



RADIAL CEMENT BOND LOG

FILE NO: CH131323
 COMPANY: LARAMIE ENERGY LLC
 WELL: HG FED 35-01W
 API NO: 05077093060000
 FIELD: ALKALI CREEK
 COUNTY: MESA
 STATE: COLORADO

Version: LOCATION: LAT: 39.32834 N
 LONG: 107.63516 W
 SEC 26 TWP 8S RGE 92W
 OTHER SERVICES: RPM

PERMANENT DATUM: GL ELEVATION 7985 FT
 LOG MEASURED FROM: KB 14 FT ABOVE P.D.
 DRILL. MEAS. FROM: KB
 ELEVATIONS: KB 7999 FT
 DF
 GL 7985 FT

DATE	12-May-2018
RUN	1
TRIP	1
SERVICE ORDER	US131323
DEPTH DRILLER	8594 FT
DEPTH LOGGER	8519 FT
BOTTOM LOGGED INTERVAL	8519 FT
TOP LOGGED INTERVAL	14 FT
TIME STARTED	9:30
TIME FINISHED	12:30
OPERATOR RIG TIME	3 HOURS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	54 FT
LOGGED CEMENT TOP	7270 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	100 FPM
MAX. RECORDED TEMP.	243 DEGF
REFERENCE LOG	BAKER HUGHES OPEN HOLE
REFERENCE LOG DATE	26-Nov-2017
EQUIP. NO.	ML-4291
LOCATION	GRAND JCT.
RECORDED BY	T. NEWELL
WITNESSED BY	NA

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: 6579' - 6598'
 SJ: 7629' - 7649'

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	RAL	1426XA	11871500	CENTRALIZED
1	1	GR/CCL	1355XA	12670180	CENTRALIZED

RAL 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: 2

Plotted: Sat May 12 20:41:45 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\Users\newetimj\Desktop\HG Federal 35-01WRPM DATA_MAY10_2018\p012g02.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 10.000 ft BOTTOM DEPTH: 8533.500 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	0.00		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	186	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	186	us	"	"
	AMP WINDOW START (fgp3*)	186	us	"	"
	AMP WINDOW START (fgp4*)	186	us	"	"
	AMP WINDOW START (fgp5*)	186	us	"	"
	AMP WINDOW START (fgp6*)	186	us	"	"
	AMP WINDOW START (fgp7*)	186	us	"	"
	AMP WINDOW START (fgp8*)	186	us	"	"
	AMP WINDOW START (fgpn*)	186	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	199	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.465	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-72	us	"	"
	TOOL DELAY (str2*)	-72	us	"	"
	TOOL DELAY (str3*)	-72	us	"	"
	TOOL DELAY (str4*)	-72	us	"	"
	TOOL DELAY (str5*)	-72	us	"	"
	TOOL DELAY (str6*)	-72	us	"	"
	TOOL DELAY (str7*)	-72	us	"	"
	TOOL DELAY (str8*)	-72	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

PERCENT BOND CEMENT MAP

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE AMP REC 5	80	mV	"	"
	FREE AMP REC 6	80	mV	"	"
	FREE AMP REC 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	2	mV	"	"
	FULL BOND AMP REC 2	2	mV	"	"
	FULL BOND AMP REC 3	2	mV	"	"
	FULL BOND AMP REC 4	2	mV	"	"

FULL BOND AMP REC 5	2	mV	"	"
FULL BOND AMP REC 6	2	mV	"	"
FULL BOND AMP REC 7	2	mV	"	"
FULL BOND AMP REC 8	2	mV	"	"

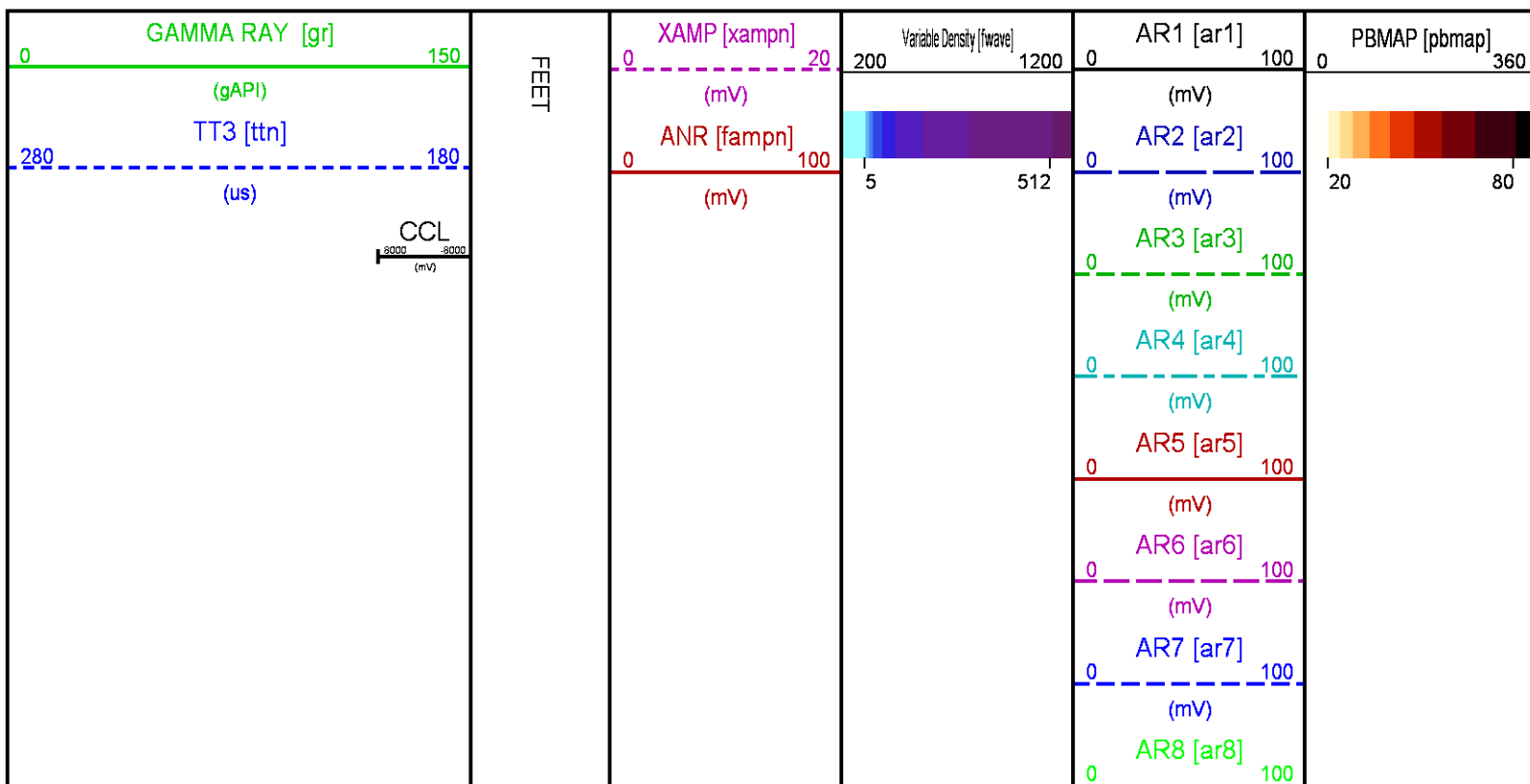
CURVE DESCRIPTION REPORT

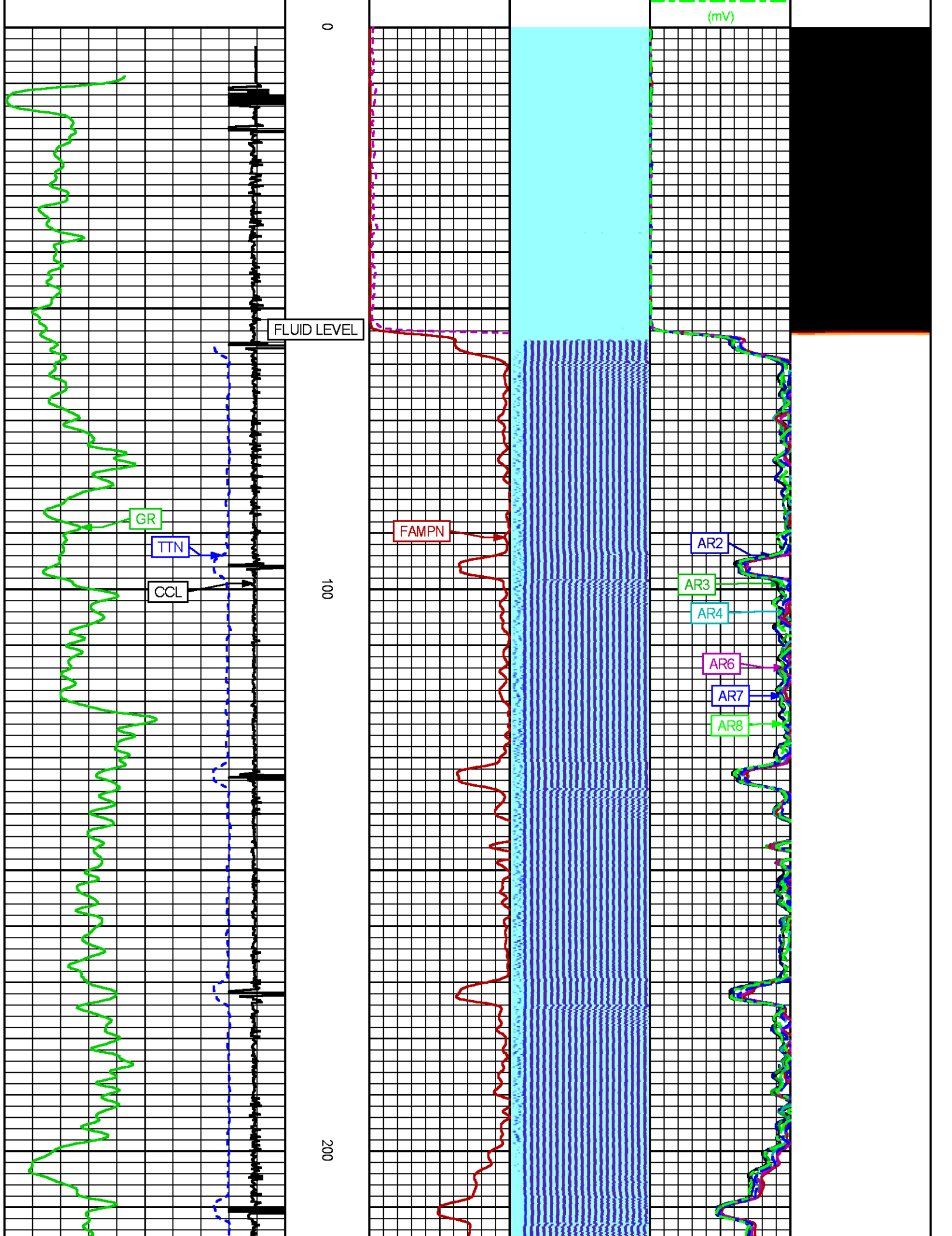
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

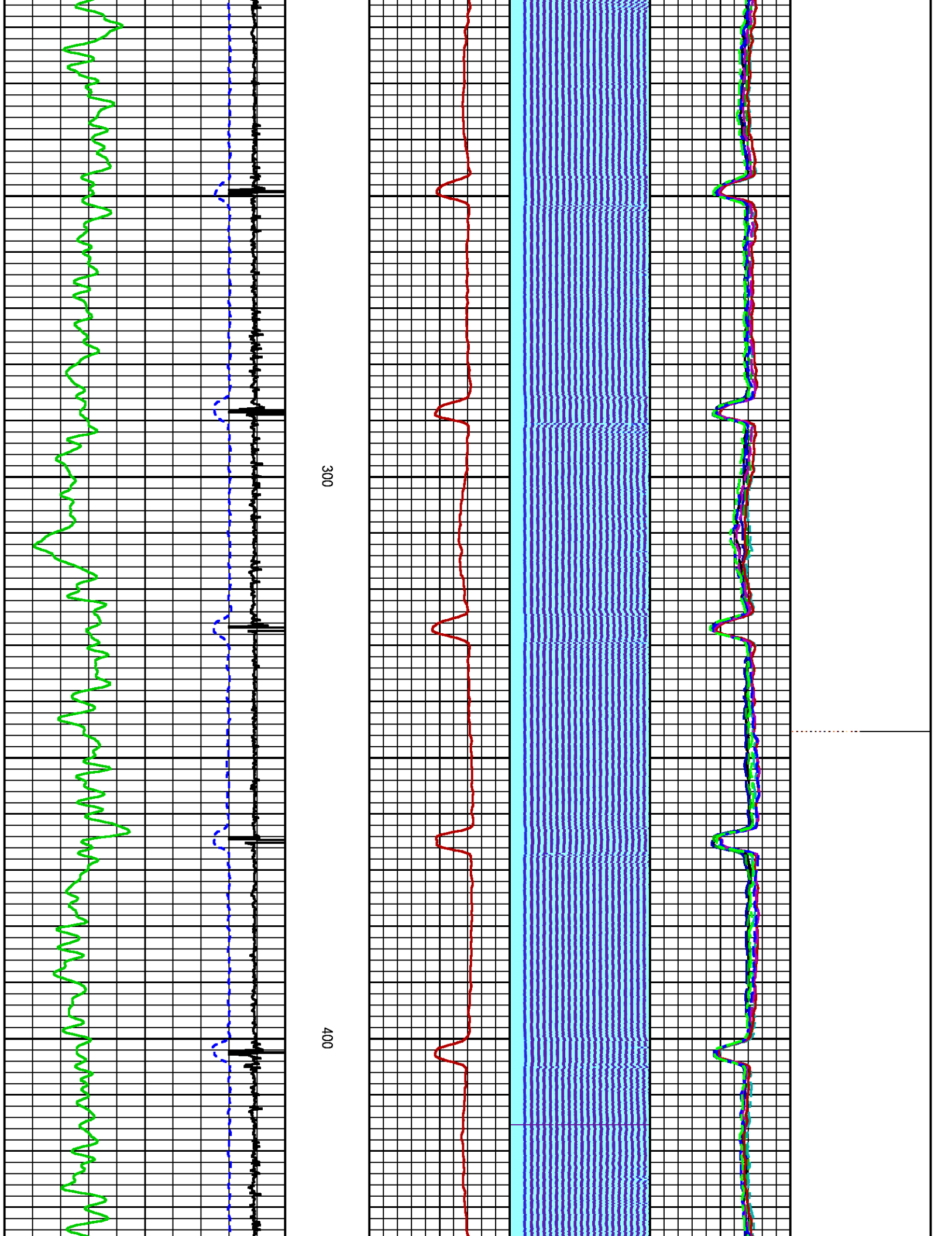
CURVE MEASURE POINT OFFSET

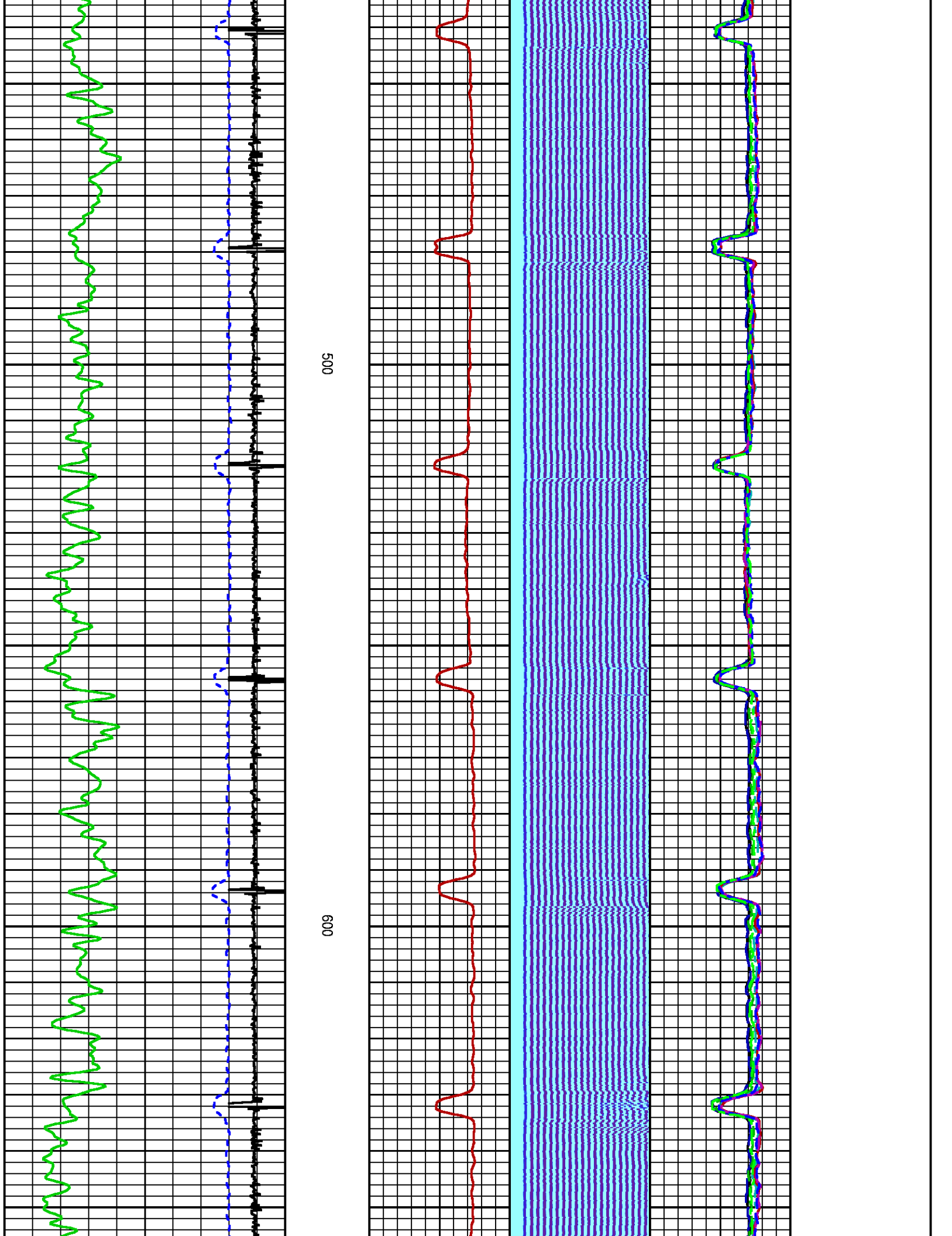
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

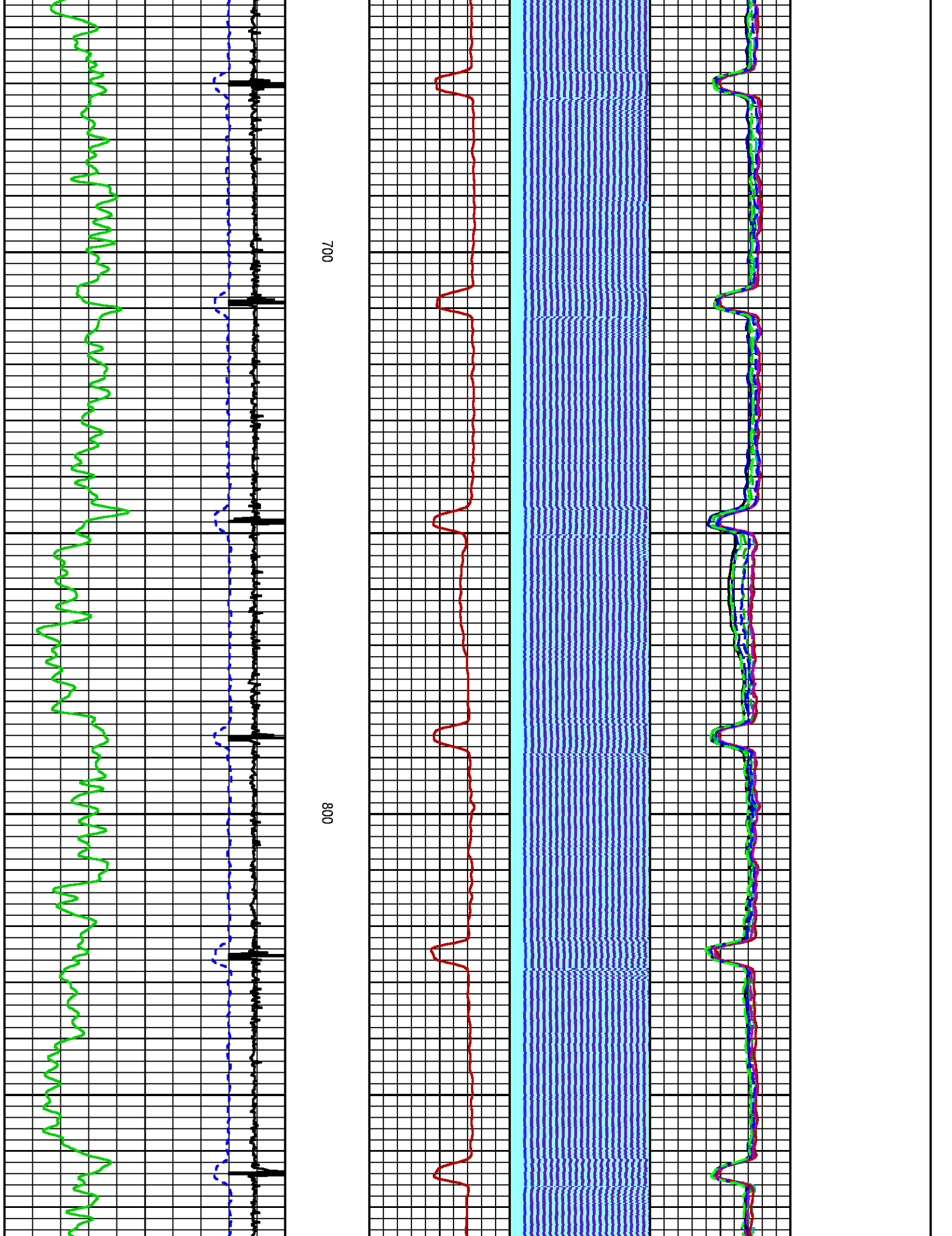
Presentation : BHI4WM4ZW1:C:\Users\newetimj\Desktop\HG Federal 35-01WRPM DATA_MAY10_2018\35-01W_RAL_MAIN.fvpdf [5"/100' Scale]
Plot Interval : 0 - 8530 Feet
Data File 1 : F1 : BHI4WM4ZW1:C:\Users\newetimj\Desktop\HG Federal 35-01WRPM DATA_MAY10_2018\35-01W_RAL_MAIN.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : HG FED 35-01W
Field : ALKALI CREEK
File Interval : -2 - 8533.5 Feet
OCT : p012g

