HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY	SANDRIDGE ENERGY
WELL	FORREST SWD 3404 1-7
FIELD/BLOCK	BLUFF
COUNTY	SUMNER
STATE	KANSAS

COMPANY **SANDRIDGE ENERGY**
WELL **FORREST SWD 3404 1-7**
FIELD/BLOCK **BLUFF**
COUNTY **SUMNER** STATE **KANSAS**

API No. 15191227300000
Location 2290' FNL 1100' FWL

Other Services:
MICRO
DSNT/SDLT
CSNG
WSTT
MRIL

Sect. 7 Twp. 34S Rge. 4W

Permanent Datum GL Elev. 1251.0 ft
Log measured from KB 14.0 ft above perm. Datum
Drilling measured from KB

Elev.: K.B. 1265.0 ft
D.F. 1263.0 ft
G.L. 1251.0 ft

Date	05-May-14		
Run No.	ONE		
Depth - Driller	5115.00 ft		
Depth - Logger	5114.0 ft		
Bottom - Logged Interval	5104.0 ft		
Top - Logged Interval	568.0 ft		
Casing - Driller	8.625 in @ 568.0 ft	@	@
Casing - Logger	568.0 ft		
Bit Size	7.875 in	@	@
Type Fluid in Hole	Water Based Mud		
Density / Viscosity	9.3 ppg / 46.00 s/qt		
PH / Fluid Loss	11.00 pH / 4.8 cptm		
Source of Sample	MUD PIT		
Rm @ Meas. Temperature	0.450 ohmm @ 85.00 degF	@	@
Rmf @ Meas. Temperature	0.38 ohmm @ 83.00 degF	@	@
Rmc @ Meas. Temperature	0.490 ohmm @ 85.00 degF	@	@
Source Rmf / Rmc	MEASURED / MEASURED		
Rm @ BHT	0.27 ohmm @ 145.0 degF	@	@
Time Since Circulation	6.0000 hr		
Time on Bottom	05-May-14 19:05		
Max. Rec. Temperature	145.0 degF @ 5114.0 ft	@	@
Equipment / Location	11230668 / LIBERAL		
Recorded By	THOMAS K HYDE		
Witnessed By	A. MILLER	W. SCOTT	

Fold here

Service Ticket No.: 901323687 API Serial No.: 15191227300000 PGM Version: WL INSITE R4.2.0 (Build 2)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE					
Date	Sample No.				
Depth-Driller					
Type Fluid in Hole					
Density	Viscosity				
Ph	Fluid Loss				
Source of Sample					
Rm @ Meas. Temp		@		@	
Rmf @ Meas. Temp.		@		@	
Rmc @ Meas. Temp.		@		@	
Source Rmf	Rmc				
Rm @ BHT		@		@	
Rmf @ BHT		@		@	
Rmc @ BHT		@		@	

RESISTIVITY SCALE CHANGES			
Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA				
Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
ONE	ACRT	N/A	1.5" S.O.	N/A
	I10811256			
	S10800784			

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.		Run No.	
Serial No.	10811258	Serial No.		Serial No.		Serial No.	
Model No.	GTET	Model No.		Model No.		Model No.	
Diameter	3.625"	No. of Cent.		Diameter		Diameter	
Detector Model No.	T-102	Spacing		Log Type		Log Type	
Type	SCINT			Source Type		Source Type	
Length	8"	LSA [Y/N]		Serial No.		Serial No.	
Distance to Source	18'	FWDA [Y/N]		Strength		Strength	

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	5114	568	REC	0	150									

DIRECTIONAL INFORMATION

Maximum Deviation @	KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH CASING

CHLORIDES REPORTED AT 7000 MG/L

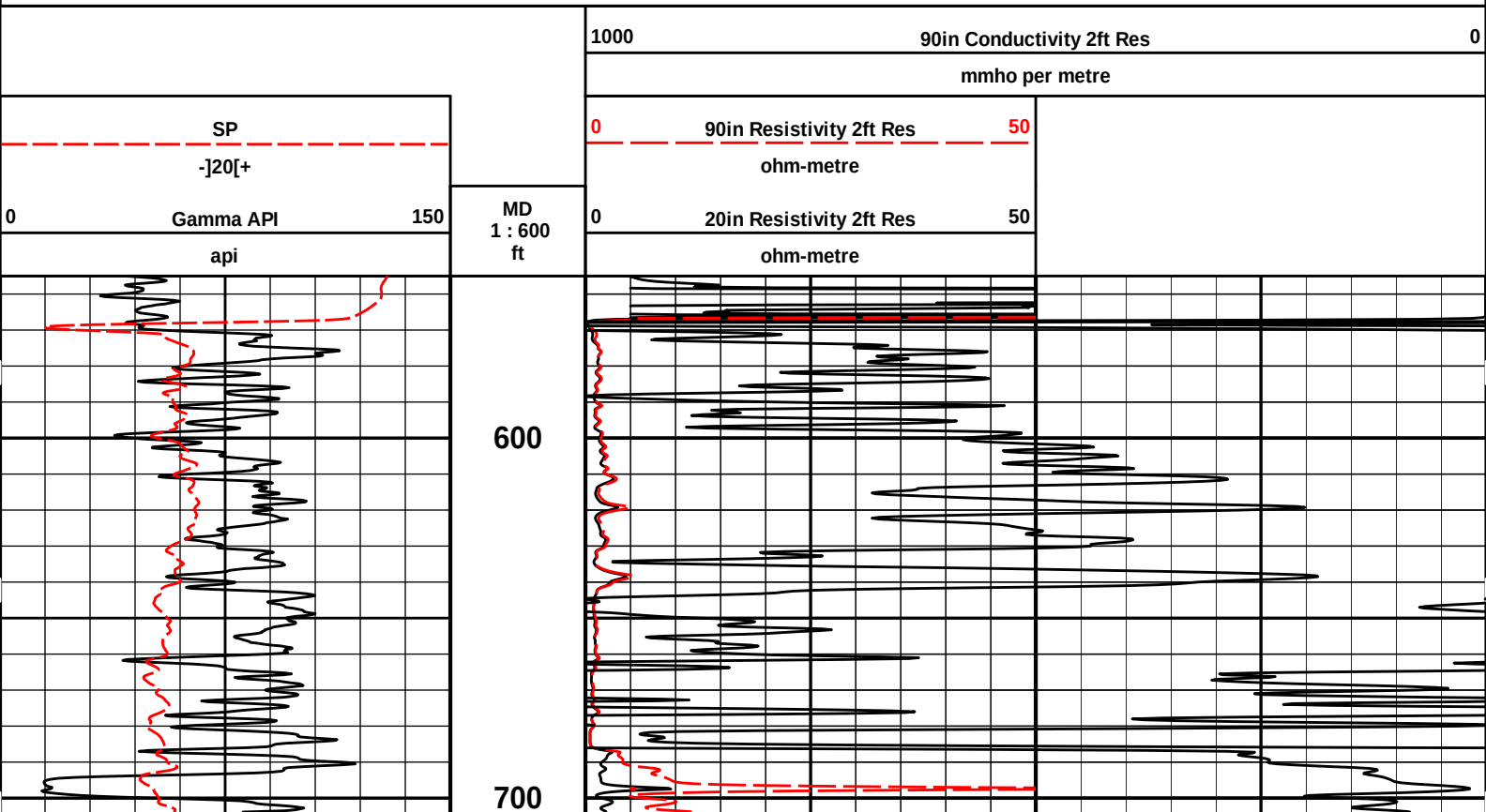
TODAY'S CREW D. MILLER E. ZAPPIEN K. PIDDINGTON

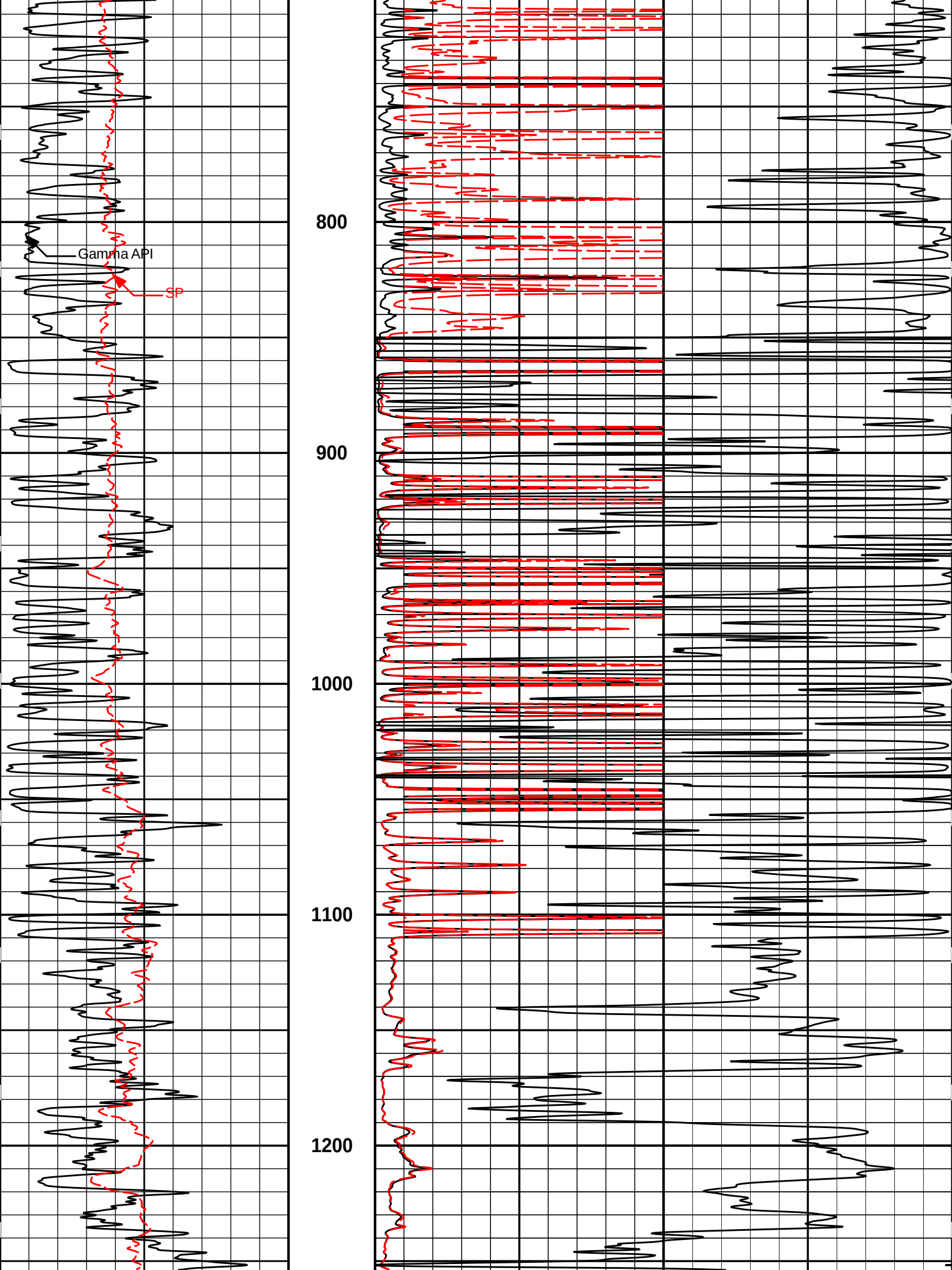
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KANSAS 620-624-8123

HALLIBURTON

Plot Time: 06-May-14 07:49:43
Plot Range: 555 ft to 5117.75 ft
Data: FORREST_SWD_1-7\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\FORREST_SWD_1-7\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-IDT-ICT-WAVE-ACRT-BN\ACRT\ACRT_2_lib

