HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY	OXY USA INC
WELL	GRIFFIN C-1
FIELD	HUGOTON GAS AREA
COUNTY	HASKELL
STATE	KANSAS

COMPANY **OXY USA INC**
WELL **GRIFFIN C-1**
FIELD **HUGOTON GAS AREA**
COUNTY **HASKELL** STATE **KANSAS**

API No. 15-081-22005-00-00
Location 1816' FNL & 2120' FWL SW NE SE NW

Other Services: MICROLOG DSNT, SDLT BSAT

Sect. 11 Twp. 28S Rge. 33W

Permanent Datum GL Elev. 2979.6 ft
Log measured from KB 14.0 ft above perm. Datum
Drilling measured from KB

Elev.: K.B. 2983.6 ft
D.F. 2982.6 ft
G.L. 2979.6 ft

Date		02-Dec-12			
Run No.		ONE			
Depth - Driller		5796.00 ft			
Depth - Logger		5765.0 ft			
Bottom - Logged Interval		5755.0 ft			
Top - Logged Interval		1804.0 ft			
Casing - Driller		8.625 in @ 1806.0 ft		@	@
Casing - Logger		1804.0 ft			
Bit Size		7.875 in		@	@
Type Fluid in Hole		WATER BASED MUD			
Density	Viscosity	9.2 ppg	48.00 s/qt		
PH	Fluid Loss	9.70 pH	9.2 cptm		
Source of Sample		FLOW LINE			
Rm @ Meas. Temperature		1.050 ohmm @ 75.00 degF		@	@
Rmf @ Meas. Temperature		0.88 ohmm @ 75.00 degF		@	@
Rmc @ Meas. Temperature		1.250 ohmm @ 75.00 degF		@	@
Source Rmf	Rmc	MEASURED	MEASURED		
Rm @ BHT		0.57 ohmm @ 143.0 degF		@	@
Time Since Circulation		9.0 hr			
Time on Bottom		02-Dec-12 16:34			
Max. Rec. Temperature		143.0 degF @ 5765.0 ft		@	@
Equipment	Location	10546696	LIBERAL		
Recorded By		J. BOLLOM			
Witnessed By		C. WYLIE	E. ZION		

Fold here

Service Ticket No.: 900041481 API Serial No.: 15-081-22005-00-00 PGM Version: WL INSITE R3.6.0 (Build 3)

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	1.5 S.O.	N/A
	I5059_S8385			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.		Run No.	
Serial No.	11039640	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.	GTET	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

GENERAL	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	5765	1804	REC	0	150									

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING

CHLORIDES REPORTED AT 2,000 MG/L

LCM REPORTED AT 6 LB/BBL

GTET-DSNT-SDLT-BSAT-ACRT RUN IN COMBINATION

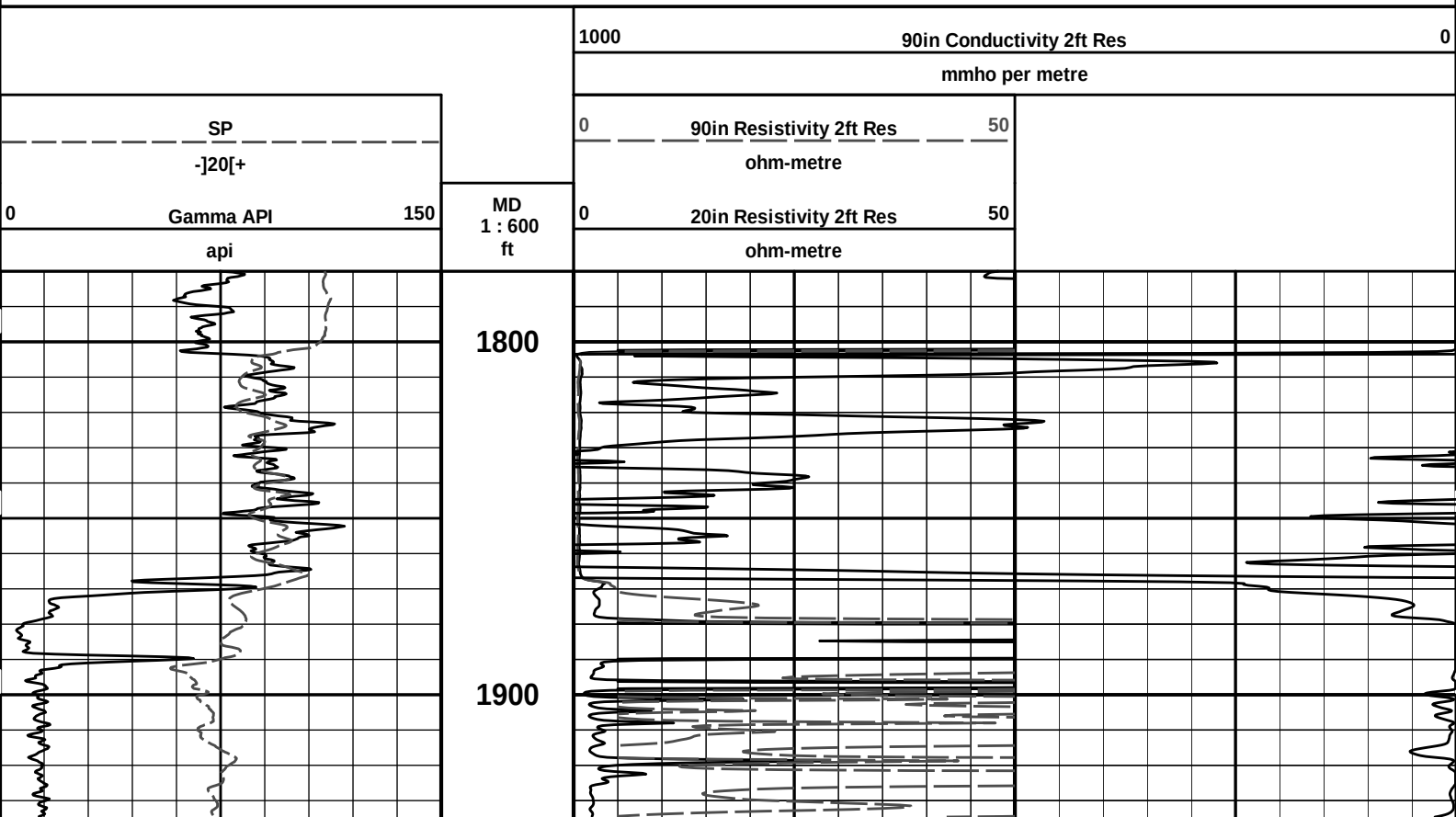
TODAY'S CREW: M. GRAHAM & V. JAIME

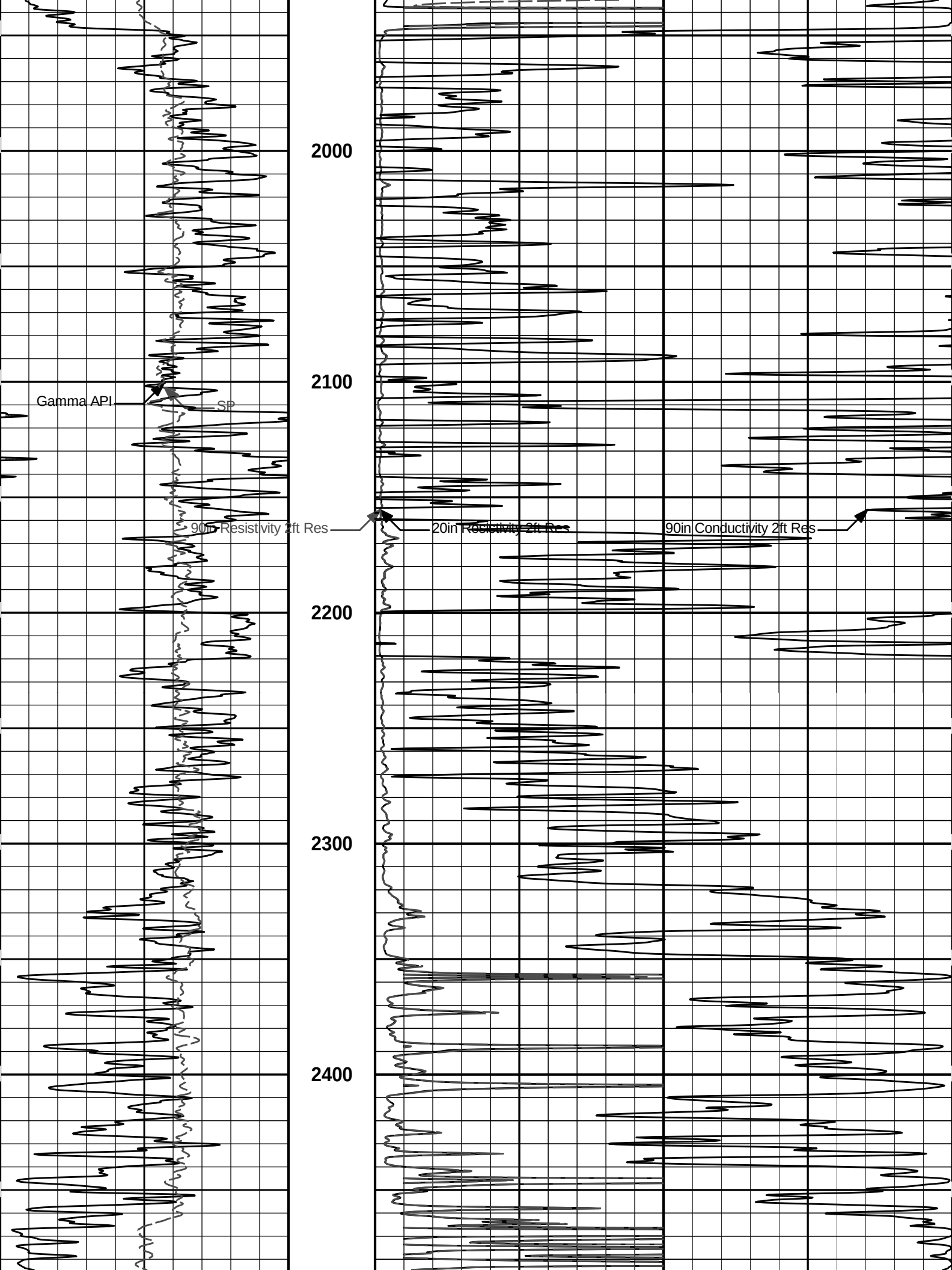
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES

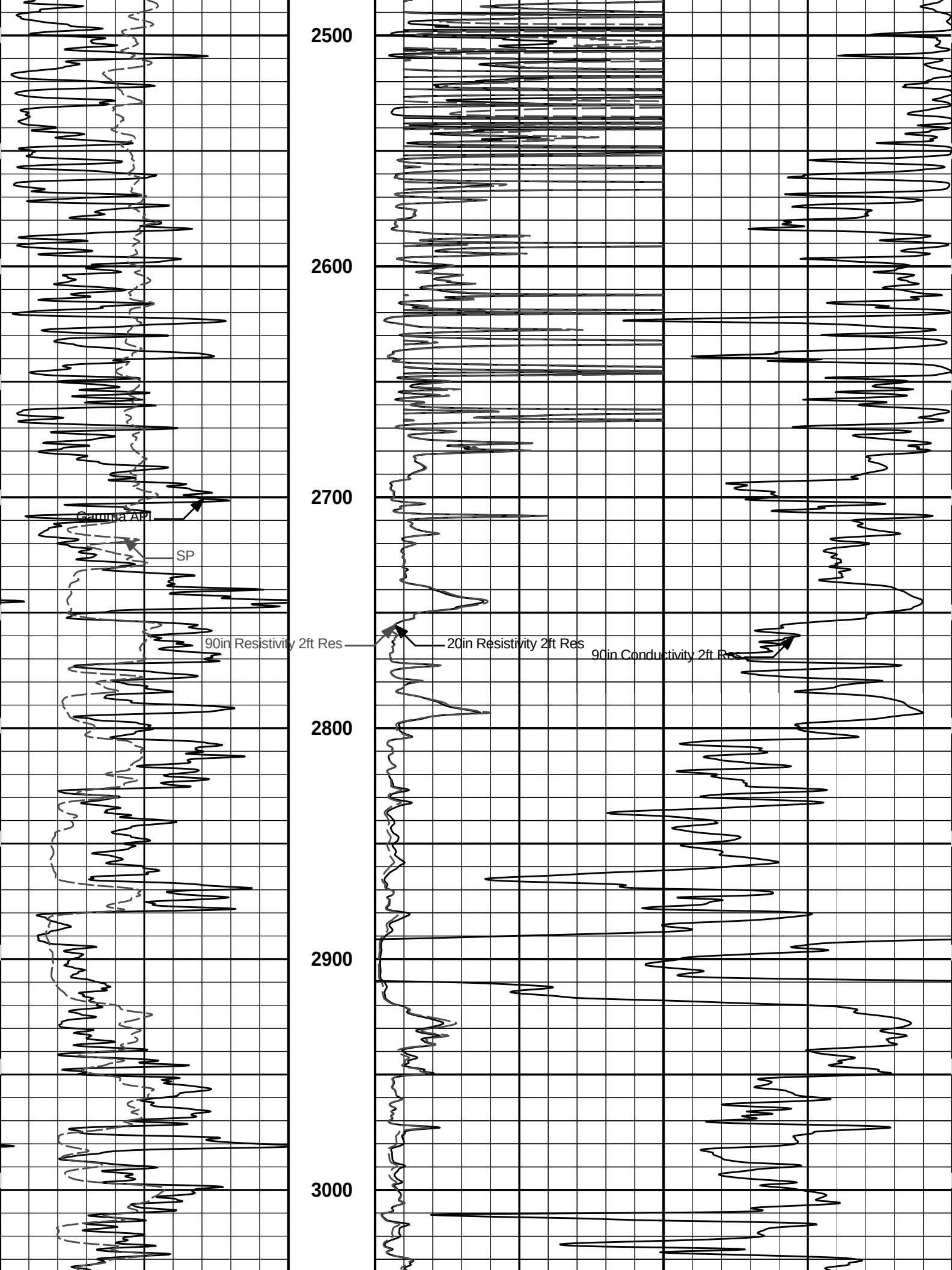
HALLIBURTON

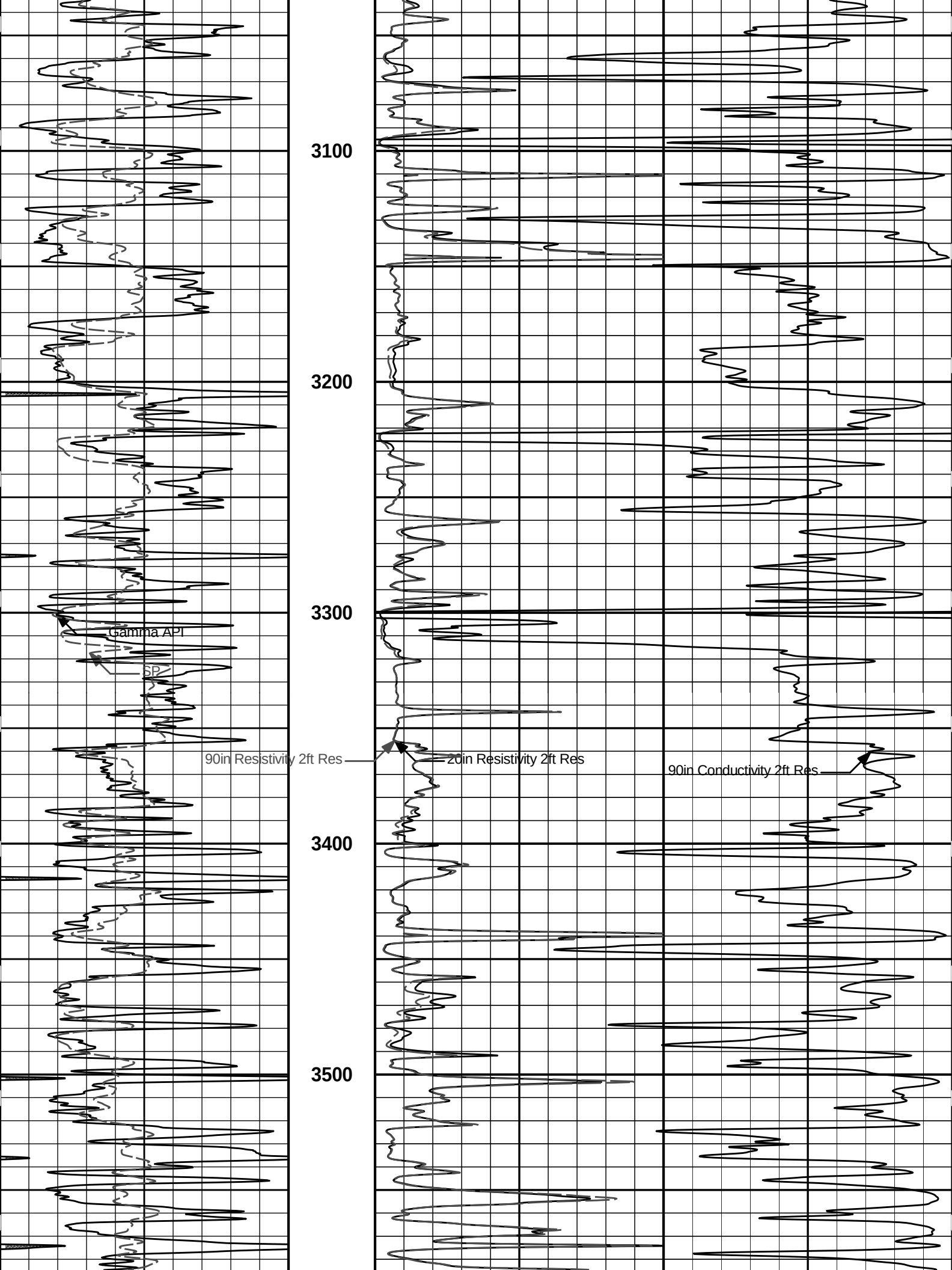
Plot Time: 02-Dec-12 20:24:56
Plot Range: 1780 ft to 5767.92 ft
Data: GRIFFIN_C_1\Well Based\CASING
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_2_lib

