

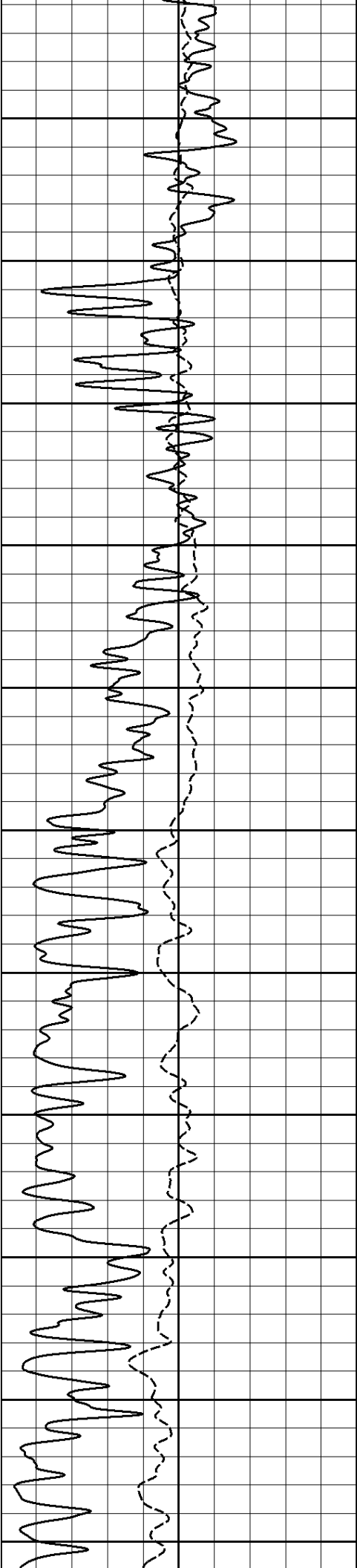
HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

RAYDON EXPLORATION INC.				COMPANY				RAYDON EXPLORATION INC.			
PARITY 1-27				WELL				PARITY 1-27			
WILDCAT				FIELD/BLOCK				WILDCAT			
SEWARD				COUNTY				SEWARD			
KANSAS				STATE				STATE KANSAS			
AP/ No. 15-175-22249-00-00				Location (SHL) E2 SW SW 660' FSL & 990' FWL				Other Services: SDLT DSNT MICROLOG BSAT ACRT			
Permanent Datum GL				Sect 27 Twp. 33S Rge. 31W				Elev. 2727.0 ft			
Log measured from KB								Elev. 2737.0 ft			
Drilling measured from KB								Elev. 2727.0 ft			
Date 18-Oct-16											
Run No. ONE											
Depth - Driller 6293.0 ft											
Depth - Logger 6293.0 ft											
Bottom - Logged Interval 3293.00 ft											
Top - Logged Interval 1666.00 ft											
Casing - Driller 8.625 in @ 1675.0 ft											
Casing - Logger 1666.0 ft											
Bit Size 7.875 in											
Type Fluid in Hole Water Based Mud											
Density 8.8 ppg				Viscosity 58.00 s/cst							
PH 10.00 pH				Fluid Loss 5.2 cphm							
Source of Sample FLOWLINE											
Rm @ Meas. Temperature 1.29 ohmm @ 80.00 degF											
Rmf @ Meas. Temperature 1.09 ohmm @ 60.00 degF											
Rmc @ Meas. Temperature 1.61 ohmm @ 60.00 degF											
Source Rmf Rmc MEAS MEAS											
Rm @ BHT 0.86 ohmm @ 123.0 degF											
Time Since Circulation 8.0 hrs hr											
Time on Bottom 18-Oct-16 17:16											
Max. Rec. Temperature 123.00 degF @ 6293.0 ft											
Equipment Location 12156883 EL RENO, OK											
Recorded By COTHREN											
Witnessed By EDWIN GRIEVES											

Fold here

Service Ticket No.: 903584926				API No.: 15-175-22249-00-00				PGM Version: WL INSITE R5.0.5 (Build 8)							
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 156	N/A	1.5" STANDOFF	N/A							
Rmc @ Meas. Temp.	@		@												
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.	11021139		Serial No.	10939049	Serial No.	10951315	Serial No.	11020487							
Model No.	GTET		Model No.	BSAT	Model No.	SDLT	Model No.	DSNT							
Diameter	3.625"		No. of Cent.	2	Diameter	4.5"	Diameter	3.625"							
Detector Model No.	A-102		Spacing	4	Log Type	GAM-GAM	Log Type	NEU-NEU							
Type	SCINT.				Source Type	Cs 137	Source Type	AM241Be							
Length	8"		LSA [Y/N]	N	Serial No.	5155GW	Serial No.	DSN 436							
Distance to Source	10'		FWDA [Y/N]	N	Strength	1.5 Ci	Strength	15 Ci							



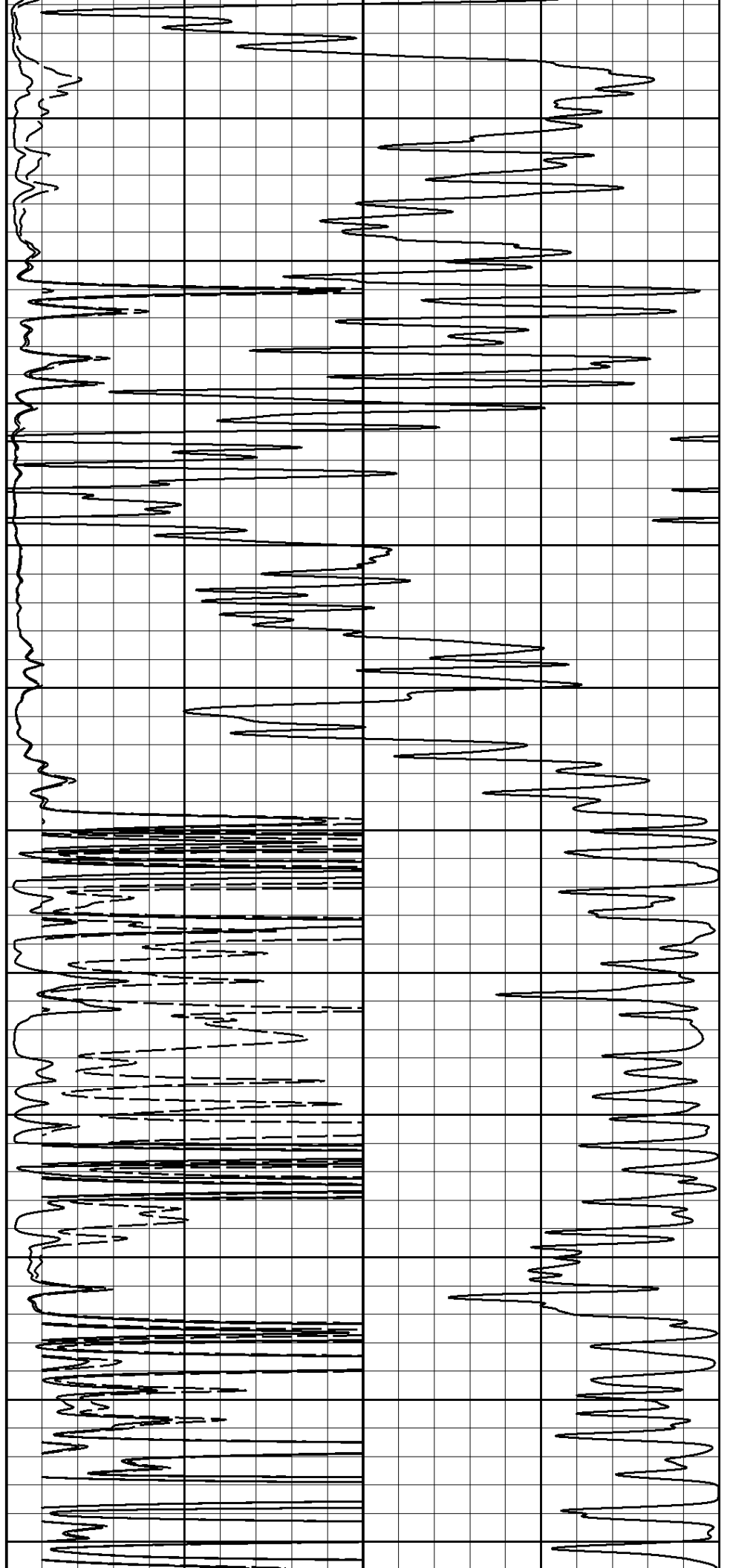
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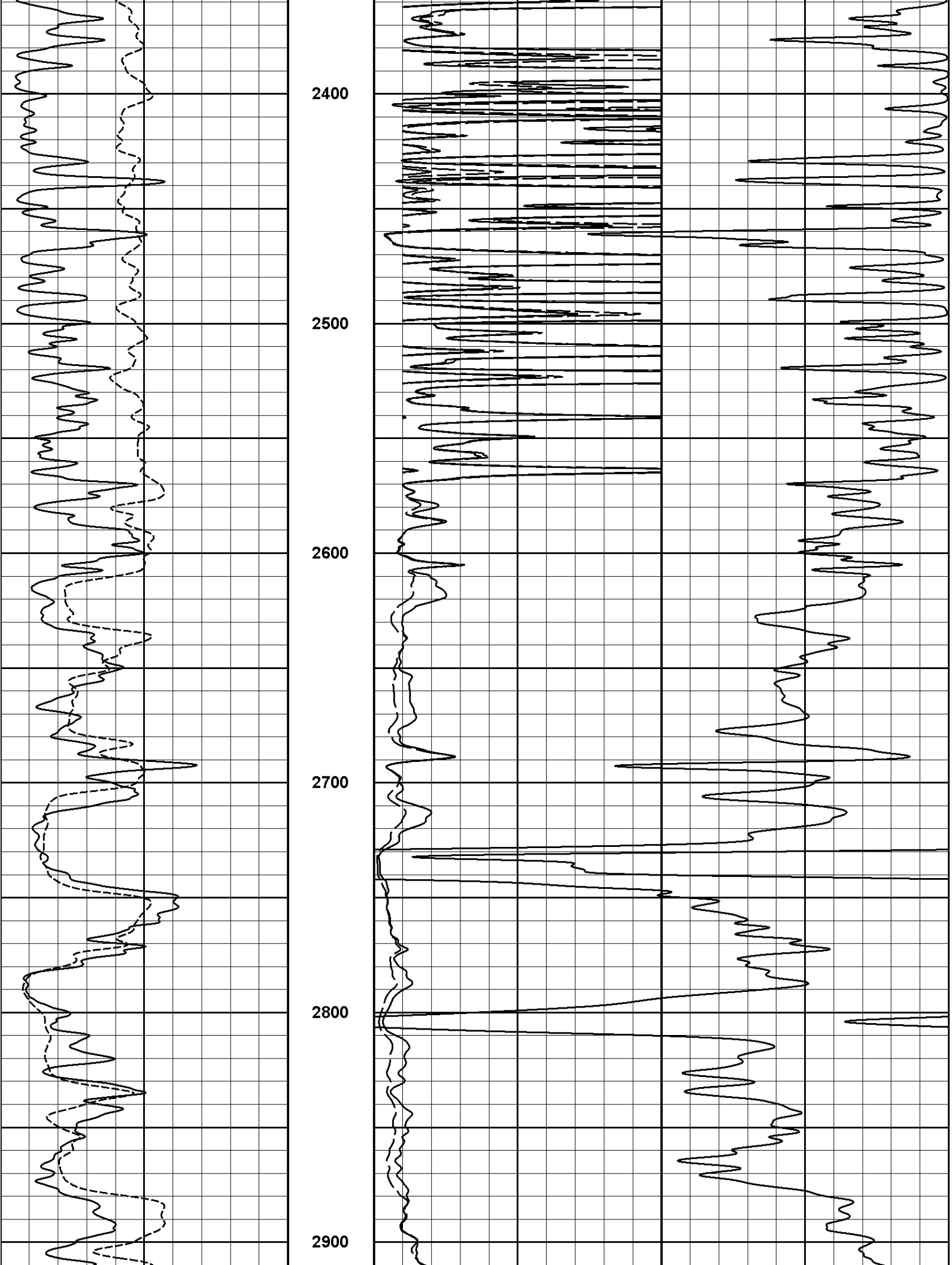
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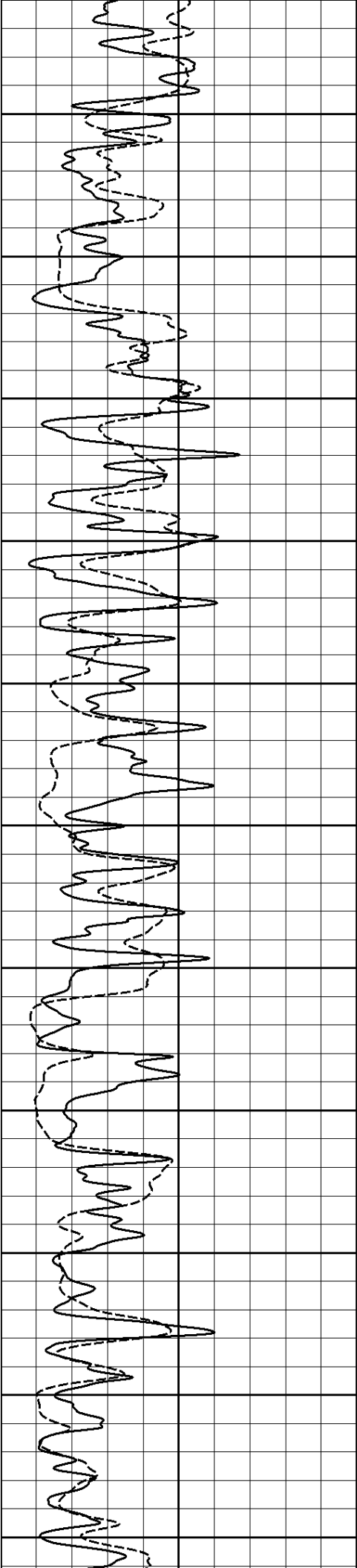
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2200

2300







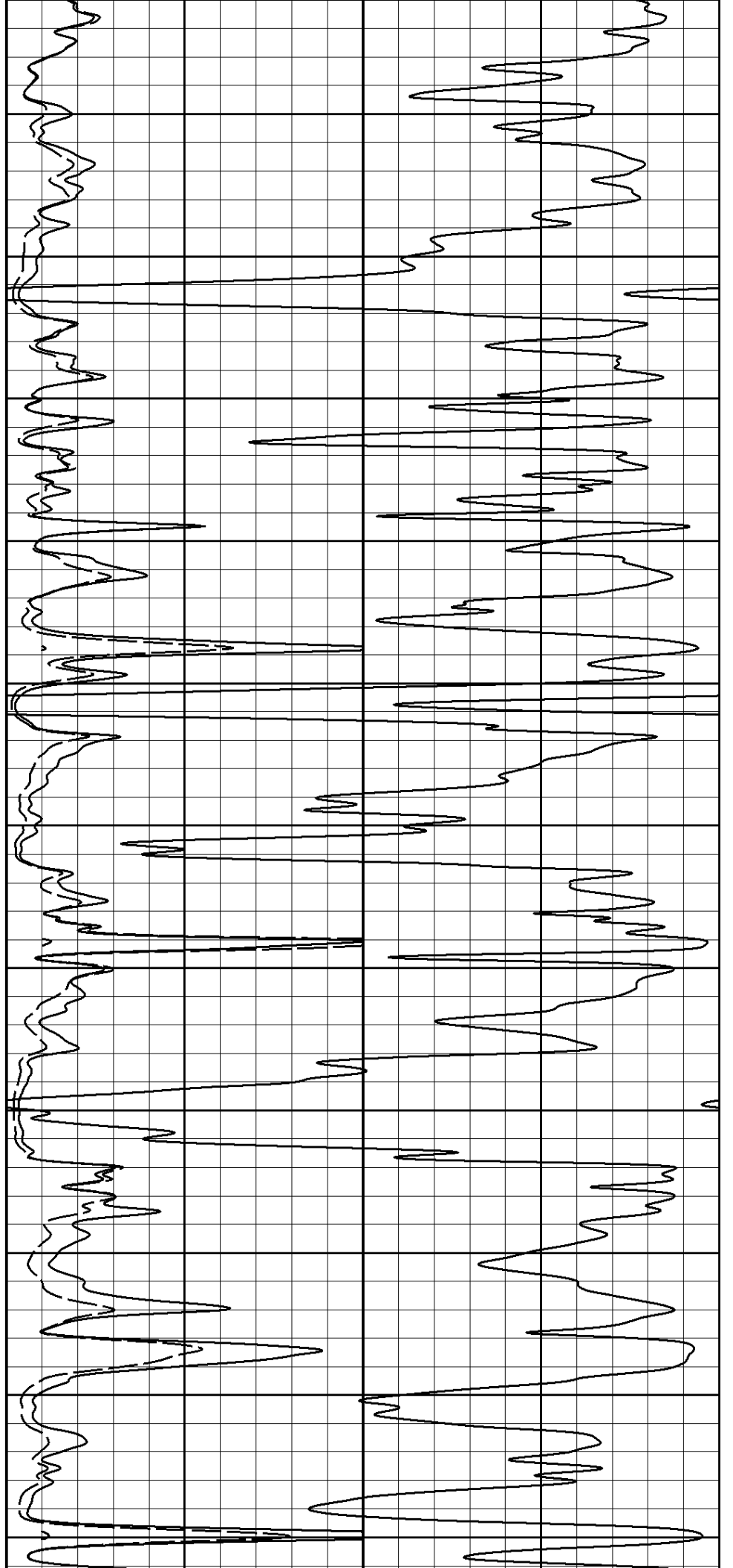
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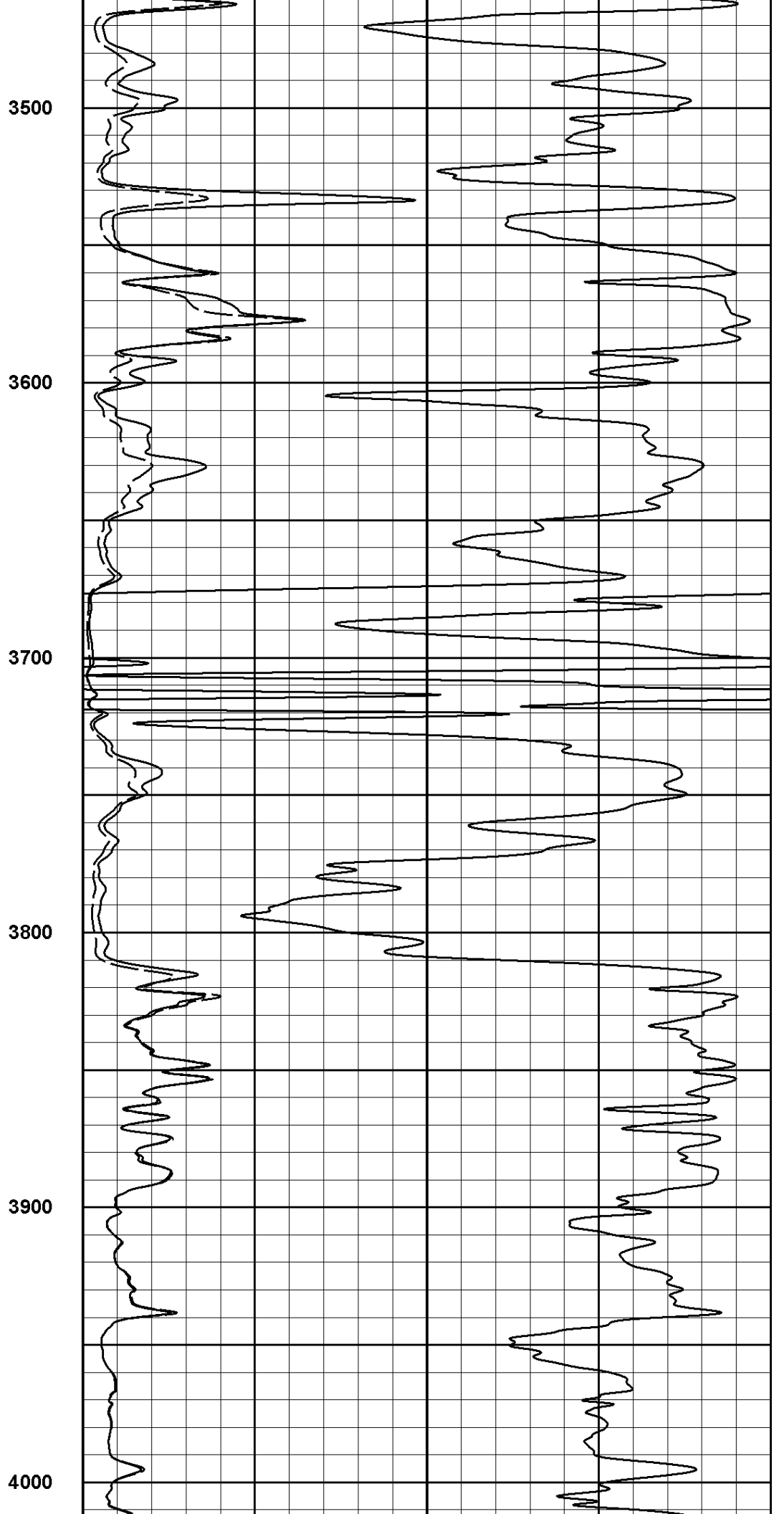
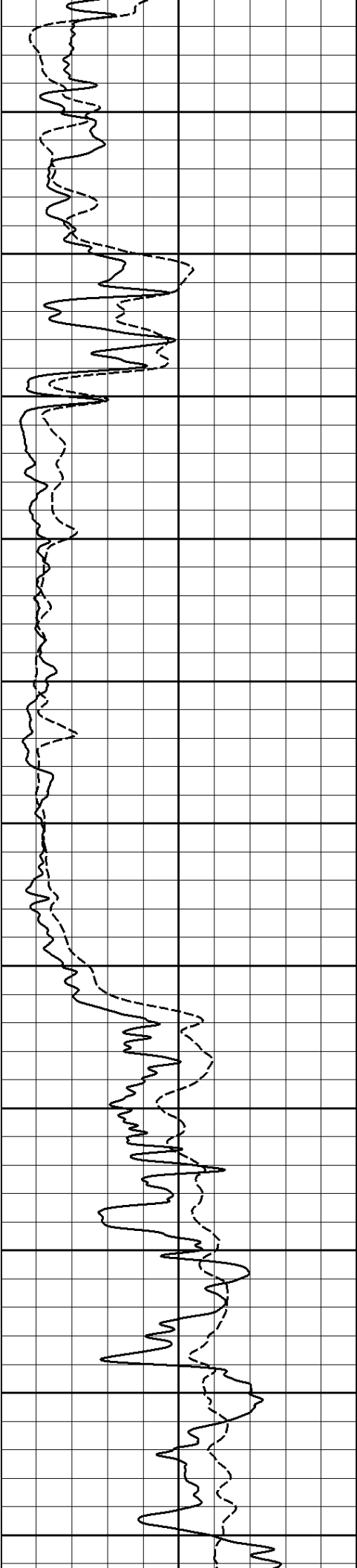
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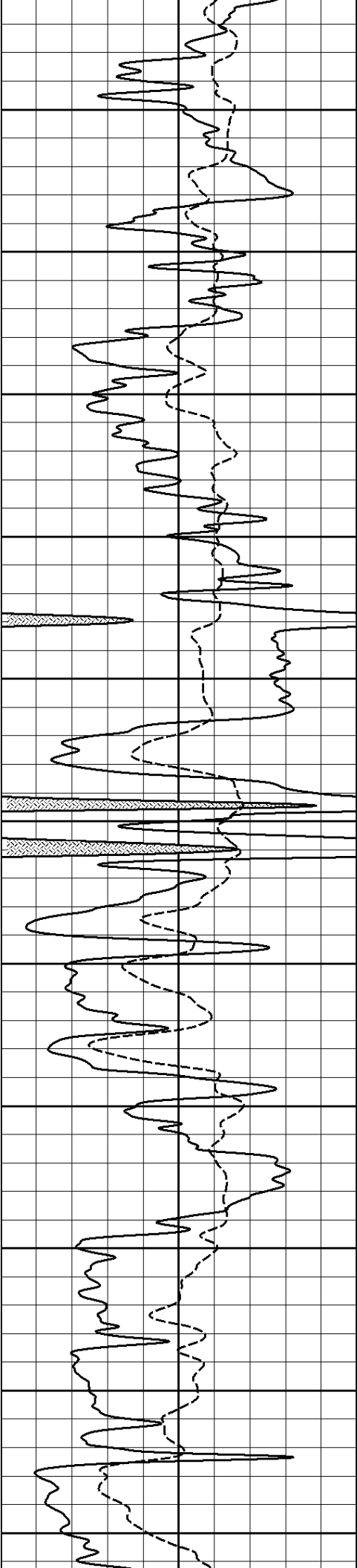
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3300

