



**RADIAL CEMENT BOND LOG**

FILE NO: CH137301  
 COMPANY: LARAMIE ENERGY LLC  
 WELL: HG FED 35-01W  
 FIELD: ALKALI CREEK  
 COUNTY: MESA STATE: COLORADO  
 API NO: 05077093060000

Ver. 4.10  
 LOCATION: LAT: 39.32834 N LONG: 107.63516 W  
 SEC 26 TWP 8S RGE 92W  
 OTHER SERVICES: NONE

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	17-May-2018
RUN	TRIP
1	2
SERVICE ORDER	US137301
DEPTH DRILLER	8594 FT
DEPTH LOGGER	7650 FT
BOTTOM LOGGED INTERVAL	7650 FT
TOP LOGGED INTERVAL	5000 FT
TIME STARTED	11:30
TIME FINISHED	14:30
OPERATOR RIG TIME	3 HOURS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	NA
LOGGED CEMENT TOP	7270 FT
WELLHEAD PRESSURE	1000 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	95 FMIN
MAX. RECORDED TEMP.	NA
REFERENCE LOG	BAKER HUGHES RAL
REFERENCE LOG DATE	12-May-2018
EQUIP. NO.	ML-4268
LOCATION	GRAND JCT.
RECORDED BY	M. BAUKA
WITNESSED BY	J. GRUBICH

**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 2: \*1 OPERATION IN WELLBORE\*

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

LOGGED WITH 500 & 1000 PSI ON WELLHEAD

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

EQUIPMENT DATA					
RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	2	RAL	1426XA	11871500	CENTRALIZED
1	2	GR/CCL	1355XA	12670180	CENTRALIZED

# MAIN PASS 1000 PSI

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

Patches: 4

Plotted: Thu May 17 17:14:20 2018

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_HG\_FED\_35-01W/p012g06.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 4949.750 ft BOTTOM DEPTH: 7650.432 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*)	182	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	182	us	"	"
	AMP WINDOW START (fgp3*)	182	us	"	"
	AMP WINDOW START (fgp4*)	182	us	"	"
	AMP WINDOW START (fgp5*)	182	us	"	"
	AMP WINDOW START (fgp6*)	182	us	"	"
	AMP WINDOW START (fgp7*)	182	us	"	"
	AMP WINDOW START (fgp8*)	182	us	"	"
	AMP WINDOW START (fgpn*)	182	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	166	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*)	-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	"	"
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	3	mV	"	"
	FULL BOND AMP REC 2	3	mV	"	"
	FULL BOND AMP REC 3	3	mV	"	"
	FULL BOND AMP REC 4	3	mV	"	"

FULL BOND AMP REC 5	3	mV	"	"
FULL BOND AMP REC 6	3	mV	"	"
FULL BOND AMP REC 7	3	mV	"	"
FULL BOND AMP REC 8	3	mV	"	"

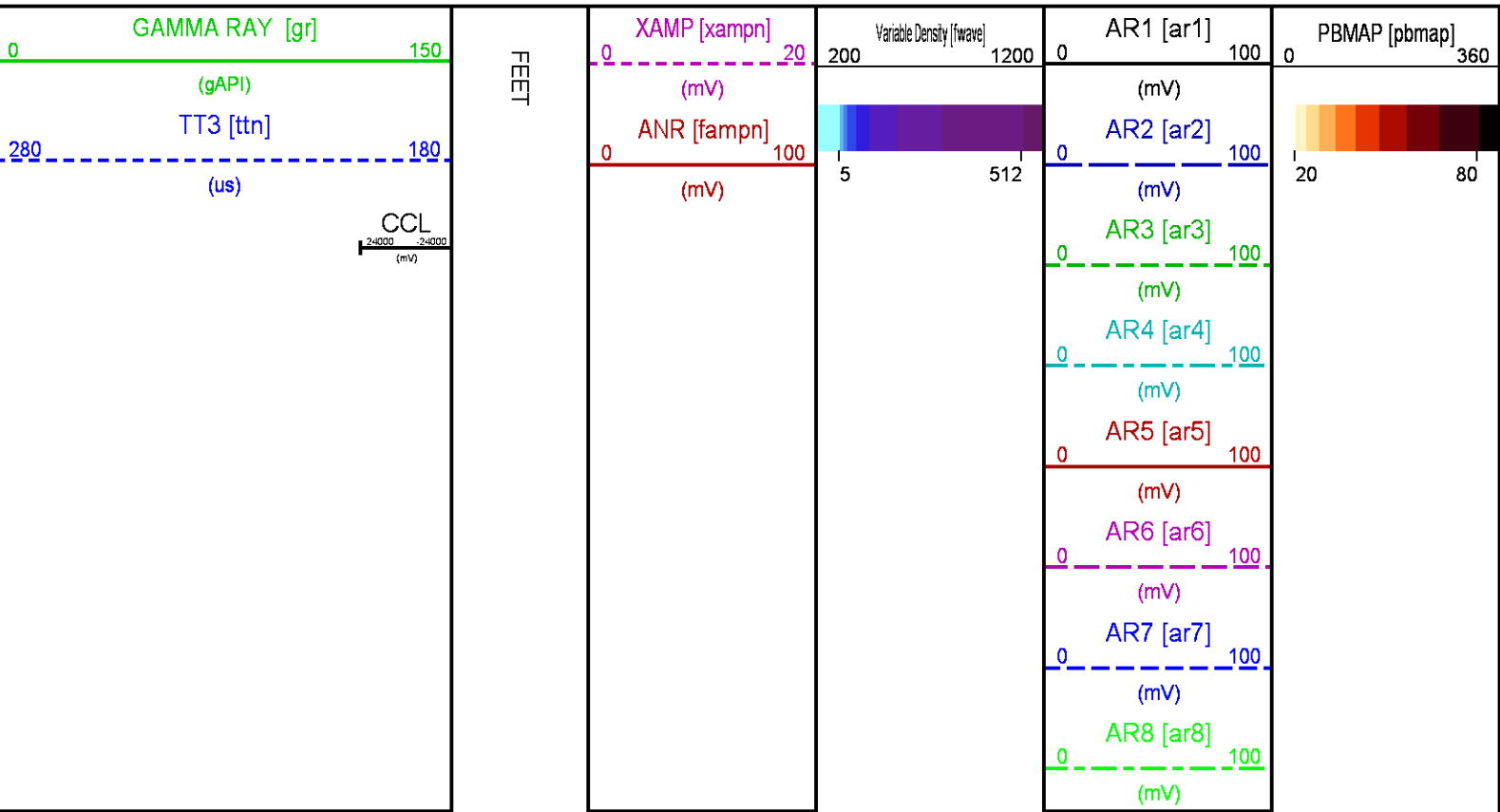
## CURVE DESCRIPTION REPORT

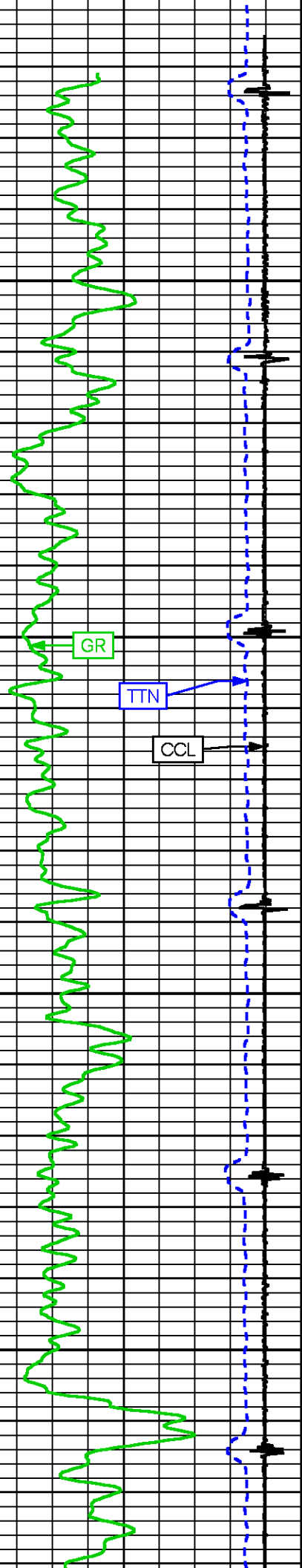
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

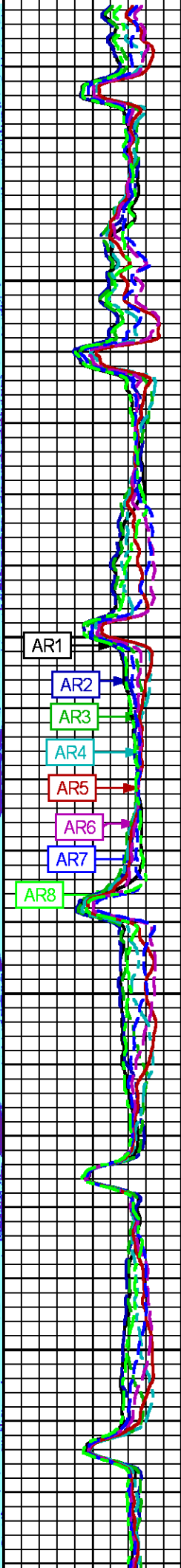
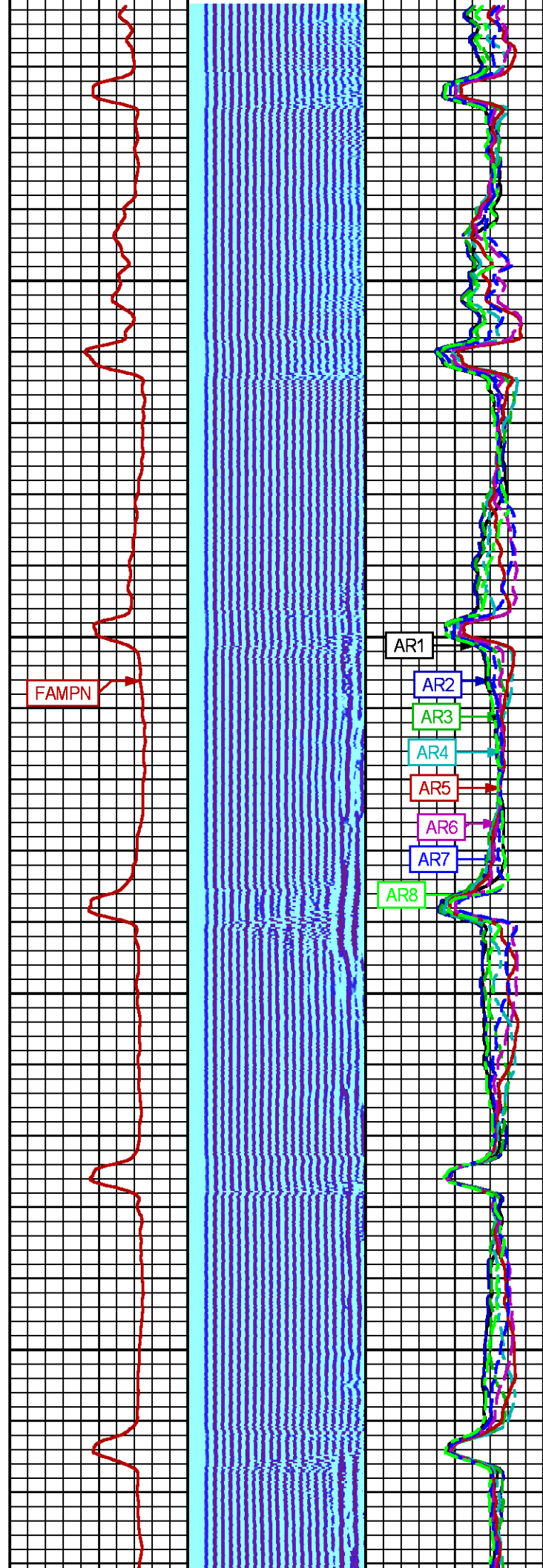
**Presentation** : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_MAIN\_1000.fvpdf [5"/100' Scale]  
**Plot Interval** : 4961.25 - 7680 Feet  
  
**Data File 1** : F1 : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_MAIN\_1000.xtf  
**Created On** : N/A  
**Company** : LARAMIE ENERGY LLC  
**Well** : HG FED 35-01W  
**Field** : ALKALI CREEK  
**File Interval** : 4949.5 - 7669.75 Feet  
**OCT** : p012g

