

ARRAY COMPENSATED
TRUE RESISTIVITY
LOG
5 INCH

Fold here

Service Ticket No.: DUAL904334094						API No.: 15081221640000						PGM Version: WL INSITE R5.0.5 (Build 8)					
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	Viscosity																
Ph	Fluid Loss																
Source of Sample									RESISTIVITY EQUIPMENT DATA								
Rm @ Meas. Temp			@			@			Run No.	Tool Type & No.		Pad Type		Tool Pos.		Other	
Rmf @ Meas. Temp.			@			@			ONE	ACRT		NONE		CENT		N/A	
Rmc @ Meas. Temp.			@			@				I-11055059							
Source Rmf	Rmc								S-11038385								
Rm @ BHT			@			@											
Rmf @ BHT			@			@											
Rmc @ BHT			@			@											
EQUIPMENT DATA																	
GAMMA				ACOUSTIC				DENSITY				NEUTRON					
Run No.		ONE		Run No.		ONE		Run No.		ONE		Run No.		ONE			
Serial No.		11021139		Serial No.		10939049		Serial No.		10809130		Serial No.		11020487			
Model No.		GTET		Model No.		BSAT		Model No.		SDLT		Model No.		DSNT			
Diameter		3.625"		No. of Cent.		2		Diameter		6.1"		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		DSN-436			
Length		8"		LSA [Y/N]				Serial No.		5155GW		Serial No.		DSN-436			
Distance to Source		N/A		FWDA [Y/N]				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	TD	CSG	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 g/cc	30	-10	LIME			

DIRECTIONAL INFORMATION														
Maximum Deviation @										KOP @				
CLIENT REPORTED VERTICAL WELL														
Remarks: GTET-DSNT-SDLT-FLEX-BSAT-ACRT RUN IN COMBINATION														
ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING														
POROSITY & MICROLOG LOGGED TO 4000' AS PER CLIENT REQUEST														
CHLORIDES REPORTED AT 1200 PPM														
NO POST-CALS COMPLETED AS PER CLIENT REQUEST														
RIG: DUKE DRILLING RIG 9														
CREW: J. WOOD, K. GATLIN														
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES -- EL RENO, OK -- 405.278.9685														
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.														
HALLIBURTON														



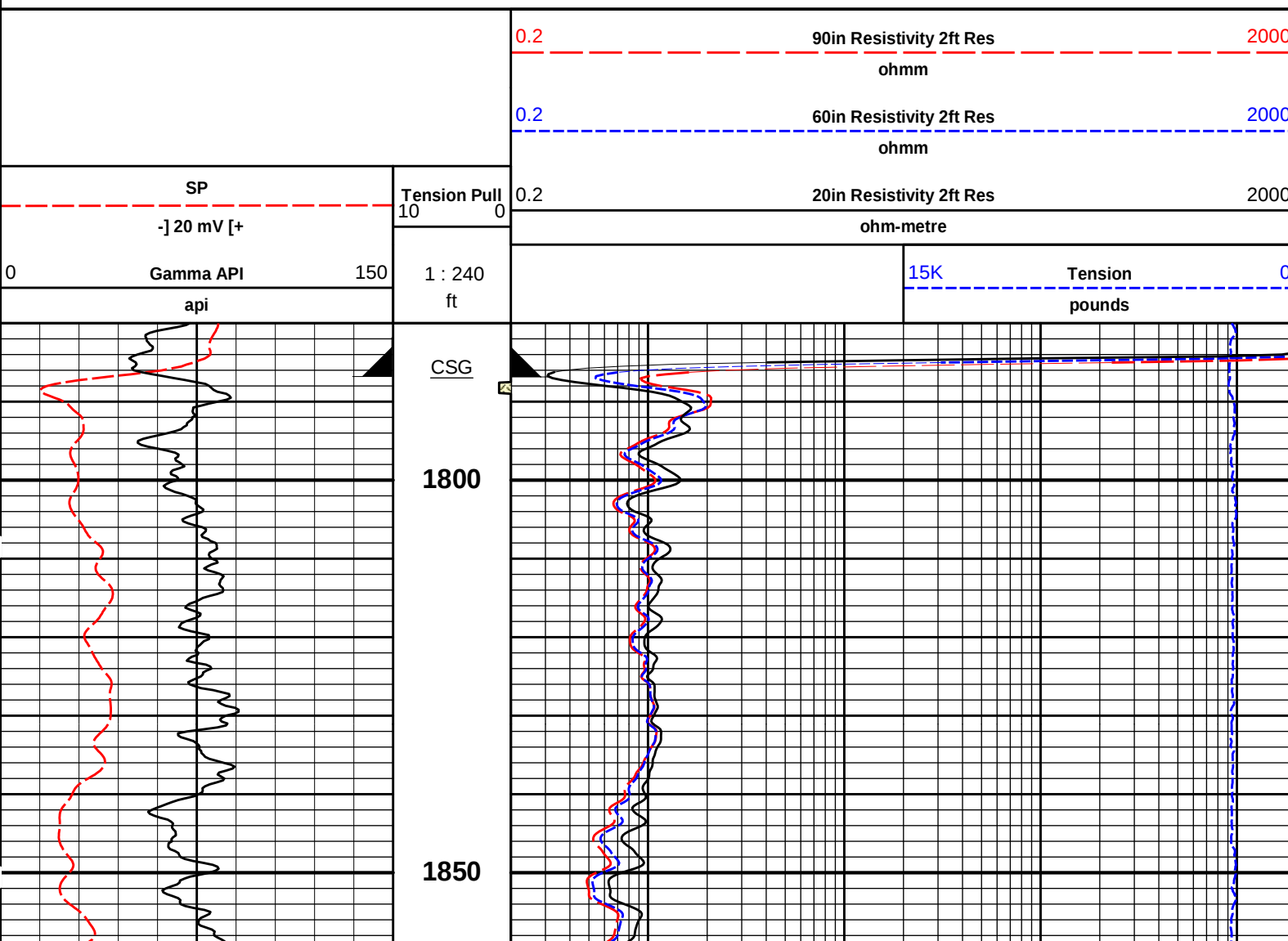
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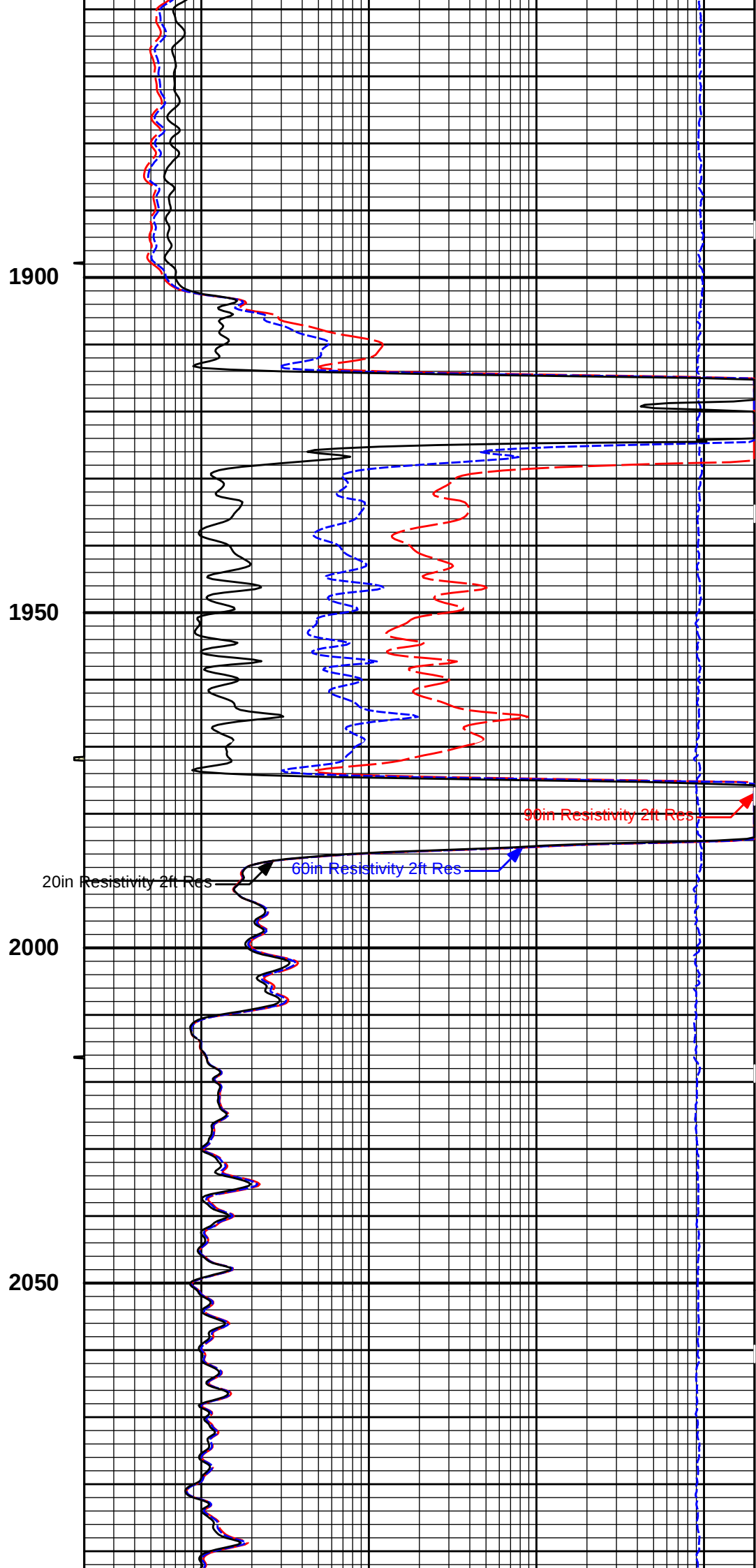
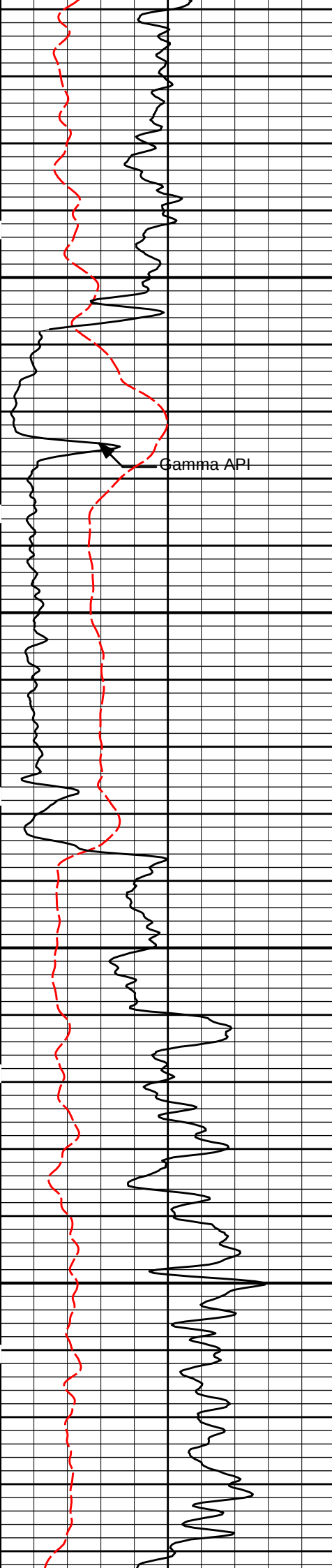
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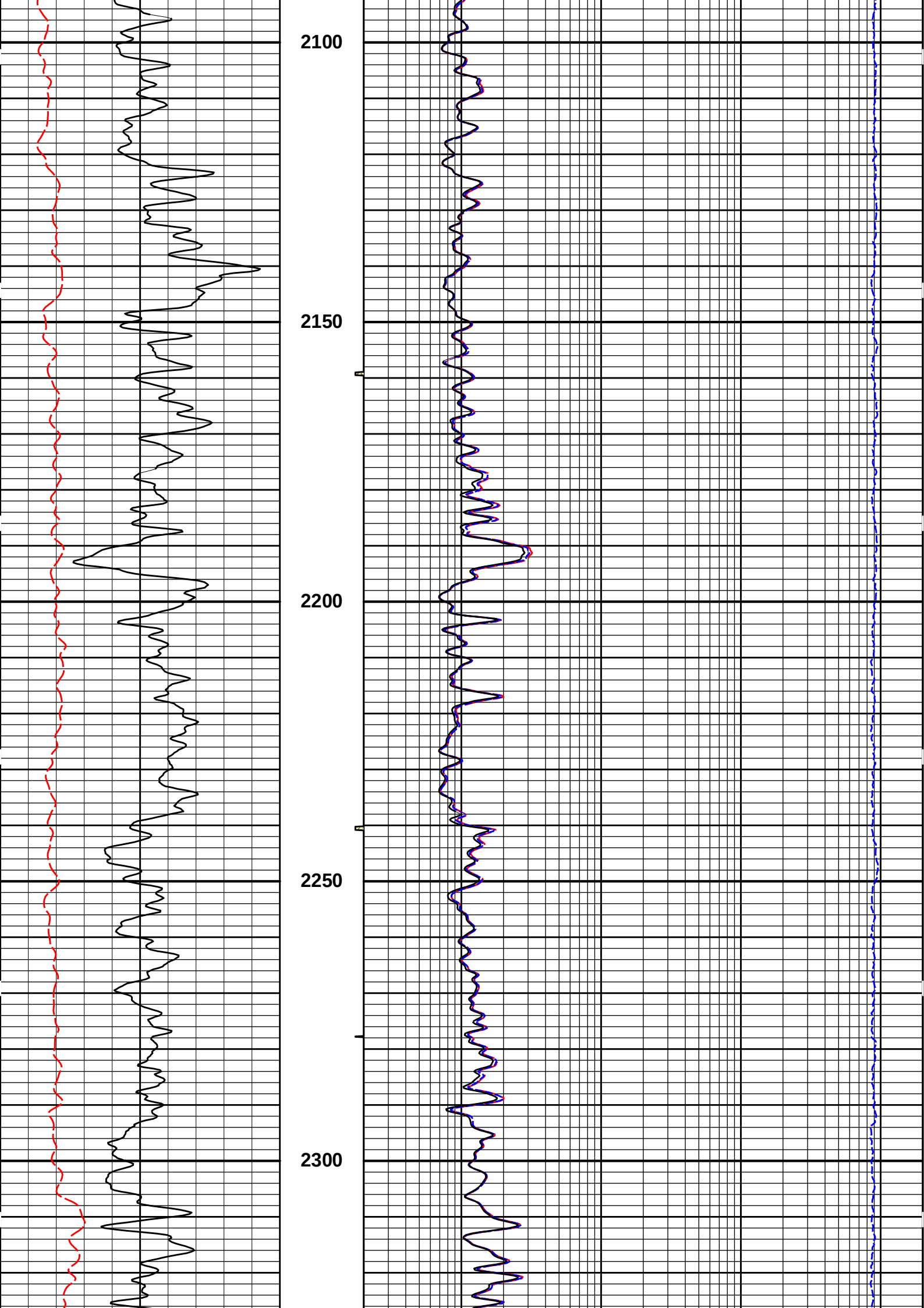
Data: MERIT_KELLS I-1\Well Based\MAIN\

