

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY		HARTMAN OIL CO., INC.	
WELL		GANO UNIT #1-36	
FIELD/BLOCK		WILDCAT	
COUNTY		GRAHAM	
STATE		KANSAS	
Permanent Datum		GL	
Log measured from		KB	
Drilling measured from		KB	
Date		01-Oct-13	
Run No.		ONE	
Depth - Driller		4100.00 ft	
Depth - Logger		4097.0 ft	
Bottom - Logged Interval		4087	
Top - Logged Interval		296	
Casing - Driller		8.625 in @ 295.0 ft	
Casing - Logger		296.0 ft	
Bit Size		7.875 in	
Type Fluid in Hole		WATER BASED MUD	
Density		9.2 ppg	
Viscosity		65.00 s/qt	
PH		11.00 pH	
Fluid Loss		5.8 cpm	
Source of Sample		MUD PIT	
Rm @ Meas. Temperature		0.900 ohmm @ 85.00 degF	
Rmf @ Meas. Temperature		0.77 ohmm @ 85.00 degF	
Rmc @ Meas. Temperature		1.040 ohmm @ 85.00 degF	
Source Rmf		CALCULATED	
Rm @ BHT		0.63 ohmm @ 124.0 degF	
Time Since Circulation		3.0 hr	
Time on Bottom		01-Oct-13 03:32	
Max. Rec. Temperature		124.0 degF @ 4097.0 ft	
Equipment		11230668 LIBERAL	
Recorded By		S. INGERSOLL	
Witnessed By		K. NOAH	

COMPANY	HARTMAN OIL CO., INC.
WELL	GANO UNIT #1-36
FIELD/BLOCK	WILDCAT
COUNTY	GRAHAM
STATE	KANSAS
API No.	15-065-23953
Location	(SHL) 1150' FSL & 2400' FWL
Sect.	36
Twp.	9S
Rge.	24W
Elev.	2458.0 ft
D.F.	2469.0 ft
G.L.	2458.0 ft
Other Services:	DSN / SDL MICROLOG BSAT ACRT

Fold here

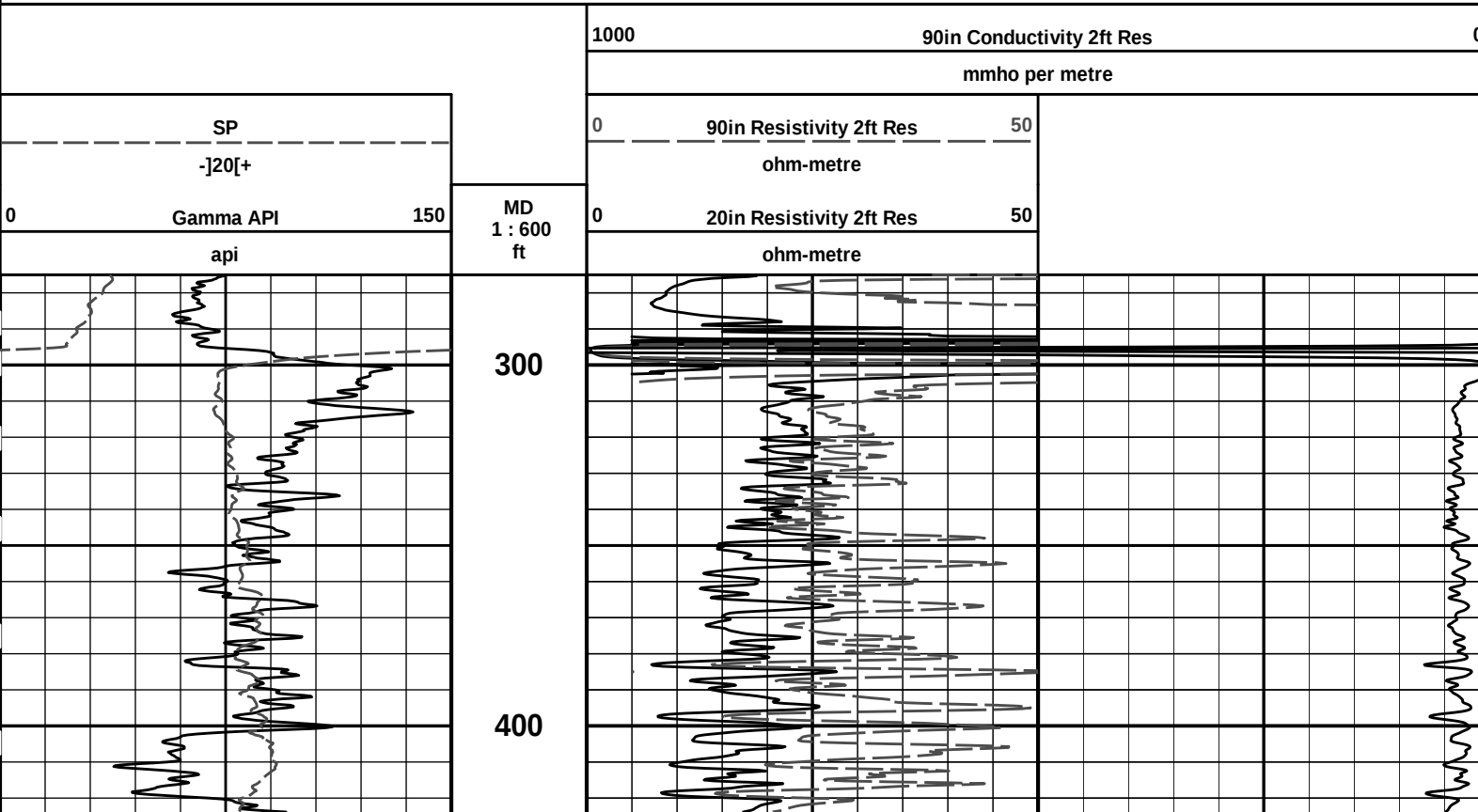
Service Ticket No.: 900787243				API Serial No.: 15-065-23953				PGM Version: WL INSITE R3.8.4 (Build 5)							
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE						RESISTIVITY SCALE CHANGES									
Date		Sample No.				Type Log		Depth		Scale Up Hole		Scale Down Hole			
Depth-Driller															
Type Fluid 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		CENT			
Rmc @ Meas. Temp.		@		@				19029775							
Source Rmf		Rmc													
Rm @ BHT		@		@											
Rmf @ BHT		@		@											
Rmc @ BHT		@		@											
EQUIPMENT DATA															
GAMMA				ACOUSTIC				DENSITY				NEUTRON			
Run No.		ONE		Run No.		ONE		Run No.		ONE		Run No.		ONE	
Serial No.		10748374		Serial No.		10747684		Serial No.		10714945		Serial No.		10755066	
Model No.		GTET		Model No.		BSAT		Model No.		SDLT		Model No.		DSNT	
Diameter		3.625"		No. of Cent.		2		Diameter		5.3"		Diameter		3.625"	
Detector Model No.		T-102		Spacing		.5'		Log Type		GAM-GAM		Log Type		NEU-NEU	
Type		SCINT						Source Type		CS-137		Source Type		AM-241BE	
Length		8"		LSA [Y/N]				Serial No.		5073GW		Serial No.		DSN-436	
Distance to Source		N/A		FWDA [Y/N]				Strength		1.5 CI		Strength		15 CI	
LOGGING DATA															

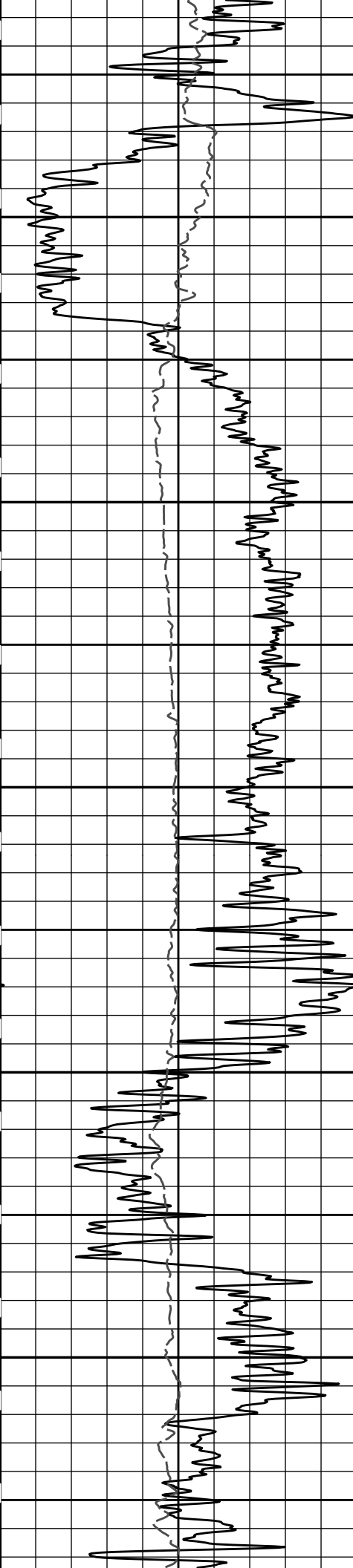
GENERAL			GAMMA		ACOUSTIC			DENSITY			NEUTRON			
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	4097	296	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME
DIRECTIONAL INFORMATION														
Maximum Deviation @								KOP @						
Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING.														
CHLORIDES REPORTED AT 3000 ppm.														

HALLIBURTON

Plot Time: 01-Oct-13 06:05:09
Plot Range: 275 ft to 4099.83 ft
Data: GANO_UNIT_1-36\Well Based\IR1 CASING\
Plot File: \\LOCAL-IGANO_UNIT_1-36\Well Based\ACRT\ACRT_2_lib

2 INCH MAIN LOG





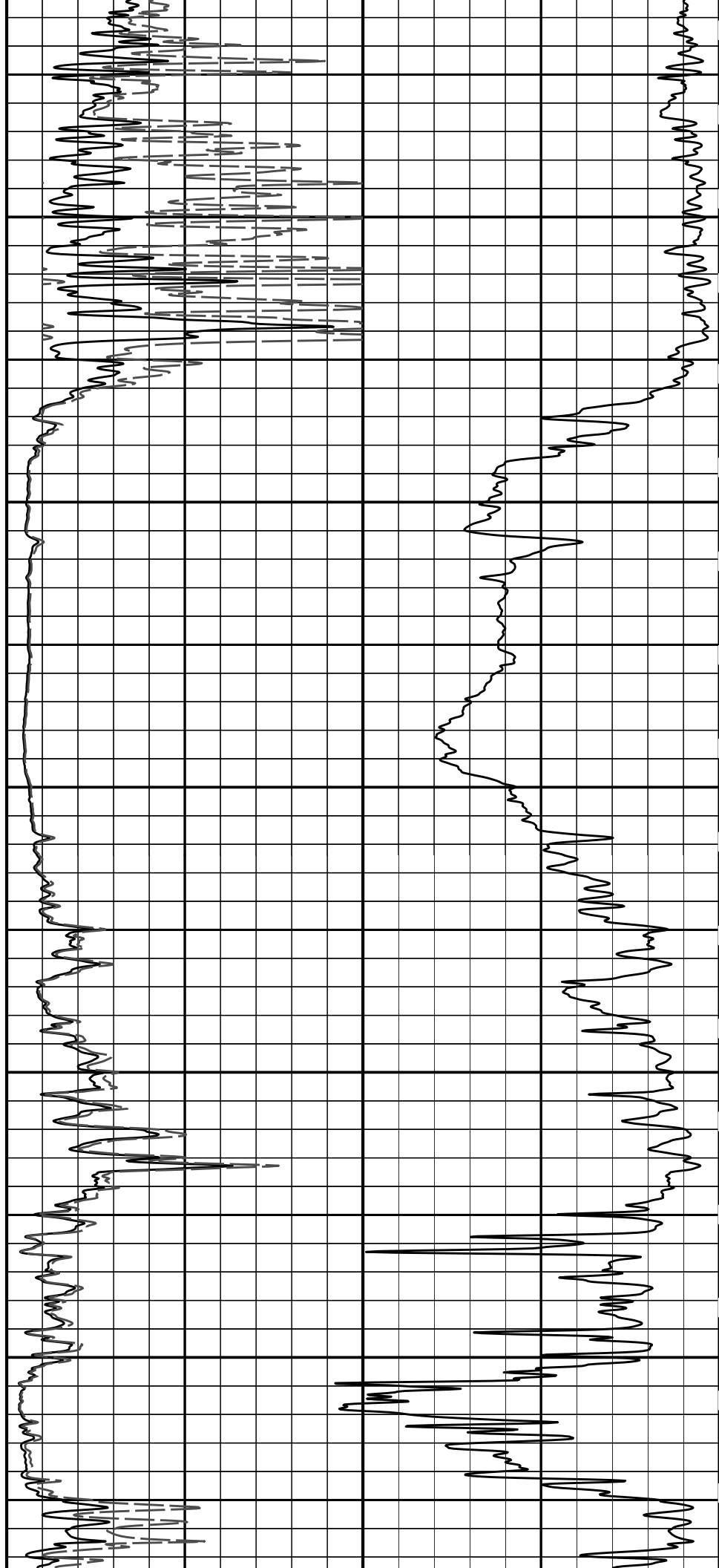
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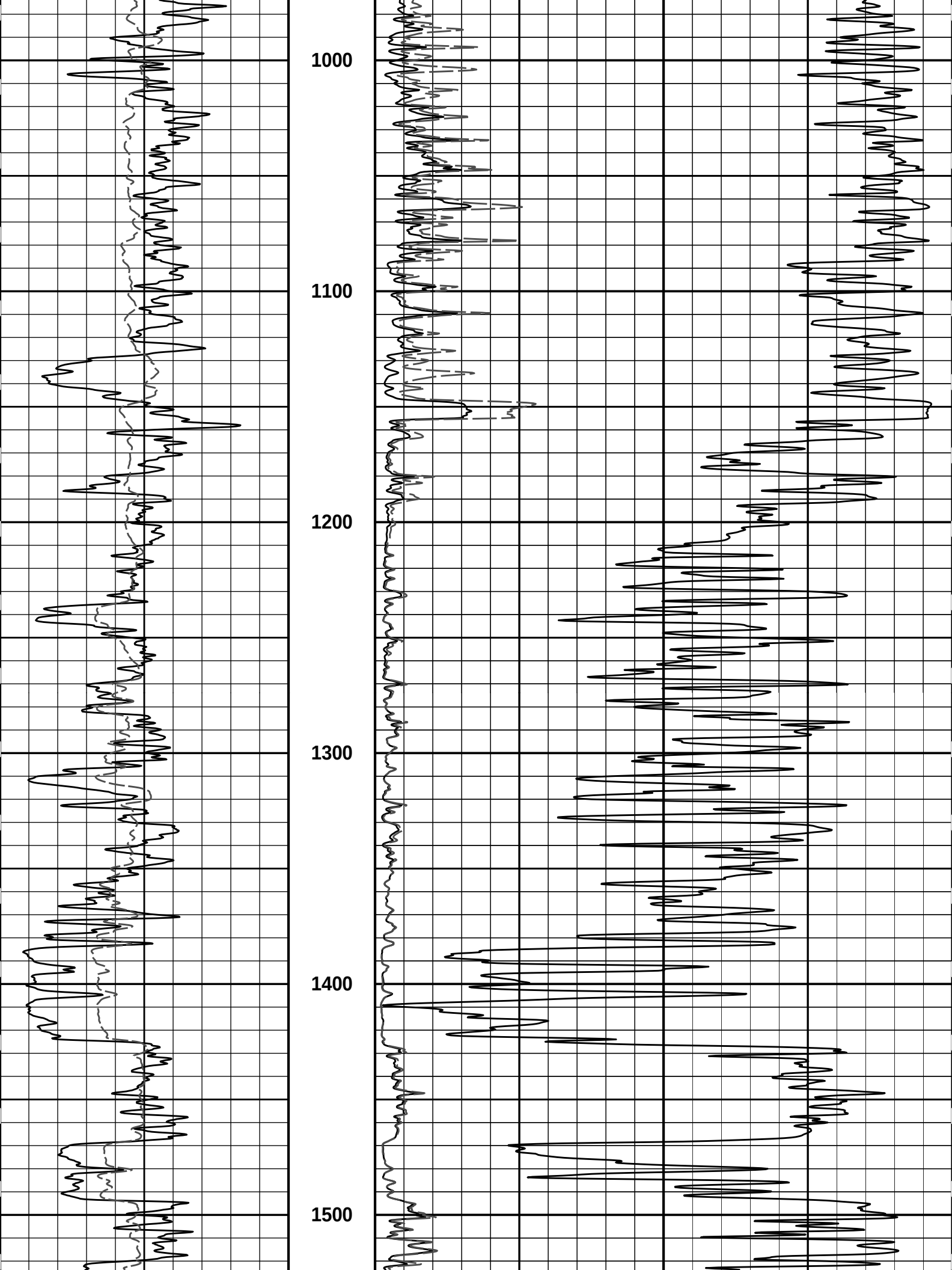
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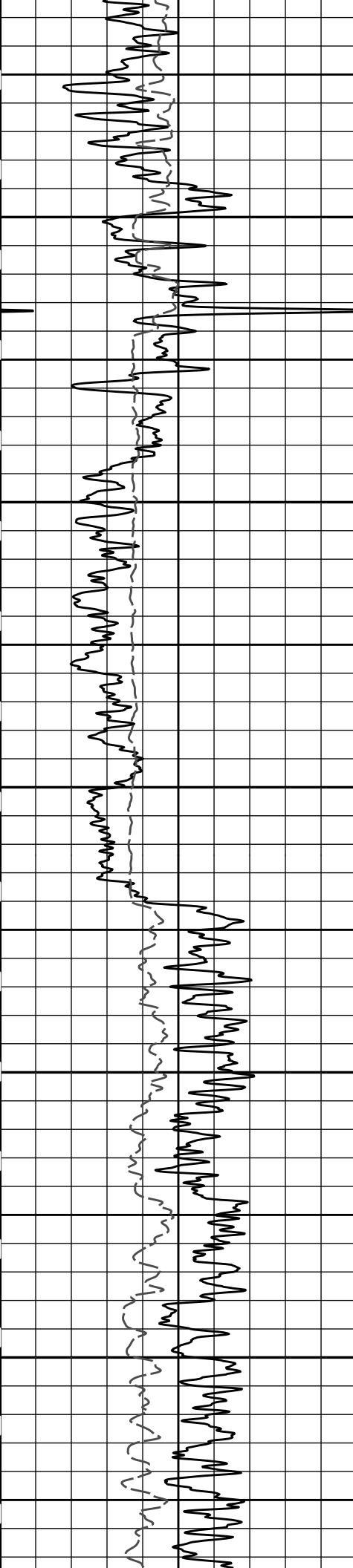
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900







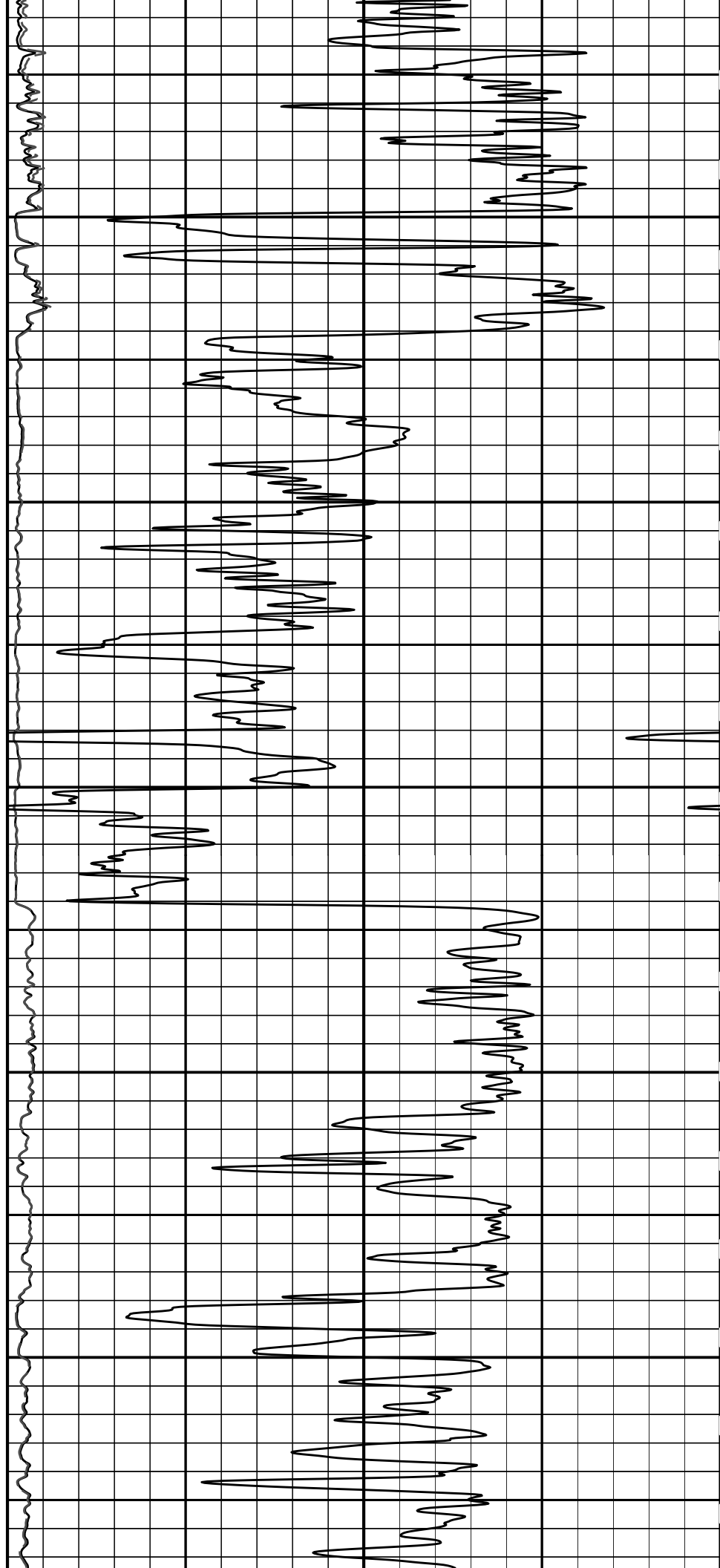
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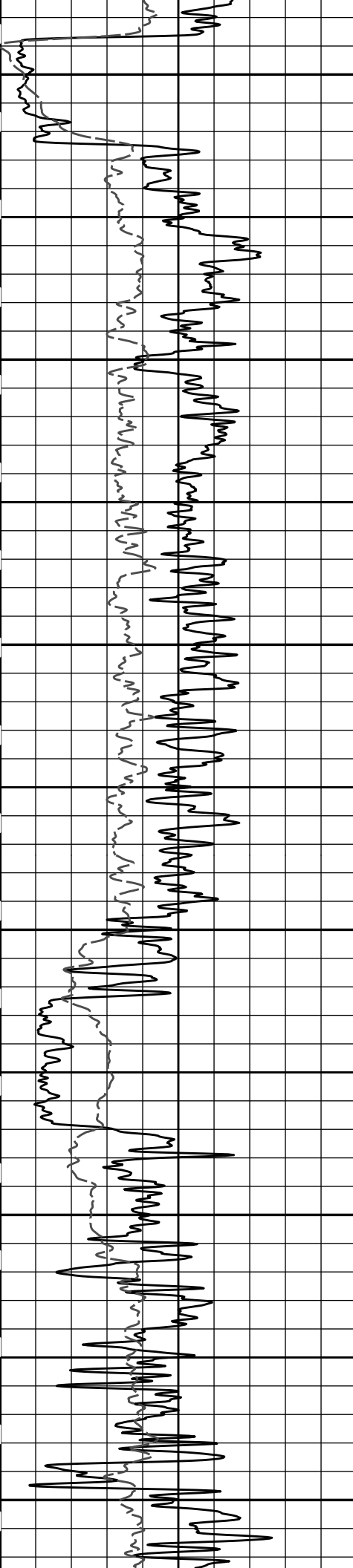
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1800