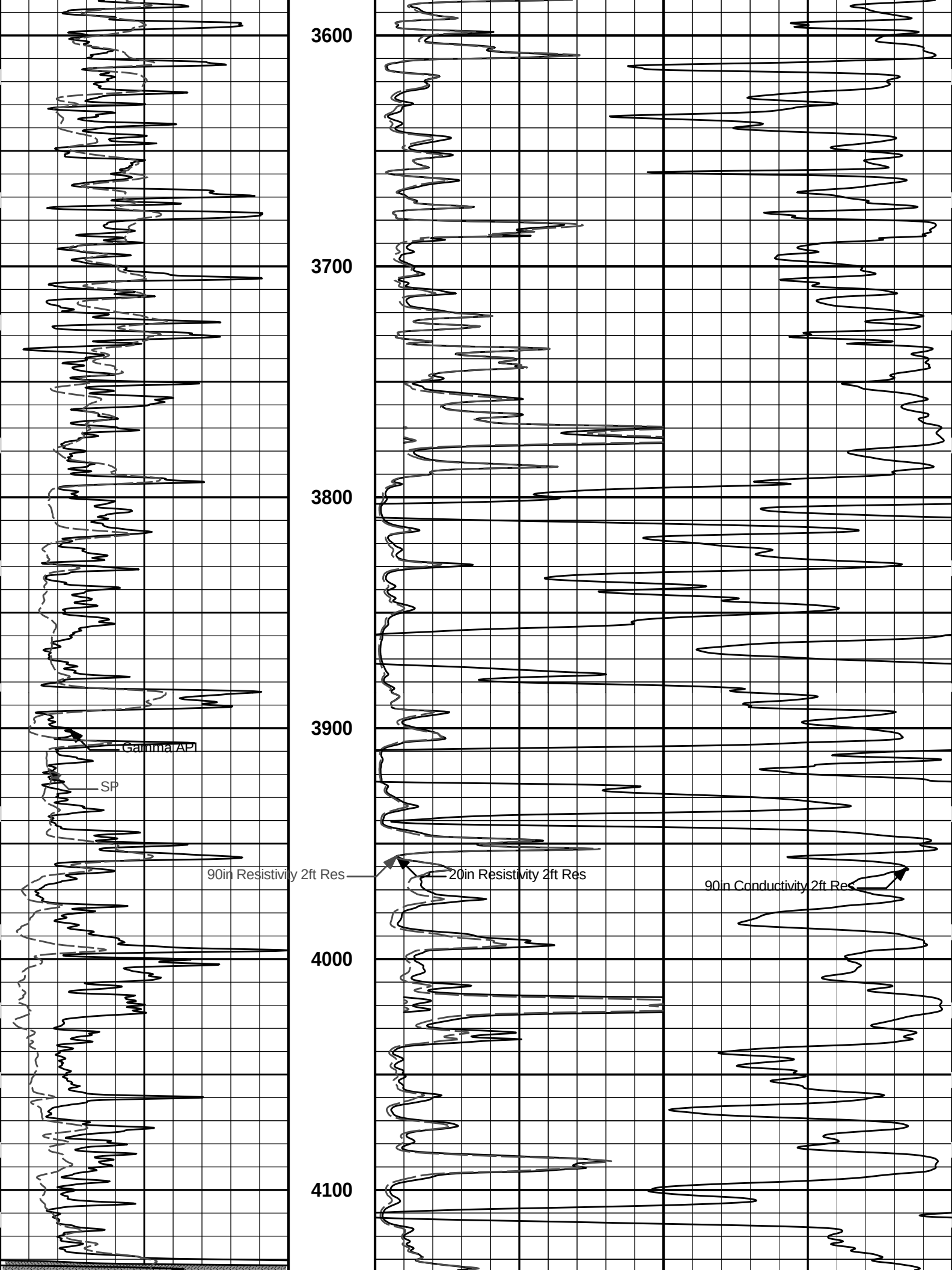
2 INCH MAIN LOG

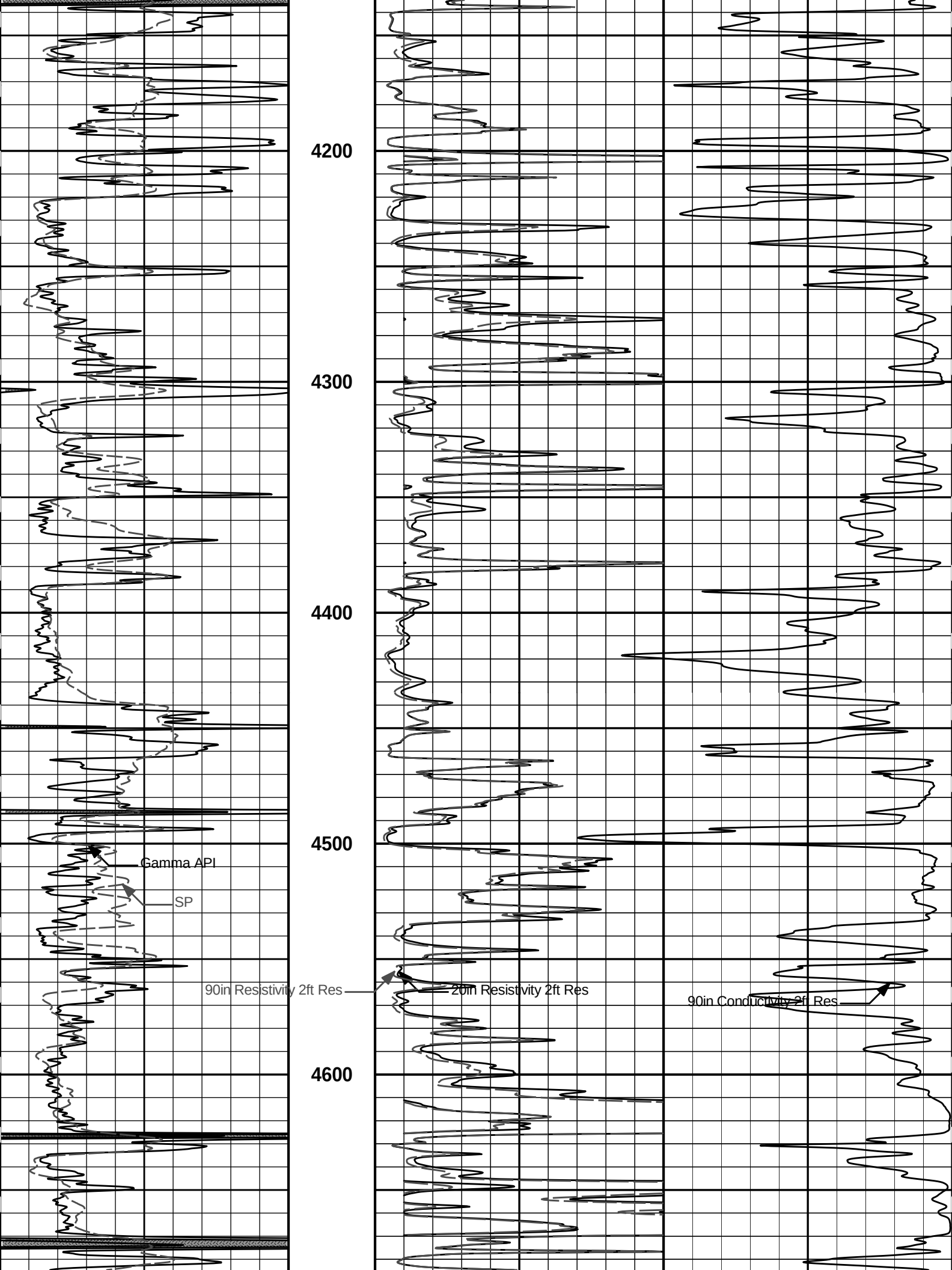


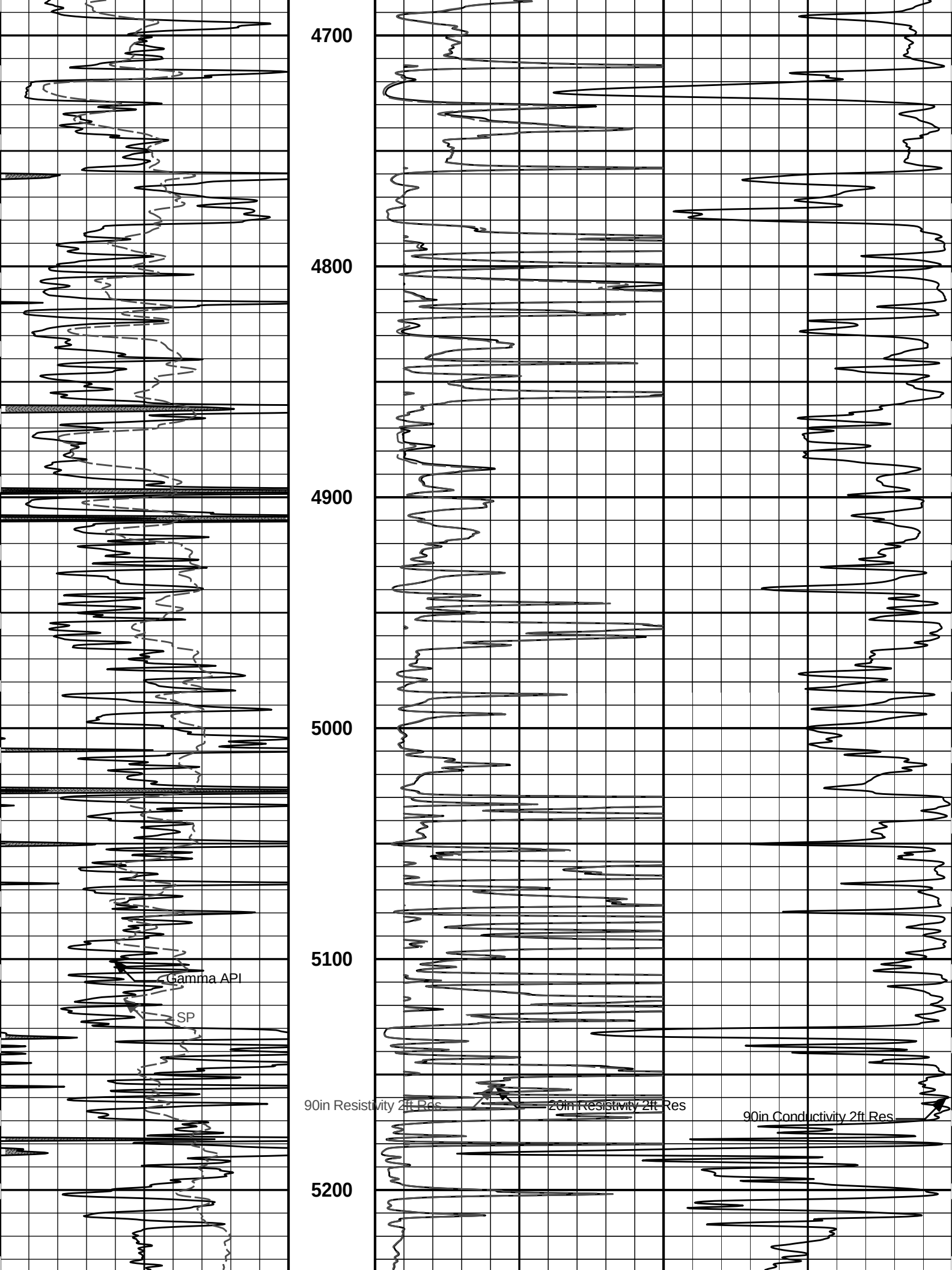

2000
2100
2200
2300
2400
Gamma API
SP
90in Resistivity 2ft Res
20in Resistivity 2ft Res
90in Conductivity 2ft Res


2500
2600
2700
2800
2900
3000
Gamma API
SP
90in Resistivity 2ft Res
20in Resistivity 2ft Res
90in Conductivity 2ft Res


3100
3200
3300
3400
3500
Gamma API
SP
90in Resistivity 2ft Res
20in Resistivity 2ft Res
90in Conductivity 2ft Res


3600
3700
3800
3900
4000
4100
Gamma API
SP
90in Resistivity 2ft Res
20in Resistivity 2ft Res
90in Conductivity 2ft Res


4200
4300
4400
4500
4600
Gamma API
SP
90in Resistivity 2ft Res
20in Resistivity 2ft Res
90in Conductivity 2ft Res


4700
4800
4900
5000
5100
5200
Gamma API
SP
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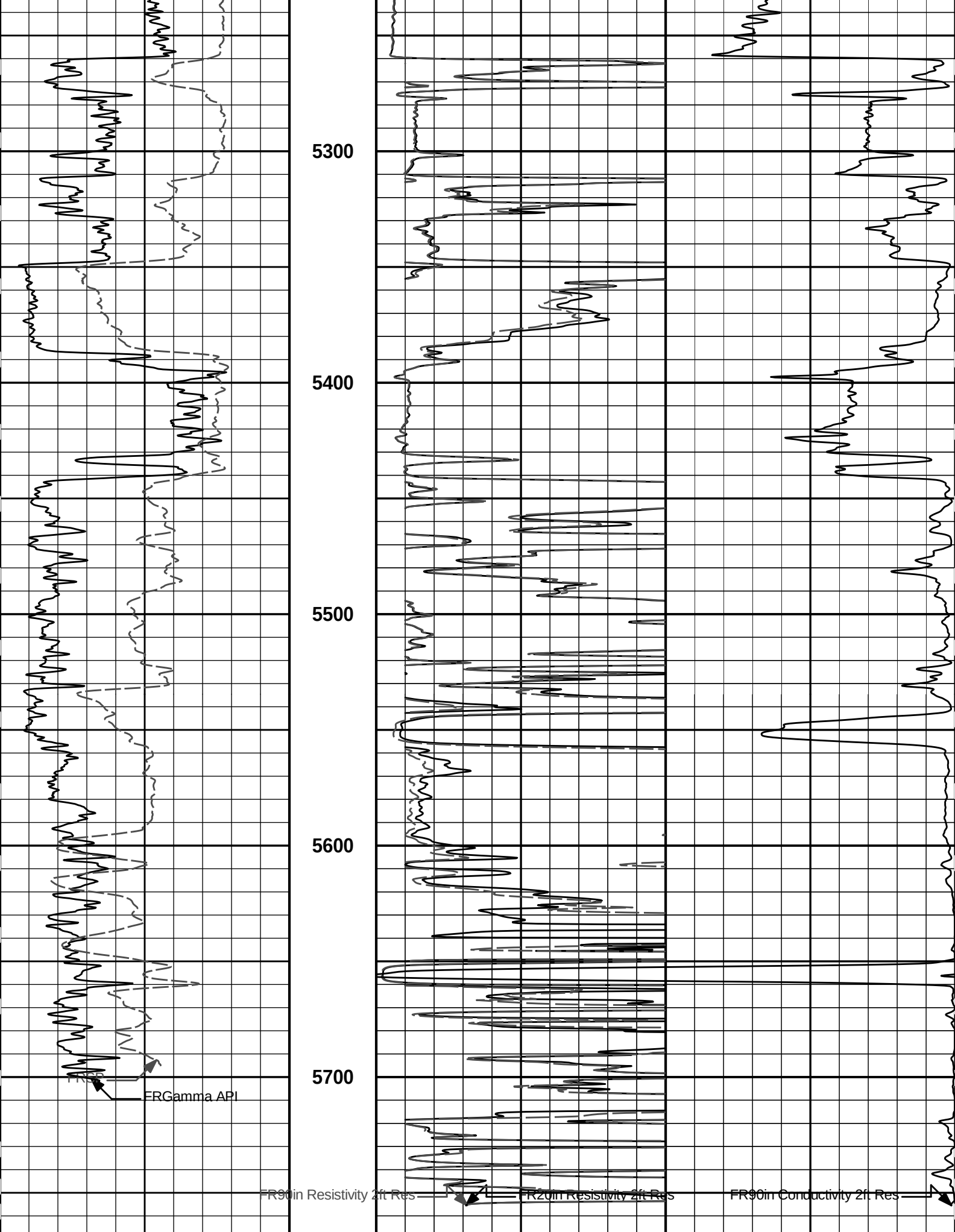
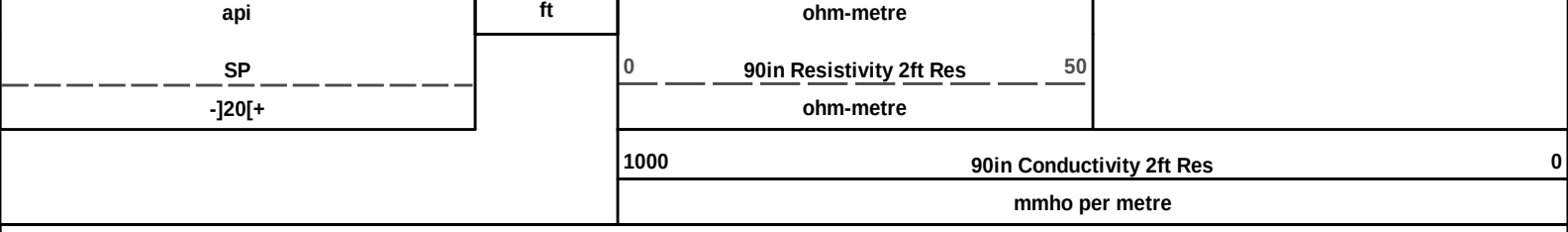
20in Resistivity 2ft Res
90in Conductivity 2ft Res


5300
5400
5500
5600
5700
FRGR
FRGamma API
FR90in Resistivity 2ft Res
FR20in Resistivity 2ft Res
FR90in Conductivity 2ft Res
0
Gamma API
150
MD
1 : 600
0
20in Resistivity 2ft Res
50



HALLIBURTON

Plot Time: 02-Dec-12 20:25:22
Plot Range: 1780 ft to 5767.92 ft
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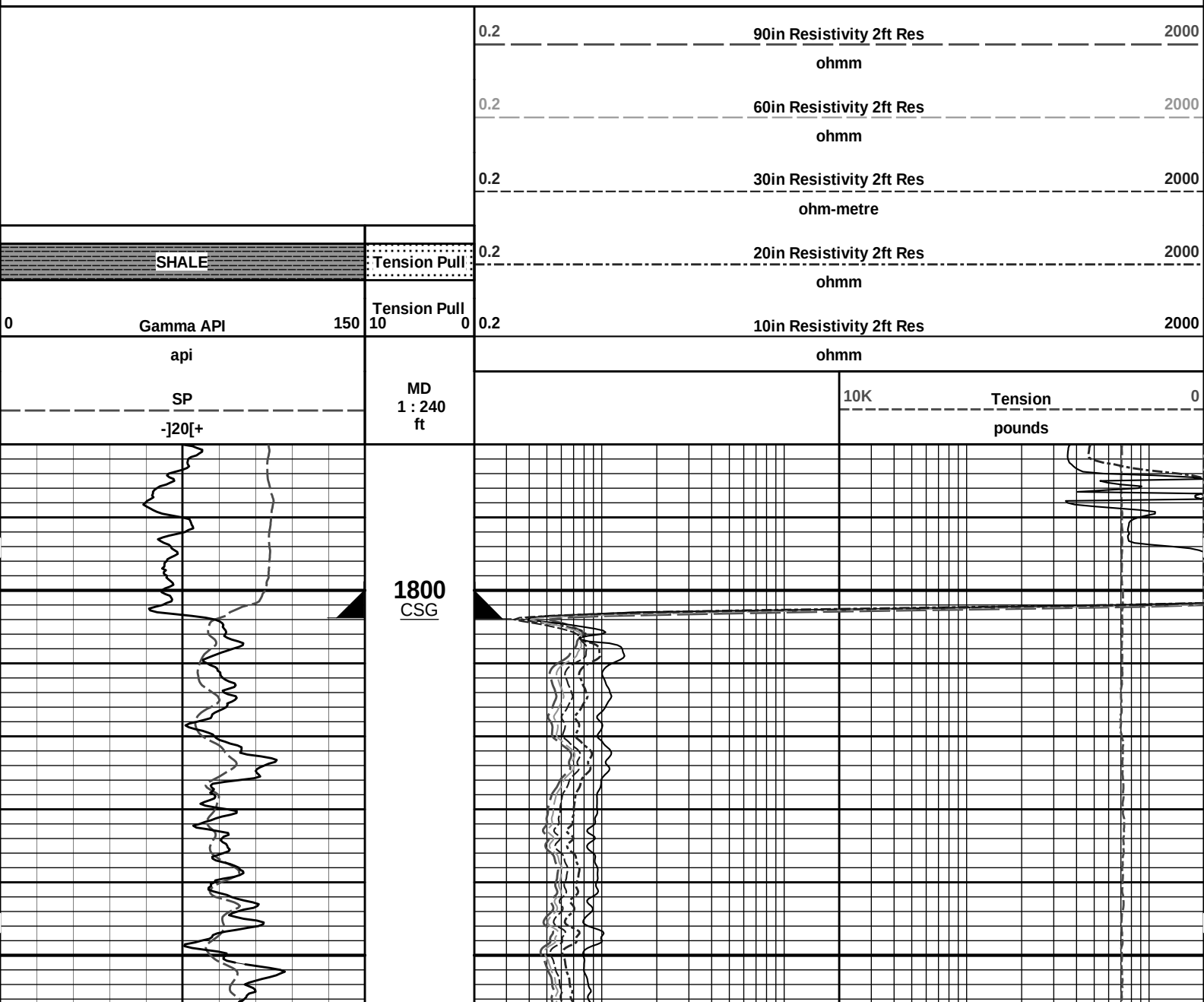
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_2_lib

