

HALLIBURTON

COMPENSATED SPECTRAL NATURAL GAMMA

COMPANY		GREAT BEAR PETROLEUM		GREAT BEAR PETROLEUM	
WELL	ALCOR #1	WILDCAT	ALCOR #1	NORTH SLOPE	ALASKA
FIELD	WILDCAT	COUNTY	NORTH SLOPE	STATE	ALASKA
Permanent Datum	GL	Sect.	5	Twp.	7N
Log measured from	DF			Rge.	14E
Drilling measured from	DF			Elev.	178.00 ft
Date	10-Jul-12			Elev.:	K.B.
Run No.	ONE			D.F.	187.00 ft
Depth - Driller	8320.00 ft			WSTT	186.00 ft
Depth - Logger	8319.00 ft			DSNT	
Bottom - Logged Interval	8237.0 ft			SDLT	
Top - Logged Interval	CASING			G.L.	163.70 ft
Casing - Driller	9,625 in	@	2491.00 ft		@
Casing - Logger	2491.00 ft				
Bit Size	8.500 in		@		@
Type Fluid in Hole	ENVIROMUL				
Density	F. Viscosity	9.5 ppg	85.00 spgt		
Alkalinity	P. Viscosity		38.0 cP		
HTHP @ Meas. Temperature	2.4 mptm	@ 200.00 degF			@
Solids	Wgt. Material	BARITE			
Oil	Water Ratio	80	20		
Water Phase Salinity		234.00 ppm Cl-			
Oil Type	Brine Type				
Electrical Stability		720 V			
Time Since Circulation		12.0 hr			
Time on Bottom		10-Jul-12 12:28			
Max. Rec. Temperature		180.0 degF	@ 8319.0 ft		@
Equipment	Location	11640435	PRUDHOE BA		
Recorded By		C. GULLETT			
Witnessed By		P. STILES			

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EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	10995697	Serial No.	126	Serial No.	10951320	Serial No.	11059108
Model No.	GTET	Model No.	WSTT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	4.5"	Diameter	3.625"
Detector Model No.	102-T	Spacing	0.5'	Log Type	GAMMA-GAMMA	Log Type	THERMAL
Type	SCINT.			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]	Y	Serial No.	5176 GW	Serial No.	21484B
Distance to Source	17'	FWDA [Y/N]	Y	Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL			GAMMA		ACOUSTIC		DENSITY		NEUTRON																
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix											
No.	From	To	ft/min	L	R	L	R		L	R		L	R												
ONE	T.D.	CSG.	REC.	0	200	30	190	55.5 usec	45	-15	2.65 g/cc	45	-15	SAND											
ONE	T.D.	SURF.	REC.	0	200																				
DIRECTIONAL INFORMATION																									
Maximum Deviation				@		KOP		@																	
Remarks:																									
RWCH-SWIVEL-GTET-WSTT-OMRI WERE RAN IN COMBINATION.																									
ANNULAR VOLUME CALCULATED FOR 7" CASING.																									
TOOL STRING AND LOG PRESENTATION PER CUSTOMER REQUEST.																									
LATITUDE: 69° 59' 22.812" N																									
LONGITUDE: 148° 40' 54.588" W																									
YOUR CREW TODAY: D. CLEARY AND J. CUNNINGHAM.								RIG: NABORS #105.																	
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES - PRUDHOE BAY, AK.																									
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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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	8.500	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Oil	
	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	WPHS	OBM Water Phase Salinity NaCl	0.00	ppm
	SHARED	OFOW	Base Oil Fraction from Oil/Water Ratio	1.00	
	SHARED	OBMT	Oil based Mud Type	Diesel	
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	7.000	in
	SHARED	ST	Surface Temperature	50.0	degF
	SHARED	TD	Total Well Depth	8320.00	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	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Environmental 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	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Sandstone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.000	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	2.650	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Wavesonic-I	WSOK	Process WSTT?	Yes	
Wavesonic-I	AFIL	Adaptive Filtering?	No	
Wavesonic-I	PINT	Process 1 Sample and Skip	0	
Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf
Wavesonic-I	DTMT	Delta -T Matrix Type	Sandstone 55.5	
Wavesonic-I	DTMA	Delta -T Matrix	55.50	uspf
Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
Wavesonic-I	RHOM	Matrix Density	2.6500	g/cc
Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
Wavesonic-I	SMTH	Semblance Threshold	0.25	
Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
Wavesonic-I	NAVS	Navigation Source Tool	NONE	
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	TMSC	Tool Matrix	None	

ACRt Sonde	RMOP	Rmud Source		Mud Cell
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm

BOTTOM

Data: GB_ALCOR_#1\0001 QUAD\IDLE

Date: 10-Jul-12 14:18:59

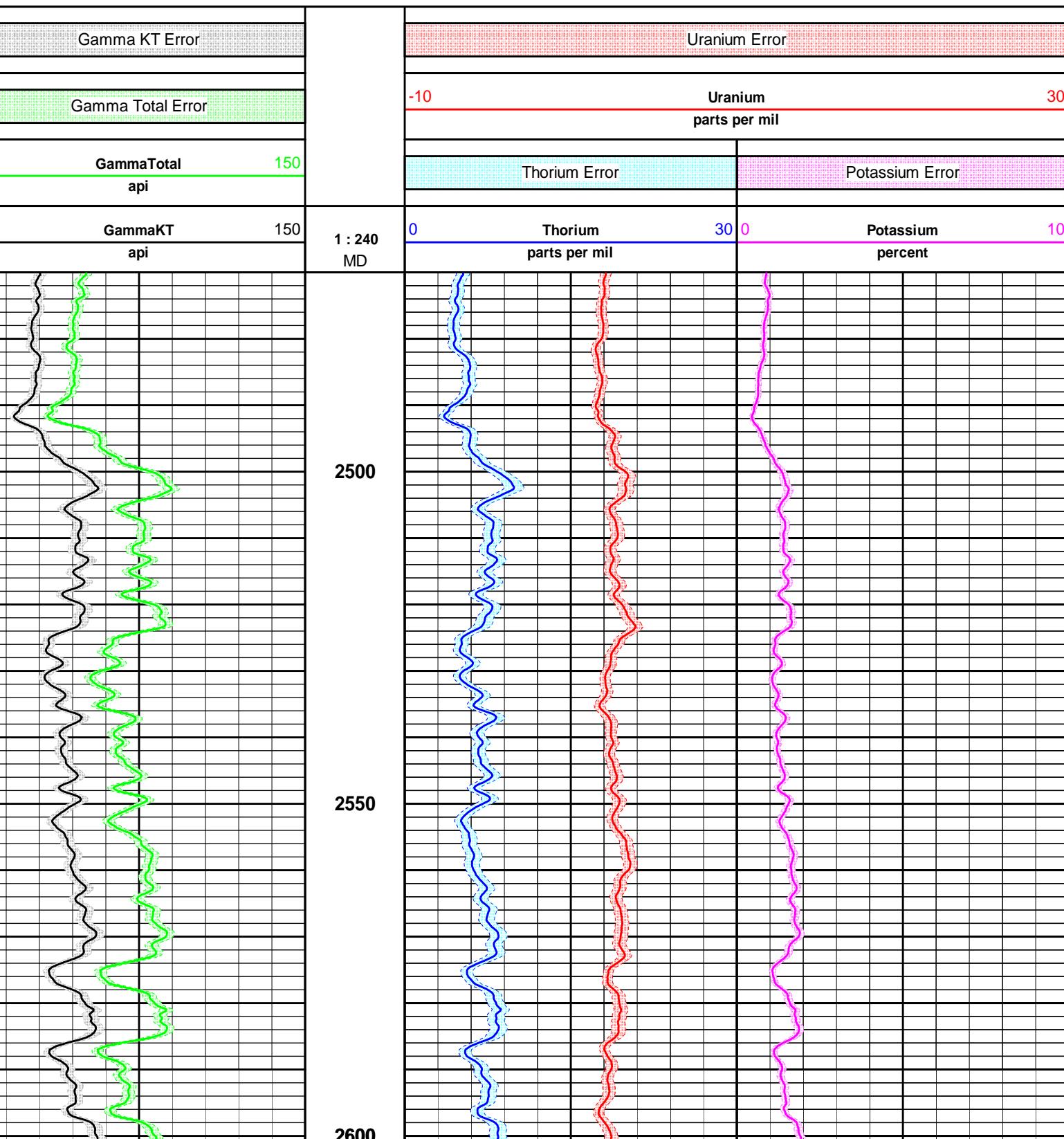
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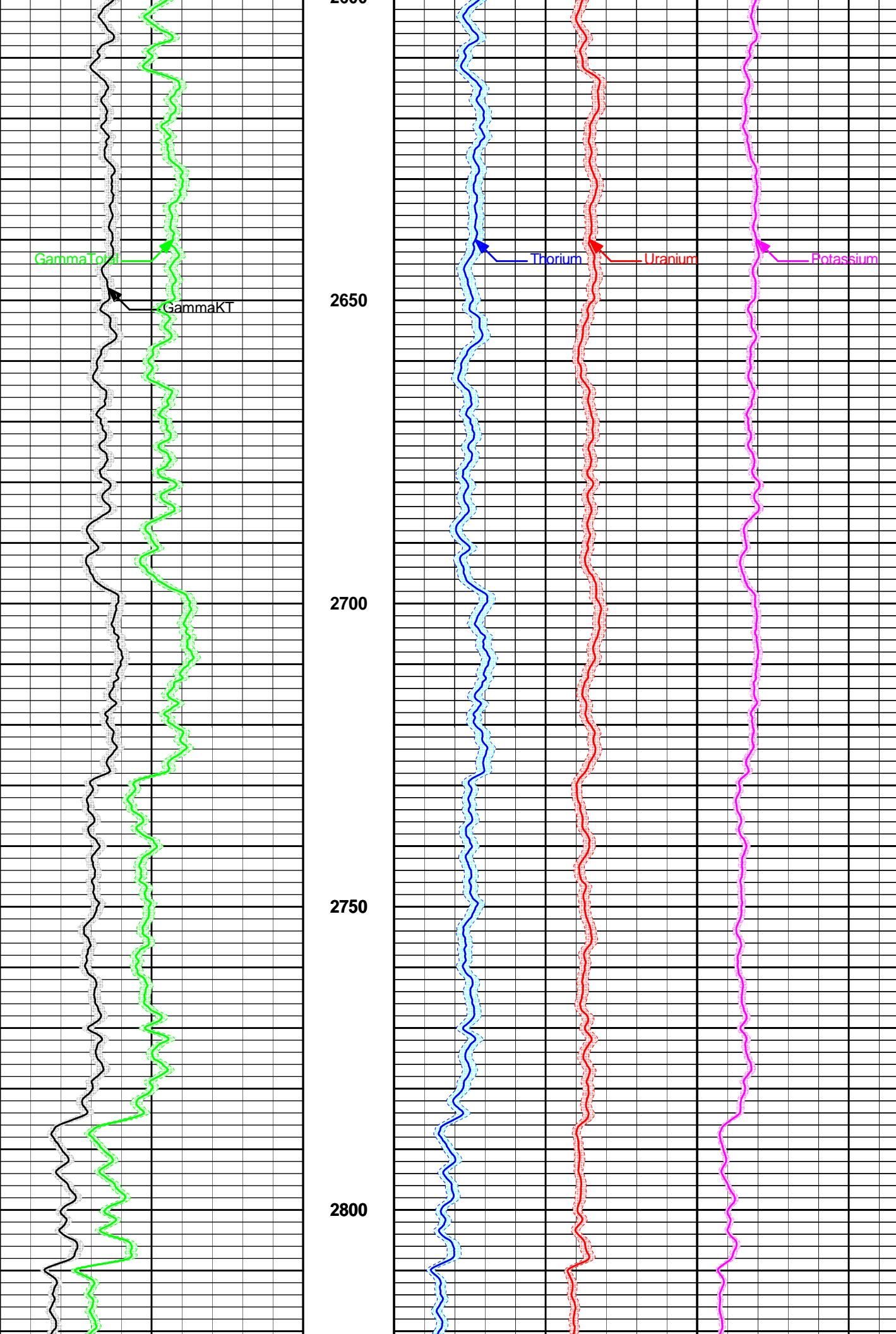
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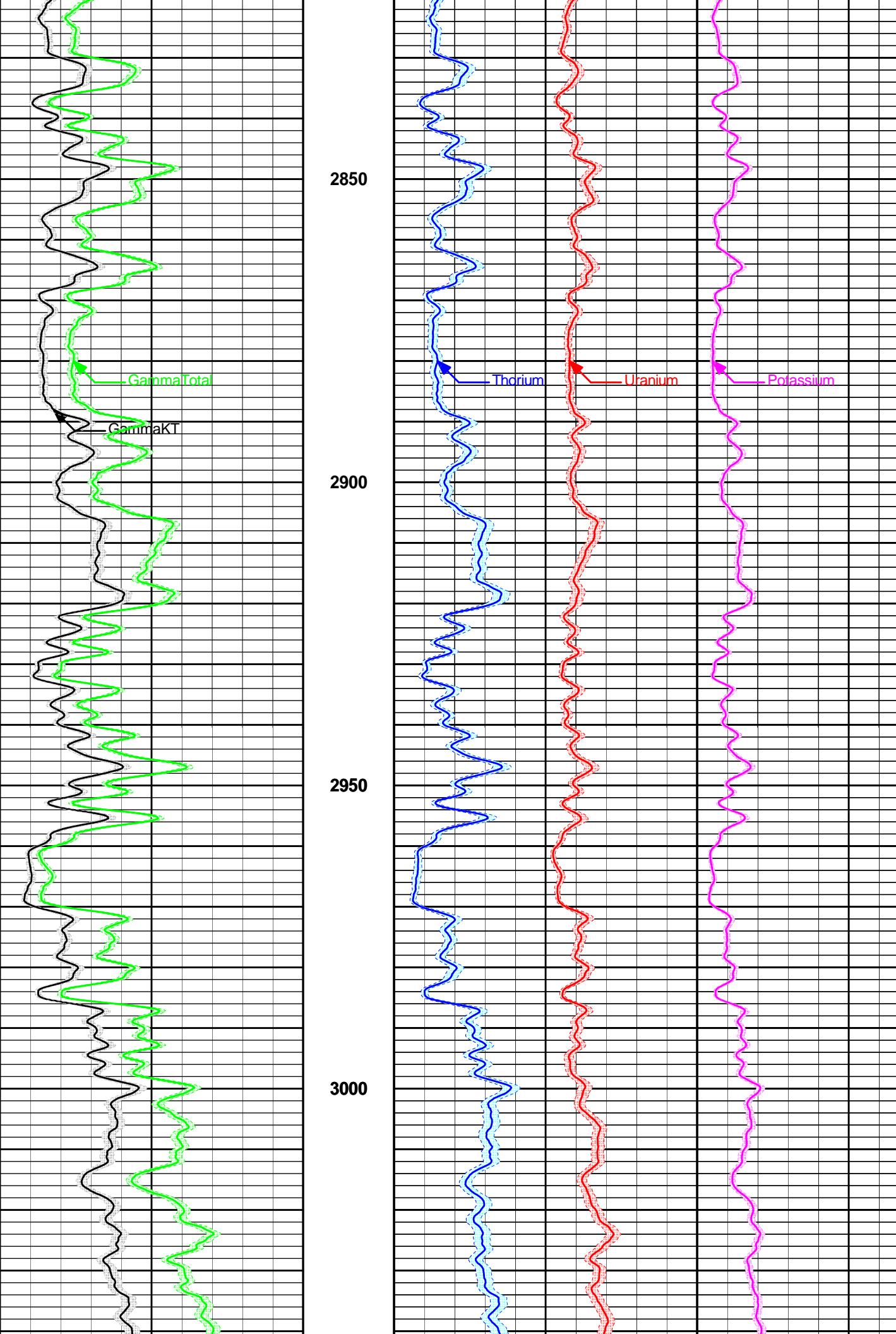
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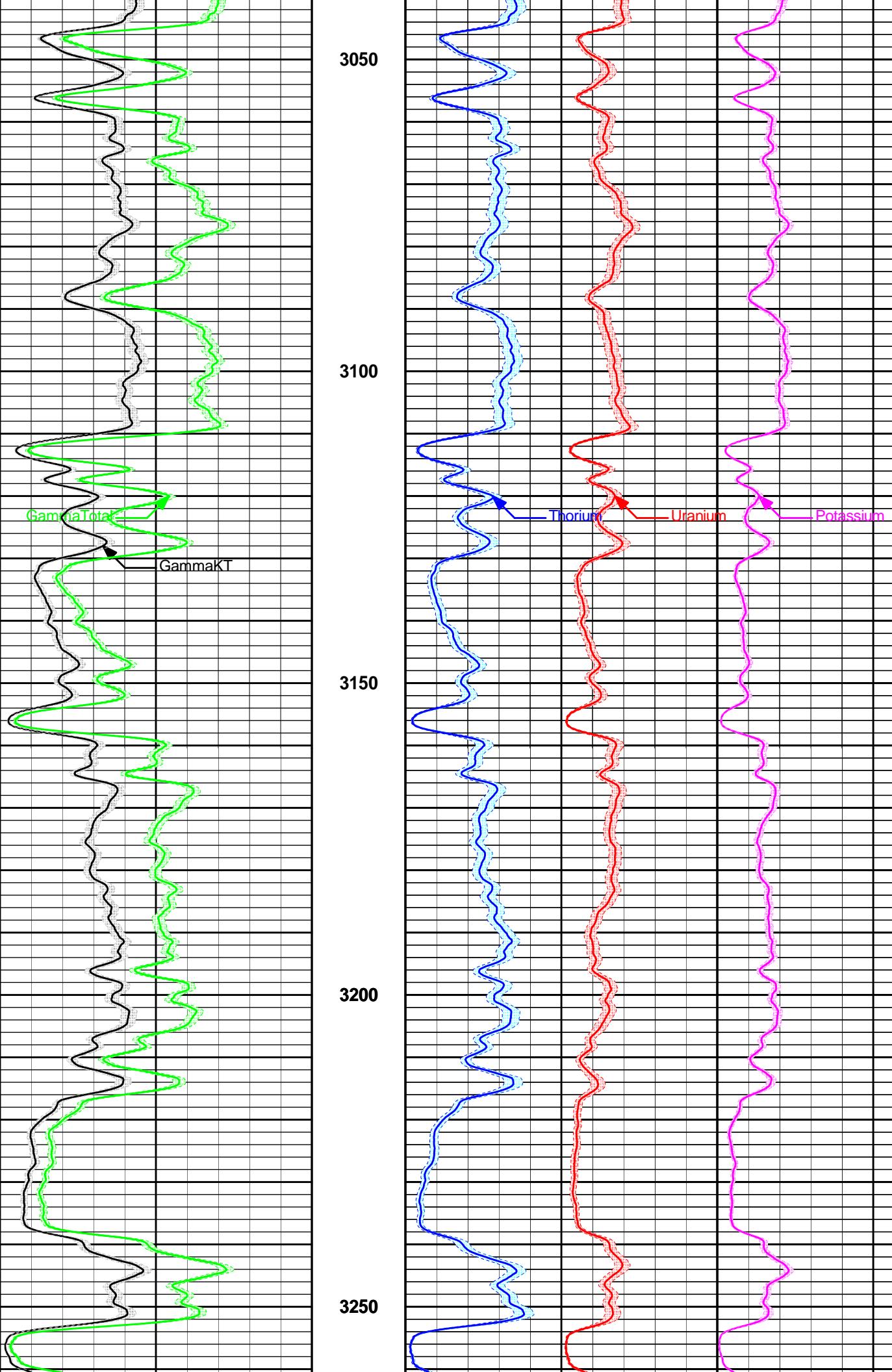
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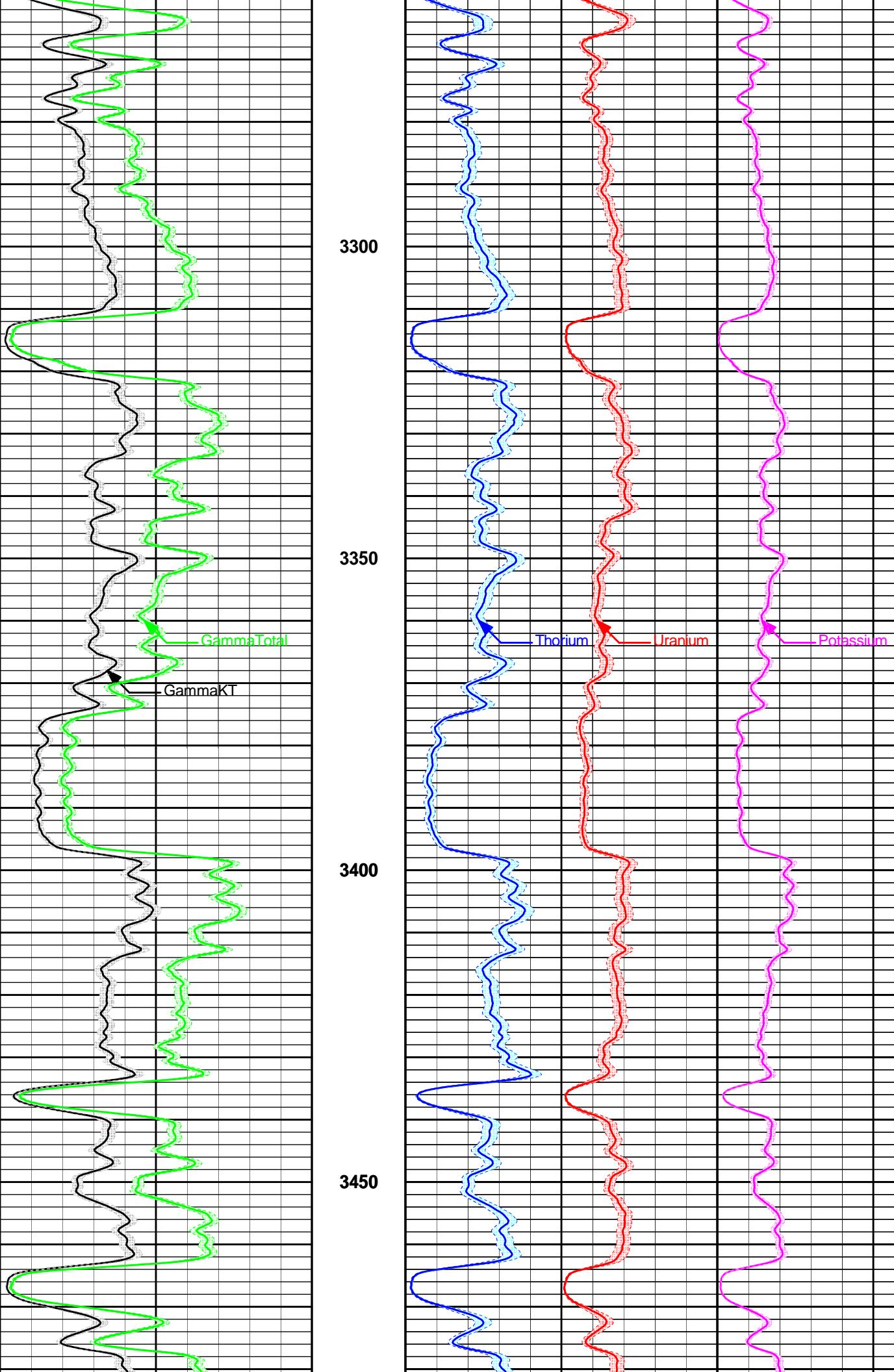
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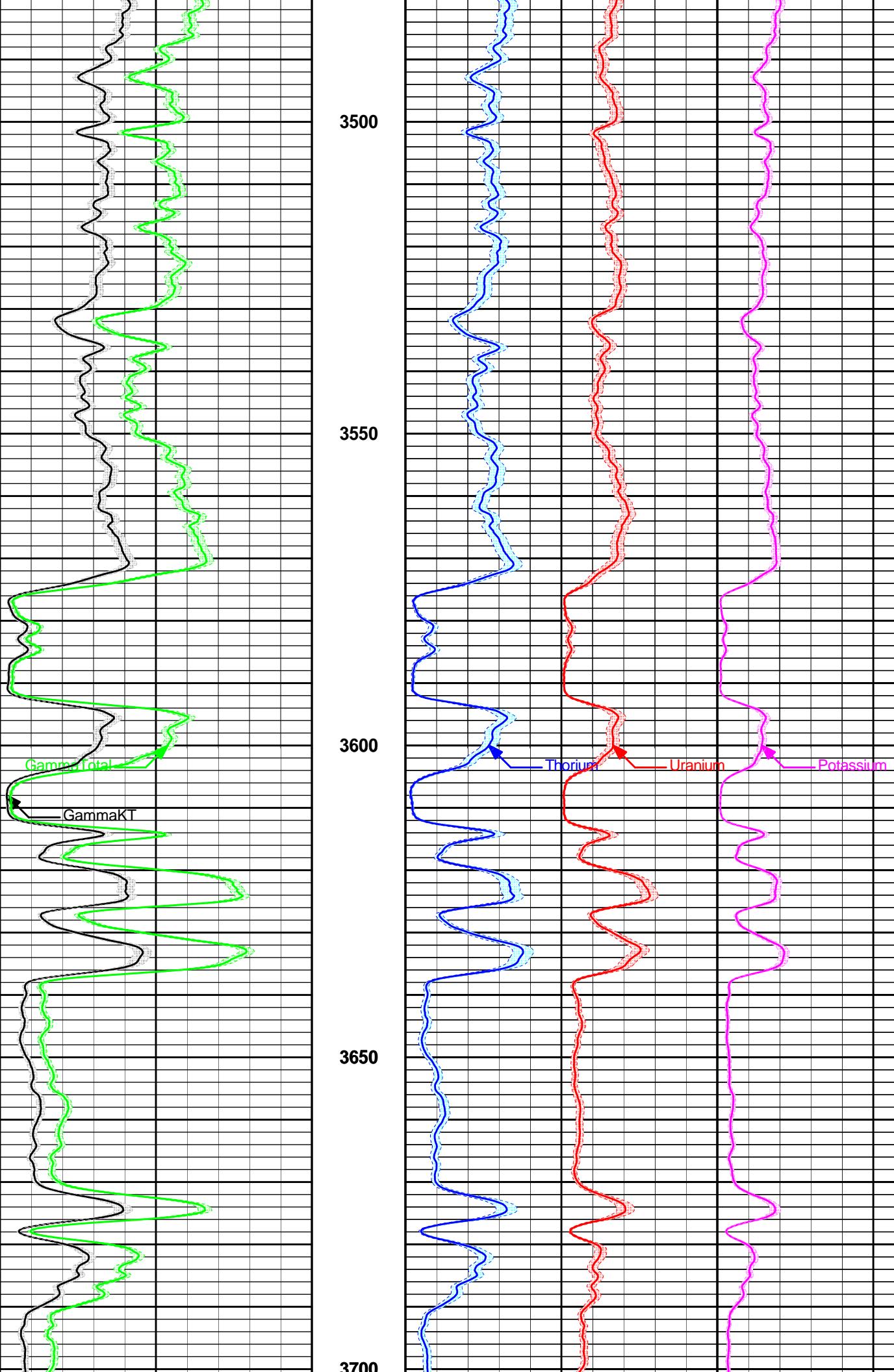


