

Tucker
ENERGY SERVICES

PHASED INDUCTION

SHALLOW FOCUS SP LOG

Company MG OIL INC.
Well POPP #4
Field NUSS SOUTH
County BARTON
State KANSAS
Country USA
API No. 15-00925785

File No : TUL-57644
Company : MG OIL INC.
Well : POPP #4
Field : NUSS SOUTH
County : BARTON
State : KANSAS
Country : USA
API No : 15-00925785

Location :
2285' FNL & 1870' FWL
NE SW SE NW

LSD : Sect : 15 Twp : 16S Rge : 14W

Permanent Datum: GL
Drilling Measured From: KB
Log Measured From: KB
Above Permanent Datum: 7.00 Ft
Elevations: KB 1911.00 Ft, DF 1910.00 Ft, GL 1904.00 Ft

Services: CNT, LDT, MLT, PIT

Date	2012-12-05	
Run Number	1	
Depth--Driller	3440.0	Ft
Depth--Logger	3439.0	Ft
First Reading	3438.0	Ft
Last Reading	890.0	Ft
Casing--Driller	890.0	Ft
Casing--Logger	890.0	Ft
Bit Size	7.875	In
Casing Size	8.625	In
Hole Fluid Type	WBM	
Density	9.3 LBS/GAL	
Fluid Loss	10.4	CC
PH/Viscosity	8.5	58.0 SEC
Sample Source	MEASURED	
RM@Measured Temp.	0.900	@ 70 F
RMF@Measured Temp	0.770	@ 70 F
RMG@Measured Temp.	1.040	@ 70 F
Source RMF/RMC	CALCULATED/CALCULATED	
RM@BHT	0.630	@ 104 F
Time Circulation Stopped		
Max Recorded Temp.	104	F
Equipment/Base	TRK 119	TULSA
Recorded By	S. DAVIS	
Witnessed By	C. COUNTS	

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)
7.875	3439.00	8.625	20.00	890.00

Run Number	1	
Date	2012-12-05	
Date/Time On Bottom	2012-12-05 19:45	
Depth to Fluid	0.0	Ft
Salinity	5500.000	PPM
RMF@BHT	0.530	@ 104 F
RMC@BHT	0.720	@ 104 F

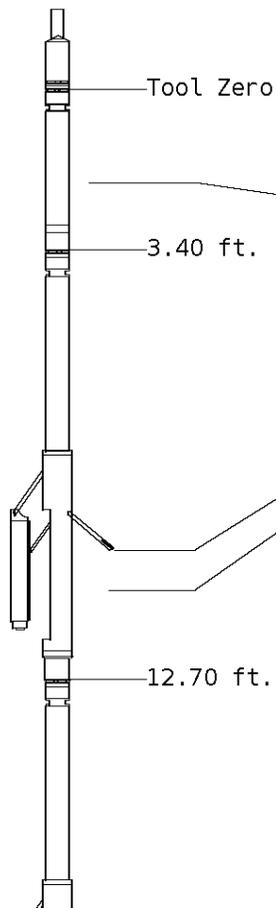
ALL PRESENTATIONS AS PER CUSTOMER REQUEST.
 GRT, CNT, LDT, MLT, AND PIT RUN IN COMBINATION.
 CALIPERS ORIENTED ON X-Y AXIS.
 2.71 G/CC USED TO CALCULATED POROSITY.
 ANNULAR HOLE VOLUME CALCULATED USING 5.50" PRODUCTION CASING.
 DETAIL PRESENTED TO 2550'

GRT: GRP.
 CNT: PHIN, CLCNIN.
 LDT: PORL, LCORN, PECLN, LDENN, PORLLS, CLLDIN.
 MLT: NOR_RF, INV_RF, MSCLPIN.
 PIT: ILD, ILM, SPU, SFLAEC.

OPERATORS:
 B. COLWILL
 J. KLINE

Tool String Schematic

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



Tool: GRT-B **Length:** 3.40 ft. **O.D.** 3.60 in.
 Gamma Ray Controller

Sonde ID :GRT-BA-14

Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.57

Tool: CNT-AA **Length:** 9.30 ft. **O.D.** 4.36 in.
 Compensated Neutron A Pad on NDT-A

Sonde ID :NDT-BB-129

Source ID :N-1045

Pad ID :CNP-AA-112

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	44.17
PHIN	6.80	10.20	43.37

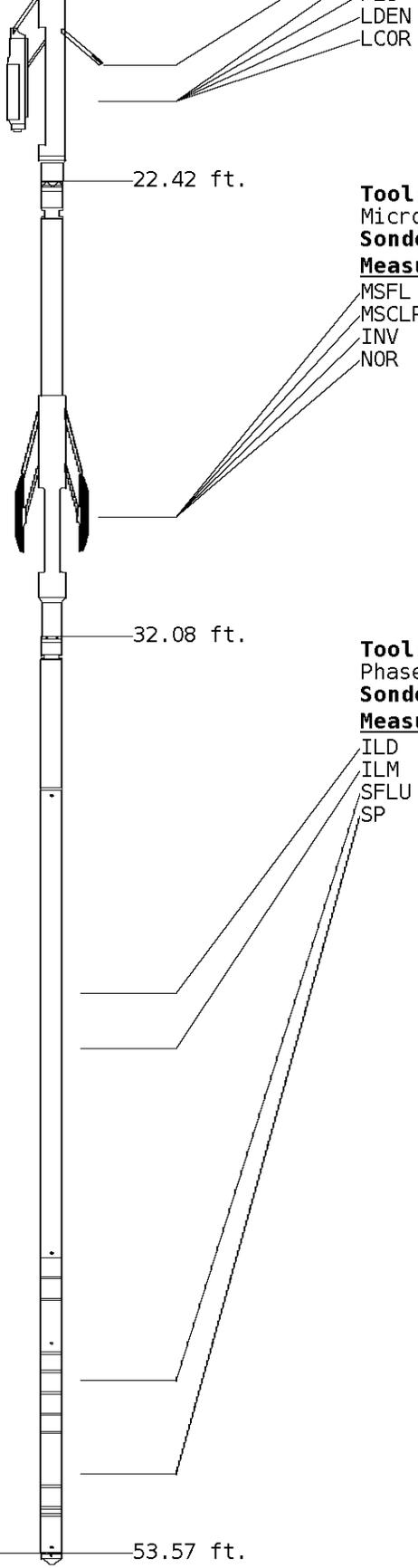
Tool: LDT-DF **Length:** 9.72 ft. **O.D.** 4.80 in.
 Litho Density D Pad on NDT-F

Sonde ID :PDT-GA-464

Source ID :2991GW

Pad ID :LDP-DA-065

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	34.45
PEL	7.42	20.12	33.45
PES	7.82	20.52	33.05



7.62	20.32	33.25
7.62	20.32	33.25

Tool: MST-DA **Length:** 9.66 ft. **O.D.** 6.00 in.
 Micro Spherically Focused (IC)
Sonde ID :MST-DA-36

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-AC-22

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: mg-oil-popp-4-mstk-dec-05 **Scale:** 1:600
Segment: V1.D1.S6 MN **Acquired:** 2012-12/05 19:58 3.2.0-11401
Reference: 0 **Processed:** 2012-12/05 21:01 3.2.0-11401

TENSION LBS	0
10000	0

SHALLOW FOCUSED RESISTIVITY OHMM	
0.0	500.0
0.0	50.0

SPONTANEOUS POTENTIAL mV

DEEP INDUCTION OHMM	
0.0	500.0

→ ←20

0.0 500.0
0.0 50.0

GAMMA RAY
API UNITS

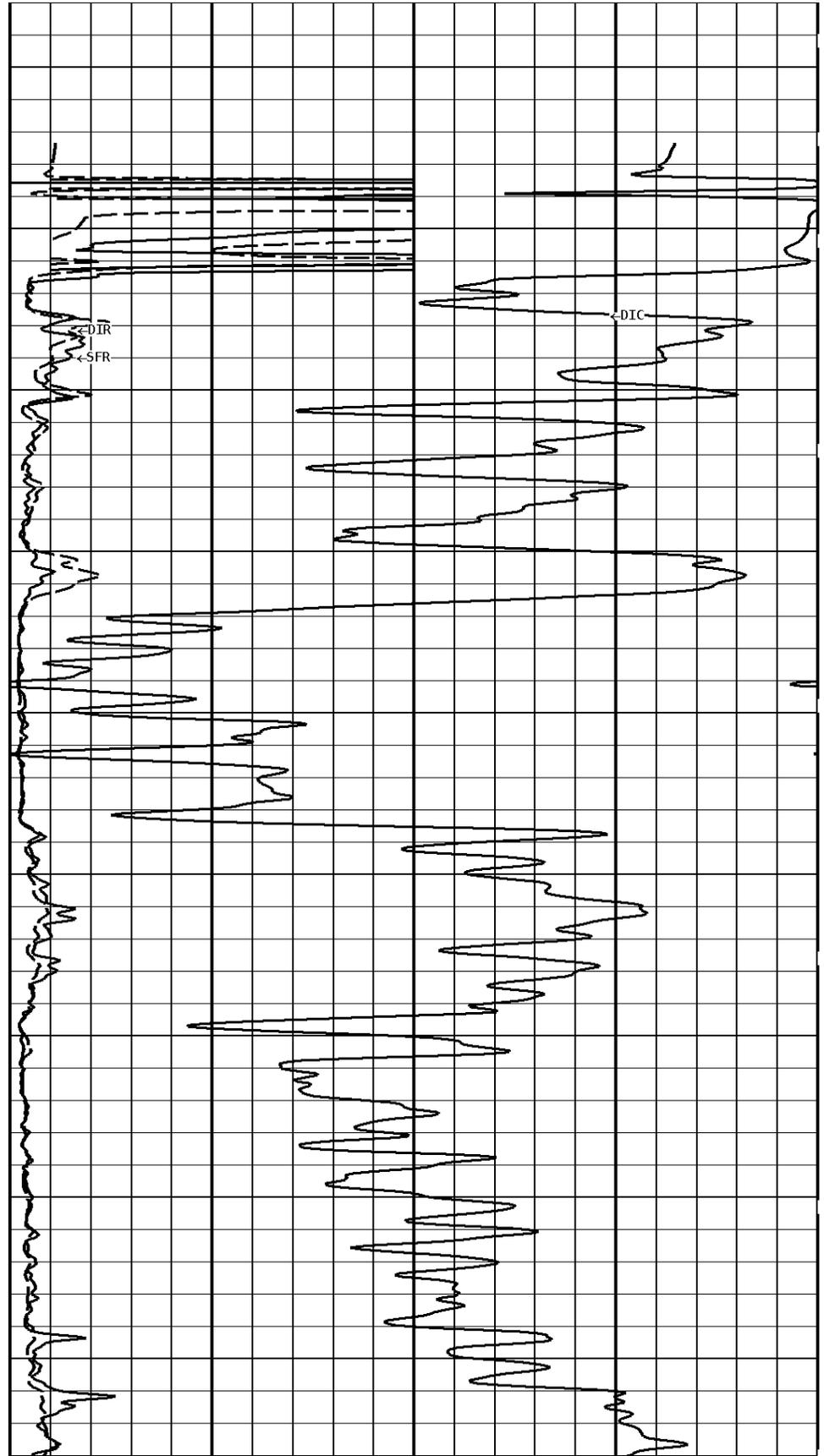
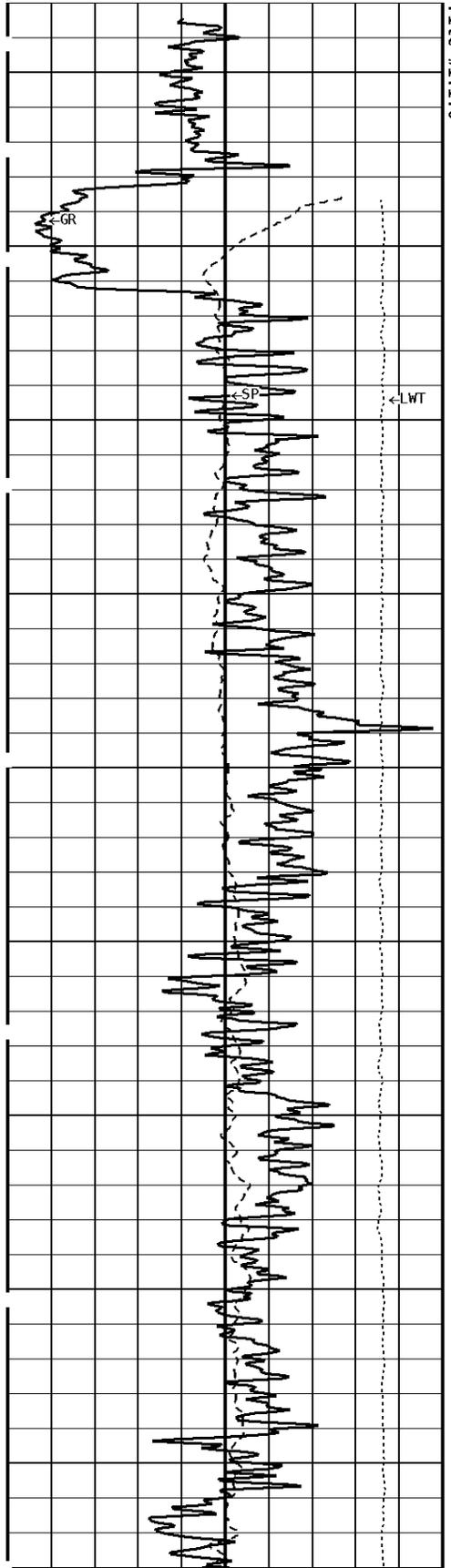
DEEP CONDUCTIVITY
MMHO

