

Tucker
WIRELINE SERVICES

DUAL INDUCTION
RESISTIVITY LOG

File No. : TUL-56726
Company : LARSON ENGINEERING INC.
Well : ELDRIDGE #4-32
Field :
County : WABAUNSEE
State : KANSAS
Country : USA

Location : API#: 15-197-20286
1867' FNL & 2131' FWL
SW-NE-SE-NW

Sect : 32 Twp : 14S Rge : 10E

Recorded By : R.NITZ
Witnessed By : L. NICHOLSON

Date : OCT 24 2010
Run No. : 1

Permanent Datum : GL
Drilling Measured From : KB
Log Measured From : KB
Above Permanent Datum : 10.00 FT

Depth--Driller : 3448.0 FT
Depth--Logger : 3449.0 FT
Bottom Log Interval : 3448.0 FT
Top Log Interval : 312.0 FT

Casing Depth--Driller: 312.0 FT
Casing Depth--Logger : 312.0 FT
Casing Diameter : 8.625 IN

Bit Size : 7.875 IN
Unit No. : 127
Location : TULSA

Elevations :
KB : 1510.00 FT
DF : FT
GL : 1500.00 FT

Additional Services

CNT
LDT
MLT

The customer is hereby warned that by providing the log data herein, T. W. S. does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. T. W. S. does not guarantee or warrant either expressly or impliedly, the accuracy of any interpretation of log data, conversion of log data to physical rock parameters or recommendations which may be given by T. W. S. personnel. Any interpretation, conversion or recommendation is not part of the consideration for the agreement between the parties and is not part of any part of the charge by T. W. S. for its services. Any user of the log data is warned that said user is not entitled to rely on interpretations, conversions or recommendations as aforesaid.

Run Number 1

Depth To Fluid 0.0 FT
Fluid Type In Hole : WBM
Density : 9.400 SG
Viscosity : 54.000 SEC
pH : 8.000
Fluid Loss : 9.000
Salinity : 1800.000 KPPM

RM Source : MEASURED
RM : 1.400 OHMM at 69 F
RM at BHT : 0.890 OHMM at 108 F

RMF Source : CALCULATED
RMF : 1.050 OHMM at 69 F
RMF at BHT : 0.670 OHMM at 108 F

RMC Source : CALCULATED
RMC : 1.000 OHMM at 69 F

RMC :	1.000	OHMM at	69	F
RMC at BHT :	0.810	OHMM at	108	F
Max Recorded Temp. :			108	F
Time Circulation Stopped :				
Operating Rig Time, Hrs. :			2.0	

- Source Serial Numbers -

Gamma	CSV-587
Neutron	N-1044

- Sonde Serial Numbers -

GRTB	GRT-BA-14
CNT	CNP-AA-116
LDTNG	LDP-NG-02
MSTNG	MST DA- 029
PIT	PIT-AB-14

Casing Strings

Size (IN)	Weight (LB/FT)	Bottom (FT)
8.625	23.00	312.00

- Comments -

ALL PRESENTATIONS AS PER CUSTOMER REQUEST.

GRT, CNT, LDT, MLT, PIT RAN IN COMBINATION
 CALIPERS ORIENTED ON THE X-Y AXIS.
 PHIN IS CALIPER CORRECTED.
 2.71 G/CC USED TO CALCULATE POROSITY.
 ANNULAR HOLE VOLUME CALCULATED USING 5.500" PRODUCTION CASING.
 1 LB/GAL LCM

GRT: GRP.
 CNT: PHIN, CLCNIN.
 LDT: PORL, LCORN, PECLN, CLLDIN, LDENN, PORLLS, PECSN.
 MLT: INV R, NOR R, MSCLPIN.
 PIT: ILD, ILM, CIRD, SFLAEC, SPU.

OPERATORS: S3
 R.AUSTIN

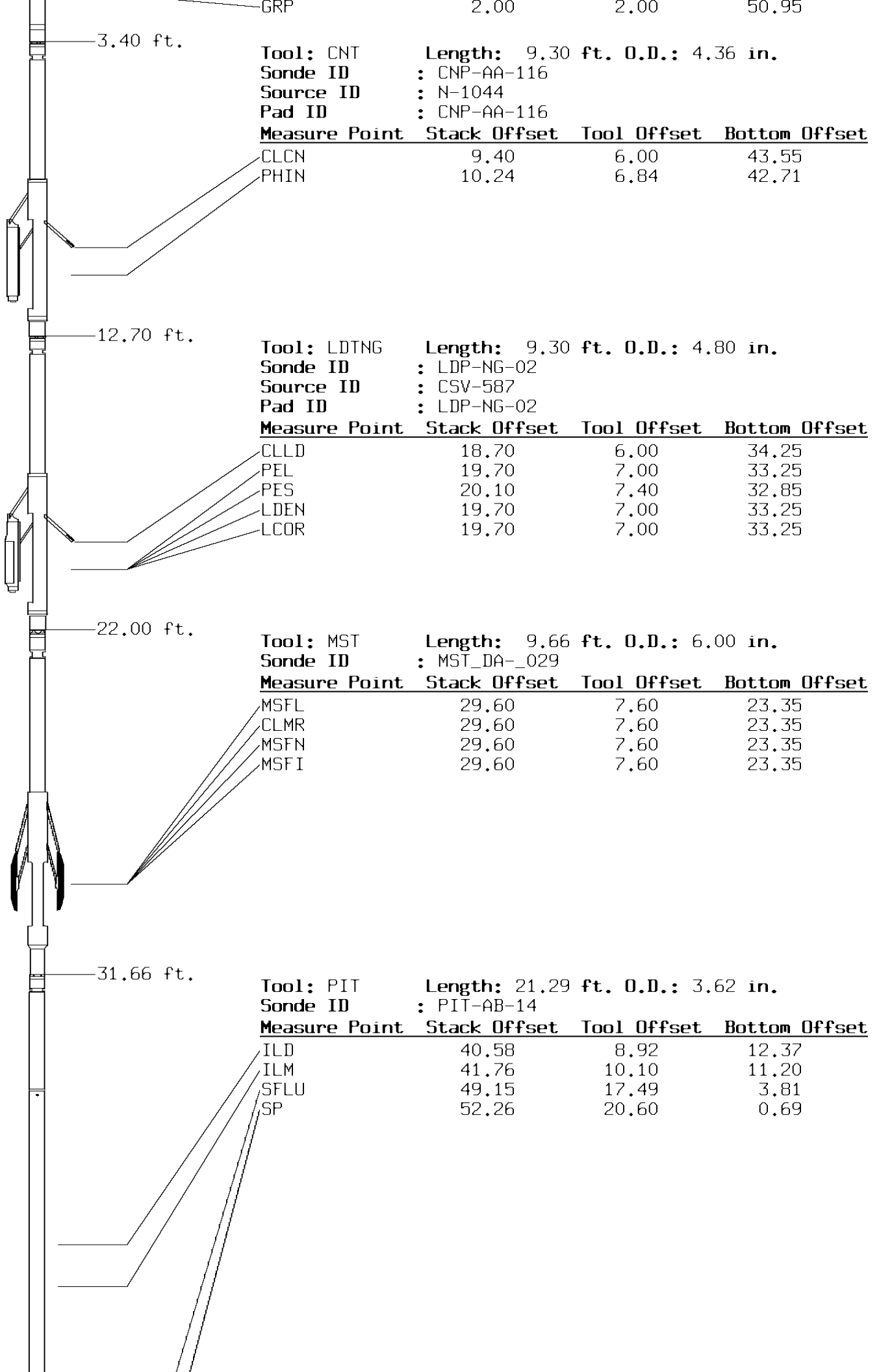
THANK YOU FOR USING TUCKER WIRELINE SERVICES!

Tool String Schematic

Total Tool Length - 52.95 ft.
 Maximum Outside diameter - 6.00 in.
 Net Weight in Air - 943.00 lbs.



Tool: GRTB	Length: 3.40 ft.	O.D.: 3.60 in.
Sonde ID	: GRT-BA-14	
Measure Point	Stack Offset	Tool Offset
GRTB	3.00	3.00
		50.95



LWT 52.95 ft.

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 F

Drill Bit Size_____ 7.875 IN
BHT Depth_____ 3493.000 F
Borehole Temperature_____ 127.0 DEGF
Temperature Gradient_____ 1.00 DFHF
Resistivity Of Mud_____ 0.20 OHMM
Standoff_____ 1.5
Resistivity Of Mud Temperature_____ 50.00 DEGF

TENSION
LBS

10000 0

SPONTANEOUS POTENTIAL
mV

→ | | ← 20

GAMMA RAY
API UNITS

150 300
0 150

SHALLOW FOCUSED RESISTIVITY
OHMM

0.0 500.0
0.0 50.0

DEEP INDUCTION
OHMM

0.0 500.0
0.0 50.0

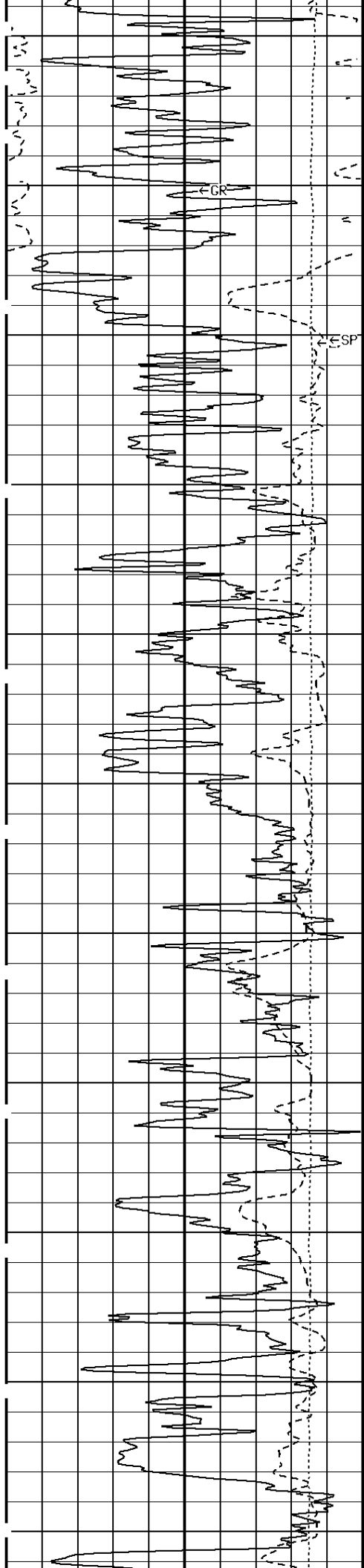
DEEP CONDUCTIVITY
MMHO

2000 1000
1000 0

1:600 SECTION
2 INCH

File #3

300



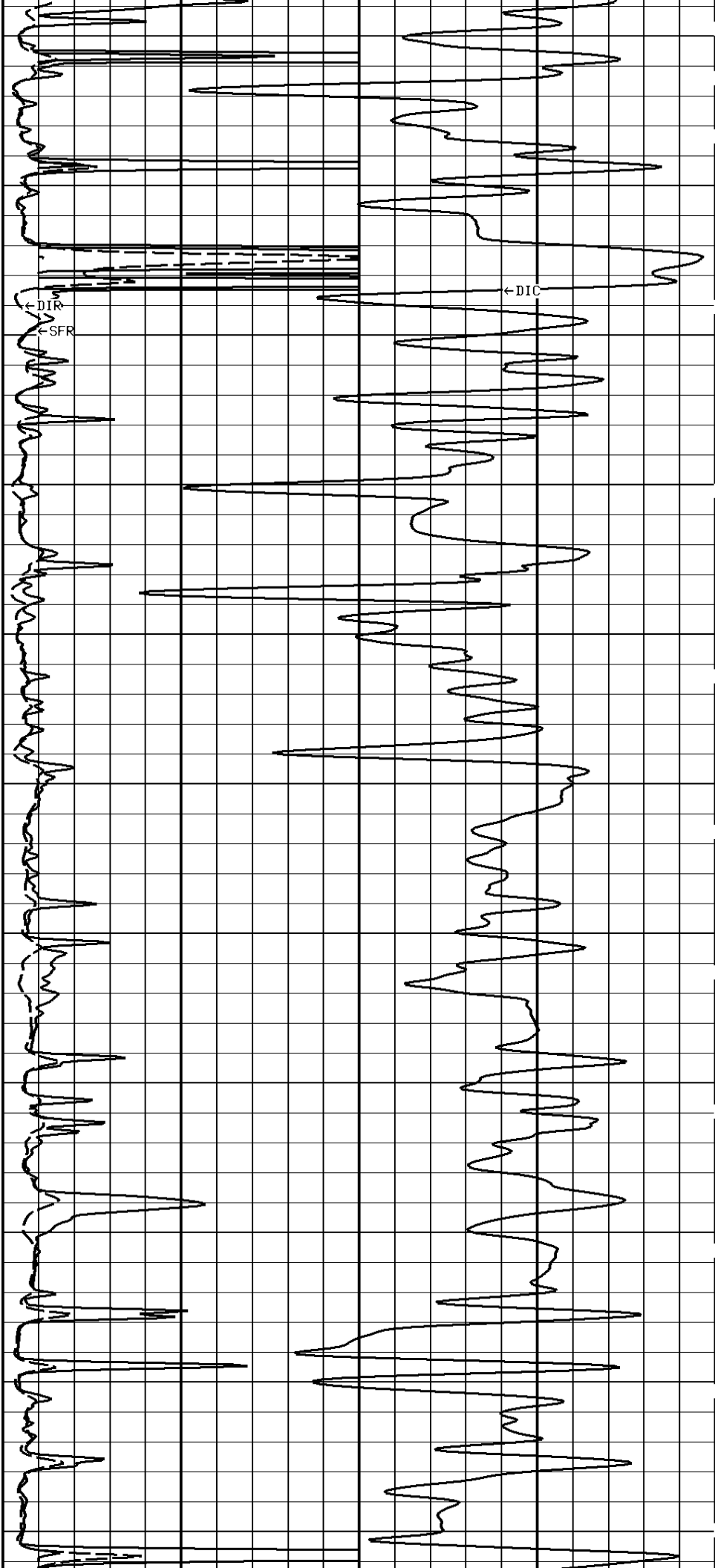
400

500

600

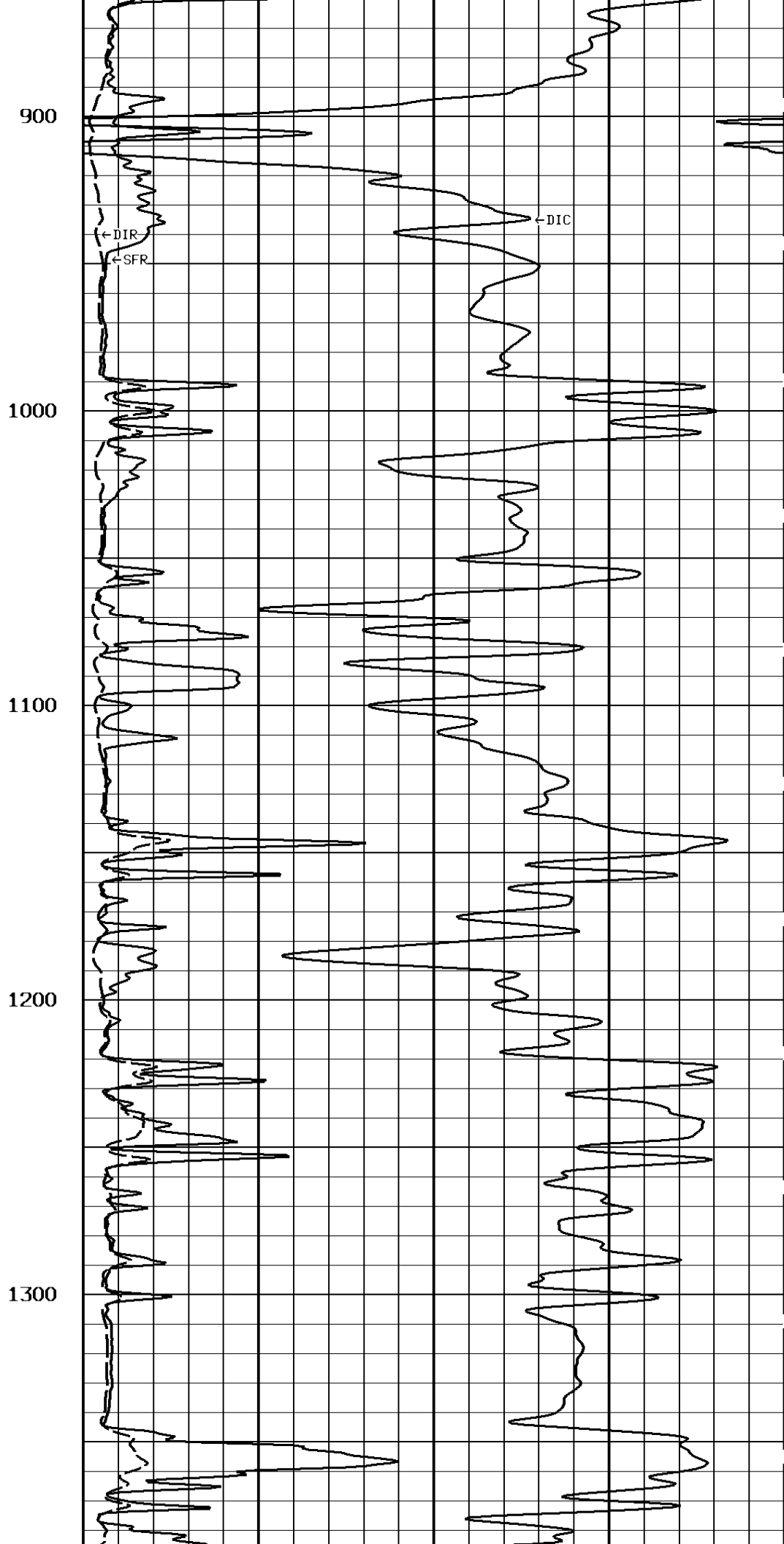
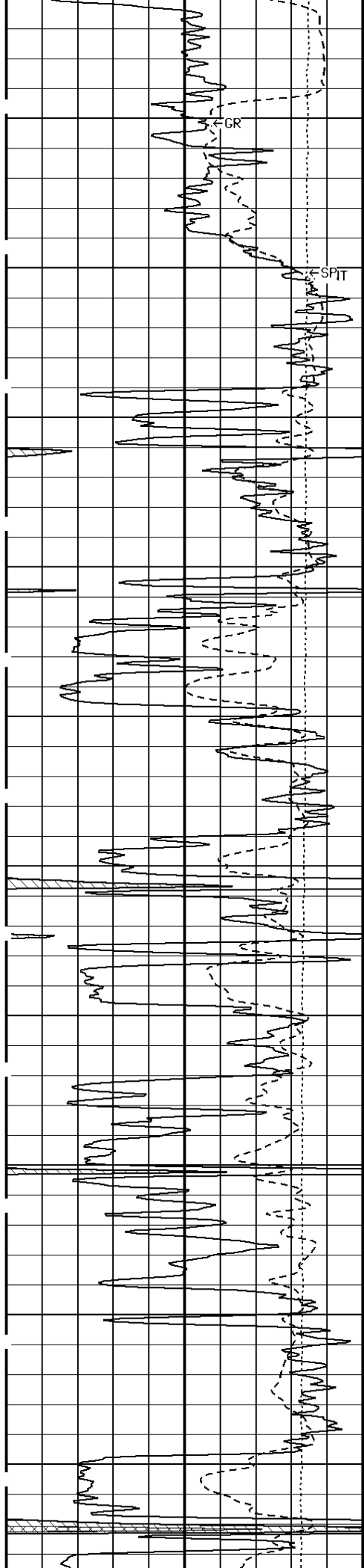
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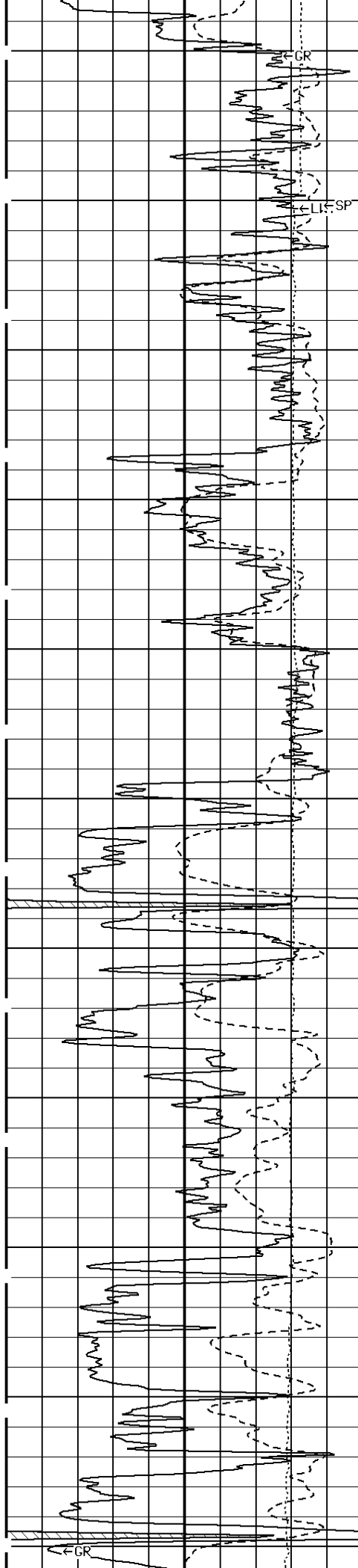
800



