

HALLIBURTON										WAVESONIC									
COMPANY WELL FIELD/BLOCK COUNTY										CONOCO PHILLIPS COMPANY MORAN TRUST 2-1 WILDCAT WILDCAT ARAPAHOE ARAPAHOE STATE CO									
COMPANY WELL FIELD/BLOCK COUNTY										CONOCO PHILLIPS COMPANY MORAN TRUST 2-1 WILDCAT WILDCAT ARAPAHOE ARAPAHOE STATE CO									
API No. 05005072070000 Location SHL: 1680' FSL & 1853' FEL NWSE LATITUDE: 39.641706° LONGITUDE: -104.516628°										Other Services: CSNG DSNT SDLT ICT/IDT ACRT									
Permanent Datum Log measured from Drilling measured from										Sect. 2 Twp. 5S Rge. 64W GL KB KB Elev. 5975.0 ft D.F. 5998.0 ft G.L. 5975.0 ft									
Date										08-Aug-13									
Run No.										ONE									
Depth - Driller										8030.00 ft									
Depth - Logger										8030.0 ft									
Bottom - Logged Interval										7998 ft									
Top - Logged Interval										CASING									
Casing - Driller										9.625 in @ 2269.0 ft									
Casing - Logger										2268.0 ft									
Bit Size										8.750 in @									
Type Fluid in Hole										OIL BASED MUD									
Density										9.2 ppq 49.00 s/qt									
Alkalinity										P. Viscosity 13.0 cP									
HTHP @ Meas. Temperature										5.4 cptm @ 250.00 degF									
Solids										Wgt. Material 5.4 % BAROID 41									
Oil										Water Ratio 63 37									
Water Phase Salinity										75000.00 ppm Cl-									
Oil Type										Brine Type DIESEL CACL2									
Electrical Stability										361 V									
Time Since Circulation										23.0 hr									
Time on Bottom										08-Aug-13 18:09									
Max. Rec. Temperature										215.0 degF @ 8030.0 ft									
Equipment										Location 11454566 BRIGHTON									
Recorded By										J. PINKETT									
Witnessed By										R. PEREZ									
										R. MITCHELL									

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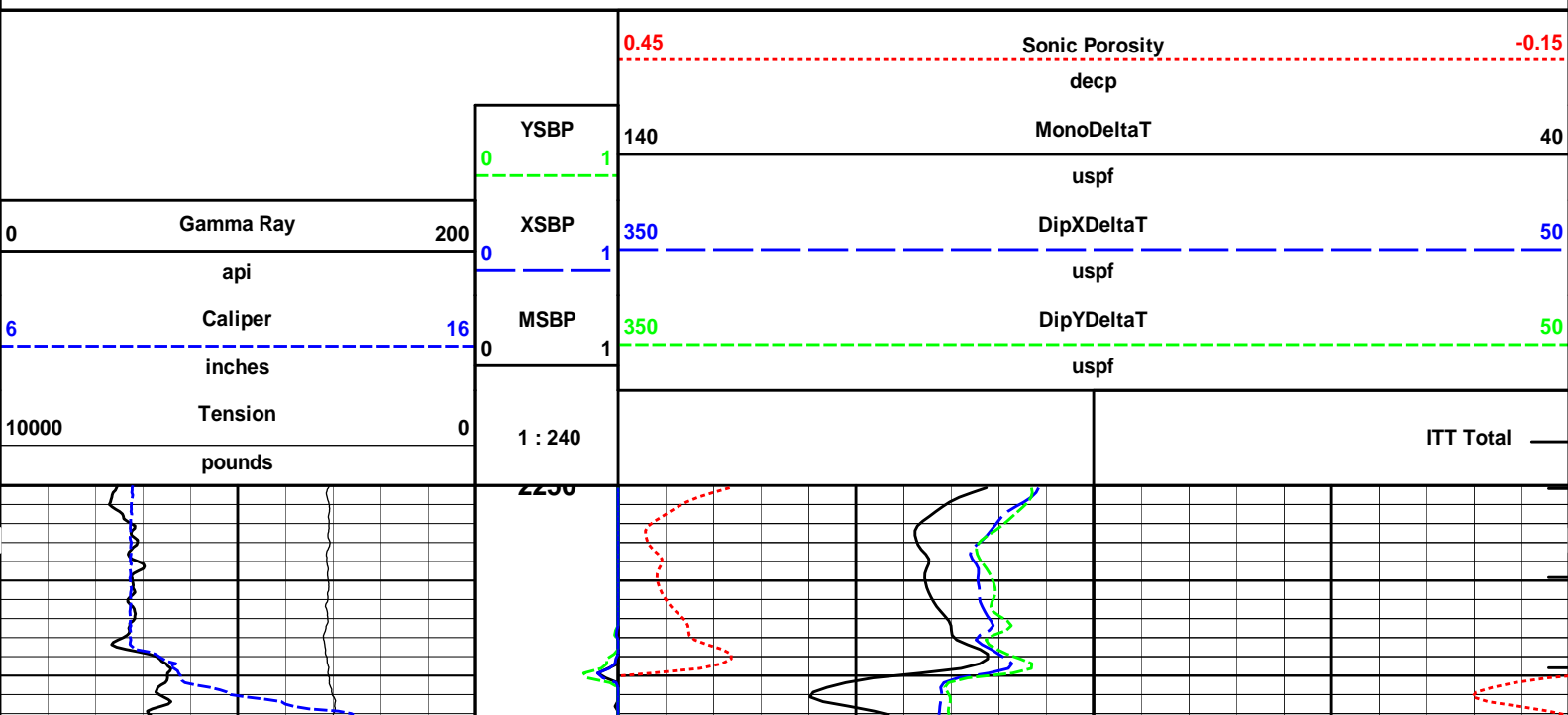
Service Ticket No.:										API Serial No.: 05005072070000										PGM Version: WL INSITE R3.8.4 (Build 5)									
CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE										RESISTIVITY SCALE CHANGES																			
Date		Sample No.								Type Log		Depth		Scale Up Hole		Scale Down Hole													
Depth-Driller																													
Type Fluid in Hole																													
Density		F. Viscosity																											
Alkalinity		P. Viscosity																											
HTHP @ Meas. Temp.		@				@				RESISTIVITY EQUIPMENT DATA																			
Solids		Wgt. Mat.								Run No.		Tool Type & No.		Pad Type		Tool Pos.		Other											
Oil		Water Ratio								ONE		ACRT		N/A		CENT		N/A											
Water Phase Salinity												11302817																	
Oil Type		Water Type										11294353																	
Electrical Stability																													
EQUIPMENT DATA																													
GAMMA				ACOUSTIC				DENSITY				NEUTRON																	
Run No.		ONE		Run No.		ONE		Run No.		ONE		Run No.		ONE															
Serial No.		11812883		Serial No.		90296673		Serial No.		11795867		Serial No.		11812187															
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.		GTET		Spacing		0.5'		Log Type		GAM-GAM		Log Type		NEU-NEU															
Type		SCINT						Source Type		Cs 137		Source Type		Am241Be															
Length		8"		LSA [Y/N]		Y		Serial No.		5471GW		Serial No.		DSN-434															
Distance to Source		20'		FWDA [Y/N]		Y		Strength		1.78 Ci		Strength		15 Ci															

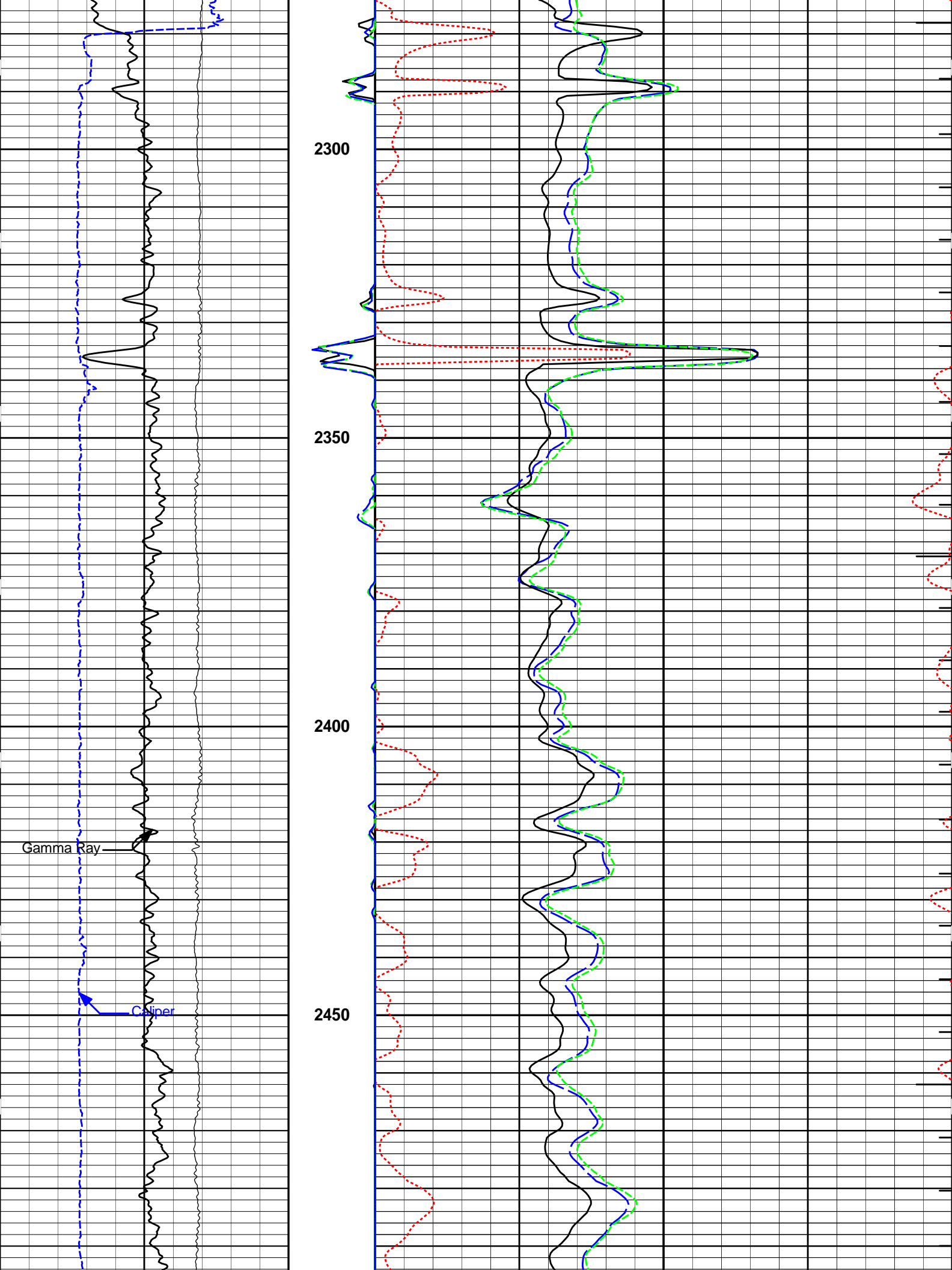
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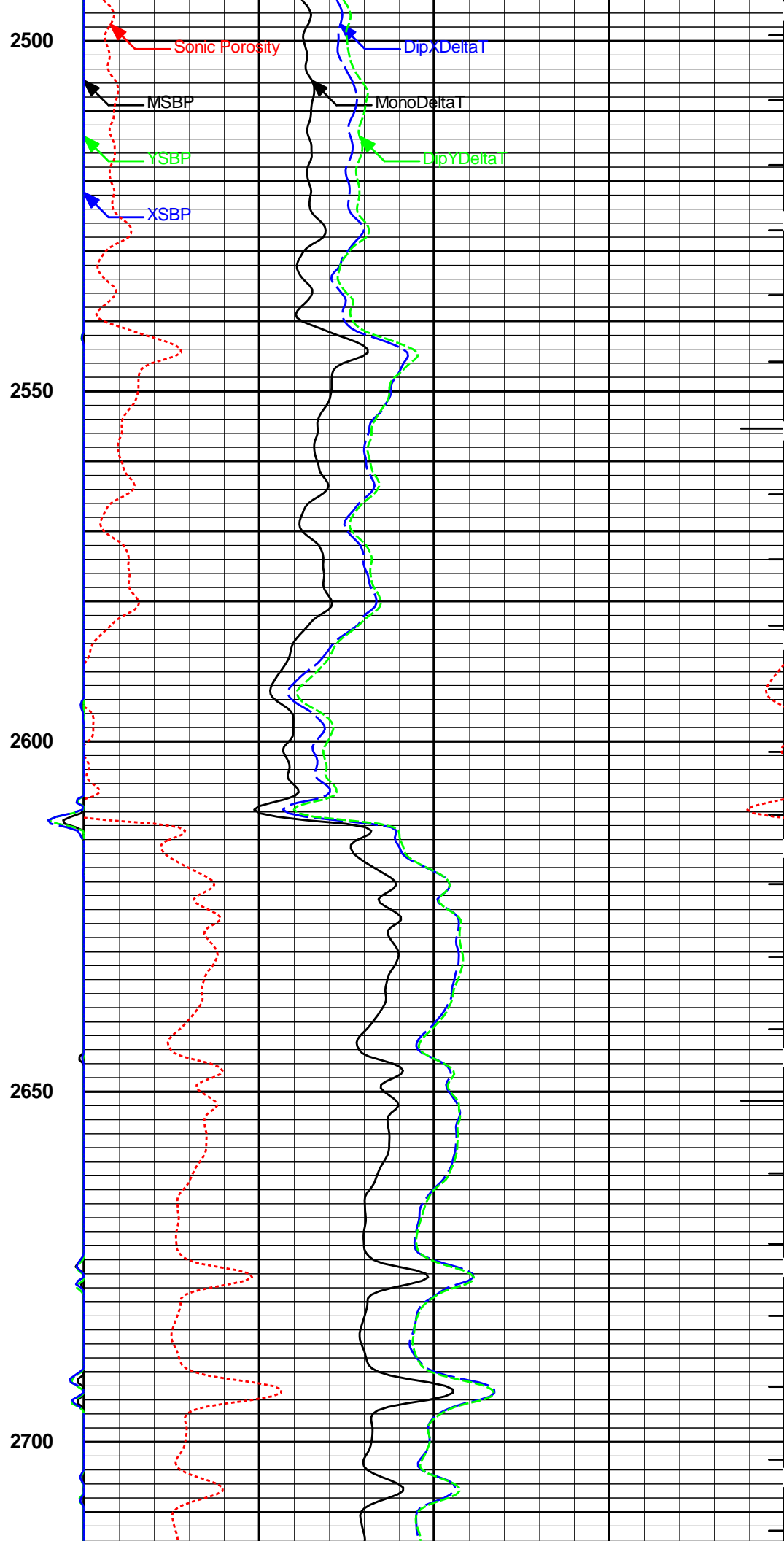
Maximum Deviation	@	KOP	@
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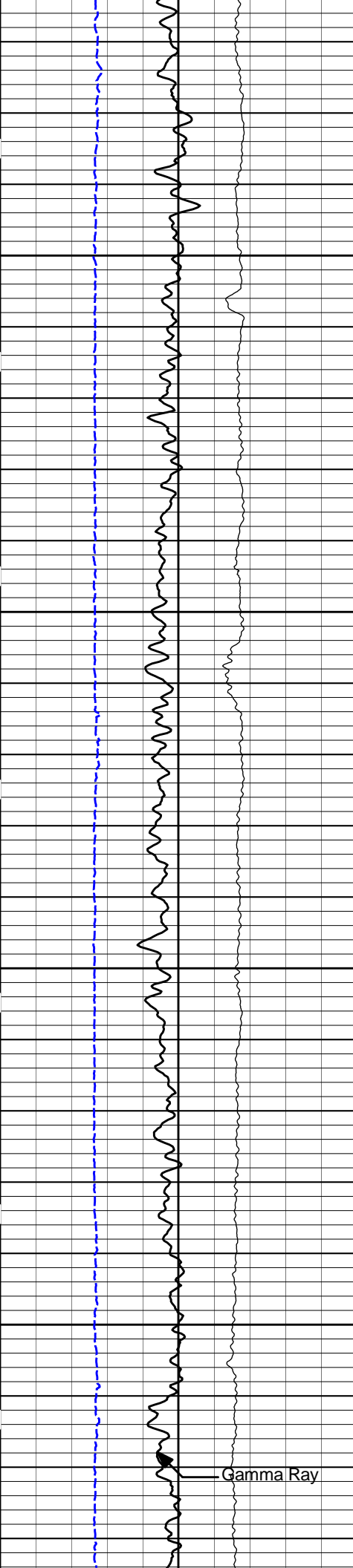
HALLIBURTON

MAIN PASS 5" = 100'







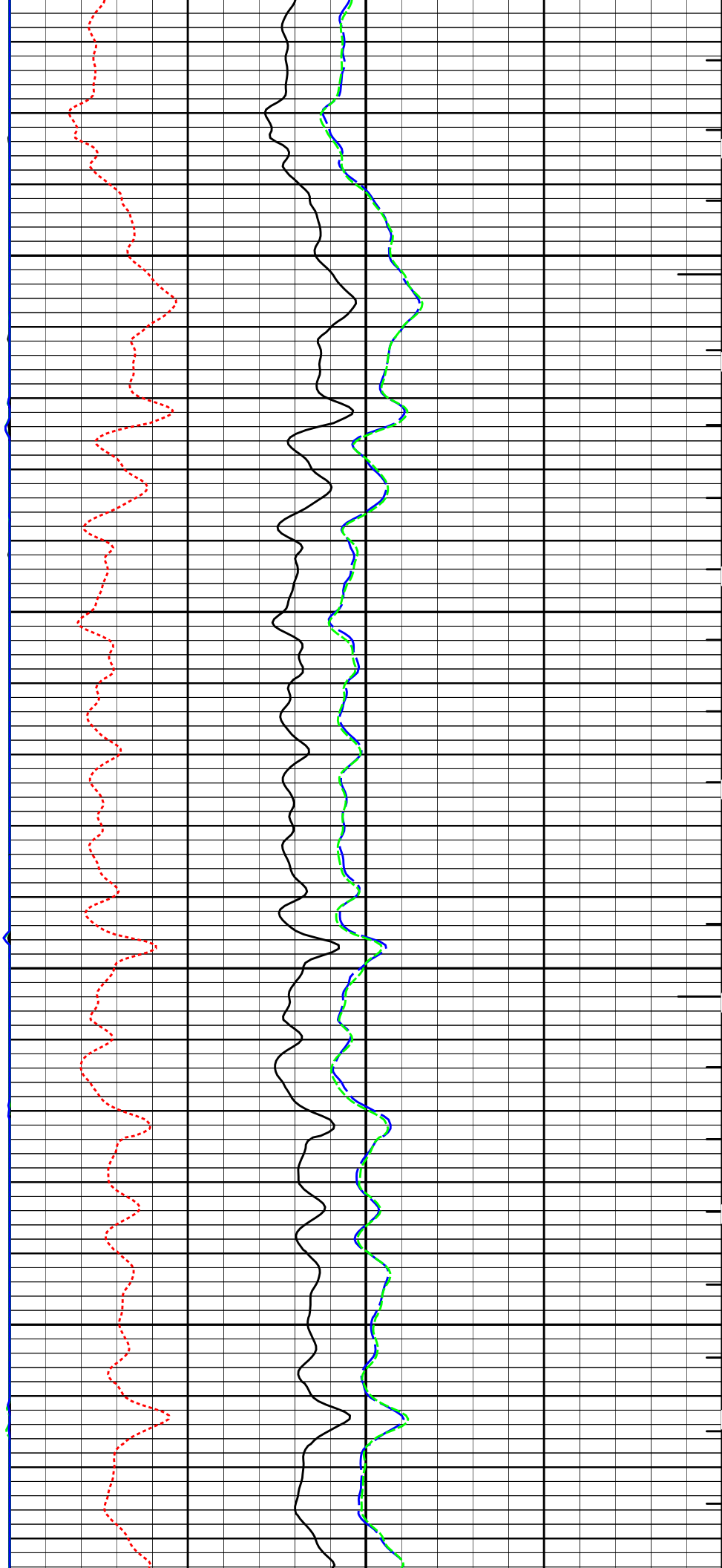


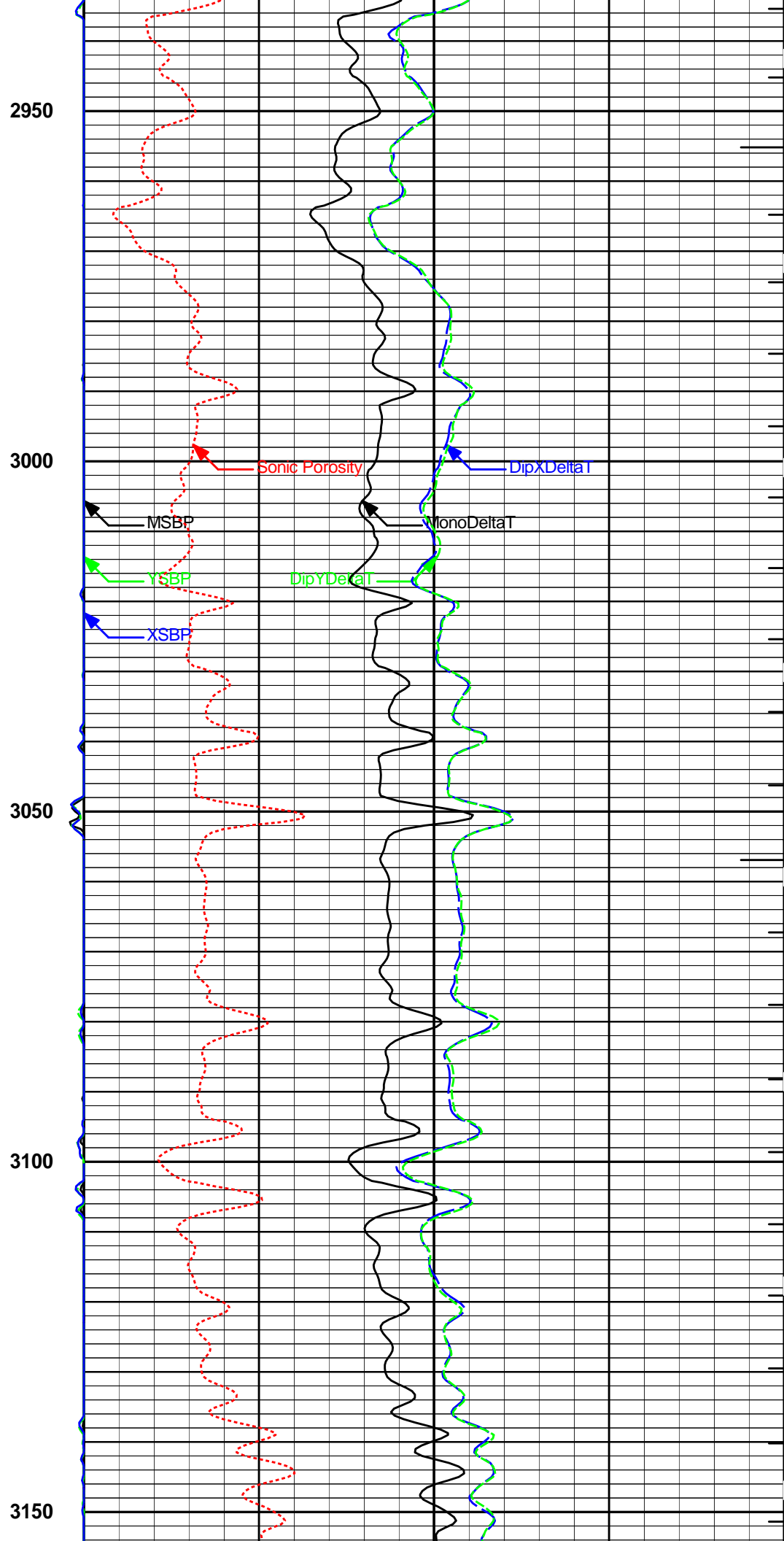
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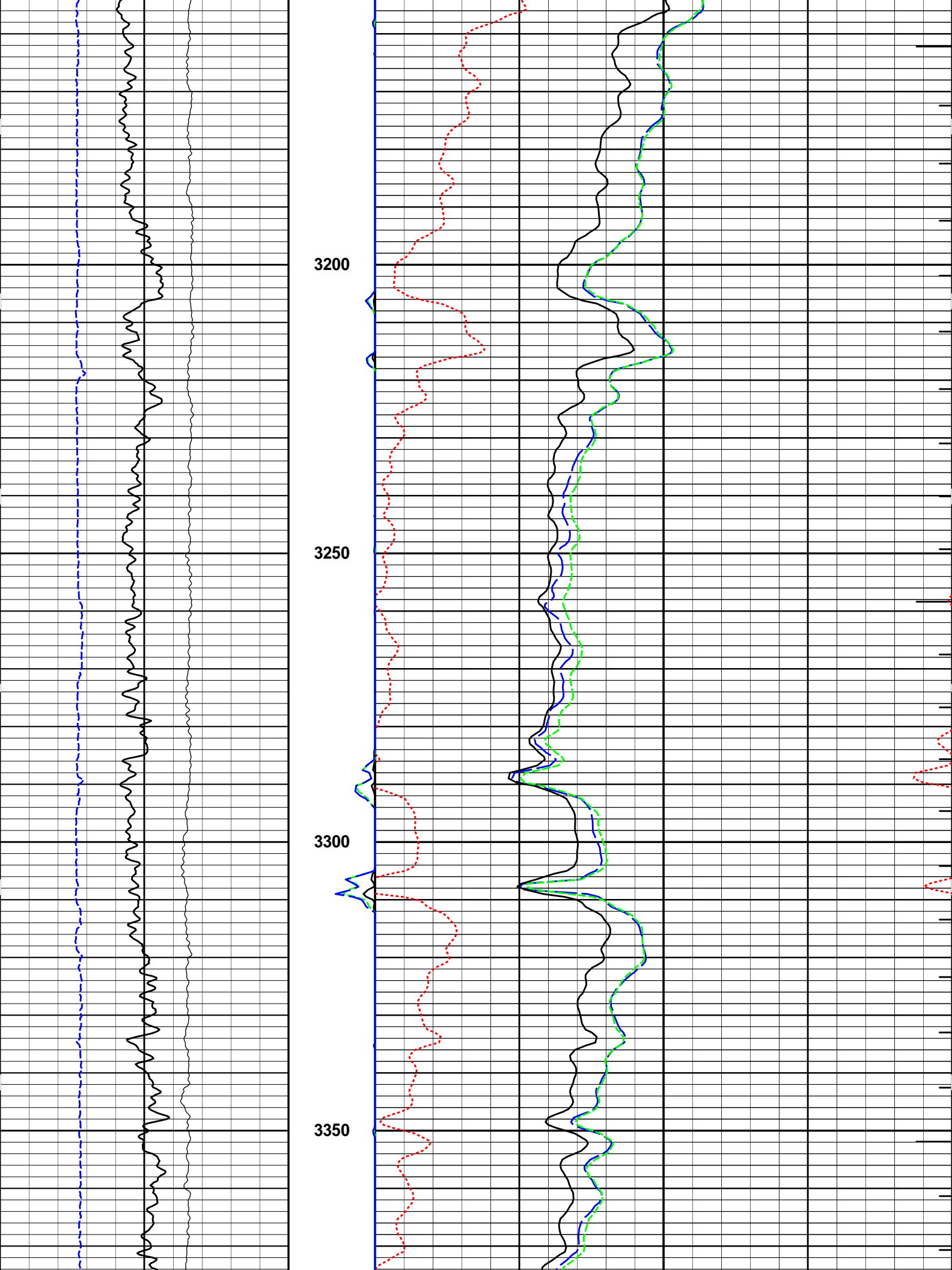
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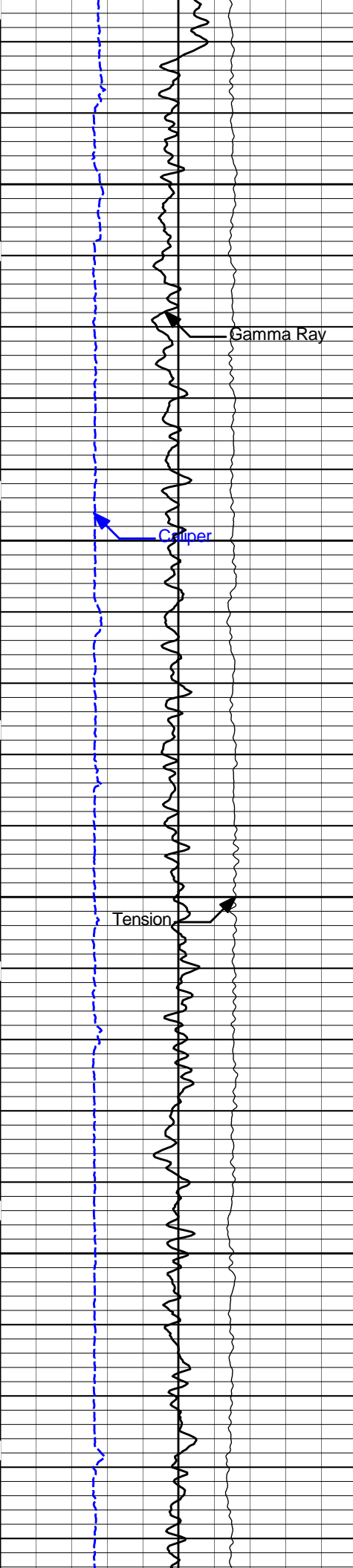
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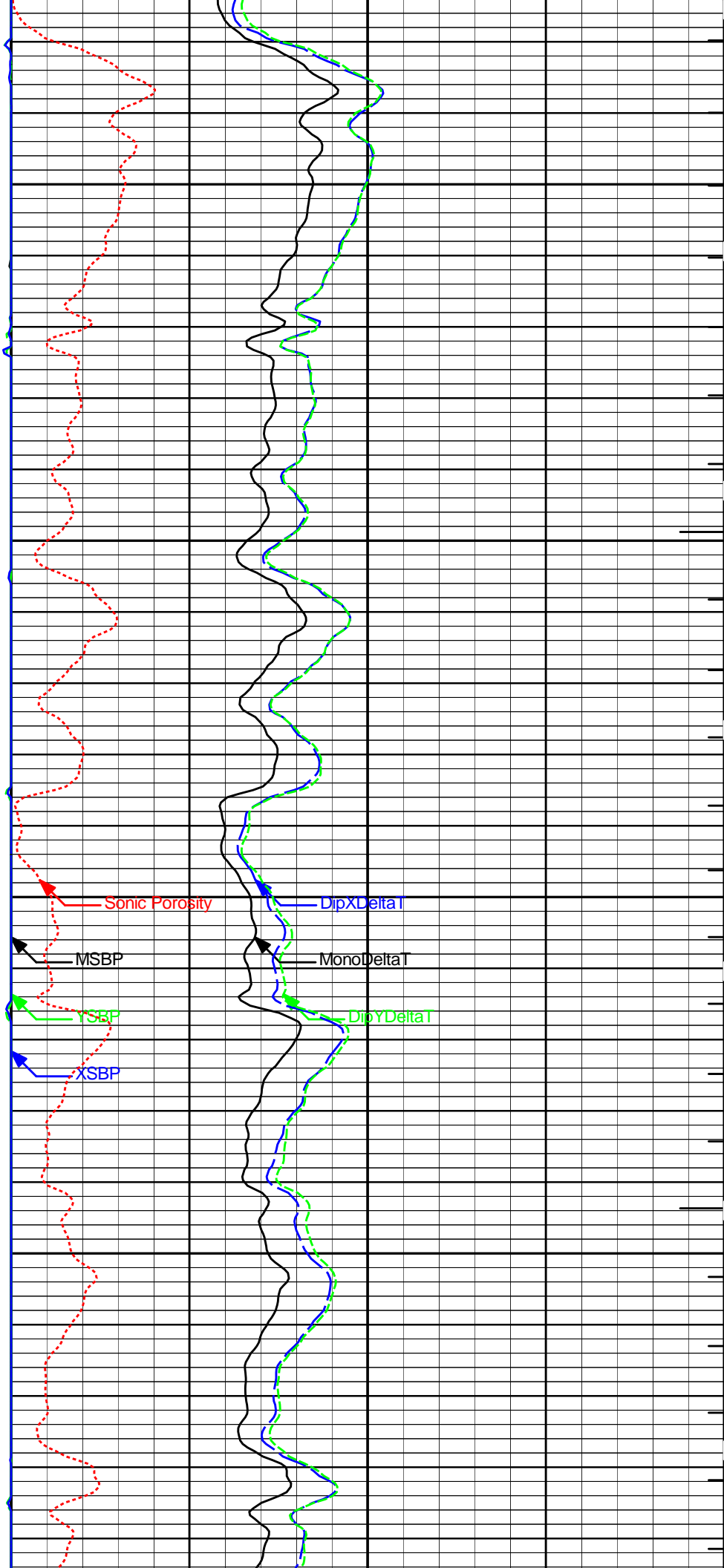


