



PRECISION
ENERGY SERVICES

DUAL LATEROLOG - GR
DENSITY - NEUTRON

Compact

1:200 MD

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
COMPENSATED SONIC

API Number

Permit Number

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 2309.30 metres

Last Reading 1123.00 metres

Casing Driller 1123.00 metres

Casing Logger 1123.00 metres

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

8.500

Depth From
metres

1123.00

Depth To
metres

2326.00

CASING RECORD

Type

K-55

Size
inches

10.750

Depth From
metres

0.00

Shoe Depth
metres

1123.00

Weight
pounds/ft

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

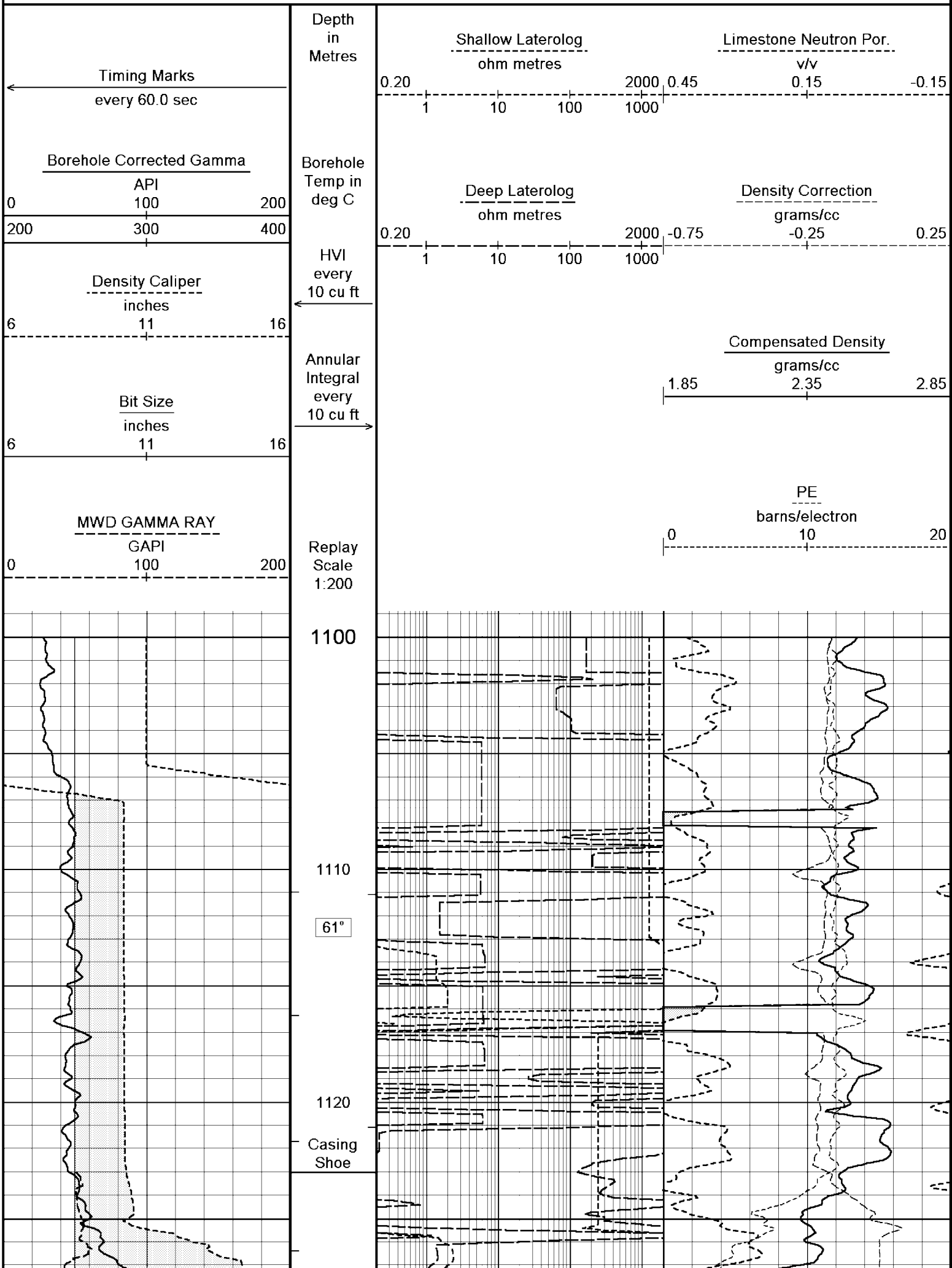
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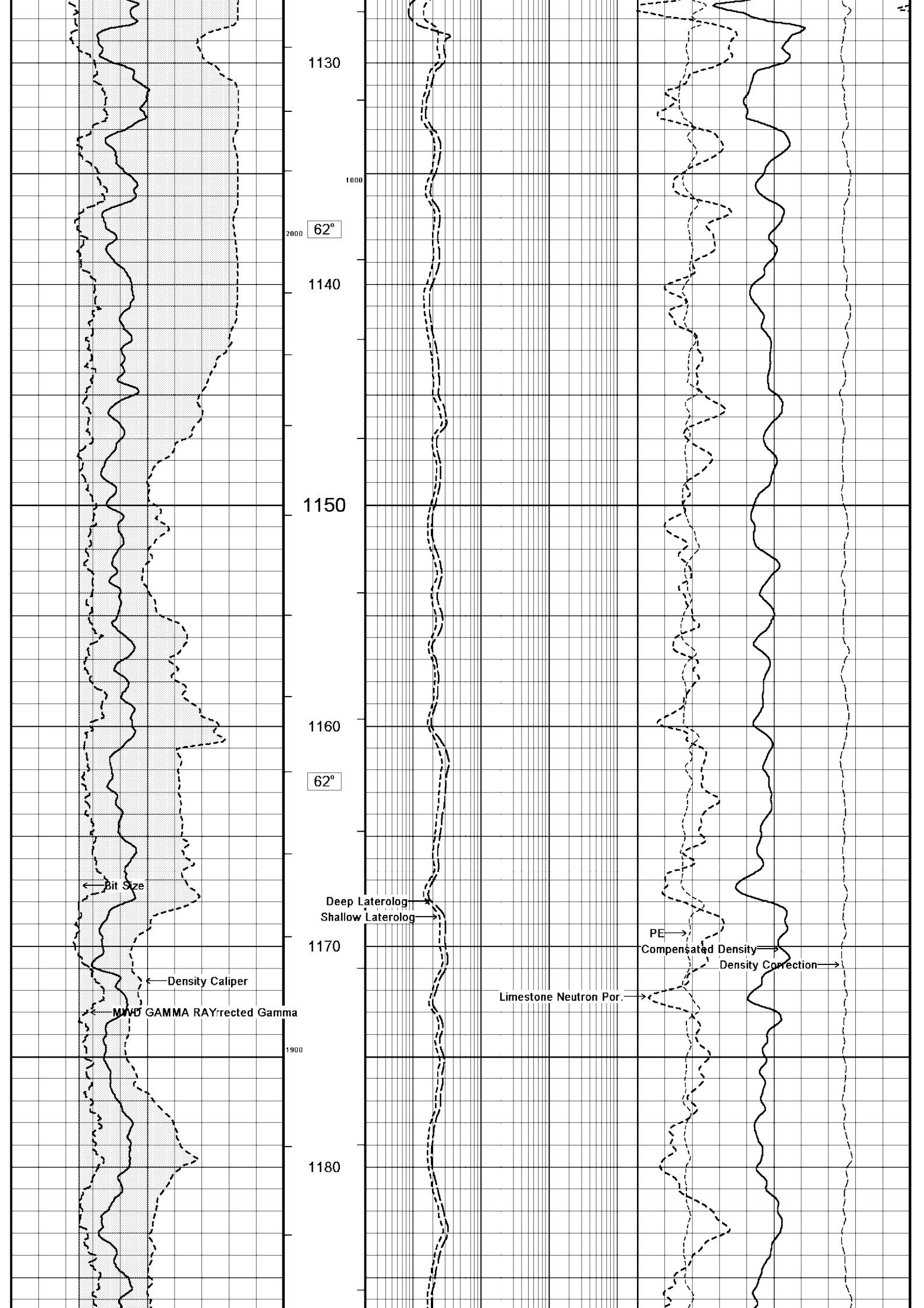
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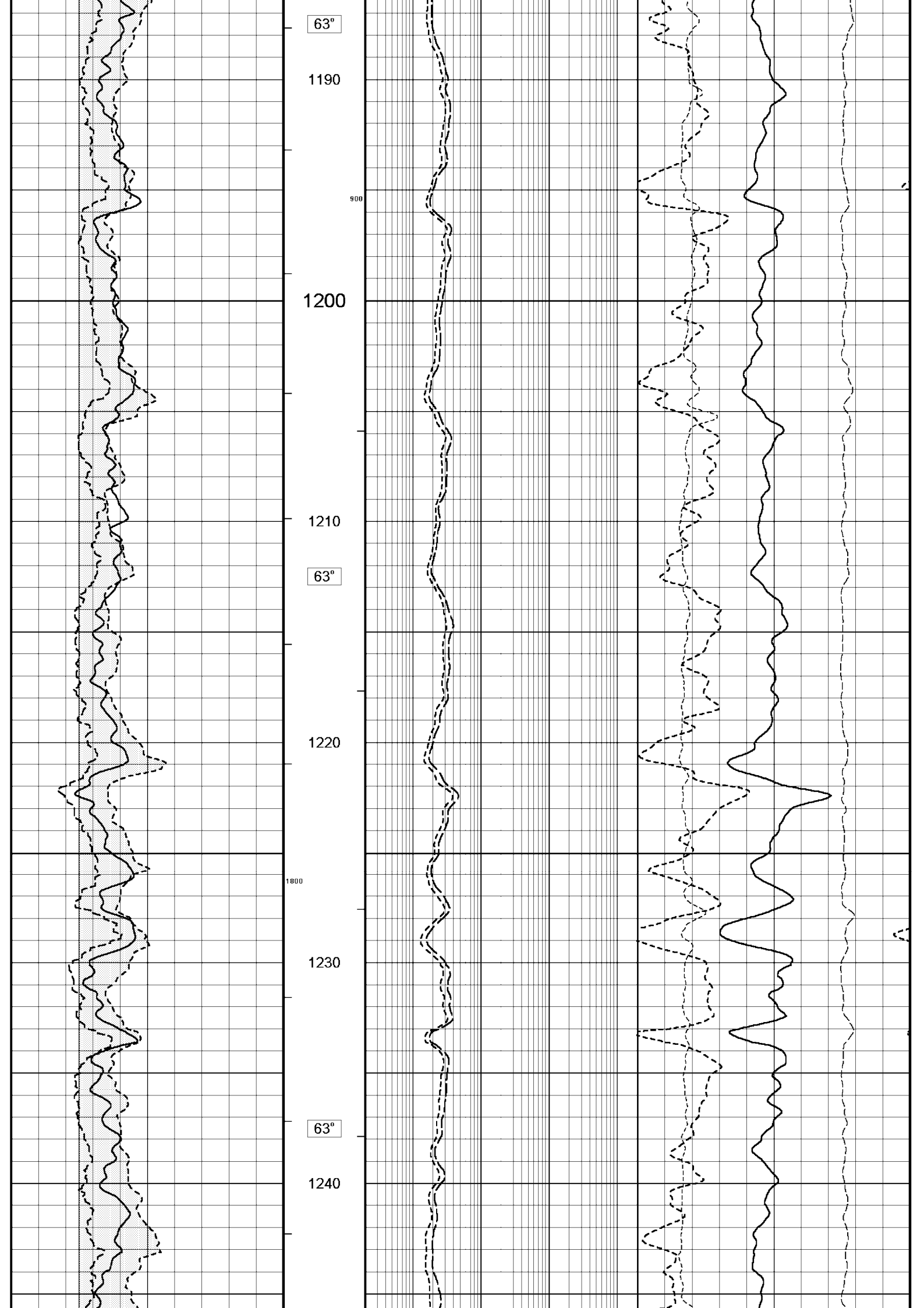
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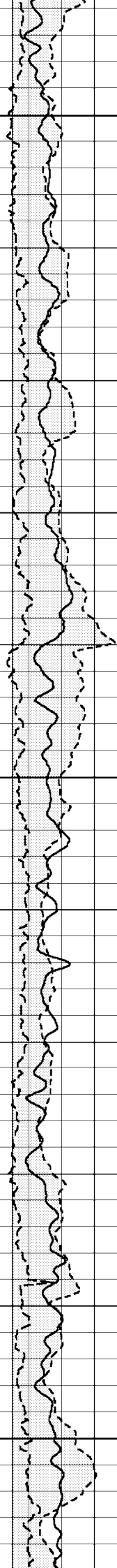
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System Configuration Dates: Logged 17-JUN-2004: Processed 17-JUN-2004: Plotted 17-JUN-2004:









1250

1260

63°

1270

1280

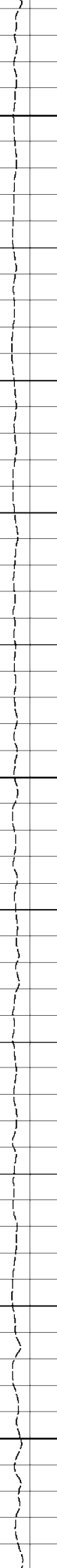
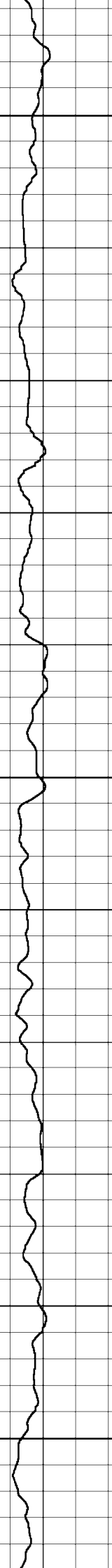
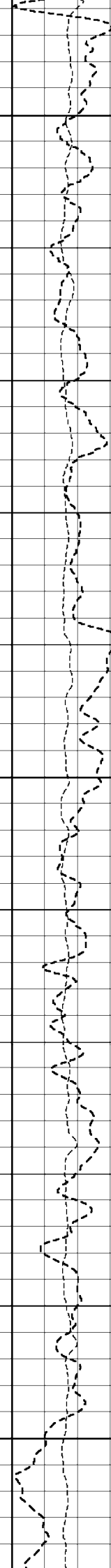
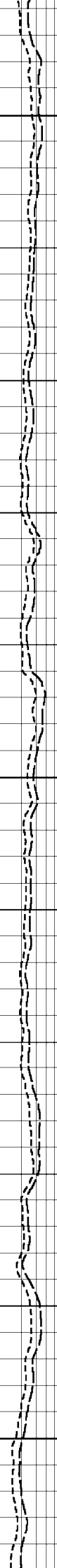
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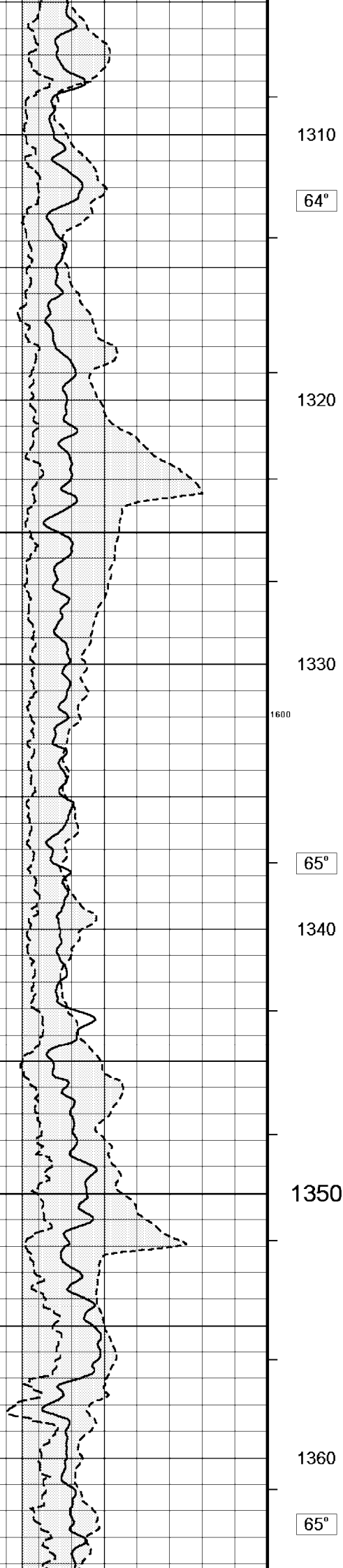
64°