1900

2000





2100

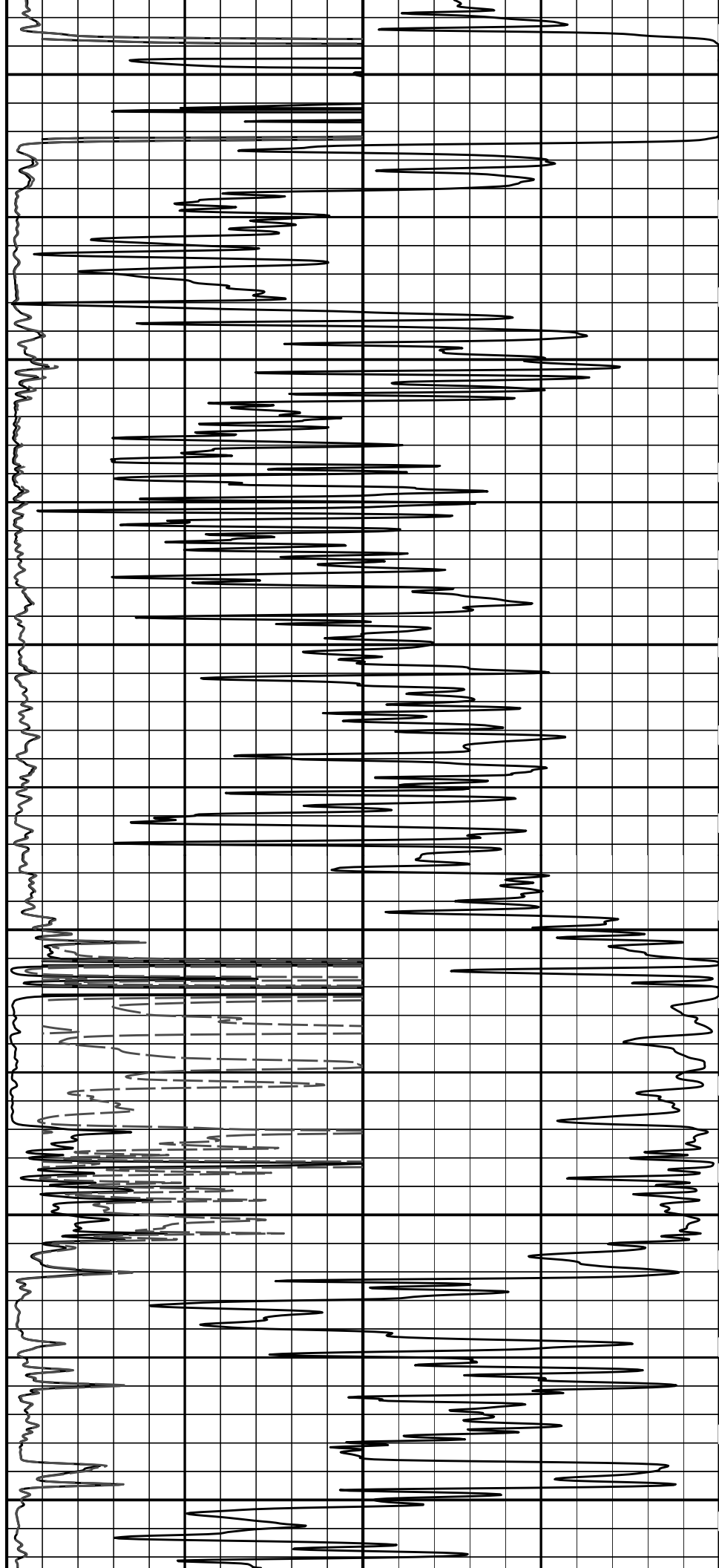
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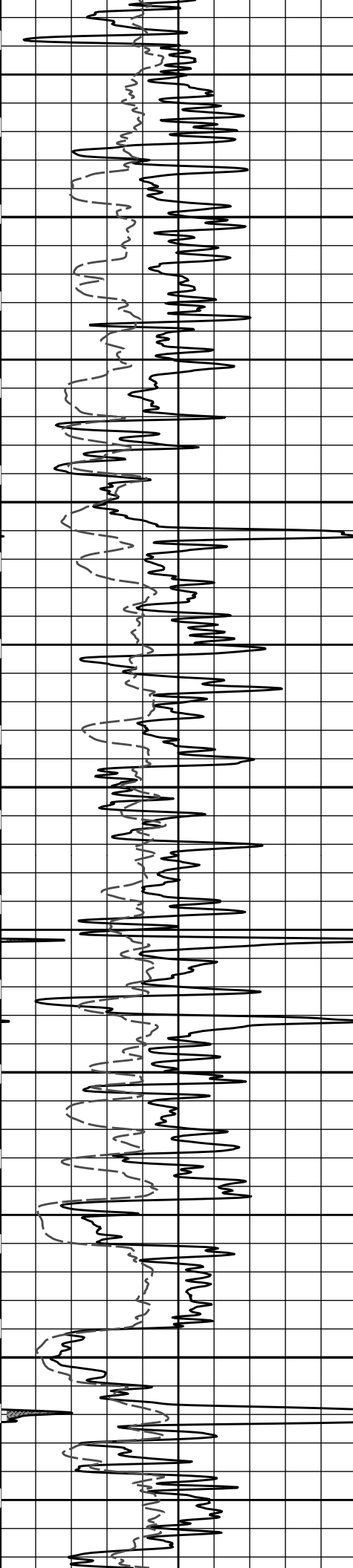
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2400

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2600





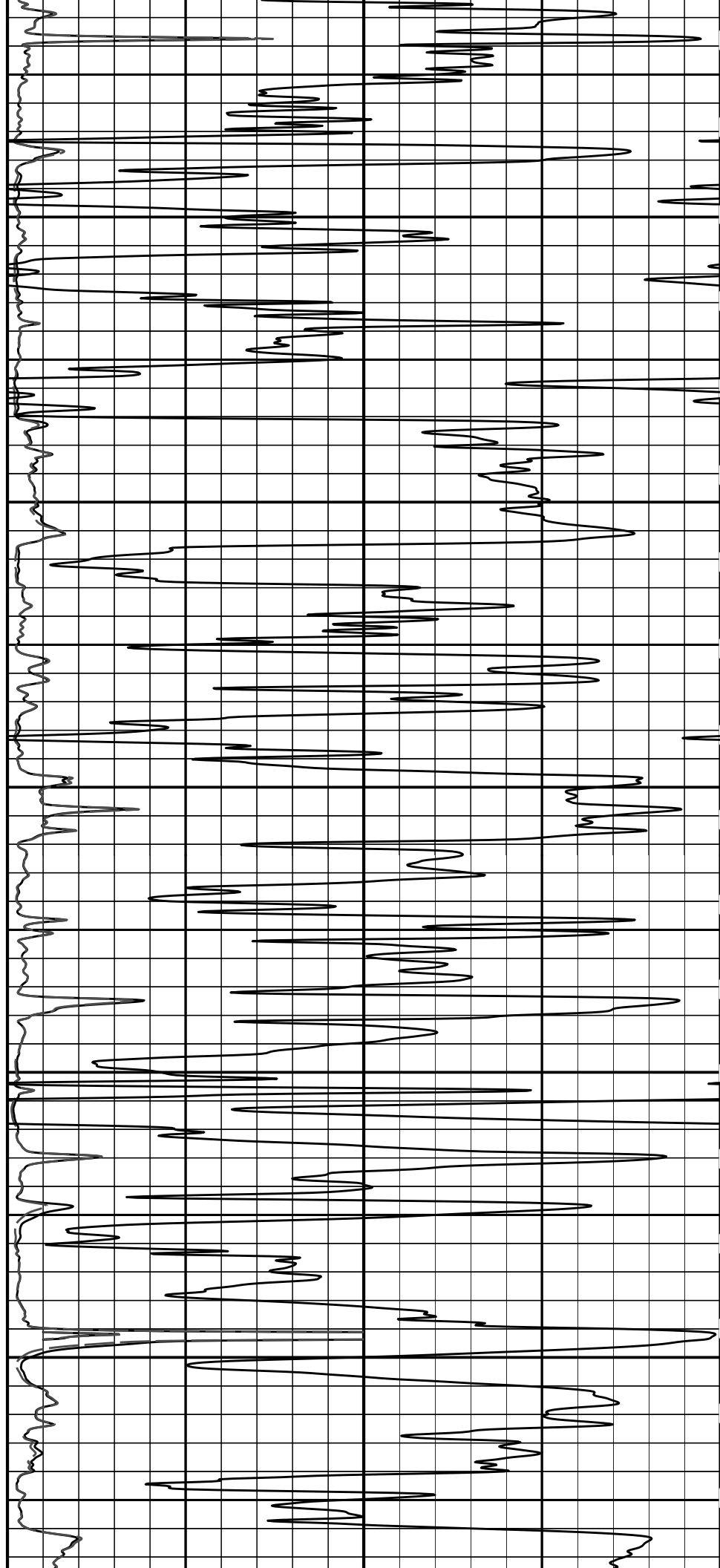
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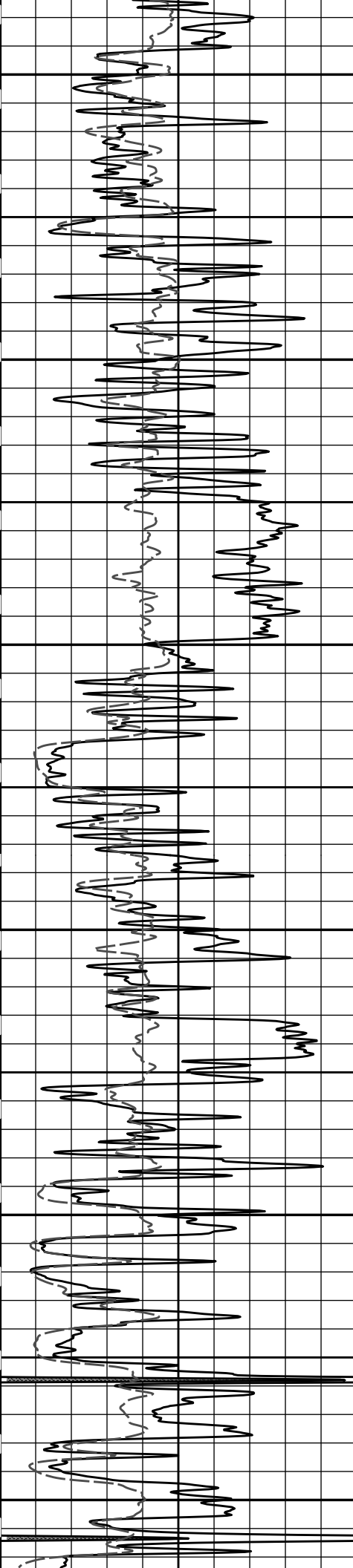
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2900

3000

3100





3200

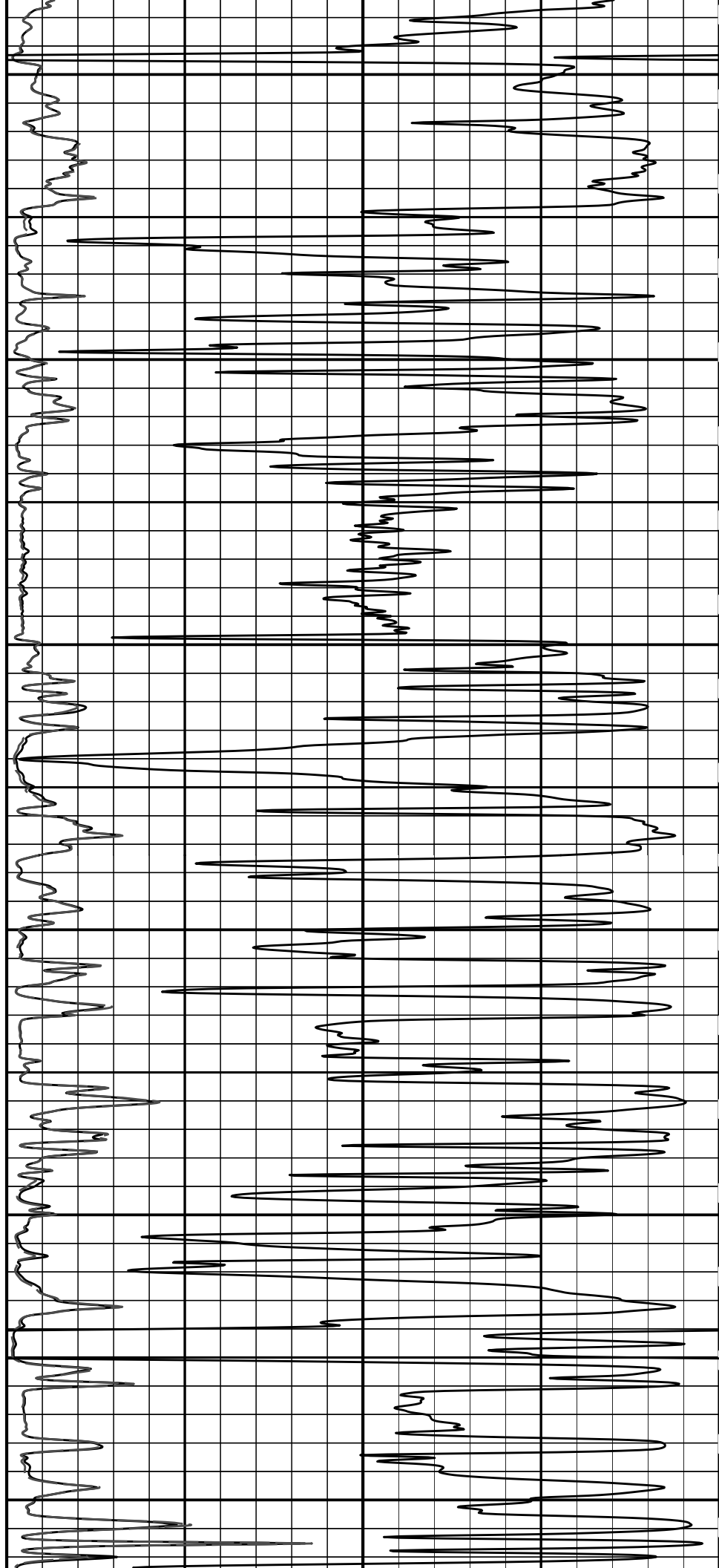
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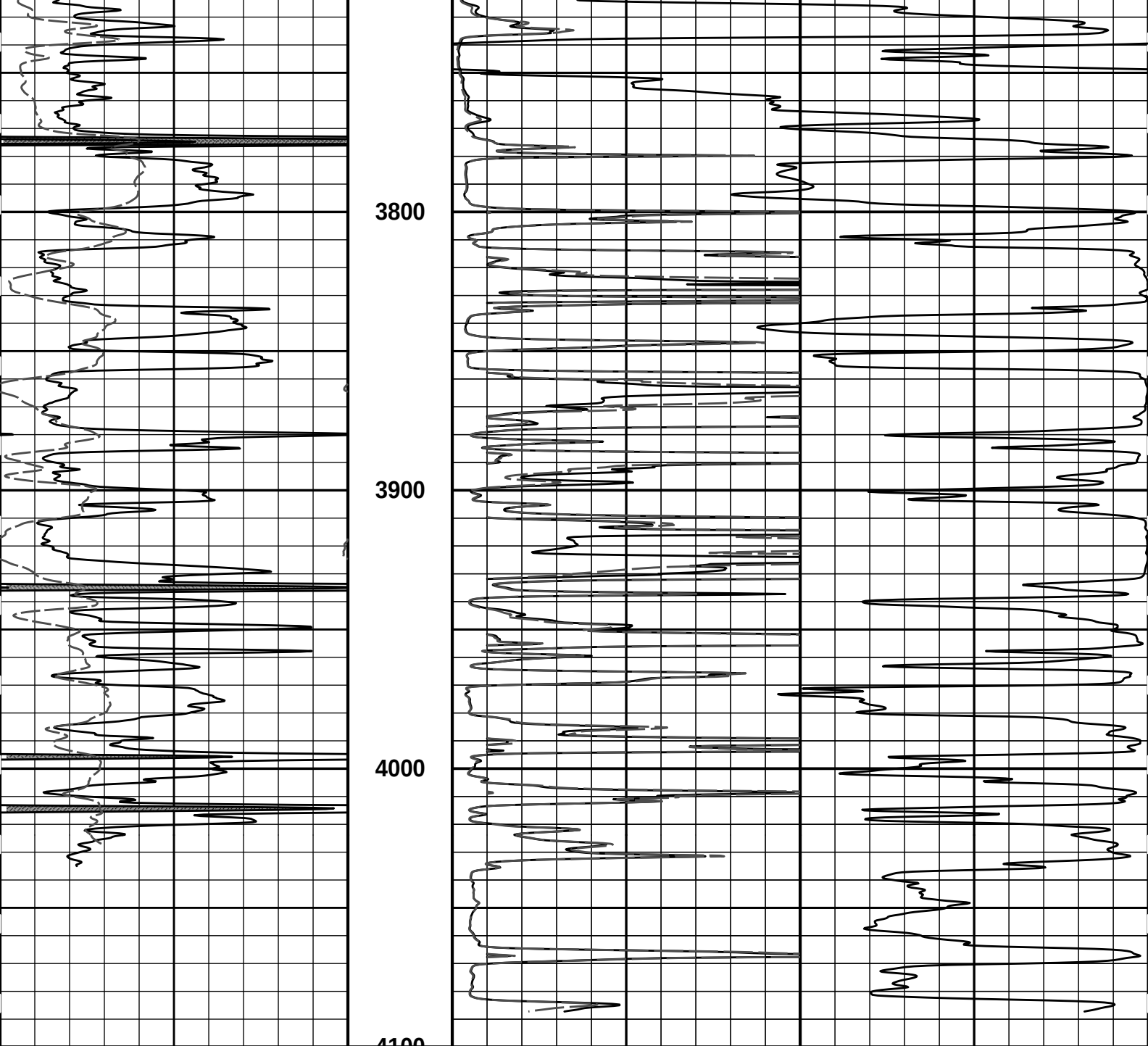
3400

3500

3600

3700





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

HALLIBURTON

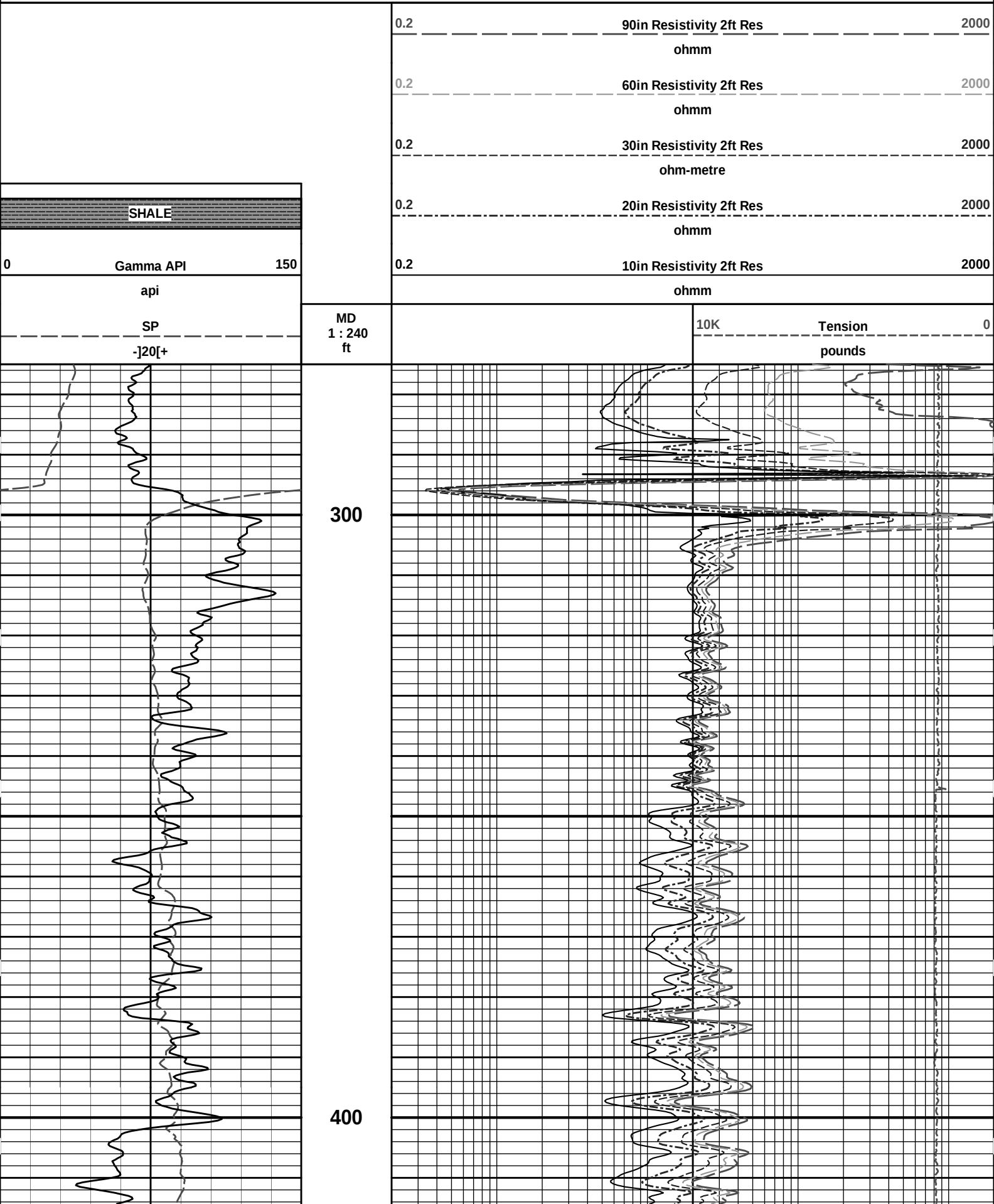
Plot Time: 01-Oct-13 06:05:34
Plot Range: 275 ft to 4099.83 ft
Data: GANO_UNIT_1-36\Well Based\R1 CASING\
Plot File: \\-LOCAL-IGANO_UNIT_1-36\Well Based\ACRT\ACRT_2_lib

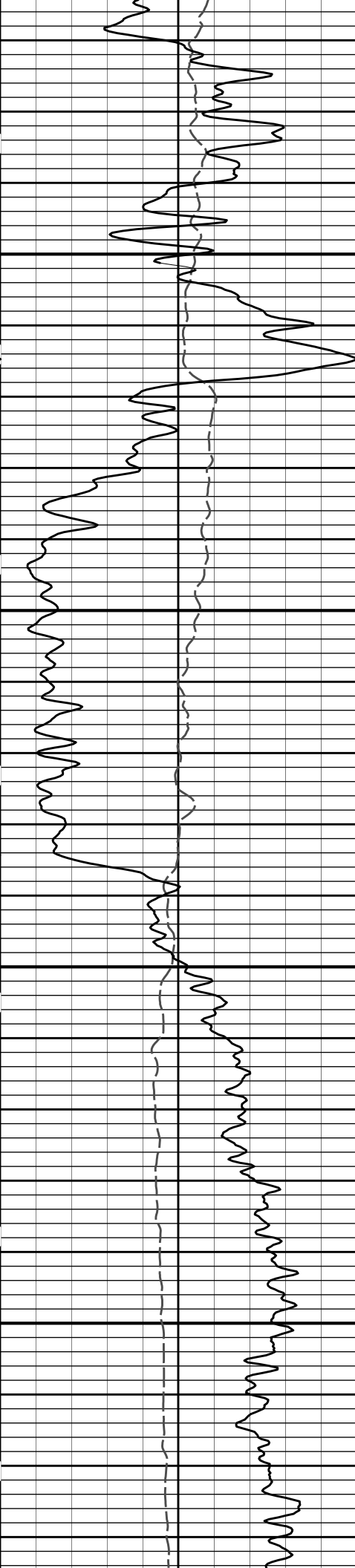
2 INCH MAIN LOG

HALLIBURTON

Plot Time: 01-Oct-13 06:05:34
Plot Range: 275 ft to 4099.83 ft
Data: GANO_UNIT_1-36\Well Based\R1 CASING\
Plot File: \\-LOCAL-IGANO_UNIT_1-36\Well Based\ACRT\ACRT_2_lib