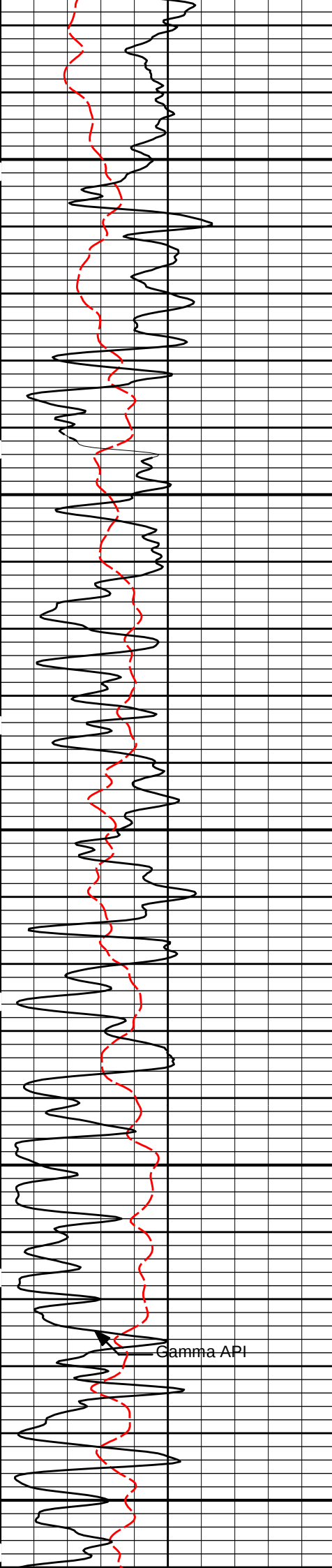
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5 INCH MAIN LOG









2350

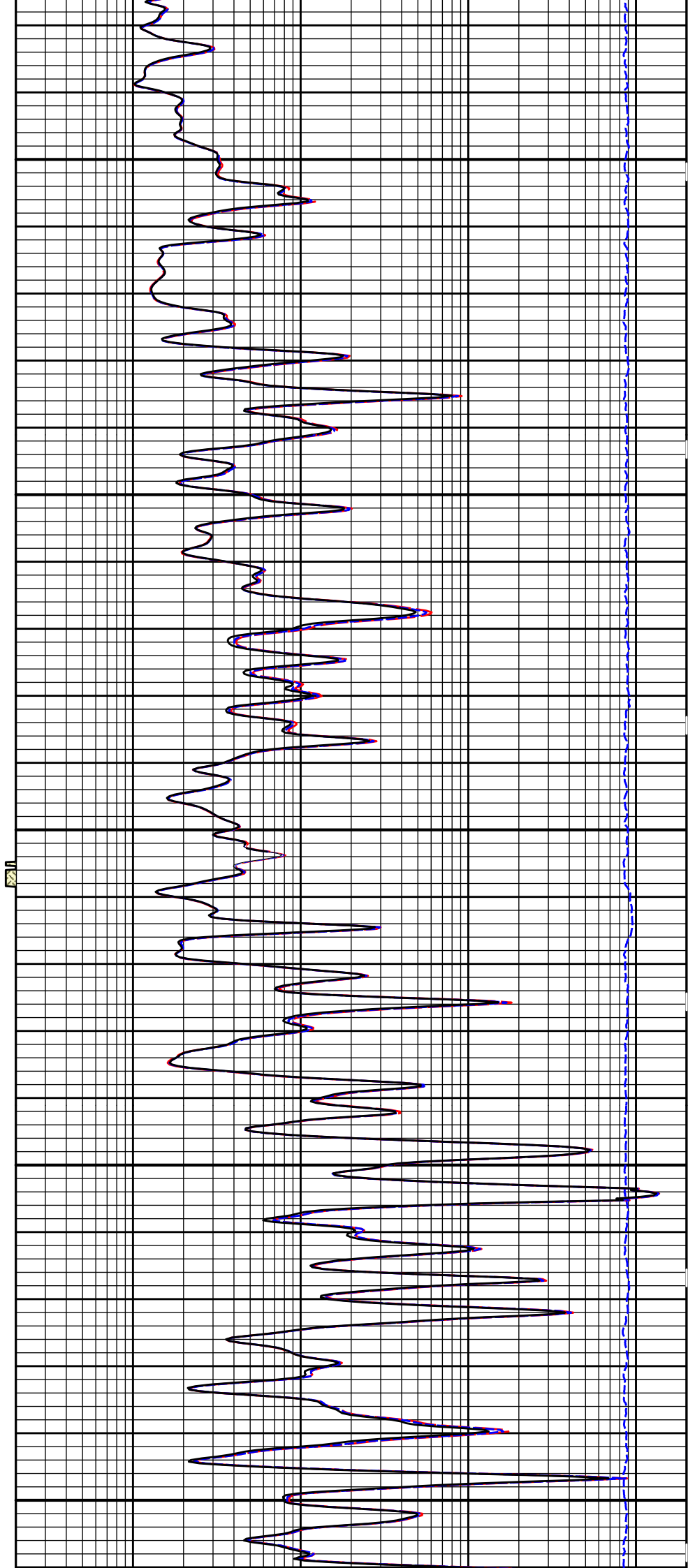
2400

2450

2500

2550

Gamma API



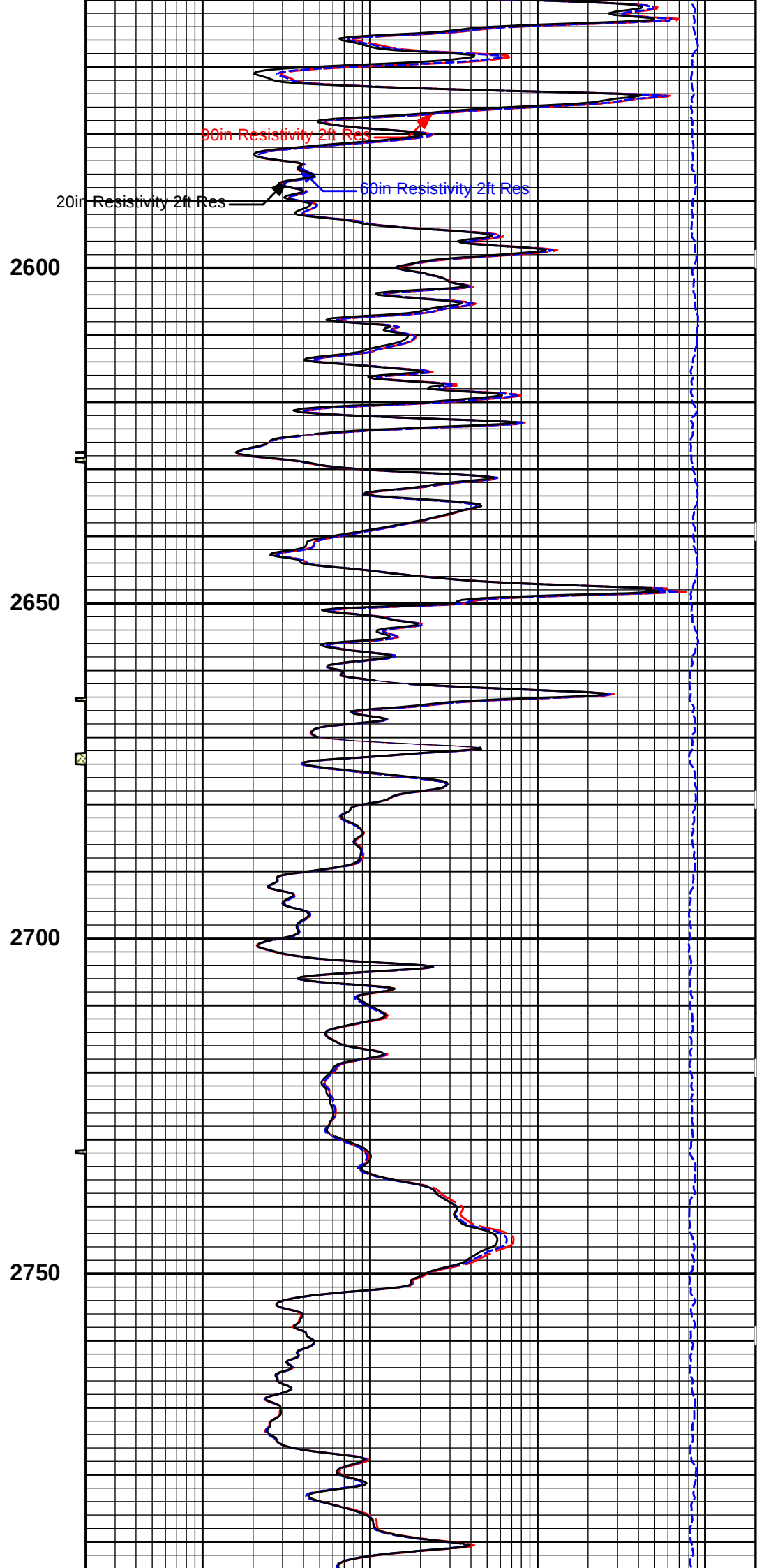
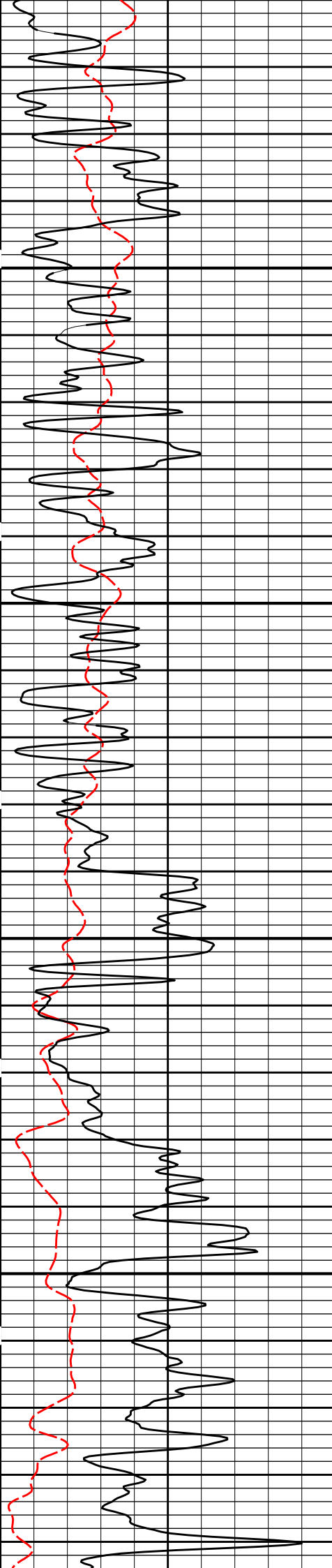
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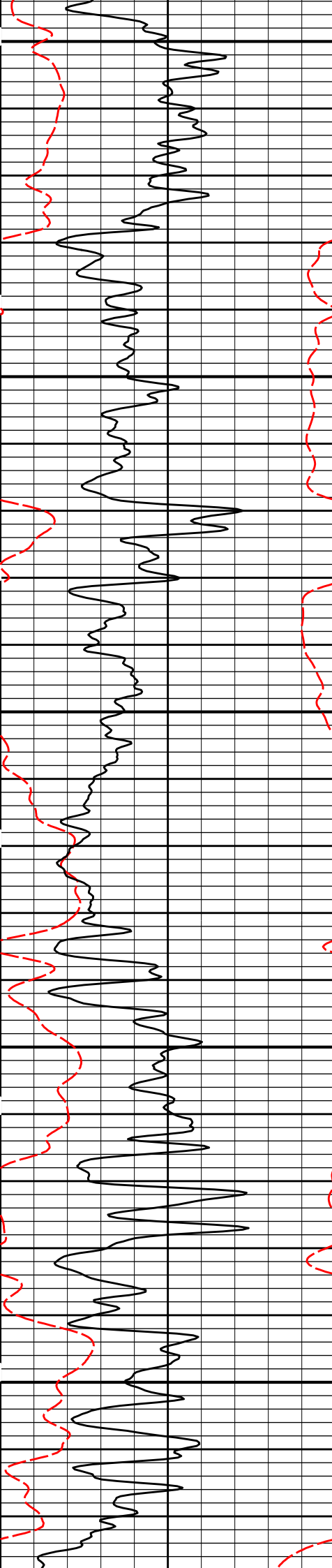
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2500