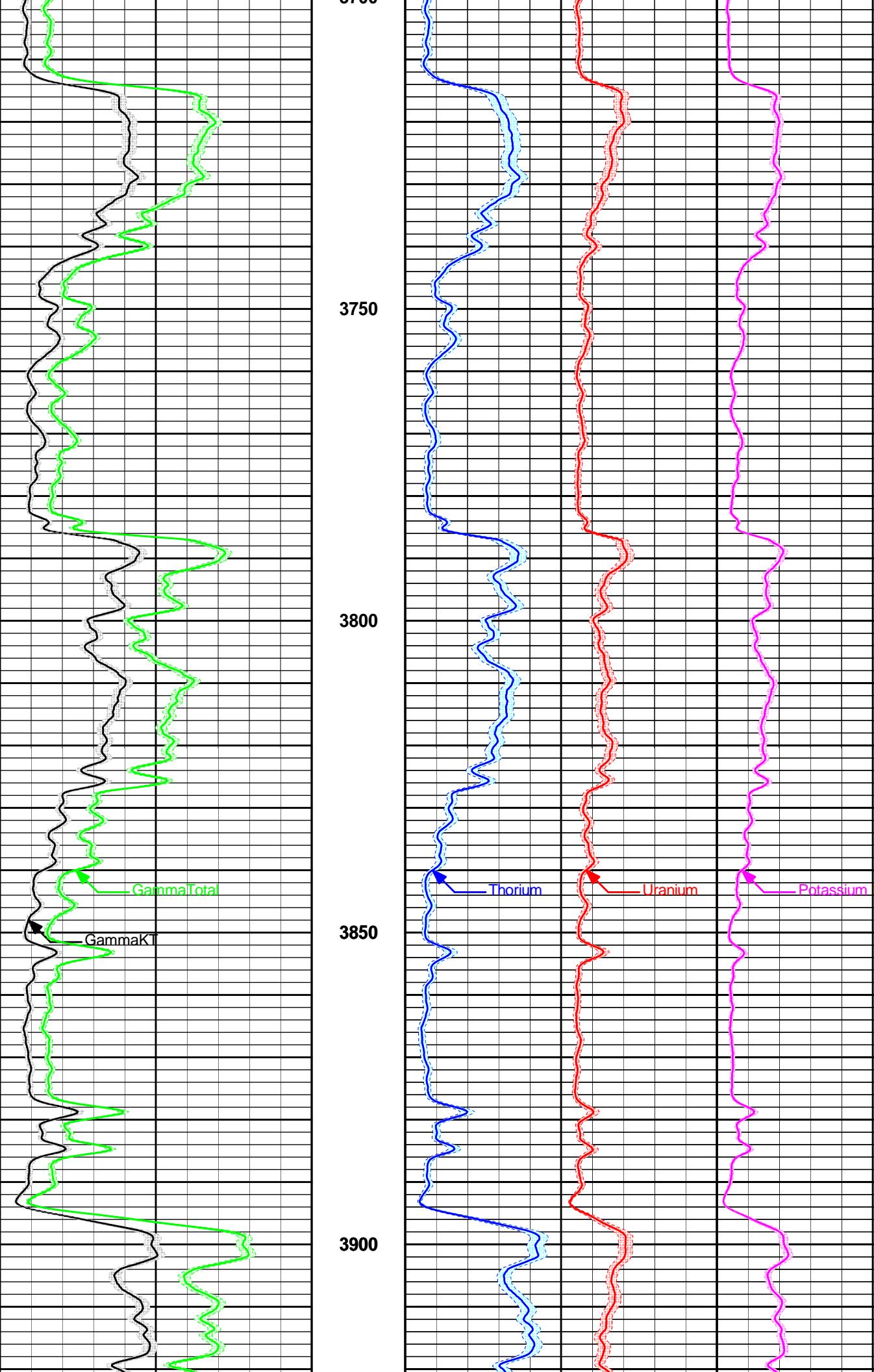


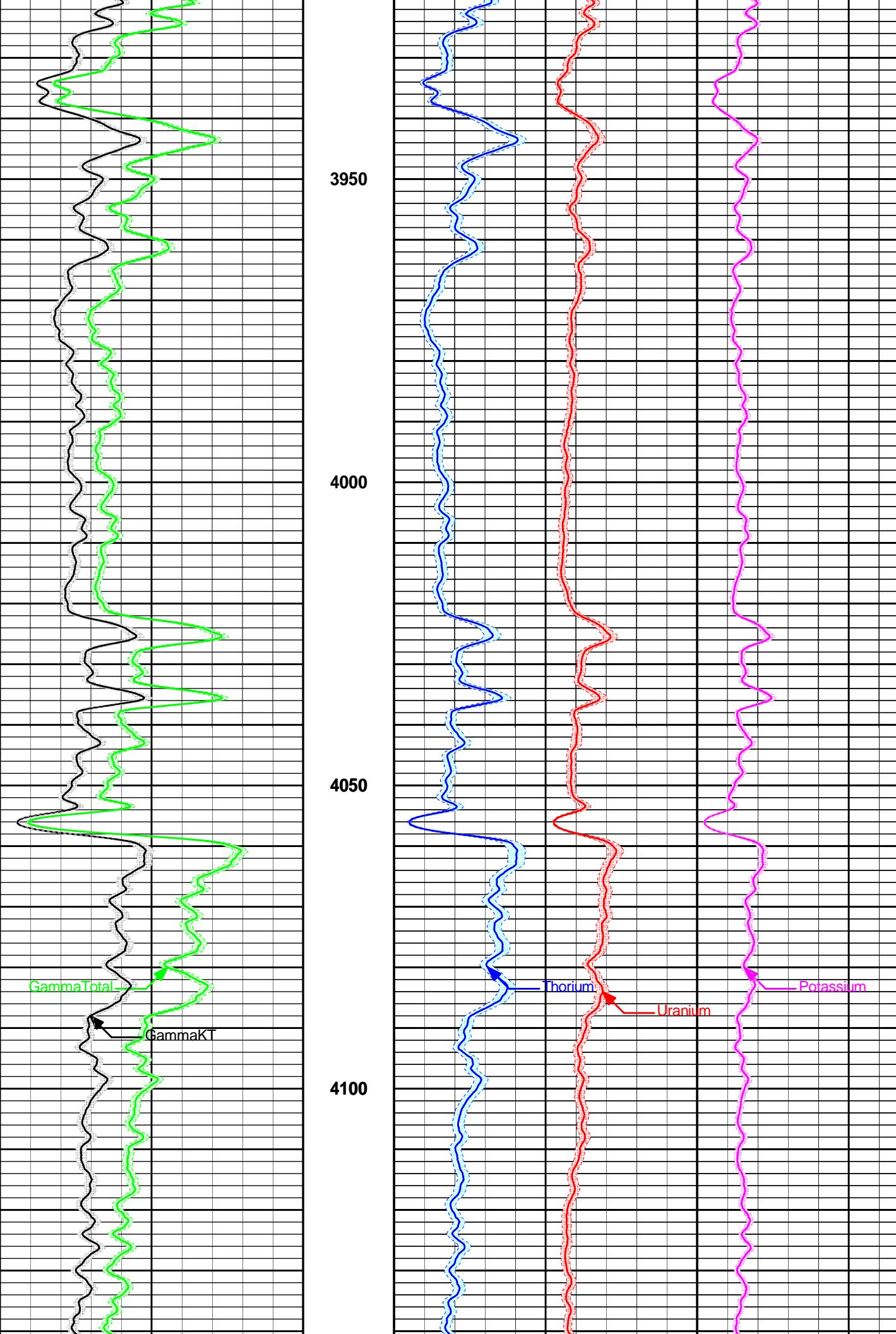


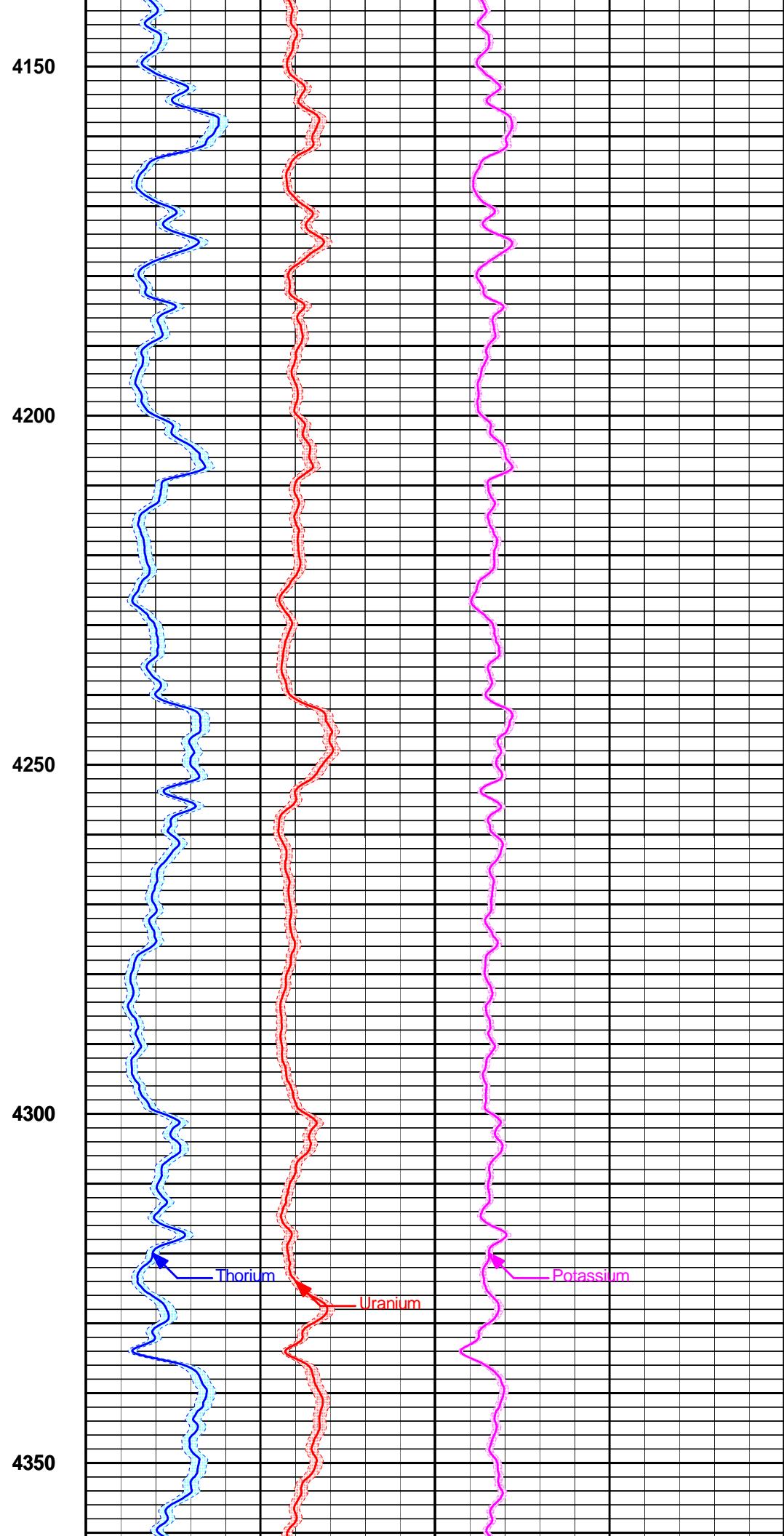
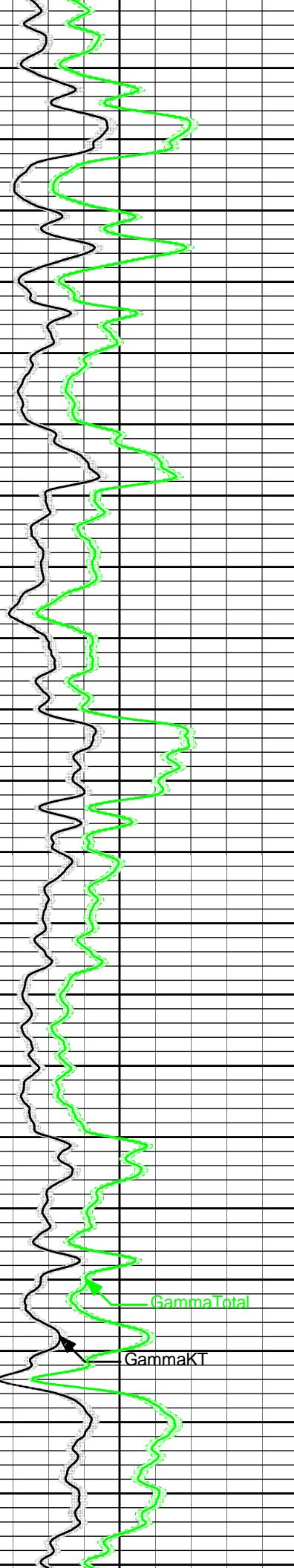