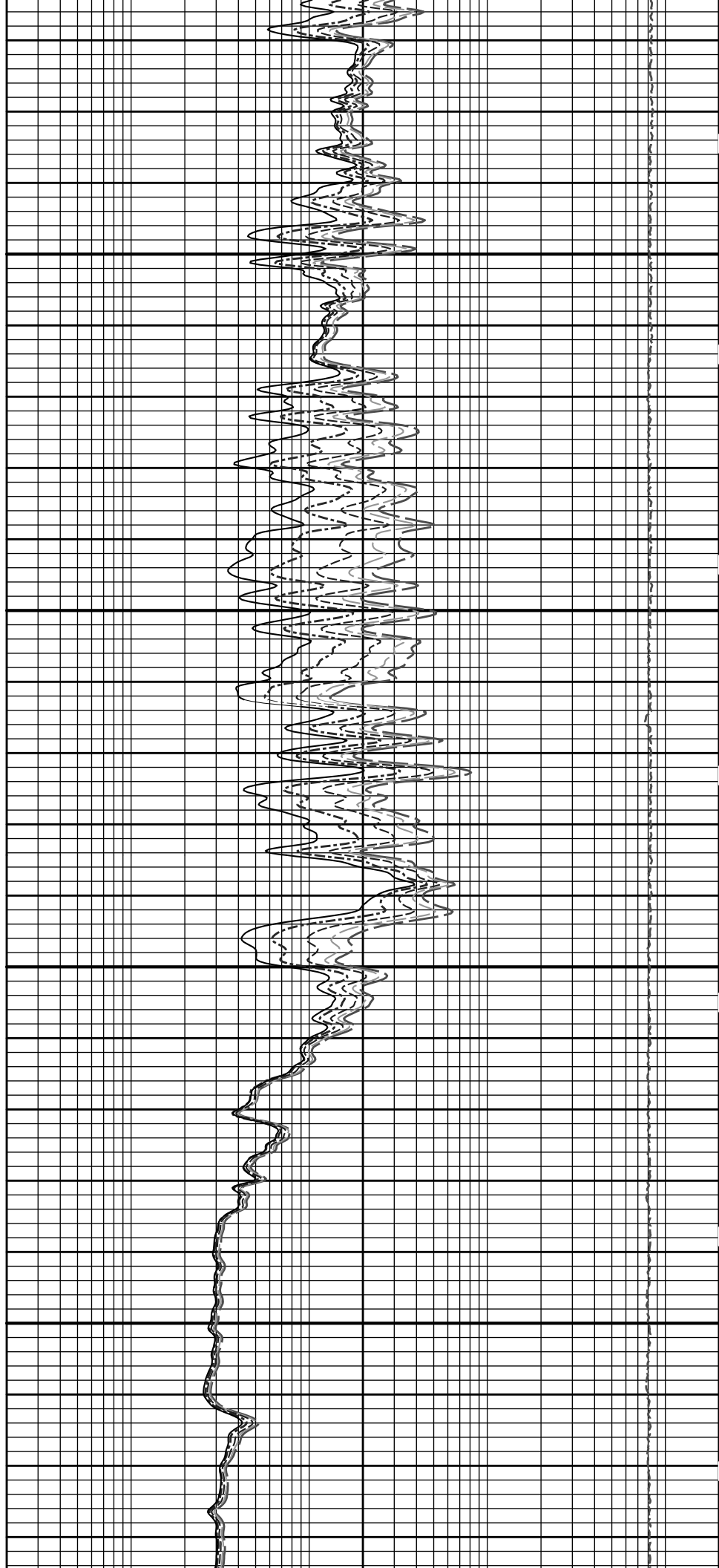
5 INCH MAIN LOG





500

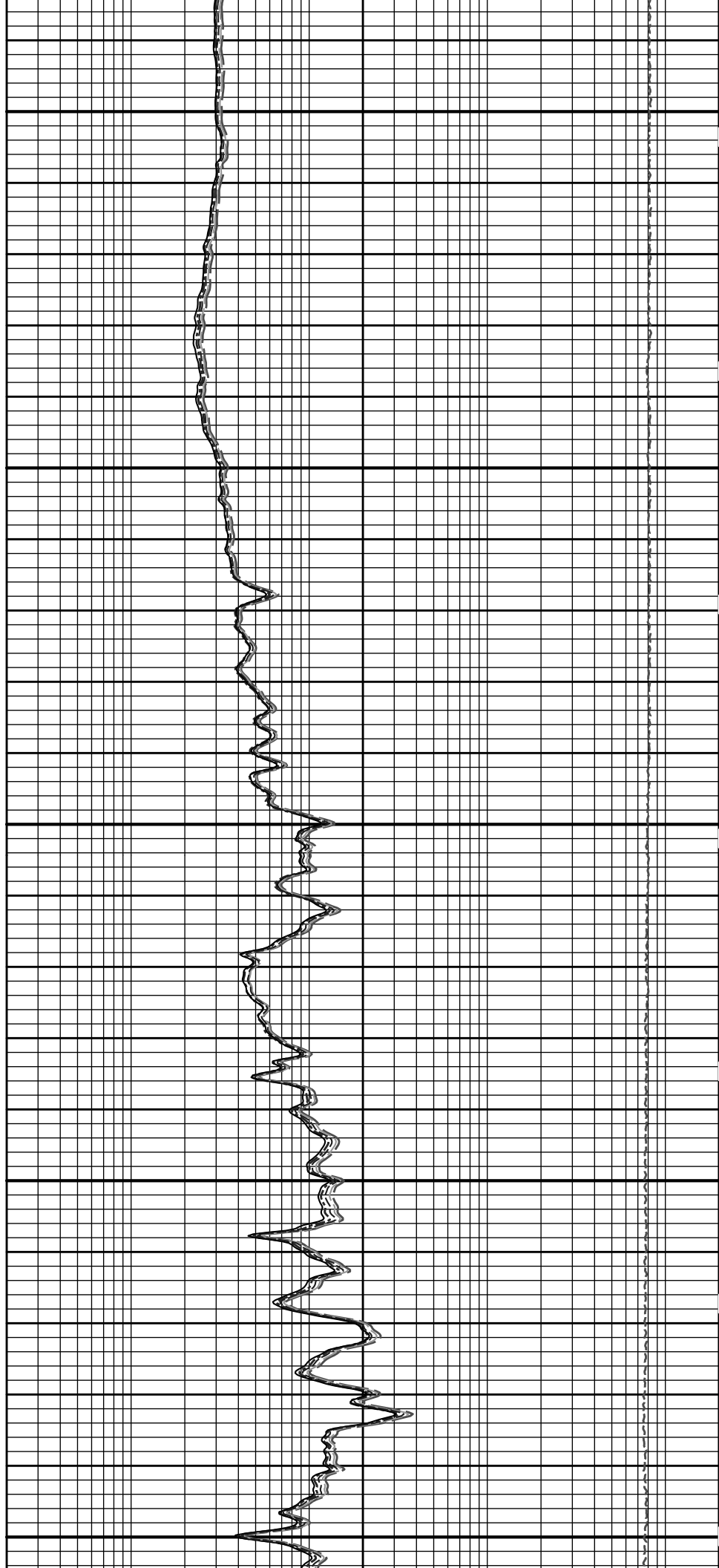
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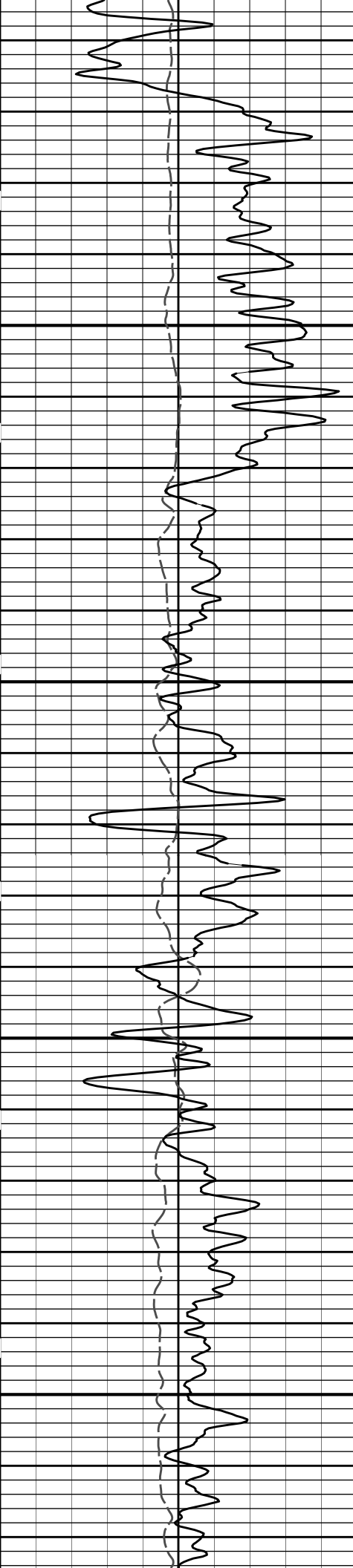




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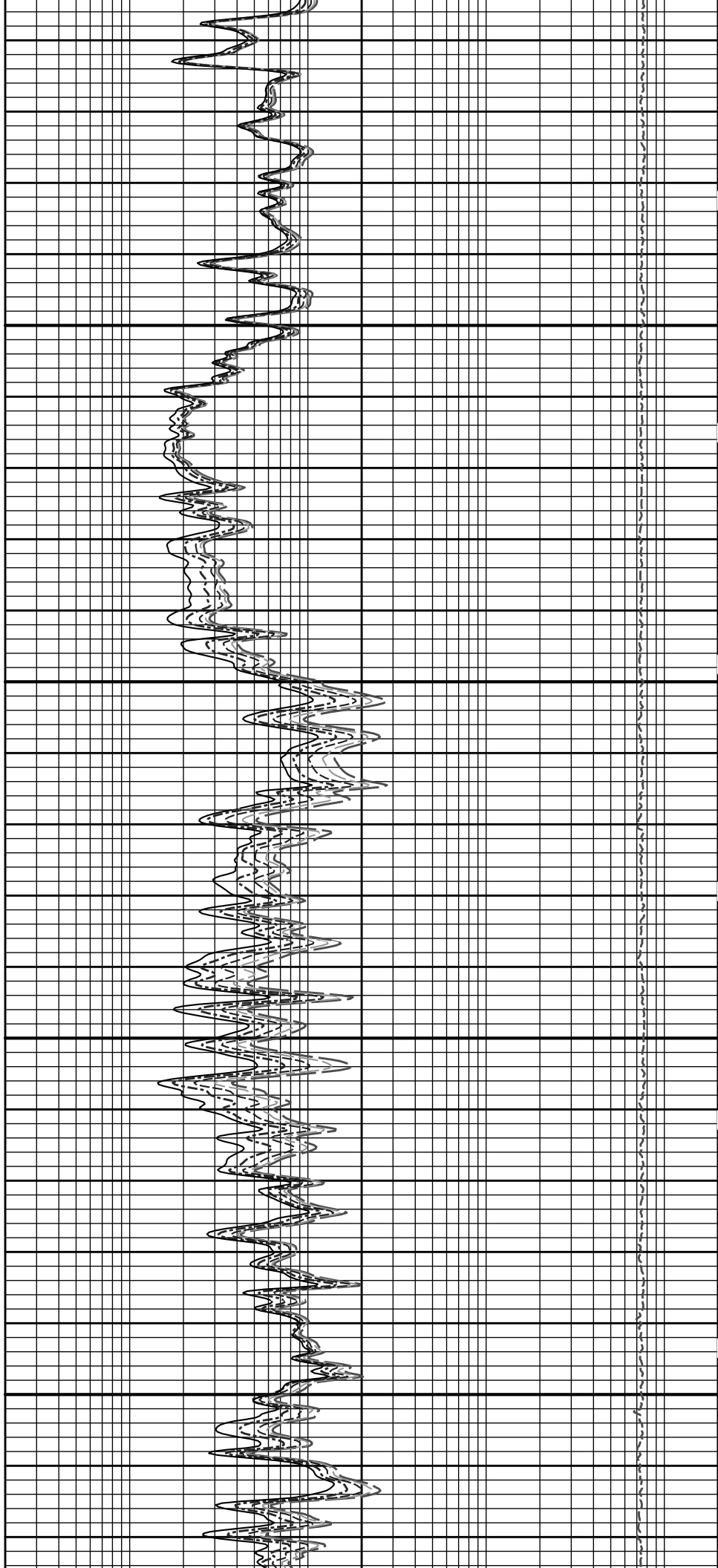
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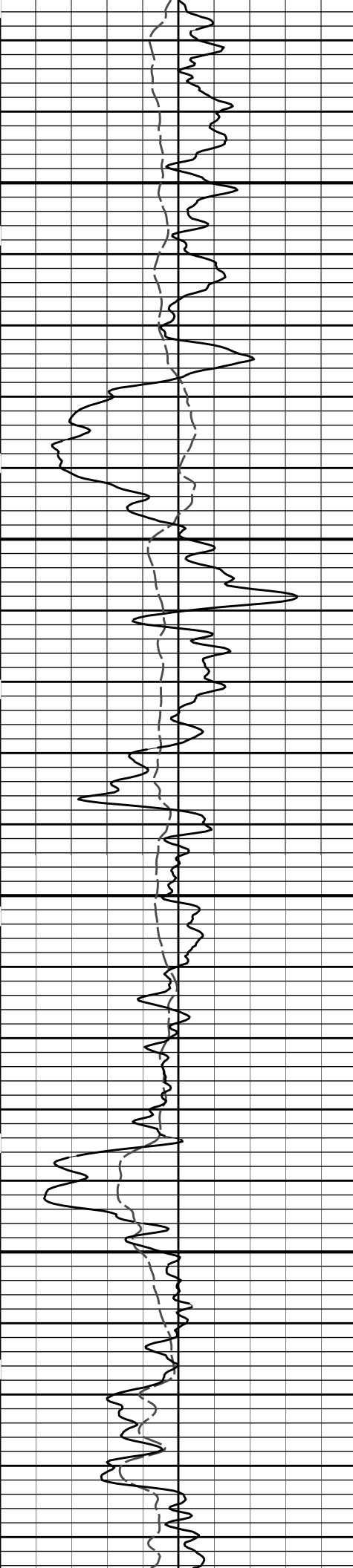




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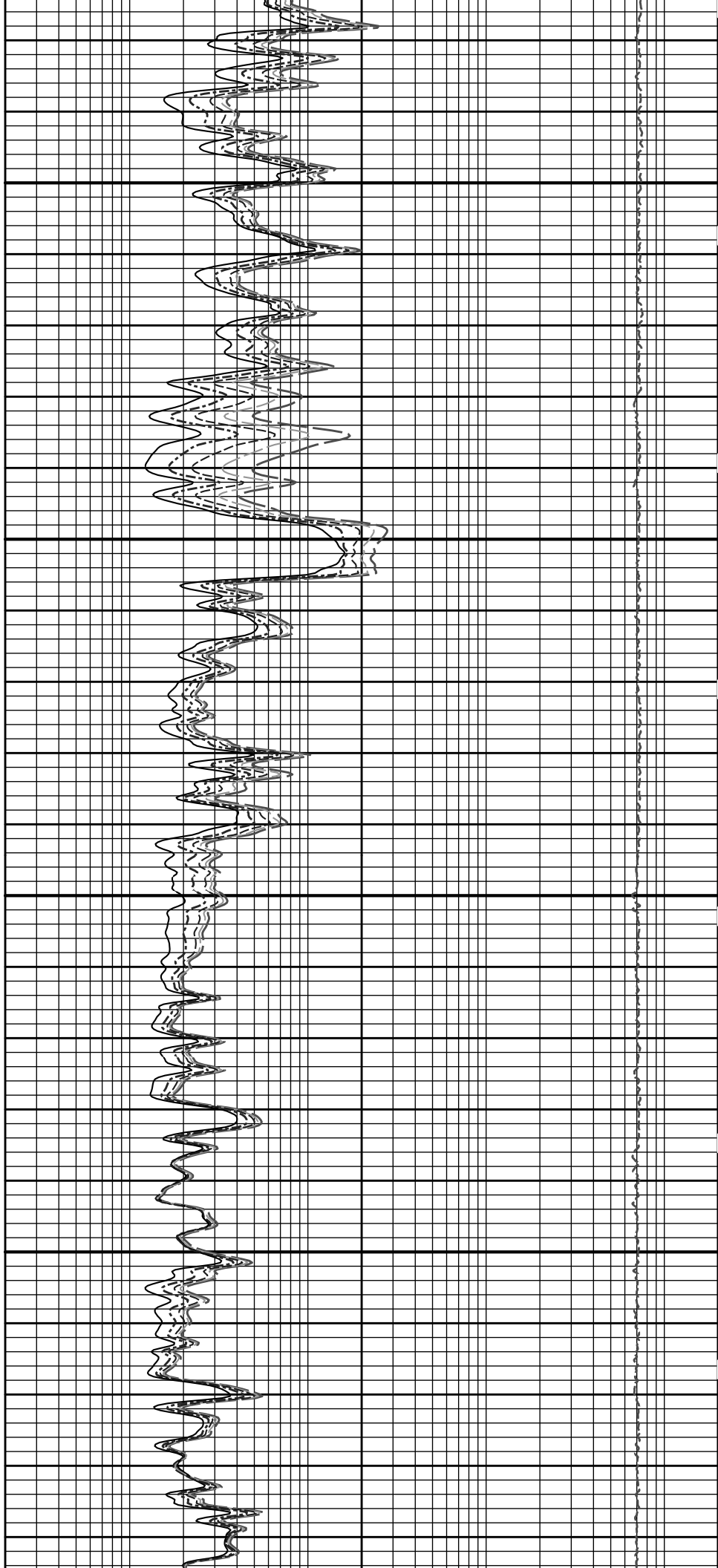
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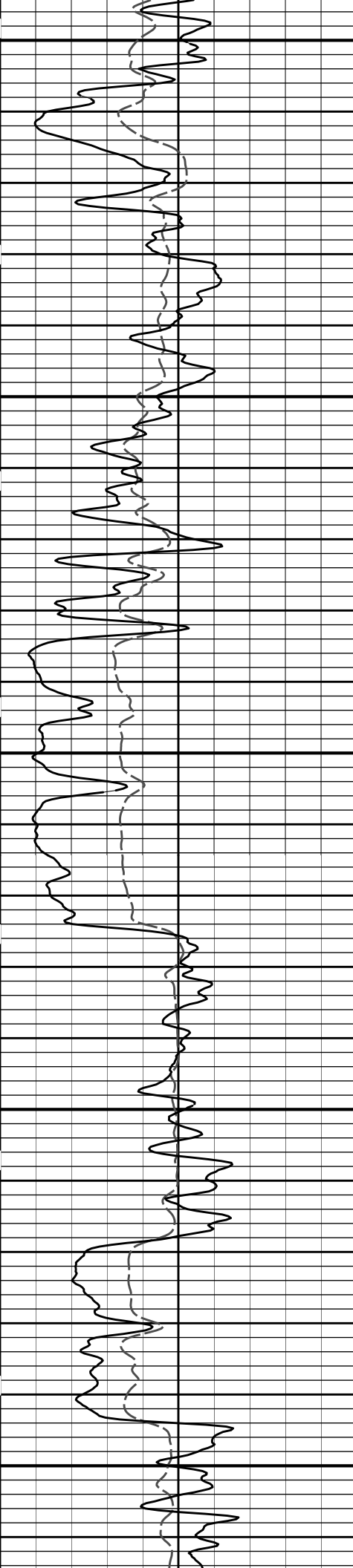




1100

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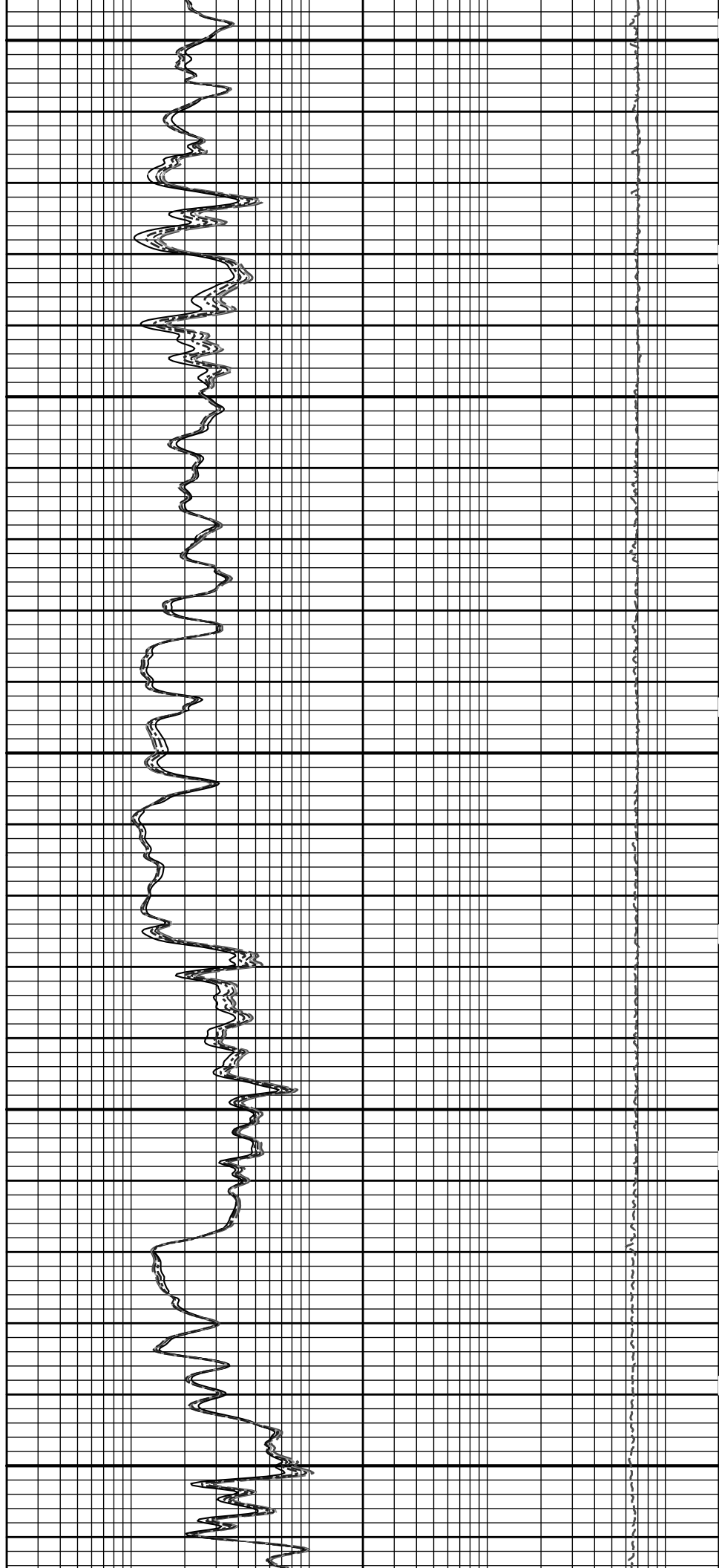


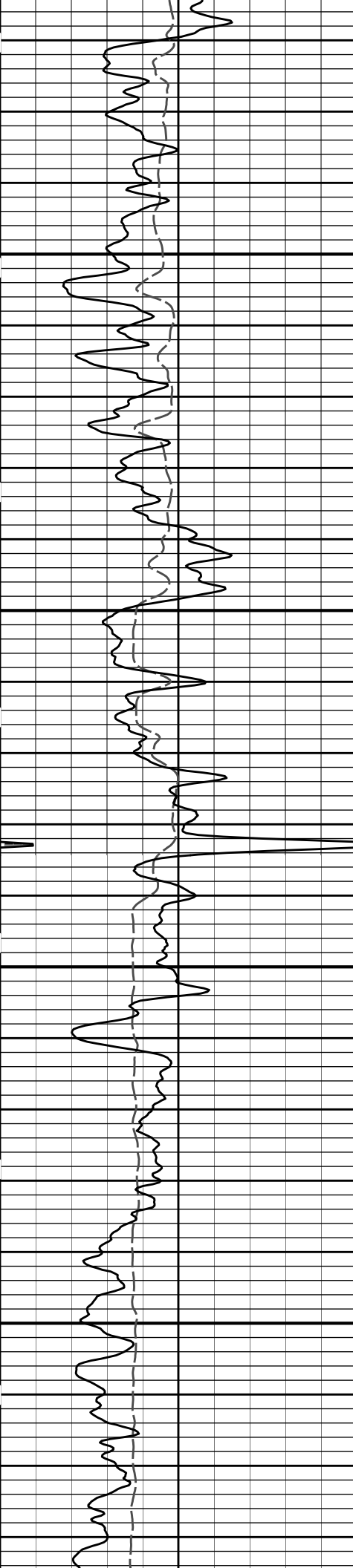


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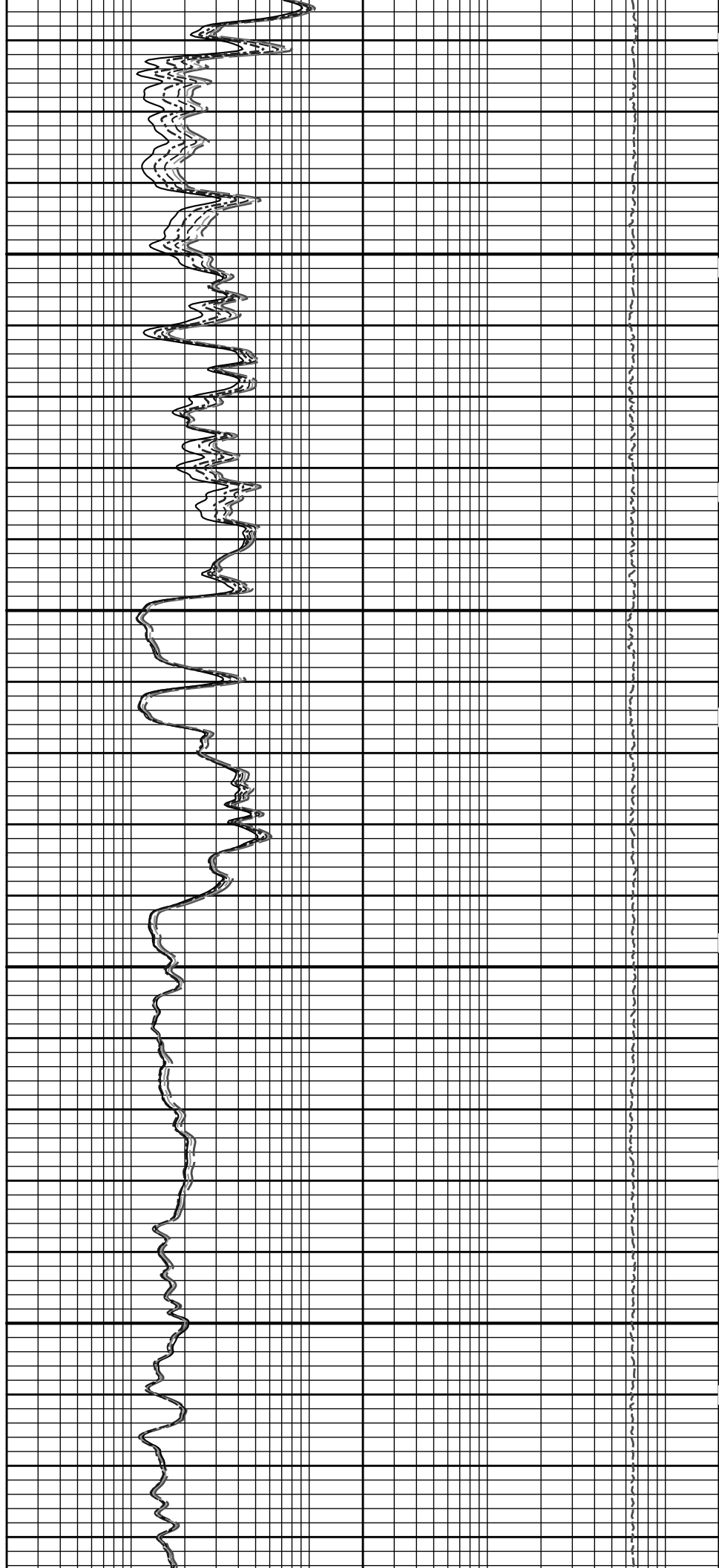
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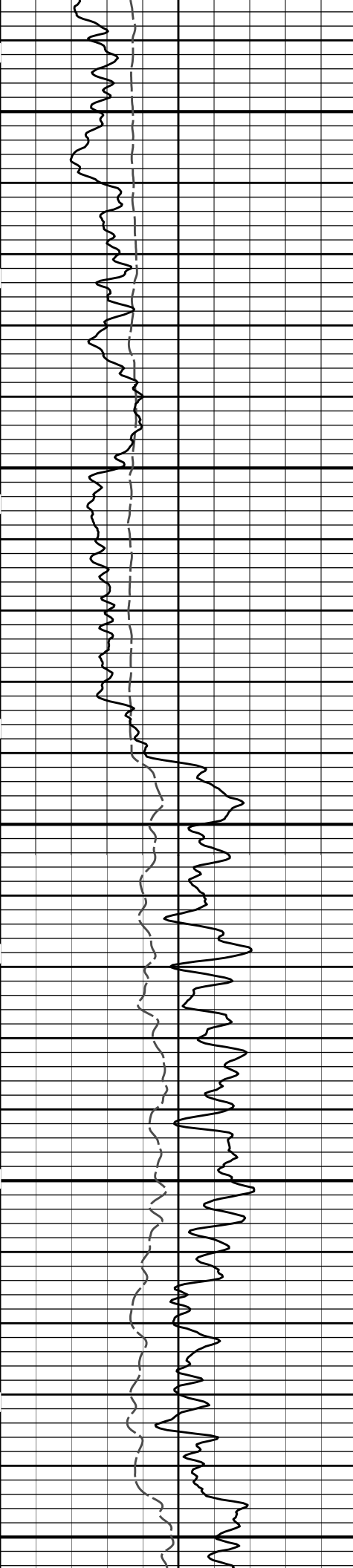