3400







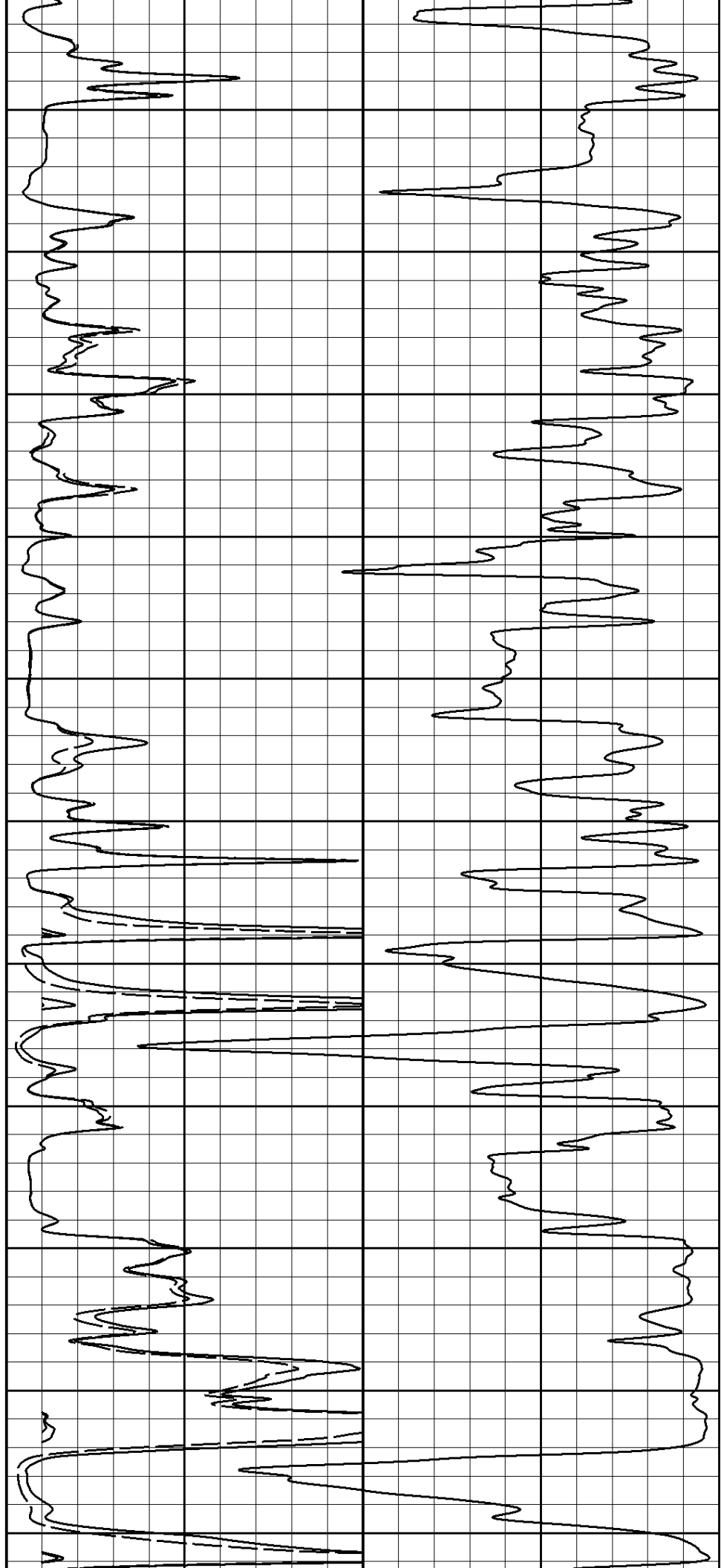
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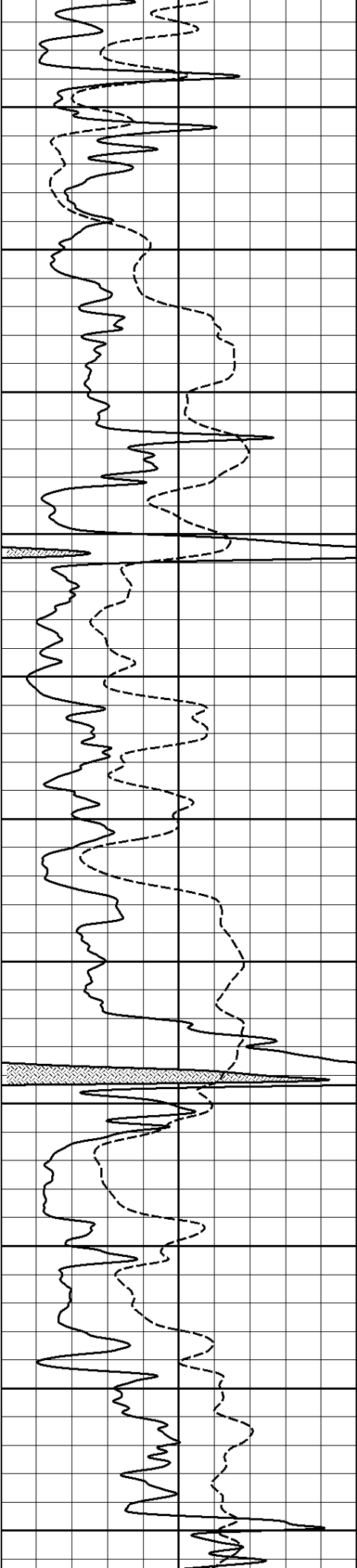
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4300

4400

4500





4600

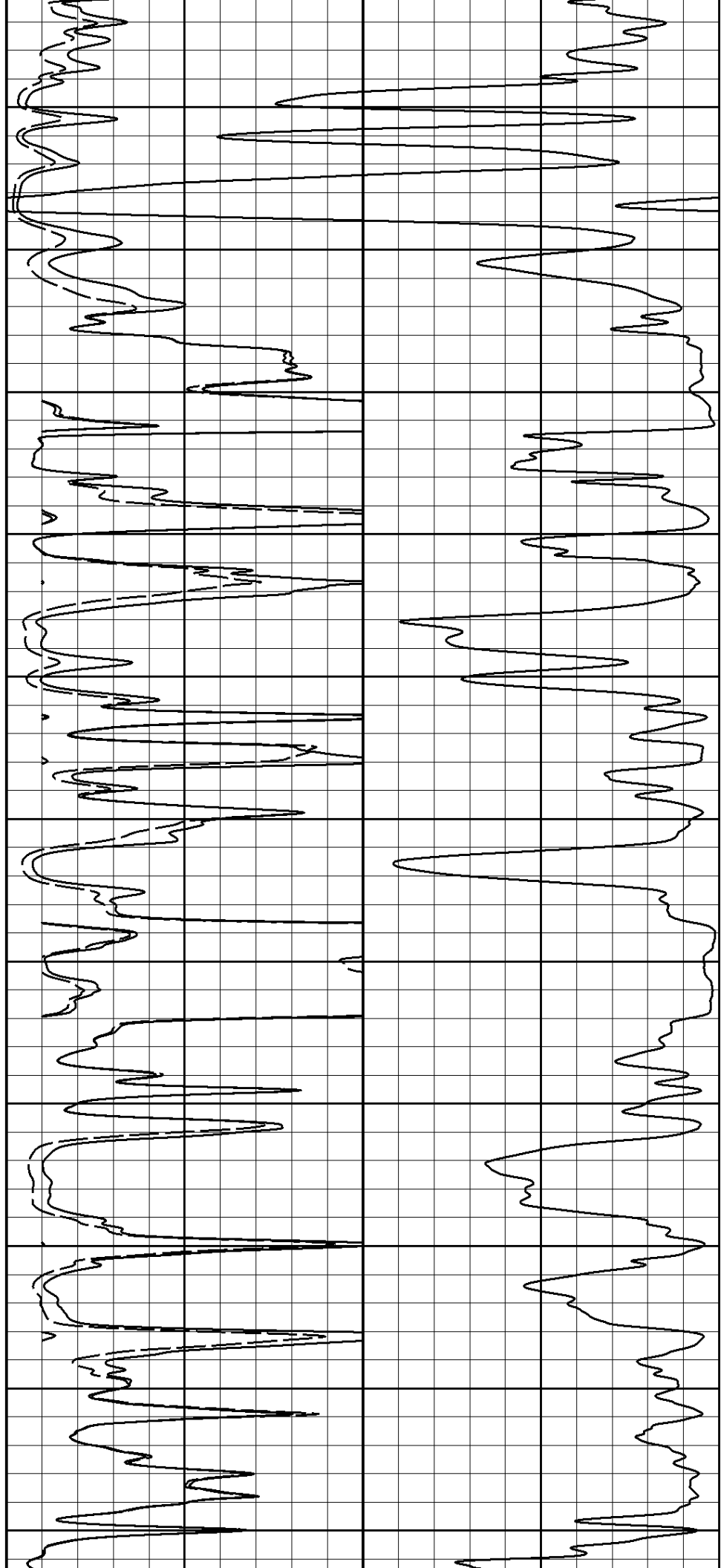
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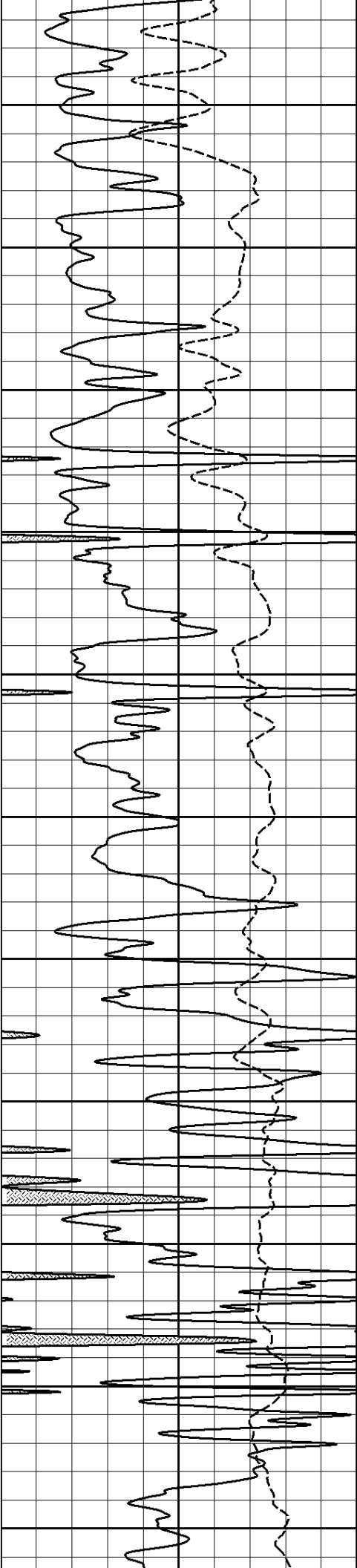
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4900

5000

5100





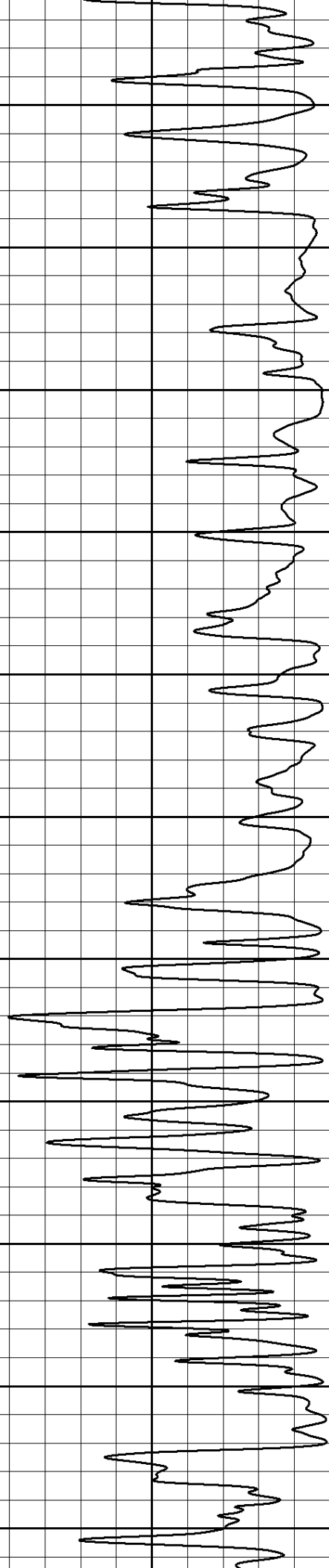
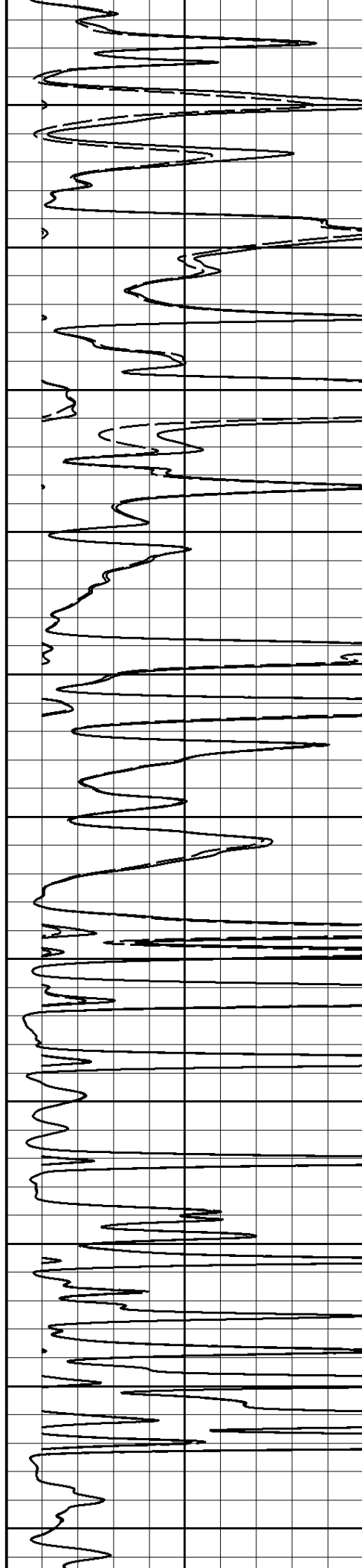
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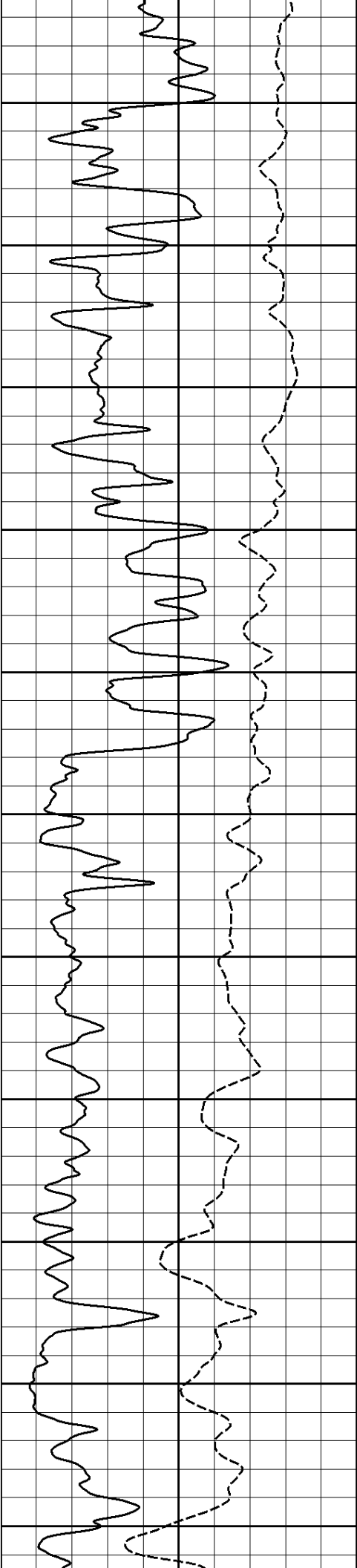
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5400

5500

5600





5700

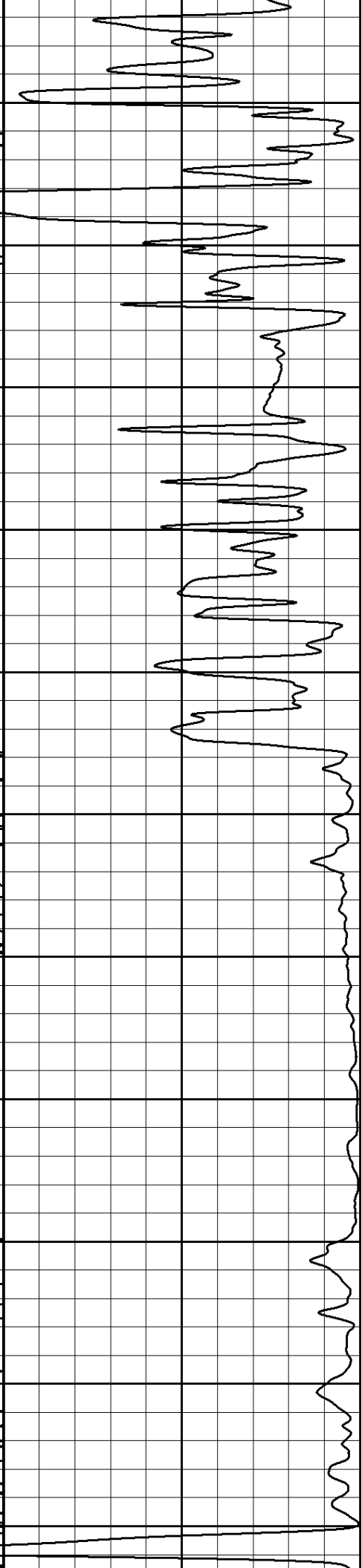
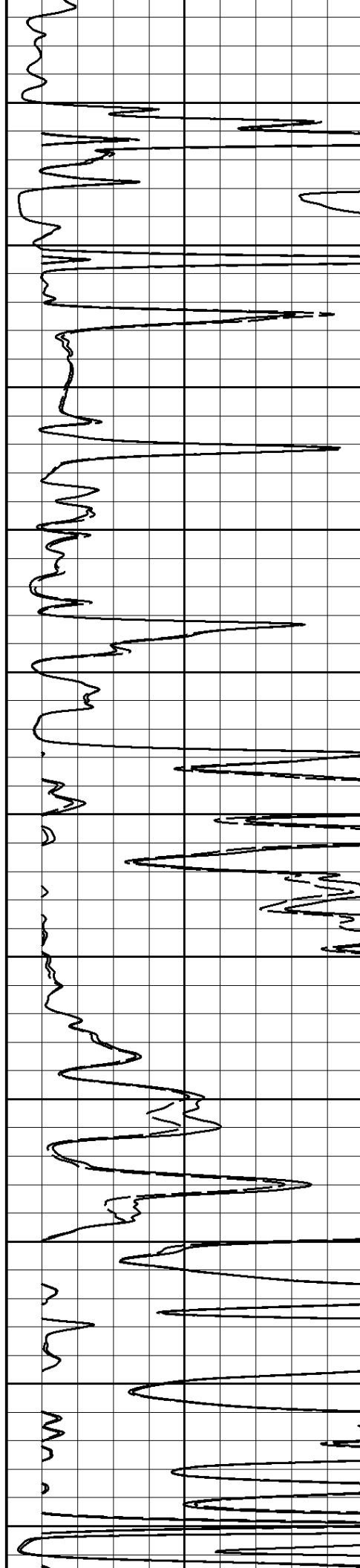
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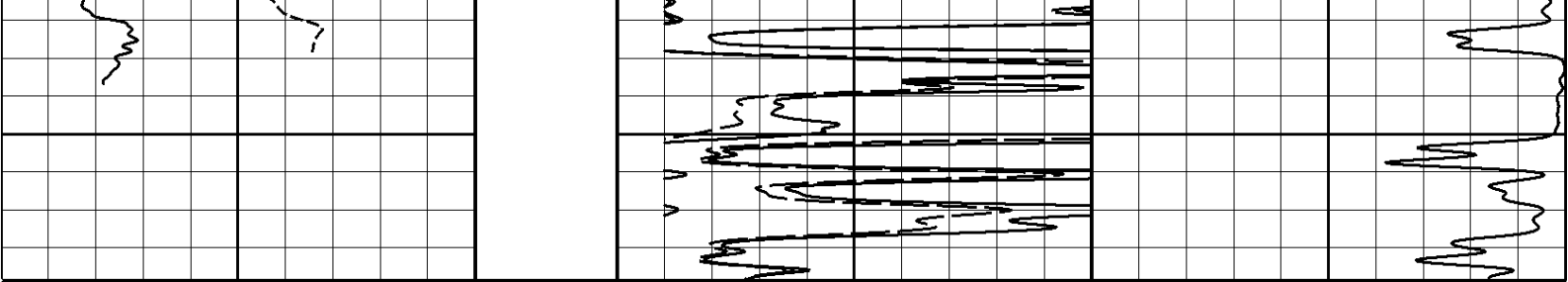
5900

6000

6100

6200





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

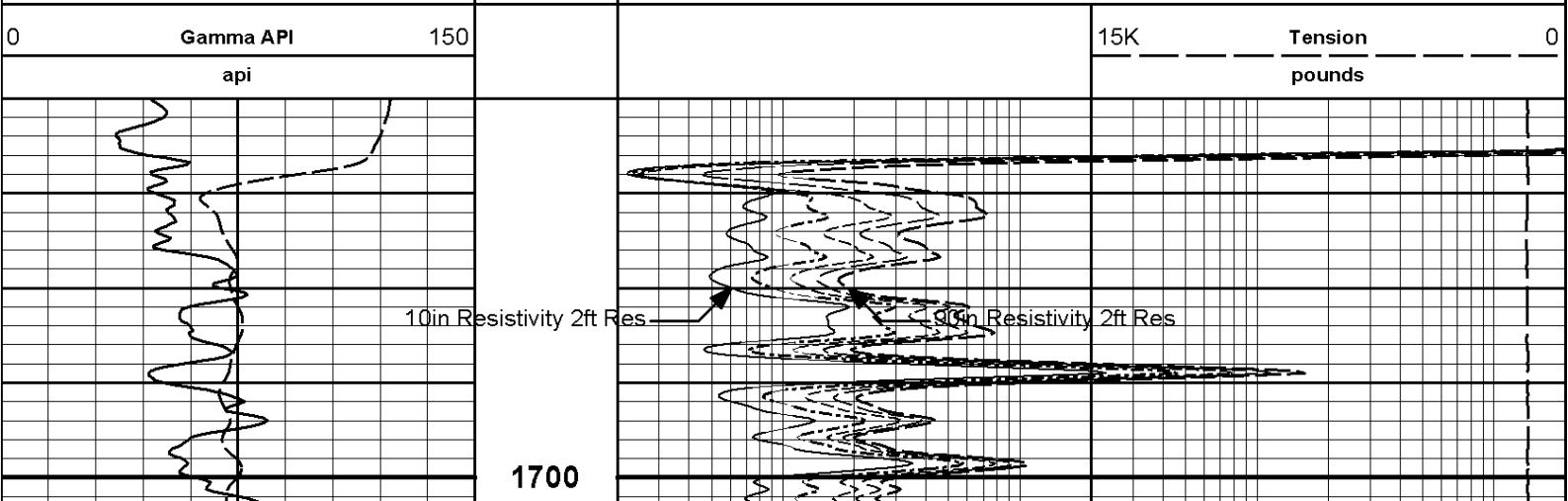
HALLIBURTON

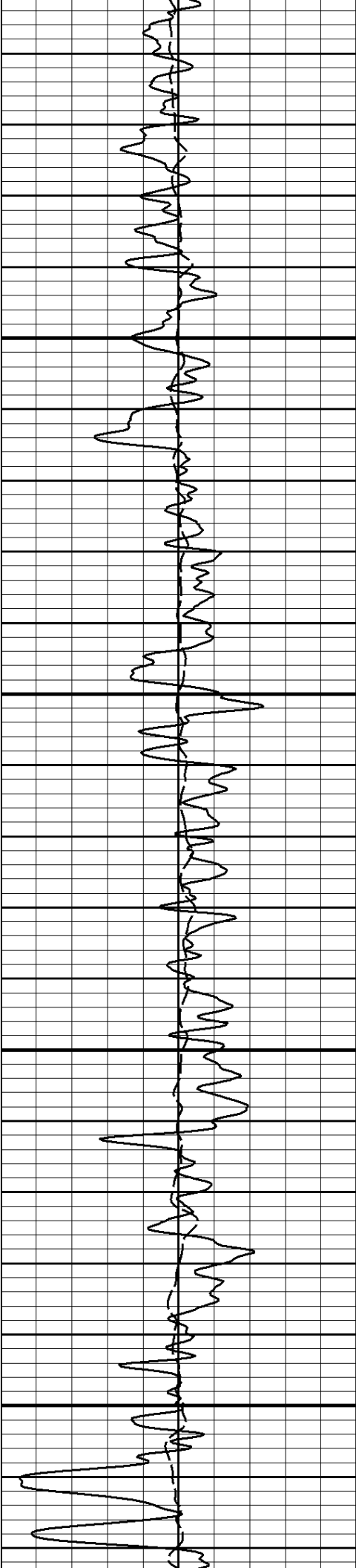
Plot Time: 18-Oct-16 20:14:22
Plot Range: 1660 ft to 6288.5 ft
Data: {ActiveWell}\Well Based\DAQ-0001-004\
Plot File: \\-LOCAL-\\ACRT\1_ACRT_2inx

2 INCH MAIN LOG

5 INCH MAIN LOG

	0.2	10in Resistivity 2ft Res	2K
		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	2K
		ohmm	
SP			
-]20[+			

