



Tucker

ENERGY SERVICES

PHASED INDUCTION

SHALLOW FOCUS SP LOG

Company	CHIEFTAIN OIL CO. INC.
Well	AHS CATTLE CO. #11
Field	STRANAHAN
County	BARBER
State	KANSAS
Country	USA
API No.	15-007-24254
File No	TUL-60426
Company	CHIEFTAIN OIL CO. INC.
Well	AHS CATTLE CO. #11
Field	STRANAHAN
County	BARBER
State	KANSAS
Country	USA
API No	15-007-24254
Location	1200' FNL & 660; FEL S2 S2 NE NE
LSD	Sect : 12 Twp : 35S Rge : 12W

Permanent Datum:	GL	Elevations:	KB 1400.00	Ft	Services:	CNT	PIT
Drilling Measured From:	KB	DF	1399.00	Ft	LDT	MLT	
Log Measured From:	KB	GL	1390.00	Ft			
Above Permanent Datum:	10.00	Ft					
Date	12-22-2014						
Run Number	1						
Depth--Driller	5457.0	Ft					
Depth--Logger	5452.0	Ft					
First Reading	5452.0	Ft					
Last Reading	320.0	Ft					
Casing--Driller	313.0	Ft					
Casing--Logger	320.0	Ft					
Bit Size	7.875	In					
Casing Size	8.625	In					
Hole Fluid Type	WBM						
Density	9.4						
Fluid Loss	8.8						
PH/Viscosity	9.0	48.0					
Sample Source	MEASURED						
RM@Measured Temp.	1.000	@ 50 F					
RMF@Measured Temp	0.850	@ 50 F					
RMG@Measured Temp.	1.150	@ 50 F					
Source RMF/RMC	CALCULATED	CALCULATED					
RM@BHT	0.420	@ 128 F					
Time Circulation Stopped							
Max Recorded Temp.	130	F					
Equipment/Base	T-126	TULSA					
Recorded By	S.K. DAVIS						
Witnessed By	D. BARKER						

The customer is hereby warned that by providing the log data herein, T. E. S. does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. T. E. 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. E. 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. E. 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.

Bitsize Intervals		Casing Strings			
Size (In)	Bottom (Ft)	Size (In)	Weight (Lbs)	Bottom (Ft)	Top (Ft)
7.875	5452.00	8.625	20.00	320.00	0.00

Run Number	1	
Date	12-22-2014	
Date/Time On Bottom	12-22-2014 11:30 pm	
Depth to Fluid	0.0 Ft	
Salinity	3500.000	
RMF@BHT	0.360 @ 128 F	
RMC@BHT	0.480 @ 128 F	

Run Number 1

Comments

ALL PRESENTATION PER CUSTOMER REQUEST
 GRT,CNT,LDT,PIT RUN IN COMBINATION
 CALIPERS ORIENTED ON X-Y AXIS
 2.71 G/CC USED TO CALCULATE POROSITY
 ANNULAR & BOREHOLE VOLUME CALCULATED USING 5.5 PRODUCTION CASING
 PHIN IS CALIPER CORRECTED
 DETAIL IS PRESENTED FROM TD TO 3700'
 SALT / ANHYDRITE SECTION FROM 1750' TO 1200'

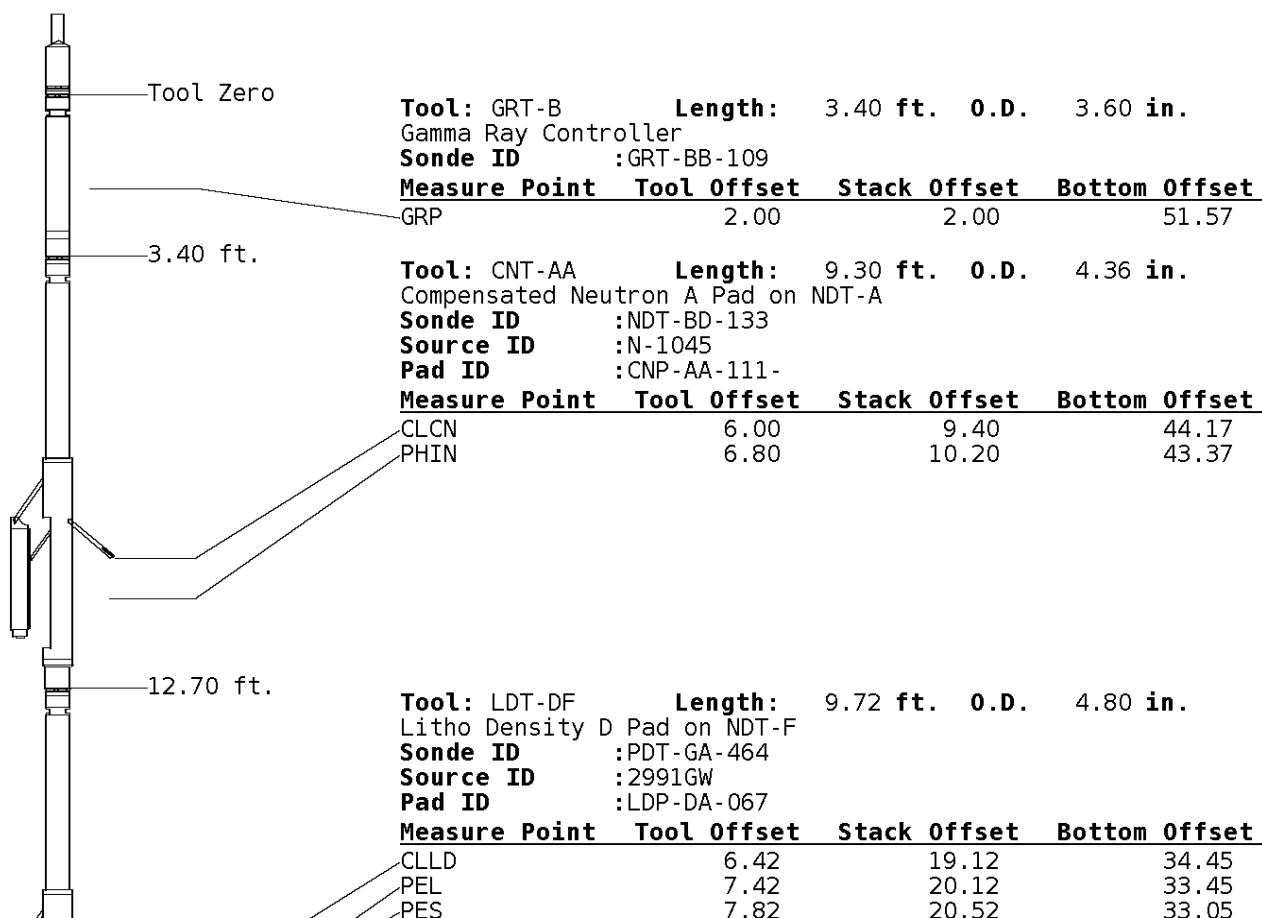
GRT; GRP,
 CNT; PHIN, CLCNIN
 LDT; PORL, LCORN, PECLN, LDENN, CLLDIN
 MLT; NOR.RF, INV.RF, MSCLPIN.
 PIT; ILD, ILM, SPU, SFLAEC, CIRD

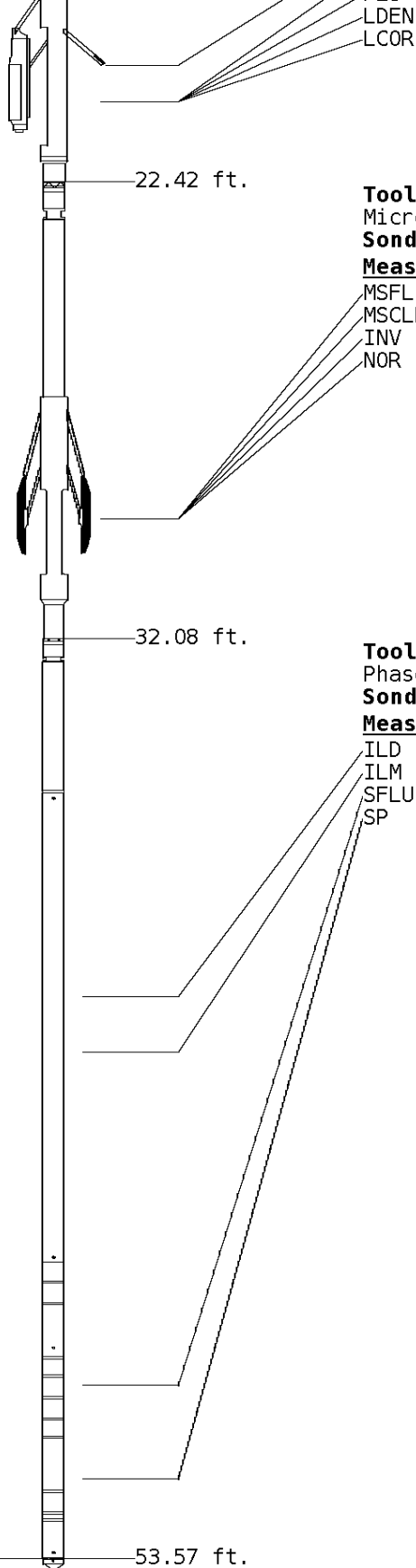
OPERATORS;

C. GONZALES
 J. OFFIENGBU

Tool String Schematic

Total Tool Length - 53.57 ft.
Maximum Outside diameter - 6.00 in.
Net Weight in Air - 943.00 lbs.





Tool: MST-DA Length: 9.66 ft. O.D. 6.00 in.
 Micro Spherically Focused (IC)
 Sonde ID :MST-DA-057

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55

Tool: PIT-CA Length: 21.49 ft. O.D. 3.62 in.
 Phased Dual Induction w/ RM & D
 Sonde ID :PIT-CA-075

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	41.00	12.56
ILM	10.10	42.18	11.39
SFLU	17.49	49.57	4.00
SP	20.60	52.68	0.88

Well File: chief-ahs-11-mstk-dec-22

Scale: 1:600 Format: DIL-600

Segment: V1.D1.S5 MN

Acquired: 2014-12/22 23:38 3.4.0-13284

Reference: 0

Processed: 2014-12/23 01:25 3.4.0-13284

TENSION
LBS

10000

0

DEEP INDUCTION
OHMM

0.0

500.0

0.0

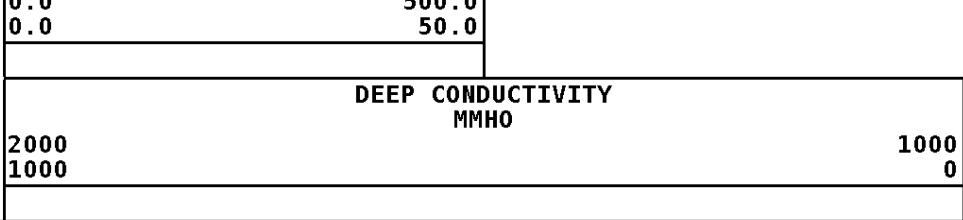
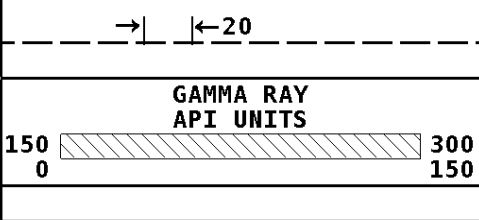
50.0

SPONTANEOUS POTENTIAL
mV

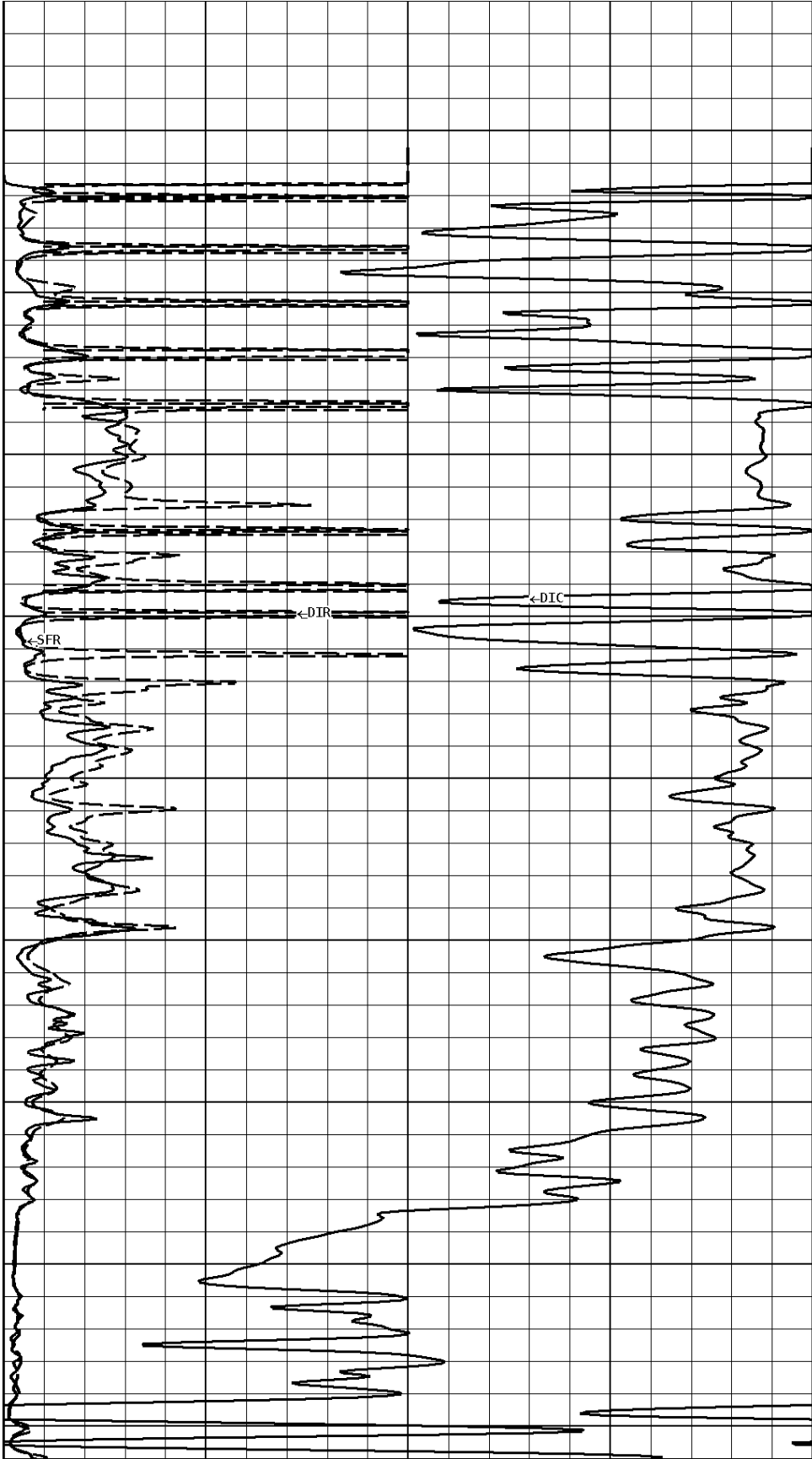
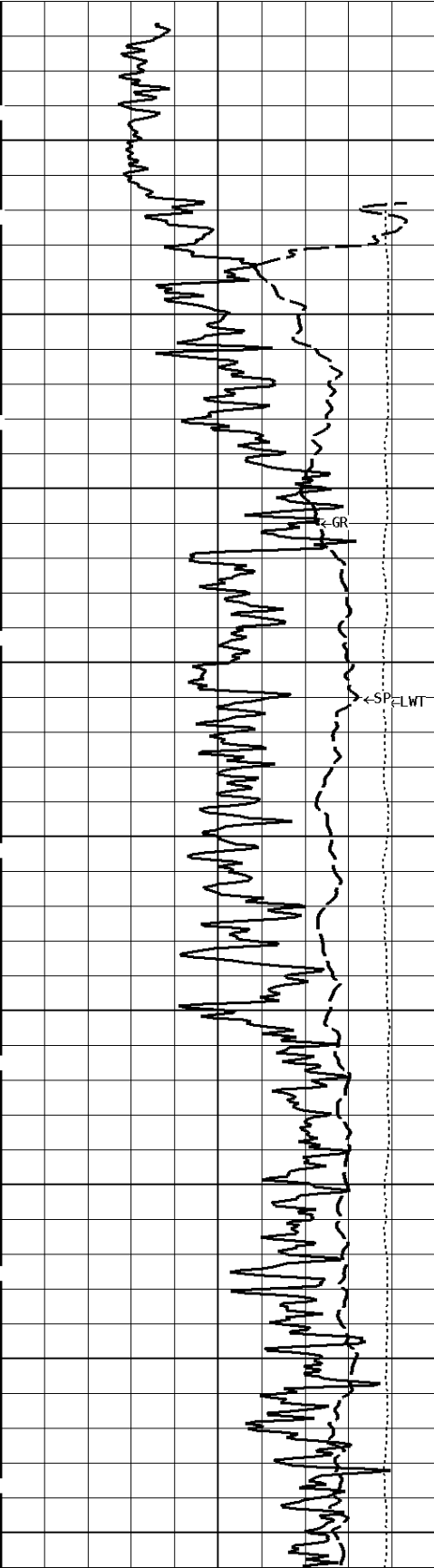
SHALLOW FOCUSED RESISTIVITY
OHMM

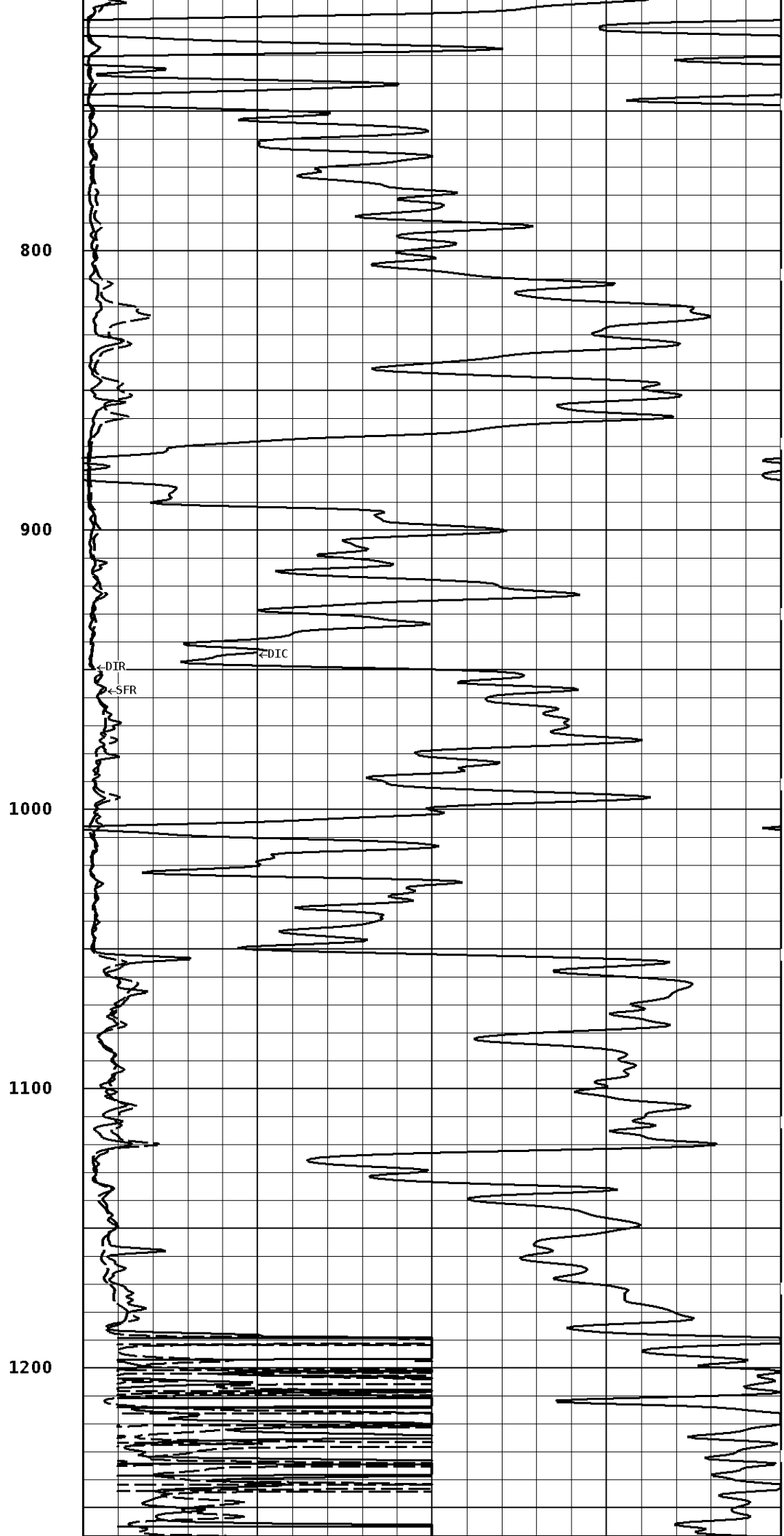
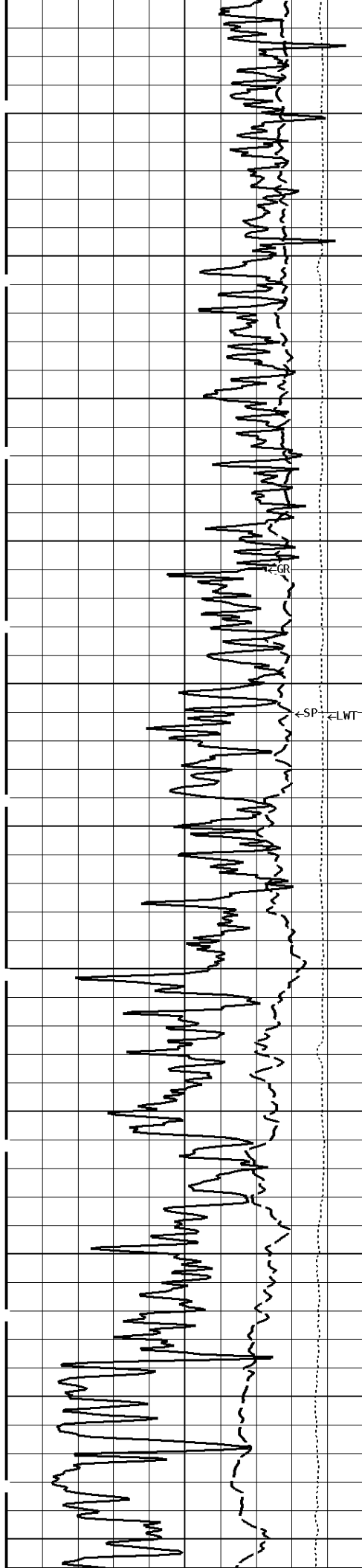
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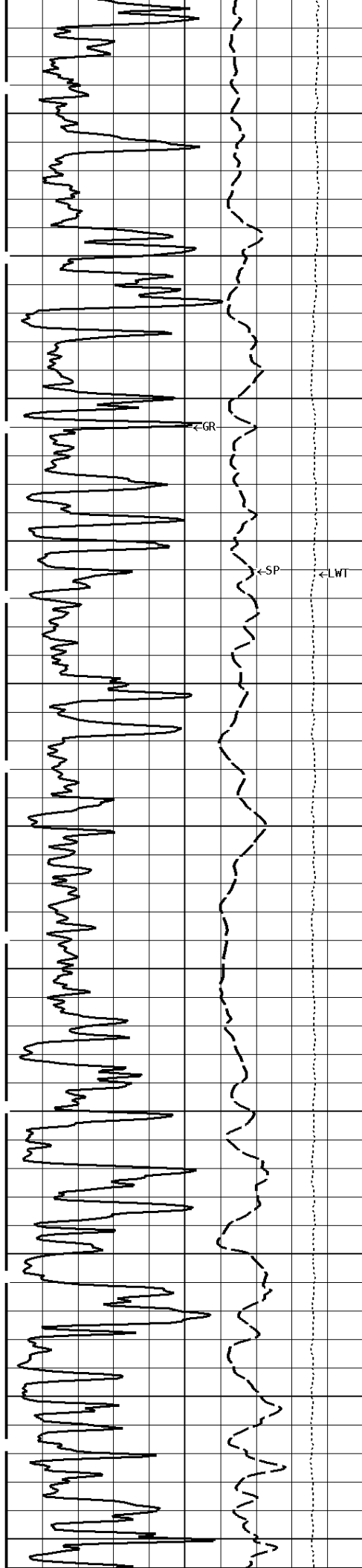
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1:600 MAIN SECTION







1300

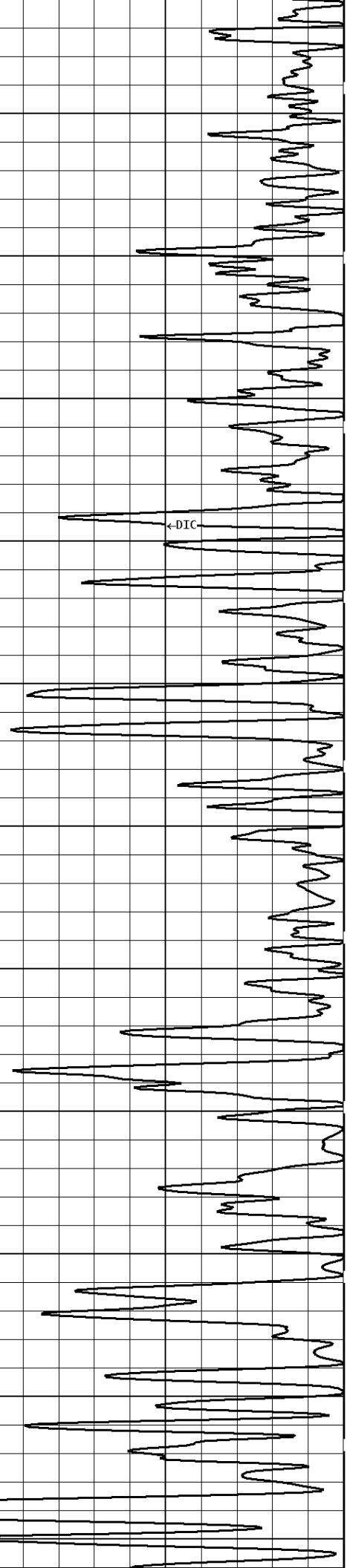
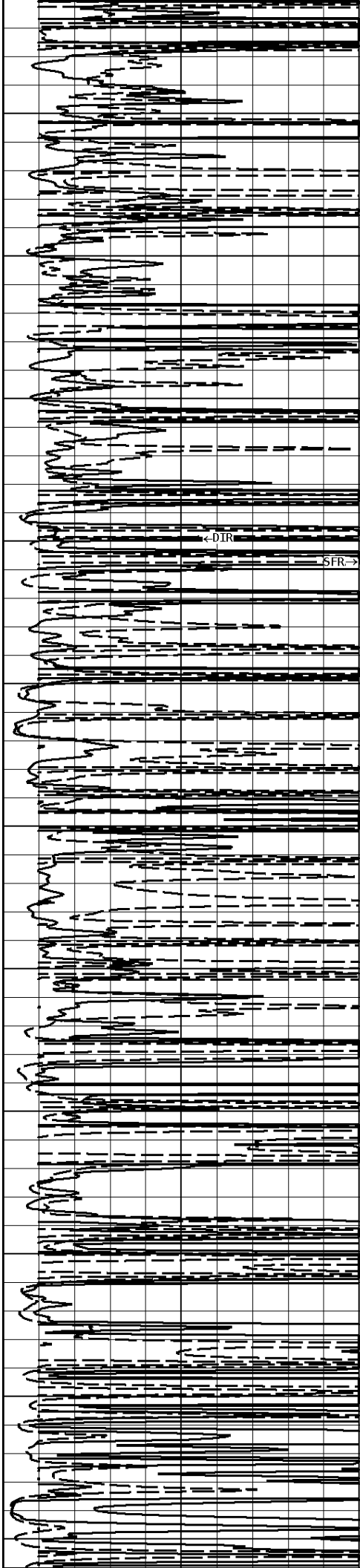
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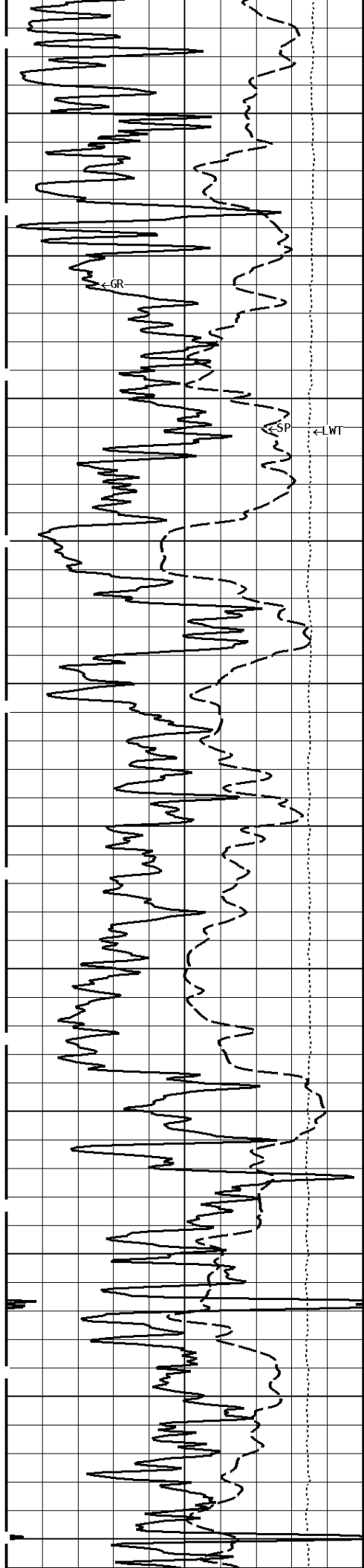
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1600

