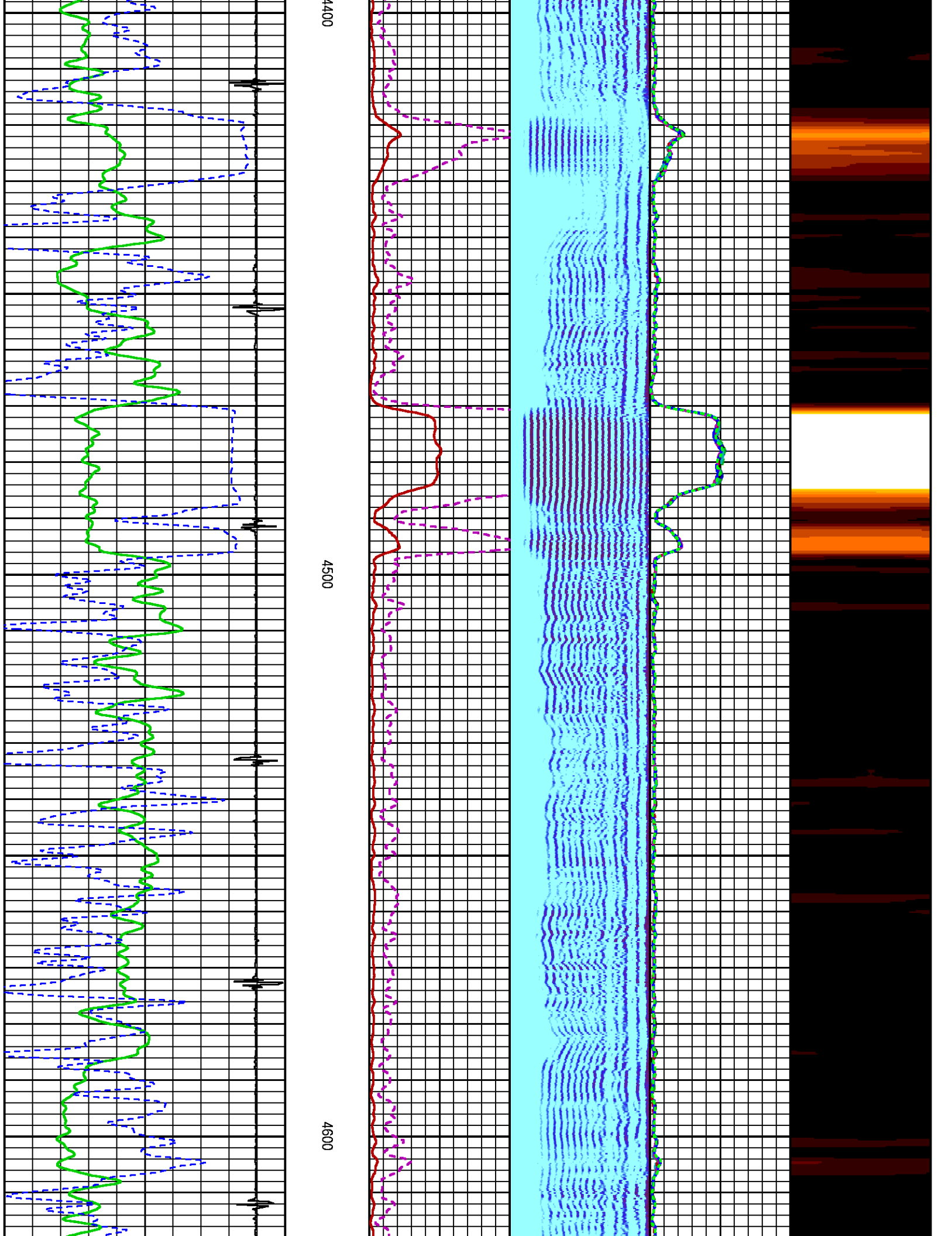


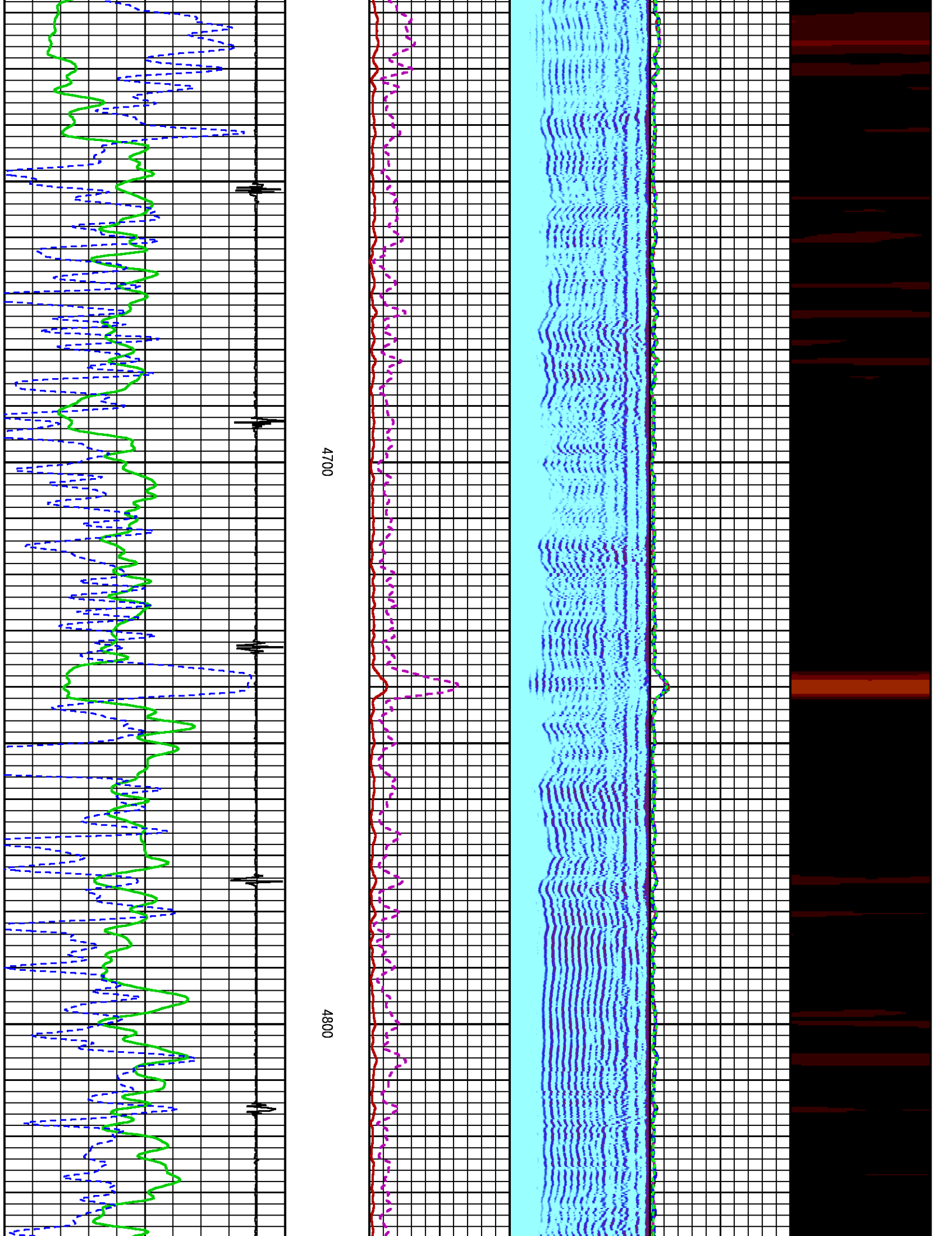


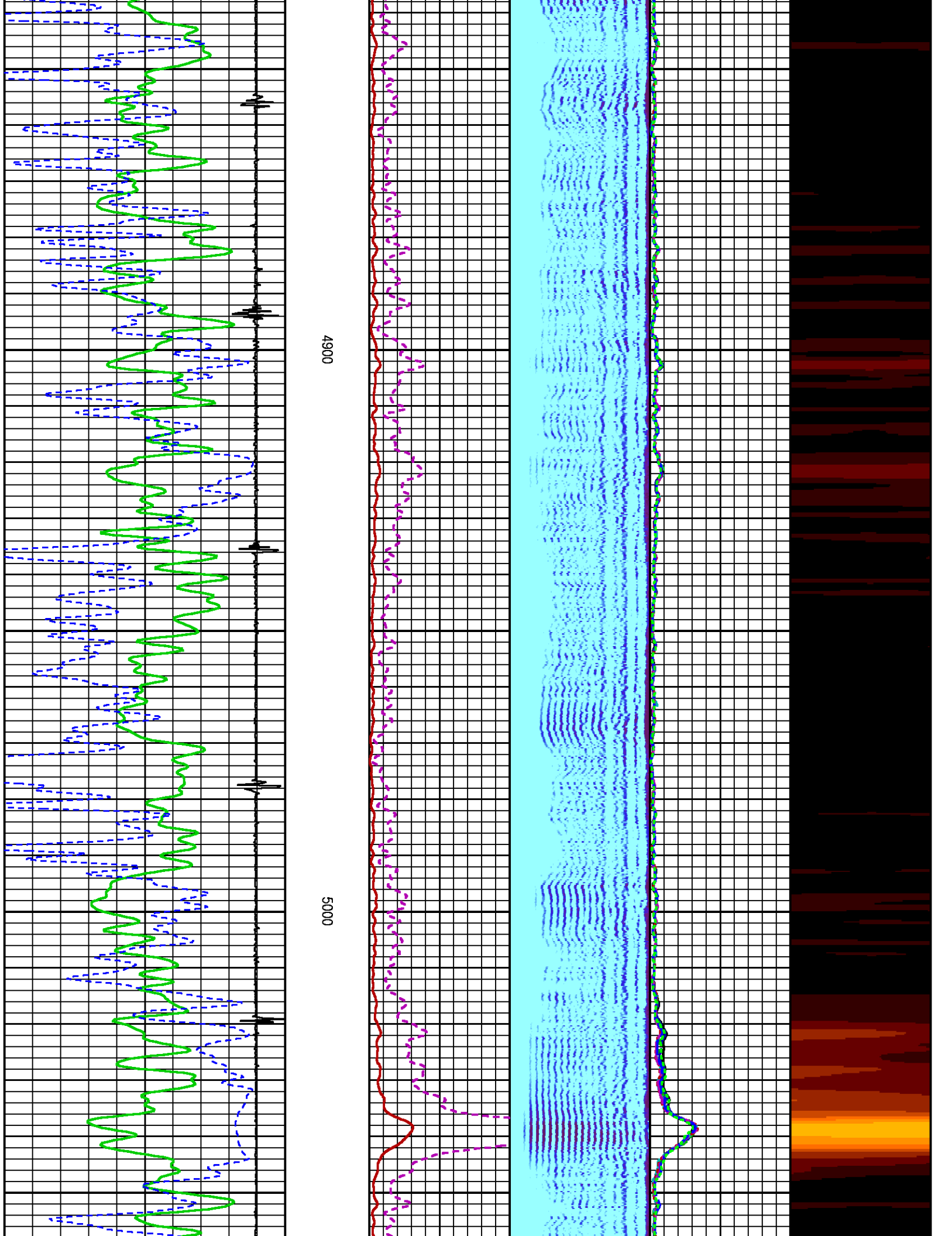


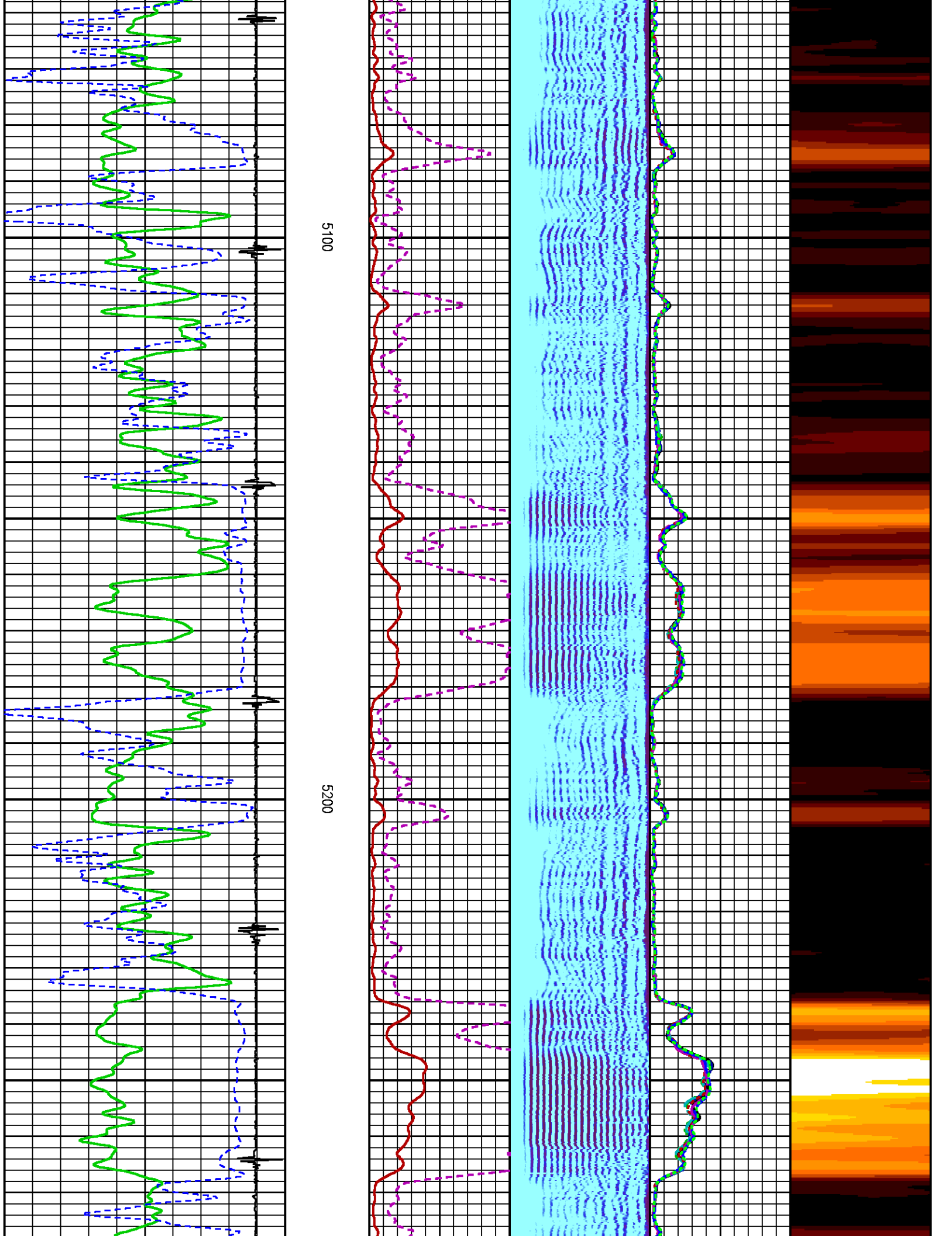