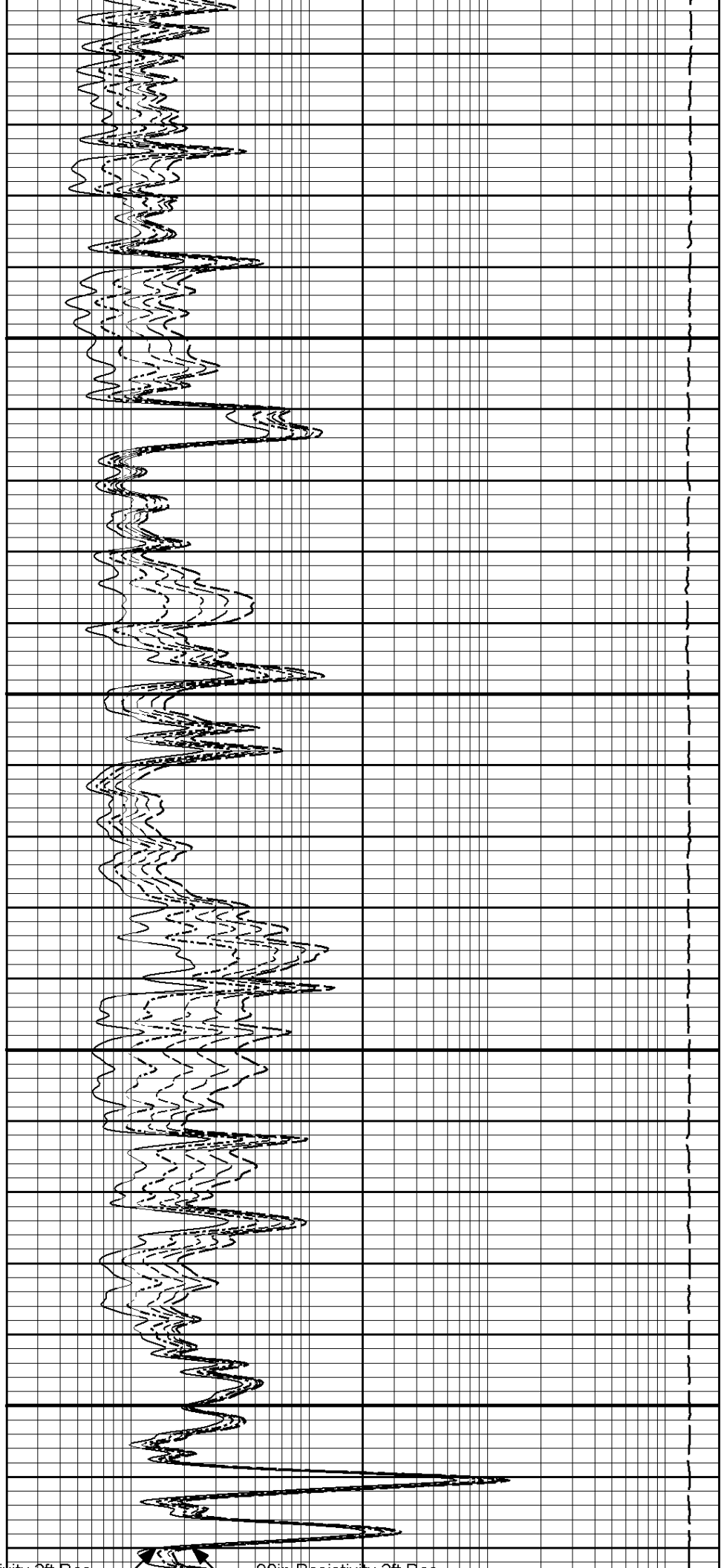




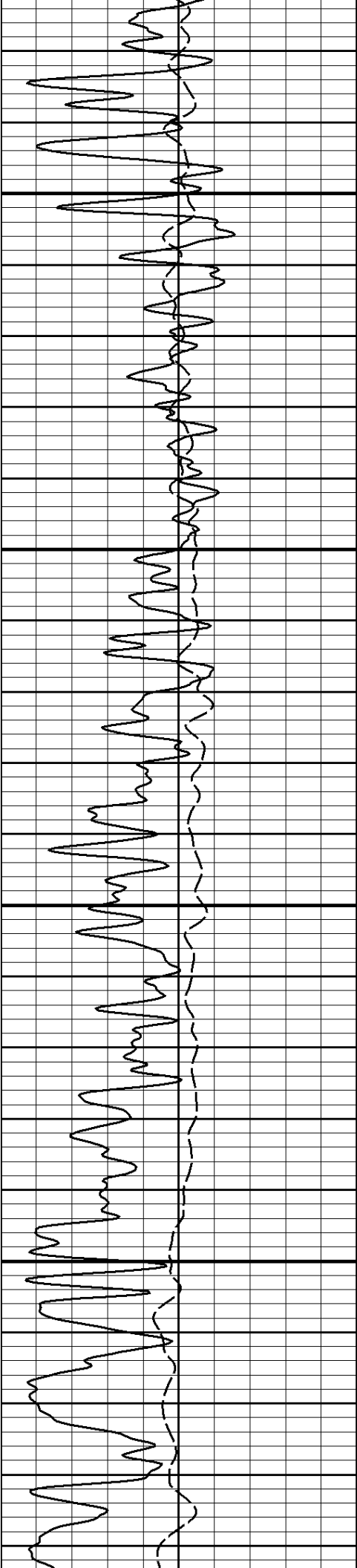
1800

1900

10in Resistivity 24 Dec

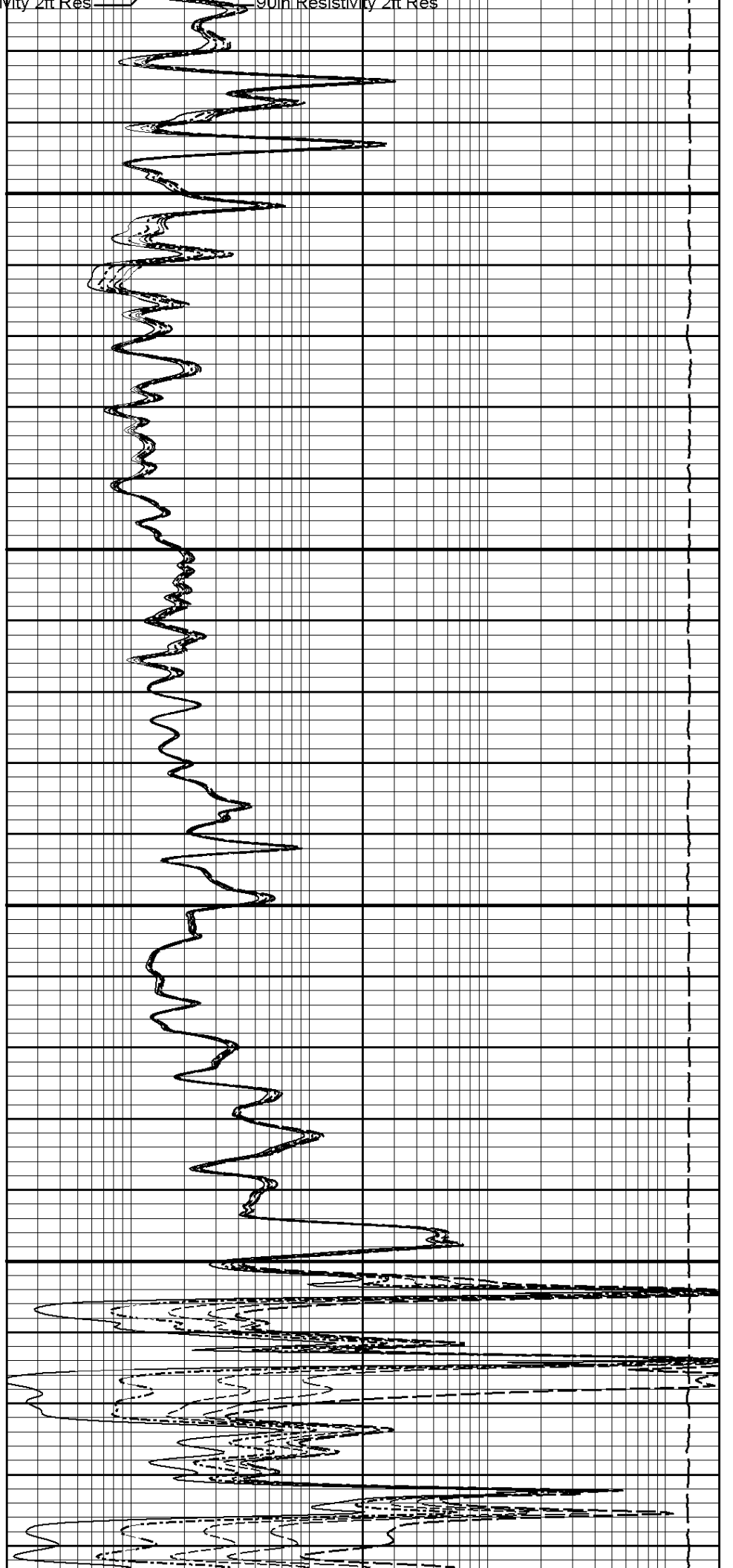


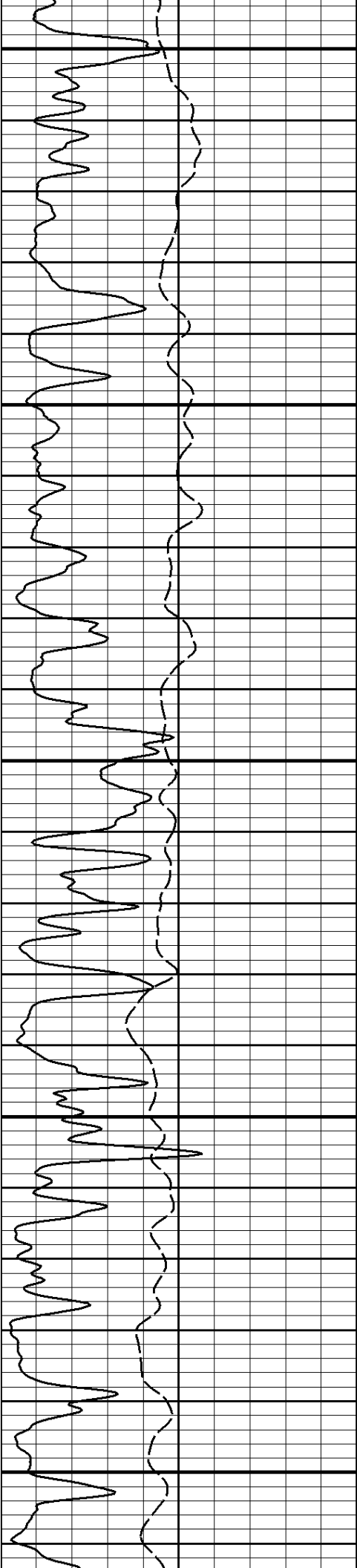
20in Resistivity 24 Dec



2000

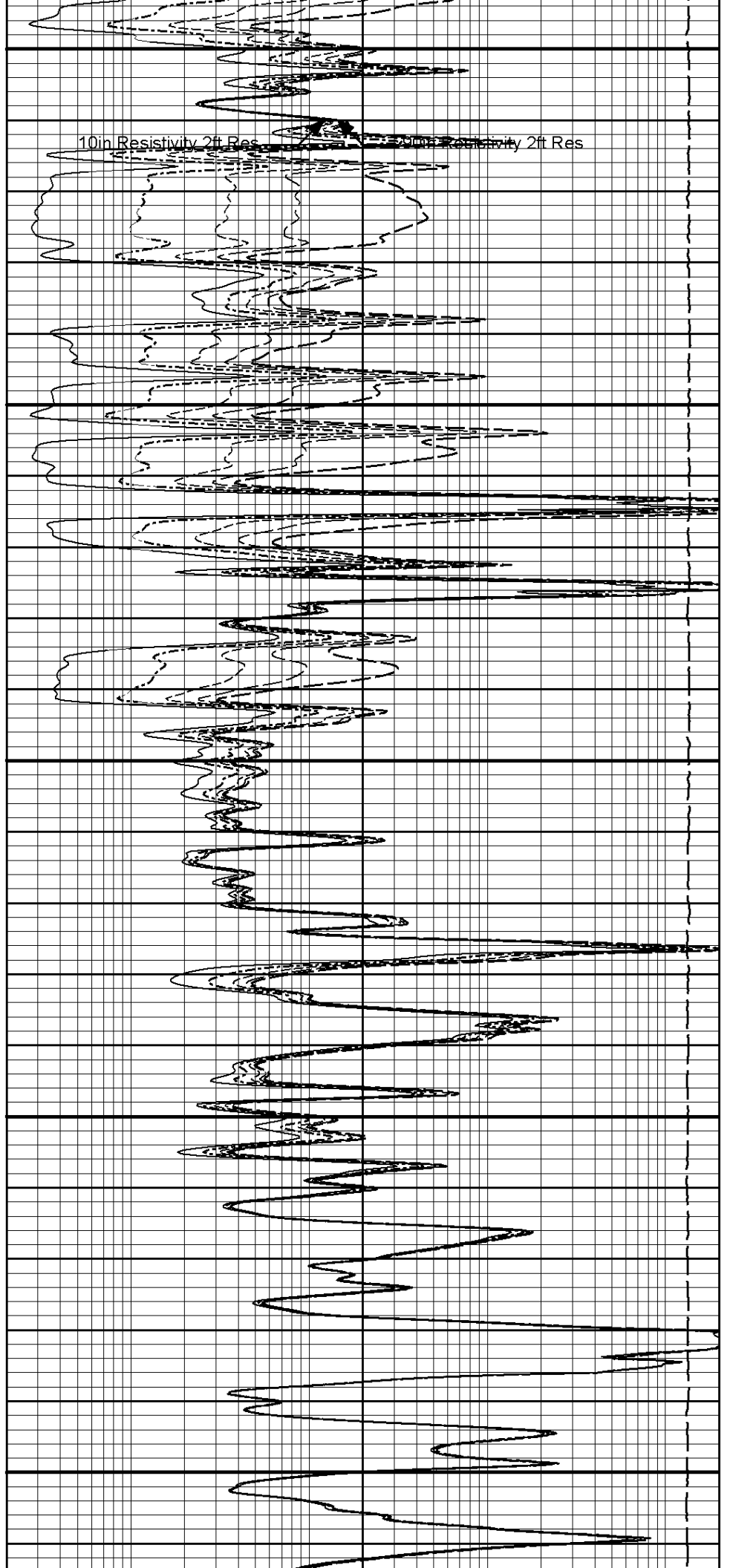
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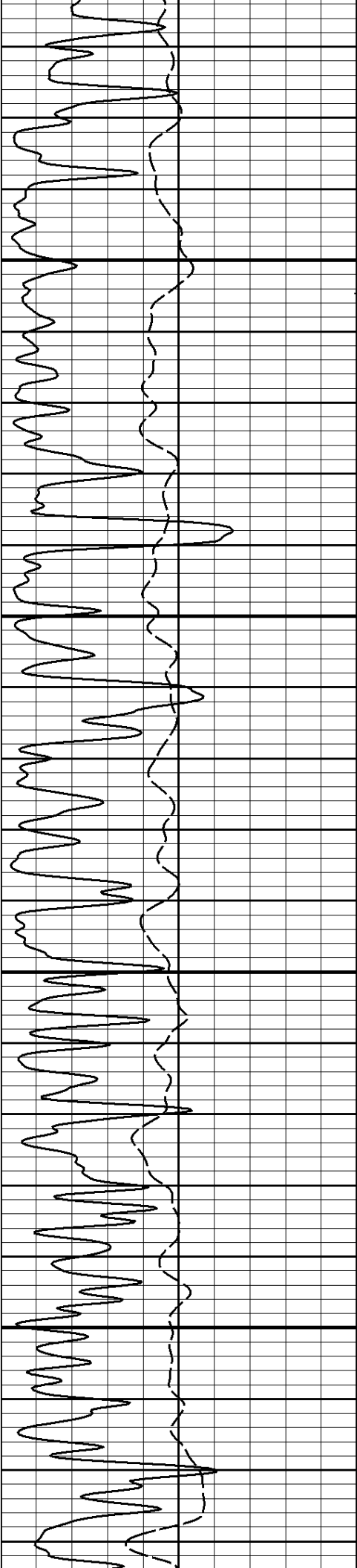
2200

2300



10in Resistivity 2ft Res

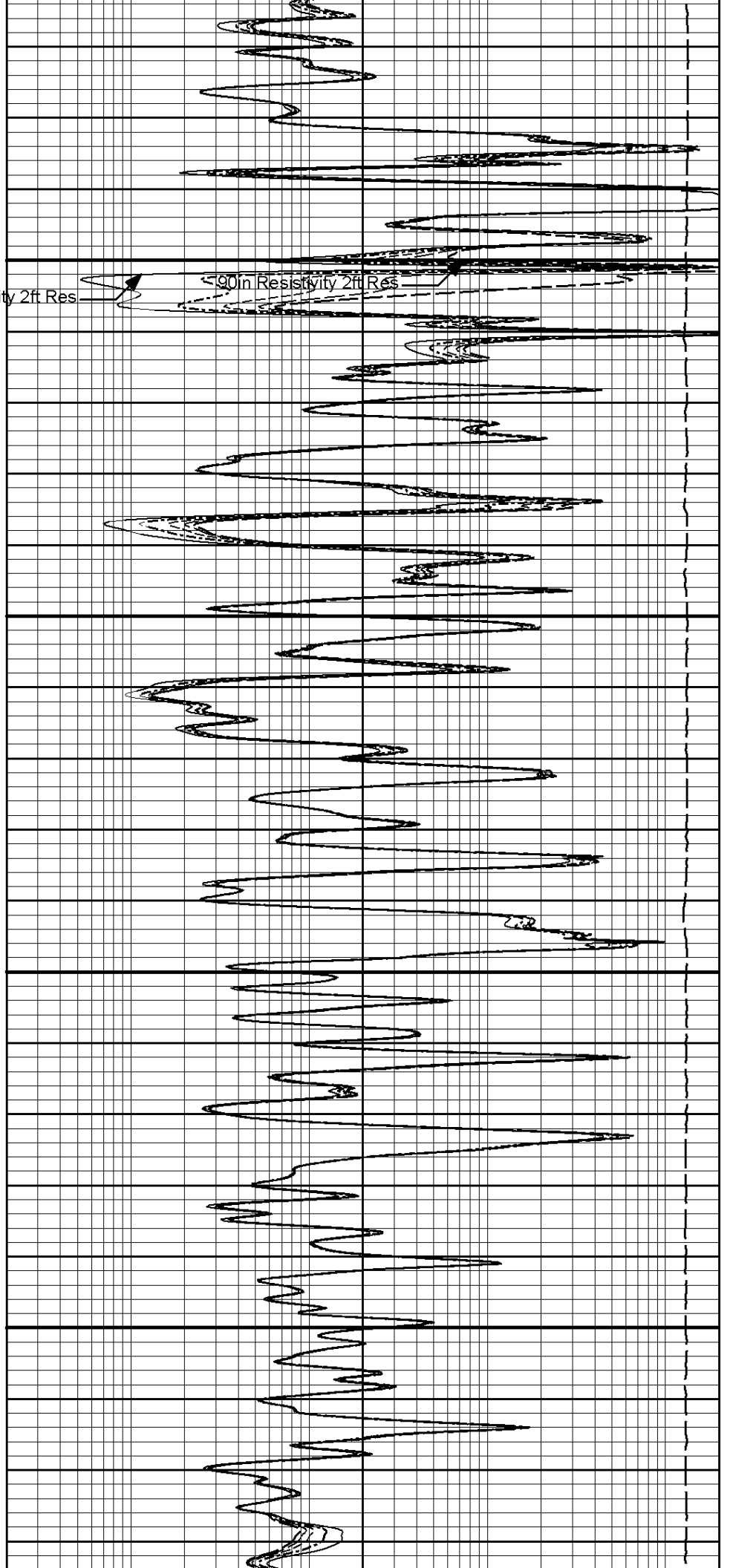
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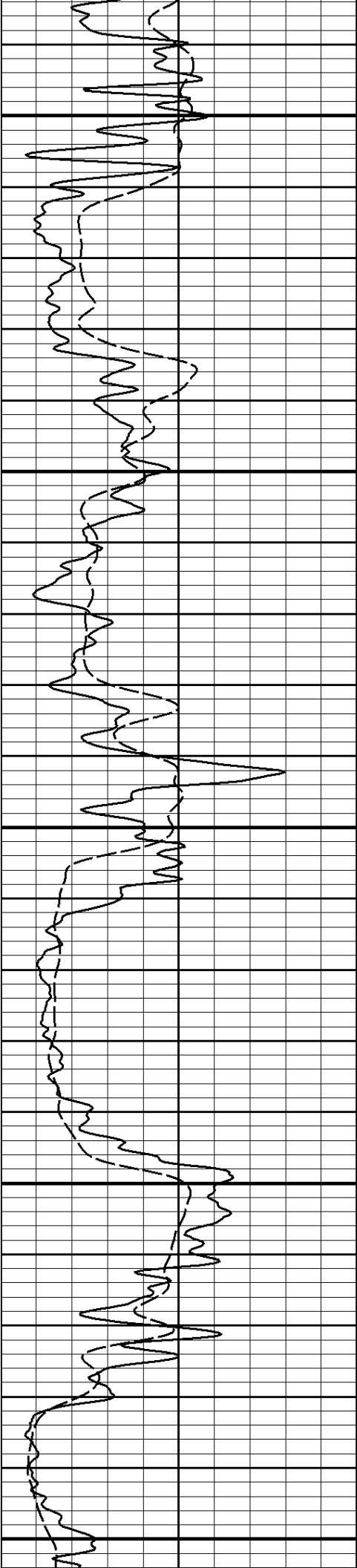


2400

10in Resistivity 2ft Res

2500





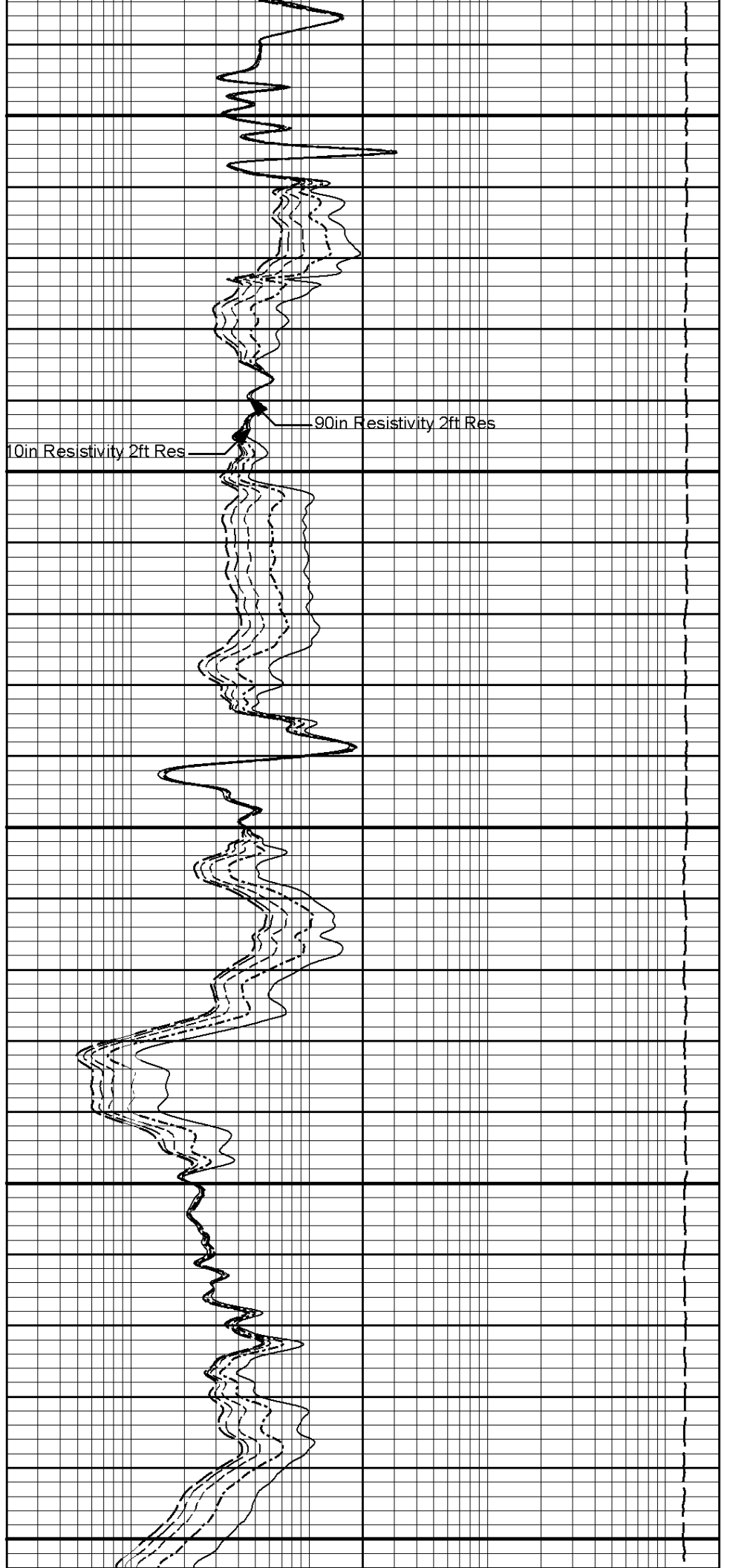
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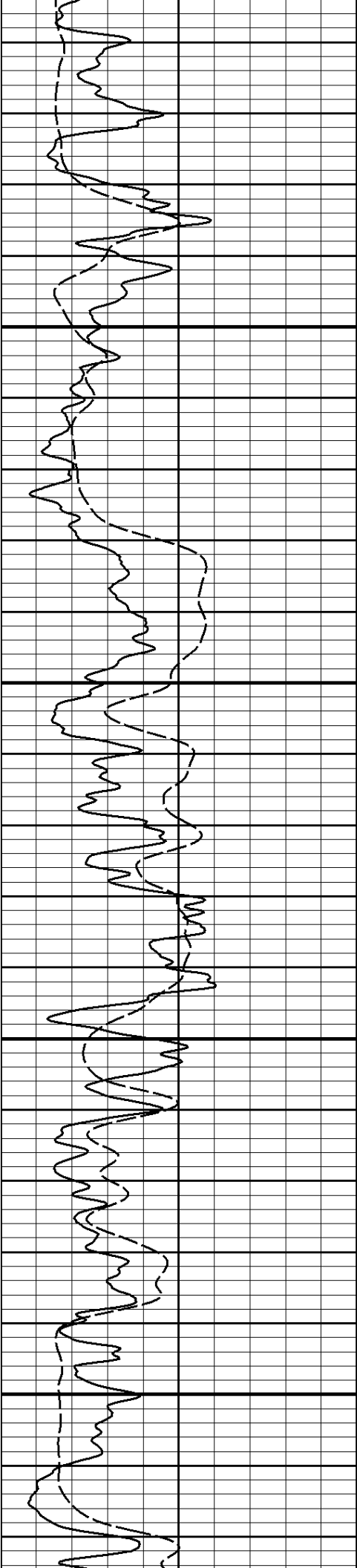
10in Resistivity 2ft Res