← DIR

← SFR





1400

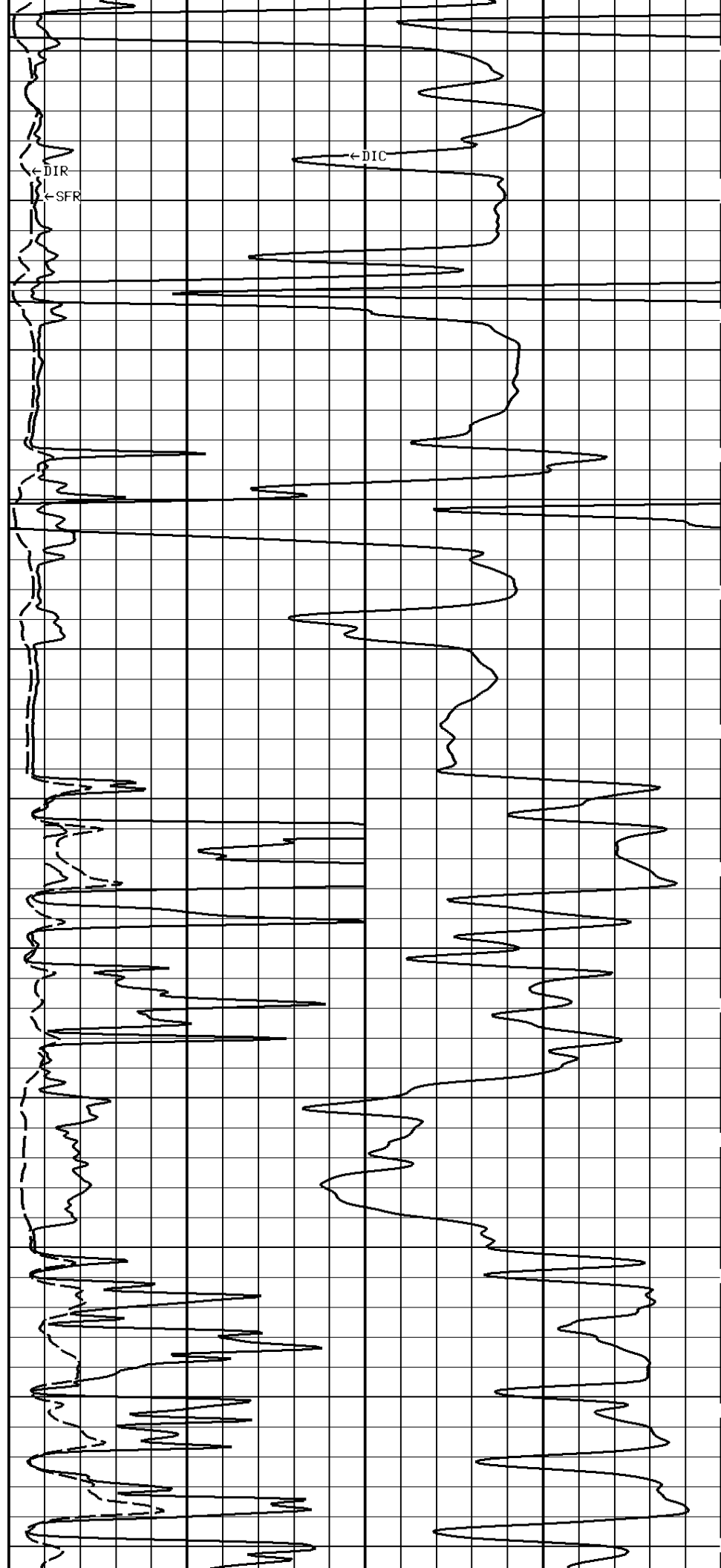
1500

1600

1700

1800

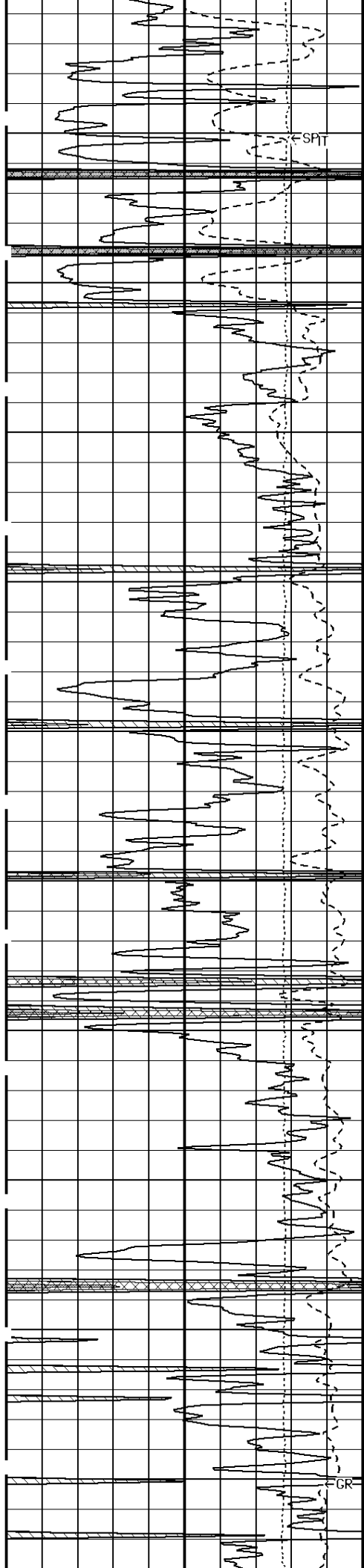
1900



← DIR

← SFR

← DIC



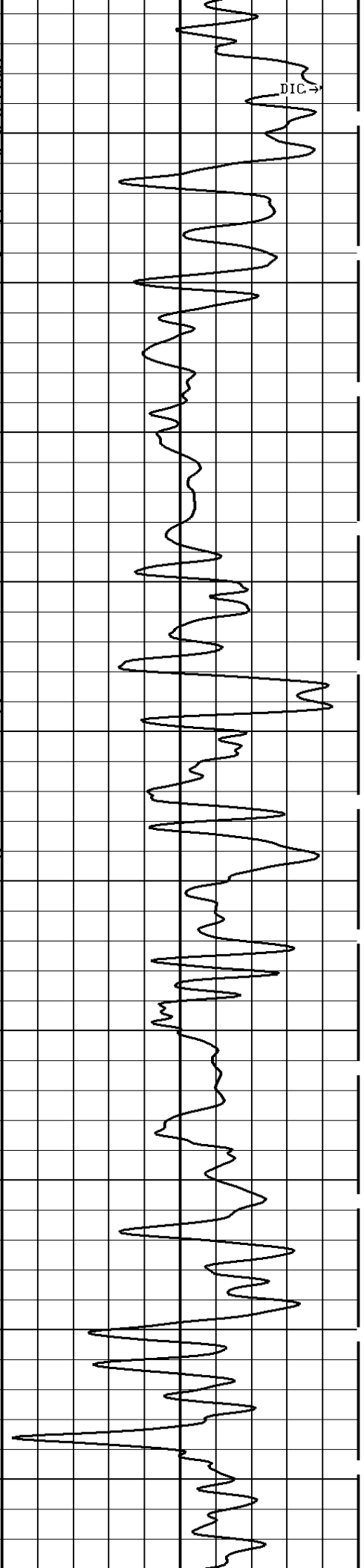
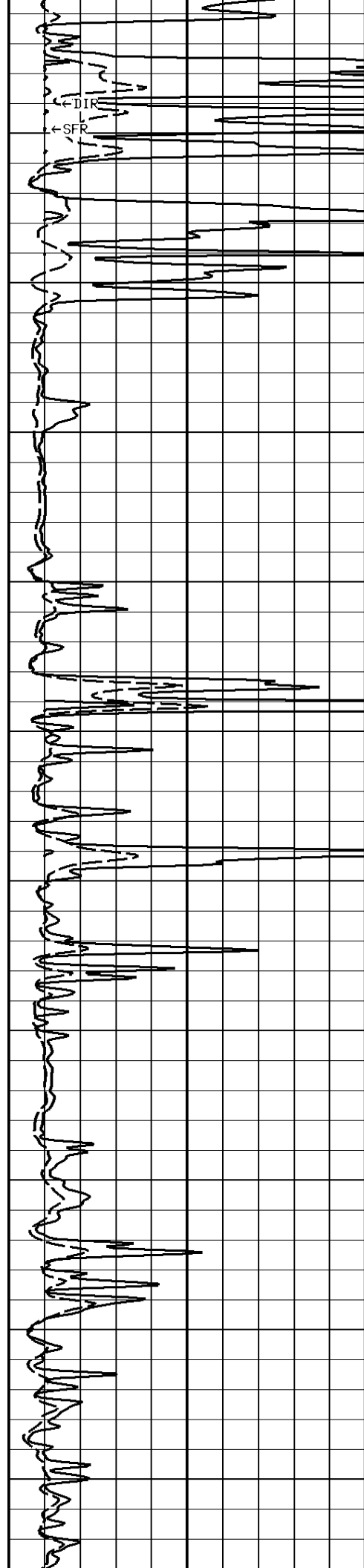
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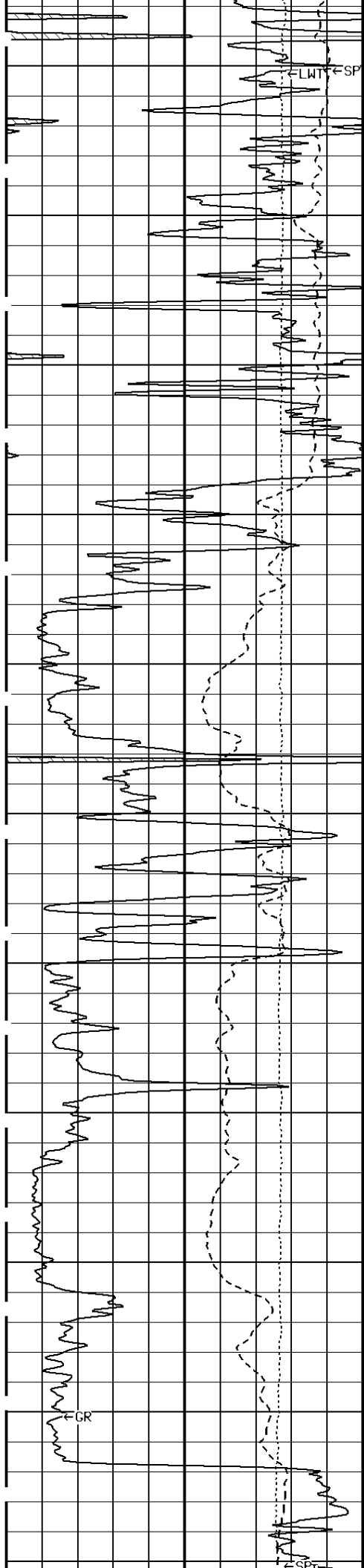
2100

2200

2300

2400





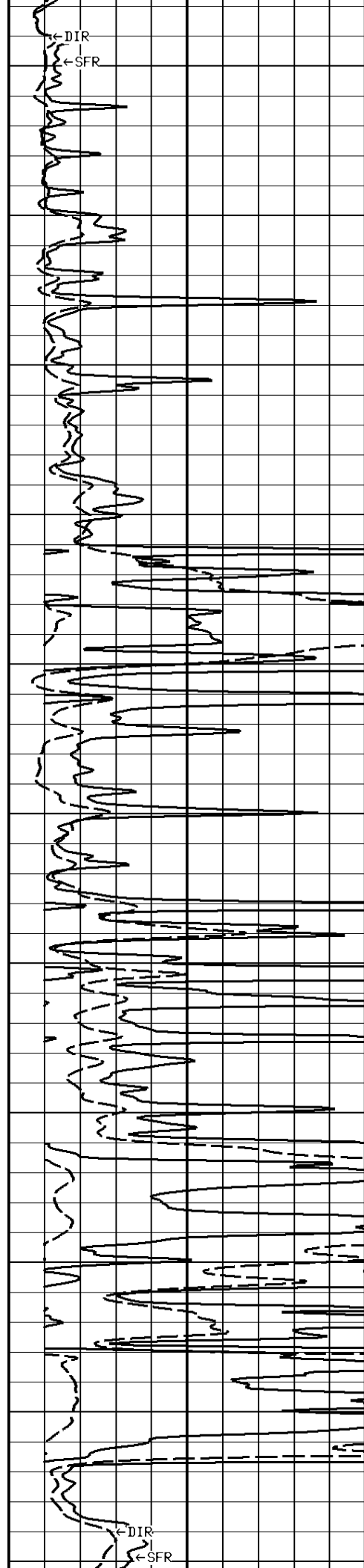
2500

2600

2700

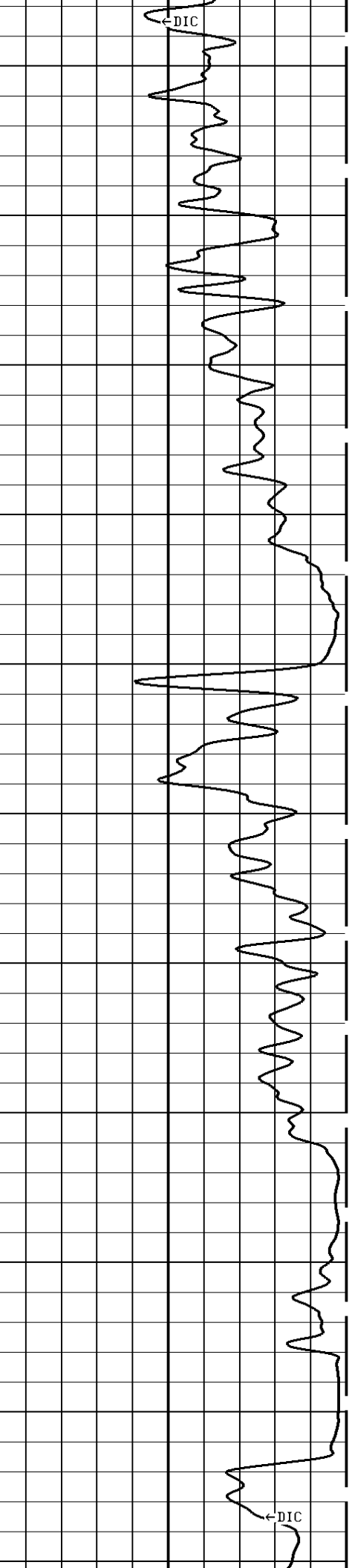
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2900



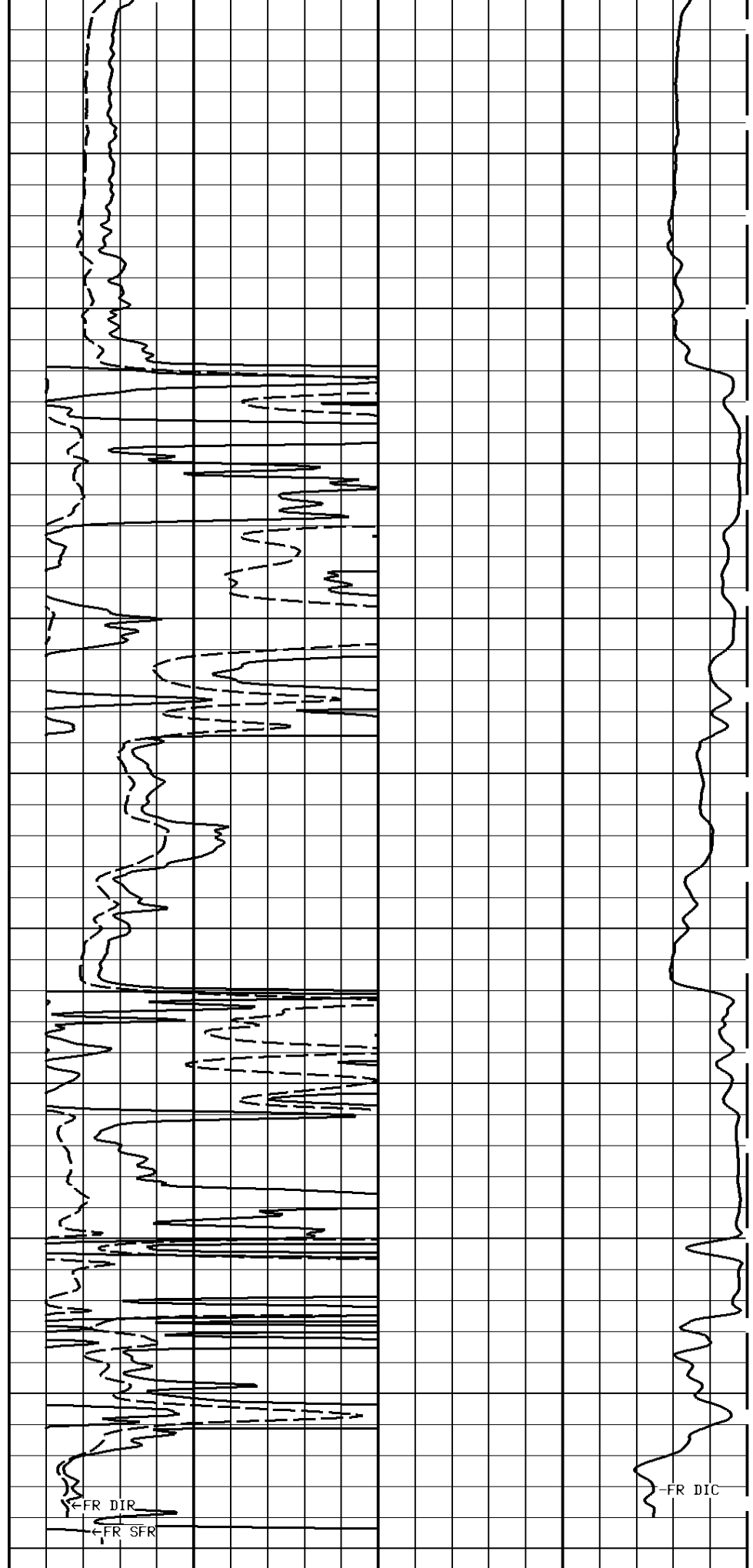
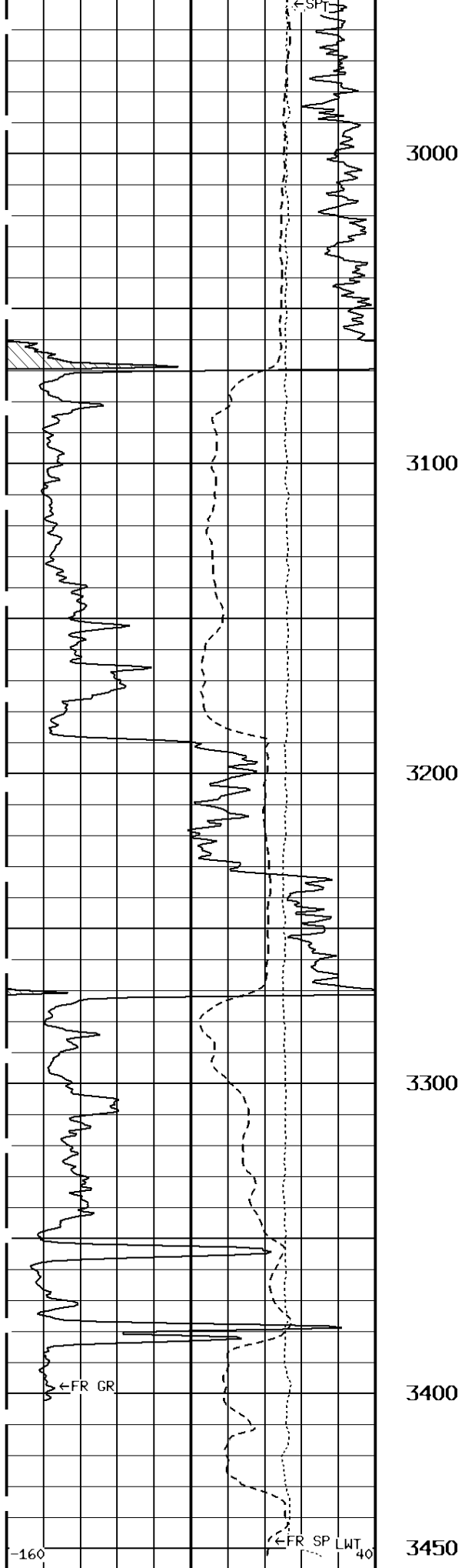
← DIR
← SFR