2 INCH MAIN LOG

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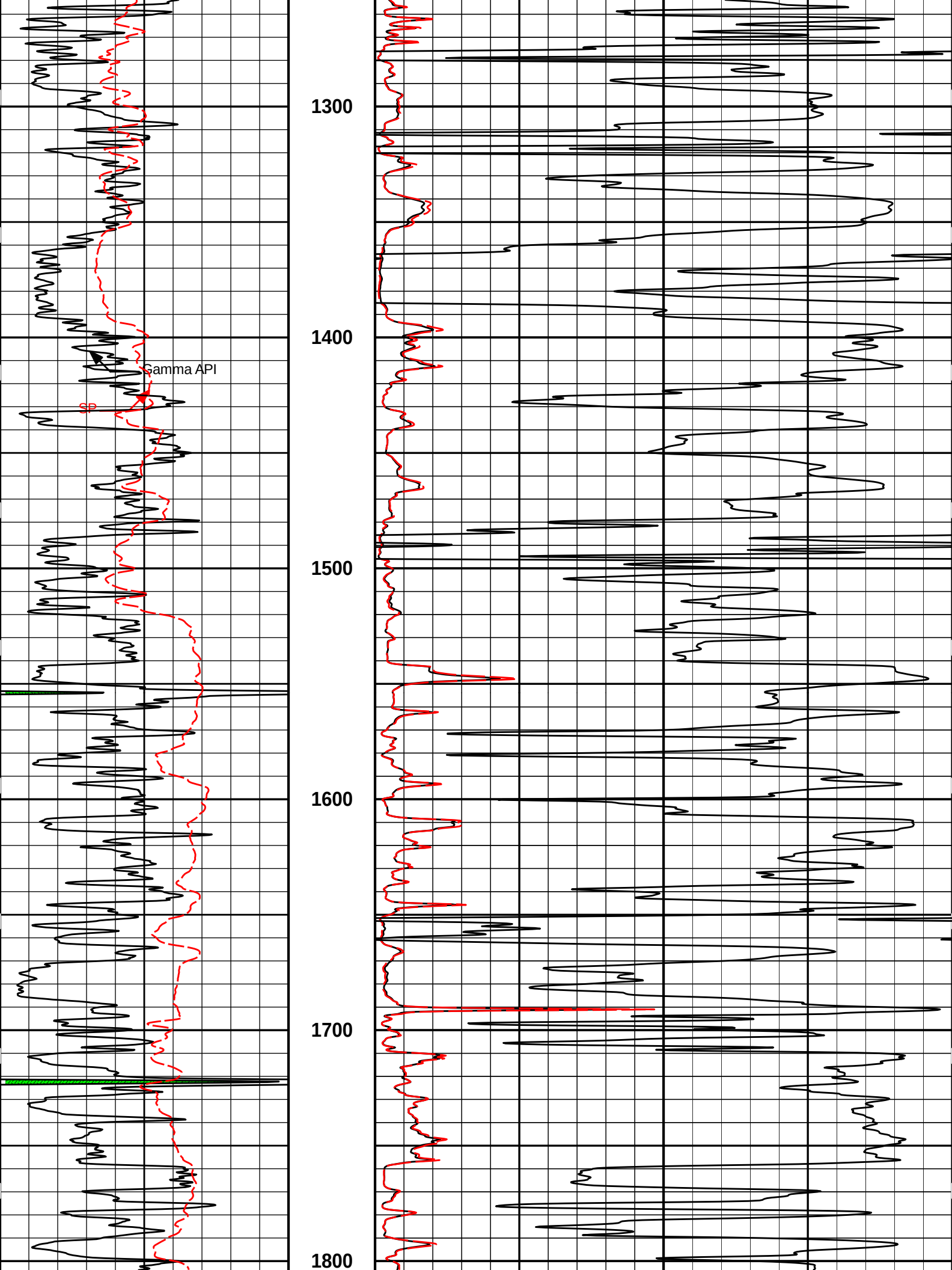
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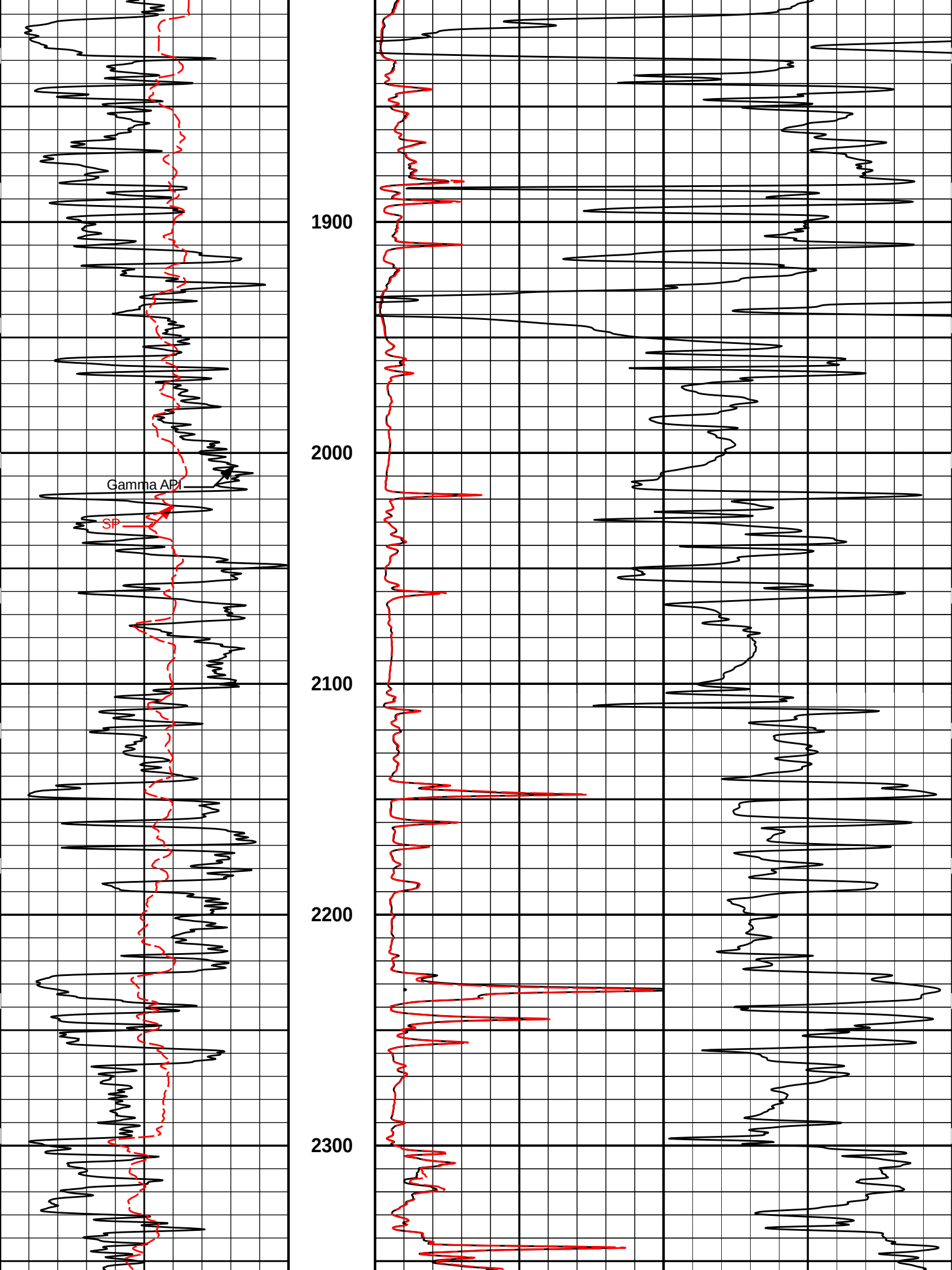
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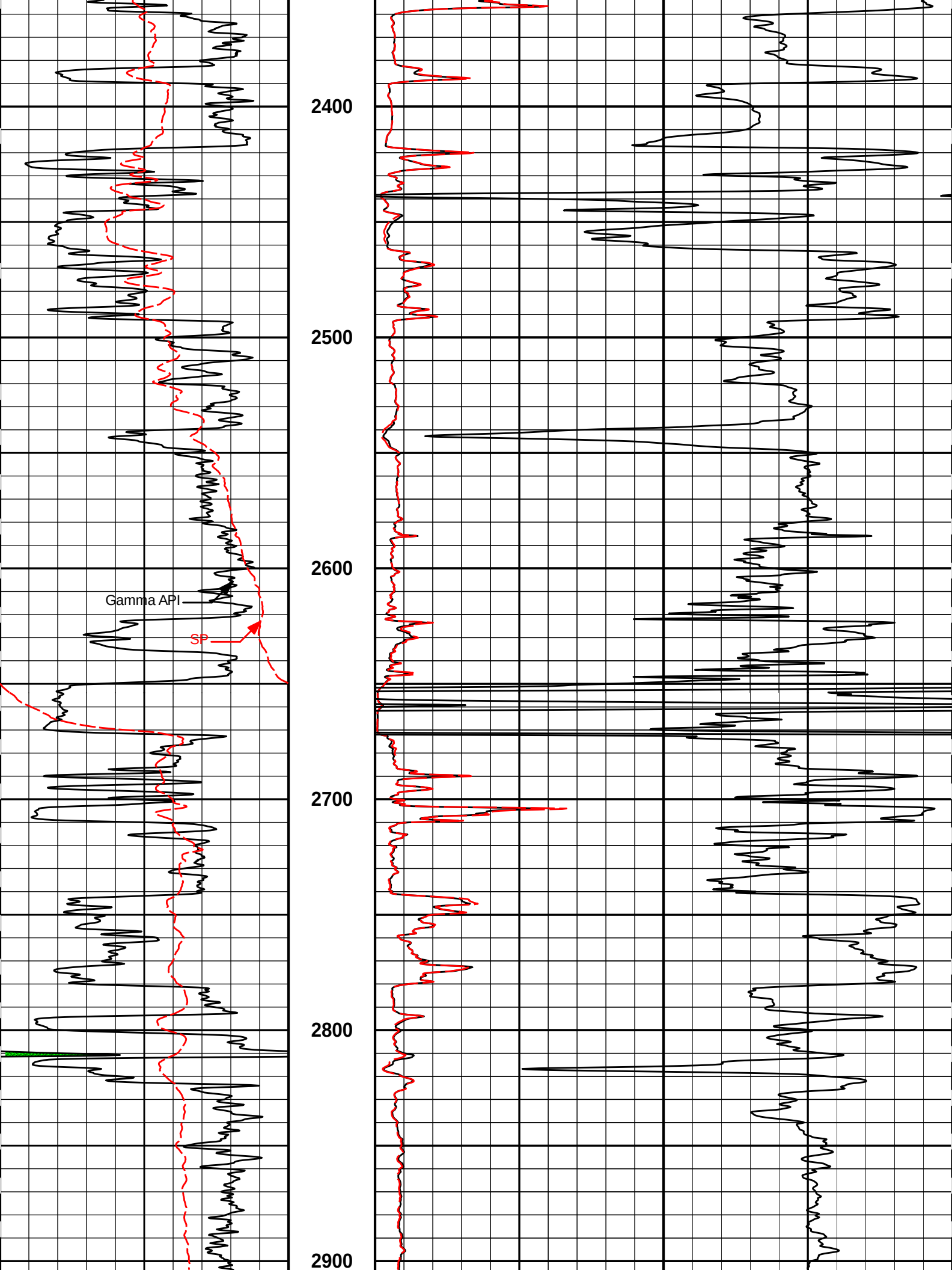
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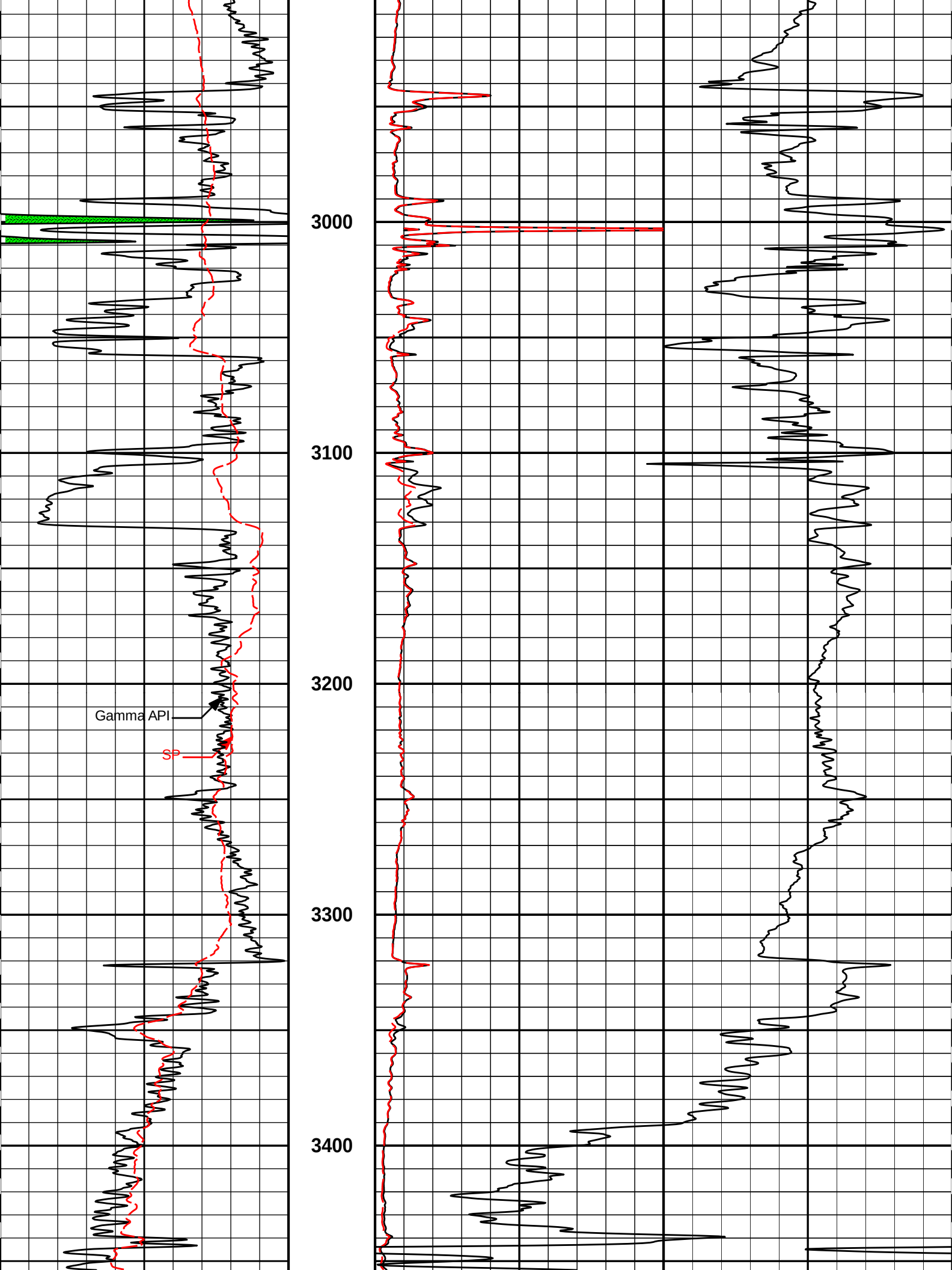
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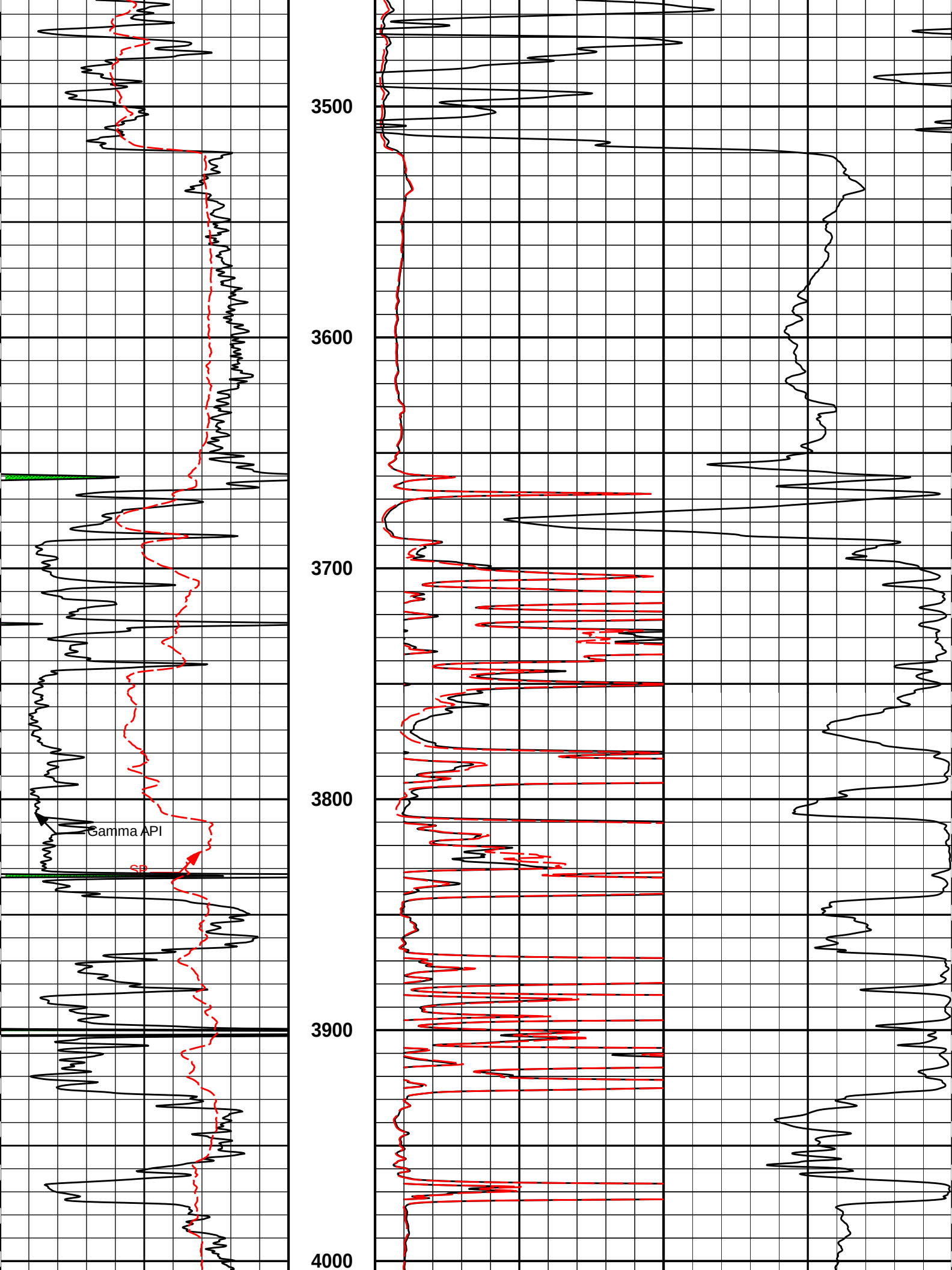
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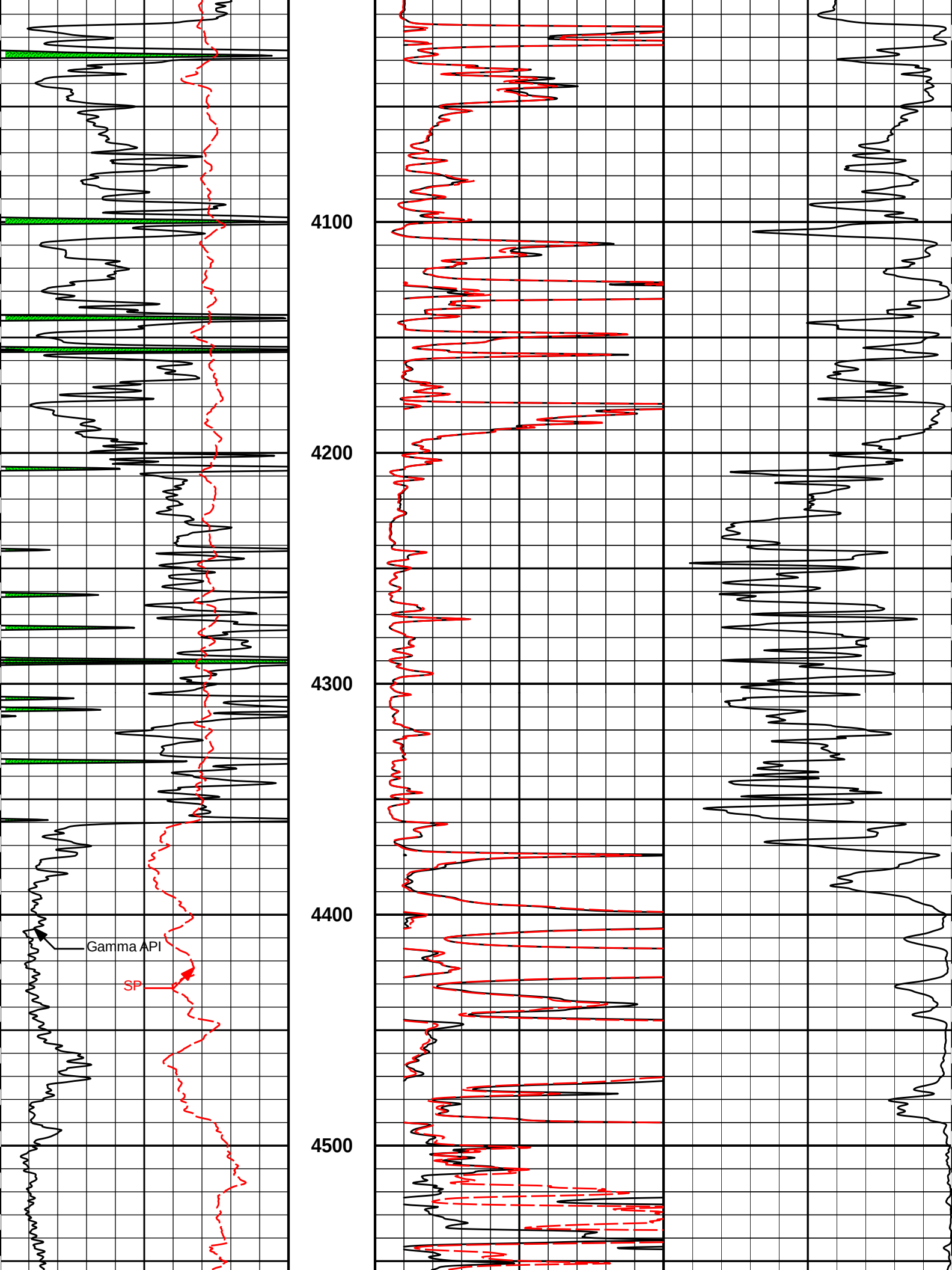
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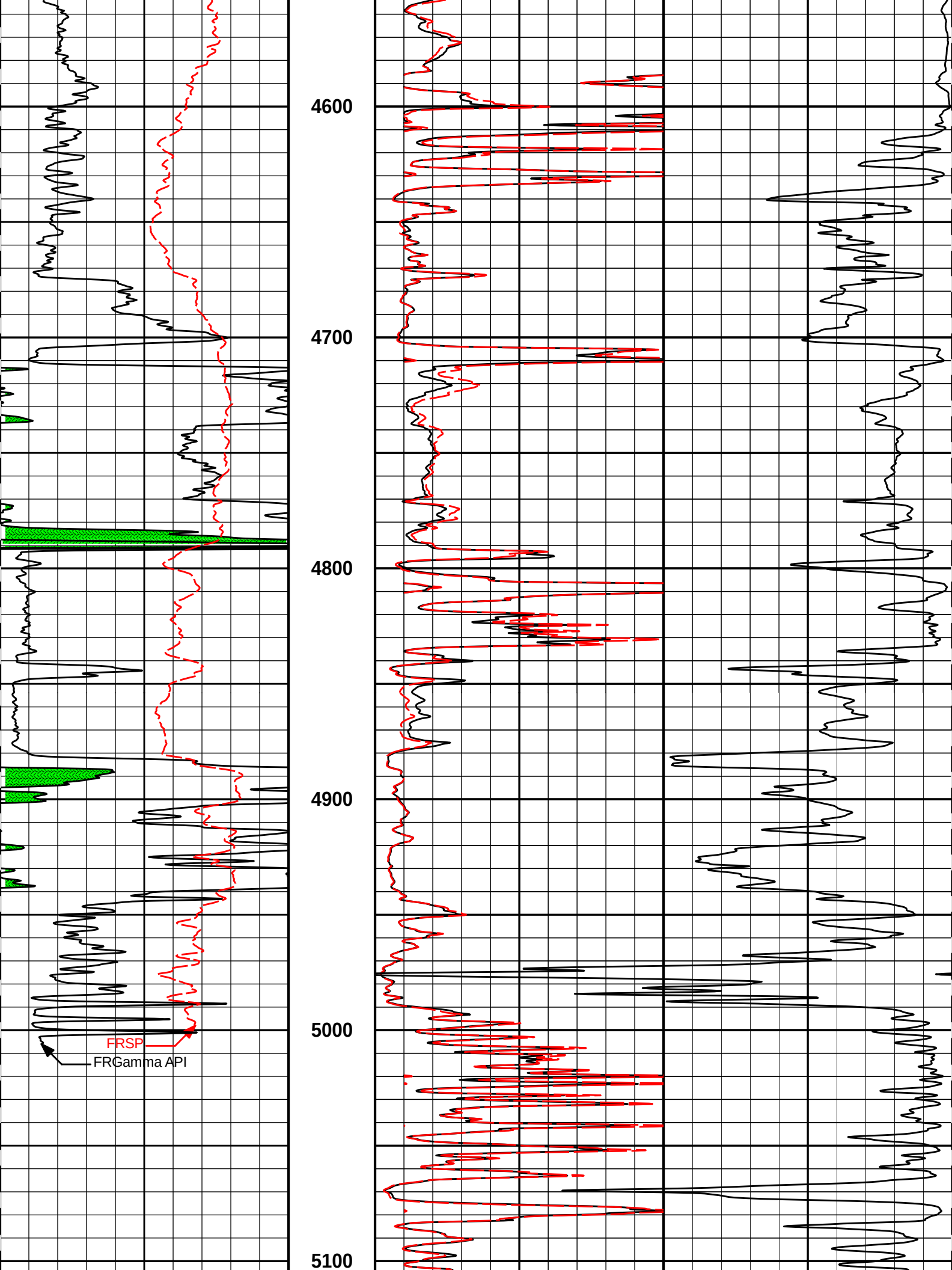
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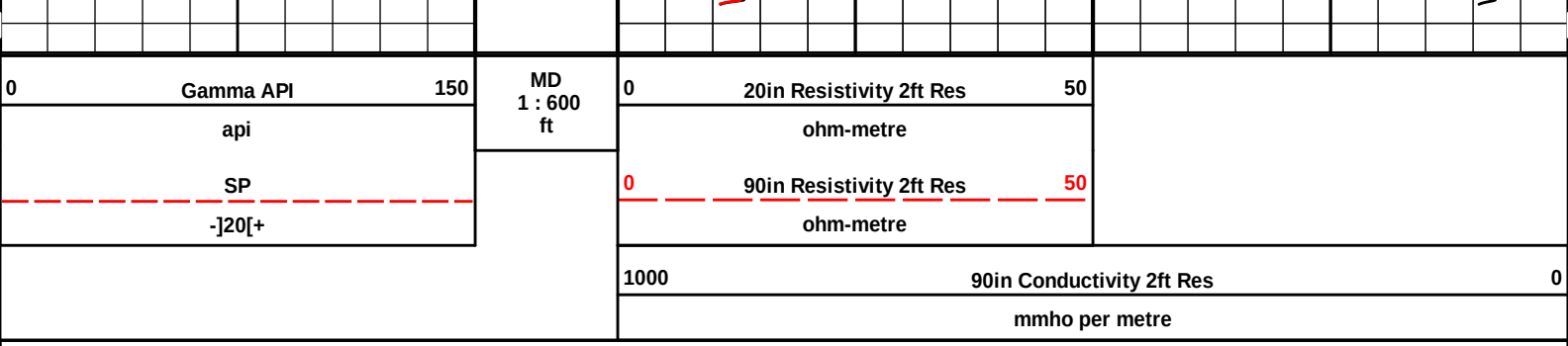


HALLIBURTON

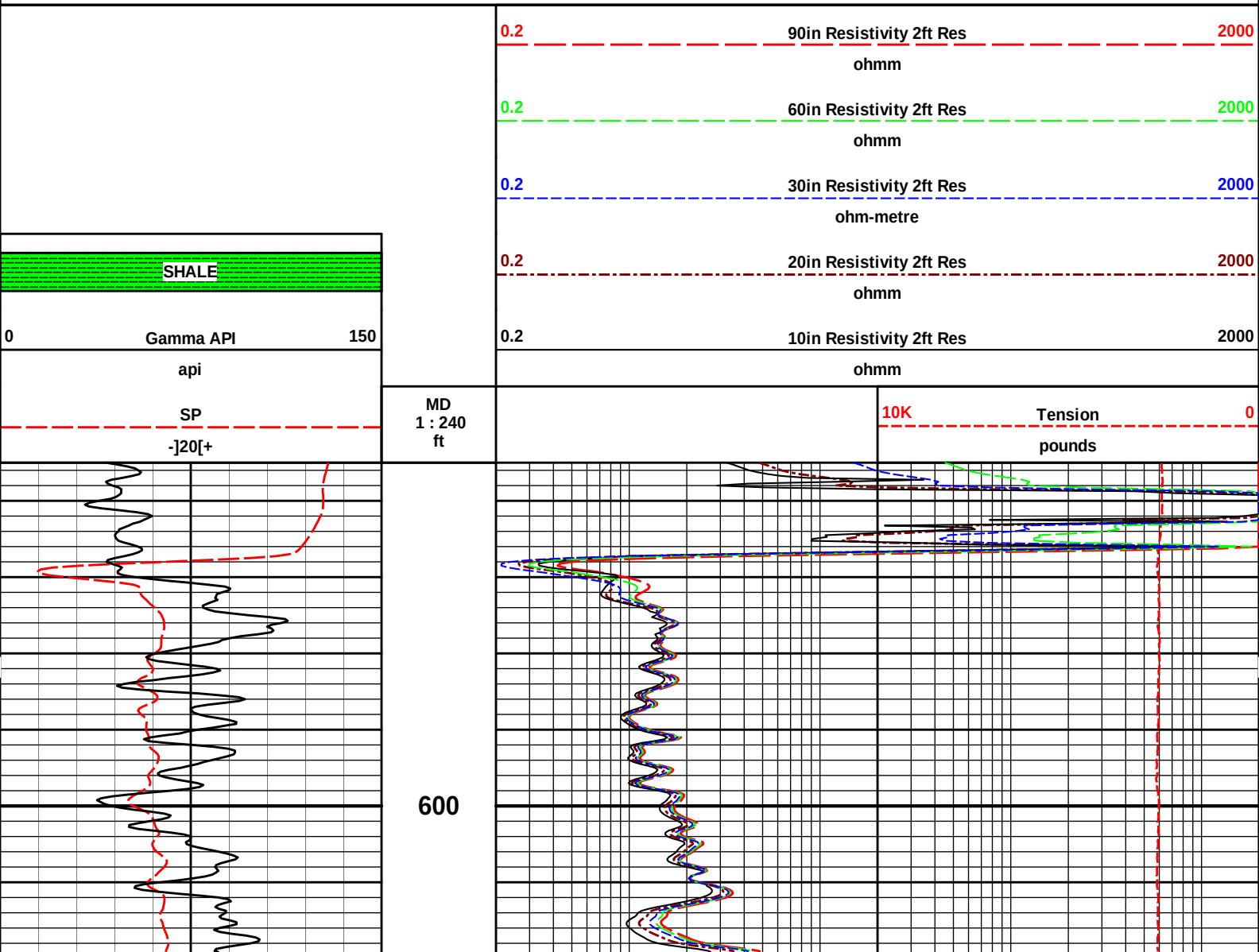
Plot Time: 06-May-14 07:49:45
Plot Range: 555 ft to 5117.75 ft
Data: FORREST_SWD_1-7\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\FORREST_SWD_1-7\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-IDT-ICT-WAVE-ACRT-BN\ACRT\ACRT_2_lib

