HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY	OSAGE RESOURCES LLC
WELL	OSAGE 3314 13-09 SWD
FIELD	MEDICINE LODGE BOGGS
COUNTY	BARBER
STATE	KANSAS

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COMPANY OSAGE RESOURCES LLC
WELL OSAGE 3314 13-09 SWD
FIELD MEDICINE LODGE BOGGS
COUNTY BARBER STATE KANSAS

API No. 15-007-23917-00-00
Location 1670' FSL 1450' FEL
LAT 37.17° N LONG 98.79° W

Sect. 13 Twp. 33S Rge. 14W

Other Services:
MICRO
BSAT
DSNT/SDLT
XRMI

Permanent Datum	GL	Elev. 1875.0 ft	Elev.: K.B. 1892.0 ft
Log measured from	KB	, 17.0 ft above perm. Datum	D.F. 1890.0 ft
Drilling measured from	KB		G.L. 1875.0 ft

Date		30-Aug-12					
Run No.		ONE					
Depth - Driller		5832.00 ft					
Depth - Logger		5787.0 ft					
Bottom - Logged Interval		5777.0 ft					
Top - Logged Interval		204.0 ft					
Casing - Driller		13.375 in @ 205.0 ft		@		@	
Casing - Logger		204.0 ft					
Bit Size		8.750 in		12.250 in @ 1200.00 ft		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.3 ppg	55.00 s/qt				
PH	Fluid Loss	10.50 pH	9.6 cptm				
Source of Sample		FLOW LINE					
Rm @ Meas. Temperature		0.550 ohmm @ 75.00 degF		@		@	
Rmf @ Meas. Temperature		0.45 ohmm @ 75.00 degF		@		@	
Rmc @ Meas. Temperature		0.650 ohmm @ 75.00 degF		@		@	
Source Rmf	Rmc	MEASURED	MEASURED				
Rm @ BHT		0.33 ohmm @ 129.0 degF		@		@	
Time Since Circulation		8.0 hr					
Time on Bottom		31-Aug-12 00:37					
Max. Rec. Temperature		129.0 degF @ 5787.0 ft		@		@	
Equipment	Location	10546696	LIBERAL				
Recorded By		T. HYDE					
Witnessed By		J. DALE					

Fold here

PGM Version: WL INSITE R3.6.0 (Build 3)

Service Ticket No.: 9785632 API Serial No.: 15-007-23917-00-00

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

Date	Sample No.							
Depth-Driller								
Type Fluid in Hole								
Density	Viscosity							
Ph	Fluid Loss							
Source of Sample								
Rm @ Meas. Temp		@						
Rmf @ Meas. Temp.		@						
Rmc @ Meas. Temp.		@						
Source Rmf	Rmc							
Rm @ BHT		@						
Rmf @ BHT		@						
Rmc @ BHT		@						

RESISTIVITY SCALE CHANGES

Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA

Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
ONE	ACRT	N/A	CENT.	N/A
	I5059_S8385			

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	10'	FWDA [Y/N]		Strength		Strength	

LOGGING DATA

GAMMA ACOUSTIC DENSITY NEUTRON

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	5787	204	REC	0	150									

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 7 INCH CASING
CHLORIDES REPORTED AT 4500 MG/L
LCM REPORTED AT 6 PPB

TODAY'S CREW V. JAIME K. KING
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123

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.

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Plot Time: 31-Aug-12 03:02:40
Plot Range: 190 ft to 5787.25 ft
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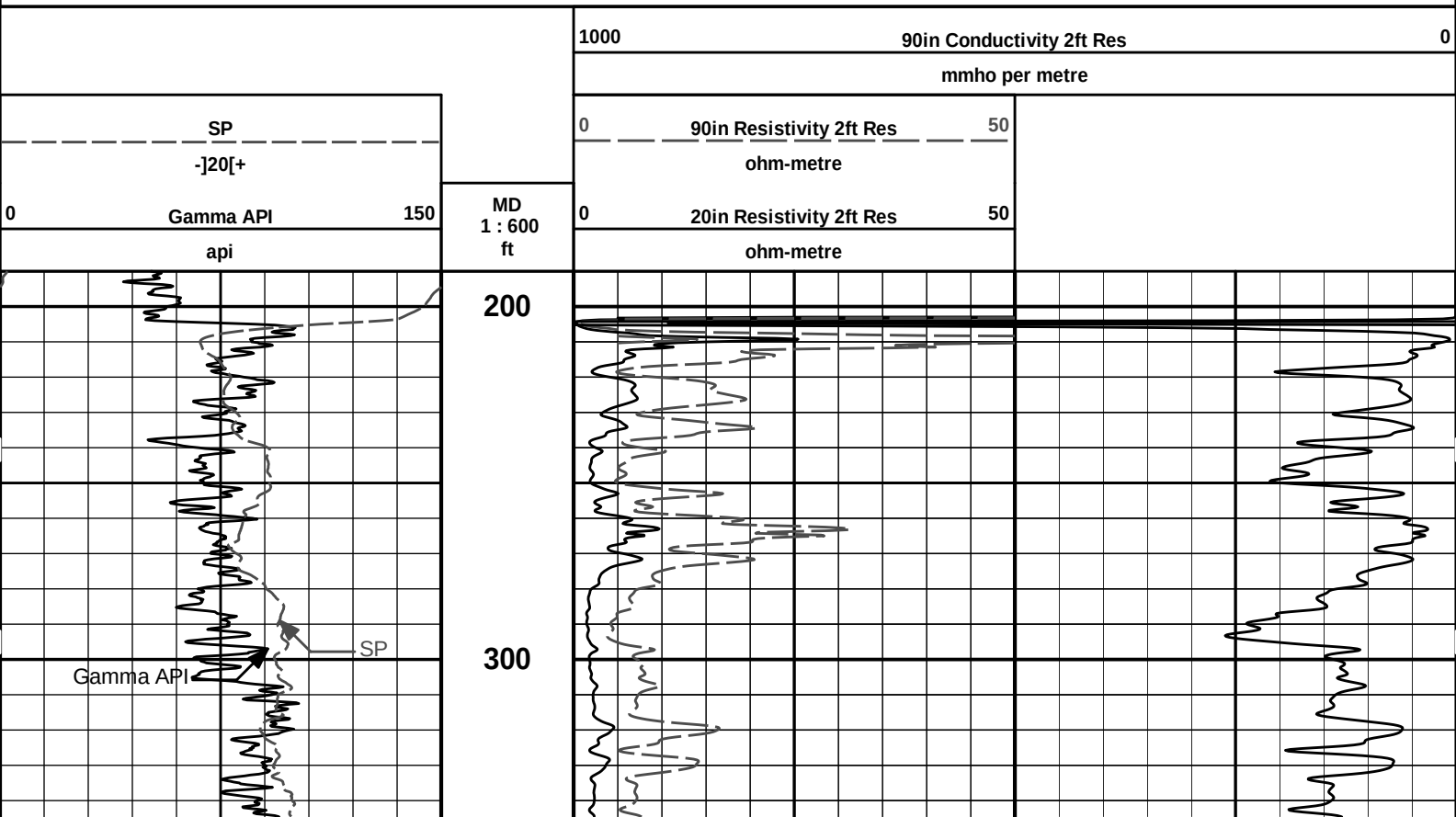
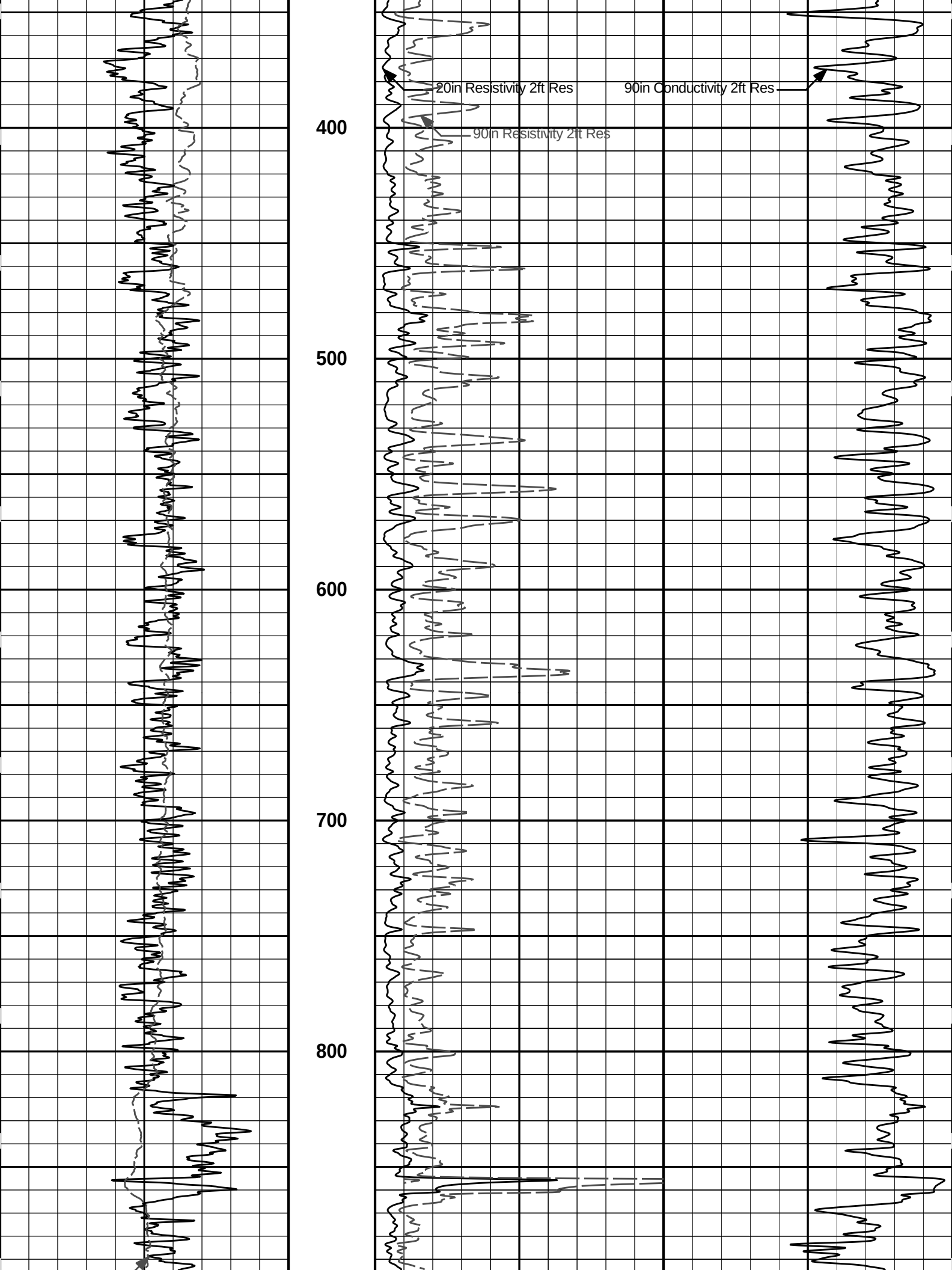
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_2_lib

2 INCH MAIN LOG

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90in Conductivity 2ft Res
90in Resistivity 2ft Res
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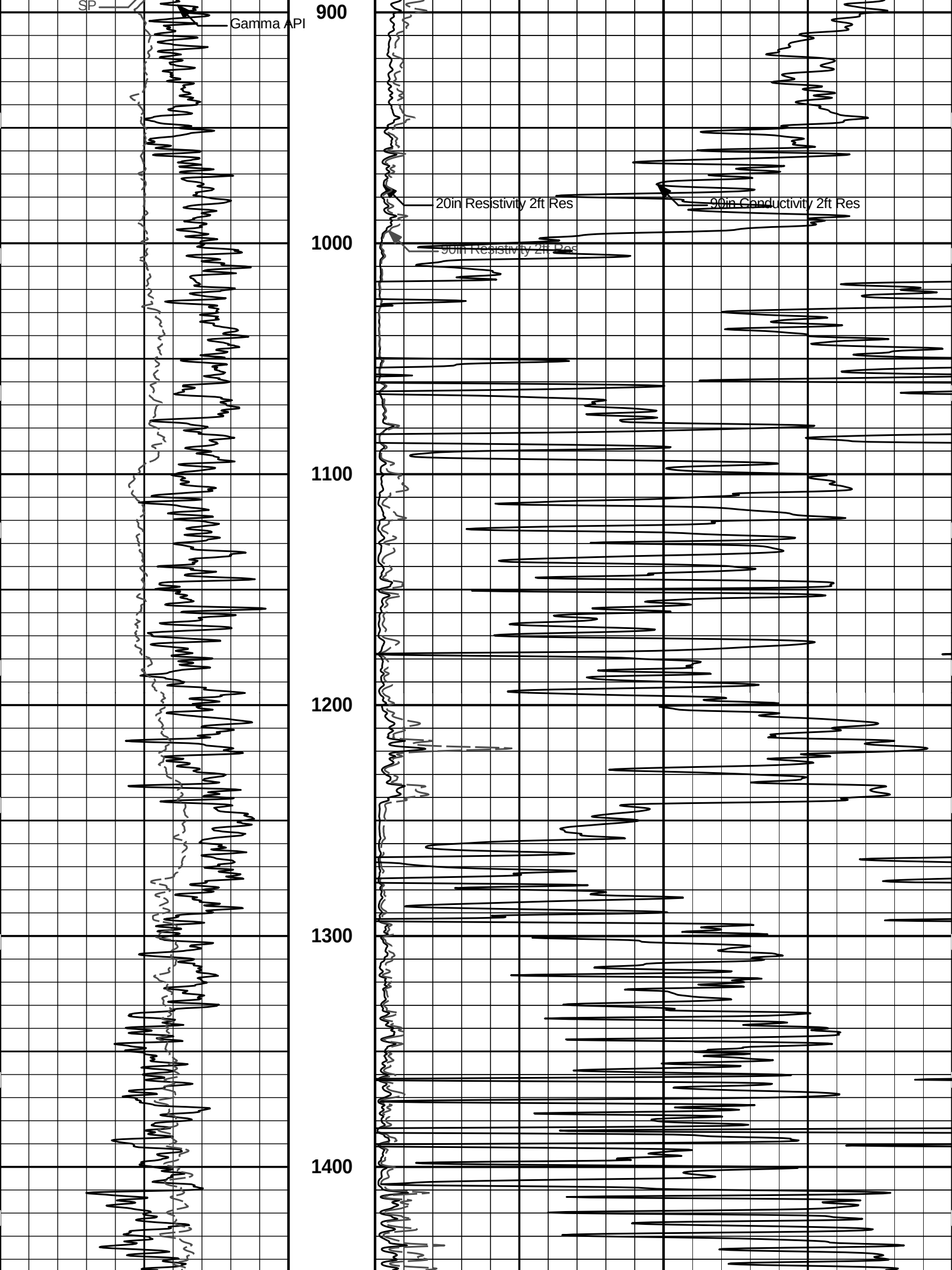
600
700
800