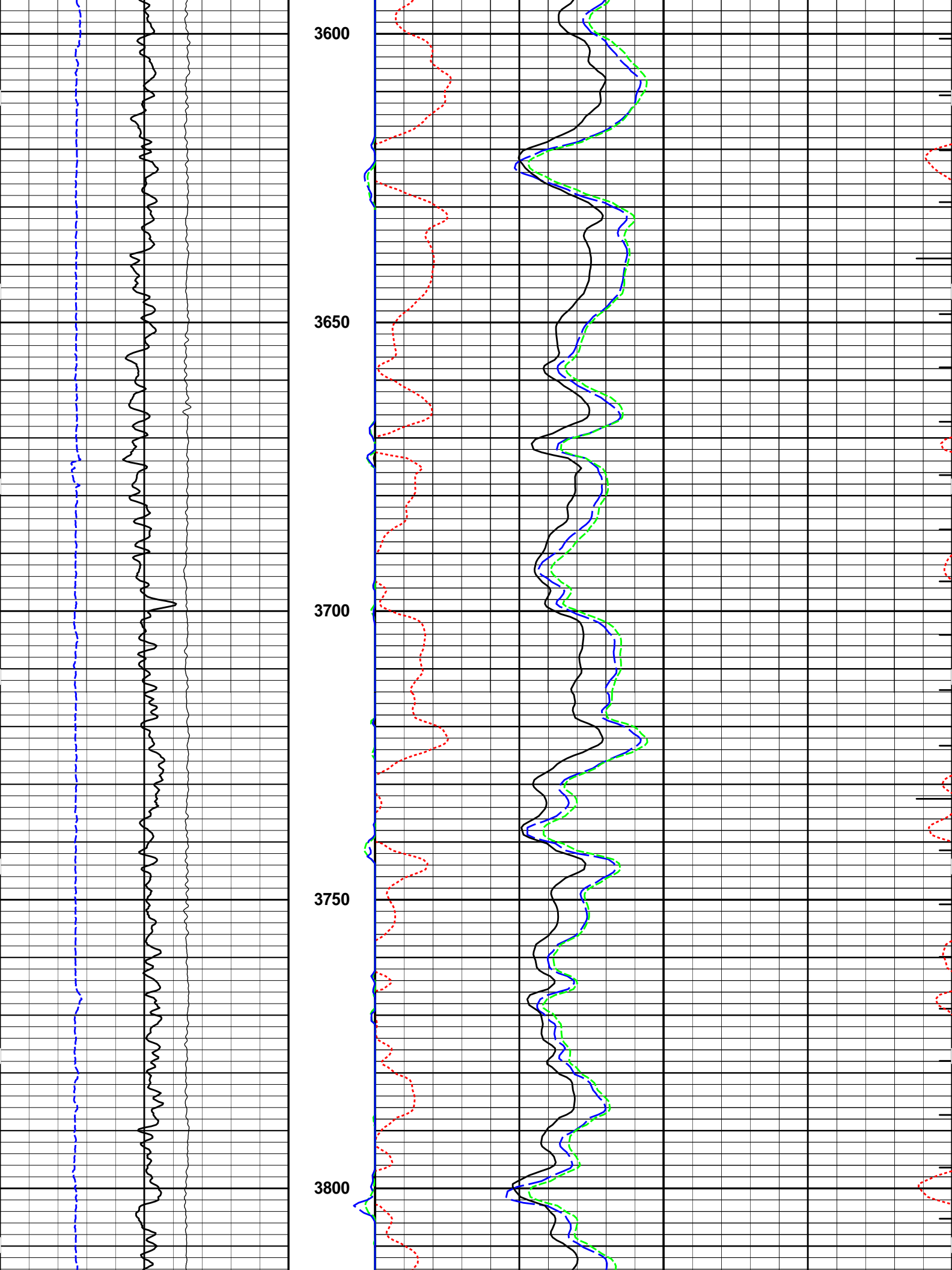
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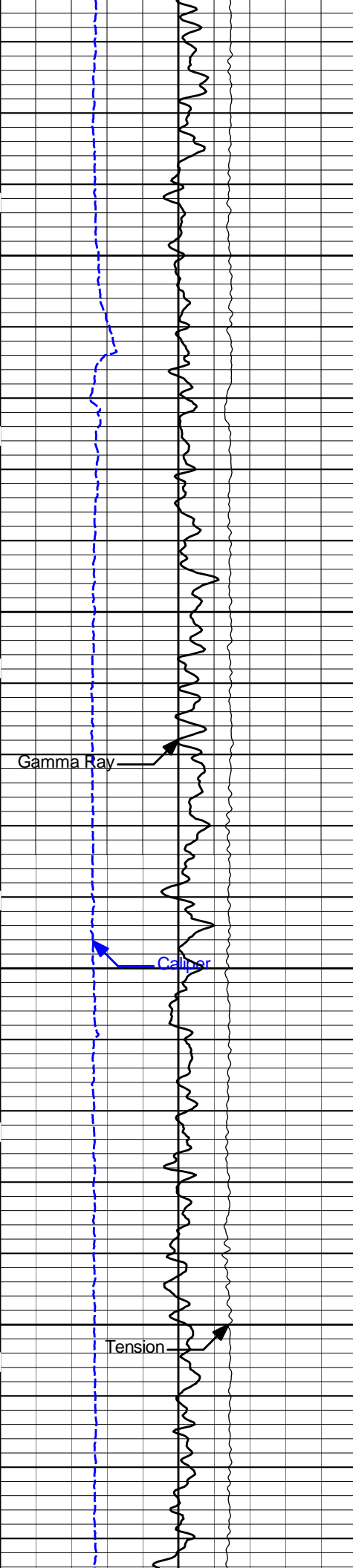
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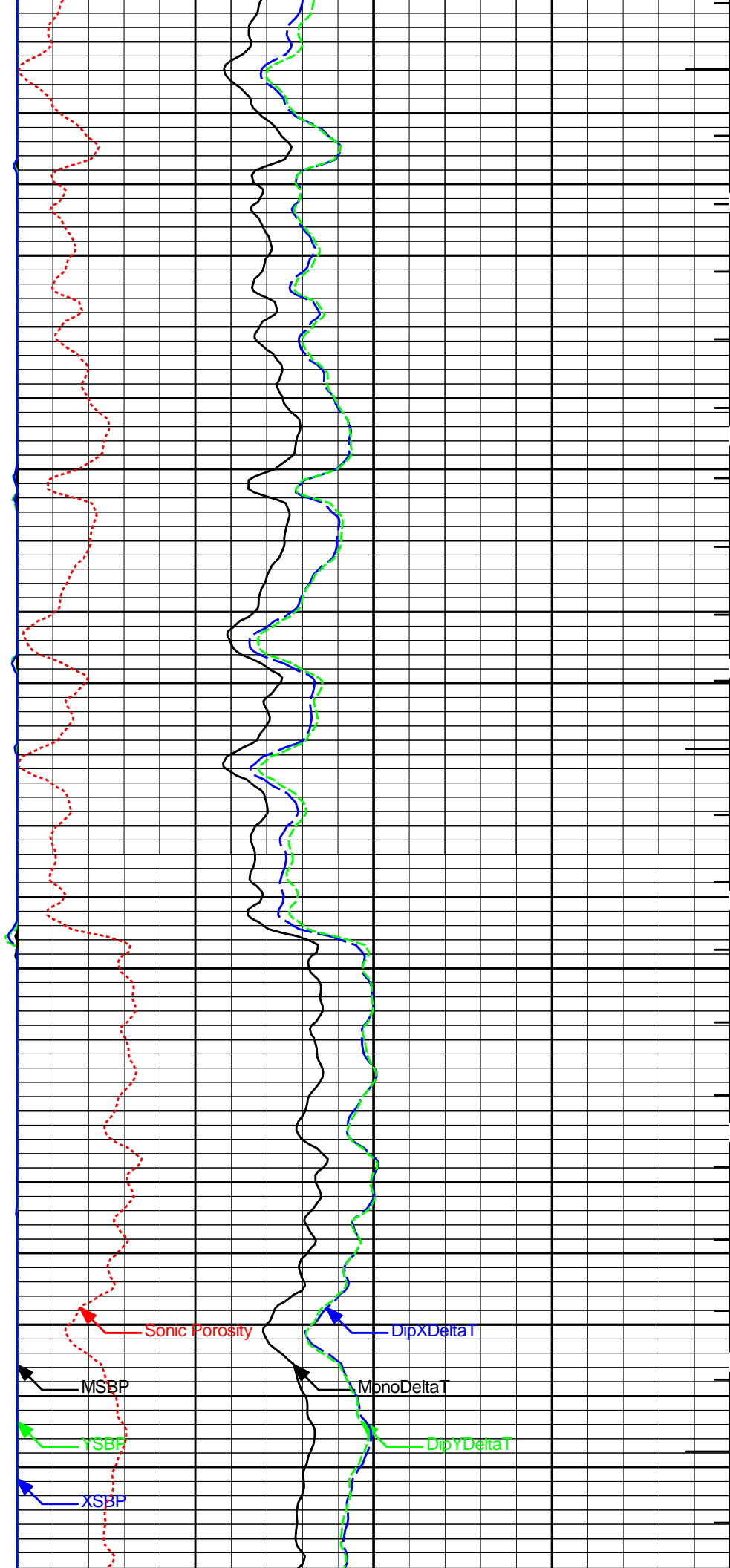


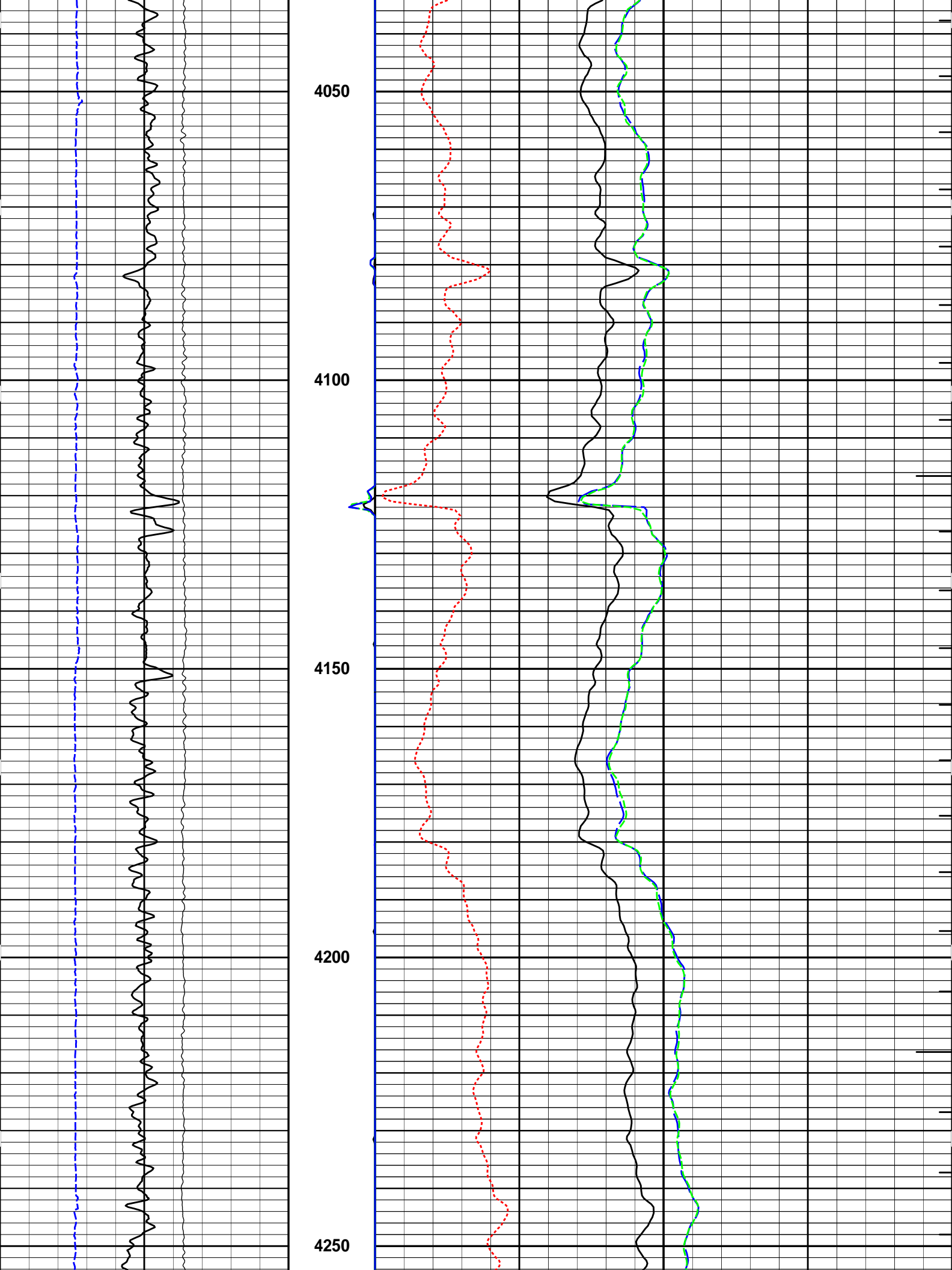
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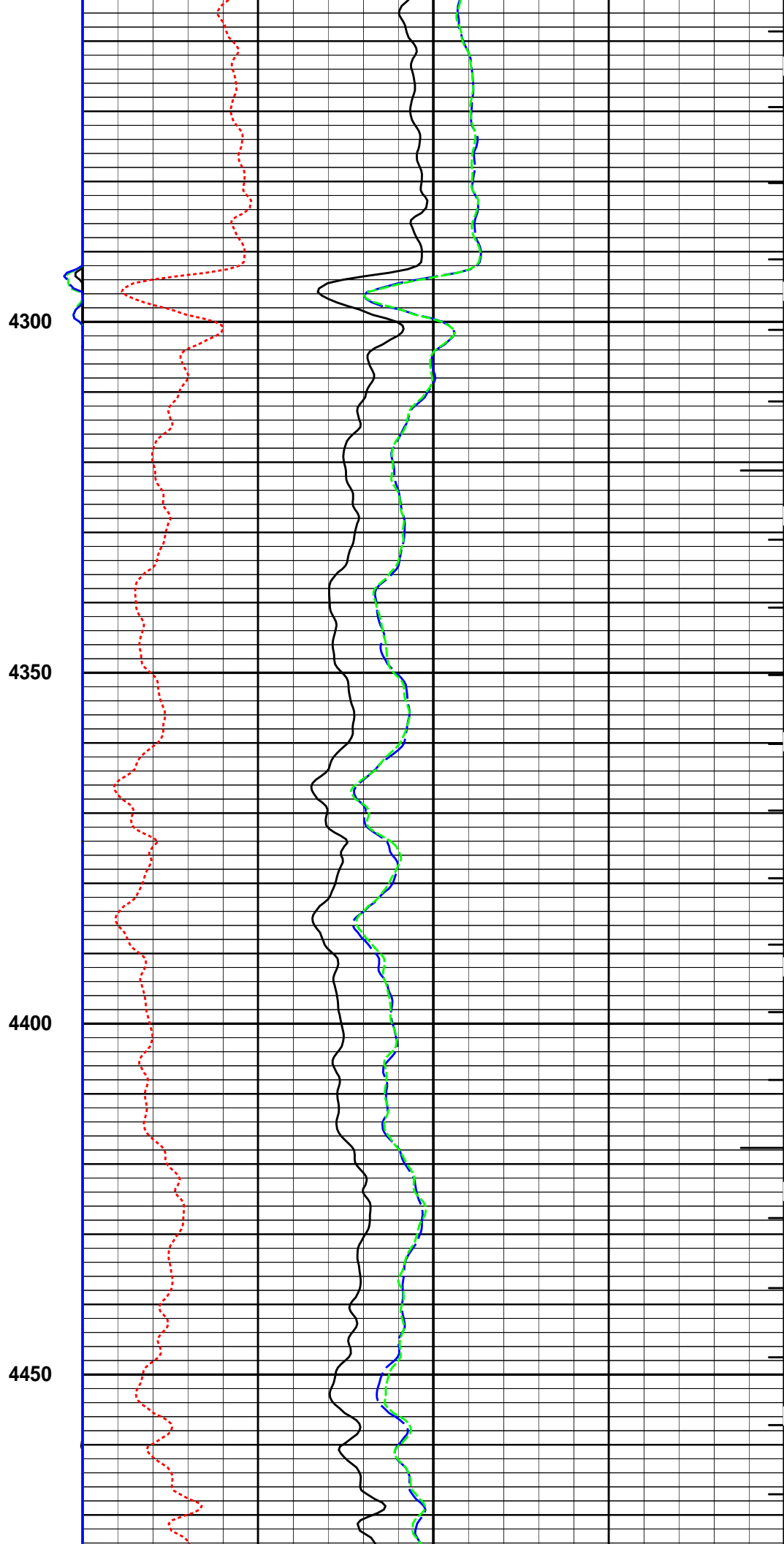
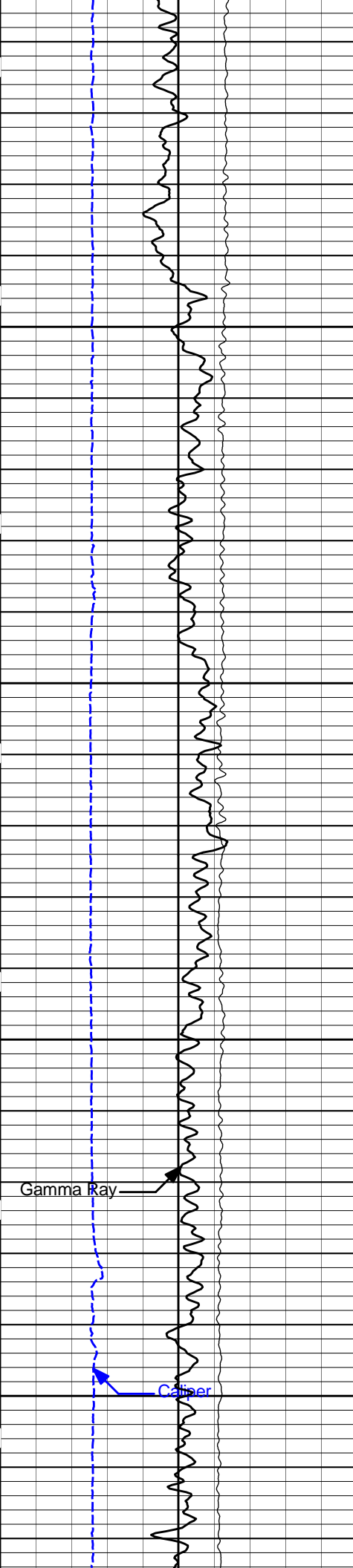
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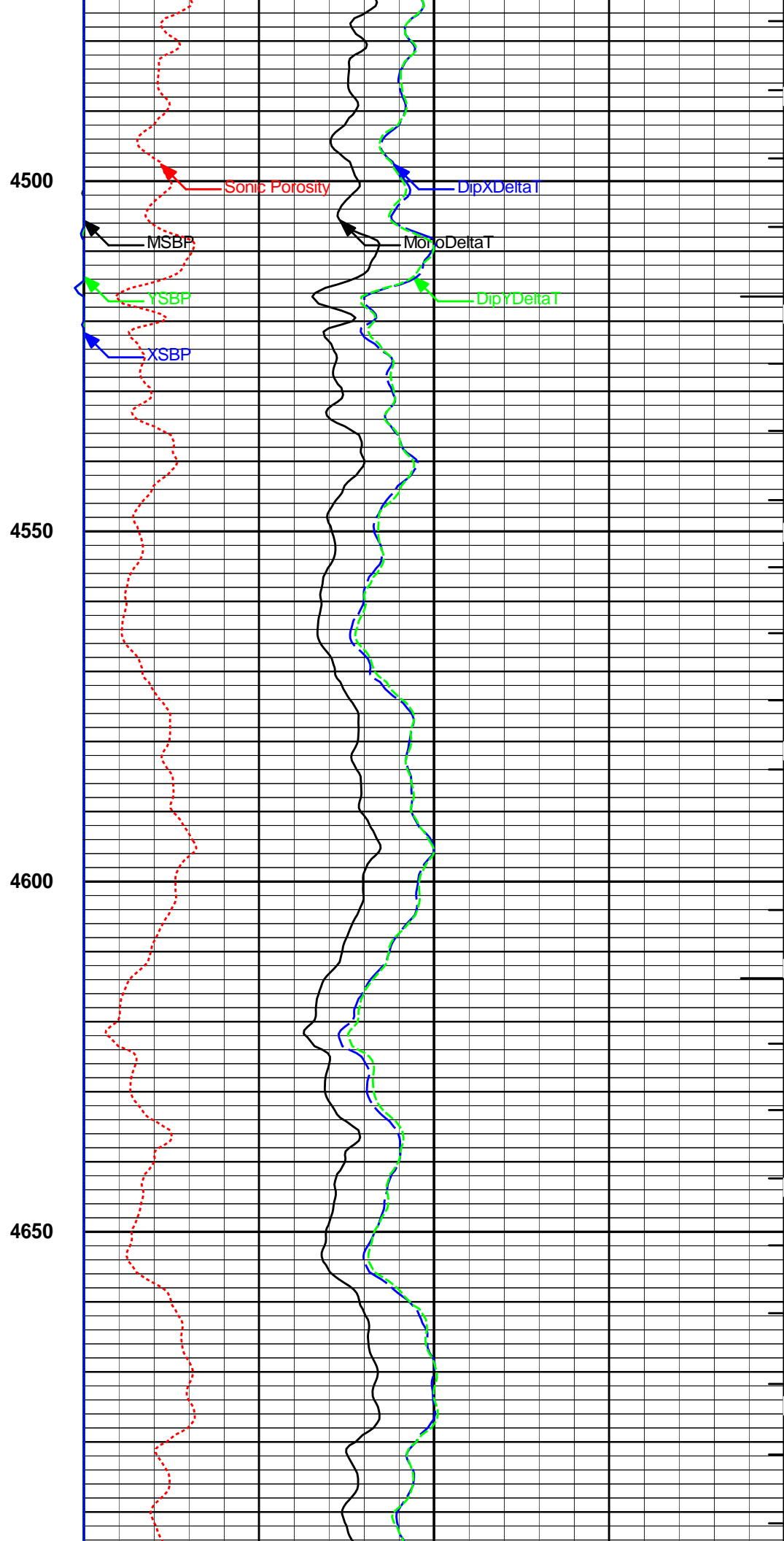
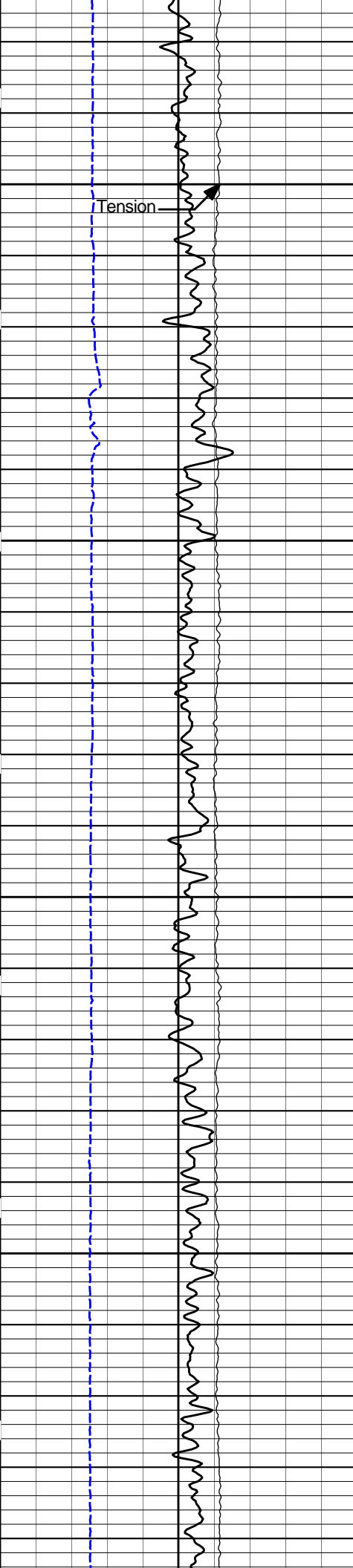
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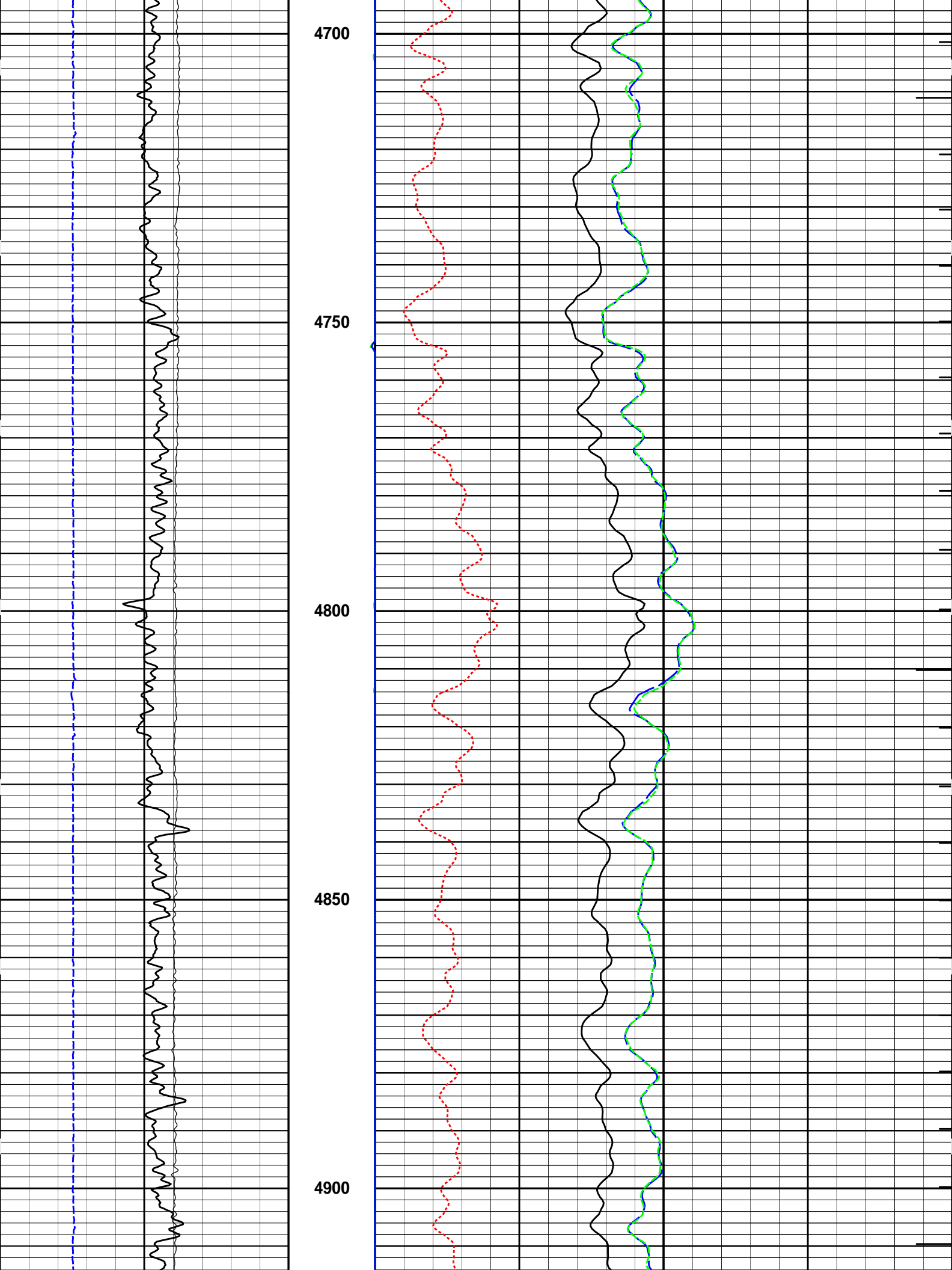
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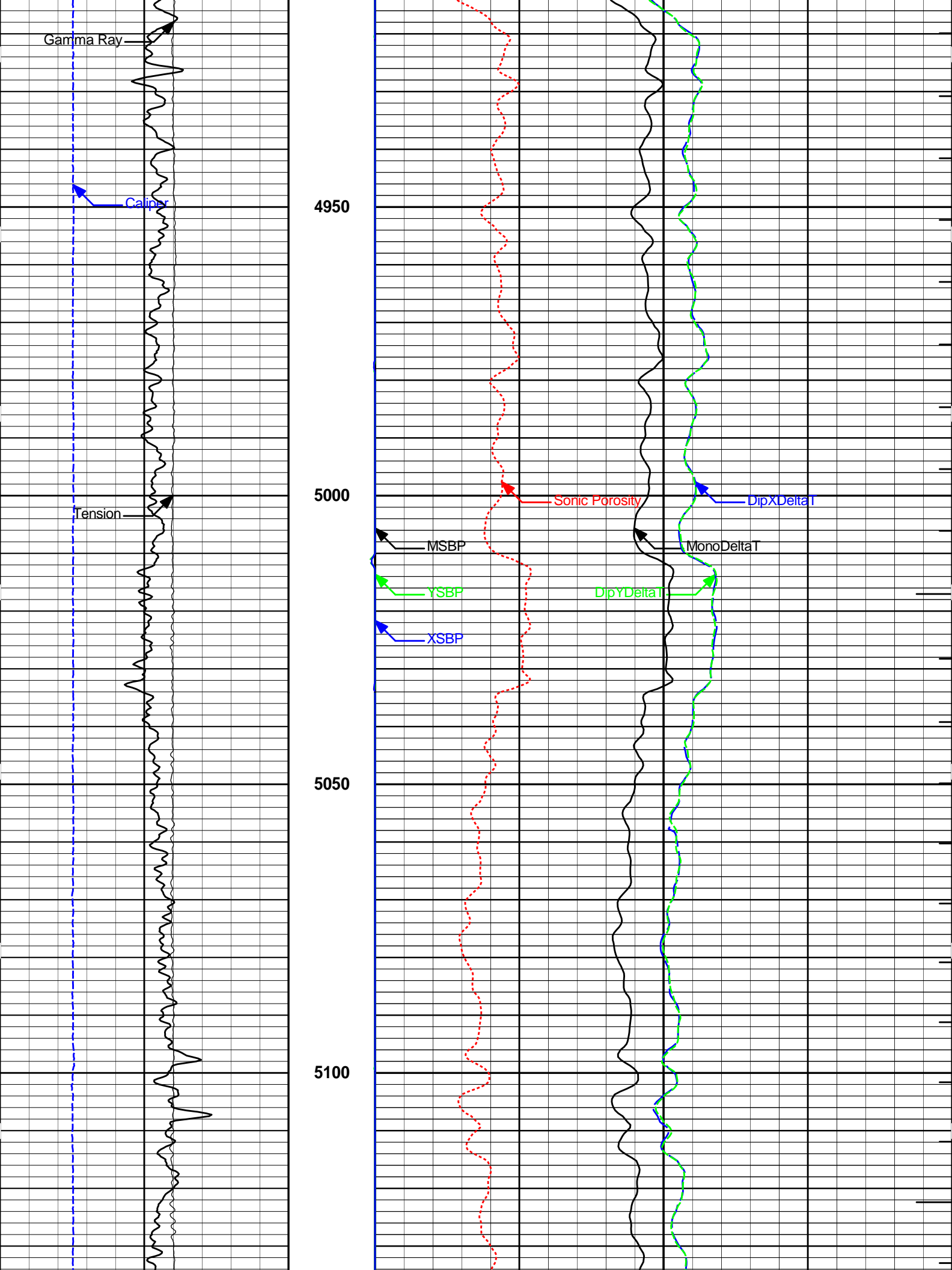