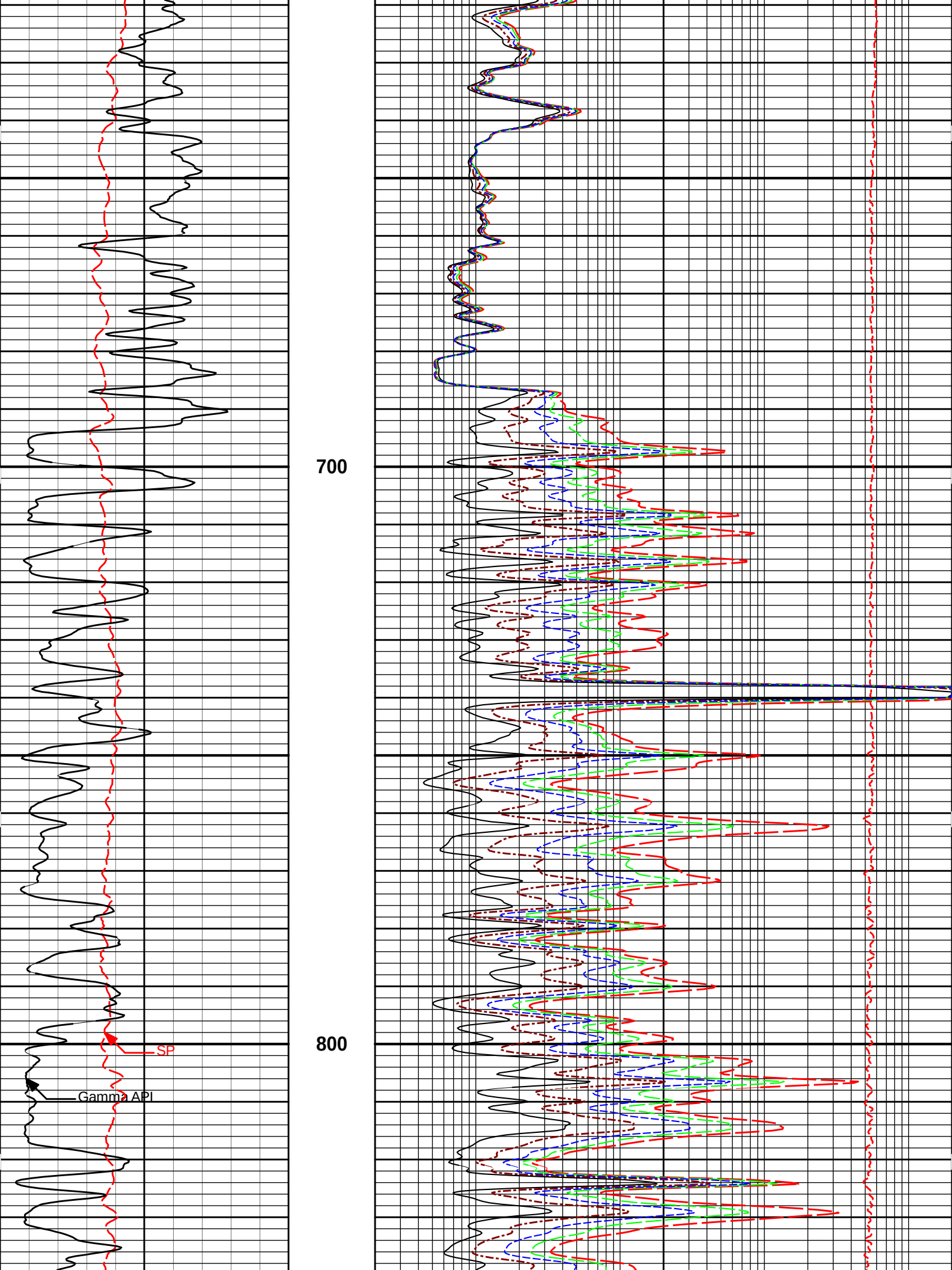
2 INCH MAIN LOG

HALLIBURTON

Plot Time: 06-May-14 07:49:45
Plot Range: 555 ft to 5117.75 ft
Data: FORREST_SWD_1-7\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\FORREST_SWD_1-7\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-IDT-ICT-WAVE-ACRT-BN\ACRT\ACRT_5_main_lib