1290

1300

800





1310

64°

1320

1330

1600

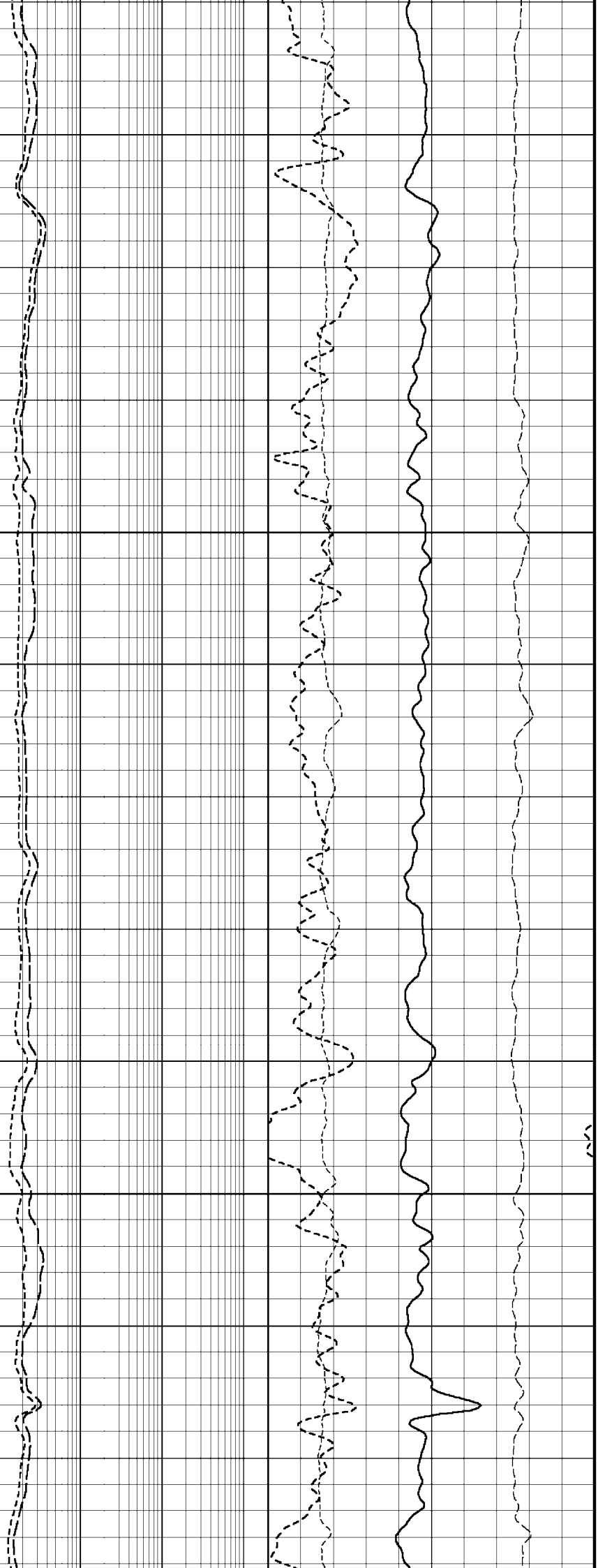
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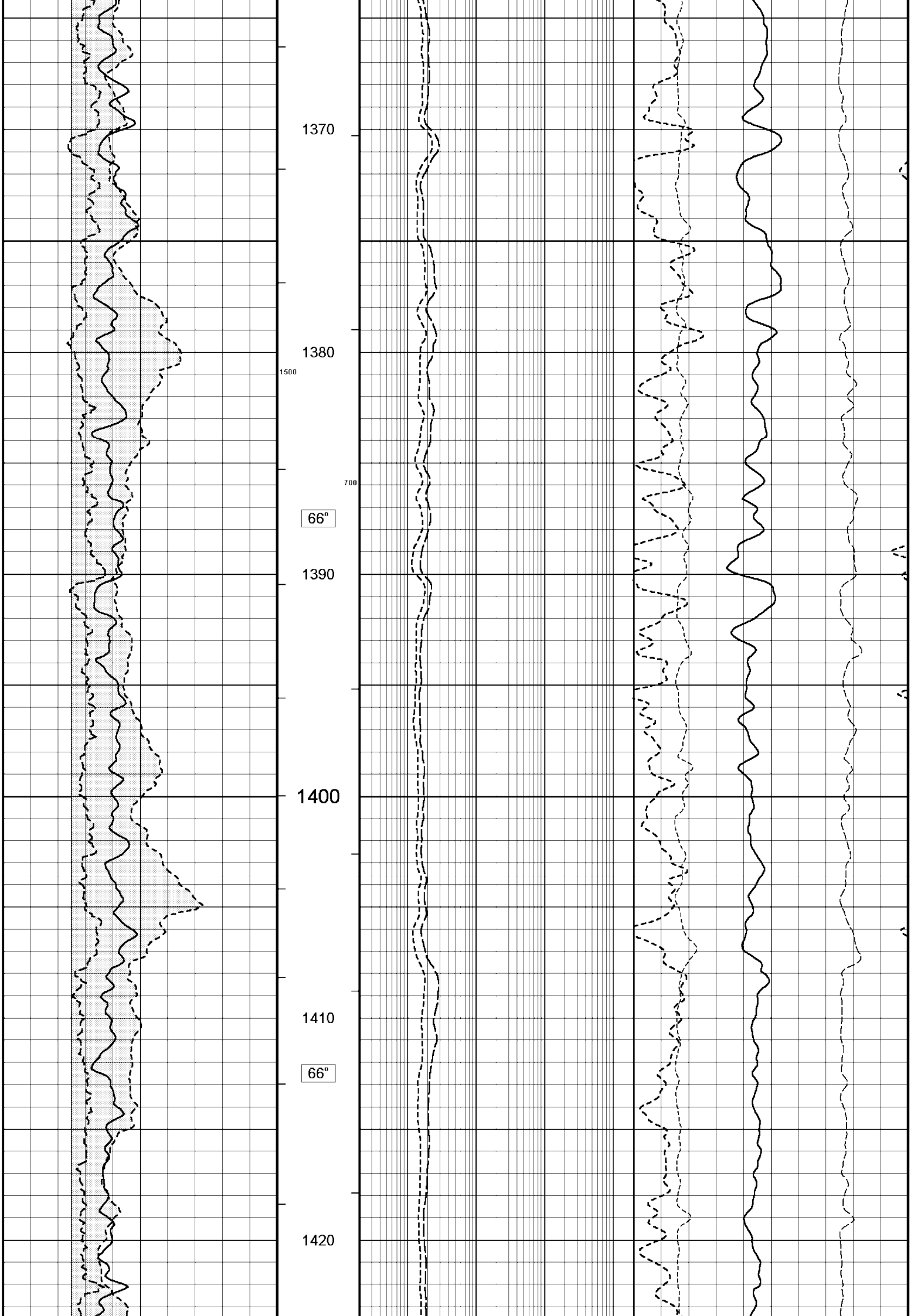
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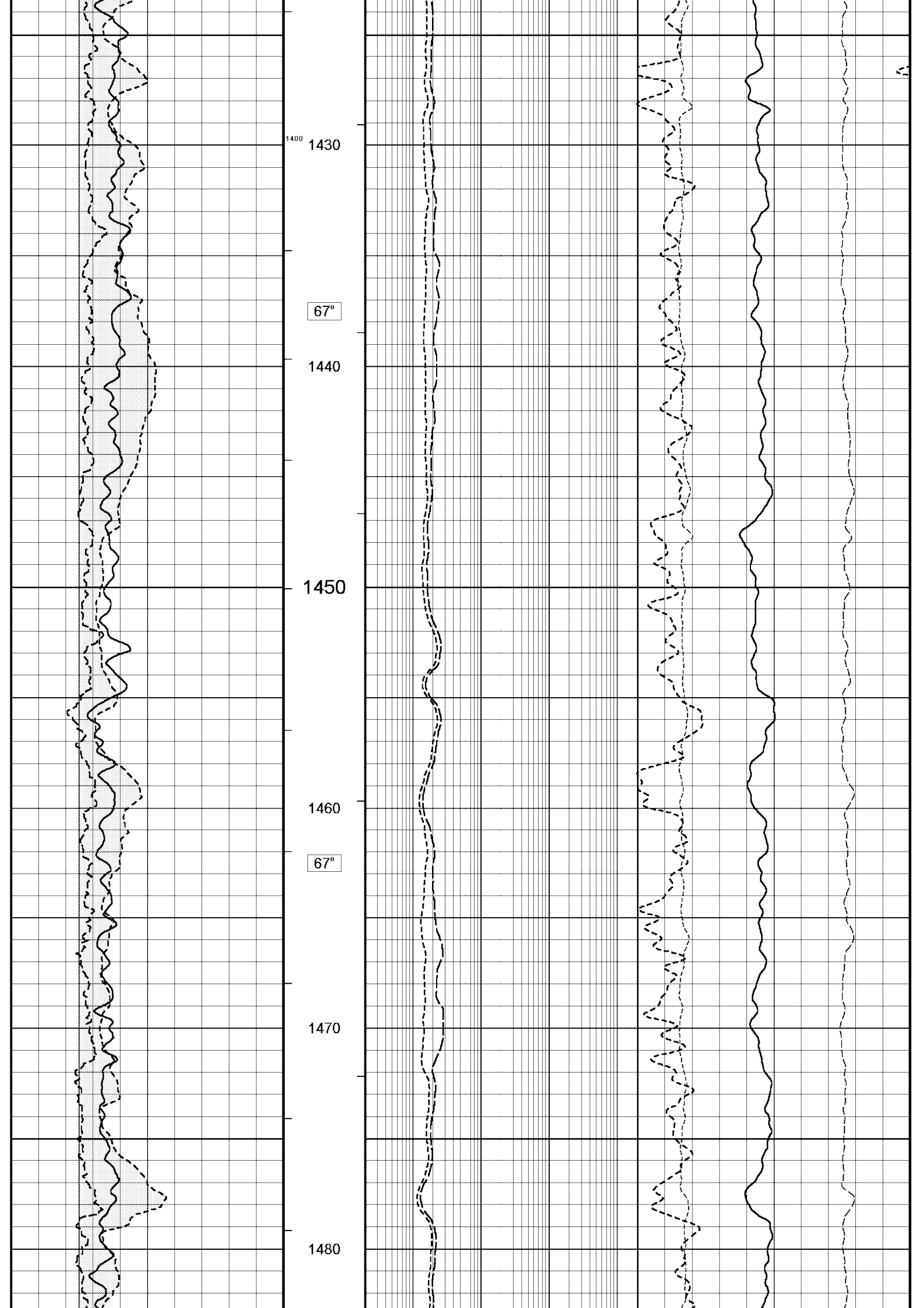