2550





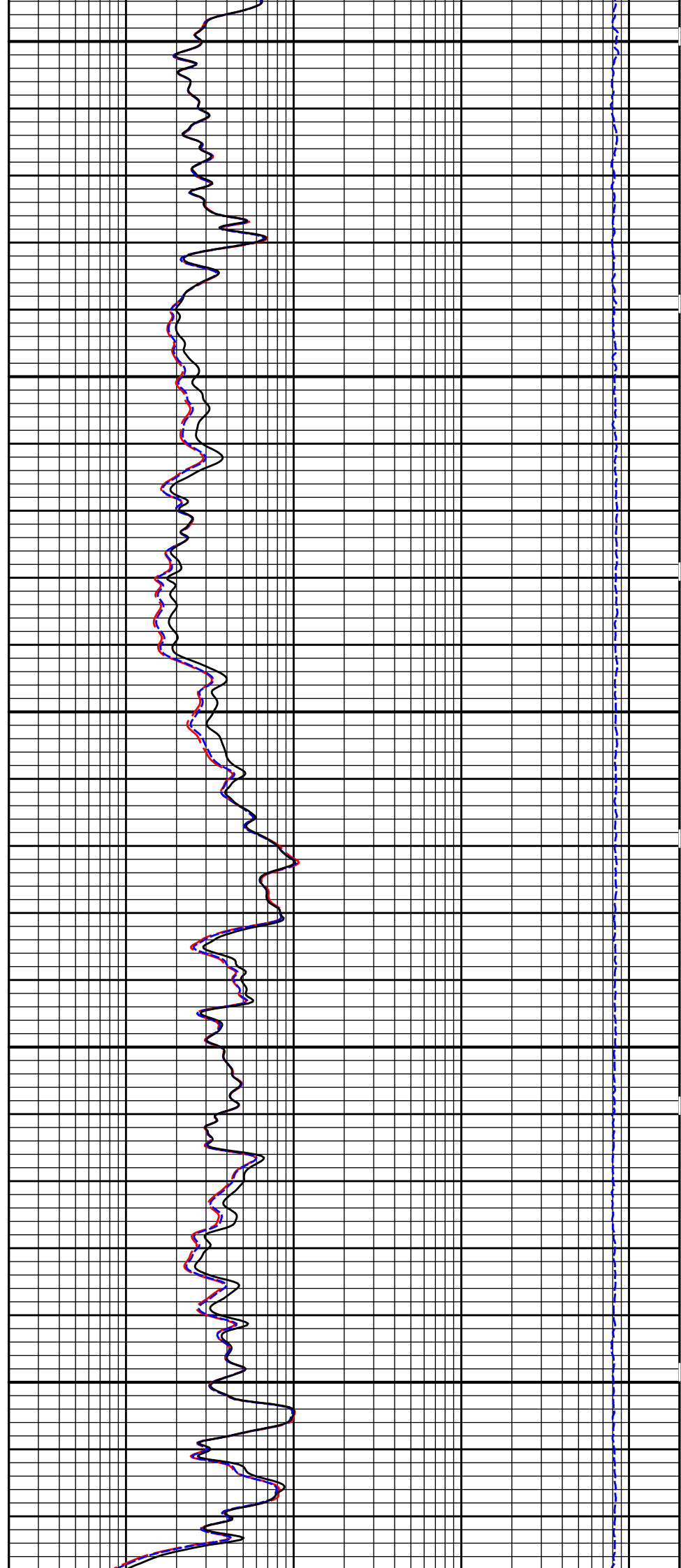
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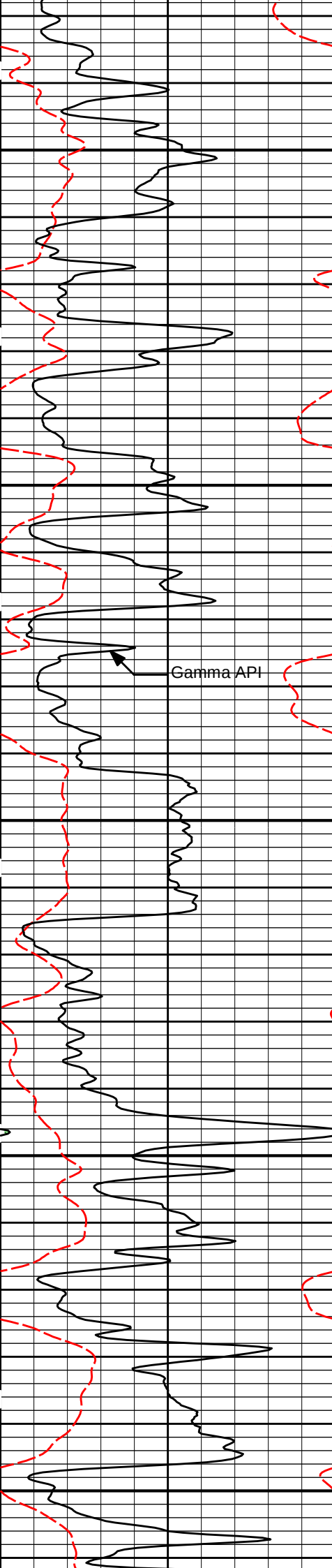
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2900

2950

3000





3050

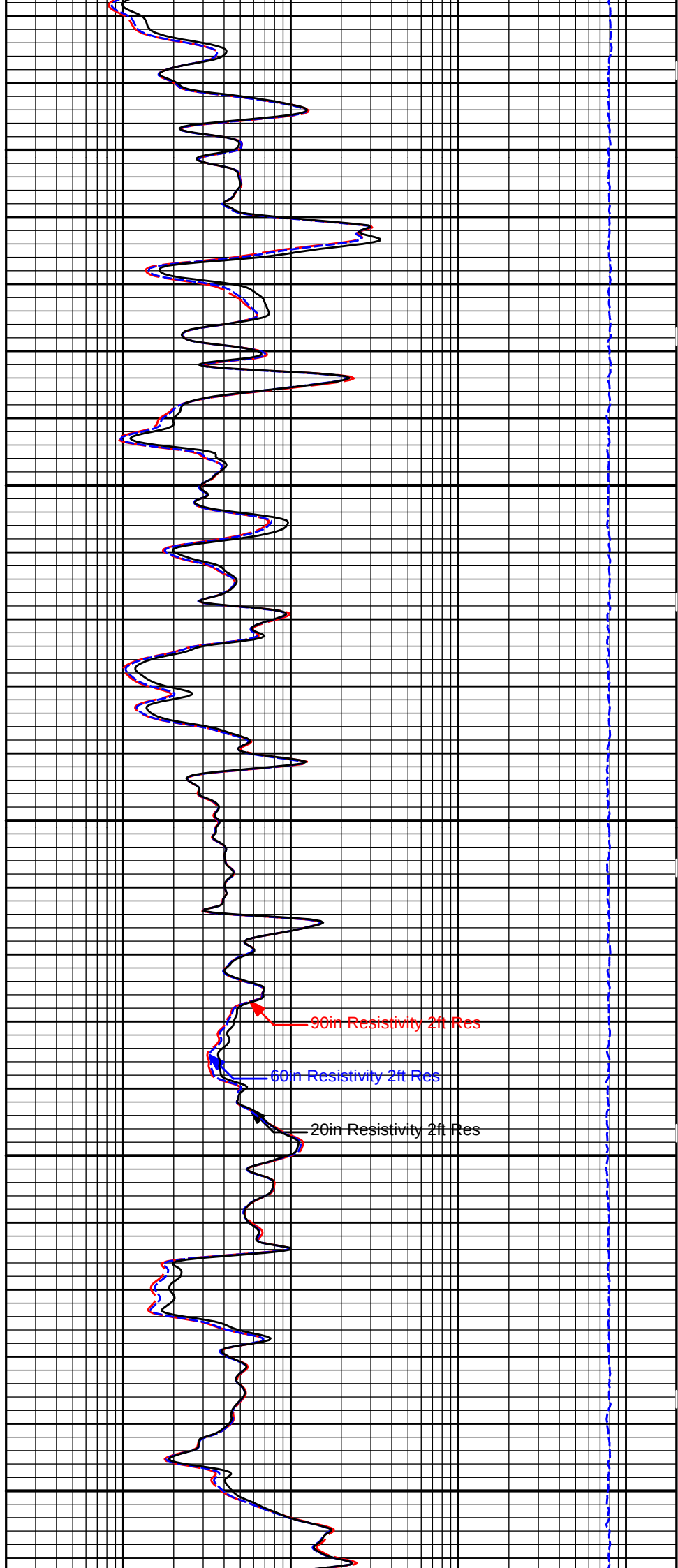
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3150

3200

3250

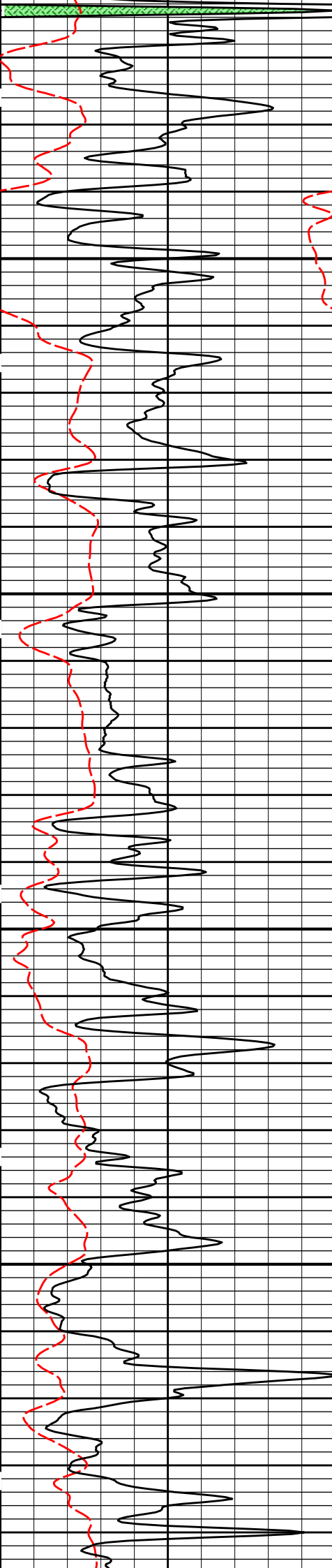
Gamma API



90in Resistivity 2ft Res

60in Resistivity 2ft Res

20in Resistivity 2ft Res

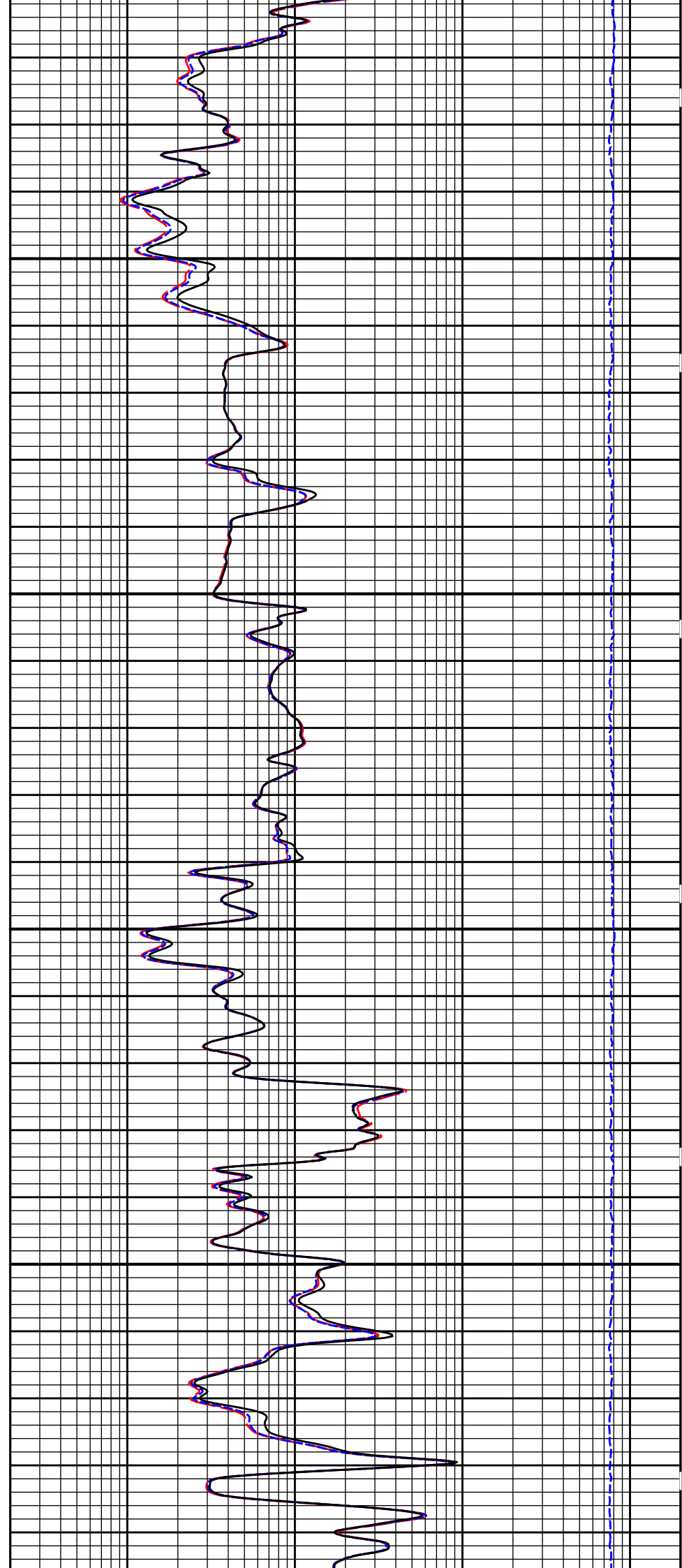


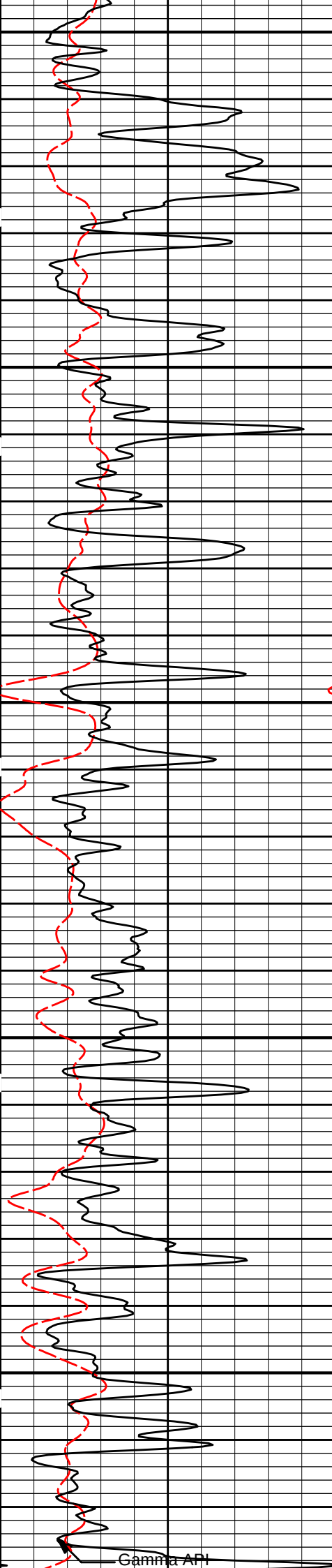
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3350