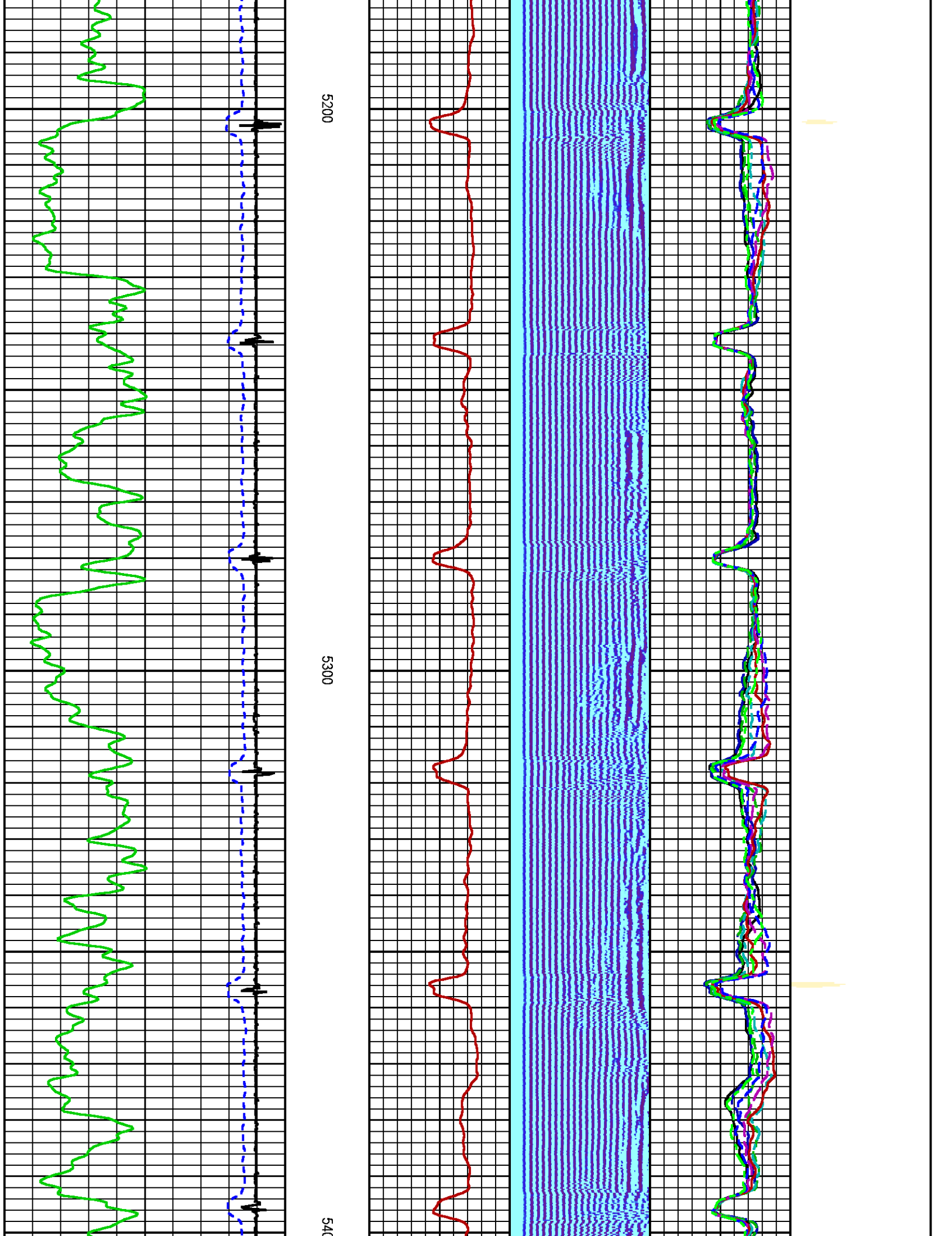


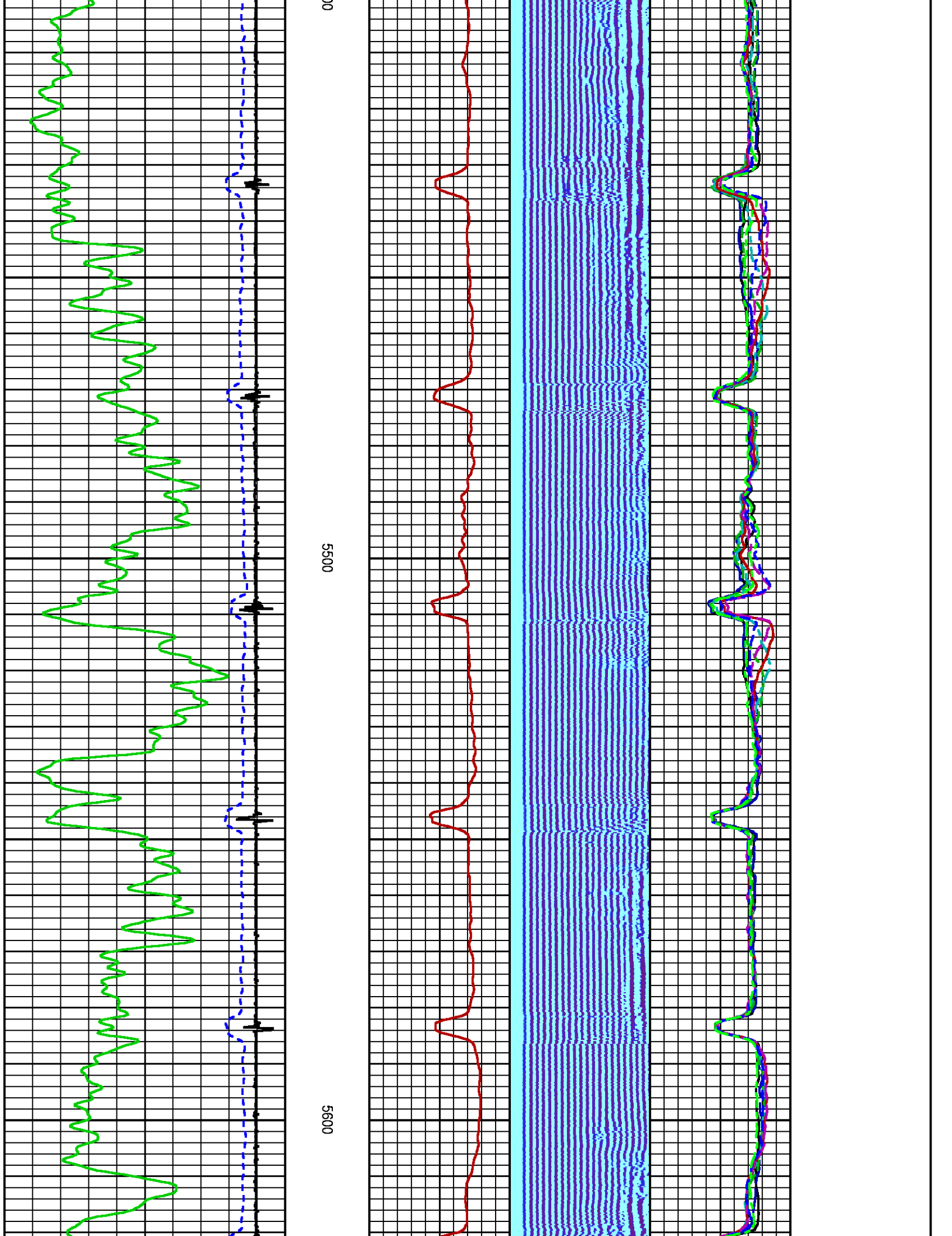


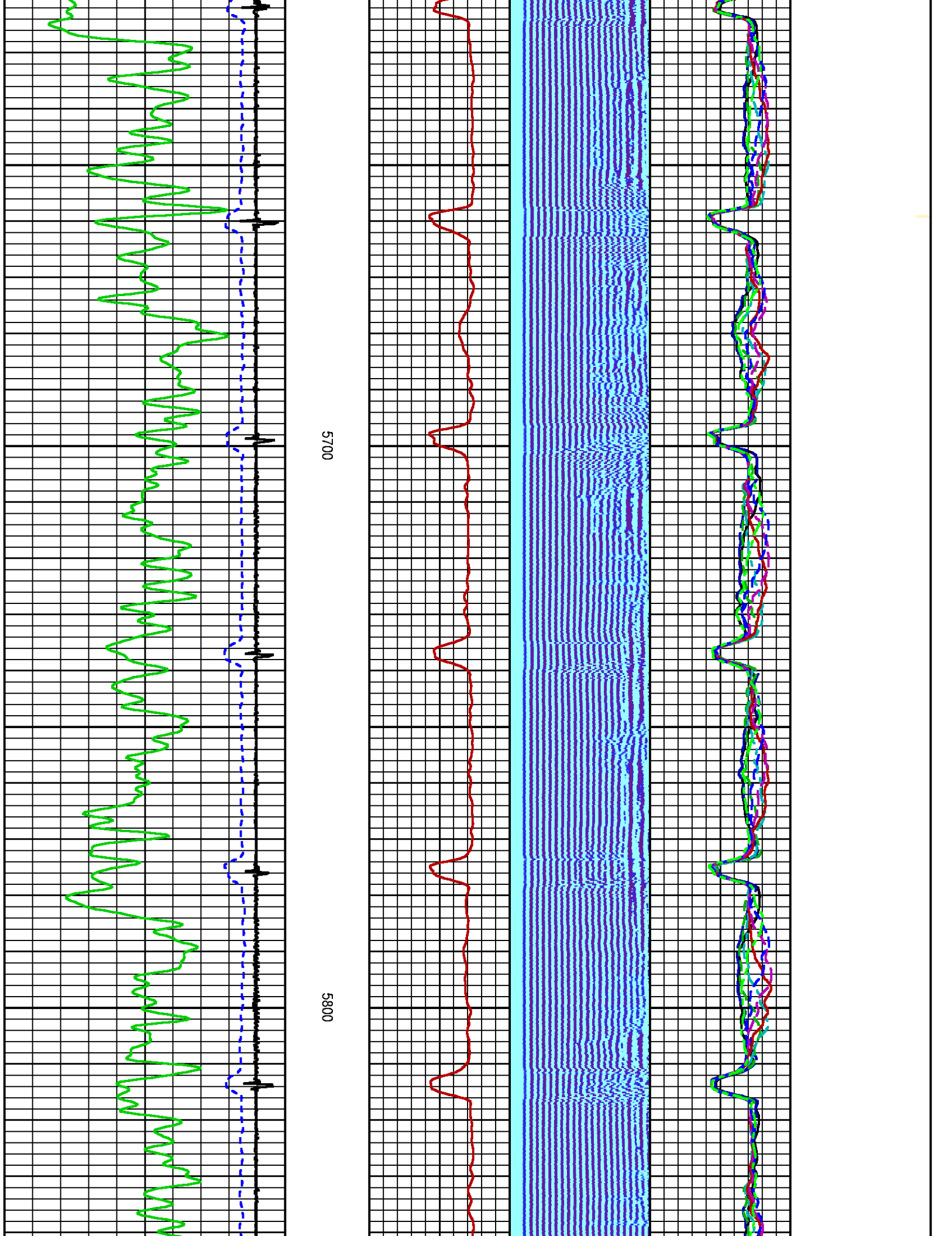
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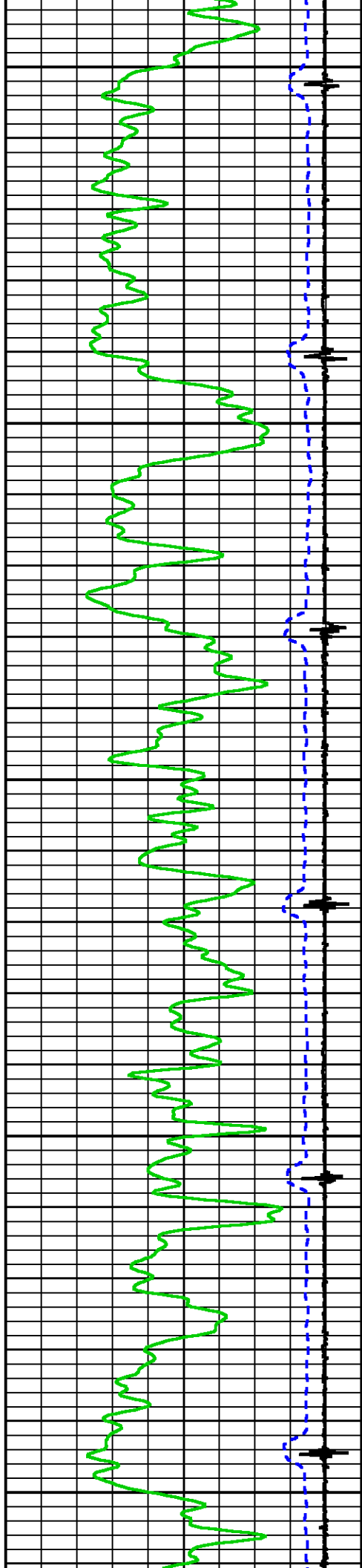
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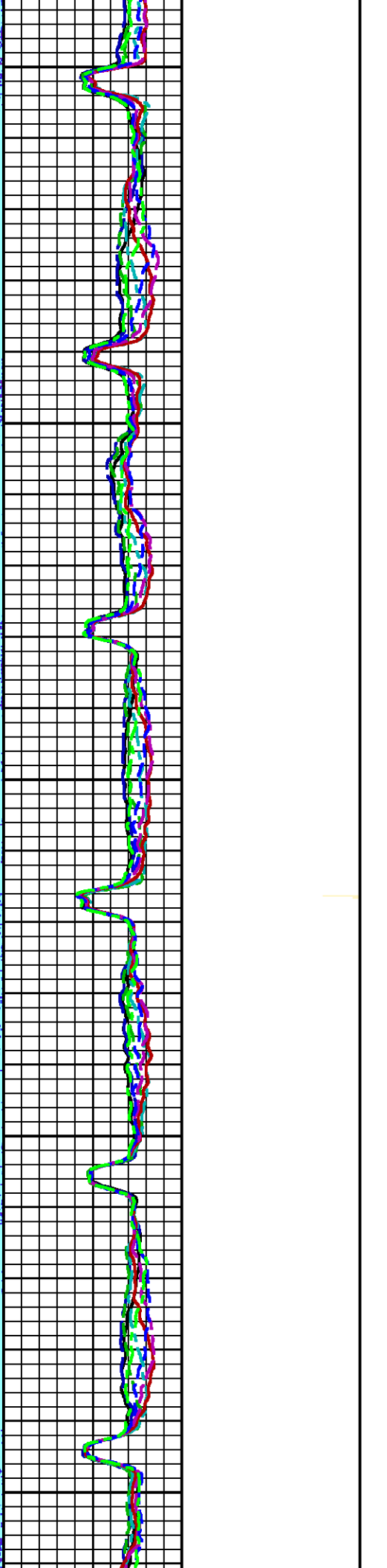
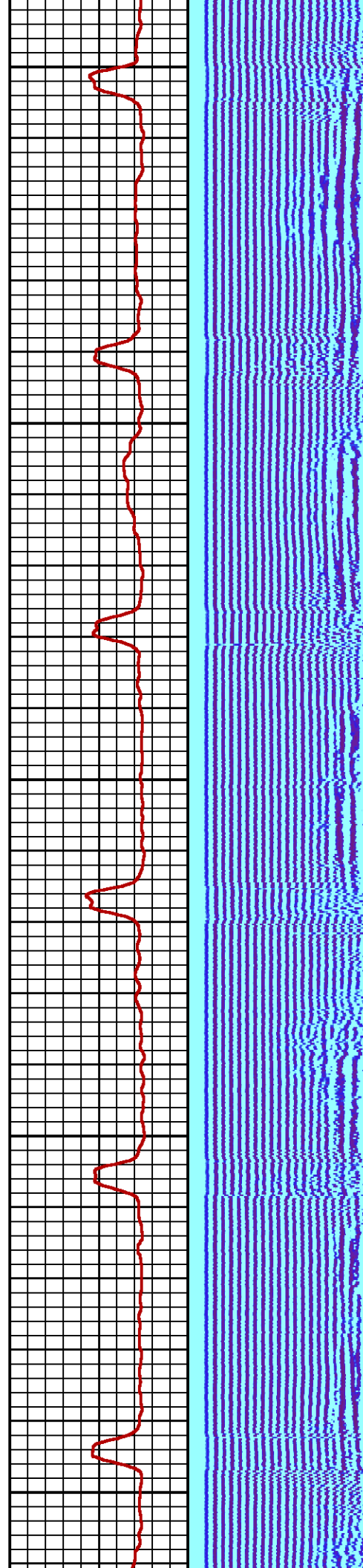


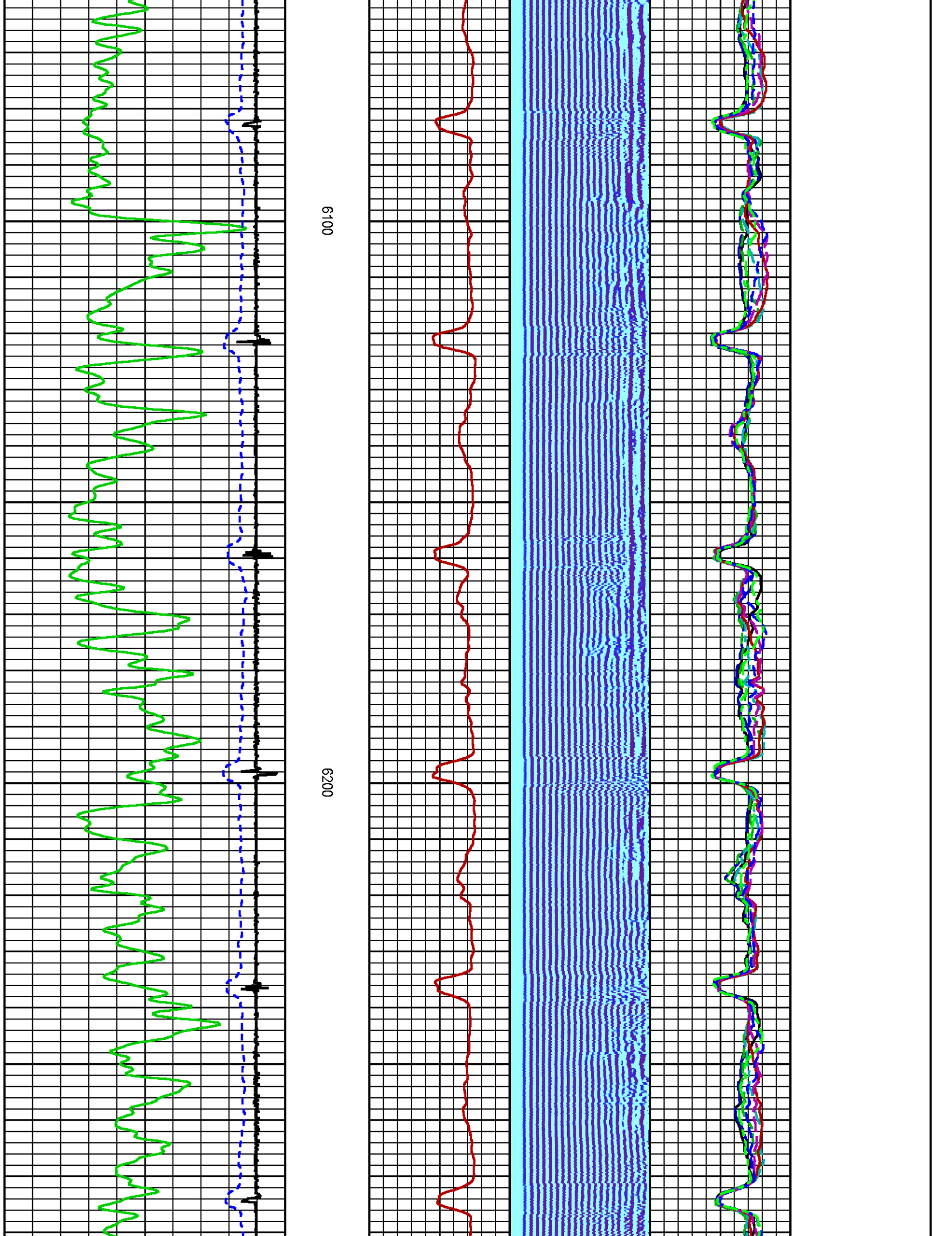




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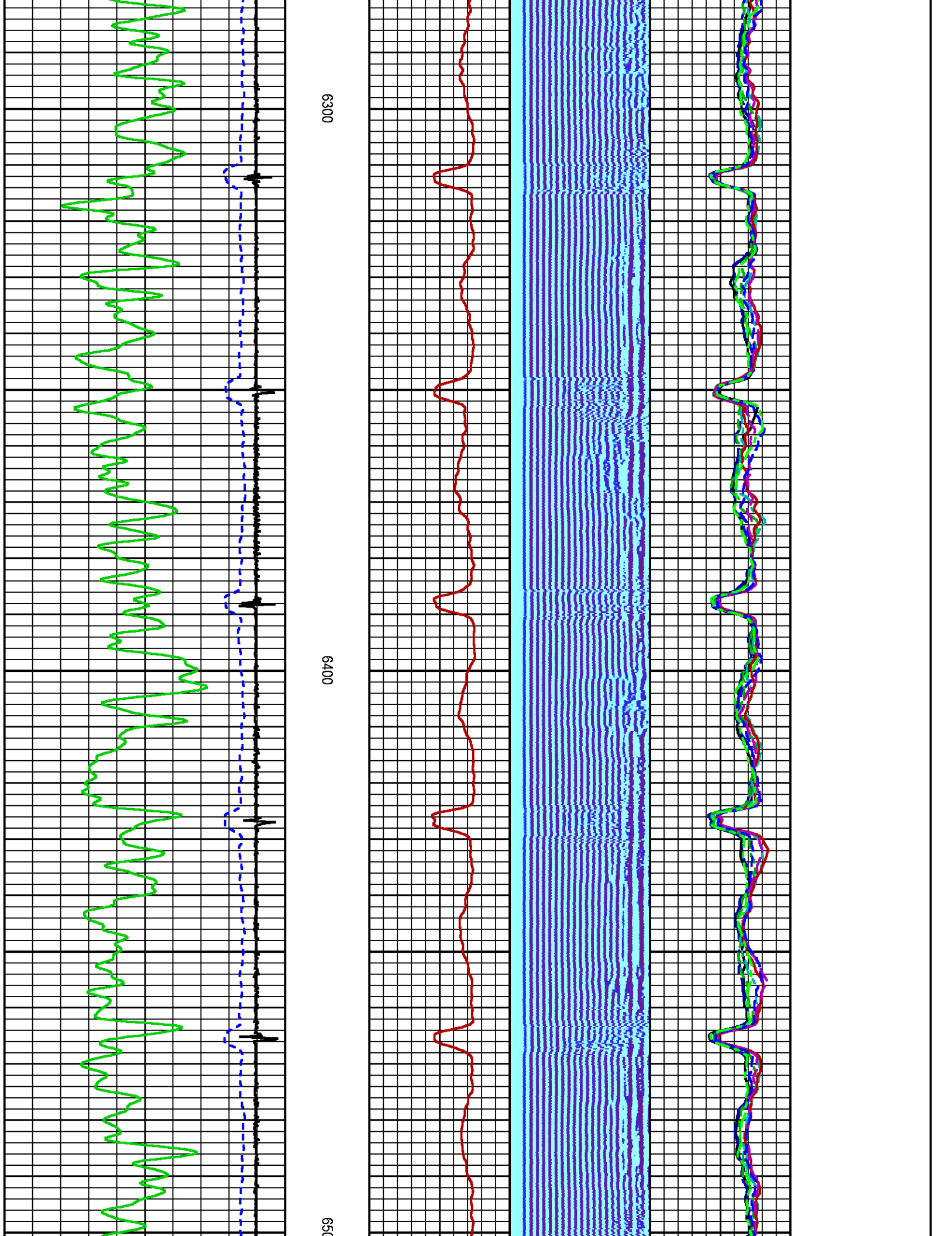
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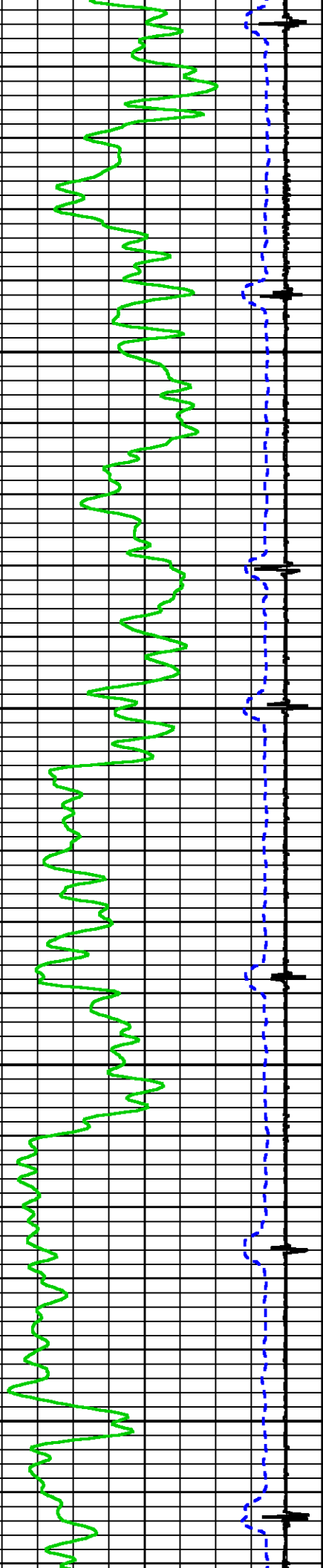