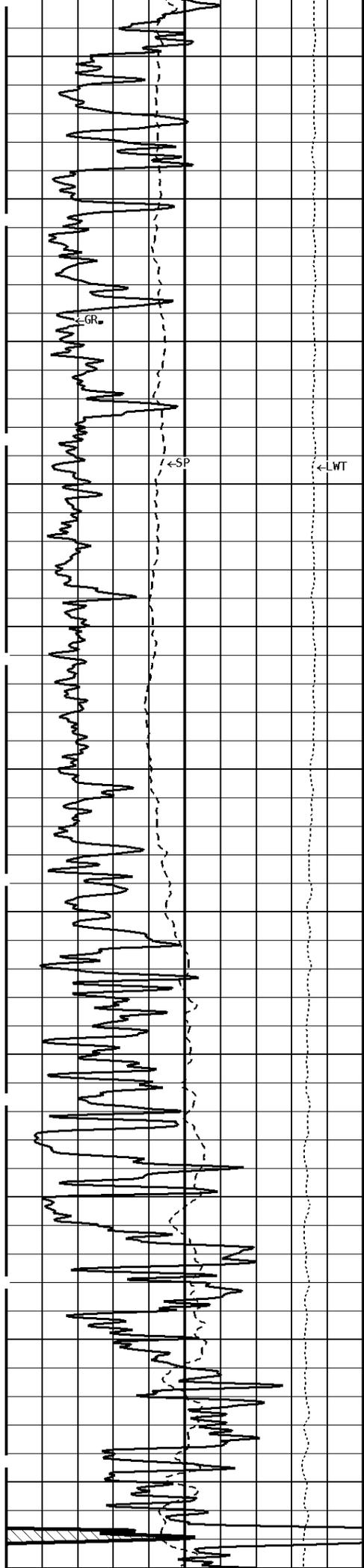
150 0 300 150

2000 1000

1000 0

1:600 SECTION





1300

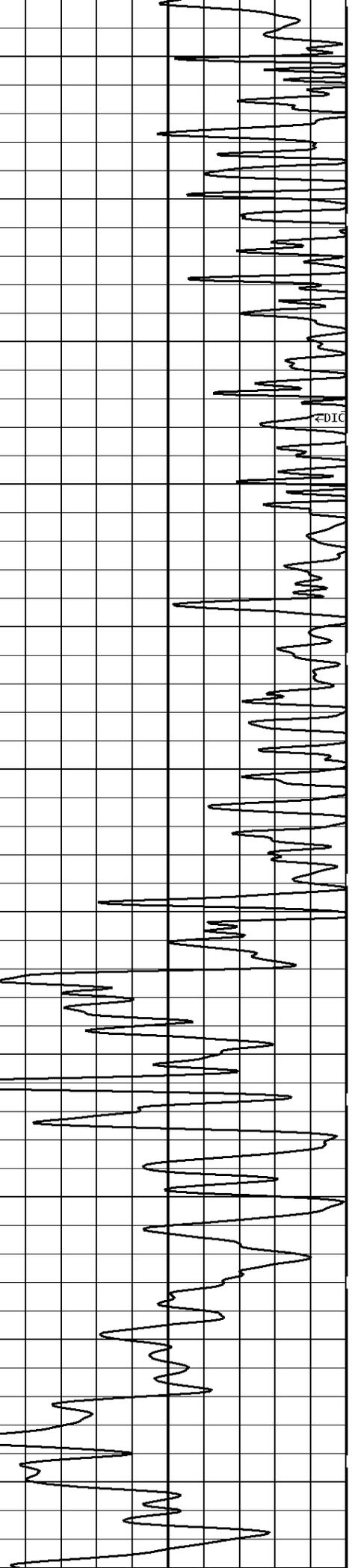
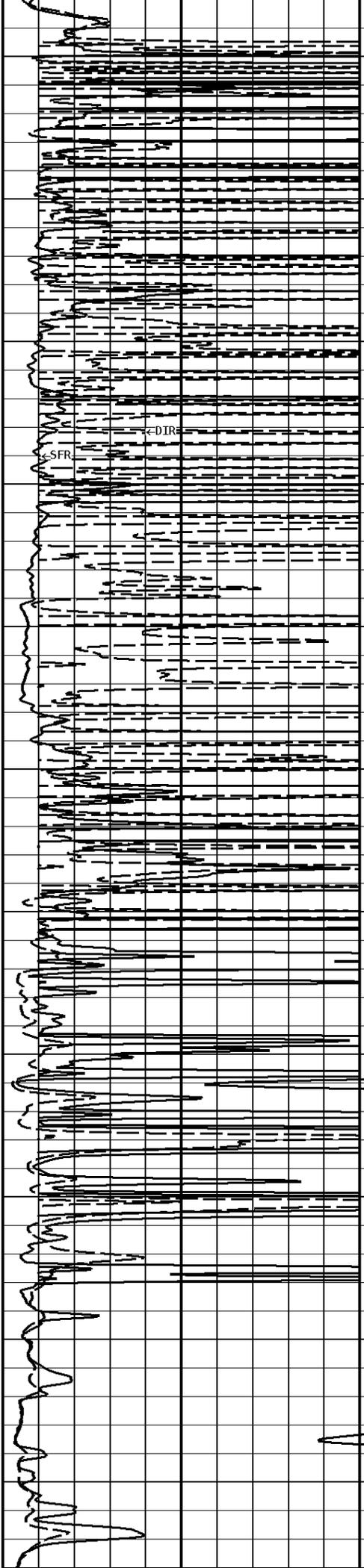
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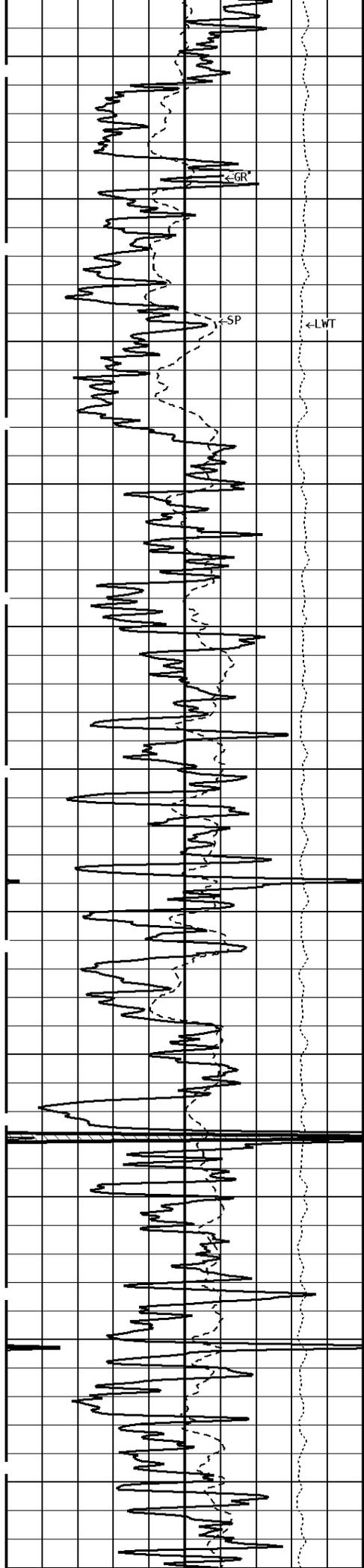
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1700

1800



←DIC



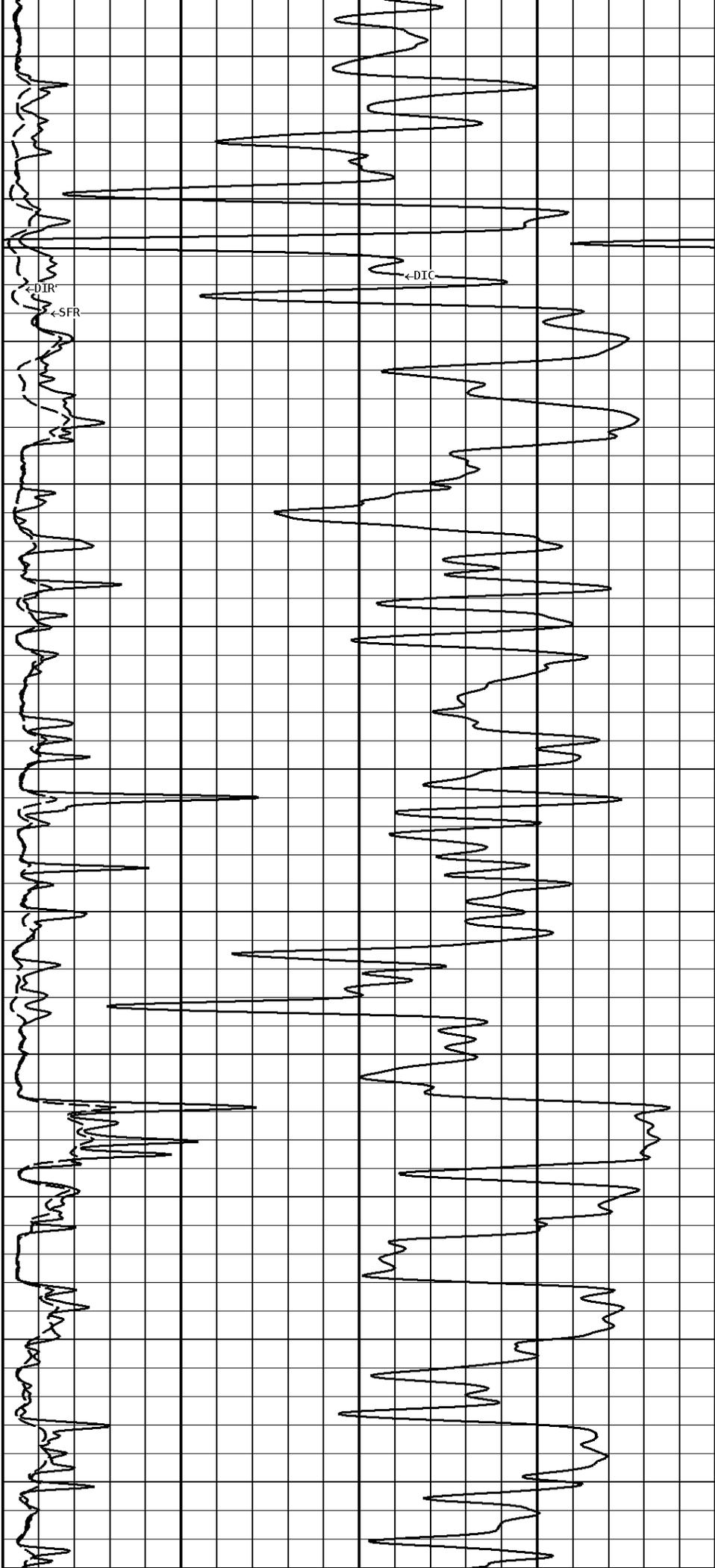
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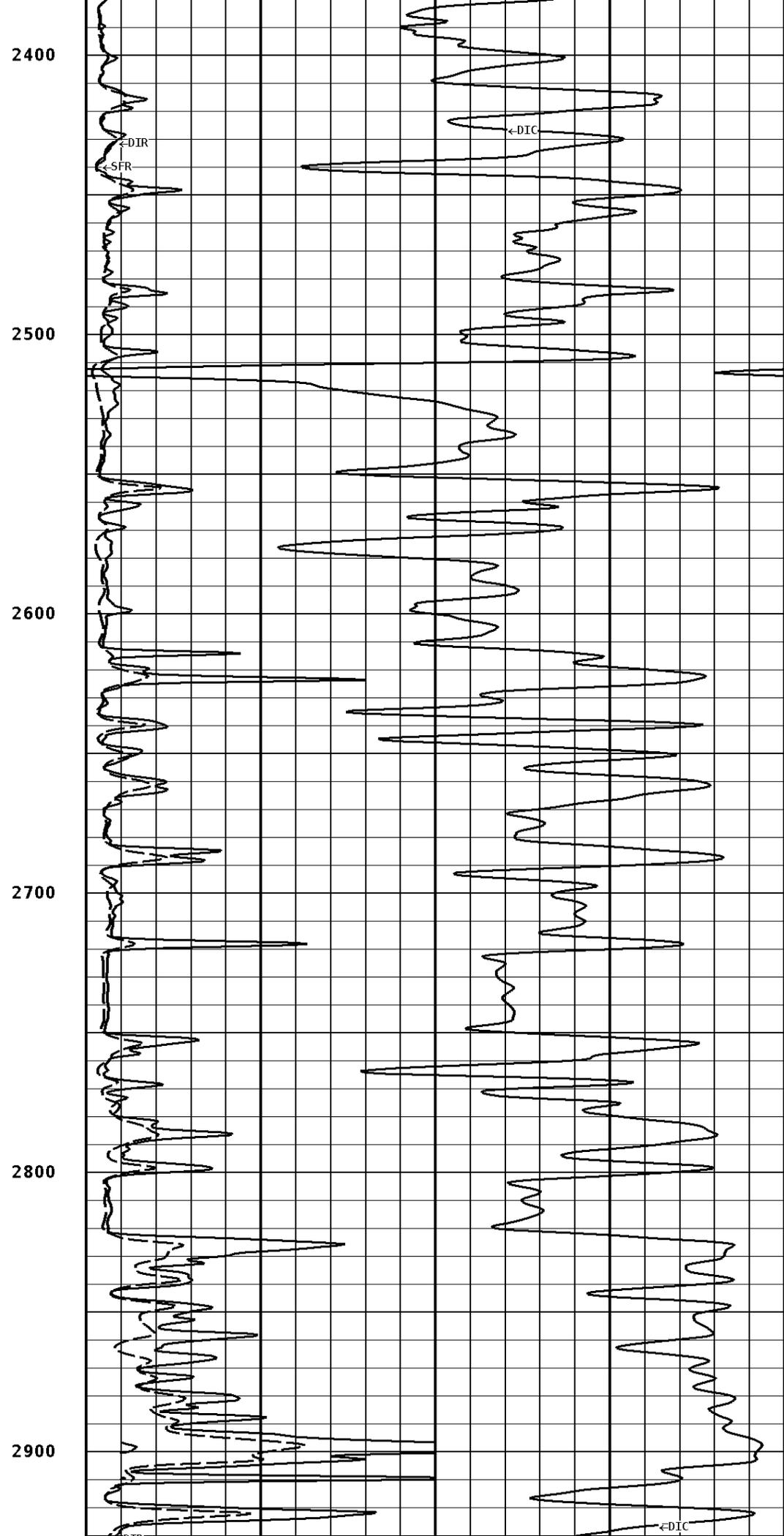
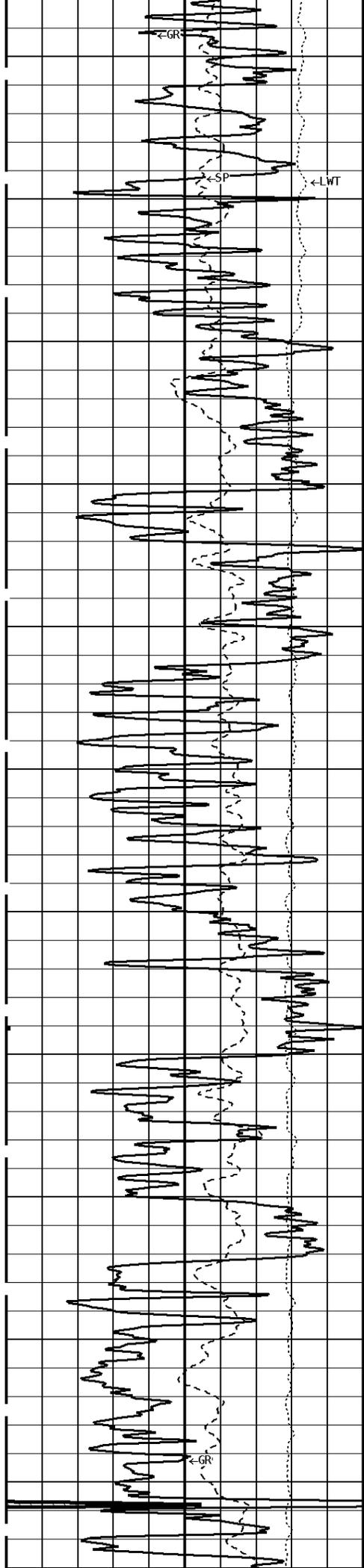
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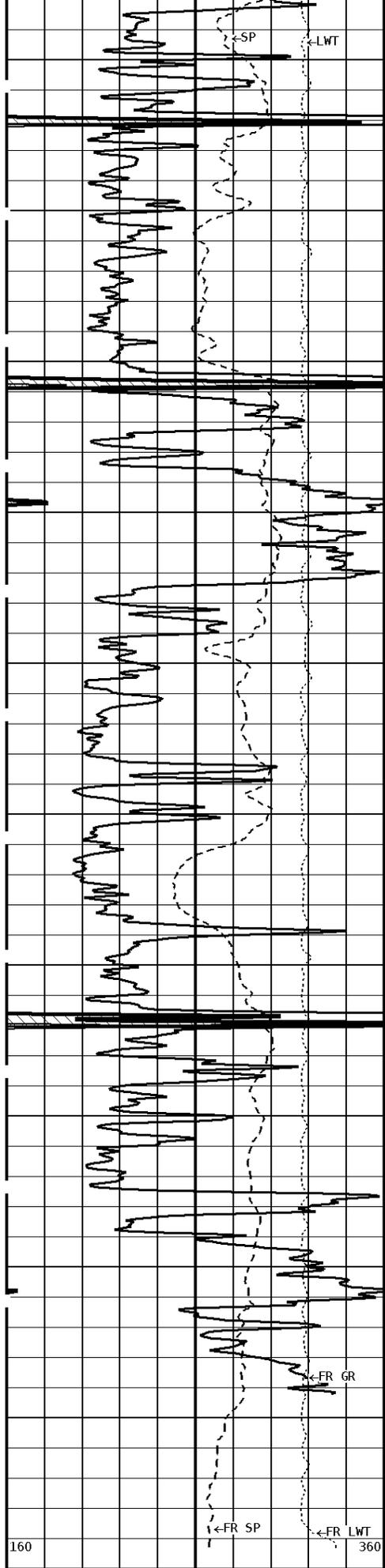
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2300