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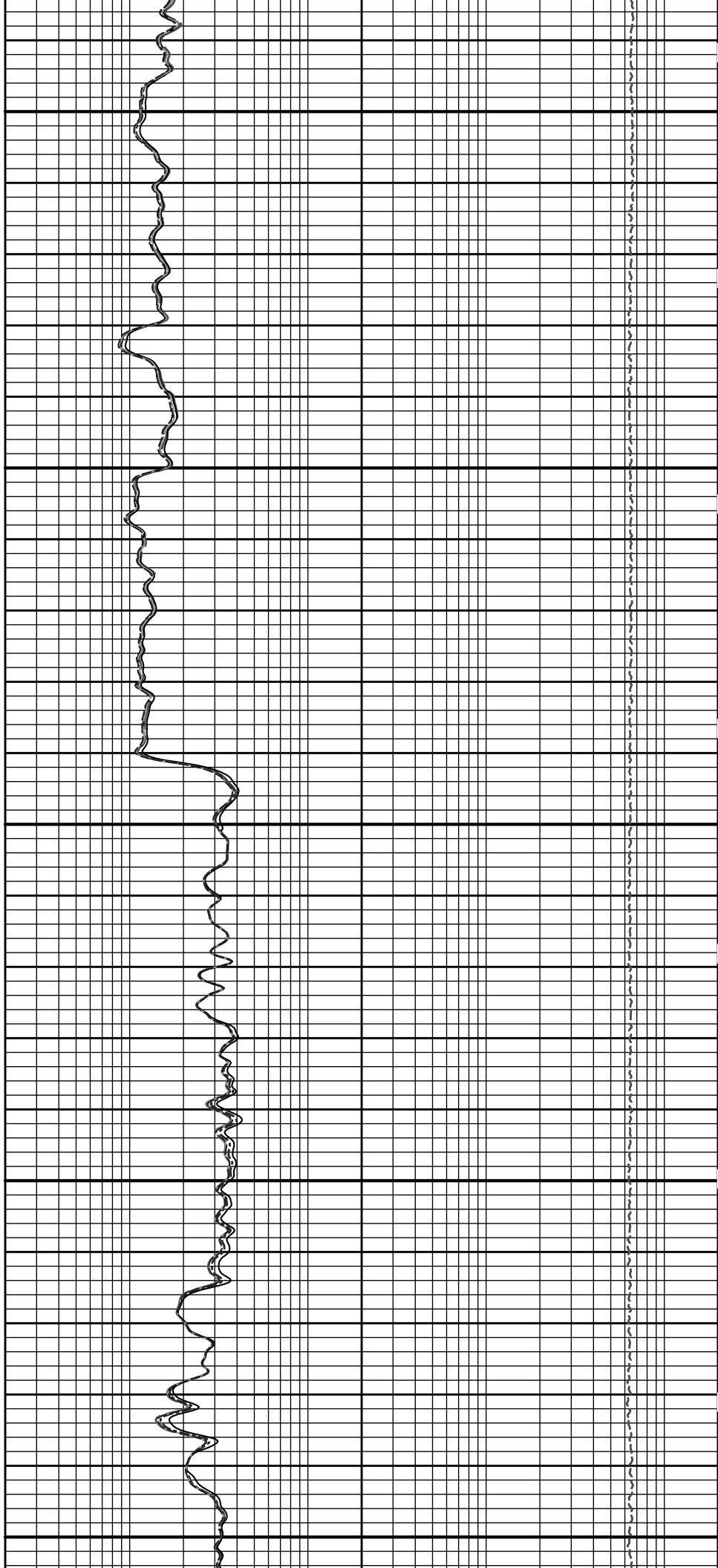
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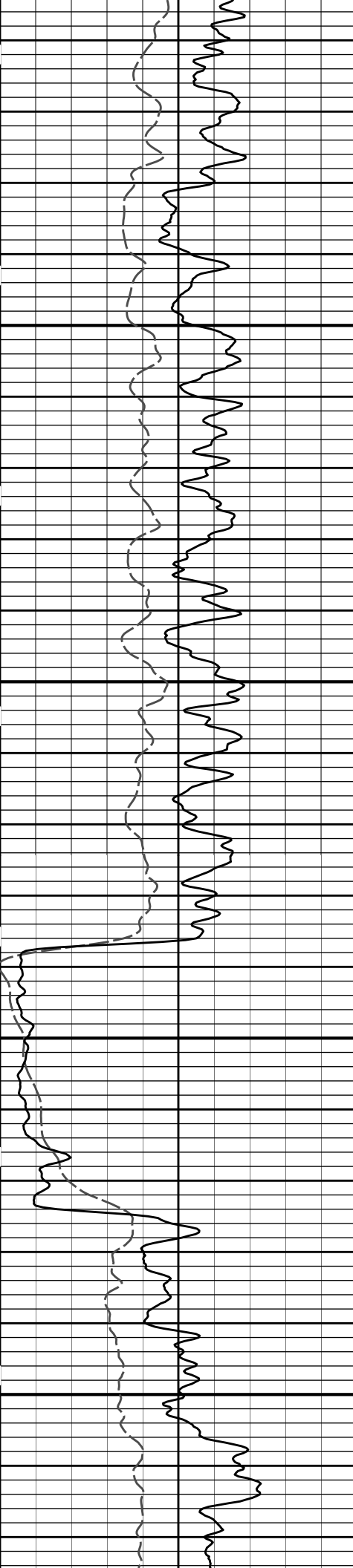




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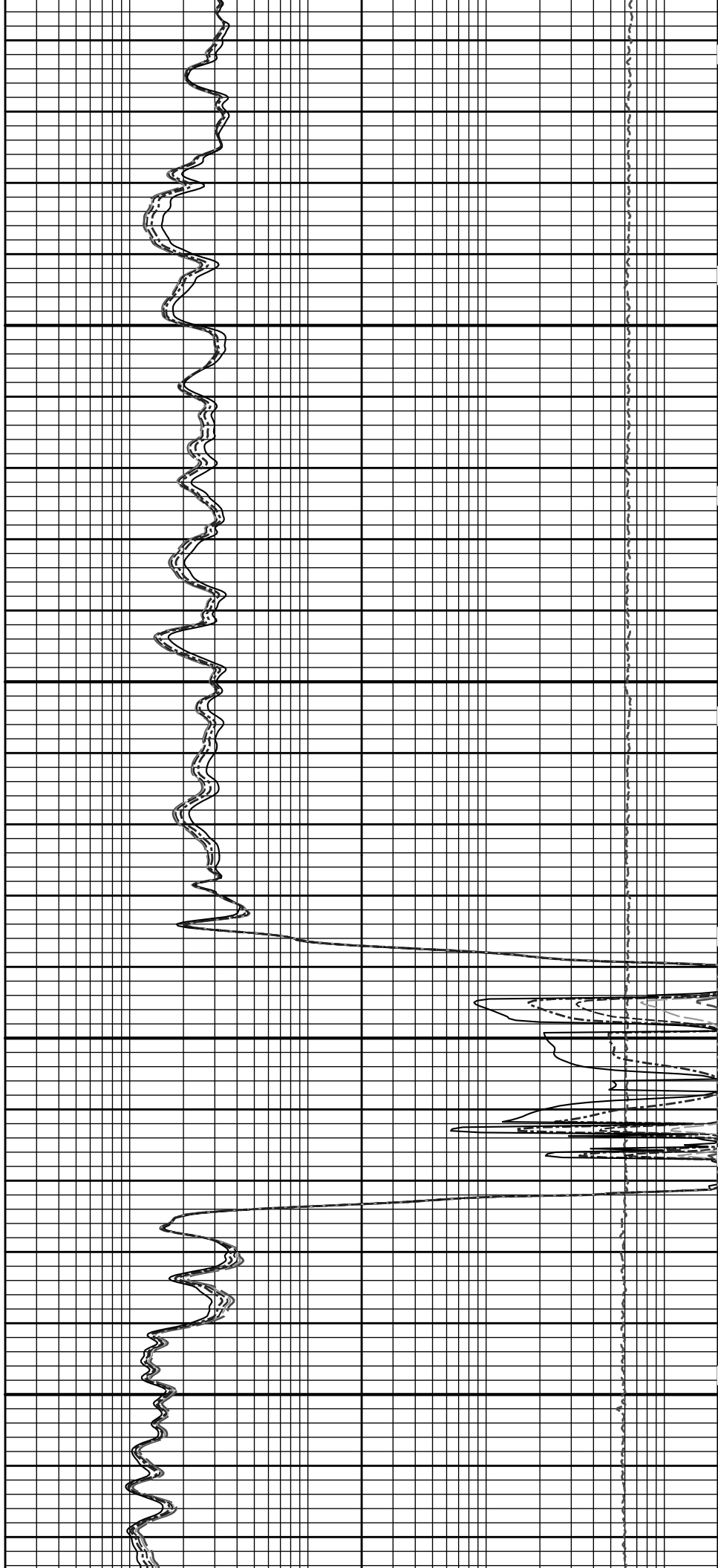
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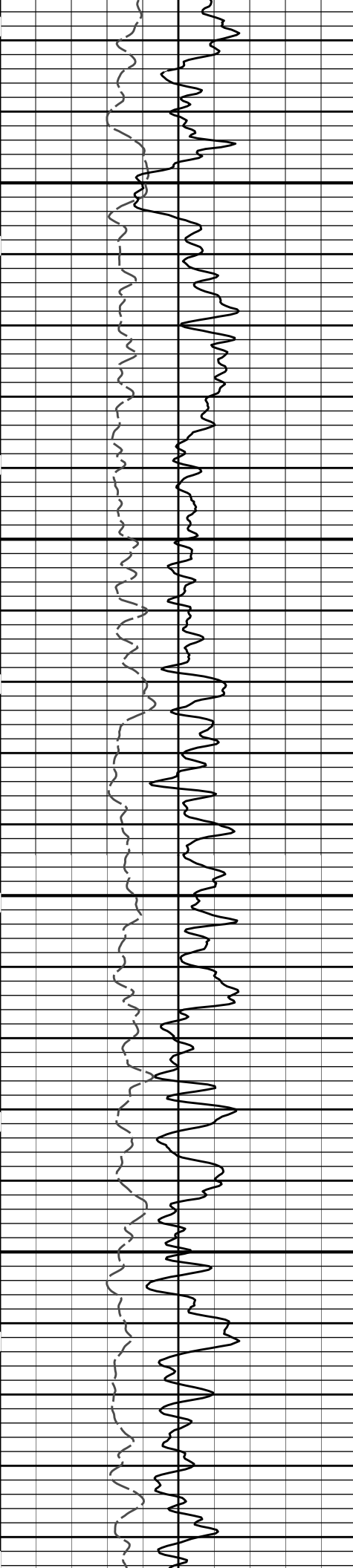




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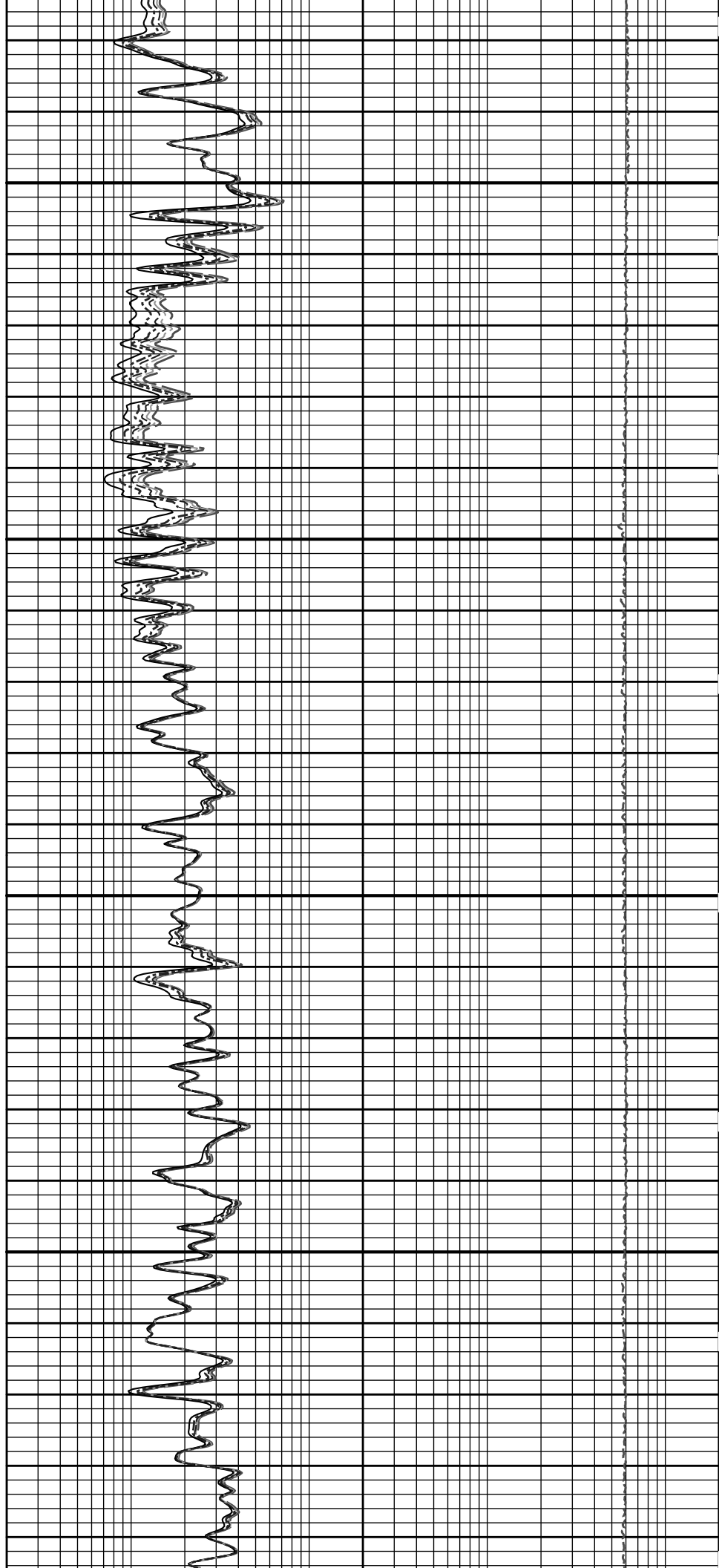
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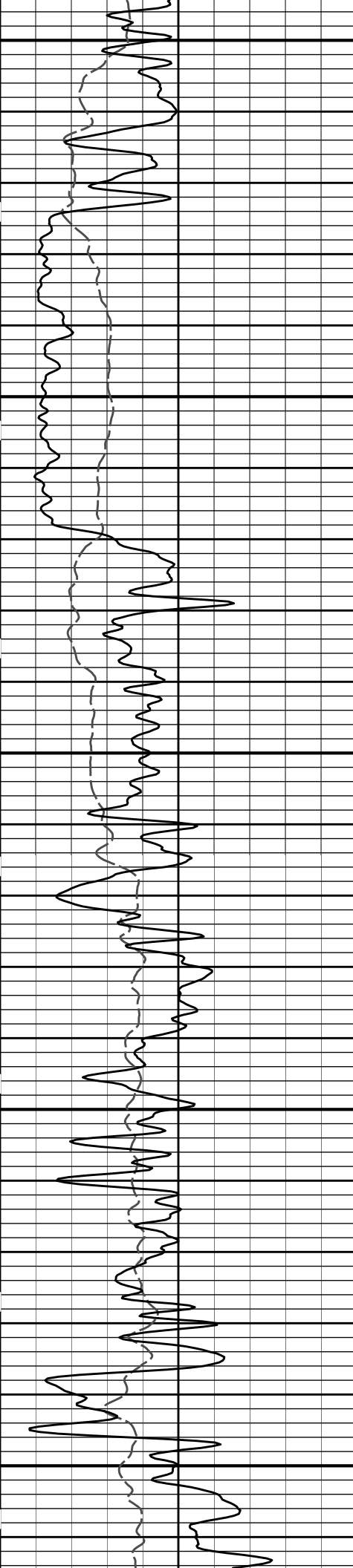




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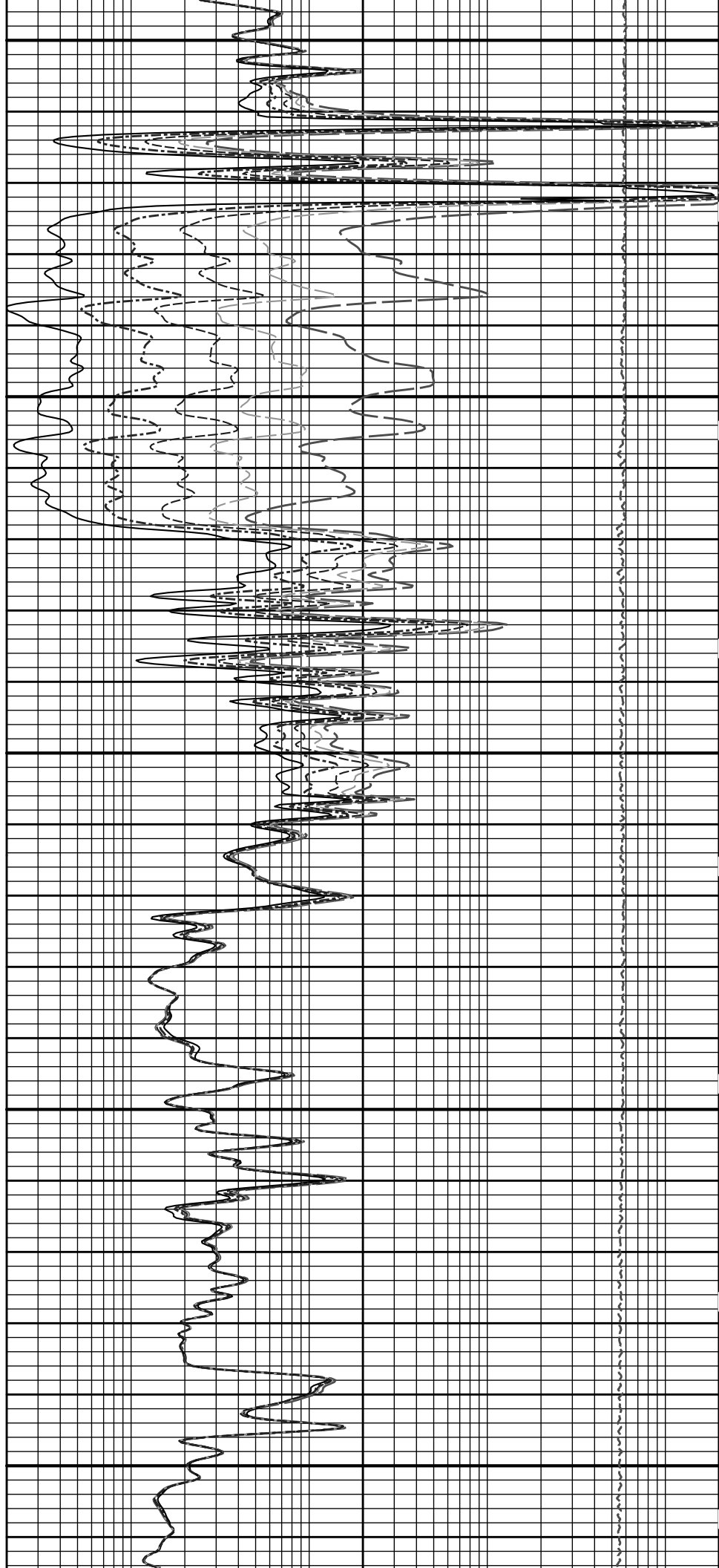


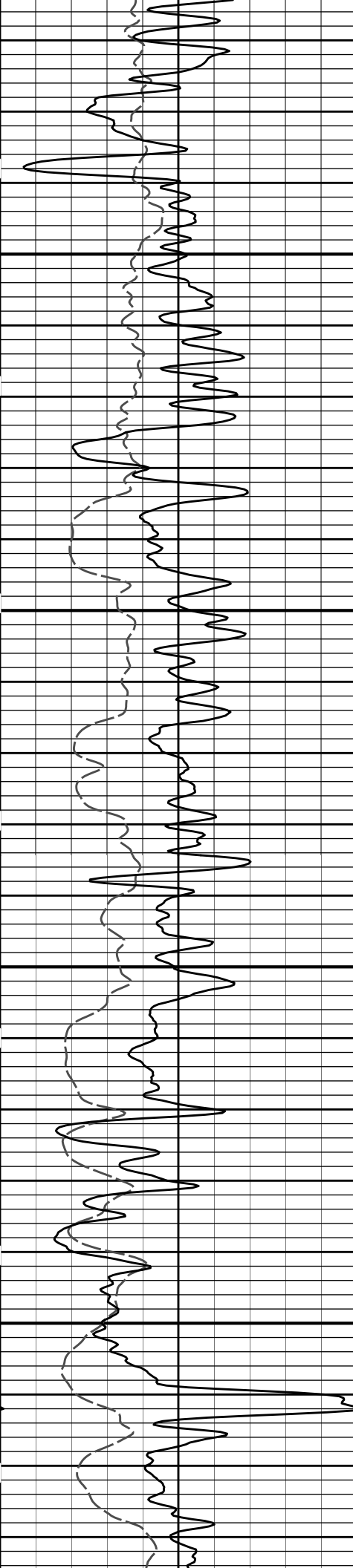


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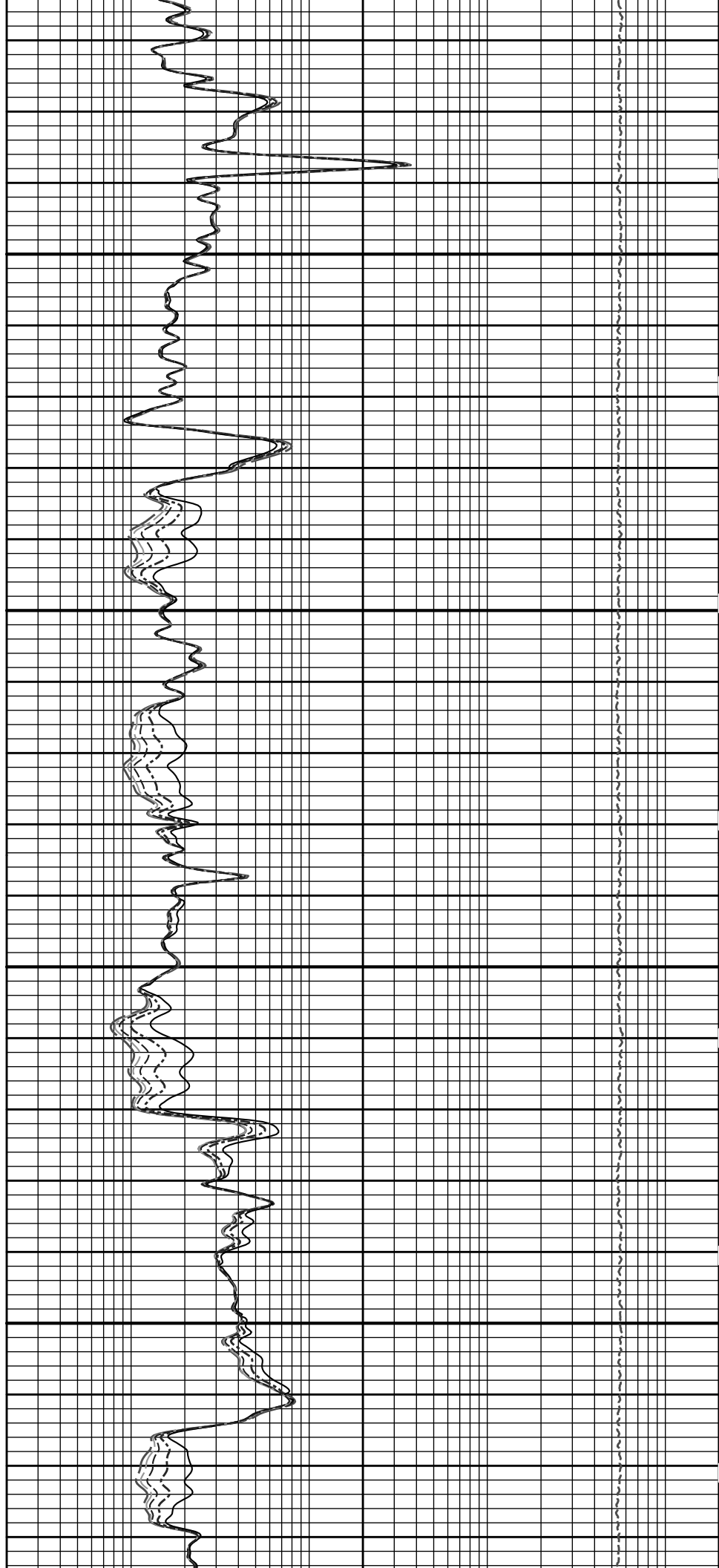
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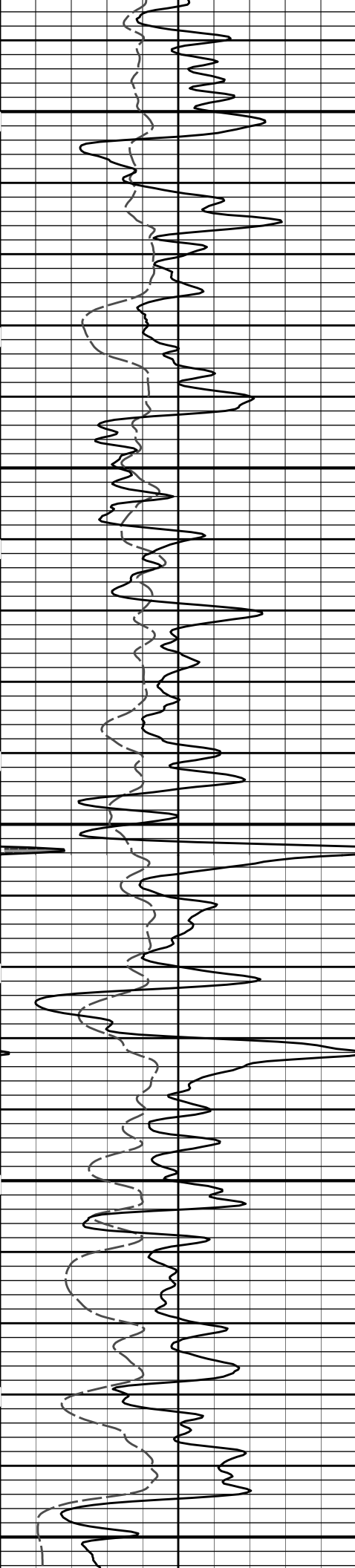




