

COMPANY: PETROLEUM DEVELOPMENT CORP.

WELL: UNOCAL #23-9D

FIELD: GRAND VALLEY

COUNTY: GARFIELD STATE: COLORADO

Schlumberger

CEMENT BOND LOG  
CASING COLLAR LACATOR  
GAMMA RAY

COUNTY: GARFIELD  
Field: GRAND VALLEY  
Location: SW/NW S9-T6S-R96W  
Well: UNOCAL #23-9D  
Company: PETROLEUM DEVELOPMENT

LOCATION		GROUND LEVEL	
SW/NW S9-T6S-R96W		Elev.: K.B. 5810 ft	
		G.L. 5794 ft	
		D.F.	
Permanent Datum: _____		Elev.: 5794 ft	
Log Measured From: _____		16.0 ft above Perm. Datum	
Drilling Measured From: _____		KELLY BUSHING	
API Serial No.	SECTION 9	TOWNSHIP 6S	RANGE 96W

Logging Date	28-Apr-2001					
Run Number	ONE					
Depth Driller	8027 ft					
Schlumberger Depth	8013 ft					
Bottom Log Interval	8000 ft					
Top Log Interval	3300 ft					
Casing Fluid Type	FRESH WATER					
Salinity						
Density	8.3 lbm/gal					
Fluid Level	0 ft					
BIT/CASING/TUBING STRING						
Bit Size	7.875 in					
From	8063 ft					
To	0 ft					
Casing/Tubing Size	4.500 in					
Weight	11.6 lbm/ft					
Grade	N-80					
From	8027 ft					
To	0 ft					
Maximum Recorded Temperatures						
Logger On Bottom	28-Apr-2001			Time		20:12
Unit Number	Location		2018			VERNAL
Recorded By	ZENOBIO MATOS					
Witnessed By	JEF CLARK					

										Run 1	Run 2	Run 3	Run 4
PVT DATA													
Oil Density													
Water Salinity													
Gas Gravlty													
Bo													
Bw													
1/Bg													
Bubble Point Pressure													
Bubble Point Temperature													
Solution GOR													
Maximum Deviation													
CEMENTING DATA													
Primary/Squeeze								Primary					
Casing String No													
Lead Cement Type													
Volume													
Density													
Water Loss													
Additives													
Tail Cement Type													
Volume													
Density													
Water Loss													
Additives													
Expected Cement Top													
Logging Date													
Run Number													
Depth Driller													
Schlumberger Depth													
Bottom Log Interval													
Top Log Interval													
Casing Fluid Type													
Salinity													
Density													
Fluid Level													
BIT/CASING/TUBING STRING													
Bit Size													
From													
To													
Casing/Tubing Size													
Weight													
Grade													
From													
To													
Maximum Recorded Temperatures													
Logger On Bottom													
Unit Number													
Recorded By													
Witnessed By													

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES1

OS1:  
OS2:  
OS3:  
OS4:  
OS5:

REMARKS: RUN NUMBER 1

LOG TIED INTO SWS 28-APR-2001

TOOL RUN AS PER TOOL SKETCH

SONIC CENTRALIZED DUE TO INLINES

ESTIMATED TOP OF CEMENT @ 3470 FT

OTHER SERVICES2

OS1:  
OS2:  
OS3:  
OS4:  
OS5:

REMARKS: RUN NUMBER 2

LOGGED INTERVAL	START	STOP

LOGGED INTERVAL	START	STOP

EQUIPMENT DESCRIPTION	
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100	...

RUN 1

RUN 2

**SURFACE EQUIPMENT  
WITM (DTS)-A**

GSR-U/Y  
NCT-B  
CNB-AB  
NCS-VB

## DOWNHOLE EQUIPMENT

PEH-A  
PEH-A



52.4

AH-64  
AH-64



50.6

CAL-Y  
CAL-Y

CCL

\_\_\_\_\_ 48.3

## 49.3

DTC-A  
ECH-KN  
DTC-A

CTEM

44.8

45.8

TelStatus  
HGNS HTEM  
HMCA  
Gamma-Ray

37.8

37.8

— 37.8  
— 37.0

37.8

HILTB-FTB  
HGNSD-B  
HMCA  
HGNS-H  
NLS-KL  
NSR-F  
HACCZ  
HCNT  
HGR  
NPV-N

Neutron F  
Neutron N

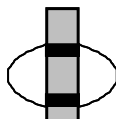
31.2

$$\leq \frac{51.2}{30.7}$$

HGNS sens

28.4

AH-INLINE  
AH-INLINE



## 28.4

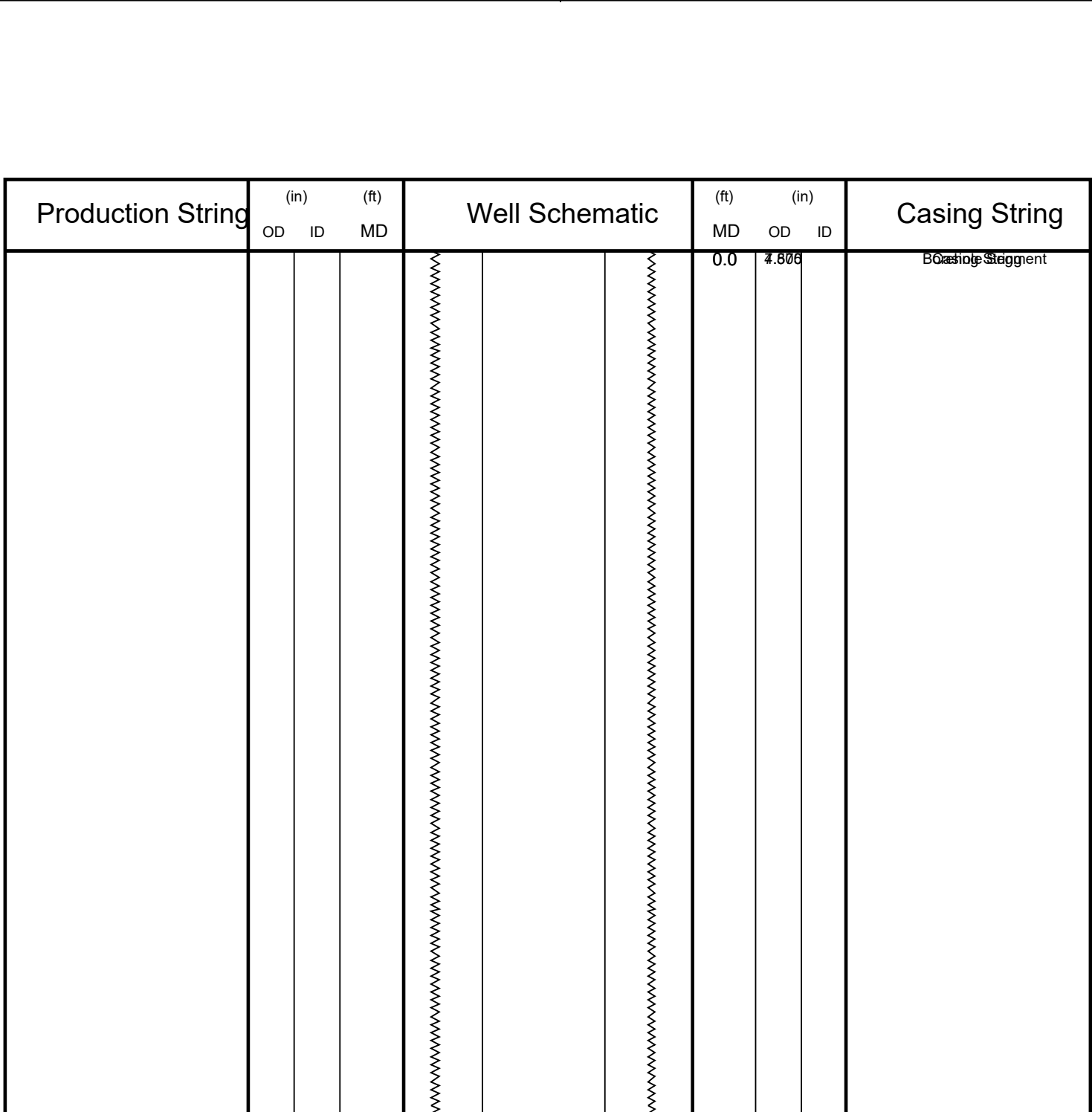
DSLT-FTB  
DSL-C-B  
ECH-KH  
SLS-W




24.6

## LIGN

122





					8013.0 8013.0	7.599		Borehole Segment Bottom PBTD
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# MAIN PASS

MAXIS 500 Field Log

## Input DLIS Files

DEFAULT	DSLT_TLD_MCFL_CNL_008LUP	FN:7	PRODUCER	29-Apr-2001 00:58	8012.0 FT	3258.0 FT
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## Output DLIS Files

DEFAULT	DSLT_TLD_MCFL_CNL_010PUP	FN:9	PRODUCER	29-Apr-2001 02:27	8022.0 FT	3269.5 FT
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## OP System Version: 9C2-303

MCM

DSLT-FTB  
DTC-A

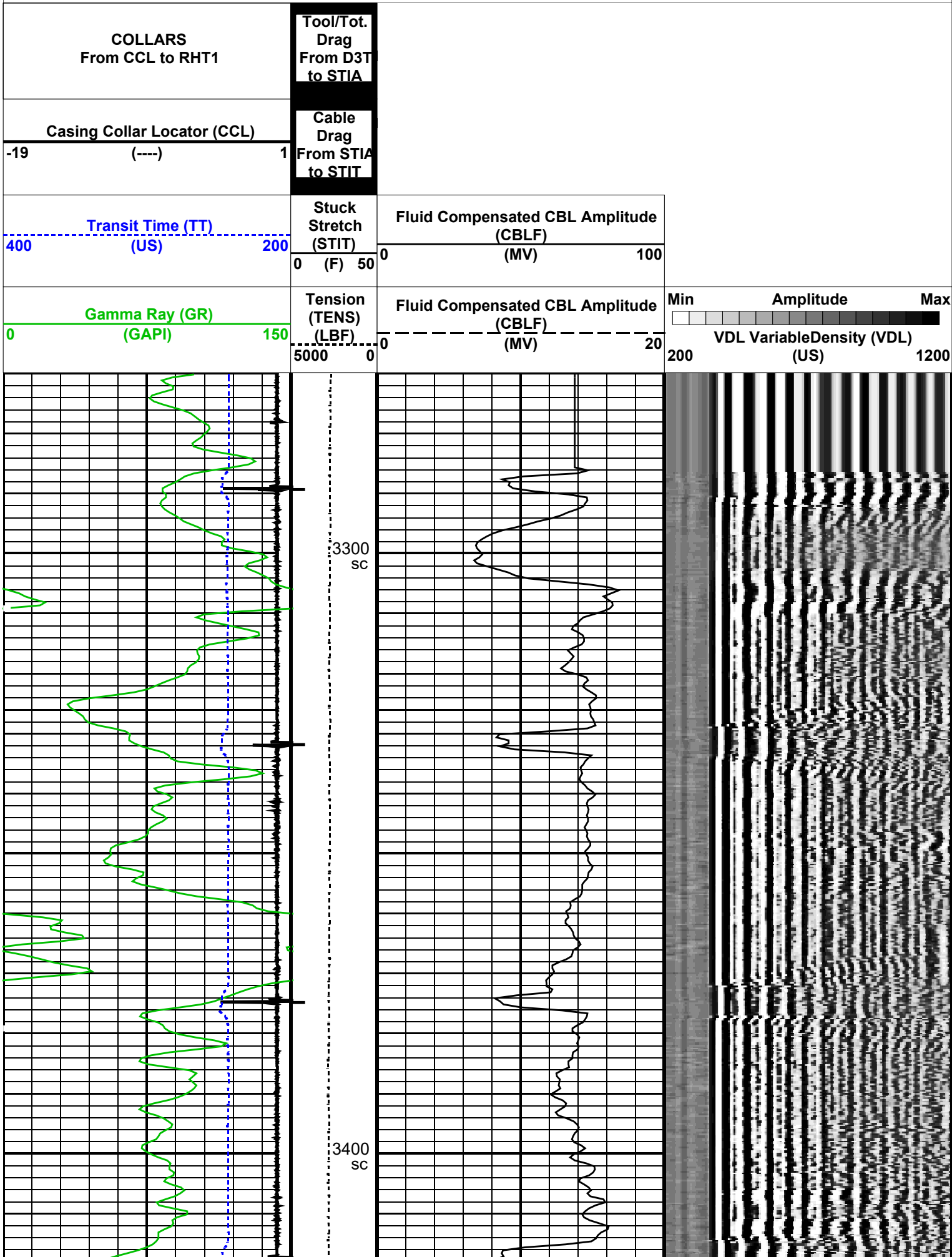
OP92-KP1  
9C2-303

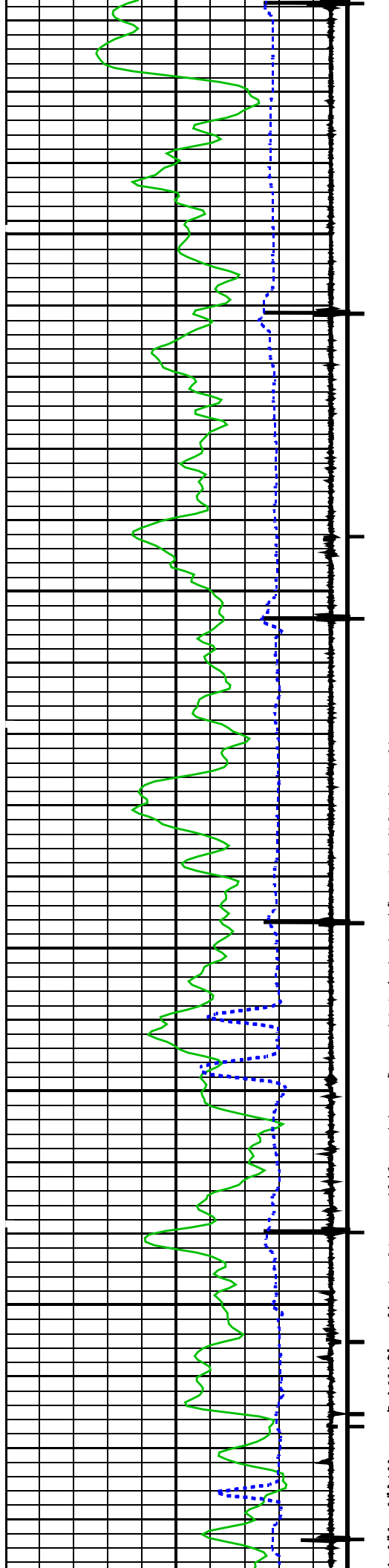
HILTB-FTB  
CAL-Y

OP92-KP1  
9C2-303

← Casing Collars

Time Mark Every 60 S

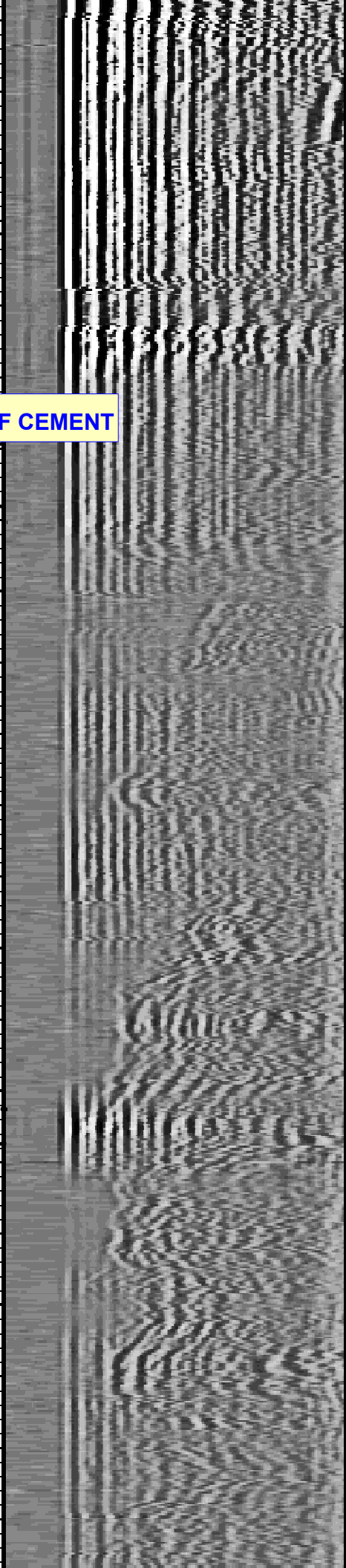
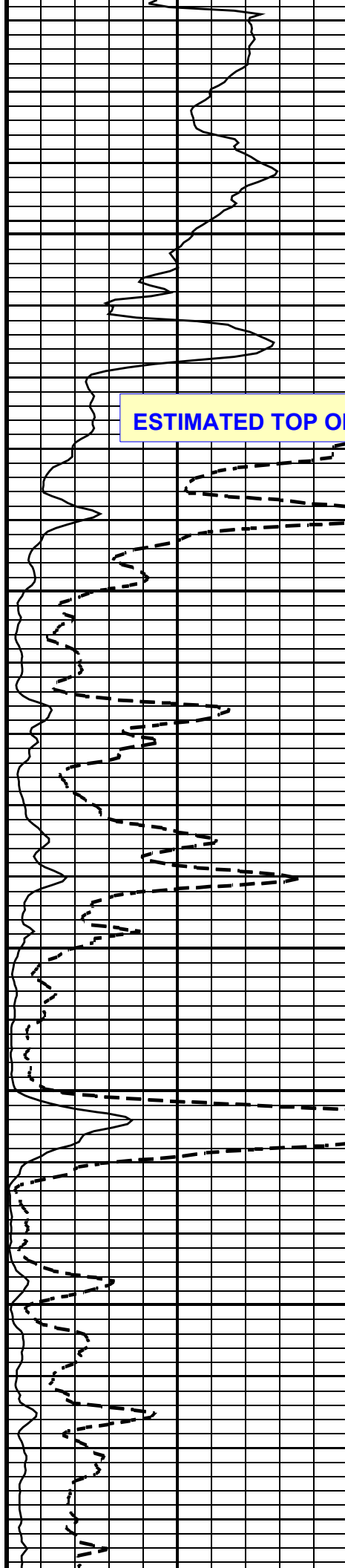