1700

1800





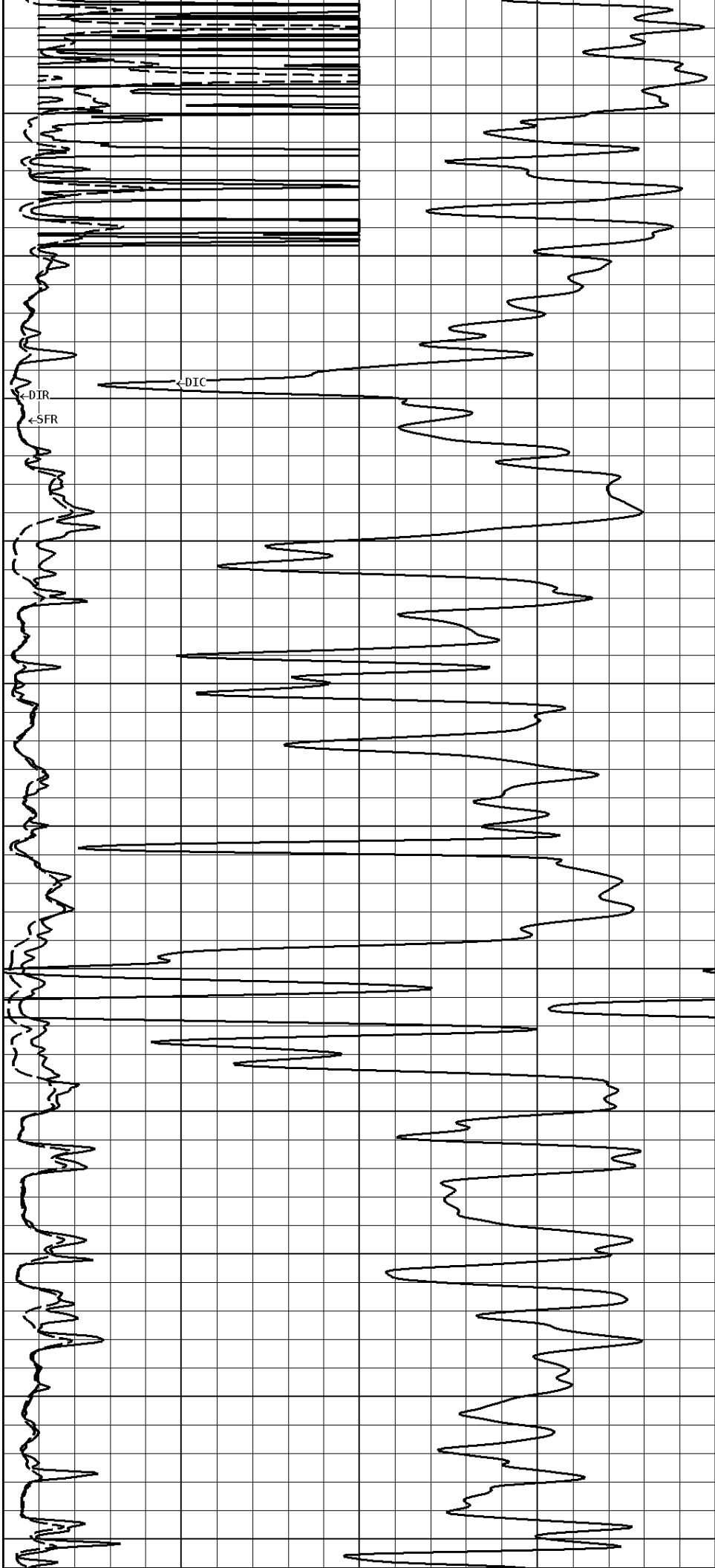
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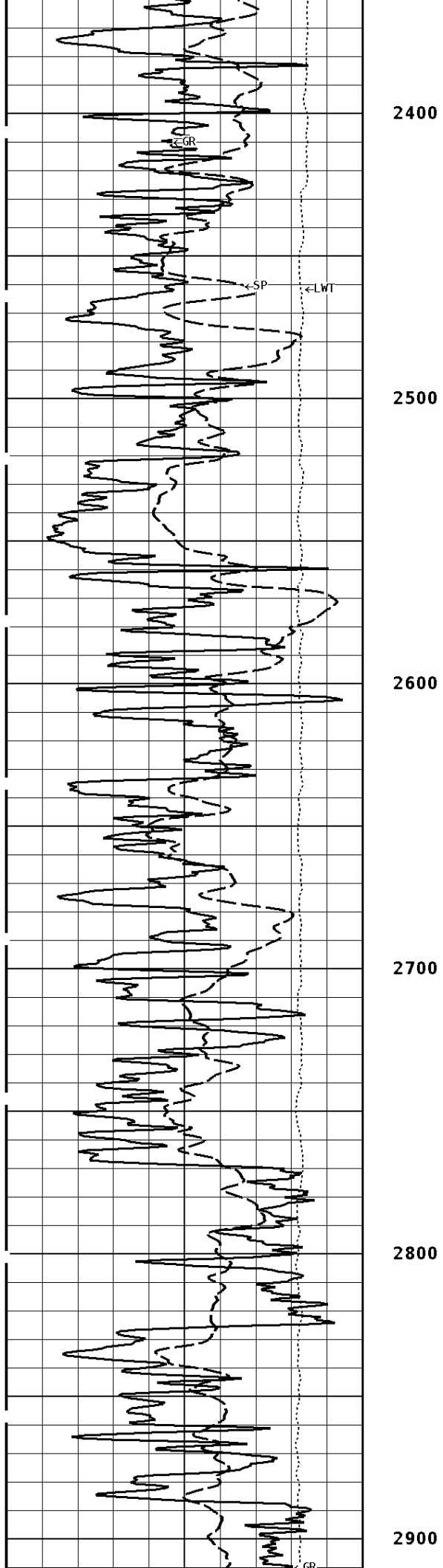
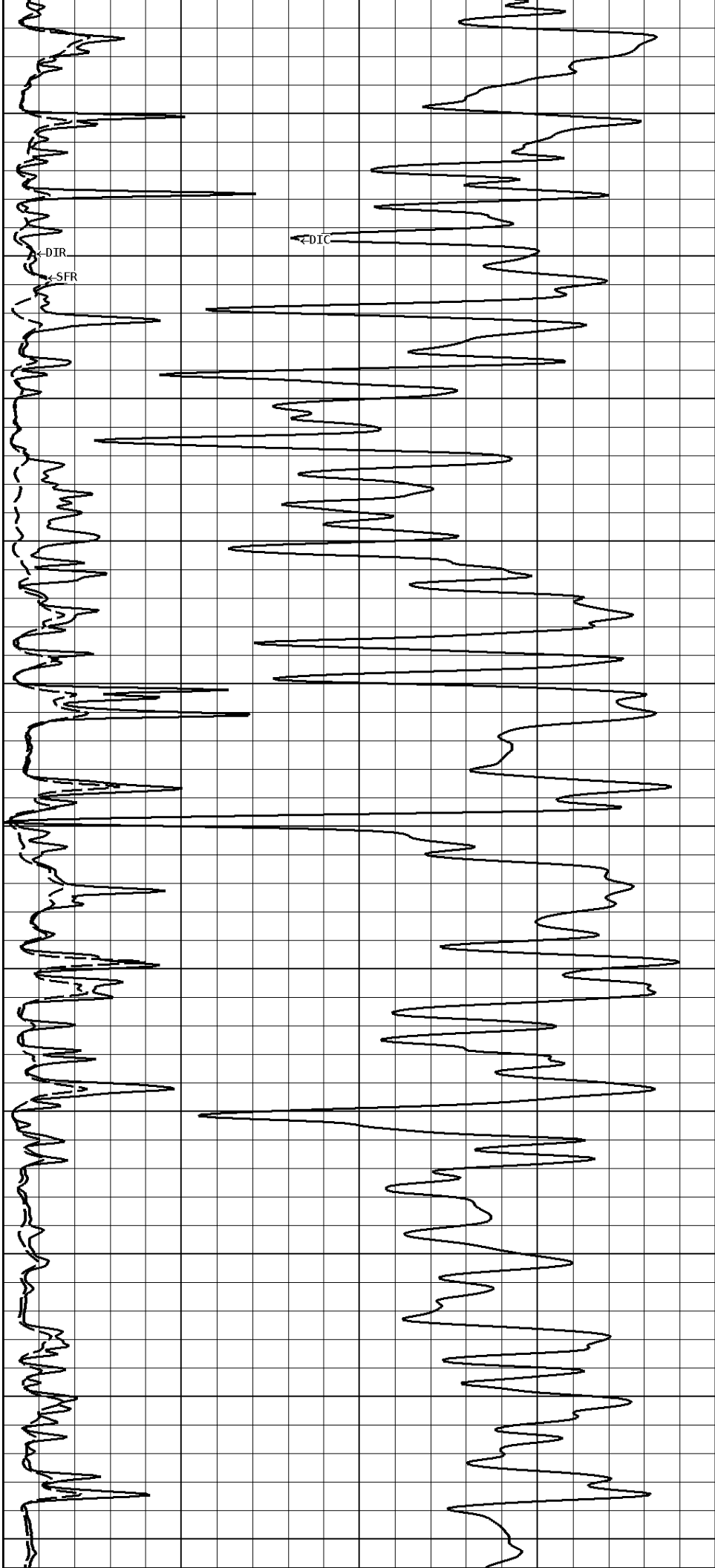
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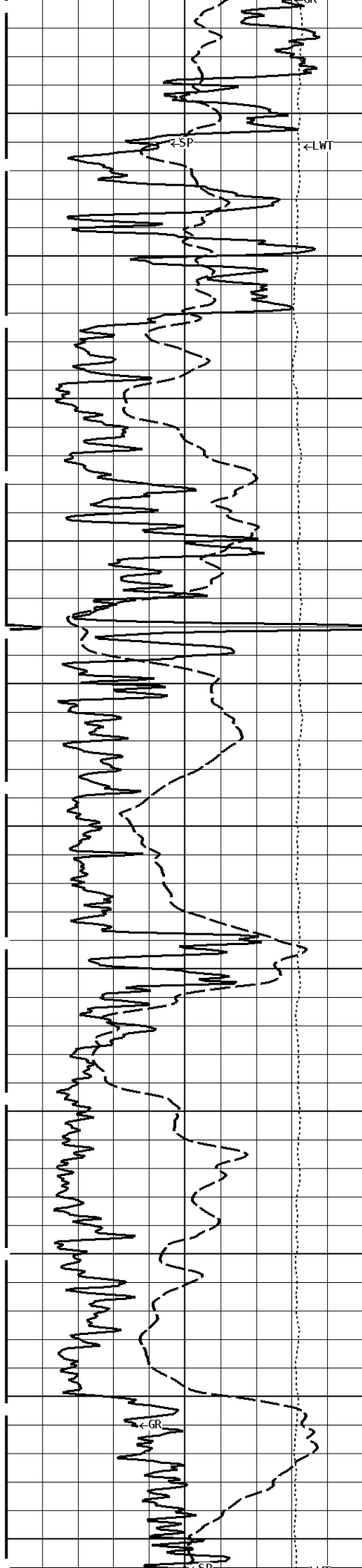
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2300







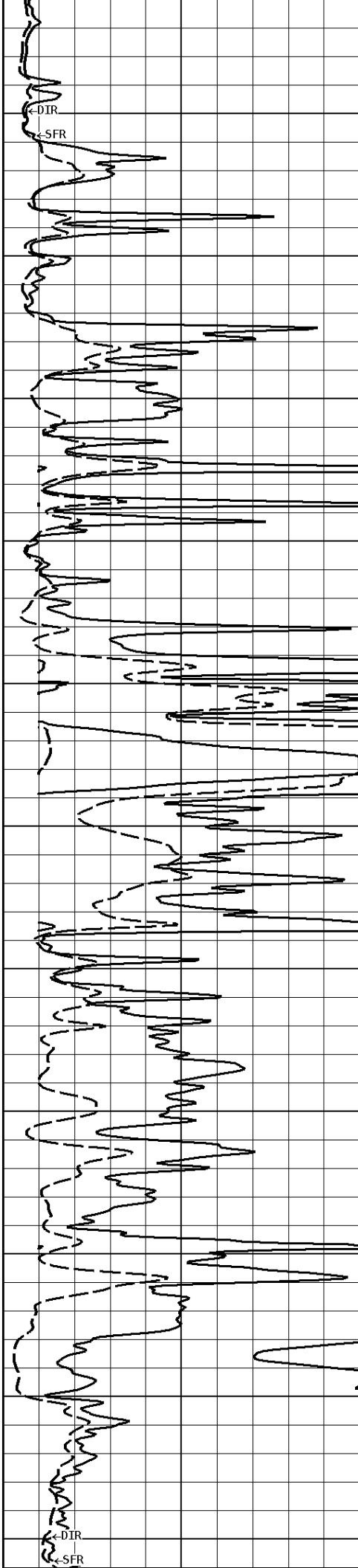
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3100

3200

3300

3400

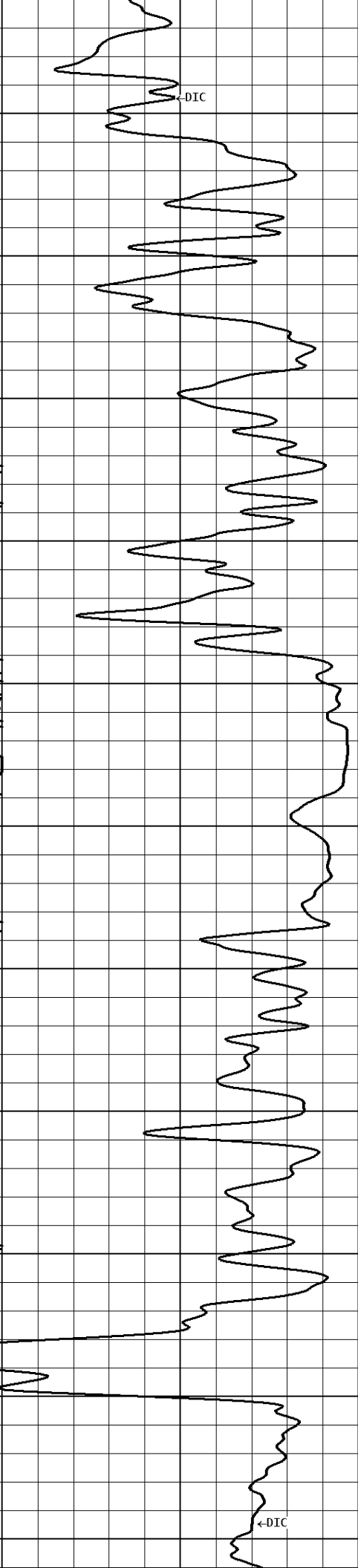


←DIR

←SFR

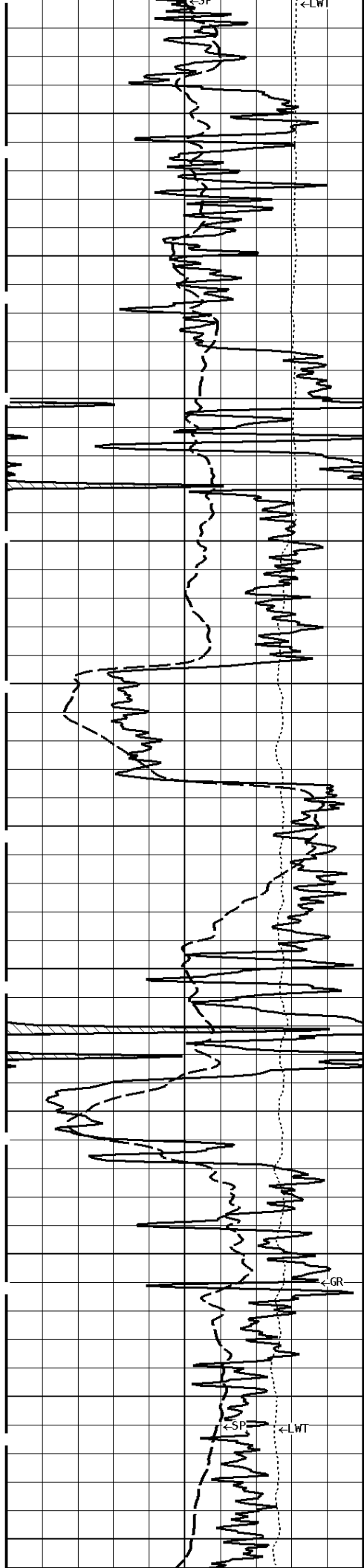
←DIR

←SFR



←DIC

←DIC



3500

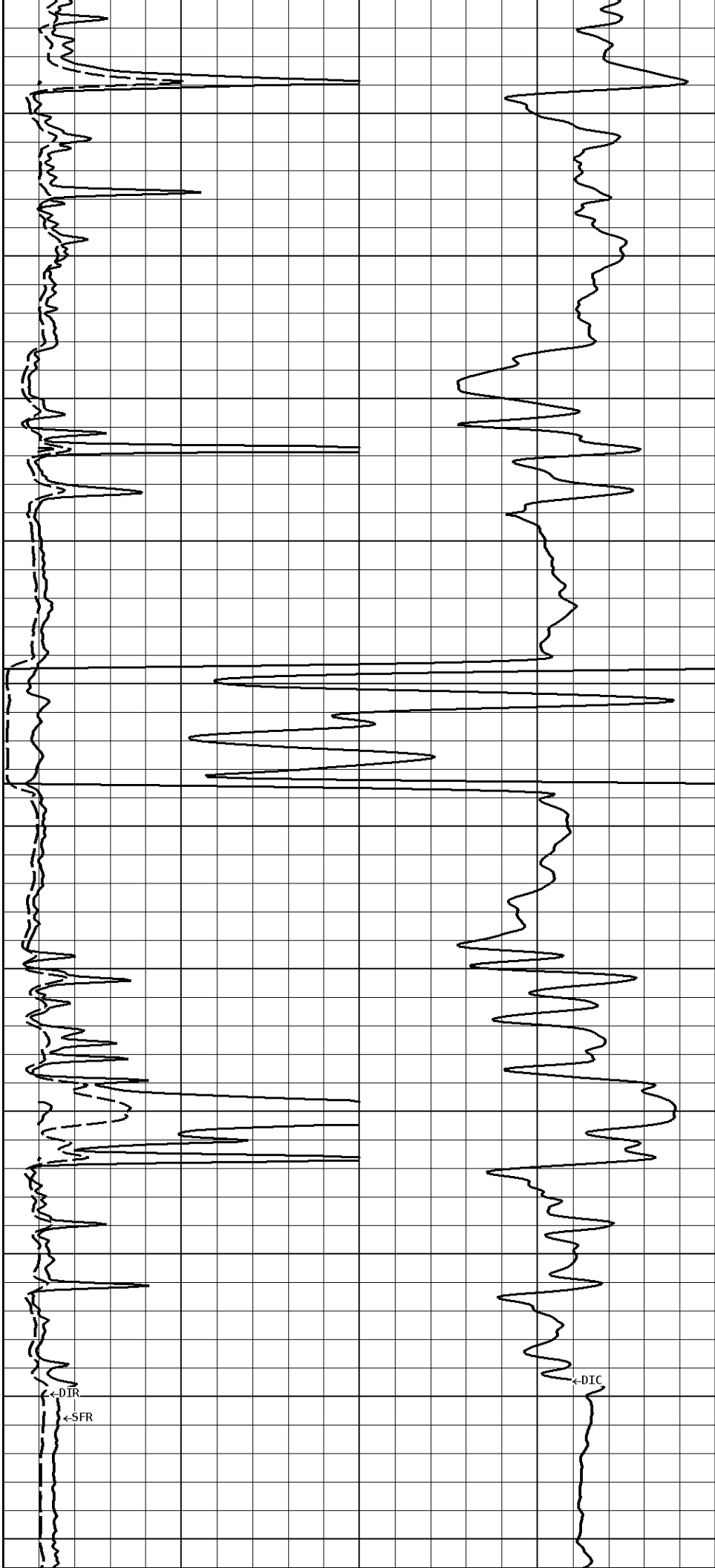
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3700

3800

3900

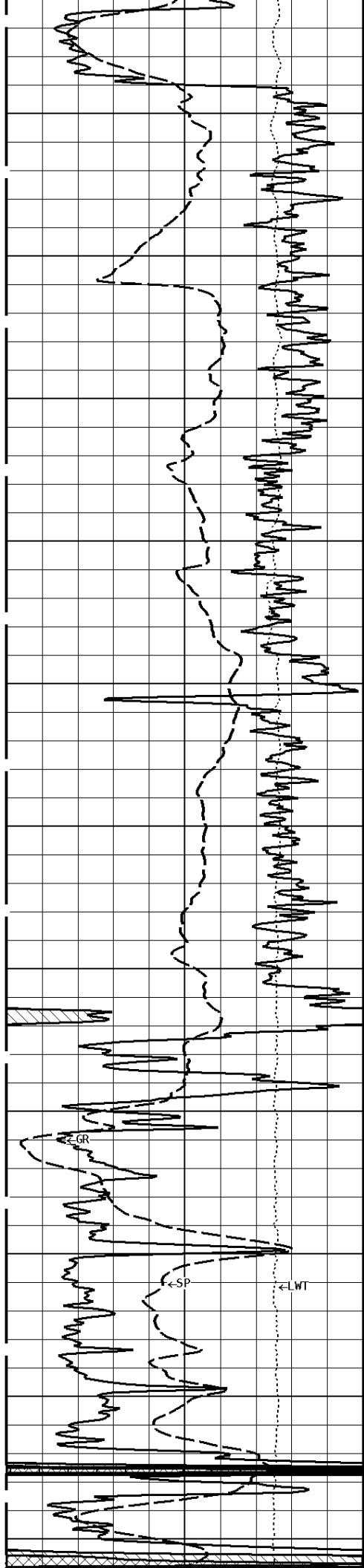
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←DIR

←SFR

←DTC



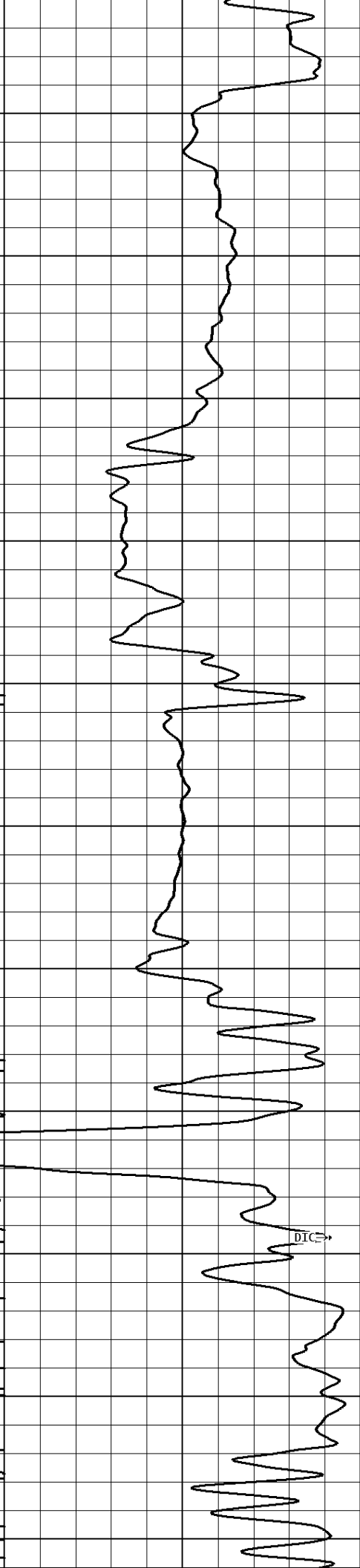
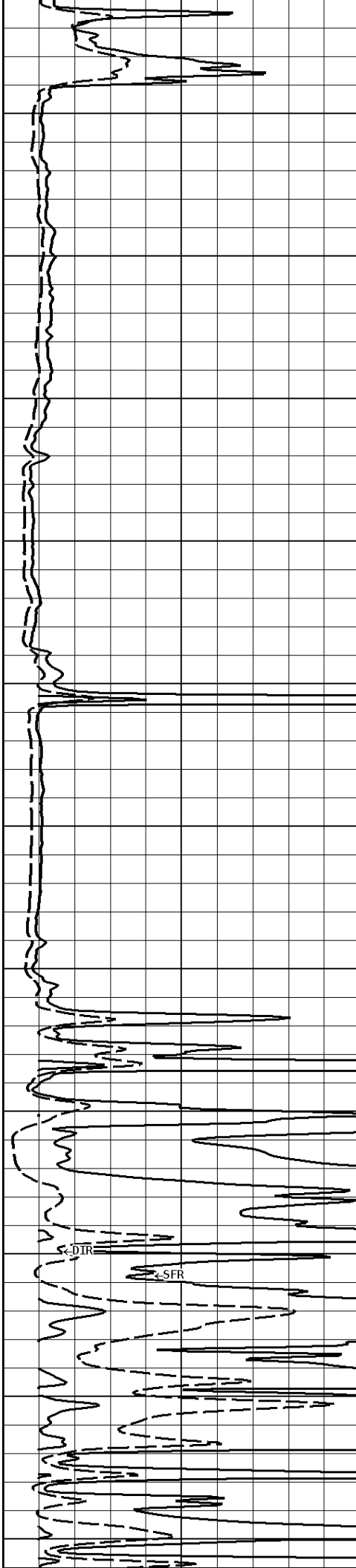
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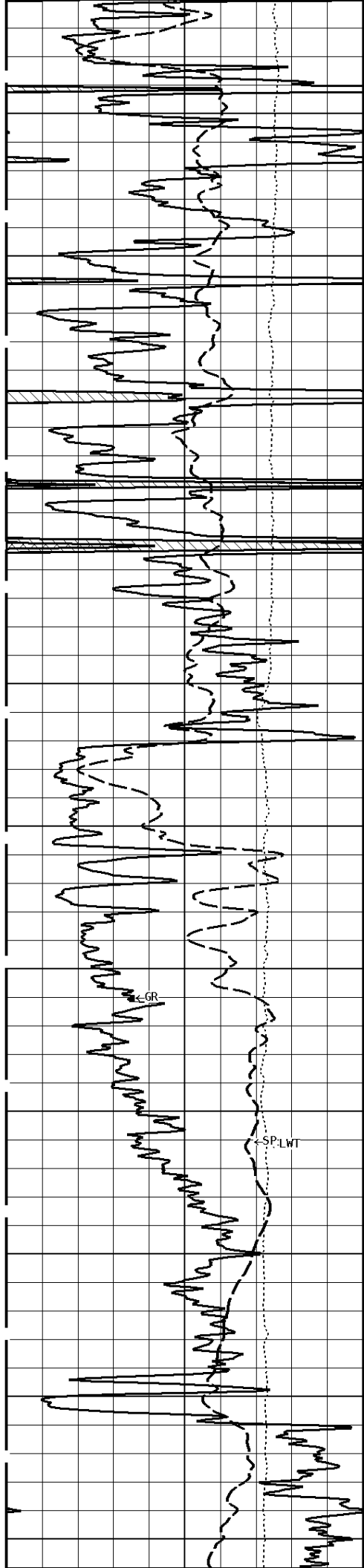
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4300