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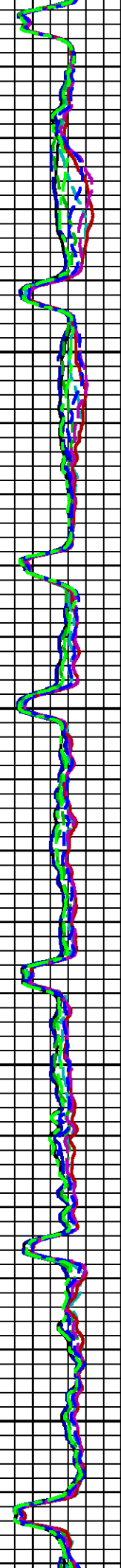
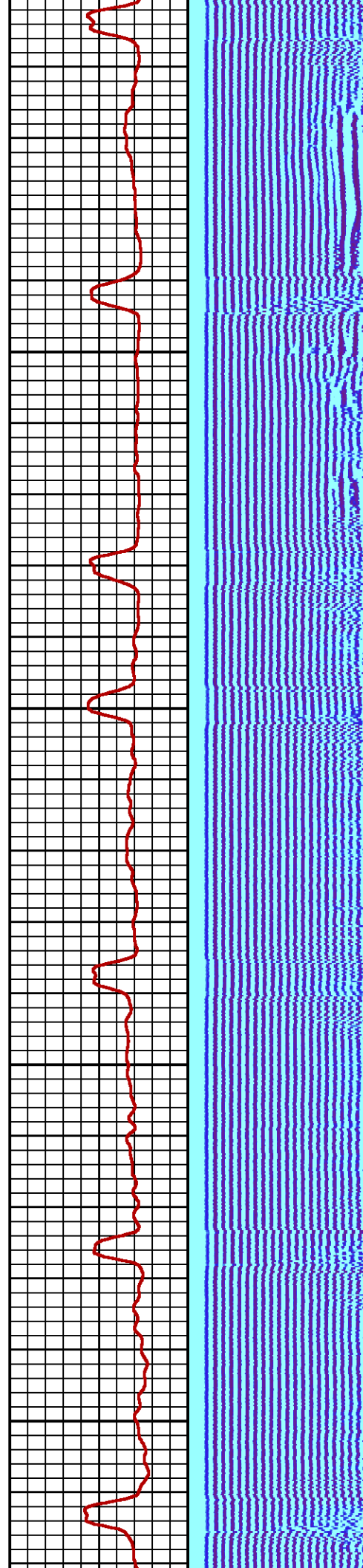


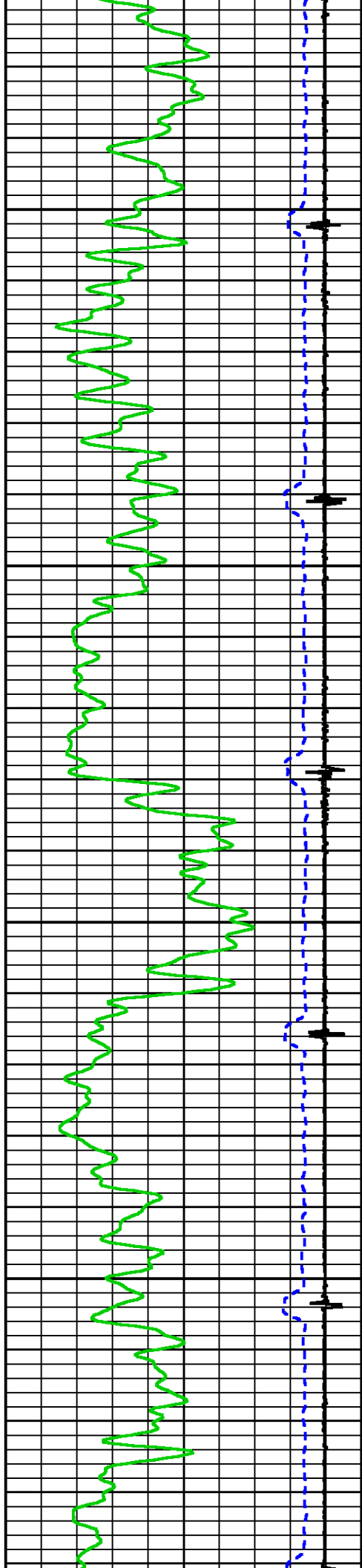


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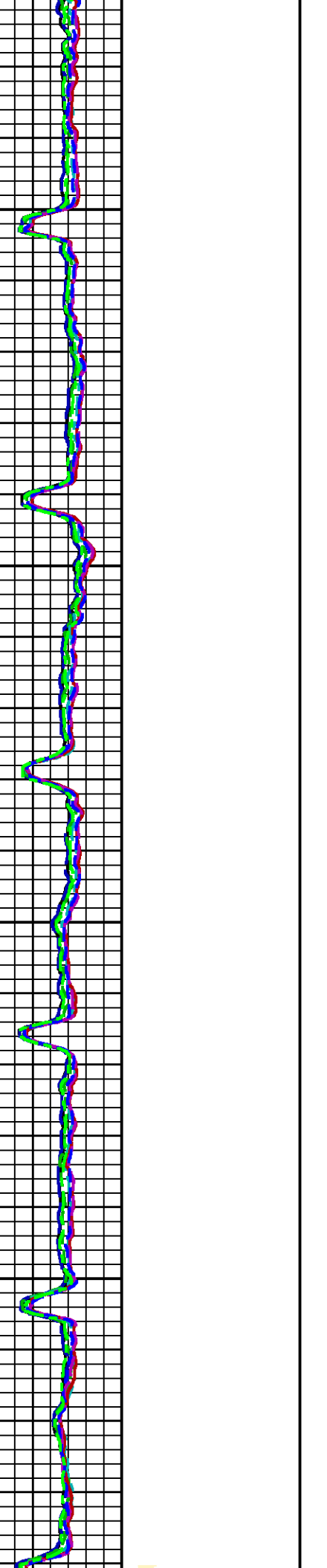
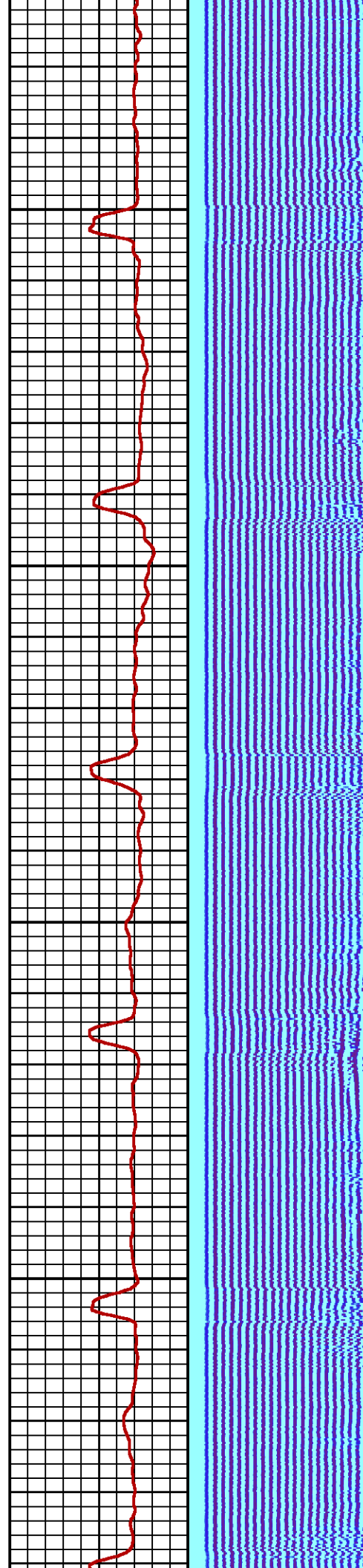
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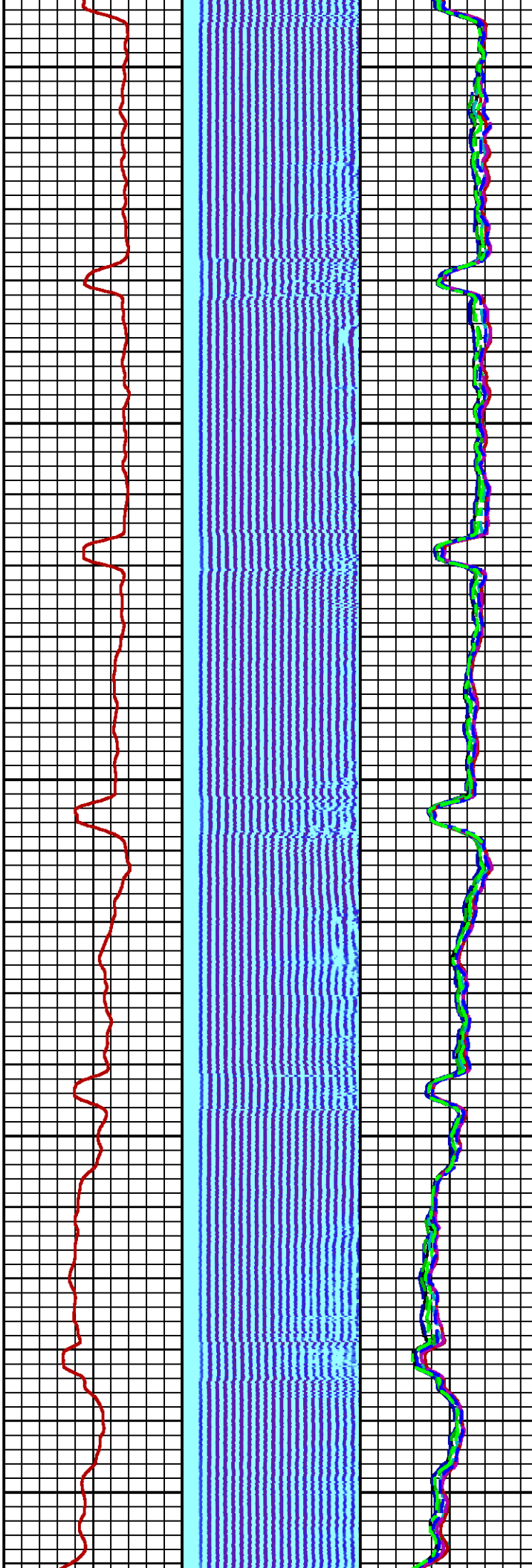
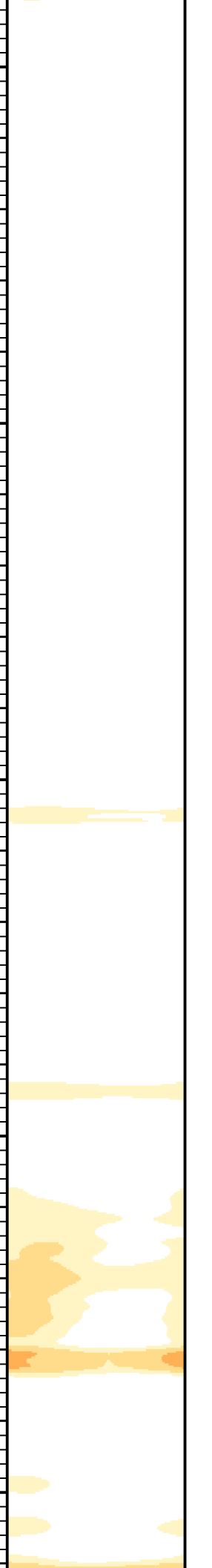




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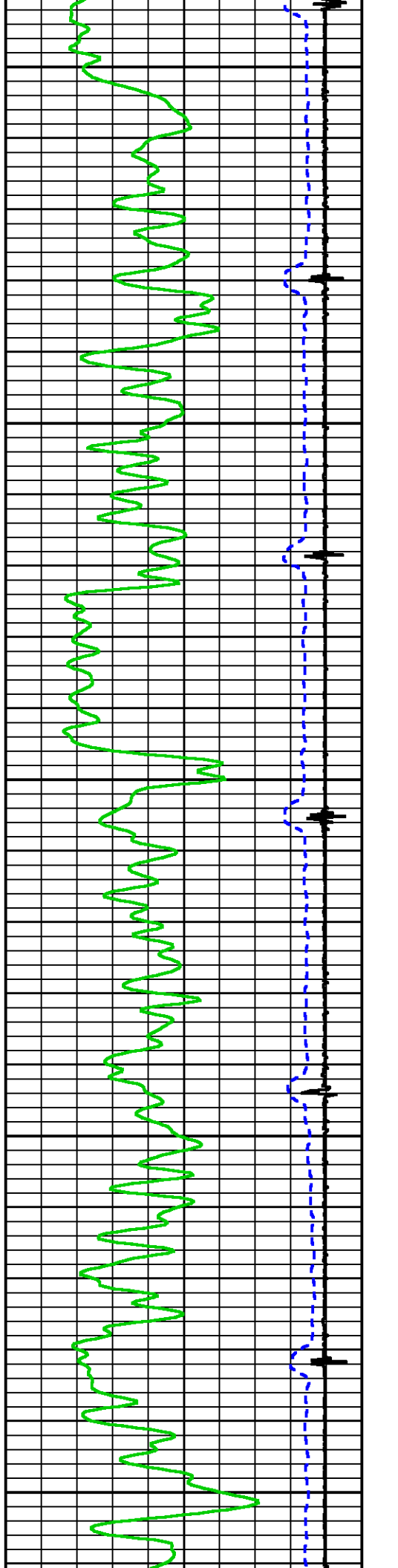
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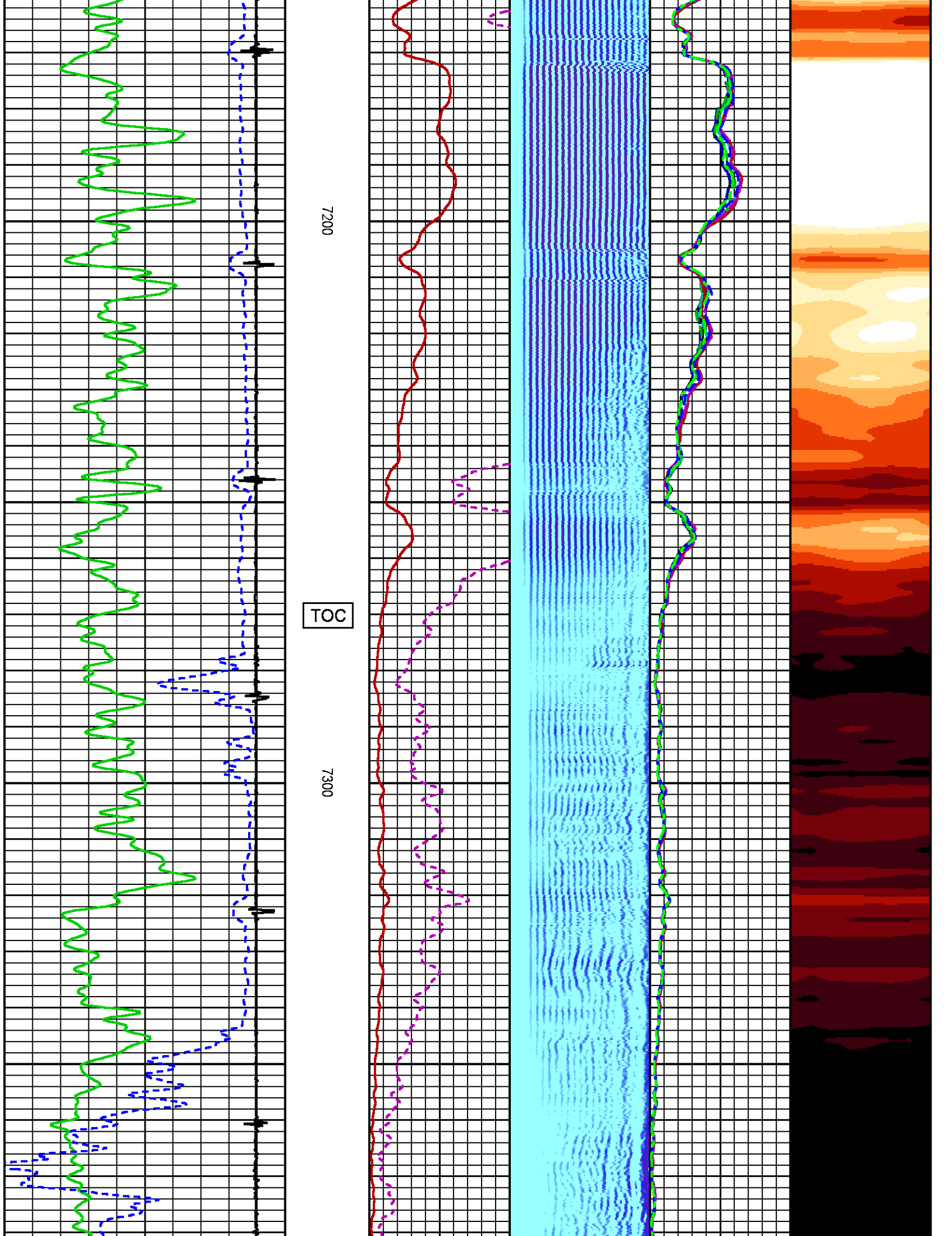


