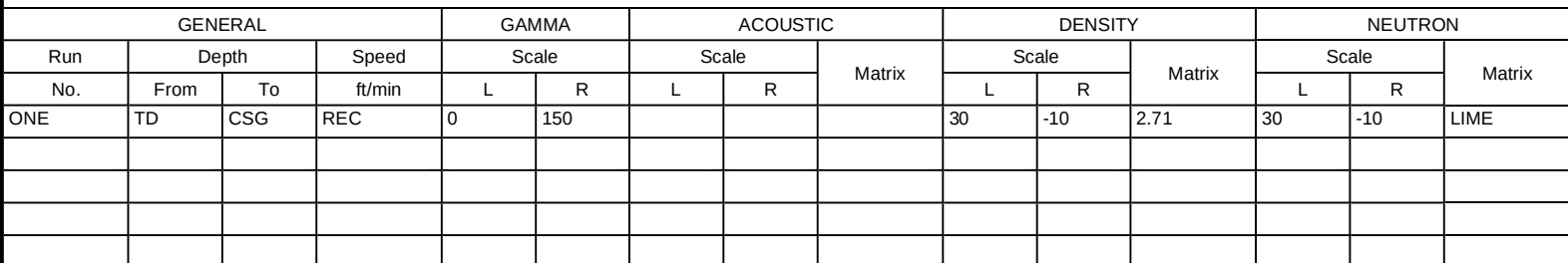
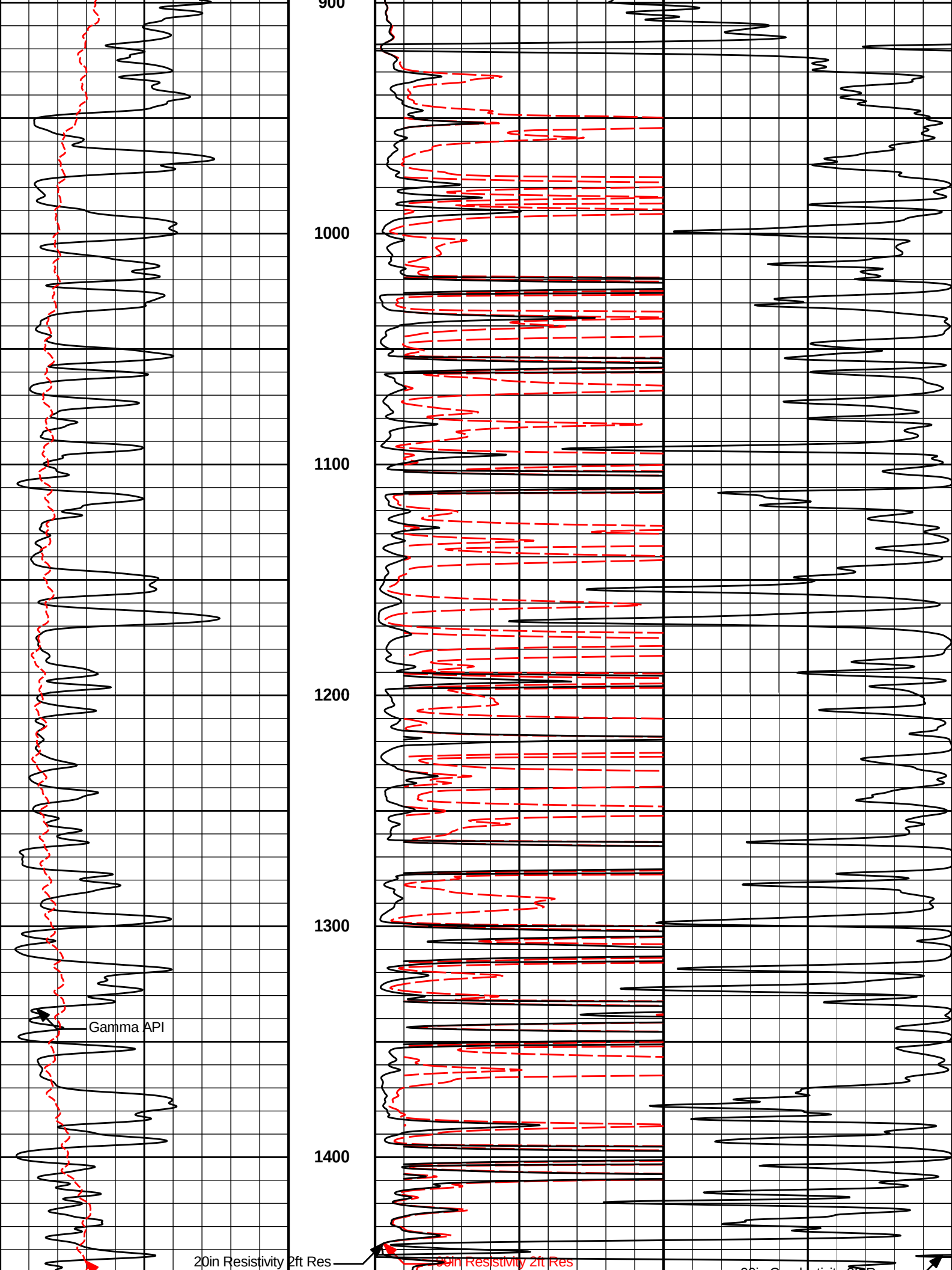


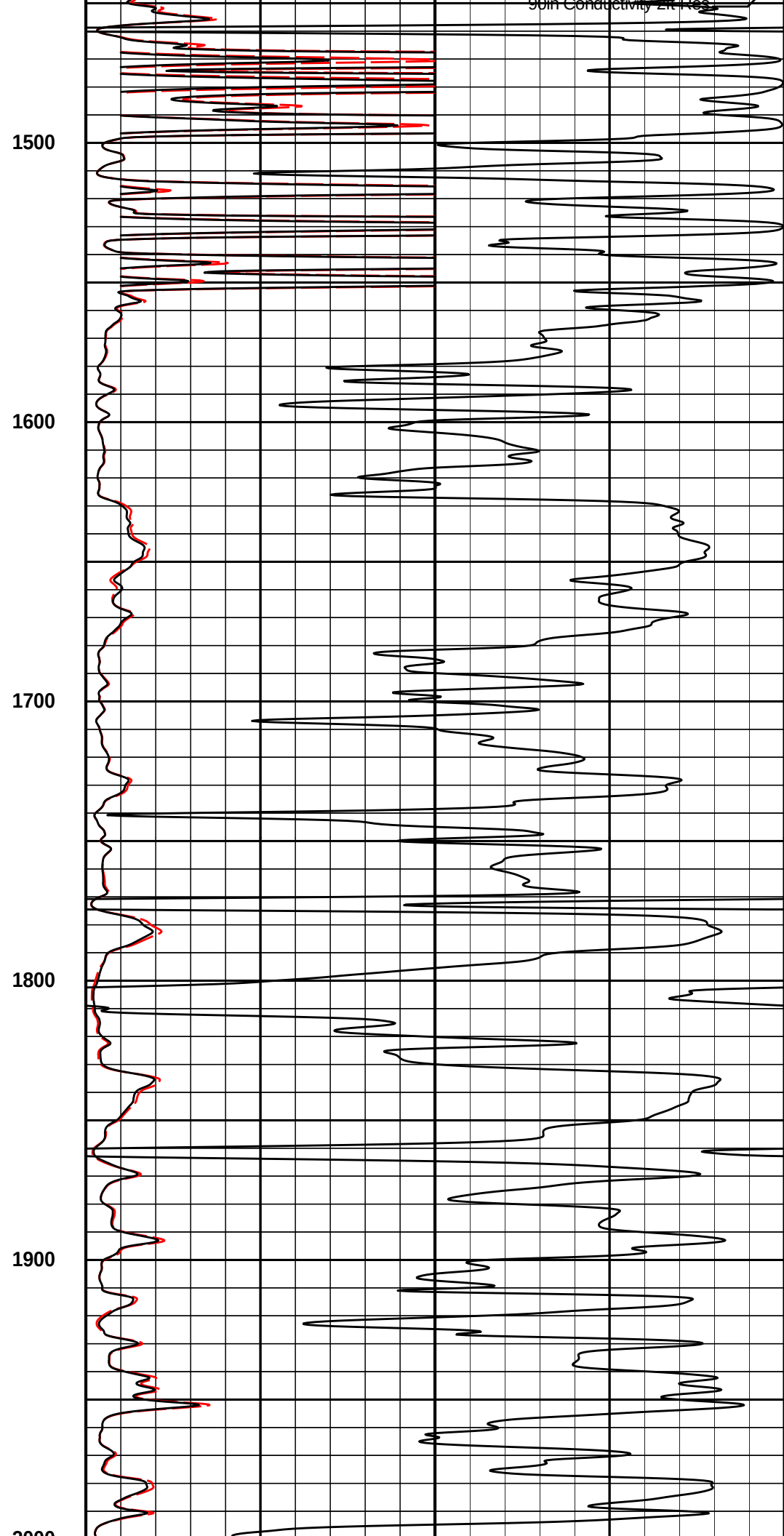
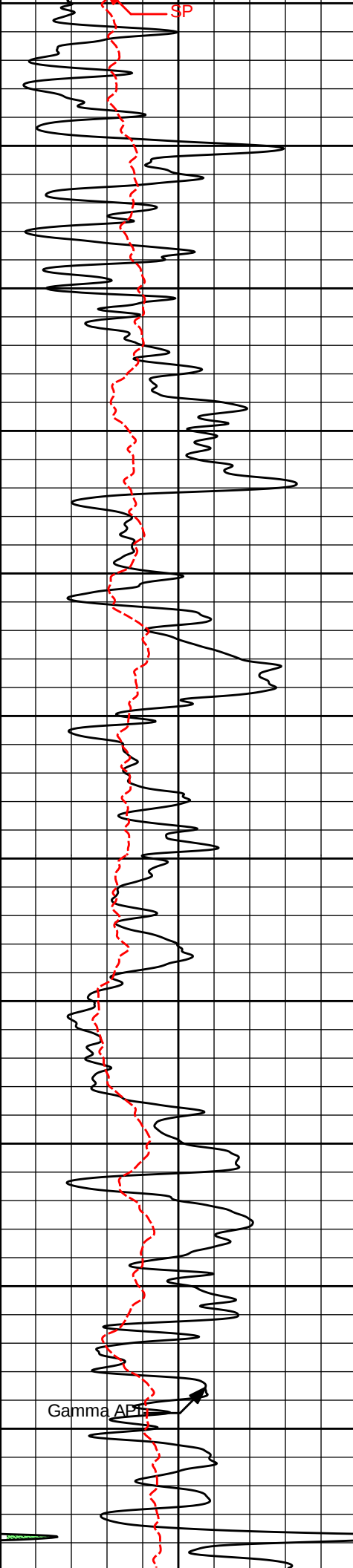
ARRAY COMPENSATED RESISTIVITY LOG

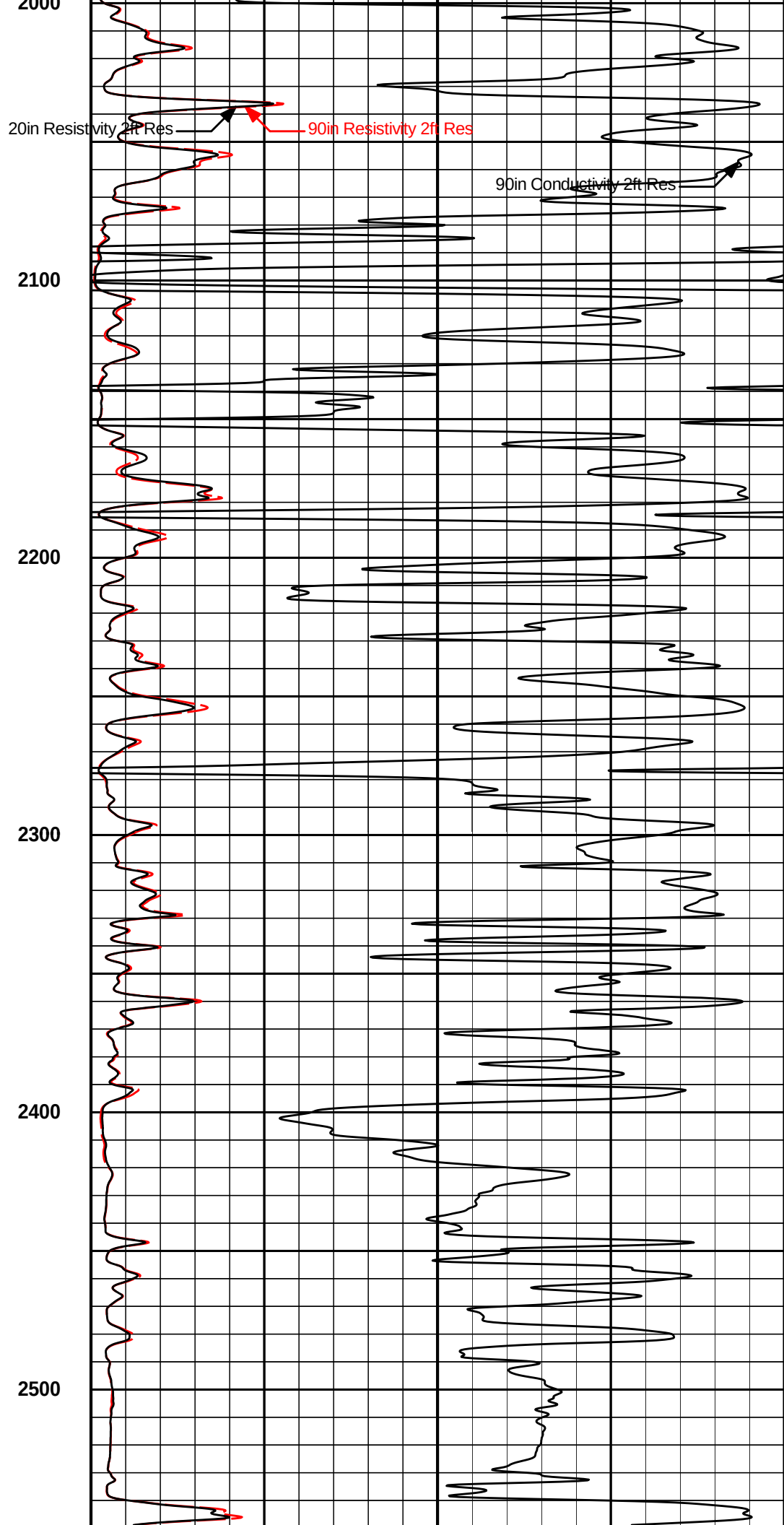
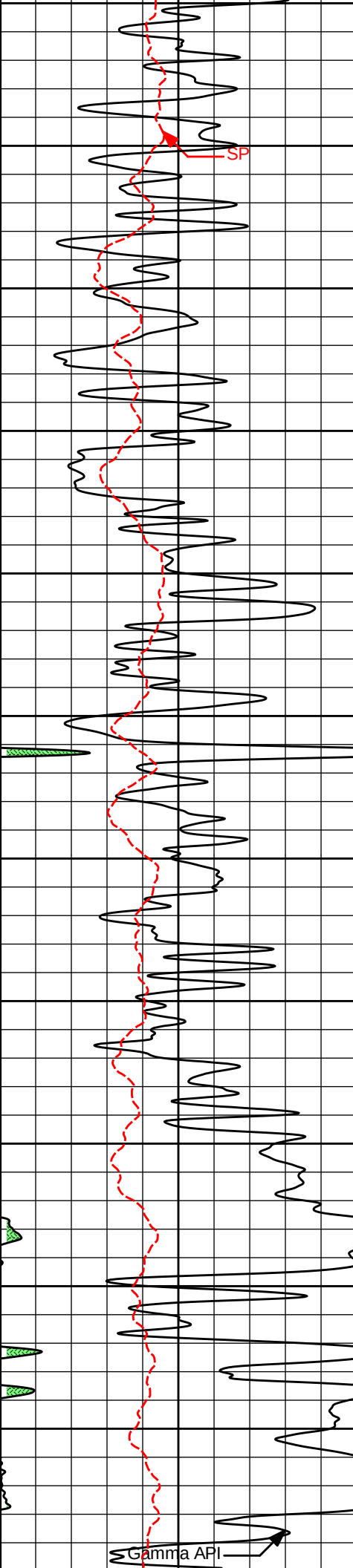
Fold here

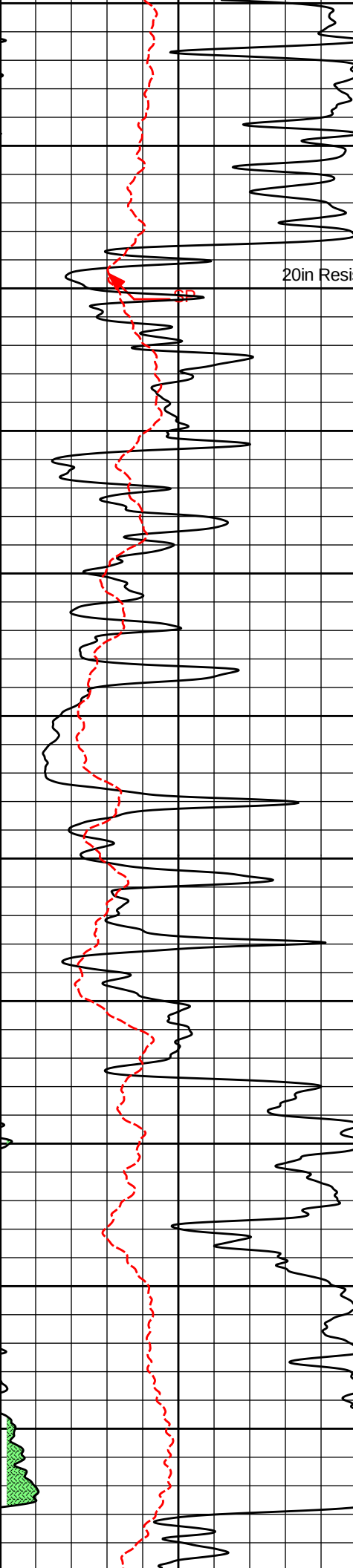
LOGGING DATA











2600

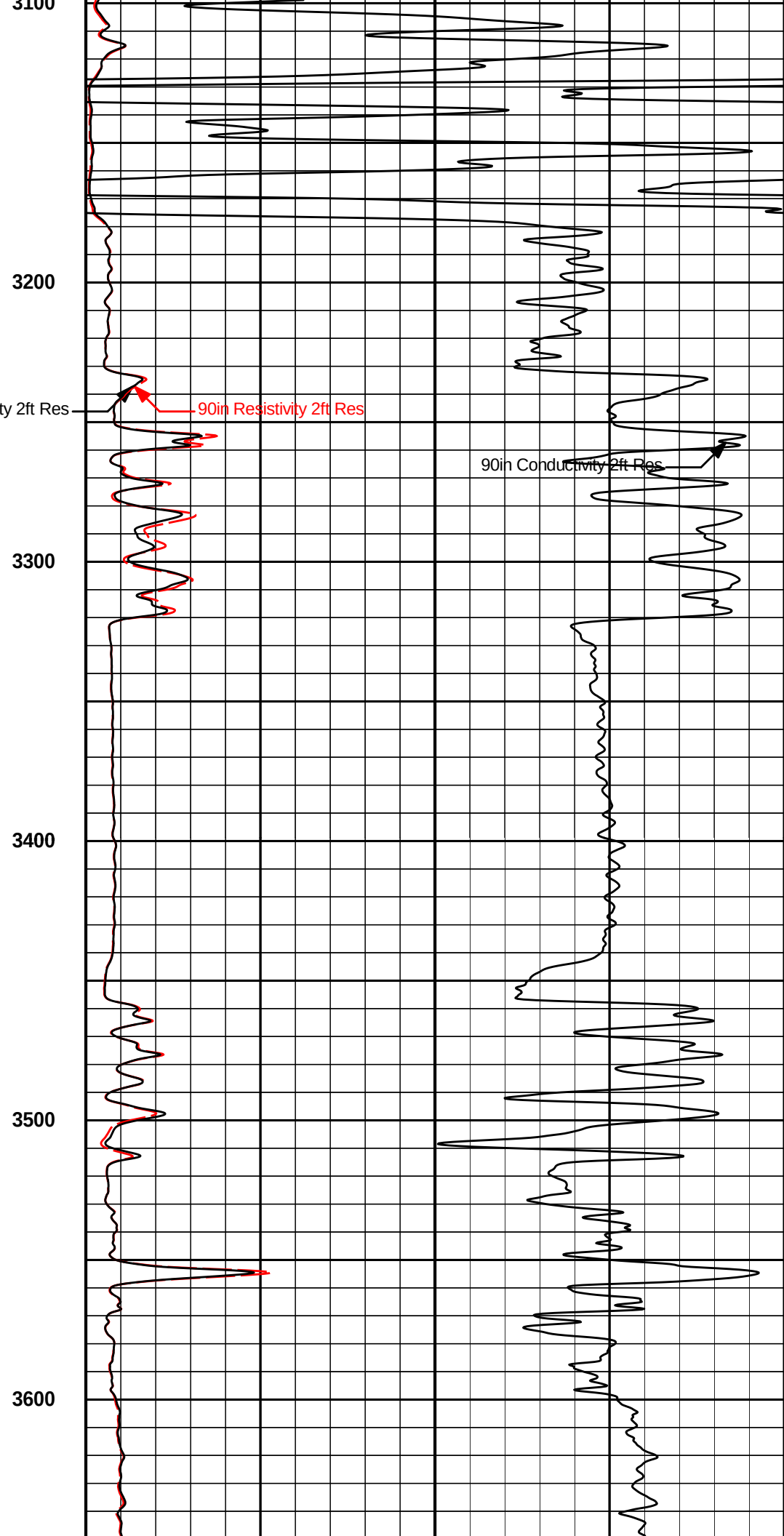
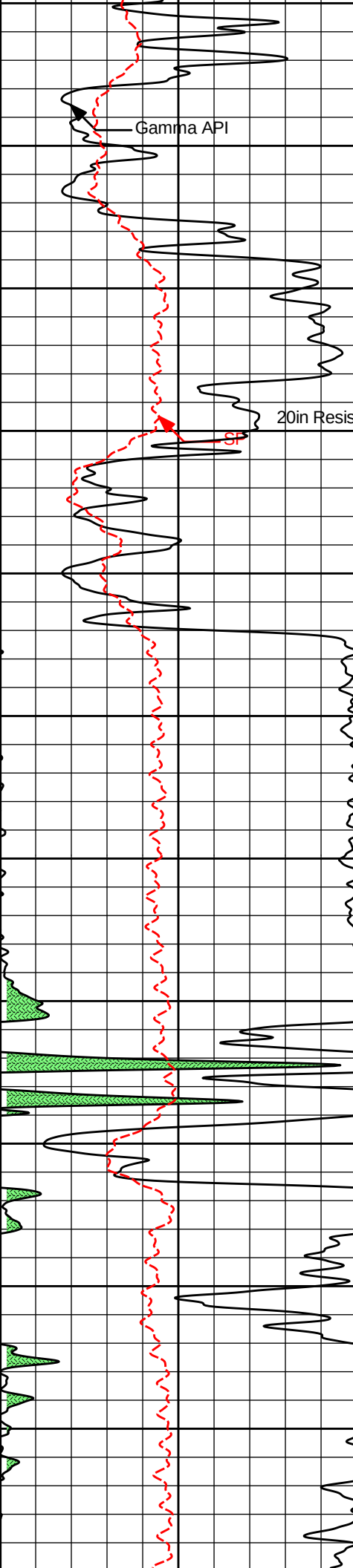
2700