4400

4500





4600

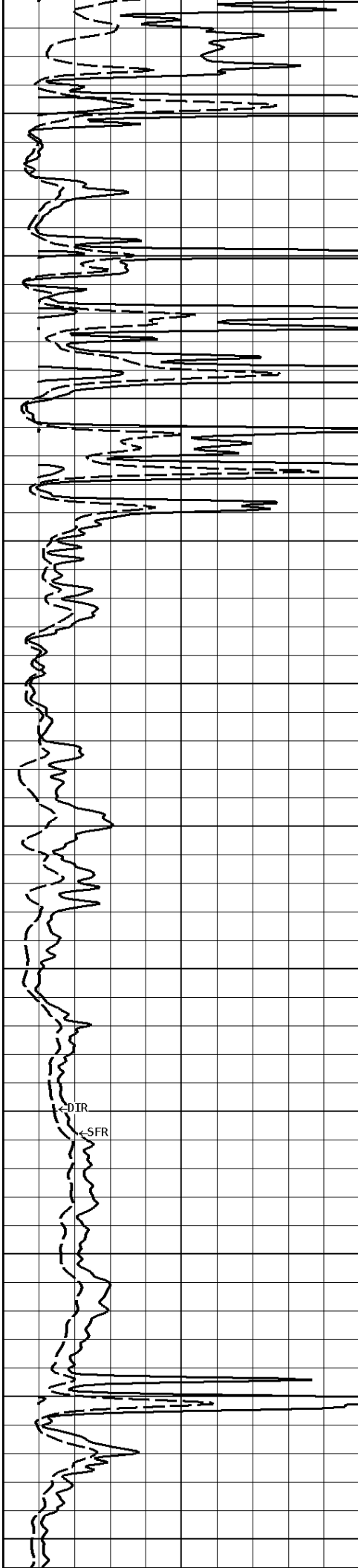
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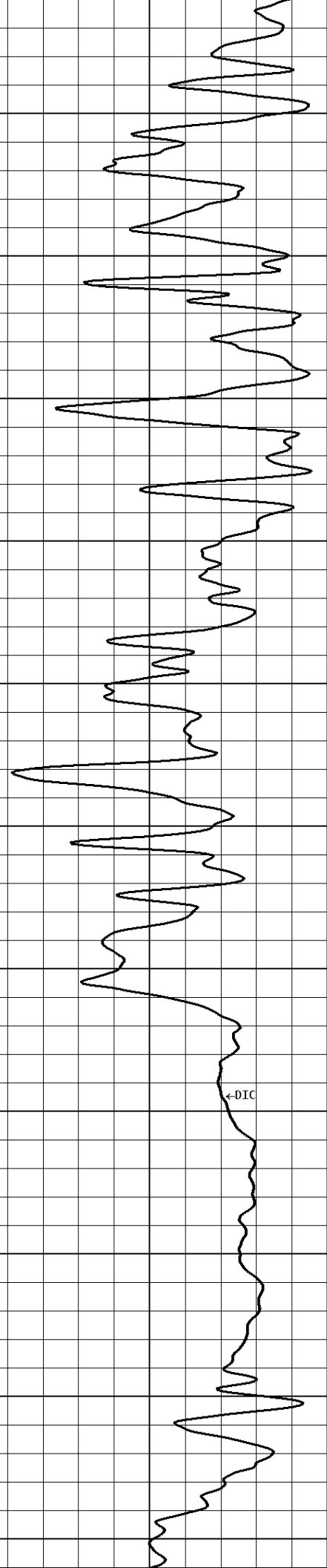
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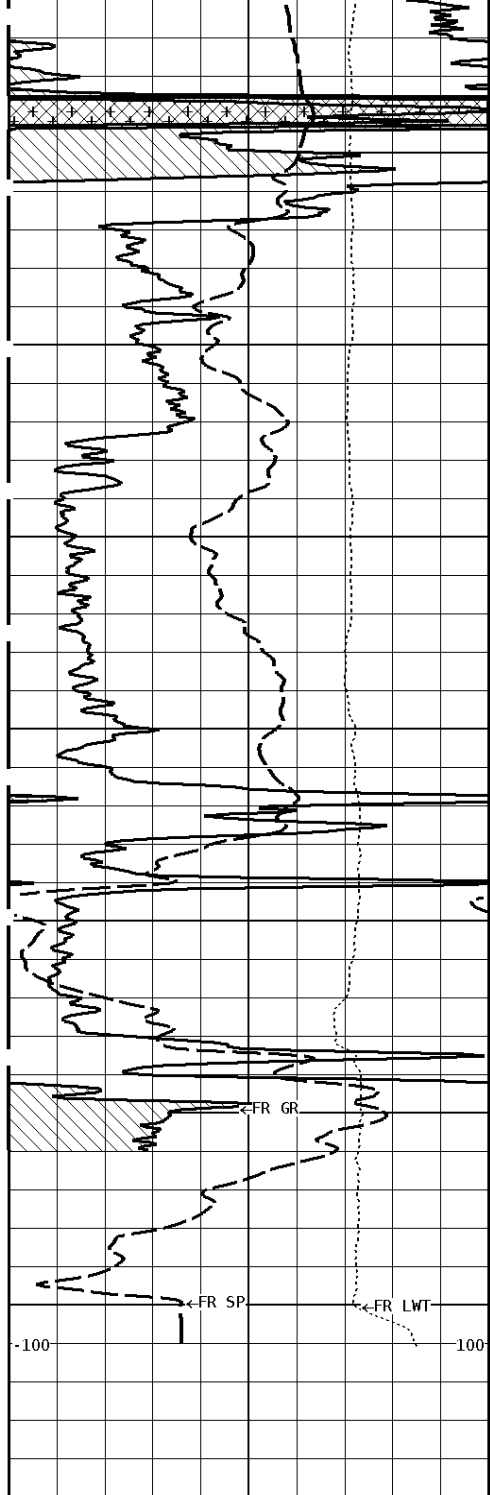


DTR

SFR



DIC



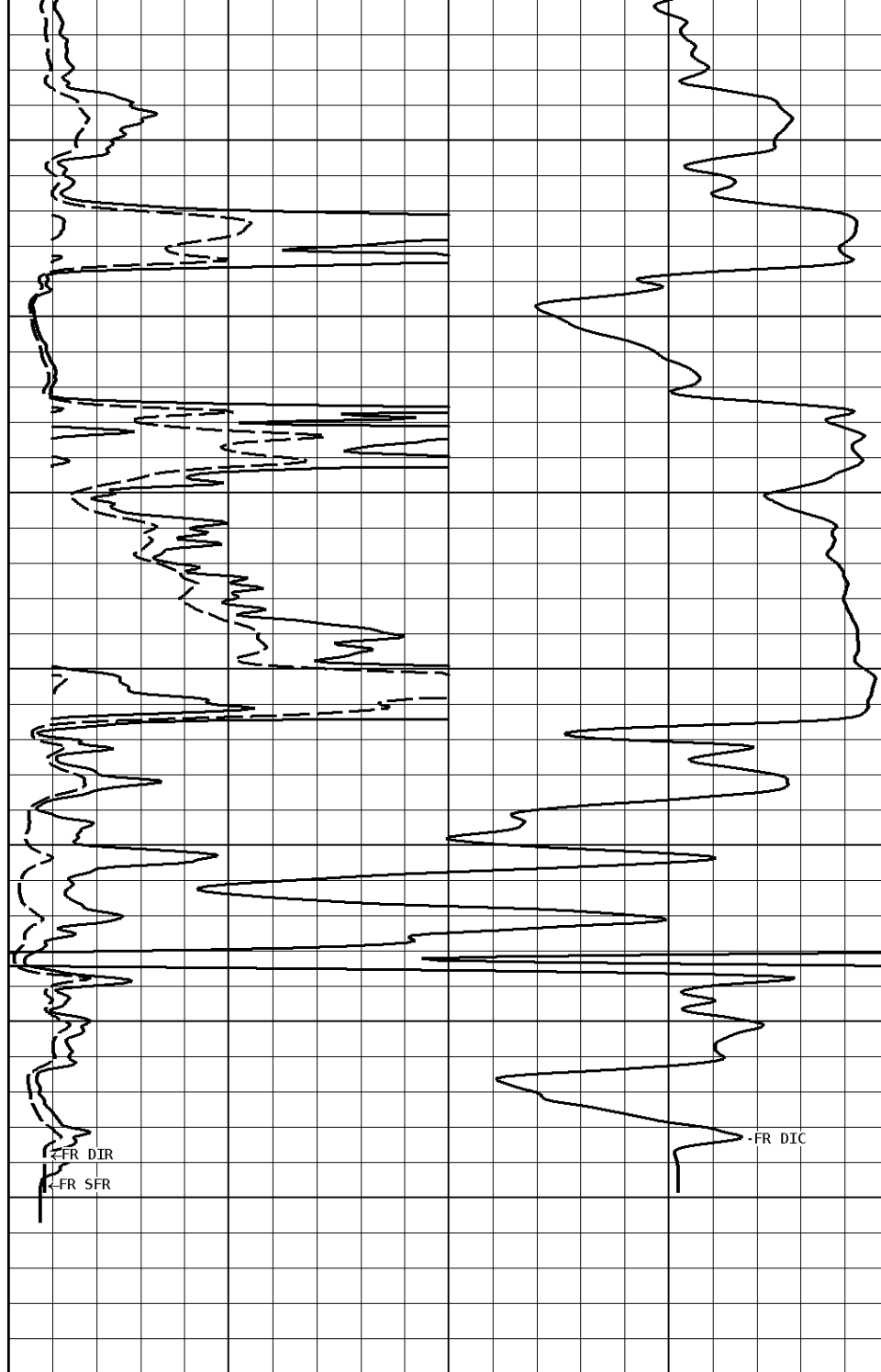
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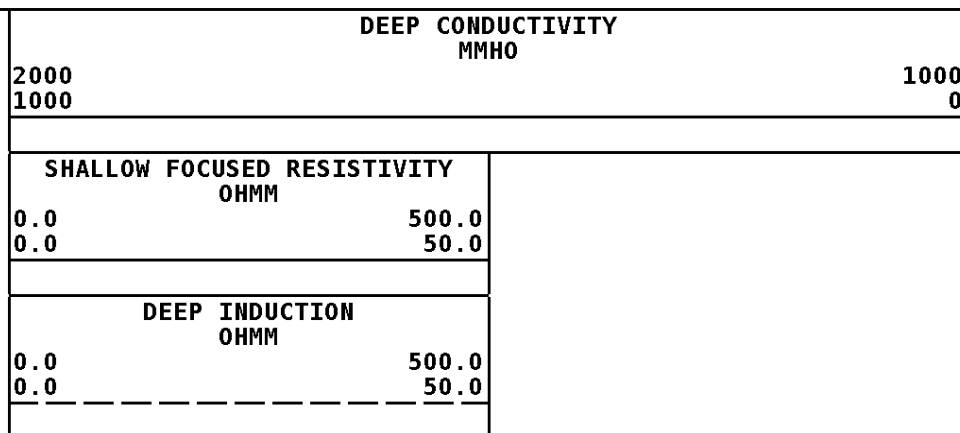
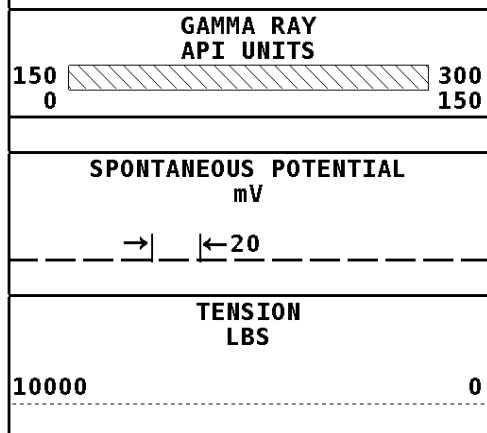
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5452

File #1.1.5

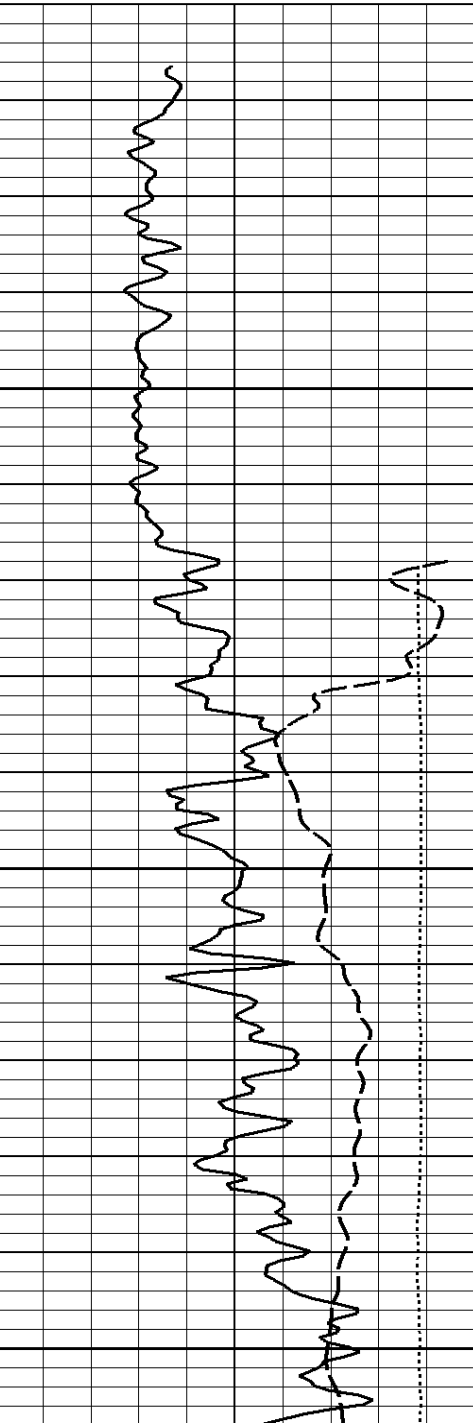


1:600 MAIN SECTION



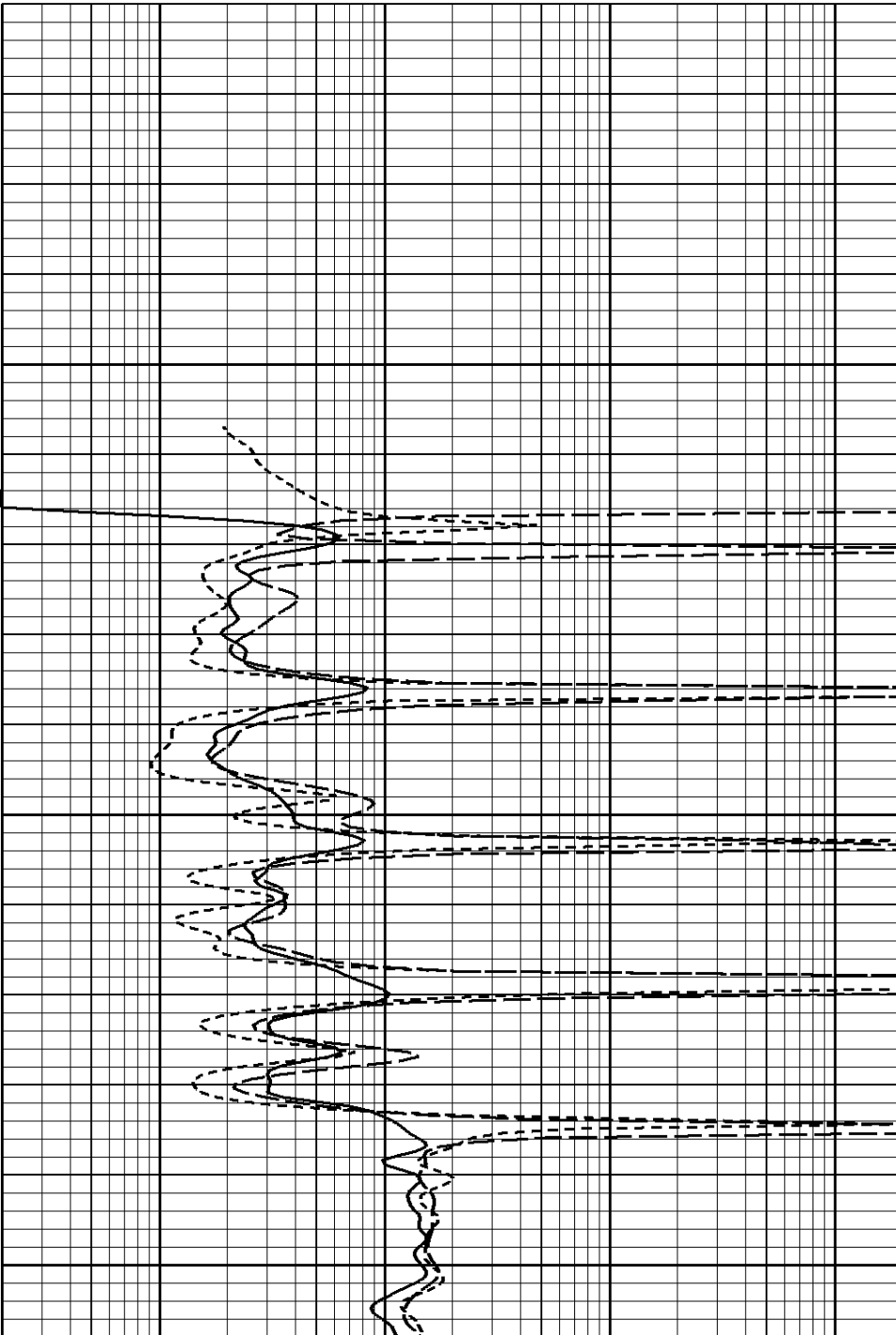
SPONTANEOUS POTENTIAL mV → ←20		DEEP INDUCTION OHMM 0.22000.0
TENSION LBS 100000		MEDIUM INDUCTION OHMM 0.22000.0
GAMMA RAY API UNITS 1500300		SHALLOW FOCUSED RESISTIVITY OHMM 0.22000.0

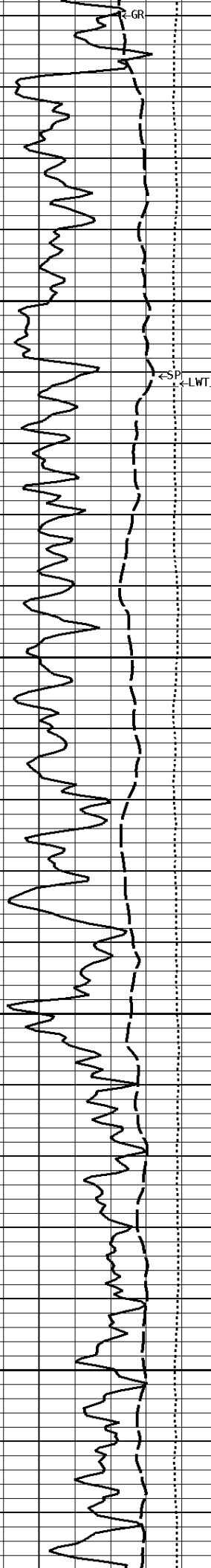
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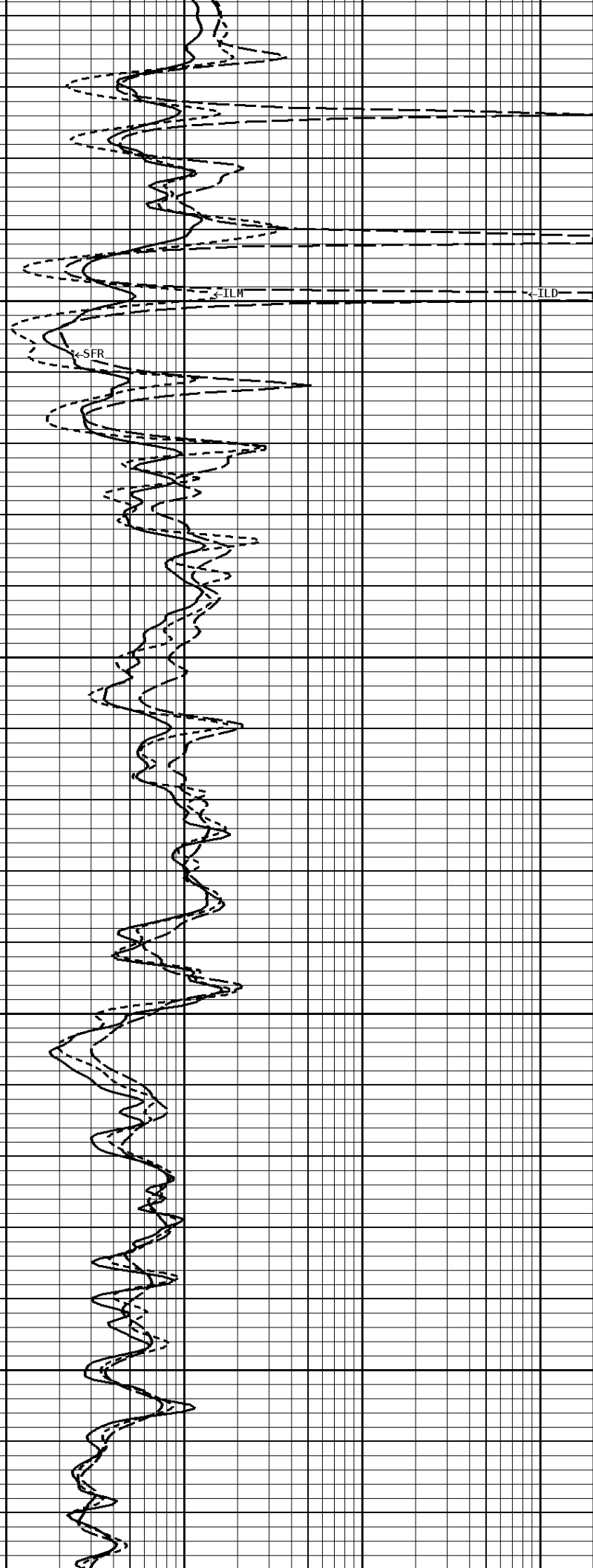
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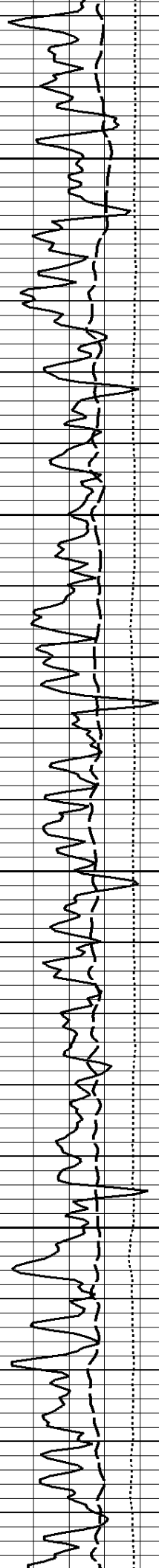




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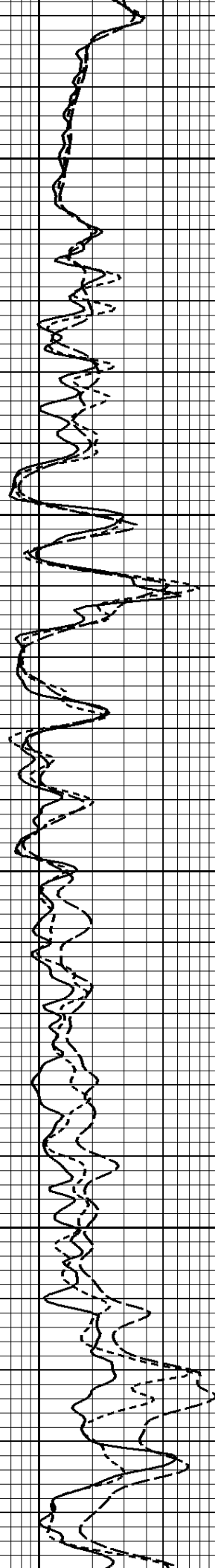
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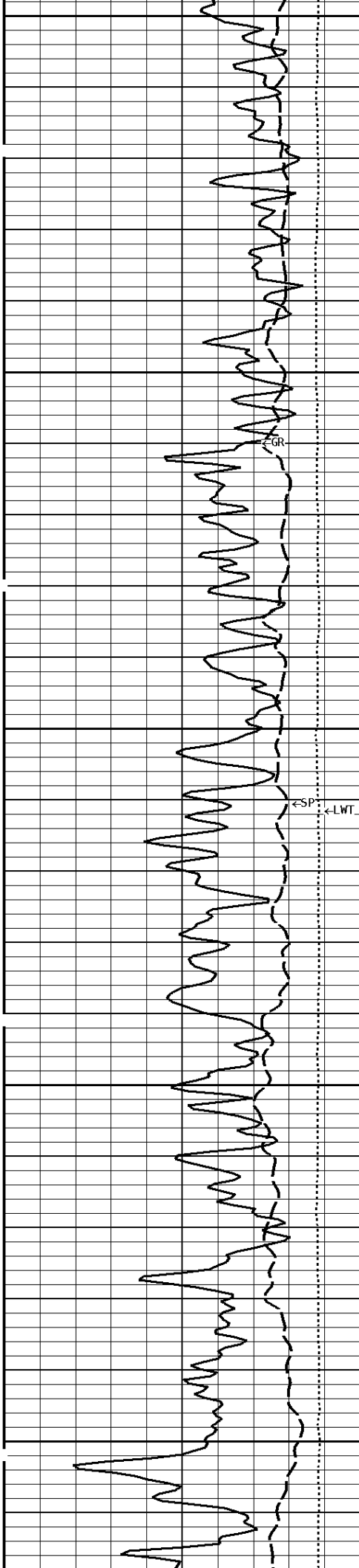