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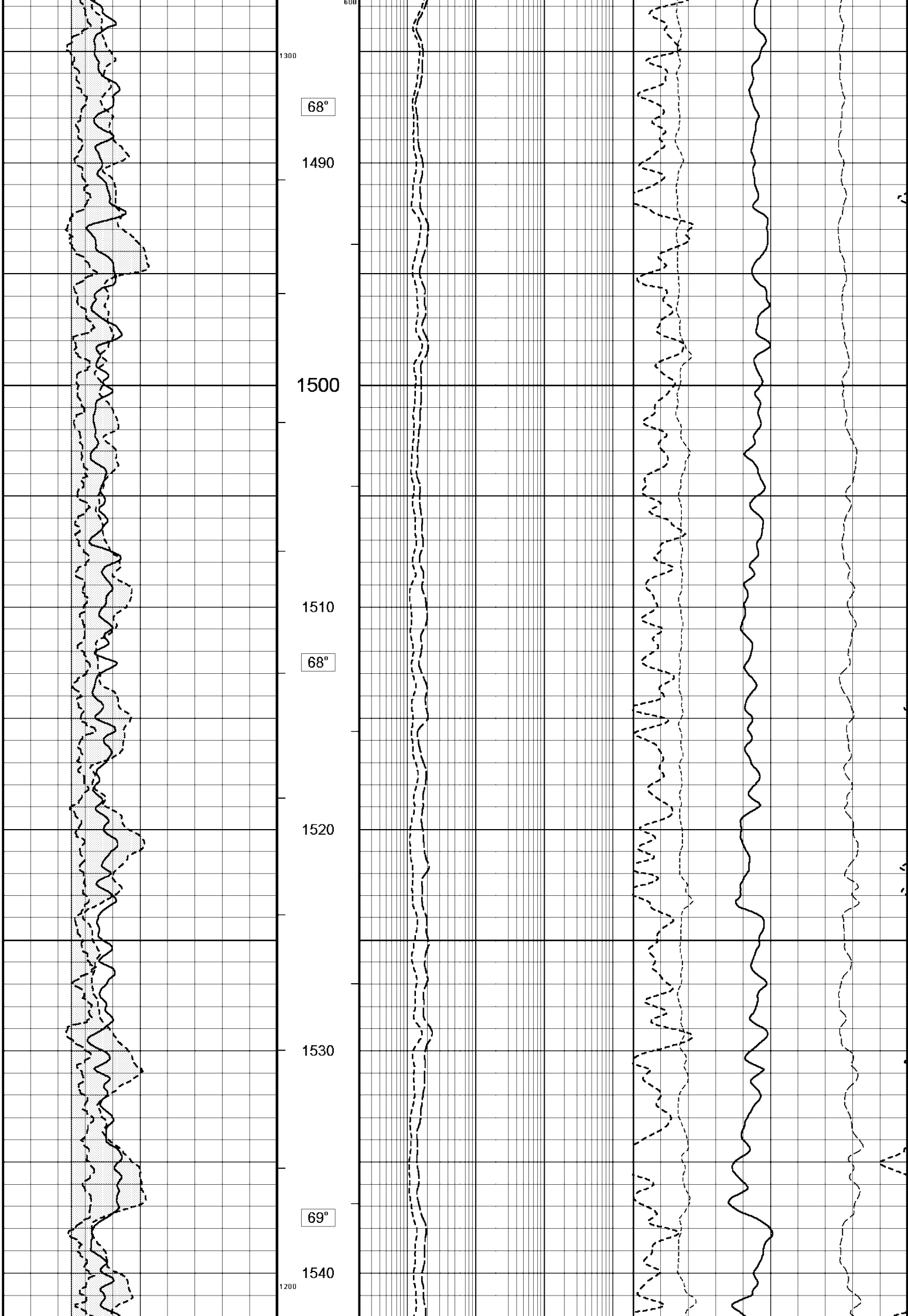
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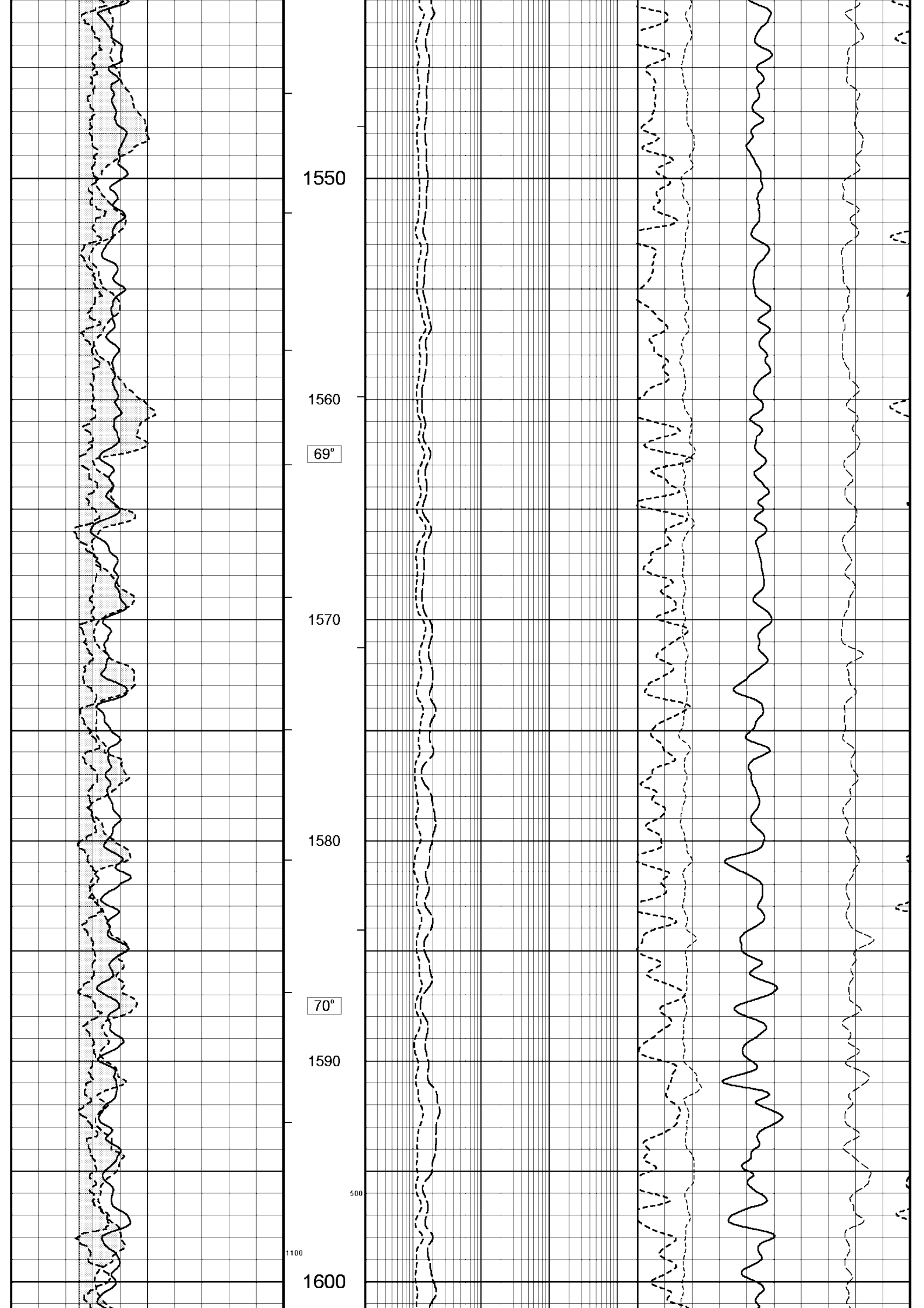
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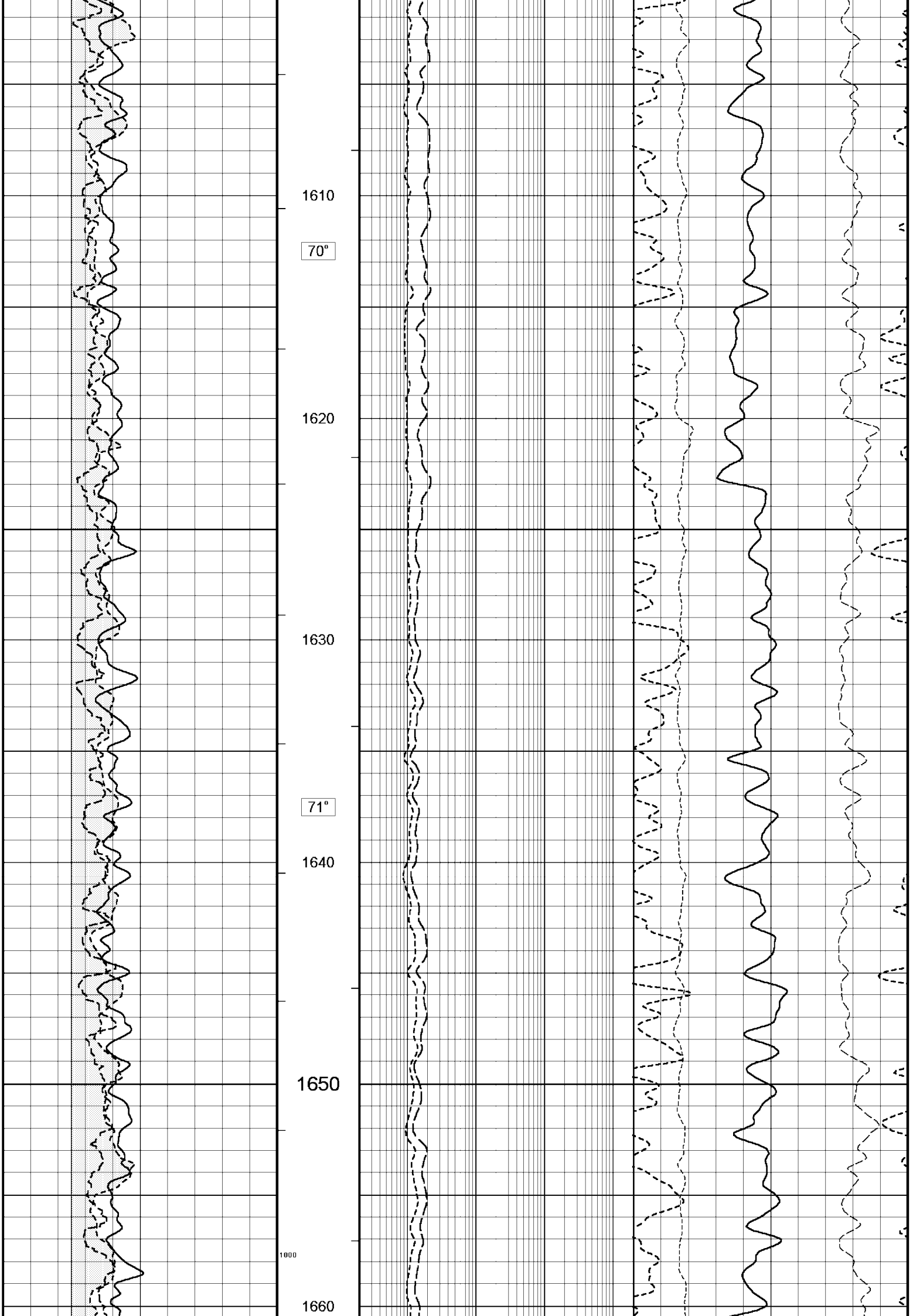