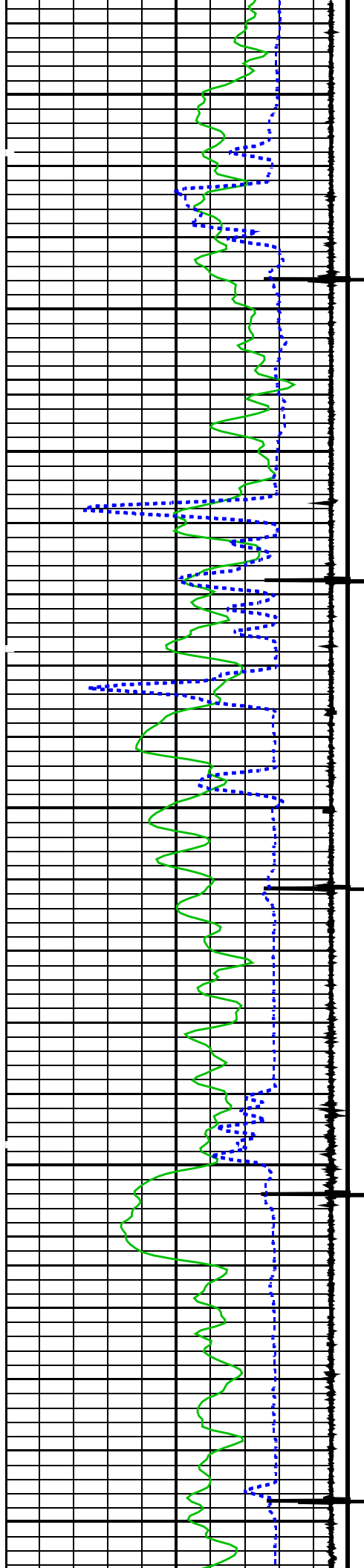


3500  
SC

3600  
SC

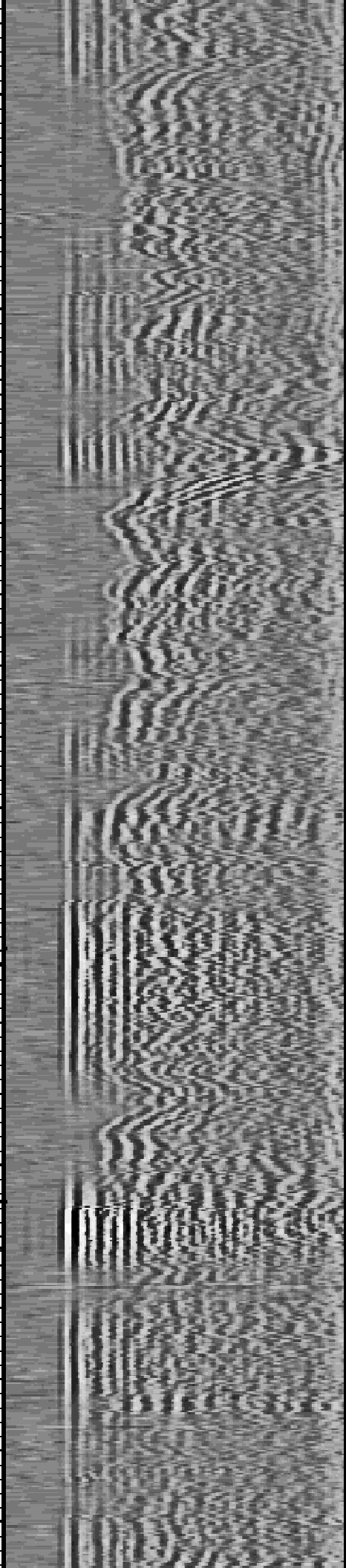
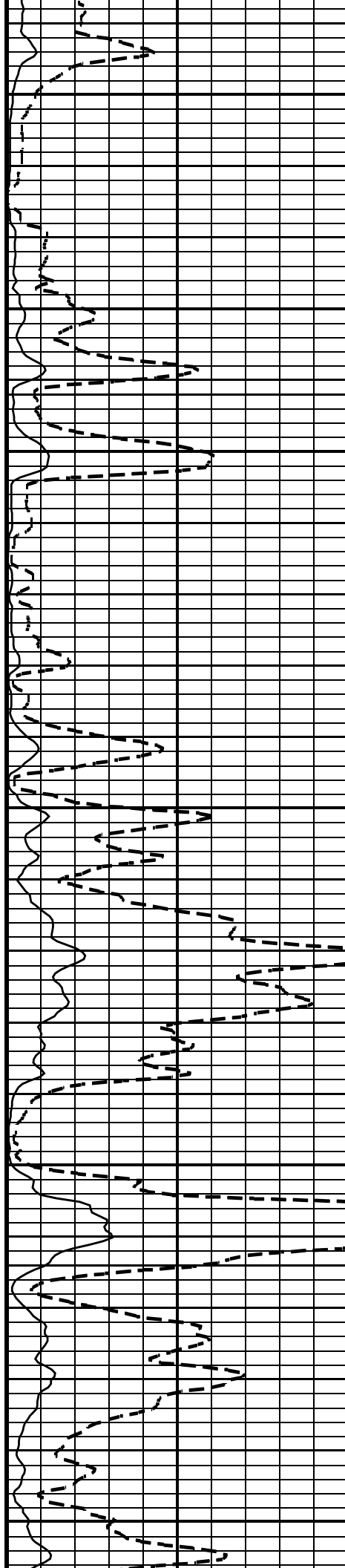
ESTIMATED TOP OF CEMENT

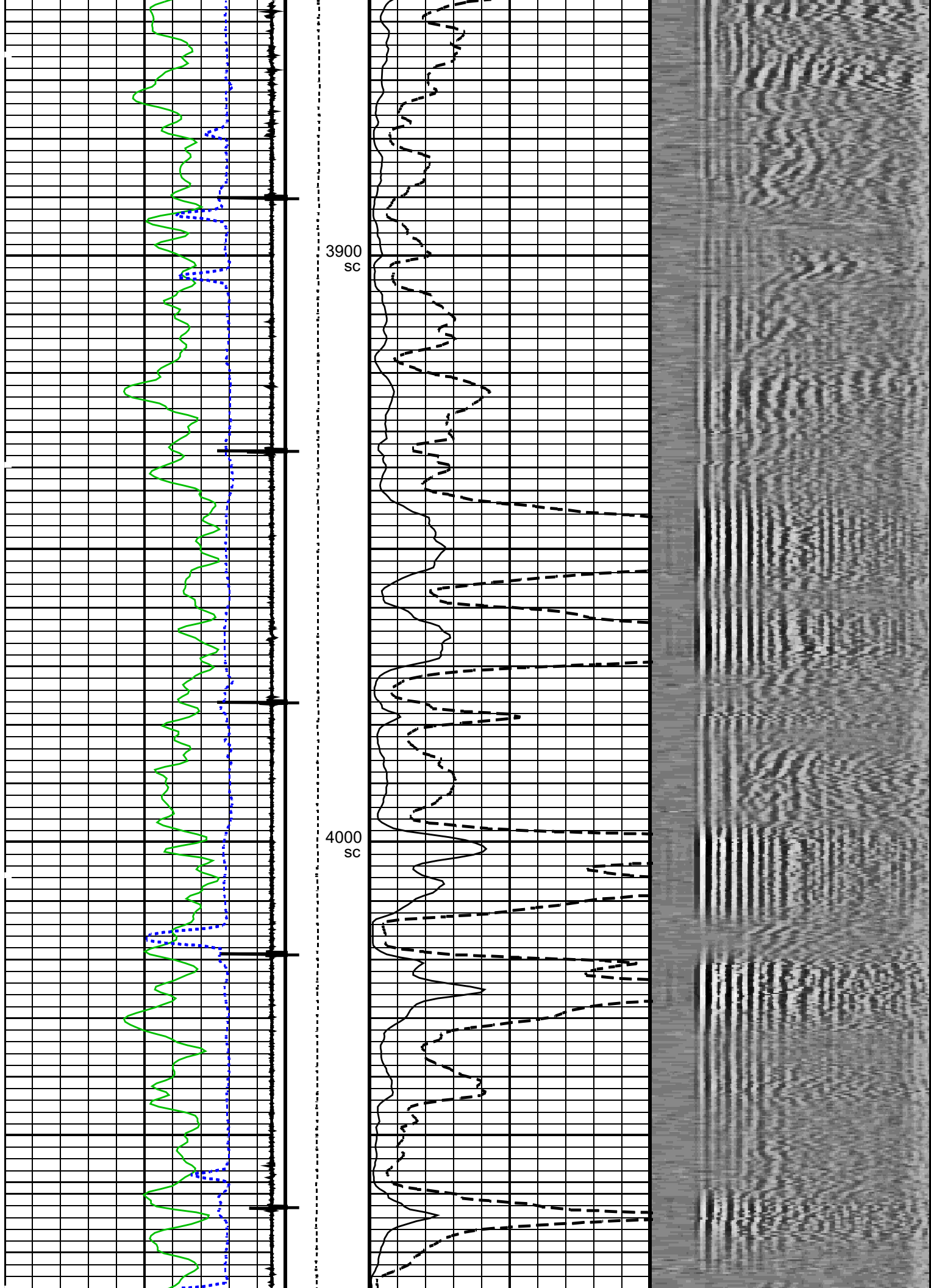


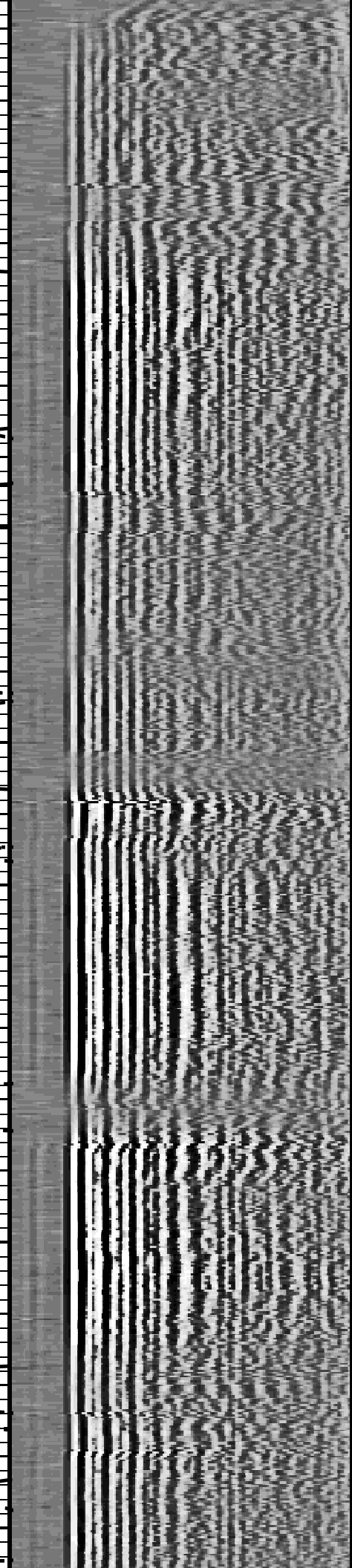
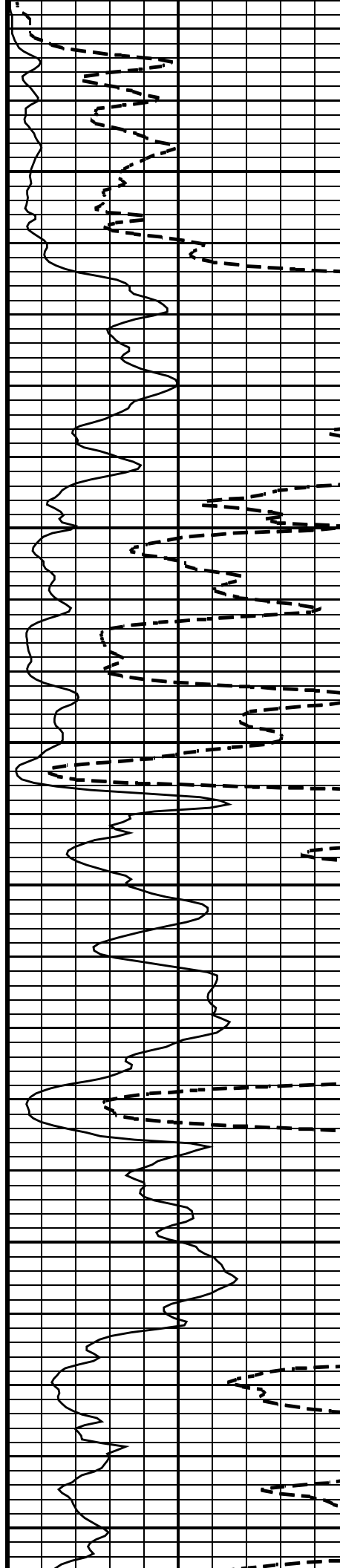
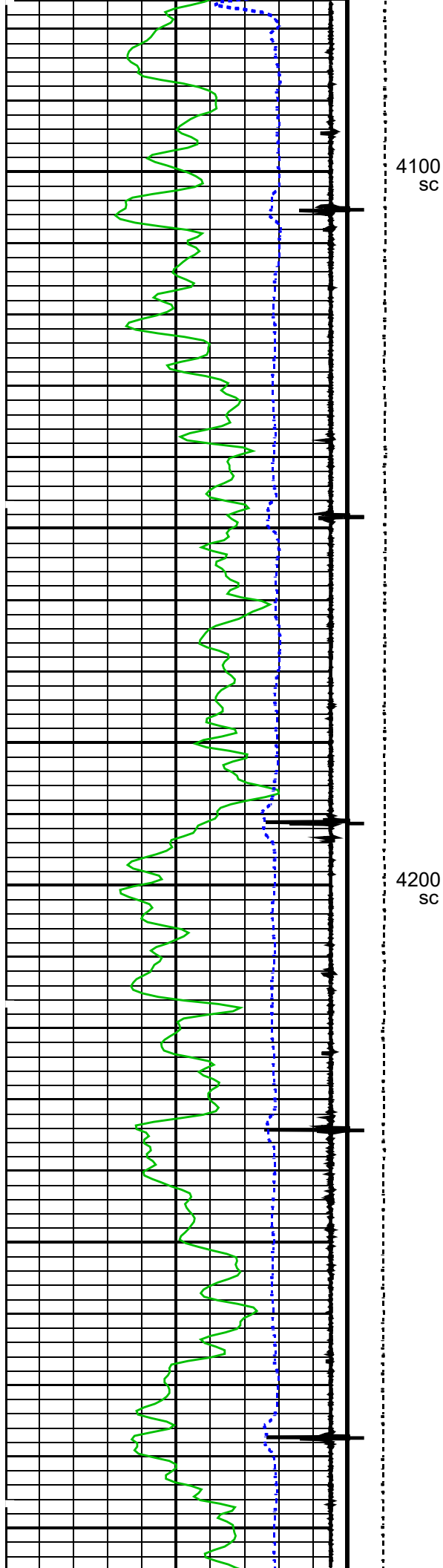