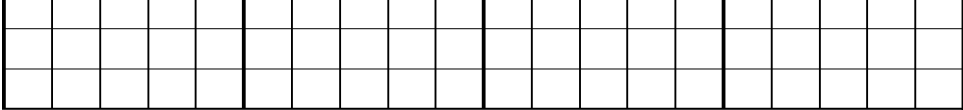
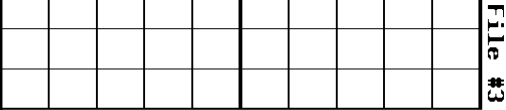
← DIR
← SFR



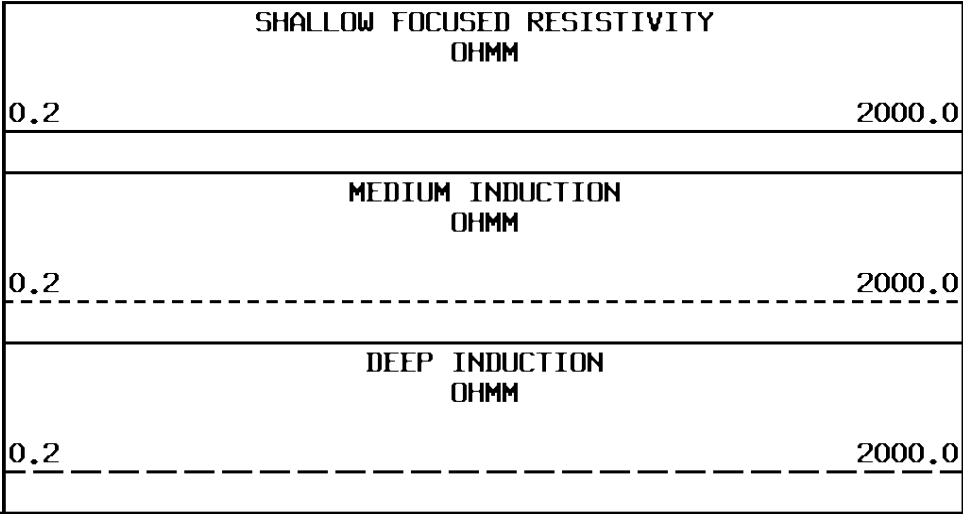
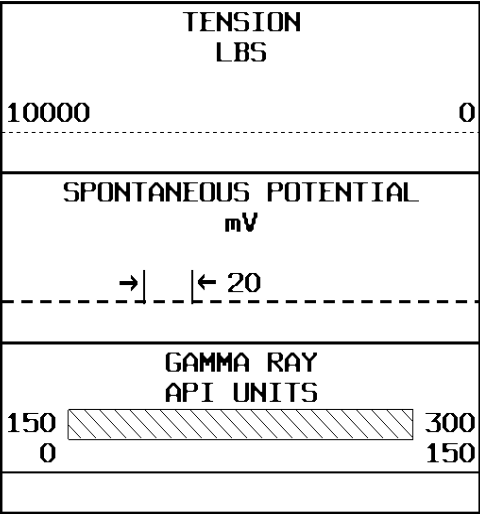
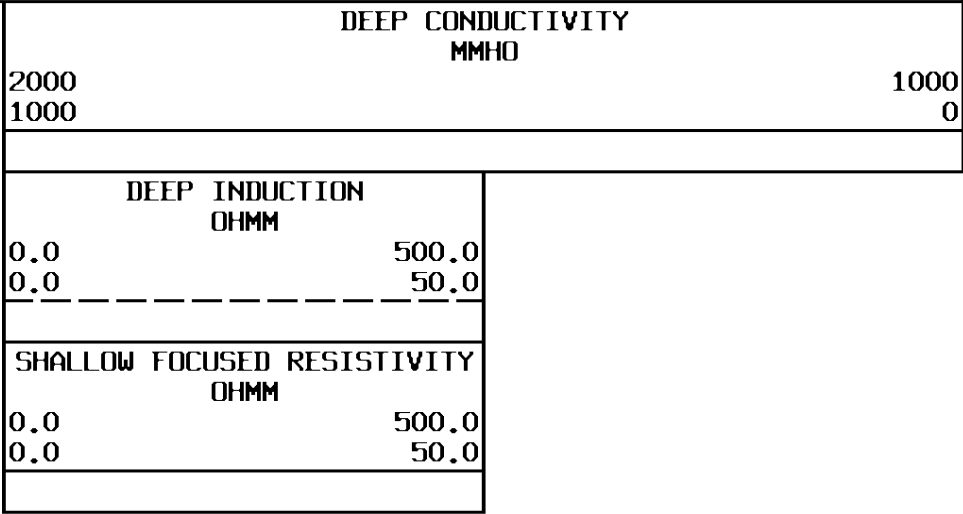
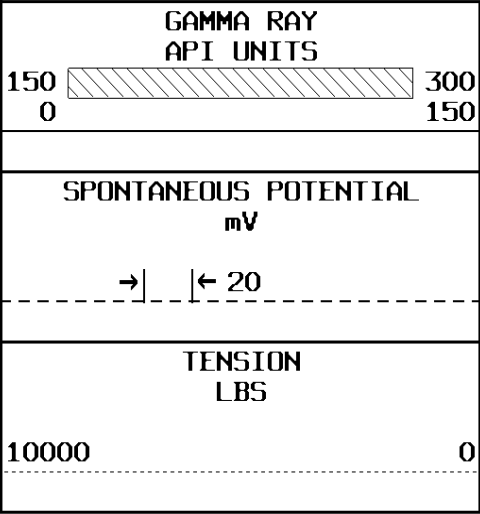
← DIC

← DIC

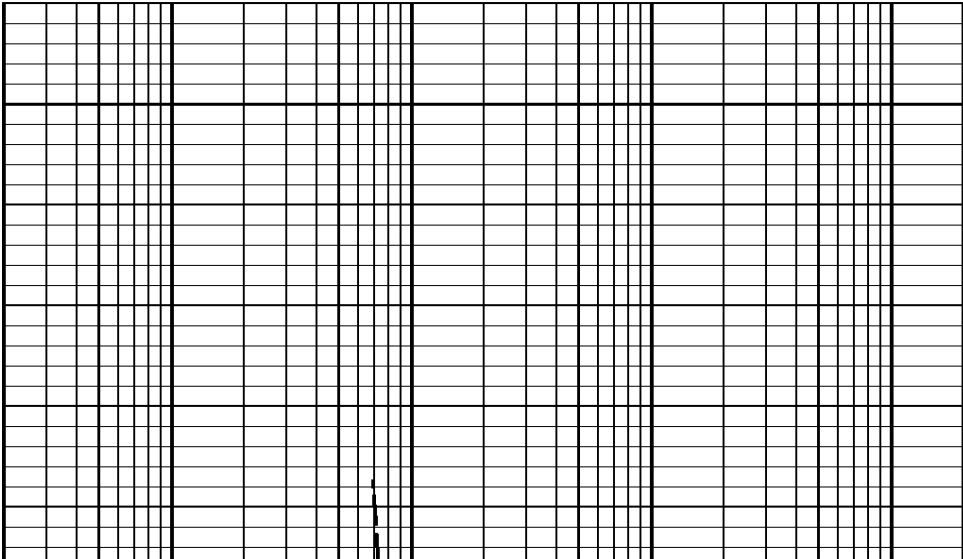
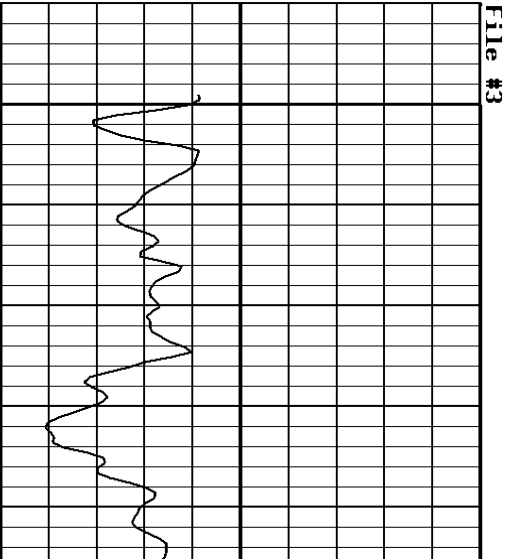


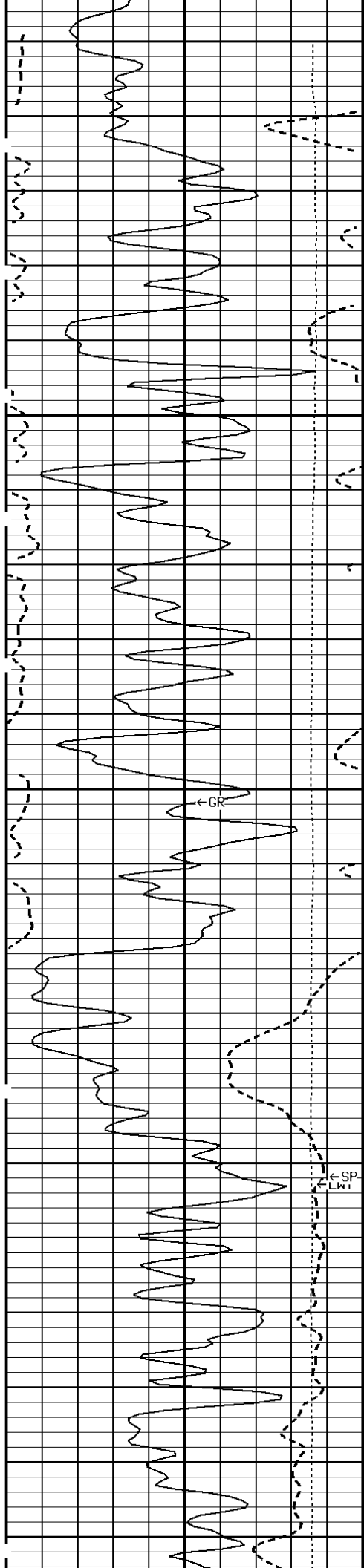


1:600 SECTION
2 INCH



1:240 MAIN SECTION

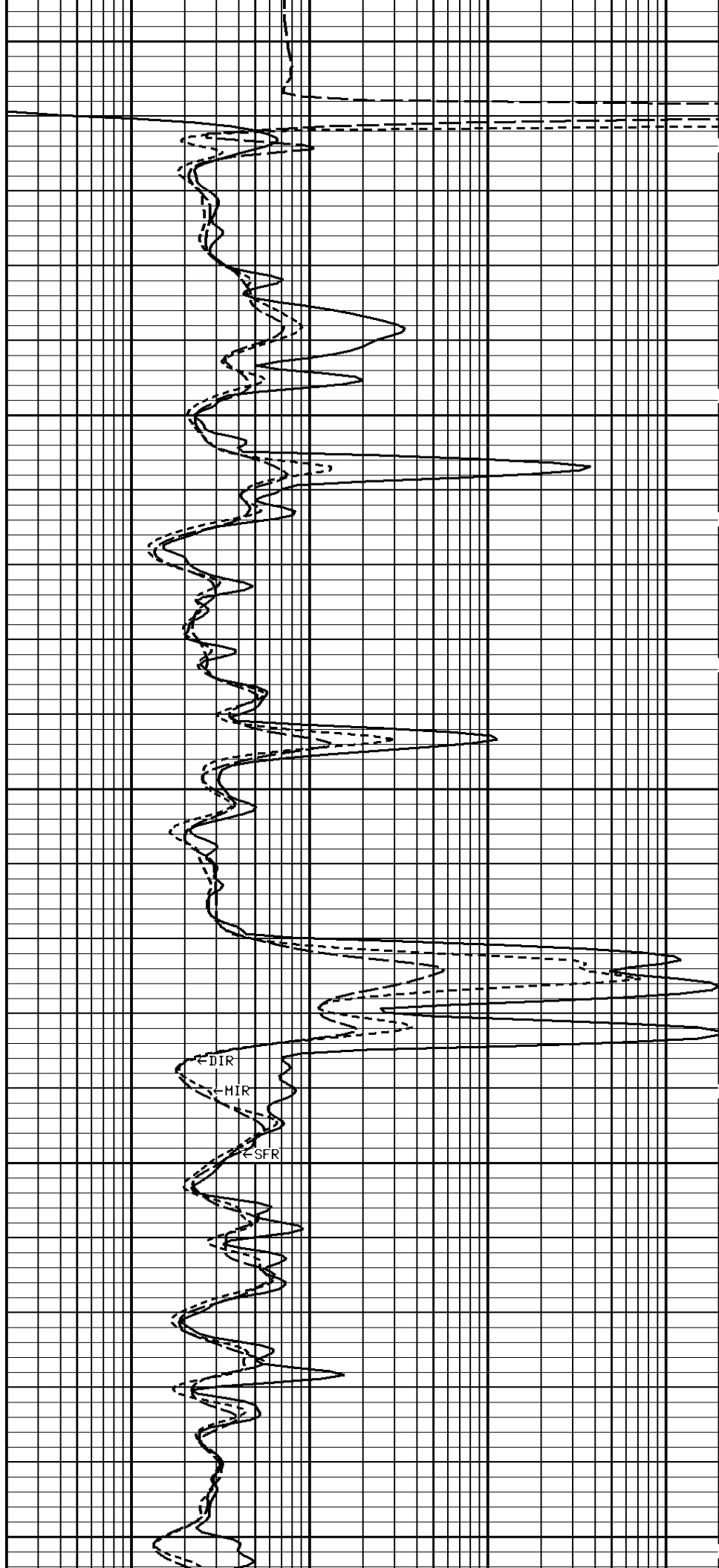


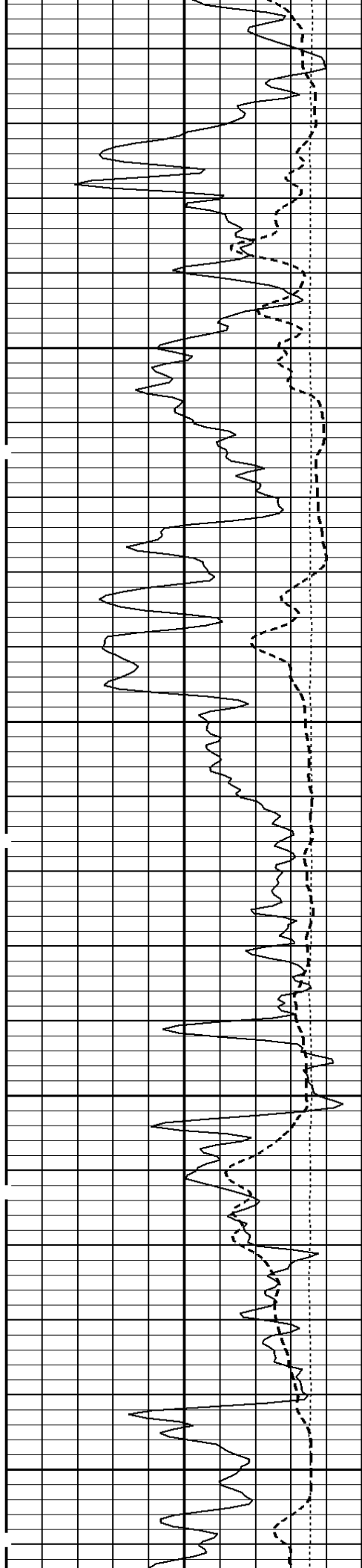


300

400

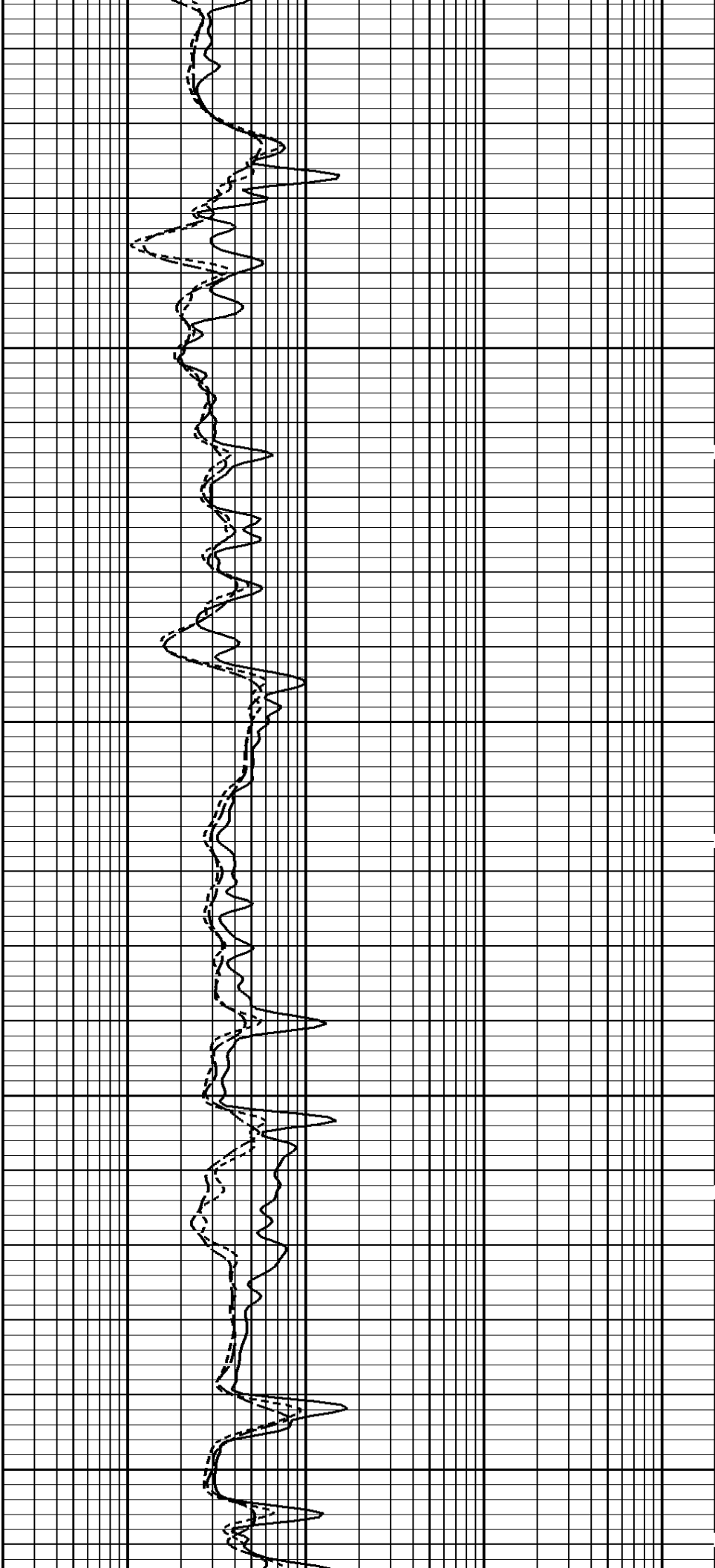
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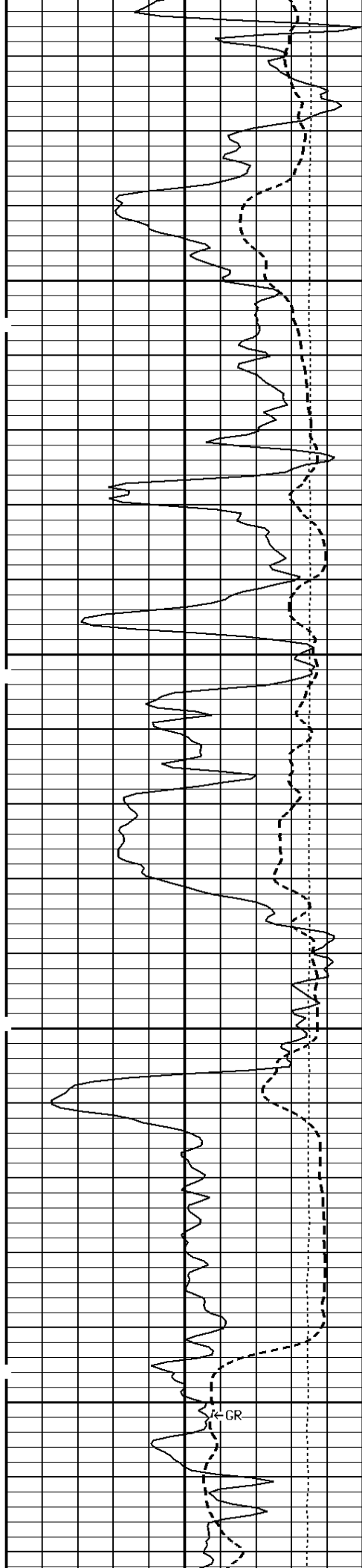