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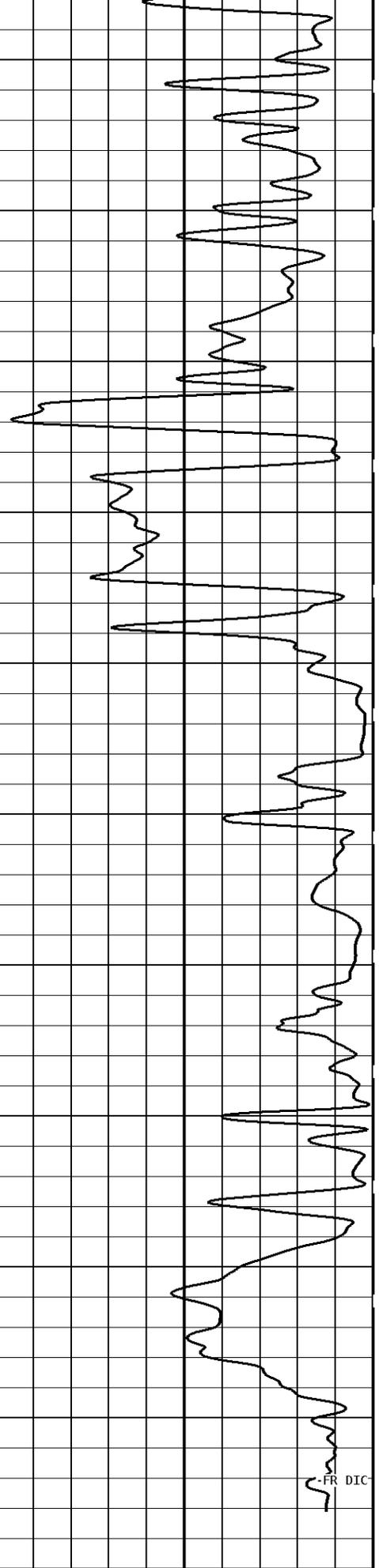
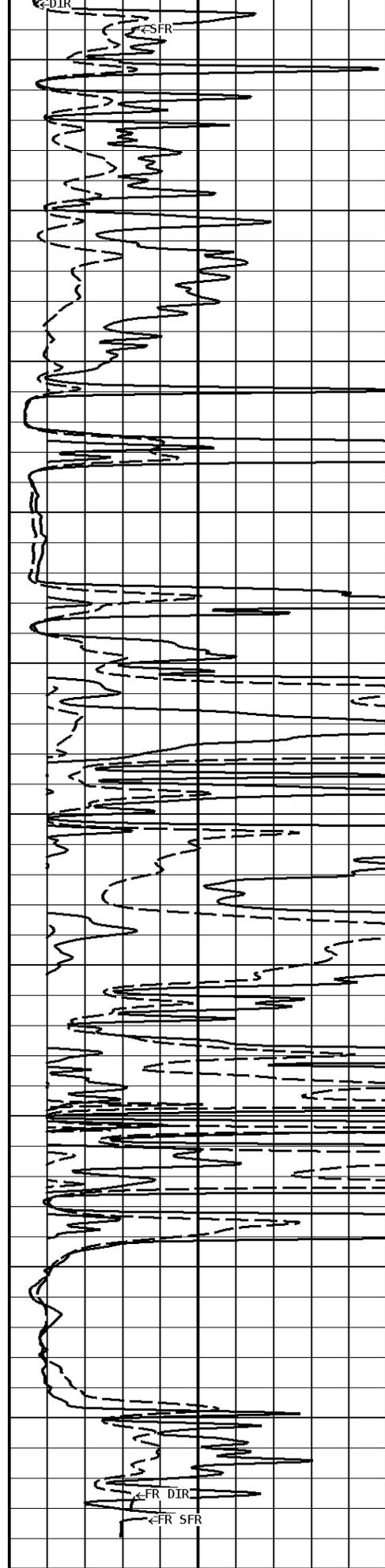
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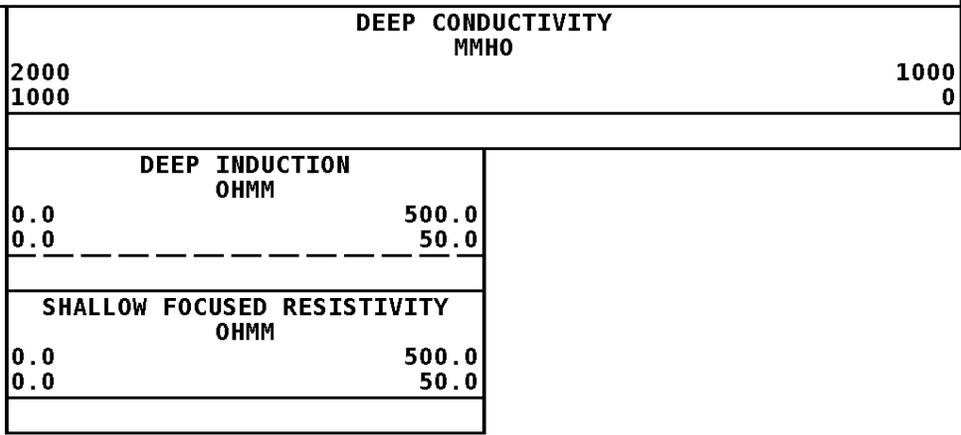
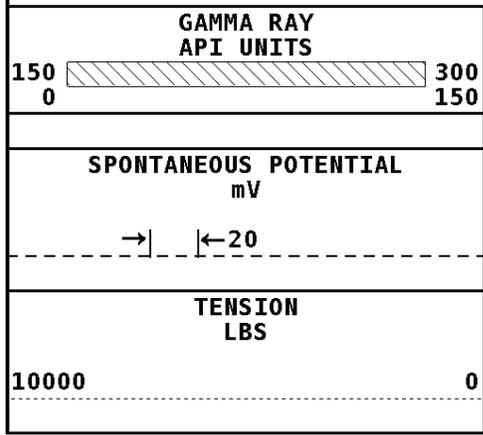
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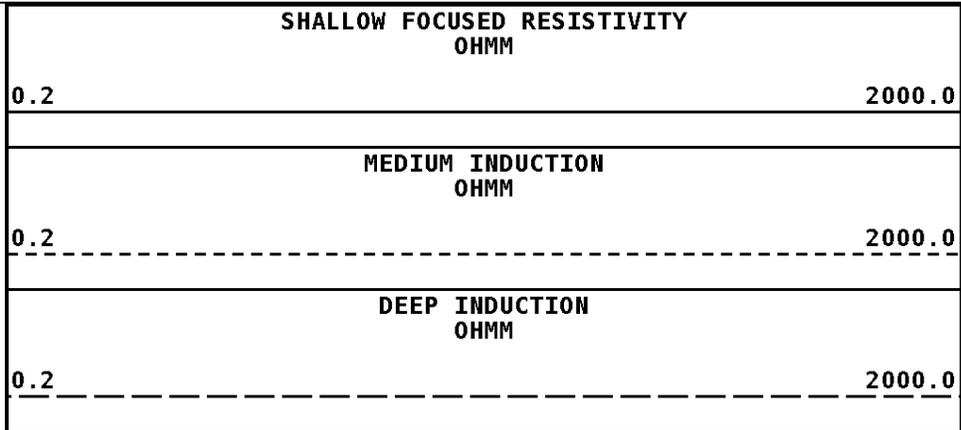
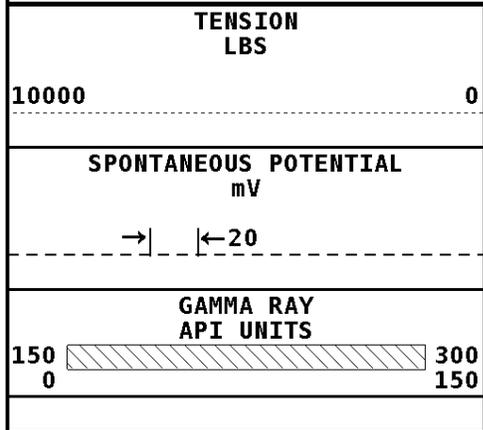


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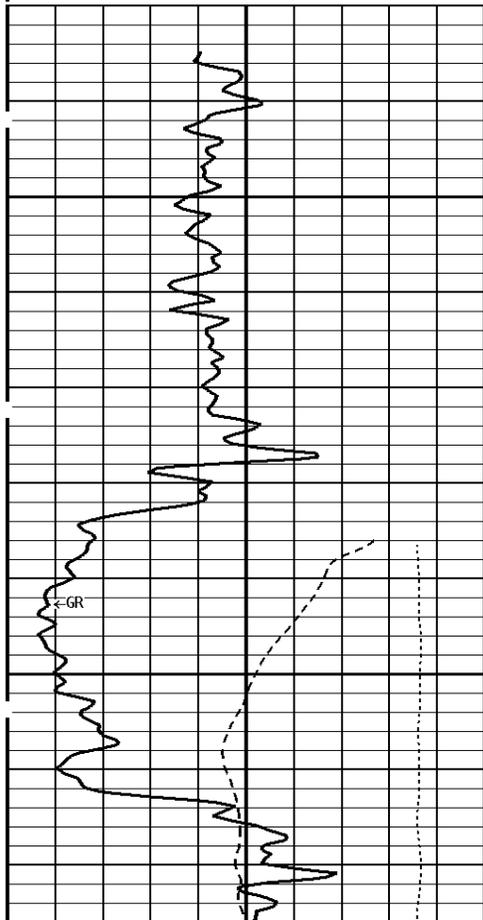


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 Reference: 0

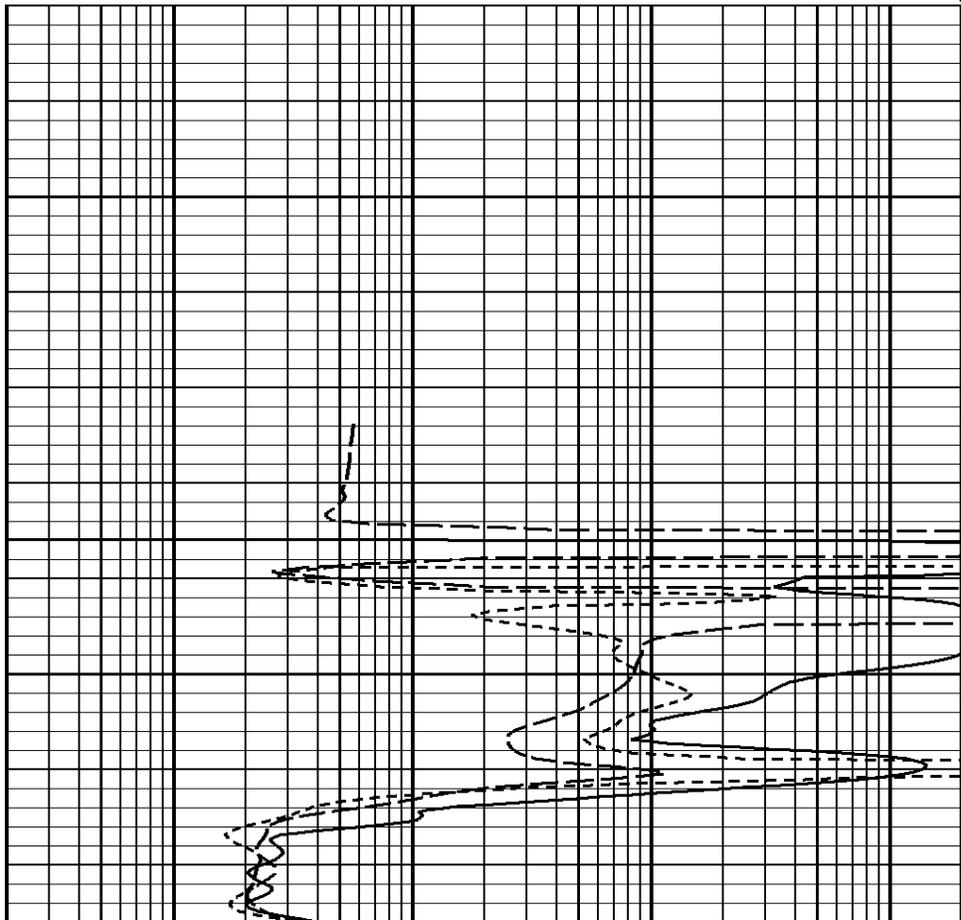
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 Processed: 2012-12/05 21:01 3.2.0-11401

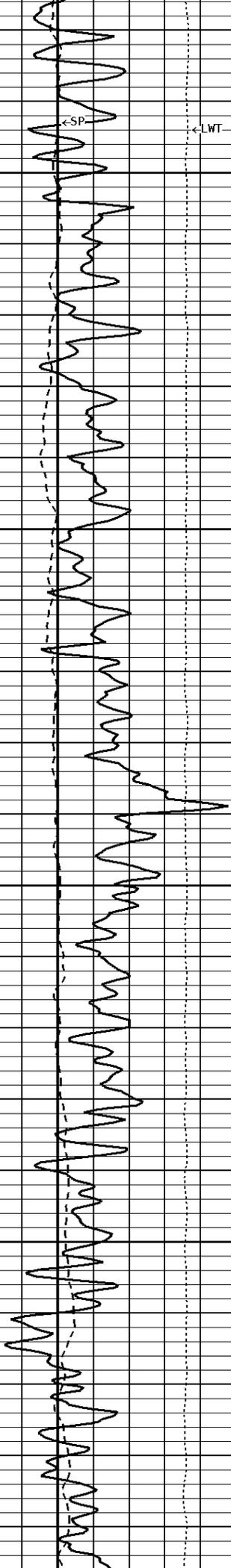


1:240 MAIN SECTION



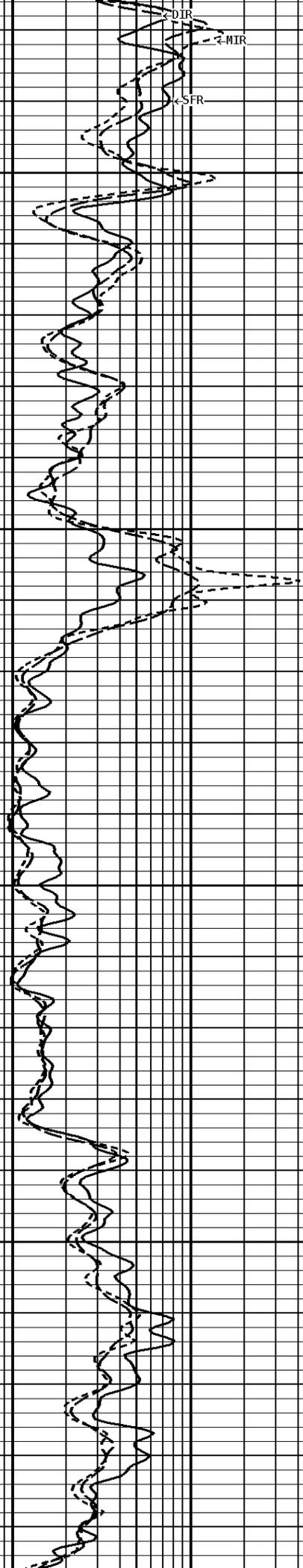
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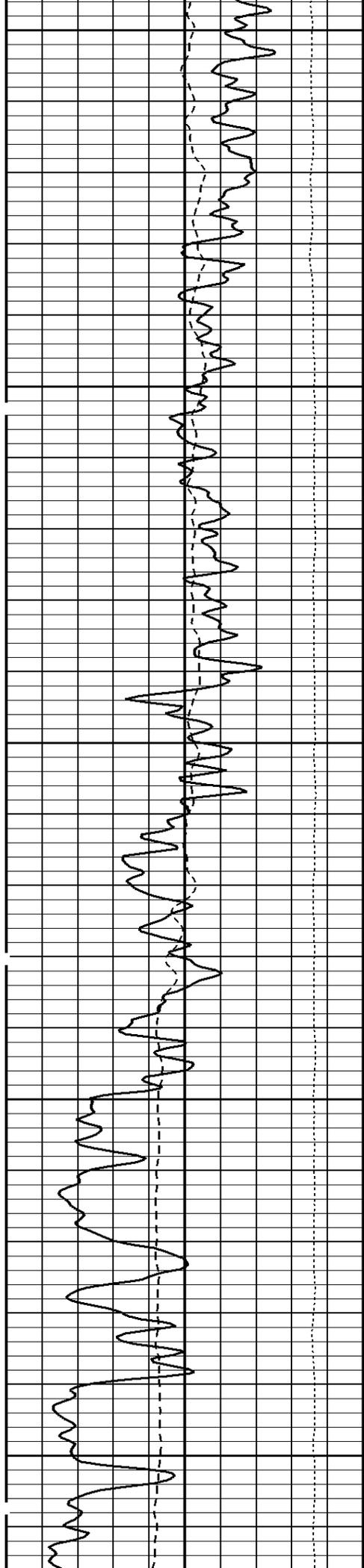