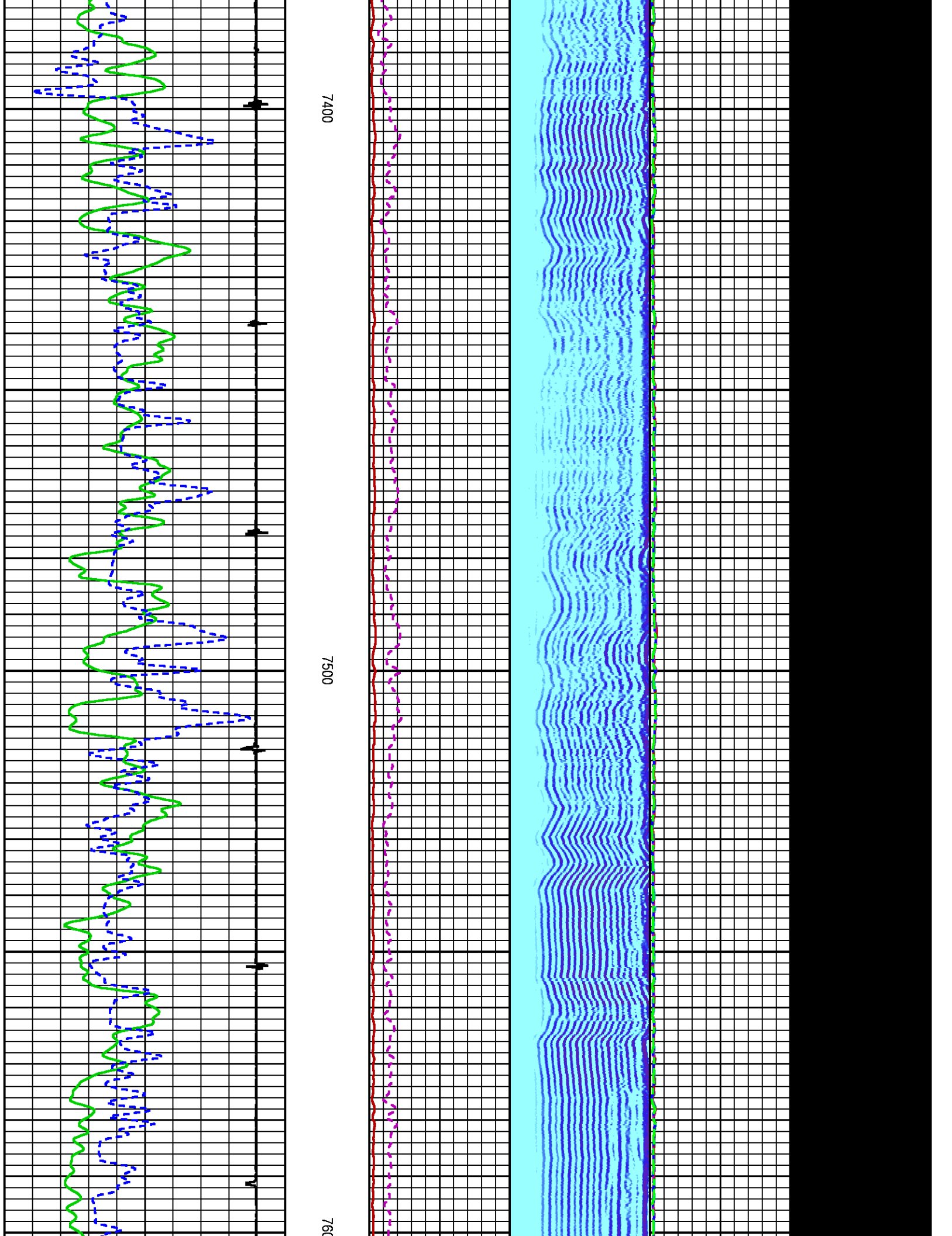


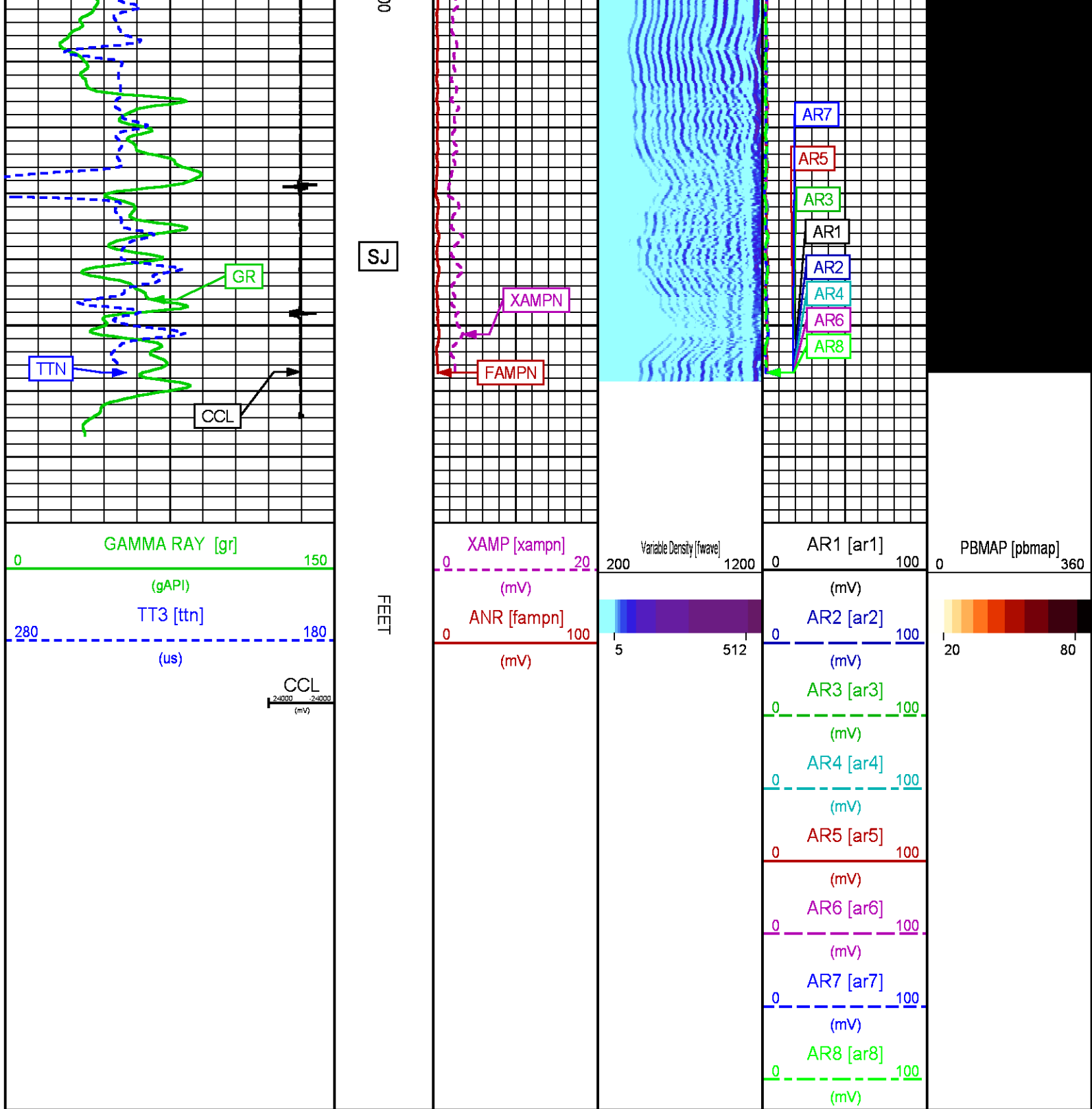
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7100









**REPEAT PASS 1000 PSI**

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_HG\_FED\_35-01W/p012g05.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 7376.500 ft BOTTOM DEPTH: 7647.750 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*)	182	us	TOP	BOTTOM	
	AMP WINDOW START (fgp2*)	182	us	"	"	
	AMP WINDOW START (fgp3*)	182	us	"	"	
	AMP WINDOW START (fgp4*)	182	us	"	"	
	AMP WINDOW START (fgp5*)	182	us	"	"	
	AMP WINDOW START (fgp6*)	182	us	"	"	
	AMP WINDOW START (fgp7*)	182	us	"	"	
	AMP WINDOW START (fgp8*)	182	us	"	"	
	AMP WINDOW START (fgpn*)	182	us	"	"	
TRAVEL TIME WINDOW (NEAR)	AMP WINDOW LENGTH	25	us	"	"	
	TT WINDOW START (ttn*)	166	us	"	"	
	TT WINDOW LENGTH	500	us	"	"	
RAL CASING PARAMETERS	FIRST BRK THRESHOLD (ttn*)	4	mV	"	"	
	PPT NEAR	200.465	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 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	3	mV	"	"
	FULL BOND AMP REC 2	3	mV	"	"
	FULL BOND AMP REC 3	3	mV	"	"
	FULL BOND AMP REC 4	3	mV	"	"
	FULL BOND AMP REC 5	3	mV	"	"
	FULL BOND AMP REC 6	3	mV	"	"
	FULL BOND AMP REC 7	3	mV	"	"
	FULL BOND AMP REC 8	3	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

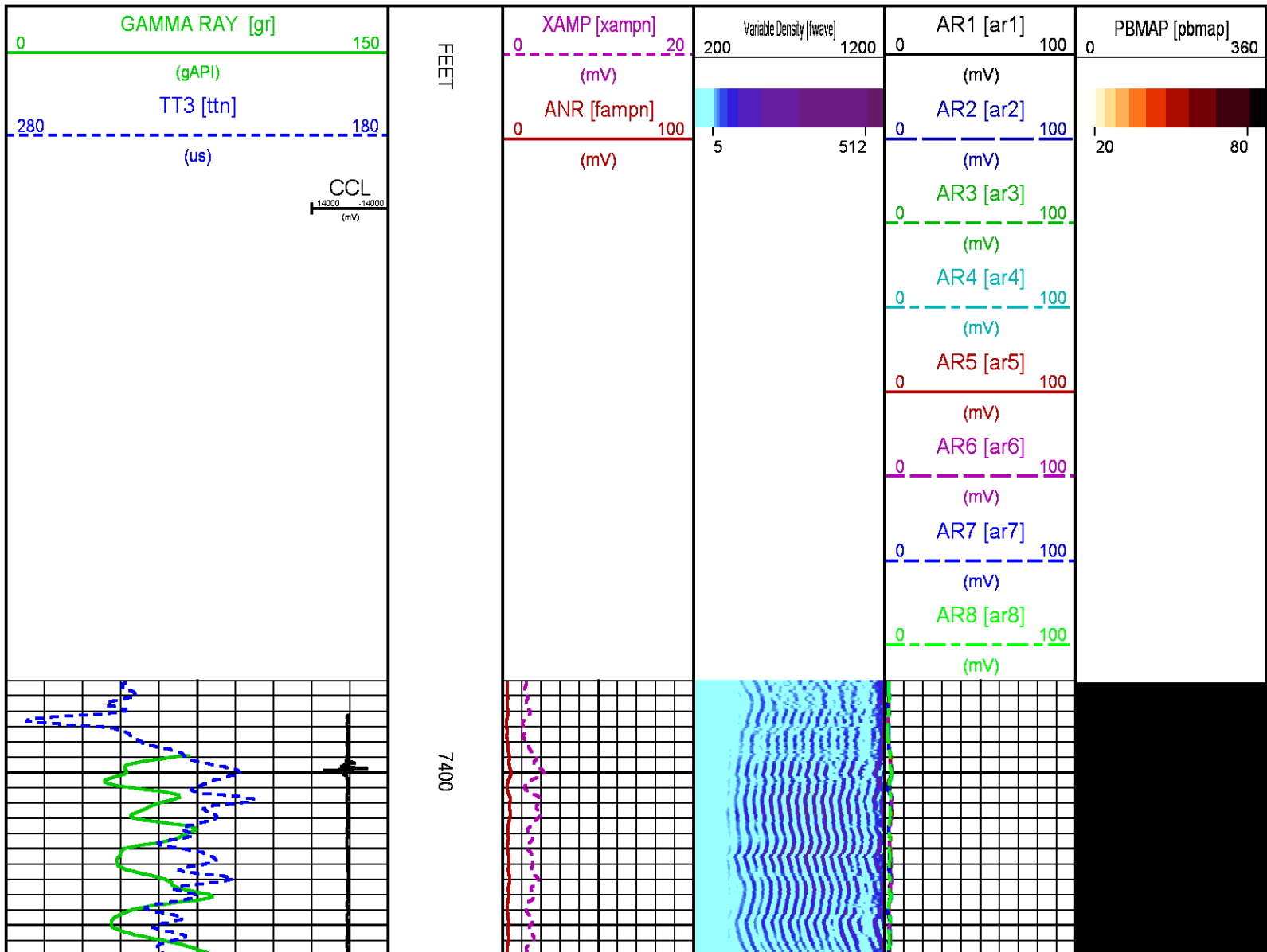
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7
F1:AR8	N/A	FIXED GATE AMPLITUDE T-R8
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:FAMPN	N/A	FIXED GATE AMPLITUDE NEAR RECEIVER
F1:FWAVE	N/A	FAR WAVE FORM
F1:GR	N/A	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

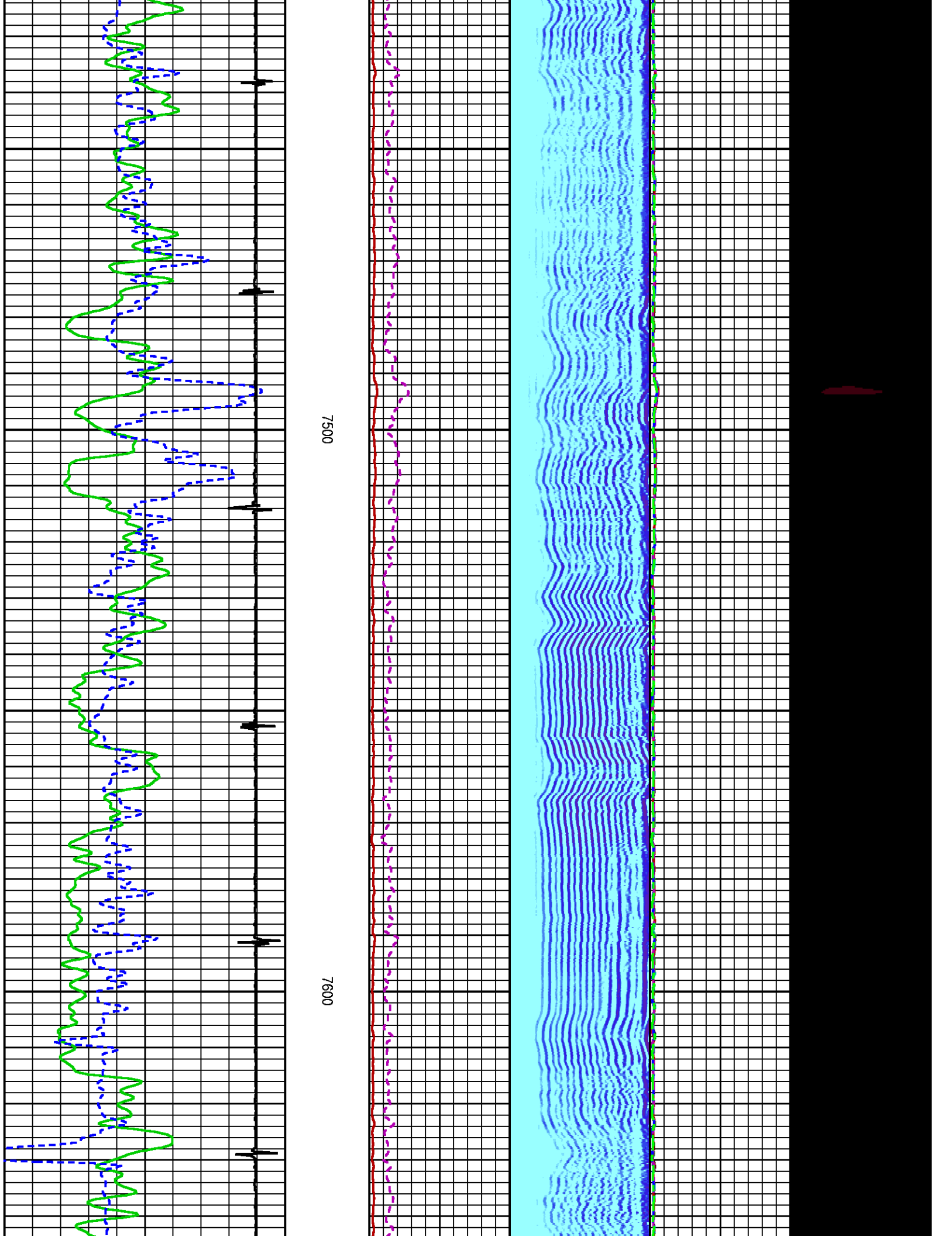
### CURVE MEASURE POINT OFFSET

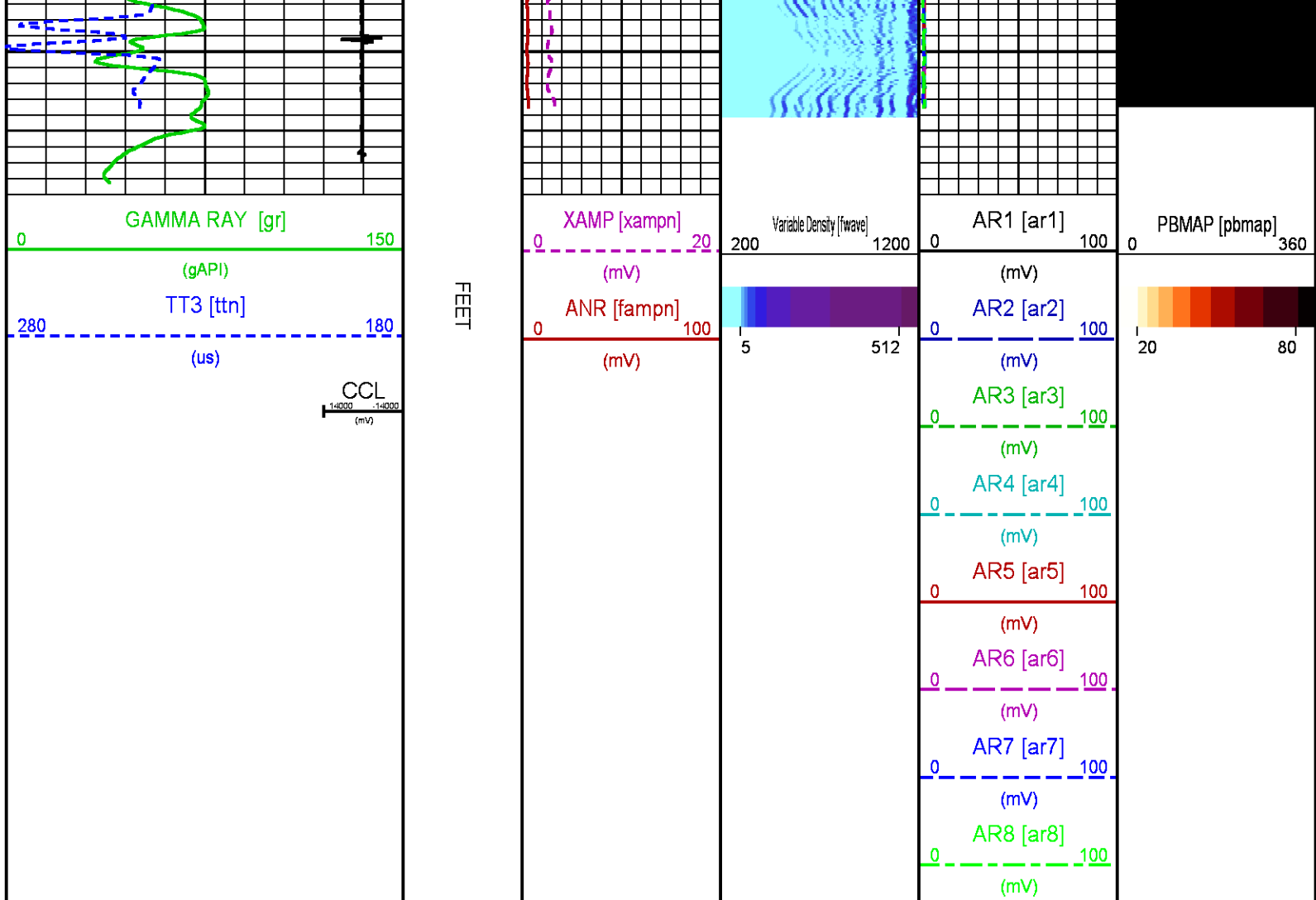
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

**Presentation** : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_REPEAT\_1000.fvpdf [5"/100' Scale]  
**Plot Interval** : 7388 - 7668.25 Feet

**Data File 1** : F1 : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_REPEAT\_1000.xtf  
**Created On** : N/A  
**Company** : LARAMIE ENERGY LLC  
**Well** : HG FED 35-01W  
**Field** : ALKALI CREEK  
**File Interval** : 7376.5 - 7669.5 Feet  
**OCT** : p012g







**MAIN PASS 500 PSI**

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017  
Patches: 4

Plotted: Thu May 17 17:10:38 2018

**PARAMETER AND FILTER SUMMARY REPORT**

FILE: /dat1a/LARAMIE\_HG\_FED\_35-01W/p012g04.prm  
 LOGGING MODE: DEPTH           DIRECTION: UP  
 TOP DEPTH: 4973.250 ft       BOTTOM DEPTH: 7651.777 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*)	182	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	182	us	"	"
	AMP WINDOW START (fgp3*)	182	us	"	"
	AMP WINDOW START (fgp4*)	182	us	"	"
	AMP WINDOW START (fgp5*)	182	us	"	"
	AMP WINDOW START (fgp6*)	182	us	"	"
	AMP WINDOW START (fgp7*)	182	us	"	"
	AMP WINDOW START (fgp8*)	182	us	"	"
	AMP WINDOW START (fgpn*)	182	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	166	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*)	-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	"	"
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	3	mV	"	"
	FULL BOND AMP REC 2	3	mV	"	"
	FULL BOND AMP REC 3	3	mV	"	"
	FULL BOND AMP REC 4	3	mV	"	"
	FULL BOND AMP REC 5	3	mV	"	"
	FULL BOND AMP REC 6	3	mV	"	"
	FULL BOND AMP REC 7	3	mV	"	"
	FULL BOND AMP REC 8	3	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