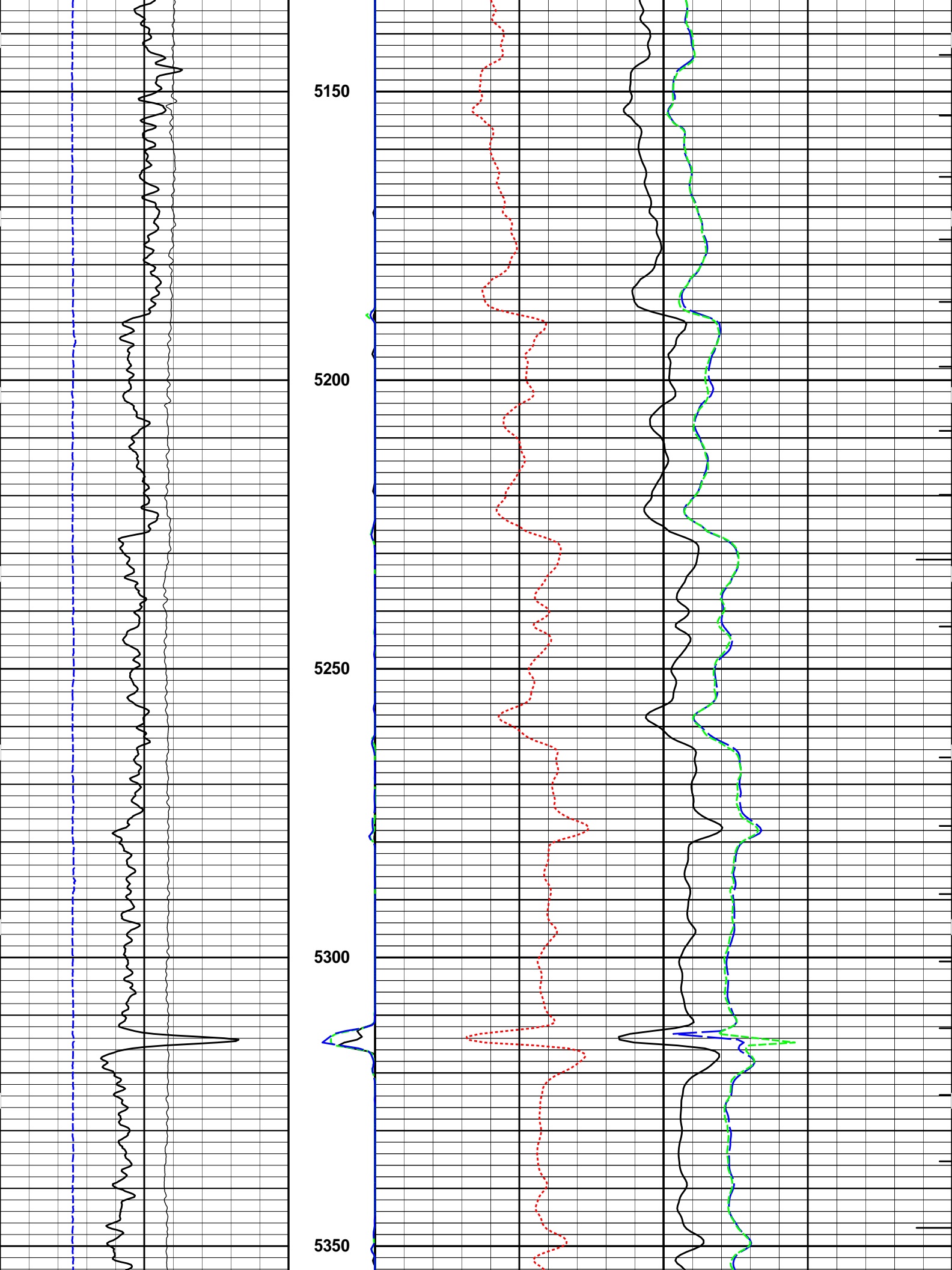


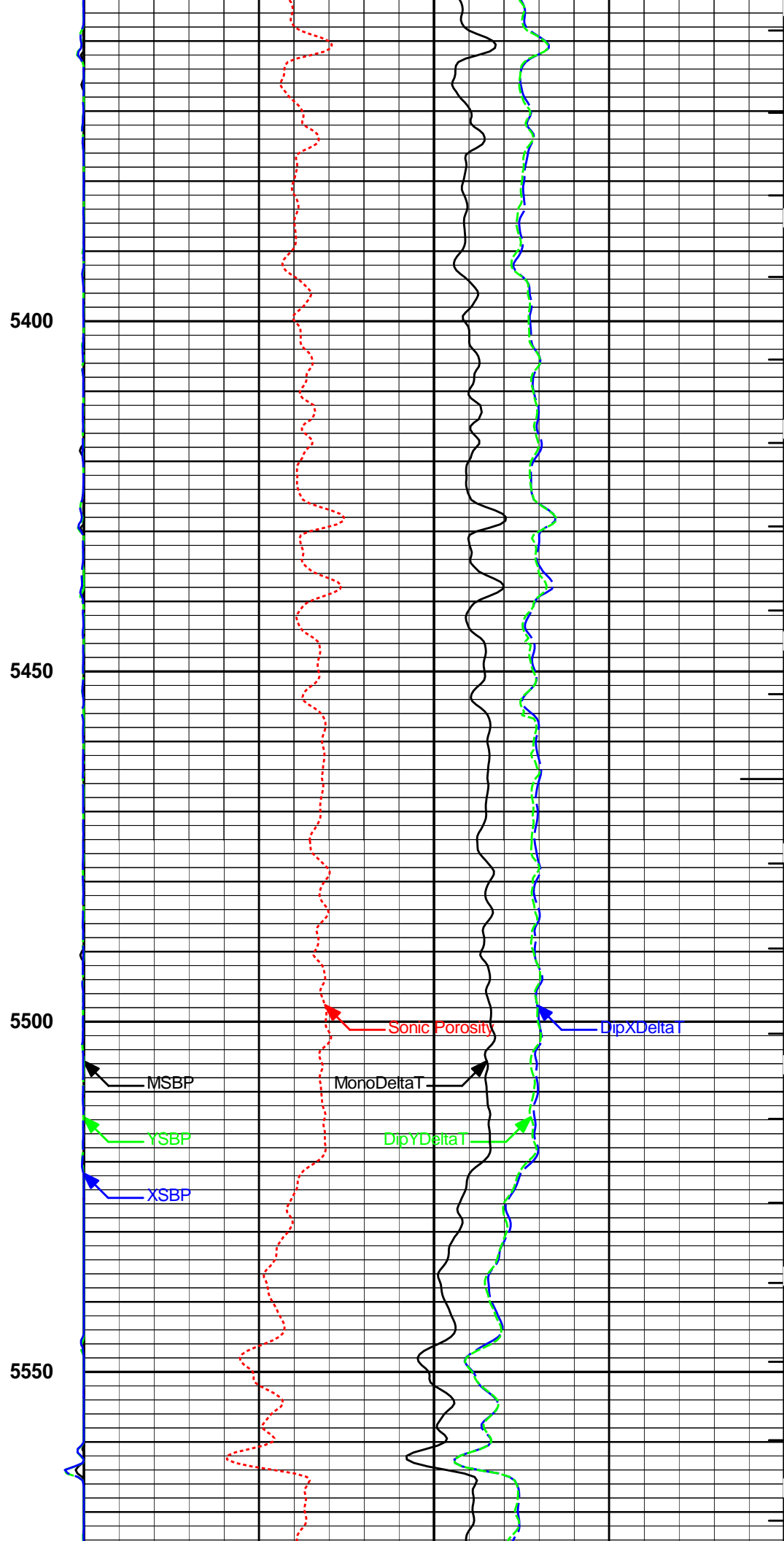
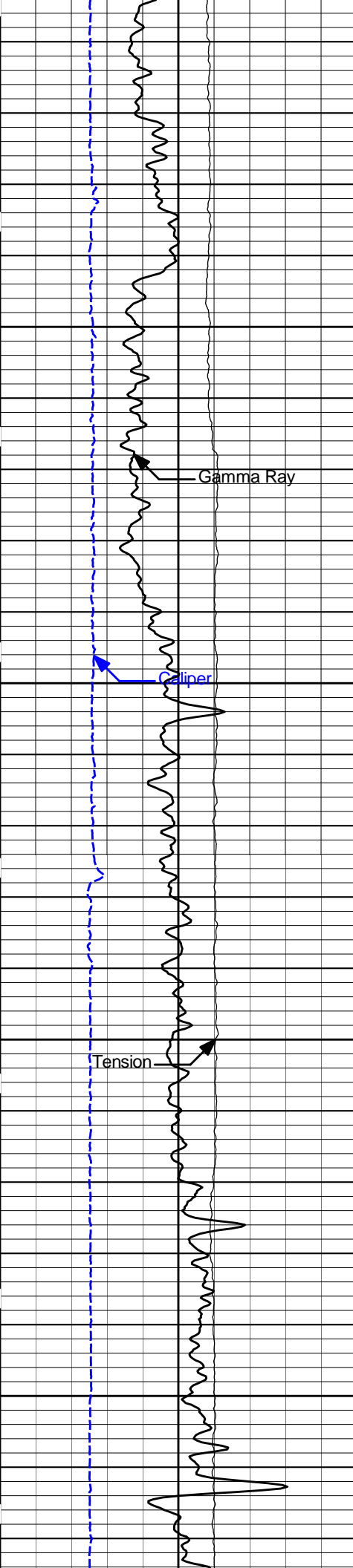


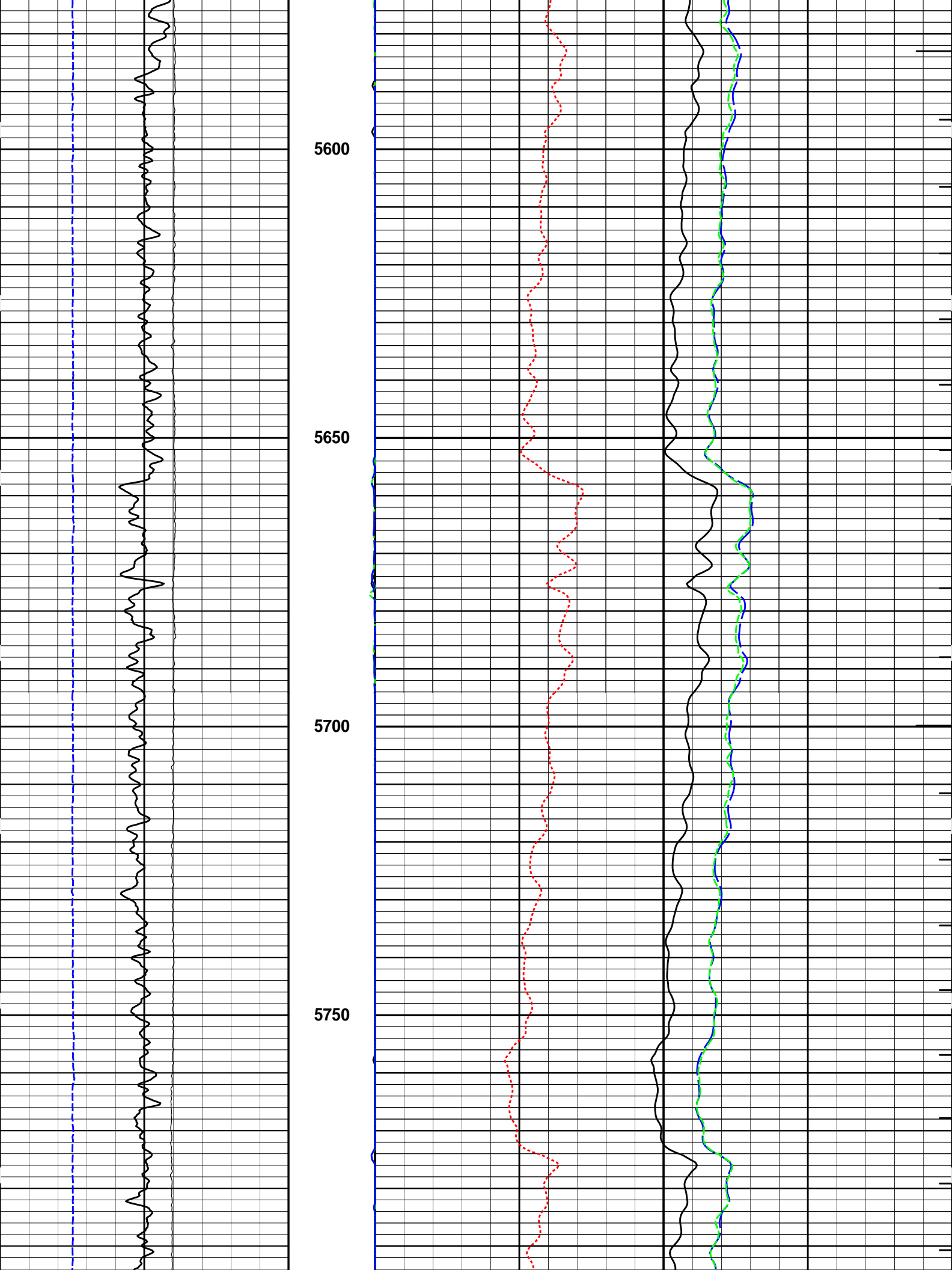


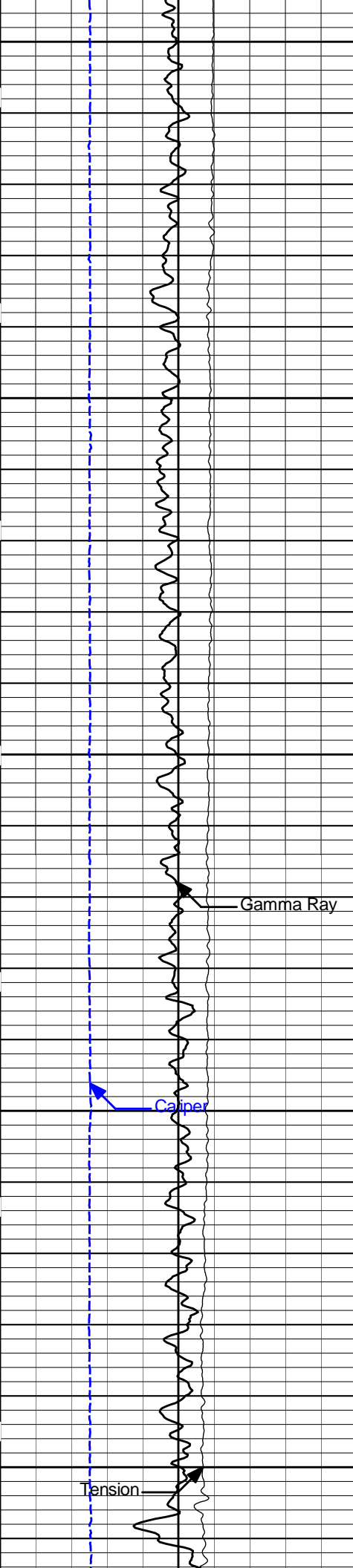












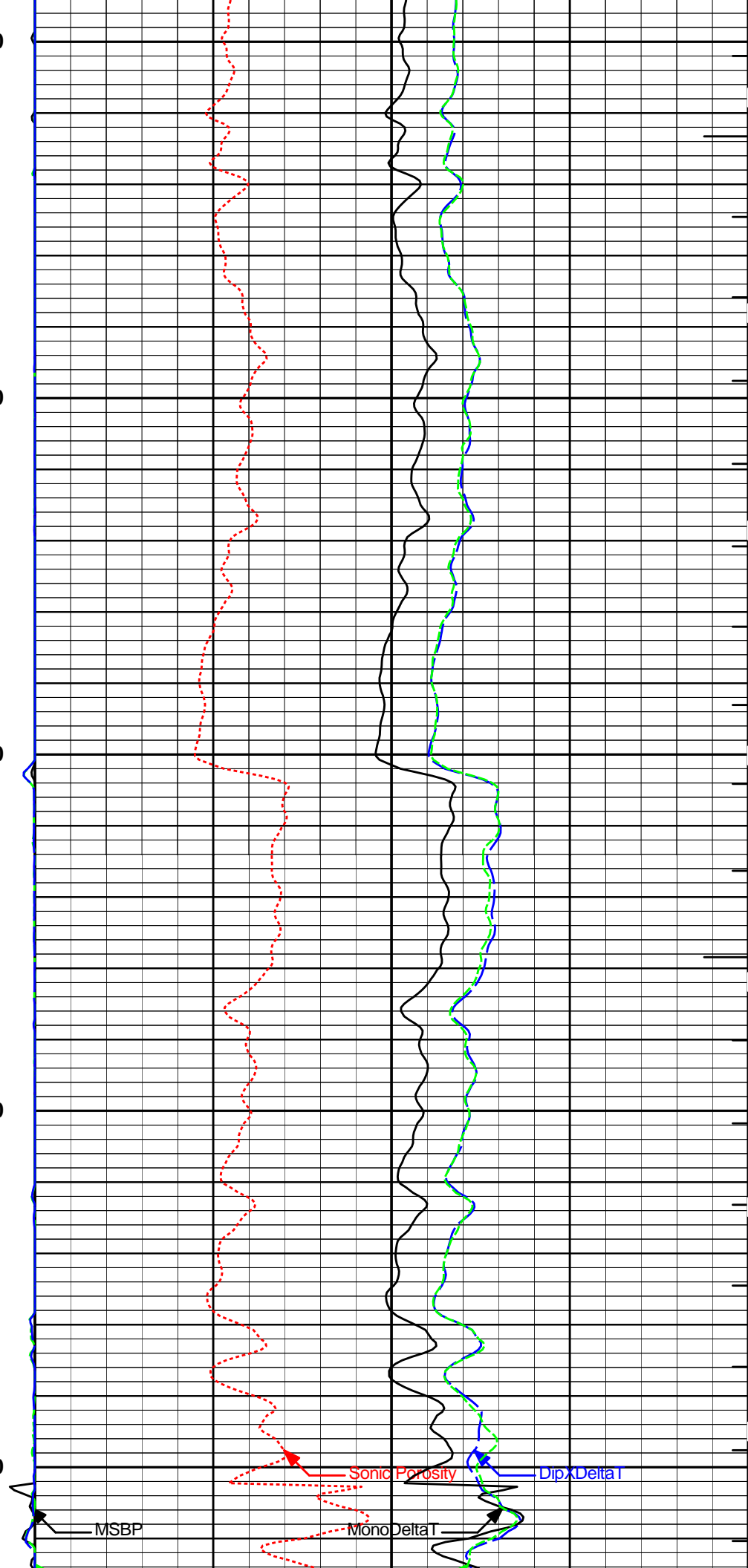
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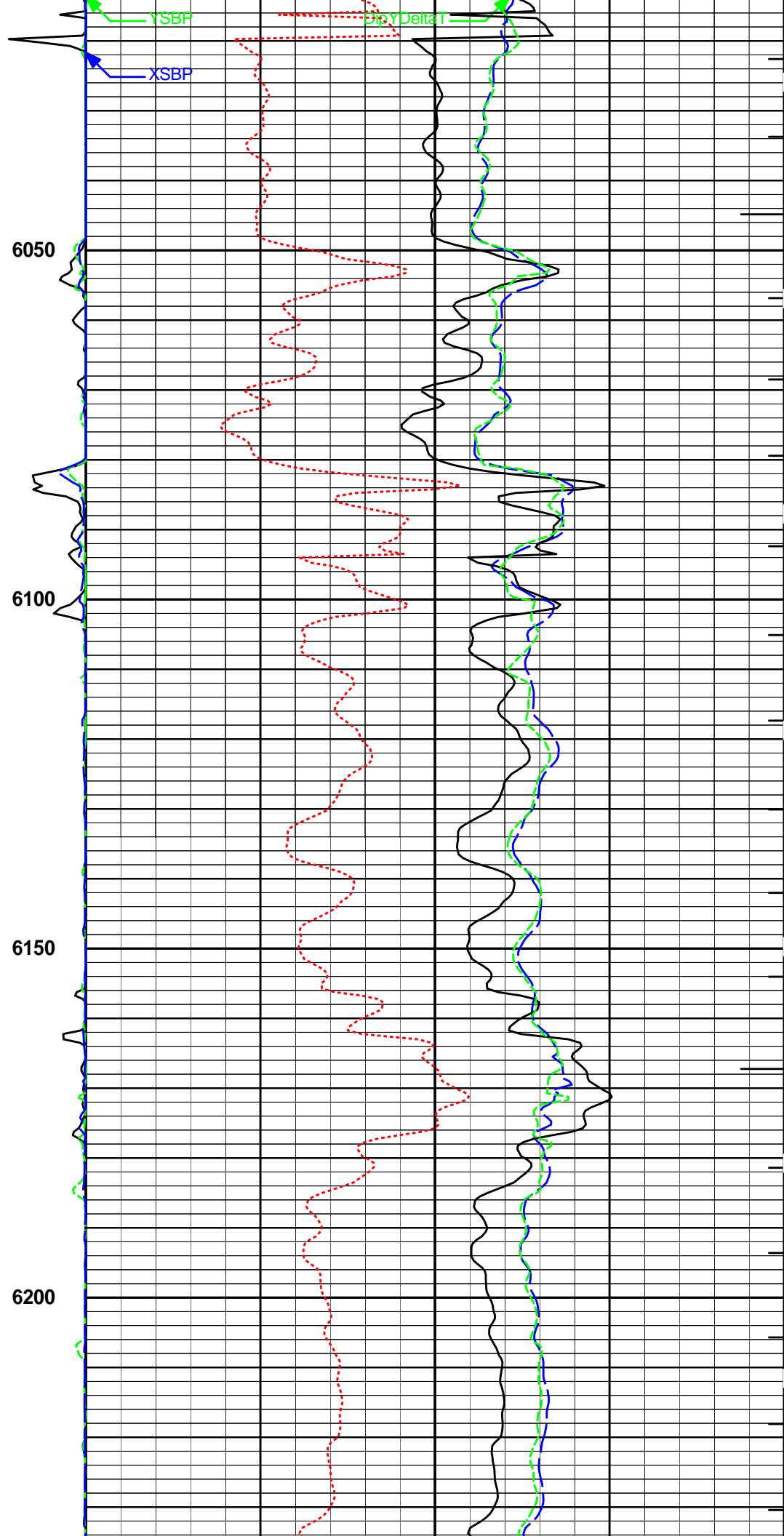
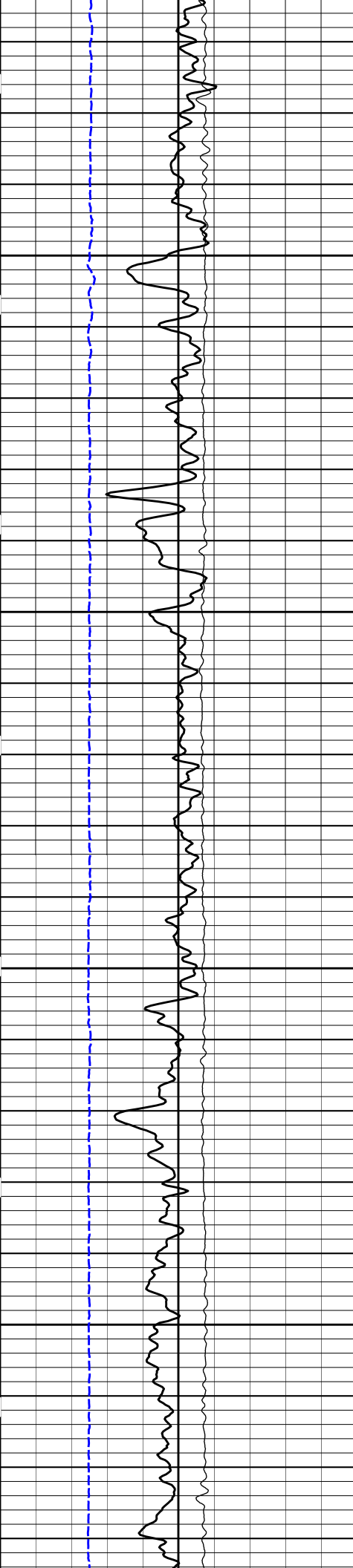
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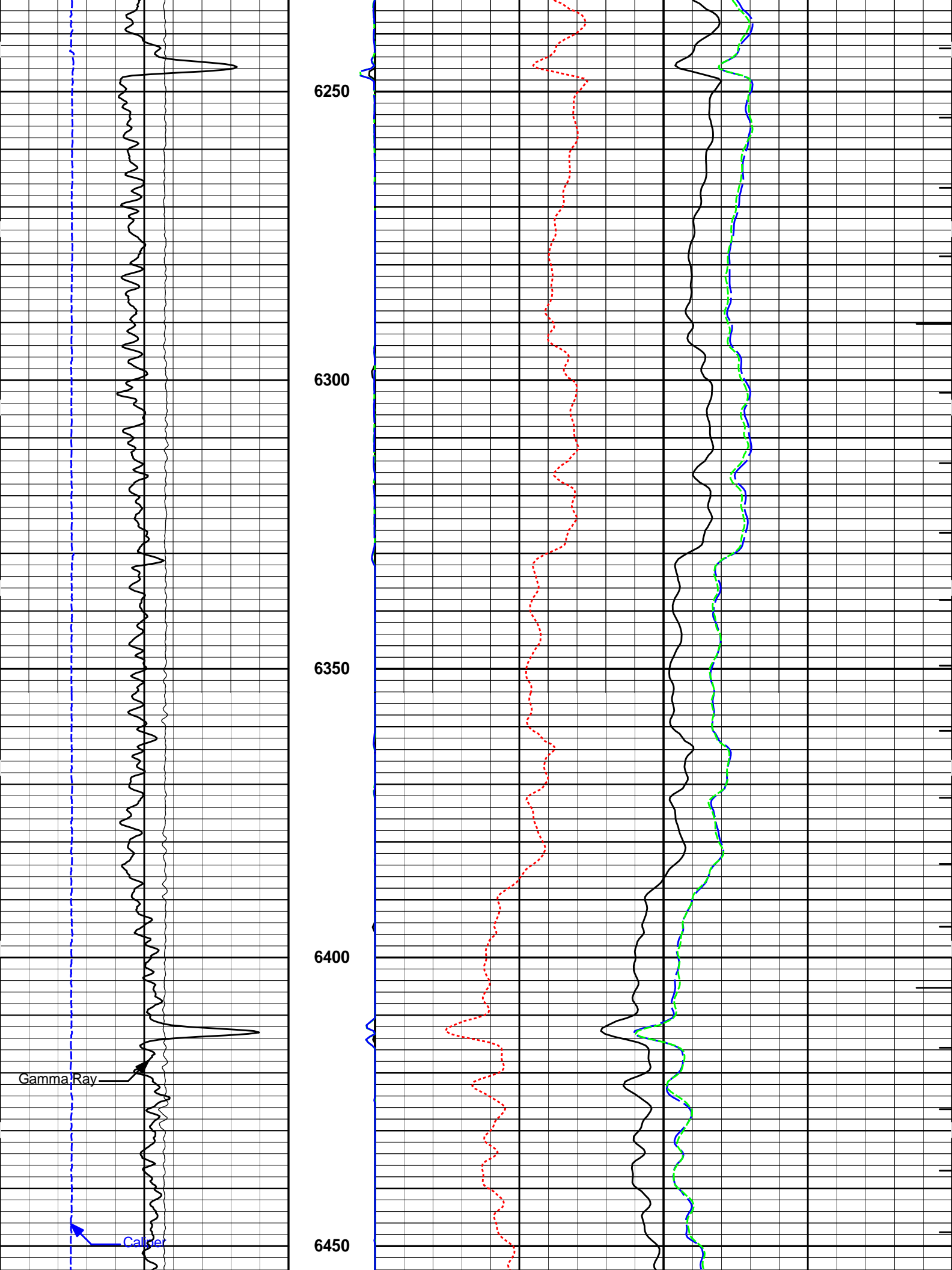
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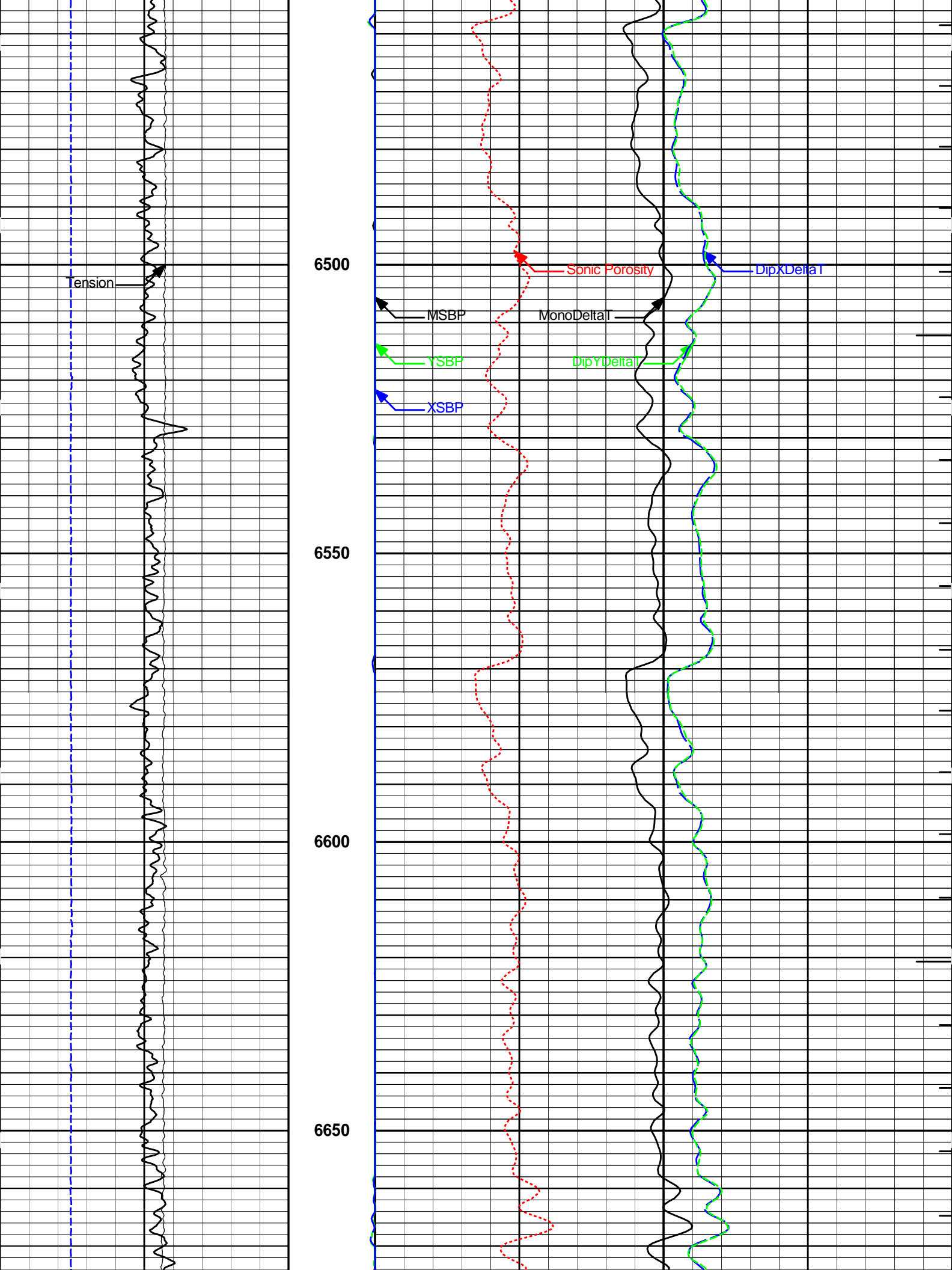
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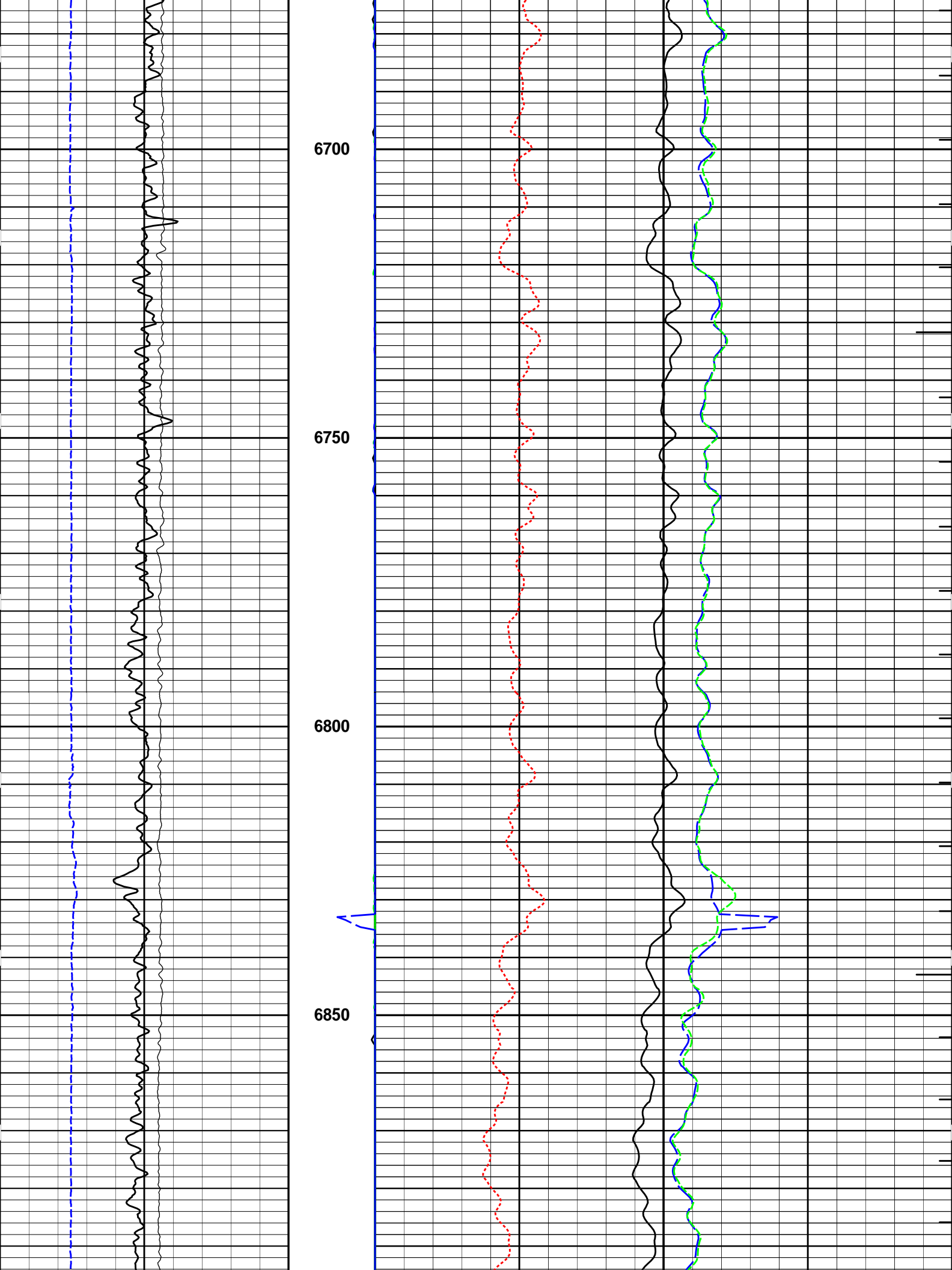
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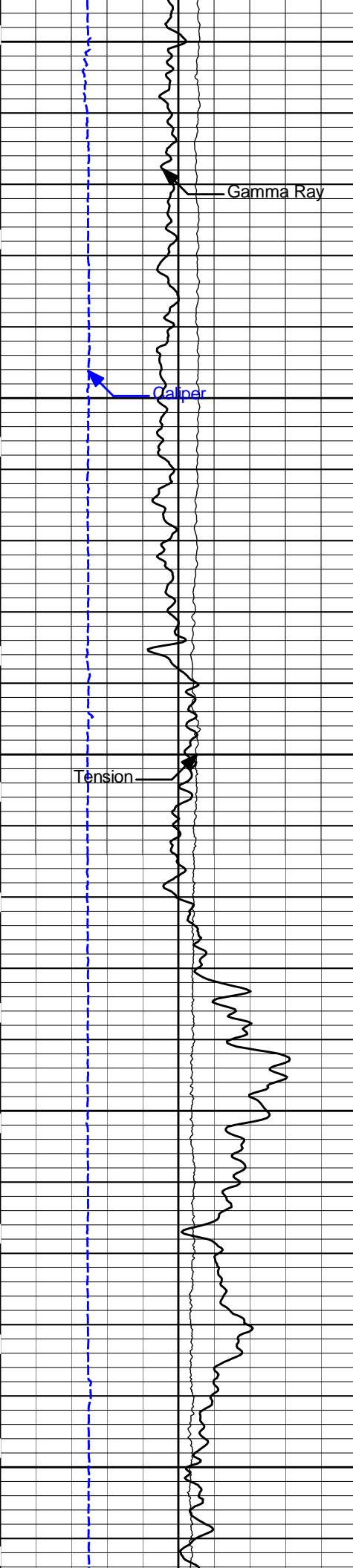