90in Resistivity 2ft Res

2700

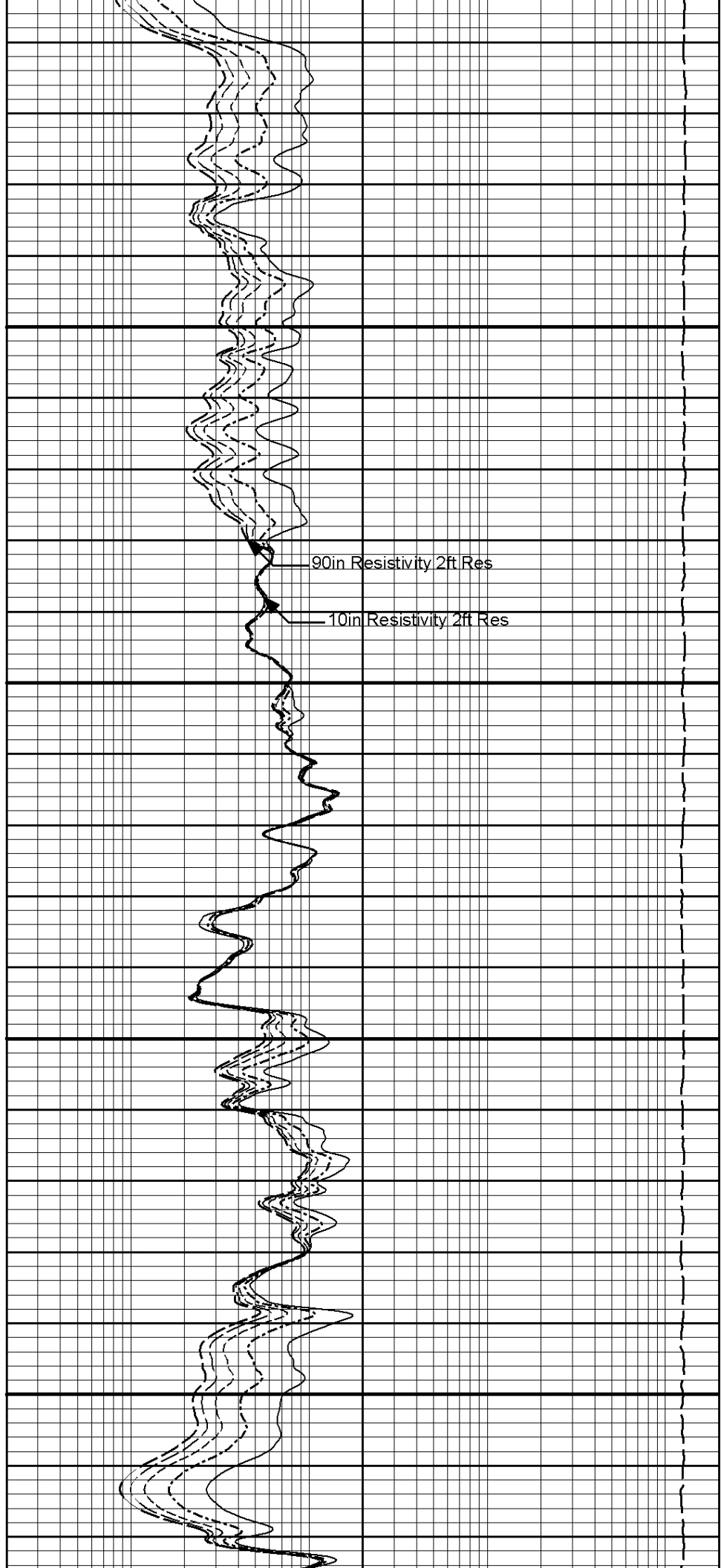
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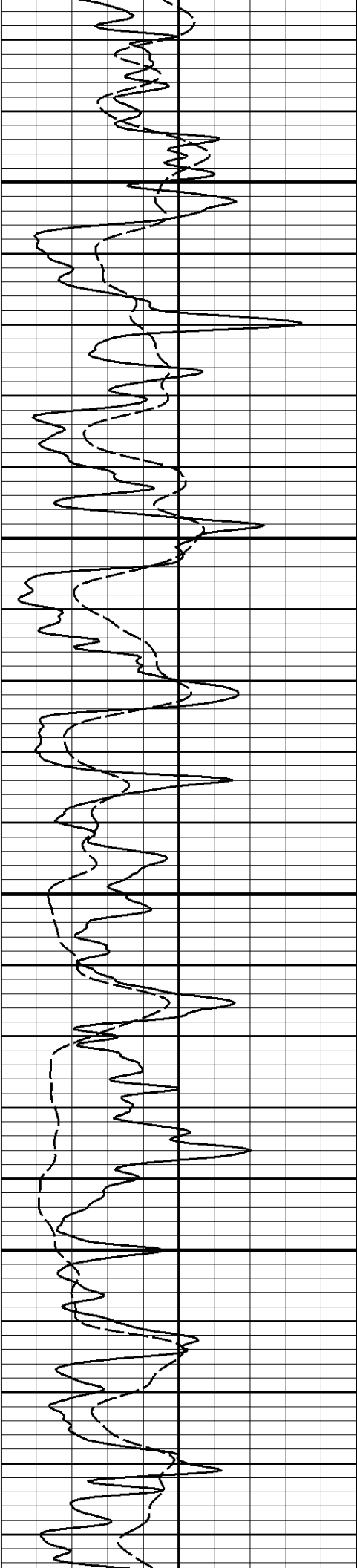




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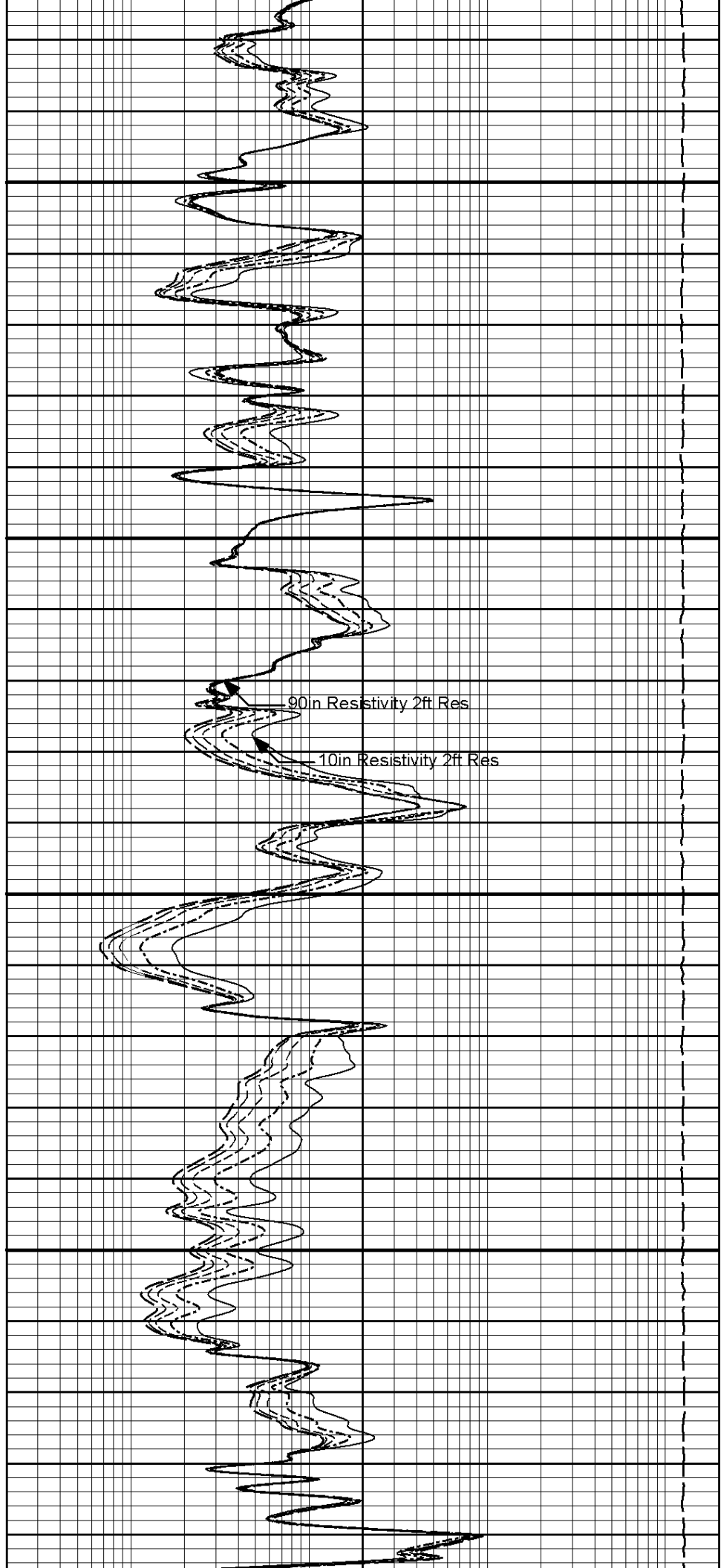
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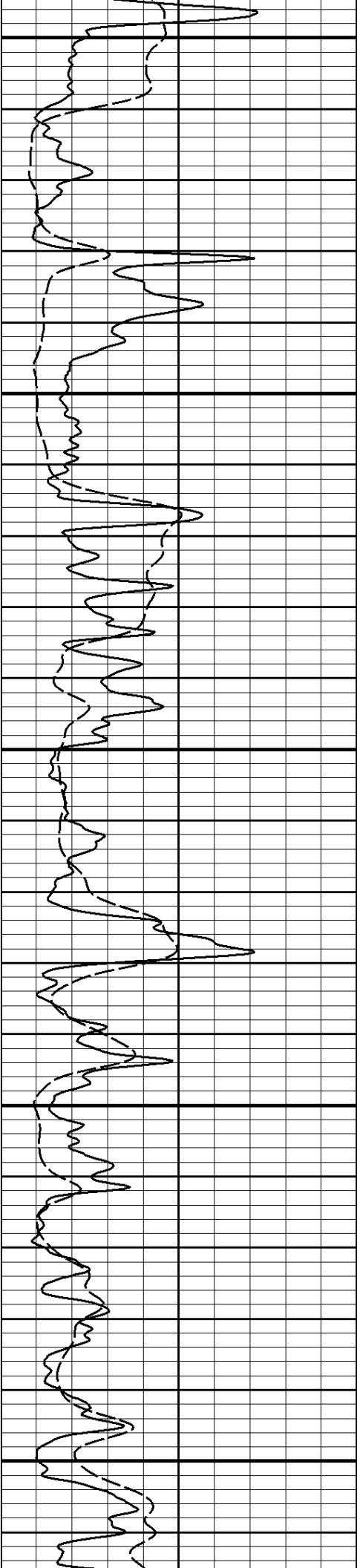
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3200



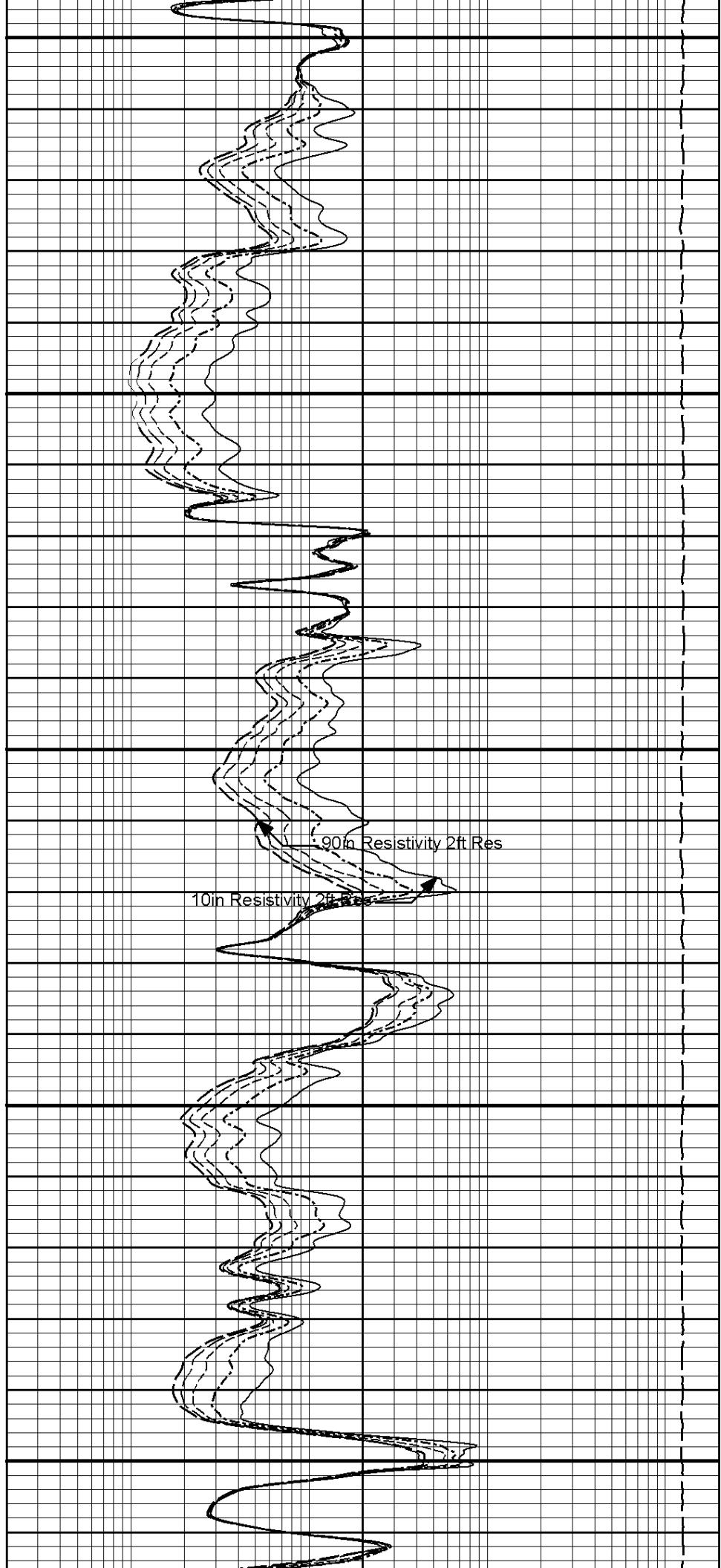
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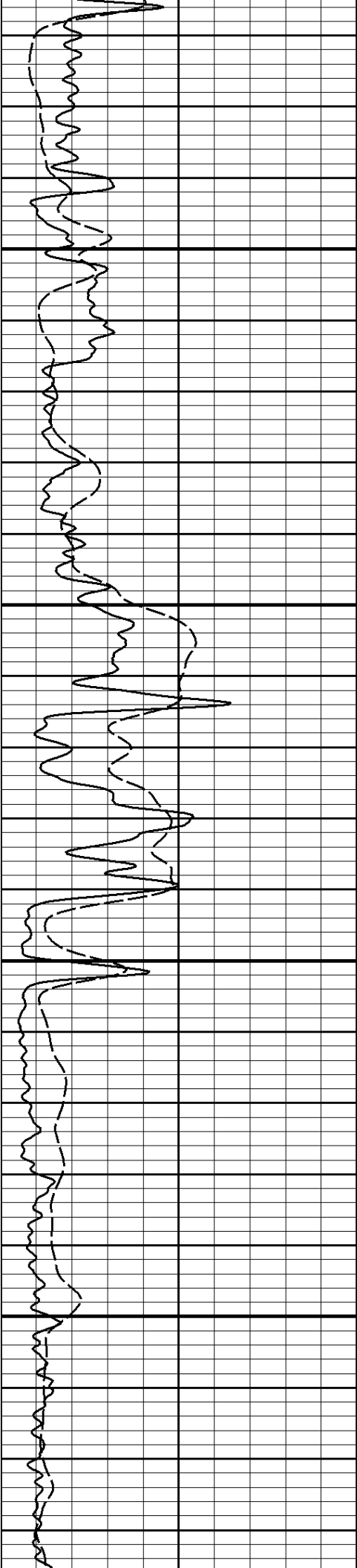
10in Resistivity 2ft Res



3300

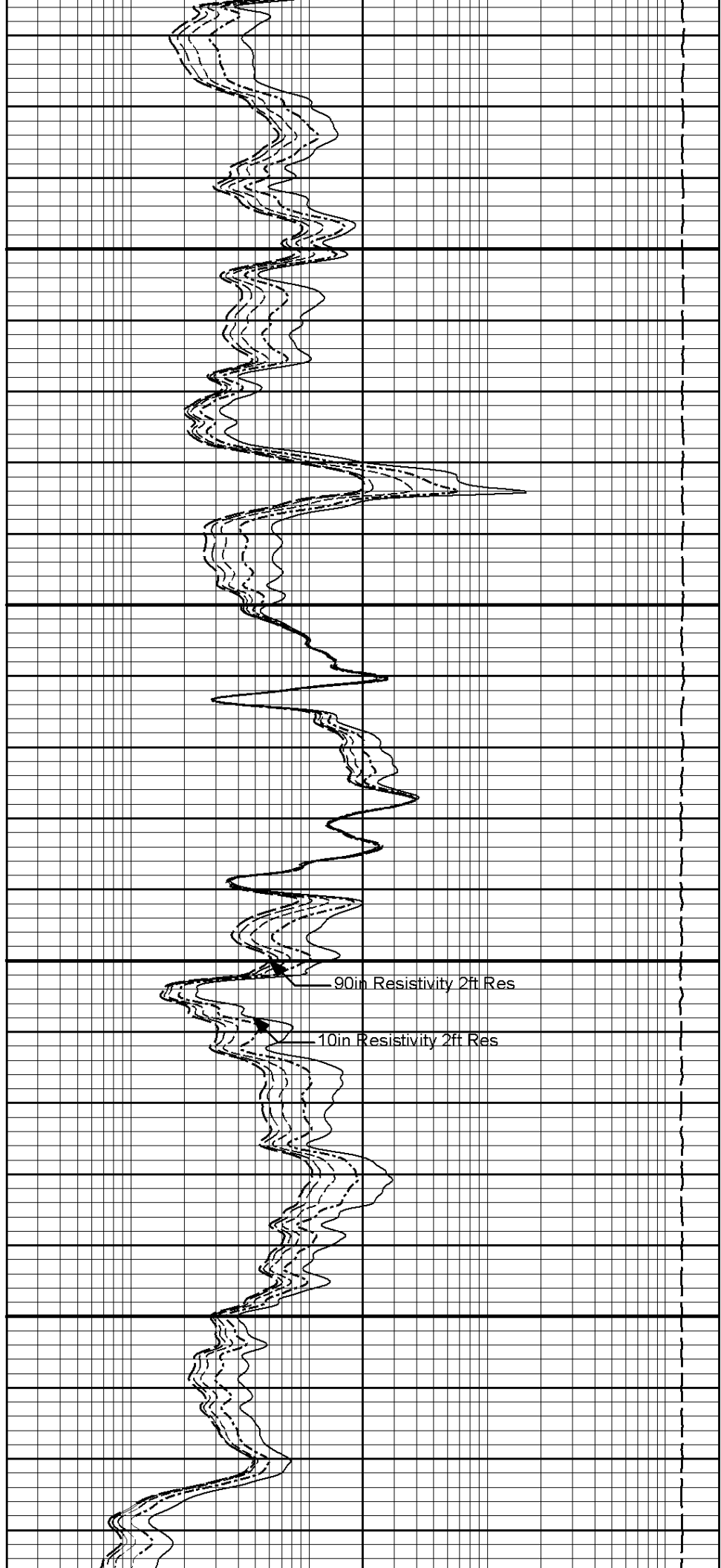
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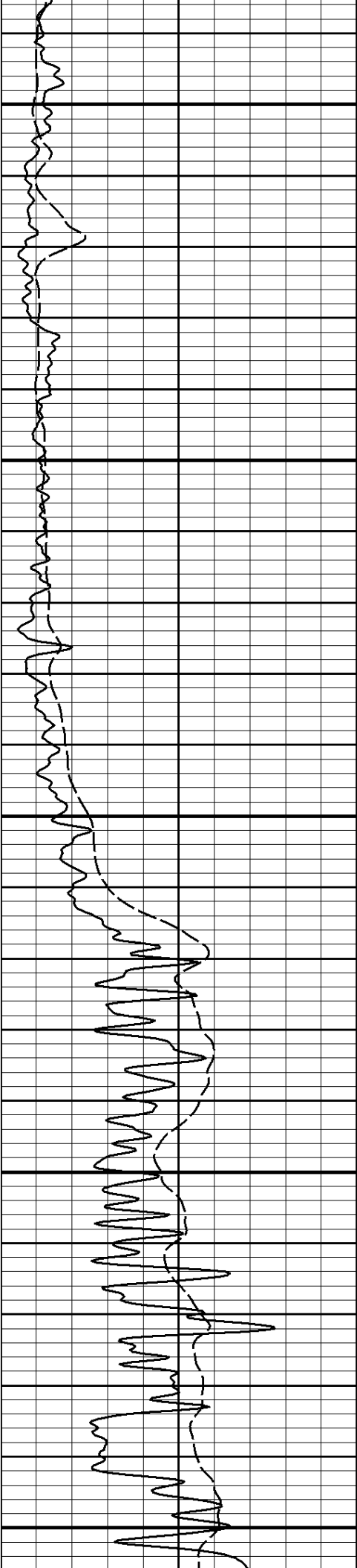




3500

3600

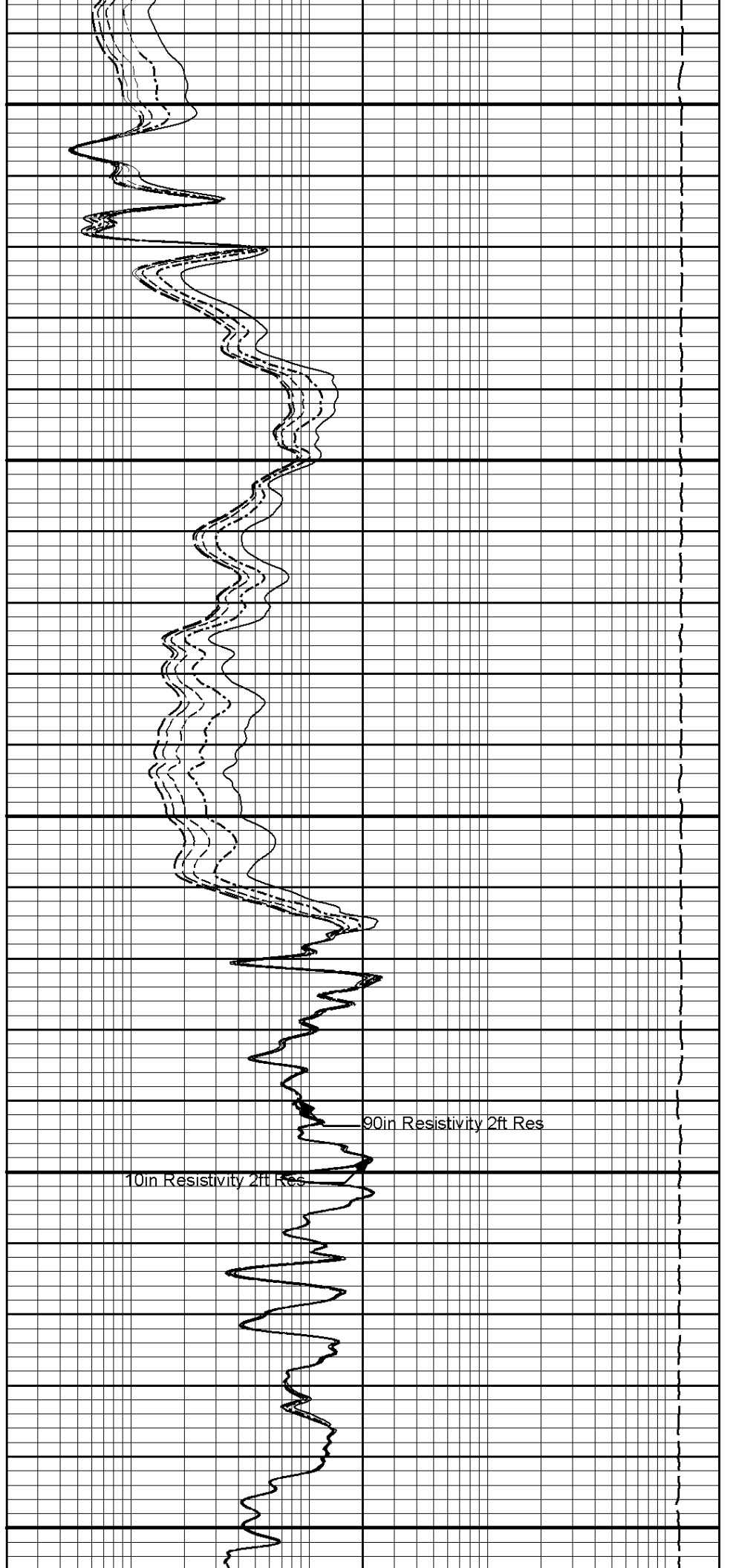




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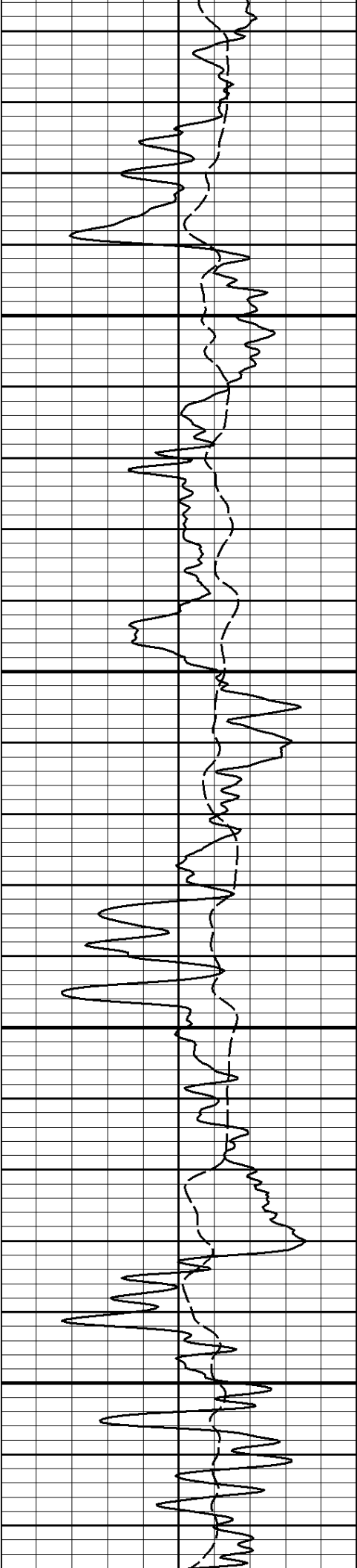
3800