3400

3450





3500

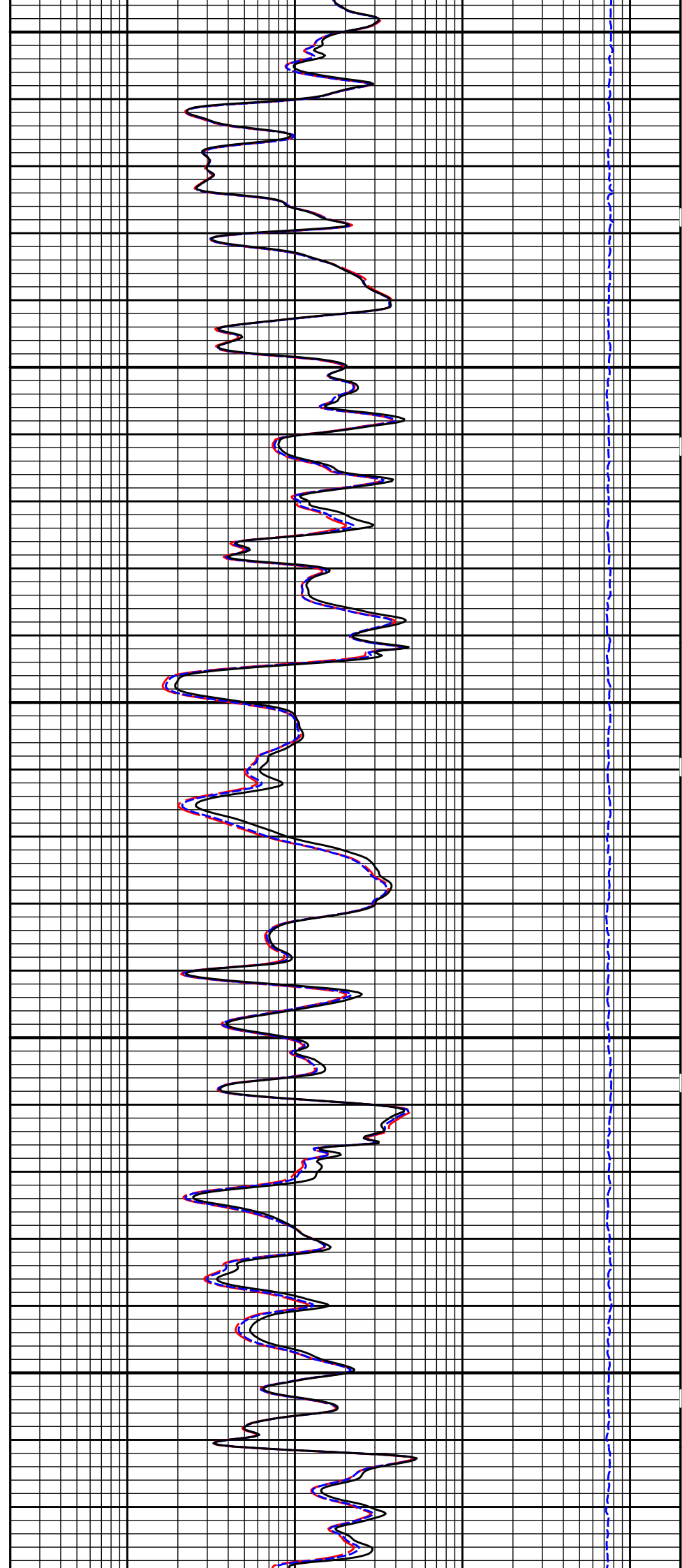
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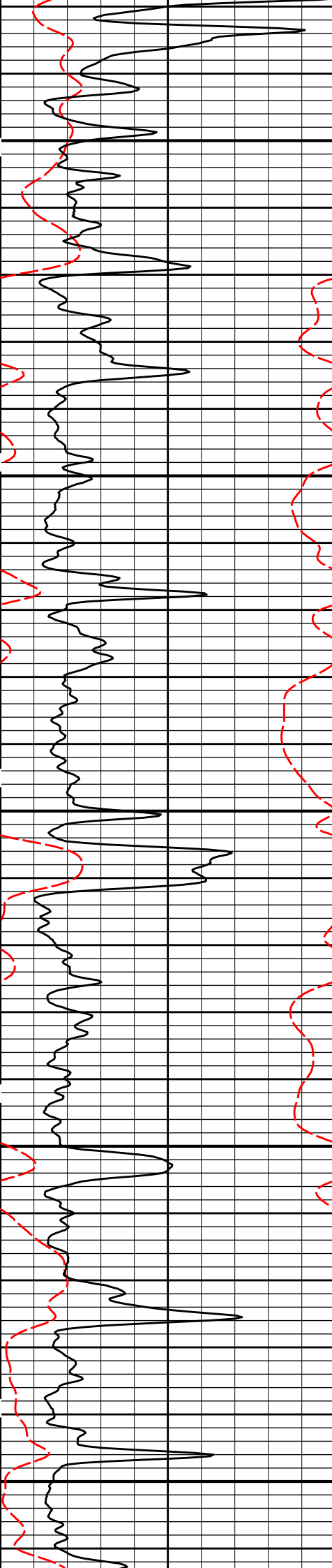
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3650

3700

Gamma API





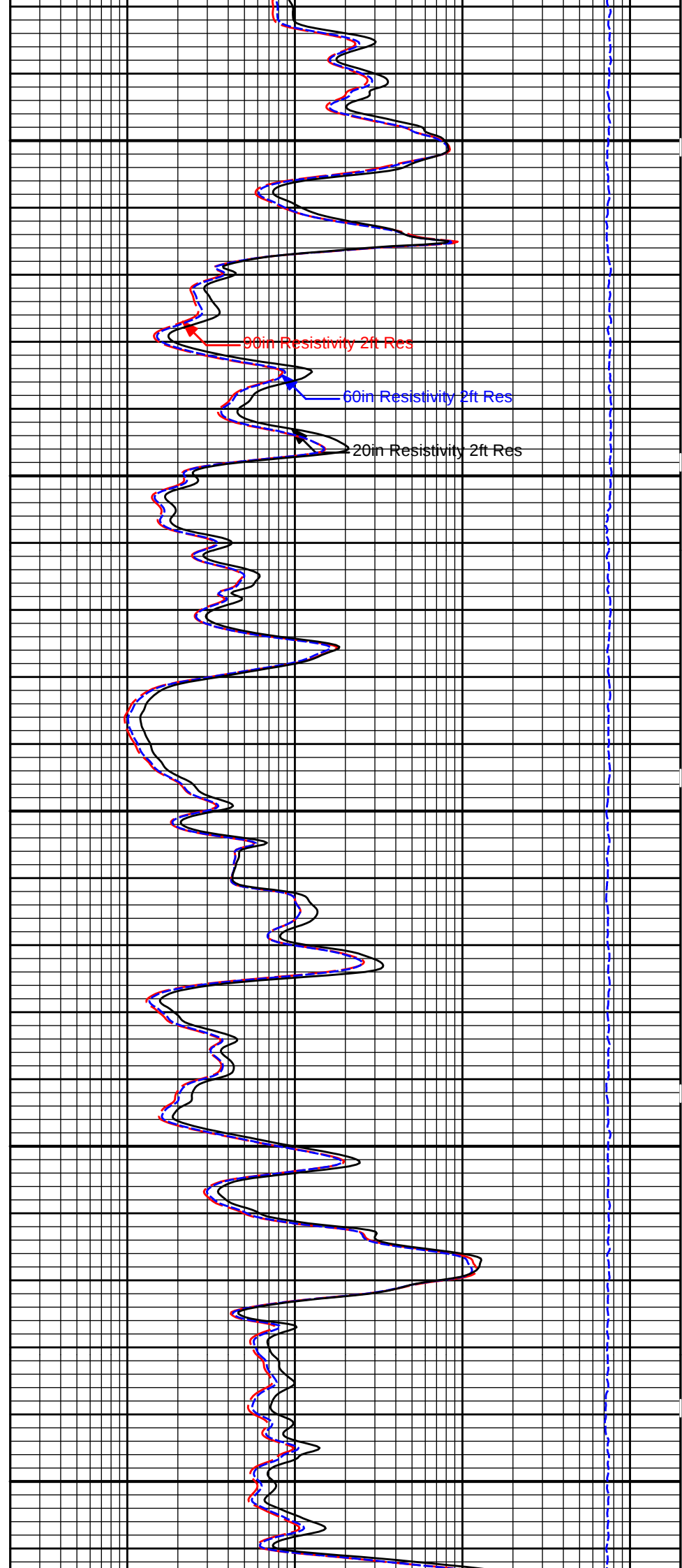
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3800

3850

3900

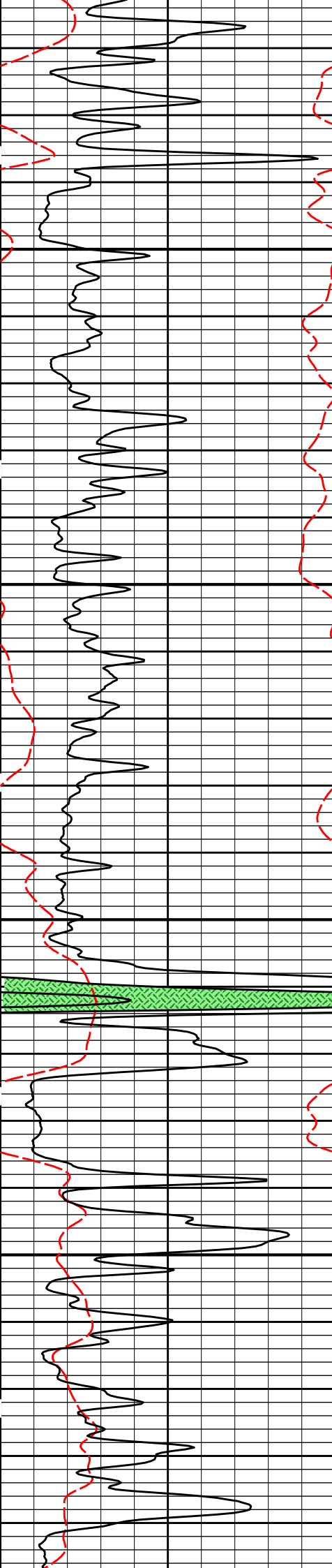
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90in Resistivity 2ft Res

60in Resistivity 2ft Res

20in Resistivity 2ft Res

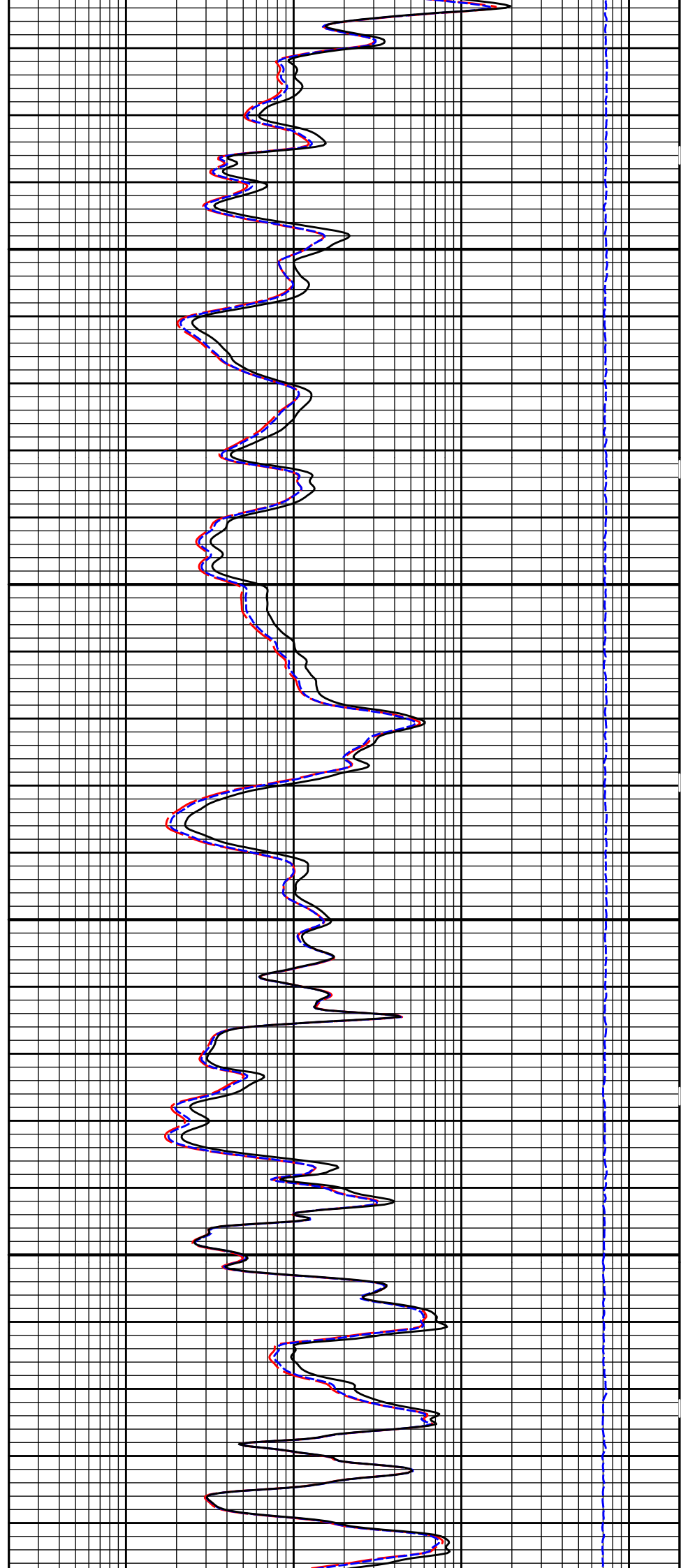


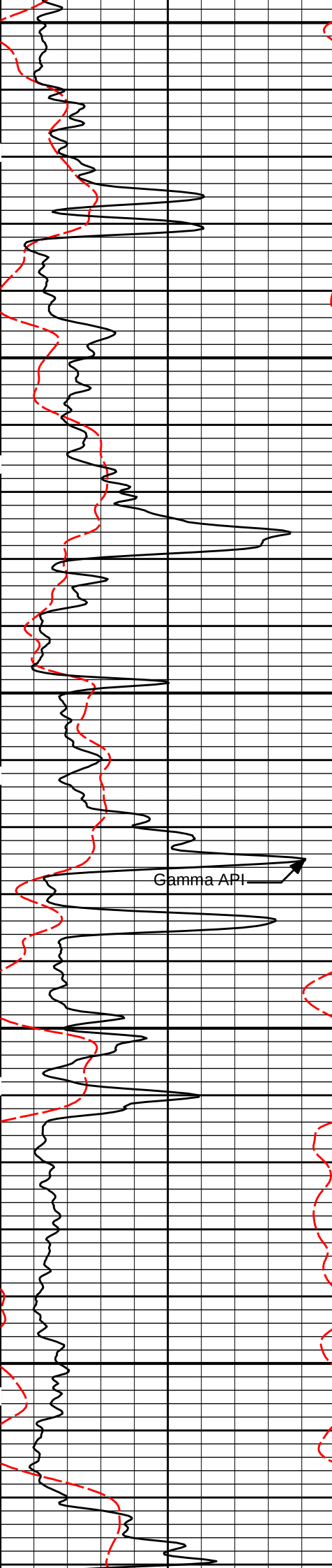
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4050