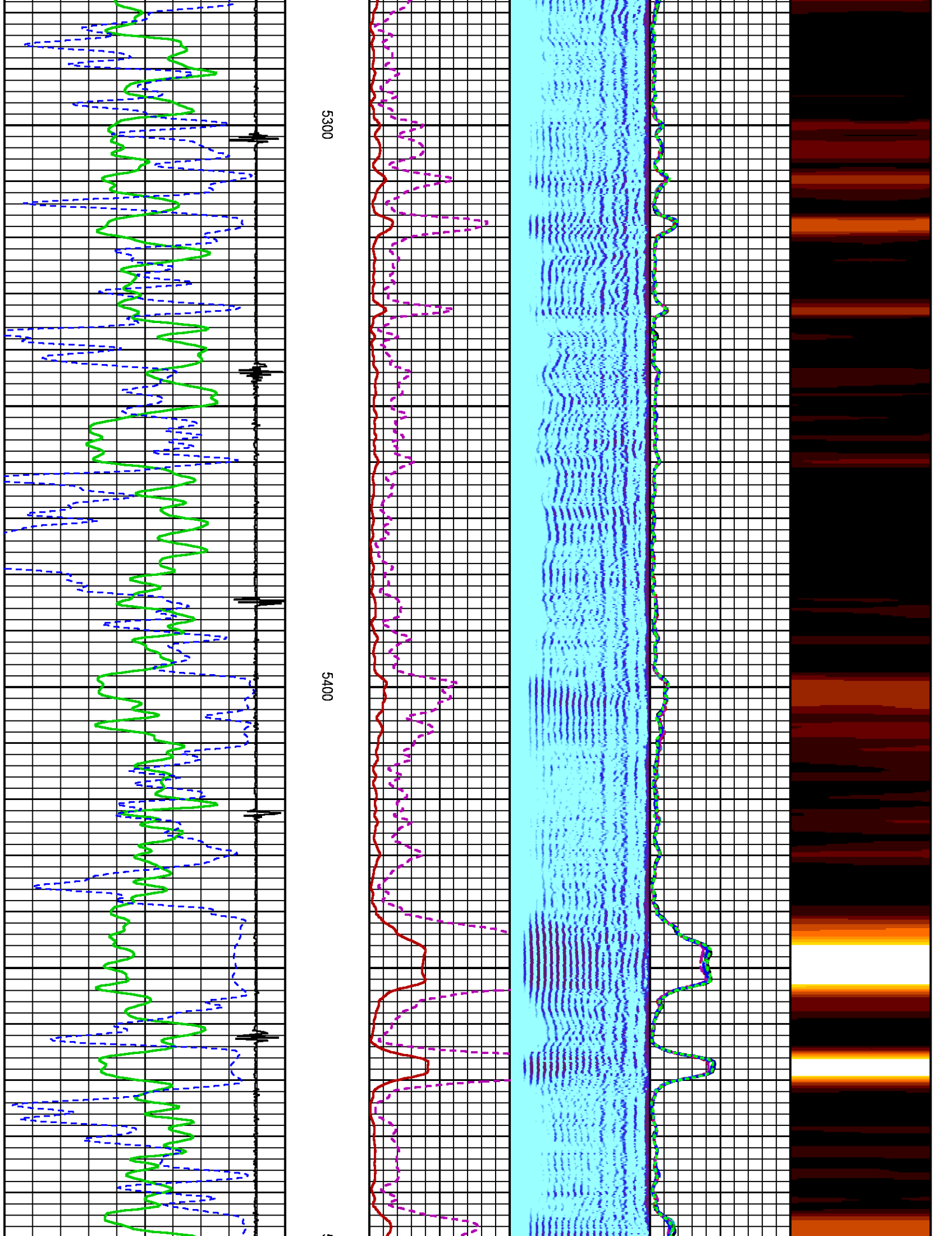


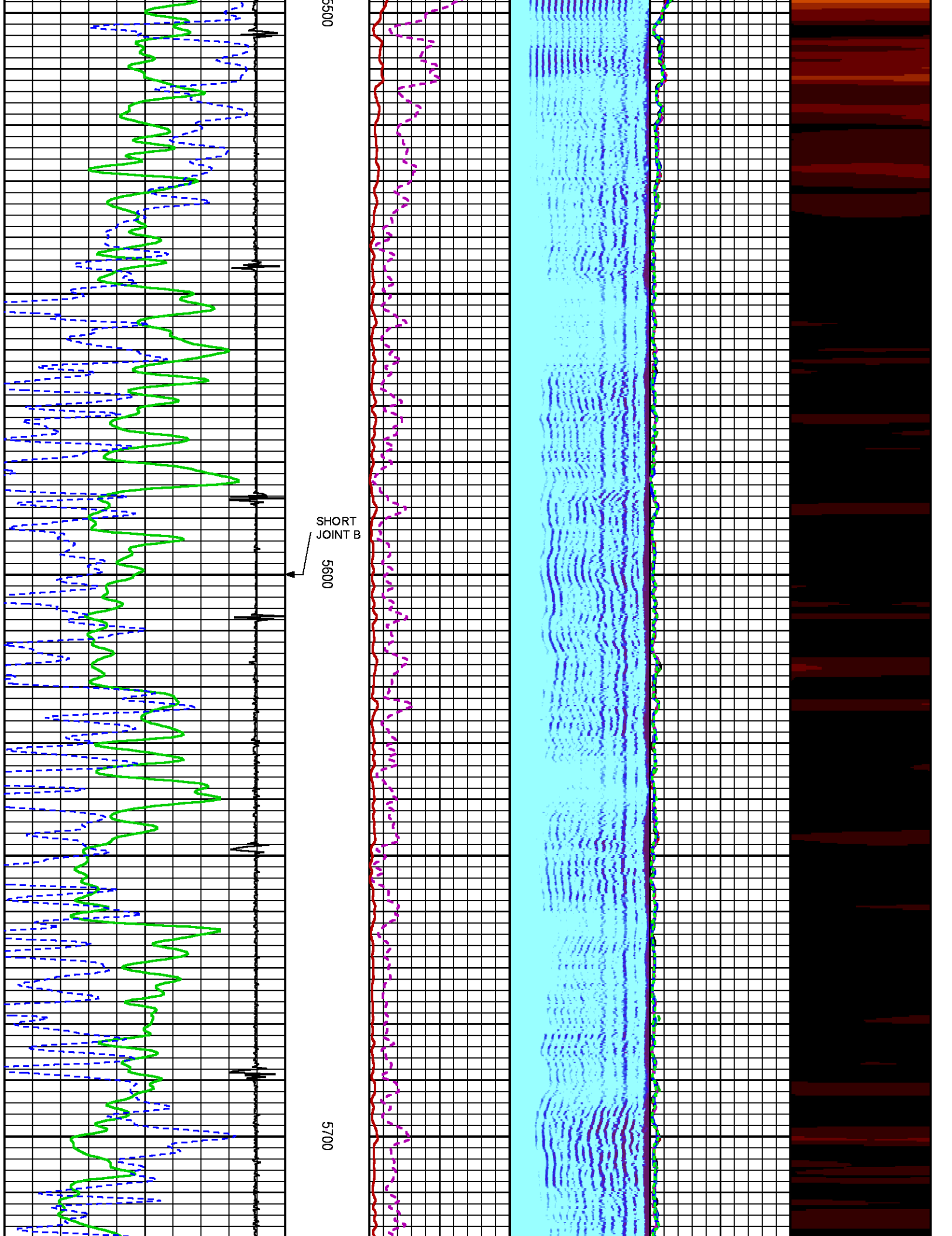


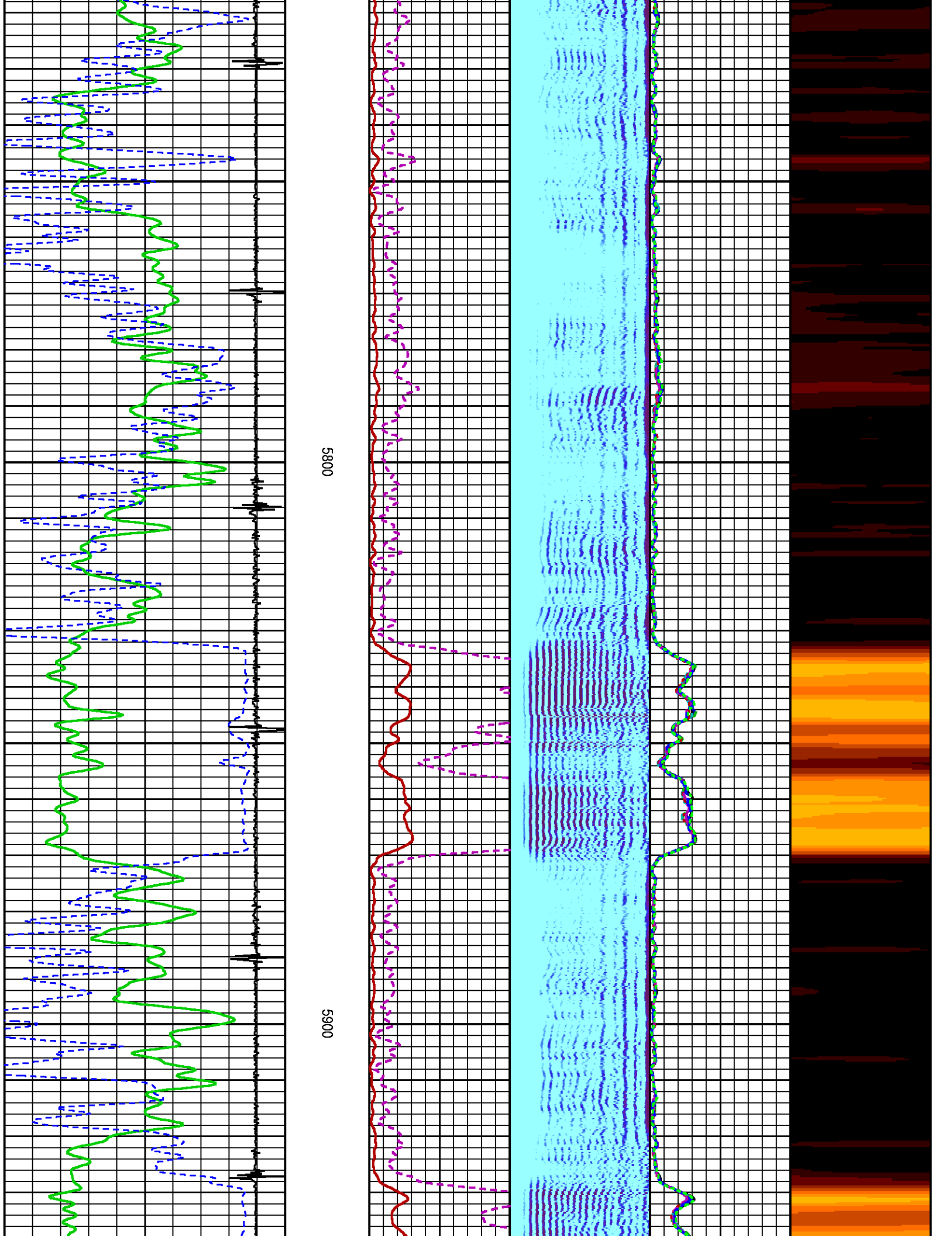


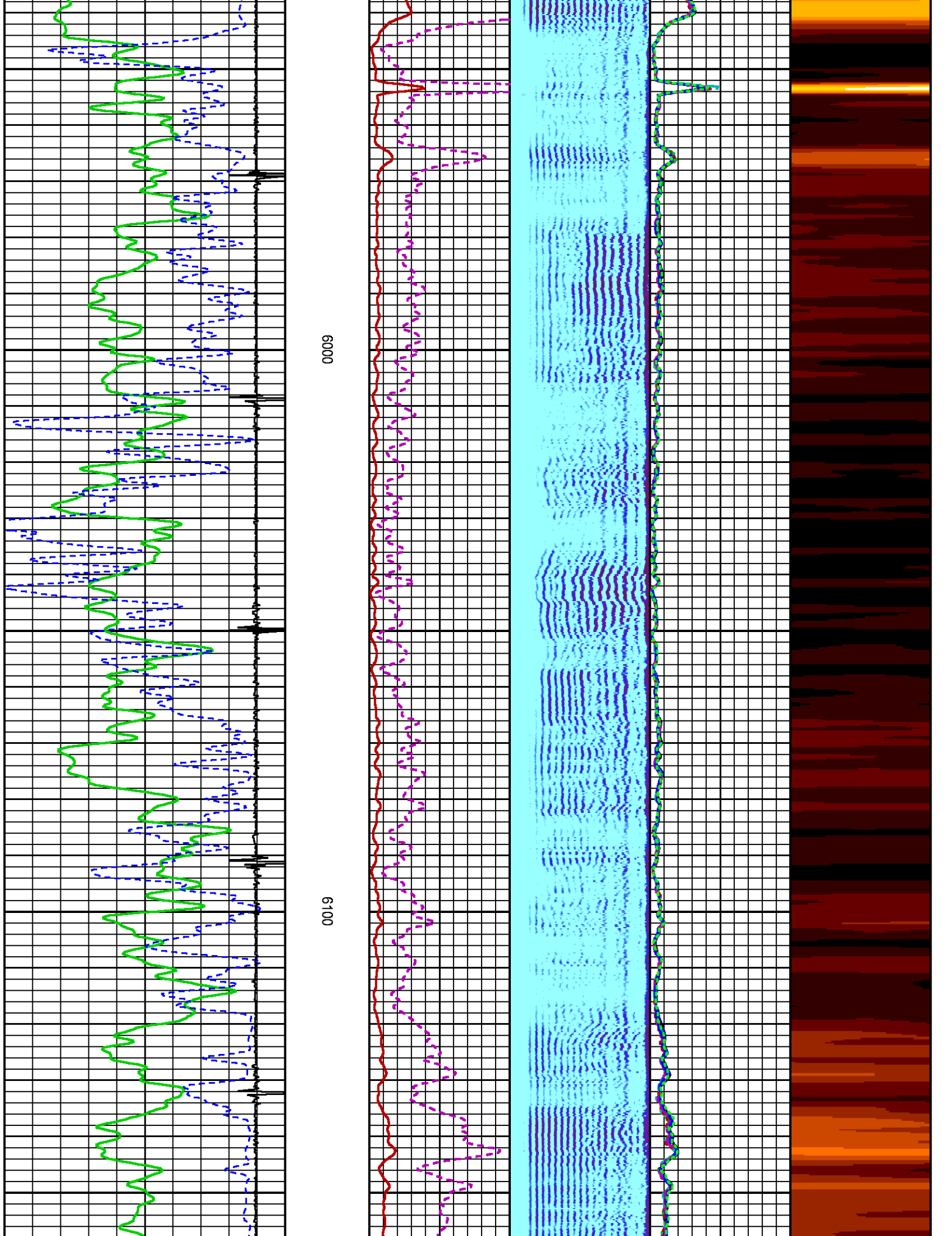