SP
Gamma API
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90in Resistivity 2ft Res
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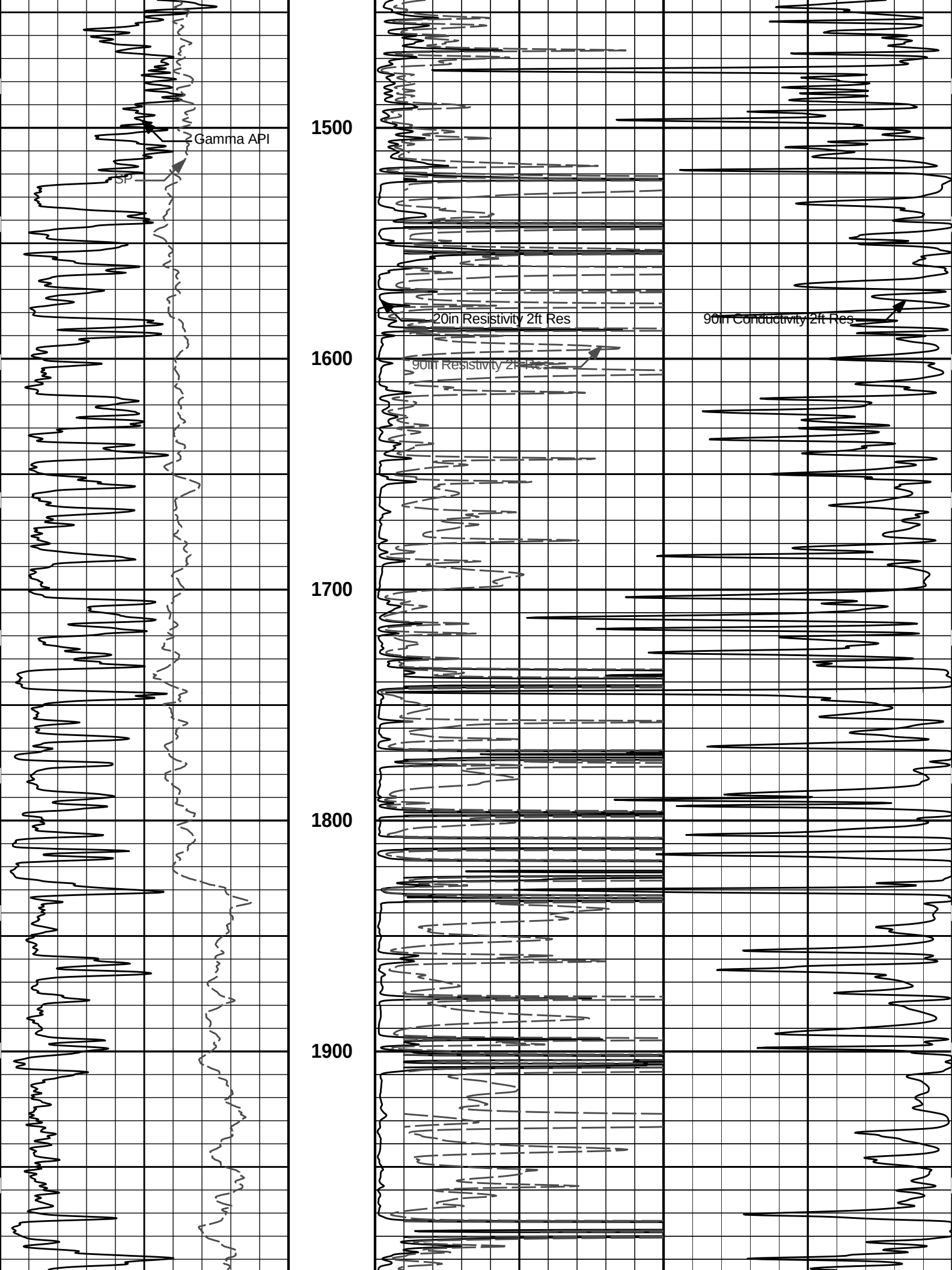
1200
1300
1400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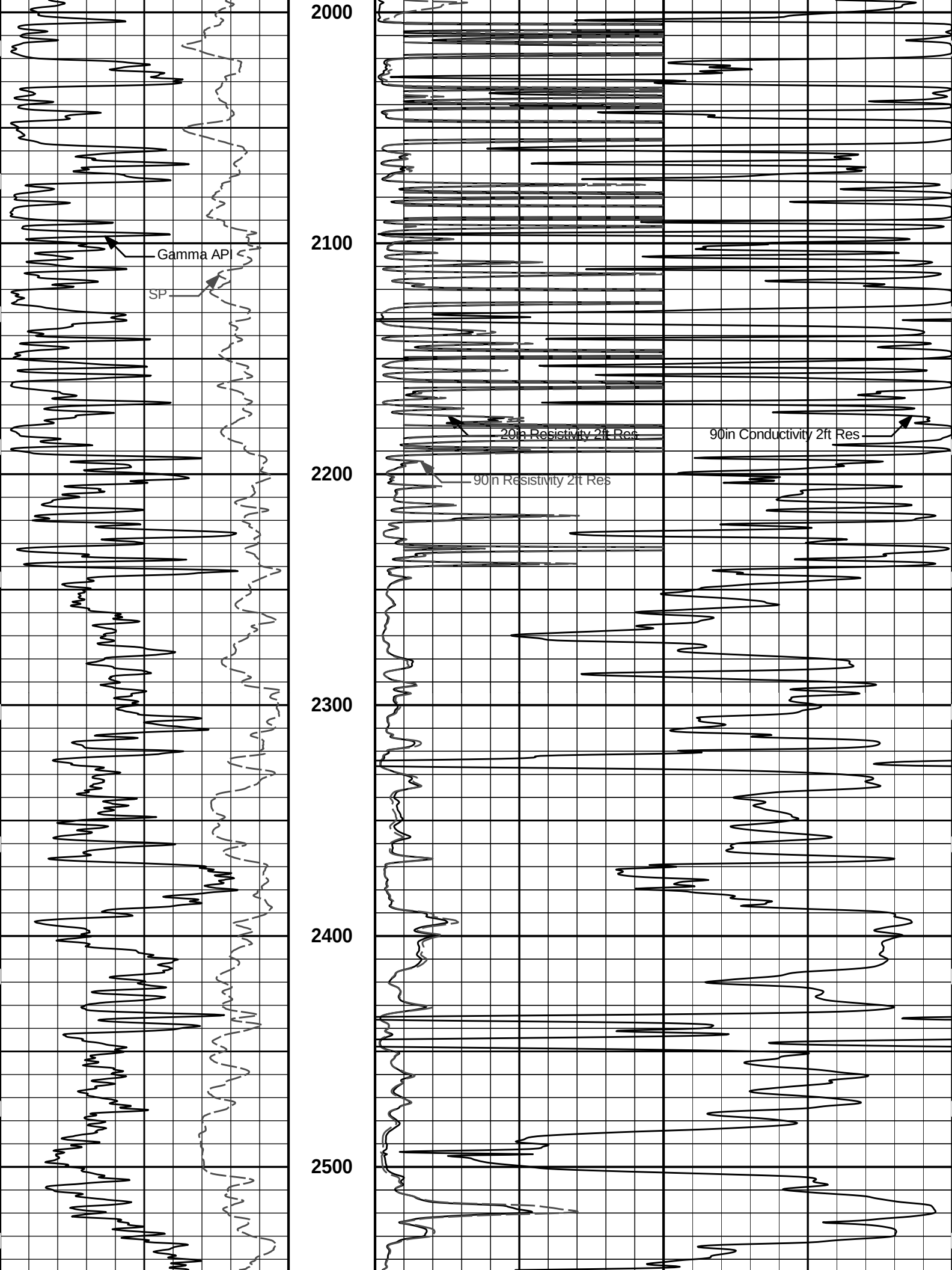
90in Resistivity 2ft Res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2100
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2300
2400
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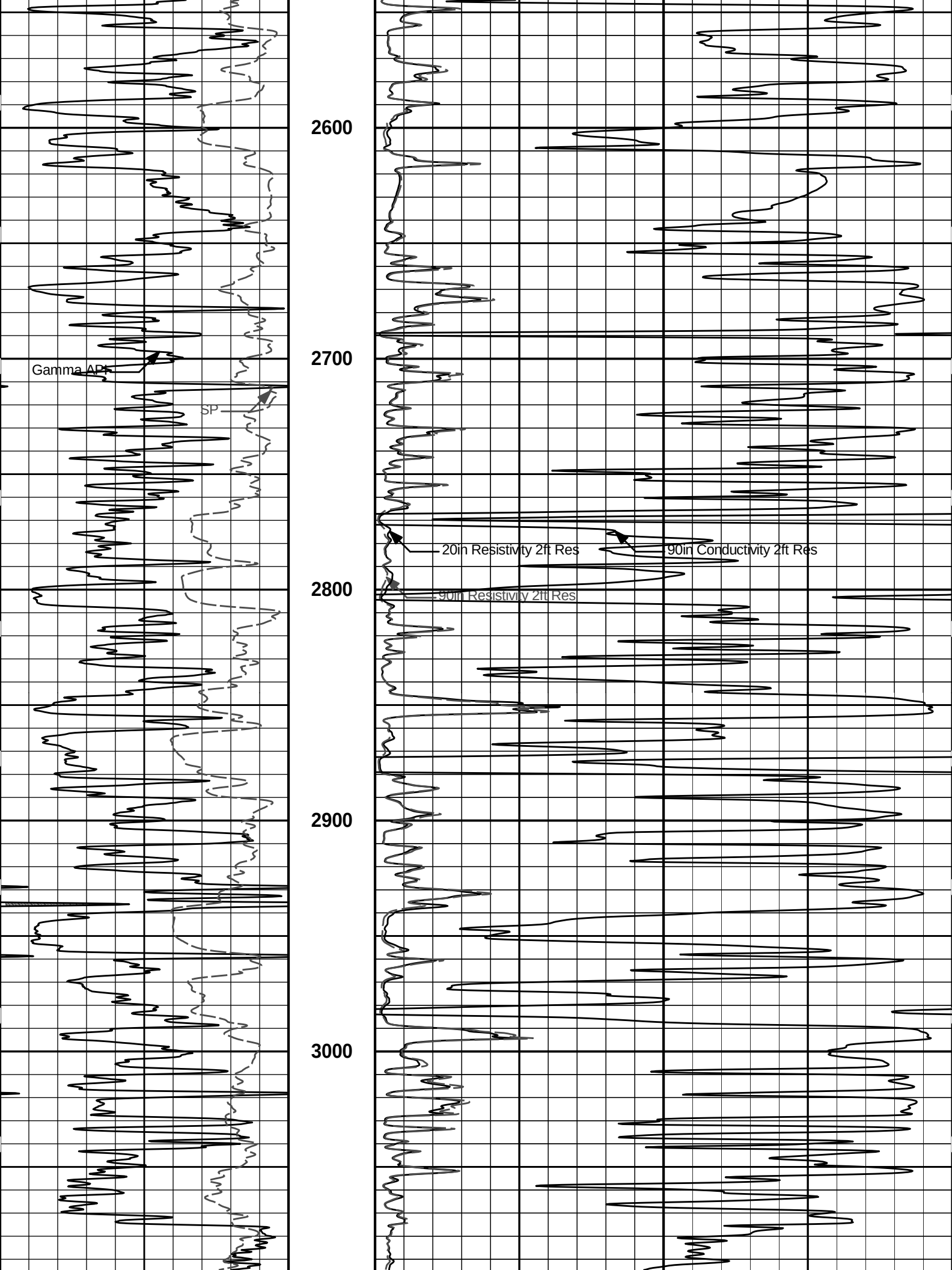
90in Conductivity 2ft Res
90in Resistivity 2ft Res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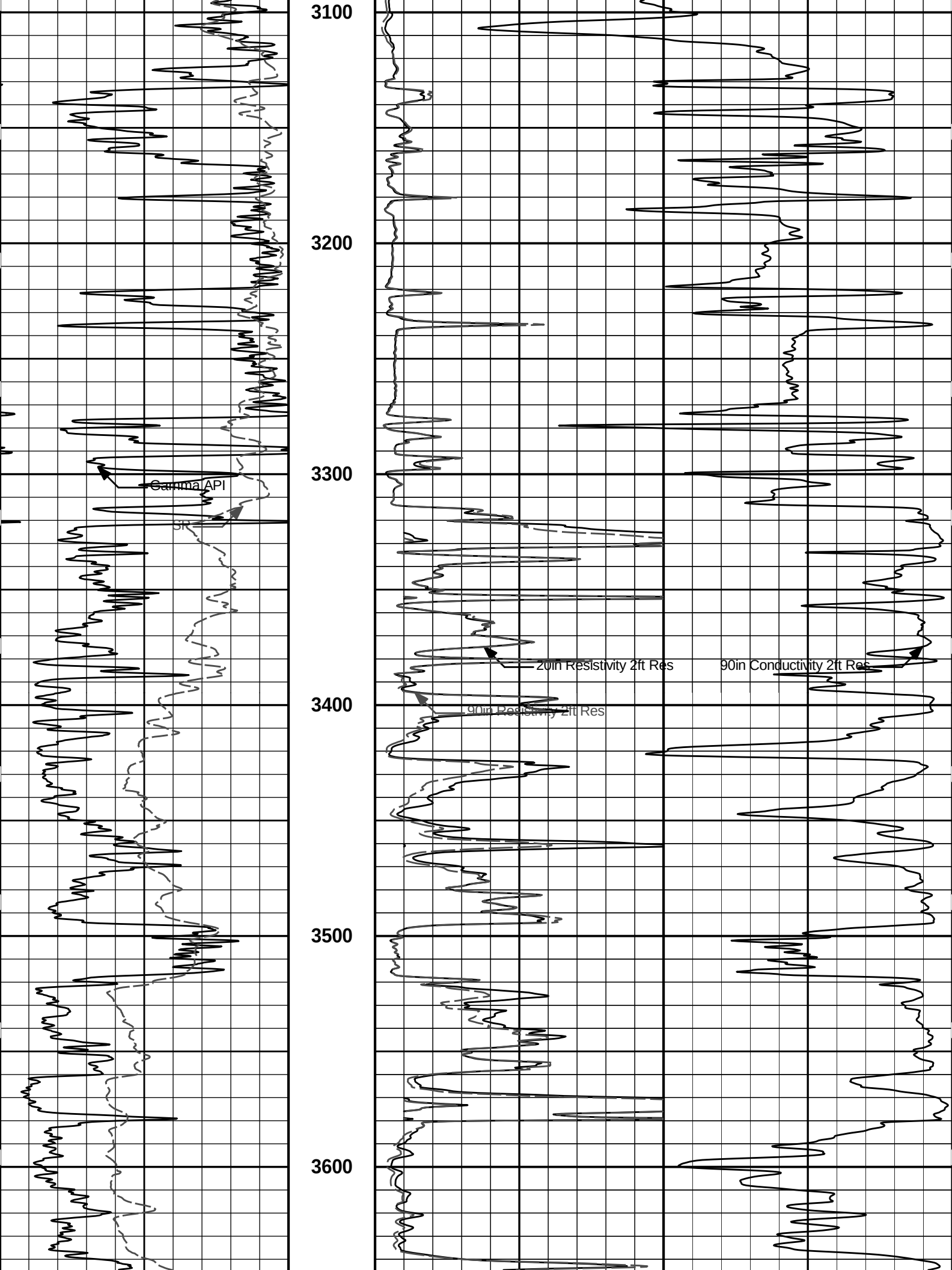
90in Resistivity 2ft Res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3500
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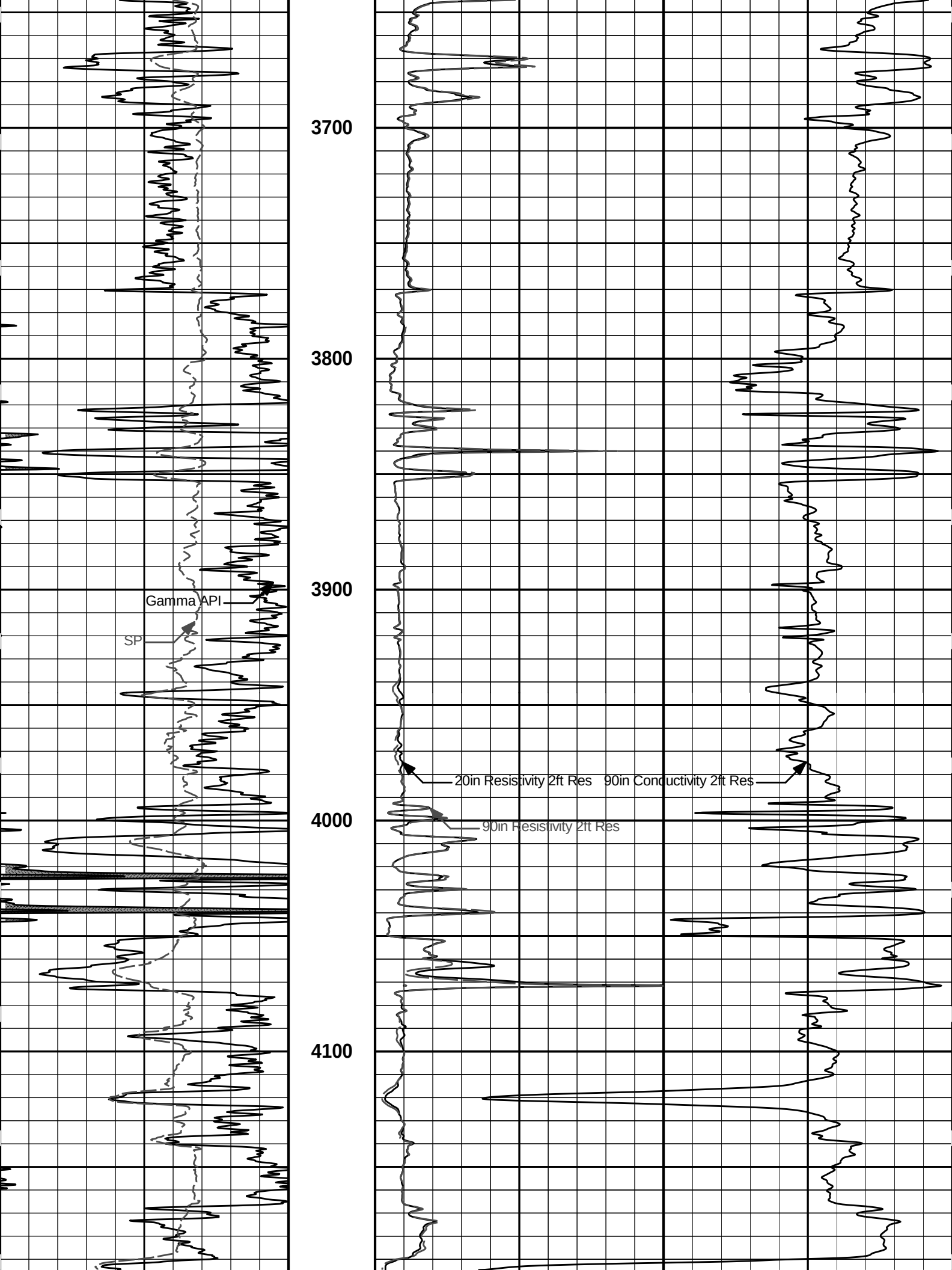
90in Conductivity 2ft Res
90in Resistivity 2ft Res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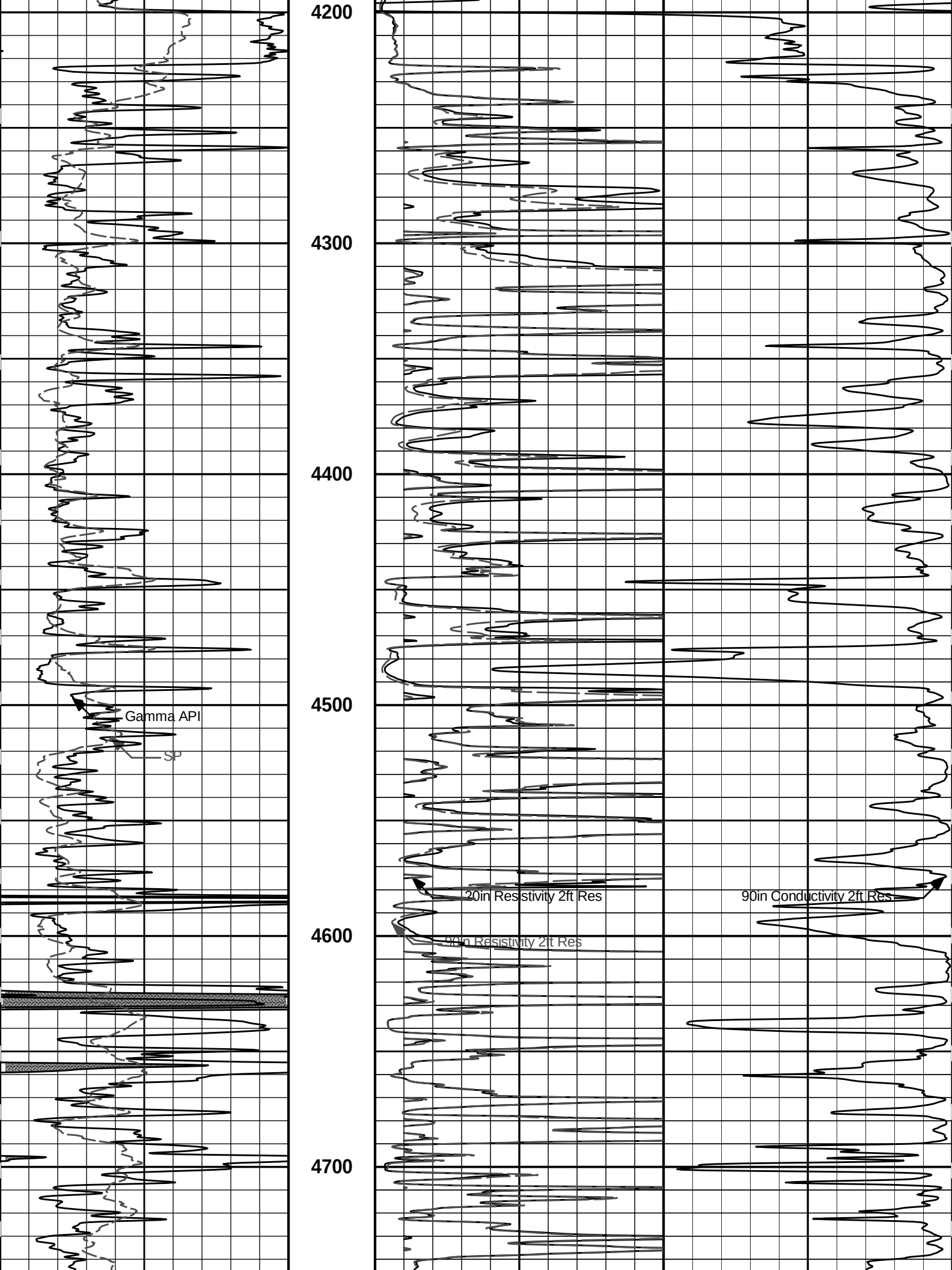
Gamma API
SP
20in Resistivity 2ft Res
90in Conductivity 2ft Res
90in Resistivity 2ft Res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4500
4600
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SP
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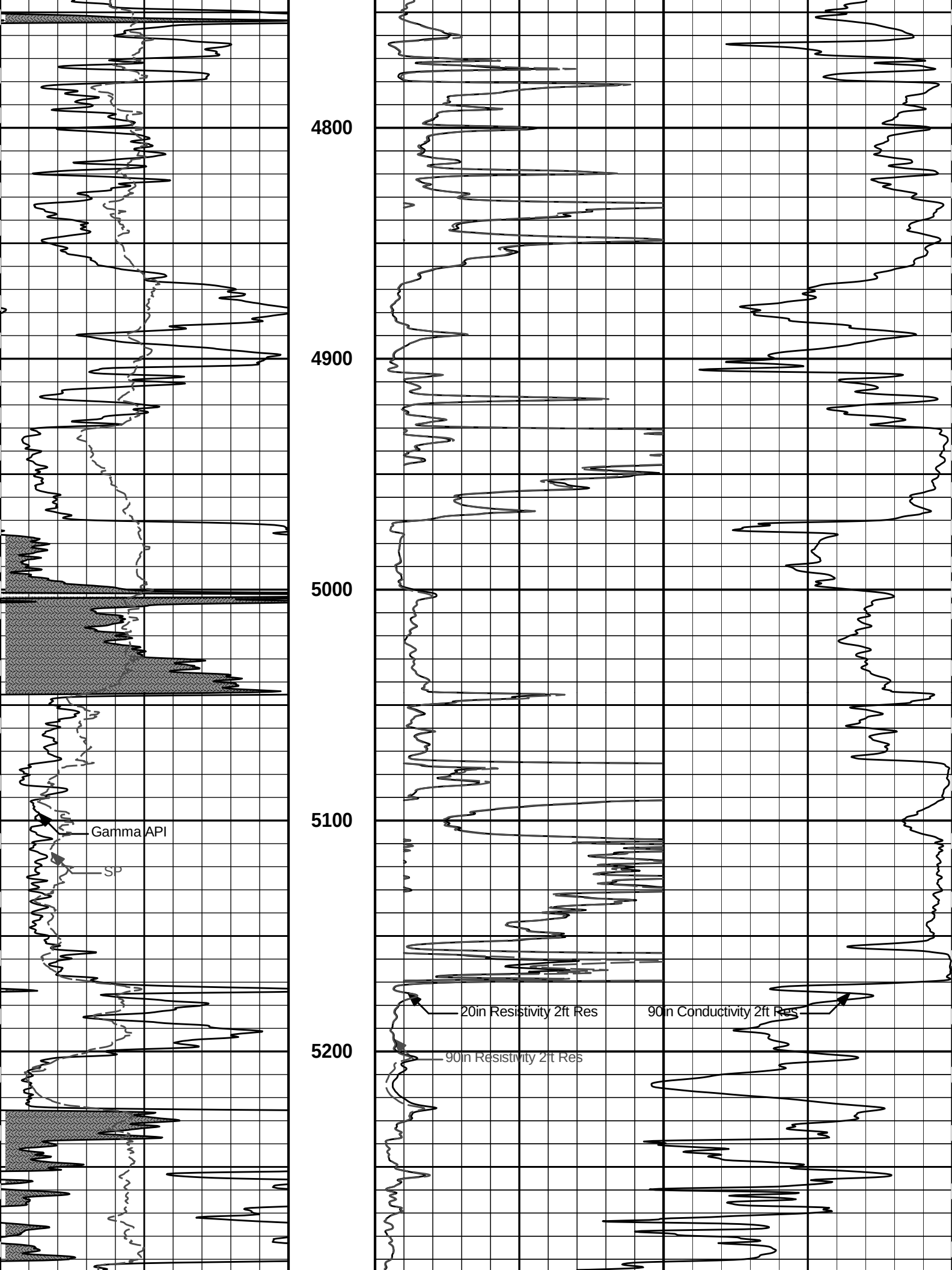
90in Resistivity 2ft Res
90in Conductivity 2ft Res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4900
5000
5100
5200
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SP
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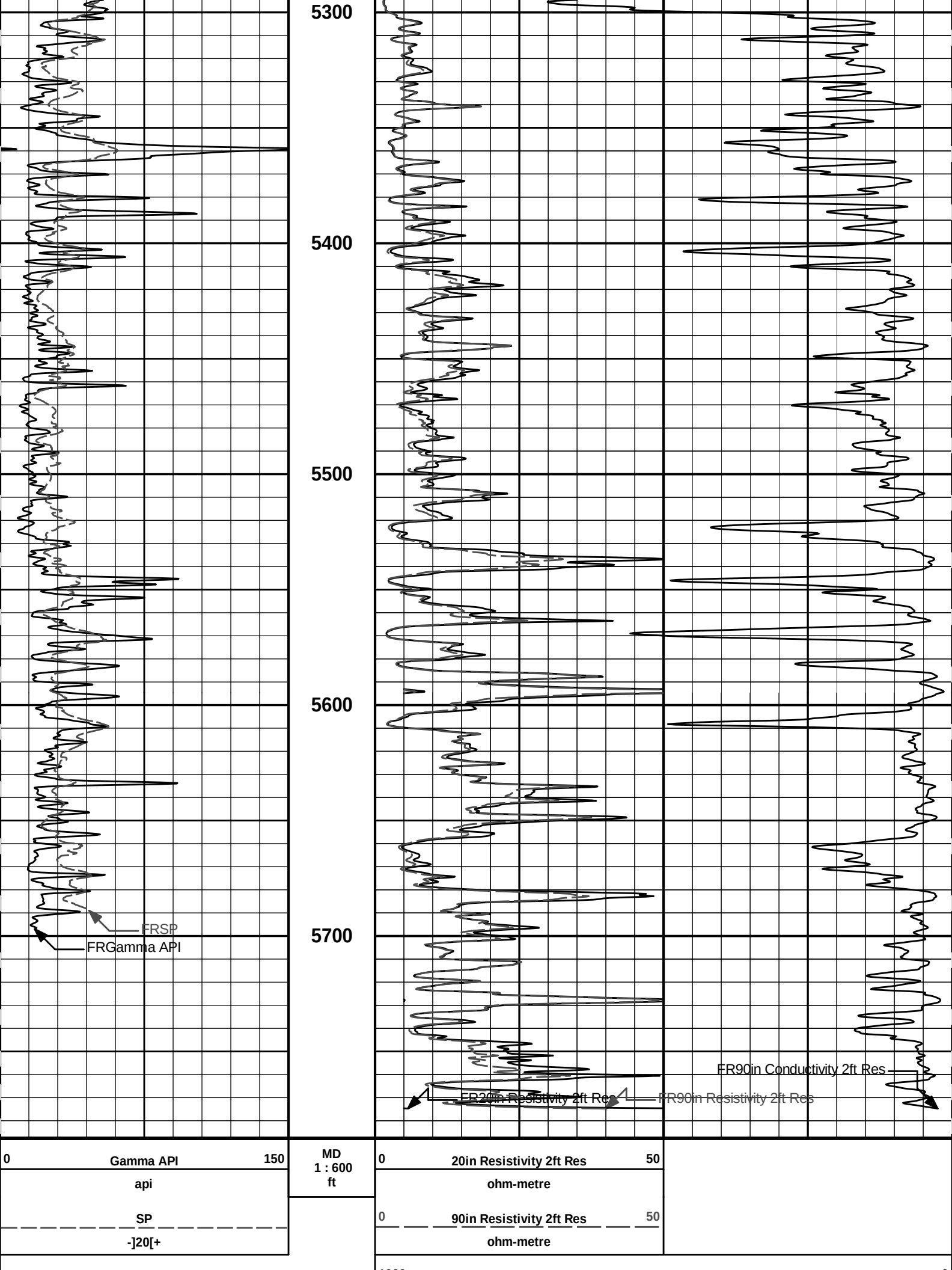
90in Resistivity 2ft Res
90in Conductivity 2ft Res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5400
5500
5600
5700
FRSP
FRGamma API
FR90in Conductivity 2ft Res
FR20in Resistivity 2ft Res
FR90in Resistivity 2ft Res
0
Gamma API
150
api
SP
-]20[+
MD
1 : 600
ft
0
20in Resistivity 2ft Res
50
ohm-metre
0
90in Resistivity 2ft Res
50
ohm-metre

1000 90in Conductivity 2ft Res 0

mmho per metre

HALLIBURTON

Plot Time: 31-Aug-12 03:02:45
Plot Range: 190 ft to 5787.25 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_2_lib

2 INCH MAIN LOG

HALLIBURTON

Plot Time: 31-Aug-12 03:02:45
Plot Range: 190 ft to 5787.25 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_main_lib

5 INCH MAIN LOG

0.2 90in Resistivity 2ft Res 2000
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 2000
ohmm