5 INCH MAIN LOG

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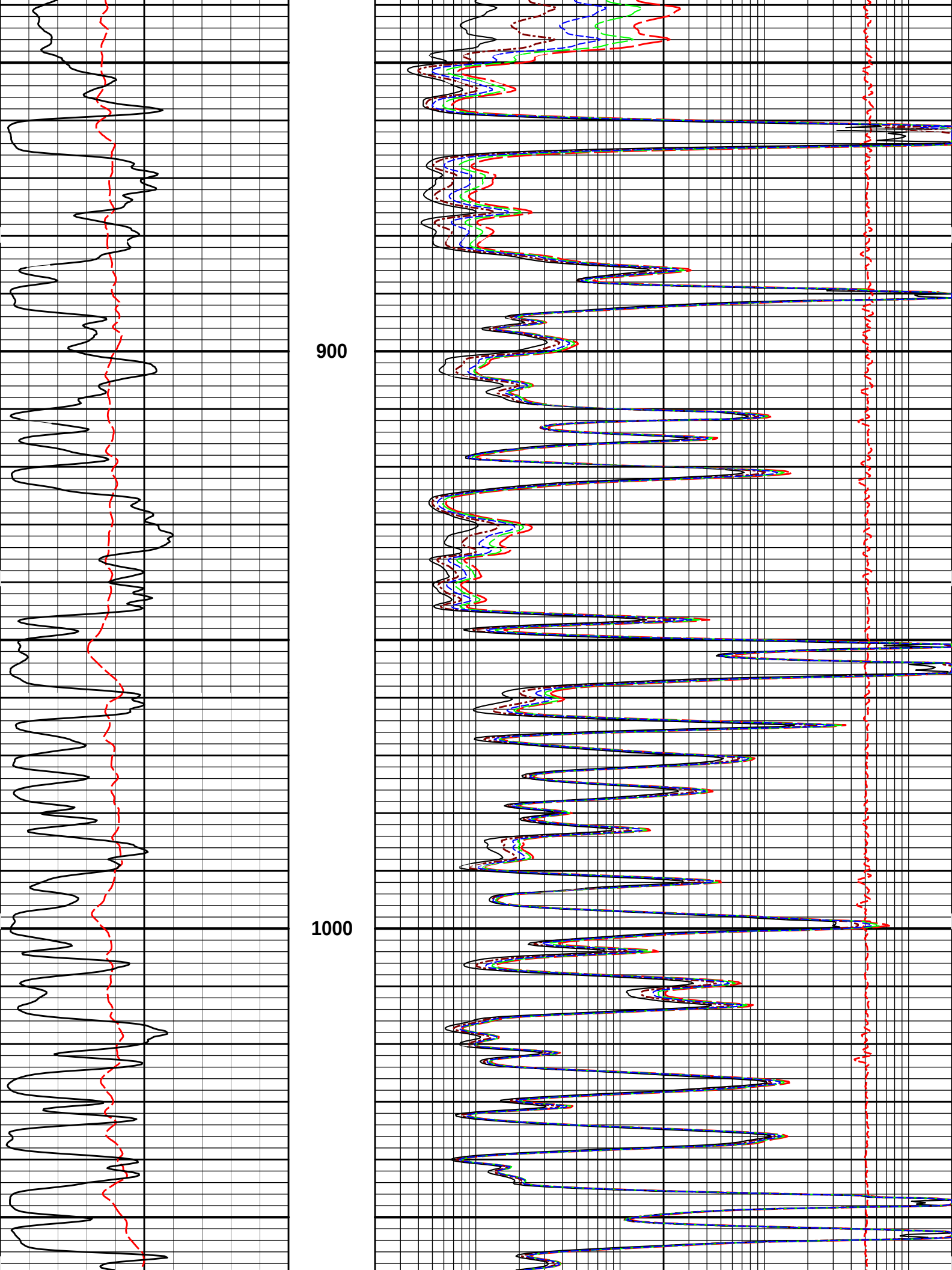
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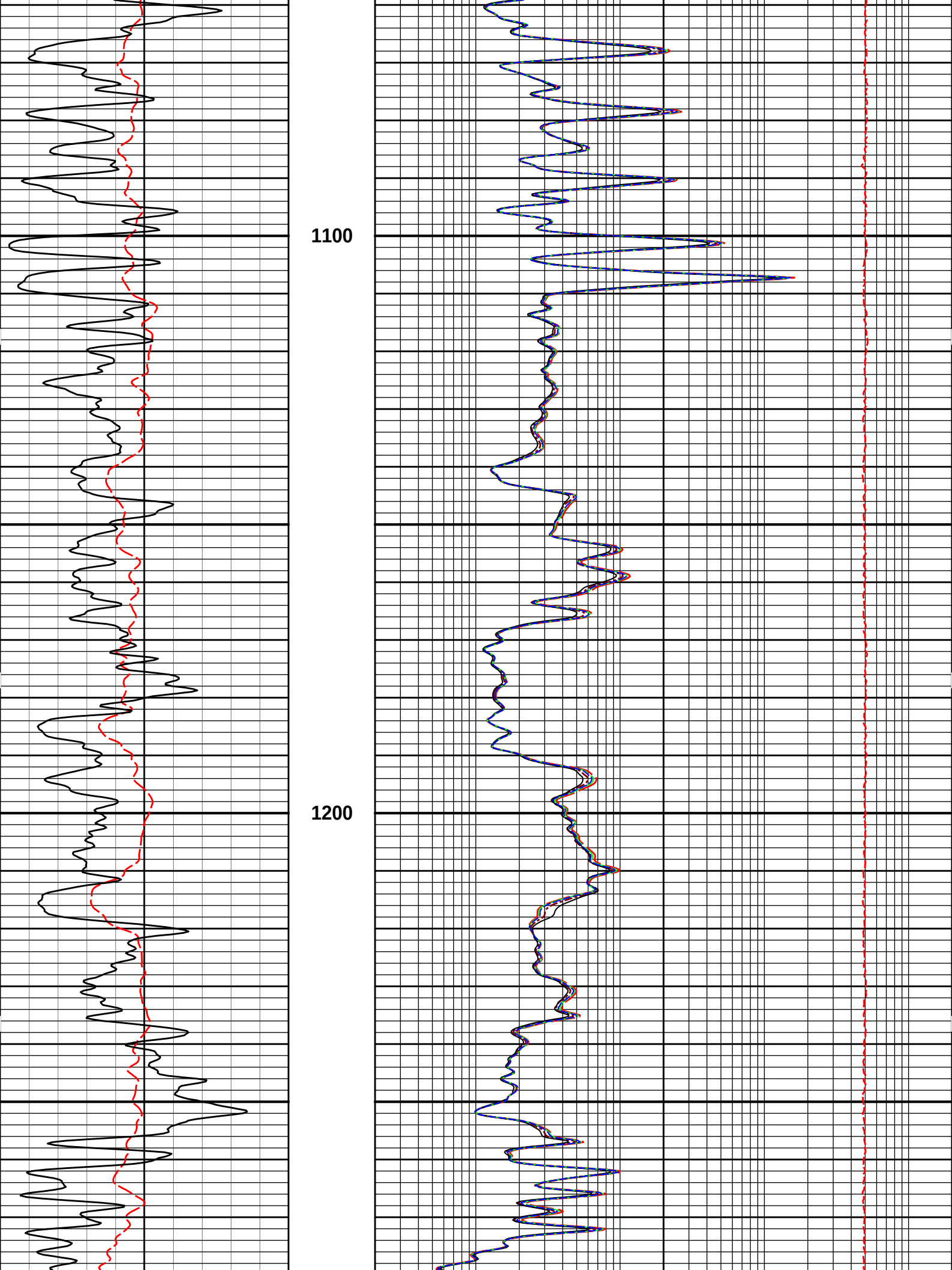
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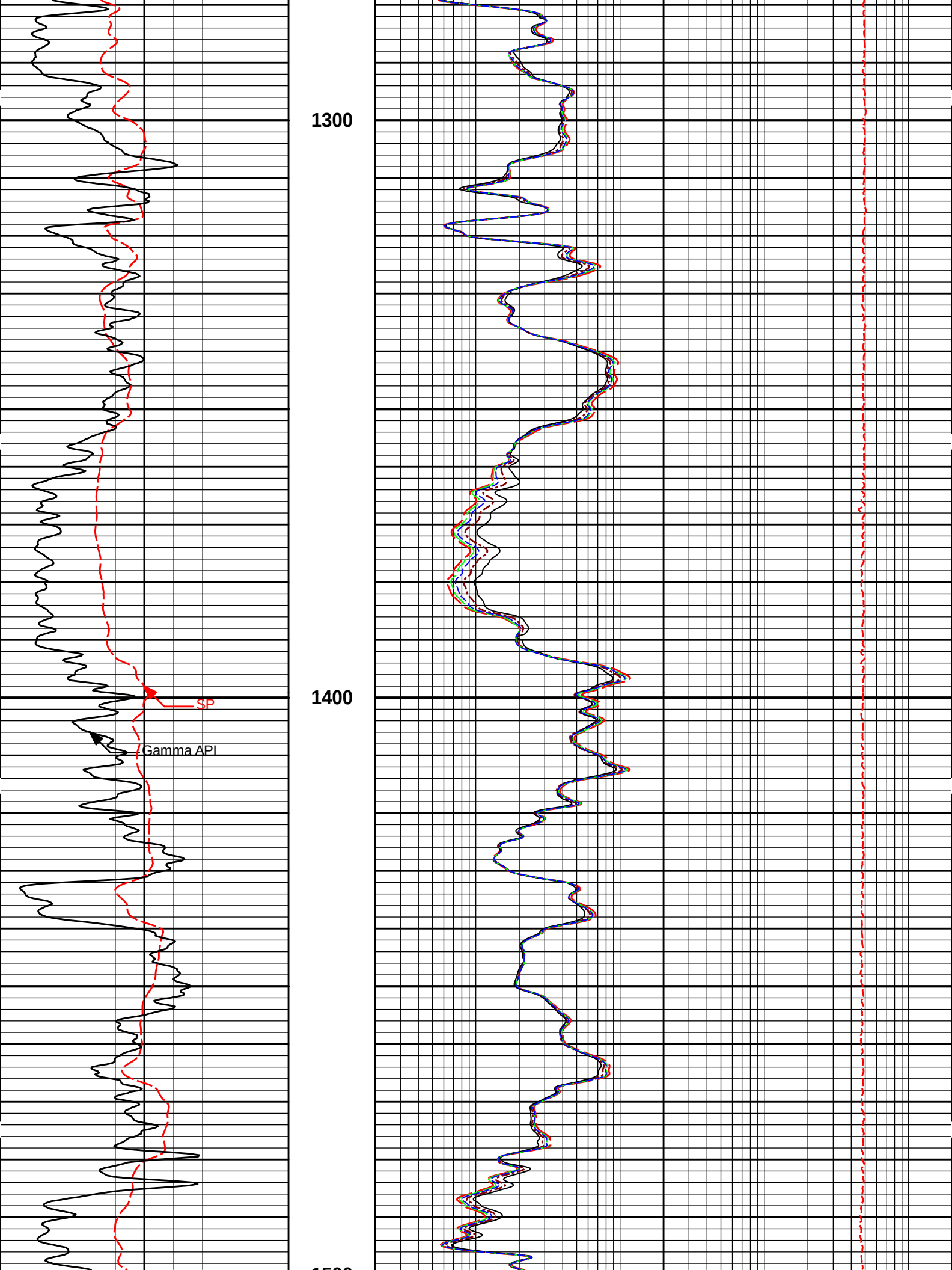
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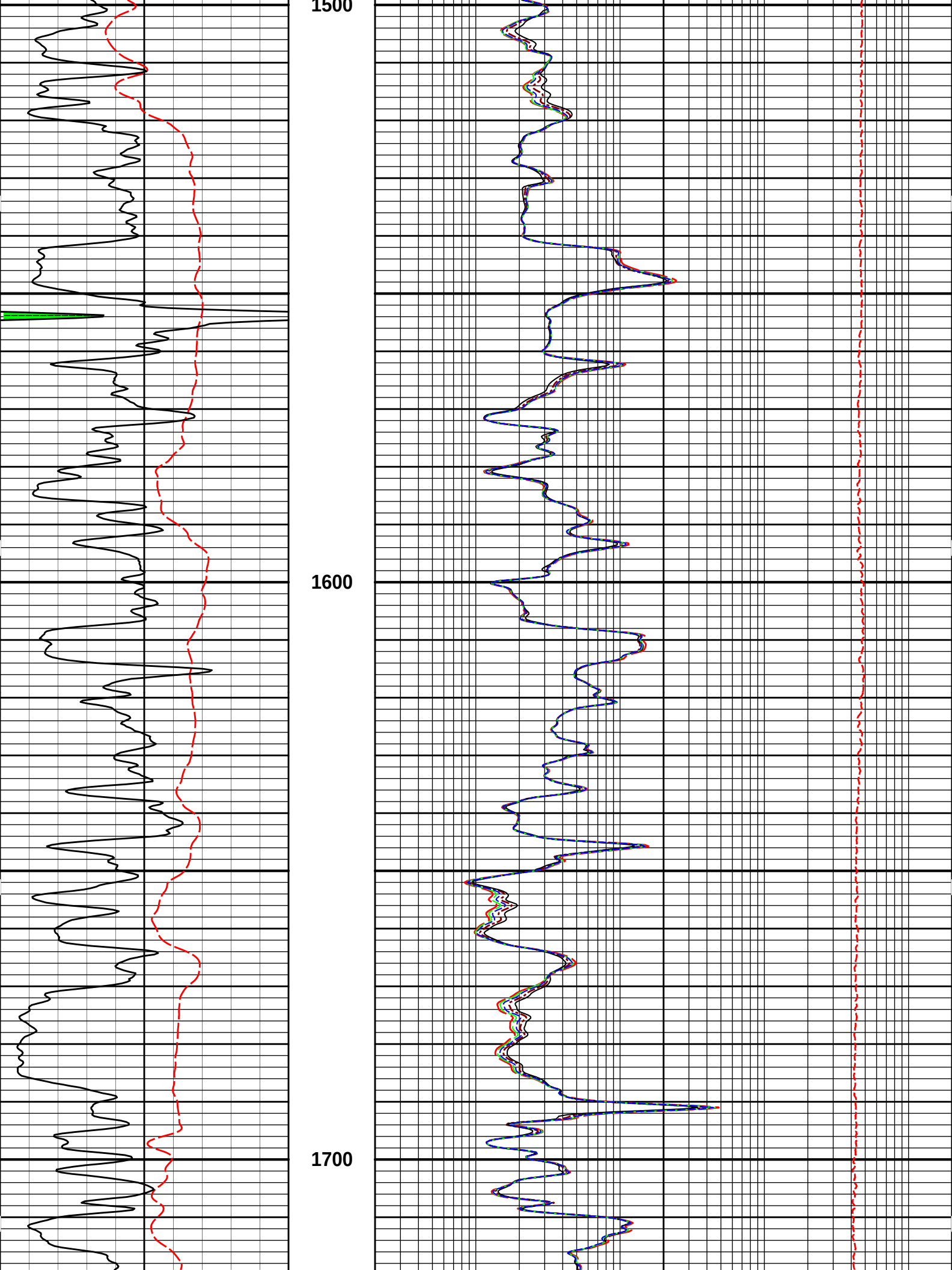
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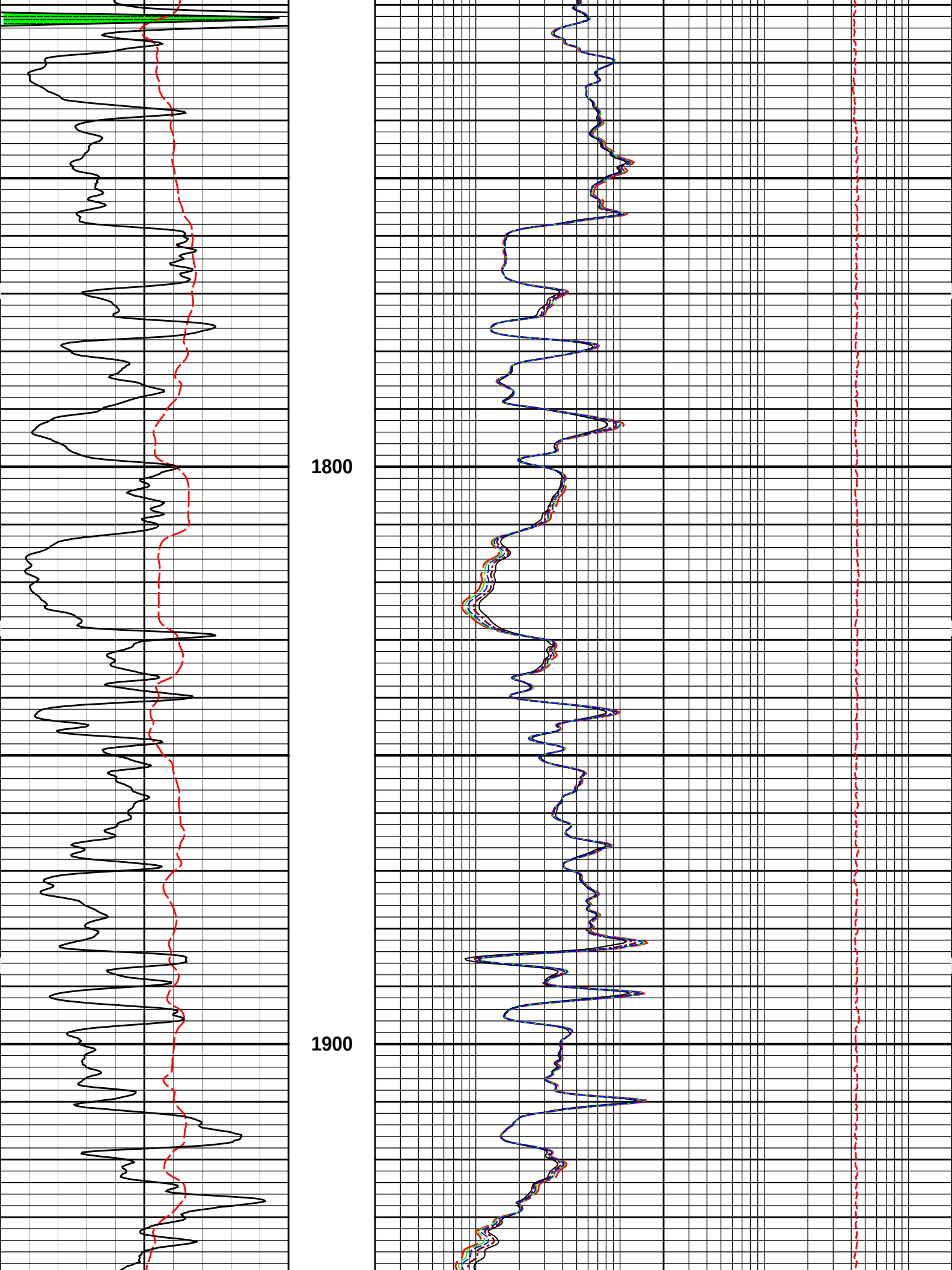
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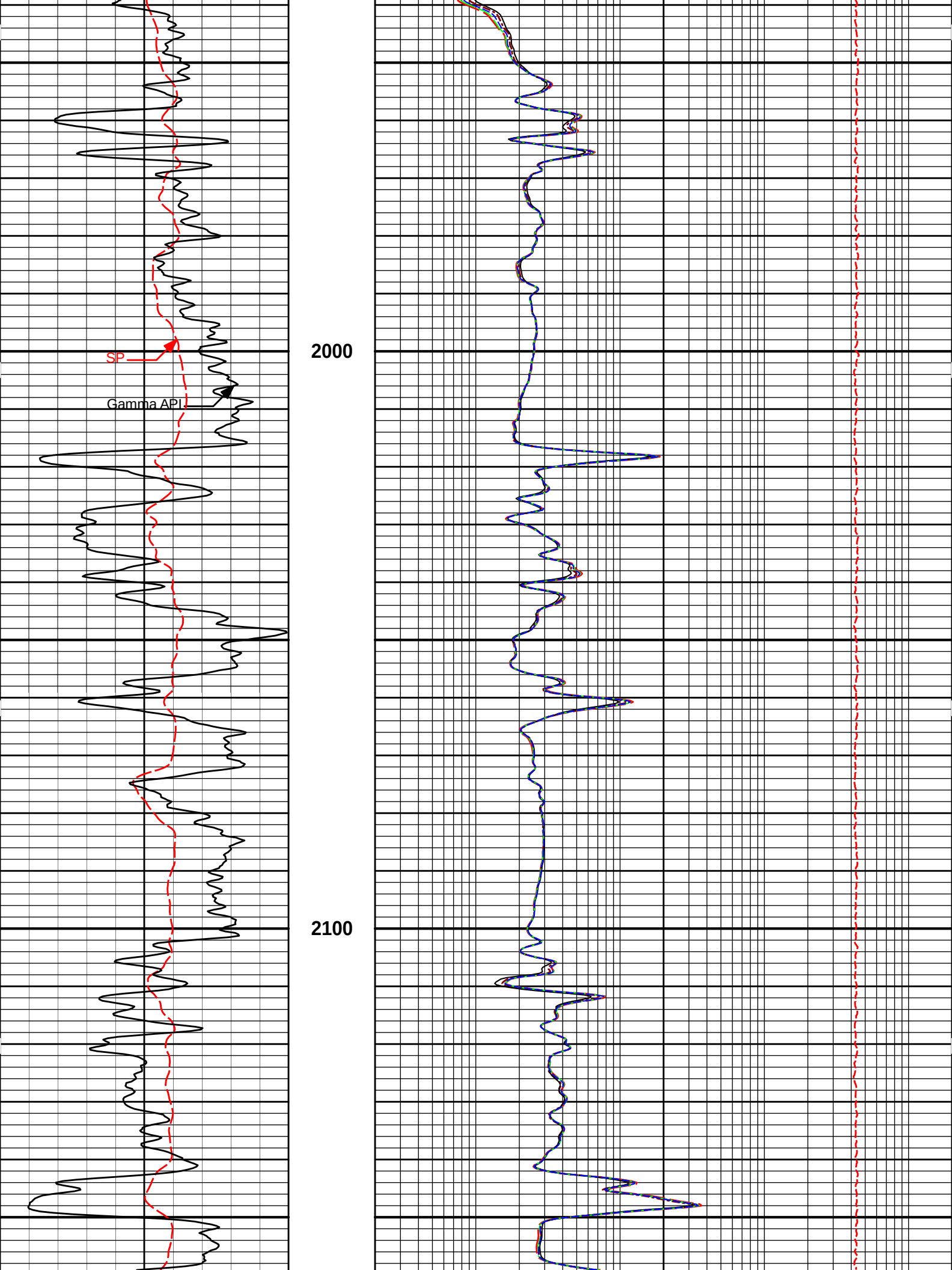
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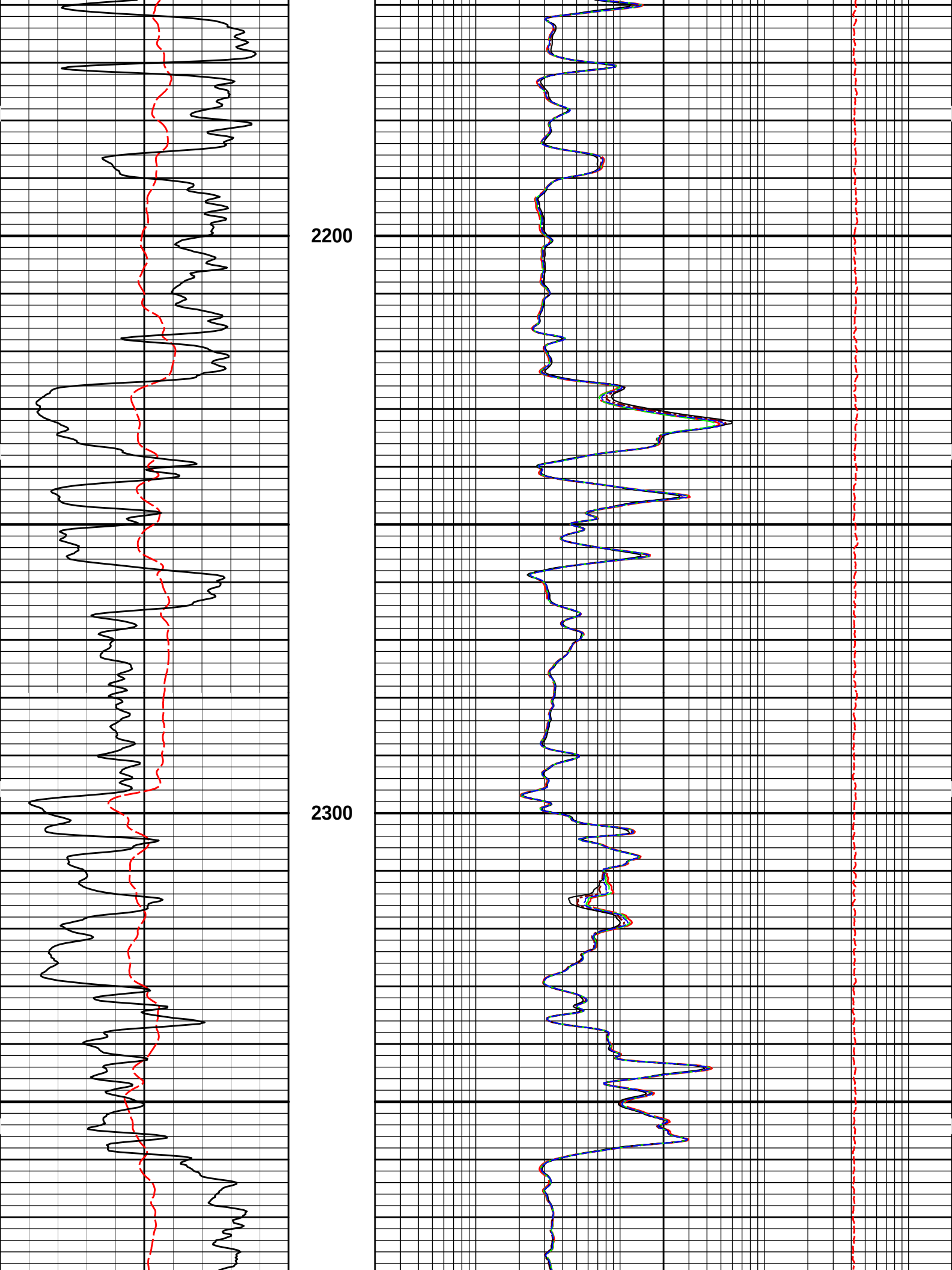
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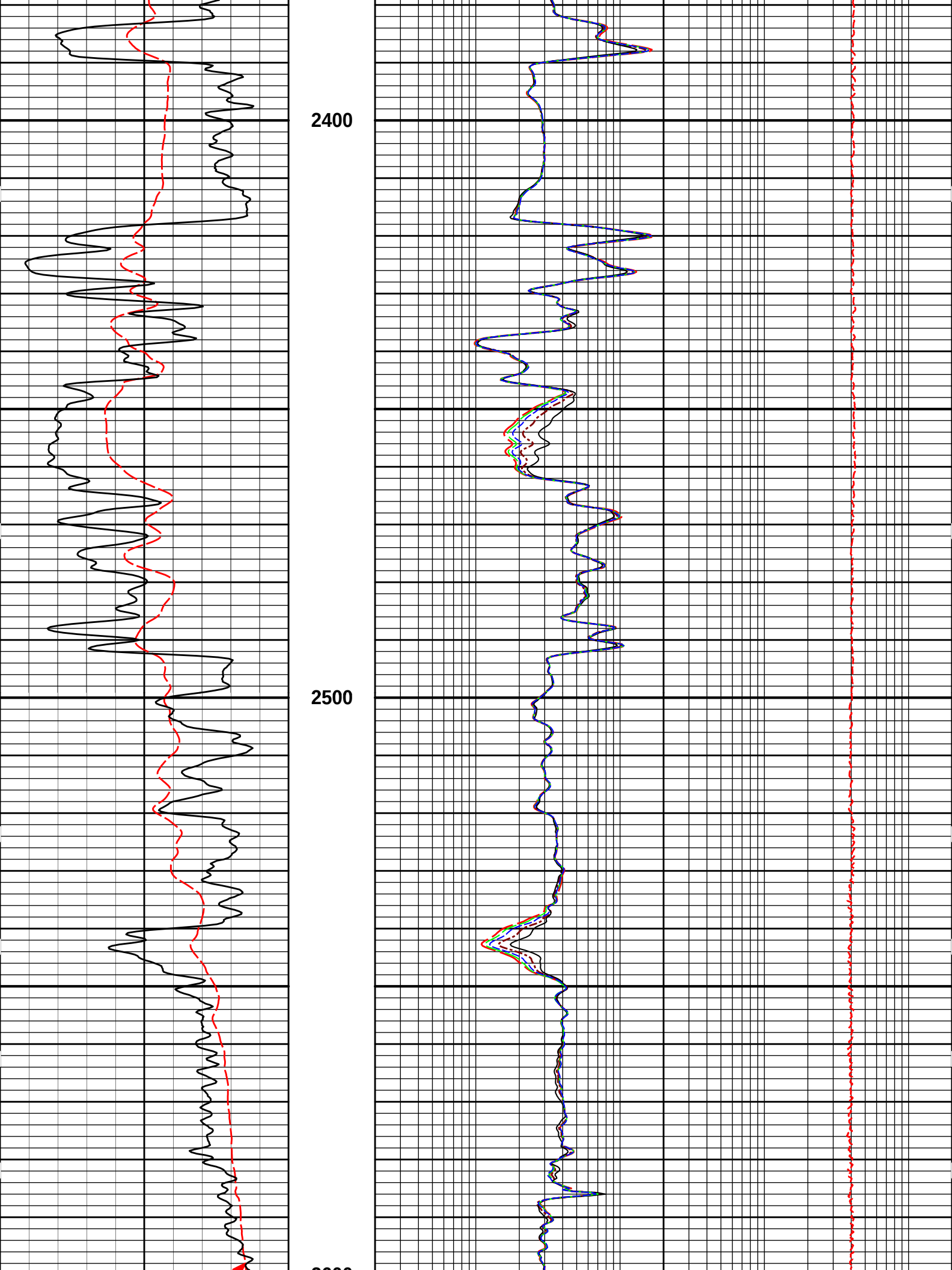
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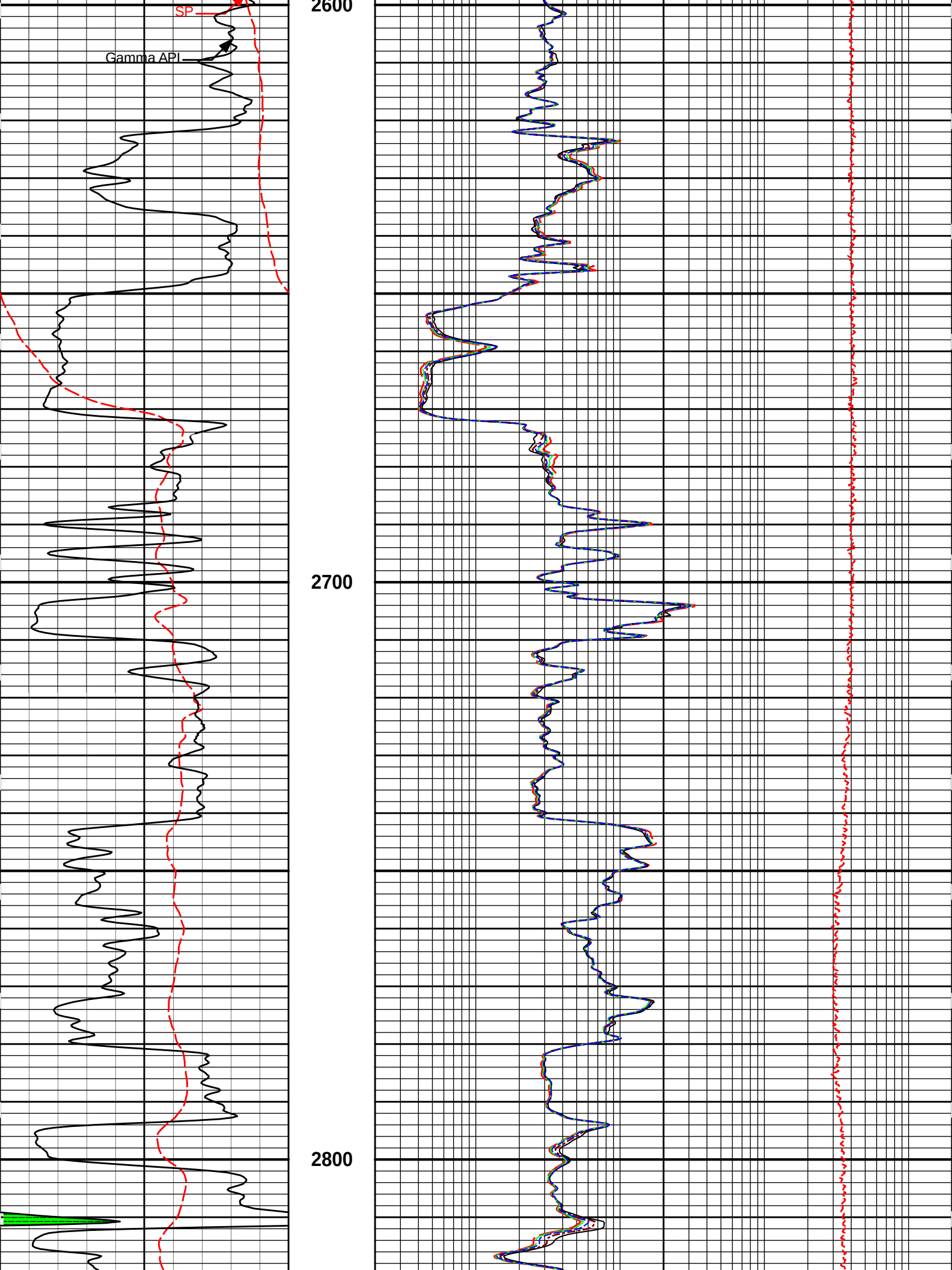
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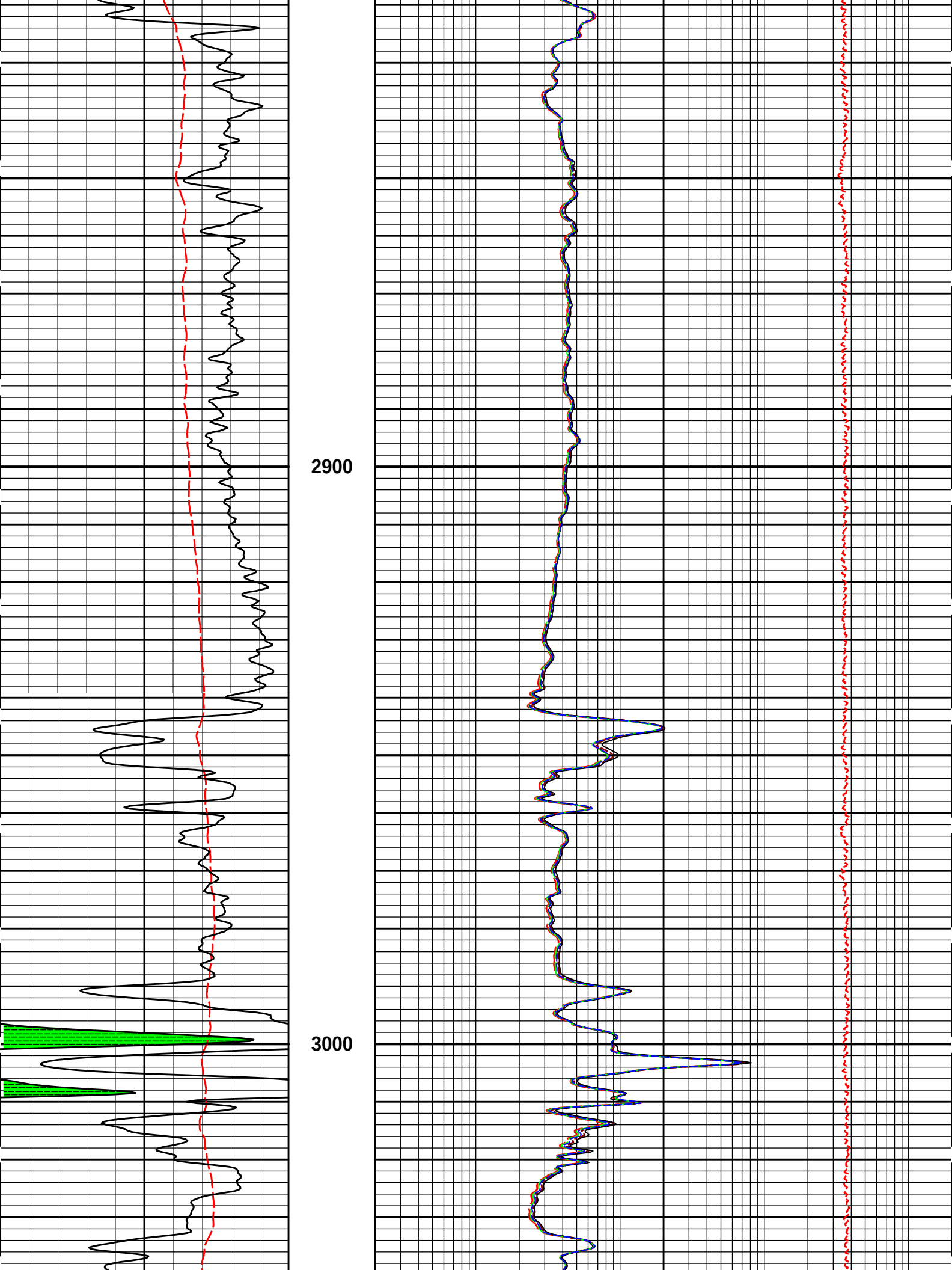
