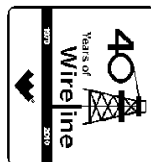




# Weatherford

## TEMPERATURE LOG

COMPANY **BILL BARRETT CORPORATION**  
WELL **CB-TG LAND 11B-20-692**  
FIELD **MAMM CREEK**  
PROVINCE/COUNTY **GARFIELD**  
COUNTRY/STATE **U.S.A. / COLORADO**  
LOCATION **SHL: 674' FNL & 2568' FEL**  
**BHL: 753' FNL & 660' FWL**



SEC **20** TWP **6S** RGE **92W** Other Services  
API Number **05-045-19753**  
Permit Number

Permanent Datum G.L., Elevation 5530 feet  
Log Measured From K.B. @ 23 FEET above Permanent Datum  
Drilling Measured From K.B.

Elevations: feet  
KB 5553.00  
DF 5552.00  
GL 5530.00

Date	11-JUNE-2011	
Run Number	ONE	
Depth Driller	8090.00	feet
Depth Logger	8025.00	feet
First Reading	8025.00	feet
Last Reading	200.00	feet
Casing Driller	8042.00	feet
Casing Logger		
Bit Size	7.875	inches
Hole Fluid Type	WATER	
Density / Viscosity		
PH / Fluid Loss		
Sample Source		
Rm @ Measured Temp		
Rmf @ Measured Temp		
Rmc @ Measured Temp		
Source Rmf / Rmc	CALC	CALC
Rm @ BHT		
Time Since Circulation		
Max Recorded Temp	189.00	deg F
Equipment Name	COMPACT	
Equipment / Base	13045	GD JCT
Recorded By	D.KUNTZ	D. NAASZ
Witnessed By	J. BOYD	

## BOREHOLE RECORD

Last Edited: 11-JUN-2011 14:43

Bit Size inches	Depth From feet	Depth To feet
8.750	855.00	5751.00
7.880	5751.00	8085.00

## CASING RECORD

Type	Size inches	Depth From feet	Shoe Depth feet	Weight pounds/ft
SURFACE	9.625	0.00	855.00	36.00
PRODUCTI	4.500	0.00	8042.00	11.60

## REMARKS

TOP OF CEMENT IS APPROXIMATELY 5060 FEET.

4.5 INCH PRODUCTION CASING.

CASED HOLE TEMPERATURE LOG WAS LOGGED WITH SHA, MCG AND MAI.

CORRELATED TO WEATHERFORDS OPEN HOLE LOGS.

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST

ALL INTERVALS LOGGED AND SCALED PER CUSTOMER REQUEST.

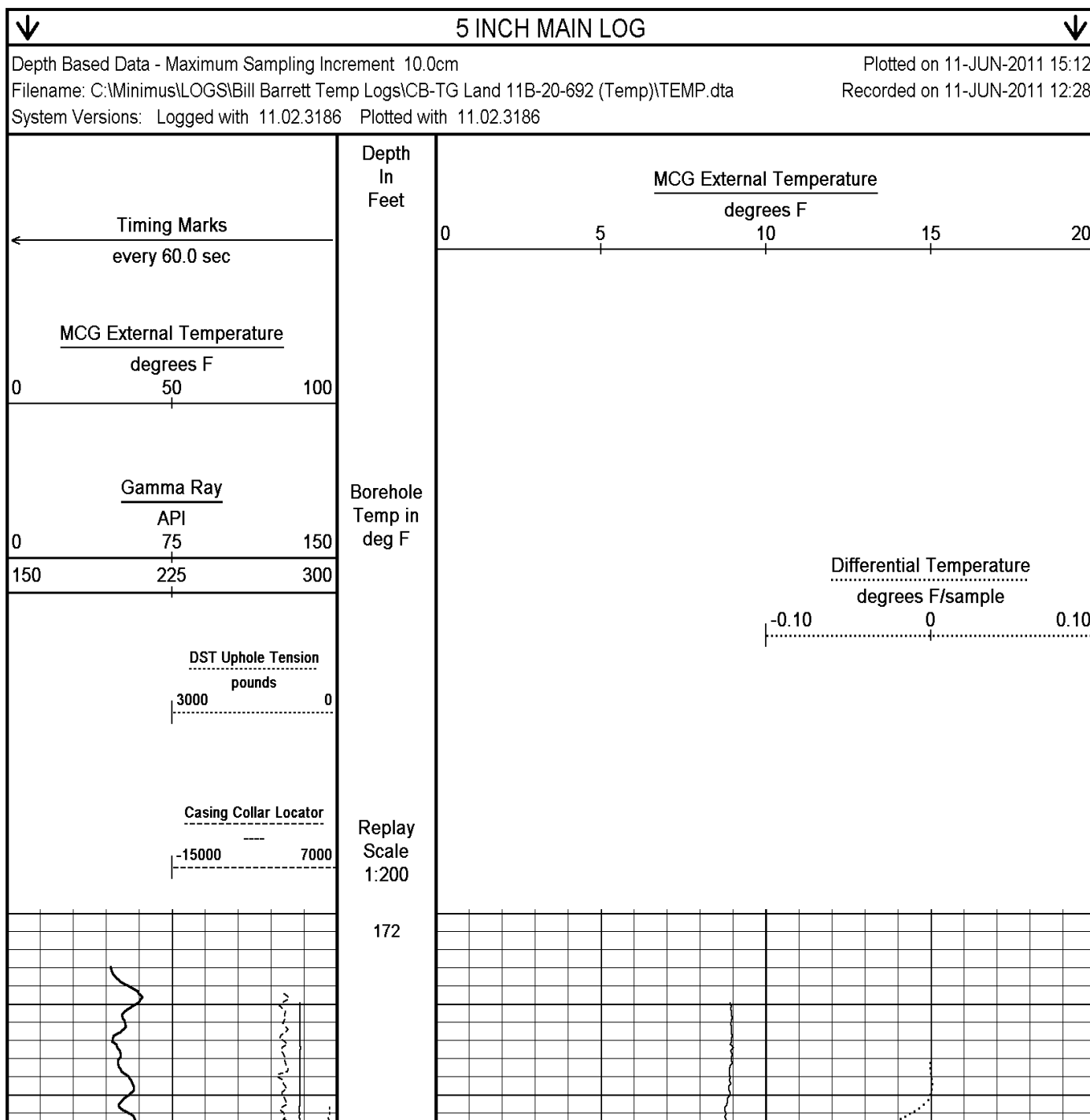
ENGINEER: D. KUNTZ, D. NAASZ

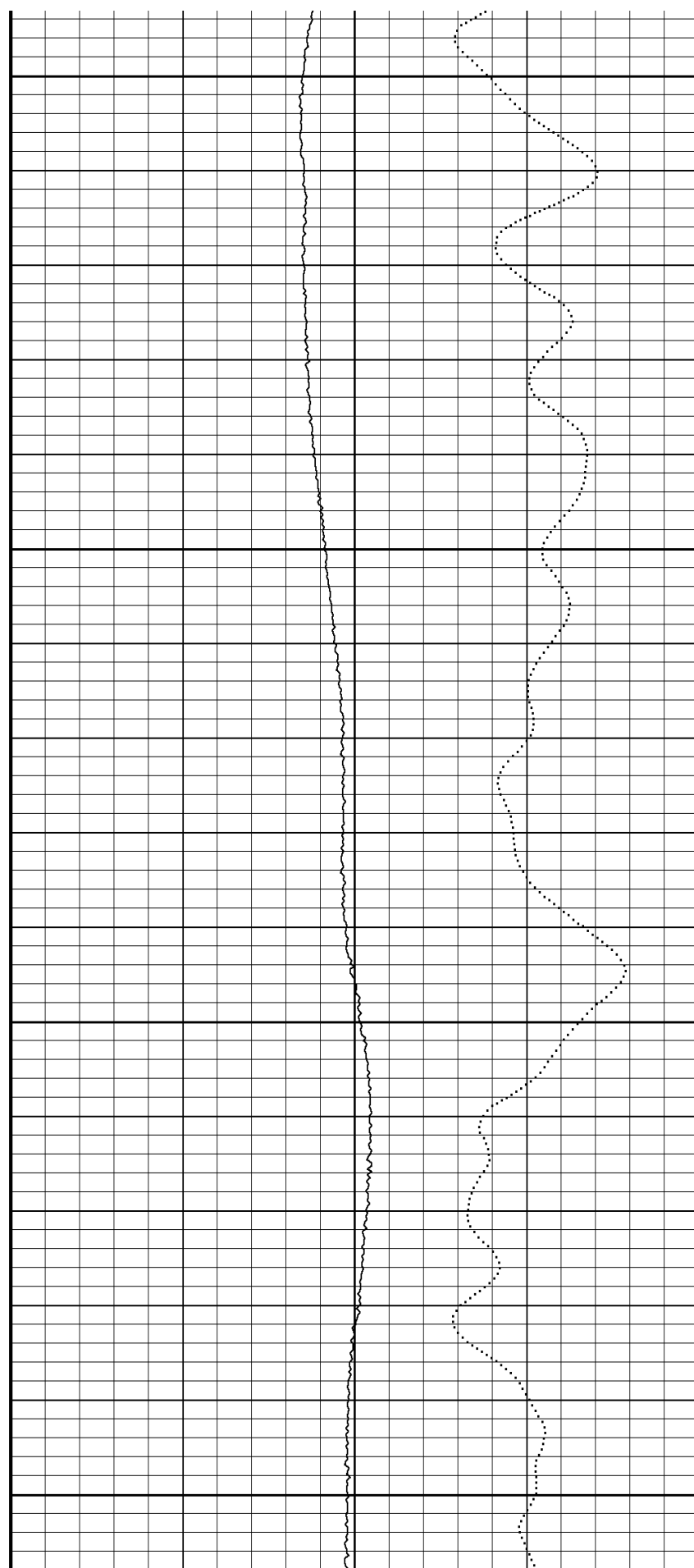
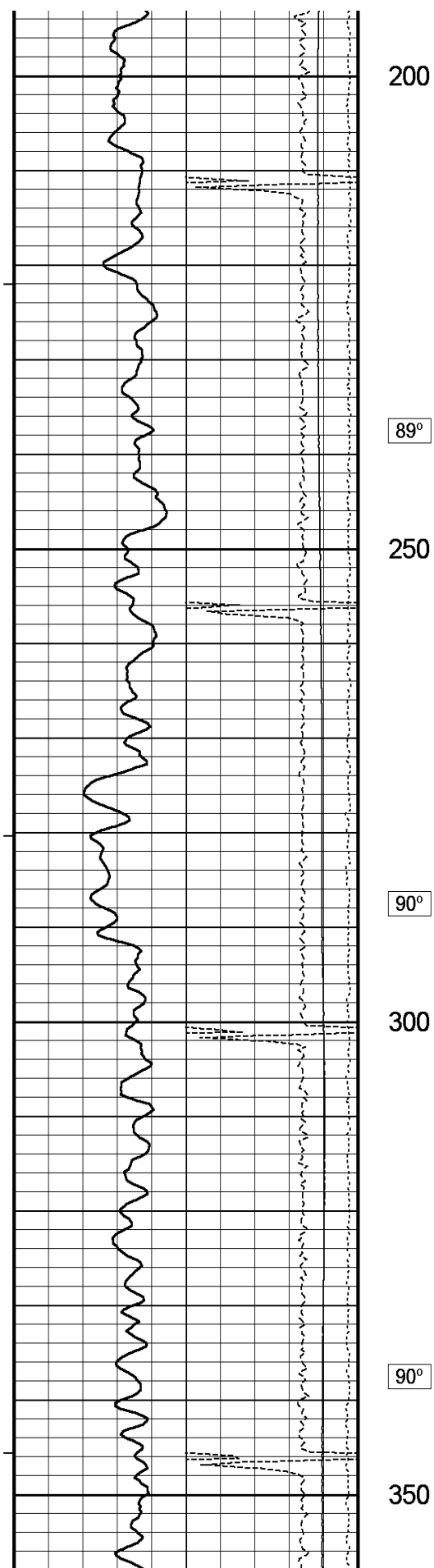
OPERATORS: L. STAAKE

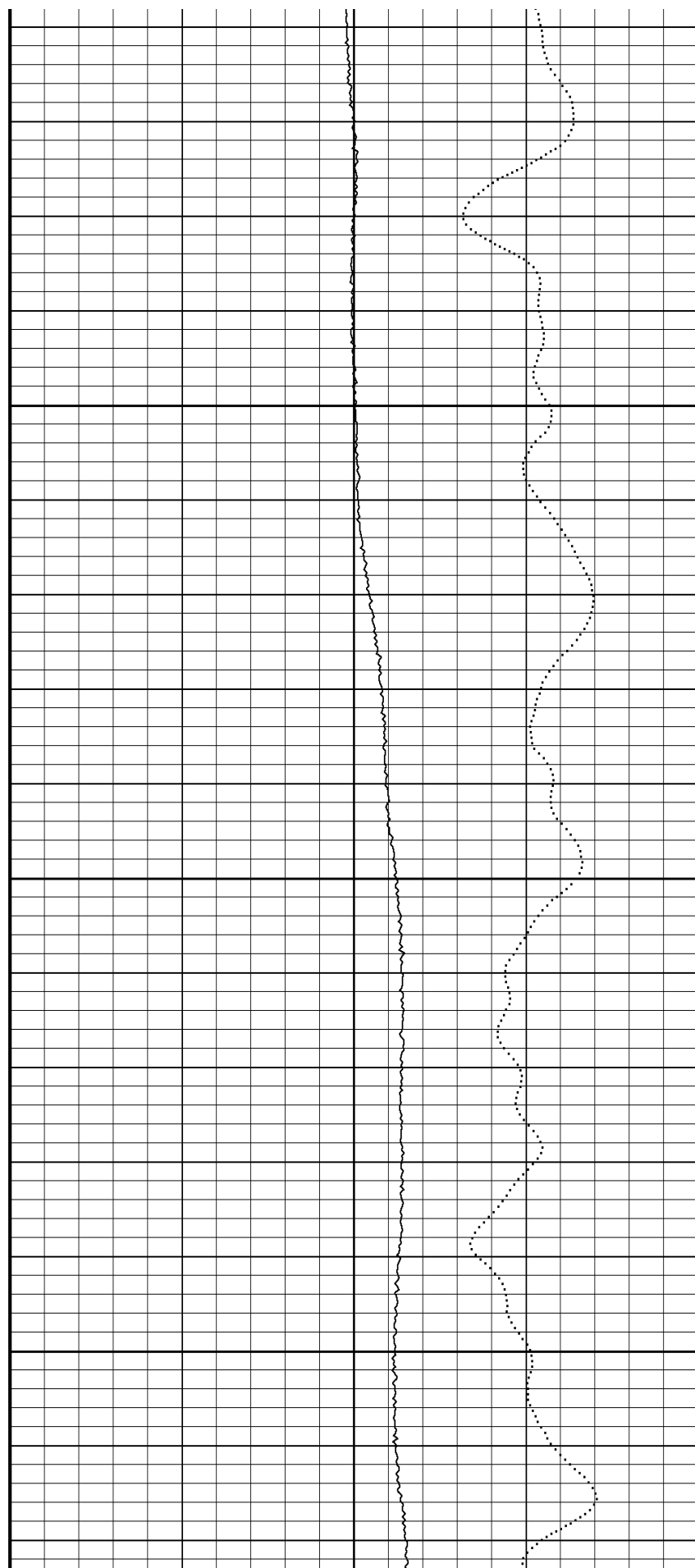
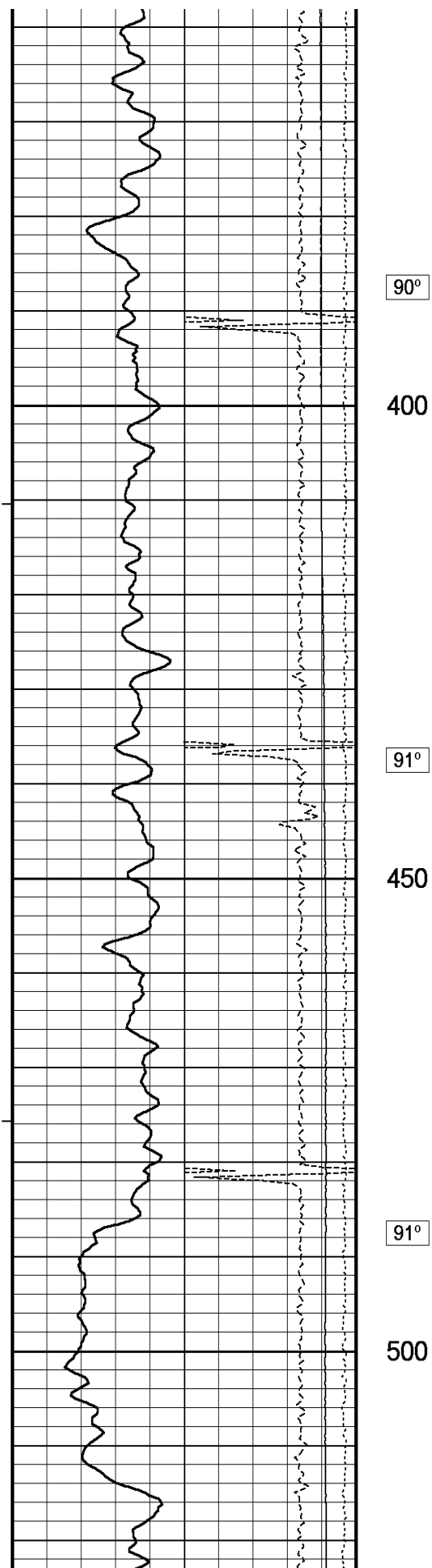
RIG: NABORS 37

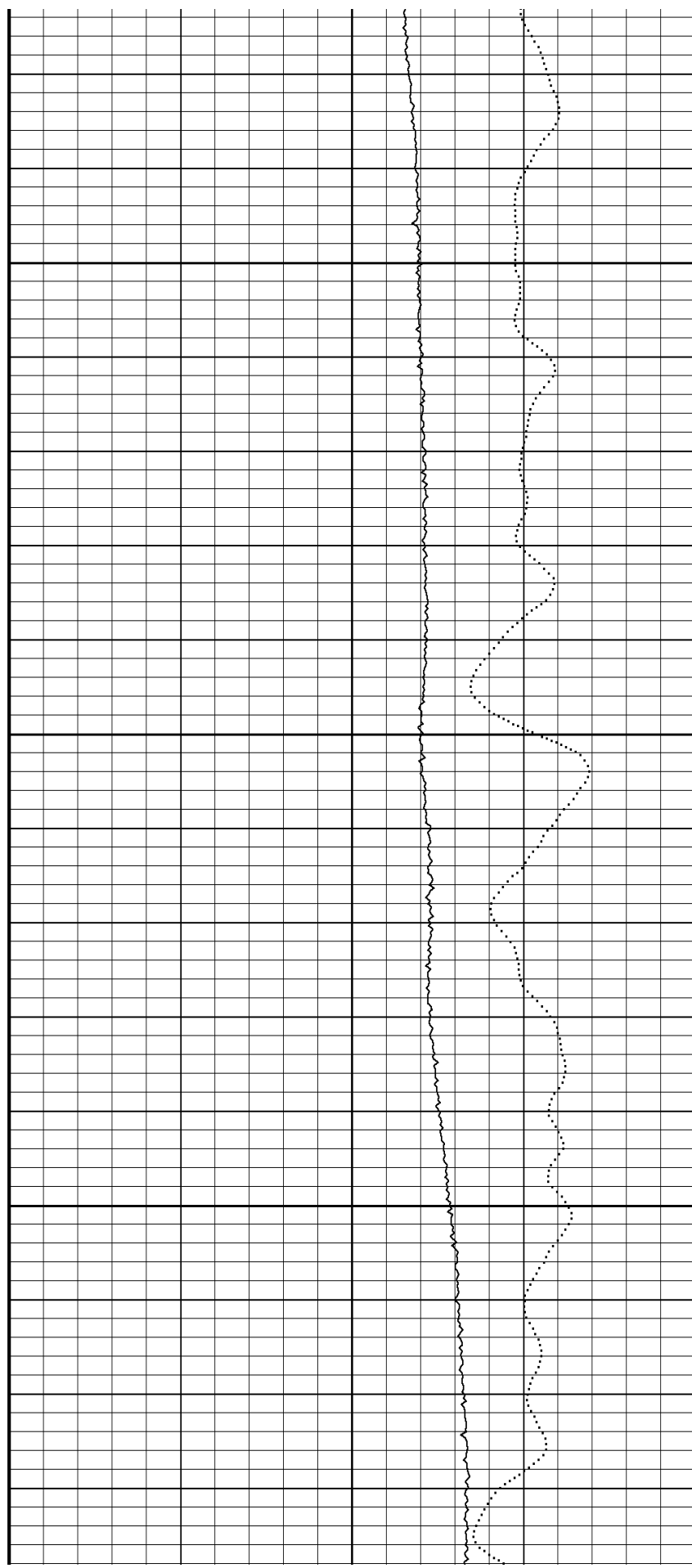
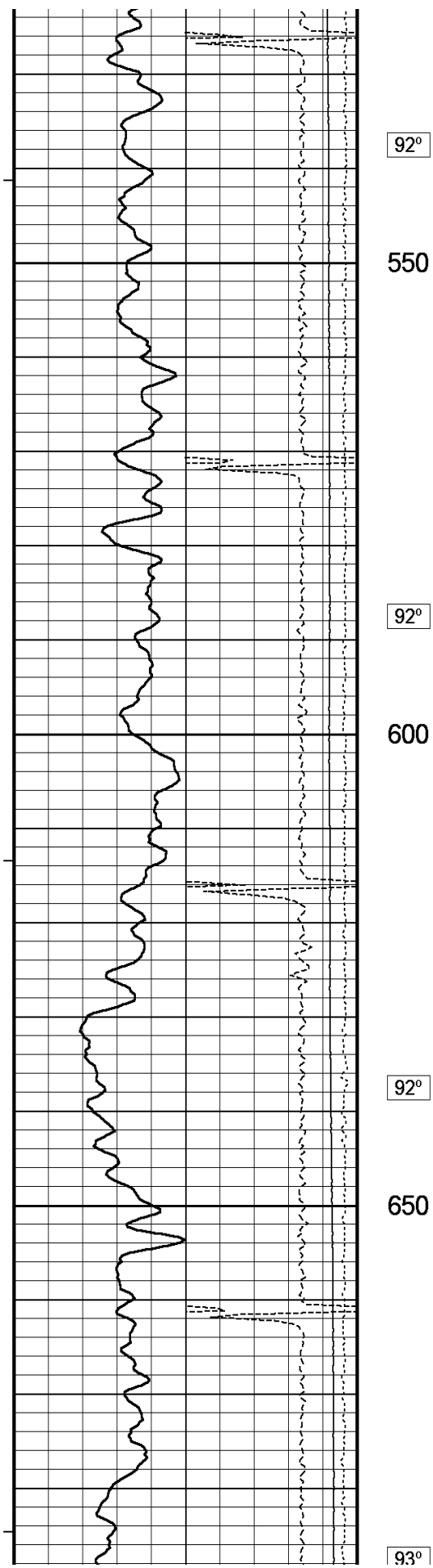
SERVICE ORDER #3524776

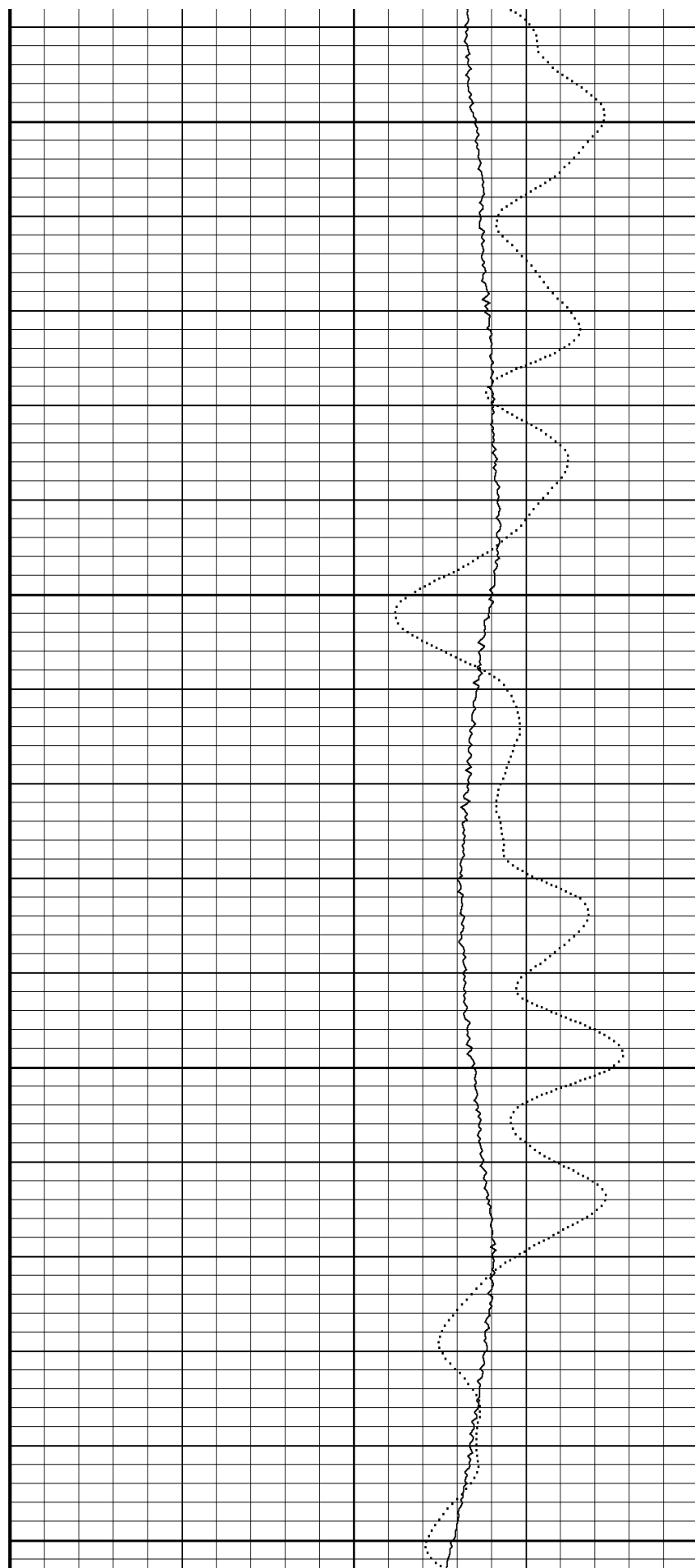
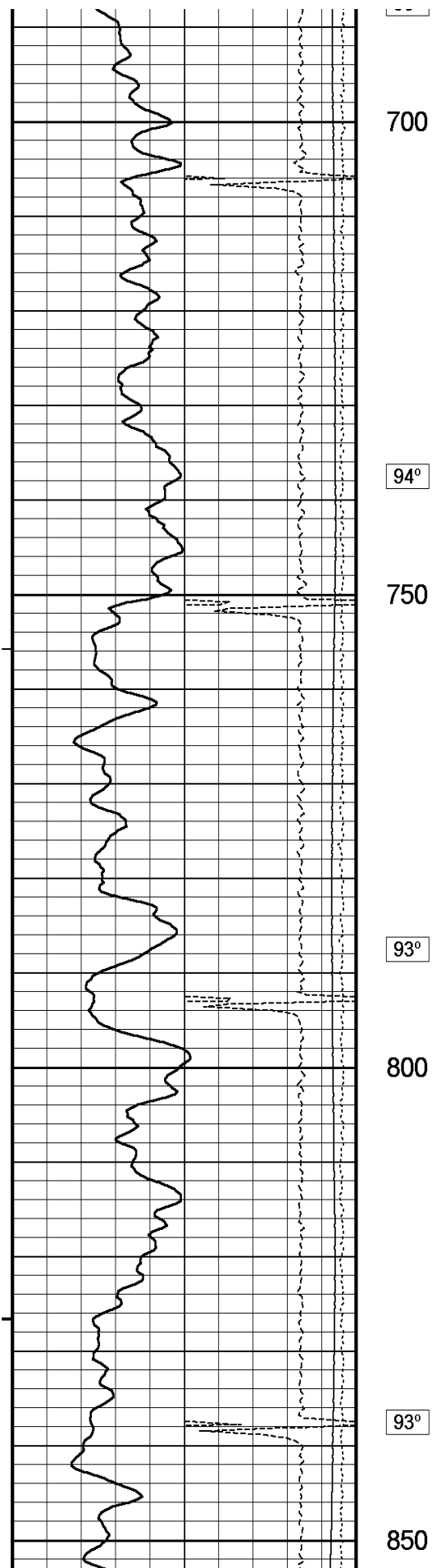
All interpretations are opinions based on inferences from electrical or other measurements and we cannot, and do not, guarantee the accuracy or correctness of any interpretations, and we shall not, except in the case of gross or wilful negligence on our part, be liable or responsible for any loss, costs, damages or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions in our price schedule.

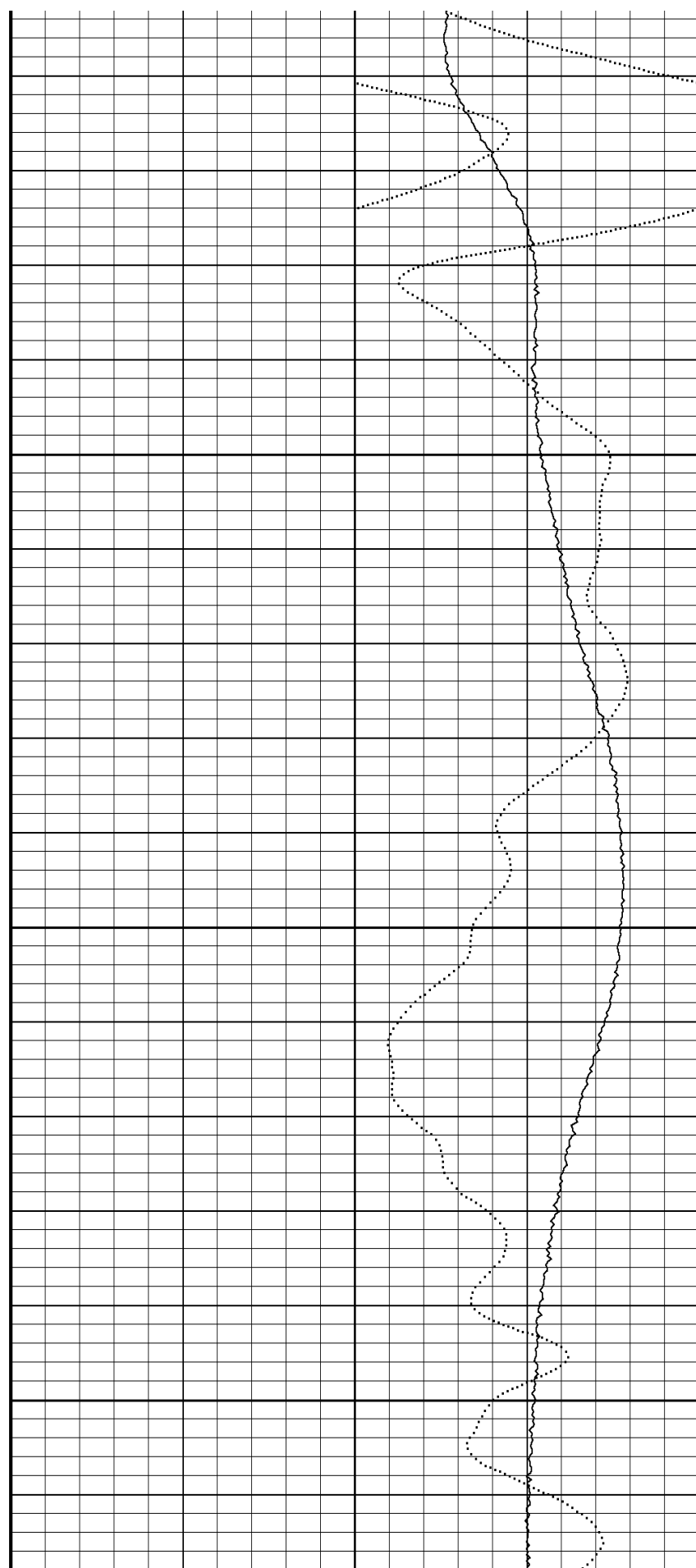
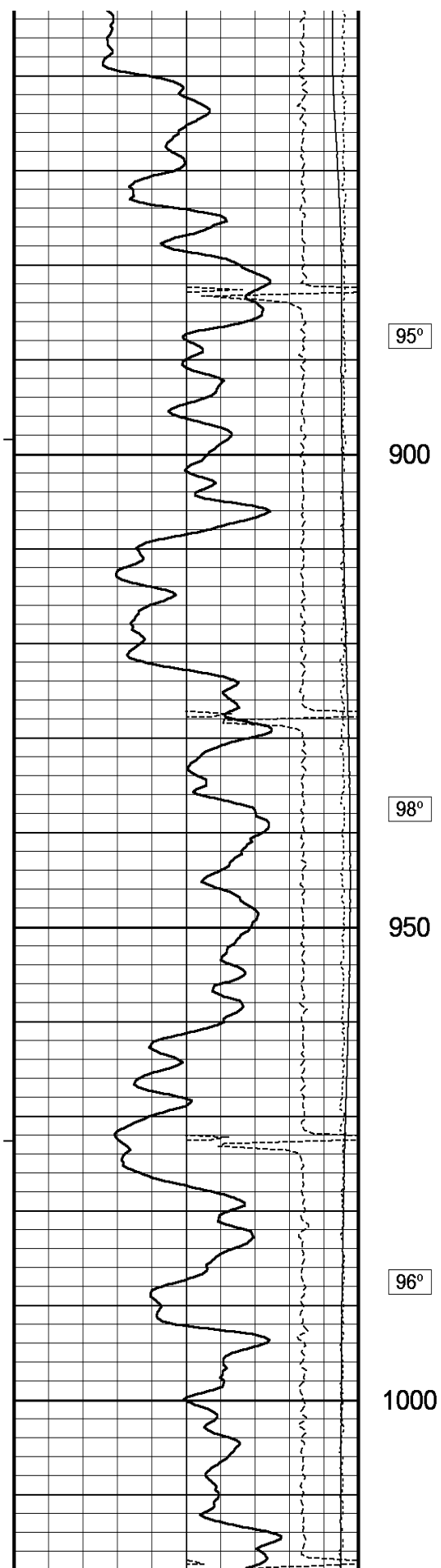