SHALE

Tension Pull

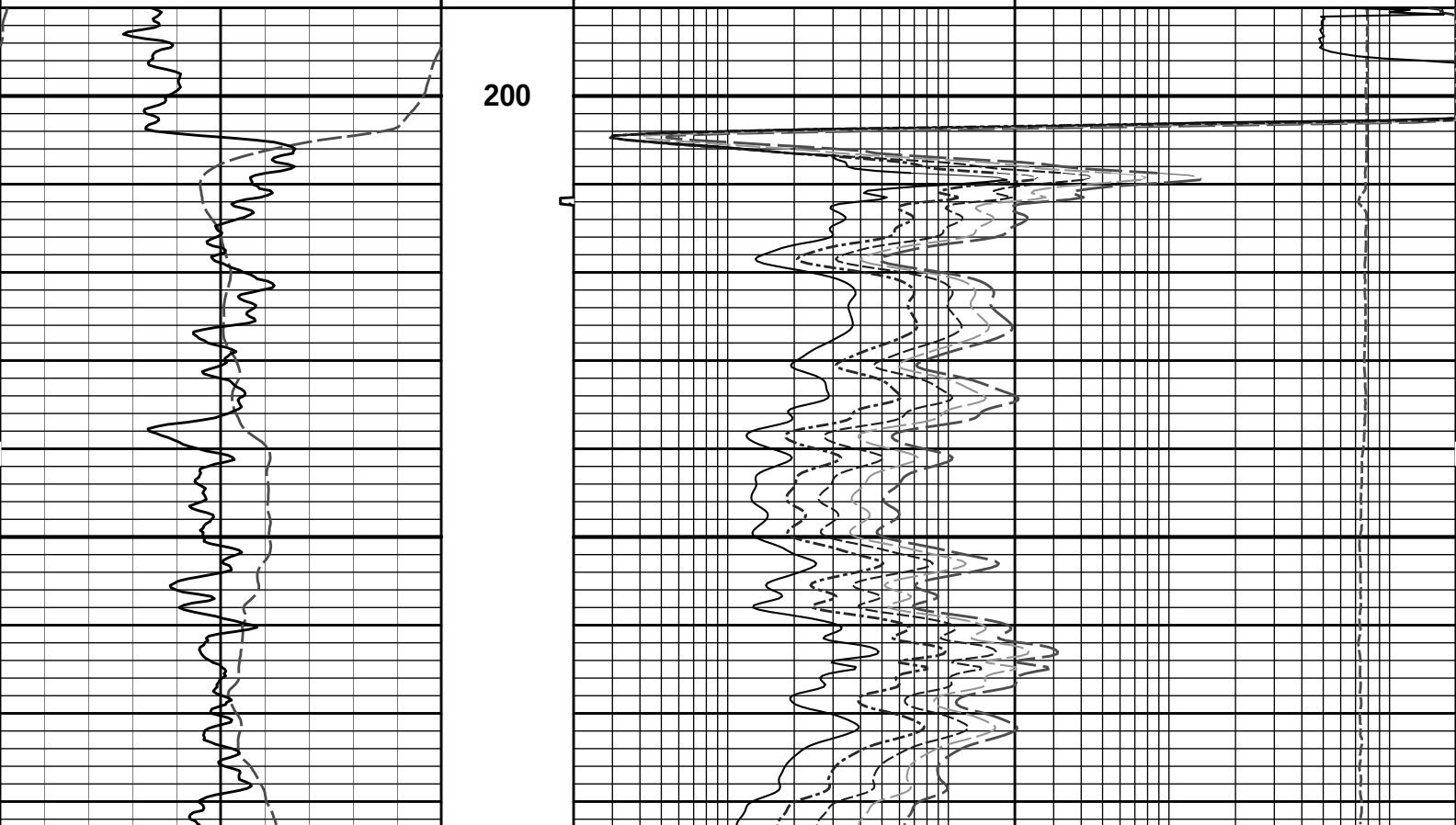
0 Gamma API 150
api

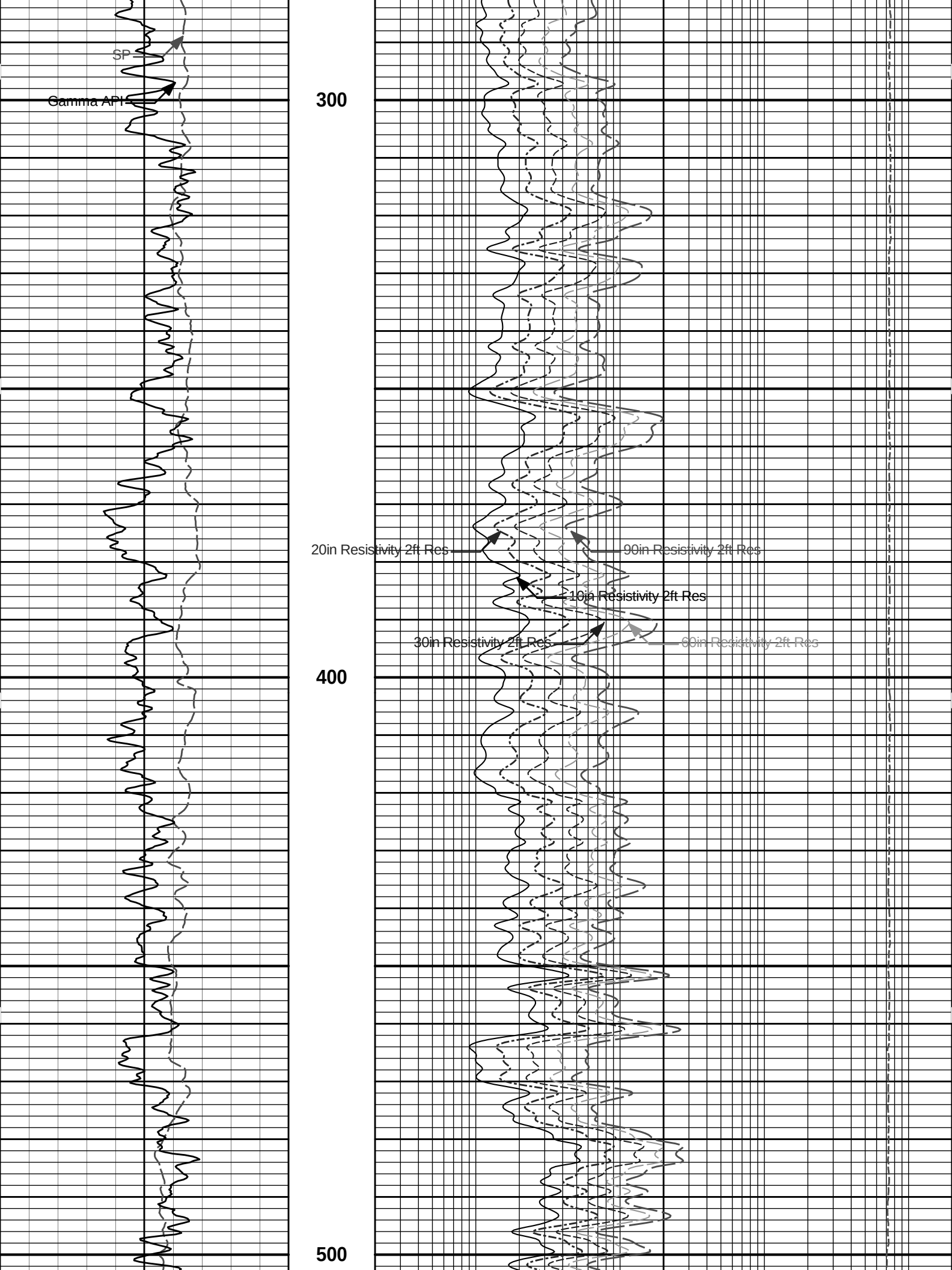
Tension Pull 10 0

SP
-]20[+

MD
1 : 240
ft

10K Tension 0
pounds




SP
Gamma API
300
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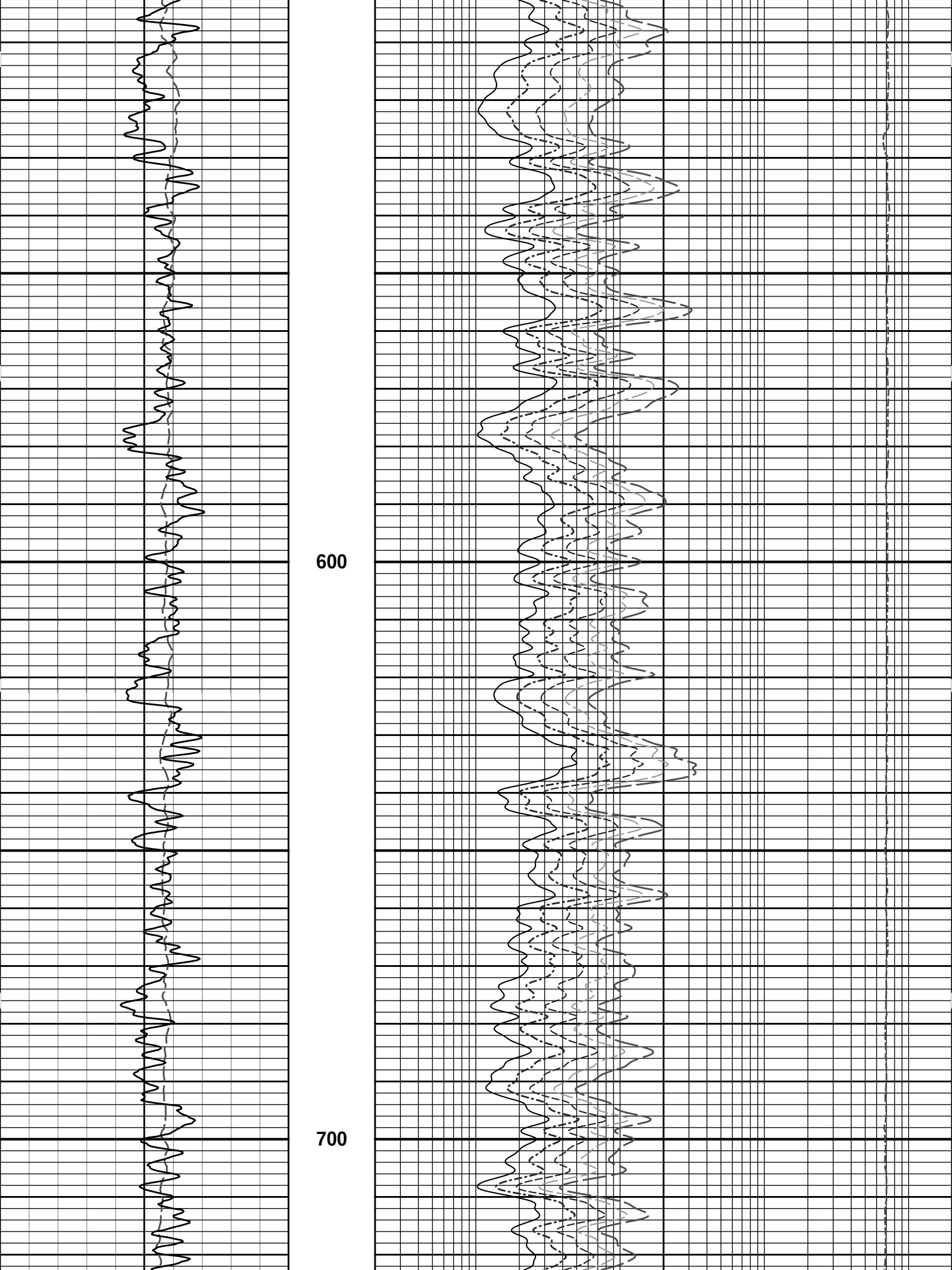
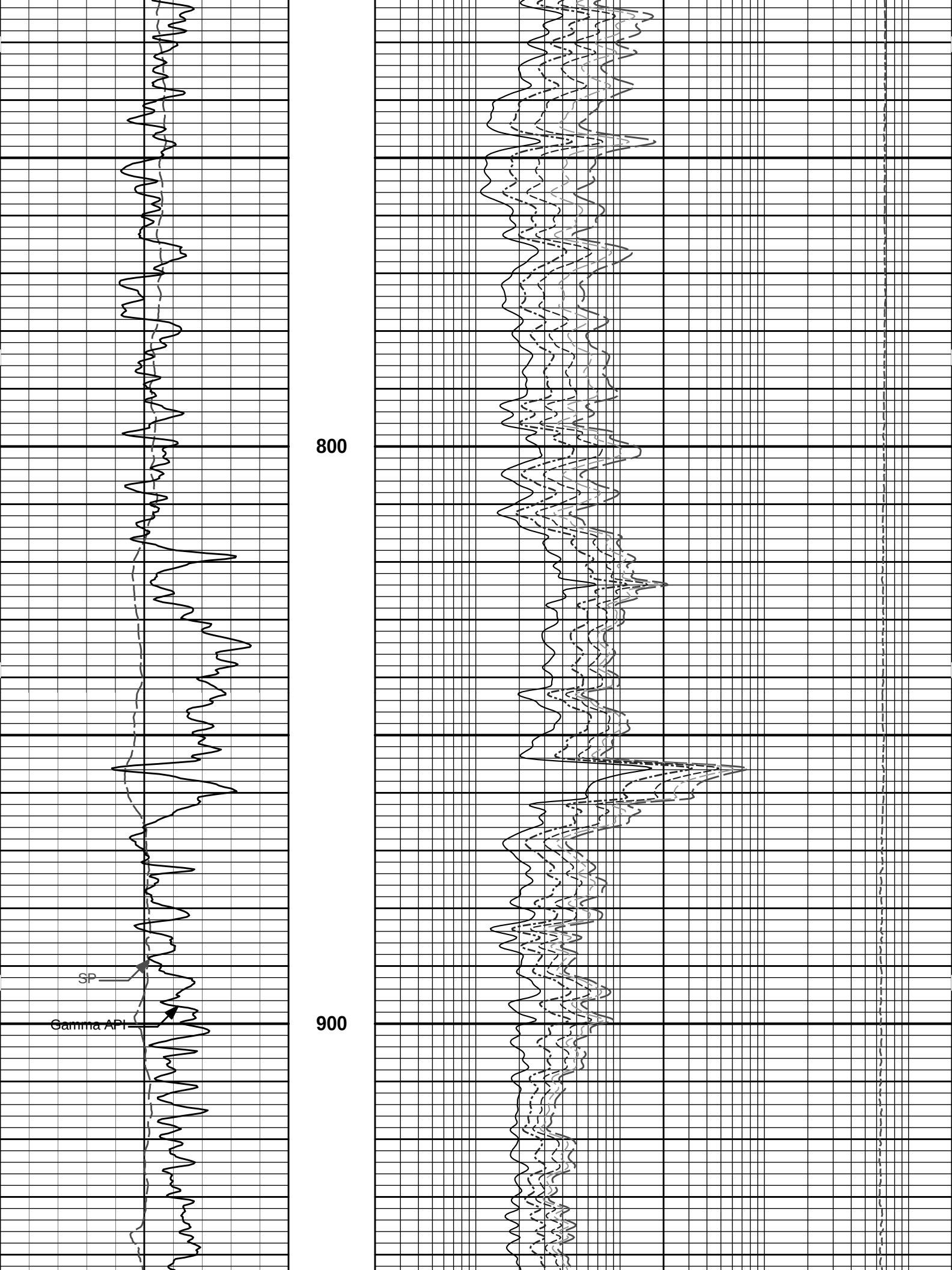
90in Resistivity 2ft Res
10in Resistivity 2ft Res
30in Resistivity 2ft Res
60in Resistivity 2ft Res
400
500