2800

2900

3000

3100





3700

3800

3900

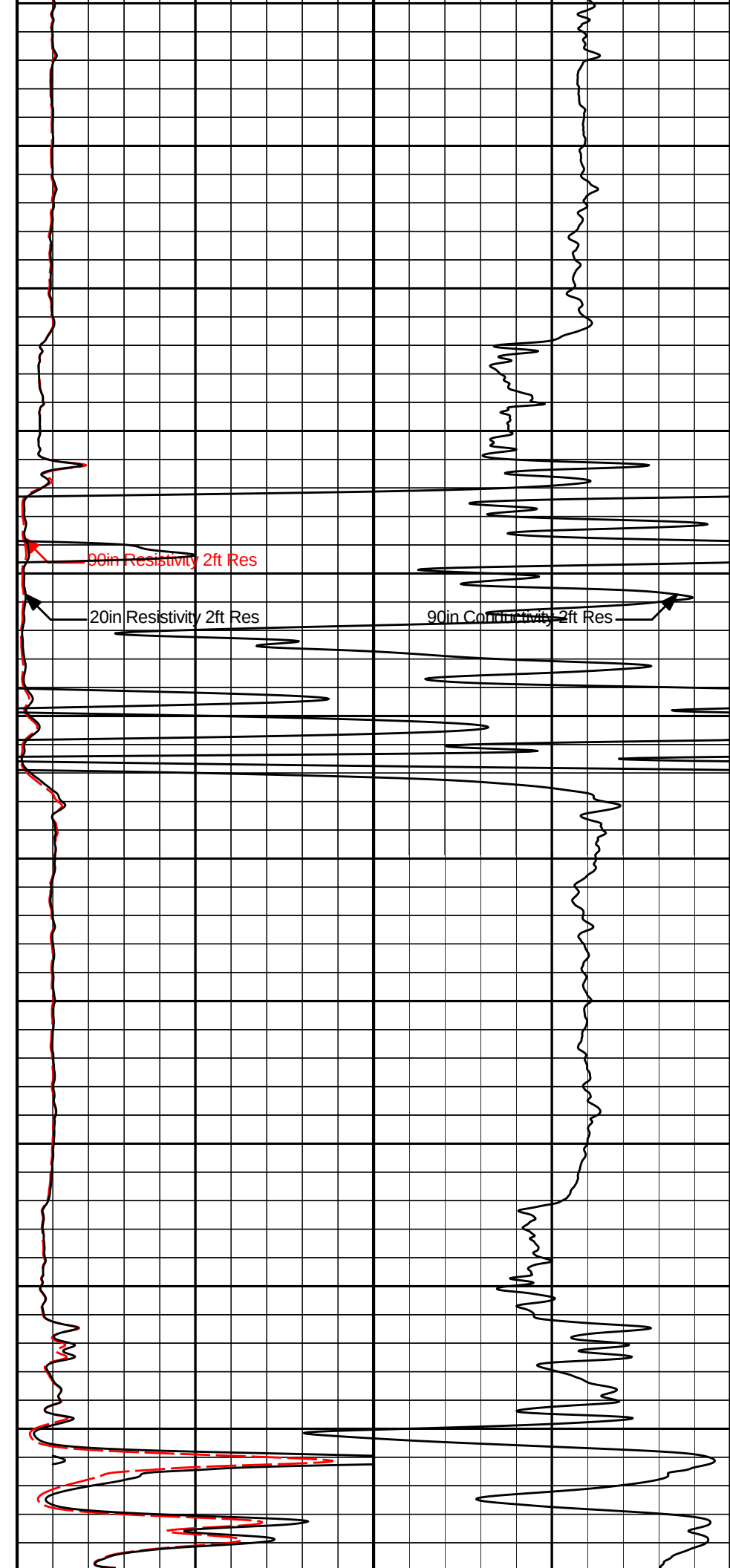
4000

4100

4200

Gamma API

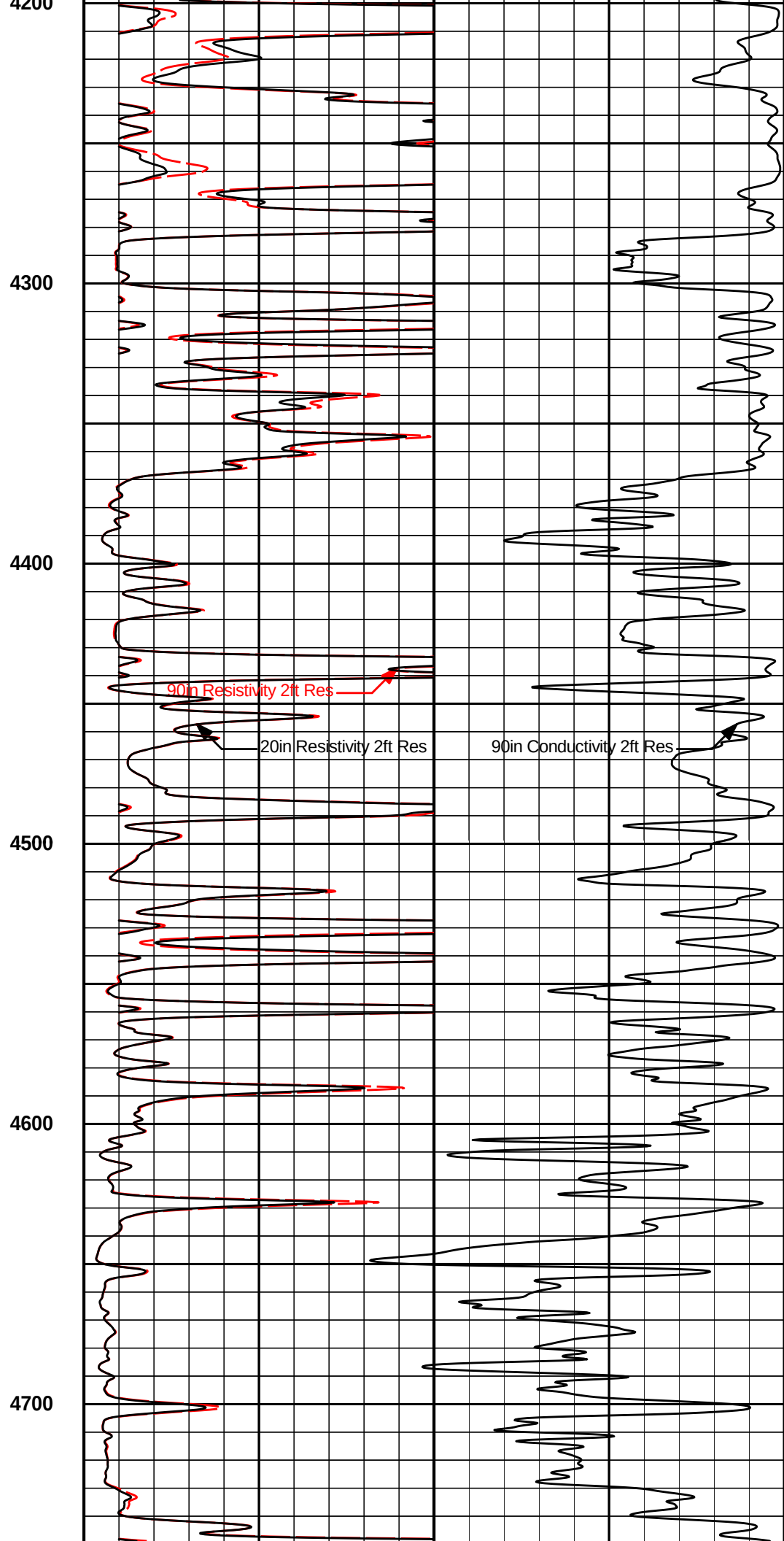
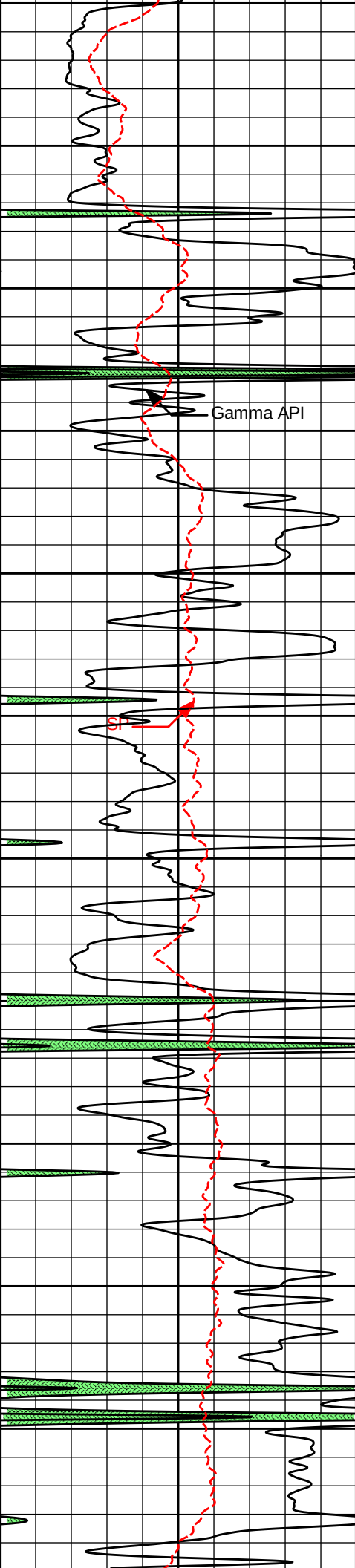
50

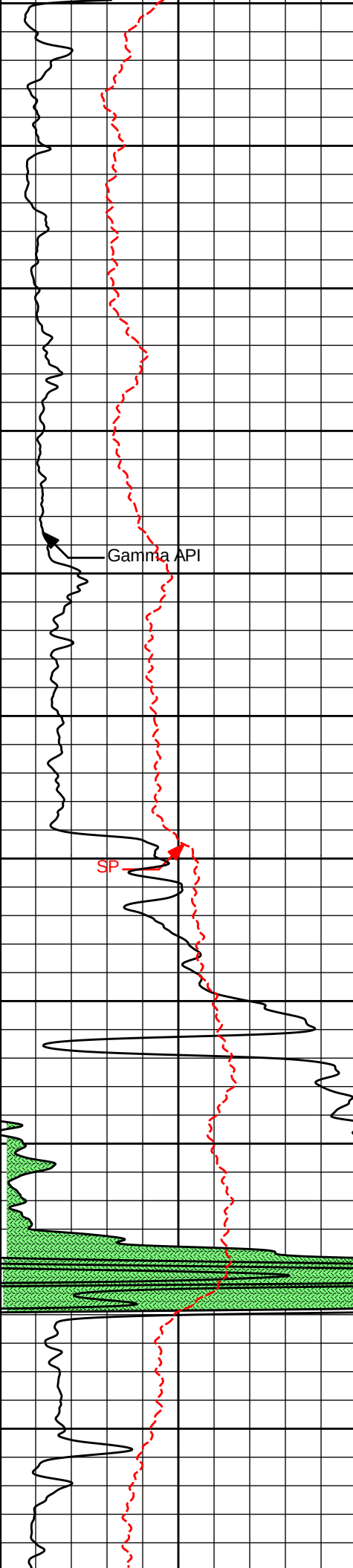


90in Resistivity 2ft Res

20in Resistivity 2ft Res

90in Conductivity 2ft Res





4800

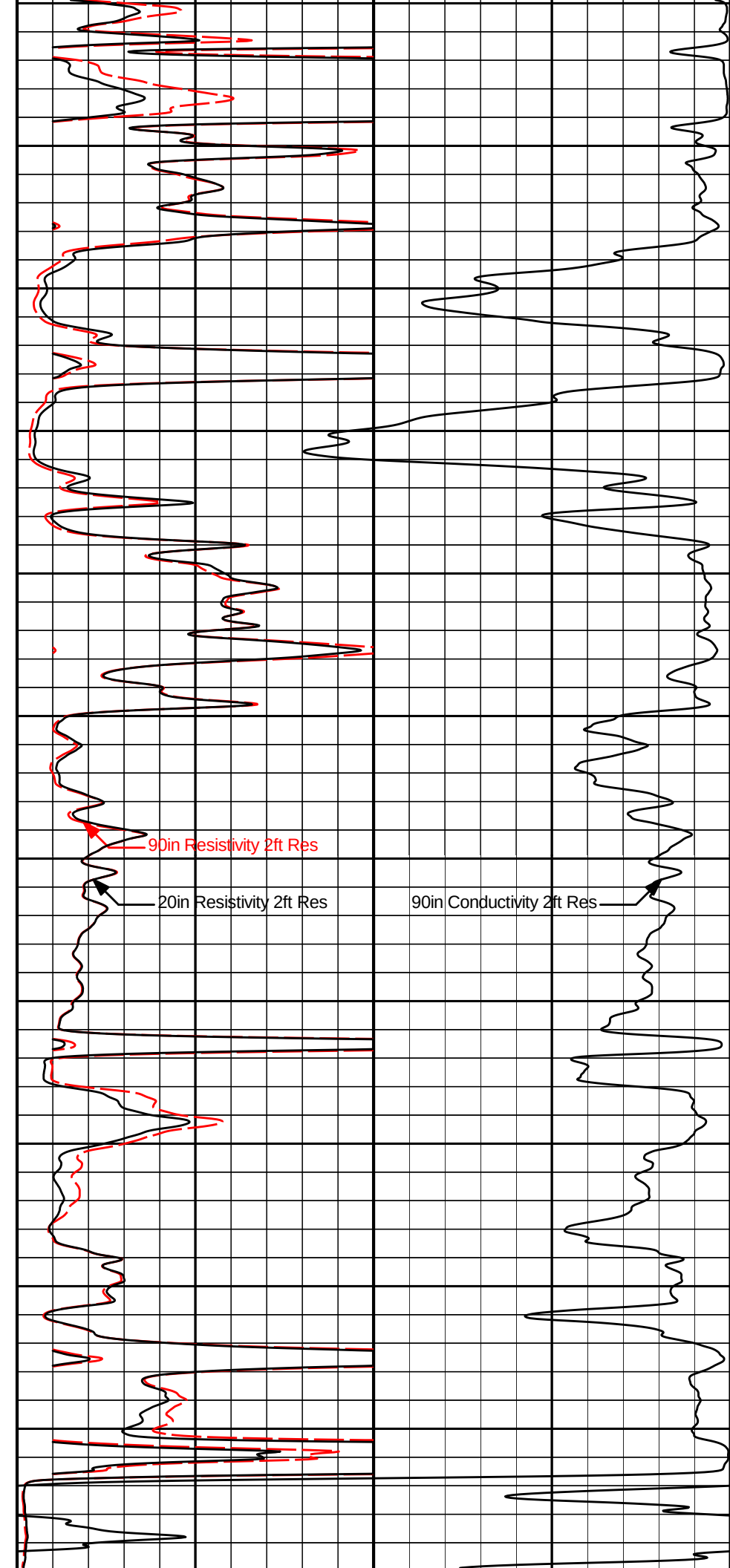
4900

5000

5100

5200

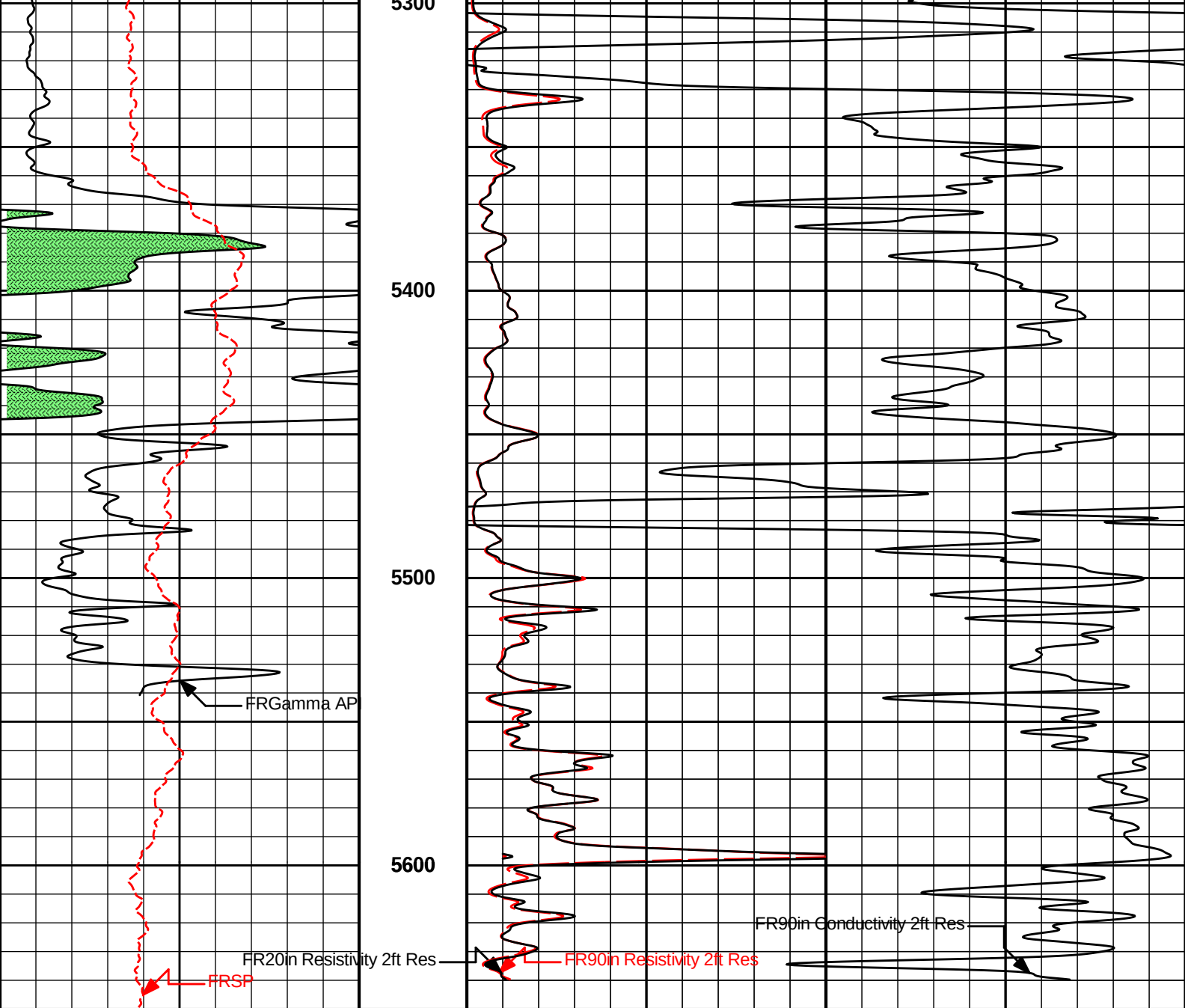
5300



90in Resistivity 2ft Res

20in Resistivity 2ft Res

90in Conductivity 2ft Res



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

HALLIBURTON

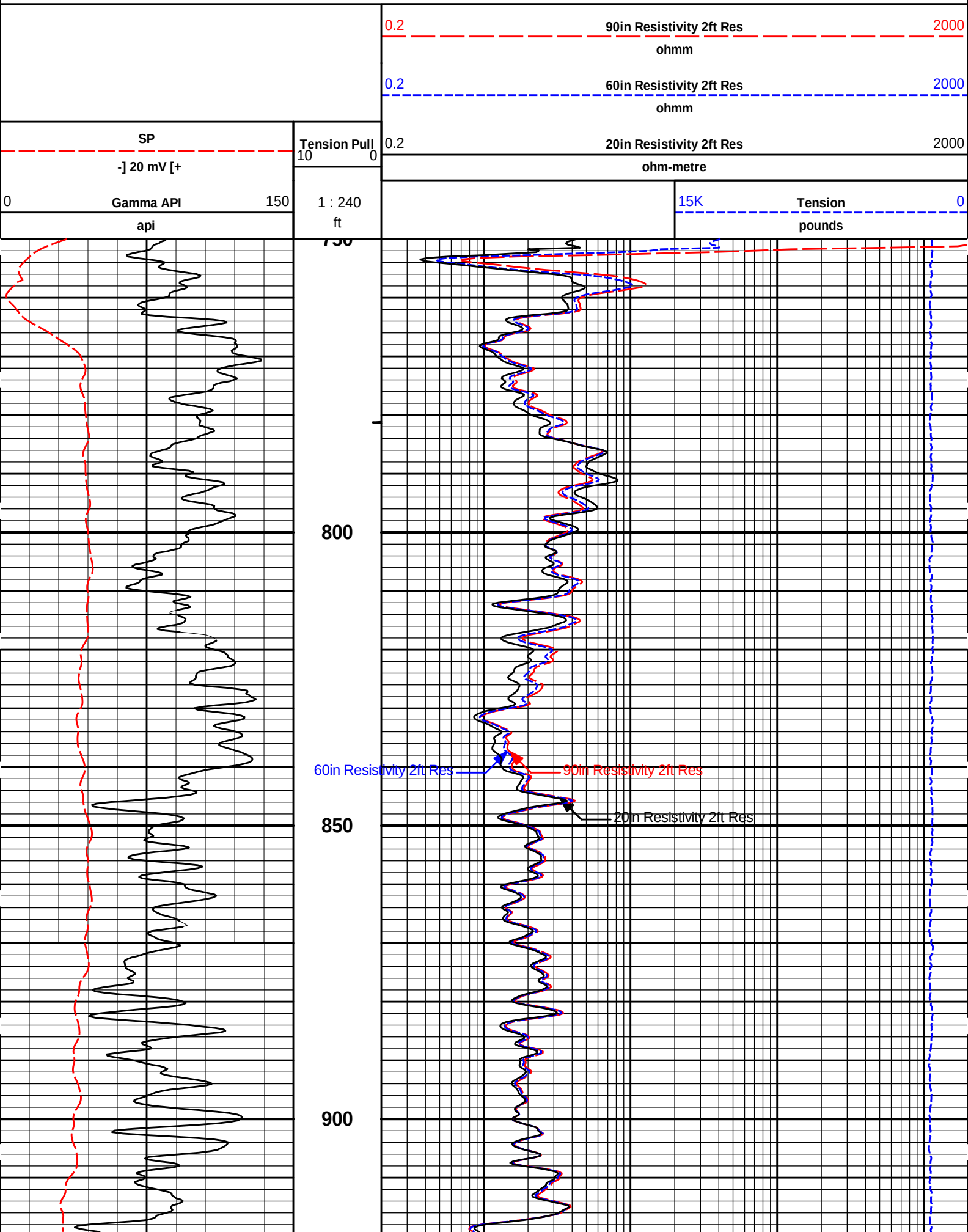
Plot Time: 17-Mar-14 08:39:00
Plot Range: 750 ft to 5650 ft
Data: {ActiveWell}\Well Based\MAIN_PASSI
Plot File: \\-LOCAL-\\BLUE_SWD_1_3510003 TRIPLE_CSNGI\ACRT11_ACRT_2inx