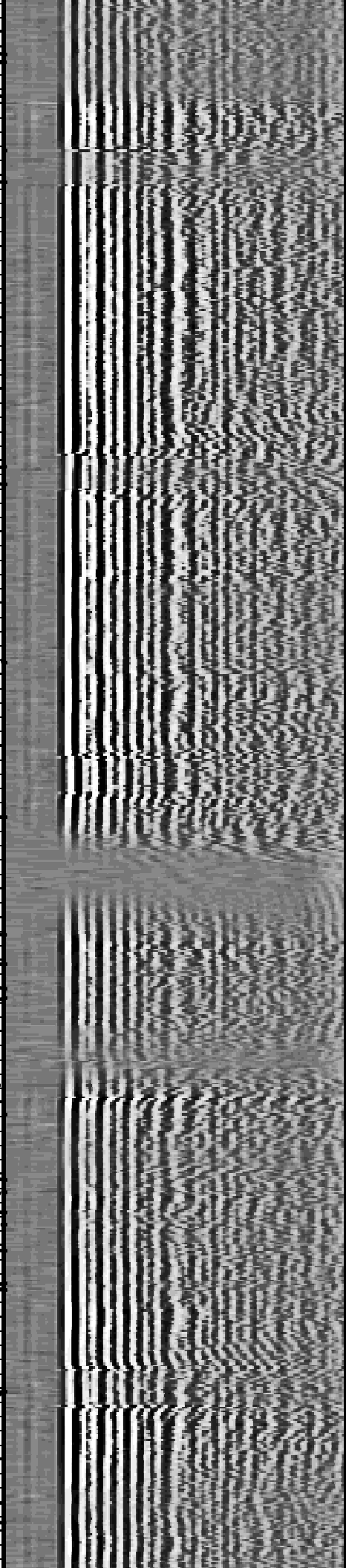
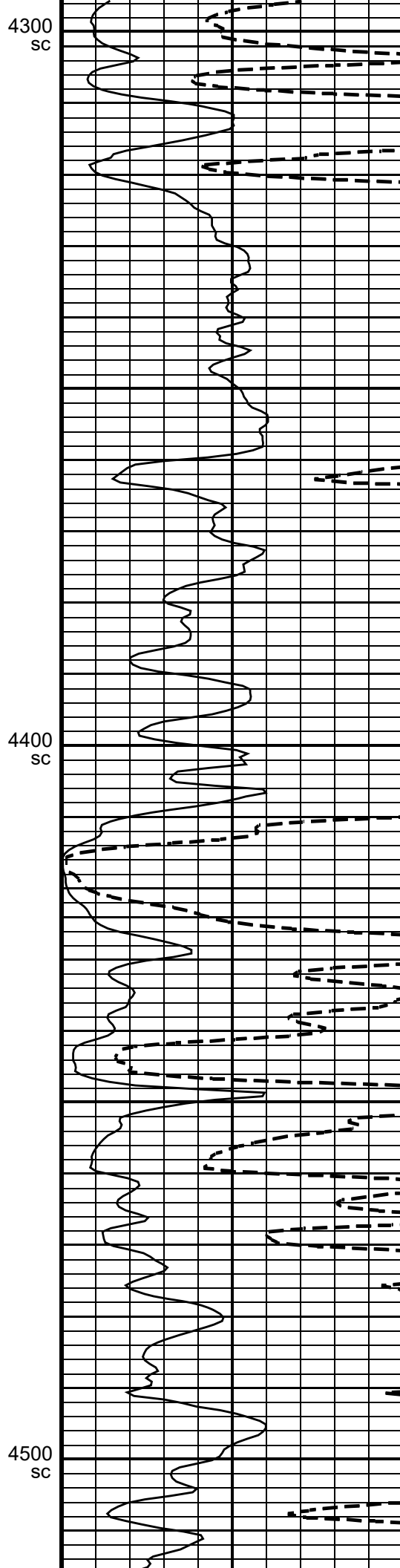
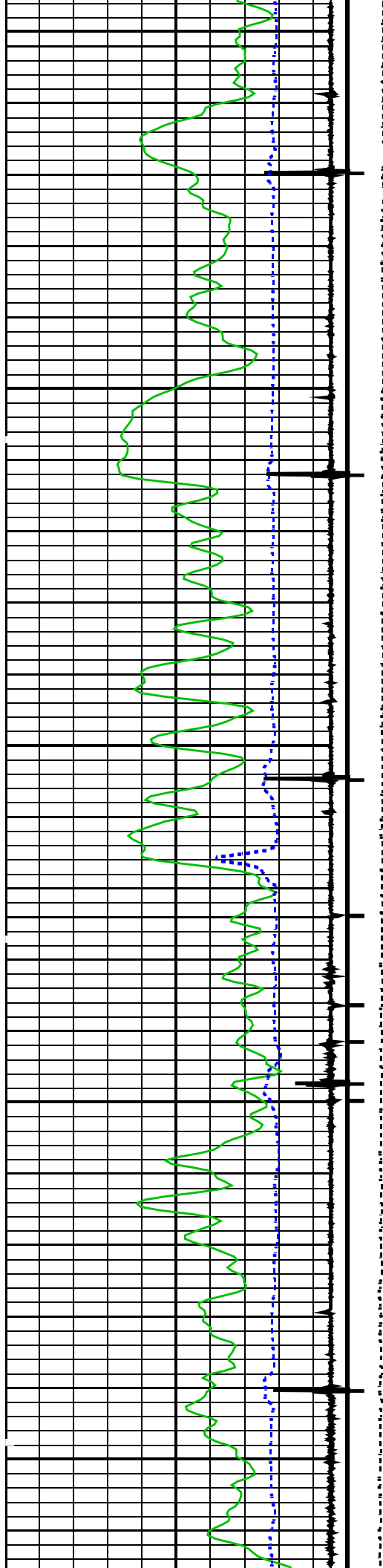
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3800  
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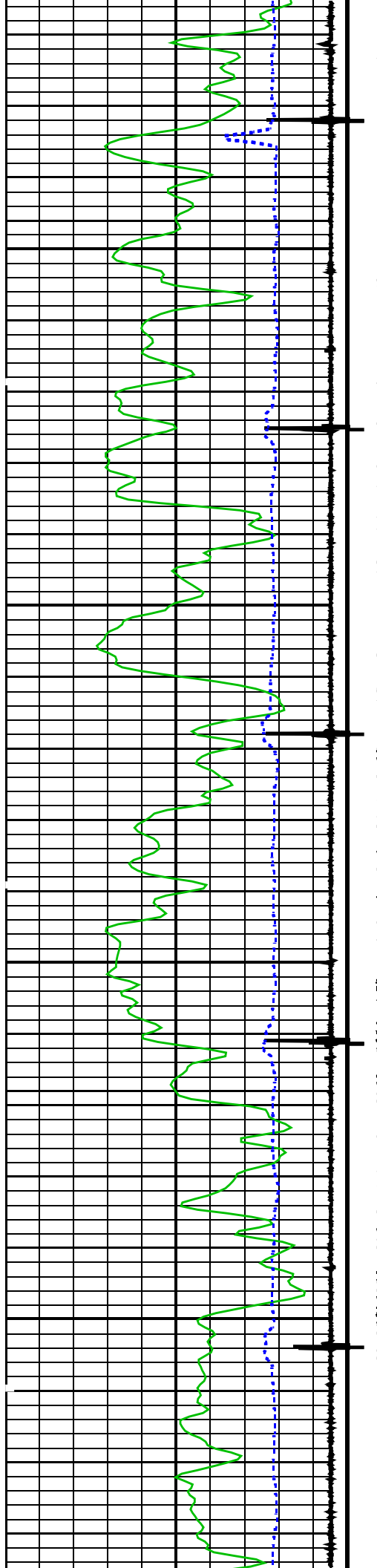






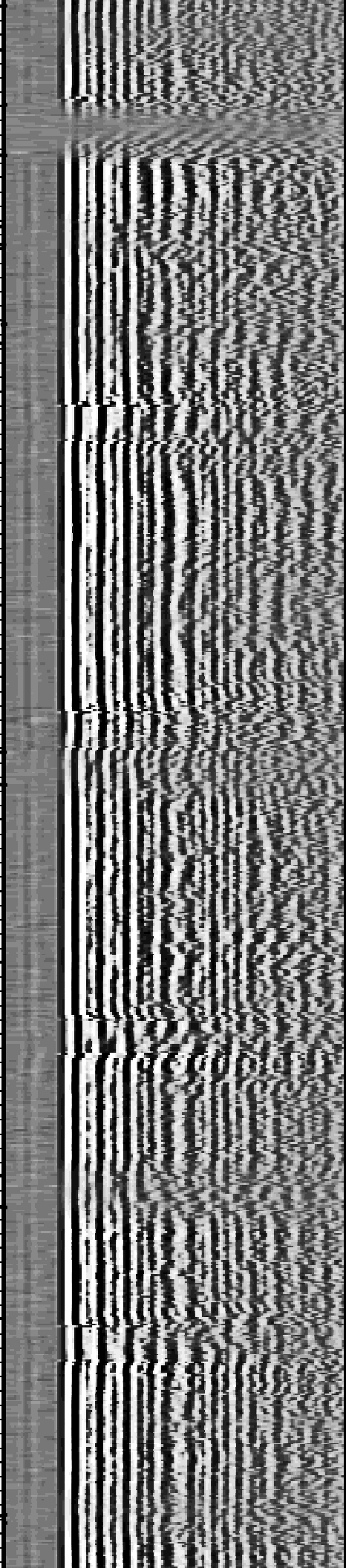
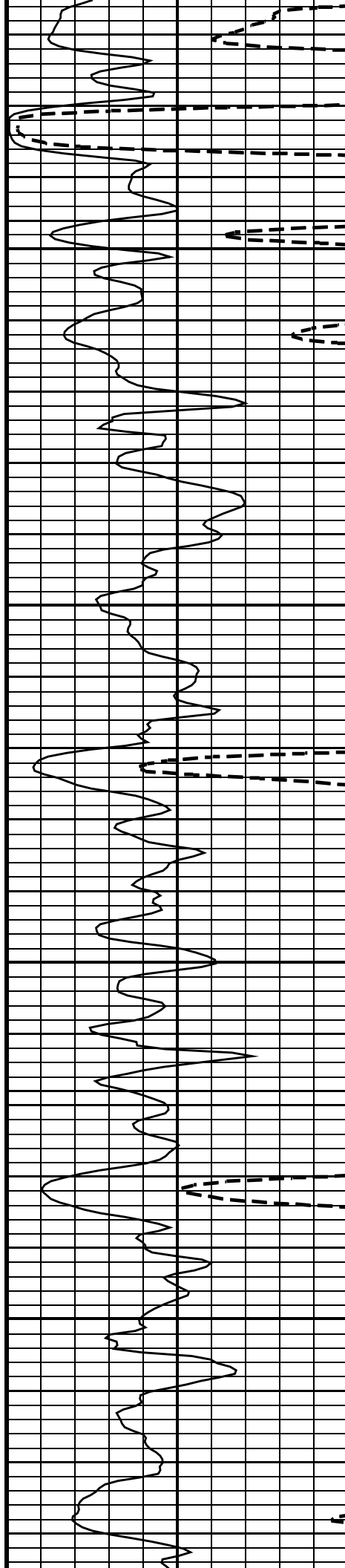


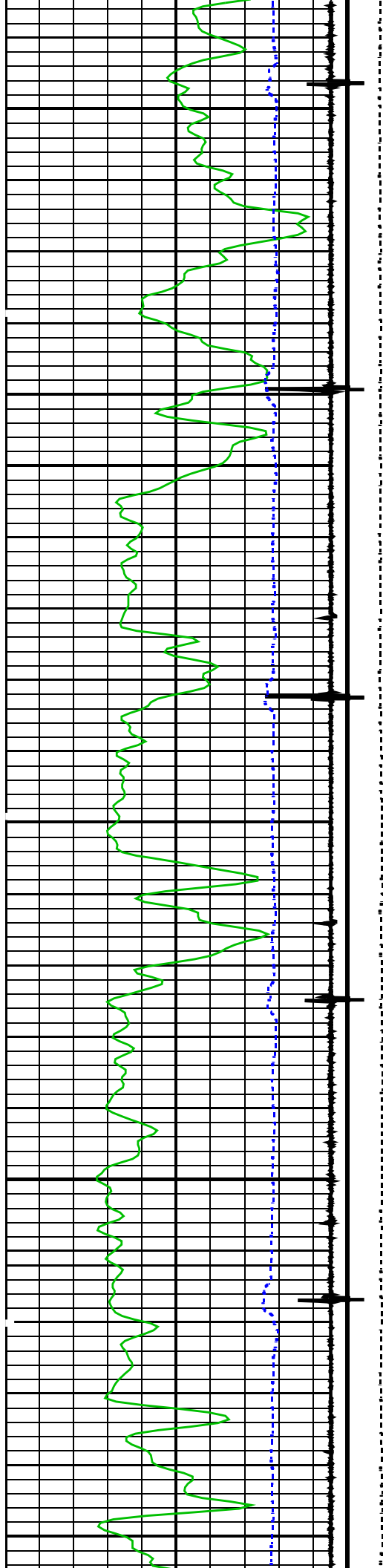




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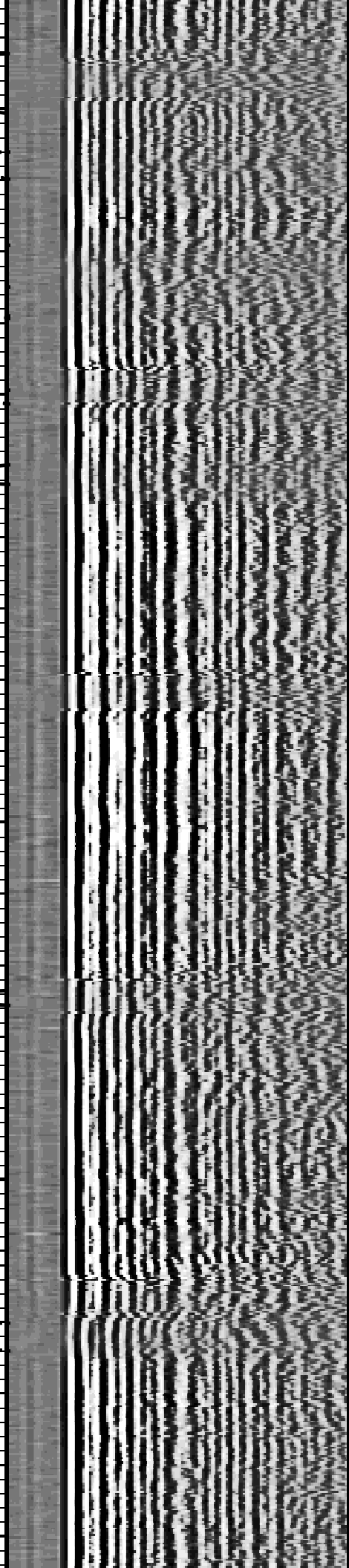
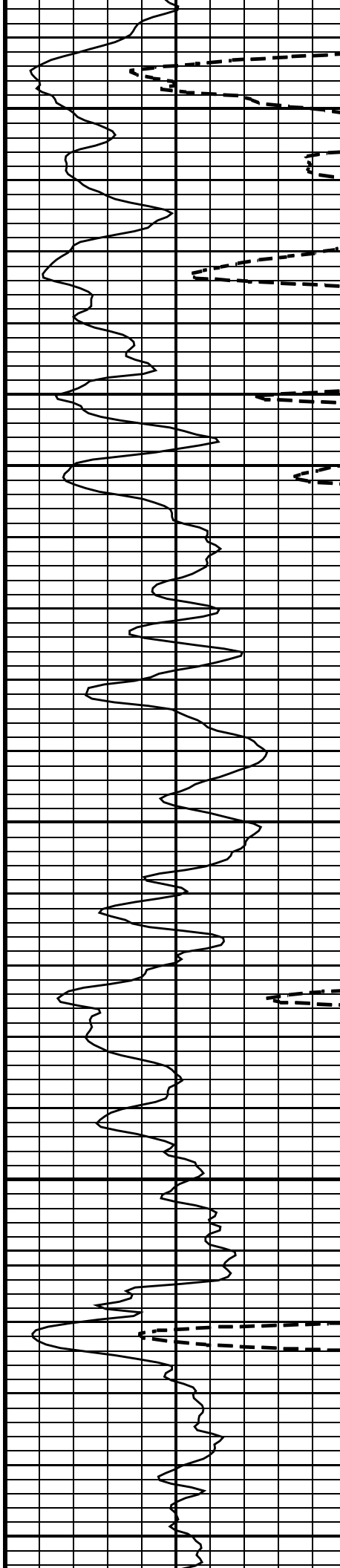
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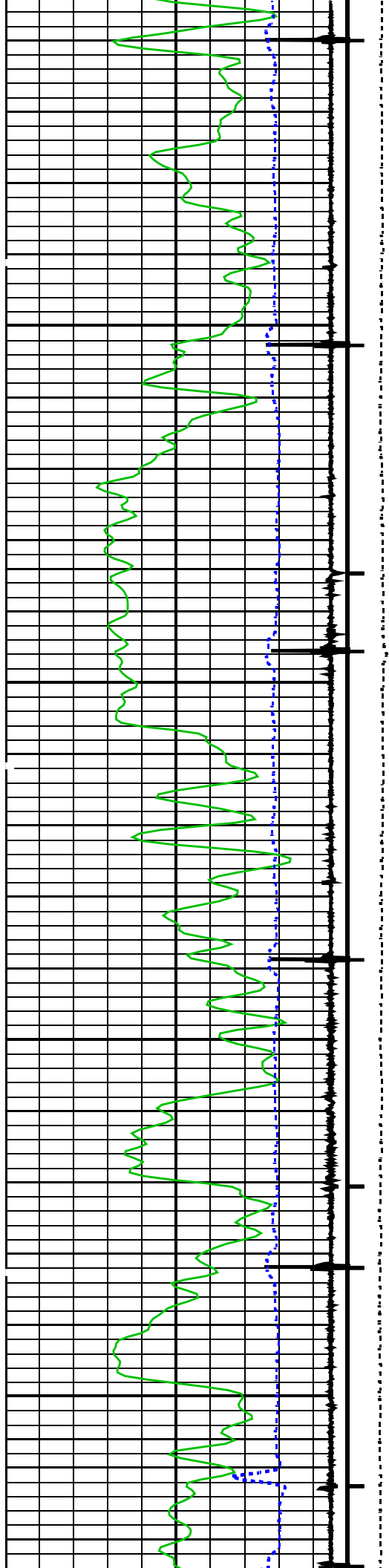