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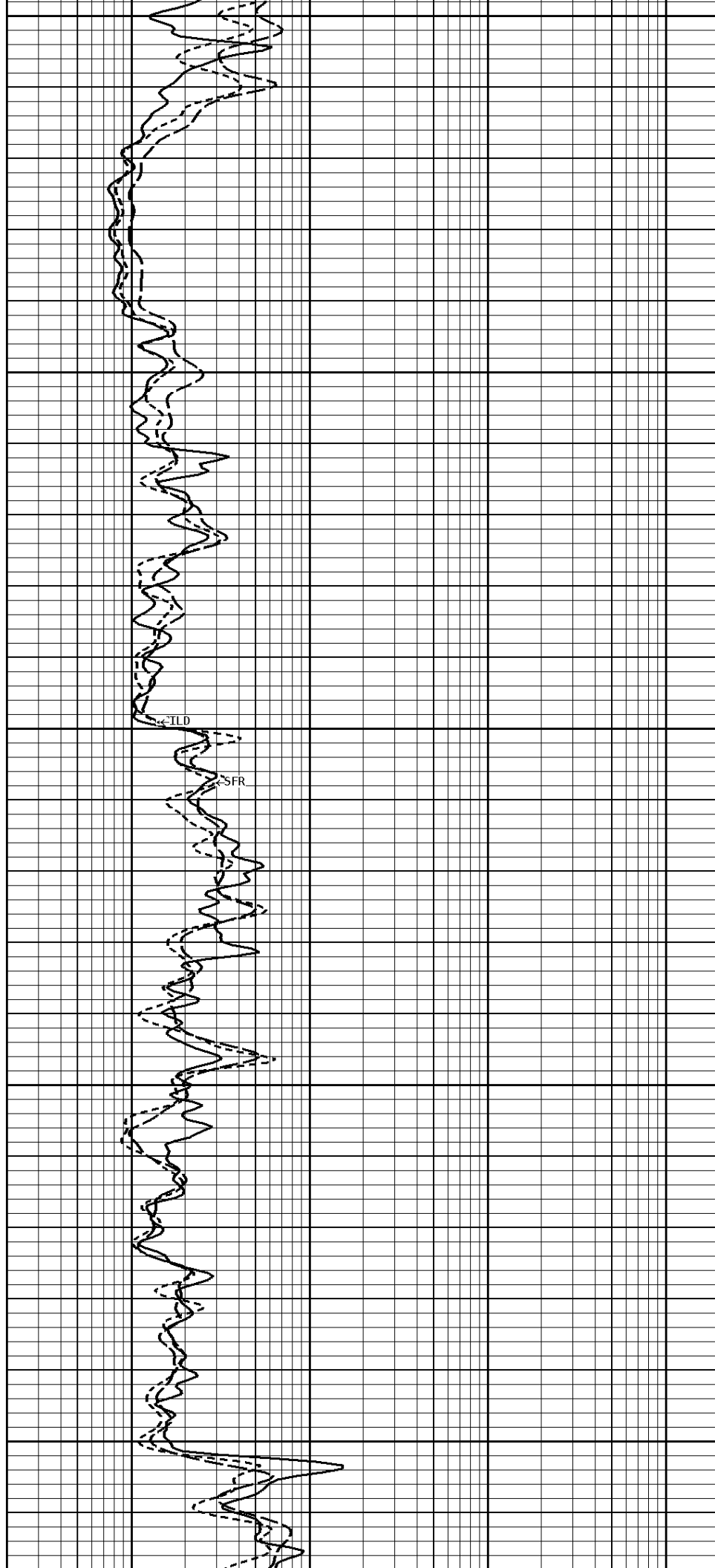
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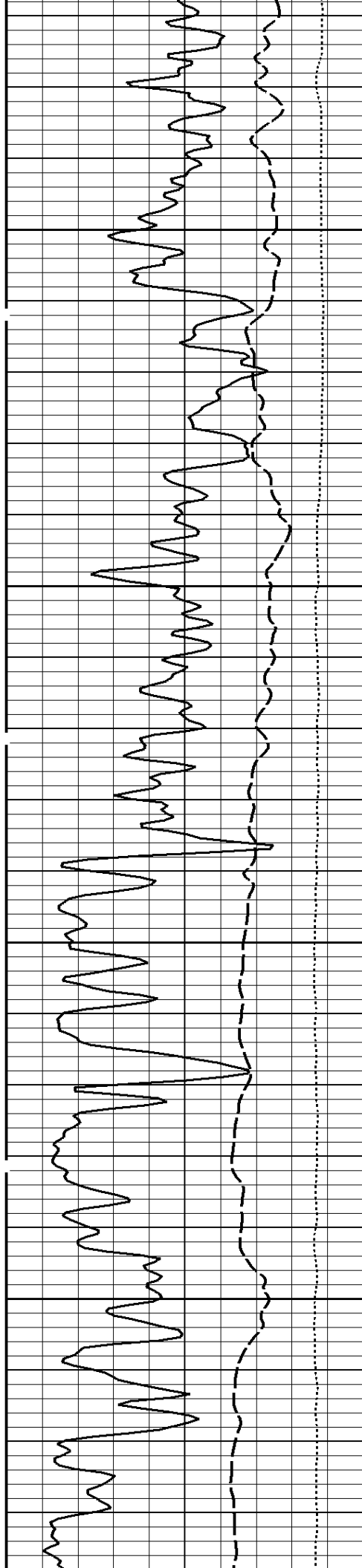




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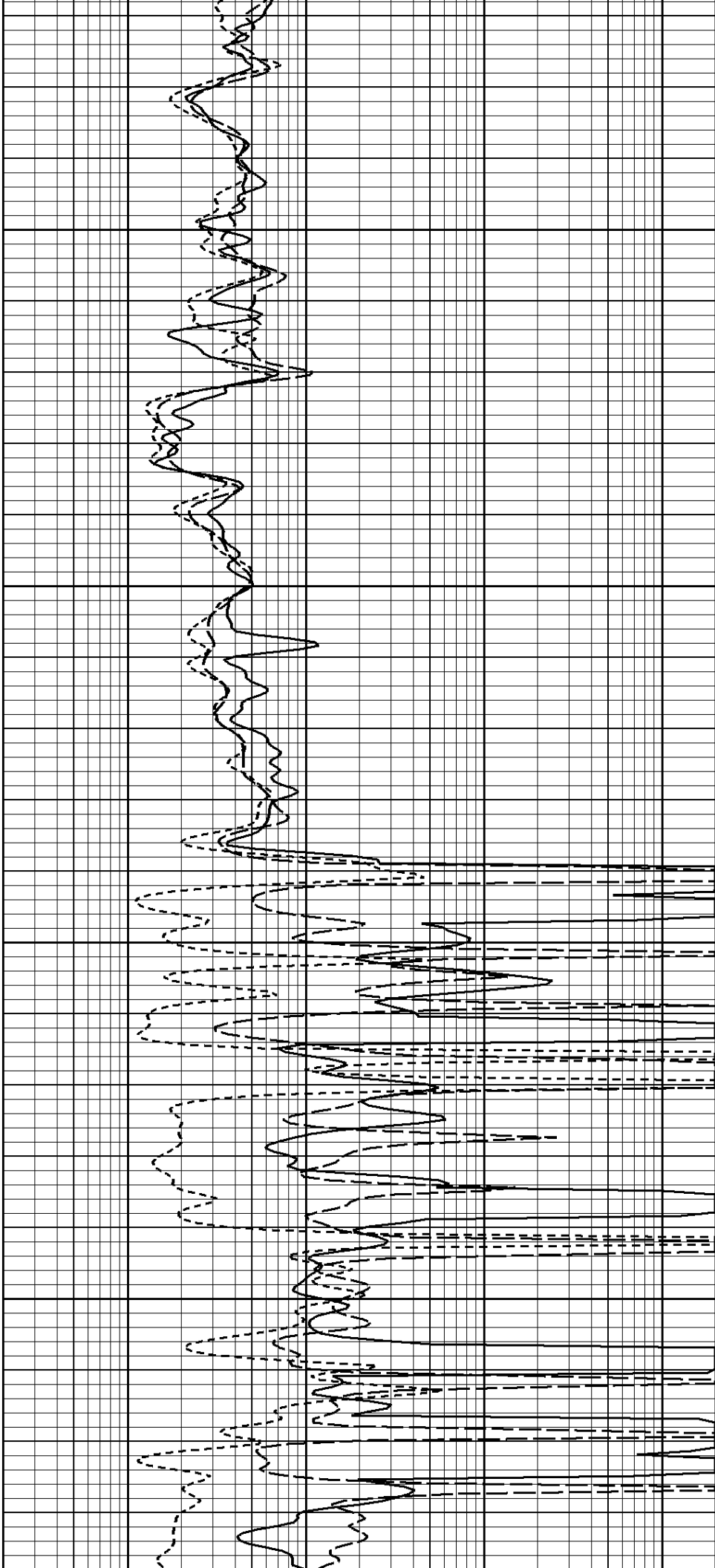
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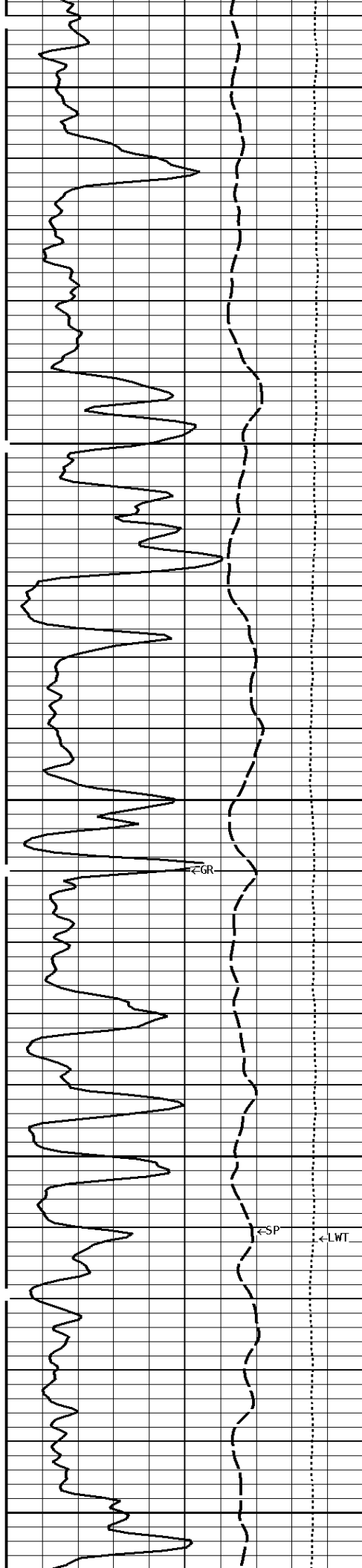




1100

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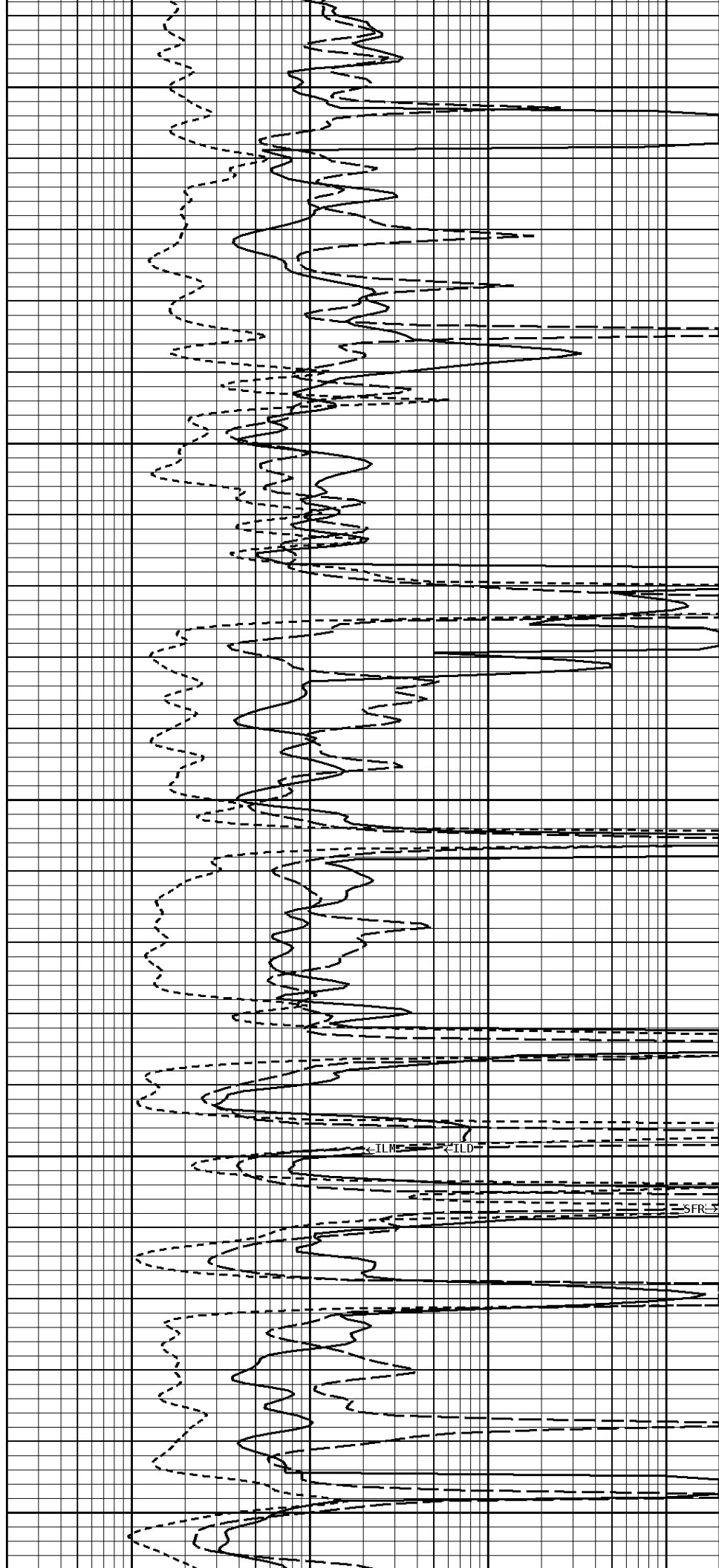


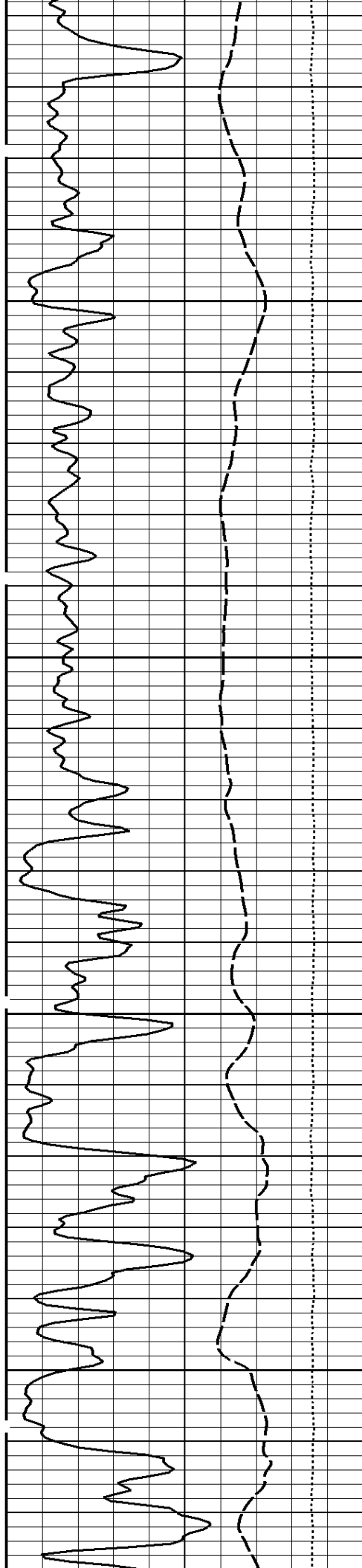


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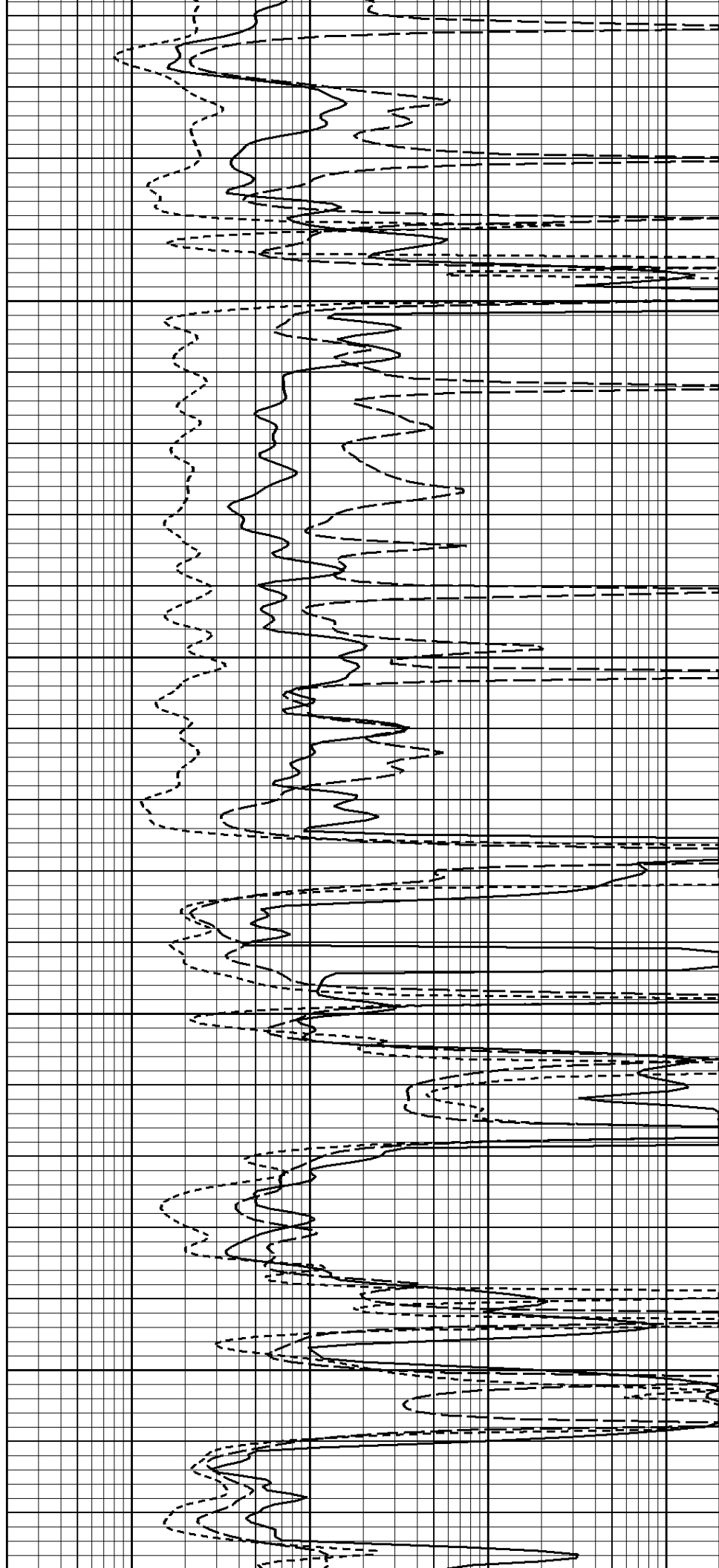
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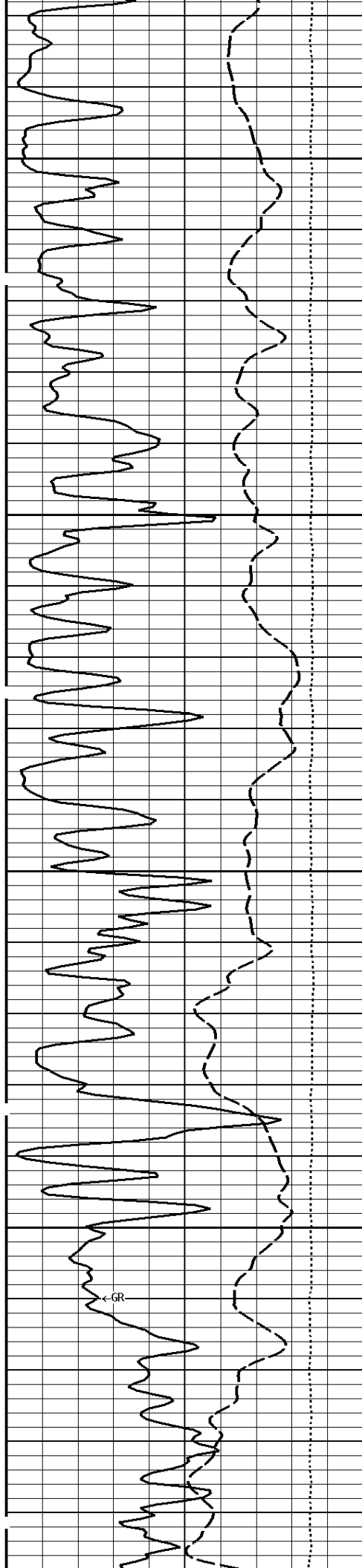




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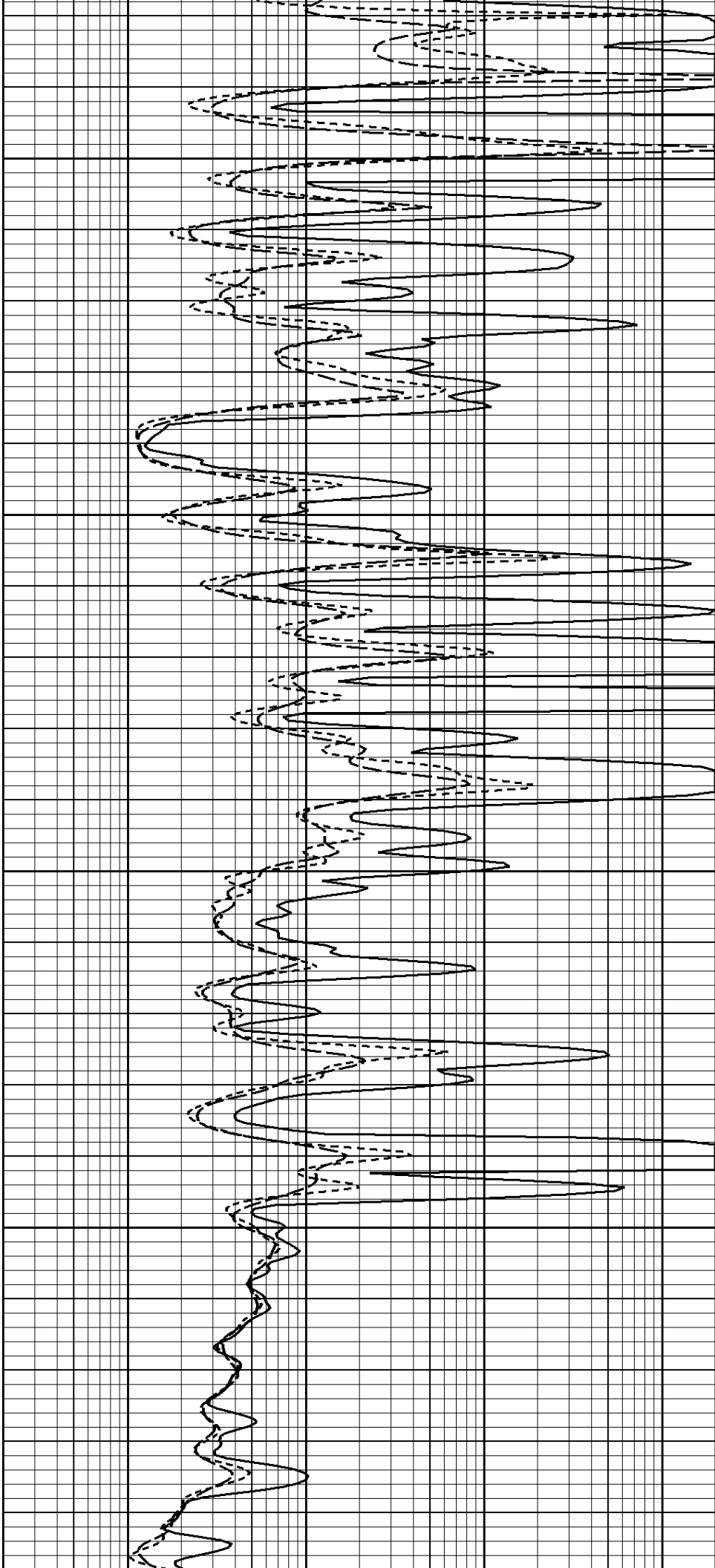
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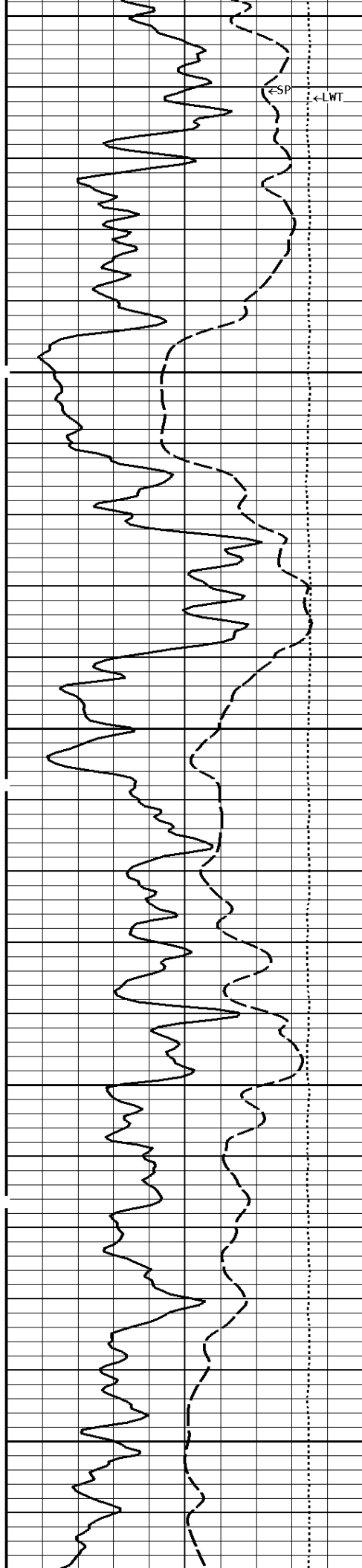