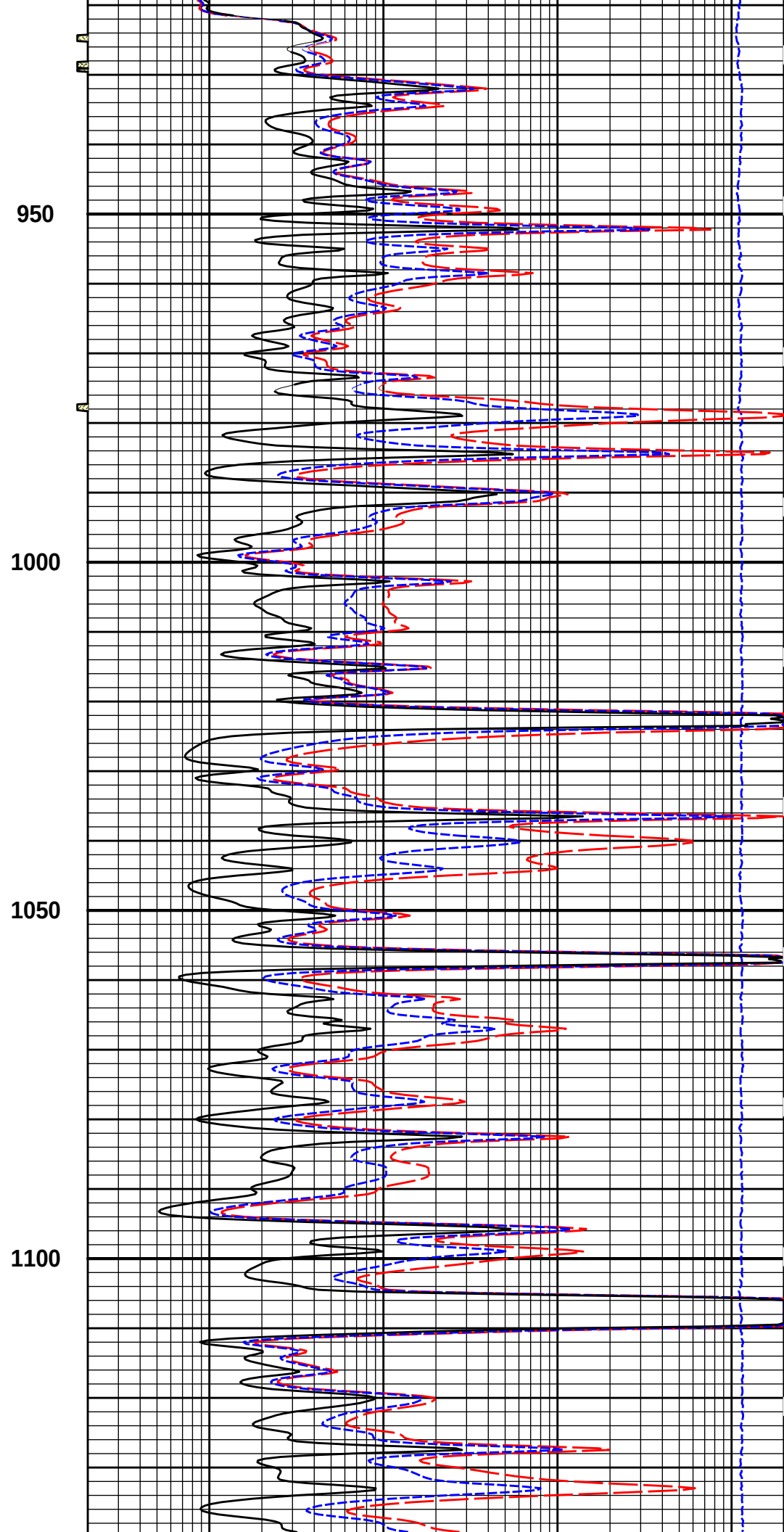
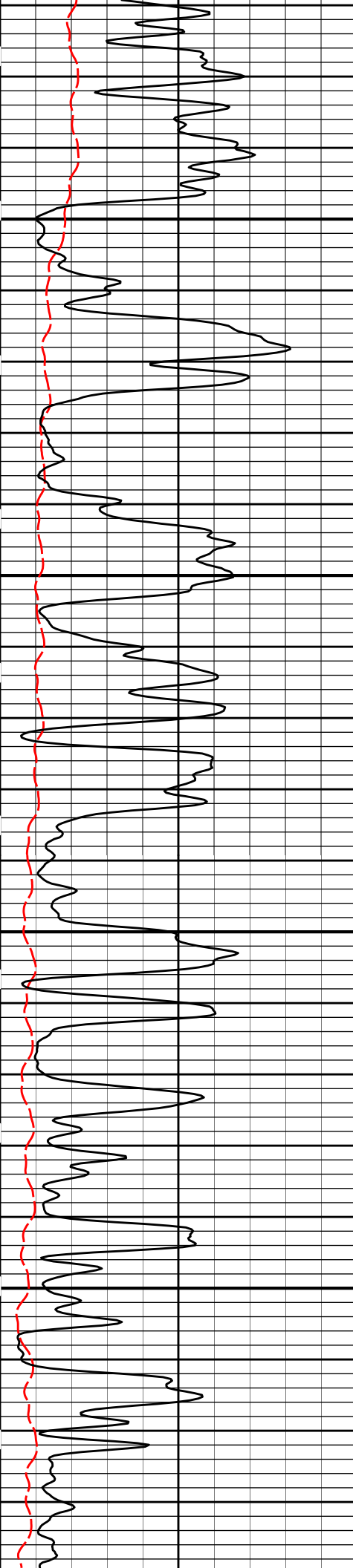
2 INCH MAIN LOG

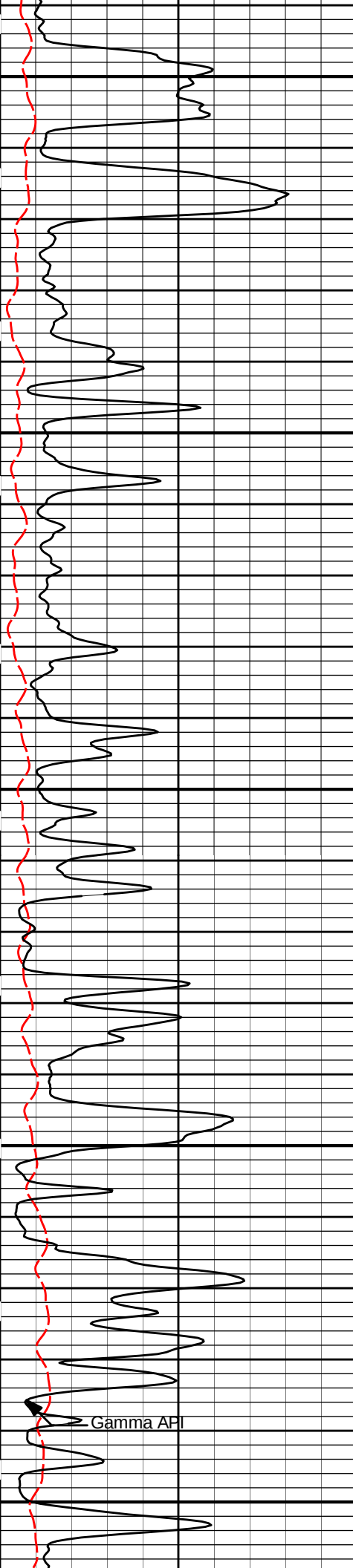
HALLIBURTON

Plot Time: 17-Mar-14 08:39:00
Plot Range: 750 ft to 5652.67 ft
Data: {ActiveWell}\Well Based\MAIN_PASSI
Plot File: \\-LOCAL-\\BLUE_SWD_1_3510003 TRIPLE_CSNGI\ACRT11_ACRT_5_mainx

5 INCH MAIN LOG







1150

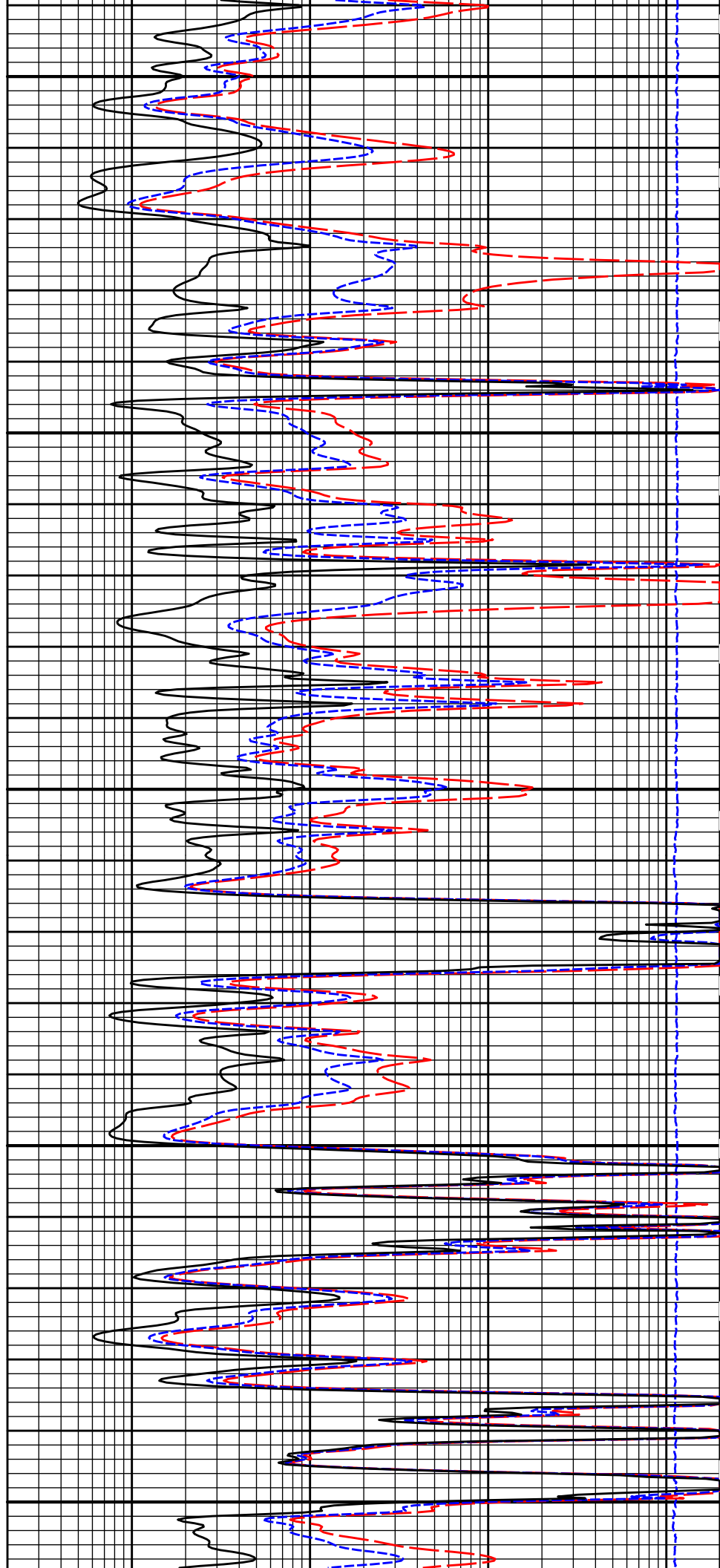
1200

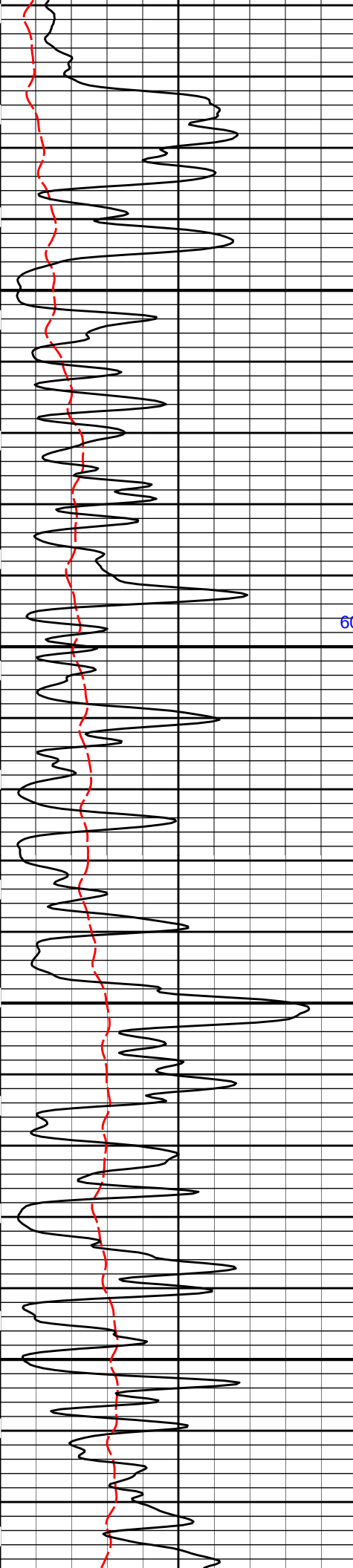
1250

1300

1350

Gamma API





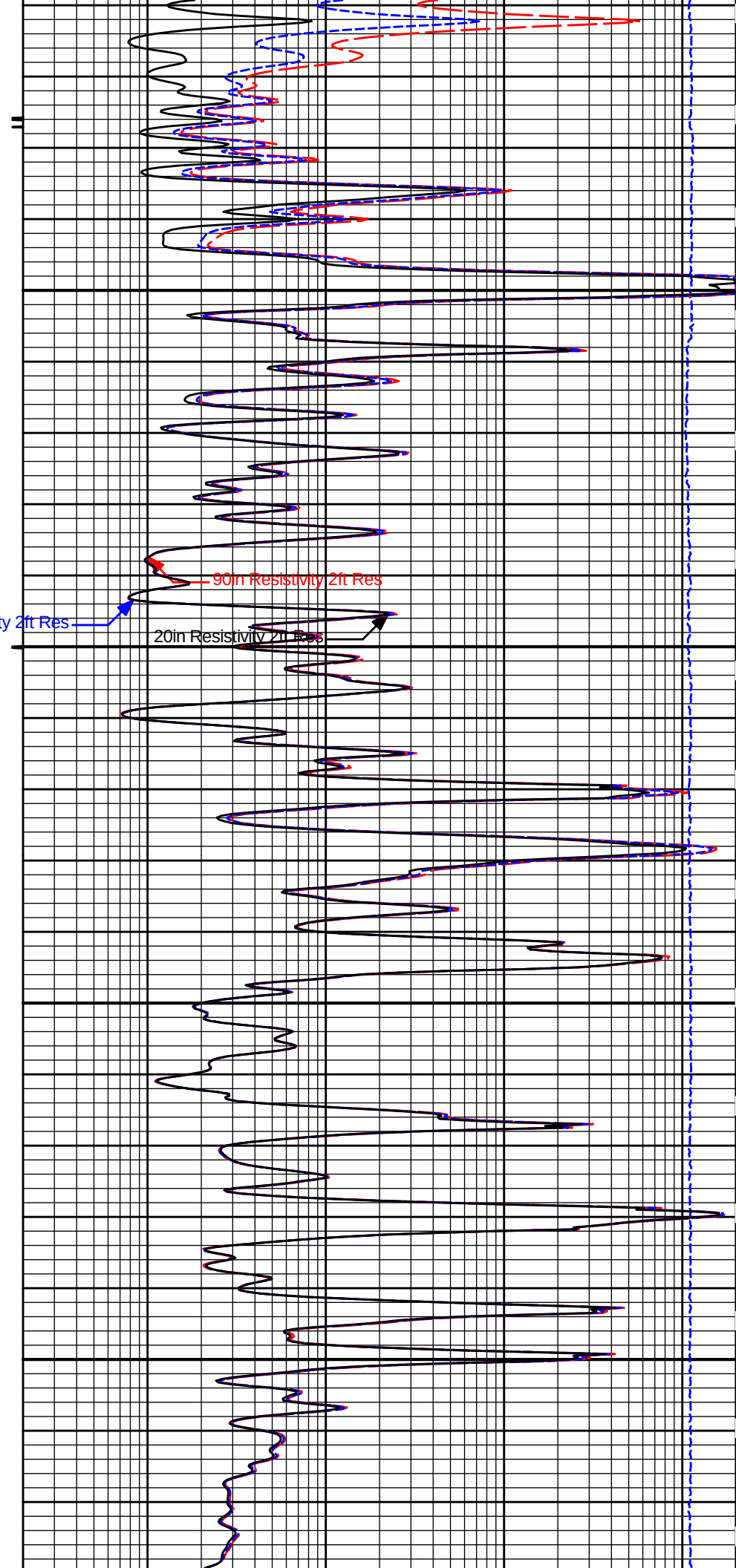
1400

60in Resistivity 2ft Res

1450

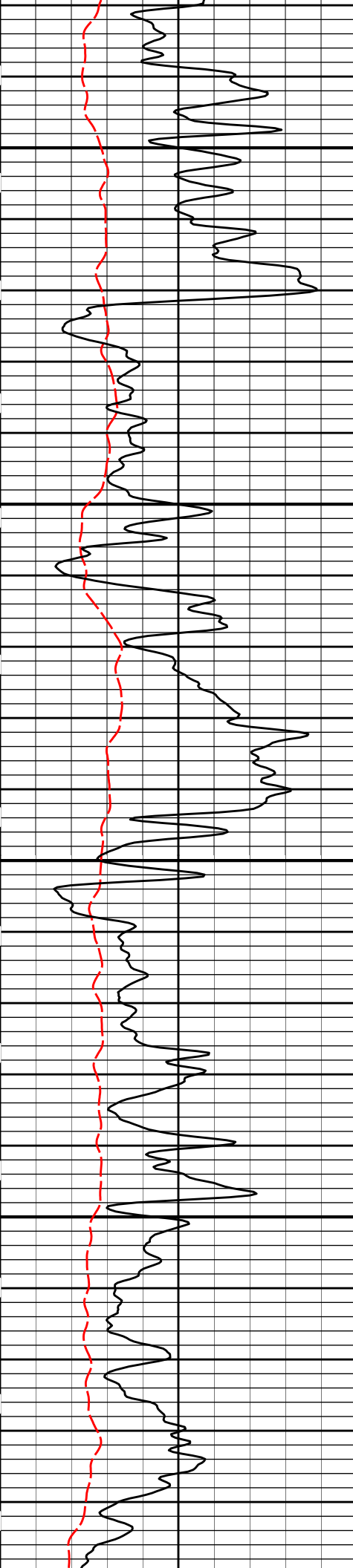
1500

1550



90in Resistivity 2ft Res

20in Resistivity 2ft Res



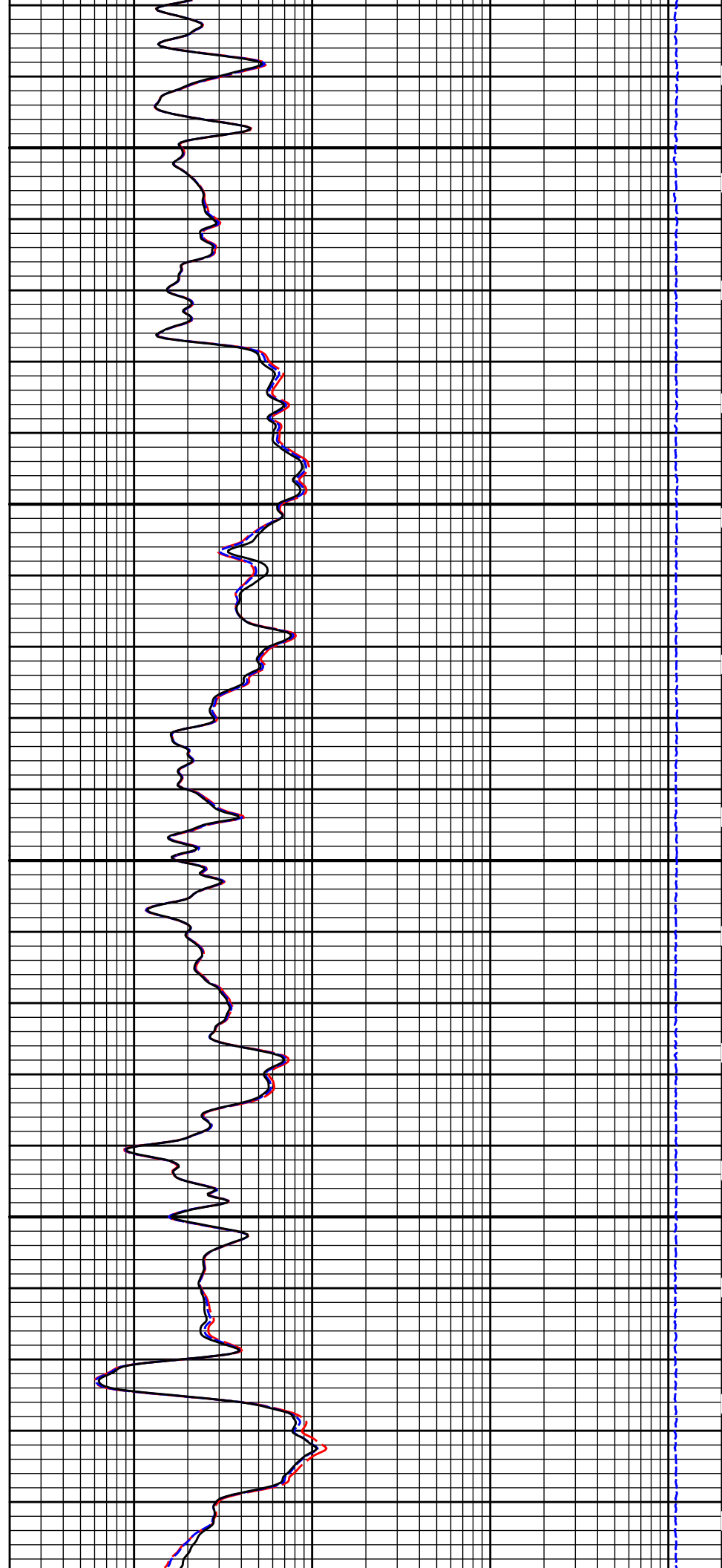
1600

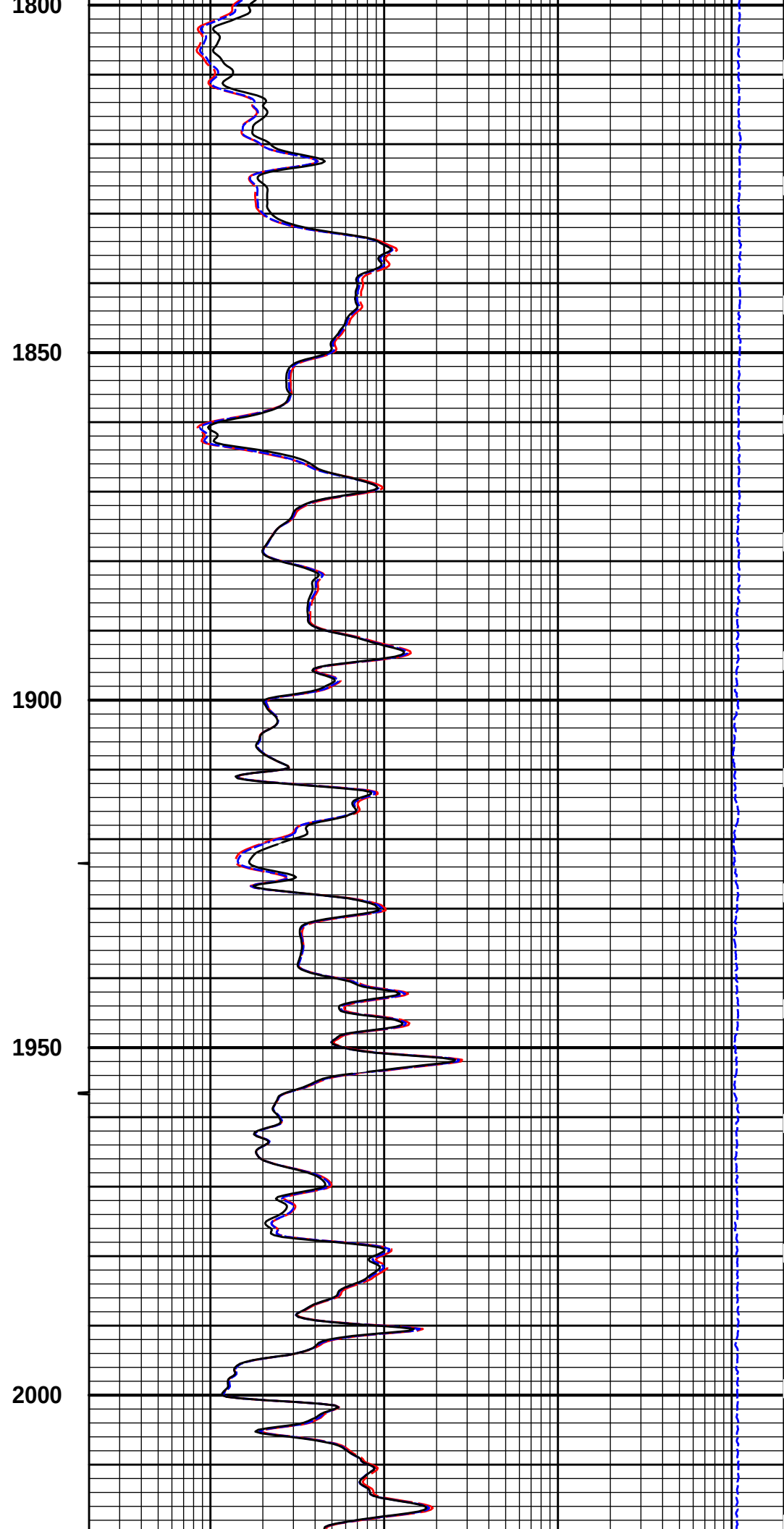
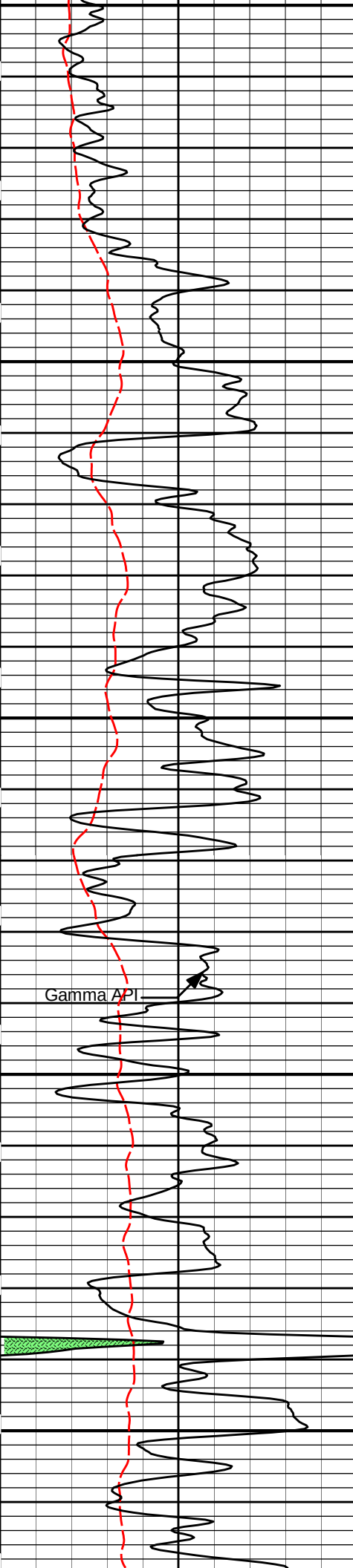
1650