600
700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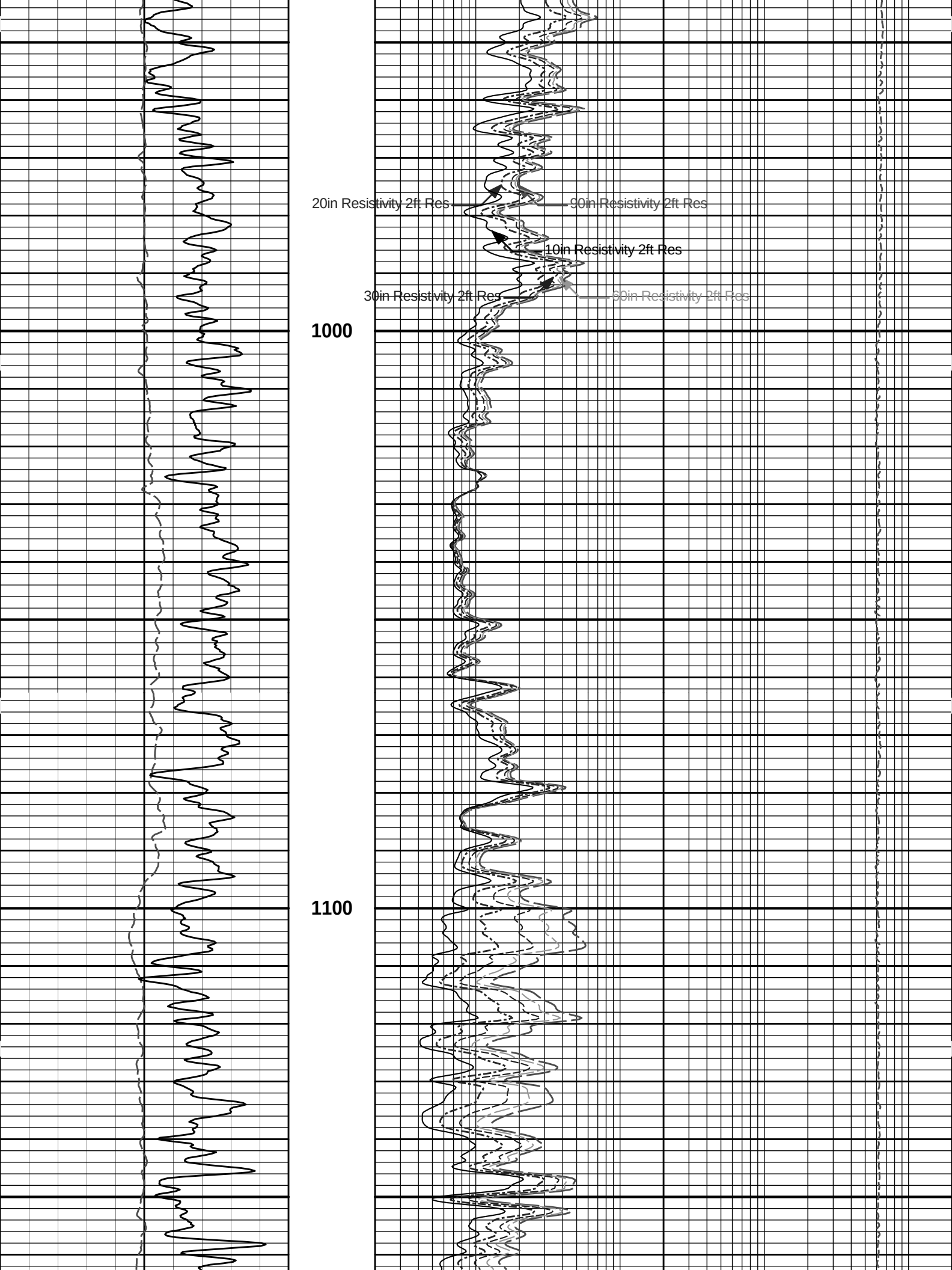
900
SP
Gamma API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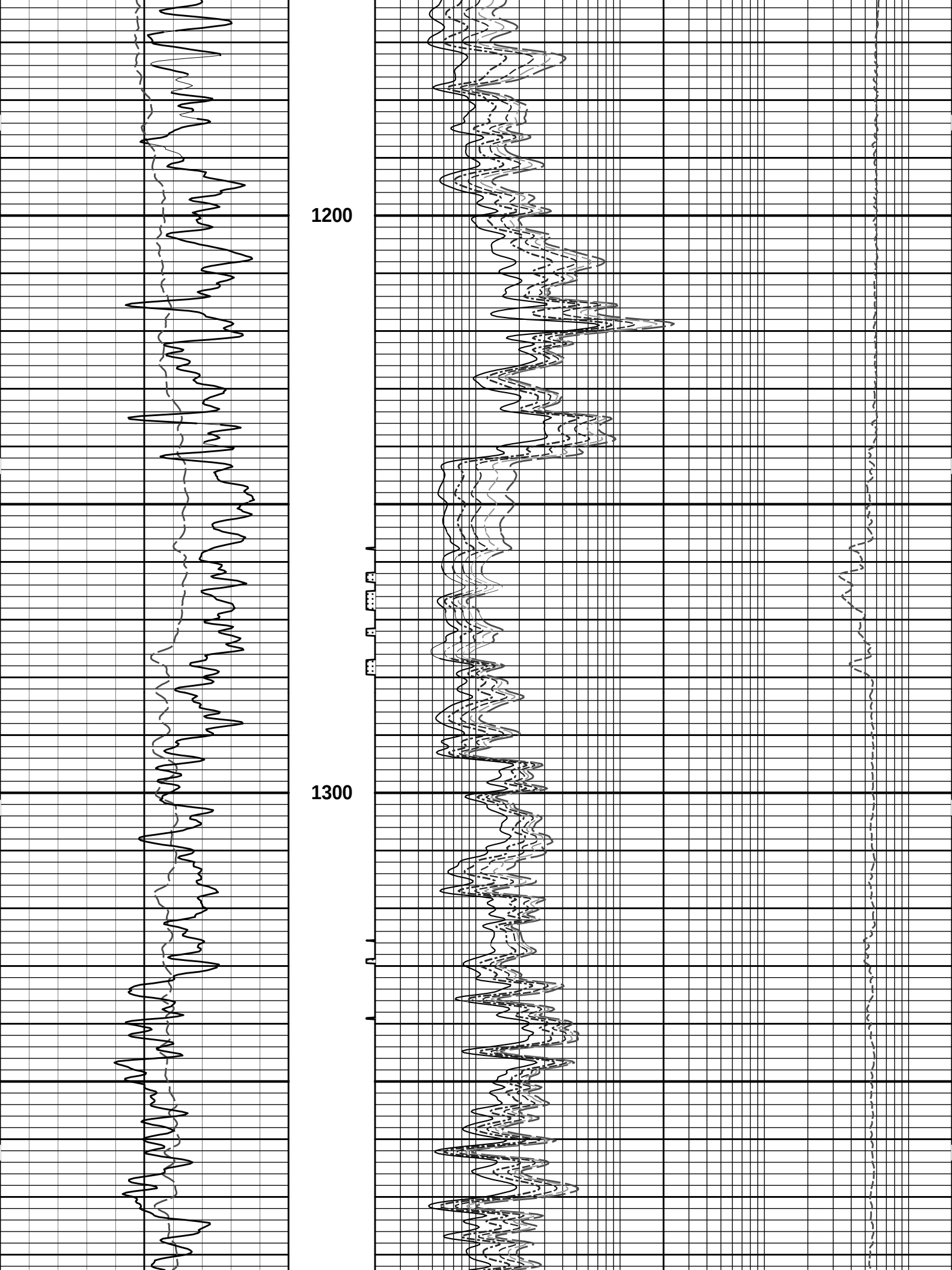
90in Resistivity 2ft Res
10in Resistivity 2ft Res
30in Resistivity 2ft Res
60in Resistivity 2ft Res
1000
1100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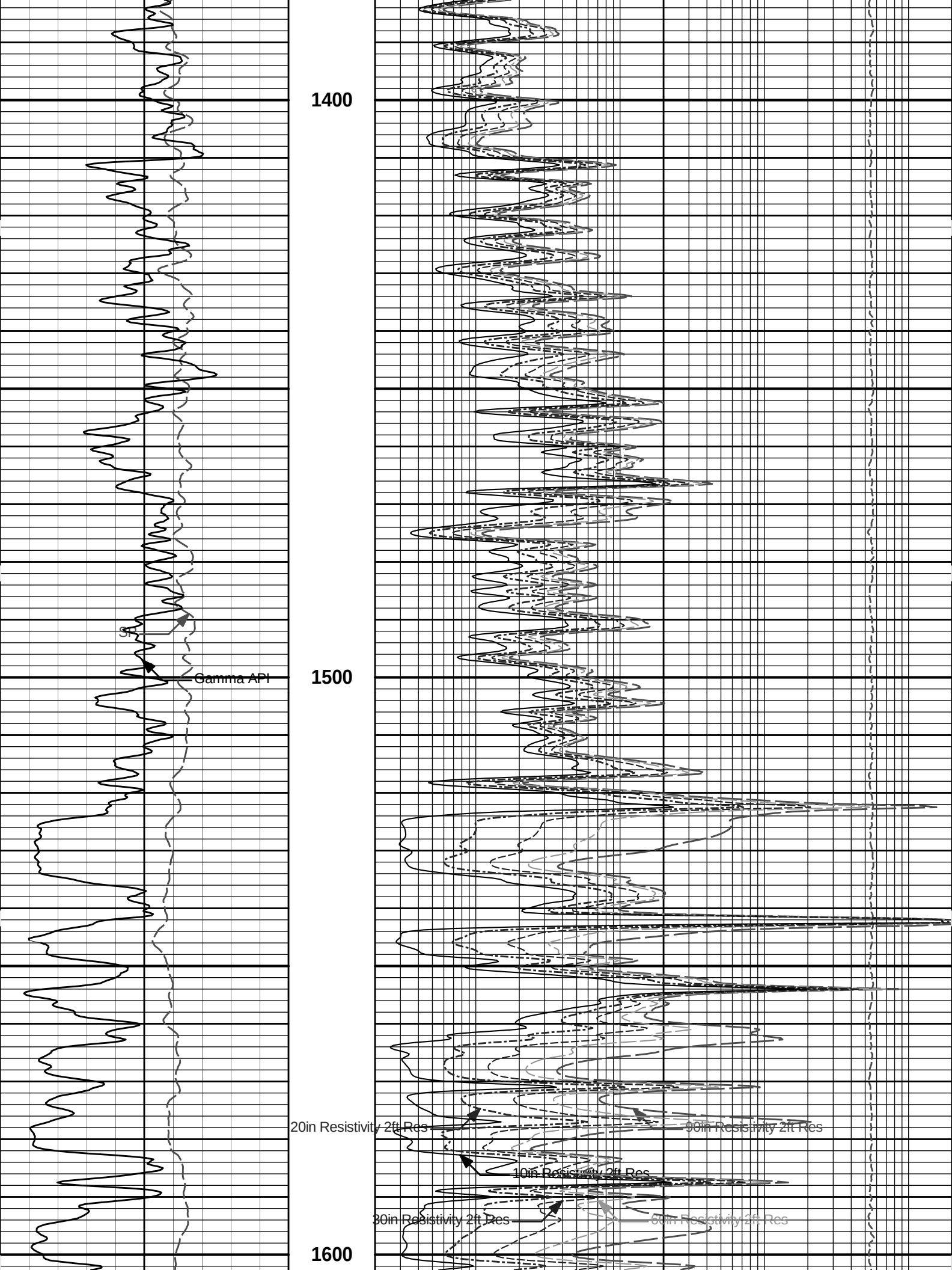
1400
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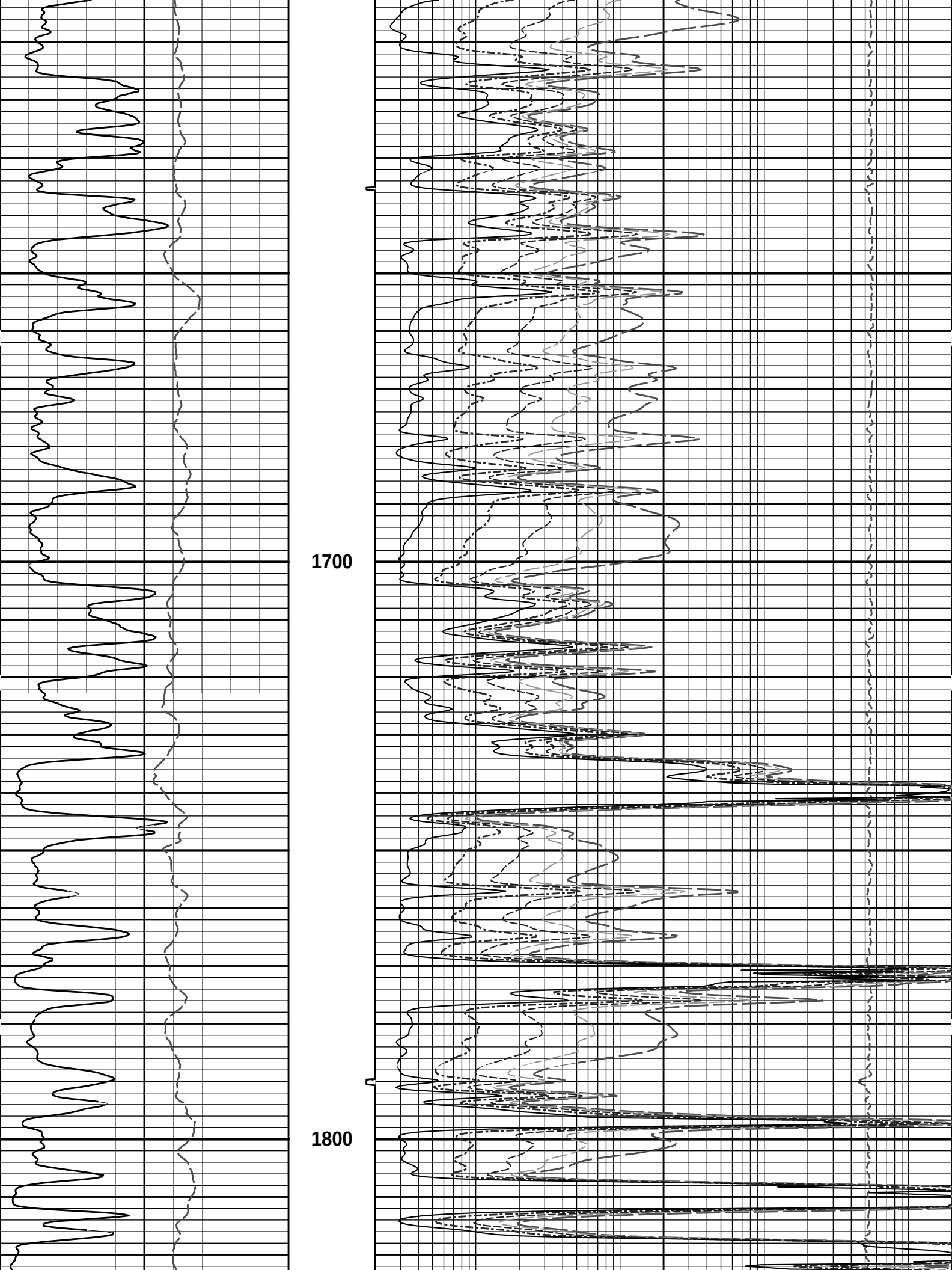
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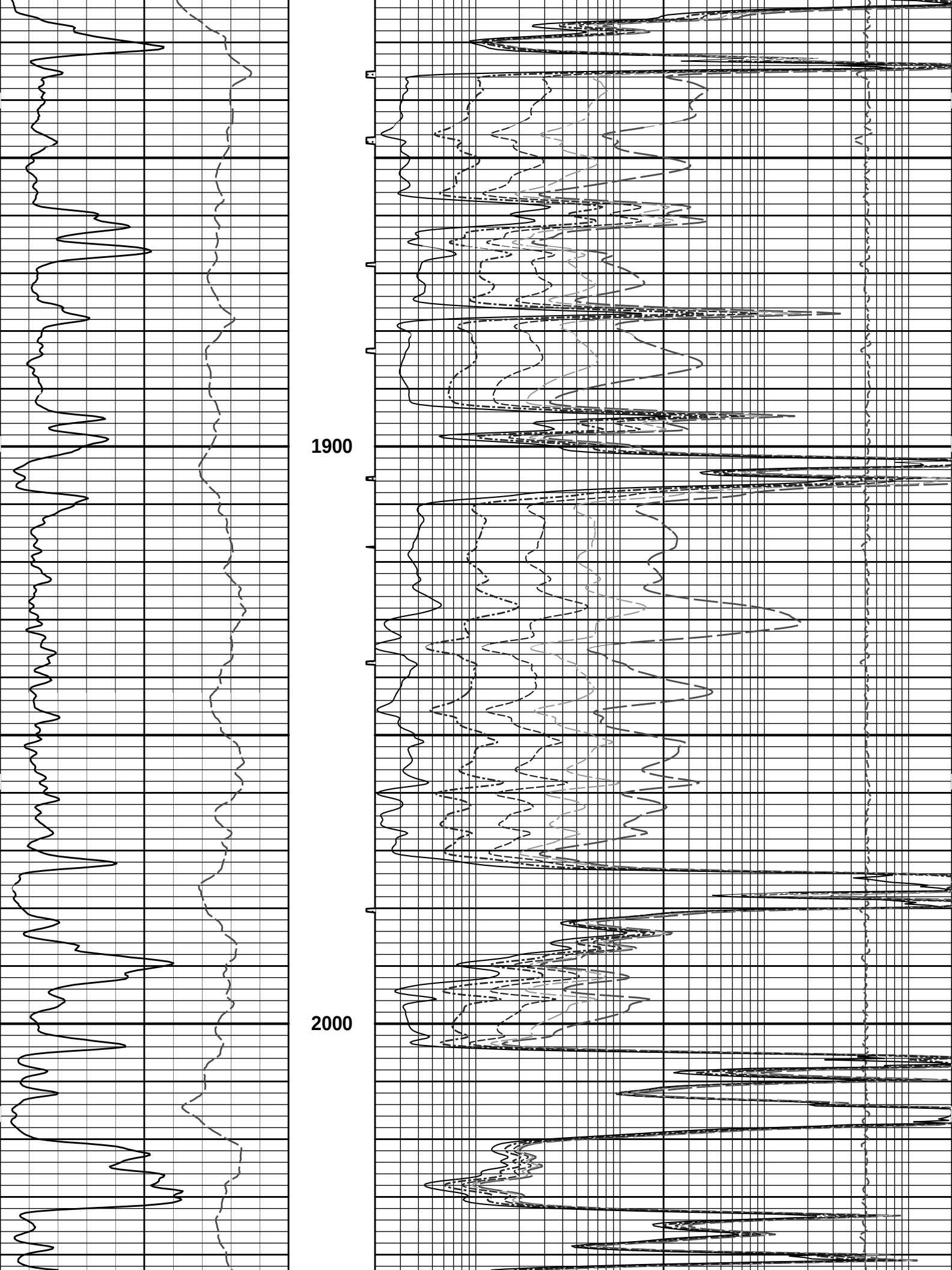
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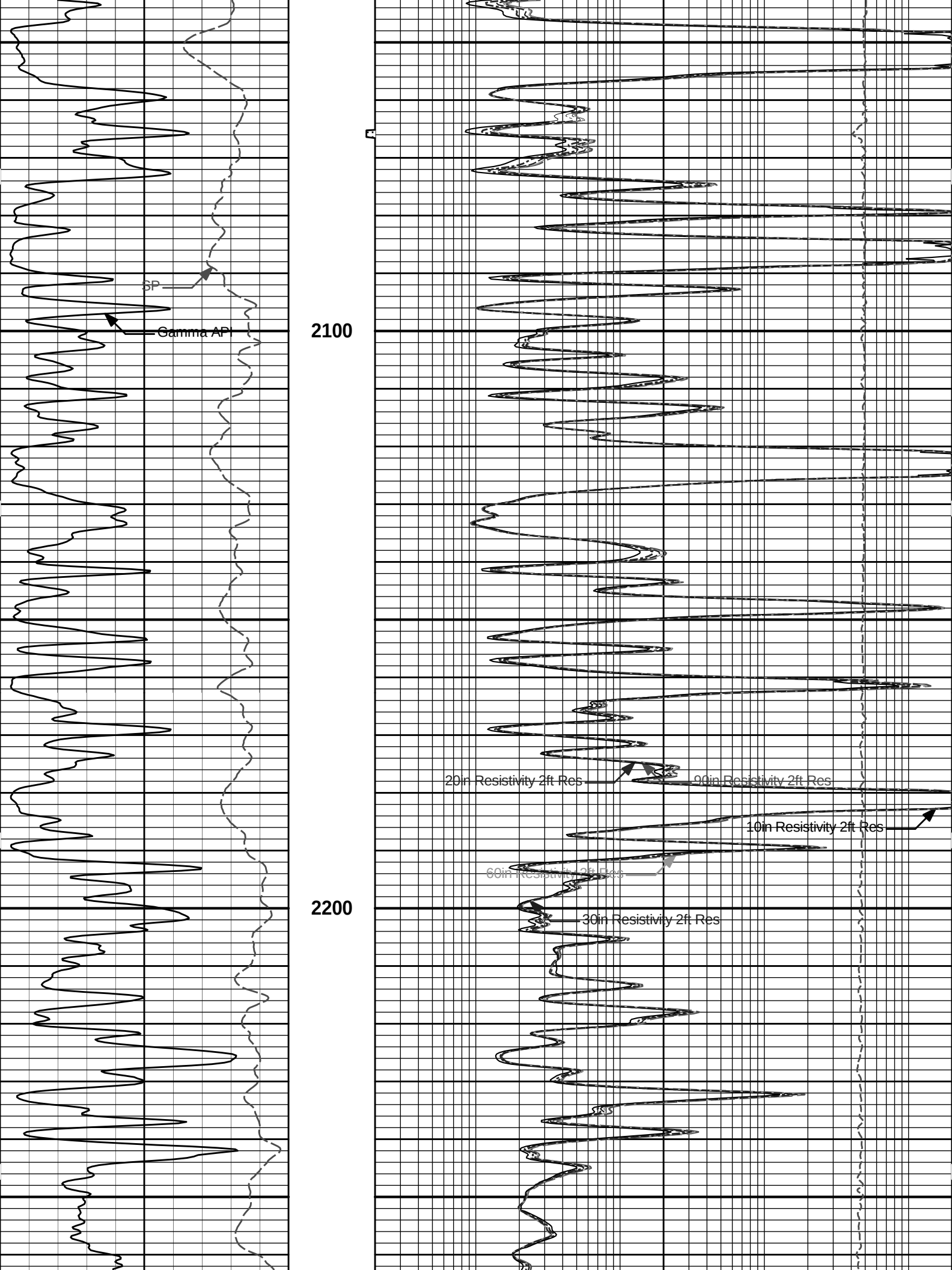