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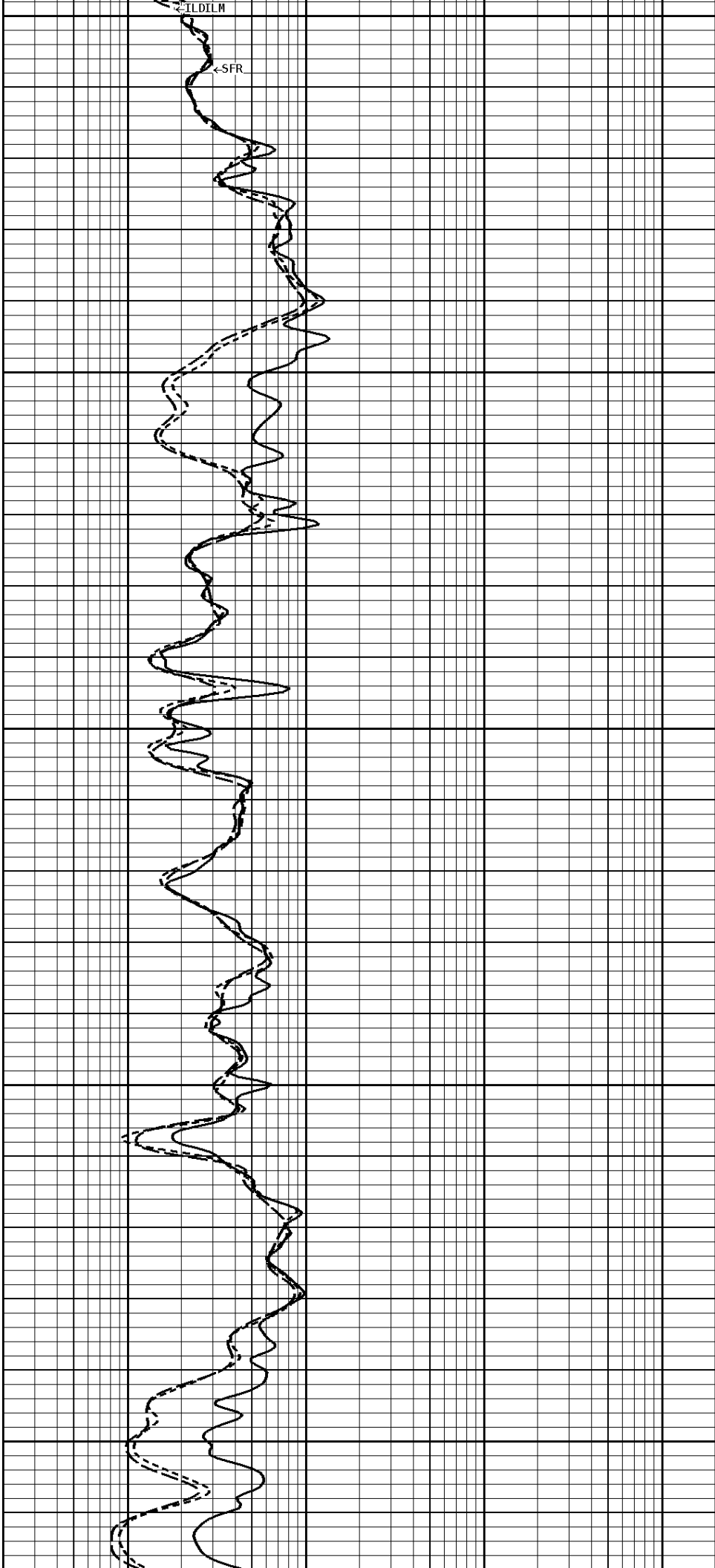
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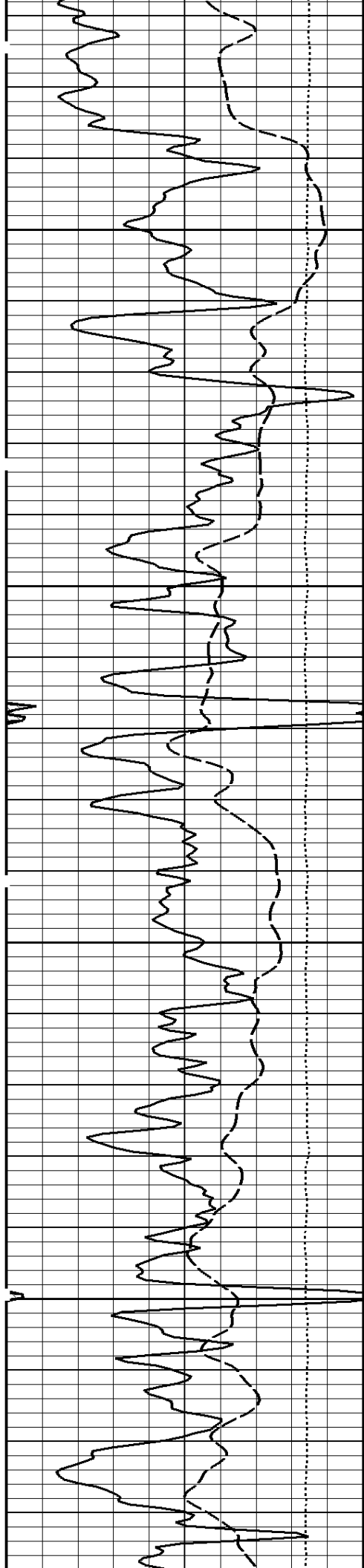




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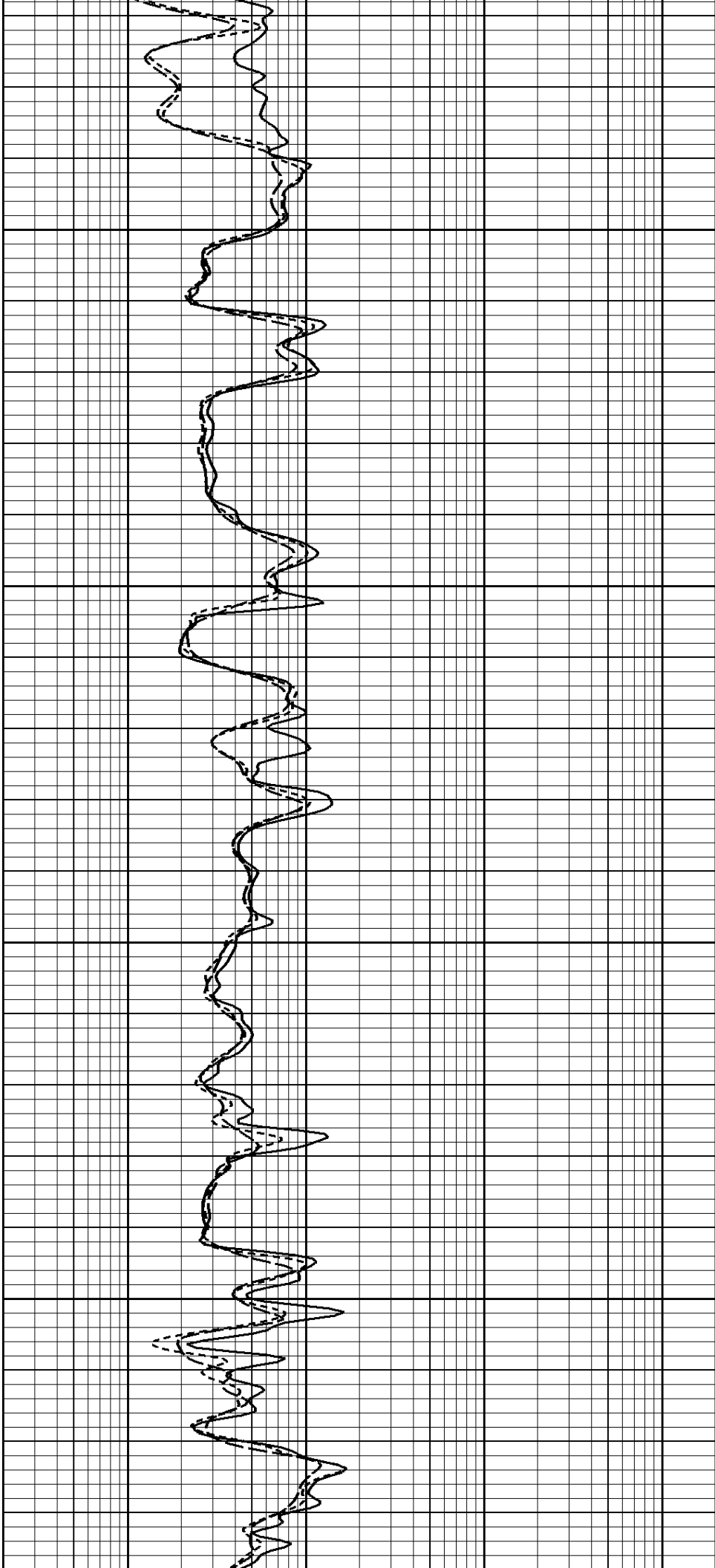
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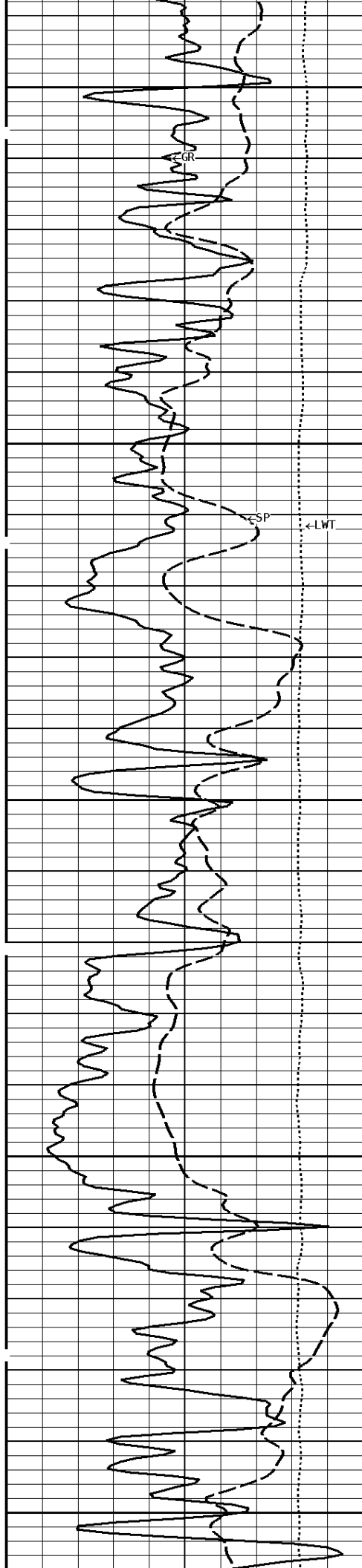




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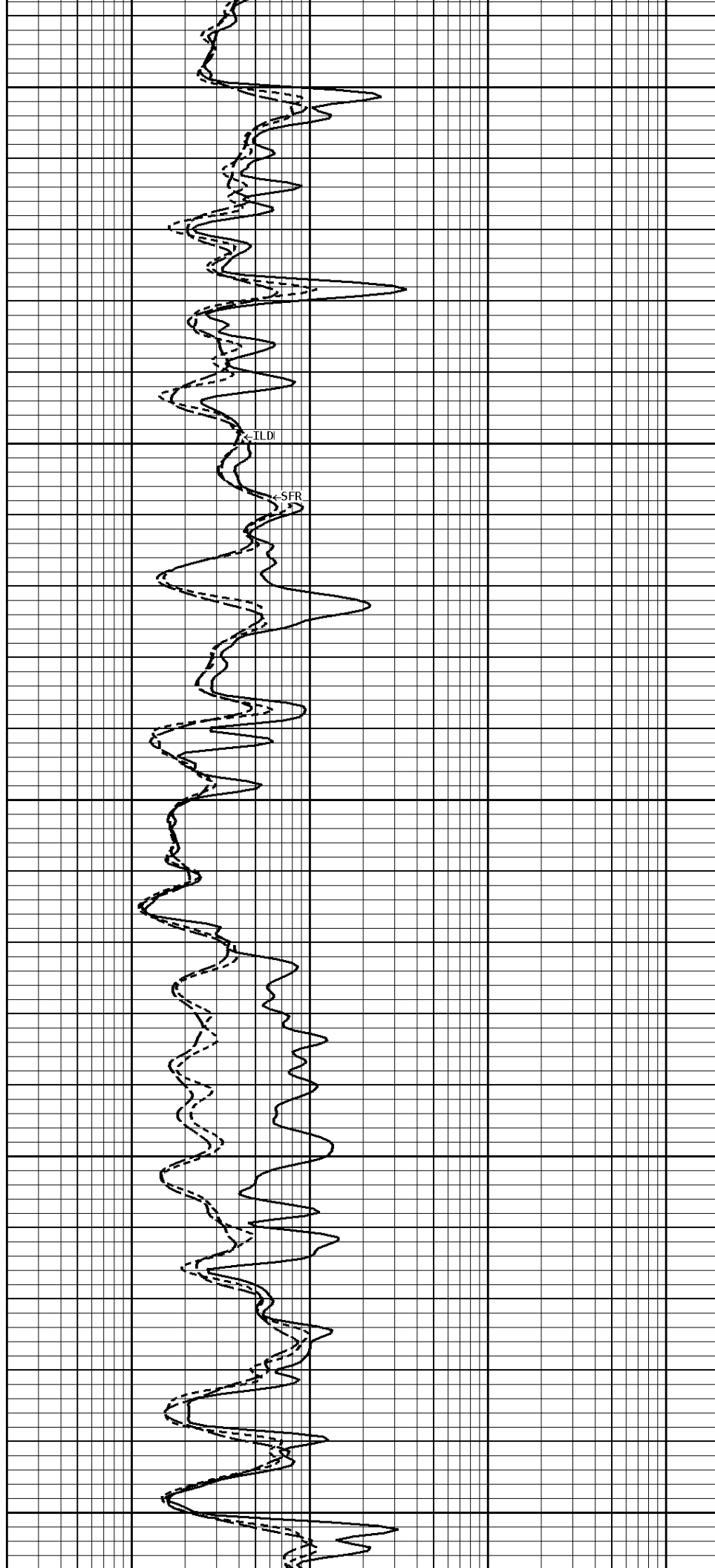


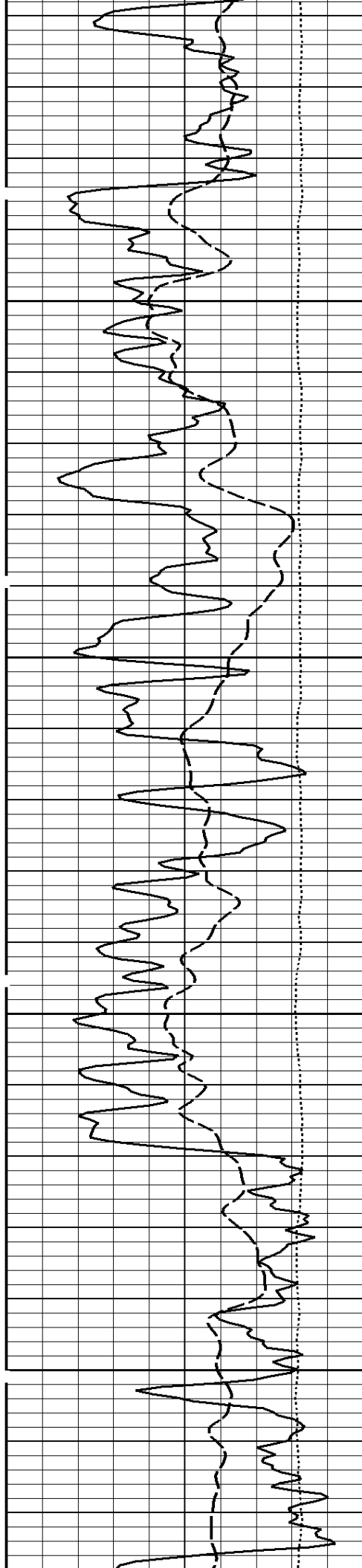


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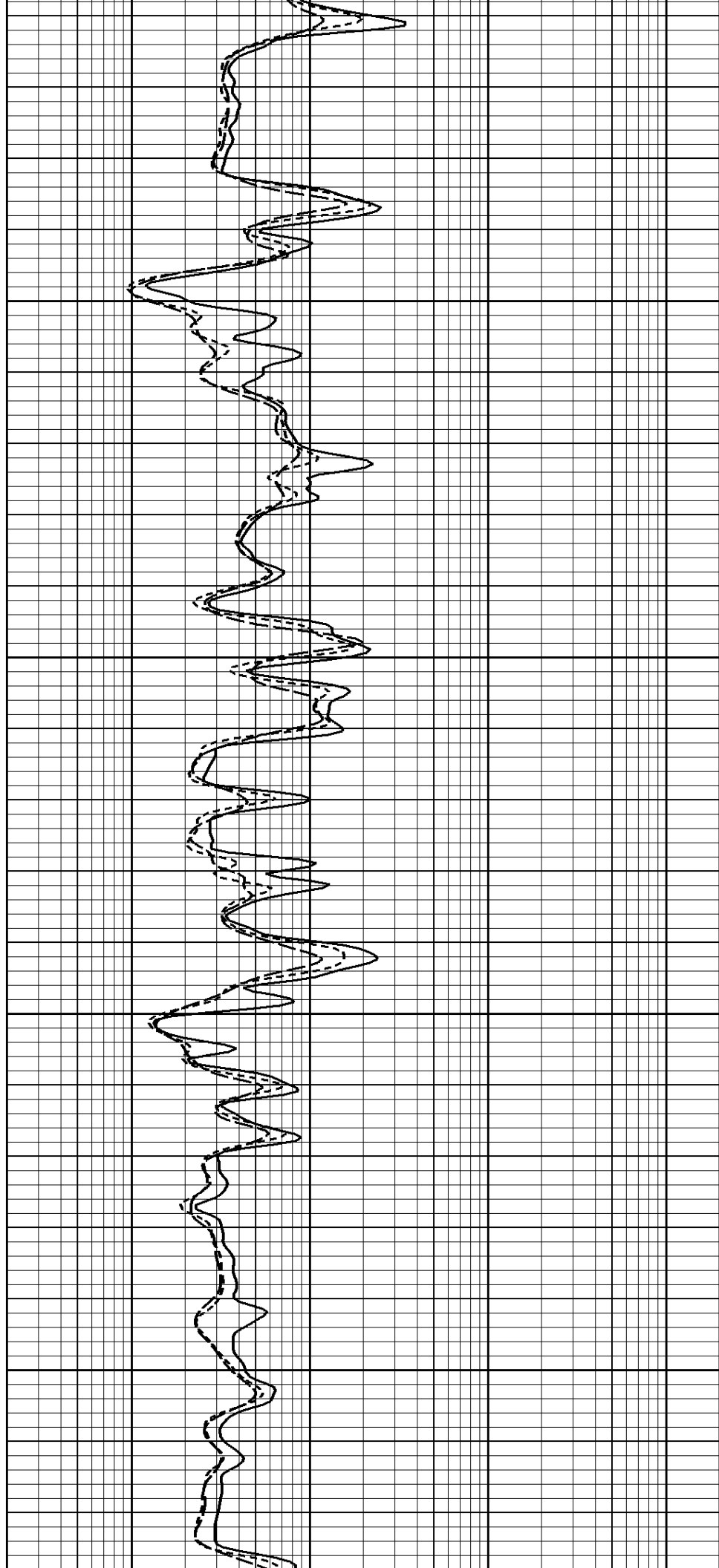
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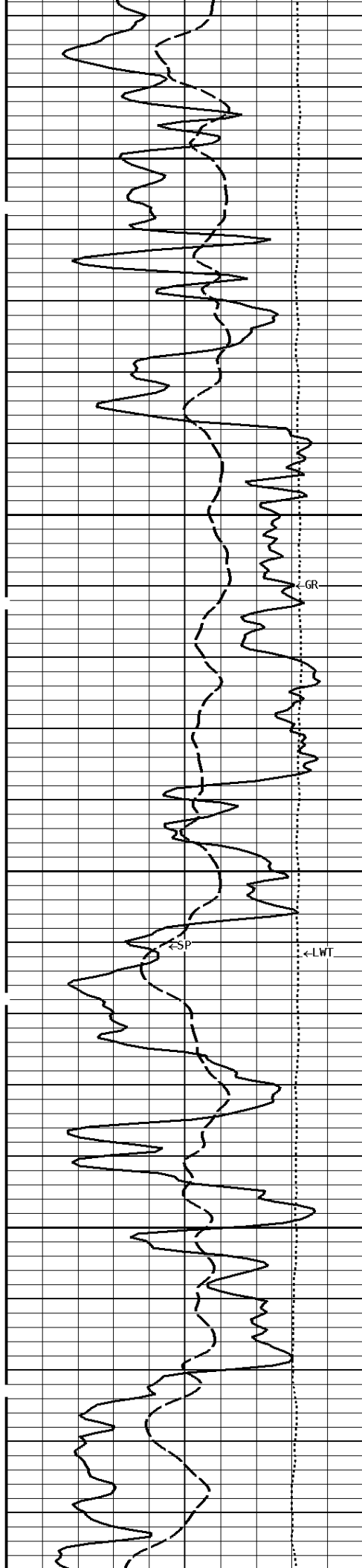




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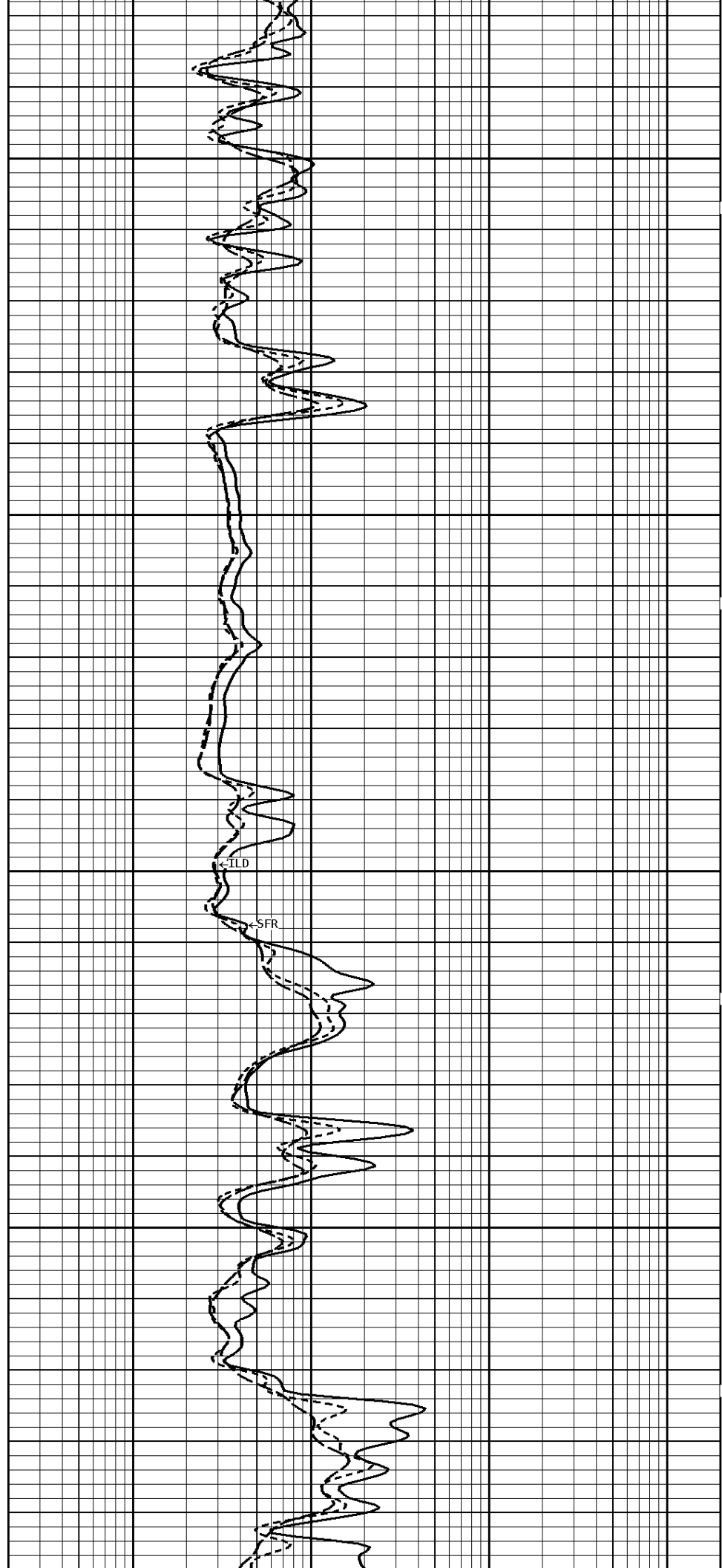
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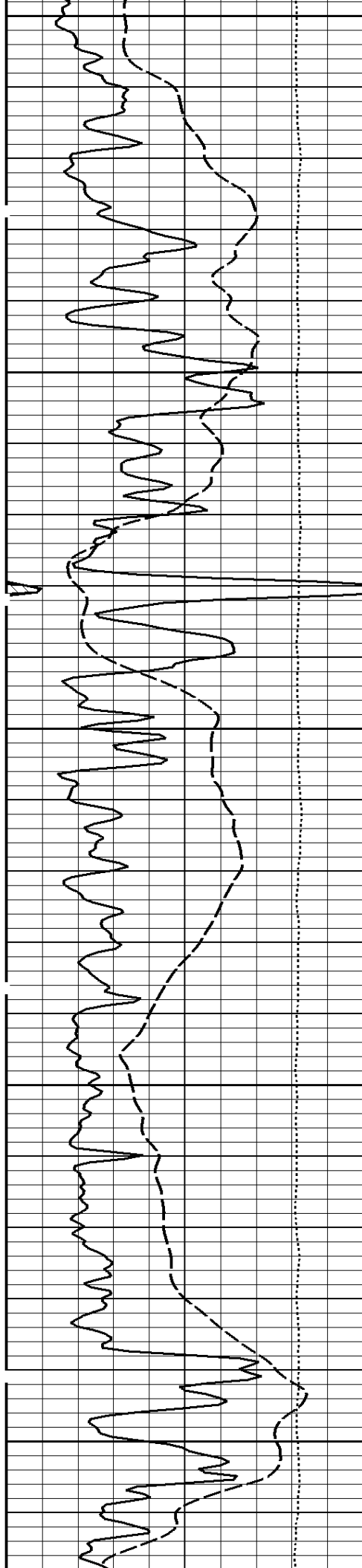




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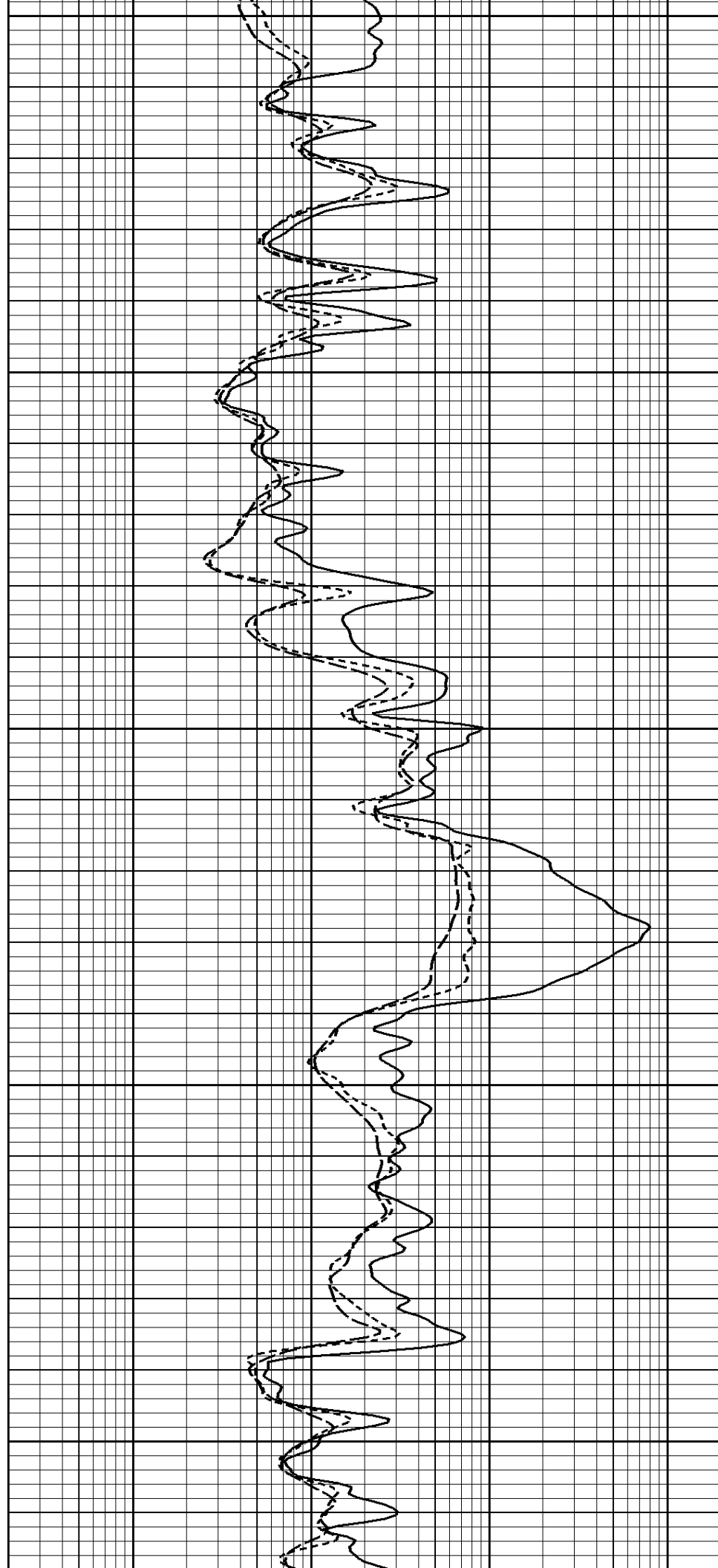
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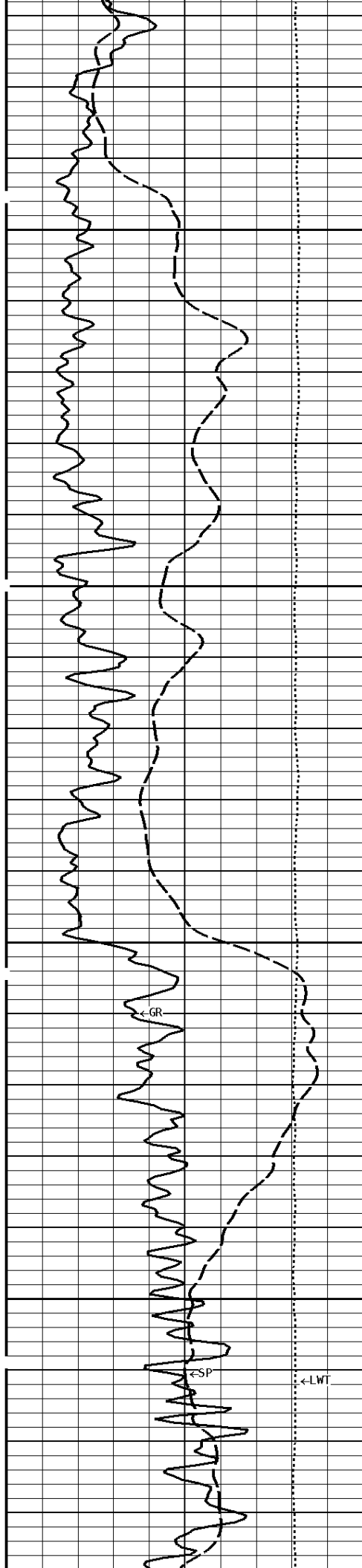




