



PRECISION
ENERGY SERVICES

COMPENSATED SONIC

1:200 MD

Compact

COMPANY **ESSO AUSTRALIA PTY LTD**

WELL **BREAM A20A**

FIELD **BREAM**

PROVINCE/COUNTY **BASS STRAIT**

COUNTRY/STATE **AUSTRALIA**

LOCATION **S 38 29 58.899 , E 147 46 20.056**

N 5738458.020 m , E 567338.25 m

FIELD PRINT

LSD SEC TWP RGE Other Services
DUAL LATEROLOG

API Number PHOTO DENSITY

Permit Number COMPENSATED NEUTRON

Permanent Datum MSL , Elevation 0.0 metres

Log Measured From RT @ 32.82 M above Permanent Datum

Drilling Measured From RT

Elevations:
KB 32.82 metres
DF 32.82 metres
GL -59.40 metres

Date 19-Oct-2005

Run Number ONE

Depth Driller 2326.00 metres

Depth Logger 2323.10 metres

First Reading 2318.70 metres

Last Reading 2000.00 metres

Casing Driller

Casing Logger

Bit Size 8.50 inches

Hole Fluid Type KCL/GYL/POLY

Density / Viscosity 10.15 lb/USg 78.00 CP

PH / Fluid Loss 9.00 2.80

Sample Source FLOWLINE

Rm @ Measured Temp 0.116 @ 25.0 ohm-m

Rmf @ Measured Temp 0.107 @ 25.0 ohm-m

Rmc @ Measured Temp 0.211 @ 25.0 ohm-m

Source Rmf / Rmc PRESS PRESS

Rm @ BHT 0.058 @ 73.0 ohm-m

Time Since Circulation 23 Hours

Max Recorded Temp 77.90 deg C

Equipment Name 5" CWS/CML

Equipment / Base 1 SALE

Recorded By G.McMANUS, B.MOSS

Witnessed By TREVOR LOBO

CIRC STOPPED 04:30 18-OCT

BOREHOLE RECORD

Bit Size inches	Depth From metres	Depth To metres
8.500	1123.00	2326.00

CASING RECORD

Type	Size inches	Depth From metres	Shoe Depth metres	Weight pounds/ft
K-55	10.750	0.00	1123.00	57.70

REMARKS

RIG: NABORS 453

5" SHUTTLE/MEMORY COMPACT OPERATION.
CREW: G MCMANUS , B MOSS , B GOODWIN, M KOLCZE.

FIELD FINAL LOGS TO BE CORRELATED TO ANADRILL GAMMA LOG.

MAX. TEMPERATURE: 77.9 DEG C AT 2263.80 m MD
MAX. INCLINATION: 50.12 DEG AT 1123.20 m MD
MAX. DOGLEG SERVERITY: 11.64 DEG/30m AT 1130.05 m MD
DEPLOYMENT ANGLE: 6.5 DEG

HVOL: XXXX FT^3
AVOL: XXXX FT^3

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.

MAIN LOG 1:200

Depth Based Data - Maximum Sampling Increment 10.0cm

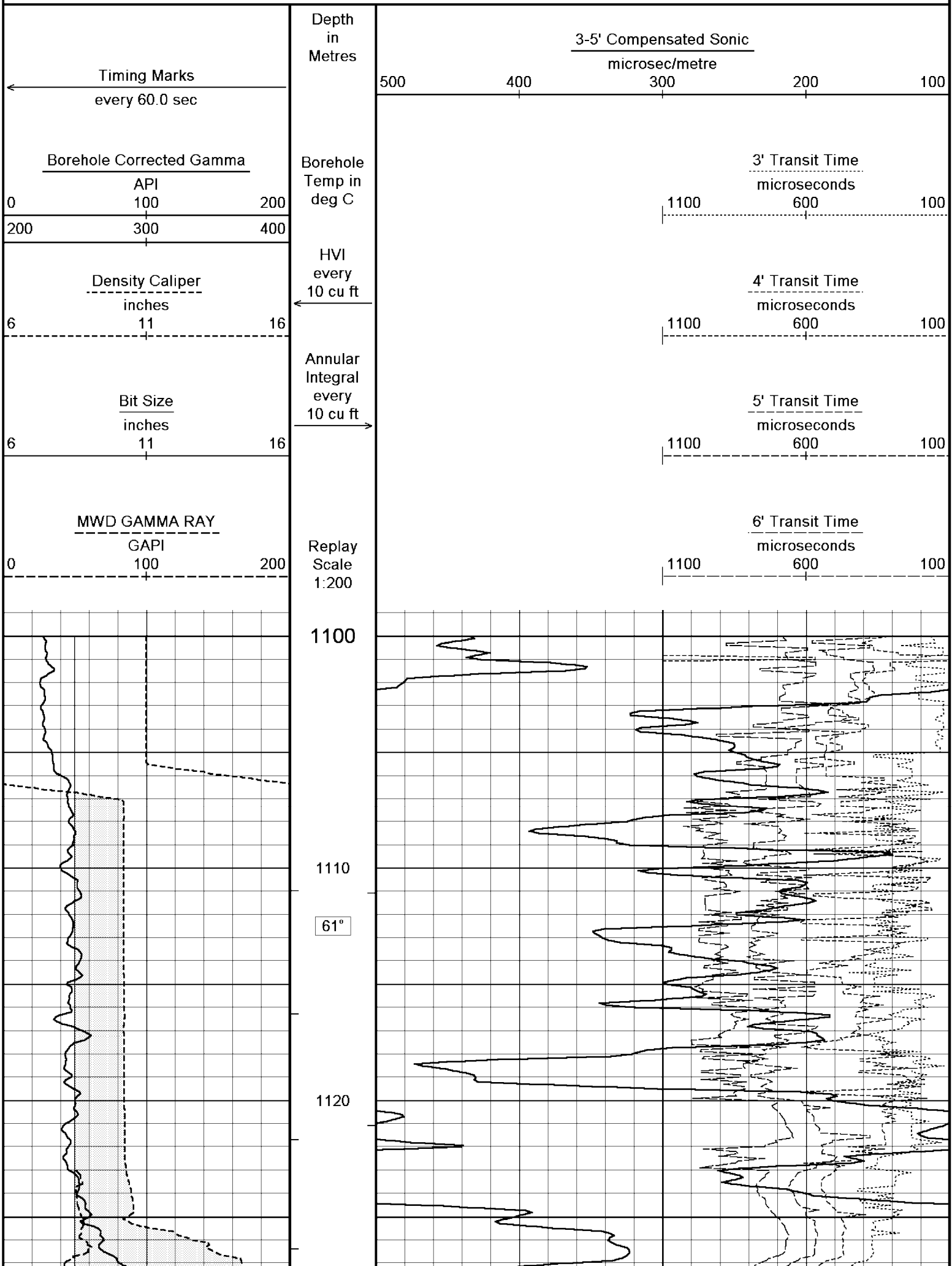
Plotted on 19-OCT-2005 18:25

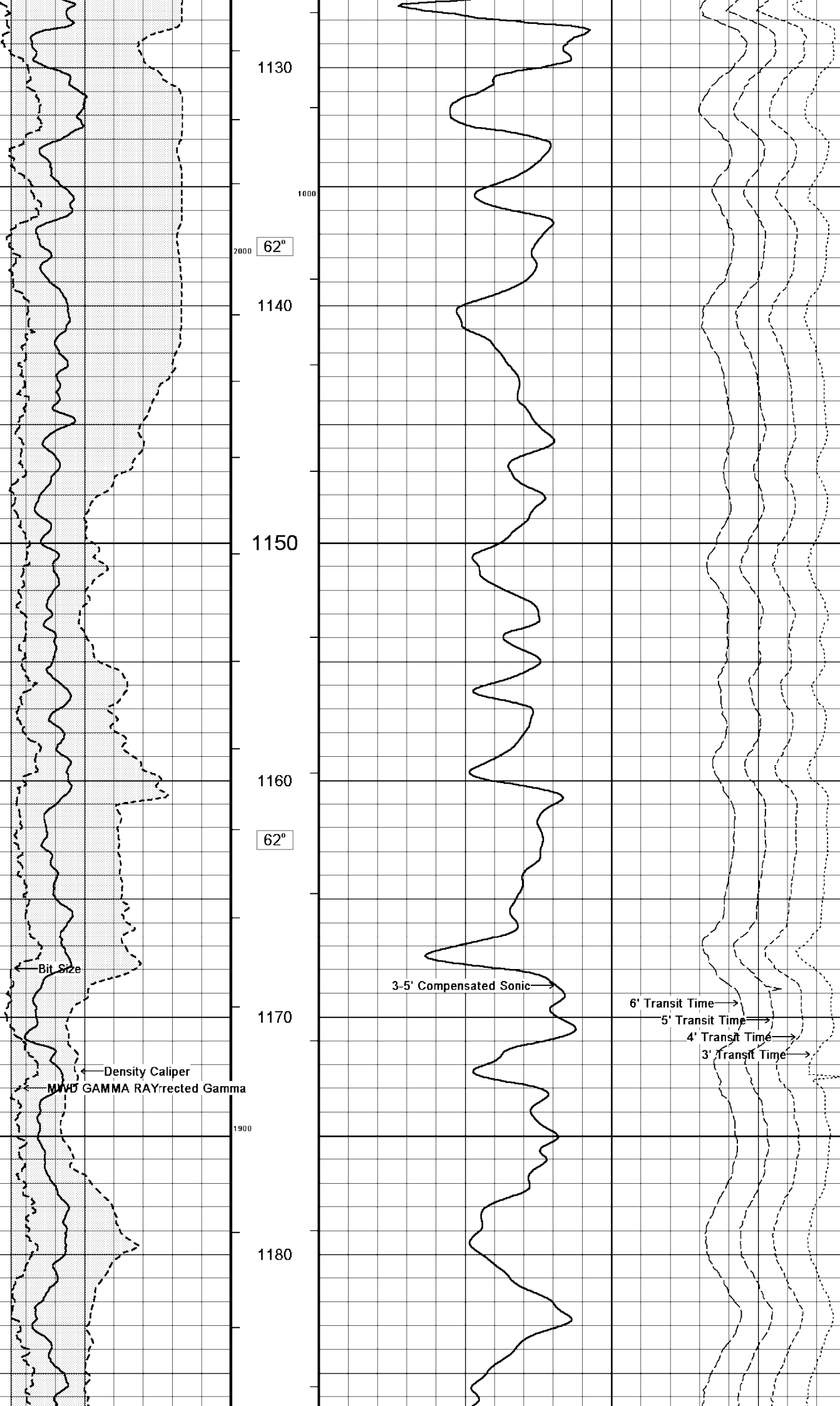
Filename: C:\logs\BMA_A20A\FINAL FIELD DATA\BMA_A20A_MSS_DSC.dta