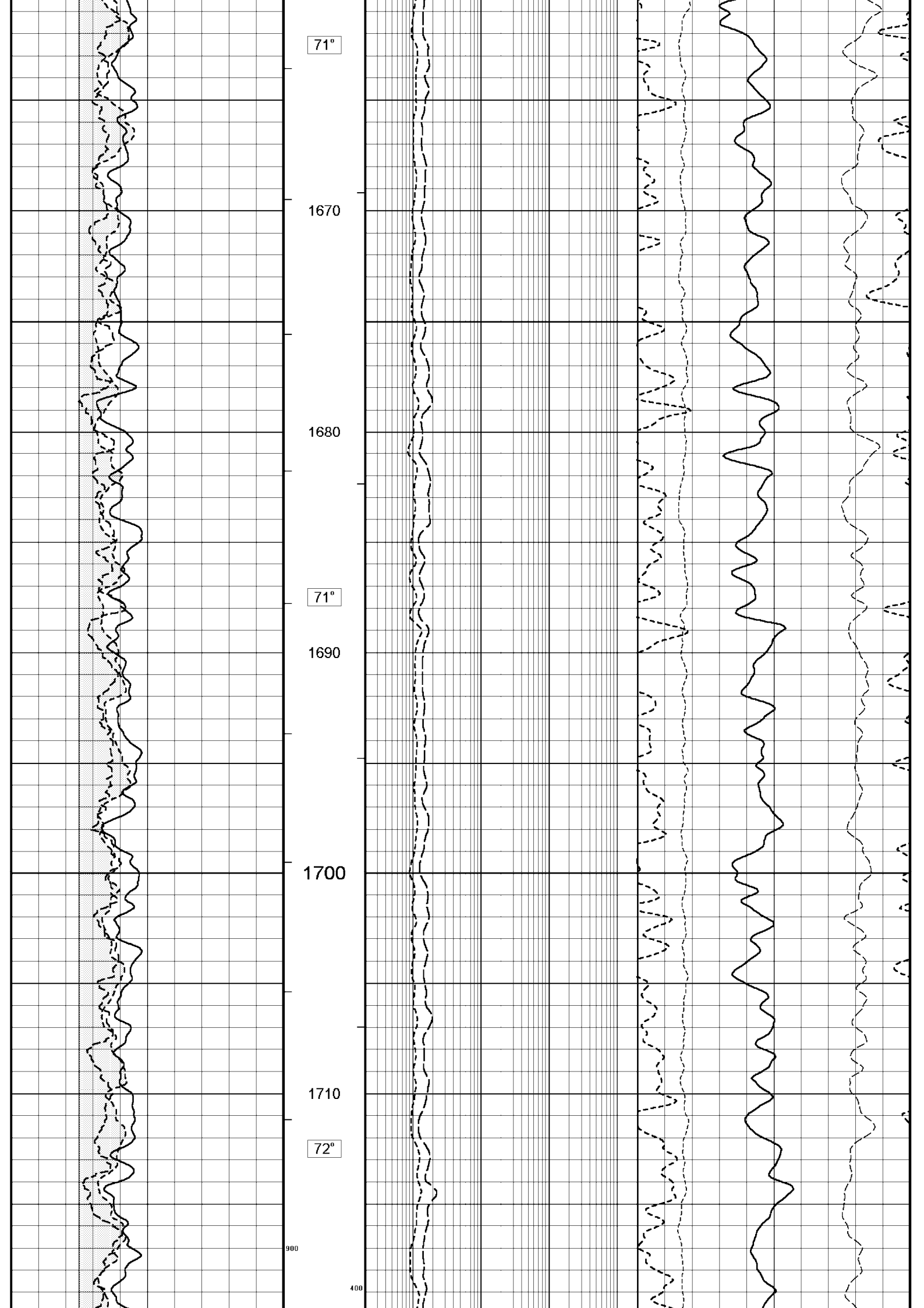


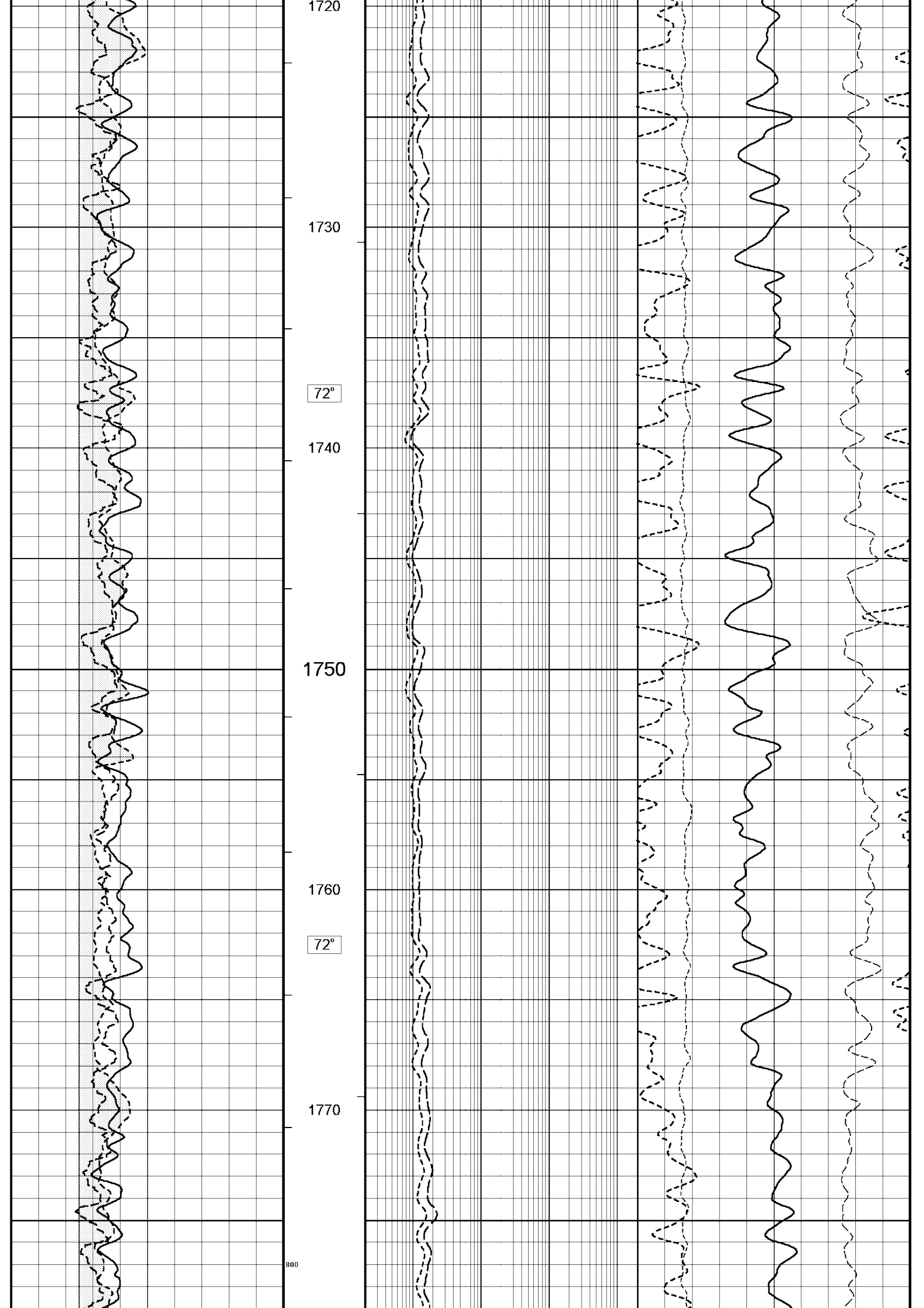


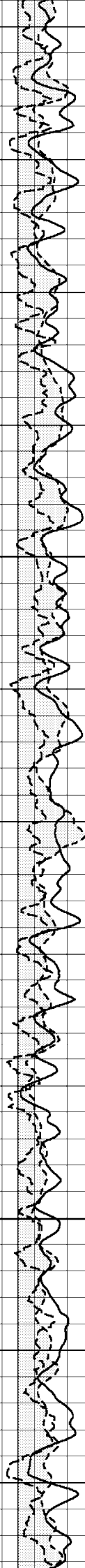




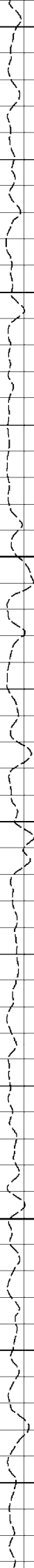
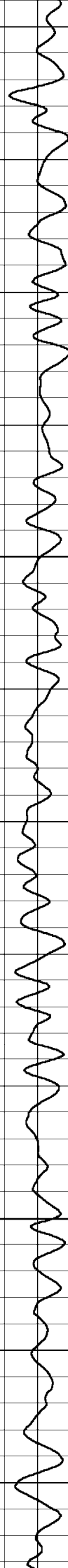
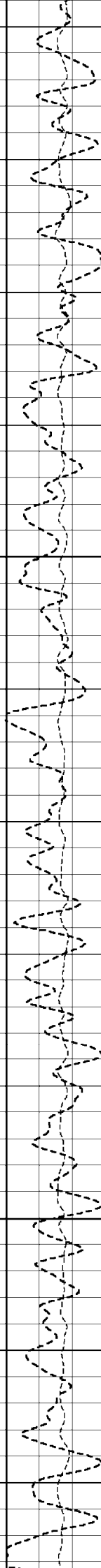
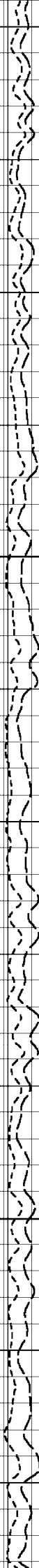