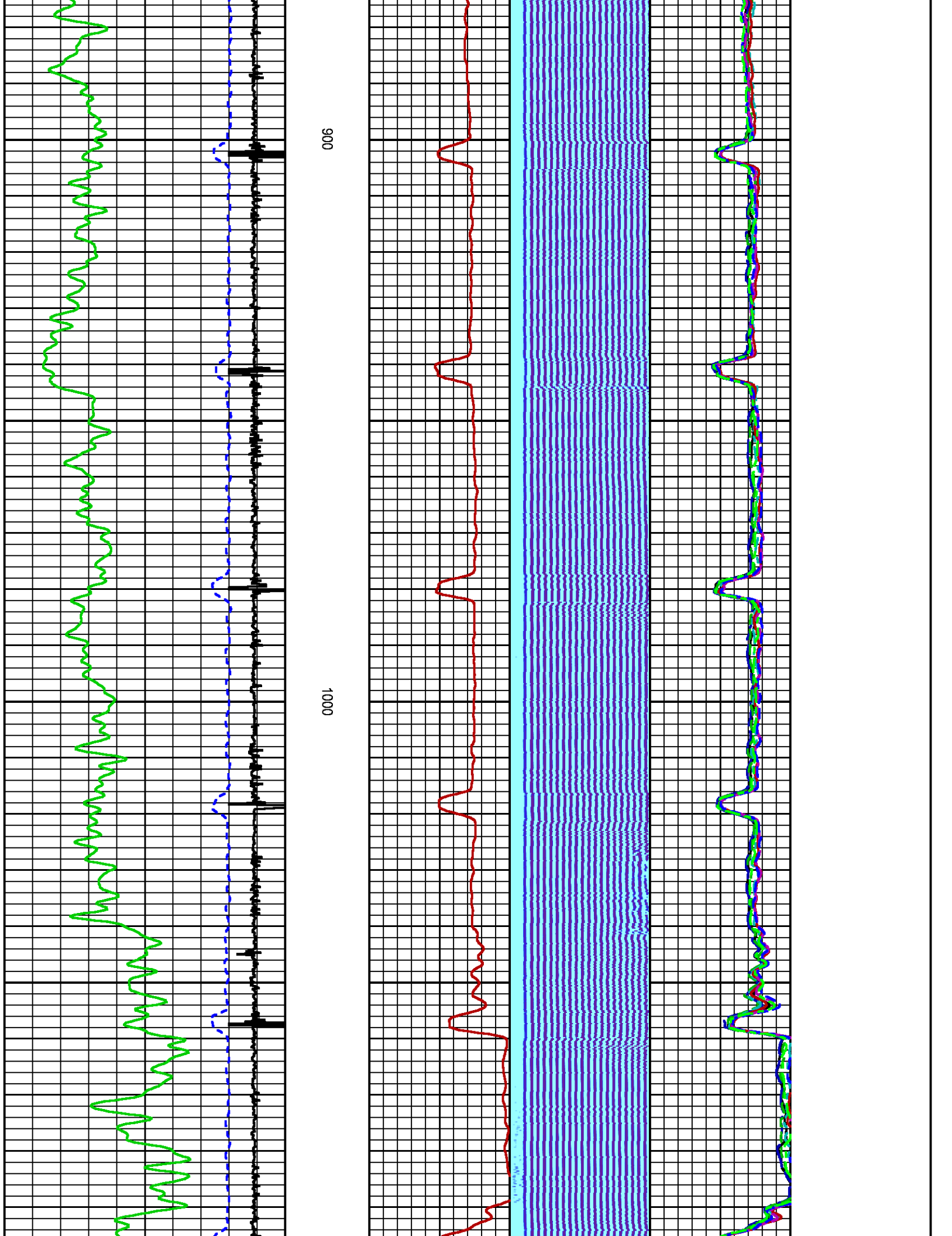


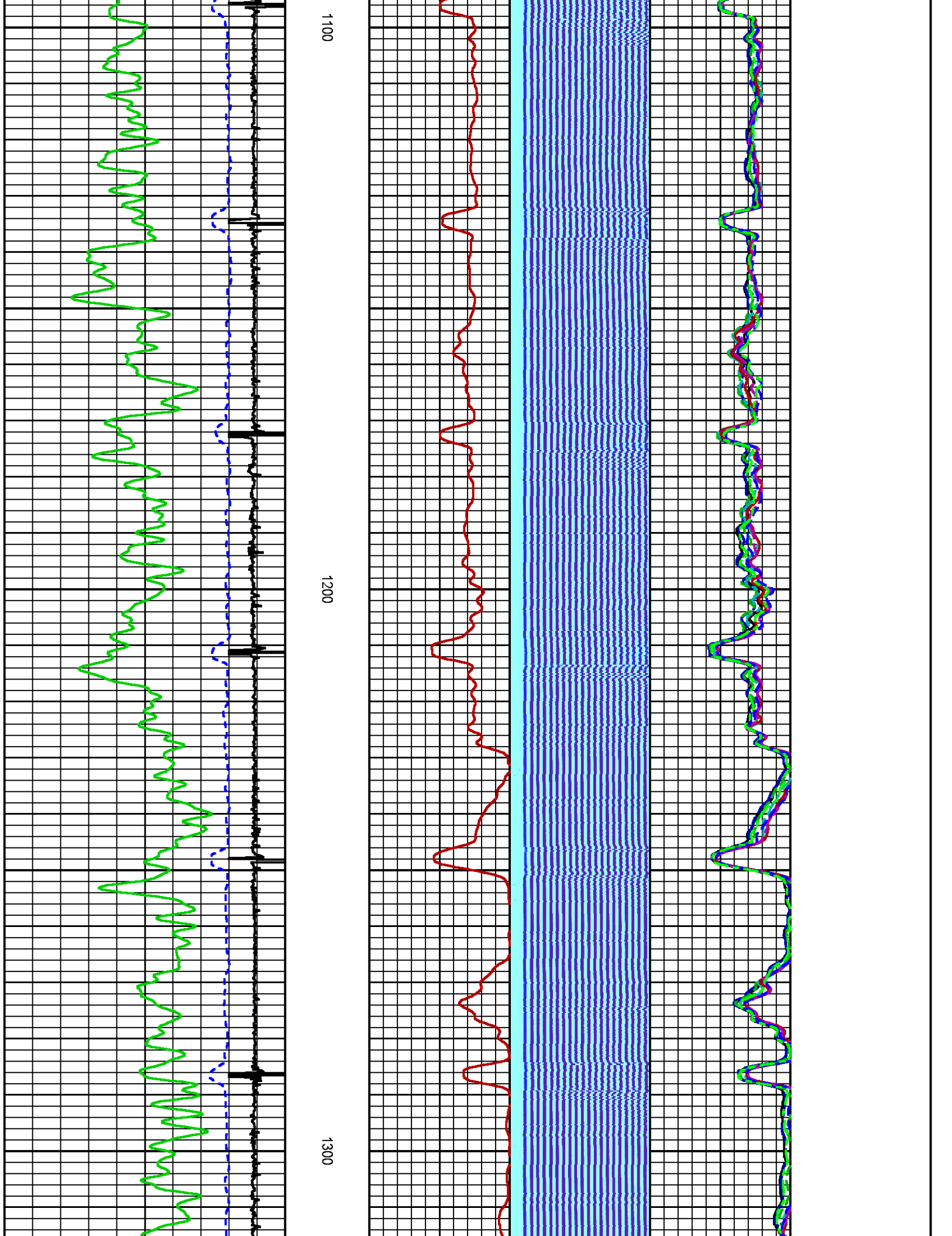


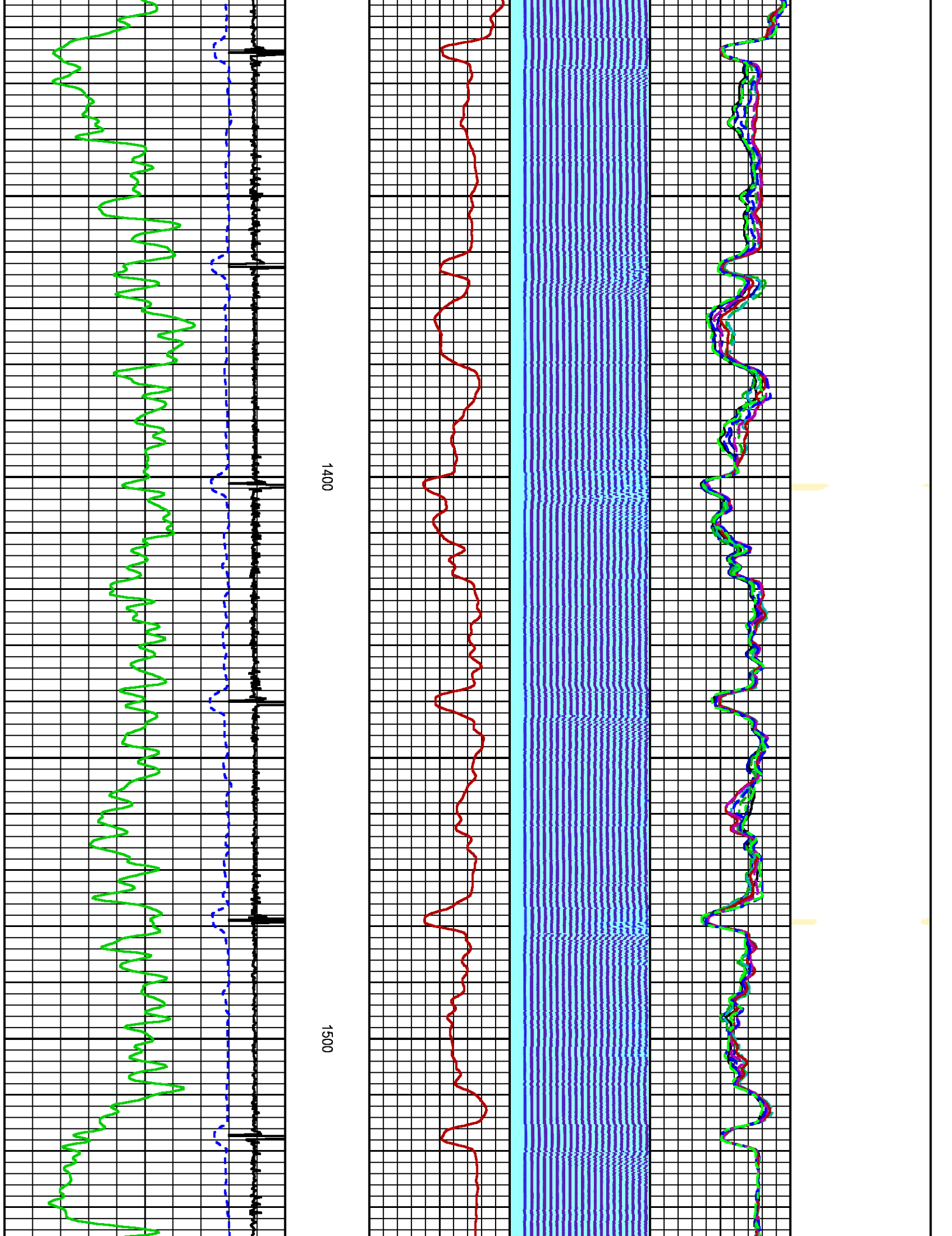


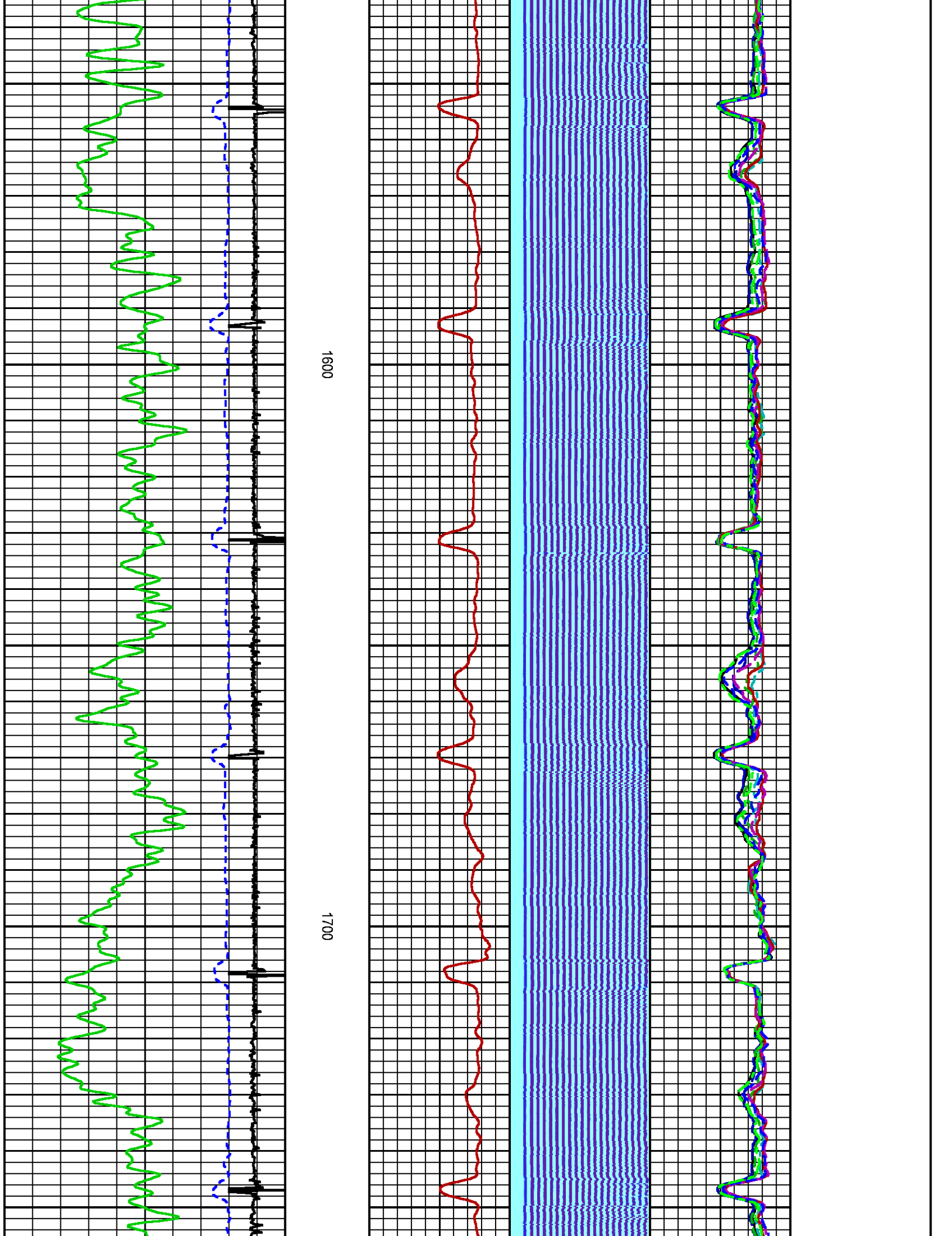


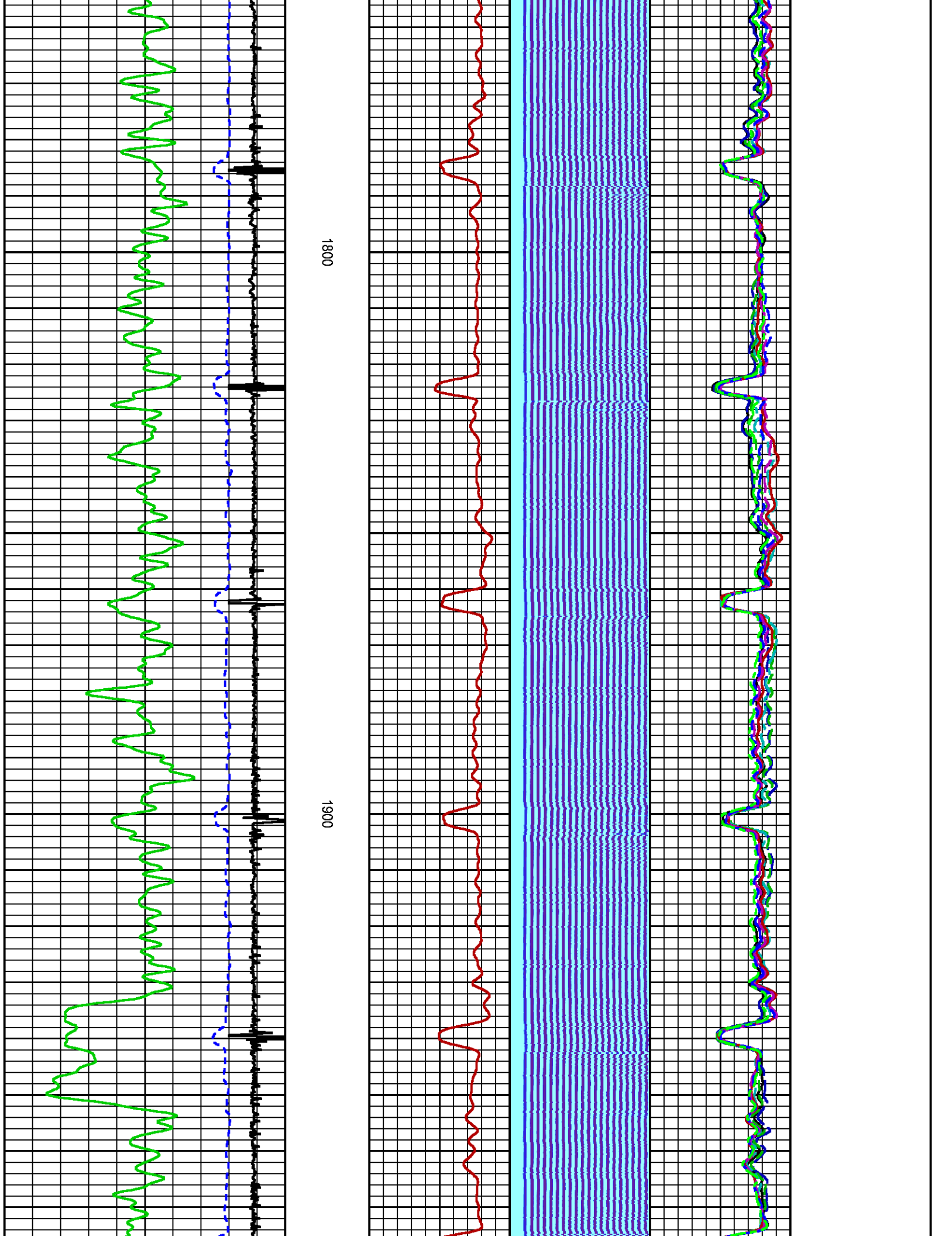


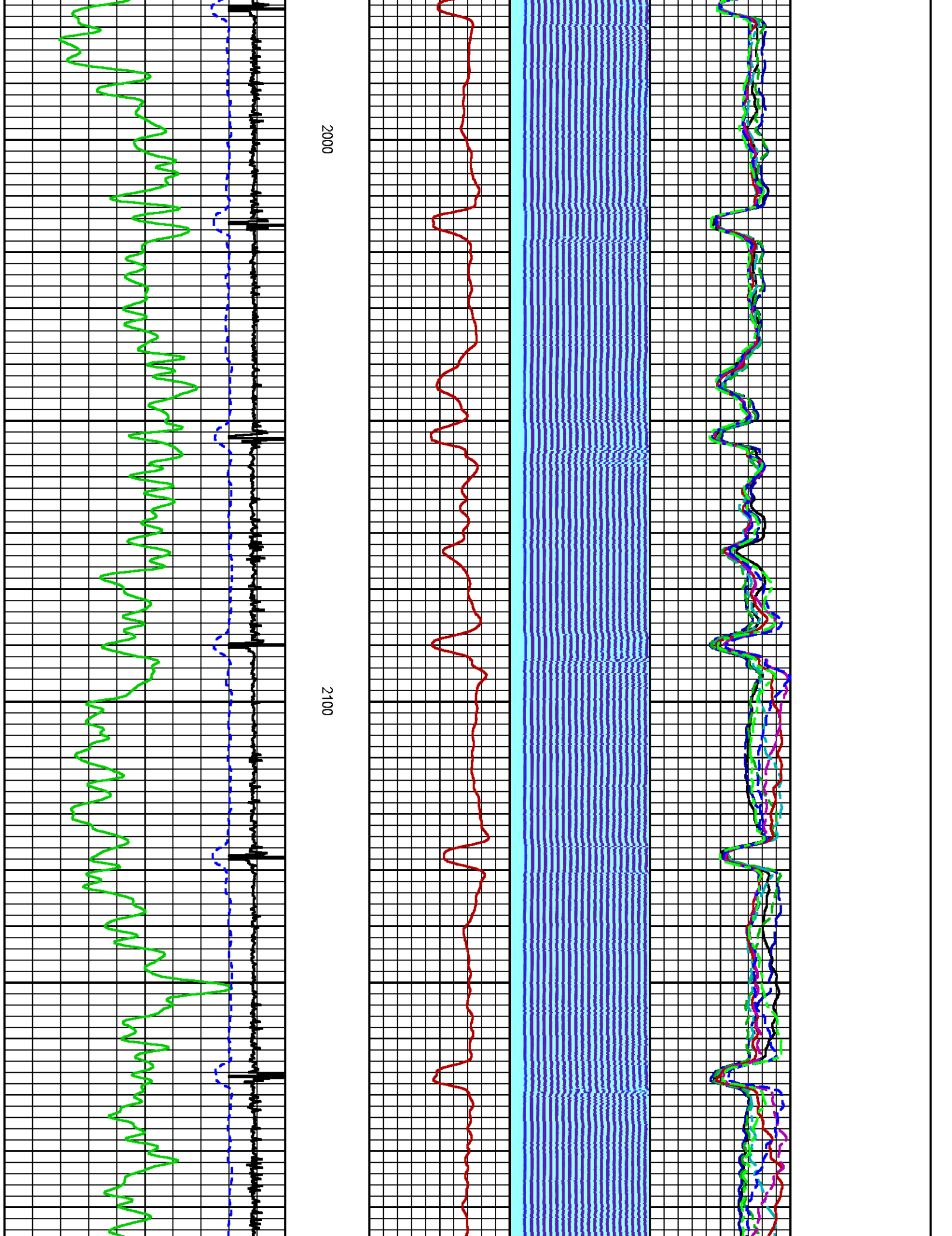


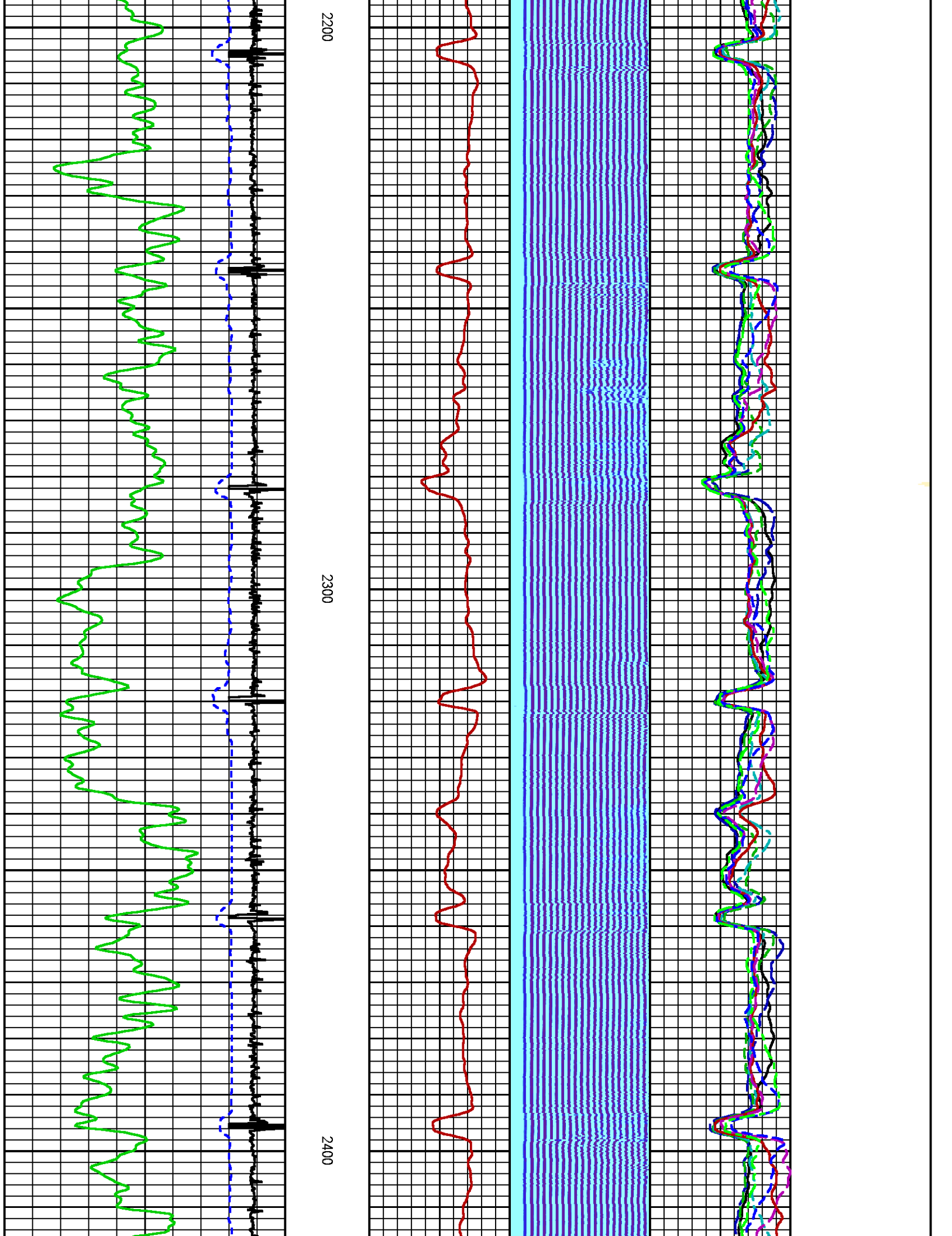


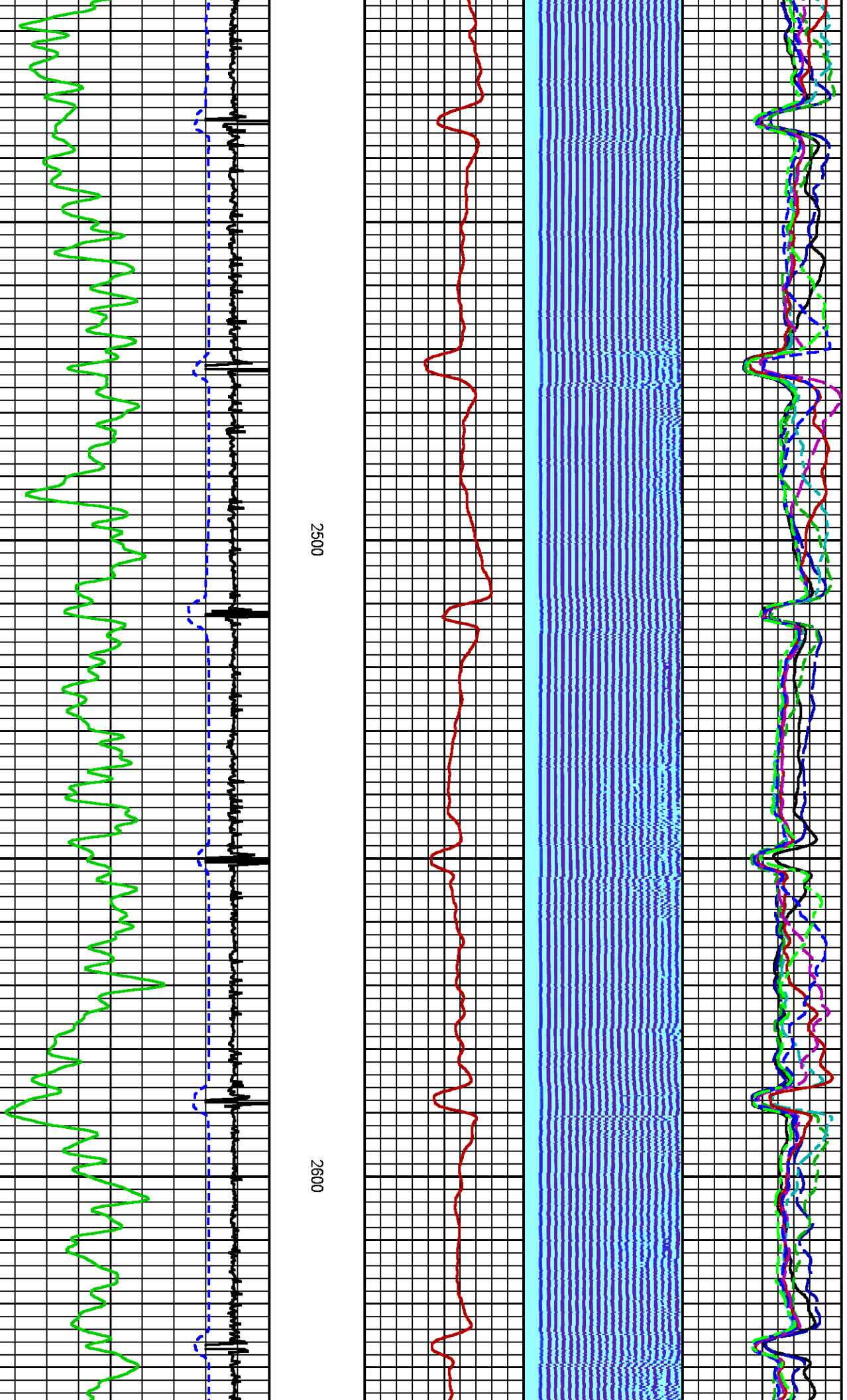






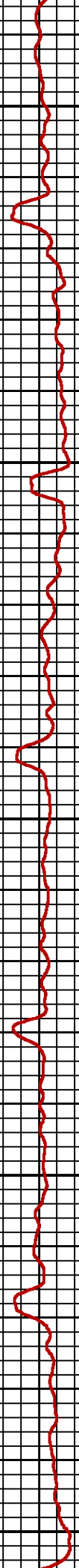