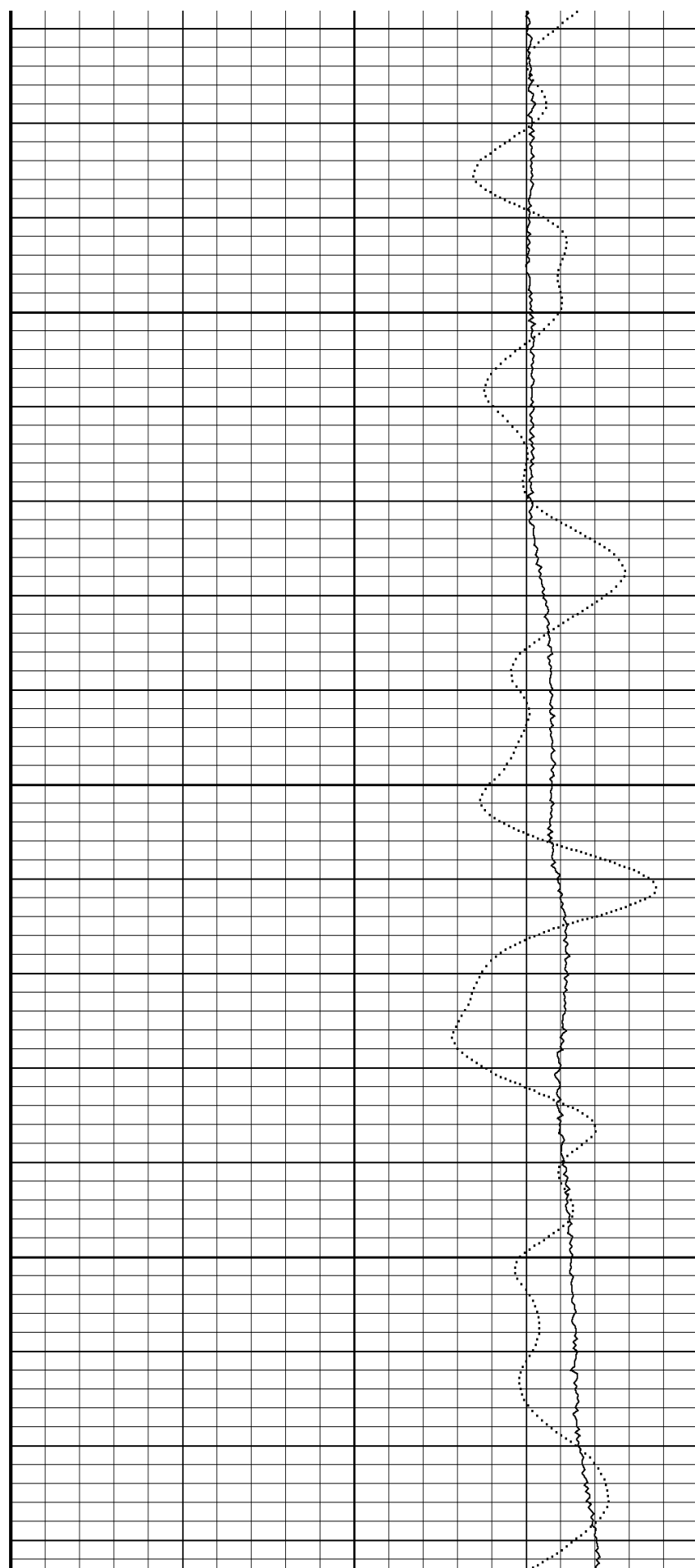
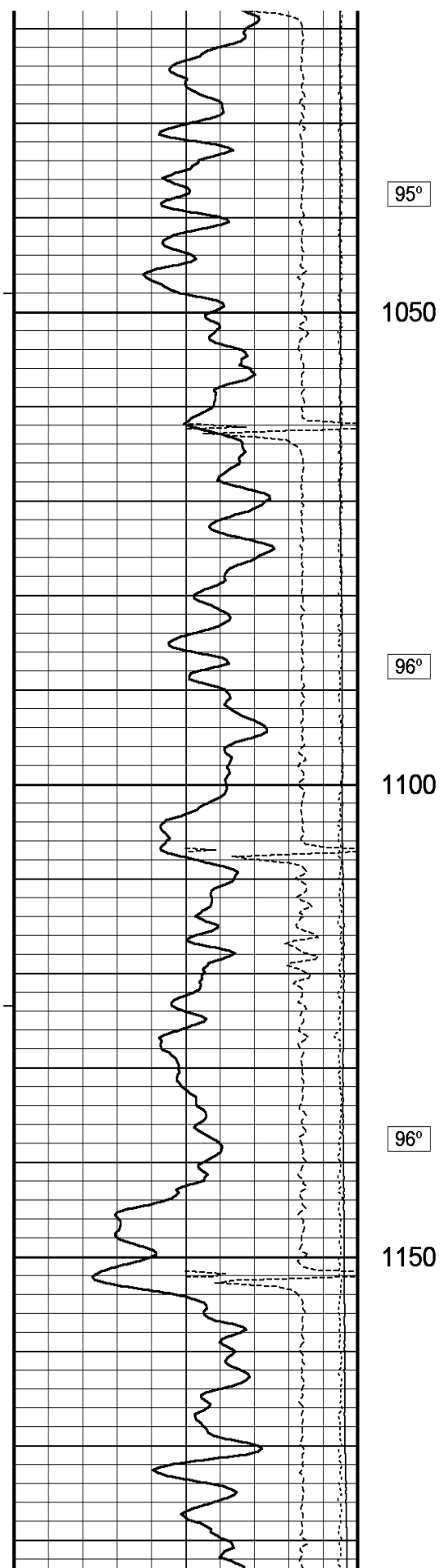




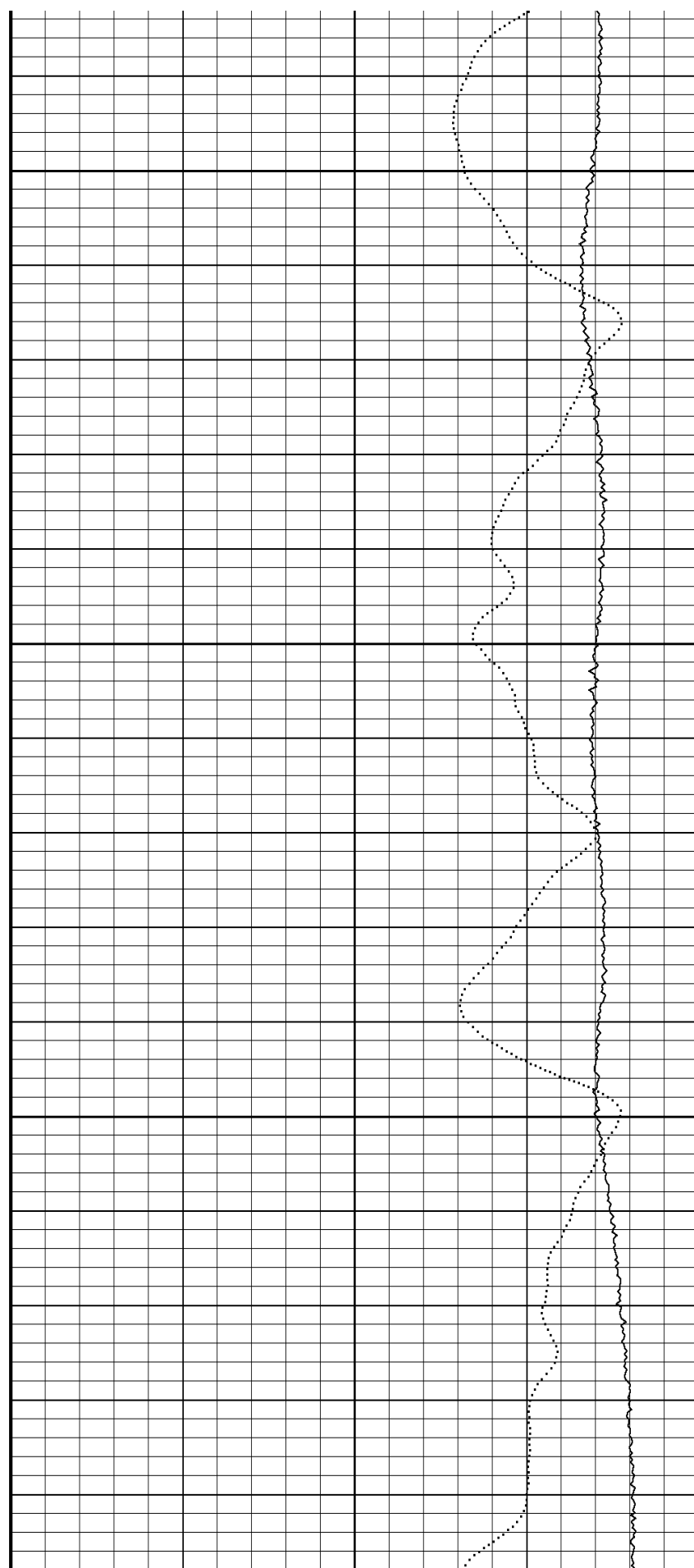
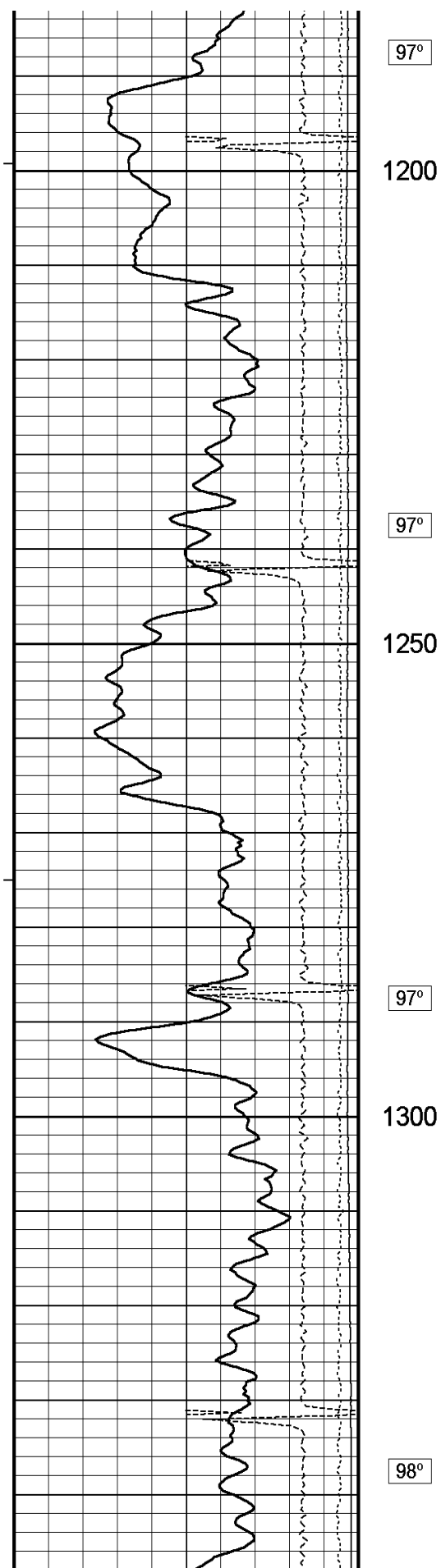


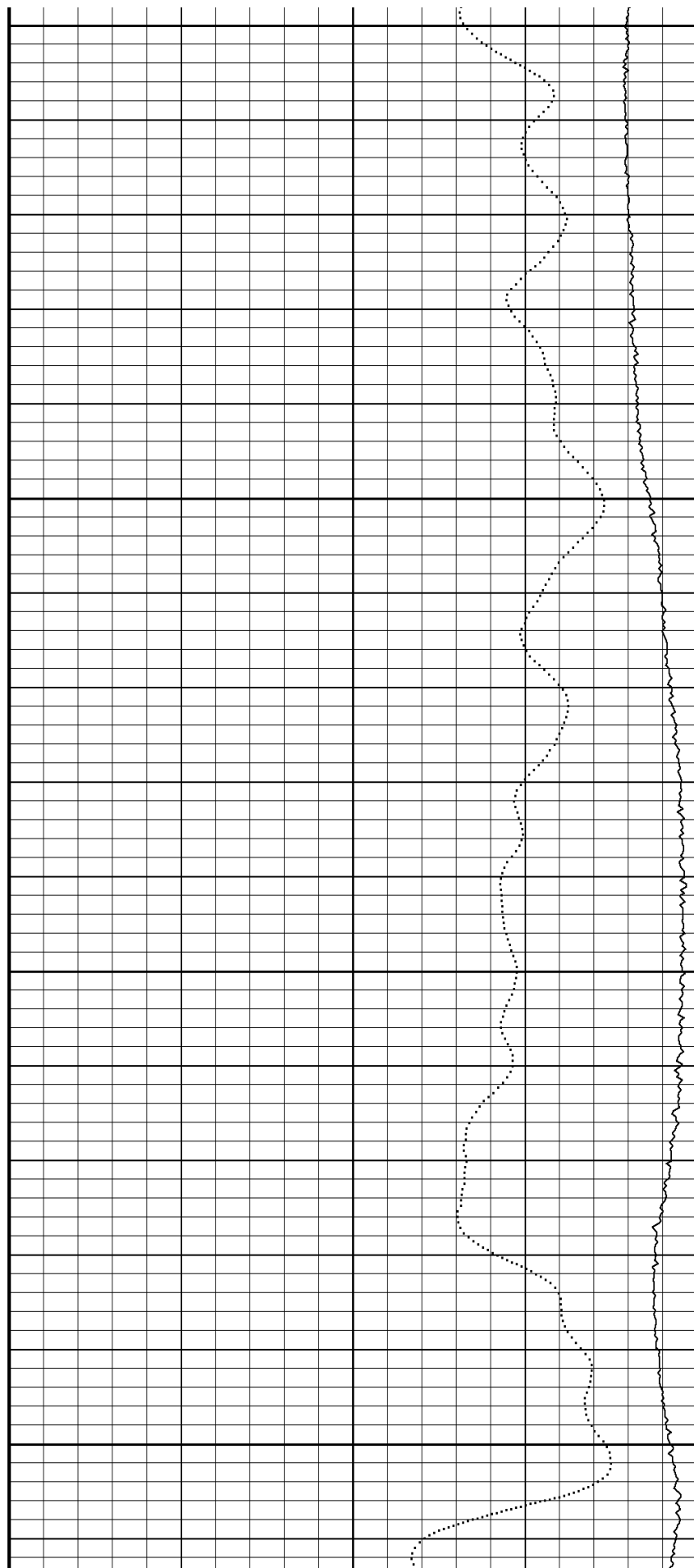
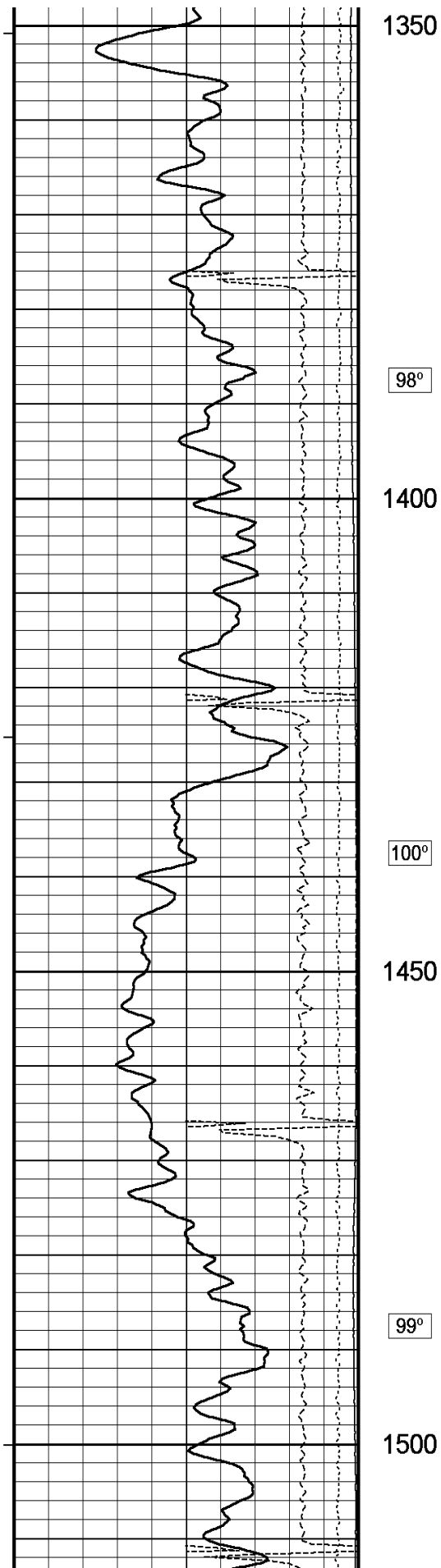


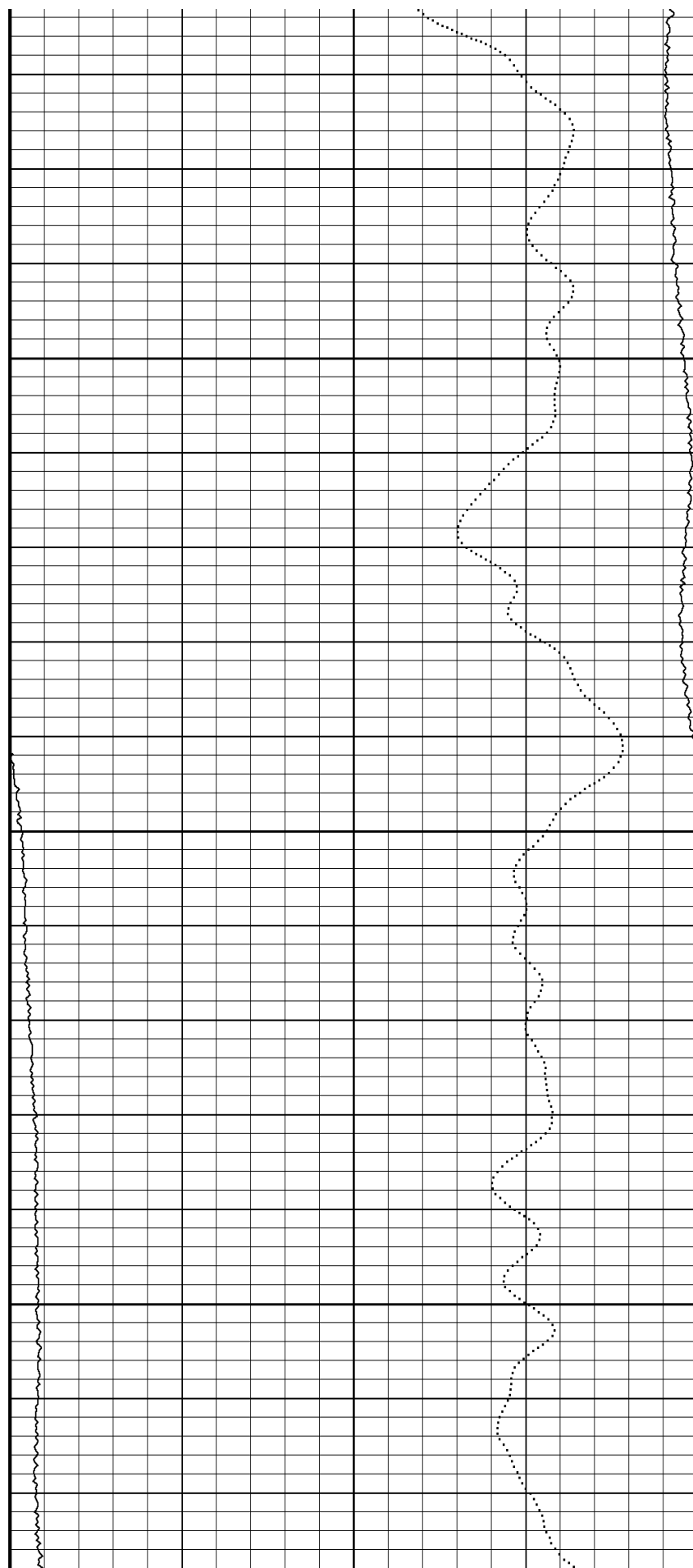
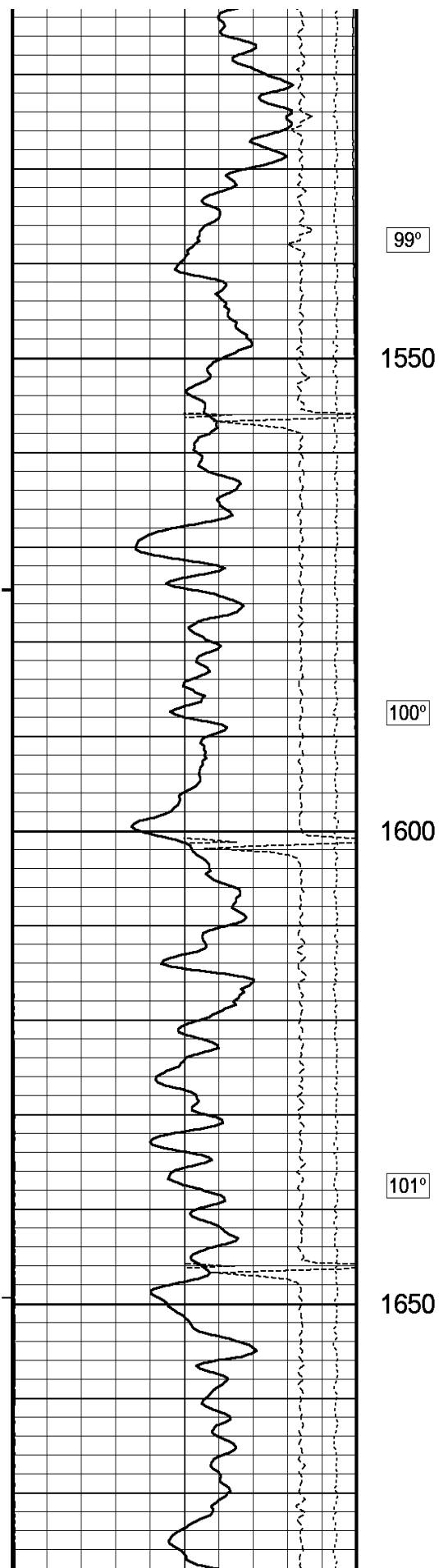


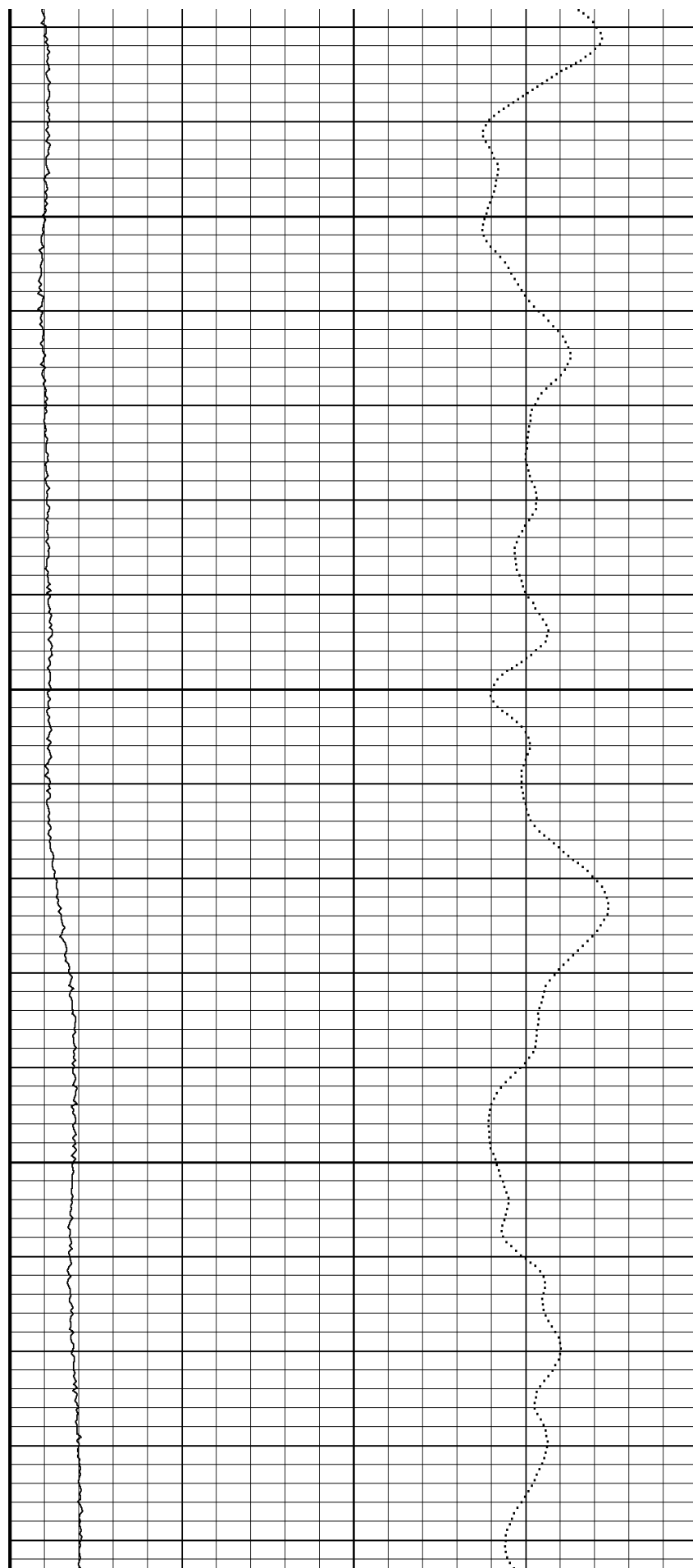
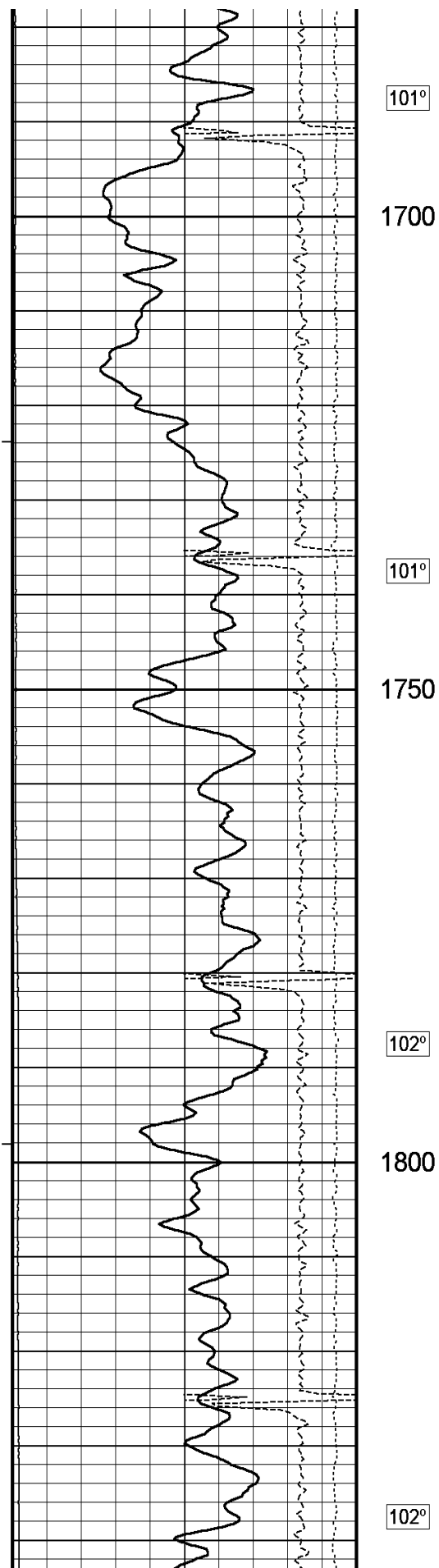