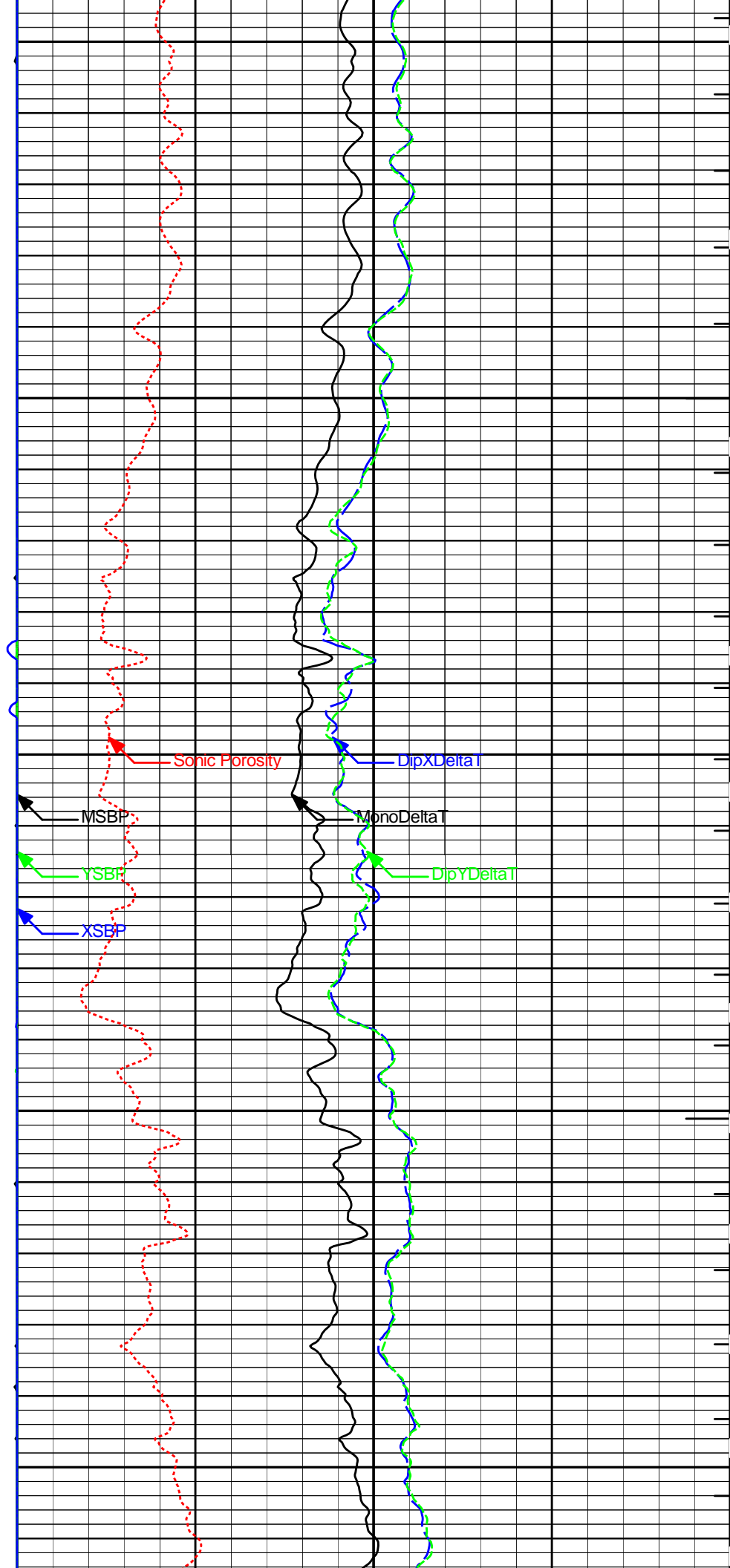
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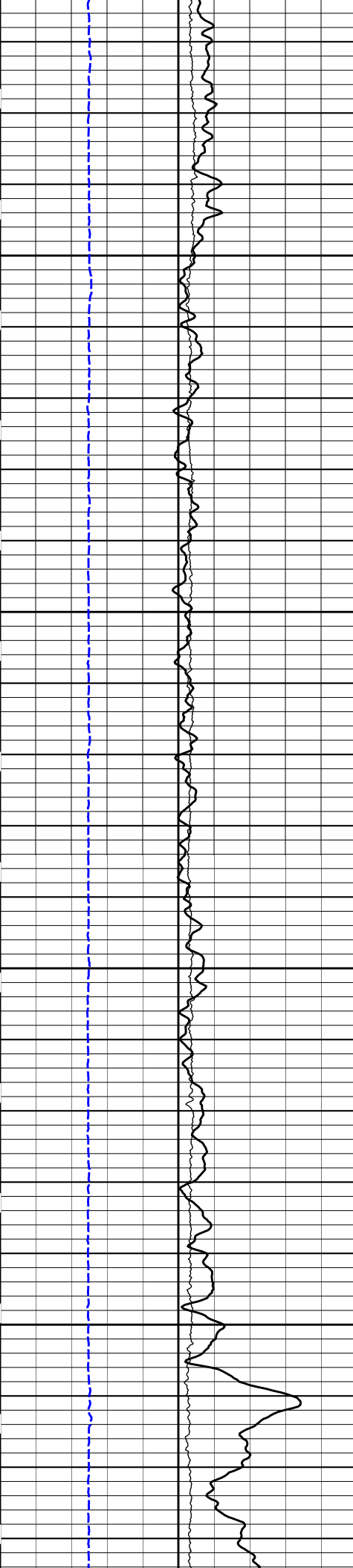
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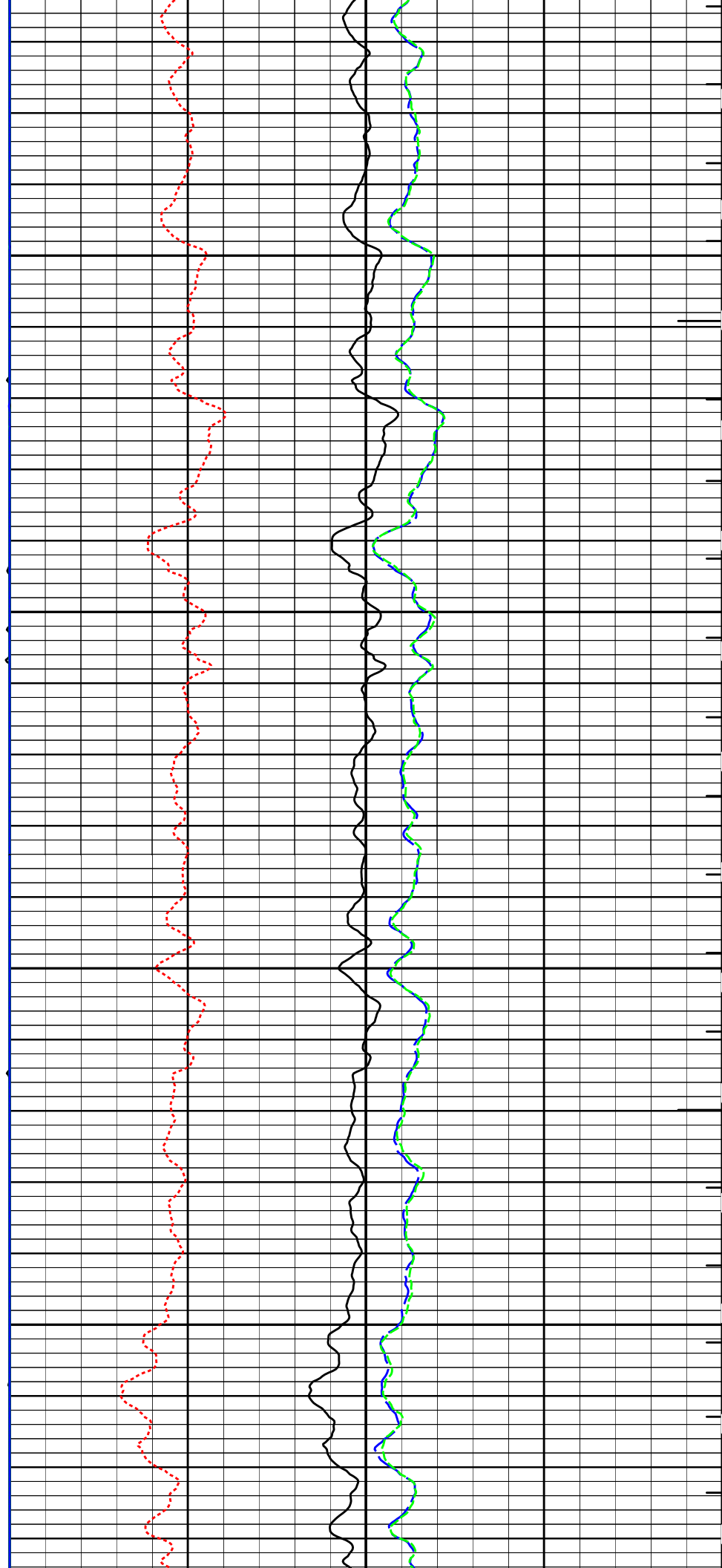


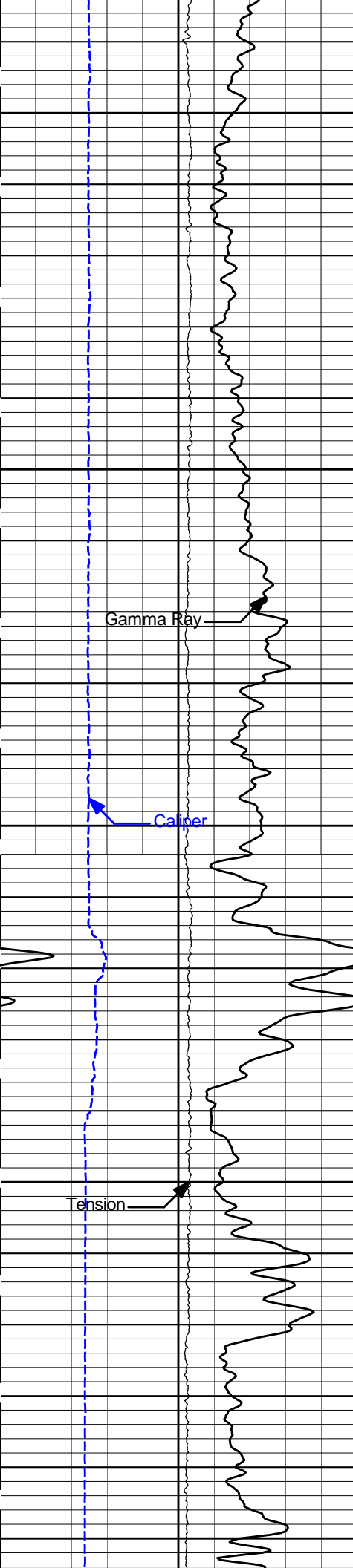
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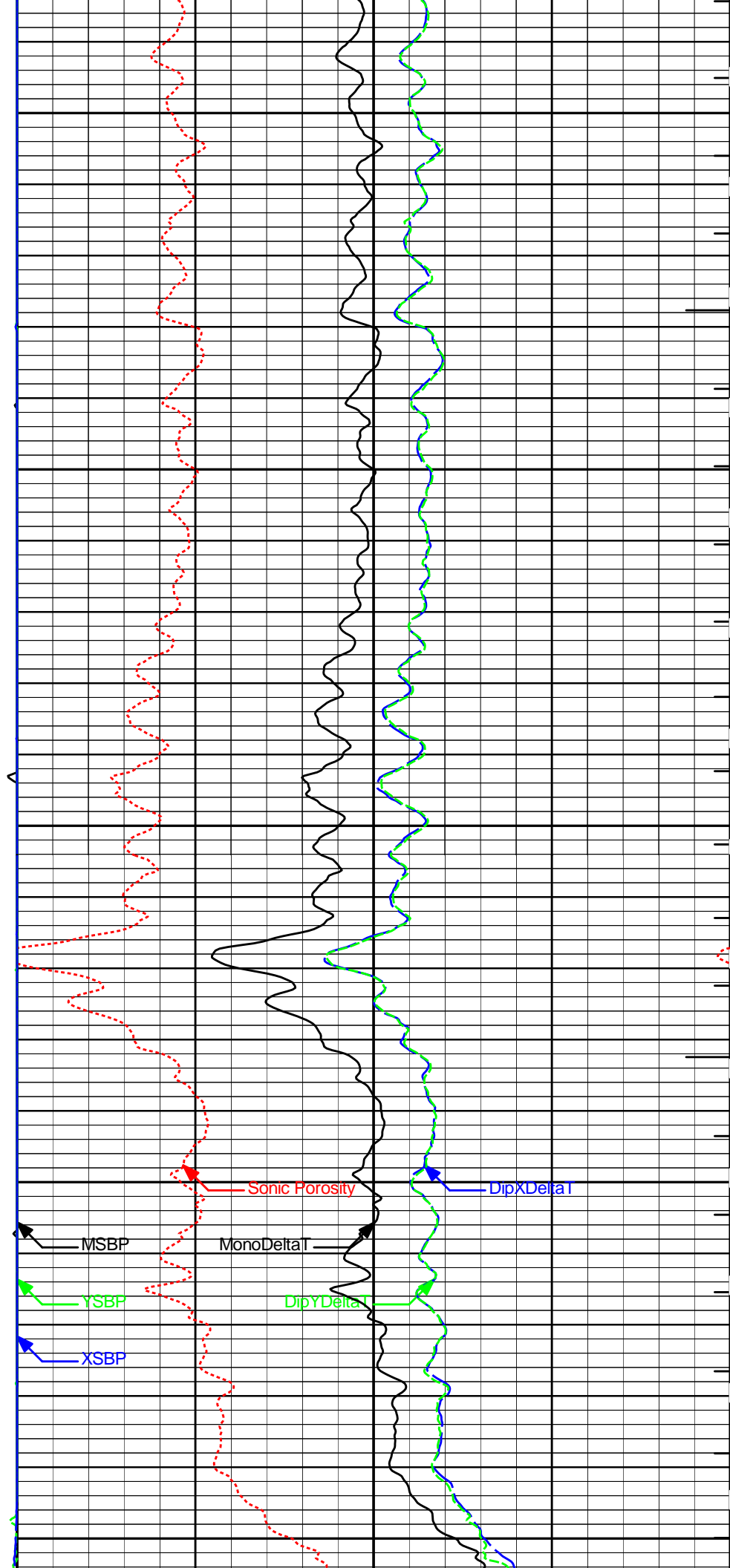
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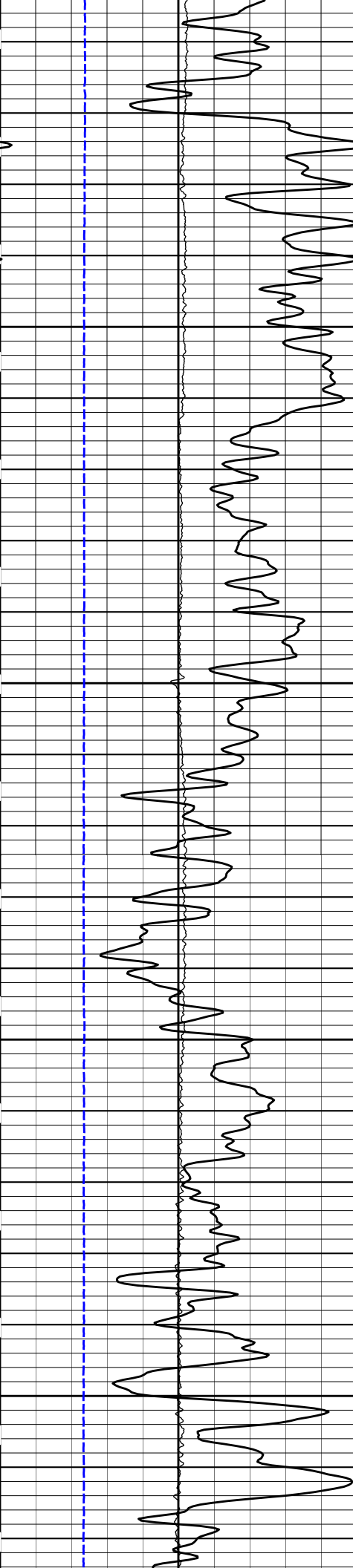
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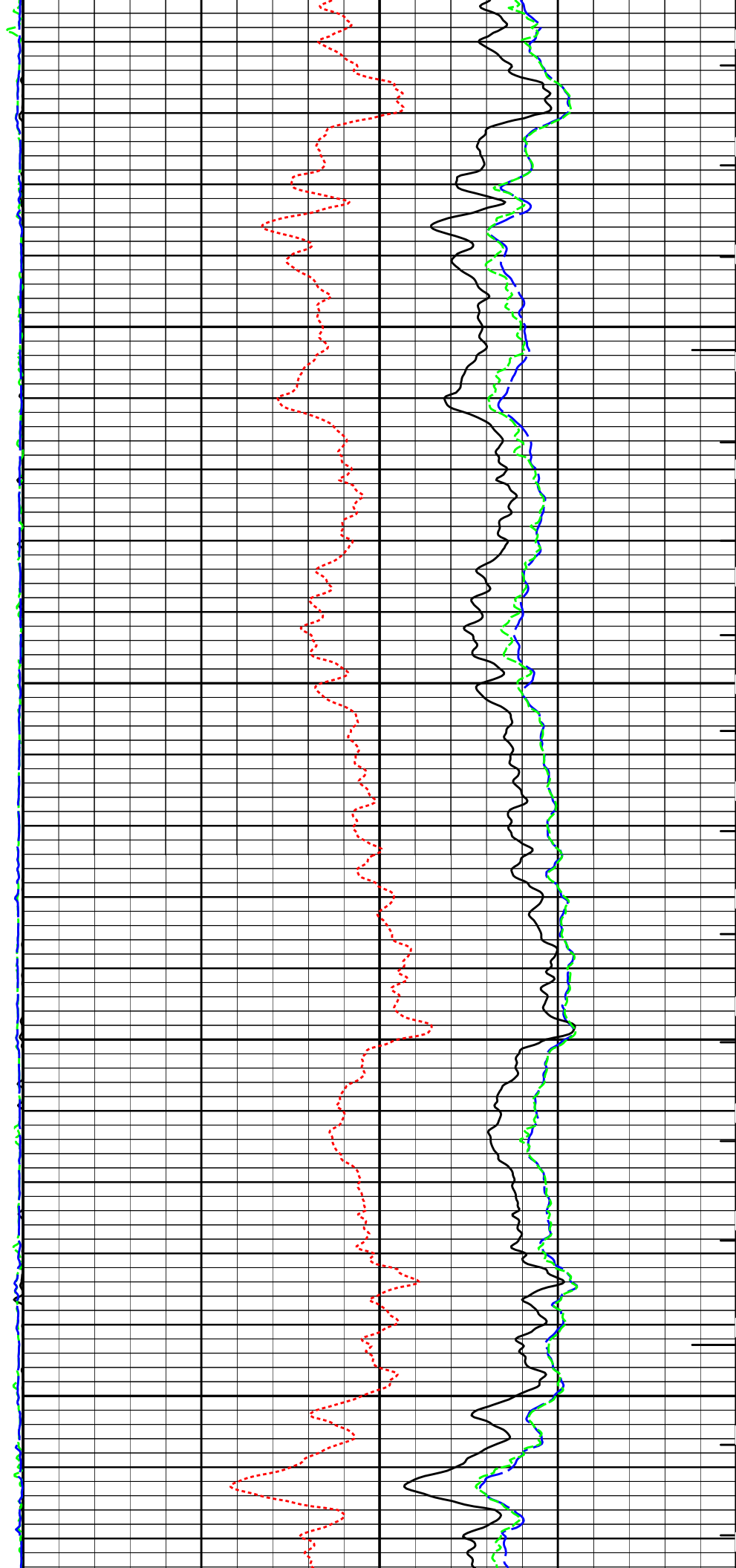


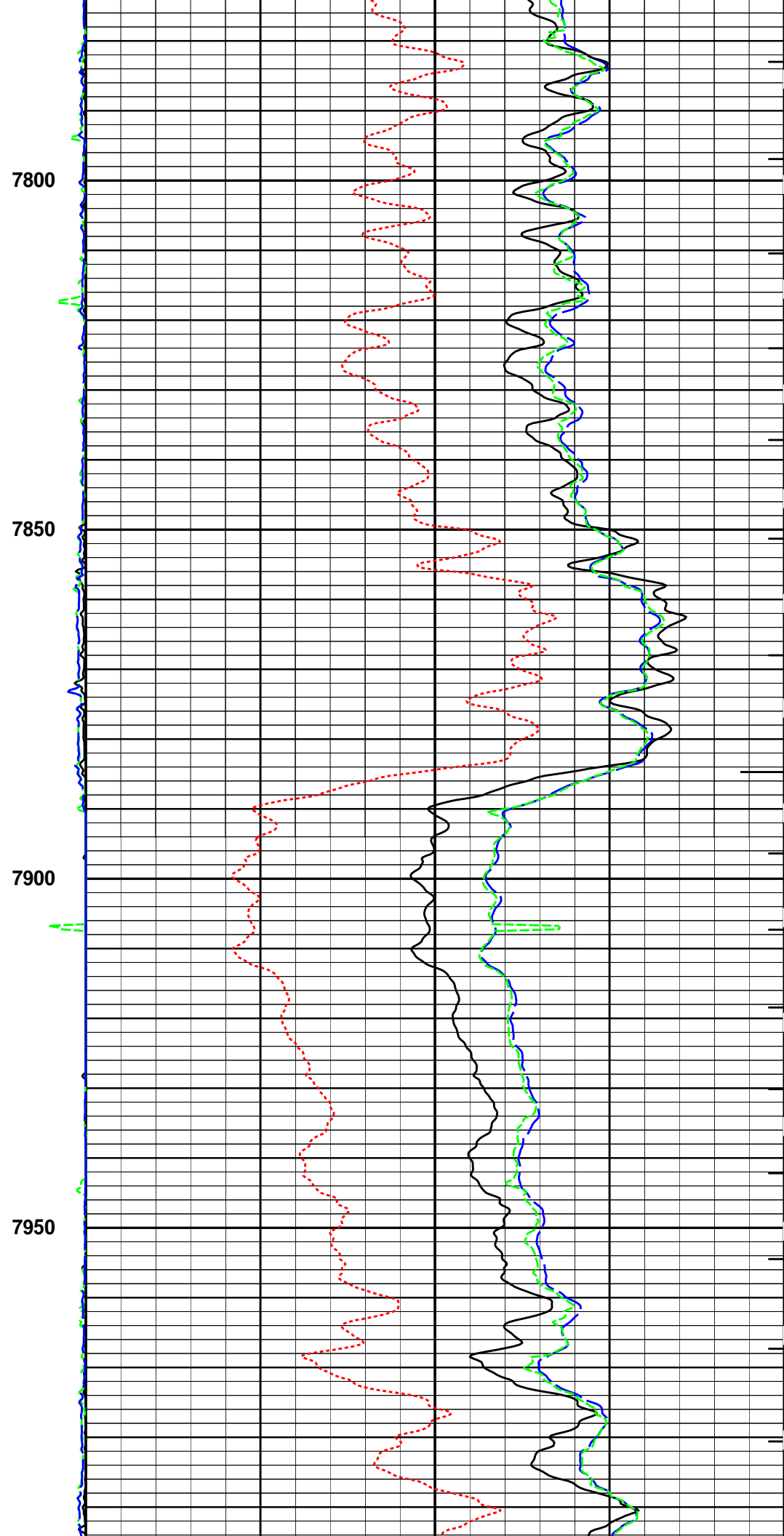
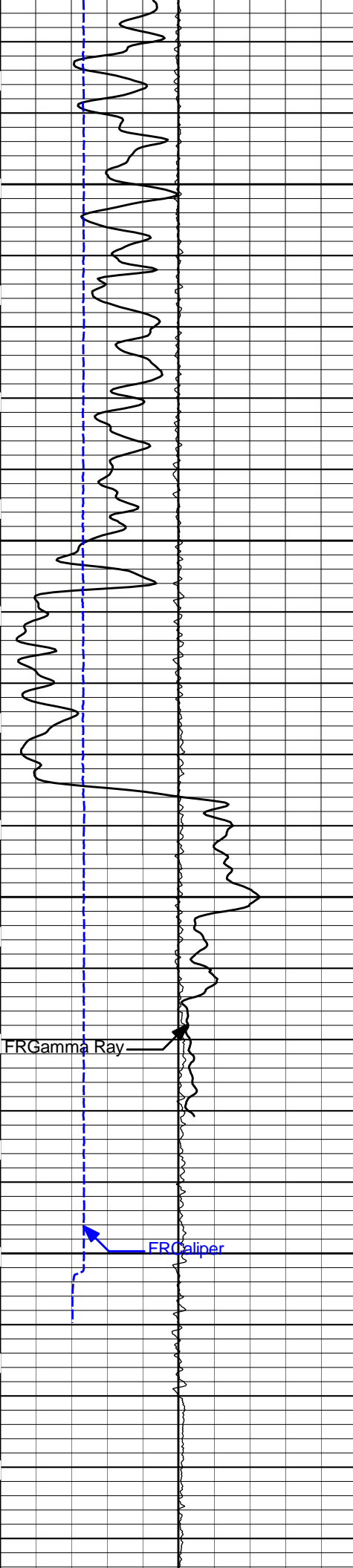
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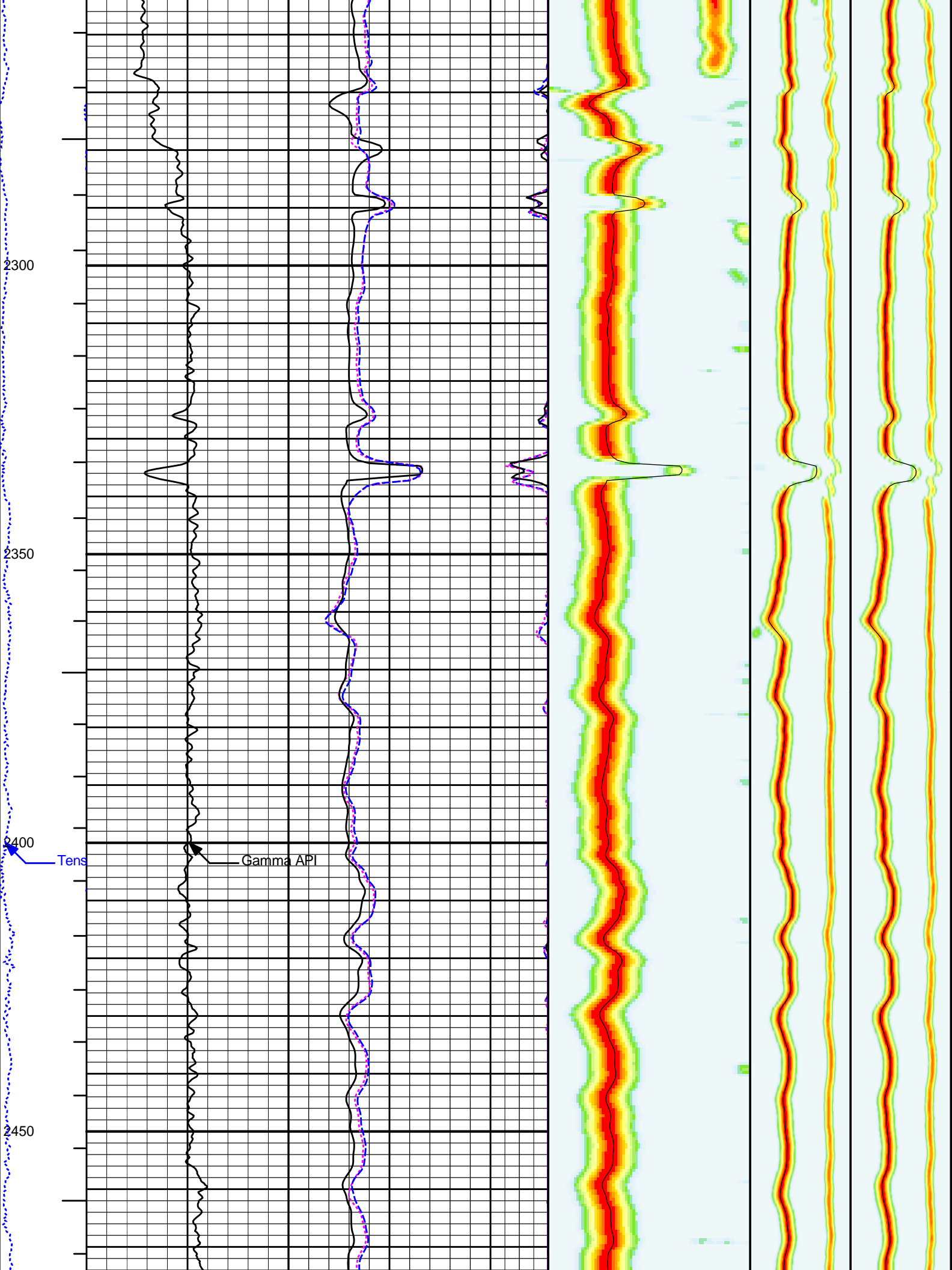
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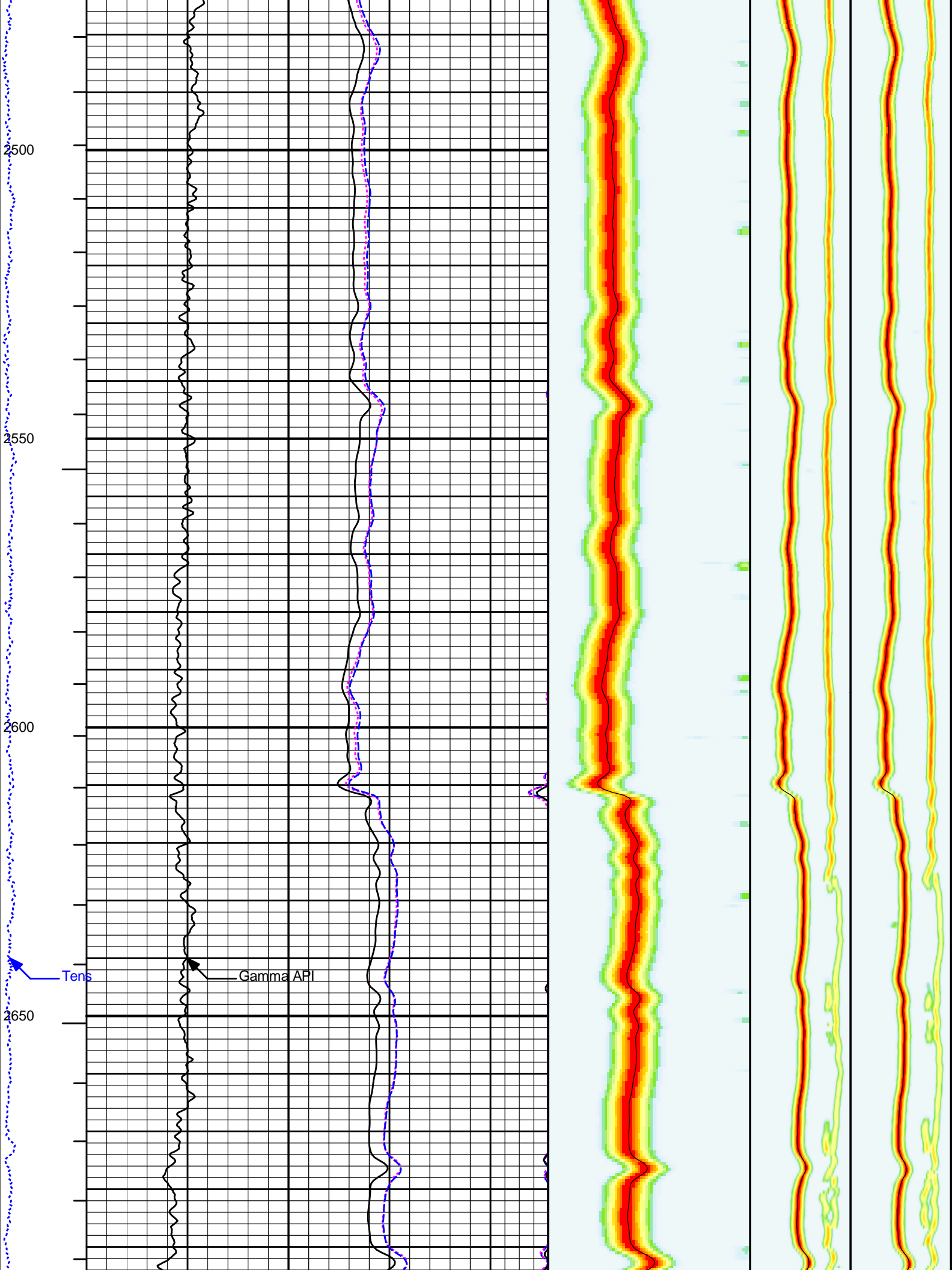
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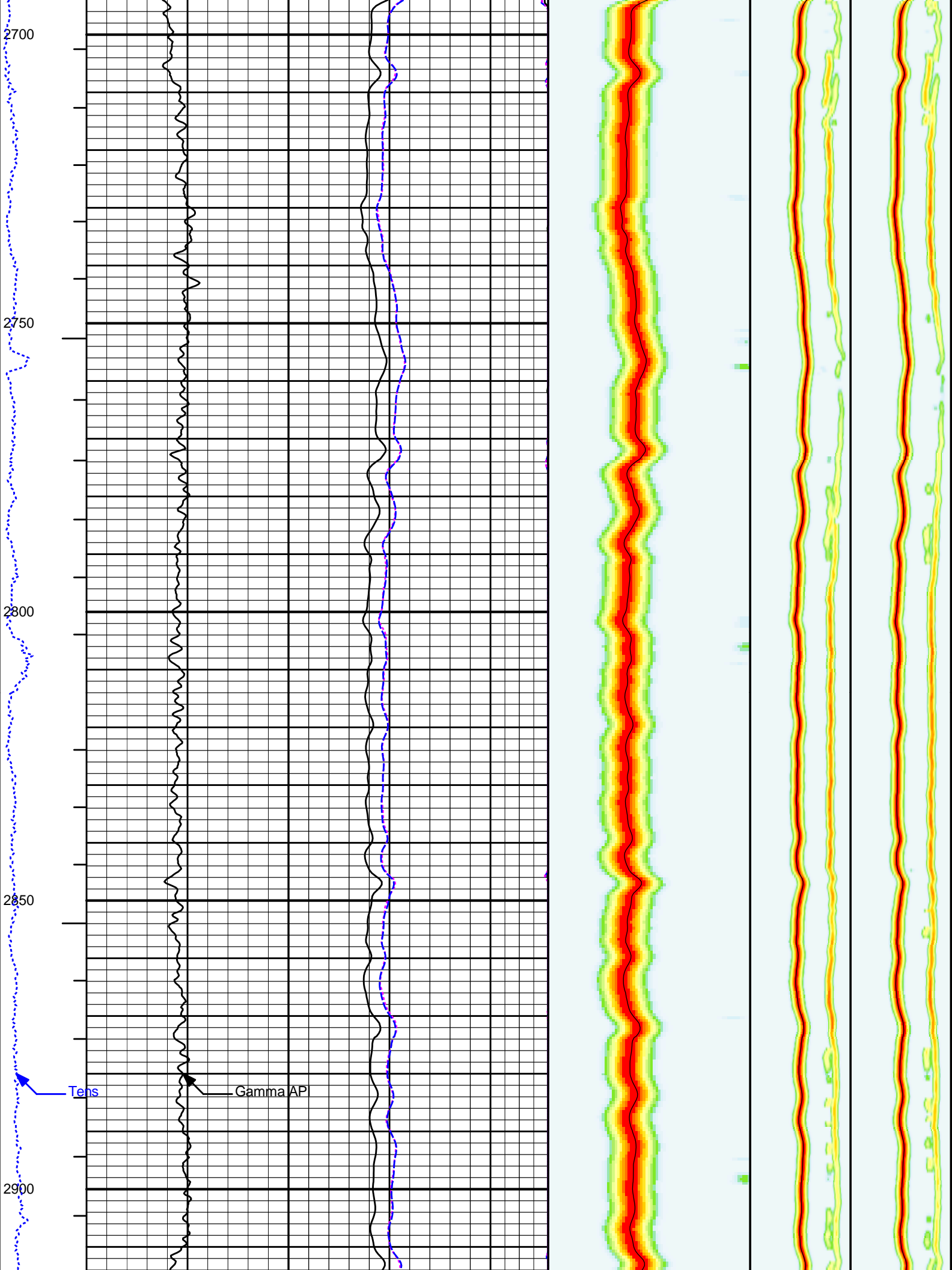