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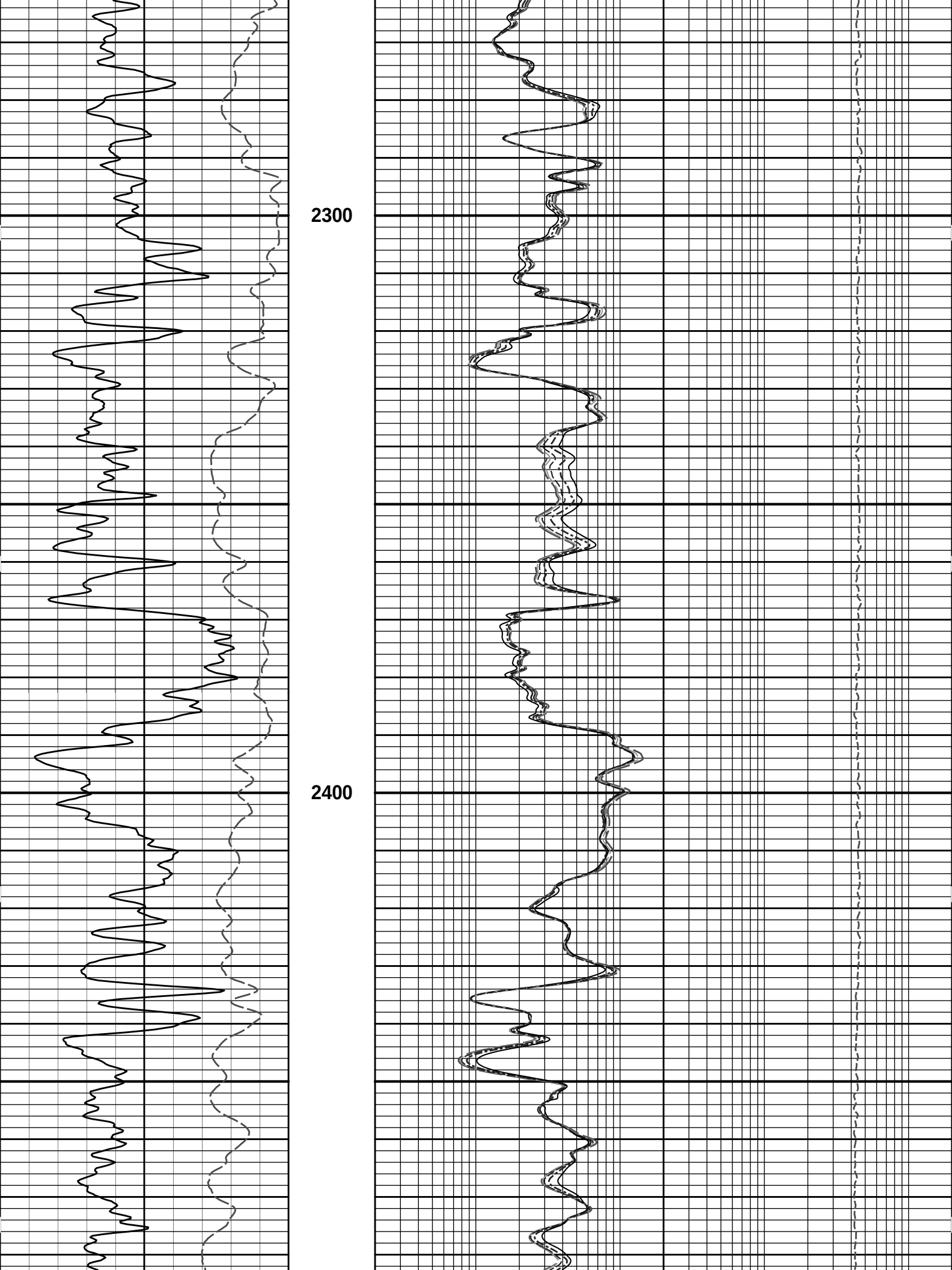
2200
30in Resistivity 2ft Res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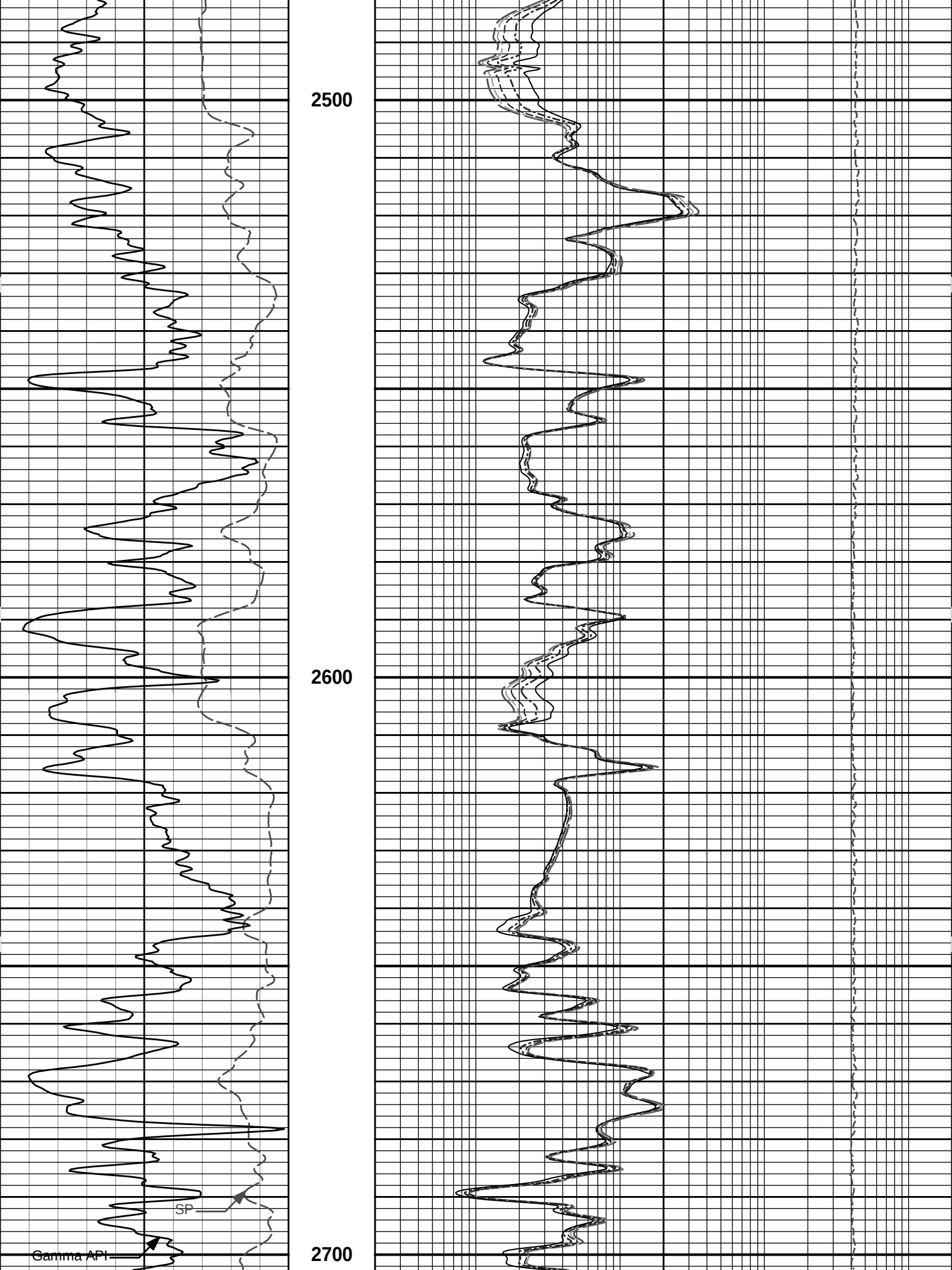
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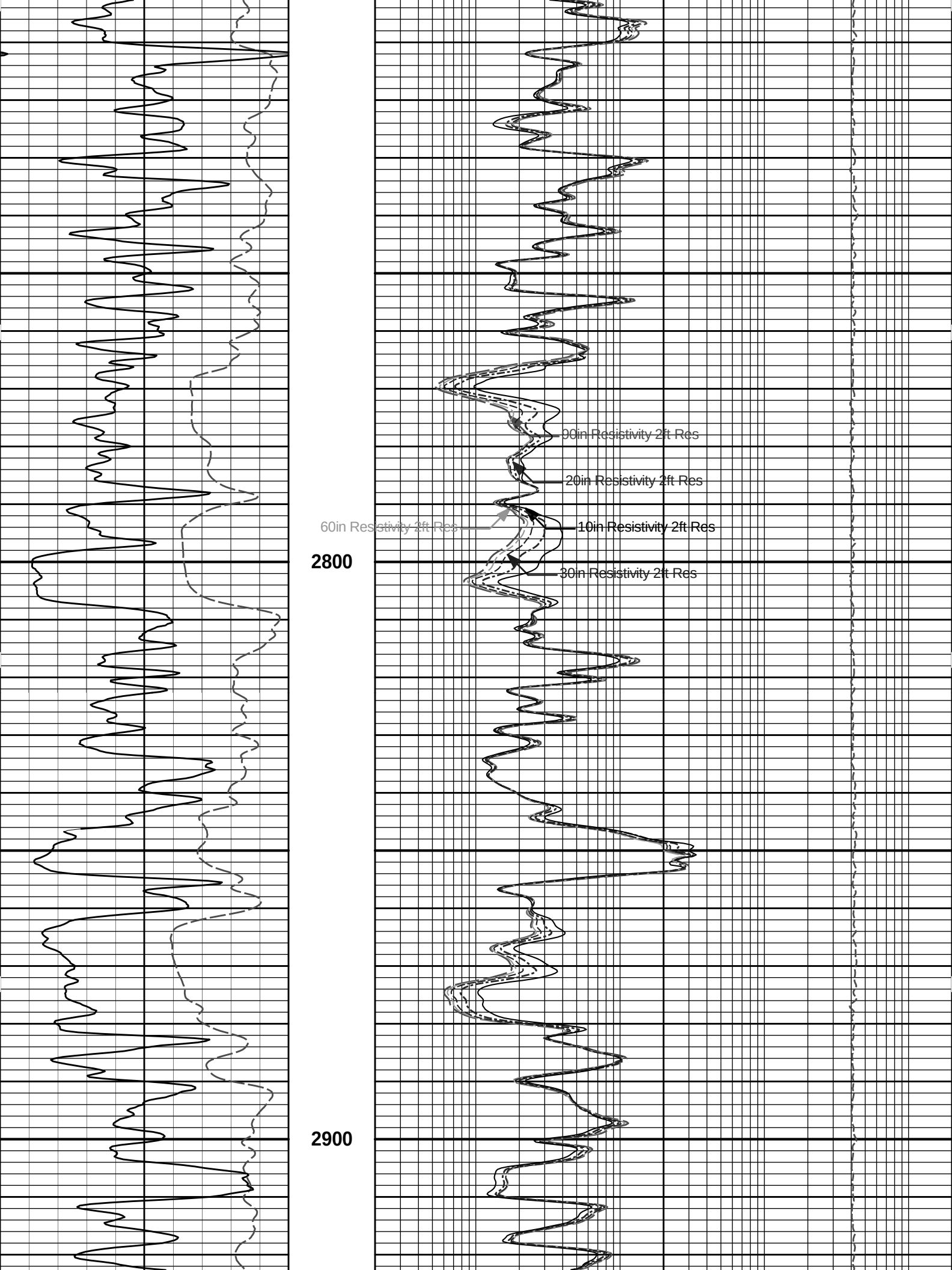
Gamma API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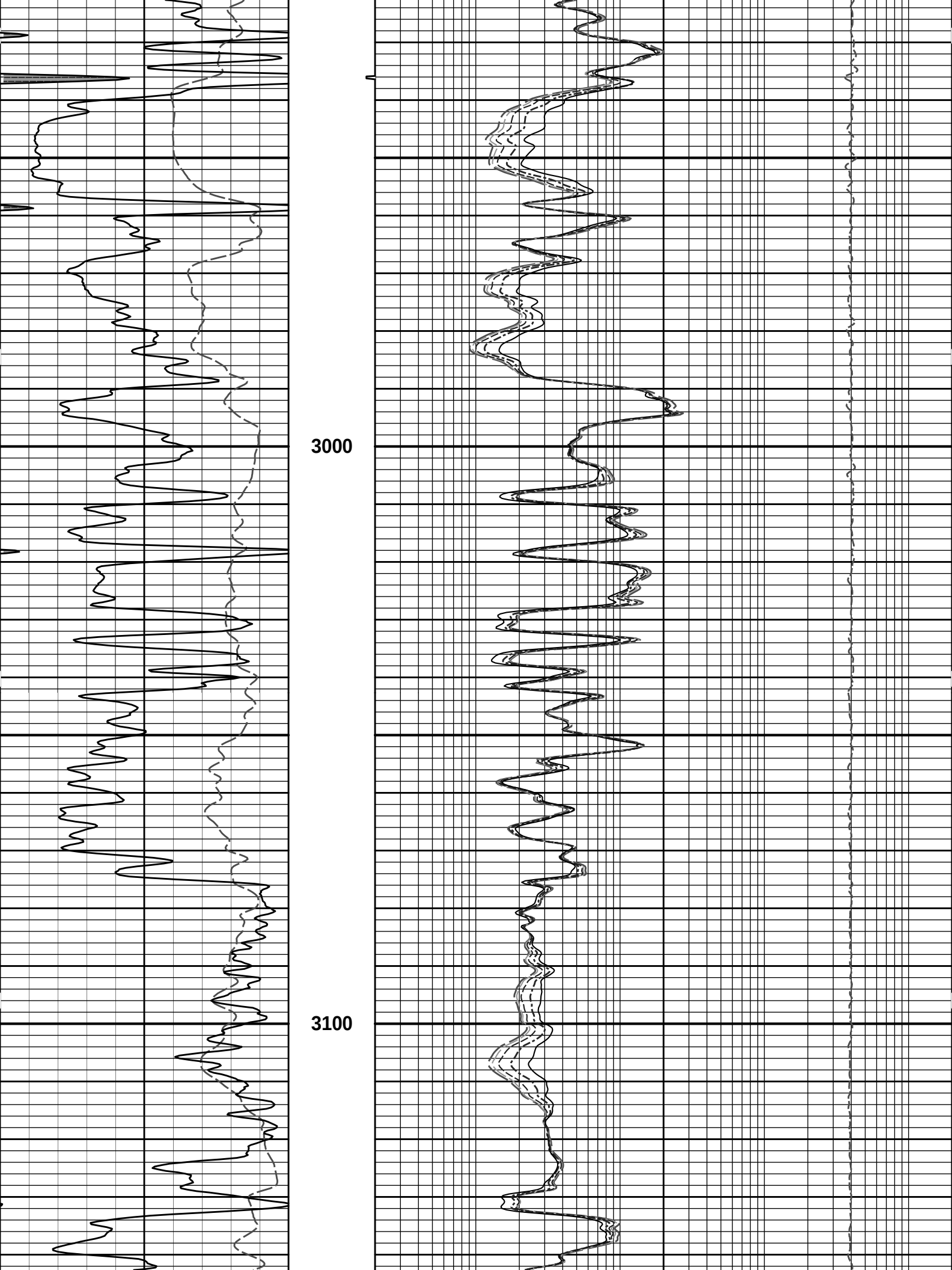
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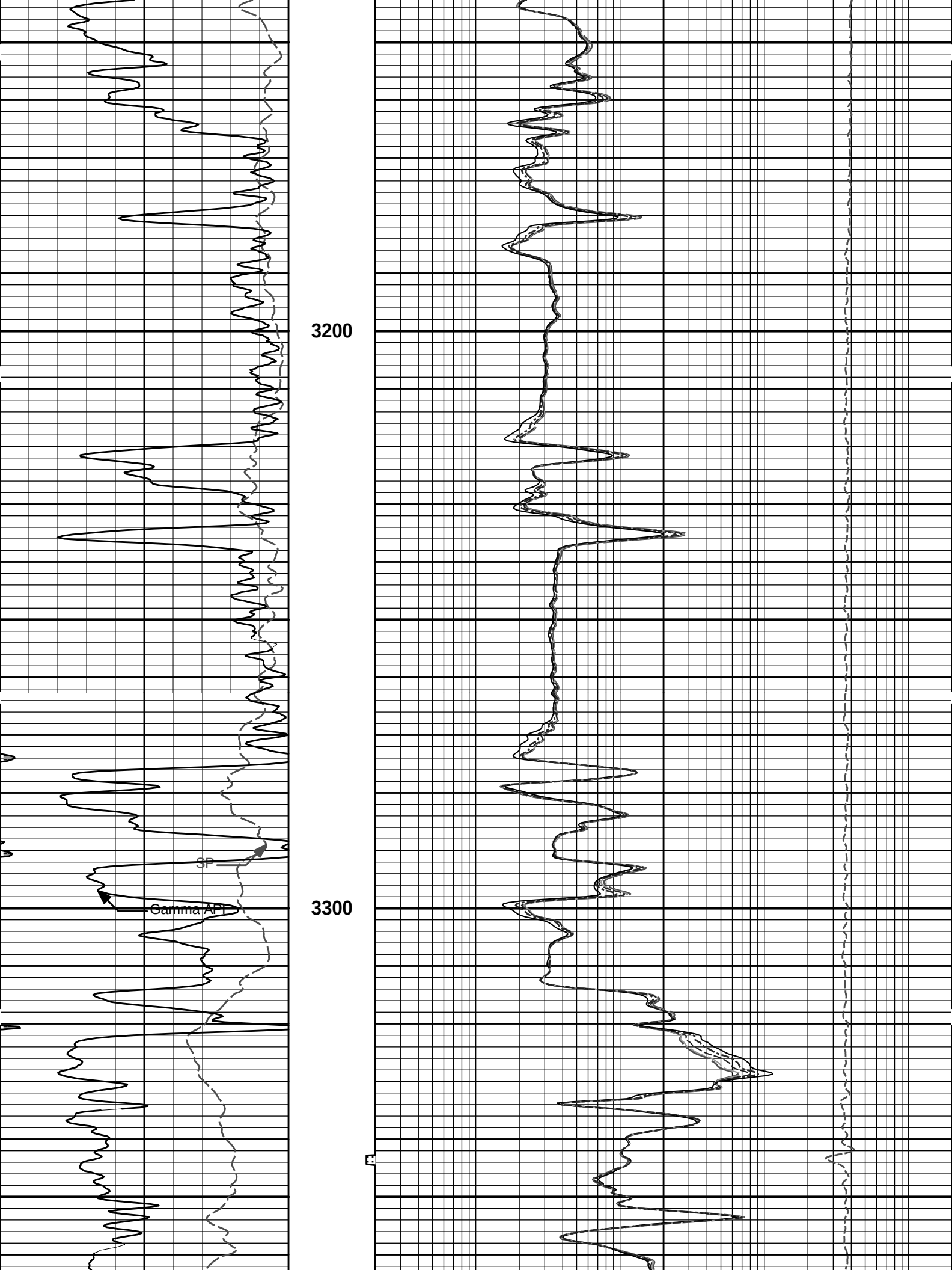
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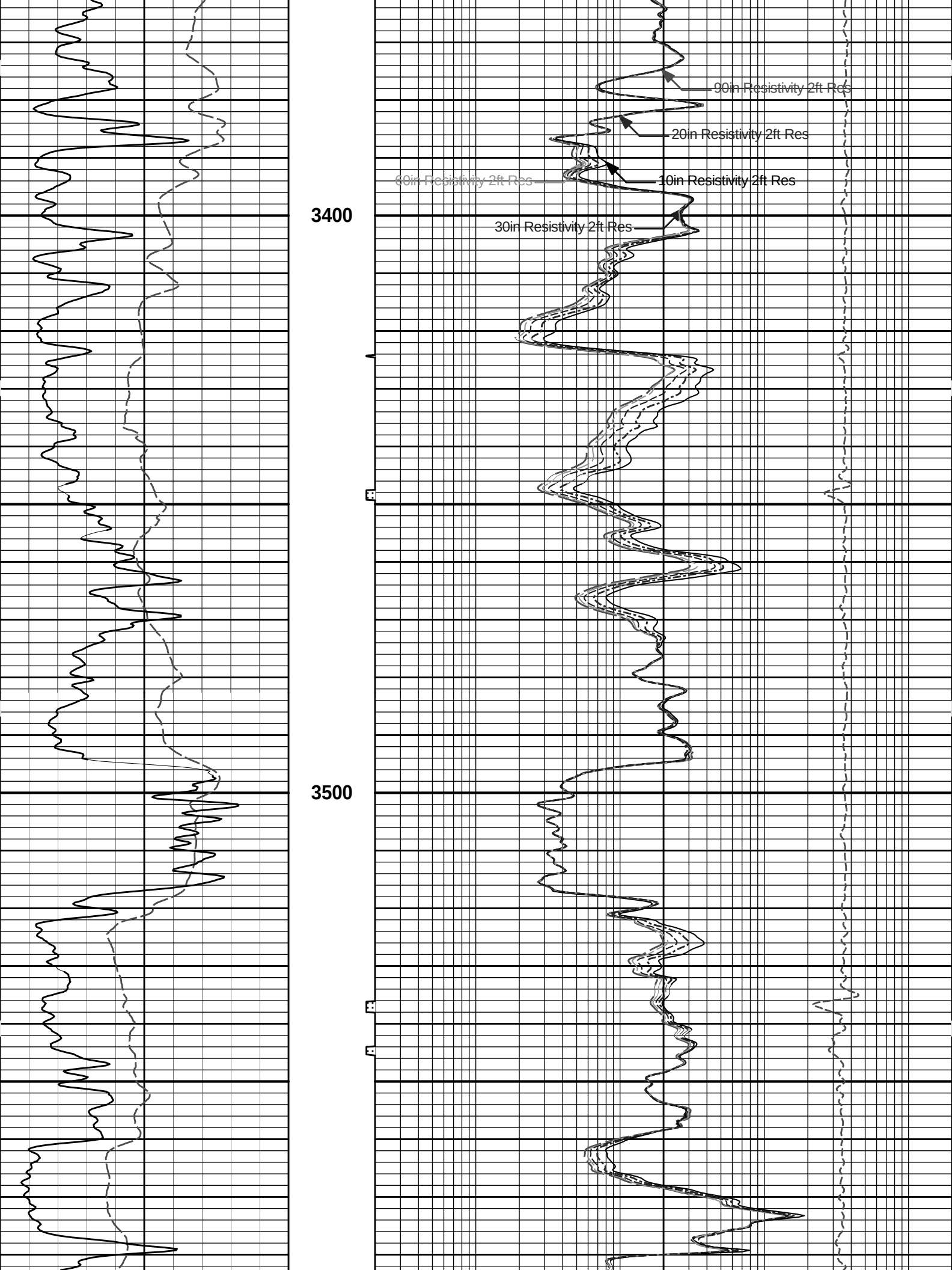
Gamma API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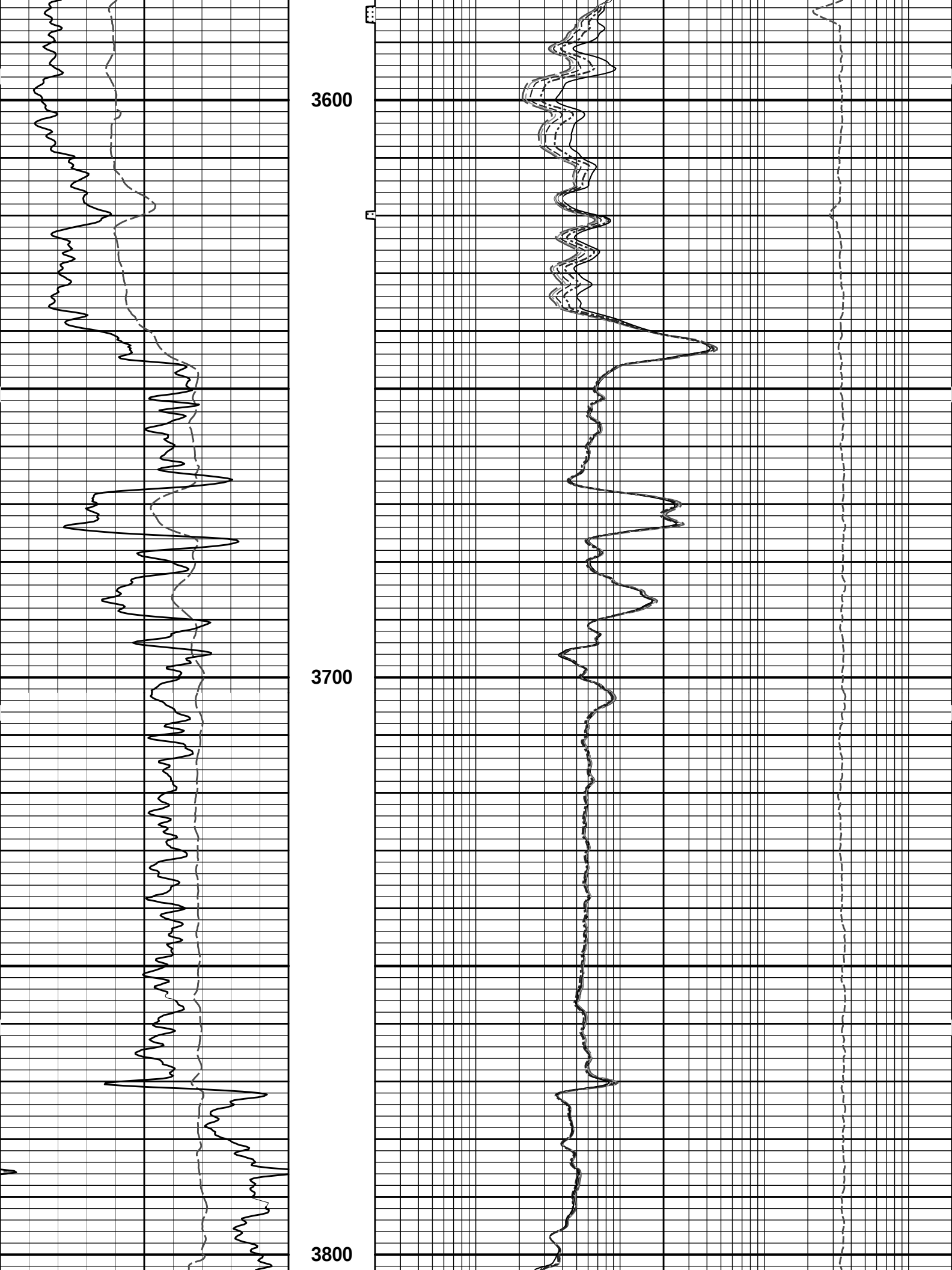
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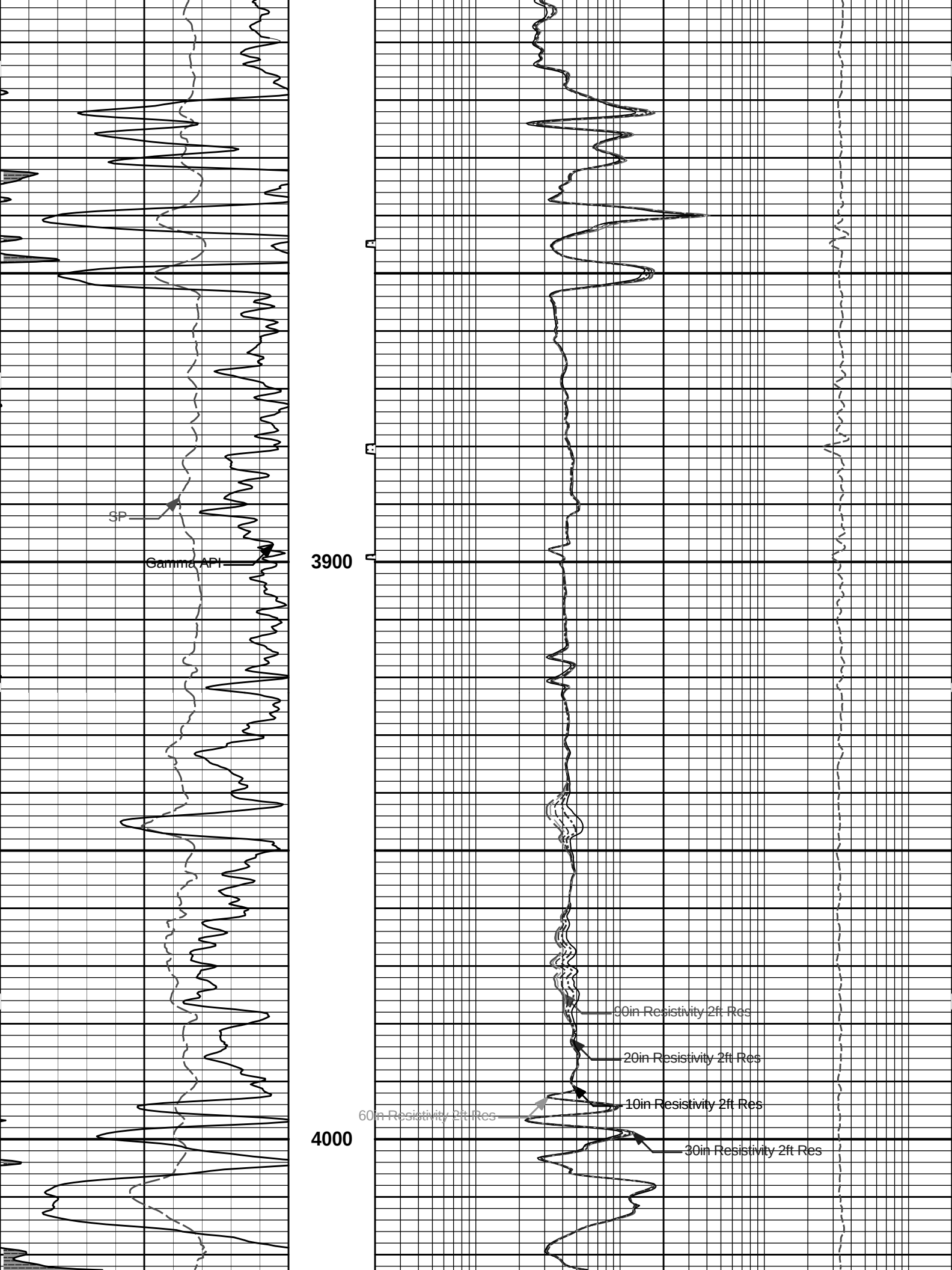