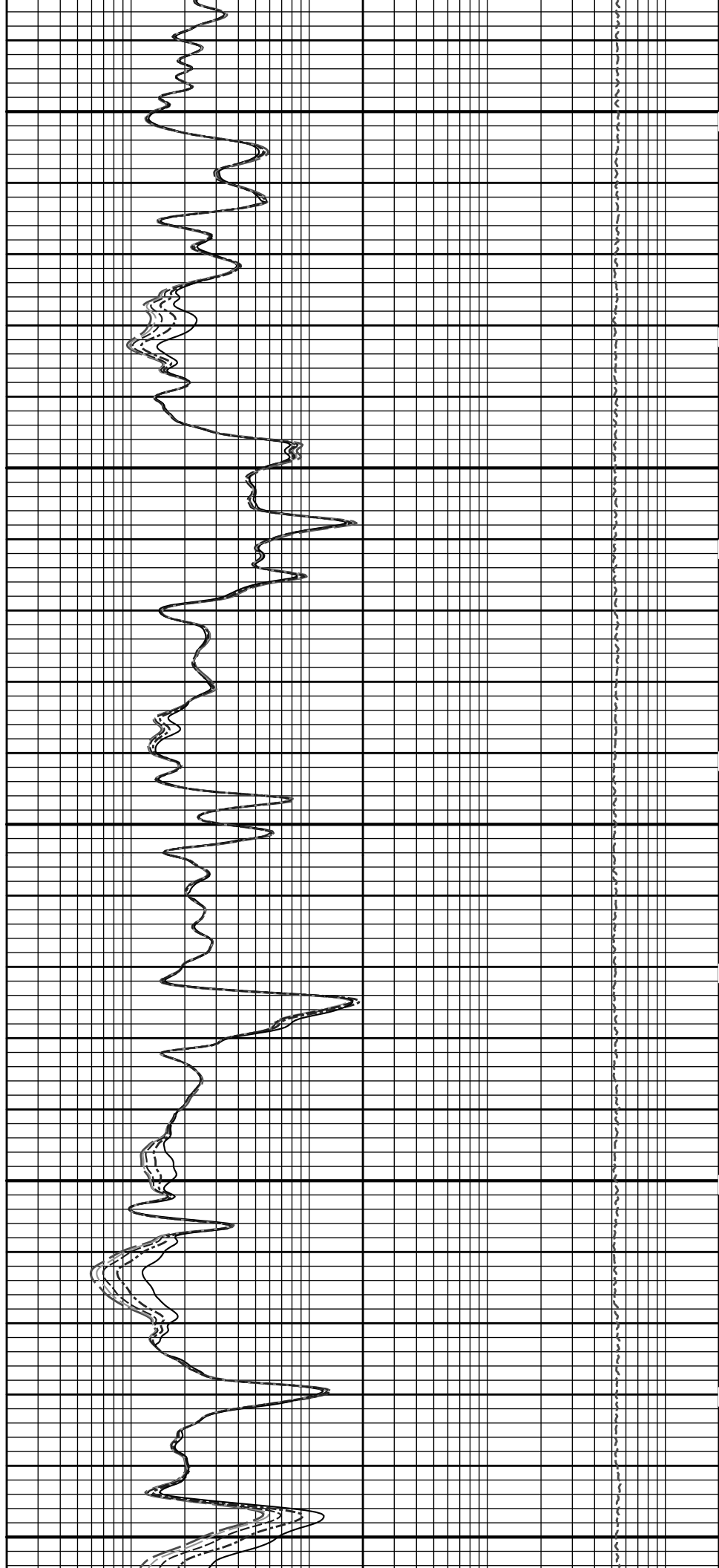
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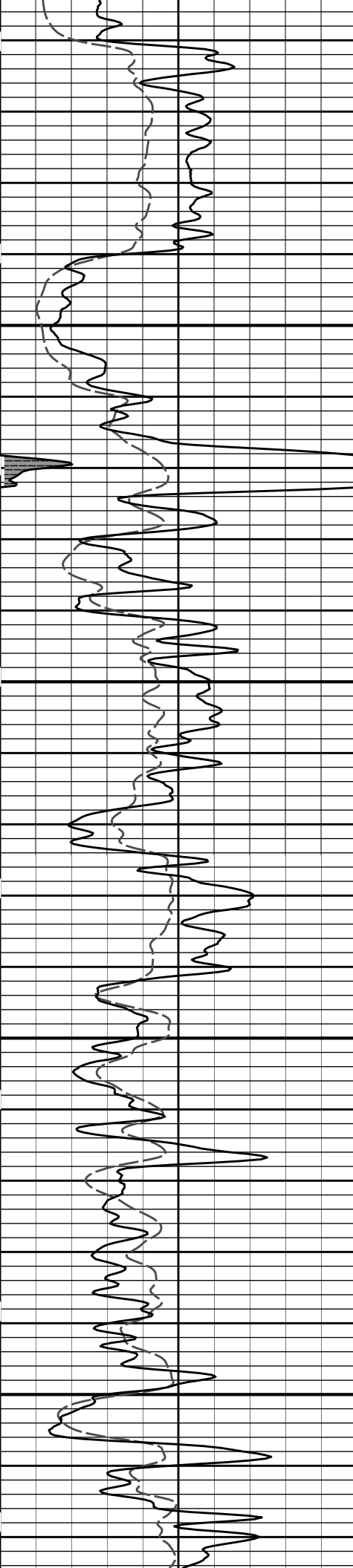




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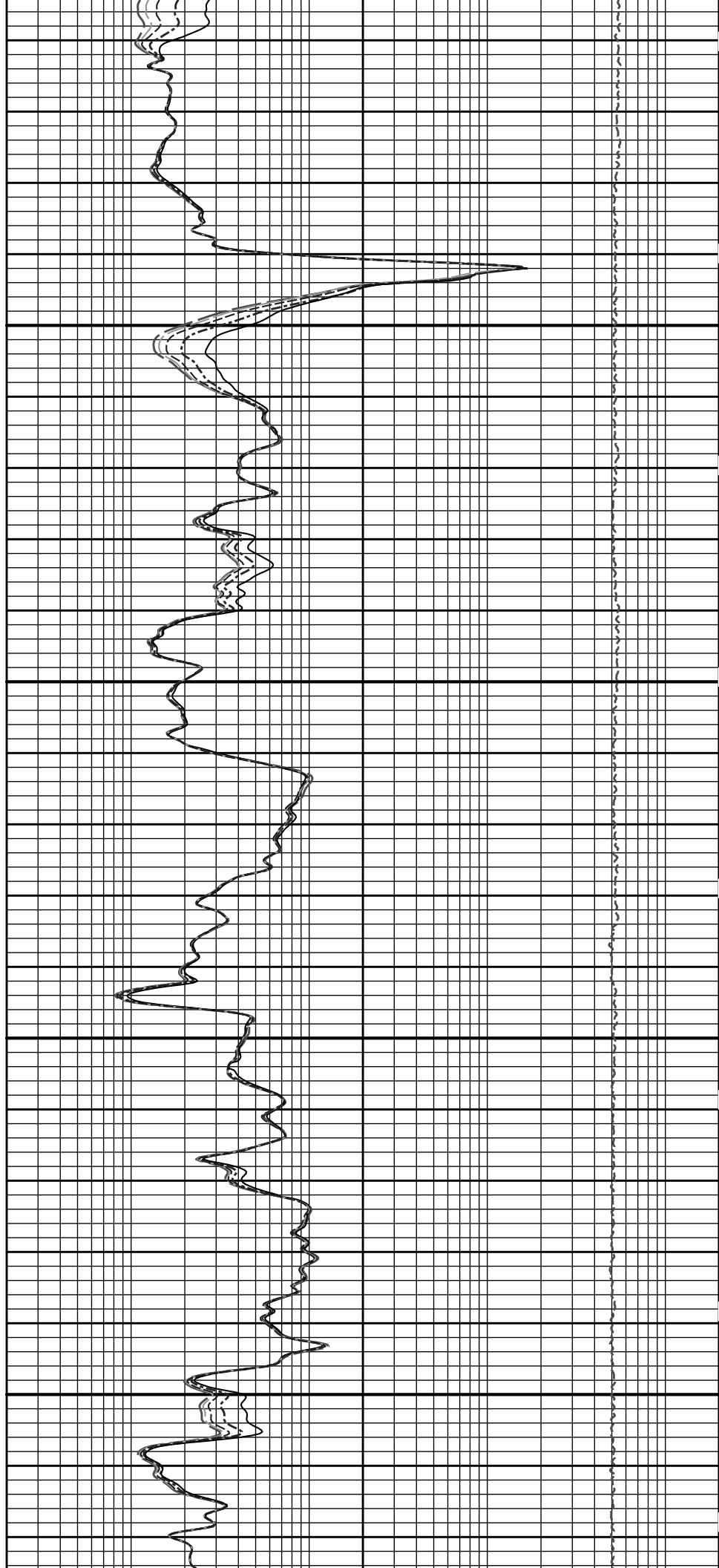


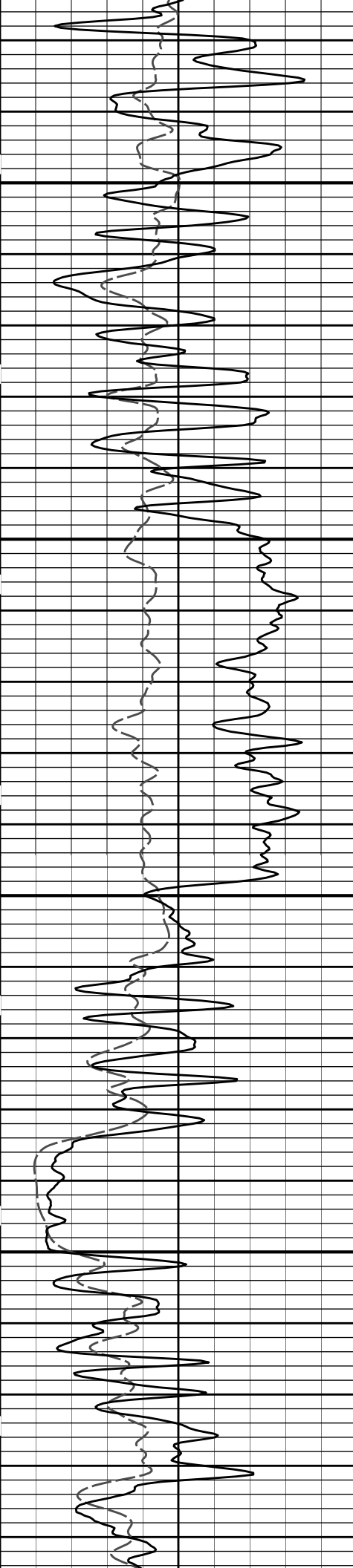
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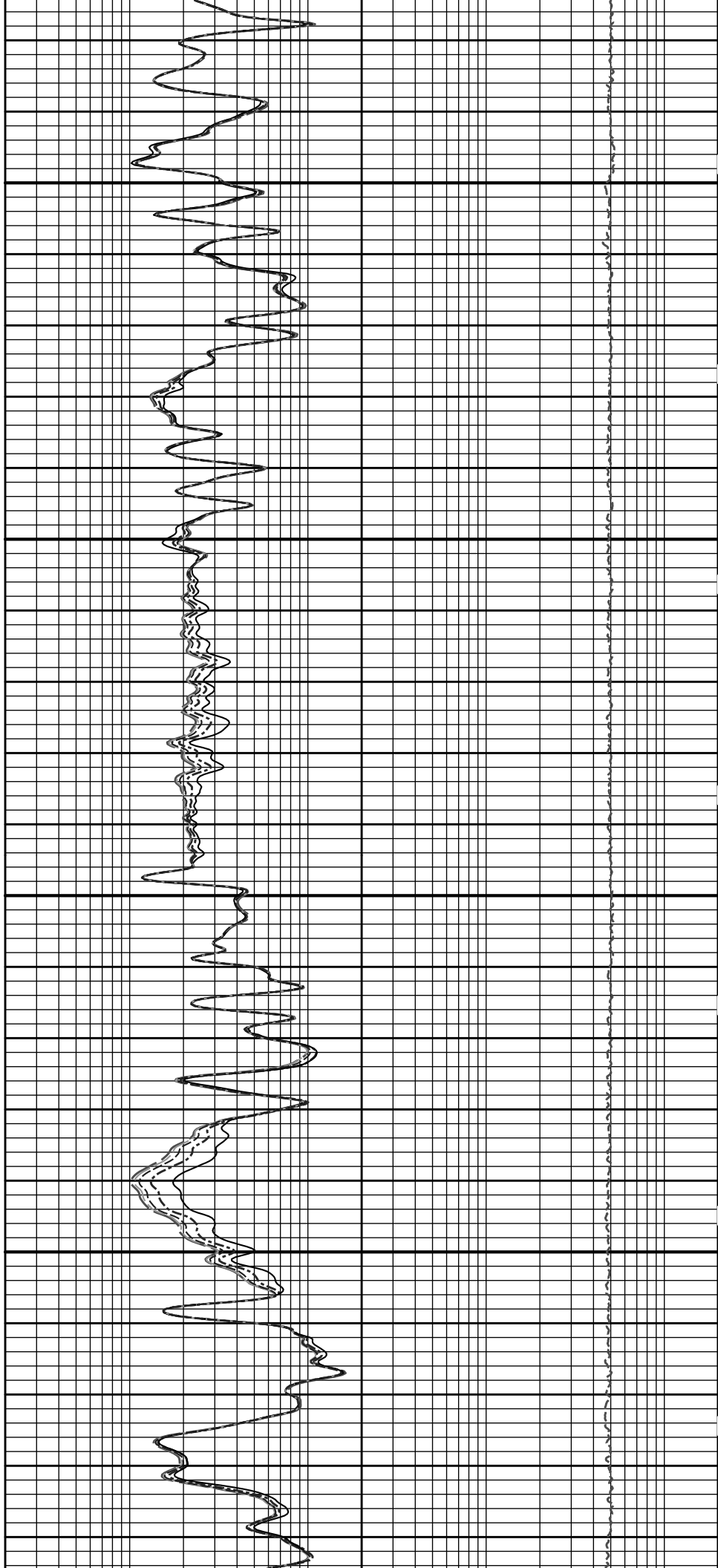
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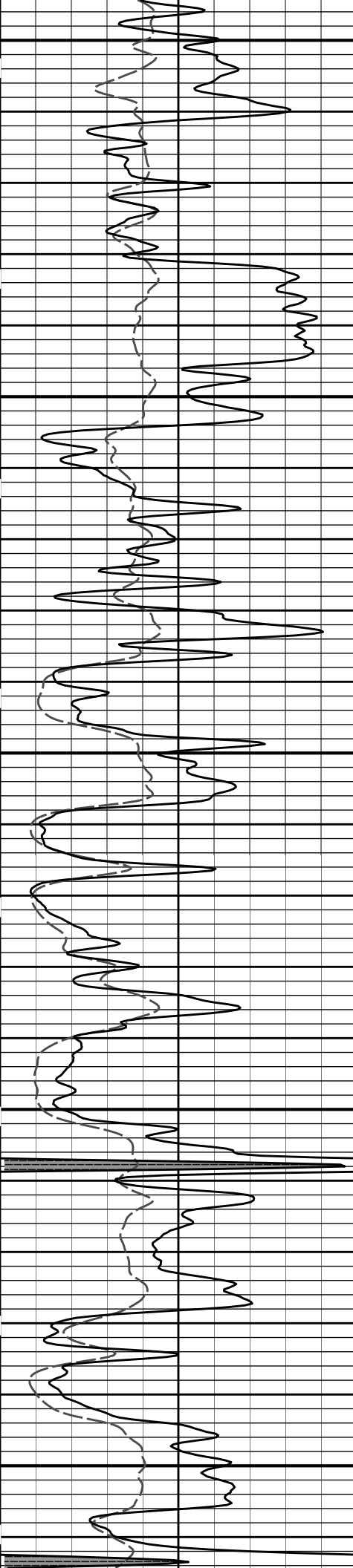