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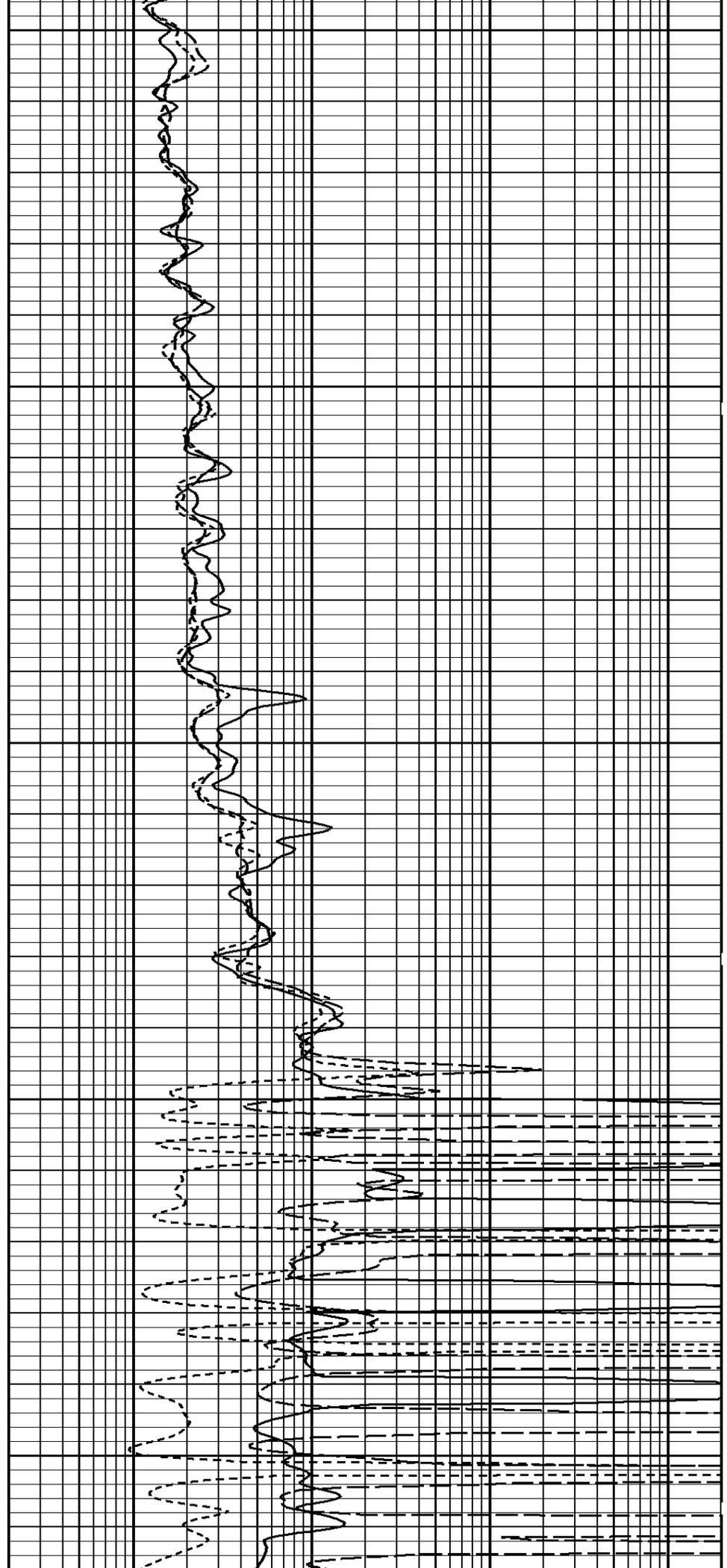
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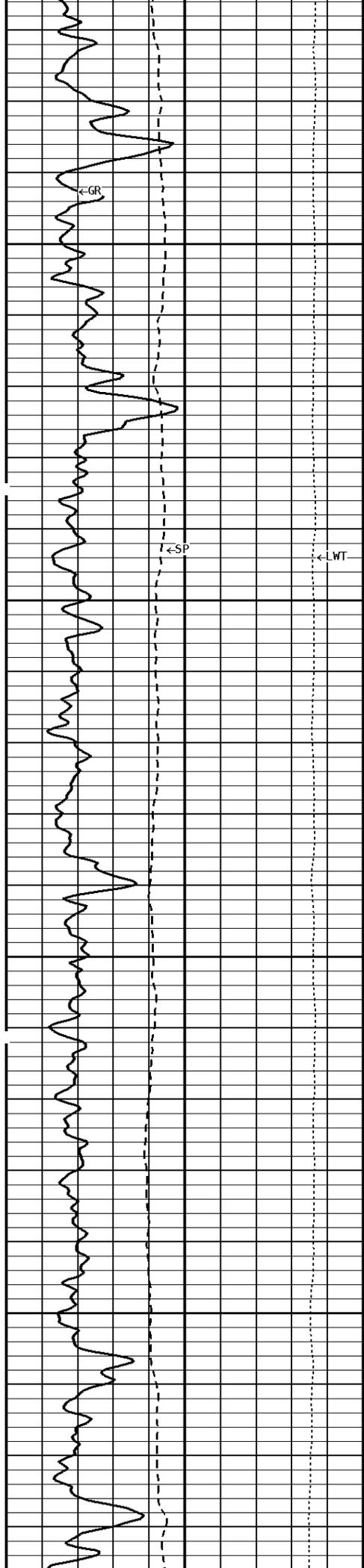




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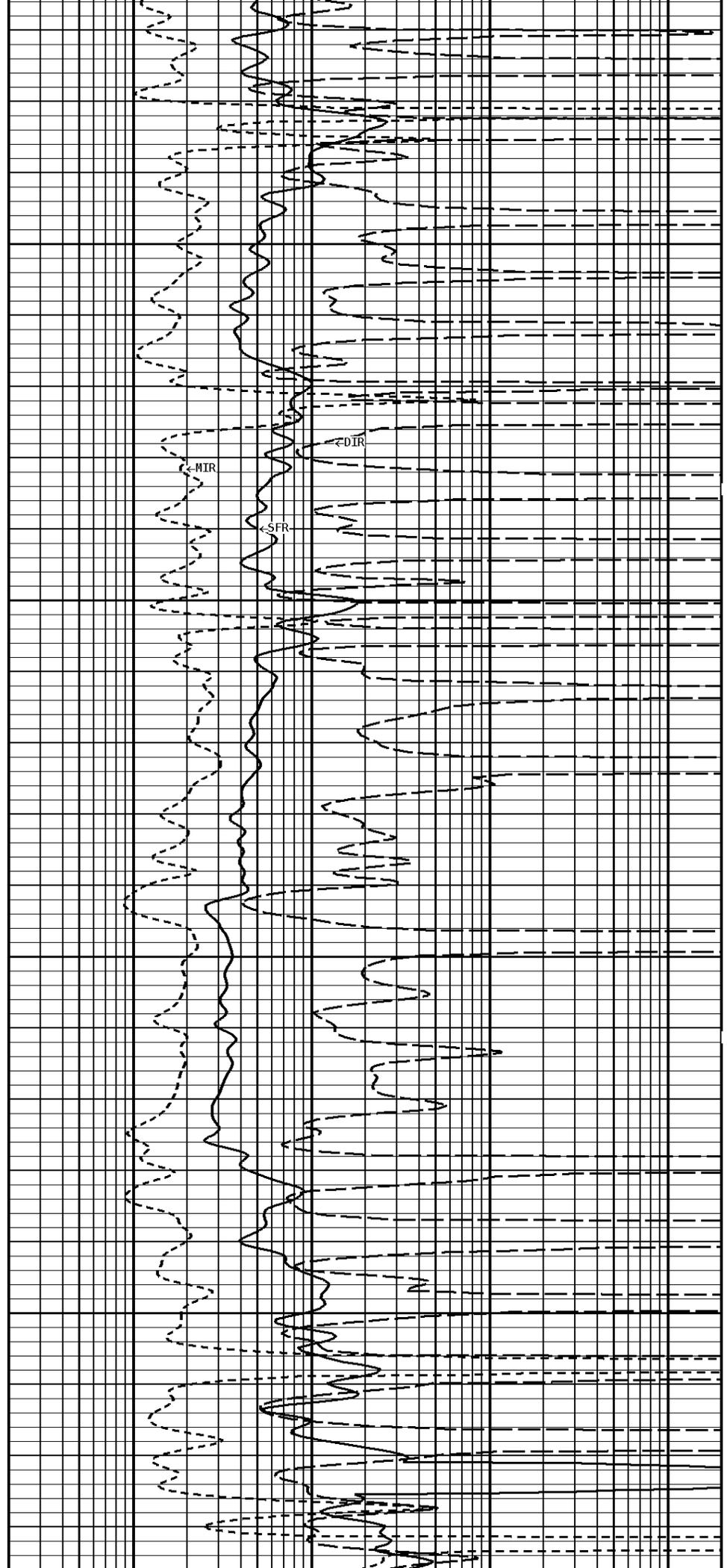
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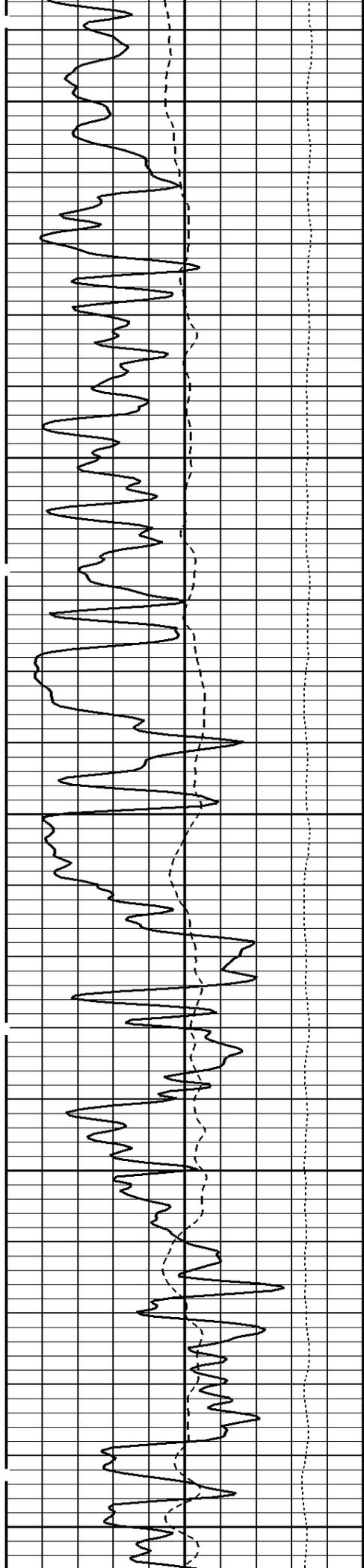




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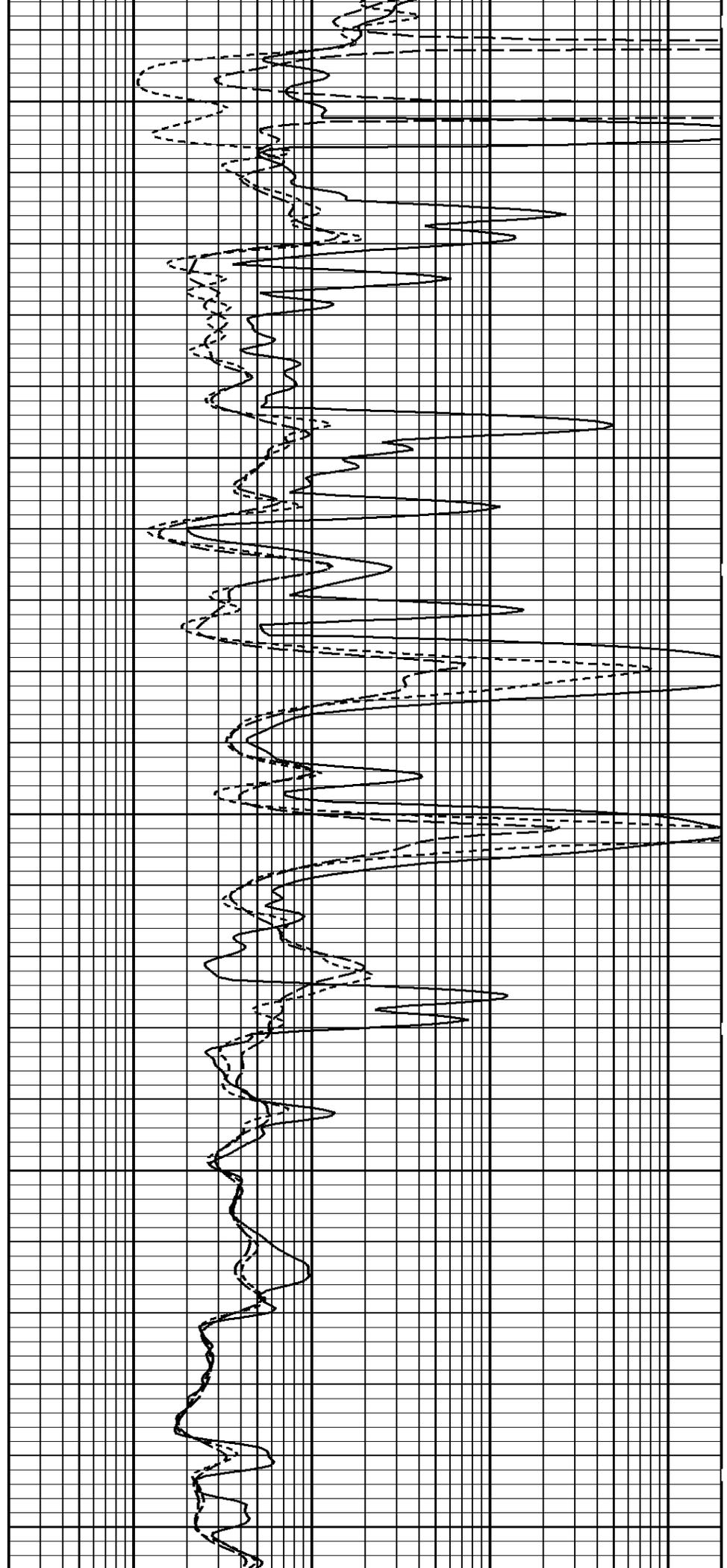


