WIRELINE LOGGING SOLUTIONS

Composite Log

Company Bengalia Land & Cattle Company
Well Faris # 2-35
Field WC
County Finney
State Kansas

Company	Bengalia Land & Cattle Company
Well	Faris # 2-35
Field	WC
County	Finney
State	Kansas

Location: API # : 15-055-22522
2,245' FSL & 1,525' FEL
(NAD83) Lat: 37.742536811; Long: -100.675762827
SEC 35 TWP 26S RGE 31W

Permanent Datum GL Elevation 2,810' ft.
Log Measured From KB , 16 ft. above perm. datum
Drilling Measured From KB

Other Services
LDL-CNL
MEL-MAS
BHP - IAT

Elevation
K.B. 2,816 ft.
D.F. 2,815 ft.
G.L. 2,810 ft.

Date	8/26/2019		
Run Number	One		
Depth Driller	6,200'		
Depth Logger	6,180'		
Bottom Logged Interval	6,178'		
Top Log Interval	1,822'		
Casing Driller	8 5/8" @ 1822'	@	
Casing Logger	1822'		
Bit Size	7 7/8"	@	
Type Fluid in Hole	WBM		
Density / Viscosity	9.5 PPG / 63S		
pH / Fluid Loss	N/A / 7.2Cl		
Source of Sample	Flowline		
Rm @ Meas. Temp	0.85 @ 75°F	@	
Rmf @ Meas. Temp	0.638 @ 75°F	@	
Rmc @ Meas. Temp	1.063 @ 75°F	@	
Source of Rmf / Rmc	Calculated		
Rm @ BHT	0.497 @ 133°F	@	
Time Circulation Stopped	12:00		
Time Logger on Bottom	18:00		
Maximum Recorded Temperature	133°F		
Equipment Number	10002		
Location	OKC		
Recorded By	M. Avitia		
Witnessed By	Curtis Covey	Calvin Hullum	

<<< Fold Here >>>

Equipment and Log Data

Service Order:

Gamma		Density		Neutron		Sonic		IAT/DLL	
Run No.	One	Run No.	One	Run No.	One	Run No.	One	Run No.	One
Serial No.	15939	Serial No.	129B	Serial No.	10071	Serial No.	10037	Serial No.	10106
O.D.	3.375 in.	Source No.	50129B	Source No.	87624G	Centralizers	2	Standoffs	1 @ 0.5
		O.D.	4.5 in.	O.D.	3.375 in.	O.D.	3.375 in.	O.D	3.875 in.

Logging Pass Data

General			Gamma		Density			Neutron			Sonic			IAT/DLL	
			Scales		Scales			Scales			Scales			Scales	
Run	Depths		Left	Right	Left	Right	Matrix	Left	Right	Matrix	Left	Right	Matrix	Left	Right
One	TD	CSG	0	150	0.3	-0.1	2.71	0.3	-0.1	Lime	0.3	-0.1	Lime	0.2	2000

Comments

Tools ran as per diagram
Density is presented on a 2.71 g/cc Matrix, Neutron is presented on a Limestone Matrix
Additional Pass in Sandstone and Dolomite Matrix is presented
Chlorides reported at 4000 ppm
Annular volume computed using 5.5" Casing

Washouts, tight pulls, and borehole rugosity affect data quality and repeatability
Tight spots while running in hole from 2400' to 2600'
Possible separated casing around casing depth.
Log considered first run in well, corrected +1ft stretch

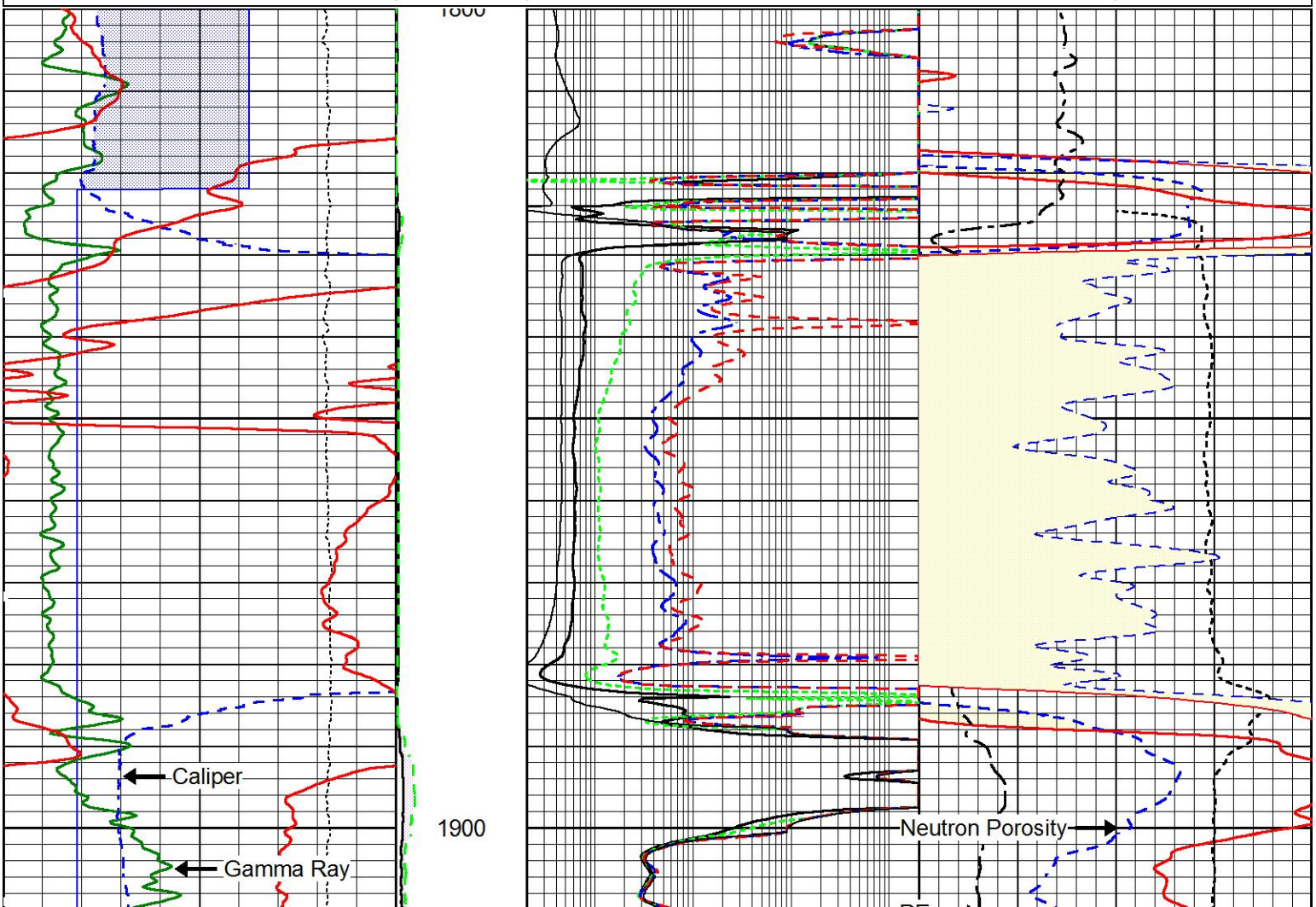
YOUR CREW TODAY:
THANK YOU FOR CHOOSING ALLIED HORIZONTAL WIRELINE. OKLAHOMA CITY. (405) 445-7135.

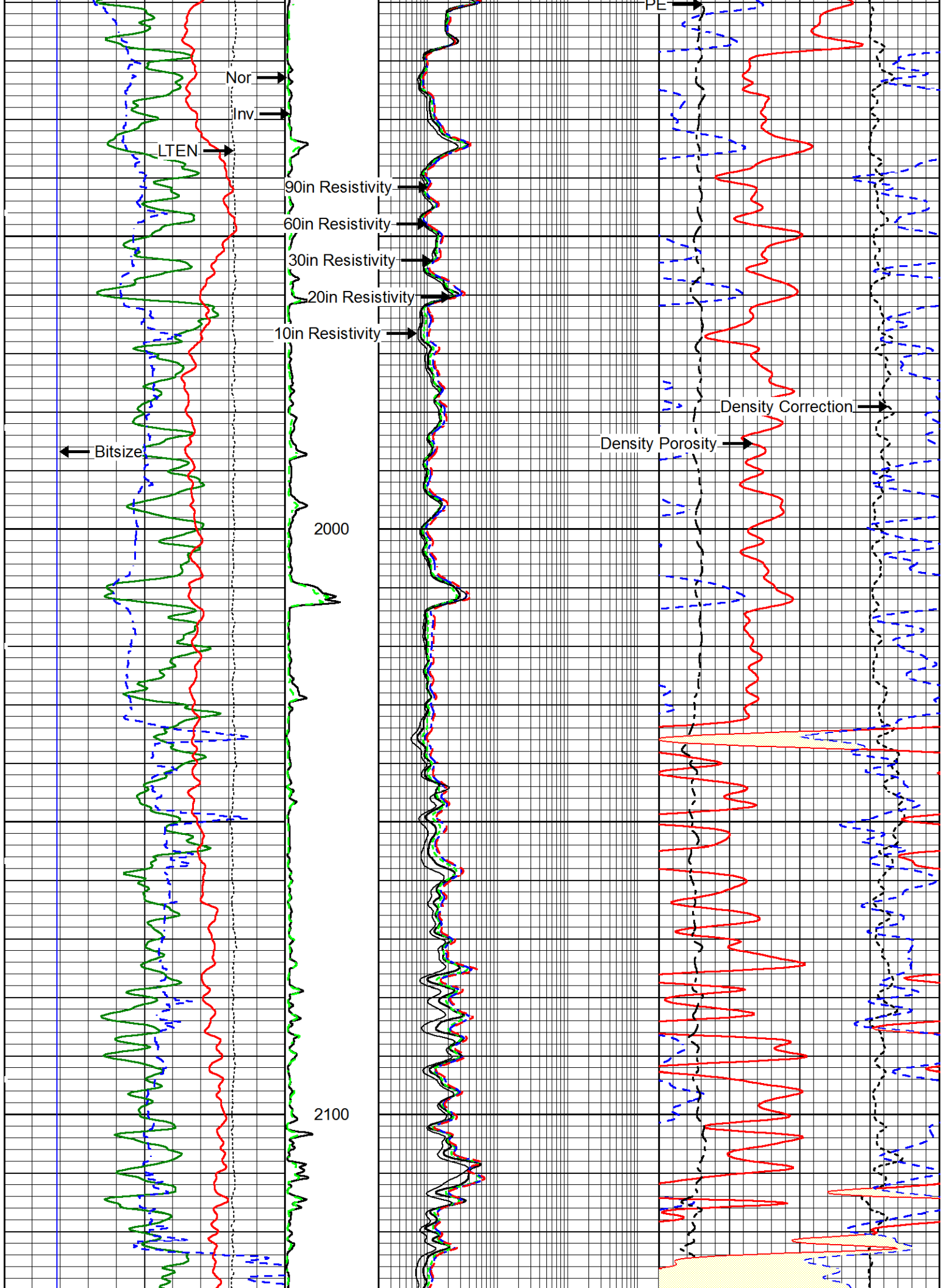
WIRELINE LOGGING SOLUTIONS

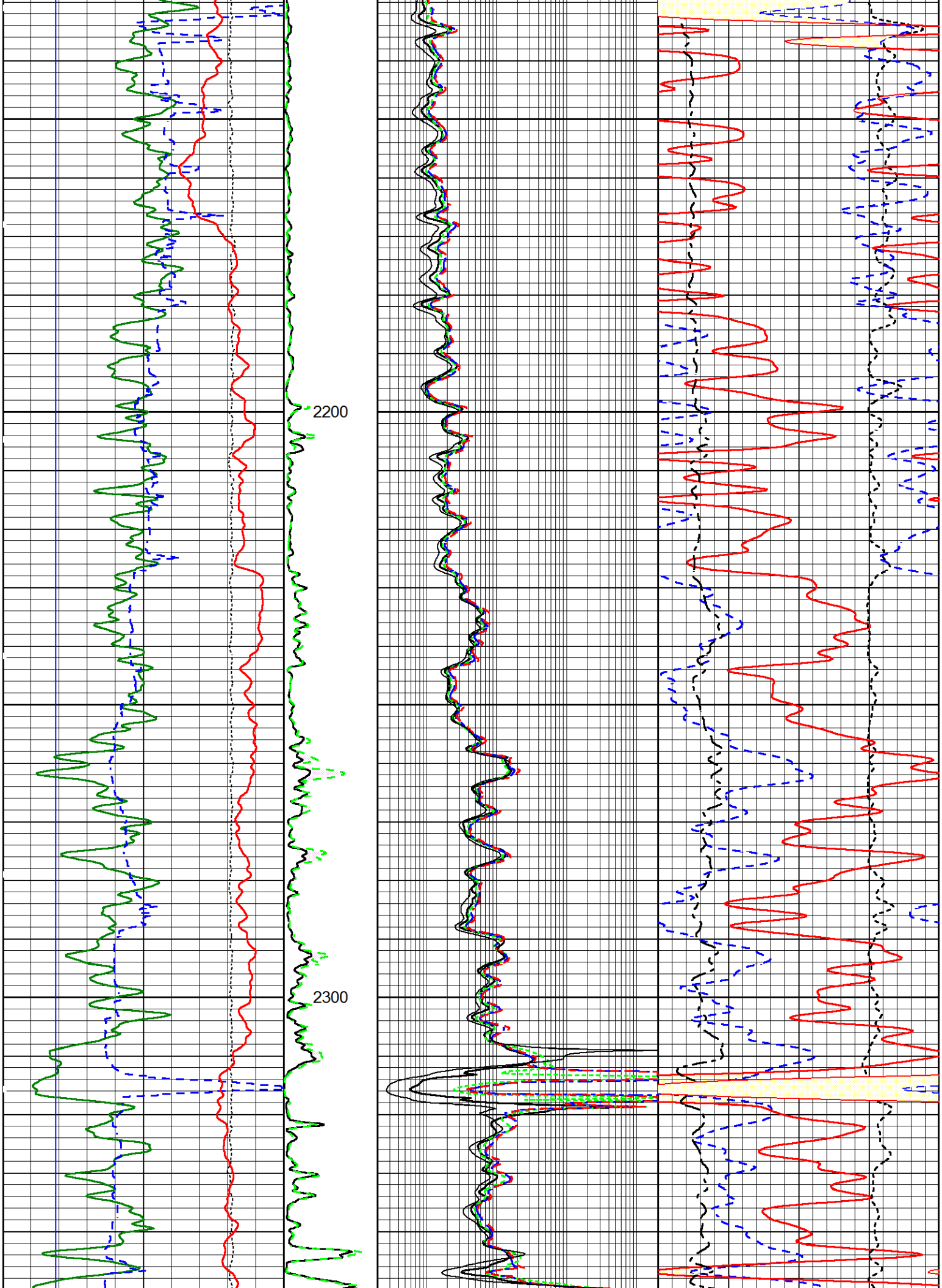
Main Pass

Database File	f:\bengalia-faris#2-35\bengalia-faris2-35.db
Dataset Pathname	Main-Cut
Presentation Format	OKC-3C~1
Dataset Creation	Mon Aug 26 21:56:22 2019
Charted by	Depth in Feet scaled 1:240