4100

4150





4200

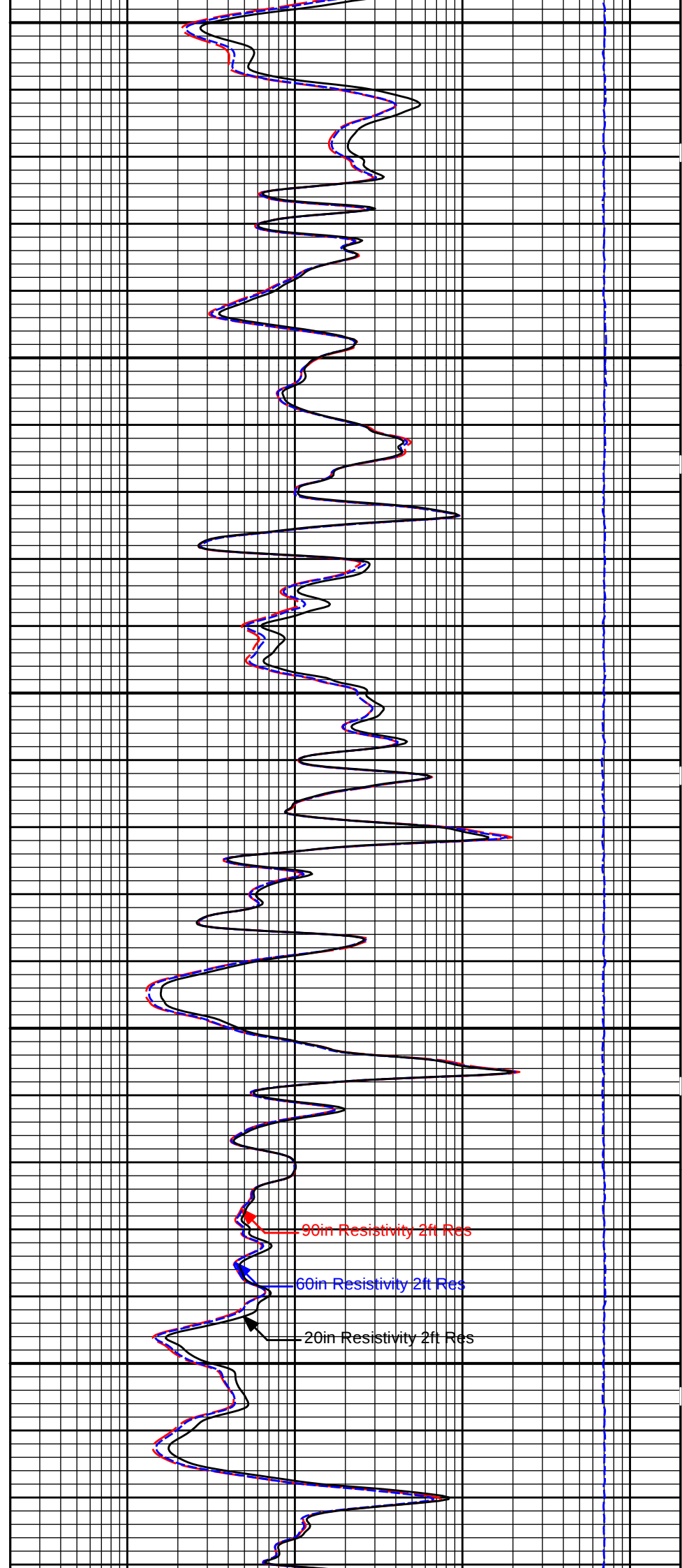
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4300

4350

4400

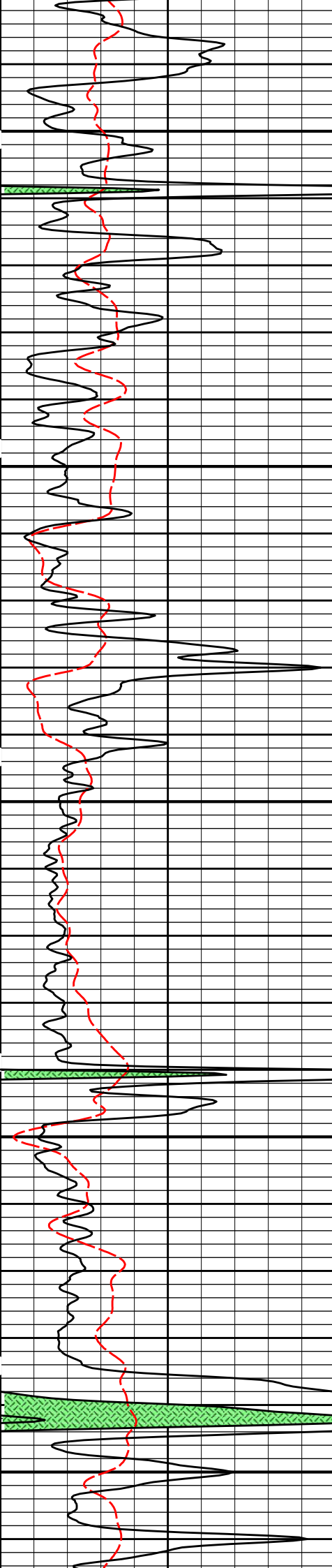
Gamma API



90in Resistivity 2ft Res

60in Resistivity 2ft Res

20in Resistivity 2ft Res



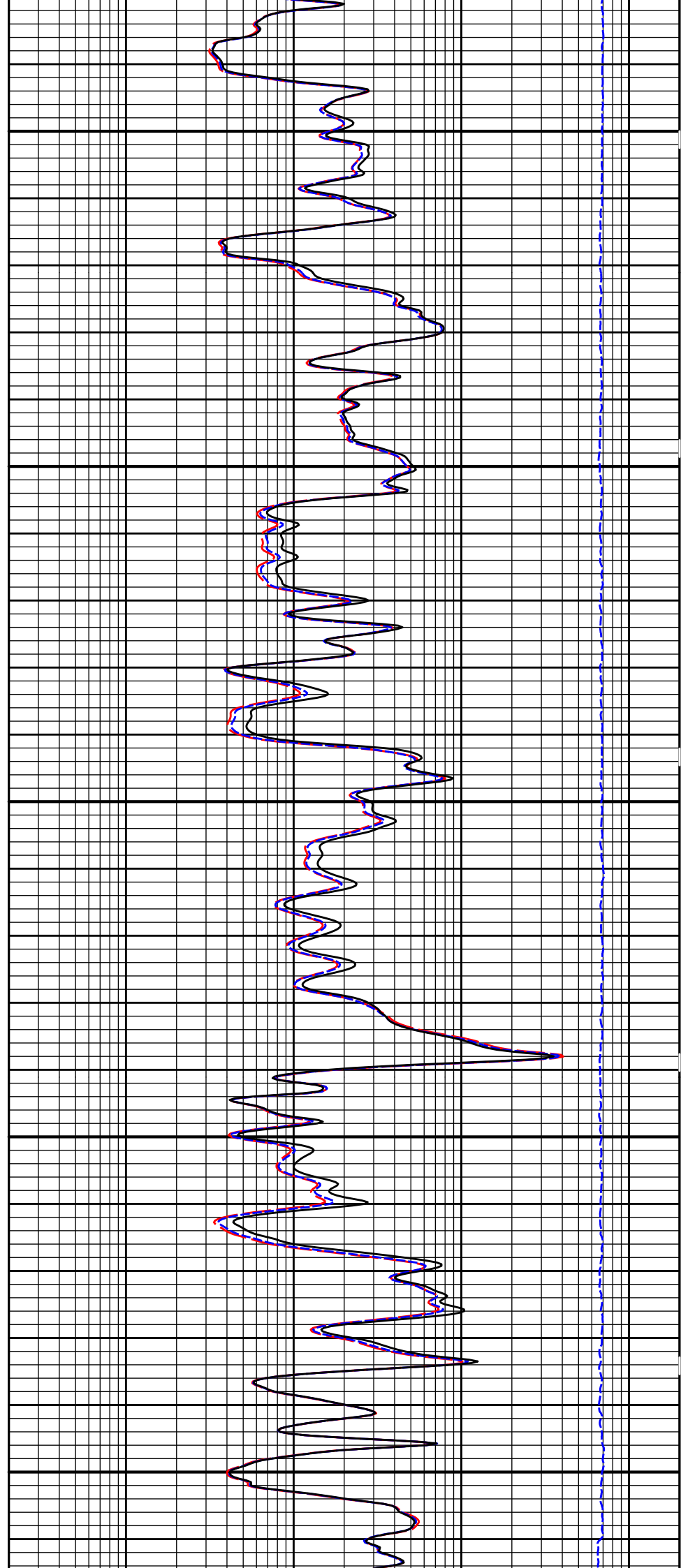
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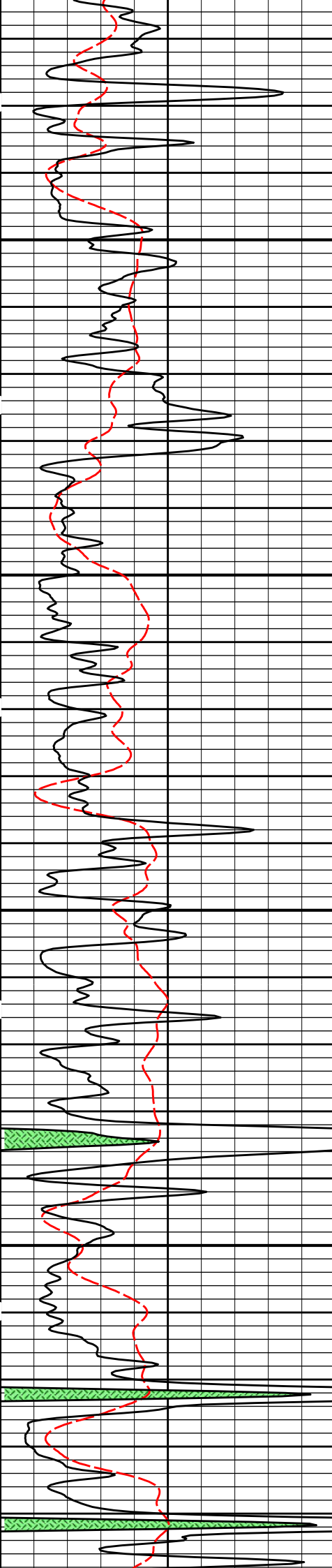
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4550

4600

4650



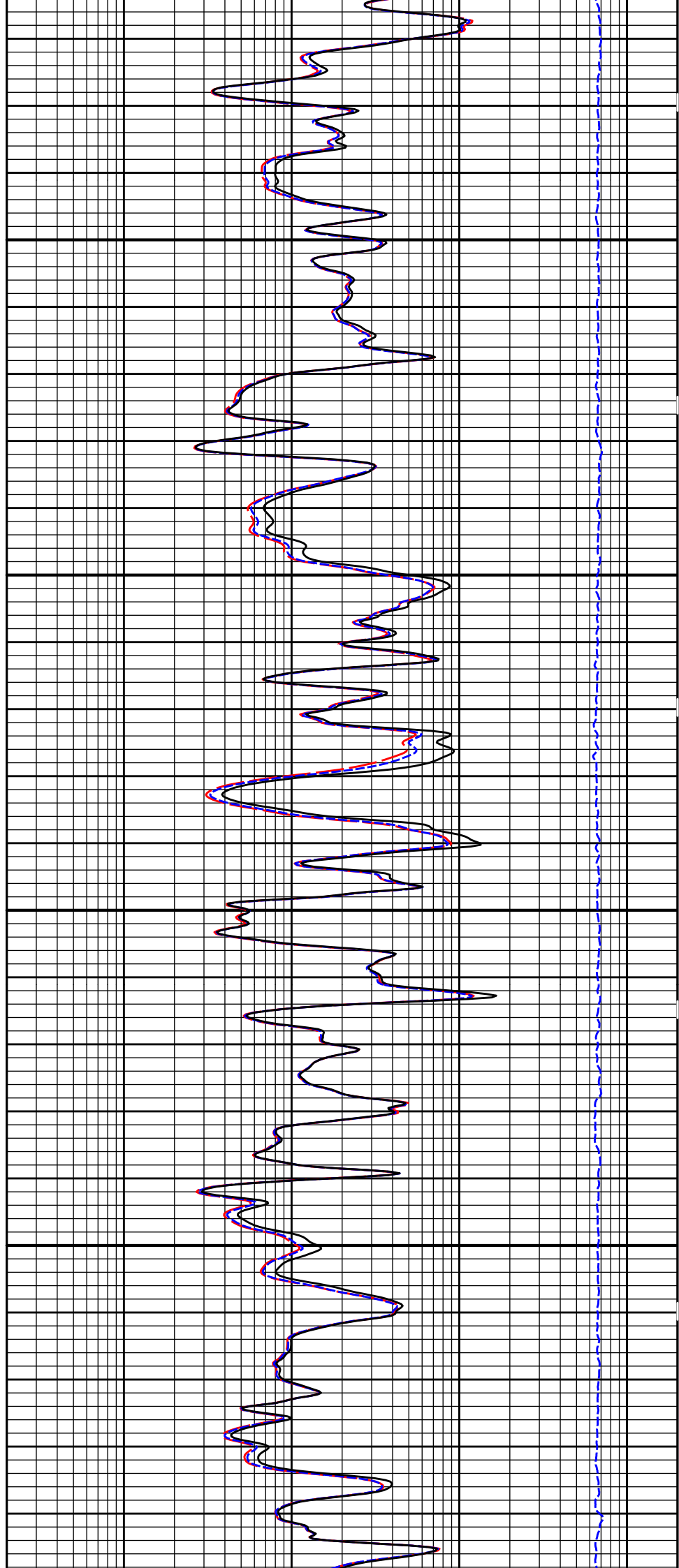


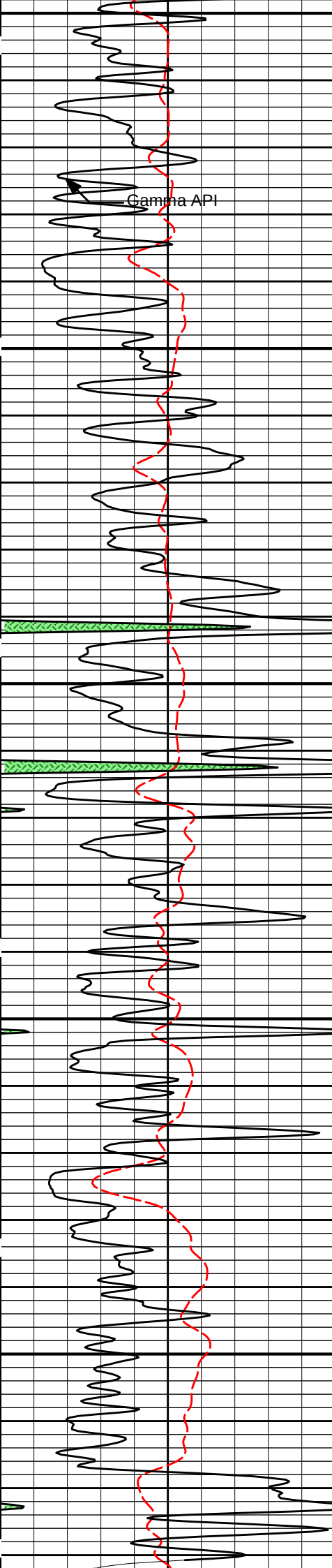
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4750