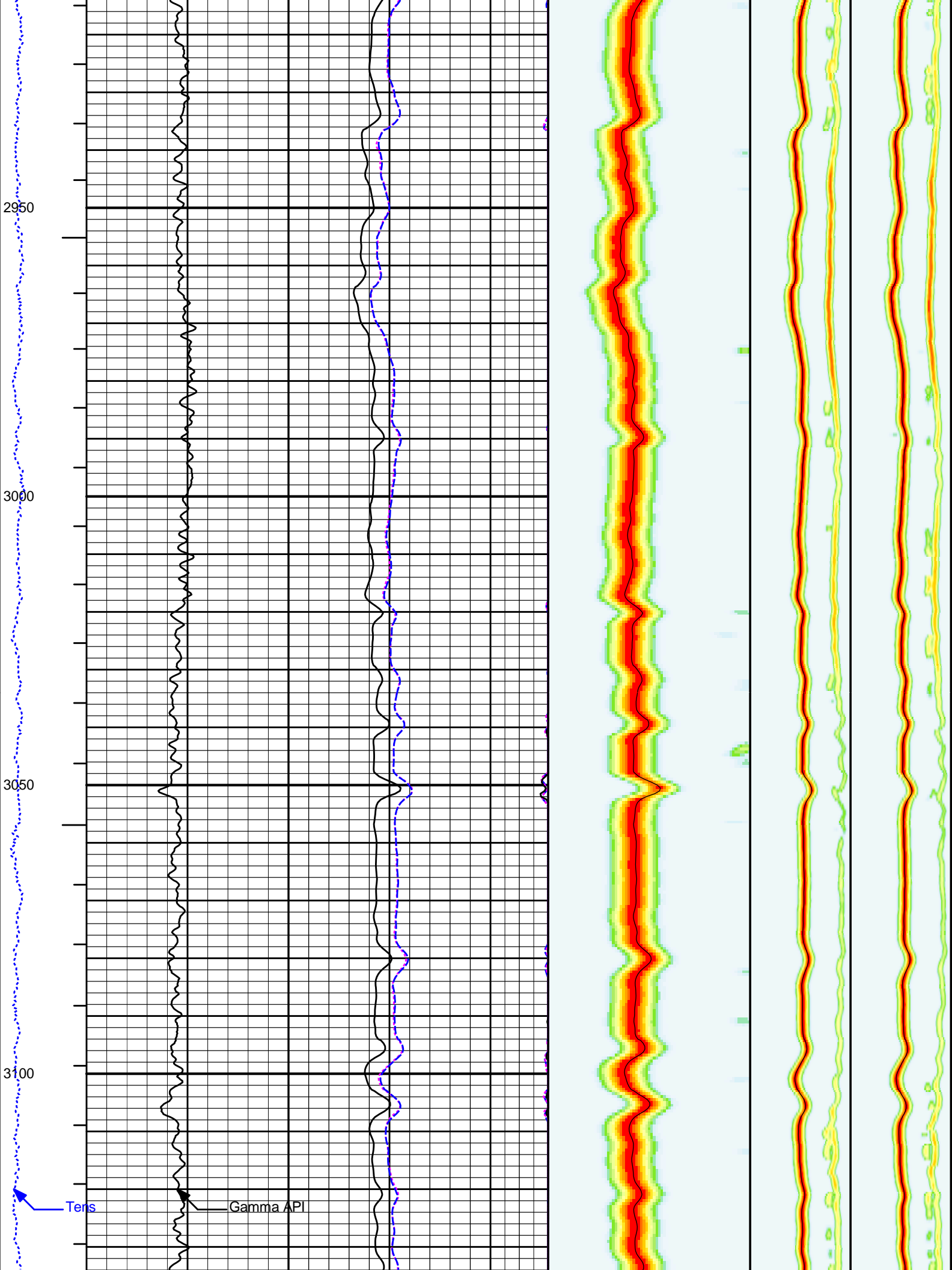


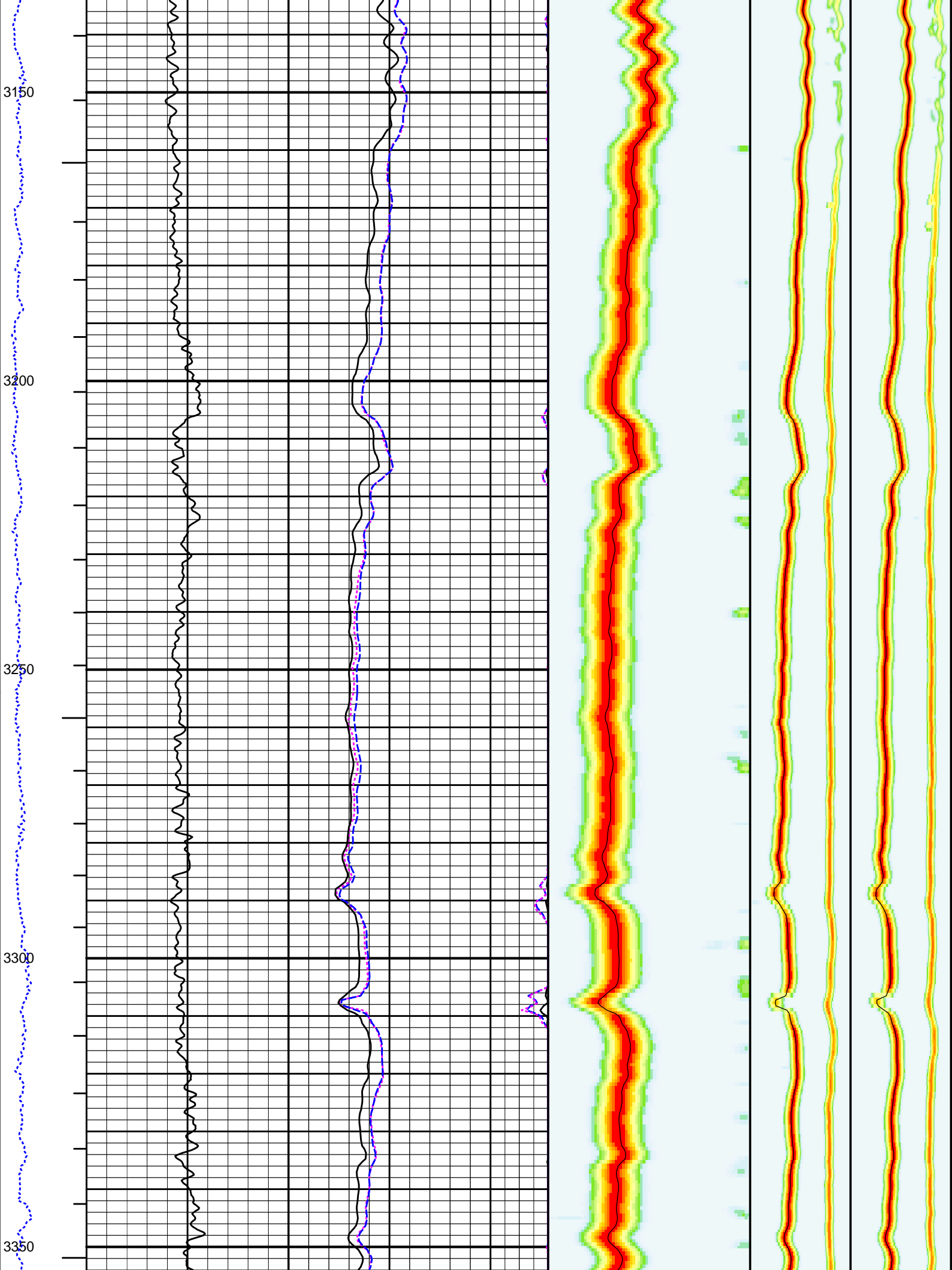
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1K Tens pounds	3K		350 DipXDeltaT 1 50 XSBP1 microsec per ft		140 MonoDeltaT 40	350 DipXDeltaT 50 microsec per ft	350 DipYDeltaT 50 microsec per ft			
1 : 240	Gamma API	200	140 MonoDeltaT 1 40 MSBP1 api microsec per ft		140 Mono Semb Vec 40	Dip X Semb Wave 80	Dip Y Semb Wave 80			
Z-250										

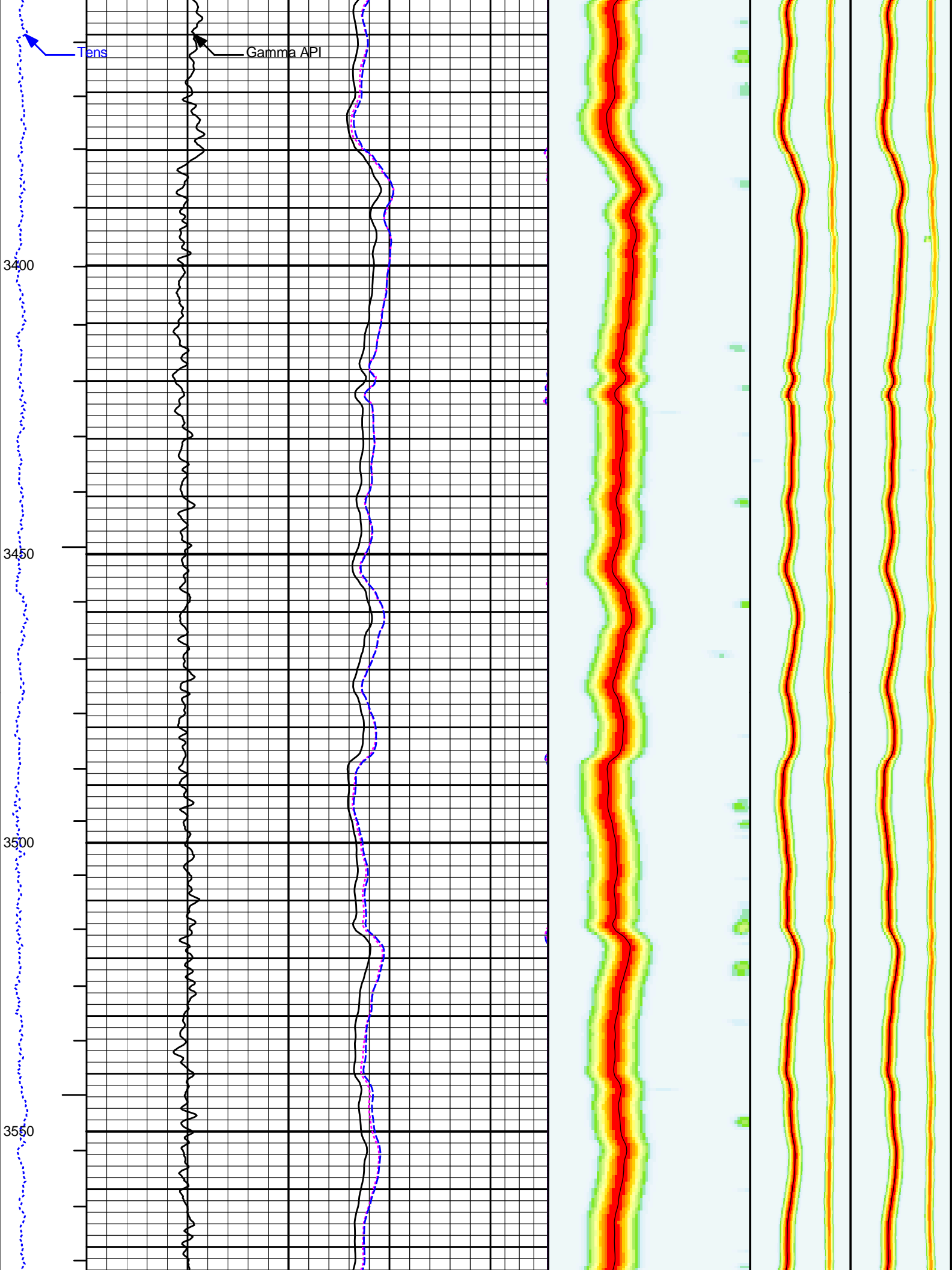


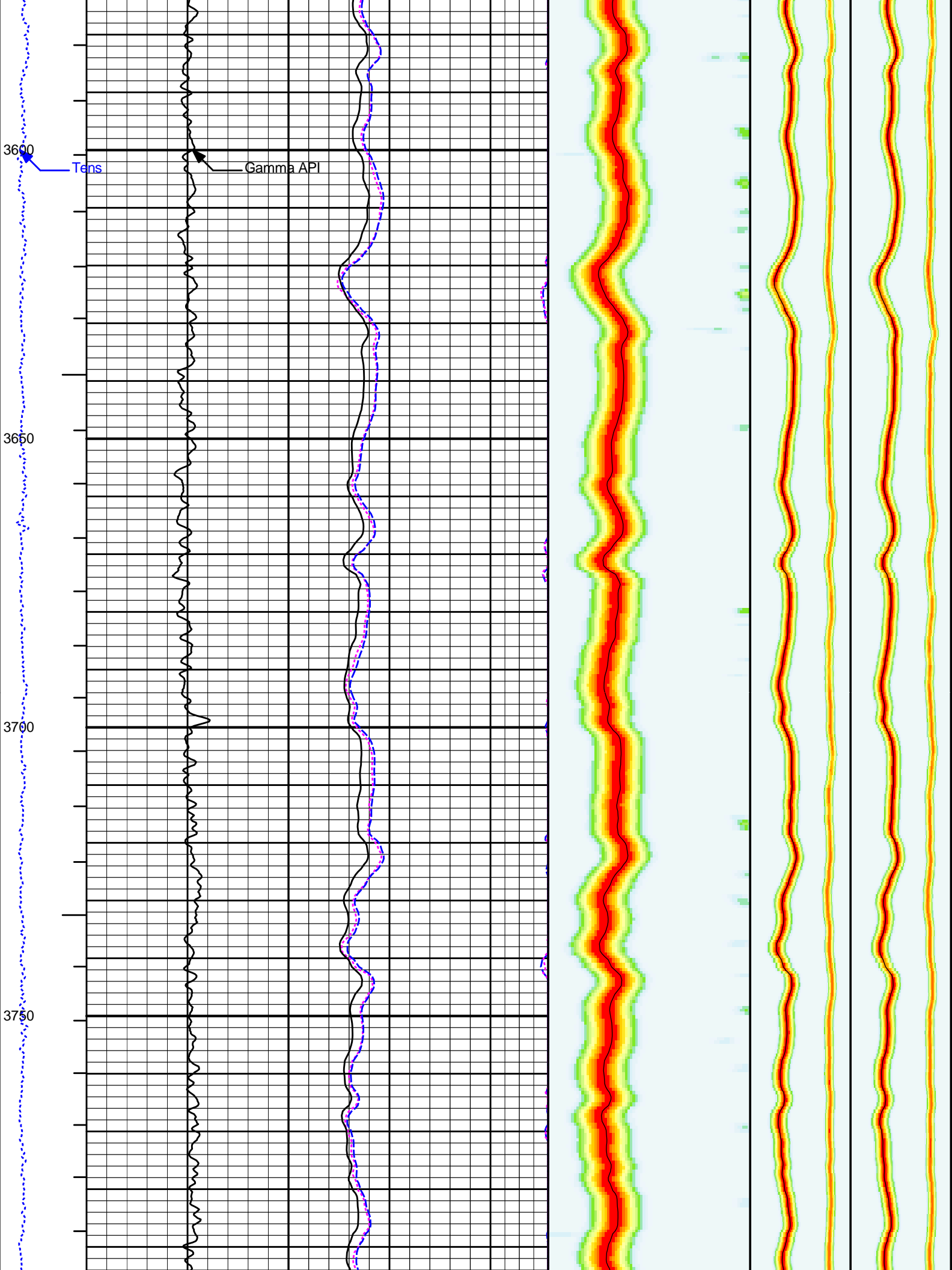


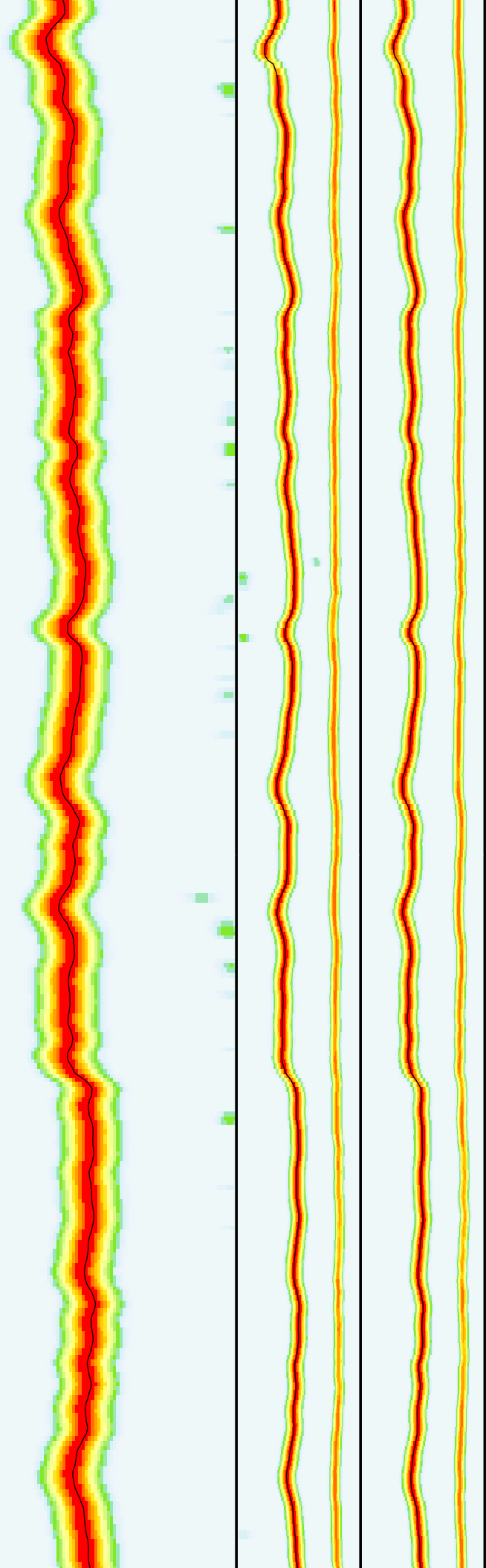
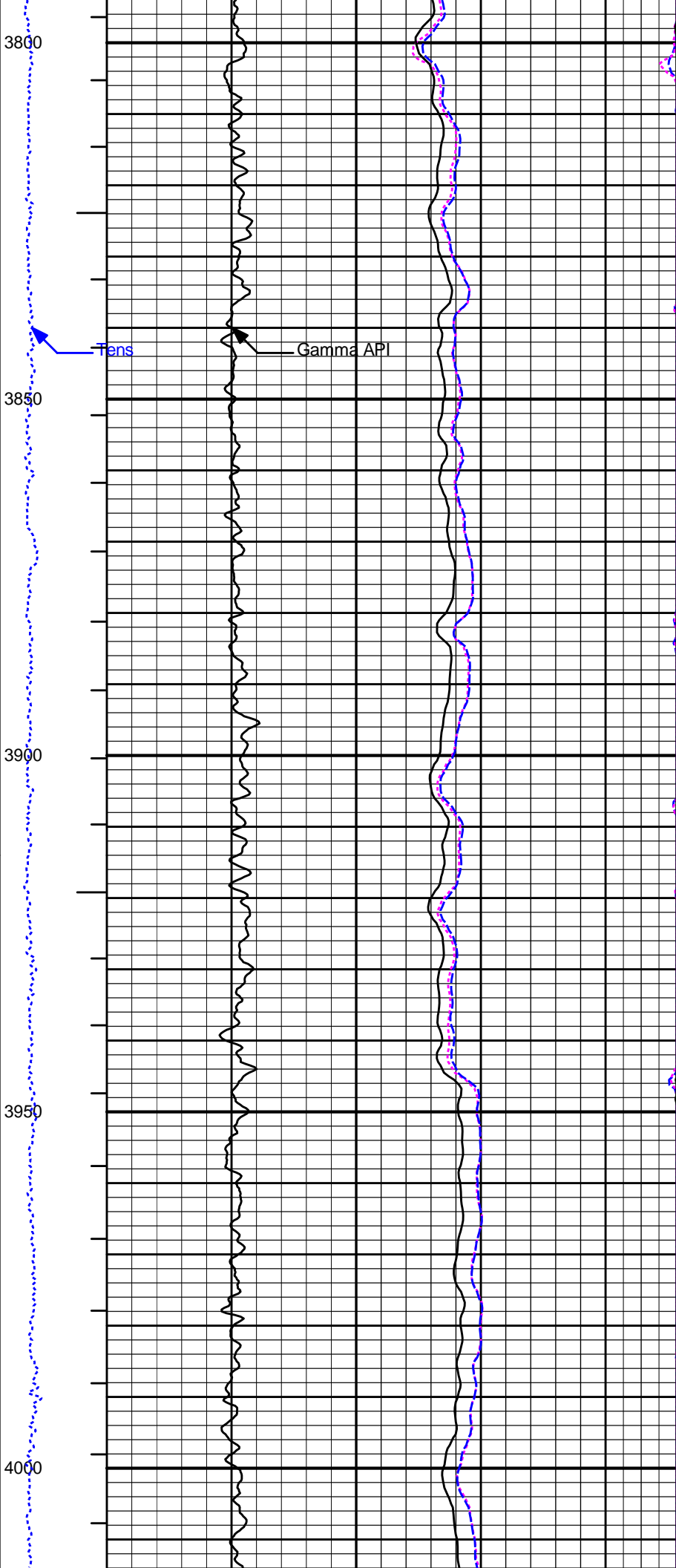


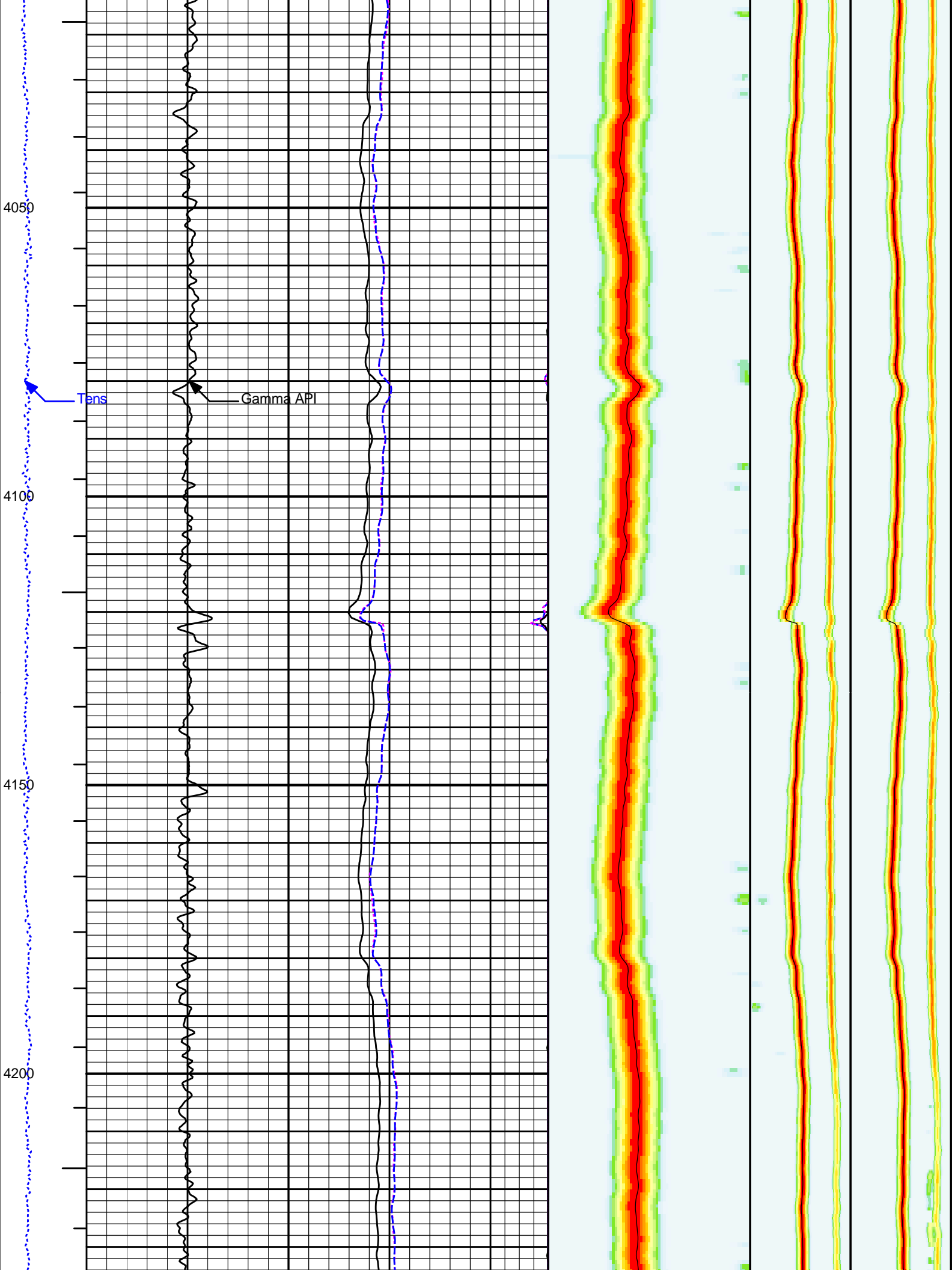


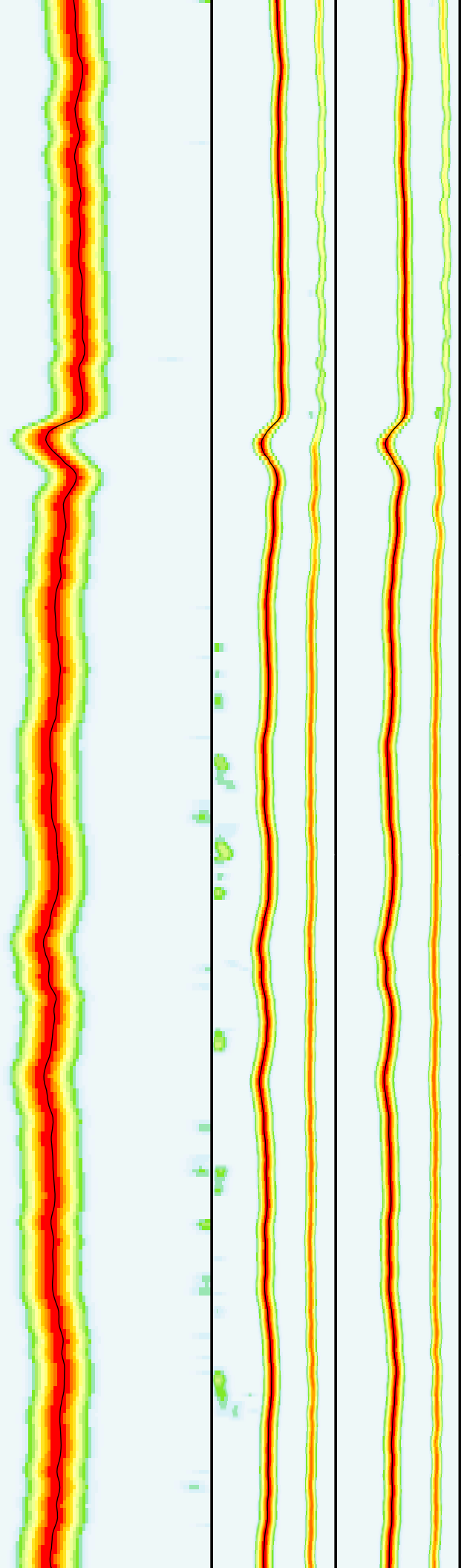
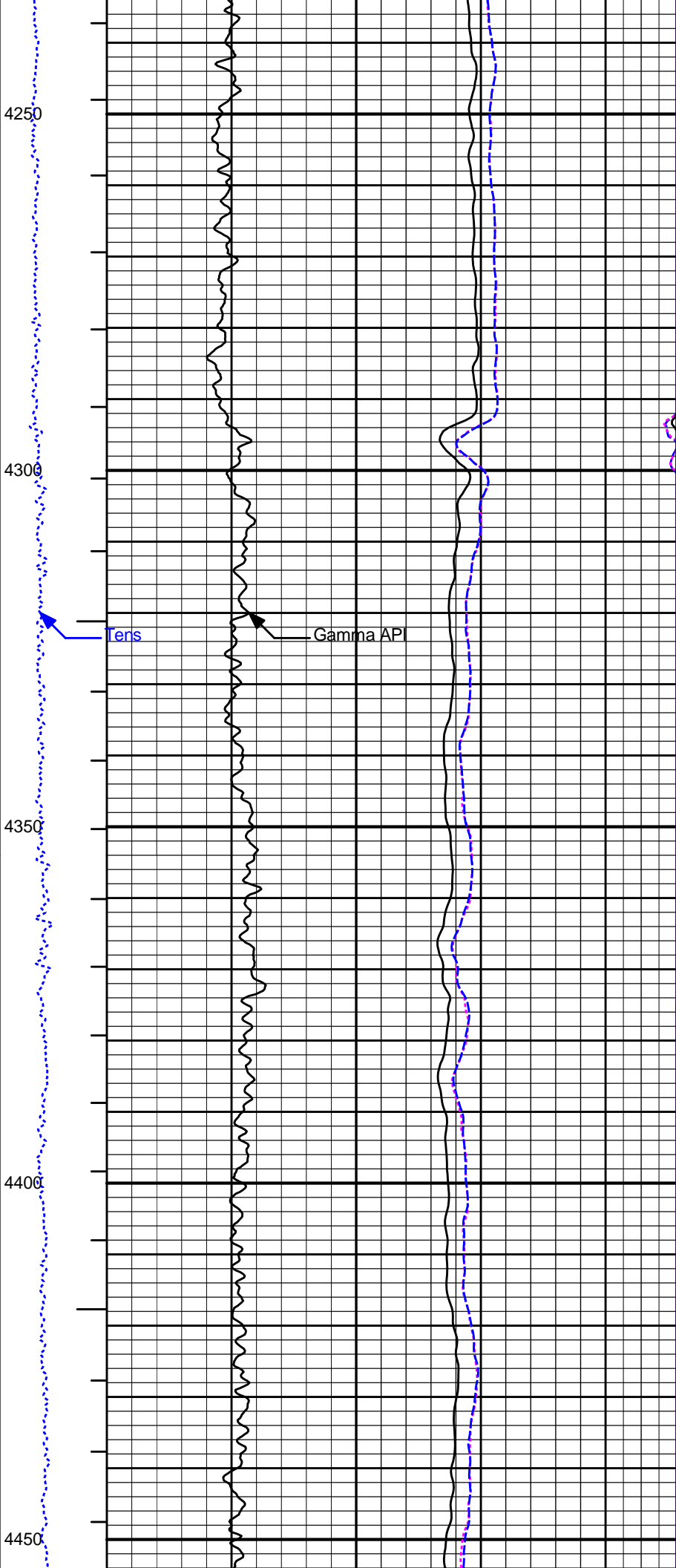