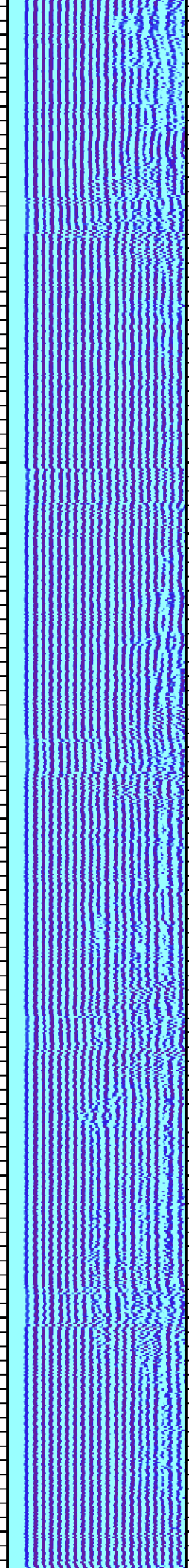
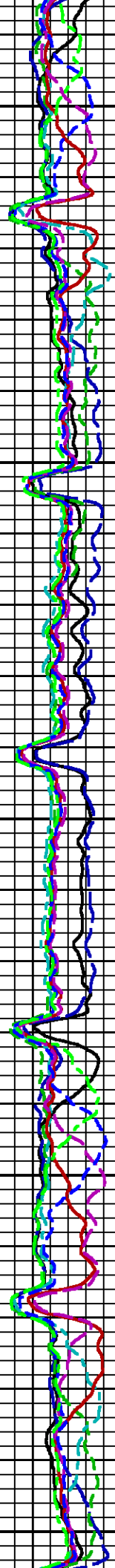






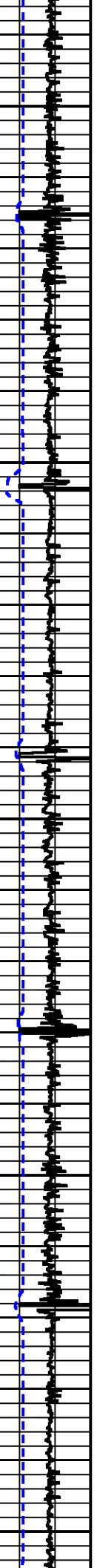
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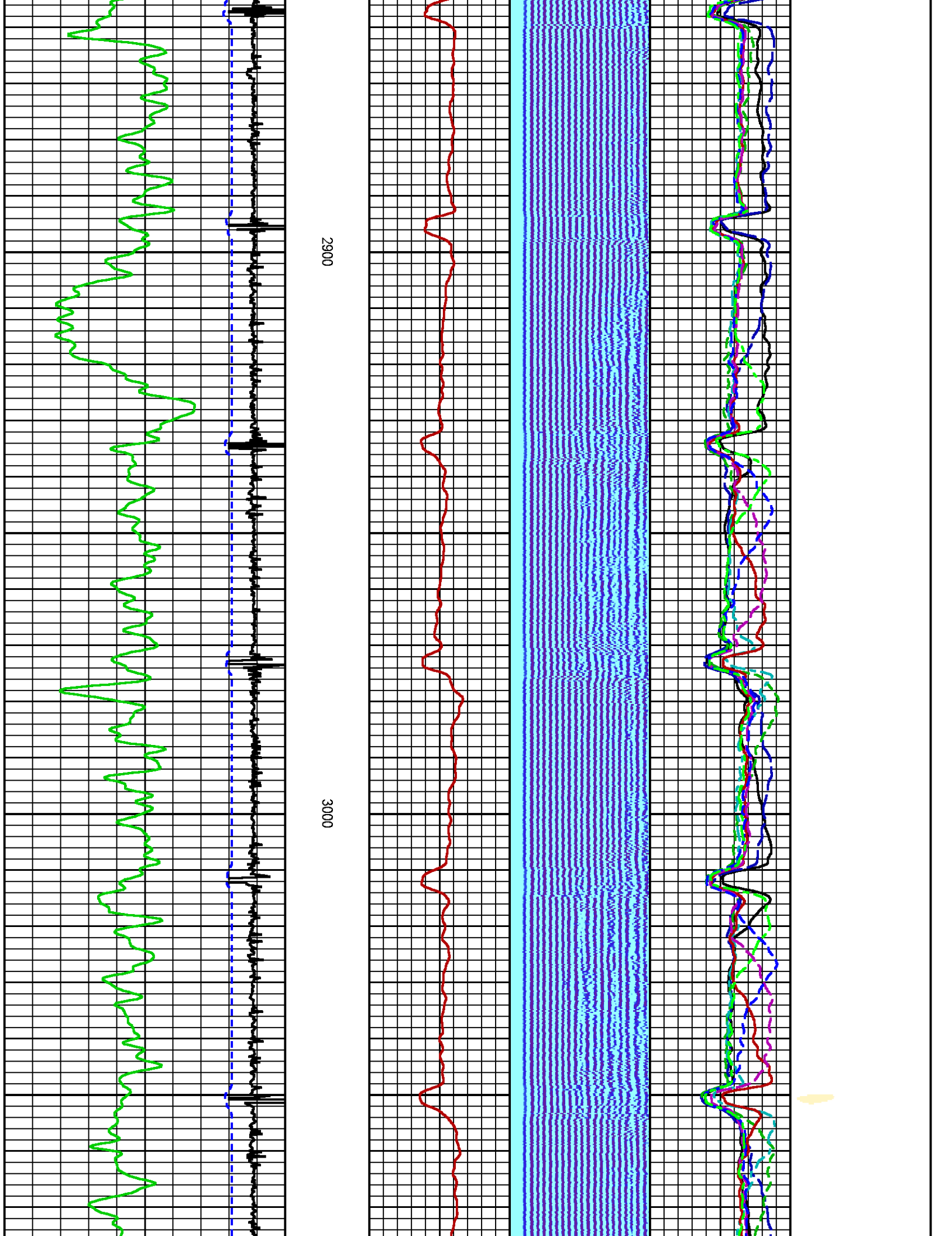
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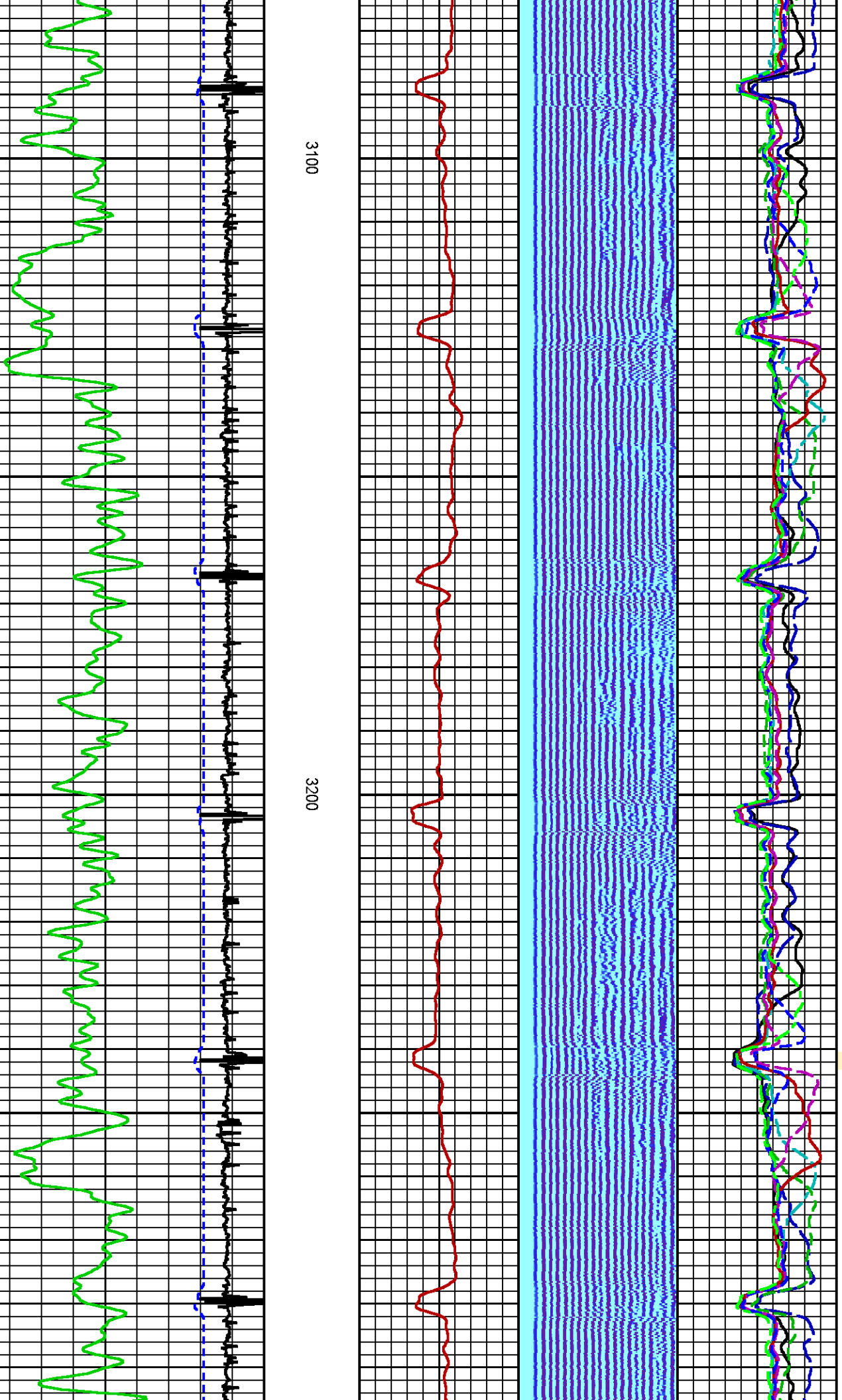


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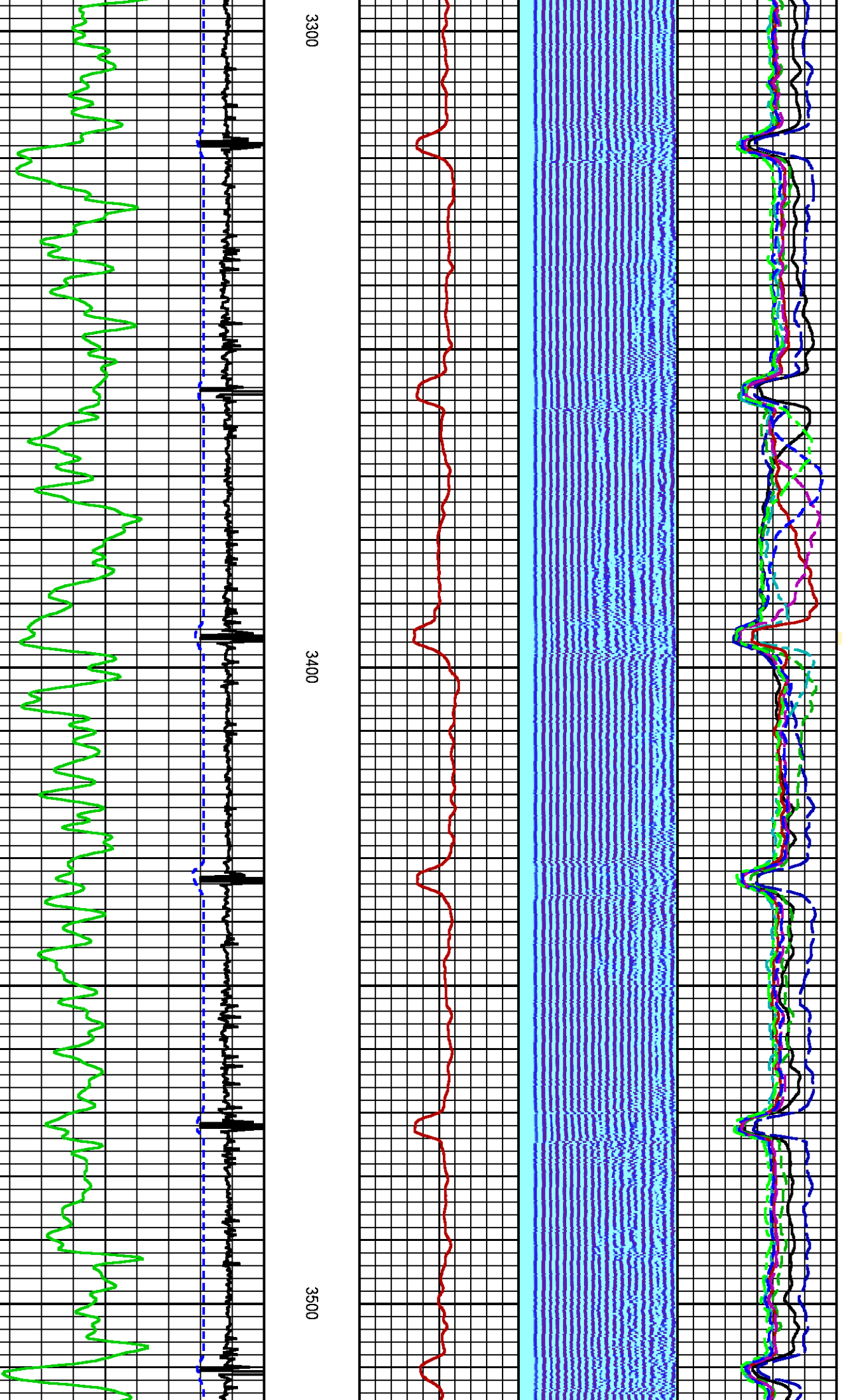