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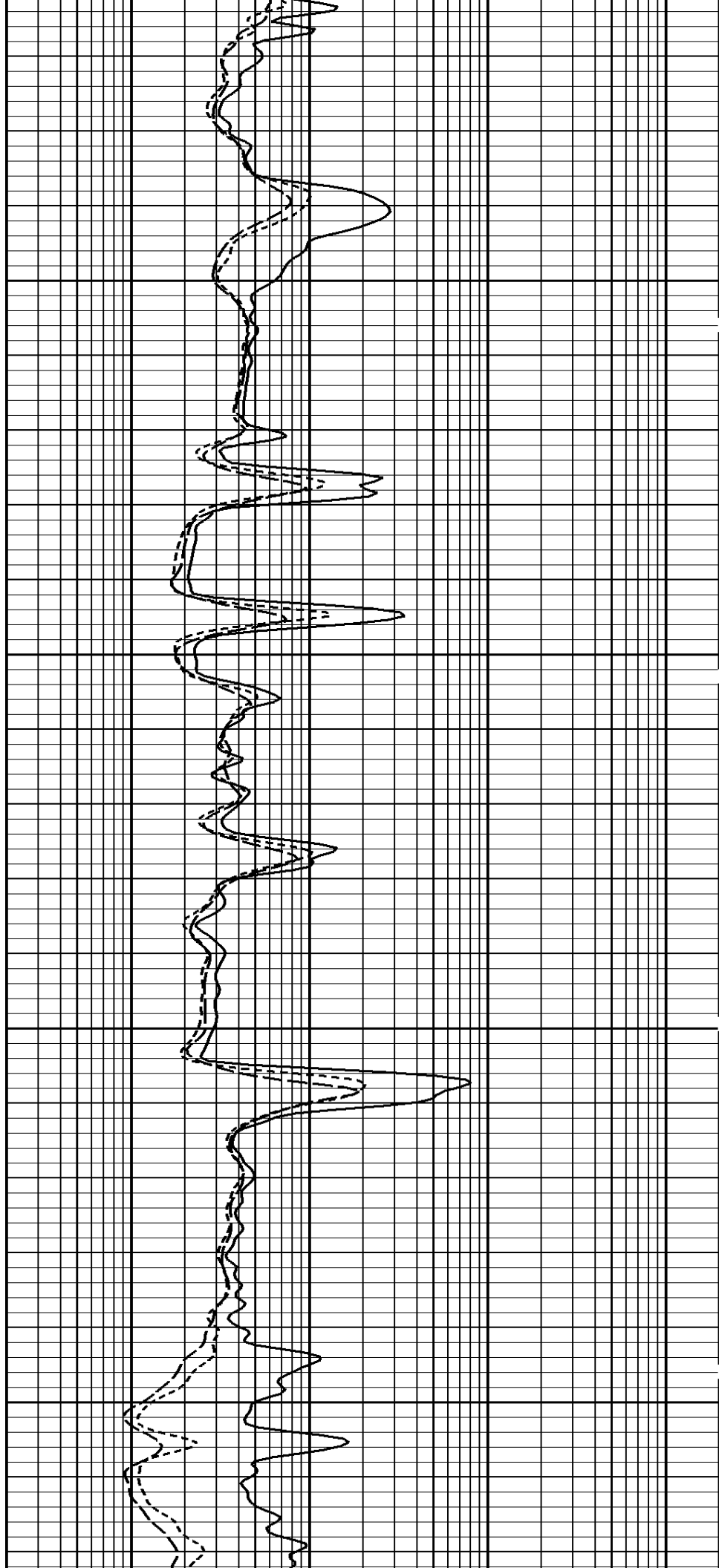
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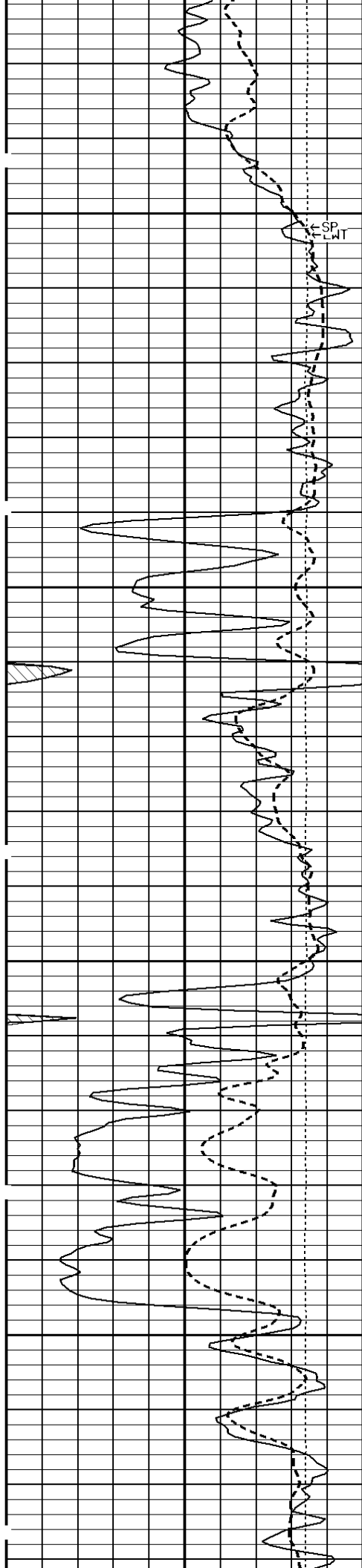




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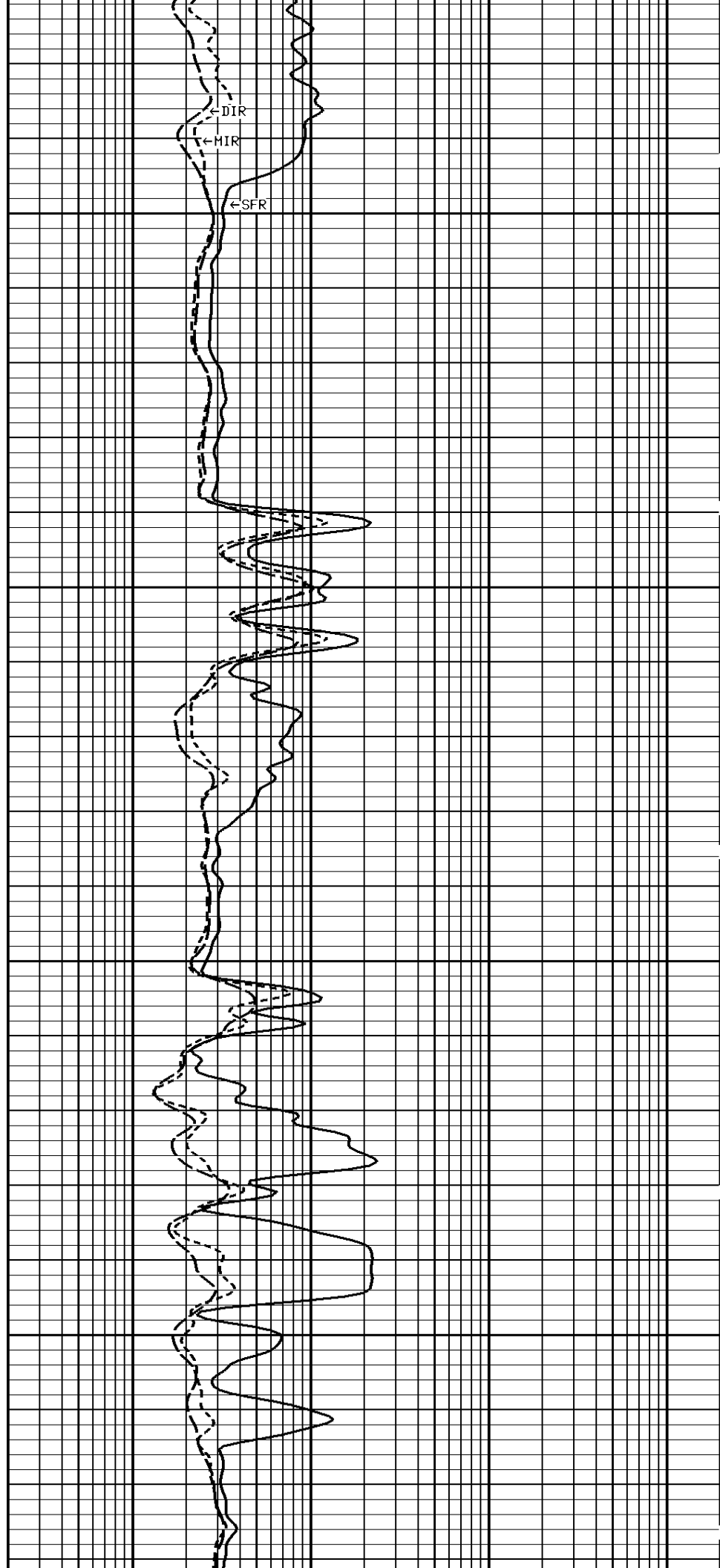
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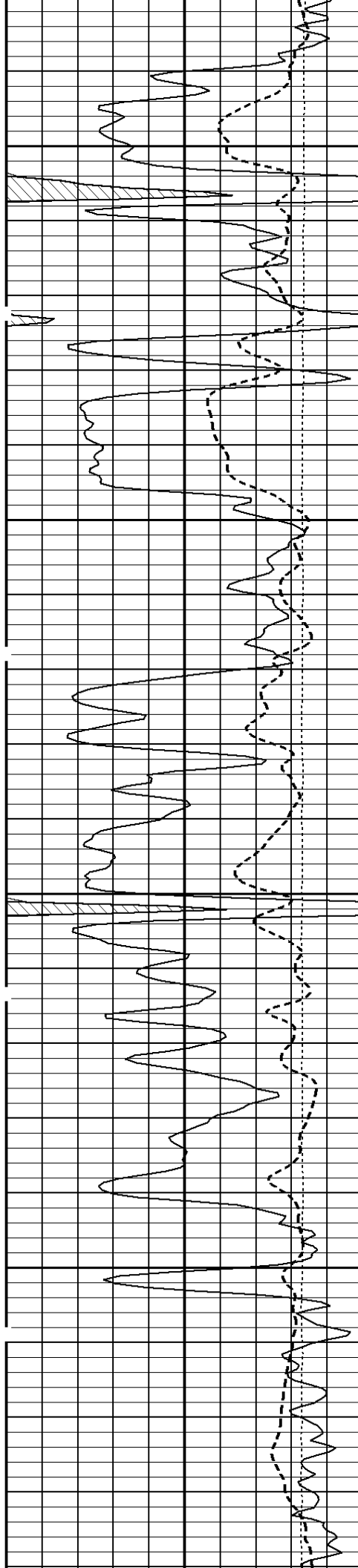




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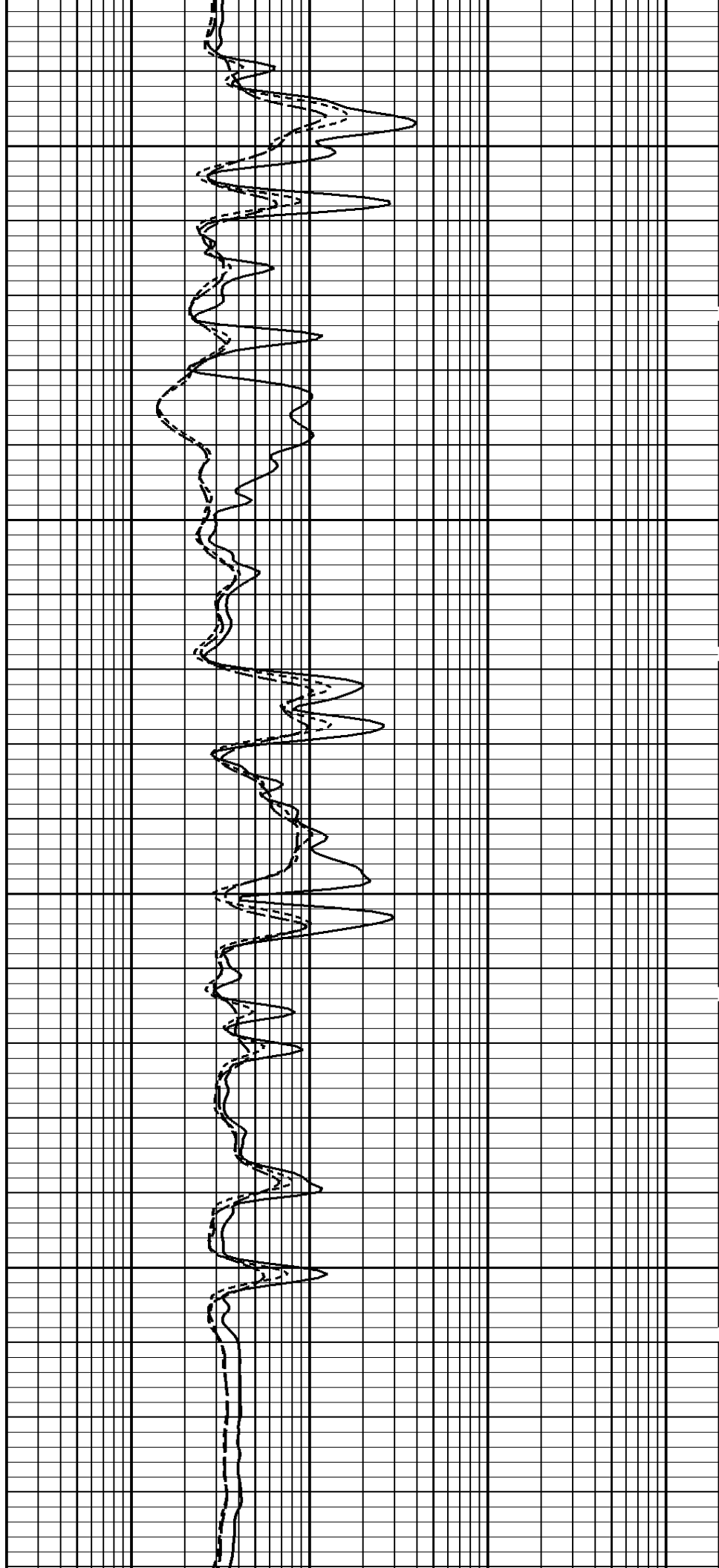
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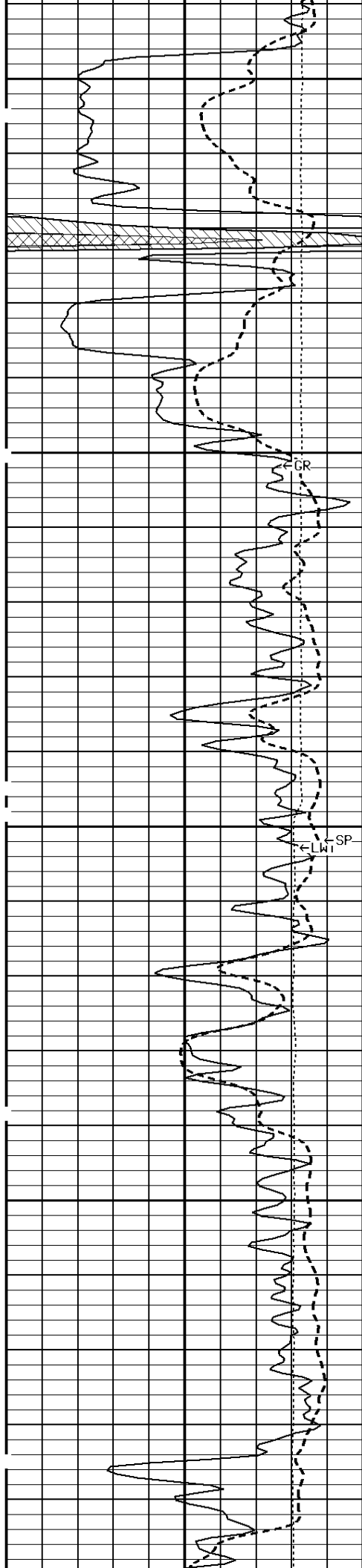




1200

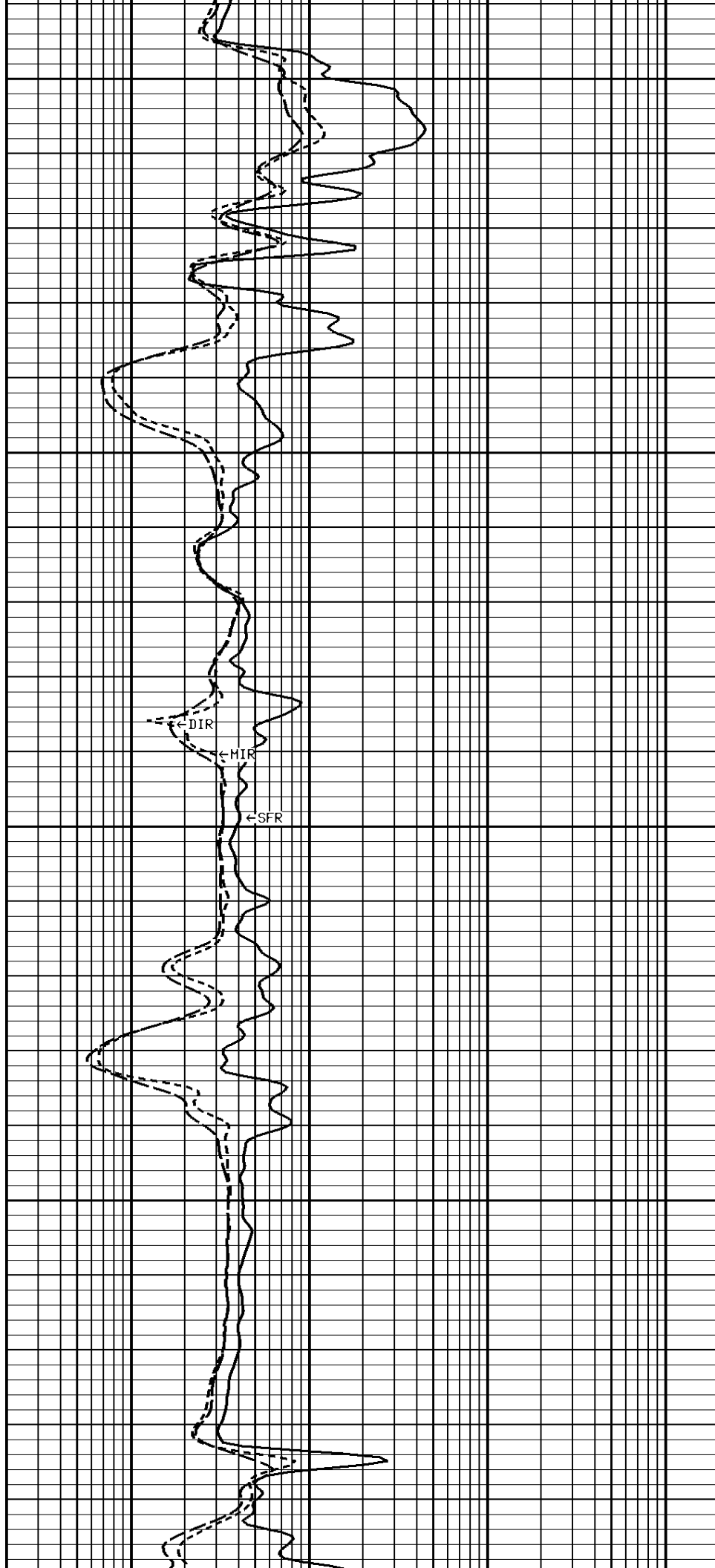
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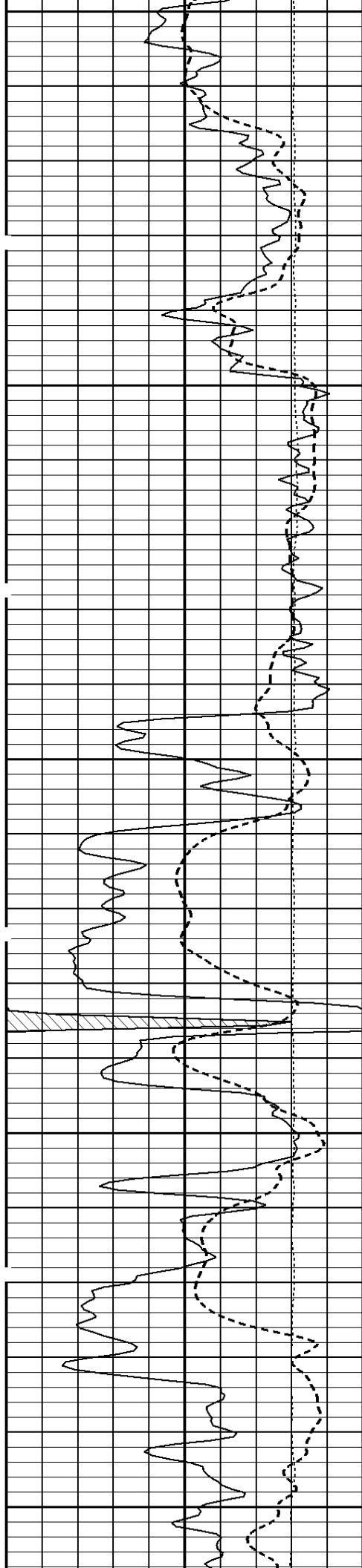