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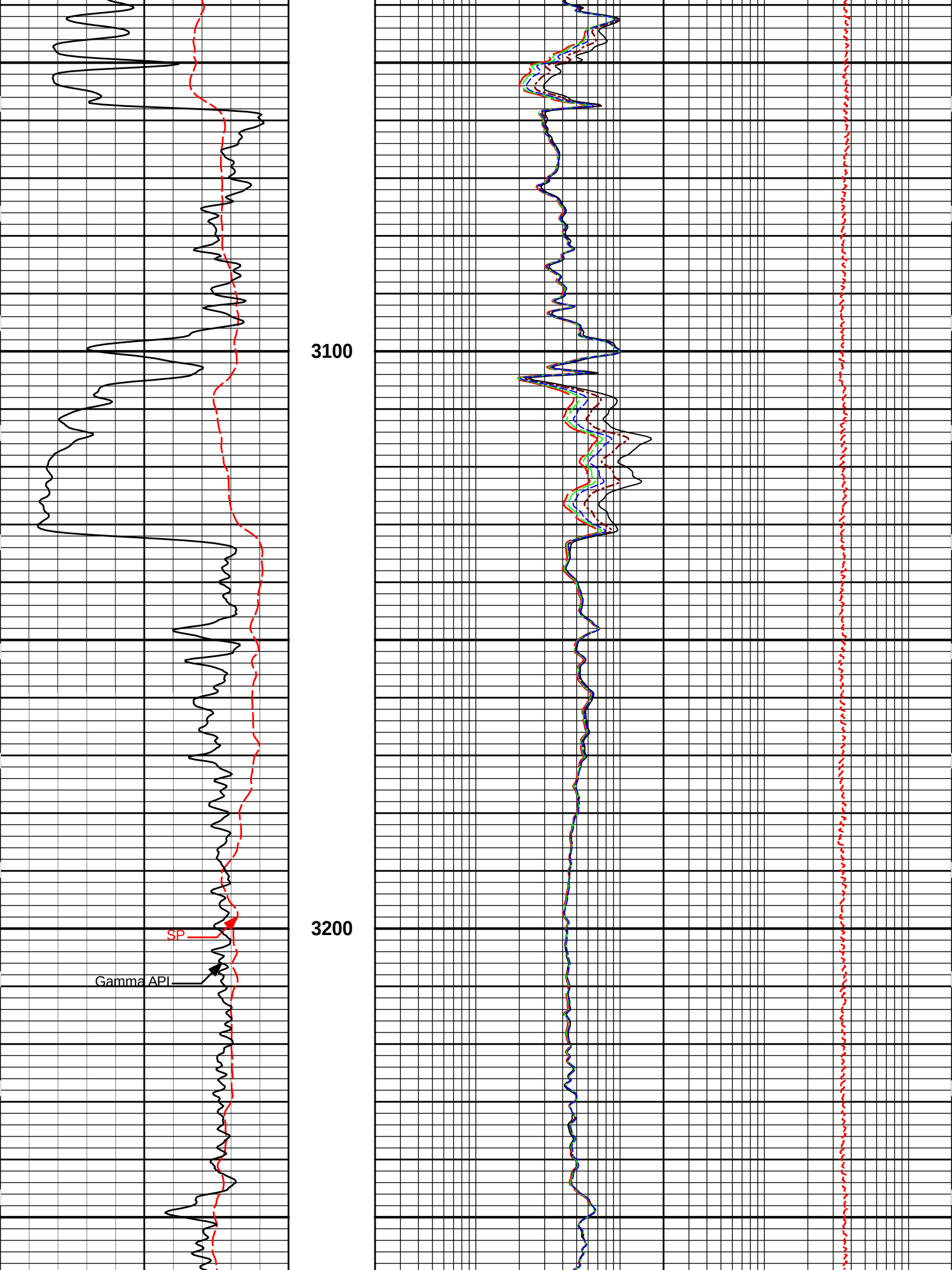
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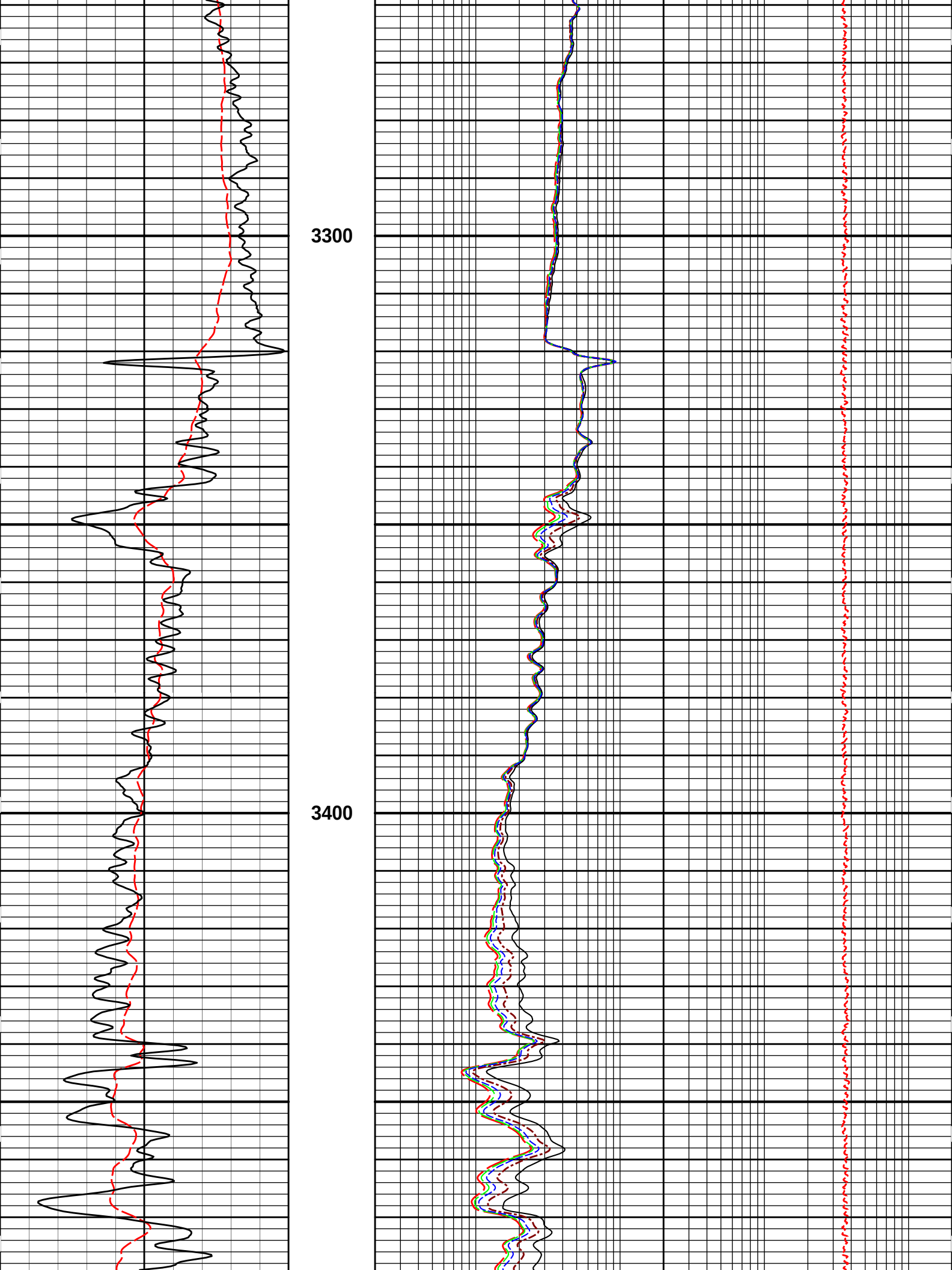
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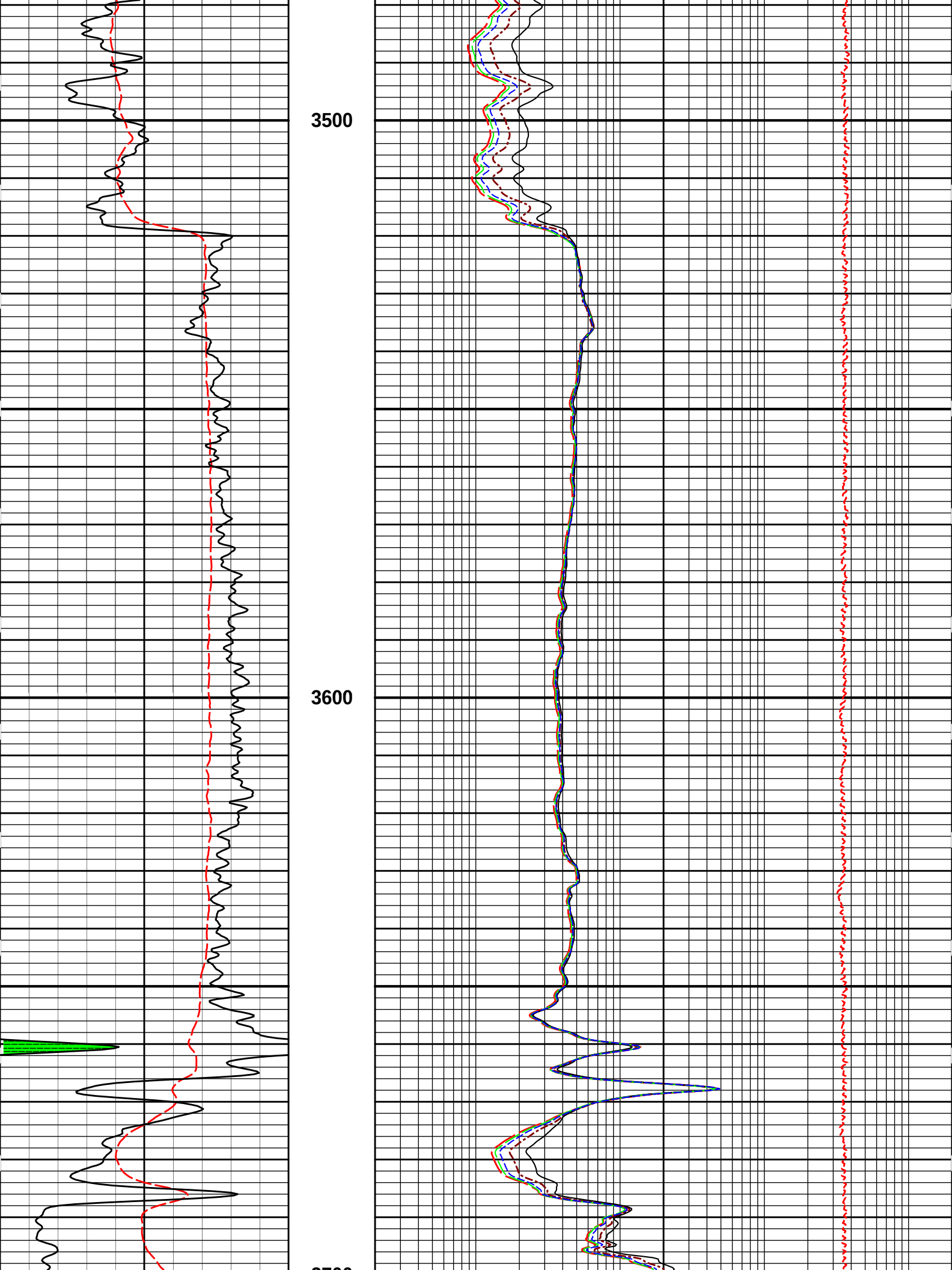
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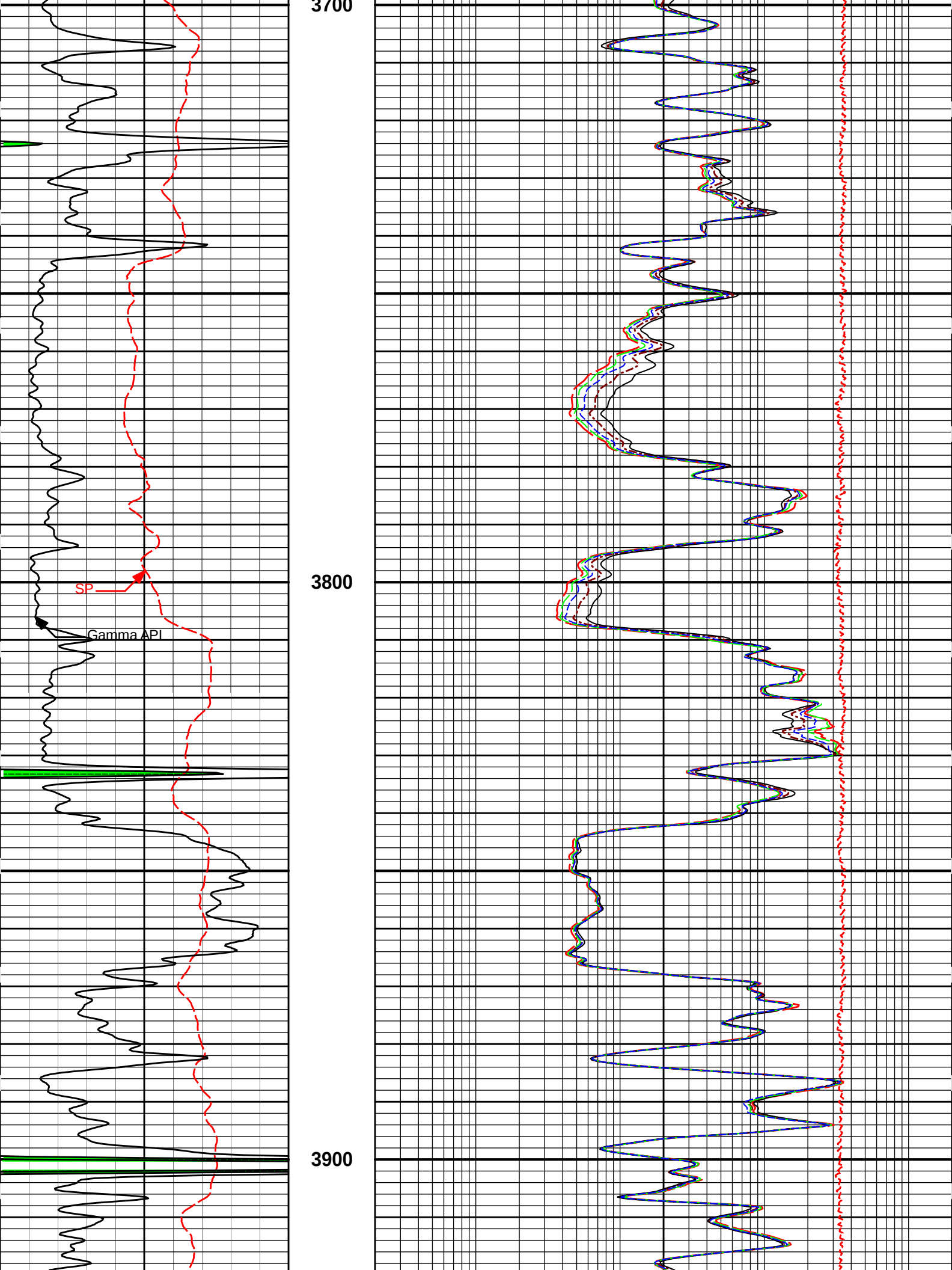
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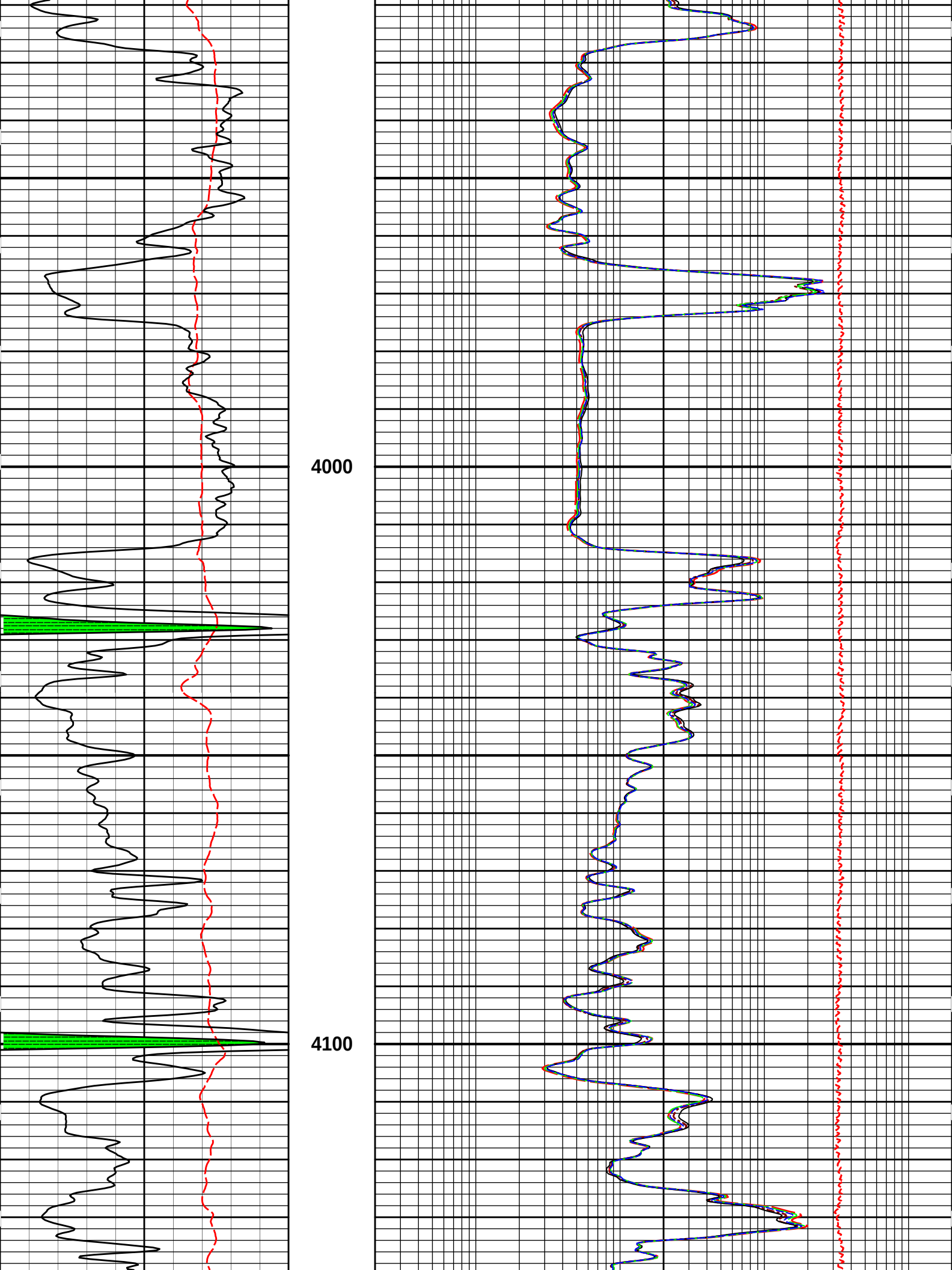
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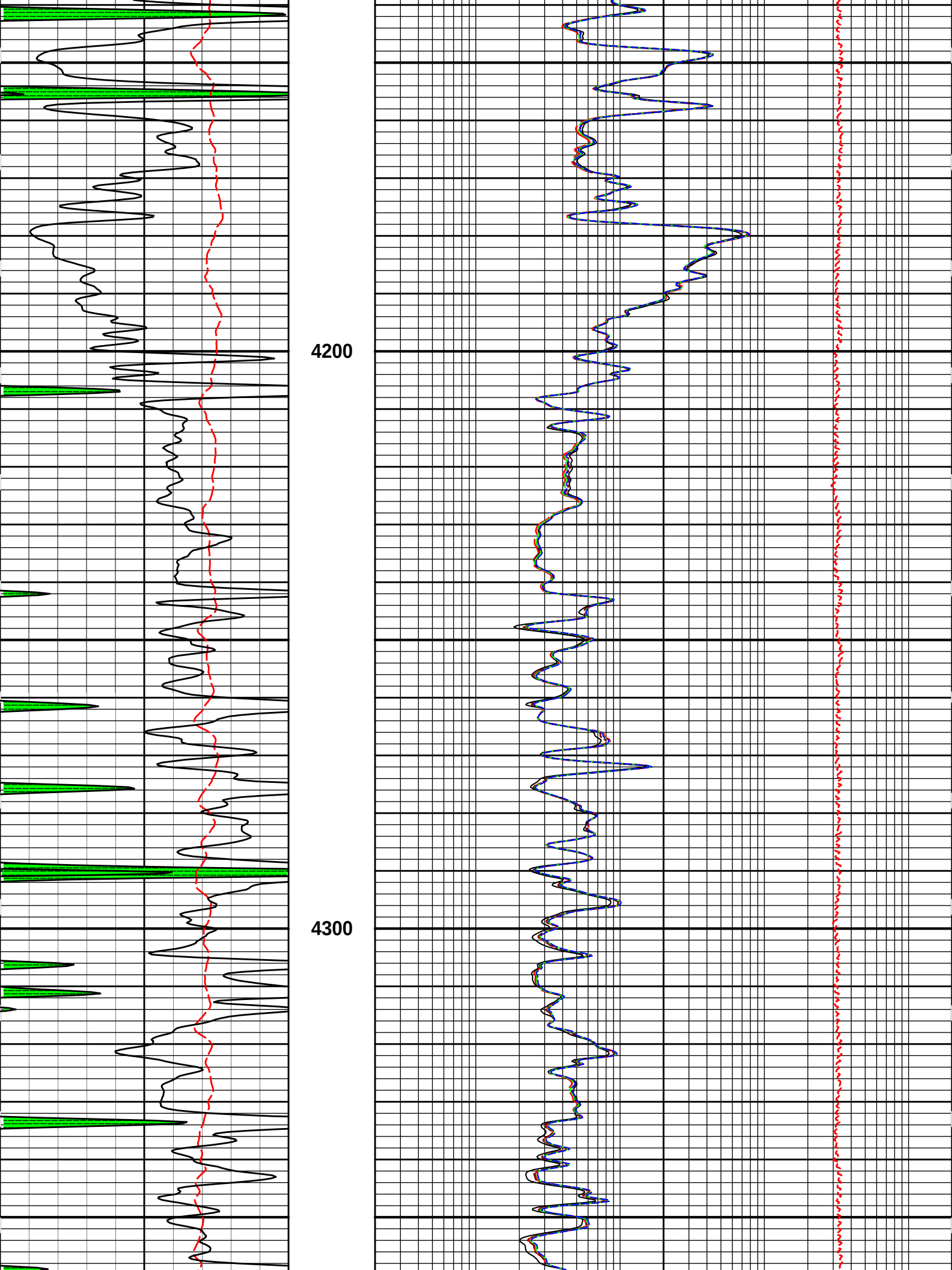
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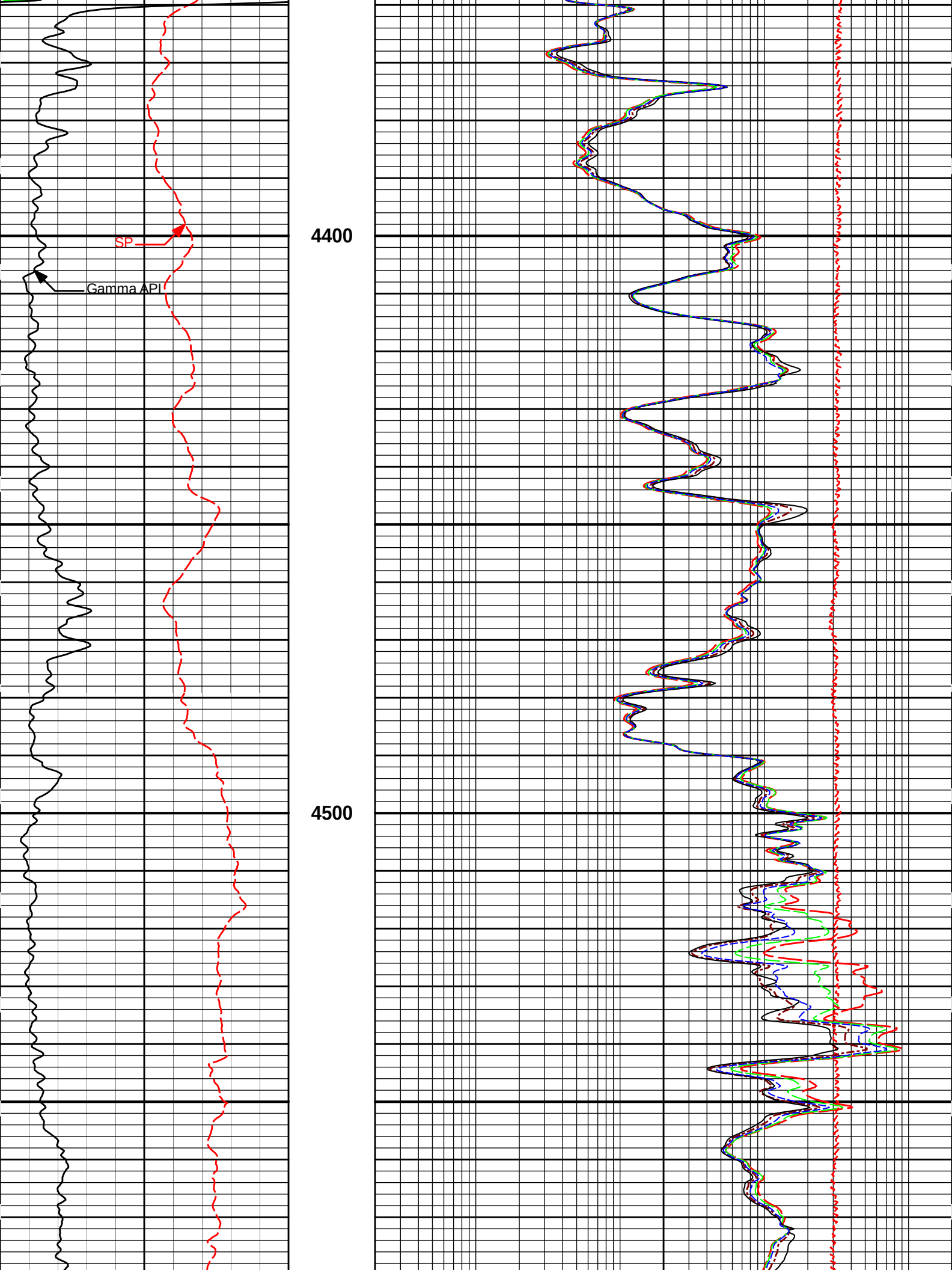
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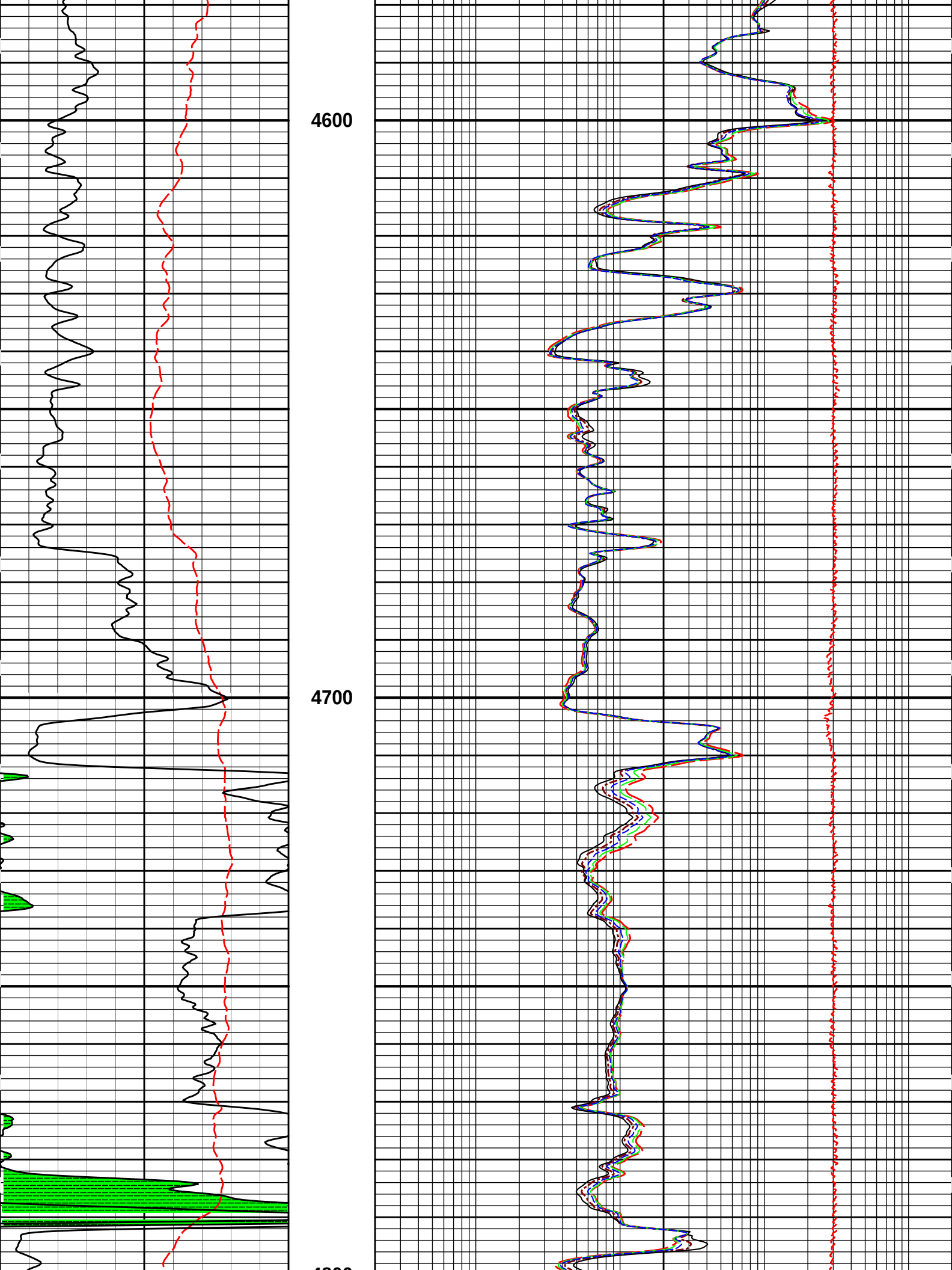
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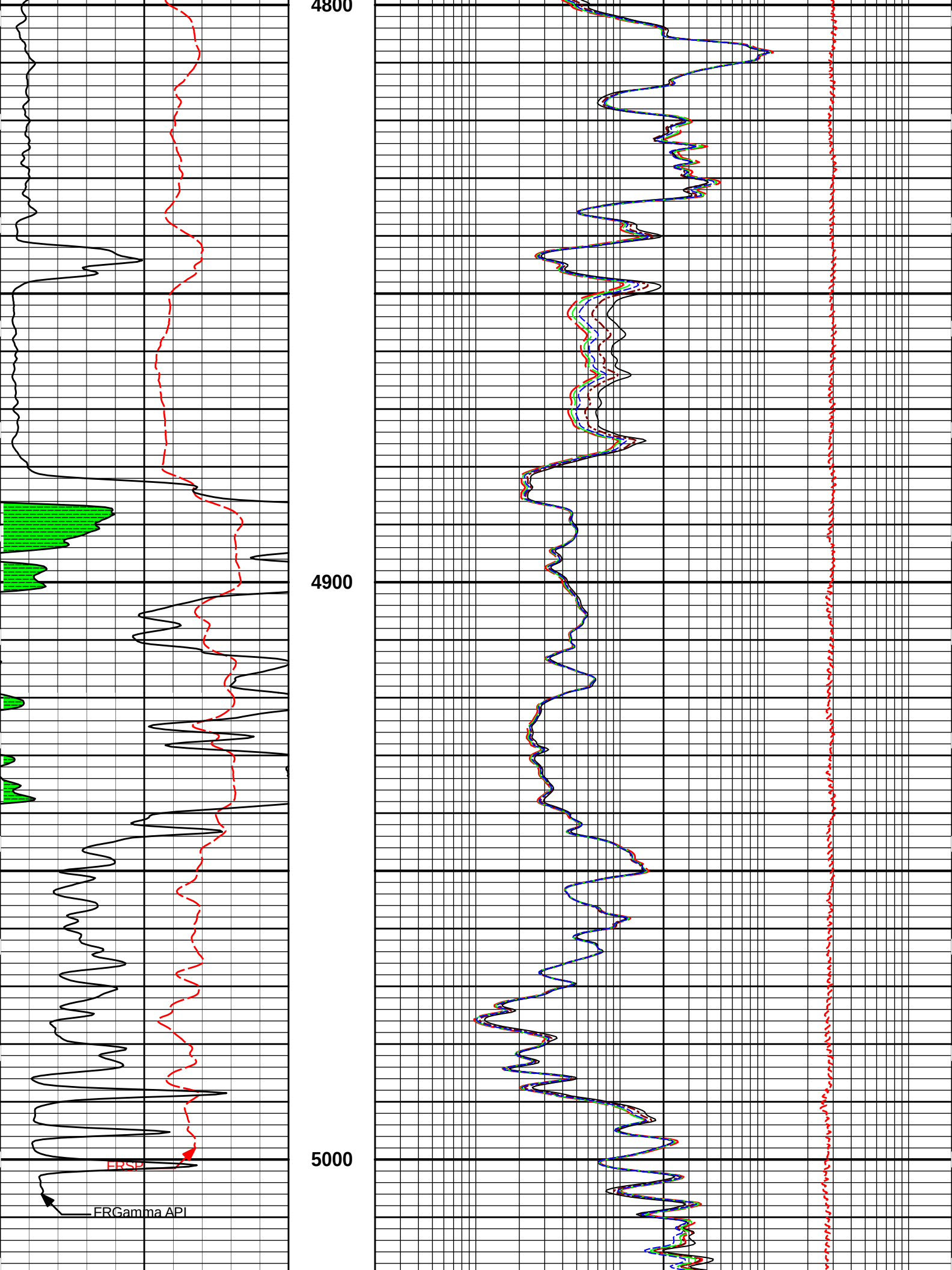
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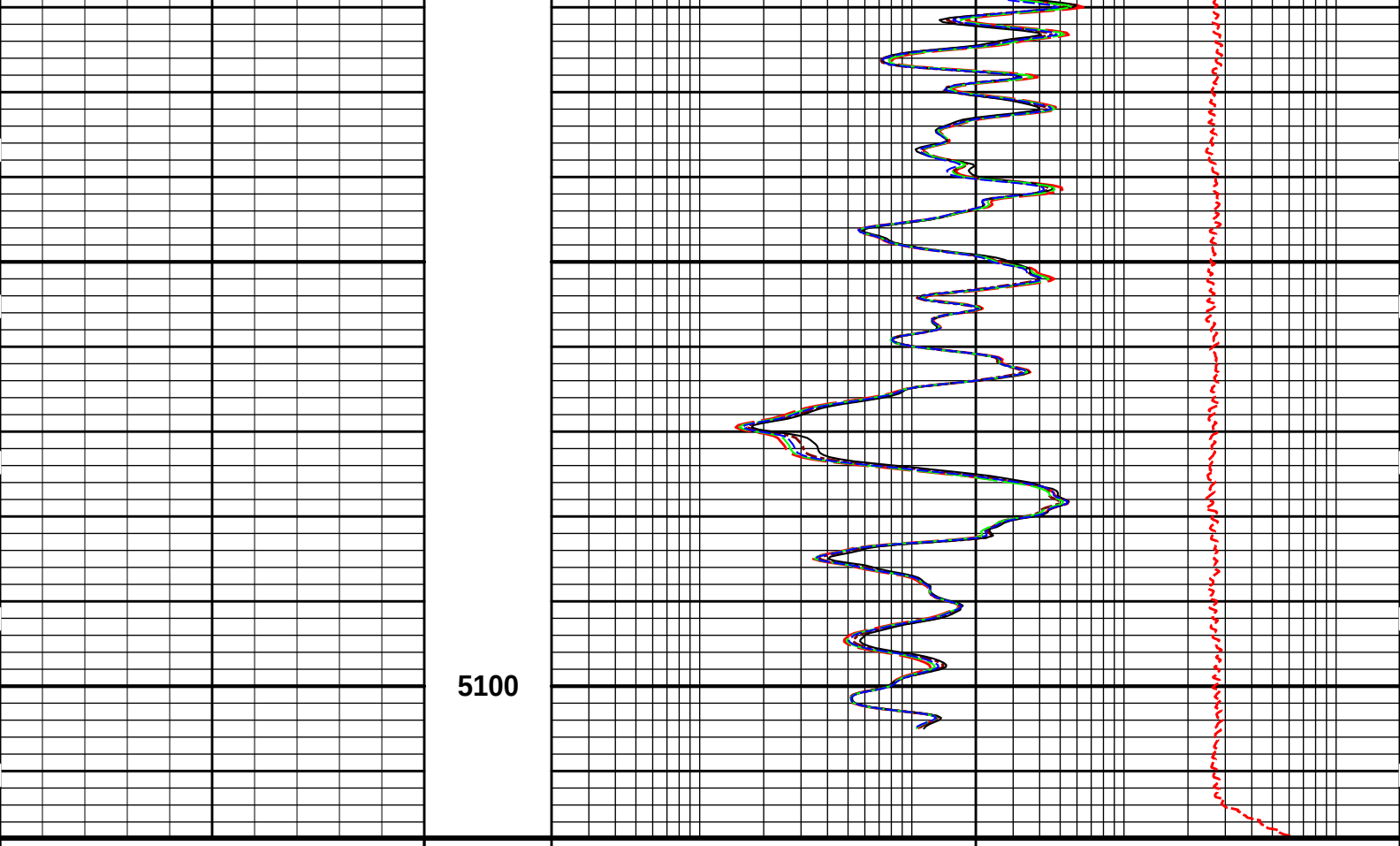