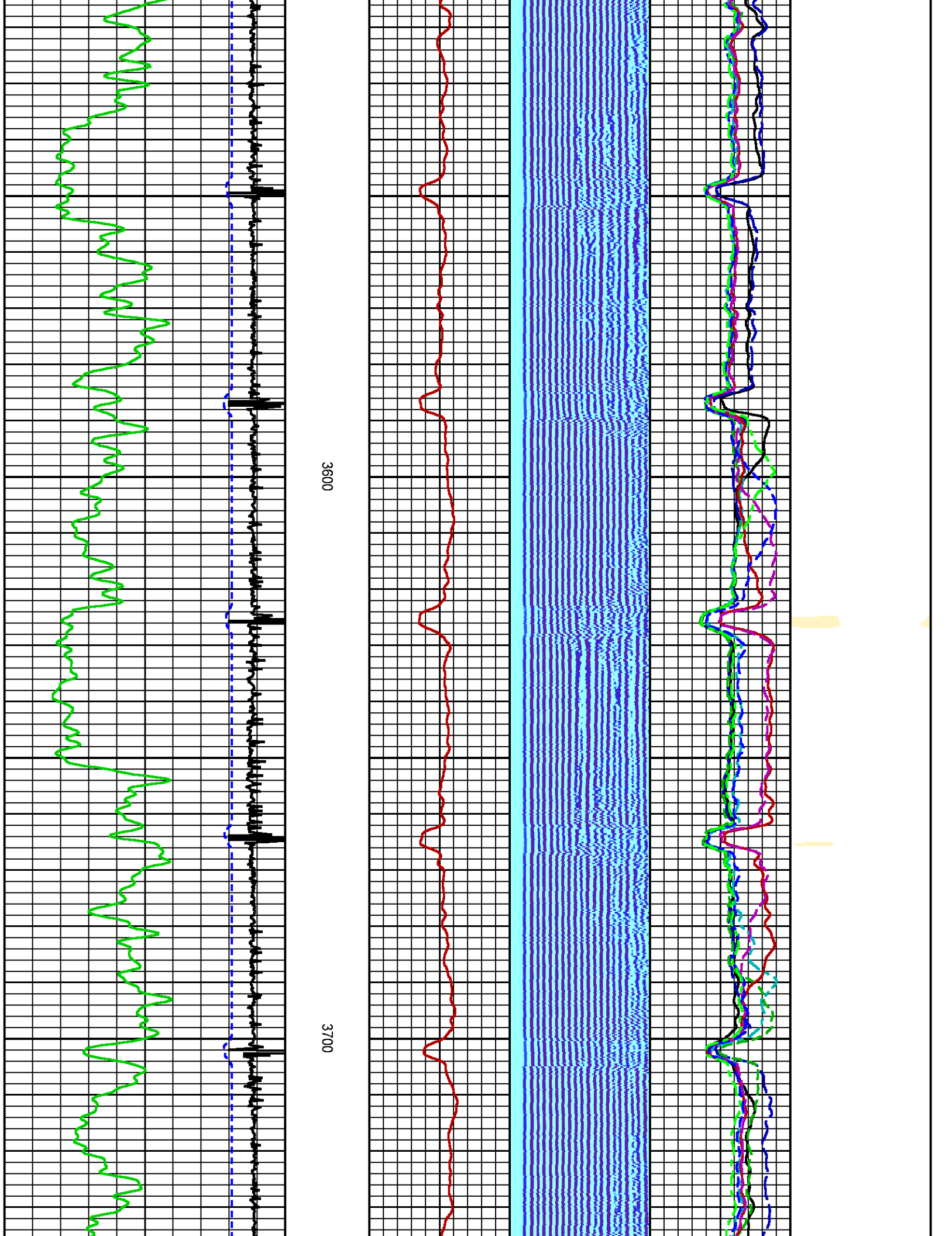


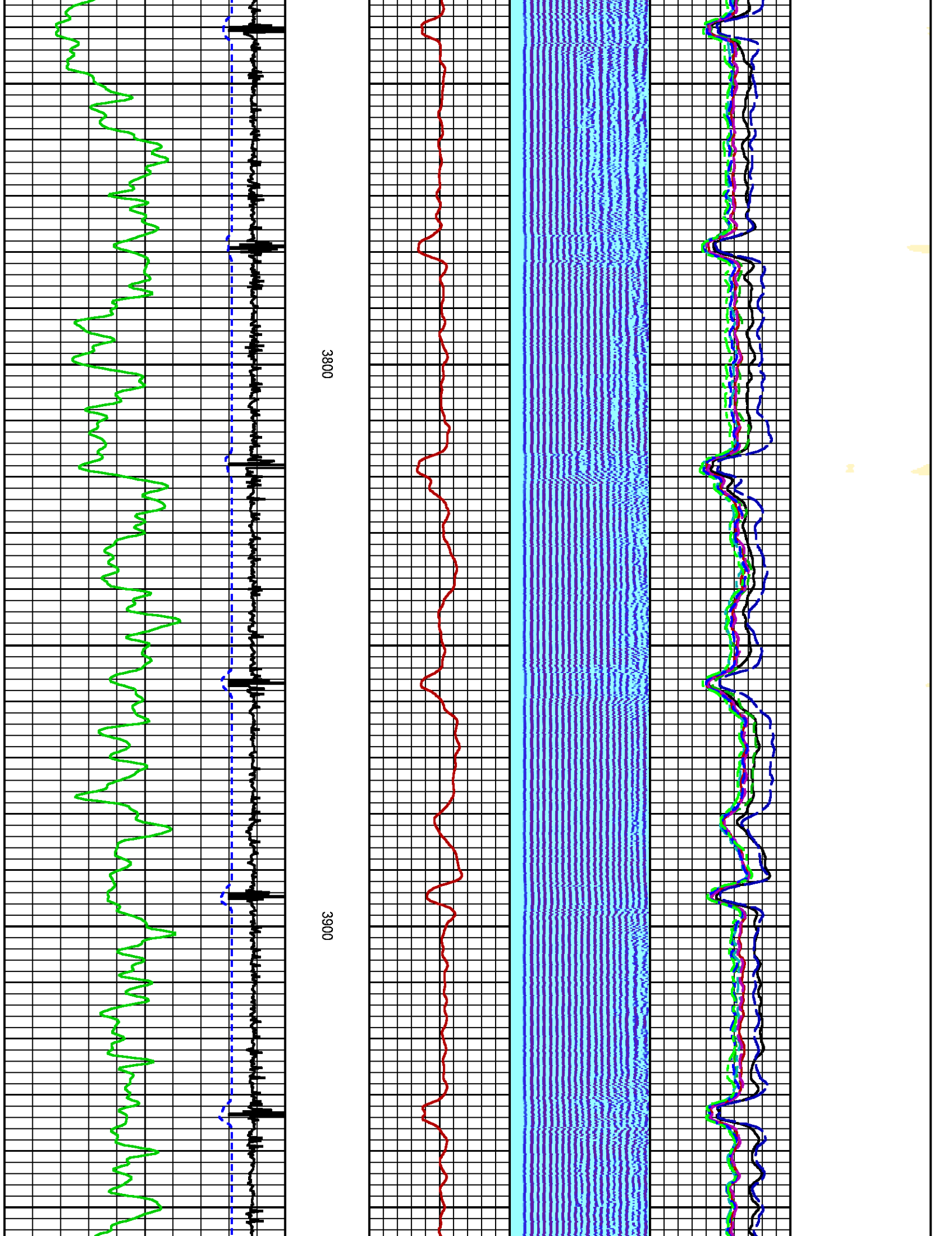


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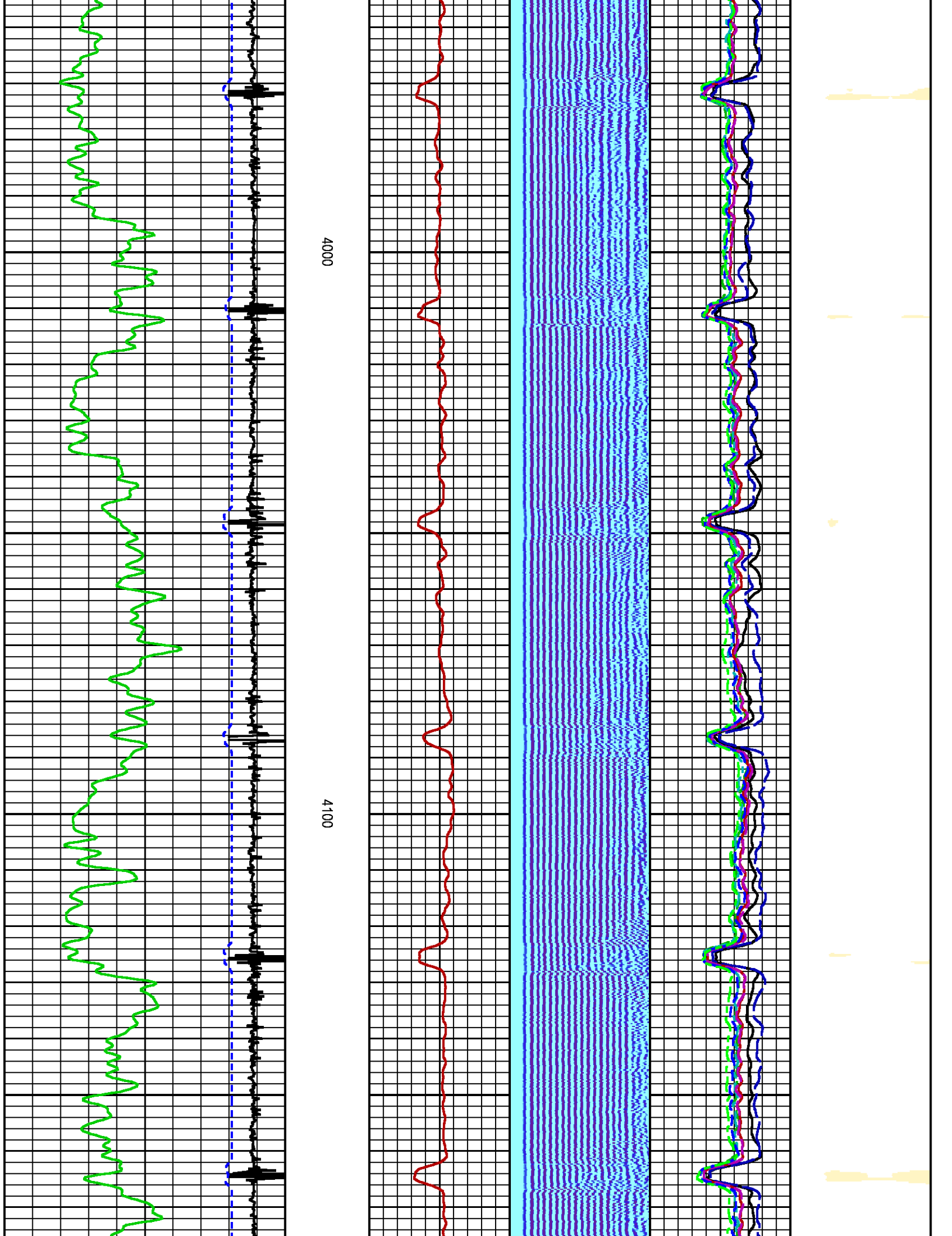


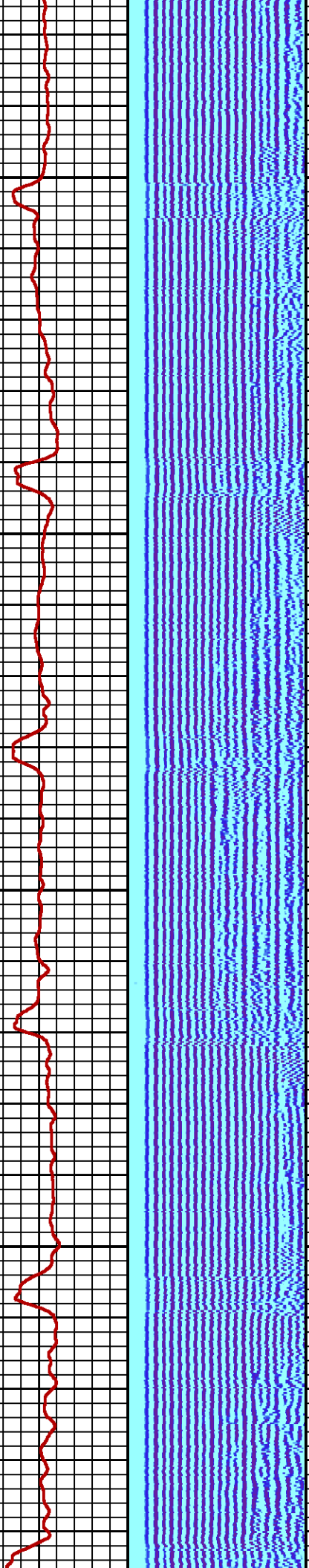
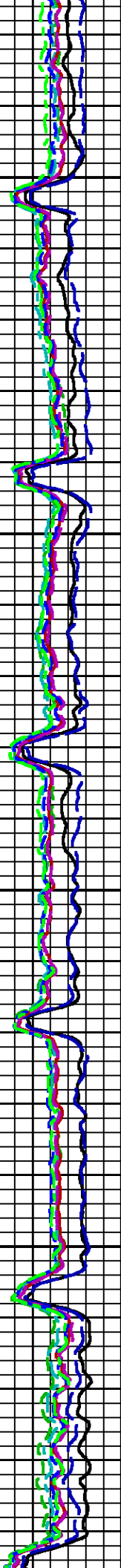




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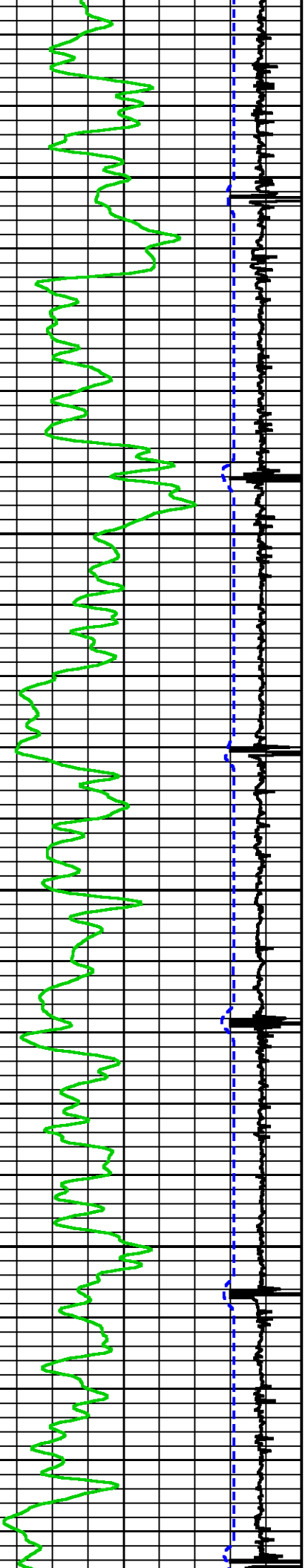
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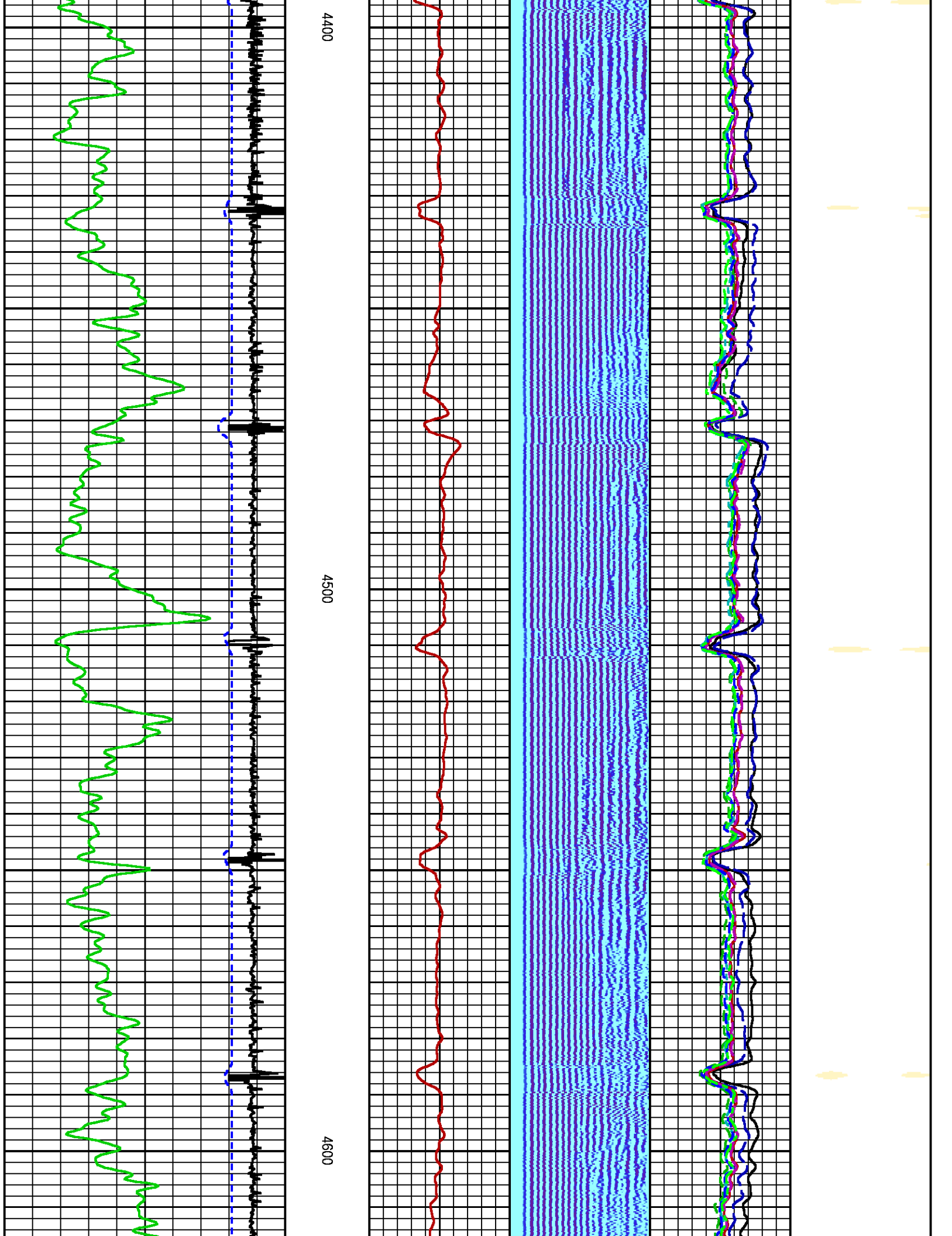