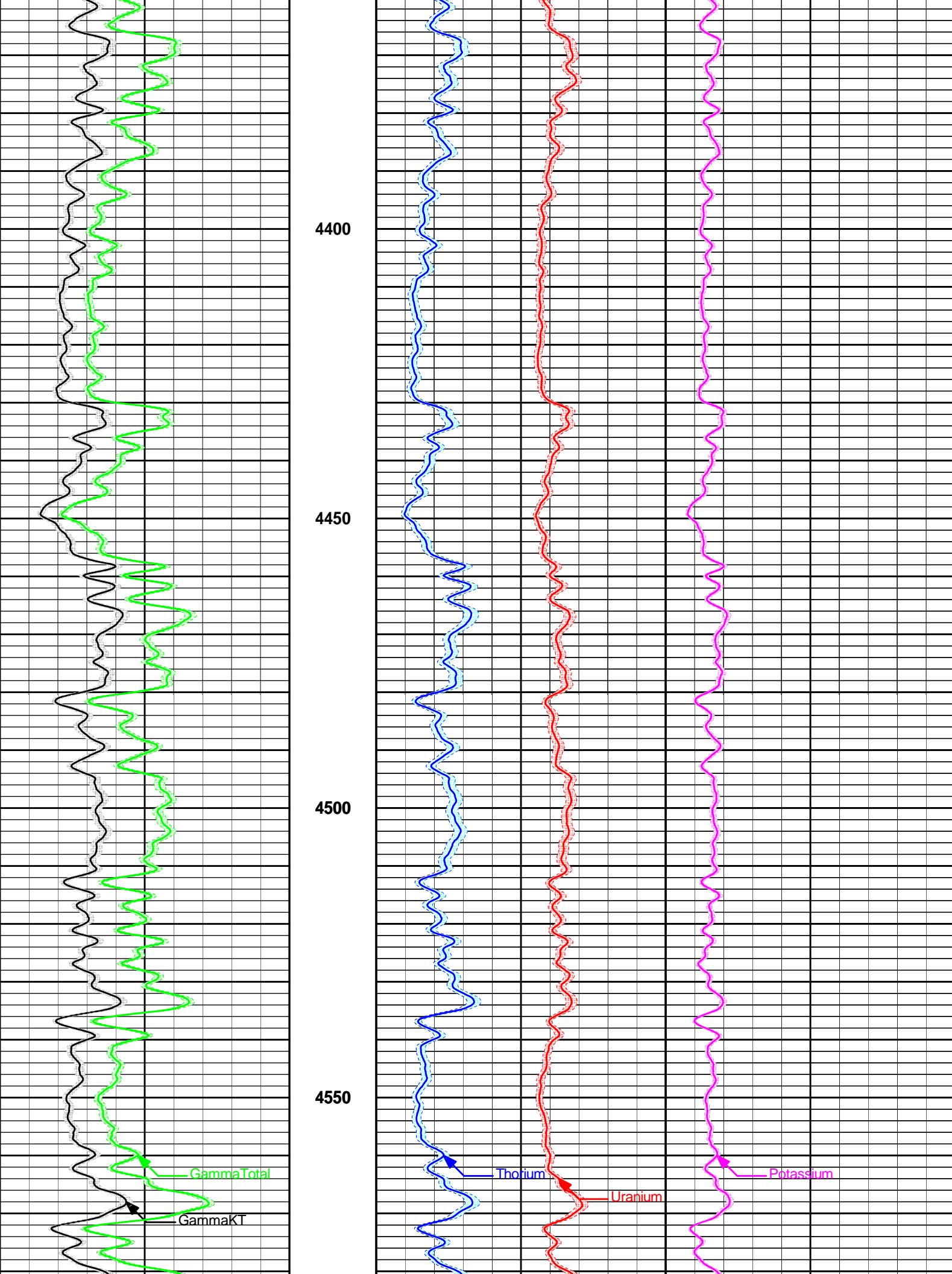


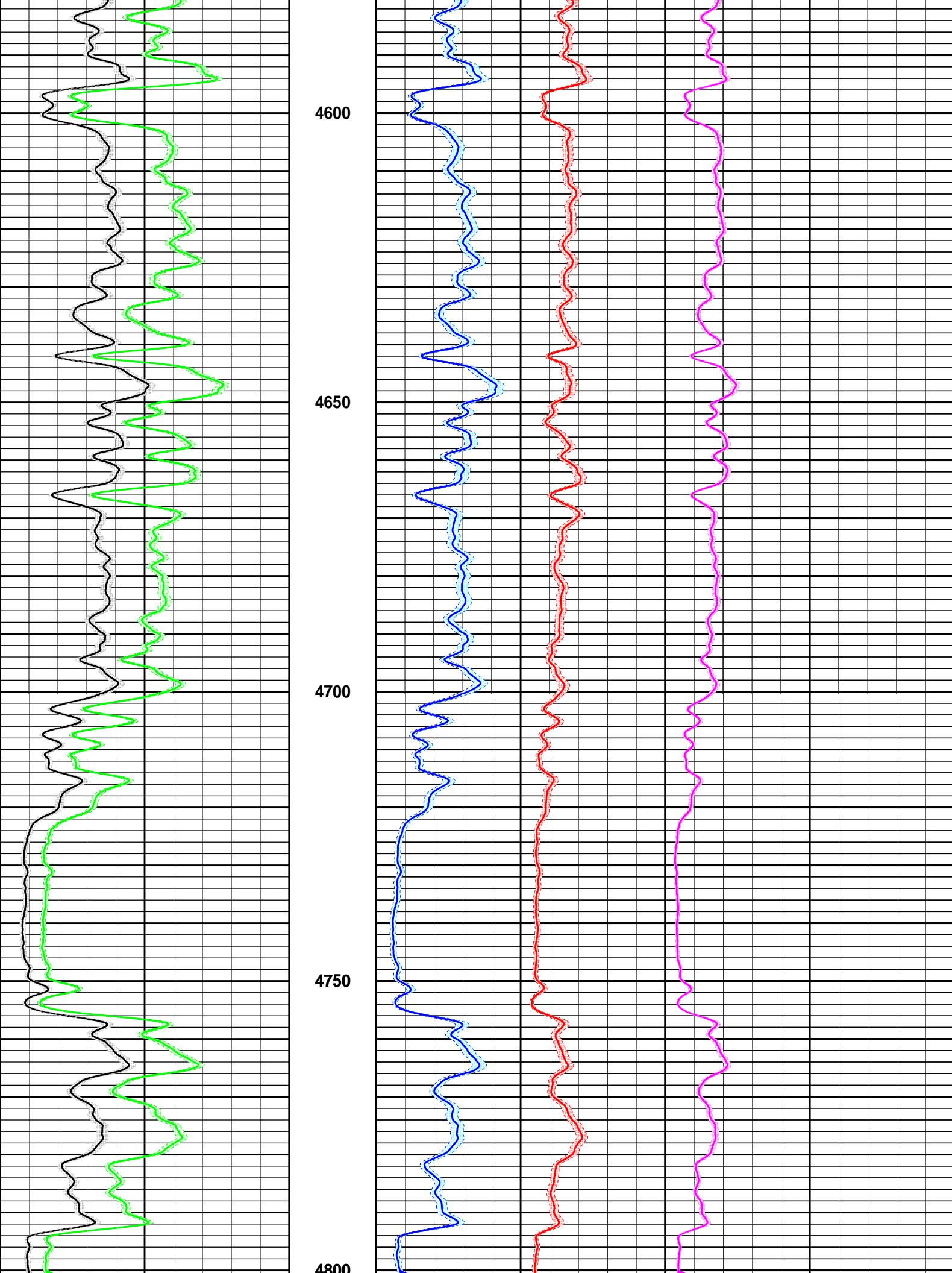


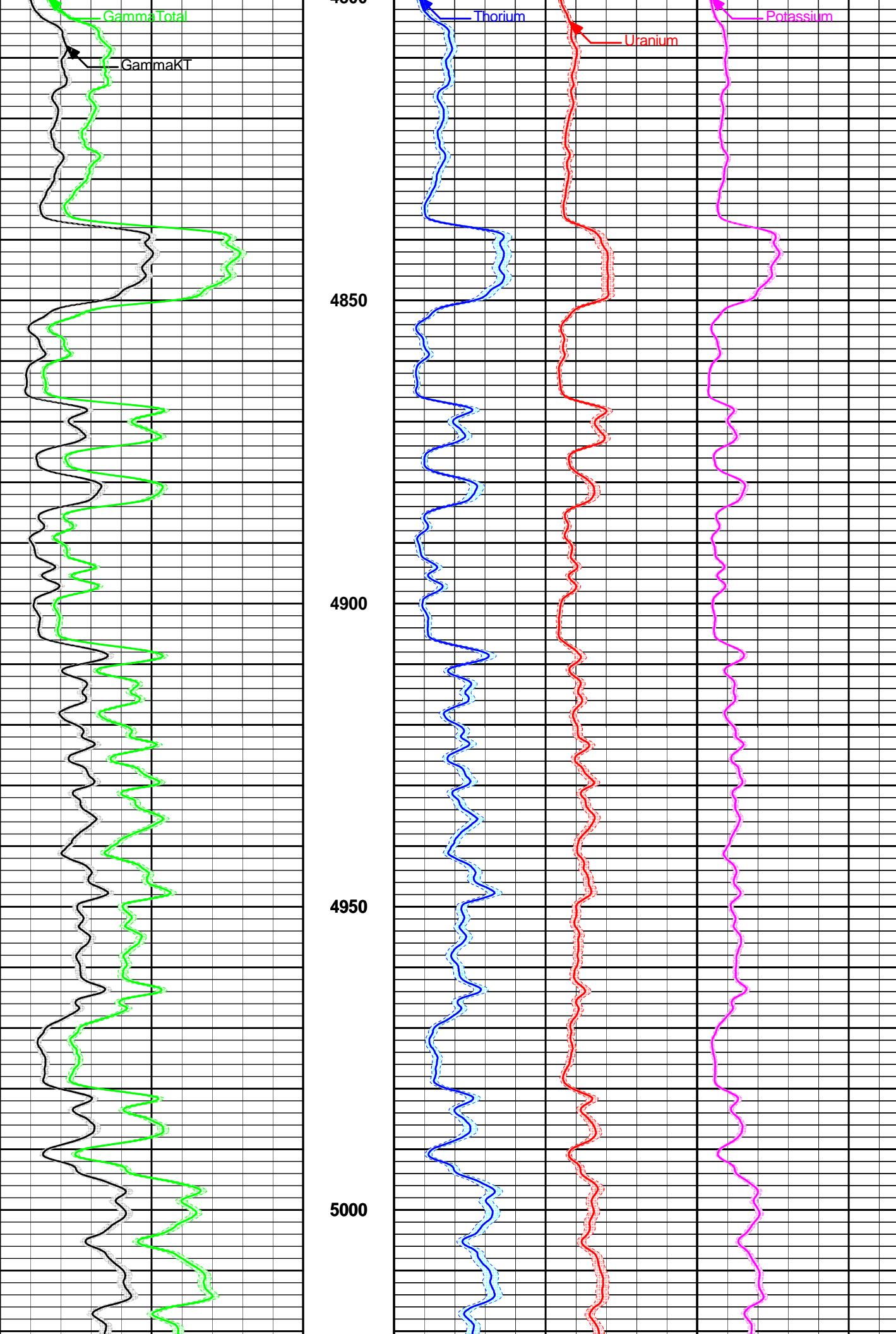


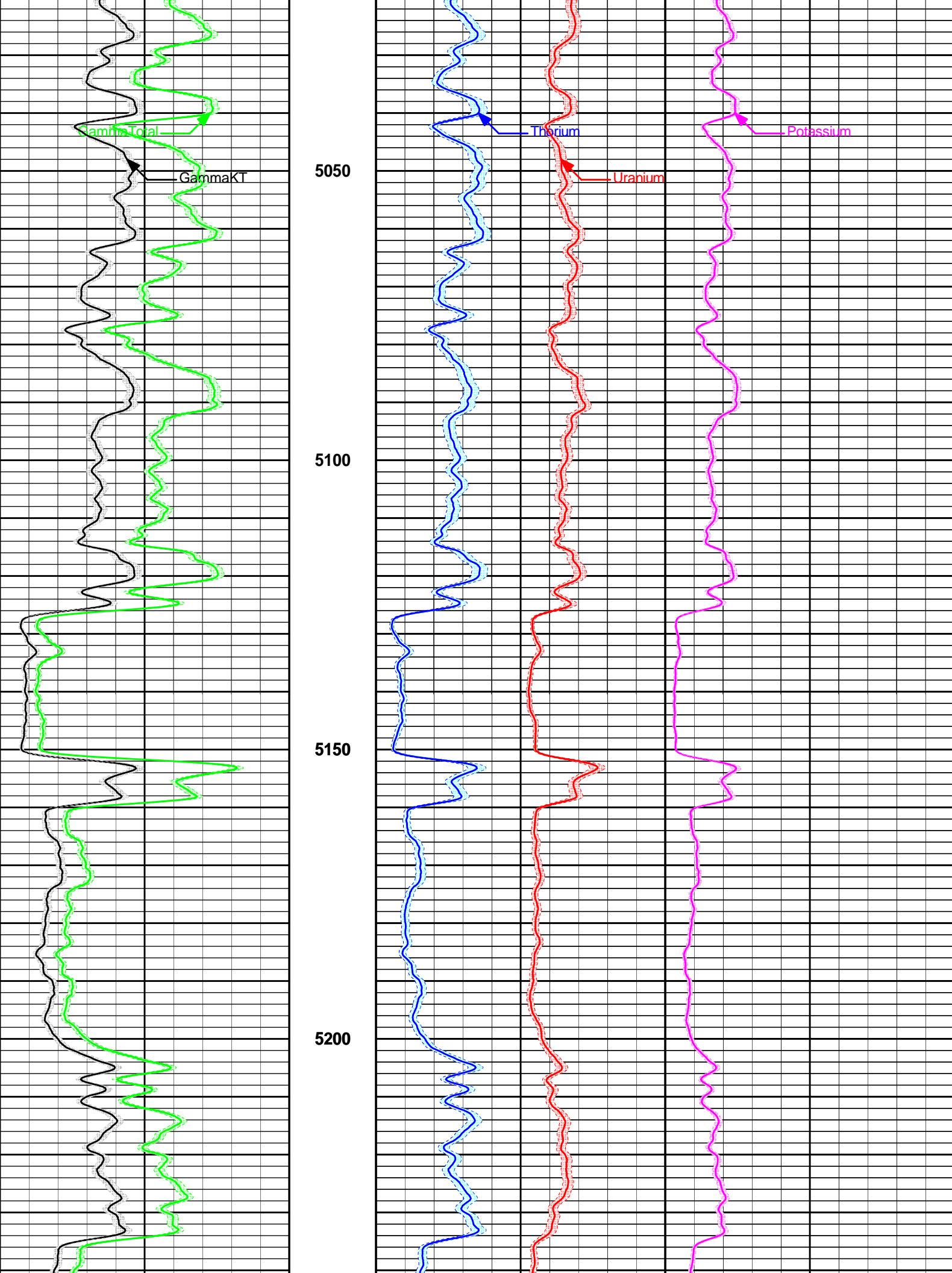


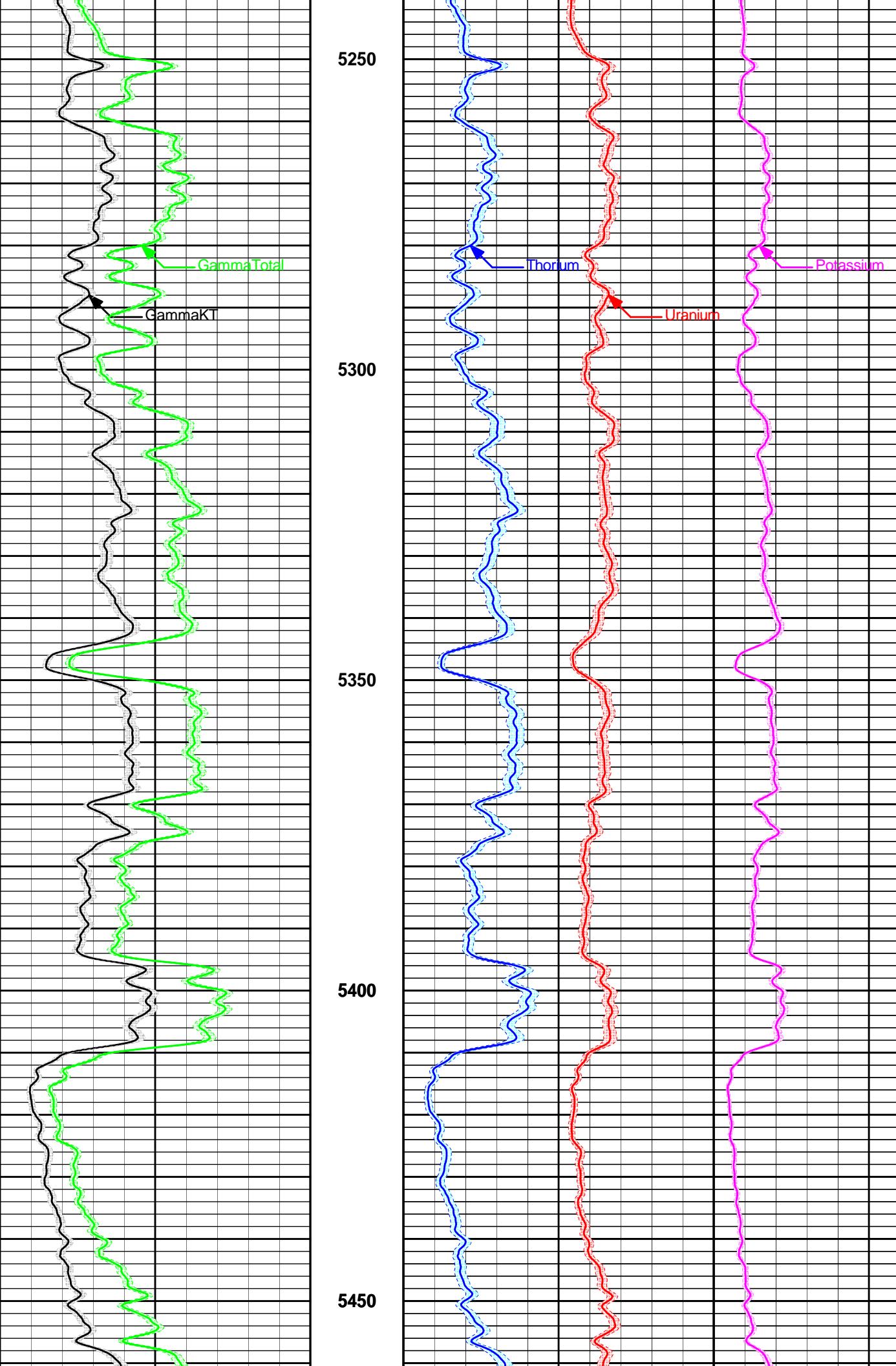


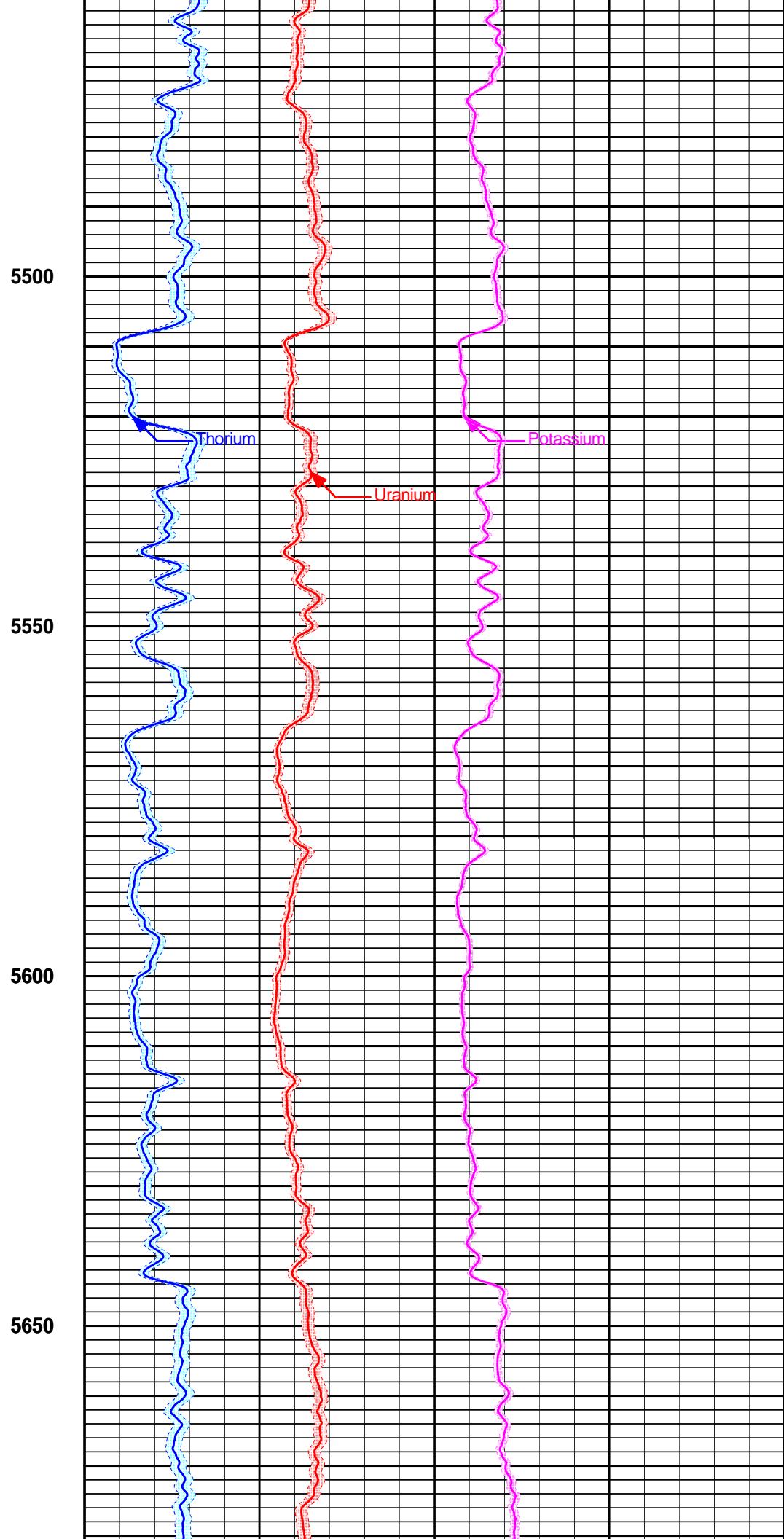
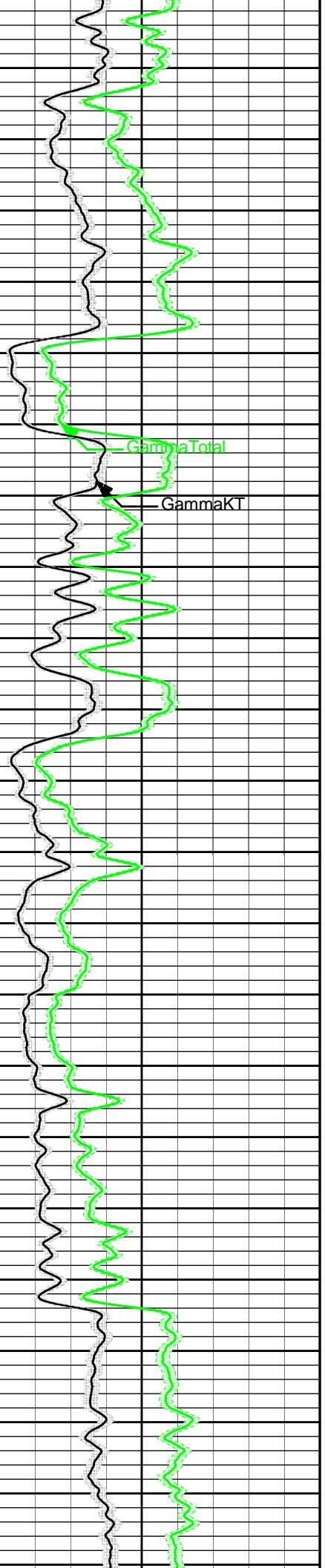


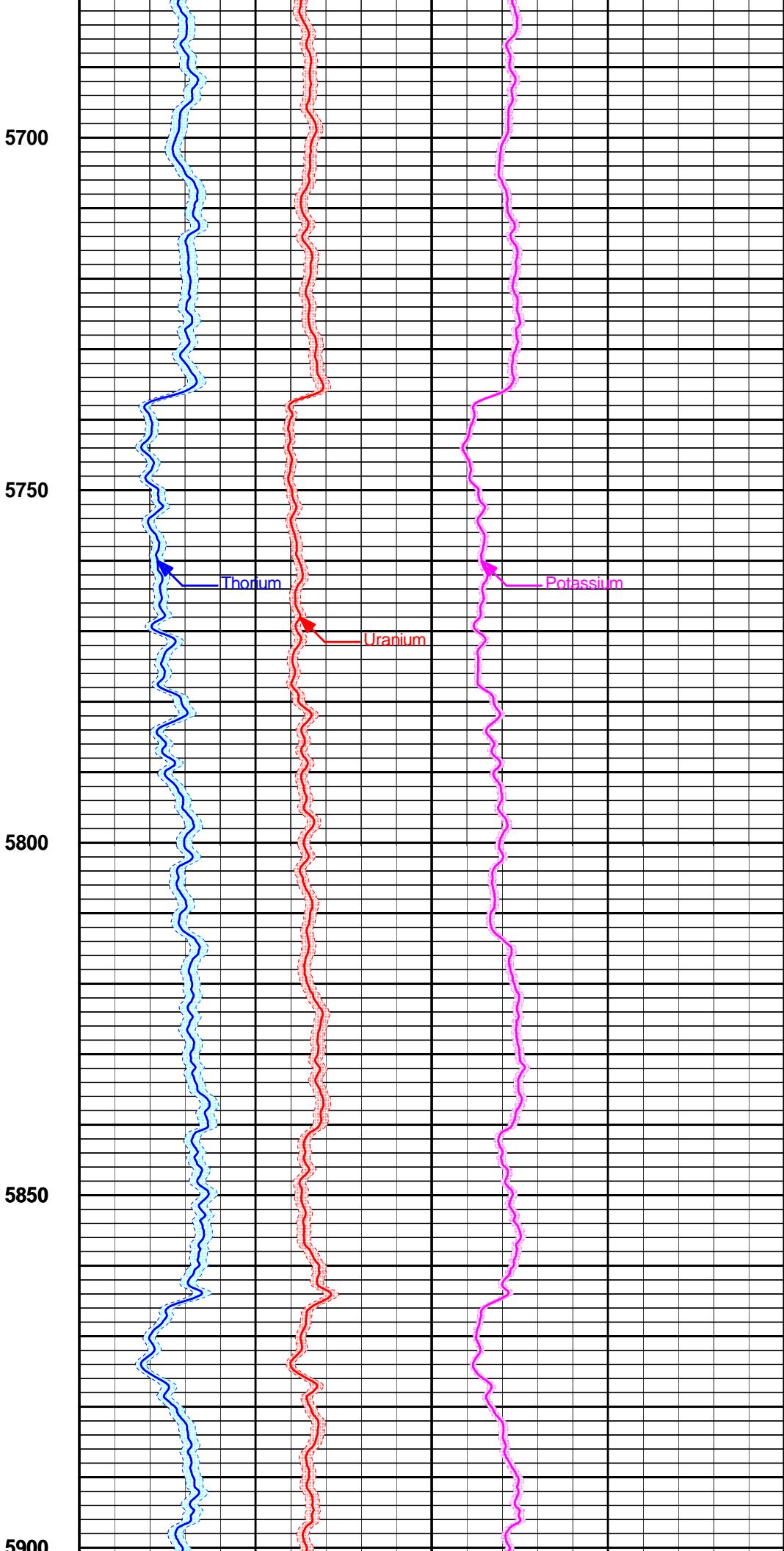
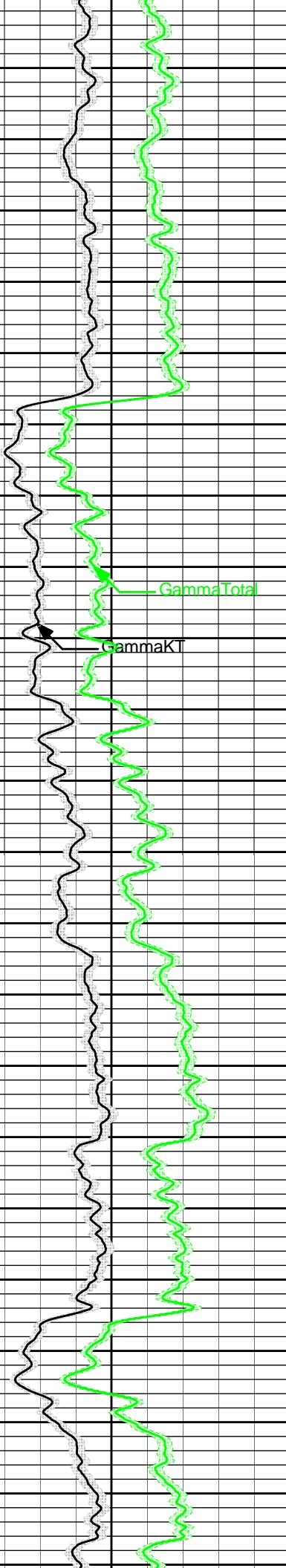


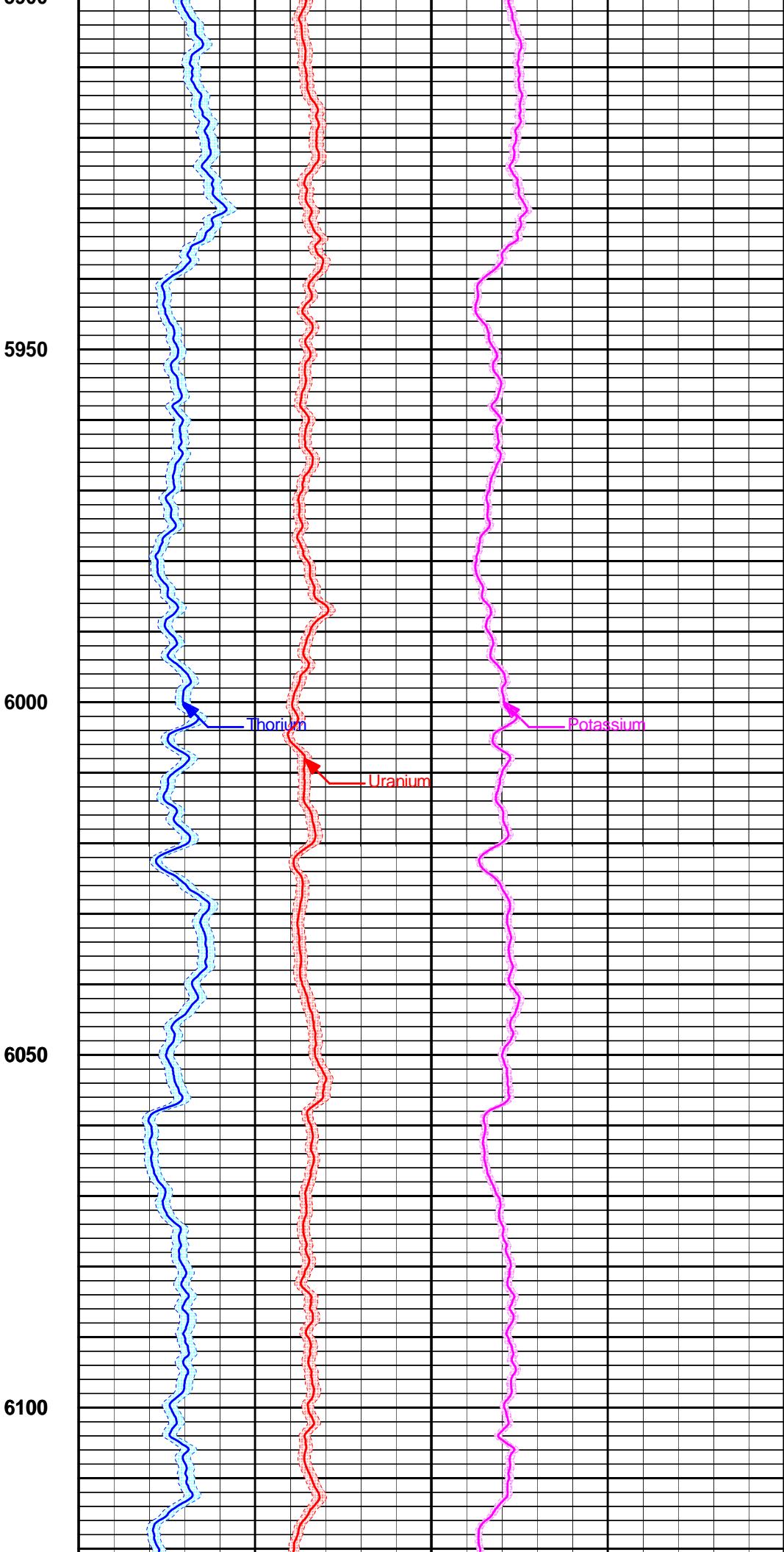
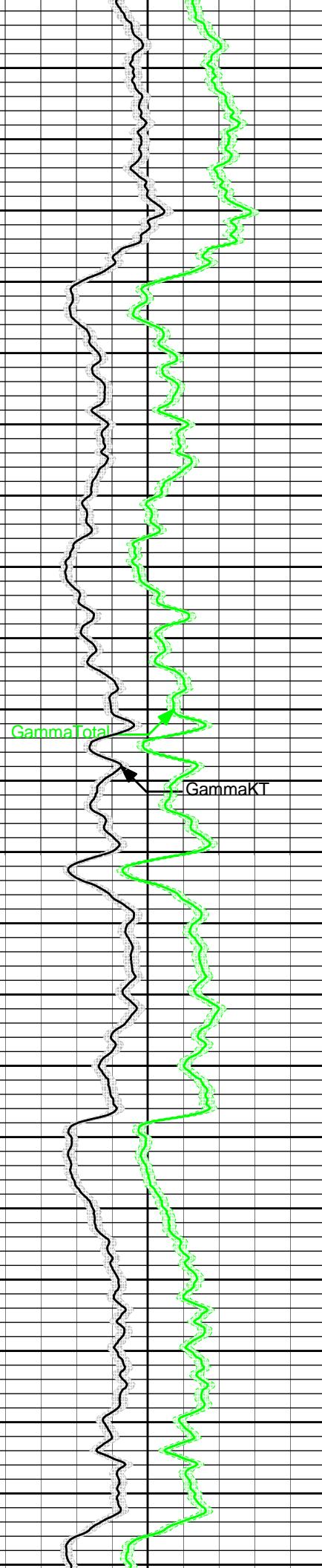


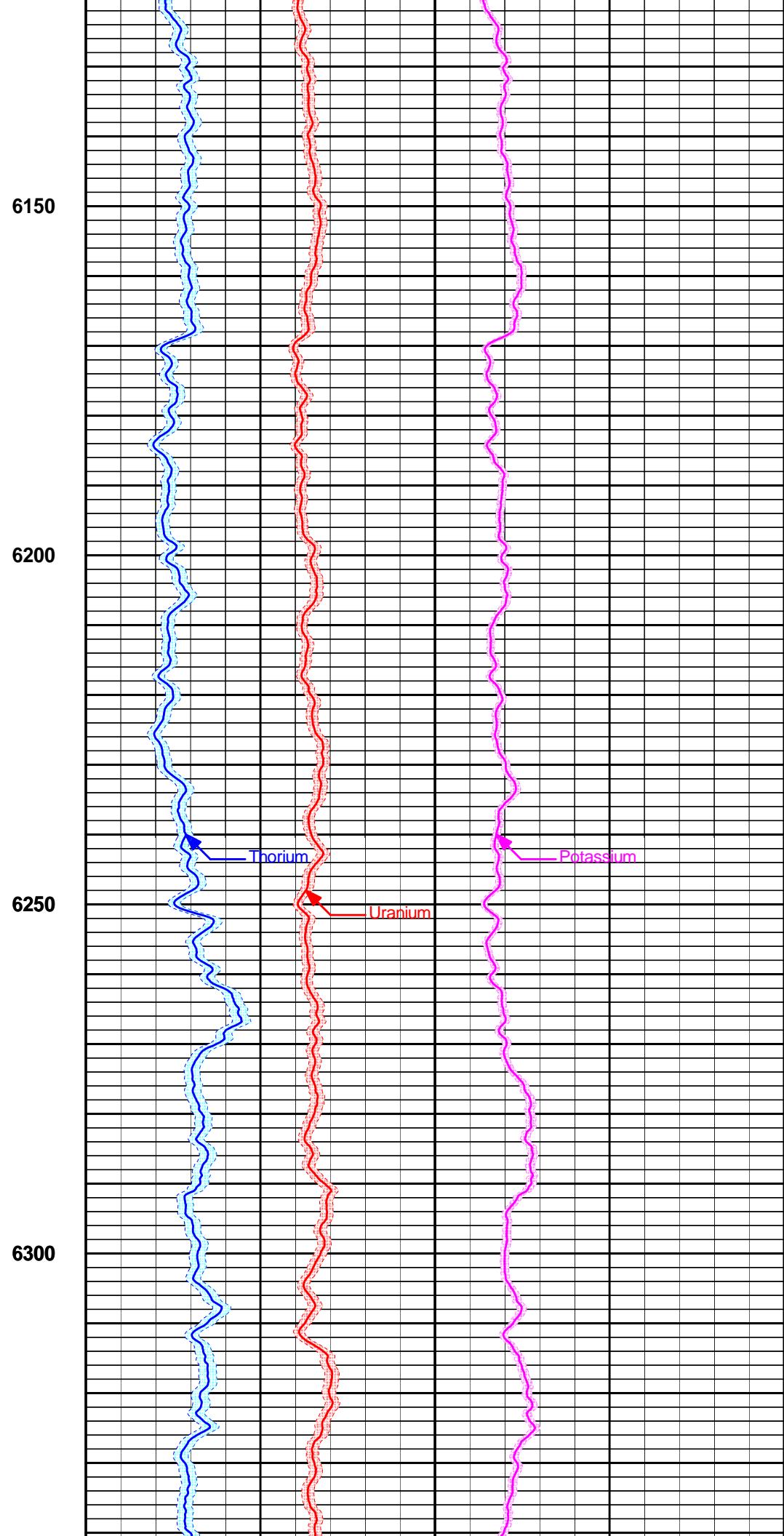
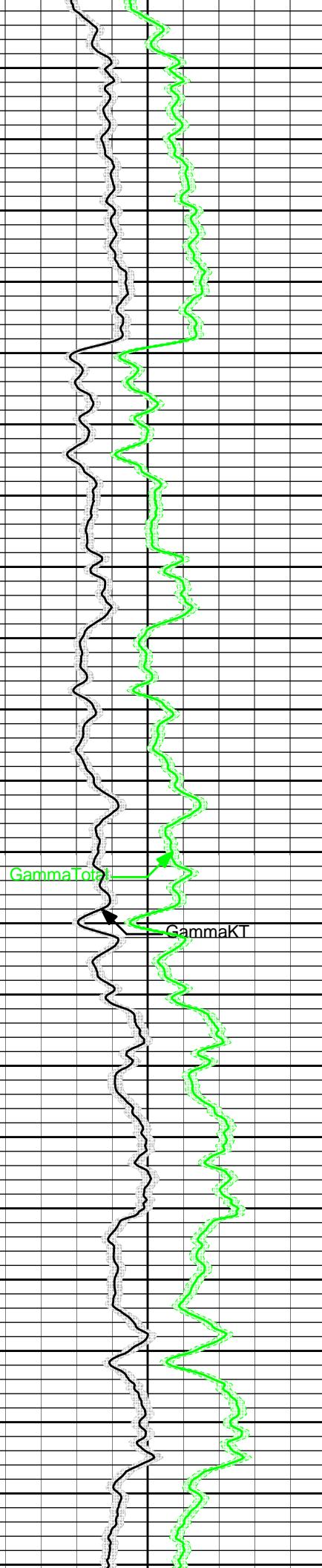