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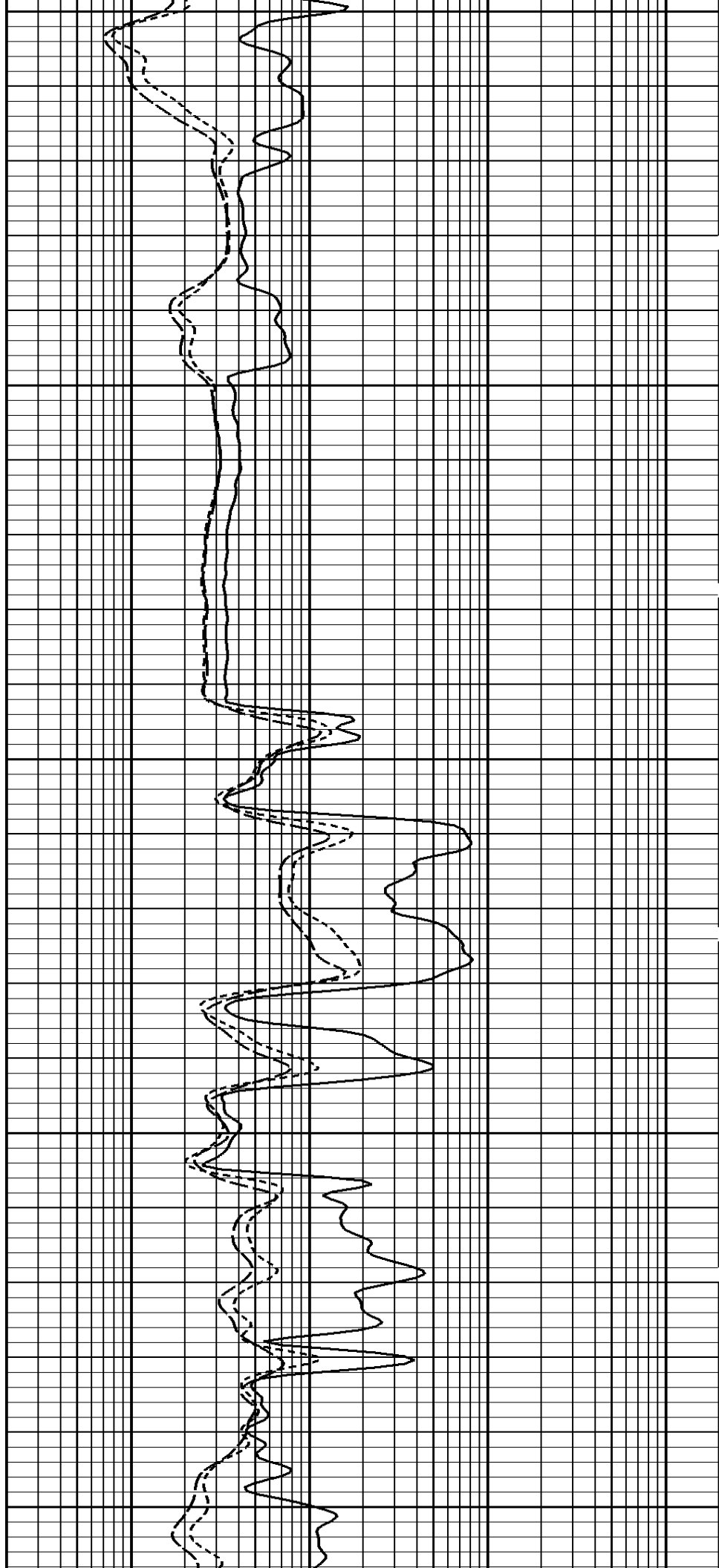
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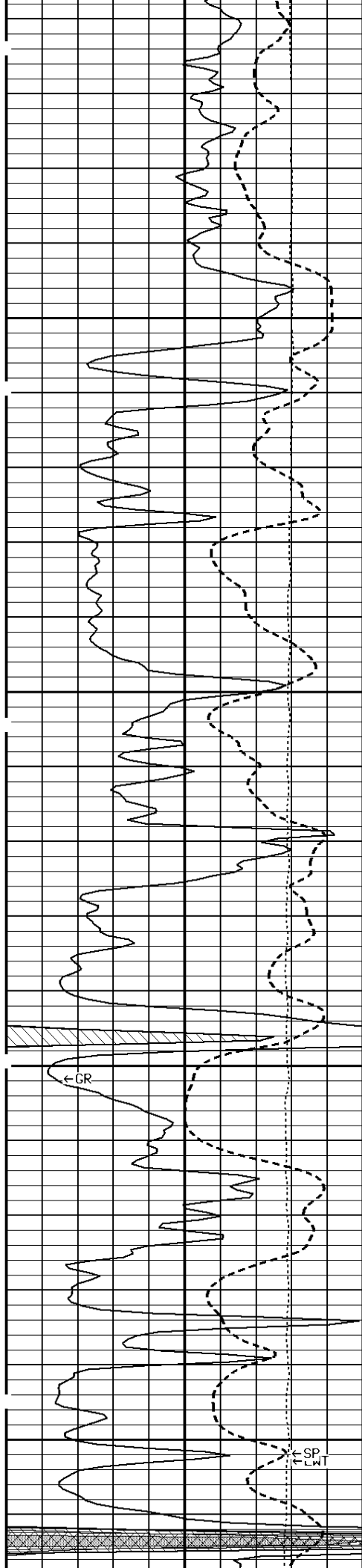




1600

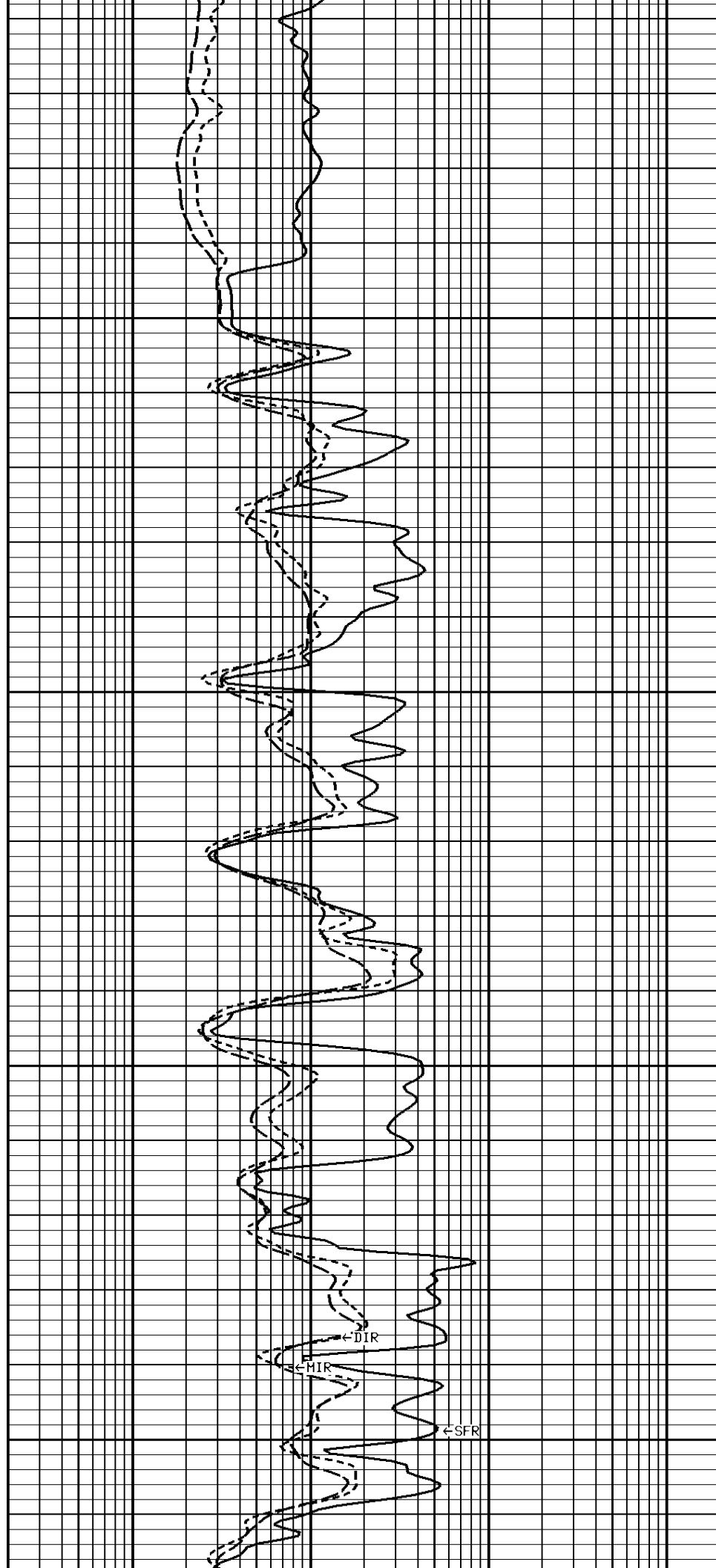
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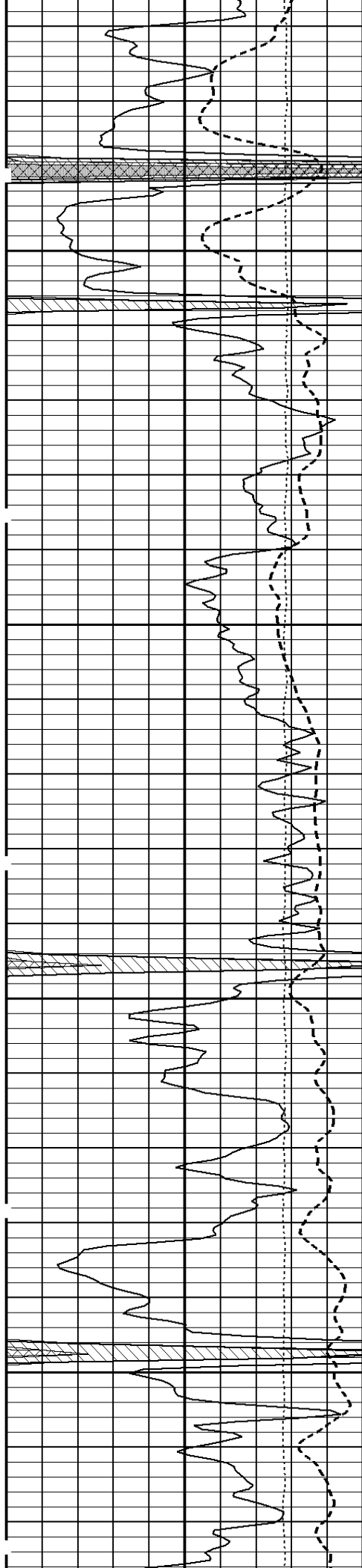




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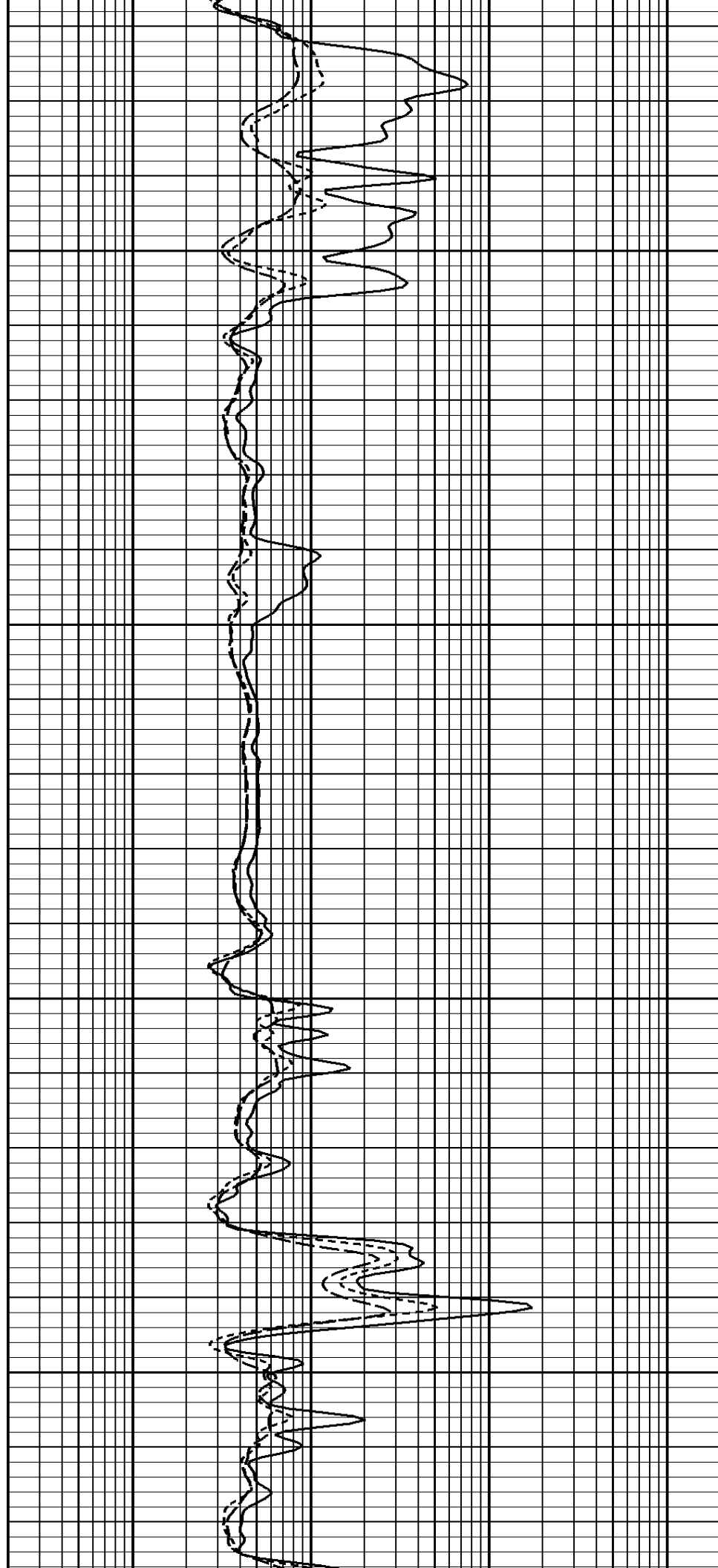
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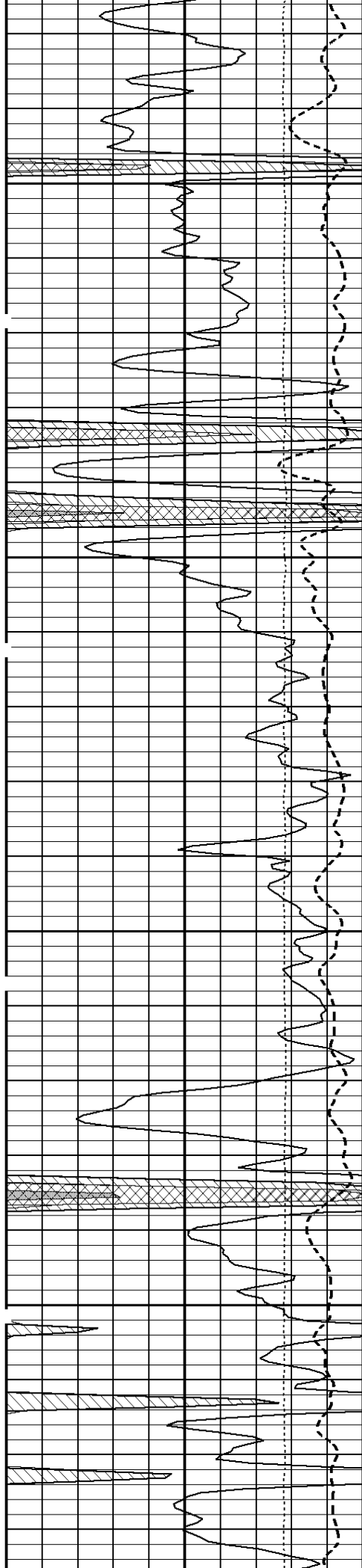




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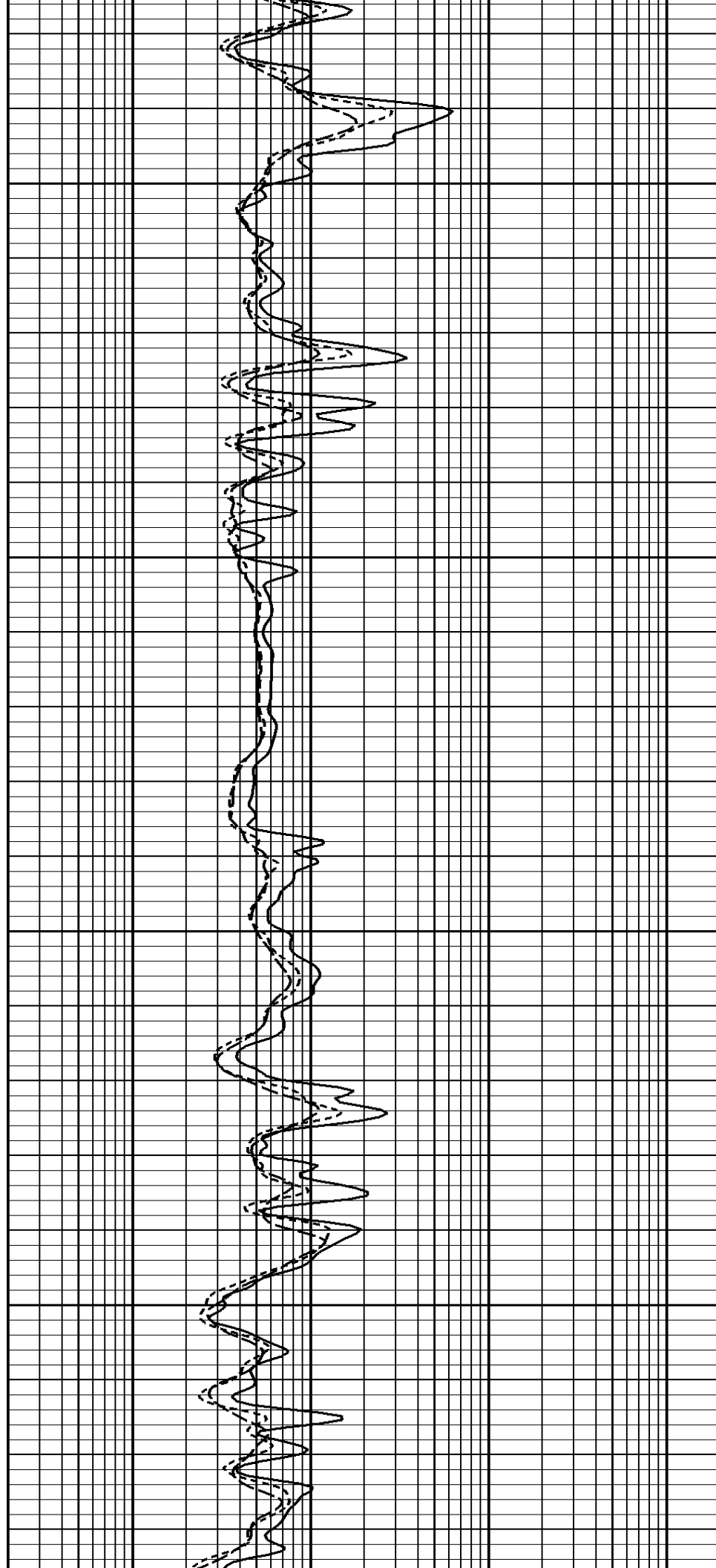
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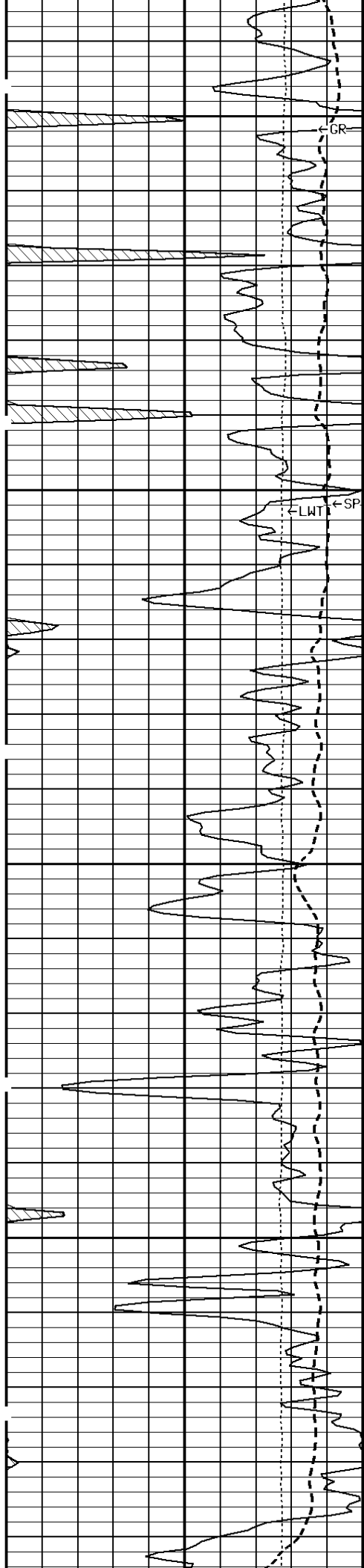