3900



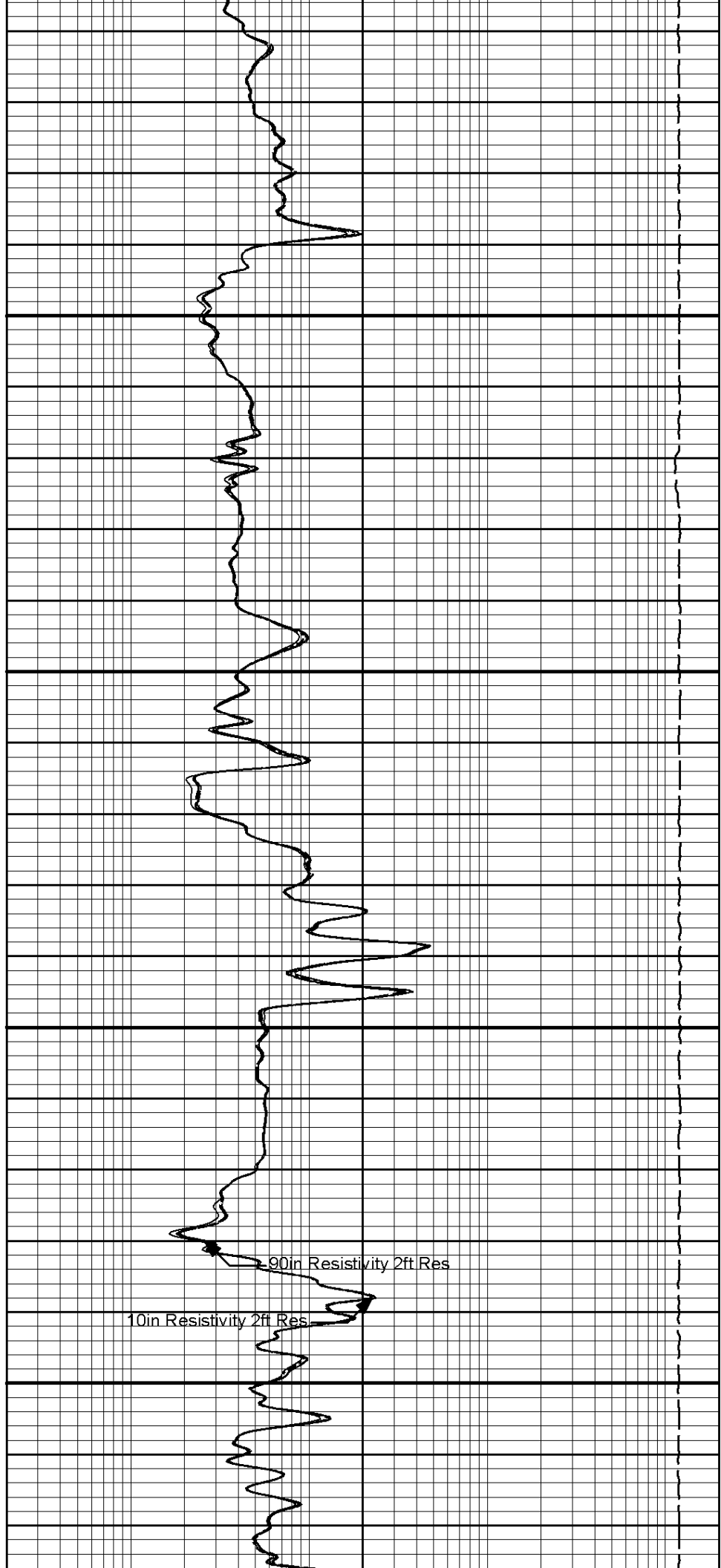
90in Resistivity 2ft Res

10in Resistivity 2ft Res



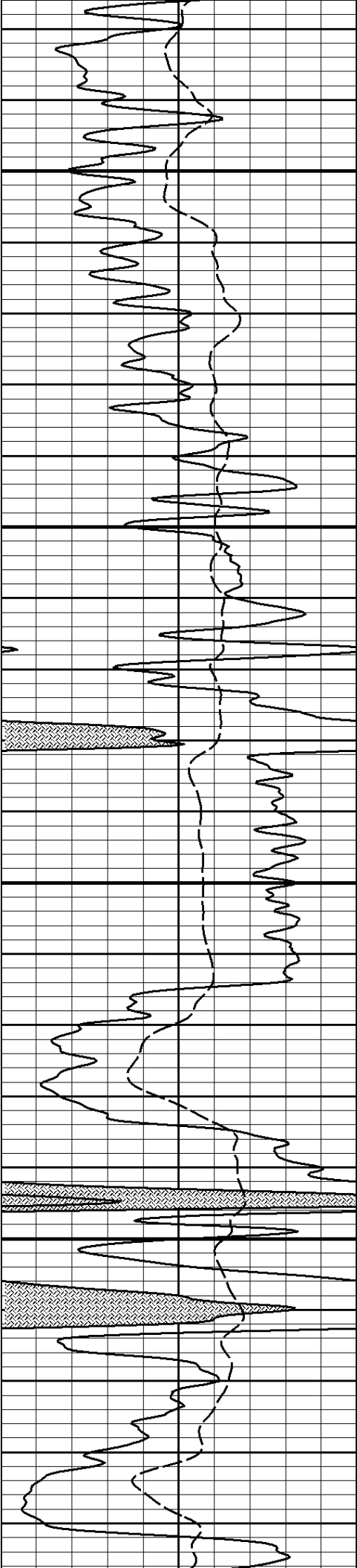
4000

4100



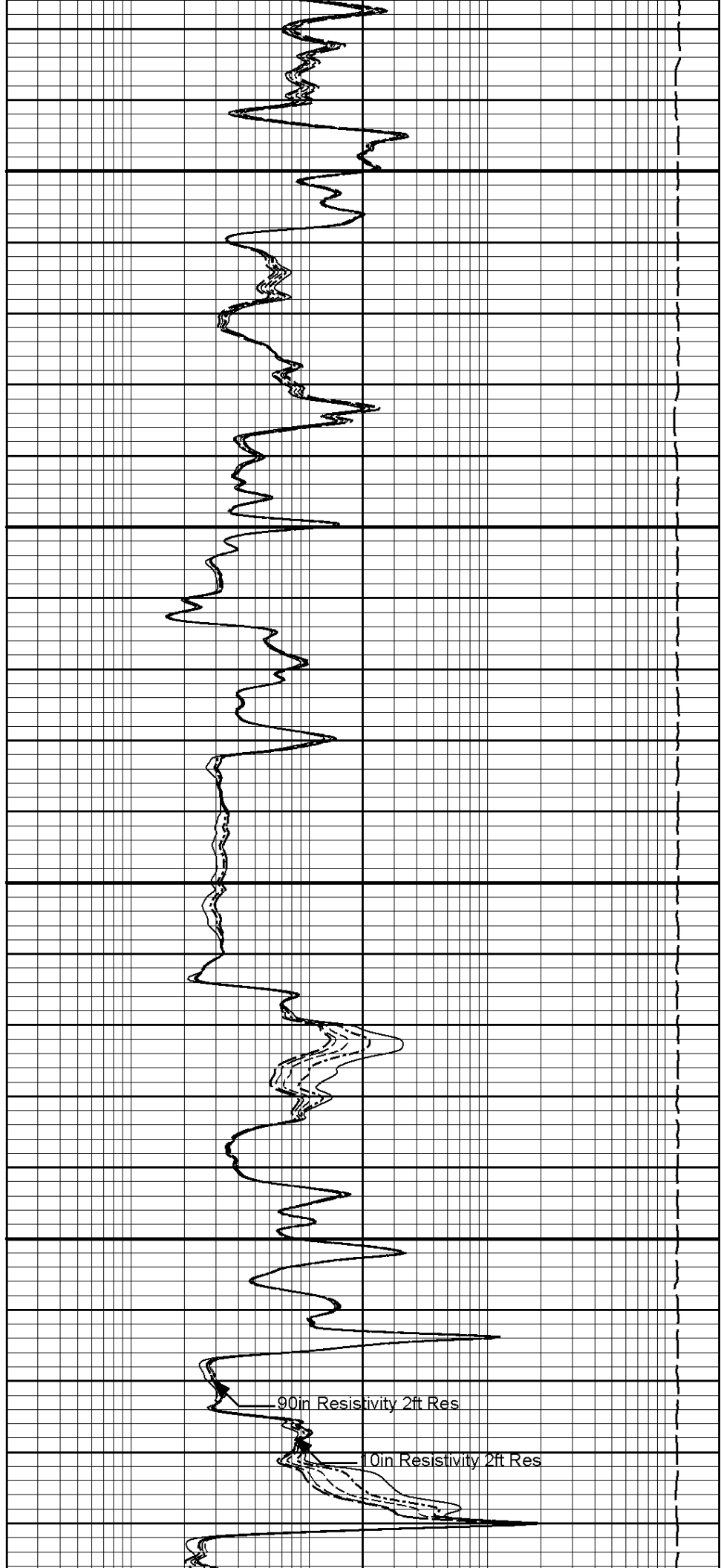
10in Resistivity 2ft Res

90in Resistivity 2ft Res



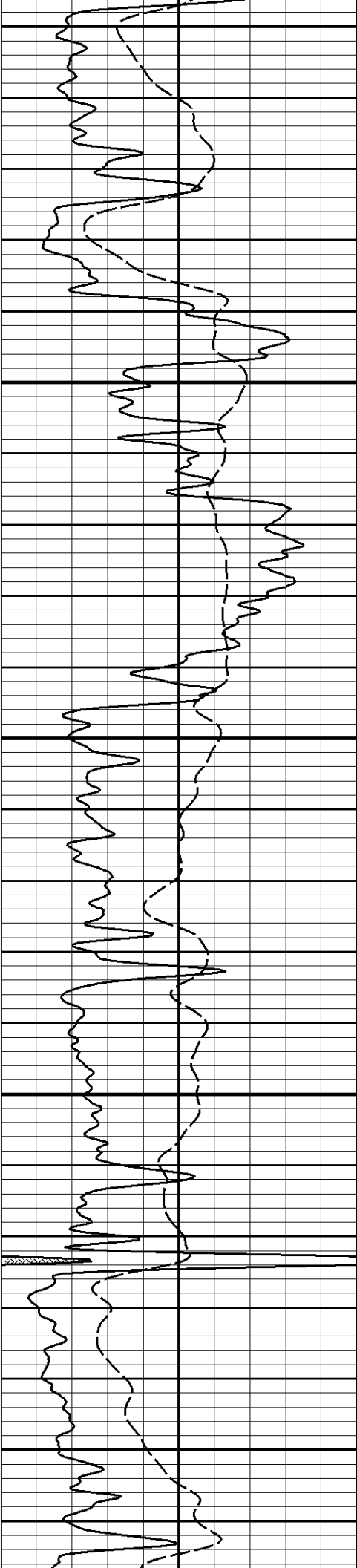
4200

4300



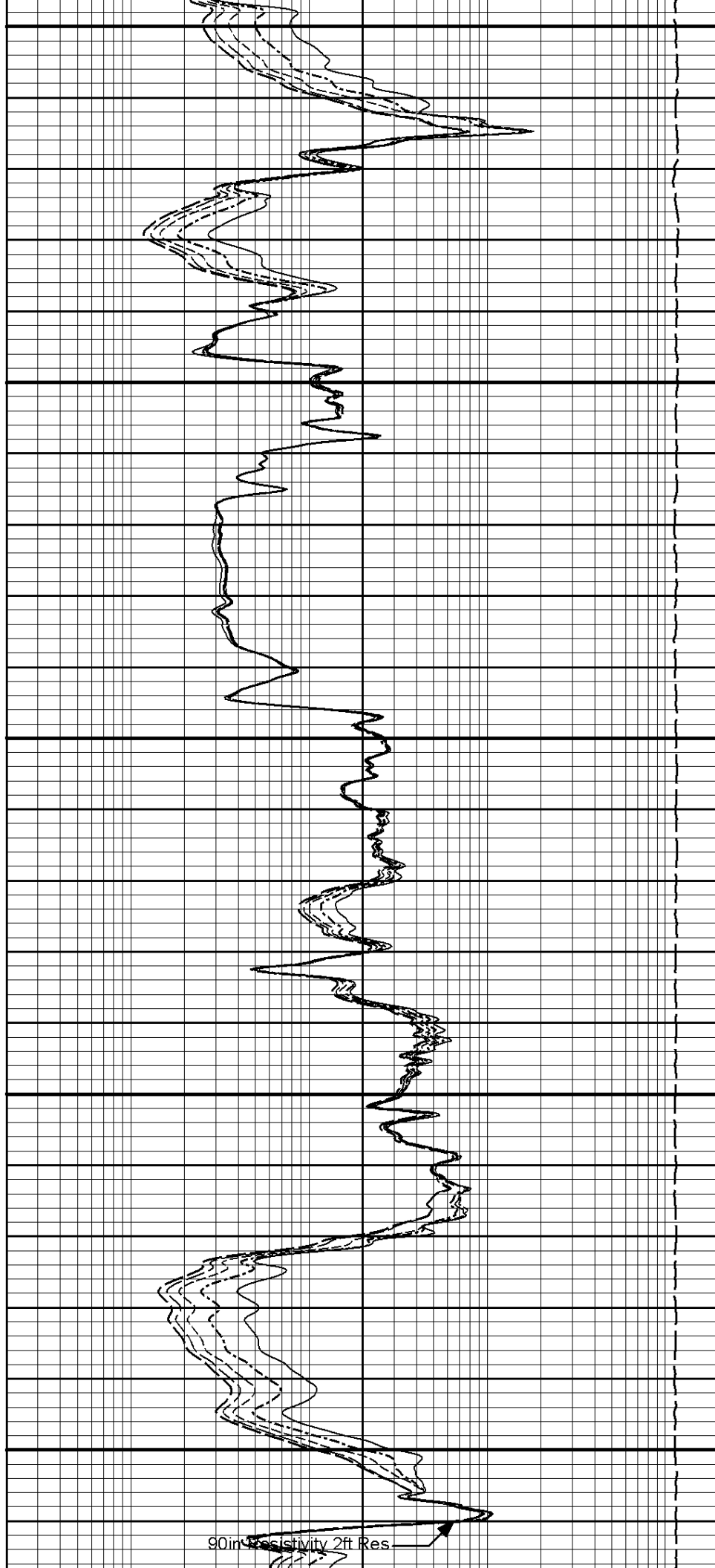
90in Resistivity 2ft Res

10in Resistivity 2ft Res

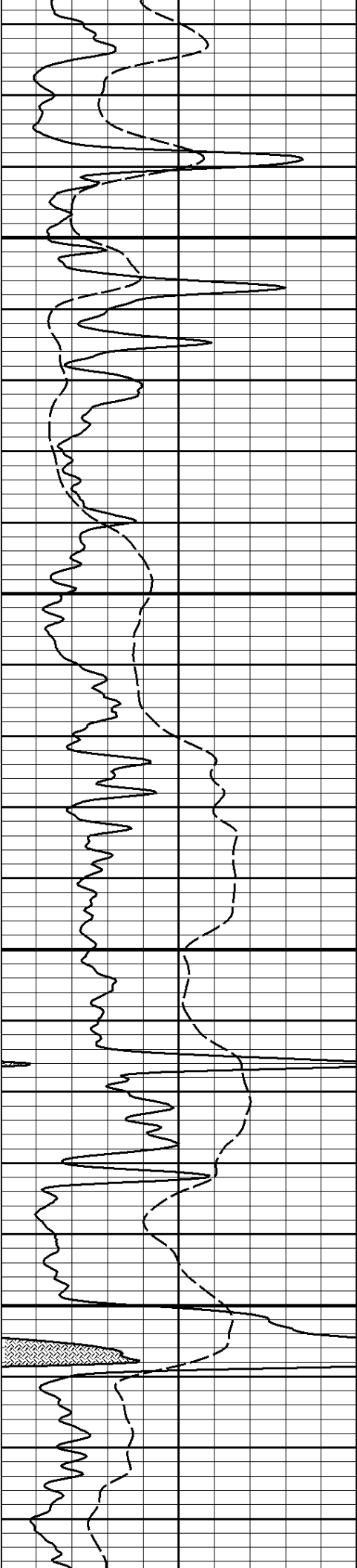


4400

4500

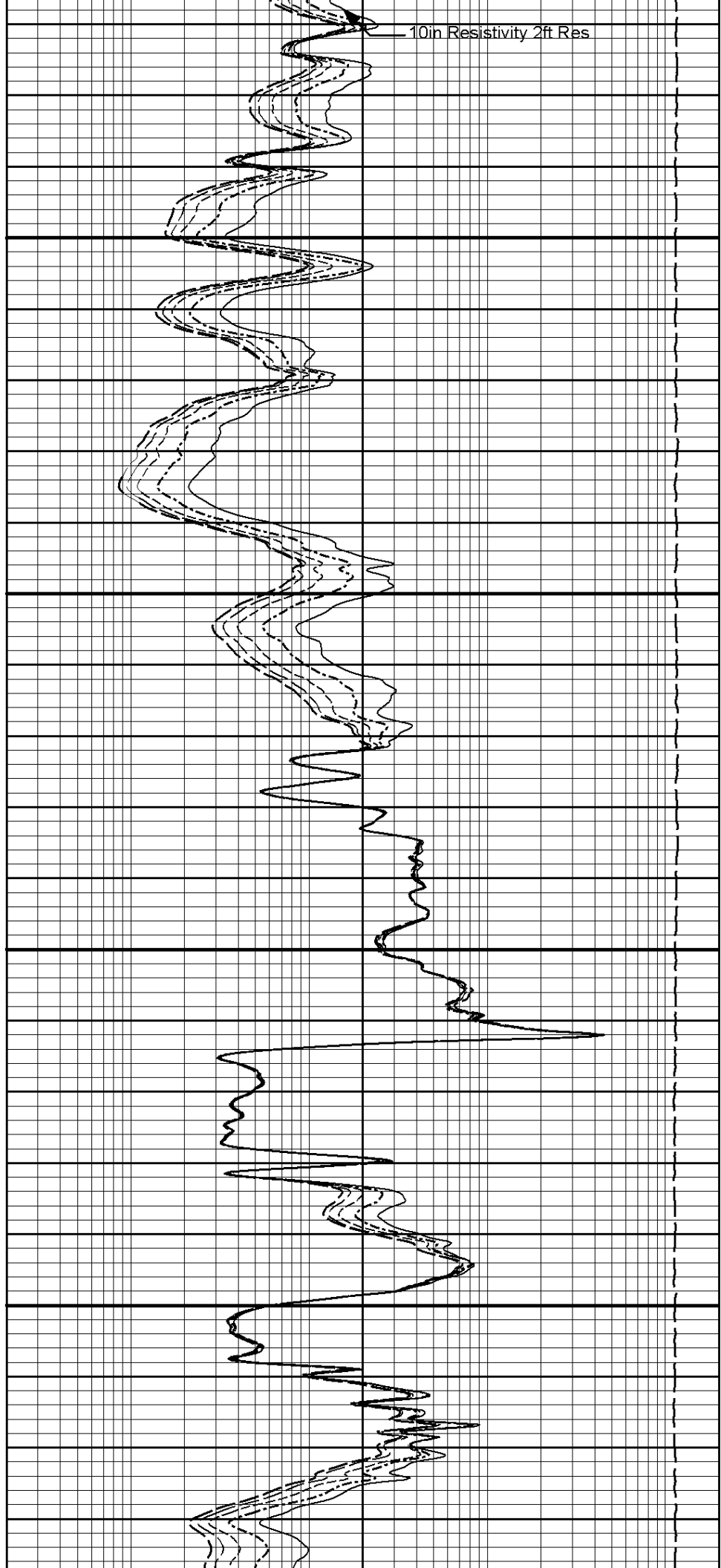


90in Resistivity 2ft Res

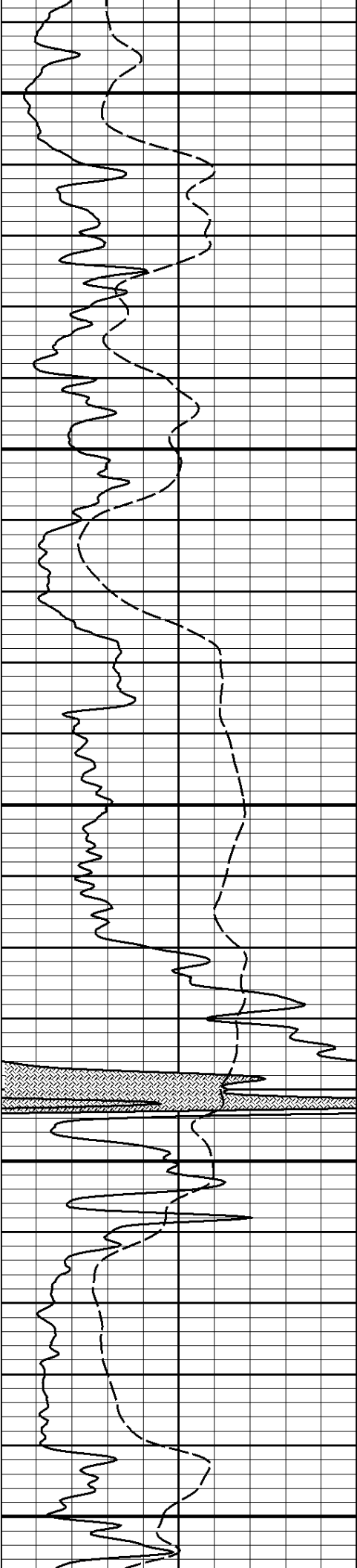


4600

4700



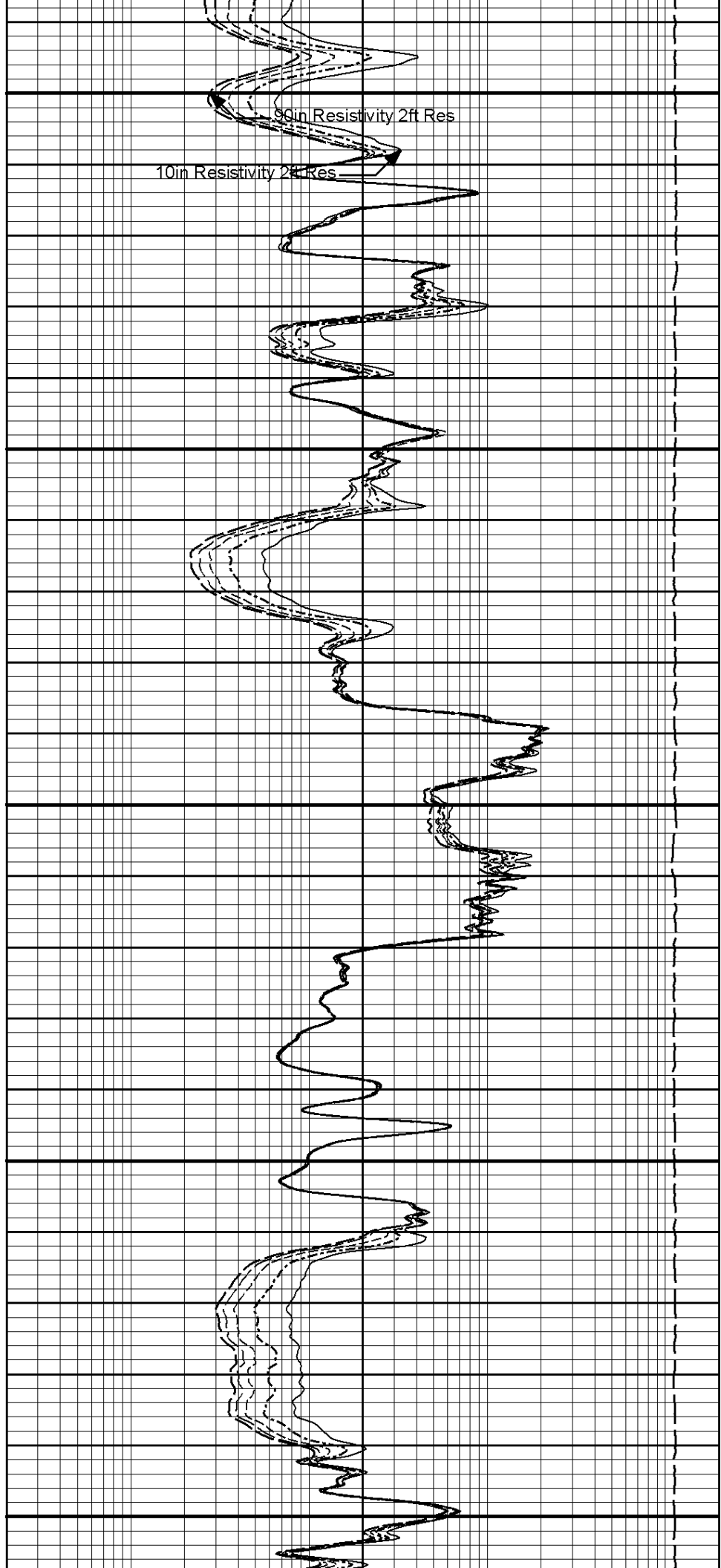
10in Resistivity 2ft Res



4800

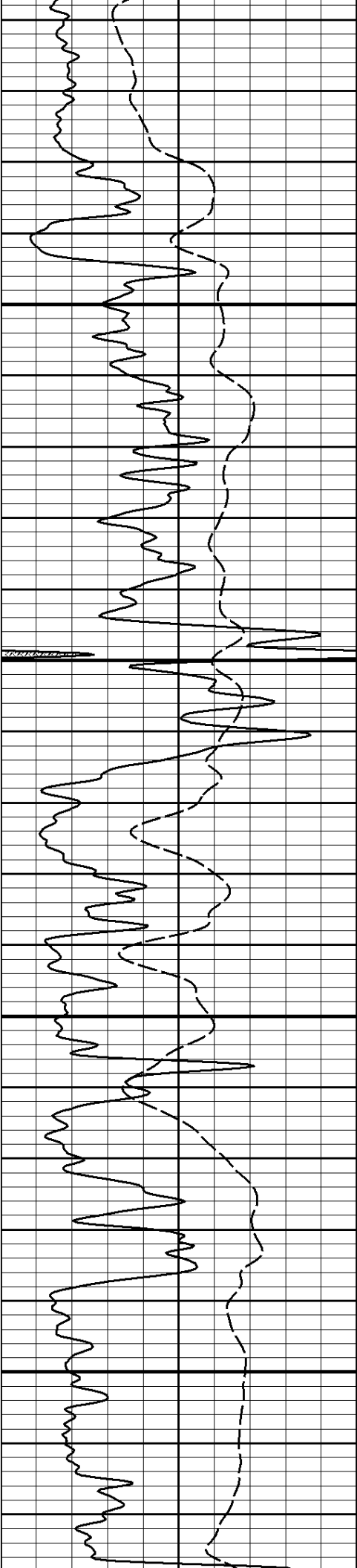