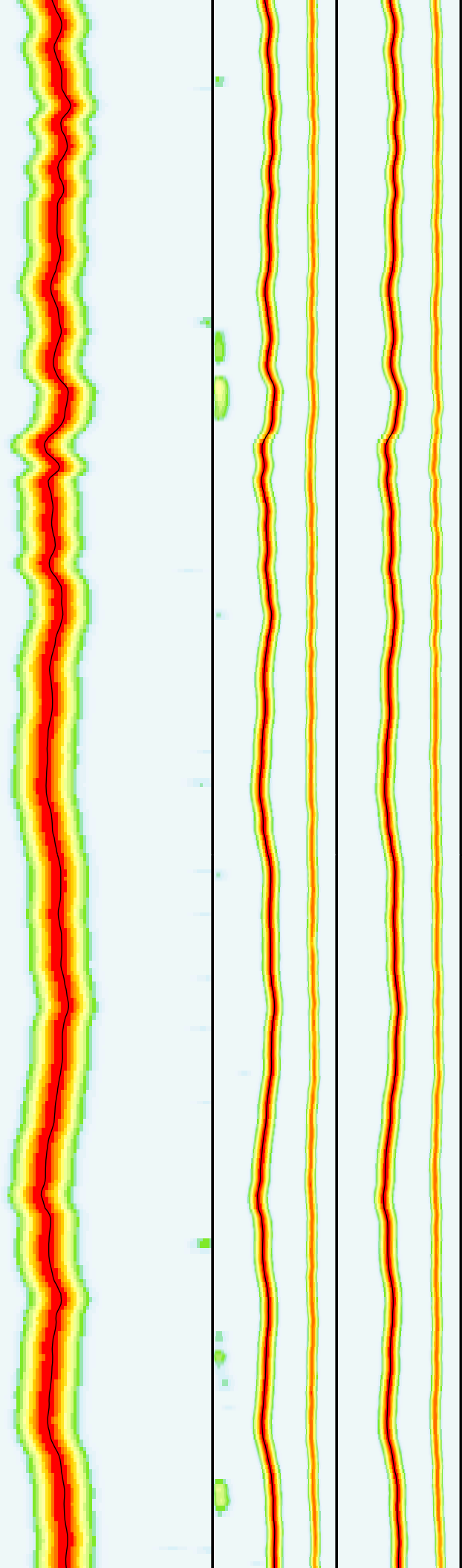
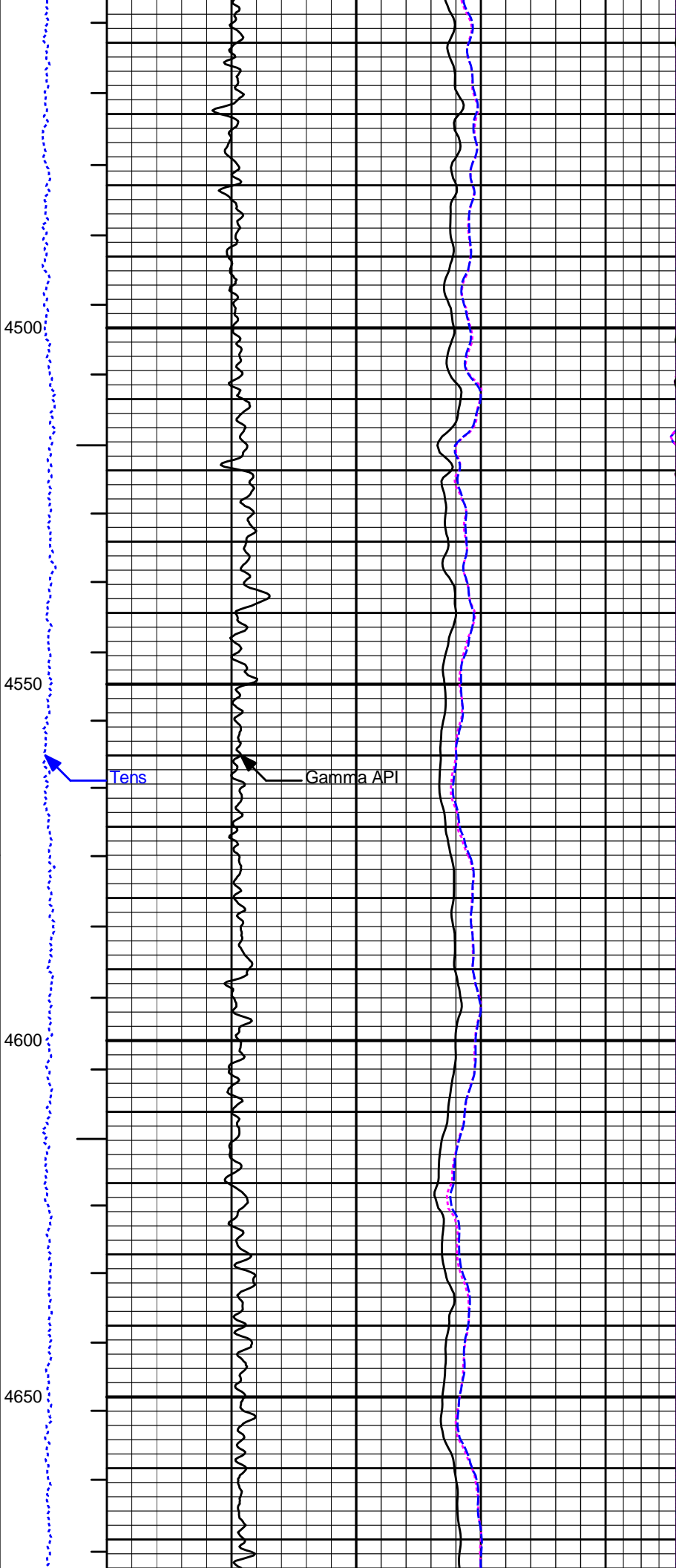


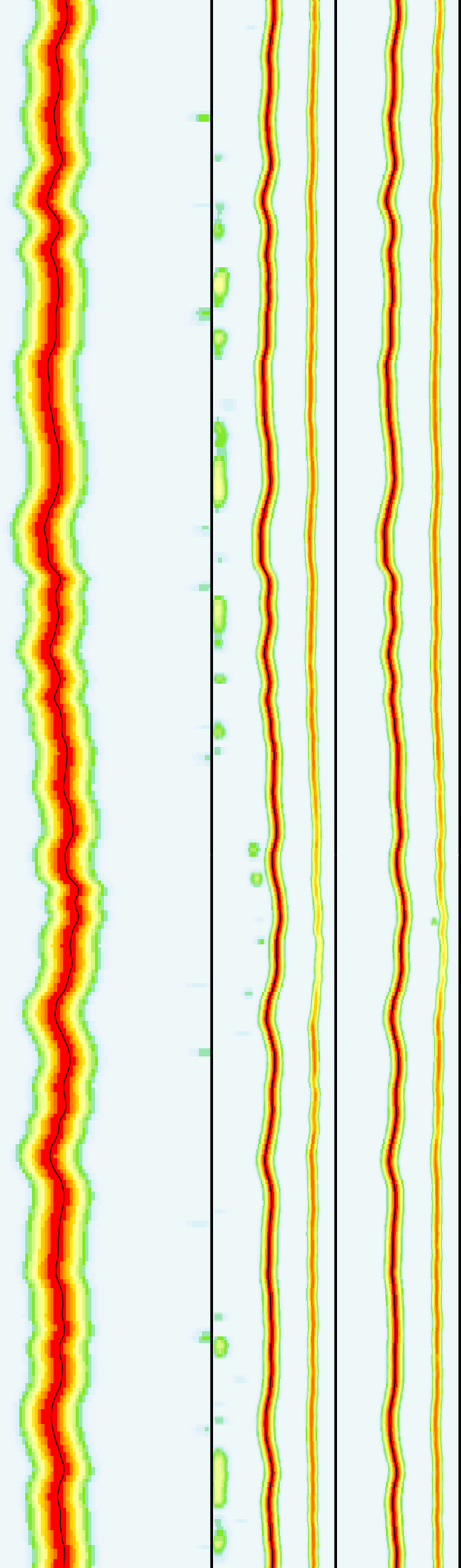
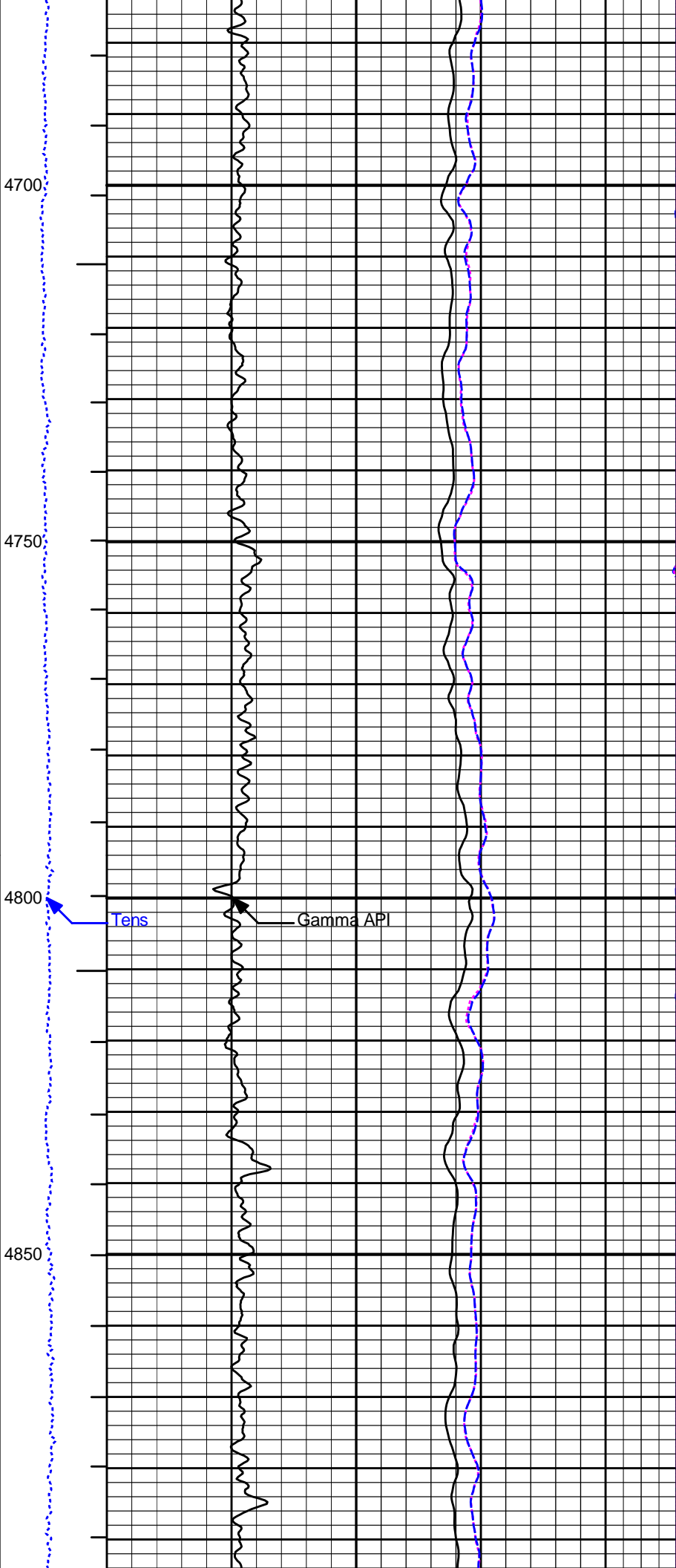