SP

-]20[+

0 Gamma API 150

api

SHALE

MD
1 : 240
ft

10K Tension 0

pounds

0.2 10in Resistivity 2ft Res 2000

ohmm

0.2 20in Resistivity 2ft Res 2000

ohmm

0.2 30in Resistivity 2ft Res 2000

ohm-metre

0.2 60in Resistivity 2ft Res 2000

ohmm

0.2 90in Resistivity 2ft Res 2000

ohmm

HALLIBURTON

Plot Time: 06-May-14 07:49:49
Plot Range: 555 ft to 5117.75 ft
Data: FORREST_SWD_1-7\Well Based\DAQ-0001-003\
Plot File: \\-LOCAL-\FORREST_SWD_1-7\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-IDT-ICT-WAVE-ACRT-BN\ACRT\ACRT_5_main_lib

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 06-May-14 07:49:49
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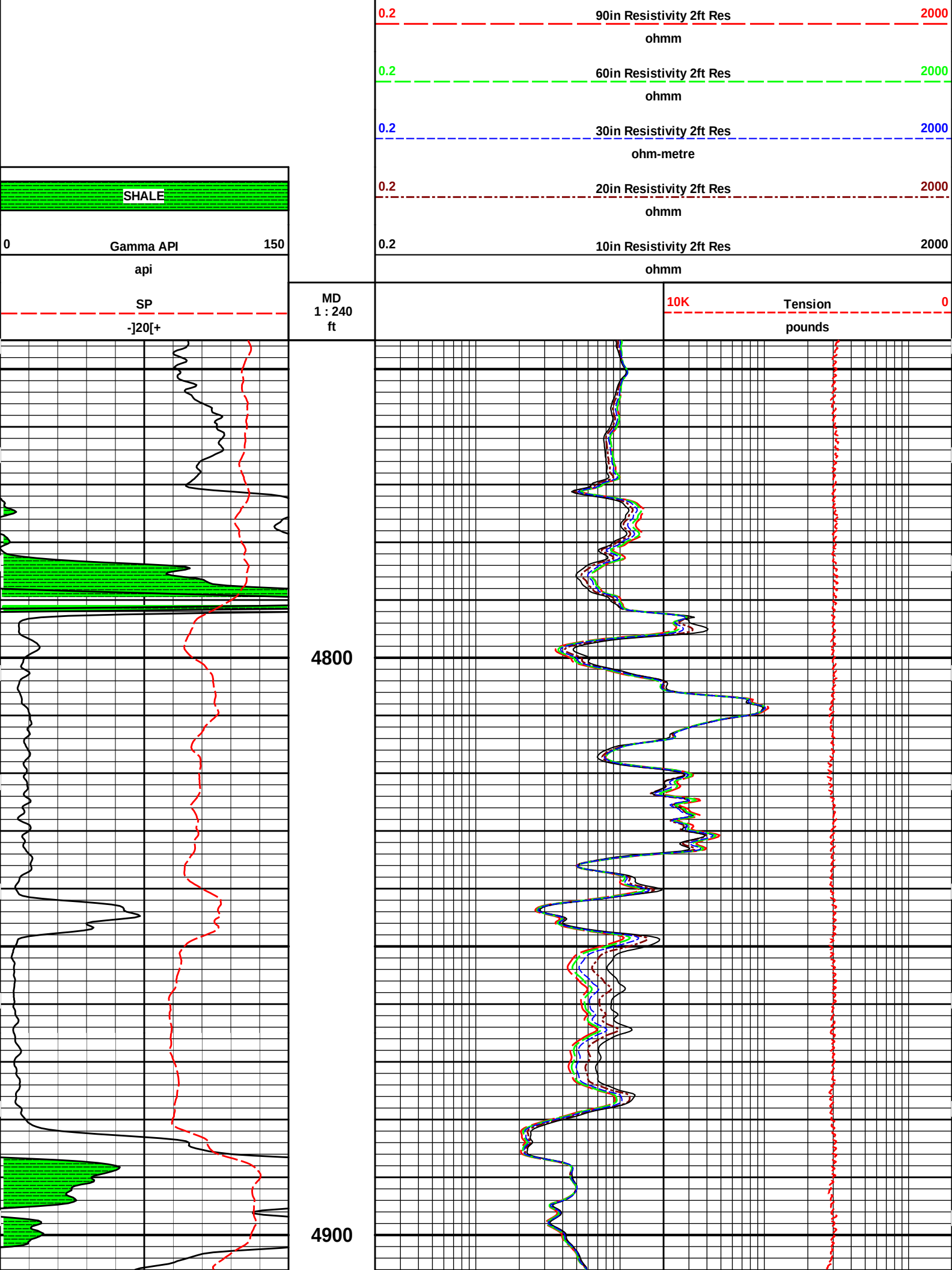
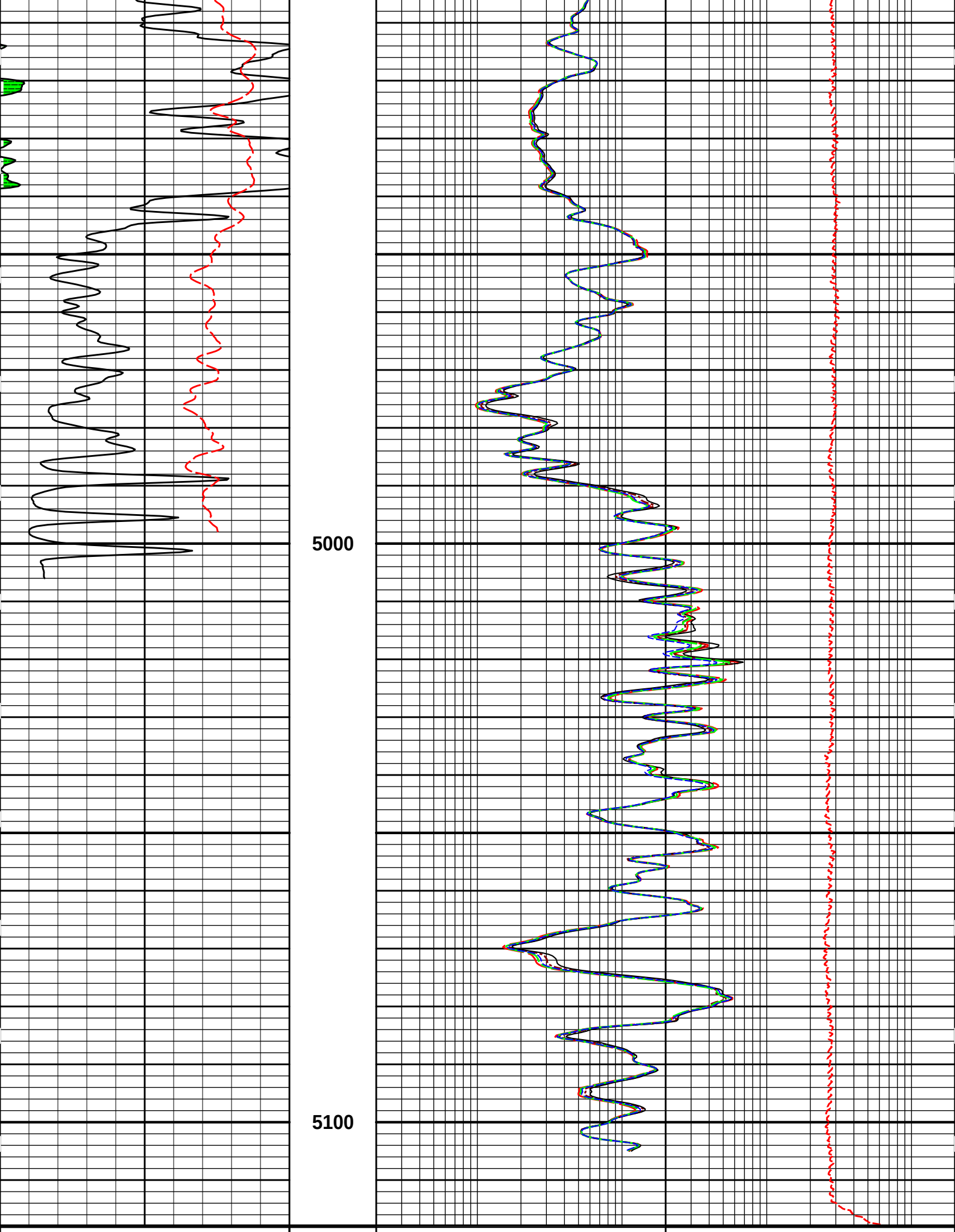
REPEAT SECTION