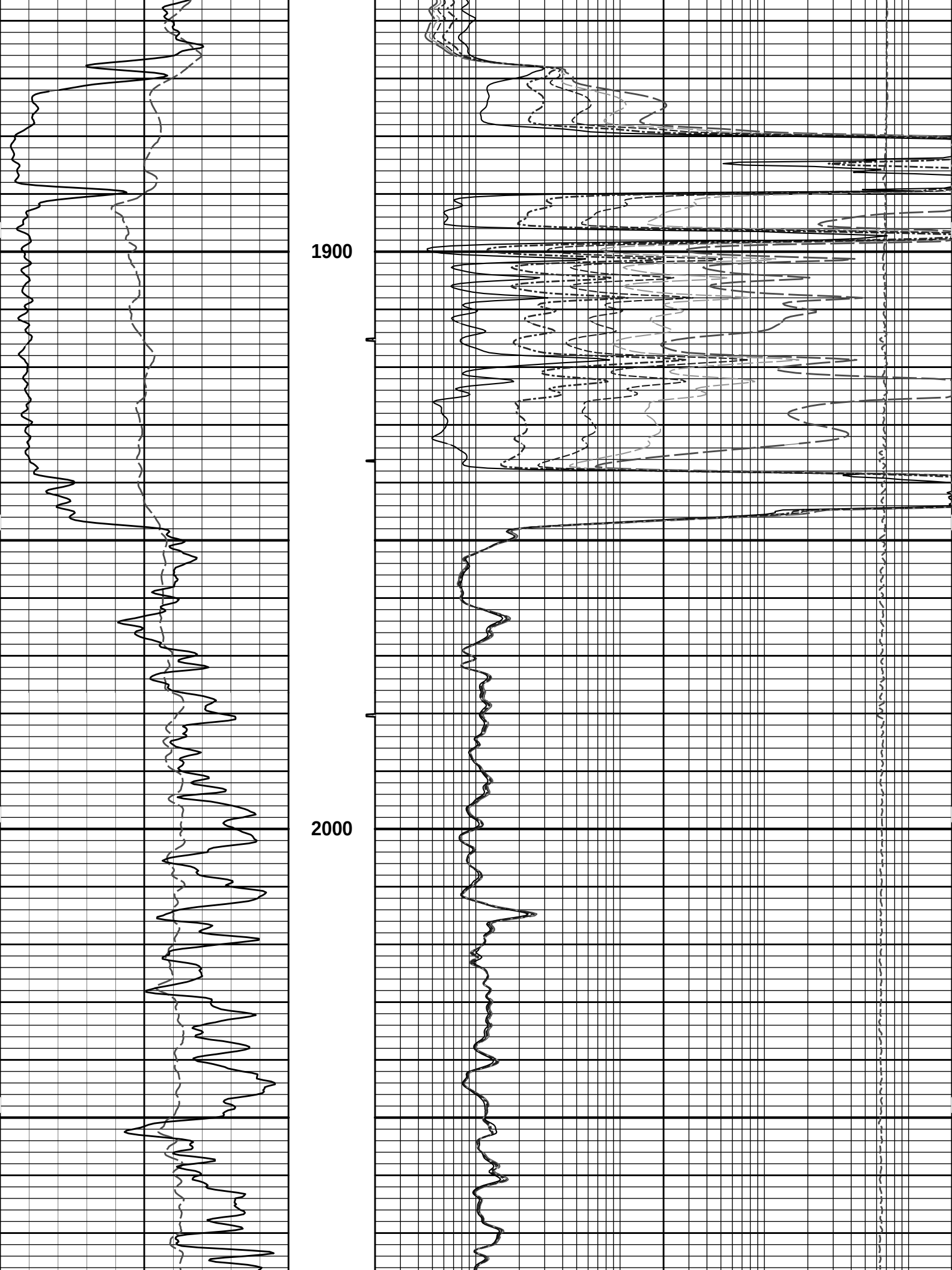
2 INCH MAIN LOG

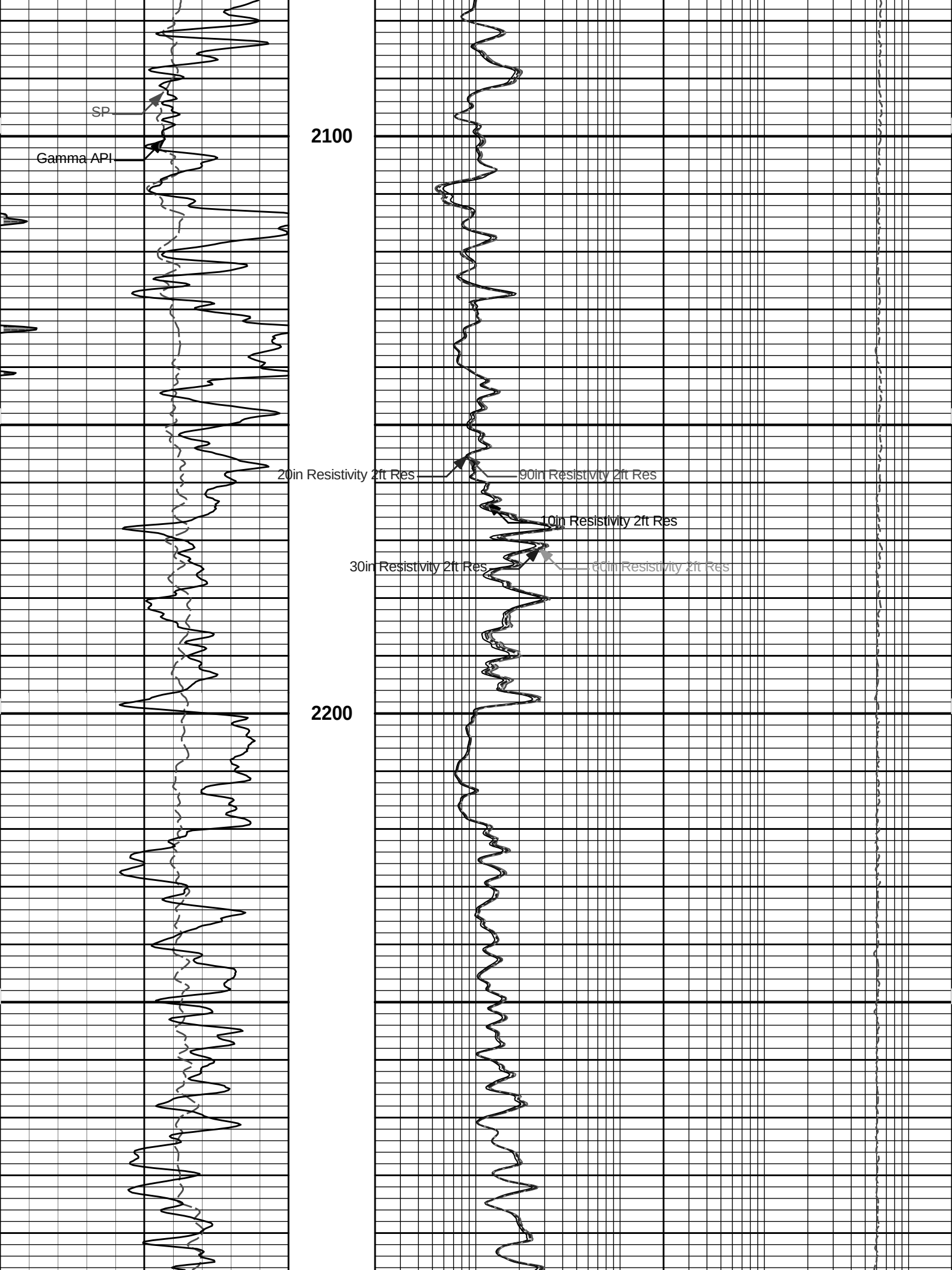
HALLIBURTON

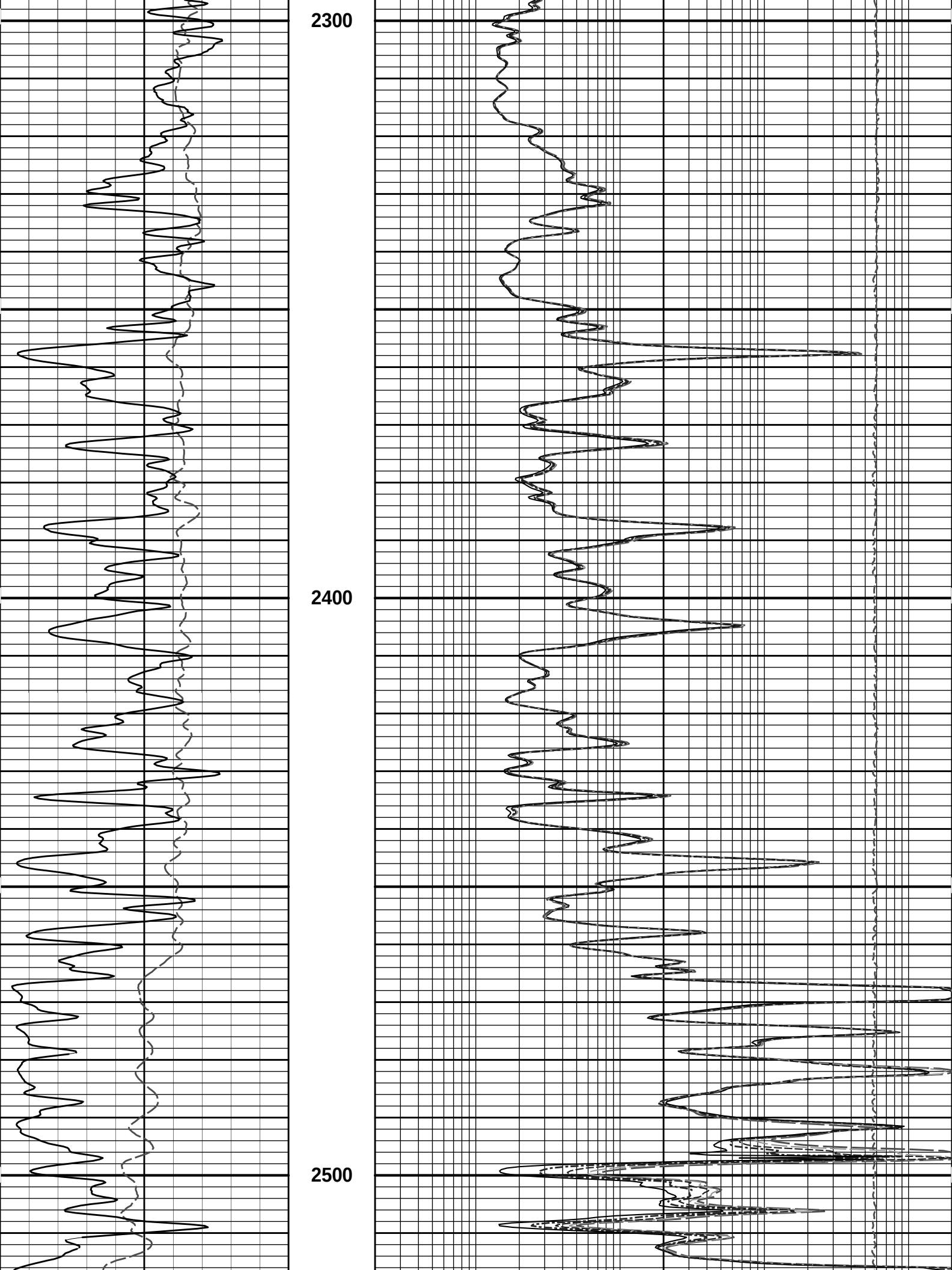
Plot Time: 02-Dec-12 20:25:22
Plot Range: 1780 ft to 5767.92 ft
Data: GRIFFIN_C_1\Well Based\CASING\
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_main_lib

5 INCH MAIN LOG




1900
2000


SP
Gamma API
2100
20in Resistivity 2ft Res
90in Resistivity 2ft Res
10in Resistivity 2ft Res
30in Resistivity 2ft Res
60in Resistivity 2ft Res
2200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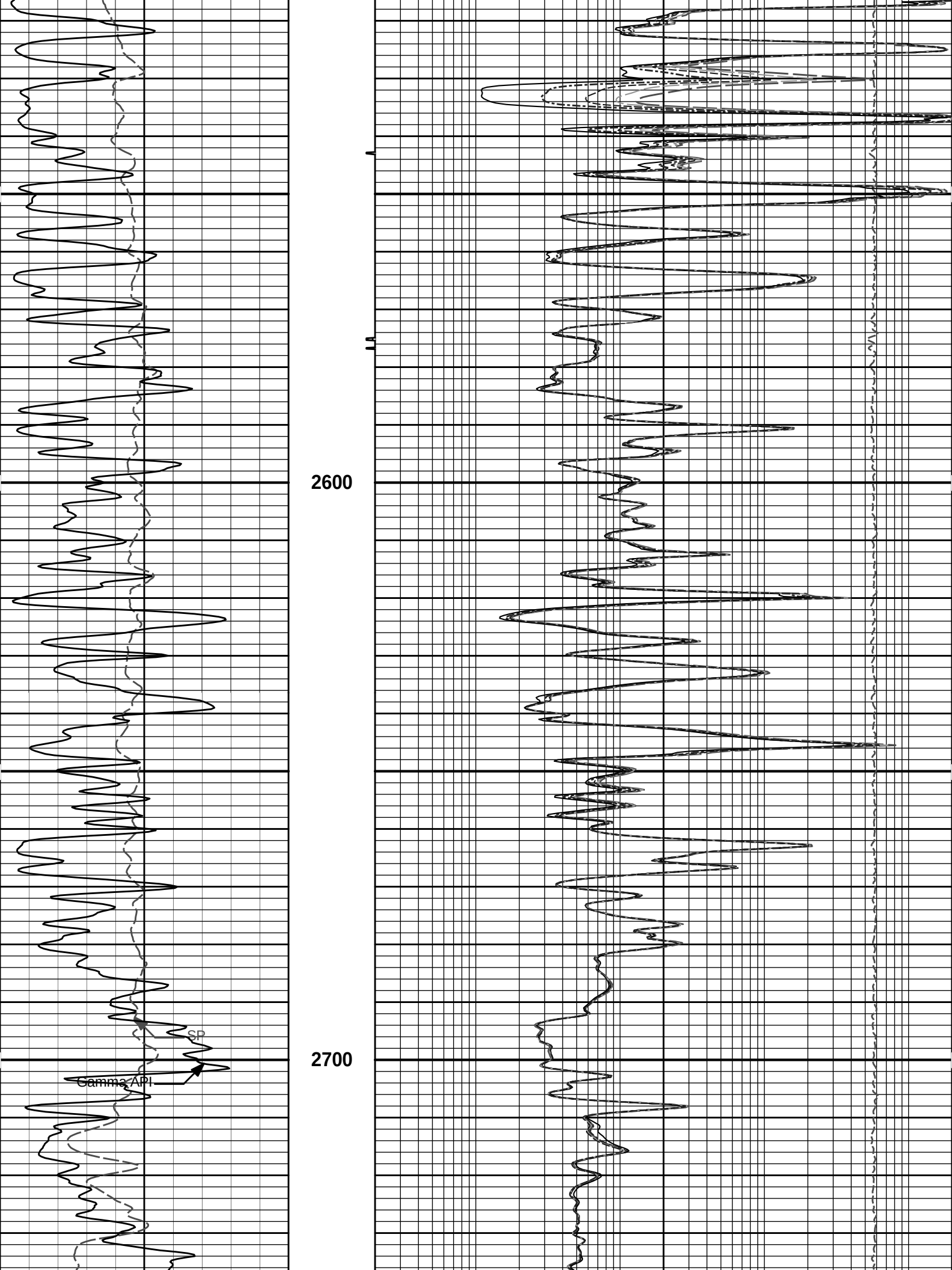
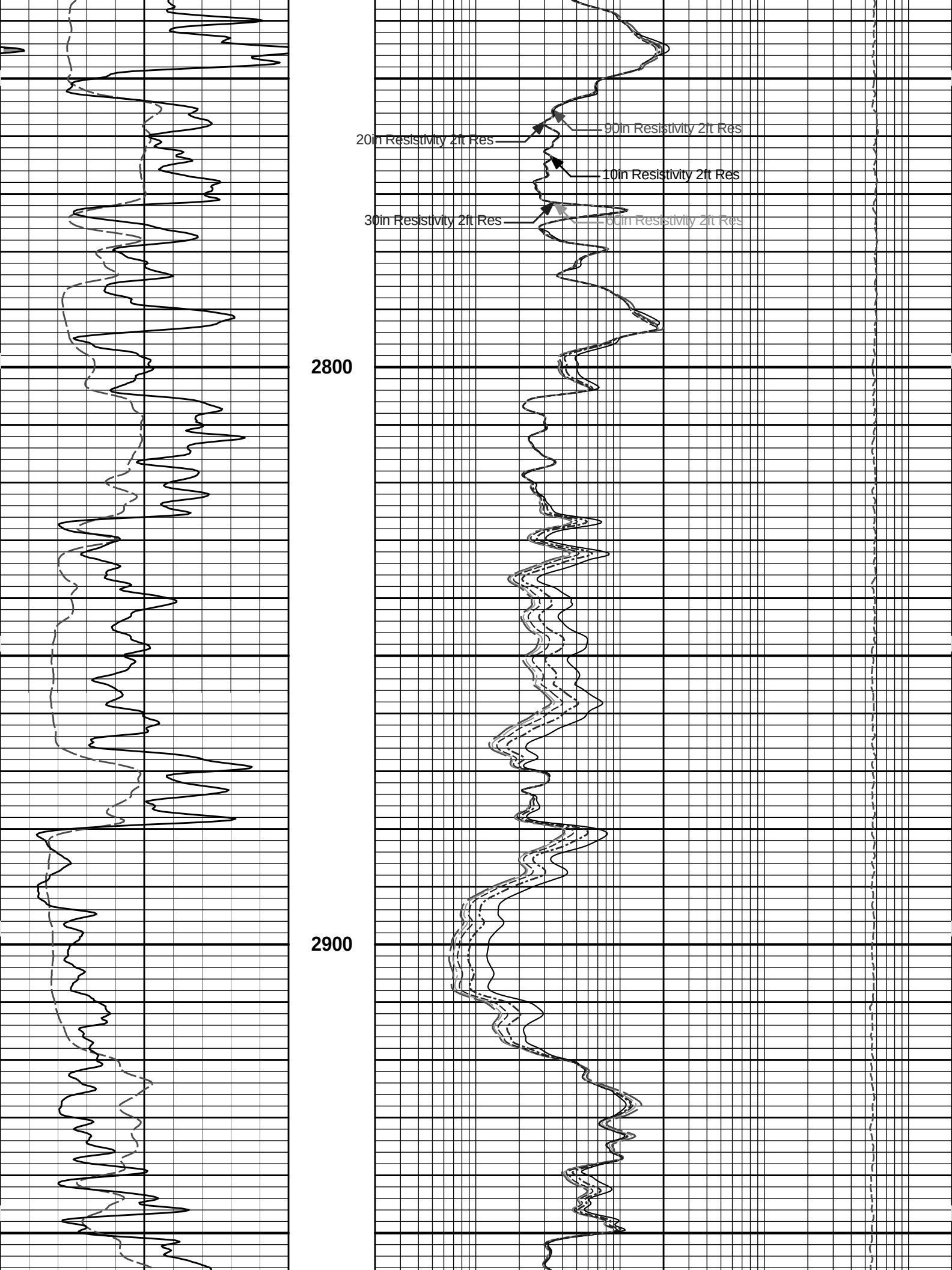
2400
2500