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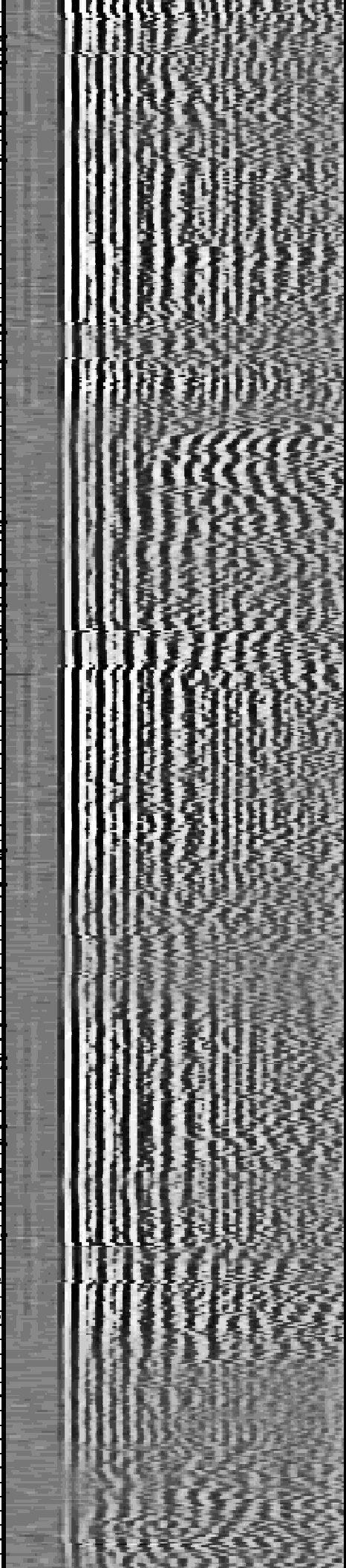
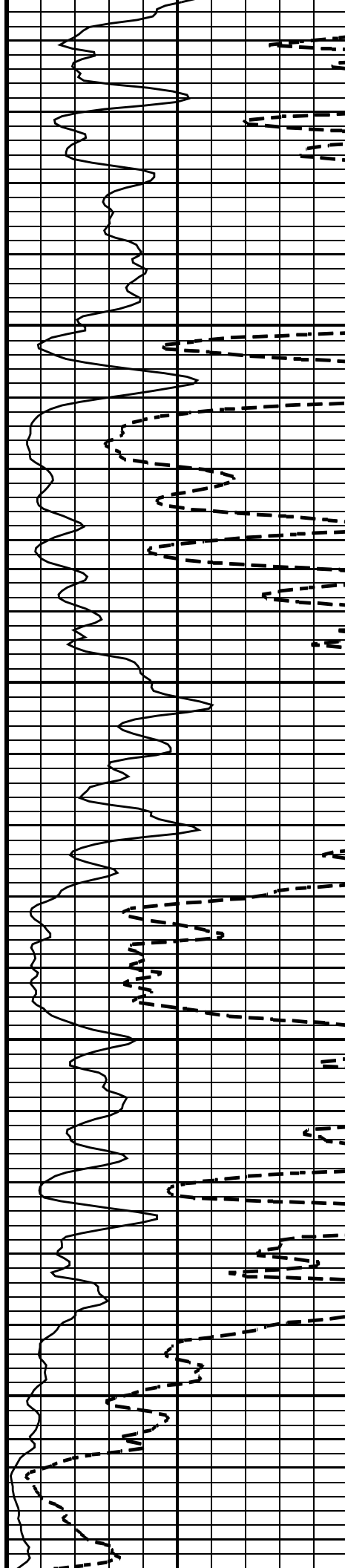
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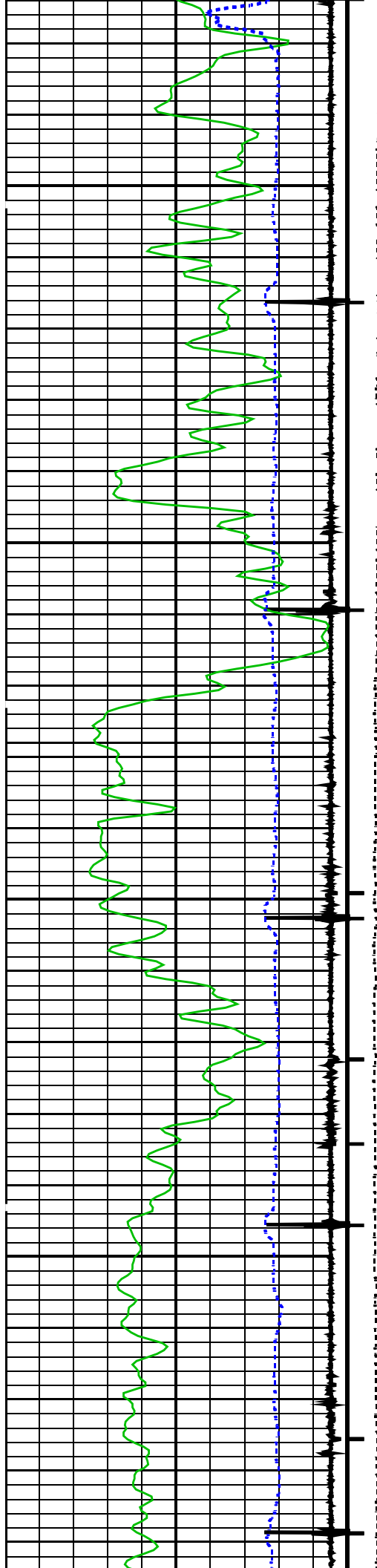




5000  
SC

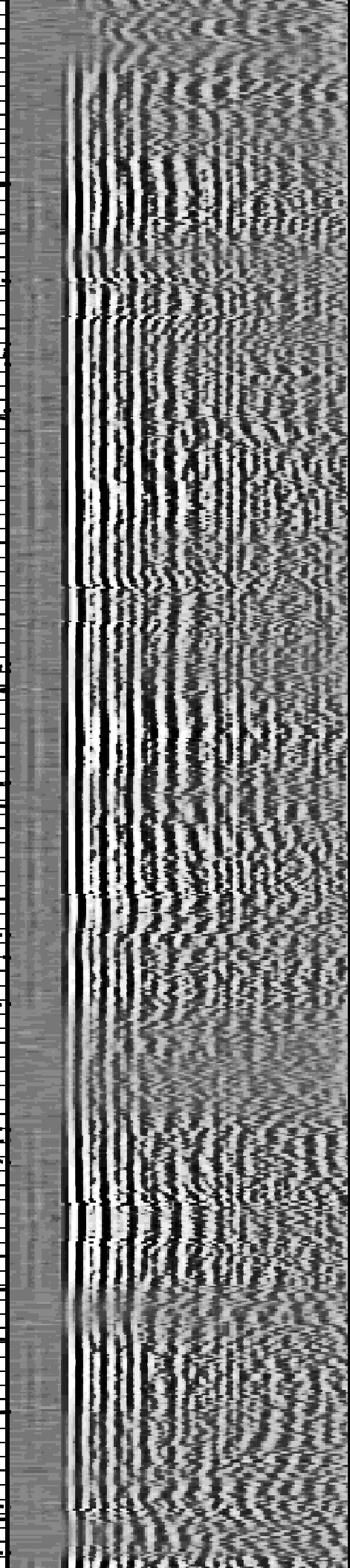
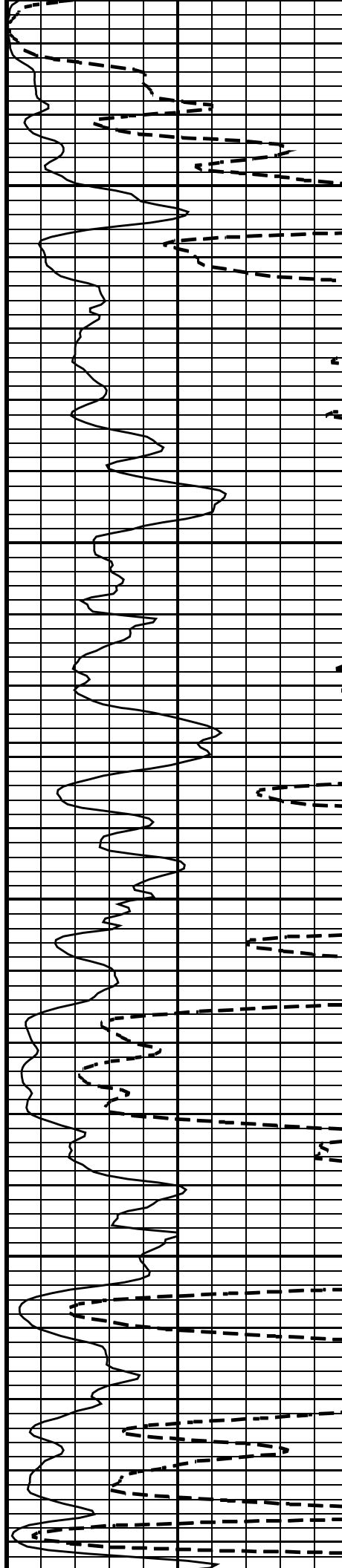
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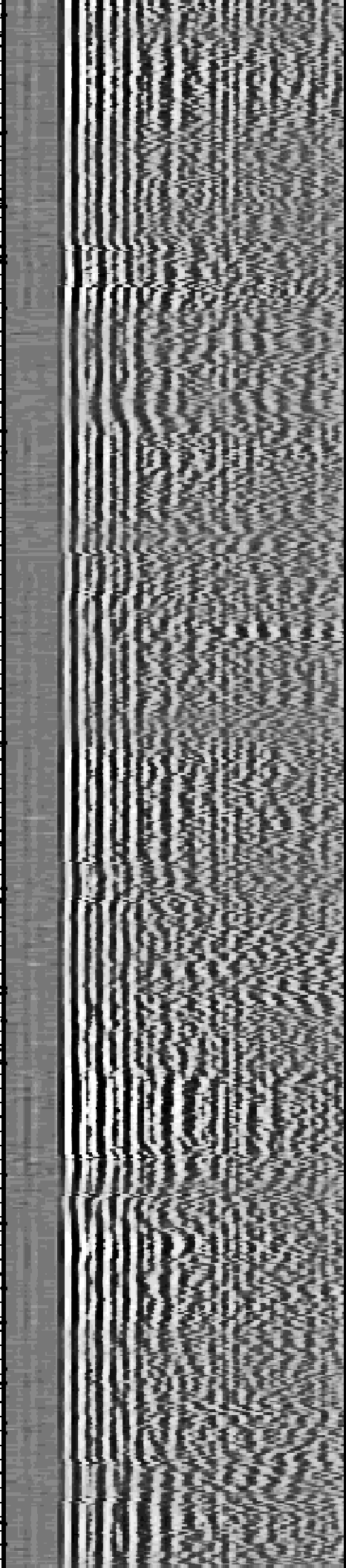
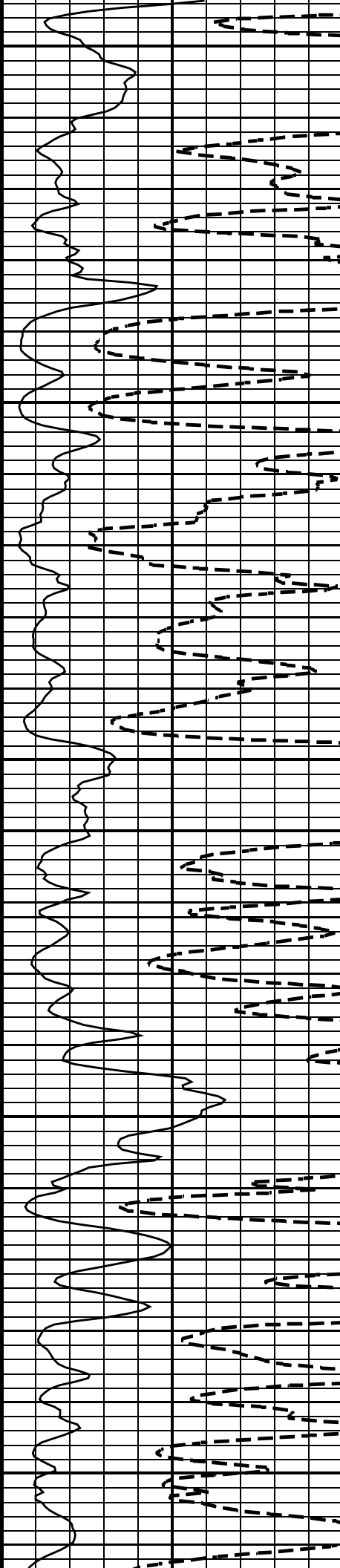
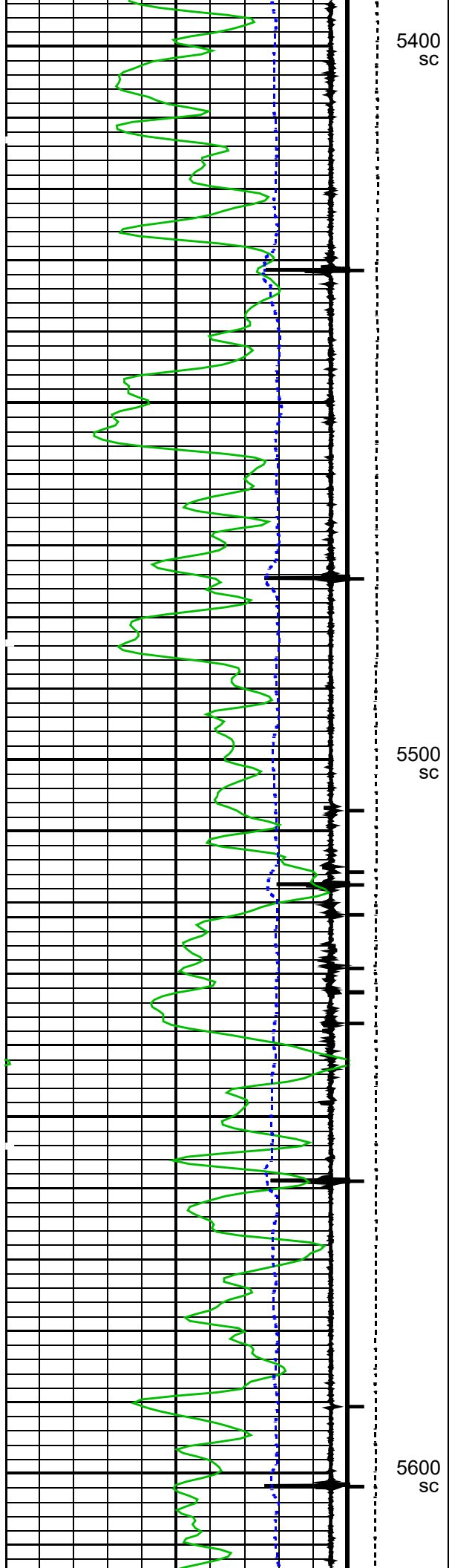


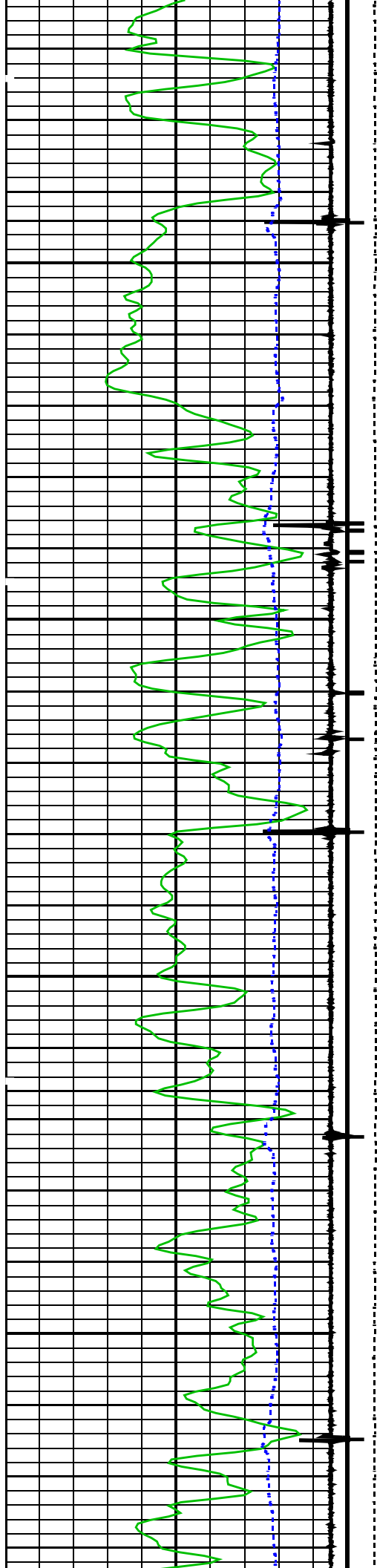


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5300  
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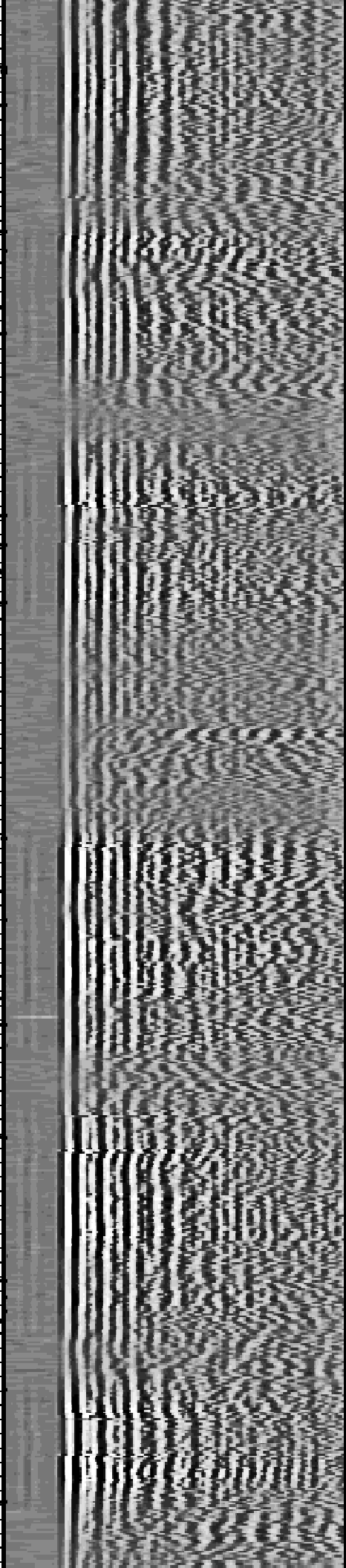
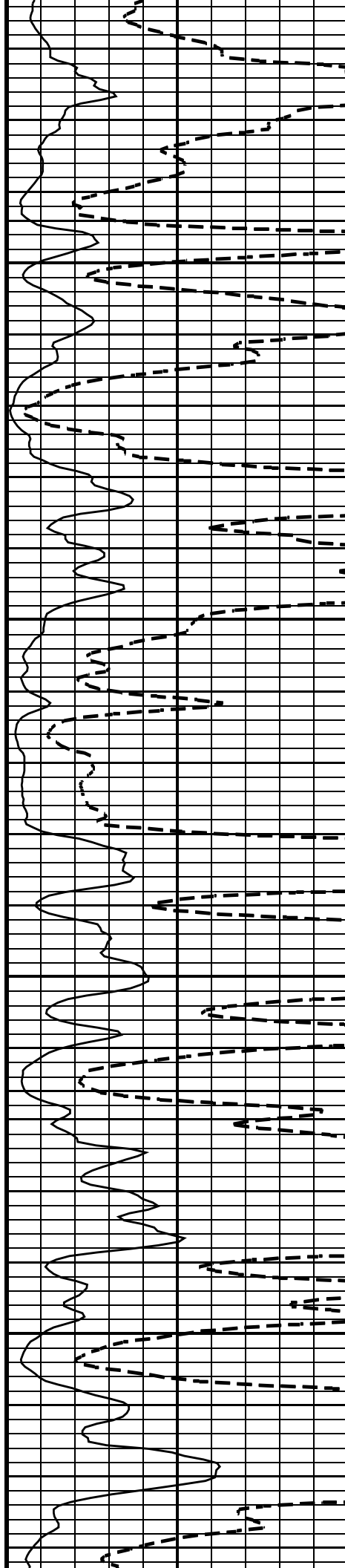