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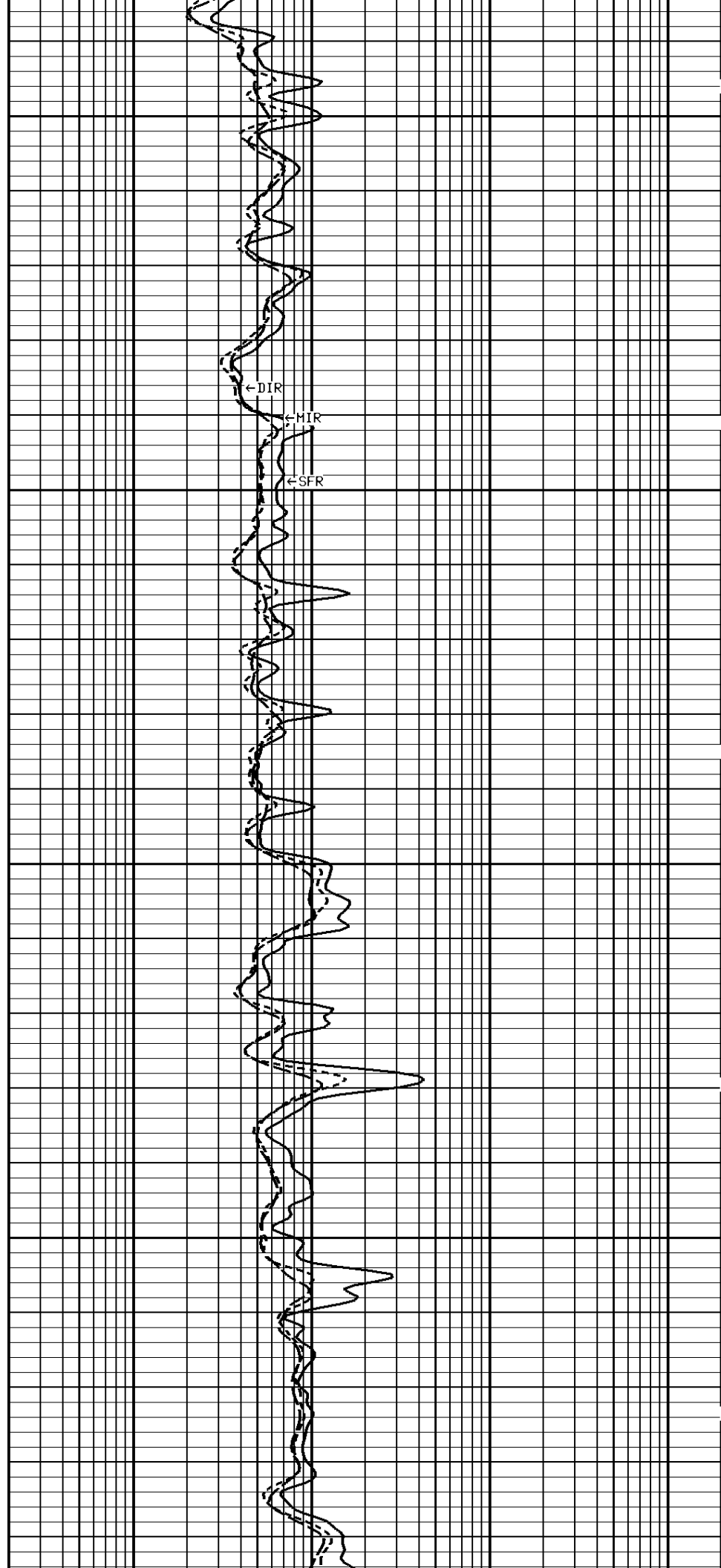
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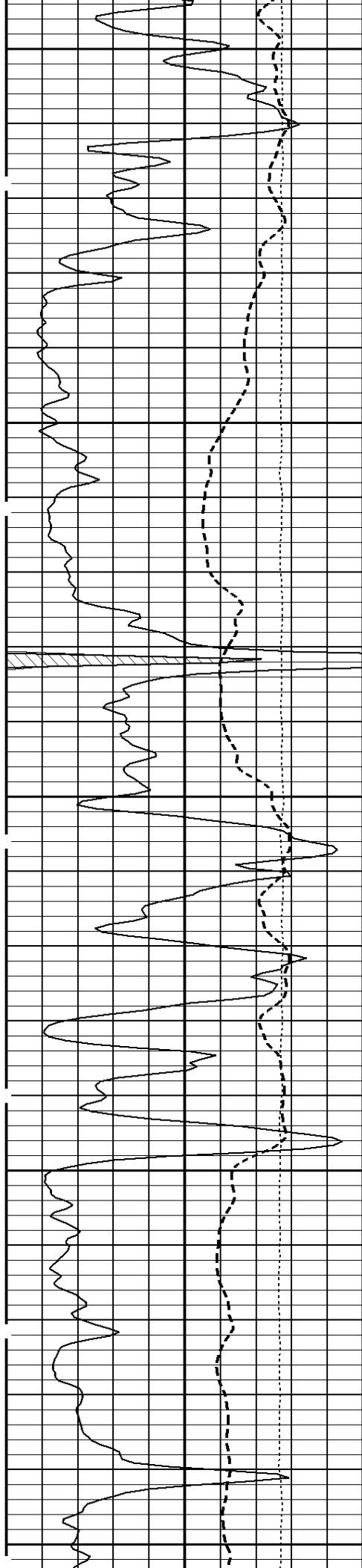




2400

2500

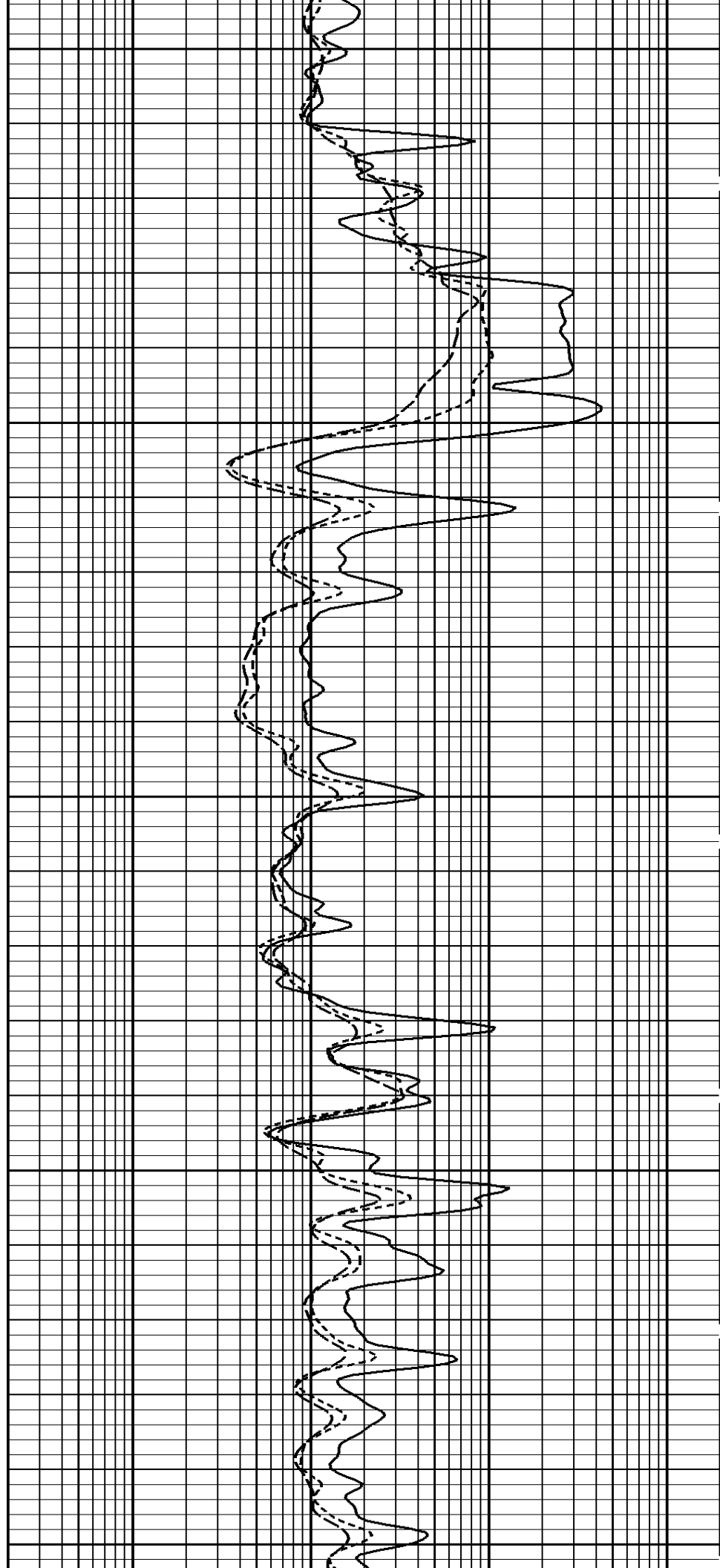


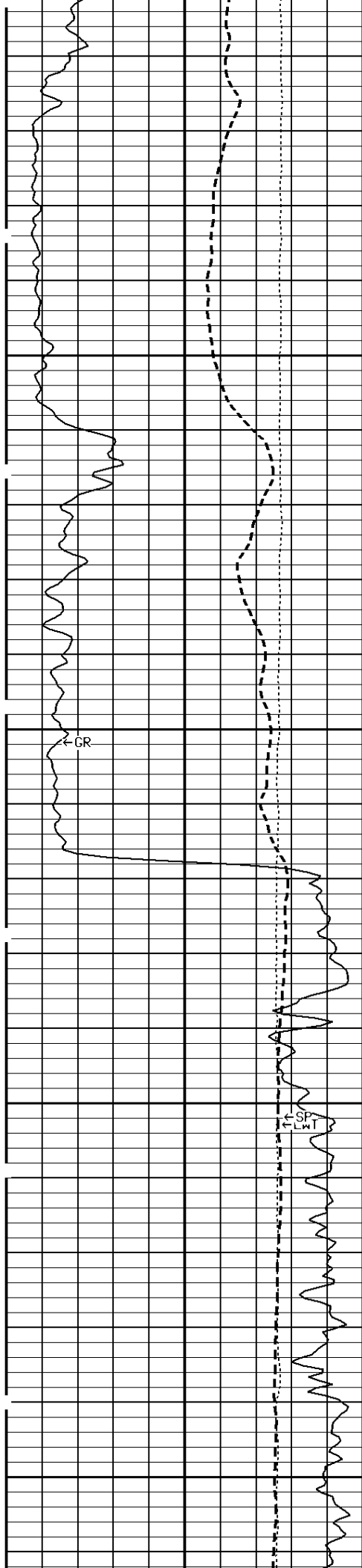


2600

2700

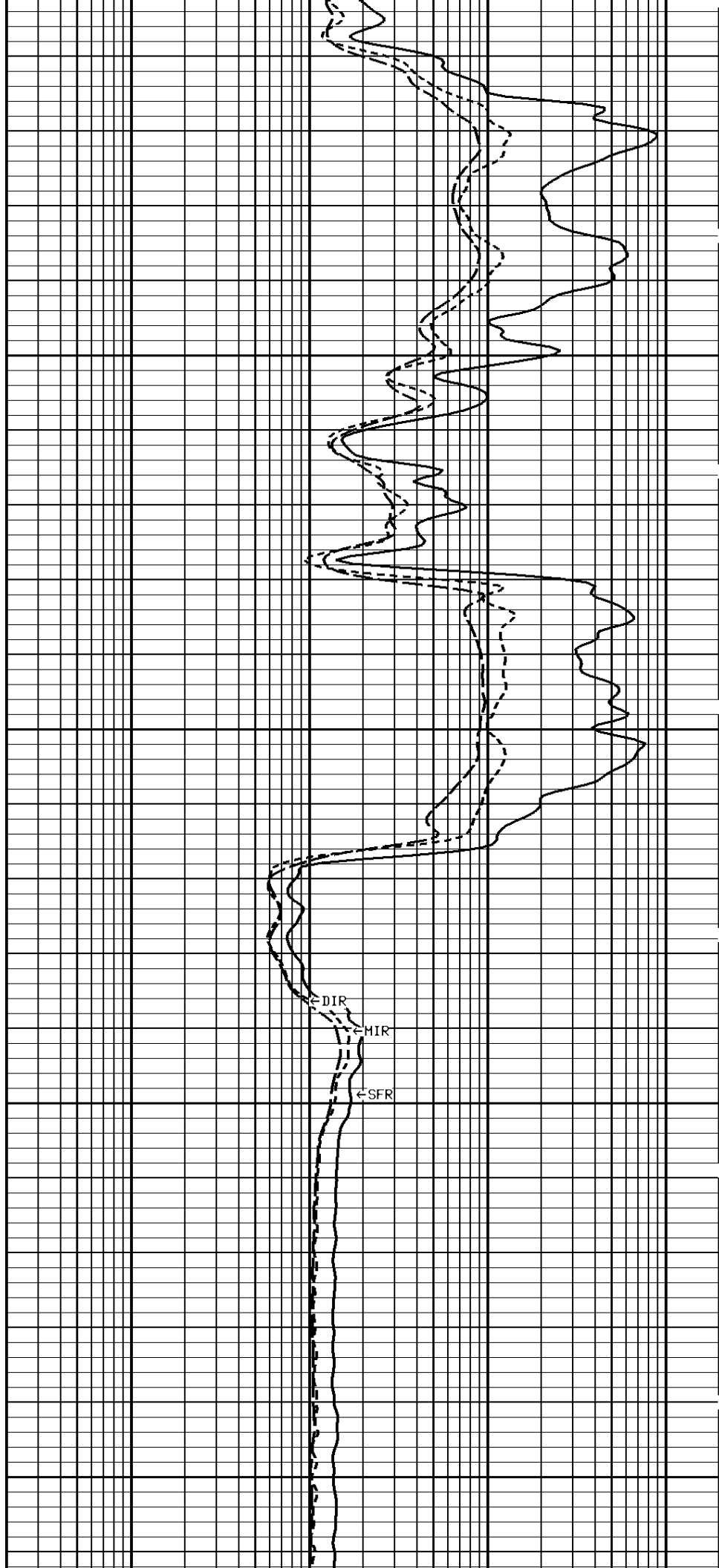
2800





2900

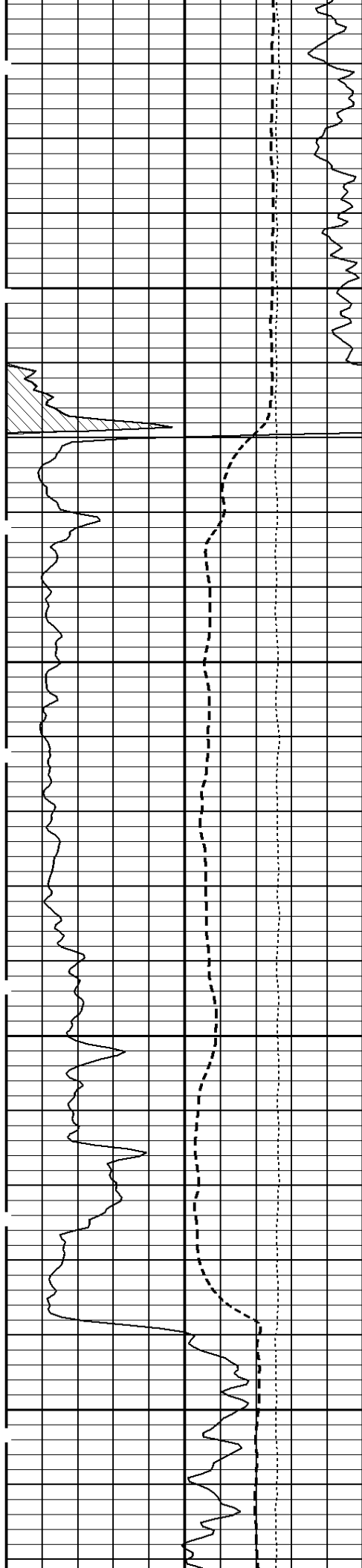
3000



DIR

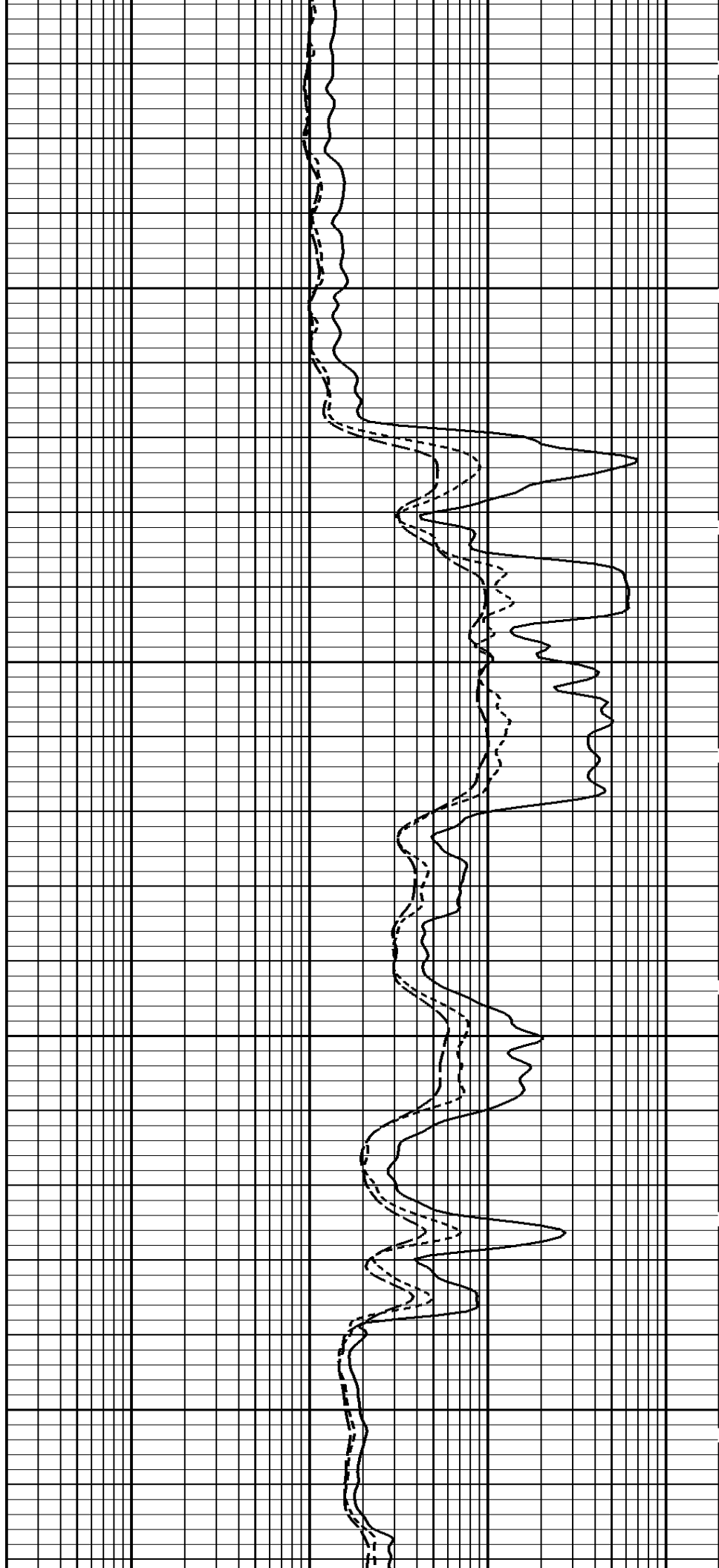
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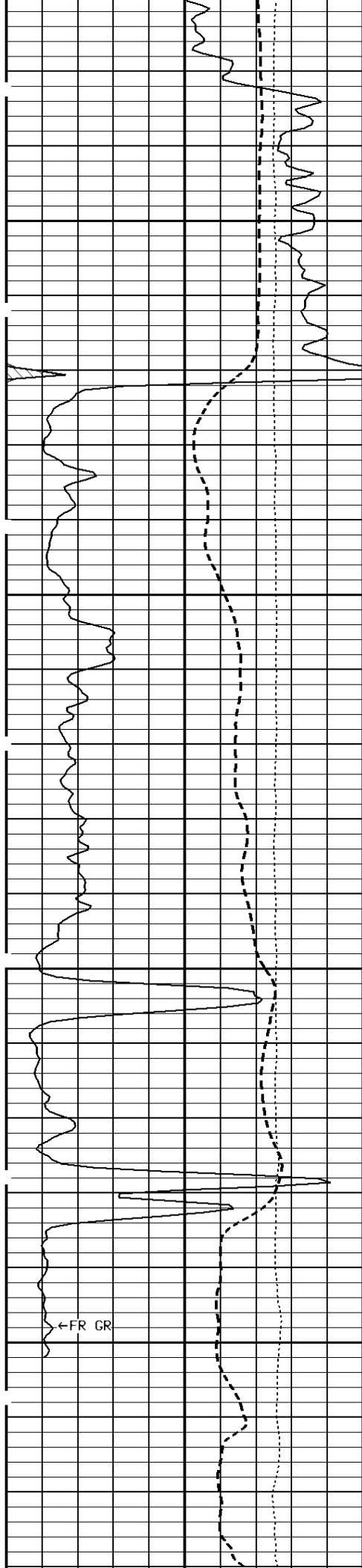
SFR