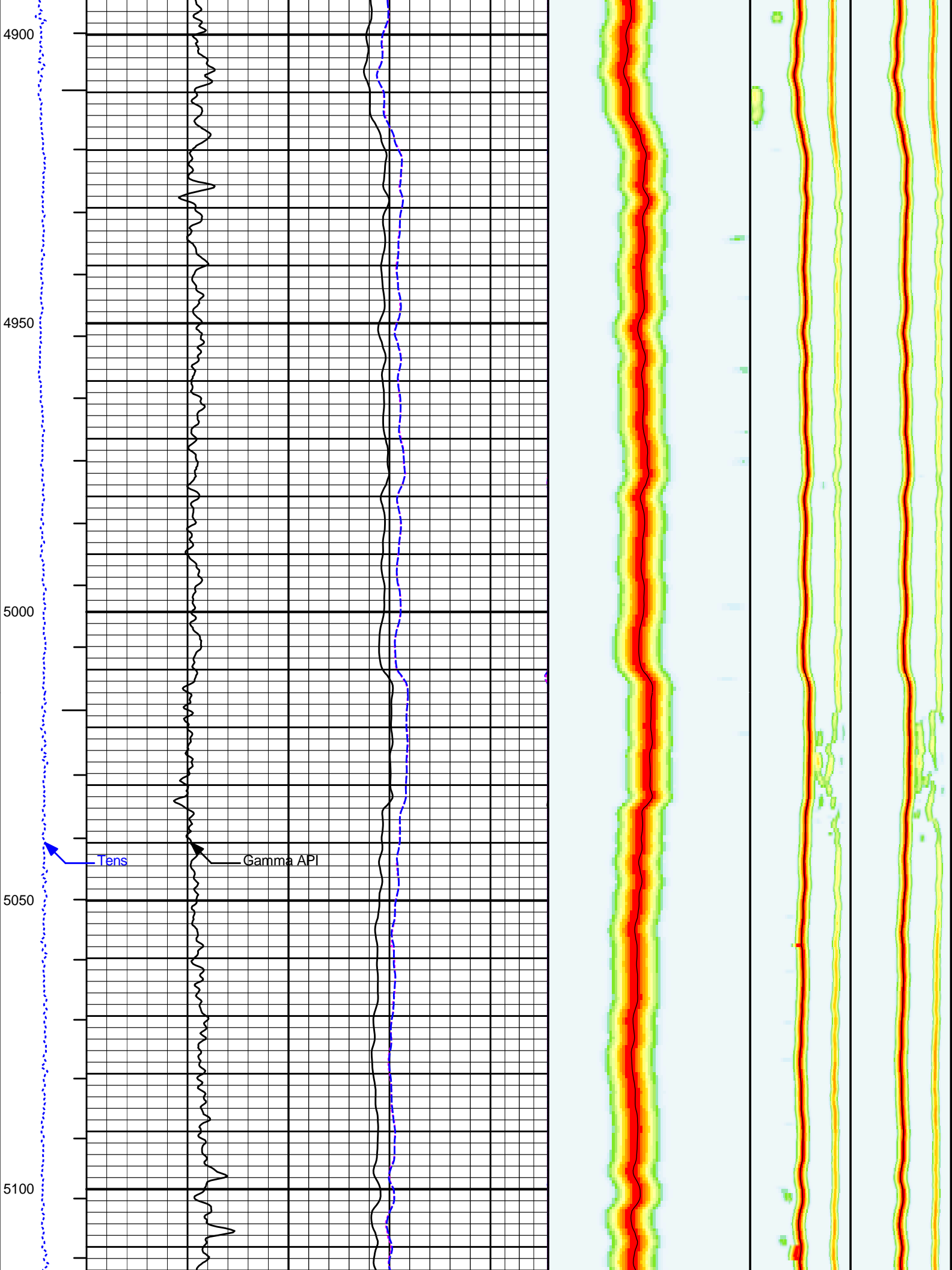


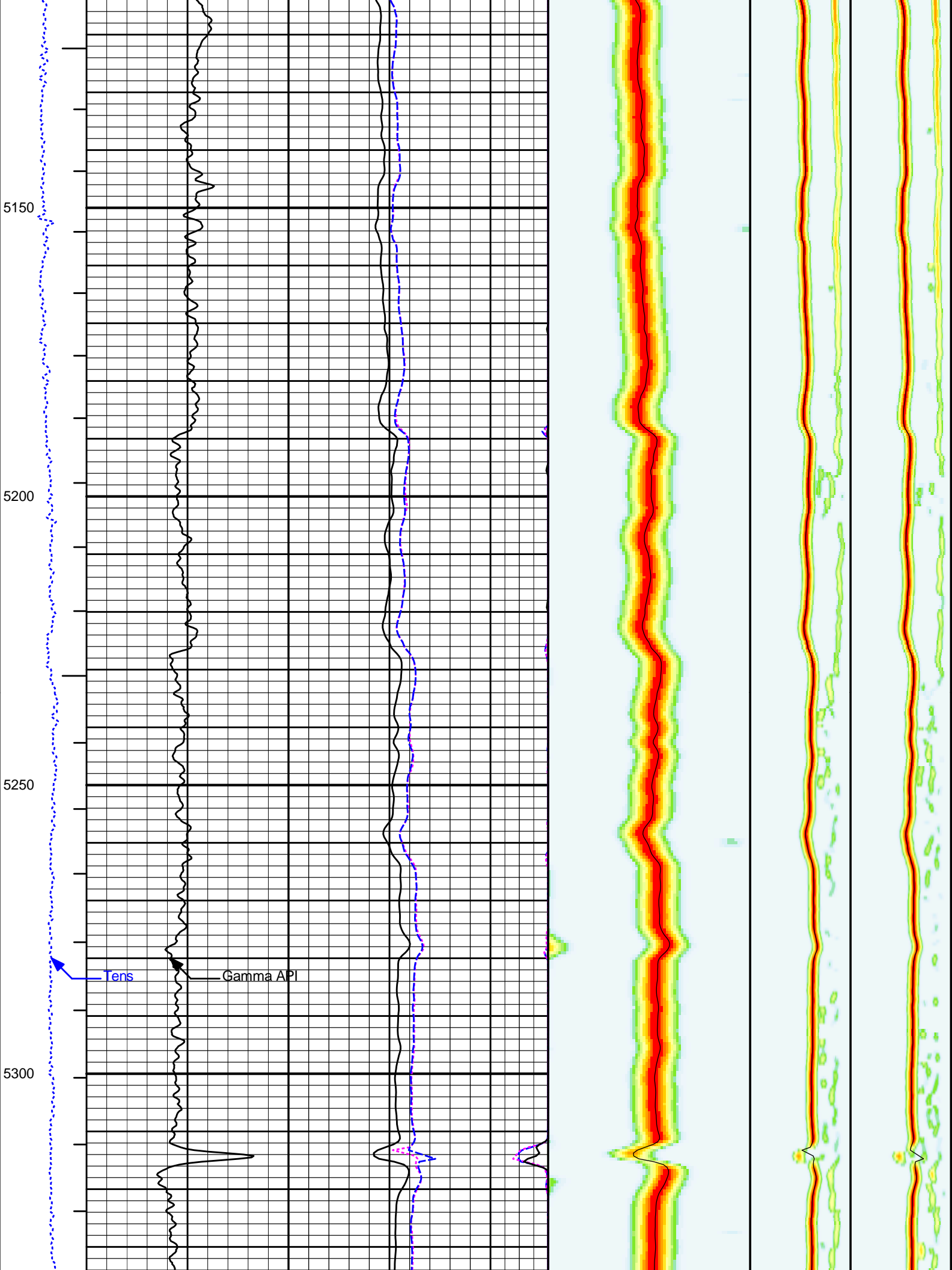


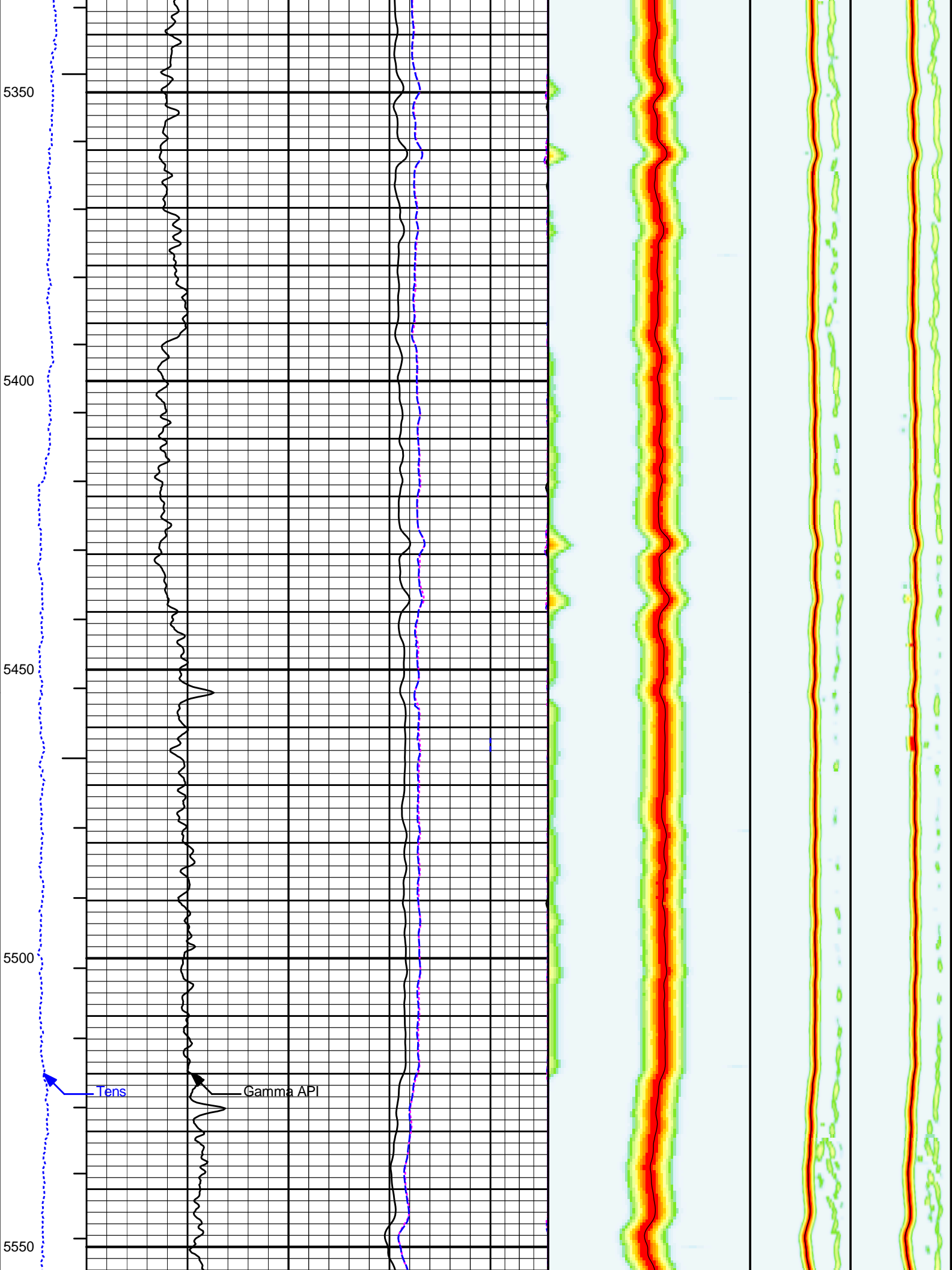


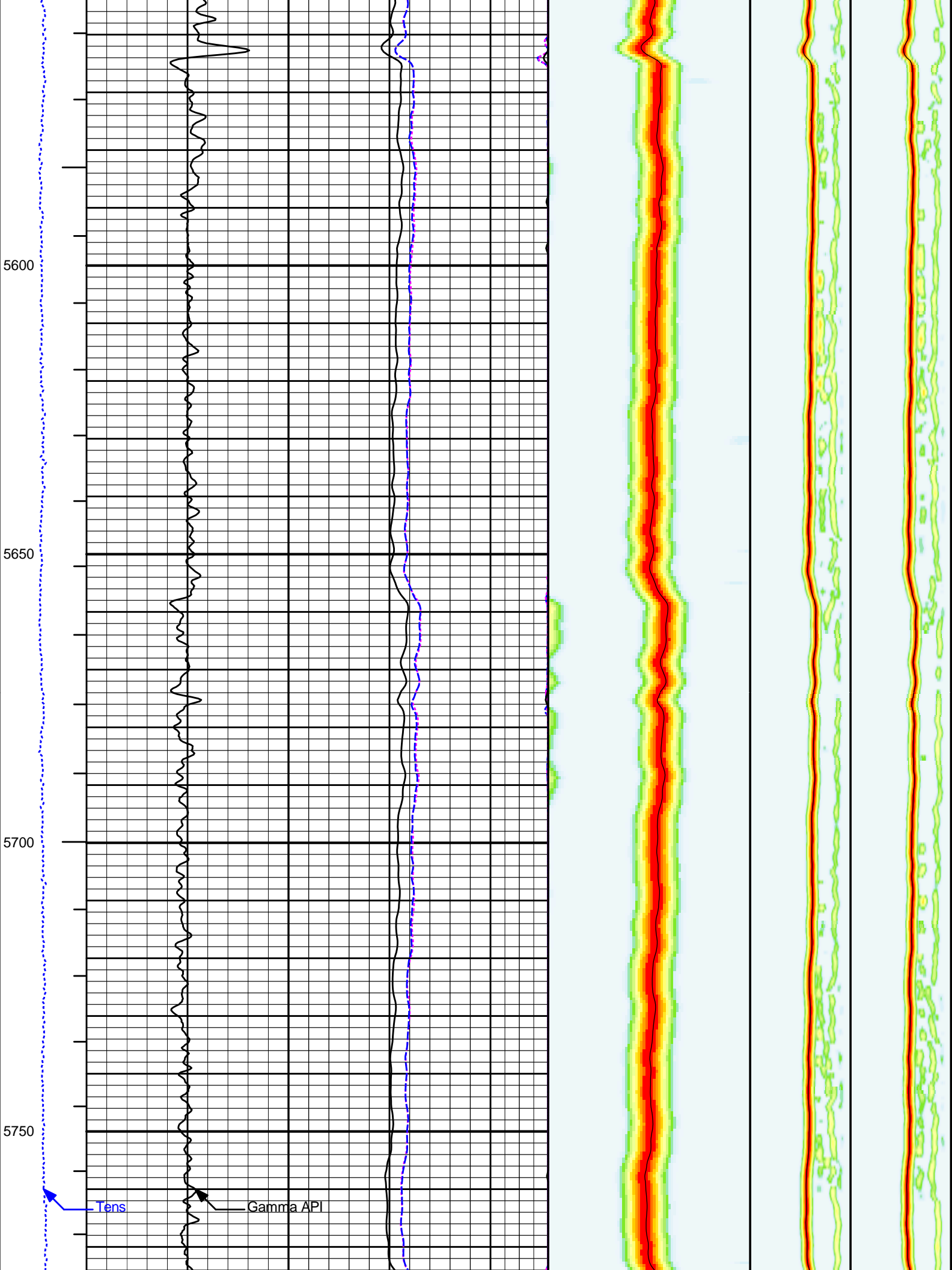


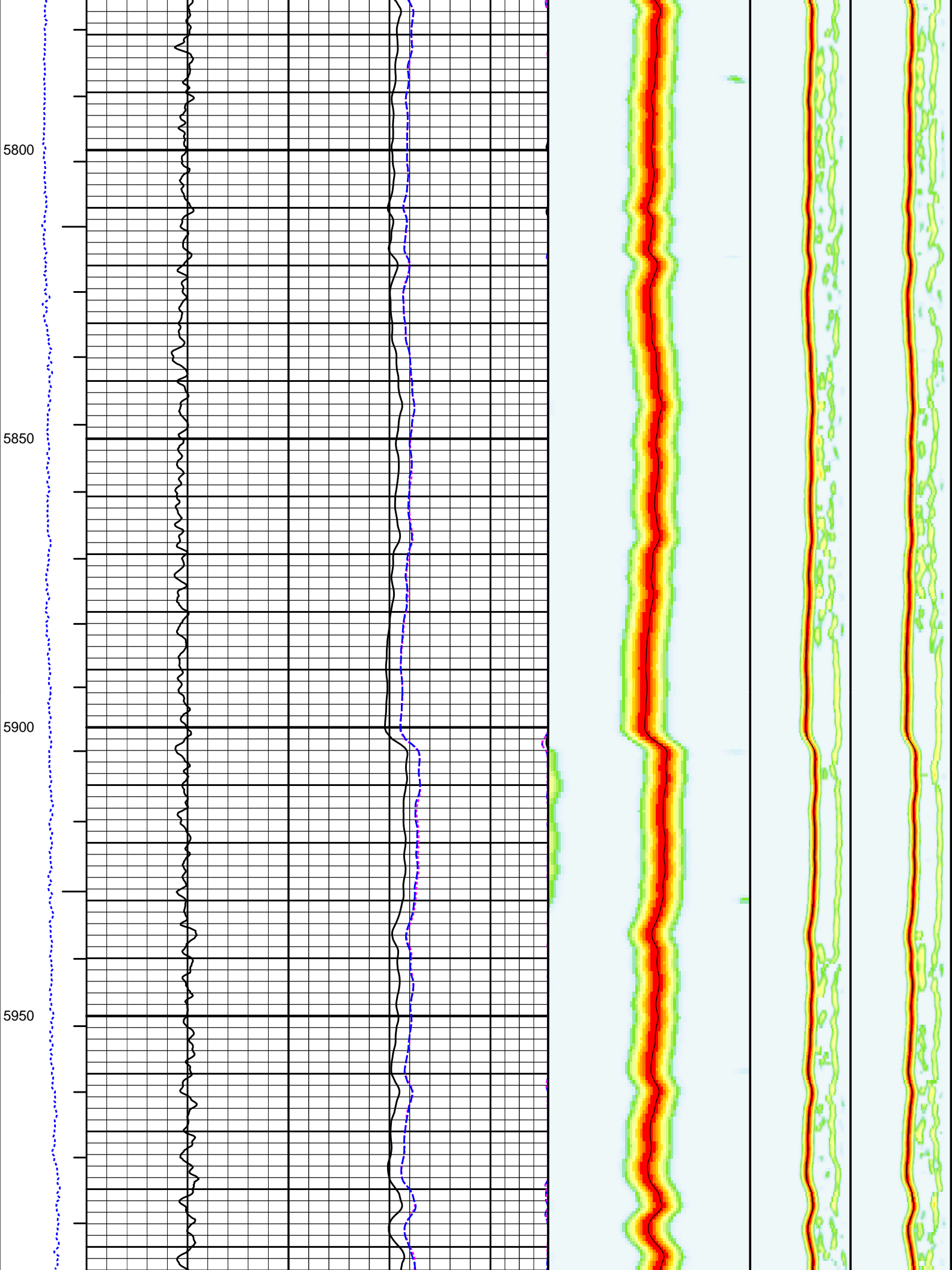


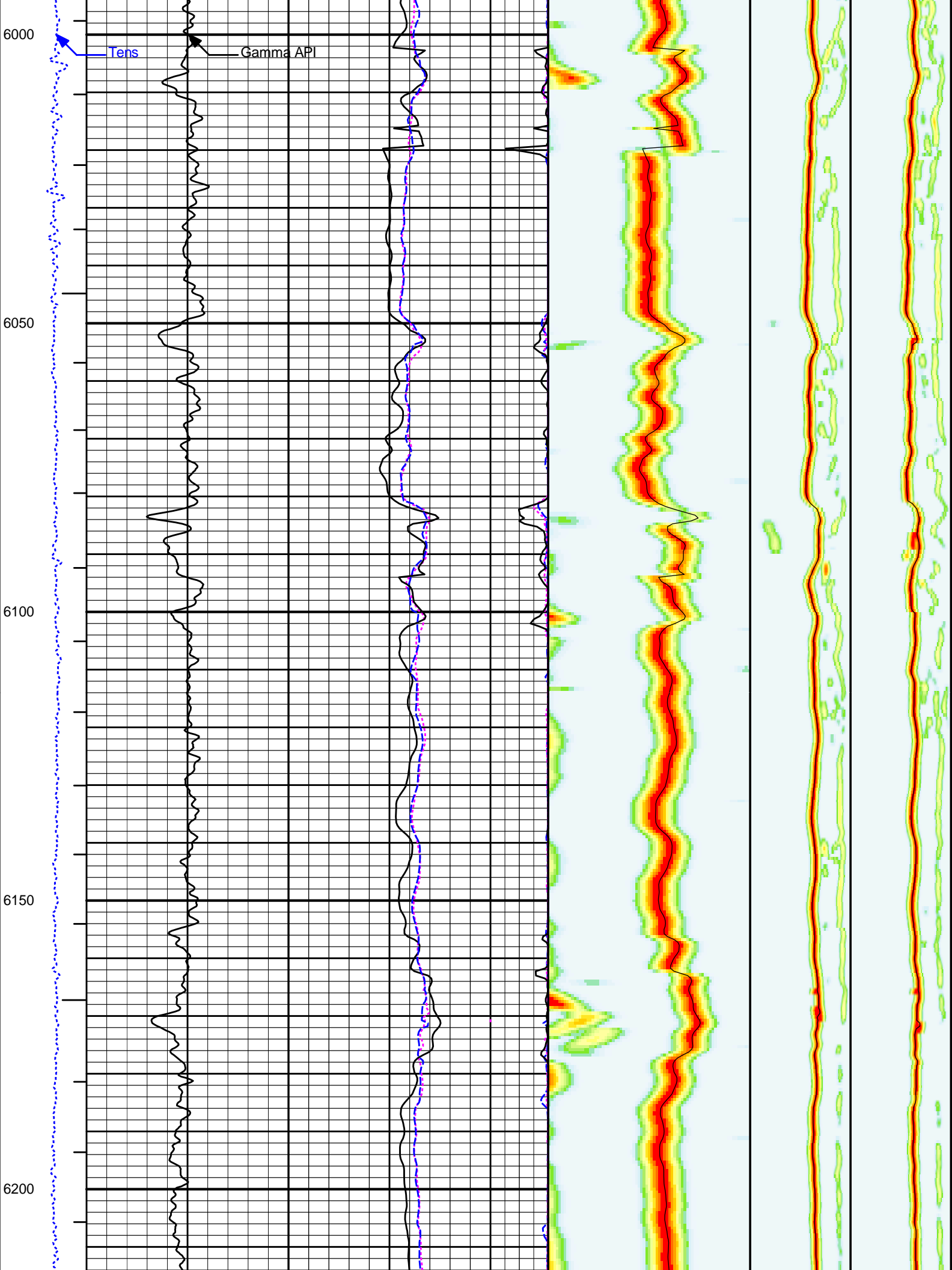


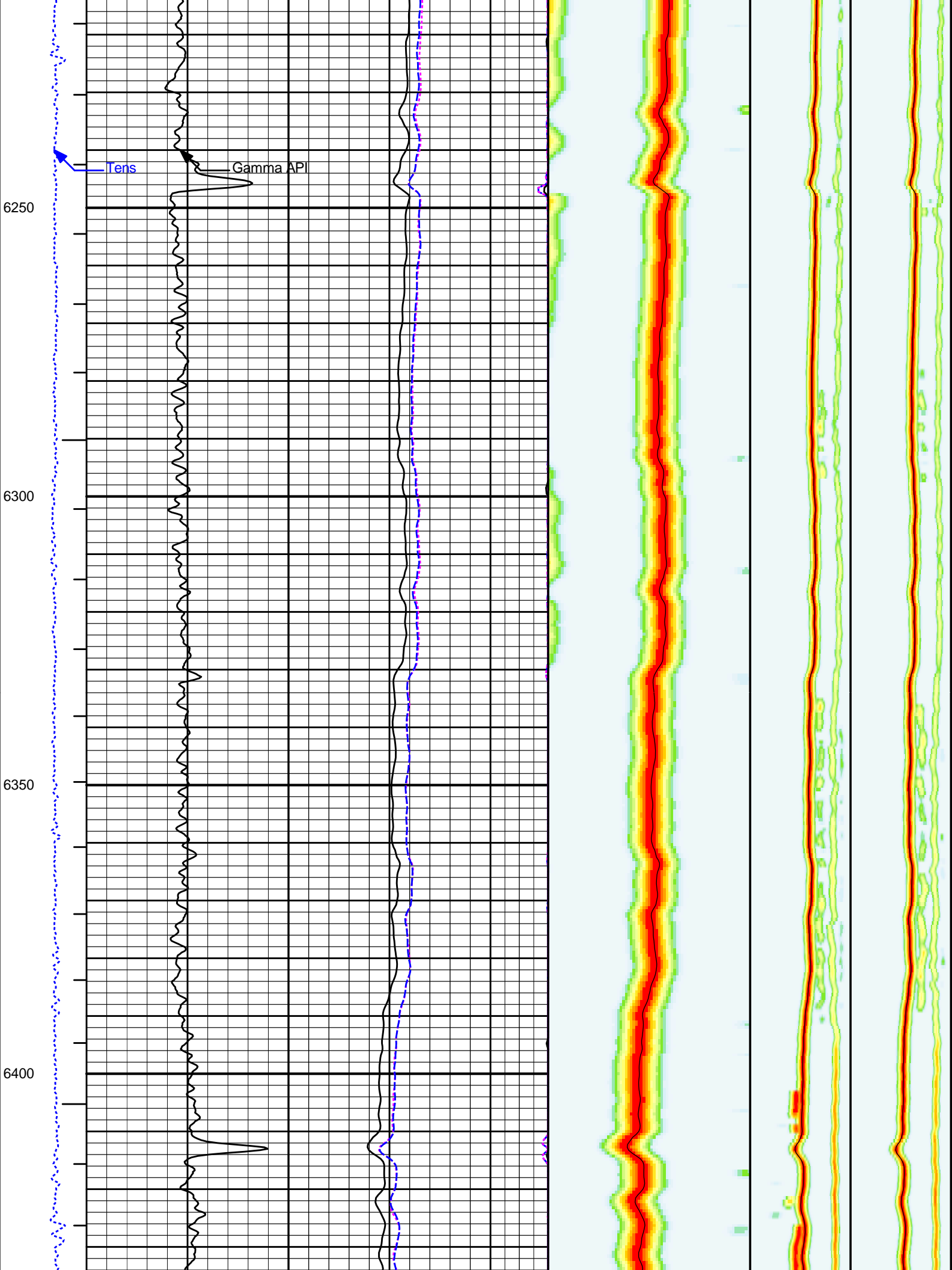


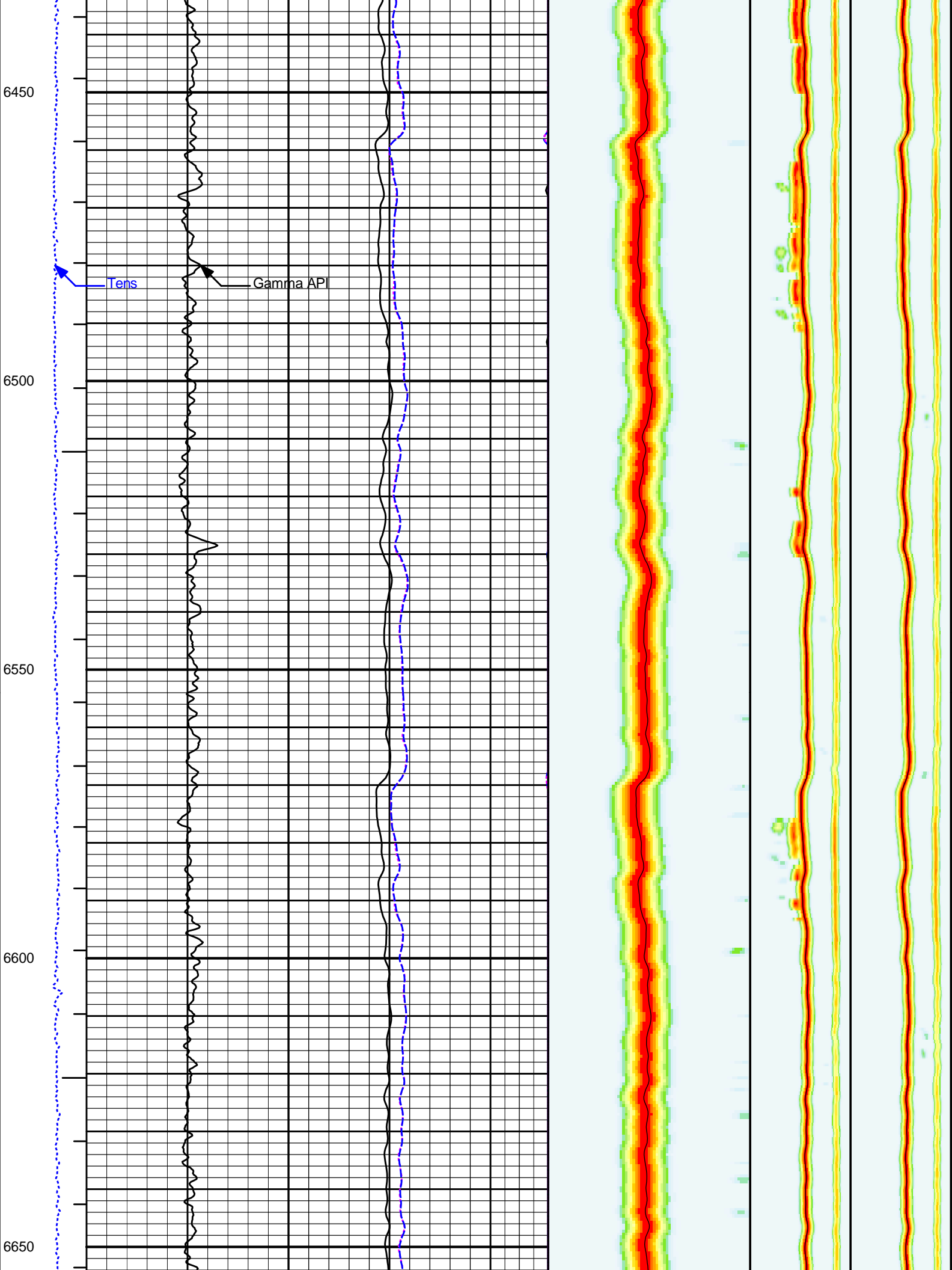


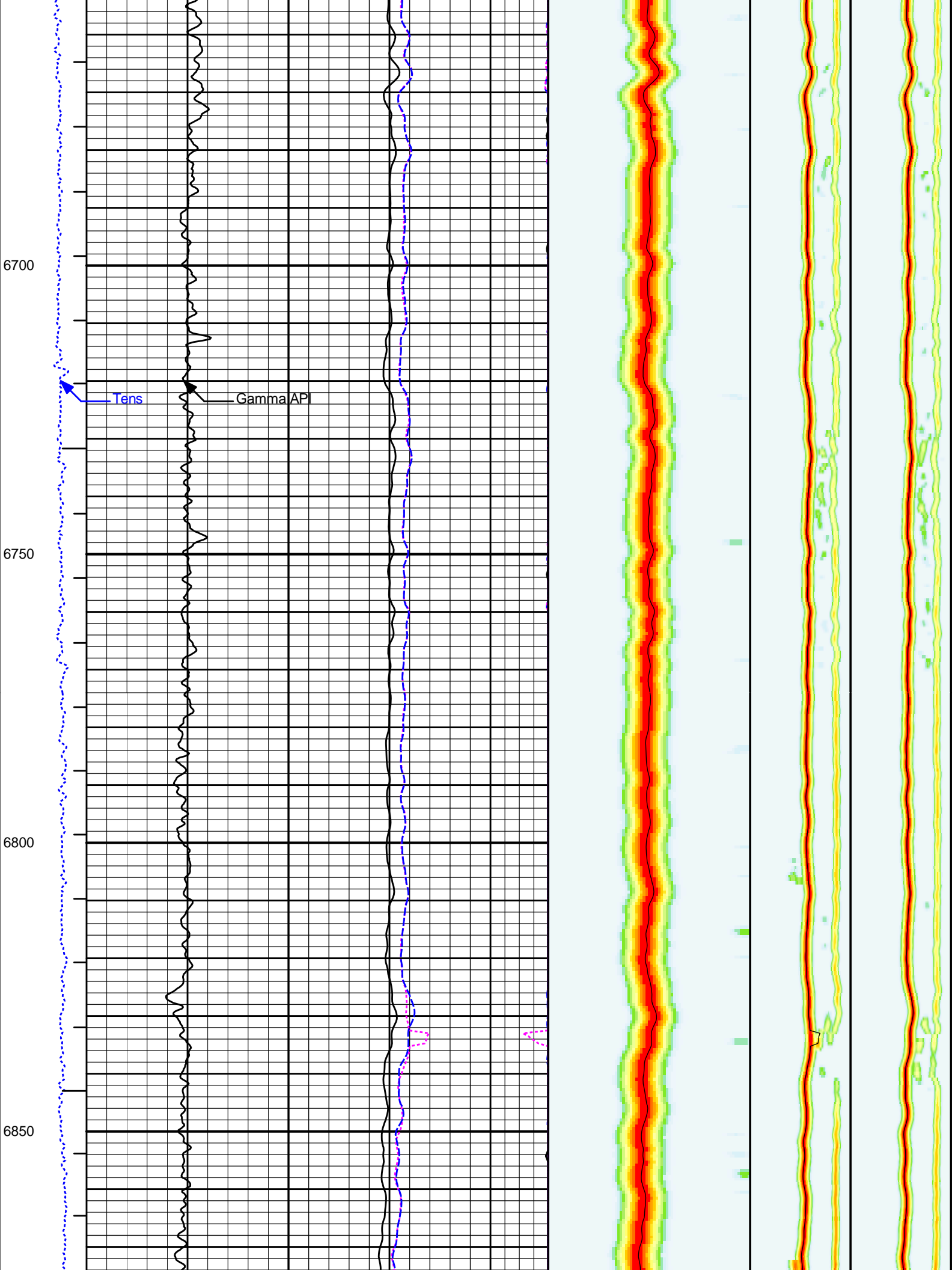


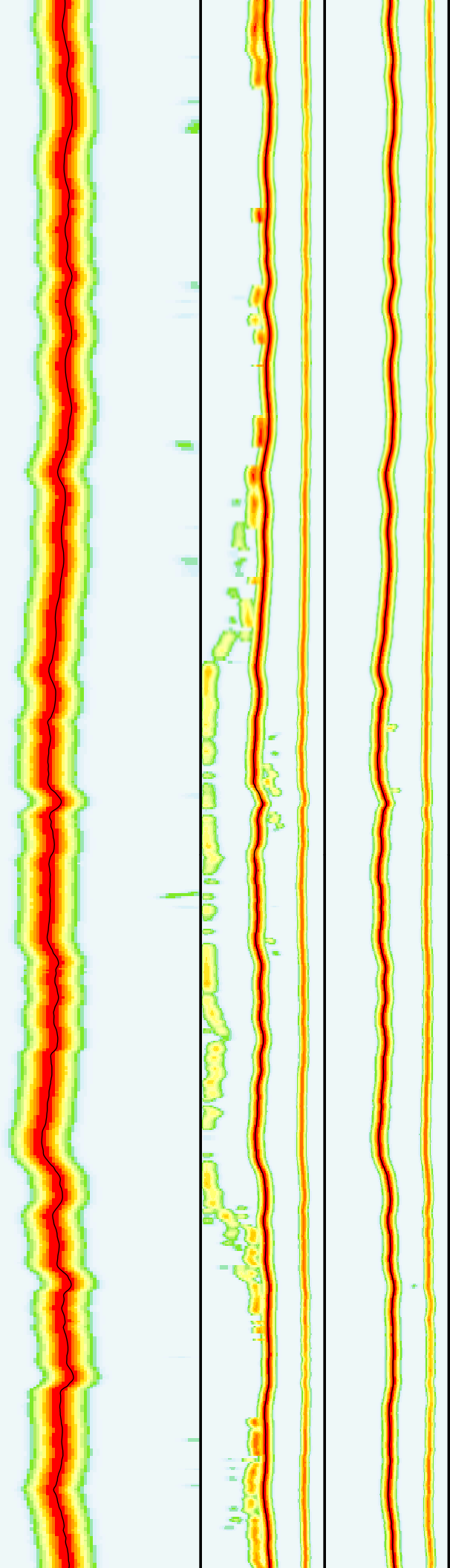
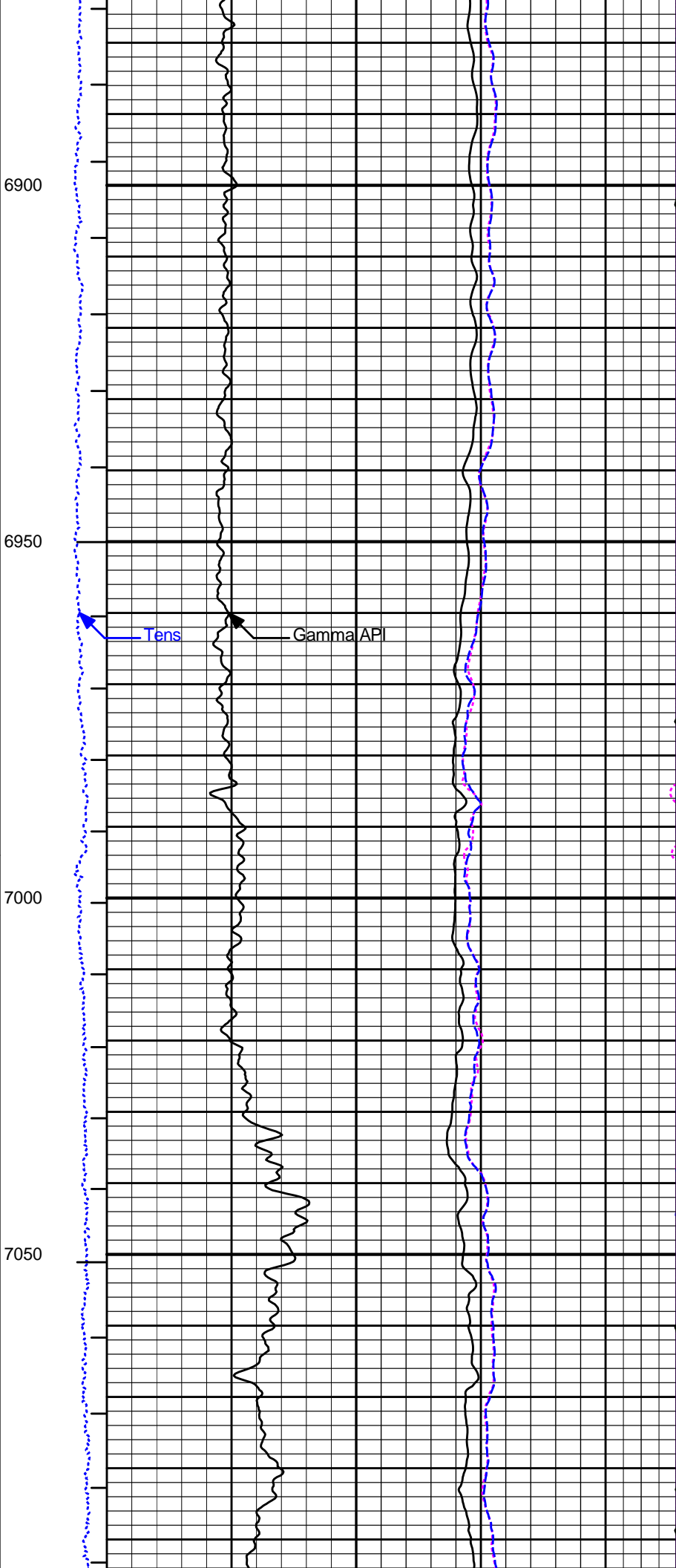