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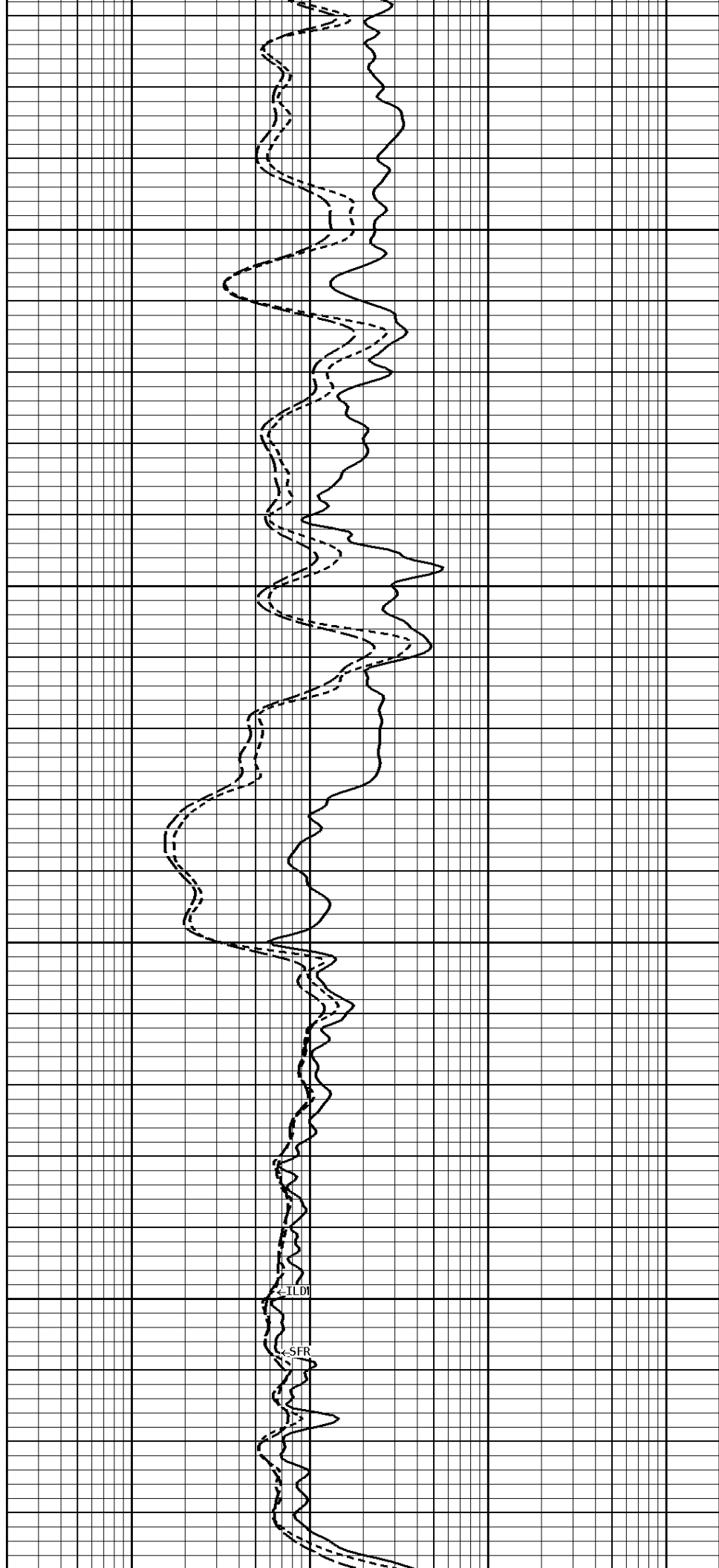
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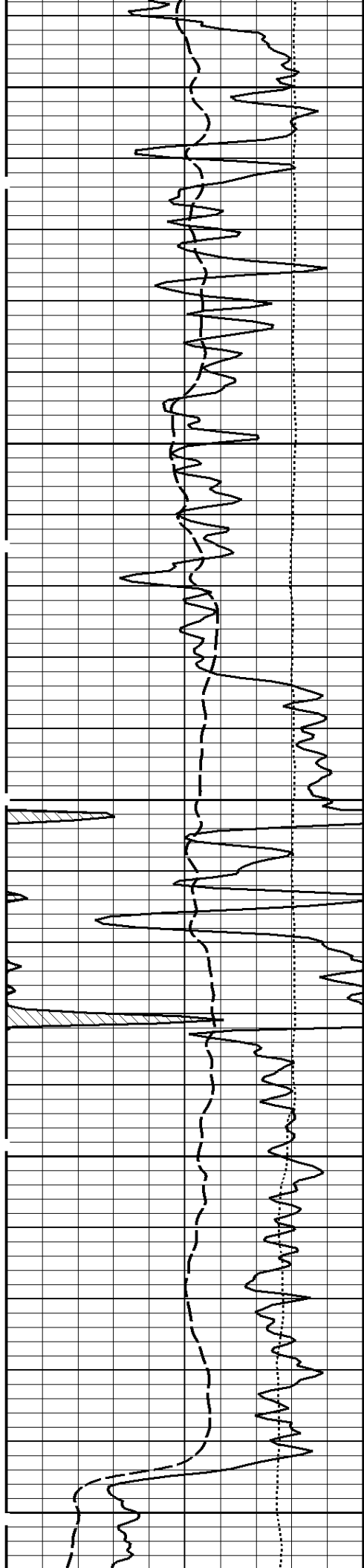




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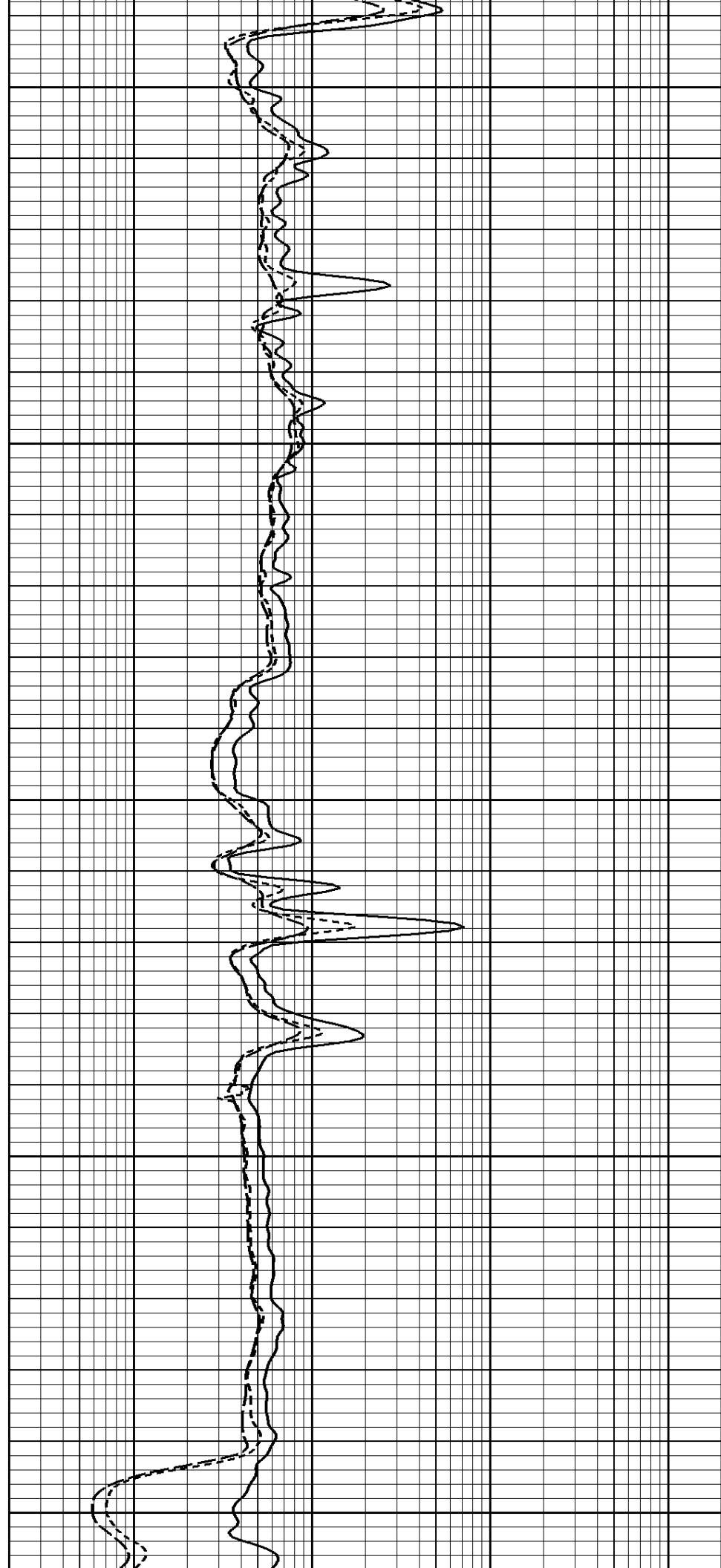


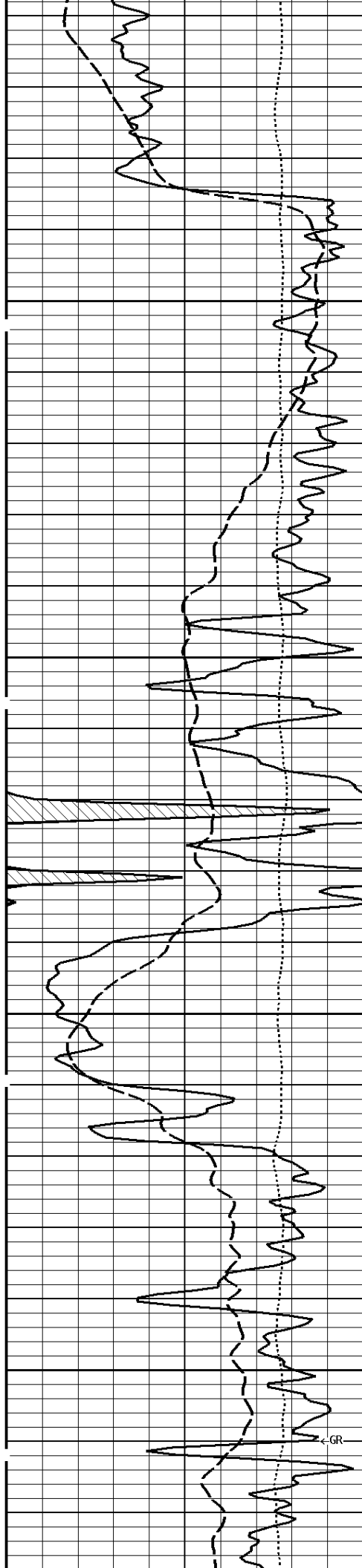


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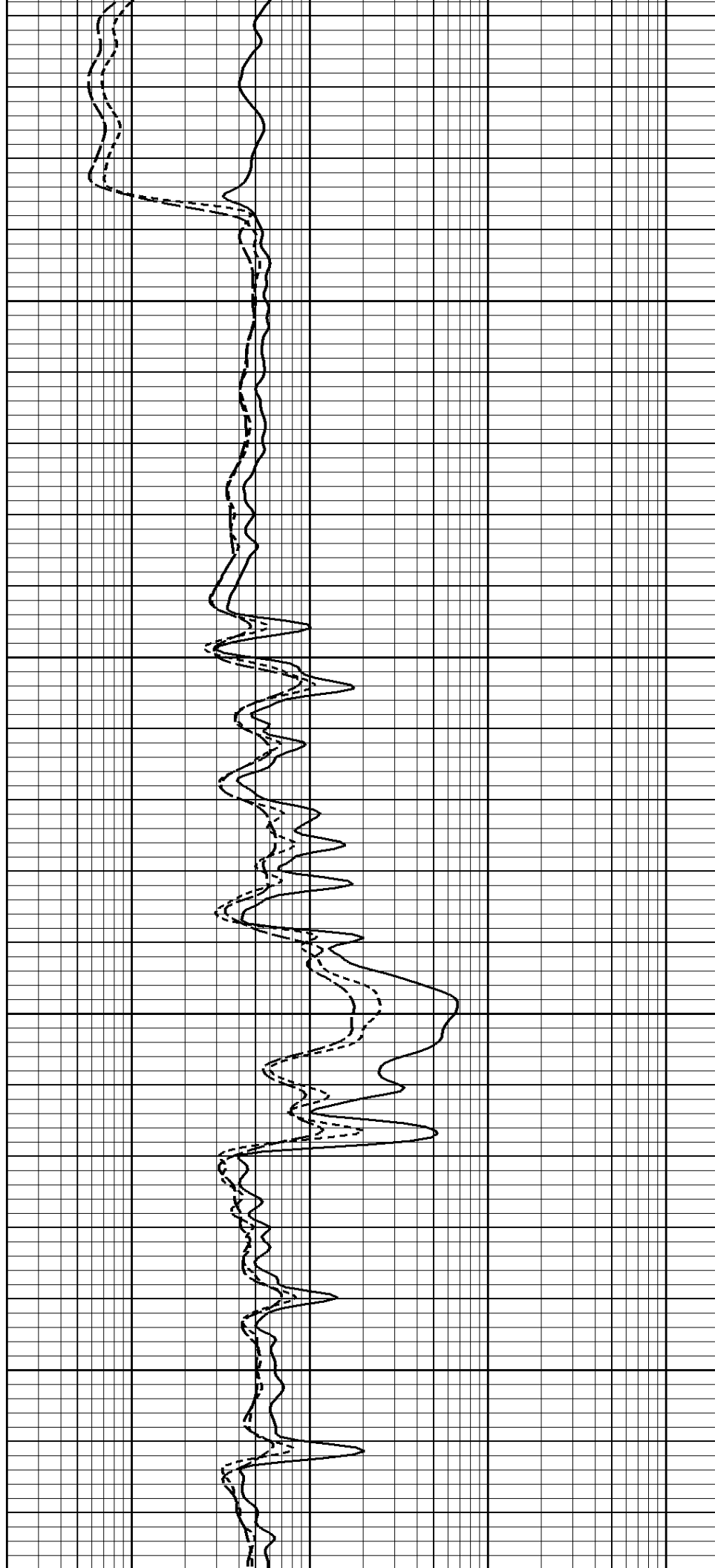
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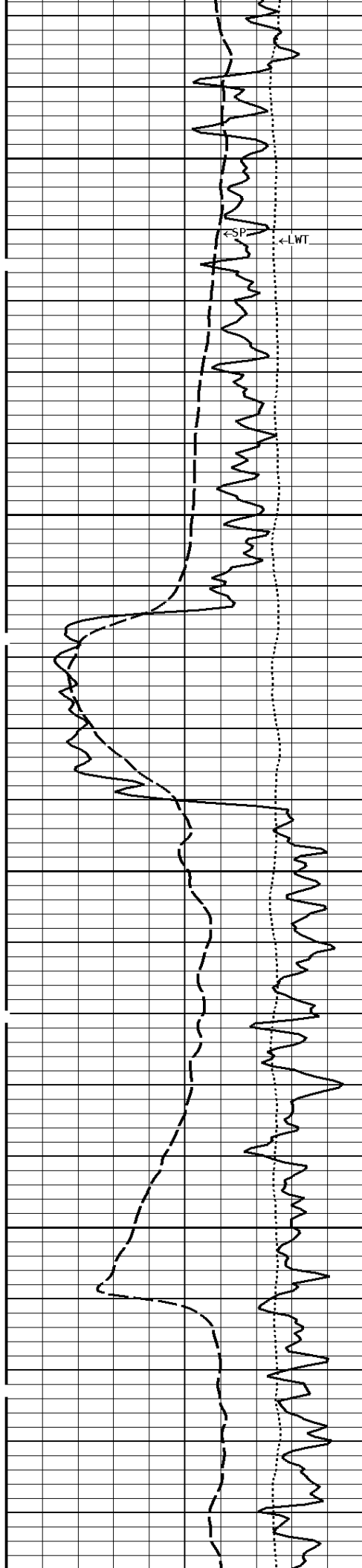




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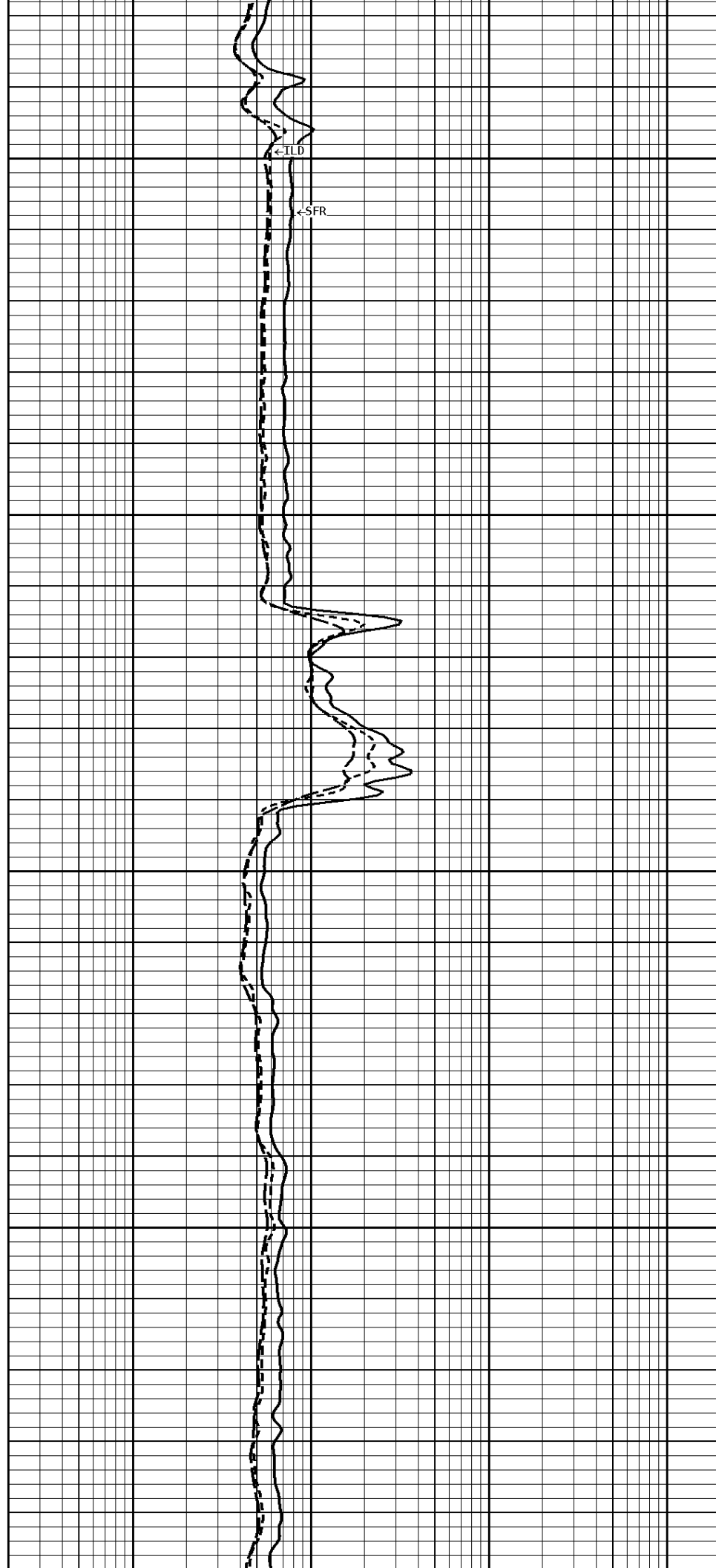
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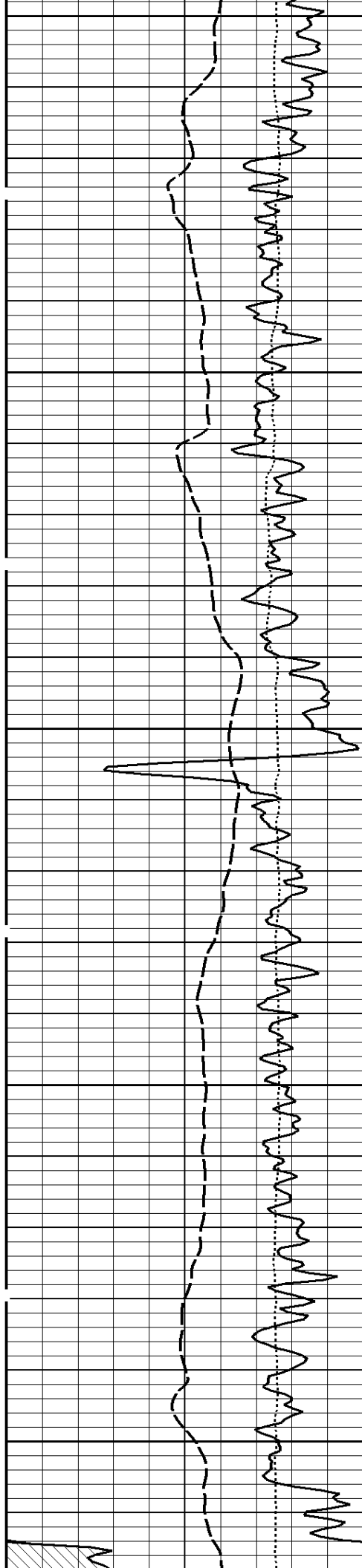




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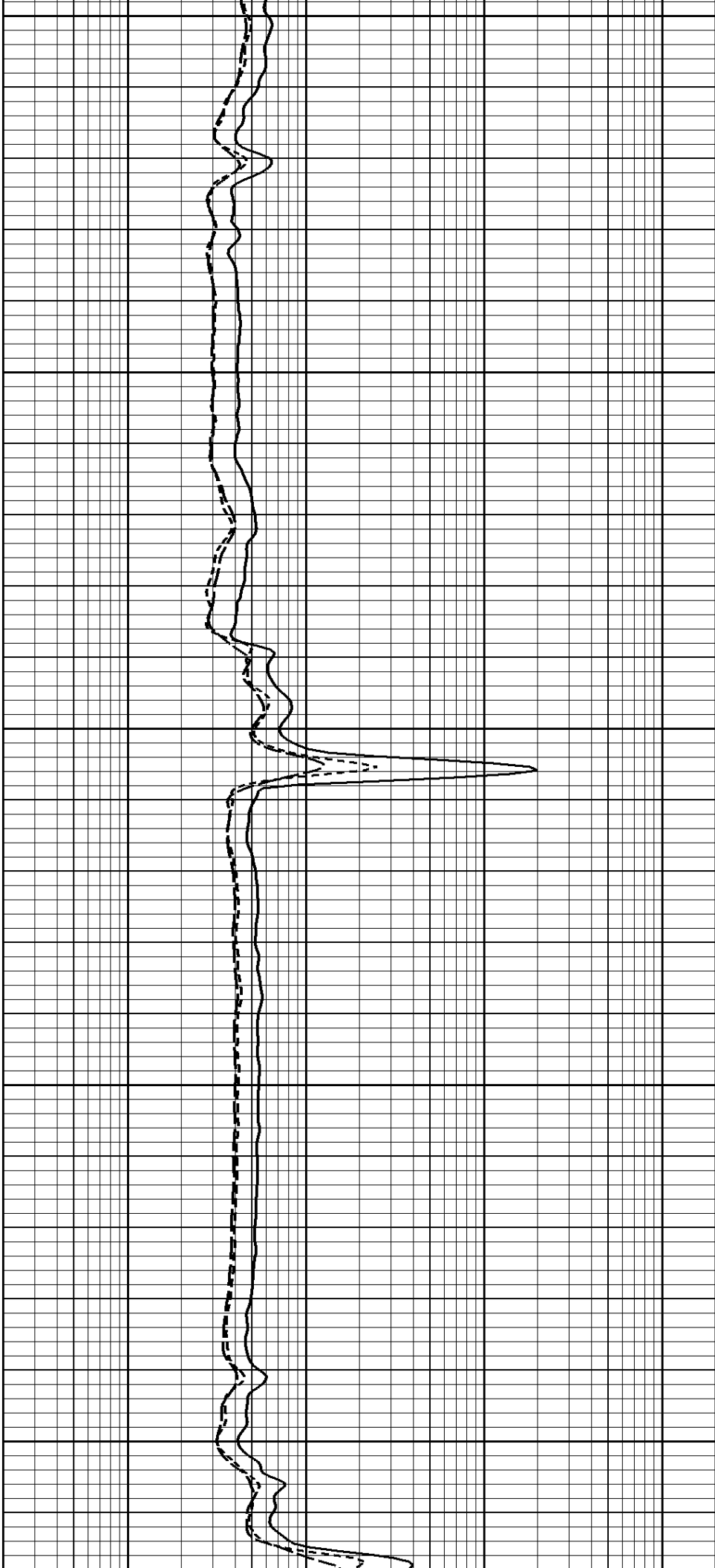
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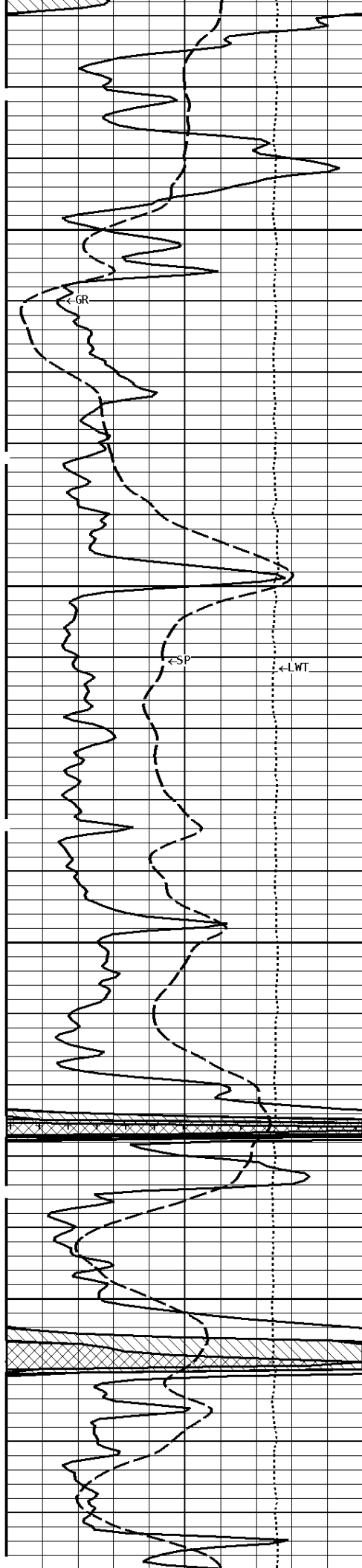