6	Bitsize (in)	16	Inv	0.2	20in Resistivity (Ohm-m)	2000		Neutron Porosity	
0	Gamma Ray (GAPI)	150	(Ohm-m)	0.2	30in Resistivity (Ohm-m)	2000	0.3	(Porosity Decimal Fraction)	-0.1
6	Caliper (in)	16	0 20	0.2	60in Resistivity (Ohm-m)	2000		Density Porosity	
	SP <-20+ mV>		Nor	0.2	90in Resistivity (Ohm-m)	2000	0.3	(Porosity Decimal Fraction)	-0.1
	500CLTEN (lb)	0	(Ohm-m)	0.2	10in Resistivity (Ohm-m)	2000	0 PE 10		Density Correction
			0 20					-0.25 (g/cc)	0.25




PE
Nor
Inv
LTEN
90in Resistivity
60in Resistivity
30in Resistivity
20in Resistivity
10in Resistivity
Density Correction
Density Porosity
Bitsize
2000
2100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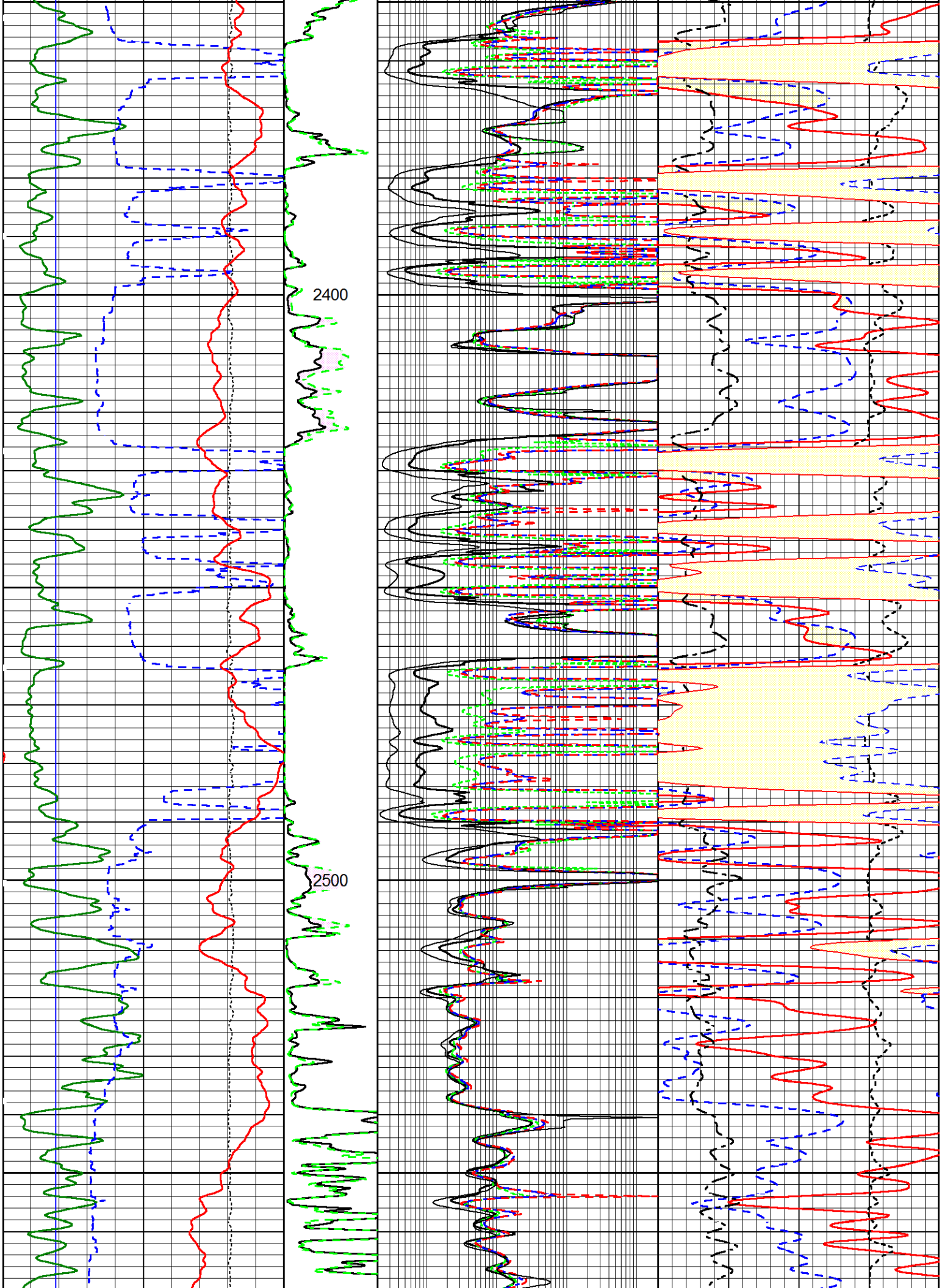