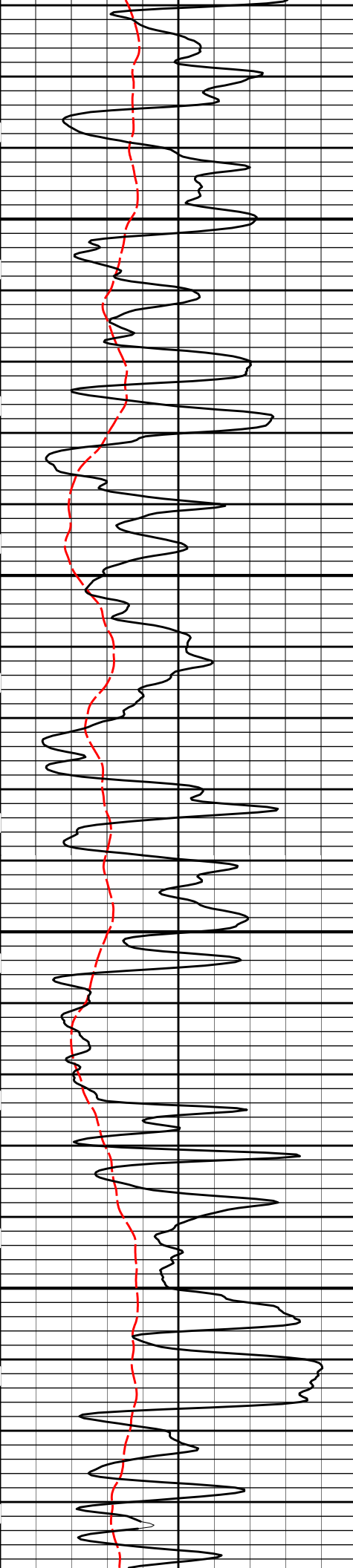
1700

1750

1800





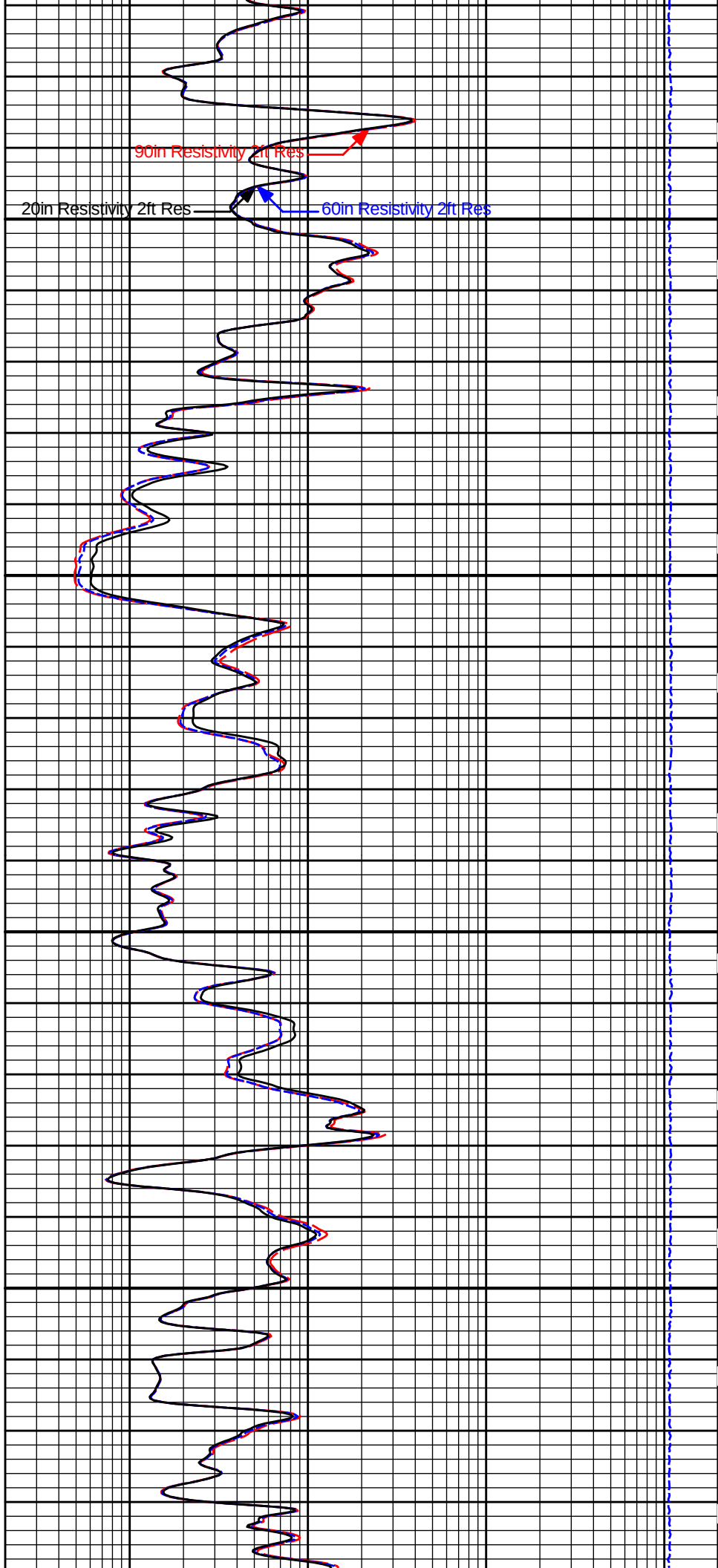


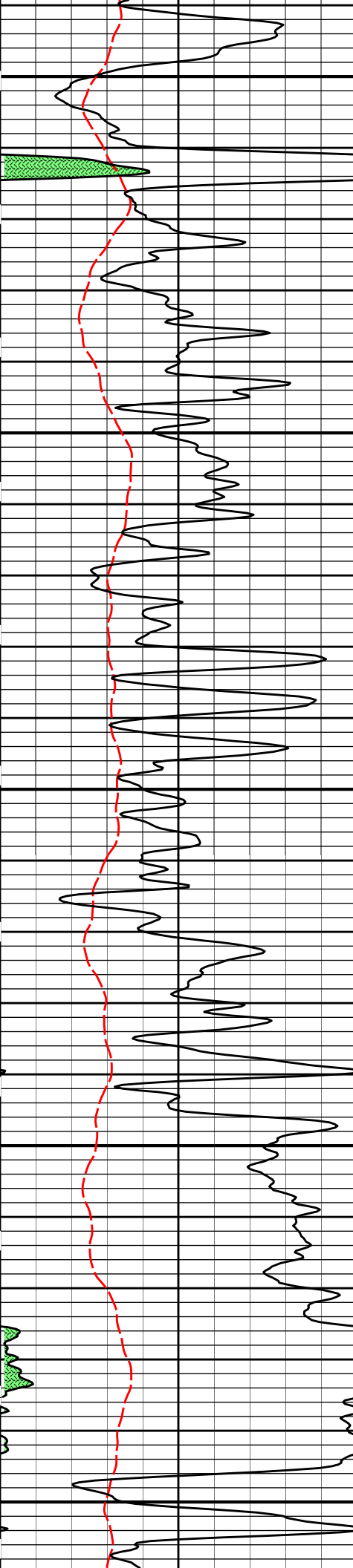
2050

2100

2150

2200





2250

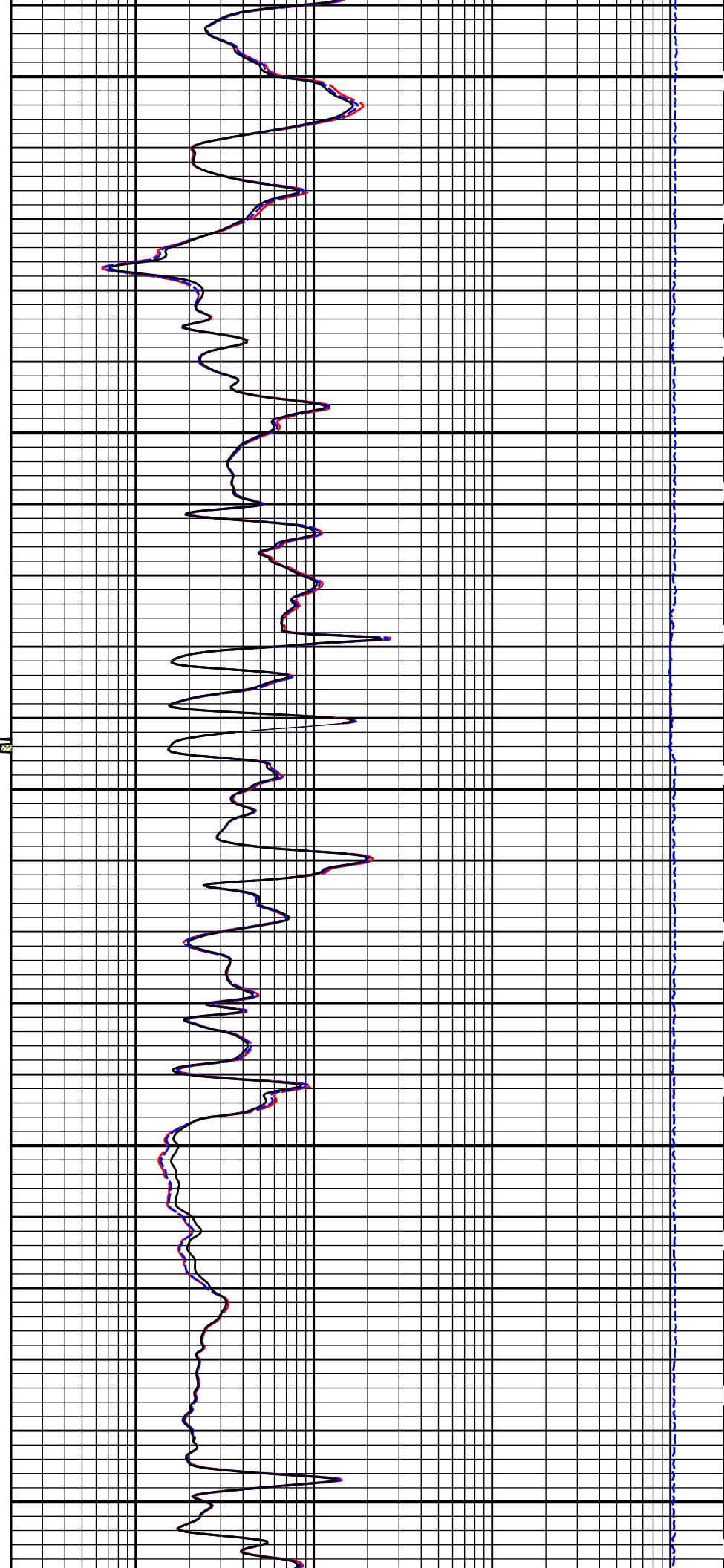
2300

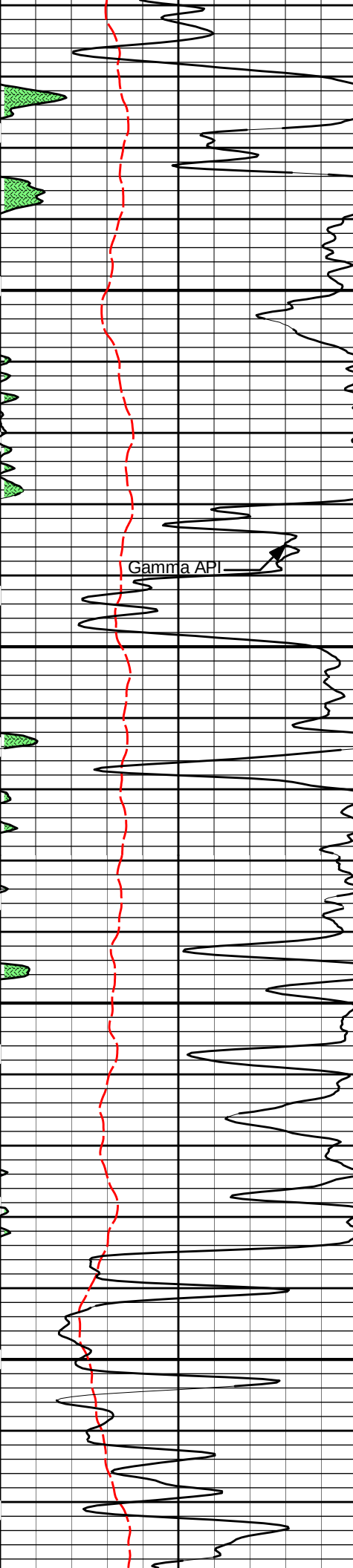
2350

2400

2450

Fl





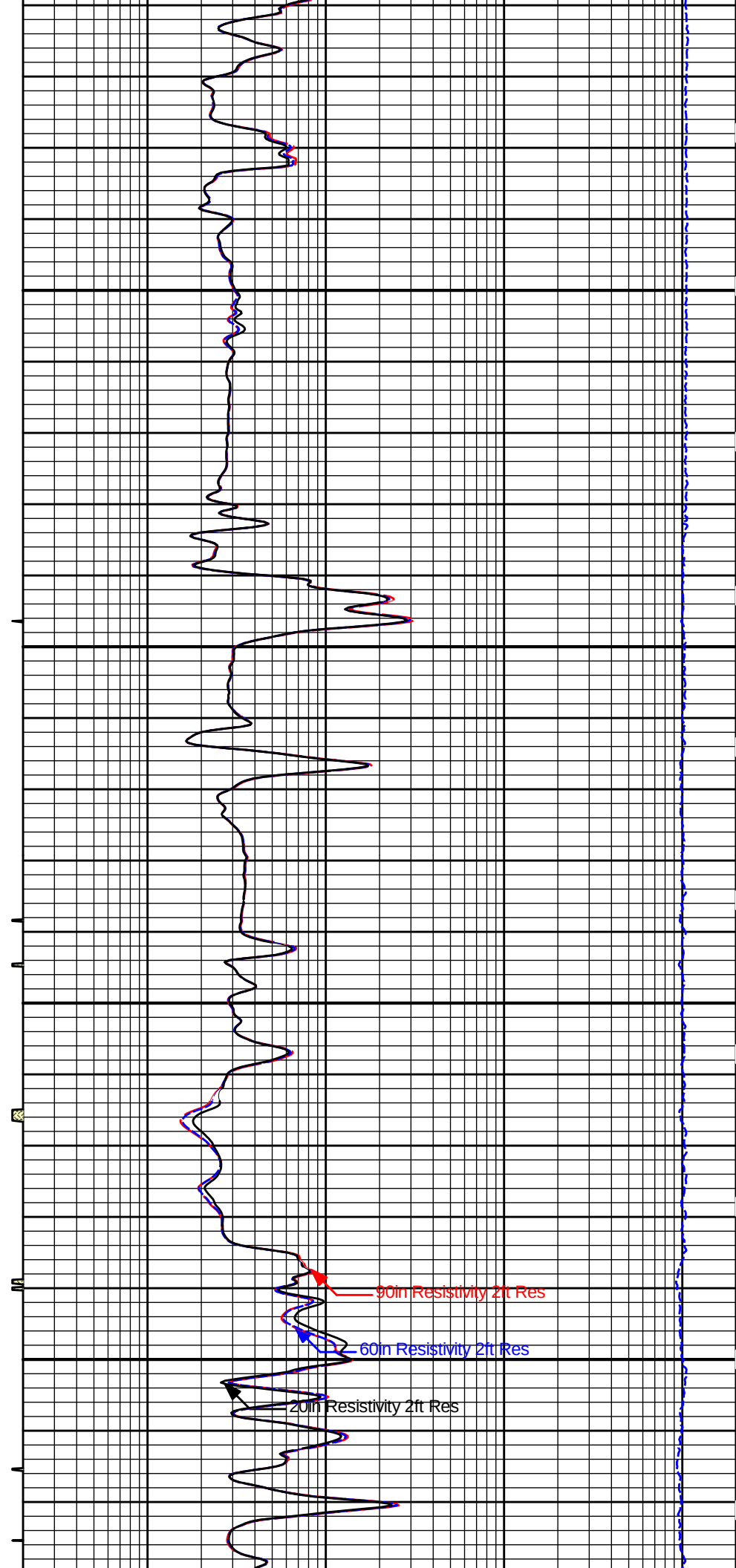
2500

2550

2600

2650

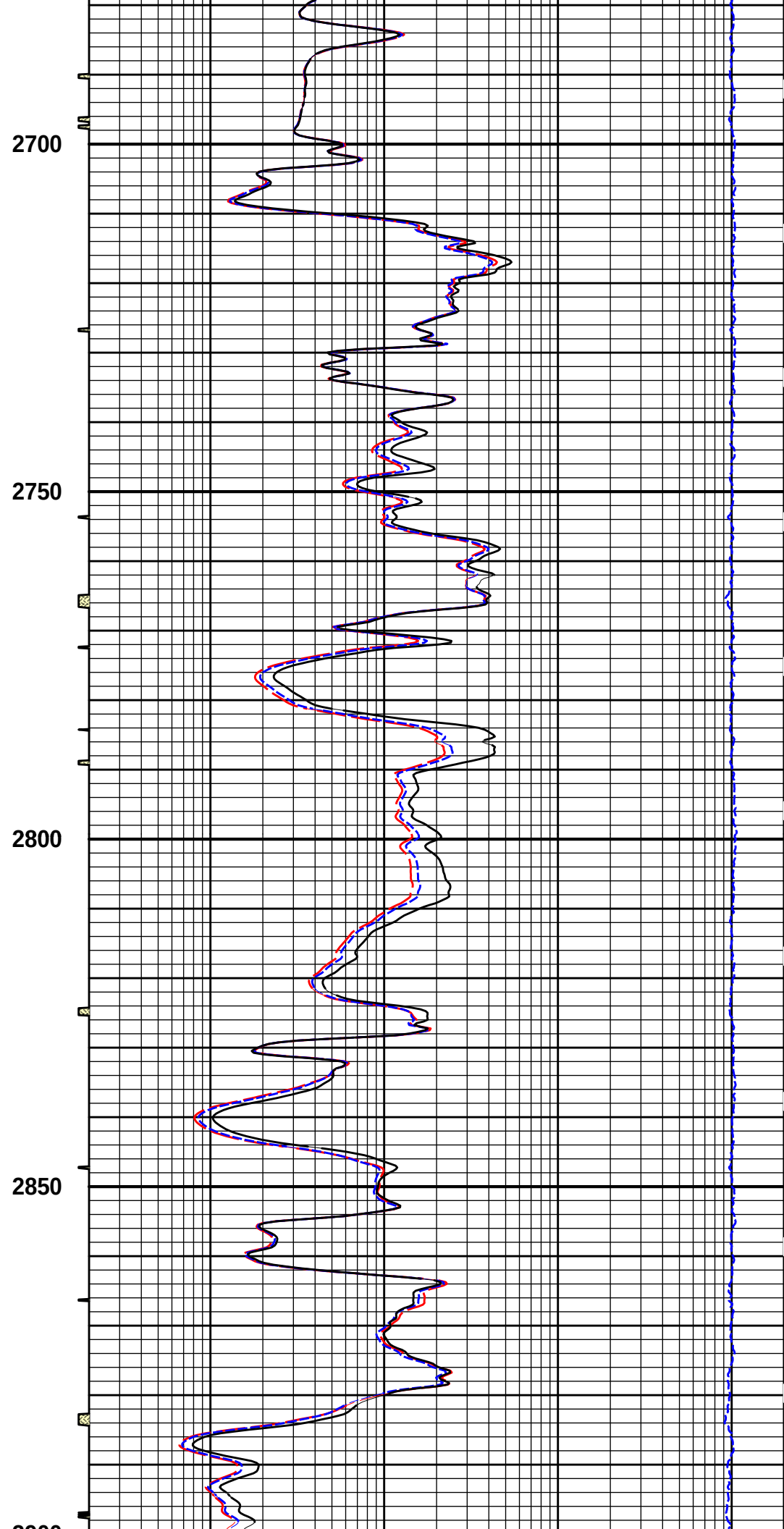
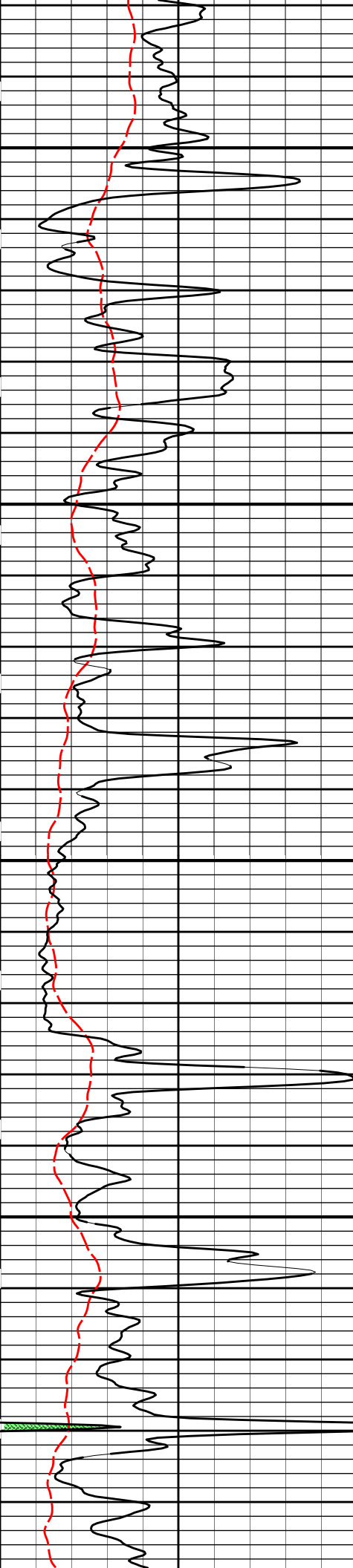
Gamma API