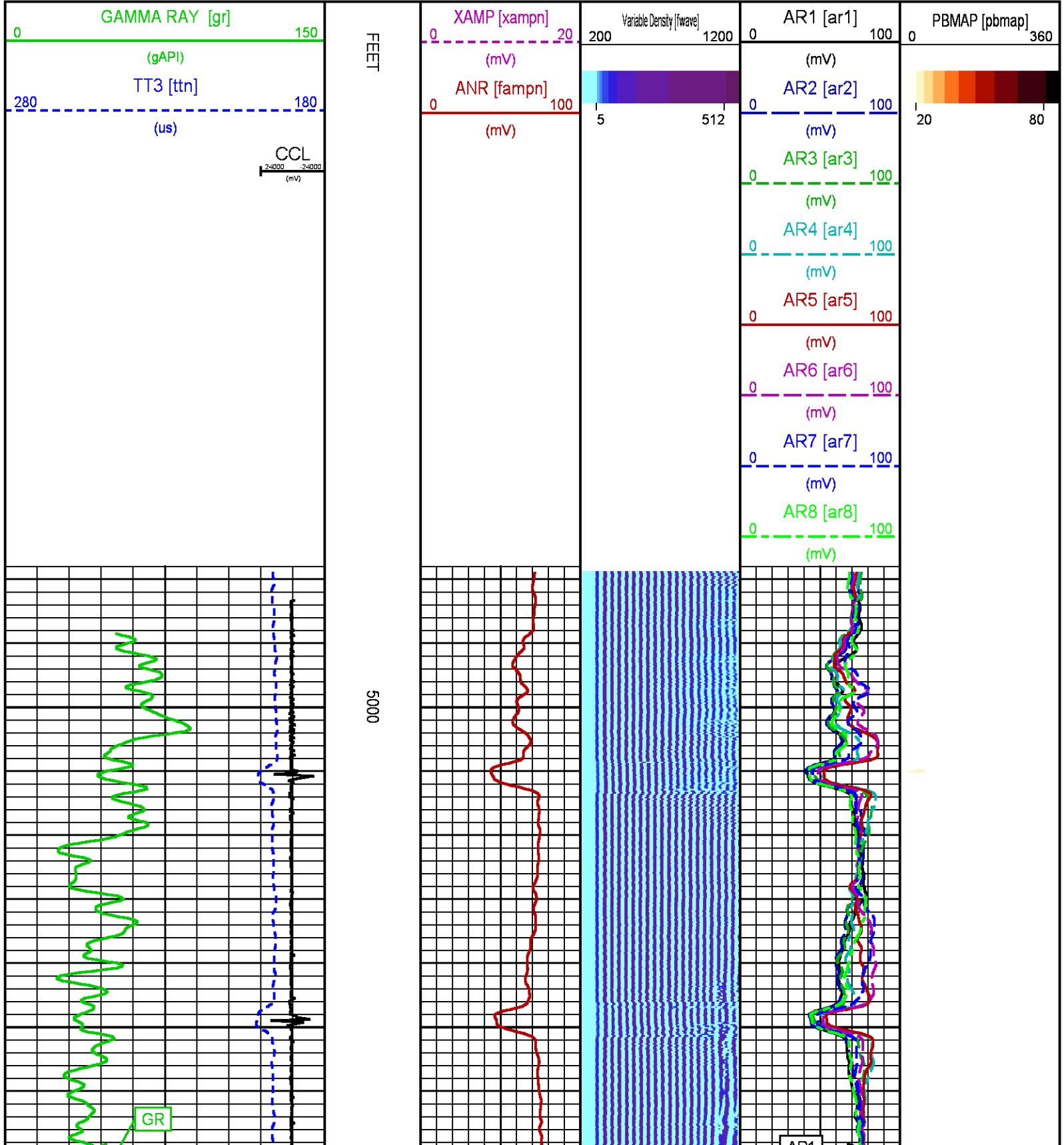
## CURVE MEASURE POINT OFFSET

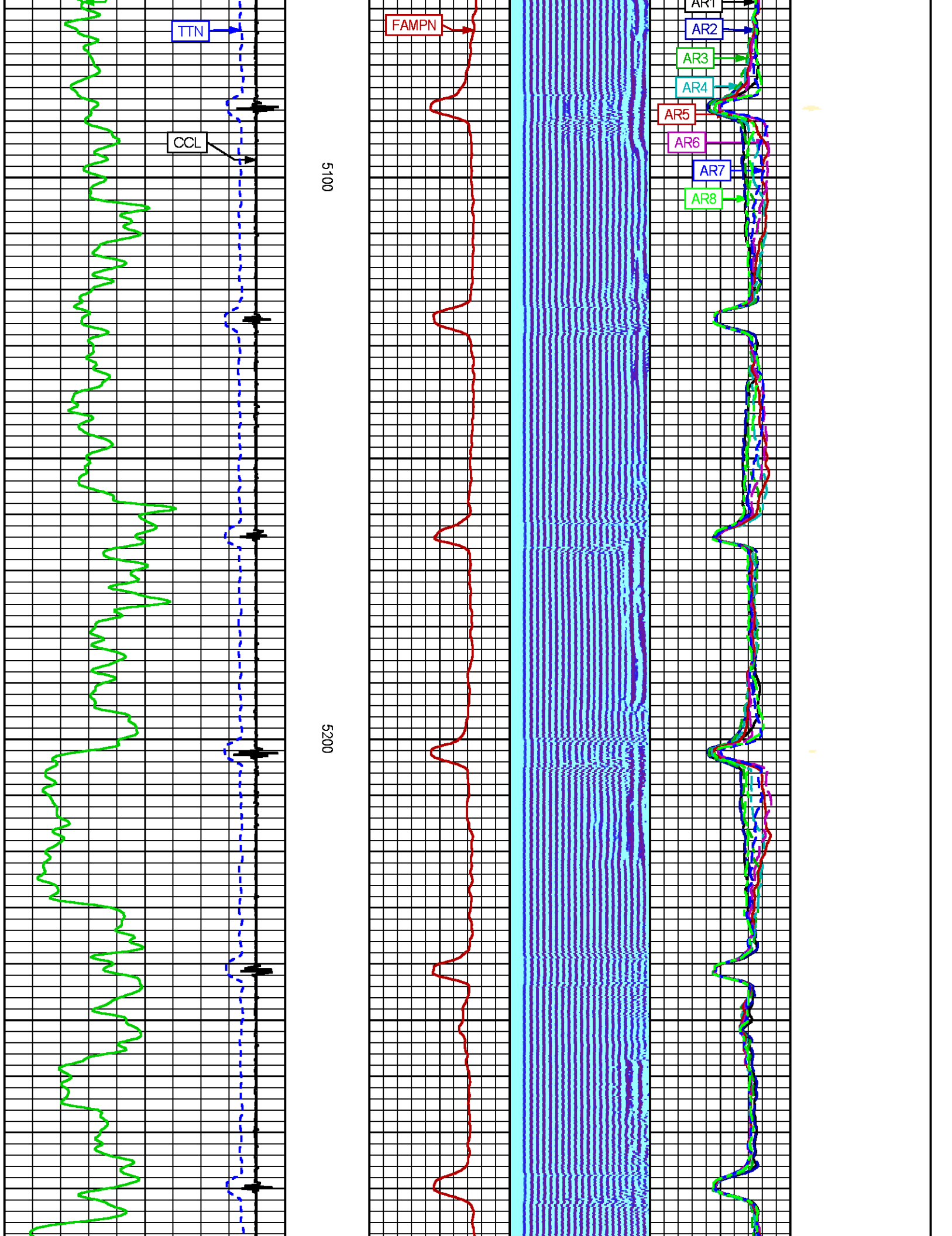
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		

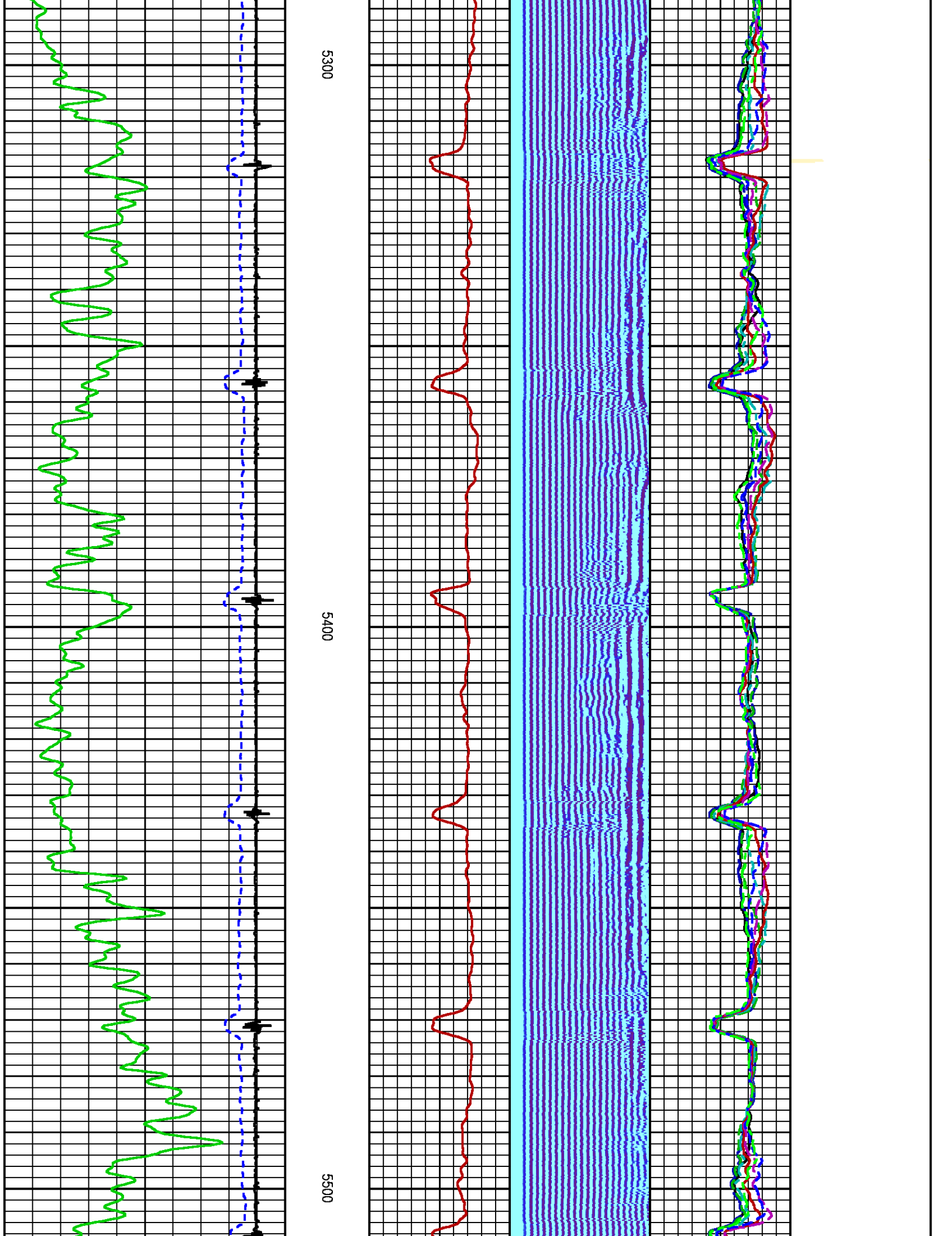
AR3	-11.25	AR7	-11.25	GR	-1.75
AR4	-11.25	AR8	-11.25	TTN	-11.25

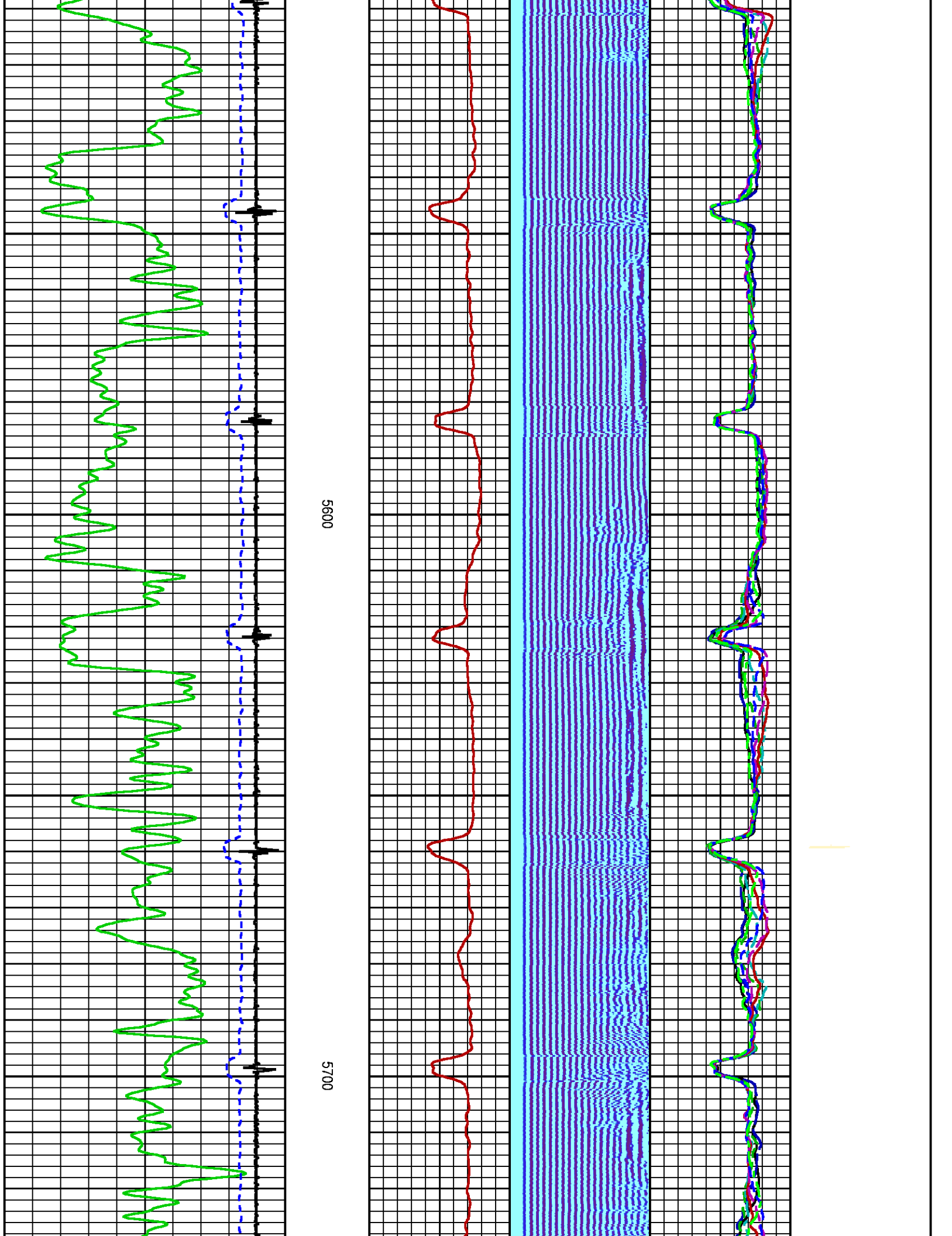
**Presentation** : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_MAIN\_500.fvpdf [5"/100' Scale]  
**Plot Interval** : 4978.75 - 7680 Feet

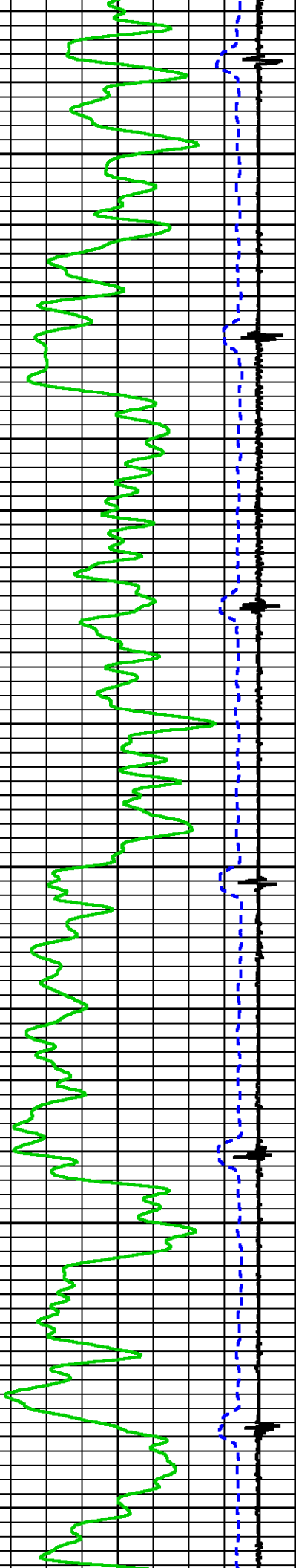
**Data File 1** : F1 : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_MAIN\_500.xtf  
**Created On** : N/A  
**Company** : LARAMIE ENERGY LLC  
**Well** : HG FED 35-01W  
**Field** : ALKALI CREEK  
**File Interval** : 4973 - 7667 Feet  
**OCT** : p012g





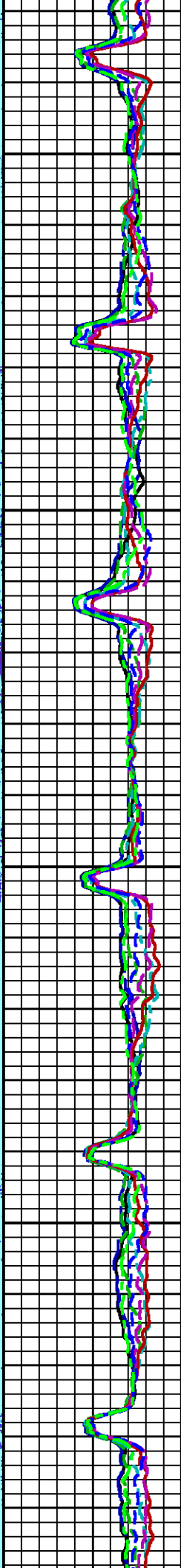
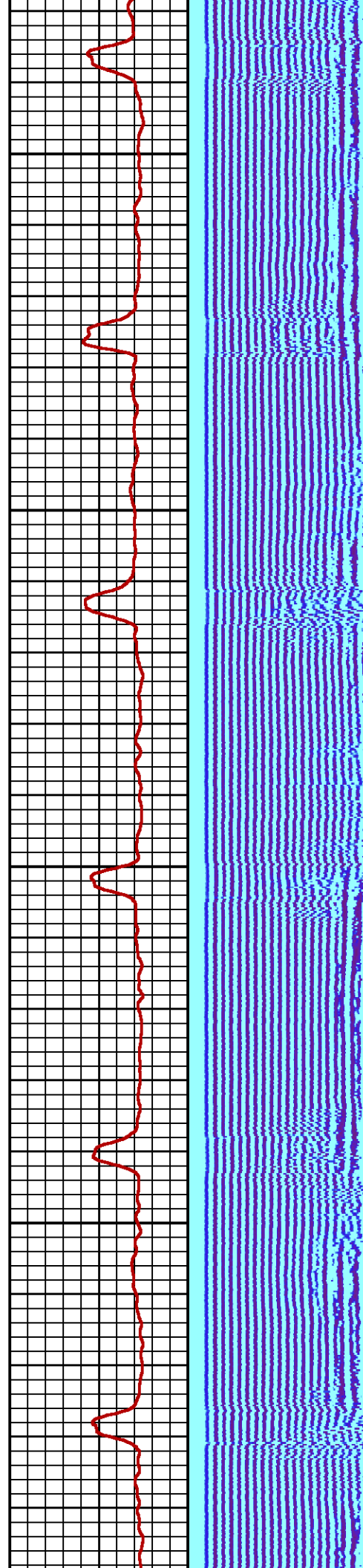