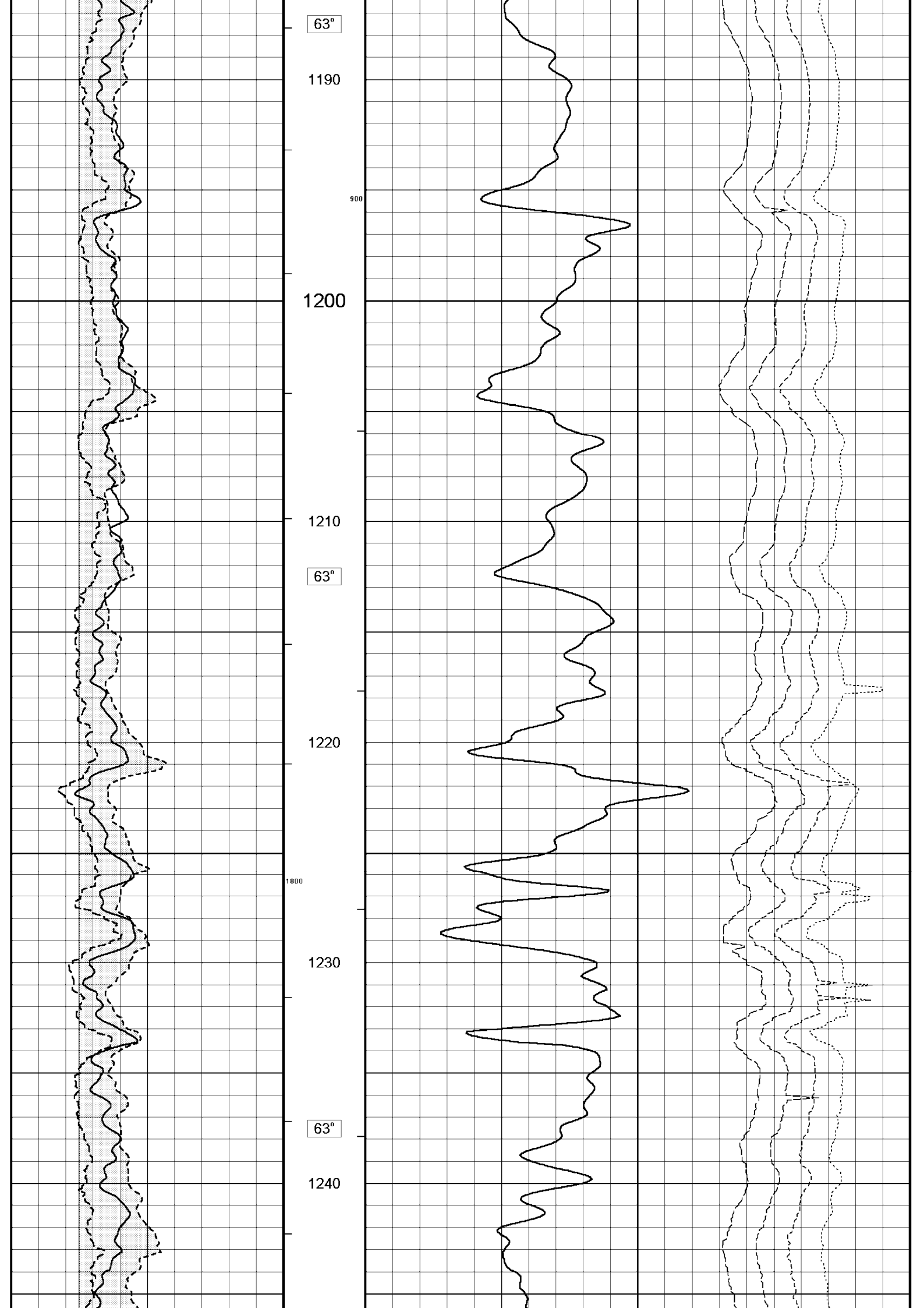
Recorded on 19-OCT-2005 13:21

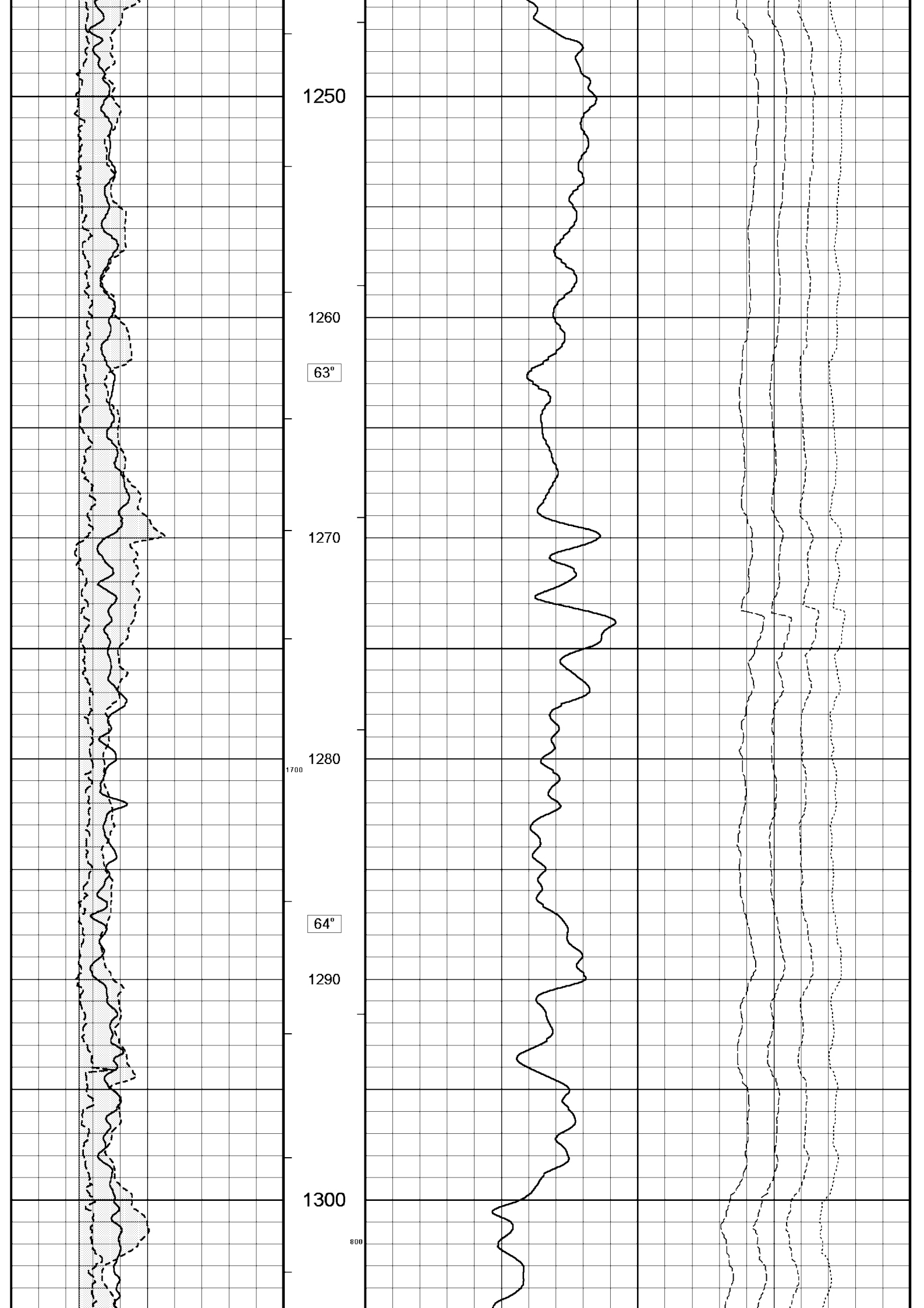
Filename: C:\logs\BMA_A20A\FIELD DATA\BMA_A20A_MWD_GR_LOG.dta

System Configuration Dates: Logged 17-JUN-2004: Processed 17-JUN-2004: Plotted 17-JUN-2004:









1250

1260

1270

1280

1290

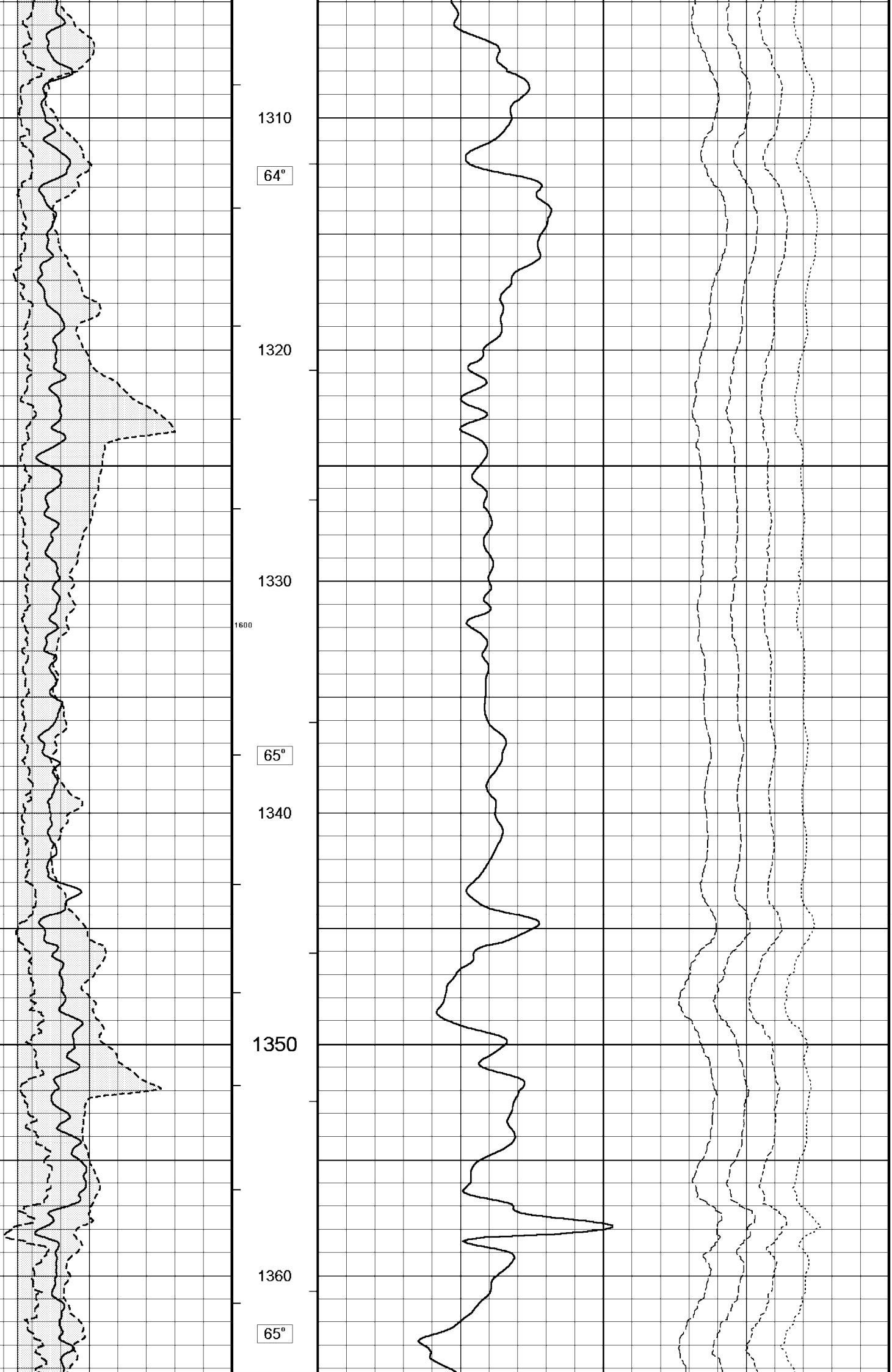
1300

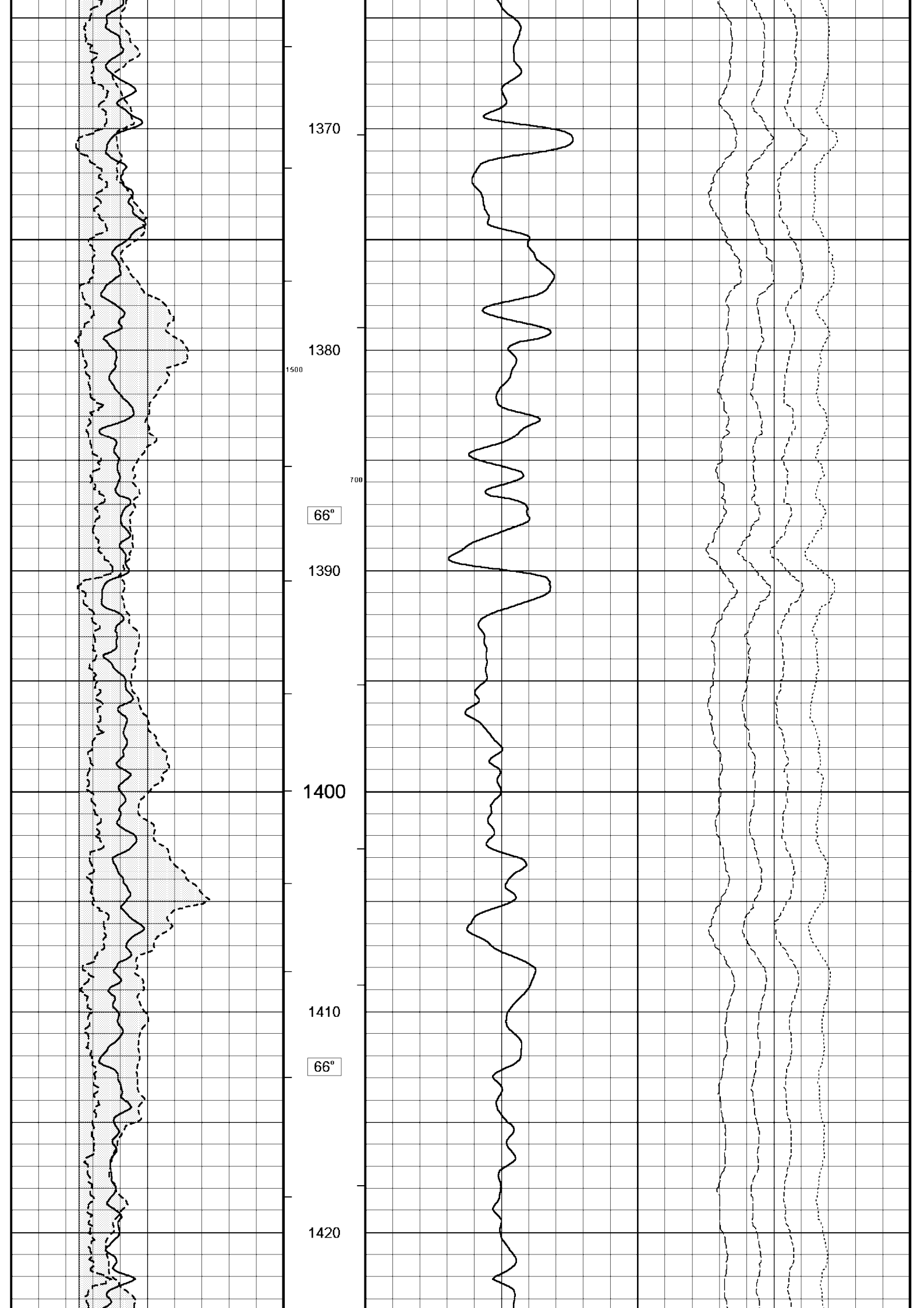
63°

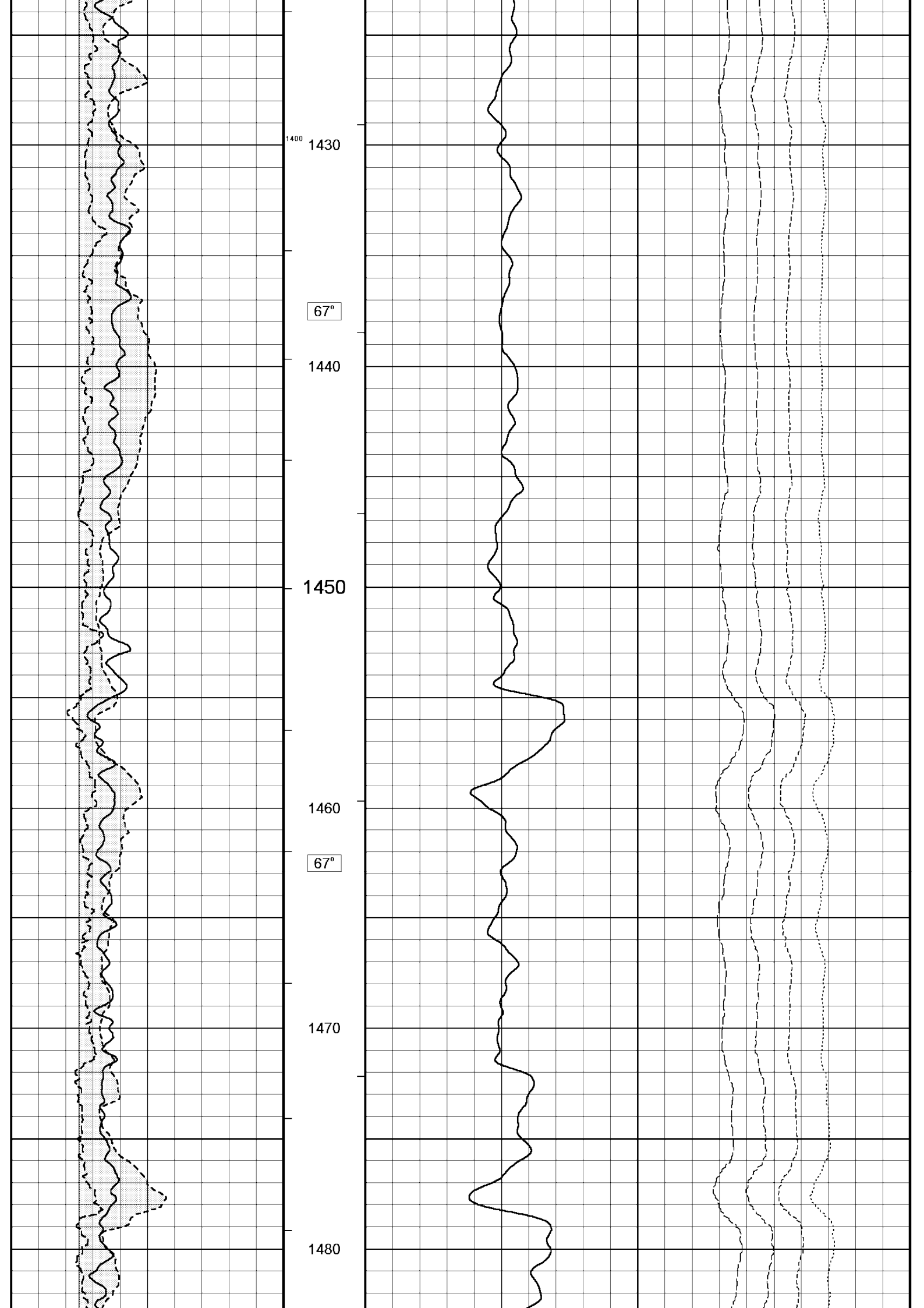
64°