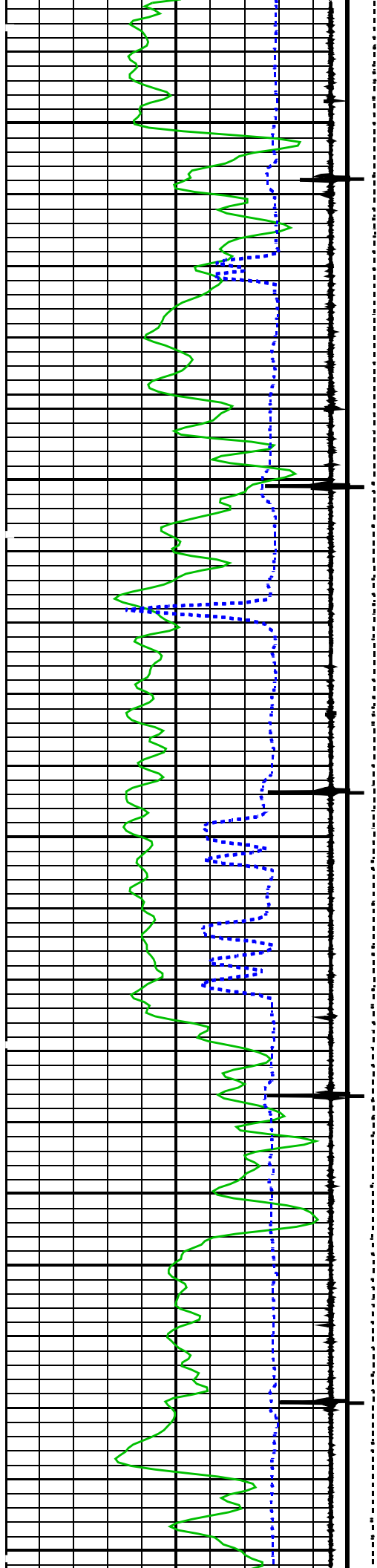




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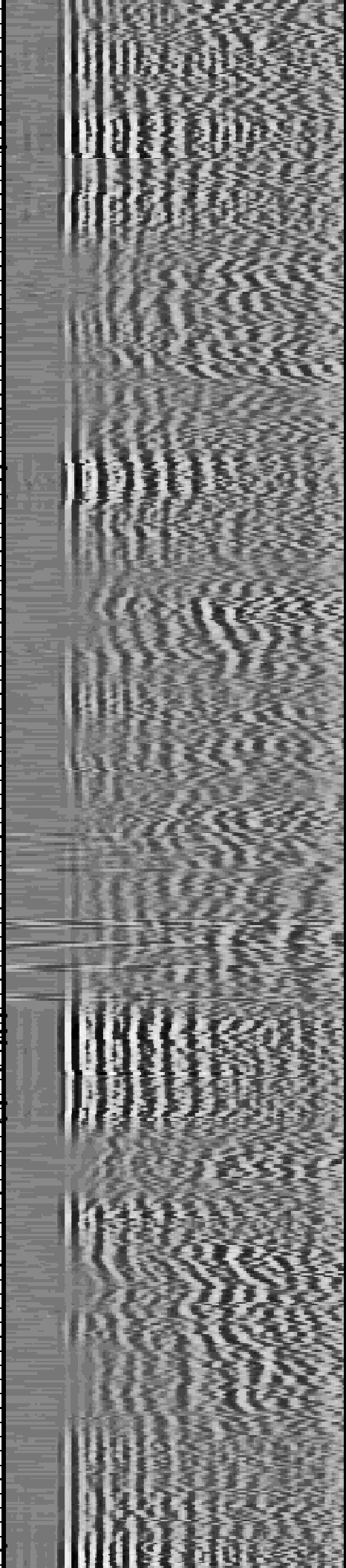
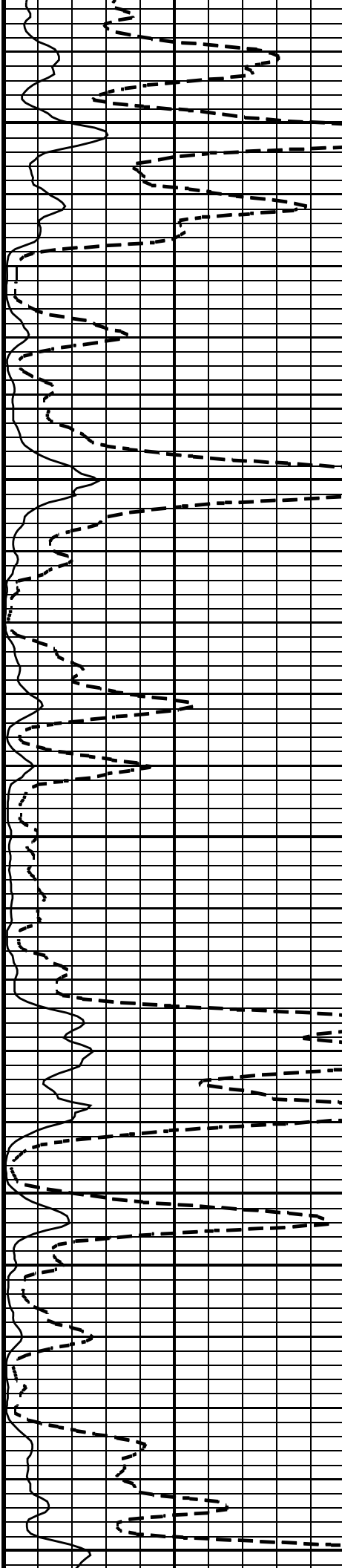
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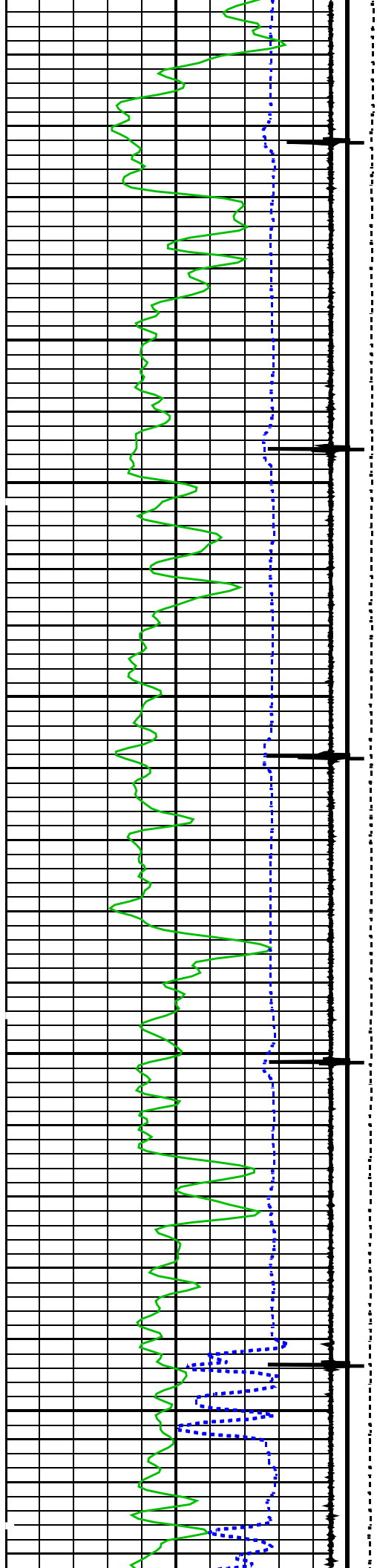




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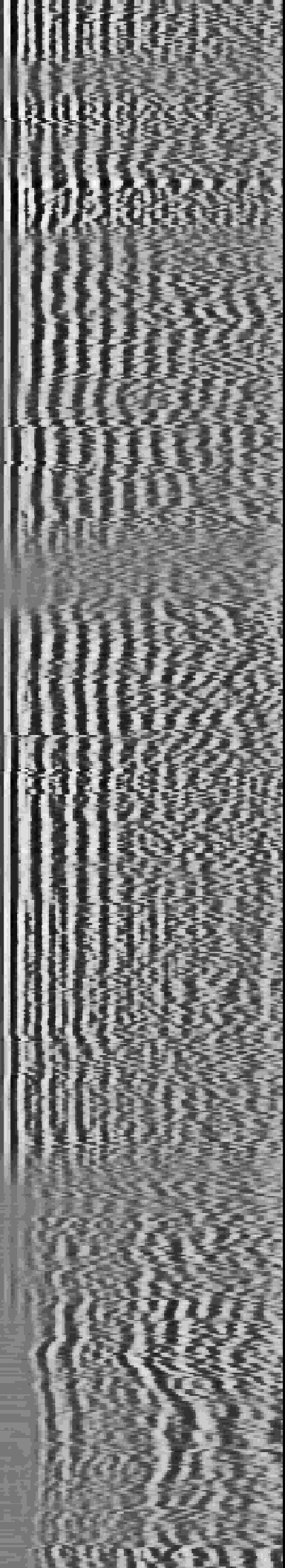
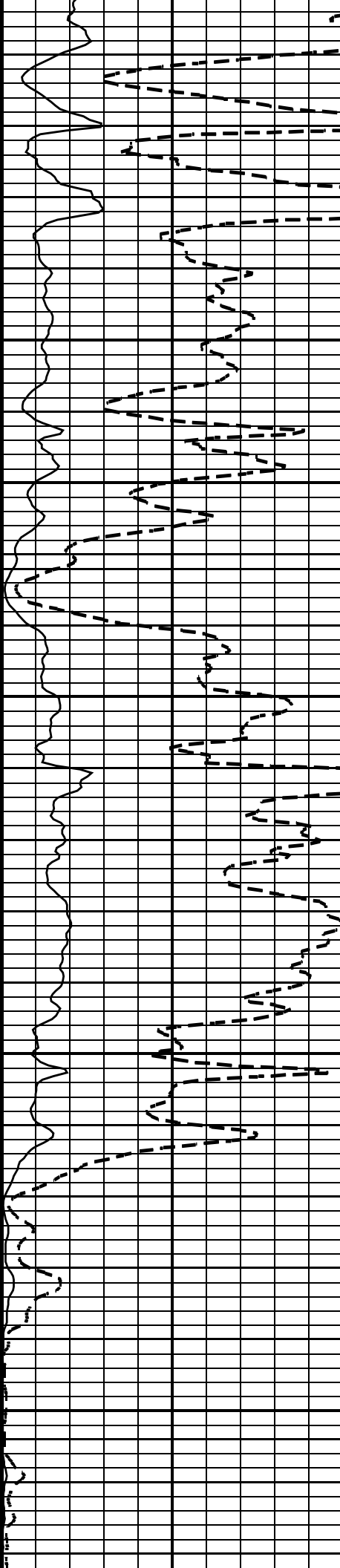
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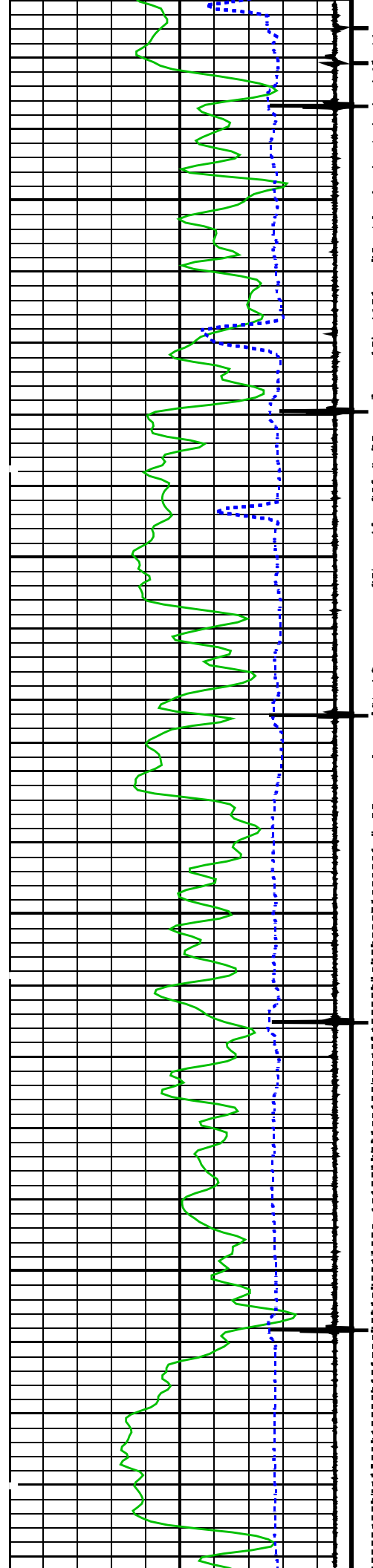


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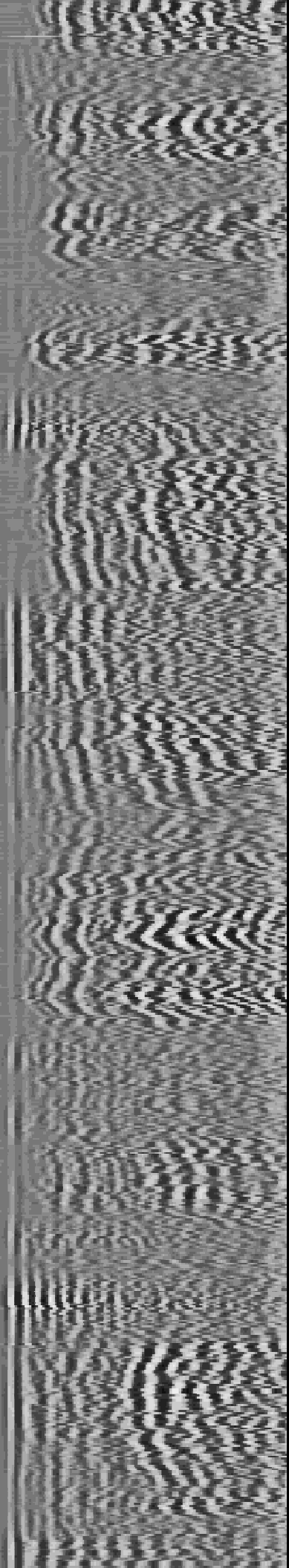
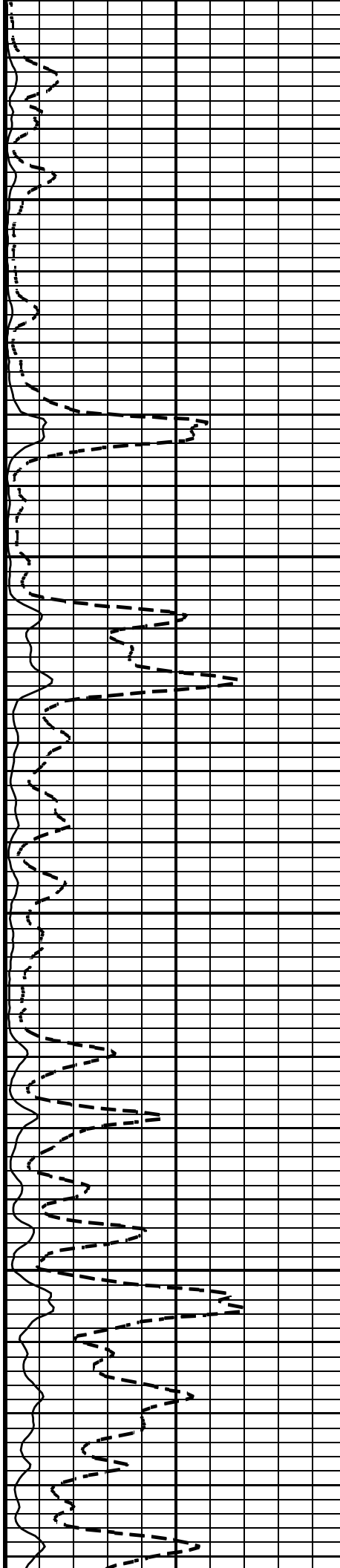