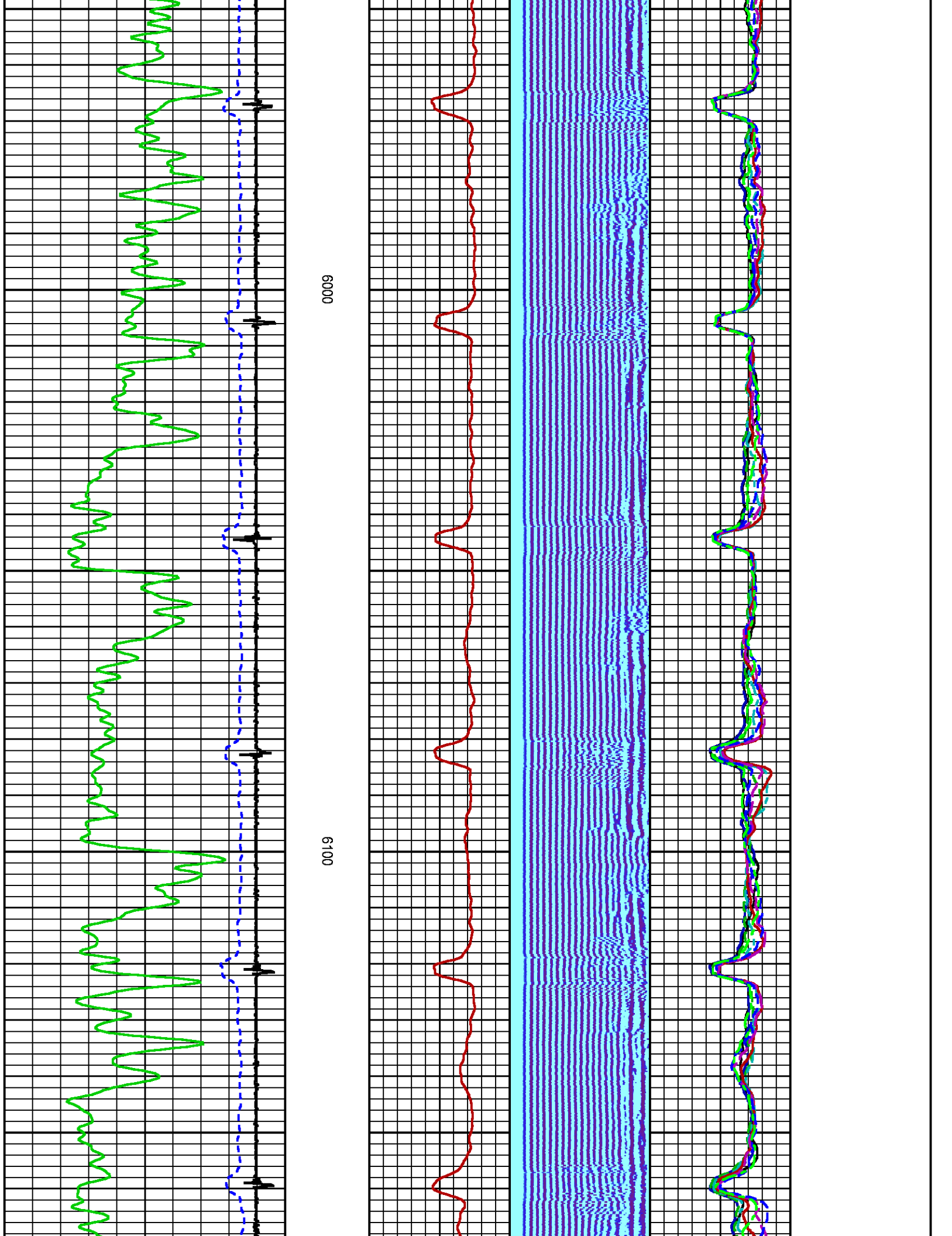


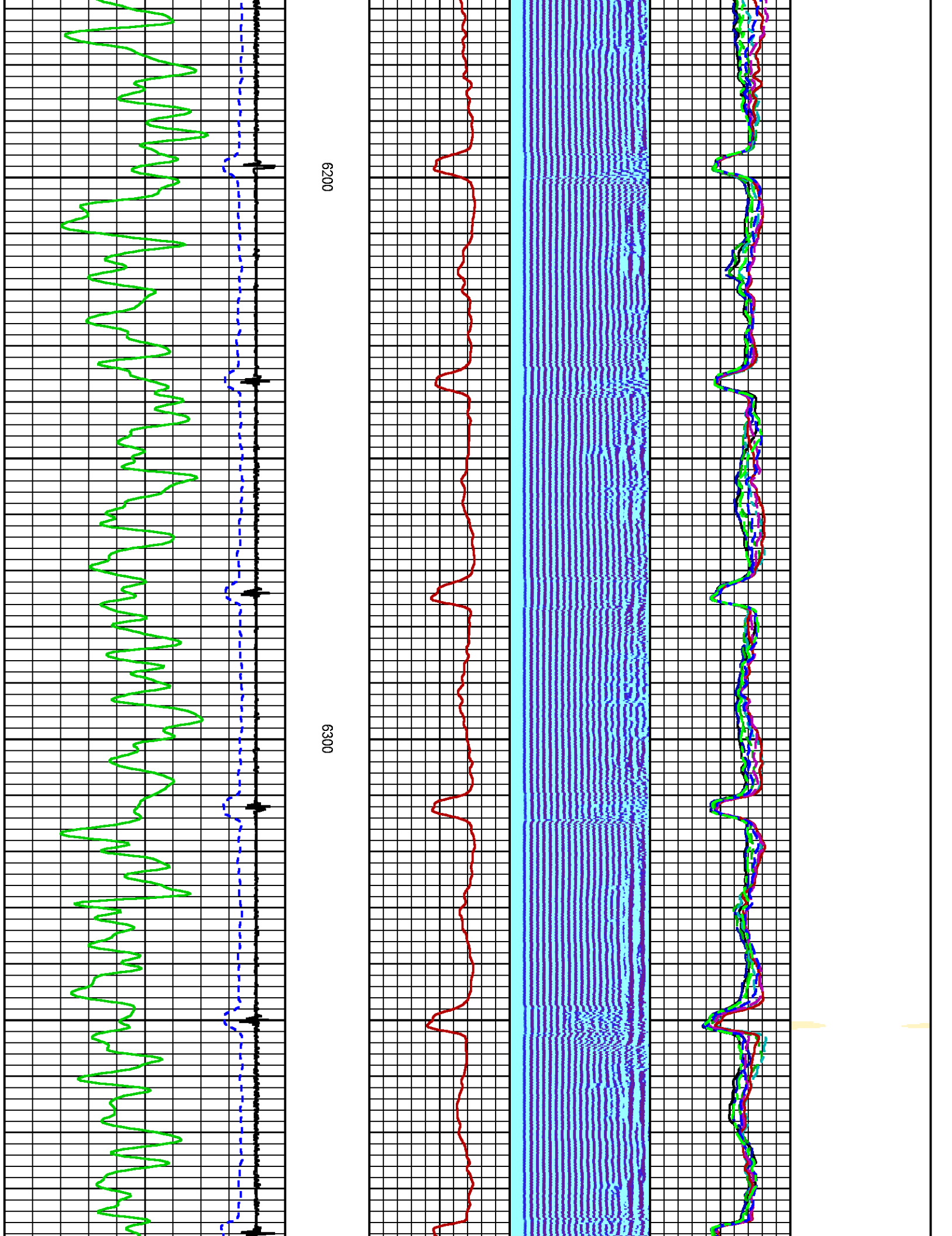


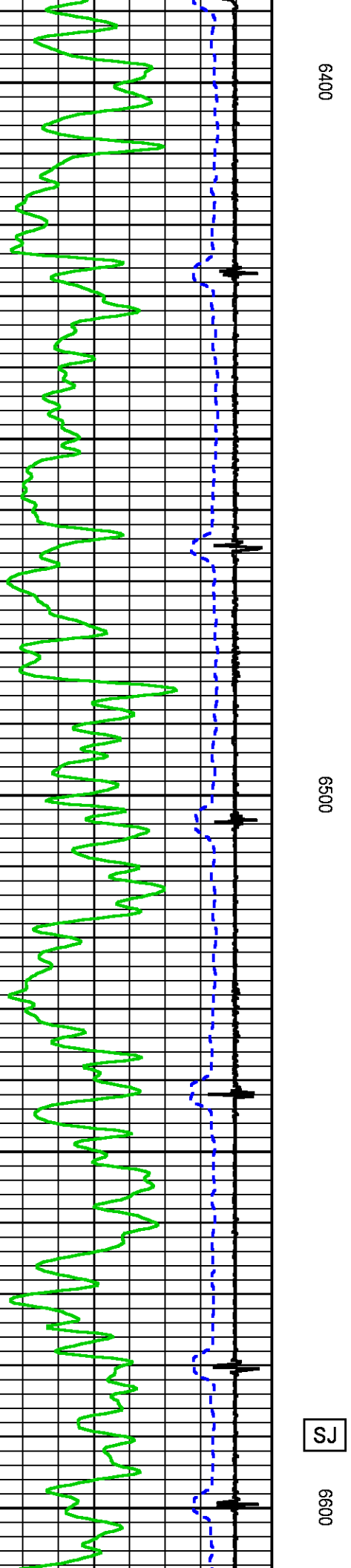
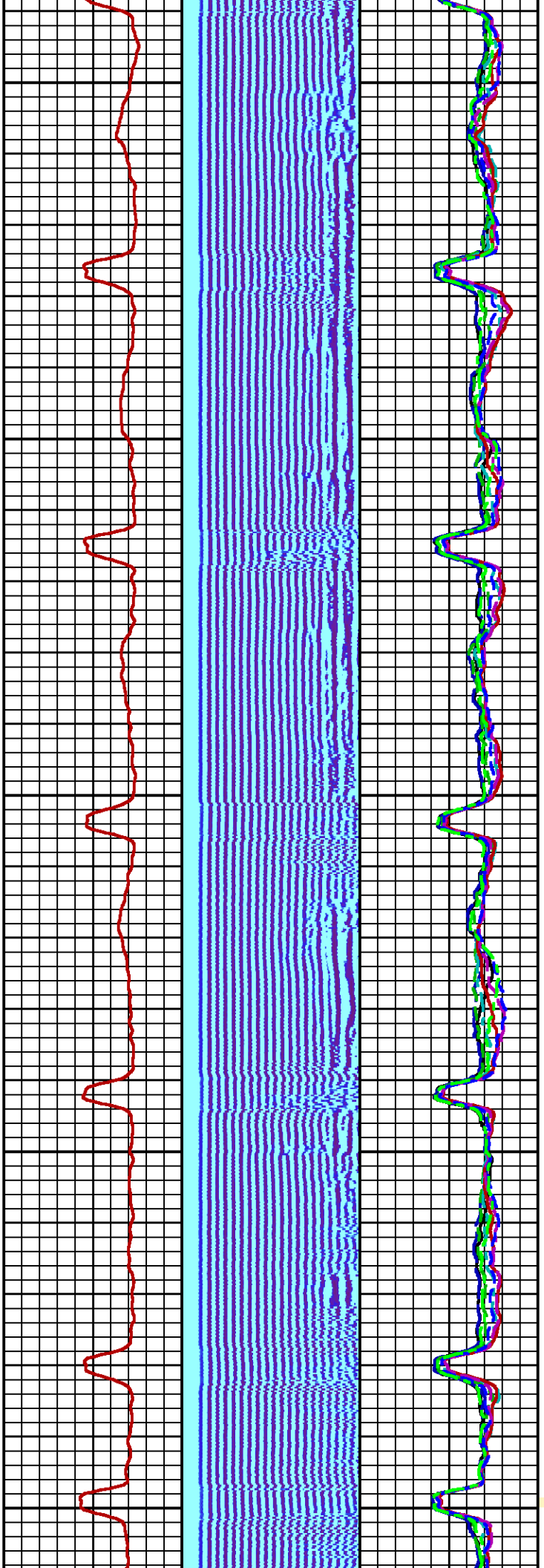
5800

5900

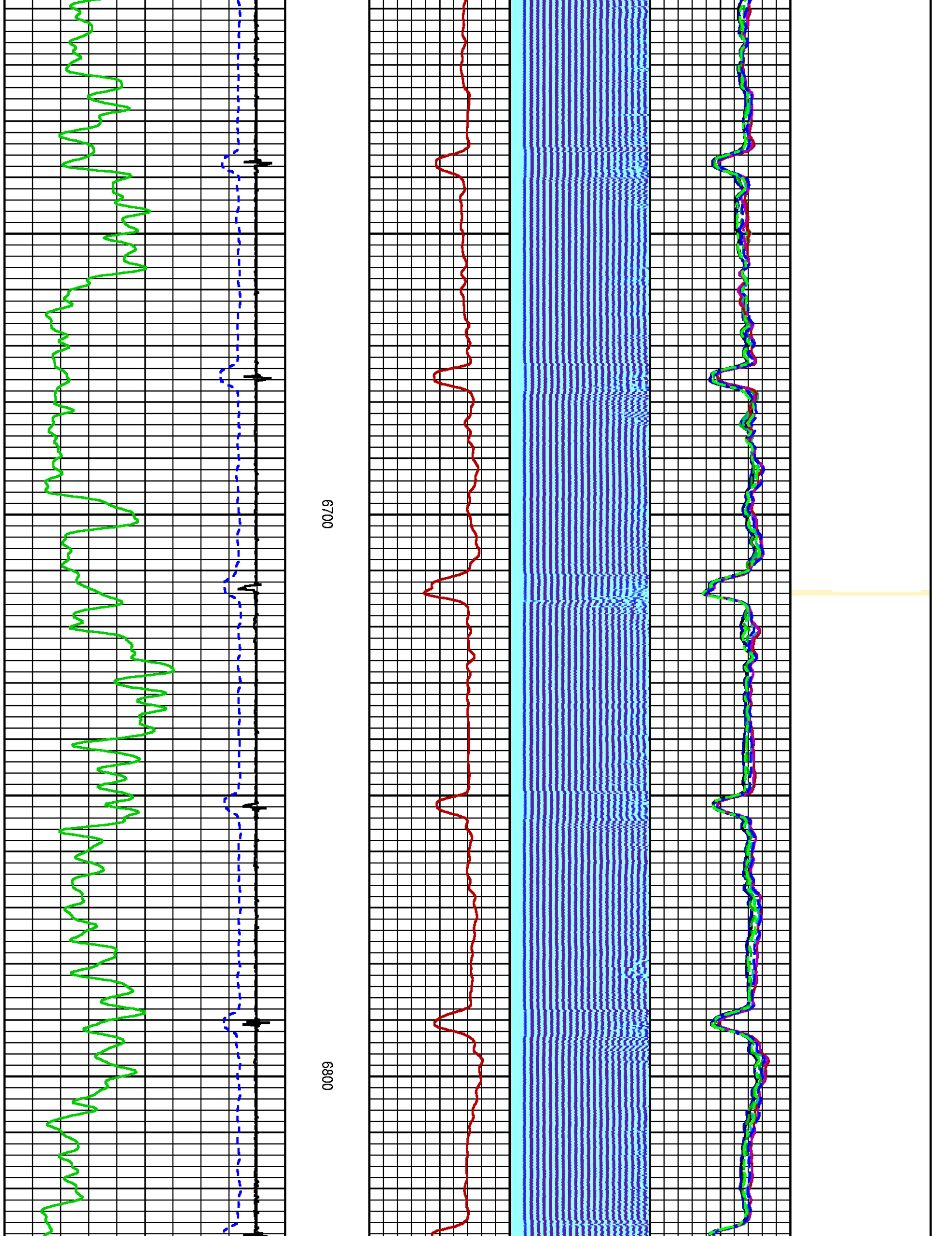


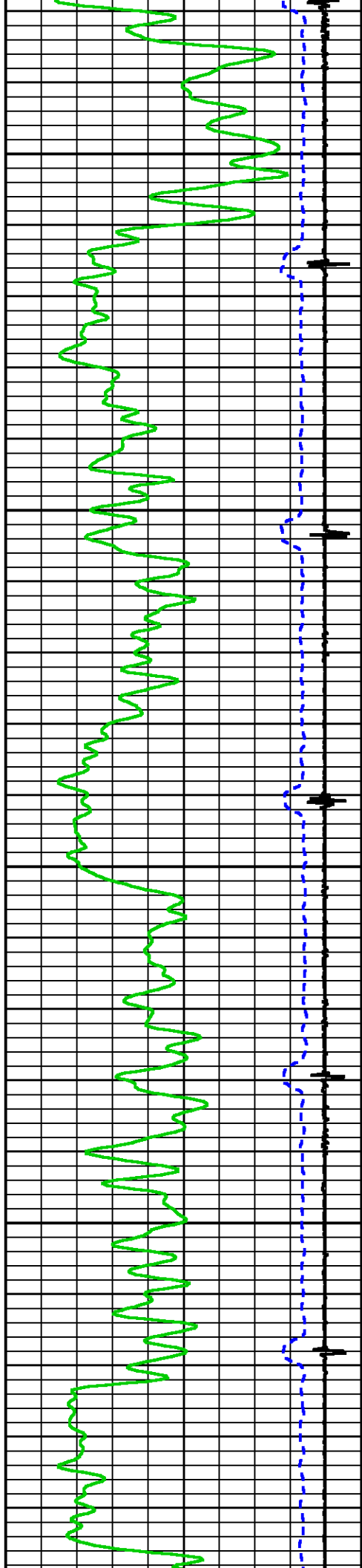






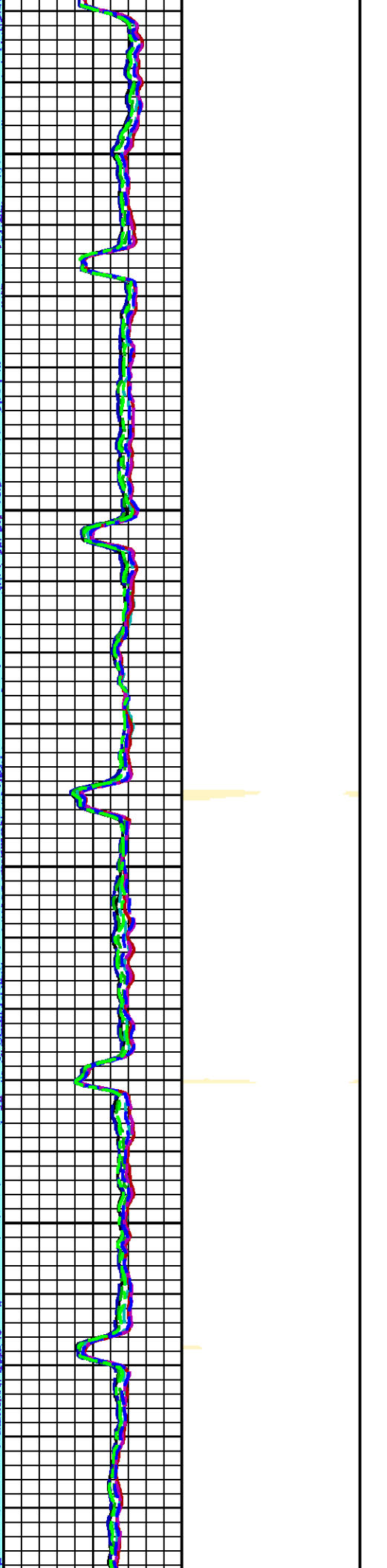
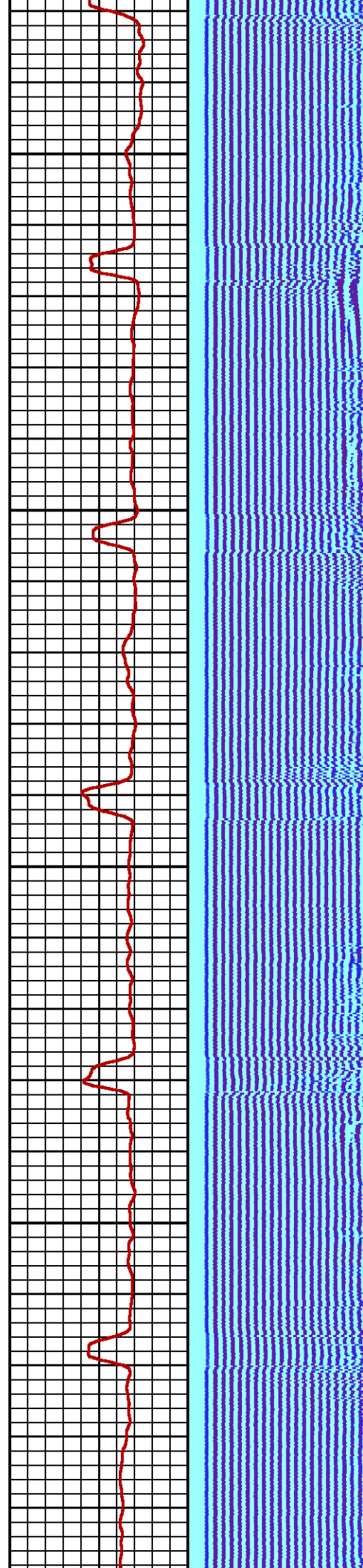
S