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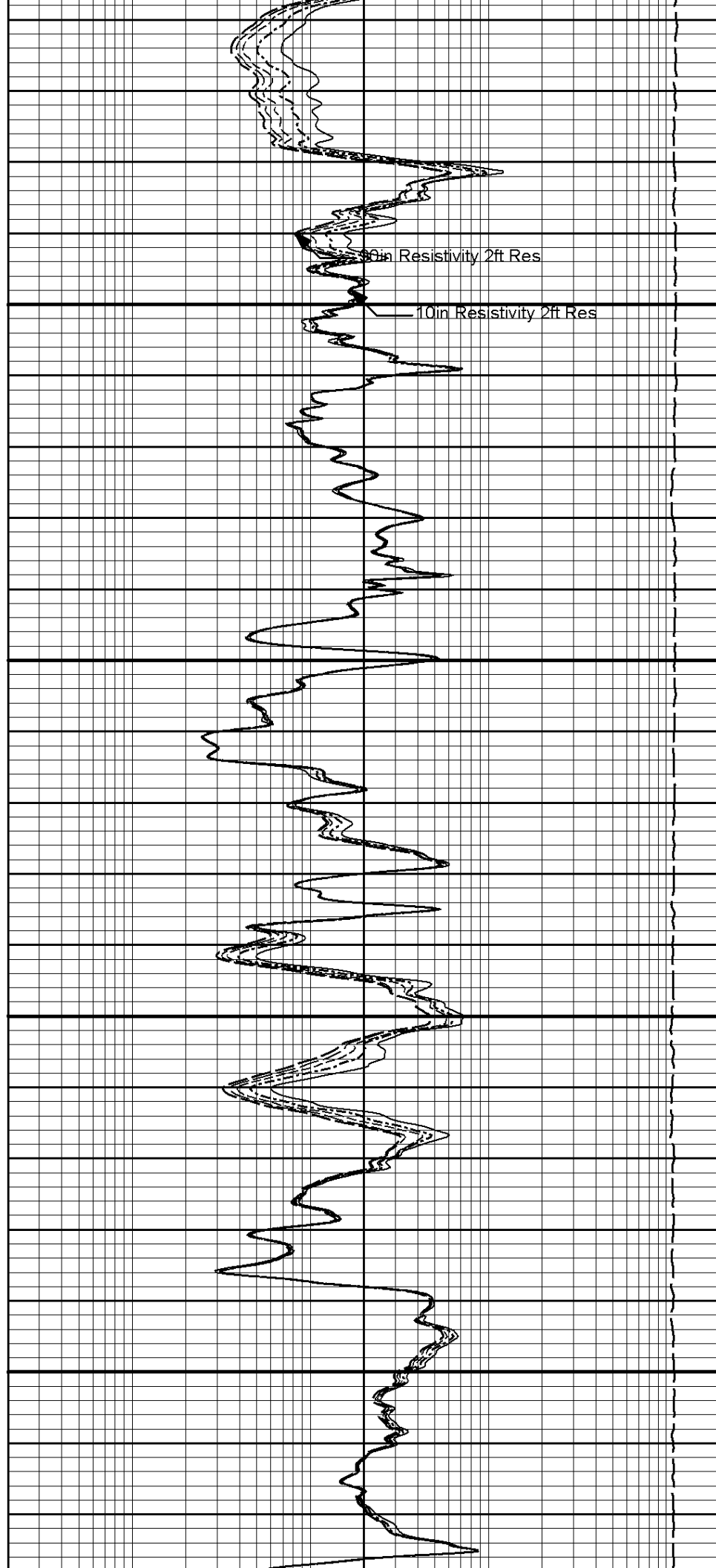
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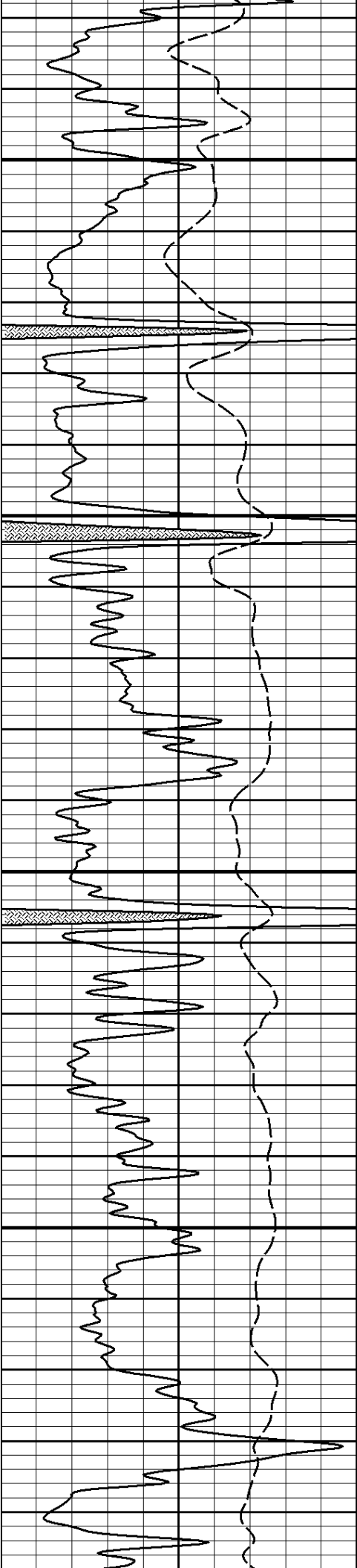
10in Resistivity 2ft Res



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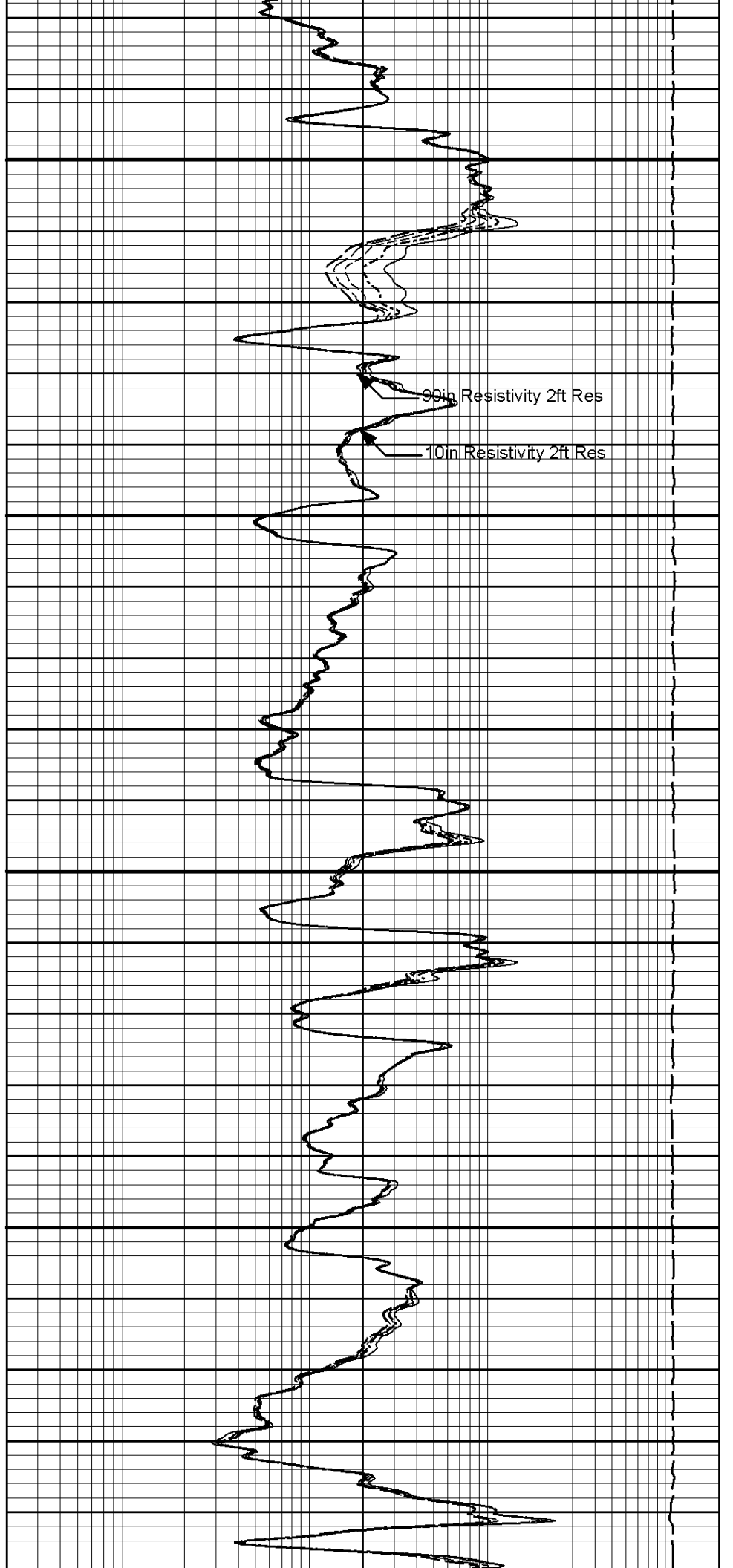
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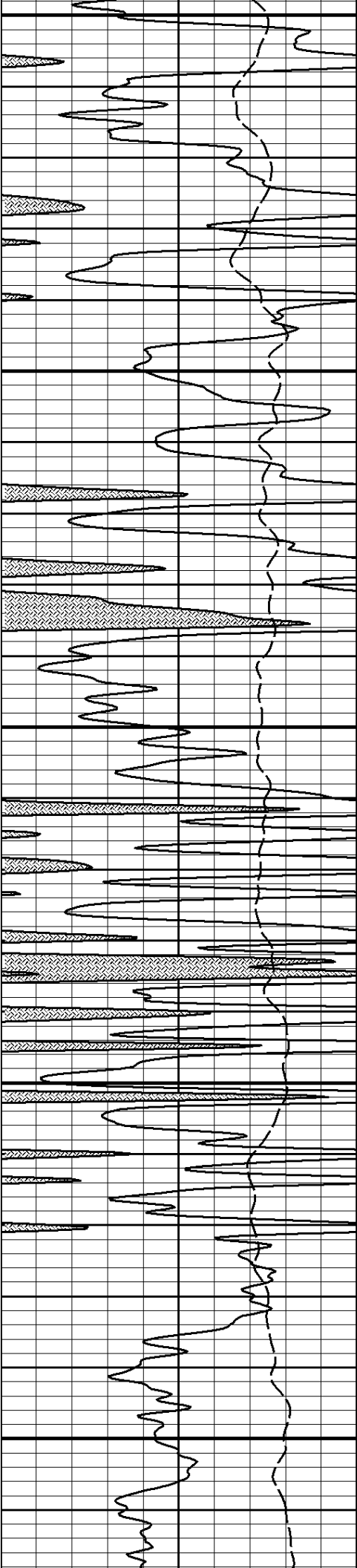




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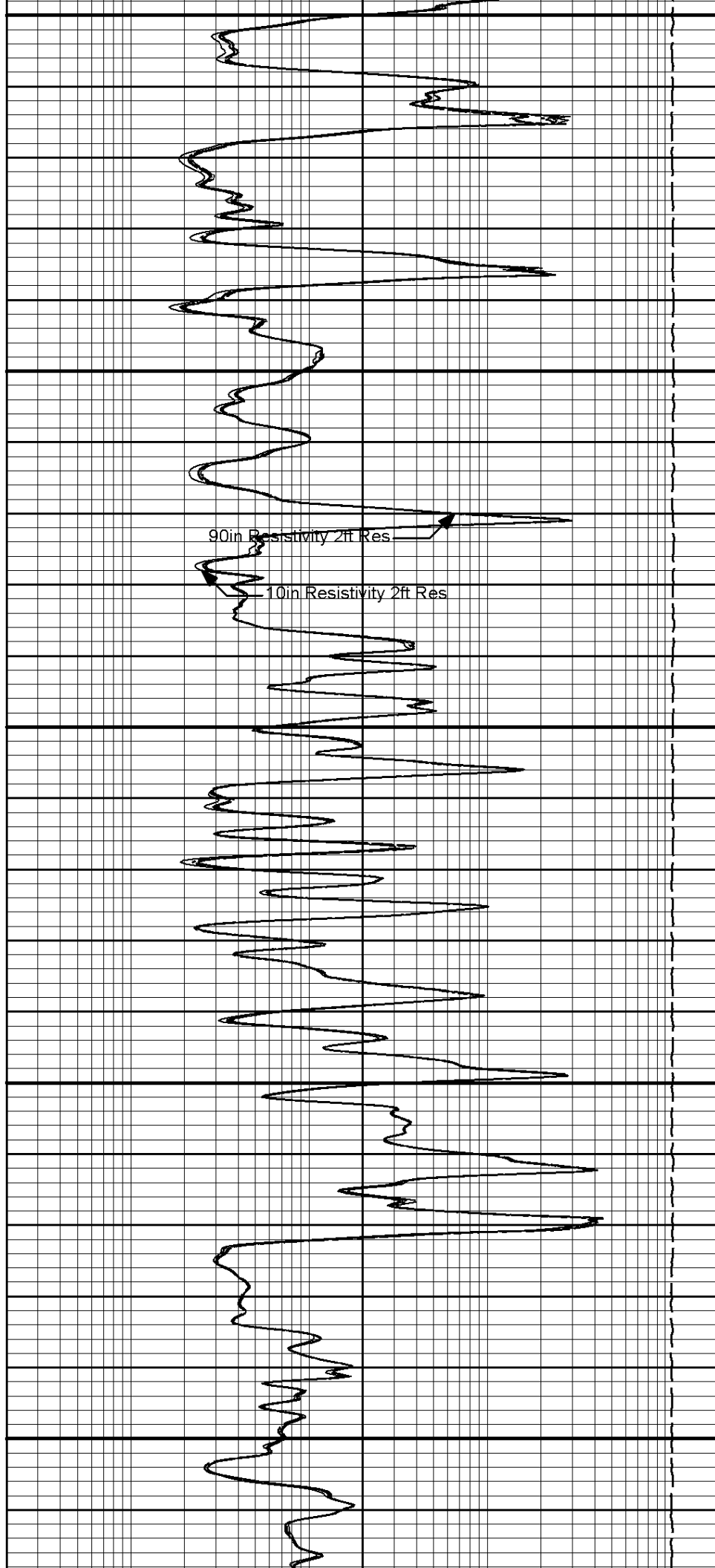
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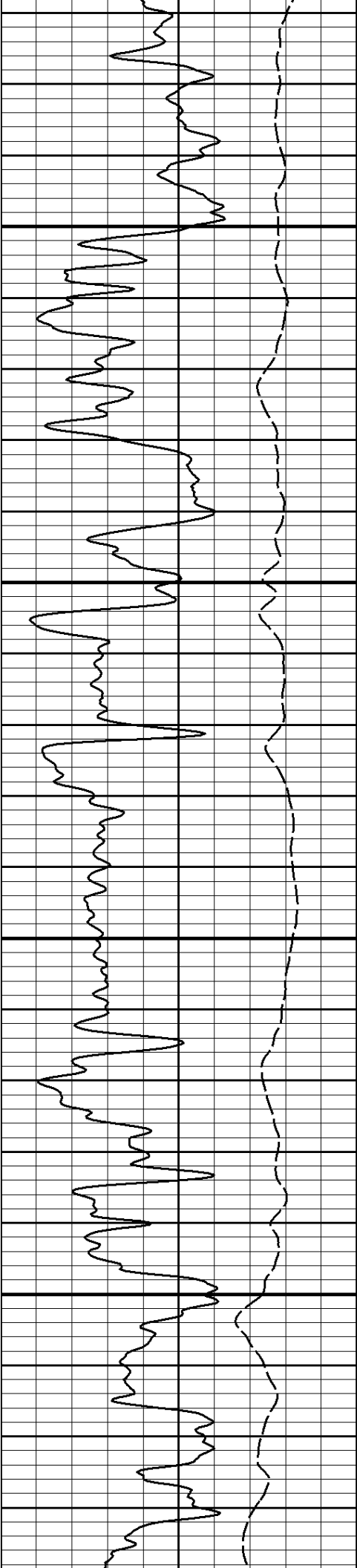




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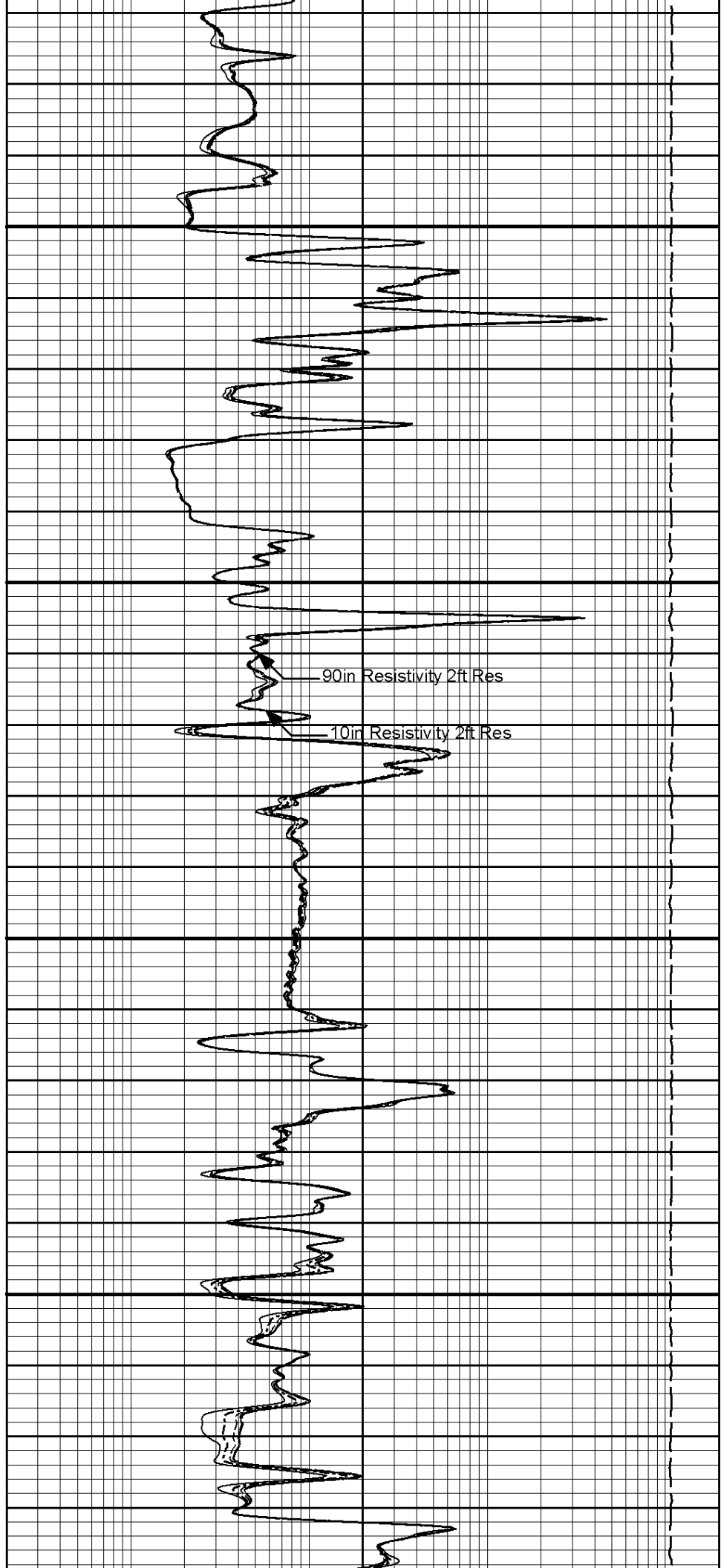
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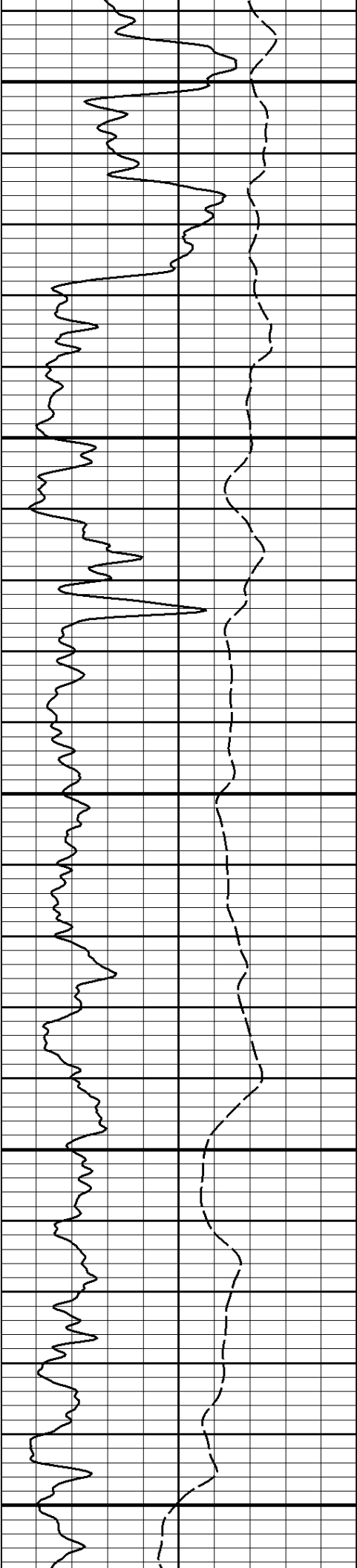