4800

4850





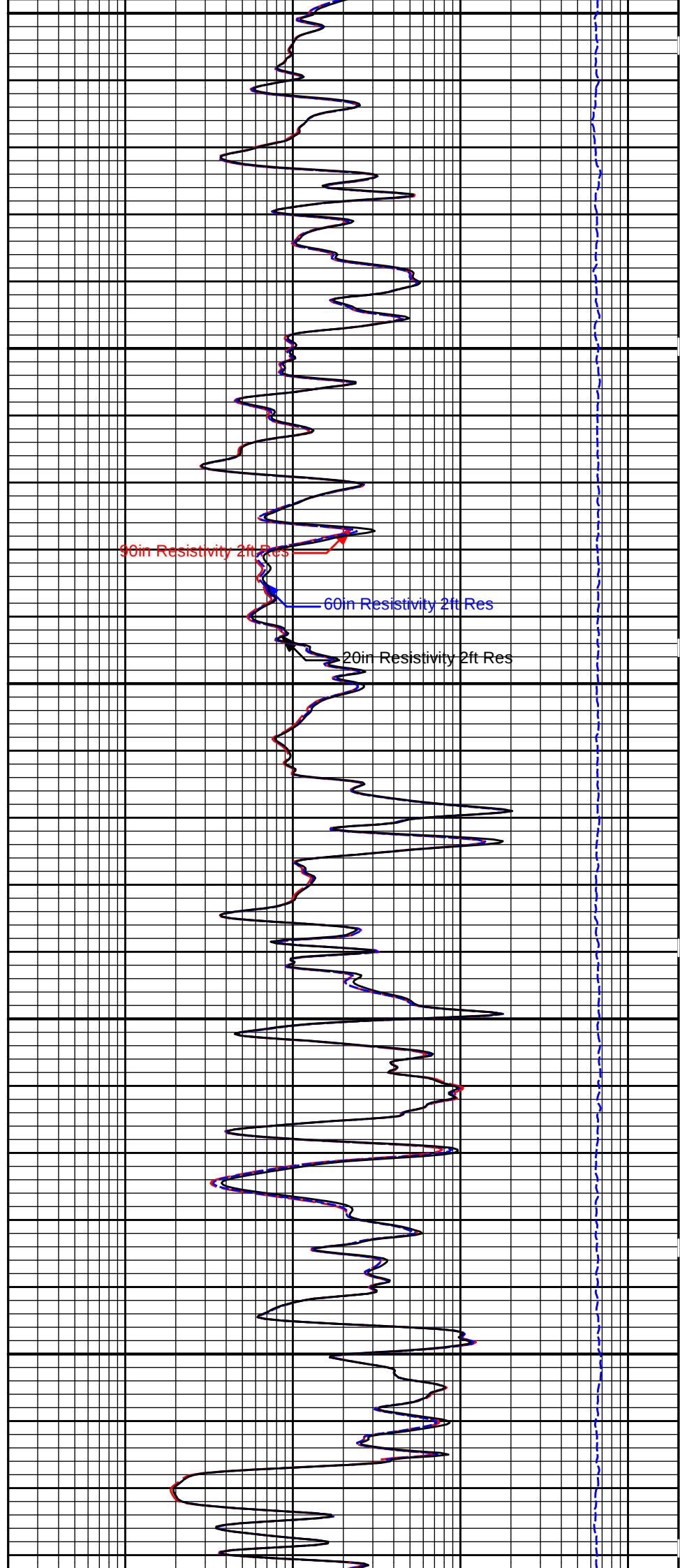
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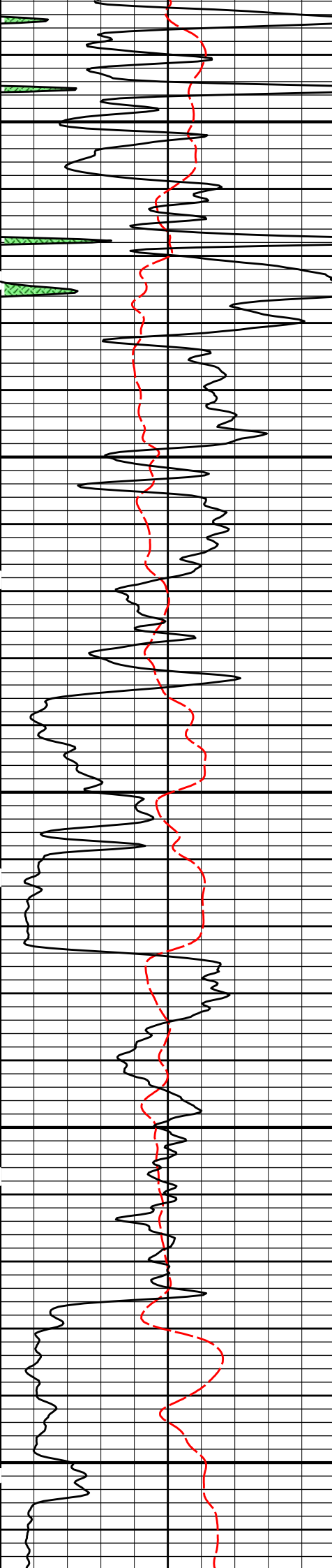
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5000

5050

5100





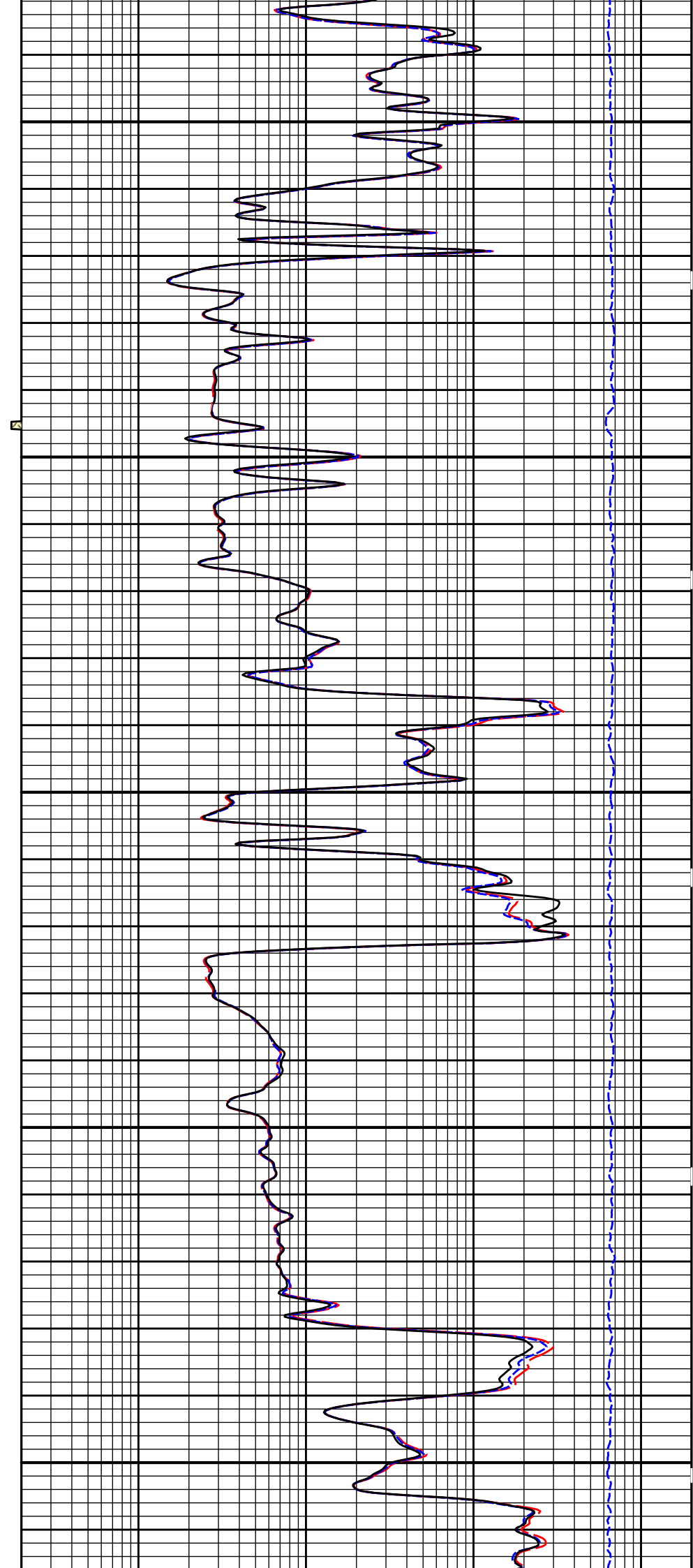
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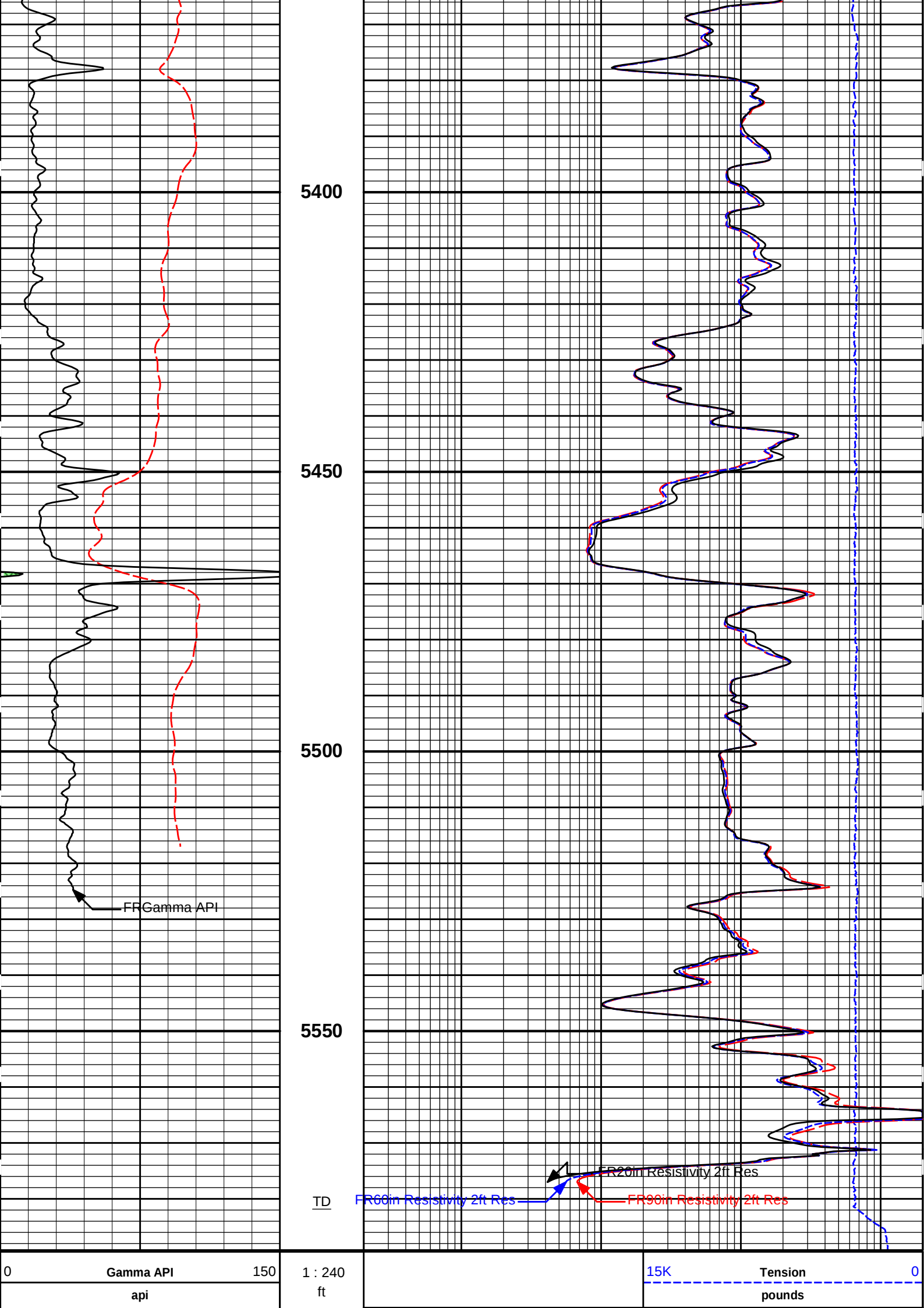
5200

5250

5300

5350





0	Gamma API	150	1 : 240	15K	Tension	0
	api		ft		pounds	

SP -] 20 mV [+]	Tension Pull 10	0.2	20in Resistivity 2ft Res	2000
			ohm-metre	
		0.2	60in Resistivity 2ft Res	2000
			ohmm	
		0.2	90in Resistivity 2ft Res	2000
			ohmm	

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Plot Time: 01-Oct-17 16:57:45
Plot Range: 1780 ft to 5589.17 ft
Data: MERIT_KELLS I-1\Well Based\MAIN\
Plot File: \\-LOCAL-\\MERIT_KELLS I-1\\0001 GTET-DSN-SDL-FLX-BSAT-ACRT\\ACRT\\1_ACRT_5_mainx

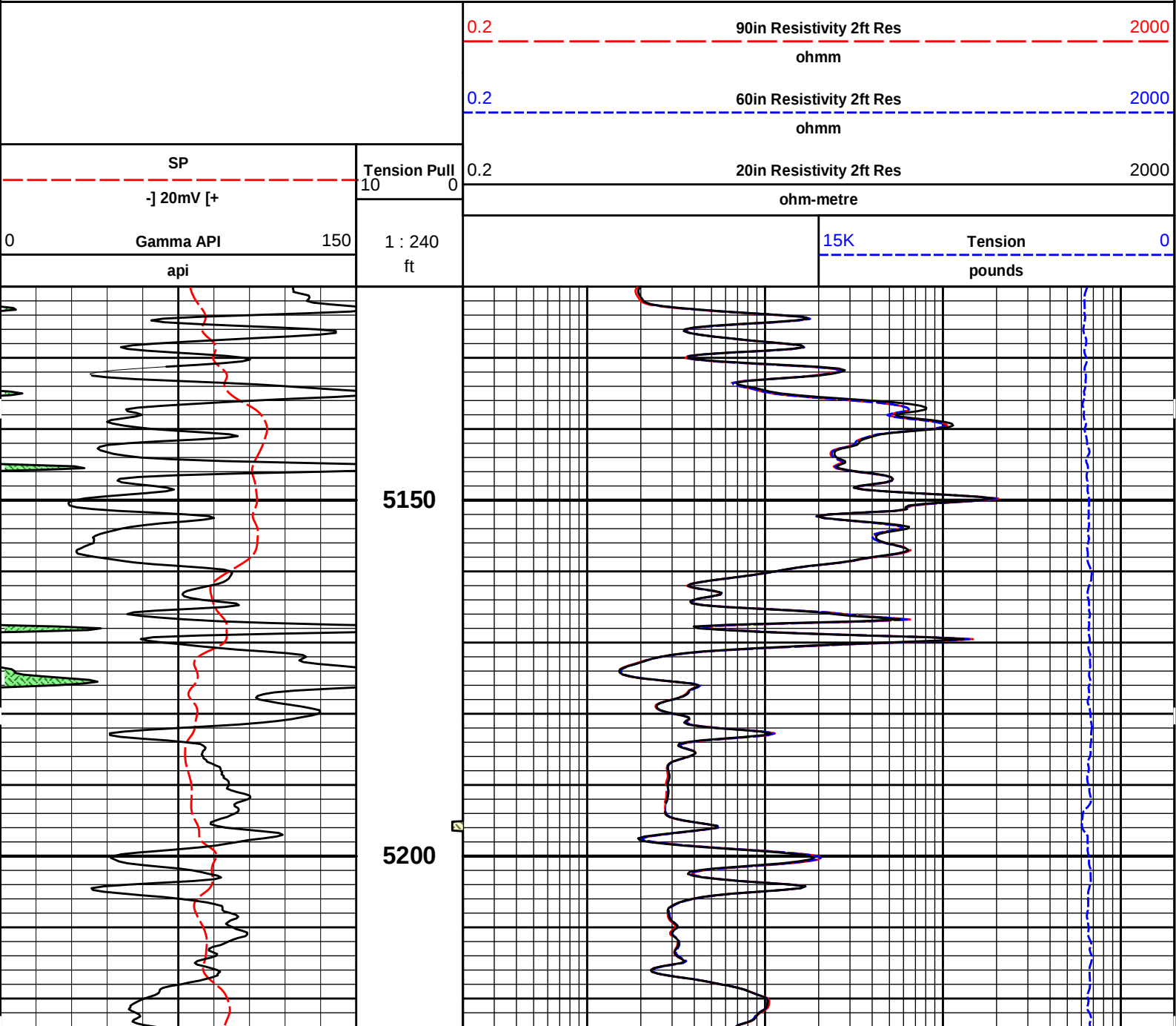
5 INCH MAIN LOG

SP -] 20mV [+]	Tension Pull 10	0.2	20in 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: 01-Oct-17 16:57:45
Plot Range: 5120 ft to 5585.33 ft
Data: MERIT_KELLS I-1\Well Based\\REPEAT\
Plot File: \\-LOCAL-\\MERIT_KELLS I-1\\0001 GTET-DSN-SDL-FLX-BSAT-ACRT\\ACRT\\1_ACRT_5_rptx