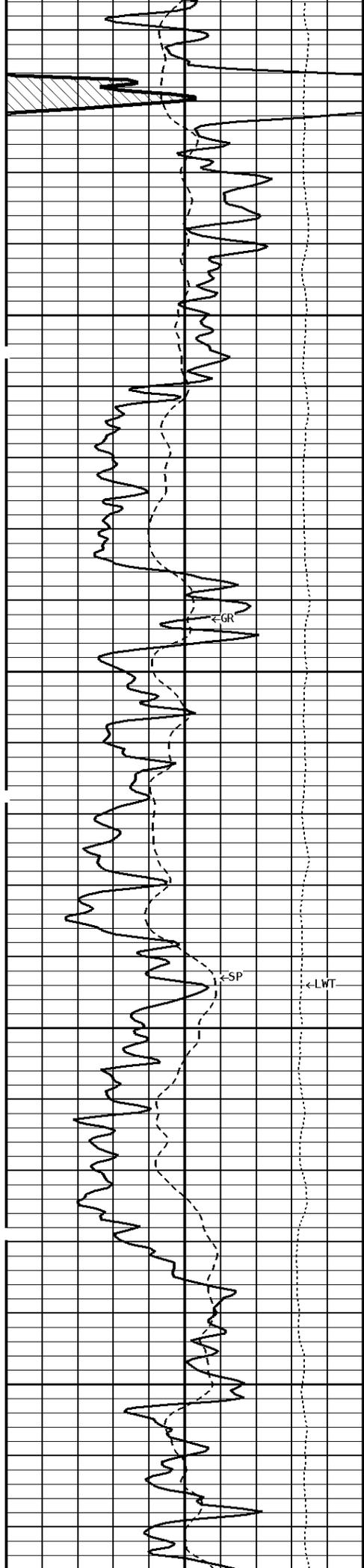


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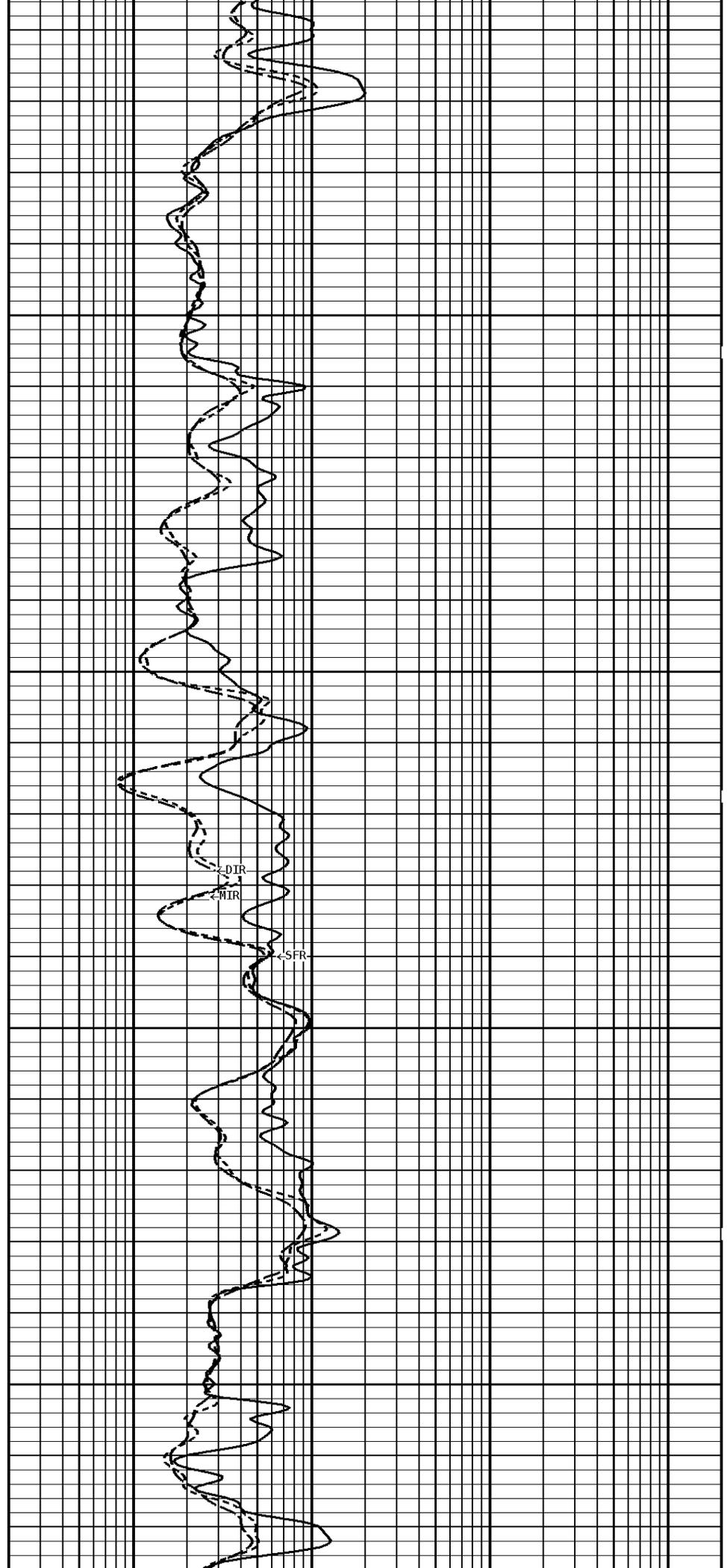
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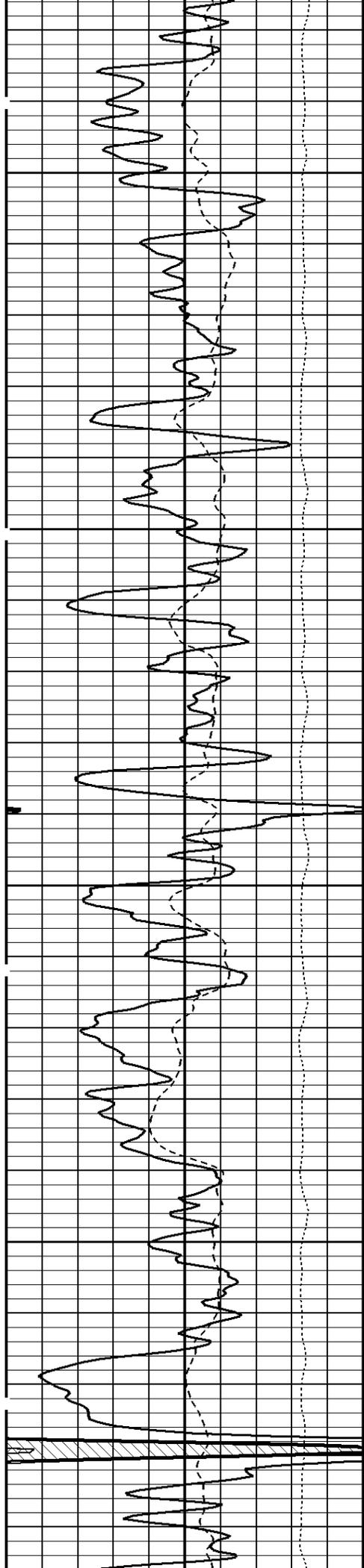




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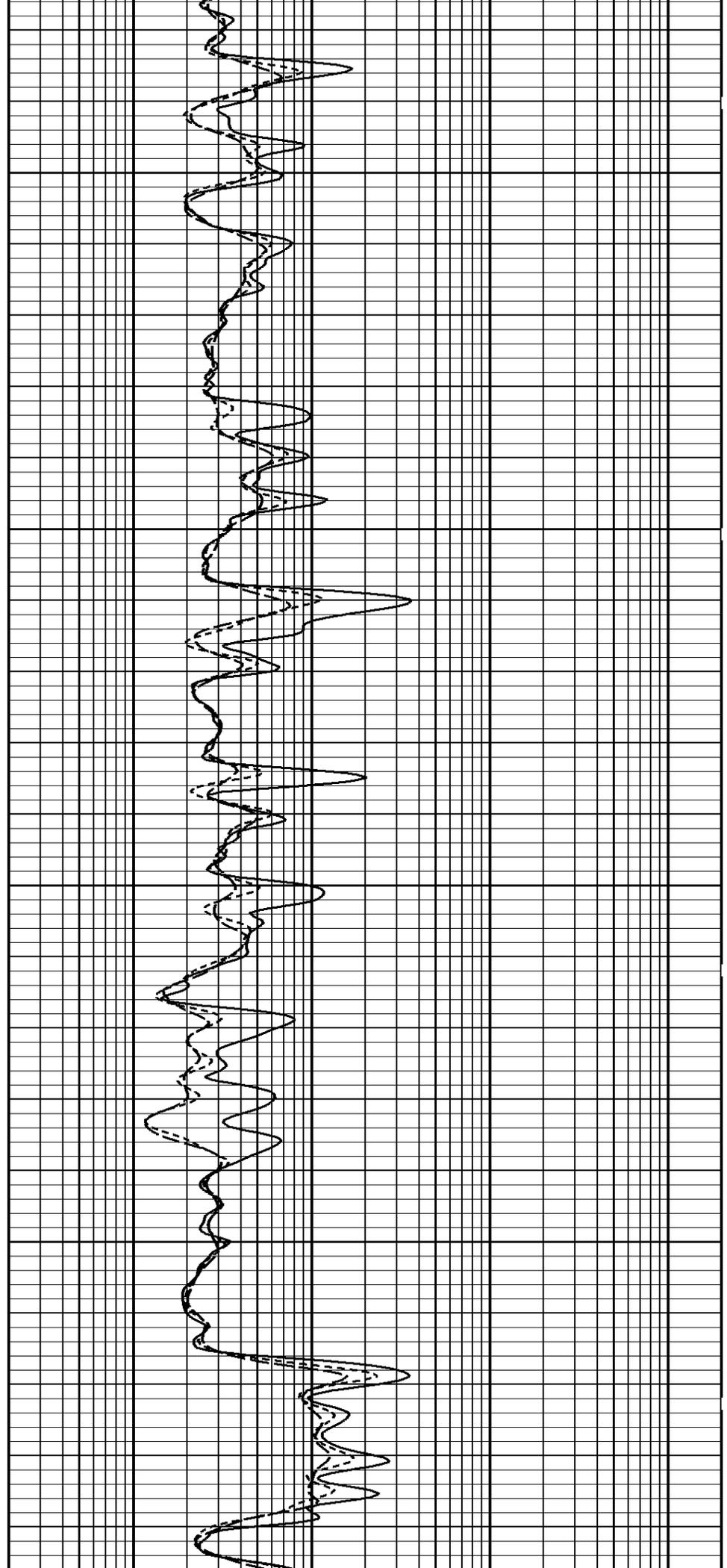
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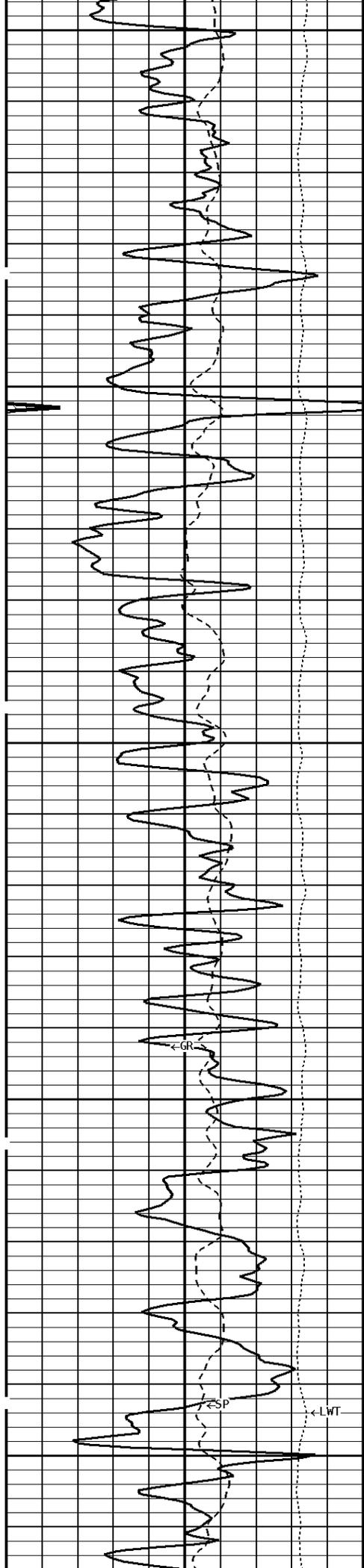




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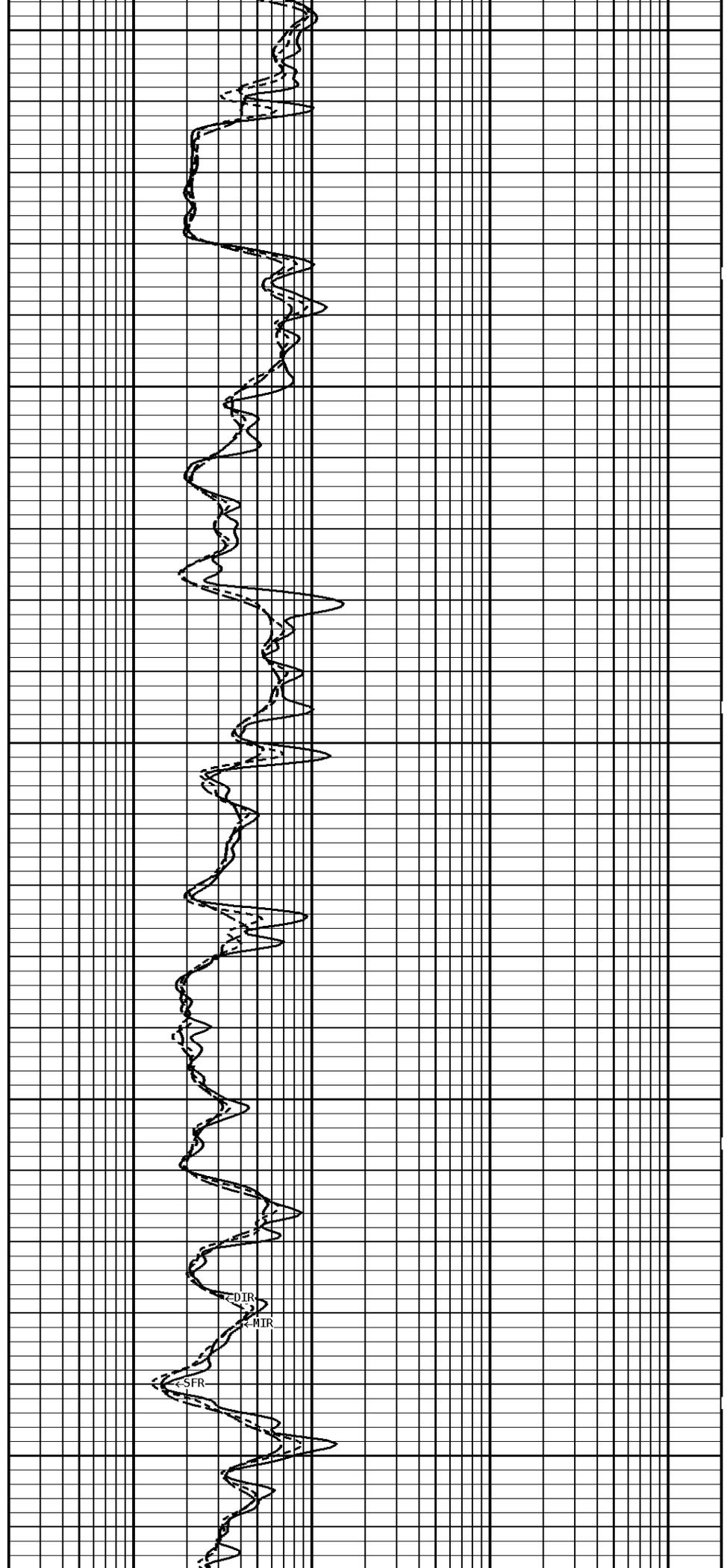
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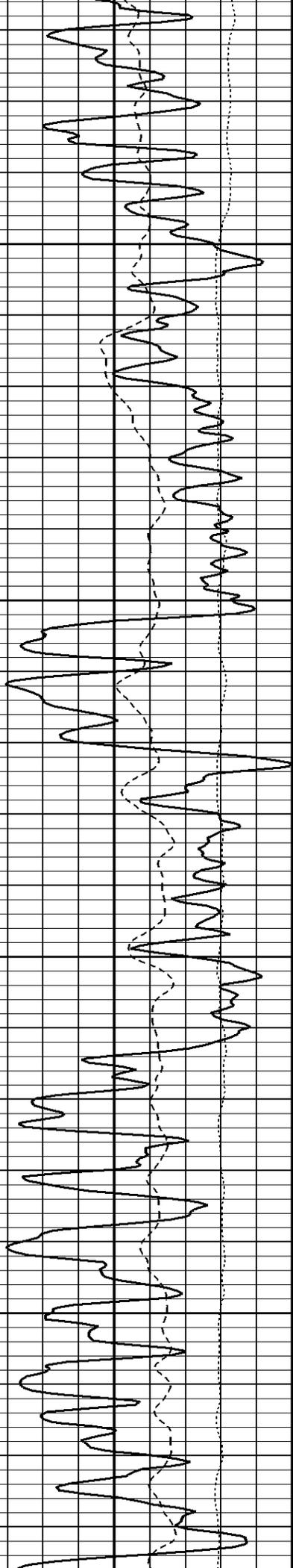