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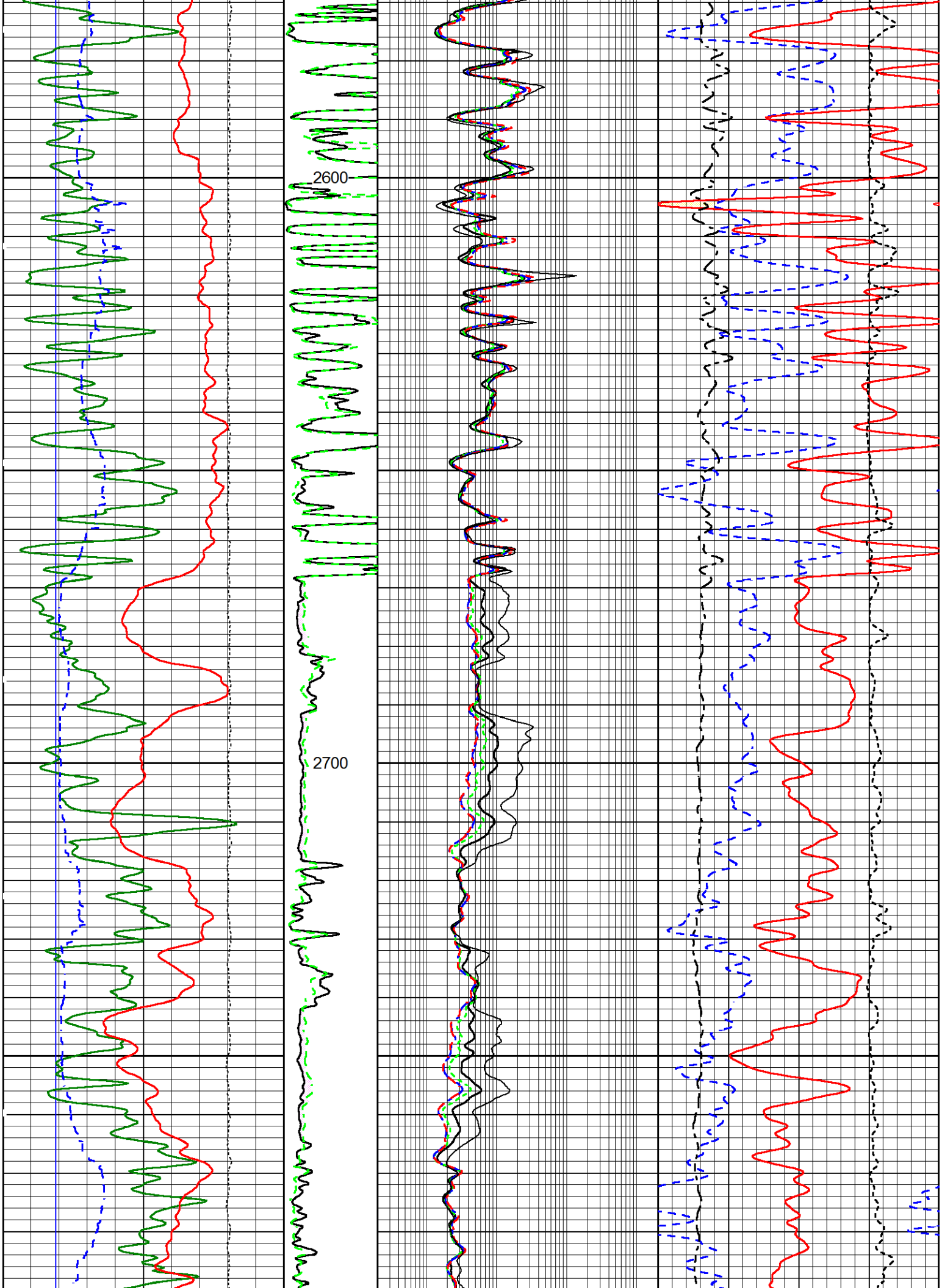
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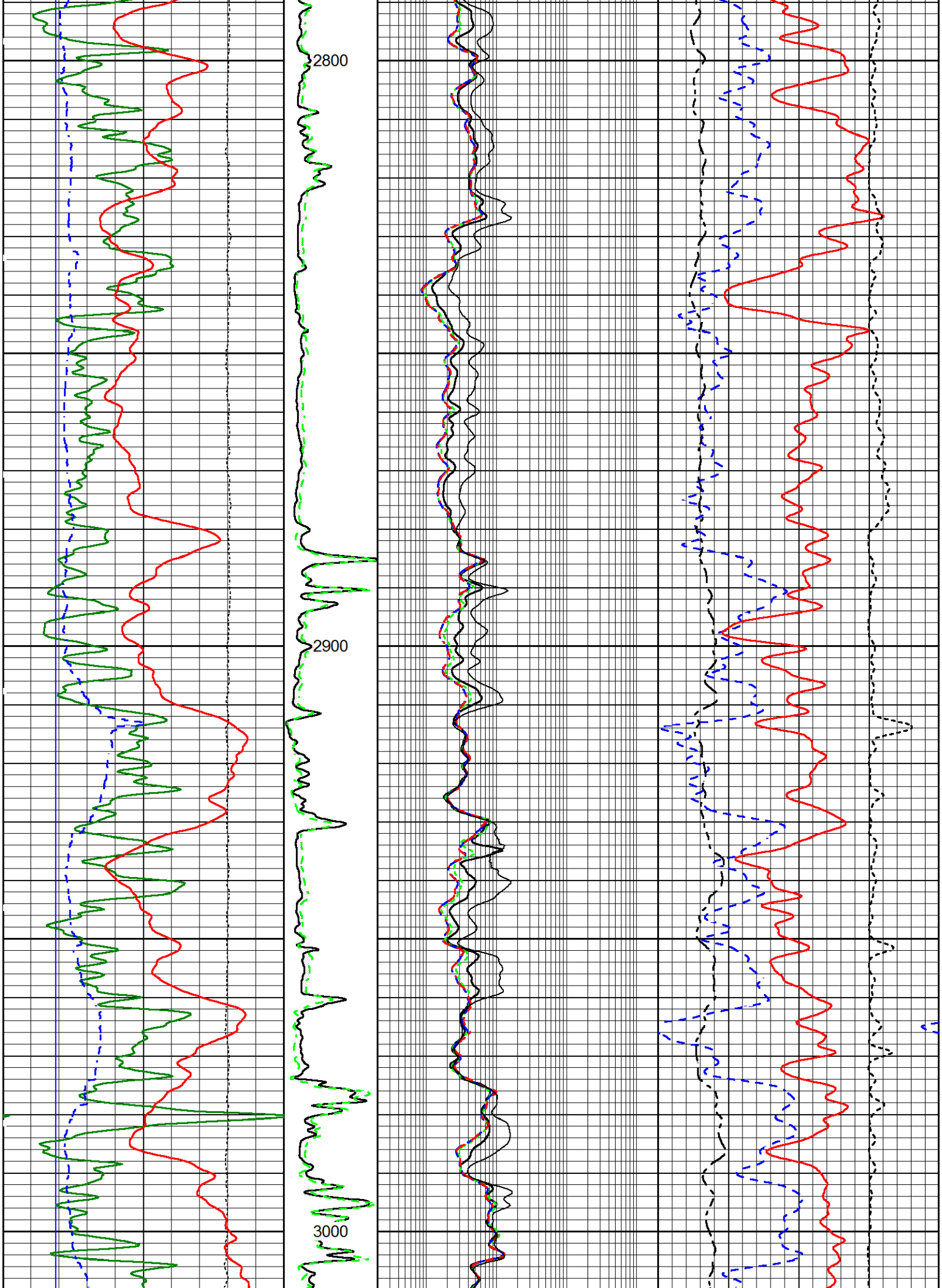
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2900
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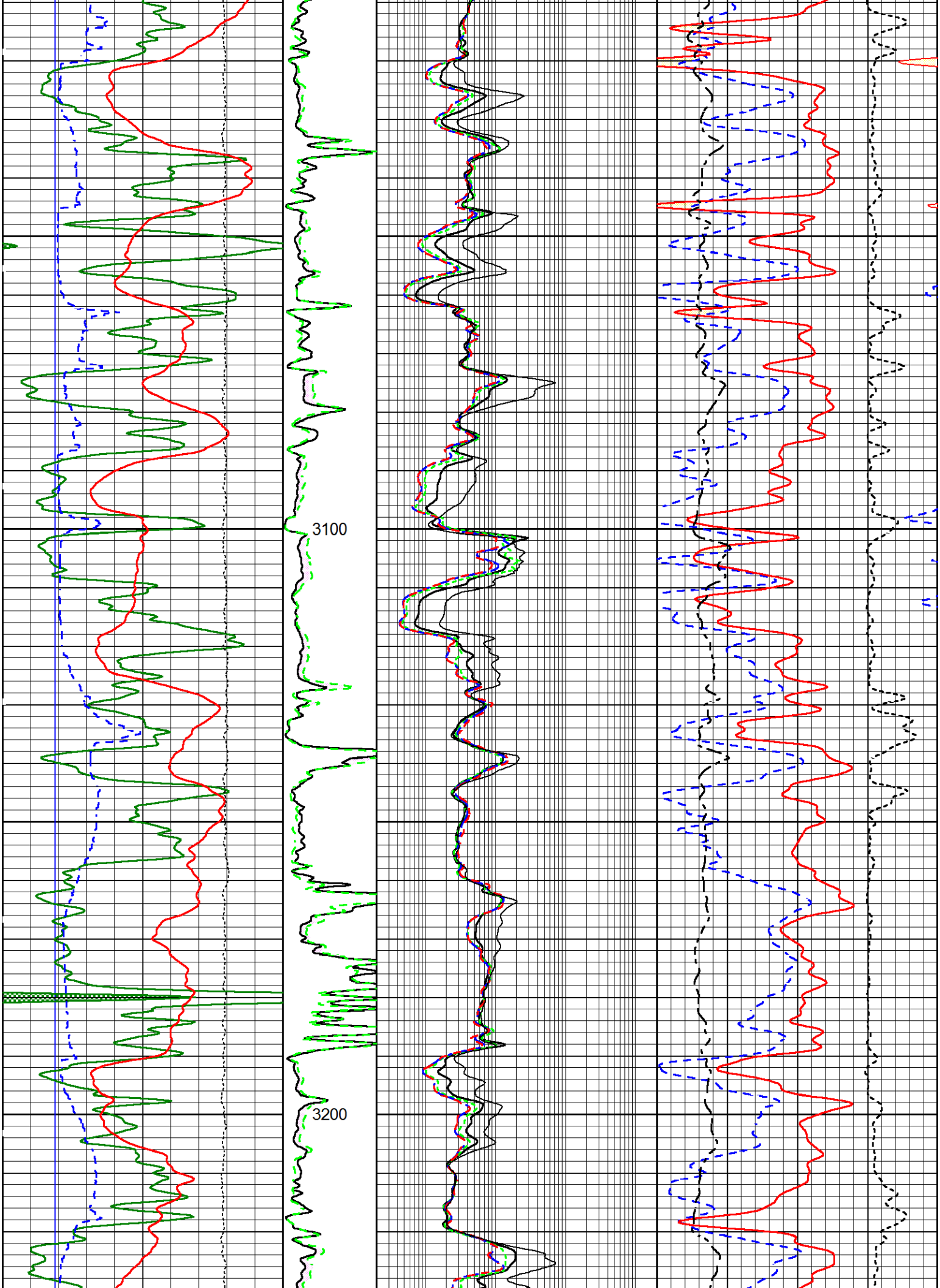
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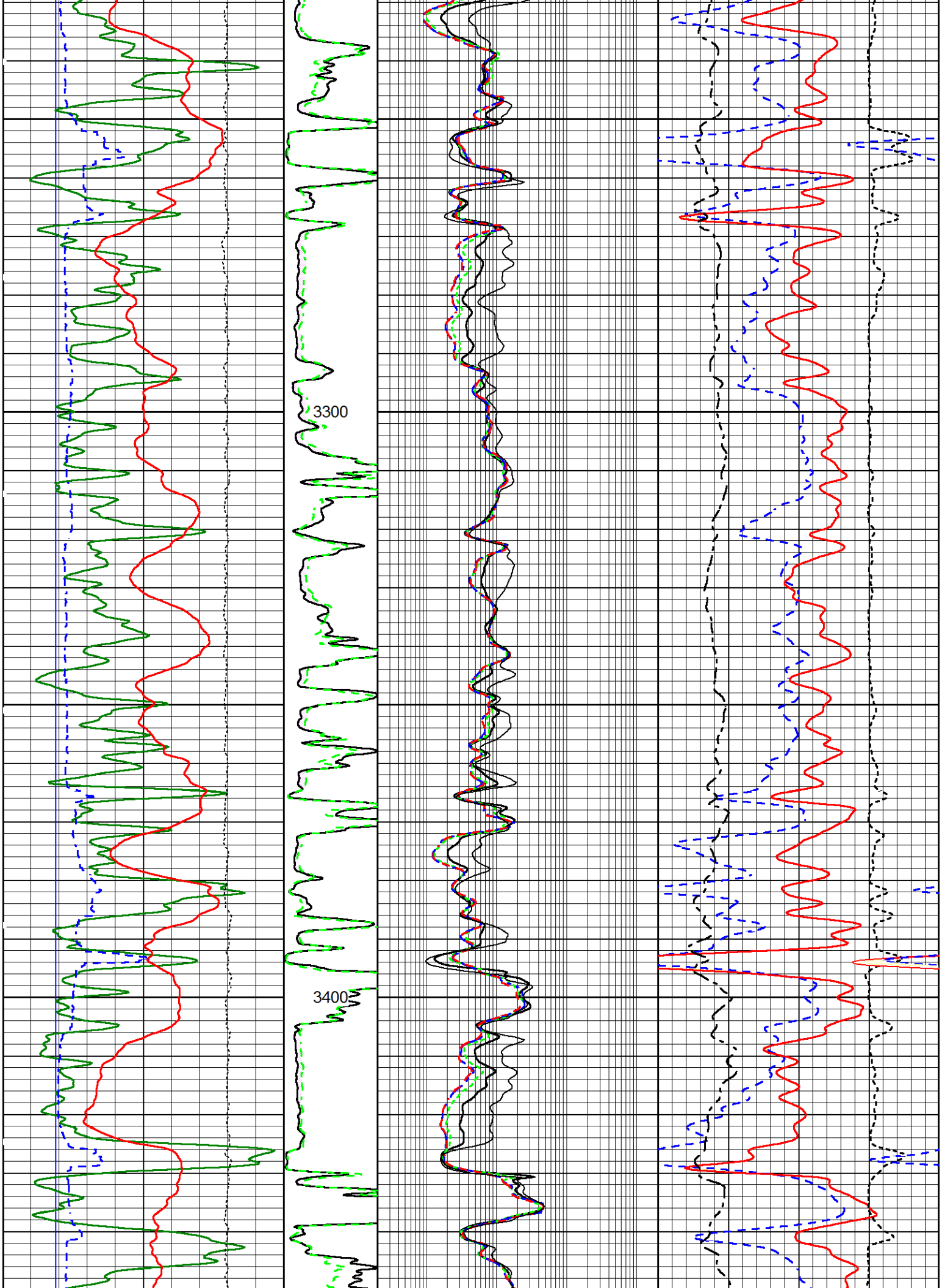
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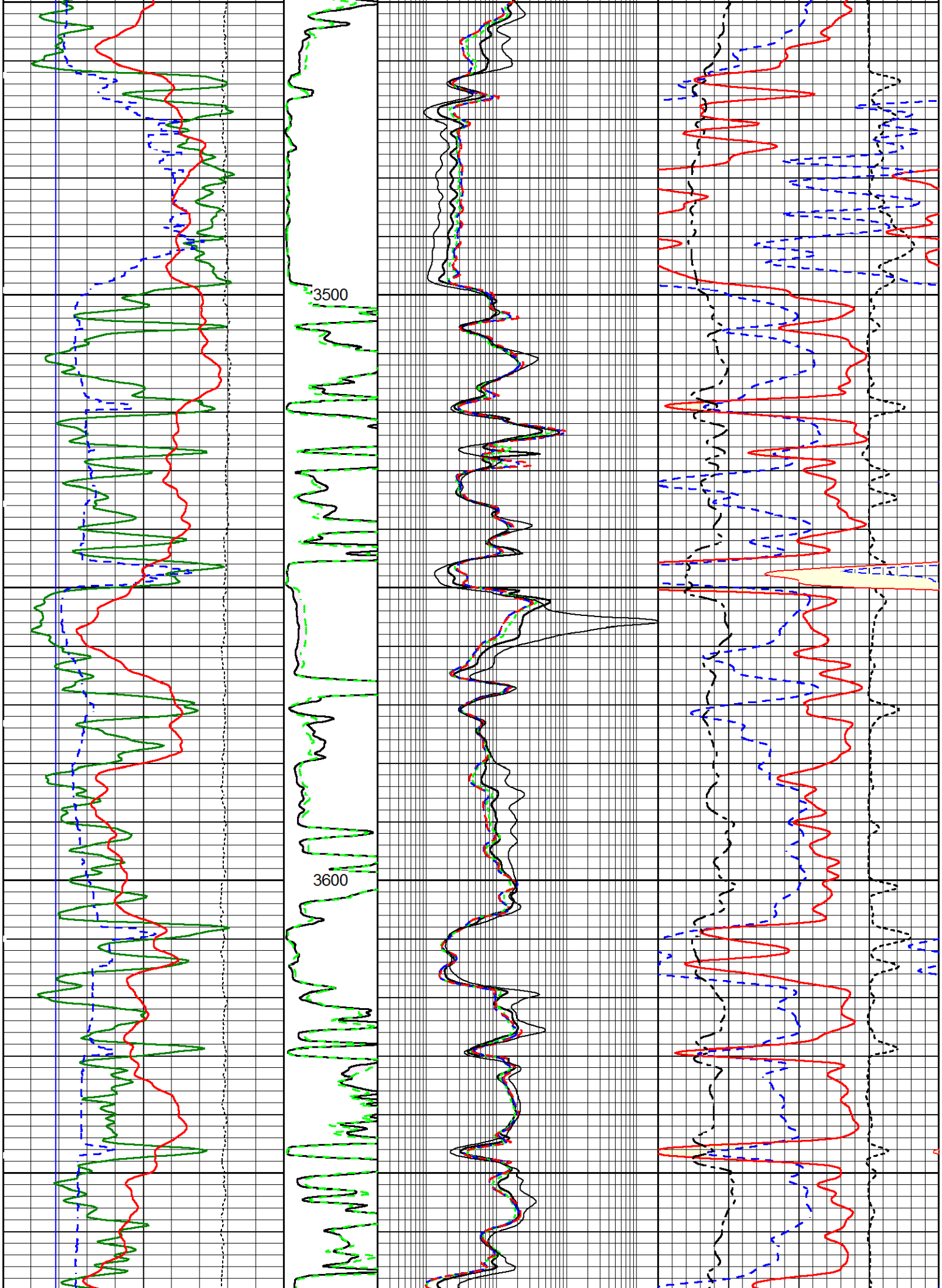
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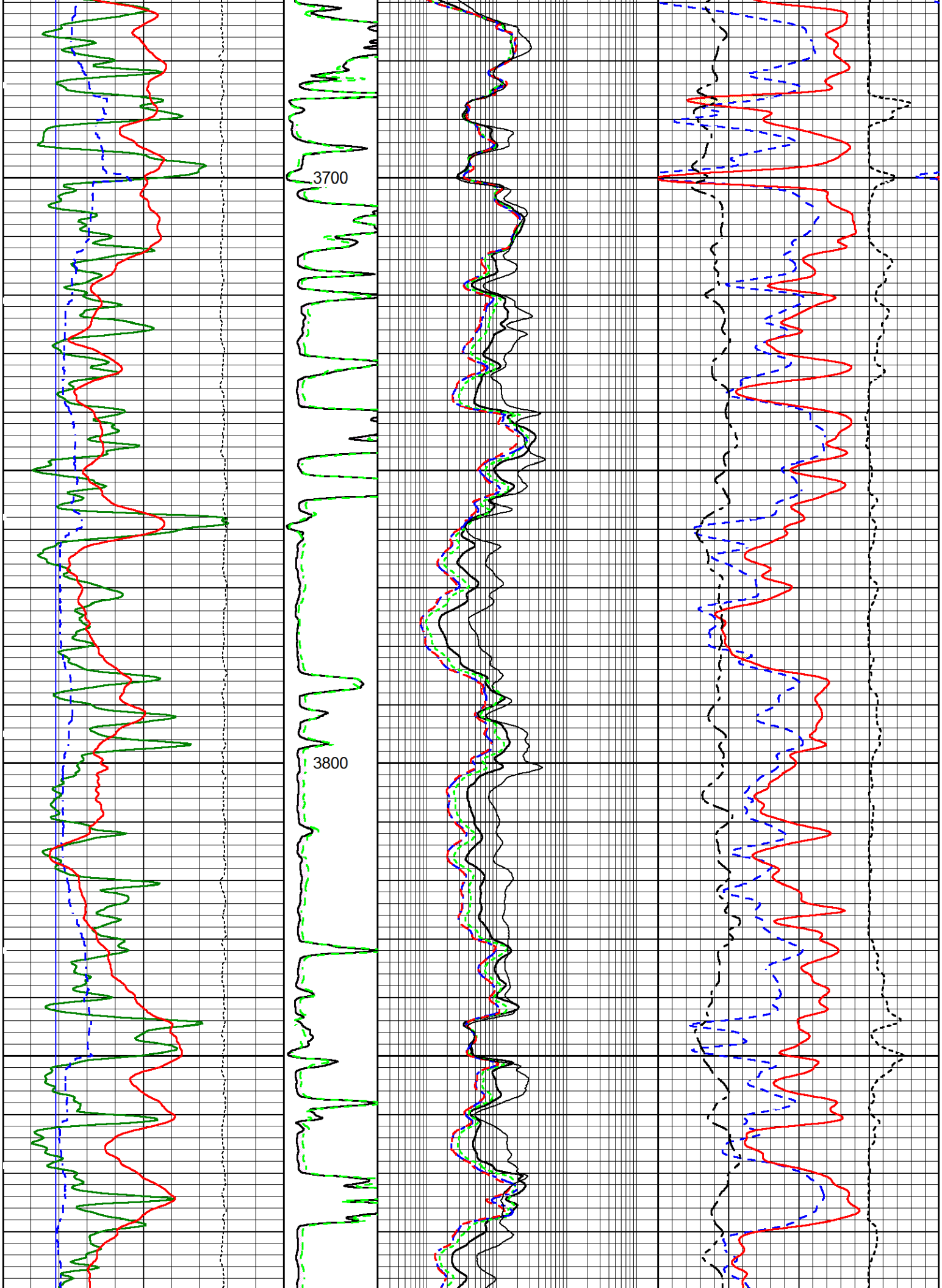
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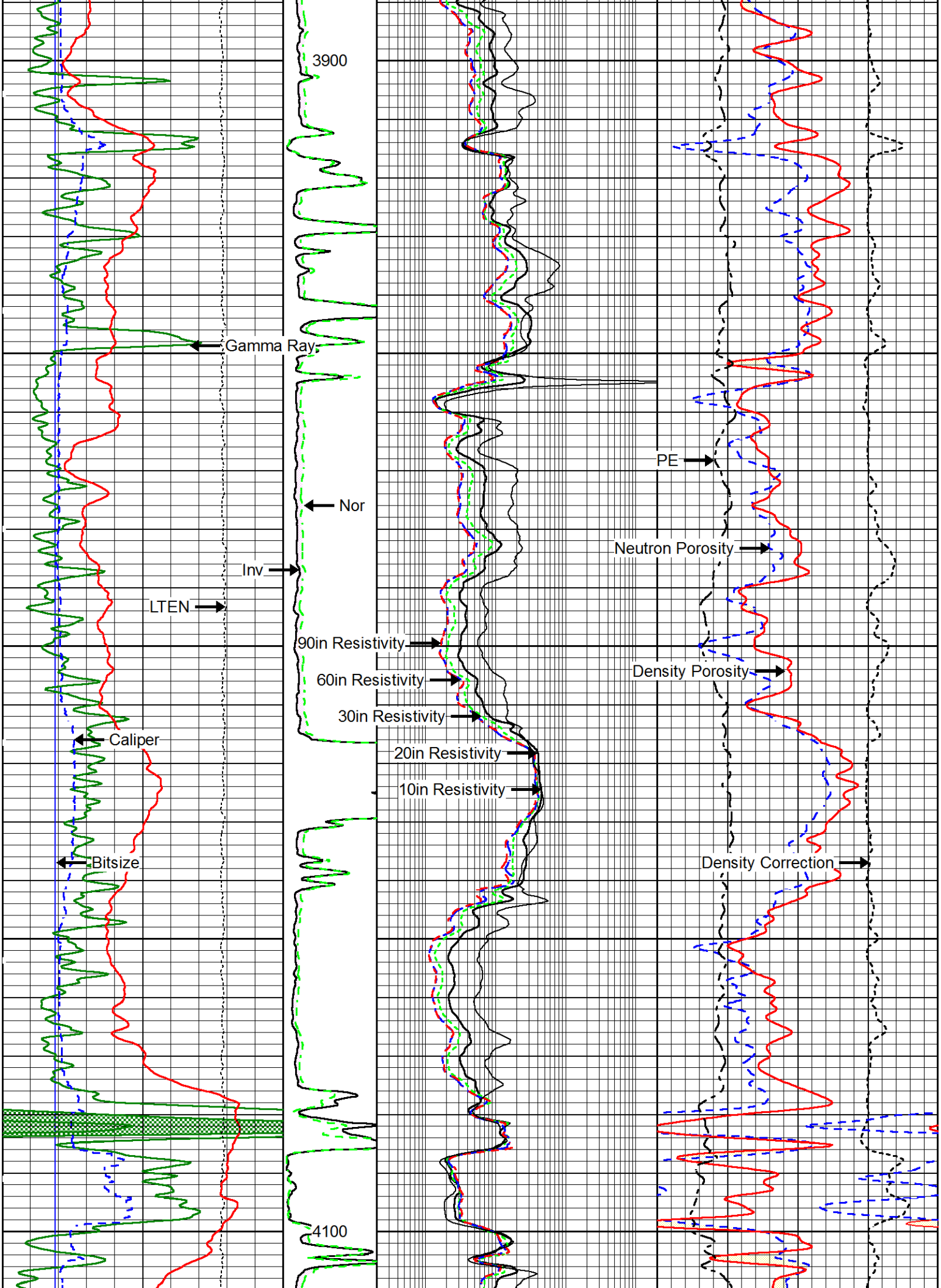
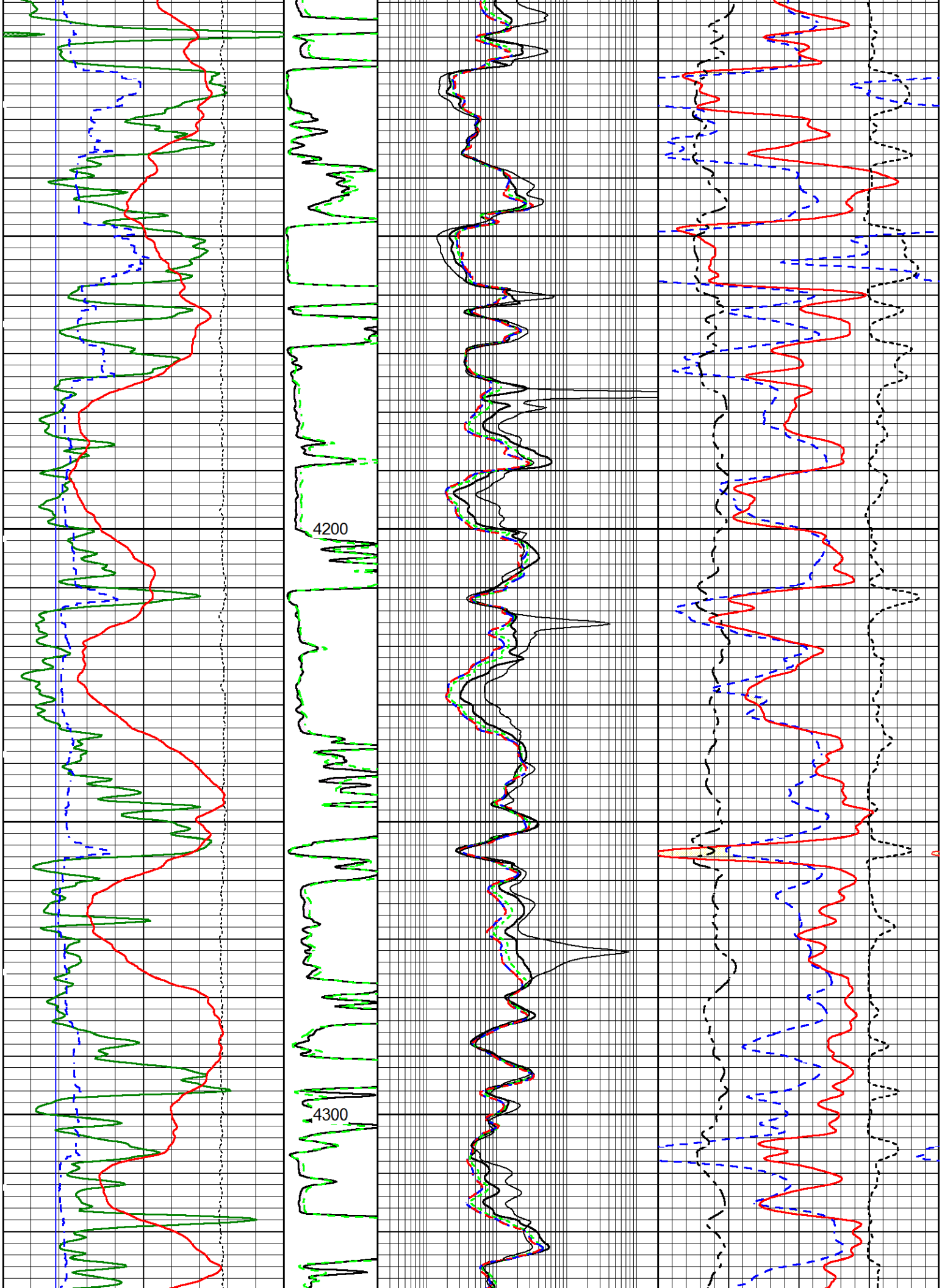