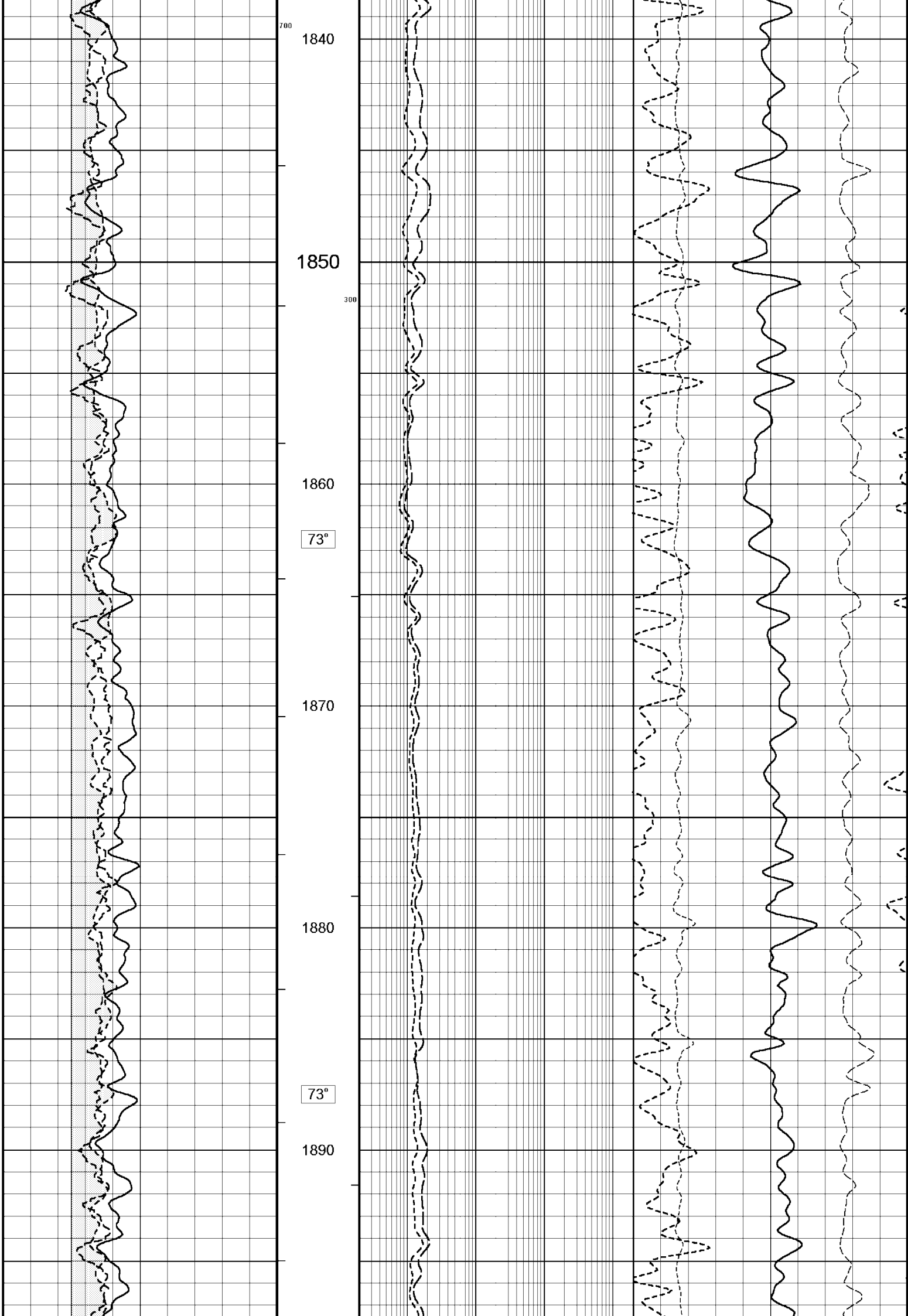


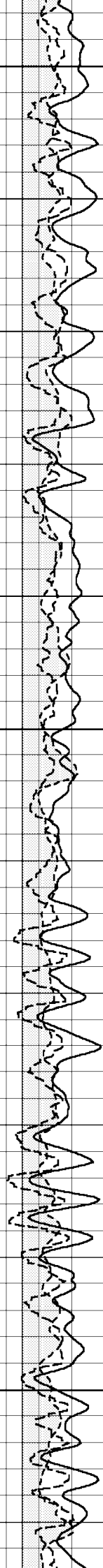




1780
72°
1790
1800
1810
73°
1820
1830
73°







600

1900

1910

73°

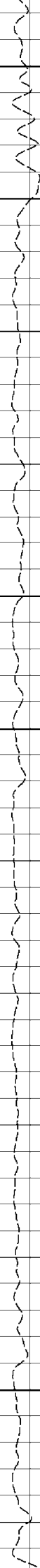
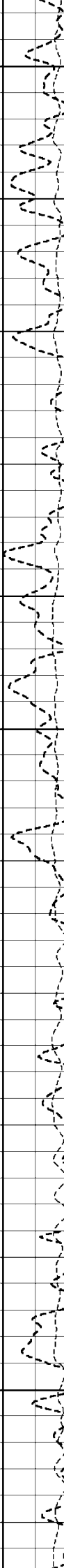
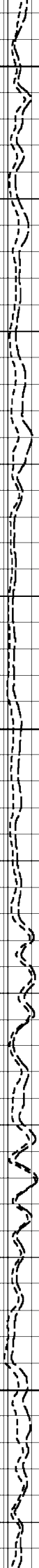
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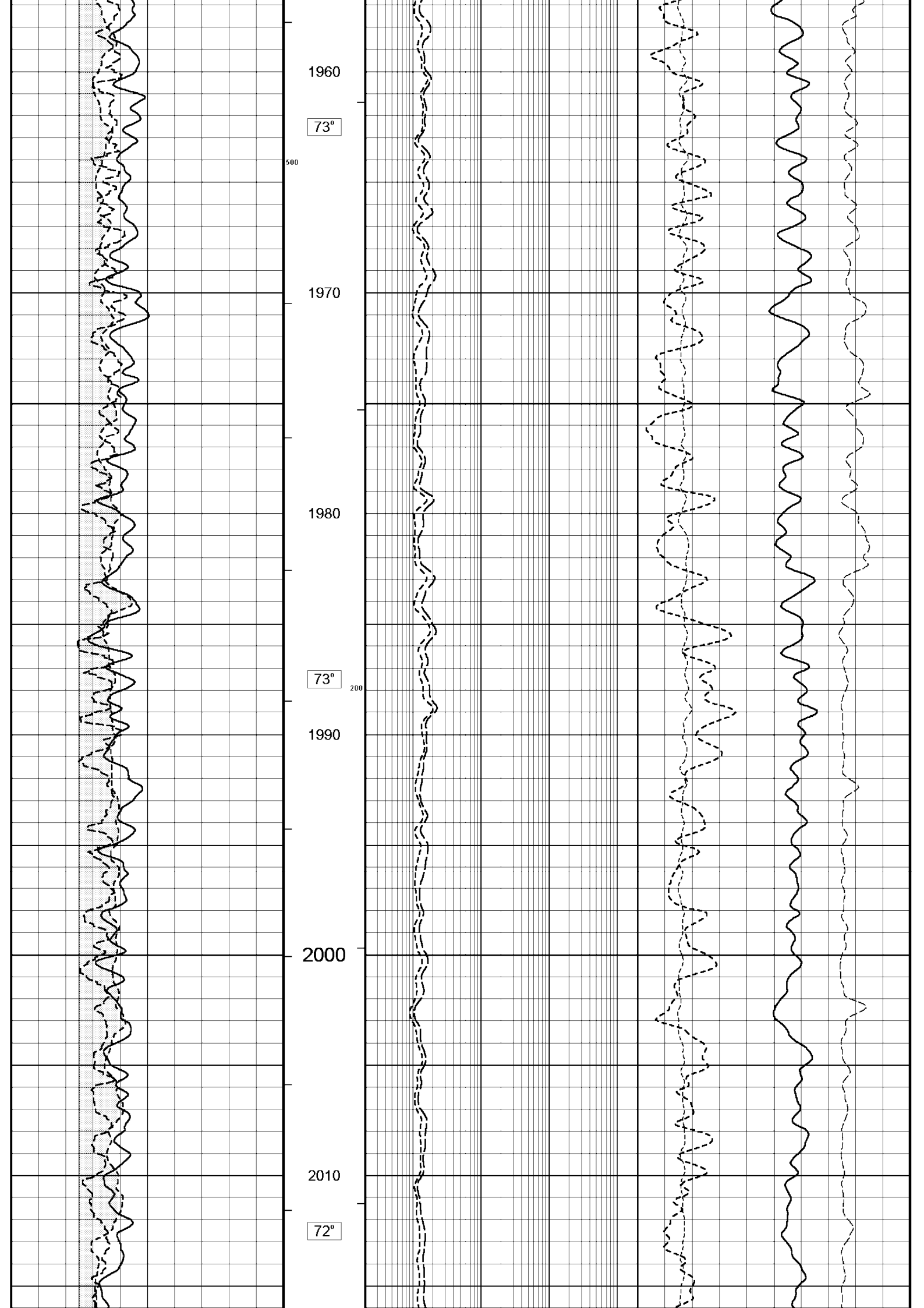