5700

5800

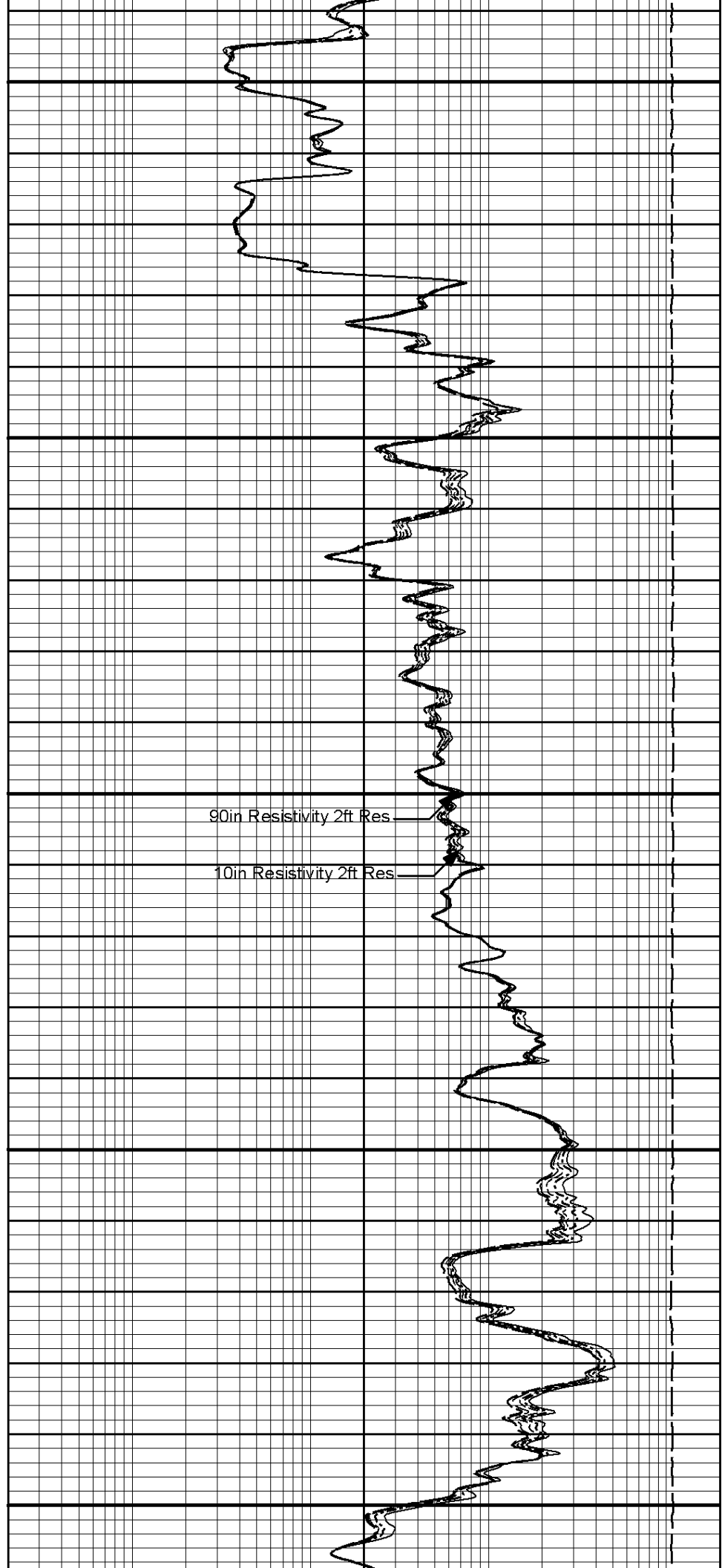


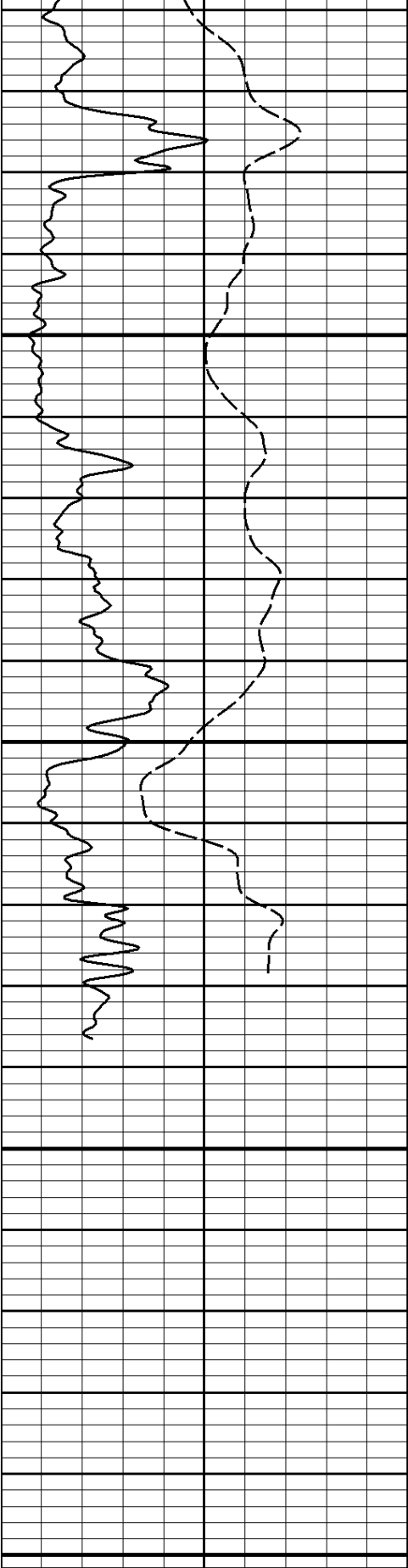


5900

6000

6100

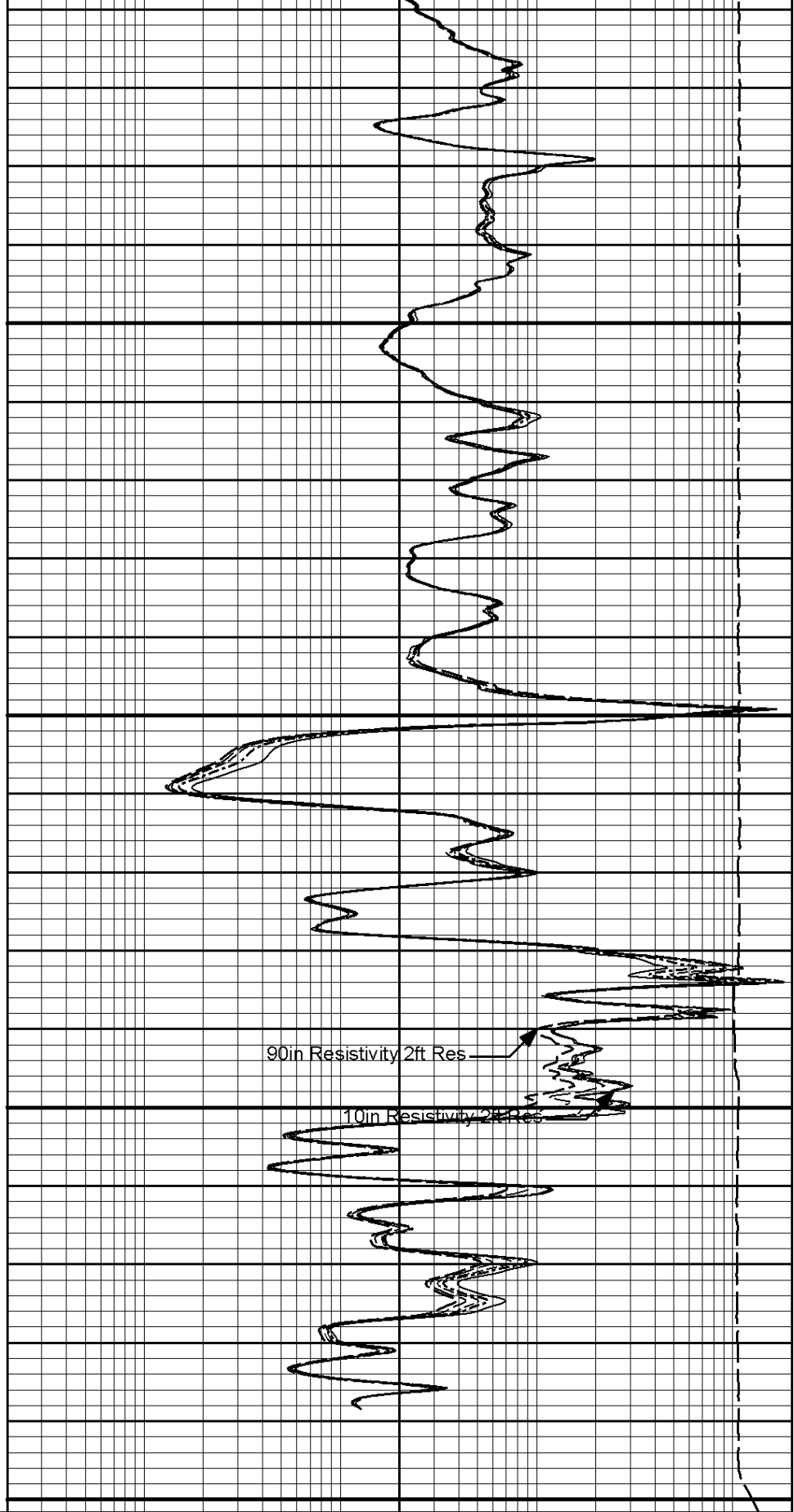




6200

6300

0	Gamma API	150
	api	
	SP	
	-]20[+	



90in Resistivity 2ft Res

10in Resistivity 2ft Res

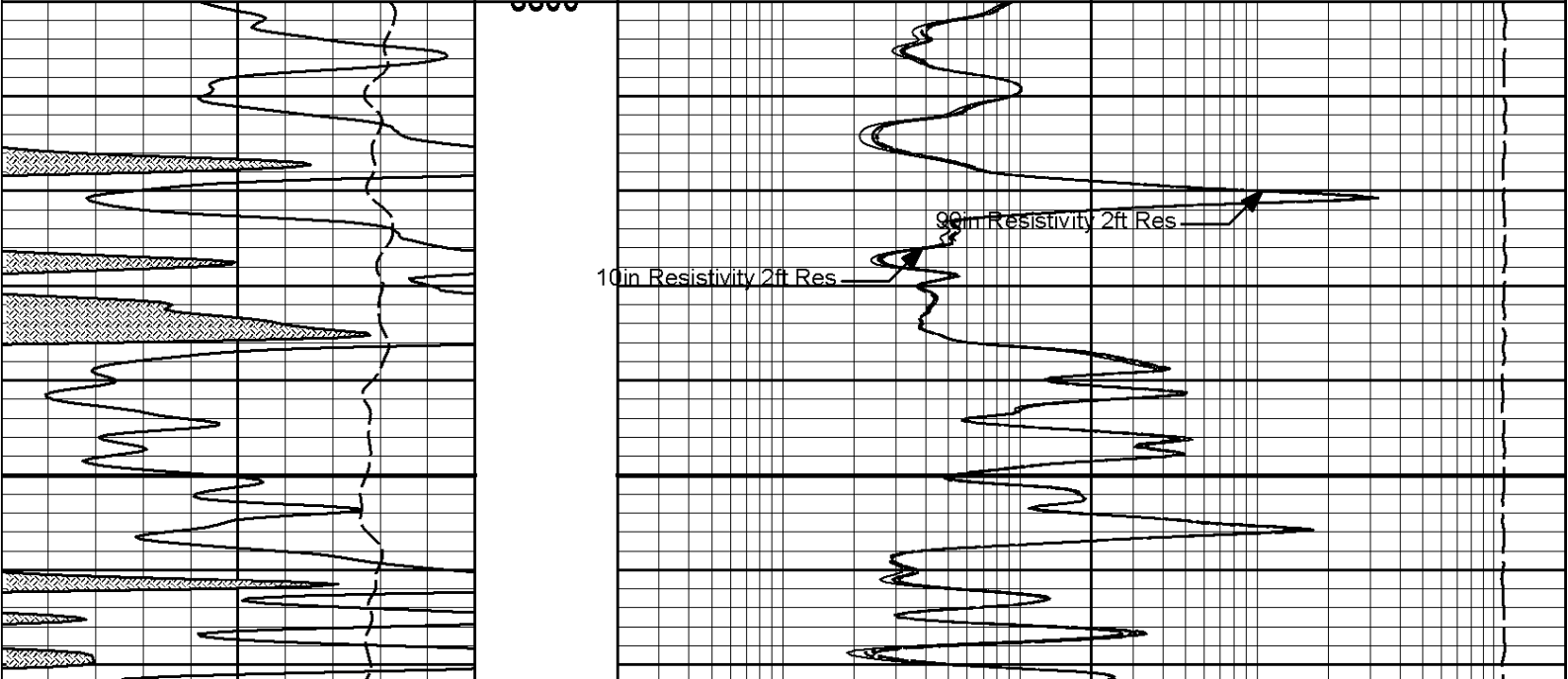
15K	Tension	0
	pounds	
0.2	90in Resistivity 2ft Res	2K
	ohmm	
0.2	60in Resistivity 2ft Res	2000

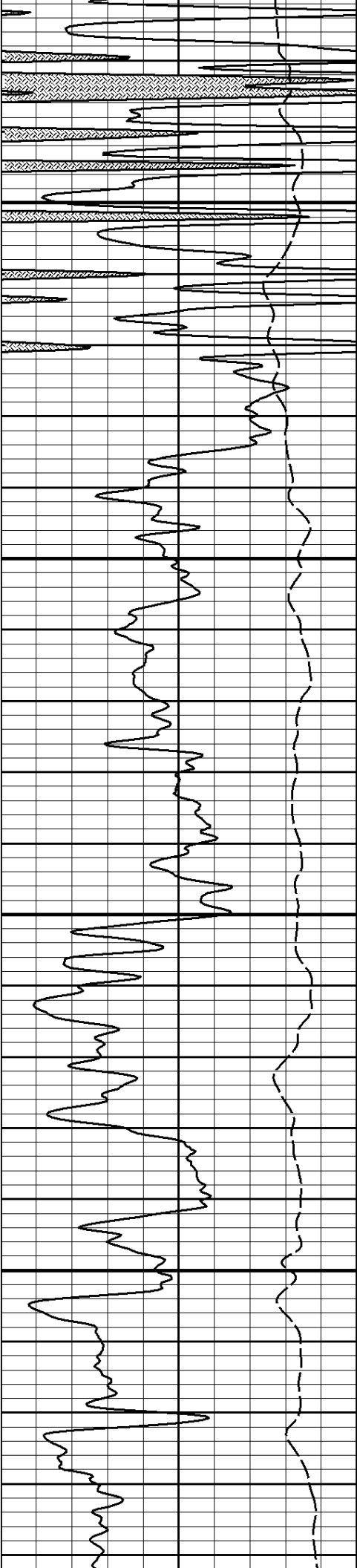
	ohmm
	0.2 30in Resistivity 2ft Res 2000
	ohm-metre
	0.2 20in Resistivity 2ft Res 2000
	ohmm
	0.2 10in Resistivity 2ft Res 2K
	ohmm

5 INCH MAIN LOG

REPEAT SECTION

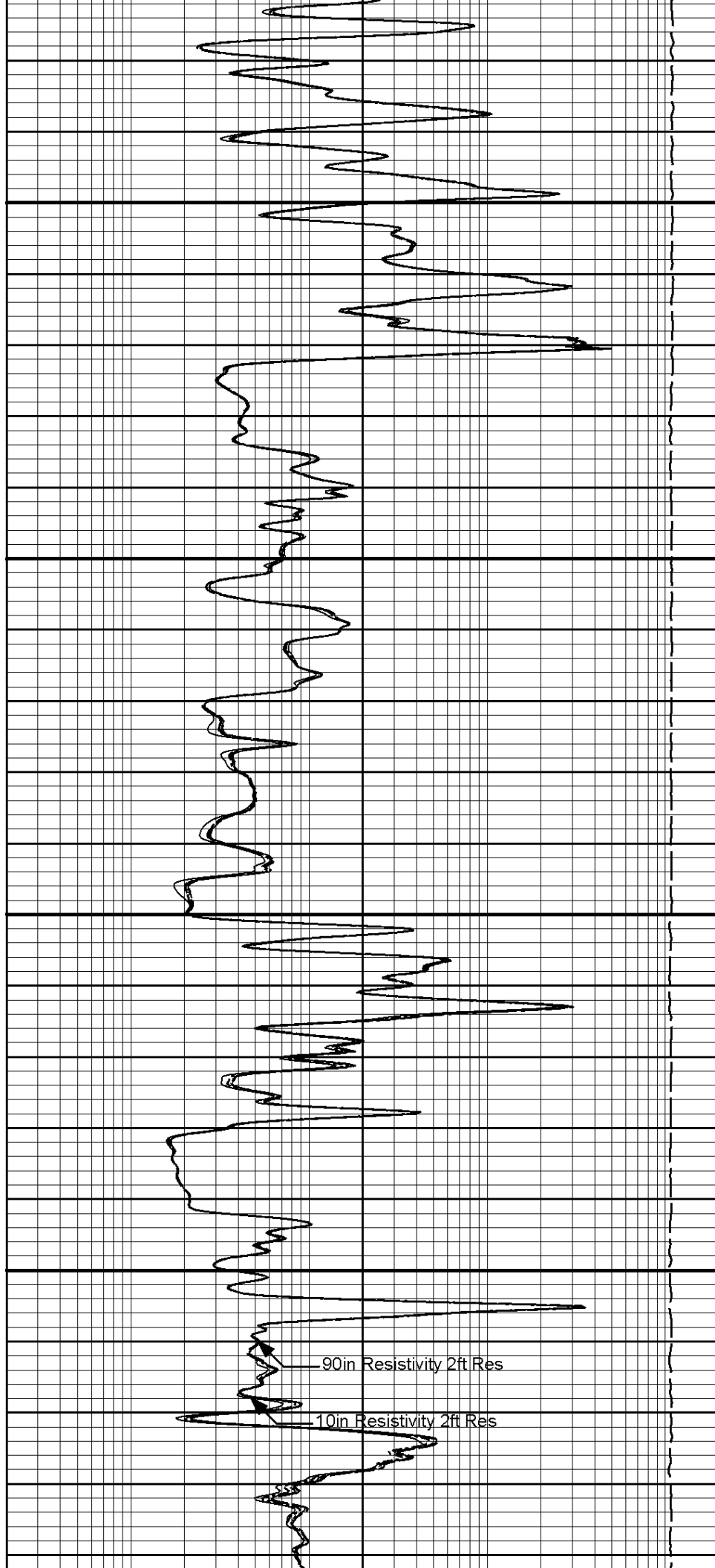
	0.2 10in Resistivity 2ft Res 2K
	ohmm
	0.2 20in Resistivity 2ft Res 2000
	ohmm
	0.2 30in Resistivity 2ft Res 2000
	ohm-metre
	0.2 60in Resistivity 2ft Res 2000
	ohmm
	0.2 90in Resistivity 2ft Res 2K
	ohmm
SP -]20[+	
0 Gamma API 150	
api	15K Tension 0
	pounds