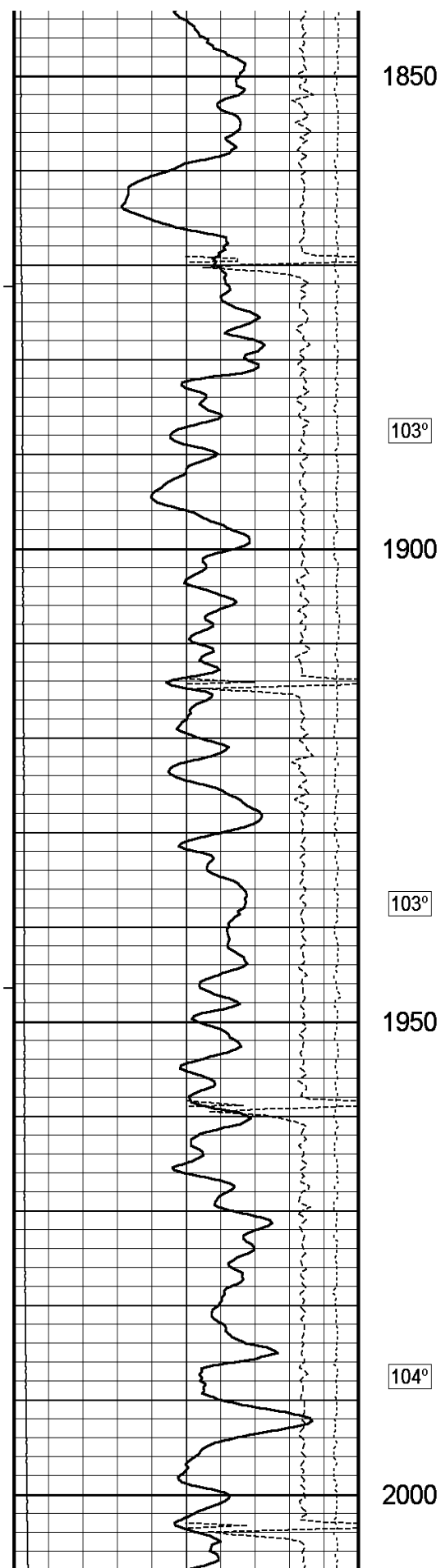












1850

103°

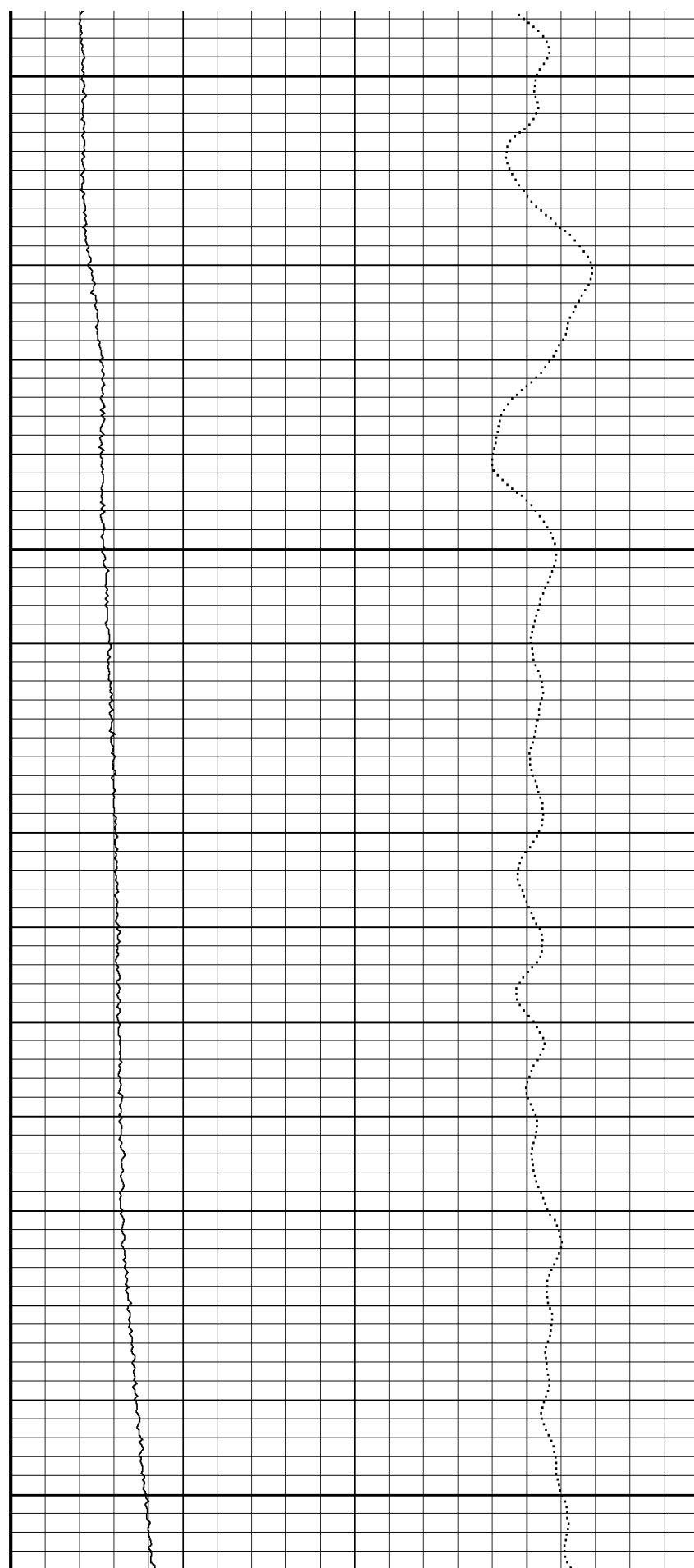
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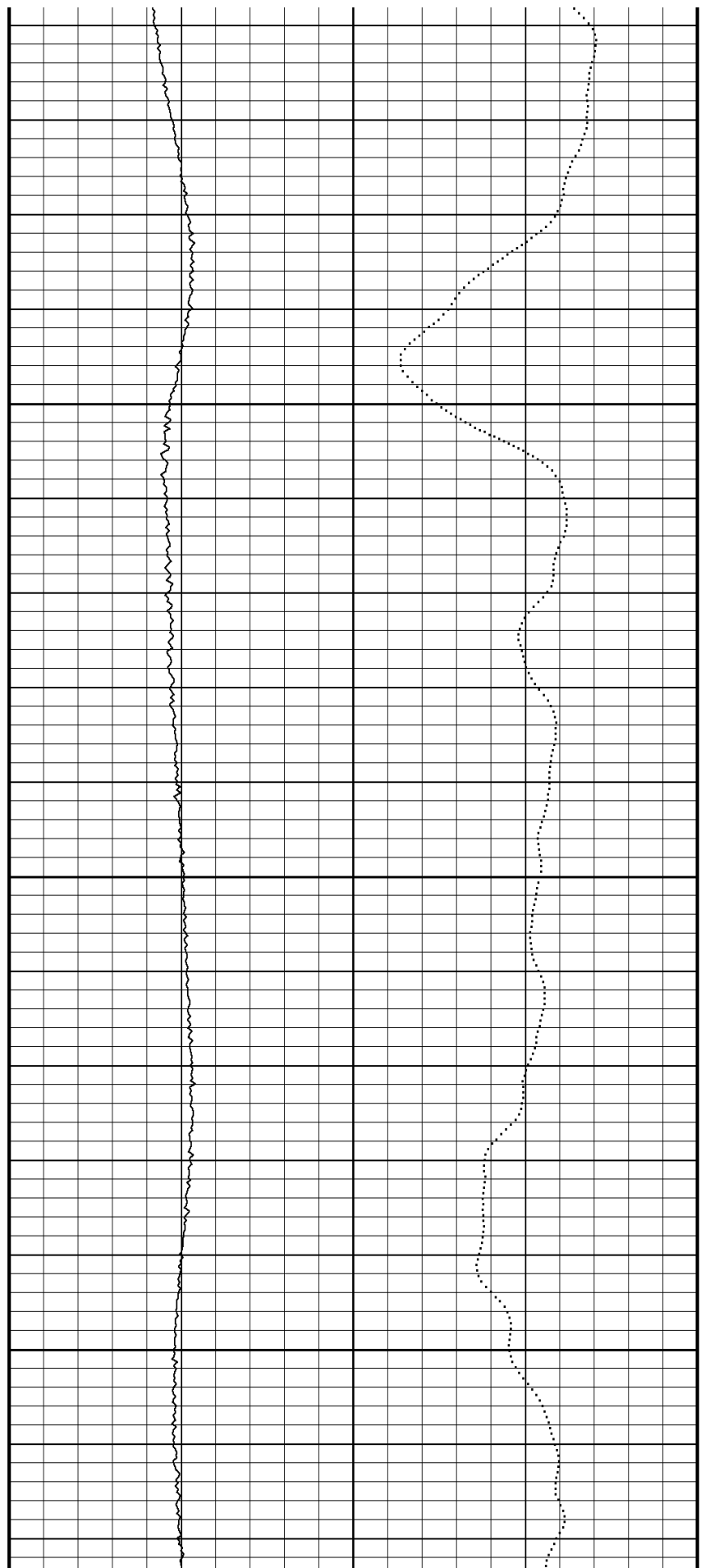
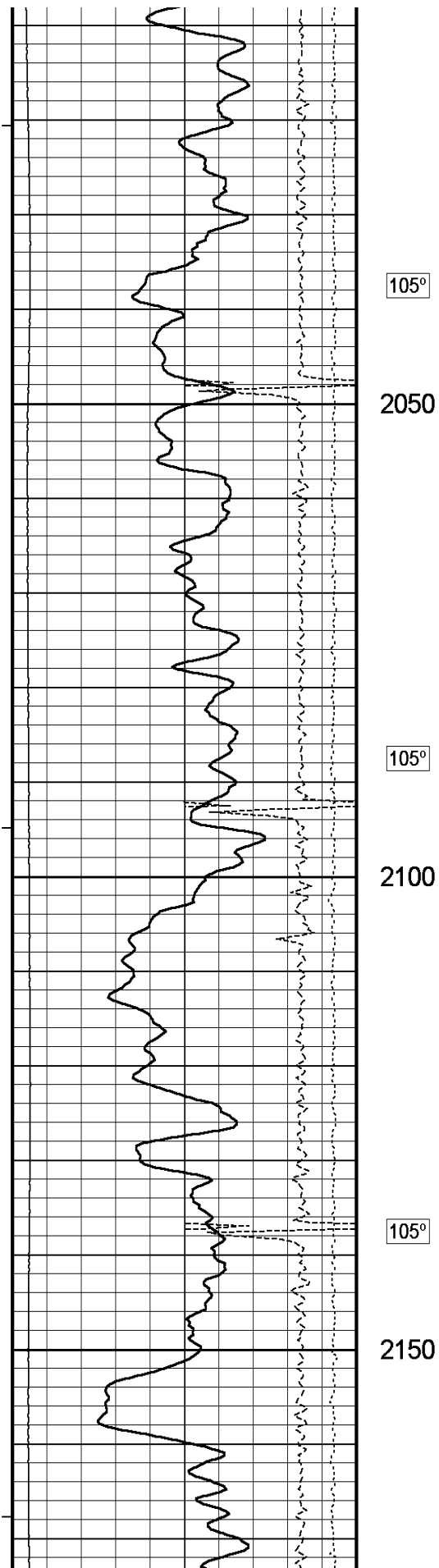
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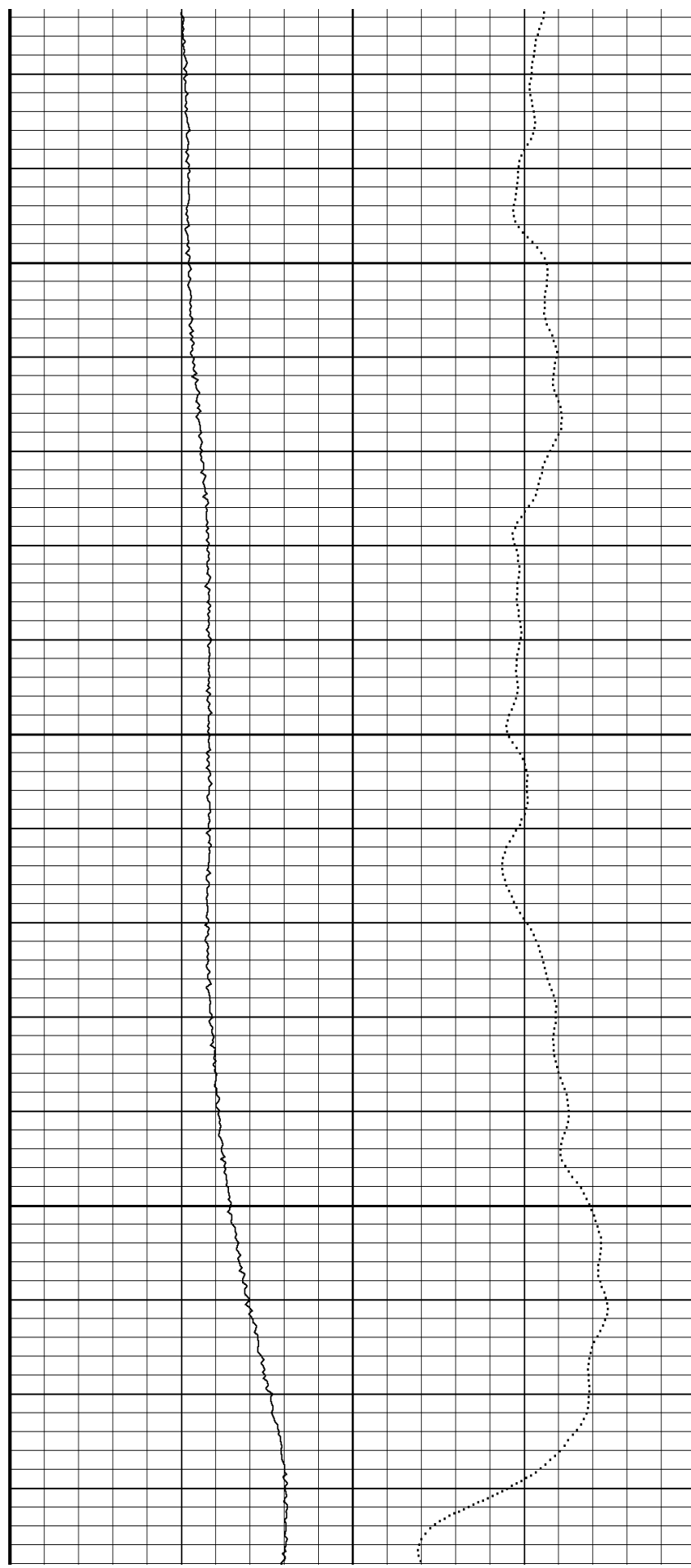
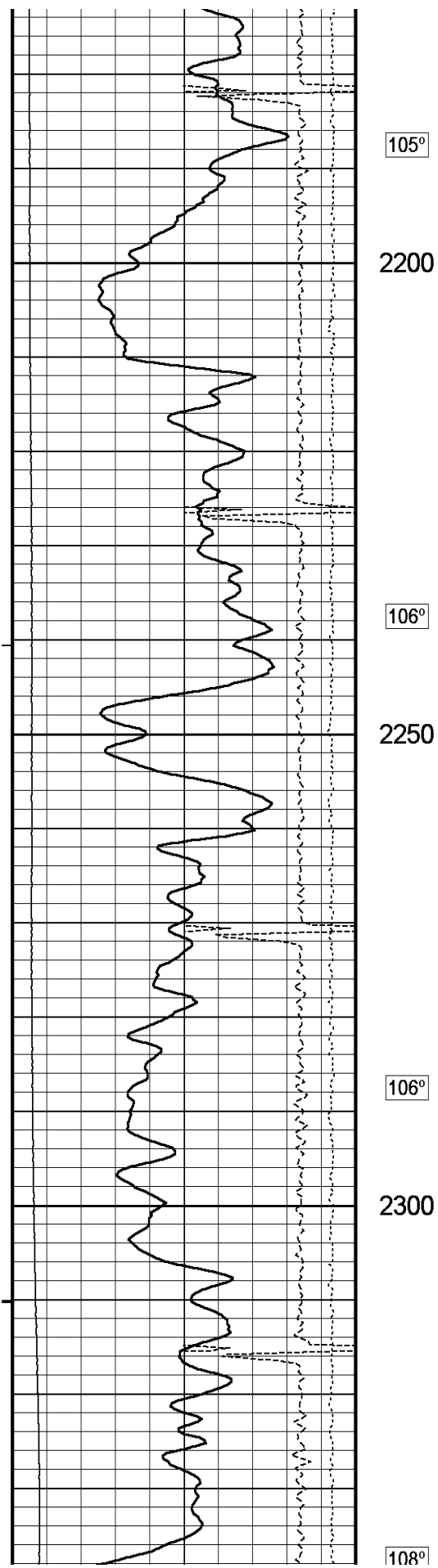
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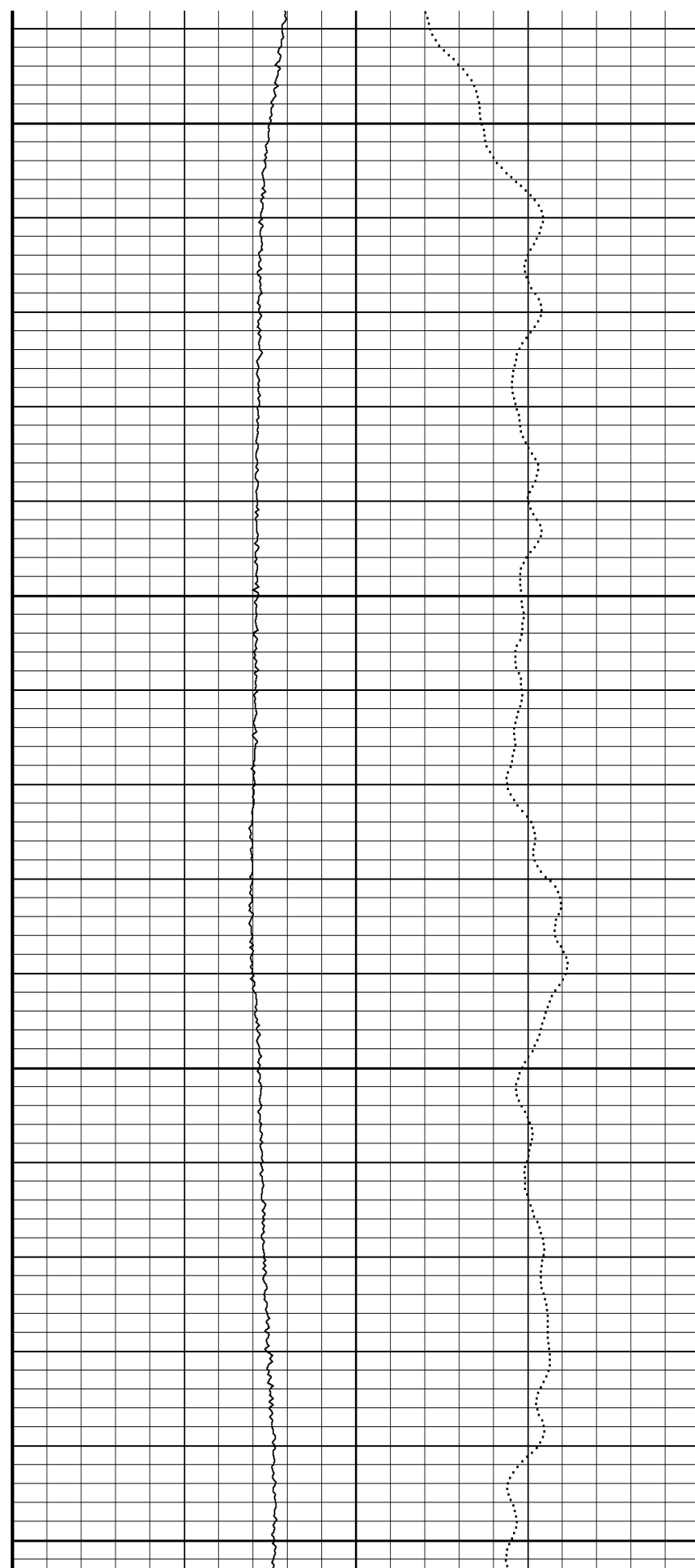
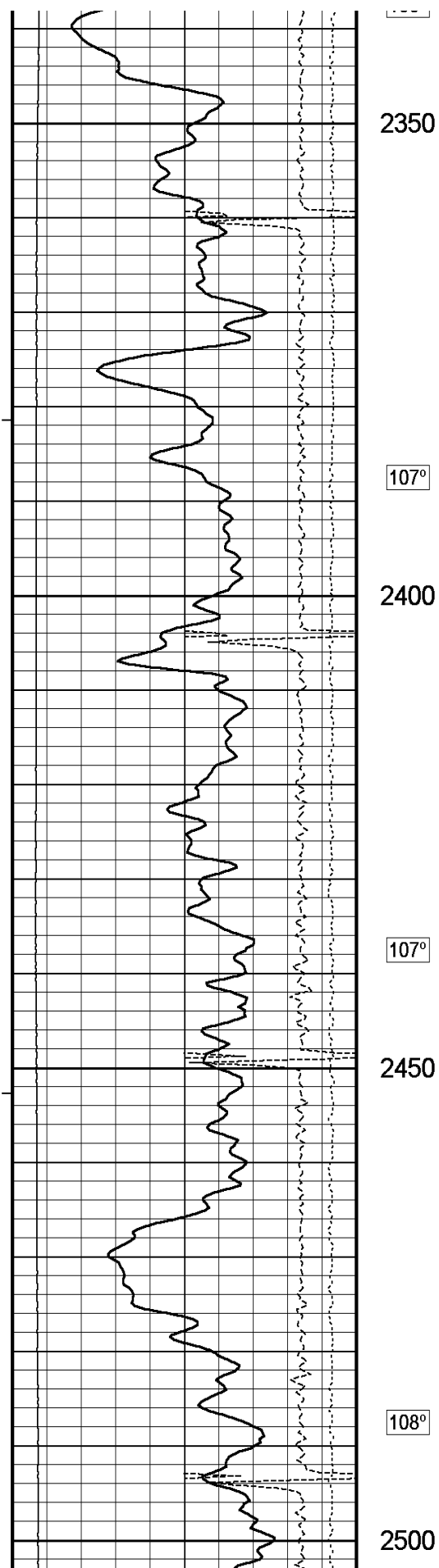
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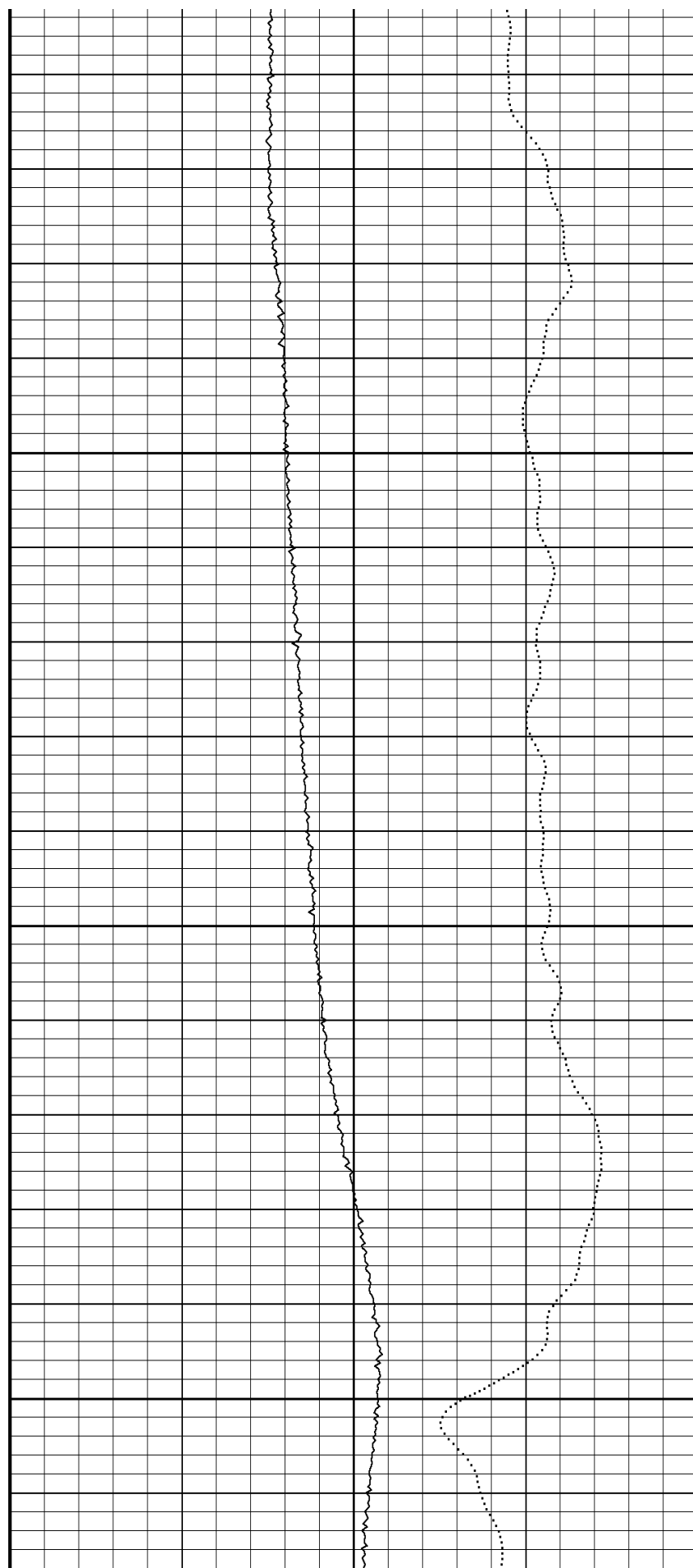
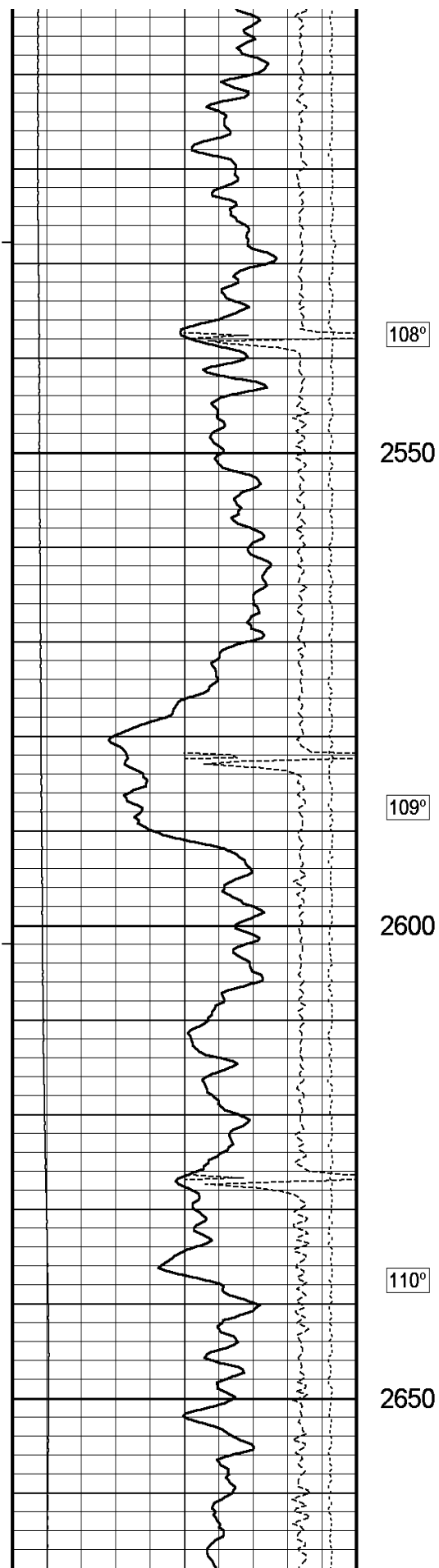


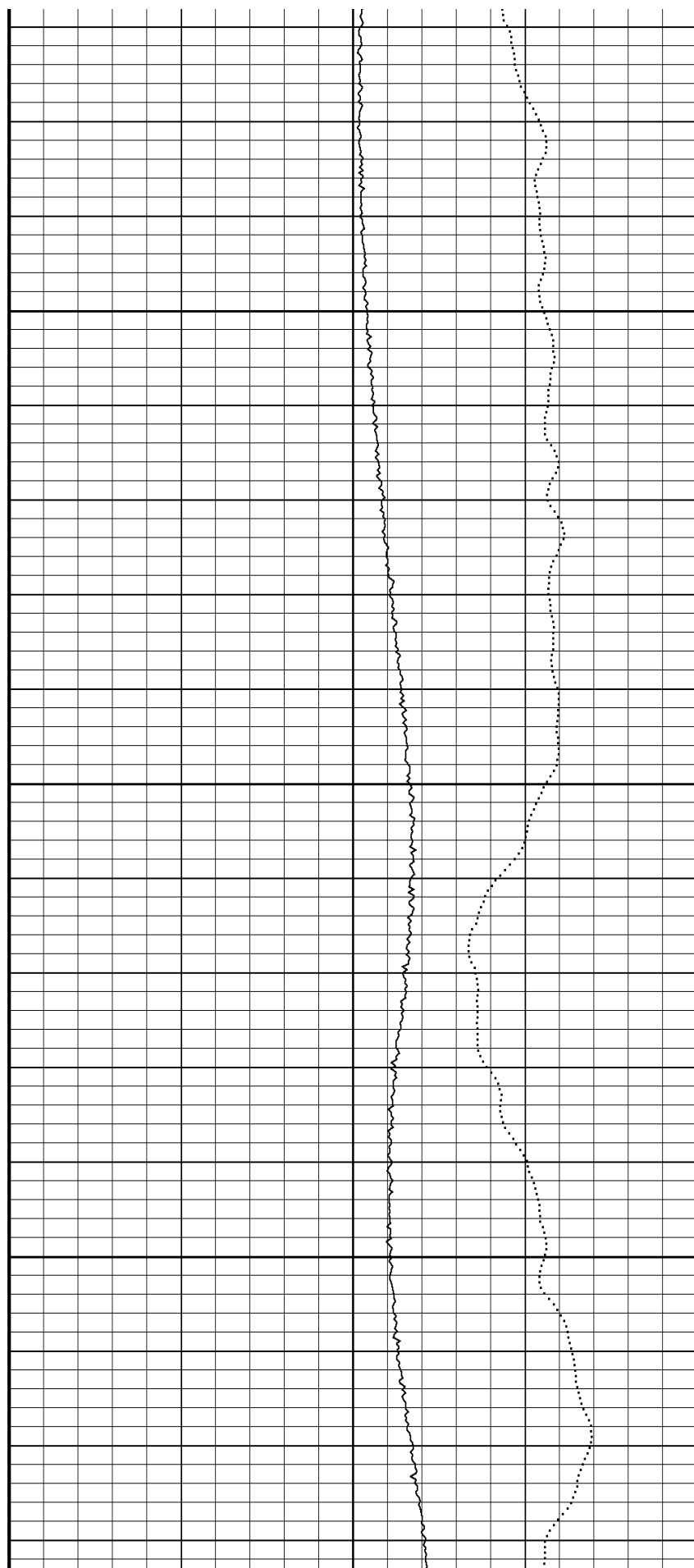
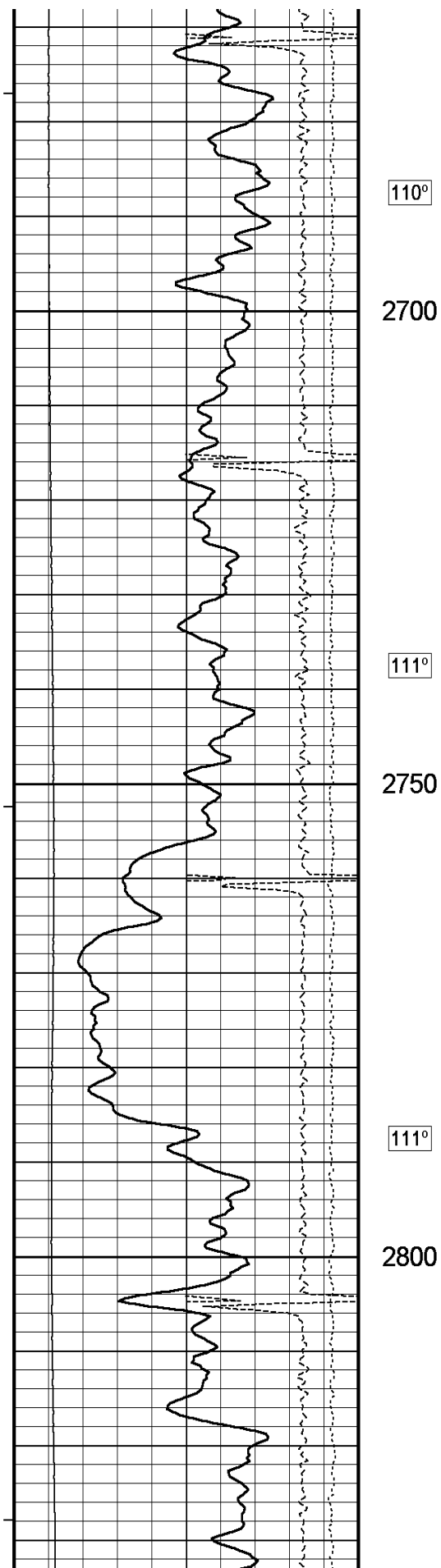


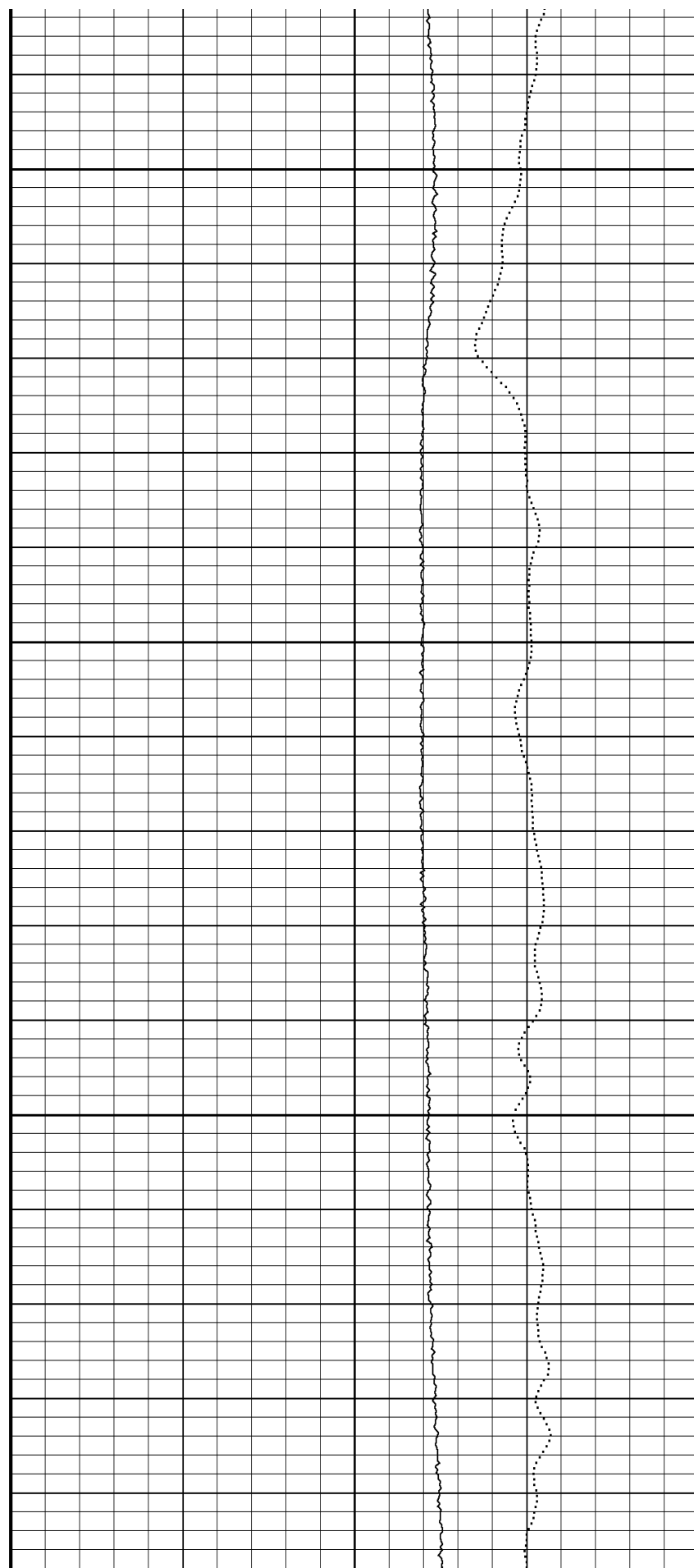
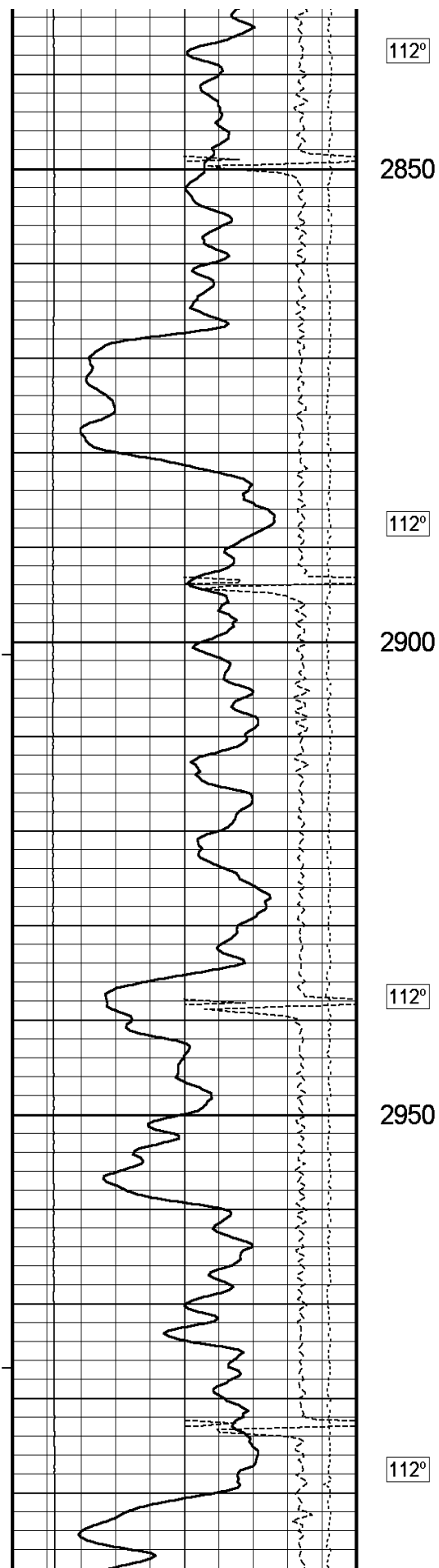


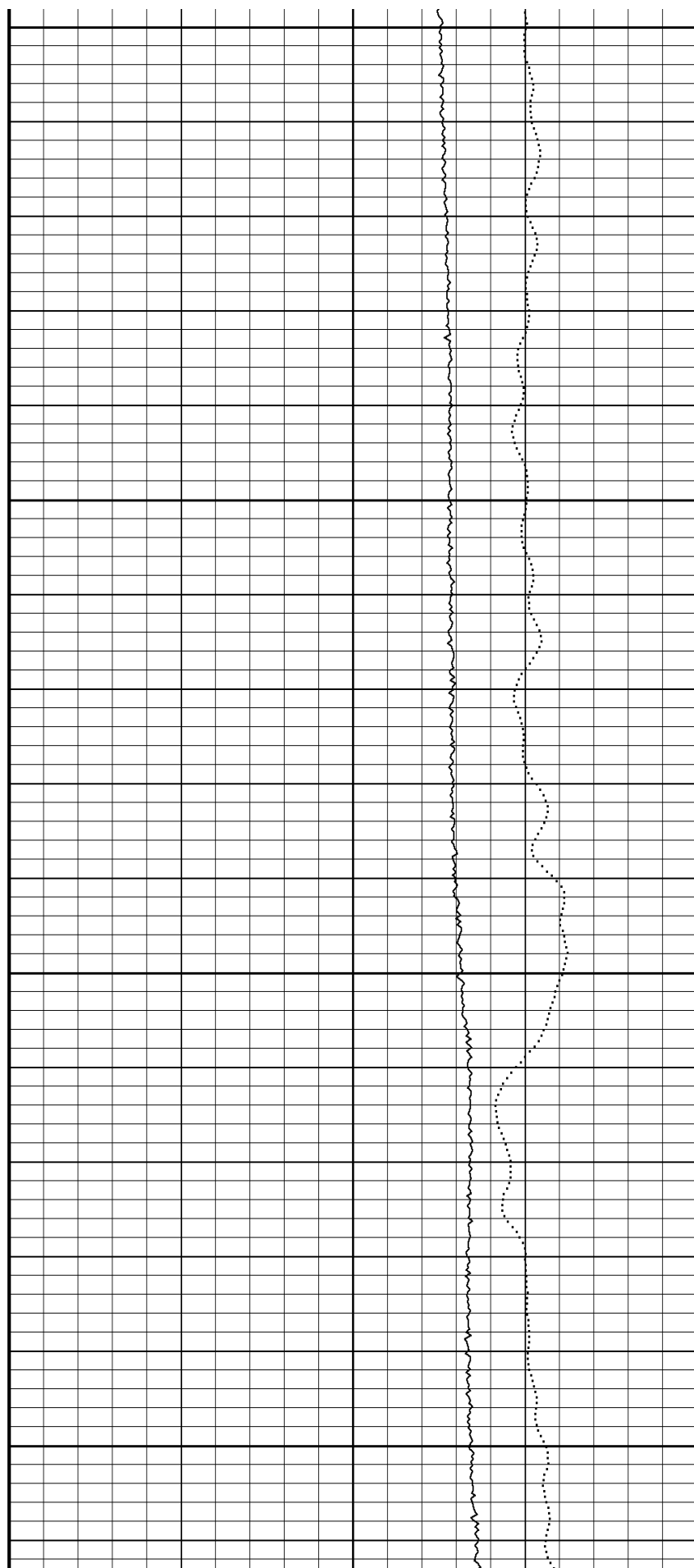
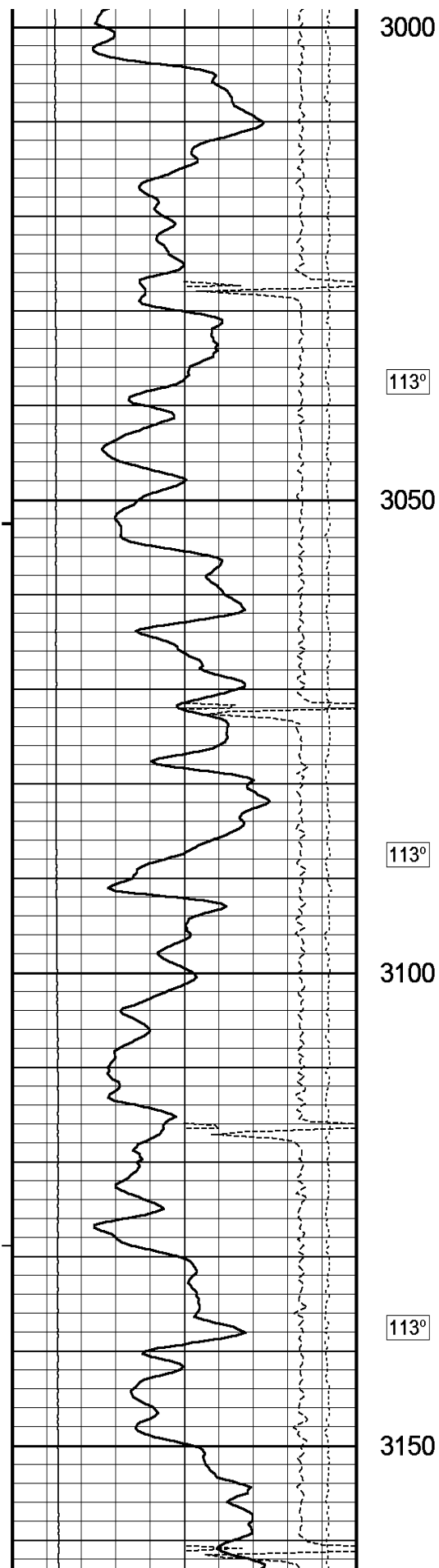