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3400

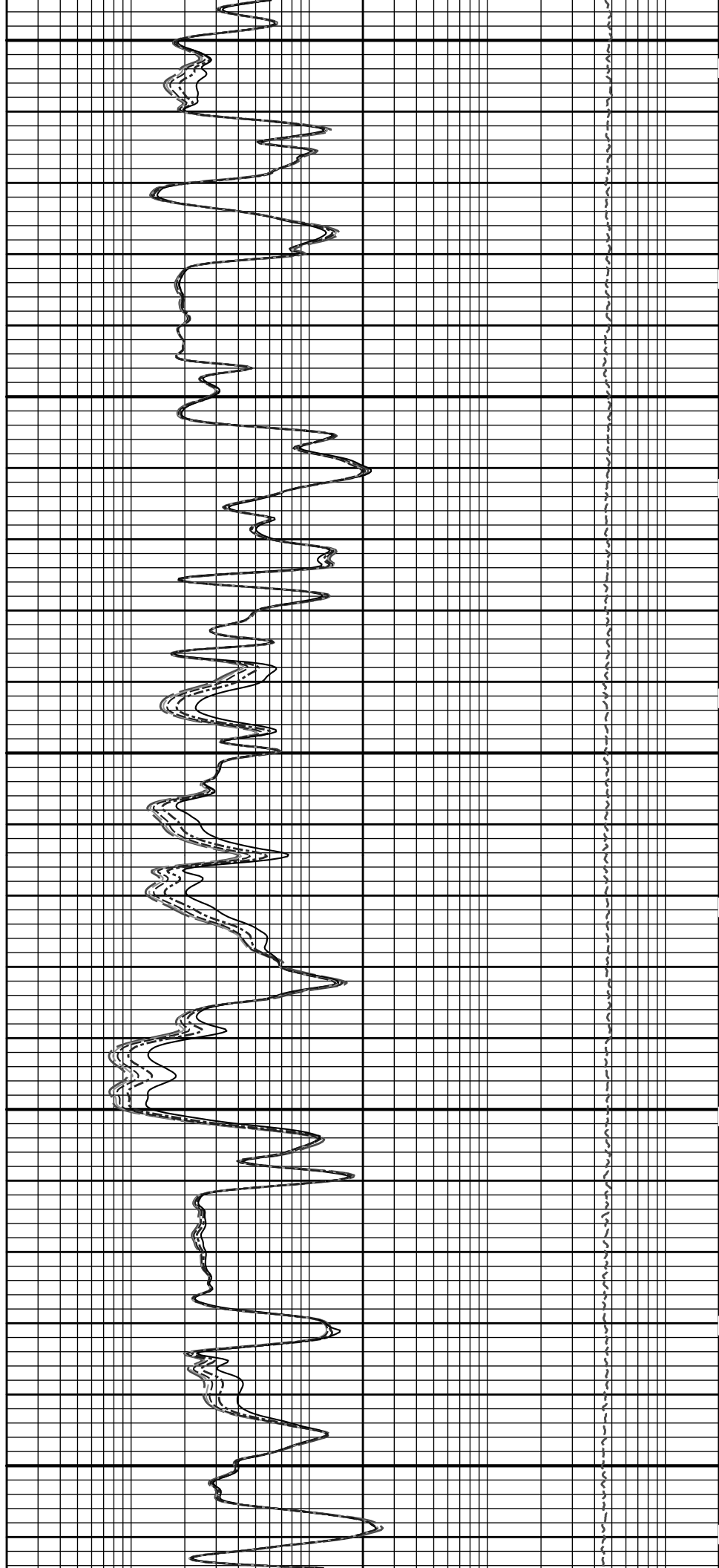


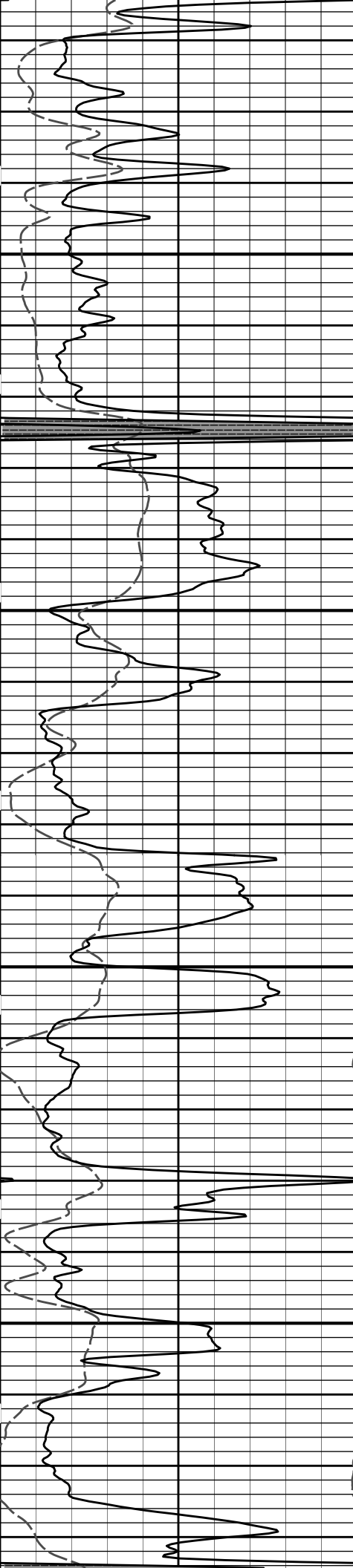


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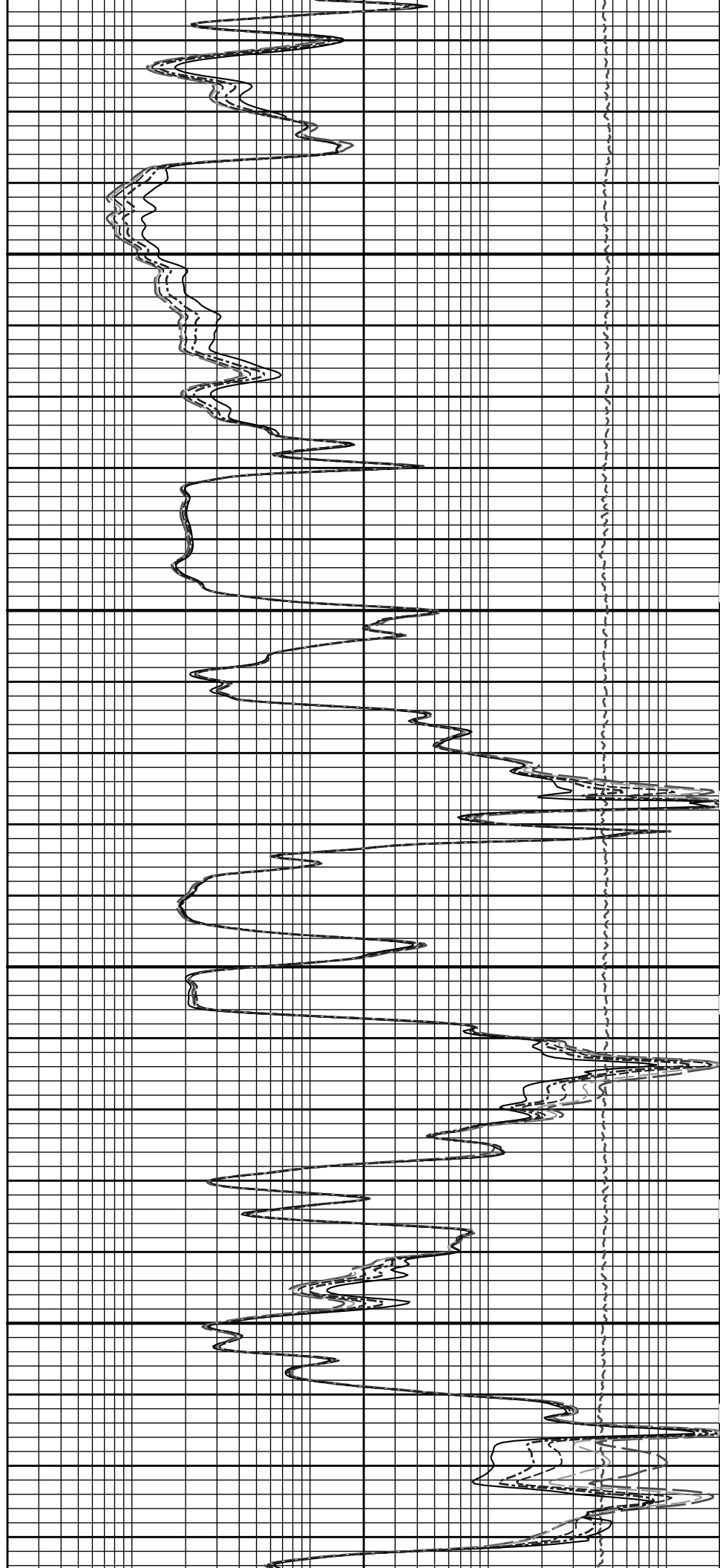
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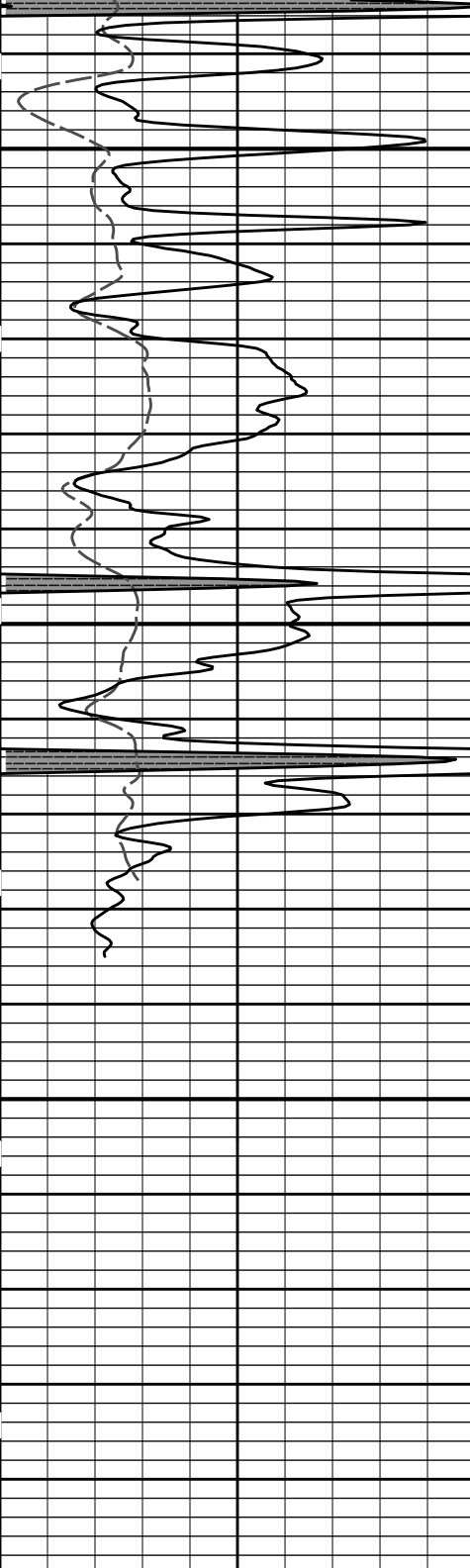




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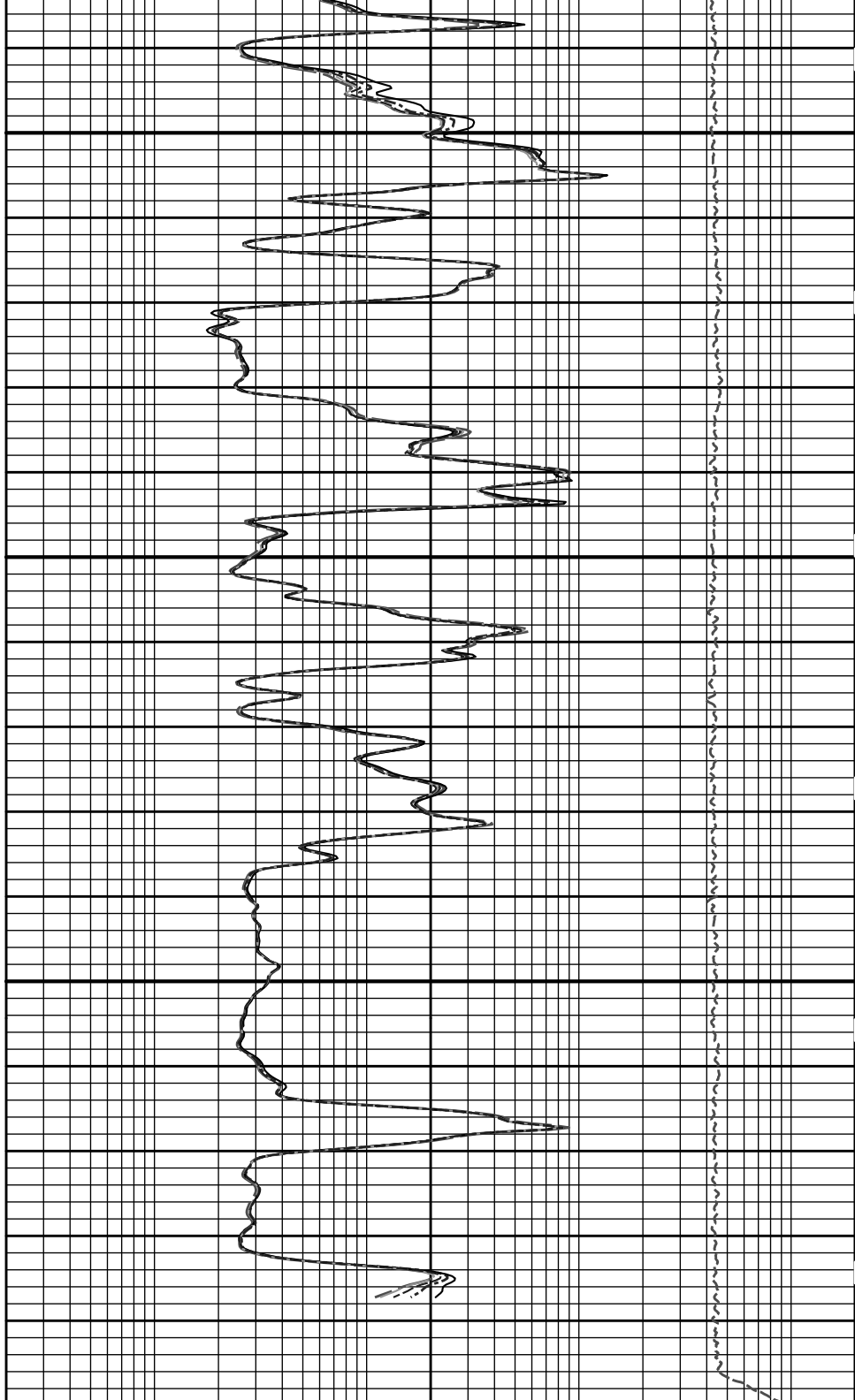
3900





4000

4100



SP		
- 20 +		
0	Gamma API	150
api		
SHALE		

MD
1 : 240
ft

10K		
Tension		
pounds		
0		
0.2	10in Resistivity 2ft Res	2000
ohmm		
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
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Plot Time: 01-Oct-13 06:05:41
Plot Range: 275 ft to 4099.83 ft
Data: GANO_UNIT_1-36\Well Based\IR1 CASING\
Plot File: \\LOCAL-IGANO_UNIT_1-36\Well Based\ACRT\ACRT_5_main.lib

HALLIBURTON

Plot Time: 01-Oct-13 06:05:41
Plot Range: 3495 ft to 4099.83 ft
Data: GANO_UNIT_1-36\Well Based\R1 LOWER DETAIL\
Plot File: \\-LOCAL-IGANO_UNIT_1-36\Well Based\ACRT\ACRT_10_EVR_LIB

MAIN SECTION 10" PER 100'

Plot Time: 01-Oct-13 06:05:41
Plot Range: 3495 ft to 4099.83 ft
Data: GANO_UNIT_1-36\Well Based\IR1 LOWER DETAIL\
Plot File: \\LOCAL-IGANO_UNIT_1-36\Well Based\ACRT\ACRT_10_EVR_LIB

		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			
		0.2	20in Resistivity 1ft Res		2000
		ohmm			
		0.2	10in Resistivity 1ft Res		2000
		ohmm			
		1 : 120 ft		10K	Tension pounds
0 Gamma EVR 150 api SP -]20[+		3500			

SHALE		
0	Gamma EVR	150
api		
SP		
-]20[+		

1 : 120
ft

0.2	90in Resistivity 1ft Res	2000
-----	--------------------------	------

ohmm

0.2	60in Resistivity 1ft Res	2000
-----	--------------------------	------

ohmm

0.2	30in Resistivity 1ft Res	2000
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ohm-metre

0.2	20in Resistivity 1ft Res	2000
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ohmm

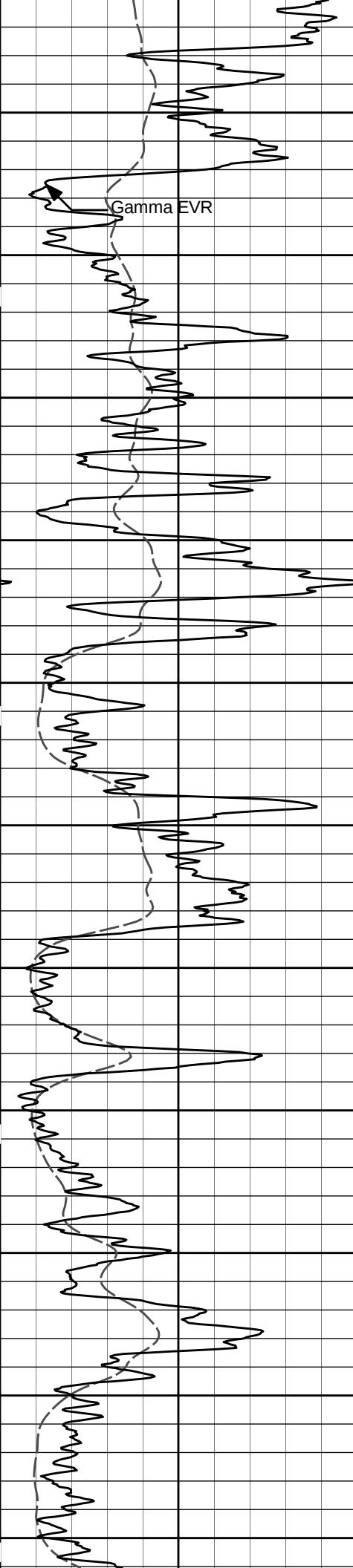
0.2	10in Resistivity 1ft Res	2000
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ohmm

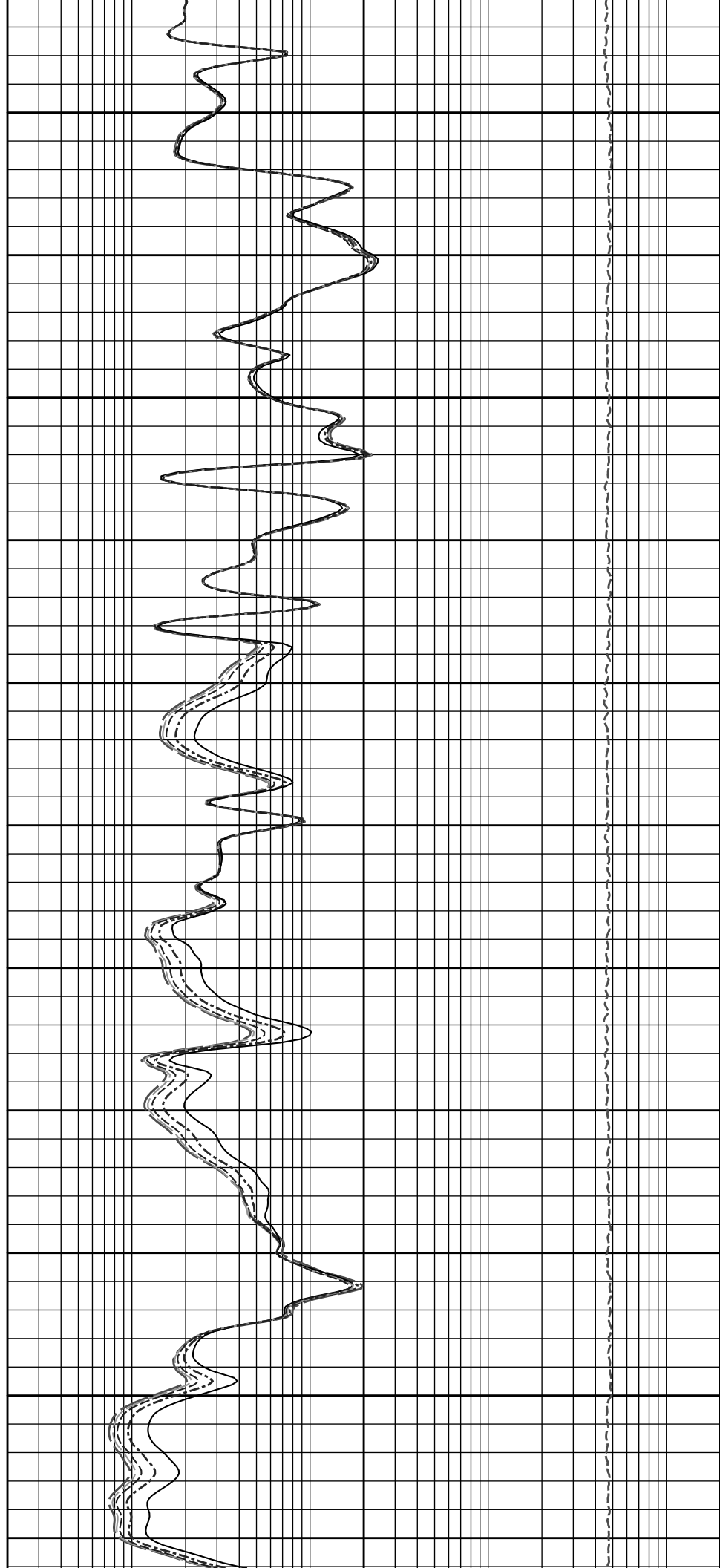
10K	Tension	0
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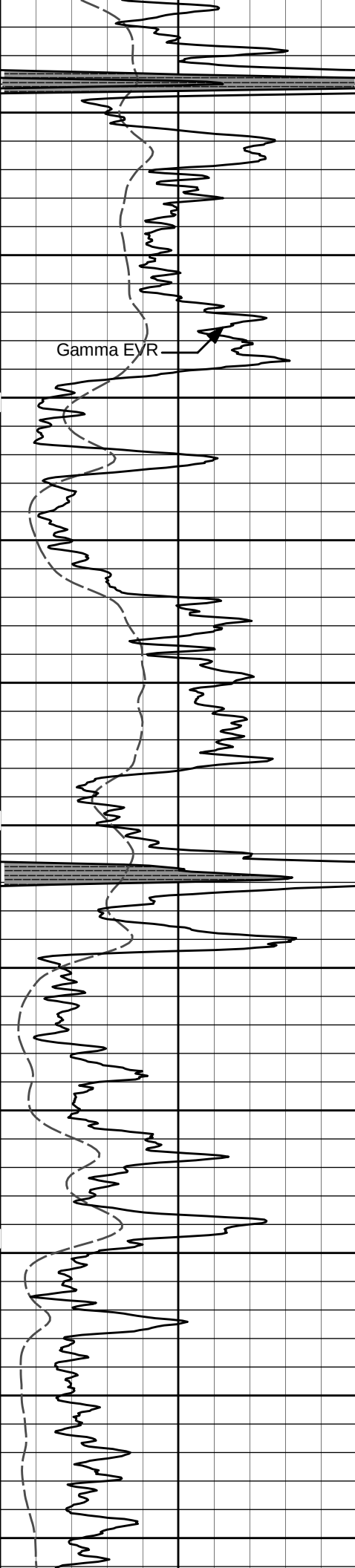
10K **Tension** 0

pounds

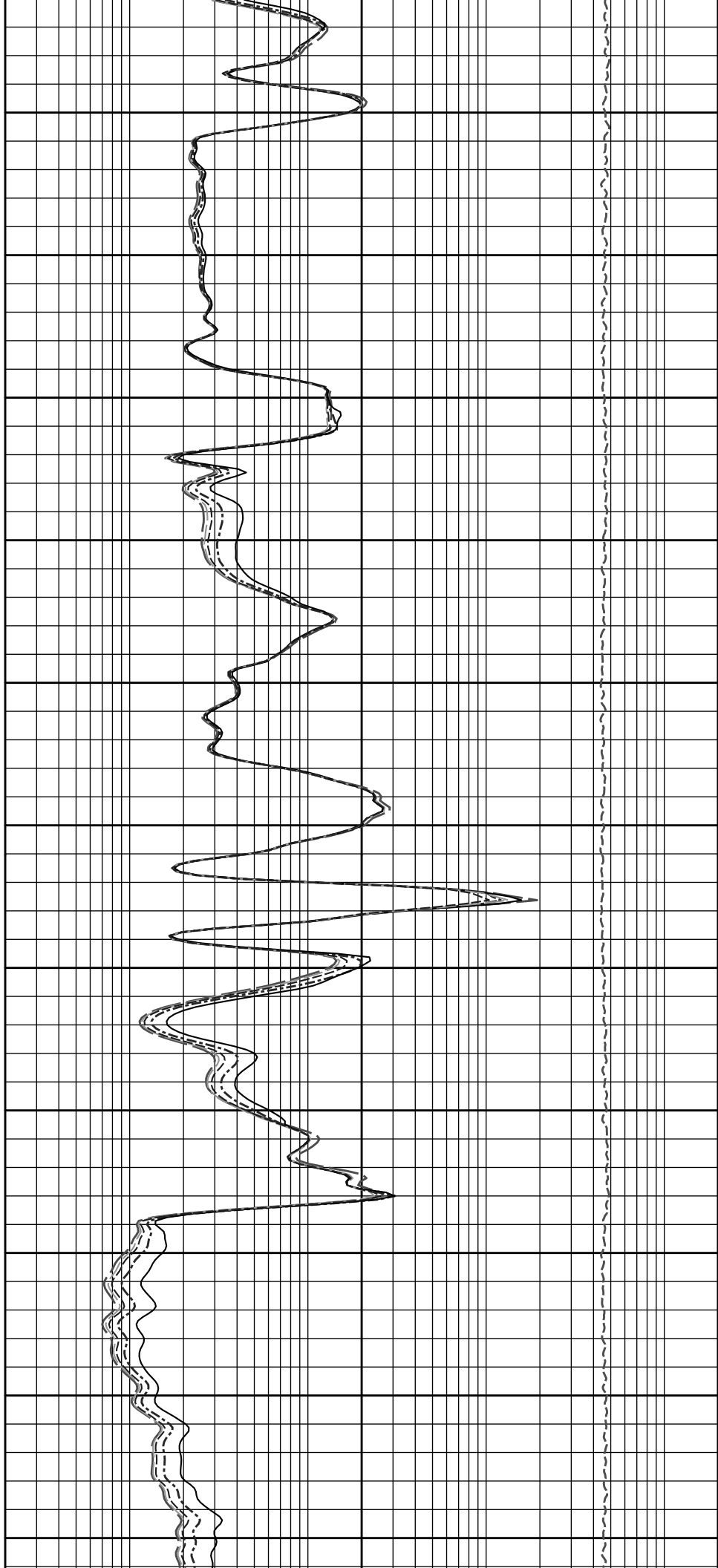


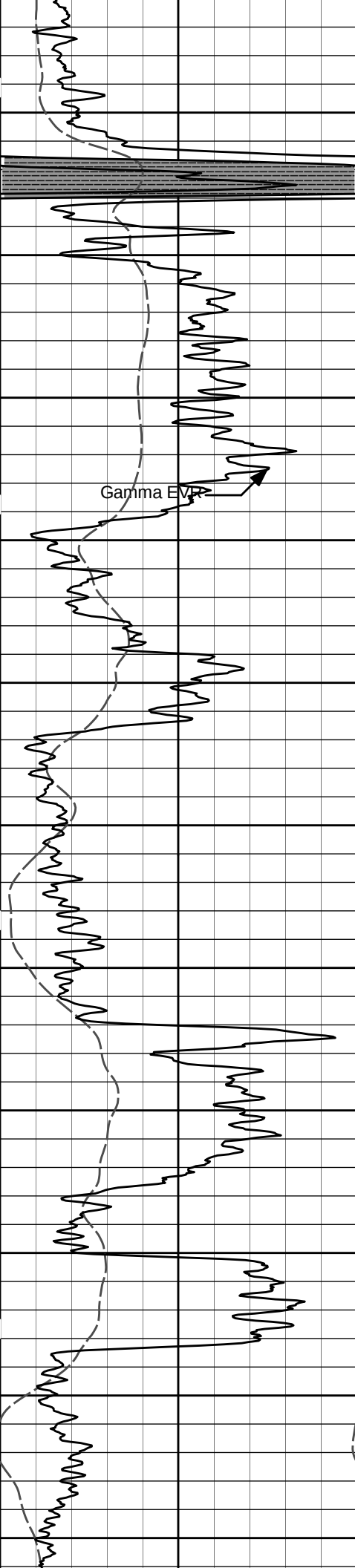
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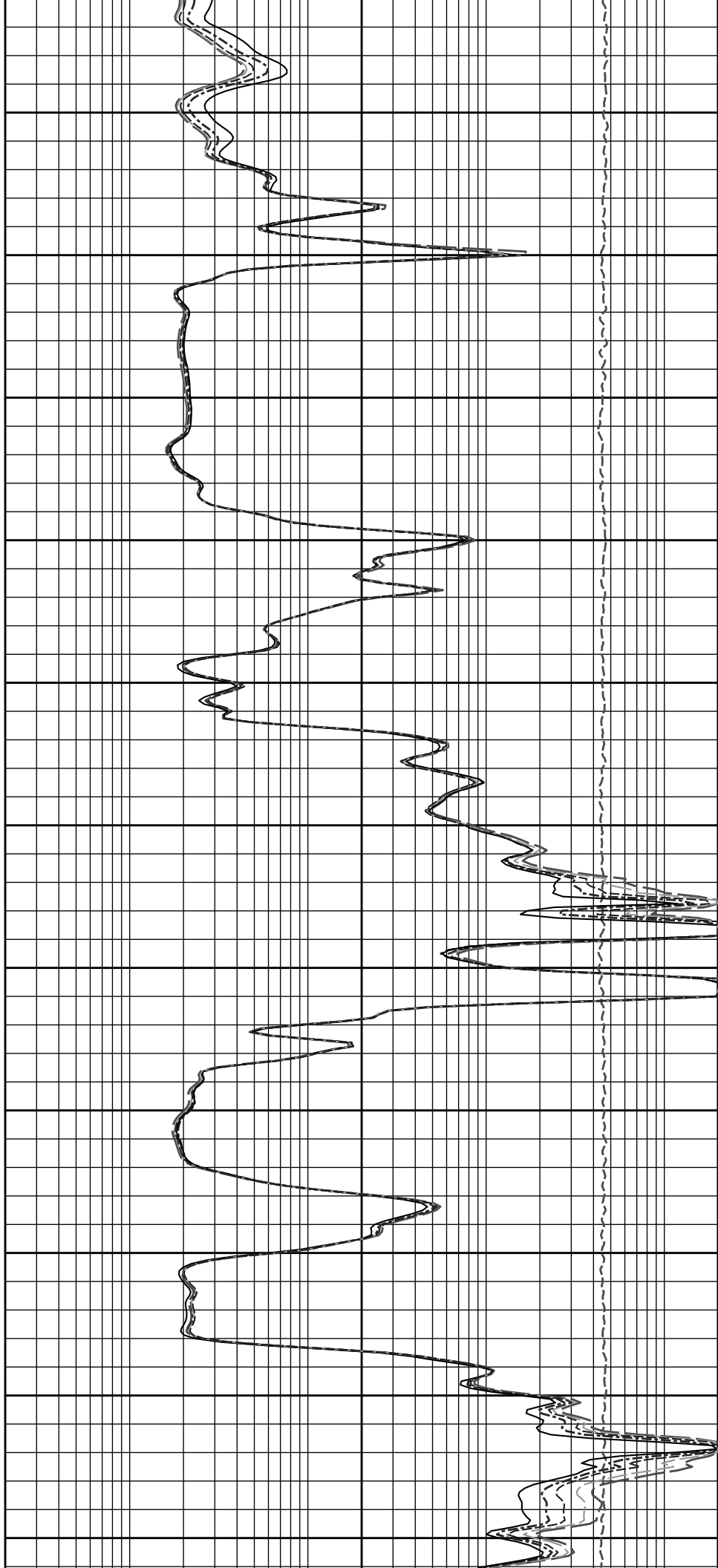