3900
Gamma Ray
Nor
Inv
LTEN
90in Resistivity
60in Resistivity
30in Resistivity
20in Resistivity
10in Resistivity
Caliper
Bitsize
PE
Neutron Porosity
Density Porosity
Density Correction
4100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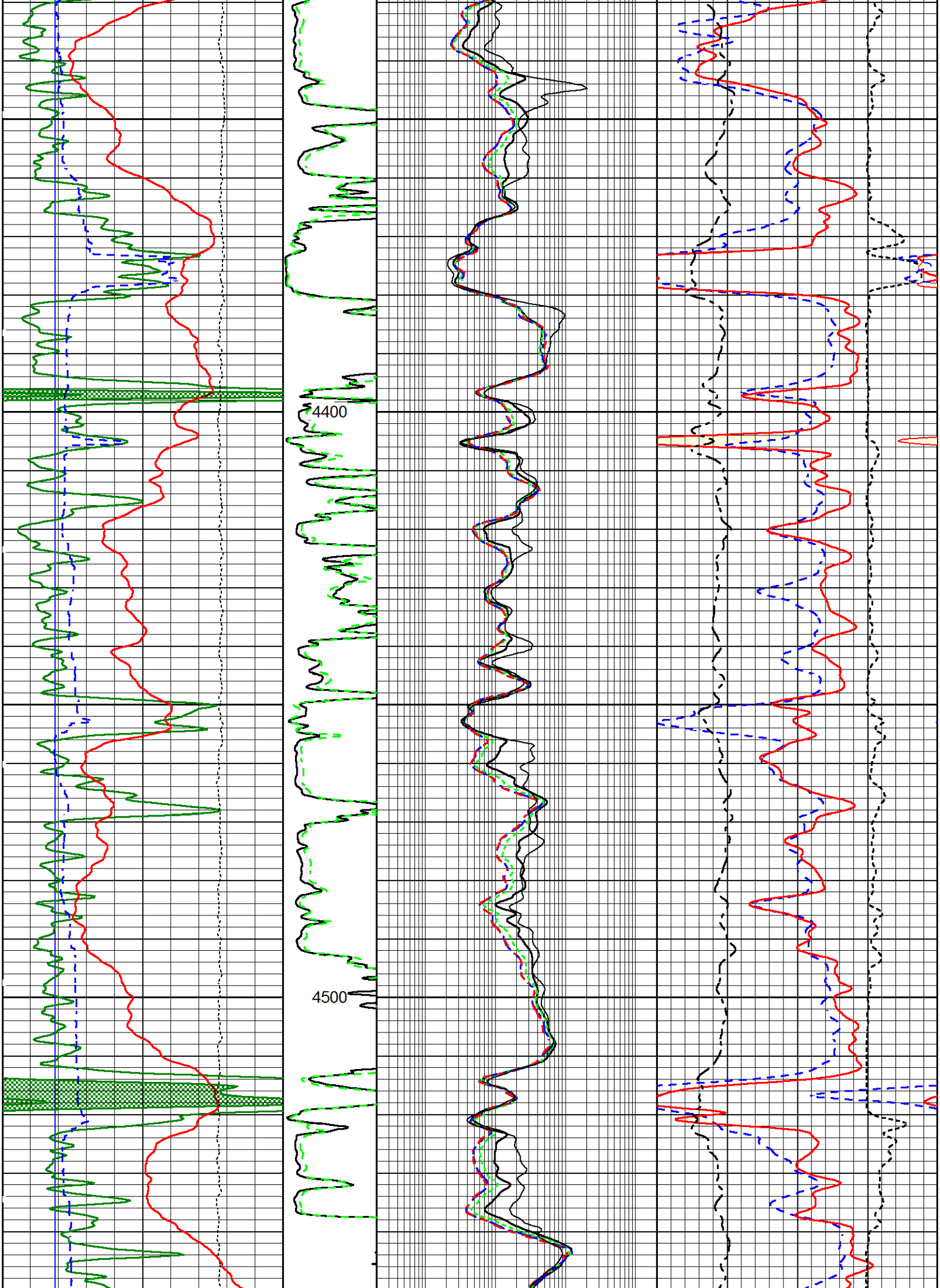
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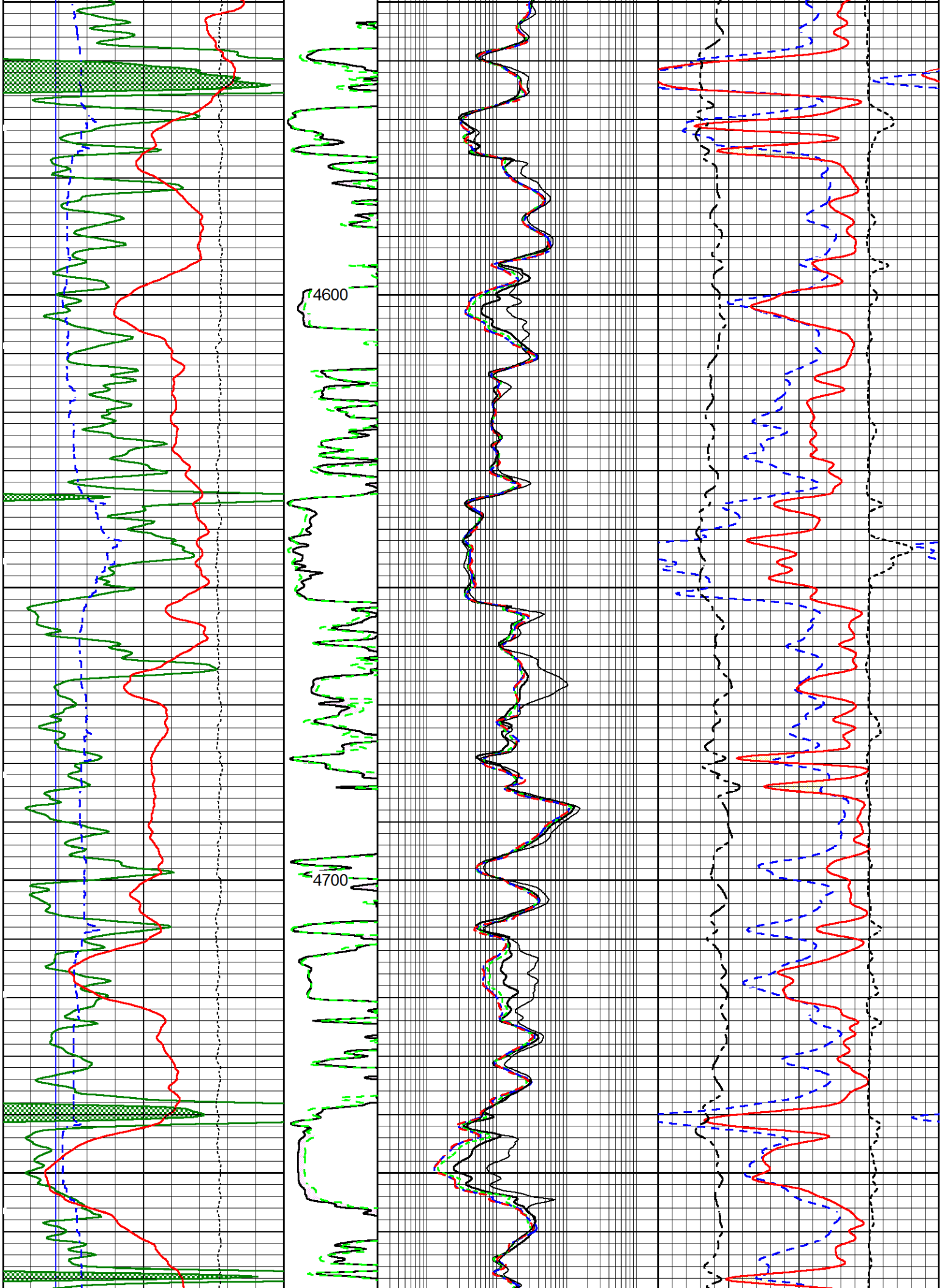
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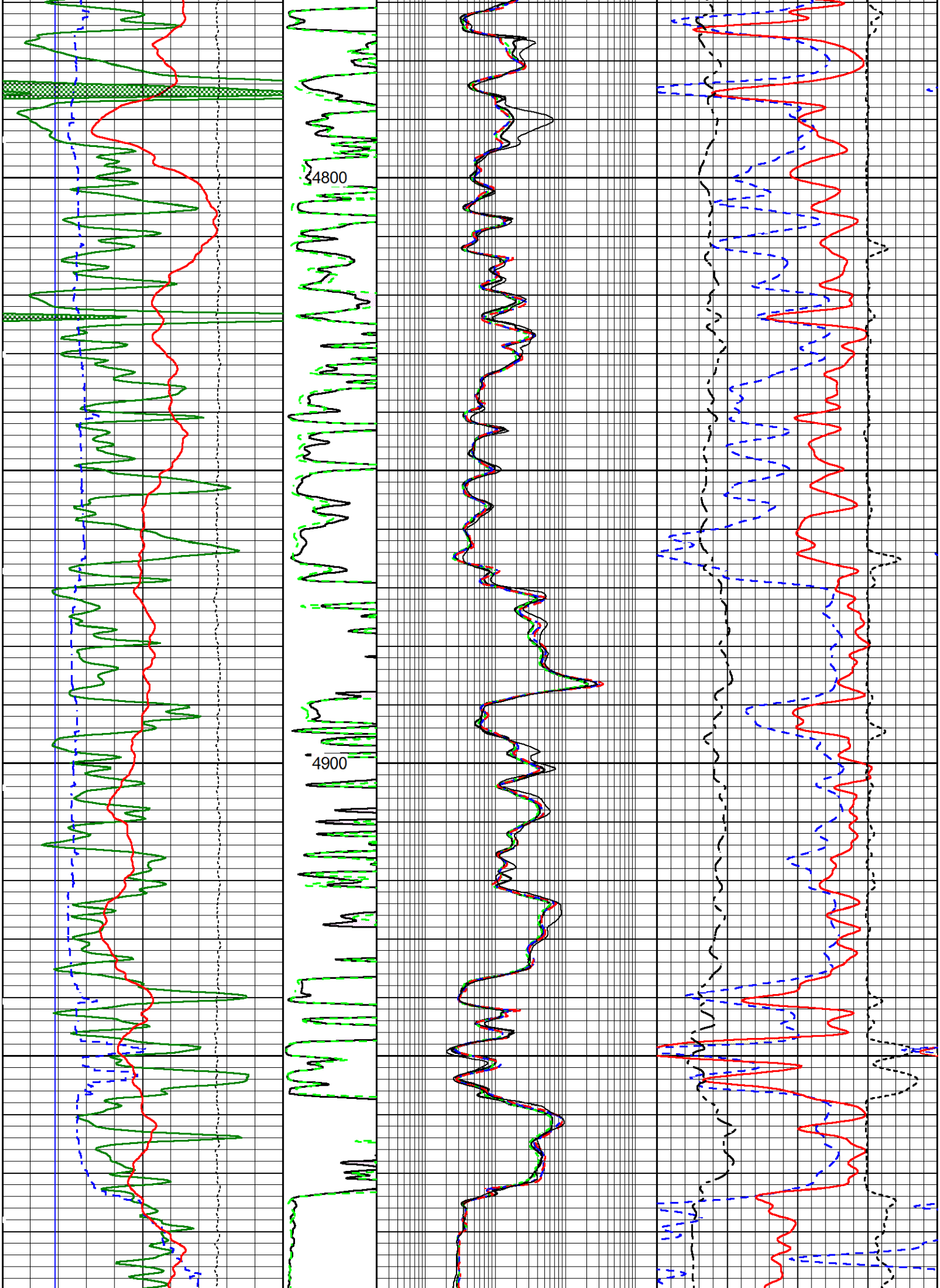
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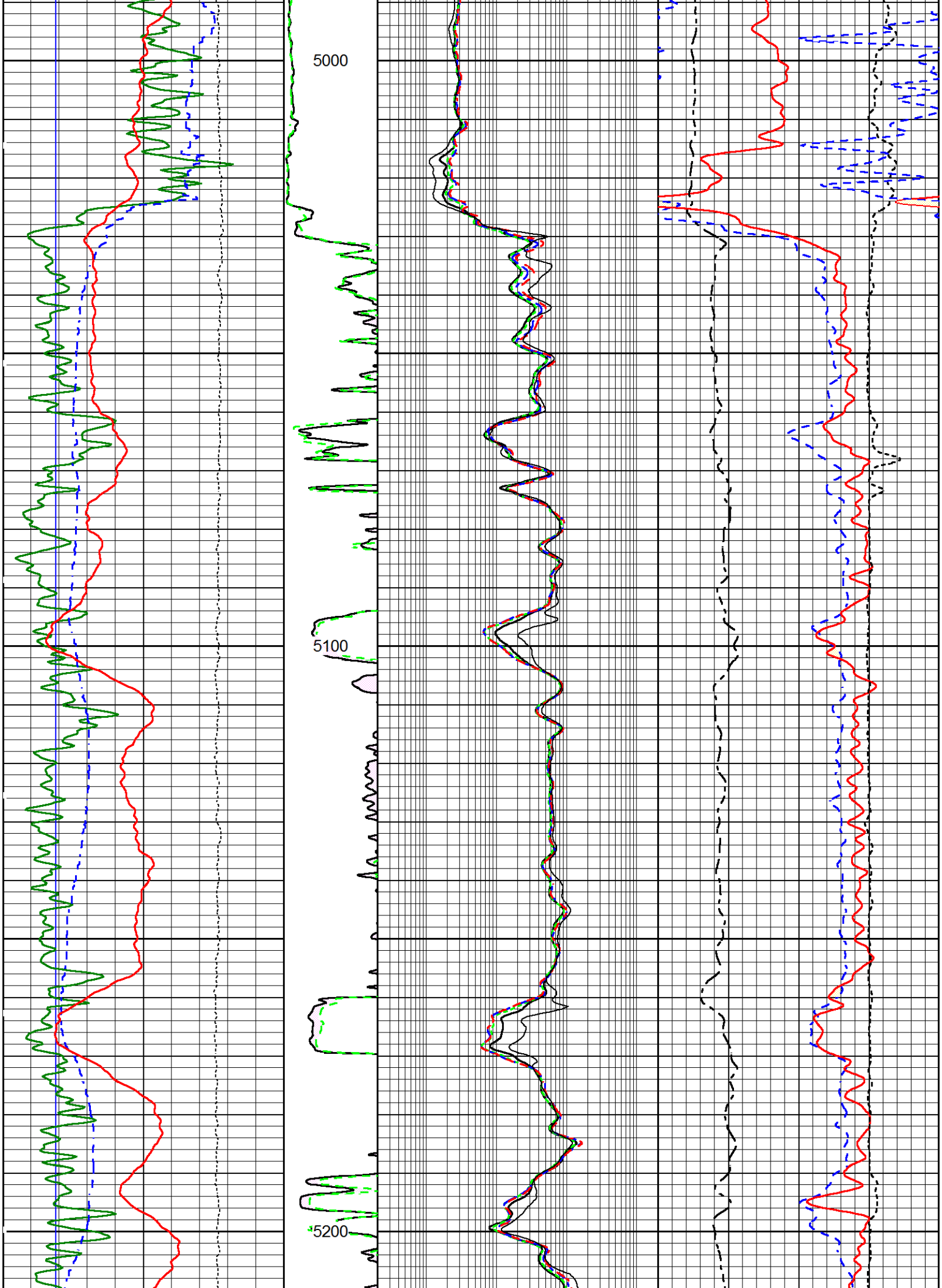