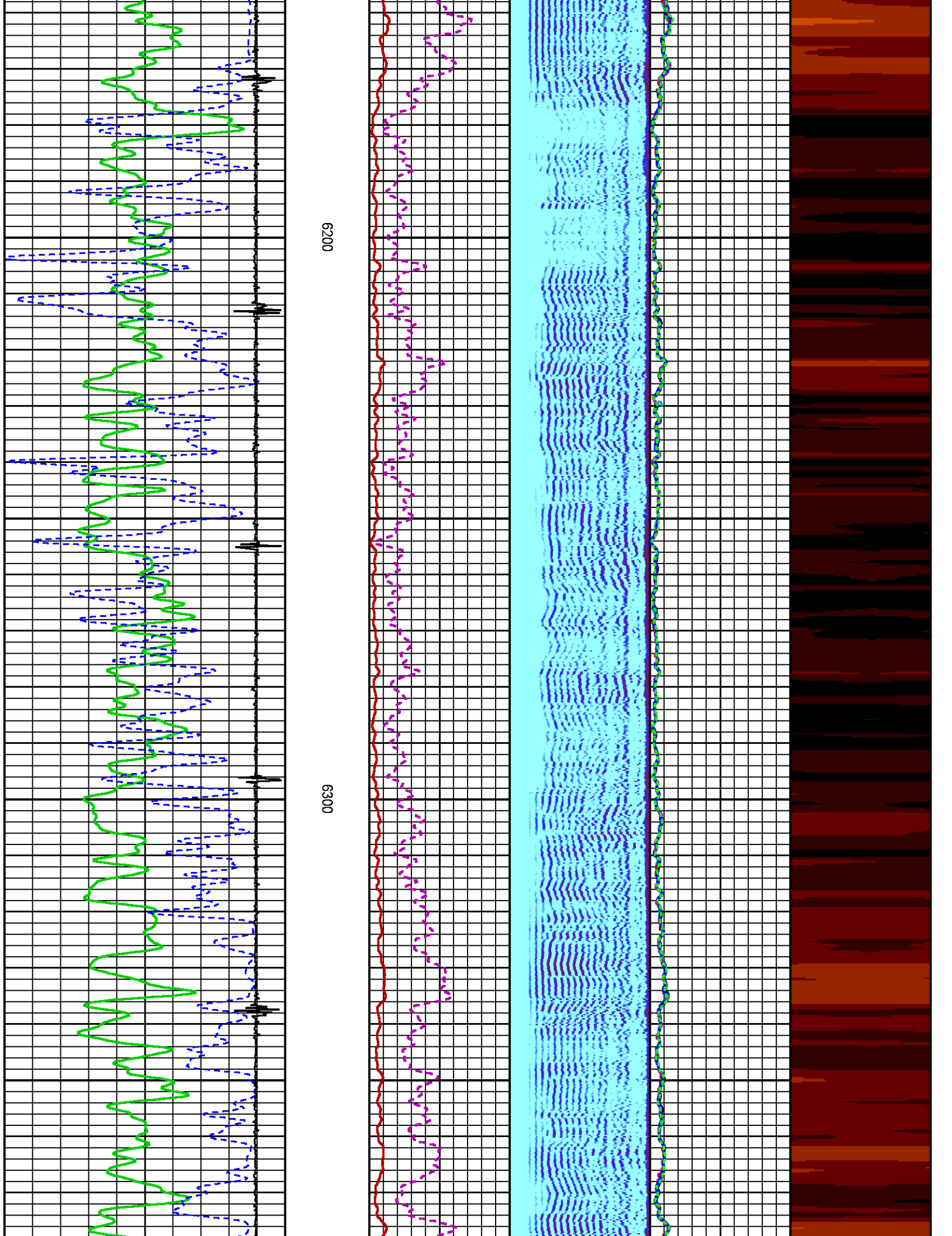


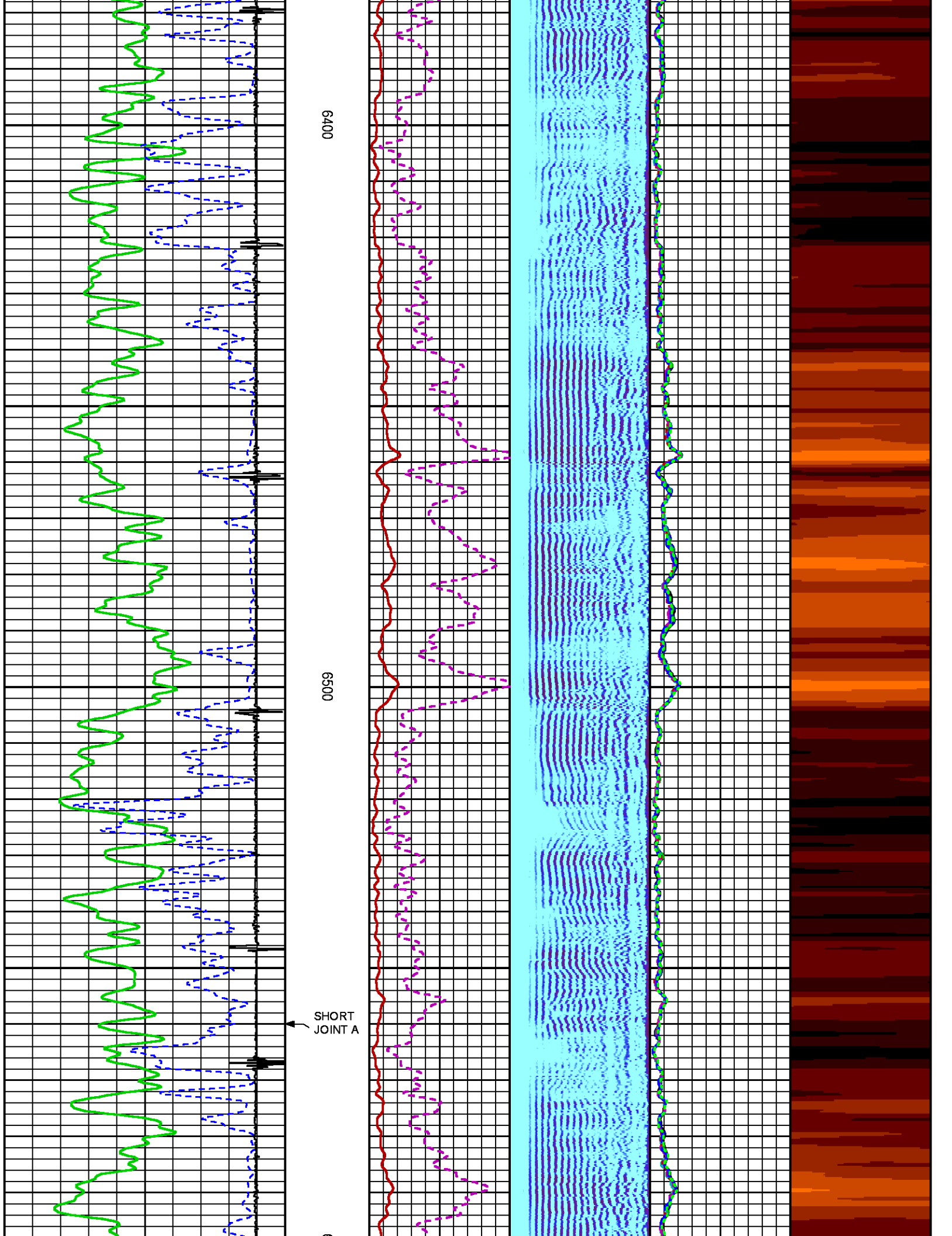


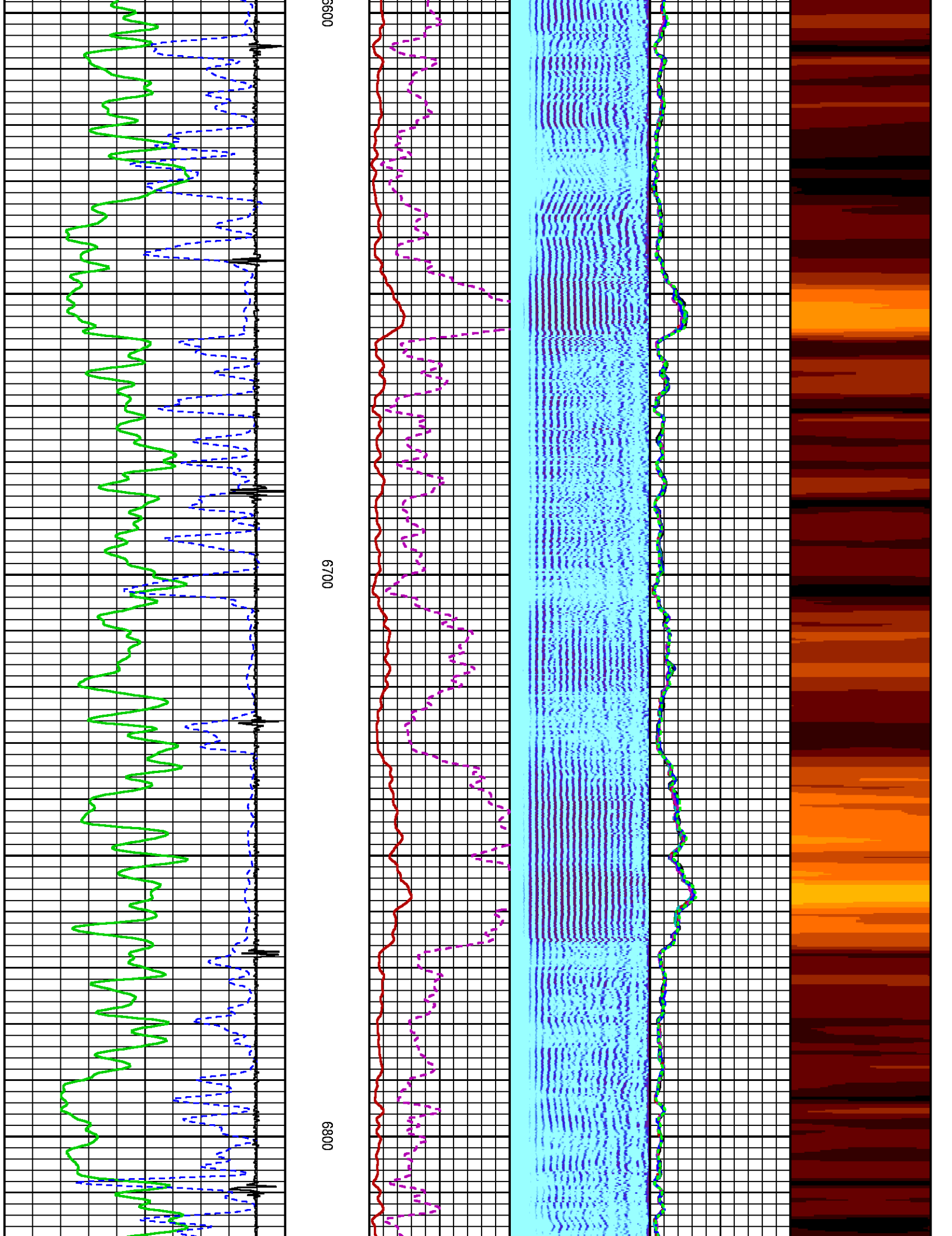


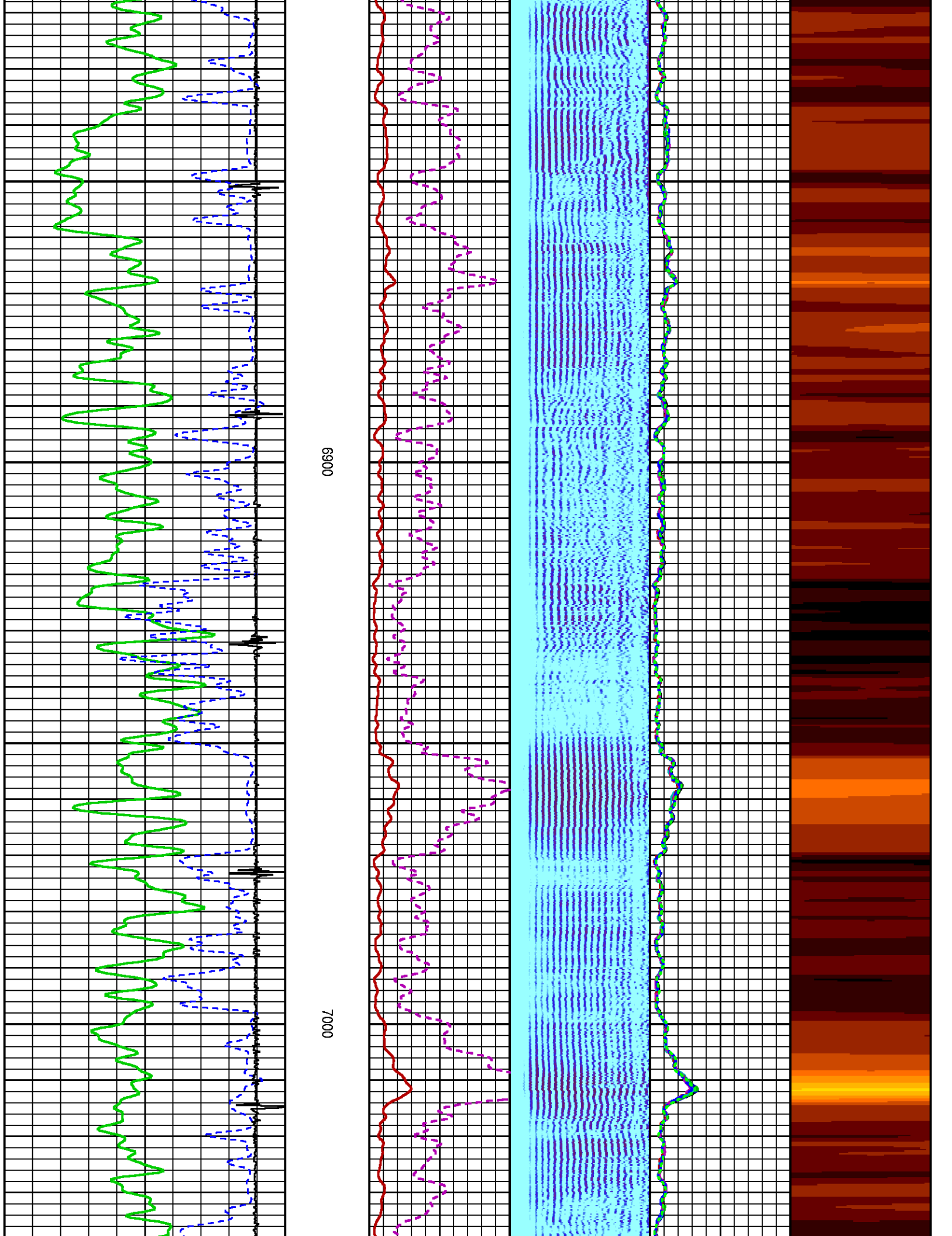