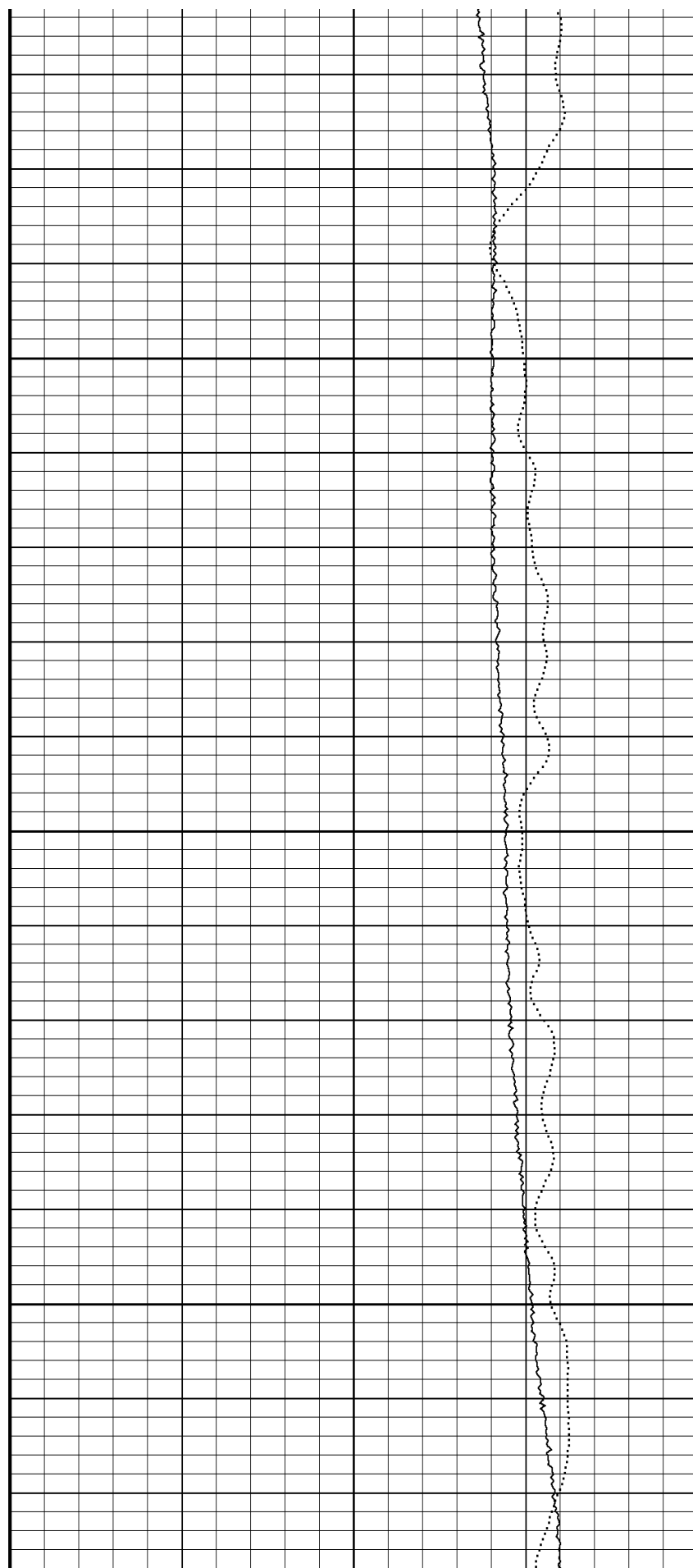
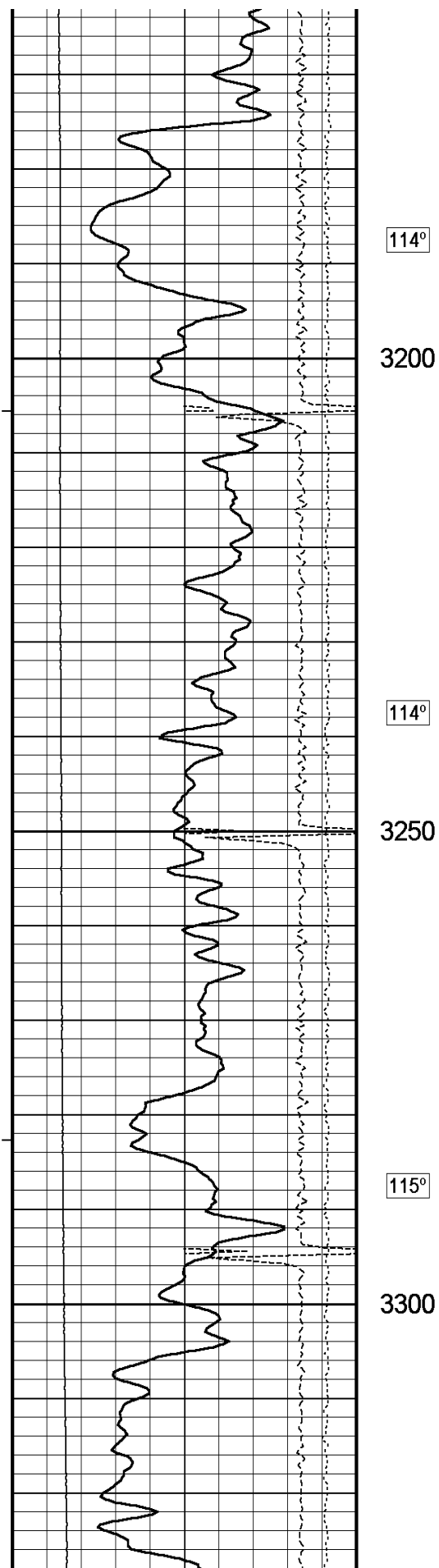


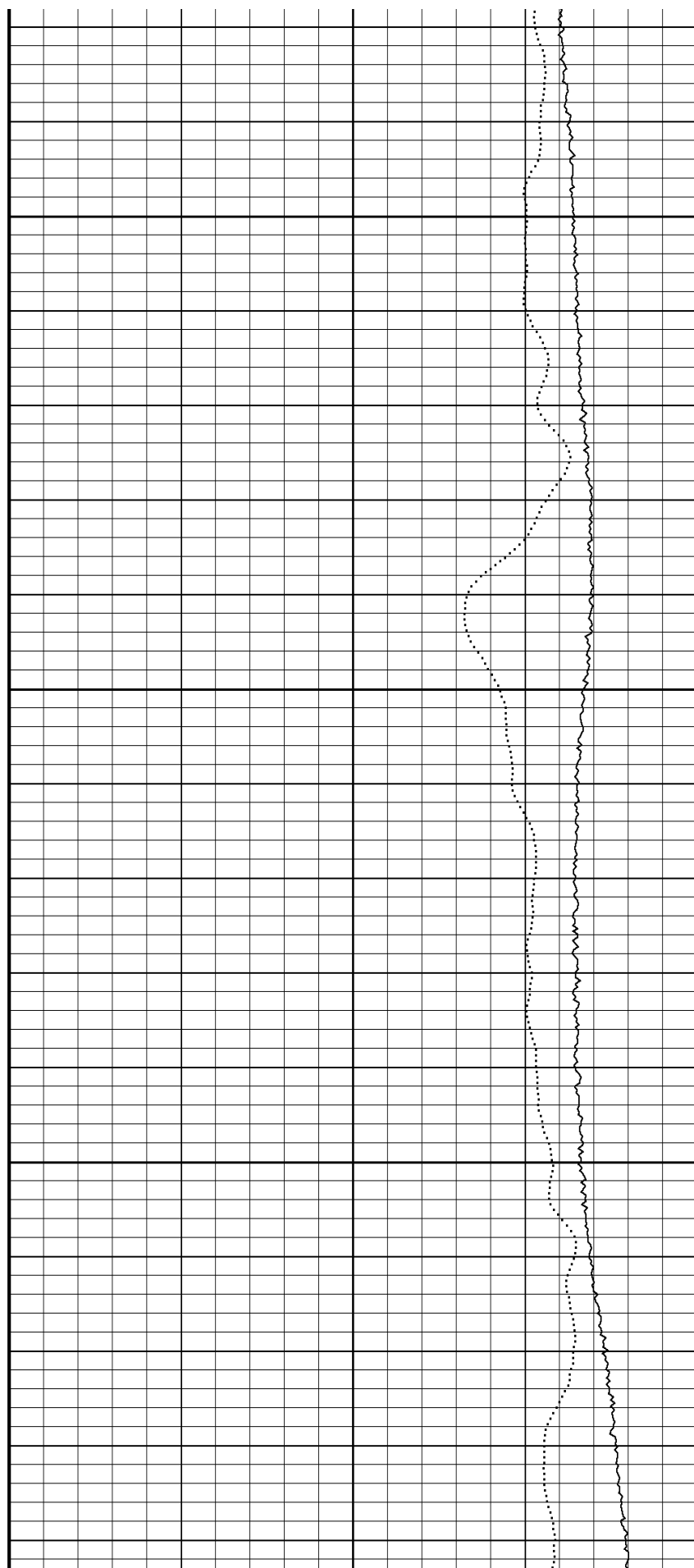
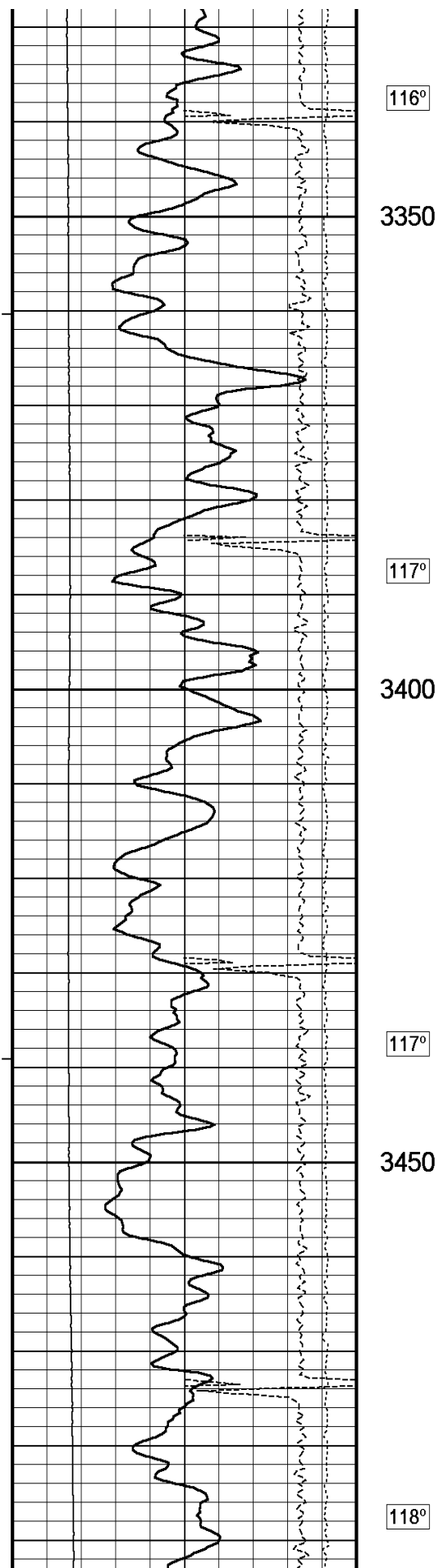


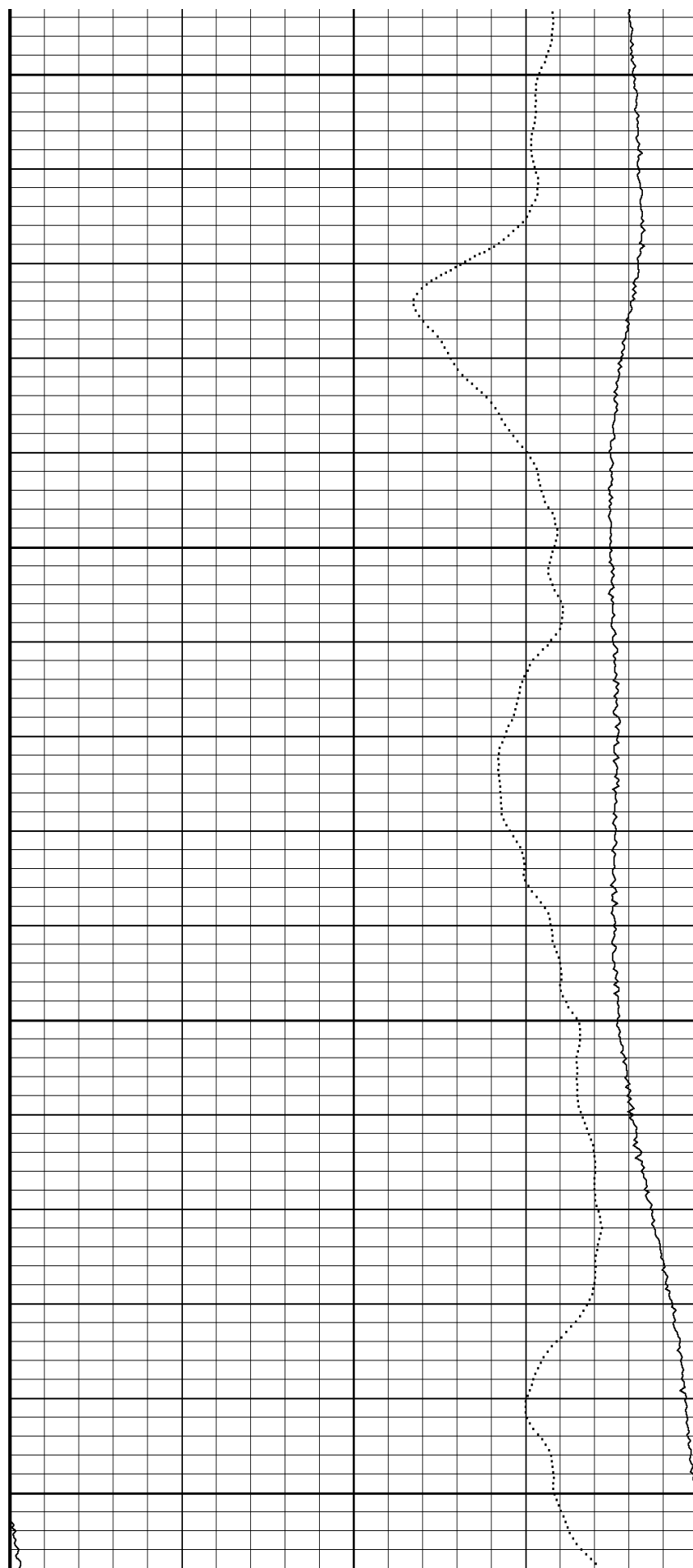
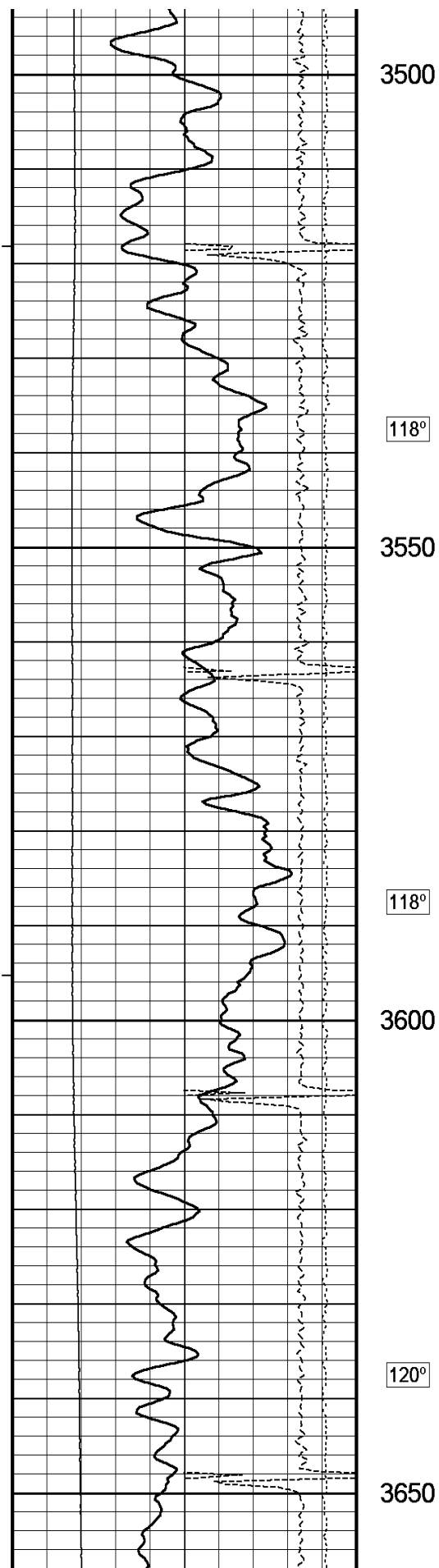


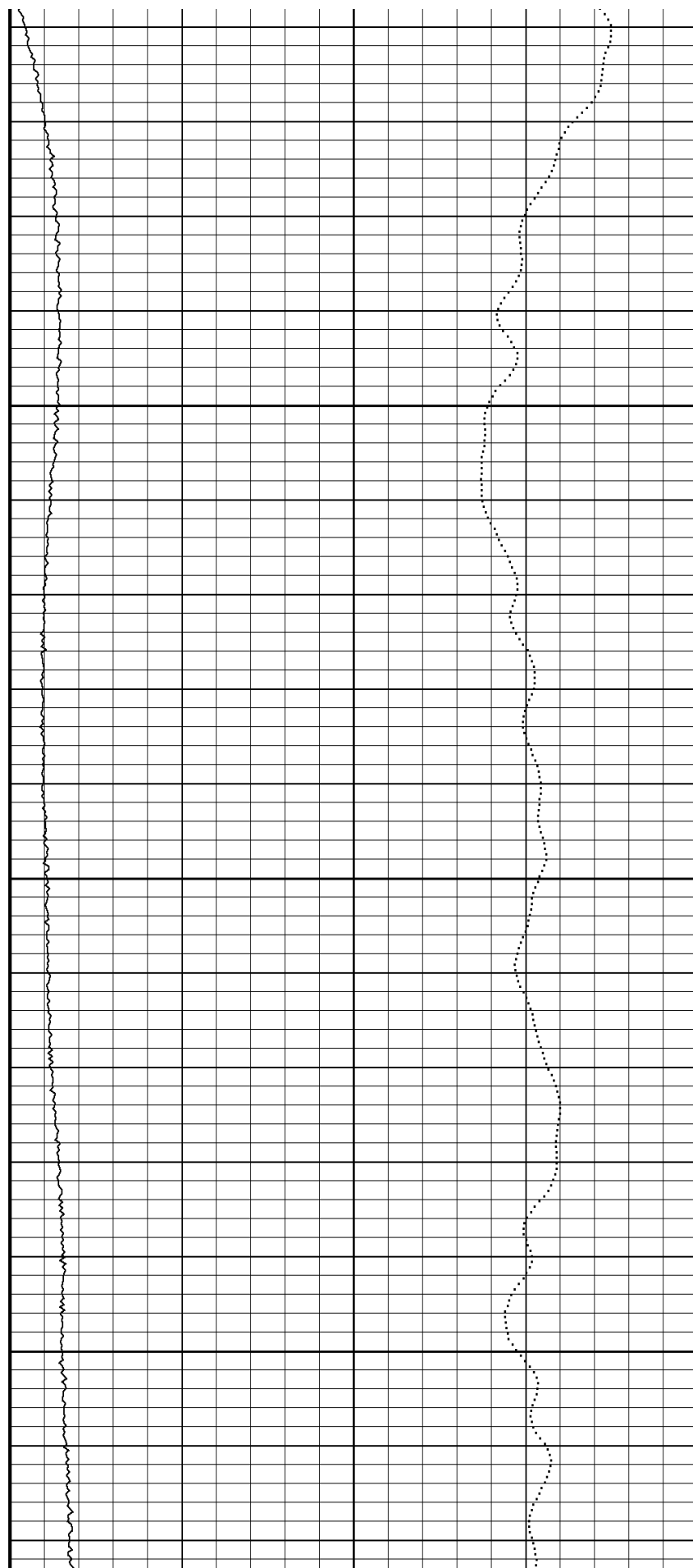
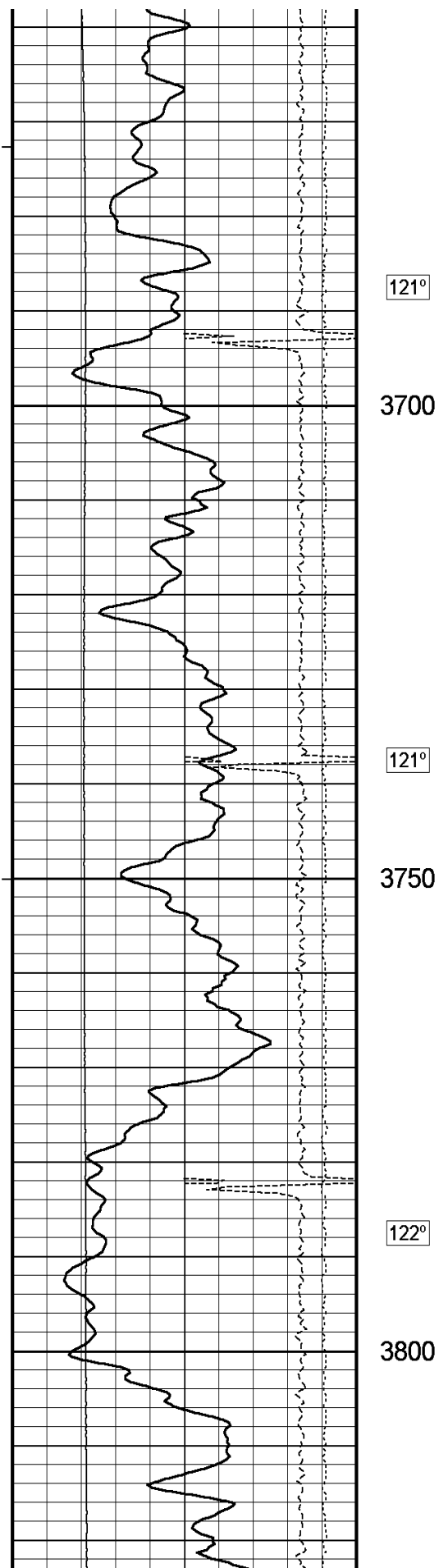




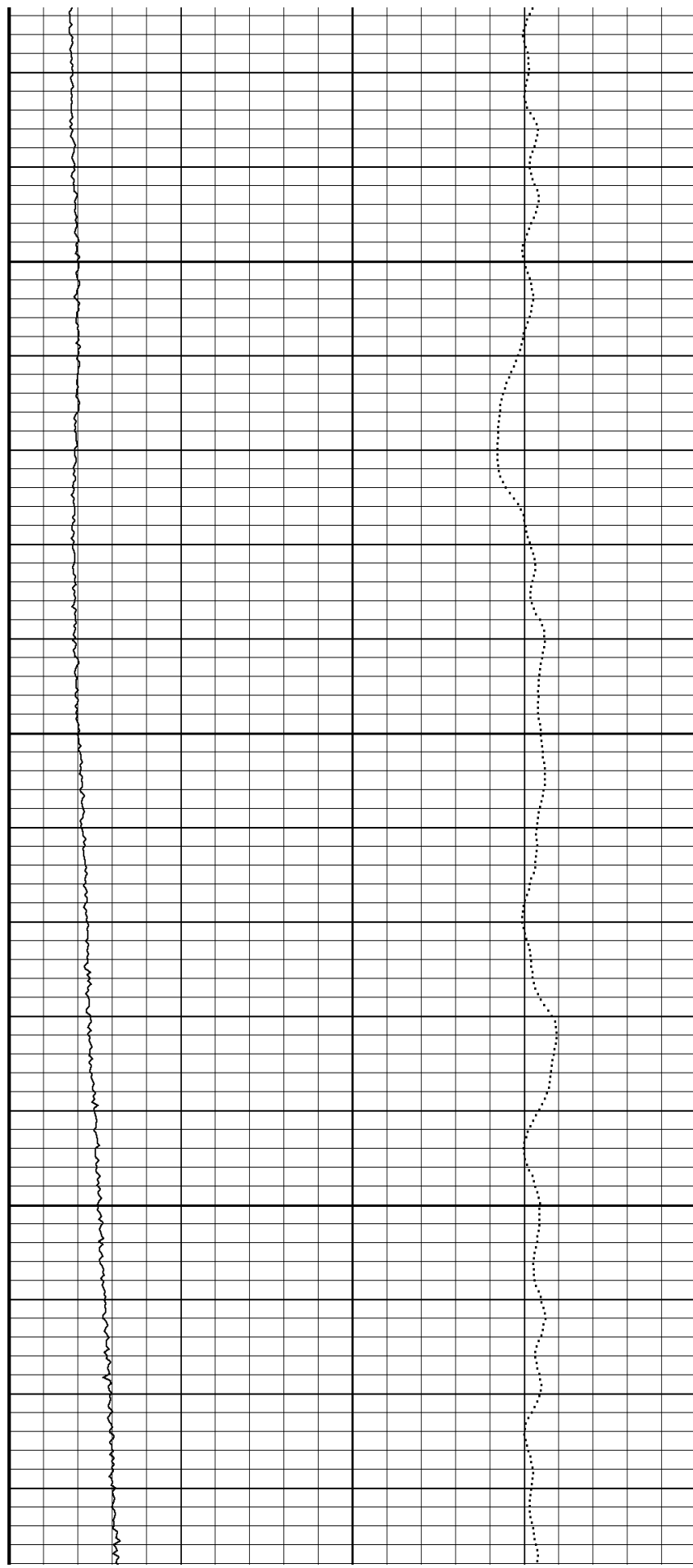
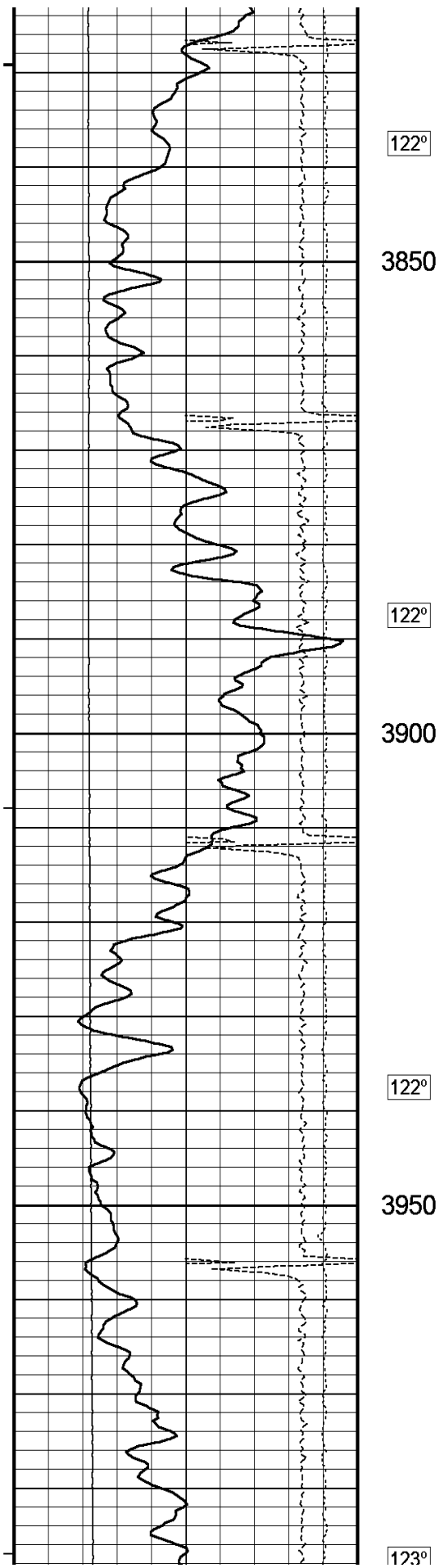


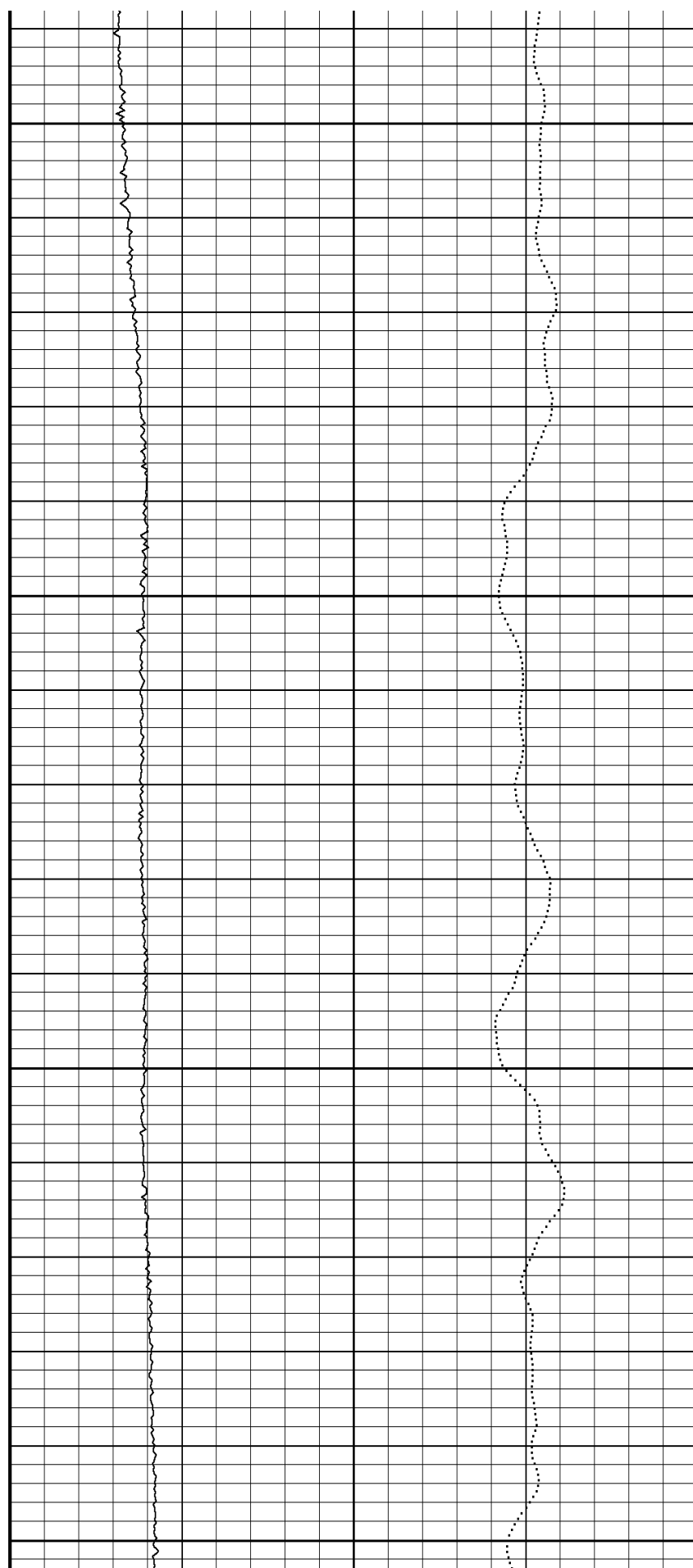
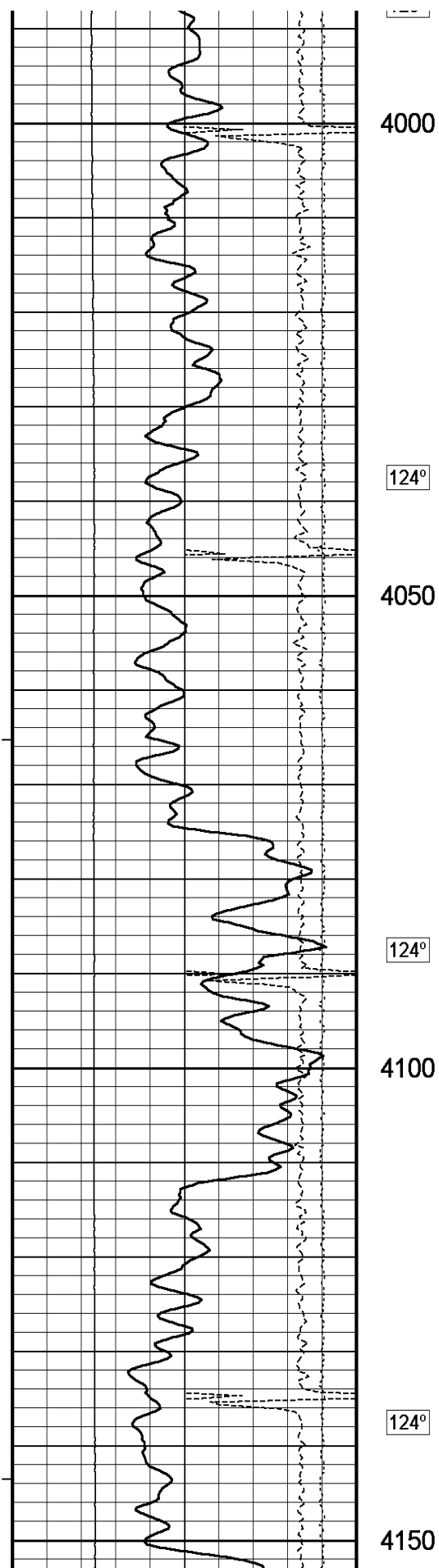