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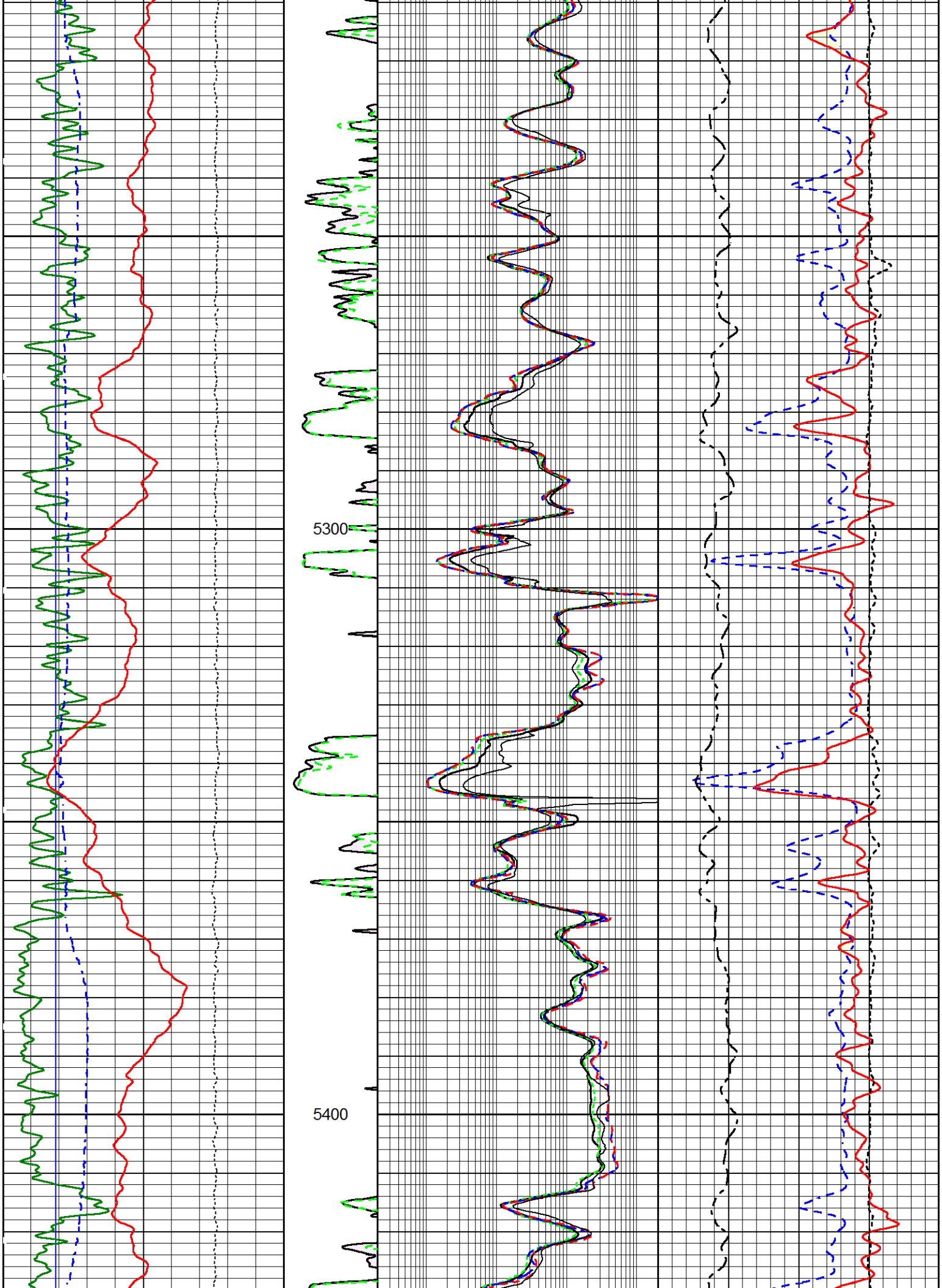
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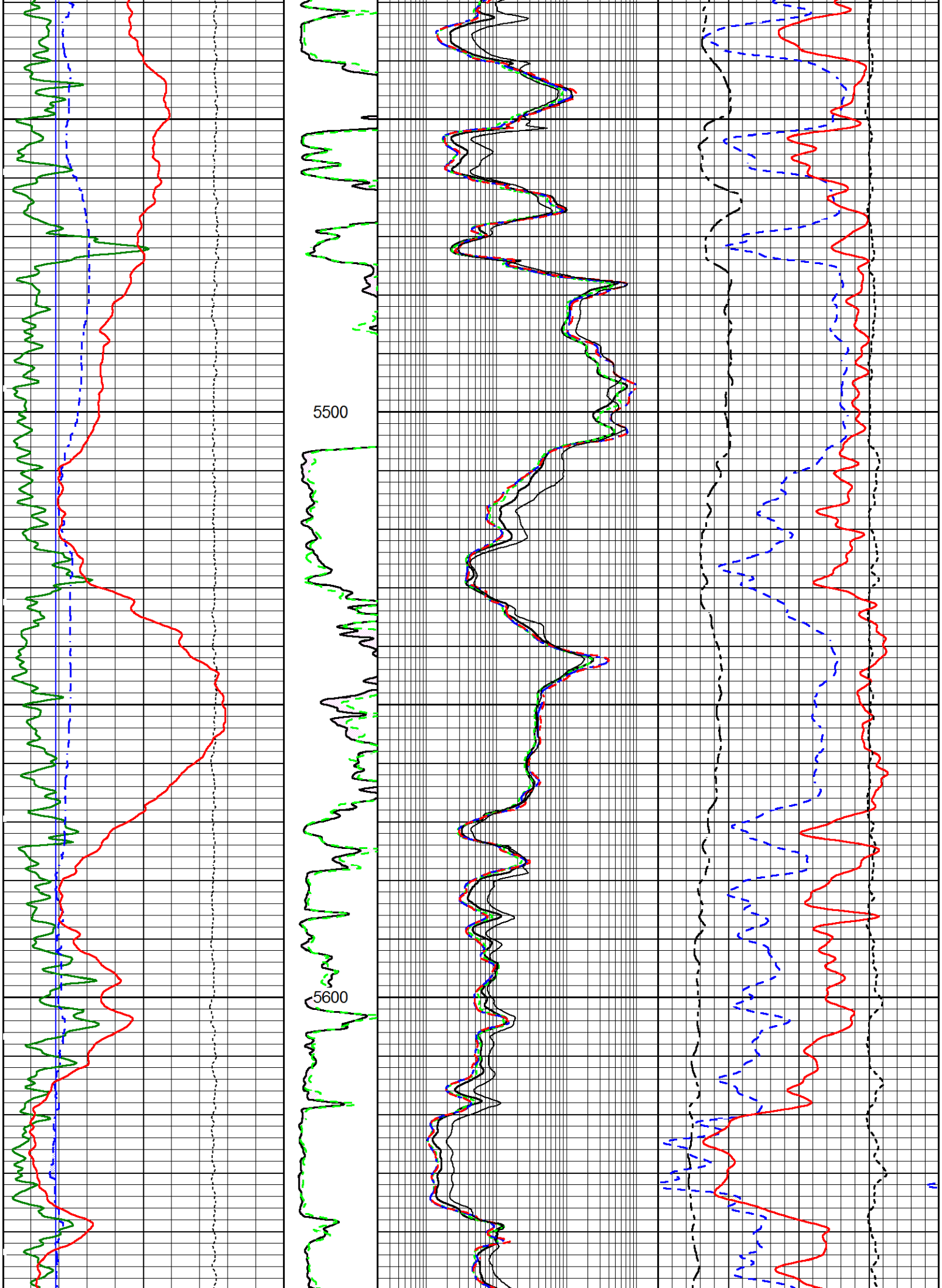
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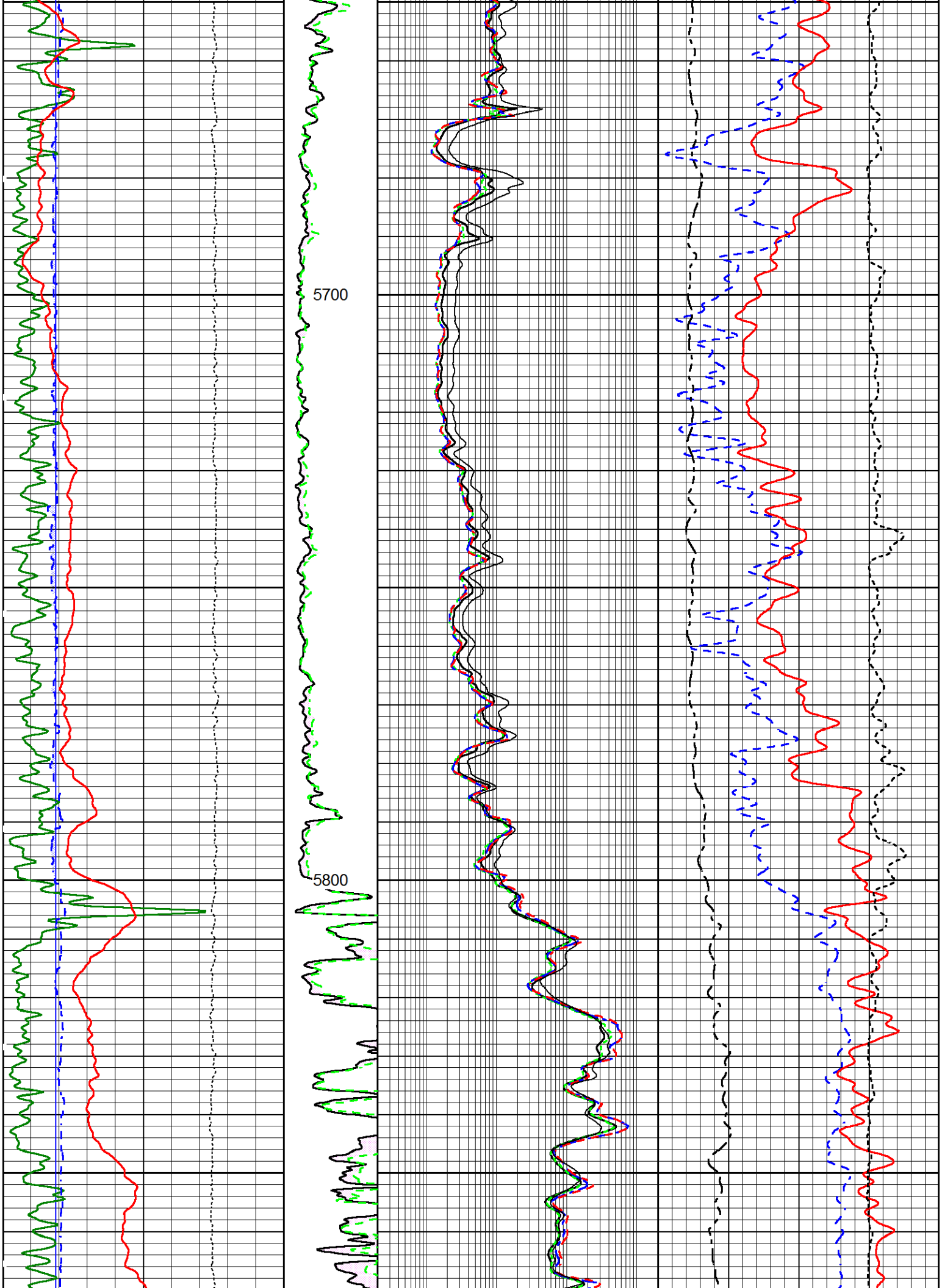
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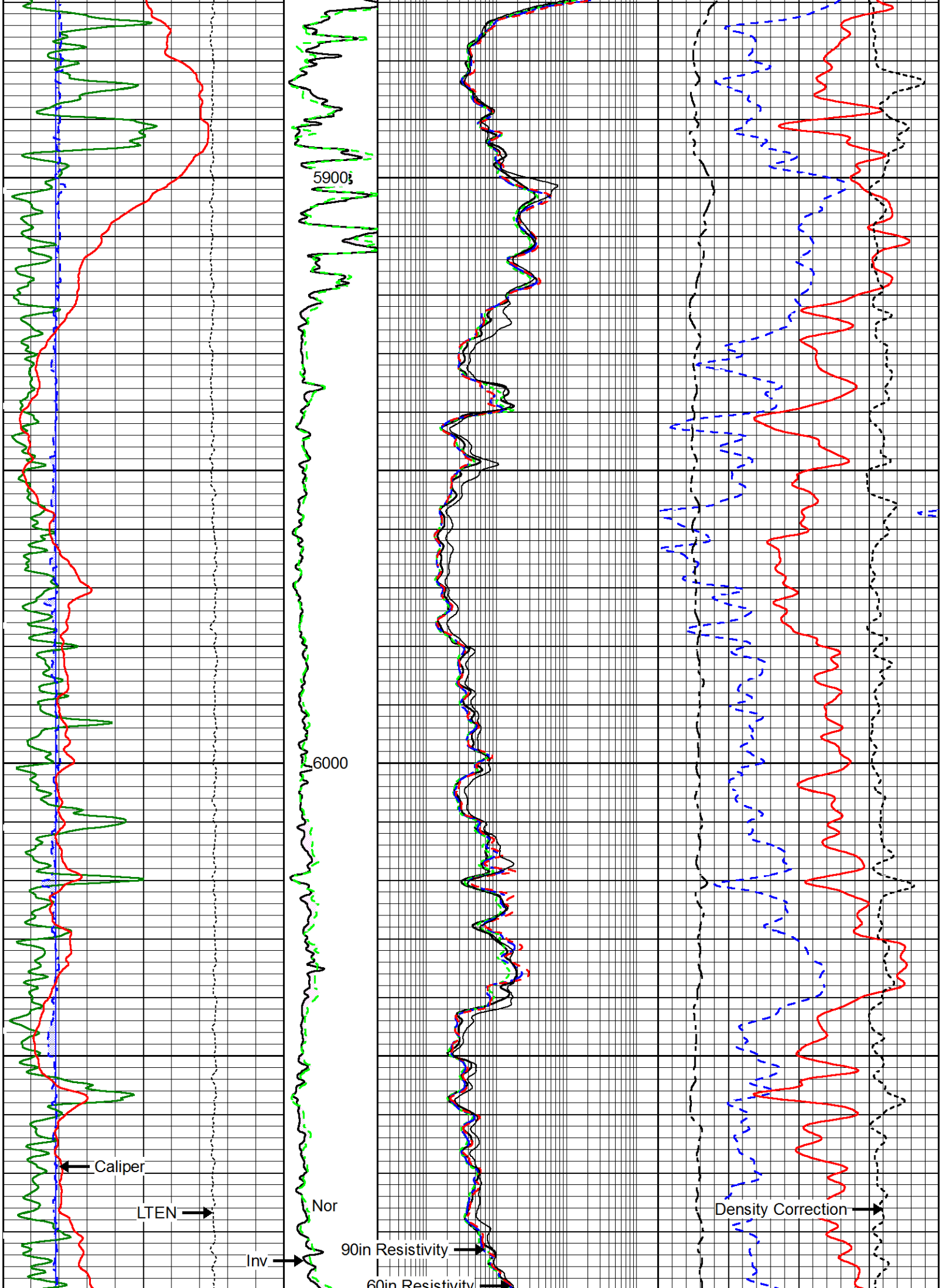
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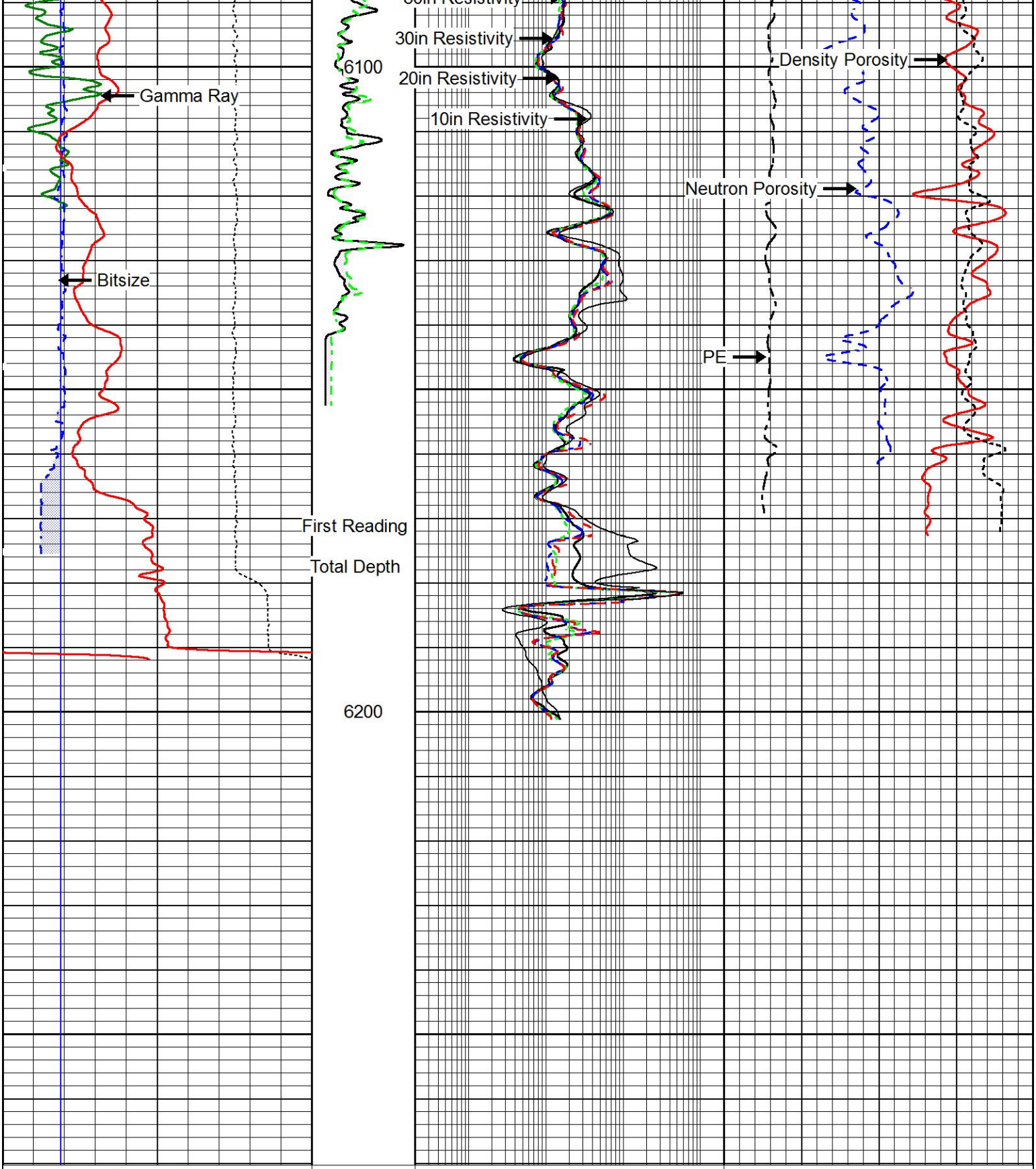
6000
Caliper
LTEN
Nor
Inv
90in Resistivity
60in Resistivity
Density Correction