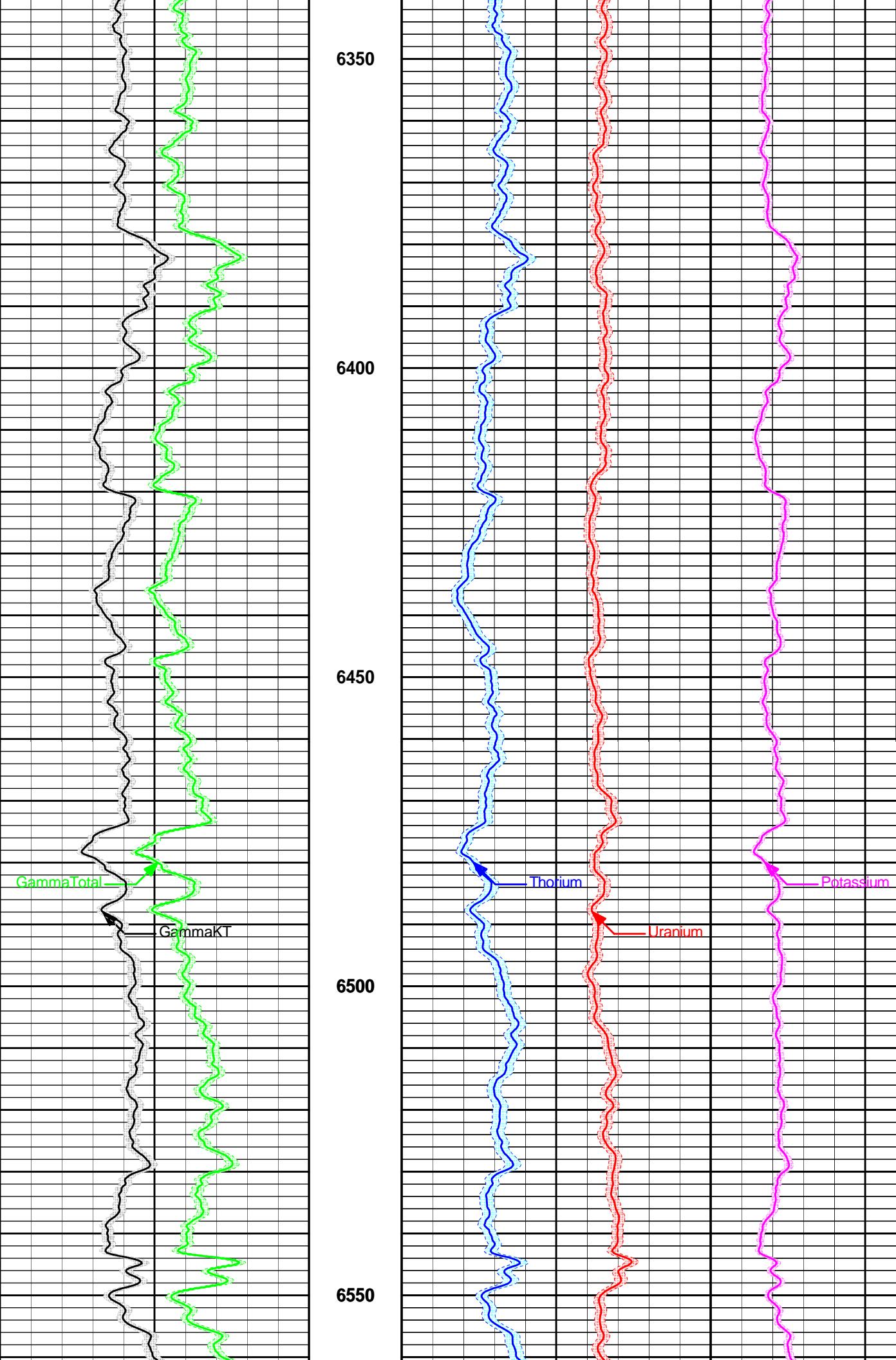


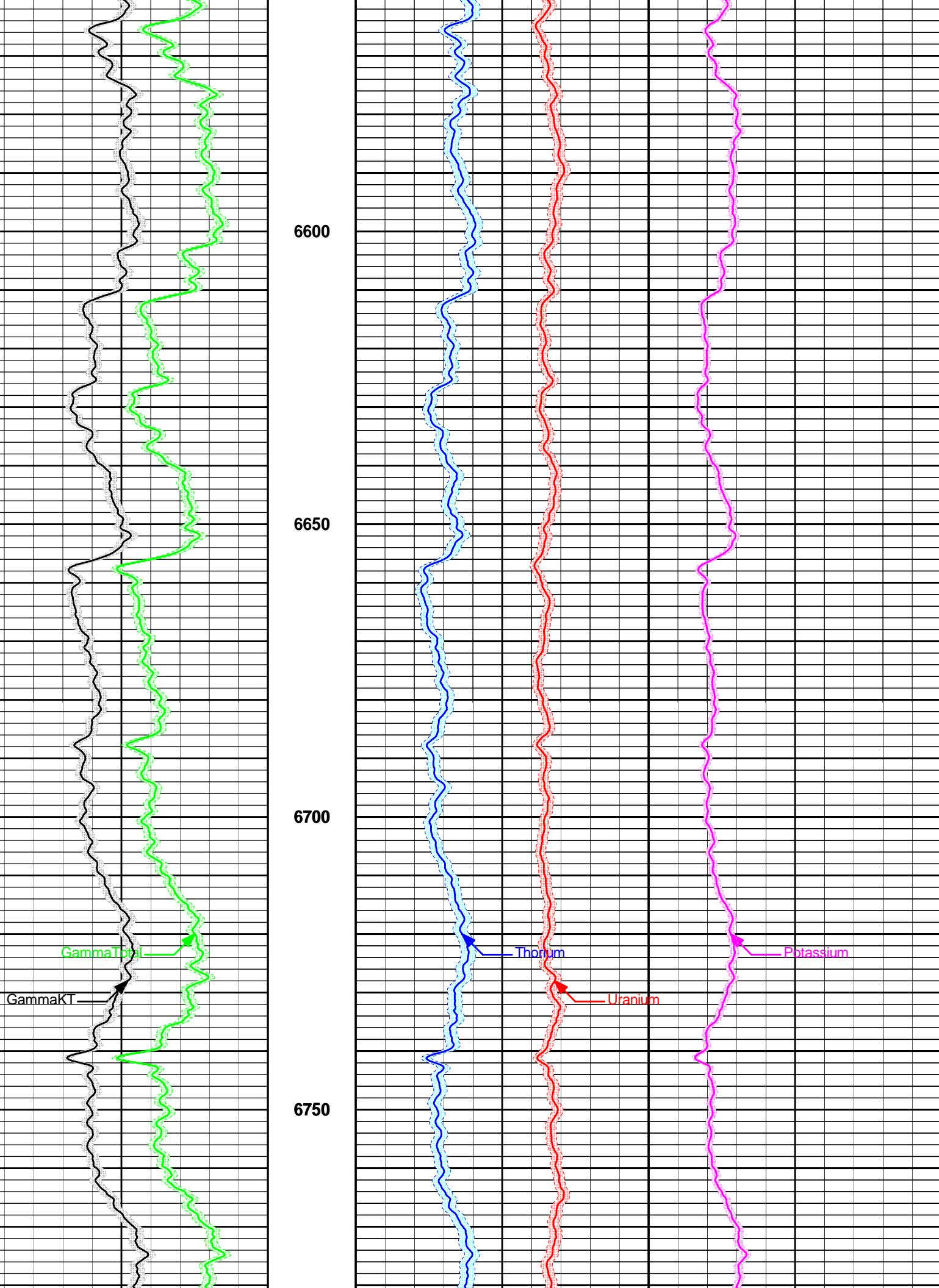


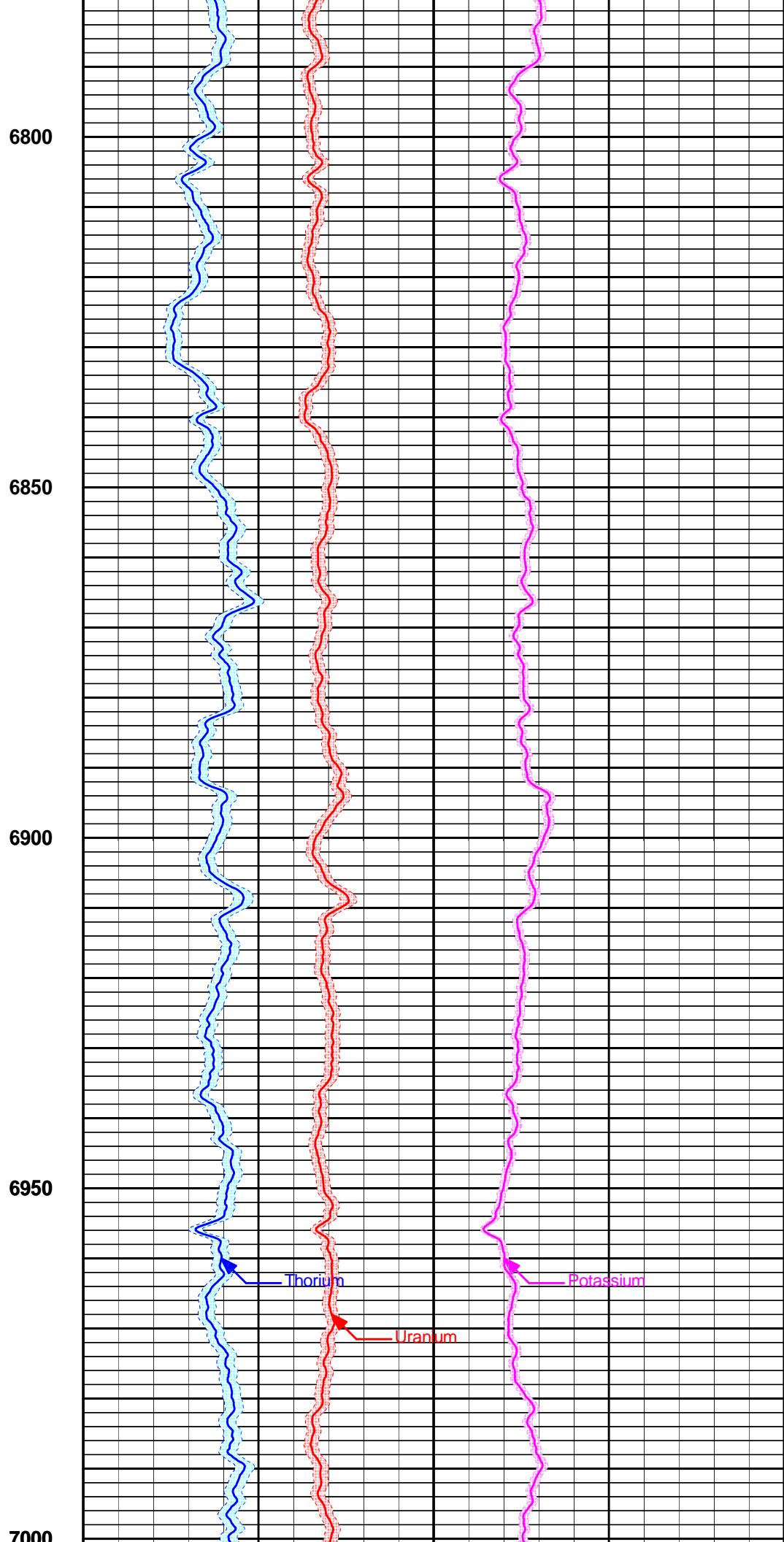
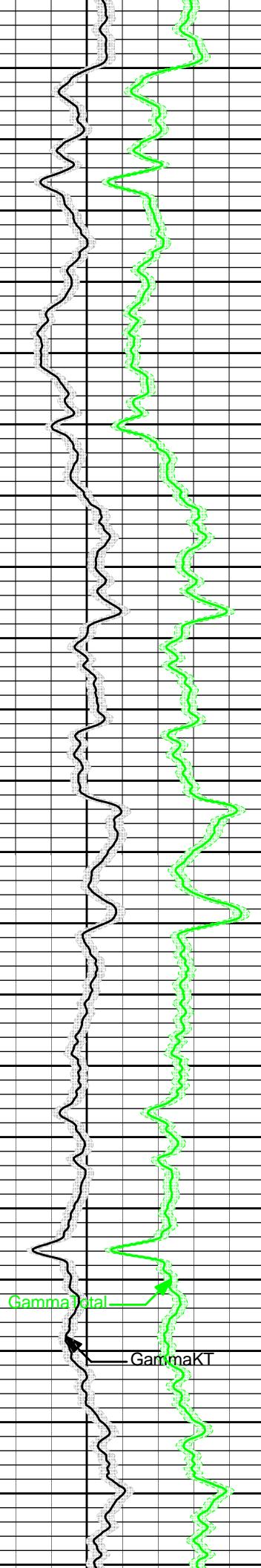


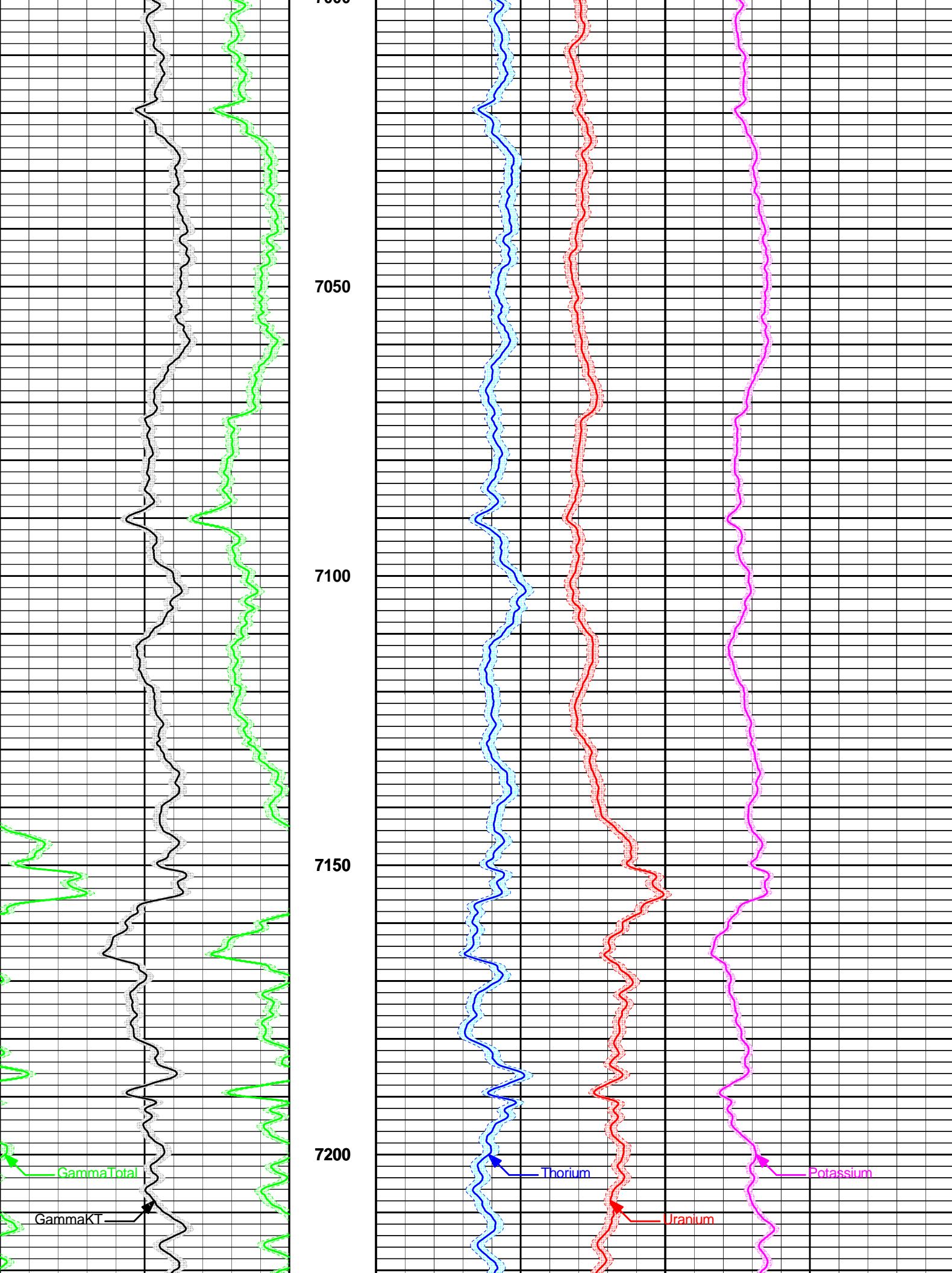


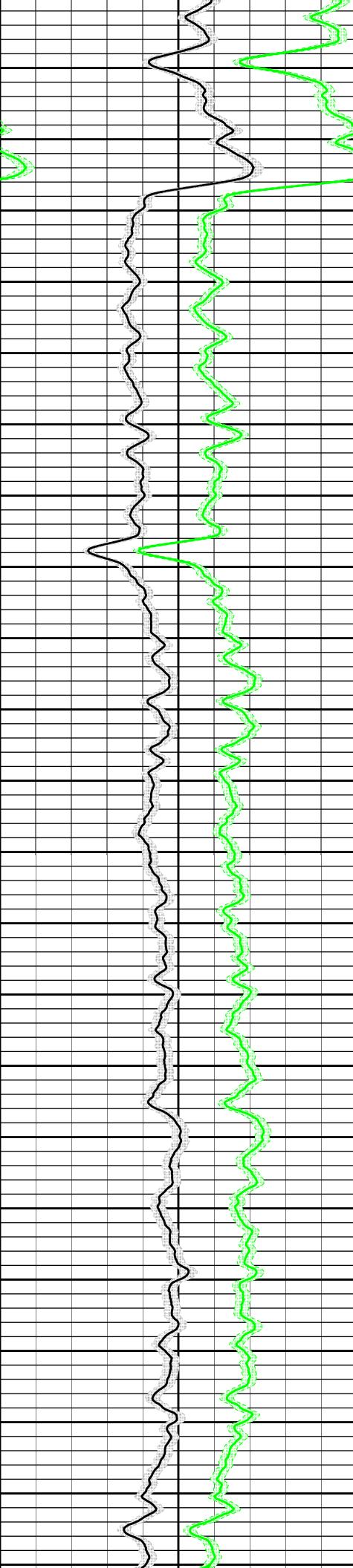










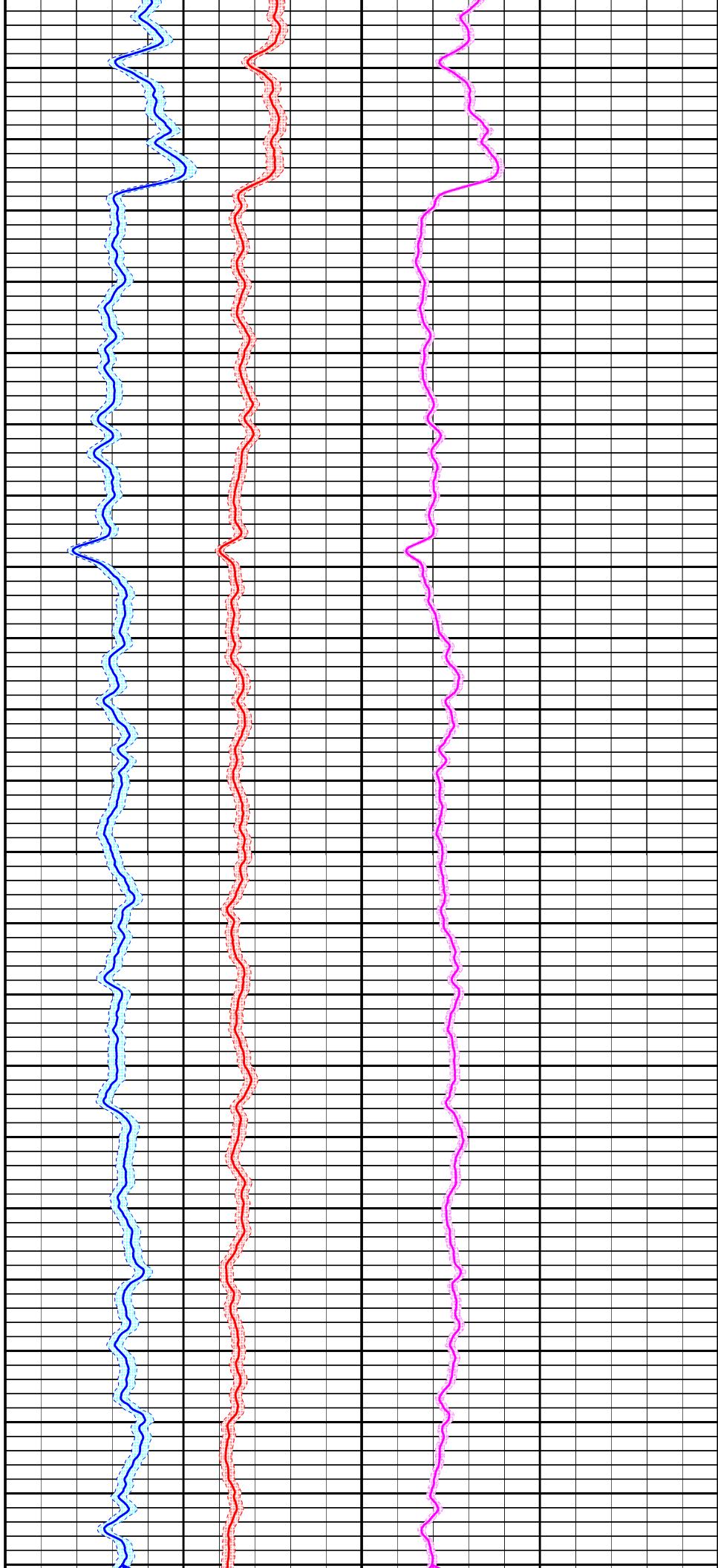


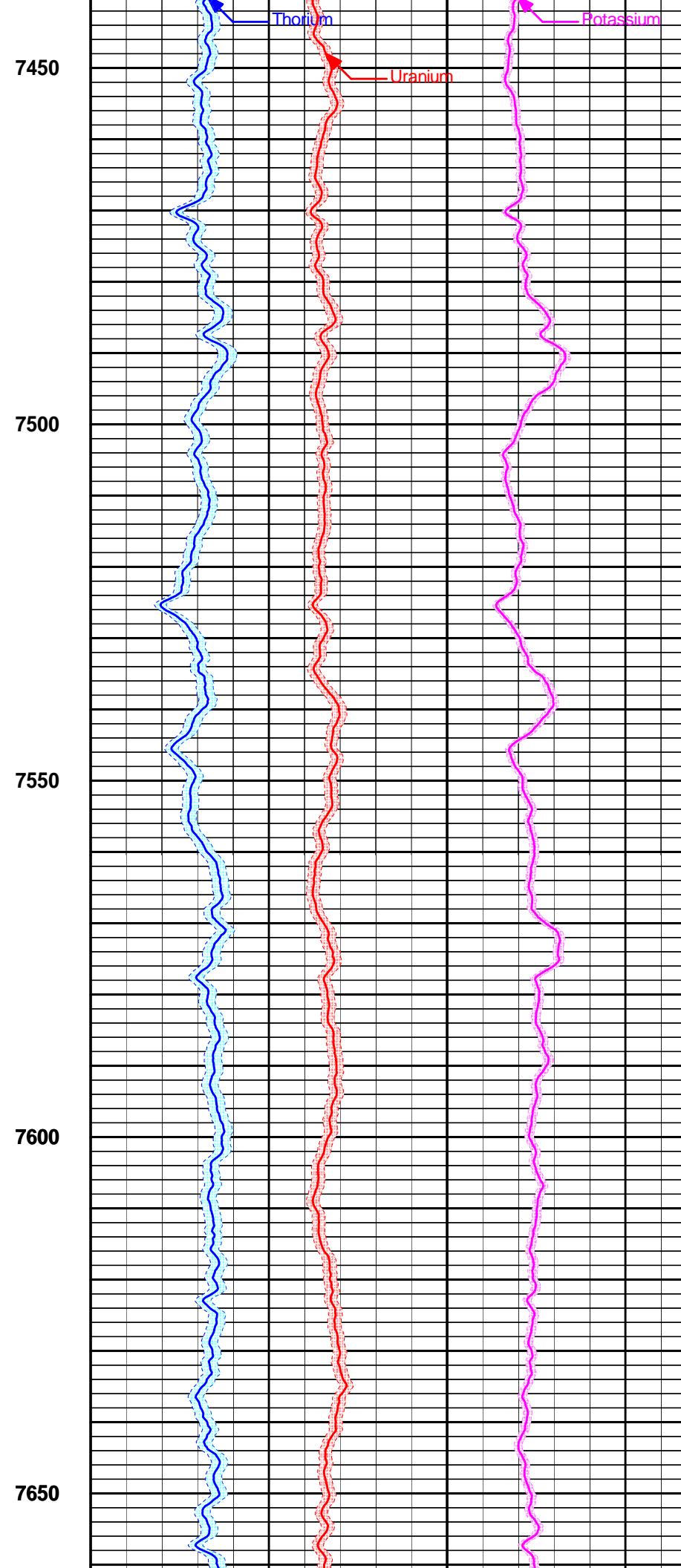
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7300

7350

7400





Gamma Total

GammaKT

7700

7750

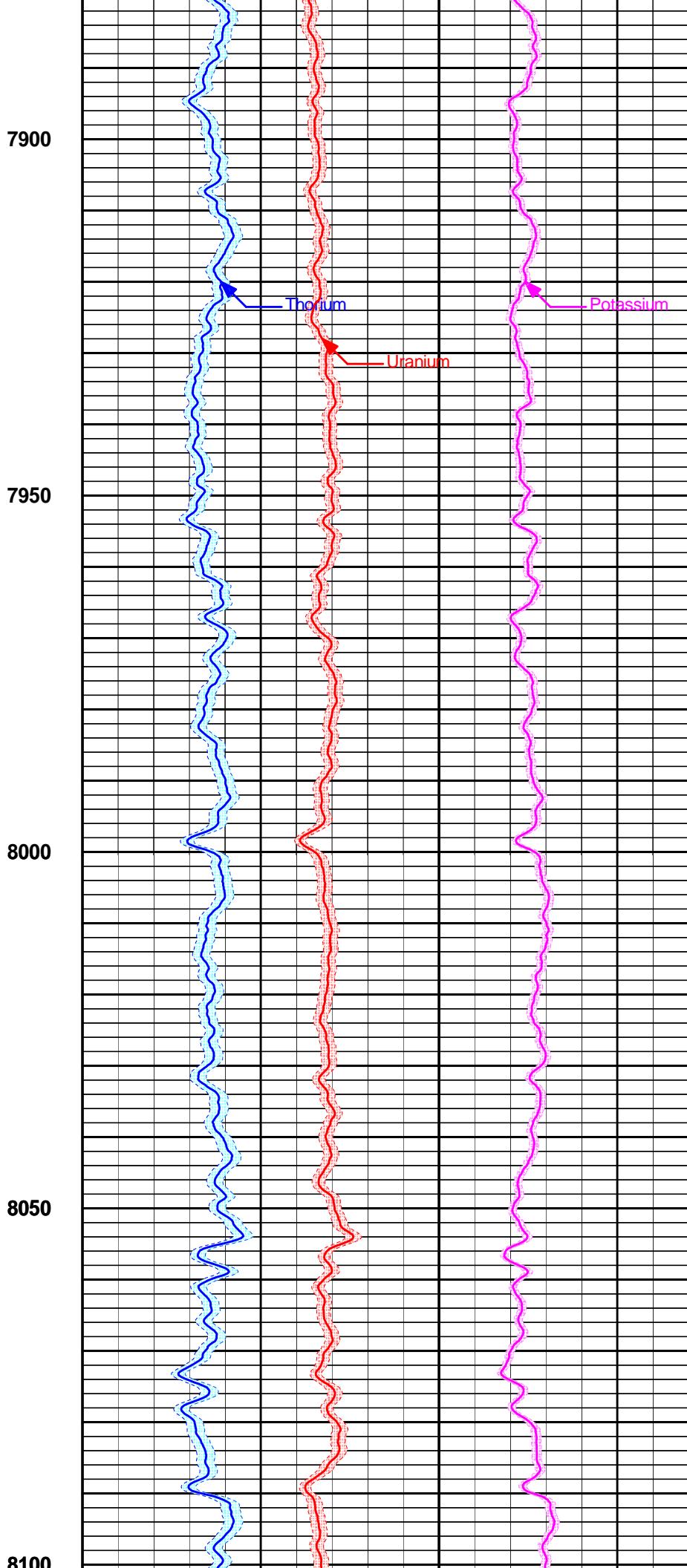
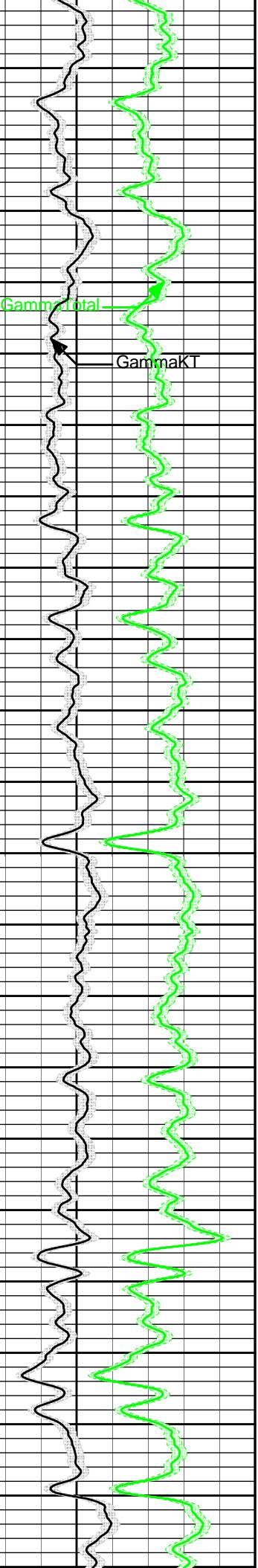
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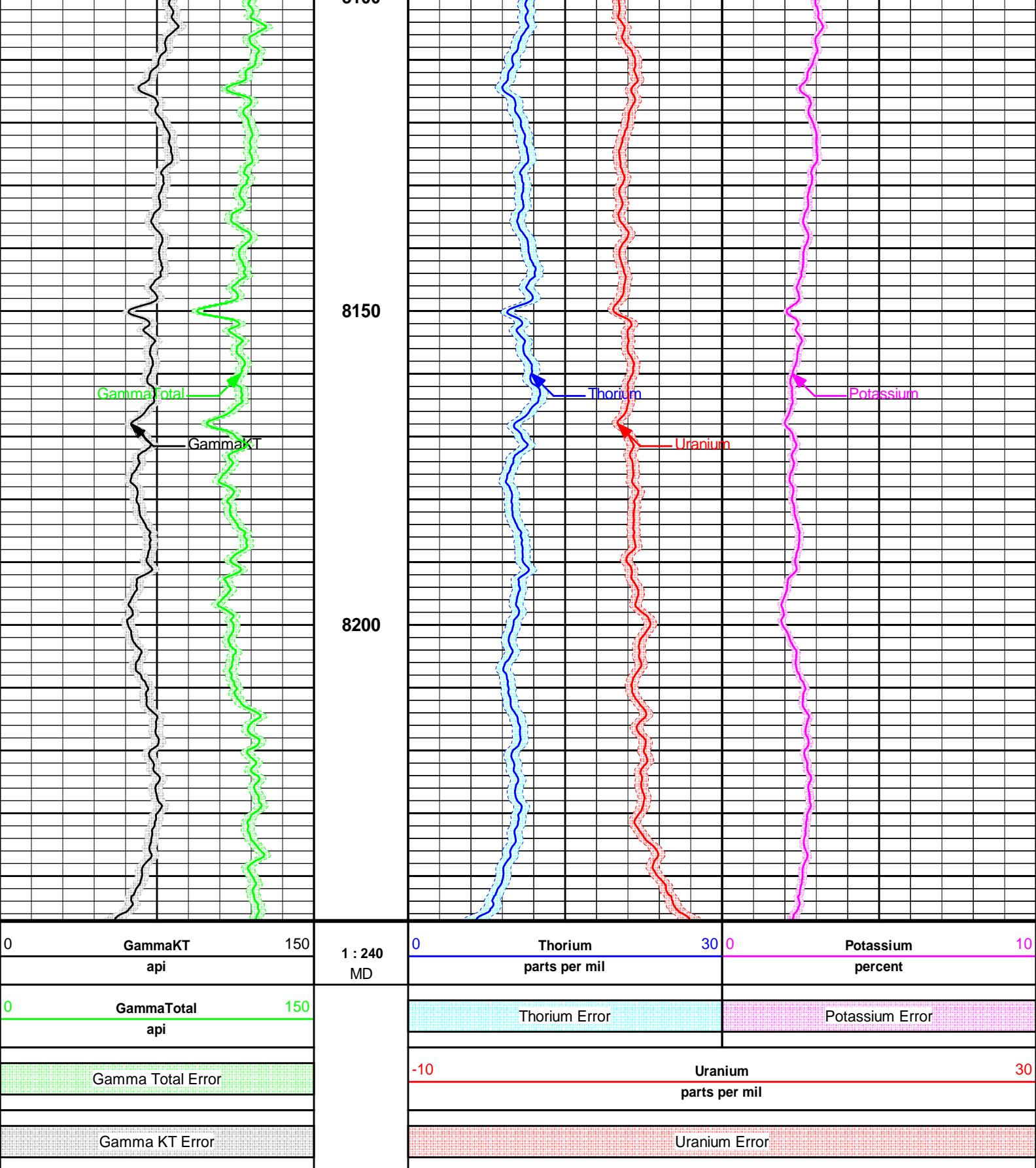
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Thorium

Uranium

Potassium



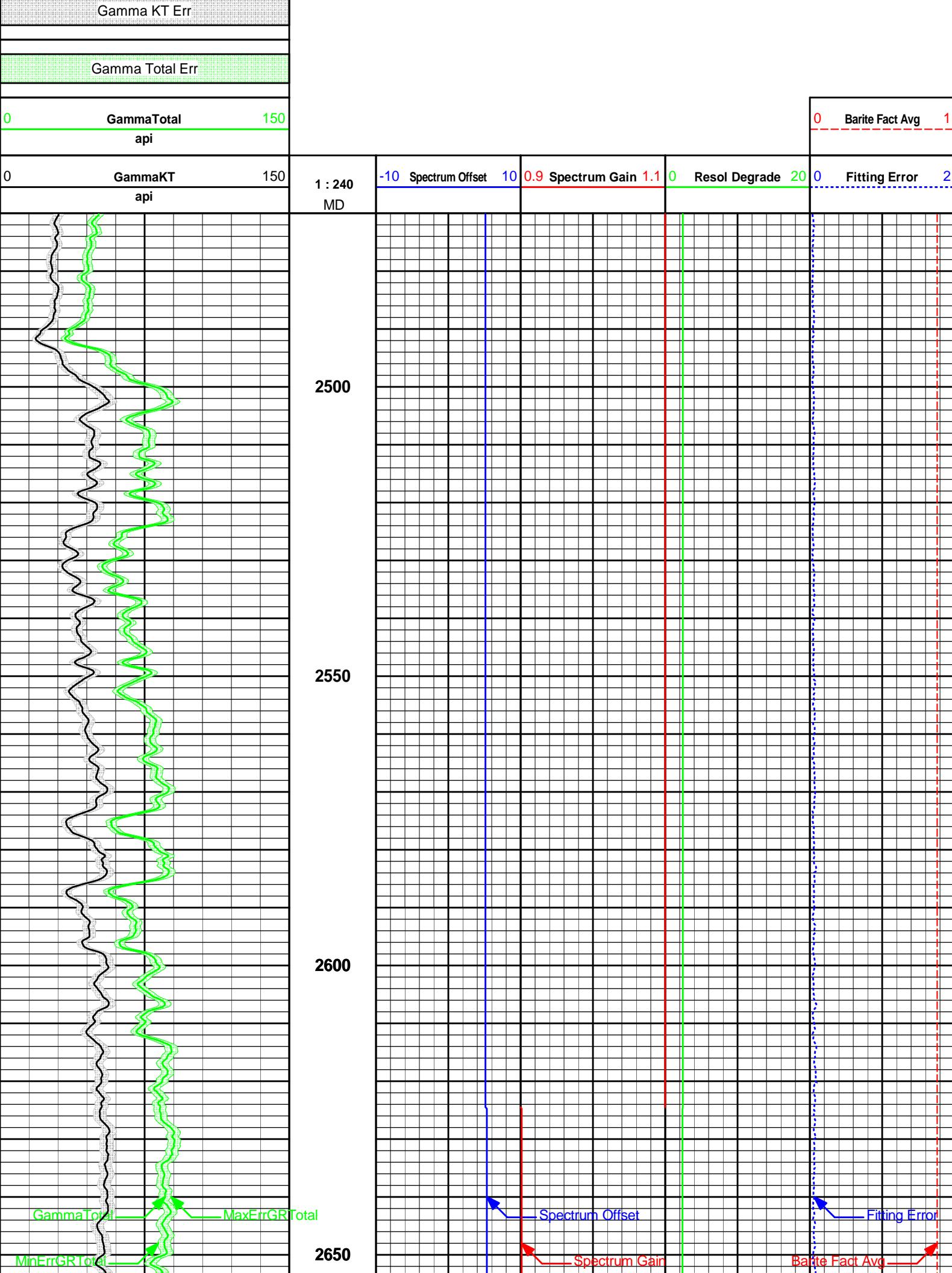


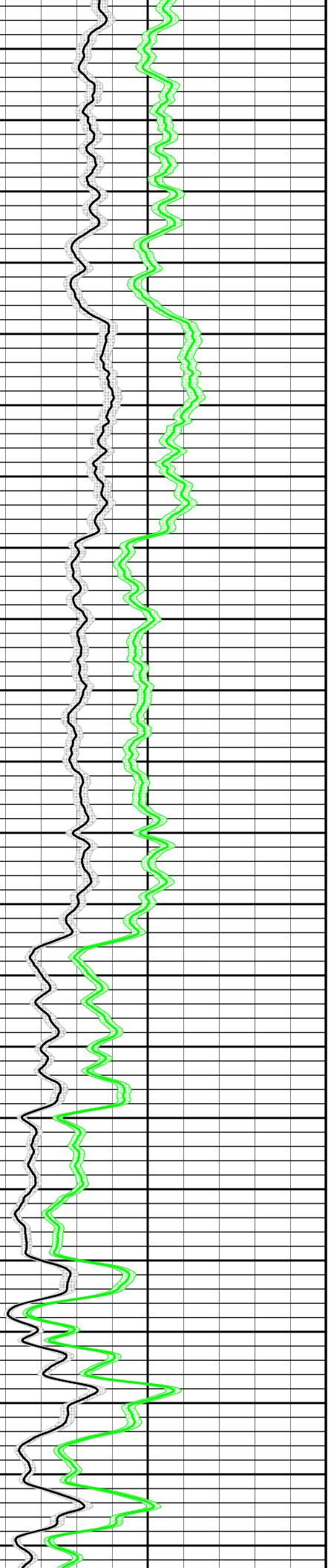
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HALLIBURTON