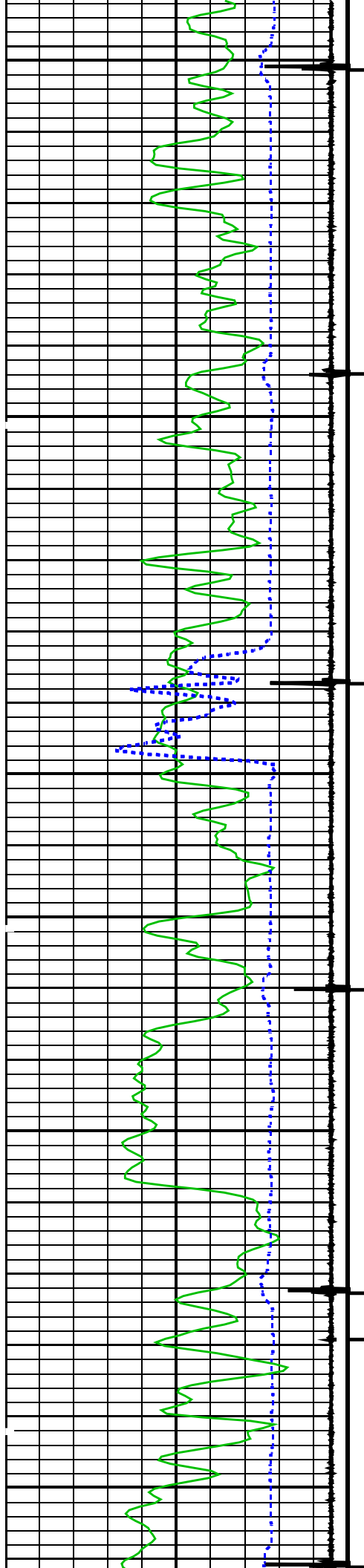




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6400  
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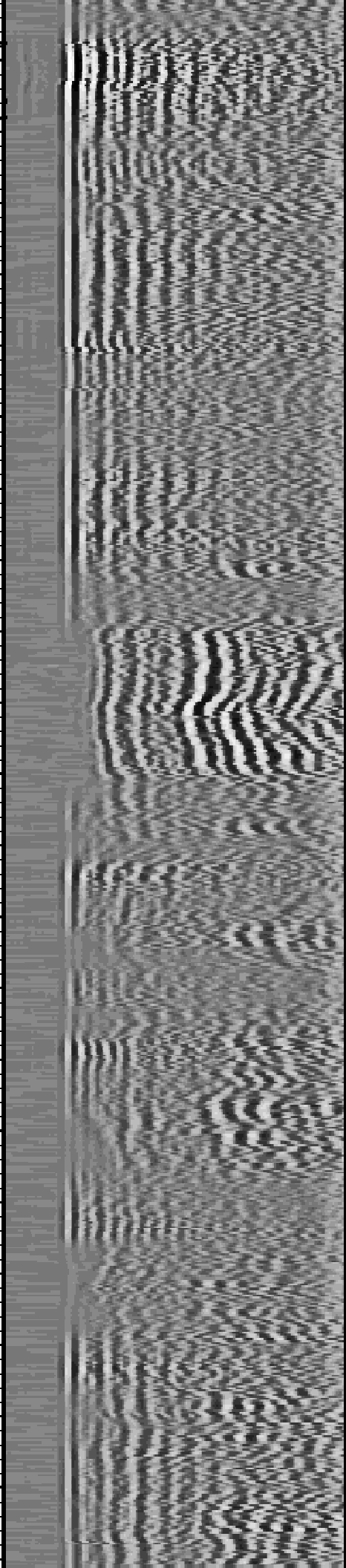
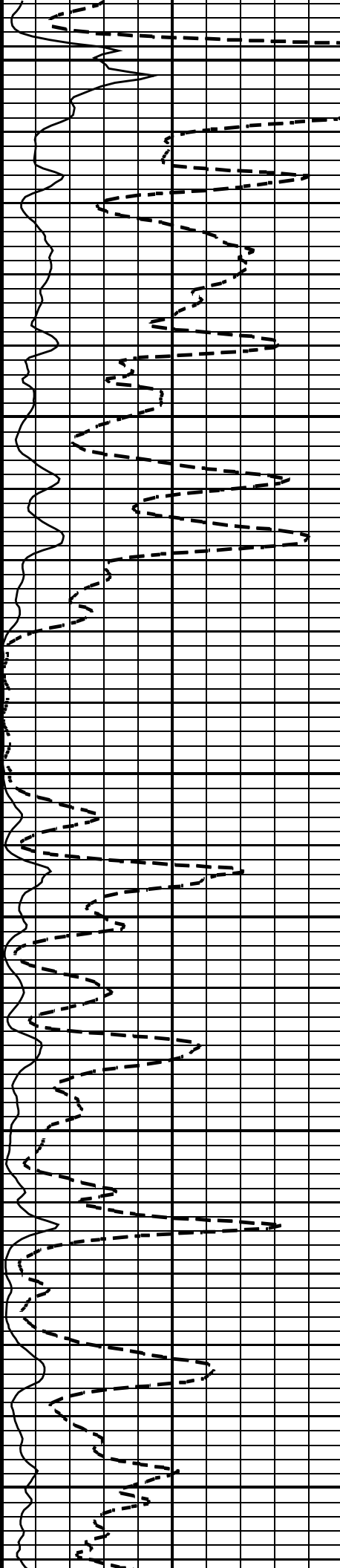


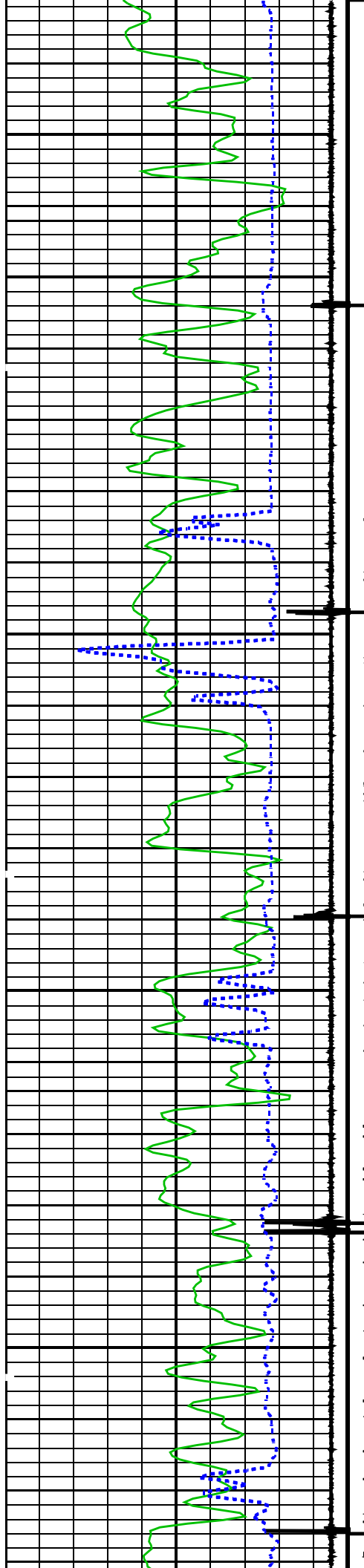


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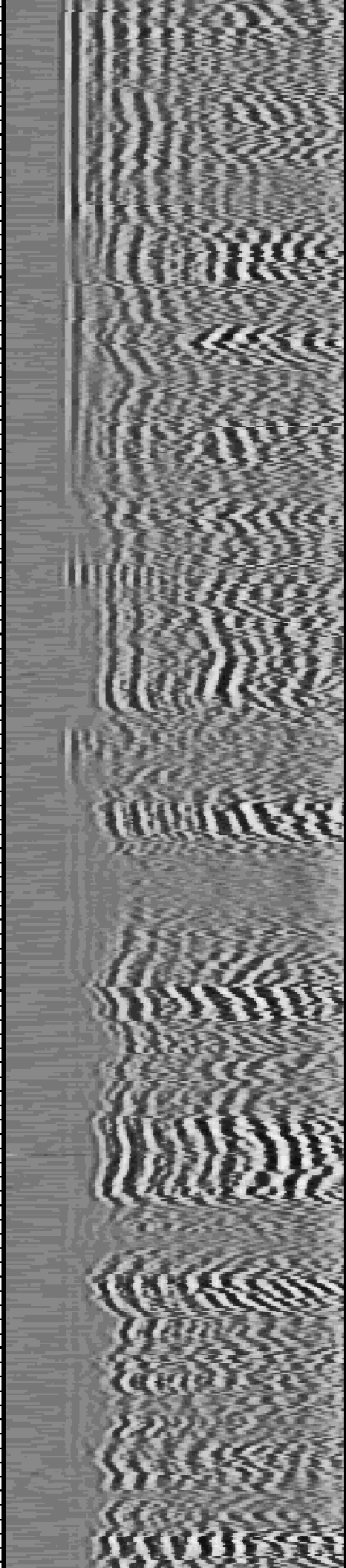
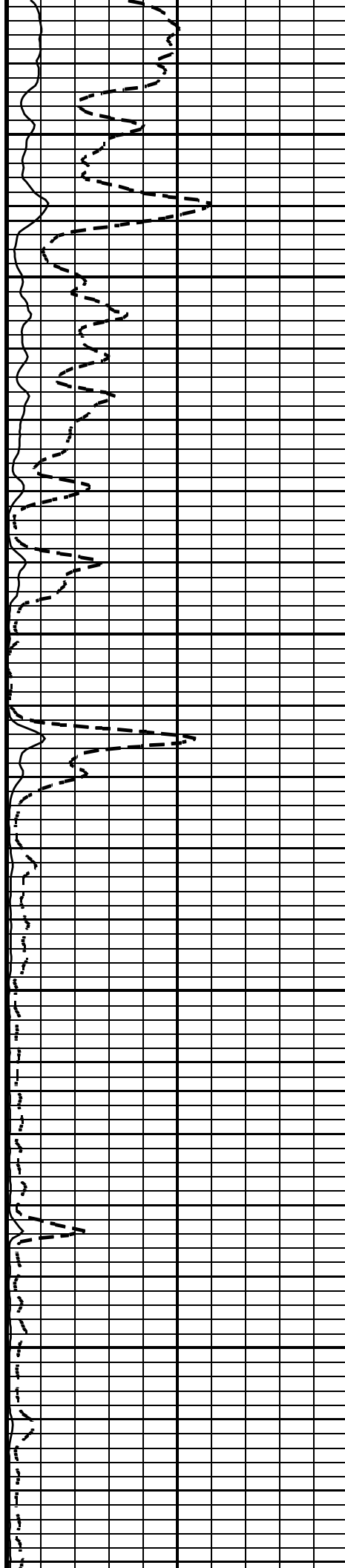
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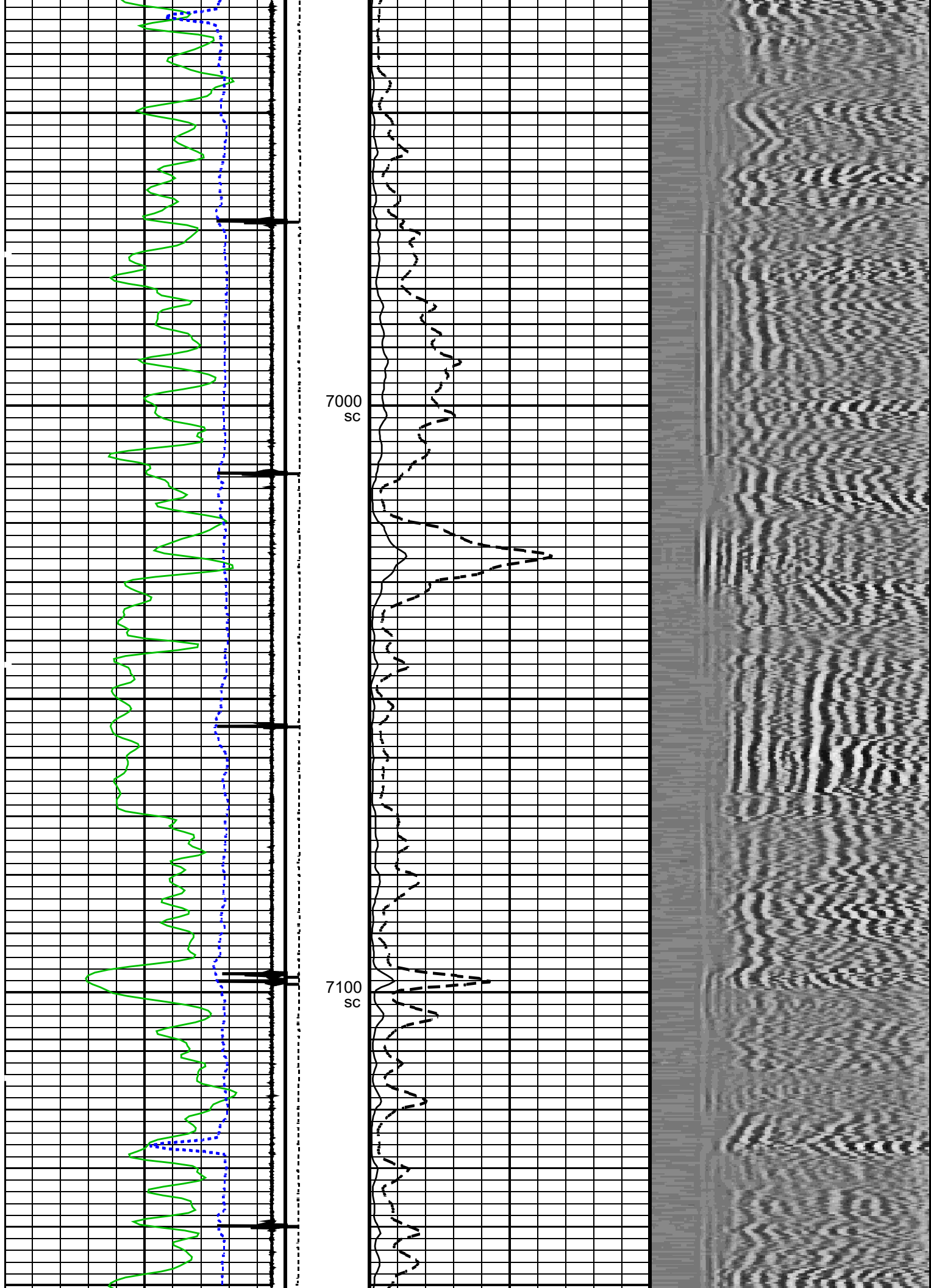


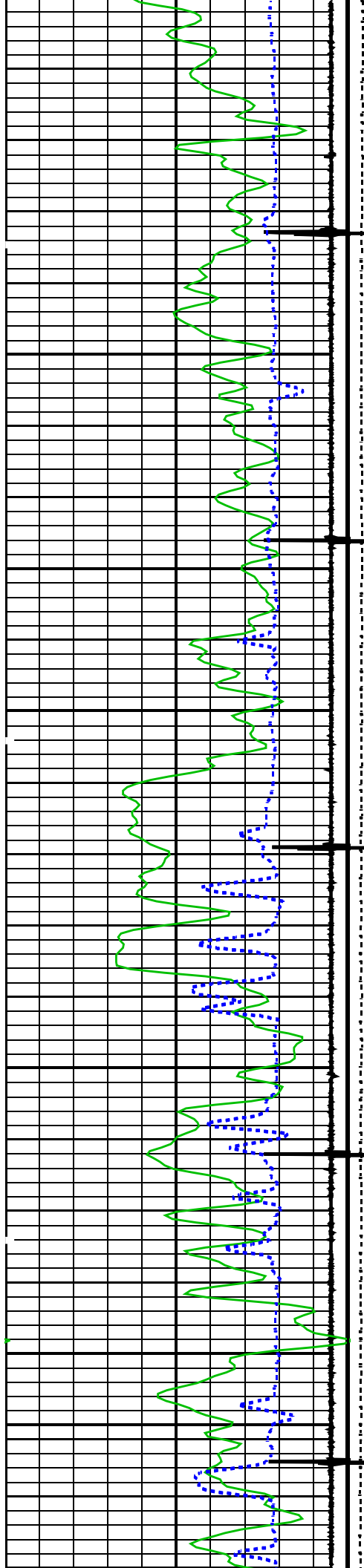


6800  
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6900  
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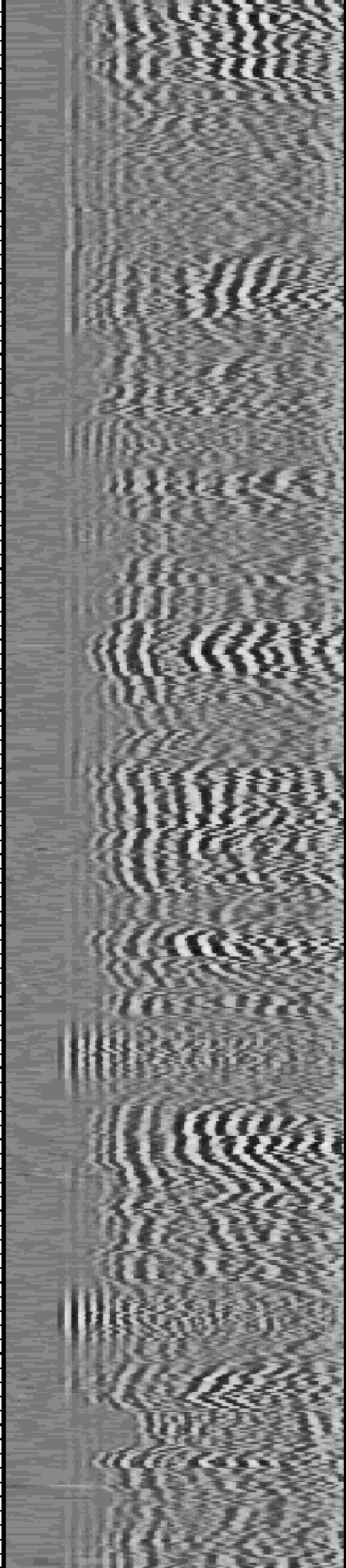
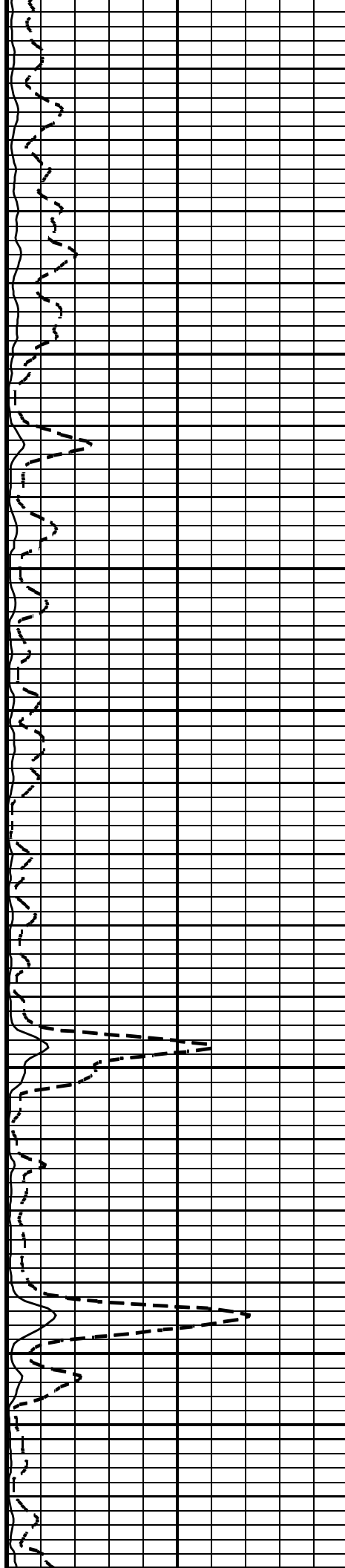