3100

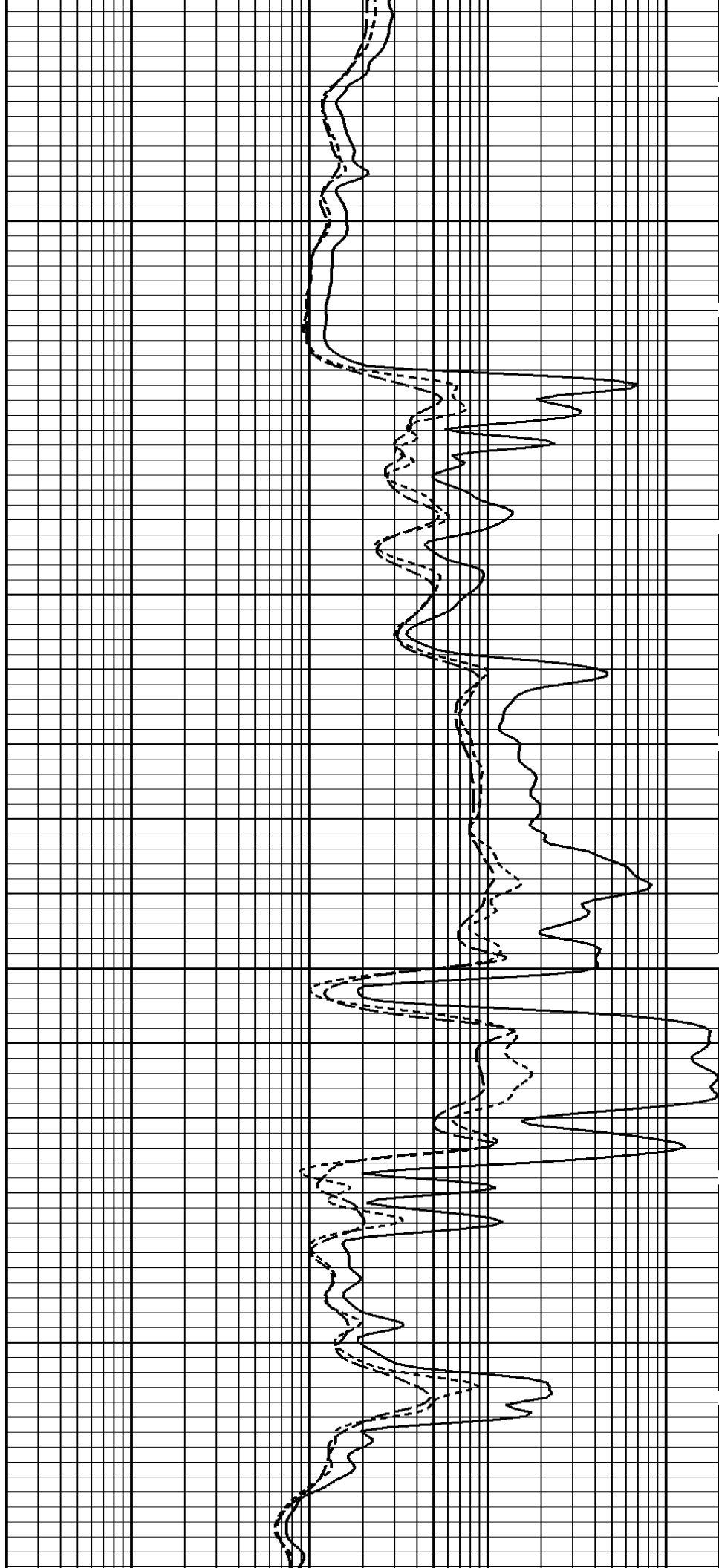
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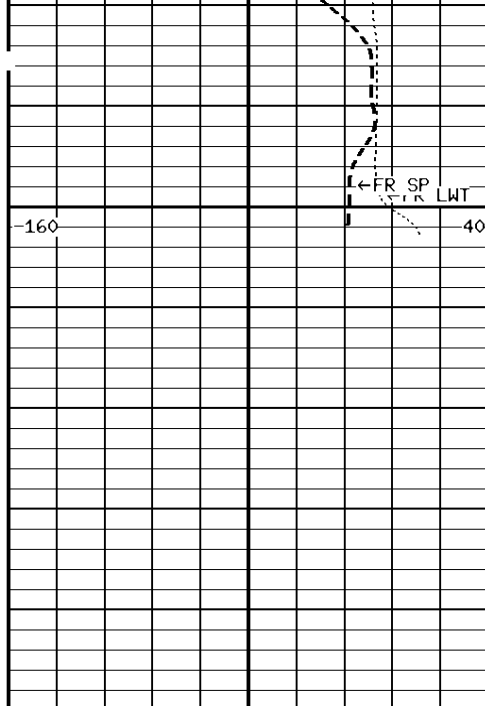




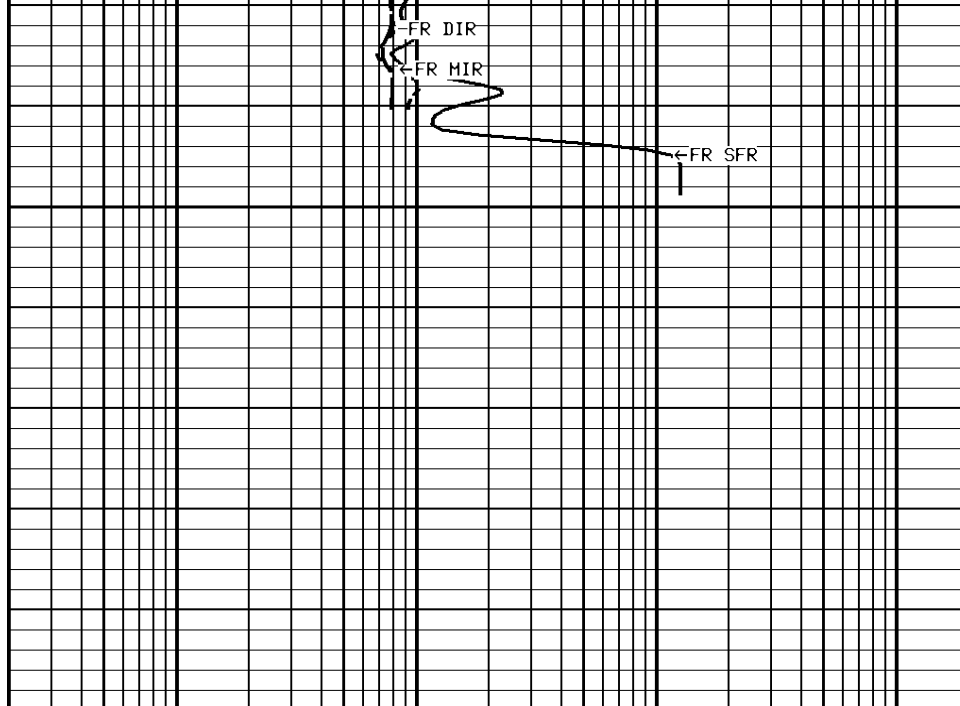
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3400

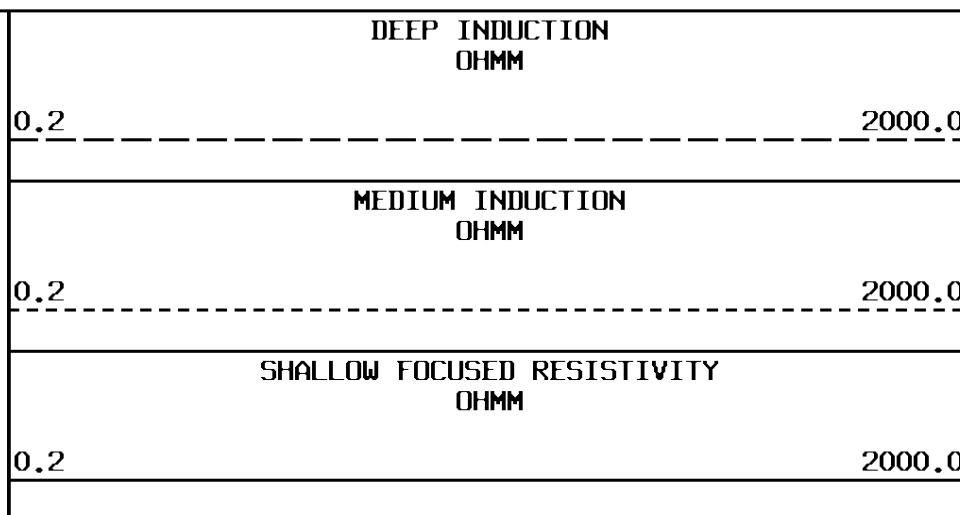
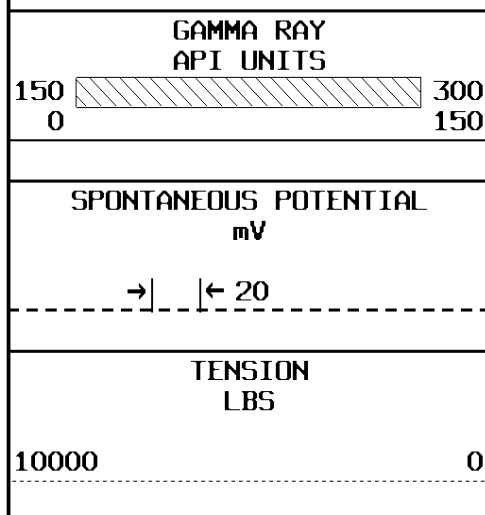




File #3

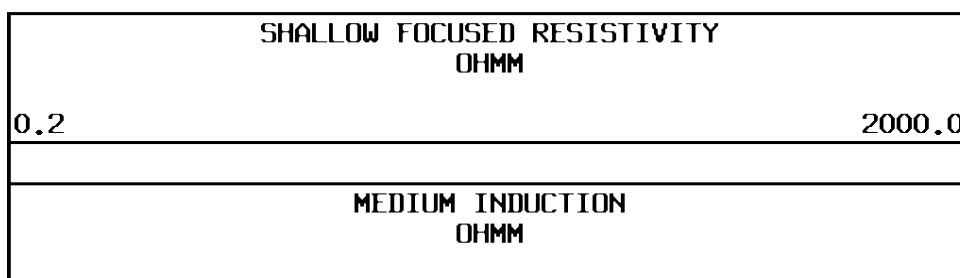
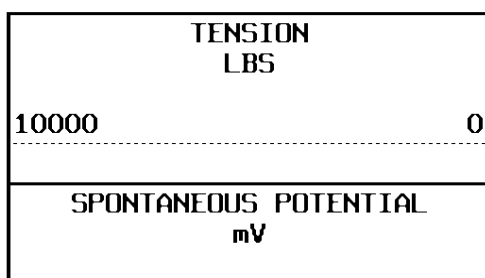


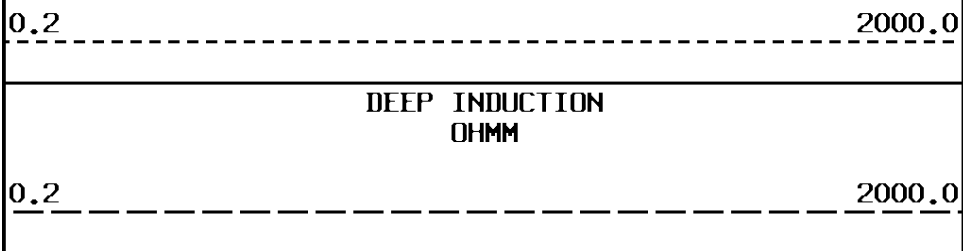
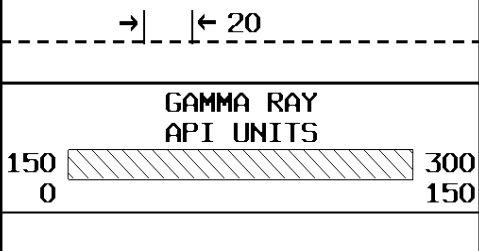
1:240 MAIN SECTION



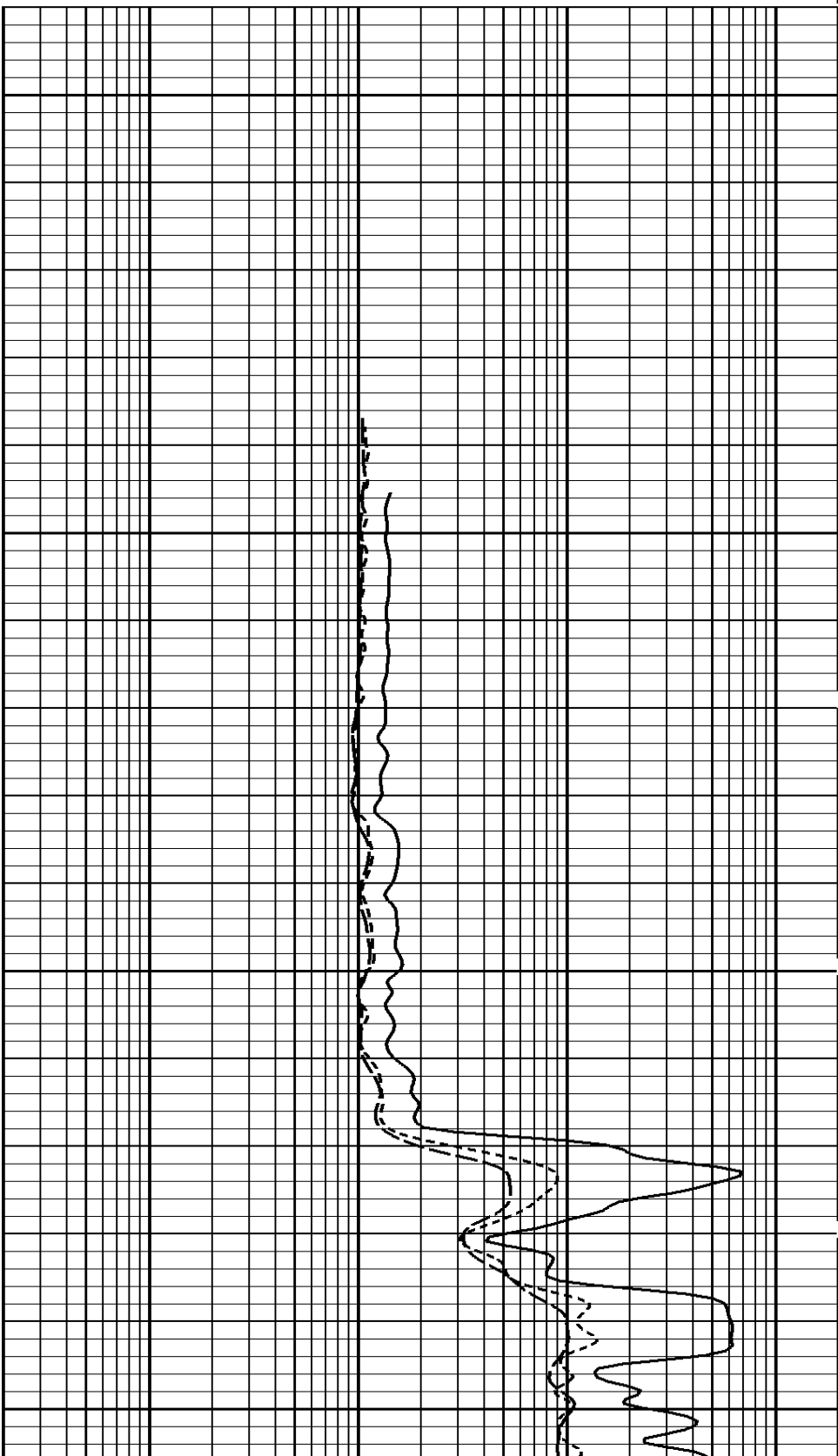
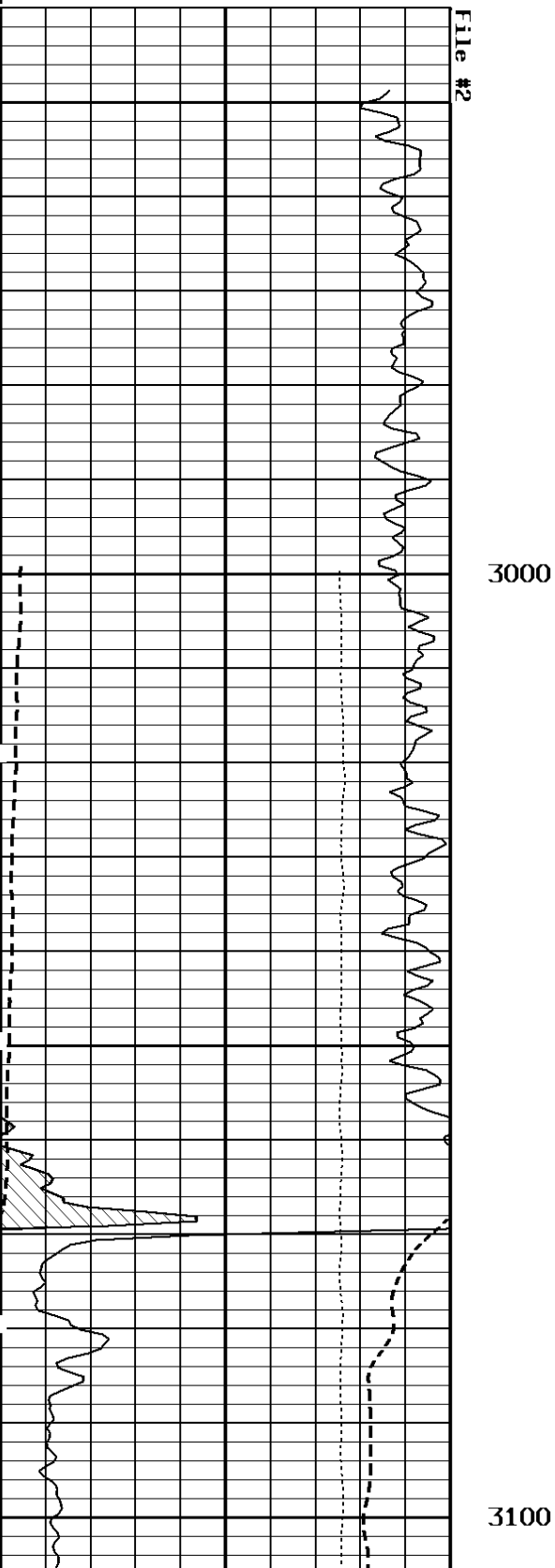
* Borehole Zone Factors *