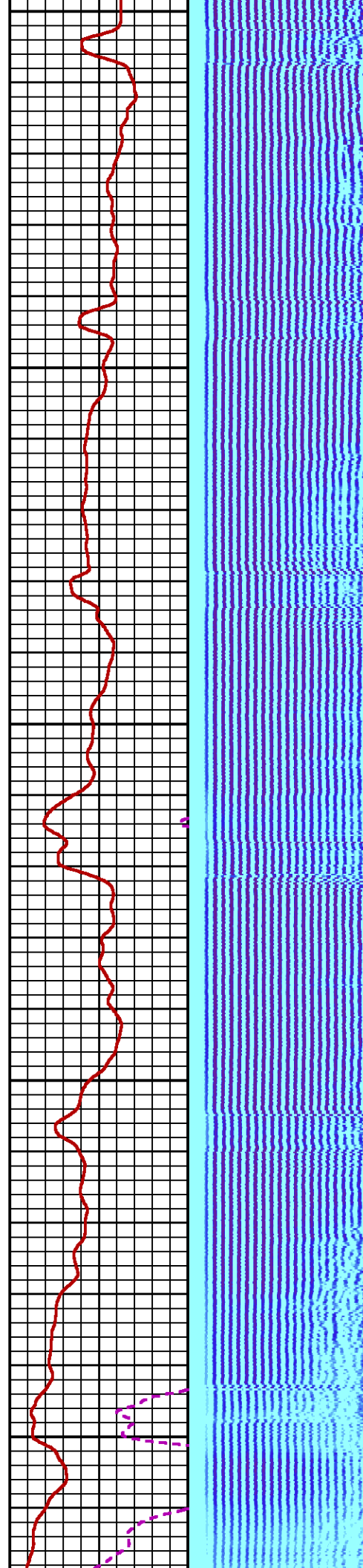
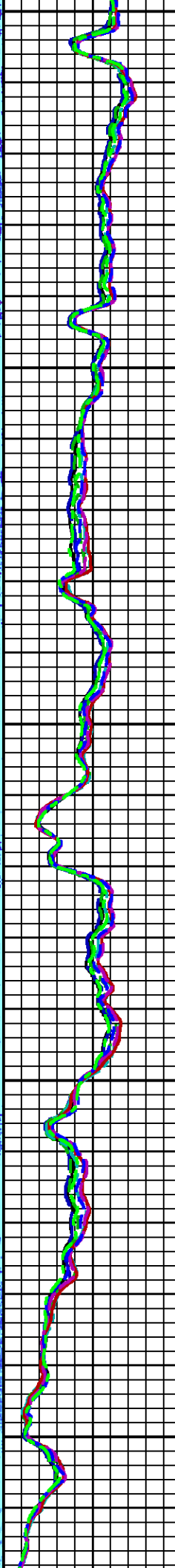
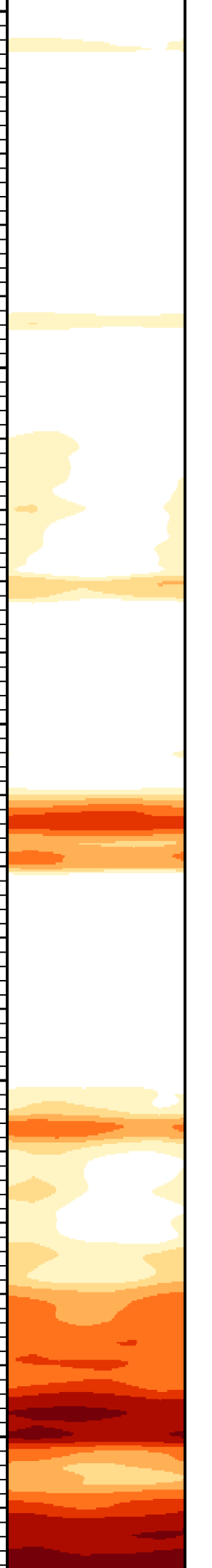




6900

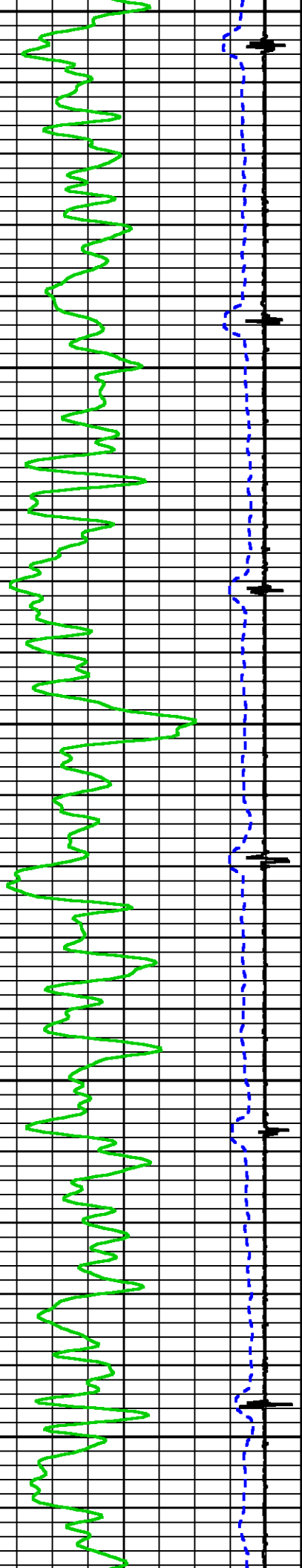
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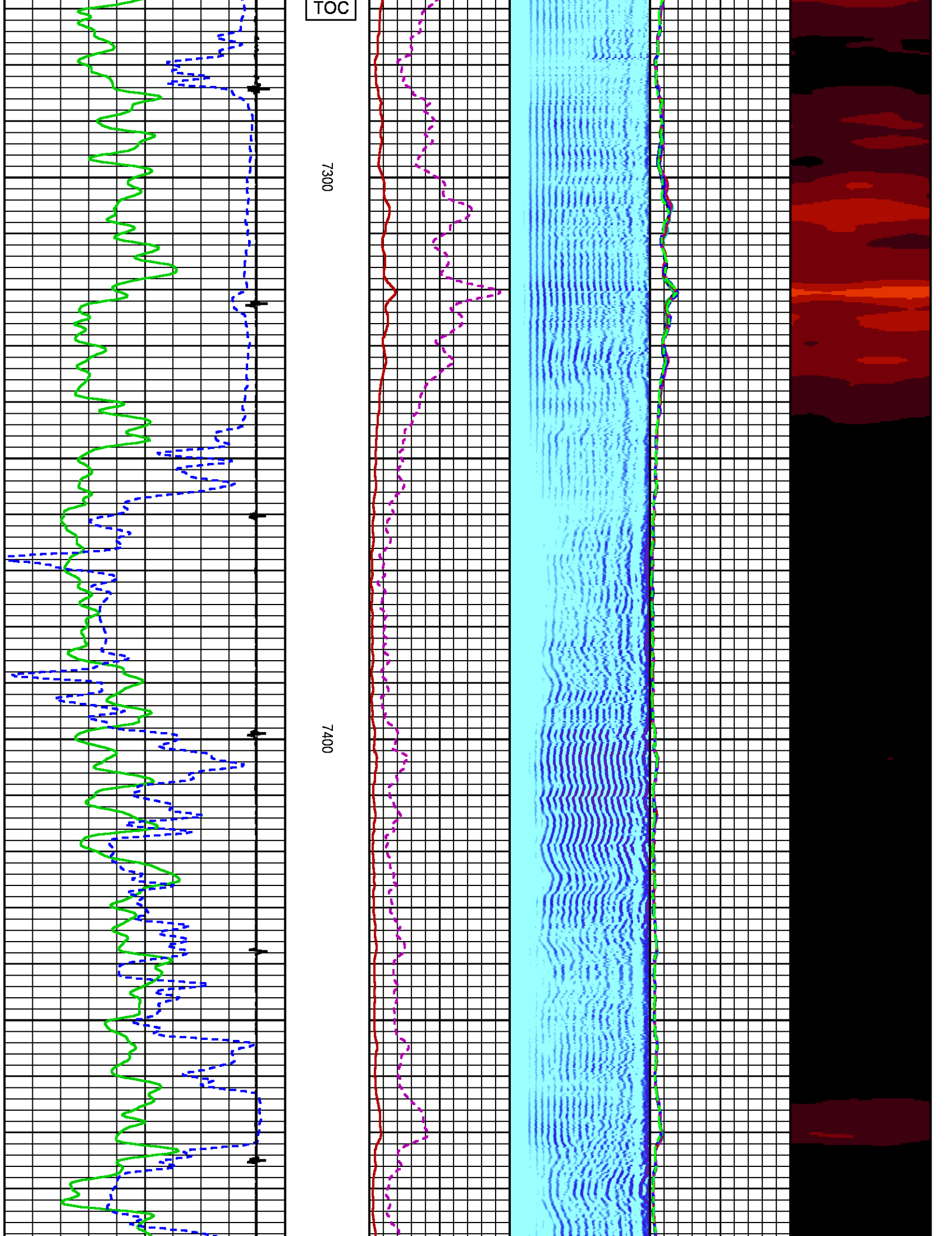


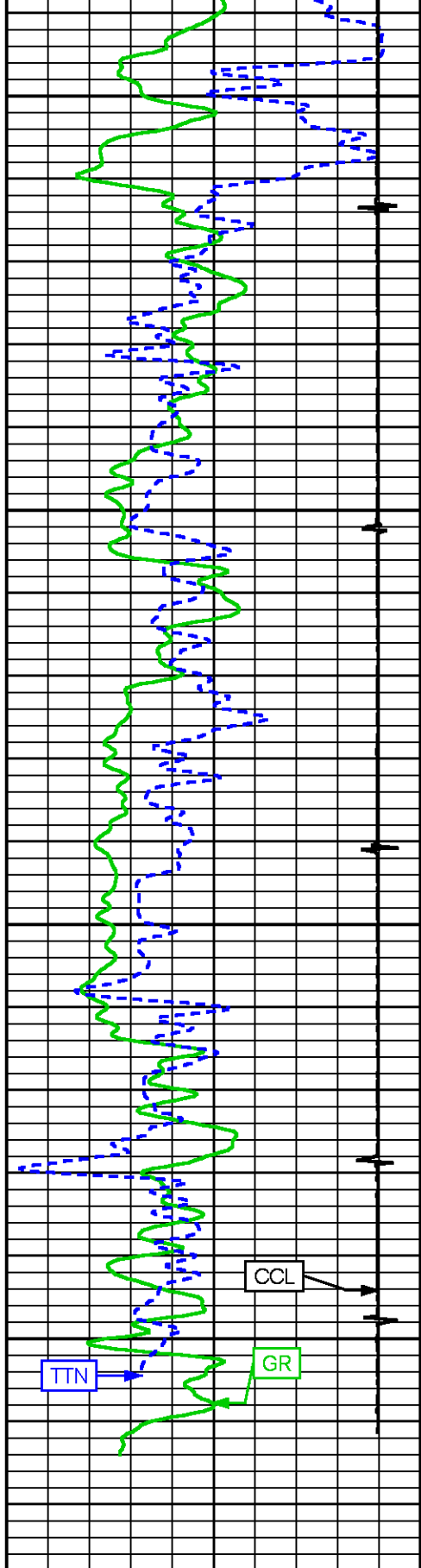


7100

7200

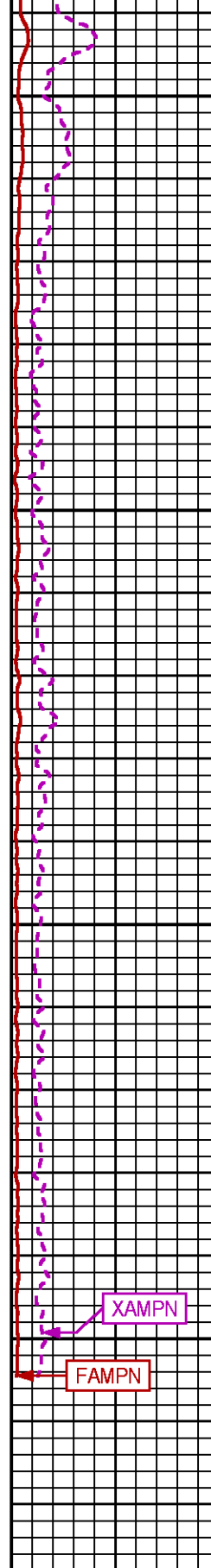




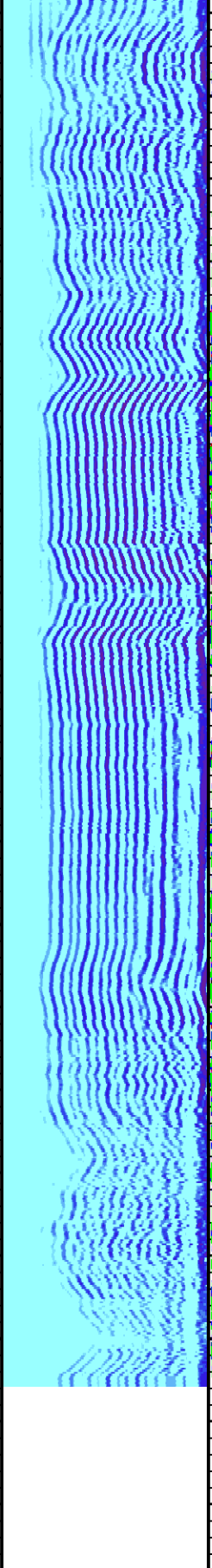


7500  
7600  
FEET

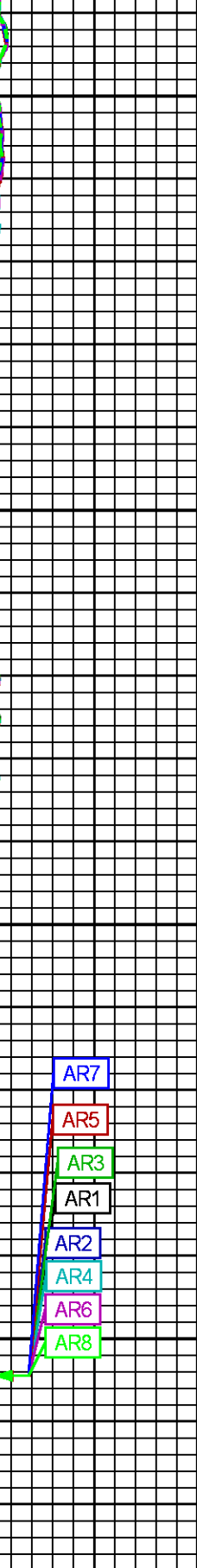
GAMMA RAY [gr]  
(gAPI)  
TT3 [ttn]  
(us)  
CCL  
(m)



XAMP [xampn]  
(mV)  
ANR [fampn]  
(mV)



Variable Density [fwave]  
200 1200  
5 512

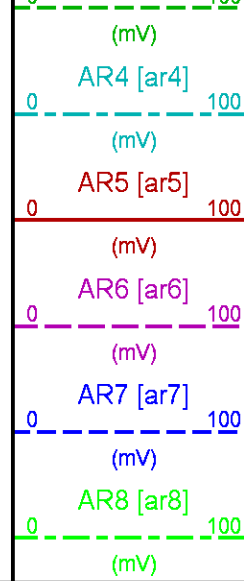


AR1 [ar1]  
(mV)  
AR2 [ar2]  
(mV)  
AR3 [ar3]  
(mV)



PBMAP [pbmap]  
0 360  
20 80

SJ



**REPEAT PASS 500 PSI**

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017  
Patches: 4

Plotted: Thu May 17 16:13:15 2018

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_HG\_FED\_35-01W/p012g03.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 7394.000 ft BOTTOM DEPTH: 7658.500 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*)	182	us	TOP	BOTTOM
	AMP WINDOW START (fgp2*)	182	us	"	"
	AMP WINDOW START (fgp3*)	182	us	"	"
	AMP WINDOW START (fgp4*)	182	us	"	"
	AMP WINDOW START (fgp5*)	182	us	"	"
	AMP WINDOW START (fgp6*)	182	us	"	"
	AMP WINDOW START (fgp7*)	182	us	"	"
	AMP WINDOW START (fgp8*)	182	us	"	"
	AMP WINDOW START (fgpn*)	182	us	"	"
	AMP WINDOW LENGTH	25	us	"	"
TRAVEL TIME WINDOW (NEAR)	TT WINDOW START (ttn*)	166	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*)	-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 7	80	mV	"	"
	FREE AMP REC 8	80	mV	"	"
RAL FULL BOND AMPLITUDE	FULL BOND AMP REC 1	3	mV	"	"
	FULL BOND AMP REC 2	3	mV	"	"
	FULL BOND AMP REC 3	3	mV	"	"
	FULL BOND AMP REC 4	3	mV	"	"
	FULL BOND AMP REC 5	3	mV	"	"
	FULL BOND AMP REC 6	3	mV	"	"
	FULL BOND AMP REC 7	3	mV	"	"
	FULL BOND AMP REC 8	3	mV	"	"