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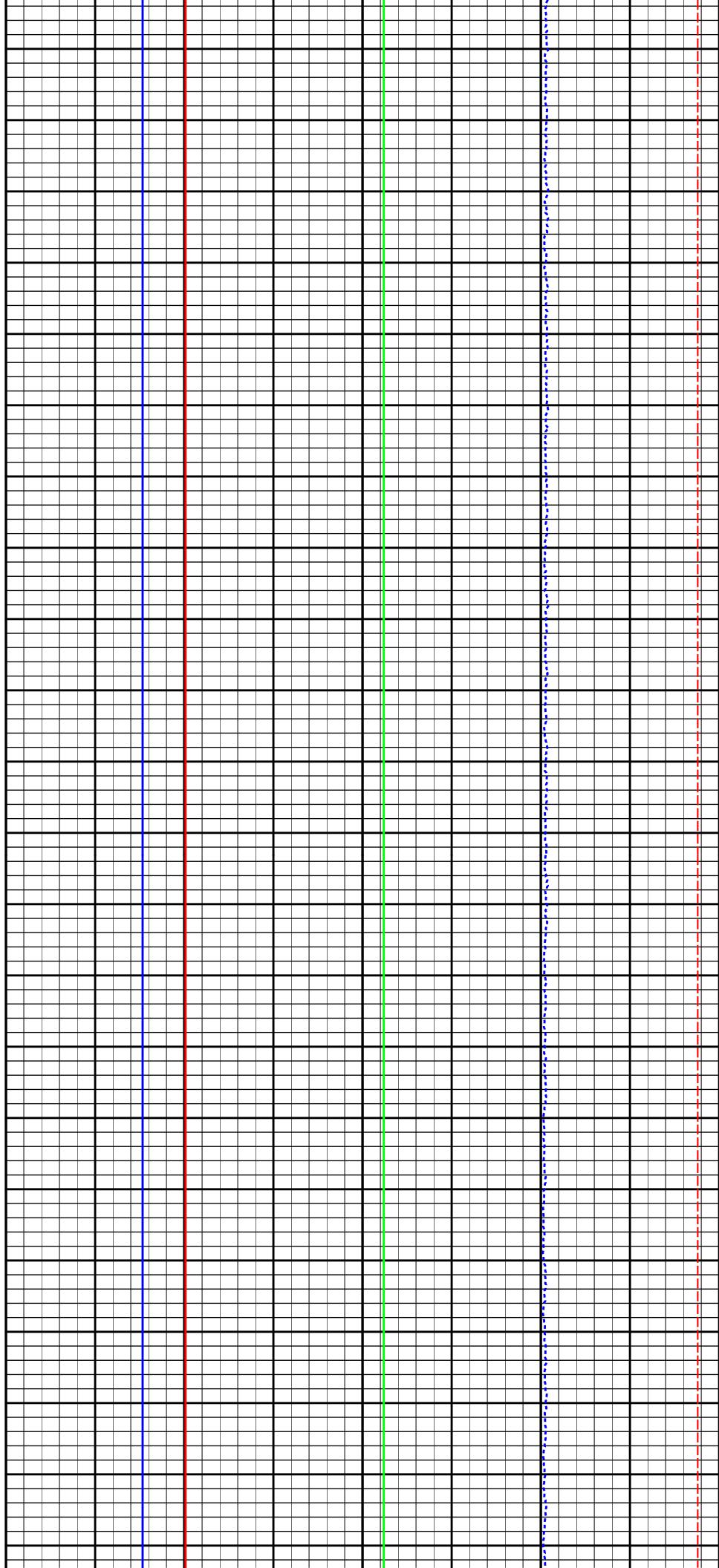


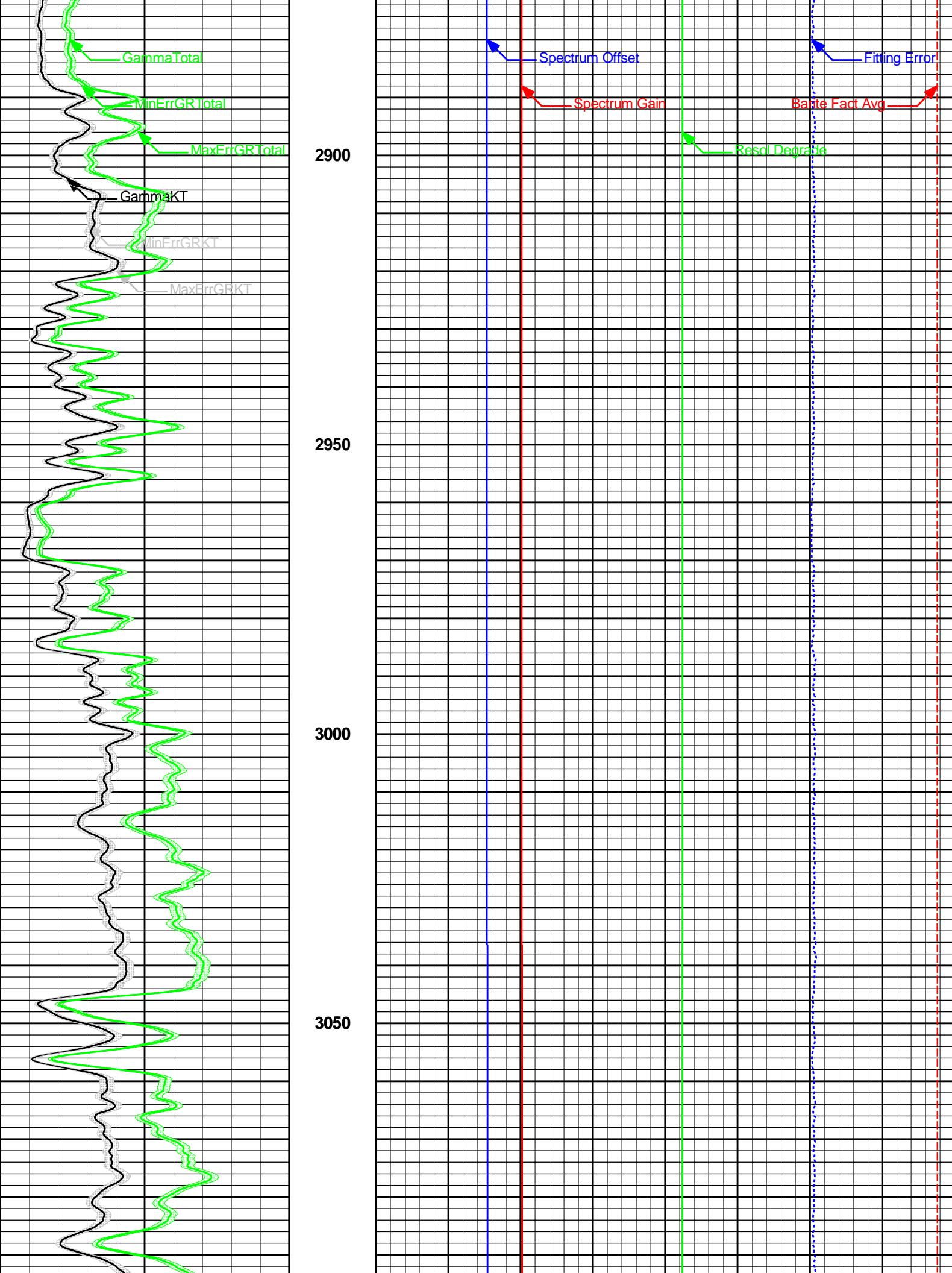
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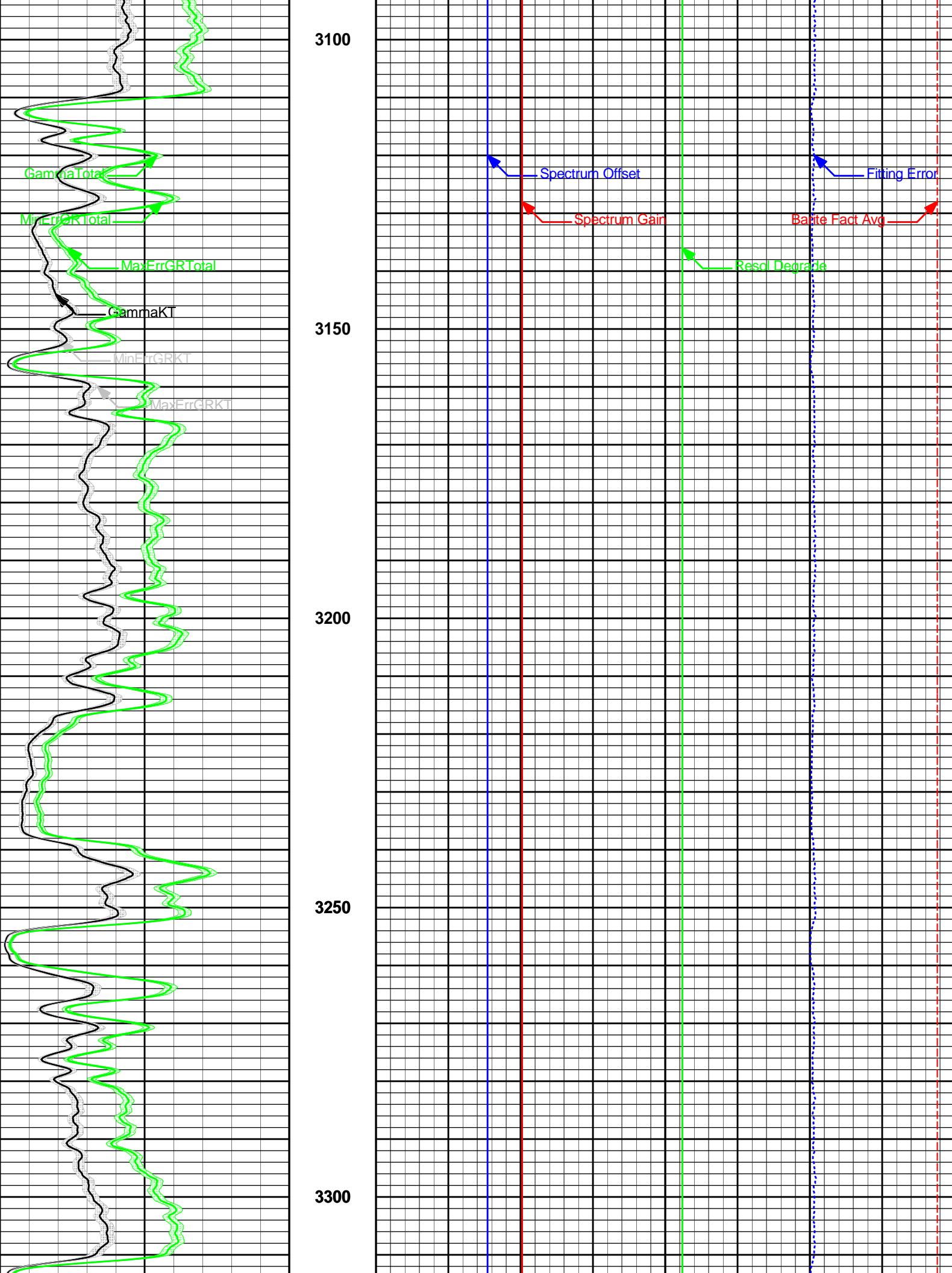
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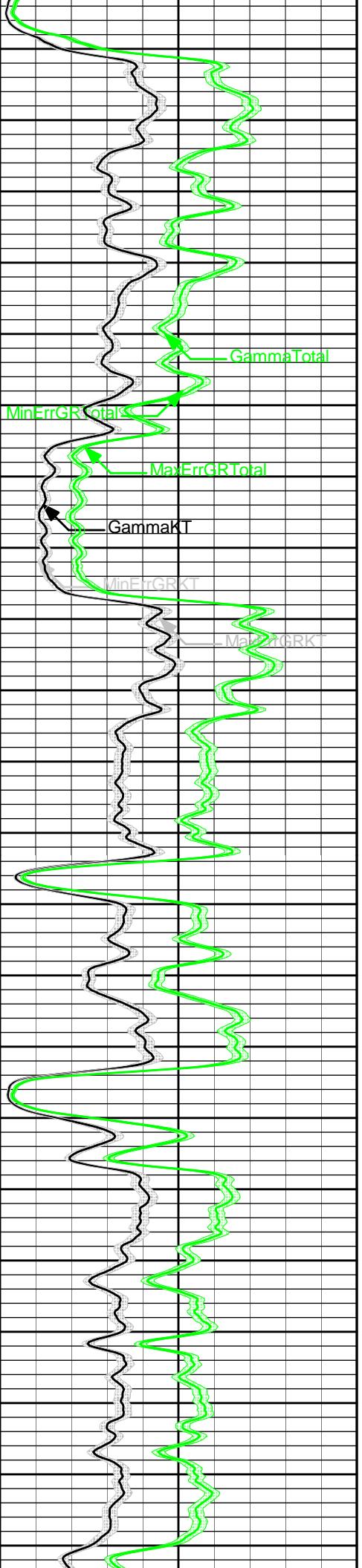
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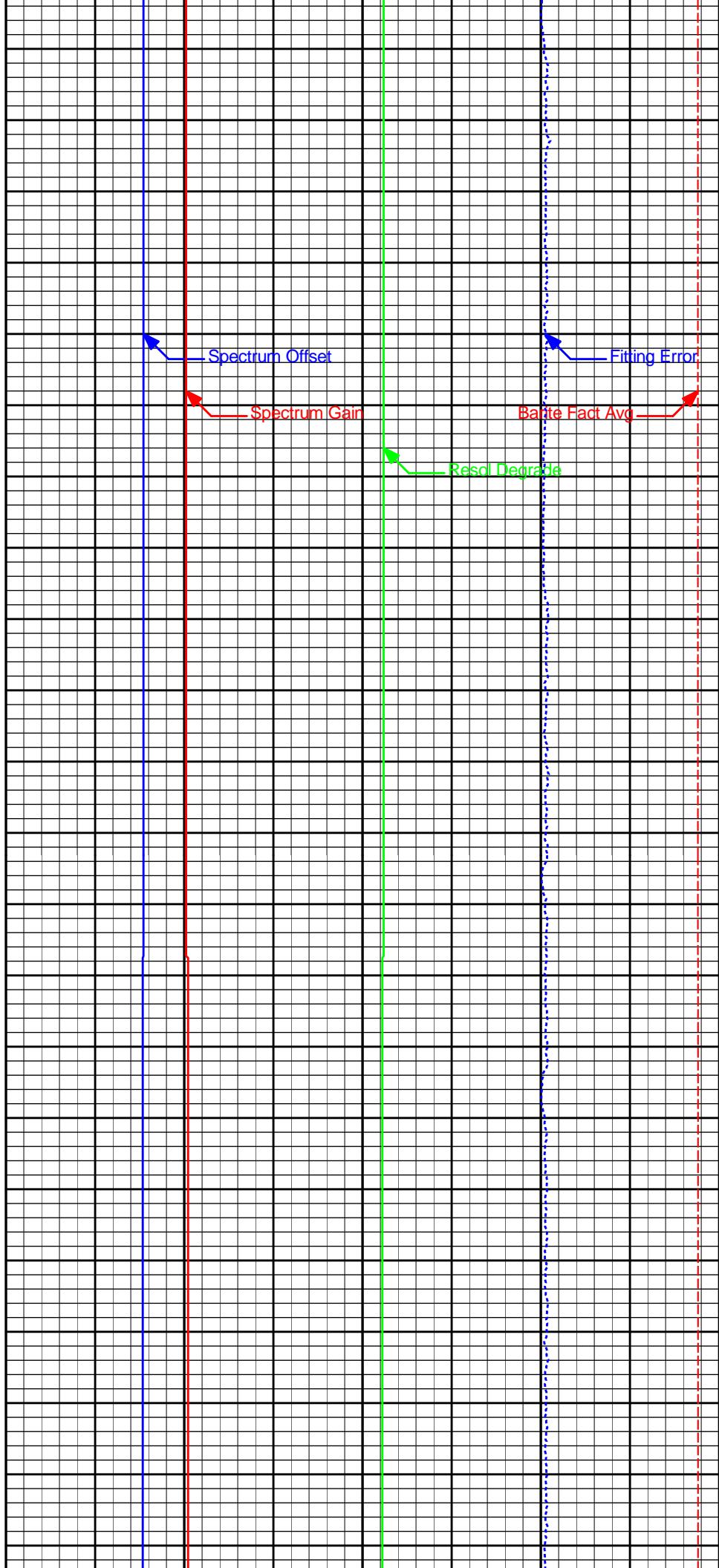


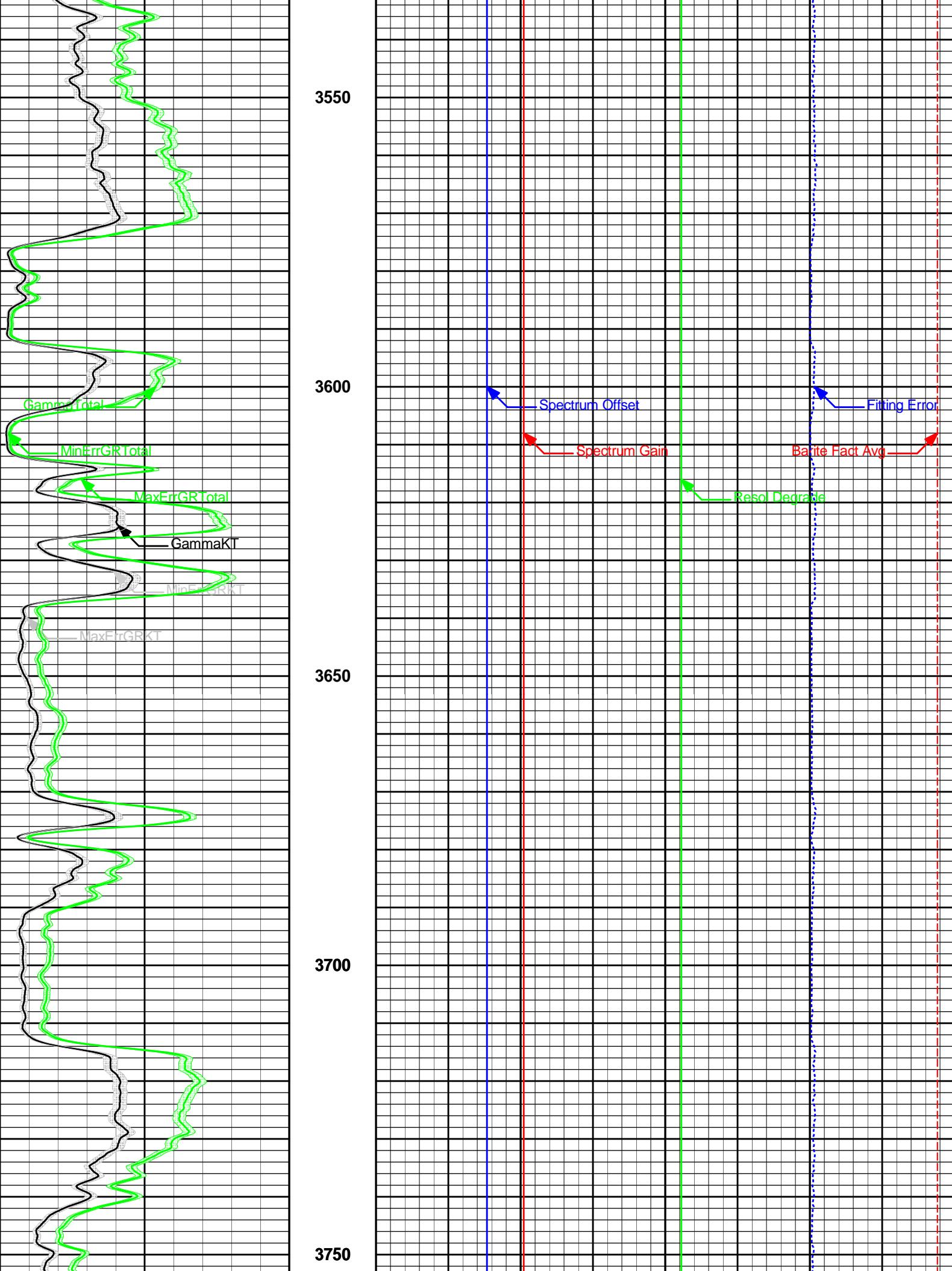
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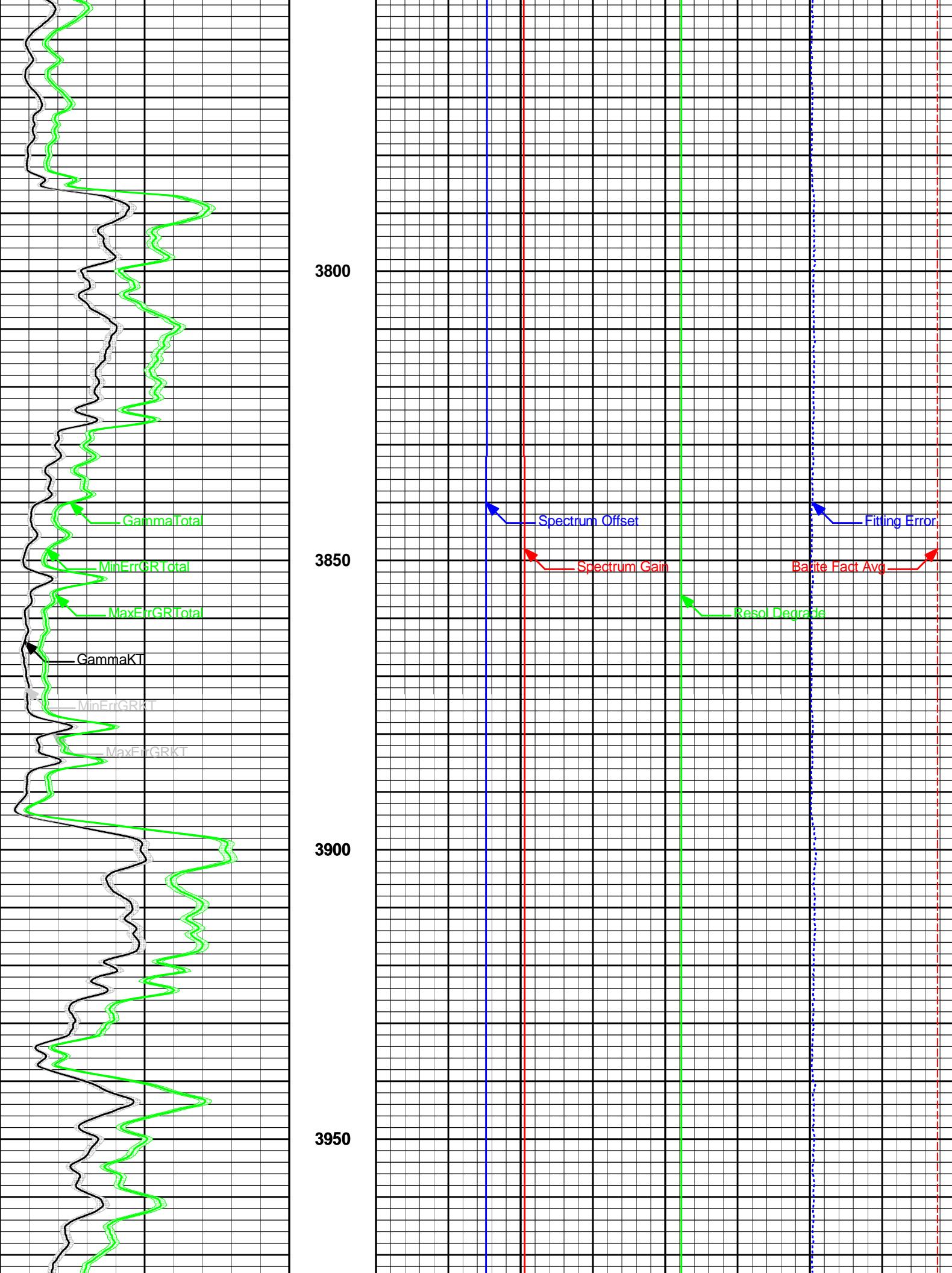
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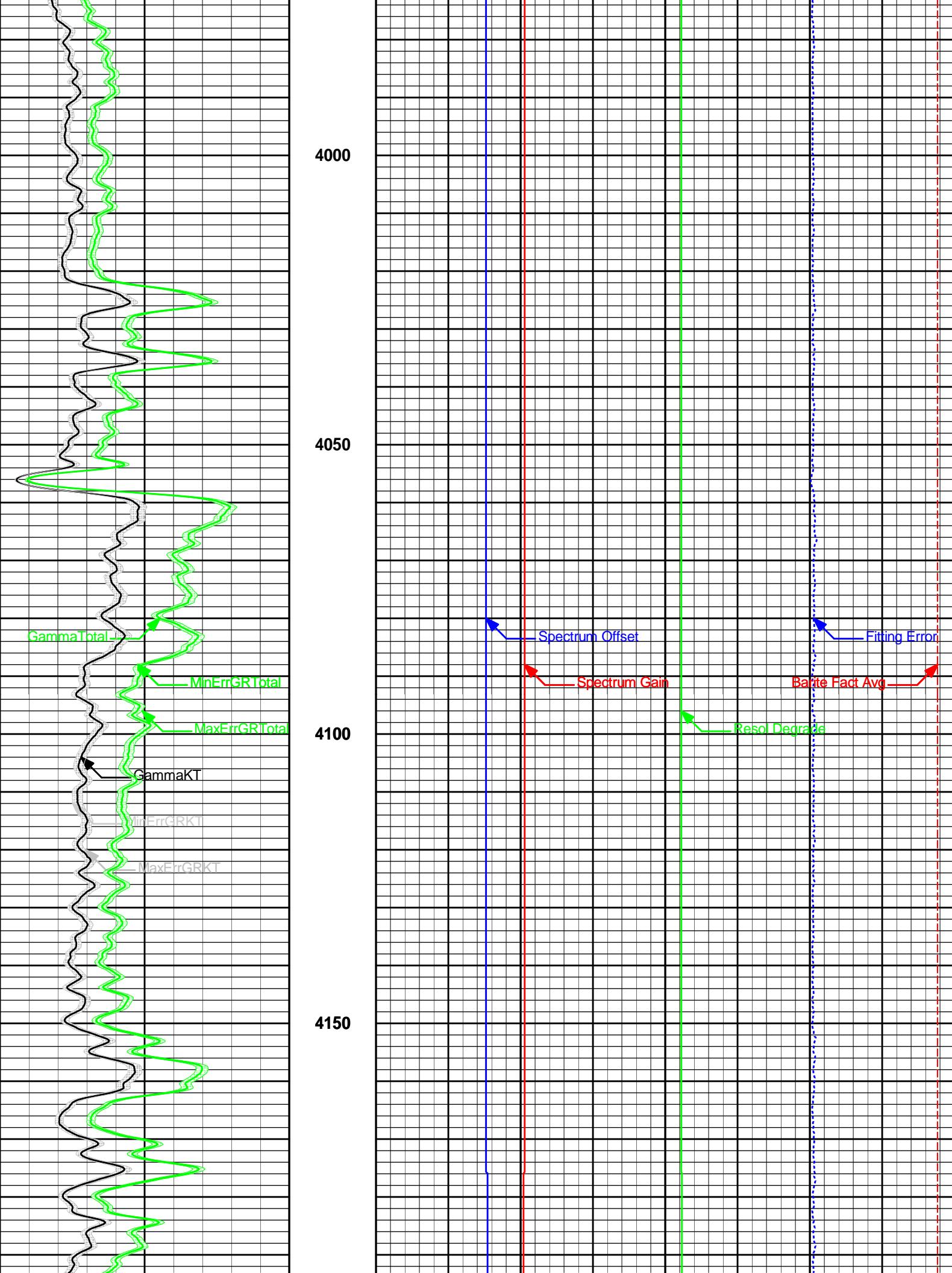
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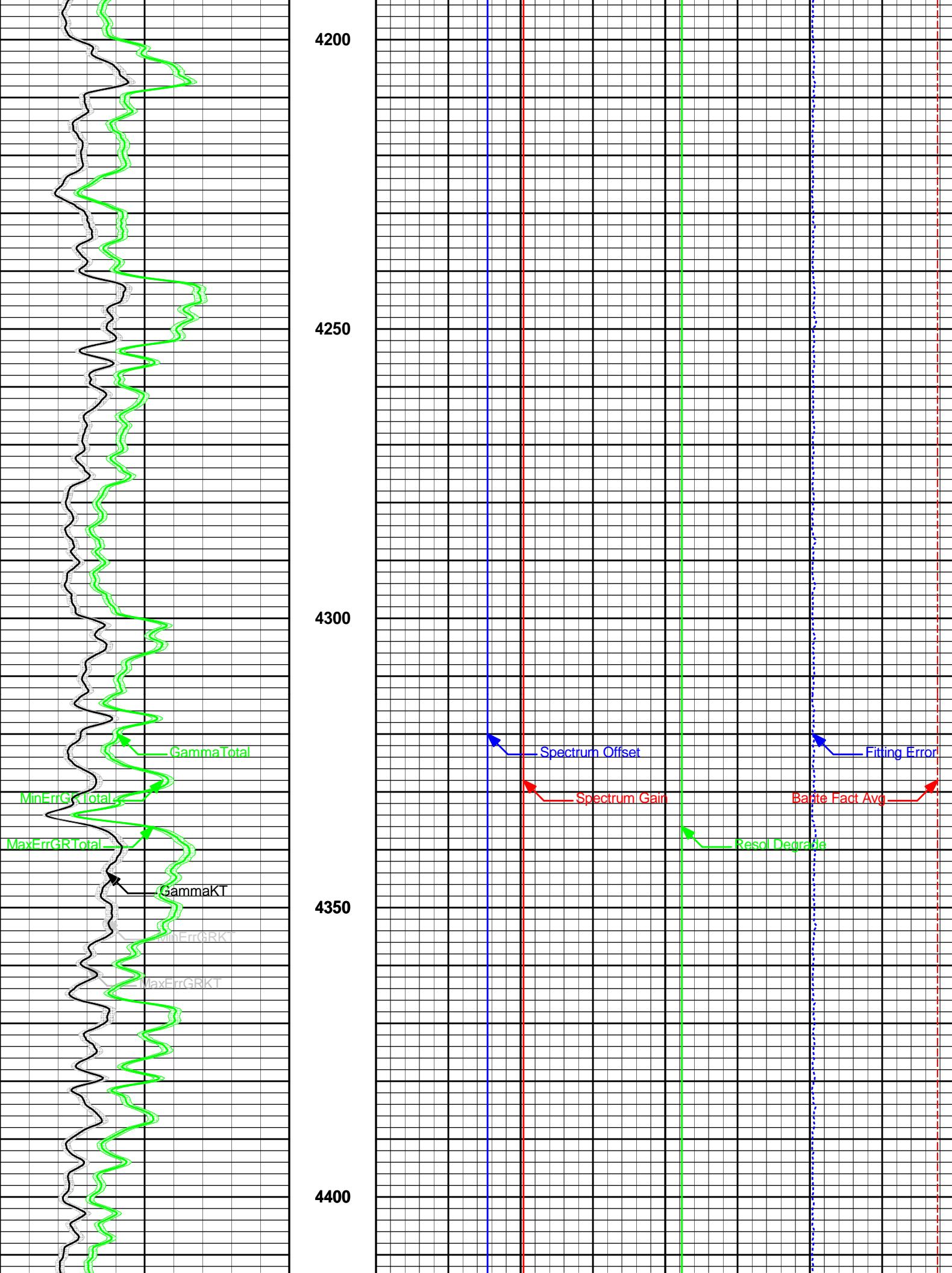
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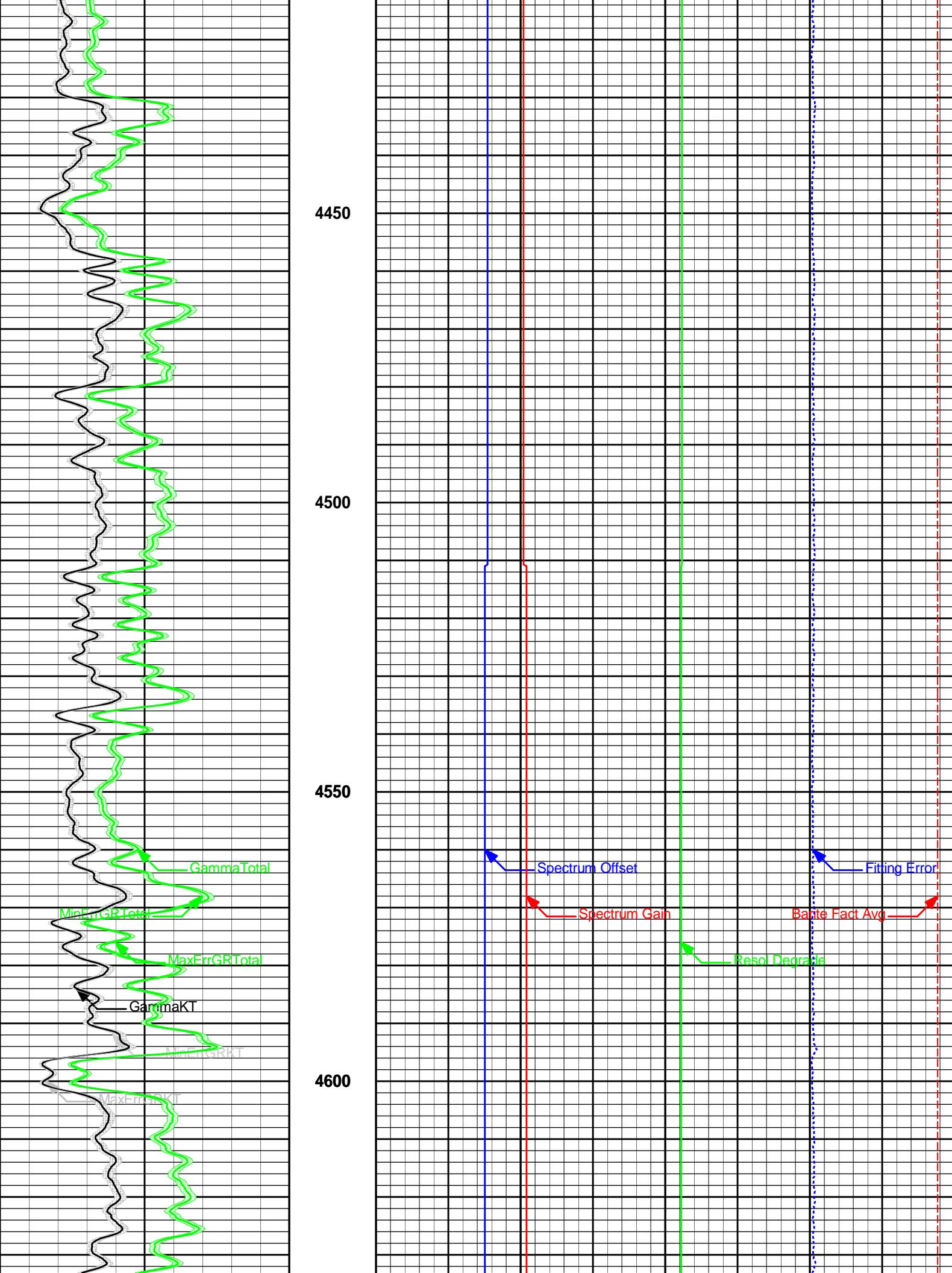