2600
2700
SP
Gamma API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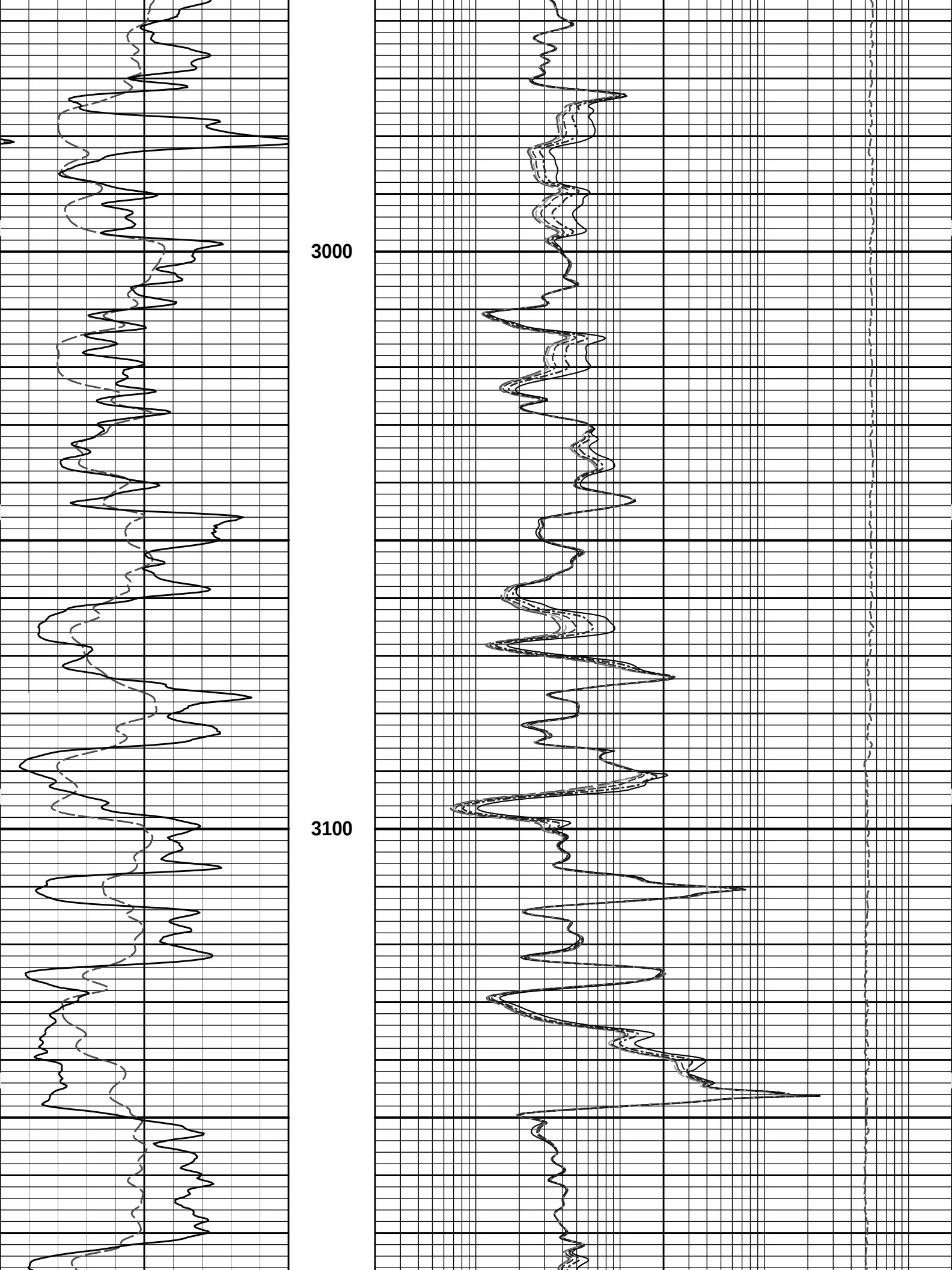
20in Resistivity 2ft Res
10in Resistivity 2ft Res
30in Resistivity 2ft Res
60in Resistivity 2ft Res
2800
2900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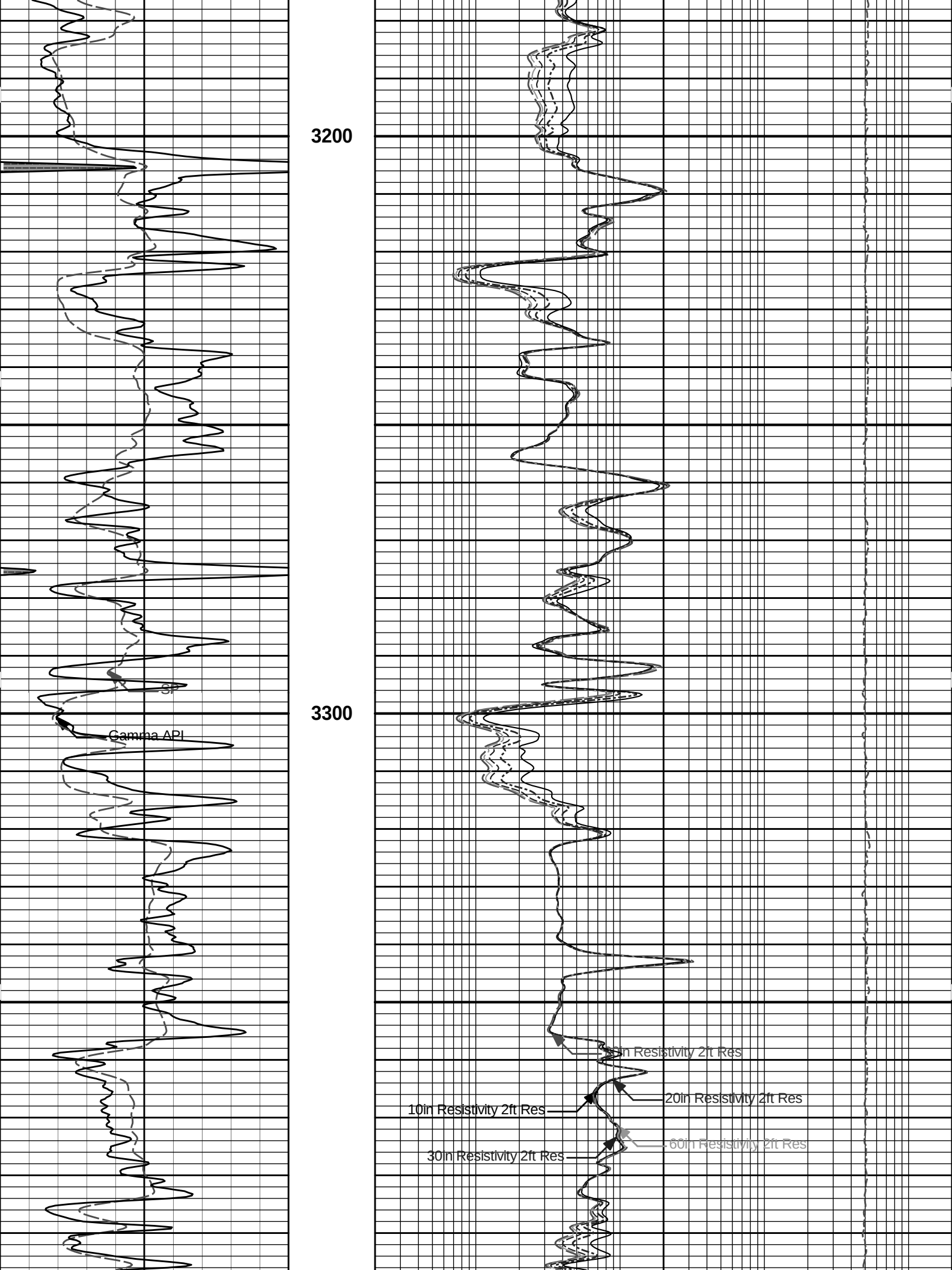
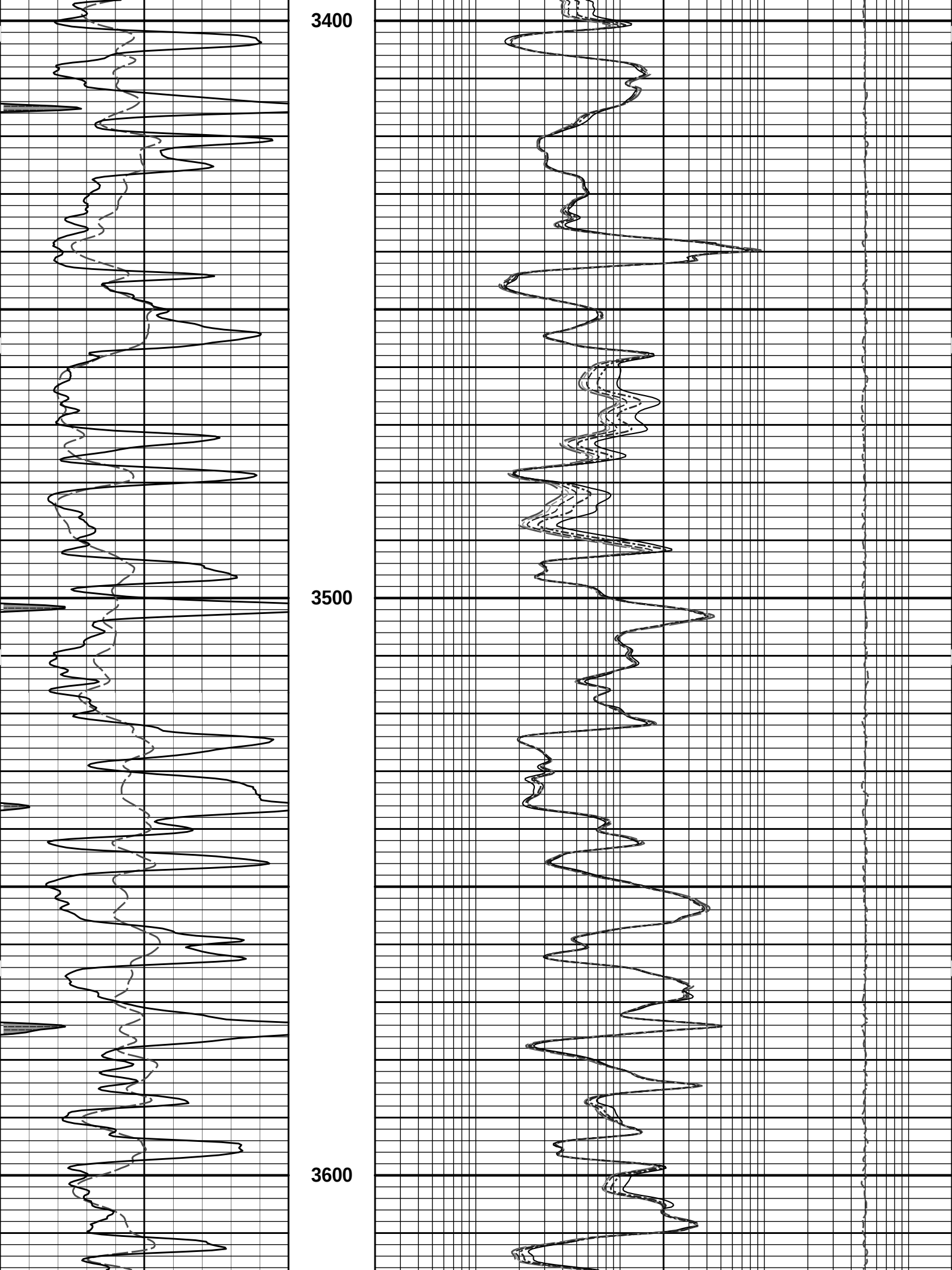