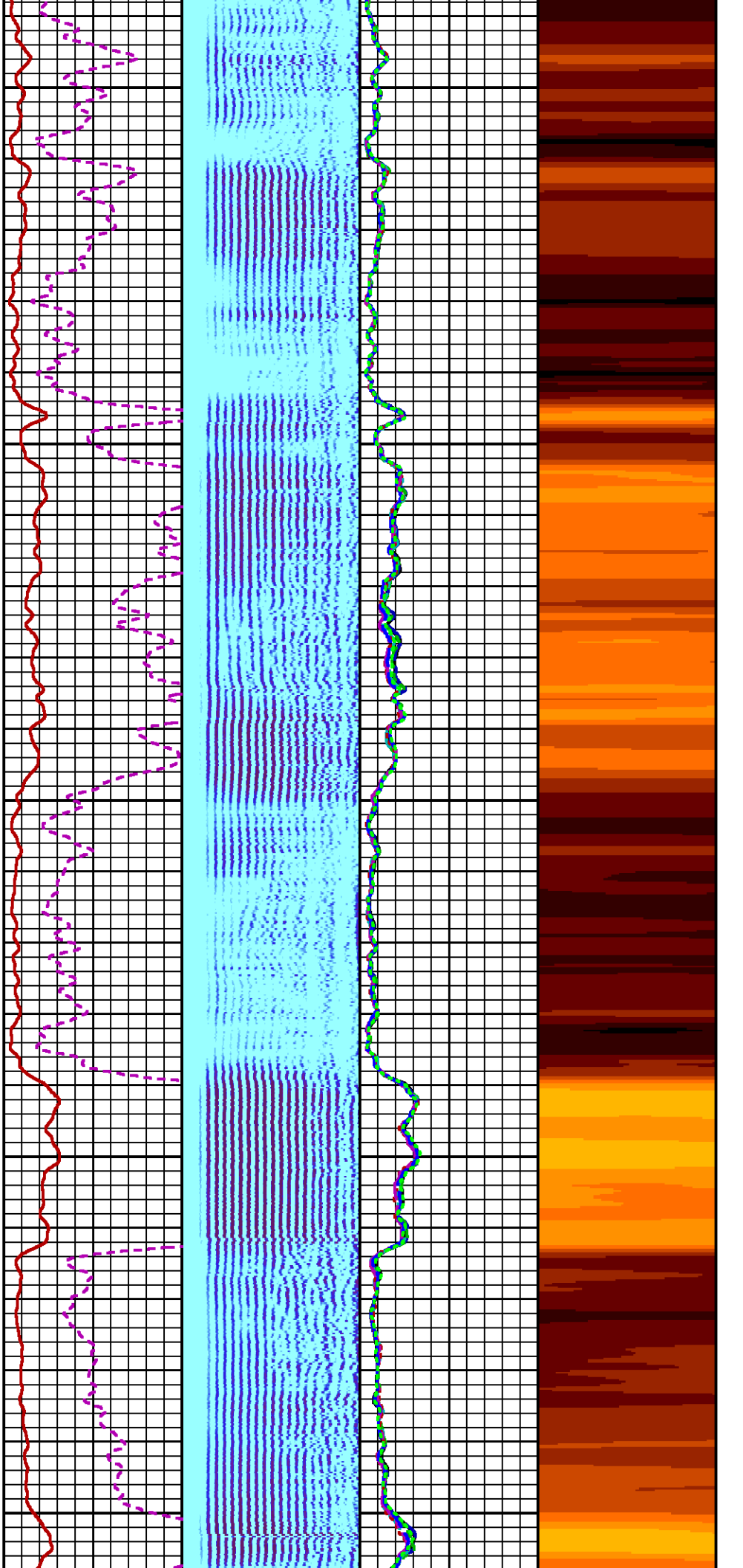






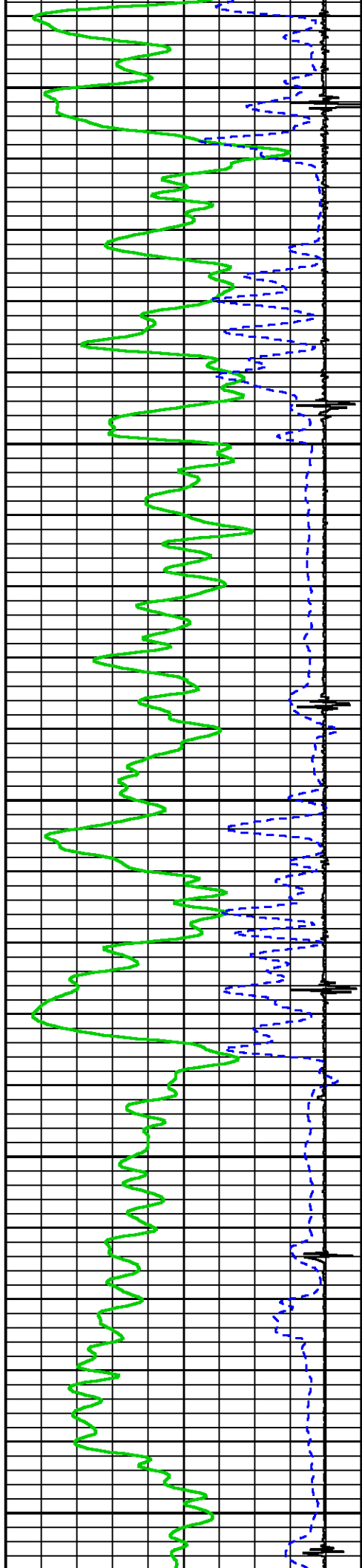


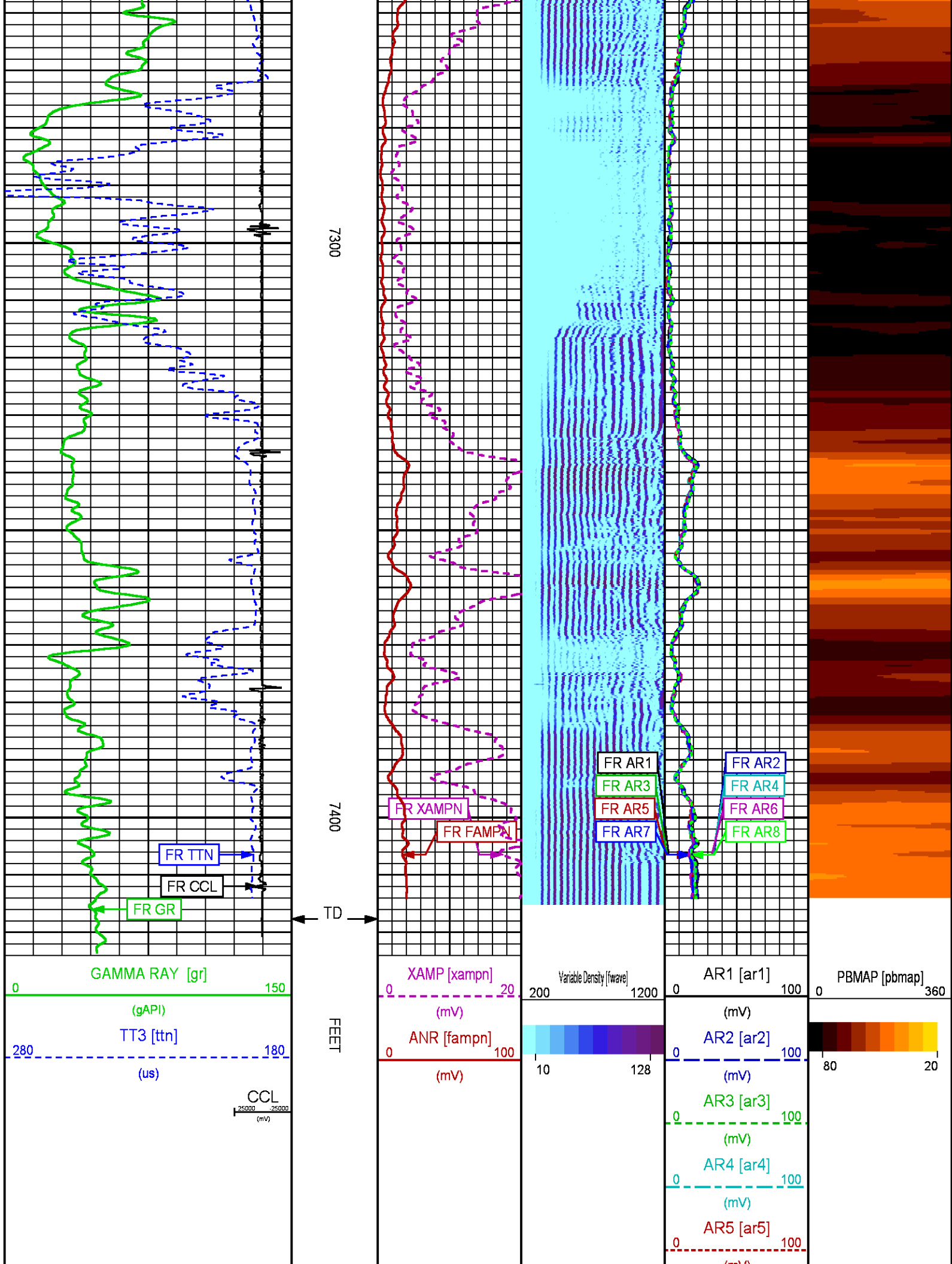


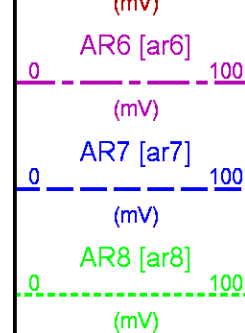


7100

7200







REPEAT LOG

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
Updates: 1 Patches: 9

Plotted: Thu Aug 10 18:08:54 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_GUNDERSON_20_03W/n012g01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 7193.500 ft BOTTOM DEPTH: 7417.750 ft