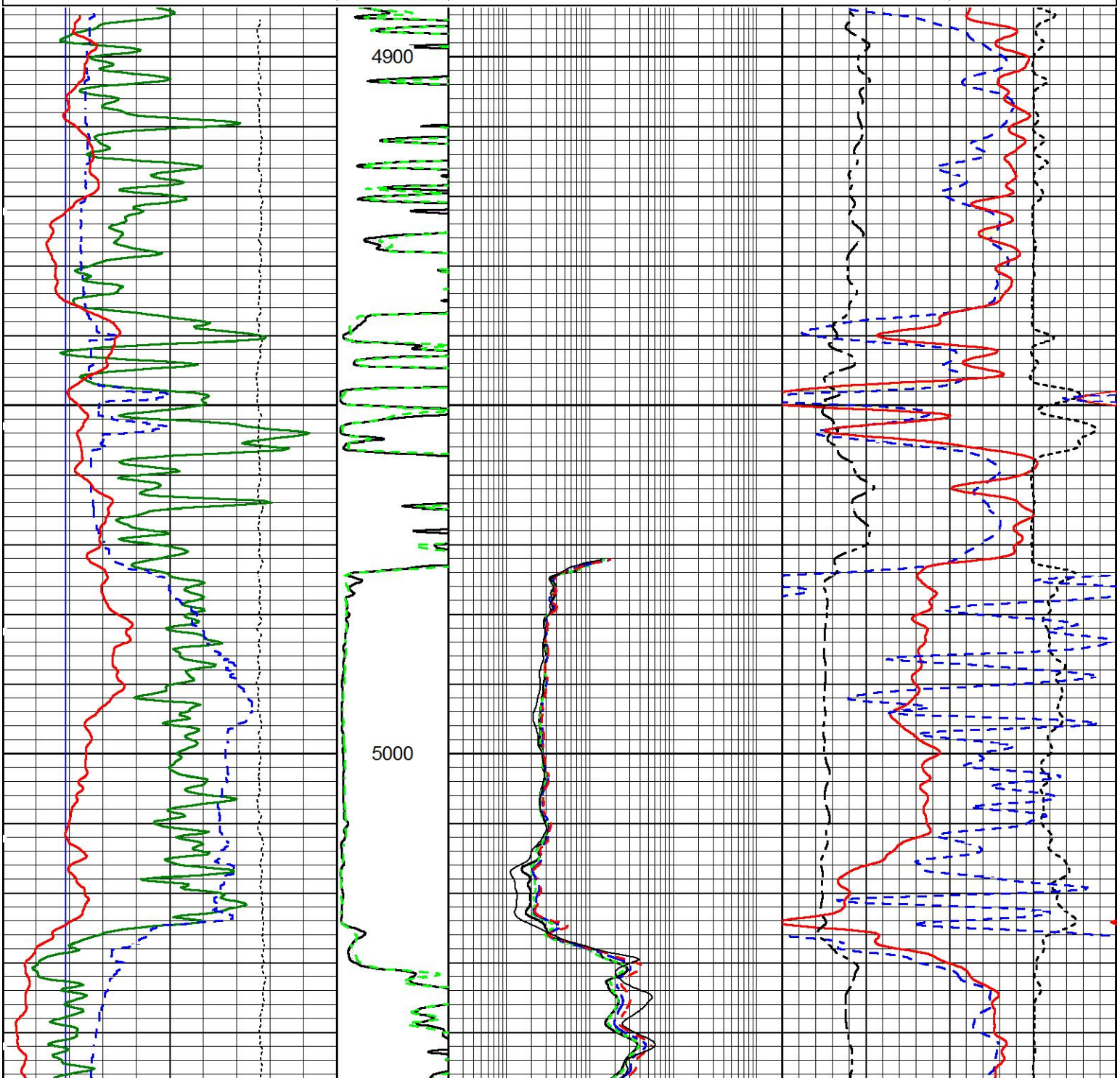
6	Bitsize (in)	16	Inv (Ohm-m) 0 20	0.2	20in Resistivity (Ohm-m)	2000	Neutron Porosity
0	Gamma Ray (GAPI)	150		0.2	30in Resistivity (Ohm-m)	2000	0.3 (Porosity Decimal Fraction) -0.1
6	Caliper (in)	16		0.2	60in Resistivity (Ohm-m)	2000	Density Porosity
	SP <-20+ mV>		Nor (Ohm-m) 0 20	0.2	90in Resistivity (Ohm-m)	2000	0.3 (Porosity Decimal Fraction) -0.1
	500CLTEN (lb)	0		0.2	10in Resistivity (Ohm-m)	2000	0 PE 10 Density Correction -0.25 (g/cc) 0.25