3200
3300
SP
Gamma API
10in Resistivity 2ft Res
20in Resistivity 2ft Res
30in Resistivity 2ft Res
60in Resistivity 2ft Res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3500
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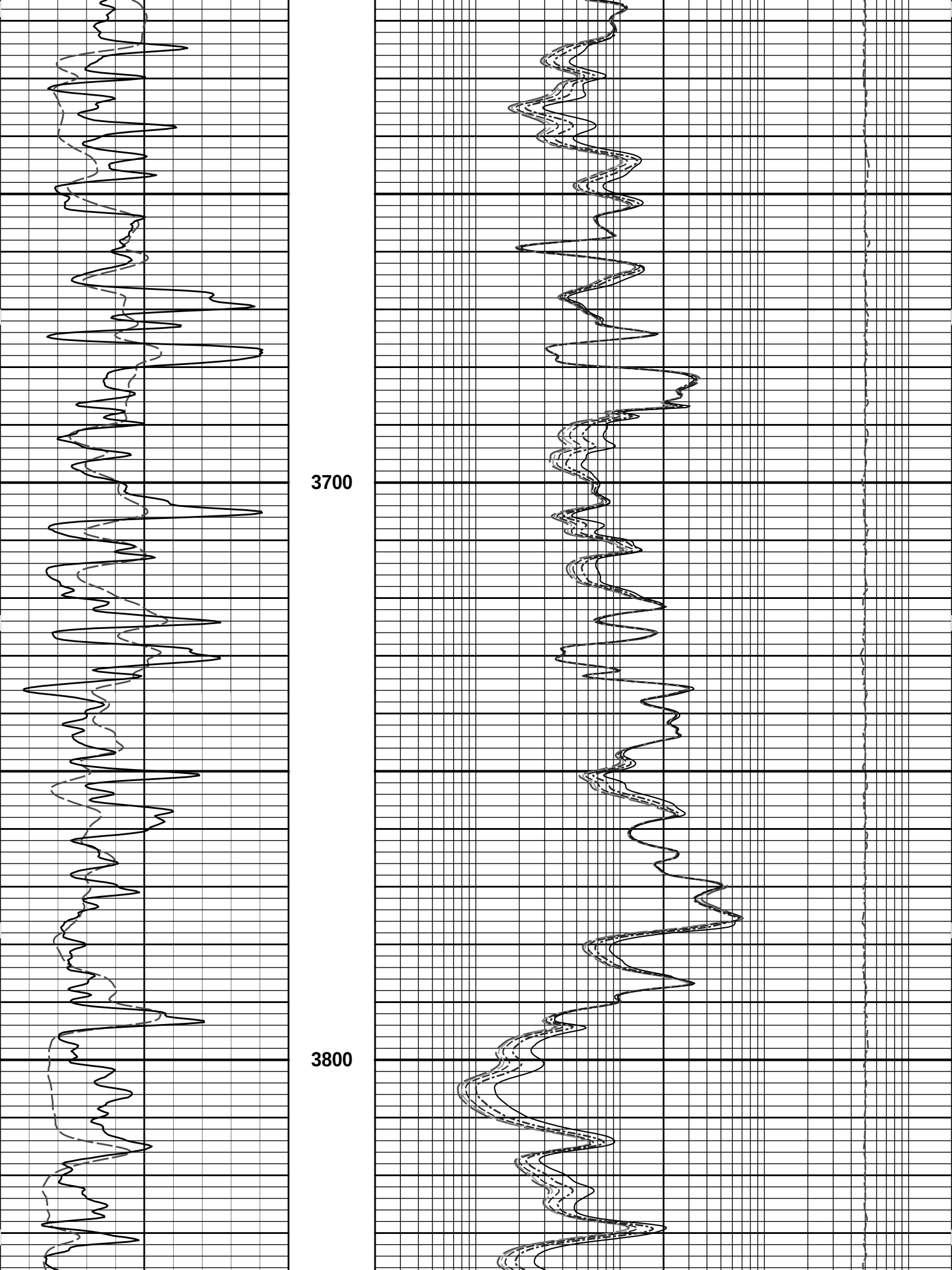
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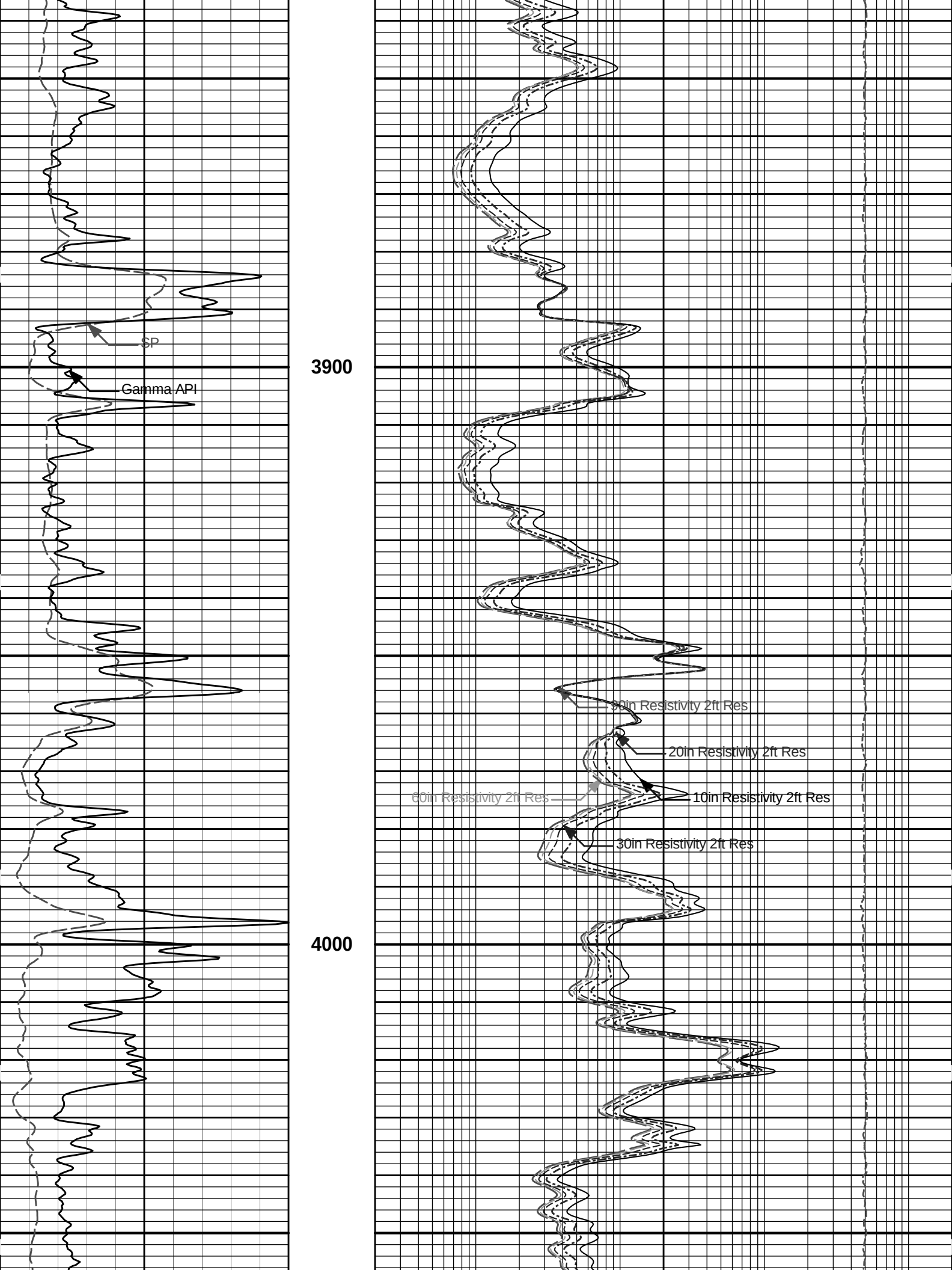
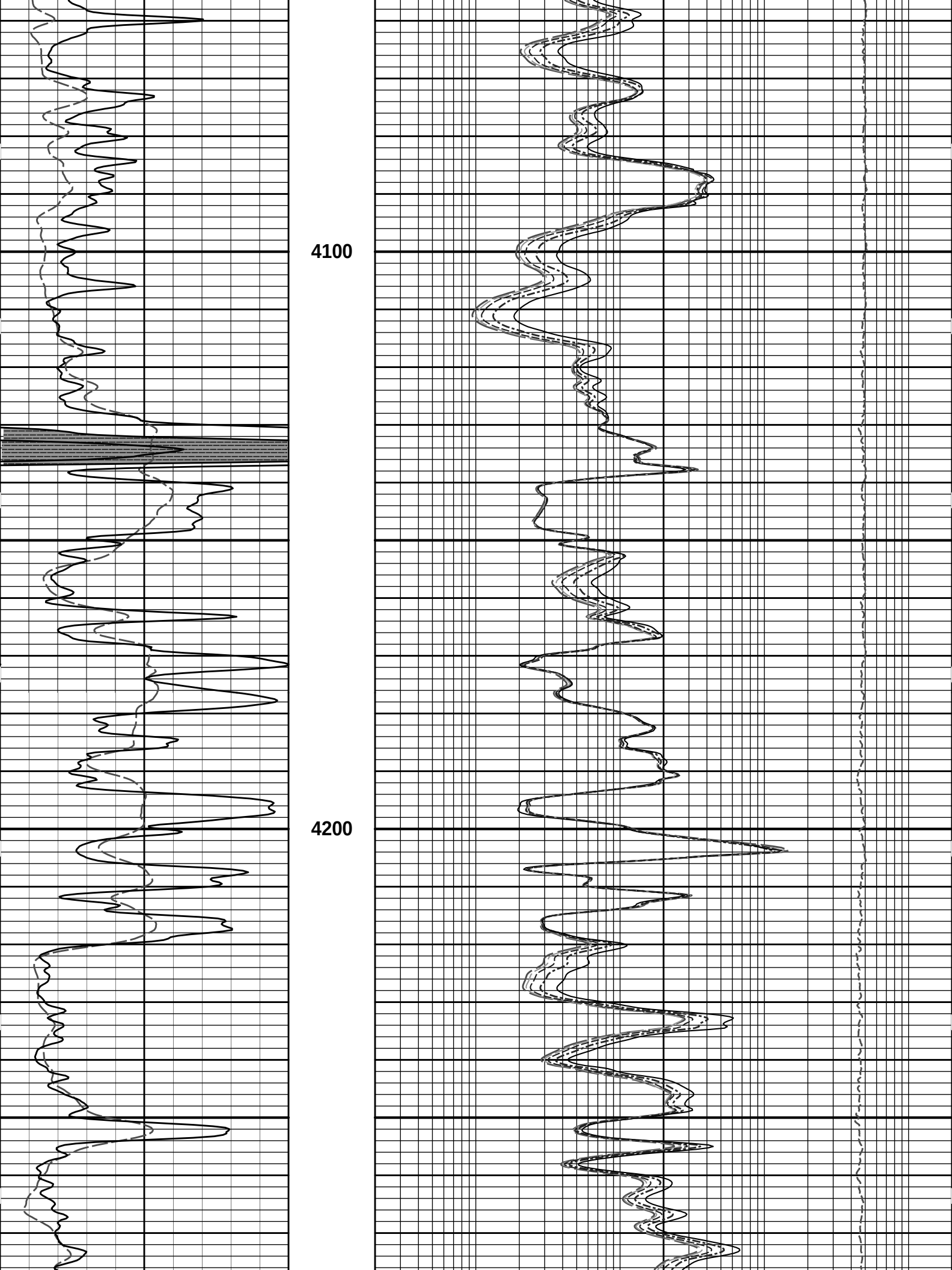
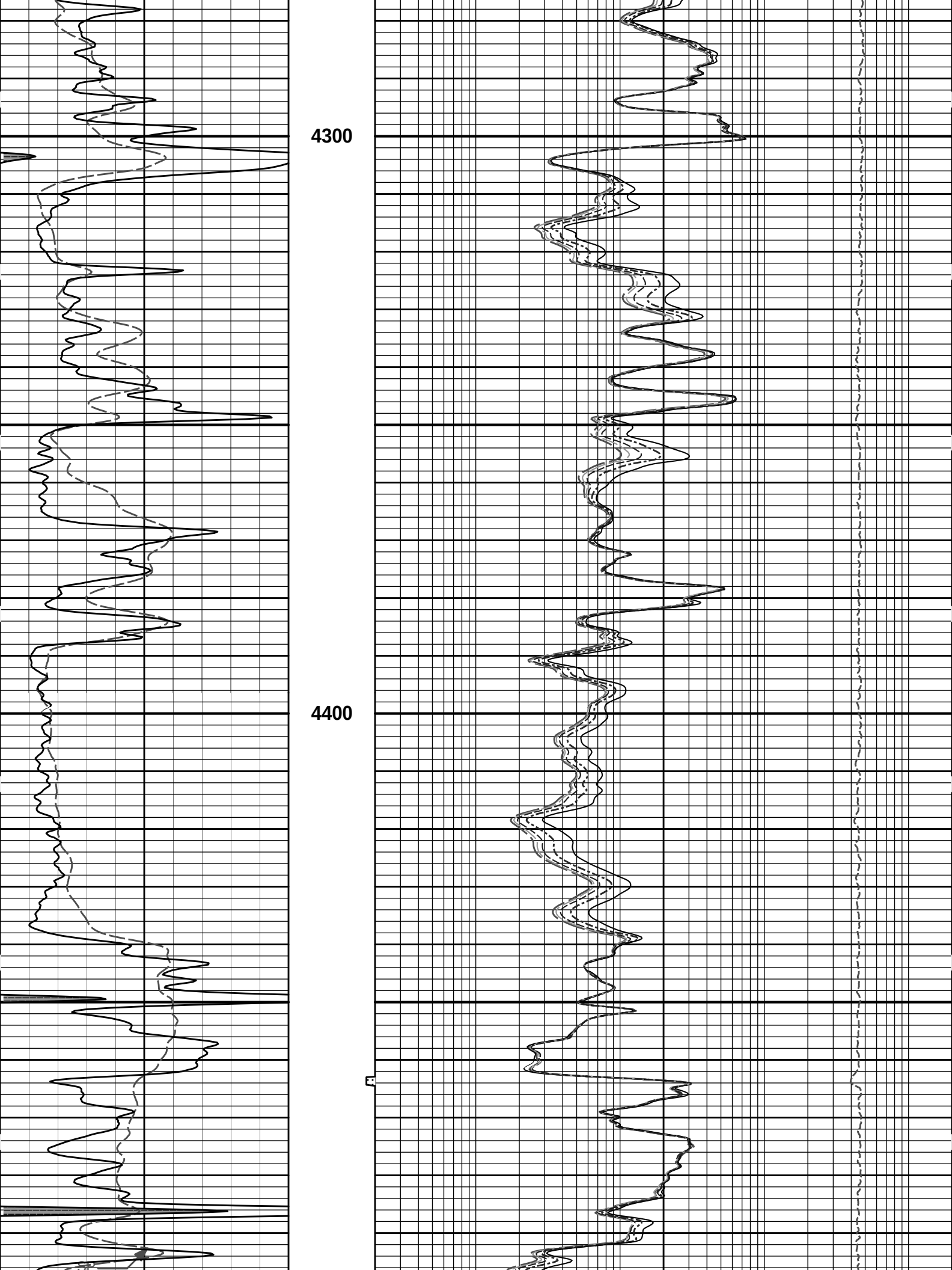
3800


SP
Gamma API
3900
90in Resistivity 2ft Res
20in Resistivity 2ft Res
60in Resistivity 2ft Res
10in Resistivity 2ft Res
30in Resistivity 2ft Res
4000


4100
4200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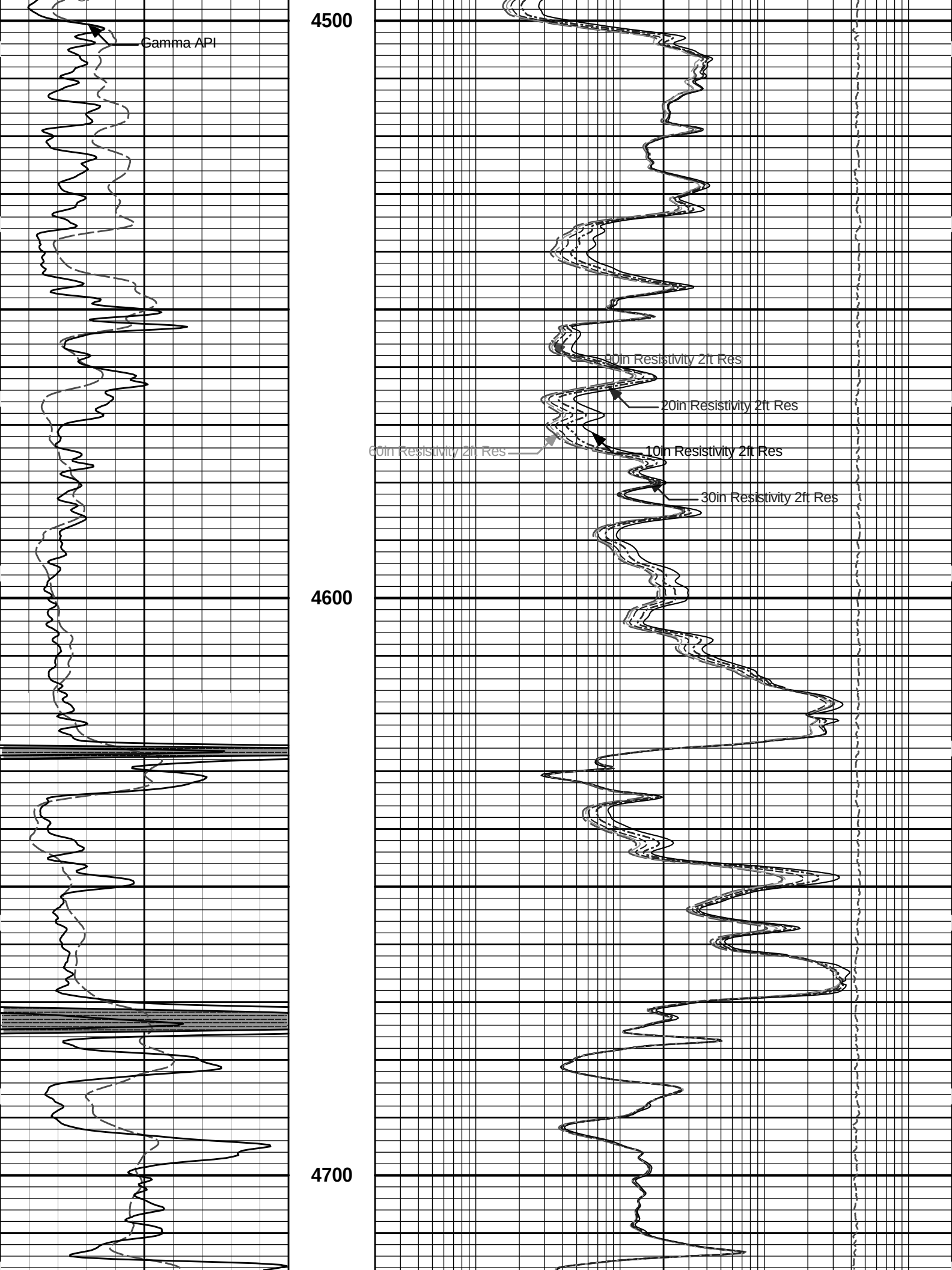
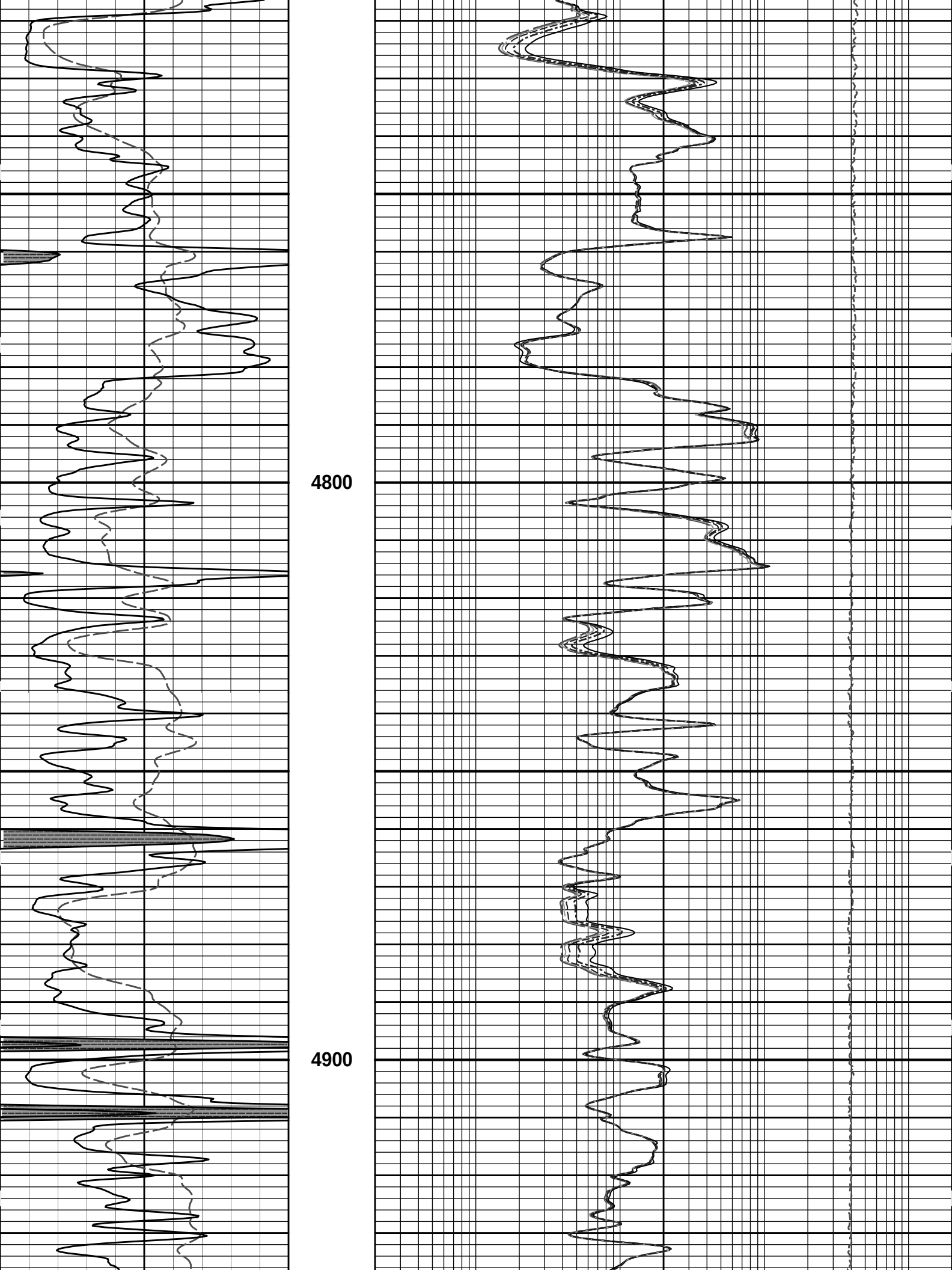