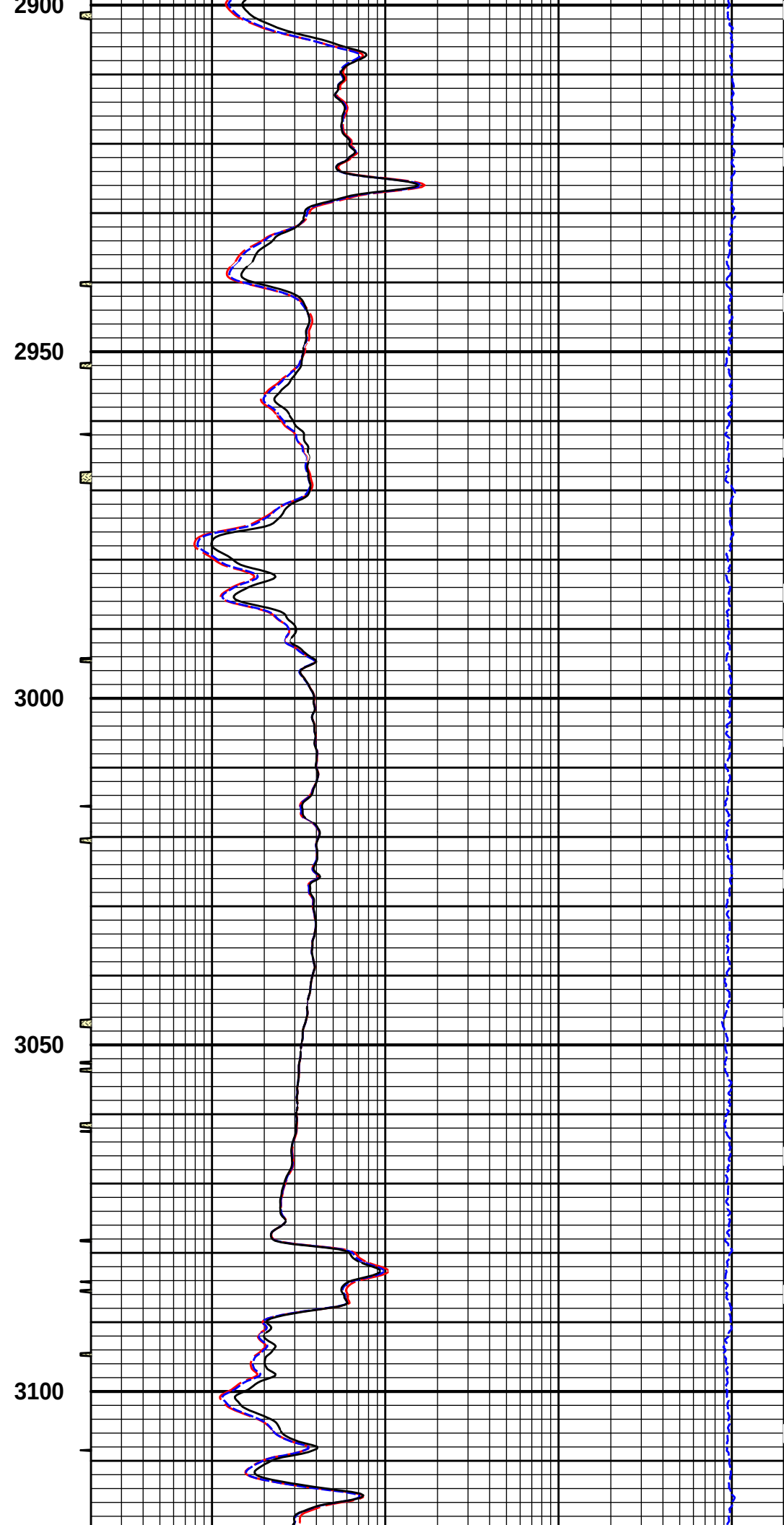
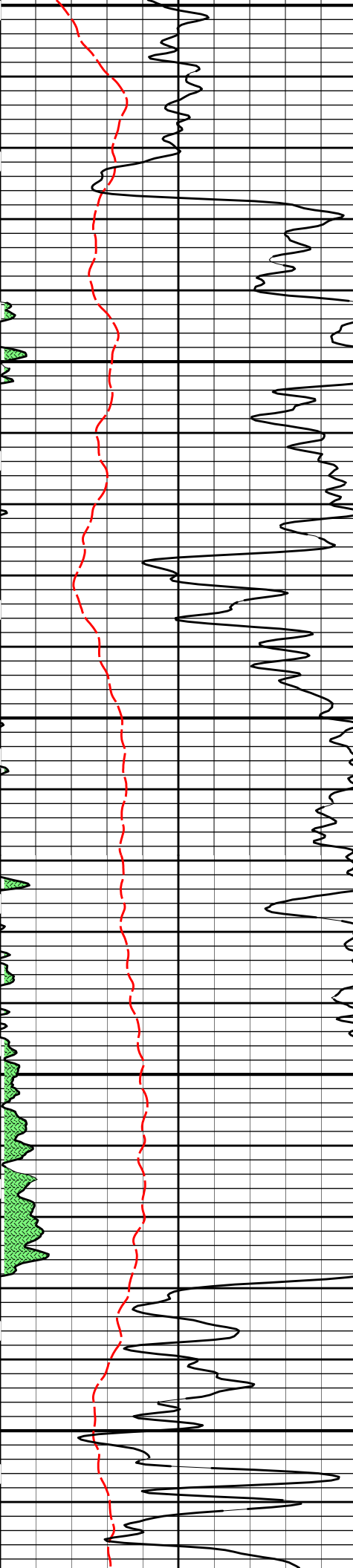


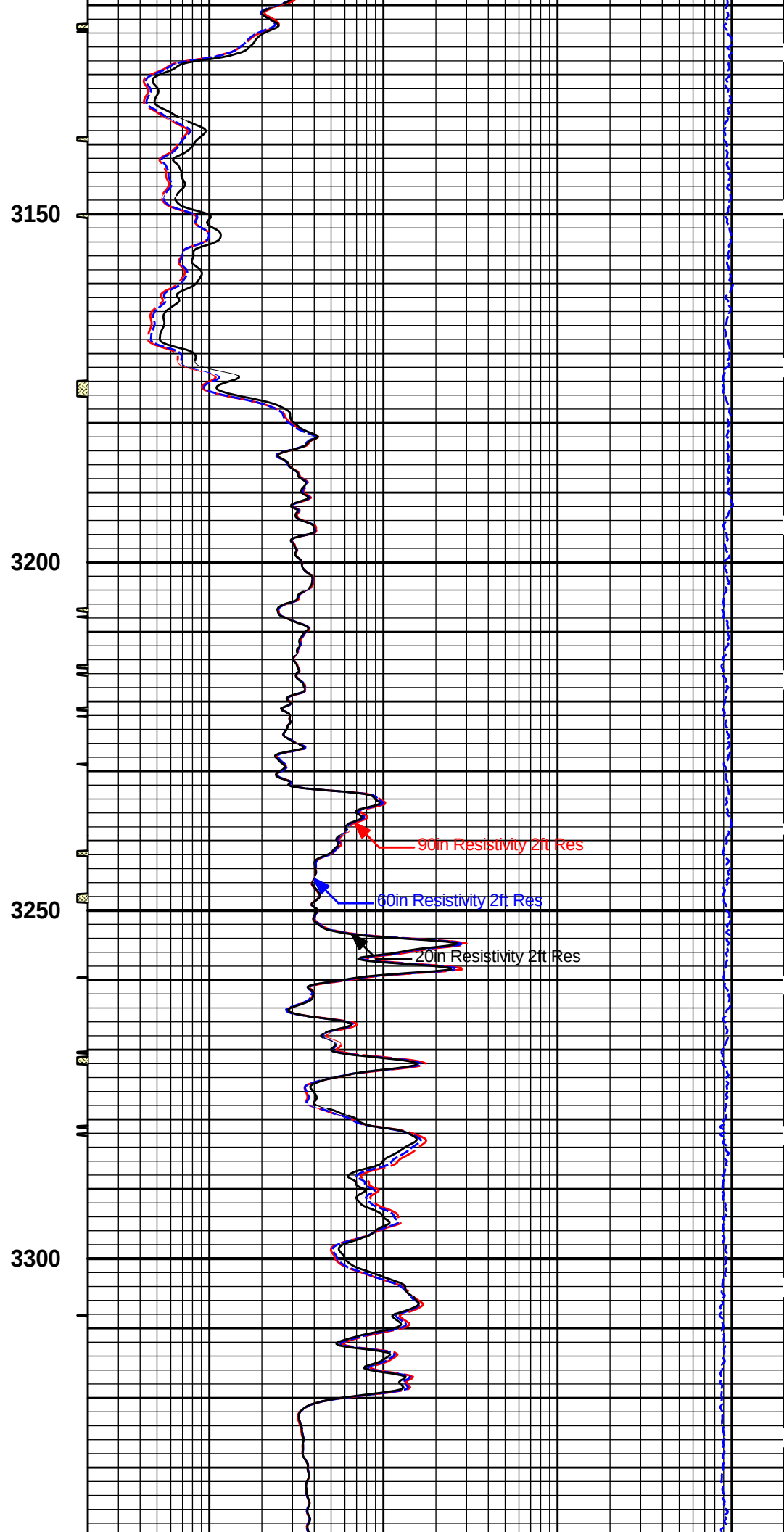
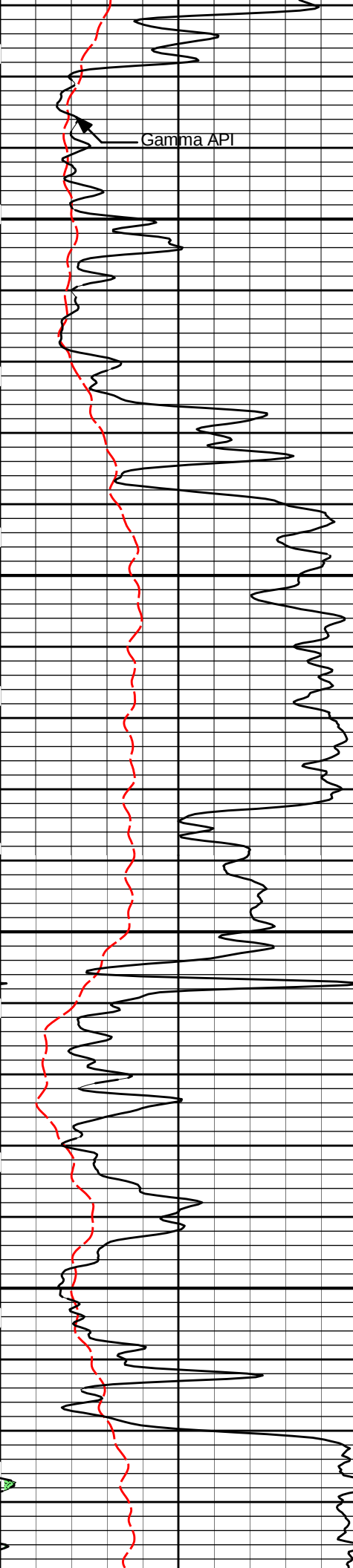
90in Resistivity 2ft Res

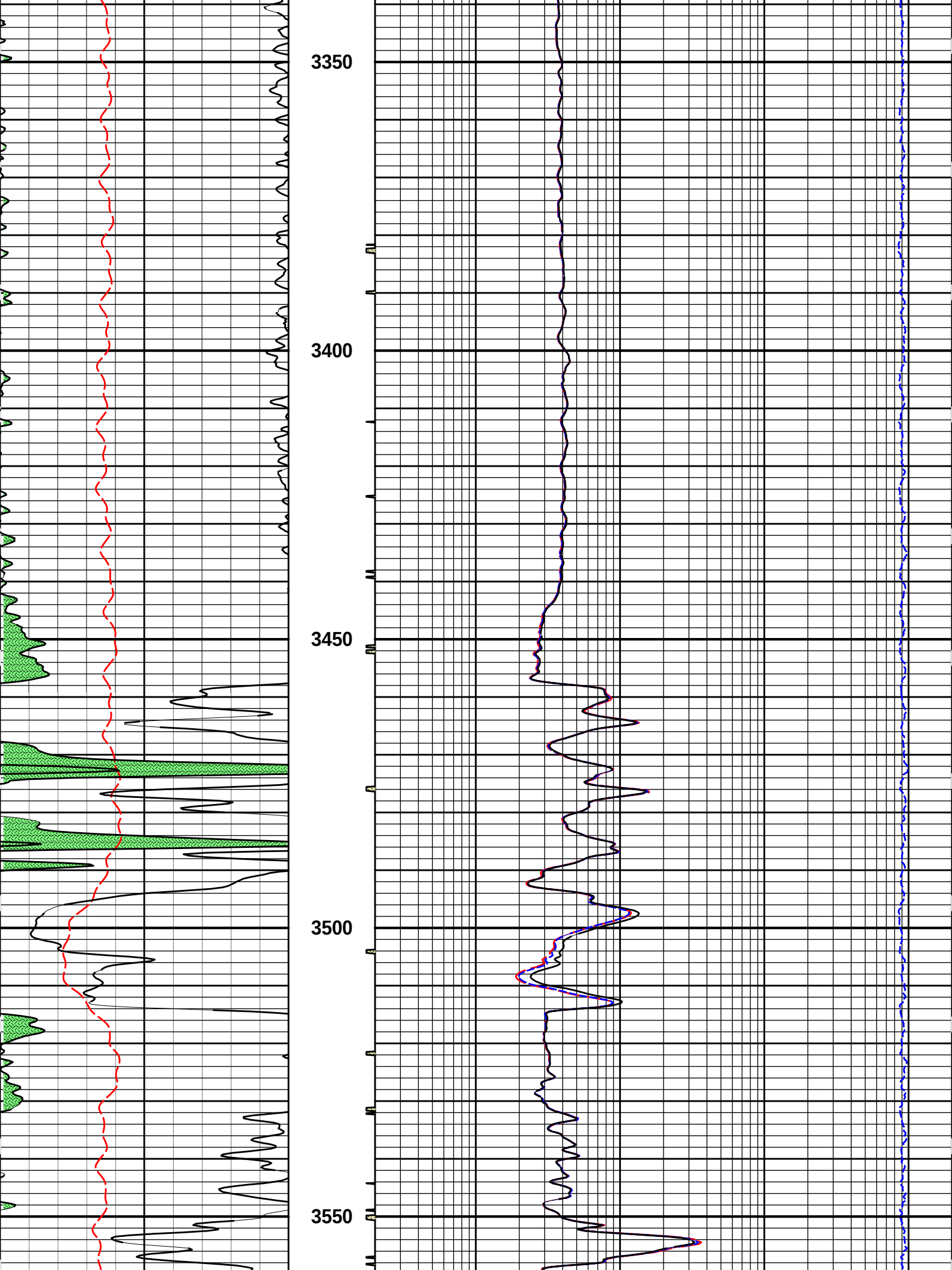
60in Resistivity 2ft Res

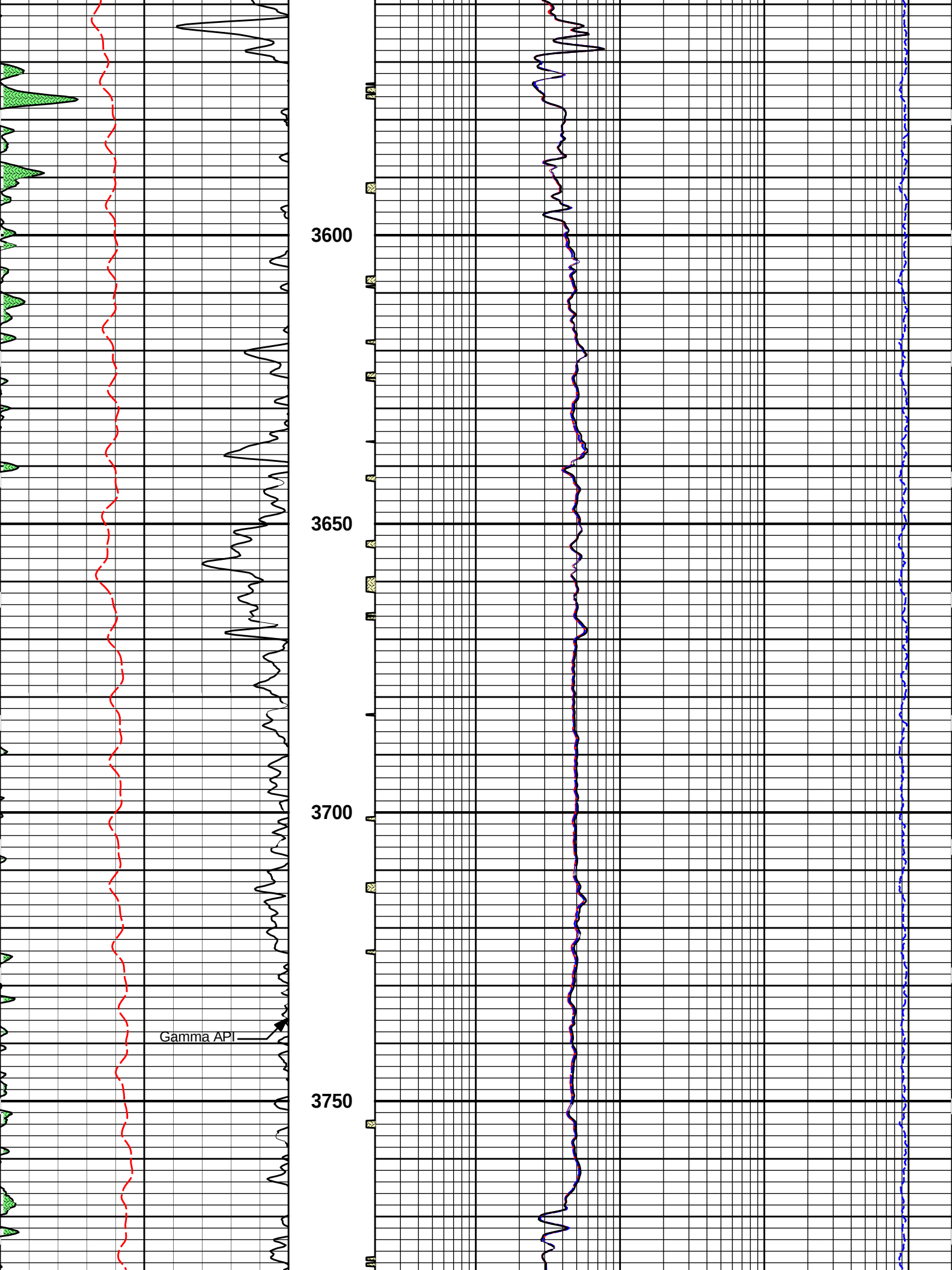
20in Resistivity 2ft Res

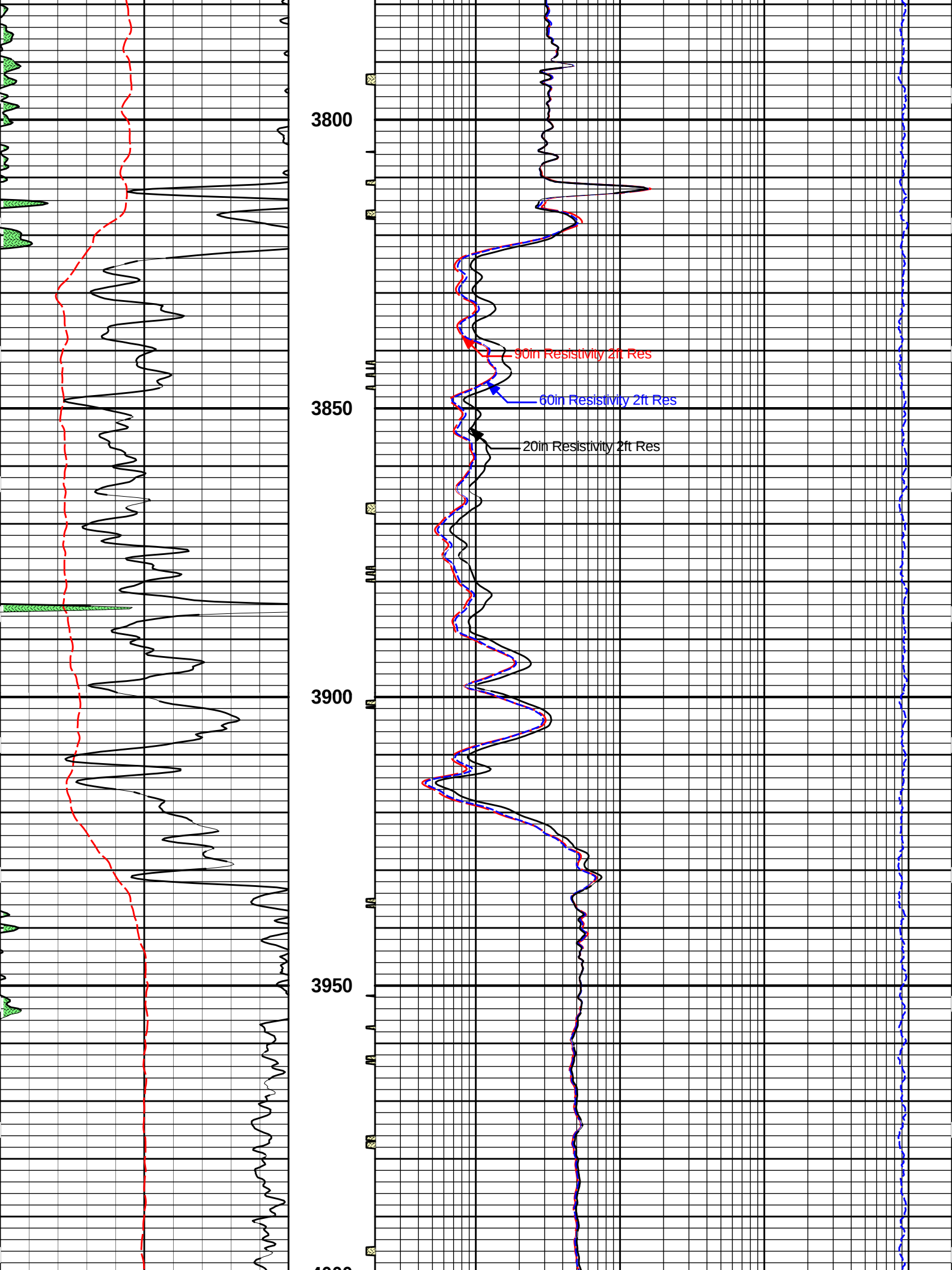


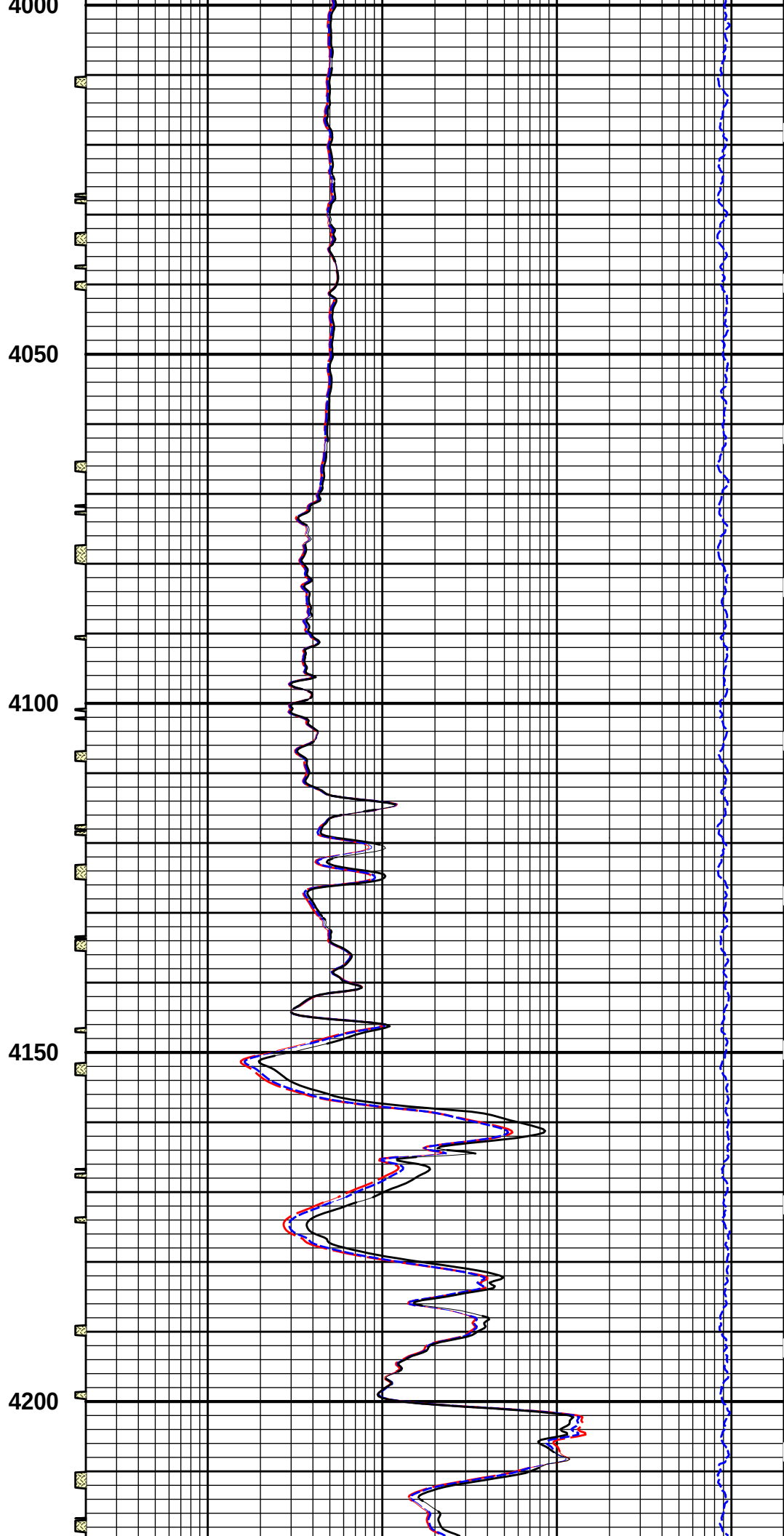
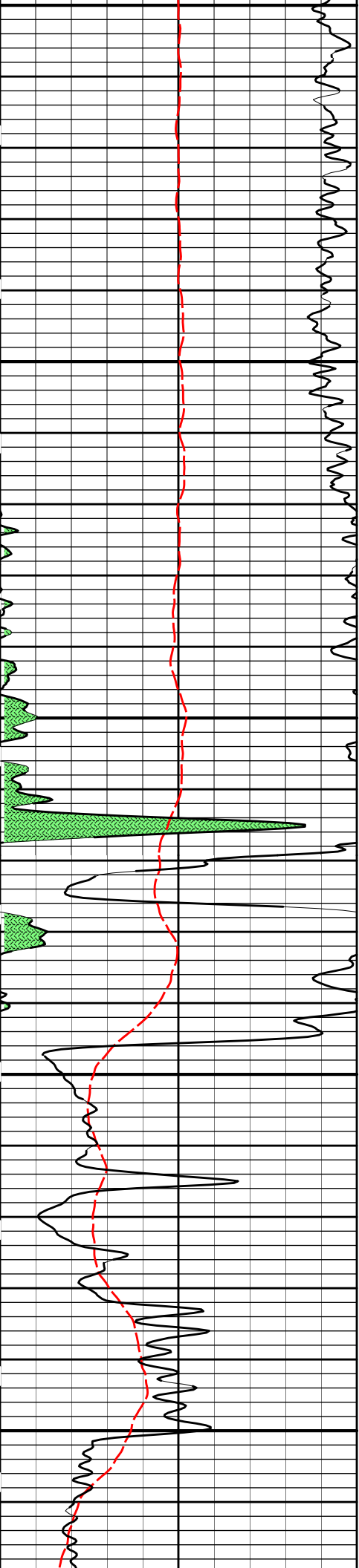