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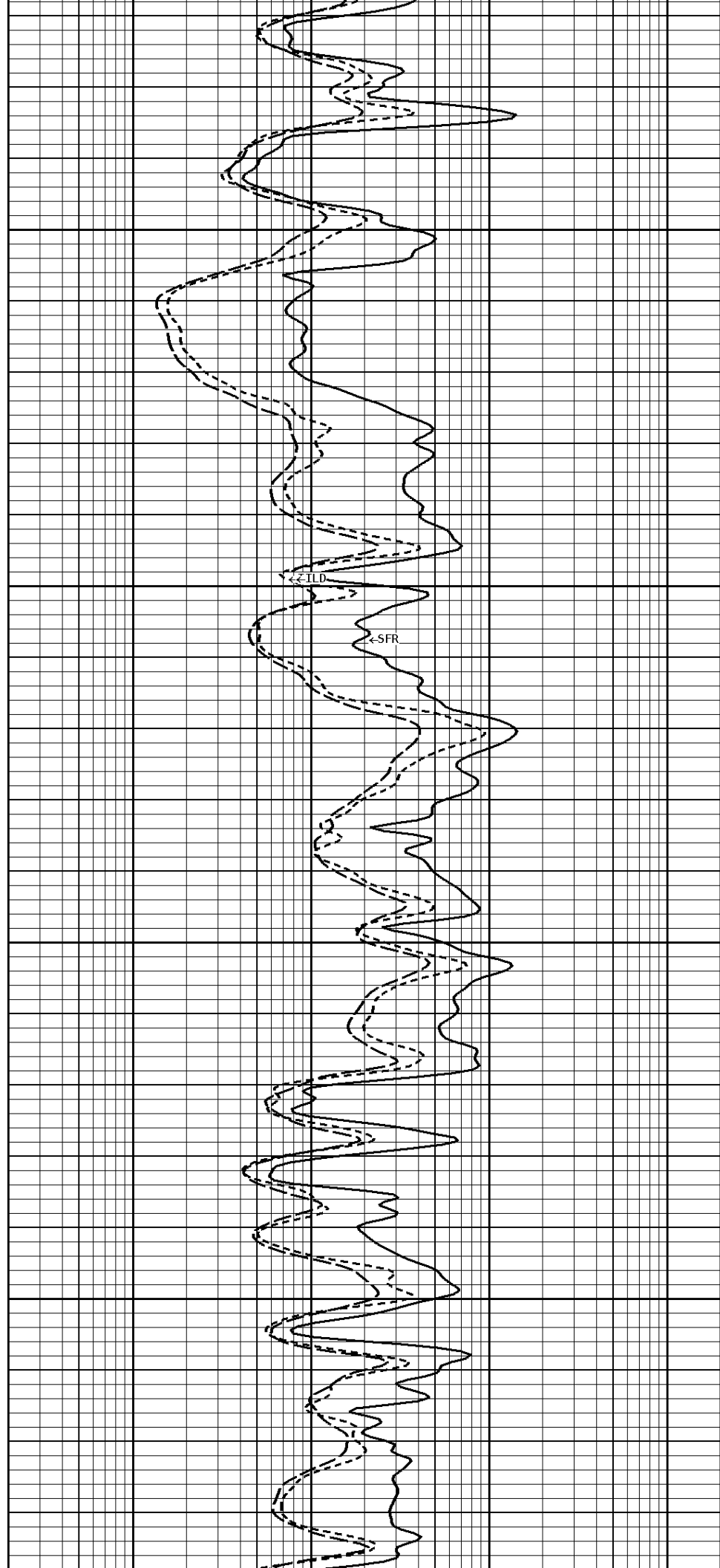
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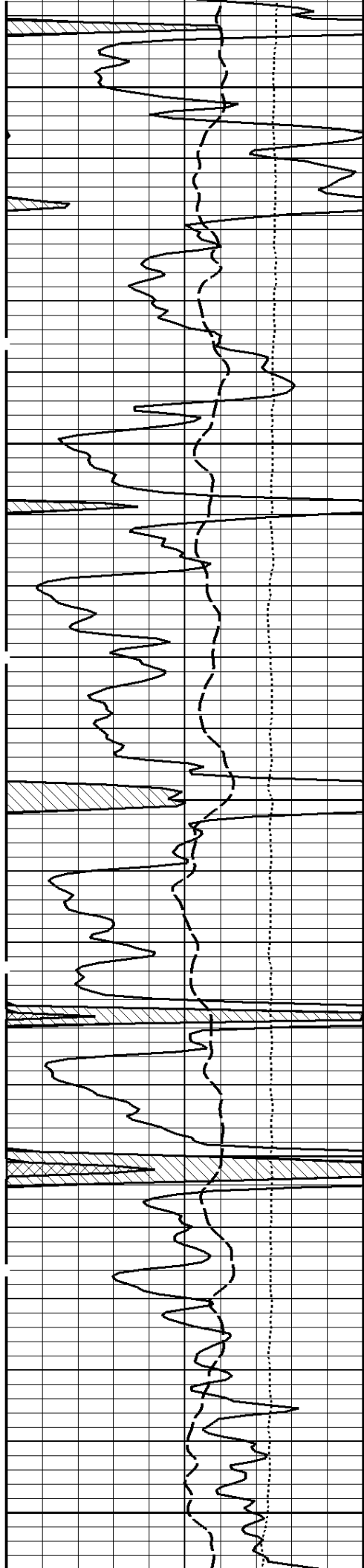




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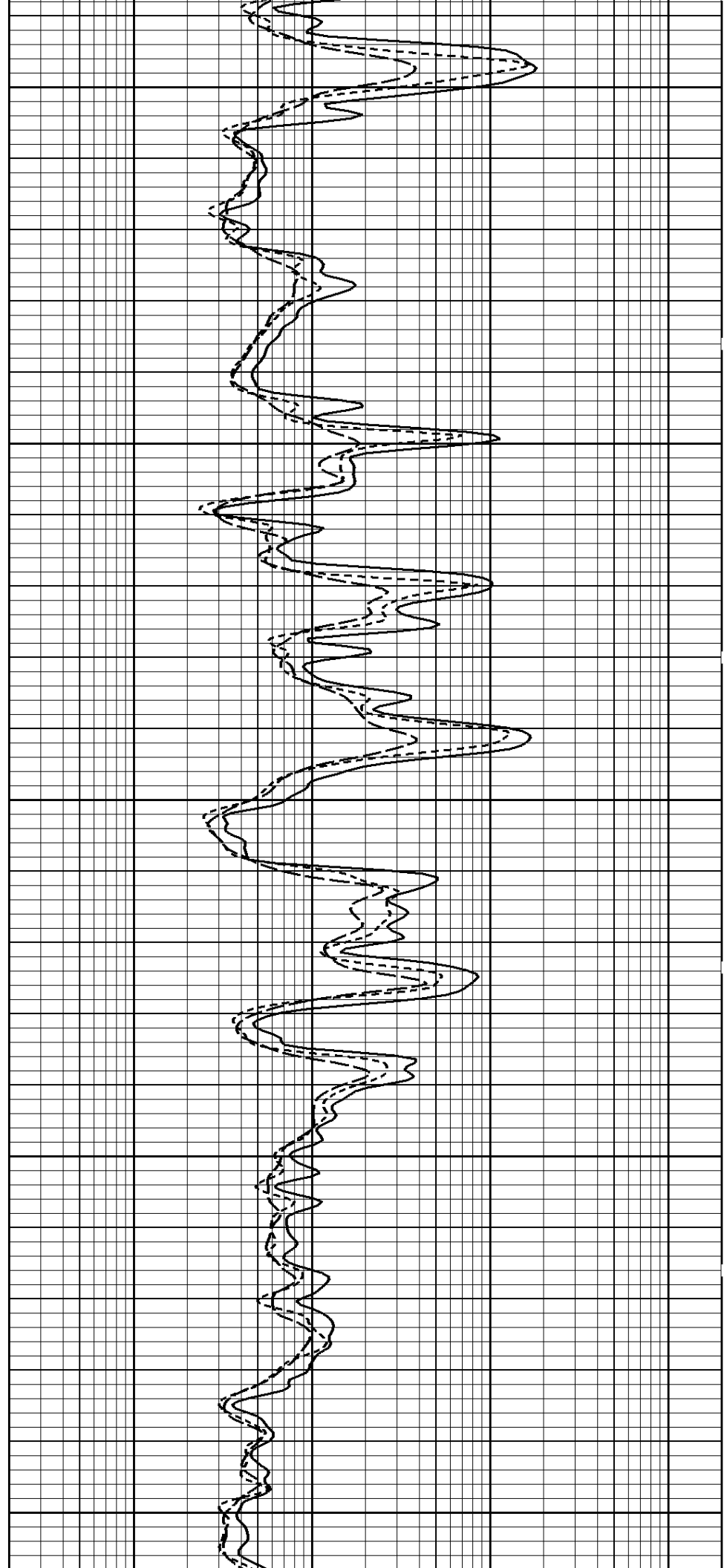


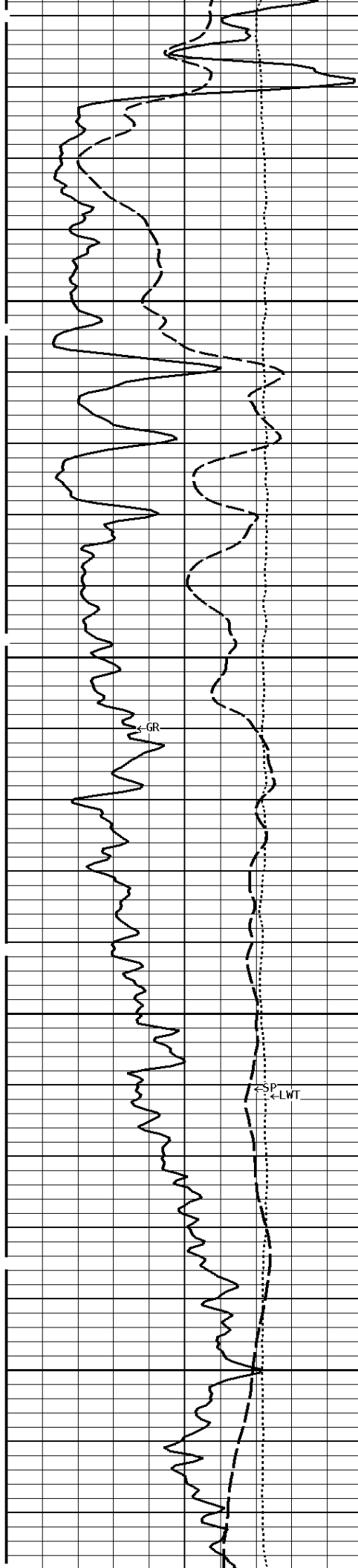


4600

4700

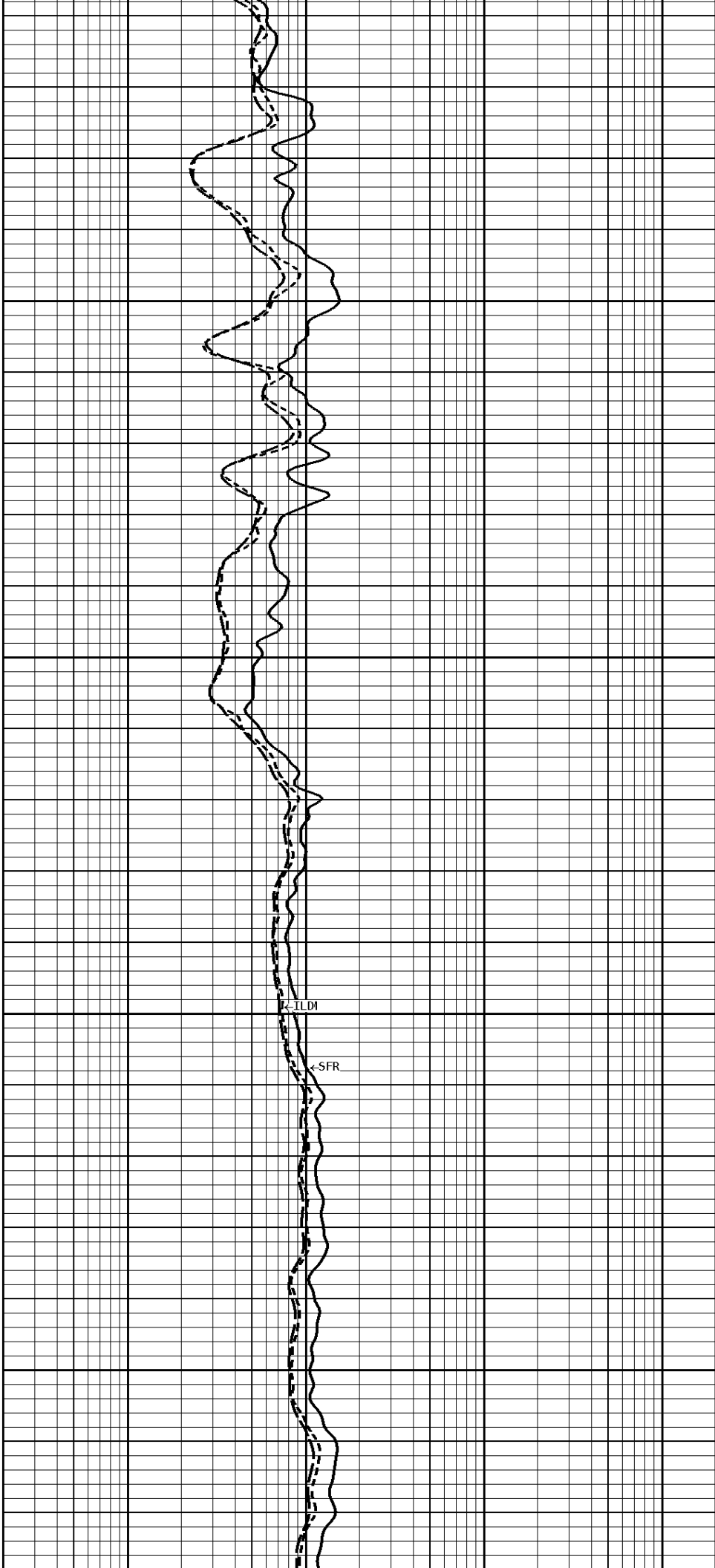
4800





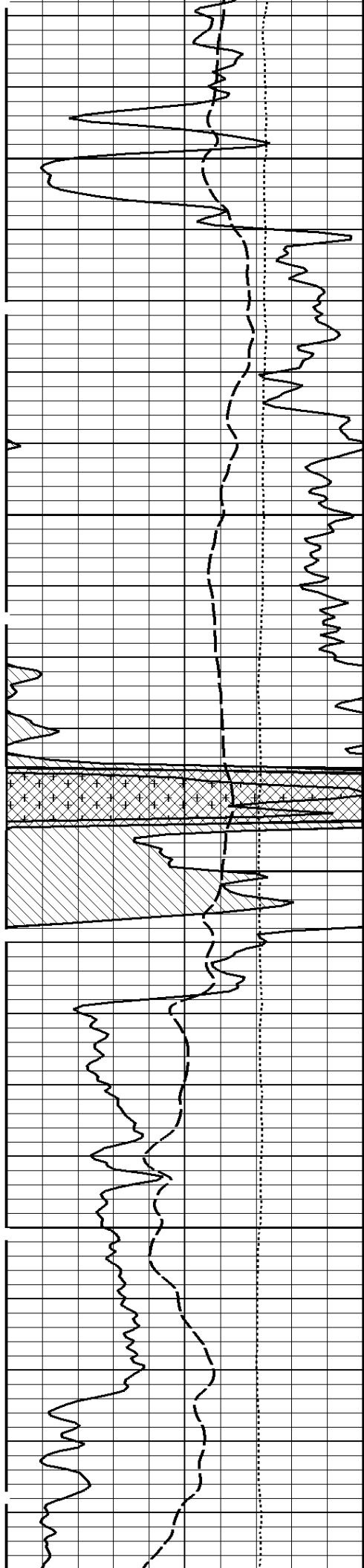
4900

5000



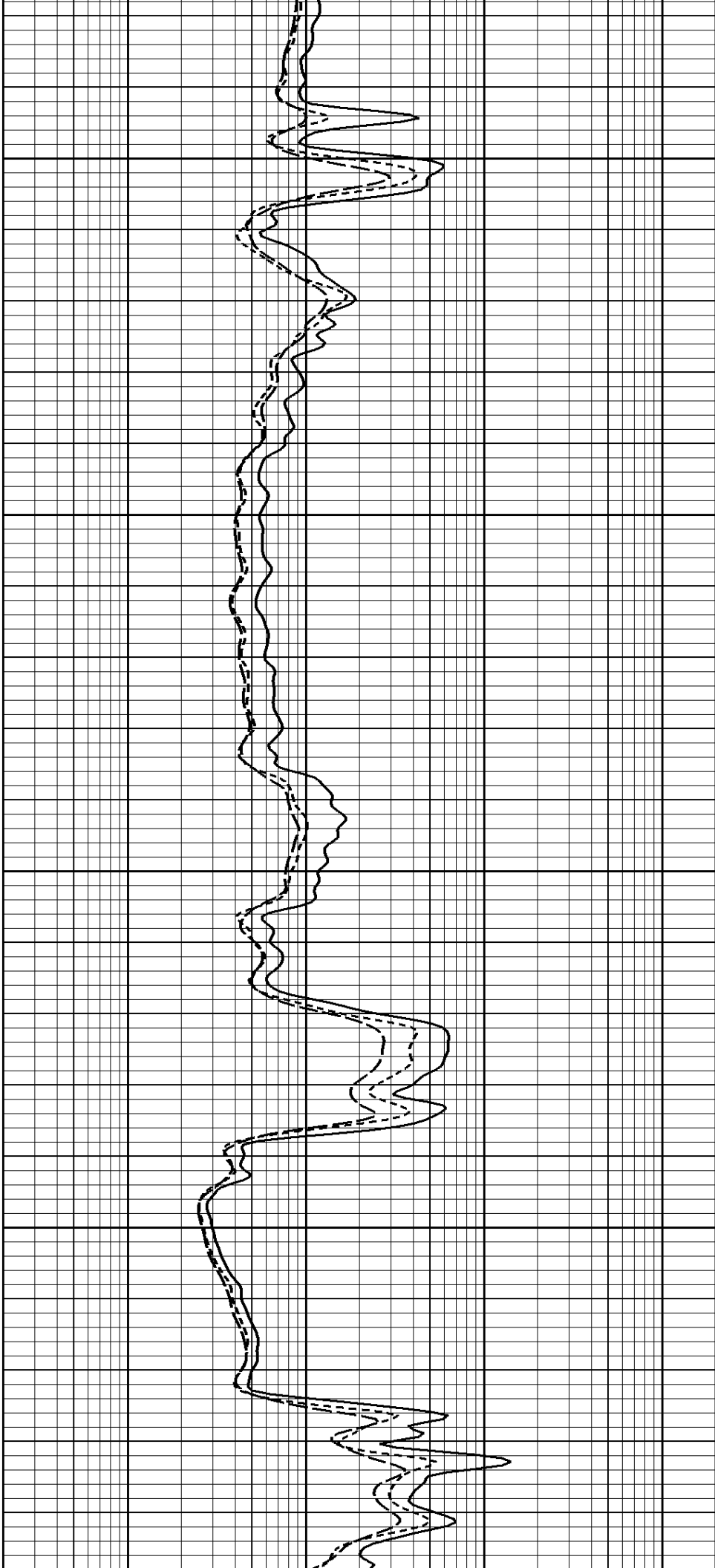
TL DI

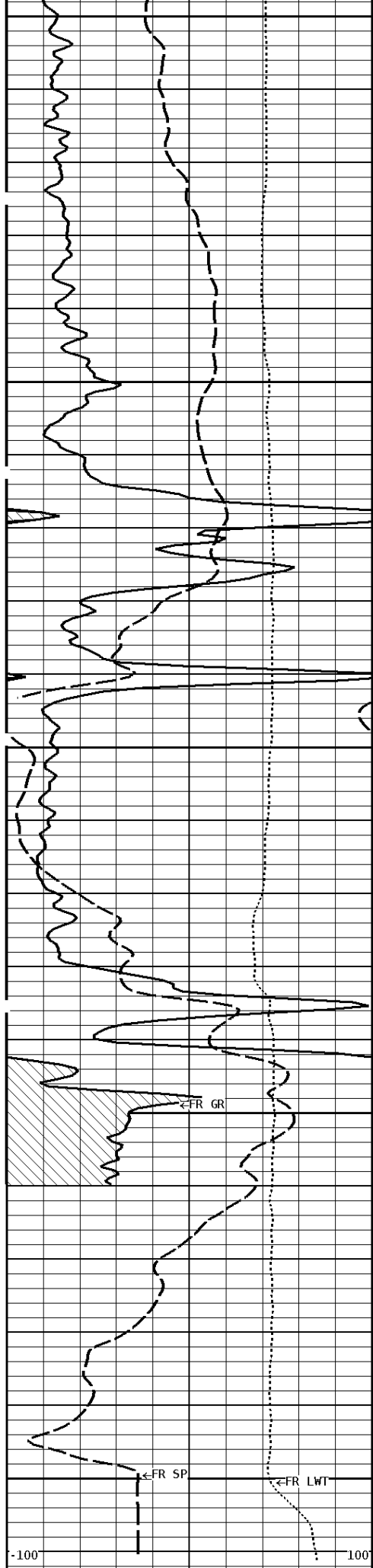
SFR



5100

5200

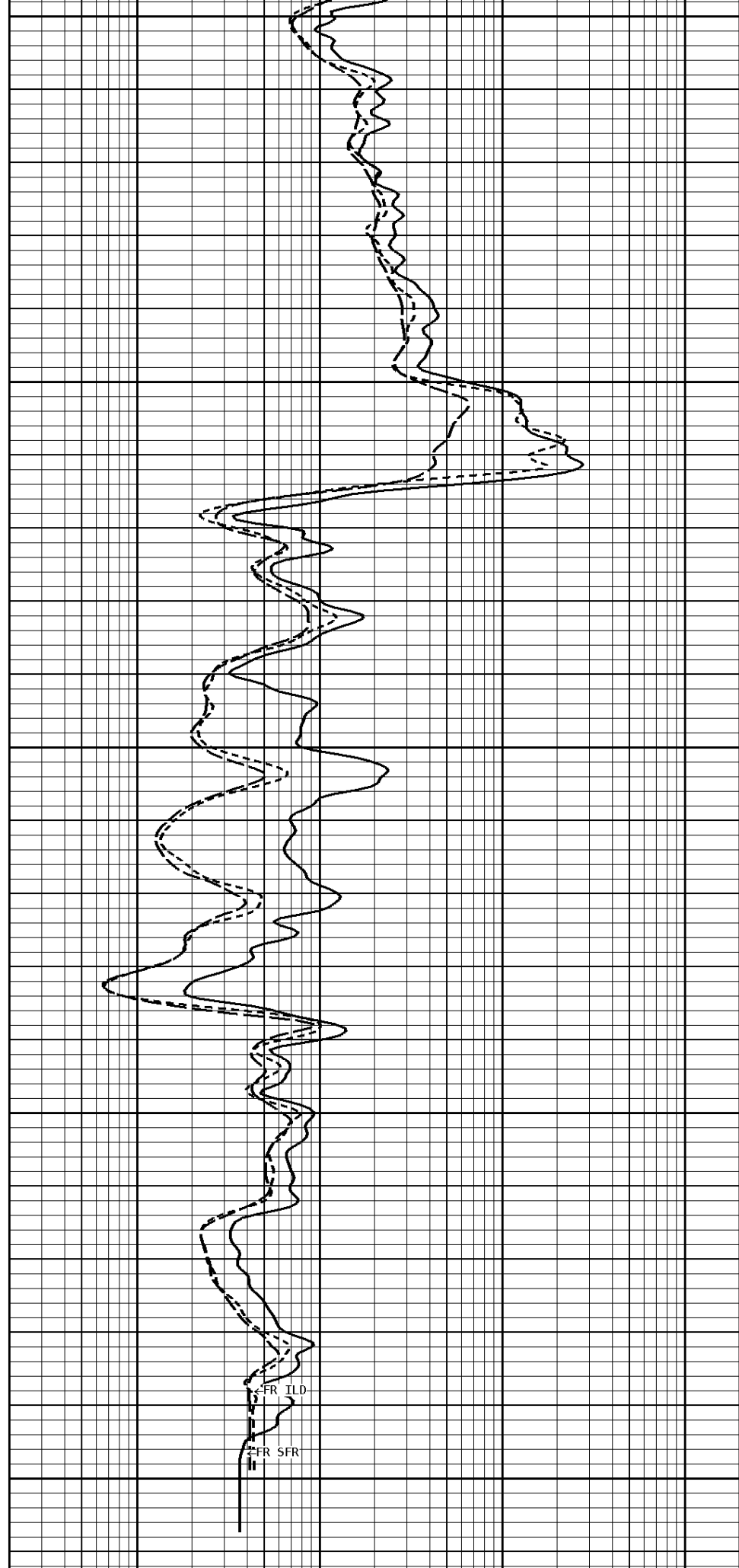




5300

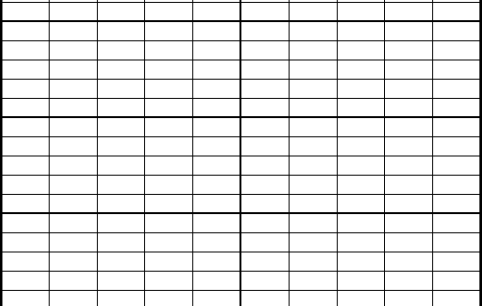
5400

5452

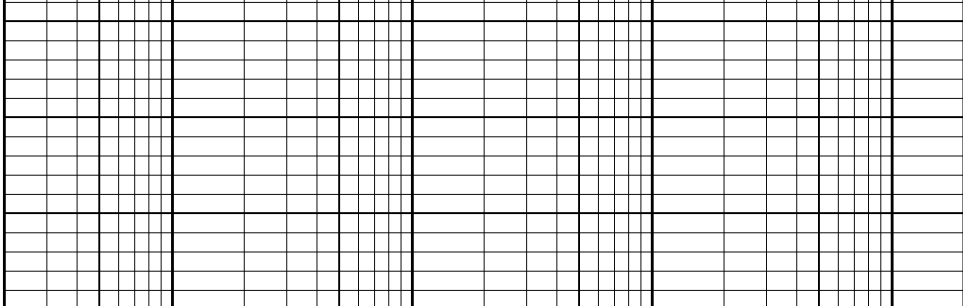


CFR ILD

CFR SFR



File #1.1.5



1:240 MAIN SECTION

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

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

* Borehole Zone Factors *

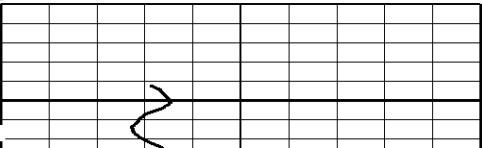
Zone 1 99999.0 to 0.0 Feet		
Drill Bit Size	7.875	in
Casing Diameter	5.500	in
BHT Depth	5452.000	ft
Borehole Temperature	128.0	degF
Temperature Gradient	1.00	DFHF
Resistivity Of Mud	1.000	ohm/m
Standoff	1.5	
Resistivity Of Mud Temperature	50.00	degF

Well File: chief-ahs-11-mstk-dec-22	Scale: 1:240	Format: DIL-240
Segment: V1.D1.S4 RP	Acquired: 2014-12/22 23:25 3.4.0-13284	
Reference: 0	Processed: 2014-12/23 01:25 3.4.0-13284	