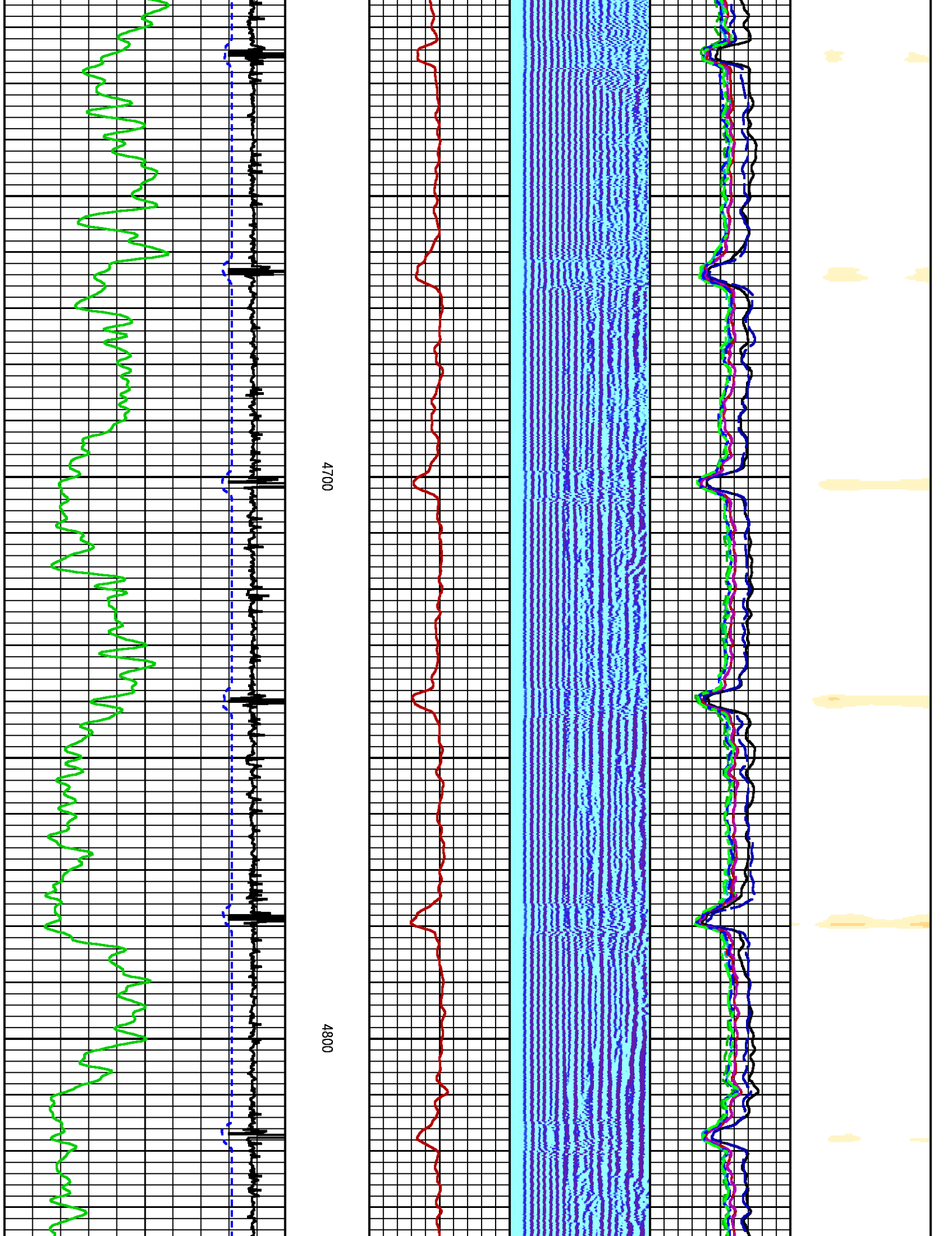


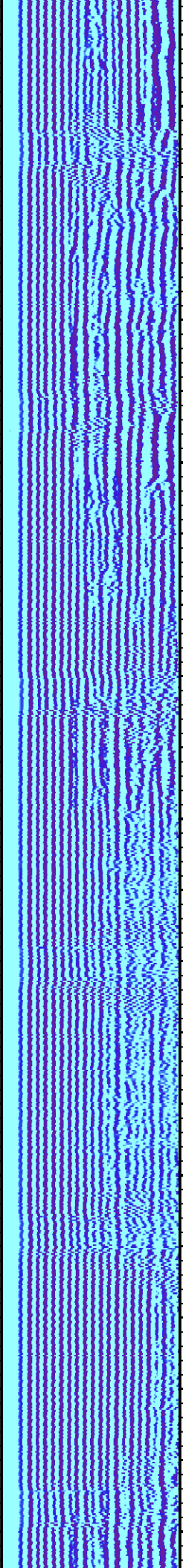
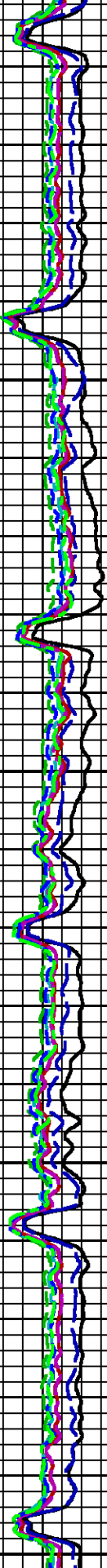
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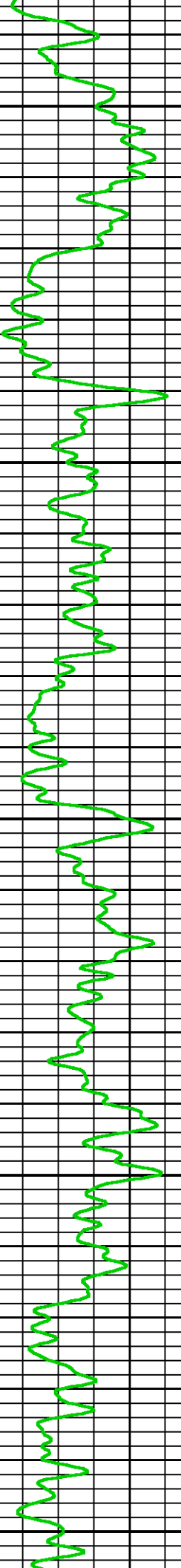
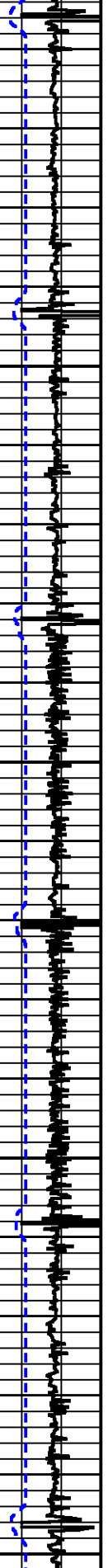


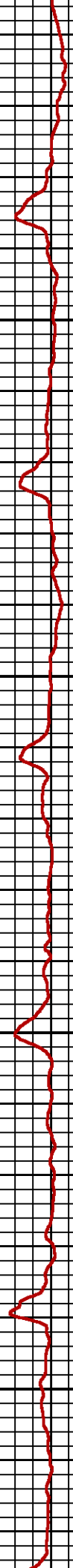
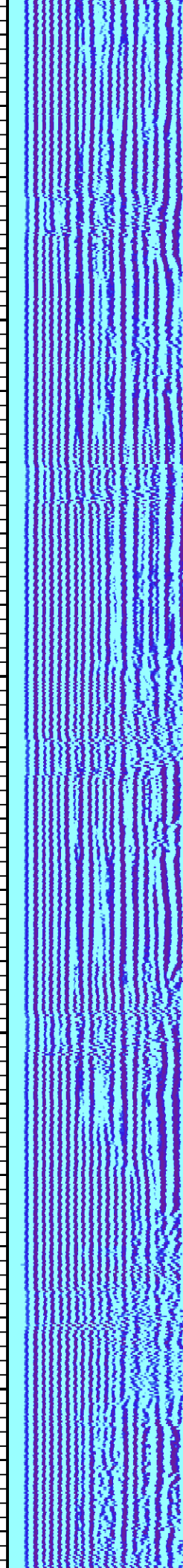
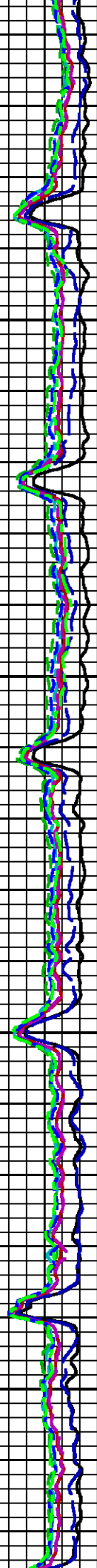
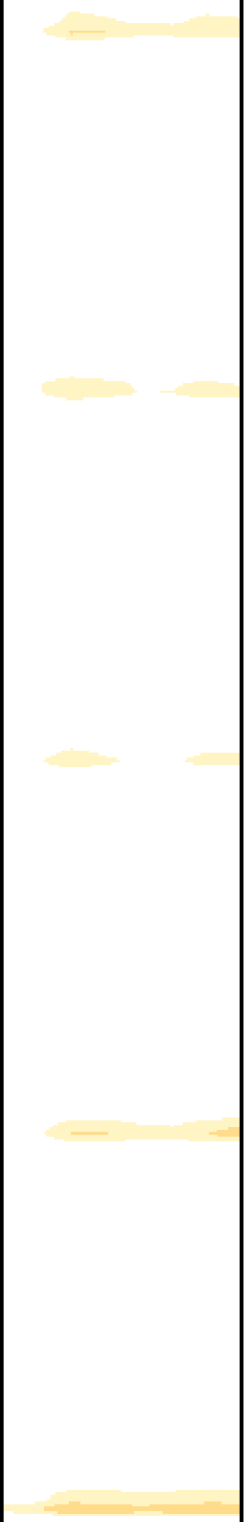




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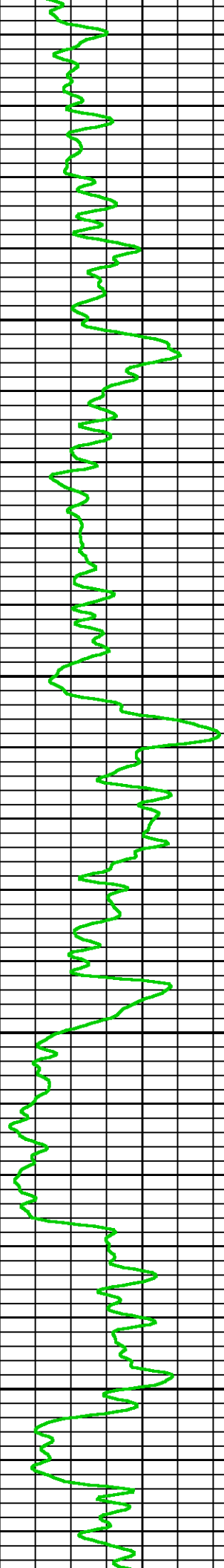
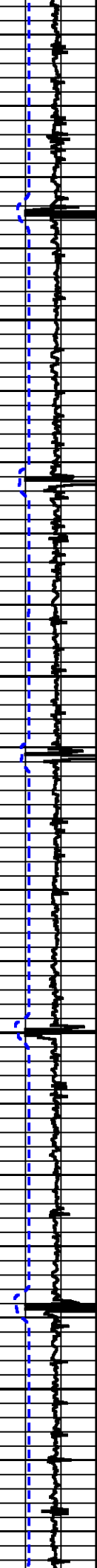
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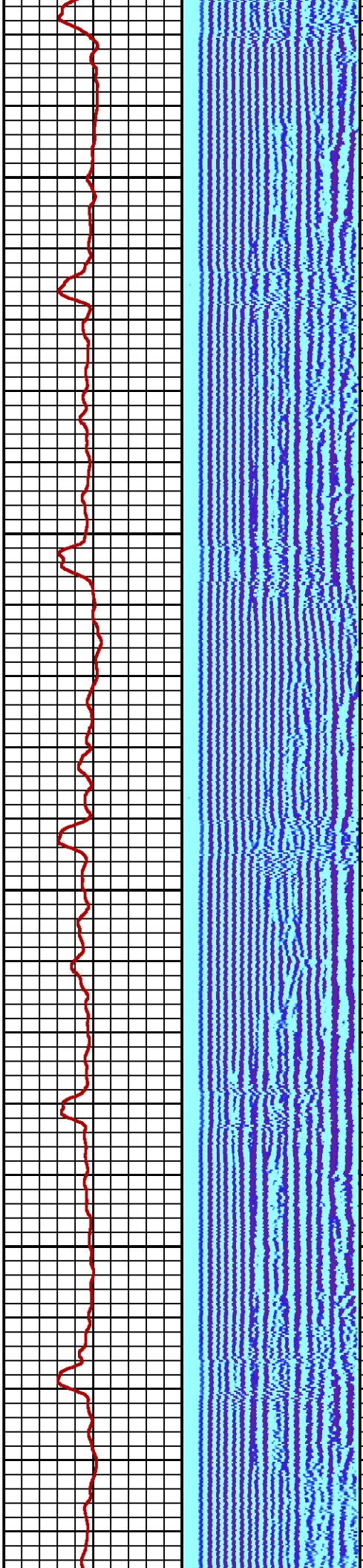
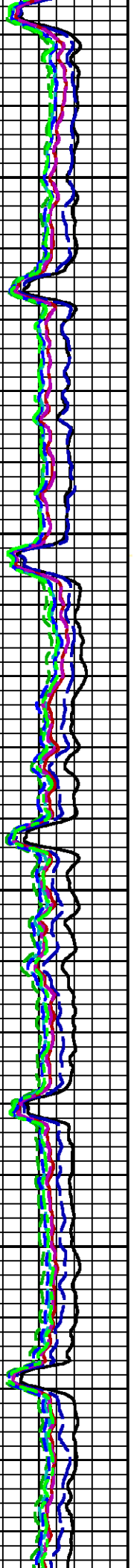




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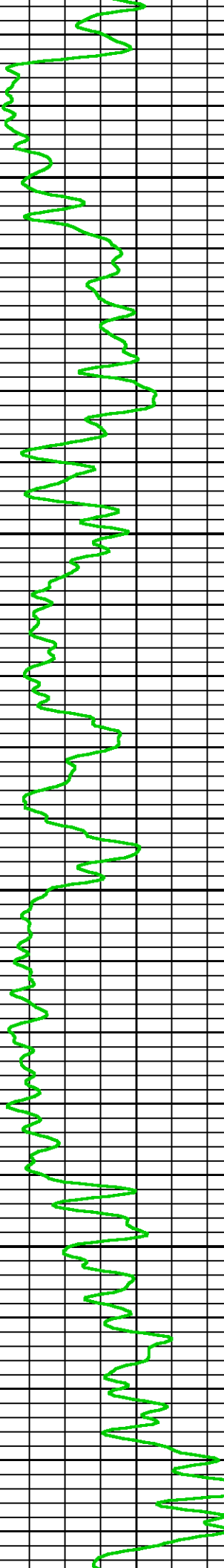
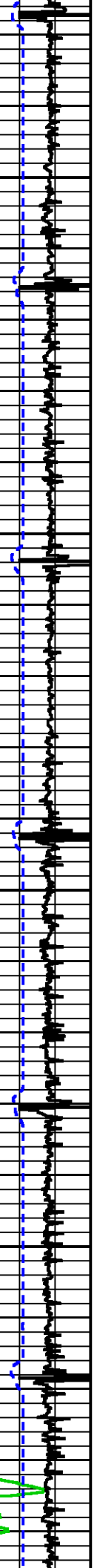
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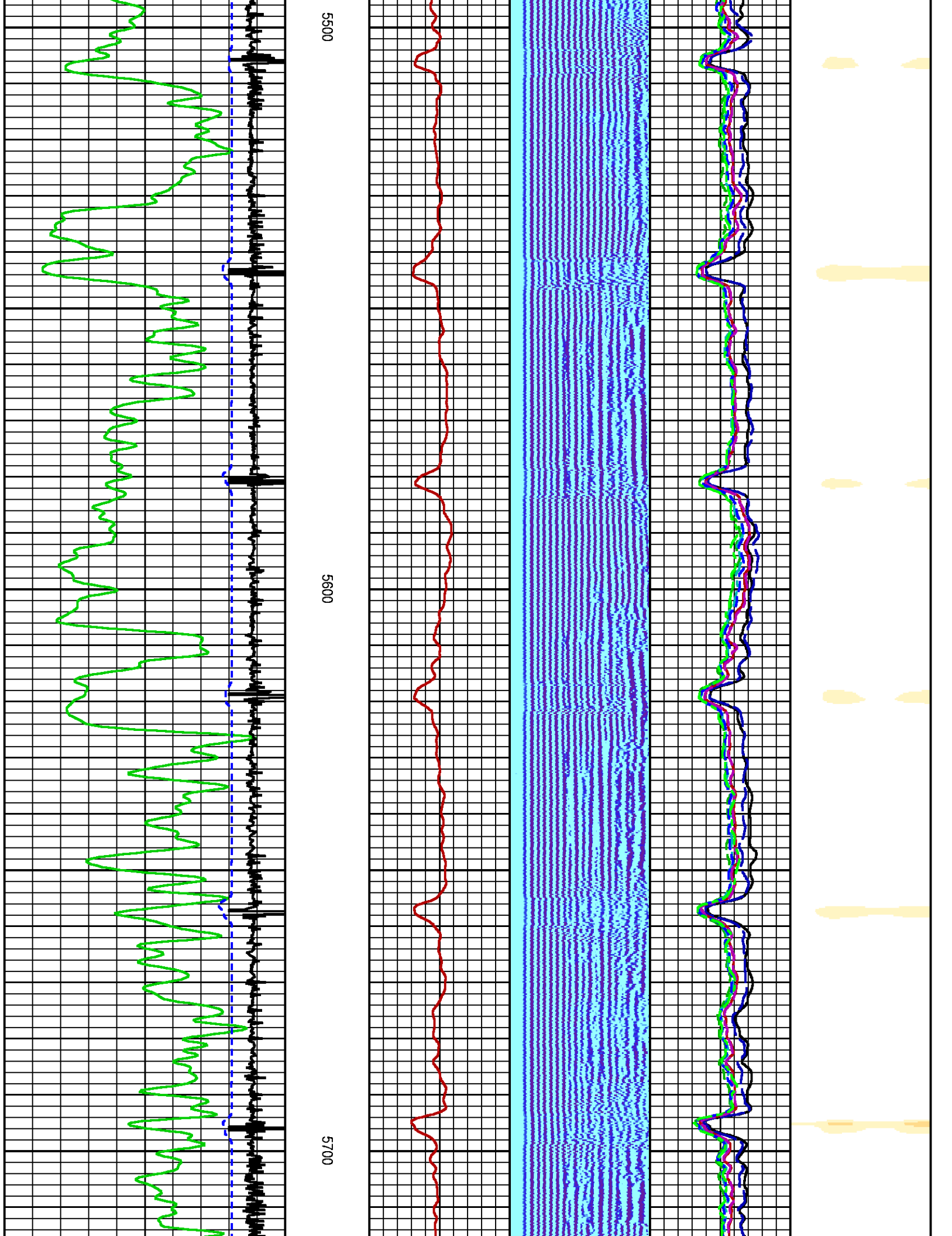


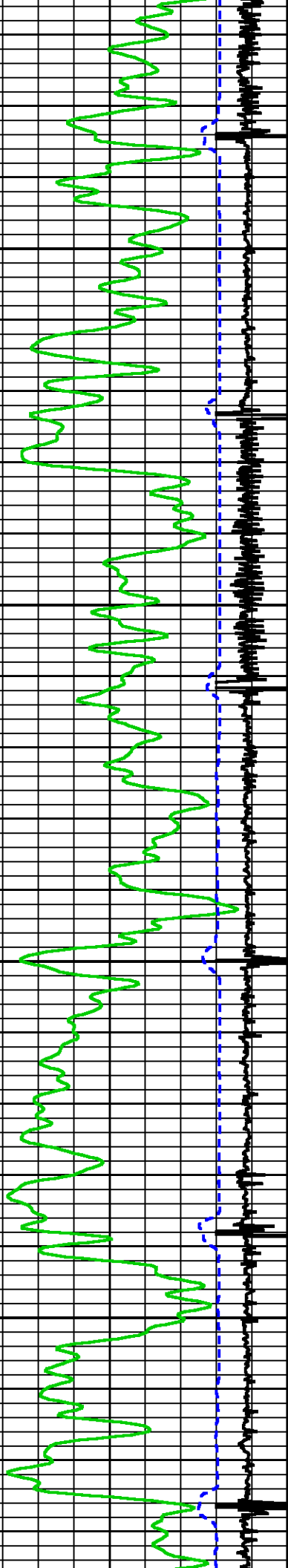


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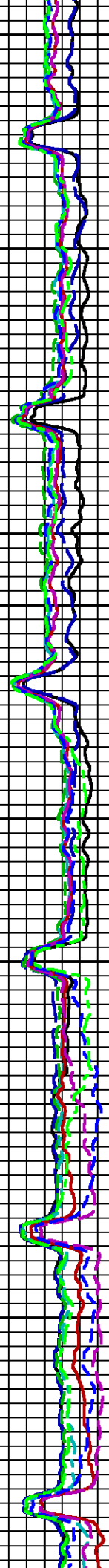
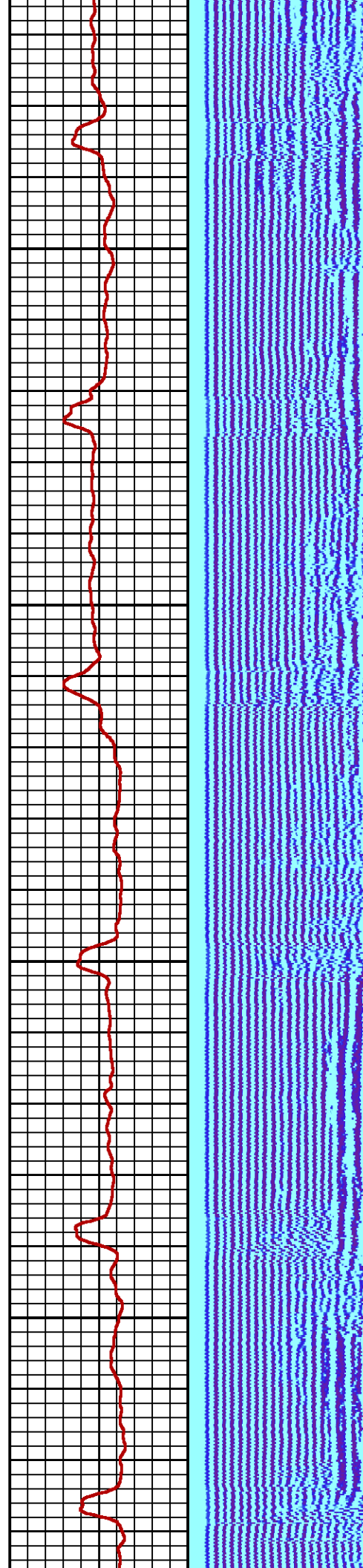


