

HALLBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY
LOG

COMPANY		SANDRIDGE ENERGY	
WELL		KATHLEEN 2231 1-36	
FIELD/BLOCK		STEWART	
COUNTY		FINNEY	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		04-Aug-13	
Run No.		ONE	
Depth - Driller		5223.00 ft	
Depth - Logger		5218.0 ft	
Bottom - Logged Interval		5208.0 ft	
Top - Logged Interval		1876.0 ft	
Casing - Driller		9.625 in @ 1879.0 ft	
Casing - Logger		1876.0 ft	
Bit Size		8.750 in @	
Type Fluid in Hole		WATER BASED MUD	
Density		9.4 ppg	
Viscosity		59.00 s/qt	
PH		4.50 pH	
Fluid Loss		6.0 cpm	
Source of Sample		MUD PIT	
Rm @ Meas. Temperature		1.500 ohmm @ 75.00 degF	
Rmf @ Meas. Temperature		1.11 ohmm @ 75.00 degF	
Rmc @ Meas. Temperature		1.950 ohmm @ 75.00 degF	
Source Rmf		CALCULATED	
Rmc		CALCULATED	
Rm @ BHT		0.87 ohmm @ 134.0 degF	
Time Since Circulation		8.0 hr	
Time on Bottom		05-Aug-13 01:00	
Max. Rec. Temperature		134.0 degF @ 5218.0 ft	
Equipment		11072142 LIBERAL	
Recorded By		J. BOLLOW	
Witnessed By		R. MADRID	

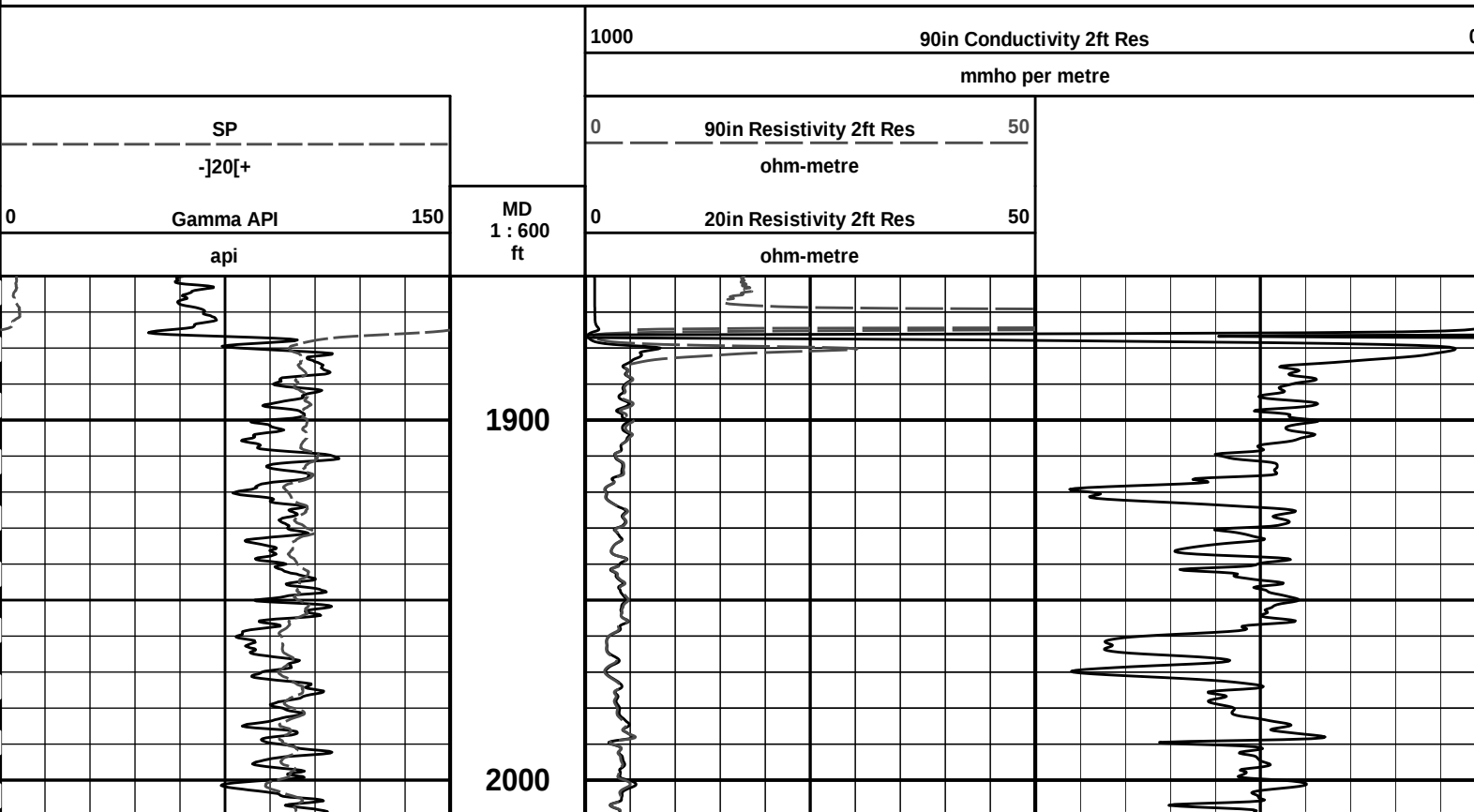
COMPANY	SANDRIDGE ENERGY
WELL	KATHLEEN 2231 1-36
FIELD/BLOCK	STEWART
COUNTY	FINNEY
STATE	KANSAS
API No.	15-055-22228
Location	(SHL) 2350' FNL & 1000' FWL SE SE SW NW
Other Services:	MICROLOG DSNT, SDLT MRL CSNG WAVE IDT ICT

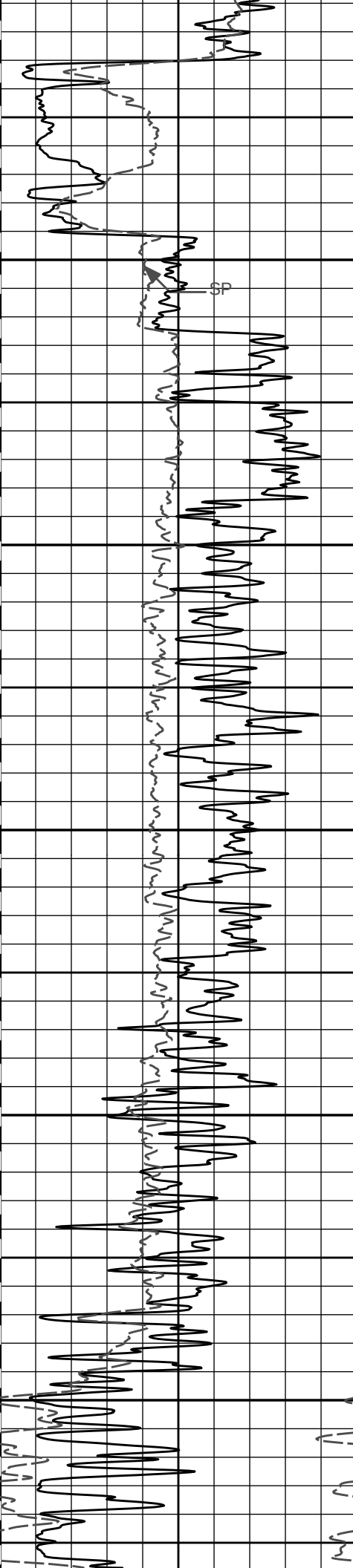
Sect.	36	Twp.	22S	Rge.	31W	Elev.	2880.0 ft
						D.F.	2891.0 ft
						G.L.	2880.0 ft

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Service Ticket No.: 900642870				API Serial No.: 15-055-22228				PGM Version: WL INSITE R3.8.4 (Build 5)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type Fluid in Hole															
Density		Viscosity													
Ph		Fluid Loss													
Source of Sample						RESISTIVITY EQUIPMENT DATA									
Rm @ Meas. Temp		@		@		Run No.		Tool Type & No.		Pad Type		Tool Pos.		Other	
Rmf @ Meas. Temp.		@		@		ONE		ACRT		N/A		1.5 S.O.		N/A	
Rmc @ Meas. Temp.		@		@				I962_S909							
Source Rmf		Rmc													
Rm @ BHT		@		@											
Rmf @ BHT		@		@											
Rmc @ BHT		@		@											
EQUIPMENT DATA															
GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run No.		ONE		Run No.				Run No.				Run No.			
Serial No.		11048627		Serial No.				Serial No.				Serial No.			
Model No.		GTET		Model No.				Model No.				Model No.			
Diameter		3.625"		No. of Cent.				Diameter				Diameter			
Detector Model No.		T-102		Spacing				Log Type				Log Type			
Type		SCINT						Source Type				Source Type			
Length		8'		LSA [Y/N]				Serial No.				Serial No.			
Distance to Source		18'		FWDA [Y/N]				Strength				Strength			
LOGGING DATA															

GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON			
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	5218	1876	REC	0	150									
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 7-INCH CASING														
CHLORIDES REPORTED AT 2,000 PPM														
GTET-CSNG-DSNT-SDLT-IDT-ICT-WAVE-ACRT RUN IN COMBINATION														
TODAY'S CREW: F. VILLA & D. MILLER														
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS. 62-624-8123														
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.														
HALLIBURTON														





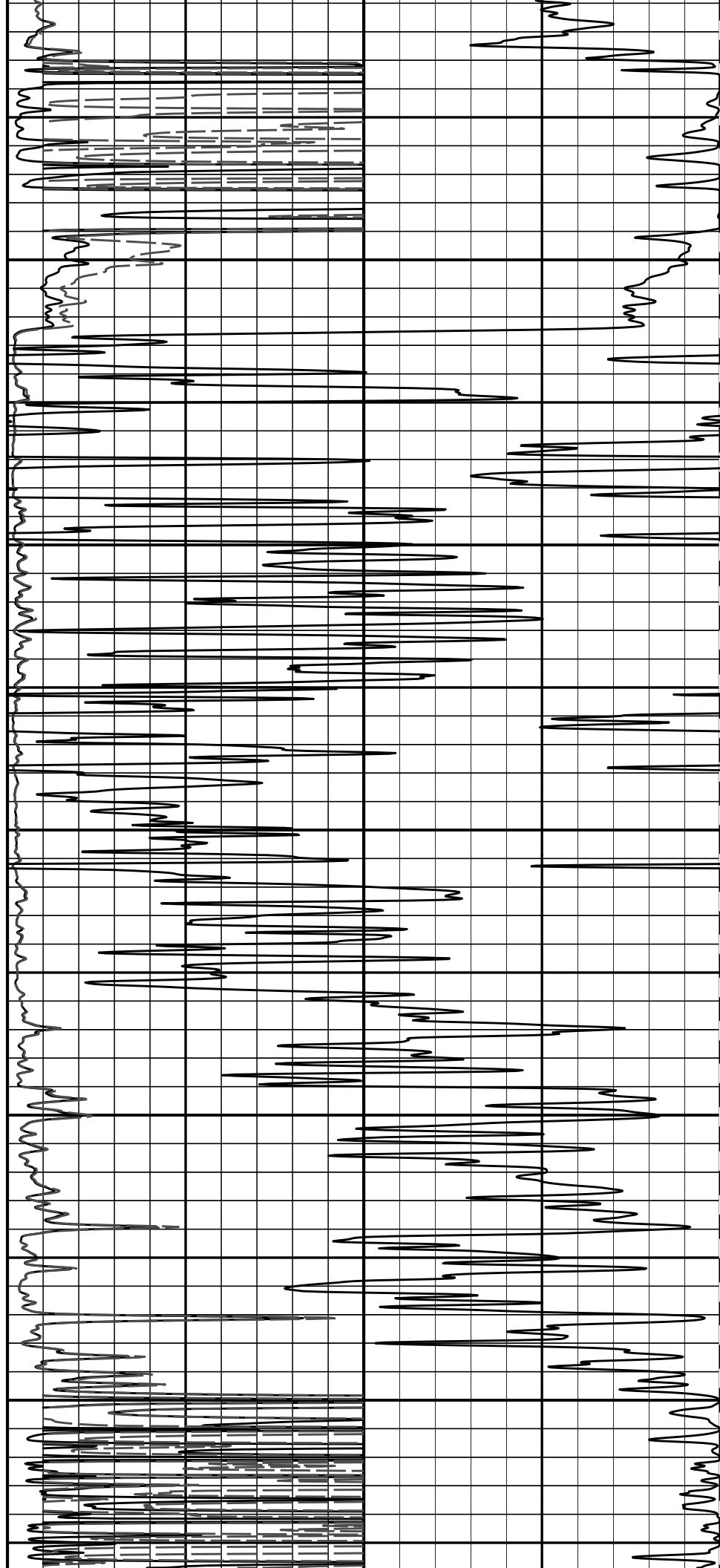
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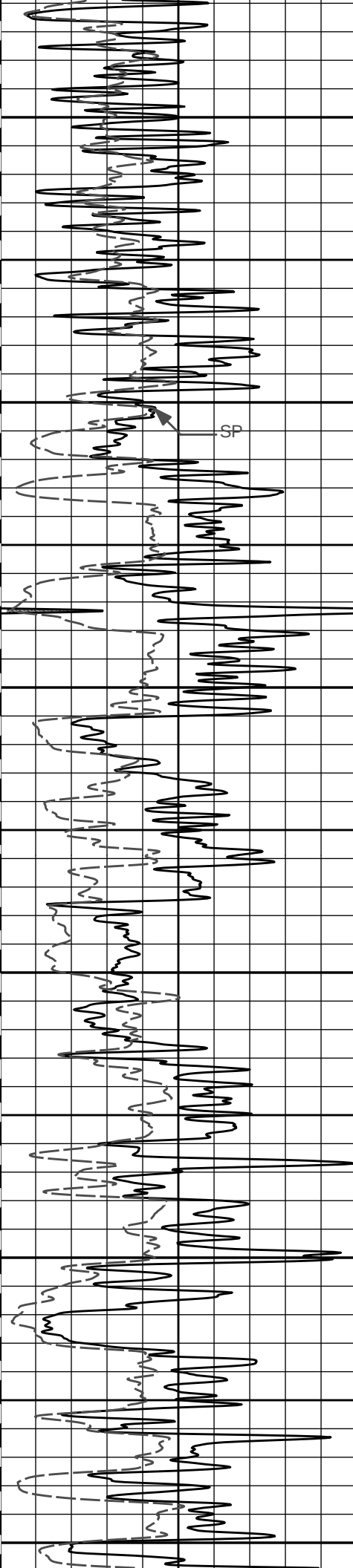
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2300

2400

2500





2600

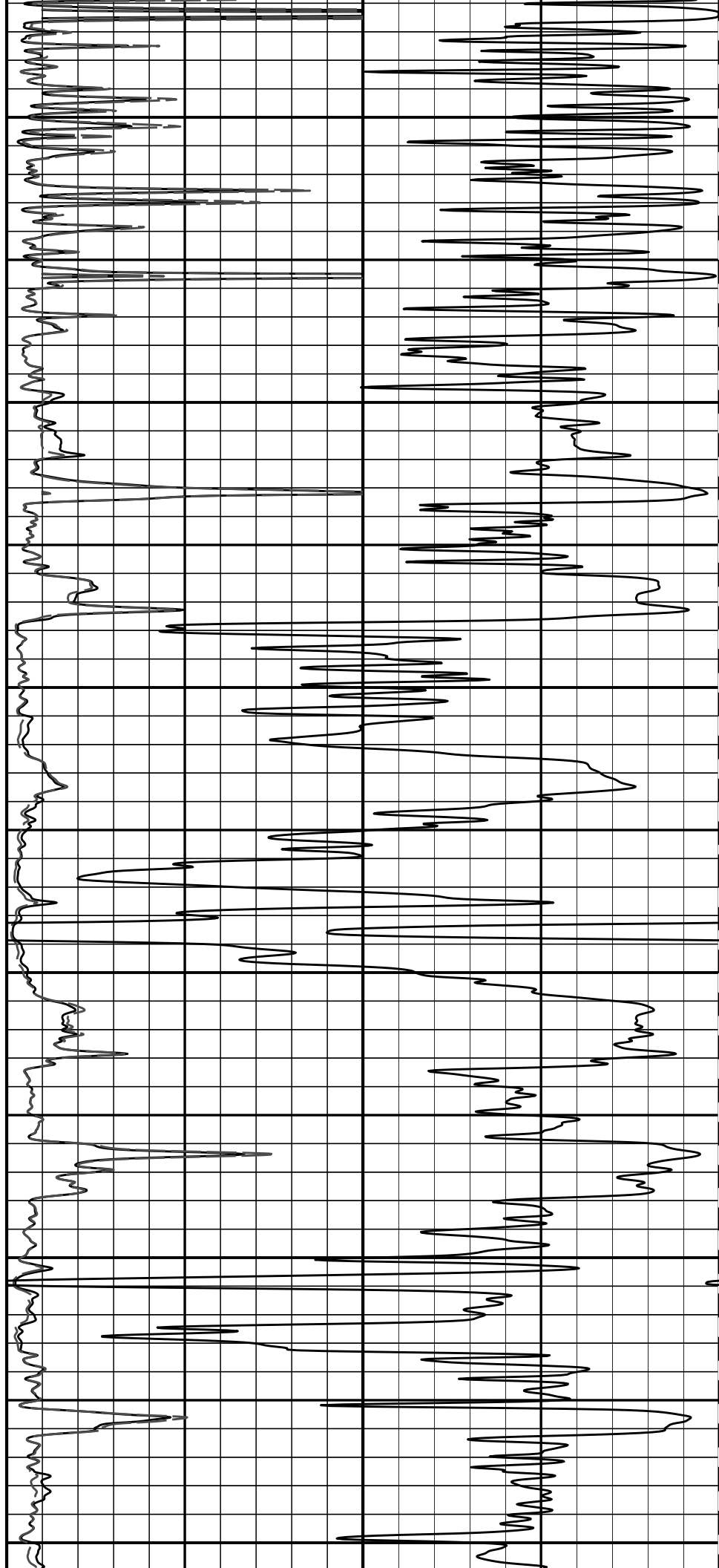
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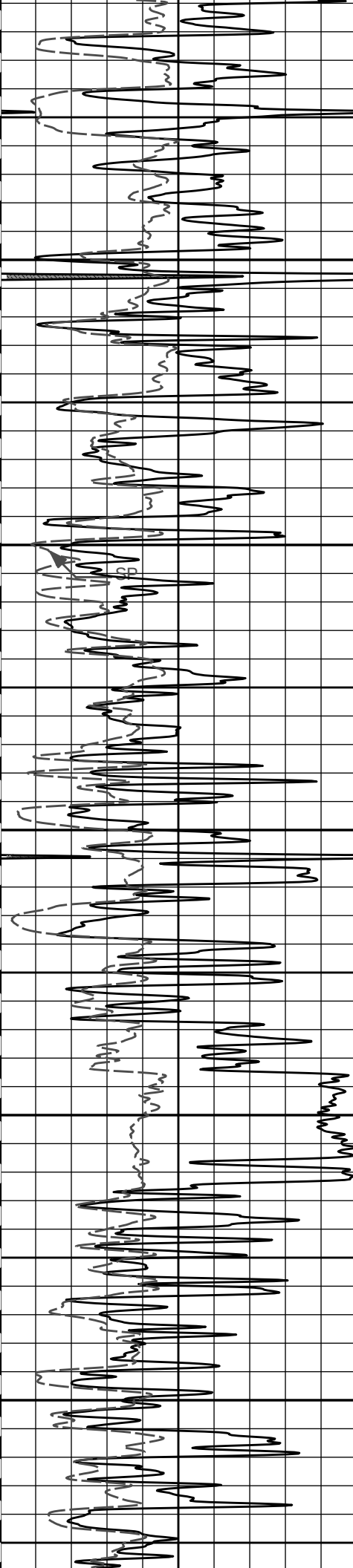
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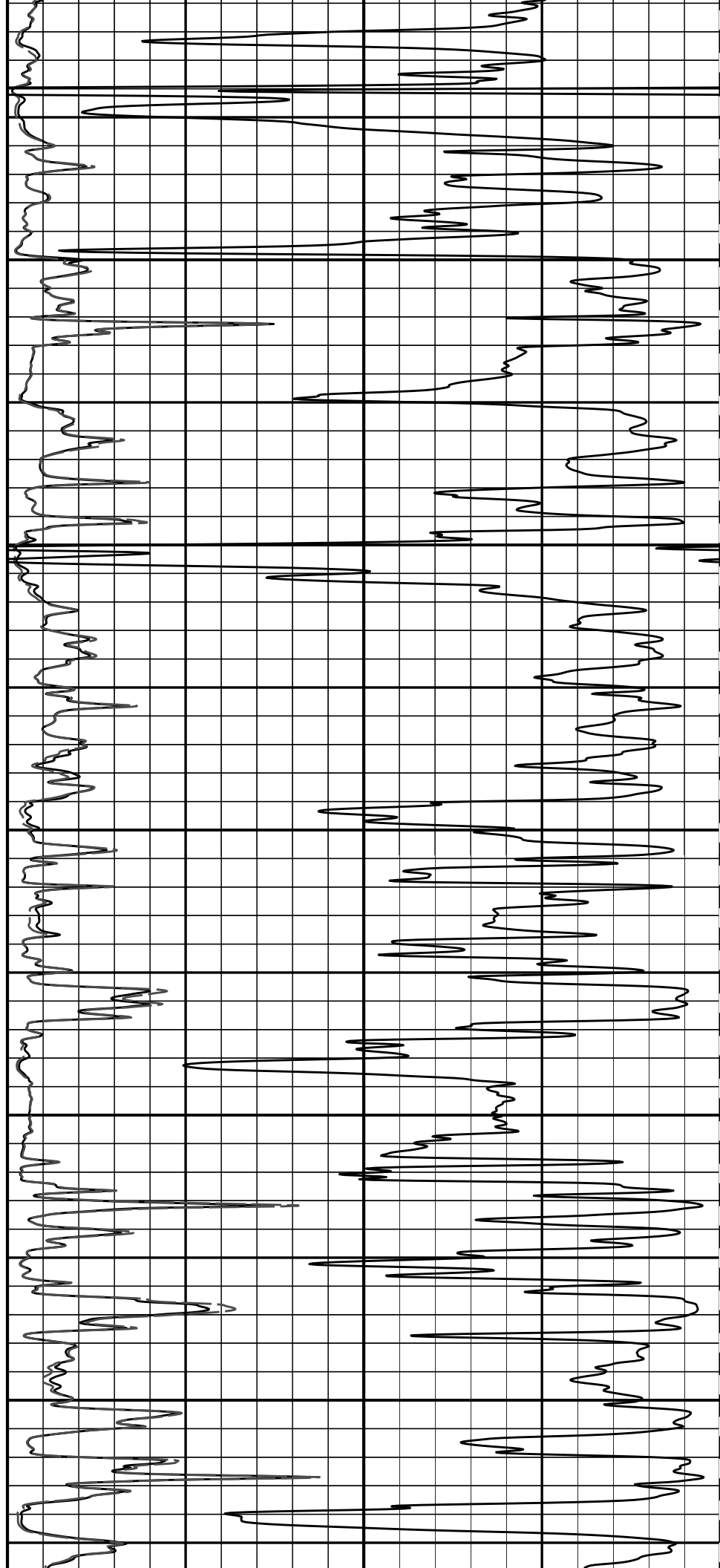
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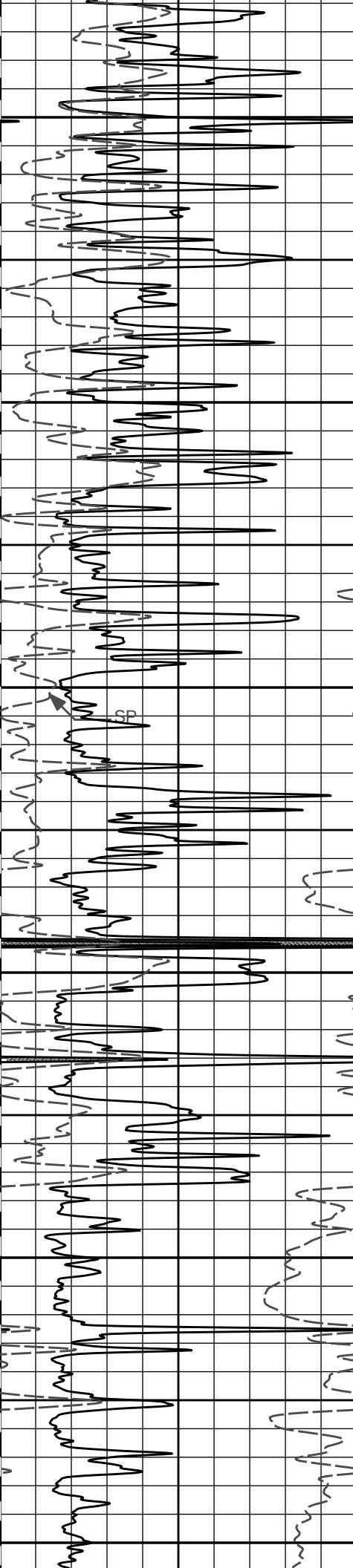
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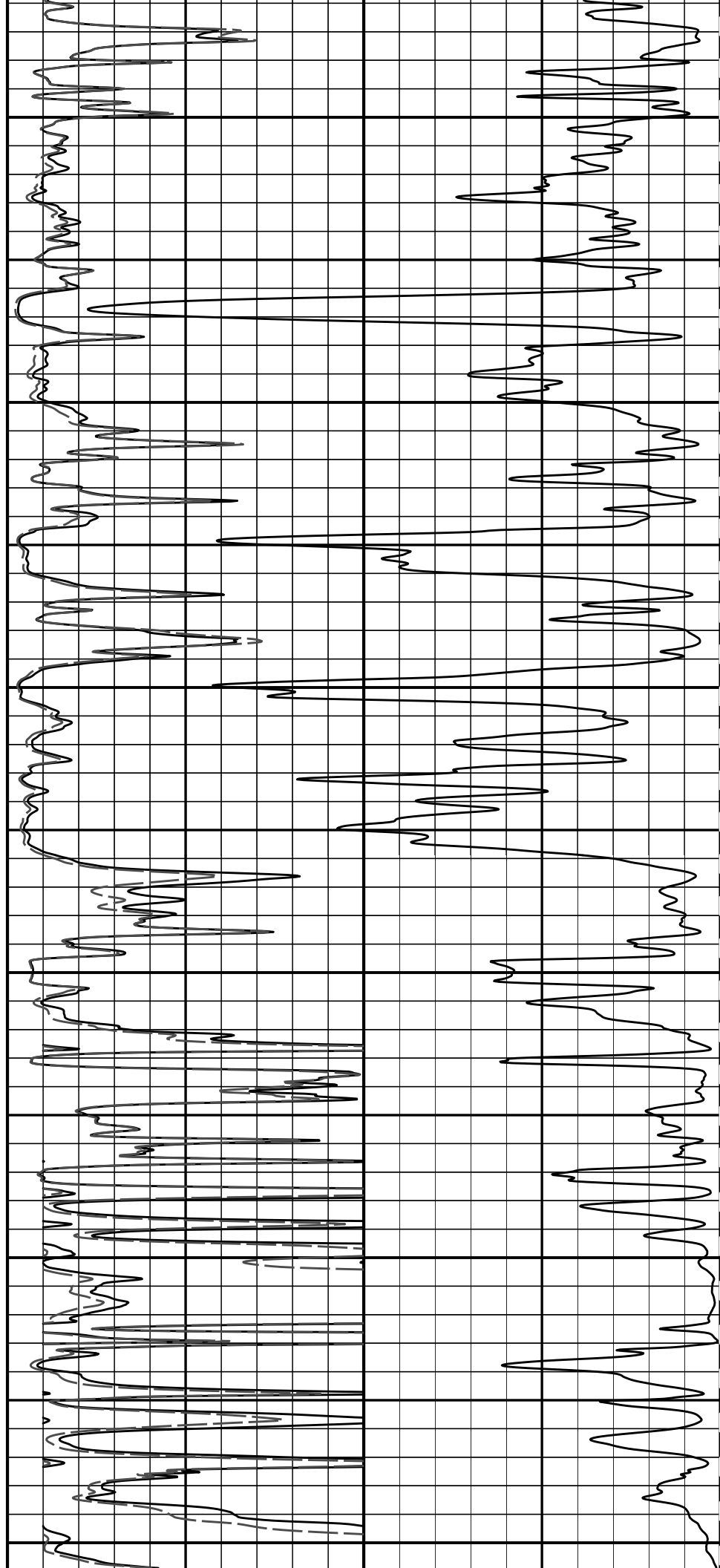
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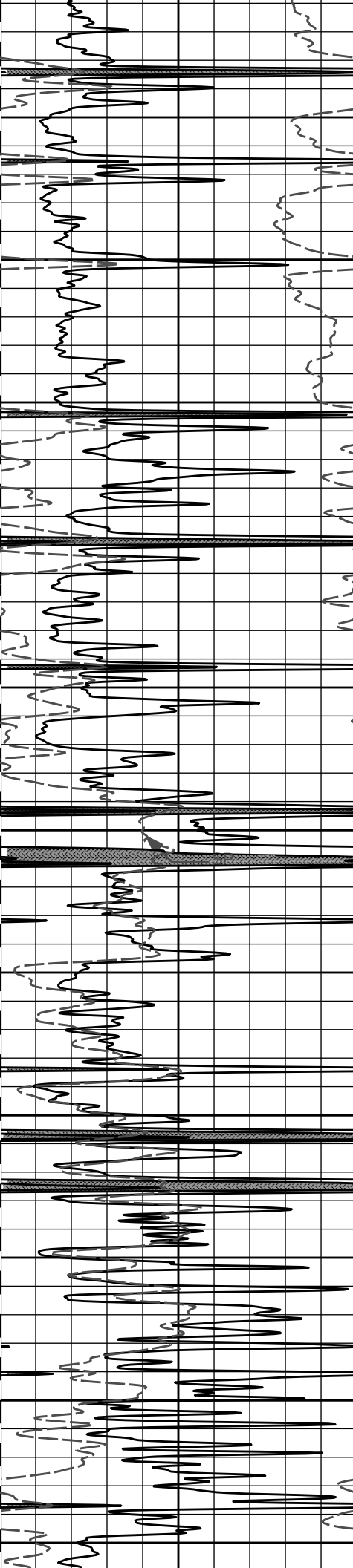
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4100