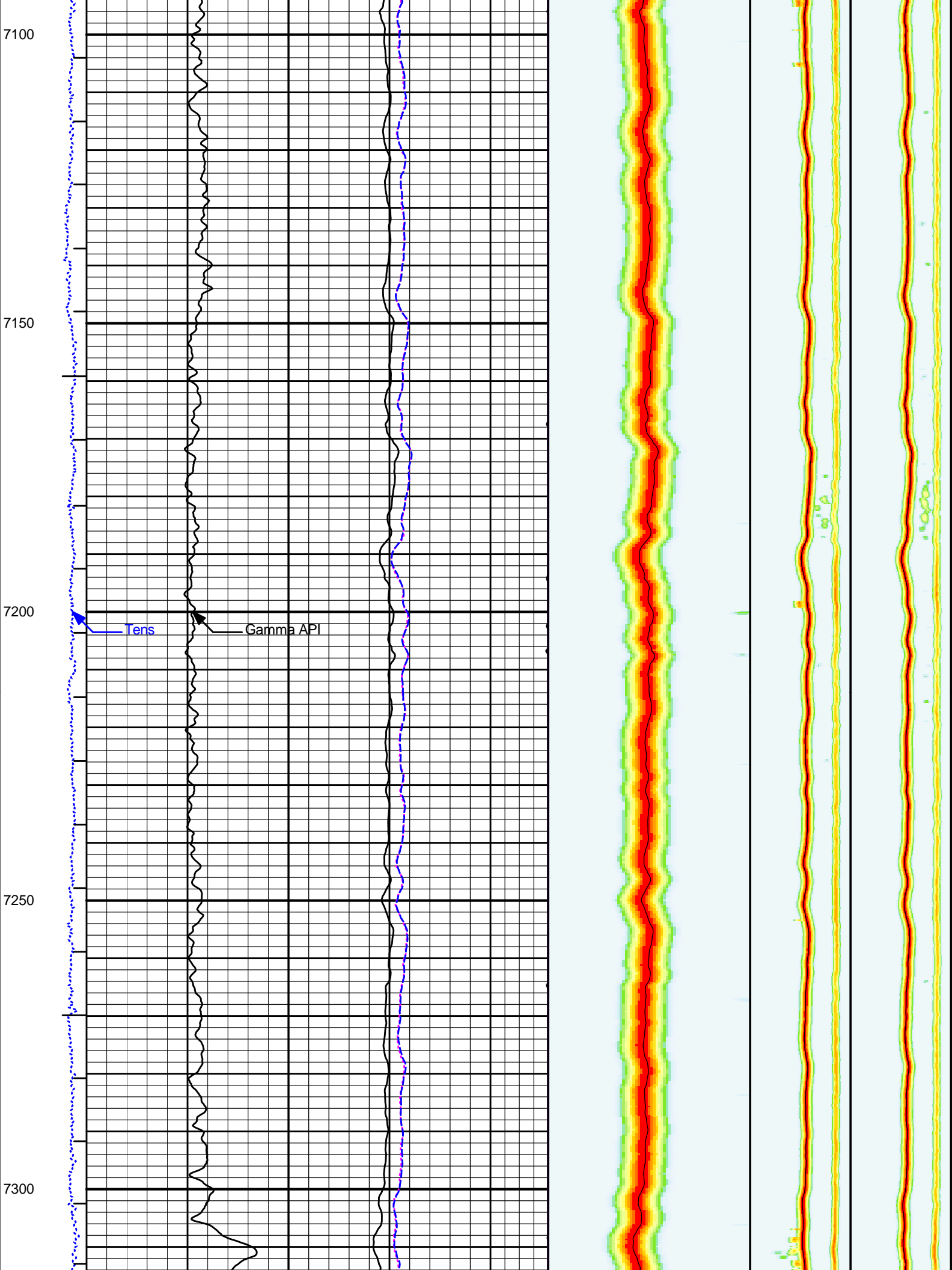


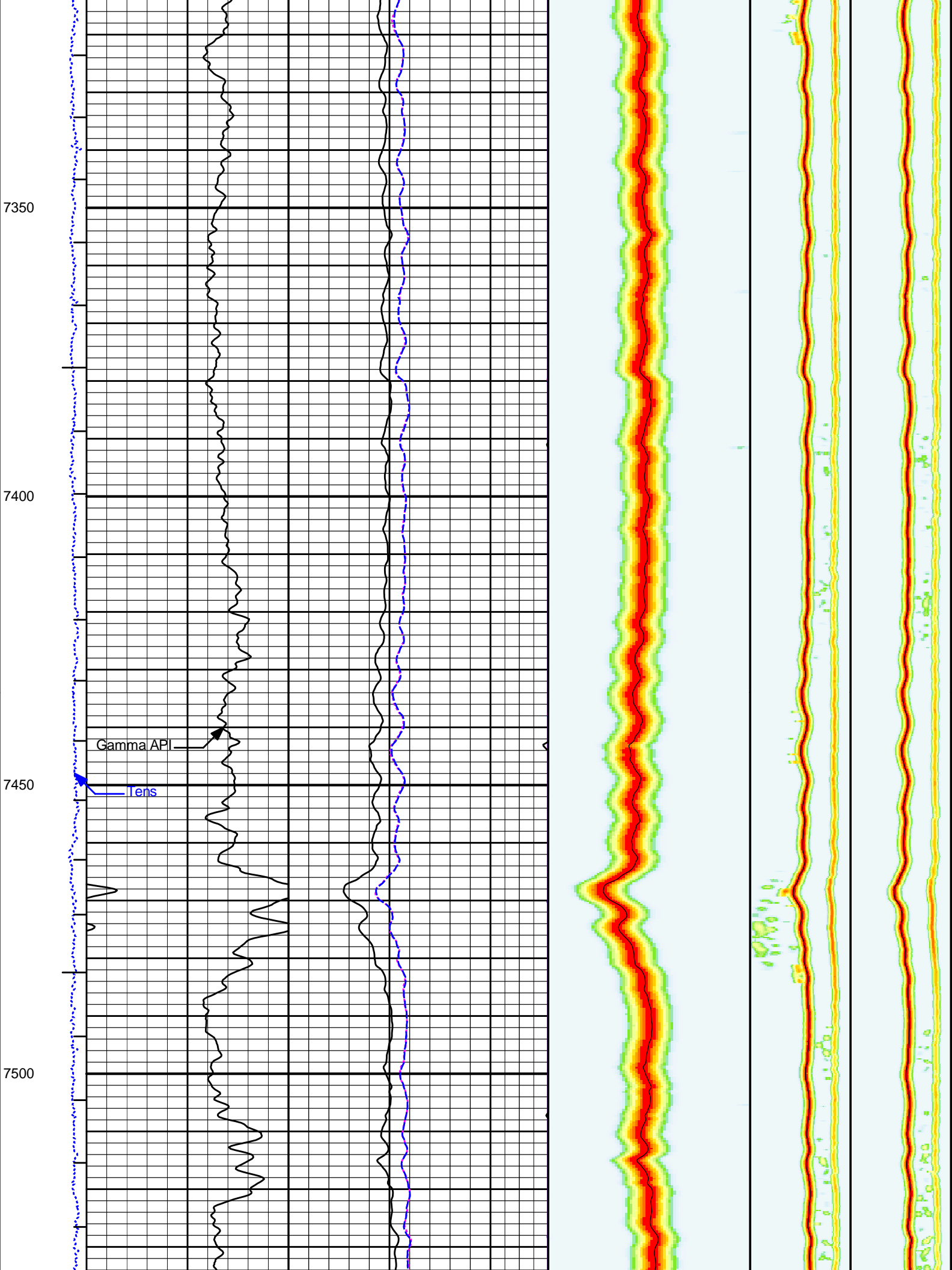


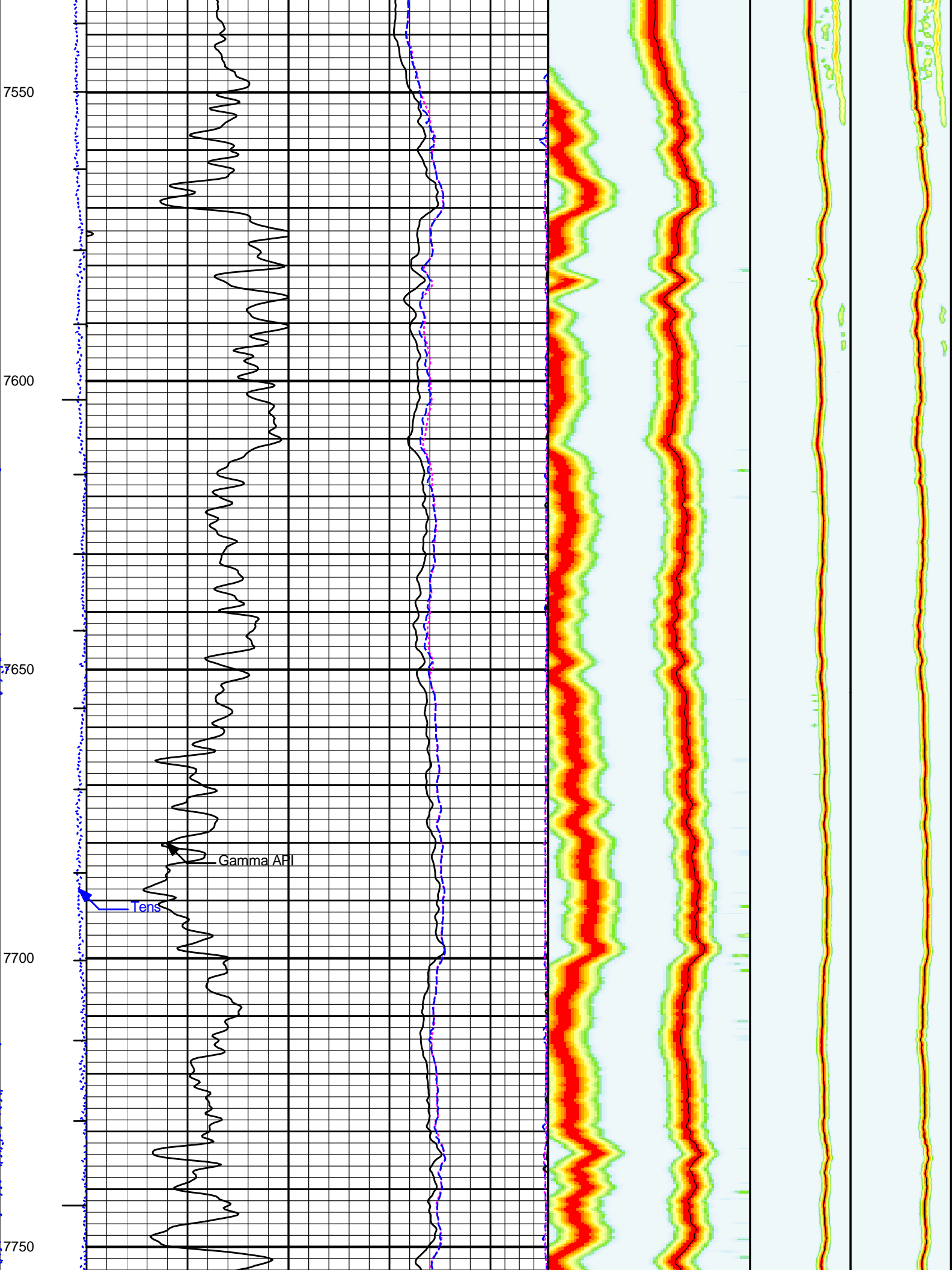


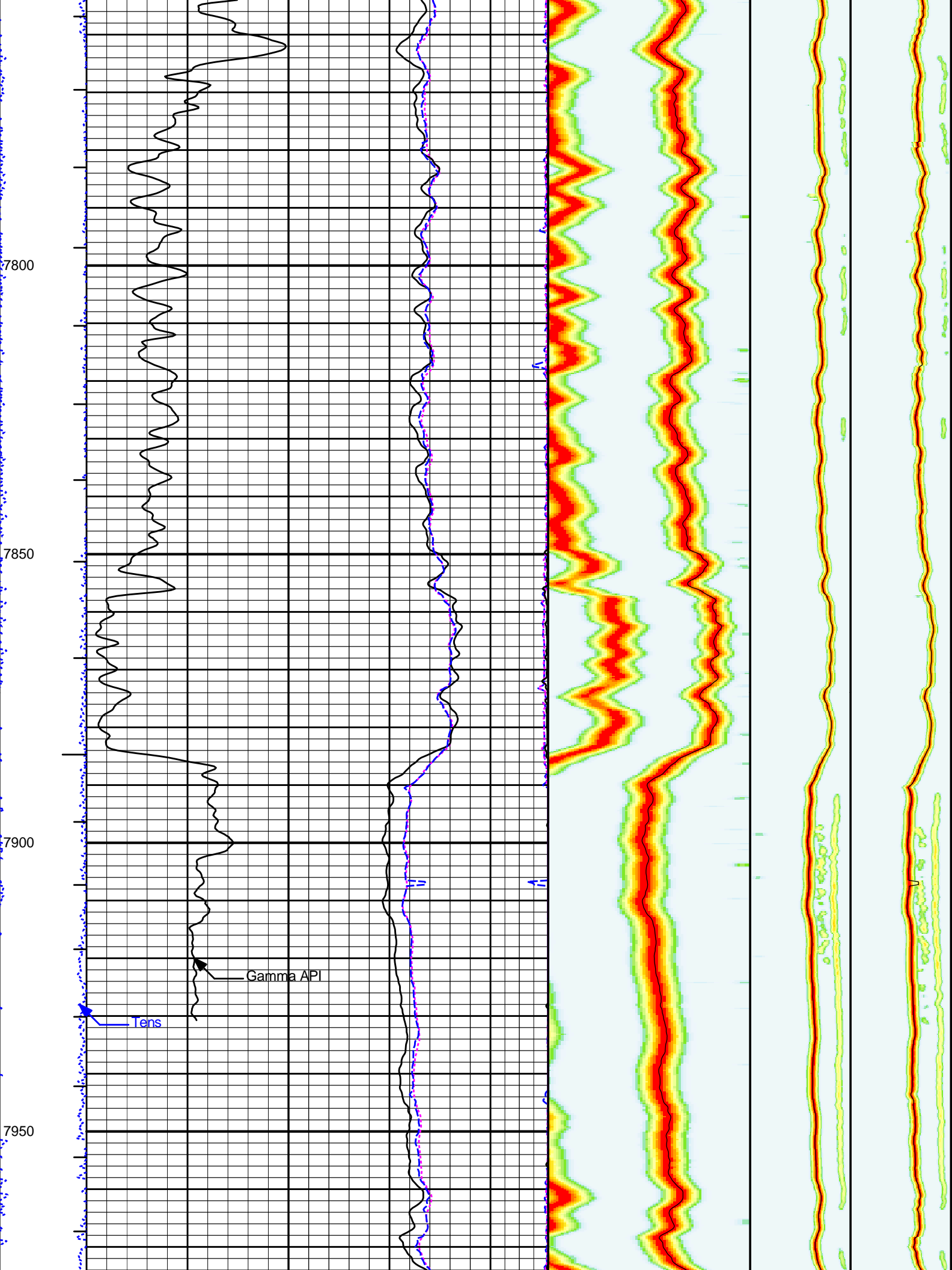


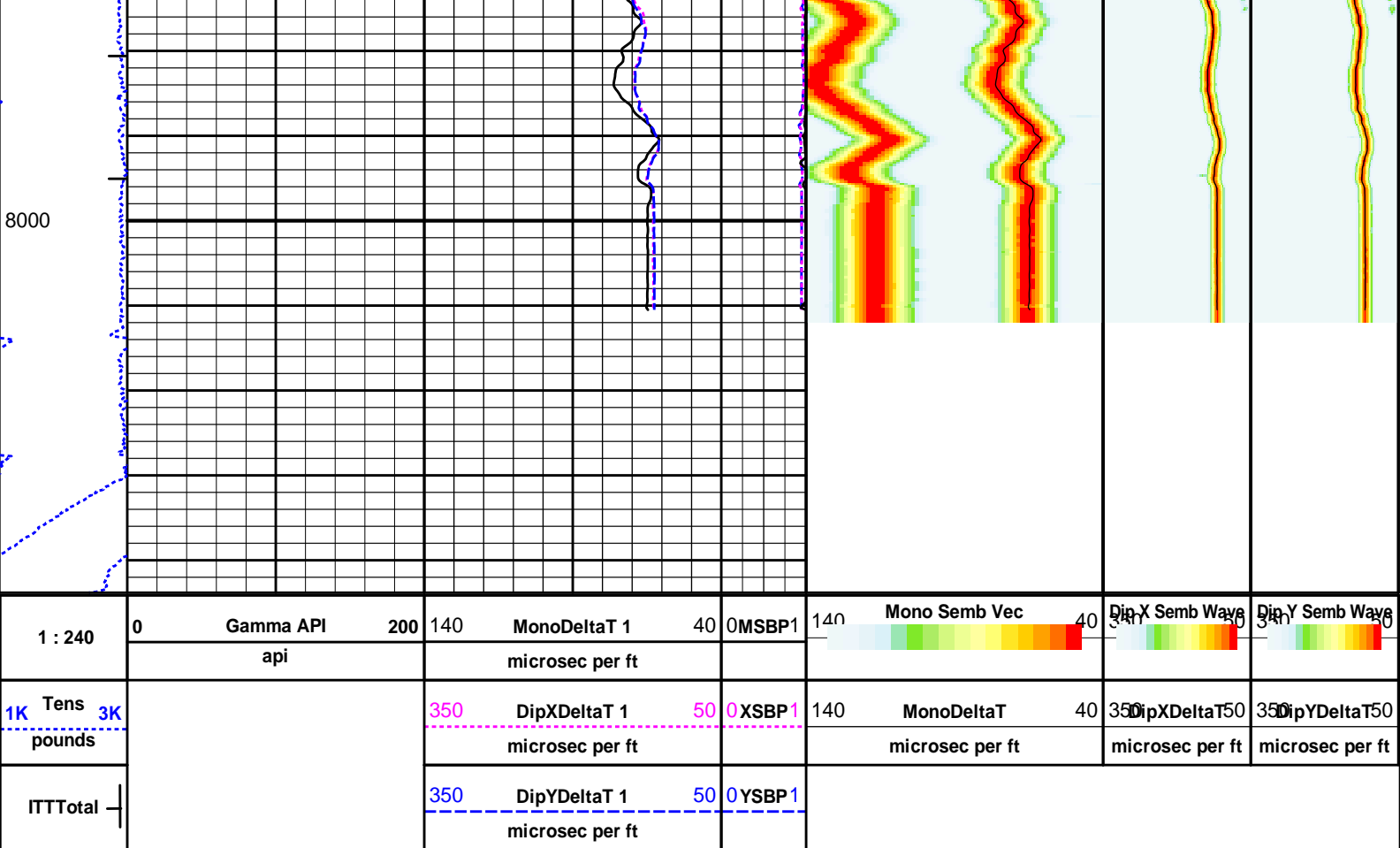












HALLIBURTON

Plot Time: 09-Aug-13 06:35:01
Plot Range: 2250 ft to 8043.83 ft
Data: {ActiveWell}\Well Based\ACRT-WSTT-IDT-ICT\
Plot File: \\WSTT\WST-I Hard 1-240

MAIN PASS 5"=100'

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name:	GTET - 11812883	Reference Calibration Date:	03-Jul-13 12:28:58
Engineer:	J. SCHMIDT	Calibration Date:	02-Aug-13 11:52:38
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1

Calibrator Source S/N: TB-289
Calibrator API Reference:243.00 api
Equivalent Calibrator API Reference:247.3 api

Measurement	Measured	Calibrated	Units
Background	72.7	73.0	api
Background + Calibrator	319.0	320.3	api
Calibrator	246.3	247.3	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	GTET - 11812883	Reference Calibration Date:	02-Aug-13 11:52:38
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Calibration Date: 08-Aug-13 05:32:10

Calibration Version: 1

Field Verification	Shop	Field	Units
Background	73.0	71.5	api
Background + Calibrator	320.3	319.2	api
Calibrator	247.3	247.7	api

TITANIUM CASE	Shop	Field	Units
60 KEV Peak Channel #	48.0	48.0	Channel #
239 KEV Peak Channel #	23.7	23.7	Channel #

239 KEV Peak Channel #	53.2	53.3	Channel #
2614 KEV Peak Channel #	219.5	219.7	Channel #
Calibrate Temperature	74.8	74.8	degF

Pass/Fail Summary	Centroid
239 KEV Peak	Passed
583 KEV Peak	Passed
2614 KEV Peak	Passed

Blanket Reference Value: 243.00 API
Calibrator Value: 276.0 API

	Counts	Units	Measured	Calibrated	Units
Thorium Blanket	1778.9	CPS	336.9	337.3	API
Background	323.4	CPS	61.0	61.3	API

Gamma Ray Gain: 0.95
Expected Gain Range: 0.85 - 1.15
Gamma Gain Check: Passed

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11812167	Reference Calibration Date:	03-Jul-13 13:14:28
Engineer:	J. SCHMIDT	Calibration Date:	02-Aug-13 13:50:04
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1

Logging Source S/N: DSN 434
Tank Serial Number: 11068236
Reference value assigned to Tank: 53.720
Snow Block S/N: BRIGHTON SNOW BLOCK
Calibration Tank Water Temperature: 70 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	1.001	1.004	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2214	0.2224	0.0010	+/- 0.0020
Calibrated Ratio:	10.08	10.11	0.033	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0769	0.02000 - 0.09000

PASS/FAIL SUMMARY	
Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	DSNT - 11812167	Reference Calibration Date:	02-Aug-13 13:50:04
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Tool Name: DSNT - 11812167		Reference Calibration Date: 02-Aug-13 15:30:04		
Engineer:	J. PINKETT	Calibration Date:	08-Aug-13 05:43:59	
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1	
Logging Source S/N: DSN 434				
Snow Block S/N: BRIGHTON SNOW BLOCK				
NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0769	0.0656	-0.0113	+/- 0.0150
PASS/FAIL SUMMARY				
Block Change Check:		Passed		
Snow Block Stat Check:		Passed		
Temperature Check:		Passed		

DENSITY CALIPER SHOP CALIBRATION				
Tool Name:	SDLT - 11812177	Reference Calibration Date:	03-Jul-13 14:28:03	
Engineer:	J. SCHMIDT	Calibration Date:	02-Aug-13 16:04:03	
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1	
Host Tool Name:	DSNT - 11812167			
CALIBRATION COEFFICIENTS				
Measurement	Previous Value	New Value	Control Limit On New Value	
Pad Offset	-3660.76	-3977.73	-7000.00 - -1000.00	
Pad Gain	0.0003813	0.0003862	0.000200 - 0.000600	
Arm Offset	-4402.43	-4271.55	-5000.00 - 3000.00	
Arm Gain	0.0005632	0.0005525	0.000300 - 0.000700	
Arm Power	-0.000004890	-0.000004524	-0.000010000 - 0.000010000	
The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER				
Tool Diameter: 4.50 in				
CALIBRATION RINGS				
Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	2.10	2.00	-0.10	+/- 0.20
Medium Ring (in)	3.82	3.75	-0.07	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.59	6.50	-0.09	+/- 0.20
Medium Ring (in)	8.37	8.25	-0.12	+/- 0.20
Large Ring (in)	15.17	15.00	-0.17	+/- 0.20
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:		Passed		
Ring-Measurement Check:		Passed		
PASS/FAIL SUMMARY				
Calibration-Coefficients Range Check:		Passed		

SDLT CALIPER FIELD CALIBRATION			
Tool Name:	SDLT - 11812177	Reference Calibration Date:	02-Aug-13 16:04:03
Engineer:	J. PINKETT	Calibration Date:	08-Aug-13 05:37:09
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1
MEASURED CALIPER VALUES			

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.75	0.00	+/- 0.10
Ring Diameter	8.25	8.23	-0.02	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - 11795867	Reference Calibration Date:	03-Jul-13 14:06:34
Engineer:	J. SCHMIDT	Calibration Date:	02-Aug-13 15:24:51
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1

Logging Source S/N: 5471GW		
Aluminum Block S/N: 63066	Density: 2.602g/cc	Pe: 3.100
Magnesium Block S/N: BRIGHTON MAGNESIUM BLOCK	Density: 1.691g/cc	Pe: 2.650

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0851	1.0593	0.90 - 1.10
Near Dens Gain	1.0470	1.0258	0.90 - 1.10
Near Peak Gain	1.0318	1.0305	0.90 - 1.10
Near Lith Gain	0.9908	0.9864	0.90 - 1.10
Far Bar Gain	1.0153	1.0090	0.90 - 1.10
Far Dens Gain	1.0018	0.9961	0.90 - 1.10
Far Peak Gain	0.9946	0.9898	0.90 - 1.10
Far Lith Gain	0.9822	0.9721	0.90 - 1.10
Near Bar Offset	-0.8458	-0.6035	NONE
Near Dens Offset	-0.4663	-0.2726	NONE
Near Peak Offset	-0.3118	-0.2985	NONE
Near Lith Offset	0.0002	0.0390	NONE
Far Bar Offset	-0.2435	-0.1880	NONE
Far Dens Offset	-0.1113	-0.0599	NONE
Far Peak Offset	-0.0577	-0.0177	NONE
Far Lith Offset	0.0502	0.1296	NONE
Near Bar Background	834.39	830.03	700 - 1450
Near Dens Background	276.52	275.07	230 - 480
Near Peak Background	119.68	120.39	100 - 210
Near Lith Background	147.05	146.50	125 - 260
Far Bar Background	651.14	652.56	450 - 900
Far Dens Background	255.84	256.55	175 - 345
Far Peak Background	102.54	101.59	70 - 140
Far Lith Background	103.28	103.77	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.688	1.691	0.003	+/- 0.015
Pe	2.624	2.611	-0.013	+/- 0.150
ALUMINUM				
Density (g/cc)	2.604	2.602	-0.004	+/- 0.01500

Density (g/cc)	2.601	2.602	0.001	+/- 0.01500
Pe	3.058	3.071	0.013	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0018	+/- 0.0110	-0.0005	+/- 0.0140
Magnesium Block	0.0002	+/- 0.0110	-0.0004	+/- 0.0140
Aluminum Block	0.0005	+/- 0.0110	0.0005	+/- 0.0140
Resolution	8.50	6.00 - 11.50	8.71	6.00 - 11.50
Internal Verifier(B+D+P+L)	1372	1200 - 2700	1114	800 - 1700

PASS/FAIL SUMMARY	
Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	SDLT Pad - 11795867	Reference Calibration Date:	02-Aug-13 15:24:51
Engineer:	J. PINKETT	Calibration Date:	08-Aug-13 05:31:18
Software Version:	WL INSITE R3.8.4 (Build 5)	Calibration Version:	1

Pad Temperature: 75.2 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1371.990	1375.772	3.782	14.969
Far (B+D+P+L) cps	1114.482	1119.226	4.744	17.590
Near Resolution	8.50	8.62	0.120	0.50
Far Resolution	8.71	8.92	0.210	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

ACCELEROMETER AND MAGNETOMETER SHOP CALIBRATION

Tool Name:	IDT - 11277451	Reference Calibration Date:	22-Dec-11 12:25:38
Engineer:	R. TWEETEN	Calibration Date:	12-Dec-12 09:29:09
Software Version:	WL INSITE R3.8.0 (Build 2)	Calibration Version:	1

Reference Gravity Field: 1.0000 g

Reference Magnetic Field: 52800.0000 nT

* QF : value of 0 is shown for bad quality if | data - reference | > (2 * standard deviation) and > (0.5% of reference value)

ACCELEROMETER CALIBRATION RAW DATA VALUE					
Raw Acc X	Raw Acc Y	Raw Acc Z	Quality(Gravity)	Quality Error(%)	QF
0.4269	-0.5884	-0.0061	1.0002	99.9829	1

-0.5599	-0.4780	-0.0063	1.0000	99.9967	1
-0.4375	0.6033	-0.0067	1.0000	99.9953	1
0.5831	0.4446	-0.0061	1.0000	99.9994	1
-0.0172	0.7436	-0.0064	0.9999	99.9936	1
0.6184	0.3018	0.1163	0.9998	99.9824	1
-0.0564	0.7421	-0.0065	1.0001	99.9927	1
0.7216	0.0940	-0.0061	1.0001	99.9879	1
-0.0078	-0.7309	-0.0061	0.9999	99.9889	1
-0.7395	-0.0298	-0.0065	1.0000	99.9995	1
-0.0143	0.0013	0.3591	1.0000	99.9969	1
0.6578	-0.1071	-0.1504	0.9999	99.9929	1

ACCELEROMETER QUALITY SUMMARY		
Average Calculated Gravity Field	1.0000	g
Standard Deviation Calculated Gravity Field	0.0001	g

ACCELEROMETER GAIN AND OFFSET		
	GAIN	OFFSET
ACC X	1.3631752729	0.0093273642
ACC Y	1.3562285900	-0.0086623570
ACC Z	2.7358396053	0.0174727775

* QF : value of 0 is shown for bad quality if | data - reference | > (3 * standard deviation) and > (1% of reference value)

MAGNETOMETER CALIBRATION RAW DATA VALUE					
Raw Mag X	Raw Mag Y	Raw Mag Z	Quality(Magnetic)	Quality Error(%)	QF
-0.1621	1.2632	-0.0843	53389.0742	98.8843	1
1.2405	0.2697	-0.0857	53529.2031	98.6189	1
0.1707	-1.2622	-0.0893	54134.3047	97.4729	1
-1.2427	-0.1685	-0.0880	52686.8008	99.7856	1
-0.0479	-1.0868	0.4088	51367.3828	97.2867	1
-1.0982	-0.5665	-0.3070	53254.3945	99.1394	1
0.2701	-1.0216	-0.6403	52368.3047	99.1824	1
-0.9920	-0.3106	-0.6376	51226.5664	97.0200	1
-0.1738	1.0402	-0.6485	51847.8633	98.1967	1
1.0246	0.2544	-0.6342	51825.9453	98.1552	1
-0.2197	-0.5608	0.9200	52932.6523	99.7488	1
-0.7837	-0.0929	-0.9906	54458.1367	96.8596	1

MAGNETOMETER QUALITY SUMMARY		
Average Calculated Magnetic Field	52751.7188	nT
Standard Deviation Calculated Magnetic Field	1052.5829	nT

MAGNETOMETER GAIN AND OFFSET		
	GAIN	OFFSET
MAG X	42089.3085937500	159.4645385742
MAG Y	42207.0781250000	-351.8444519043
MAG Z	46856.6171875000	3174.7180175781

Noise Level Value: 0.000219 cnts
 Noise Level Cal Value: 0.0006 g

ICT SHOP CALIBRATION

Tool Name:	ICT - 11294351	Reference Calibration Date:	05-Jul-13 23:34:50
Engineer:	J. PINKETT	Calibration Date:	07-Aug-13 10:53:51

Software Version: WL INSITE R3.8.4 (Build 5)		Calibration Version: 1		
	CALIPERS AND RINGS			
	Ring	Measured	Calibrated	Units
	CALIPER 1:			
	Small Ring	3.67	3.65	in
	Medium Ring	8.11	8.00	in
	Large Ring	15.12	15.00	in
	X-Large Ring	21.03	21.00	in
	CALIPER 2:			
	Small Ring	3.65	3.65	in
	Medium Ring	7.99	8.00	in
	Large Ring	14.98	15.00	in
	X-Large Ring	21.01	21.00	in
	CALIPER 3:			
	Small Ring	3.53	3.65	in
	Medium Ring	7.89	8.00	in
	Large Ring	14.88	15.00	in
	X-Large Ring	20.94	21.00	in
	CALIPER 4:			
	Small Ring	3.44	3.65	in
	Medium Ring	7.85	8.00	in
	Large Ring	14.80	15.00	in
	X-Large Ring	20.94	21.00	in
	CALIPER 5:			
	Small Ring	3.58	3.65	in
	Medium Ring	7.99	8.00	in
	Large Ring	15.02	15.00	in
	X-Large Ring	21.00	21.00	in
	CALIPER 6:			
	Small Ring	3.70	3.65	in
	Medium Ring	8.15	8.00	in
	Large Ring	15.20	15.00	in
	X-Large Ring	21.10	21.00	in
ICT FIELD CALIBRATION				
Tool Name: ICT - 11294351		Reference Calibration Date: 07-Aug-13 10:53:51		
Engineer: J. PINKETT		Calibration Date: 08-Aug-13 05:28:20		
Software Version: WL INSITE R3.8.4 (Build 5)		Calibration Version: 1		
	CALIPERS			
	Caliper	Shop	Field	Units
	Caliper 1	8.00	8.02	in
	Caliper 2	8.00	8.00	in
	Caliper 3	8.00	8.05	in
	Caliper 4	8.00	8.02	in
	Caliper 5	8.00	8.00	in
	Caliper 6	8.00	7.96	in
ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION				
Tool Name: ACRt Sonde - 11294353		Reference Calibration Date: 05-Jul-13 15:38:14		
Engineer: J. SCHMIDT		Calibration Date: 05-Aug-13 17:23:18		
Software Version: WL INSITE R3.8.4 (Build 5)		Calibration Version: 1		
Host Tool Name: ACRt Instrument - 11302817				

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	1.01	1.05	0.95	1.00	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	1.02	1.05	0.95	1.02	1.05	0.95	1.02	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.02	1.05	0.95	1.02	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	-1.86	2	-6	-4.67	-2	-8	-4.90	-2
A2 (50")	-7	-2.22	0	-7	-2.98	0	-7	-4.70	0
A3 (29")	-27	-13.82	-9	-9	-3.72	-3	-7	-3.60	-1
A4 (17")	-180	-92.44	-60	-45	-29.77	-15	-39	-25.60	-13
A5 (10")	N/A	N/A	N/A	-150	-99.42	-50	-80	-48.36	-10
A6 (6")	N/A	N/A	N/A	175	343.48	525	90	172.36	270
TRANSMITTER CURRENT GAIN					R-MUD VERIFICATION				
Signal	Lower	R	Upper		Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)	
12K		0.6	0.95	1.3	Mud Cell	0.95	1.00	1.05	
36K		1.0	1.84	2.0					
72K		1.0	1.19	2.0					
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-11812883									
Gamma Ray Calibrator		247.3	247.7	-----	-0.4	+/- 9.00	api		
CSNG-10846351									
60 KEV Peak Channel #		48.0	48.0	-----	0.0	-----	Channel #		
239 KEV Peak Channel #		23.7	23.7	-----	0.0	-----	Channel #		
583 KEV Peak Channel #		53.2	53.3	-----	-0.1	-----	Channel #		
2614 KEV Peak Channel #		219.5	219.7	-----	-0.2	-----	Channel #		
DSNT-11812167									
Snow-Block Porosity		0.0769	0.0656	-----	0.0113	+/- 0.0150	decp		
SDLT-11812177									
Pad Extension		3.75	3.75	-----	0.00	+/-0.10	in		
Ring Diameter		8.25	8.23	-----	0.02	+/-0.15	in		
SDLT Pad-11795867									
Near(B+D+P+L)		1371.990	1375.772	-----	-3.782	+/-14.969	cps		
Far(B+D+P+L)		1114.482	1119.226	-----	-4.744	+/-17.590	cps		

Caliper 1	8.00	8.02	-----	-0.02	+/-0.25	in
Caliper 2	8.00	8.00	-----	0.00	+/-0.25	in
Caliper 3	8.00	8.05	-----	-0.05	+/-0.25	in
Caliper 4	8.00	8.02	-----	-0.02	+/-0.25	in
Caliper 5	8.00	8.00	-----	0.00	+/-0.25	in
Caliper 6	8.00	7.96	-----	0.04	+/-0.25	in

ACRt Sonde-11294353

Mud Cell	1.00	-----	-----	0.00	-----	ohm-m
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P-1 MODAL TRUST 2 40004 TRIPLE RED CSNG 1ST 1ST WATT TEMP SUBURLE
 P-1 CSNG 11294353 11294353

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
RWCH-10409638 135.00 lbs		Ø 3.625 in →		← Load Cell @ 120.75 ft ← BH Temperature @ 120.18 ft	6.25 ft	124.43 ft
GTET-11812883 165.00 lbs		Ø 3.625 in →			8.52 ft	118.18 ft
UnivWearRing3.6-11812883 5.00 lbs		Ø 4.200 in* →		← GammaRay @ 112.12 ft		
CSNG-10846351 114.00 lbs		Ø 3.625 in →			8.17 ft	109.66 ft
UnivWearRing3.6-10846351 5.00 lbs		Ø 4.200 in* →		← CSNG @ 104.04 ft		
DSNT-11812167 174.00 lbs	DSN Decentralizer-11812167 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →			9.69 ft	101.50 ft
UnivWearRing3.6-11812167 5.00 lbs		Ø 4.200 in* →		← DSN Far @ 94.56 ft ← DSN Near @ 93.81 ft		
SDLT-11812177 360.00 lbs		Ø 4.500 in →			10.81 ft	91.81 ft

SDLT Pad-11795867
65.00 lbs

Ø 4.750 in*

SDL Caliper @ 83.81 ft
SDL @ 83.80 ft

Flex Joint -
Pressure Comp-
10847053
140.00 lbs

Ø 3.625 in

5.97 ft

81.00 ft

IDT-11277451
150.00 lbs

Ø 3.625 in

7.58 ft

75.03 ft

ICT-11294351
330.00 lbs

Ø 3.625 in

12.83 ft

67.44 ft

ICT Caliper @ 57.40 ft

54.61 ft

Centralizer 25-00000001
8.00 lbs

Ø 4.000 in*

Regal Standoff 6_75-
00000001
20.00 lbs

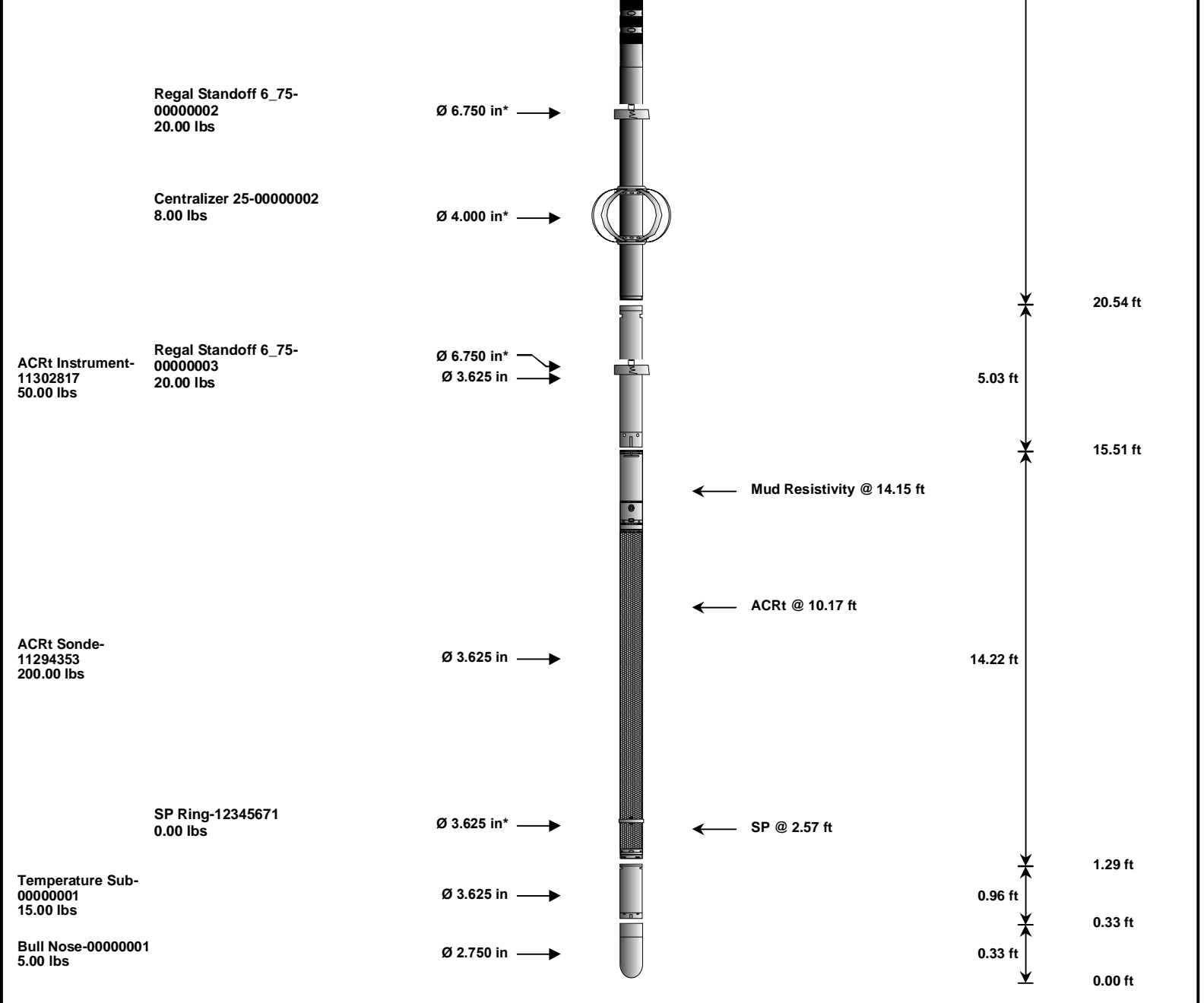
Ø 6.750 in*

Wavesonic-I-
90296673
520.00 lbs

Ø 3.625 in

34.07 ft

Wavesonic Delay @ 32.04 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max.Log. Speed (fpm)
RWCH	Releasable Wireline Cable Head	10409638	135.00	6.25	118.18	300.00
GTET	Gamma Telemetry Tool	11812883	165.00	8.52	109.66	60.00
UWR3P6	Universal Wear Ring 3 5-8 inch	11812883	5.00	0.35	* 110.39	300.00
CSNG	Compensated Spectral Natural Gamma	10846351	114.00	8.17	101.50	15.00
UWR3P6	Universal Wear Ring 3 5-8 inch	10846351	5.00	0.35	* 102.50	300.00
DSNT	Dual Spaced Neutron	11812167	174.00	9.69	91.81	60.00
UWR3P6	Universal Wear Ring 3 5-8 inch	11812167	5.00	0.35	* 91.93	300.00
DCNT	DSN Decentralizer	11812167	6.60	5.13	* 95.14	300.00
SDLT	Spectral Density Tool	11812177	360.00	10.81	81.00	60.00
SDLP	Density Insite Pad	11795867	65.00	2.55	* 83.21	60.00
FLEX	Flex Joint - Pressure Compensated	10847053	140.00	5.97	75.03	300.00
IDT	Insite Directional Tool	11277451	150.00	7.58	67.44	30.00
ICT	Six Independent Arm Caliper	11294351	330.00	12.83	54.61	30.00
WSTT	WaveSonic Insite	90296673	520.00	34.07	20.54	30.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	* 22.48	300.00
RSOF	Regal Standoff 6.75in	00000002	20.00	0.52	* 26.87	300.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	* 47.56	300.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	* 50.02	300.00
ACRt	Array Compensated True Resistivity Instrument Section	11302817	50.00	5.03	15.51	300.00
RSOF	Regal Standoff 6.75in	00000003	20.00	0.52	* 18.09	300.00
ACRt	Array Compensated True Resistivity Sonde Section	11294353	200.00	14.22	1.29	300.00
SP	SP Ring	12345671	0.00	0.25	* 2.57	300.00
TMAX	Temperature Sub - 3. 625 OD	00000001	15.00	0.96	0.33	300.00

BLNS	Bull Nose	00000001	5.00	0.33	0.00	300.00
Total			2,520.60	124.43		
* Not included in Total Length and Length Accumulation.						
Data: MORAN_TRUST_2-1\0001 TRIPLE RED-CSNG-IDT-ICT-WSTT-TEMP SUB\004 08-Aug-13 18:09 Up @8044.0f				Date: 08-Aug-13 19:29:12		

COMPANY	CONOCO PHILLIPS COMPANY		
WELL	MORAN TRUST 2-1		
FIELD	WILDCAT		
COUNTY	ARAPAHOE	STATE	CO
HALLIBURTON		WAVESONIC	