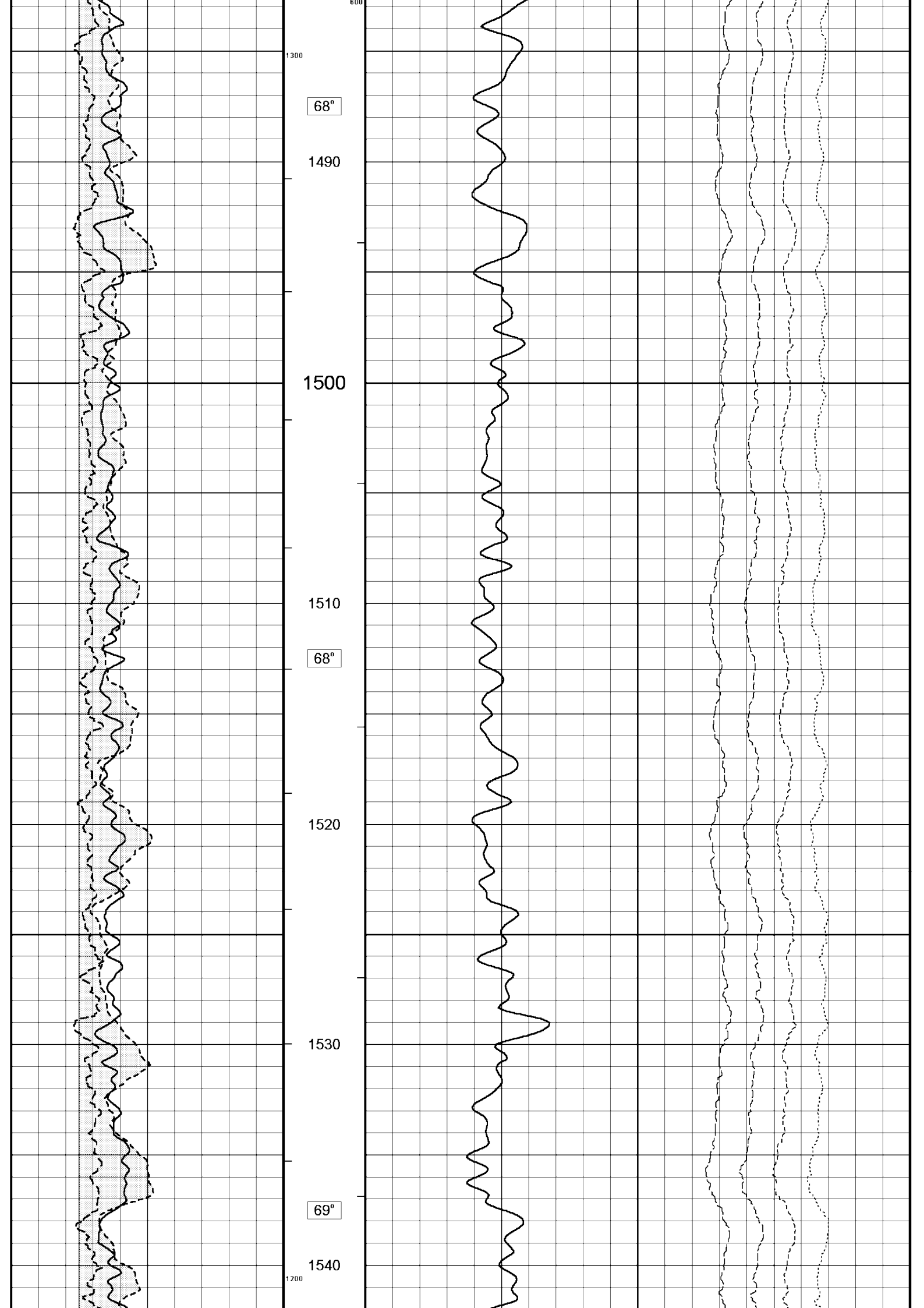
1700

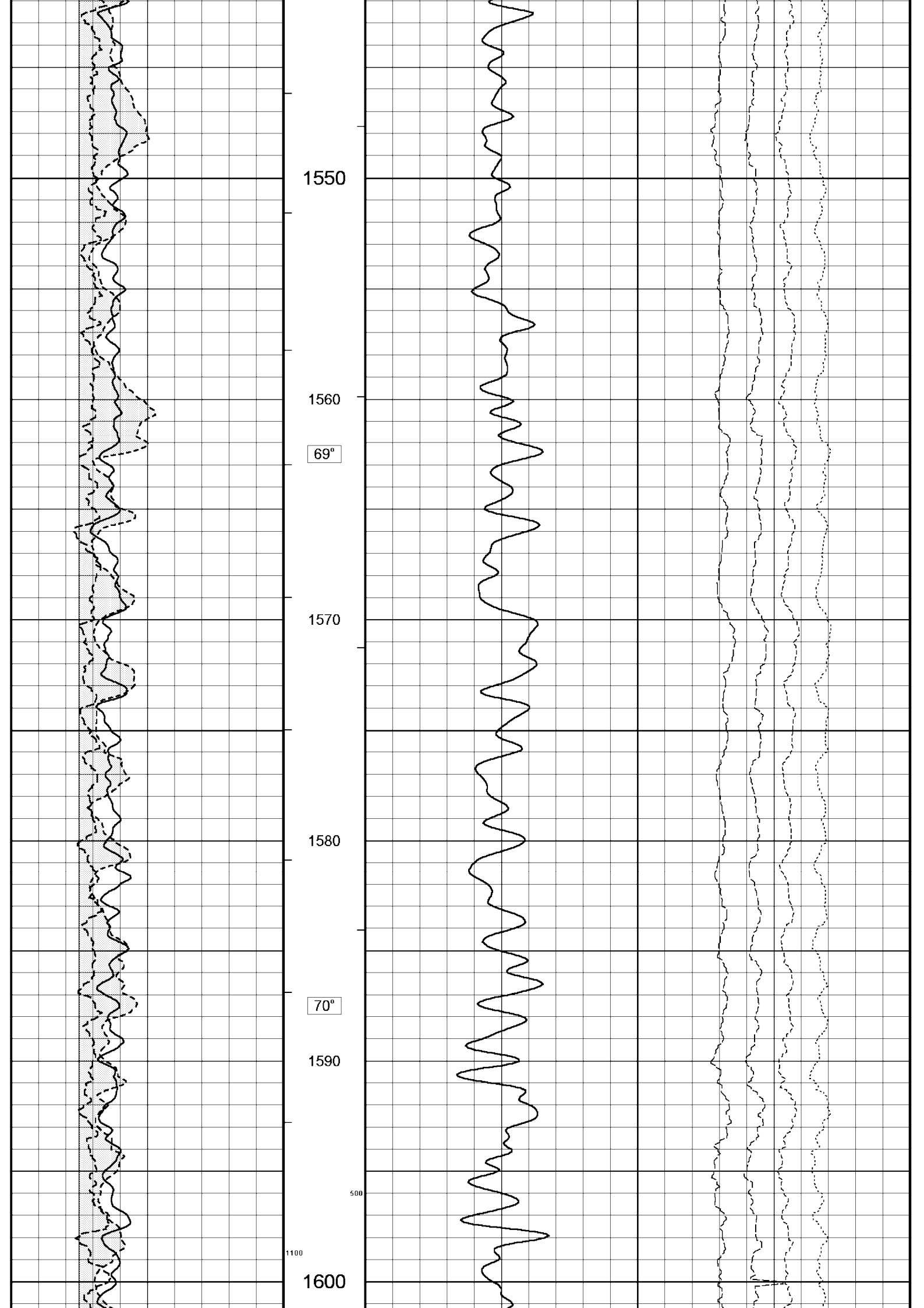
800

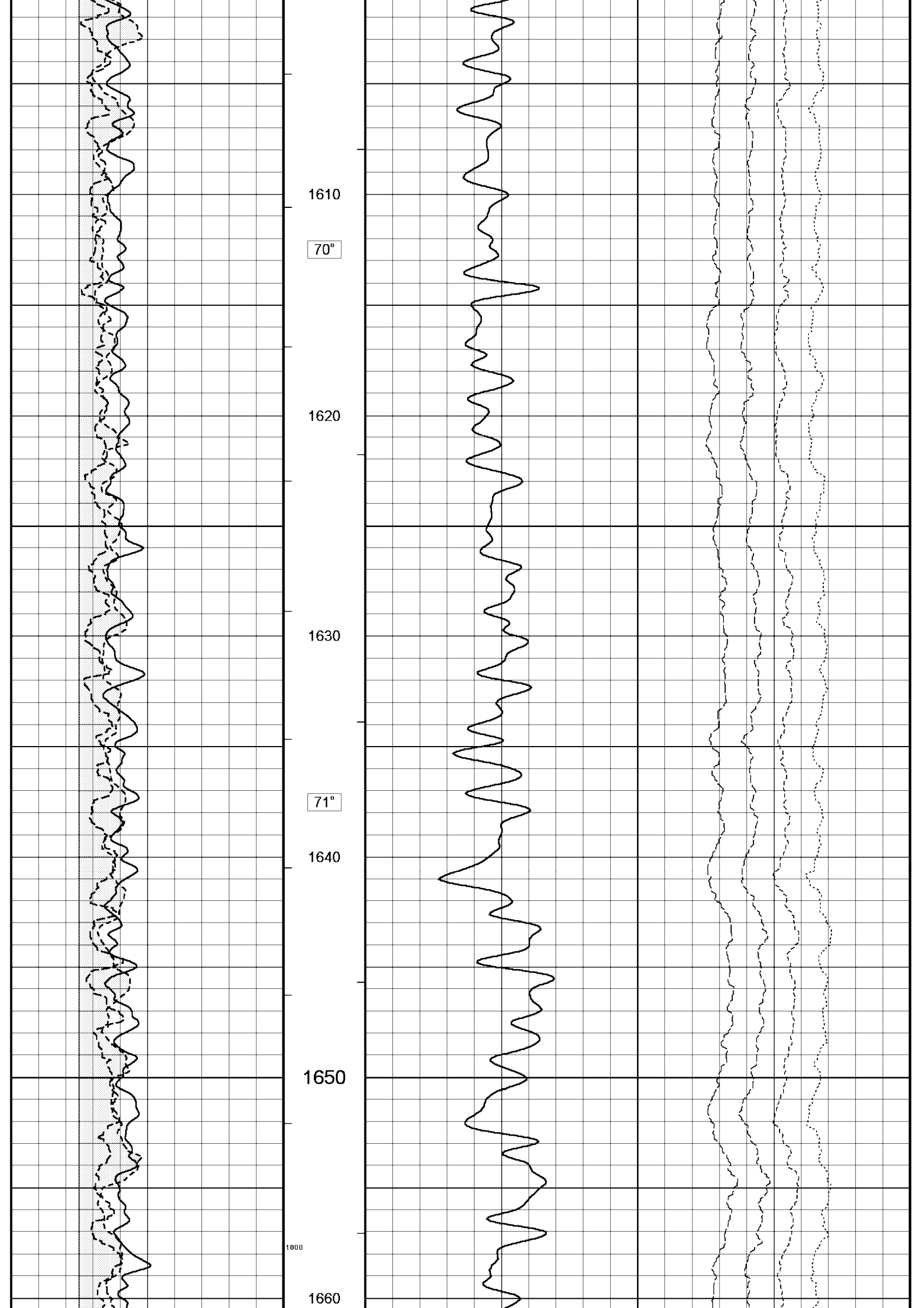


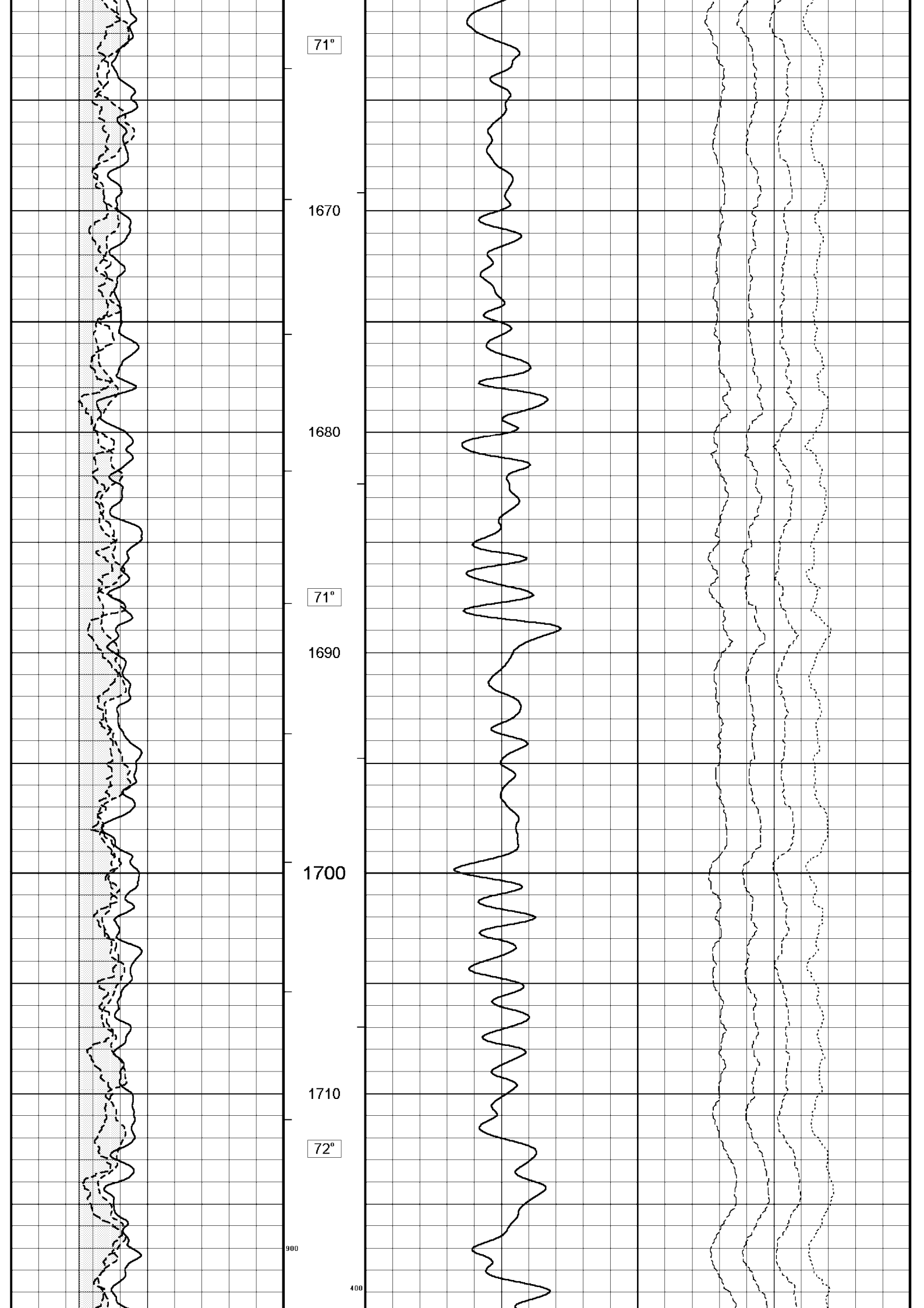