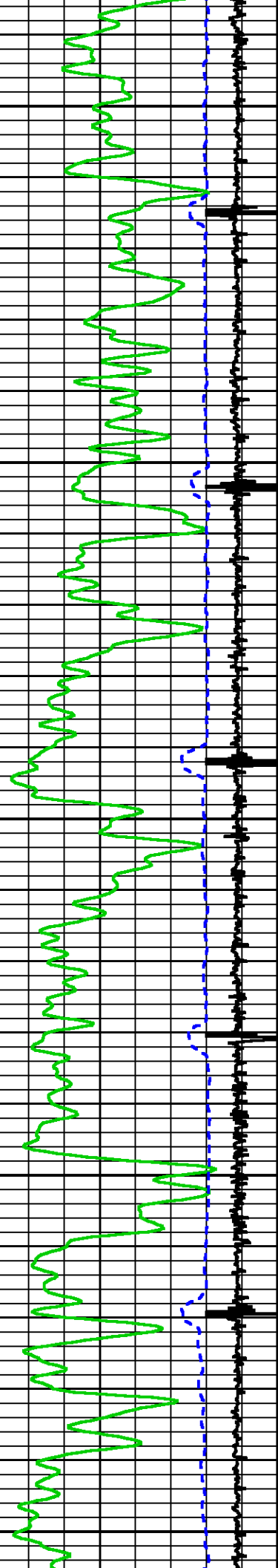
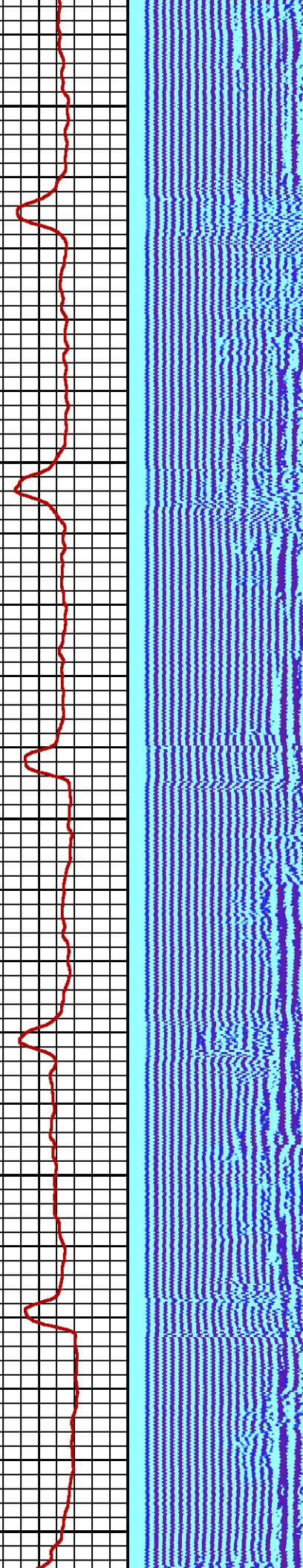
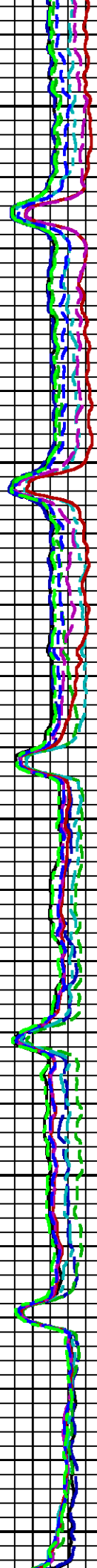




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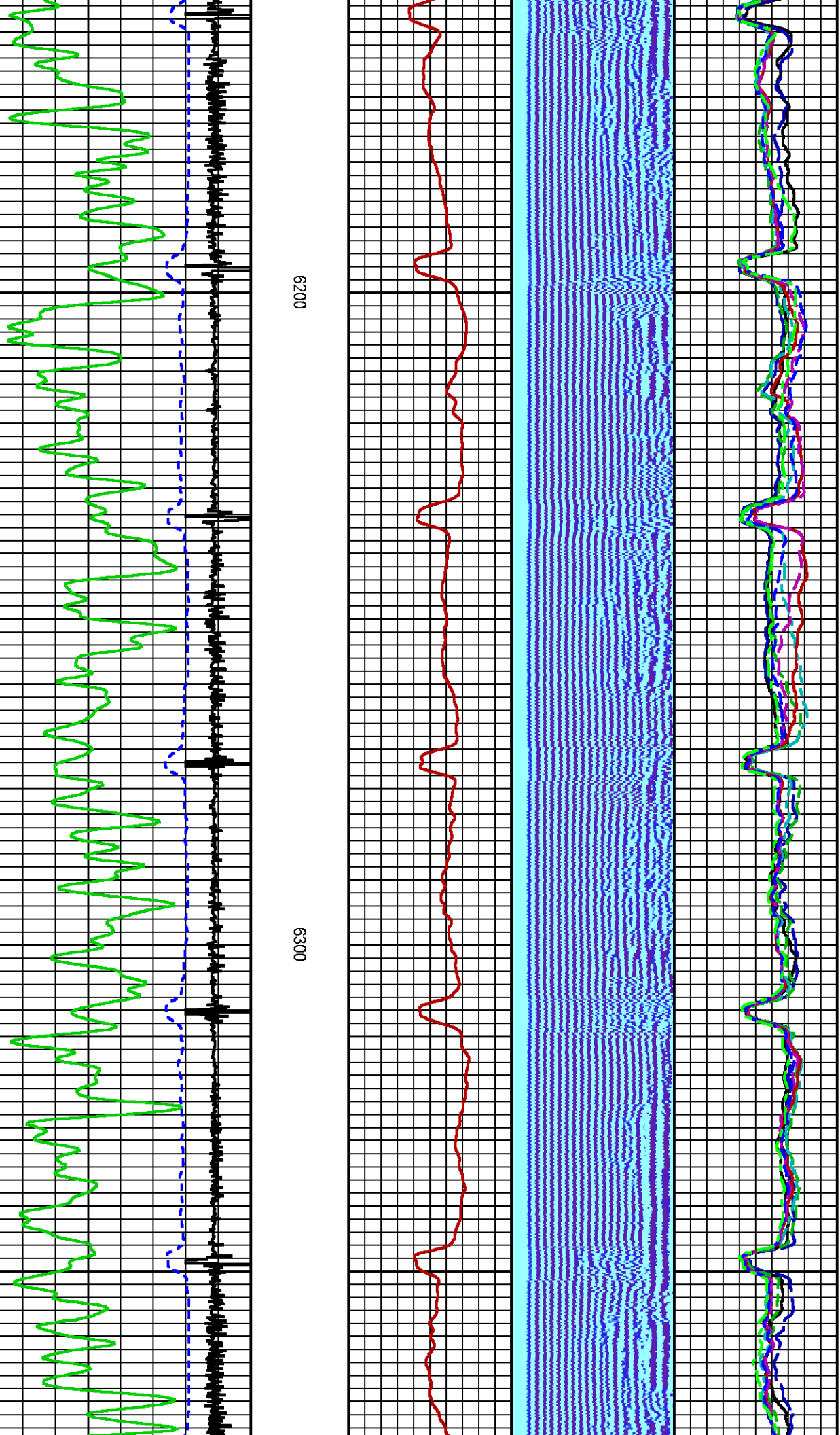
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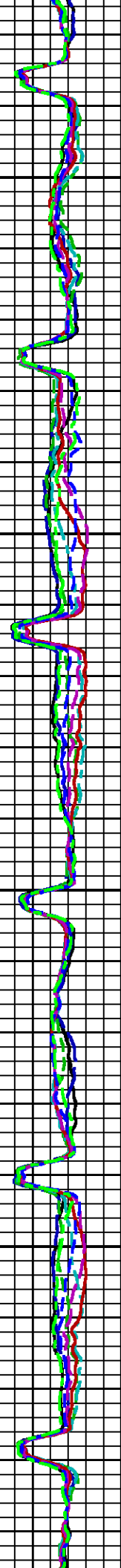
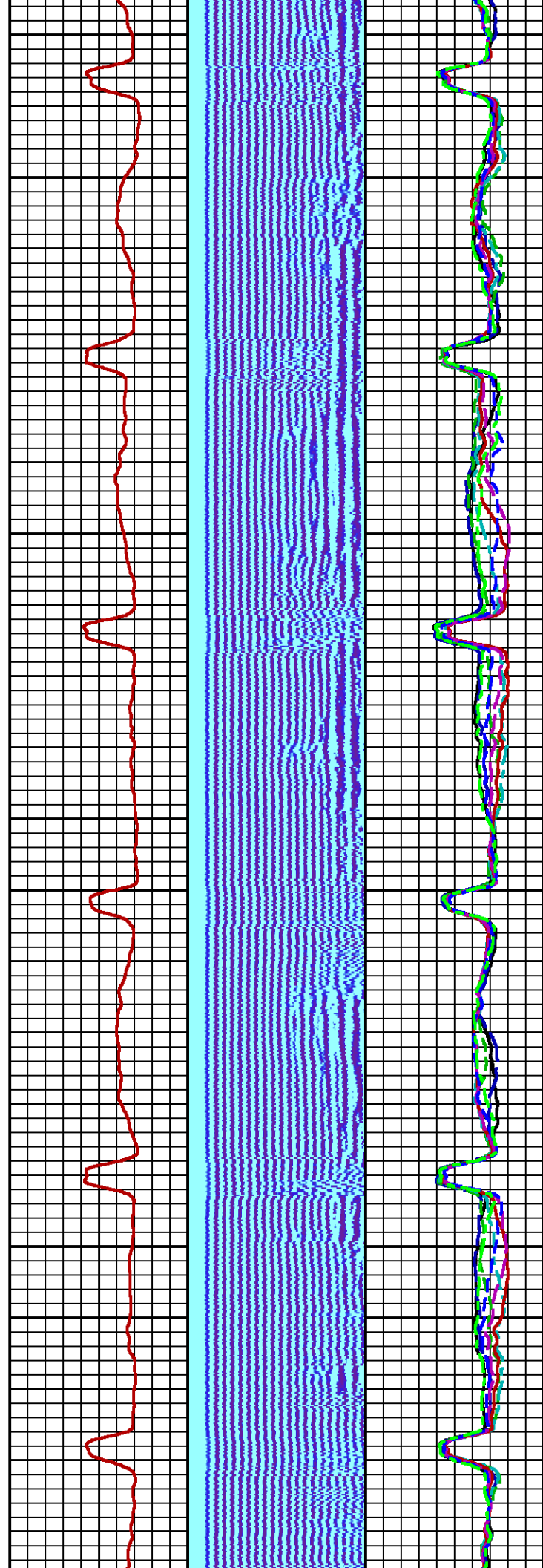
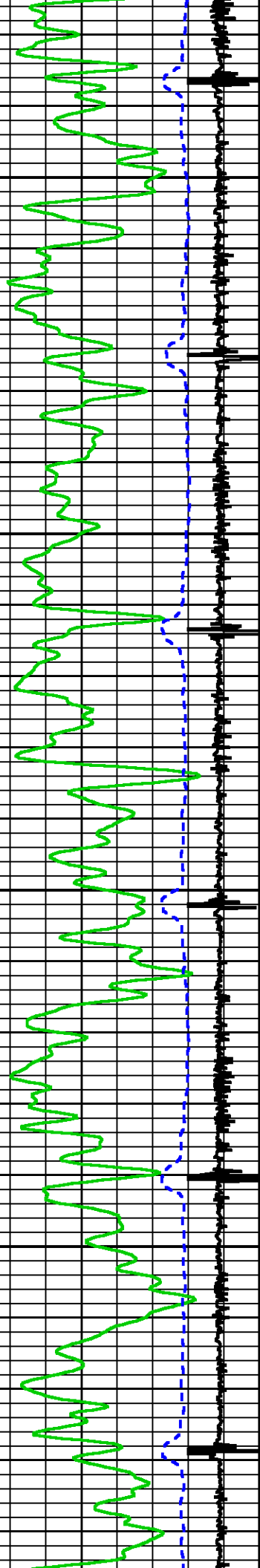
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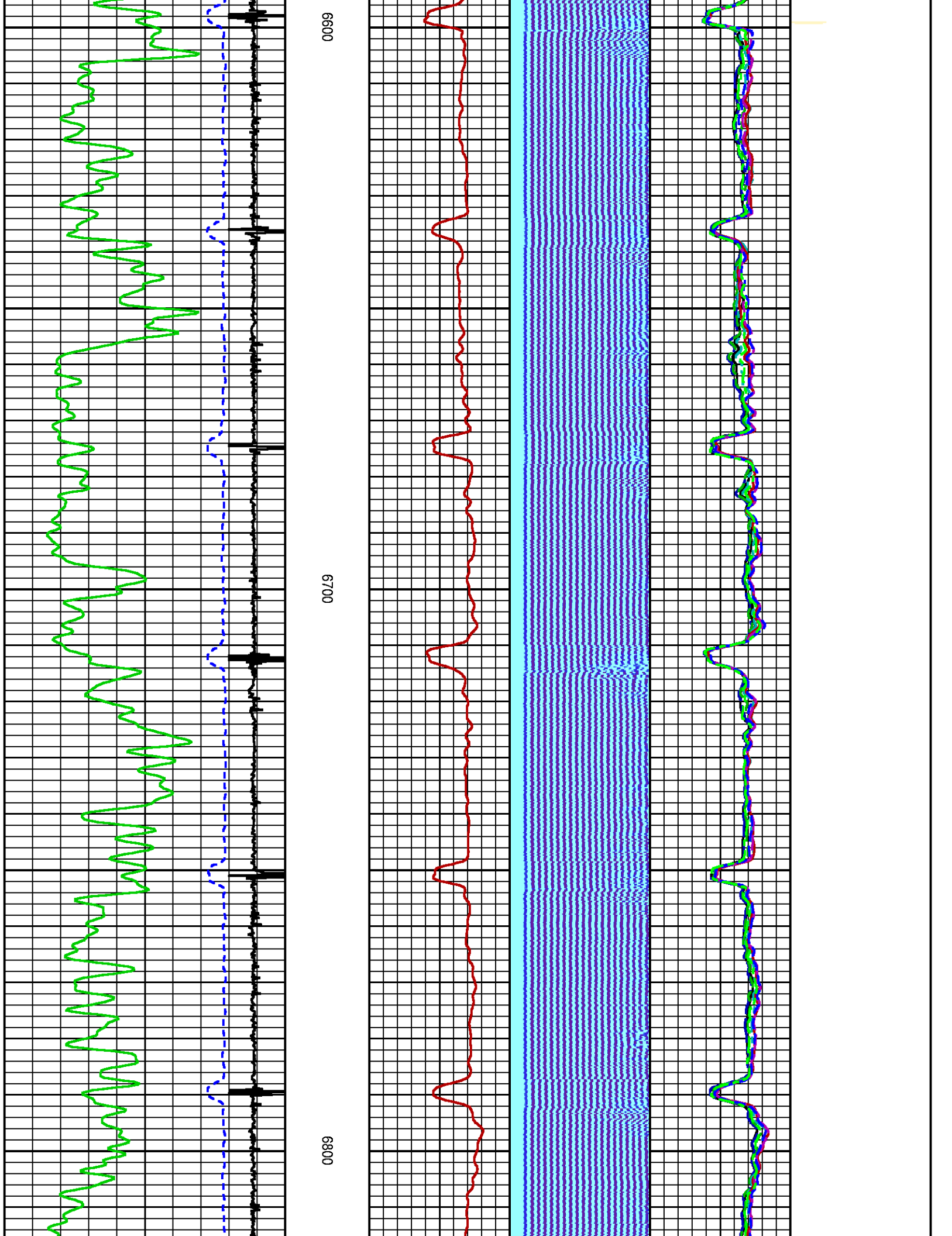
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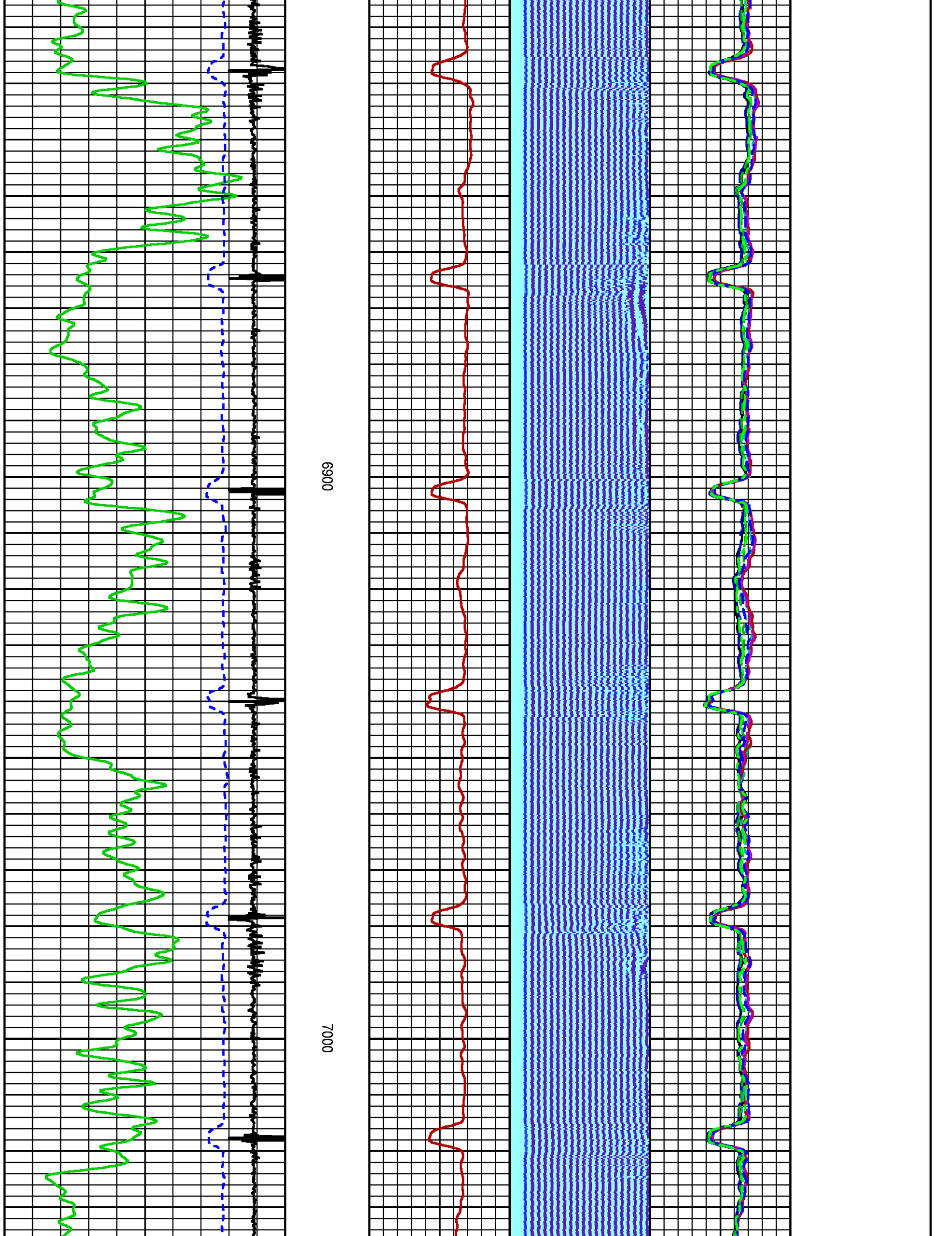
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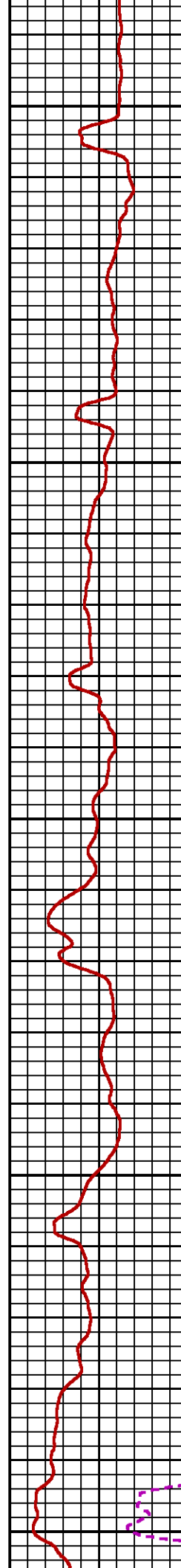
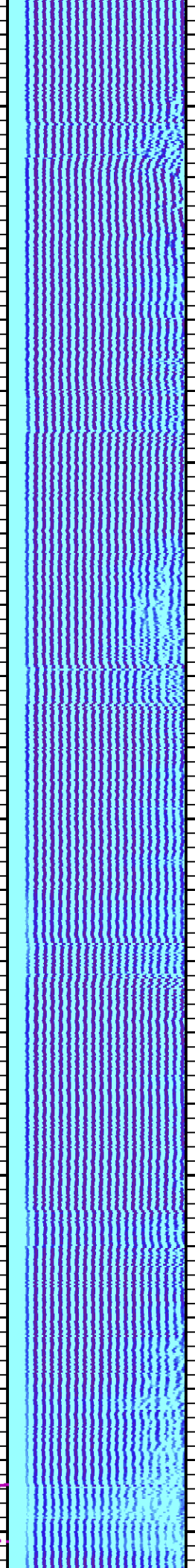
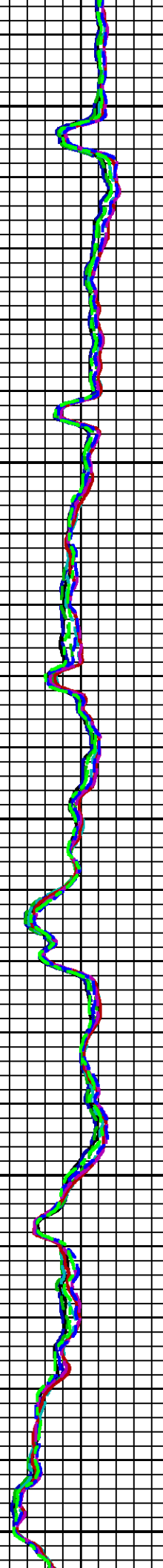
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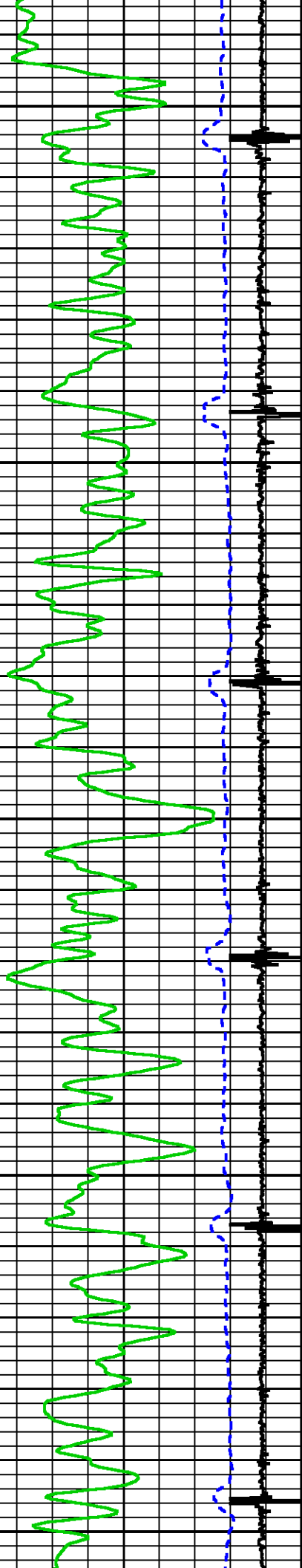