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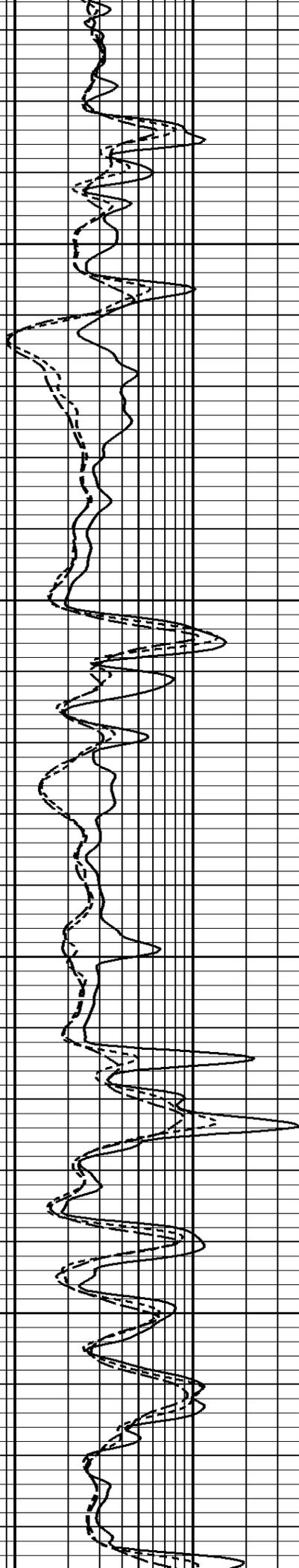
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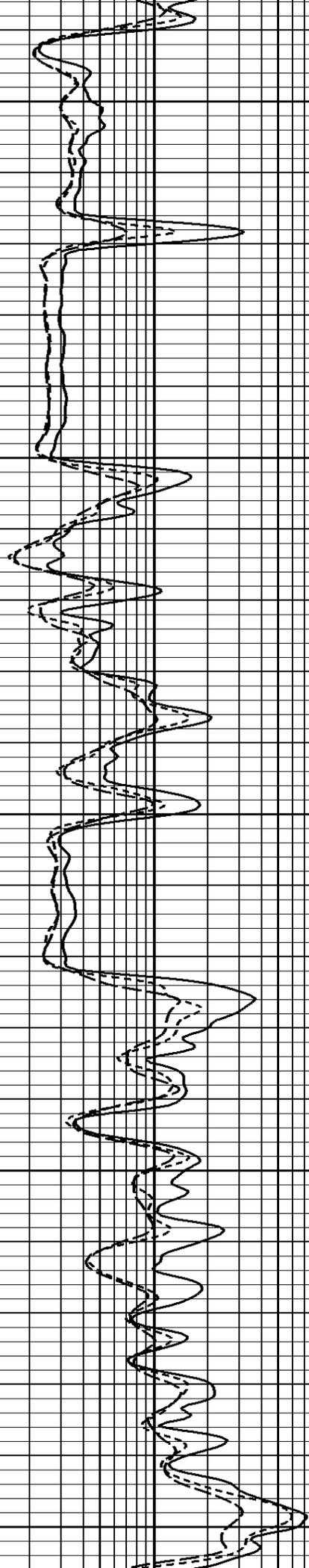
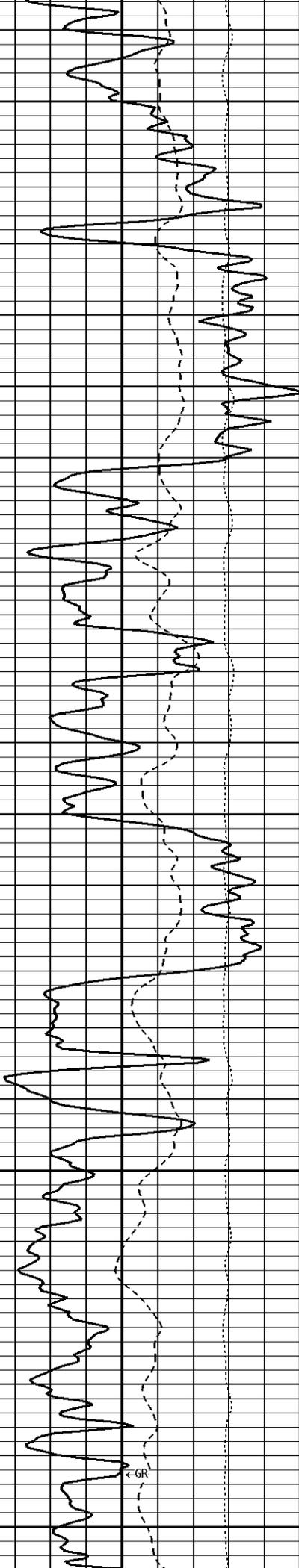
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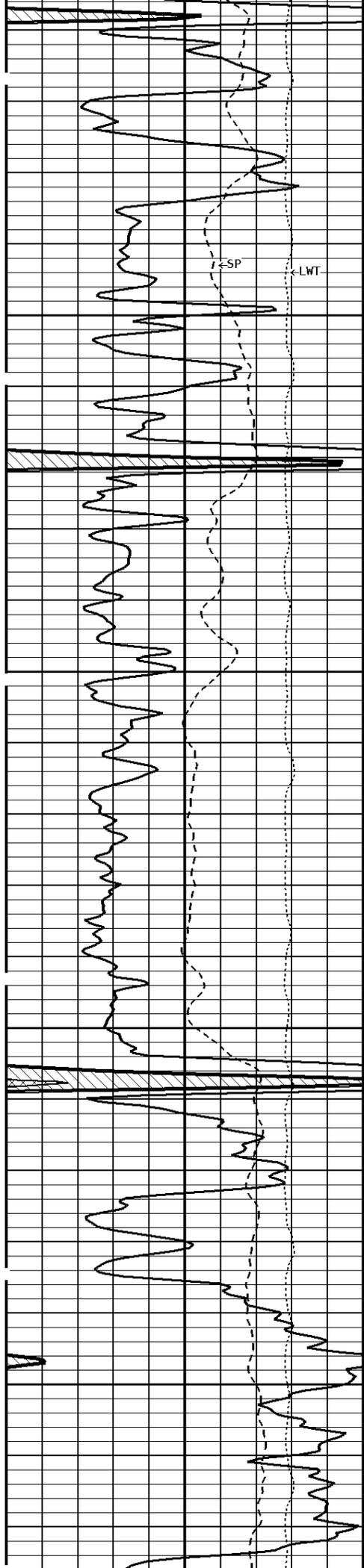


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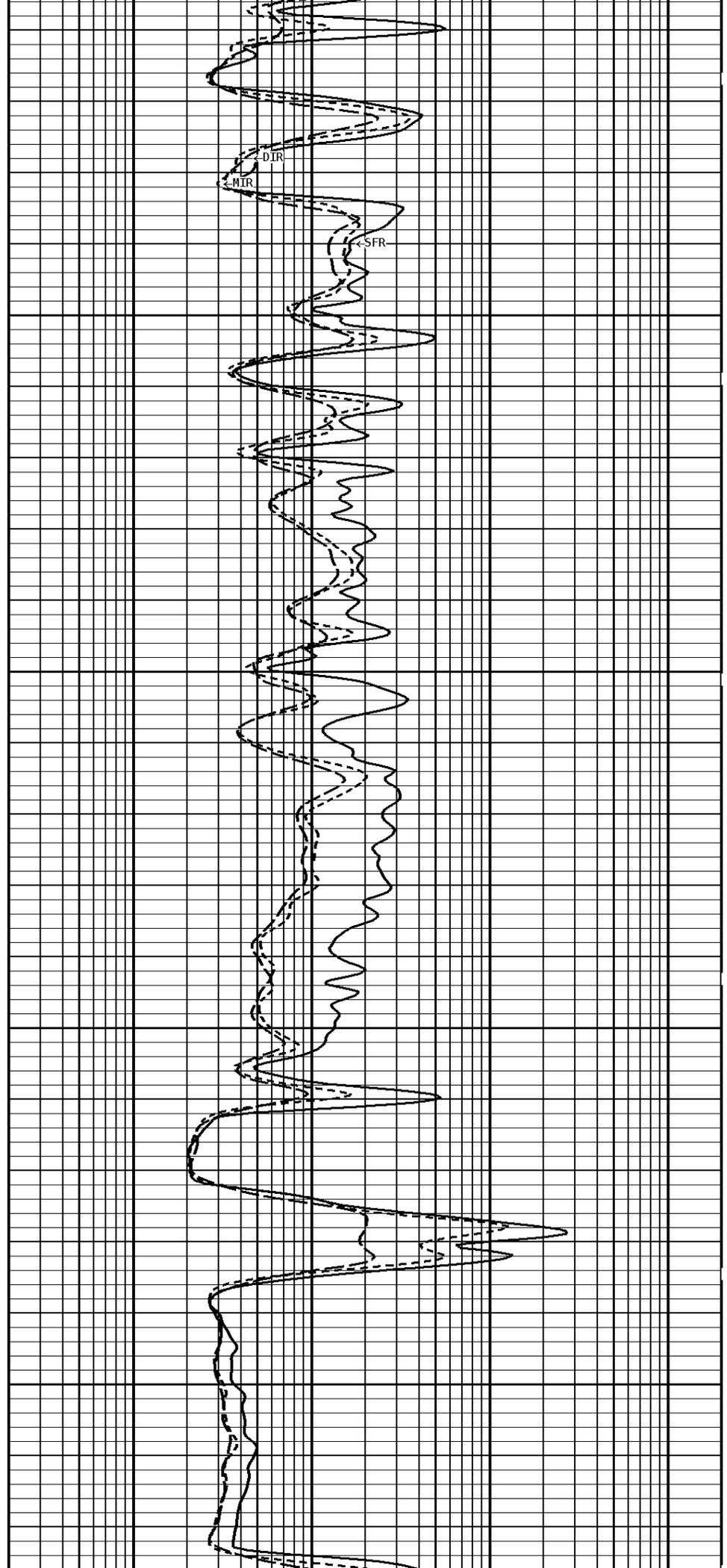
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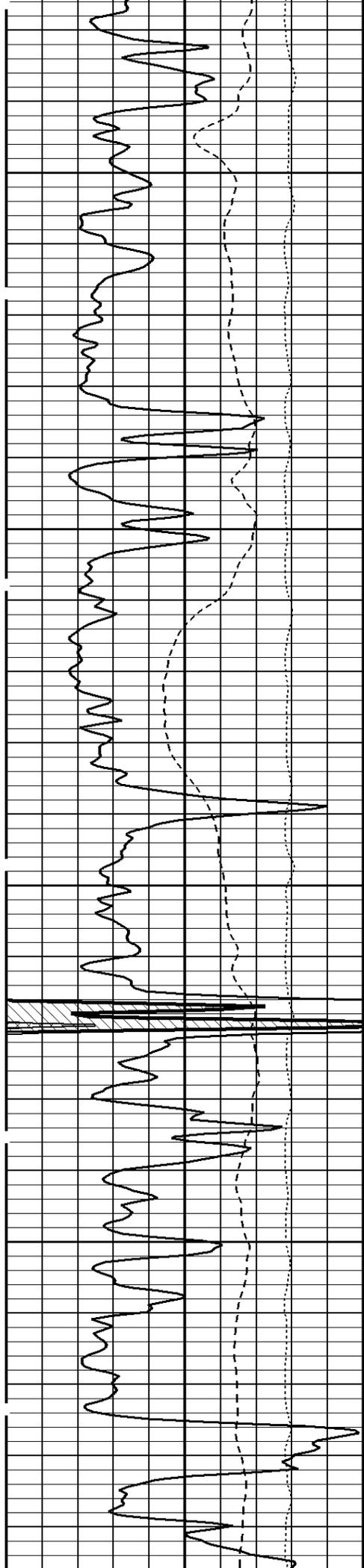




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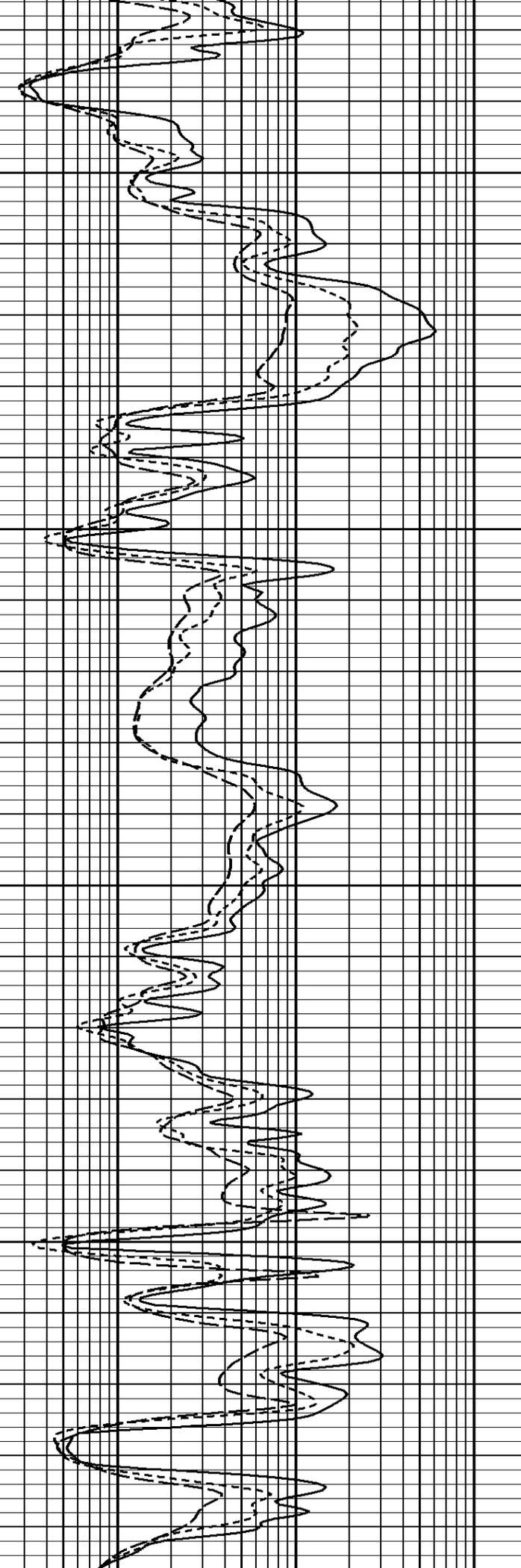
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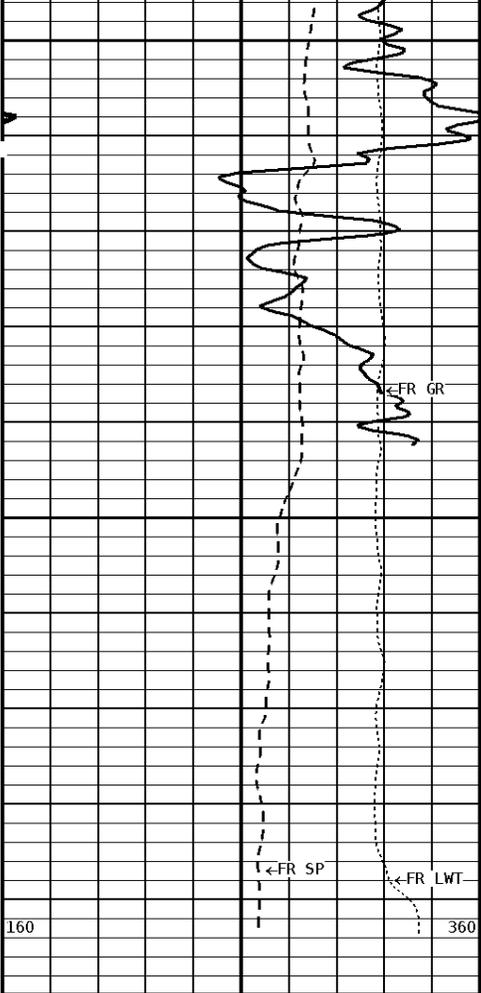