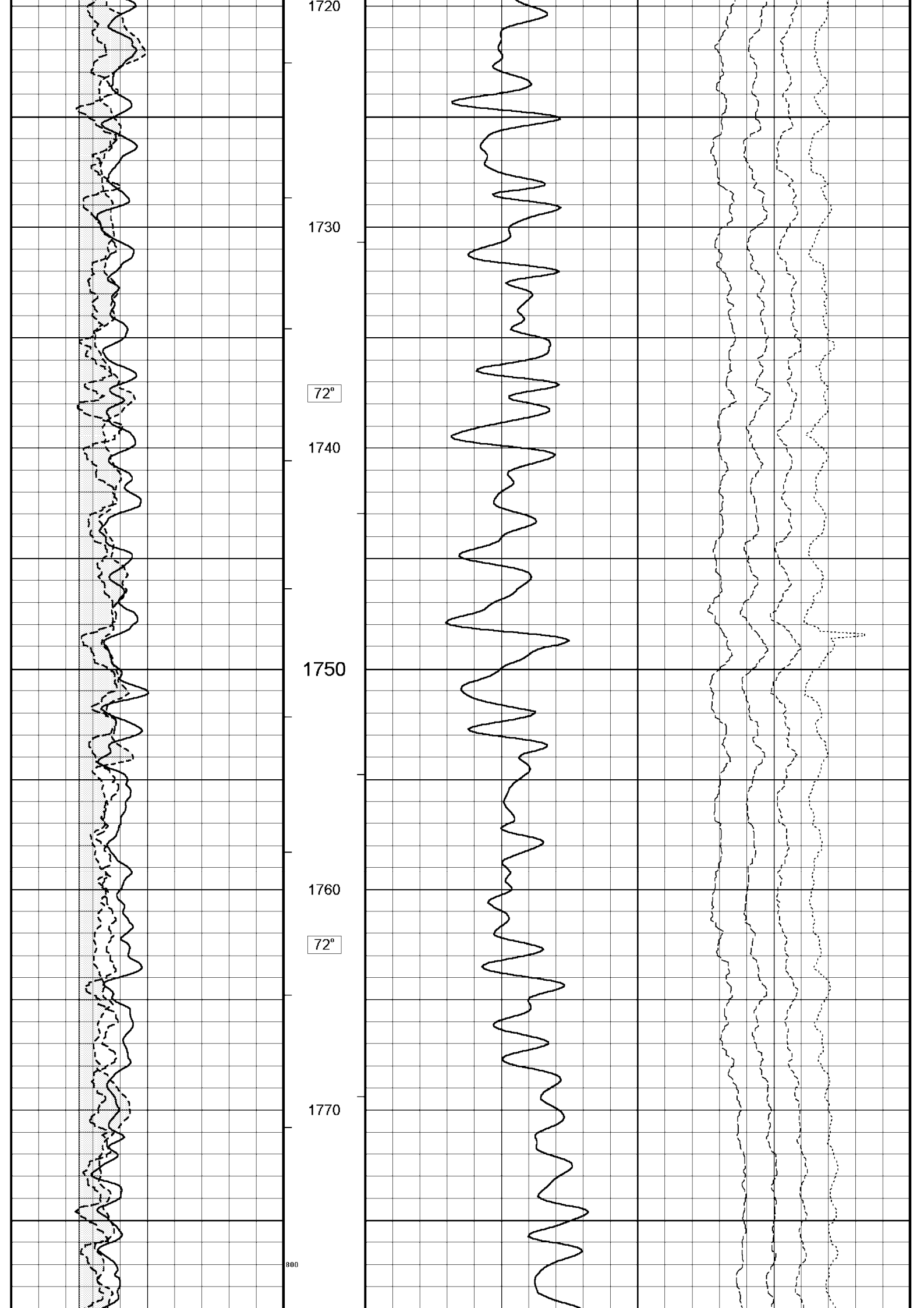


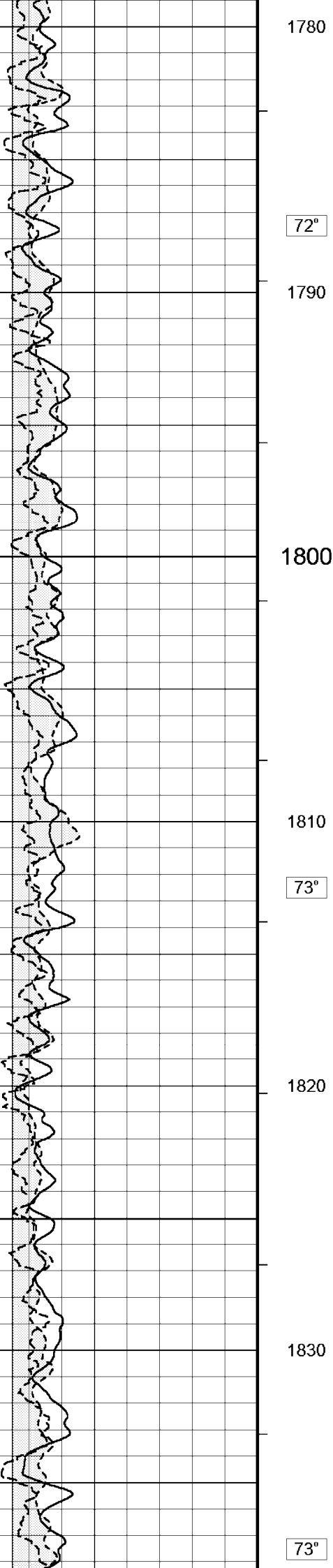




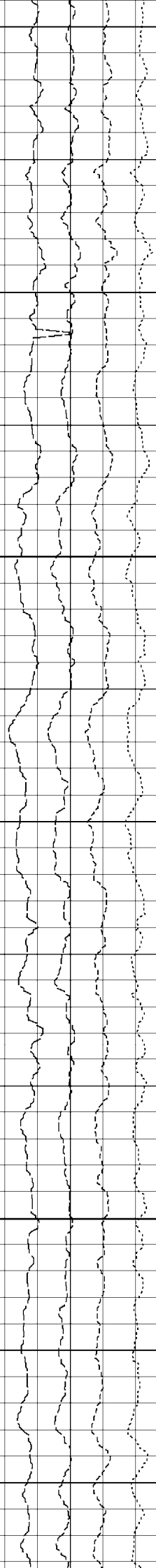


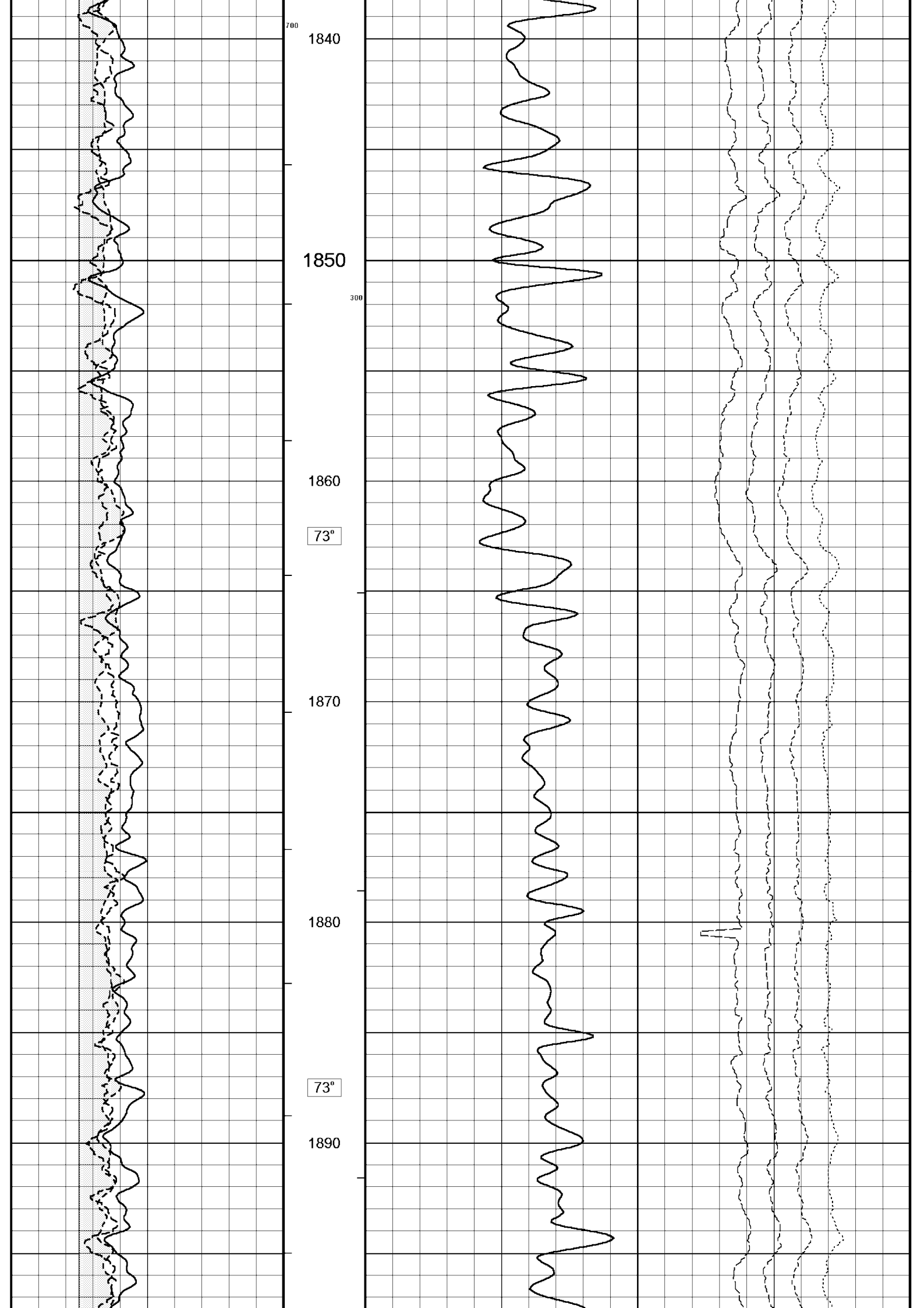