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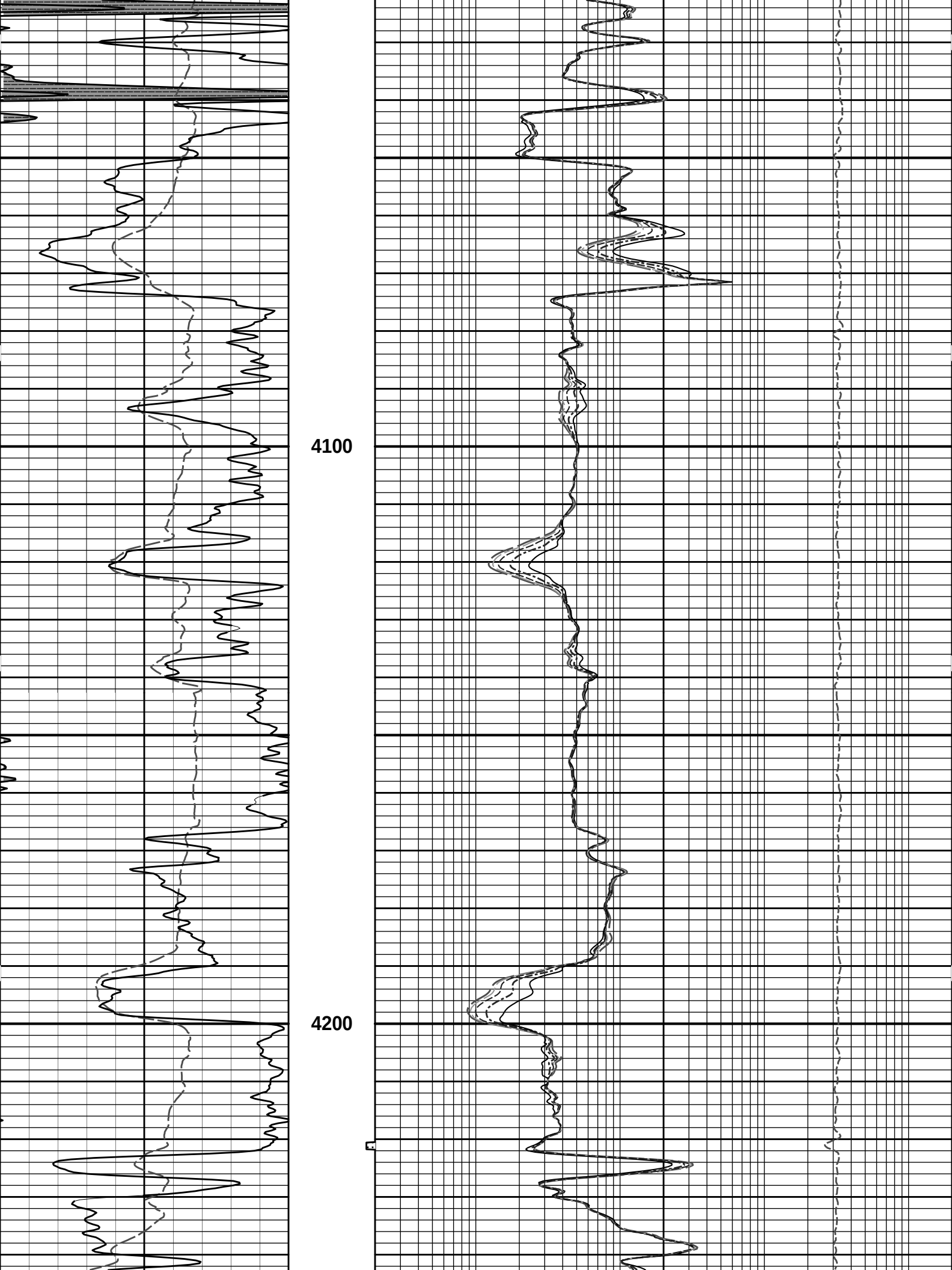
60in Resistivity 2ft Res
30in Resistivity 2ft Res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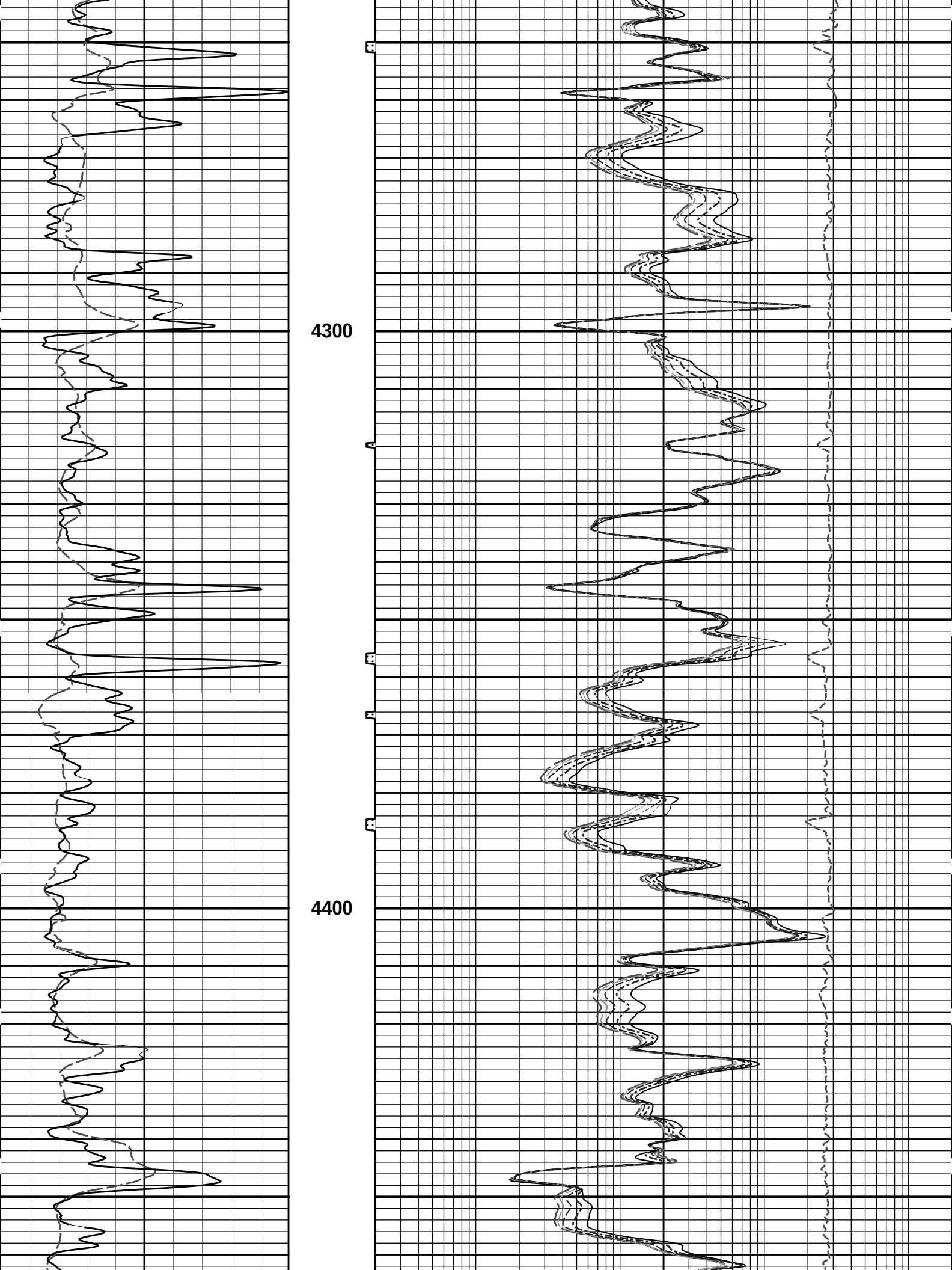
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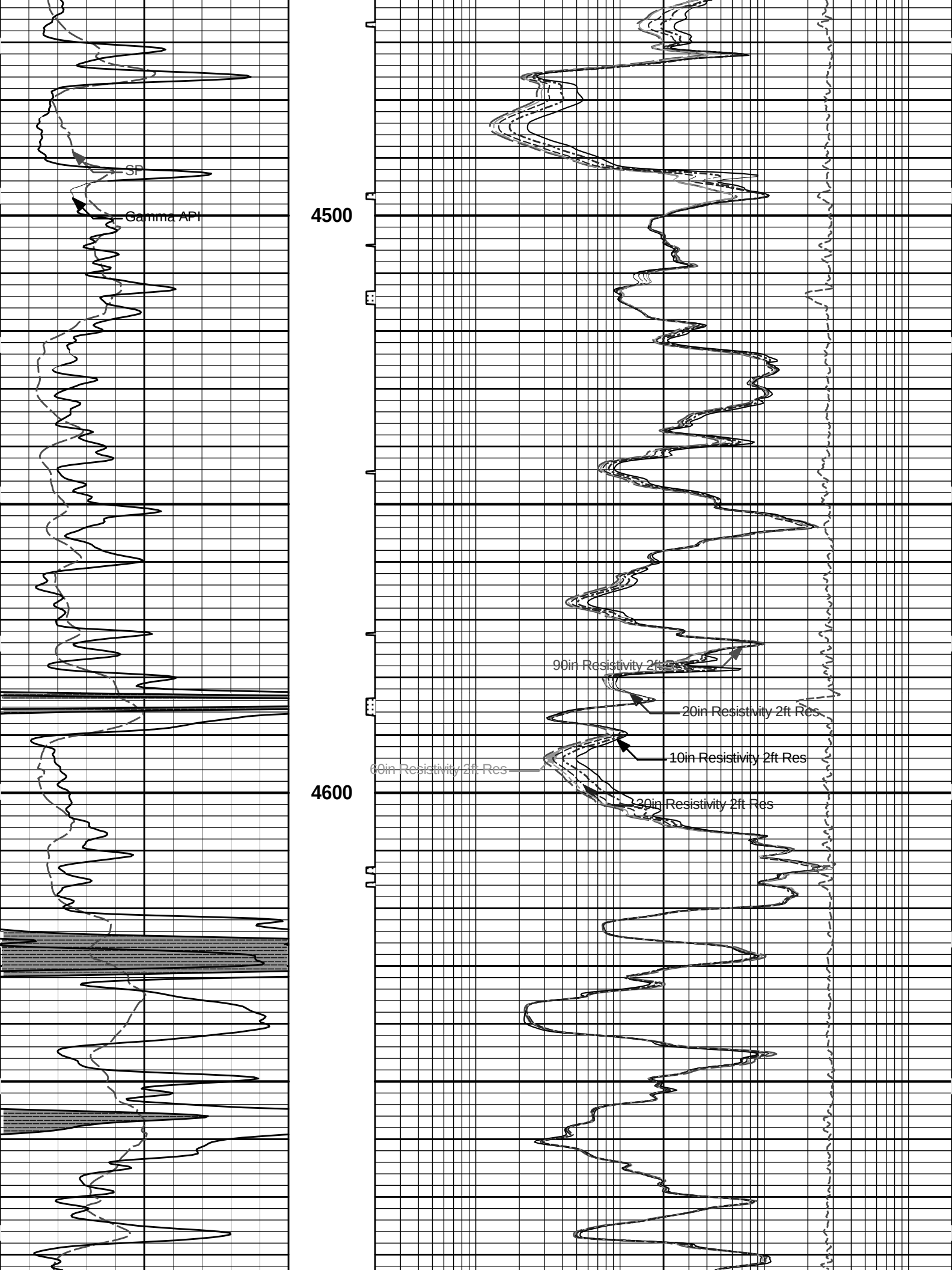
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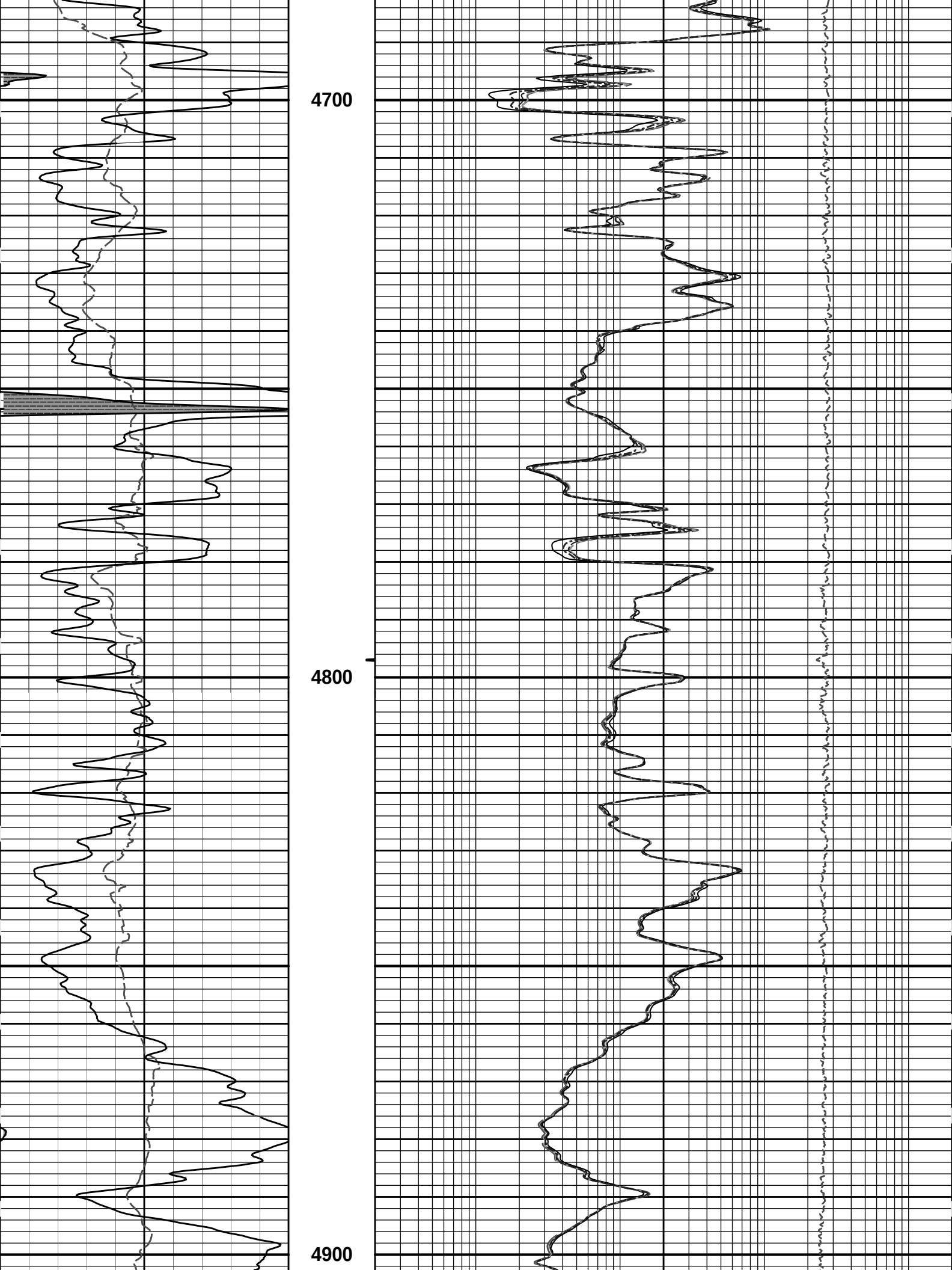
30in Resistivity 2ft Res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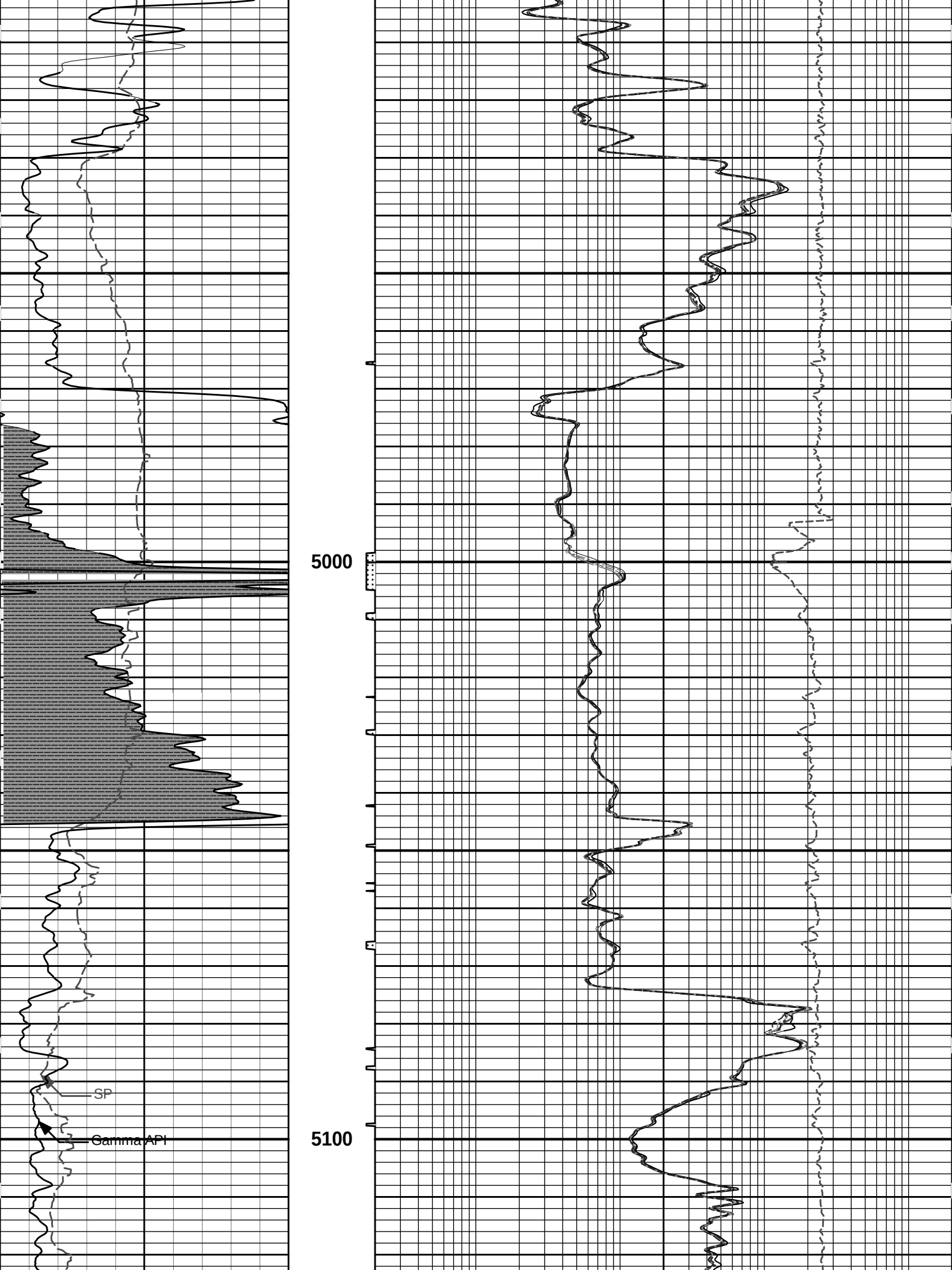
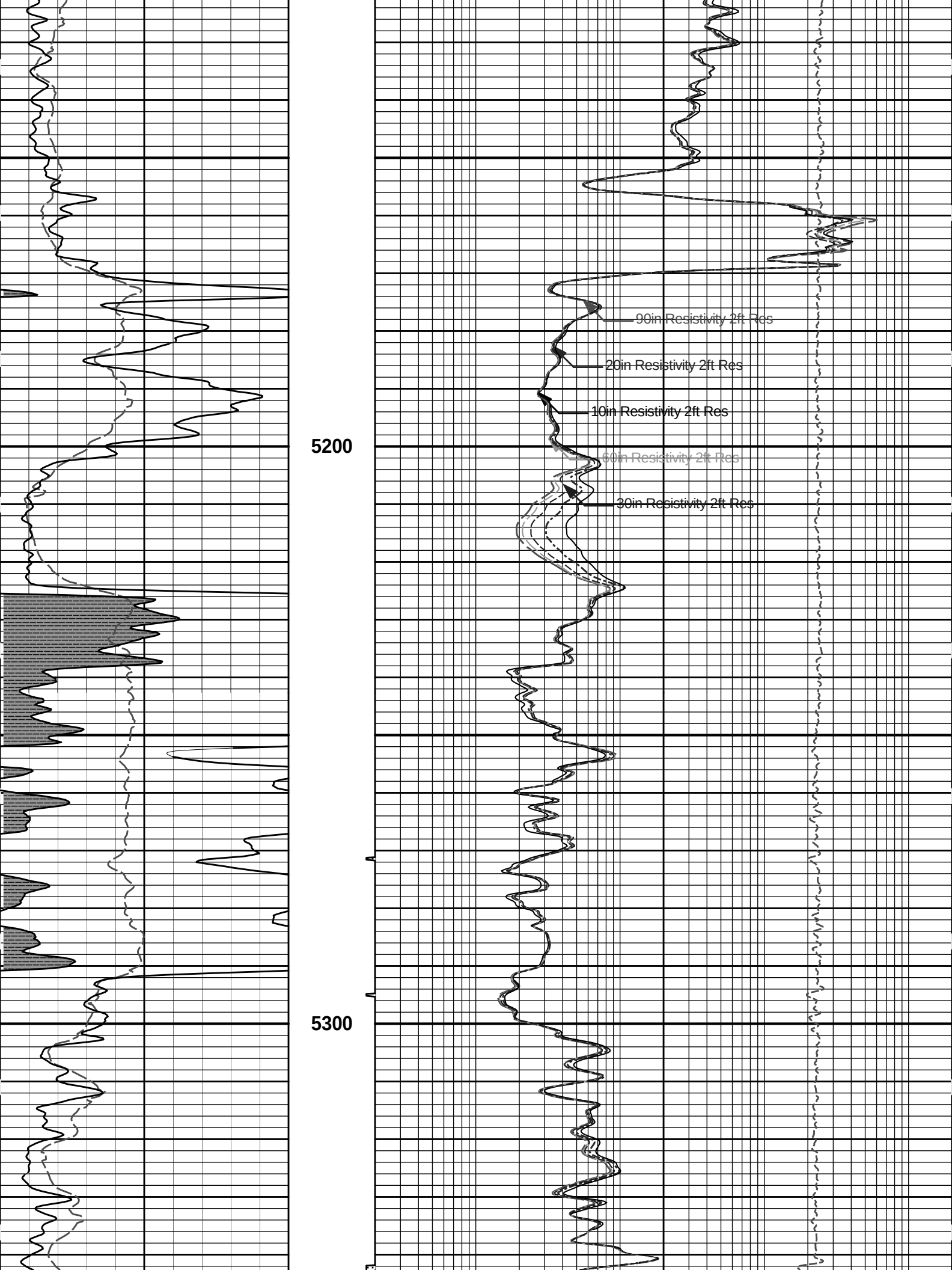
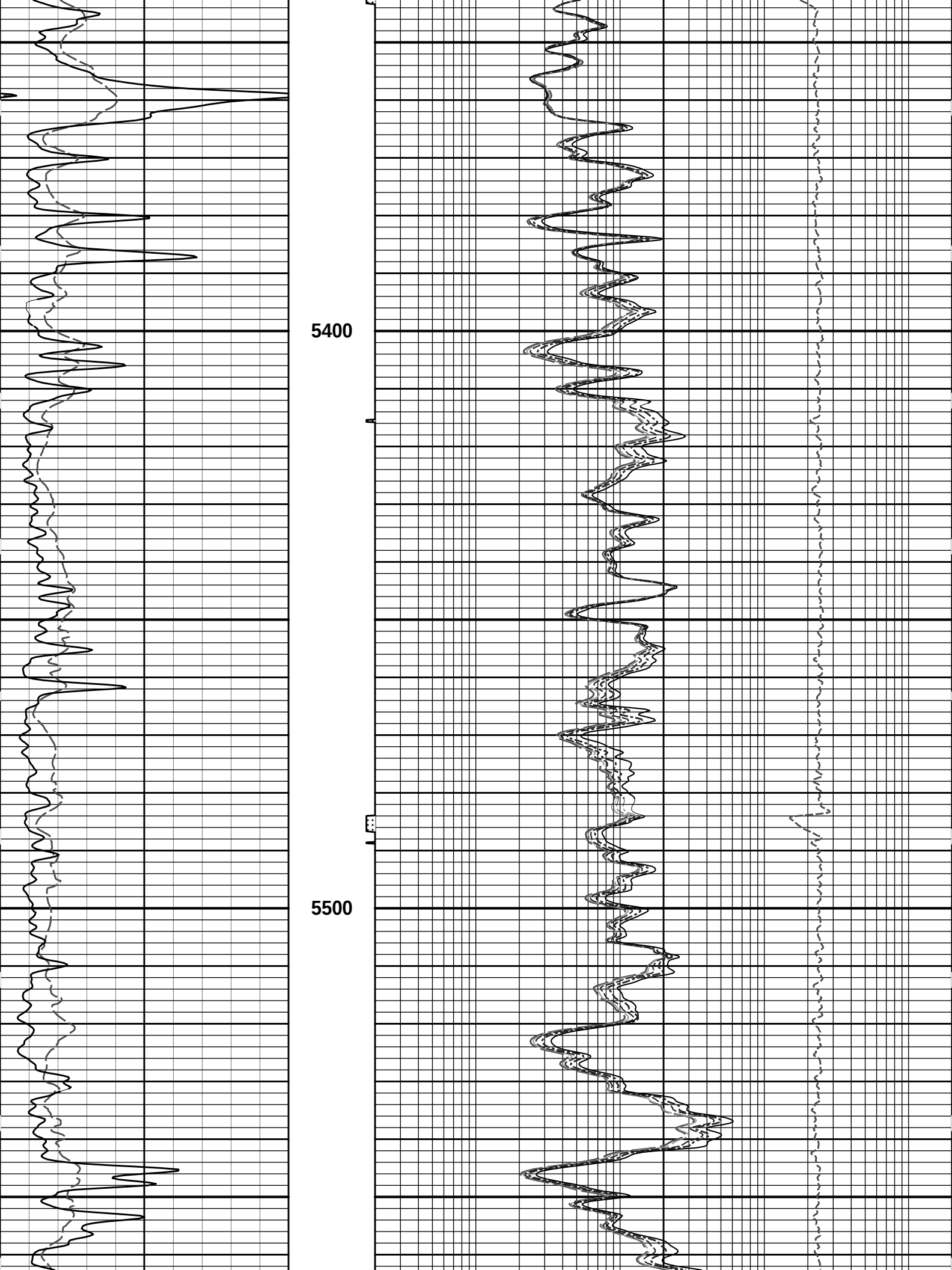
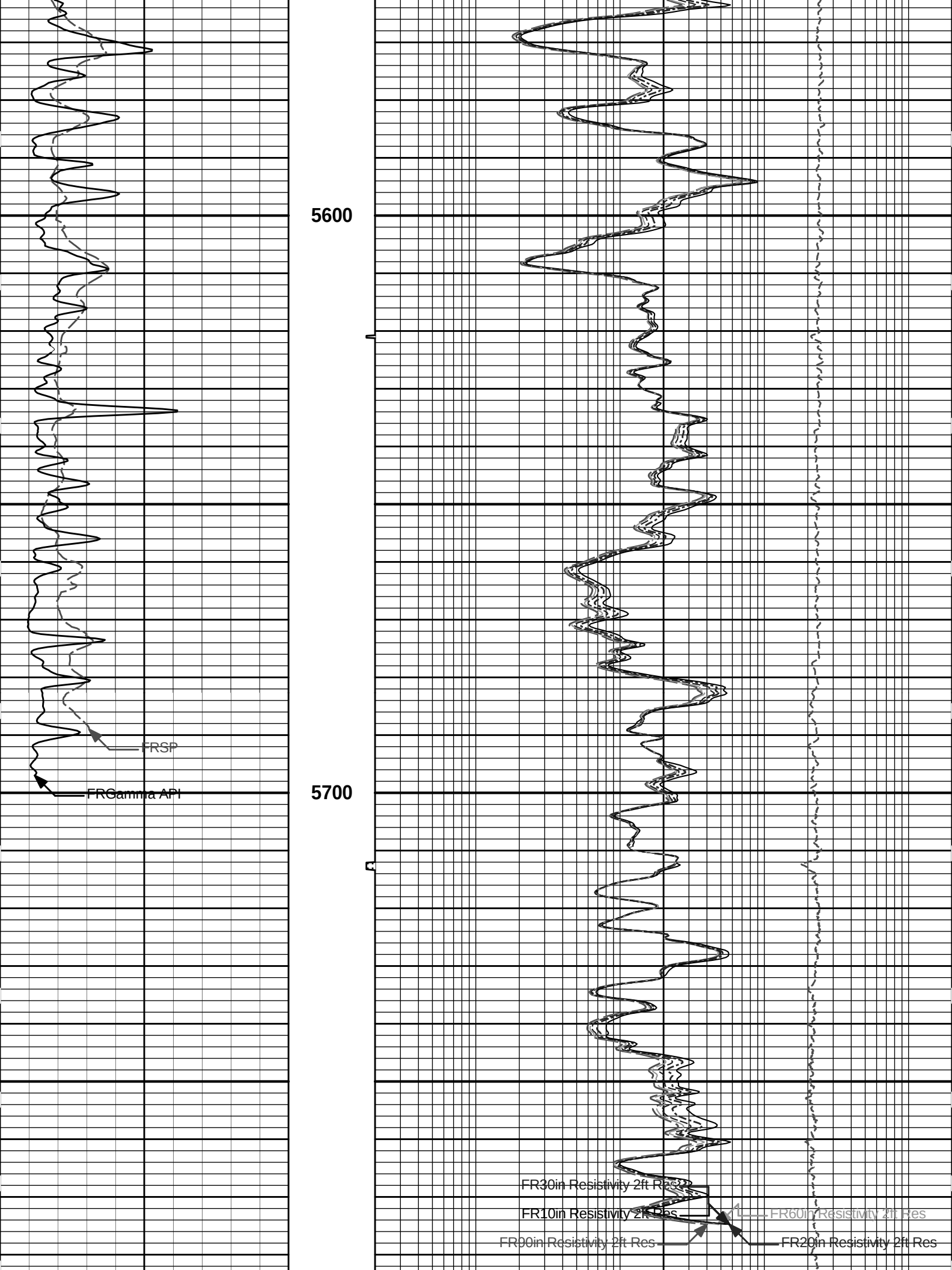
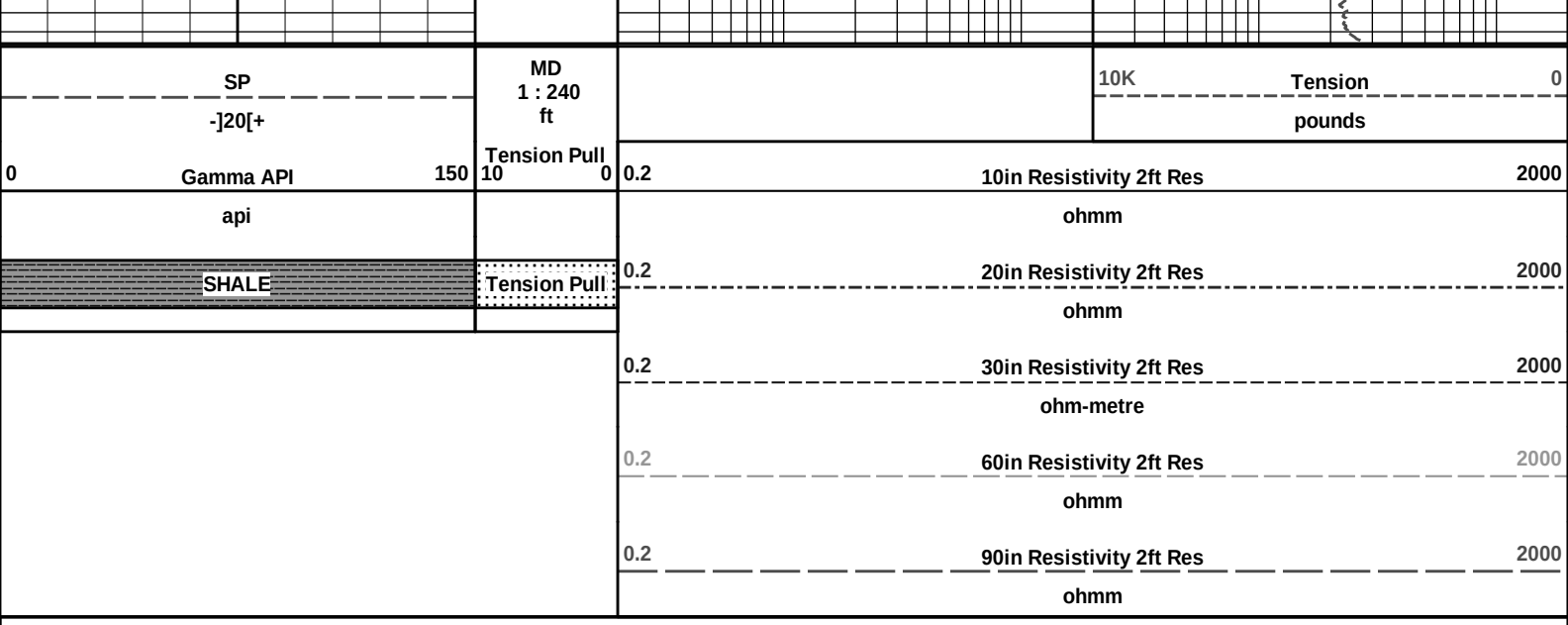
4800
4900