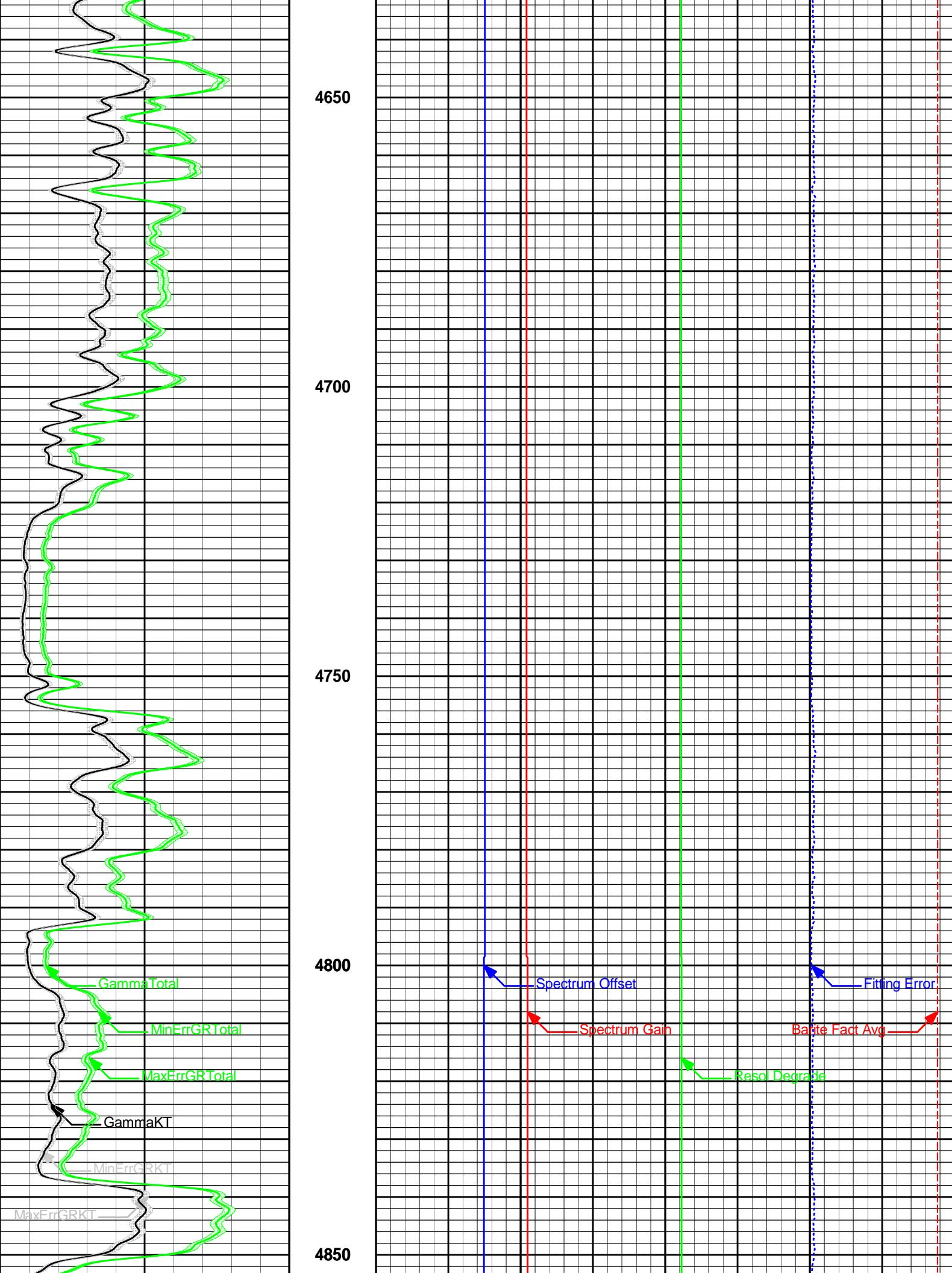


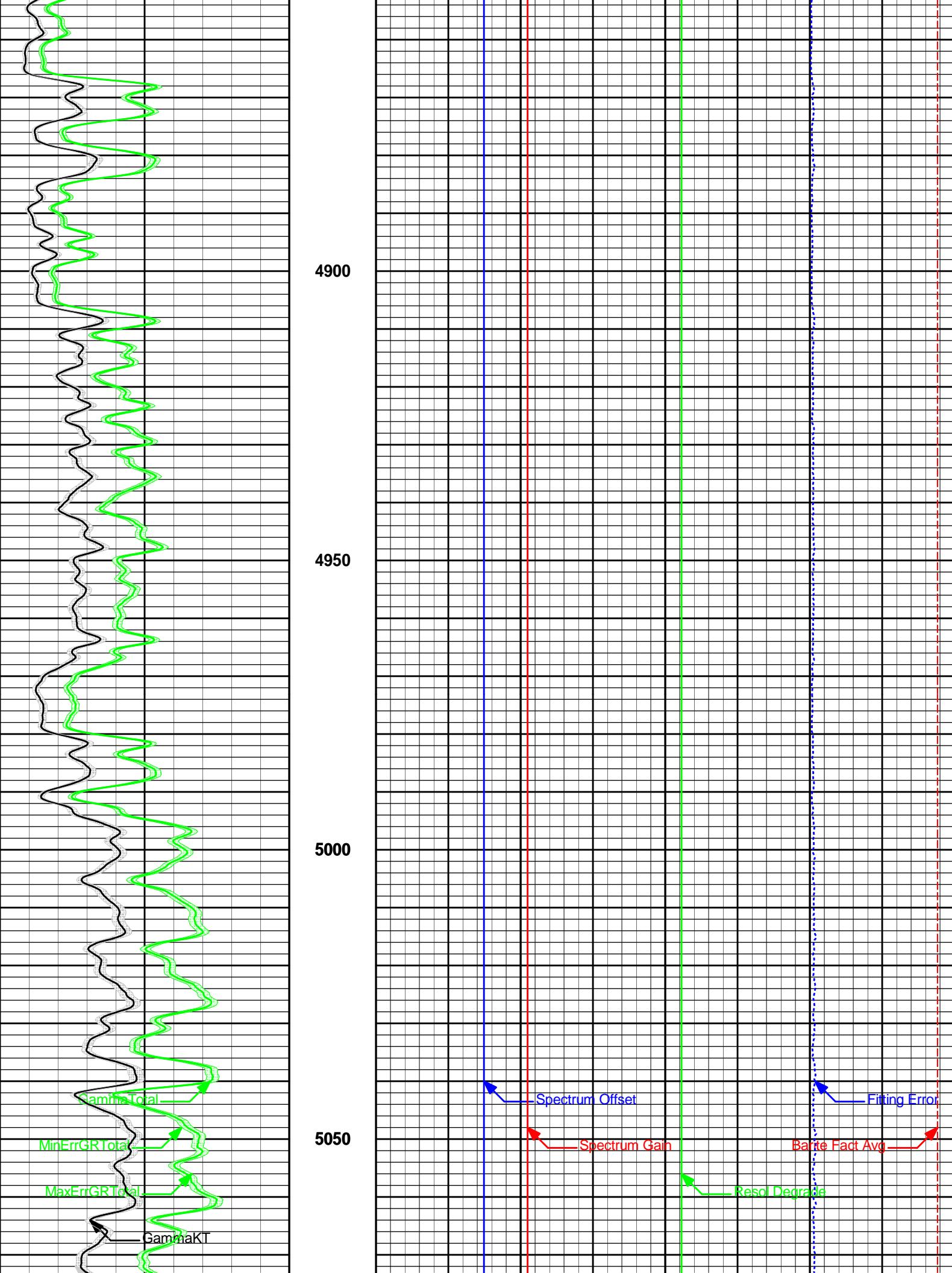


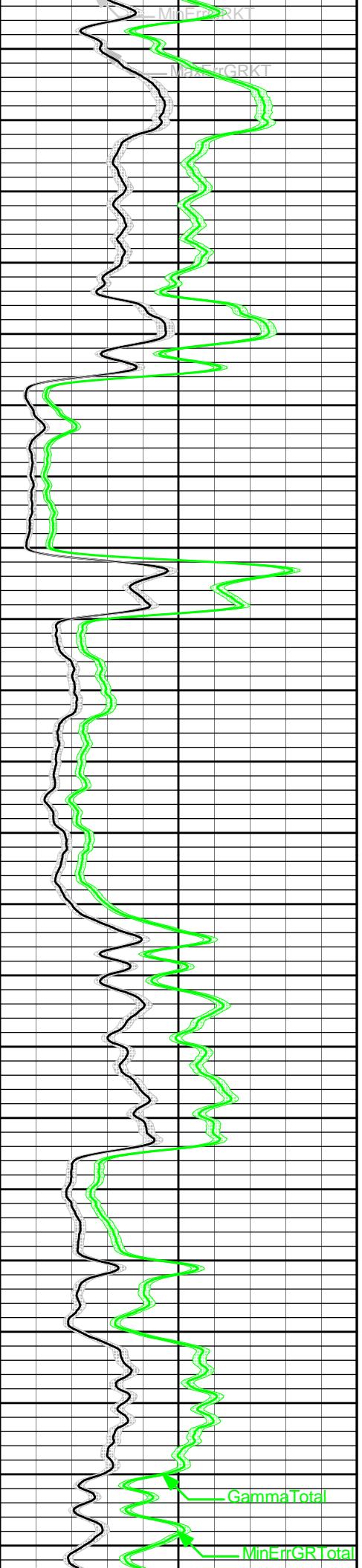










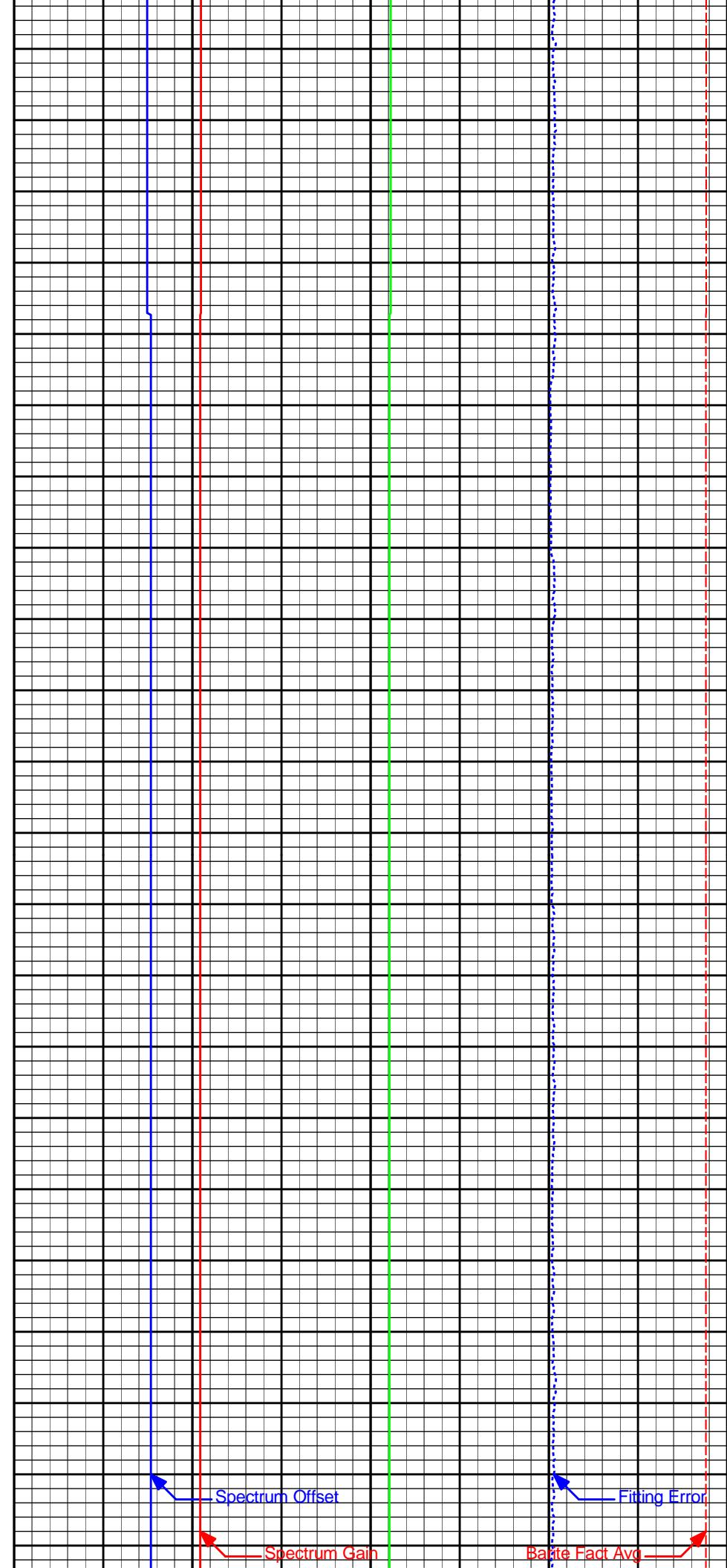


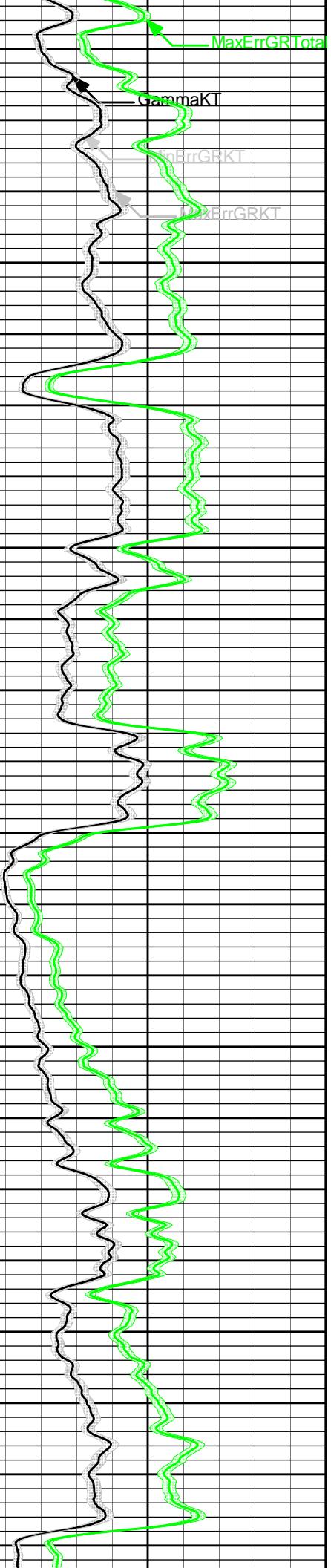
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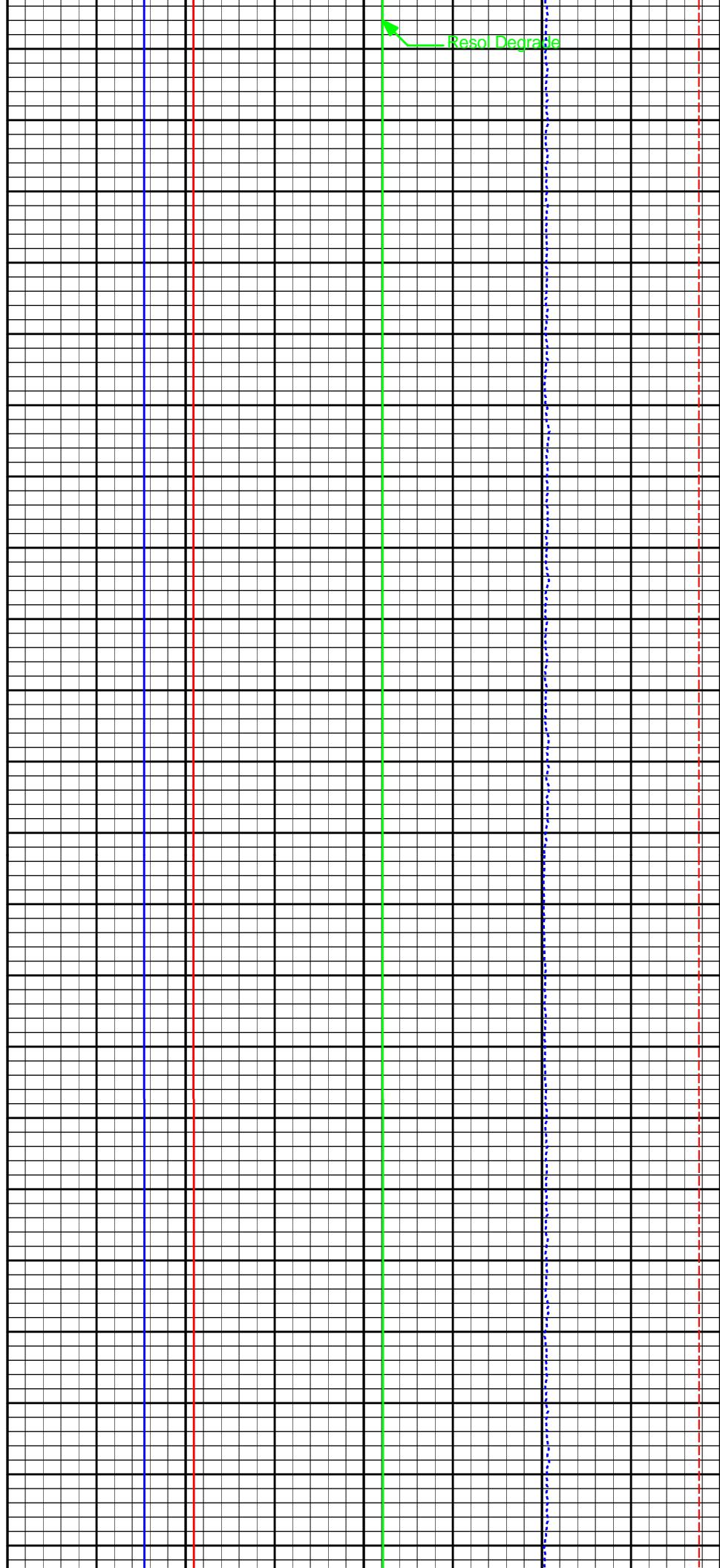
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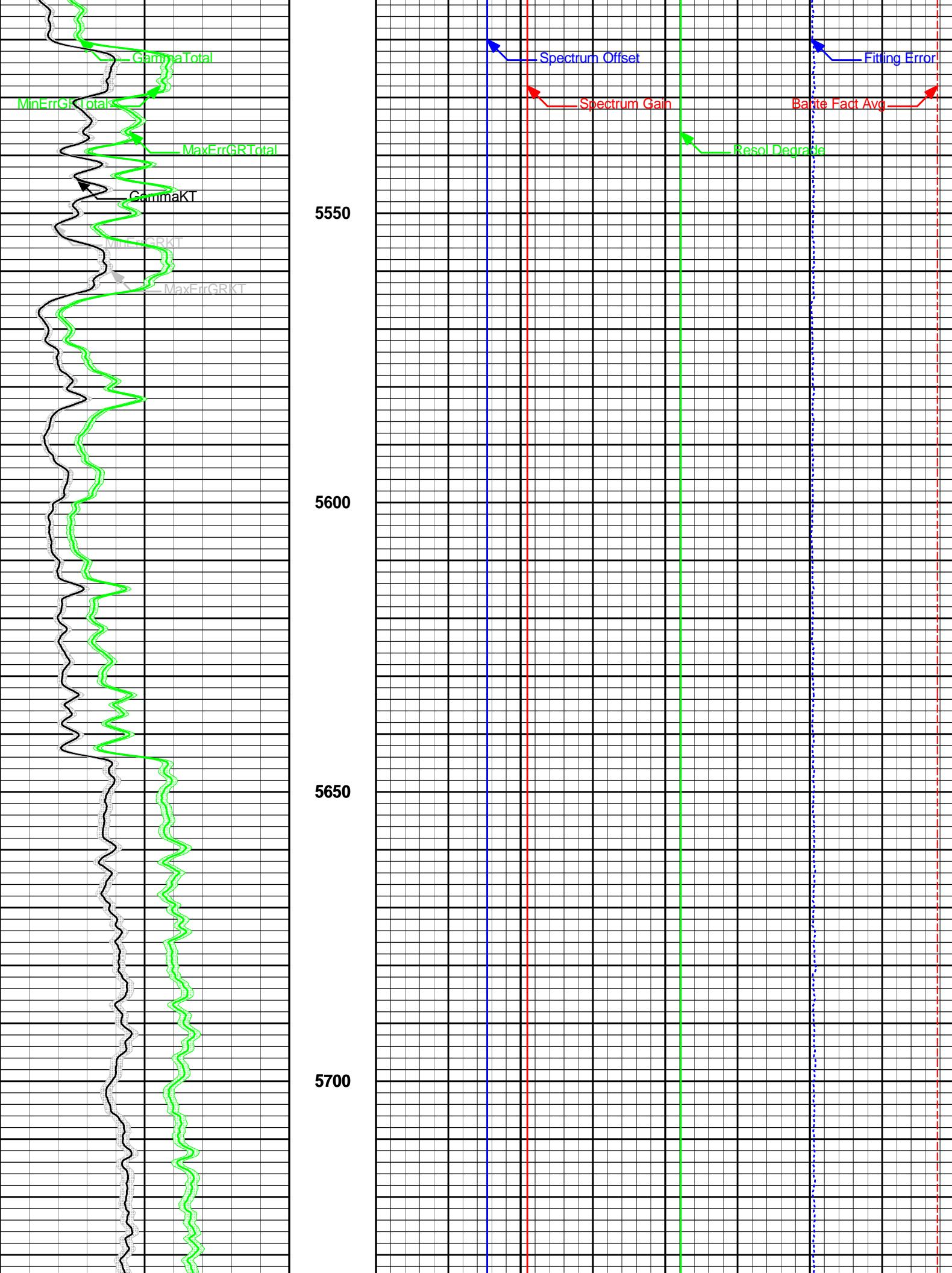
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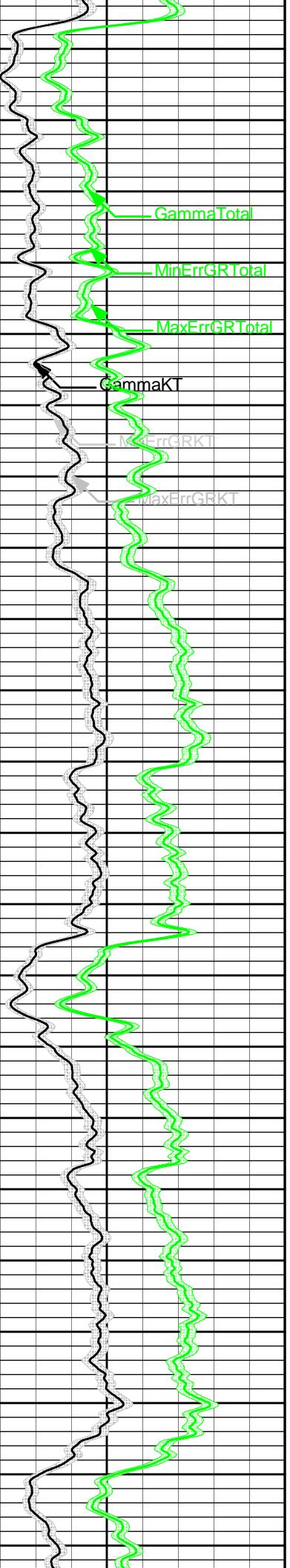