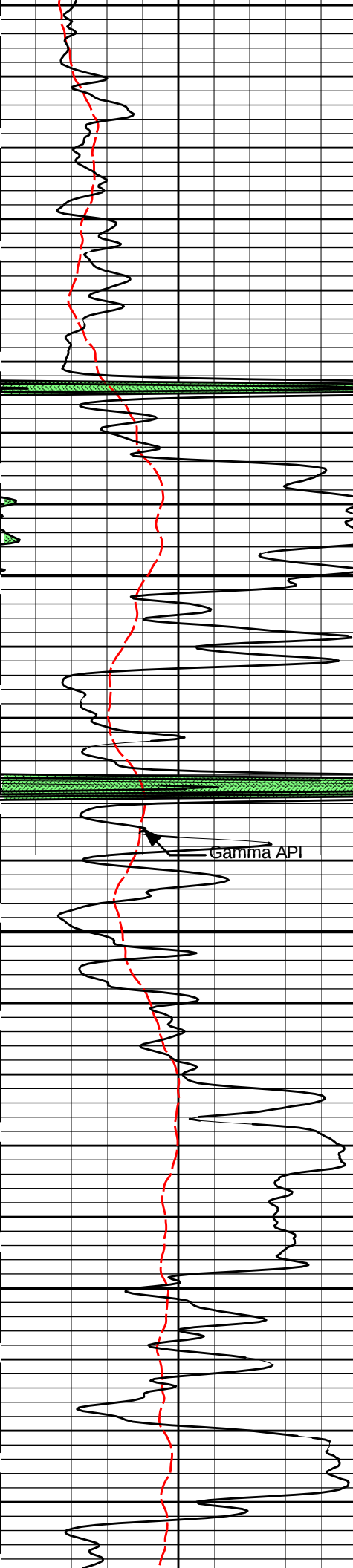










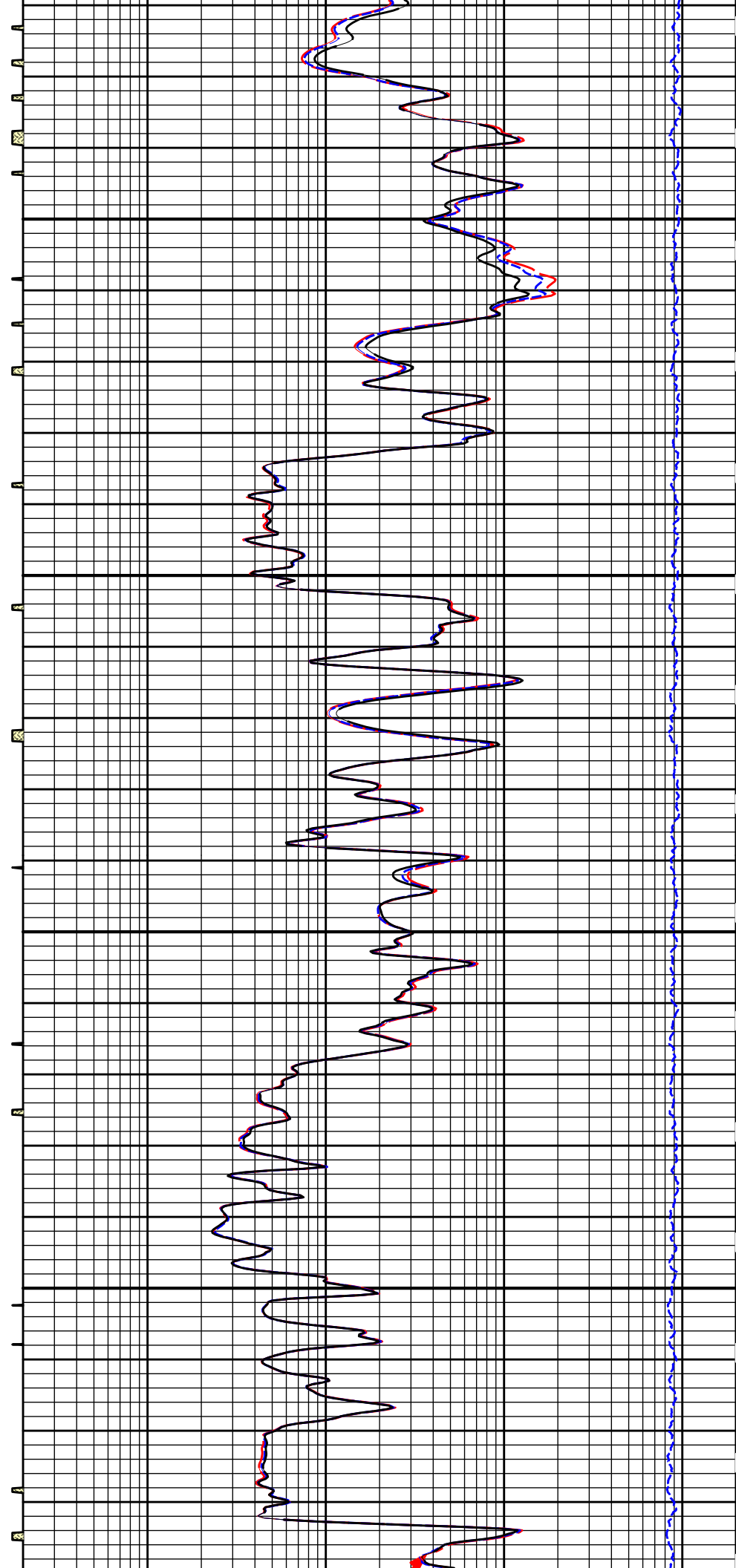


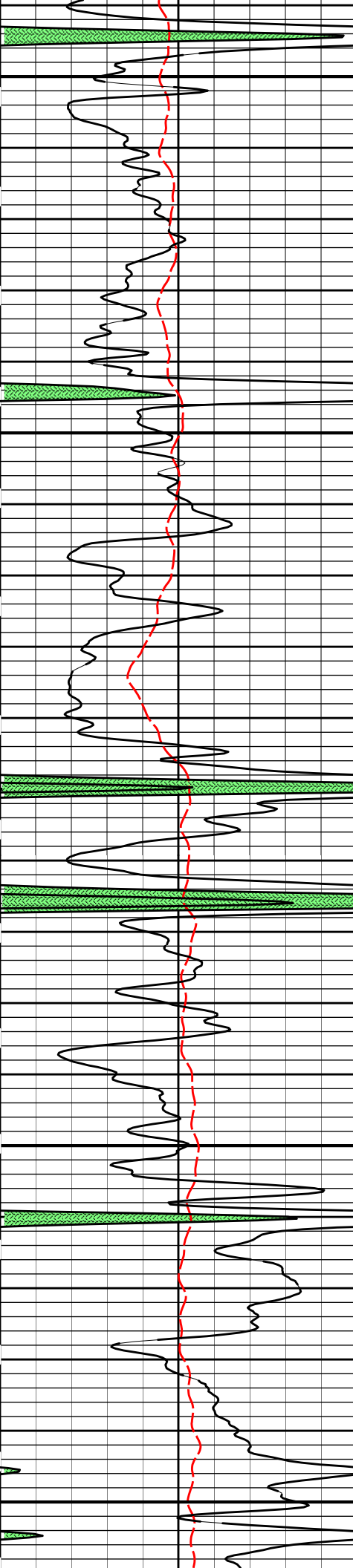
4250

4300

4350

4400





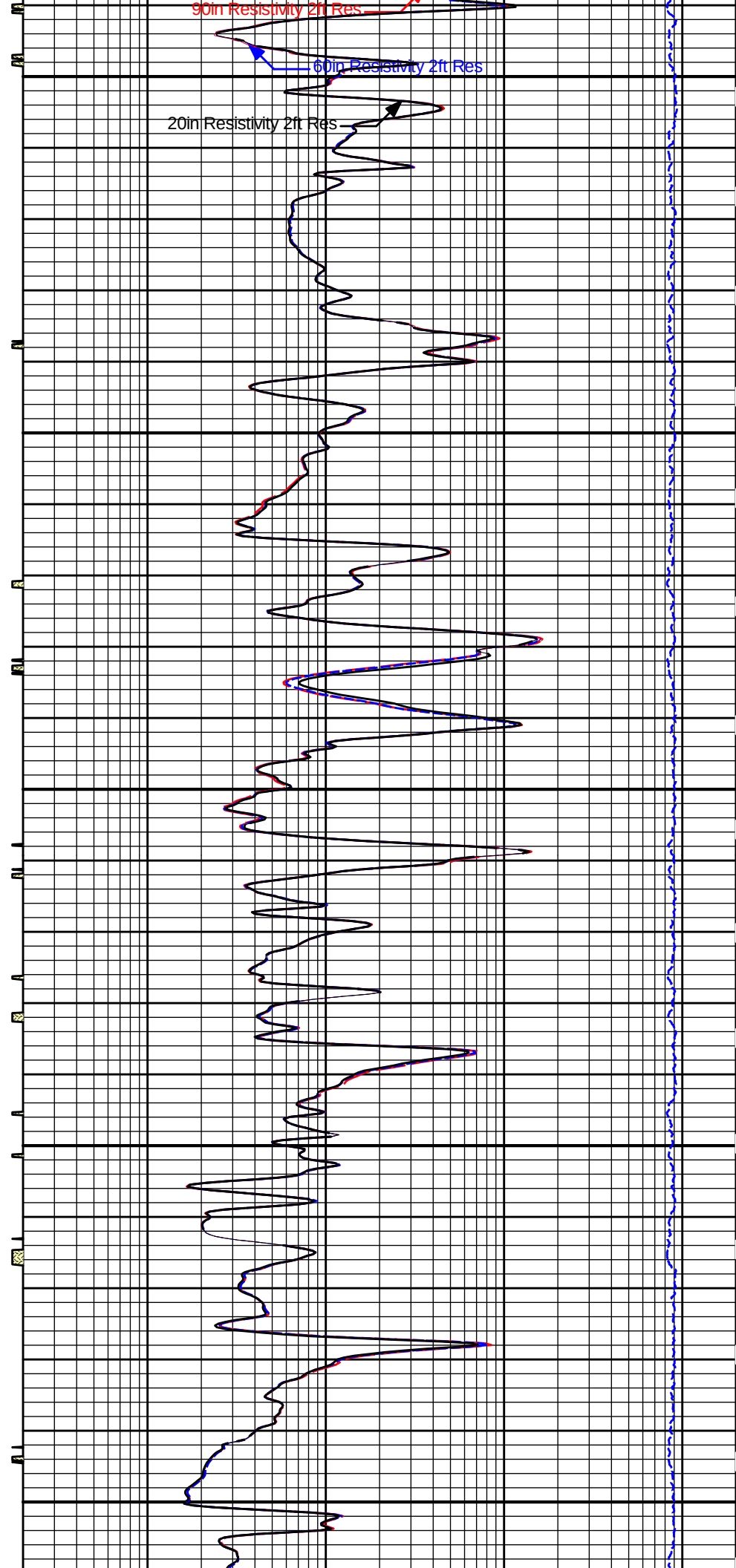
4450

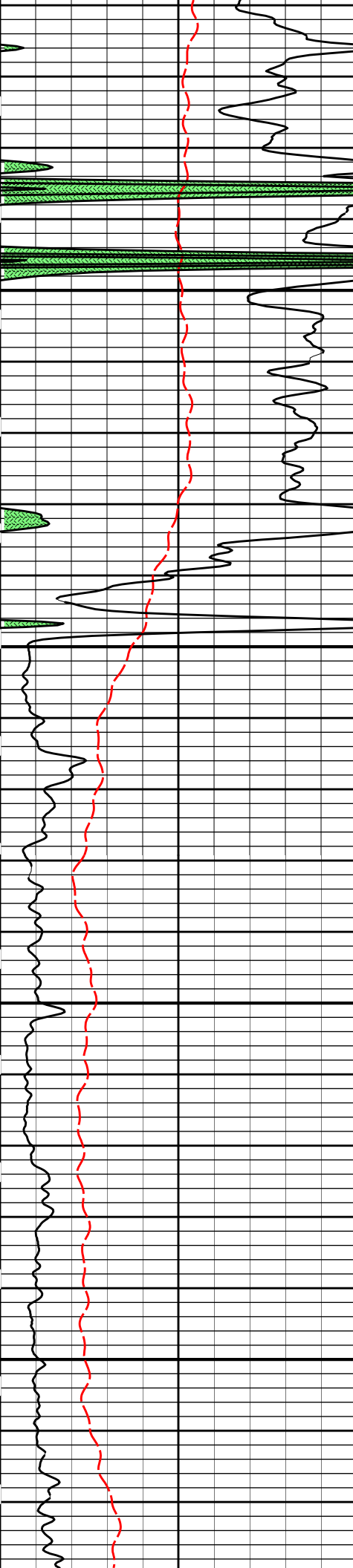
4500

4550

4600

4650



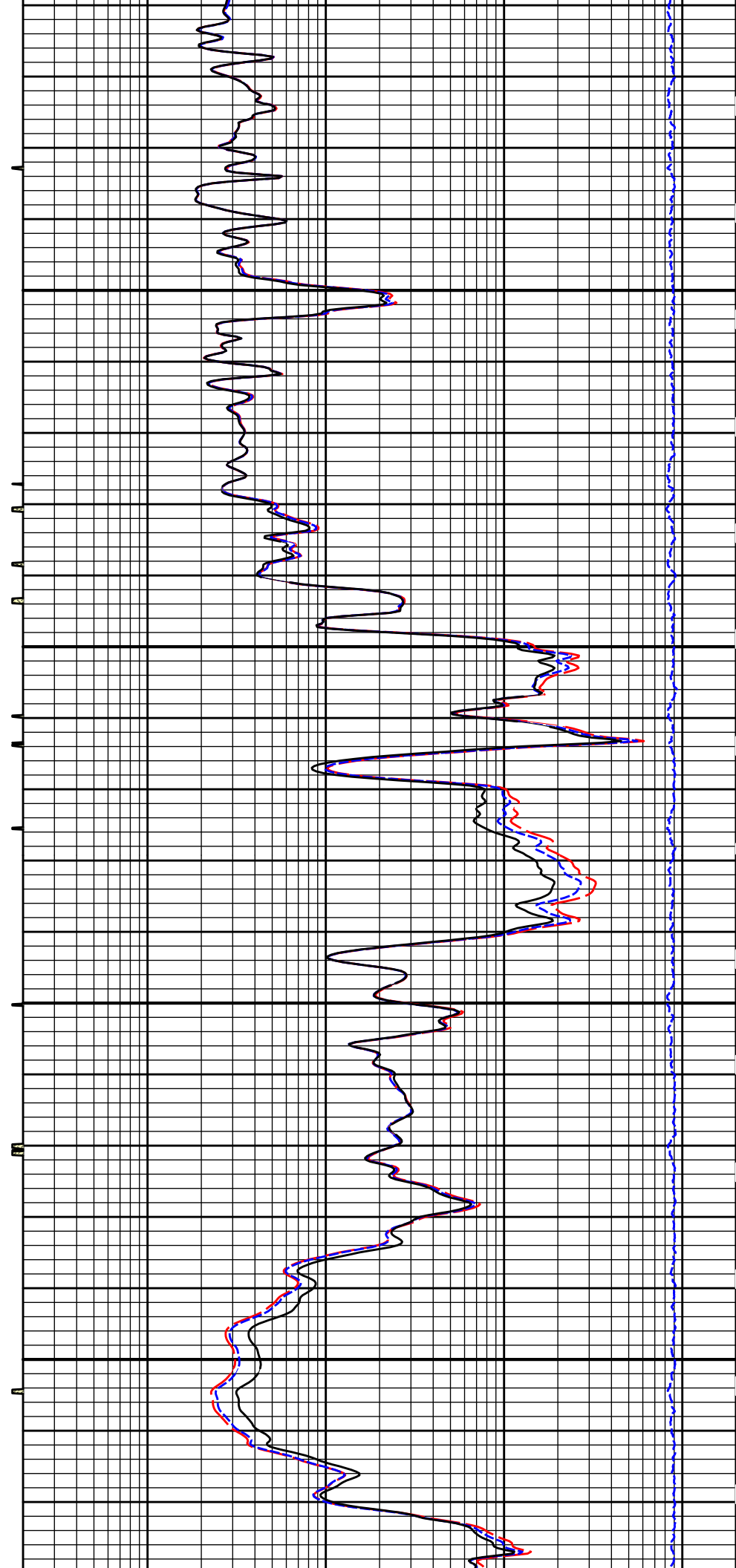


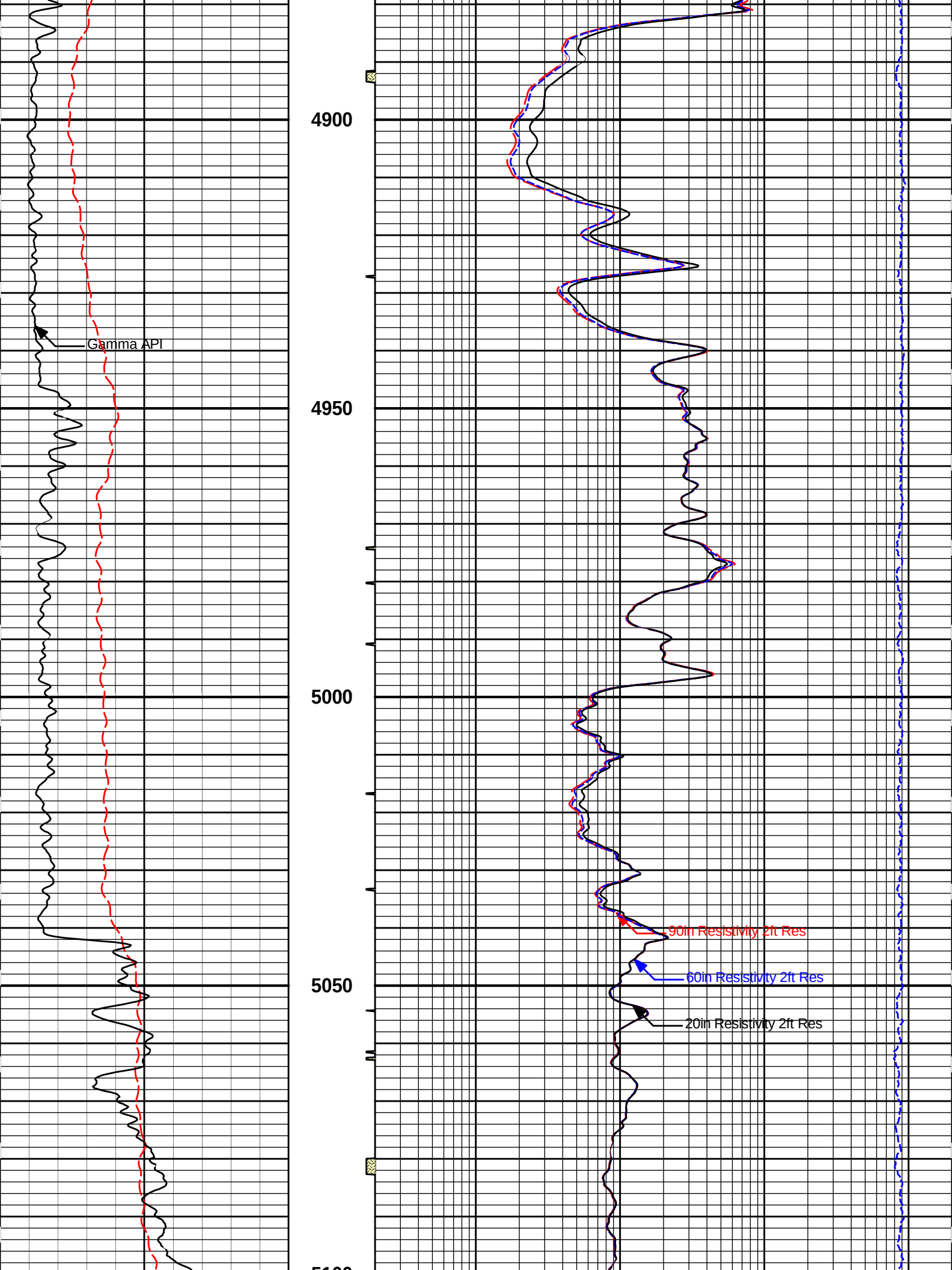
4700

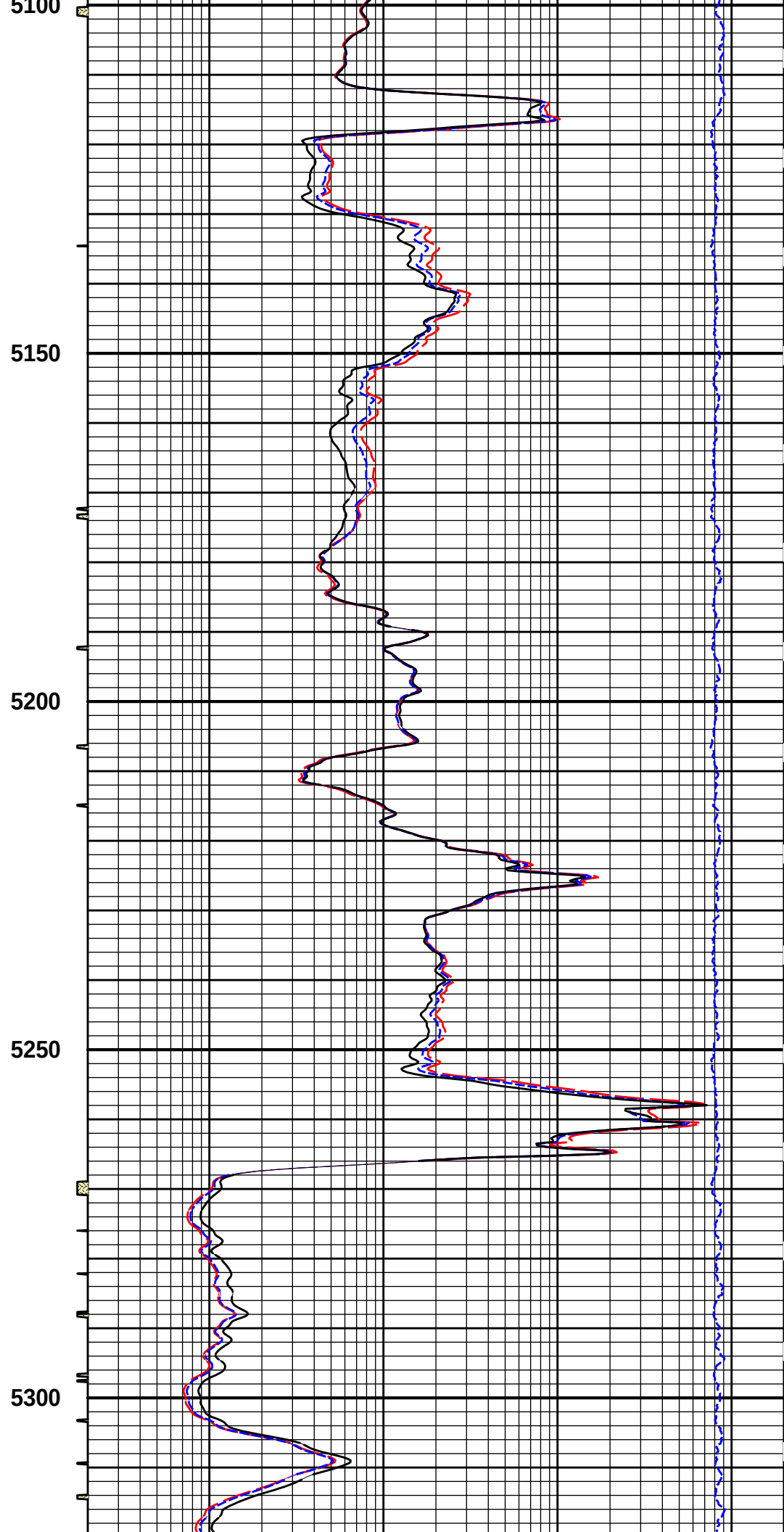
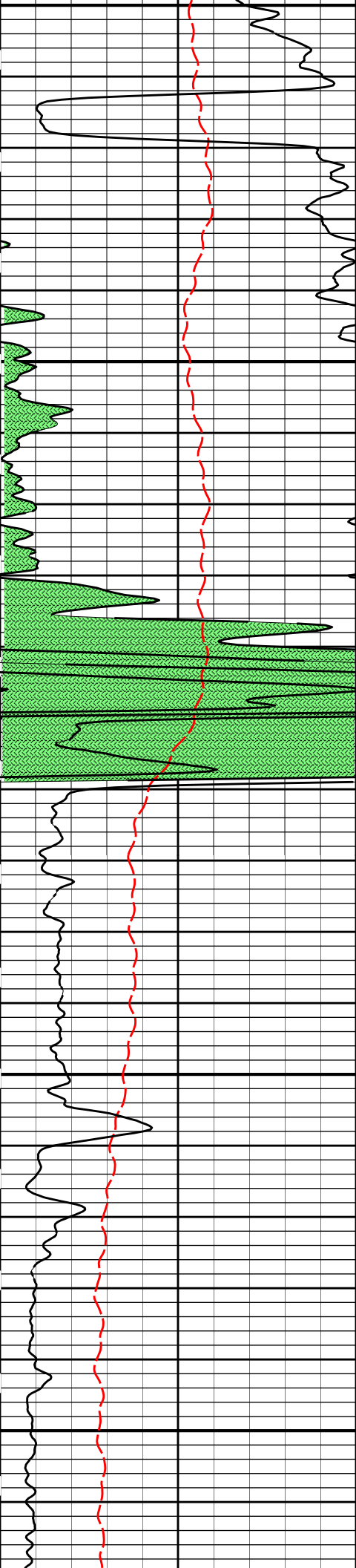
4750

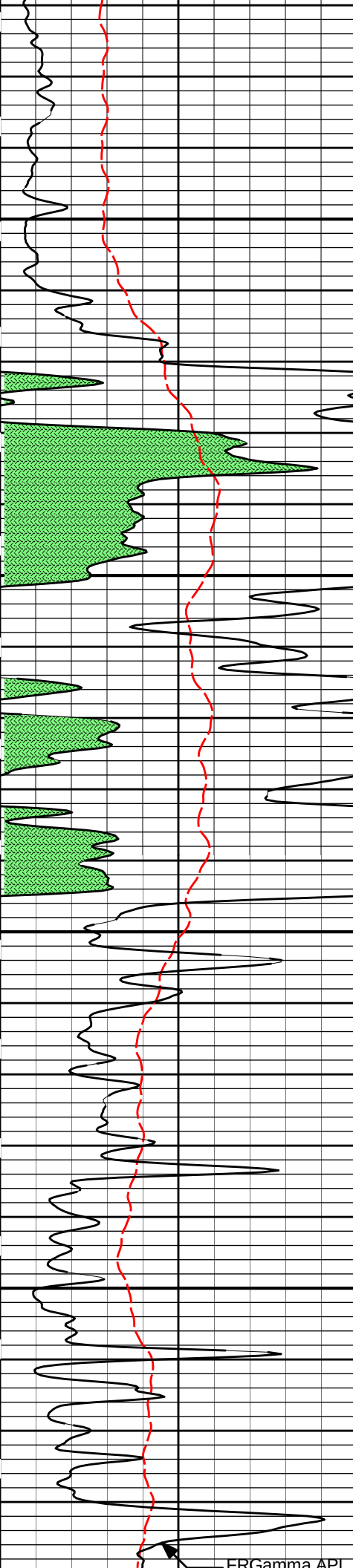
4800

4850









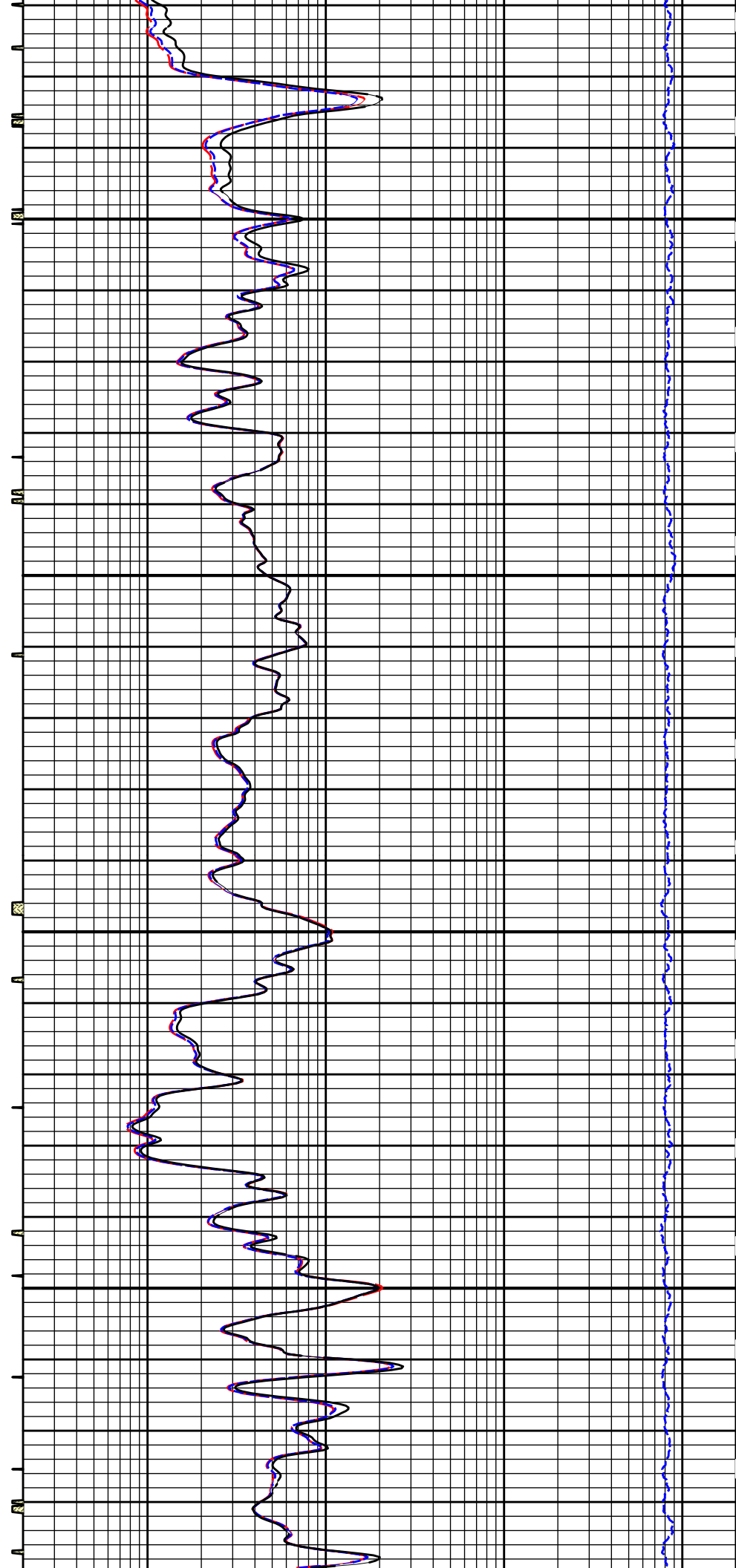
5350

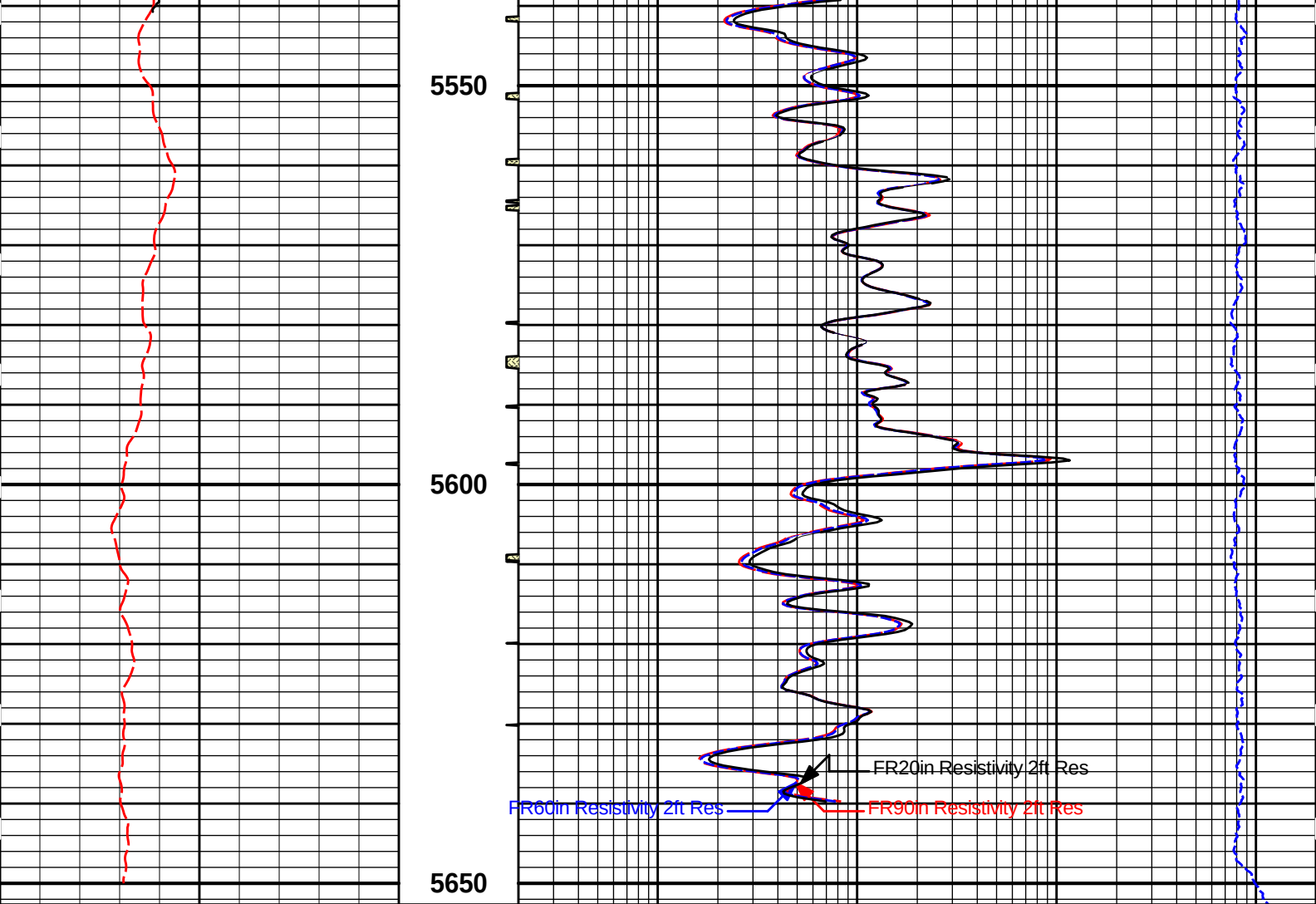
5400

5450

5500

ERGgamma API





0	Gamma API	150	1 : 240	15K	Tension	0
	api		ft		pounds	
	SP		Tension Pull	0.2	20in Resistivity 2ft Res	2000
	-] 20 mV [+]	10	0		ohm-metre	
				0.2	60in Resistivity 2ft Res	2000
					ohmm	
				0.2	90in Resistivity 2ft Res	2000
					ohmm	

HALLIBURTON

Plot Time: 17-Mar-14 08:39:03
Plot Range: 750 ft to 5652.67 ft
Data: {ActiveWell}\Well Based\MAIN_PASSI
Plot File: \\-LOCAL-\\BLUE_SWD_1_35\\0003 TRIPLE_CSNG\\ACRT1_ACRT_5_mainx

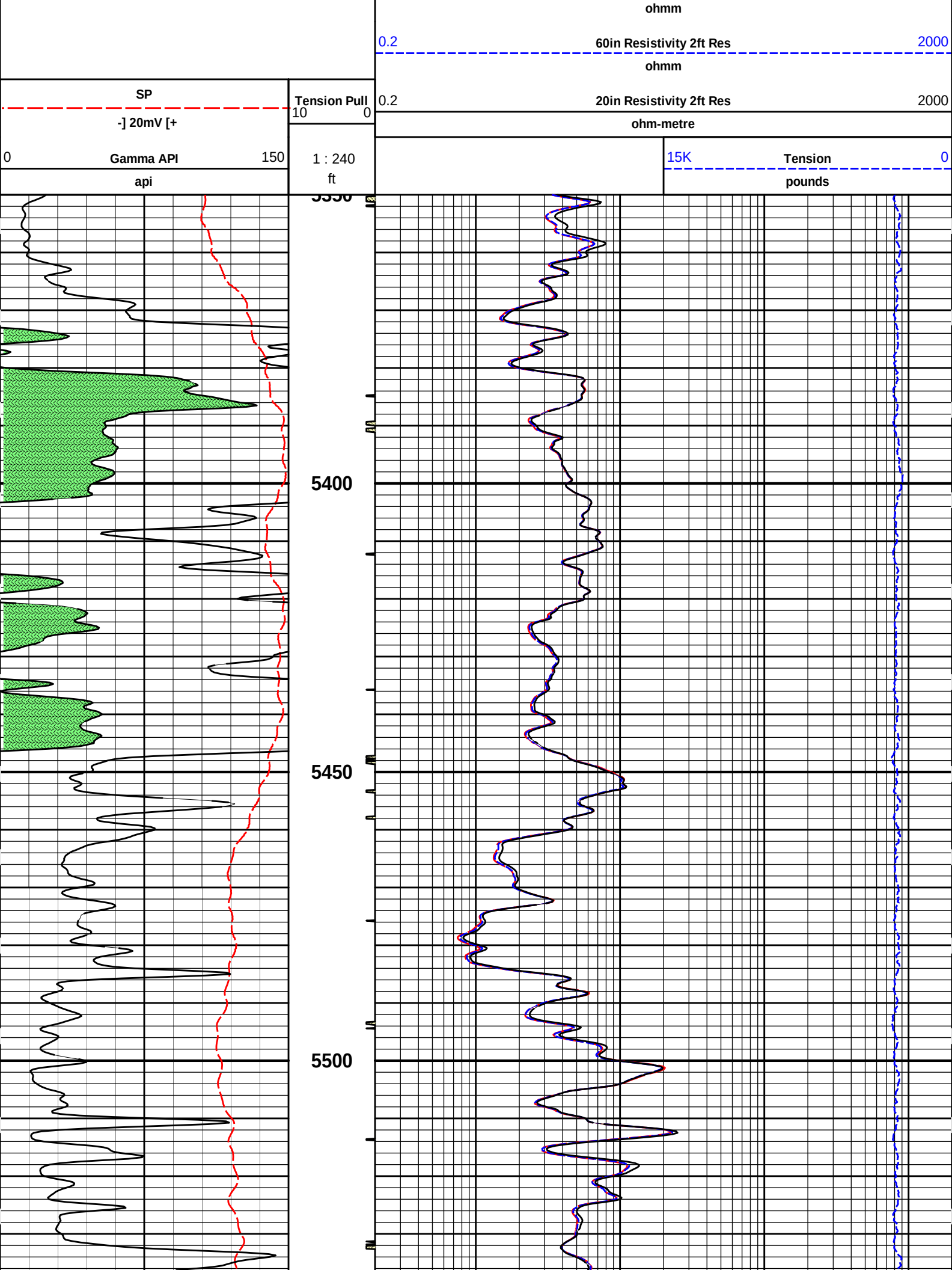
5 INCH MAIN LOG

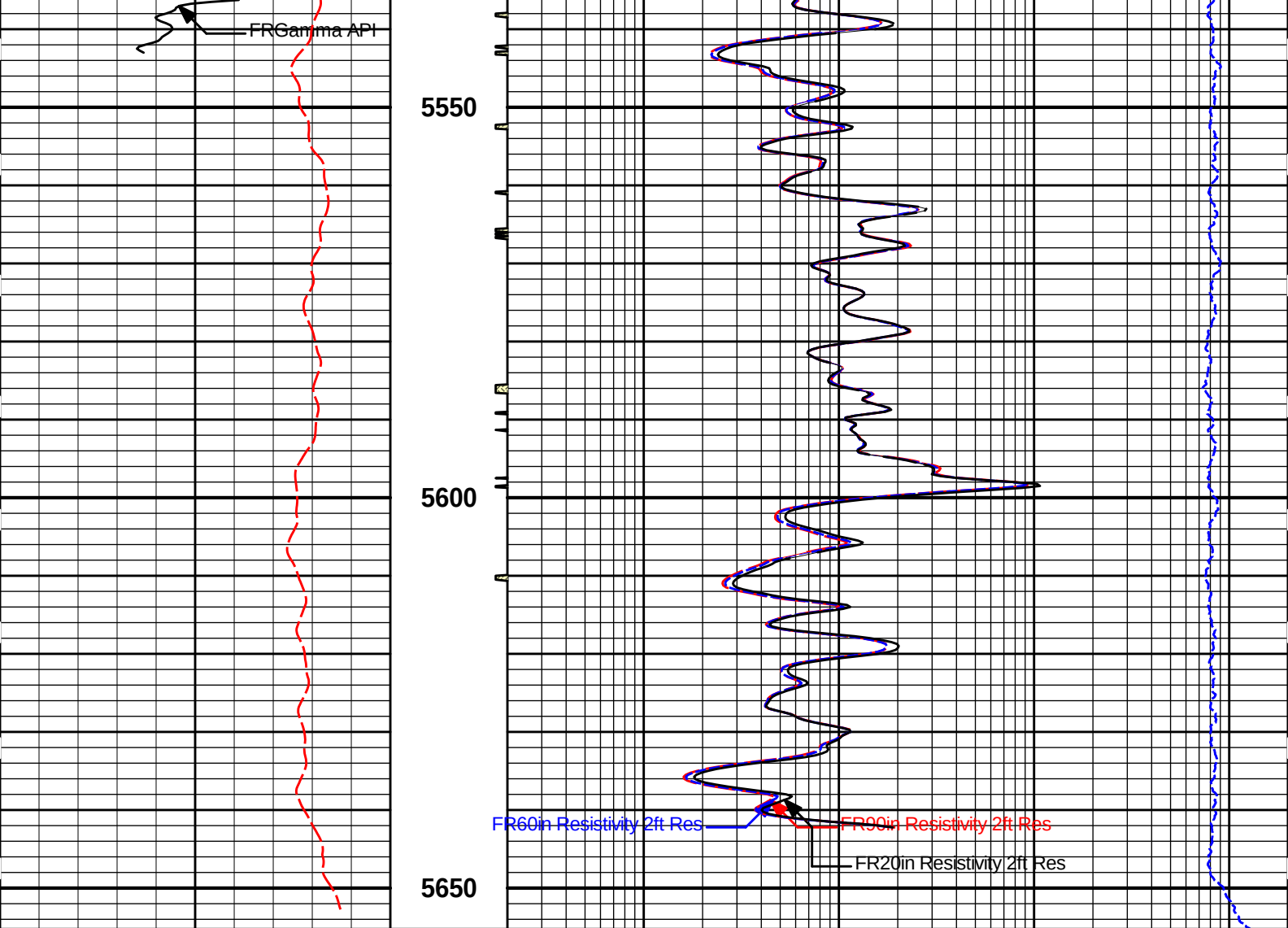
HALLIBURTON

Plot Time: 17-Mar-14 08:39:03
Plot Range: 5350 ft to 5655.25 ft
Data: {ActiveWell}\Well Based\\REPEAT_SECTION\\
Plot File: \\-LOCAL-\\BLUE_SWD_1_35\\0003 TRIPLE_CSNG\\ACRT1_ACRT_5_rptx

REPEAT SECTION

			0.2	90in Resistivity 2ft Res	2000
--	--	--	-----	--------------------------	------





0	Gamma API	150	1 : 240	15K	Tension	0
	api		ft		pounds	
	SP		Tension Pull	0.2	20in Resistivity 2ft Res	2000
	-] 20mV [+]	10	0		ohm-metre	
				0.2	60in Resistivity 2ft Res	2000
					ohmm	
				0.2	90in Resistivity 2ft Res	2000
					ohmm	

HALLIBURTON

Plot Time: 17-Mar-14 08:39:04
Plot Range: 5350 ft to 5655.25 ft
Data: {ActiveWell}\Well Based\REPEAT_SECTION\