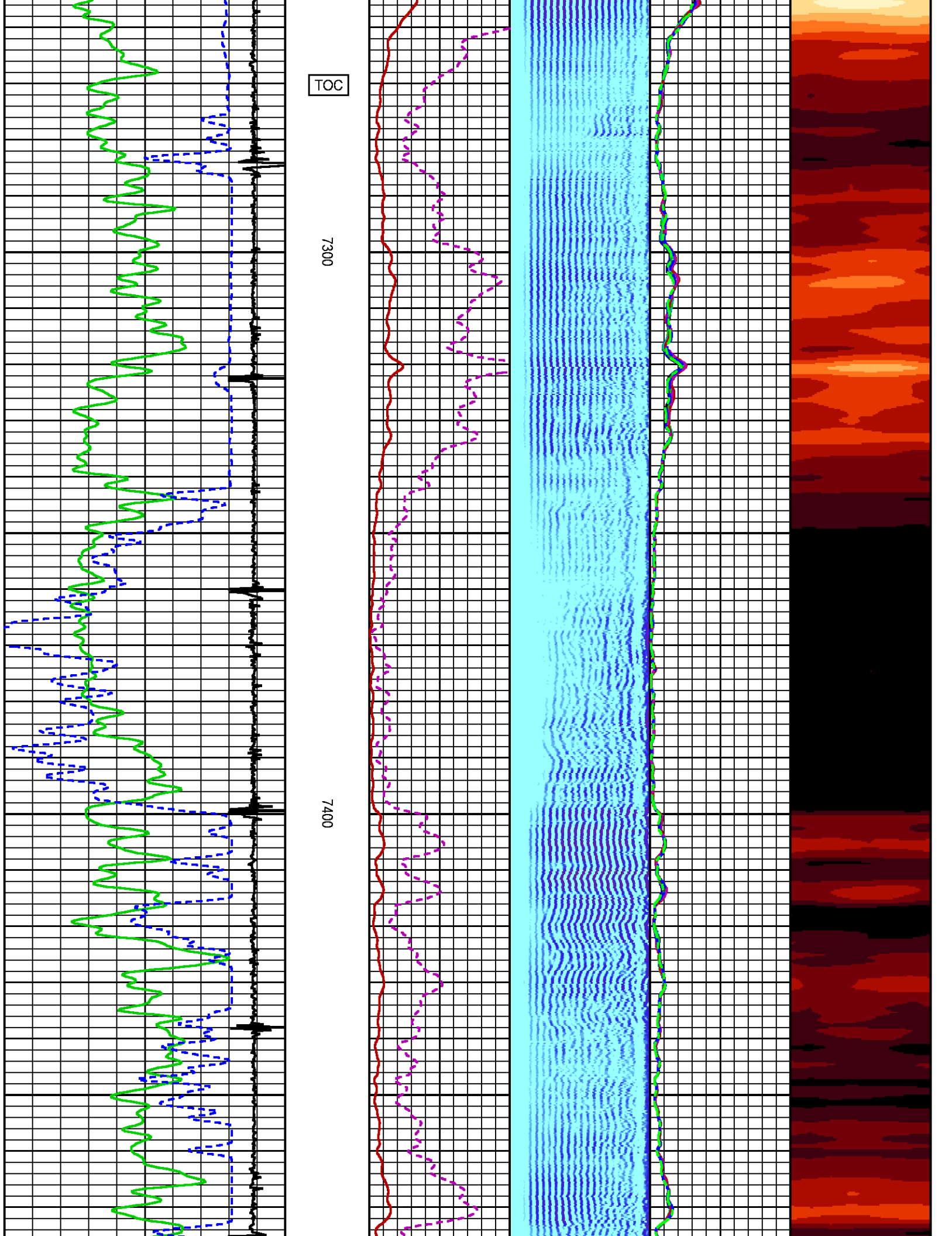


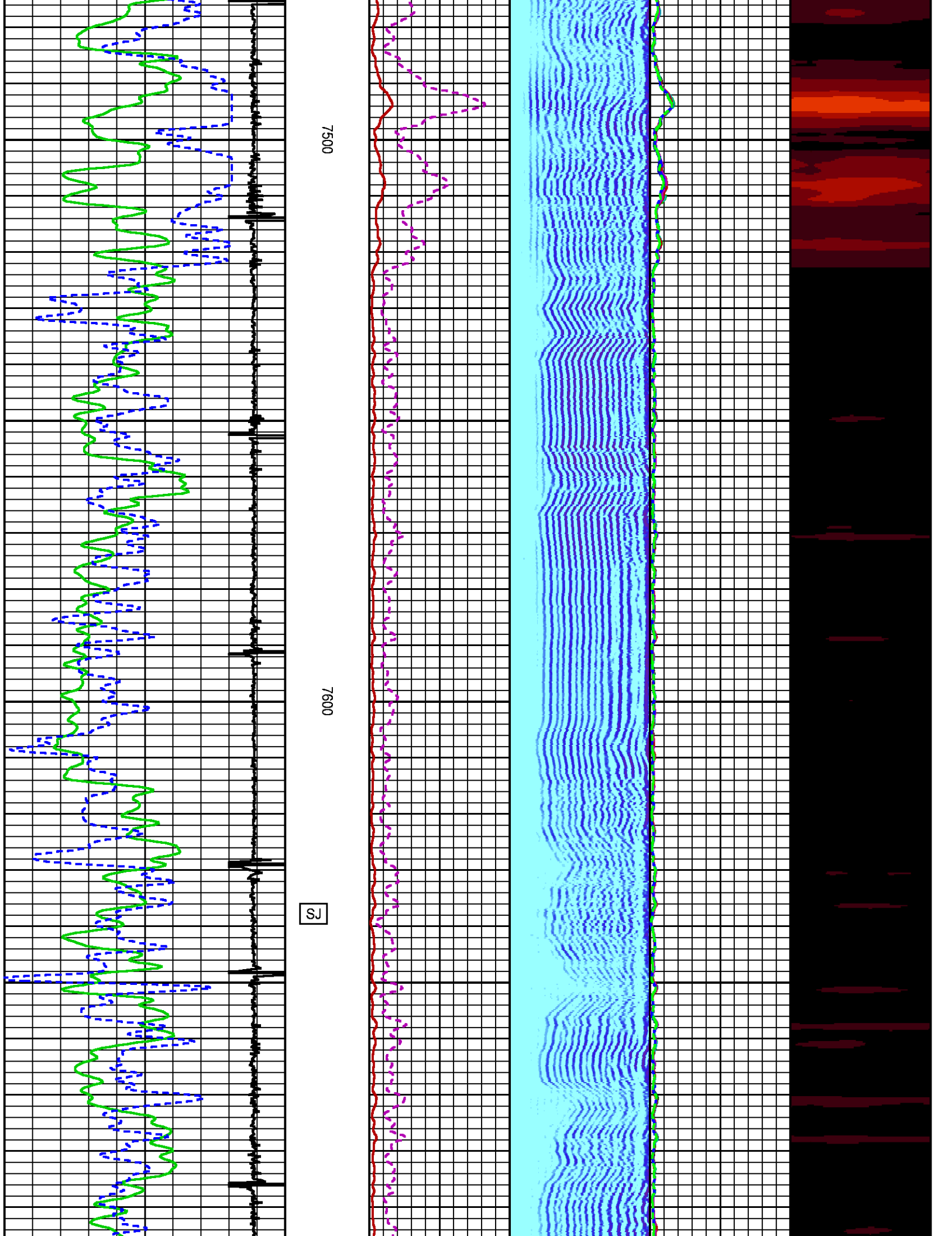


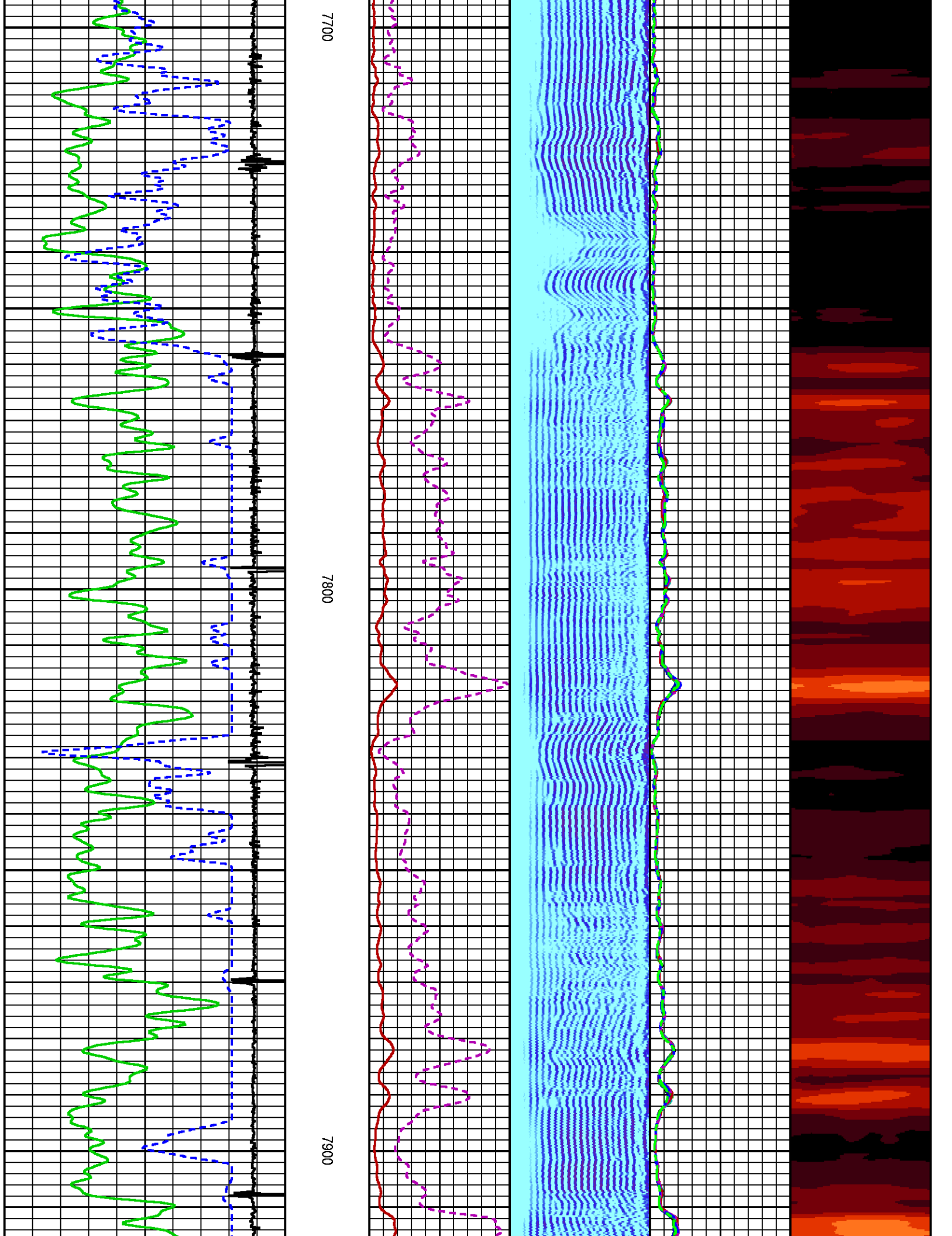
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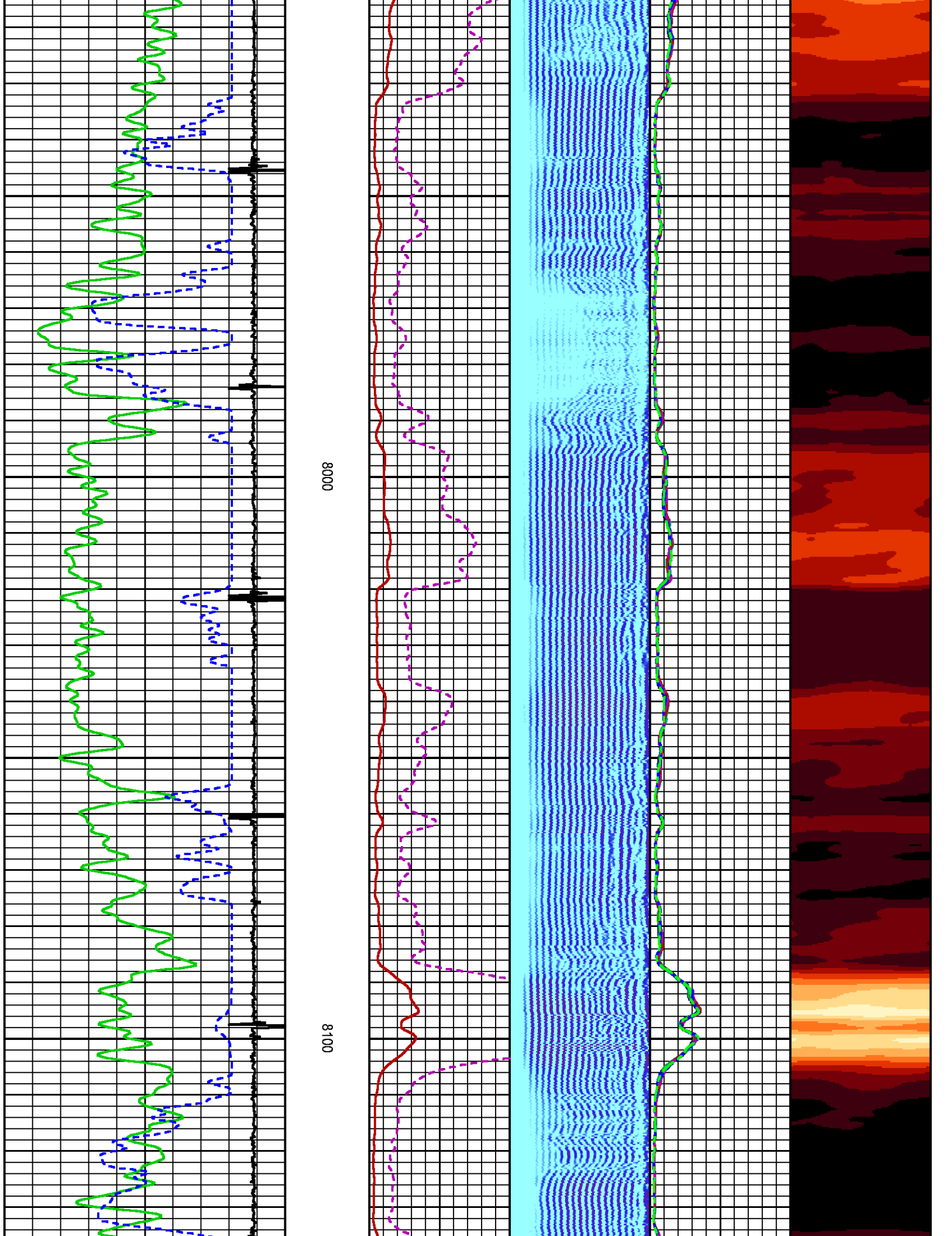
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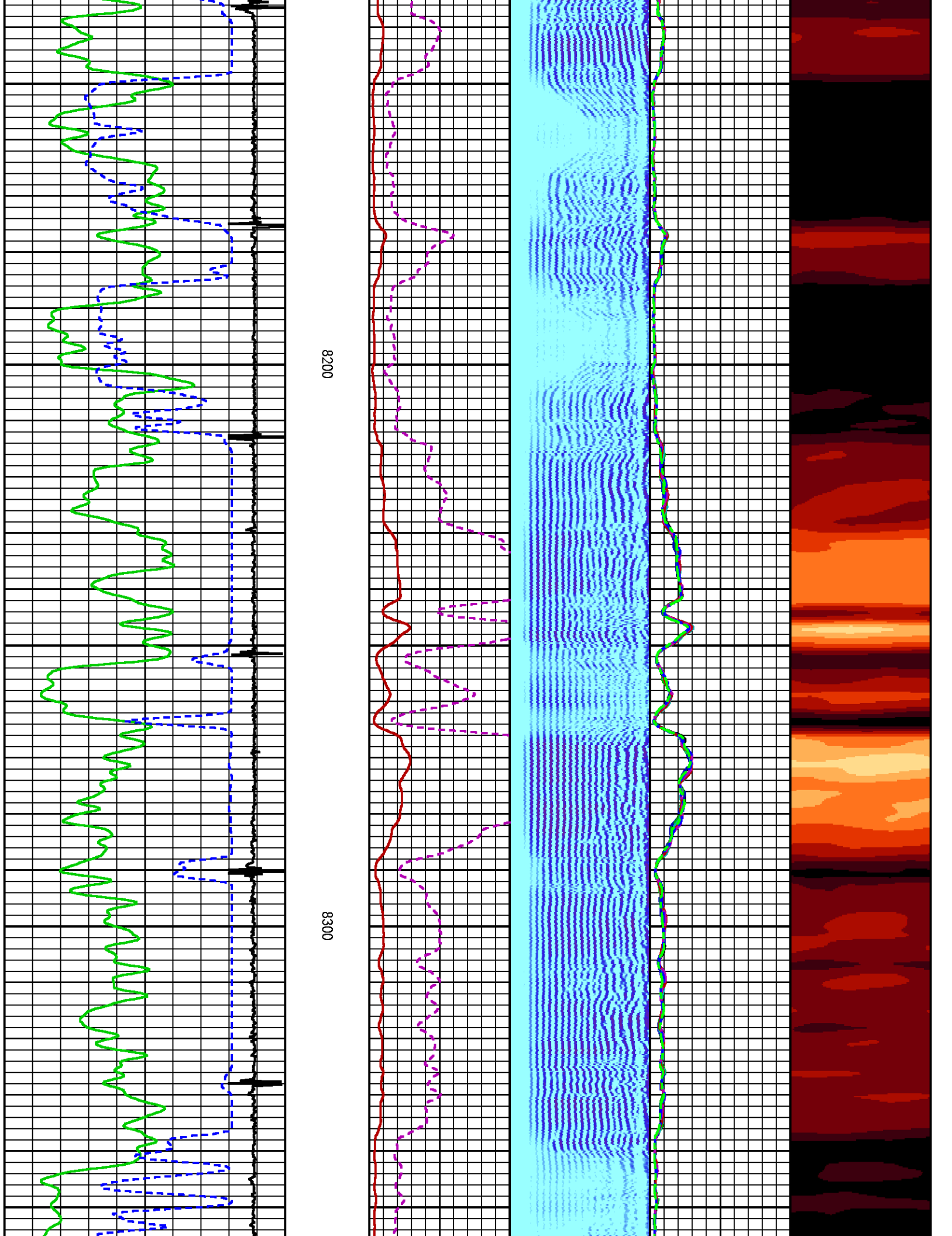