4500
Gamma API
90in Resistivity 2ft Res
20in Resistivity 2ft Res
60in Resistivity 2ft Res
10in Resistivity 2ft Res
30in Resistivity 2ft Res
4600
4700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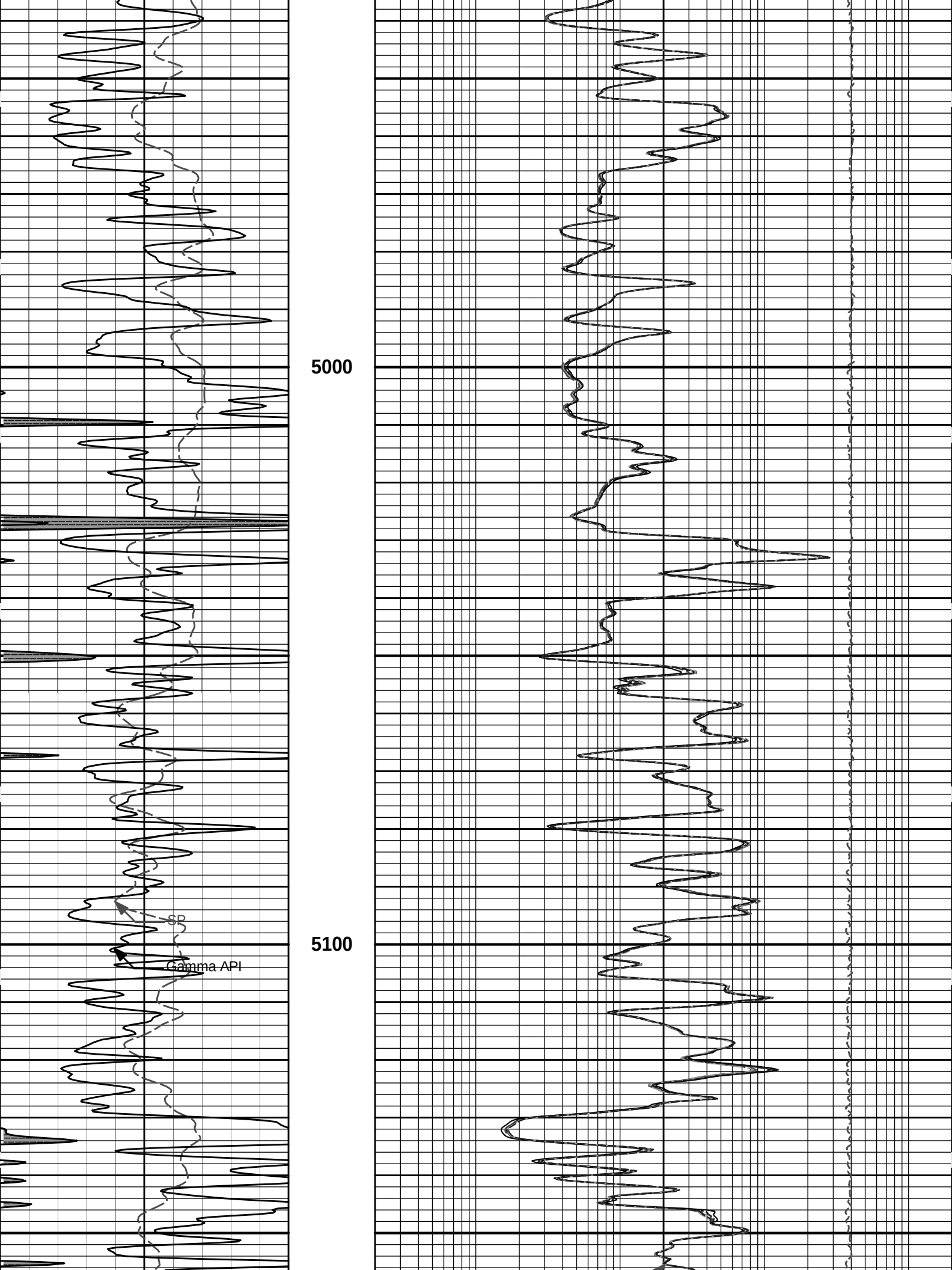
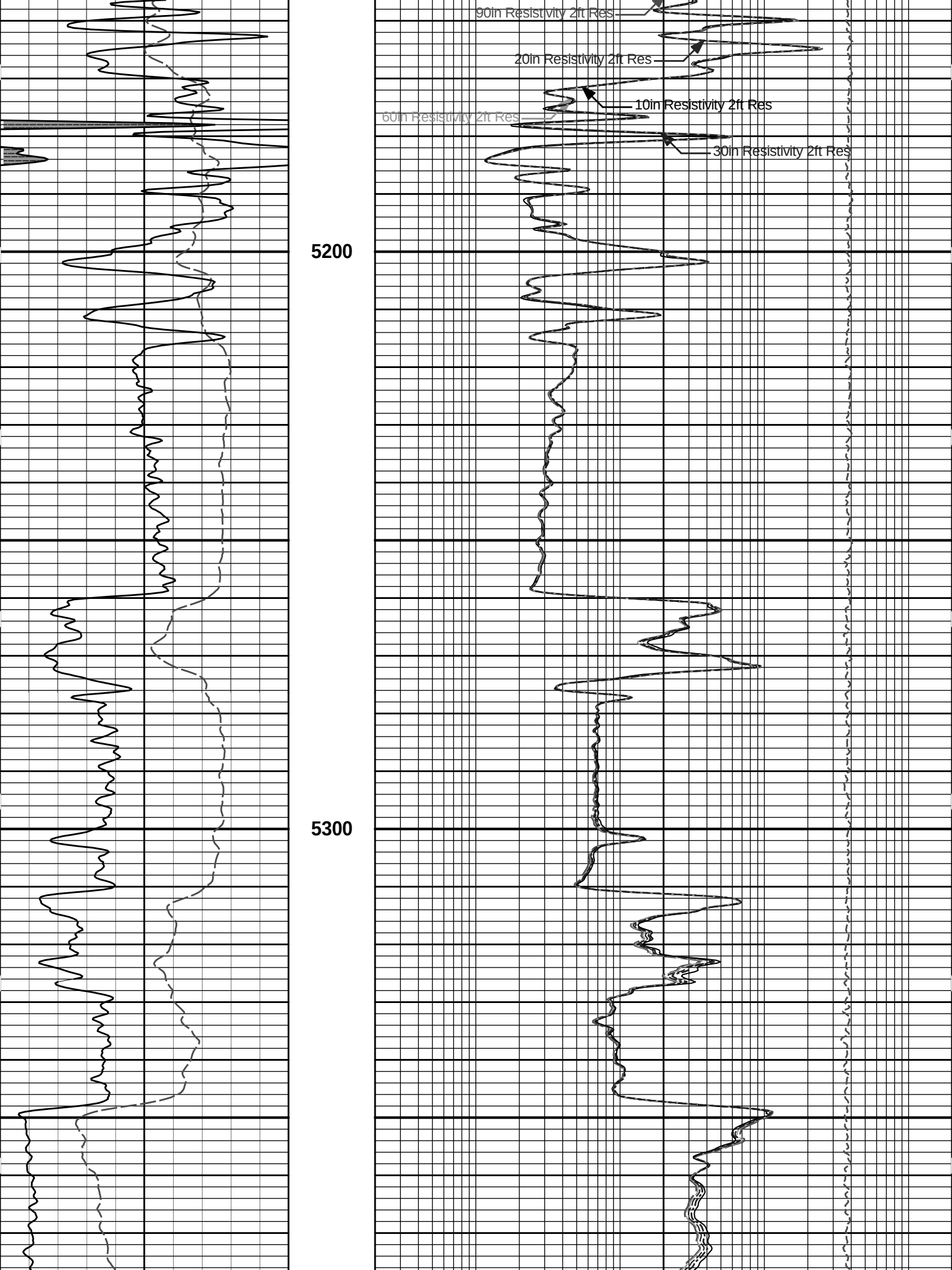
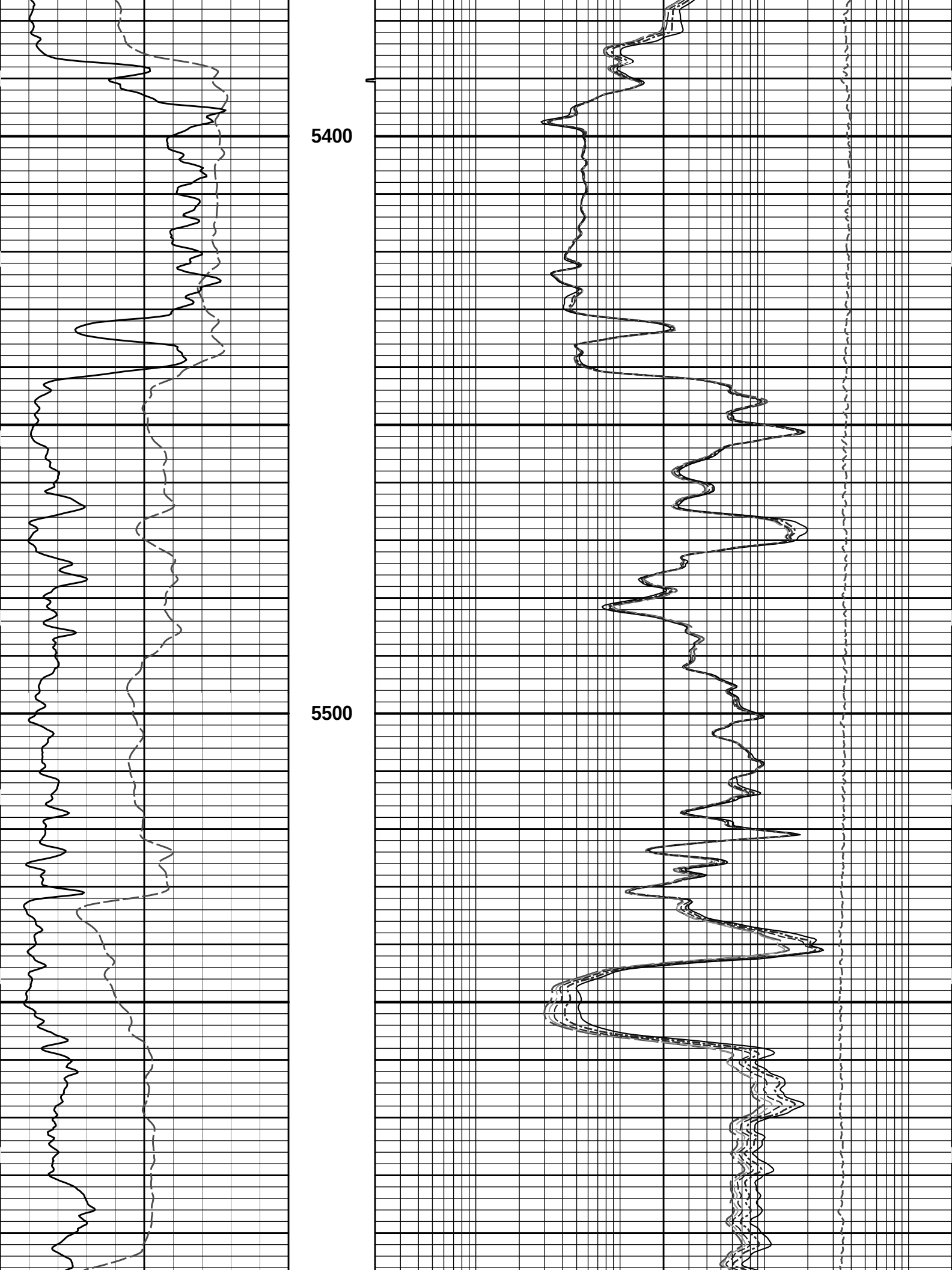

5000
5100
SP
Gamma API


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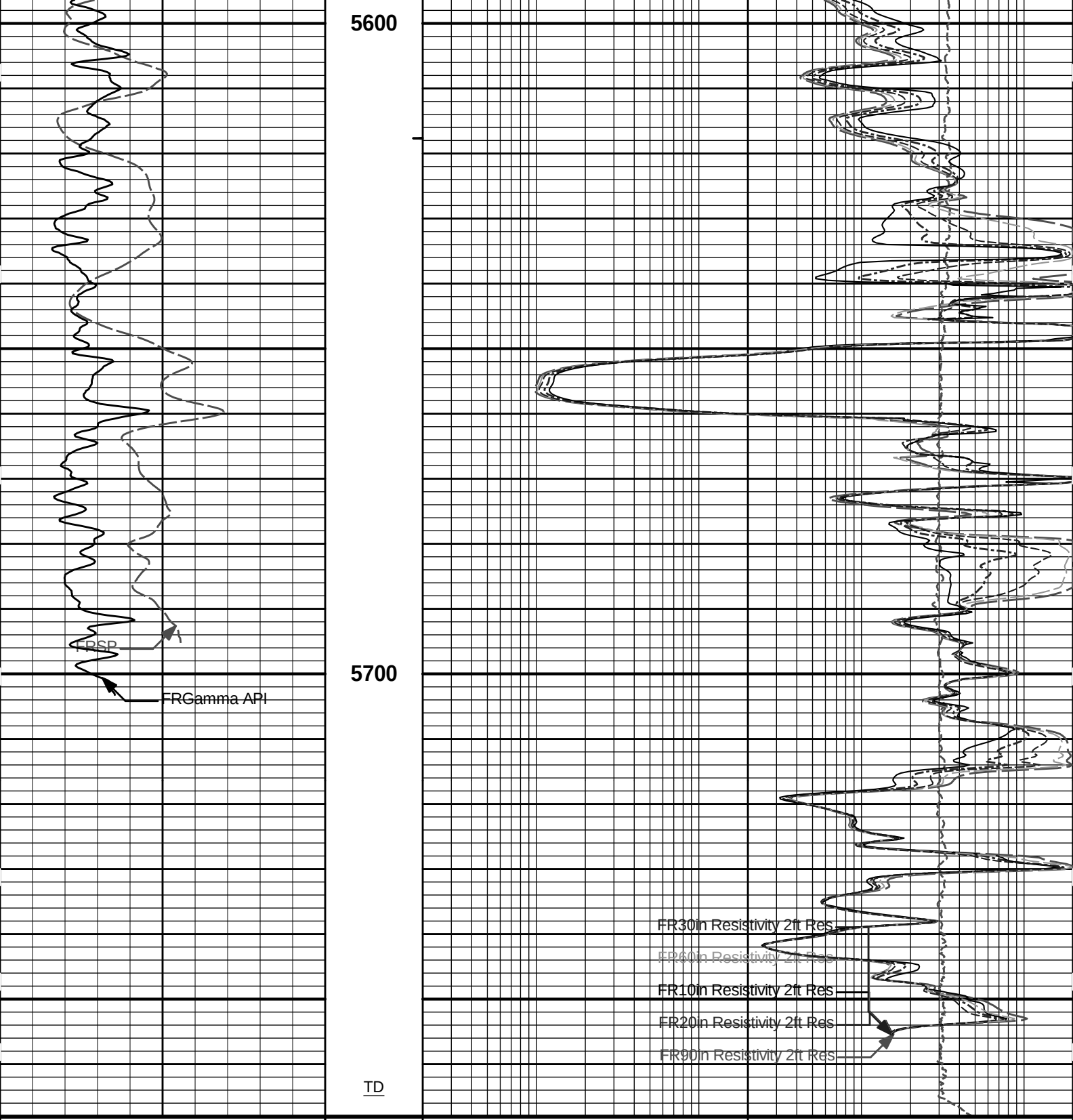
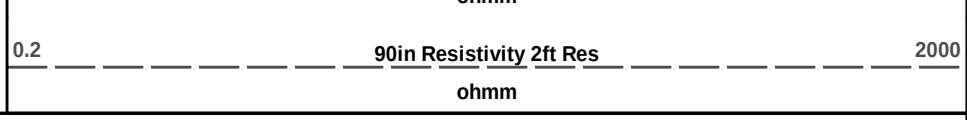


SP	MD 1 : 240 ft		10K Tension 0
-]20[+			pounds
0 Gamma API 150	Tension Pull 10 0	0.2 10in Resistivity 2ft Res 2000	
api		ohmm	
SHALE	Tension Pull	0.2 20in Resistivity 2ft Res 2000	
		ohmm	
		0.2 30in Resistivity 2ft Res 2000	
		ohm-metre	
		0.2 60in Resistivity 2ft Res 2000	
		ohmm	



HALLIBURTON

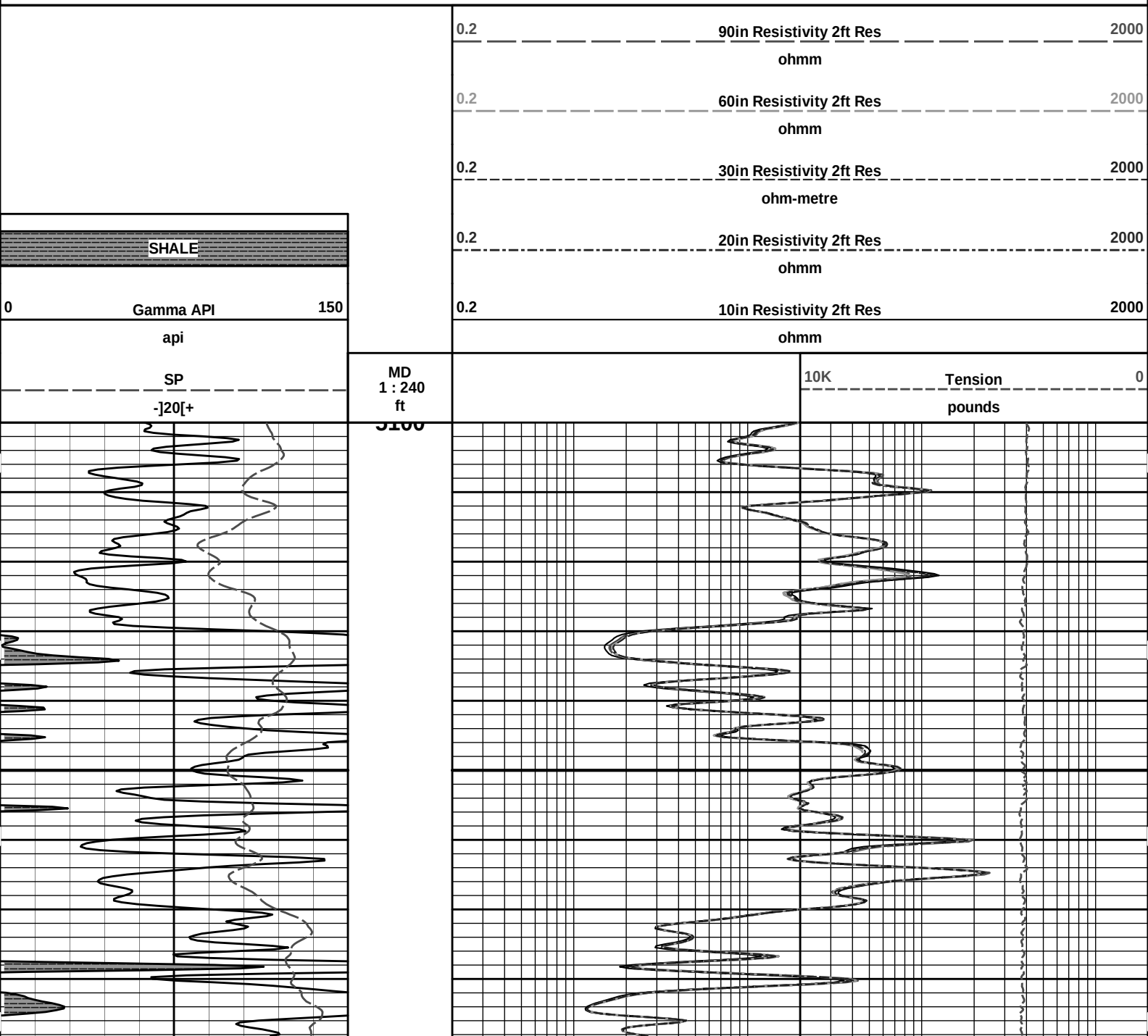
Plot Time: 02-Dec-12 20:25:48
Plot Range: 1780 ft to 5767.92 ft
Data: GRIFFIN_C_1\Well Based\CASING\
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_main_lib