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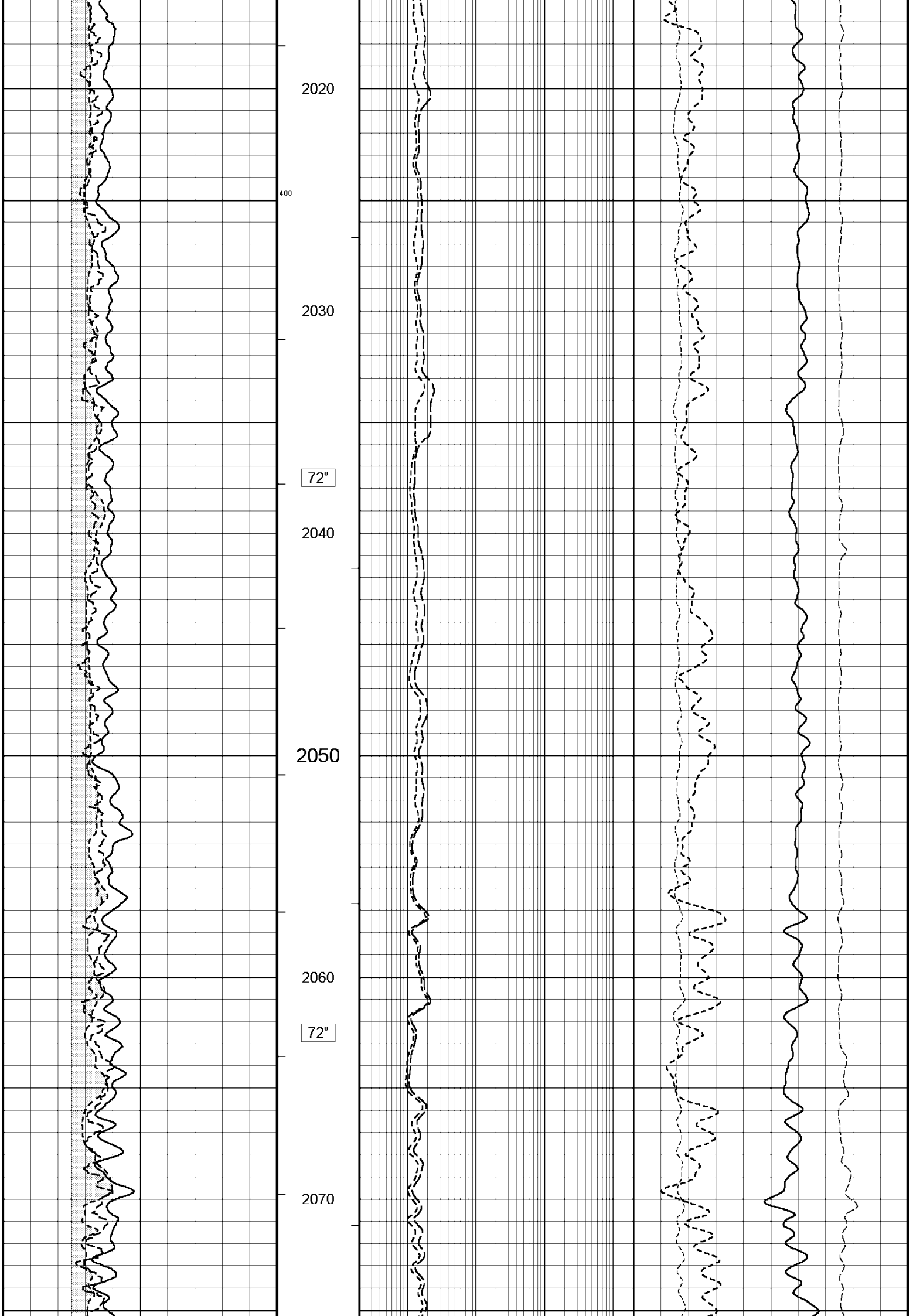
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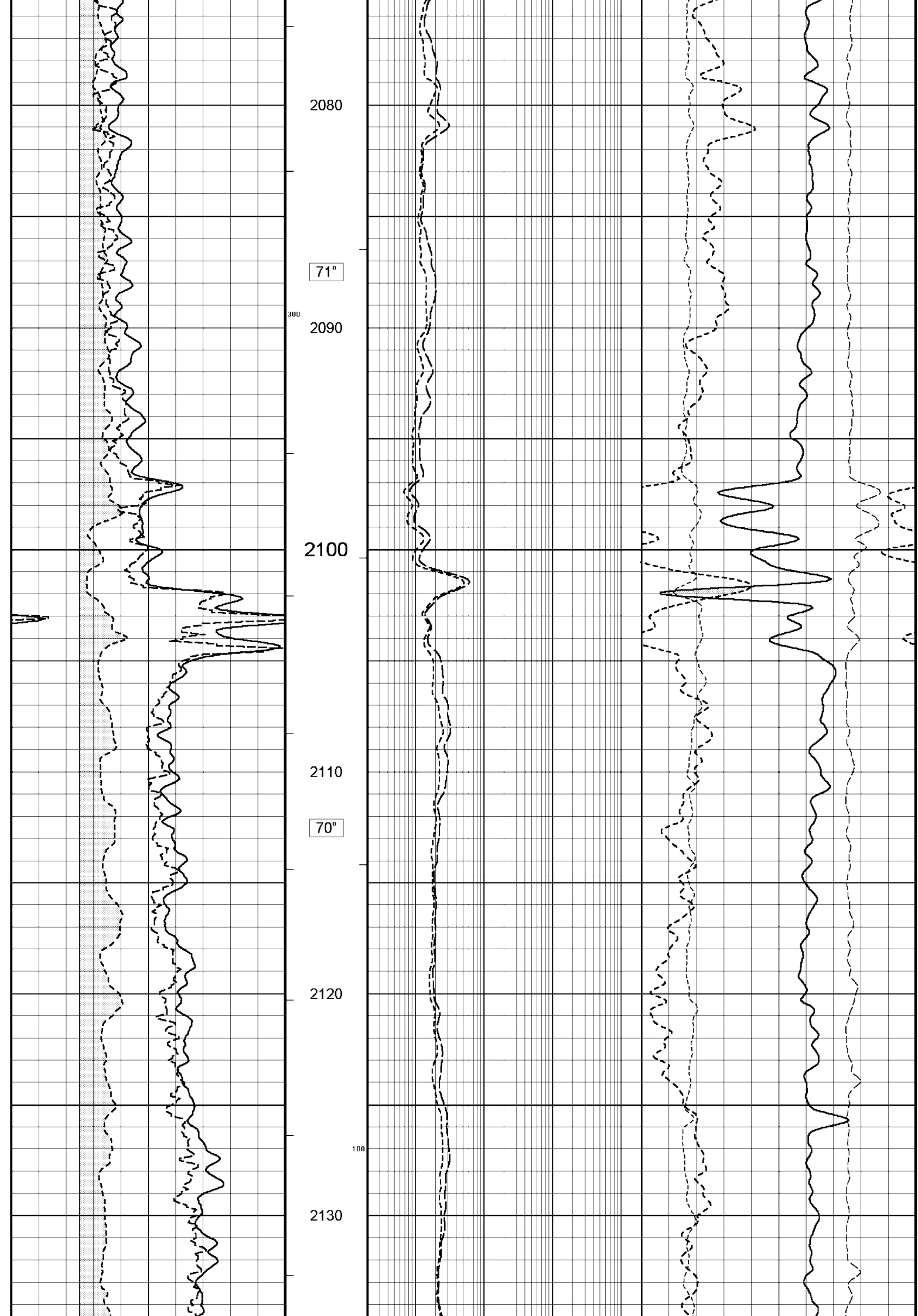
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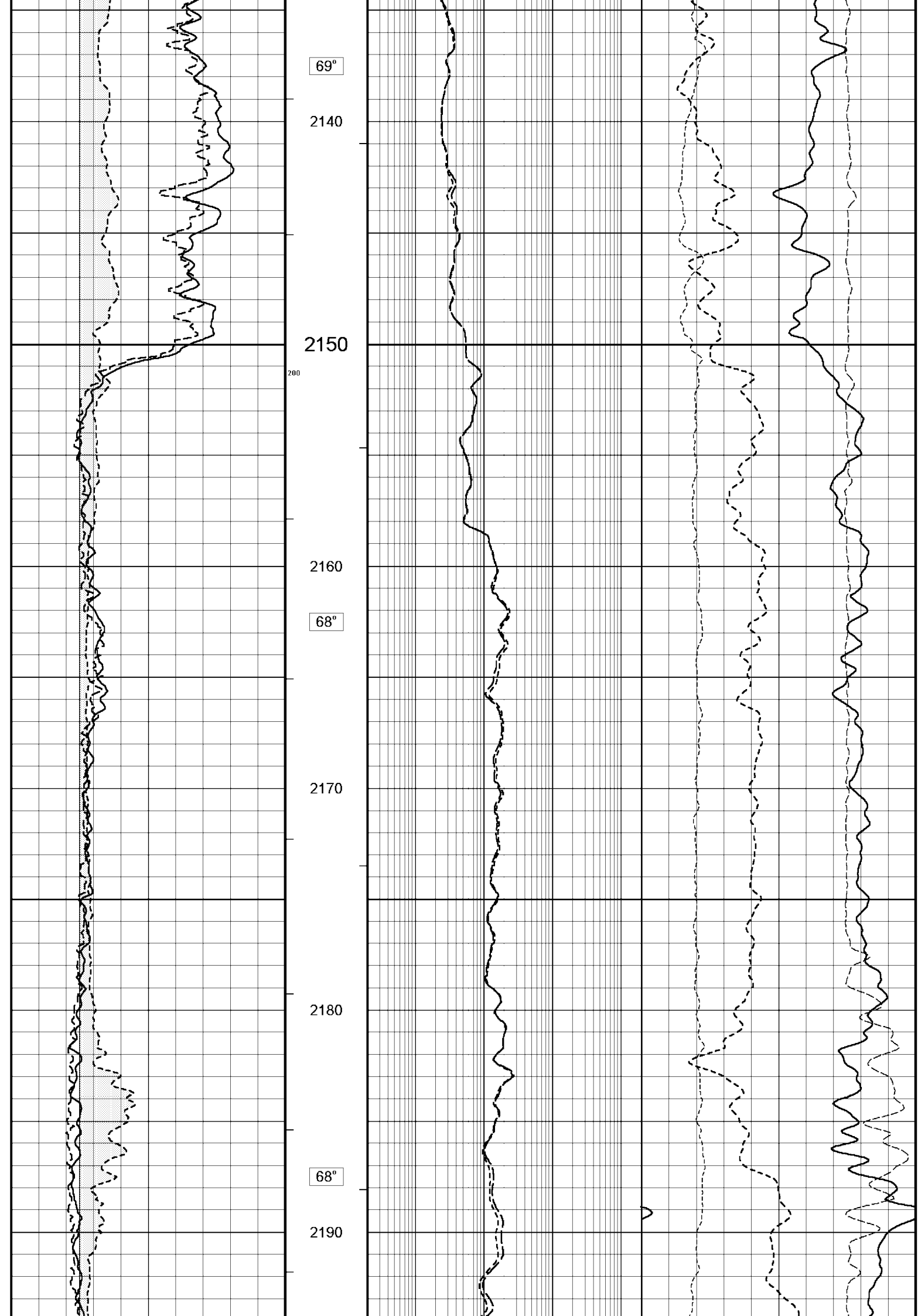
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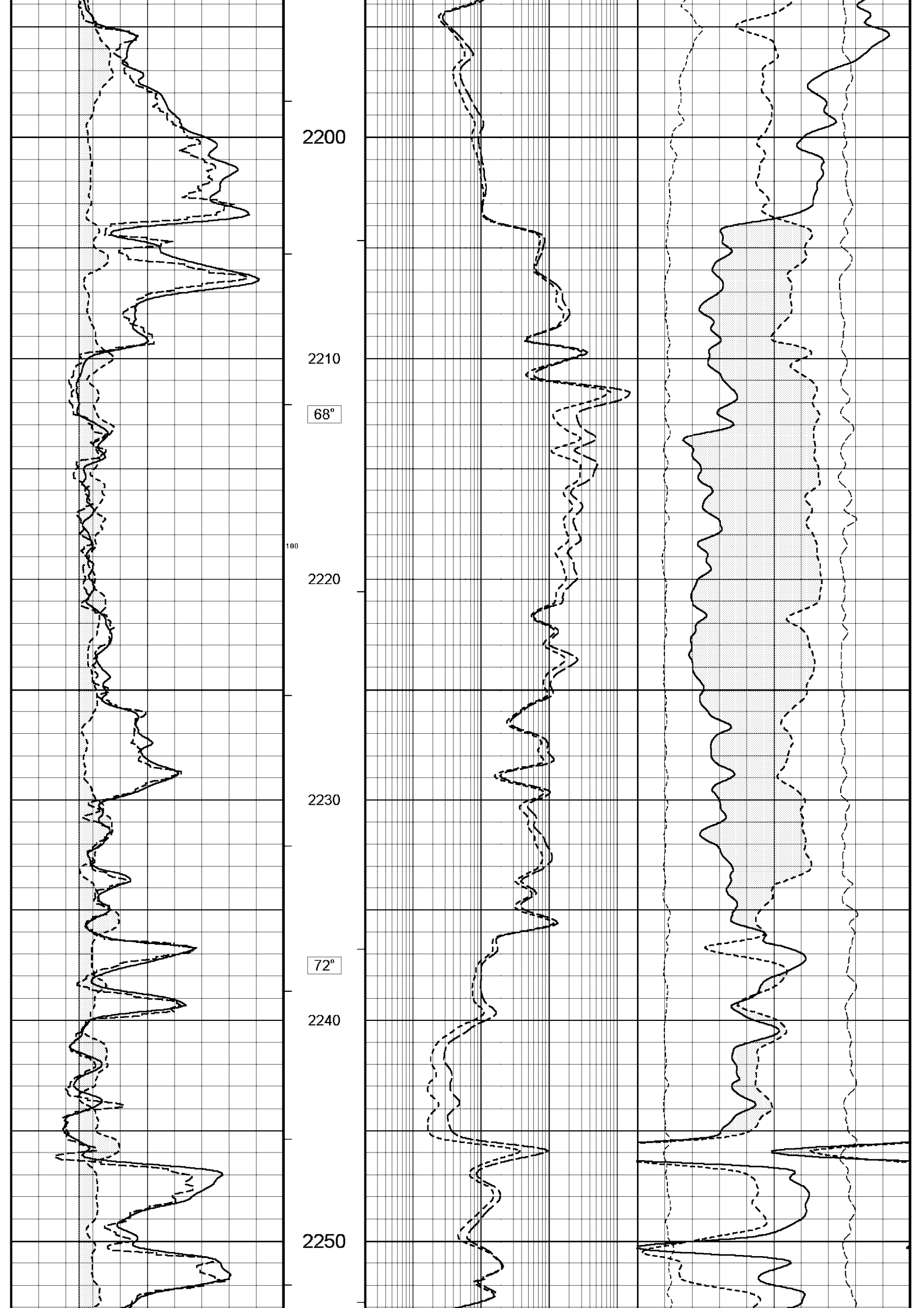