4200





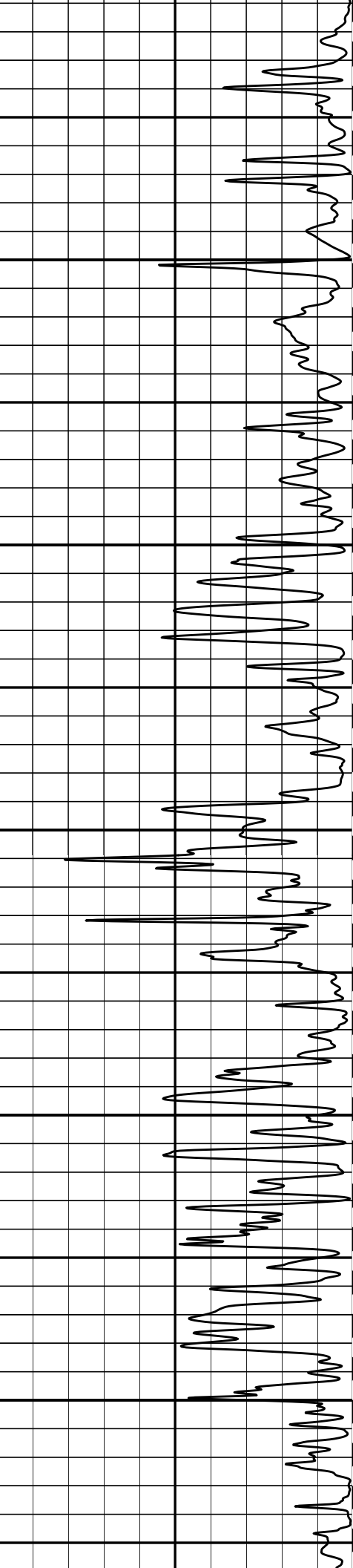
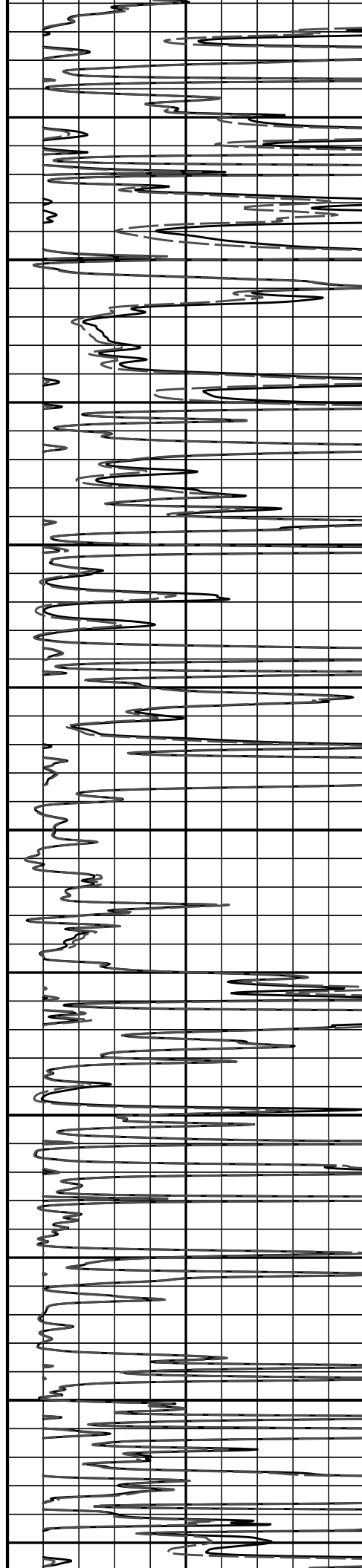
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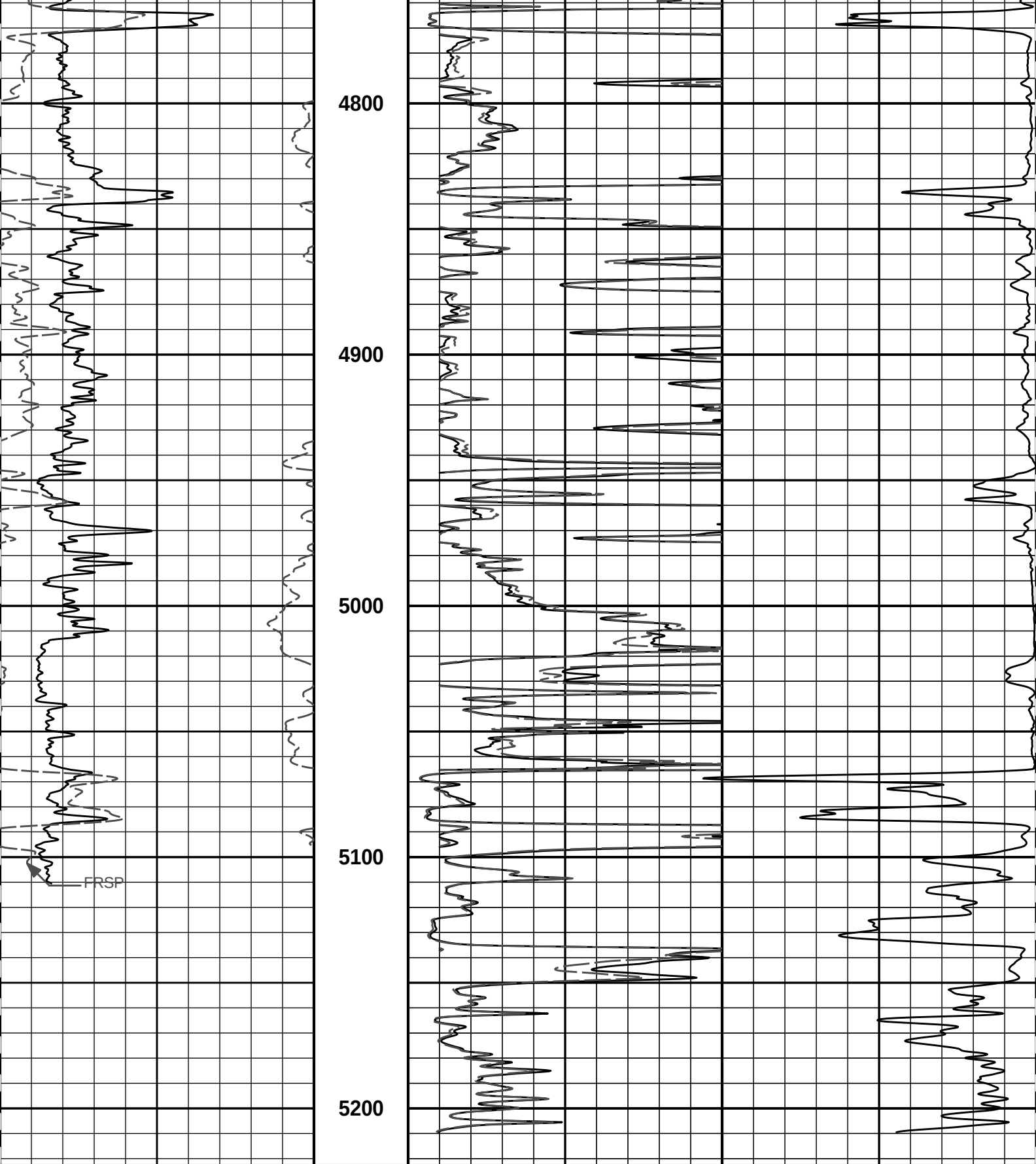
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4500

4600

4700





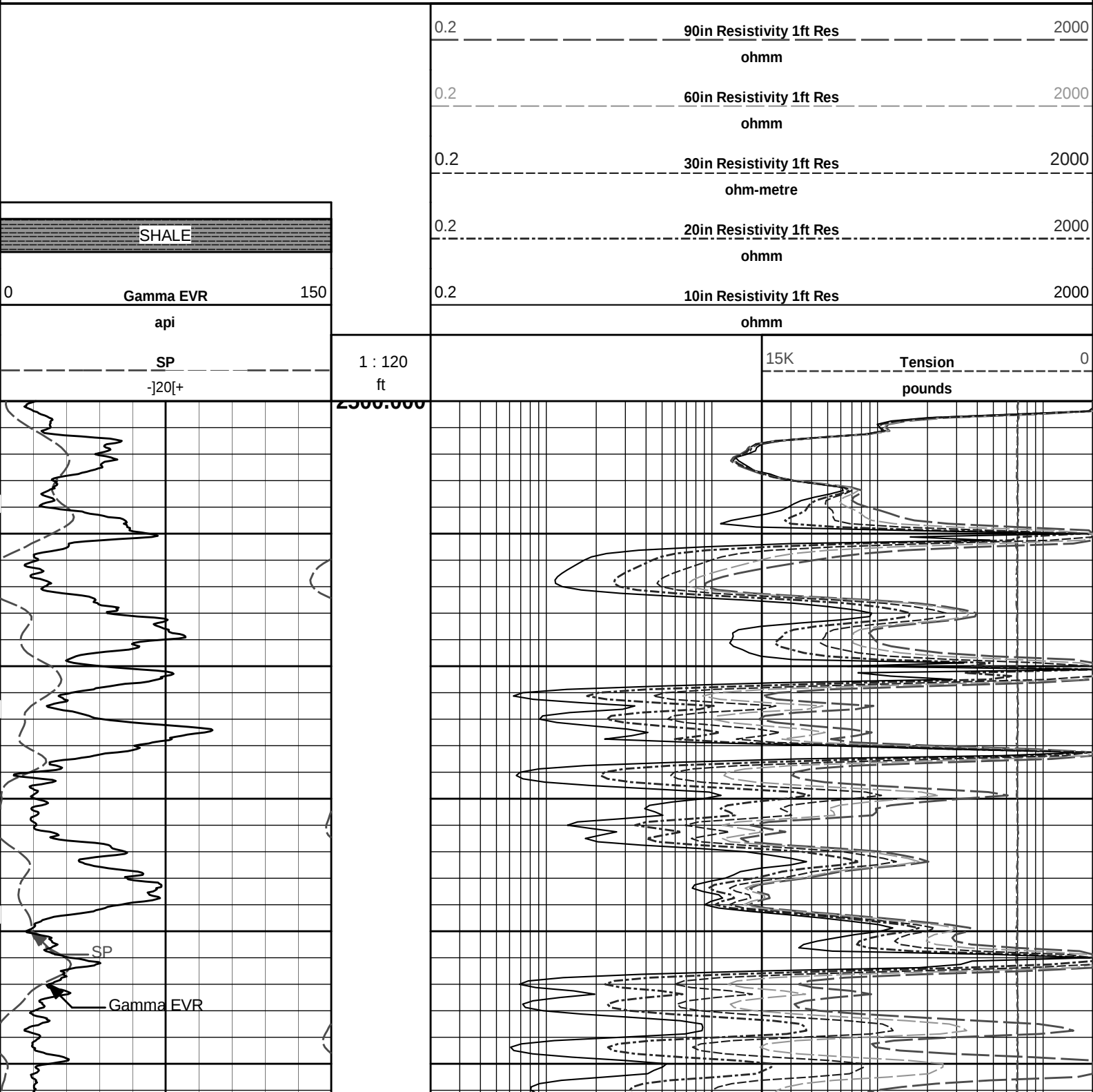
0	Gamma API	150	MD 1 : 600 ft	0	20in Resistivity 2ft Res	50	0	90in Resistivity 2ft Res	50	1000	90in Conductivity 2ft Res	0
	api				ohm-metre			ohm-metre			mmho per metre	
	SP											
	-120[+											

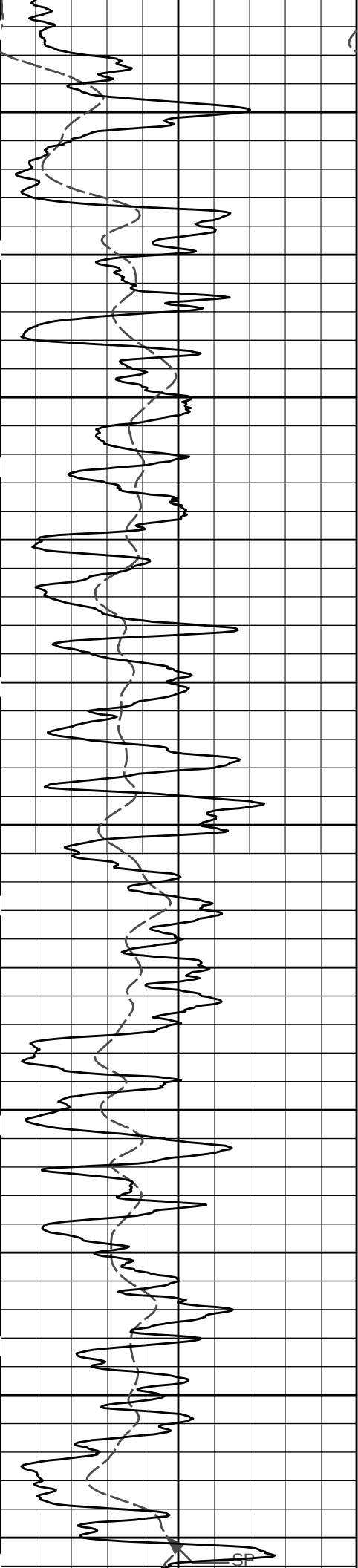
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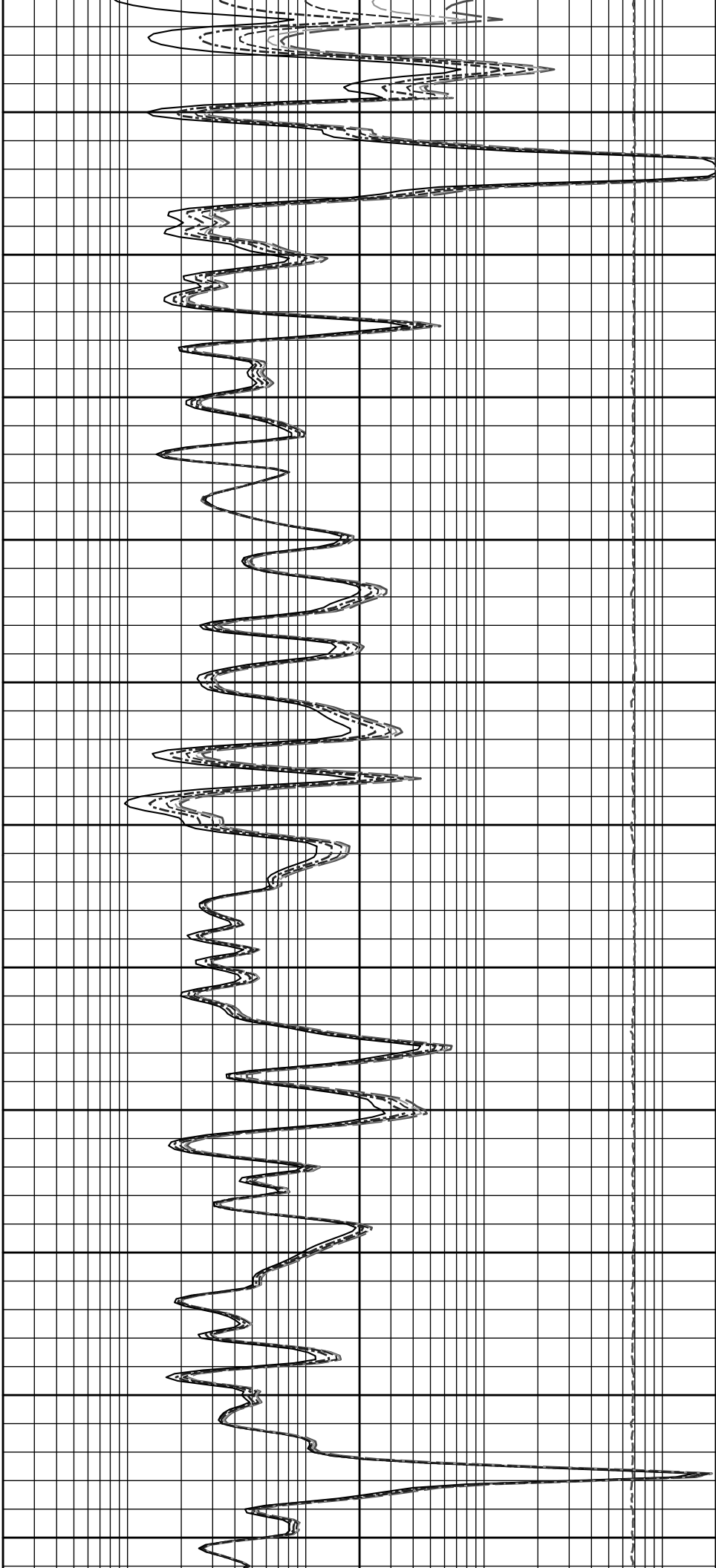
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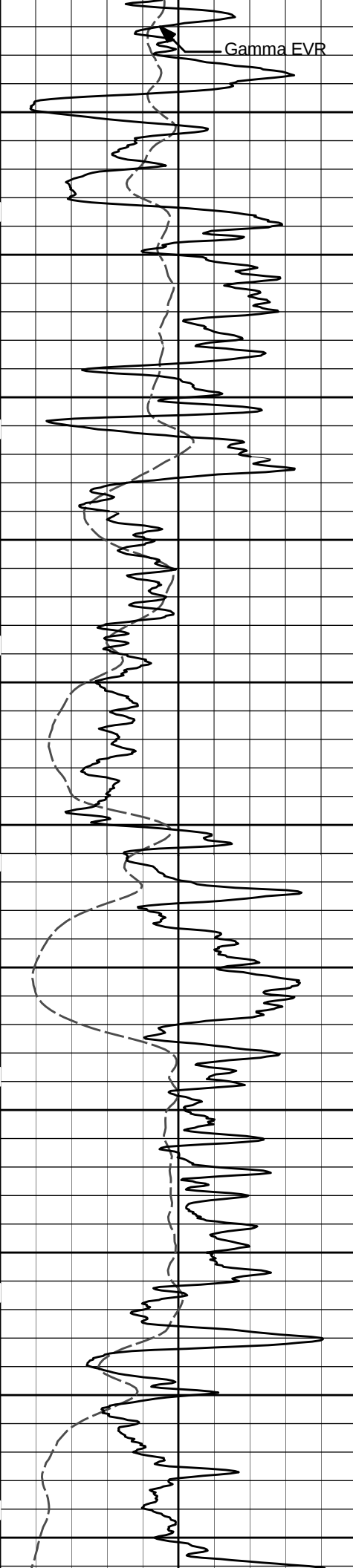
MAIN SECTION HIGH RES 10" PER 100'





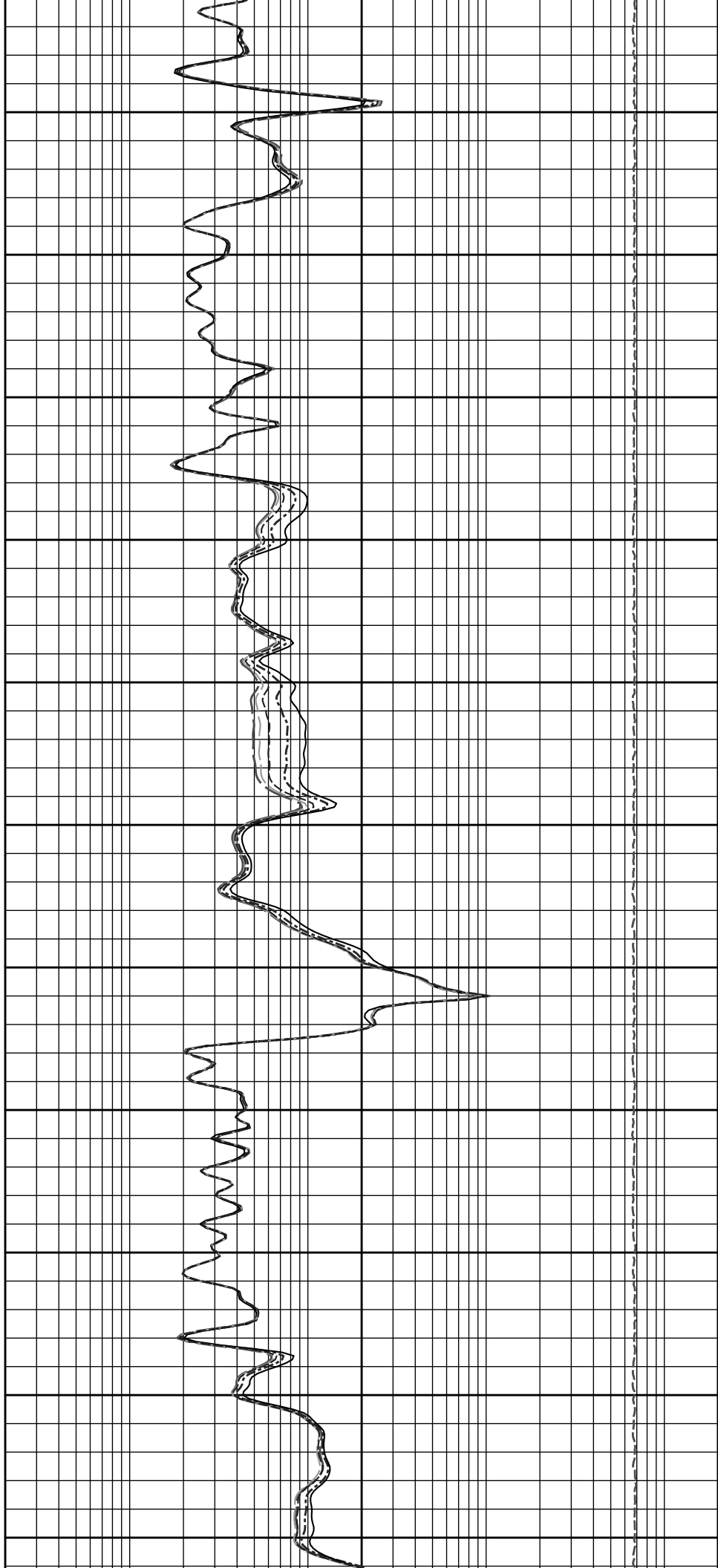
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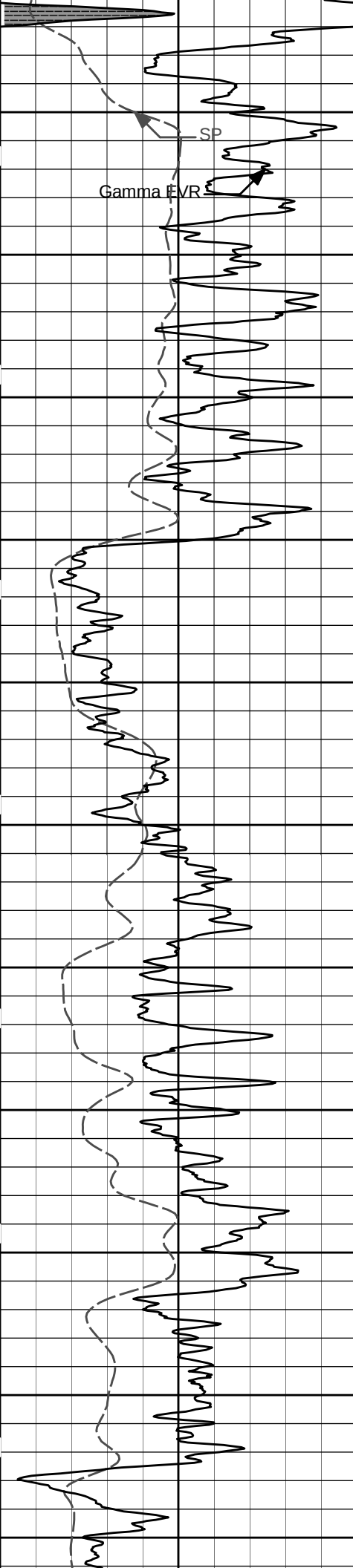




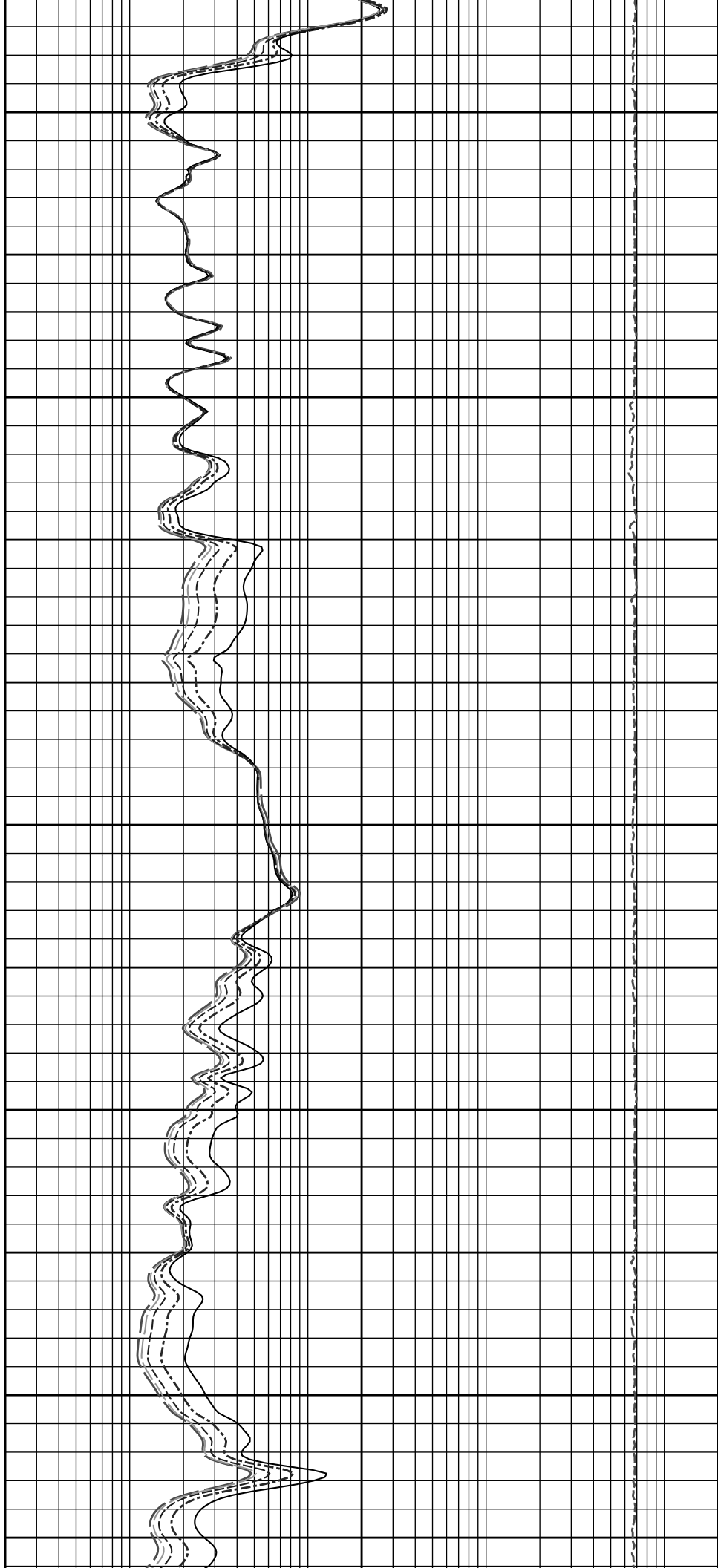
Gamma EVR

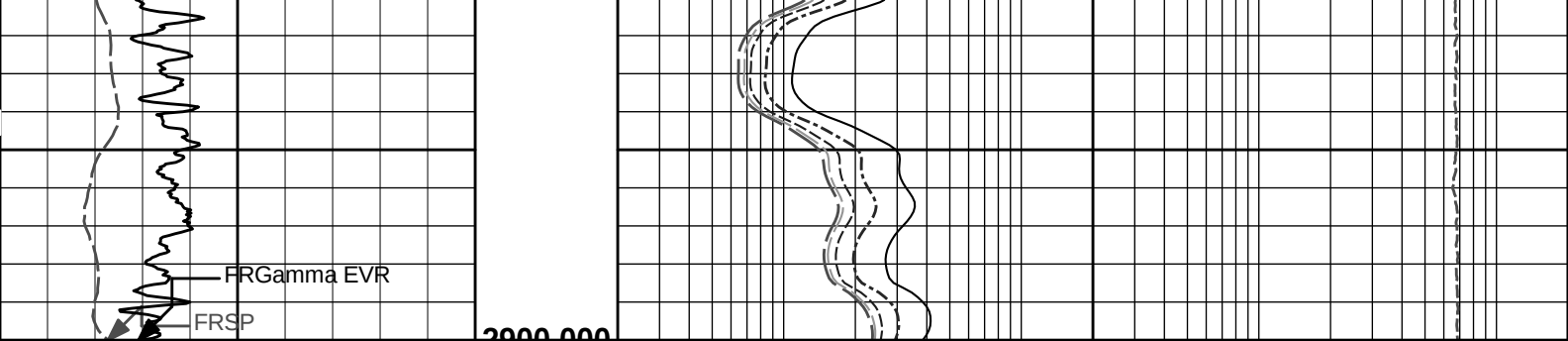
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2800.000





SP -]20[+	1 : 120 ft		15K	Tension	0
				pounds	
0	Gamma EVR	150	0.2	10in Resistivity 1ft Res	2000
				ohmm	
			0.2	20in Resistivity 1ft Res	2000
				ohmm	
			0.2	30in Resistivity 1ft Res	2000
				ohm-metre	
	SHALE		0.2	60in Resistivity 1ft Res	2000
				ohmm	
			0.2	90in Resistivity 1ft Res	2000
				ohmm	

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Plot Time: 05-Aug-13 04:57:59
Plot Range: 2500 ft to 2900 ft
Data: KATHLEEN_2231\Well Based\EVR_2500-2900\
Plot File: \\-LOCAL-KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHIACRT\ACRT_5_EVR_LIB

MAIN SECTION HIGH RES 10" PER 100'

HALLIBURTON

Plot Time: 05-Aug-13 04:57:59
Plot Range: 3900 ft to 5222.5 ft
Data: KATHLEEN_2231\Well Based\EVR_TD-3900\
Plot File: \\-LOCAL-KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHIACRT\ACRT_5_EVR_LIB

MAIN SECTION HIGH RES 10" PER 100'

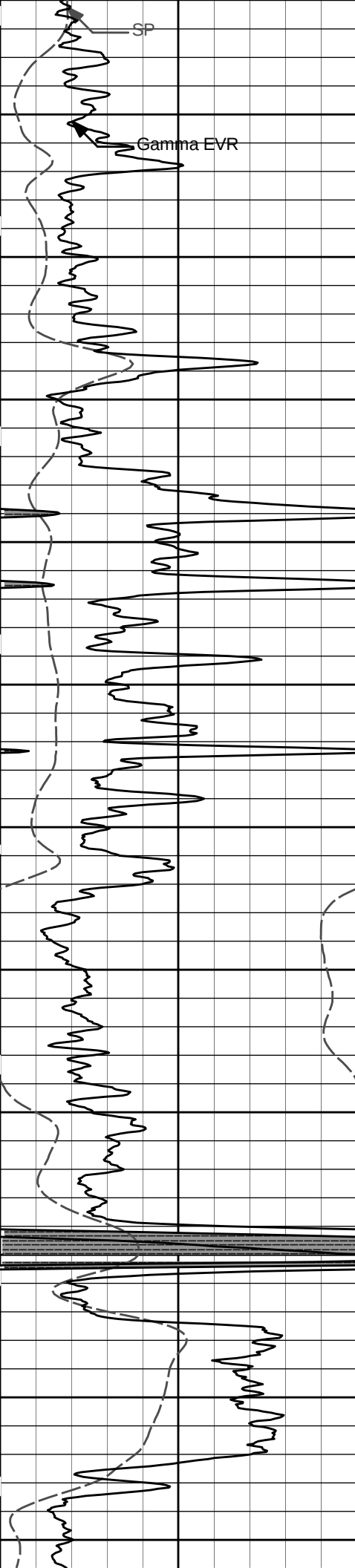
0	Gamma EVR	150	0.2	90in Resistivity 1ft Res	2000
				ohmm	
			0.2	60in Resistivity 1ft Res	2000
				ohmm	
			0.2	30in Resistivity 1ft Res	2000
				ohm-metre	
	SHALE		0.2	20in Resistivity 1ft Res	2000
				ohmm	
			0.2	10in Resistivity 1ft Res	2000
				ohmm	
	api				
	SP				
	-]20[+				