REPEAT SECTION





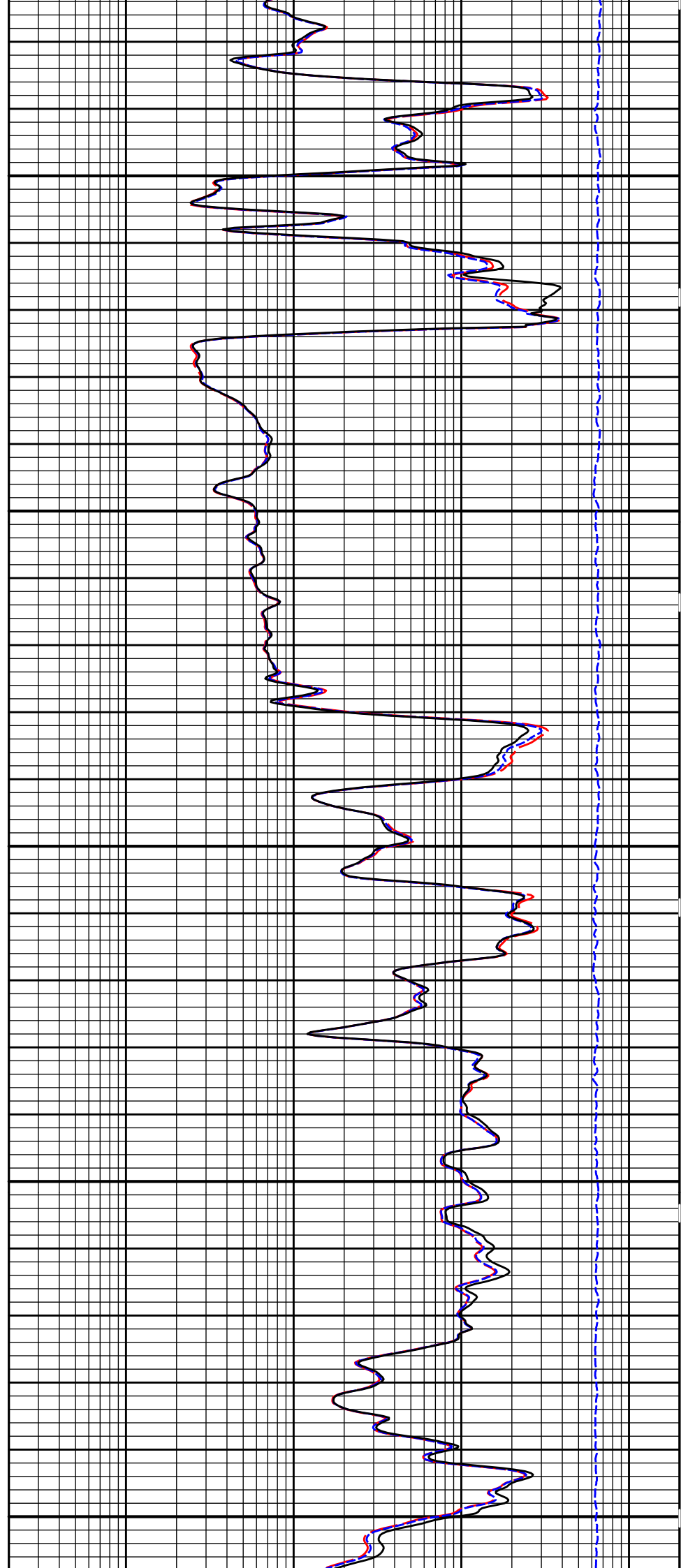
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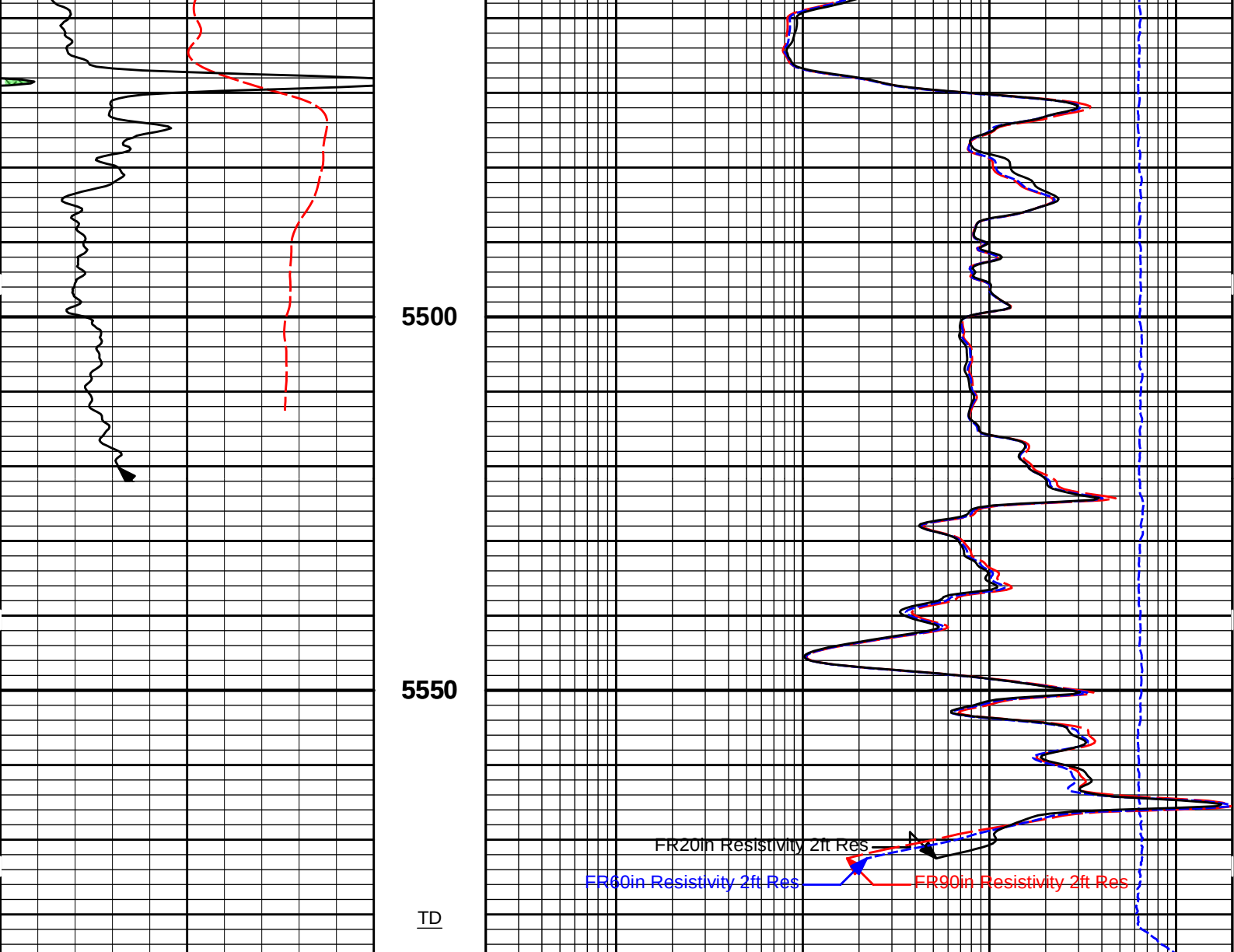
5300

5350

5400

5450





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

HALLIBURTON

Plot Time: 01-Oct-17 16:57:47
Plot Range: 5120 ft to 5585.33 ft
Data: MERIT_KELLS I-1\Well Based\REPEAT\
Plot File: \\-LOCAL-MERIT_KELLS I-1\0001 GTET-DSN-SDL-FLX-BSAT-ACRT\ACRT\1_ ACRT_5_rptx

REPEAT SECTION

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	URS	Use Bit Size instead of Caliper for all applications	No	

SHARED	CSD	COO Lit Size instead of Caliper for all applications?	No	
SHARED	MDBS	Mud Base	Water	
SHARED	MDWT	Borehole Fluid Weight	9.100	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	1.200	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	CSTR	Compressive Strength	1000.00	psia
SHARED	ST	Surface Temperature	75.0	degF
SHARED	TD	Total Well Depth	5578.00	ft
SHARED	BHT	Bottom Hole Temperature	142.0	degF
SHARED	SVTM	Navigation and Survey Master Tool	NONE	
SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
SHARED	TEMM	CBM Temperature Master Tool	GTET	
Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
Rwa / CrossPlot	FCHO	Select Source of F	Density	
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	
Rwa / CrossPlot	BHSM	Borehole Size Source Tool	SDLT	
Rwa / CrossPlot	ROIN	Input for RO Calculation	Rwa	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GEOK	Process Gamma Ray EVR?	No	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
GTET	BHSM	Borehole Size Source Tool	SDLT	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DSNO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTT	Temperature Correction Type	Gradient	
DSNT	DNTT	Top Zone Temperature Value	75.0	degF
DSNT	DNBT	DSN Bottom Zone Temperature Value	142.0	degF
DSNT	DTDT	Top Depth for Temperature Gradient Calculation (Measured Depth)	0	ft
DSNT	DBDT	Bottom Zone Temperature Depth (Measured Depth)	5578	ft
DSNT	DPRS	DSN Pressure Correction Type	Gradient	
DSNT	DNTP	DSN Top Zone Pressure Value	14.70	psia
DSNT	DNBP	DSN Bottom Zone Pressure Value	2640.00	psia
DSNT	DTDP	Top Depth for Pressure Gradient Calculation (Measured Depth)	0	ft
DSNT	DNDP	Bottom Zone Pressure Depth (Measured Depth)	5578	ft
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
DSNT	BHSM	Borehole Size Source Tool	SDLT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	

SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
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 Pore 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	1.19	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Centered	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMAX	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	SDLT	
ACRt Sonde	MBFL	Apply Corkscrew Effect?	No	
BOTTOM				
Data: MERIT_KELLS I-110001 GTET-DSN-SDL-FLX-BSAT-ACRTIDLE			Date: 01-Oct-17 14:58:14	



CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11021139

Reference Calibration Date: 03-Aug-17 01:40:19

Engineer: WHITLOCK

Calibration Date: 23-Sep-17 12:22:06

Software Version: WL INSITE R5.0.5 (Build 8)

Calibration Version: 1

Calibrator Source S/N: TB79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Measurement	Measured	Calibrated	Units
Background	18.8	18.6	api
Background + Calibrator	247.0	244.5	api
Calibrator	228.2	225.9	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 11021139

Reference Calibration Date: 23-Sep-17 12:22:06

Engineer: WHITLOCK

Calibration Date: 27-Sep-17 10:26:06

Software Version: WL INSITE R5.0.5 (Build 8)

Calibration Version: 1

Calibrator Source S/N: TB79

Calibrator API Reference:222.00 api

Equivalent Calibrator API Reference:225.9 api

Field Verification	Shop	Field	Units
Background	18.6	20.9	api
Background + Calibrator	244.5	245.7	api

Shop	Field	Difference	Tolerance
225.9	224.8	1.1	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	DSNT - 11020487	Reference Calibration Date:	05-Jun-17 14:14:28
Engineer:	MICHAEL RICHTER	Calibration Date:	03-Aug-17 01:56:12
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

Logging Source S/N: DSN-436
Tank Serial Number: EL RENO
Reference value assigned to Tank: 56.100
Snow Block S/N: 12156883
Calibration Tank Water Temperature: 72 degF
Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value

Gain:	0.99837	0.99685	0.900 - 1.100
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WATER TANK SUMMARY (Horizontal Water Tank)				
Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2363	0.2358	0.0005	+/- 0.0020
Calibrated Ratio:	10.5757	10.5596	0.016	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0746	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 - 11020487	Reference Calibration Date:	03-Aug-17 01:56:12
Engineer:	WHITLOCK	Calibration Date:	27-Sep-17 10:36:11
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

Logging Source S/N: DSN-436
Snow Block S/N: 12156883

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0746	0.0691	-0.0054	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name:	SDLT - 11014296	Reference Calibration Date:	06-Nov-16 12:09:13
Engineer:	MICHAEL RICHTER	Calibration Date:	15-Mar-17 09:33:53
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4335.63	-4512.85	-7000.00 - -1000.00
Pad Gain	0.0003910	0.0004190	0.0002000 - 0.0006000
Arm Offset	-3121.03	-2559.45	-5000.00 - 3000.00
Arm Gain	0.0005117	0.0005078	0.000300 - 0.000700
Arm Power	-0.000003980	-0.000003959	-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)	1.94	2.00	0.06	+/- 0.20
Medium Ring (in)	3.57	3.75	0.18	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.31	6.50	0.19	+/- 0.20
Medium Ring (in)	8.08	8.25	0.17	+/- 0.20
Large Ring (in)	14.92	15.00	0.08	+/- 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 - 11014296

Reference Calibration Date: 15-Mar-17 09:33:53

Engineer: WHITLOCK

Calibration Date: 27-Sep-17 10:11:22

Software Version: WL INSITE R5.0.5 (Build 8)

Calibration Version: 1

MEASURED CALIPER VALUES				
Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.84	0.09	+/- 0.10
Ring Diameter	8.25	8.31	0.06	+/- 0.15

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

MICRO LOG SHOP CALIBRATION

Tool Name: Microlog Pad - 11014296

Reference Calibration Date: 06-Jun-17 12:12:34

Engineer: MICHAEL RICHTER

Calibration Date: 03-Aug-17 02:26:45

Software Version: WL INSITE R5.0.5 (Build 8)