Plot File: \\-LOCAL-\\BLUE_SWD_1_35\\0003 TRIPLE_CSNGIACRT1_ ACRT_5_rptx

REPEAT SECTION

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
CHAPER	DC	Dil G		5.075	

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	9.500	ppg
SHARED	WAGT	Weighting Agent	Barite	
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	5655.00	ft
SHARED	BHT	Bottom Hole Temperature	140.0	degF
SHARED	SVTM	Navigation and Survey Master Tool	IDT	
SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
SHARED	TEMM	Temperature Master Tool	NONE	
SHARED	BHSM	Borehole Size Master Tool	ICT	
Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	Yes	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	NAVS	Navigation Source Tool	IDT	
ICT	CL1O	Radius 1 Offset	0.0	in
ICT	CL2O	Radius 2 Offset	0.0	in
ICT	CL3O	Radius 3 Offset	0.0	in
ICT	CL4O	Radius 4 Offset	0.0	in

ICT	CL4O	Radius 4 Offset	0.0	in
ICT	CL5O	Radius 5 Offset	0.0	in
ICT	CL6O	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
WAVE Receivers	WSOK	Process WSTT?	Yes	
WAVE Receivers	AFIL	Adaptive Filtering?	No	
WAVE Receivers	PINT	Process 1 Sample and Skip	0	
WAVE Receivers	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
WAVE Receivers	DTSH	Delta -T Shale	100.00	uspf
WAVE Receivers	DTMT	Delta -T Matrix Type	Limestone 47.5	
WAVE Receivers	DTFL	Delta -T Fluid	189.00	uspf
WAVE Receivers	RHOM	Matrix Density	2.7100	g/cc
WAVE Receivers	RHOF	Fluid Density	1.0000	g/cc
WAVE Receivers	SMTH	Semblance Threshold	0.25	
WAVE Receivers	VPVS	VPVS Ratio for Porosity	1.40	
WAVE Receivers	APEQ	Acoustic Porosity Equation	Wylie	
WAVE Receivers	NAVS	Navigation Source Tool	IDT	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	Yes	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	Yes	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
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