1 : 120
ft

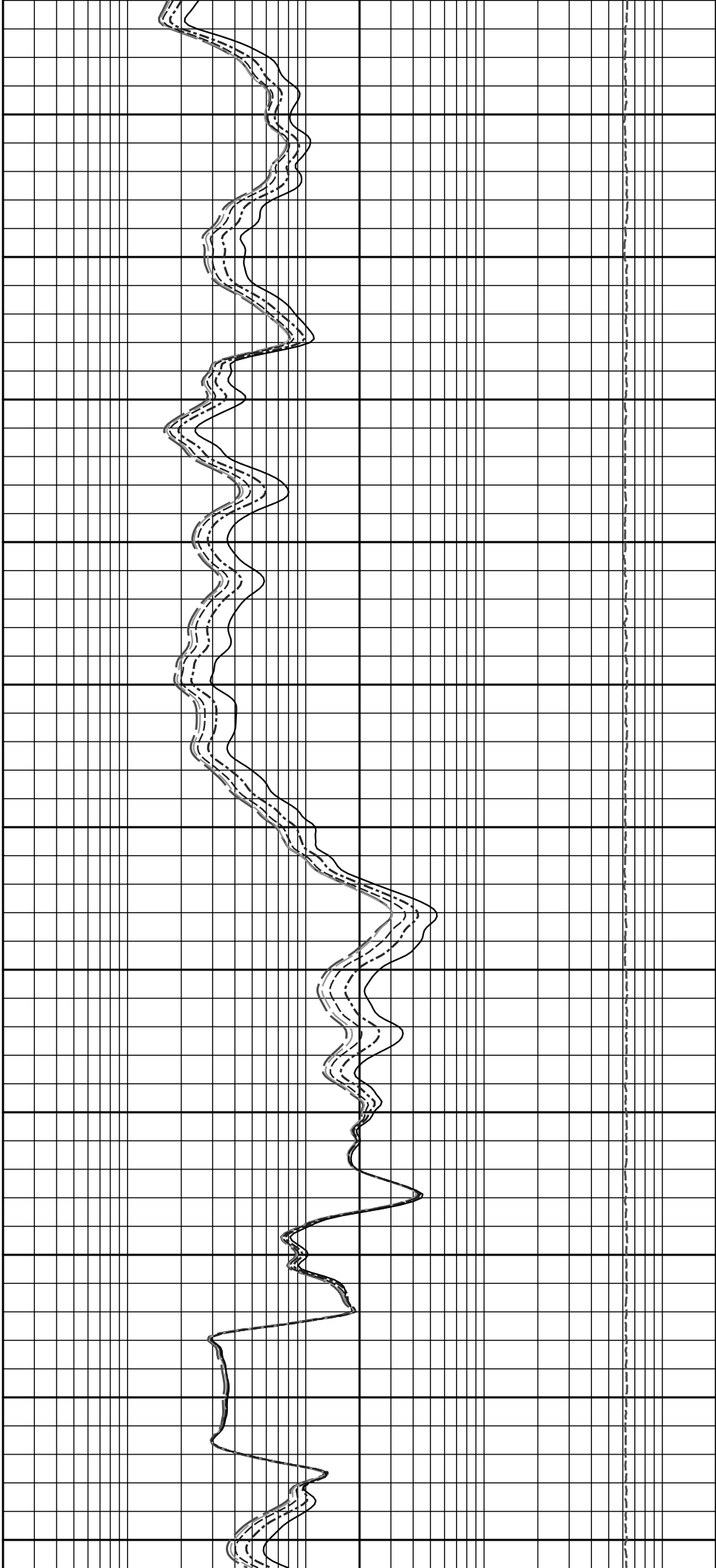
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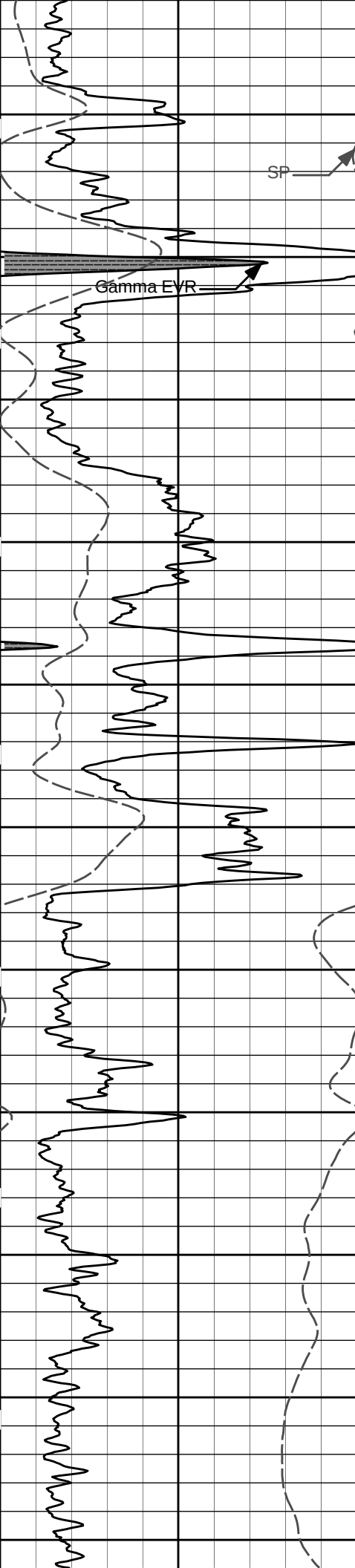
Tension

pounds

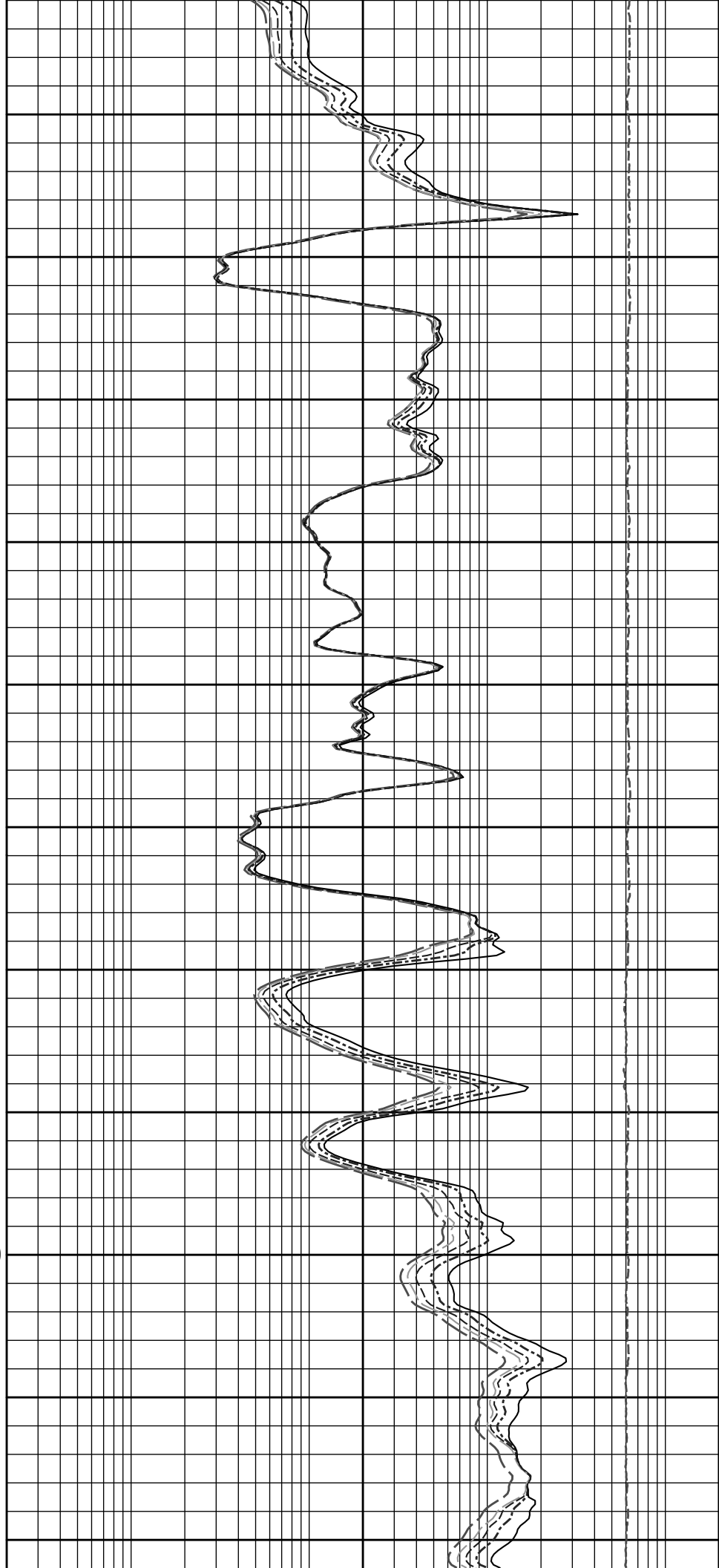


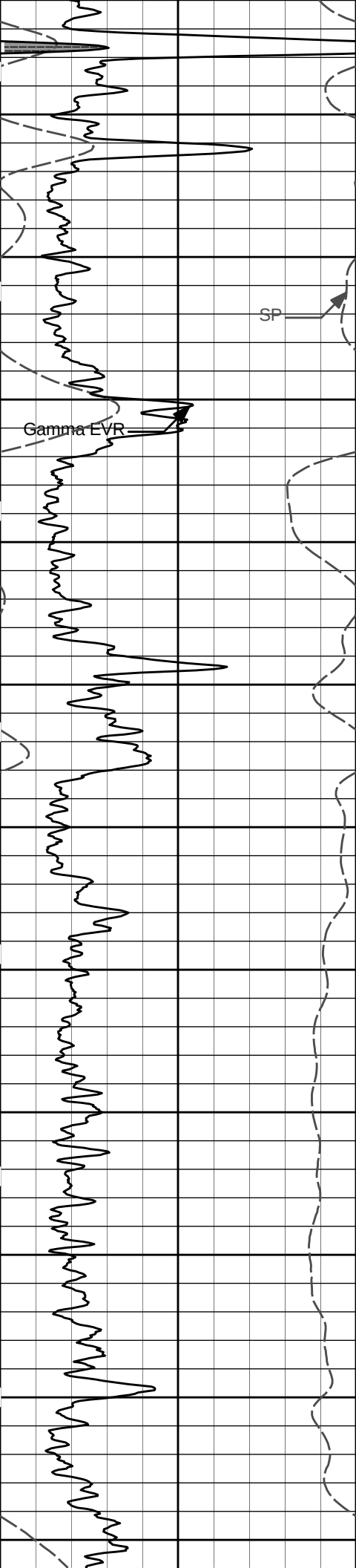
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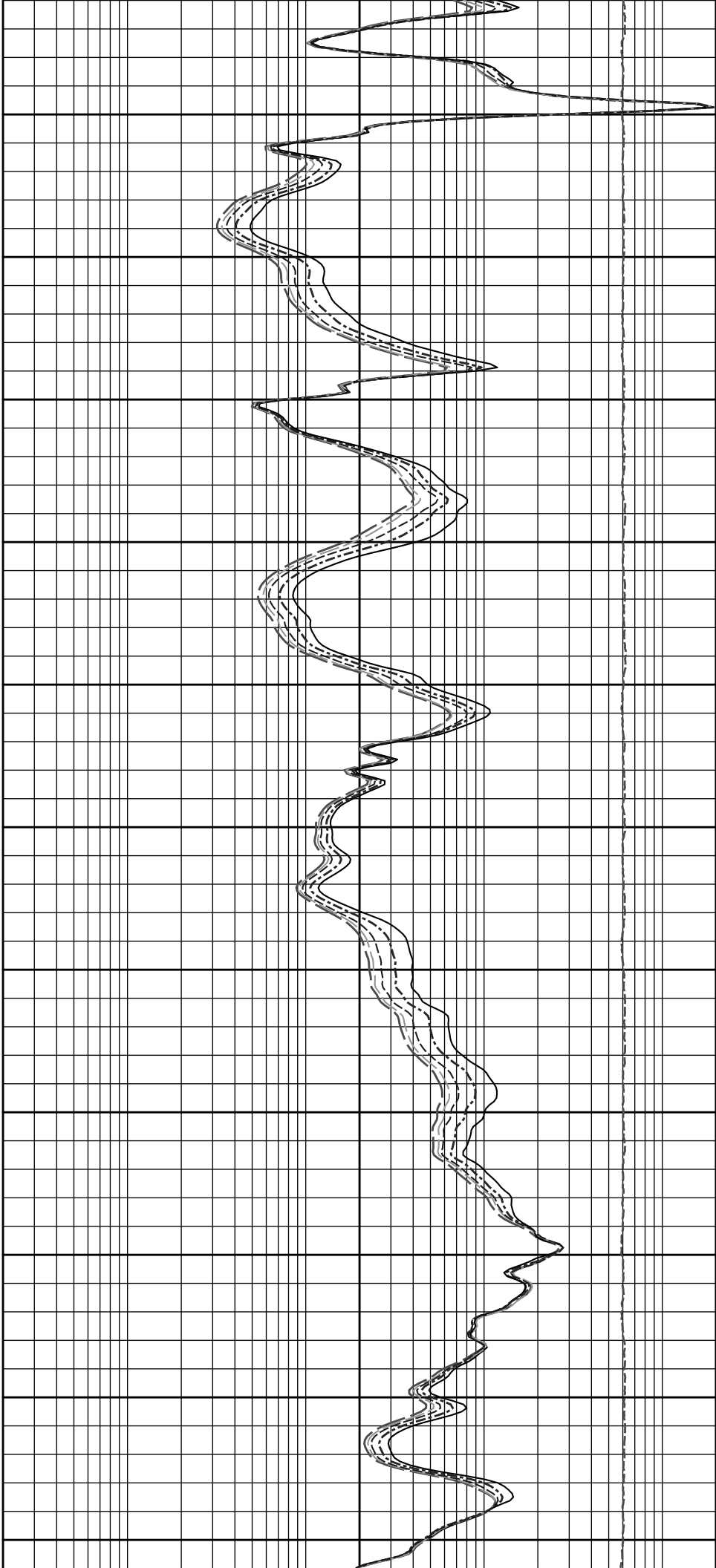


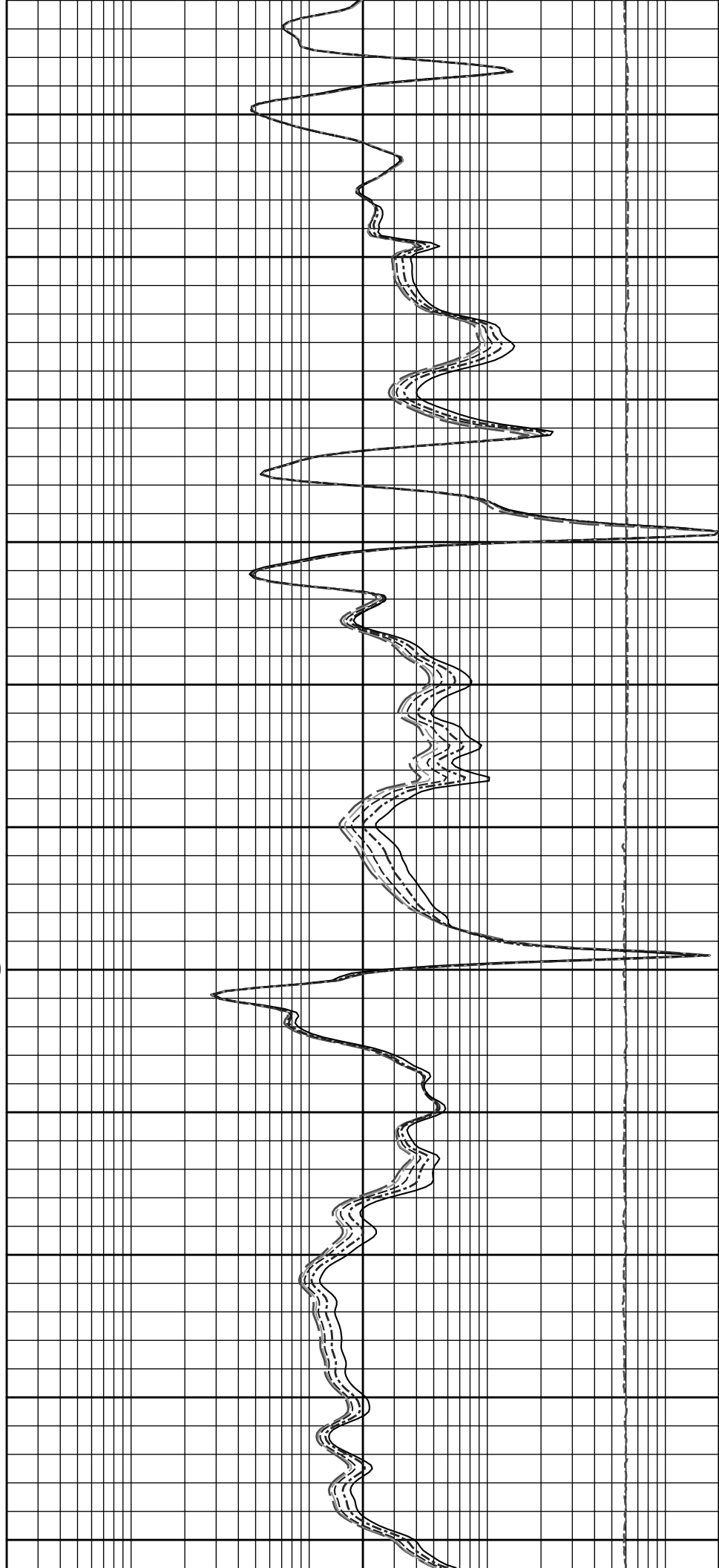
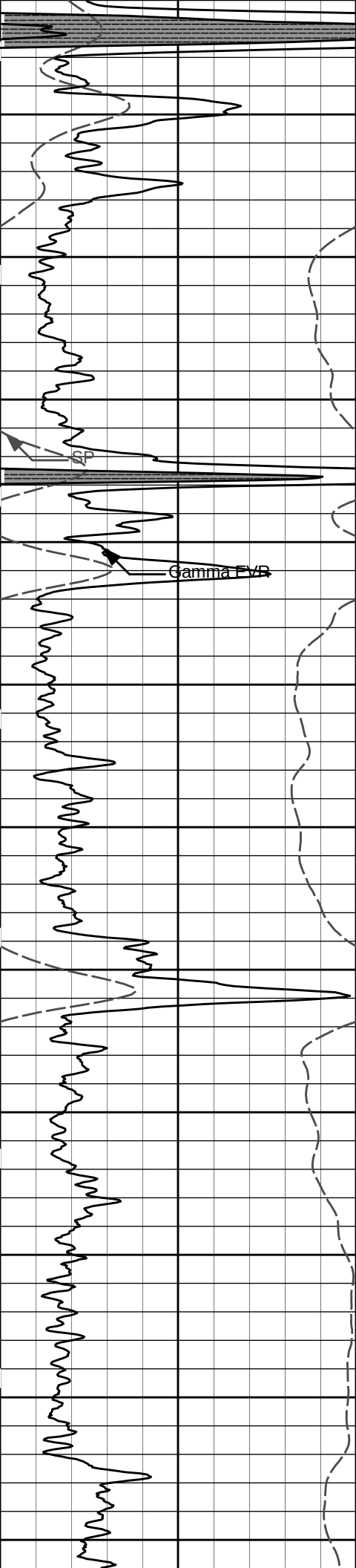
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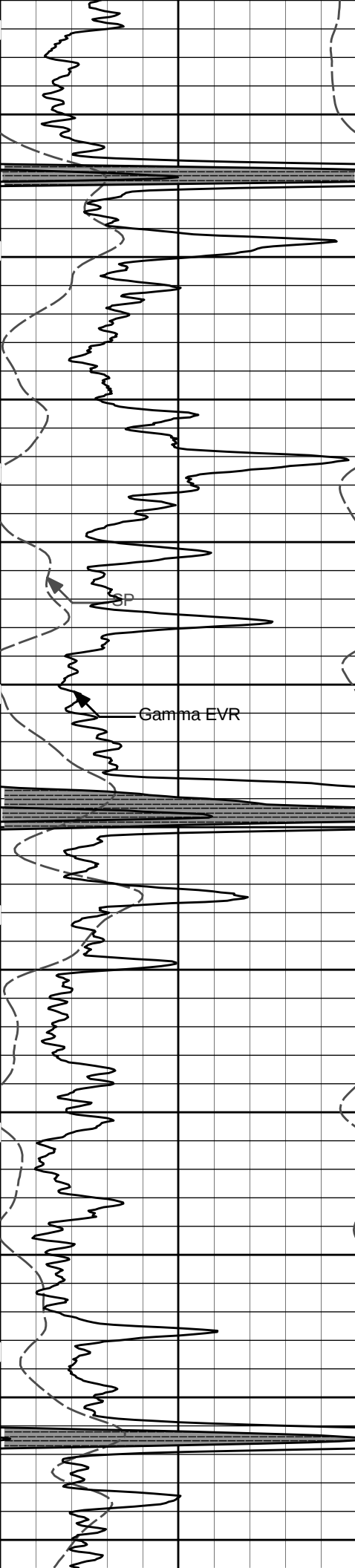




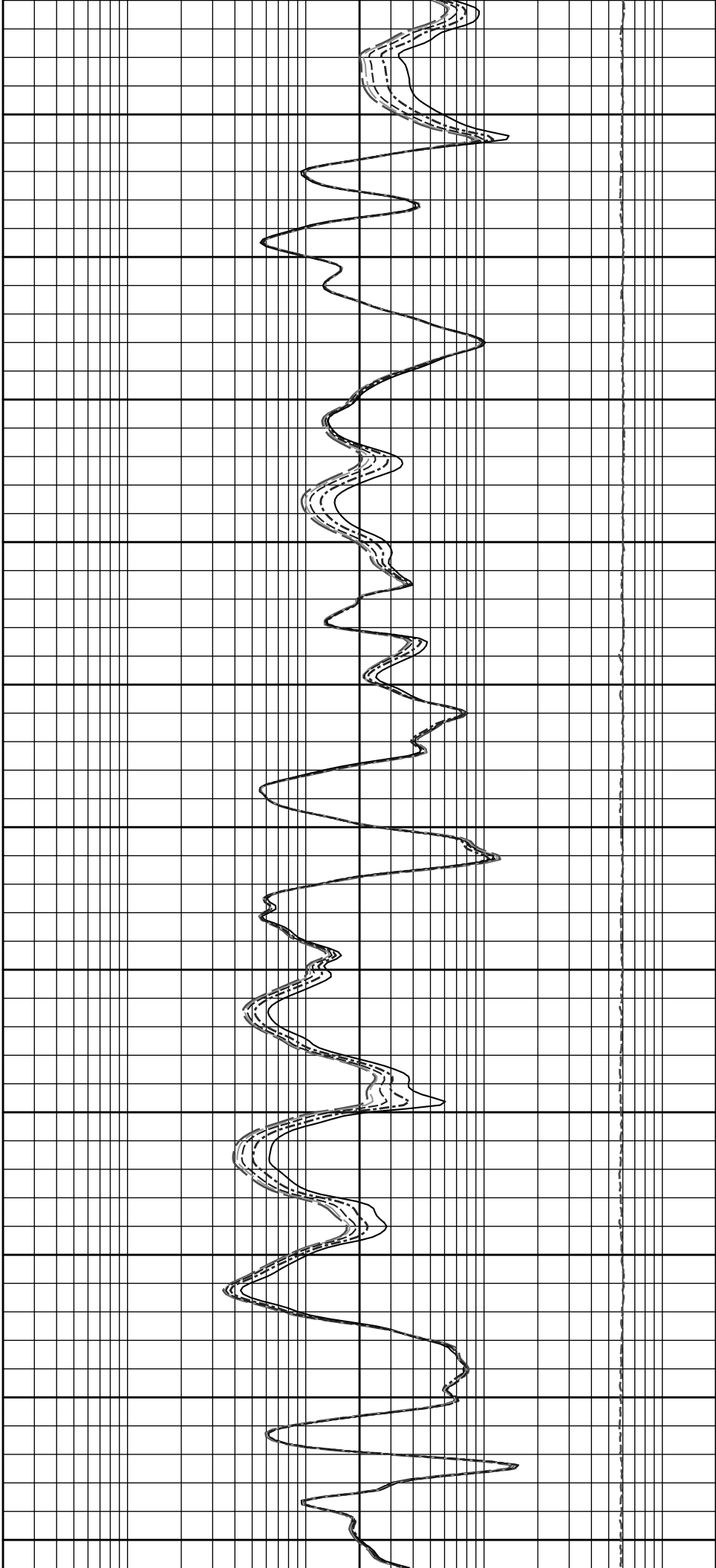
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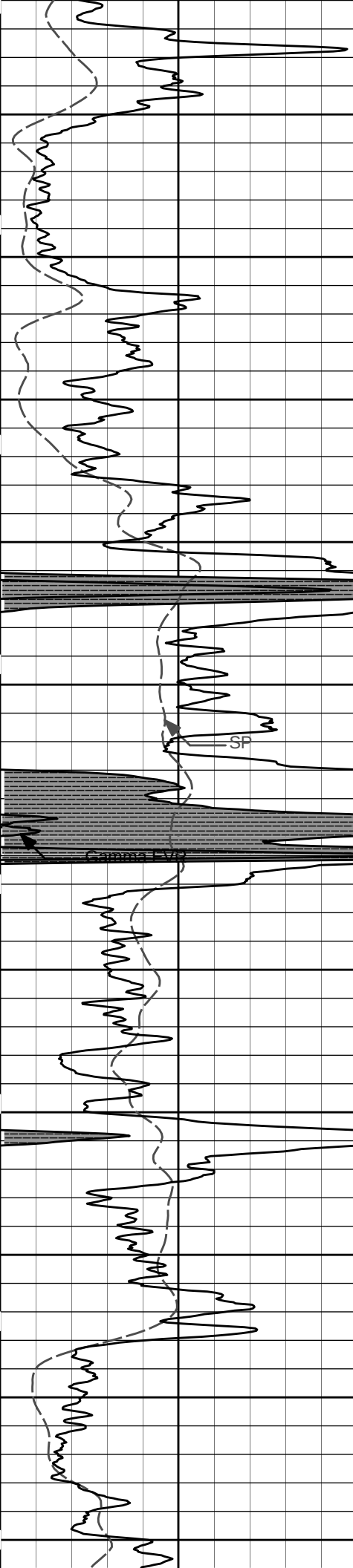




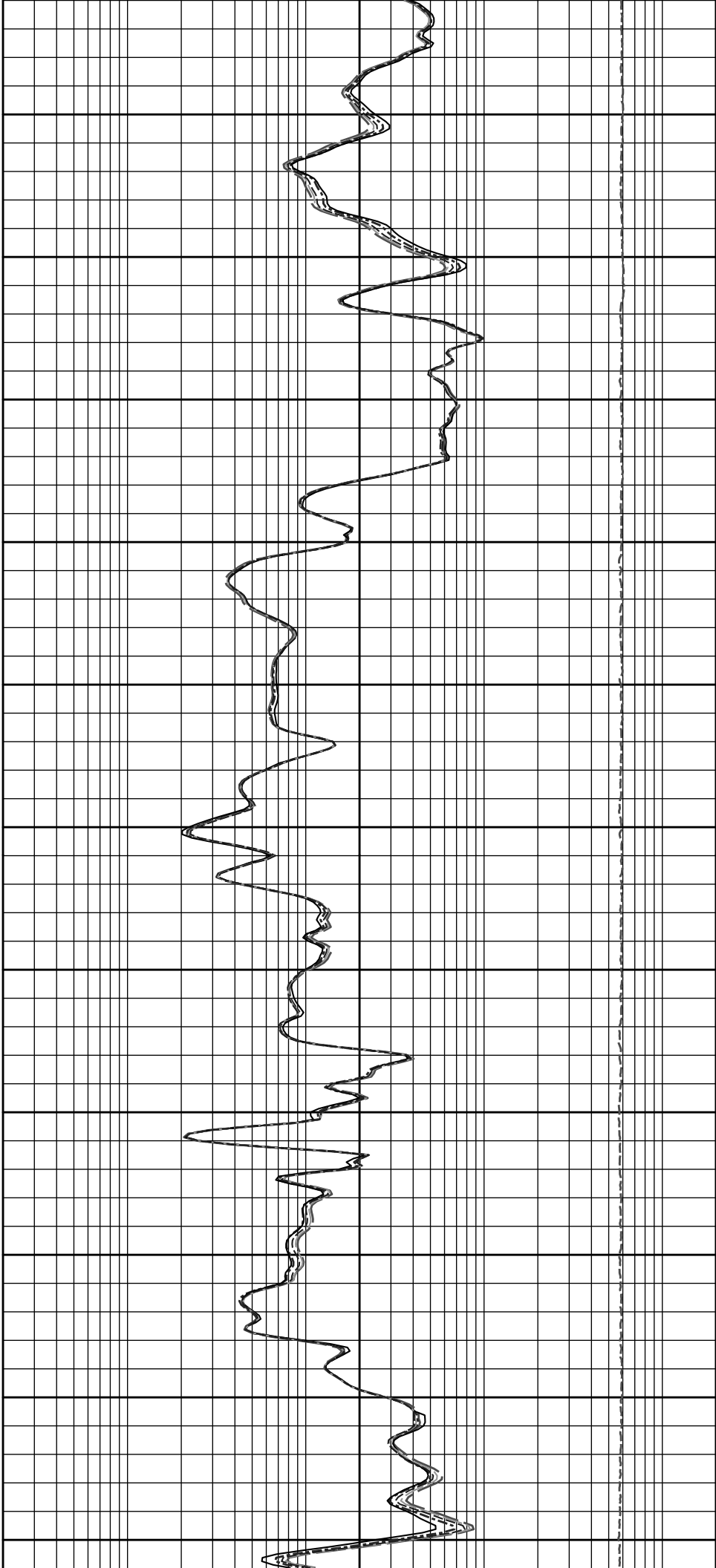


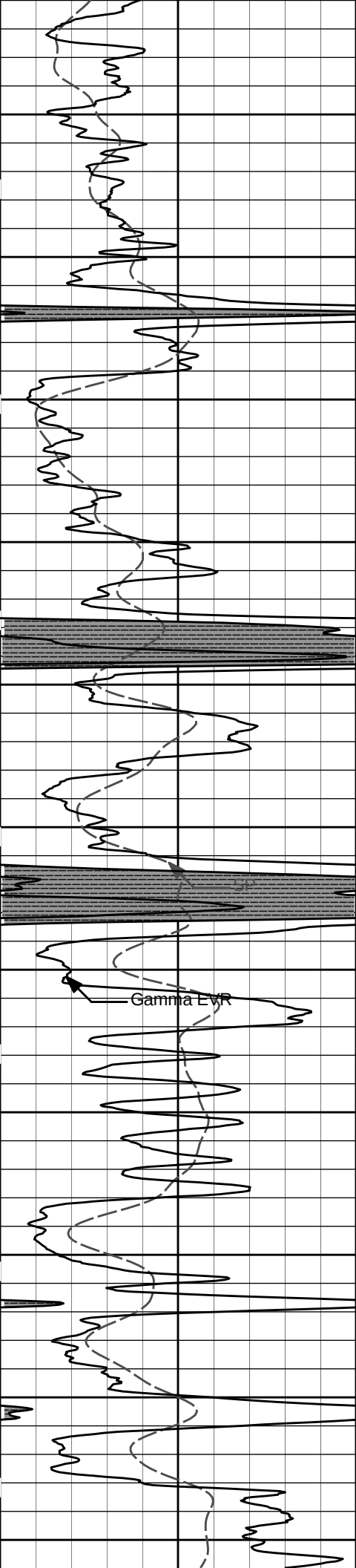
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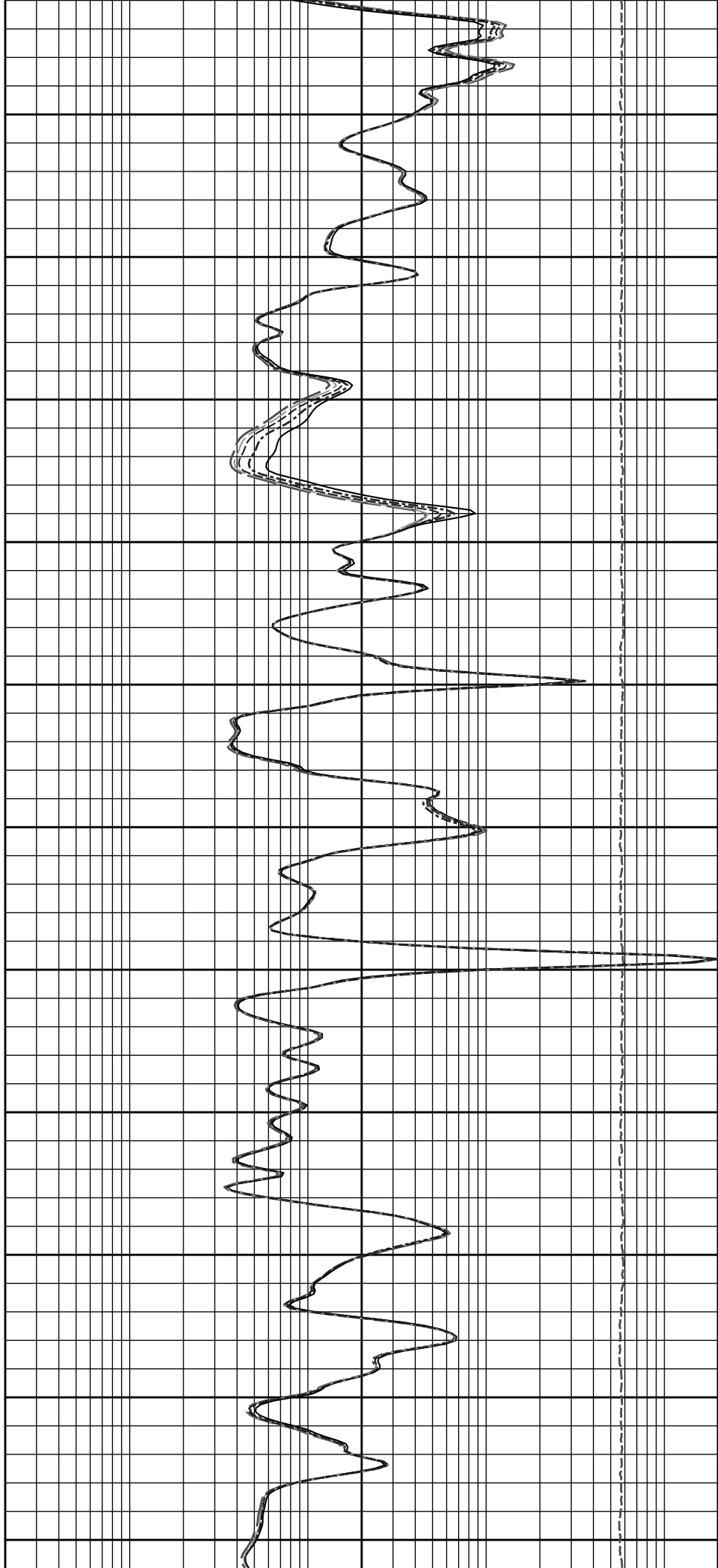