Calibration Version: 1

Host Tool Name: DSNT - 11020487

CALIBRATION COEFFICIENT SUMMARY					
Measurement	Micro Log Normal		Micro Log Lateral		Units
	Measured	Calibrated	Measured	Calibrated	
Tool Zero	-0.21	-0.43	-0.01	0.00	ohmm
Calibration Point #1	0.23	0.00	-0.01	0.00	ohmm
Calibration Point #2	20.26	20.00	20.00	20.00	ohmm
Internal Reference	19.85	19.59	20.01	20.01	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-0.14	-1.30	V
Calibration Point #1	115.47	-2.05	V
Calibration Point #2	5448.88	6908.76	V
Internal Reference	5338.32	6913.91	V

MICRO LOG FIELD CHECK			
Tool Name:	Microlog Pad - 11014296	Reference Calibration Date:	03-Aug-17 02:26:45
Engineer:	WHITLOCK	Calibration Date:	27-Sep-17 10:56:14
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

	Measurement	Micro Log Normal		Micro Log Lateral		Units
		Shop	Field	Shop	Field	
	Tool Zero	-0.43	-0.44	0.00	0.01	ohmm
	Internal Reference	19.59	19.46	20.01	19.88	ohmm
Summary						
	Signal	Shop	Field	Difference		Tolerance
	Microlog Normal	19.59	19.46	0.13		+/- 0.80
	Microlog Lateral	20.01	19.88	0.13		+/- 0.80

SPECTRAL DENSITY SHOP CALIBRATION			
Tool Name:	SDLT Pad - 10809130	Reference Calibration Date:	25-May-17 12:11:12
Engineer:	MICHAEL RICHTER	Calibration Date:	03-Aug-17 02:19:19
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

Logging Source S/N: 5155GW		
Aluminum Block S/N: EL RENO	Density: 2.581g/cc	Pe: 3.170
Magnesium Block S/N: EL RENO MG	Density: 1.687g/cc	Pe: 2.594

DENSITY CALIBRATION SUMMARY			
Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0466	0.9648	0.90 - 1.10
Near Dens Gain	1.0202	0.9664	0.90 - 1.10
Near Peak Gain	1.0587	0.9808	0.90 - 1.10
Near Lith Gain	1.0474	0.9899	0.90 - 1.10
Far Bar Gain	1.0144	1.0063	0.90 - 1.10
Far Dens Gain	1.0018	0.9910	0.90 - 1.10
Far Peak Gain	0.9968	0.9885	0.90 - 1.10
Far Lith Gain	0.9703	0.9595	0.90 - 1.10
Near Bar Offset	-0.1512	0.5881	NONE
Near Dens Offset	0.0840	0.5517	NONE
Near Peak Offset	-0.2272	0.4091	NONE
Near Lith Offset	-0.1986	0.2702	NONE
Far Bar Offset	0.0686	0.1331	NONE
Far Dens Offset	0.1508	0.2380	NONE
Far Peak Offset	0.1449	0.2044	NONE
Far Lith Offset	0.2786	0.3450	NONE
Near Bar Background	815.93	813.79	700 - 1450
Near Dens Background	269.20	265.74	230 - 480
Near Peak Background	115.80	115.36	100 - 210
Near Lith Background	146.10	144.32	125 - 260
Far Bar Background	479.68	477.53	450 - 900
Far Dens Background	184.50	185.37	175 - 345
Far Peak Background	72.51	72.20	70 - 140
Far Lith Background	76.60	75.50	75 - 145

CALIBRATION BLOCK SUMMARY				
Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.689	1.687	-0.002	+/- 0.015
Pe	2.521	2.561	0.040	+/- 0.150
ALUMINUM				
Density (g/cc)	2.574	2.580	0.006	+/- 0.01500
Pe	3.085	3.134	0.049	+/- 0.150

TOOL SUMMARY				
Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0002	+/- 0.0110	-0.0029	+/- 0.0140
Magnesium Block	-0.0013	+/- 0.0110	-0.0010	+/- 0.0140
Aluminum Block	-0.0009	+/- 0.0110	-0.0014	+/- 0.0140
Resolution	8.91	6.00 - 11.50	9.49	6.00 - 11.50
Internal Verifier(B+D+P+L)	1339	1200 - 2700	811	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 - 10809130	Reference Calibration Date:	03-Aug-17 02:19:19
Engineer:	WHITLOCK	Calibration Date:	27-Sep-17 11:00:05
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1

Pad Temperature: 70.0 degF

DENSITY FIELD CALIBRATION SUMMARY				
Measurement	Shop	Field	Change	Control Limit +/-
Near (B+D+P+L) cps	1339.219	1341.398	2.179	14.801
Far (B+D+P+L) cps	810.608	809.039	-1.569	15.737
Near Resolution	8.91	8.94	0.030	0.50
Far Resolution	9.49	9.33	-0.160	1.00

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

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	ACRt Sonde - 11038385	Reference Calibration Date:	12-Sep-17 13:48:00
Engineer:	JORGE ORLANDO PEREZ	Calibration Date:	12-Sep-17 13:58:19
Software Version:	WL INSITE R5.0.5 (Build 8)	Calibration Version:	1
Host Tool Name:	ACRt Instrument - 11055059		

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0395	1.05	0.95	1.0229	1.05	0.95	1.0146	1.05
A2 (50")	0.95	1.0409	1.05	0.95	1.0225	1.05	0.95	1.0165	1.05
A3 (29")	0.95	1.0384	1.05	0.95	1.0194	1.05	0.95	1.0115	1.05
A4 (17")	0.95	1.0343	1.05	0.95	1.0133	1.05	0.95	1.0069	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0083	1.05	0.95	0.9989	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.0000	1.05	0.95	0.9929	1.05

SONDE OFFSET									
Subarray	R12KHz			R36KHz			R72KHz		
	(mmho/m)			(mmho/m)			(mmho/m)		
A1 (80")	0.702			-4.637			-5.501		
A2 (50")	-0.771			-4.034			-5.172		
A3 (29")	-13.230			-3.699			-3.350		
A4 (17")	-110.240			-33.969			-26.356		
A5 (10")	N/A			-83.665			-41.621		
A6 (6")	N/A			333.771			173.557		

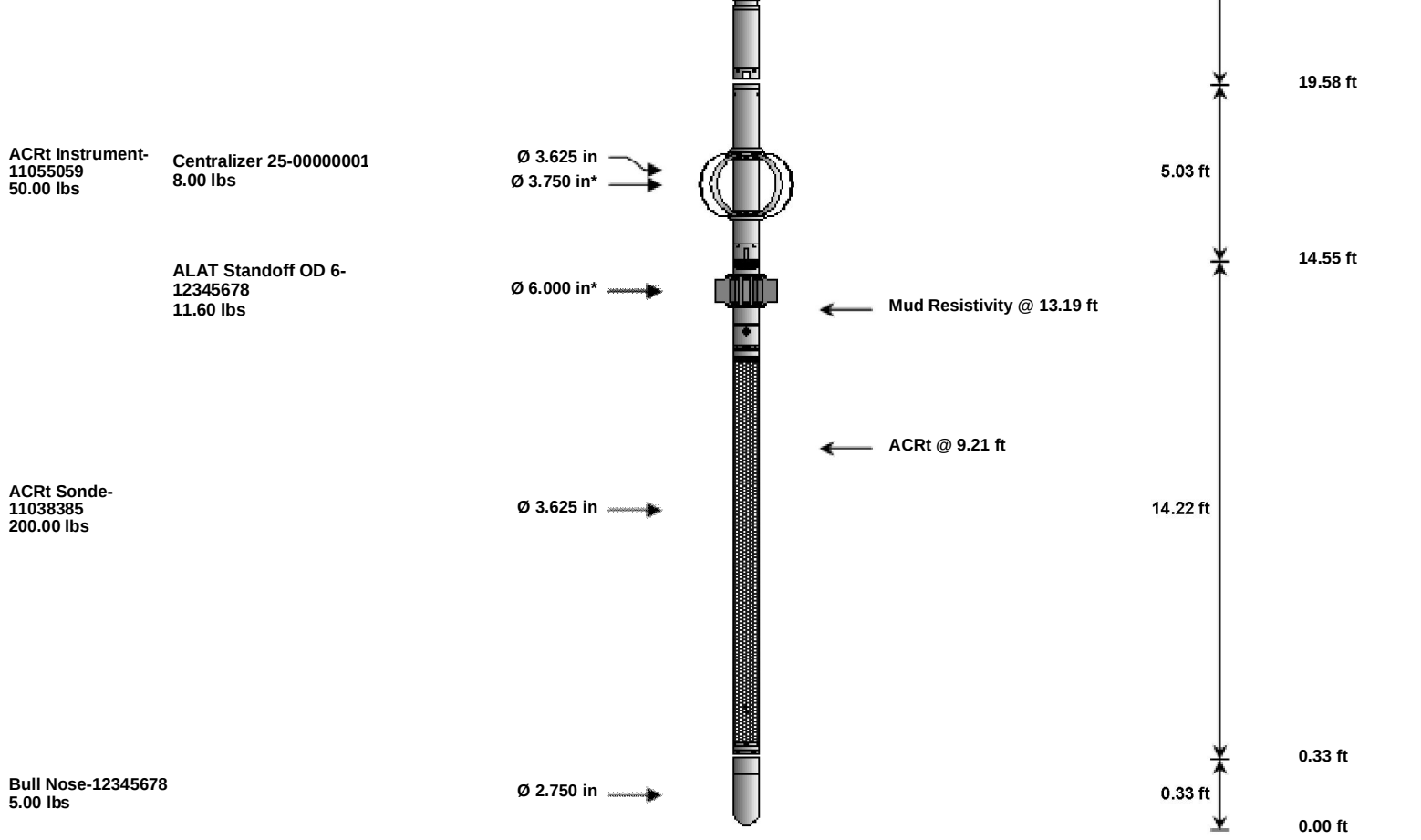
TRANSMITTER CURRENT GAIN				R-MUD VERIFICATION			
Signal	Lower	R	Upper	Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
12K	0.6	0.90	1.3	Mud Cell	0.95	1.00	1.05
36K	1.0	1.36	2.0				
72K	1.0	1.62	2.0				
PASS/FAIL SUMMARY							
GAIN RANGE CHK				PASS			
SONDE OFFSET CHK				PASS			
TOOL OK TO LOG							

CALIBRATION SUMMARY						
Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-11021139						
Gamma Ray Calibrator	225.9	224.8	-----	1.1	+/- 9.00	api
DSNT-11020487						
Snow-Block Porosity	0.0746	0.0691	-----	0.0055	+/- 0.0150	decp
SDLT-11014296						
Pad Extension	3.75	3.84	-----	-0.09	+/-0.10	in
Ring Diameter	8.25	8.31	-----	-0.06	+/-0.15	in
Microlog Pad-11014296						
MicroLog Normal	19.59	19.46	-----	0.13	+/-0.80	ohmm
MicroLog Lateral	20.01	19.88	-----	0.13	+/-0.80	ohmm
SDLT Pad-10809130						
Near(B+D+P+L)	1339.219	1341.398	-----	-2.179	+/-14.801	cps
Far(B+D+P+L)	810.608	809.039	-----	1.569	+/-15.737	cps
ACRt Sonde-11038385						
Mud Cell	1.00	-----	-----	0	-----	ohm-m

Data: MERIT_KELLS I-110001 GTET-DSN-SDL-FLX-BSAT-ACRTIDLE	Date: 01-Oct-17 14:58:39
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HALLIBURTON
TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
CH_HOS_I 37.50 lbs		Ø 2.750 in		Temperature @ 76.74 ft	2.25 ft	76.99 ft
XOHD-11021555 20.00 lbs		Ø 2.750 in Ø 3.625 in			0.95 ft	74.74 ft
SP Sub-10904995 60.00 lbs		Ø 3.625 in		SP @ 72.01 ft	3.74 ft	73.79 ft
				Z-Accelerometer @ 69.60 ft		70.05 ft
GTET-11021139 165.00 lbs		Ø 3.625 in			8.52 ft	
				GammaRay @ 63.99 ft		61.53 ft
DSNT-11020487 174.00 lbs	DSN Decentralizer-11023947 6.60 lbs	Ø 5.000 in* Ø 3.625 in		DSN Far @ 54.59 ft DSN Near @ 53.84 ft	9.69 ft	51.84 ft
SDLT-11014296 360.00 lbs	SDLT Pad-10809130 65.00 lbs Microlog Pad-11014296 8.00 lbs RAM-Cs137-10948154 1.00 lbs	Ø 4.500 in Ø 4.500 in* Ø 4.750 in* Ø 0.800 in*		Microlog @ 44.03 ft SDL Caliper @ 43.84 ft SDL @ 43.83 ft	10.81 ft	41.03 ft
IQ Flex-10973274 140.00 lbs		Ø 3.625 in			5.67 ft	35.36 ft
	Centralizer 25-00000002 8.00 lbs	Ø 3.750 in*				
BSAT-10939049 300.00 lbs		Ø 3.625 in		Receiver Array @ 26.84 ft Sonic Receivers @ 26.84 ft	15.77 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		CH_HOS_I	37.50	2.25	74.74	300.00
XOHD	Hostile to Dits Cross Over		11021555	20.00	0.95	73.79	300.00
SP	SP Sub		10904995	60.00	3.74	70.05	300.00
GTET	Gamma Telemetry Tool		11021139	165.00	8.52	61.53	60.00
DSNT	Dual Spaced Neutron		11020487	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer		11023947	6.60	5.13	* 55.17	300.00
SDLT	Spectral Density Tool		11014296	360.00	10.81	41.03	60.00
SDLP	Density Insite Pad		10809130	65.00	2.55	* 43.24	60.00
Cs137	Logging Source, SDLT-I, 1.78 Ci - Cs137		10948154	1.00	0.80	* 43.47	300.00
MICP	Microlog Pad		11014296	8.00	1.00	* 43.53	60.00
IQF	IQ Flex tool		10973274	140.00	5.67	35.36	300.00
BSAT	Borehole Sonic Array Tool		10939049	300.00	15.77	19.58	60.00
OBCEN	Centralizer - 25 in. Overbody		00000002	8.00	2.08	* 32.44	300.00
ACrt	Array Compensated True Resistivity Instrument Section		11055059	50.00	5.03	14.55	120.00
OBCEN	Centralizer - 25 in. Overbody		00000001	8.00	2.08	* 15.70	300.00
ACrt	Array Compensated True Resistivity Sonde Section		11038385	200.00	14.22	0.33	120.00
ALATS	Array Laterolog Tool OD 6 Standoff		12345678	11.60	1.00	* 13.19	60.00
BLNS	Bull Nose		12345678	5.00	0.33	0.00	300.00

Total	1,619.70	76.99
* Not included in Total Length and Length Accumulation.		
Data: MERIT_KELLS I-1\0001 GTET-DSN-SDL-FLX-BSAT-ACRT\IDLE		Date: 01-Oct-17 13:37:57

COMPANY	MERIT ENERGY COMPANY, LLC		
WELL	KELLS I-1		
FIELD	WILDCAT		
COUNTY	HASKELL	STATE	KANSAS

HALLIBURTON

ARRAY COMPENSATED
TRUE RESISTIVITY
LOG
5 INCH