CALIBRATION REPORT

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACRt Sonde - 11024142	Reference Calibration Date:	30-Jul-13 17:08:57
Engineer:	JEREMY COTHREN	Calibration Date:	30-Jul-13 17:14:04
Software Version:	WL INSITE R3.8.11 (Build 5)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11026094		

TYPICAL GAIN RANGE

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

SONDE OFFSET

Subarray	R12KHz			R36KHz			R72KHz		
	(mmho/m)			(mmho/m)			(mmho/m)		
A1 (80")	0.36			-3.21			-4.59		
A2 (50")	-2.33			-4.11			-3.80		
A3 (29")	-13.58			-3.61			-3.21		
A4 (17")	-106.51			-34.33			-26.35		
A5 (10")	N/A			-104.72			-50.87		
A6 (6")	N/A			269.83			141.88		

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.86	1.3
36K	1.0	1.28	2.0
72K	1.0	1.49	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 CHK	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
ACRt Sonde-11024142						
Mud Cell	1.00	-----	-----	0.00	-----	ohm-m

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length	
CH_HOS-RED 37.50 lbs		Ø 2.750 in →		Temperature @ 120.12 ft	3.03 ft	121.15 ft	
XOHD-00000001 20.00 lbs		Ø 2.750 in → Ø 3.625 in →				0.95 ft	118.12 ft
							117.17 ft
GTET-11013114 165.00 lbs		Ø 3.625 in →			GammaRay @ 111.11 ft	8.52 ft	
							108.65 ft
CSNG-10736164 114.00 lbs	UnivWearRing3.6-10736164 5.00 lbs	Ø 4.200 in* → Ø 3.625 in →			CSNG @ 103.02 ft	8.17 ft	
							100.48 ft
ICT-10978621 330.00 lbs		Ø 3.625 in →			ICT Caliper @ 90.44 ft	12.83 ft	
							87.65 ft
IDT-10886210 150.00 lbs		Ø 3.625 in →				7.58 ft	
						80.07 ft	
	Centralizer 25-00000001 8.00 lbs	Ø 4.000 in* →					

Wavesonic-I-
90116914
520.00 lbs

Ø 3.625 in →

34.07 ft

← Wavesonic Delay @ 57.50 ft

Centralizer 25-00000002
8.00 lbs

Ø 4.000 in* →



46.00 ft

IQ Flex-00000002
140.00 lbs

Ø 3.625 in →

5.67 ft

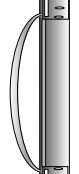
40.33 ft

DSNT-11020487
174.00 lbs

DSN Decentralizer-
10993115
6.60 lbs

Ø 5.000 in* →

Ø 3.625 in →



9.69 ft

← DSN Far @ 33.39 ft
← DSN Near @ 32.64 ft

30.64 ft

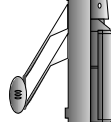
SDLT-10951306
360.00 lbs

SDLT Pad-10844772
65.00 lbs
Microlog Pad-10951306
8.00 lbs

Ø 4.500 in →

Ø 4.750 in* →

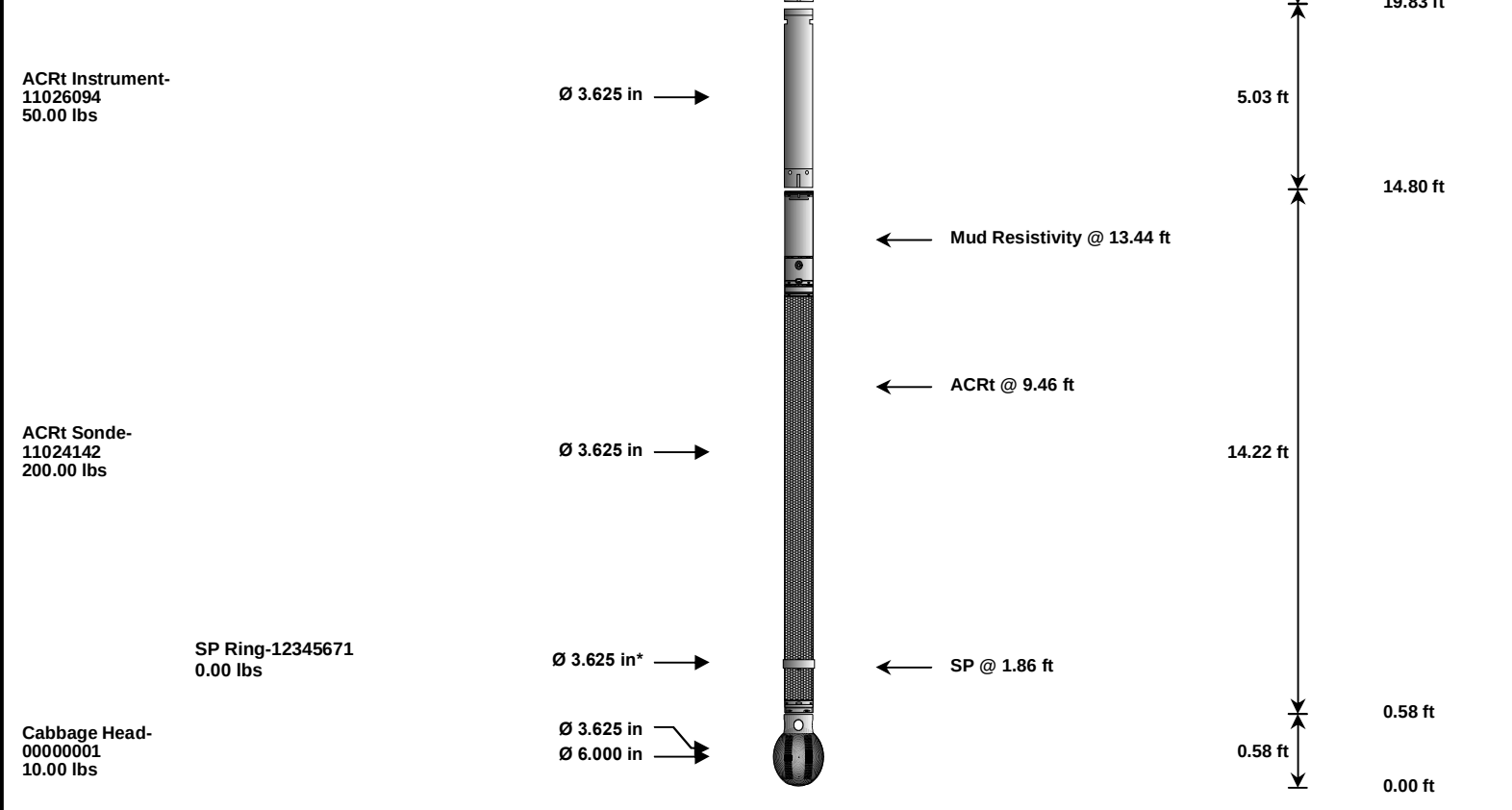
Ø 4.750 in* →



Microlog @ 22.83 ft
SDL Caliper @ 22.65 ft
SDL @ 22.64 ft

10.81 ft

10.82 ft



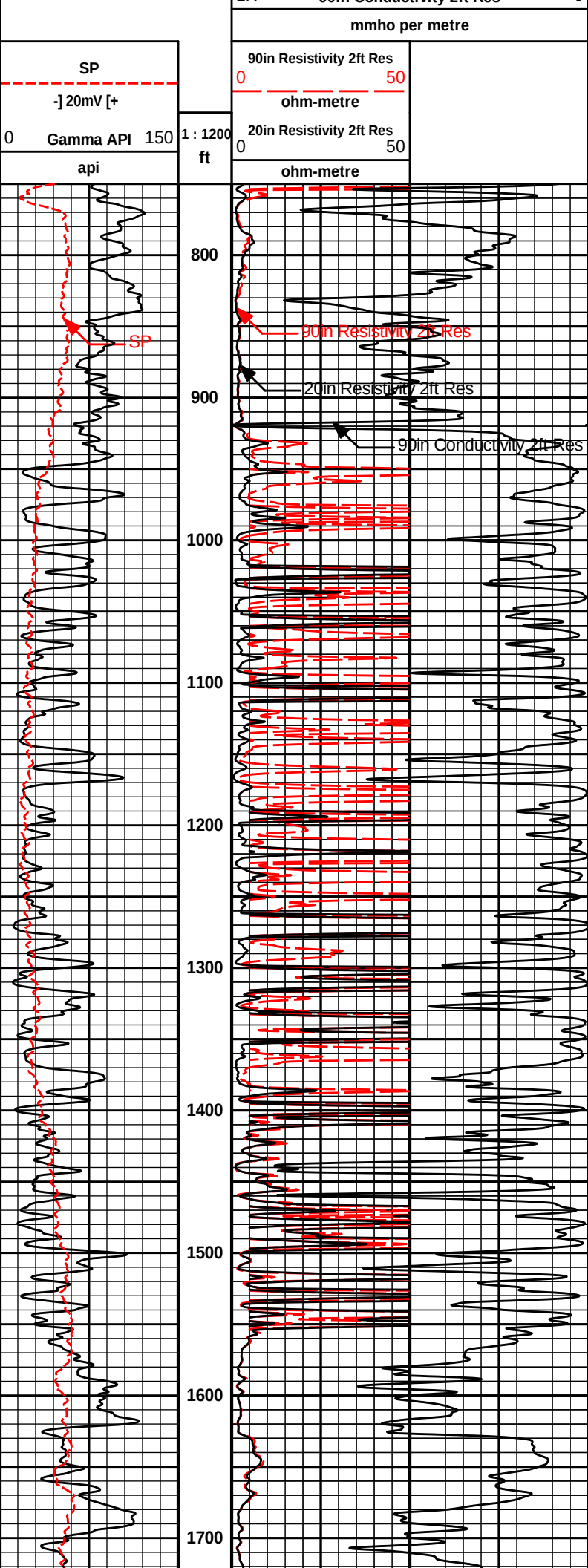
Mnemonic		Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell		RED	37.50	3.03	118.12	300.00
XOHD	Hostile to Dits Cross Over		00000001	20.00	0.95	117.17	300.00
GTET	Gamma Telemetry Tool		11013114	165.00	8.52	108.65	60.00
CSNG	Compensated Spectral Natural Gamma		10736164	114.00	8.17	100.48	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch		10736164	5.00	0.35	* 104.56	300.00
ICT	Six Independent Arm Caliper		10978621	330.00	12.83	87.65	30.00
IDT	Insite Directional Tool		10886210	150.00	7.58	80.07	30.00
WSTT	WaveSonic Insite		90116914	520.00	34.07	46.00	30.00
OBCEN	Centralizer - 25 in. Overbody		00000002	8.00	2.08	* 50.26	300.00
OBCEN	Centralizer - 25 in. Overbody		00000001	8.00	2.08	* 75.16	300.00
IQF	IQ Flex tool		00000002	140.00	5.67	40.33	300.00
DSNT	Dual Spaced Neutron		11020487	174.00	9.69	30.64	60.00
DCNT	DSN Decentralizer		10993115	6.60	5.13	* 33.97	300.00
SDLT	Spectral Density Tool		10951306	360.00	10.81	19.83	60.00
MICP	Microlog Pad		10951306	8.00	1.00	* 22.33	60.00
SDLP	Density Insite Pad		10844772	65.00	2.55	* 22.04	60.00
ACRt	Array Compensated True Resistivity Instrument Section		11026094	50.00	5.03	14.80	300.00
ACRt	Array Compensated True Resistivity Sonde Section		11024142	200.00	14.22	0.58	300.00
SP	SP Ring		12345671	0.00	0.25	* 1.86	300.00
CBHD	Cabbage Head		00000001	10.00	0.58	0.00	300.00
Total				2,371.10	121.15		
* Not included in Total Length and Length Accumulation.							
Data: BLUE_SWD_1_35\0001 TRIPLE_CSNG\IDLE							
Date: 16-Mar-14 22:06:52							

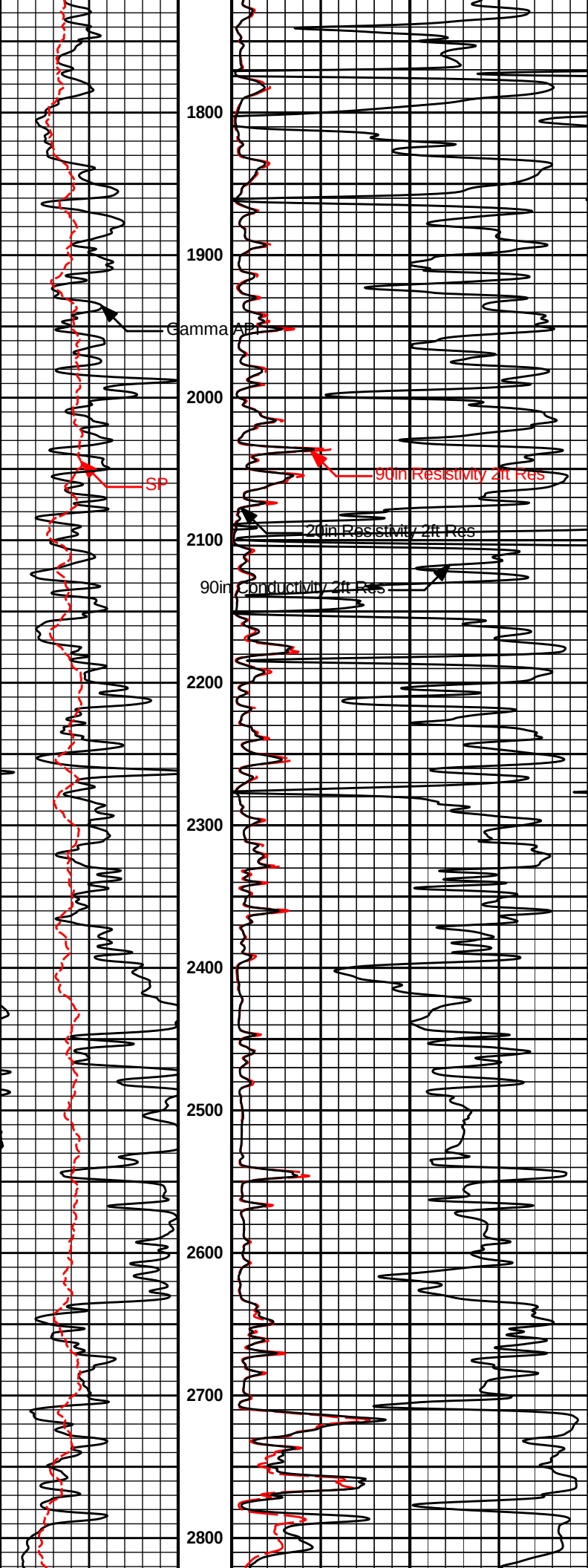
HALLIBURTON

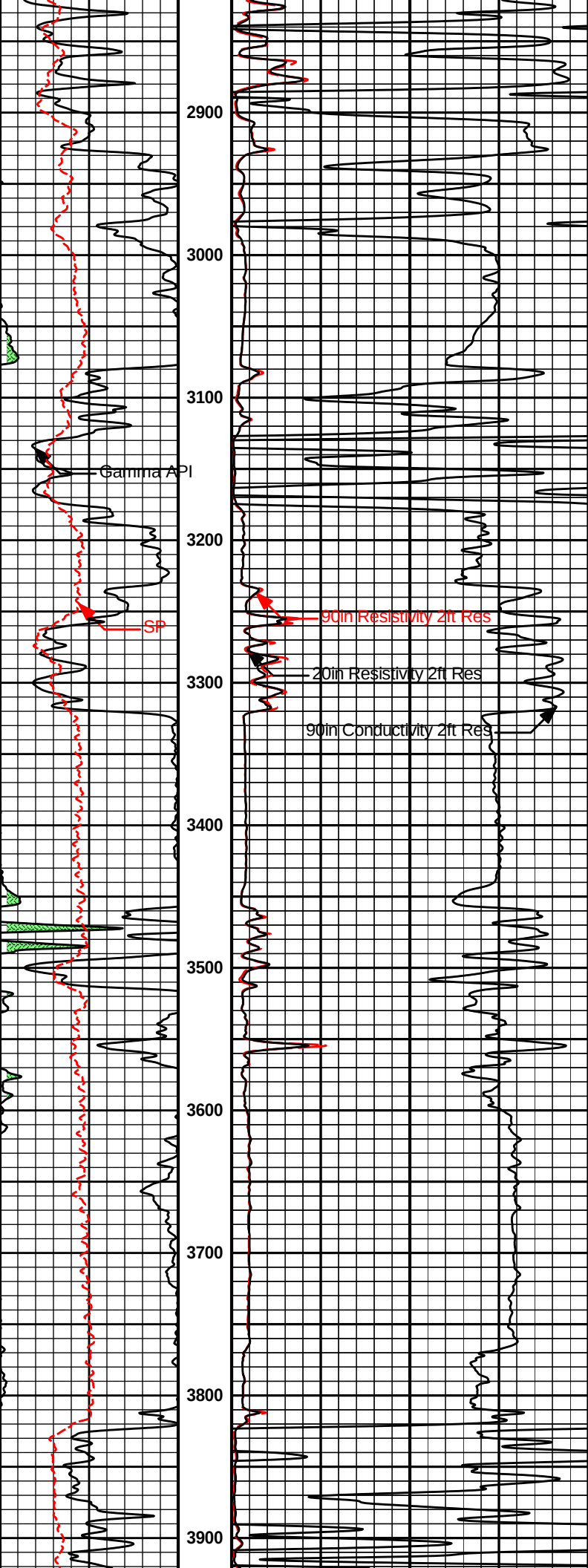
Plot Time: 17-Mar-14 08:39:05
Plot Range: 750 ft to 5650 ft
{ActiveWell}\Well Based\...\n...
Plot File: \\...\11_ACRT_1inx

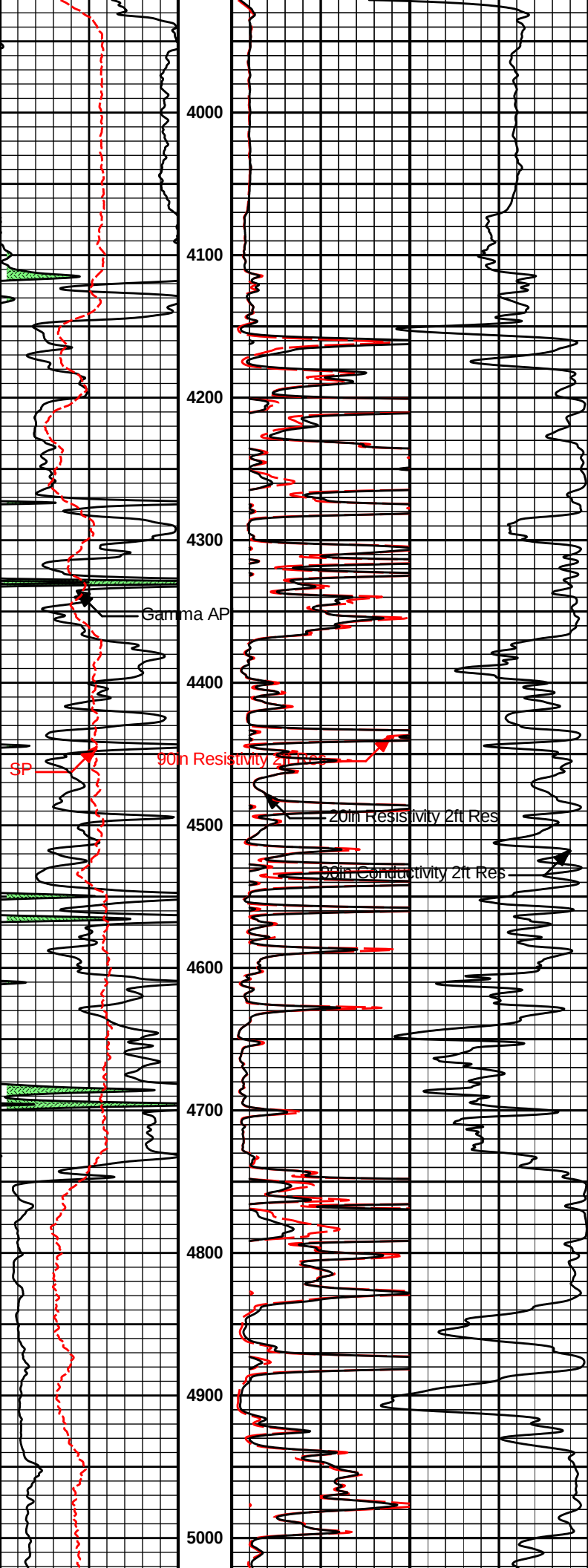
1 INCH MAIN LOG

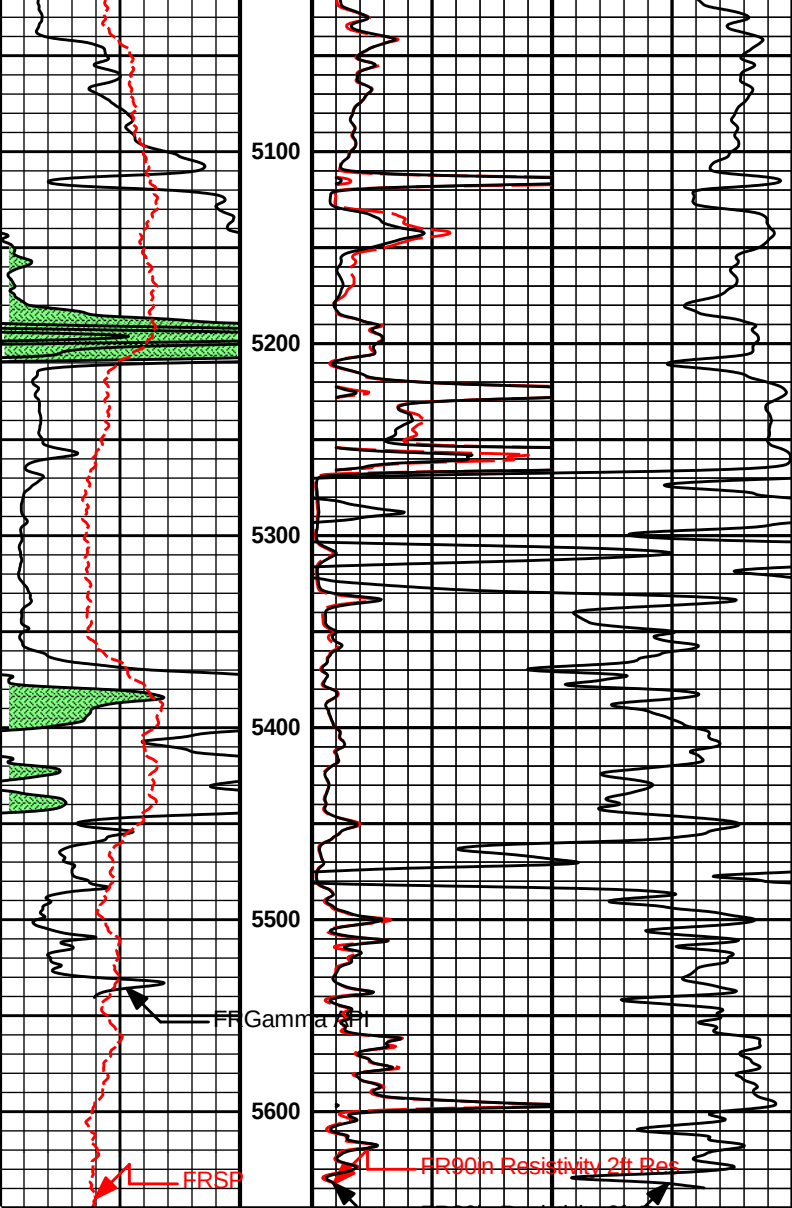
1K90in Conductivity 2ft Res0











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

HALLIBURTON

Plot Time: 17-Mar-14 08:39:07
Plot Range: 750 ft to 5650 ft
{ActiveWell}Well Based\\...\\...
Plot File: \\...\\...\\1_ACRT_1inx

1 INCH MAIN LOG

COMPANY	SANDRIDGE		
WELL	BLUE 3408 1-35		
FIELD	NE WALDRON		
COUNTY	HARPER	STATE	KANSAS