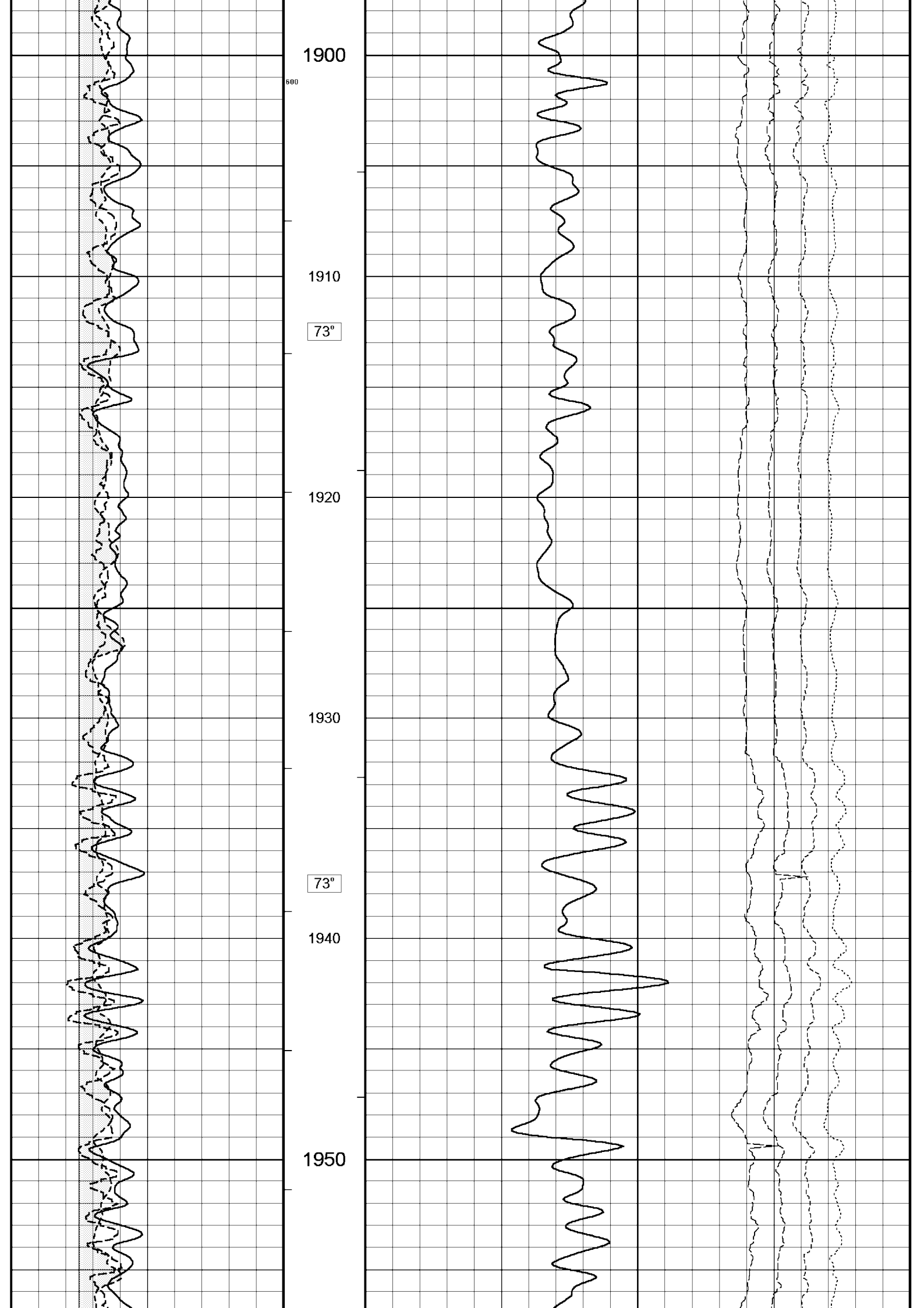


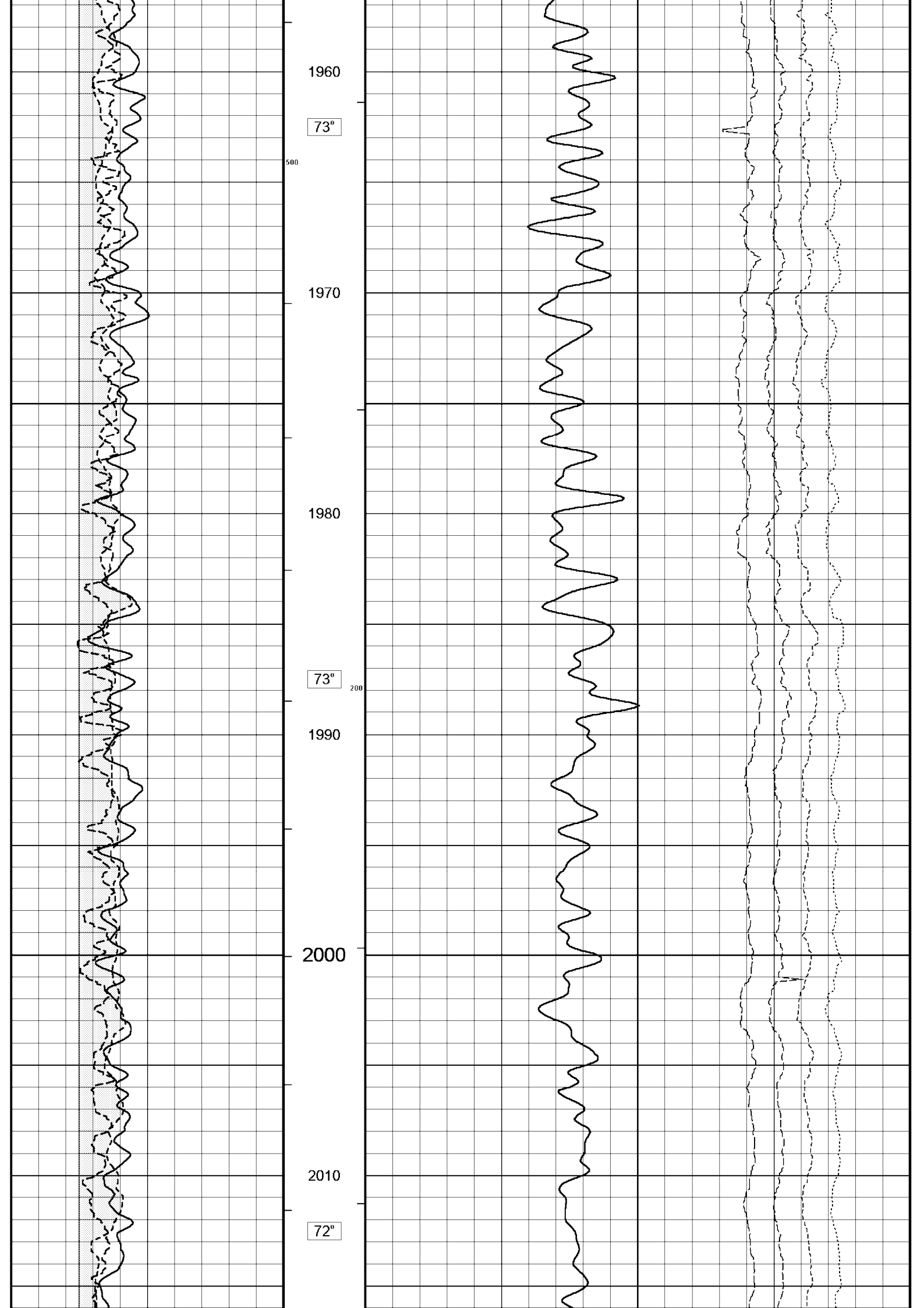


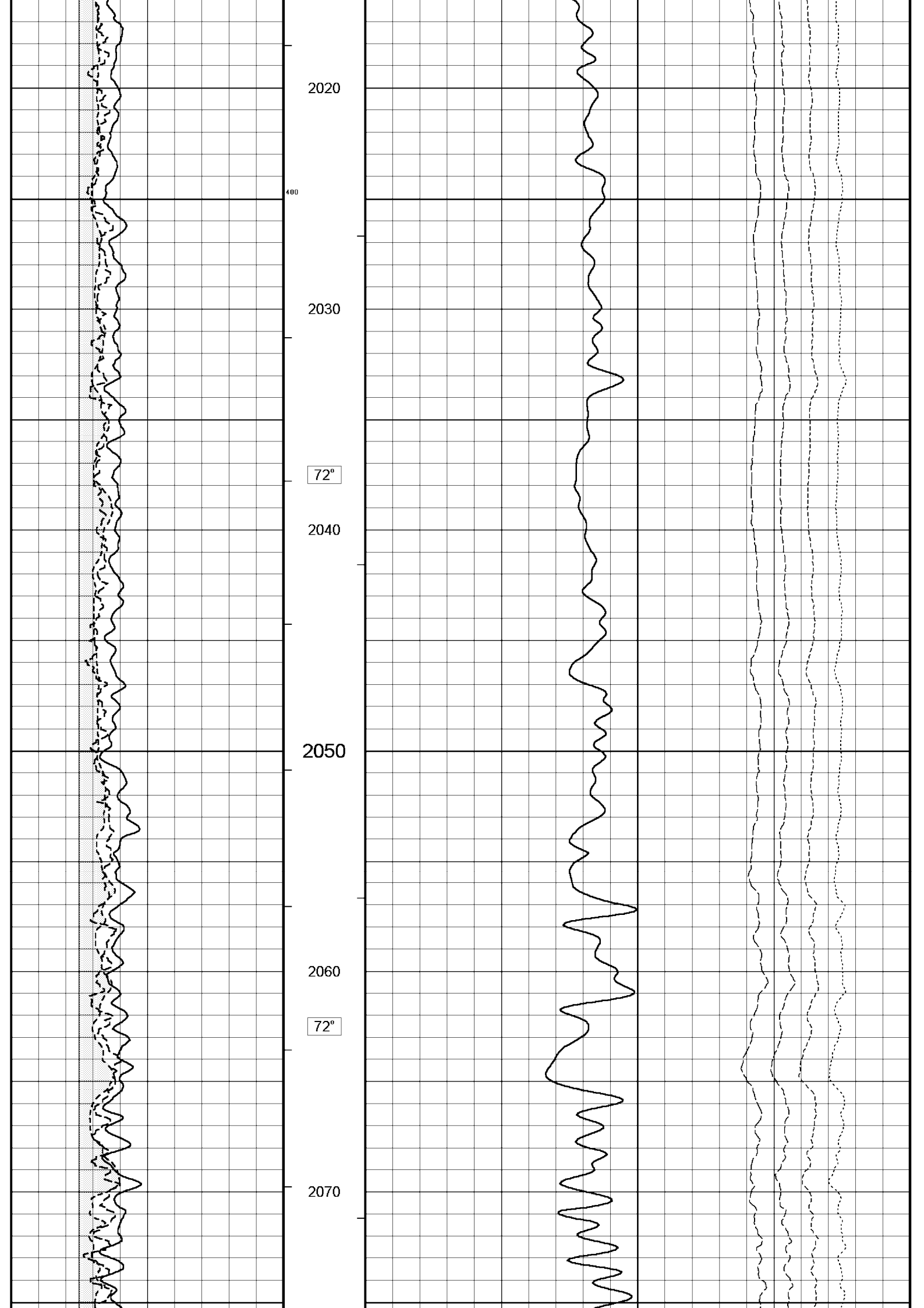
1780
72°
1790
1800
1810
73°
1820
1830
73°