SP
Gamma API
5000
5100


90in Resistivity 2ft Res
20in Resistivity 2ft Res
10in Resistivity 2ft Res
60in Resistivity 2ft Res
30in Resistivity 2ft Res
5200
5300


5400
5500


5600
5700
FRSP
FRGamma API
FR30in Resistivity 2ft Res
FR10in Resistivity 2ft Res
FR60in Resistivity 2ft Res
FR90in Resistivity 2ft Res
FR20in Resistivity 2ft Res



HALLIBURTON

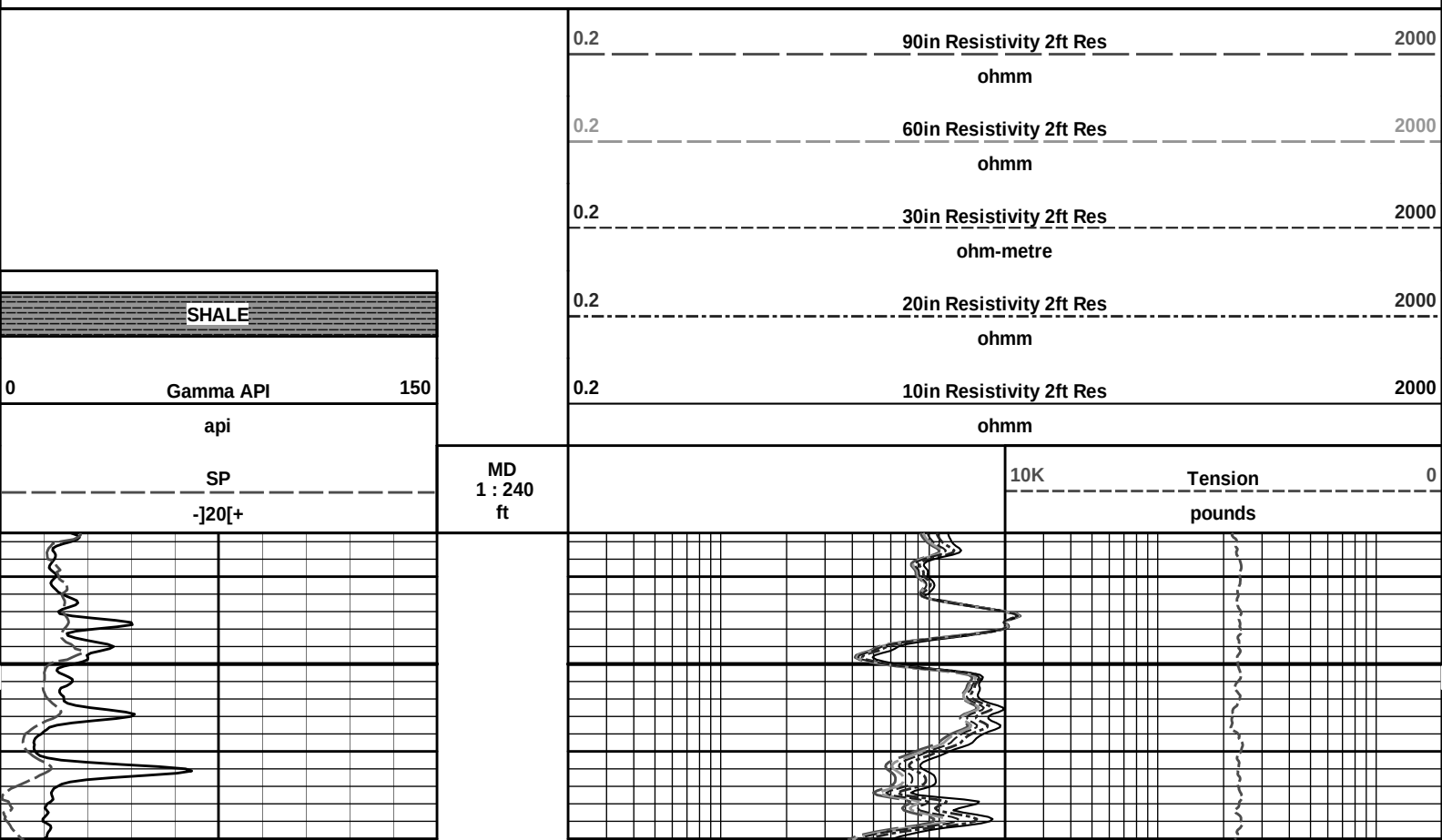
Plot Time: 31-Aug-12 03:02:55
Plot Range: 190 ft to 5787.25 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_main_lib

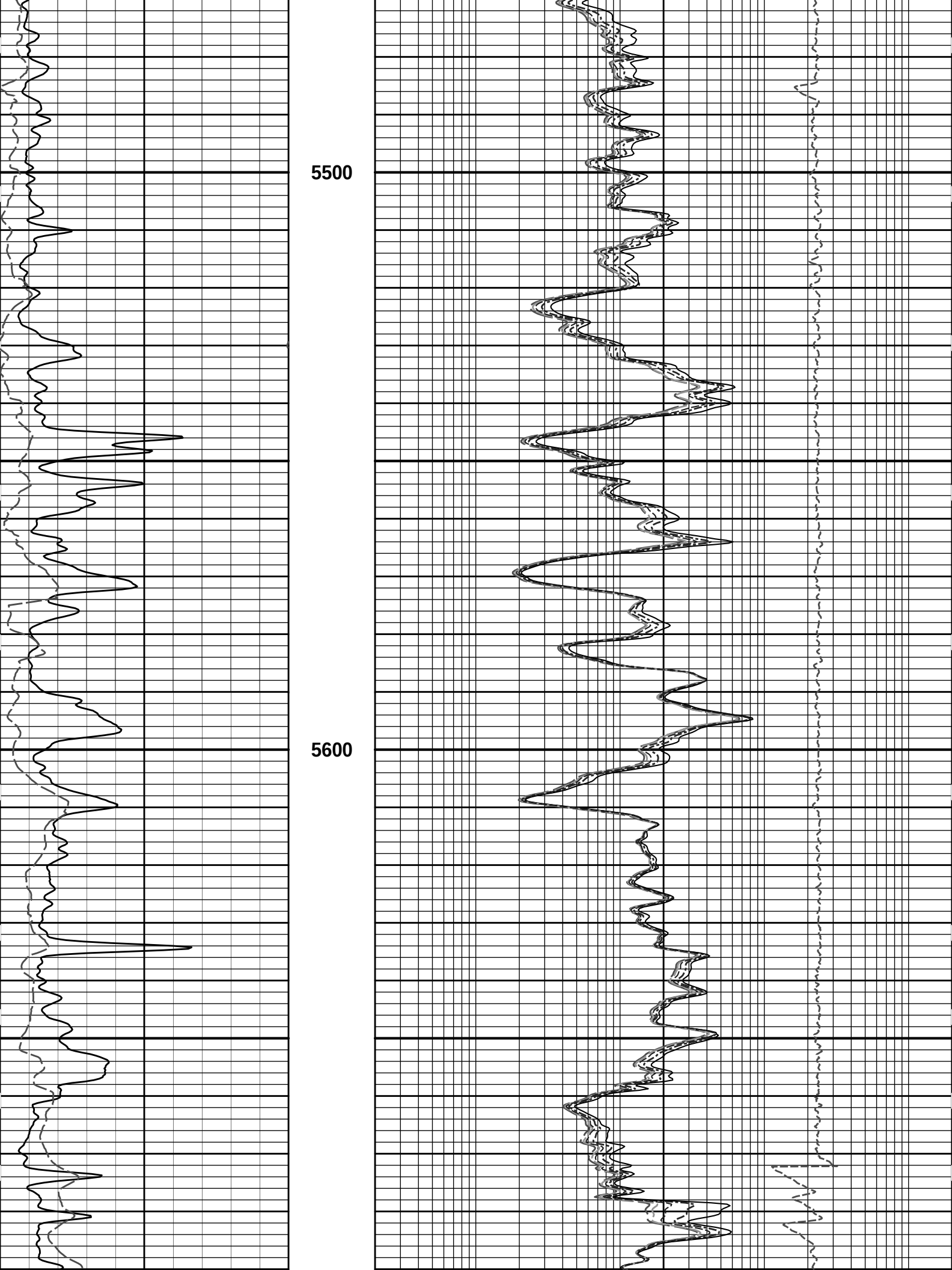
5 INCH MAIN LOG

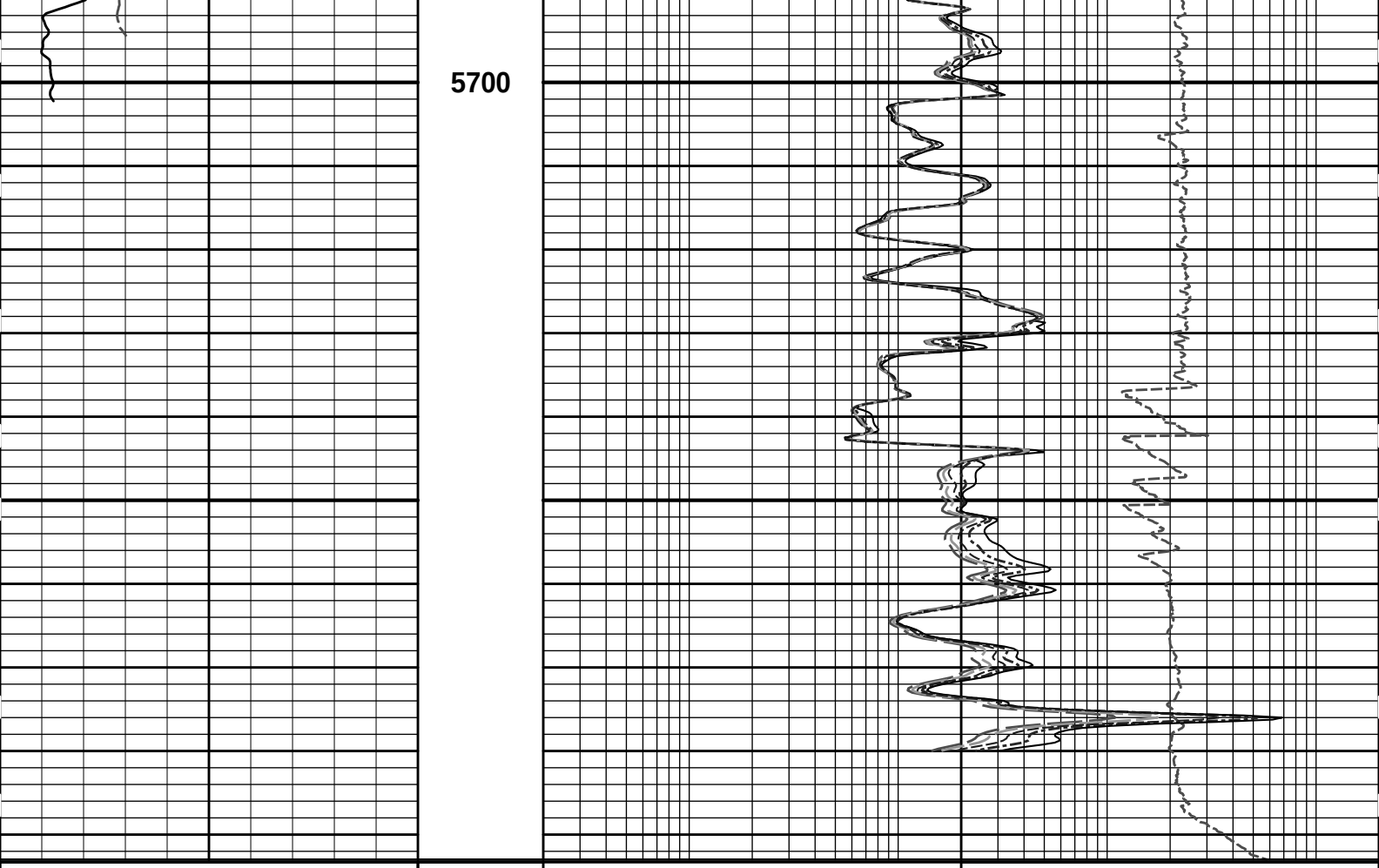
HALLIBURTON

Plot Time: 31-Aug-12 03:02:55
Plot Range: 5435 ft to 5793 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-005\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_repeat_lib

REPEAT SECTION




5500
5600



HALLIBURTON

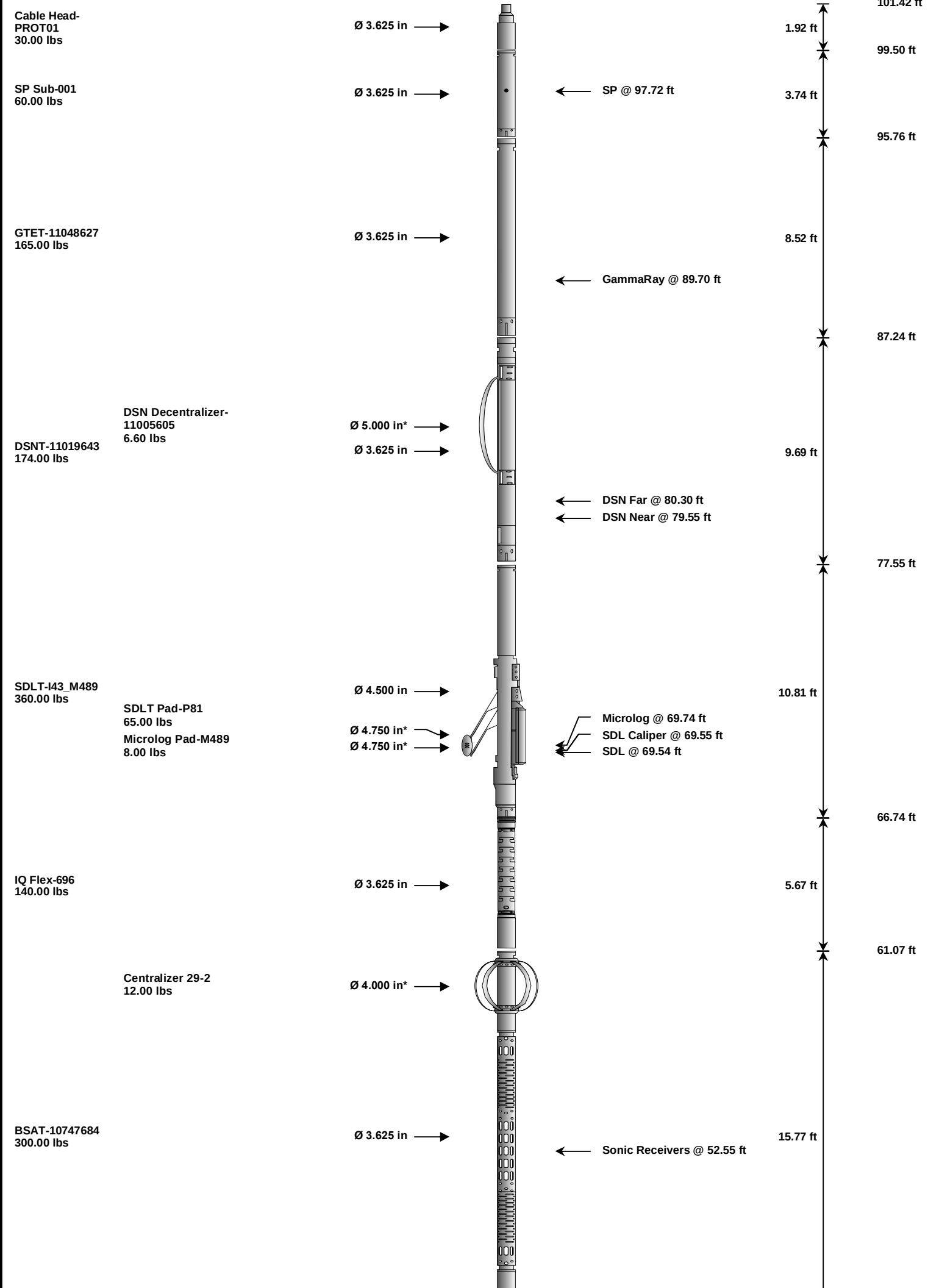
Plot Time: 31-Aug-12 03:02:57
Plot Range: 5435 ft to 5793 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-005\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_repeat_lib

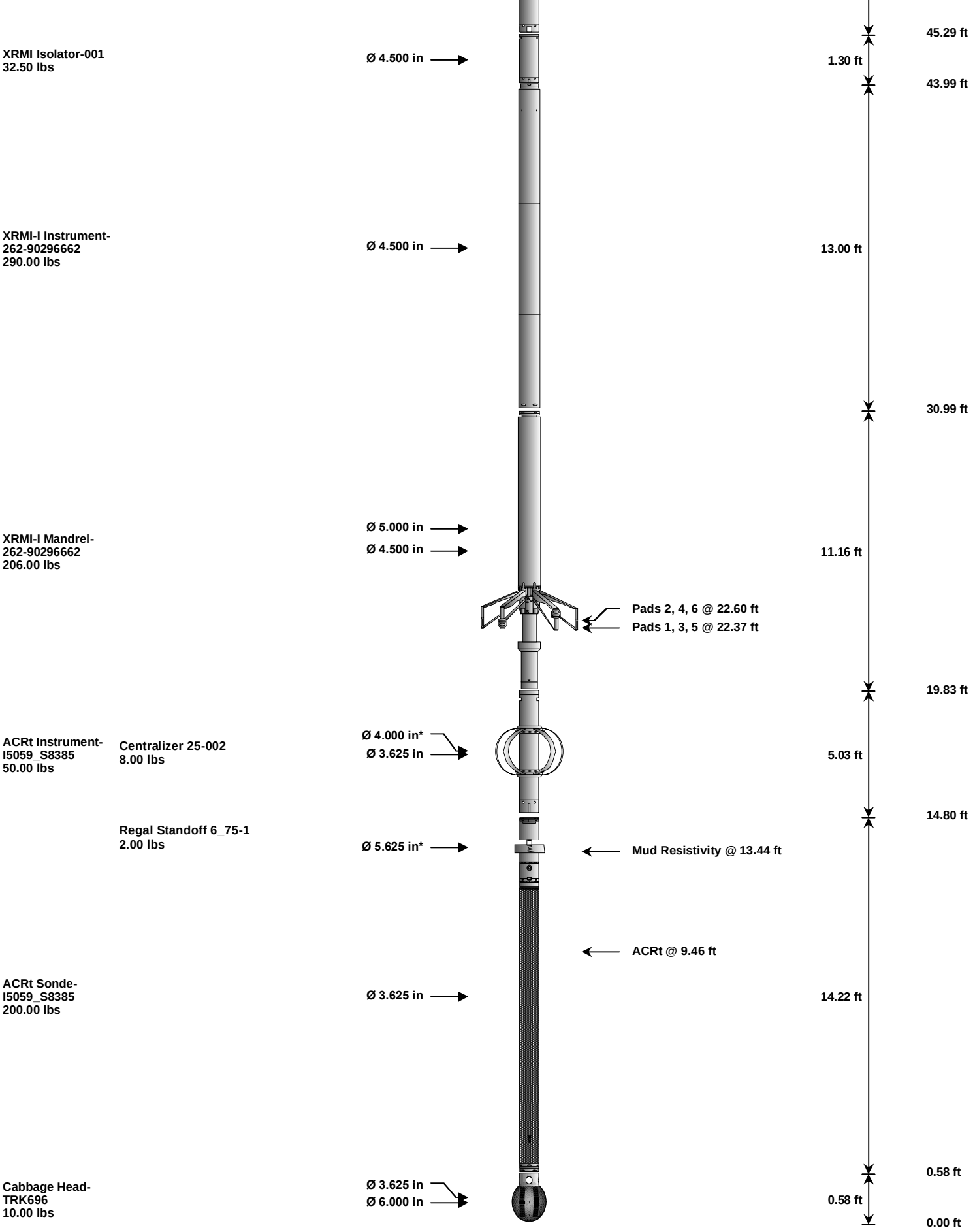
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length


Cable Head-PROT01
30.00 lbs
Ø 3.625 in
101.42 ft
1.92 ft
99.50 ft
SP Sub-001
60.00 lbs
Ø 3.625 in
SP @ 97.72 ft
3.74 ft
95.76 ft
GTET-11048627
165.00 lbs
Ø 3.625 in
8.52 ft
GammaRay @ 89.70 ft
87.24 ft
DSN Decentralizer-11005605
6.60 lbs
Ø 5.000 in*
DSNT-11019643
174.00 lbs
Ø 3.625 in
9.69 ft
DSN Far @ 80.30 ft
DSN Near @ 79.55 ft
77.55 ft
SDLT-I43_M489
360.00 lbs
Ø 4.500 in
10.81 ft
SDLT Pad-P81
65.00 lbs
Microlog Pad-M489
8.00 lbs
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 69.74 ft
SDL Caliper @ 69.55 ft
SDL @ 69.54 ft
66.74 ft
IQ Flex-696
140.00 lbs
Ø 3.625 in
5.67 ft
61.07 ft
Centralizer 29-2
12.00 lbs
Ø 4.000 in*
BSAT-10747684
300.00 lbs
Ø 3.625 in
15.77 ft
Sonic Receivers @ 52.55 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	PROT01	30.00	1.92	99.50	300.00
SP	SP Sub	001	60.00	3.74	95.76	300.00
GTET	Gamma Telemetry Tool	11048627	165.00	8.52	87.24	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69	77.55	60.00

DCNT	DSN Decentralizer	11005605	6.60	5.13	*	80.88	300.00
SDLT	Spectral Density Tool	I43_M489	360.00	10.81		66.74	60.00
SDLP	Density Insite Pad	P81	65.00	2.55	*	68.95	60.00
MICP	Microlog Pad	M489	8.00	1.00	*	69.24	60.00
IQF	IQ Flex tool	696	140.00	5.67		61.07	300.00
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77		45.29	60.00
OBCEN	Centralizer - 29 in.Overbody	2	12.00	2.42	*	58.34	300.00
	Isolator for the XRMI tool	001	32.50	1.30		43.99	300.00
XRMI	XRMI Navigation - Insite	262-90296662	290.00	13.00		30.99	30.00
XRMI-I	XRMI Imager - Insite	262-90296662	206.00	11.16		19.83	30.00
ACRt	Array Compensated True Resistivity Instrument Section	I5059_S8385	50.00	5.03		14.80	300.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	*	16.30	300.00
ACRt	Array Compensated True Resistivity Sonde Section	I5059_S8385	200.00	14.22		0.58	300.00
RSOF	Regal Standoff 6.75in	1	2.00	0.52	*	13.38	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**2,119.10**	**101.42**			

* Not included in Total Length and Length Accumulation.

Data: OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 30-Aug-12 21:54:38**

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CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: **GTET - 11048627** **Reference Calibration Date:** **09-Aug-12 10:44:30**

Engineer: **T. HYDE** **Calibration Date:** **09-Aug-12 10:50:33**

Software Version: **WL INSITE R3.6.0 (Build 3)** **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	57.5	57.1	api
Background + Calibrator	328.7	326.8	api
Calibrator	271.3	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: **GTET - 11048627** **Reference Calibration Date:** **09-Aug-12 10:50:33**

Engineer: **T. HYDE** **Calibration Date:** **30-Aug-12 22:01:40**

Software Version: **WL INSITE R3.6.0 (Build 3)** **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	57.1	41.6	api
Background + Calibrator	326.8	316.1	api
Calibrator	269.6	274.5	api

Shop	Field	Difference	Tolerance
269.6	274.5	-4.9	+/- 9.00

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: **ACRt Sonde - I5059_S8385** **Reference Calibration Date:** **12-Jul-12 16:29:47**

Engineer: **T. HYDE** **Calibration Date:** **23-Aug-12 18:34:20**

Software Version: **WL INSITE R3.6.0 (Build 3)** **Calibration Version:** **1**

Software Version: WL INSITE R3.6.0 (Build 3) Calibration Version: 1

Host Tool Name: ACRt Instrument - I5059_S8385

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	1.00	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.02	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.01	1.05	0.95	1.01	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	1.00	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	-1.26	2	-6	-4.89	-2	-8	-4.28	-2
A2 (50")	-7	-2.35	0	-7	-3.65	0	-7	-4.36	0
A3 (29")	-27	-13.85	-9	-9	-4.39	-3	-7	-2.24	-1
A4 (17")	-180	-105.37	-60	-45	-32.97	-15	-39	-26.06	-13
A5 (10")	N/A	N/A	N/A	-150	-83.52	-50	-80	-42.21	-10
A6 (6")	N/A	N/A	N/A	175	342.59	525	90	169.85	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.91	1.3
36K	1.0	1.36	2.0
72K	1.0	1.63	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11048627						
Gamma Ray Calibrator	269.6	274.5	----------	-4.9	+/- 9.00	api
ACRt Sonde-I5059_S8385						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

Data: OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE Date: 30-Aug-12 23:24:23

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PARAMETERS REPORT

Depth ((ft))	Tool Name	Mnemonic	Description	Value	Units
	TOR				

TOP					
	XRMI-I Mandrel	DIMG	Process XRMI?	No	
4200.00					
	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	9.300	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	5832.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	XRMI-I Instrument	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	XRMI-I Instrument	
	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?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	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	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?	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
	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	
	XRMI-I Instrument	WRTI	Survey Writing Interval	30	ft
	XRMI-I Instrument	SOPT	Smoothing Option	None	
	XRMI-I Mandrel	DIMG	Process XRMI?	Yes	
	XRMI-I Mandrel	ROTI	Rotate Image (N-E-S-W-N)?	Yes	
	XRMI-I Mandrel	AGN	Use Button Auto Gain?	Yes	
	XRMI-I Mandrel	BCLR	Button Auto Gain Color	127	
	XRMI-I Mandrel	BFIL	Button Auto Gain Filter	0.020	
	XRMI-I Mandrel	BGAN	Button Gain Value	0.001	
	XRMI-I Mandrel	BOFF	Button Offset	0	
	XRMI-I Mandrel	DIPE	Process Dipmeter Calculations?	Yes	
	XRMI-I Mandrel	BHCS	Process Borehole Corrections?	Yes	
	XRMI-I Mandrel	CLOK	Process Caliper Outputs?	Yes	
	XRMI-I Mandrel	CMAX	Caliper Maximum Limit	100.0	in
	XRMI-I Mandrel	CMIN	Caliper Mimimum Limit	3.5	in
	XRMI-I Mandrel	NAVS	Navigation Source Tool	XRMI-I Instrument	
	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	Centered	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm

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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	
	SP Sub			
PLTC	Plot Control Mask	97.72	NO	
SP	Spontaneous Potential	97.72	BLK	1.250
SPR	Raw Spontaneous Potential	97.72	NO	
SPO	Spontaneous Potential Offset	97.72	NO	
	GTET			
TPUL	Tension Pull	89.70	NO	