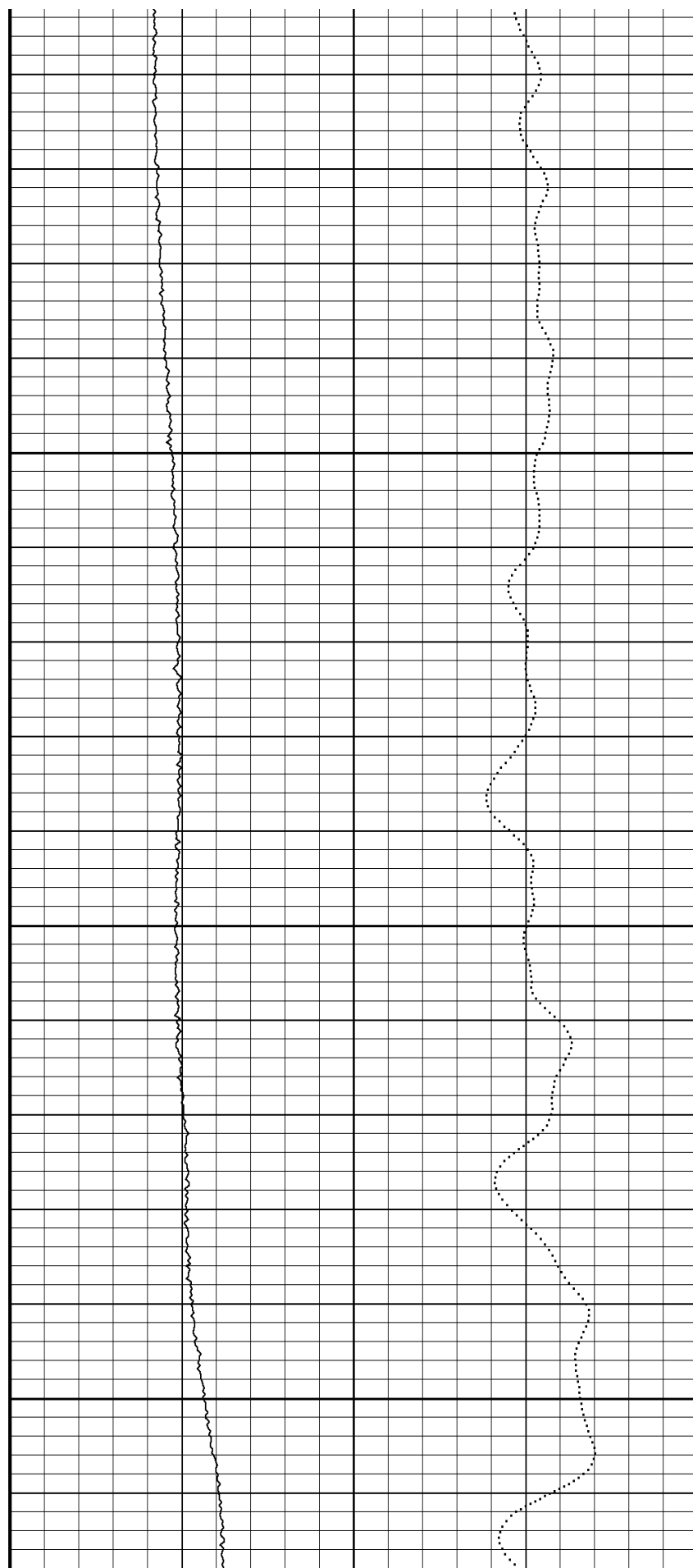
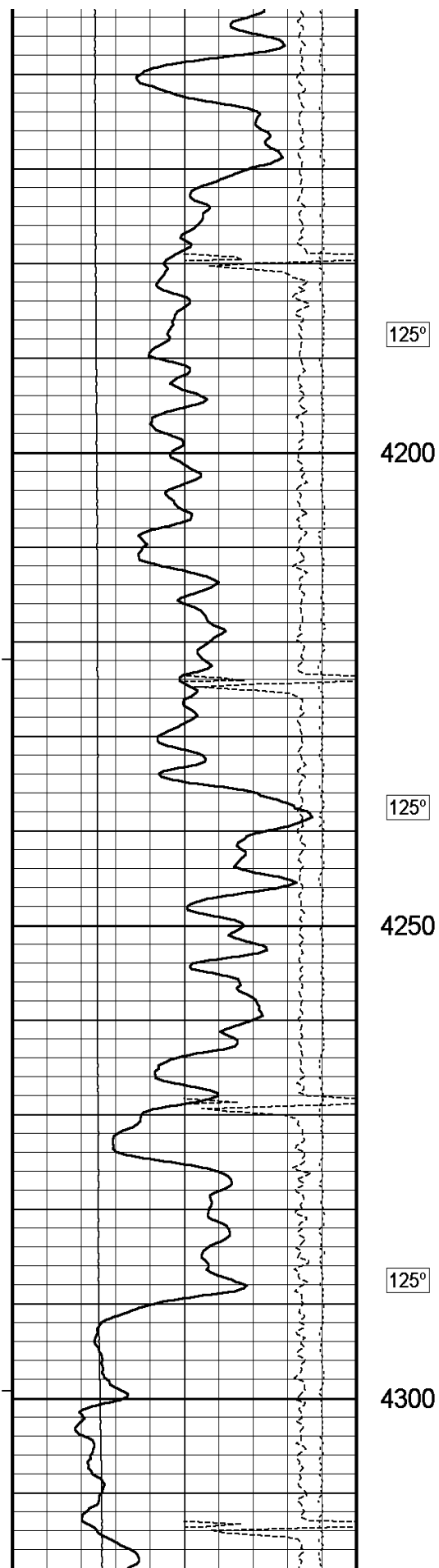


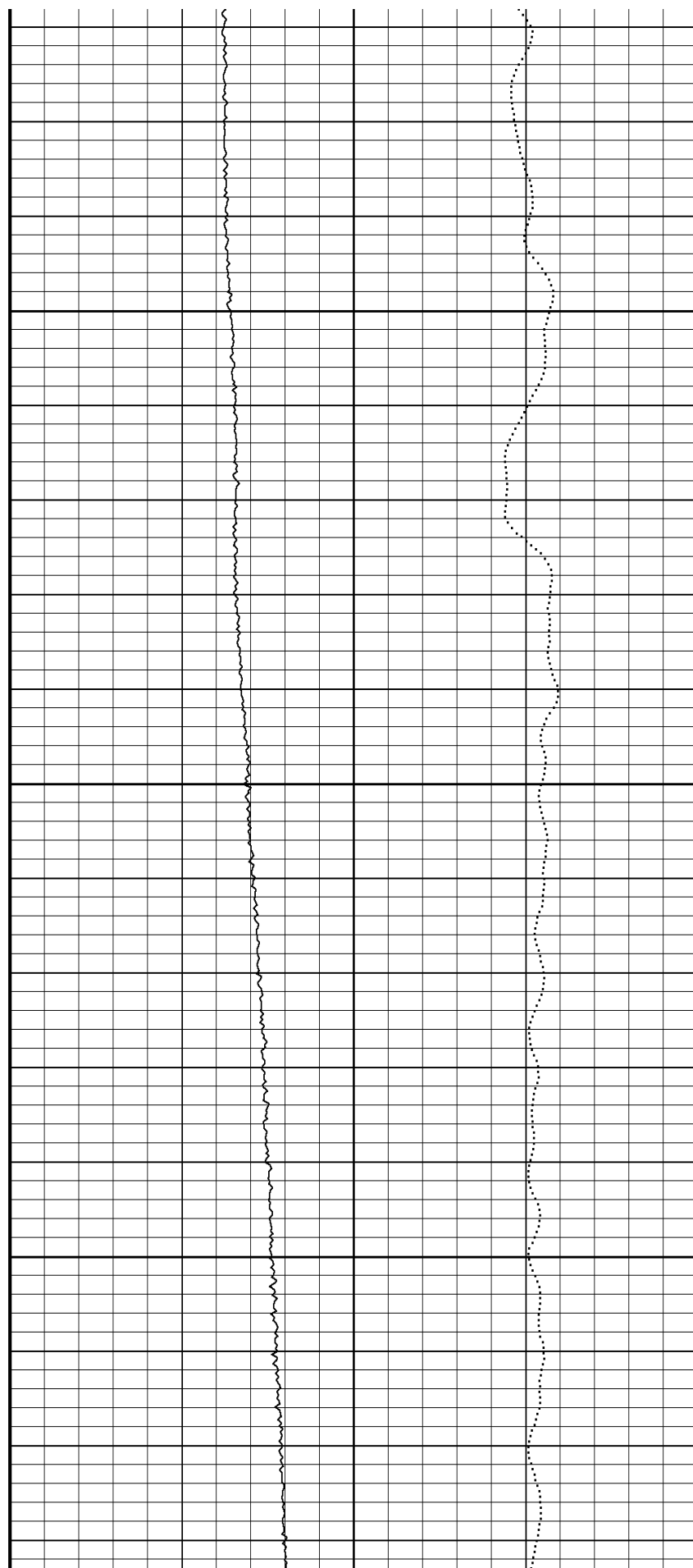
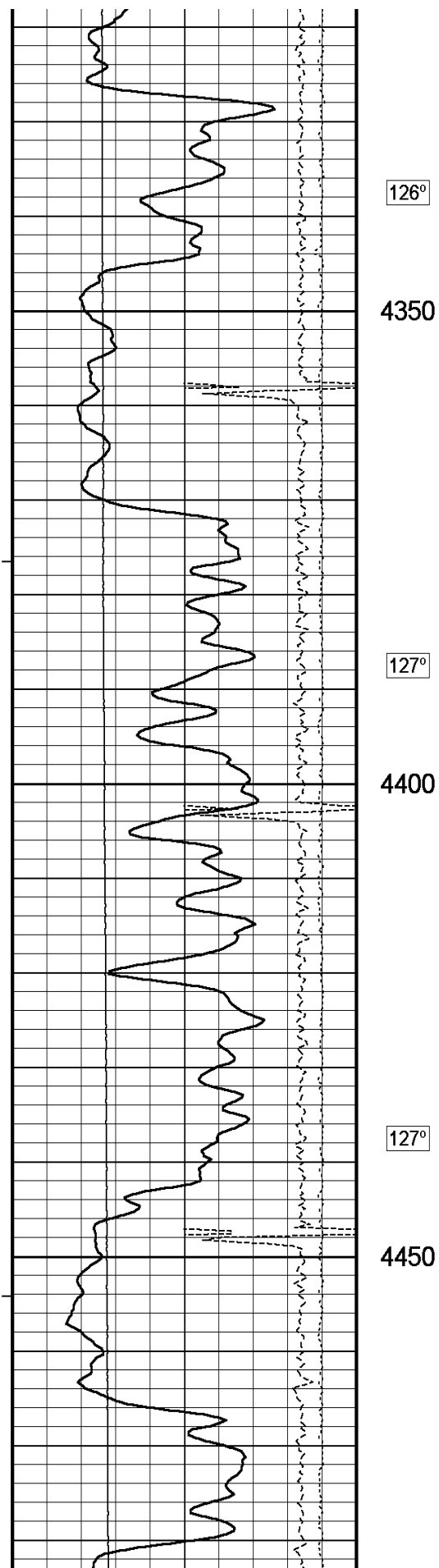


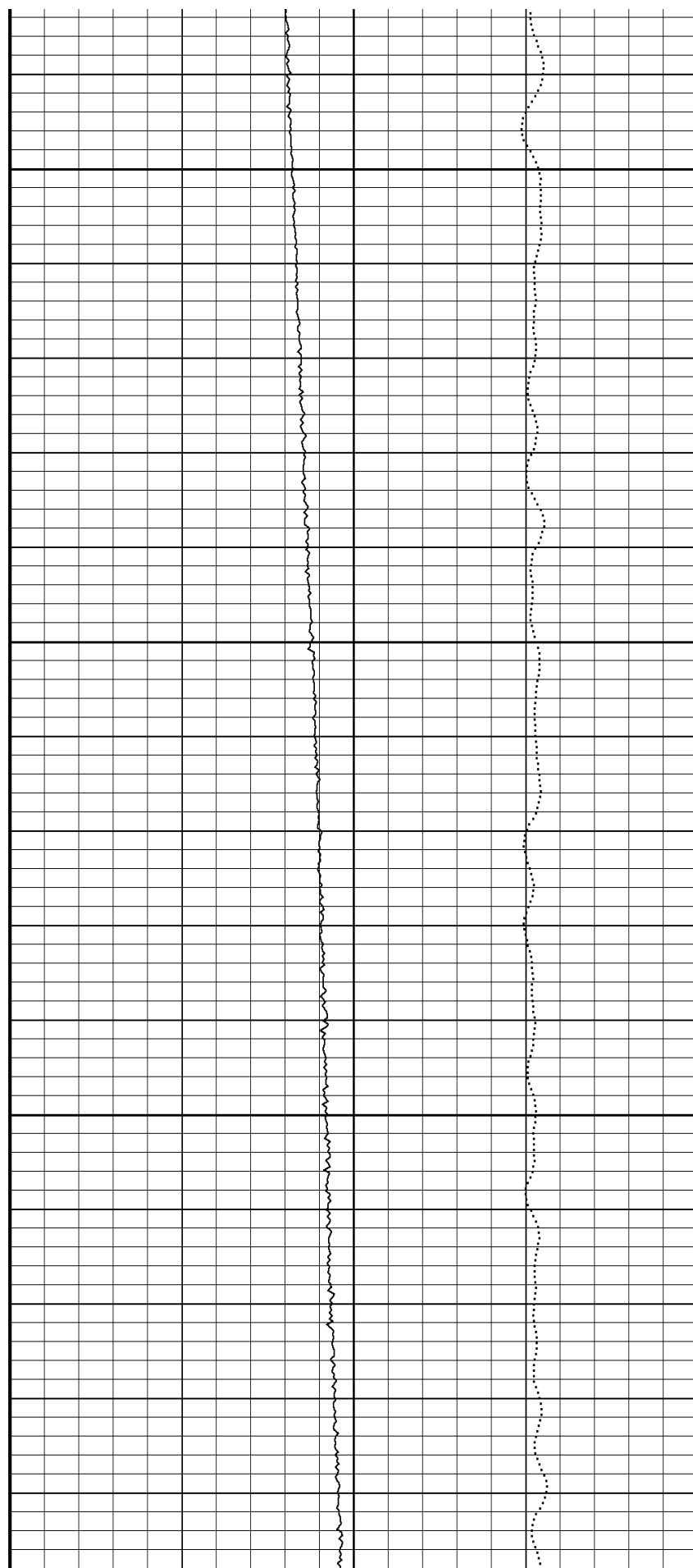
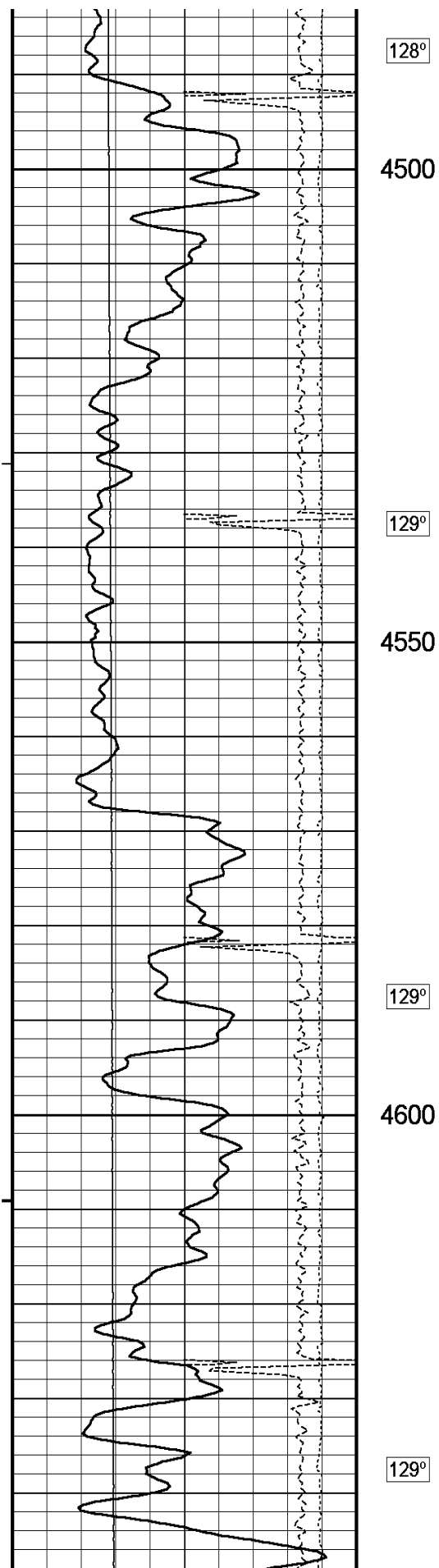


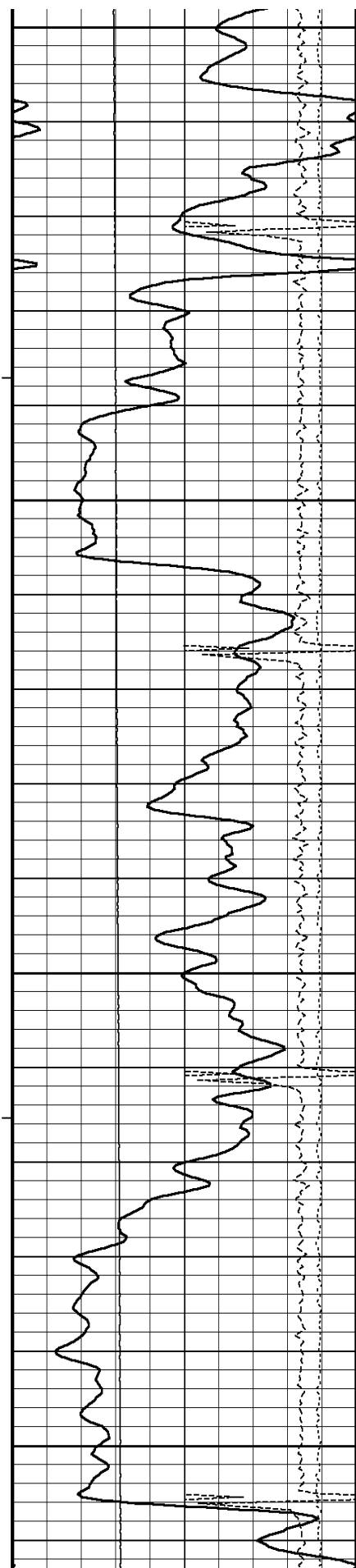












4650

130°

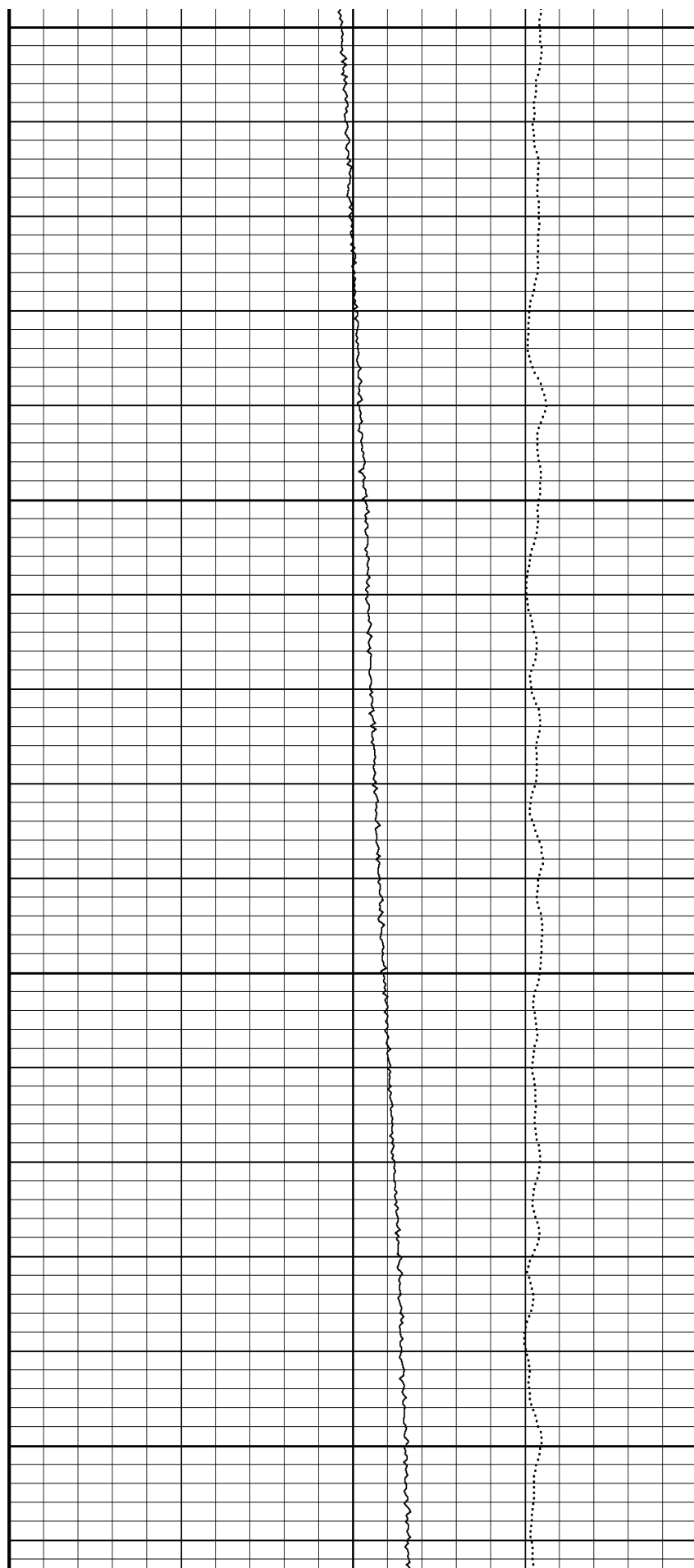
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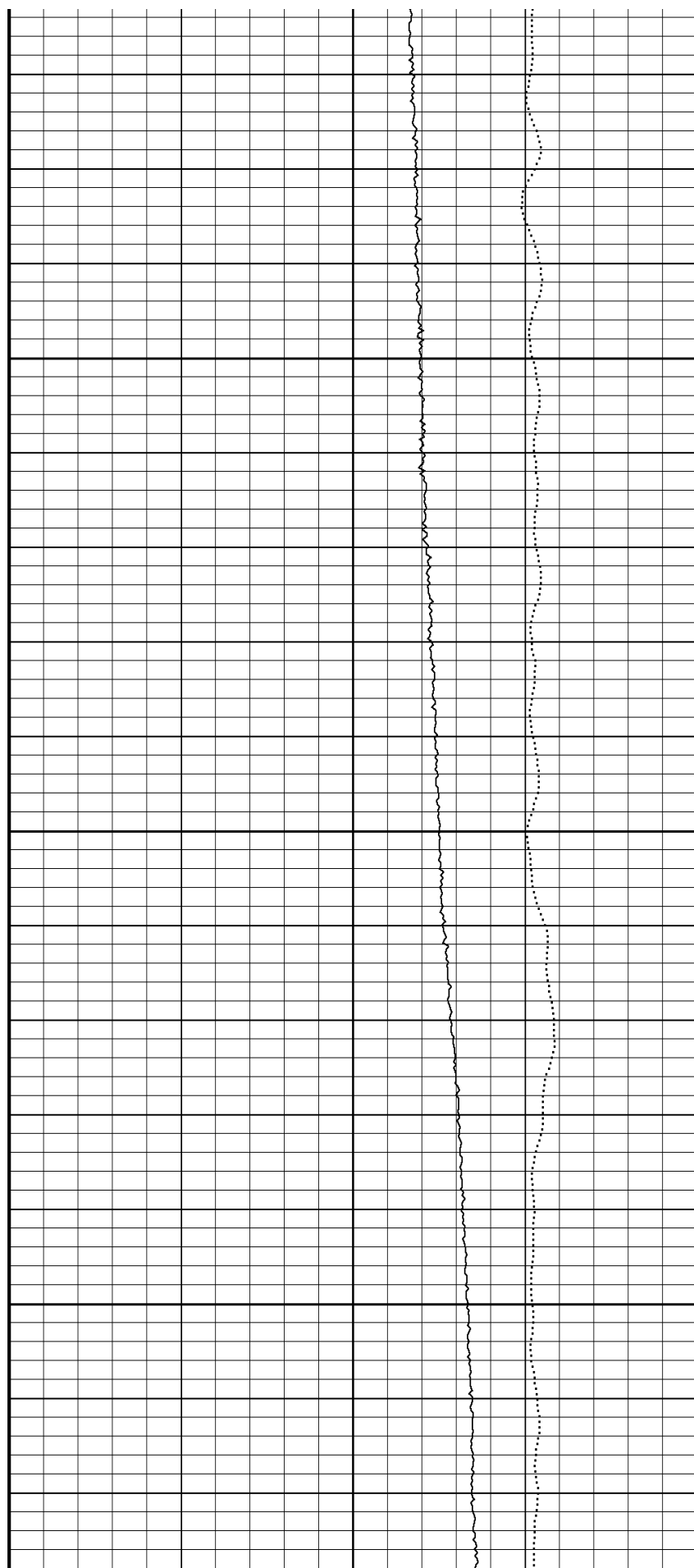
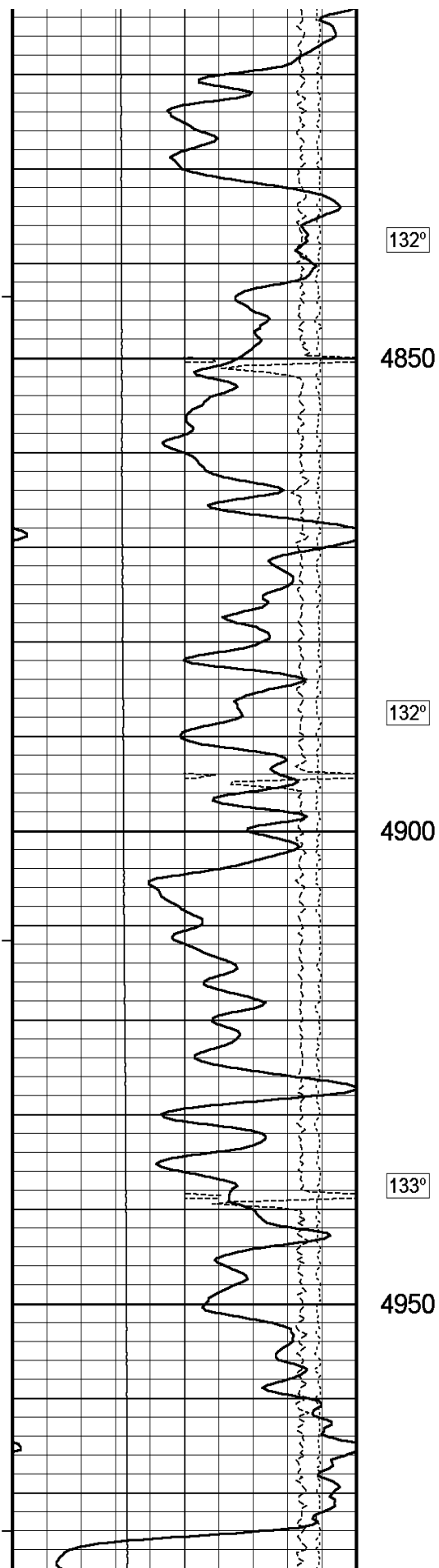
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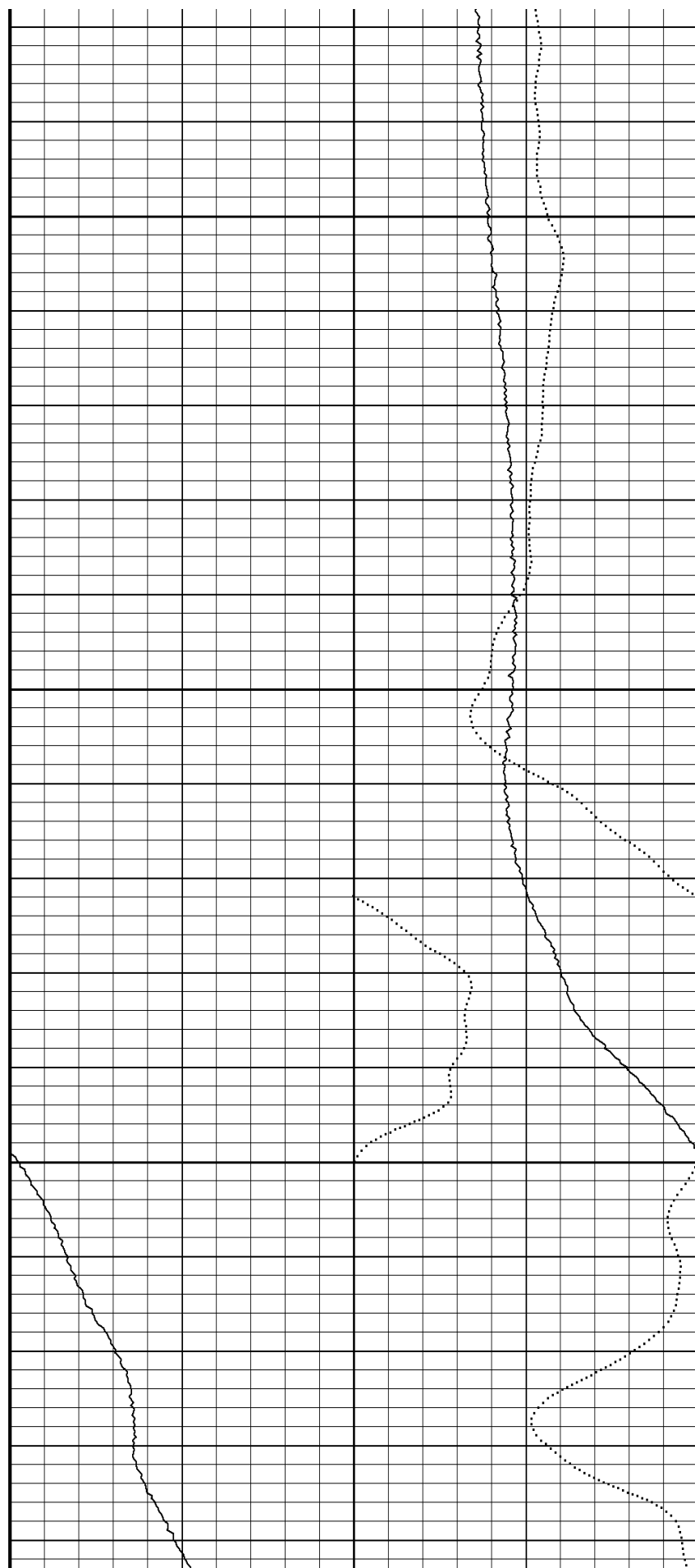
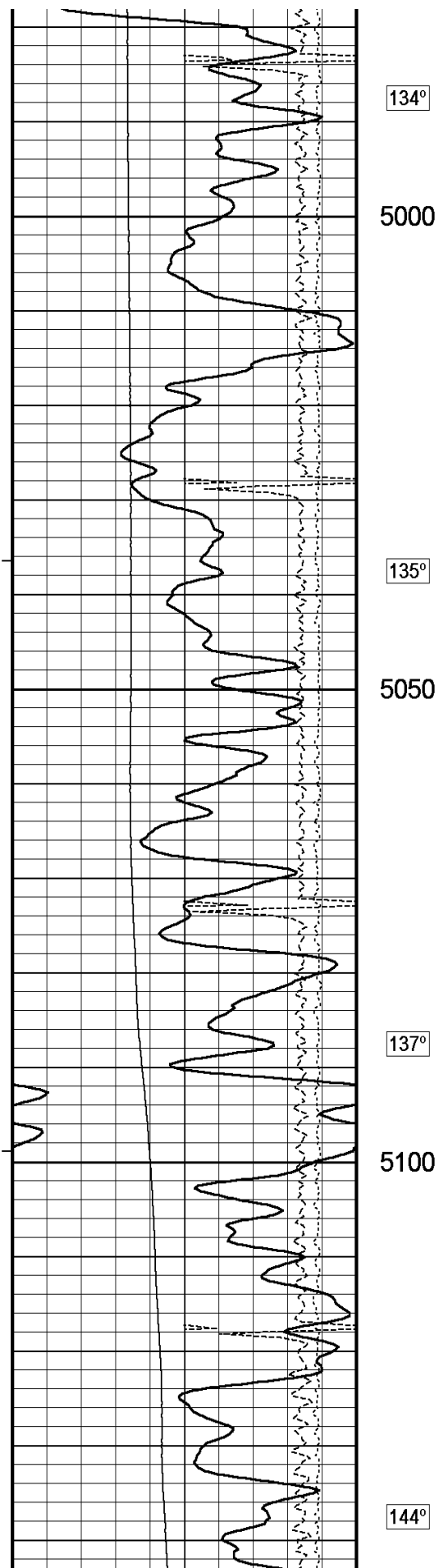
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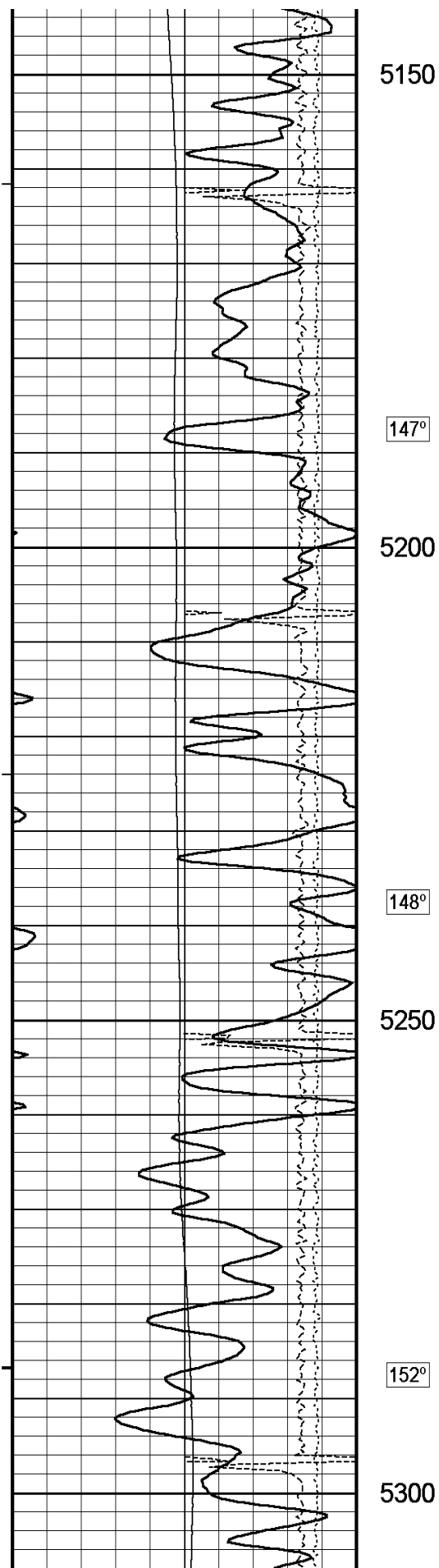
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5150