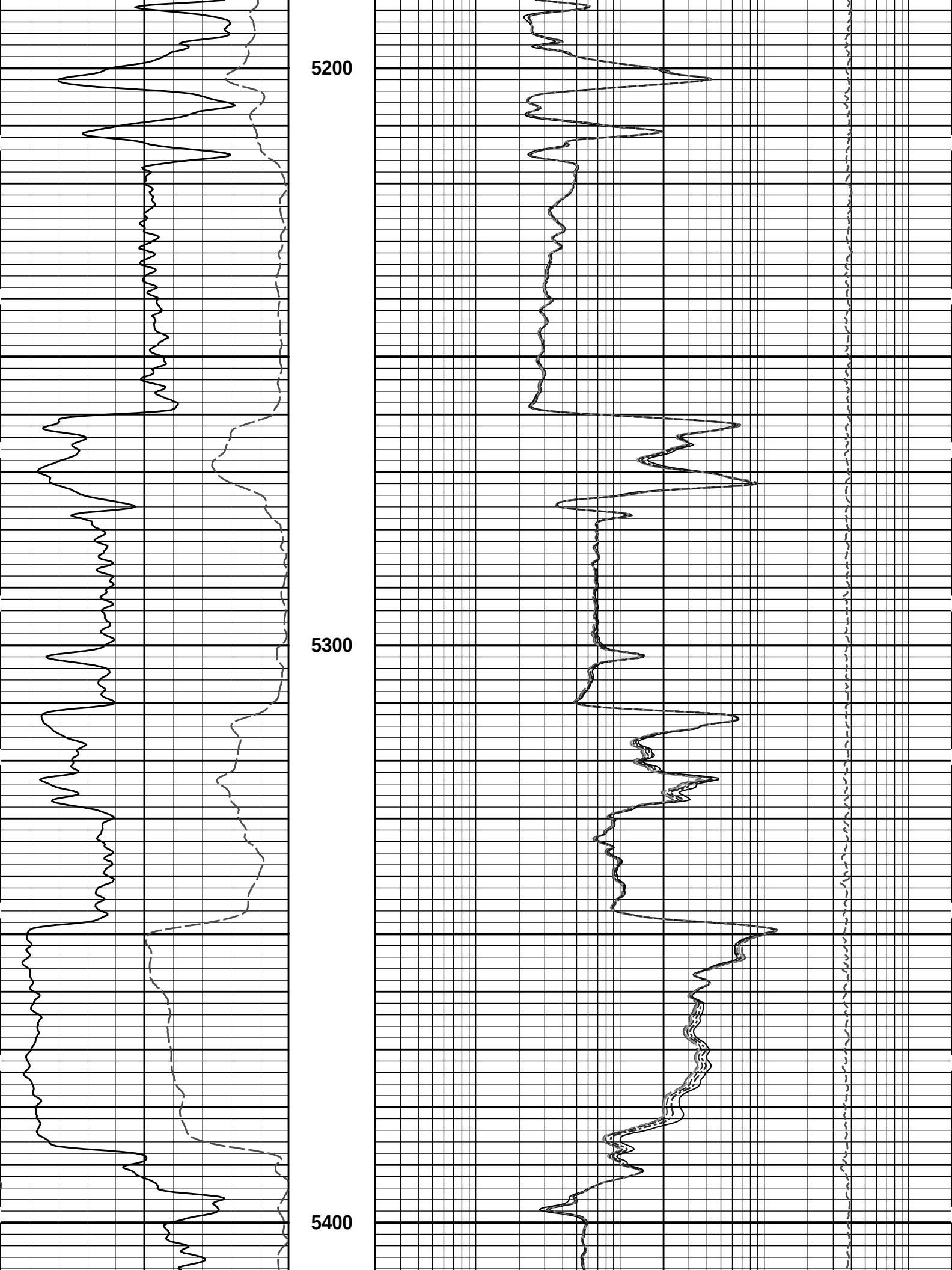
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 02-Dec-12 20:25:48
Plot Range: 5100 ft to 5770.92 ft
Data: GRIFFIN_C_1\Well Based\REPEAT\
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_repeat_lib

REPEAT SECTION

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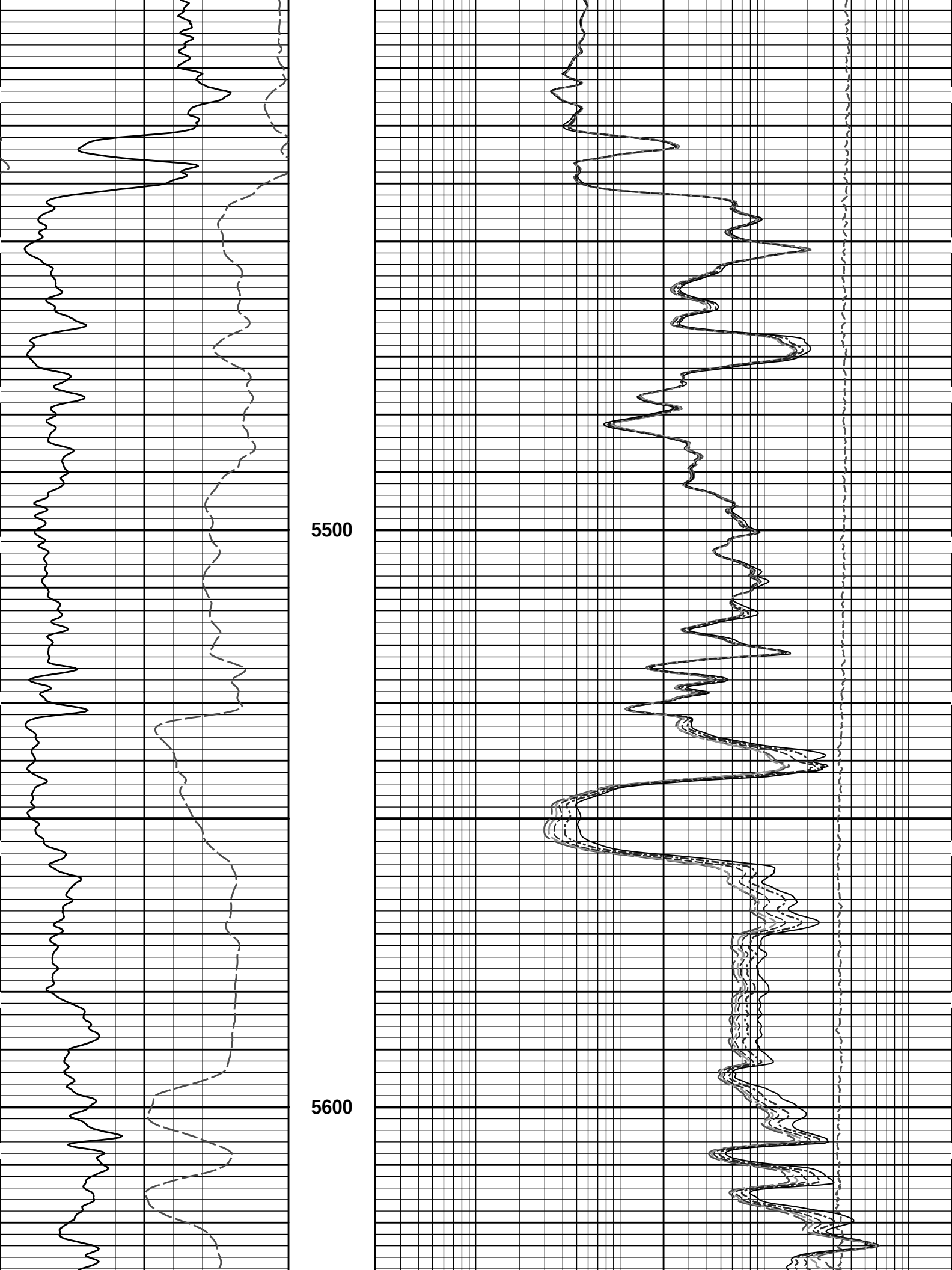
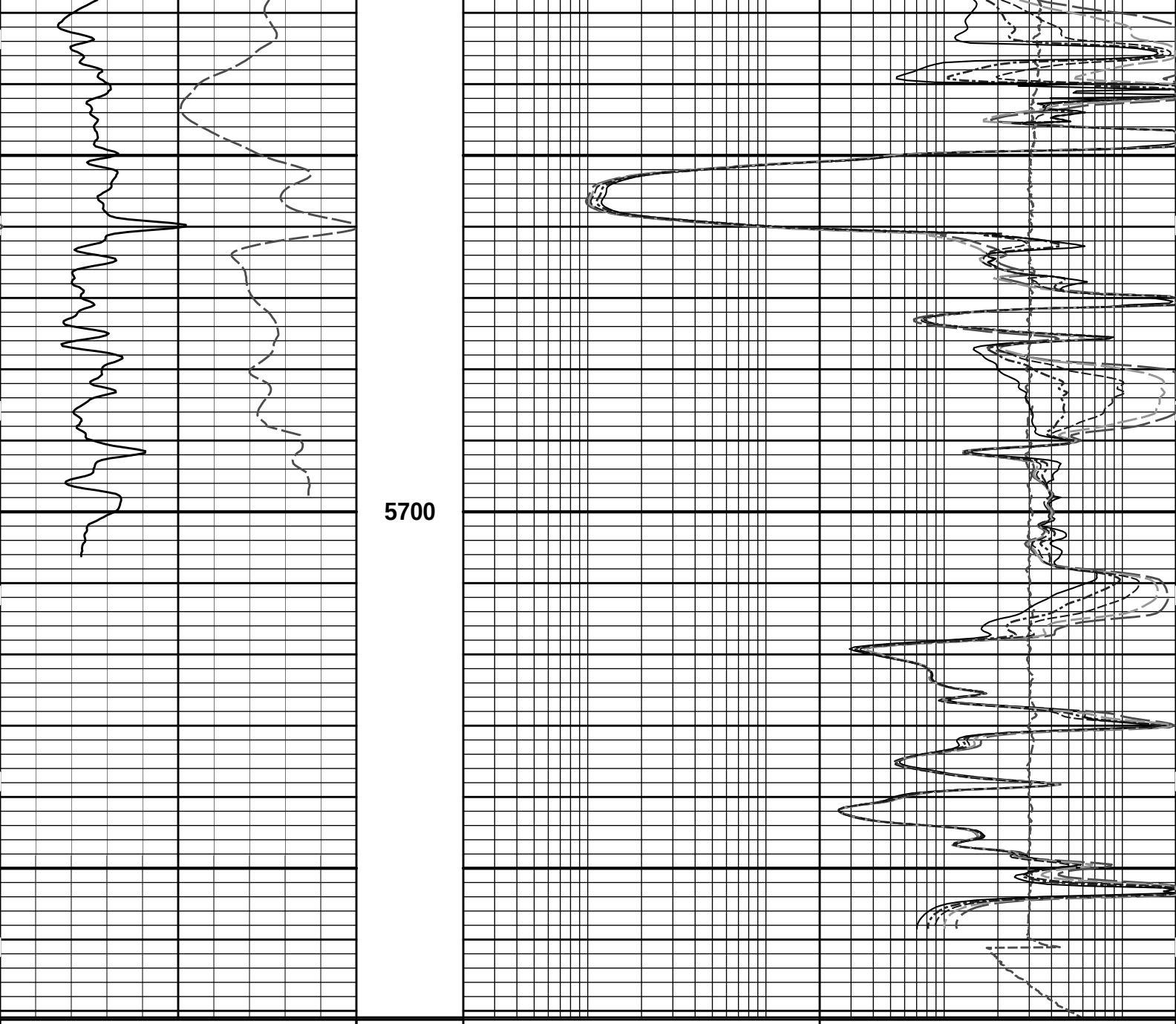

5500
5600



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

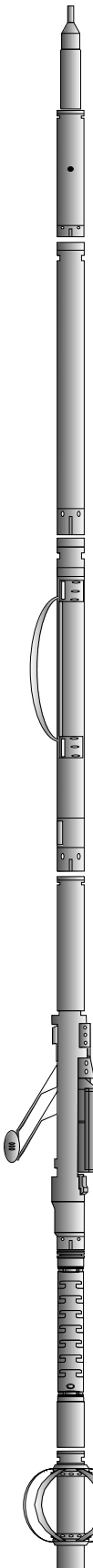
HALLIBURTON

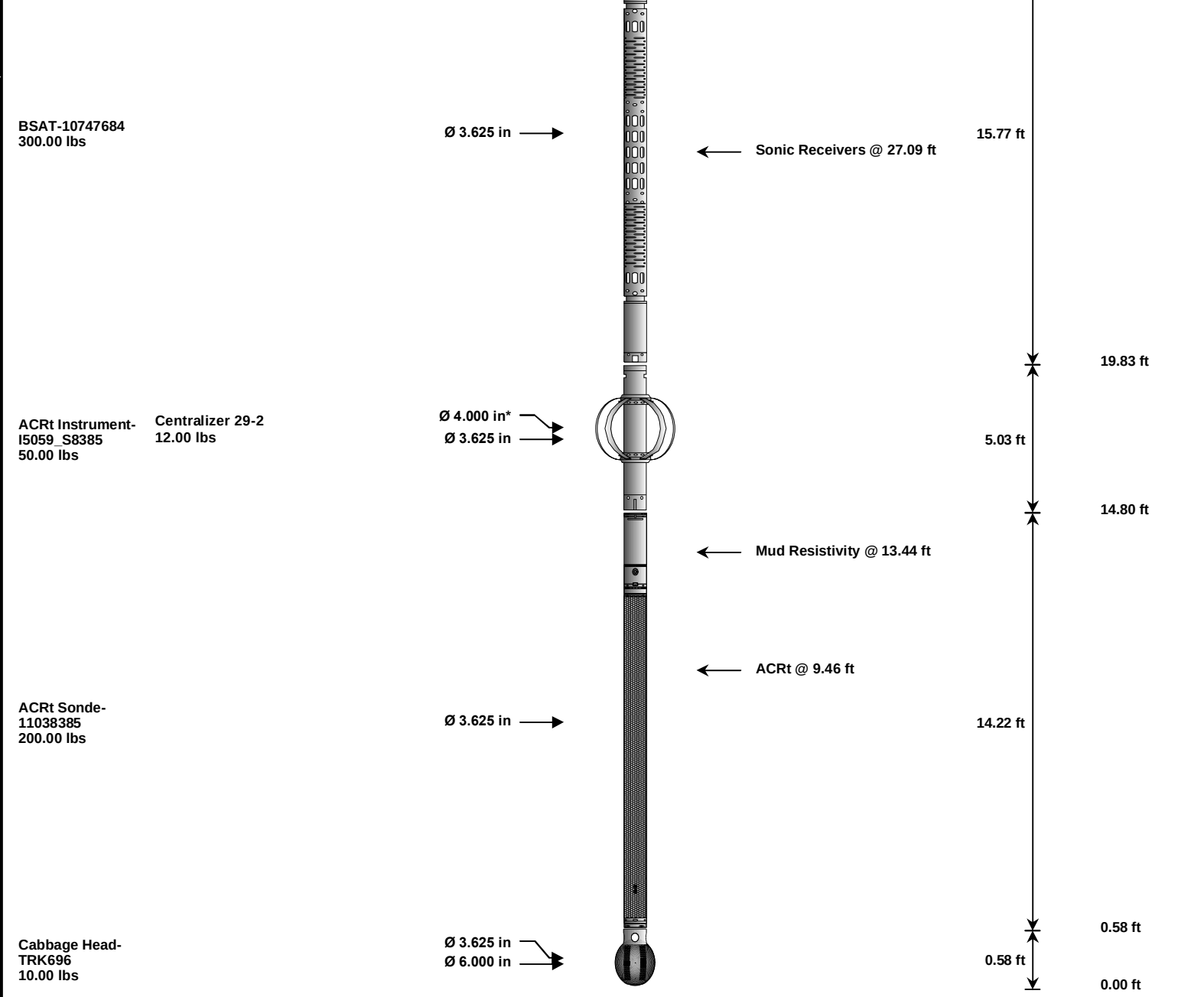
Plot Time: 02-Dec-12 20:25:58
Plot Range: 5100 ft to 5770.92 ft
Data: GRIFFIN_C_1\Well Based\REPEAT\
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\ACRT\ACRT_5_repeat_lib

REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						77.06 ft
CH_HOS-CH_696 37.50 lbs		Ø 2.750 in		Temperature @ 76.03 ft	3.03 ft	
						74.03 ft
SP Sub-11441455 60.00 lbs		Ø 3.625 in		SP @ 72.26 ft	3.74 ft	
						70.30 ft
GTET-11039640 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 64.23 ft		
						61.78 ft
DSNT-11019643 174.00 lbs	DSN Decentralizer-11019643 6.60 lbs	Ø 5.000 in* Ø 3.625 in			9.69 ft	
				DSN Far @ 54.84 ft DSN Near @ 54.09 ft		
						52.09 ft
SDLT-10950489 360.00 lbs	SDLT Pad-10844781 65.00 lbs Microlog Pad-10950489 8.00 lbs	Ø 4.500 in Ø 4.750 in* Ø 4.750 in*		Microlog @ 44.28 ft SDL Caliper @ 44.09 ft SDL @ 44.08 ft	10.81 ft	
						41.28 ft
Flex Joint-001 140.00 lbs		Ø 3.625 in			5.67 ft	
						35.61 ft
	Centralizer 29-1 12.00 lbs	Ø 4.000 in*				



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_696	37.50	3.03		74.03	300.00
SP	SP Sub	11441455	60.00	3.74		70.30	300.00
GTET	Gamma Telemetry Tool	11039640	165.00	8.52		61.78	60.00
DSNT	Dual Spaced Neutron	11019643	174.00	9.69		52.09	60.00
DCNT	DSN Decentralizer	11019643	6.60	5.13	*	55.42	300.00
SDLT	Spectral Density Tool	10950489	360.00	10.81		41.28	60.00
MICP	Microlog Pad	10950489	8.00	1.00	*	43.78	60.00
SDLP	Density Insite Pad	10844781	65.00	2.55	*	43.49	60.00
FLEX	Flex Joint	001	140.00	5.67		35.61	300.00
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77		19.83	60.00
OBCEN	Centralizer - 29 in.Overbody	1	12.00	2.42	*	32.77	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I5059_S8385	50.00	5.03		14.80	300.00
OBCEN	Centralizer - 29 in.Overbody	2	12.00	2.42	*	16.39	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11038385	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	TRK696	10.00	0.58		0.00	300.00
Total			**1,600.10**	**77.06**			

* Not included in Total Length and Length Accumulation.