SYMMETRIC FILTER

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

RAL CCL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
CCL FLOOR	CCL FLOOR	0		TOP	BOTTOM

ANALOG RAL PROCESSING

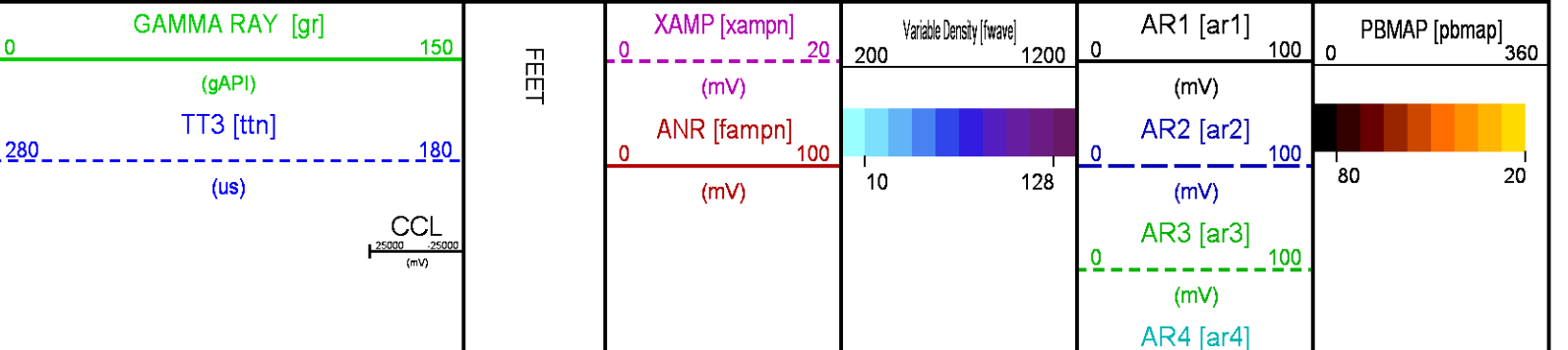
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	180	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	180	us	"	"
	AMP WINDOW START (fgp3*)	180	us	"	"
	AMP WINDOW START (fgp4*)	180	us	"	"
	AMP WINDOW START (fgp5*)	180	us	"	"
	AMP WINDOW START (fgp6*)	180	us	"	"
	AMP WINDOW START (fgp7*)	180	us	"	"
	AMP WINDOW START (fgp8*)	180	us	"	"
	AMP WINDOW START (fgpn*)	180	us	"	"
	AMP WINDOW LENGTH	31	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	160	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.391	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-75	us	"	"
	TOOL DELAY (str2*)	-75	us	"	"
	TOOL DELAY (str3*)	-75	us	"	"
	TOOL DELAY (str4*)	-75	us	"	"
	TOOL DELAY (str5*)	-75	us	"	"
	TOOL DELAY (str6*)	-75	us	"	"
	TOOL DELAY (str7*)	-75	us	"	"
	TOOL DELAY (str8*)	-75	us	"	"
	TOOL DELAY (strn*)	-75	us	"	"

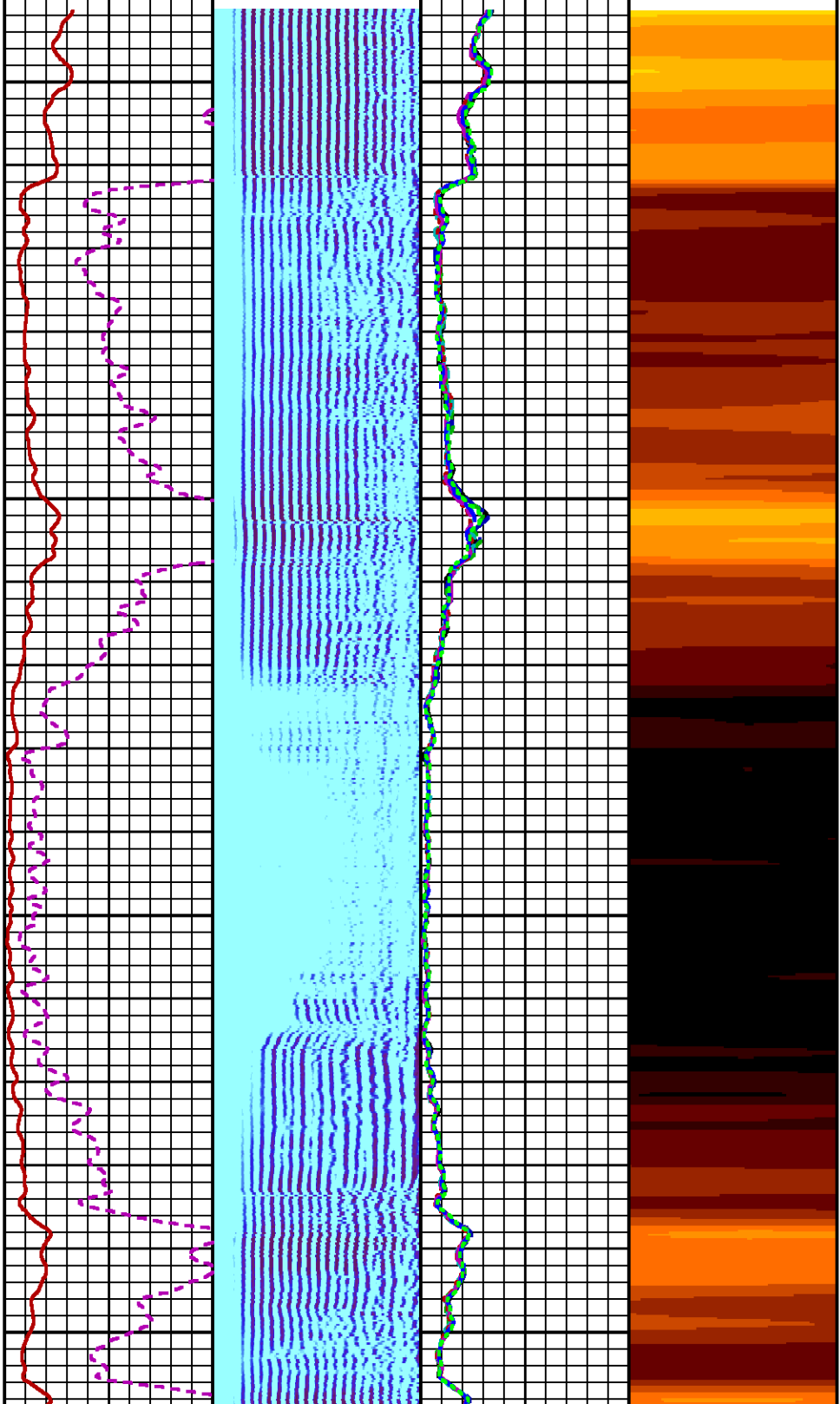
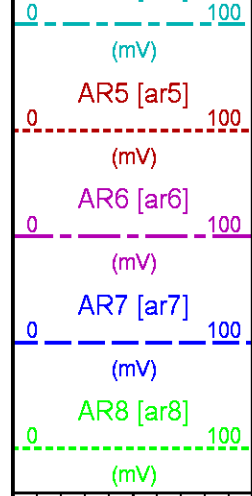
BASLINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"
PERCENT BOND CEMENT MAP					
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE 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	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R1
F1:AR2	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R2
F1:AR3	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R3
F1:AR4	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R4
F1:AR5	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R5
F1:AR6	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R6
F1:AR7	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R7
F1:AR8	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE T-R8
F1:CCL	Aug 10 16:06:59 2017	CASING COLLAR LOCATOR
F1:FAMPN	Aug 10 16:06:59 2017	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	Aug 10 16:06:59 2017	FAR WAVE FORM
F1:GR	Aug 10 16:06:59 2017	GAMMA RAY
F1:PBMAP	Aug 10 16:06:59 2017	PERCENT BOND CEMENT MAP
F1:TTN	Aug 10 16:06:59 2017	TRAVELTIME FROM NEAR TRANSMITTER-RECEIVER
F1:XAMPN	Aug 10 16:06:59 2017	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		