147°

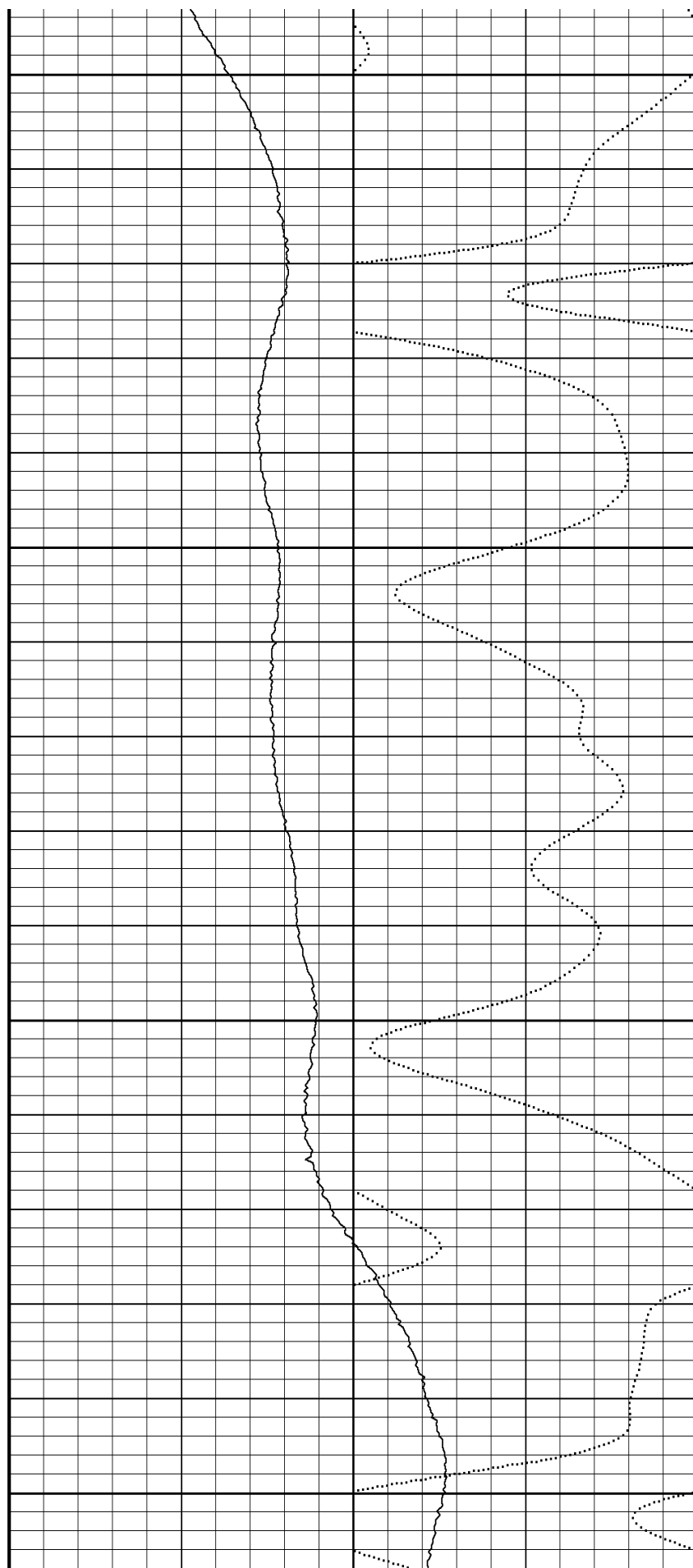
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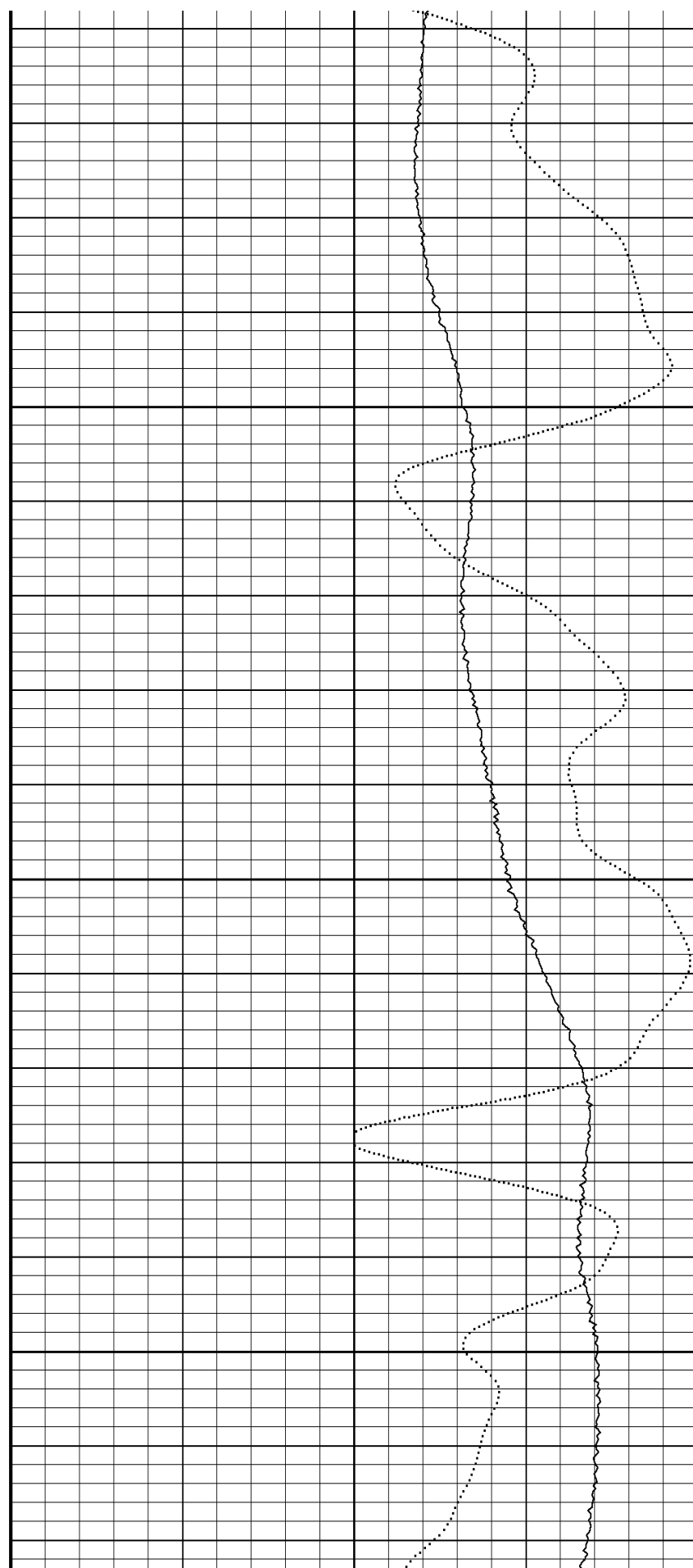
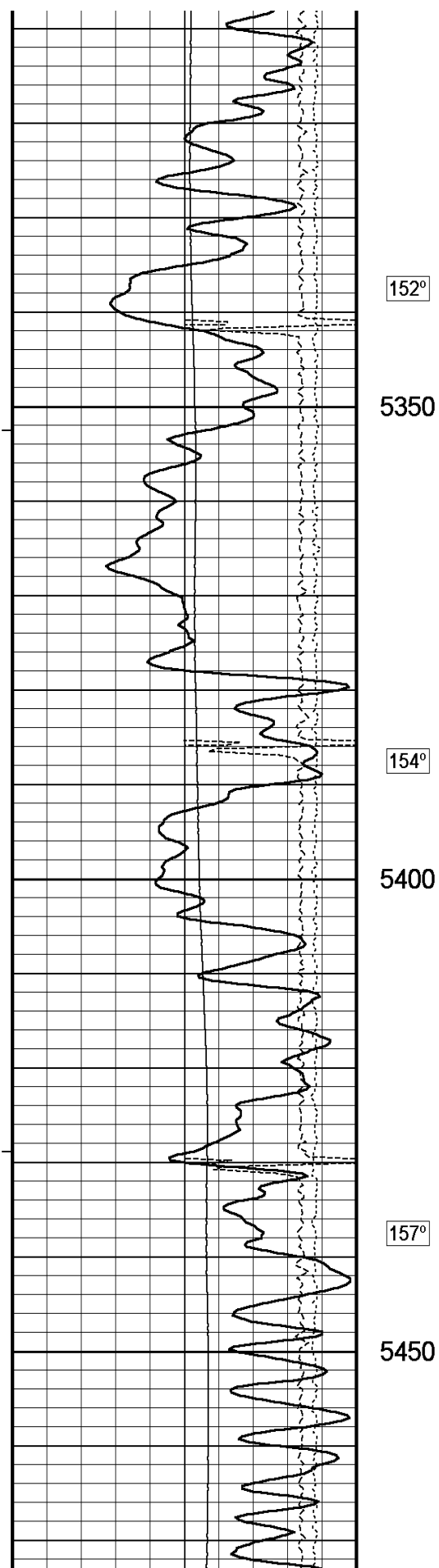
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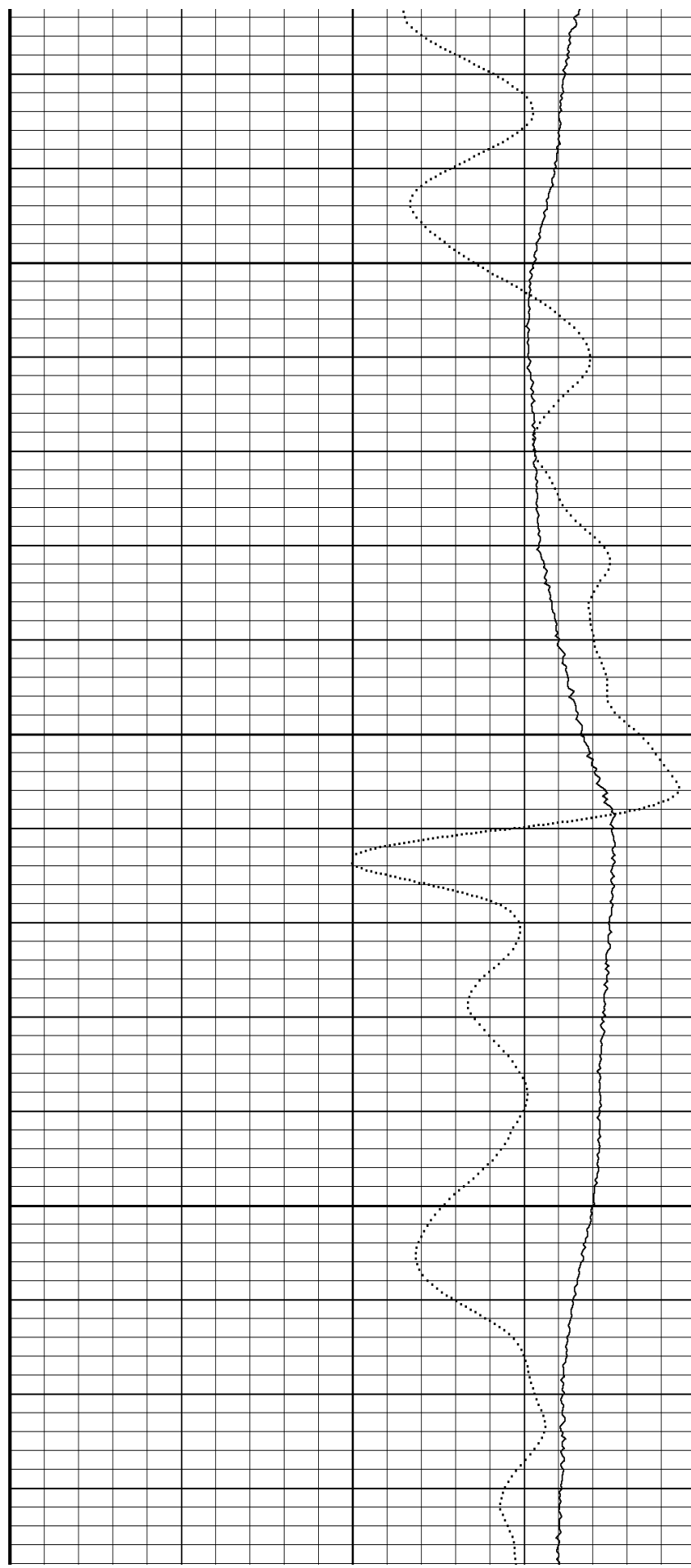
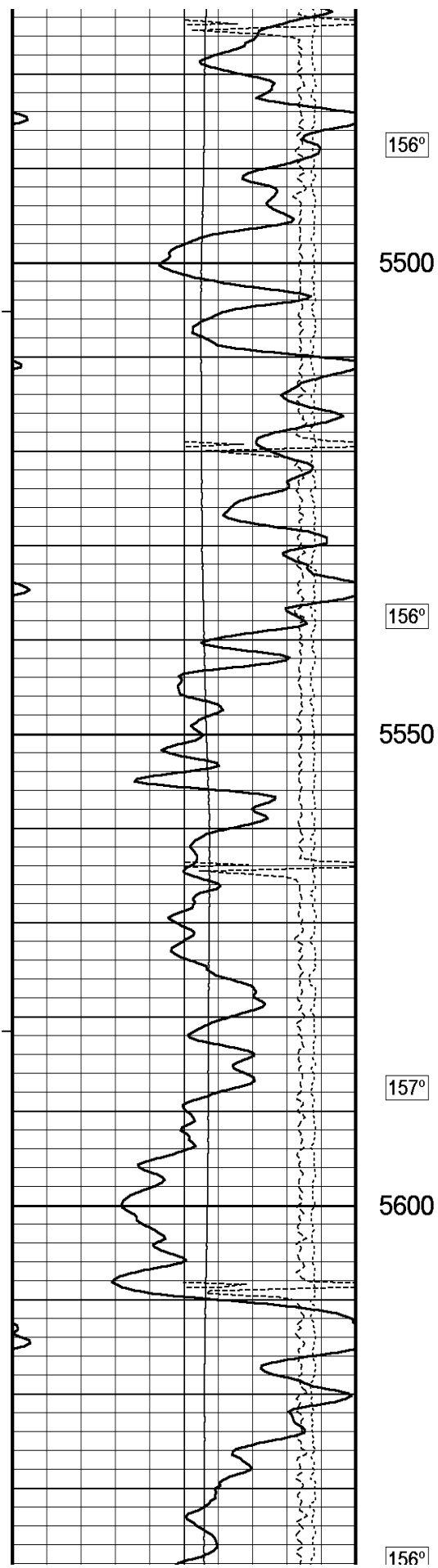
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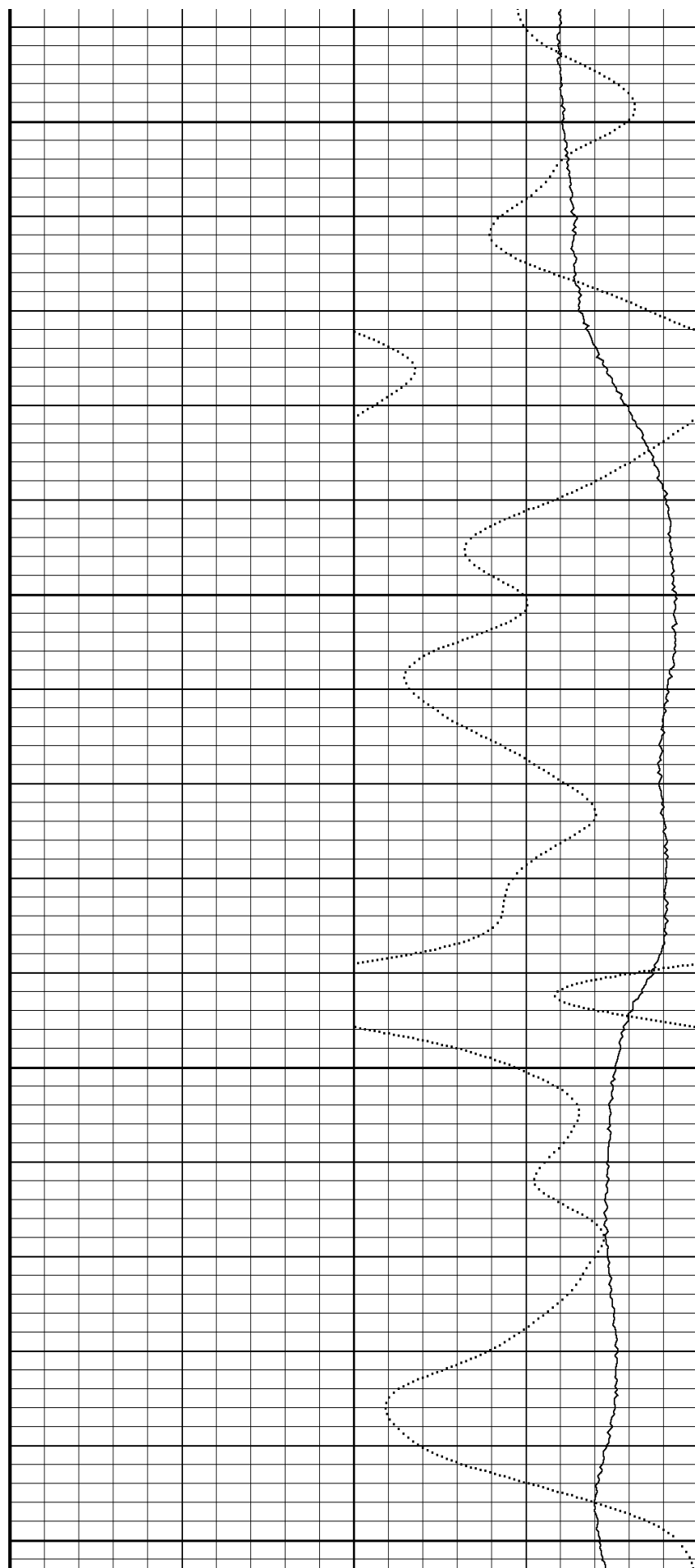
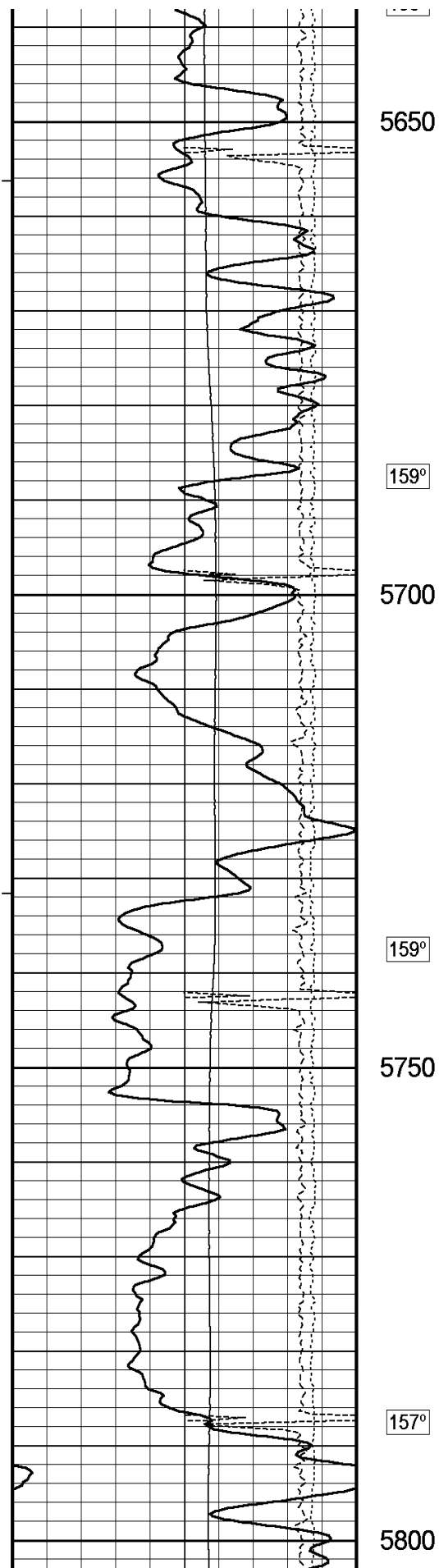
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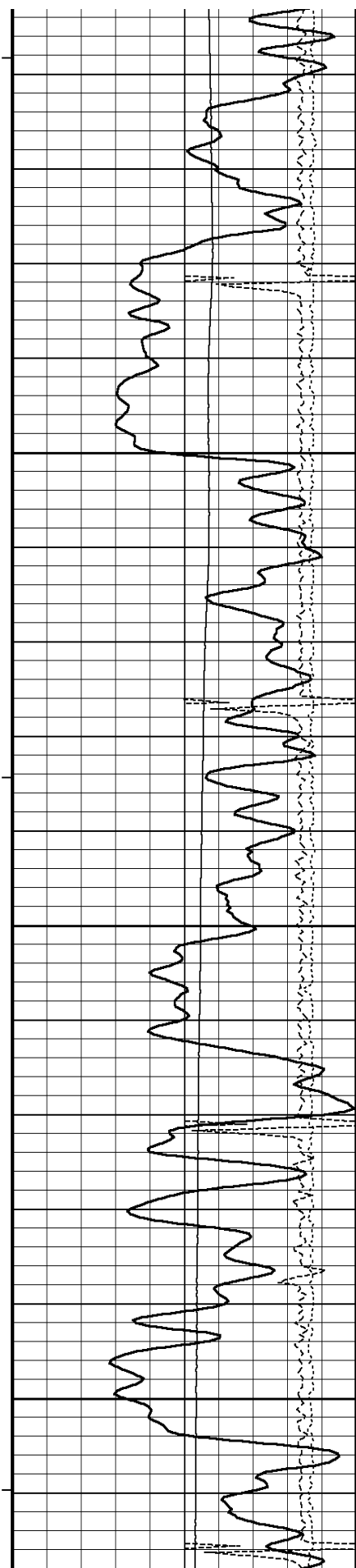
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157°