0.2
90in Resistivity 2ft Res
2000
ohmm
0.2
60in Resistivity 2ft Res
2000
ohmm
0.2
30in Resistivity 2ft Res
2000
ohm-metre
0.2
20in Resistivity 2ft Res
2000
ohmm
0.2
10in Resistivity 2ft Res
2000
ohmm
SHALE
0
Gamma API
150
api
SP
-]20[+
MD
1 : 240
ft
10K
Tension
0
pounds
4800
4900



SP

-120[+

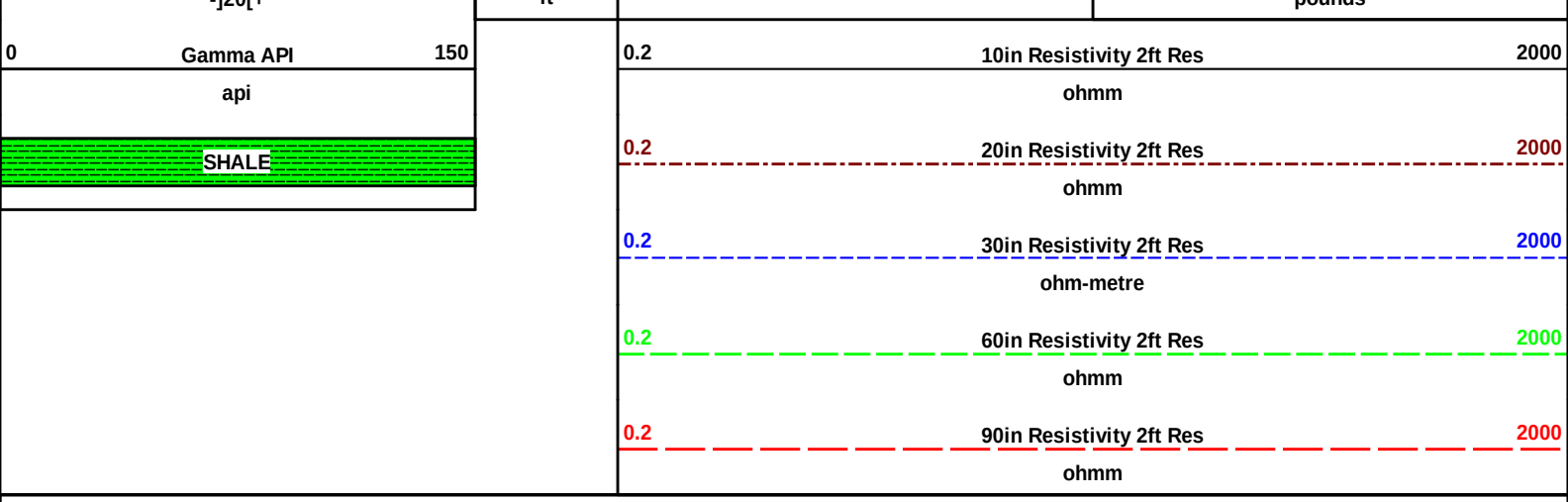
MD
1 : 240
ft

10K

Tension

0

pounds



HALLIBURTON

Plot Time: 06-May-14 07:49:50
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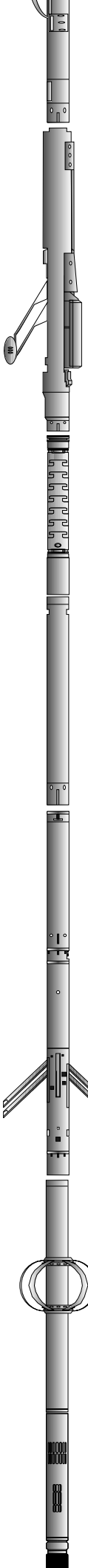
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head-12345678 30.00 lbs		Ø 3.625 in →			1.92 ft	122.58 ft 120.66 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		← SP @ 118.88 ft	3.74 ft	116.92 ft
GTET-10811258 165.00 lbs		Ø 3.625 in →		← GammaRay @ 110.86 ft	8.52 ft	108.40 ft
CSNG-11830417 114.00 lbs		Ø 3.625 in →		← CSNG @ 102.78 ft	8.17 ft	100.24 ft
	DSN Decentralizer-10735145 6.60 lbs	Ø 5.000 in* →				
DSNT-10755066 174.00 lbs		Ø 3.625 in →			9.69 ft	



90.55 ft

SDLT-10685803
360.00 lbs

SDLT Pad-10714945
65.00 lbs

Microlog Pad-10685803
8.00 lbs

Ø 4.500 in

Ø 4.750 in*

Ø 4.750 in*

10.81 ft

79.74 ft

IQ Flex-00000668
140.00 lbs

Ø 3.625 in

5.67 ft

74.07 ft

IDT-1094
150.00 lbs

Ø 3.625 in

7.58 ft

66.48 ft

ICT-10880633
330.00 lbs

Ø 3.625 in

12.83 ft

53.65 ft

WSTT-I Upper Electronics-10753397
115.00 lbs

Centralizer 25-00000001
8.00 lbs

Ø 4.000 in*

Ø 3.625 in

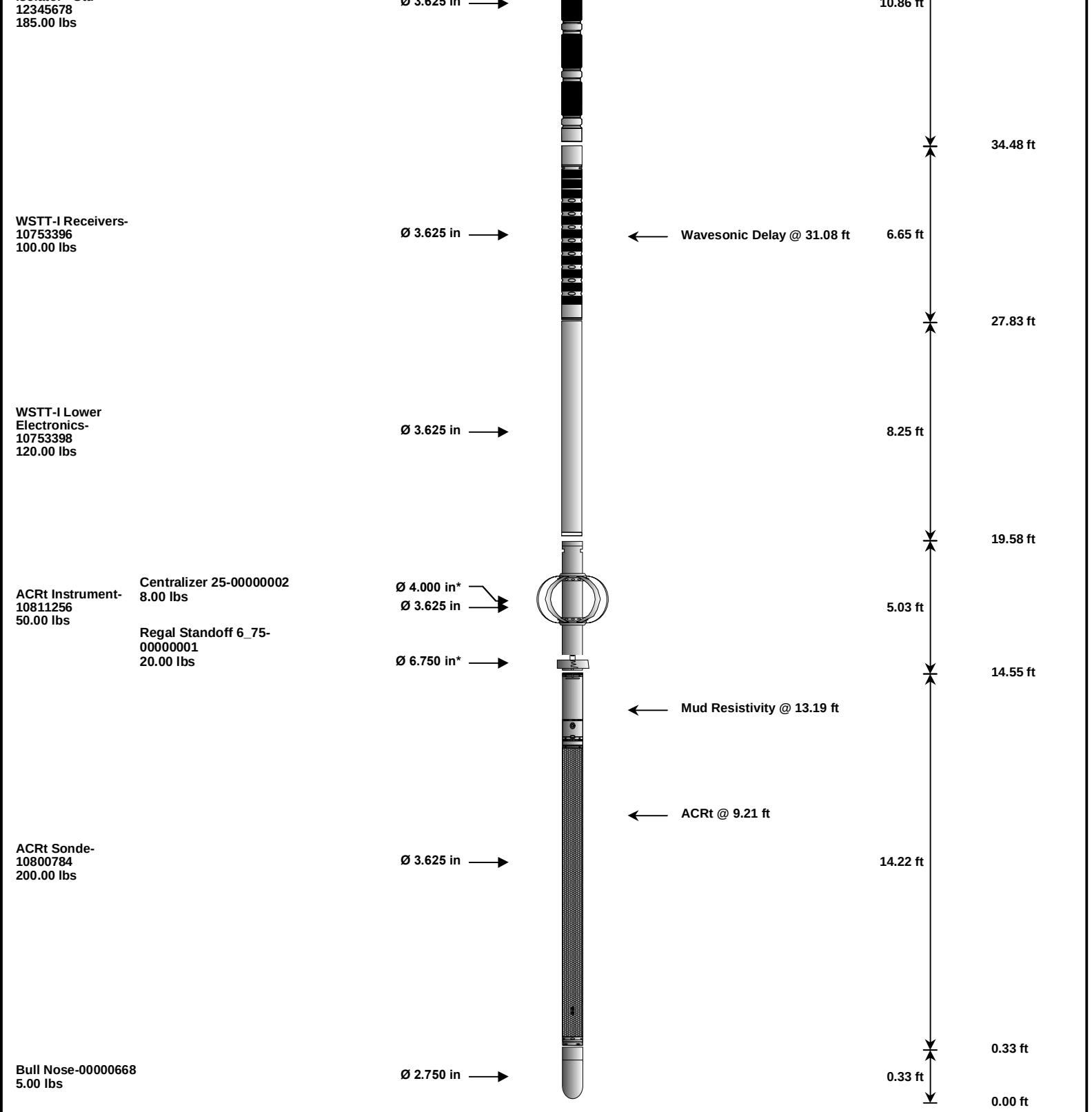
8.31 ft

45.34 ft

WSTT-I Trans-Isolator - Std-

Ø 3.625 in

10.36 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH	Standard OH Cable Head	12345678	30.00	1.92		120.66	300.00
SP	SP Sub	12345678	60.00	3.74		116.92	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		108.40	60.00
CSNG	Compensated Spectral Natural Gamma	11830417	114.00	8.17		100.24	15.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69		90.55	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	*	93.88	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81		79.74	60.00
SDLP	Density Insite Pad	10714945	65.00	2.55	*	81.95	60.00
MICP	Microlog Pad	10685803	8.00	1.00	*	82.24	60.00
IQF	IQ Flex tool	00000668	140.00	5.67		74.07	300.00
IDT	Insite Directional Tool	1094	150.00	7.58		66.48	30.00
ICT	Six Independent Arm Caliper	10880633	330.00	12.83		53.65	60.00
WSTT	WaveSonic Insite - Upper Electronics	10753397	115.00	8.31		45.34	100.00

OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	48.77	300.00
WSTT	WaveSonic Insite - Trans-Isolator - Std	12345678	185.00	10.86		34.48	100.00
WSTT	WaveSonic Insite - Receivers	10753396	100.00	6.65		27.83	30.00
WSTT	WaveSonic Insite - Lower Electronics	10753398	120.00	8.25		19.58	100.00
ACRt	Array Compensated True Resistivity Instrument Section	10811256	50.00	5.03		14.55	120.00
RSOF	Regal Standoff 6.75in	00000001	20.00	0.52	*	14.71	300.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	16.19	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10800784	200.00	14.22		0.33	120.00
BLNS	Bull Nose	00000668	5.00	0.33		0.00	300.00
Total			**2,413.60**	**122.58**			

* Not included in Total Length and Length Accumulation.

Data: FORREST_SWD_1-7\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-IDT-ICT-WAVE-ACRT-BN\IDLE **Date: 05-May-14 19:08:06**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 25-Apr-14 08:20:22

Engineer: THOMAS K HYDE **Calibration Date:** 25-Apr-14 08:23:37

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	44.8	44.7	api
Background + Calibrator	277.2	276.7	api
Calibrator	232.4	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 25-Apr-14 08:23:37

Engineer: THOMAS K HYDE **Calibration Date:** 05-May-14 19:26:40

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	44.7	44.1	api
Background + Calibrator	276.7	279.3	api
Calibrator	232.0	235.2	api

Shop	Field	Difference	Tolerance
232.0	235.2	-3.2	+/- 9.00

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name: ACRt Sonde - 10800784 **Reference Calibration Date:** 19-Mar-14 11:46:10

Engineer: THOMAS K HYDE **Calibration Date:** 05-May-14 10:36:04

Software Version: WL INSITE R4.2.0 (Build 2) **Calibration Version:** 1

Host Tool Name: ACRt Instrument - 10811256

TYPICAL GAIN RANGE

Subarray	R12KHz	R36KHz	R72KHz

	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.0203	1.05	0.95	1.0178	1.05	0.95	1.0053	1.05
A2 (50")	0.95	1.0193	1.05	0.95	1.0184	1.05	0.95	1.0086	1.05
A3 (29")	0.95	1.0030	1.05	0.95	1.0020	1.05	0.95	0.9919	1.05
A4 (17")	0.95	1.0146	1.05	0.95	1.0117	1.05	0.95	1.0053	1.05
A5 (10")	N/A	N/A	N/A	0.95	0.9987	1.05	0.95	0.9919	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9858	1.05	0.95	0.9793	1.05

SONDE OFFSET

Subarray	R12KHz	R36KHz	R72KHz
	(mmho/m)	(mmho/m)	(mmho/m)
A1 (80")	-0.196	-3.843	-5.046
A2 (50")	-2.047	-3.865	-4.461
A3 (29")	-16.217	-4.789	-3.315
A4 (17")	-97.795	-32.790	-27.061
A5 (10")	N/A	-96.879	-48.585
A6 (6")	N/A	292.511	155.331

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.87	1.3
36K	1.0	1.20	2.0
72K	1.0	1.53	2.0

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	1.00	1.05

PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET CHK	PASS

TOOL OK TO LOG

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	235.2	----------	-3.2	+/- 9.00	api
ACRt Sonde-10800784						
Mud Cell	1.00	----------	----------	0.00	----------	ohm-m

Data: FORREST_SWD_1-7\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-IDT-ICT-WAVE-ACRT-BN\IDLE **Date: 05-May-14 20:36:03**

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.300	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	0.450	ohmm
SHARED	TRM	Temperature of Mud	90.0	degF
SHARED	CSD	Logging Interval is Cased?	No	
SHARED	ICOD	AHV Casing OD	5.500	in
SHARED	ST	Surface Temperature	85.0	degF
SHARED	TD	Total Well Depth	5115.00	ft
SHARED	BHT	Bottom Hole Temperature	200.0	degF
SHARED	SVTM	Navigation and Survey Master Tool	IDT	
SHARED	AZTM	High Res Z Accelerometer Master Tool	IDT	
SHARED	TEMM	Temperature Master Tool	NONE	
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	
Rwa / CrossPlot	BHSM	Borehole Size Source Tool	ICT	
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	
GTET	BHSM	Borehole Size Source Tool	ICT	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
CSNG	BHSM	Borehole Size Source Tool	ICT	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	No	
DSNT	NLIT	Neutron Lithology	Limestone	
DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
DSNT	DNTP	Temperature Correction Type	None	
DSNT	DPRS	DSN Pressure Correction Type	None	
DSNT	SHCO	View More Correction Options	No	
DSNT	UTVD	Use TVD for Gradient Corrections?	No	
DSNT	LHWT	Logging Horizontal Water Tank?	No	
DSNT	BHSM	Borehole Size Source Tool	ICT	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	No	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	

SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
SDLT Pad	BHSM	Borehole Size Source Tool	SDLT	
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
IDT	WRTI	Survey Writing Interval	30	ft
IDT	SOPT	Smoothing Option	None	
ICT	CLOK	Process Caliper Outputs?	Yes	
ICT	DARM	Disable Caliper Arm	No	
ICT	ATDS	Arm To Disable	0	
ICT	REPM	Method to replace arm?	Caliper Average	
ICT	ARMV	Diameter to use for disabled arm	0.00	in
ICT	DARM	Disable Second Caliper Arm	No	
ICT	ATDS	Second Arm To Disable	0	
ICT	REPM	Method to replace second arm?	Caliper Average	
ICT	ARMV	Diameter to use for second disabled arm	0.00	in
ICT	NAVS	Navigation Source Tool	IDT	
ICT	CL1O	Radius 1 Offset	0.0	in
ICT	CL2O	Radius 2 Offset	0.0	in
ICT	CL3O	Radius 3 Offset	0.0	in
ICT	CL4O	Radius 4 Offset	0.0	in
ICT	CL5O	Radius 5 Offset	0.0	in
ICT	CL6O	Radius 6 Offset	0.0	in
ICT	BHVC	Radius type for borehole volume calcuations	Elliptical	
WSTT-I Receivers	WSOK	Process WSTT?	Yes	
WSTT-I Receivers	AFIL	Adaptive Filtering?	No	
WSTT-I Receivers	PINT	Process 1 Sample and Skip	0	
WSTT-I Receivers	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
WSTT-I Receivers	DTSH	Delta -T Shale	100.00	uspf
WSTT-I Receivers	DTMT	Delta -T Matrix Type	User define	
WSTT-I Receivers	DTMA	Delta -T Matrix	47.60	uspf
WSTT-I Receivers	DTFL	Delta -T Fluid	189.00	uspf
WSTT-I Receivers	RHOM	Matrix Density	2.7100	g/cc
WSTT-I Receivers	RHOF	Fluid Density	1.0000	g/cc
WSTT-I Receivers	SMTH	Semblance Threshold	0.25	
WSTT-I Receivers	VPVS	VPVS Ratio for Porosity	1.40	
WSTT-I Receivers	APEQ	Acoustic Porosity Equation	Wylie	
WSTT-I Receivers	NAVS	Navigation Source Tool	IDT	
ACRt Sonde	RTOK	Process ACRt?	Yes	
ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt Sonde	TPOS	Tool Position	Free Hanging	
ACRt Sonde	RMOP	Rmud Source	Mud Cell	
ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
ACRt Sonde	THQY	Threshold Quality	0.50	
ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
ACRt Sonde	BHSM	Borehole Size Source Tool	ICT	

BOTTOM

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	Rwa / CrossPlot			
TPUL	Tension Pull	122.58	NO	
BS	Bit Size	122.58	NO	
HDIA	Measured Hole Diameter	0.00	NO	
	SP Sub			
PLTC	Plot Control Mask	118.88	NO	
SP	Spontaneous Potential	118.88	BLK	1.250
SPR	Raw Spontaneous Potential	118.88	NO	
SPO	Spontaneous Potential Offset	118.88	NO	
	GTET			
TPUL	Tension Pull	110.86	NO	
GR	Natural Gamma Ray API	110.86	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	110.86	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	110.86	W	1.416 , 0.750
HDIA	Measured Hole Diameter	0.00	NO	
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
	CSNG			
TPUL	Tension Pull	102.78	NO	
STAT	Status	102.78	NO	
FRMC	Tool Frame Count	102.78	BLK	0.250
TFRM	Total Frames	102.78	NO	
LSPD	Line Speed	102.78	BLK	0.250
CTIM	Accumulation time for sample	102.78	BLK	0.250
NOIS	Spectral Noise	102.78	BLK	0.250
STAB	Stabilizer Voltage in mv	102.78	BLK	0.250
STBP	Stabilizer 60 KEV Peak	102.78	BLK	0.250
AMER	Americium	102.78	BLK	0.250
FTMP	Flask PCB Temperature	102.78	BLK	0.250
SPEL	Low Energy Spectrum	102.78	BLK	0.250
SPEH	High Energy Spectrum	102.78	BLK	0.250
SSP	Stabilization Energy Spectrum	102.78	BLK	0.250
HDIA	Measured Hole Diameter	0.00	NO	
CSPC	CSNG Lo Hi Spectrum Data	102.78	NO	
	DSNT			
TPUL	Tension Pull	92.45	NO	
RNDS	Near Detector Telemetry Counts	92.55	BLK	1.417
RFDS	Far Detector Telemetry Counts	93.30	TRI	0.583

DNTT	DSN Tool Temperature	92.55	NO	
DSNS	DSN Tool Status	92.45	NO	
ERND	Near Detector Telemetry Counts EVR	92.55	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	93.30	BLK	0.000
ENTM	DSN Tool Temperature EVR	92.55	NO	
HDIA	Measured Hole Diameter	0.00	NO	
	SDLT			
TPUL	Tension Pull	82.55	NO	
PCAL	Pad Caliper	82.55	TRI	0.250
ACAL	Arm Caliper	82.55	TRI	0.250
	IDT			
TPUL	Tension Pull	67.48	NO	
ACCX	Accelerometer X	67.48	NO	
ACCY	Accelerometer Y	67.48	NO	
ACCZ	Accelerometer Z	67.48	NO	
MAGX	magnetometer x with unit	67.48	NO	
MAGY	Magnetometer Y with unit	67.48	NO	
MAGZ	magnetometer z with unit	67.48	NO	
IAMP	Accelerometer Temperature	67.48	NO	
MTMP	Magnetometer Temperature	67.48	NO	
	ICT			
TPUL	Tension Pull	56.44	NO	
	Arm Potentiometer excitation V	53.65	NO	
	Caliper 1 measurement	56.44	BLK	1.250
	Caliper 2 measurement	56.44	BLK	1.250
	Caliper 3 measurement	56.44	BLK	1.250
	Caliper 4 measurement	56.44	BLK	1.250
	Caliper 5 measurement	56.44	BLK	1.250
	Caliper 6 measurement	56.44	BLK	1.250
	Caliper Global measurement	56.44	BLK	1.250
MOTI	Motor Current	53.65	NO	
MOT1	Motor Voltage Monitor 1	53.65	NO	
STA1	Status word #1	53.65	NO	
STA2	Status word #2	53.65	NO	
PRES	Caliper percentage of total compression of the spring	53.65	NO	
HAZI	Hole Azimuth	56.44	NO	
RB	Relative Bearing	56.44	NO	
AZI1	PAD1 Azimuth	56.44	NO	
DEVI	Inclination	56.44	NO	
	WSTT-I Receivers			
TPUL	Tension Pull	31.08	NO	
DPSX	Dipole Source X Structurel	27.83	NO	
DPSY	Dipole Source Y Structurel	27.83	NO	
DPSM	Monopole Source Structure	27.83	NO	
WVST	Wavesonic Compressed Data	31.08	NO	
TPUL	Tension Pull	31.08	NO	
XMS1	Wave Sonic Status Word 1	27.83	NO	
XMS2	Wave Sonic Status Word 2	27.83	NO	
XMS1	Wave Sonic XMITStatus Word 1	27.83	NO	
XMS1	Wave Sonic XMITStatus Word 2	27.83	NO	
F1HA	Dipole 1 HV After	27.83	NO	
F1HB	Dipole 1 HV Before	27.83	NO	