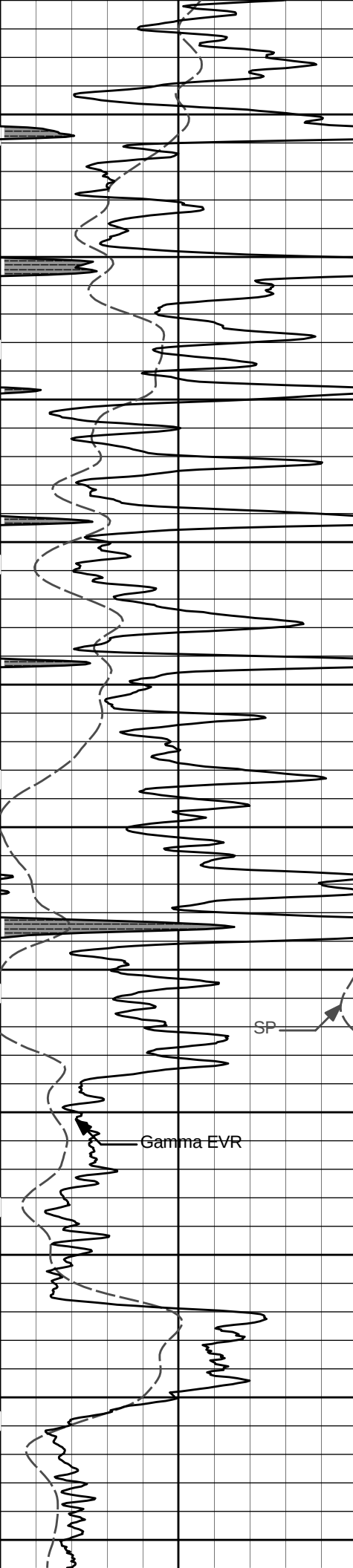
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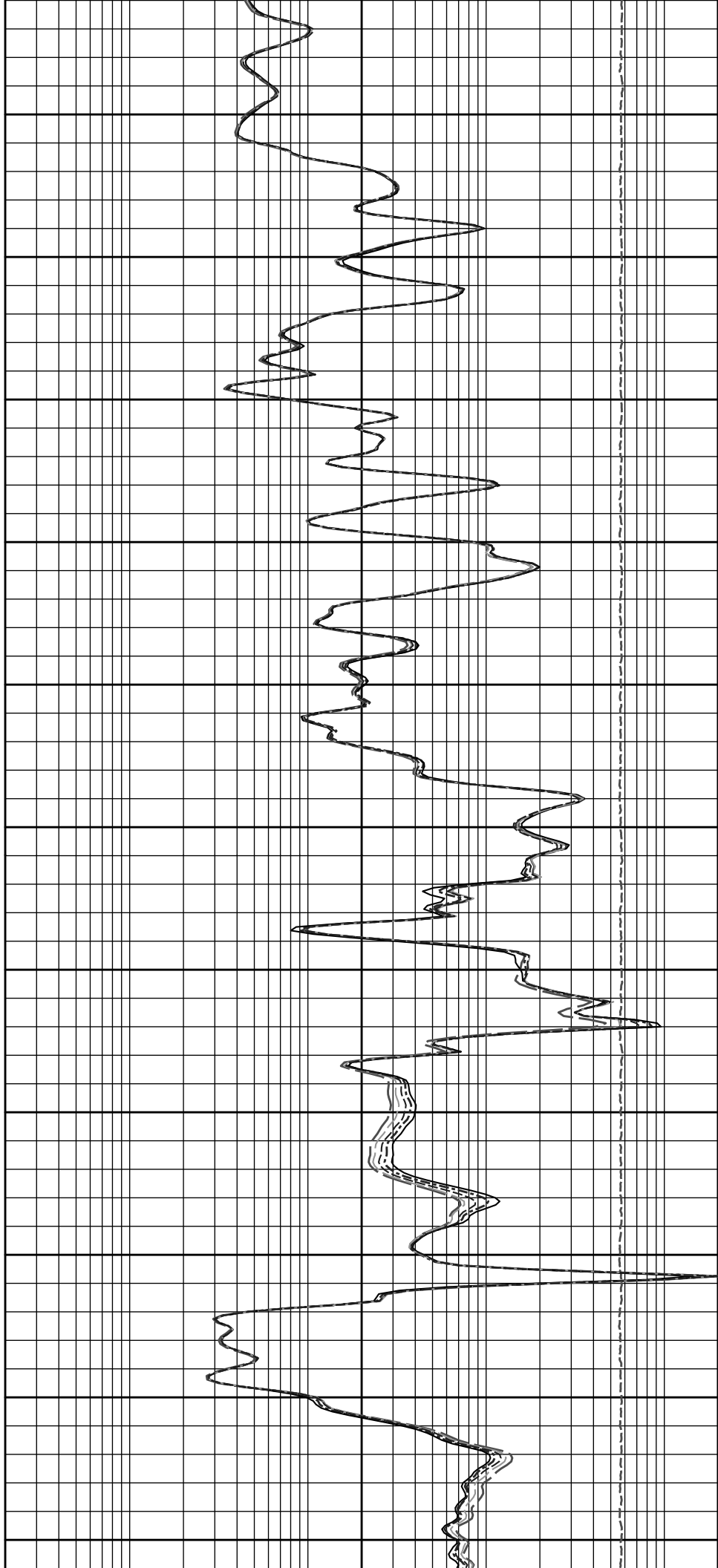


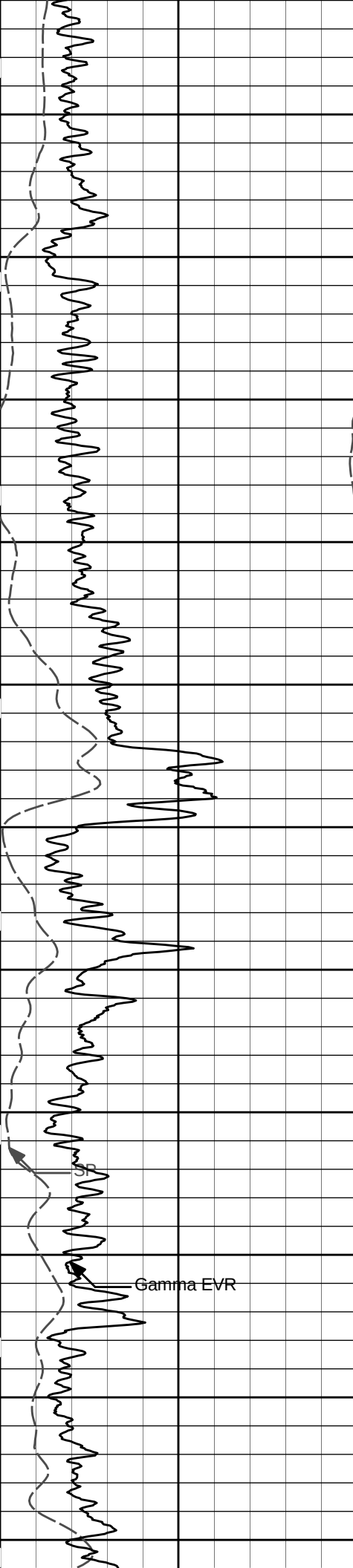
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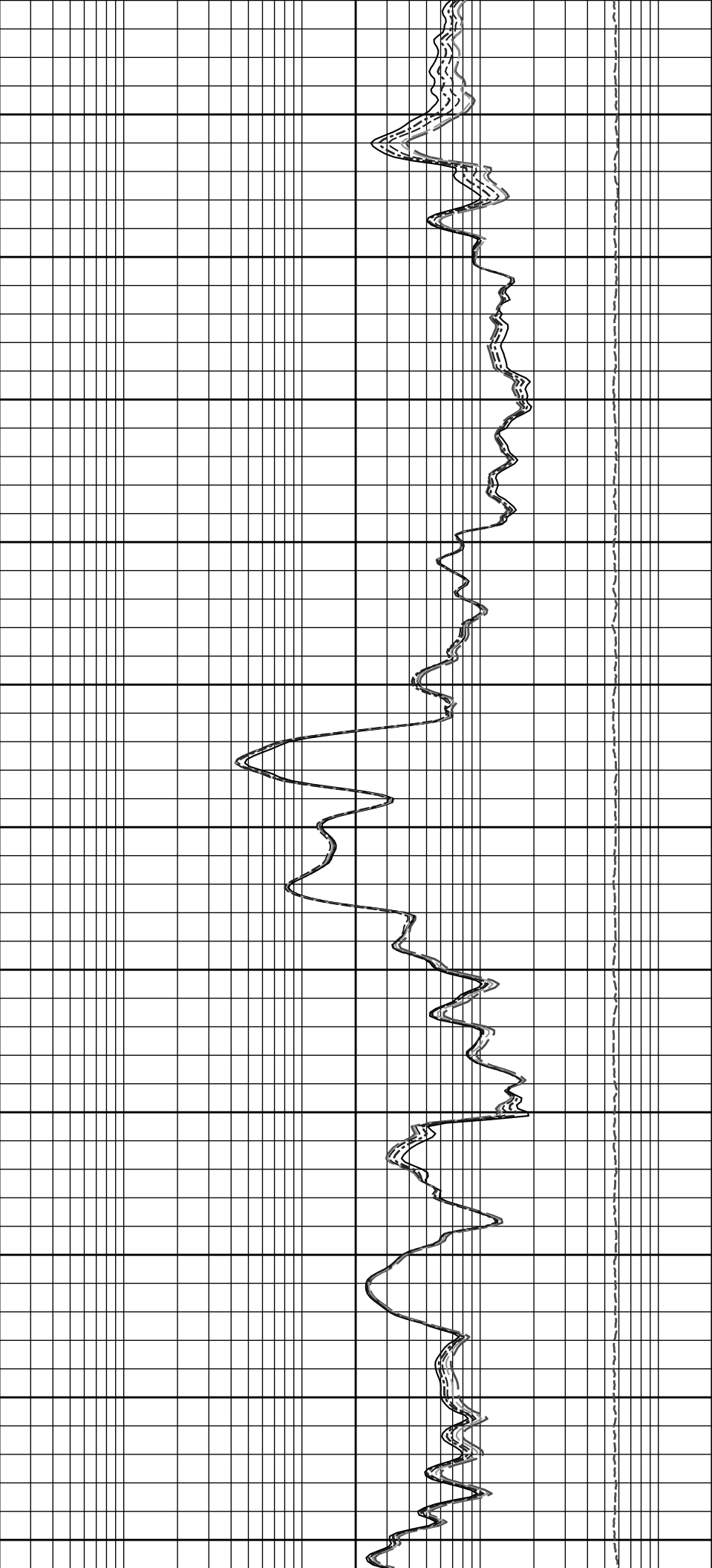


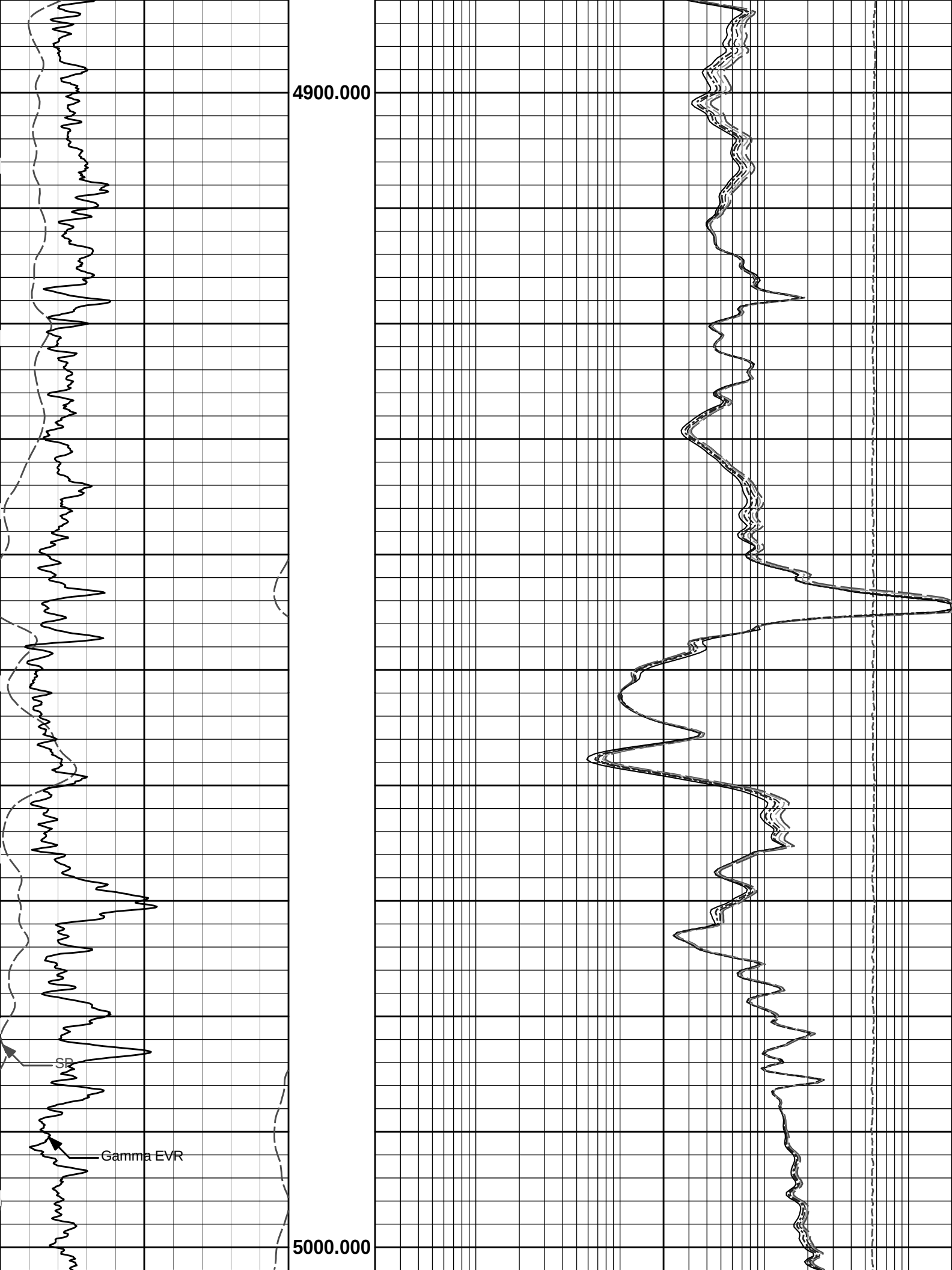
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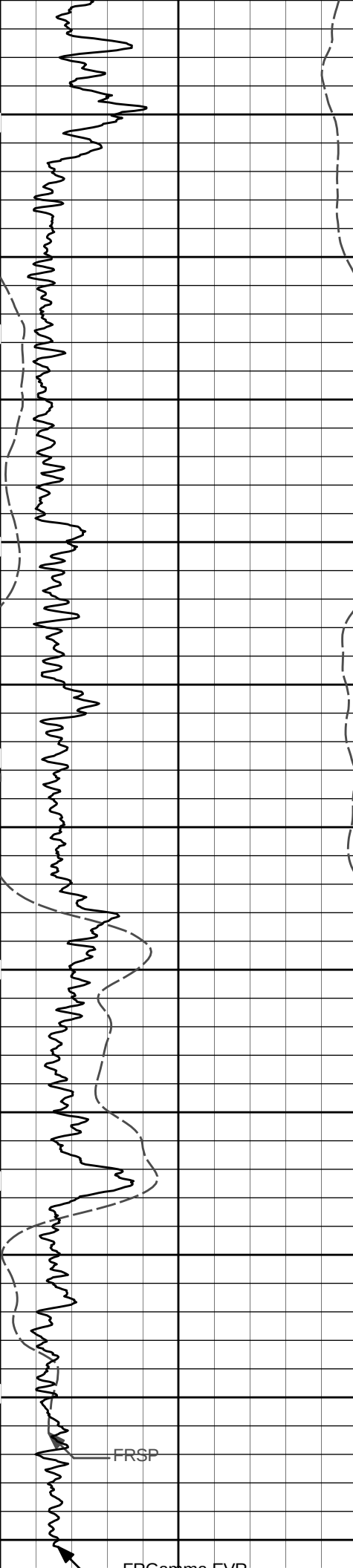




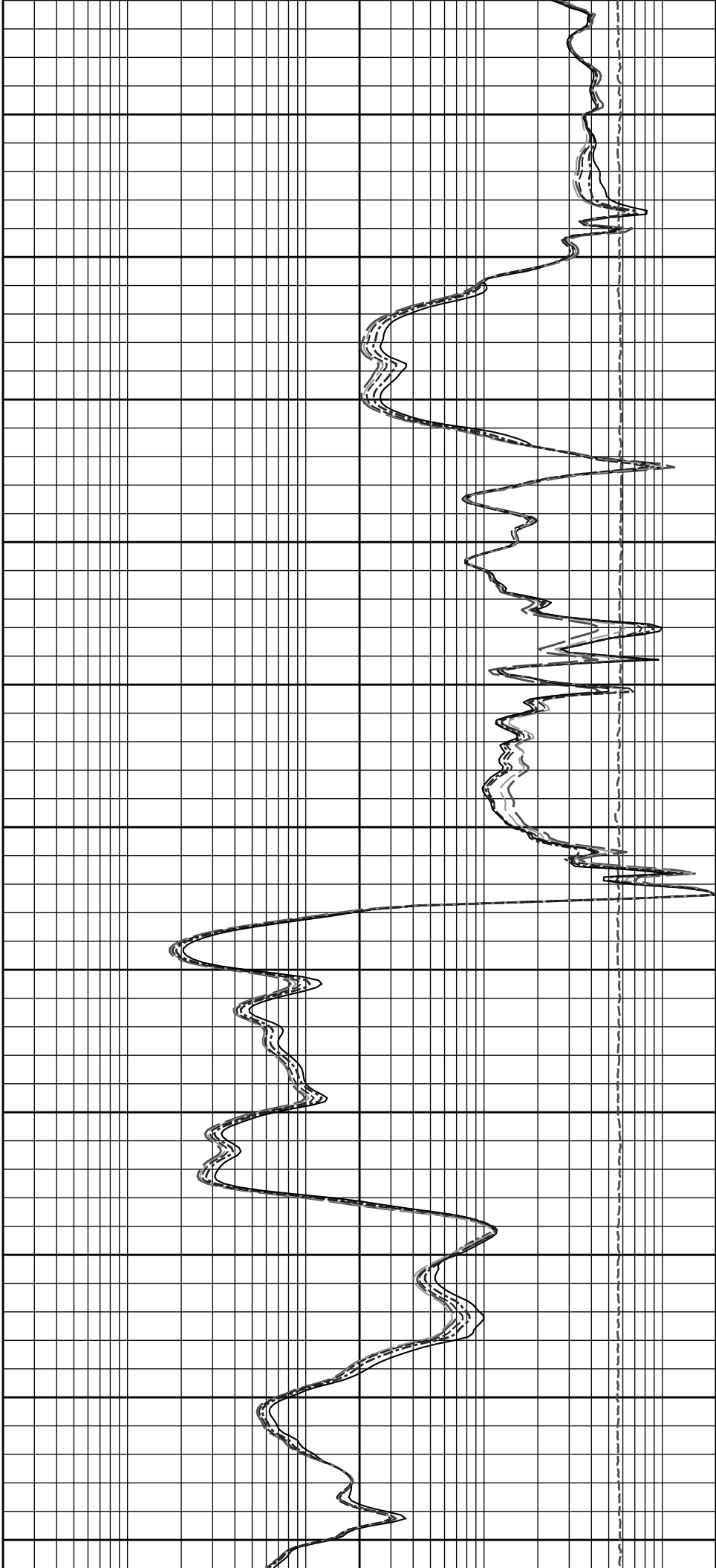
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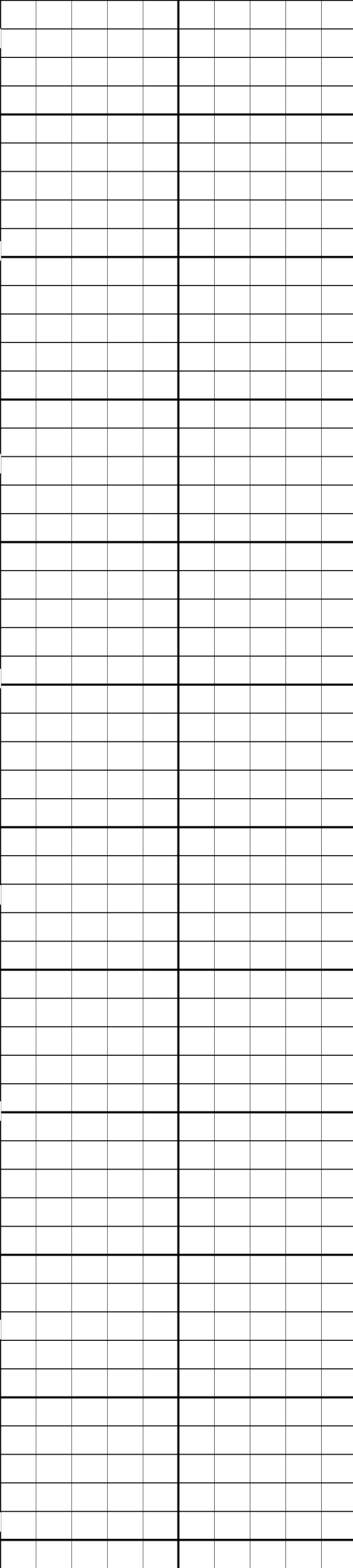




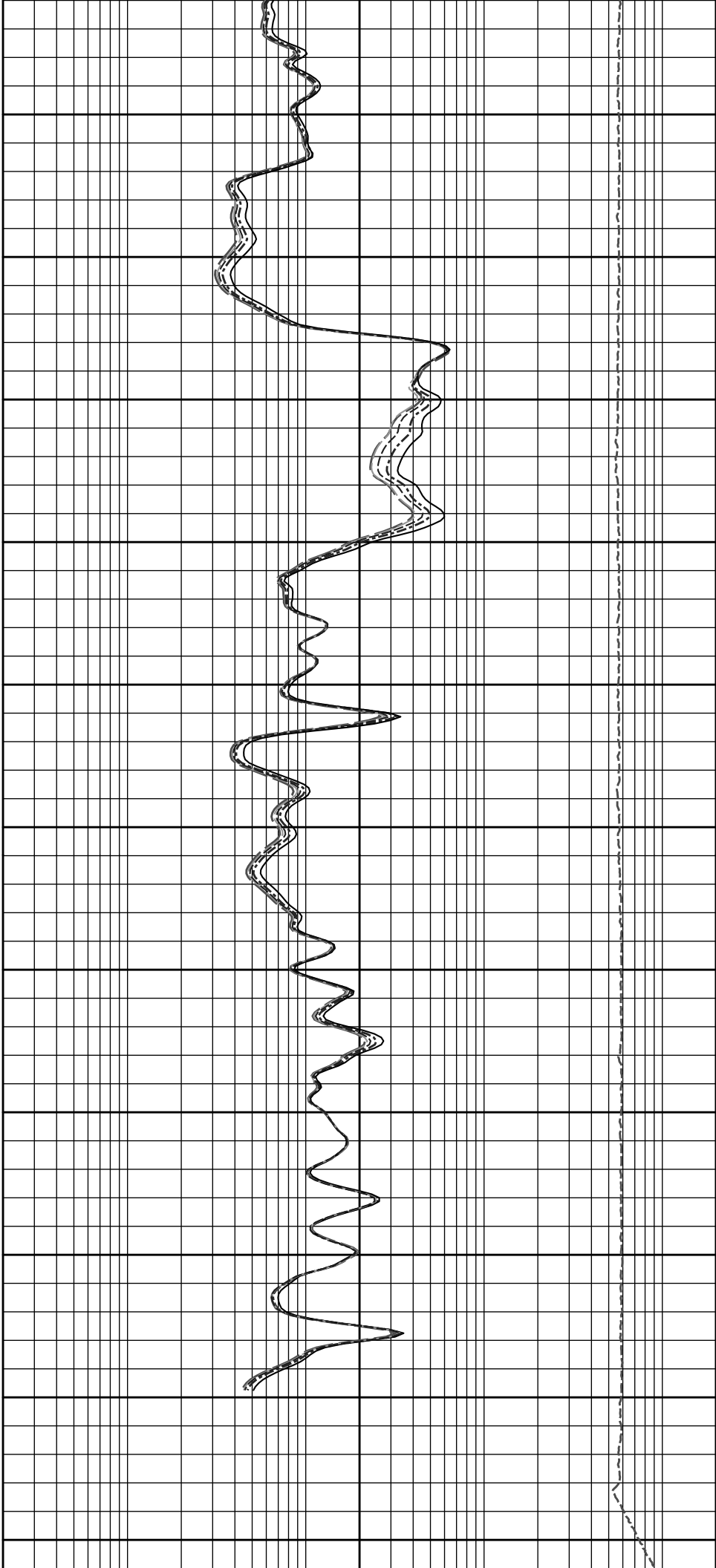


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HALLIBURTON	Plot Time: 05-Aug-13 04:58:08 Plot Range: 3900 ft to 5222.5 ft Data: KATHLEEN_2231\Well Based\EVR_TD-3900\ Plot File: \\LOCAL-KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHIACRT\ACRT_5_EVR_LIB
MAIN SECTION HIGH RES 10" PER 100'	

HALLIBURTON

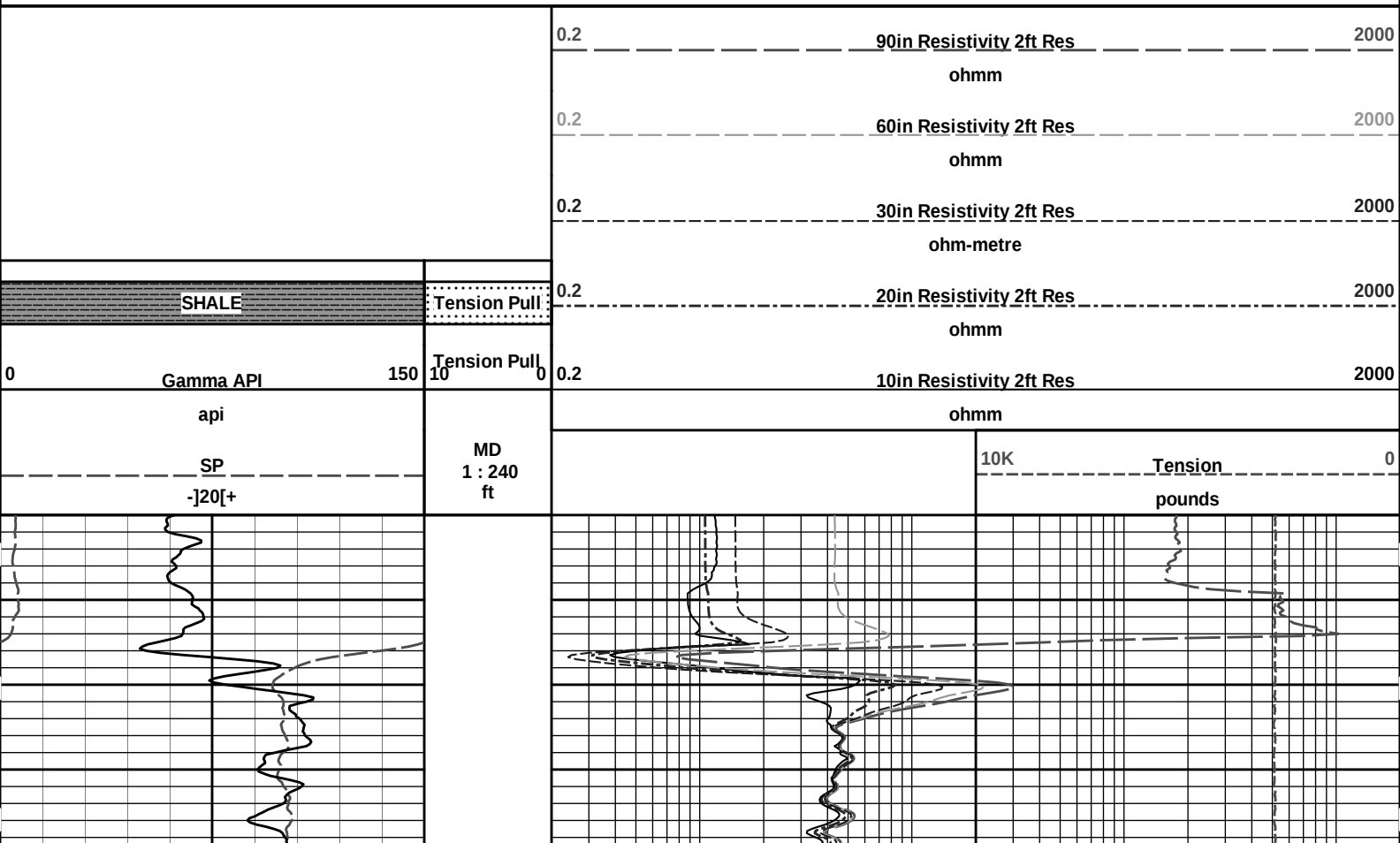
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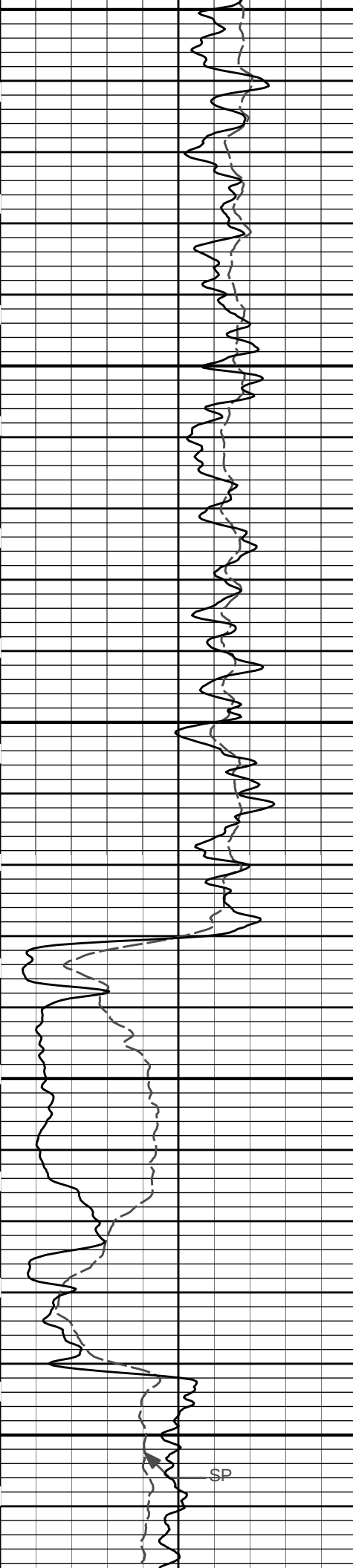
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Data: KATHLEEN_2231\Well Based\CASING\