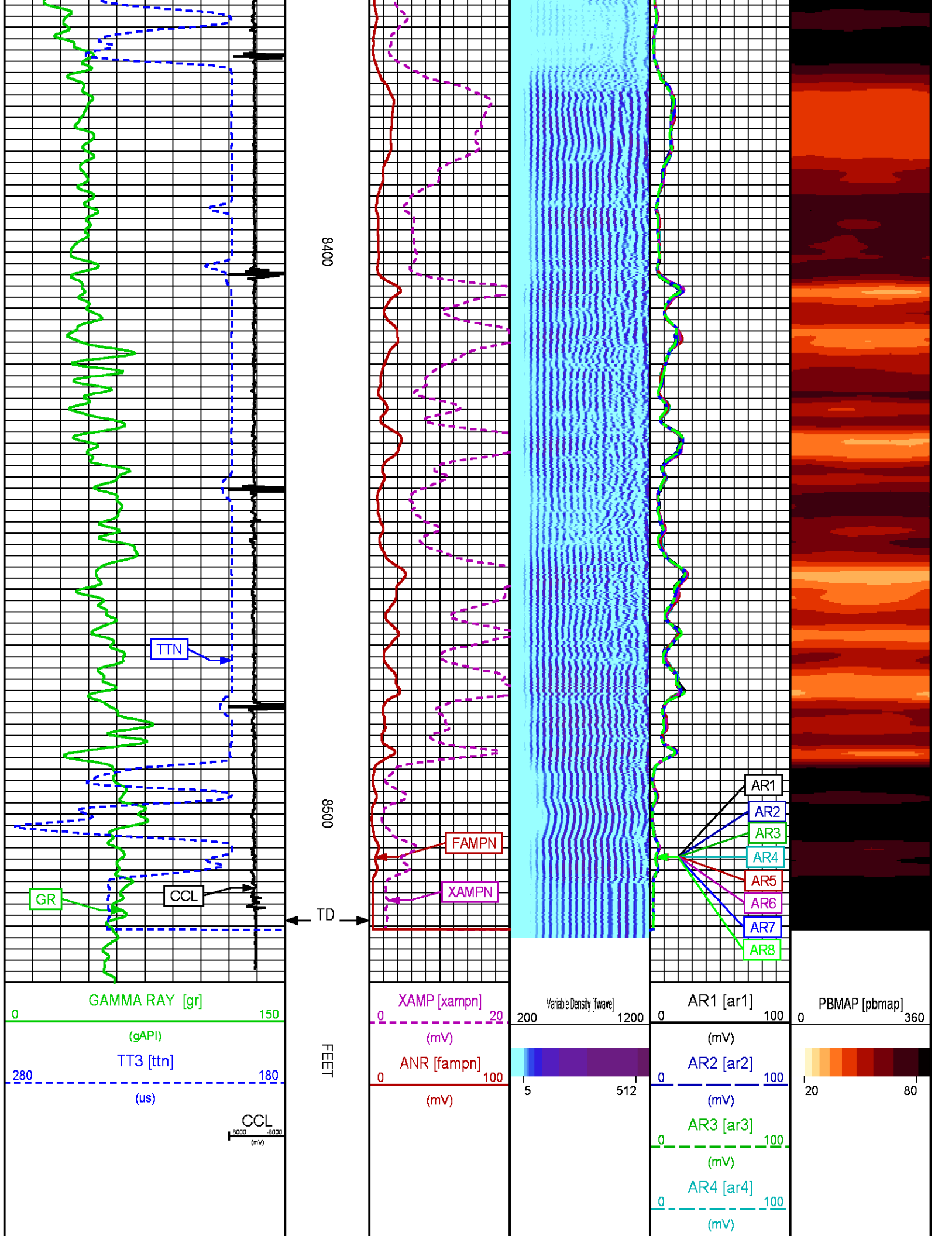


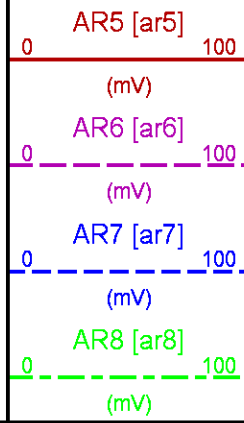




8200

8300





REPEAT PASS

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

Patches: 2

Plotted: Sat May 12 20:42:34 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: C:\Users\newetimj\Desktop\HG Federal 35-01WRPM DATA_MAY10_2018\p012g01.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 8206.500 ft BOTTOM DEPTH: 8467.750 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	0.00		TOP	BOTTOM

ANALOG RAL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
AMPLITUDE WINDOW (NEAR)	AMP WINDOW START (fgp1*)	186	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	186	us	"	"
	AMP WINDOW START (fgp3*)	186	us	"	"
	AMP WINDOW START (fgp4*)	186	us	"	"
	AMP WINDOW START (fgp5*)	186	us	"	"
	AMP WINDOW START (fgp6*)	186	us	"	"
	AMP WINDOW START (fgp7*)	186	us	"	"
	AMP WINDOW START (fgp8*)	186	us	"	"
	AMP WINDOW START (fgpn*)	186	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	199	us	"	"
	TT WINDOW LENGTH	500	us	"	"
	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"
RAL CASING PARAMETERS	PPT NEAR	200.465	us	"	"
RAL TOOL DELAY	TOOL DELAY (str1*)	-72	us	"	"
	TOOL DELAY (str2*)	-72	us	"	"
	TOOL DELAY (str3*)	-72	us	"	"
	TOOL DELAY (str4*)	-72	us	"	"
	TOOL DELAY (str5*)	-72	us	"	"
	TOOL DELAY (str6*)	-72	us	"	"

	TOOL DELAY (str7*)	-72	us	"	"
	TOOL DELAY (str8*)	-72	us	"	"
	TOOL DELAY (strn*)	-72	us	"	"
BASELINE NOISE (NEAR)	NOISE WINDOW START	125	us	"	"
	NOISE WINDOW LENGTH	25	us	"	"

PERCENT BOND CEMENT MAP

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
RAL FREE PIPE AMPLITUDE	FREE AMP REC 1	80	mV	TOP	BOTTOM
	FREE AMP REC 2	80	mV	"	"
	FREE AMP REC 3	80	mV	"	"
	FREE AMP REC 4	80	mV	"	"
	FREE AMP REC 5	80	mV	"	"
	FREE AMP REC 6	80	mV	"	"
	FREE AMP REC 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	2	mV	"	"
	FULL BOND AMP REC 2	2	mV	"	"
	FULL BOND AMP REC 3	2	mV	"	"
	FULL BOND AMP REC 4	2	mV	"	"
	FULL BOND AMP REC 5	2	mV	"	"
	FULL BOND AMP REC 6	2	mV	"	"
	FULL BOND AMP REC 7	2	mV	"	"
	FULL BOND AMP REC 8	2	mV	"	"

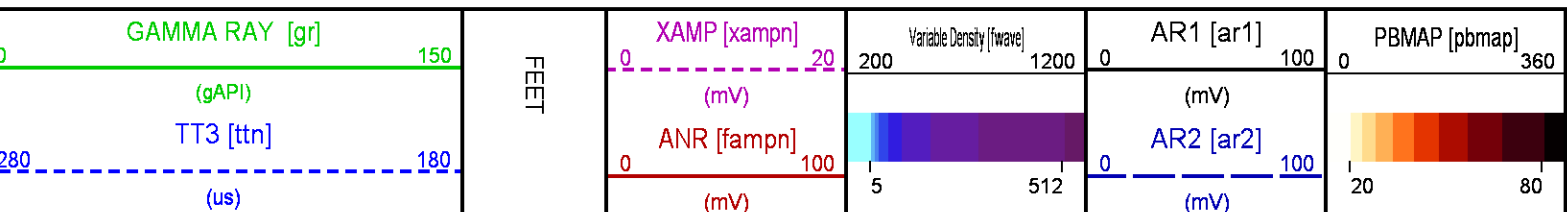
CURVE DESCRIPTION REPORT

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

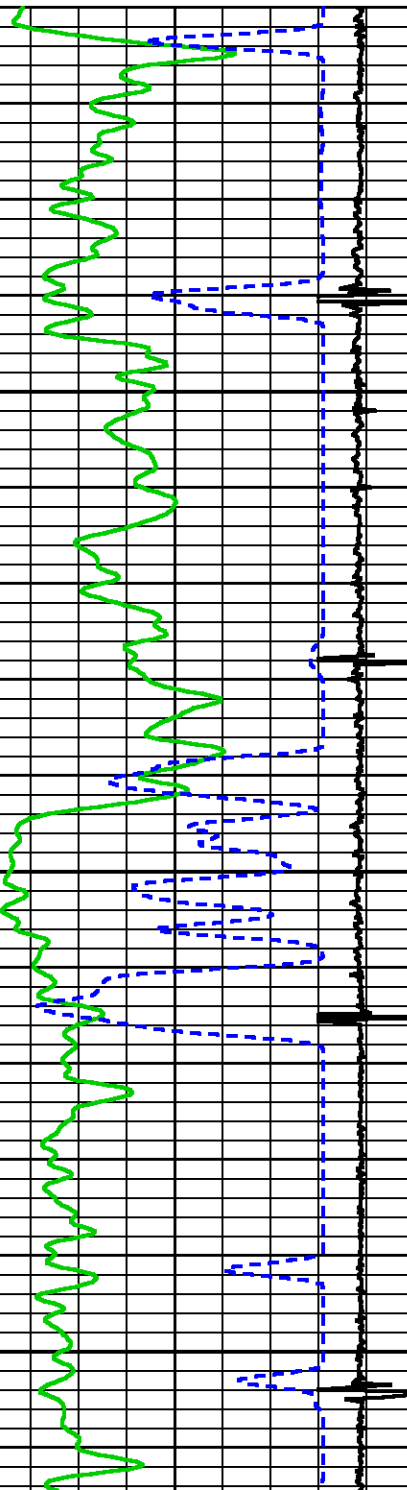
CURVE MEASURE POINT OFFSET

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

Presentation : BHI4WM4ZW1:C:\Users\newetimj\Desktop\HG Federal 35-01WRPM DATA_MAY10_2018\35-01W_RAL_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 8260 - 8499.5 Feet
Data File 1 : F1 : BHI4WM4ZW1:C:\Users\newetimj\Desktop\HG Federal 35-01WRPM DATA_MAY10_2018\35-01W_RAL_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : HG FED 35-01W
Field : ALKALI CREEK
File Interval : 8206.25 - 8500.75 Feet
OCT : p012g

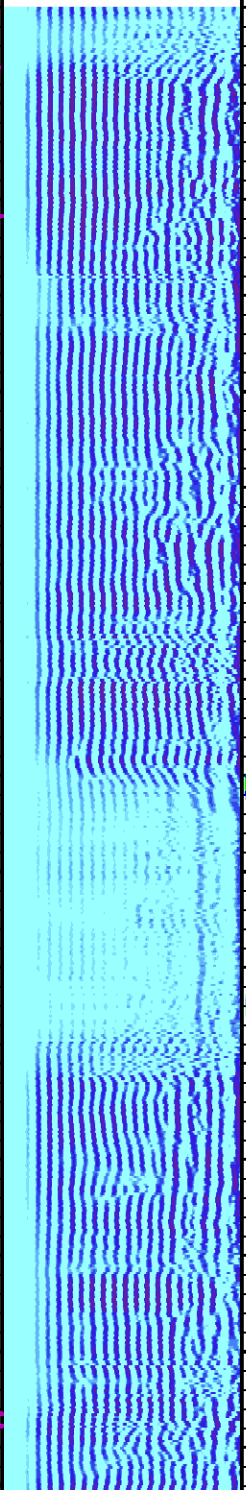
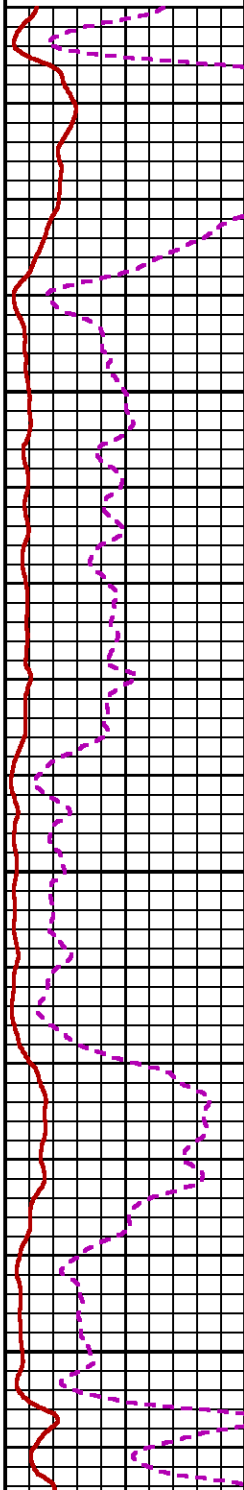


CCL
8000 6000
(mV)

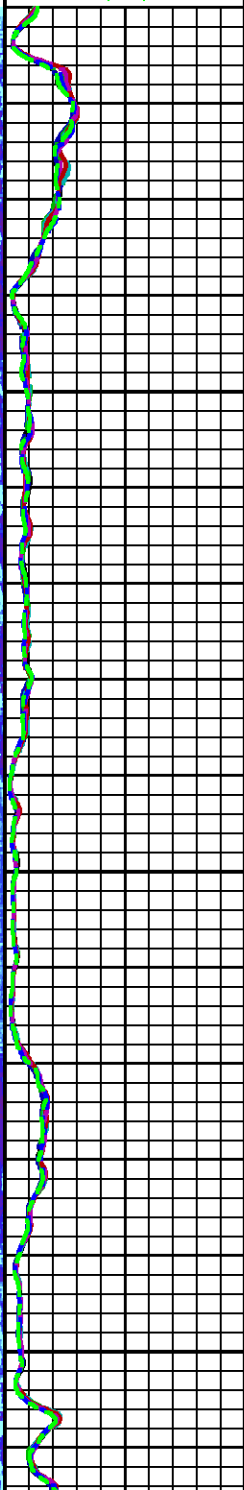


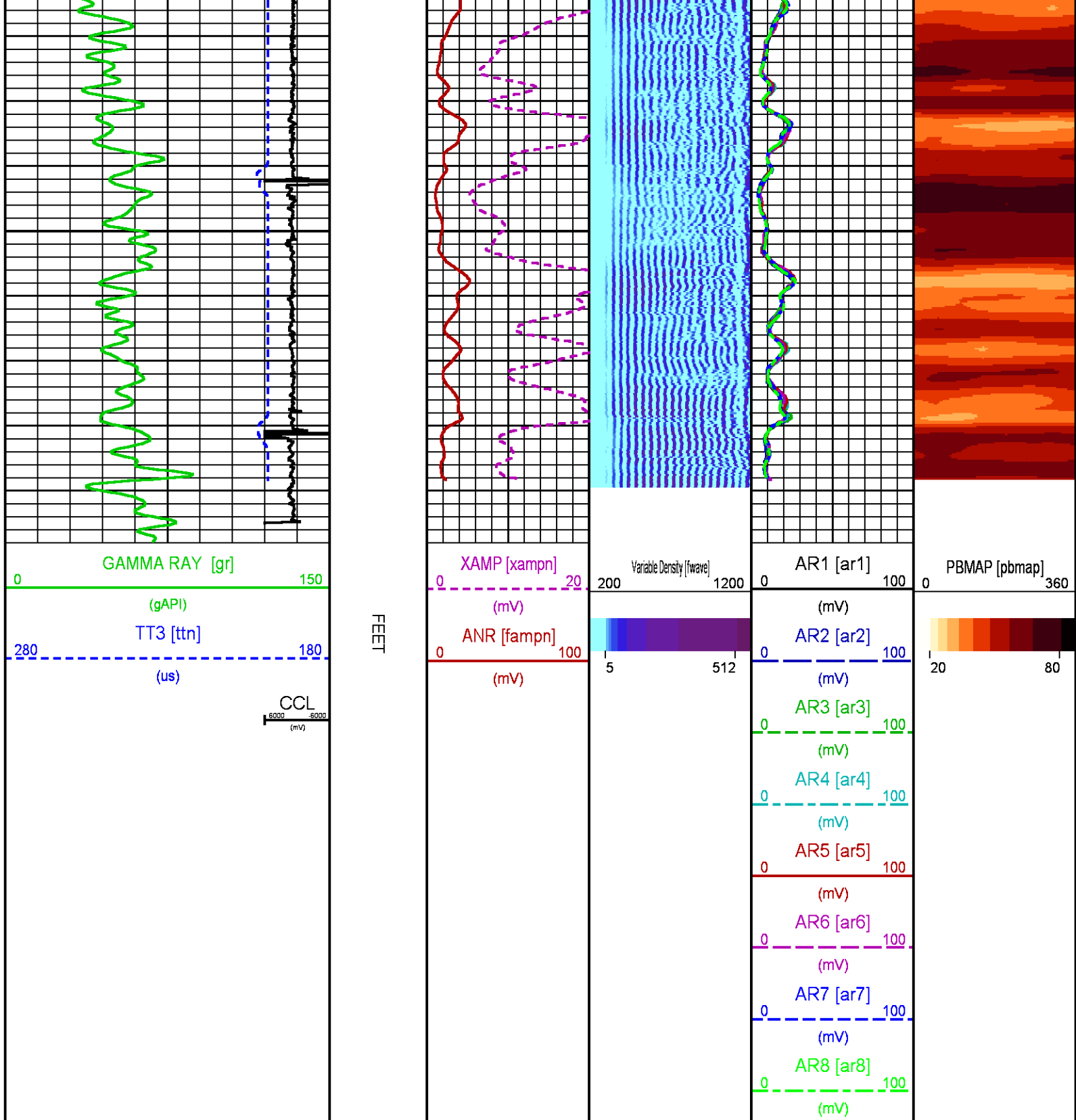
8300

8400



AR3 [ar3] 0 100 (mV)
AR4 [ar4] 0 100 (mV)
AR5 [ar5] 0 100 (mV)
AR6 [ar6] 0 100 (mV)
AR7 [ar7] 0 100 (mV)
AR8 [ar8] 0 100 (mV)





CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_HG_FED_35-01W/p012g.tp1

RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 11871500

DATE/TIME PERFORMED: Fri May 11 14:44:48 2018

UNIT #: 5753XD 10412898

	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)	-0.62	-0.38	-0.16	-0.67	-0.32	-0.18	-0.10	1.42	0.04	-0.97	0.00
AMP FLUID (mV)	196	193	191	195	195	196	196	192	192	268	190
TT (us)	218	218	217	217	217	217	216	216	218	325	218
M FACTOR	0.51	0.52	0.52	0.51	0.51	0.51	0.51	0.53	0.52	0.56	0.53

RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #:	1426XA 11871500	DATE/TIME PERFORMED:	Sat May 12 12:19:09 2018	DAYS SINCE CAL:	0
UNIT #:	5753XD 10412898	CABLE #:	4291SM SMALL1		

	NEAR (mV)	R1 (mV)	R2 (mV)	R3 (mV)	R4 (mV)	R5 (mV)	R6 (mV)	R7 (mV)	R8 (mV)	FAR (mV)	CAL (mV)
ZERO	-0.32	-0.37	0.02	-0.41	-0.38	-0.06	-0.13	0.51	0.16	-0.26	0.00
AMP AIR	0.60	0.63	0.48	0.52	0.69	0.24	0.57	-0.07	0.24	0.87	99.82

SHOP M FACTOR	SHOP A FACTOR	WIRELINE FACTOR
0.53	0.00	1.00

GR PRIMARY CALIBRATION SUMMARY

TOOL #:	1355XA 12670180	DATE/TIME PERFORMED:	Thu Mar 29 16:39:27 2018
UNIT #:	4352 ML4352	CALB JIG #:	4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	41.51	221.16	179.6	0.557	23.11	123.11	100

GR PRIMARY VERIFICATION SUMMARY

TOOL #:	1355XA 12670180	DATE/TIME PERFORMED:	Thu Mar 29 16:50:56 2018
UNIT #:	4352 ML4352	VERI JIG #:	4702NK DA_228

	BACKGROUND (cts)	CALBRTR ON (cts)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	40.09	214.13	0.557	22.32	119.20	96.88
						90.00 110.00

INSTRUMENT CONFIGURATION

A3 CABLEHEAD

Diameter : 1.37"

18.85'

RADIAL BOND TOOL

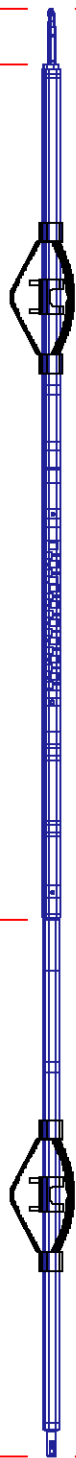
Diameter : 2.75"
Length : 11.17'
Weight : 126 lbs
Series : 1426XA
Mnemonic : RAL
Measure Point: 5.75': XMTR
Measure Point: 4.21': NEAR MP
Measure Point: 3.25': FAR MP
Measure Point: 2.67': NEAR RCVR
Measure Point: 0.75': FAR RCVR

XMTR — 12.71'
NEAR MP — 11.17'
FAR MP — 10.21'
NEAR RCVR — 9.62'
FAR RCVR — 7.71'
CCL — 5.79'
GR — 1.67'
TEMP — 0.17'

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: 18.85'
TOTAL WEIGHT: 227 lbs
MAX DIAMETER: 0'4.00"



**BAKER
HUGHES**
a GE company



COMPANY LARAMIE ENERGY LLC
WELL HG FED 35-01W
FIELD ALKALI CREEK
COUNTY MESA **STATE** COLORADO

FILE NO:
CH131323
API NO:
05077093060000

LOCATION:

LAT: 39.32834 N
LONG: 107.63516 W

SEC 26 **TWP** 8S **RGE** 92W

ELEVATIONS:

KB 7999 FT
DF
GL 7985 FT

DATE 12-May-2018