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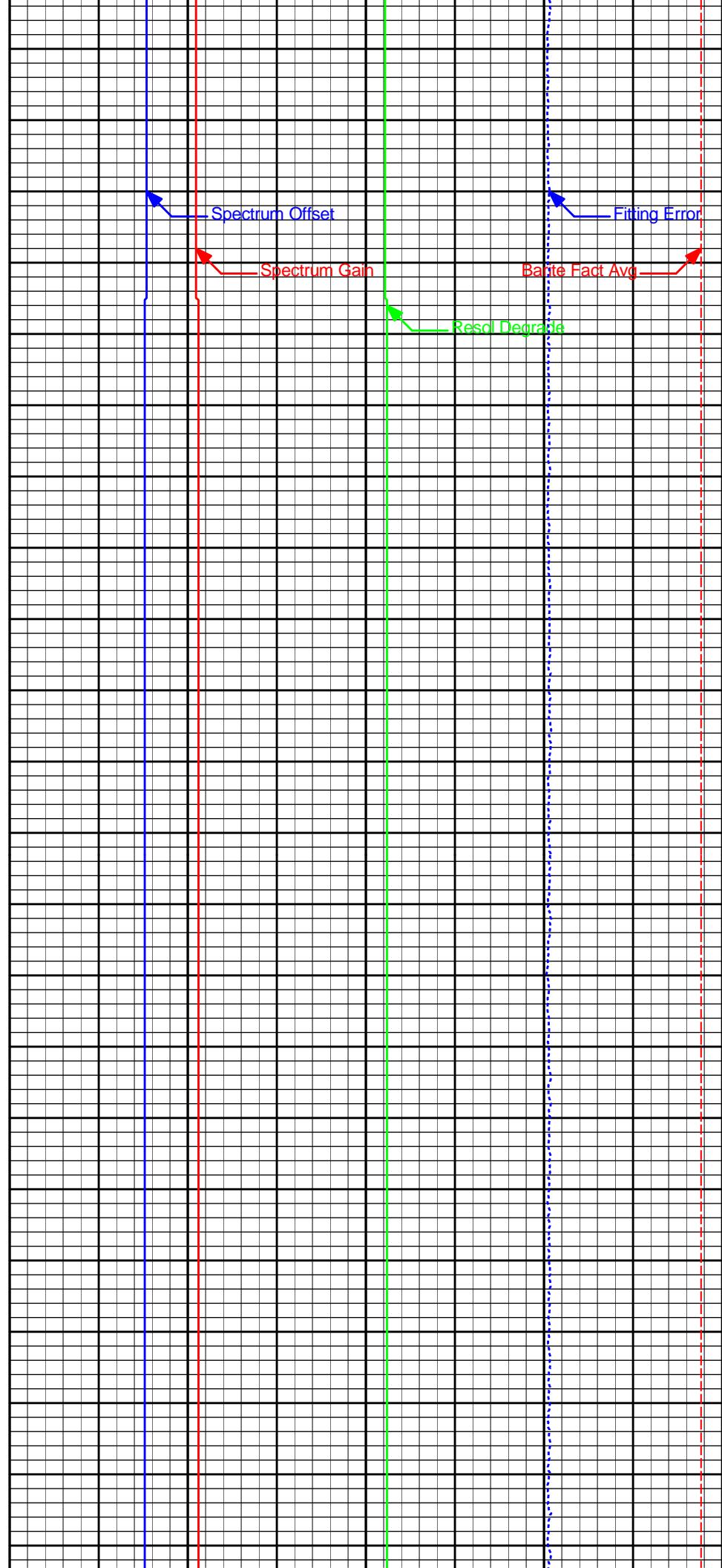
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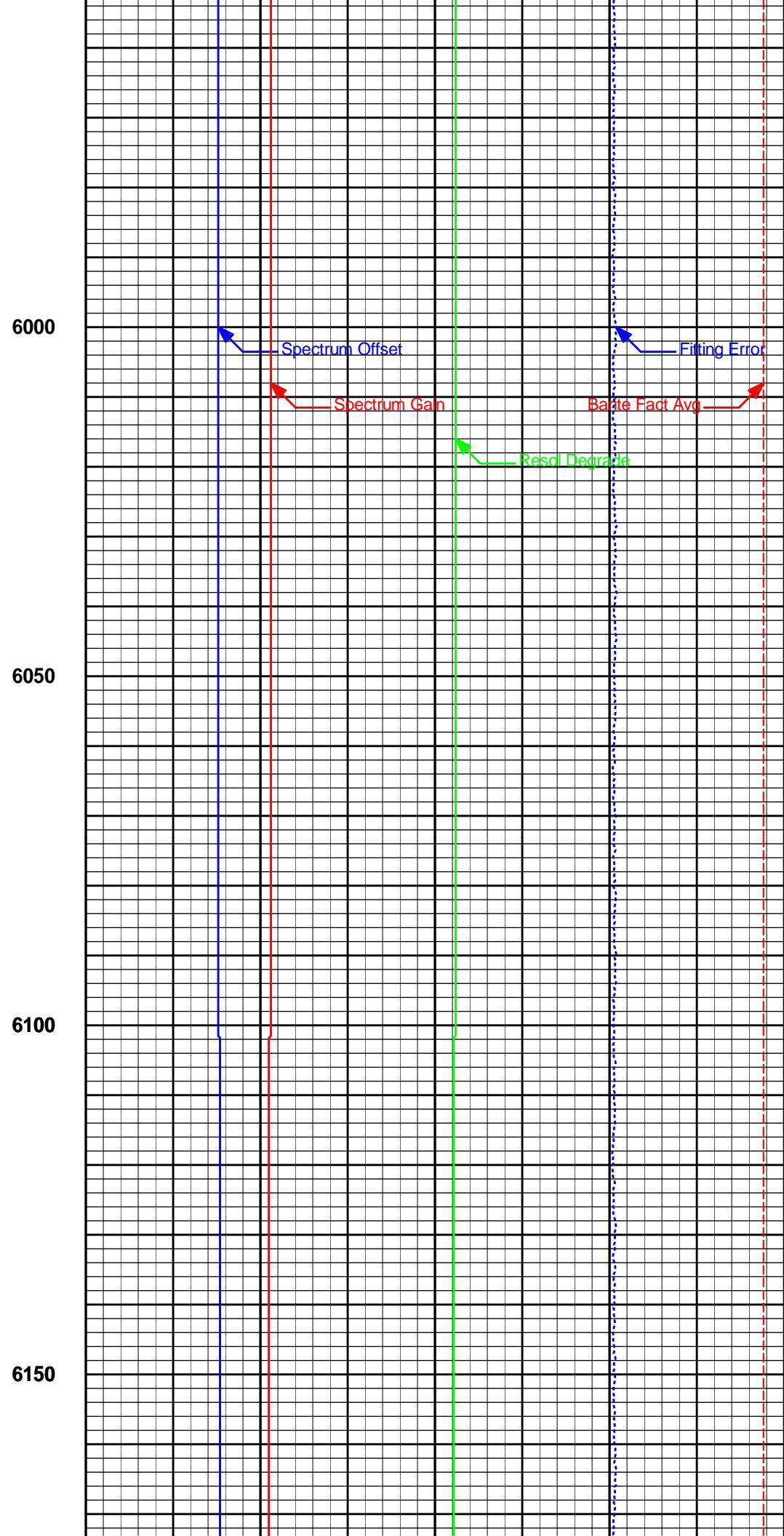
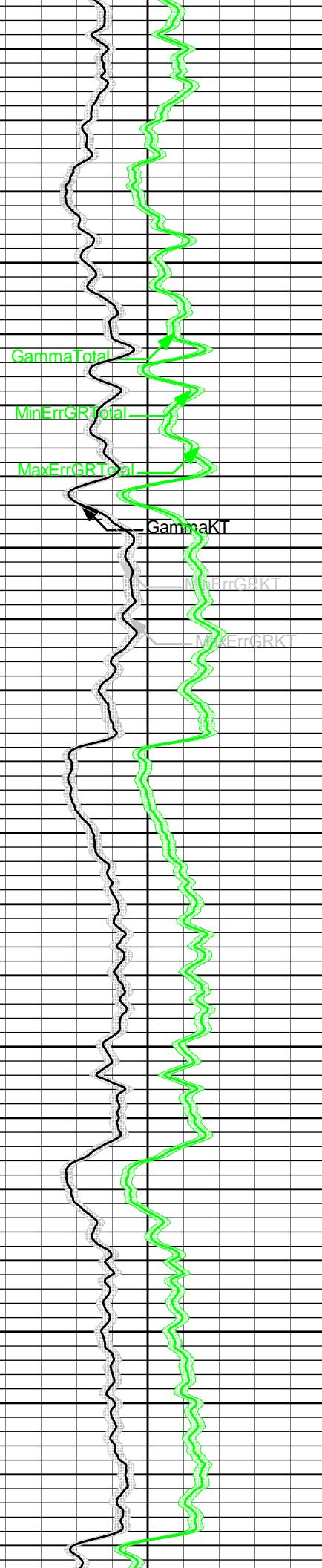


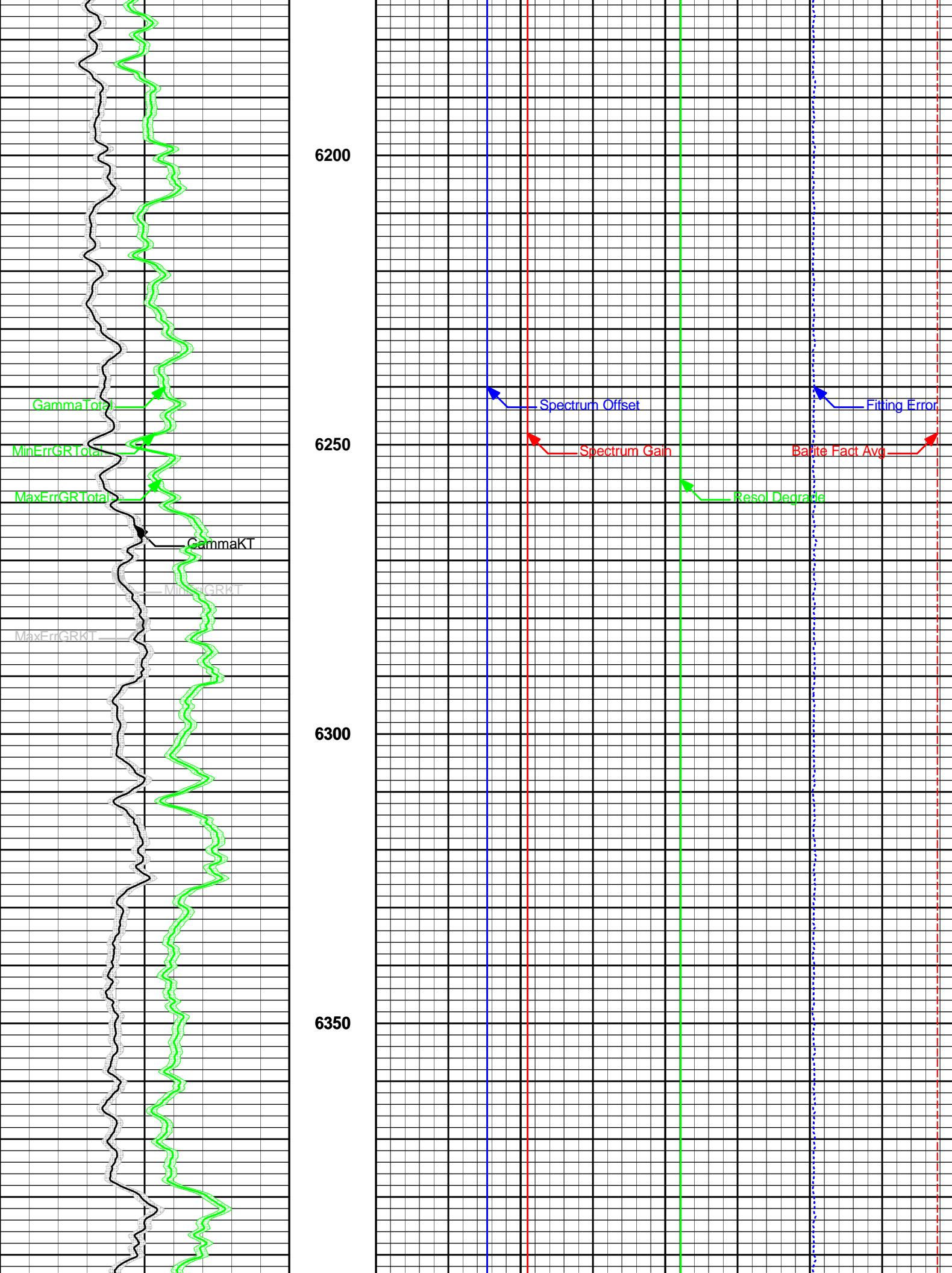


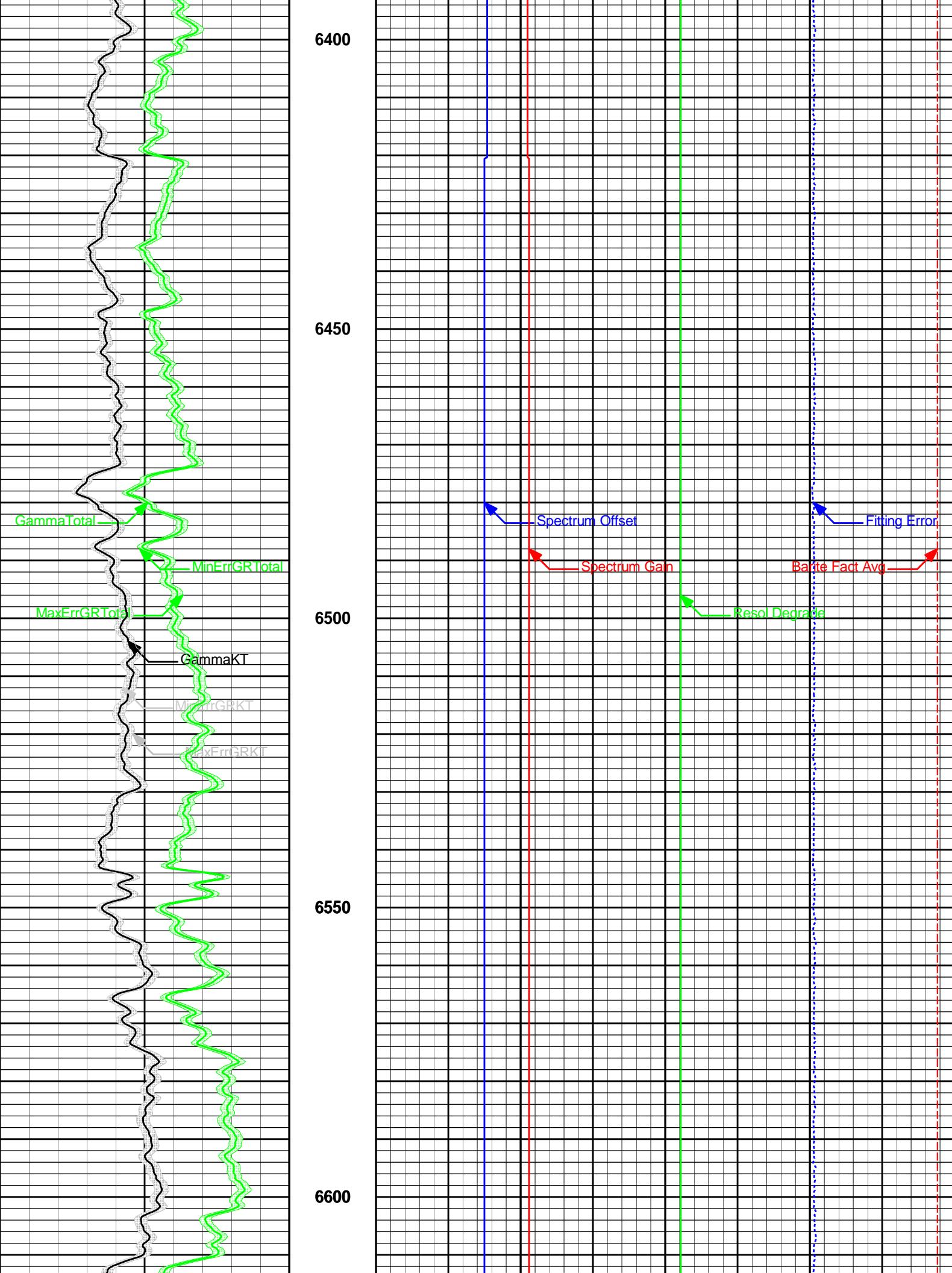


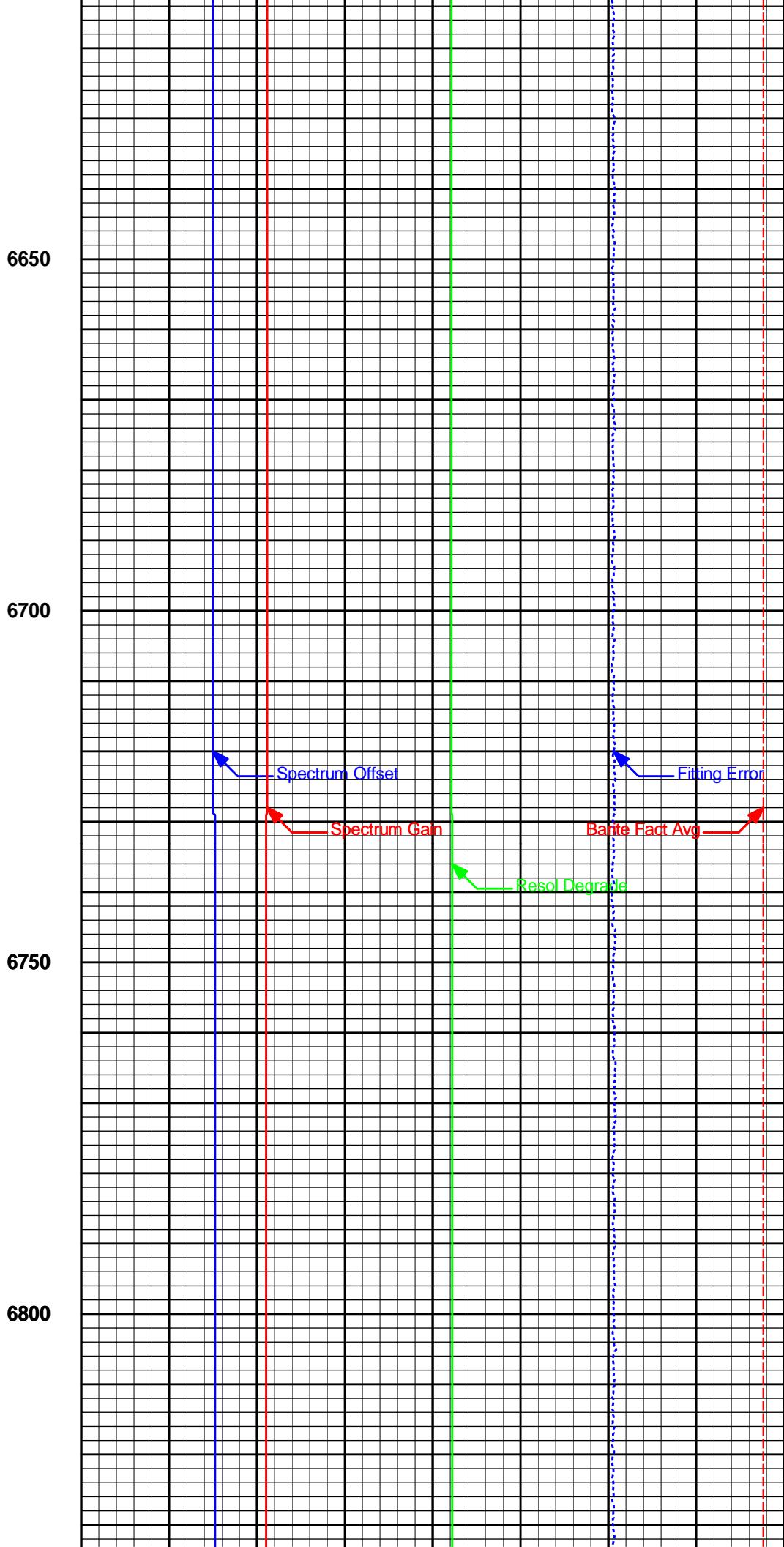
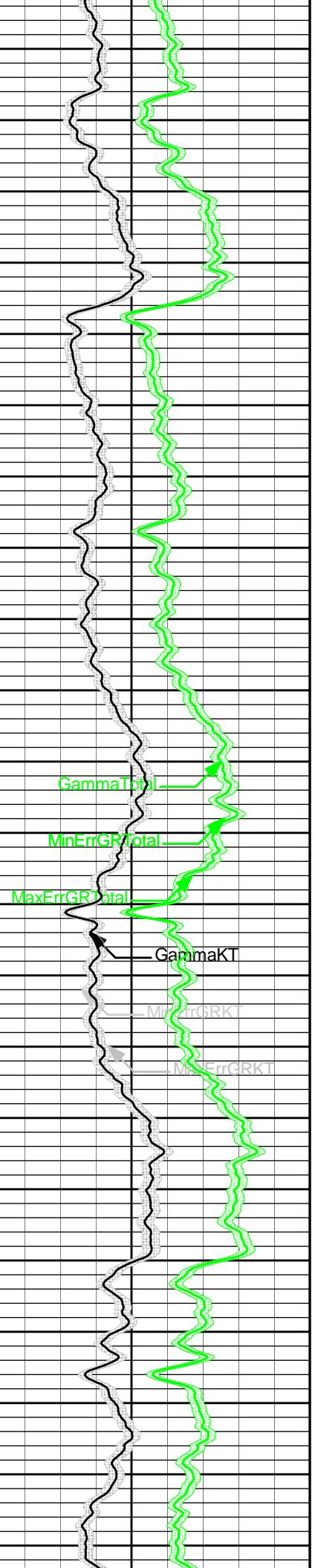
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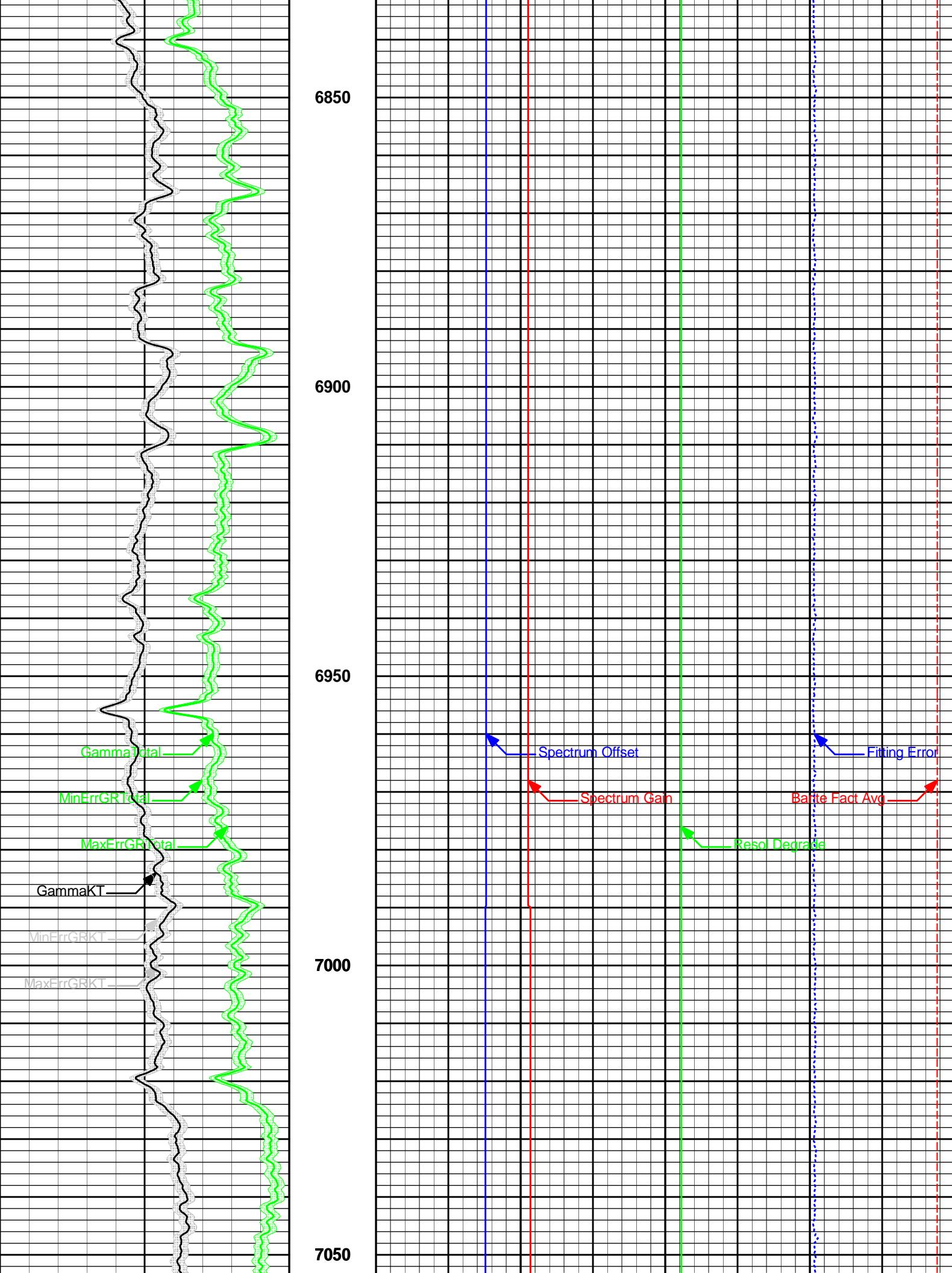