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3300

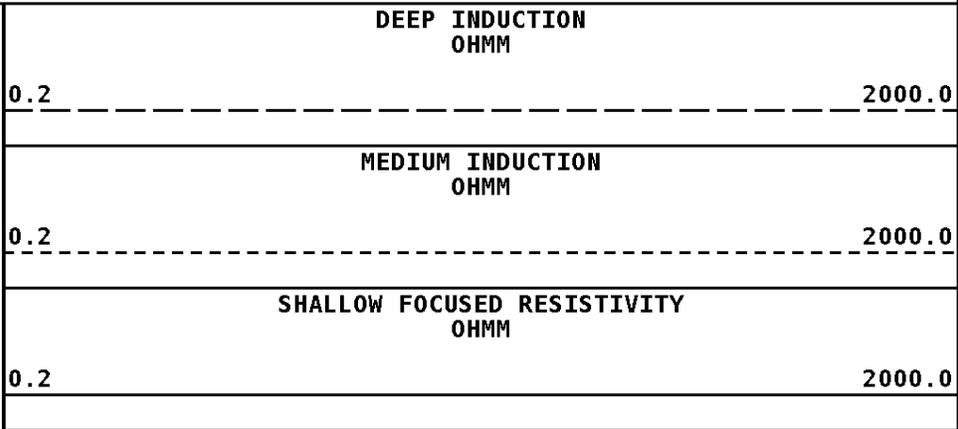
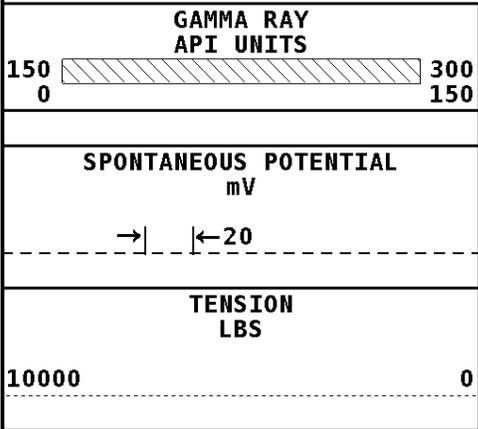
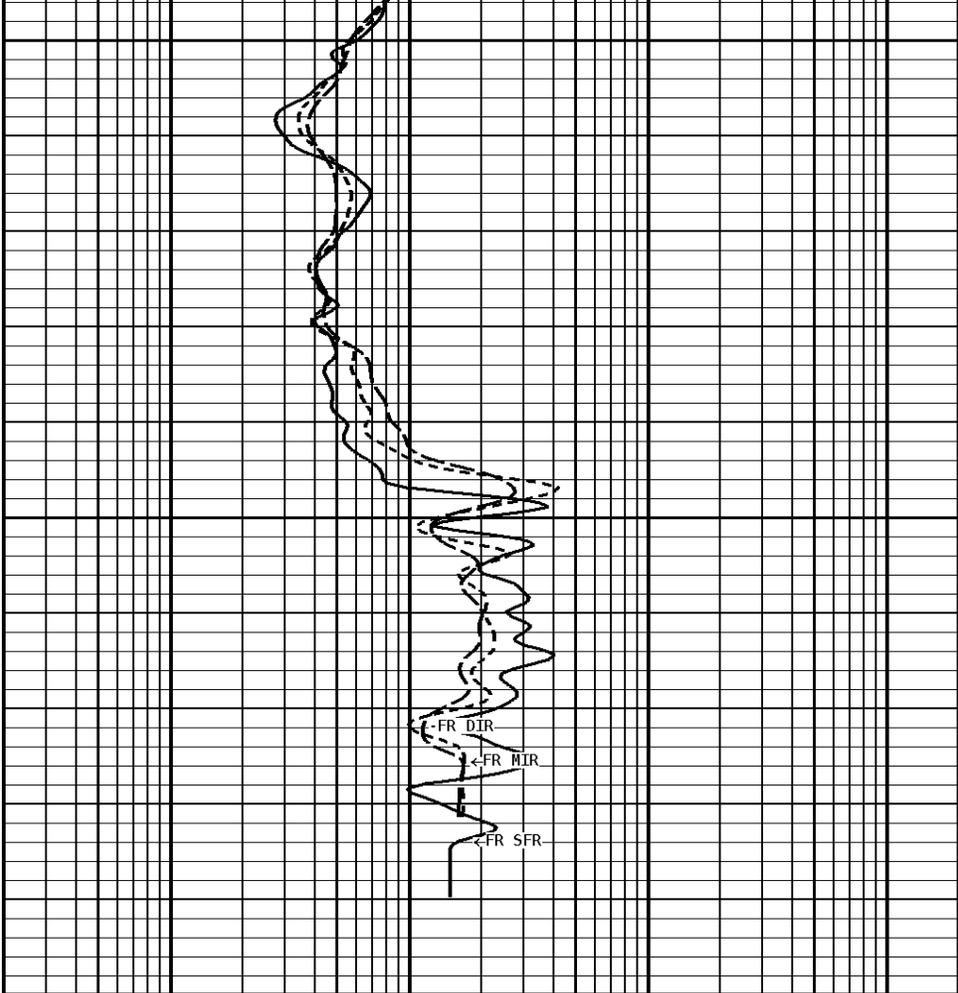




3400

3439

1:240 MAIN SECTION

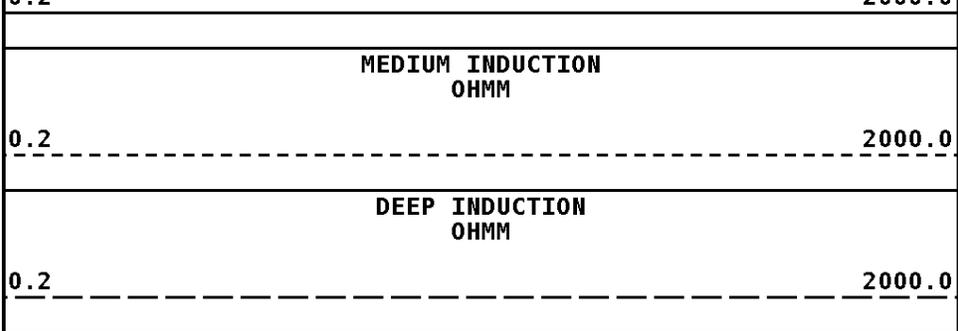
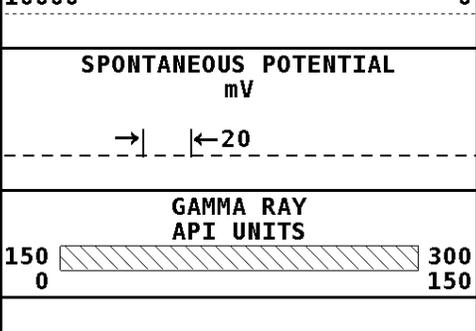


*** Borehole Zone Factors ***

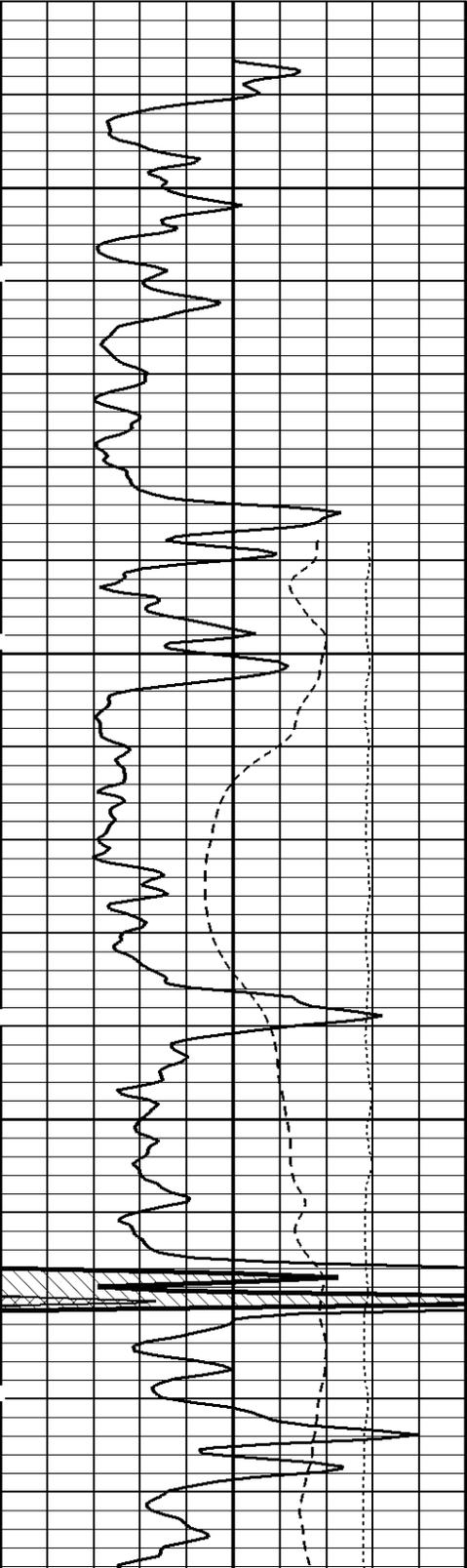
Zone 1 99999.0 to 0.0 Feet	
Drill Bit Size	7.875 in
BHT Depth	3439.000 ft
Borehole Temperature	104.0 degF
Temperature Gradient	1.00 DFHF
Resistivity Of Mud	0.900 ohm/m
Resistivity Of Mud Temperature	70.00 degF

Well File: mg-oil-popp-4-mstk-dec-05 Scale: 1:240
 Segment: V1.D1.S5 RP Acquired: 2012-12/05 19:45 3.2.0-11401
 Reference: 0 Processed: 2012-12/05 21:01 3.2.0-11401

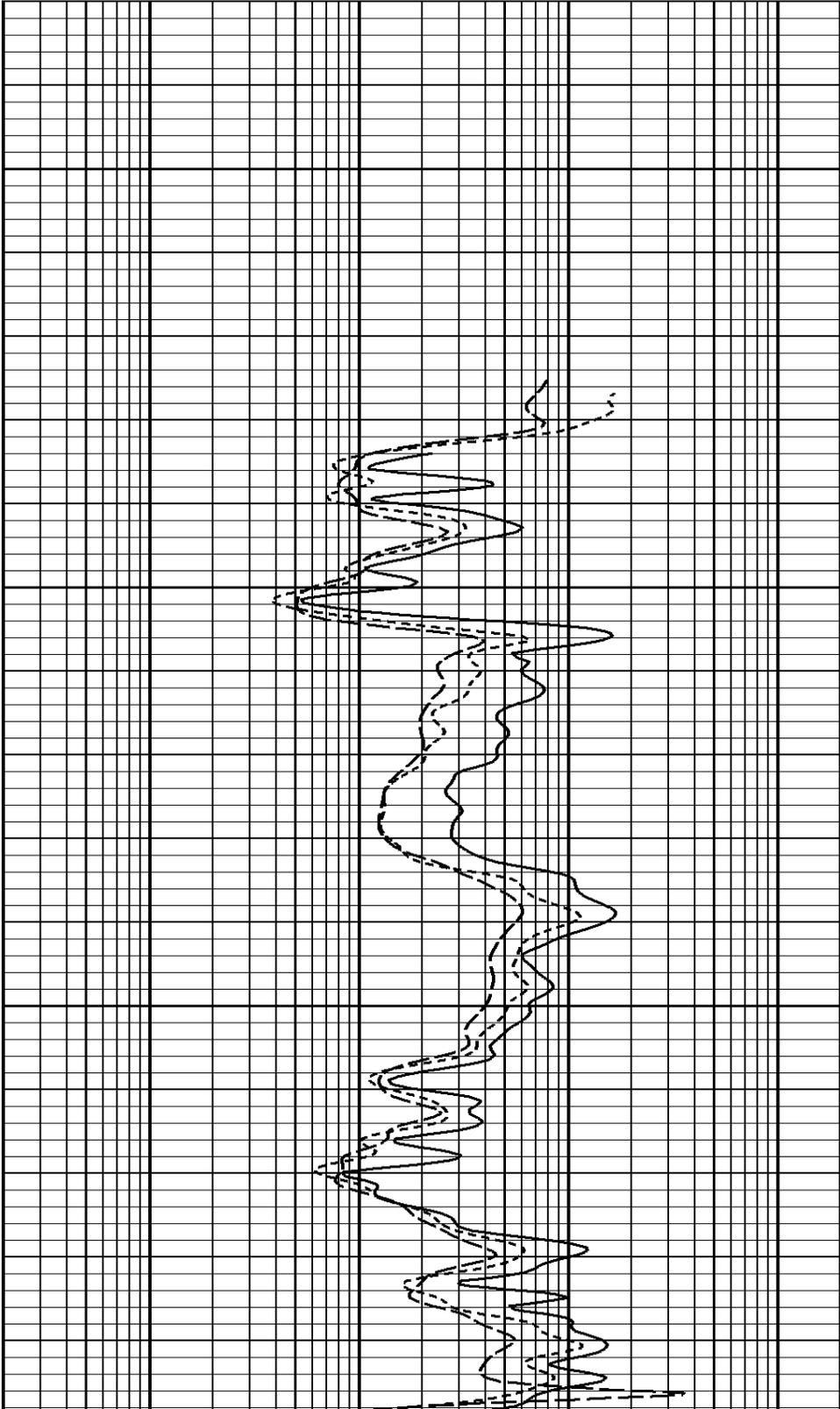


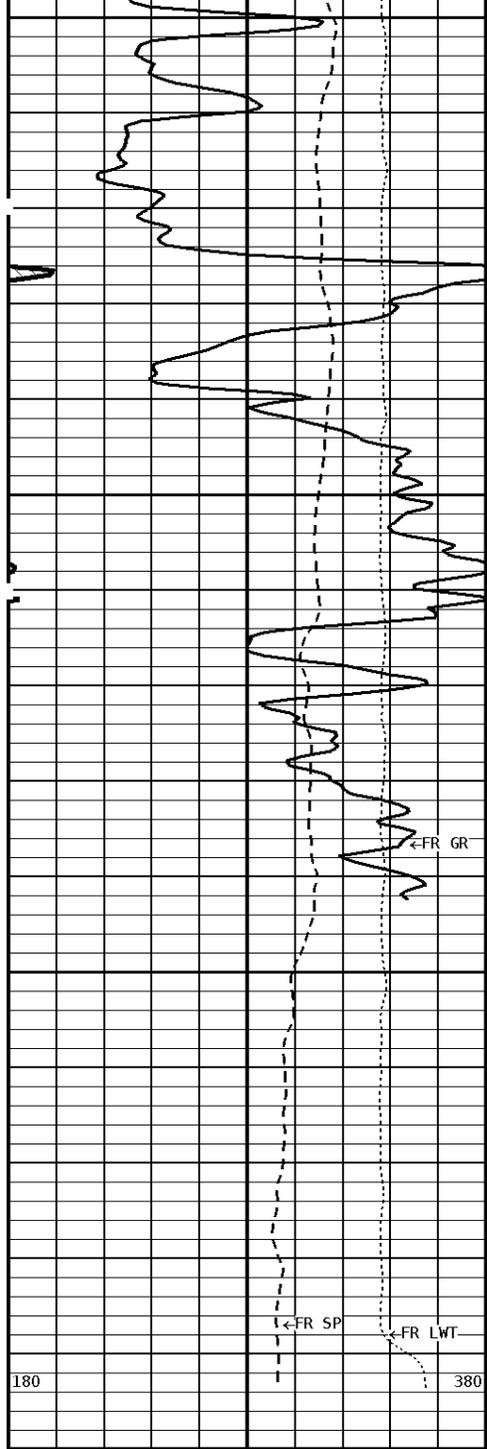


1:240 REPEAT SECTION

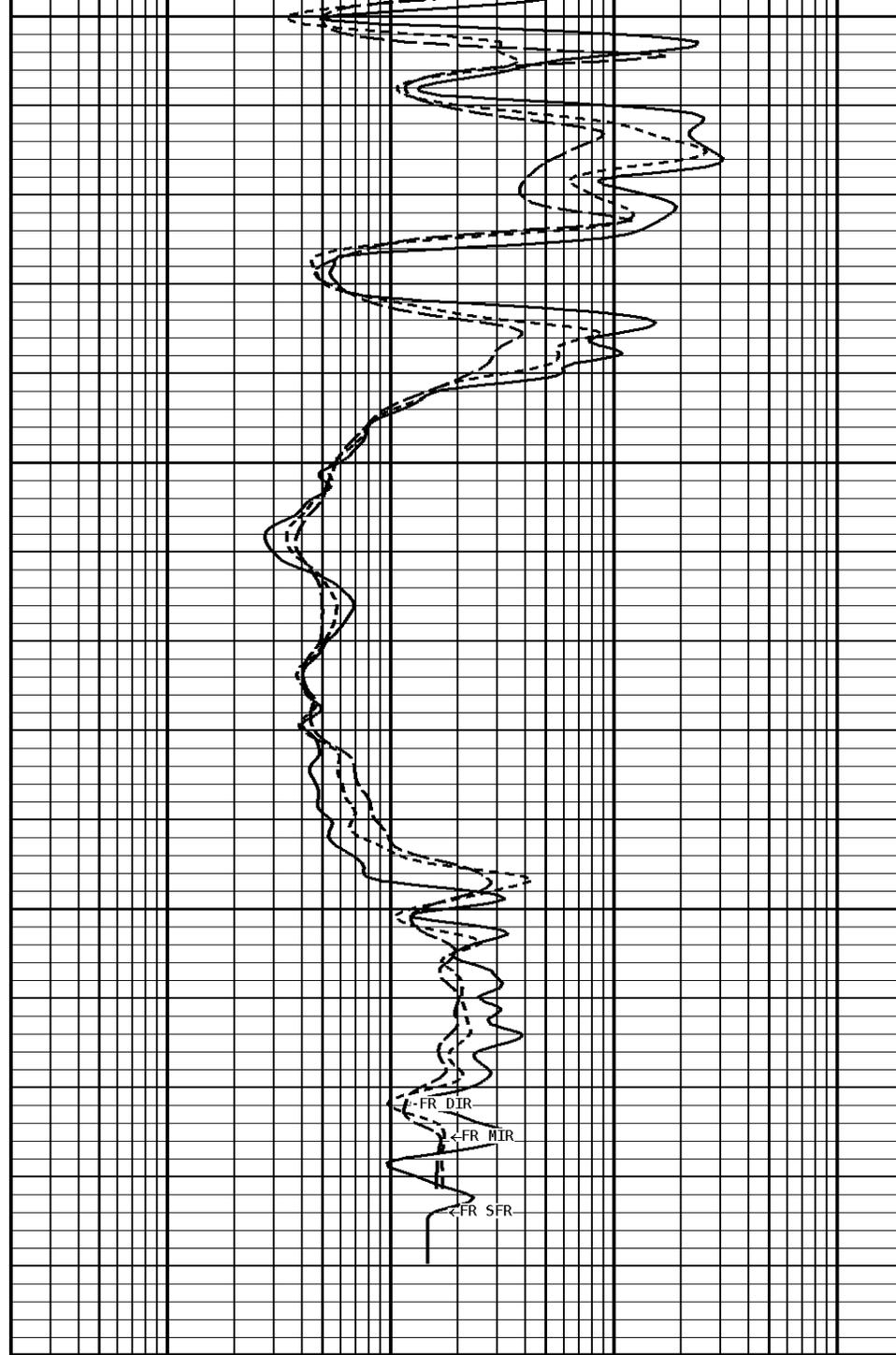


3200





3300
3400
3439
File #1.1.5



1:240 REPEAT SECTION

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

DEEP INDUCTION 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 Feet		
Drill Bit Size _____	7.875	in
BHT Depth _____	3439.000	ft
Borehole Temperature _____	104.0	degF
Temperature Gradient _____	1.00	DFHF
Resistivity Of Mud _____	0.900	ohm/m
Resistivity Of Mud Temperature _____	70.00	degF