Data: GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 02-Dec-12 16:58:15**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**25-Sep-12 15:48:12**
Engineer:	**T. HYDE**	**Calibration Date:**	**02-Nov-12 10:48:45**
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	63.1	62.7	api
Background + Calibrator	334.4	332.3	api
Calibrator	271.3	269.6	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11039640**	**Reference Calibration Date:**	**02-Nov-12 10:48:45**
Engineer:	**T. HYDE**	**Calibration Date:**	**02-Dec-12 16:39:31**
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	62.7	54.6	api
Background + Calibrator	332.3	318.3	api
Calibrator	269.6	263.7	api

Shop	Field	Difference	Tolerance
269.6	263.7	5.9	+/- 9.00

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt Sonde - 11038385**	**Reference Calibration Date:**	**15-Oct-12 13:54:03**
Engineer:	**T. HYDE**	**Calibration Date:**	**21-Nov-12 12:04:08**
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	1.02	1.05	0.95	1.03	1.05	0.95	1.03	1.05
A2 (50")	0.95	1.01	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A3 (29")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A4 (17")	0.95	1.00	1.05	0.95	1.01	1.05	0.95	1.01	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	0.99	1.05	0.95	0.99	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-1.22	2	-6	-4.66	-2	-8	-4.68	-2
A2 (50")	-7	-2.79	0	-7	-3.82	0	-7	-4.51	0

A3 (29")	-27	-14.92	-9	-9	-4.20	-3	-7	-2.33	-1
A4 (17")	-180	-102.69	-60	-45	-32.42	-15	-39	-25.84	-13
A5 (10")	N/A	N/A	N/A	-150	-82.58	-50	-80	-41.98	-10
A6 (6")	N/A	N/A	N/A	175	341.00	525	90	168.75	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.88	1.3
36K	1.0	1.35	2.0
72K	1.0	1.62	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-11039640						
Gamma Ray Calibrator	269.6	263.7	----------	5.9	+/- 9.00	api
ACRt Sonde-11038385						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

Data: GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 02-Dec-12 17:00:18**

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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	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	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	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	5796.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	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?	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	
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
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

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	72.25	NO	
SP	Spontaneous Potential	72.25	BLK	1.250
SPR	Raw Spontaneous Potential	72.25	NO	
SPO	Spontaneous Potential Offset	72.25	NO	
	GTET			
TPUL	Tension Pull	64.23	NO	
GR	Natural Gamma Ray API	64.23	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	64.23	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	64.23	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	DSNT			
TPUL	Tension Pull	53.99	NO	
RNDS	Near Detector Telemetry Counts	54.09	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.84	TRI	0.583
DNTT	DSN Tool Temperature	54.09	NO	
DSNS	DSN Tool Status	53.99	NO	
ERND	Near Detector Telemetry Counts EVR	54.09	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.84	BLK	0.000
ENTM	DSN Tool Temperature EVR	54.09	NO	
	SDLT			
TPUL	Tension Pull	44.09	NO	
PCAL	Pad Caliper	44.09	TRI	0.250
ACAL	Arm Caliper	44.09	TRI	0.250
	BSAT			
TPUL	Tension Pull	27.09	NO	
STAT	Status	27.09	NO	
DLYT	Delay Time	27.09	NO	
SI	Sample Interval	27.09	NO	
TXRX	Raw Telemetry 10 Receivers	27.09	NO	
FRMC	Tool Frame Count	27.09	NO	
GMOD	Gain processing mode	19.83	NO	
	ACRt Sonde			
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000

F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter 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	
	SDLT Pad			
TPUL	Tension Pull	44.08	NO	
NAB	Near Above	43.90	BLK	0.920
NHI	Near Cesium High	43.90	BLK	0.920
NLO	Near Cesium Low	43.90	BLK	0.920
NVA	Near Valley	43.90	BLK	0.920
NBA	Near Barite	43.90	BLK	0.920
NDE	Near Density	43.90	BLK	0.920

NDE	Near Density	43.90	BLK	0.920
NPK	Near Peak	43.90	BLK	0.920
NLI	Near Lithology	43.90	BLK	0.920
NBAU	Near Barite Unfiltered	43.90	BLK	0.250
NLIU	Near Lithology Unfiltered	43.90	BLK	0.250
FAB	Far Above	44.26	BLK	0.250
FHI	Far Cesium High	44.26	BLK	0.250
FLO	Far Cesium Low	44.26	BLK	0.250
FVA	Far Valley	44.26	BLK	0.250
FBA	Far Barite	44.26	BLK	0.250
FDE	Far Density	44.26	BLK	0.250
FPK	Far Peak	44.26	BLK	0.250
FLI	Far Lithology	44.26	BLK	0.250
PTMP	Pad Temperature	44.09	BLK	0.920
NHV	Near Detector High Voltage	43.49	NO	
FHV	Far Detector High Voltage	43.49	NO	
ITMP	Instrument Temperature	43.49	NO	
DDHV	Detector High Voltage	43.49	NO	
	Microlog Pad			
TPUL	Tension Pull	44.28	NO	
MINV	Microlog Lateral	44.28	BLK	0.750
MNOR	Microlog Normal	44.28	BLK	0.750

Data: GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\IDLE **Date: 02-Dec-12 16:59:39**

COMPANY	**OXY USA INC**		
WELL	**GRIFFIN C-1**		
FIELD	**HUGOTON GAS AREA**		
COUNTY	**HASKELL**	STATE	**KANSAS**

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

HALLIBURTON

Plot Time: 02-Dec-12 20:25:59
Plot Range: 1780 ft to 5755.5 ft
Data: GRIFFIN_C_1\Well Based\CASING
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\...\ACRT_1_lib

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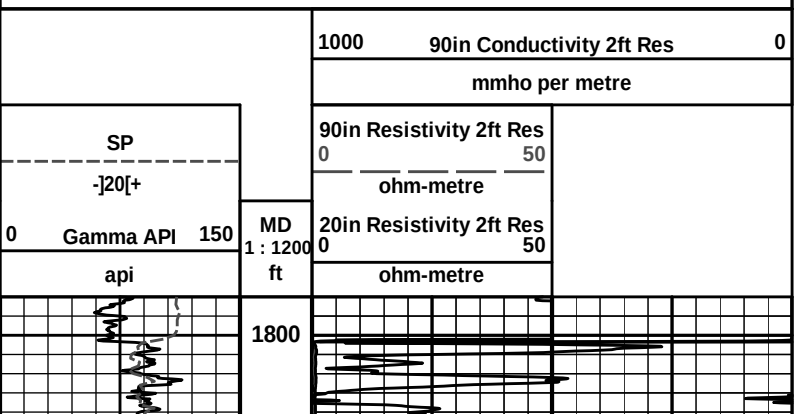

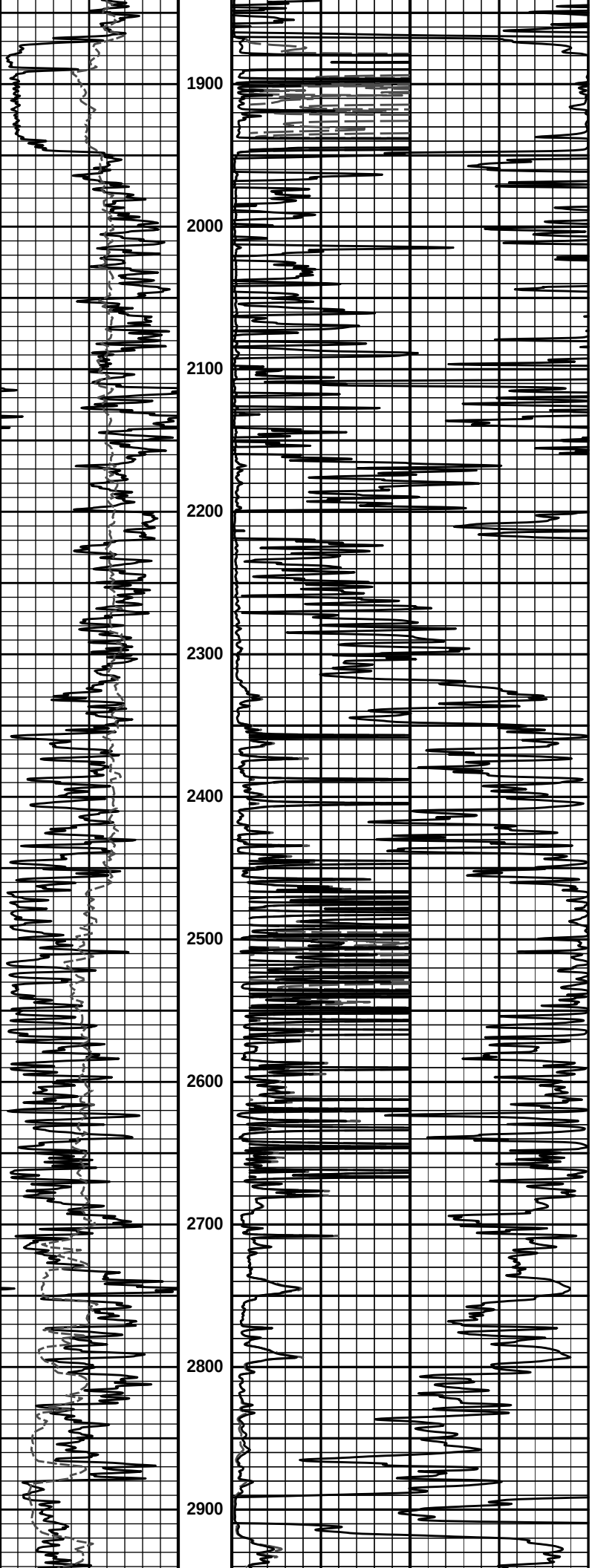
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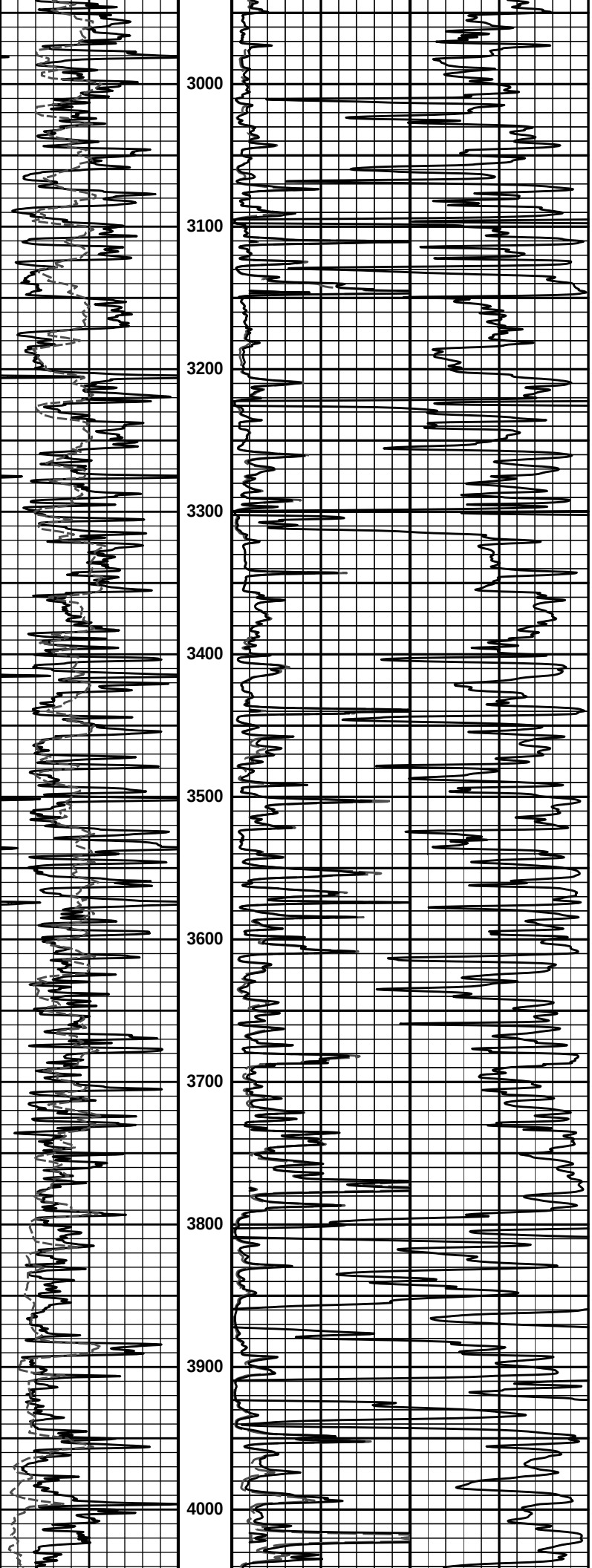
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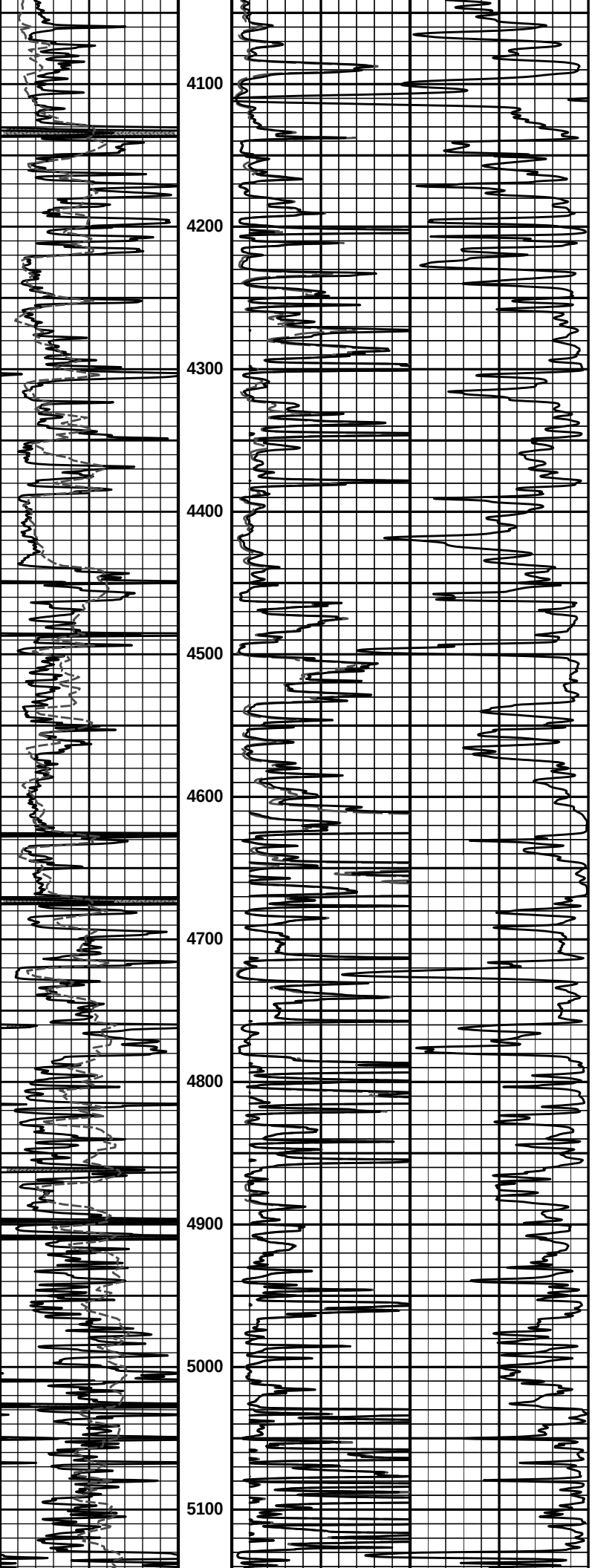
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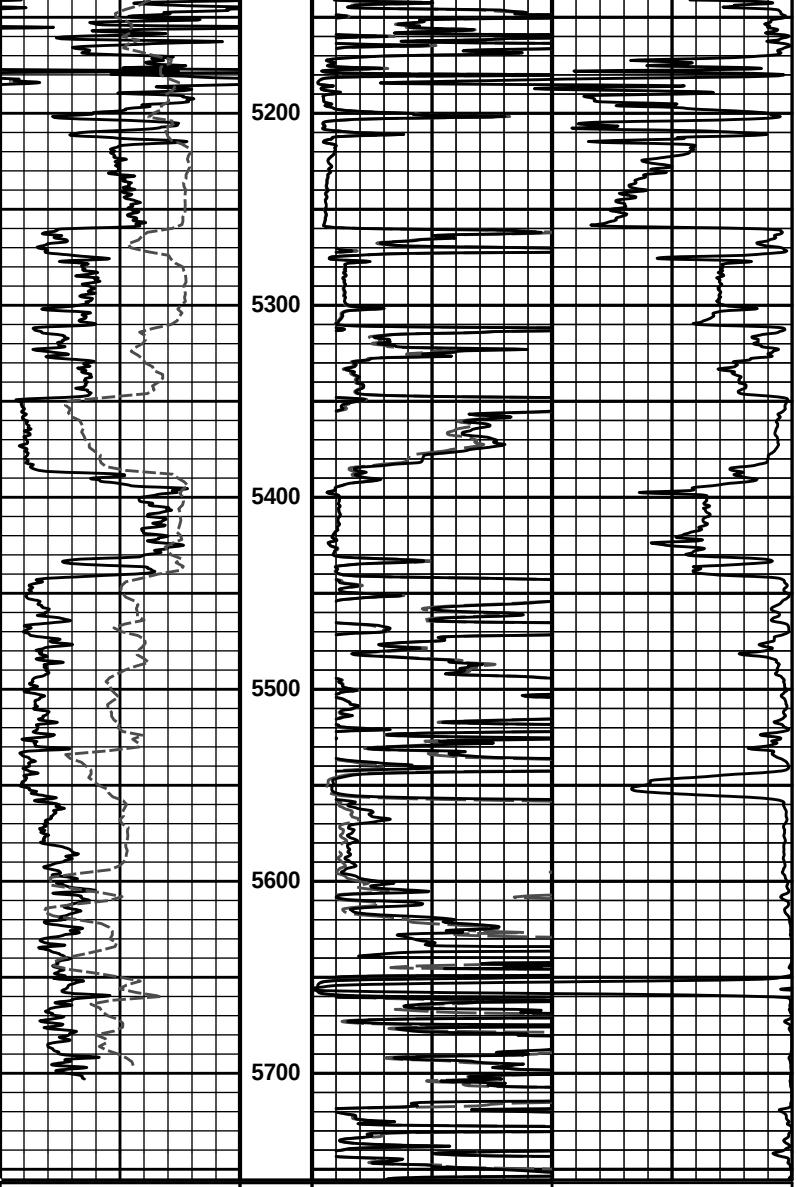

0 Gamma API 150	MD 1 : 1200 ft	20in Resistivity 2ft Res 0 50
api		ohm-metre
SP		90in Resistivity 2ft Res 0 50
-]20[+		ohm-metre
		1000 90in Conductivity 2ft Res 0
		mmho per metre

HALLIBURTON

Plot Time: 02-Dec-12 20:26:07
Plot Range: 1780 ft to 5755.5 ft
Data: GRIFFIN_C_1\Well Based\CASING
Plot File: \\-LOCAL-\GRIFFIN_C_1\0001 SP-GTET-DSN-SDL-FLEX-BSAT-ACRT-CH\...\ACRT_1_lib

1 INCH MAIN LOG