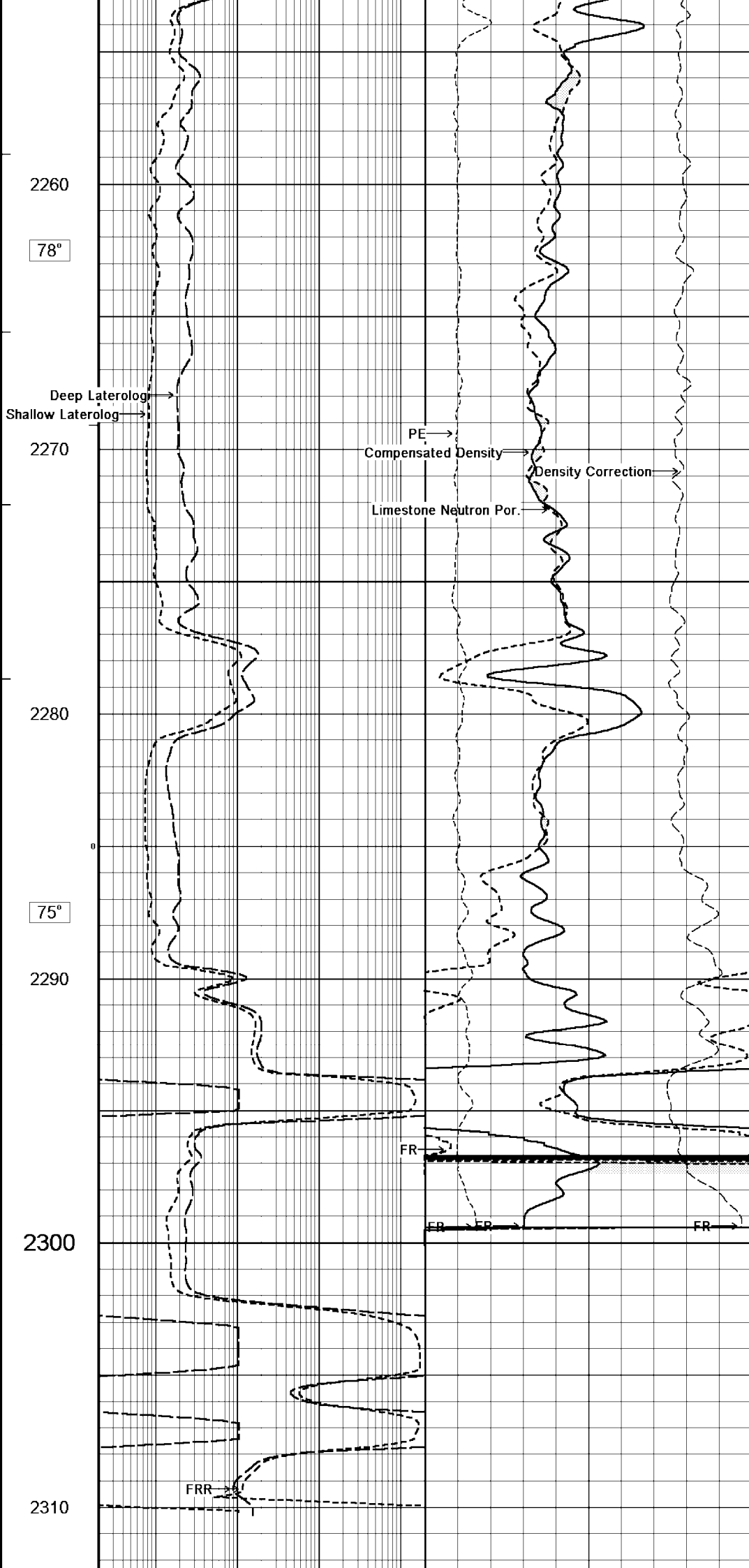
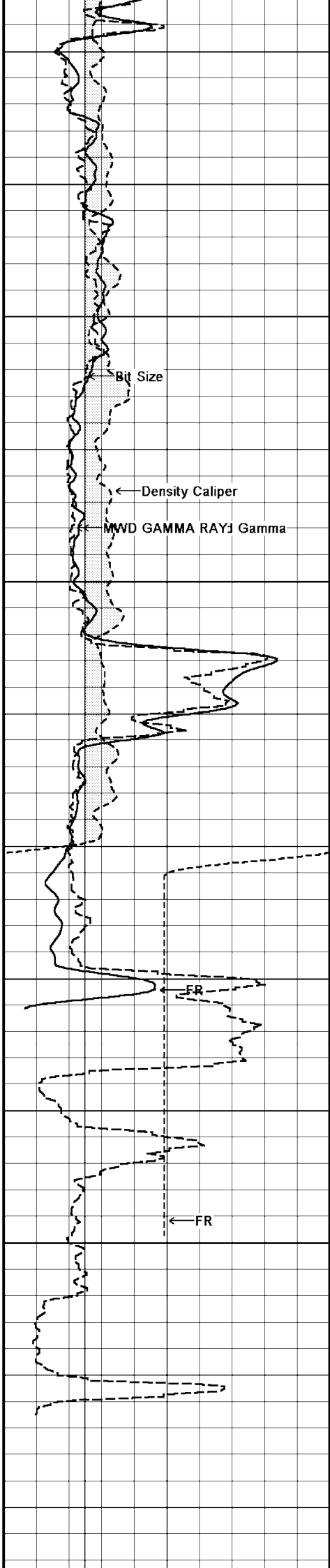












2260

78°

Deep Laterolog

Shallow Laterolog

2270

PE

Compensated Density

Density Correction

Limestone Neutron Por.

2280

0

75°

2290

FR

FR

FR

FR

FR

2300

FRR

2310

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		
	Measured	Calibrated(Deg C)
Lower	0.00	0.00
Upper	100.00	100.00
Field Calibration on 15-OCT-2005,21:40		
High Resolution Temperature Constants MCG 142		
Pre-filter Length	11	
SP Calibration MCG 142		
	Measured	Calibrated (mV)
Reference 1	1575.0	1575.0
Reference 2	-1575.0	-1575.0
Field Calibration on 15-OCT-2005,21:40		
Gamma Calibration MCG 142		
	Measured	Calibrated (API)
Background	17	11
Calibrator (Gross)	1371	920
Calibrator (Net)	1354	909
Field Calibration on 15-OCT-2005 21:45		
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		Base Calibration on 11-OCT-2005 15:07 Field Check on 15-OCT-2005 23:06
	Measured	Calibrated (cps)
	Near Far	Near Far
	3173 99	3714 110
Ratio	32.004	33.764
Field Calibrator at Base		Calibrated (cps)
		1581 2284
Ratio		0.692
Field Check		Calibrated (cps)
		1585 2352
Ratio		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					
		952.6	1102.7		
Field Check					
		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					
	179.3	818.3			
Field Check					
	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		
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

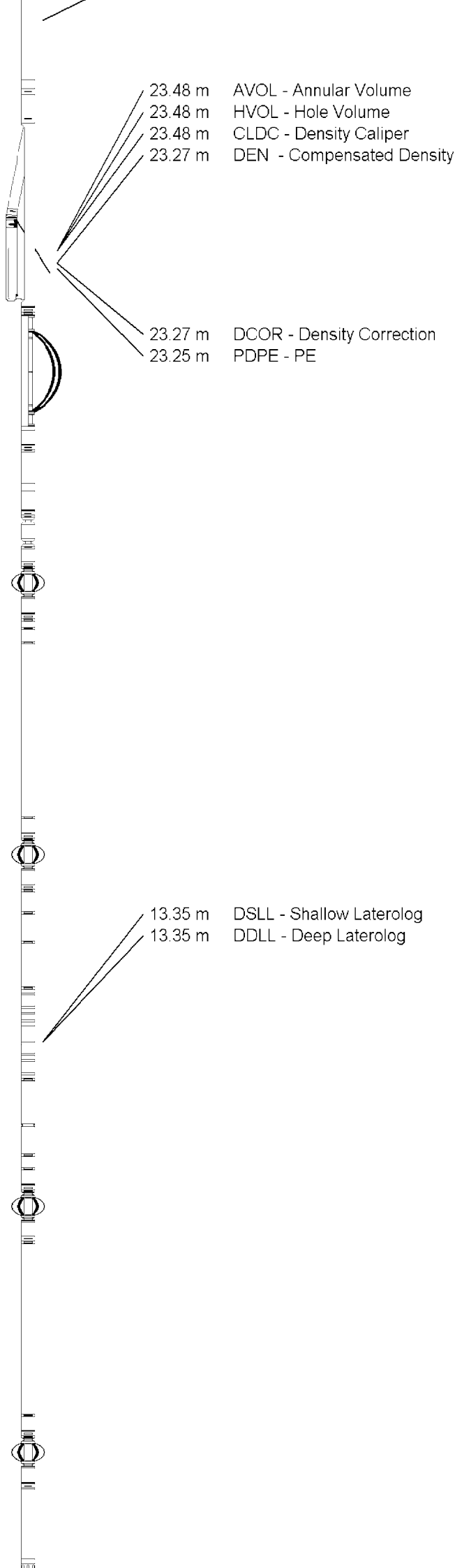
Compact Laterolog Electrode Sub.
MLE 31 Length: 3.76 m Weight: 92.6 lb

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



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	2309.30	metres
Elevation Drill Floor 32.82	metres	Depth Driller	2326.00	metres
Elevation Ground Level -59.40	metres	Depth Logger	2323.10	metres



DUAL LATEROLOG - GR
DENSITY - NEUTRON
1:200 MD