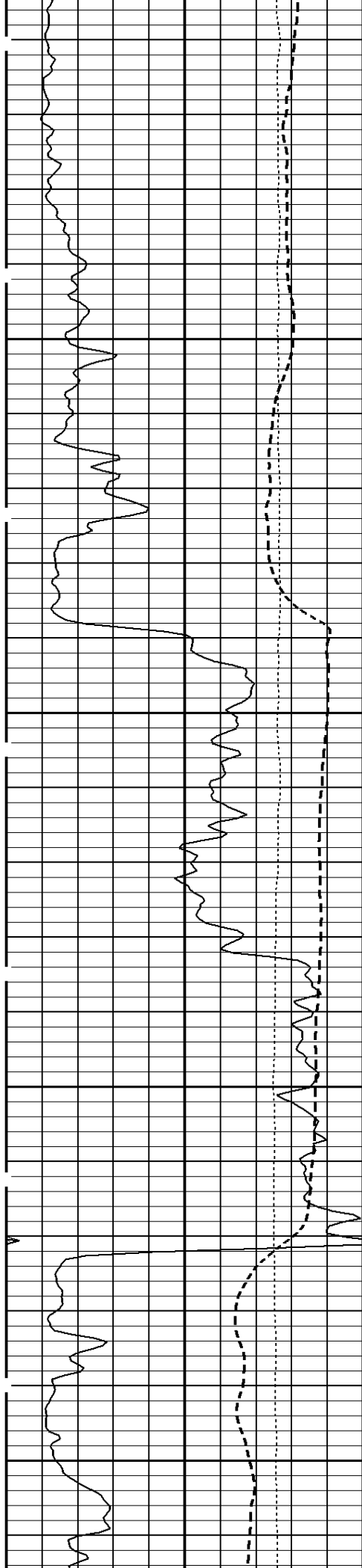
Zone 1	99999.0	to	0.0	F
Drill Bit Size	7.875	IN		
BHT Depth	3493.000	F		
Borehole Temperature	127.0	DEGF		
Temperature Gradient	1.00	DFHF		
Resistivity Of Mud	0.20	OHMM		
Standoff	1.5			
Resistivity Of Mud Temperature	50.00	DEGF		





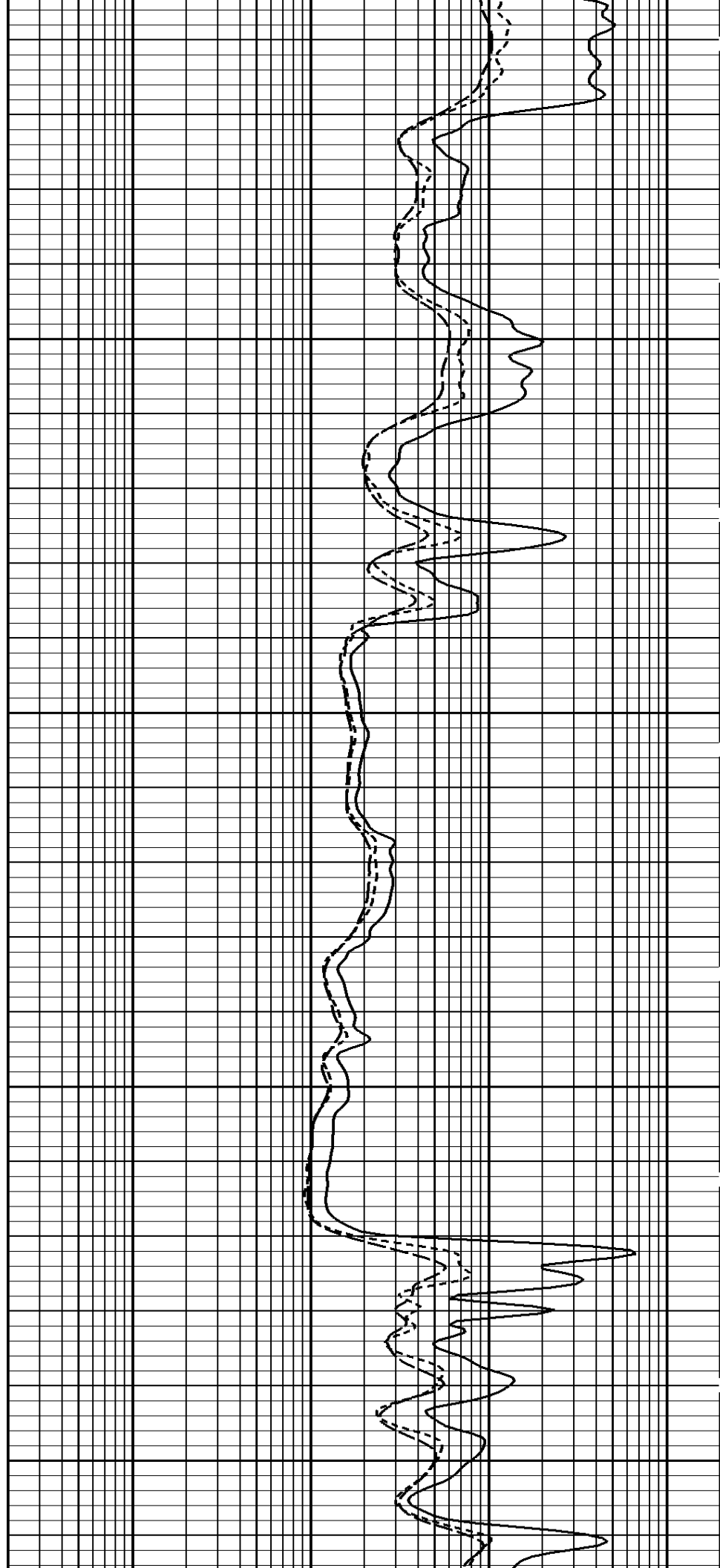
1:240 REPEAT SECTION

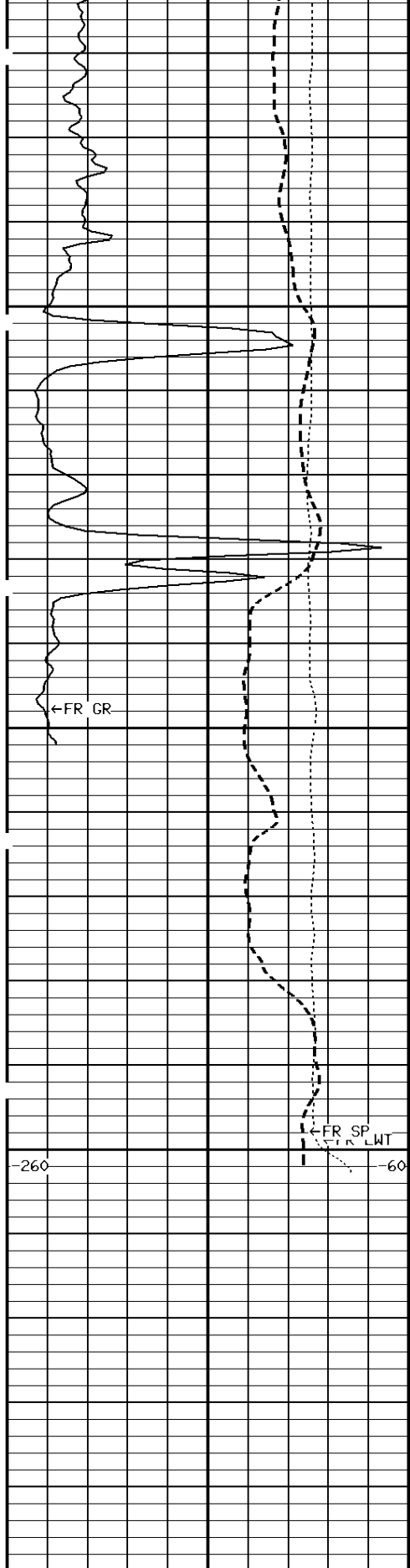




3200

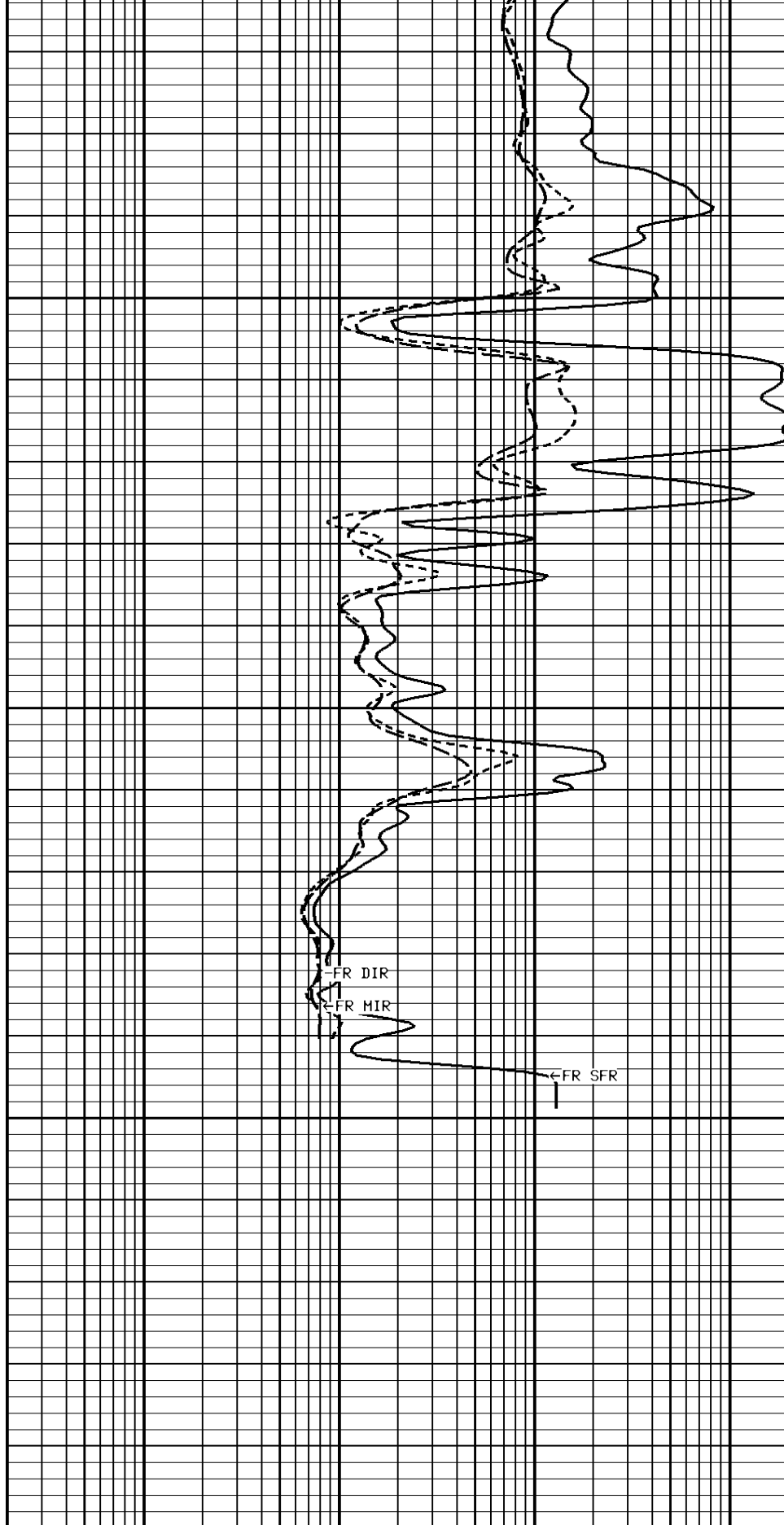
3300





File #2

1:240 REPEAT SECTION



GAMMA RAY
API UNITS

DEEP INDUCTION
GAMMA

API UNITS	
150	300
0	150
SPONTANEOUS POTENTIAL mV	
→	← 20
TENSION LBS	
10000	0

OHMM	
0.2	2000.0
MEDIUM INDUCTION OHMM	
0.2	2000.0
SHALLOW FOCUSED RESISTIVITY OHMM	
0.2	2000.0

*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 F		
Drill Bit Size_____	7.875	IN
BHT Depth_____	3493.000	F
Borehole Temperature_____	127.0	DEGF
Temperature Gradient_____	1.00	DFHF
Resistivity Of Mud_____	0.20	OHMM
Standoff_____	1.5	
Resistivity Of Mud Temperature_____	50.00	DEGF

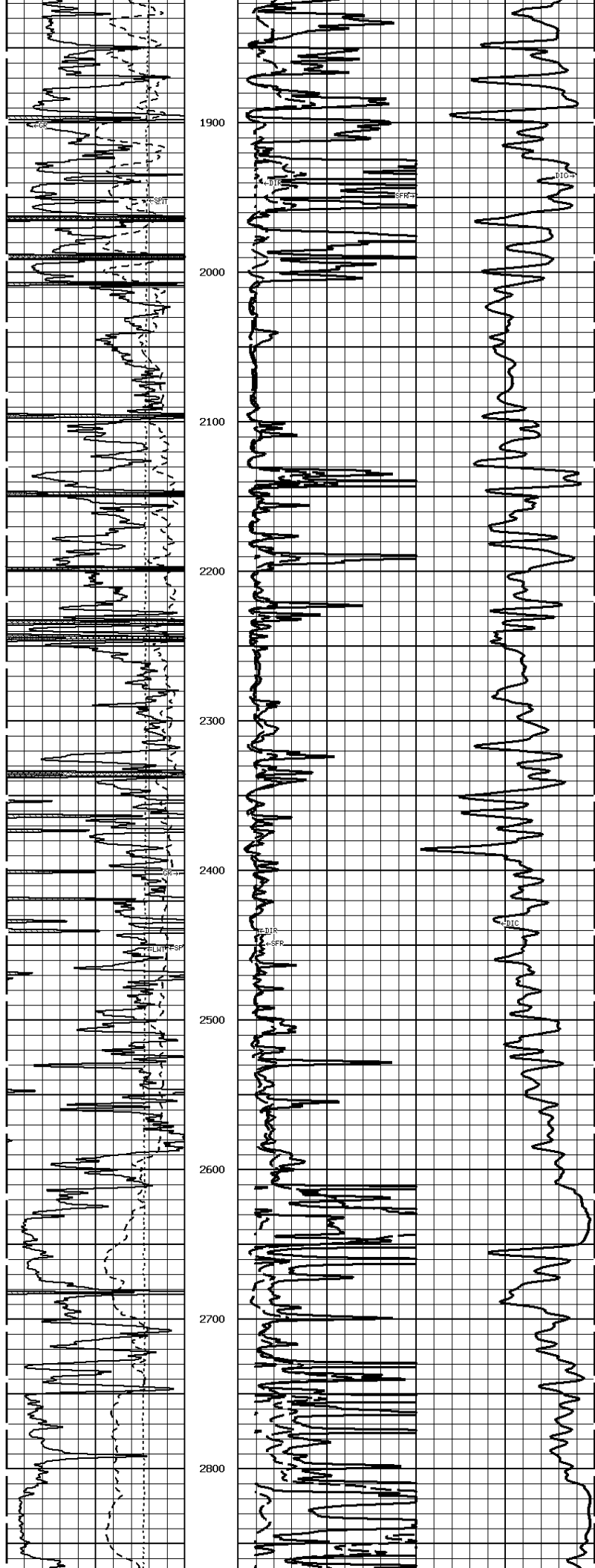
*** Calibration Summary ***

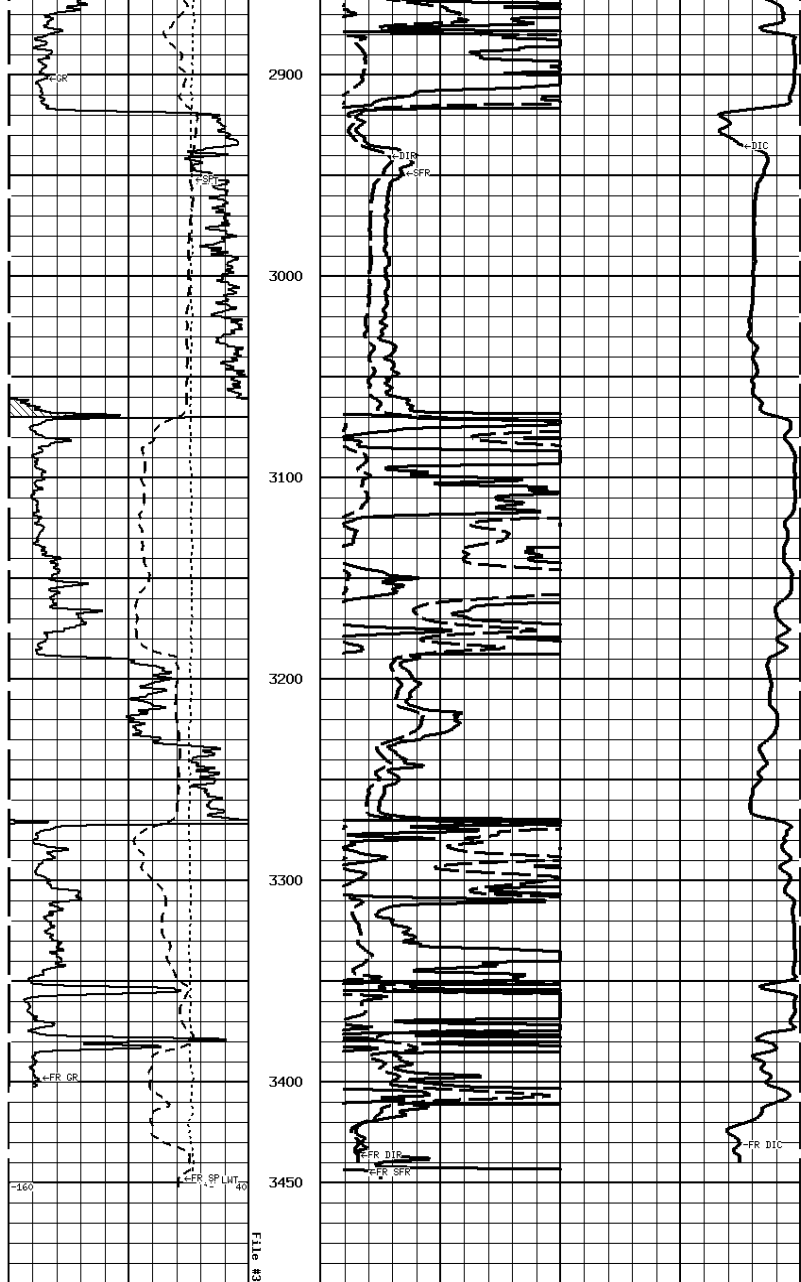
Shop Calibration GRTB						
Performed : 21-Aug-2009			Time : 15:26			
Sensor Suite : GR-GR5			ID : GRT-BA-14			
	Measured		Units	Calibrated		Units
	Background	Jig		Jig		
GR	49	347	CPS	175		GRAPI
Shop Calibration PIT						
Performed : 30-JUN-2010			Time : 14:33			
Sensor Suite : P-IND-T			ID : PIT-AB-14			
Medium						
	Measured		Calibrated		Units	
	R	X	R	X		
Air	131256	130213	0.6	1.7	MMHOS	
Zero	131067	131070	0.0	0.0	MMHOS	
Reference	247915	247872	5000.0	5000.0	MMHOS	
Loop	151253	173280	2699.9	989.7	MMHOS	
Sonde Error			-2.5	-2.4	MMHOS	
Cond			5000.0	5000.0	MMHOS	
Deep						
	Measured		Calibrated		Units	
	R	X	R	X		
Air	128953	131238	0.2	-0.0	MMHOS	
Zero	131079	131070	0.0	0.0	MMHOS	
Reference	231857	231317	2000.0	2000.0	MMHOS	
Loop	149299	174773	1272.5	464.8	MMHOS	
Sonde Error			-4.7	0.1	MMHOS	
Cond			2000.0	2000.0	MMHOS	
Temperature						
	Measured		Calibrated		Units	
	Low	High	Low	High		

The figure shows a typical data printout from a well logging system, organized into three main sections:

- TENSION LBS:** The top section displays a tension reading of 10000 LBS. Below this, a dashed line indicates a scale from 0 to 10000.
- SPONTANEOUS POTENTIAL mV:** The middle section displays a spontaneous potential reading of 20 mV. Below this, a dashed line indicates a scale from 0 to 20.
- GAMMA RAY API UNITS:** The bottom section displays a gamma ray reading of 150 API units. Below this, a dashed line indicates a scale from 0 to 300.

Each section also includes a graphical representation of the data, showing a shaded area representing the measured value relative to the scale.





1:1200 SECTION
1 INCH