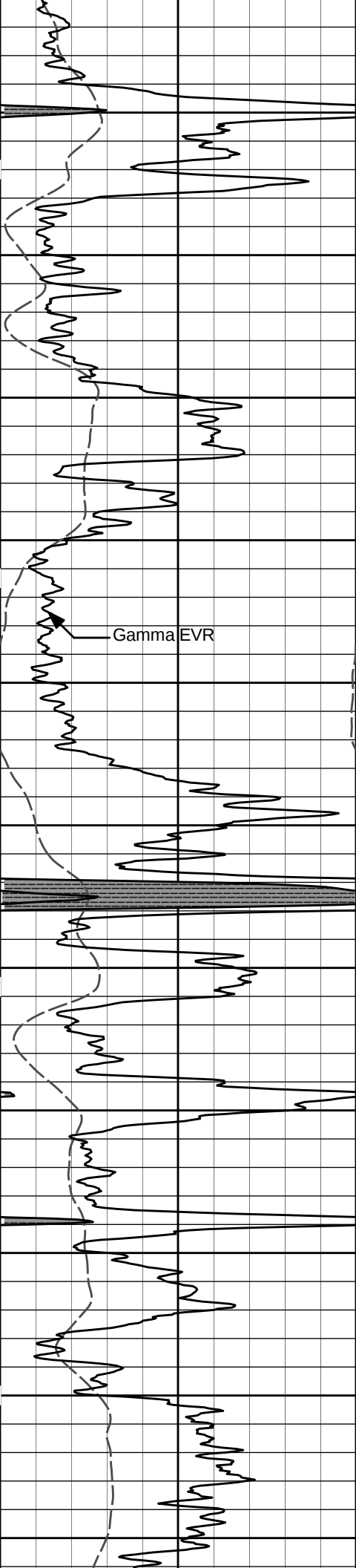
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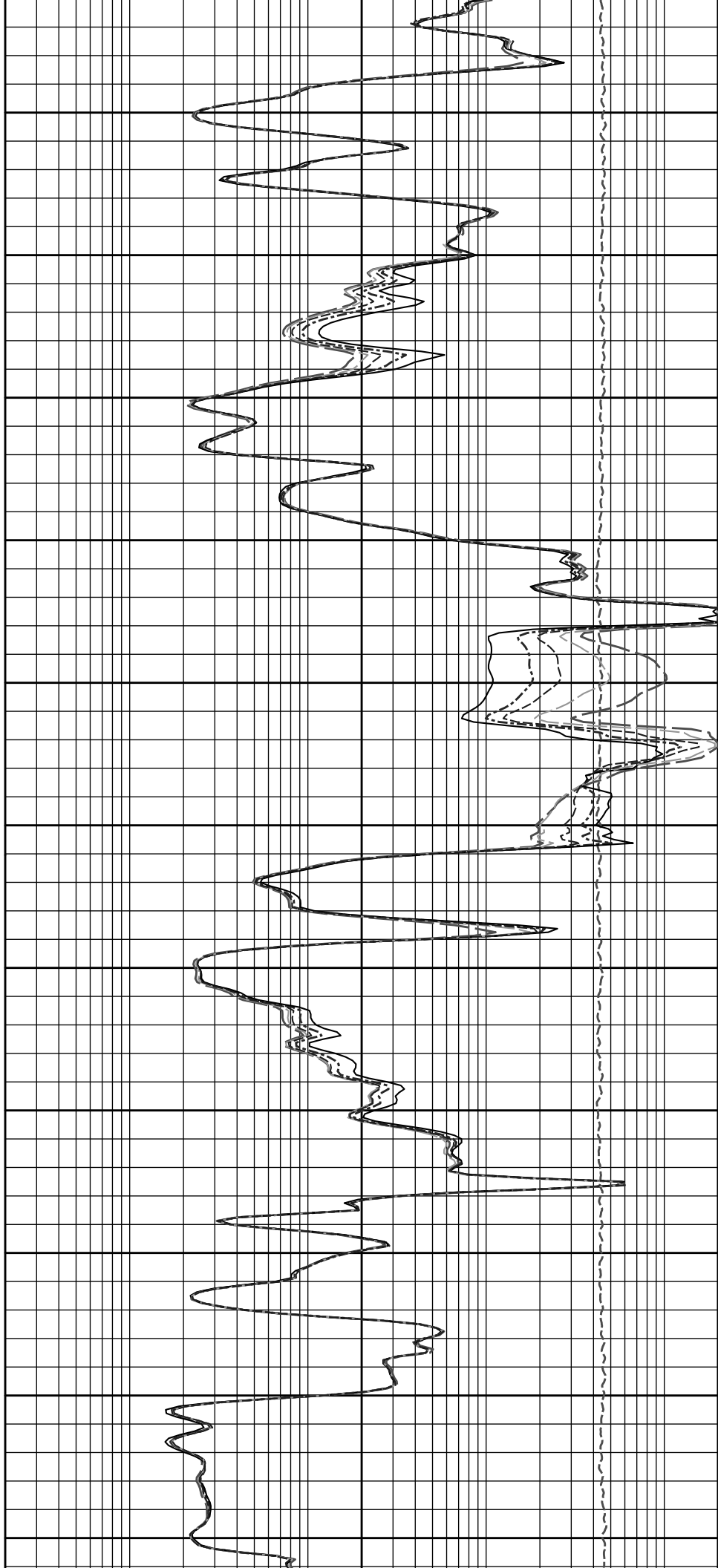


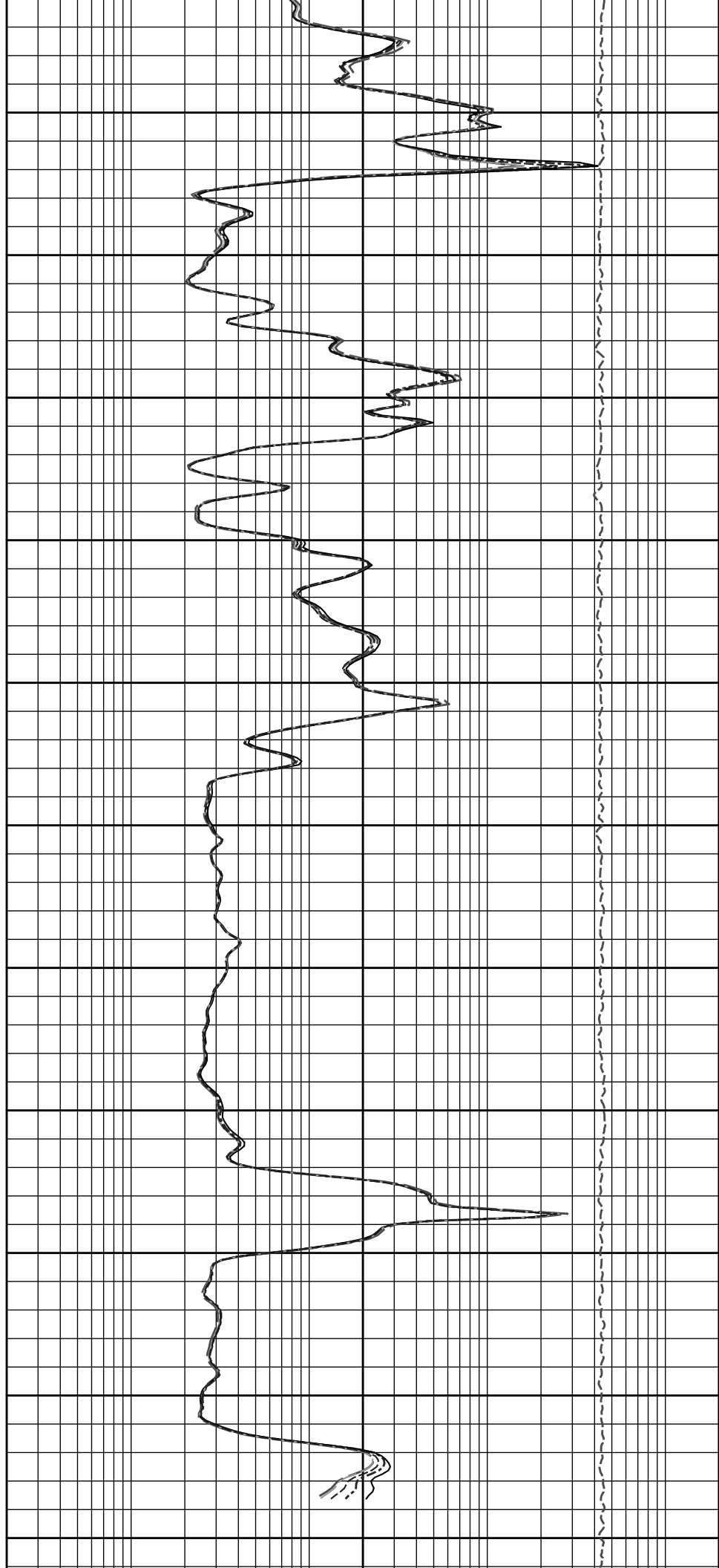
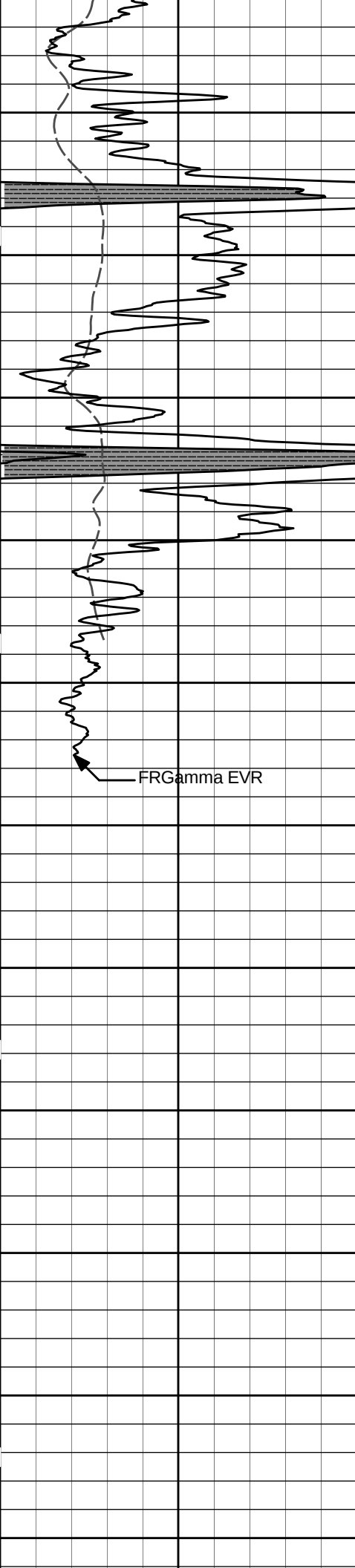
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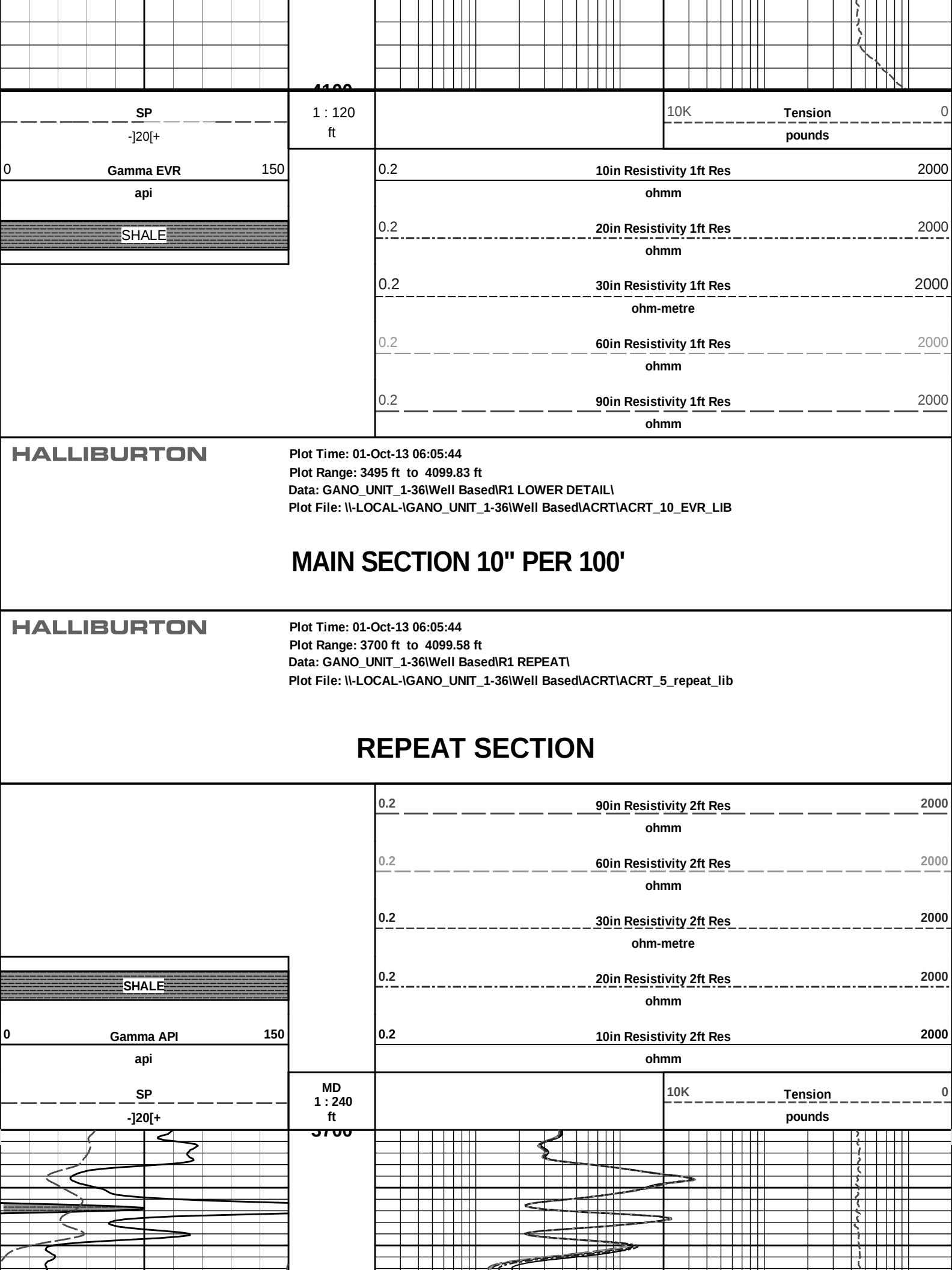


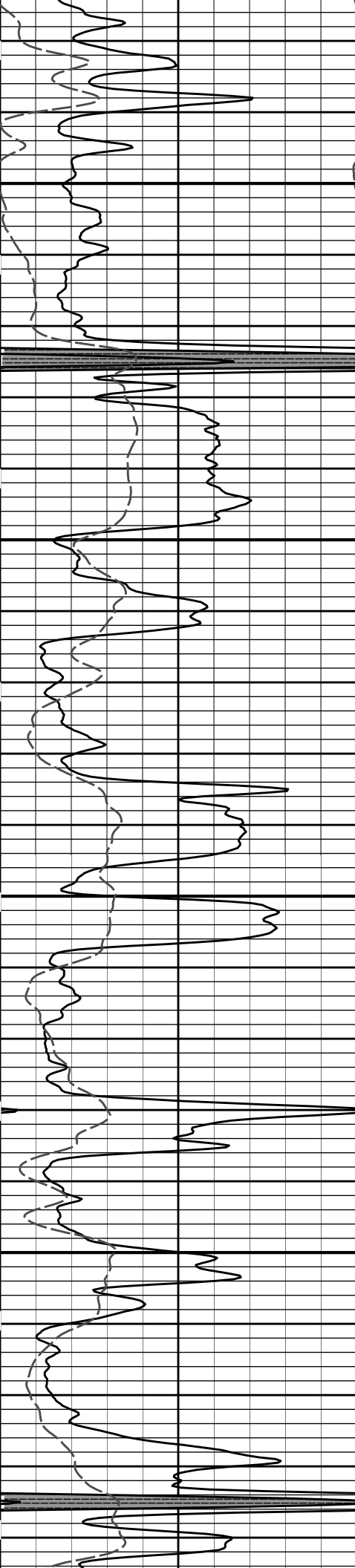


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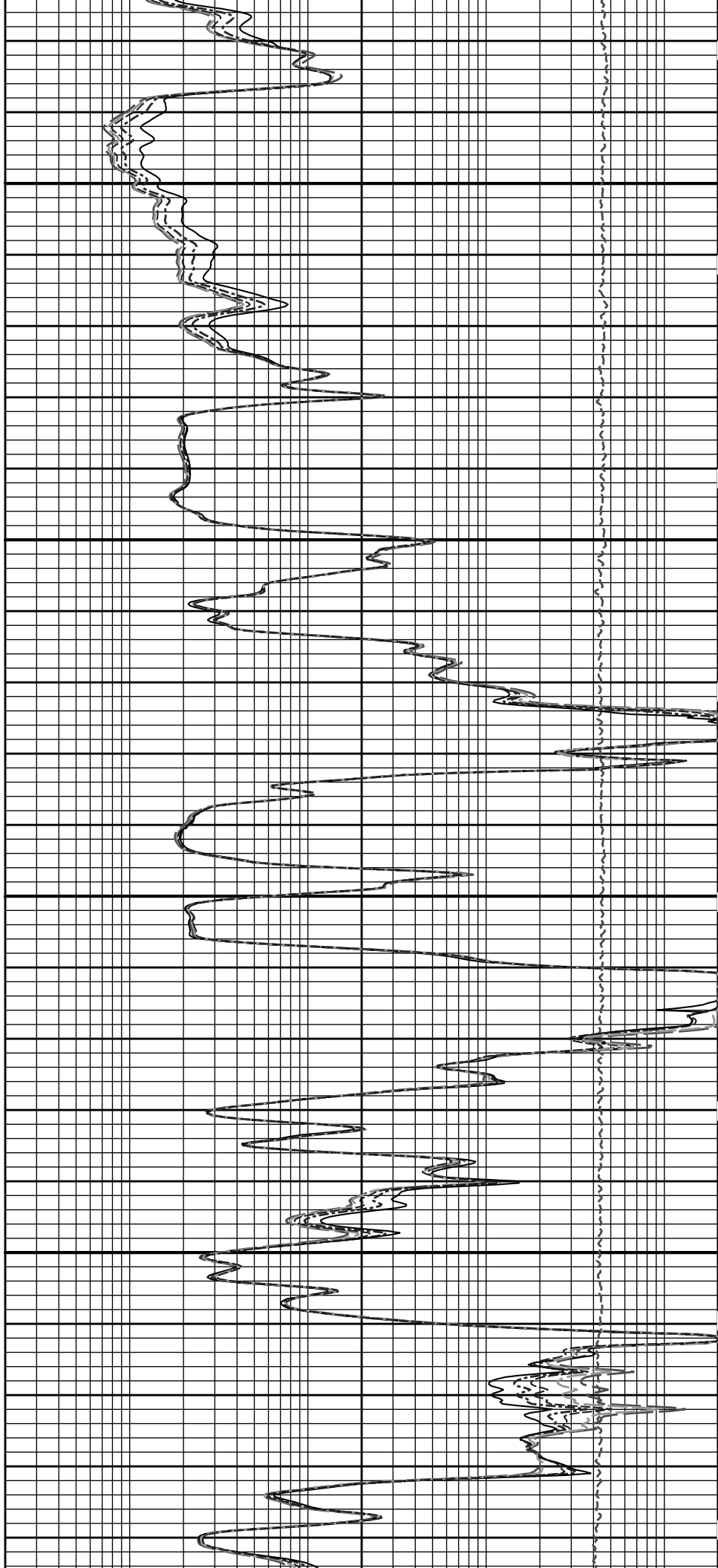