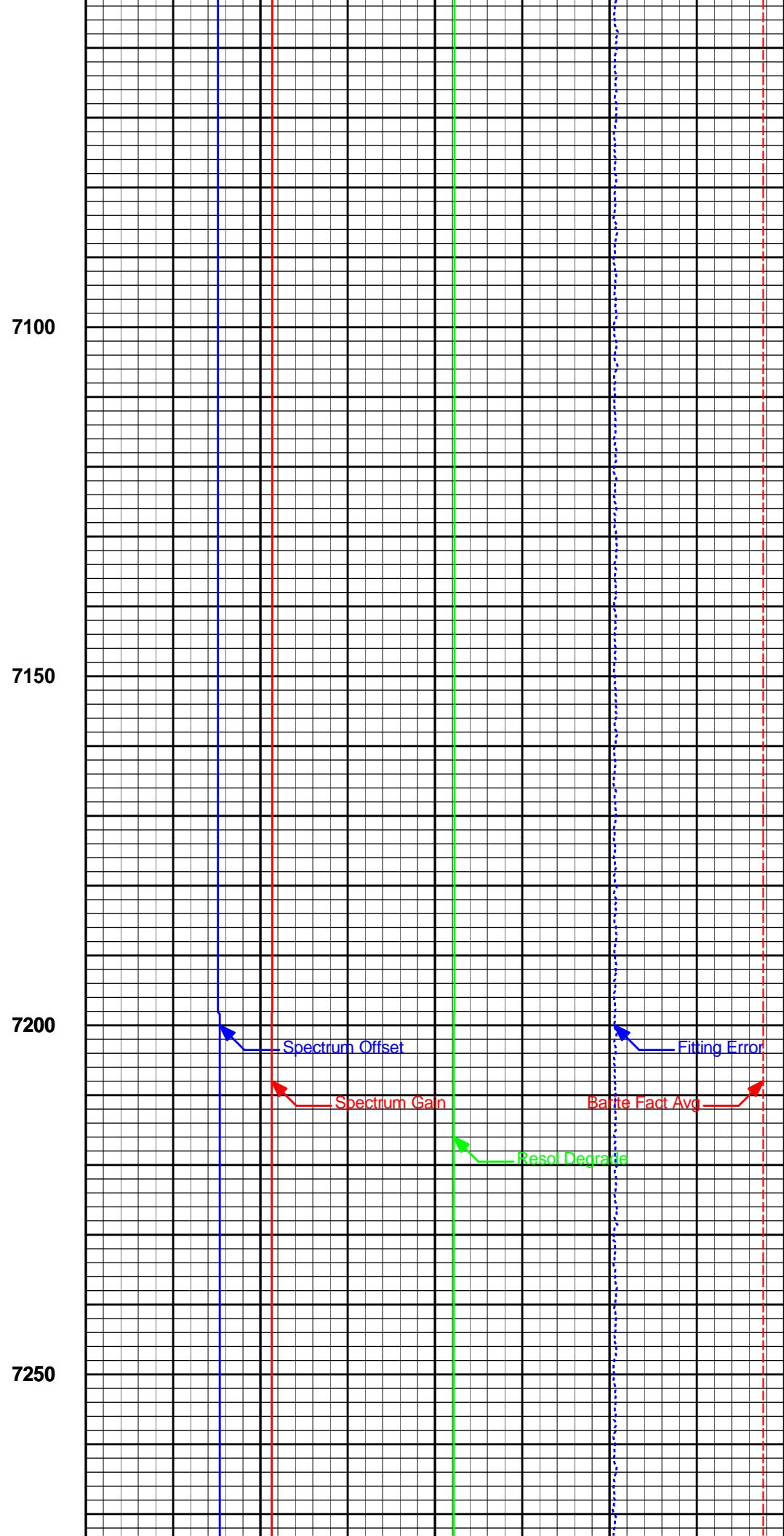
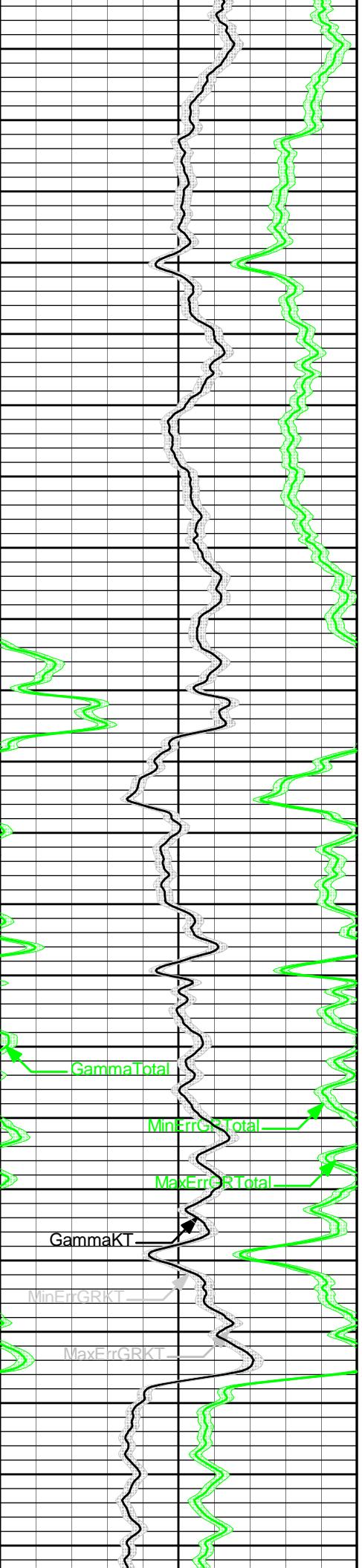


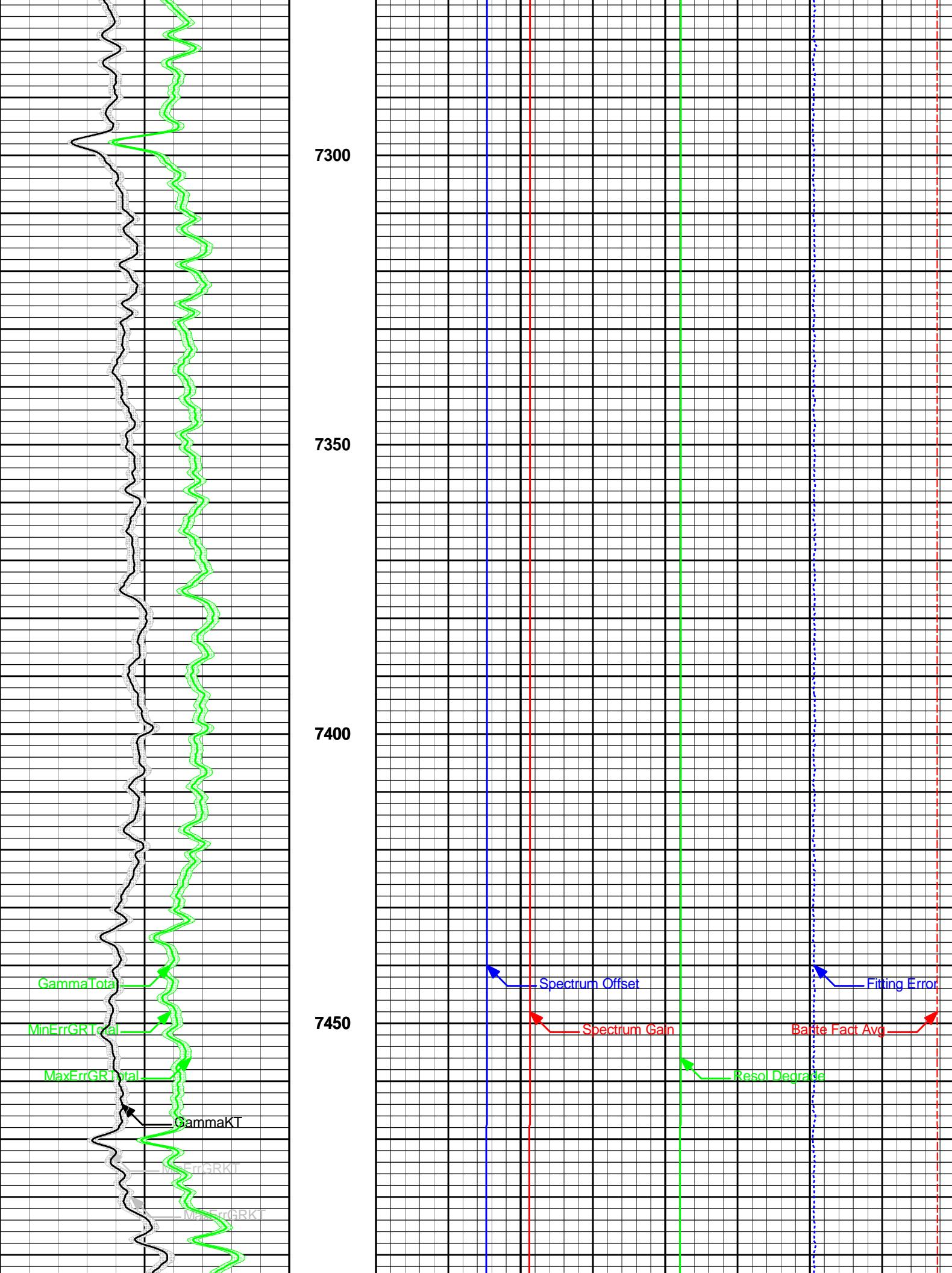


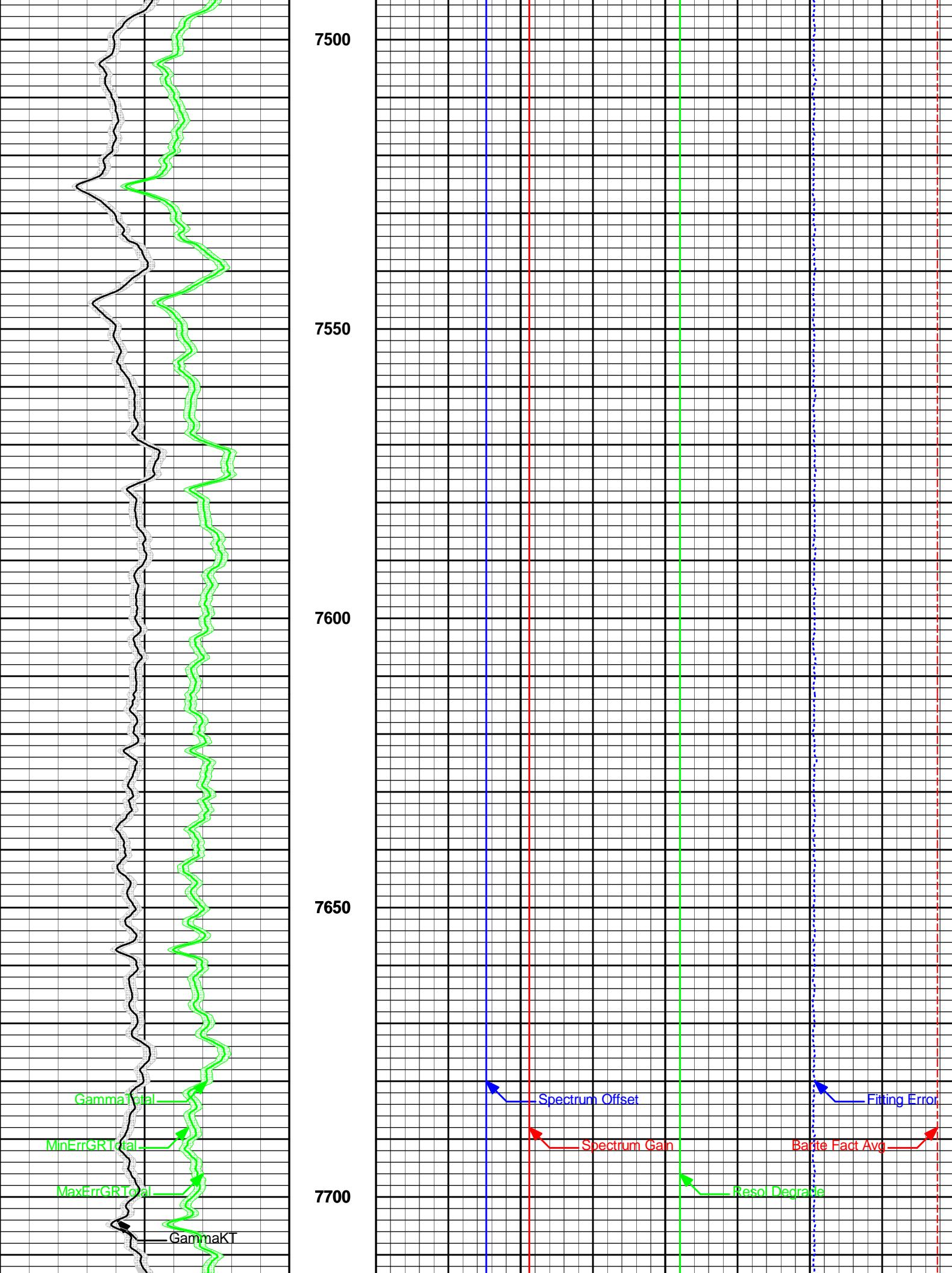


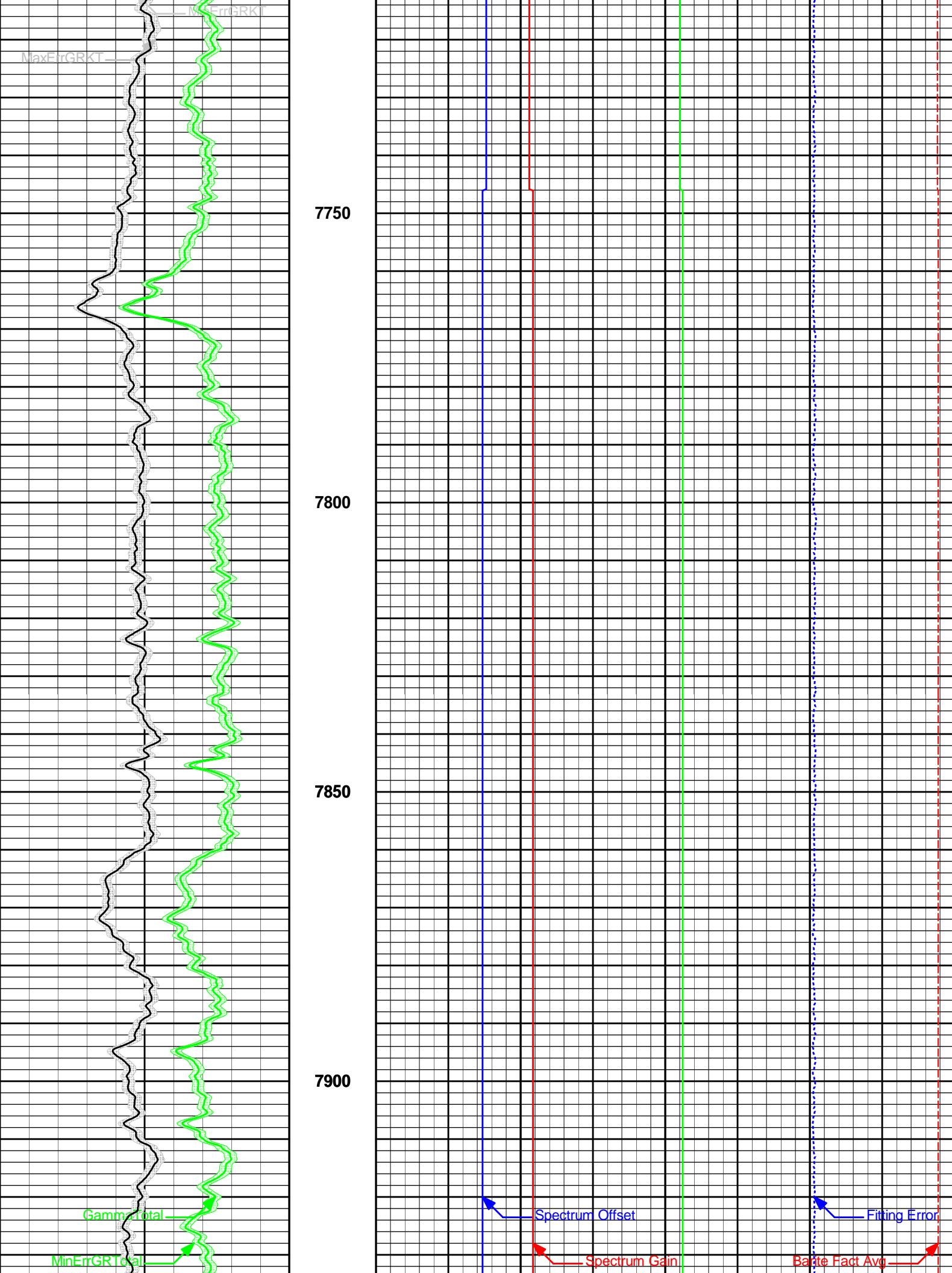


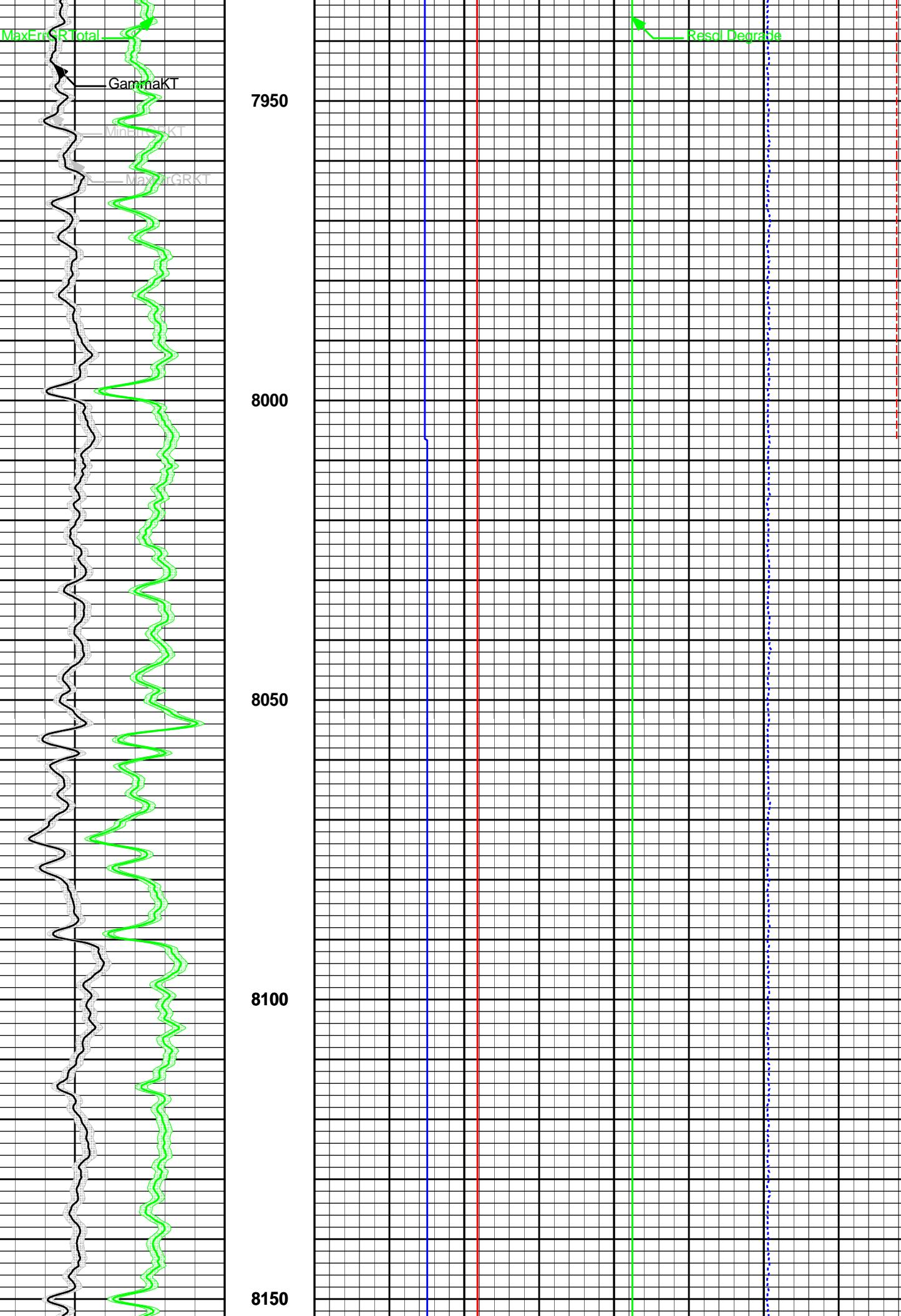


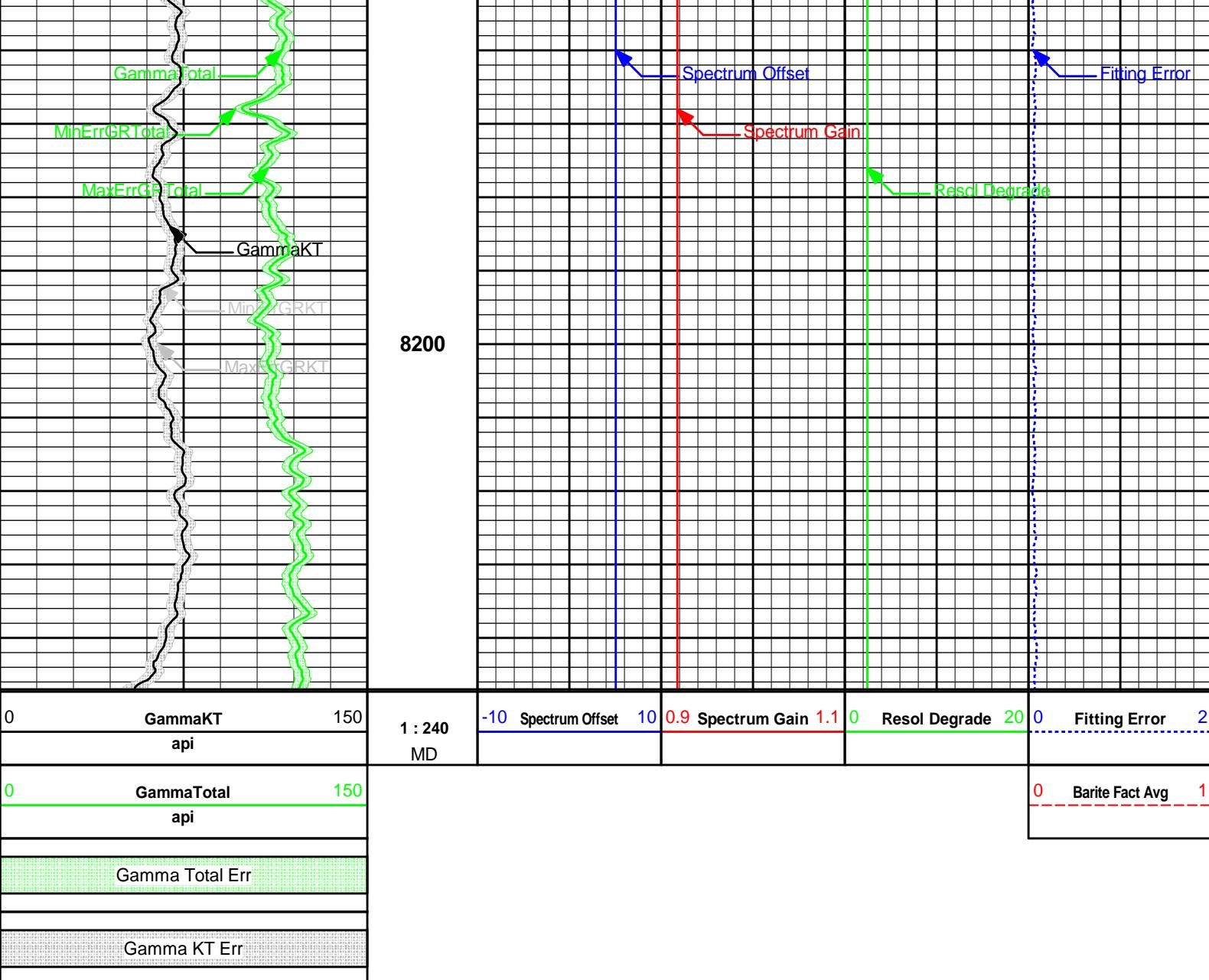






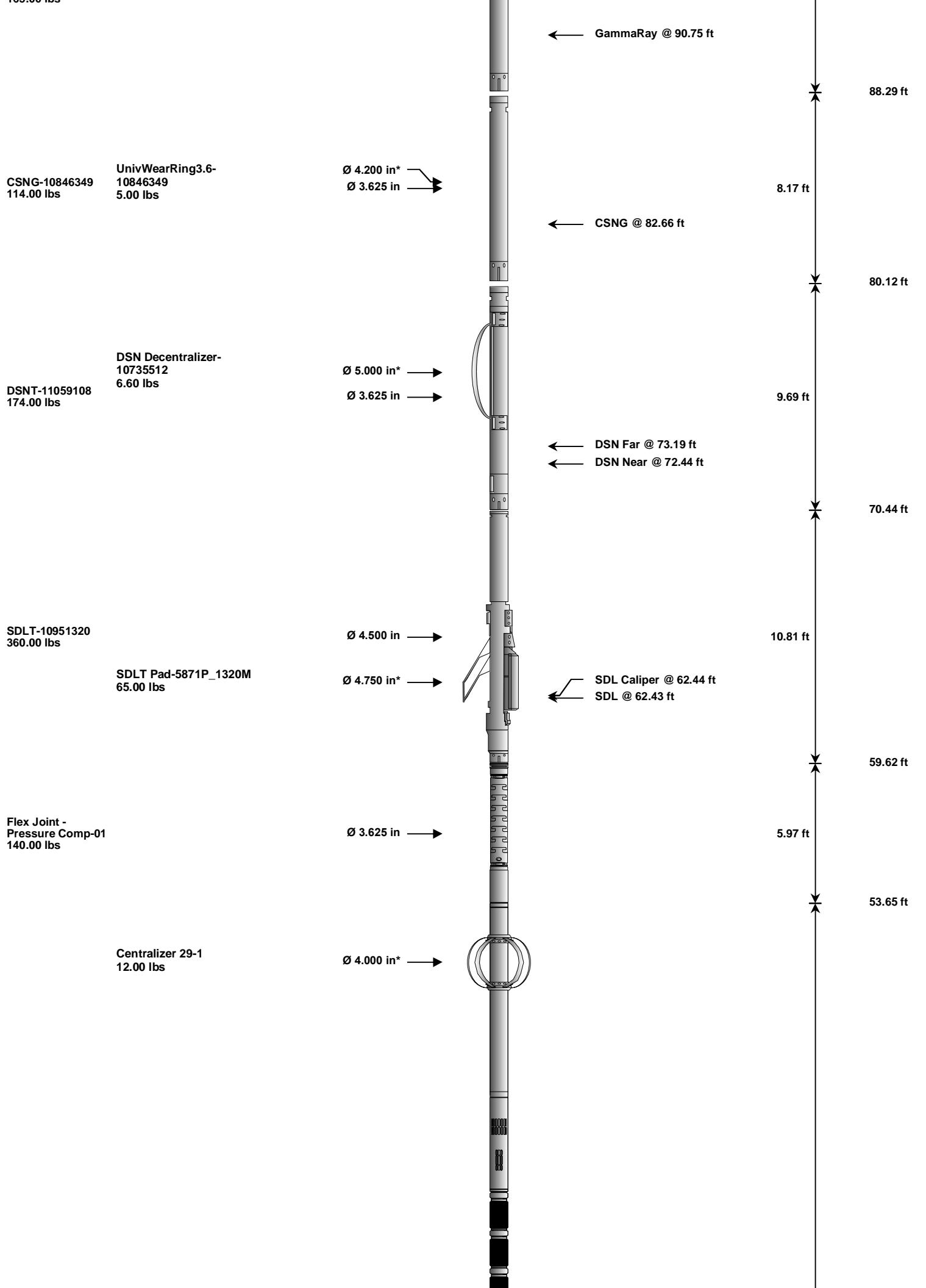






TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-3377 135.00 lbs		Ø 3.625 in →		Load Cell @ 99.38 ft BH Temperature @ 98.81 ft	103.06 ft	
GTET-10995697 165.00 lbs		Ø 3.625 in →			8.52 ft	96.81 ft



Wavesonic-I-126

520.00 lbs

Ø 3.625 in →

34.07 ft

← Wavesonic Delay @ 31.08 ft

Centralizer 29-2
12.00 lbs

Ø 4.000 in* →

19.58 ft

Regal Standoff 6_75-1
20.00 lbsØ 6.750 in* →
Ø 3.625 in →

5.03 ft

14.55 ft

ACRt Instrument-
10967818
50.00 lbs

← Mud Resistivity @ 13.19 ft

ACRt Sonde-e7818-
s1994
200.00 lbs

Ø 3.625 in →

14.22 ft

← ACRt @ 9.21 ft

SP Ring-1
0.00 lbs

Ø 3.625 in* →

← SP @ 1.61 ft

0.33 ft

Bull Nose-01
5.00 lbs

Ø 2.750 in →

0.33 ft

0.00 ft

↓

Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log Speed (fpm)	
RWCH	Releasable Wireline Cable Head	3377	135.00	6.25	96.81	300.00	
GTET	Gamma Telemetry Tool	10995697	165.00	8.52	88.29	60.00	
CSNG	Compensated Spectral Natural Gamma	10846349	114.00	8.17	80.12	15.00	
UWR3P6	Universal Wear Ring 3 5-8 inch	10846349	5.00	0.35	*	84.20	300.00
DSNT	Dual Spaced Neutron	11059108	174.00	9.69	70.44	60.00	
DCNT	DSN Decentralizer	10735512	6.60	5.13	*	73.77	300.00
SDLT	Spectral Density Tool	10951320	360.00	10.81	59.62	60.00	
SDLP	Density Insite Pad	5871P_1320M	65.00	2.55	*	61.83	60.00
FLEX	Flex Joint - Pressure Compensated	01	140.00	5.97	53.65	300.00	
WSTT	WaveSonic Insite	126	520.00	34.07	19.58	30.00	
OBCEN	Centralizer - 29 in.Overbody	1	12.00	2.42	*	49.94	300.00
OBCEN	Centralizer - 29 in.Overbody	2	12.00	2.42	*	21.93	300.00
ACRt	Array Compensated True Resistivity Instrument Section	10967818	50.00	5.03	14.55	300.00	
RSOF	Regal Standoff 6.75in	1	20.00	0.52	*	17.32	300.00
ACRt	Array Compensated True Resistivity Sonde Section	e7818-s1994	200.00	14.22	0.33	300.00	
SP	SP Ring	1	0.00	0.25	*	1.61	300.00
BNCS	Bull Nose	01	5.00	0.22	0.22	300.00	

BLNS	Bull Nose	01	5.00	0.33	0.00	300.00
Total			1,983.60	103.06		
Data: GB_ALCOR_#1\0001 QUAD\IDLE			* Not included in Total Length and Length Accumulation.		Date: 10-Jul-12 09:33:14	

COMPANY **GREAT BEAR PETROLEUM**
WELL **ALCOR #1**
FIELD **WILDCAT**
COUNTY **NORTH SLOPE** STATE **ALASKA**

HALLIBURTON

**COMPENSATED SPECTRAL
NATURAL GAMMA**