Plot File: \\LOCAL-KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHIACRT\ACRT_5_main_lib

5 INCH MAIN LOG

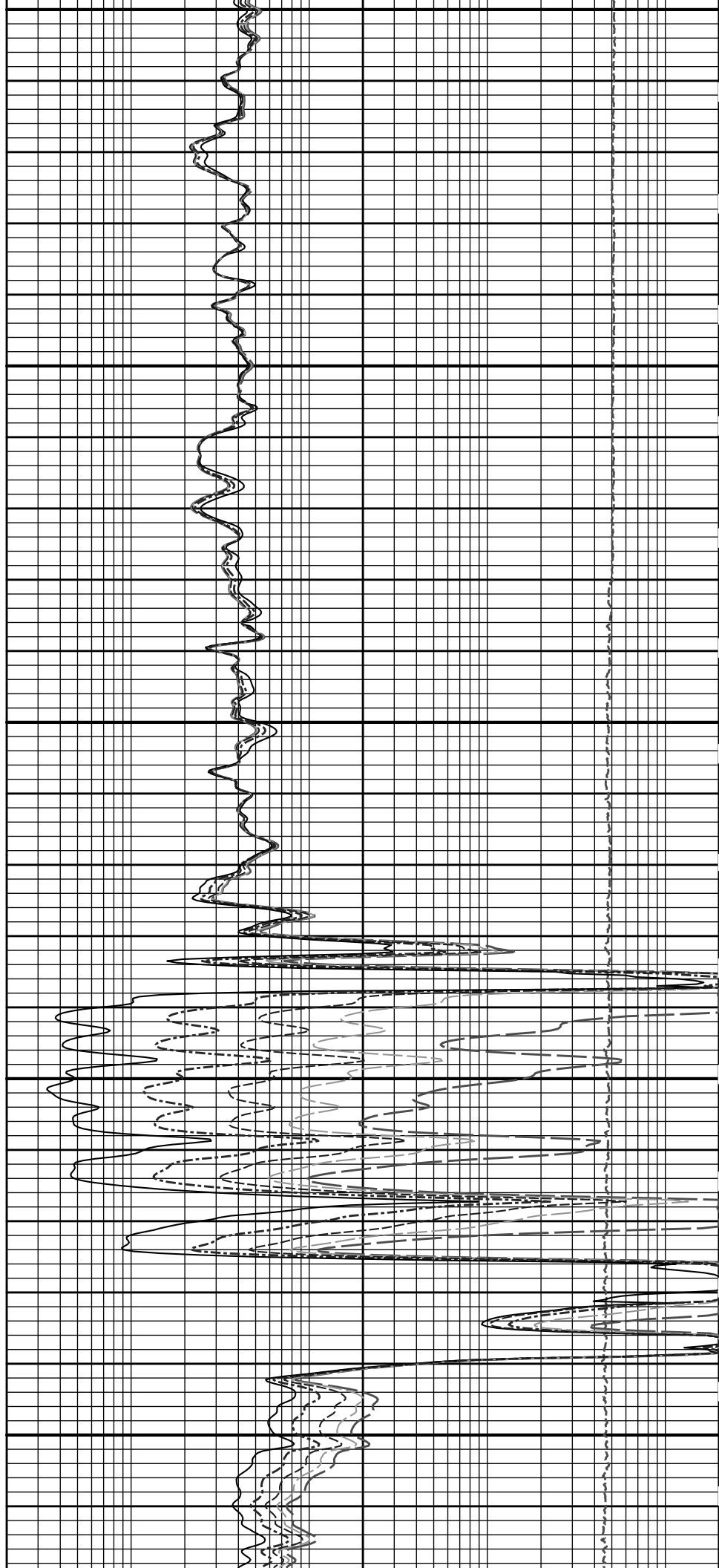


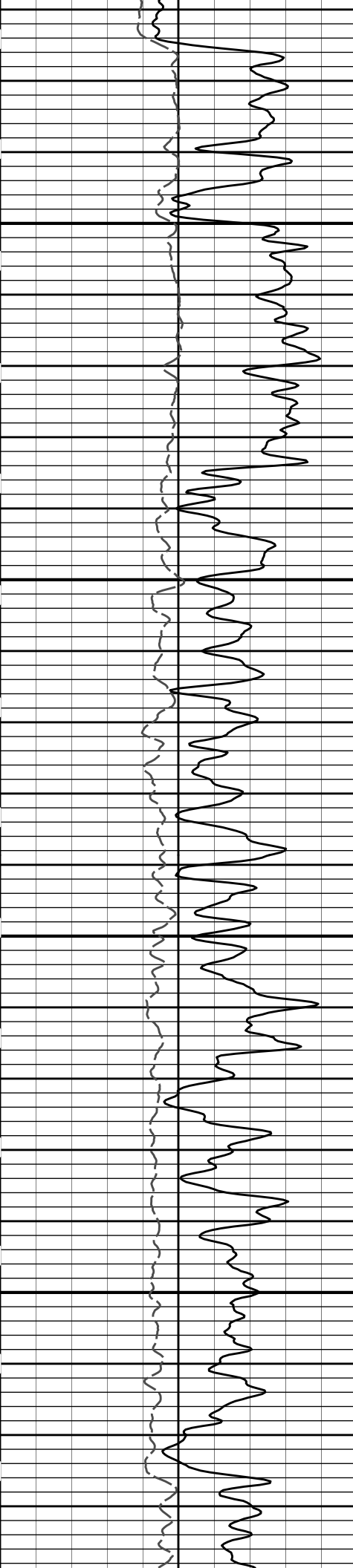


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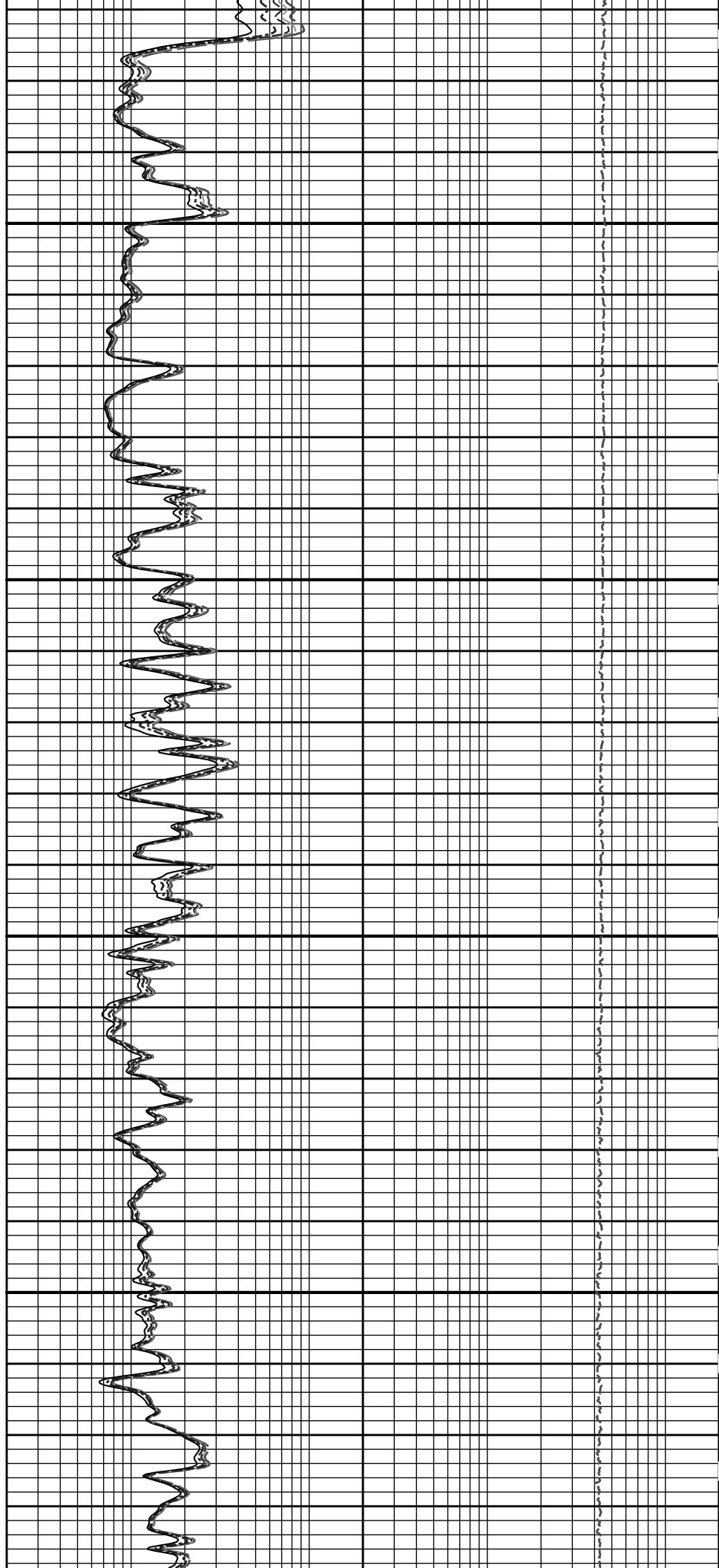
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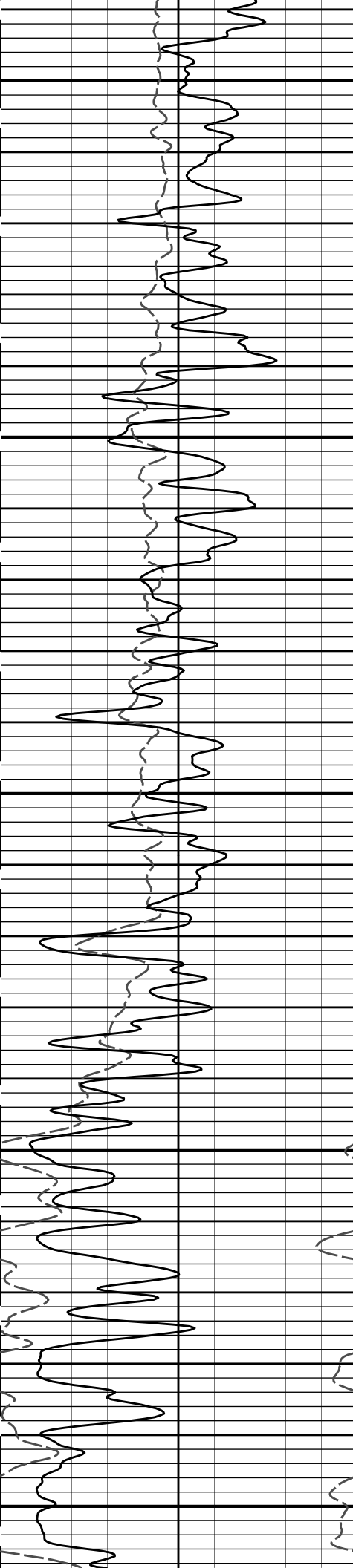




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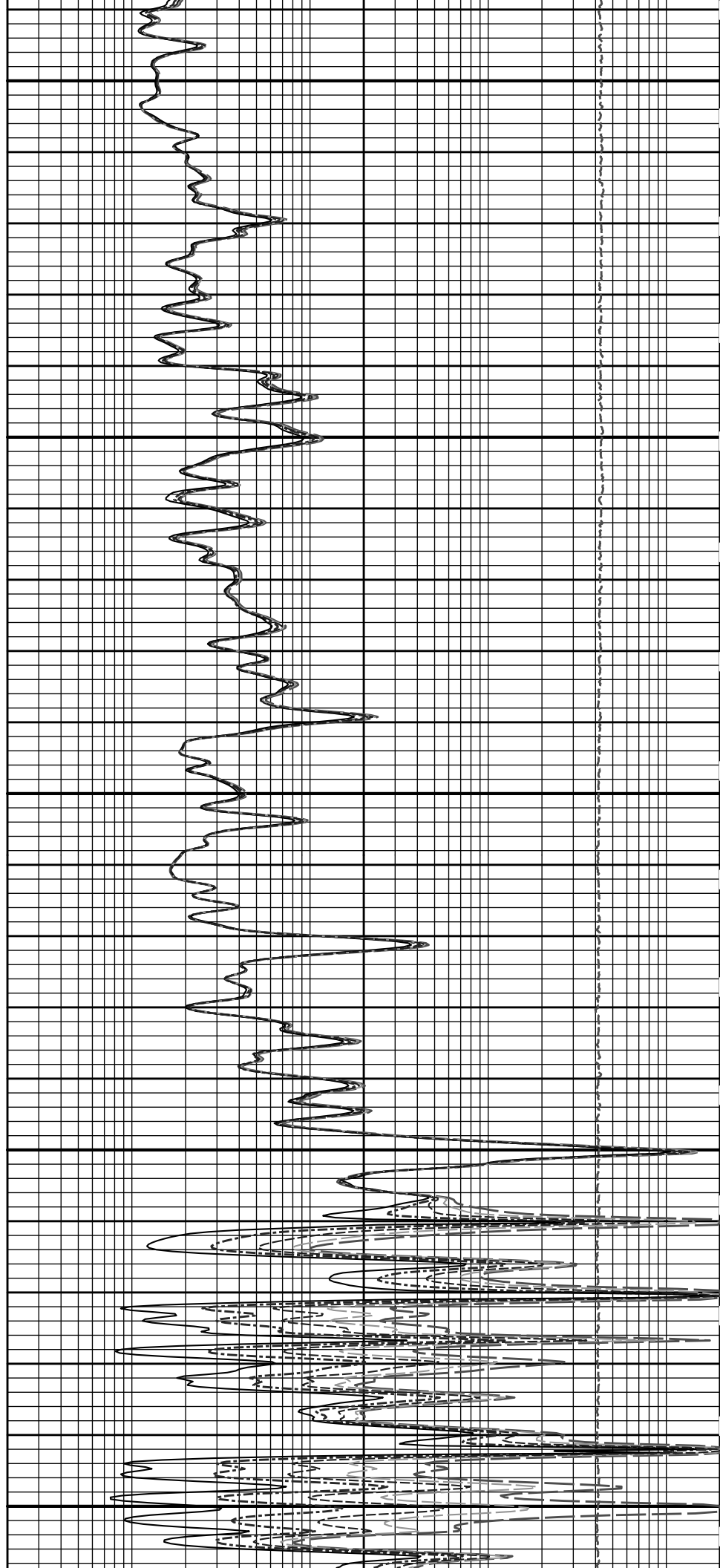
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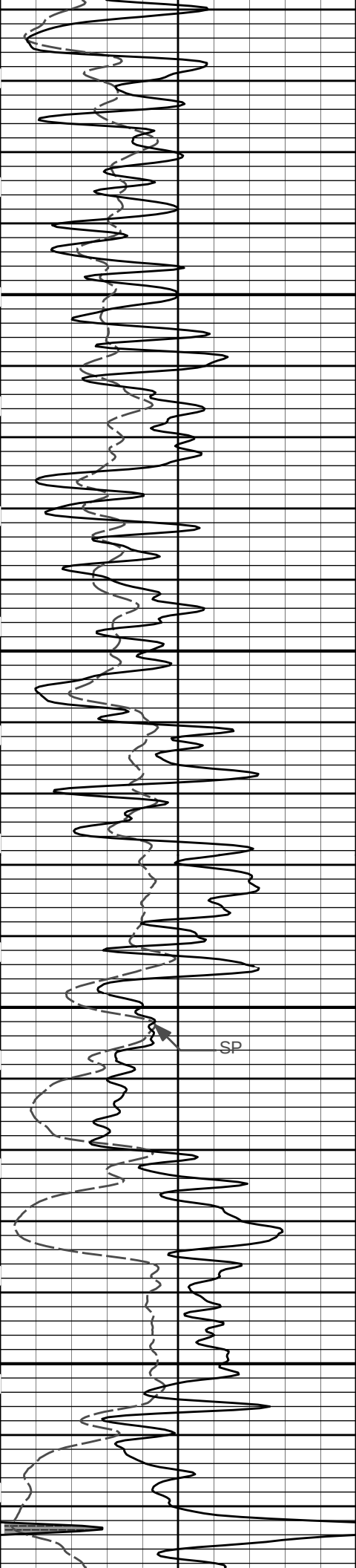




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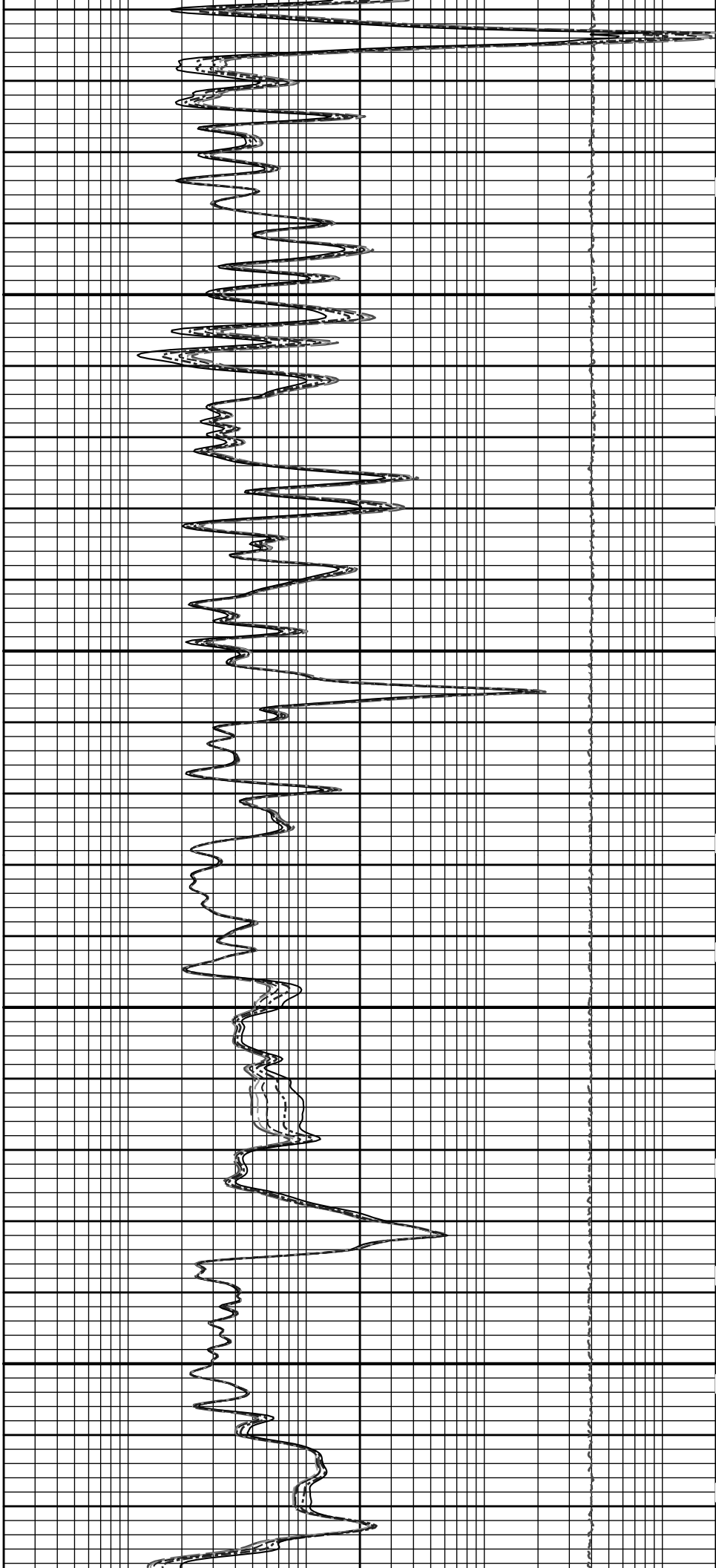
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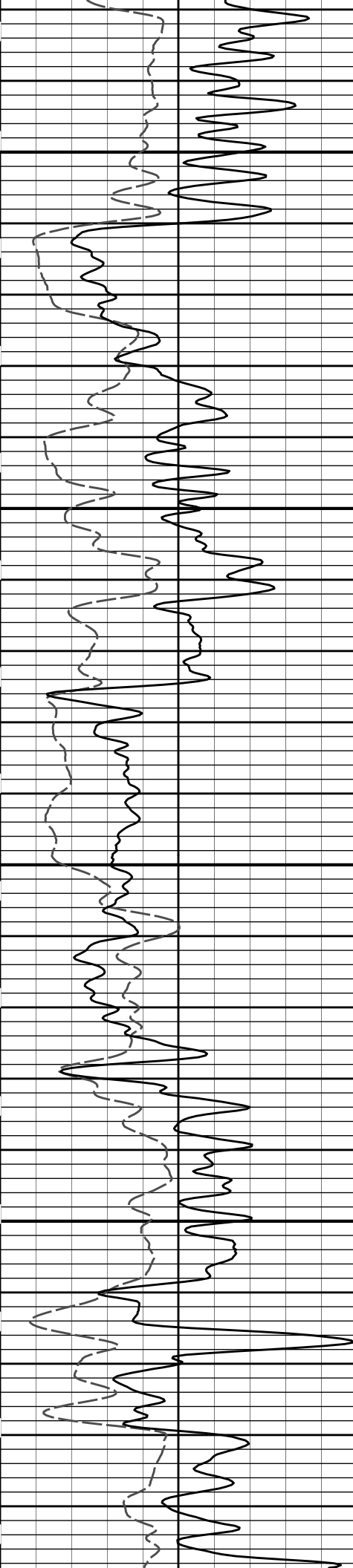




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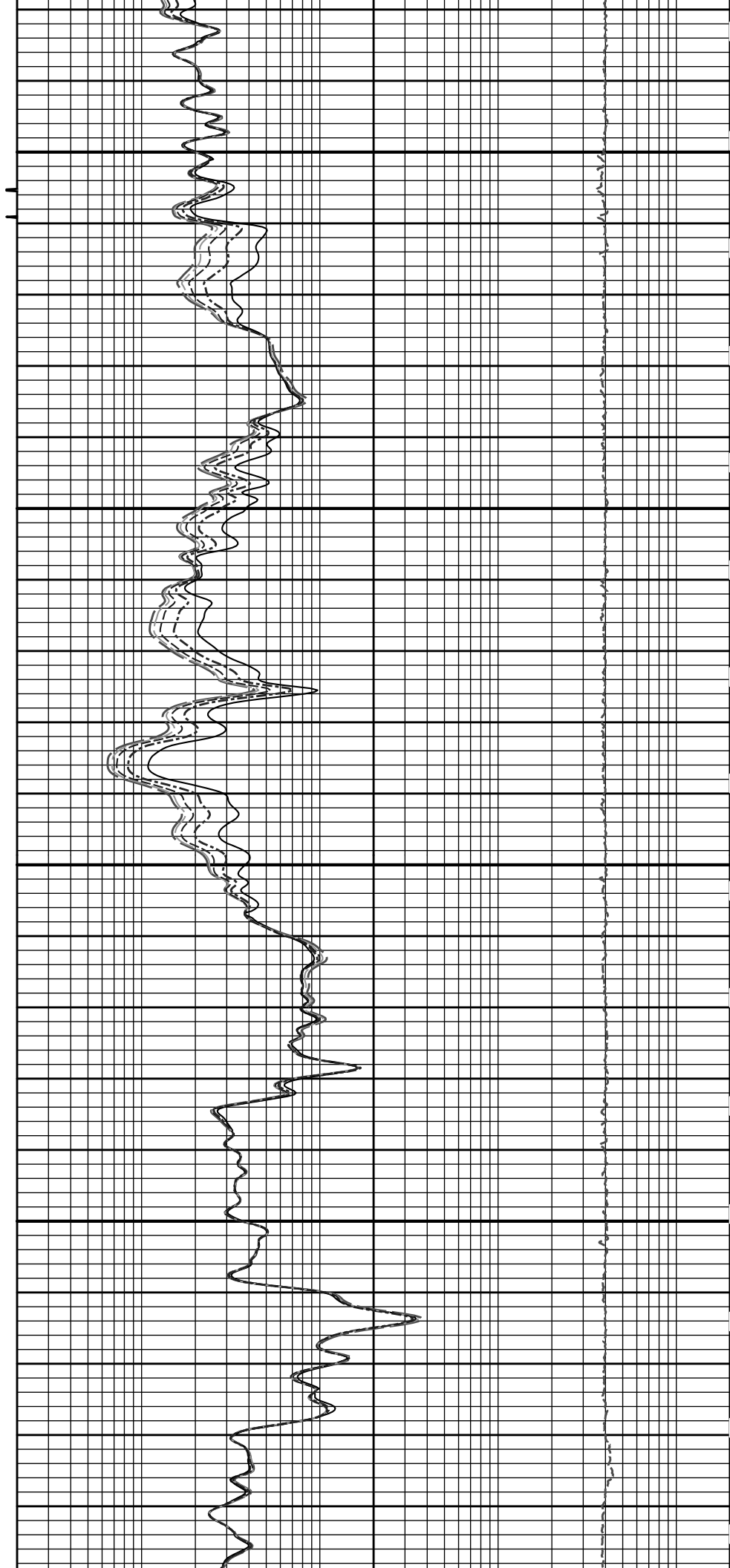
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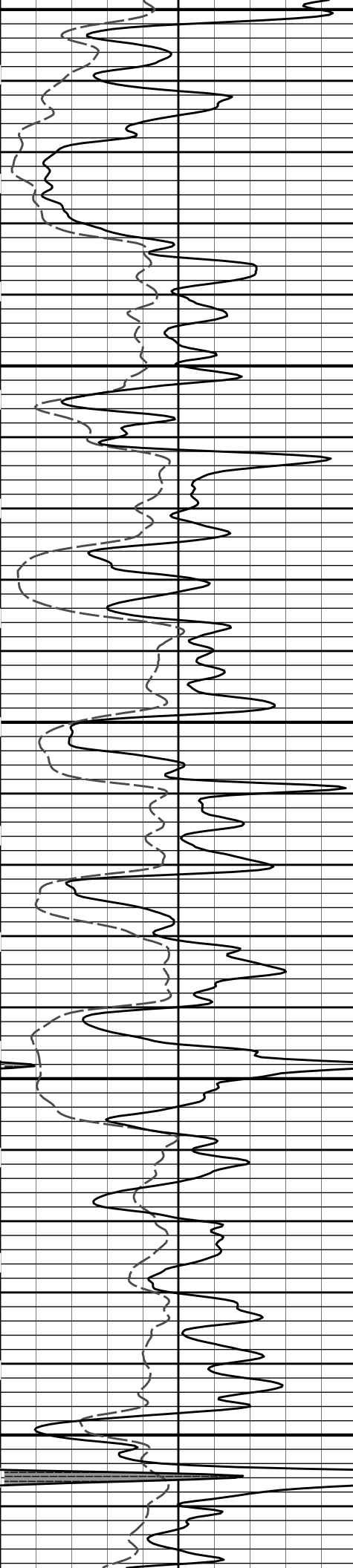




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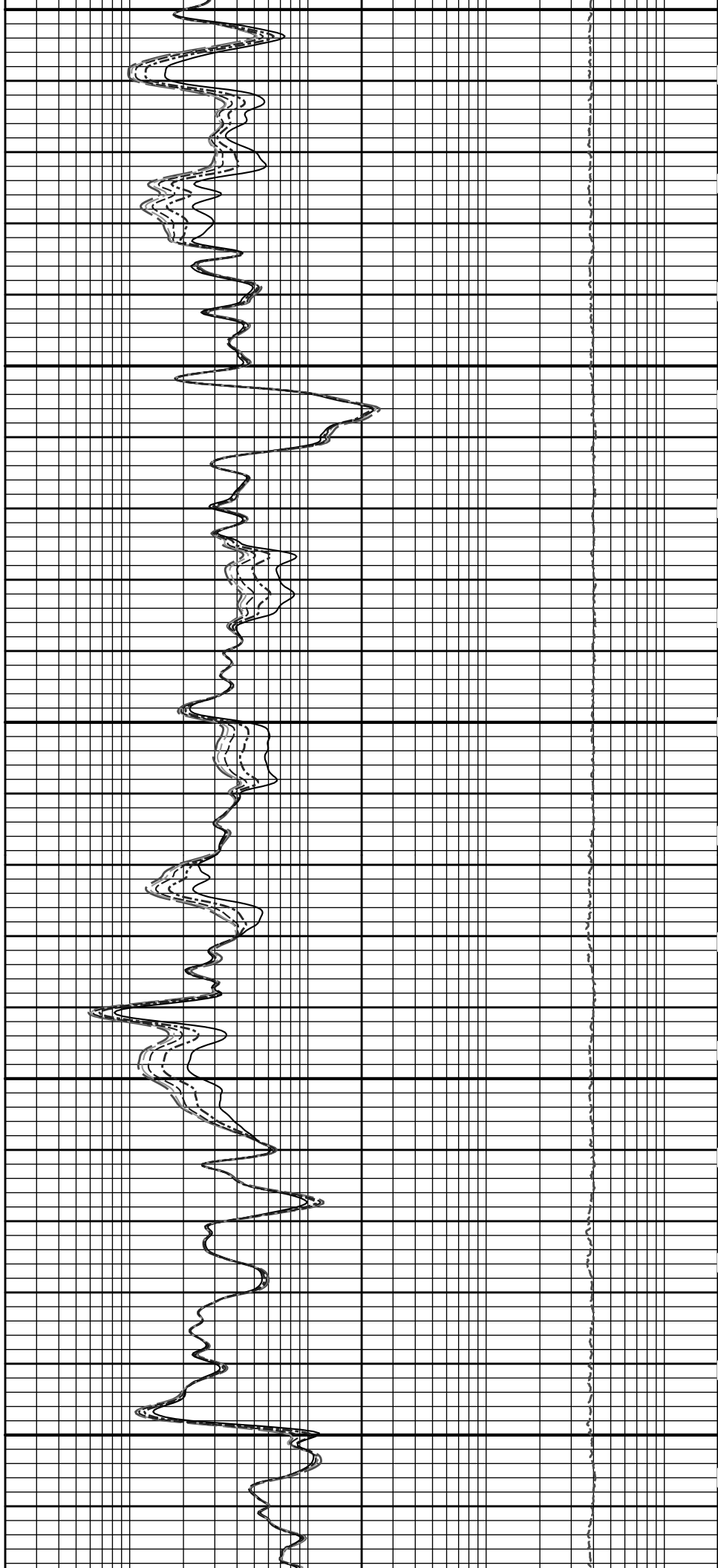