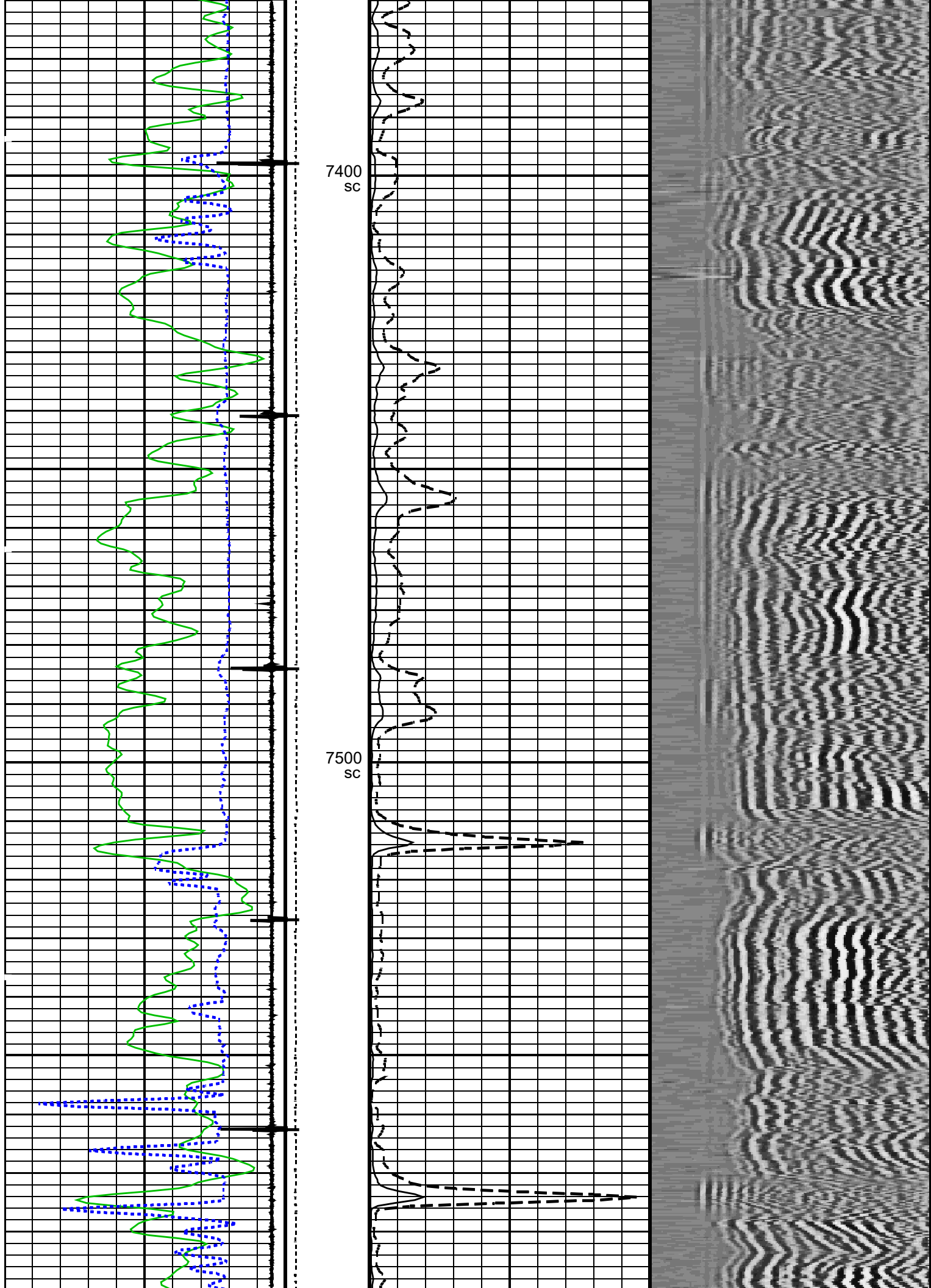


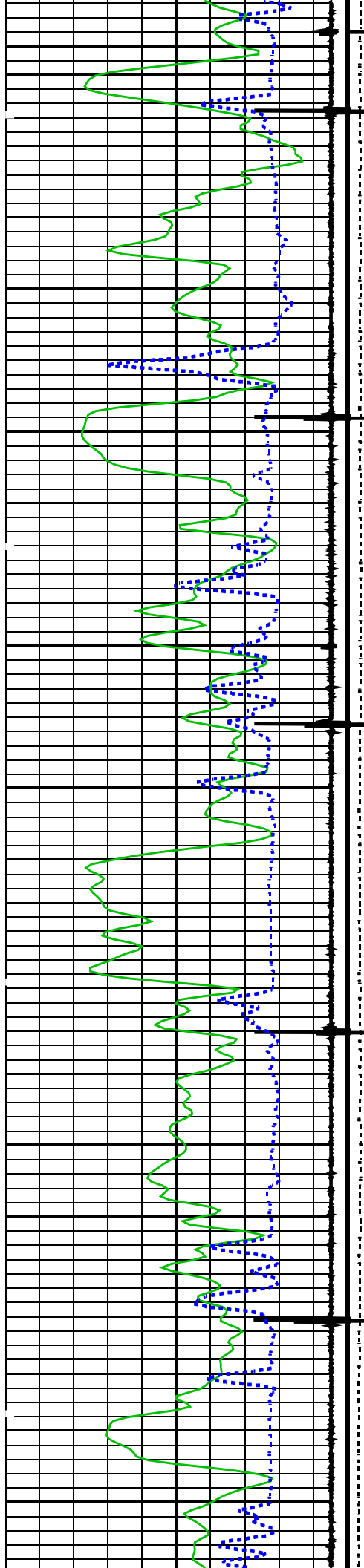


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7300  
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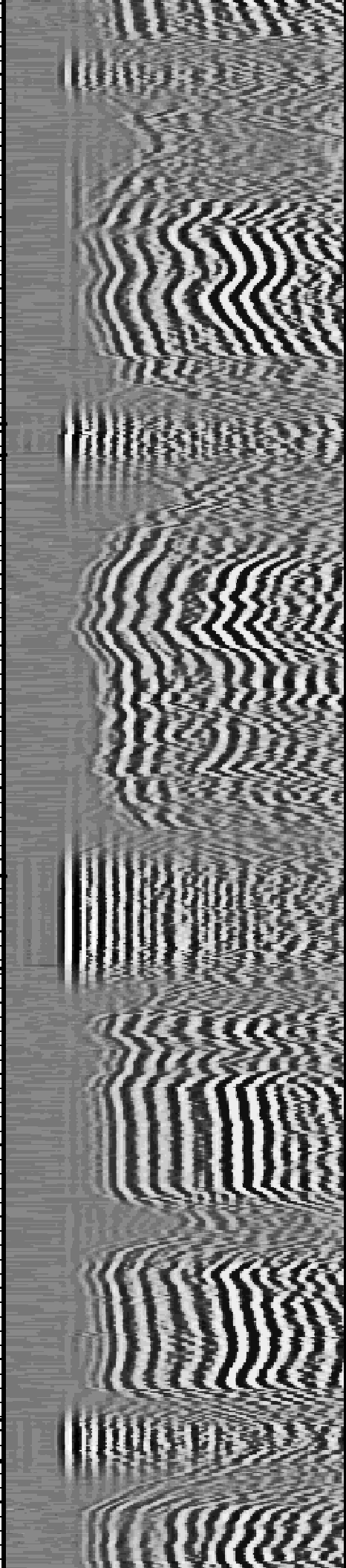
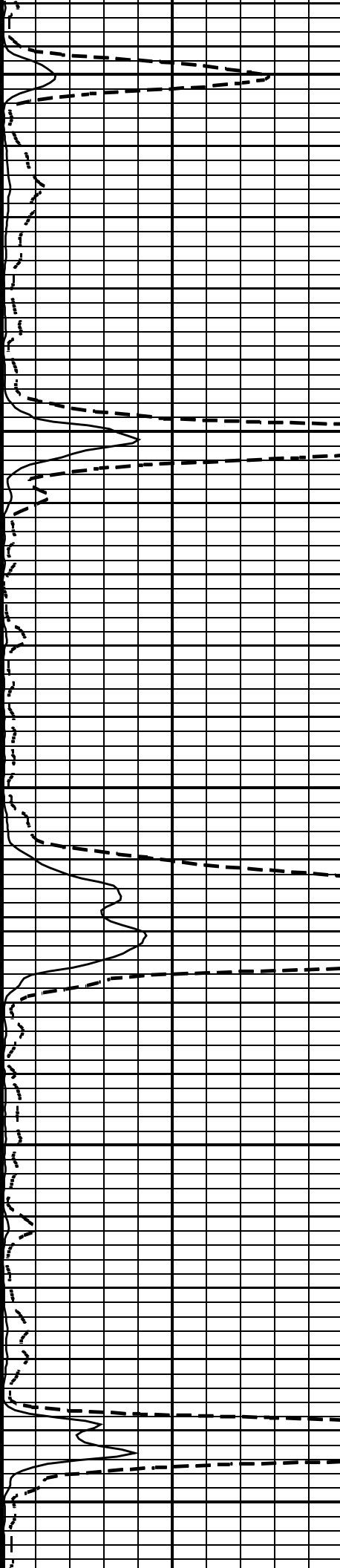