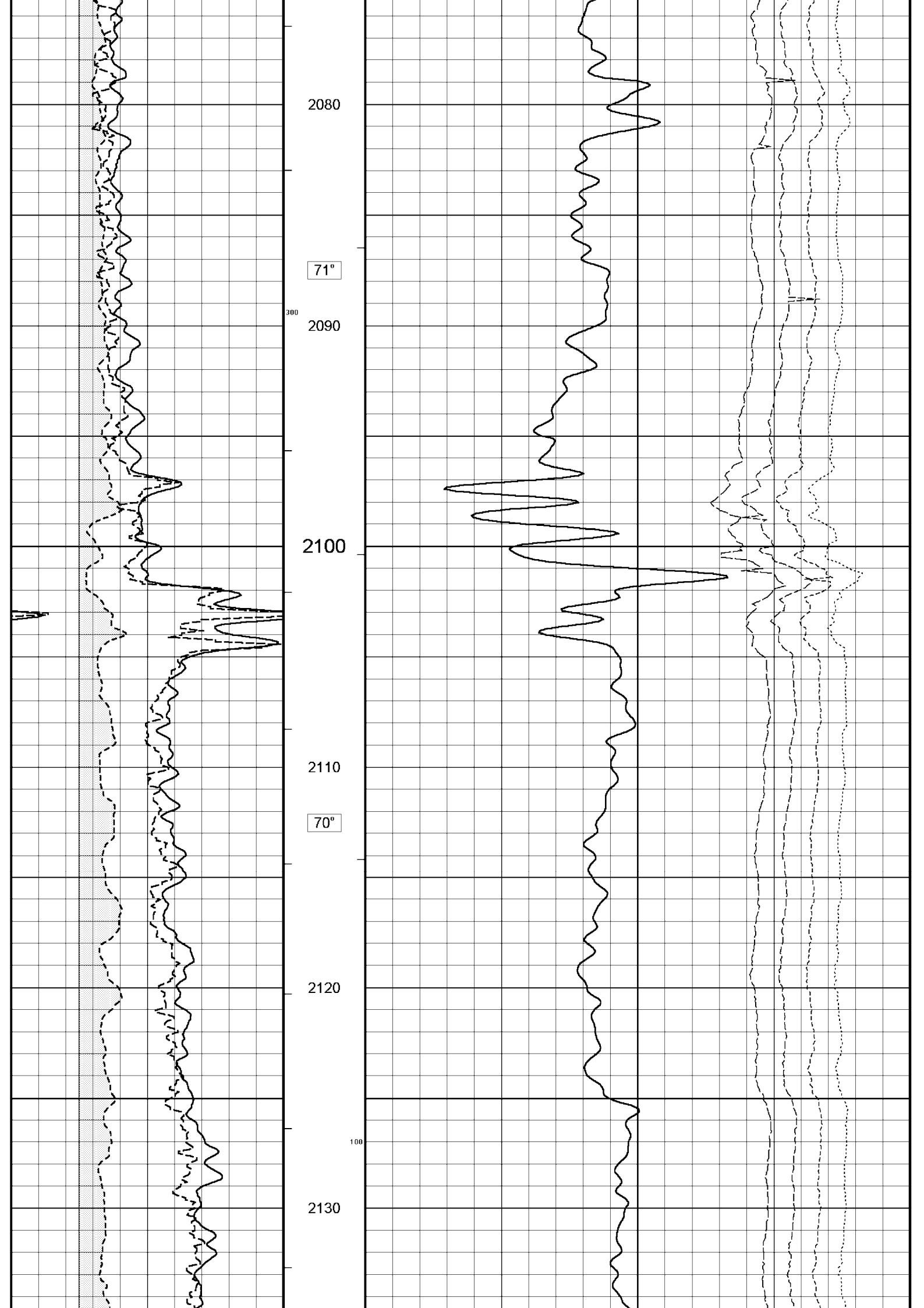


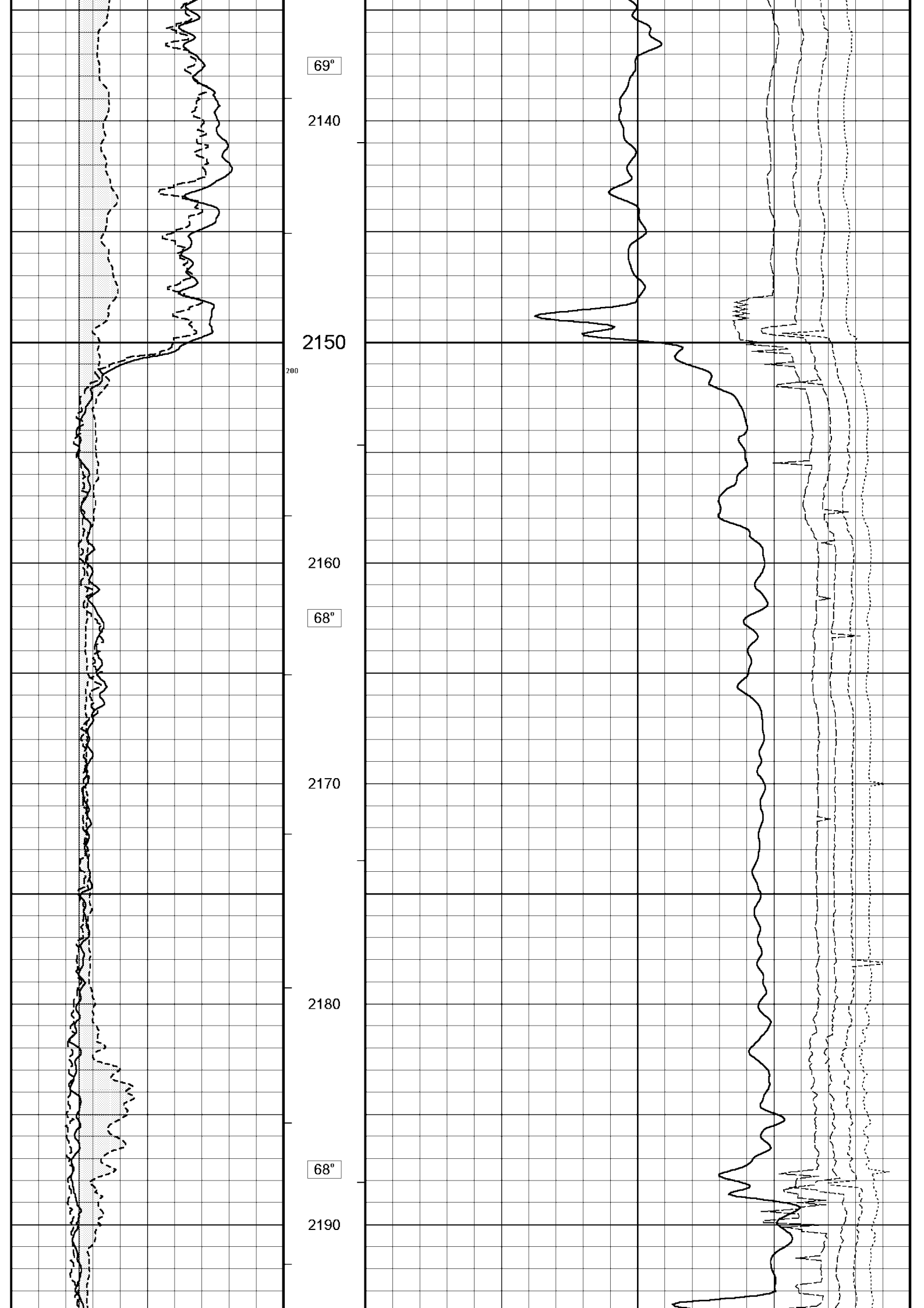


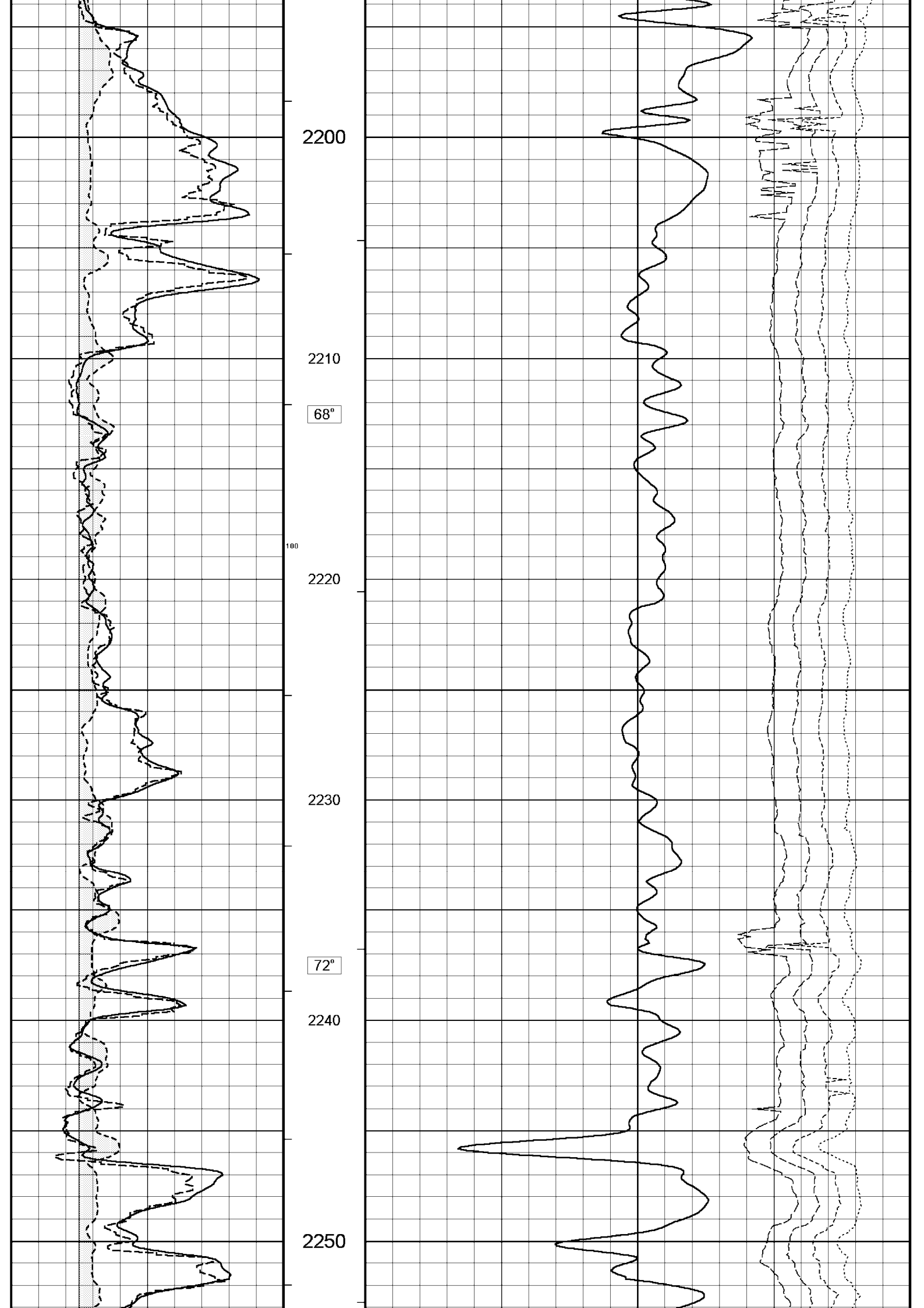


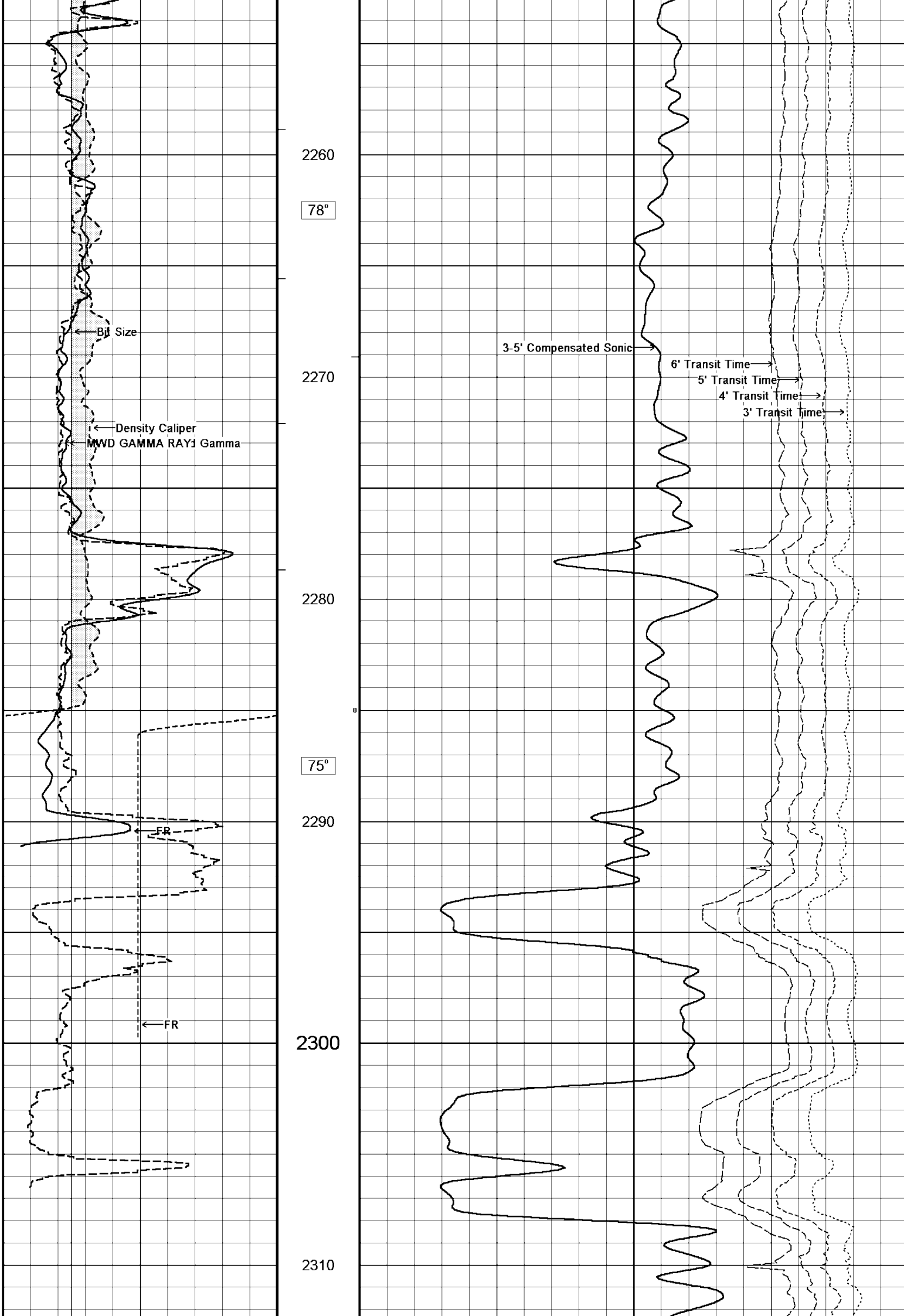


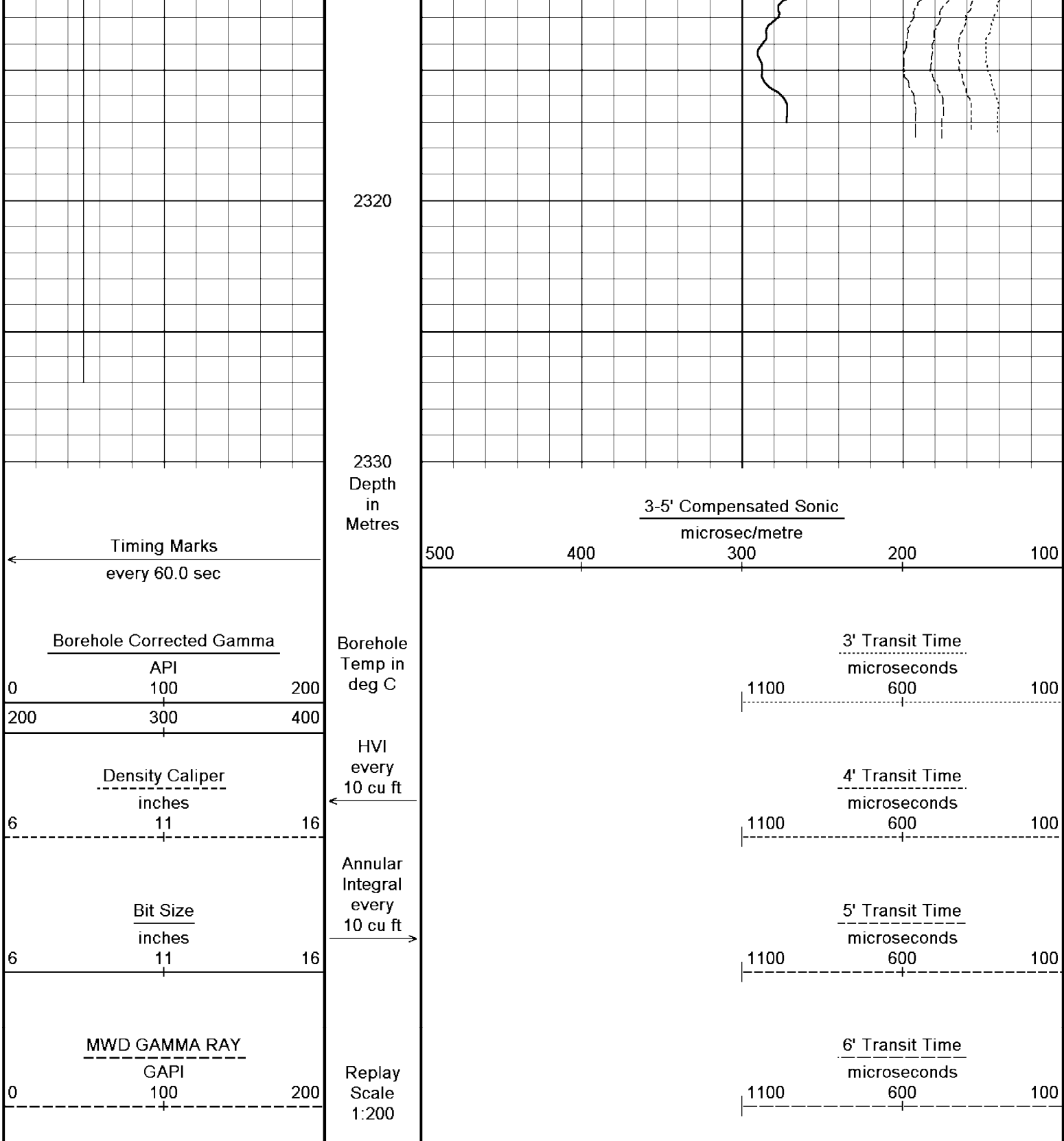












Depth Based Data - Maximum Sampling Increment 10.0cm
 Plotted on 19-OCT-2005 18:26
 Filename: C:\logs\BMA_A20A\FIELD DATA\BMA_A20A_MSS_DSC.dta
 Recorded on 19-OCT-2005 13:21
 Filename: C:\logs\BMA_A20A\FIELD DATA\BMA_A20A_MWD_GR_LOG.dta
 System Configuration Dates: Logged 17-JUN-2004: Processed 17-JUN-2004: Plotted 17-JUN-2004:

↑ MAIN LOG 1:200 MAIN LOG 1:200 ↑

BEFORE SURVEY CALIBRATION
 C:\logs\BMA_A20A\FIELD DATA\BMA_A20A_MAIN_LOG_TC1.dta

General Constants All 000

General Parameters		
Mud Resistivity	0.116	ohm-metres
Mud Resistivity Temperature	25.000	degrees C
Water Level	0.000	metres

Water Level	0.000	metres
Density/Neutron Processing	Wet Hole	
Hole/Annular Volume and Differential Caliper Parameters		
HVOL Caliper 1	Density Caliper	
HVOL Caliper 2	Density Caliper	
Annular Volume Diameter	7.000	inches
Caliper for Differential Caliper	Density Caliper	
Rwa Parameters		
Porosity used	Limestone Sonic Porosity	
Resistivity used	Deep Induction	
RWA Constant A	0.610	
RWA Constant M	2.150	