*** Calibration Summary ***

Shop Calibration						
GRT-B						
Performed : 16-NOV-2012			Time : 13:00			
Sensor Suite : GR-GR5			ID : GRT-BA-14			
	Measured	Units	Calibrated	Units		
GR	Background	Jig	Jig	GRAPI		
	52	368	175			
Shop Calibration						
PIT-CA						
Performed : 21-Nov-2012			Time : 13:55			
Sensor Suite : P-IND-T			ID : PIT-AC-22			
Medium						
	Measured		Calibrated		Units	
	R	X	R	X		
Air	129444	131195	-8.0	-8.0	MMHOS	
Zero	131066	131070	64.6	-18.0	MMHOS	
Reference	248638	249306	5064.6	4982.0	MMHOS	
Loop	123826	215209	3305.9	3783.8	MMHOS	
Sonde Error			-1.1	-8.4	MMHOS	
Cond			5064.6	4982.0	MMHOS	
Deep						
	Measured		Calibrated		Units	
	R	X	R	X		
Air	130063	130305	0.0	-0.0	MMHOS	
Zero	131075	131077	31.8	6.9	MMHOS	
Reference	239237	239416	2031.8	2006.9	MMHOS	
Loop	124065	221600	1574.5	1796.3	MMHOS	
Sonde Error			5.6	-20.4	MMHOS	
Cond			2031.8	2006.9	MMHOS	
Temperature						
	Measured		Calibrated		Units	
	Low	High	Low	High		
	16980.0	56920.0	70.0	350.0	DEGF	
Performed : 21-Nov-2012			Time : 13:58			
Sensor Suite : SFL			ID : PIT-AC-22			
Internal						
	Measured		Calibrated		Units	
	Zero	Reference	Zero	Reference		
Im	32763.4	50510.7	0.0	7028.0	uA	
Ib	32769.0	50215.4	0.0	1750.0	mA	
MOM1	32799.2	60218.0	0.0	175.0	mV	
Equivalent SFL				43.97	OHMM	
Performed : 21-NOV-2012			Time : 13:59			
Sensor Suite : P-SP			ID : PIT-AC-22			
Internal						
	Measured		Calibrated		Units	
	Zero	Reference	Zero	Reference		
	32785.7	58911.1	0.0	1000.0	mV	

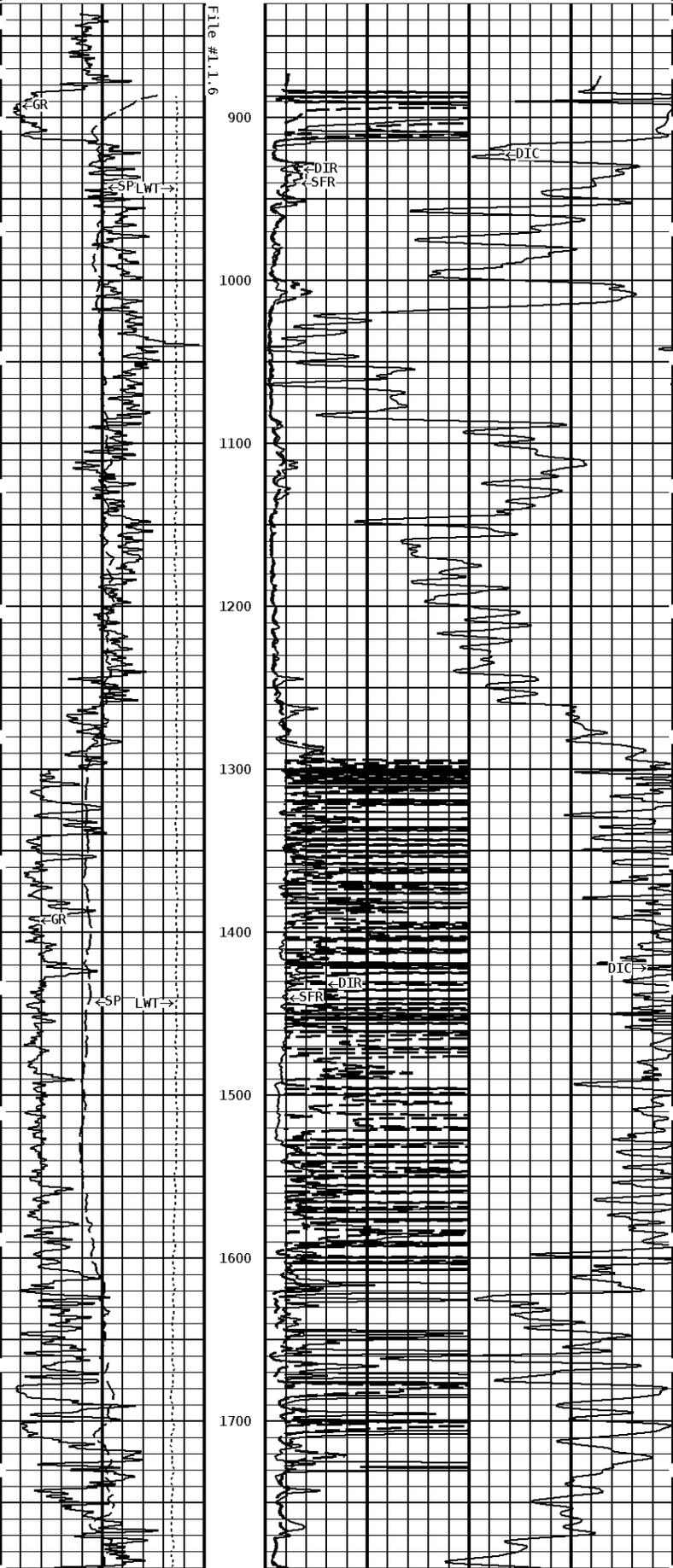
Well File: mg-oil-popp-4-mstk-dec-05	Scale: 1:1200
Segment: V1.D1.S6 MN	Acquired: 2012-12/05 19:58 3.2.0-11401
Reference: 0	Processed: 2012-12/05 21:01 3.2.0-11401

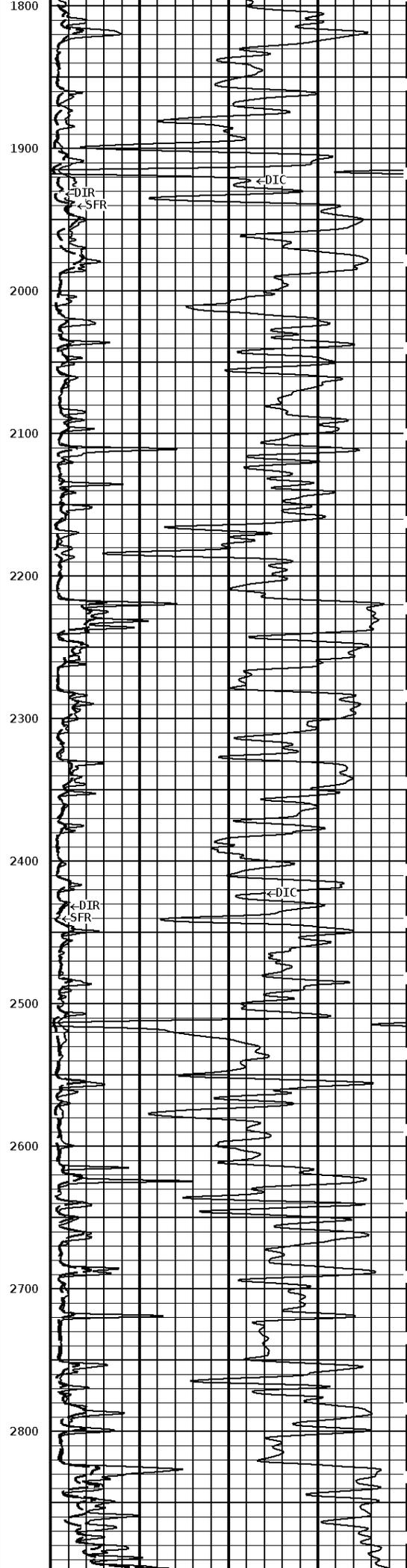
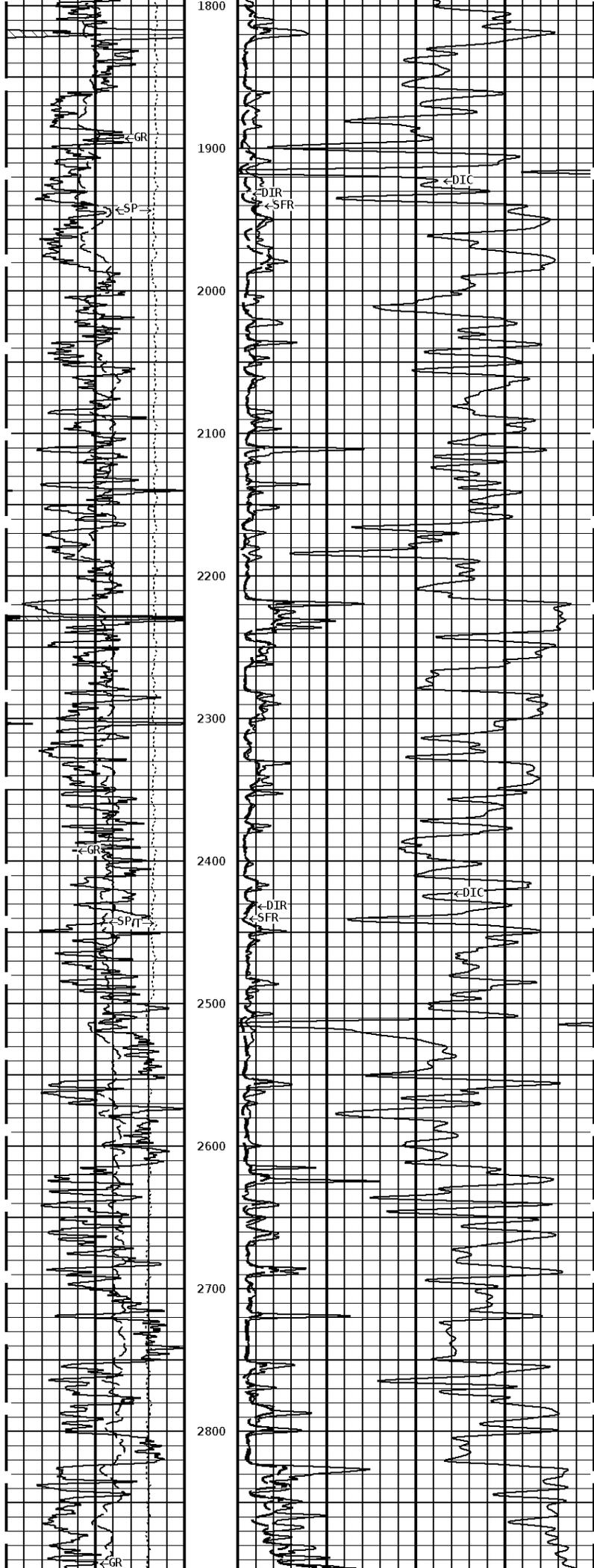
TENSION LBS	DEEP INDUCTION OHMM
10000 ----- 0	0.0 ----- 500.0 0.0 ----- 50.0
SPONTANEOUS POTENTIAL mV	SHALLOW FOCUSED OHMM
→ ← 20	0.0 ----- 500.0 0.0 ----- 50.0

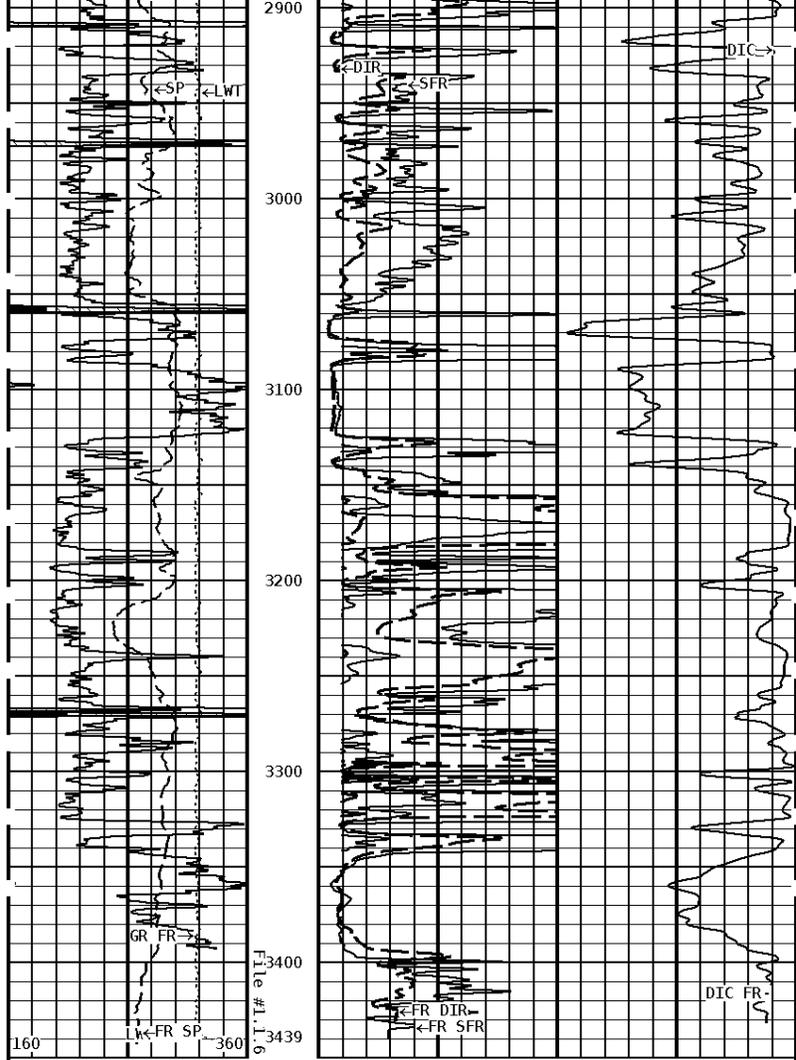
GAMMA RAY
API UNITS
150 300
0 150

DEEP CONDUCTIVITY
MHMO
2000 1000
1000 0

1:1200 MAIN SECTION







1:1200 MAIN SECTION

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

DEEP CONDUCTIVITY MHMO	
2000	1000
1000	0
SHALLOW FOCUSED OHMM	
0.0	500.0
0.0	50.0
DEEP INDUCTION OHMM	
0.0	500.0
0.0	50.0