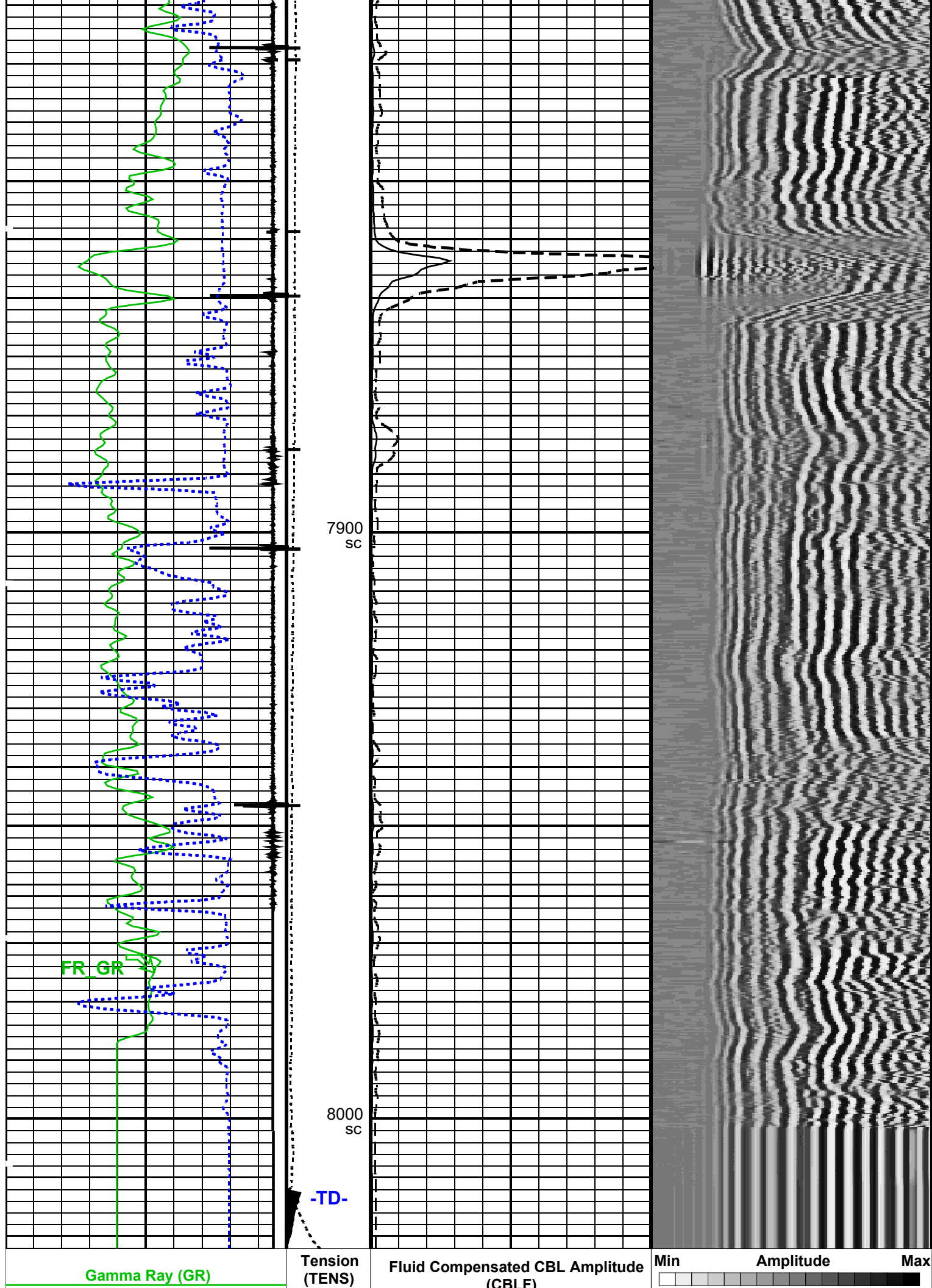


7600  
SC

7700  
SC

7800  
SC









**Schlumberger**

Vernal, Utah

**REPEAT SECTION**

MAXIS 500 Field Log

**Input DLIS Files**

DEFAULT

DSLT\_TLD\_MCFL\_CNL\_006LUP

FN:5

PRODUCER

29-Apr-2001 00:32

8012.5 FT

7585.2 FT

**Output DLIS Files**

DEFAULT

DSLT\_TLD\_MCFL\_CNL\_012PUP

FN:11

PRODUCER

29-Apr-2001 02:32

8019.5 FT

7594.0 FT

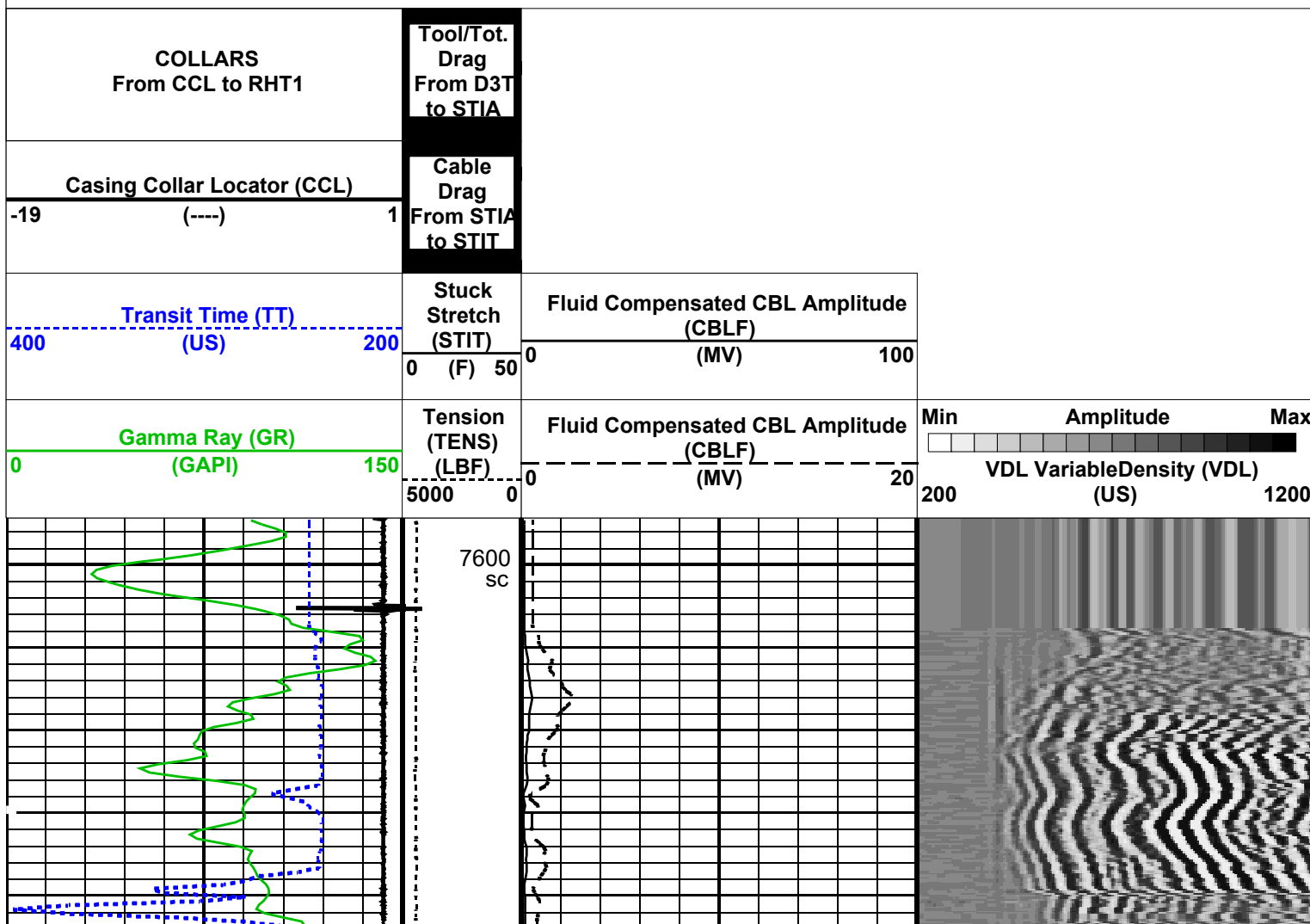
**OP System Version: 9C2-303**

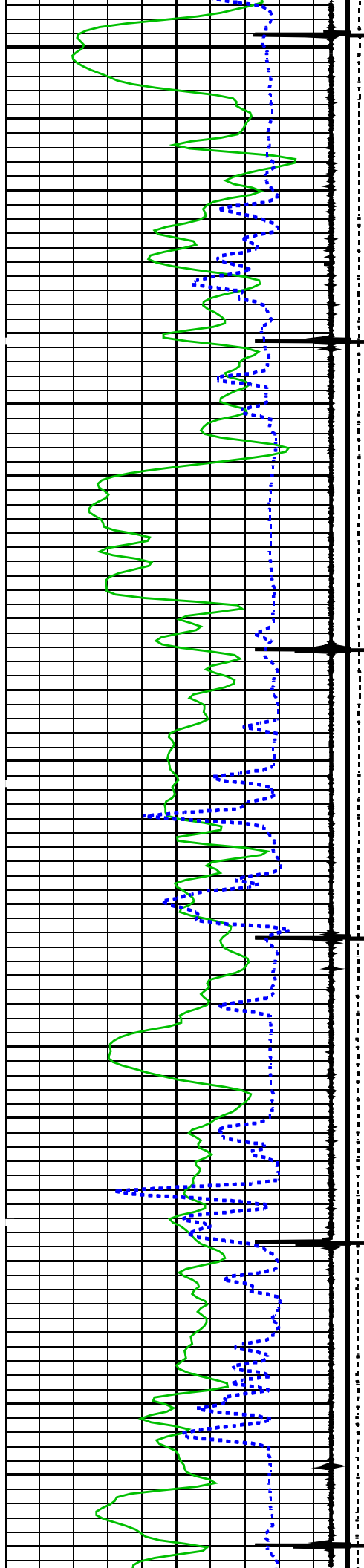
MCM

DSLT-FTB  
DTC-AOP92-KP1  
9C2-303HILTB-FTB  
CAL-YOP92-KP1  
9C2-303**PIP SUMMARY**

└─ Casing Collars

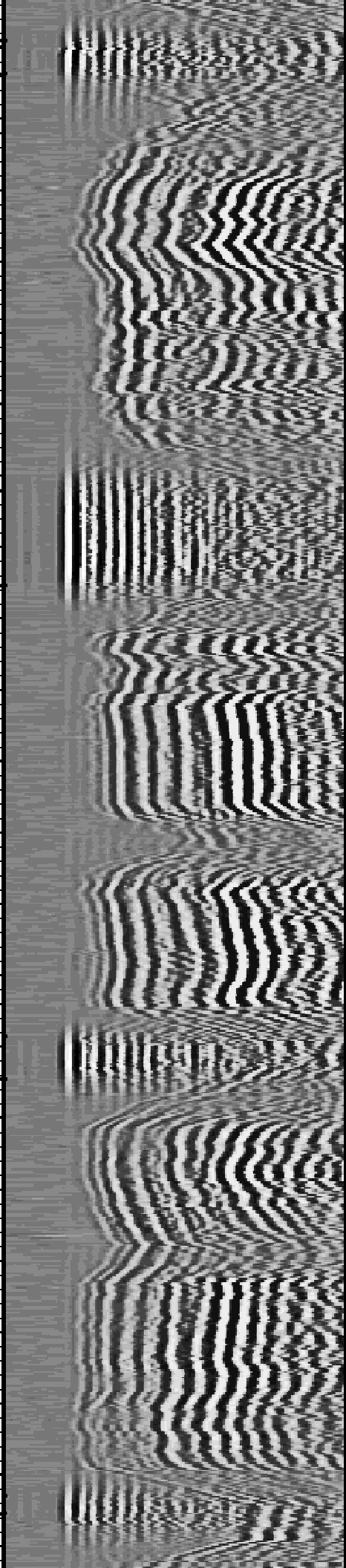
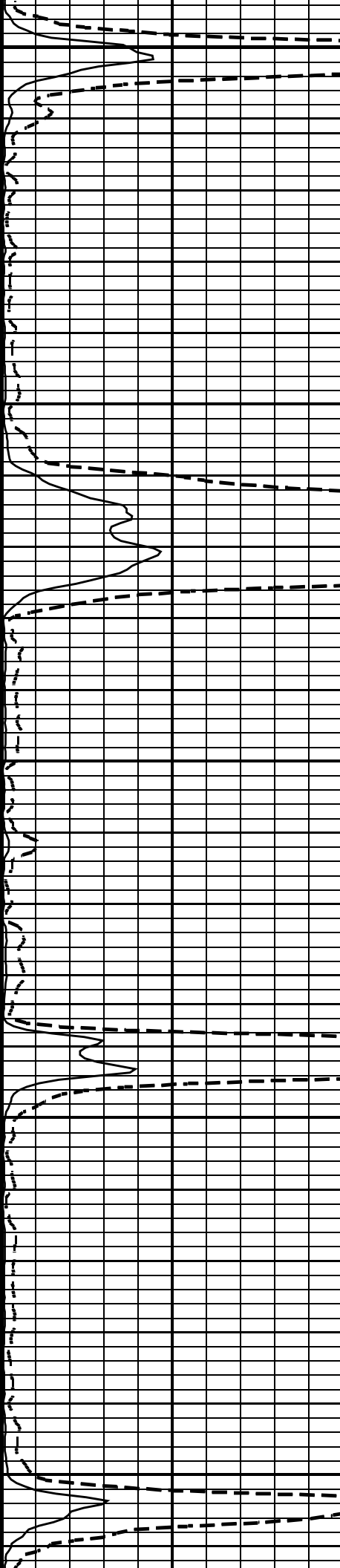
Time Mark Every 60 S

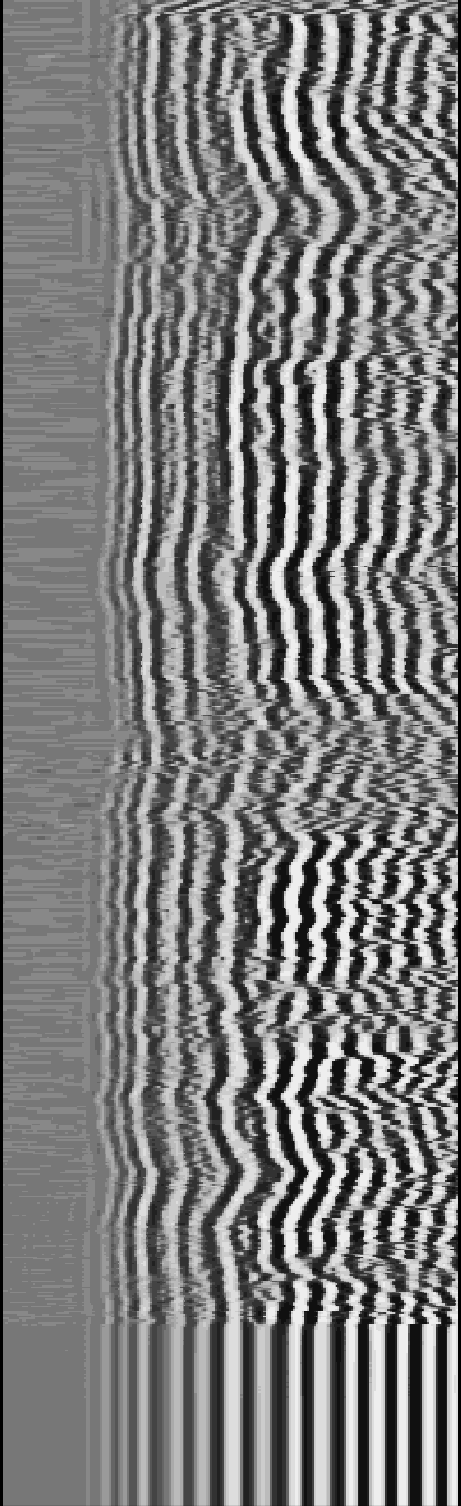
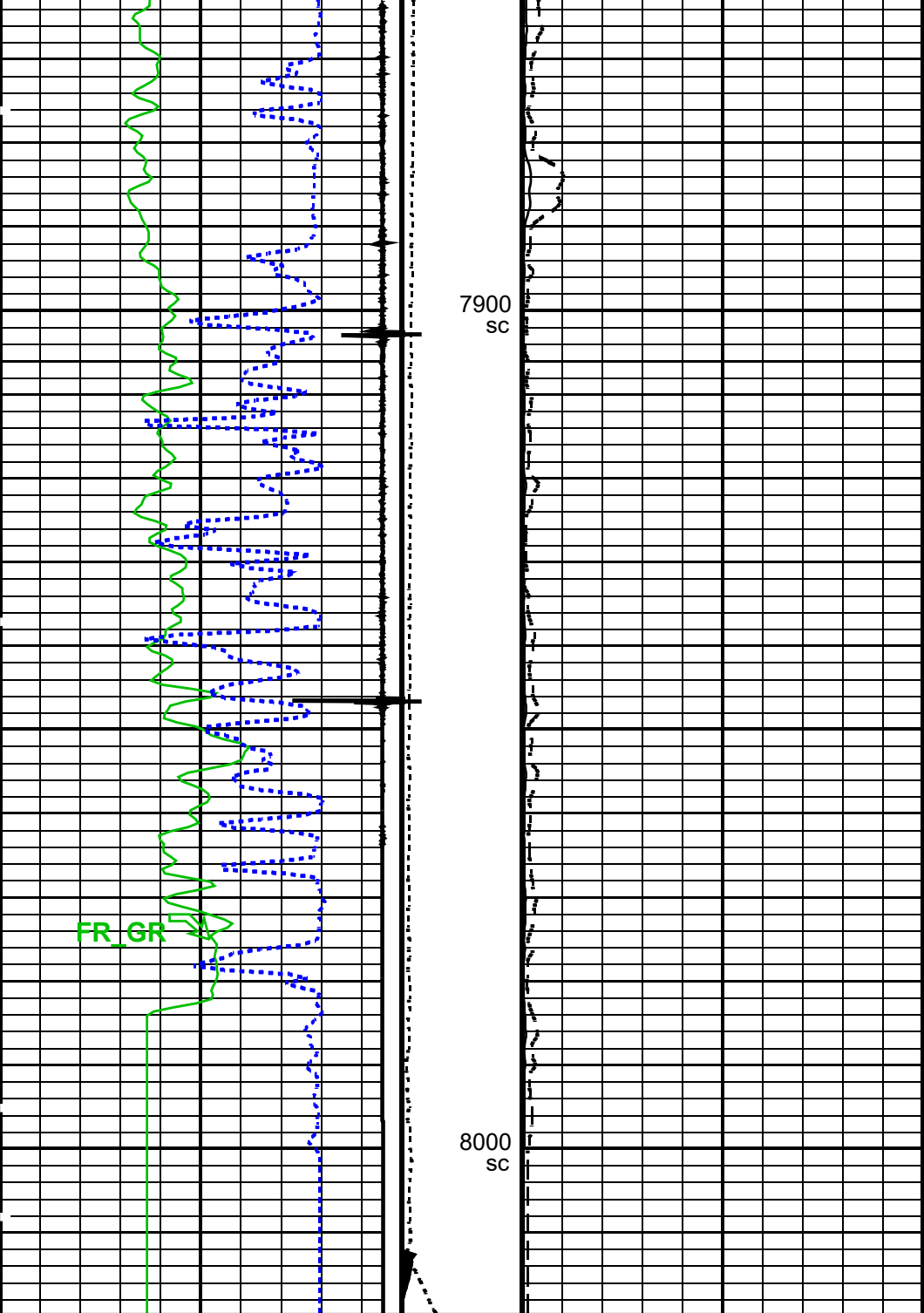




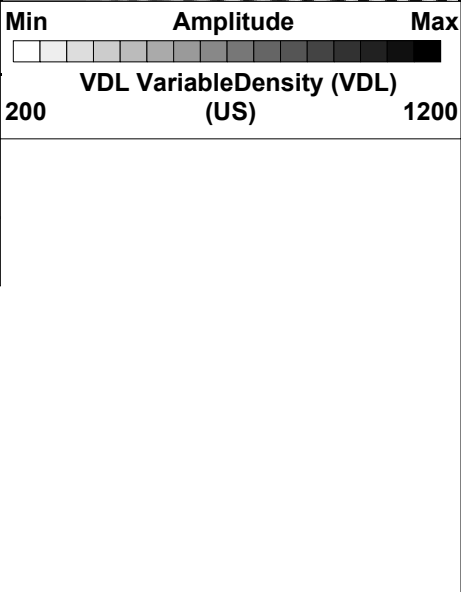
7700  
SC

7800  
SC





<p><b>Gamma Ray (GR)</b> (GAPI)</p> <p>0 150</p>	<p><b>Tension (TENS)</b> (LBF)</p> <p>5000 0</p>	<p><b>Fluid Compensated CBL Amplitude (CBLF)</b> (MV)</p> <p>0 20</p>
<p><b>Transit Time (TT)</b> (US)</p> <p>400 200</p>	<p><b>Stuck Stretch (STIT)</b> (F)</p> <p>0 50</p>	<p><b>Fluid Compensated CBL Amplitude (CBLF)</b> (MV)</p> <p>0 100</p>
<p><b>Casing Collar Locator (CCL)</b> (----</p> <p>-19 1</p>	<p><b>Cable Drag</b> From STIA to STIT</p>	
<p><b>COLLARS</b> From CCL to RHT1</p>	<p><b>Tool/Tot. Drag</b> From D3T to STIA</p>	



## Parameters

DLIS Name	Description	Value
	Telemetry Mode	DSLCL_FTB
	DSLTL Firing Mode	CBL_W
AMSG	Auxiliary Minimum Sliding Gate	110 US
CBAF	CBL Adjustment Factor	1
CBCF	CBL Correction Factor	1.6
CBLG	CBL Gate Width	45 US
CCLD	CCL reset delay	12 IN
CCLT	CCL Detection Level	0.3 V
DDEL	Digitizer Delay	0 US
DFAD_TYPE	DFAD type	DFAD
DO	Depth Offset for Playback	7.0 FT
DRCS	DSLTL DLIS Recording Size	150
DSIN	Digitizer Sample Interval	10
DTFS	DSLCL Telemetry Frame Size	326
DWCO	Digitizer Word Count	150
FCF	CBL Fluid Compensation Factor	0.69827
GAI	Manual Gain	40
LBFR	Trigger for MAXIS First Reading Label	STI
MAHTR	Manual High Threshold Reference	40
MGAI	Maximum Gain	2000
MNHTR	Minimum High Threshold Reference	30
NMSG	Near Minimum Sliding Gate	228 US
NMXG	Near Maximum Sliding Gate	750 US
PP	Playback Processing	NORMAL
RATE	Firing Rate	R7
SFAF	Sonic Formation Attenuation Factor	0 DB/F
SGCL	Sliding Gate Closing Delta-T	250 US/F
SGDT	Sliding Gate Delta-T	57 US/F
SGW	Sliding Gate Width	80 US
SLEV	Signal Level for AGC	5000
STKT	STI Stuck Threshold	2.5 FT
TDD	Total Depth - Driller	8027.00 FT
TDL	Total Depth - Logger	-50000.00 FT
VDLG	VDL Manual Gain	5
WAGC	Waveform AGC Allow/Disallow	OFF
WMOD	Waveform Firing Mode	FULL

Format: CBL\_VDL Vertical Scale: 5" per 100'

Graphics File Created: 29-Apr-2001 02:32

## OP System Version: 9C2-303

MCM

DSLTL-FTB  
DTC-AOP92-KP1  
9C2-303HILTB-FTB  
CAL-YOP92-KP1  
9C2-303

## Input DLIS Files

DEFAULT DSLTL\_TLD\_MCFL\_CNL\_006LUP FN:5 PRODUCER 29-Apr-2001 00:32 8012.5 FT 7585.2 FT

## Output DLIS Files

DEFAULT DSLTL\_TLD\_MCFL\_CNL\_012PUP FN:11 PRODUCER 29-Apr-2001 02:32

COMPANY: PETROLEUM DEVELOPMENT CORP.

WELL: UNOCAL #23-9D

FIELD: GRAND VALLEY

COUNTY: GARFIELD

STATE: COLORADO

BOTTOM LOG INTERVAL 8000 ft

SCHLUMBERGER DEPTH 8013 ft

DEPTH DRILLER 8027 ft

KELLY BUSHING 5810 ft

DRILL FLOOR

GROUND LEVEL 5794 ft

Schlumberger

CEMENT BOND LOG  
CASING COLLAR LACATOR  
GAMMA RAY