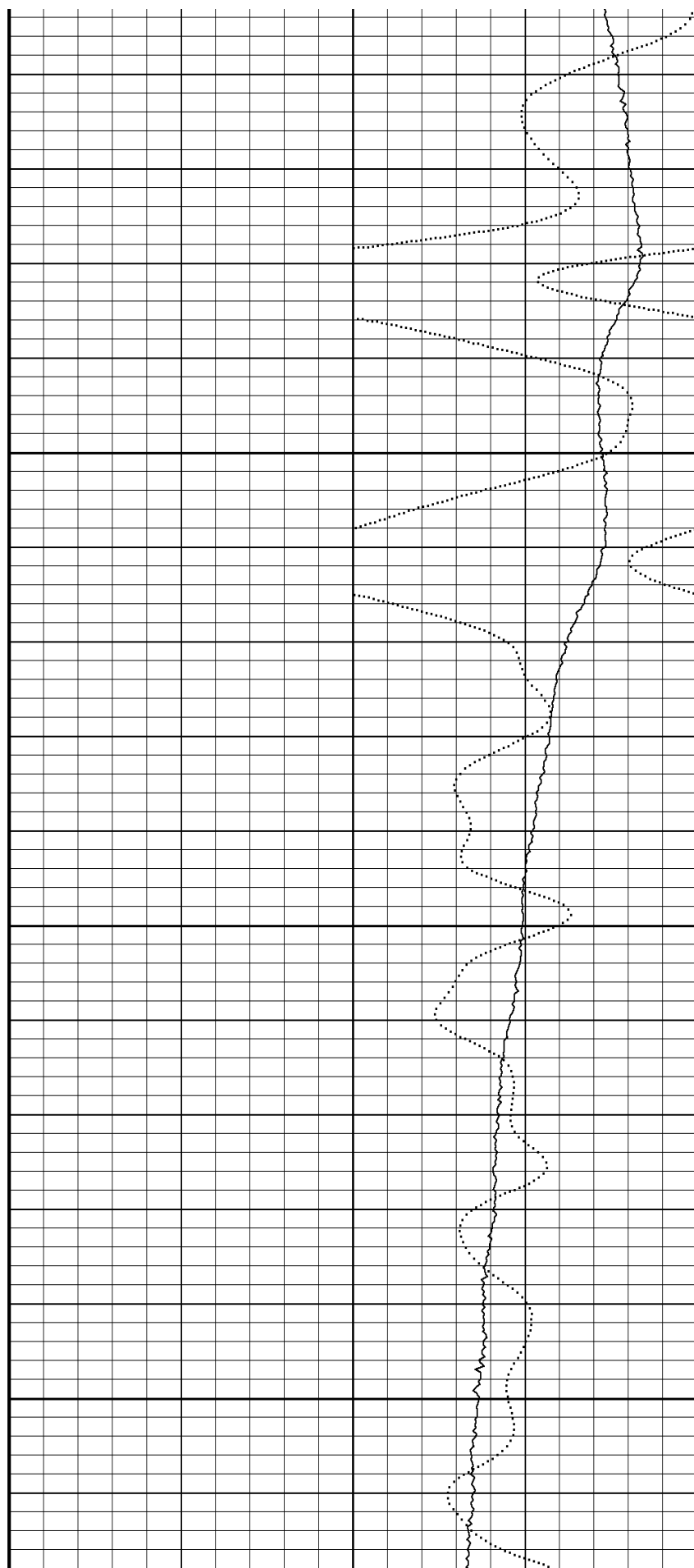
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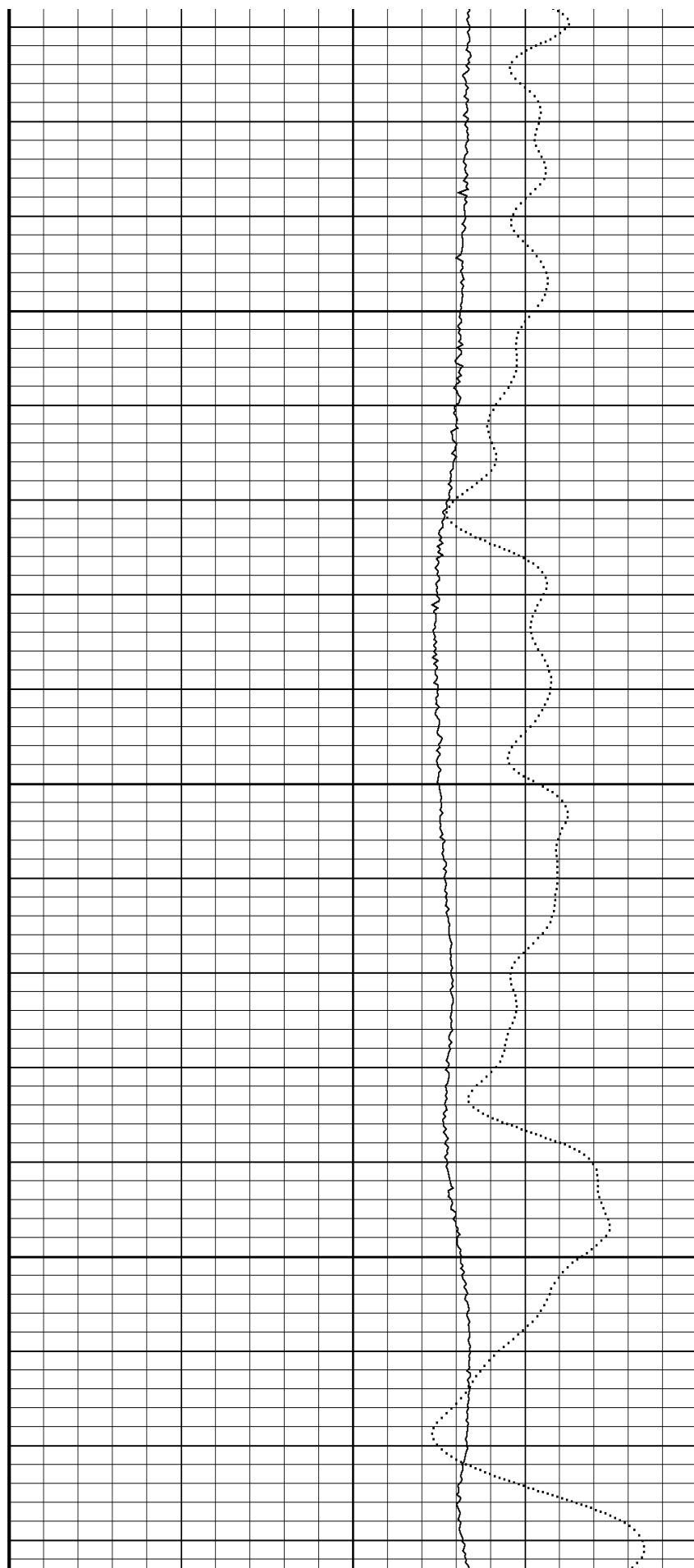
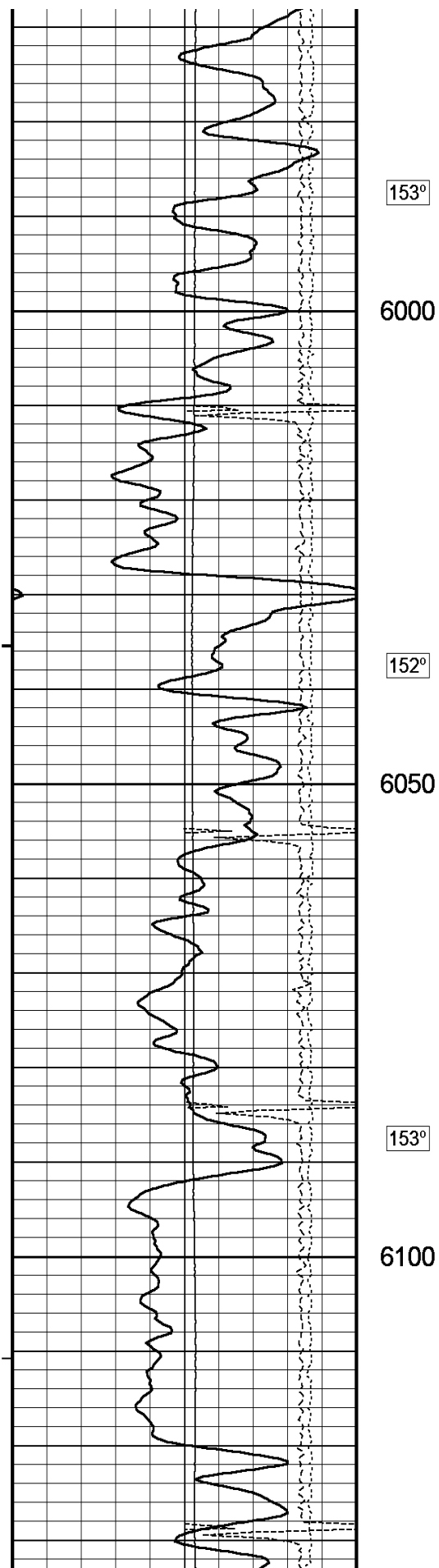
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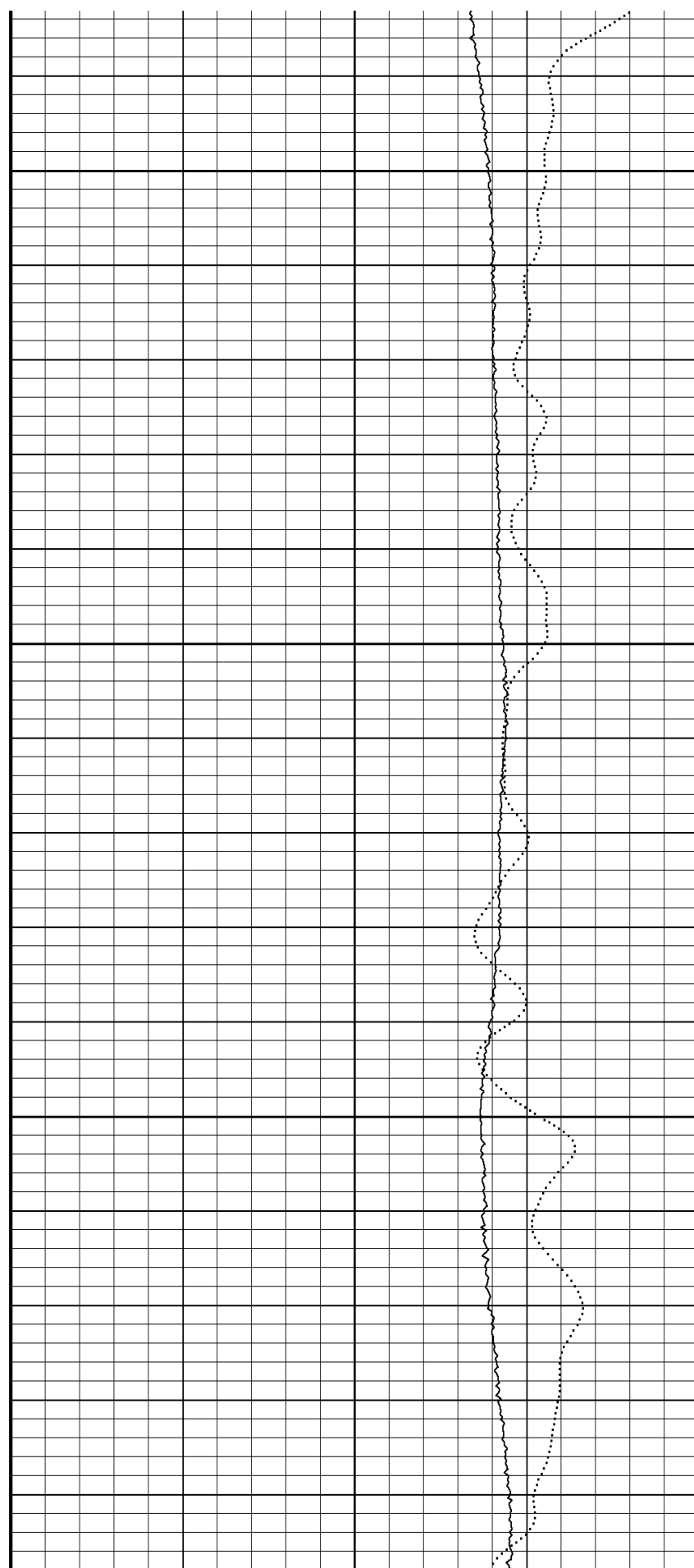
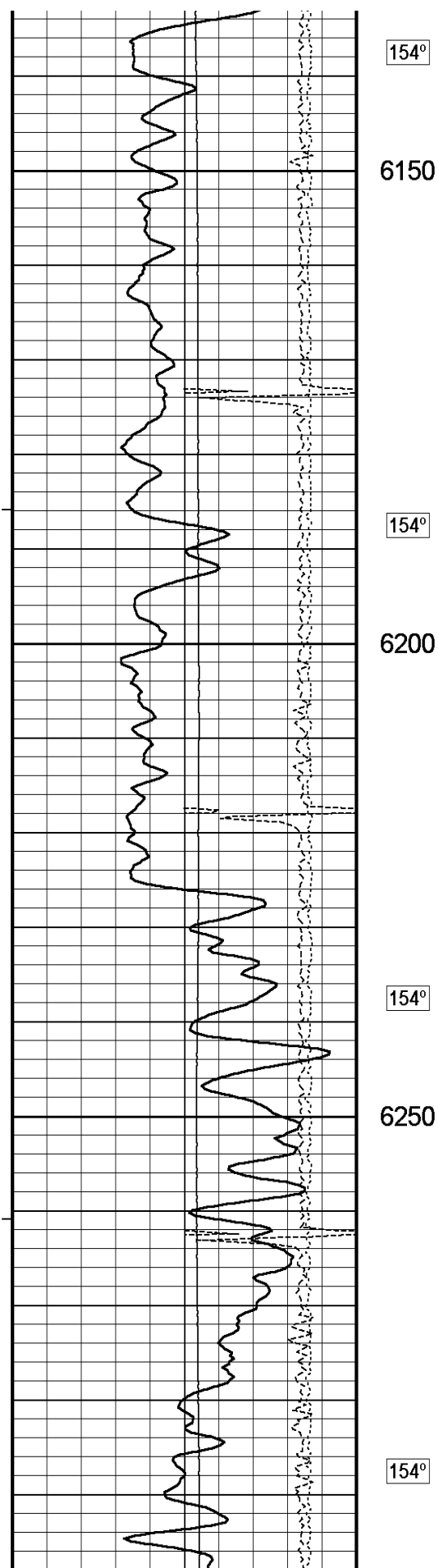
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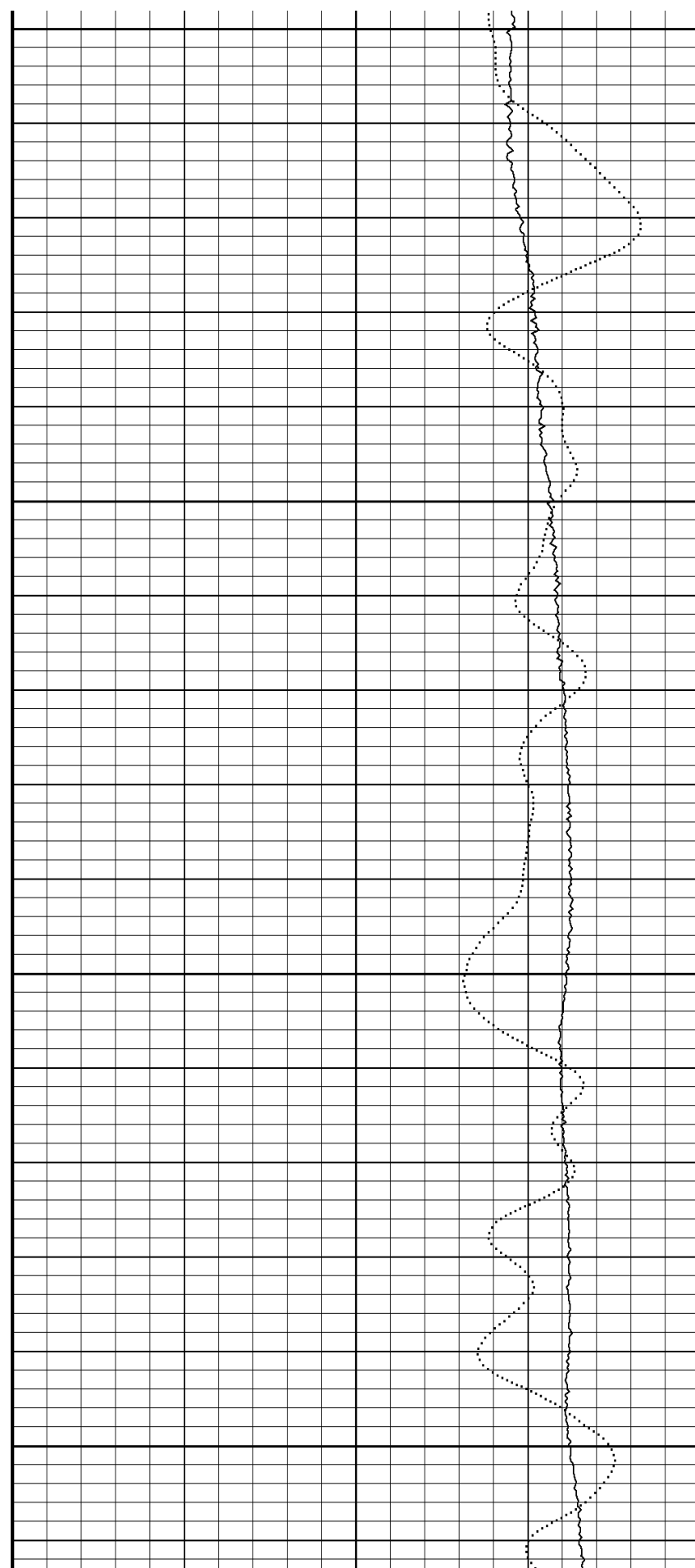
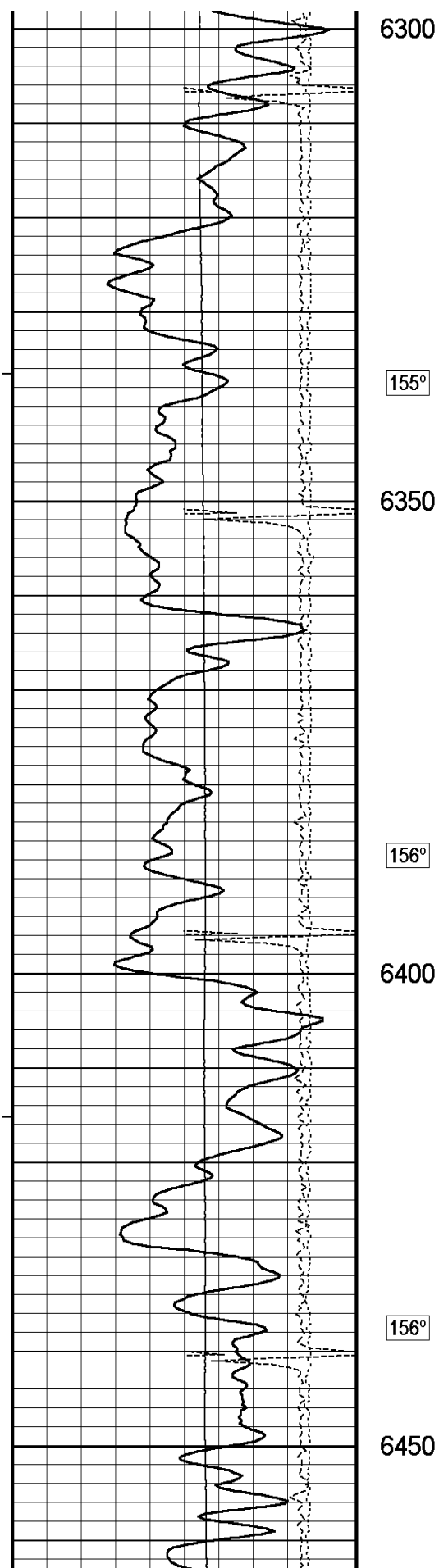
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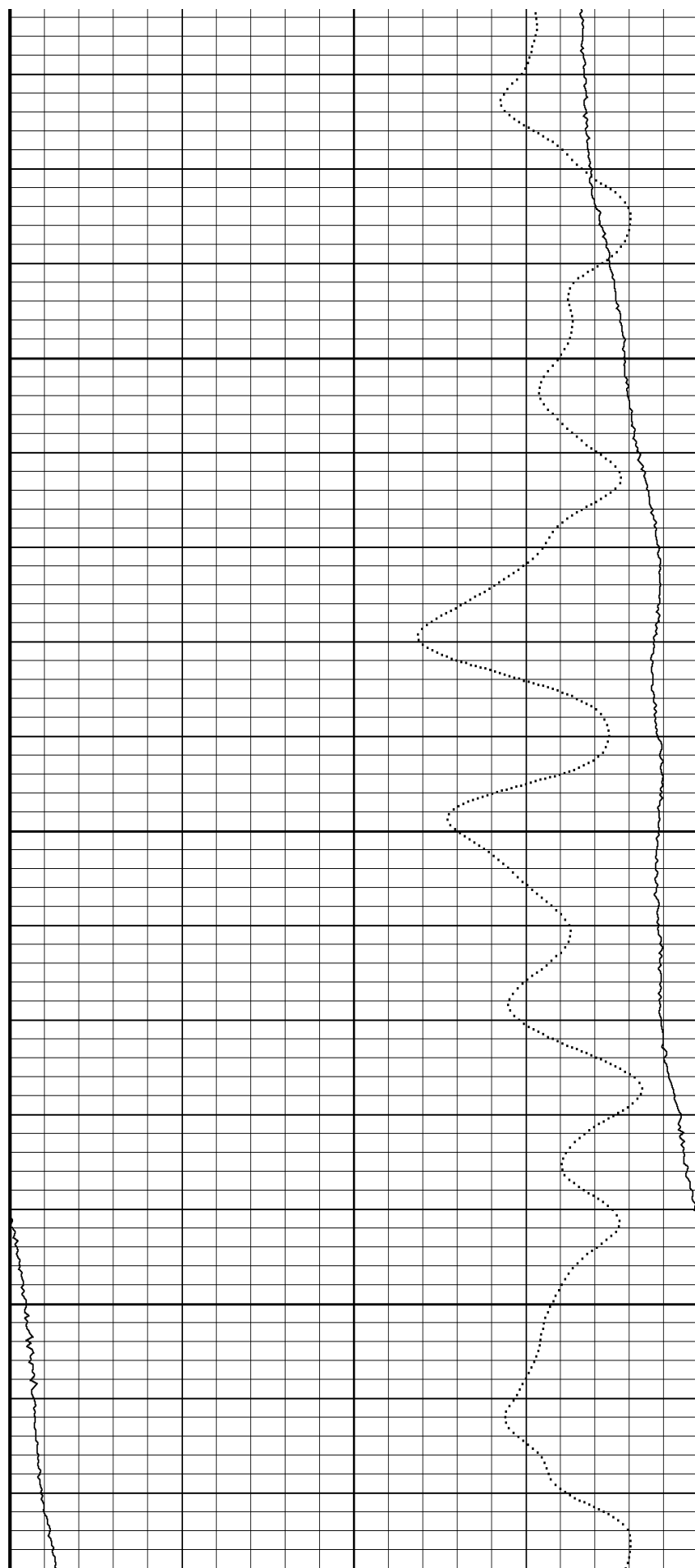
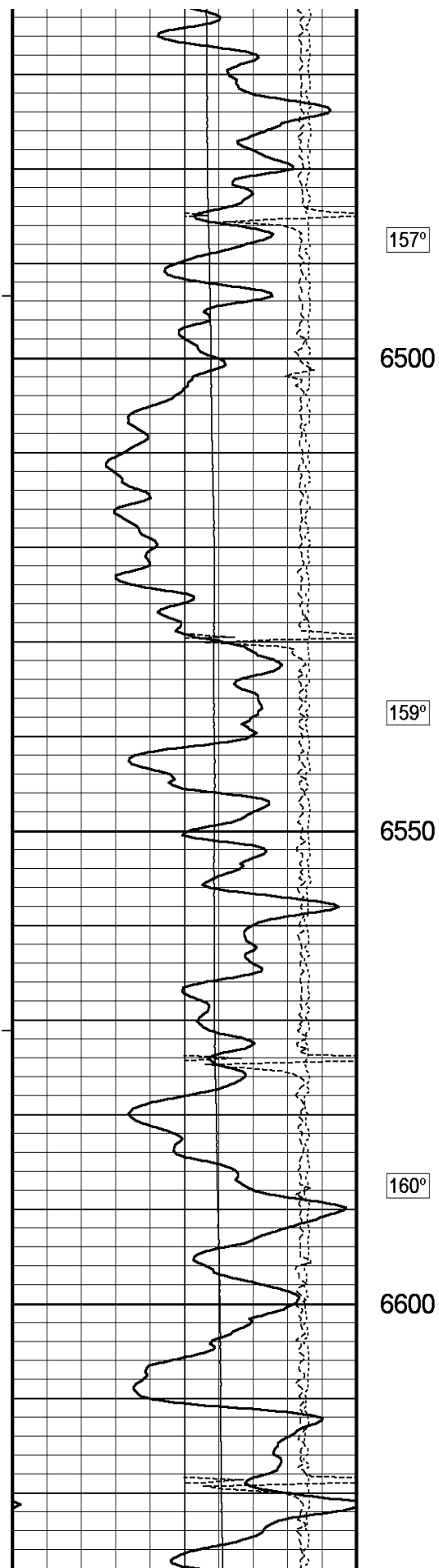


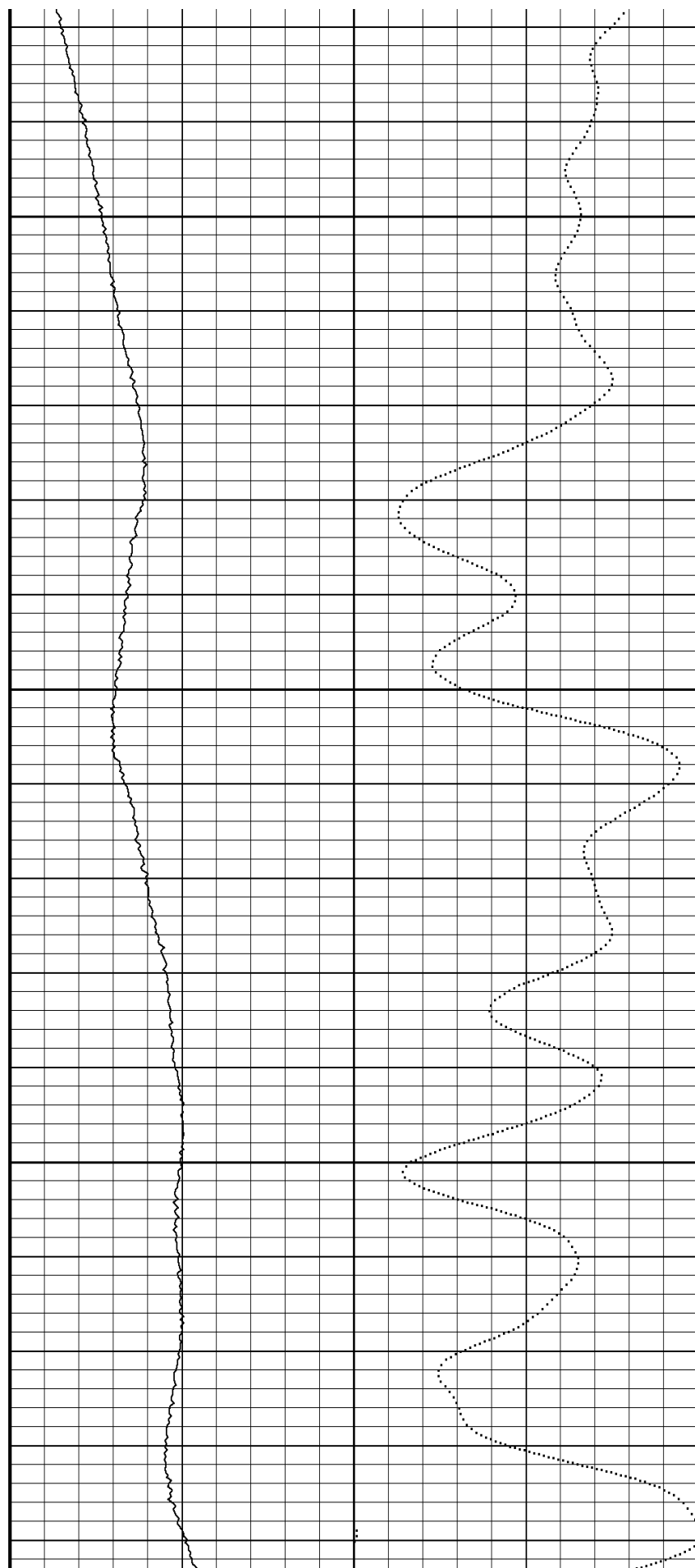
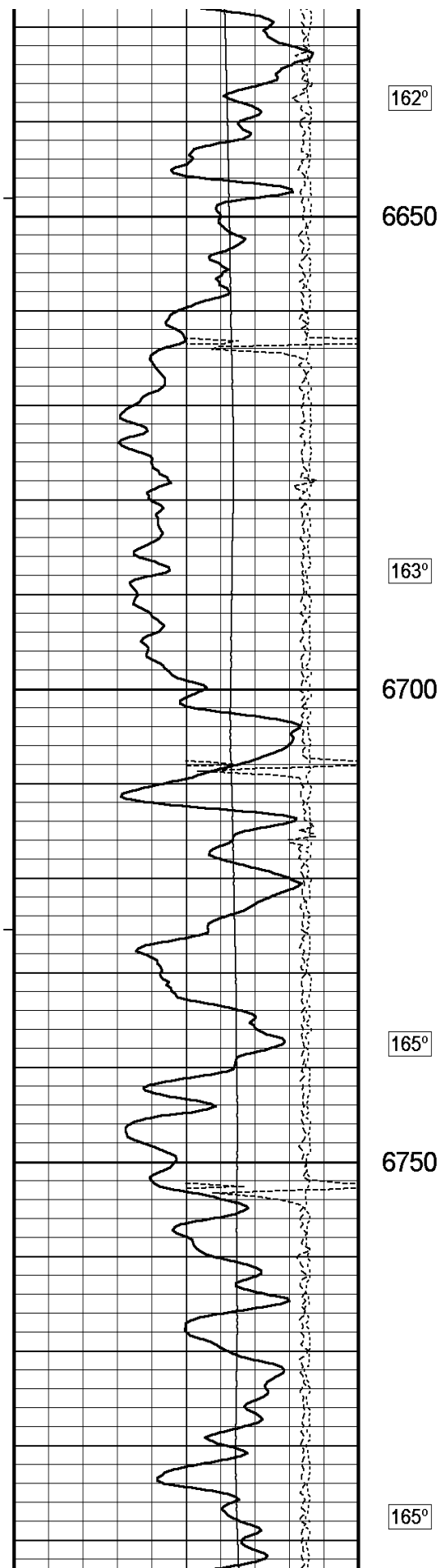


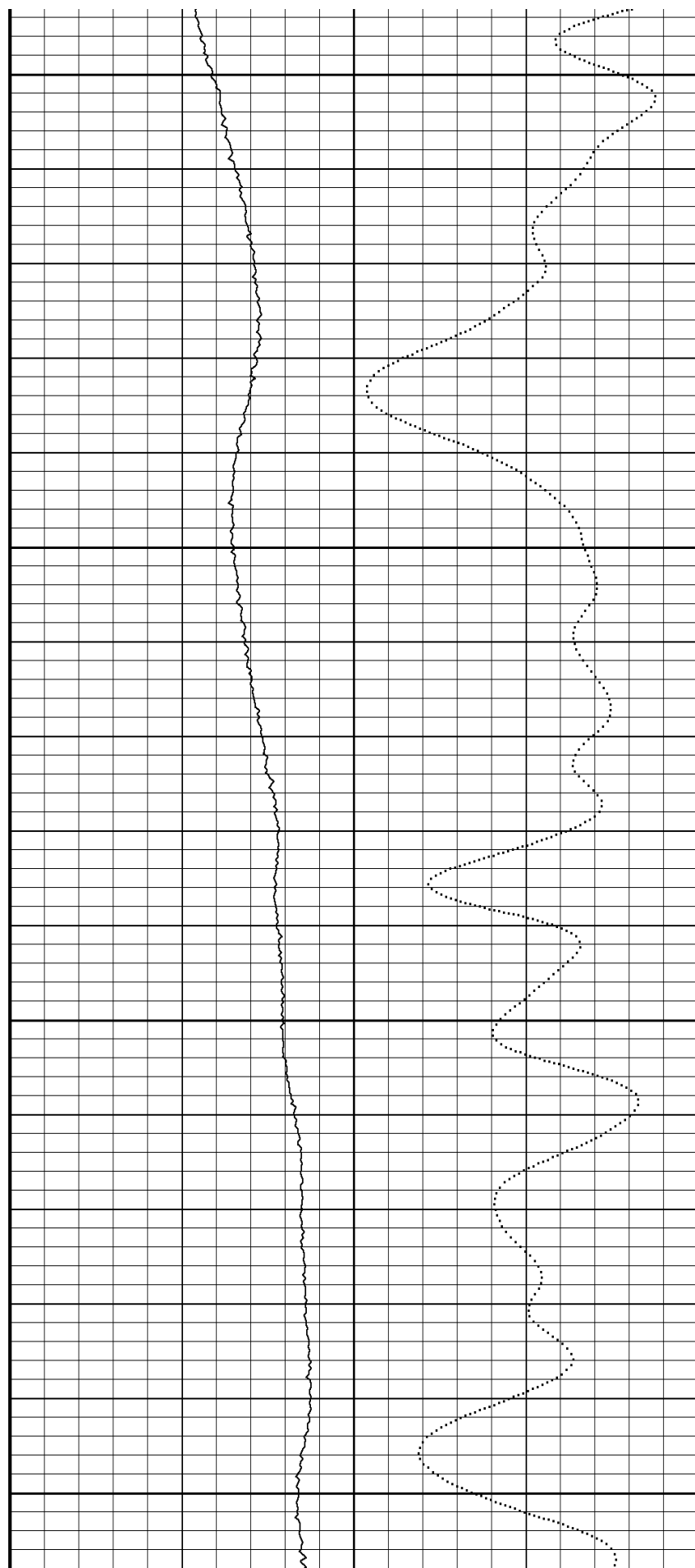
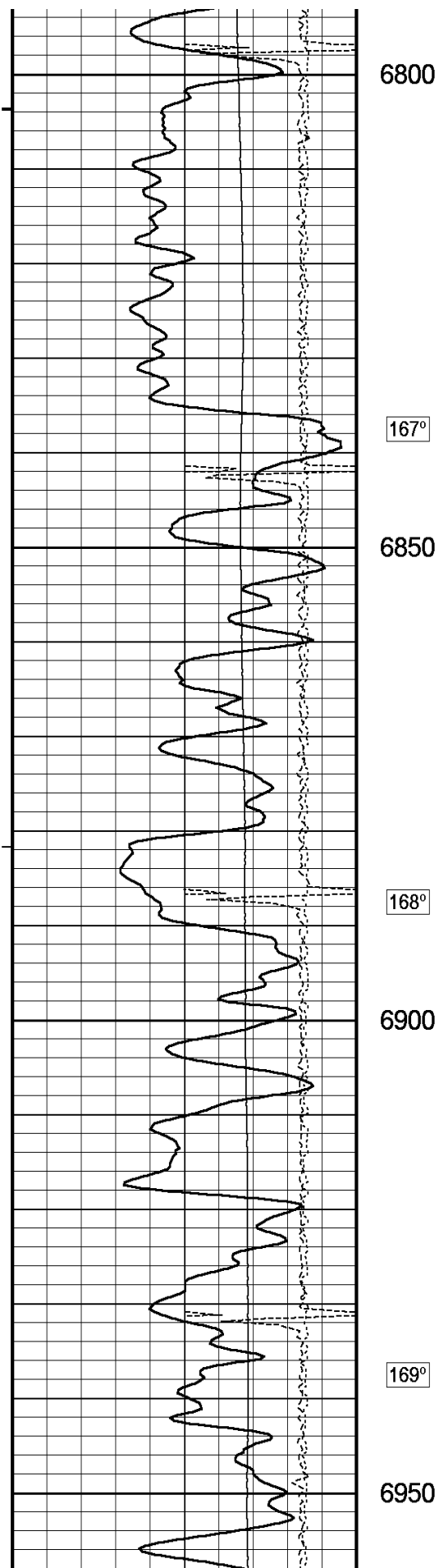


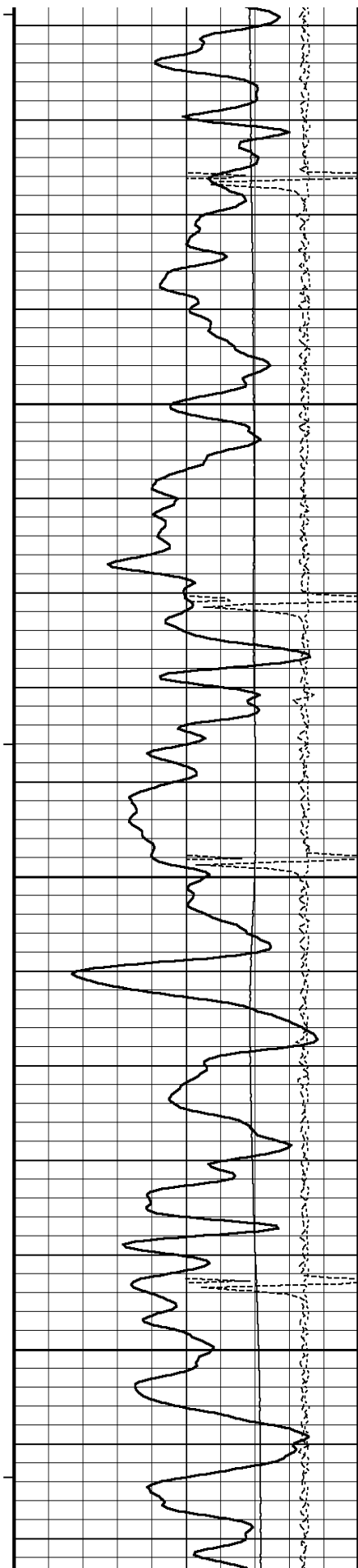












170°

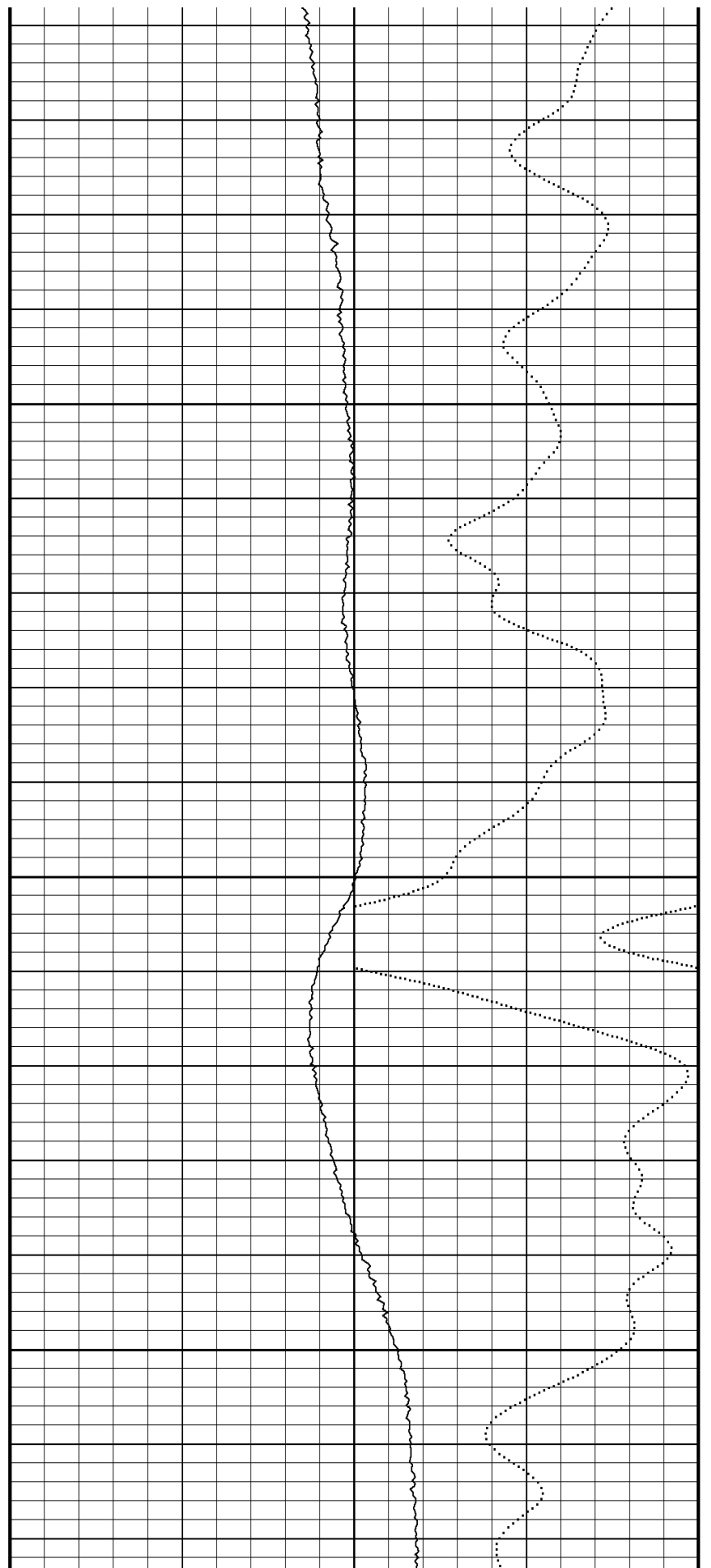
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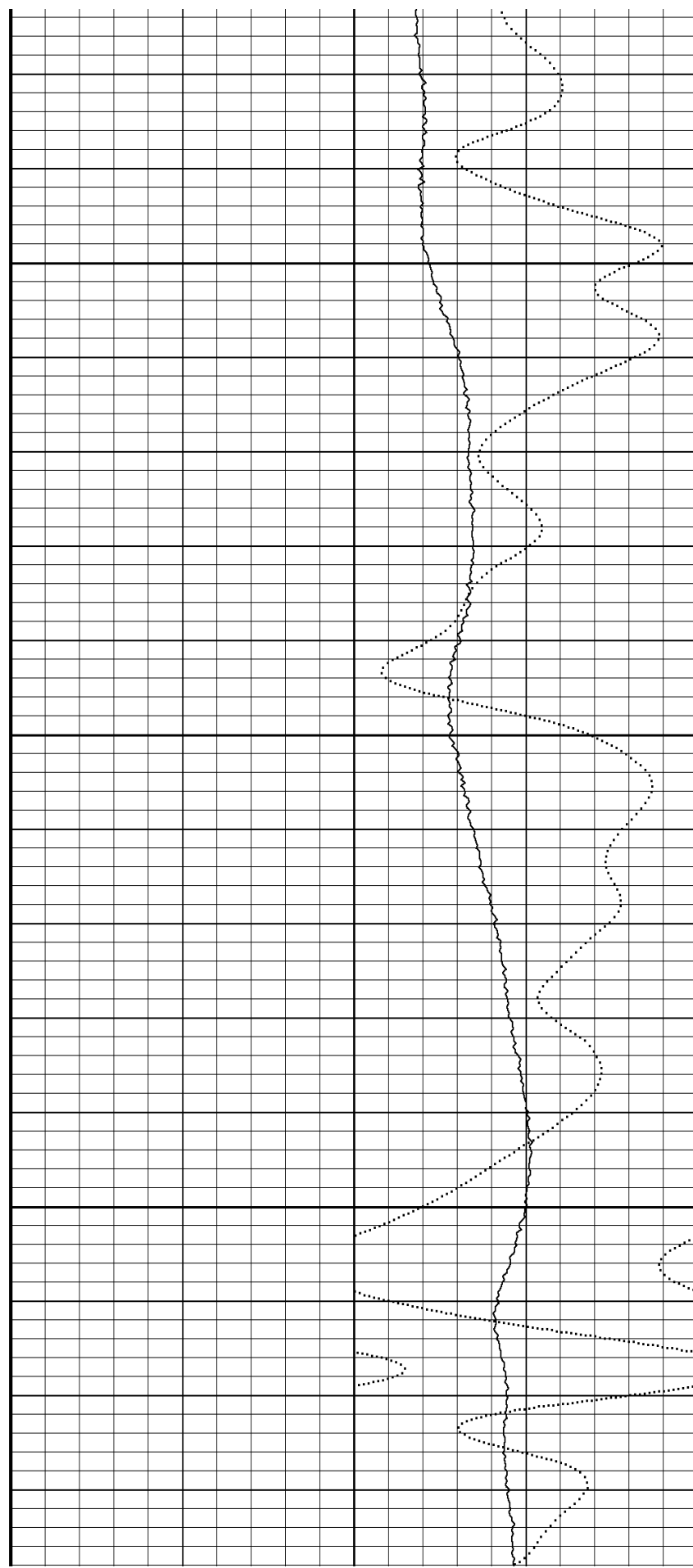
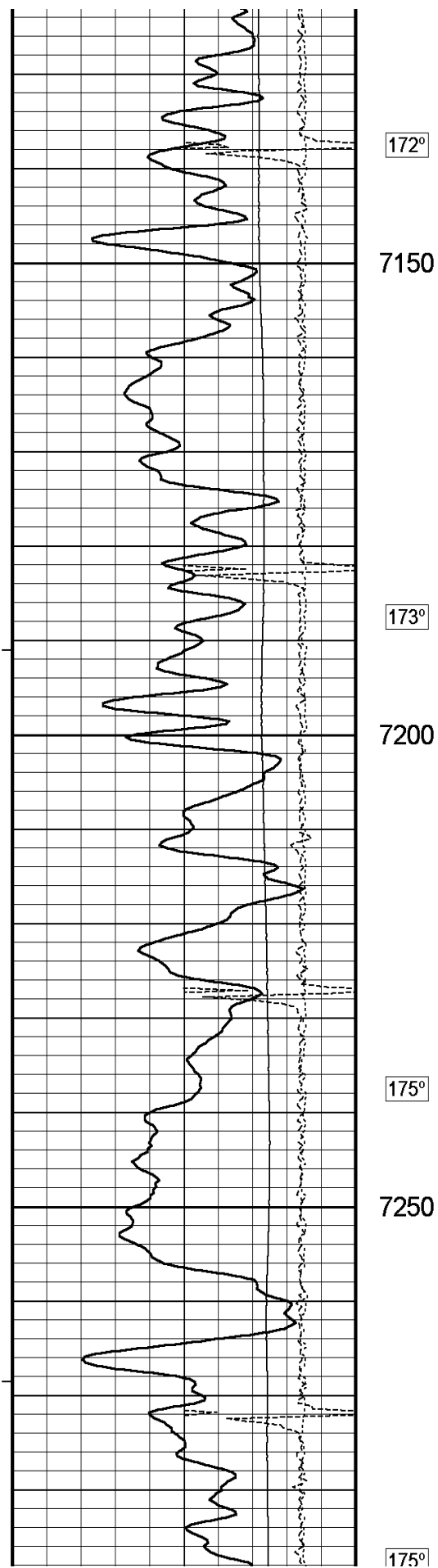
170°