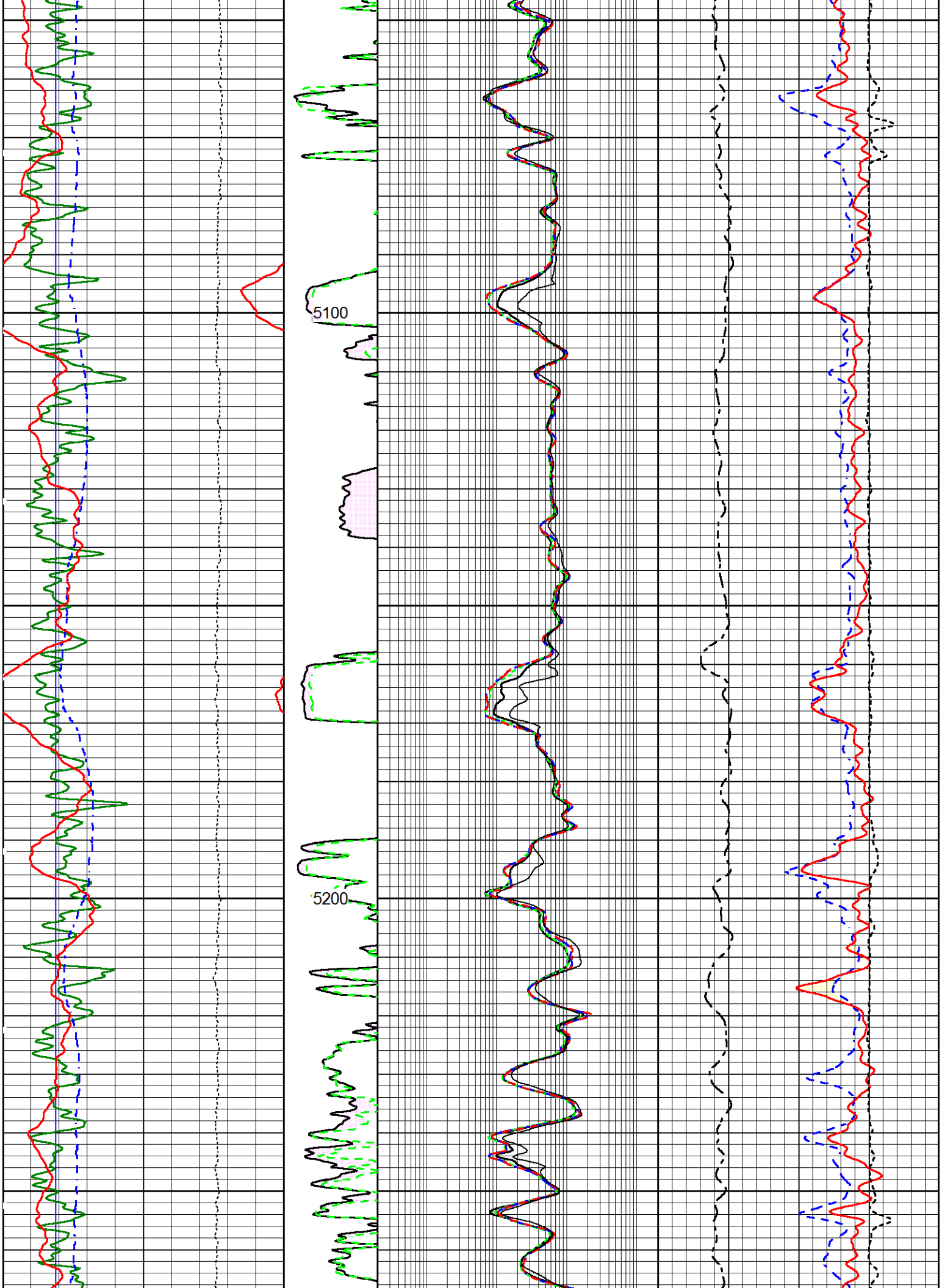
WIRELINE LOGGING SOLUTIONS

Repeat Pass

Database File	f:\bengalia-faris#2-35\bengalia-faris2-35.db
Dataset Pathname	pass5
Presentation Format	OKC-3C~1
Dataset Creation	Mon Aug 26 17:37:57 2019 by Log Sondex
Charted by	Depth in Feet scaled 1:240

6	Bitsize (in)	16	Inv (Ohm-m) 0 20	0.2	20in Resistivity (Ohm-m)	2000	Neutron Porosity	
0	Gamma Ray (GAPI)	150		0.2	30in Resistivity (Ohm-m)	2000	0.3 (Porosity Decimal Fraction)	-0.1
6	Caliper (in)	16		0.2	60in Resistivity (Ohm-m)	2000	Density Porosity	
SP <-20+ mV>			Nor (Ohm-m) 0 20	0.2	90in Resistivity (Ohm-m)	2000	0.3 (Porosity Decimal Fraction)	-0.1
	500CLTEN (lb)	0		0.2	10in Resistivity (Ohm-m)	2000	0 PE 10	Density Correction -0.25 (g/cc) 0.25