F2HA	Dipole 2 HV After	27.83	NO
F2HB	Dipole 2 HV Before	27.83	NO
F3HA	Monopole HV After	27.83	NO
F3HB	Monopole HV Before	27.83	NO
INVT	Input Voltage	27.83	NO
5VOL	5 Volts	27.83	NO
MI5A	Minus 5 Volts Analog	27.83	NO
ITMP	Instrument Temperature	27.83	NO
PL5A	Plus 5 Volts Analog	27.83	NO
5VD	Plus 5 Volts Digital	27.83	NO
TCUR	Tool Current	27.83	NO
SUPV	Supply Voltage	27.83	NO
PRVT	Preregulated voltage	27.83	NO
PRVT	Pre-regulated voltage Xmter	27.83	NO
TEMP	Temperature	27.83	NO
ACQN	Acquisition Number	27.83	NO
XDP	Delay Reference	31.08	NO
MITM	MIT Mode	31.08	NO
VERS	Version	27.83	NO
D1CT	Dipole 1 Compressed Word Count	31.08	NO
D2CT	Dipole 2 Compressed Word Count	31.08	NO
MCNT	Monopole Compressed Word Count	31.08	NO
SEQN	Sequence Number	27.83	NO
FREV	Firmware Revision	27.83	NO
MSMP	Monopole Sample Rate	27.83	NO
MSMP	Dipole Sample Rate	27.83	NO
MFWF	Monopole Firing Waveform	27.83	NO
MFRQ	Monopole Frequency	27.83	NO
MDLY	Monopole Delay	27.83	NO
DXWF	Dipole X Firing Waveform	27.83	NO
XFRQ	Dipole X Frequency	27.83	NO
XDLY	Dipole X Delay	27.83	NO
DYWF	Dipole Y Firing Waveform	27.83	NO
YFRQ	Dipole Y Frequency	27.83	NO
YDLY	Dipole Y Delay	27.83	NO
DPSX	Dipole Source X Structurel	27.83	NO
DPSY	Dipole Source Y Structurel	27.83	NO
DPSM	Monopole Source Structure	27.83	NO
WVST	Wavesonic Compressed Data	31.08	NO
AUTM	Auto Mode	27.83	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	27.83	NO
MSL	Monopole Lower Travel Time	31.08	NO
MSH	Monopole Upper Travel Time	31.08	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	27.83	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	27.83	NO
DLTT	Dipole Lower Travel Time	27.83	NO
DUTT	Dipole Upper Travel Time	27.83	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	27.83	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	27.83	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	27.83	NO
MUTS	Mute/Enable Sides	27.83	NO
WSRB	Relative Bearing	31.08	NO
WSAZ	WSX Azimuth Pad 1	31.08	NO
TPUL	Tension Pull	31.08	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.08	NO

WXX	Dipole X for SIDES - A-C	31.08	NO
WYY	Dipole Y for SIDES - B-D	31.08	NO
WXY	Dipole X for SIDES - B-D	31.08	NO
WYX	Dipole Y for SIDES - A-C	31.08	NO
TPUL	Tension Pull	31.08	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.08	NO
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.08	NO
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.08	NO
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.08	NO
GAR1	Gain Side A Receiver 1	27.83	NO
GAR2	Gain Side A Receiver 2	27.83	NO
GAR3	Gain Side A Receiver 3	27.83	NO
GAR4	Gain Side A Receiver 4	27.83	NO
GAR5	Gain Side A Receiver 5	27.83	NO
GAR6	Gain Side A Receiver 6	27.83	NO
GAR7	Gain Side A Receiver 7	27.83	NO
GAR8	Gain Side A Receiver 8	27.83	NO
GBR1	Gain Side B Receiver 1	27.83	NO
GBR2	Gain Side B Receiver 2	27.83	NO
GBR3	Gain Side B Receiver 3	27.83	NO
GBR4	Gain Side B Receiver 4	27.83	NO
GBR5	Gain Side B Receiver 5	27.83	NO
GBR6	Gain Side B Receiver 6	27.83	NO
GBR7	Gain Side B Receiver 7	27.83	NO
GBR8	Gain Side B Receiver 8	27.83	NO
GCR1	Gain Side C Receiver 1	27.83	NO
GCR2	Gain Side C Receiver 2	27.83	NO
GCR3	Gain Side C Receiver 3	27.83	NO
GCR4	Gain Side C Receiver 4	27.83	NO
GCR5	Gain Side C Receiver 5	27.83	NO
GCR6	Gain Side C Receiver 6	27.83	NO
GCR7	Gain Side C Receiver 7	27.83	NO
GCR8	Gain Side C Receiver 8	27.83	NO
GDR1	Gain Side D Receiver 1	27.83	NO
GDR2	Gain Side D Receiver 2	27.83	NO
GDR3	Gain Side D Receiver 3	27.83	NO
GDR4	Gain Side D Receiver 4	27.83	NO
GDR5	Gain Side D Receiver 5	27.83	NO
GDR6	Gain Side D Receiver 6	27.83	NO
GDR7	Gain Side D Receiver 7	27.83	NO
GDR8	Gain Side D Receiver 8	27.83	NO

ACRt Sonde				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Reference 12 KHz Real Signal	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
HDIA	Measured Hole Diameter	0.00	NO	

SDLT Pad				
TPUL	Tension Pull	82.54	NO	
NAB	Near Above	82.37	BLK	0.920
NHI	Near Cesium High	82.37	BLK	0.920
NLO	Near Cesium Low	82.37	BLK	0.920
NVA	Near Valley	82.37	BLK	0.920
NBA	Near Barite	82.37	BLK	0.920
NDE	Near Density	82.37	BLK	0.920
NPK	Near Peak	82.37	BLK	0.920
NLI	Near Lithology	82.37	BLK	0.920
NBAU	Near Barite Unfiltered	82.37	BLK	0.250
NLIU	Near Lithology Unfiltered	82.37	BLK	0.250
FAB	Far Above	82.72	BLK	0.250
FHI	Far Cesium High	82.72	BLK	0.250
FLO	Far Cesium Low	82.72	BLK	0.250
FVA	Far Valley	82.72	BLK	0.250
FBA	Far Barite	82.72	BLK	0.250
FDE	Far Density	82.72	BLK	0.250
FPK	Far Peak	82.72	BLK	0.250
FLI	Far Lithology	82.72	BLK	0.250
PTMP	Pad Temperature	82.55	BLK	0.920
NHV	Near Detector High Voltage	81.95	NO	
FHV	Far Detector High Voltage	81.95	NO	
ITMP	Instrument Temperature	81.95	NO	
DDHV	Detector High Voltage	81.95	NO	
HDIA	Measured Hole Diameter	0.00	NO	

Microlog Pad				
TPUL	Tension Pull	82.74	NO	
MINV	Microlog Lateral	82.74	BLK	0.750
MNOR	Microlog Normal	82.74	BLK	0.750

Data: FORREST_SWD_1-7\0001 SP-GTET-CSNG-DSNT-SDLT-FLEX-IDT-ICT-WAVE-ACRT-BN\IDLE **Date: 05-May-14 20:41:18**

COMPANY	**SANDRIDGE ENERGY**
WELL	**FORREST SWD 3404 1-7**
FIELD	**BLUFF**
COUNTY	**SUMNER** STATE **KANSAS**

HALLIBURTON

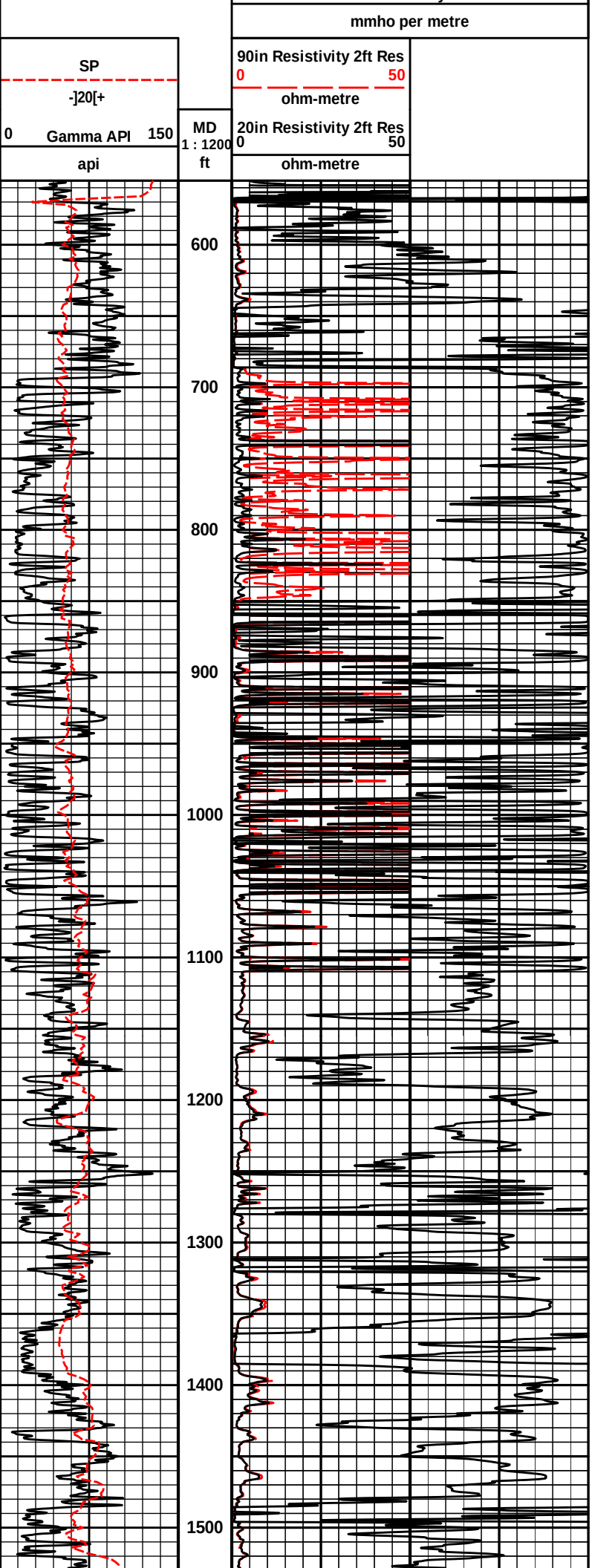
ARRAY COMPENSATED TRUE RESISTIVITY LOG

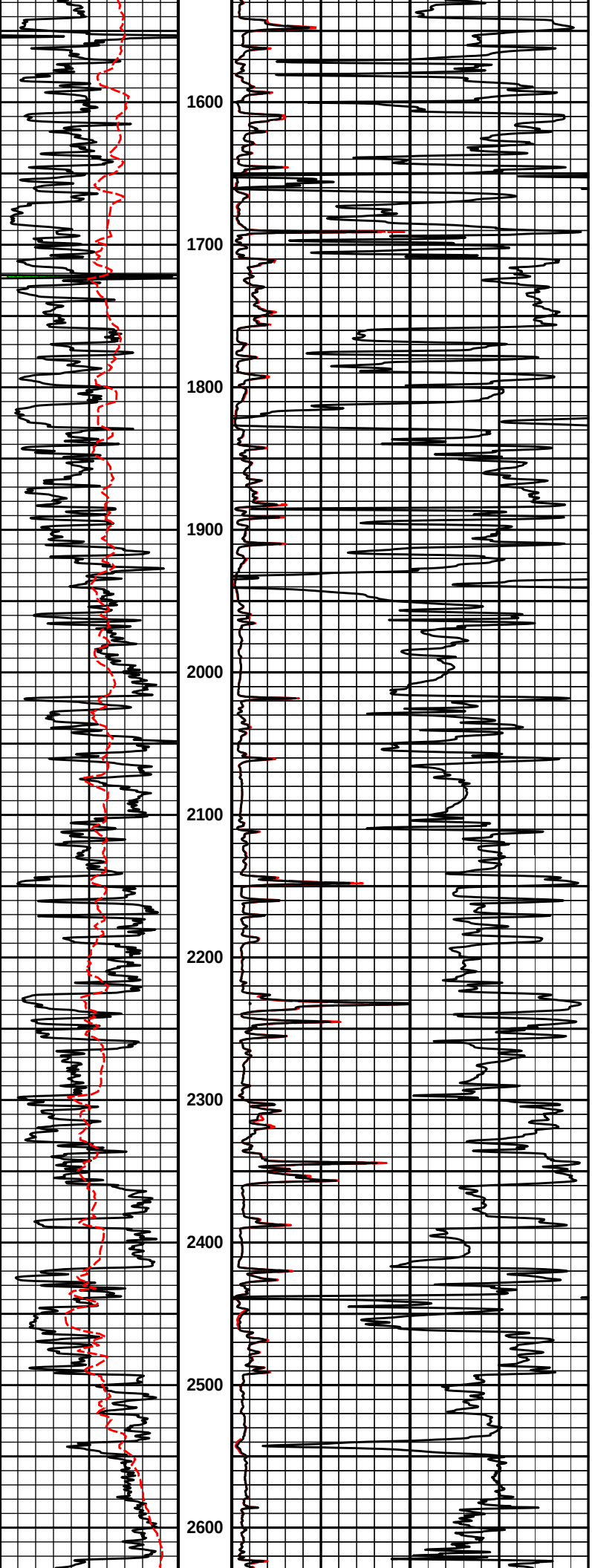
HALLIBURTON

Plot Time: 06-May-14 07:49:51
Plot Range: 555 ft to 5105 ft
Data: FORREST_SWD_1-7\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\FORREST_SWD_1-7\...\ACRT_1_lib

1 INCH MAIN LOG

	1000	90in Conductivity 2ft Res	0


mmho per metre
SP
-]20[+
0 Gamma API 150
api
MD
1 : 1200
ft
90in Resistivity 2ft Res
0 50
ohm-metre
20in Resistivity 2ft Res
0 50
ohm-metre
600
700
800
900
1000
1100
1200
1300
1400
1500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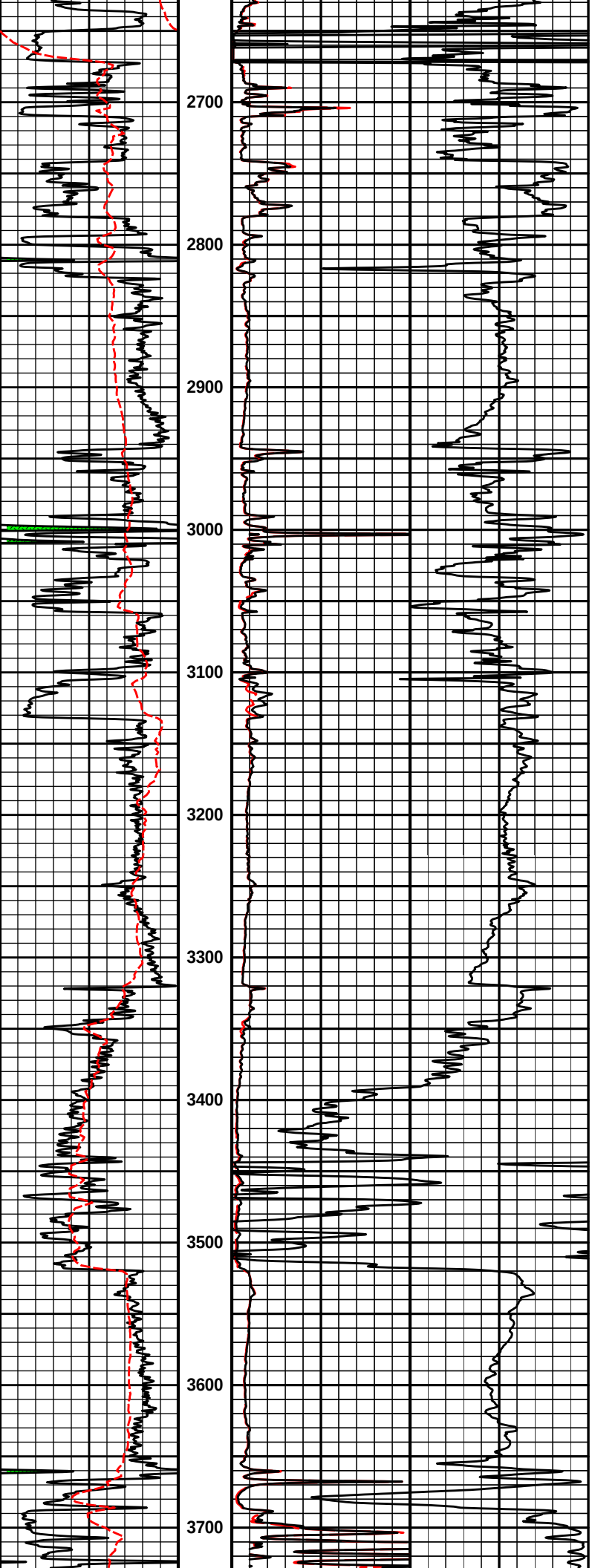
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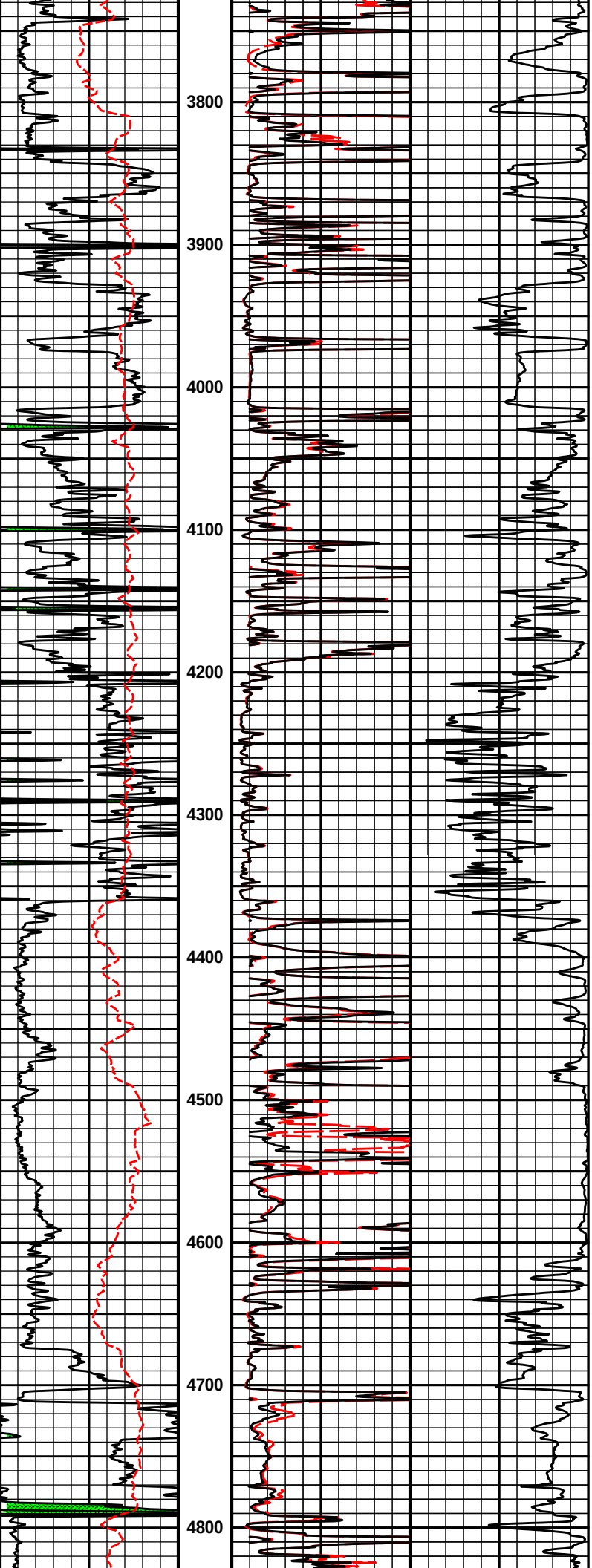
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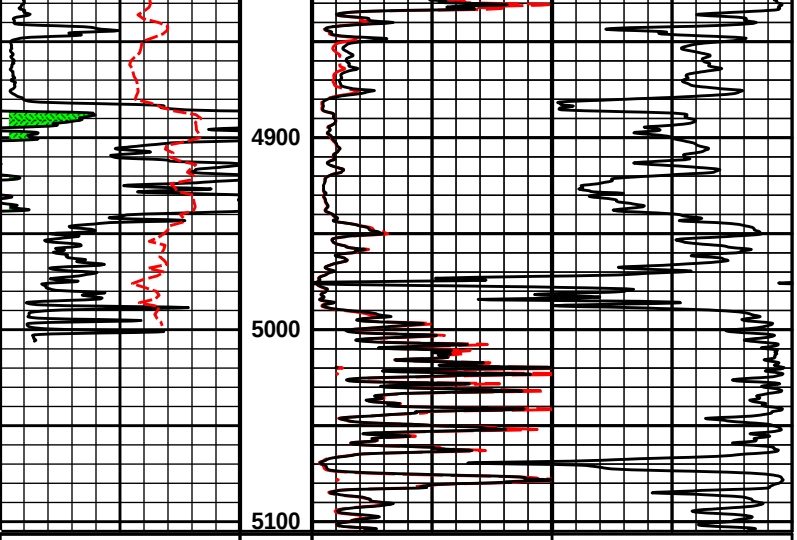

0 Gamma API 150	MD 1 : 1200 ft	20in Resistivity 2ft Res 0 50	
api		ohm-metre	
SP		90in Resistivity 2ft Res 0 50	
-]20[+		ohm-metre	
		1000 90in Conductivity 2ft Res 0	
		mmho per metre	

HALLIBURTON

Plot Time: 06-May-14 07:49:52
Plot Range: 555 ft to 5105 ft
Data: FORREST_SWD_1-7\Well Based\DAQ-0001-003
Plot File: \\-LOCAL-\FORREST_SWD_1-7\...\ACRT_1_lib

1 INCH MAIN LOG