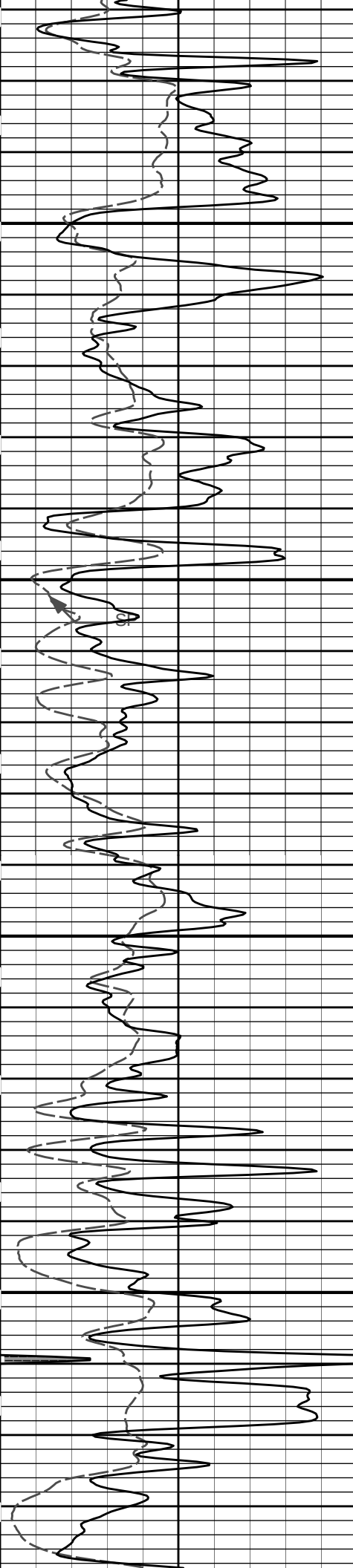


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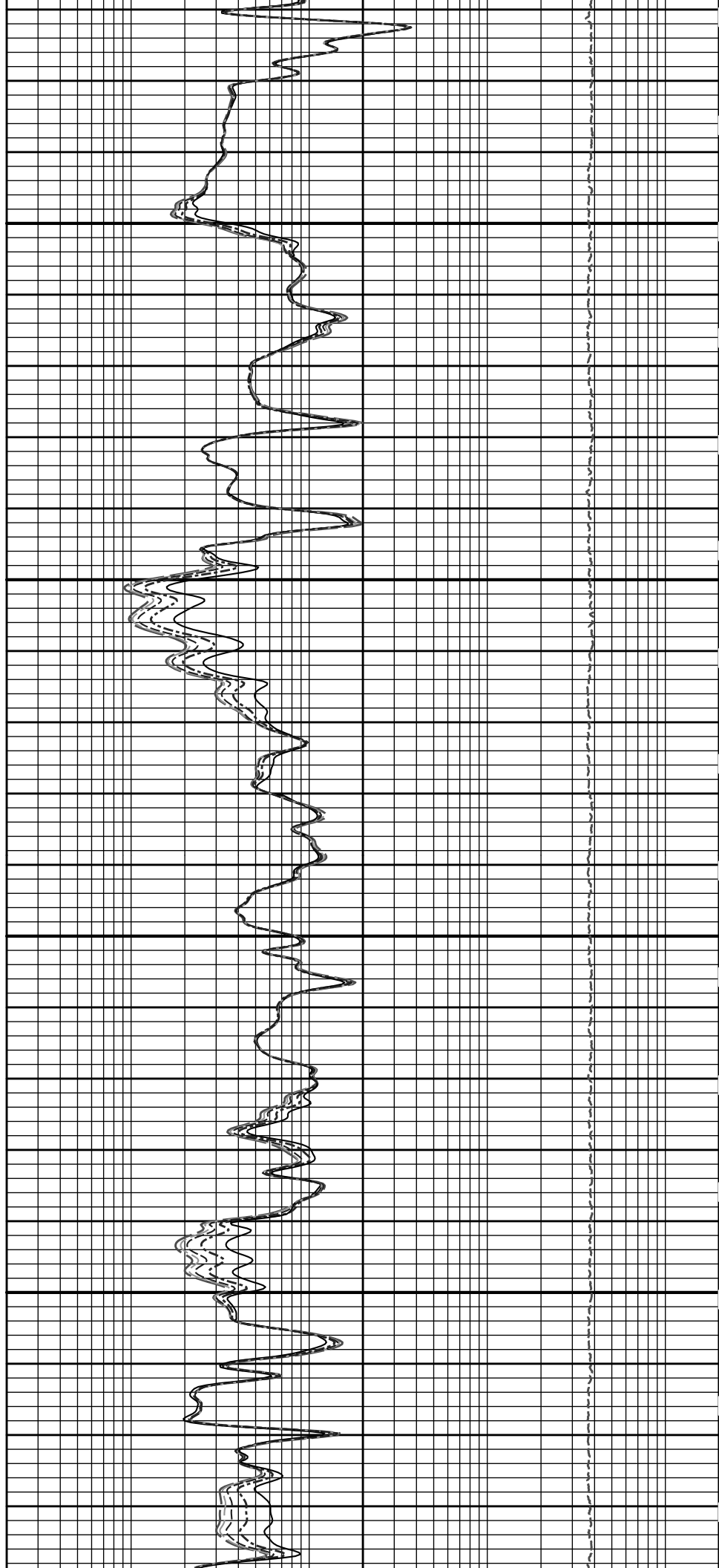
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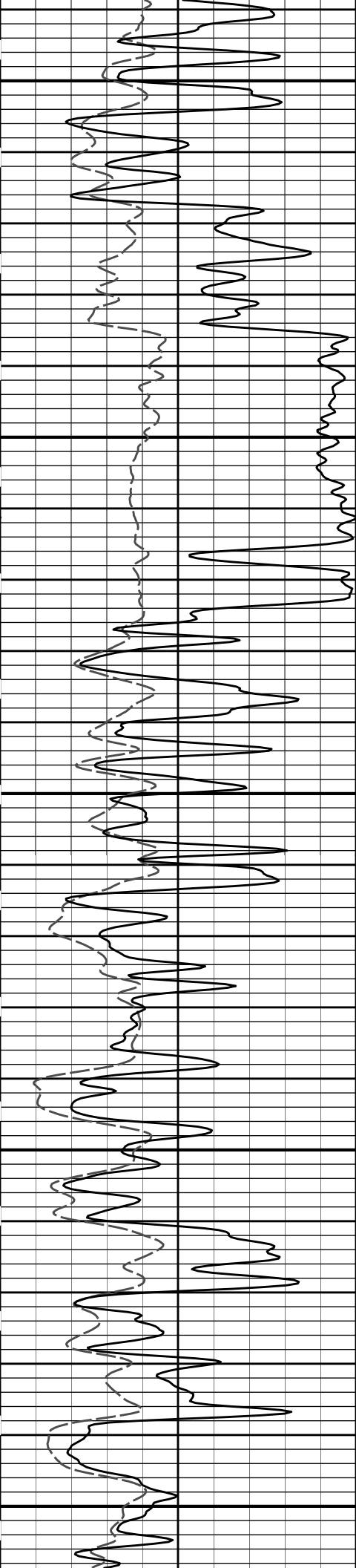




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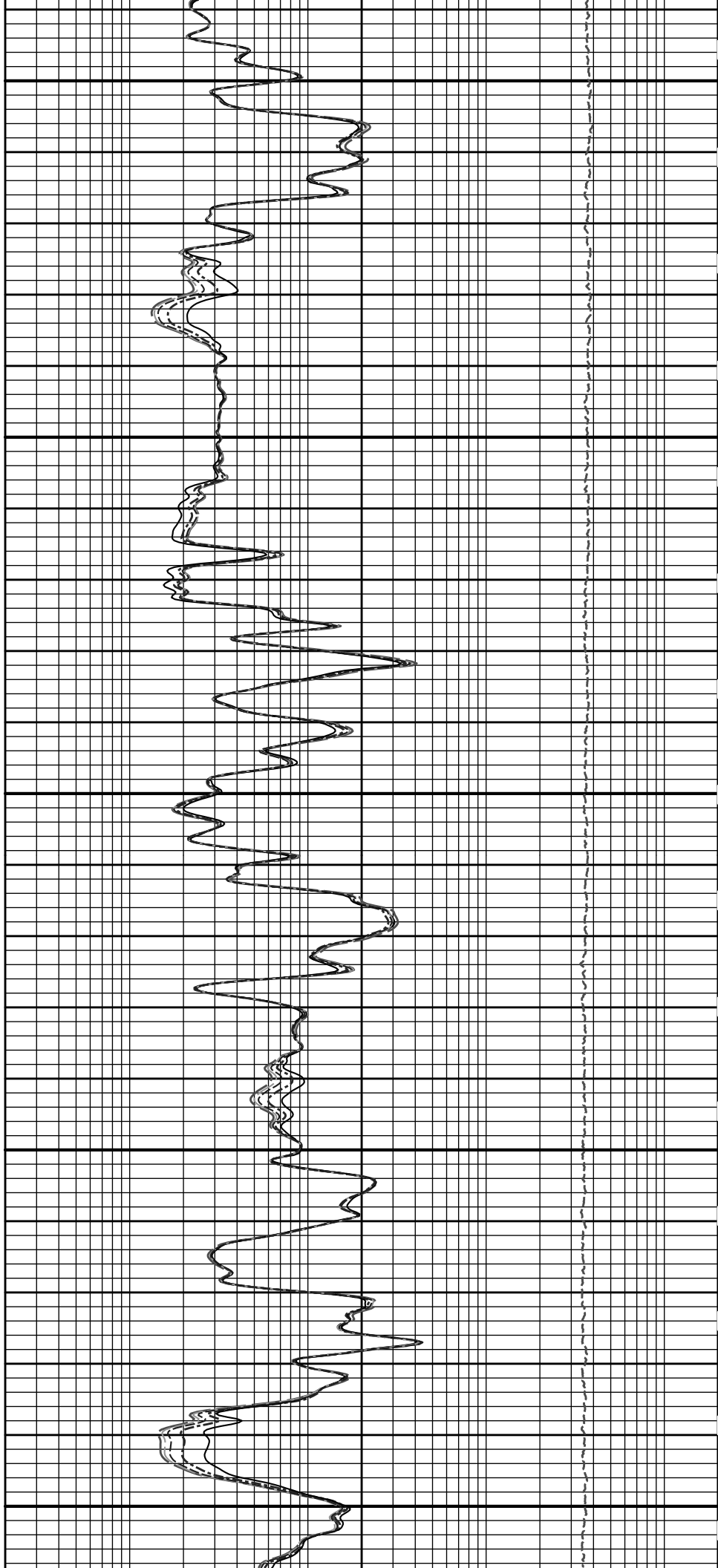
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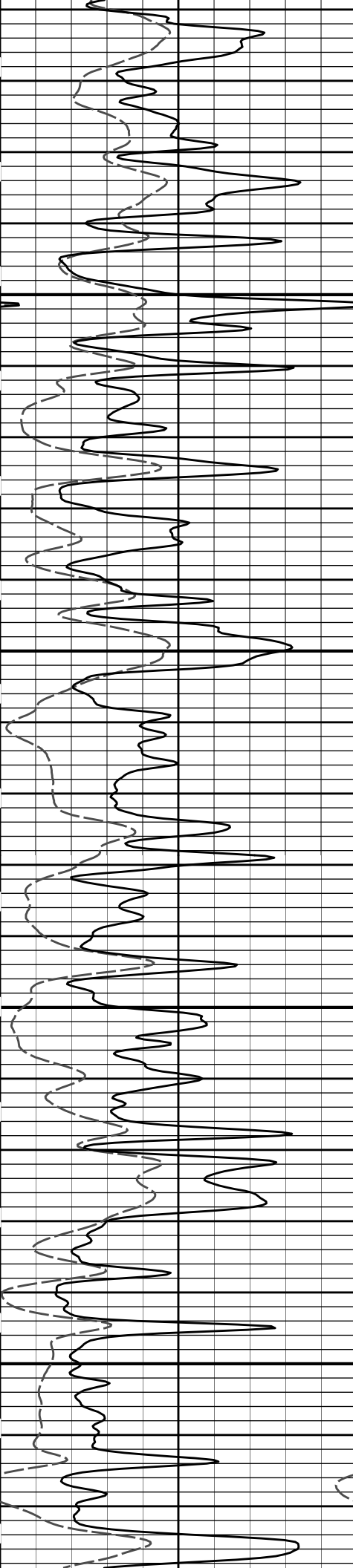




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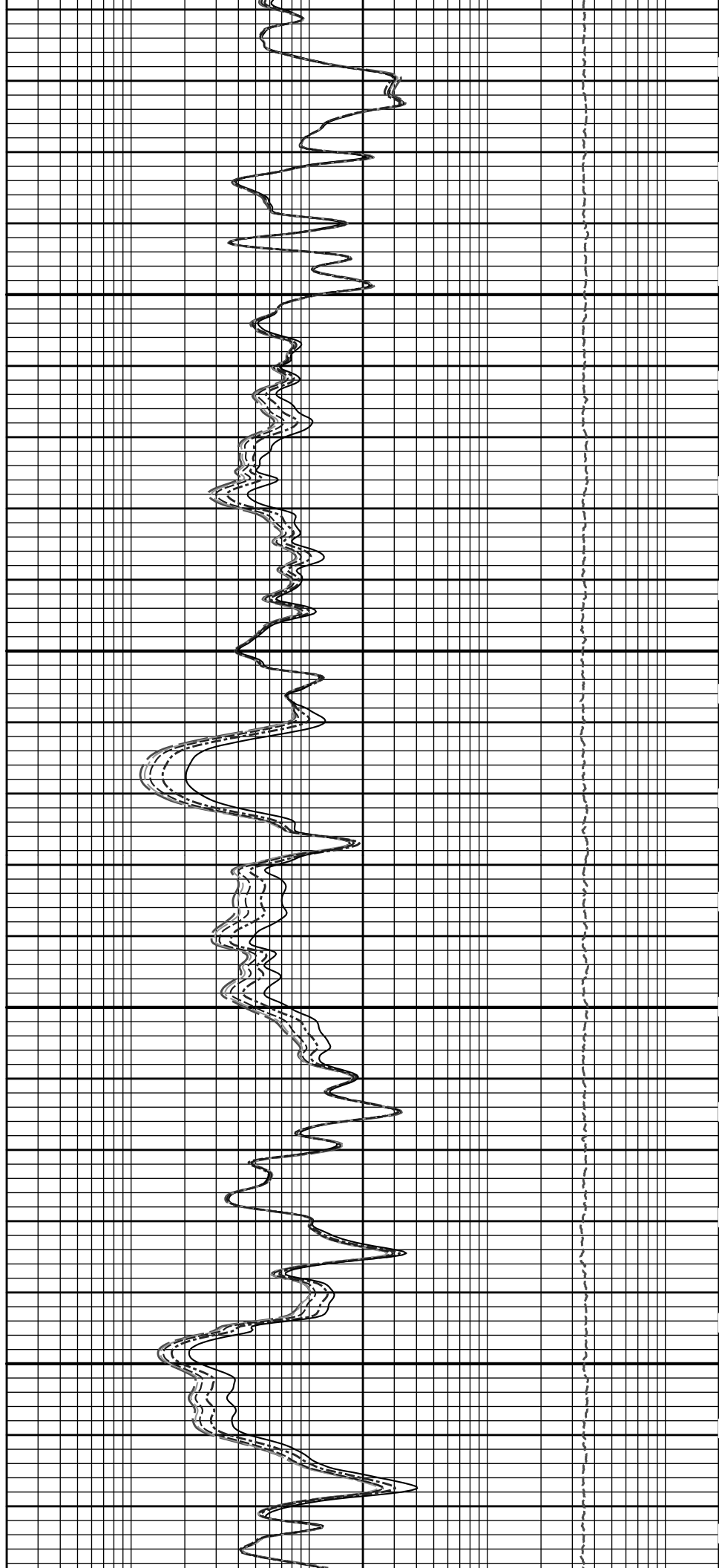
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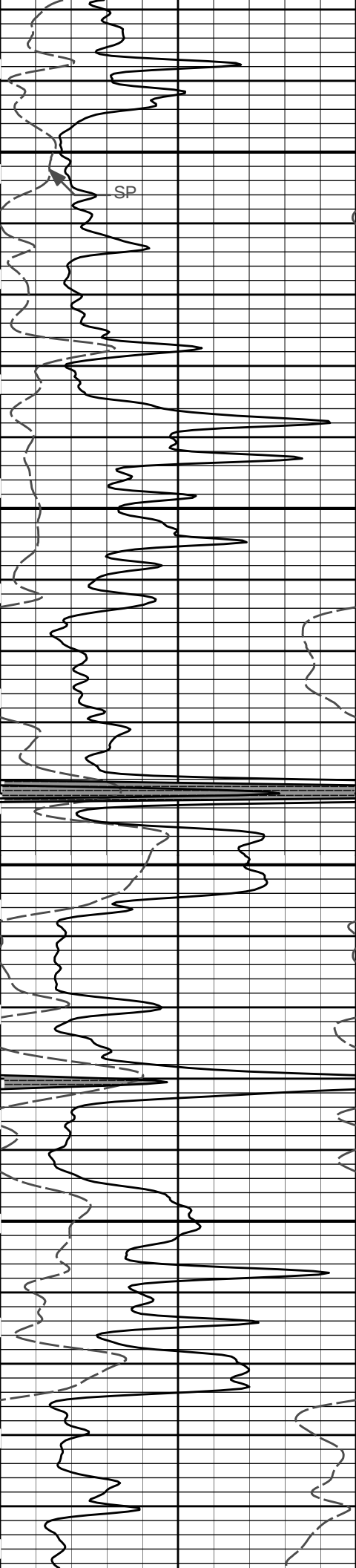




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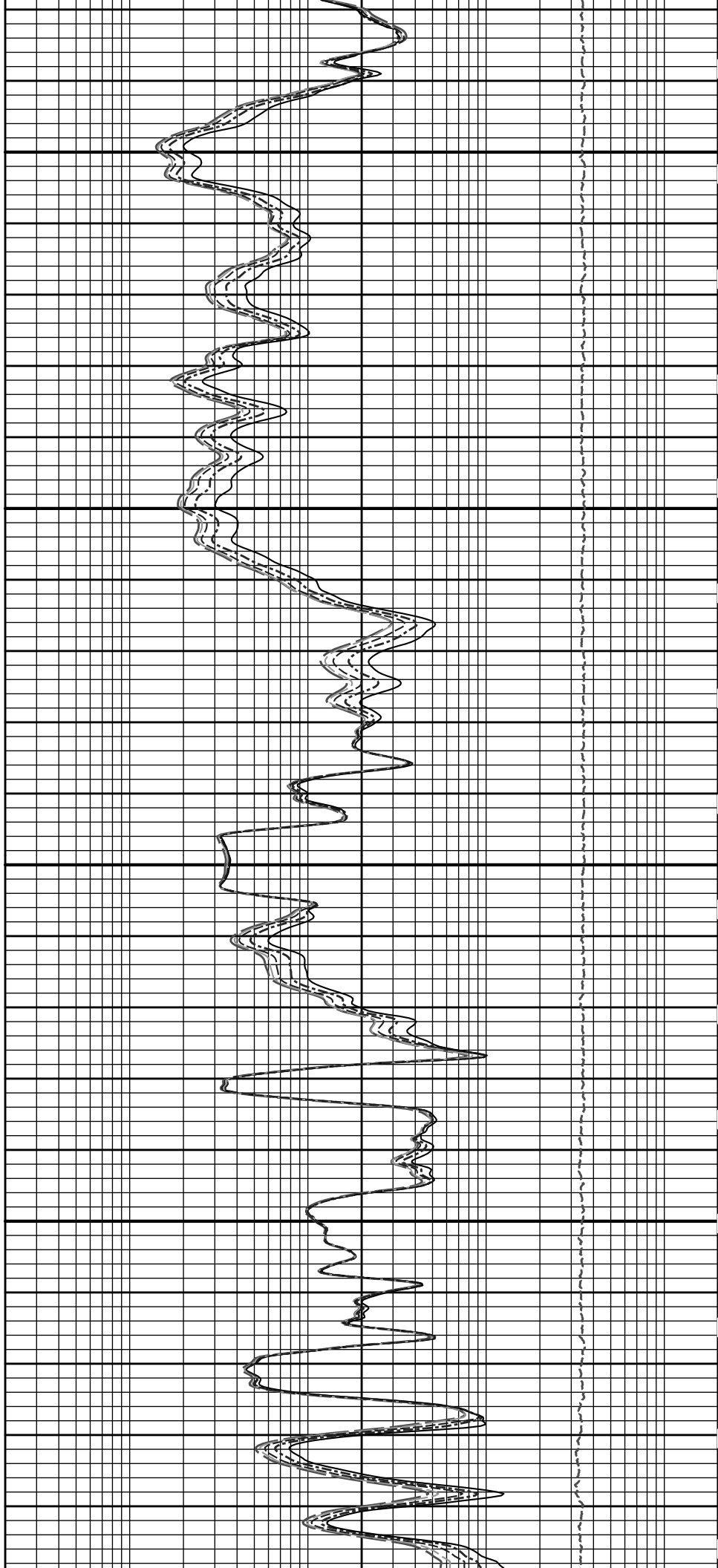
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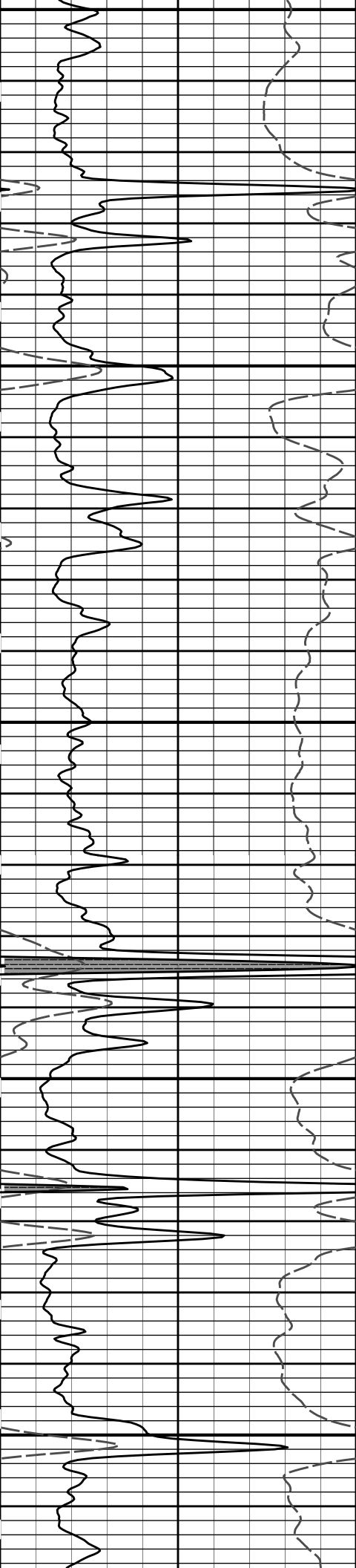




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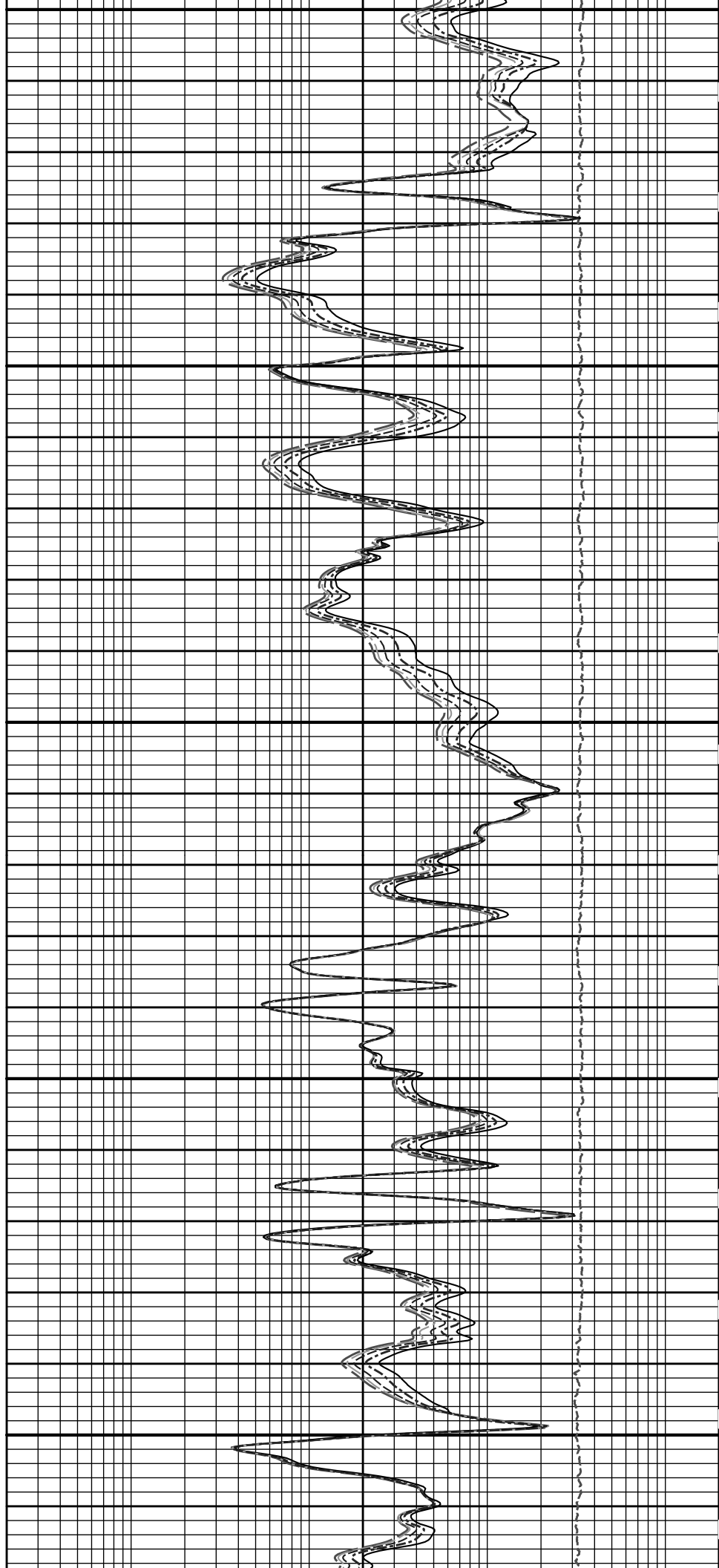


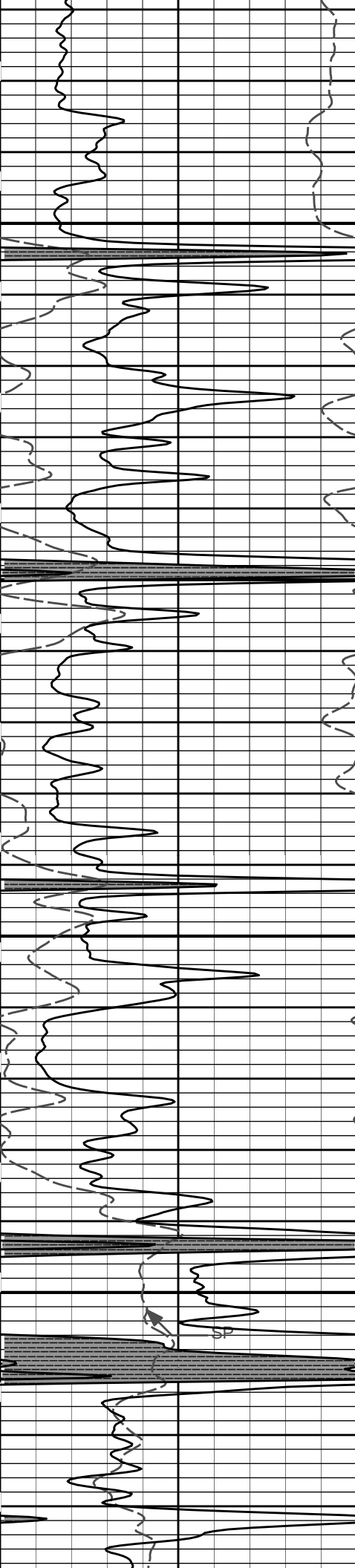


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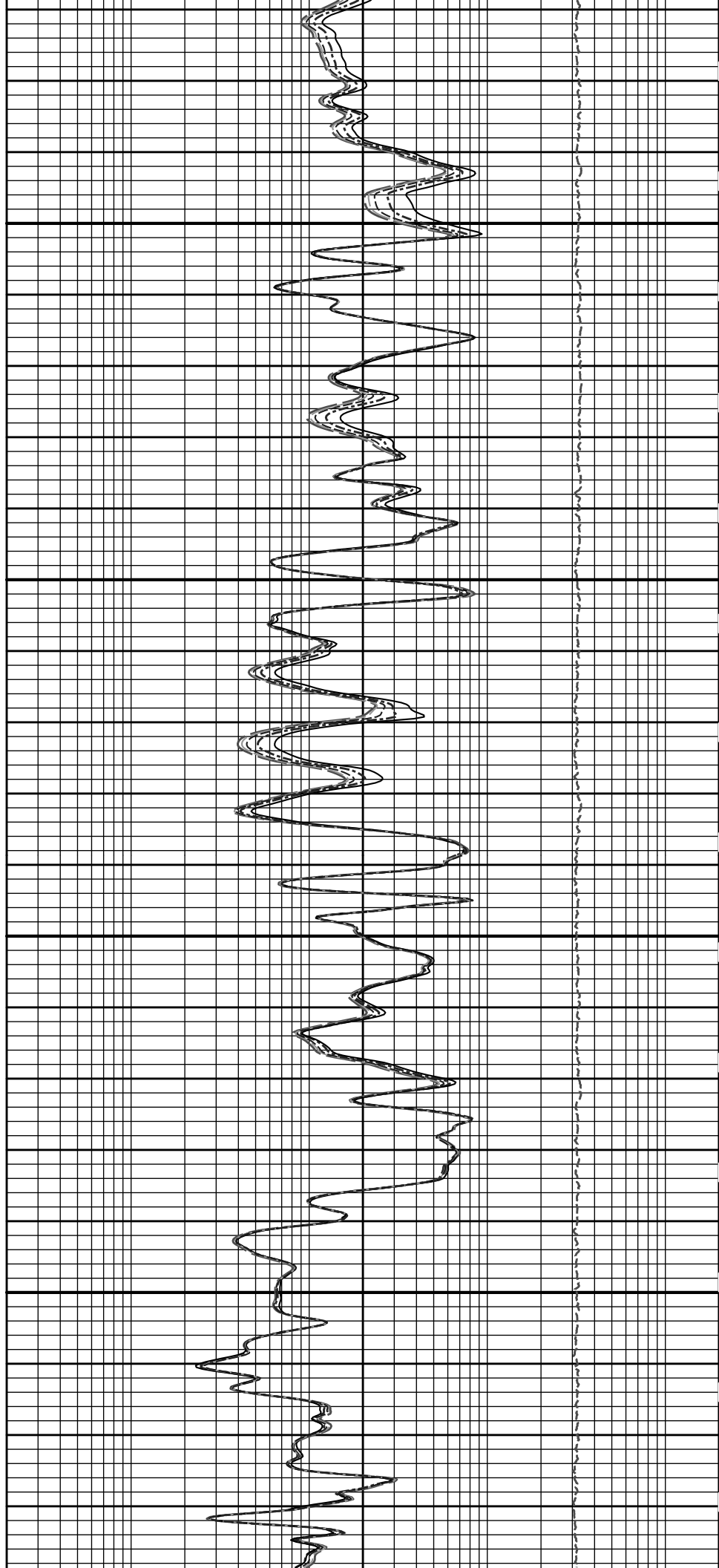
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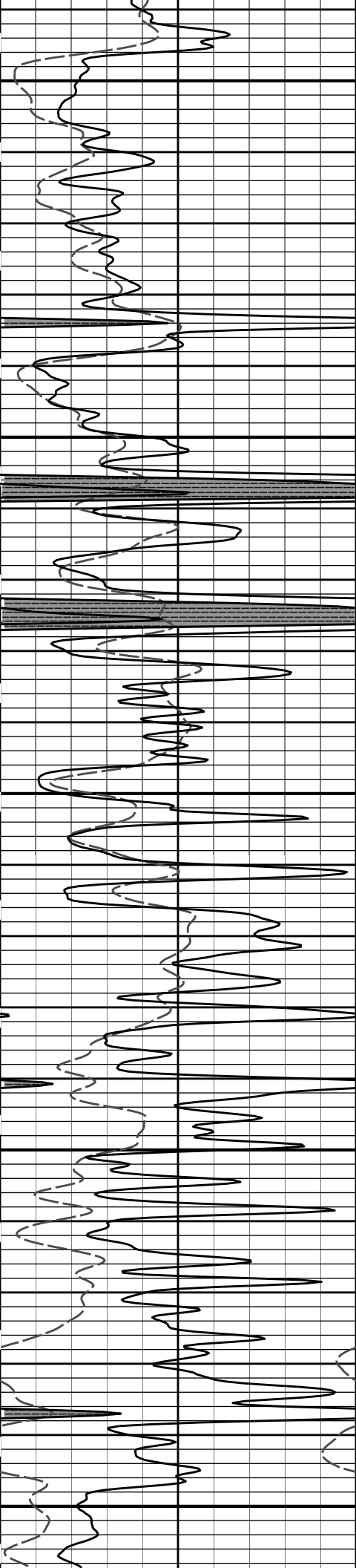