High Resolution Temperature Calibration MCG 142

Field Calibration on 15-OCT-2005,21:40

	Measured	Calibrated(Deg C)
Lower	0.00	0.00
Upper	100.00	100.00

High Resolution Temperature Constants MCG 142

Pre-filter Length 11

SP Calibration MCG 142

Field Calibration on 15-OCT-2005,21:40

	Measured	Calibrated (mV)
Reference 1	1575.0	1575.0
Reference 2	-1575.0	-1575.0

Gamma Calibration MCG 142

Field Calibration on 15-OCT-2005 21:45

	Measured	Calibrated (API)
Background	17	11
Calibrator (Gross)	1371	920
Calibrator (Net)	1354	909

Gamma Constants MCG 142

Gamma Calibrator Number	060	
Mud Density	1.22	gm/cc
Caliper Source for Processing	Density Caliper	
Tool Position	Eccentred	
Concentration of KCl	0.00	kppm

Neutron Calibration MDN 085

Base Calibration on 11-OCT-2005 15:07

Field Check on 15-OCT-2005 23:06

Base Calibration

	Measured		Calibrated (cps)	
	Near	Far	Near	Far
Ratio	3173	99	3714	110
	32.004		33.764	

Field Calibrator at Base

	Calibrated (cps)	
Ratio	1581	2284
	0.692	

Field Check

	Calibrated (cps)	
Ratio	1585	2352
	0.674	

Neutron Constants MDN 085

Neutron Source Id	NSN-E-729	
Neutron Jig Number	NEC-C-052	
Epithermal Neutron	No	
Caliper Source for Processing	Density Caliper	
Stand-off	0.00	inches
Mud Density	1.22	gm/cc
Limestone Sigma	7.10	cu
Sandstone Sigma	4.26	cu
Dolomite Sigma	4.70	cu
Formation Pressure Source	None	
Formation Pressure	N/A	kpsi
Temperature Source	MCG External Temperature	
Temperature	N/A	degrees C
Mud Salinity	57.75	kppm

Formation Fluid Salinity Source None
 Formation Fluid Salinity N/A kppm
 Barite Mud Correction Not Applied

Caliper Calibration MPD 083

Base Calibration on 11-OCT-2005 10:53
 Field Calibration on 15-OCT-2005 22:54

Base Calibration		
Reading No	Measured	Calibrator Size (in)
1	13440	4.01
2	21712	5.99
3	30187	7.98
4	38575	9.94
5	47854	12.01
6	N/A	N/A

Field Calibration		
	Measured Caliper (in)	Actual Caliper (in)
	7.96	7.98

Photo Density Calibration MPD 083

Base Calibration on 11-OCT-2005 11:18
 Field Check on 15-OCT-2005 22:58

Density Calibration				
Base Calibration	Measured		Calibrated (sdu)	
	Near	Far	Near	Far
Reference 1	54506	18779	53111	19310
Reference 2	25702	2585	24951	2530

Field Check at Base		
	Measured	Calibrated
	952.6	1102.7

Field Check		
	Measured	Calibrated
	952.9	1105.9

PE Calibration				
Base Calibration	Measured			Calibrated
	WS	WH	Ratio	Ratio
Background	179	818		
Reference 1	17041	54312	0.315	0.320
Reference 2	6789	25555	0.267	0.273

Field Check at Base		
	Measured	Calibrated
	179.3	818.3

Field Check		
	Measured	Calibrated
	181.5	819.1

Density Constants MPD 083

Density Source Id	NSD-L-242		
Nylon Calibrator Number	DNC-D-536		
Aluminium/Fe Calibrator Number	DNC-D-536		
Density Shoe Profile	4 inch		
Caliper Source for Processing	Density Caliper		
PE Correction to Density	Not Applied		
Mud Density	1.22		gm/cc
Mud Density Z/A Correction	1.11		
Mud Filtrate Density	1.00		gm/cc
Dry Hole Mud Filtrate Density	1.00		gm/cc
DNCT	0.00		gm/cc
CRCT	0.00		gm/cc
Matrix Density (gm/cc)	Depth (m)		
2.71	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		
0.00	0.00		

SP Calibration MLE 031

Field Calibration on 10-OCT-2005 15:50

	Measured	Calibrated (mV)
Reference 1	1614.4	1612.0
Reference 2	-1610.9	-1612.0

Base Calibration

Channel	Measured		Calibrated (ohm-m)	
	Resistor 1	Resistor 2	Resistor 1	Resistor 2
Shallow	9.8	976.3	13.2	1321.0
Deep	9.8	976.3	7.5	755.0
Groningen	9.8	976.7	8.5	854.0

Channel	Base Check (ohm-m)	Field Check (ohm-m)
Shallow	48.6	48.6
Deep	27.8	27.8
Groningen	251.5	251.5

Laterolog Constants MLE 031

Squasher Start	40000	ohm-m
Shallow Laterolog K Factor	1.3210	
Deep Laterolog K Factor	0.7550	
Groningen Laterolog K Factor	0.8540	
Interference Rejection	50 Hz	
SP Connection	SP Bridle Electrode	
Groningen Connection	Groningen Electrode	

Sonic Constants MSS 066

Maximum Boundary Contrast	328.08	micro-sec/m
Fluid Transit Time	620.08	micro-sec/m
Limestone Transit Time	155.84	micro-sec/m
Sandstone Transit Time	182.09	micro-sec/m
Dolomite Transit Time	142.72	micro-sec/m
Sonic used for Porosities	3-5' Compensated Sonic	
Correction for Sonde Skew	Applied	
Cycle Stretch Algorithm	Applied	
MN3FT	N/A	micro-sec
MX3FT	N/A	micro-sec

Fixed Gate Parameters

Start Time (micro-sec)	End Time (micro-sec)	Discriminator (mV)	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A

Down Hole Fixed Gate Parameters

Gate Start	N/A	micro-sec
Gate Width	N/A	micro-sec
Initial Discriminator Level	0.0000	mVolts

Full Waveform Parameters

Use 3' Waveform to derive TR	No	
Use 4' Waveform to derive TR	No	
Use 5' Waveform to derive TR	No	
Use 6' Waveform to derive TR	No	
3' Waveform Discriminator Level	0.45	mV
4' Waveform Discriminator Level	0.45	mV
5' Waveform Discriminator Level	0.35	mV
6' Waveform Discriminator Level	0.35	mV
3' Waveform Filter	None	
4' Waveform Filter	None	
5' Waveform Filter	None	
6' Waveform Filter	None	
Semblance Level	0.50	
Semblance Window Width	120.00	micro-sec
Sonic 1 Despiker	328.08	micro-sec/m
Sonic 2 Despiker	328.08	micro-sec/m

High Resolution Temperature Calibration MAI 039

Field Calibration on 15-OCT-2005,22:53

	Measured	Calibrated(Deg C)
Lower	0.00	0.00
Upper	100.00	100.00

High Resolution Temperature Constants MAI 039

Induction Calibration MAI 039

Base Calibration on 11-OCT-2005 12:16
Field Check on 15-OCT-2005 22:53

Base Calibration

Test Loop Calibration

Channel	Measured		Calibrated (mmho/m)	
	Low	High	Low	High
1	15.5	457.6	9.3	966.2
2	5.1	365.2	7.6	821.4
3	2.3	249.2	5.2	566.0
4	1.3	128.5	2.6	279.2

Array Temperature 23.4 Deg C

Channel	Base Check (mmho/m)		Field Check (mmho/m)	
	Low	High	Low	High
1	15.9	3966.4	15.6	3966.0
2	33.4	3692.8	33.3	3693.5
3	31.9	3170.4	31.9	3170.9
4	21.3	2148.1	21.3	2148.3
Deep	19.5	2041.0	19.5	2040.9
Medium	46.7	4203.8	46.6	4204.8
Shallow	49.8	5496.1	49.7	5497.6

Array Temperature 14.1 12.5 Deg C

Induction Constants MAI 039

Induction Model	ENHANCED		
Caliper Source for Borehole Correction	CLDC		
Hole Size for Borehole Correction	N/A	inches	
Stand-off	1.00	inches	
Number of Fins on Stand-off	6.0000		
Stand-off Fin Width	0.5000	inches	
Rm Source for Borehole Correction	Temperature Corr		
Squasher Start	0.0020	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
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	

DOWNHOLE EQUIPMENT

C:\logs\BMA_A20A\FIELD DATA\BMA_A20A_MAIN_LOG_TC1.dta

Compact Swivel Head Adaptor F		
SHA 71	Length: 0.83 m	Weight: 26.5 lb
Compact Knuckle Joint		
SKJ 100	Length: 0.66 m	Weight: 24.3 lb
Extended Battery Sub.		
MBS 99	Length: 4.47 m	Weight: 90.4 lb



Compact Inline Standoff B
MIS 73 Length: 0.65 m Weight: 15.4 lb

Compact Stiff Bridle Electrode Sub.
MBE 18 Length: 3.76 m Weight: 94.8 lb

Compact Inline Standoff B
MIS 138 Length: 0.65 m Weight: 15.4 lb

Compact Stiff Bridle Electrode Sub.
MBE 19 Length: 3.76 m Weight: 94.8 lb

Compact Inline Standoff B
MIS 139 Length: 0.65 m Weight: 15.4 lb

Third Bridle - MBE 21
MLK 111 Length: 3.76 m Weight: 94.8 lb

Compact Inline Standoff B
MIS 72 Length: 0.65 m Weight: 15.4 lb

Compact Gamma
MCG 142 Length: 2.65 m Weight: 63.9 lb

Compact Memory Sub A.C
MMS 38 Length: 0.95 m Weight: 22.0 lb

Compact Knuckle Joint
SKJ 46 Length: 0.66 m Weight: 24.3 lb

Compact Swivel Head Adaptor F
SHA 64 Length: 0.83 m Weight: 26.5 lb

Compact Inline Bowspring A
MIS 94 Length: 1.74 m Weight: 33.1 lb

Compact Neutron
MDN 85 Length: 1.53 m Weight: 50.7 lb



32.22 m GGCE - Borehole Corrected Gamma
31.33 m CGXT - MCG External Temperature

26.17 m NPRL - Limestone Neutron Por.

Compact Density/Caliper
MPD 83 Length: 2.92 m Weight: 90.4 lb

Compact Inline Bowspring A
MIS 95 Length: 1.74 m Weight: 33.1 lb

Compact Swivel Head Adaptor F
SHA 63 Length: 0.83 m Weight: 26.5 lb

Compact Knuckle Joint
SKJ 101 Length: 0.66 m Weight: 24.3 lb

Compact Inline Standoff B
MIS 129 Length: 0.65 m Weight: 15.4 lb

Compact Upper Guard Sub.
MUG 30 Length: 2.74 m Weight: 68.3 lb

Compact Inline Standoff B
MIS 101 Length: 0.65 m Weight: 15.4 lb

Compact Laterolog Electrode Sub.
MLE 31 Length: 3.76 m Weight: 92.6 lb

Compact Inline Standoff B
MIS 127 Length: 0.65 m Weight: 15.4 lb

Compact Lower Guard Sub.
MLG 7 Length: 2.44 m Weight: 55.1 lb

Compact Inline Standoff B
MIS 133 Length: 0.65 m Weight: 15.4 lb

Compact Sonic
MSS 66 Length: 3.82 m Weight: 72.8 lb



23.48 m AVOL - Annular Volume
23.48 m HVOL - Hole Volume
23.48 m CLDC - Density Caliper
23.27 m DEN - Compensated Density

23.27 m DCOR - Density Correction
23.25 m PDPE - PE

13.35 m DSLL - Shallow Laterolog
13.35 m DDLL - Deep Laterolog

Compact Inline Standoff B
MIS 31 Length: 0.65 m Weight: 15.4 lb

Compact Induction
MAI 39 Length: 3.29 m Weight: 48.5 lb

MAI Inline Centraliser
HFS 4 Length: 0.40 m Weight: 4.4 lb

Total Length: 54.08 m Weight: 1300.7 lb



Tool Zero (0.44m from bottom)

All measurements relative to tool zero.

COMPANY	ESSO AUSTRALIA PTY LTD		
WELL	BREAM A20A		
FIELD	BREAM		
PROVINCE/COUNTY	BASS STRAIT		
COUNTRY/STATE	AUSTRALIA		

Elevation Kelly Bushing	metres	First Reading	2318.70	metres
Elevation Drill Floor	32.82 metres	Depth Driller	2326.00	metres
Elevation Ground Level	-59.40 metres	Depth Logger	2323.10	metres



COMPENSATED SONIC
1:200 MD