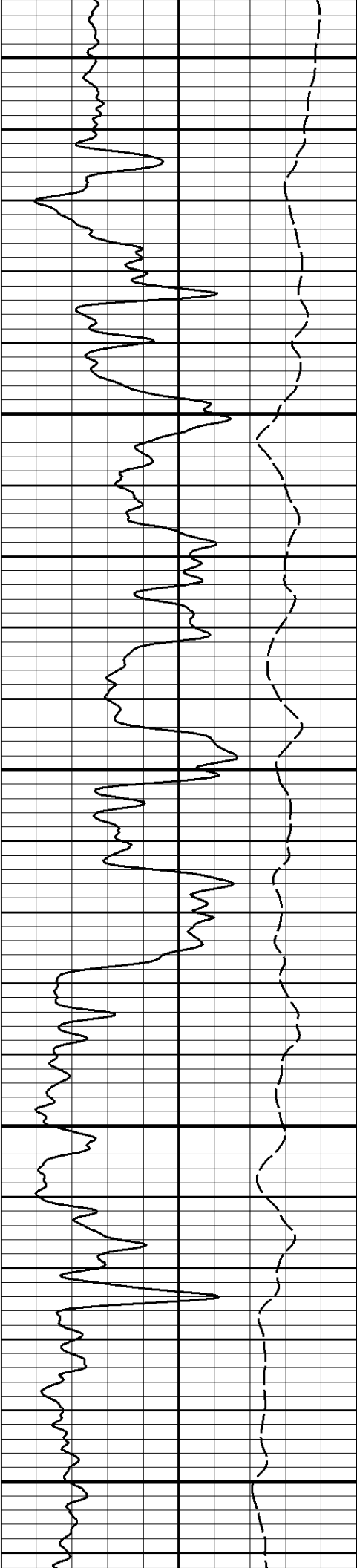
5600

5700



90in Resistivity 2ft Res

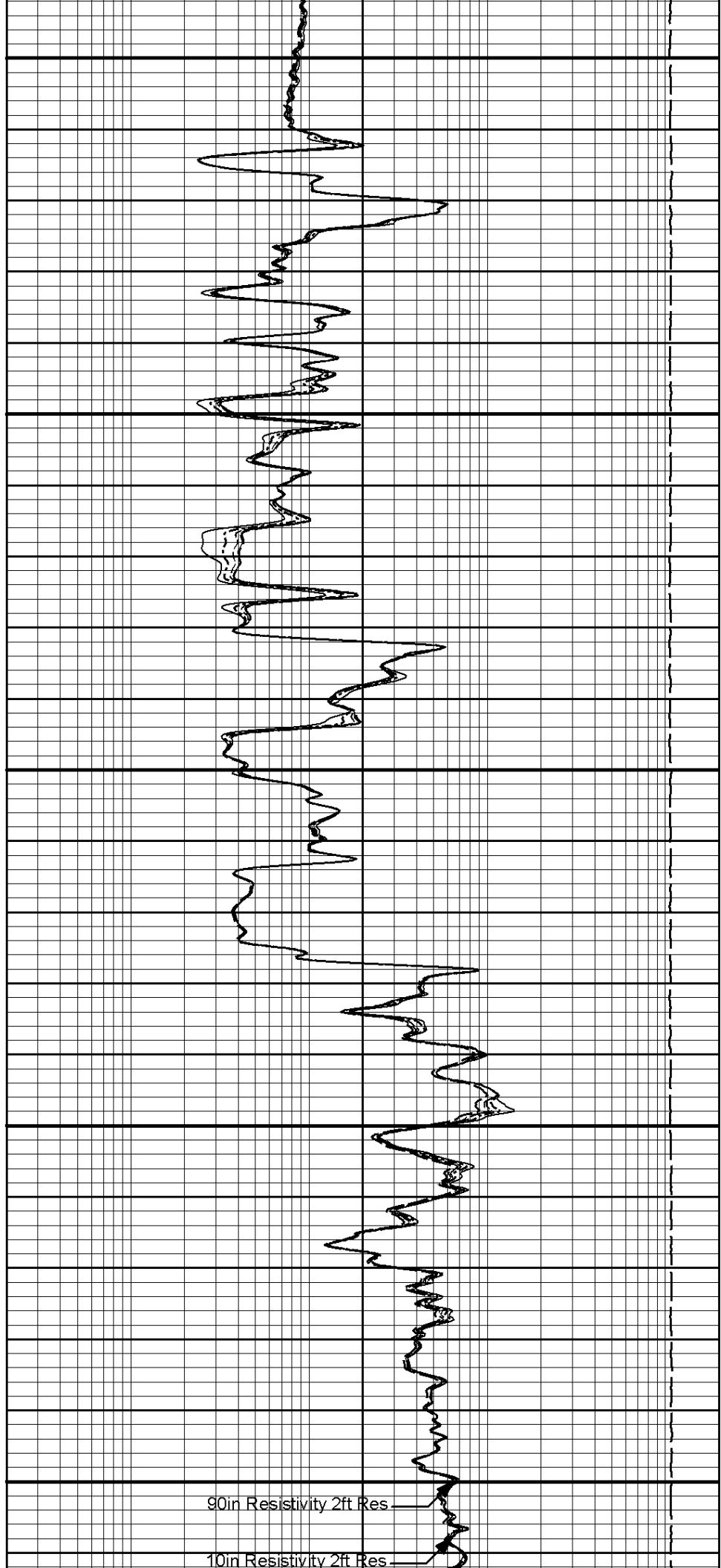
10in Resistivity 2ft Res



5800

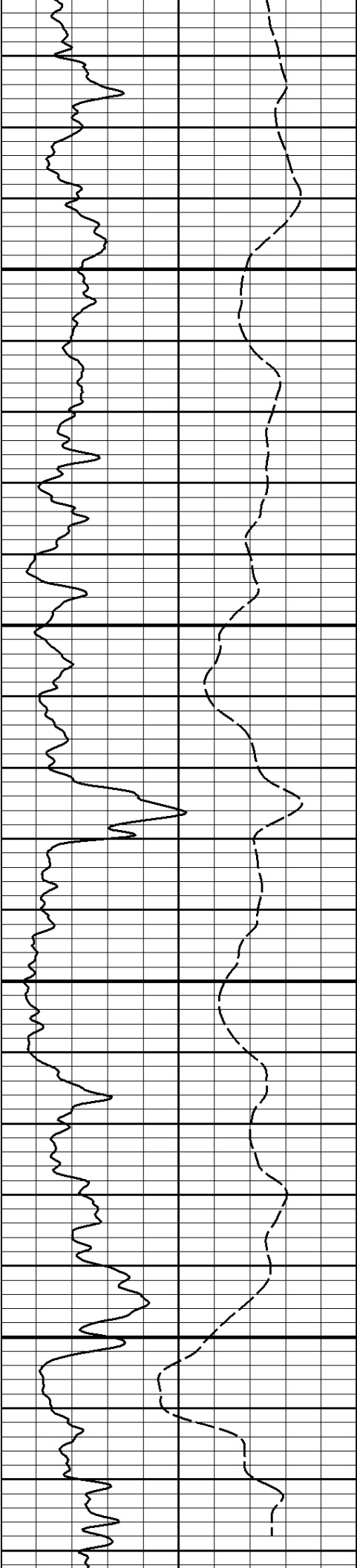
5900

6000



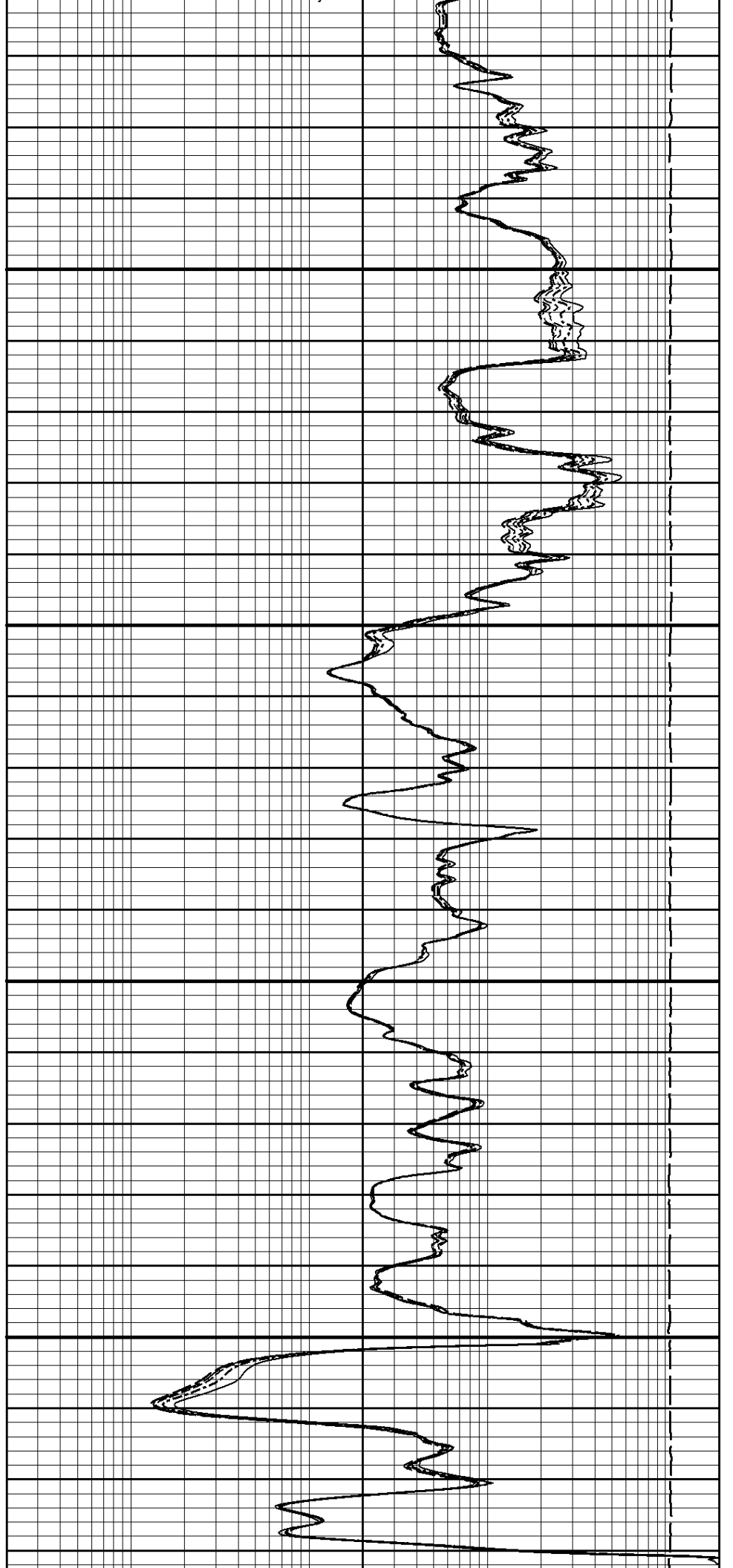
90in Resistivity 2ft Res

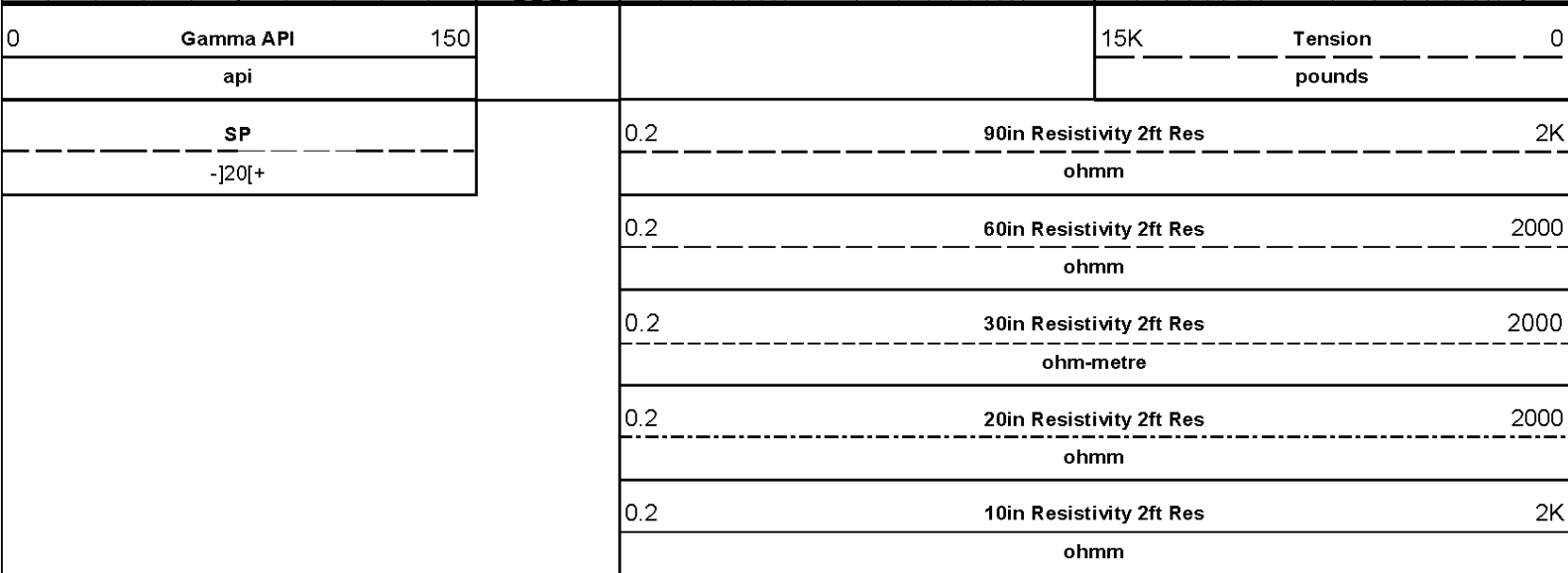
10in Resistivity 2ft Res



6100

6200





HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	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	8.800	ppg
	SHARED	WAGT	Weighting Agent	Barite	
	SHARED	BSAL	Borehole salinity	1800.00	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	RMCD	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	5.500	in
SHARED	CSTR	Compressive Strength	1000.00	psia
SHARED	ST	Surface Temperature	75.0	degF
SHARED	TD	Total Well Depth	6293.00	ft
SHARED	BHT	Bottom Hole Temperature	150.0	degF
SHARED	SVTM	Navigation and Survey Master Tool	NONE	
SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
SHARED	TEMM	CBM Temperature Master Tool	GTET	
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	
Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
GTET	BHSM	Borehole Size Source Tool	SDLT	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTT	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	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
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?	No	
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
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
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 Pore Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	Limestone 47.6	
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	RMAX	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	
BOTTOM_____				
Data: PARITY_1_27\0001 QUAD_1\IDLE			Date: 18-Oct-16 16:39:29	

HALLIBURTON

CALIBRATION REPORT

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION			
Tool Name:	ACRt Sonde - 11000156	Reference Calibration Date:	04-Mar-16 11:04:11
Engineer:	WHITLOCK	Calibration Date:	12-Oct-16 13:15:18
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 10996989		

TYPICAL GAIN RANGE									
Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0130	1.05	0.95	1.0197	1.05	0.95	1.0232	1.05
A2 (50")	0.95	1.0027	1.05	0.95	1.0094	1.05	0.95	1.0136	1.05
A3 (29")	0.95	0.9989	1.05	0.95	1.0052	1.05	0.95	1.0068	1.05
A4 (17")	0.95	0.9953	1.05	0.95	0.9990	1.05	0.95	1.0026	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9911	1.05	0.95	0.9937	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9905	1.05	0.95	0.9934	1.05

SONDE OFFSET			
Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-1.126	-3.665	-5.619
A2 (50")	-3.584	-5.012	-4.042
A3 (29")	-11.889	-3.235	-3.189
A4 (17")	-100.925	-32.076	-24.247
A5 (10")	N/A	-77.156	-38.080
A6 (6")	N/A	328.525	171.507

TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	1.00	1.3	Mud Cell	0.95	1.00	1.05
36K	1.0	1.45	2.0				
72K	1.0	1.70	2.0				

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS
TOOL OK TO LOG	

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
ACRt Sonde-11000156						
Mud Cell	1.00	-----	-----	0	-----	ohm-m

Data: PARITY_1_27\0001 QUAD_1\IDLE

Date: 18-Oct-16 16:39:50

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS_I 37.50 lbs		Ø 2.750 in		Temperature @ 76.98 ft	2.25 ft	77.23 ft
XOHD-12345678 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	74.98 ft
						74.03 ft
SP Sub-10904995 60.00 lbs		Ø 3.625 in		SP @ 72.26 ft	3.74 ft	
				Z-Accelerometer @ 69.84 ft		70.30 ft
GTET-11021139 165.00 lbs		Ø 3.625 in		GammaRay @ 64.23 ft	8.52 ft	
						61.78 ft
DSN Decentralizer-10993115 6.60 lbs		Ø 5.000 in*				
DSNT-11020487 174.00 lbs		Ø 3.625 in		DSN Far @ 54.84 ft DSN Near @ 54.09 ft	9.69 ft	
						52.09 ft
SDLT-10951315 360.00 lbs	SDLT Pad-10865873 65.00 lbs Microlog Pad-10951315 8.00 lbs RAM-Cs137-00005155	Ø 4.500 in Ø 4.500 in* Ø 4.750 in*		Microlog @ 44.28 ft SDL Caliper @ 44.09 ft	10.81 ft	

RAMPS-137-00000155
1.00 lbs

Ø 0.800 in*

SDL @ 44.08 ft

41.28 ft

5.67 ft

35.61 ft

IQ Flex-10973274
140.00 lbs

Ø 3.625 in

Centralizer 25-00000001
8.00 lbs

Ø 4.000 in*

BSAT-10939049
300.00 lbs

Ø 3.625 in

Receiver Array @ 27.09 ft
Sonic Receivers @ 27.09 ft

15.77 ft

19.83 ft

ACRt Instrument-
10996989
50.00 lbs

Centralizer 25-00000002
8.00 lbs

Ø 4.000 in*
Ø 3.625 in

5.03 ft

14.80 ft

Mud Resistivity @ 13.44 ft

ACRt @ 9.46 ft

ACRt Sonde-
11000156
200.00 lbs

Ø 3.625 in

14.22 ft

Cabbage Head-
00000001
10.00 lbs

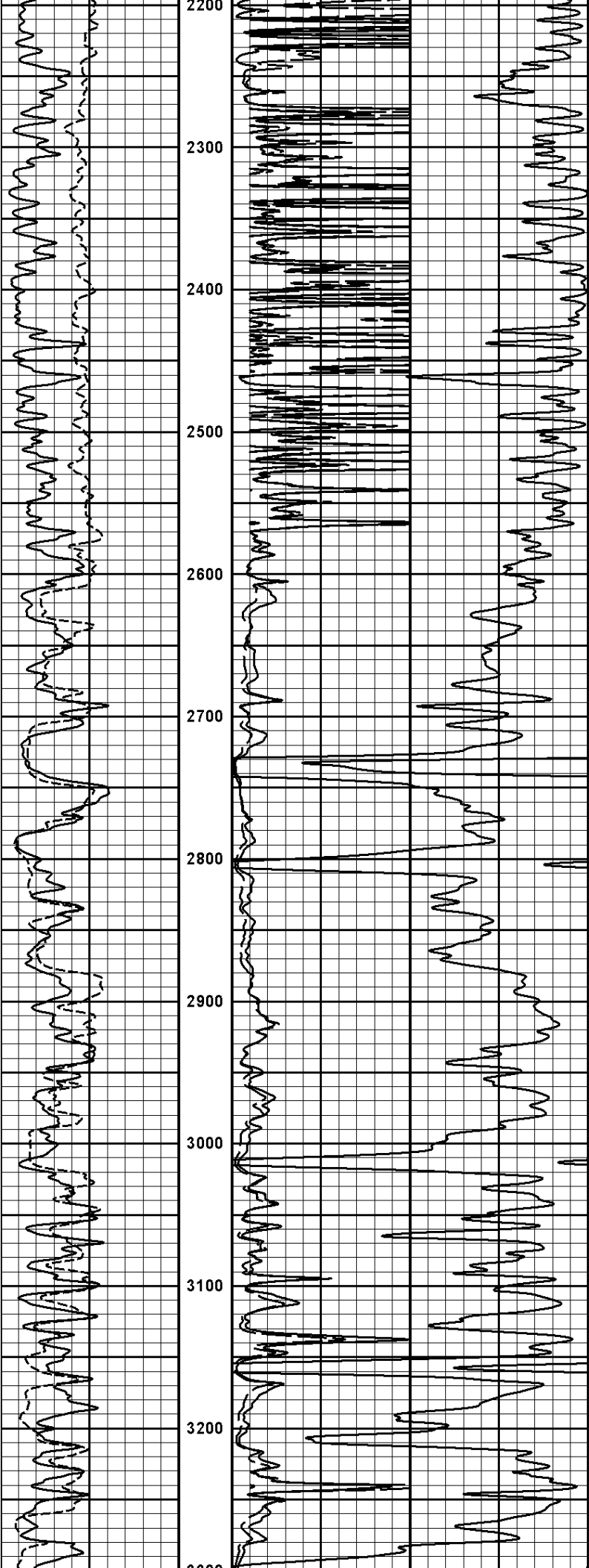
Ø 3.625 in
Ø 6.000 in

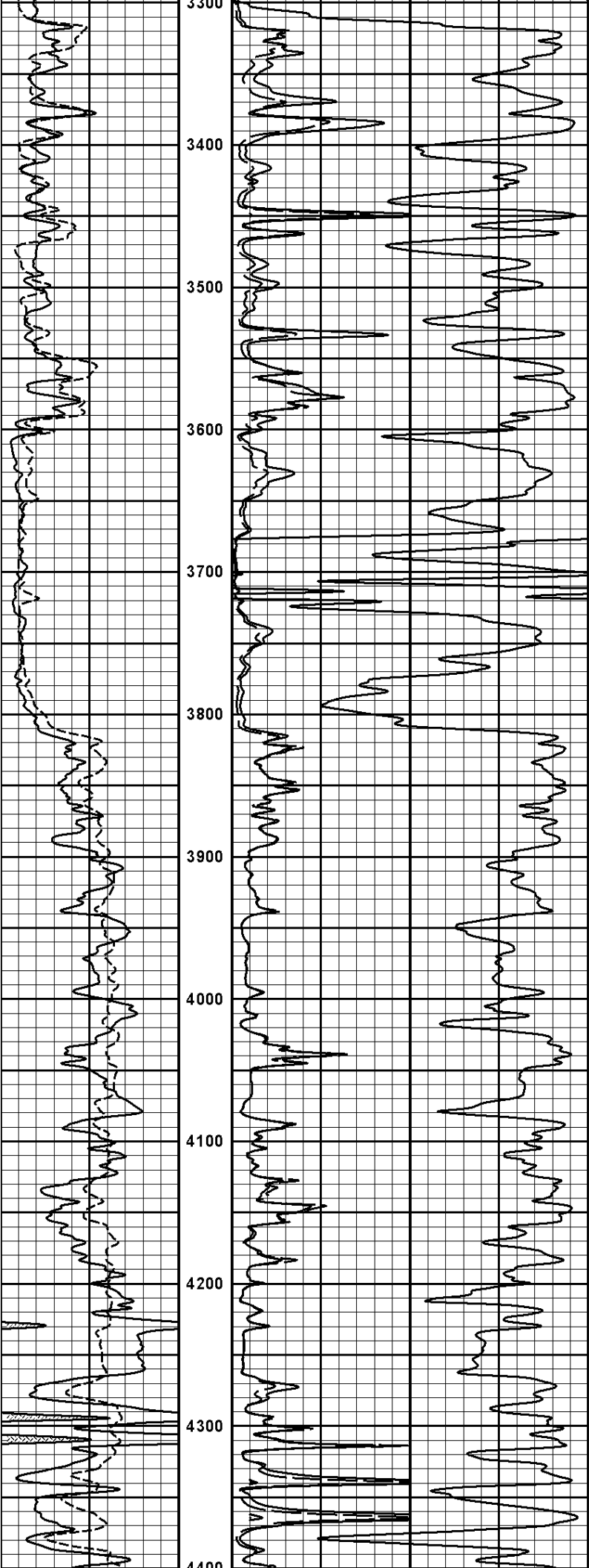
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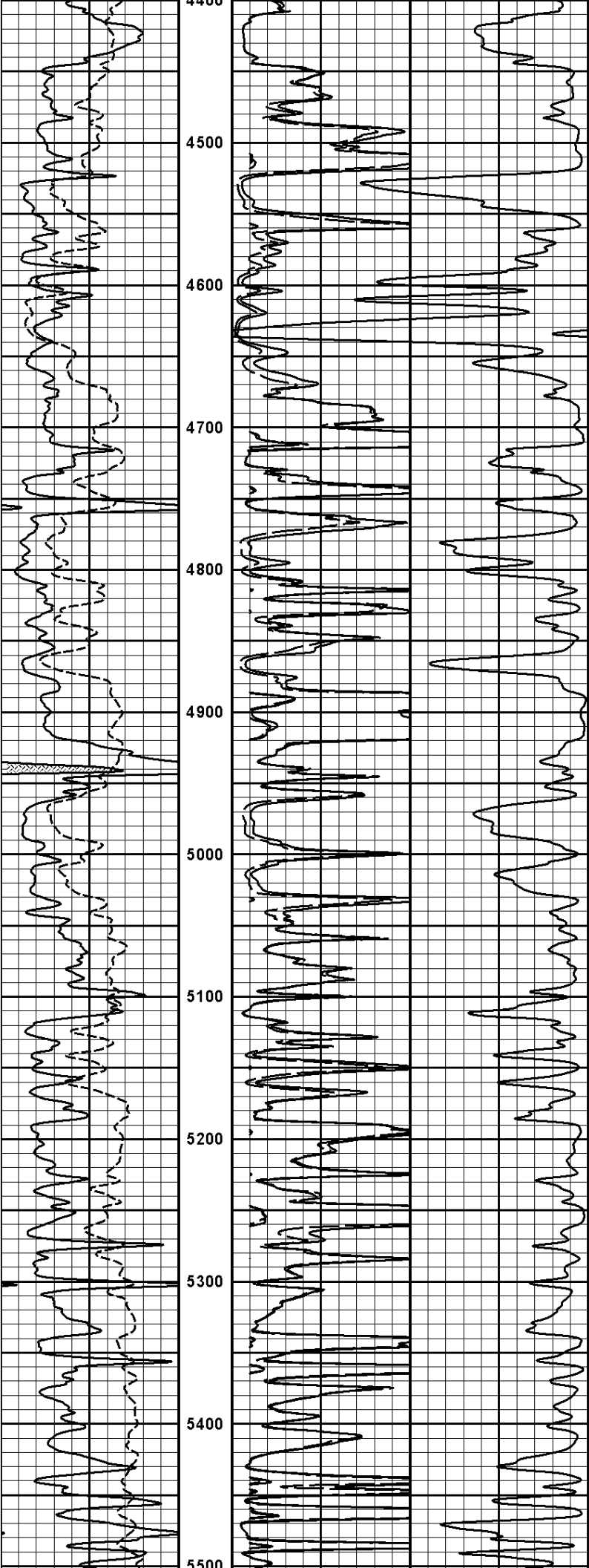
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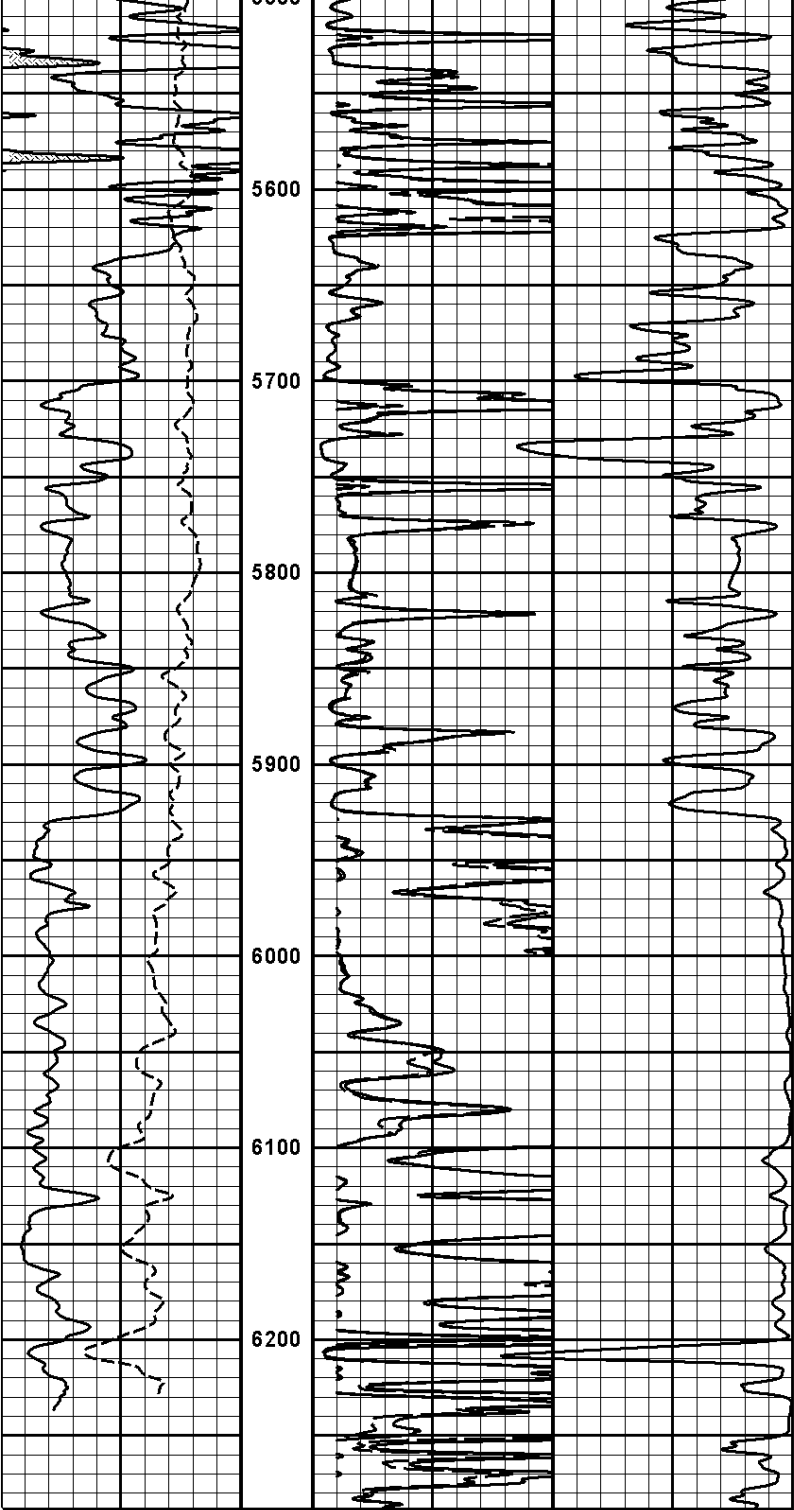
0.00 ft

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	CH_HOS_I	37.50	2.25	74.98	300.00
XOHD	Hostile to Dits Cross Over	12345678	20.00	0.95	74.03	300.00
SP	SP Sub	10904995	60.00	3.74	70.30	300.00
GTET	Gamma Telemetry Tool	11021139	165.00	8.52	61.78	60.00
DSNT	Dual Spaced Neutron	11020487	174.00	9.69	52.09	60.00
DCNT	DSN Decentralizer	10993115	6.60	5.13	* 55.42	300.00
SDLT	Spectral Density Tool	10951315	360.00	10.81	41.28	60.00
SDLP	Density Insite Pad	10865873	65.00	2.55	* 43.49	60.00









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

HALLIBURTON

Plot Time: 18-Oct-16 20:14:32

Plot Range: 1660 ft to 6288.5 ft

{ActiveWell}\Well Based\...\

Plot File: \\...\1_ACRT_1inx

1 INCH MAIN LOG

COMPANY	RAYDON EXPLORATION INC.		
WELL	PARITY 1-27		
FIELD	WILDCAT		
COUNTY	SEWARD	STATE	KANSAS
HALLIBURTON		ARRAY COMPENSATED TRUE RESISTIVITY LOG	