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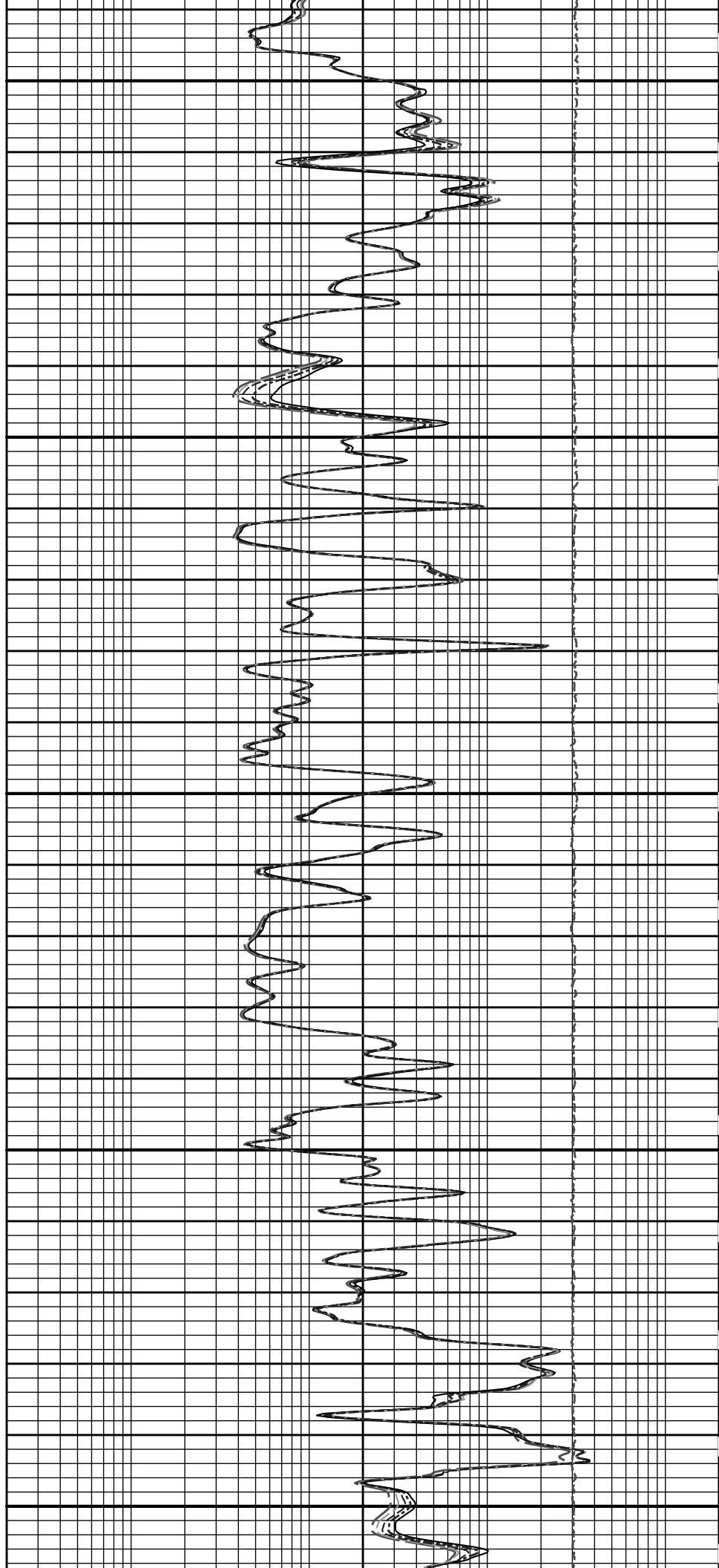
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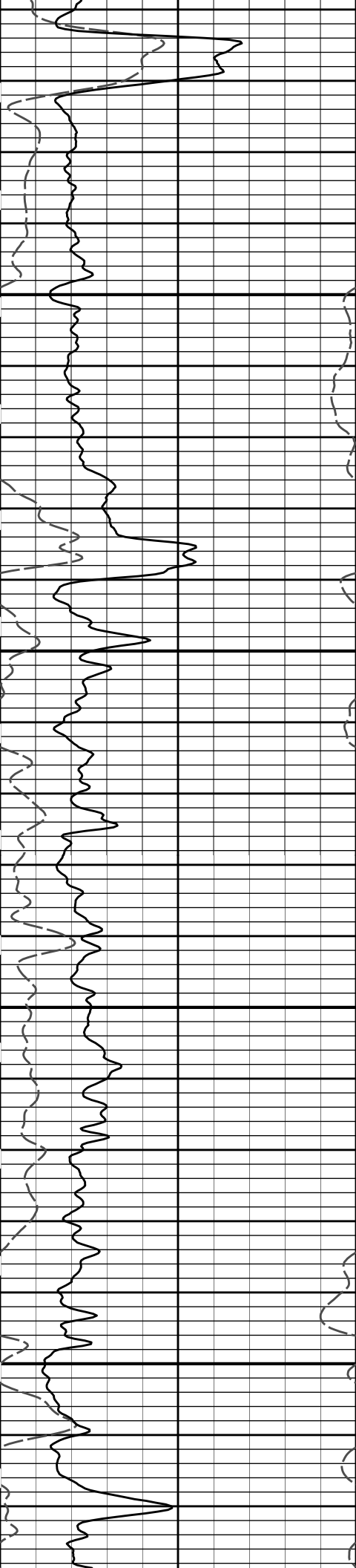




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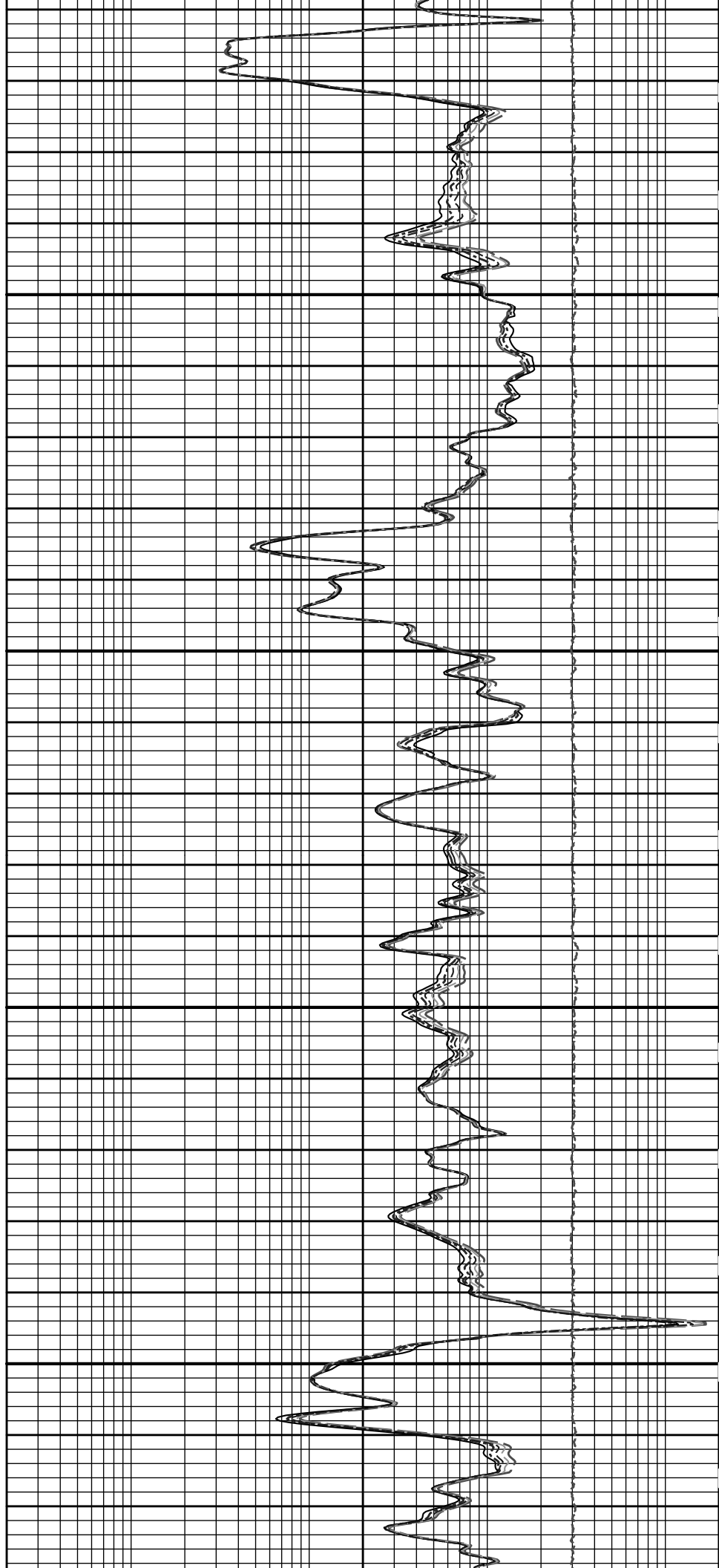
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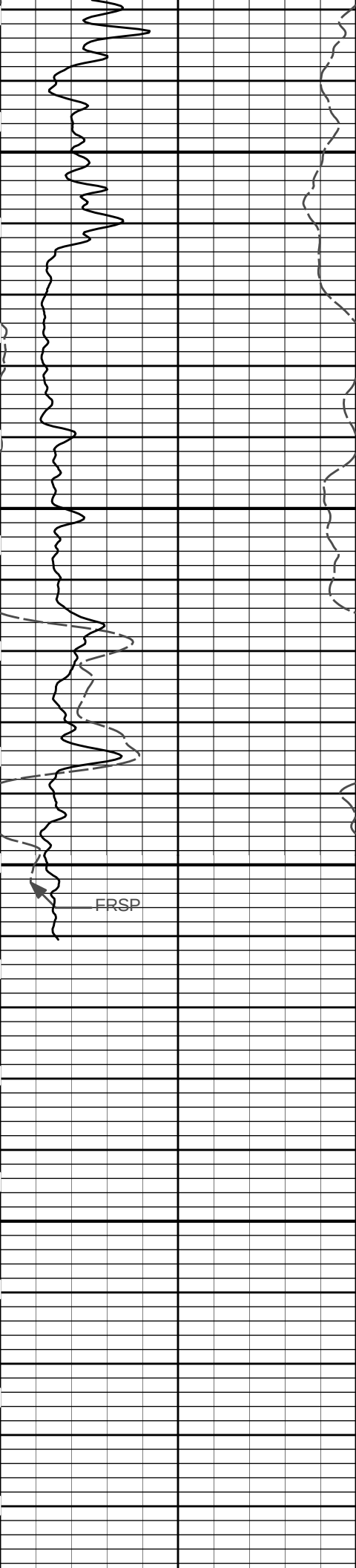




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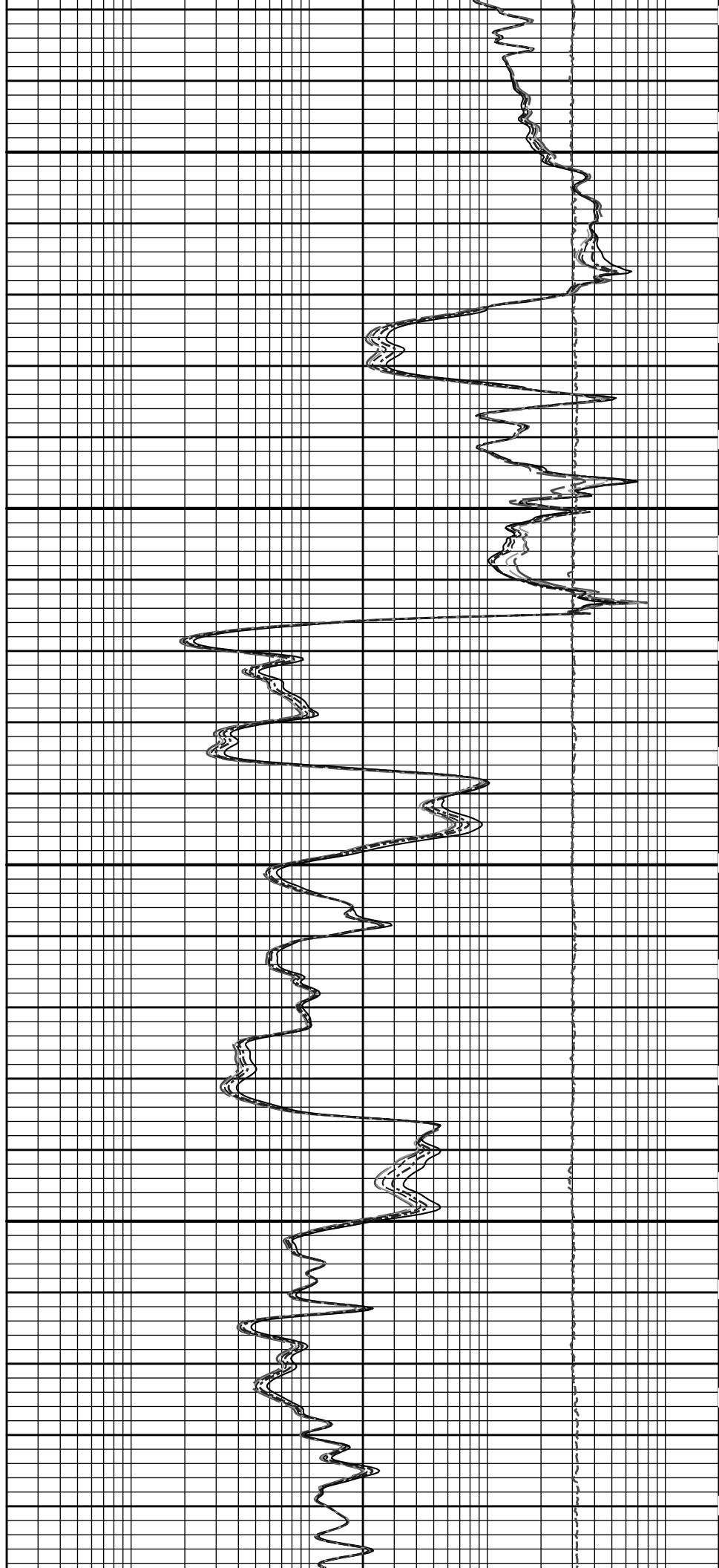
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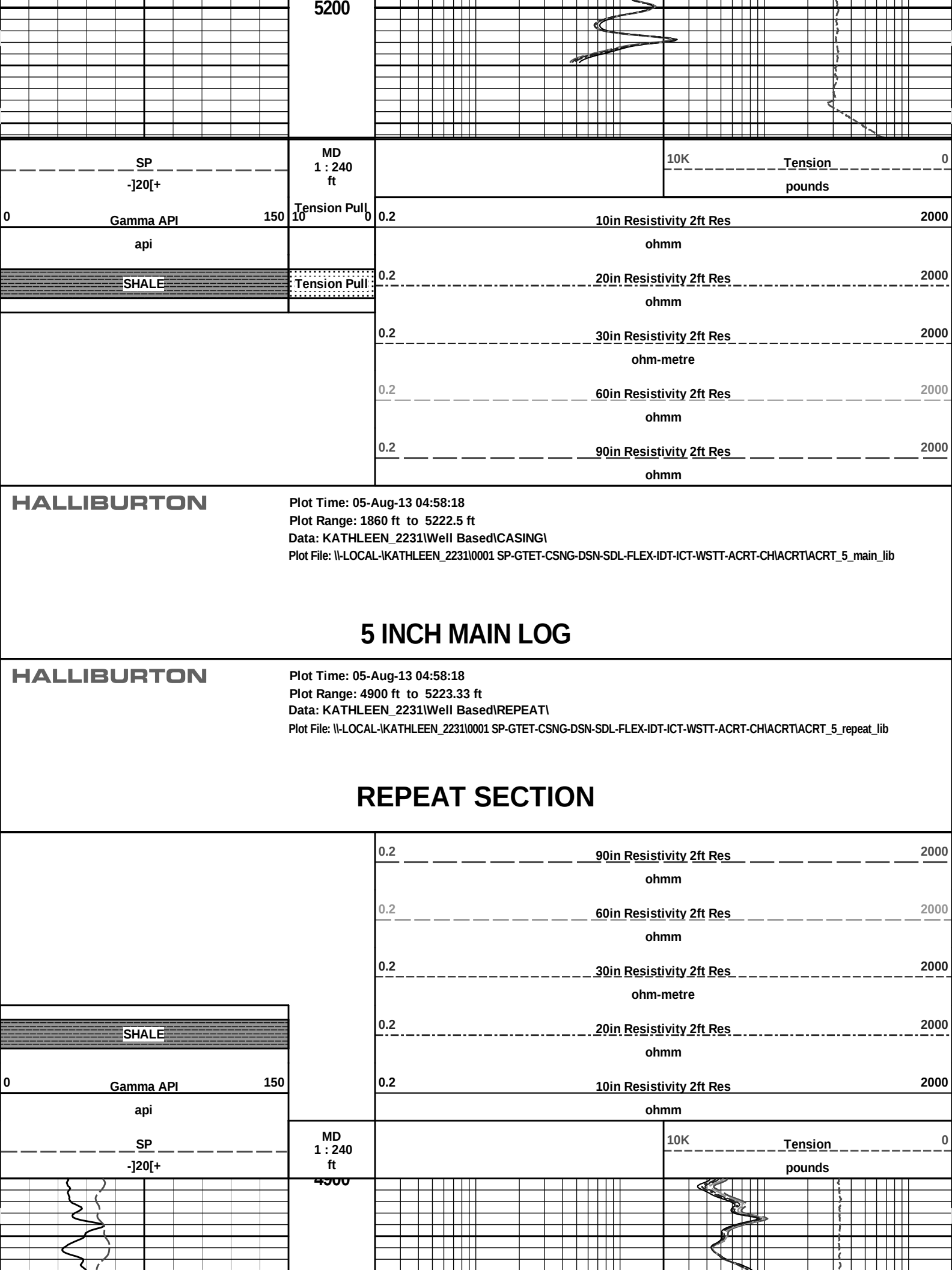


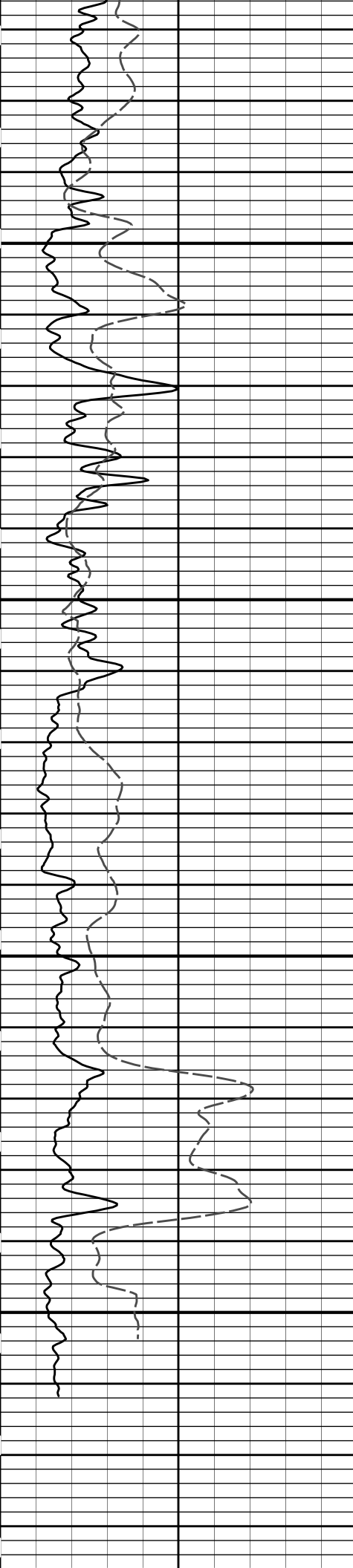


5000

5100

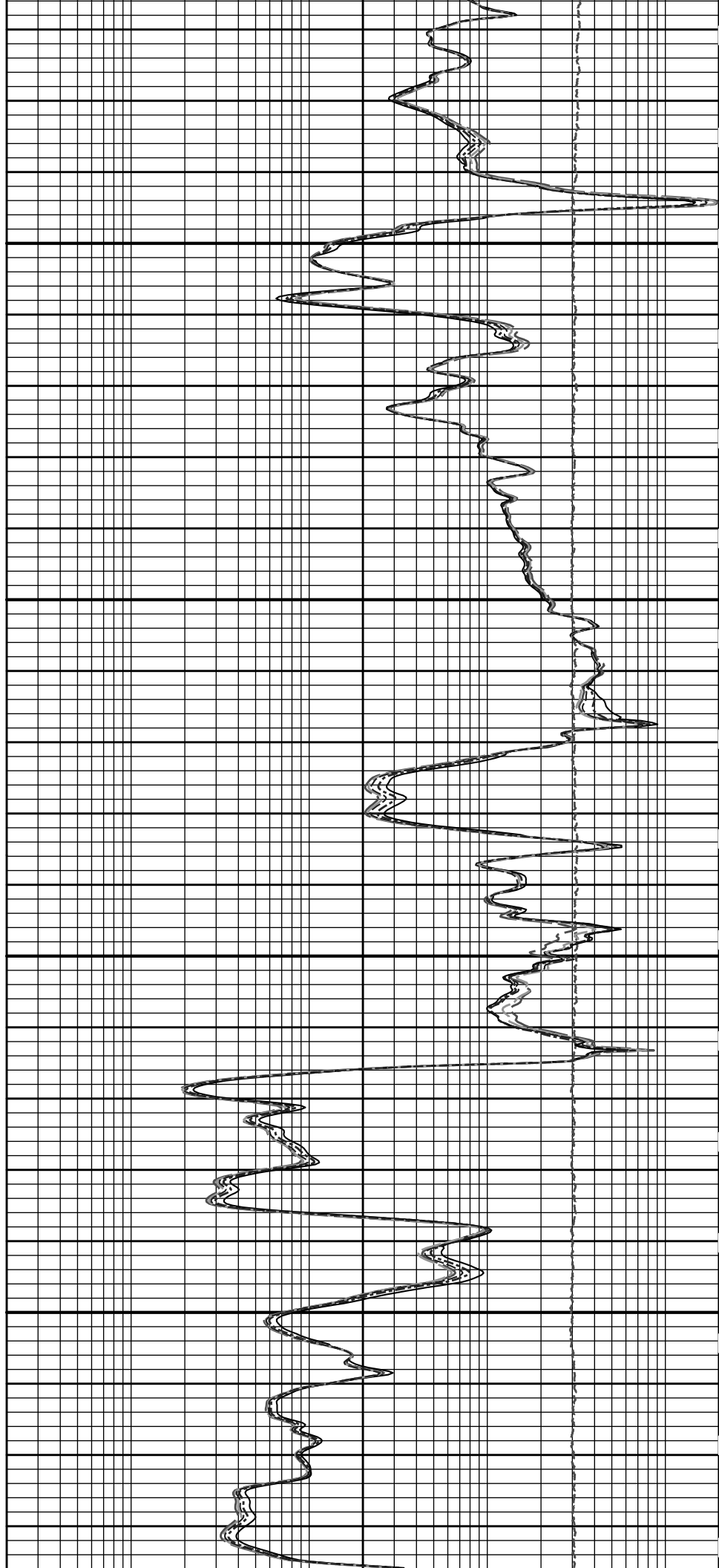


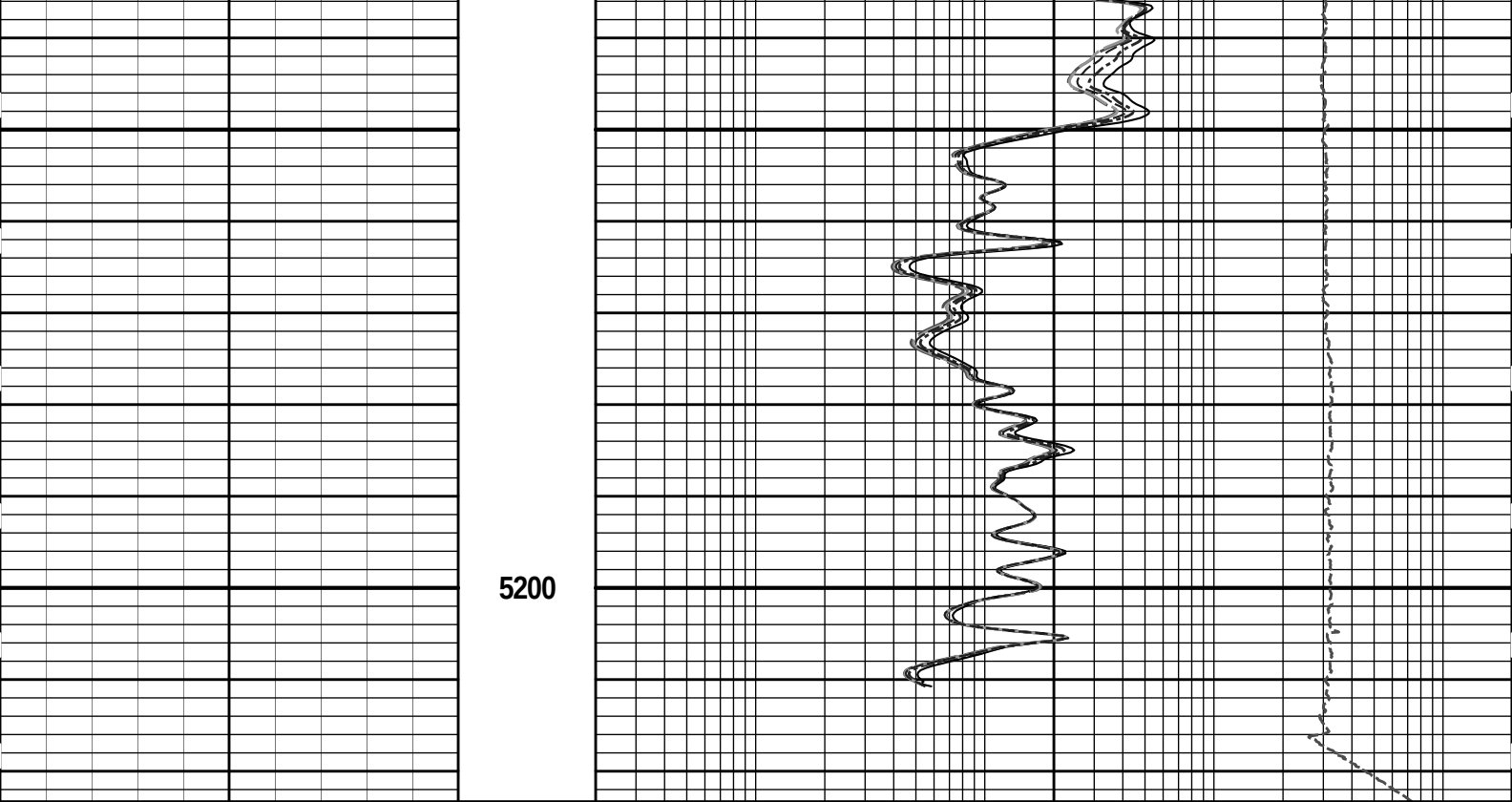




5000

5100





SP		MD 1 : 240 ft		10K	Tension	0
-]20[+				pounds		
0	Gamma API	150		0.2	10in Resistivity 2ft Res	2000
api					ohmm	
SHALE				0.2	20in Resistivity 2ft Res	2000
					ohmm	
				0.2	30in Resistivity 2ft Res	2000
					ohm-metre	
				0.2	60in Resistivity 2ft Res	2000
					ohmm	
			0.2	90in Resistivity 2ft Res	2000	
				ohmm		

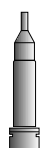
HALLIBURTON

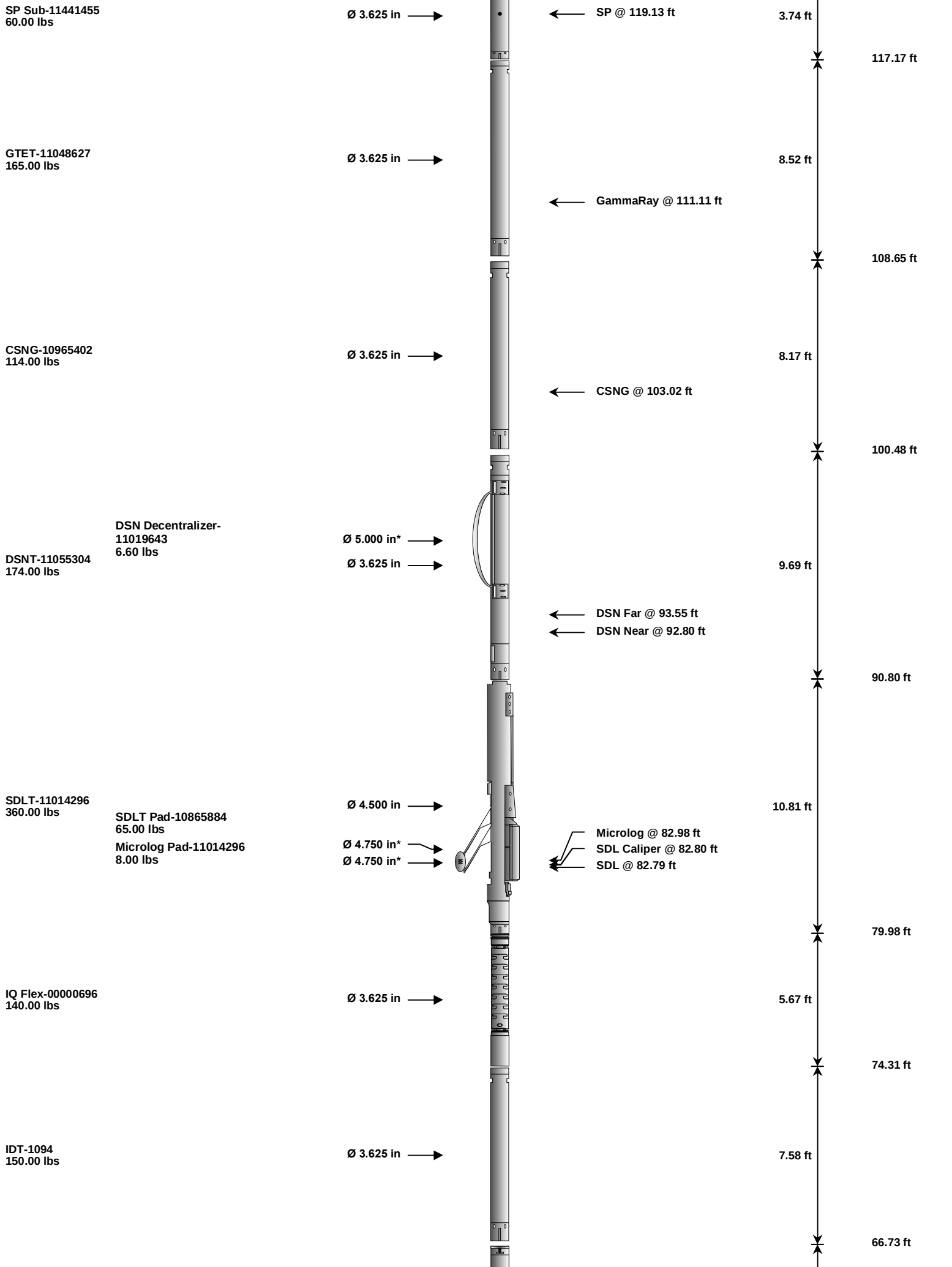
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REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS-00000062 37.50 lbs		Ø 2.750 in →		← Temperature @ 122.91 ft	3.03 ft	123.94 ft 120.91 ft