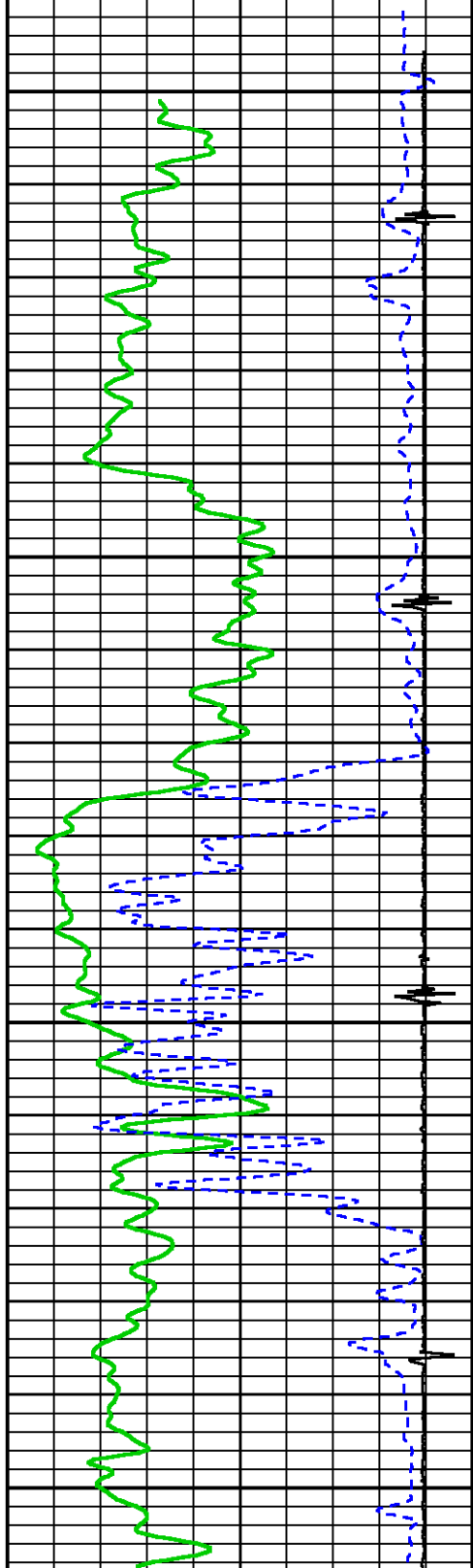
Presentation	: cpu100:/dat1a/LARAMIE_GUNDERSON_20_03W/RAL_REPEAT+01-REPEAT-REPEATRAL-5.fvpdf [5"/100' Scale]
Plot Interval	: 7183.25 - 7416.75 Feet
Data File 1	: F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_03W/REPEATRAL.xtf
Created On	: Aug 10 16:06:59 2017
Company	: LARAMIE ENERGY LLC
Well	: GUNDERSON 20-03W
Field	: MESA
File Interval	: 7182.25 - 7418 Feet
OCT	: n012g

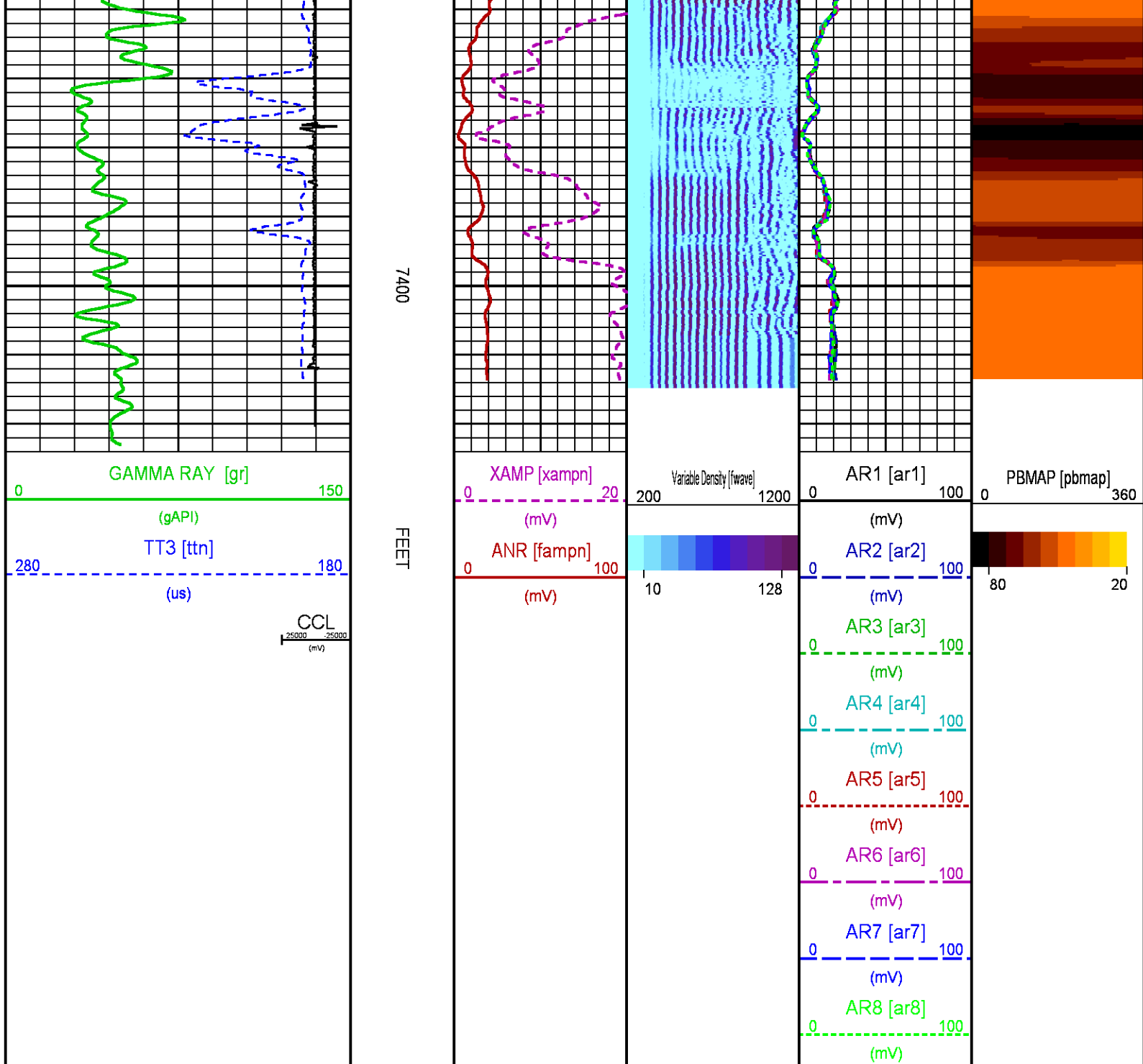




7200

7300





CALIBRATION / VERIFICATION SUMMARY

Source File: \\data1a\ARAME_GUNDERSON_20_03\Win012g1p1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA10154957

DATE/TIME PERFORMED: Thu Aug 10 14:54:35 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)	1.64	2.31	2.37	2.29	2.22	2.30	2.18	2.26	2.18	6.04	-0.01
AMP FLUID (mV)	89	89	89	89	90	88	87	86	87	120	92
TT (us)	217	217	216	216	216	217	217	216	218	324	217

M FACTOR	1.14	1.15	1.15	1.15	1.14	1.16	1.18	1.19	1.17	1.32	1.09
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RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #:	1426XA10154957	DATE/TIME PERFORMED:	Thu Aug 10 15:00:26 2017	DAYS SINCE CAL:	0
UNIT #:	3880TA HL6670	CABLE #:	ML6670 6670SL		

	NEAR	R1	R2	R3	R4	R5	R6	R7	R8	FAR	CAL
	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)	(mV)
ZERO	-0.41	-0.45	-0.56	-0.45	-0.36	-0.52	-0.70	-0.68	-0.51	0.38	-0.05

AMP AIR	1.50	2.00	1.81	1.77	1.39	1.73	1.94	1.87	1.87	0.92	99.97
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SHOP	SHOP	WIRELINE
M FACTOR	A FACTOR	FACTOR
1.09	0.00	1.00

GR PRIMARY CALIBRATION SUMMARY

TOOL #:	1355XA12670180	DATE/TIME PERFORMED:	Fri Dec 23 11:53:22 2016
UNIT #:	3880TA HL6670	CALB JIG #:	4702NK DA_228

	BACKGROUND	CALBRTR ON	CR DIFF	MULT	BACKGROUND	CALBRTR ON	CALBRTR
	(cts)	(cts)	(cts/s)		(gAPI)	(gAPI)	(gAPI)
GR	75.82	247.07	171.2	0.584	44.28	144.28	100

GR PRIMARY VERIFICATION SUMMARY

TOOL #:	1355XA12670180	DATE/TIME PERFORMED:	Fri Dec 23 11:54:47 2016
UNIT #:	3880TA HL6670	VERI JIG #:	4702NK DA_228

	BACKGROUND	CALBRTR ON	MULT	BACKGROUND	CALBRTR ON	DIFF.
	(cts)	(cts)		(gAPI)	(gAPI)	(gAPI)
GR	77.11	254.76	0.584	45.03	148.77	103.74

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_GUNDERSON_20_03W/RAL55-tdg

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

20.38'

NEAR RCVR — 11.17'

FAR RCVR — 10.21'

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

CCL 5.79'

GR 1.67'

TEMP 0.17'

TOTAL LENGTH: 20.38'
 TOTAL WEIGHT: 221 lbs
 MAX DIAMETER: 0'2.75"

	COMPANY <u>LARAMIE ENERGY</u>		FILE NO: _____
	WELL <u>GUNDERSON 20-03W</u>		API NO: _____
	FIELD <u>BUZZARD CREEK</u>		API NO: <u>05077103380000</u>
	COUNTY <u>MESA</u> STATE <u>COLORADO</u>		
LOCATION: SHL: LAT:39.266947N;LONG:107.795317W BHL: LAT:39.267824N;LONG:107.797721W SEC <u>20</u> TWP <u>9S</u> RGE <u>93W</u>		ELEVATIONS: KB 7174 FT DF 7173 FT GL 7144 FT	
		DATE <u>10-AUG-2017</u>	