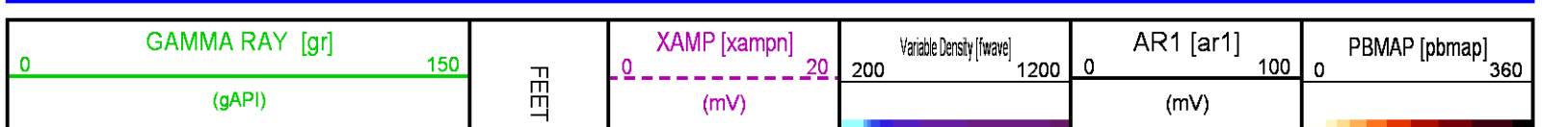
### CURVE DESCRIPTION REPORT

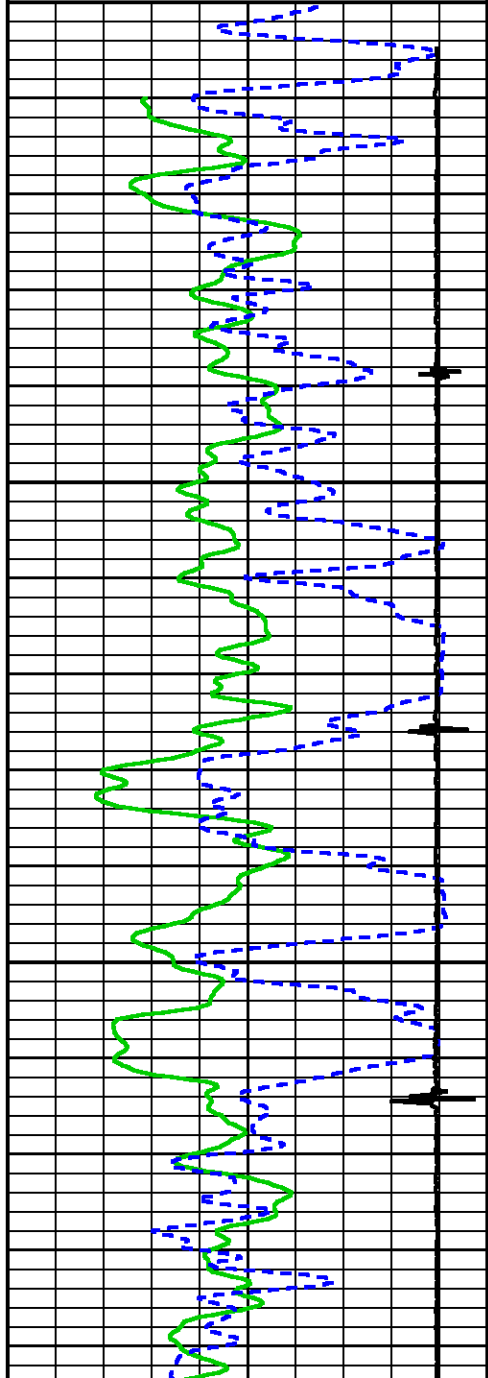
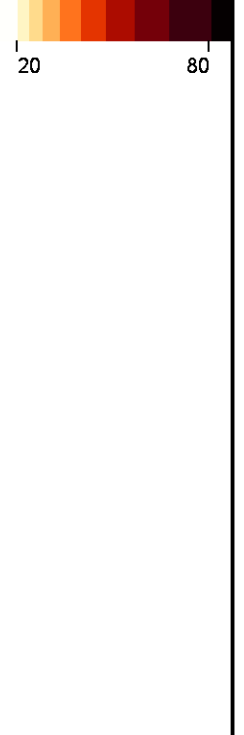
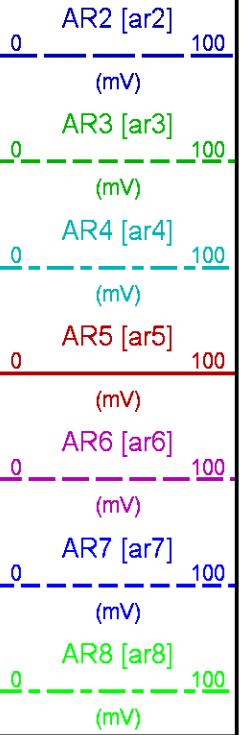
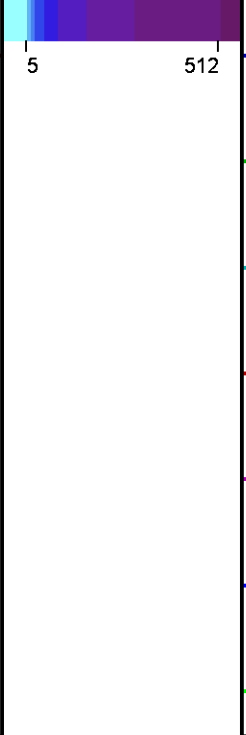
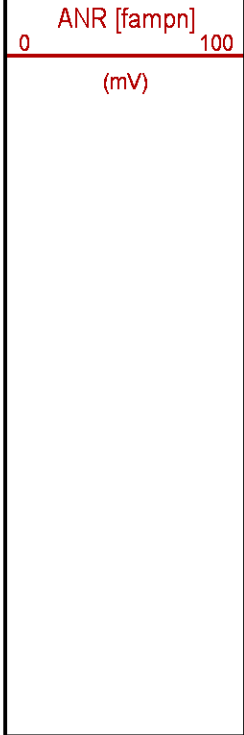
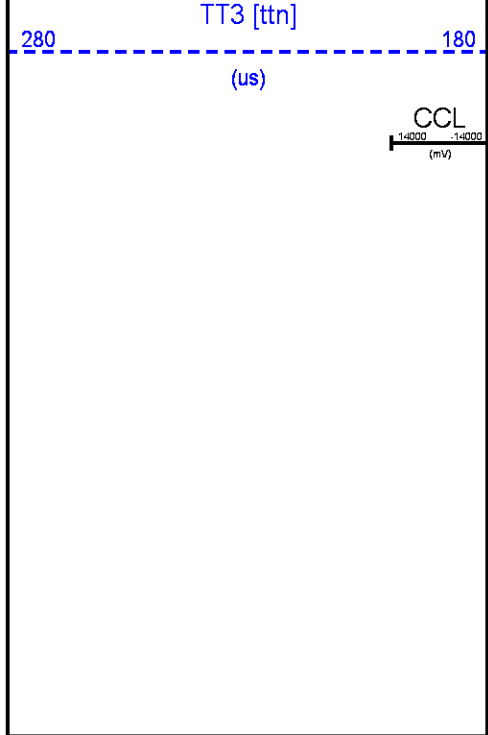
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:AR1	N/A	FIXED GATE AMPLITUDE T-R1
F1:AR2	N/A	FIXED GATE AMPLITUDE T-R2
F1:AR3	N/A	FIXED GATE AMPLITUDE T-R3
F1:AR4	N/A	FIXED GATE AMPLITUDE T-R4
F1:AR5	N/A	FIXED GATE AMPLITUDE T-R5
F1:AR6	N/A	FIXED GATE AMPLITUDE T-R6
F1:AR7	N/A	FIXED GATE AMPLITUDE T-R7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

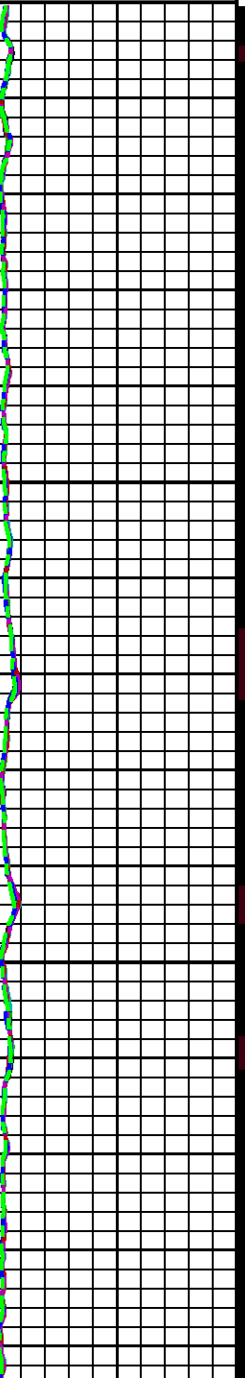
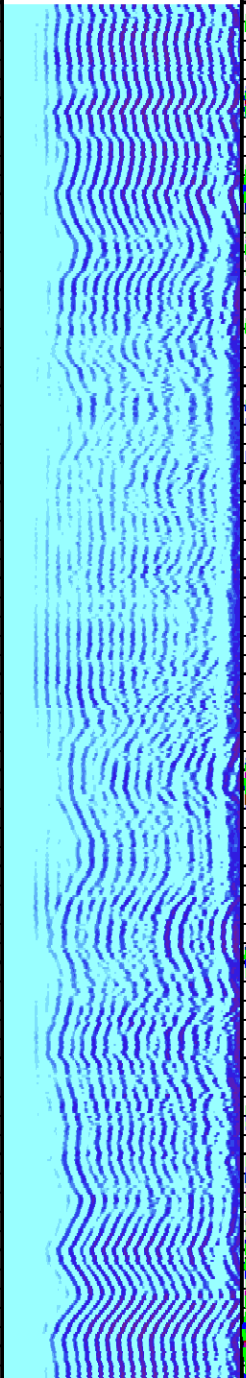
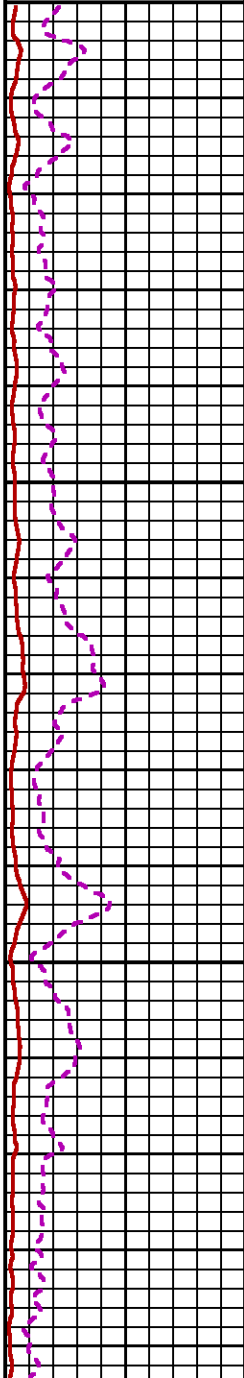
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
AR1	-11.25	AR5	-11.25	CCL	-5.75	XAMPN	-11.25
AR2	-11.25	AR6	-11.25	FAMPN	-11.25		
AR3	-11.25	AR7	-11.25	GR	-1.75		
AR4	-11.25	AR8	-11.25	TTN	-11.25		

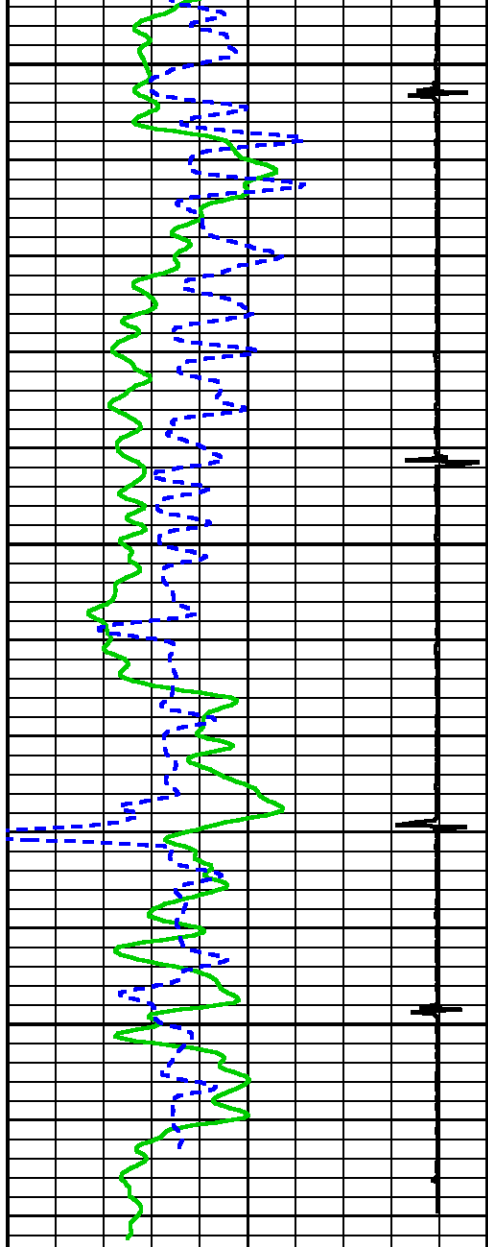
**Presentation** : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_REPEAT\_500.fvpdf [5"/100' Scale]  
**Plot Interval** : 7400.25 - 7674 Feet  
  
**Data File 1** : F1 : SysA:/dat1a/LARAMIE\_HG\_FED\_35-01W/HG\_FED\_35-01W\_RAL\_REPEAT\_500.xtf  
**Created On** : N/A  
**Company** : LARAMIE ENERGY LLC  
**Well** : HG FED 35-01W  
**Field** : ALKALI CREEK  
**File Interval** : 7393.75 - 7675.25 Feet  
**OCT** : p012g





7500





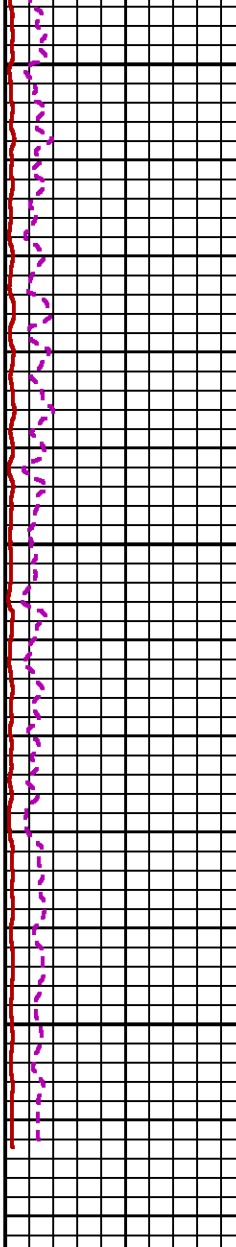
7600

FEET

0 GAMMA RAY [gr] 150

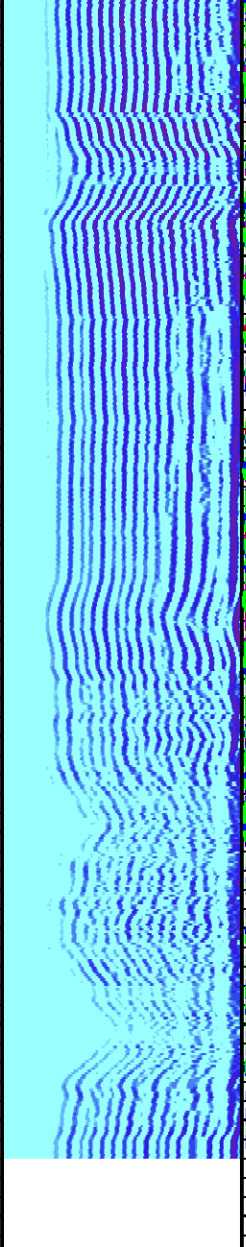
(gAPI)  
280 TT3 [ttn] 180  
(us)

CCL  
-14000  
(mV)



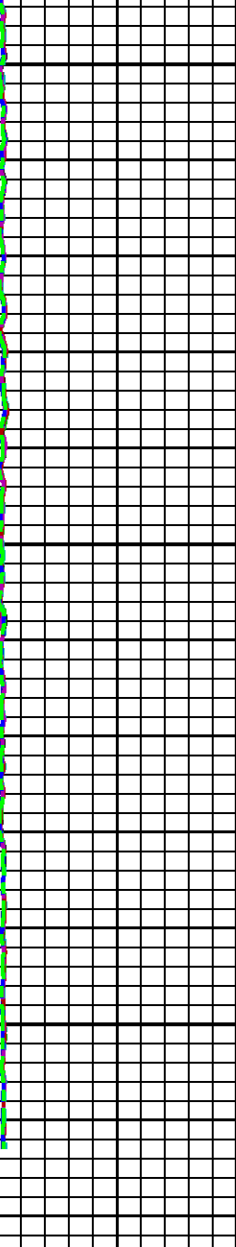
0 XAMP [xampn] 20  
(mV)

0 ANR [fampn] 100  
(mV)



200 Variable Density [fwave] 1200

5 512



0 AR1 [ar1] 100  
(mV)

0 AR2 [ar2] 100  
(mV)

0 AR3 [ar3] 100  
(mV)

0 AR4 [ar4] 100  
(mV)

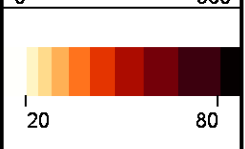
0 AR5 [ar5] 100  
(mV)

0 AR6 [ar6] 100  
(mV)

0 AR7 [ar7] 100  
(mV)

0 AR8 [ar8] 100  
(mV)

0 PBMAP [pbmap] 360



# CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE\_HG\_FED\_35-01W/p012g.lp1

## RAL PRIMARY CALIBRATION SUMMARY

TOOL #: 1426XA 11871500

DATE/TIME PERFORMED: Thu May 17 13:46:36 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)	-0.41	-0.22	-0.20	-0.50	-0.11	0.12	0.24	1.64	0.22	-1.40	0.00
AMP FLUID (mV)	196	193	192	195	196	196	196	192	192	269	190
TT (us)	213	213	213	213	212	212	212	212	214	321	214
M FACTOR	0.51	0.52	0.52	0.51	0.51	0.51	0.51	0.53	0.52	0.55	0.53

## RAL BEFORE LOG VERIFICATION SUMMARY

TOOL #: 1426XA 11871500

DATE/TIME PERFORMED: Thu May 17 13:52:19 2018

DAYS SINCE CAL: 0

UNIT #: 5753XD 10412898

CABLE #: ML4268 SMALL1

	NEAR (mV)	R1 (mV)	R2 (mV)	R3 (mV)	R4 (mV)	R5 (mV)	R6 (mV)	R7 (mV)	R8 (mV)	FAR (mV)	CAL (mV)
ZERO	-0.68	-0.67	-0.40	-0.72	-0.68	-0.49	-0.52	-0.06	-0.33	-0.84	0.00
AMP AIR	1.03	1.09	0.82	1.13	1.04	0.98	0.94	0.67	0.82	1.09	100.03

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

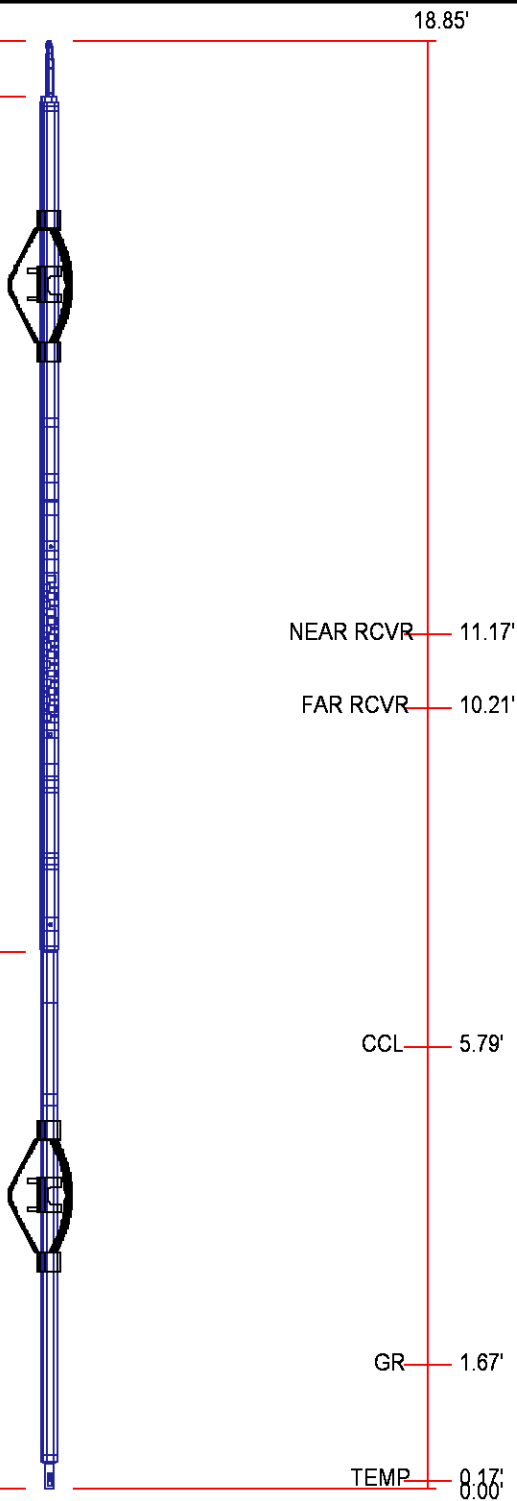
# INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE\_HG\_FED\_35-01W/RAL-tdg

A3 CABLEHEAD  
Diameter : 1.37"

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: 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:** CH137301  
**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** 17-May-2018