ICT-10880633
330.00 lbs

Ø 3.625 in →

12.83 ft

← ICT Caliper @ 56.69 ft

Centralizer 25-00000027
8.00 lbs

Ø 4.000 in* →

53.90 ft

Wavesonic-I-
10753396
520.00 lbs

Ø 3.625 in →

34.07 ft

← Wavesonic Delay @ 31.33 ft

Centralizer 25-00000029
8.00 lbs

Ø 4.000 in* →

19.83 ft

ACRt Instrument-
11022962
50.00 lbs

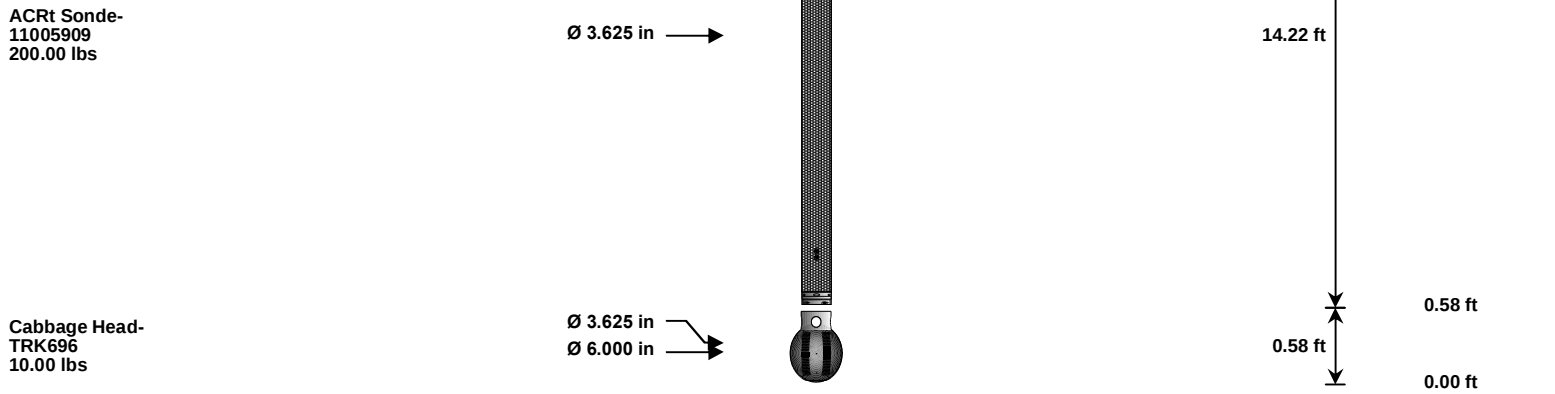
Regal Standoff 6_75-
00000044
20.00 lbs

Ø 6.750 in* →
Ø 3.625 in →

5.03 ft

← Mud Resistivity @ 13.44 ft

14.80 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	00000062	37.50	3.03	120.91	300.00
SP	SP Sub	11441455	60.00	3.74	117.17	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52	108.65	60.00
CSNG	Compensated Spectral Natural Gamma	10965402	114.00	8.17	100.48	15.00
DSNT	Dual Spaced Neutron	11055304	174.00	9.69	90.80	60.00
DCNT	DSN Decentralizer	11019643	6.60	5.13	* 94.13	300.00
SDLT	Spectral Density Tool	11014296	360.00	10.81	79.98	60.00
SDLP	Density Insite Pad	10865884	65.00	2.55	* 82.19	60.00
MICP	Microlog Pad	11014296	8.00	1.00	* 82.48	60.00
IQF	IQ Flex tool	00000696	140.00	5.67	74.31	300.00
IDT	Insite Directional Tool	1094	150.00	7.58	66.73	30.00
ICT	Six Independent Arm Caliper	10880633	330.00	12.83	53.90	30.00
WSTT	WaveSonic Insite	10753396	520.00	34.07	19.83	30.00
OBCEN	Centralizer - 25 in. Overbody	00000029	8.00	2.08	* 22.81	300.00
OBCEN	Centralizer - 25 in. Overbody	00000027	8.00	2.08	* 50.16	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11022962	50.00	5.03	14.80	300.00
RSOF	Regal Standoff 6.75in	00000044	20.00	0.52	* 17.55	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11005909	200.00	14.22	0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58	0.00	300.00

Total	2,426.10	123.94
* Not included in Total Length and Length Accumulation.		
Data: KATHLEEN_22310001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CH	IDLE Date: 04-Aug-13 23:16:46	

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CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION			
Tool Name:	GTET - 11048627	Reference Calibration Date:	17-Jun-13 14:38:32
Engineer:	THOMAS HYDE	Calibration Date:	02-Jul-13 07:19:00
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Calibrator Source S/N: TB146			
Calibrator API Reference:265.00 api			
Equivalent Calibrator API Reference:269.6 api			
Measurement	Measured	Calibrated	Units
Background	51.2	51.2	api
Background + Calibrator	320.3	320.9	api
Calibrator	269.2	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION			
Tool Name:	GTET - 11048627	Reference Calibration Date:	02-Jul-13 07:19:00

Engineer:	J. BOLLLOM	Calibration Date:	04-Aug-13 17:21:03	
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1	
Calibrator Source S/N: TB146				
Calibrator API Reference:265.00 api				
Equivalent Calibrator API Reference:269.6 api				
Field Verification		Shop	Field	Units
Background		51.2	53.1	api
Background + Calibrator		320.9	320.5	api
Calibrator		269.6	267.4	api
Shop		Field	Difference	Tolerance
269.6		267.4	2.2	+/- 9.00

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION			
Tool Name:	ACRt Sonde - 11005909	Reference Calibration Date:	20-Apr-13 10:26:49
Engineer:	J. BOLLLOM	Calibration Date:	21-Jun-13 10:49:39
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - I962		

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	1.00	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.99	1.05	0.95	0.99	1.05

TYPICAL SONDE OFFSET RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-0.25	2	-6	-3.43	-2	-8	-4.75	-2
A2 (50")	-7	-1.29	0	-7	-3.27	0	-7	-4.27	0
A3 (29")	-27	-15.53	-9	-9	-4.61	-3	-7	-2.76	-1
A4 (17")	-180	-101.70	-60	-45	-31.05	-15	-39	-26.54	-13
A5 (10")	N/A	N/A	N/A	-150	-98.53	-50	-80	-44.97	-10
A6 (6")	N/A	N/A	N/A	175	287.44	525	90	151.15	270

TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION			
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.91	1.3		Mud Cell	0.95	1.00	1.05
36K	1.0	1.36	2.0					
72K	1.0	1.58	2.0					

PASS/FAIL SUMMARY	
GAIN RANGE CHK	PASS
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11048627						
Gamma Ray Calibrator	269.6	267.4	-----	2.2	+/- 9.00	api
ACRt Sonde-11005909						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m
Data: KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHIDLE					Date: 04-Aug-13 23:50:11	

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	GTET	GEOK	Process Gamma Ray EVR?	No	
	DSNT	DEOK	Process DSN EVR?	No	
	SDLT Pad	DNOK	Process Density EVR?	No	
2400.00					
	SHARED	BS	Bit Size	8.750	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.400	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	7.000	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5223.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	IDT	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	ICT	
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
	GTET	GROK	Process Gamma Ray?	Yes	

GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	Yes	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	Yes	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	Yes	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	NAVS	Navigation Source Tool	IDT	
ICT	CL10	Radius 1 Offset	0.0	in
ICT	CL20	Radius 2 Offset	0.0	in
ICT	CL30	Radius 3 Offset	0.0	in
ICT	CL40	Radius 4 Offset	0.0	in
ICT	CL50	Radius 5 Offset	0.0	in
ICT	CL60	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
Wavesonic-I	WSOK	Process WSTT?	Yes	
Wavesonic-I	AFIL	Adaptive Filtering?	No	
Wavesonic-I	PINT	Process 1 Sample and Skip	0	
Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf
Wavesonic-I	DTMT	Delta -T Matrix Type	User define	
Wavesonic-I	DTMA	Delta -T Matrix	47.60	uspf
Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
Wavesonic-I	DTDM	Delta -T Density	2.7100	g/cc

	Wavesonic-I	RHOM	Matrix Density	2.7100	g/cc
	Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
	Wavesonic-I	SMTH	Semblance Threshold	0.25	
	Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
	Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
	Wavesonic-I	NAVS	Navigation Source Tool	IDT	
	ACRt Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Up	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
BOTTOM					
Data: KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHIDLE				Date: 04-Aug-13 23:49:02	

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INPUTS, DELAYS AND FILTERS TABLE					
Mnemonic		Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel					
TENS	Tension		0.00	NO	
CH_HOS					
DHTN	DownholeTension		0.00	BLK	0.000
SP Sub					
PLTC	Plot Control Mask		119.13	NO	
SP	Spontaneous Potential		119.13	BLK	1.250
SPR	Raw Spontaneous Potential		119.13	NO	
SPO	Spontaneous Potential Offset		119.13	NO	
GTET					
TPUL	Tension Pull		111.11	NO	
GR	Natural Gamma Ray API		111.11	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API		111.11	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution		111.11	W	1.416 , 0.750
ACCZ	Accelerometer Z		0.00	BLK	0.083
DEVI	Inclination		0.00	NO	
CSNG					
TPUL	Tension Pull		103.02	NO	
STAT	Status		103.02	NO	
FRMC	Tool Frame Count		103.02	BLK	0.250
TFRM	Total Frames		103.02	NO	
LSPD	Line Speed		103.02	BLK	0.250
CTIM	Accumulation time for sample		103.02	BLK	0.250
NOIS	Spectral Noise		103.02	BLK	0.250
STAB	Stabilizer Voltage in mv		103.02	BLK	0.250
STBP	Stabilizer 60 KEV Peak		103.02	BLK	0.250
AMER	Americium		103.02	BLK	0.250
ETMP	Elask PCB Temperature		103.02	BLK	0.250

TPM	Flask PCB Temperature	103.02	BLK	0.250
SPEL	Low Energy Spectrum	103.02	BLK	0.250
SPEH	High Energy Spectrum	103.02	BLK	0.250
SSP	Stabilization Energy Spectrum	103.02	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	103.02	NO	
DSNT				
TPUL	Tension Pull	92.70	NO	
RNDS	Near Detector Telemetry Counts	92.80	BLK	1.417
RFDS	Far Detector Telemetry Counts	93.55	TRI	0.583
DNTT	DSN Tool Temperature	92.80	NO	
DSNS	DSN Tool Status	92.70	NO	
ERND	Near Detector Telemetry Counts EVR	92.80	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	93.55	BLK	0.000
ENTM	DSN Tool Temperature EVR	92.80	NO	
SDLT				
TPUL	Tension Pull	82.80	NO	
PCAL	Pad Caliper	82.80	TRI	0.250
ACAL	Arm Caliper	82.80	TRI	0.250
IDT				
TPUL	Tension Pull	67.73	NO	
ACCX	Accelerometer X	67.73	NO	
ACCY	Accelerometer Y	67.73	NO	
ACCZ	Accelerometer Z	67.73	NO	
MAGX	magnetometer x with unit	67.73	NO	
MAGY	Magnetometer Y with unit	67.73	NO	
MAGZ	magnetometer z with unit	67.73	NO	
IAMP	Accelerometer Temperature	67.73	NO	
MTMP	Magnetometer Temperature	67.73	NO	
ICT				
TPUL	Tension Pull	56.69	NO	
	Arm Potentiometer excitation V	53.90	NO	
	Caliper 1 measurement	56.69	BLK	1.250
	Caliper 2 measurement	56.69	BLK	1.250
	Caliper 3 measurement	56.69	BLK	1.250
	Caliper 4 measurement	56.69	BLK	1.250
	Caliper 5 measurement	56.69	BLK	1.250
	Caliper 6 measurement	56.69	BLK	1.250
	Caliper Global measurement	56.69	BLK	1.250
MOTI	Motor Current	53.90	NO	
MOT1	Motor Voltage Monitor 1	53.90	NO	
STA1	Status word #1	53.90	NO	
STA2	Status word #2	53.90	NO	
PRES	Caliper percentage of total compression of the spring	53.90	NO	
HAZI	Hole Azimuth	56.69	NO	
RB	Relative Bearing	56.69	NO	
AZI1	PAD1 Azimuth	56.69	NO	
DEVI	Inclination	56.69	NO	
Wavesonic-I				
TPUL	Tension Pull	31.33	NO	
DPSX	Dipole Source X StructureI	19.83	NO	
DPSY	Dipole Source Y StructureI	19.83	NO	
DPSM	Monopole Source Structure	19.83	NO	

DP3M	Monopole Source Structure	19.83	NO
WVST	Wavesonic Compressed Data	31.33	NO
TPUL	Tension Pull	31.33	NO
XMS1	Wave Sonic Status Word 1	19.83	NO
XMS2	Wave Sonic Status Word 2	19.83	NO
XMS1	Wave Sonic XMITStatus Word 1	19.83	NO
XMS1	Wave Sonic XMITStatus Word 2	19.83	NO
F1HA	Dipole 1 HV After	19.83	NO
F1HB	Dipole 1 HV Before	19.83	NO
F2HA	Dipole 2 HV After	19.83	NO
F2HB	Dipole 2 HV Before	19.83	NO
F3HA	Monopole HV After	19.83	NO
F3HB	Monopole HV Before	19.83	NO
INVT	Input Voltage	19.83	NO
5VOL	5 Volts	19.83	NO
MI5A	Minus 5 Volts Analog	19.83	NO
ITMP	Instrument Temperature	19.83	NO
PL5A	Plus 5 Volts Analog	19.83	NO
5VD	Plus 5 Volts Digital	19.83	NO
TCUR	Tool Current	19.83	NO
SUPV	Supply Voltage	19.83	NO
PRVT	Preregulated voltage	19.83	NO
PRVT	Pre-regulated voltage Xmter	19.83	NO
TEMP	Temperature	19.83	NO
ACQN	Acquisition Number	19.83	NO
XDP	Delay Reference	31.33	NO
MITM	MIT Mode	31.33	NO
VERS	Version	19.83	NO
D1CT	Dipole 1 Compressed Word Count	31.33	NO
D2CT	Dipole 2 Compressed Word Count	31.33	NO
MCNT	Monopole Compressed Word Count	31.33	NO
SEQN	Sequence Number	19.83	NO
FREV	Firmware Revision	19.83	NO
MSMP	Monopole Sample Rate	19.83	NO
MSMP	Dipole Sample Rate	19.83	NO
MFWF	Monopole Firing Waveform	19.83	NO
MFRQ	Monopole Frequency	19.83	NO
MDLY	Monopole Delay	19.83	NO
DXWF	Dipole X Firing Waveform	19.83	NO
XFRQ	Dipole X Frequency	19.83	NO
XDLY	Dipole X Delay	19.83	NO
DYWF	Dipole Y Firing Waveform	19.83	NO
YFRQ	Dipole Y Frequency	19.83	NO
YDLY	Dipole Y Delay	19.83	NO
DPSX	Dipole Source X StructureI	19.83	NO
DPSY	Dipole Source Y StructureI	19.83	NO
DPSM	Monopole Source Structure	19.83	NO
WVST	Wavesonic Compressed Data	31.33	NO
AUTM	Auto Mode	19.83	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	19.83	NO
MSL	Monopole Lower Travel Time	31.33	NO
MSH	Monopole Upper Travel Time	31.33	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	19.83	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	19.83	NO
DLTT	Dipole Lower Travel Time	19.83	NO
DLTT	Dipole Lower Travel Time	19.83	NO

DOT1	Dipole Upper Travel time	19.83	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	19.83	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	19.83	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	19.83	NO
MUTS	Mute/Enable Sides	19.83	NO
WSRB	Relative Bearing	31.33	NO
WSAZ	WSX Azimuth Pad 1	31.33	NO
TPUL	Tension Pull	31.33	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.33	NO
WXX	Dipole X for SIDES - A-C	31.33	NO
WYY	Dipole Y for SIDES - B-D	31.33	NO
WXY	Dipole X for SIDES - B-D	31.33	NO
WYX	Dipole Y for SIDES - A-C	31.33	NO
TPUL	Tension Pull	31.33	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO
GAR1	Gain Side A Receiver 1	19.83	NO
GAR2	Gain Side A Receiver 2	19.83	NO
GAR3	Gain Side A Receiver 3	19.83	NO
GAR4	Gain Side A Receiver 4	19.83	NO
GAR5	Gain Side A Receiver 5	19.83	NO
GAR6	Gain Side A Receiver 6	19.83	NO
GAR7	Gain Side A Receiver 7	19.83	NO
GAR8	Gain Side A Receiver 8	19.83	NO
GBR1	Gain Side B Receiver 1	19.83	NO
GBR2	Gain Side B Receiver 2	19.83	NO
GBR3	Gain Side B Receiver 3	19.83	NO
GBR4	Gain Side B Receiver 4	19.83	NO
GBR5	Gain Side B Receiver 5	19.83	NO
GBR6	Gain Side B Receiver 6	19.83	NO
GBR7	Gain Side B Receiver 7	19.83	NO
GBR8	Gain Side B Receiver 8	19.83	NO
GCR1	Gain Side C Receiver 1	19.83	NO
GCR2	Gain Side C Receiver 2	19.83	NO
GCR3	Gain Side C Receiver 3	19.83	NO
GCR4	Gain Side C Receiver 4	19.83	NO
GCR5	Gain Side C Receiver 5	19.83	NO
GCR6	Gain Side C Receiver 6	19.83	NO
GCR7	Gain Side C Receiver 7	19.83	NO
GCR8	Gain Side C Receiver 8	19.83	NO

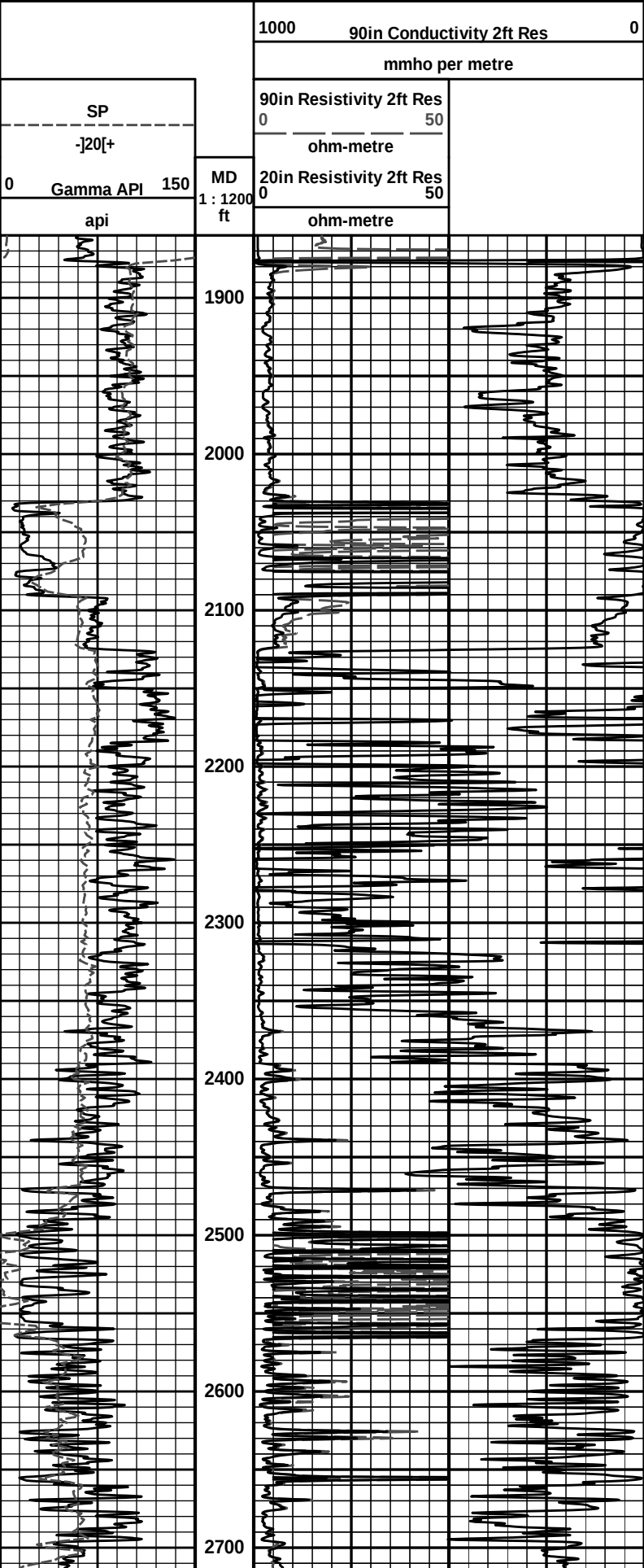
GDR0	Gain Side D Receiver 0	19.83	NO	
GDR1	Gain Side D Receiver 1	19.83	NO	
GDR2	Gain Side D Receiver 2	19.83	NO	
GDR3	Gain Side D Receiver 3	19.83	NO	
GDR4	Gain Side D Receiver 4	19.83	NO	
GDR5	Gain Side D Receiver 5	19.83	NO	
GDR6	Gain Side D Receiver 6	19.83	NO	
GDR7	Gain Side D Receiver 7	19.83	NO	
GDR8	Gain Side D Receiver 8	19.83	NO	
ACRt Sonde				
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.97	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000

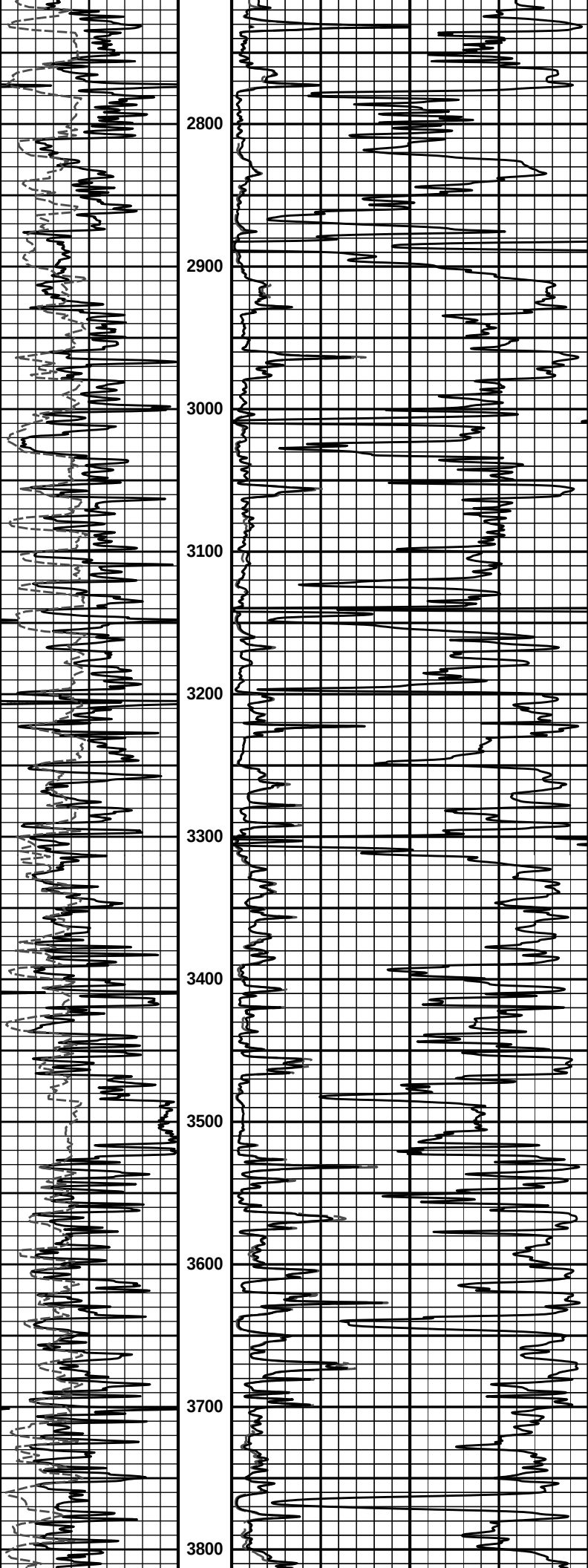
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	
Microlog Pad				
TPUL	Tension Pull	82.98	NO	
MINV	Microlog Lateral	82.98	BLK	0.750
MNOR	Microlog Normal	82.98	BLK	0.750
SDLT Pad				
TPUL	Tension Pull	82.79	NO	
NAB	Near Above	82.61	BLK	0.920
NHI	Near Cesium High	82.61	BLK	0.920
NLO	Near Cesium Low	82.61	BLK	0.920
NVA	Near Valley	82.61	BLK	0.920
NBA	Near Barite	82.61	BLK	0.920
NDE	Near Density	82.61	BLK	0.920
NPK	Near Peak	82.61	BLK	0.920
NLI	Near Lithology	82.61	BLK	0.920
NBAU	Near Barite Unfiltered	82.61	BLK	0.250
NLIU	Near Lithology Unfiltered	82.61	BLK	0.250
FAB	Far Above	82.96	BLK	0.250
FHI	Far Cesium High	82.96	BLK	0.250
FLO	Far Cesium Low	82.96	BLK	0.250
FVA	Far Valley	82.96	BLK	0.250
FBA	Far Barite	82.96	BLK	0.250
FDE	Far Density	82.96	BLK	0.250
FPK	Far Peak	82.96	BLK	0.250
FLI	Far Lithology	82.96	BLK	0.250
PTMP	Pad Temperature	82.80	BLK	0.920
NHV	Near Detector High Voltage	82.19	NO	
FHV	Far Detector High Voltage	82.19	NO	
ITMP	Instrument Temperature	82.19	NO	
DDHV	Detector High Voltage	82.19	NO	
Data: KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHIDLE			Date: 04-Aug-13 23:18:49	

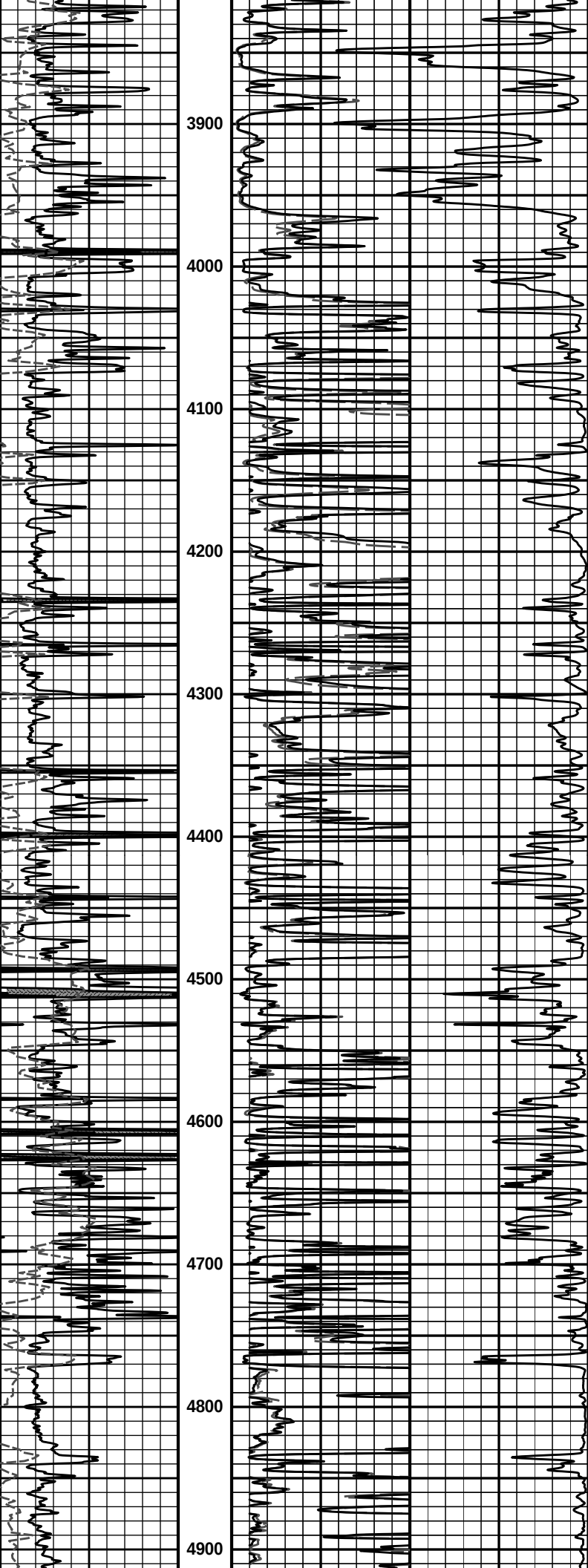
COMPANY	SANDRIDGE ENERGY		
WELL	KATHLEEN 2231 1-36		
FIELD	STEWART		
COUNTY	FINNEY	STATE	KANSAS
HALLIBURTON		ARRAY COMPENSATED TRUE RESISTIVITY LOG	

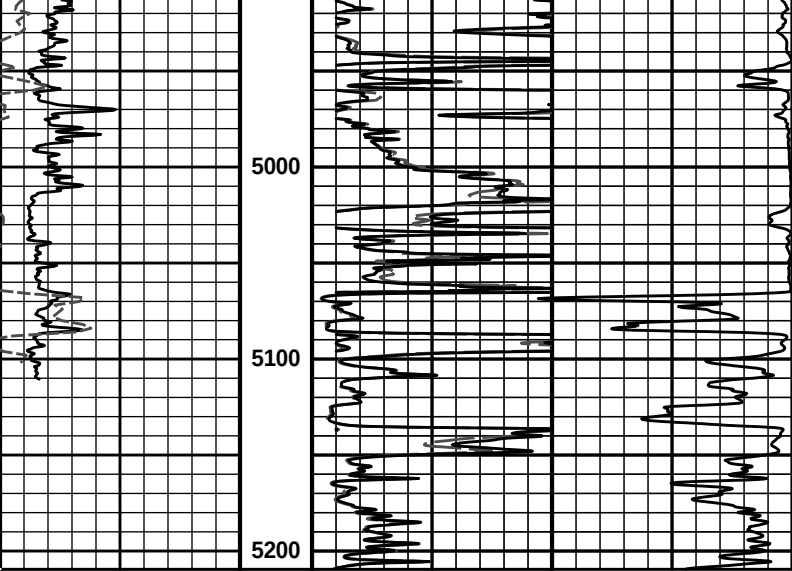
HALLIBURTON Plot Time: 05-Aug-13 04:58:22 Plot Range: 1860 ft to 5209.5 ft

1 INCH MAIN LOG









0	Gamma API	150	MD	20in Resistivity 2ft Res	
	api		1 : 1200 ft	0	50
	SP			ohm-metre	
	- 20 +			90in Resistivity 2ft Res	
				0	50
				ohm-metre	
				1000	0
				90in Conductivity 2ft Res	
				mmho per metre	

HALLIBURTON

Plot Time: 05-Aug-13 04:58:26
Plot Range: 1860 ft to 5209.5 ft
Data: KATHLEEN_2231\Well Based\CASING\
Plot File: \\LOCAL-KATHLEEN_2231\0001 SP-GTET-CSNG-DSN-SDL-FLEX-IDT-ICT-WSTT-ACRT-CHI... \ACRT_1.lib

1 INCH MAIN LOG