GR	Natural Gamma Ray API	89.70	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	89.70	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	89.70	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
DSNT				
TPUL	Tension Pull	79.45	NO	
RNDS	Near Detector Telemetry Counts	79.55	BLK	1.417
RFDS	Far Detector Telemetry Counts	80.30	TRI	0.583
DNTT	DSN Tool Temperature	79.55	NO	
DSNS	DSN Tool Status	79.45	NO	
ERND	Near Detector Telemetry Counts EVR	79.55	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	80.30	BLK	0.000
ENTM	DSN Tool Temperature EVR	79.55	NO	
SDLT				
TPUL	Tension Pull	69.55	NO	
PCAL	Pad Caliper	69.55	TRI	0.250
ACAL	Arm Caliper	69.55	TRI	0.250
BSAT				
TPUL	Tension Pull	52.55	NO	
STAT	Status	52.55	NO	
DLYT	Delay Time	52.55	NO	
SI	Sample Interval	52.55	NO	
TXRX	Raw Telemetry 10 Receivers	52.55	NO	
FRMC	Tool Frame Count	52.55	NO	
GMOD	Gain processing mode	45.29	NO	
XRMI-I Mandrel				
TPUL	Tension Pull	22.60	NO	
PAD1	XRMI Pad 1 values	22.36	NO	
PAD2	XRMI Pad 2 values	22.36	NO	
PAD3	XRMI Pad 3 values	22.36	NO	
PAD4	XRMI Pad 4 values	22.36	NO	
PAD5	XRMI Pad 5 values	22.36	NO	
PAD6	XRMI Pad 6 values	22.36	NO	
OD1	EMI Odd Button Values Pad 1	22.36	NO	
OD2	EMI Odd Button Values Pad 2	22.60	NO	
OD3	EMI Odd Button Values Pad 3	22.36	NO	
OD4	EMI Odd Button Values Pad 4	22.60	NO	
OD5	EMI Odd Button Values Pad 5	22.36	NO	
OD6	EMI Odd Button Values Pad 6	22.60	NO	
EV1	EMI Even Button Values Pad 1	22.39	NO	
EV2	EMI Even Button Values Pad 2	22.57	NO	
EV3	EMI Even Button Values Pad 3	22.39	NO	
EV4	EMI Even Button Values Pad 4	22.57	NO	
EV5	EMI Even Button Values Pad 5	22.39	NO	
EV6	EMI Even Button Values Pad 6	22.57	NO	
ITMP	Instrument Temperature	19.83	NO	
EMIM	Tool Mode	19.83	NO	
HAZI	Hole Azimuth	22.11	NO	
HAZI	Hole Azimuth - Down Delay	22.61	NO	
ZACC	Accelerometer Z	22.36	NO	
TPUL	Tension Pull	22.60	NO	
EIR1	Current Button R - Pad 1	22.36	NO	

FIR1	Current Button R - Pad 1	22.60	NO	
FIR2	Current Button R - Pad 2	22.60	NO	
FIR3	Current Button R - Pad 3	22.36	NO	
FIR4	Current Button R - Pad 4	22.60	NO	
FIR5	Current Button R - Pad 5	22.36	NO	
FIR6	Current Button R - Pad 6	22.60	NO	
FIX1	Current Button X - Pad 1	22.36	NO	
FIX2	Current Button X - Pad 2	22.60	NO	
FIX3	Current Button X - Pad 3	22.36	NO	
FIX4	Current Button X - Pad 4	22.60	NO	
FIX5	Current Button X - Pad 5	22.36	NO	
FIX6	Current Button X - Pad 6	22.60	NO	
SIR1	Current Slow Button R - Pad 1	22.36	BLK	3.000
SIR2	Current Slow Button R - Pad 2	22.60	BLK	3.000
SIR3	Current Slow Button R - Pad 3	22.36	BLK	3.000
SIR4	Current Slow Button R - Pad 4	22.60	BLK	3.000
SIR5	Current Slow Button R - Pad 5	22.36	BLK	3.000
SIR6	Current Slow Button R - Pad 6	22.60	BLK	3.000
SIX1	Current Slow Button X - Pad 1	22.36	BLK	3.000
SIX2	Current Slow Button X - Pad 2	22.60	BLK	3.000
SIX3	Current Slow Button X - Pad 3	22.36	BLK	3.000
SIX4	Current Slow Button X - Pad 4	22.60	BLK	3.000
SIX5	Current Slow Button X - Pad 5	22.36	BLK	3.000
SIX6	Current Slow Button X - Pad 6	22.60	BLK	3.000
EMMR	Phasor Voltage - Real Part	22.36	NO	
EMMX	Phasor Voltage - Imaginary Part	22.36	NO	
PADV	Pad Voltage	19.83	BLK	0.250
ITMP	Instrument Temperature	19.83	BLK	0.000
CON1	Conductivity Pad 1	22.36	BLK	3.000
CON2	Conductivity Pad 2	22.60	BLK	3.000
CON3	Conductivity Pad 3	22.36	BLK	3.000
CON4	Conductivity Pad 4	22.60	BLK	3.000
CON5	Conductivity Pad 5	22.36	BLK	3.000
CON6	Conductivity Pad 6	22.60	BLK	3.000
UIR2	Current Button R No Delay - Pad 2	22.36	NO	
UIR4	Current Button R No Delay - Pad 4	22.36	NO	
UIR6	Current Button R No Delay - Pad 6	22.36	NO	
UIX2	Current Button X No Delay - Pad 2	22.36	NO	
UIX4	Current Button X No Delay - Pad 4	22.36	NO	
UIX6	Current Button X No Delay - Pad 6	22.36	NO	
TPUL	Tension Pull	22.60	NO	
ARM1	Caliper 1 measurement	22.36	BLK	0.000
ARM2	Caliper 2 measurement	22.36	BLK	0.000
ARM3	Caliper 3 measurement	22.36	BLK	0.000
ARM4	Caliper 4 measurement	22.36	BLK	0.000
ARM5	Caliper 5 measurement	22.36	BLK	0.000
ARM6	Caliper 6 measurement	22.36	BLK	0.000
MOTV	Motor Voltage Monitor 1	22.36	BLK	0.000
PRES	Caliper percentage of total compression of the spring	19.83	BLK	0.000
HAZI	Hole Azimuth	22.36	NO	
RB	Relative Bearing	22.36	NO	
AZI1	PAD1 Azimuth	22.36	NO	
DEVI	Inclination	22.36	NO	

ACRt Sonde

TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 20in Resolve	0.22	BLK	0.000

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 Reference 12 KHz Real Signal	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	69.74	NO	
MINV	Microlog Lateral	69.74	BLK	0.750
MNOR	Microlog Normal	69.74	BLK	0.750

SDLT Pad				
TPUL	Tension Pull	69.54	NO	
NAB	Near Above	69.37	BLK	0.920
NHI	Near Cesium High	69.37	BLK	0.920
NLO	Near Cesium Low	69.37	BLK	0.920
NVA	Near Valley	69.37	BLK	0.920
NBA	Near Barite	69.37	BLK	0.920
NDE	Near Density	69.37	BLK	0.920
NPK	Near Peak	69.37	BLK	0.920
NLI	Near Lithology	69.37	BLK	0.920
NBAU	Near Barite Unfiltered	69.37	BLK	0.250
NLIU	Near Lithology Unfiltered	69.37	BLK	0.250
FAB	Far Above	69.72	BLK	0.250
FHI	Far Cesium High	69.72	BLK	0.250
FLO	Far Cesium Low	69.72	BLK	0.250
FVA	Far Valley	69.72	BLK	0.250
FBA	Far Barite	69.72	BLK	0.250
FDE	Far Density	69.72	BLK	0.250
FPK	Far Peak	69.72	BLK	0.250
FLI	Far Lithology	69.72	BLK	0.250
PTMP	Pad Temperature	69.55	BLK	0.920
NHV	Near Detector High Voltage	68.95	NO	
FHV	Far Detector High Voltage	68.95	NO	
ITMP	Instrument Temperature	68.95	NO	
DDHV	Detector High Voltage	68.95	NO	

Data: OSAGE_3314_13_0\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 30-Aug-12 23:27:40**

COMPANY	**OSAGE RESOURCES LLC**		
WELL	**OSAGE 3314 13-09 SWD**		
FIELD	**MEDICINE LODGE BOGGS**		
COUNTY	**BARBER**	STATE	**KANSAS**

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

HALLIBURTON

Plot Time: 31-Aug-12 03:02:58
Plot Range: 190 ft to 5774.75 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006
Plot File: \\-LOCAL-\OSAGE_3314_13_0\...\ACRT_1_lib

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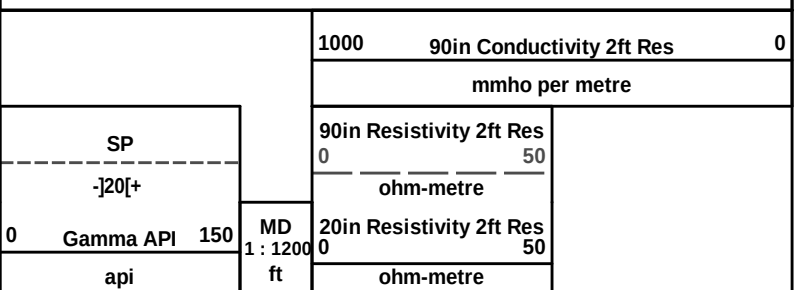

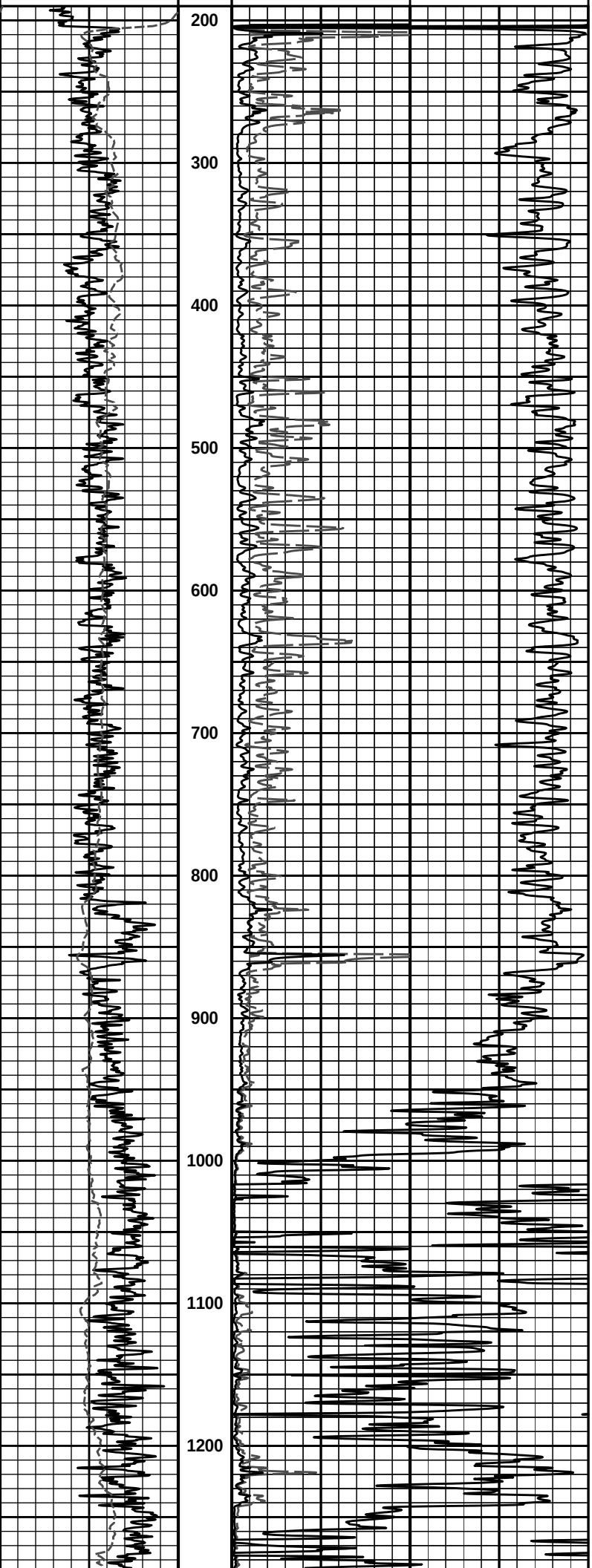
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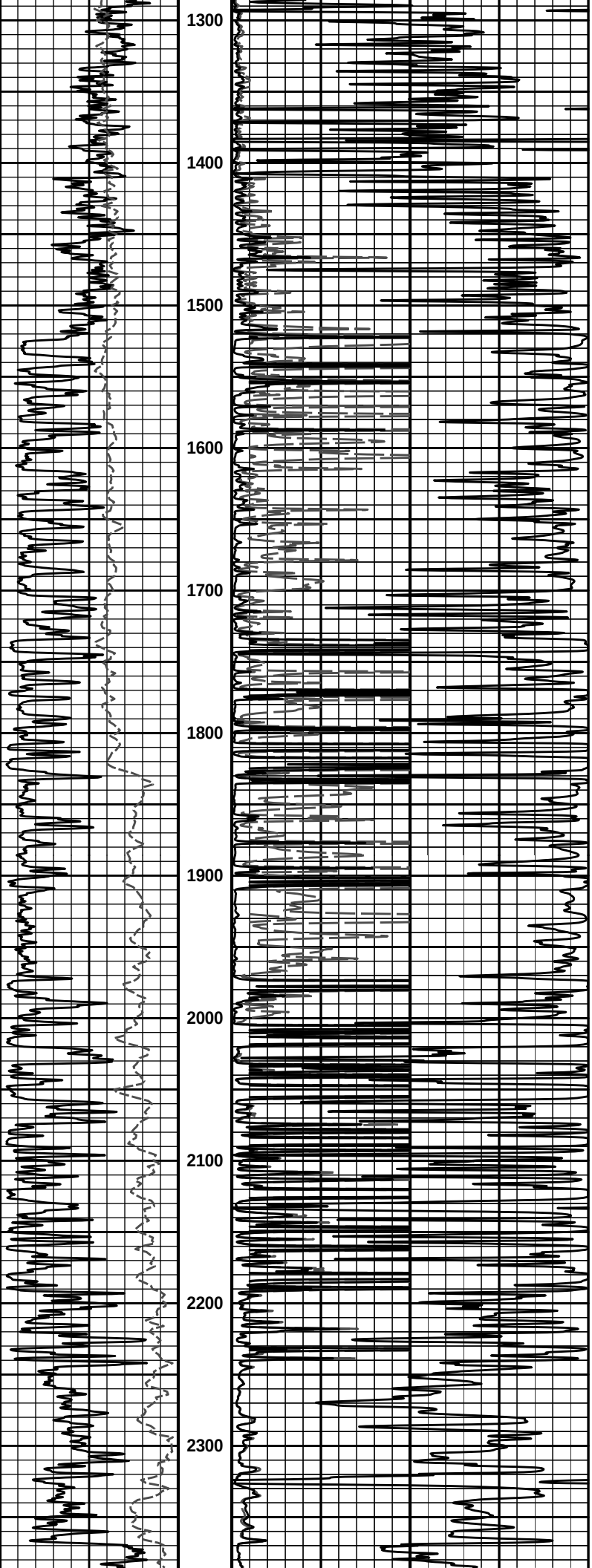
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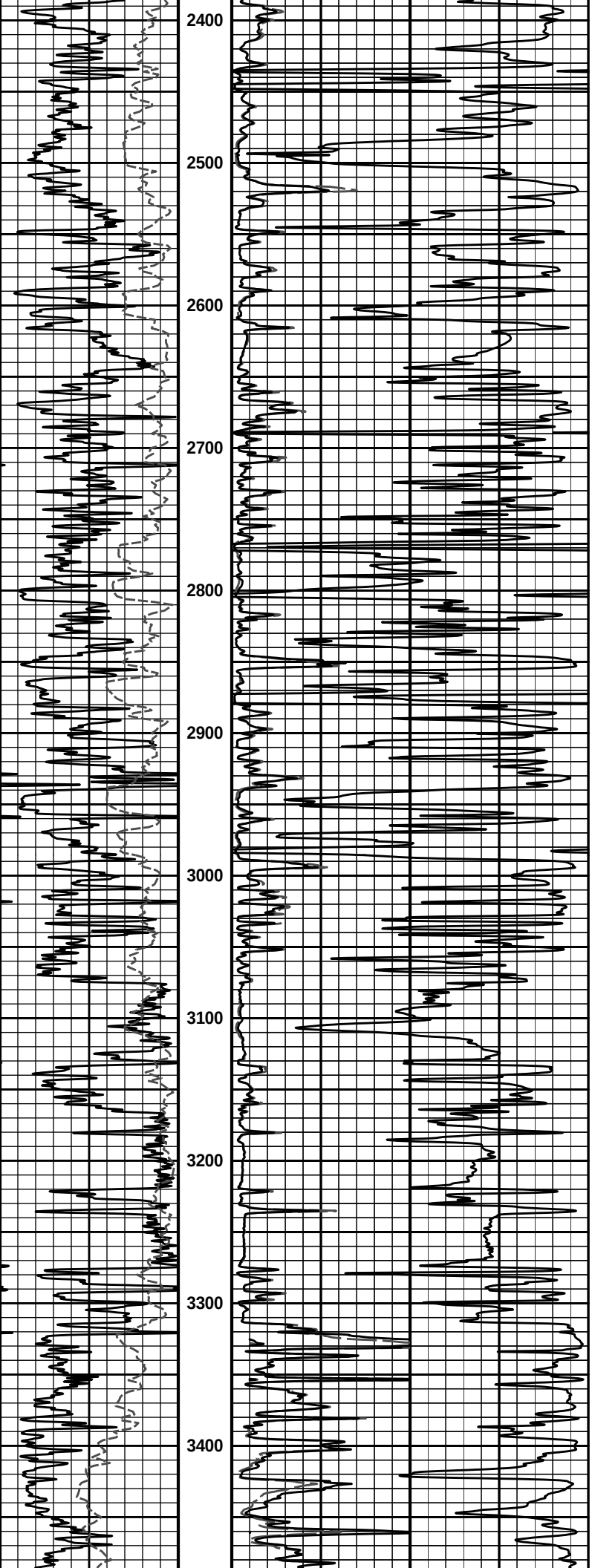
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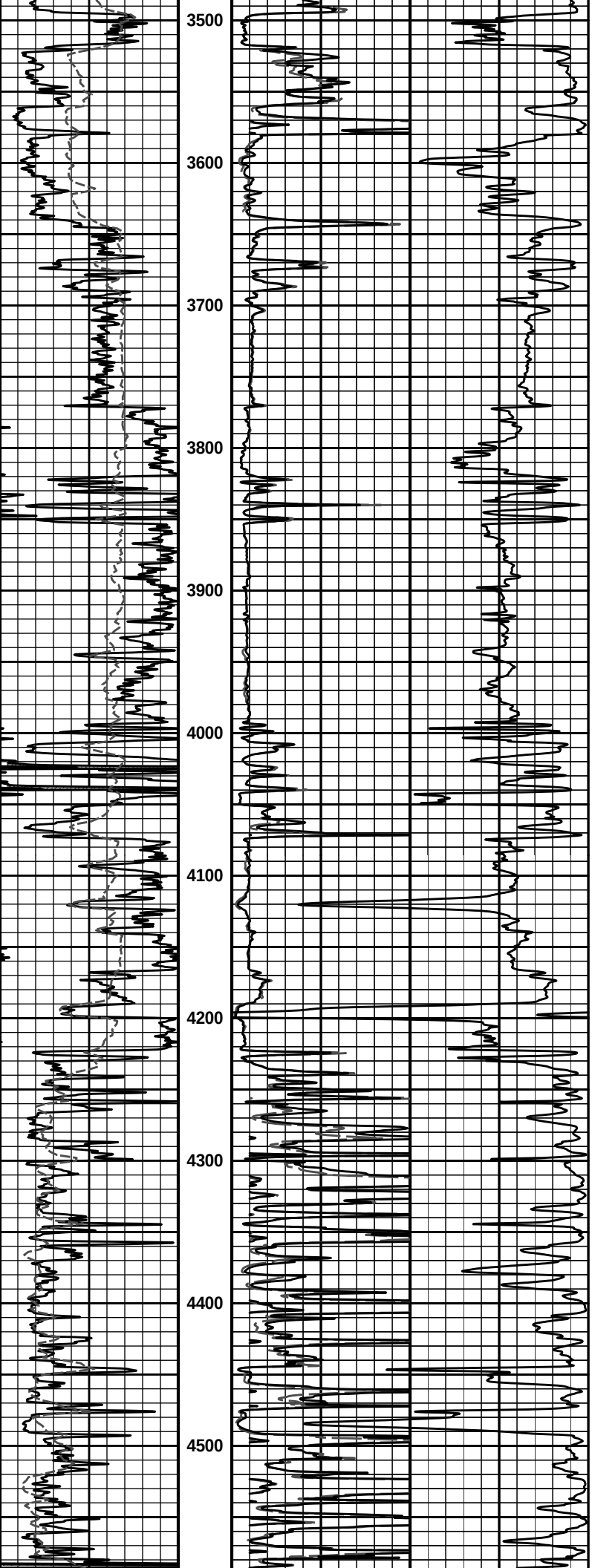
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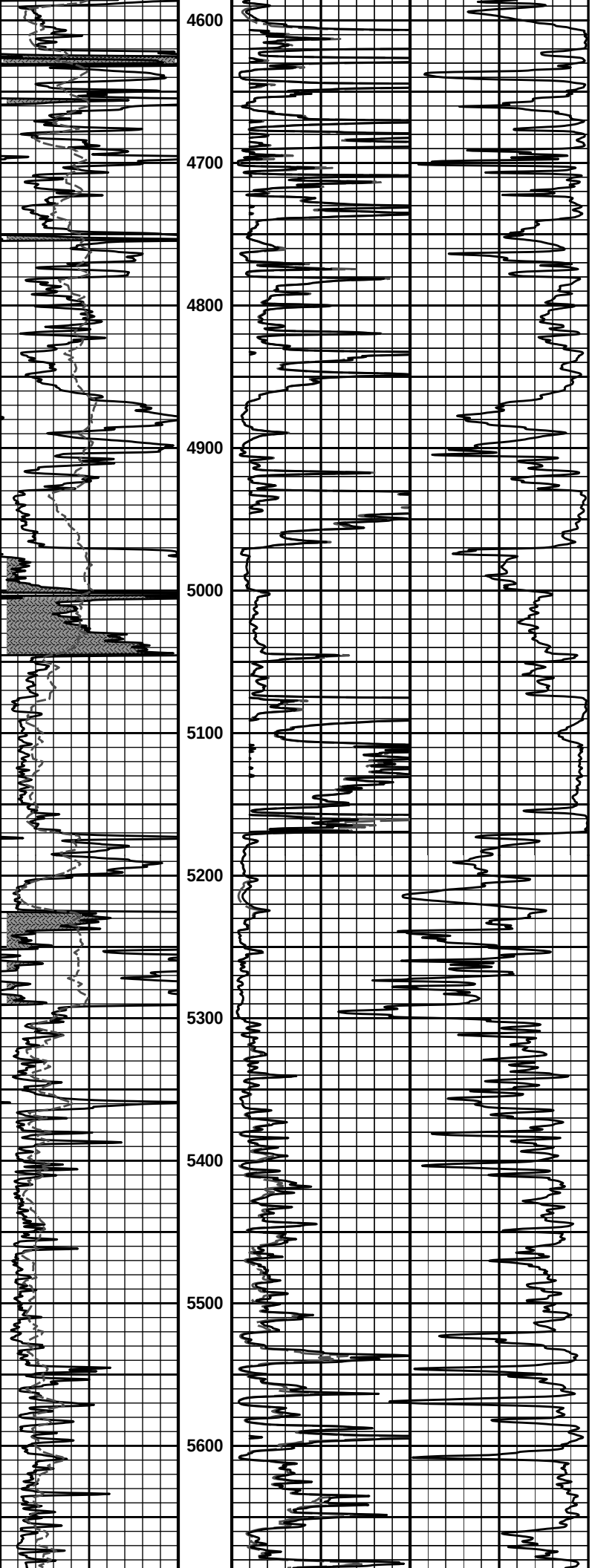
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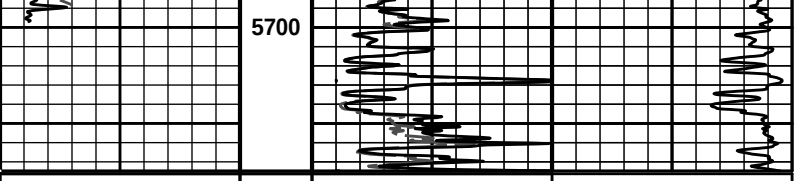

0 Gamma API 150	MD 1 : 1200 ft	20in Resistivity 2ft Res 0 50
api		ohm-metre
SP		90in Resistivity 2ft Res 0 50
-]20[+		ohm-metre
		1000 90in Conductivity 2ft Res 0
		mmho per metre

HALLIBURTON

Plot Time: 31-Aug-12 03:03:01
Plot Range: 190 ft to 5774.75 ft
Data: OSAGE_3314_13_0\Well Based\DAQ-0001-006\
Plot File: \\-LOCAL-\OSAGE_3314_13_0\...\ACRT_1_lib

1 INCH MAIN LOG