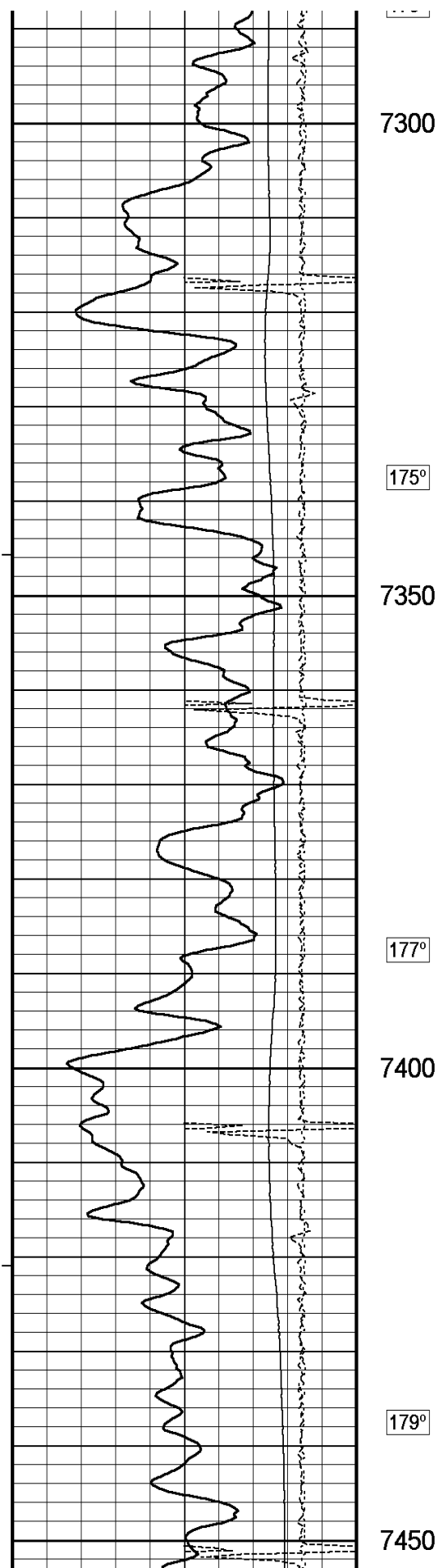
7050

170°

7100







7300

175°

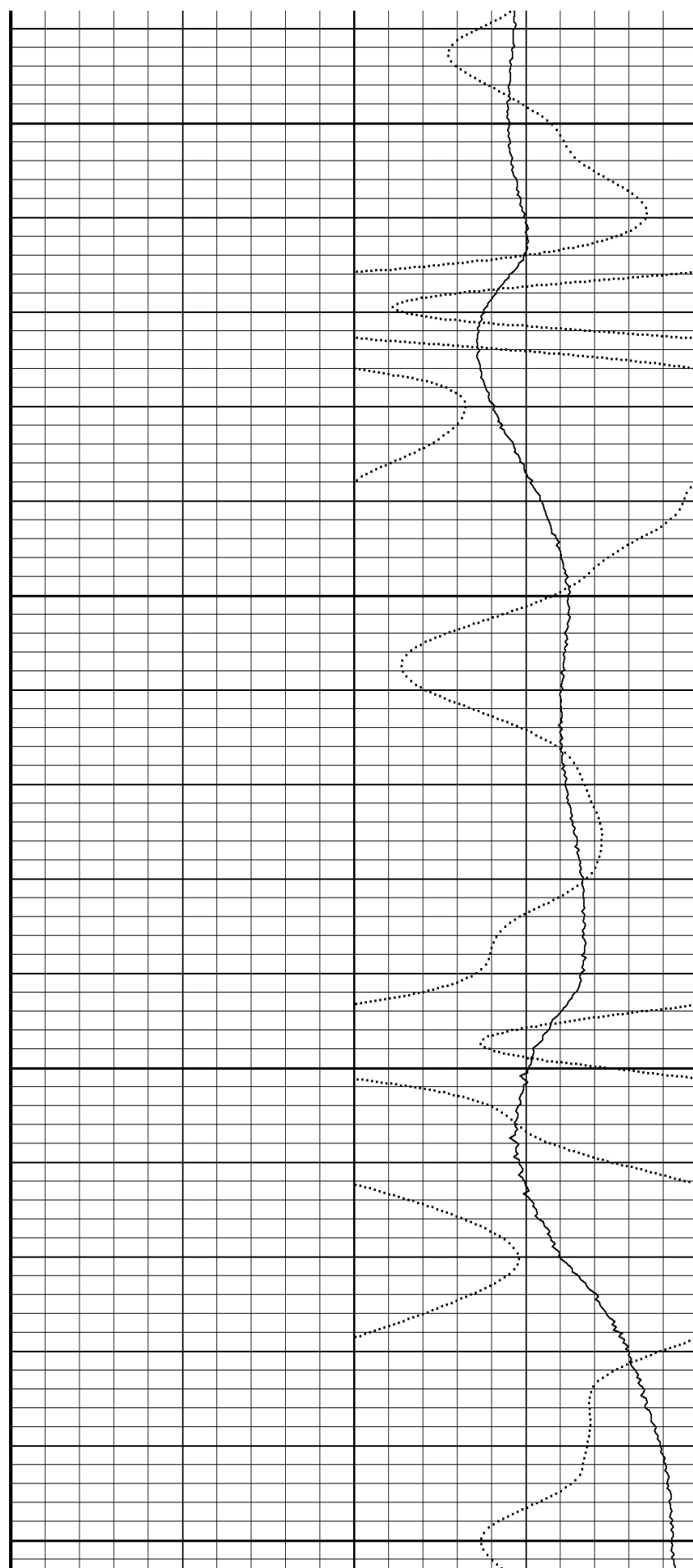
7350

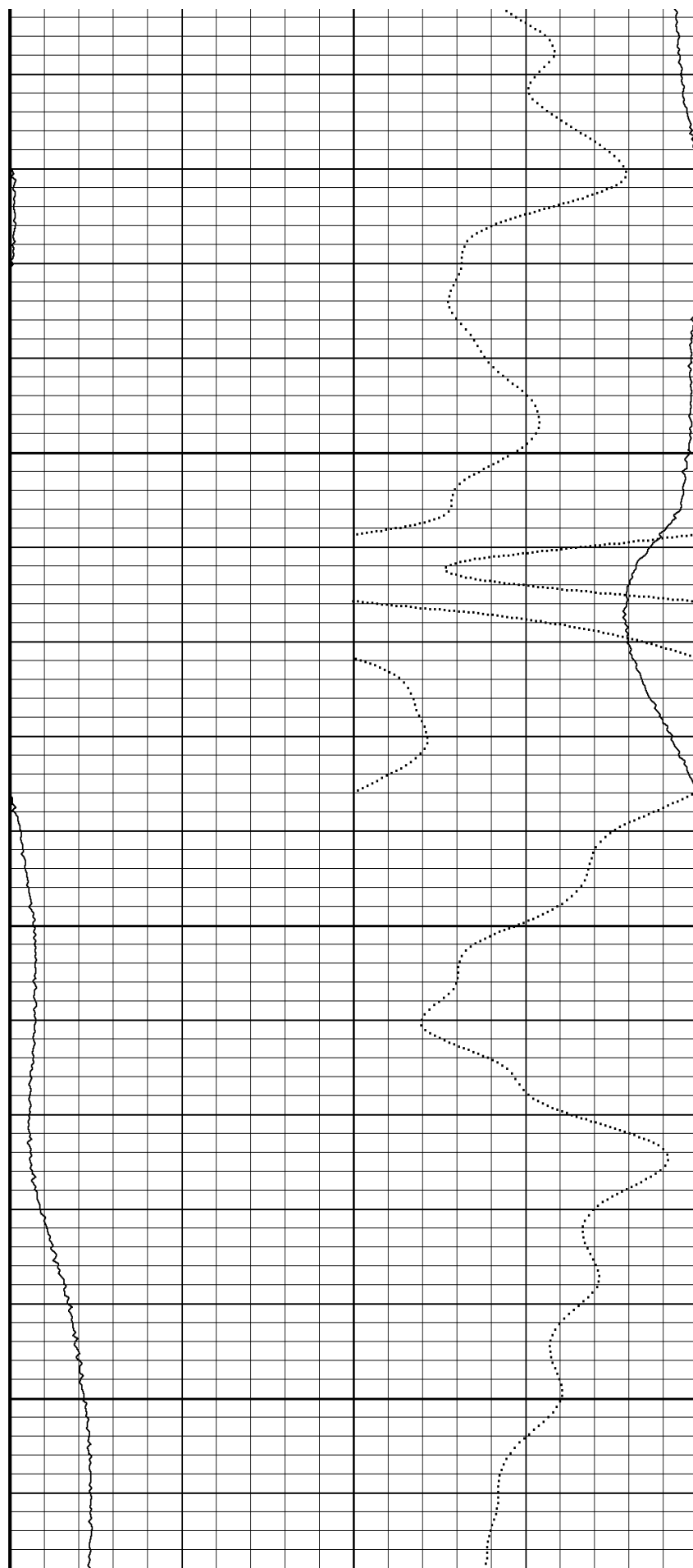
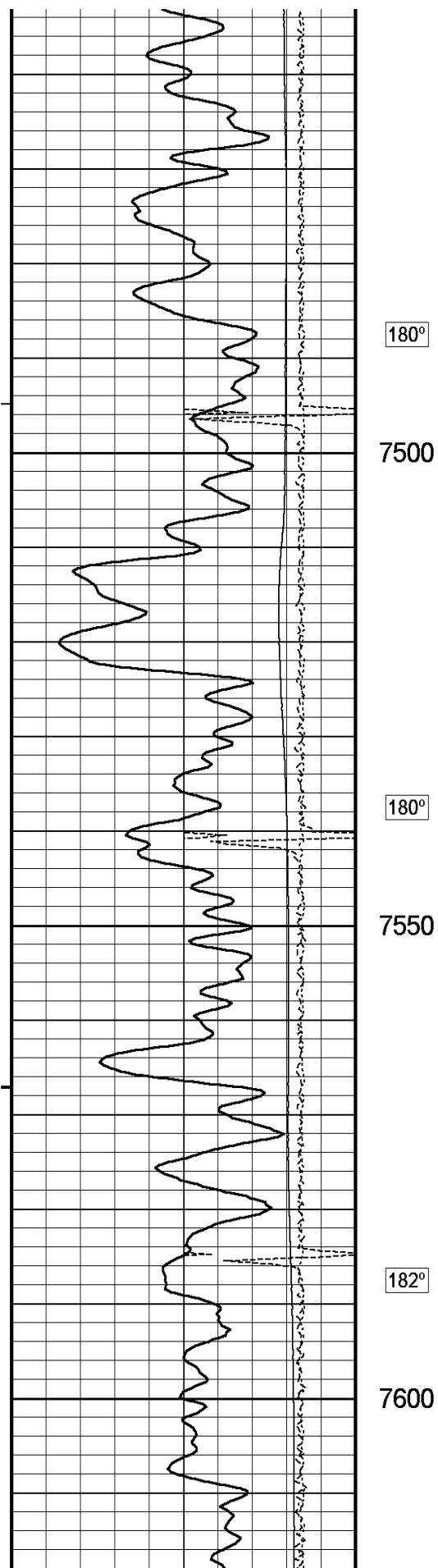
177°

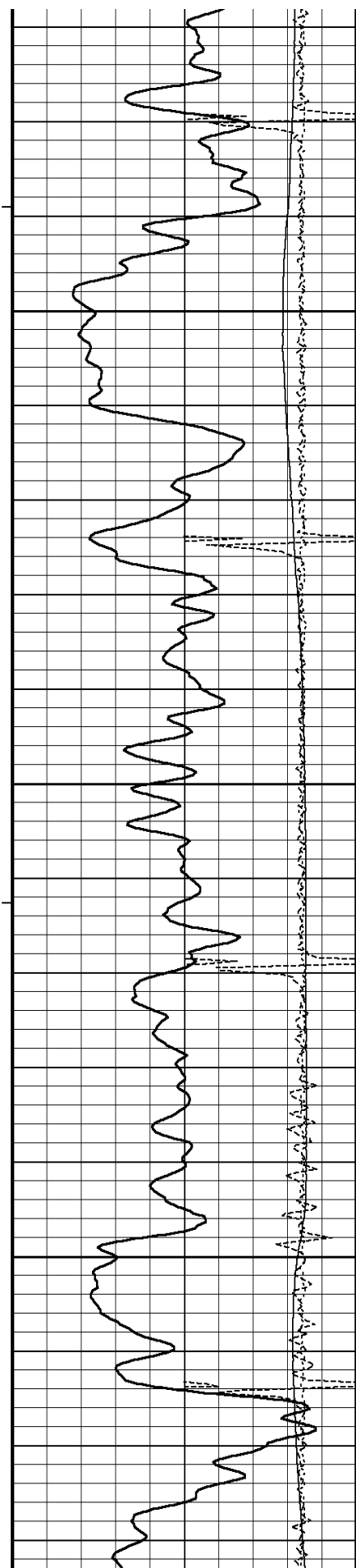
7400

179°

7450







181°

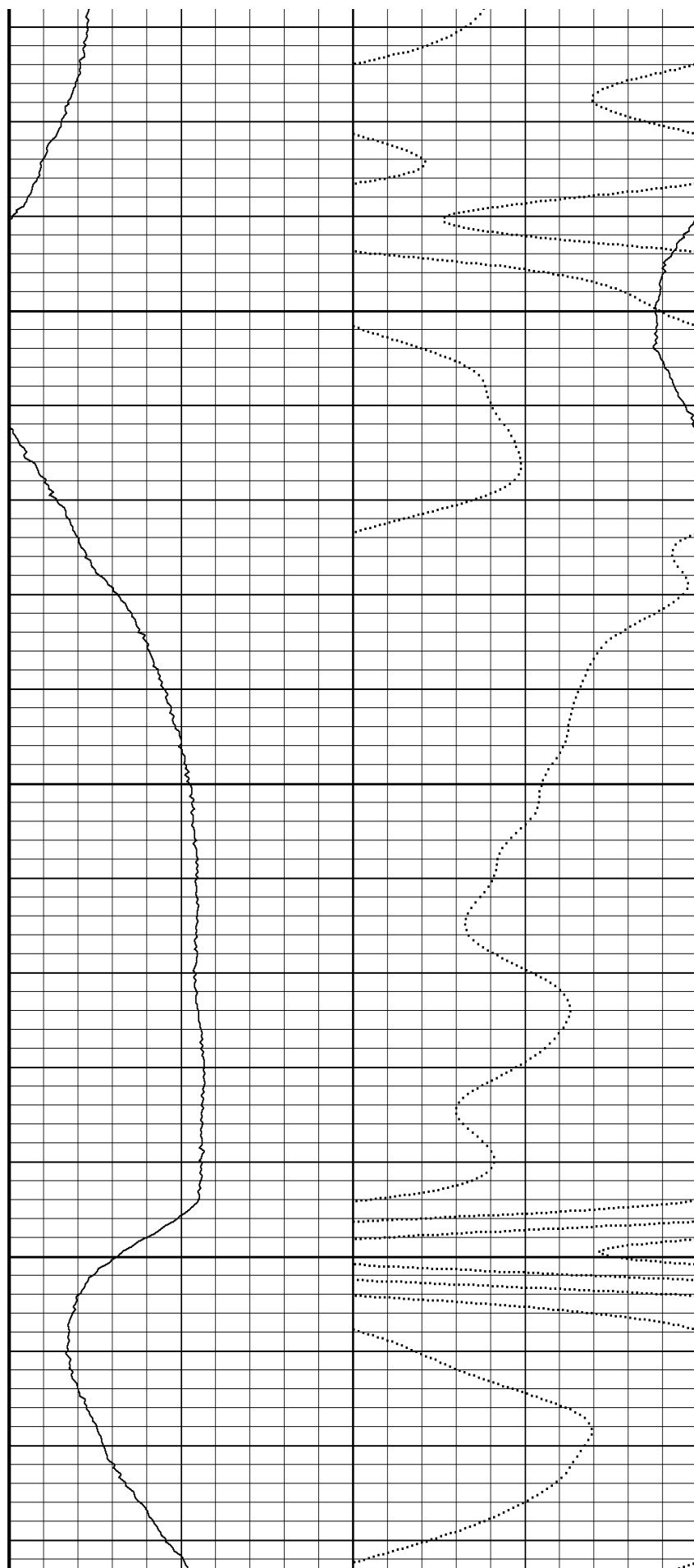
7650

184°

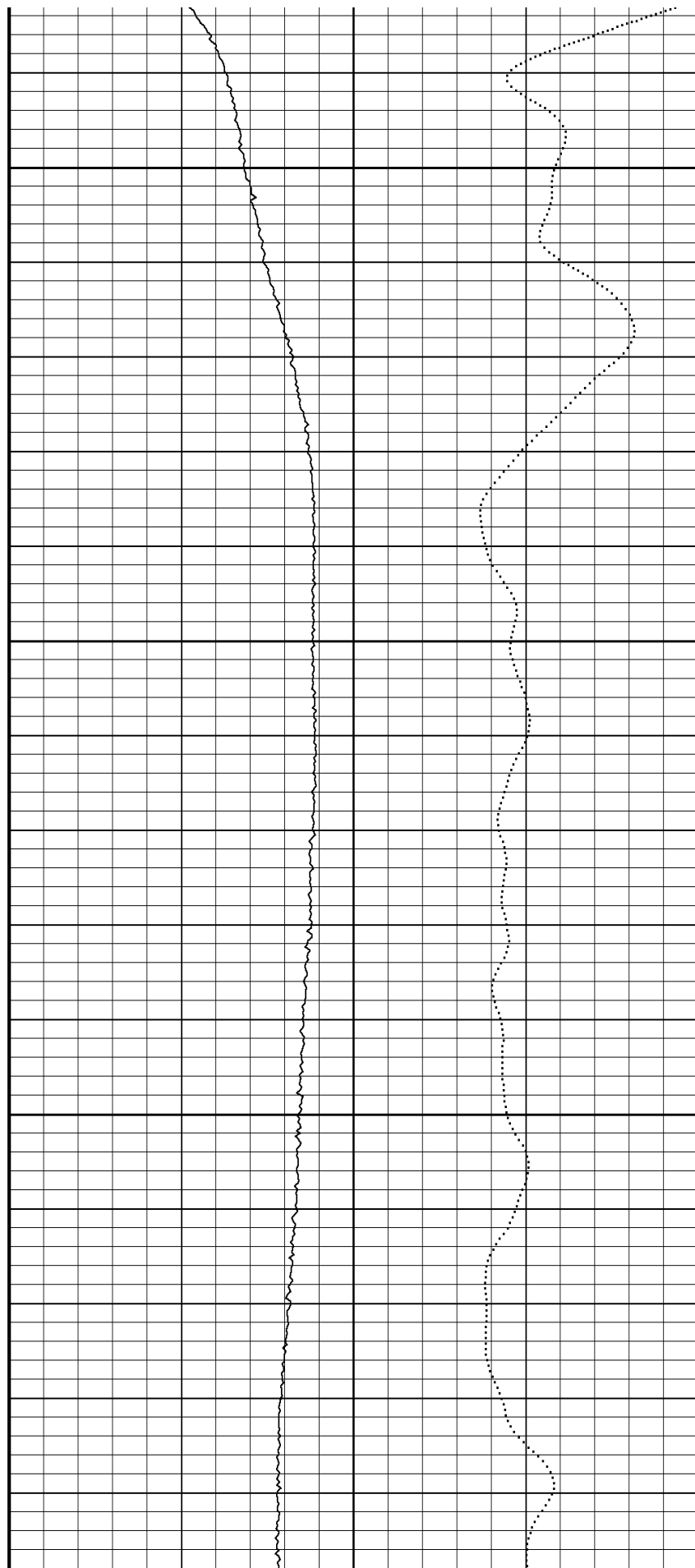
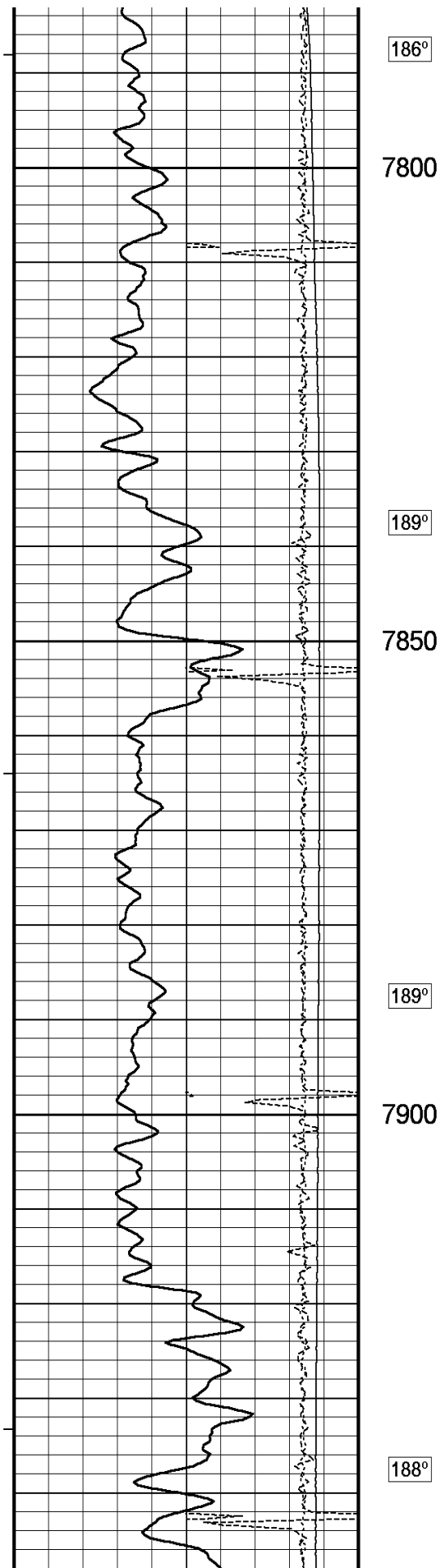
7700

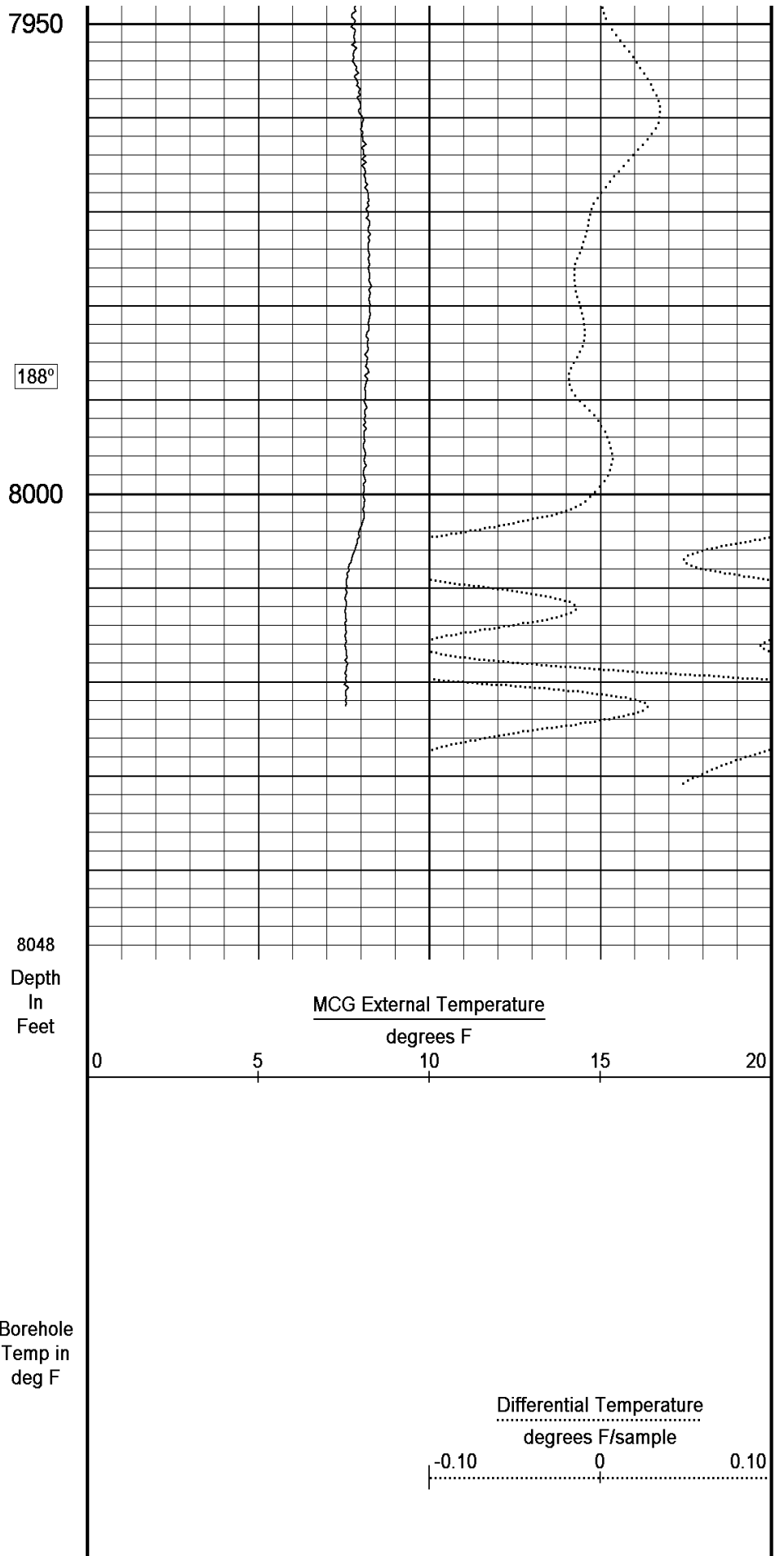
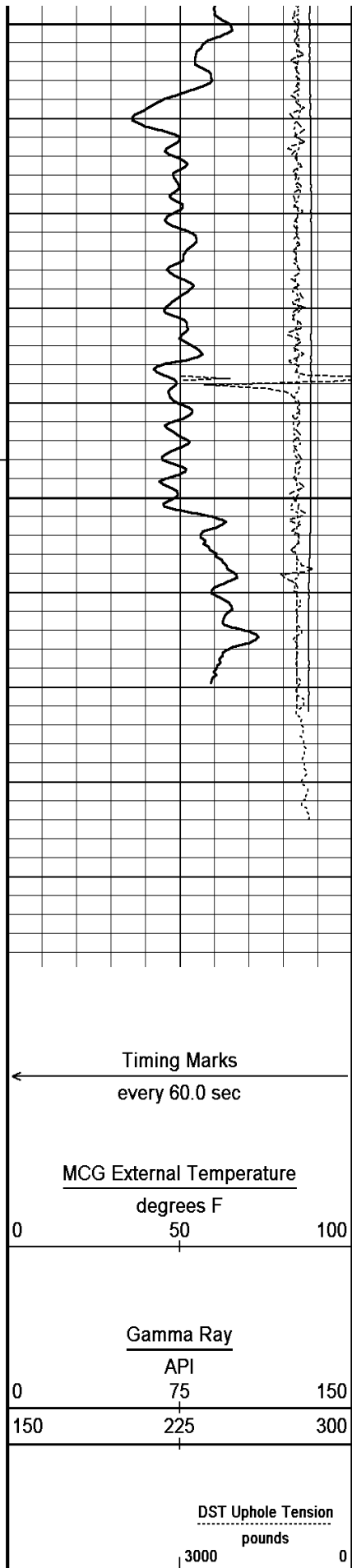
186°

7750









<div> <div>Casing Collar Locator</div> <div> <div>-15000</div> <div>7000</div> </div> </div>	<div> <div>Replay</div> <div>Scale</div> <div>1:200</div> </div>	
Depth Based Data - Maximum Sampling Increment 10.0cm <div>Plotted on 11-JUN-2011 15:12</div>		
Filename: C:\Minimus\LOGS\Bill Barrett Temp Logs\CB-TG Land 11B-20-692 (Temp)\TEMP.dta <div>Recorded on 11-JUN-2011 12:28</div>		
System Versions: Logged with 11.02.3186 Plotted with 11.02.3186		
↑	5 INCH MAIN LOG	↑

BEFORE SURVEY CALIBRATION			
C:\Minimus\LOGS\Bill Barrett Temp Logs\CB-TG Land 11B-20-692 (Temp)\SETUP.dta			
General Constants All 000			Last Edited on 11-JUN-2011,12:26
General Parameters			
Mud Resistivity	1.000	ohm-metres	
Mud Resistivity Temperature	75.000	degrees F	
Water Level	0.000	feet	
Density/Neutron Processing	Wet Hole		
Hole/Annular Volume and Differential Caliper Parameters			
HVOL Method	Single Caliper		
HVOL Caliper 1	Bit Size		
HVOL Caliper 2	N/A		
Annular Volume Diameter	4.500	inches	
Caliper for Differential Caliper	None		
Rwa Parameters			
Porosity used	N/A		
Resistivity used	N/A		
RWA Constant A	N/A		
RWA Constant M	N/A		
Down-hole Tension Calibration SMS 0			Field Calibration on 11-JUN-2011 12:15
Reading No	Measured	Calibrated (lbs)	
1	16687.97	0.00	
2	16964.51	155.00	
High Resolution Temperature Calibration MCG-D.A 342			Field Calibration on 11-JUN-2011,12:26
	Measured	Calibrated(Deg F)	
Lower	10.00	10.00	
Upper	100.00	100.00	
High Resolution Temperature Constants MCG-D.A 342			Last Edited on 8-DEC-2009,15:54
Pre-filter Length	11		
SP Calibration MCG-D.A 342			Field Calibration on 10-JUN-2011,04:19
	Measured	Calibrated (mV)	
Reference 1	103.8	100.2	
Reference 2	-96.9	-100.2	
Gamma Calibration MCG-D.A 342			Field Calibration on 10-JUN-2011 04:19
	Measured	Calibrated (API)	
Background	119	82	

Calibrator (Gross)		887	609		
Calibrator (Net)		767	527		
Gamma Constants MCG-D.A 342			Last Edited on 11-JUN-2011,12:26		
Gamma Calibrator Number		GRC-174			
Mud Density		1.00	gm/cc		
Caliper Source for Processing		Bit Size			
Tool Position		Eccentred			
Concentration of KCl		0.00	kppm		
High Resolution Temperature Calibration MAI-B.A 301					
		Measured	Calibrated(Deg F)		
Lower		10.00	50.00		
Upper		100.00	212.00		
High Resolution Temperature Constants MAI-B.A 301			Last Edited on 07-FEB-2011,07:23		
Pre-filter Length		11			
Induction Calibration MAI-B.A 301			Base Calibration on 09-JUN-2010,11:38 Field Check on 10-JUN-2011 07:12		
Base Calibration					
Test Loop Calibration		Measured		Calibrated (mmho/m)	
Channel	Low	High	Low	High	
1	17.5	487.4	9.3	966.2	
2	5.9	392.1	7.6	821.4	
3	3.8	259.5	5.2	566.0	
4	2.0	137.2	2.6	279.2	
Array Temperature		71.1	Deg F		
Channel		Base Check (mmho/m)		Field Check (mmho/m)	
		Low	High	Low	High
1		13.2	3733.3	12.3	3734.2
2		30.2	3443.1	30.0	3444.5
3		28.1	3057.7	28.0	3058.8
4		19.0	2019.5	19.0	2020.5
Deep		16.6	2016.0	16.5	2016.6
Medium		41.6	4067.8	41.5	4069.3
Shallow		46.0	5039.8	45.8	5042.1
Array Temperature		84.6	71.1	Deg F	
Induction Constants MAI-B.A 301			Last Edited on 10-JUN-2011,15:20		
Induction Model		RtAP-WBM			
Caliper for Borehole Corr.		Density Caliper			
Hole Size for Borehole Correction		N/A inches			
Tool Centred		No			
Stand-off Type		Fins			
Stand-off		0.50 inches			
Number of Fins on Stand-off		6.0000			
Stand-off Fin Angle		60.00 degrees			
Stand-off Fin Width		0.5000 inches			
Borehole Corr. Rm Source		Temperature Corr			
Temp. for Rm Corr.		MCG External Temperature			
Squasher Start		0.0020 mhos/metre			
Squasher Offset		N/A mhos/metre			
Borehole Normalisation					
DRM1	0.0000	DRC1	0.0000		
DRM2	0.0000	DRC2	0.0000		
MRM1	0.0000	MRC1	0.0000		
MRM2	0.0000	MRC2	0.0000		

MRC1	0.0000	MRC2	0.0000
SRM1	0.0000	SRC1	0.0000
SRM2	0.0000	SRC2	0.0000

#### Calibration Site Corrections

Channel 1	0.00	mmhos/metre
Channel 2	0.00	mmhos/metre
Channel 3	0.00	mmhos/metre
Channel 4	0.00	mmhos/metre

#### Apparent Porosity and Water Saturation Constants

Archie Constant (A)	1.00	
Cementation Exponent (M)	2.00	
Saturation Exponent (N)	2.00	
Saturation of Water for Apor	100.00	percent
Resistivity of Water for Apor and Sw	0.05	ohm-m
Resistivity of Mud Filtrate for Sw	0.00	ohm-m
Source for Rt	0.00	
Source for Rxo	0.00	

### DOWNHOLE EQUIPMENT

C:\Minimus\LOGS\Bill Barrett Temp Logs\CB-TG Land 11B-20-692 (Temp)\TEMP.dta

MCB-A 11B Tension Cablehead

MCB-A 95 LG: 2.18 ft WT: 19.8 lb OD: 2.24 in

SHA-J.A Compact Swivel Head Adaptor

SHA-J.A 213 LG: 2.30 ft WT: 22.0 lb OD: 2.24 in

Compact Comms Gamma

MCG-D.A 342 LG: 8.70 ft WT: 63.9 lb OD: 2.24 in

Compact Induction

MAI-B.A 301 LG: 10.81 ft WT: 48.5 lb OD: 2.24 in

Total Length: 23.99 ft Weight: 154.3 lb



14.22 ft GRGC - Gamma Ray  
12.04 ft CCLG - Casing Collar Locator  
11.32 ft CGXT - MCG External Temperature  
0.00 ft IHTF - Borehole Temperature  
0.00 ft IHTD - Differential Temperature  
Tool Zero (0.13ft from bottom)  
-0.13 ft SMTU - DST Uphole Tension  
All measurements relative to tool zero.

COMPANY	BILL BARRETT CORPORATION
WELL	CB-TG LAND 11B-20-692
FIELD	MAMM CREEK
PROVINCE/COUNTY	GARFIELD
COUNTRY/STATE	U.S.A. / COLORADO

Elevation Kelly Bushing	5553.00	feet	First Reading	8025.00	feet
Elevation Drill Floor	5552.00	feet	Depth Driller	8090.00	feet
Elevation Ground Level	5530.00	feet	Depth Logger	8025.00	feet



**Weatherford®**

TEMPERATURE LOG