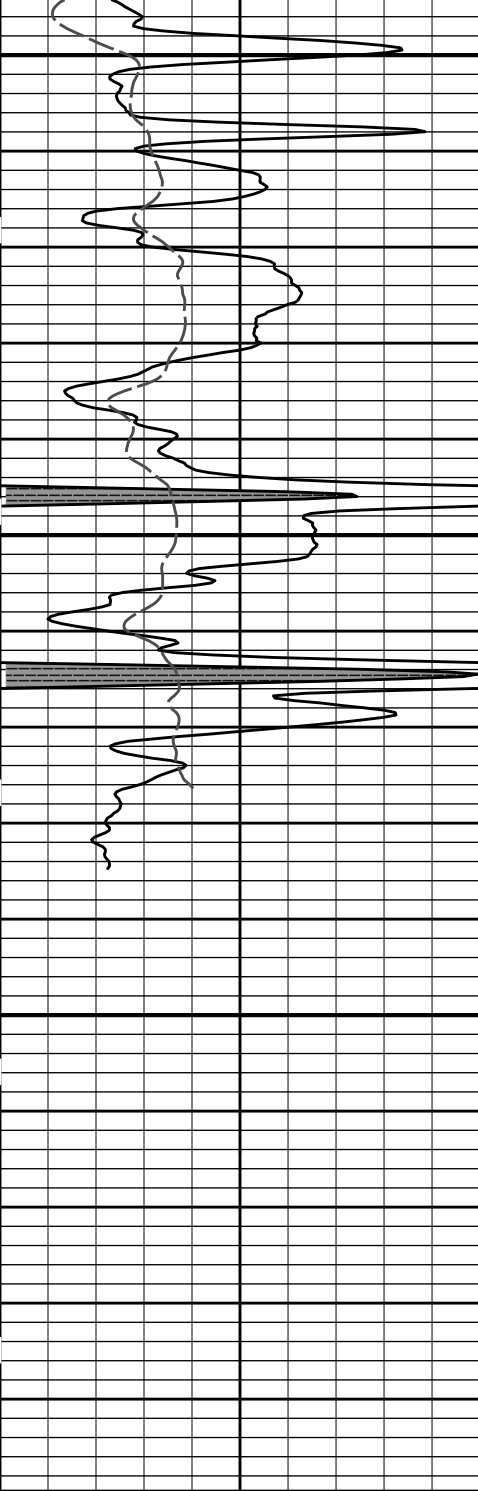




3800

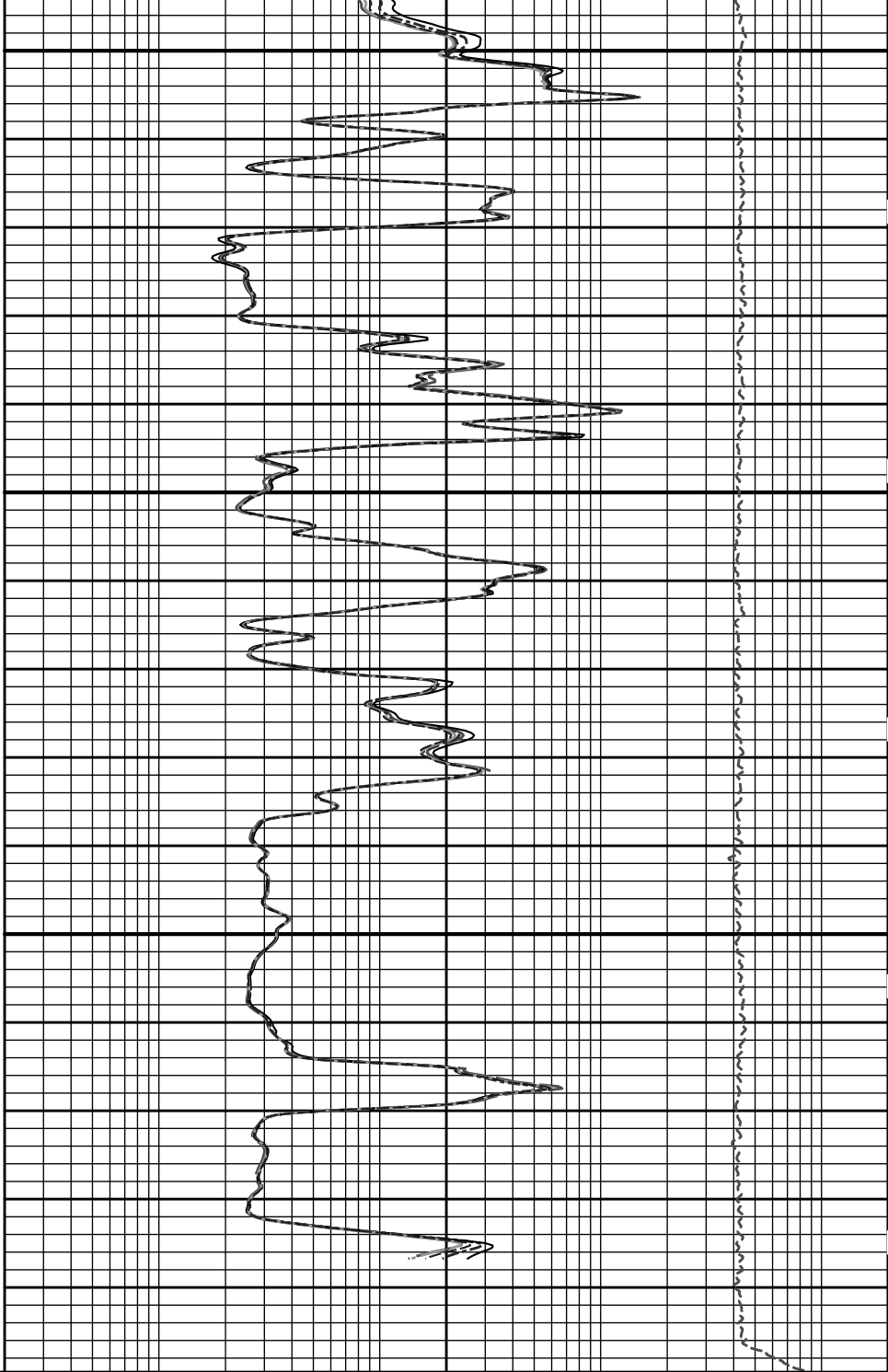
3900





4000

4100



SP	
-120[+	
0	150
Gamma API	
api	
SHALE	

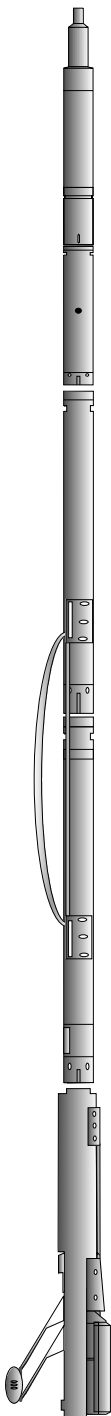
MD
1 : 240
ft

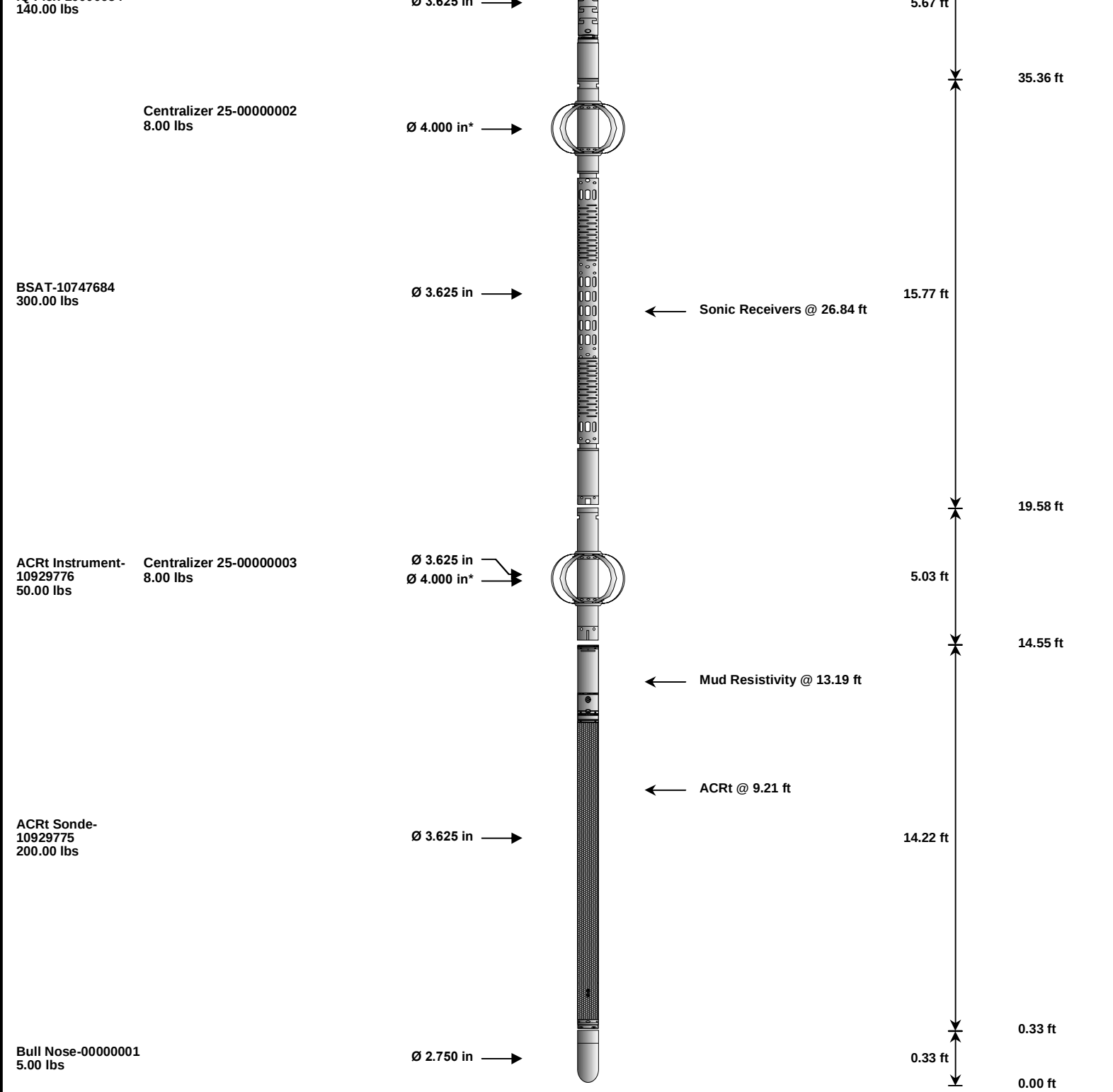
10K		Tension	0
		pounds	
0.2	10in Resistivity 2ft Res	2000	
ohmm			
0.2	20in Resistivity 2ft Res	2000	
ohmm			
0.2	30in Resistivity 2ft Res	2000	
ohm-metre			
0.2	60in Resistivity 2ft Res	2000	
ohmm			
0.2	90in Resistivity 2ft Res	2000	
ohmm			

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-12027542 135.00 lbs		Ø 3.625 in →		← Load Cell @ 76.35 ft ← BH Temperature @ 75.79 ft	6.25 ft	80.04 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		← SP @ 72.01 ft	3.74 ft	73.79 ft
GTET-10748374 165.00 lbs		Ø 3.625 in →		← GammaRay @ 63.99 ft	8.52 ft	70.05 ft
DSN Decentralizer - Large Hole-00000001 6.60 lbs		Ø 5.000 in* →				61.53 ft
DSNT-10755066 174.00 lbs		Ø 3.625 in →		← DSN Far @ 54.59 ft ← DSN Near @ 53.84 ft	9.69 ft	51.84 ft
SDLT-10685803 360.00 lbs	SDLT Pad-10714945 65.00 lbs Microlog Pad-10685803 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		Microlog @ 44.03 ft SDL Caliper @ 43.84 ft SDL @ 43.83 ft	10.81 ft	41.03 ft
IO Flex-10000954		Ø 3.625 in →			5.07 ft	



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	12027542	135.00	6.25	73.79	300.00
SP	SP Sub	12345678	60.00	3.74	70.05	300.00
GTET	Gamma Telemetry Tool	10748374	165.00	8.52	61.53	60.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer Large Hole	00000001	6.60	9.42	55.17	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81	41.03	60.00
MICP	Microlog Pad	10685803	8.00	1.00	43.53	60.00
SDLP	Density Insite Pad	10714945	65.00	2.55	43.24	60.00
IQF	IQ Flex tool	10000954	140.00	5.67	35.36	300.00
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77	19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	32.51	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03	14.55	300.00
OBCEN	Centralizer - 25 in. Overbody	00000003	8.00	2.08	15.87	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22	0.33	300.00
BLNS	Bull Nose	00000001	5.00	0.33	0.00	300.00

Total	1,684.60	80.04
* Not included in Total Length and Length Accumulation.		
Data: GANO_UNIT_1-36\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\IDLE	Date: 01-Oct-13 01:25:18	

HALLIBURTON					
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	
3400.00					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	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	1.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	4100.00	ft
	SHARED	BHT	Bottom Hole Temperature	120.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	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	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	Yes	
	DSNT	NLIT	Neutron Lithology	Limestone	

DSNT	DSNO	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	
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
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	User define	
BSAT	DTMA	Delta -T Matrix	47.60	uspf
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
ACRt Sonde	RTOK	Process ACRT?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
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: GANO_UNIT_1-36\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\004 01-Oct-13 03:32 Up @4100.3f				Date: 01-Oct-13 05:02:33

HALLIBURTON				
CALIBRATION REPORT				
NATURAL GAMMA RAY TOOL SHOP CALIBRATION				
Tool Name:	GTET - 10748374	Reference Calibration Date:	02-Aug-13 14:20:06	
Engineer:	THOMAS HYDE	Calibration Date:	03-Sep-13 10:36:47	
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1	
Calibrator Source S/N: TB-185				
Calibrator API Reference:228.00 api				
Equivalent Calibrator API Reference:232.0 api				
	Measurement	Measured	Calibrated	Units
	Background	44.2	44.4	api
	Background + Calibrator	275.0	276.4	api
	Calibrator	230.8	232.0	api
NATURAL GAMMA RAY TOOL FIELD CALIBRATION				
Tool Name:	GTET - 10748374	Reference Calibration Date:	03-Sep-13 10:36:47	

Engineer: S. INGERSOLL				Calibration Date: 30-Sep-13 20:11:26			
Software Version: WL INSITE R3.8.4 (Build 5)				Calibration Version: 1			
Calibrator Source S/N: TB-185							
Calibrator API Reference:228.00 api							
Equivalent Calibrator API Reference:232.0 api							
Field Verification				Shop	Field	Units	
Background				44.4	66.4	api	
Background + Calibrator				276.4	298.2	api	
Calibrator				232.0	231.8	api	
Shop				Field	Difference	Tolerance	
232.0				231.8	0.2	+/- 9.00	

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION							
Tool Name: ACRt Sonde - 10929775				Reference Calibration Date: 21-Jun-13 11:07:27			
Engineer: J. BOLLLOM				Calibration Date: 23-Aug-13 09:44:09			
Software Version: WL INSITE R3.8.4 (Build 5)				Calibration Version: 1			
Host Tool Name: ACRt Instrument - 10929776							

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.01	1.05
A2 (50")	0.95	1.03	1.05	0.95	1.03	1.05	0.95	1.03	1.05
A3 (29")	0.95	1.03	1.05	0.95	1.04	1.05	0.95	1.04	1.05
A4 (17")	0.95	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.03	1.05	0.95	1.03	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.04	1.05	0.95	1.04	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	-1.90	2	-6	-4.49	-2	-8	-4.55	-2
A2 (50")	-7	-2.93	0	-7	-4.28	0	-7	-4.35	0
A3 (29")	-27	-15.42	-9	-9	-4.83	-3	-7	-2.94	-1
A4 (17")	-180	-105.16	-60	-45	-33.00	-15	-39	-25.81	-13
A5 (10")	N/A	N/A	N/A	-150	-120.62	-50	-80	-56.02	-10
A6 (6")	N/A	N/A	N/A	175	287.69	525	90	143.22	270

TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.87	1.3	Mud Cell	0.95	0.99	1.05
36K	1.0	1.19	2.0				
72K	1.0	1.46	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-10748374						
Gamma Ray Calibrator	232.0	231.8	-----	0.2	+/- 9.00	api
ACRt Sonde-10929775						
Mud Cell	0.99	-----	-----	0.00	-----	ohm-m

Data: GANO_UNIT_1-36\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-BN\004 01-Oct-13 03:32 Up @4100.3f Date: 01-Oct-13 05:06:16

HALLIBURTON

INPUTS, DELAYS AND FILTERS TABLE

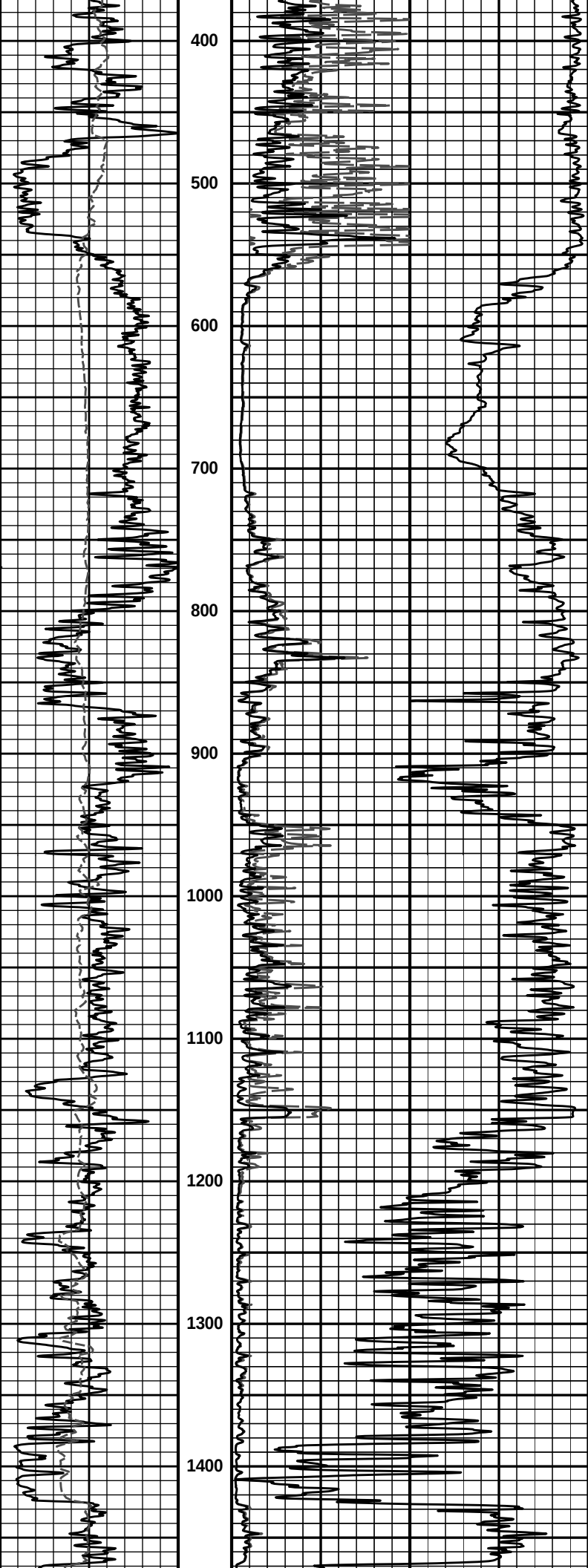
Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
Depth Panel				
TENS	Tension	0.00	NO	
RWCH				
DHTN	DownholeTension	0.00	BLK	0.000
SP Sub				
PLTC	Plot Control Mask	72.01	NO	
SP	Spontaneous Potential	72.01	BLK	1.250
SPR	Raw Spontaneous Potential	72.01	NO	
SPO	Spontaneous Potential Offset	72.01	NO	
GTET				
TPUL	Tension Pull	63.99	NO	
GR	Natural Gamma Ray API	63.99	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	63.99	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	63.99	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	53.74	NO	
RNDS	Near Detector Telemetry Counts	53.84	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.59	TRI	0.583
DNTT	DSN Tool Temperature	53.84	NO	
DSNS	DSN Tool Status	53.74	NO	
ERND	Near Detector Telemetry Counts EVR	53.84	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.59	BLK	0.000
ENTM	DSN Tool Temperature EVR	53.84	NO	
SDLT				
TPUL	Tension Pull	43.84	NO	
PCAL	Pad Caliper	43.84	TRI	0.250
ACAL	Arm Caliper	43.84	TRI	0.250
BSAT				
TPUL	Tension Pull	26.84	NO	
STAT	Status	26.84	NO	
DLYT	Delay Time	26.84	NO	

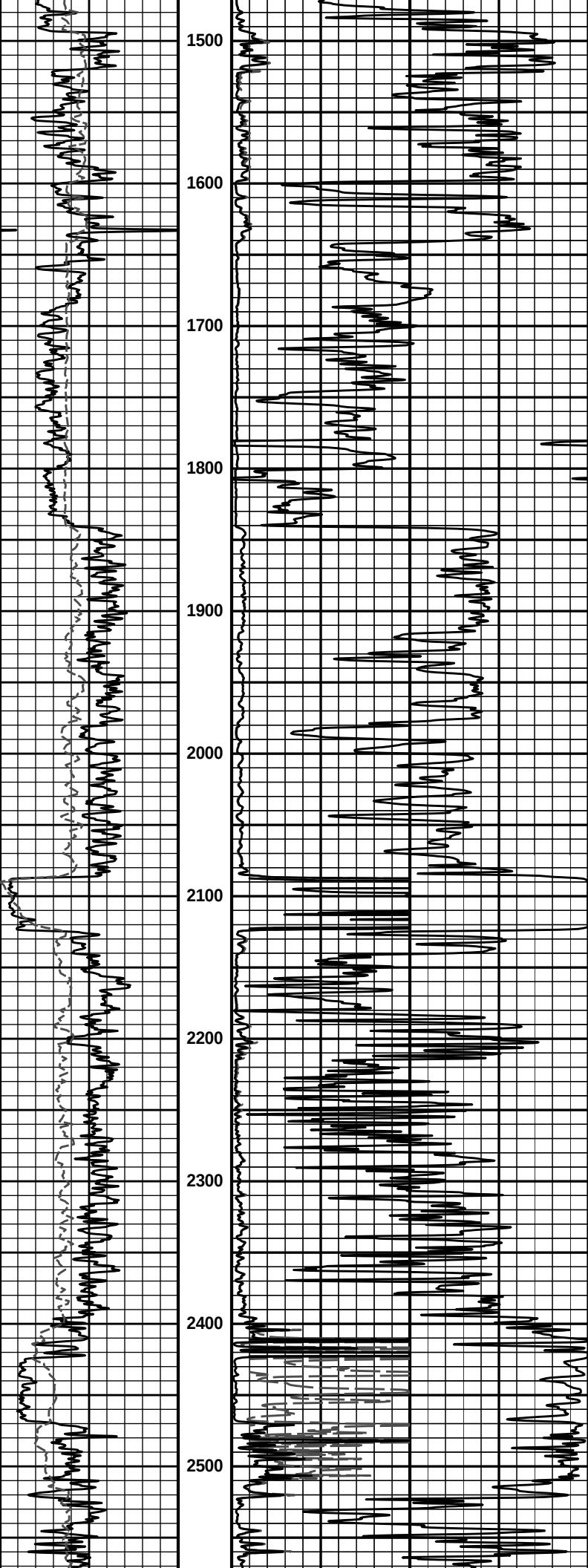
SI	Sample Interval	26.84	NO	
TXRX	Raw Telemetry 10 Receivers	26.84	NO	
FRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	

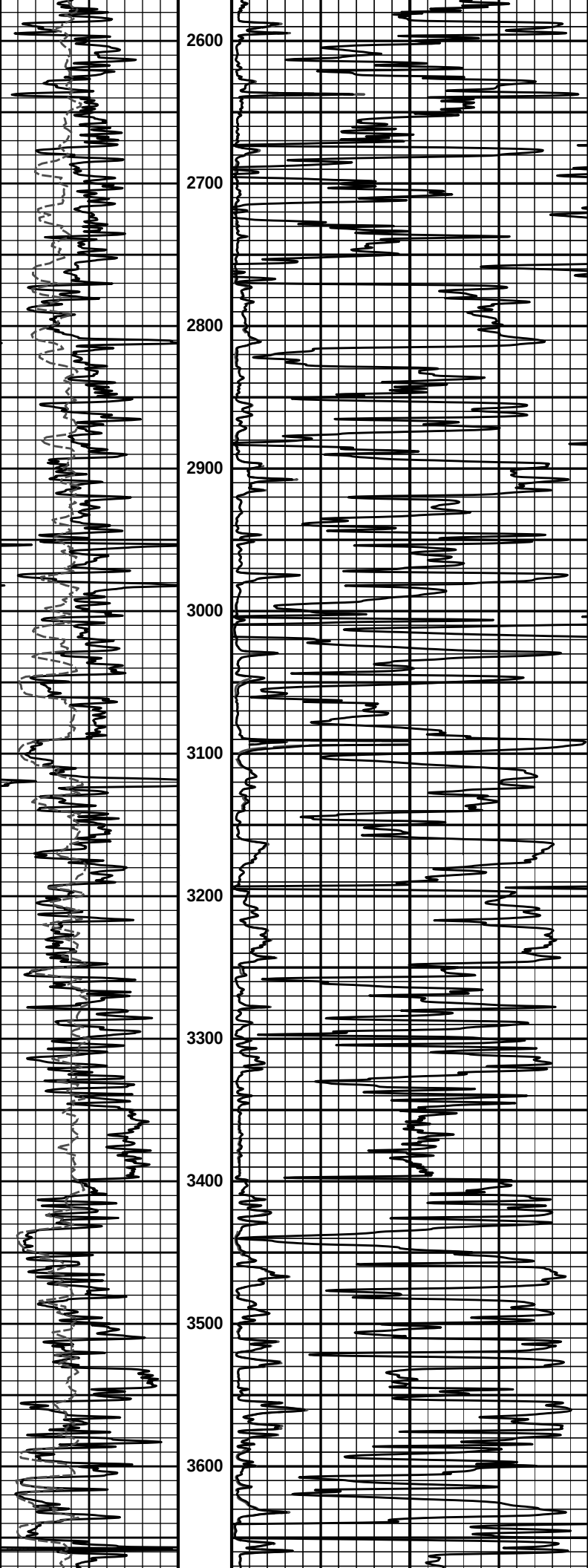
TUDV	Upper Temperature Derivative	2.73	NO
TLDV	Lower Temperature Derivative	2.73	NO
TRBD	Receiver Board Temperature	2.73	NO
SDLT Pad			
TPUL	Tension Pull	43.83	NO
NAB	Near Above	43.66	BLK 0.920
NHI	Near Cesium High	43.66	BLK 0.920
NLO	Near Cesium Low	43.66	BLK 0.920
NVA	Near Valley	43.66	BLK 0.920
NBA	Near Barite	43.66	BLK 0.920
NDE	Near Density	43.66	BLK 0.920
NPK	Near Peak	43.66	BLK 0.920
NLI	Near Lithology	43.66	BLK 0.920
NBAU	Near Barite Unfiltered	43.66	BLK 0.250
NLIU	Near Lithology Unfiltered	43.66	BLK 0.250
FAB	Far Above	44.01	BLK 0.250
FHI	Far Cesium High	44.01	BLK 0.250
FLO	Far Cesium Low	44.01	BLK 0.250
FVA	Far Valley	44.01	BLK 0.250
FBA	Far Barite	44.01	BLK 0.250
FDE	Far Density	44.01	BLK 0.250
FPK	Far Peak	44.01	BLK 0.250
FLI	Far Lithology	44.01	BLK 0.250
PTMP	Pad Temperature	43.84	BLK 0.920
NHV	Near Detector High Voltage	43.24	NO
FHV	Far Detector High Voltage	43.24	NO
ITMP	Instrument Temperature	43.24	NO
DDHV	Detector High Voltage	43.24	NO

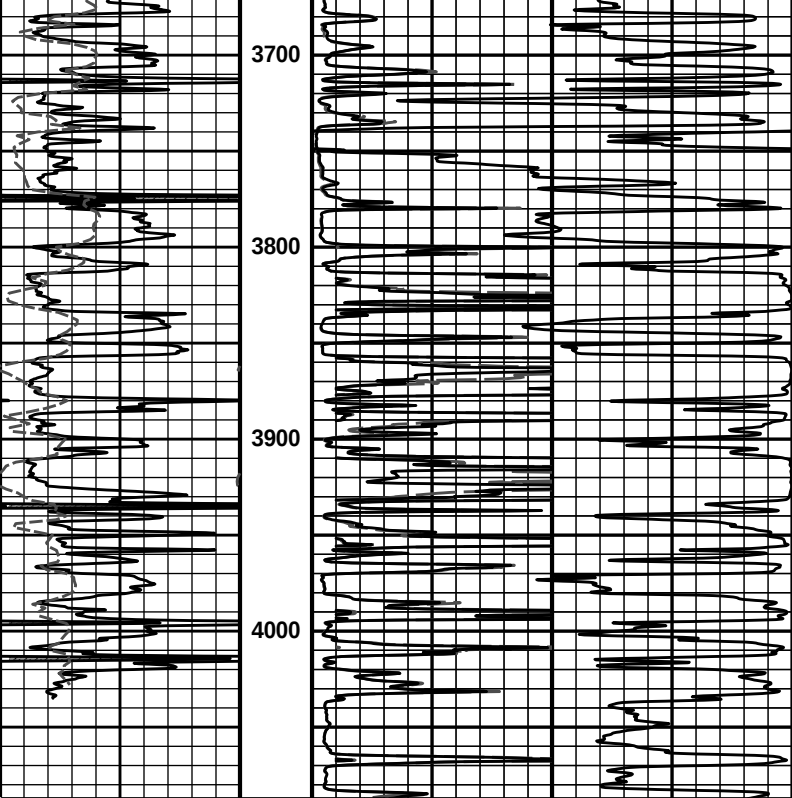
HALLIBURTON
Plot Time: 01-Oct-13 06:05:49
Plot Range: 275 ft to 4087.25 ft
Data: GANO_UNIT_1-36\Well Based\IR1 CASING\
Plot File: \\-LOCAL-\\GANO_UNIT_1-36\Well Based\ACRT\ACRT_1_lib

1 INCH MAIN LOG









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

HALLIBURTON
Plot Time: 01-Oct-13 06:05:51
Plot Range: 275 ft to 4087.25 ft
Data: GANO_UNIT_1-36\Well Based\R1 CASING\
Plot File: \\-LOCAL-IGANO_UNIT_1-36\Well Based\ACRT\ACRT_1.lib

1 INCH MAIN LOG

COMPANY	HARTMAN OIL CO., INC.		
WELL	GANO UNIT #1-36		
FIELD	WILDCAT		
COUNTY	GRAHAM	STATE	KANSAS
HALLIBURTON		ARRAY COMPENSATED TRUE RESISTIVITY LOG	