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

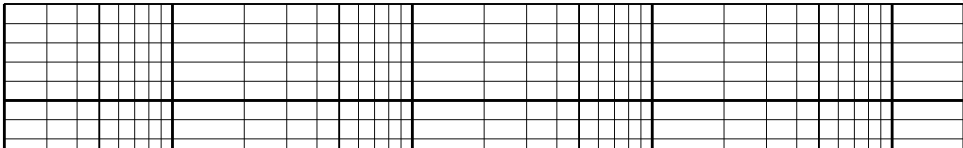
DEEP INDUCTION OHMM	
0.2	2000.0
MEDIUM INDUCTION OHMM	
0.2	2000.0
SHALLOW FOCUSED RESISTIVITY OHMM	
0.2	2000.0

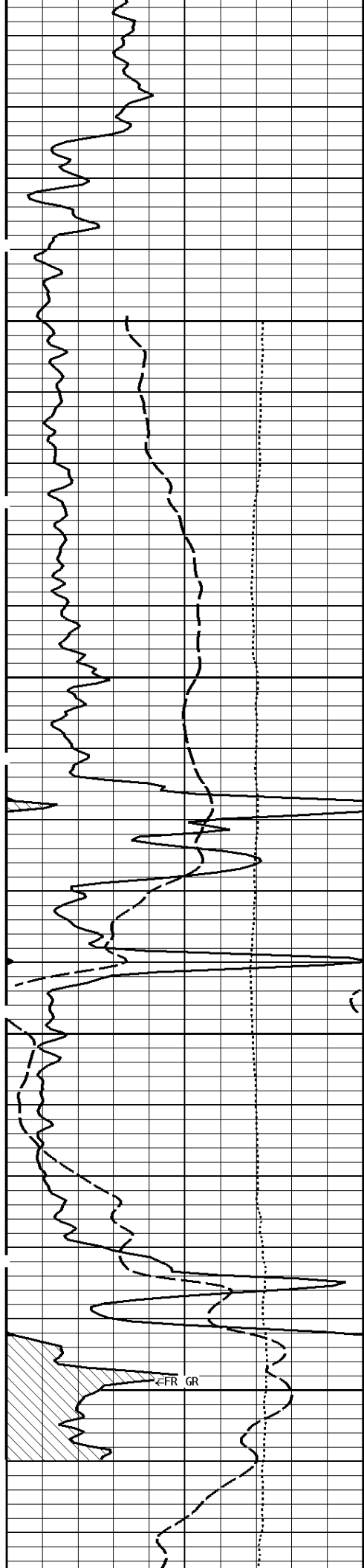
1:240 MAIN SECTION



File #1.1.4

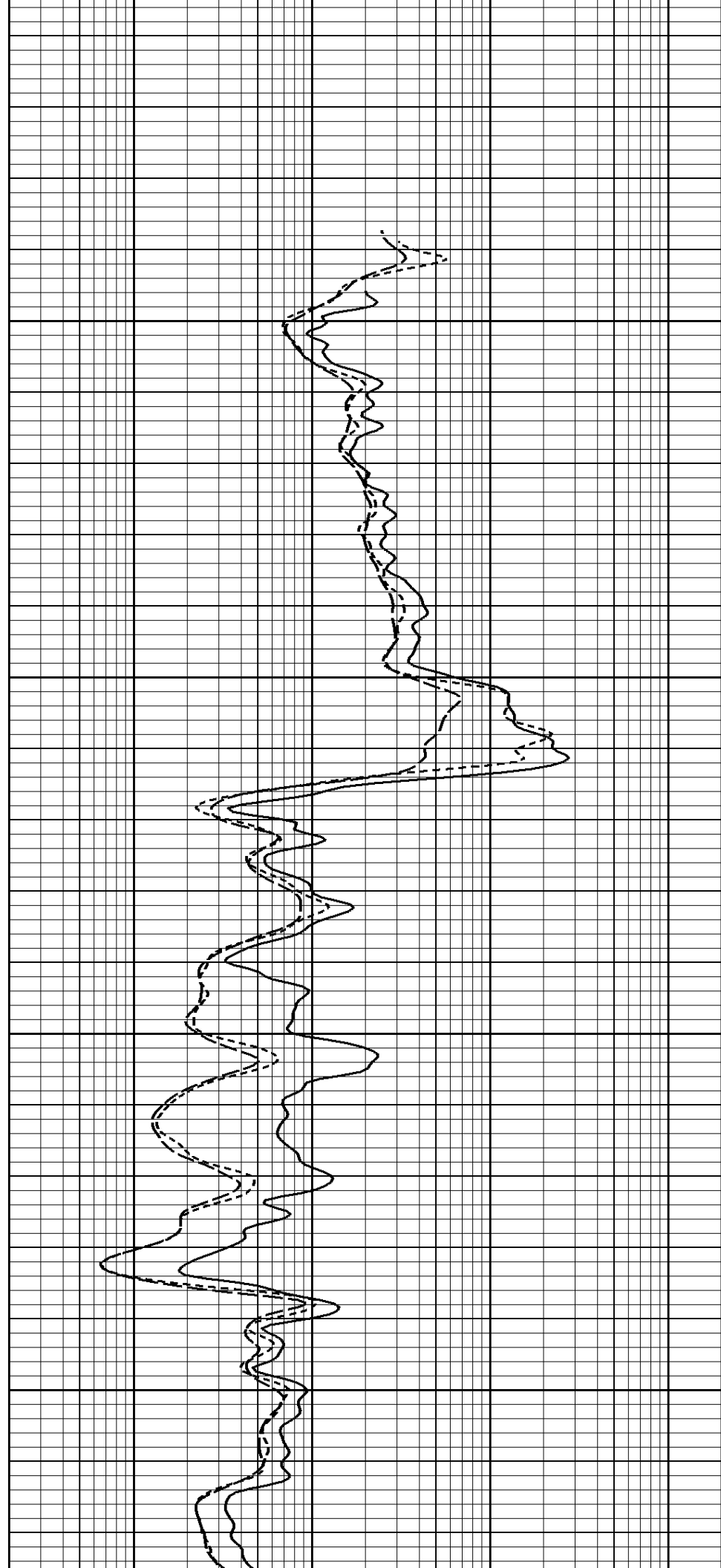
5200

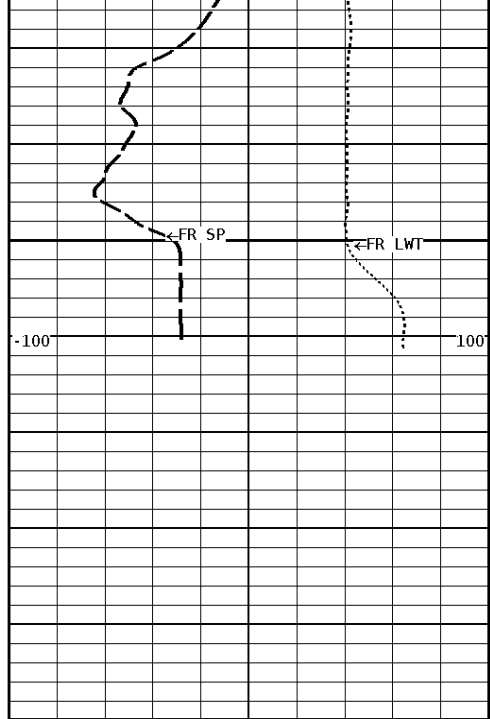




5300

5400





5452

File #1.1.4



1:240 MAIN SECTION

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

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

* Borehole Zone Factors *

Zone 1	99999.0	to	0.0	Feet
Drill Bit Size			7.875	in
Casing Diameter			5.500	in
BHT Depth			5452.000	ft
Borehole Temperature			128.0	degF
Temperature Gradient			1.00	DFHF
Resistivity Of Mud			1.000	ohm/m
Standoff			1.5	
Resistivity Of Mud Temperature			50.00	degF

* Calibration Summary *

Shop Calibration GRT-B					
Performed : 05-NOV-2014			Time : 11:49		
Sensor Suite : GR-GR5			ID : GRT-BB-109		
	Measured	Units	Calibrated	Units	
GR	Background	Jig	Jig		
	48	318	175	GRAPI	
Shop Calibration PIT-CA					
Performed : 10-Sep-2014			Time : 11:40		
Sensor Suite : P-IND-T			ID : PIT-CA-075		

Medium						
	Measured		Calibrated			
	R	X	R	X	Units	
Air	131419	129931	1.4	0.2	MMHOS	
Zero	131070	131067	-10.2	45.4	MMHOS	
Reference	250682	249654	4989.8	5045.4	MMHOS	
Loop	129961	216623	3595.7	3716.3	MMHOS	
Sonde Error			0.5	-7.1	MMHOS	
Cond			4989.8	5045.4	MMHOS	
Deep						
	Measured		Calibrated			
	R	X	R	X	Units	
Air	128119	131856	0.3	-1.2	MMHOS	
Zero	131062	131059	52.1	-18.8	MMHOS	
Reference	238518	237019	2052.1	1981.2	MMHOS	
Loop	126986	223844	1715.5	1756.2	MMHOS	
Sonde Error			-6.7	0.1	MMHOS	
Cond			2052.1	1981.2	MMHOS	
Temperature						
	Measured		Calibrated			
	Low	High	Low	High	Units	
	16980.0	56920.0	70.0	350.0	DEGF	
Performed : 10-Sep-2014			Time : 11:51			
Sensor Suite : SFL			ID : PIT-CA-075			
Internal						
	Measured		Calibrated			
	Zero	Reference	Zero	Reference	Units	
Im	32770.2	49049.9	0.0	7028.0	uA	
Ib	32767.1	49093.1	0.0	1750.0	mA	
MOM1	32794.6	56675.8	0.0	175.0	mV	
Equivalent SFL				43.97	OHMM	
Performed : 10-SEP-2014			Time : 11:47			
Sensor Suite : P-SP			ID : PIT-CA-075			
Internal						
	Measured		Calibrated			
	Zero	Reference	Zero	Reference	Units	
	32768.0	58944.2	0.0	1000.0	mV	

Well File: chief-ahs-11-mstk-dec-22

Segment: V1.D1.S5 MN

Reference: 0

Scale: 1:1200

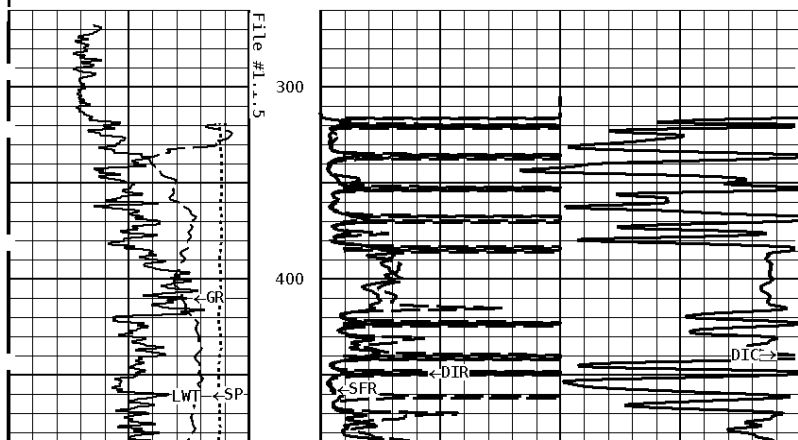
Format: DIL1200

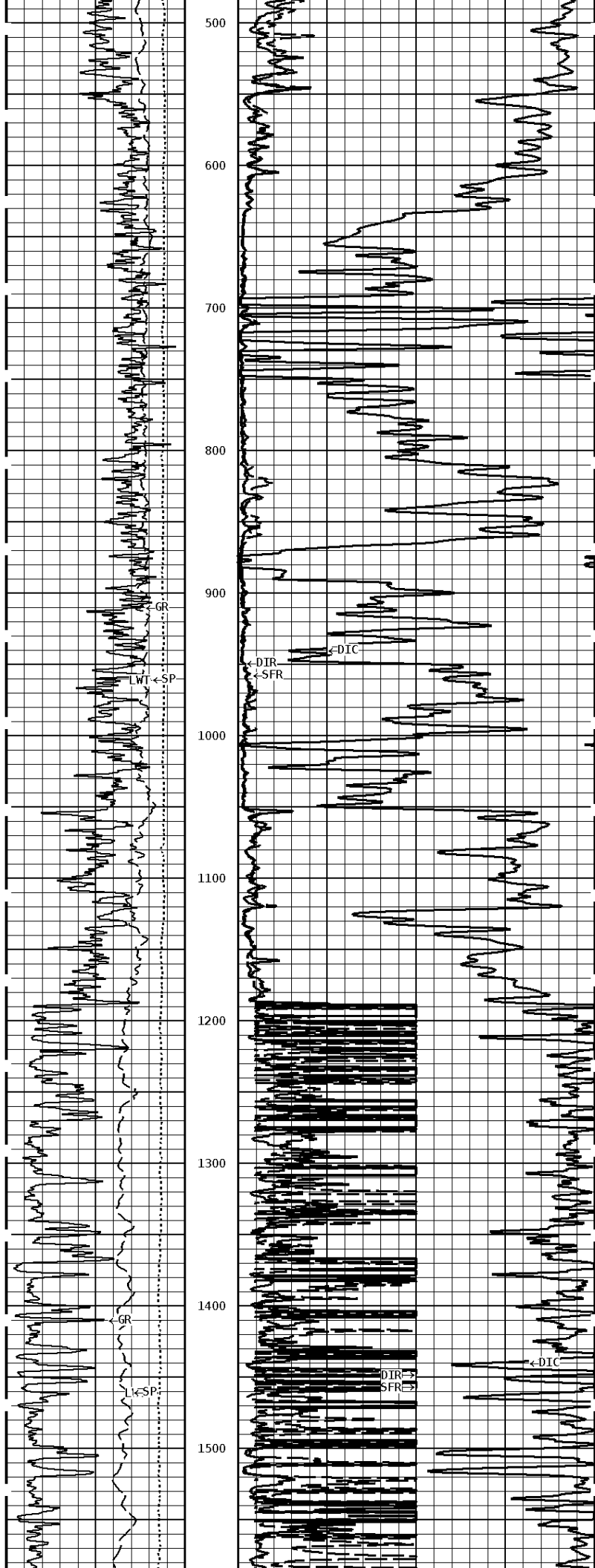
Acquired: 2014-12/22 23:38 3.4.0-13284

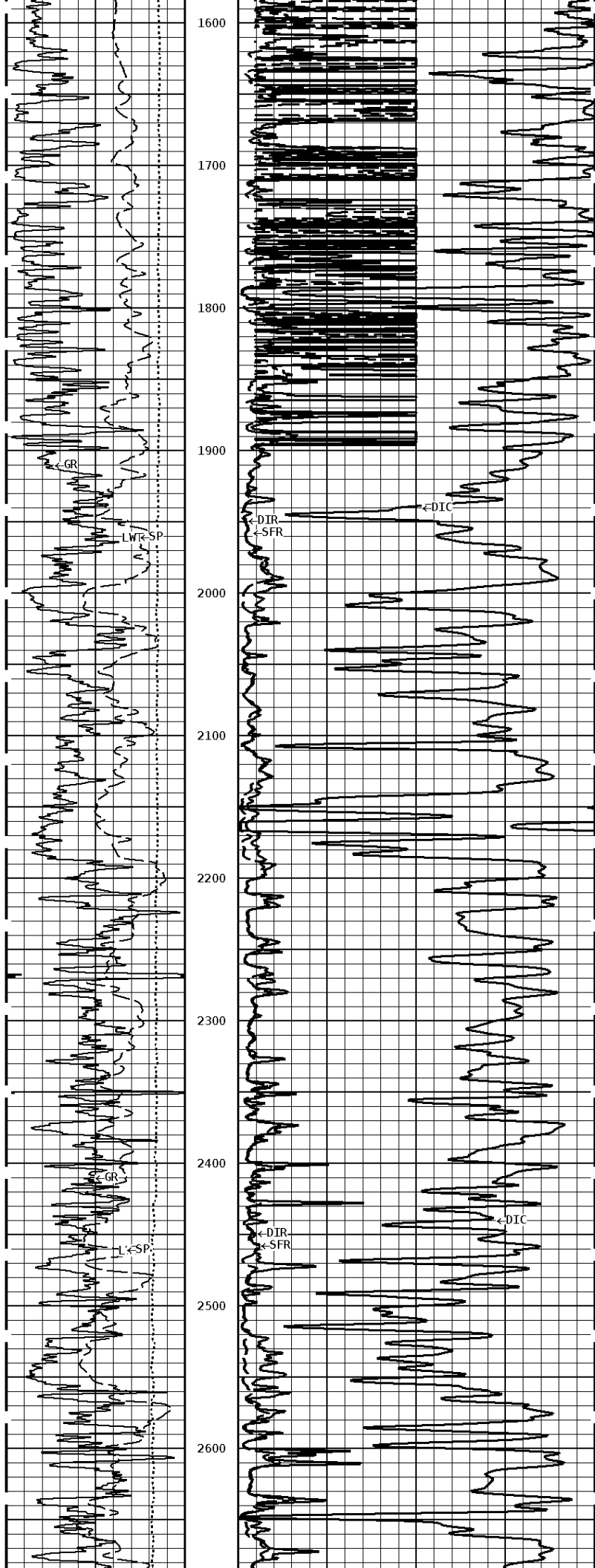
Processed: 2014-12/23 01:25 3.4.0-13284

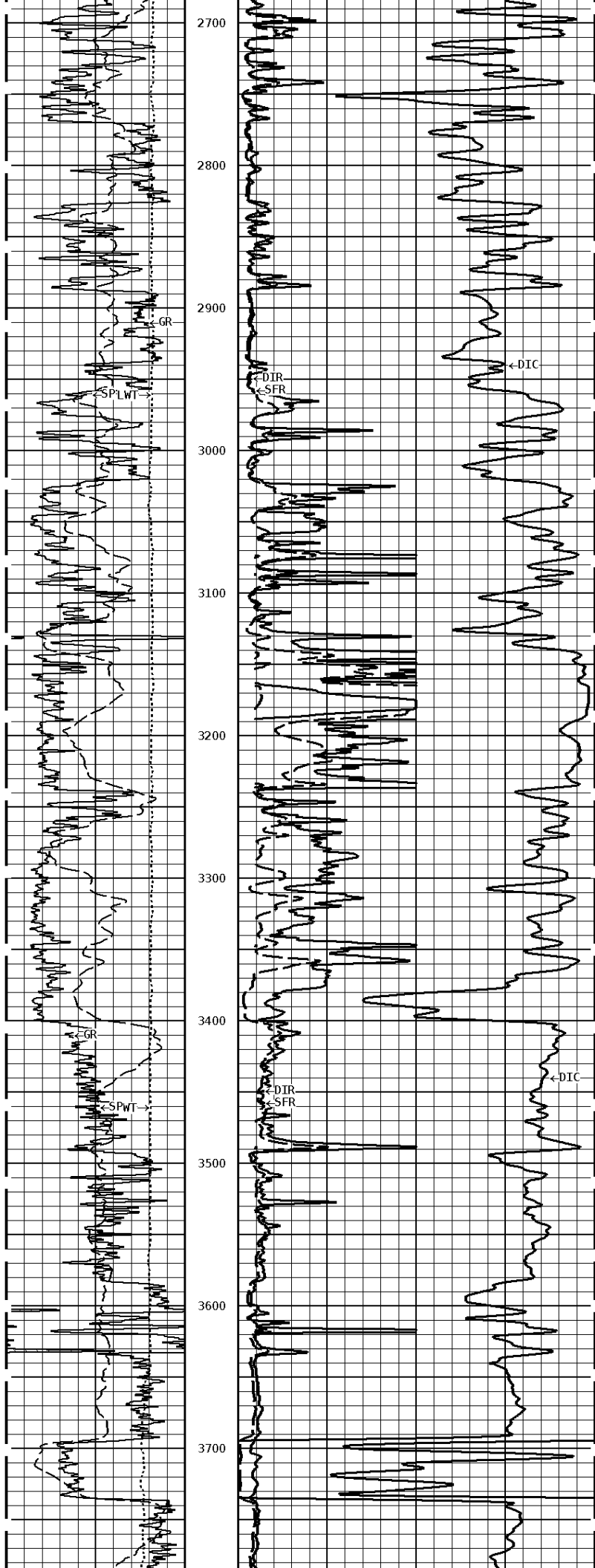
TENSION LBS 10000 ----- 0	DEEP INDUCTION OHMM 0.0 500.0 0.0 50.0
	SHALLOW FOCUSED OHMM 0.0 500.0 0.0 50.0
SPONTANEOUS POTENTIAL mV → ← 20	DEEP CONDUCTIVITY MHMO 2000 1000 1000 0
GAMMA RAY API UNITS 150 300 0 150	

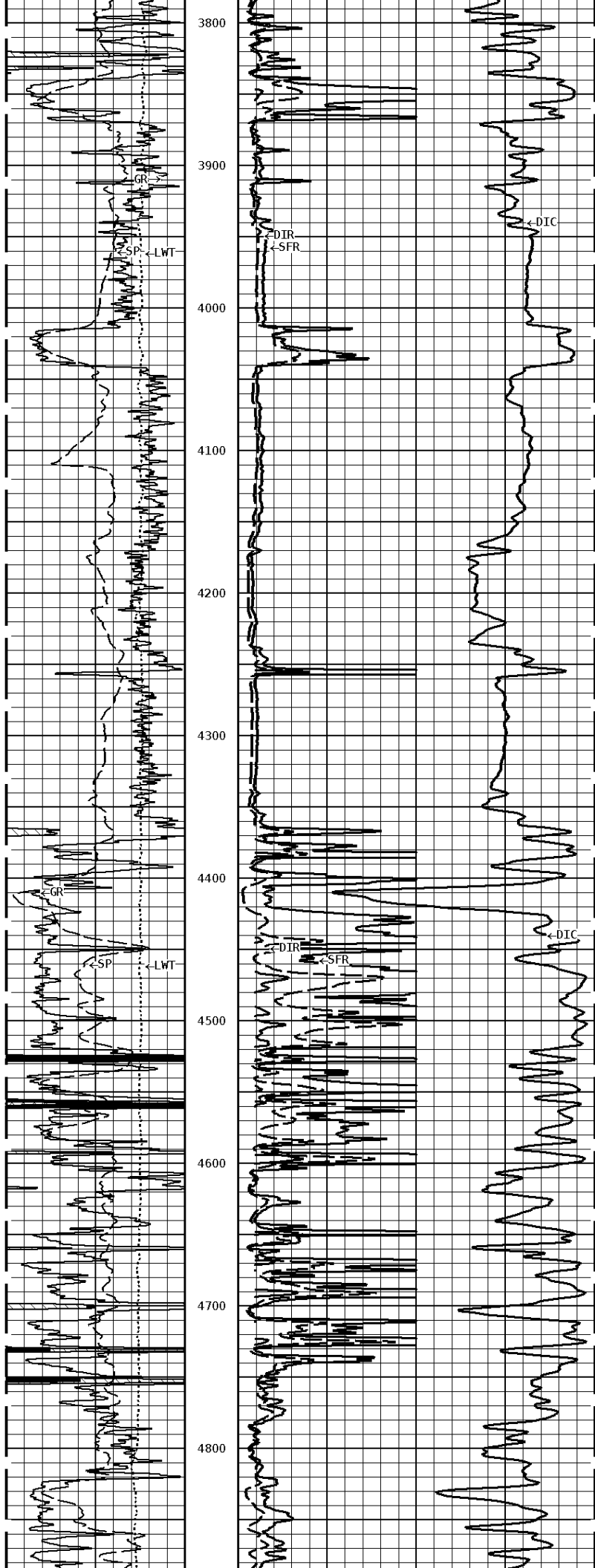
1:1200 MAIN SECTION

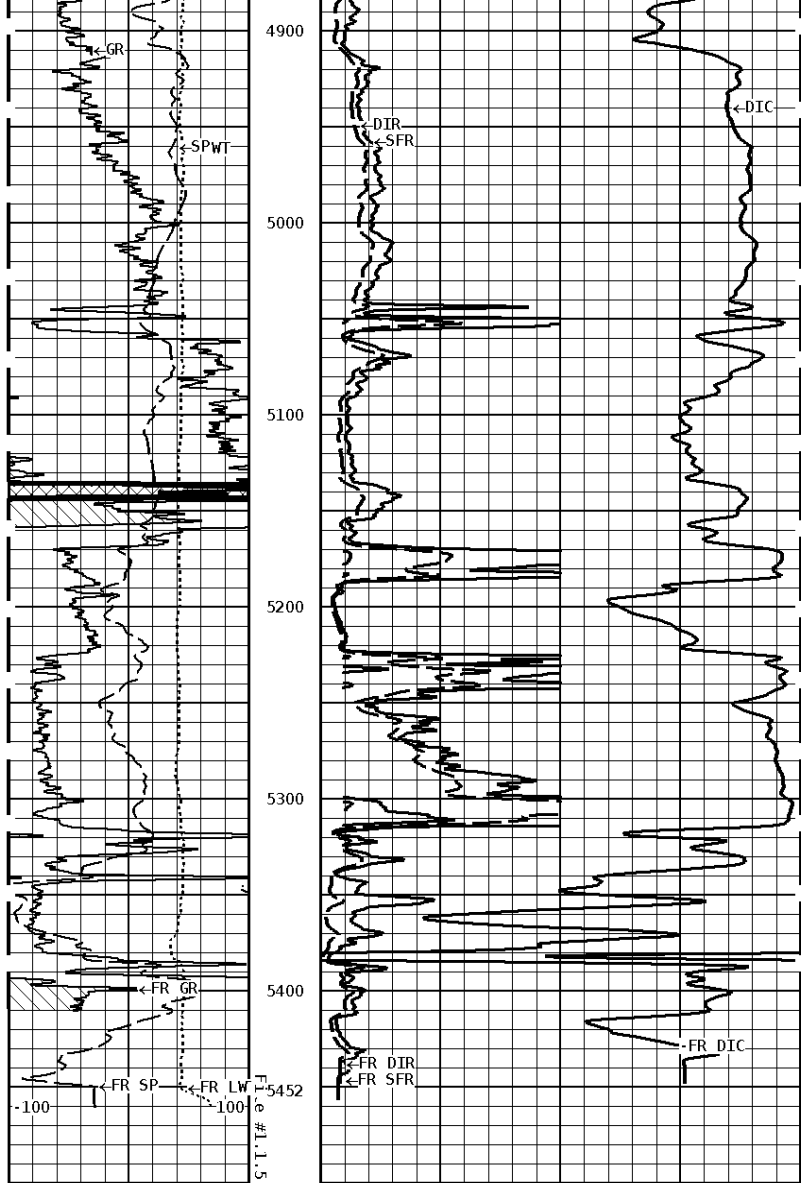




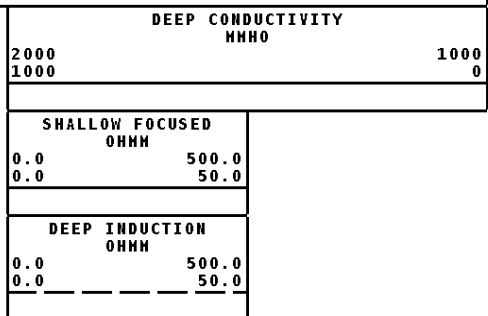
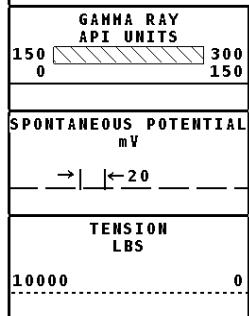








1:1200 MAIN SECTION



Company: CHIEFTAIN OIL CO. INC.
 Well: AHS CATTLE CO. #11
 Location: 1200' FNL & 660; FEL
 Logged: 12-22-2014
 K.B. Elev: 1400.0 Ft