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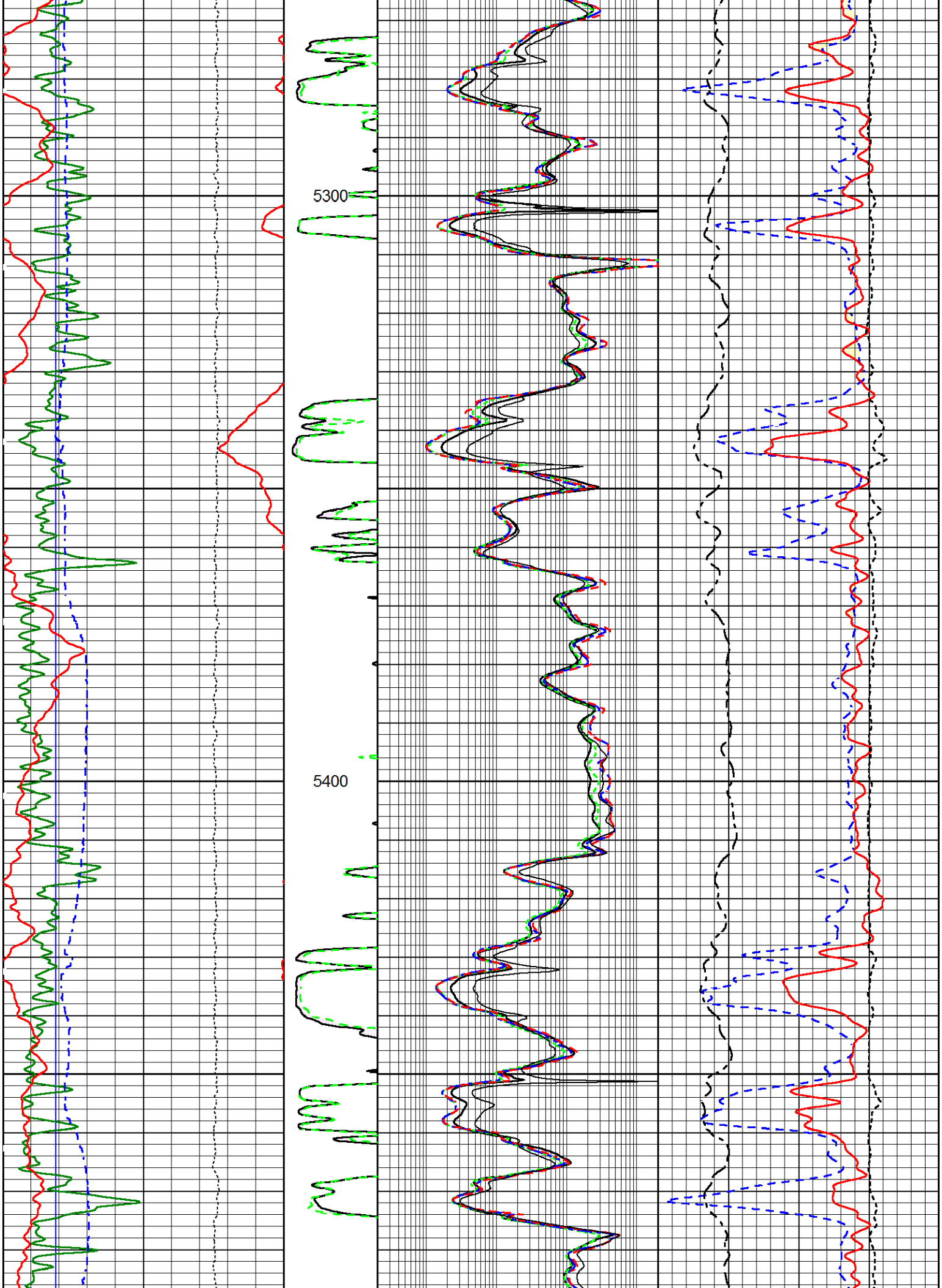
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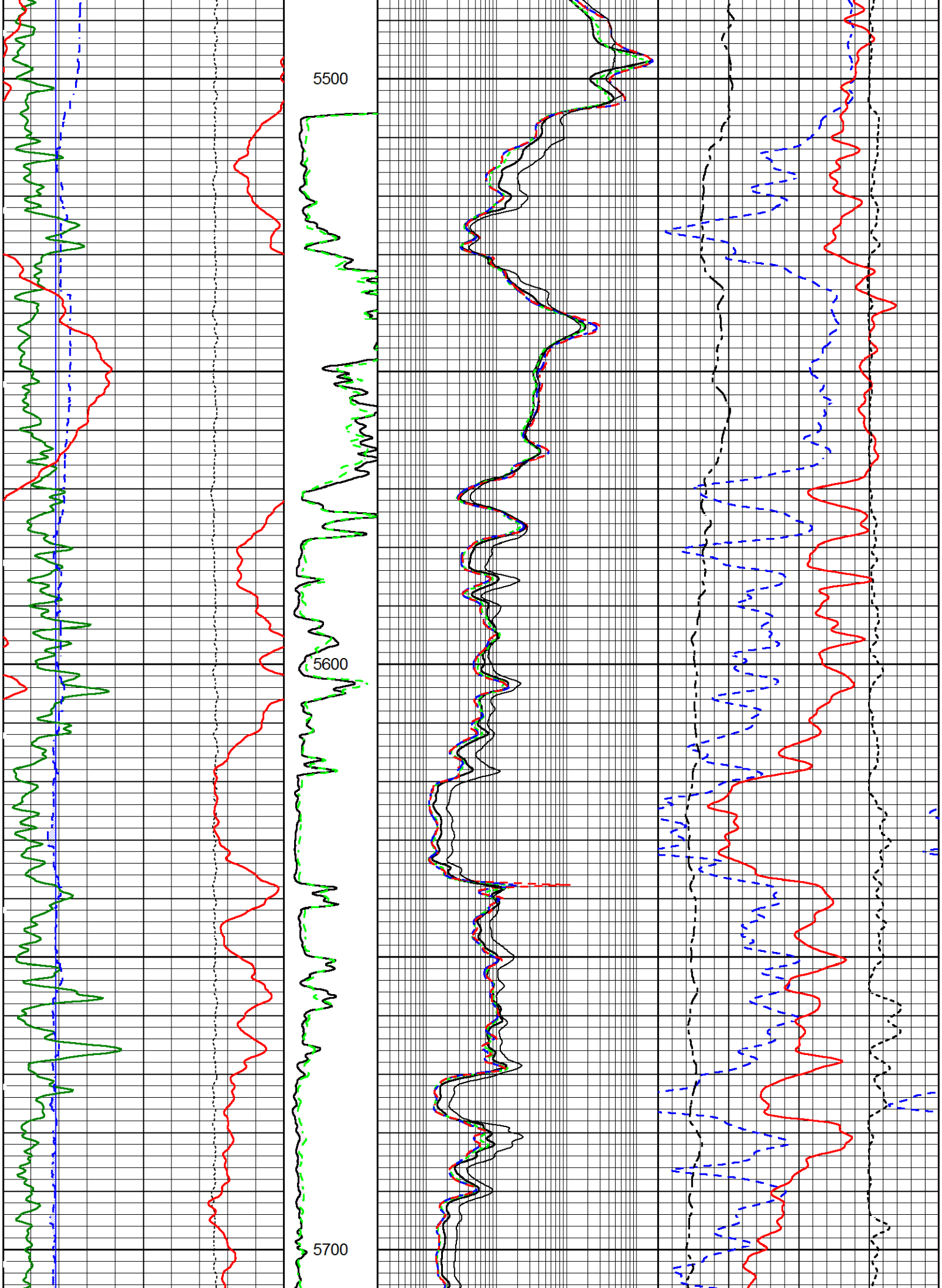
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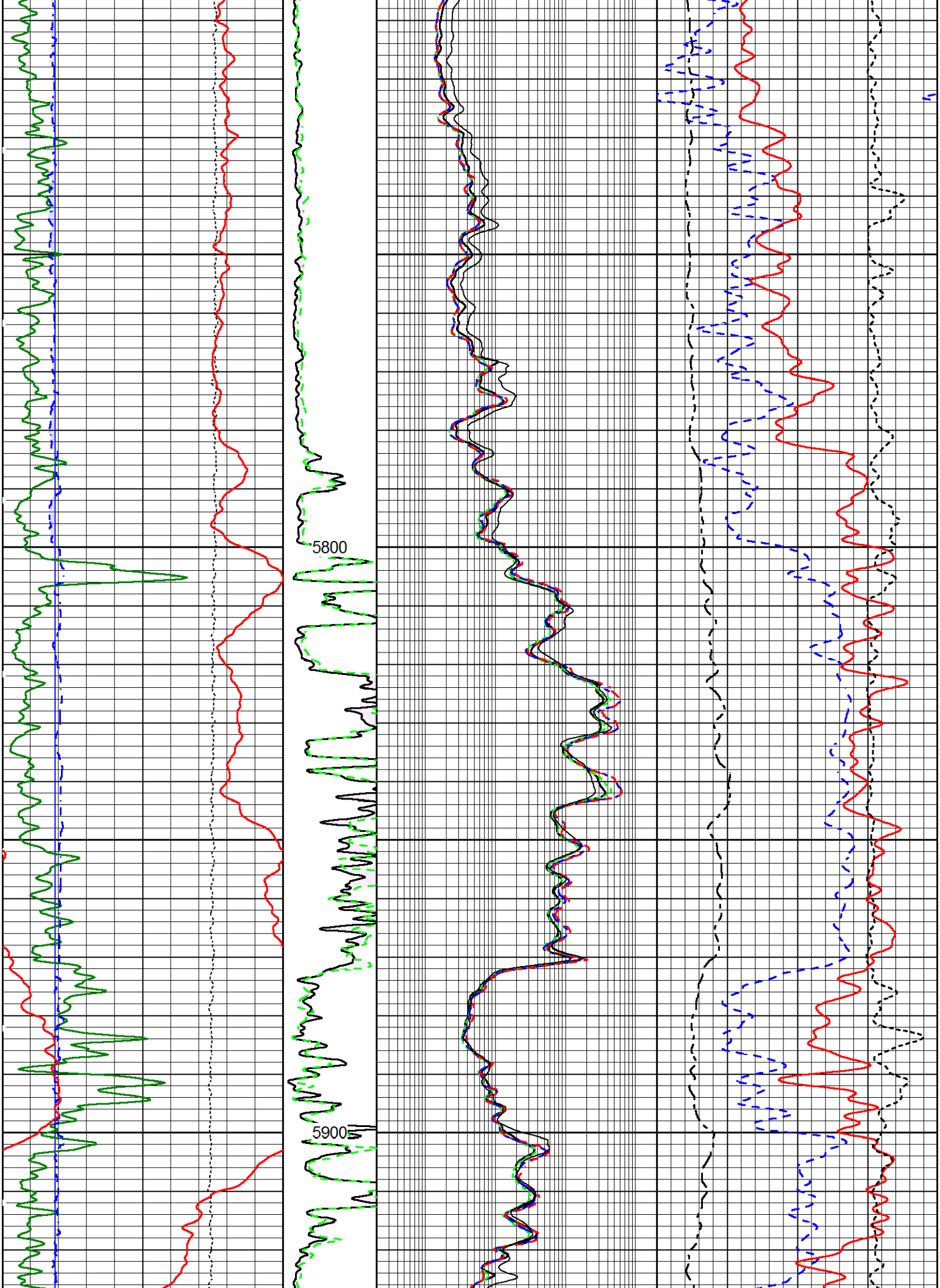
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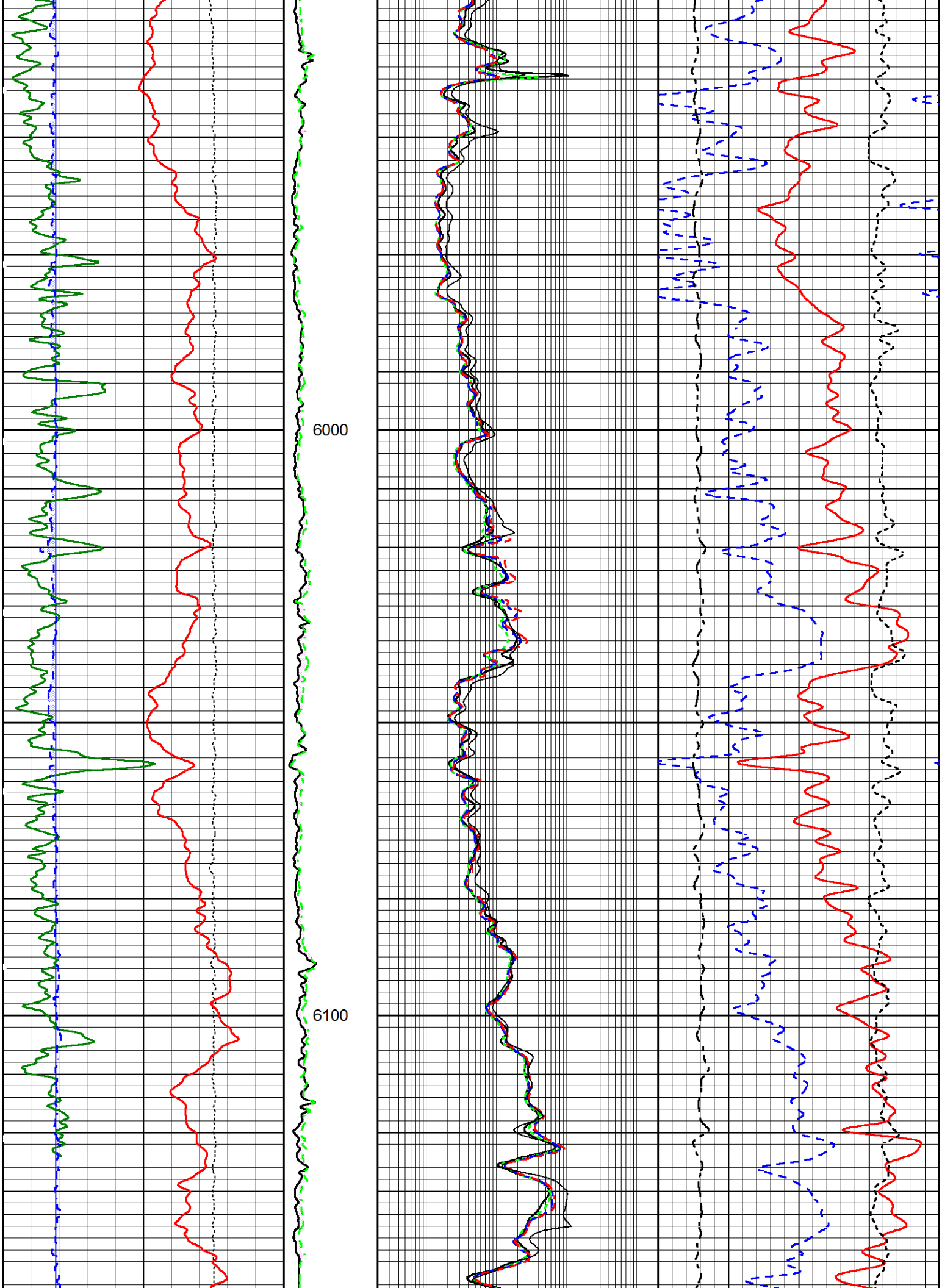
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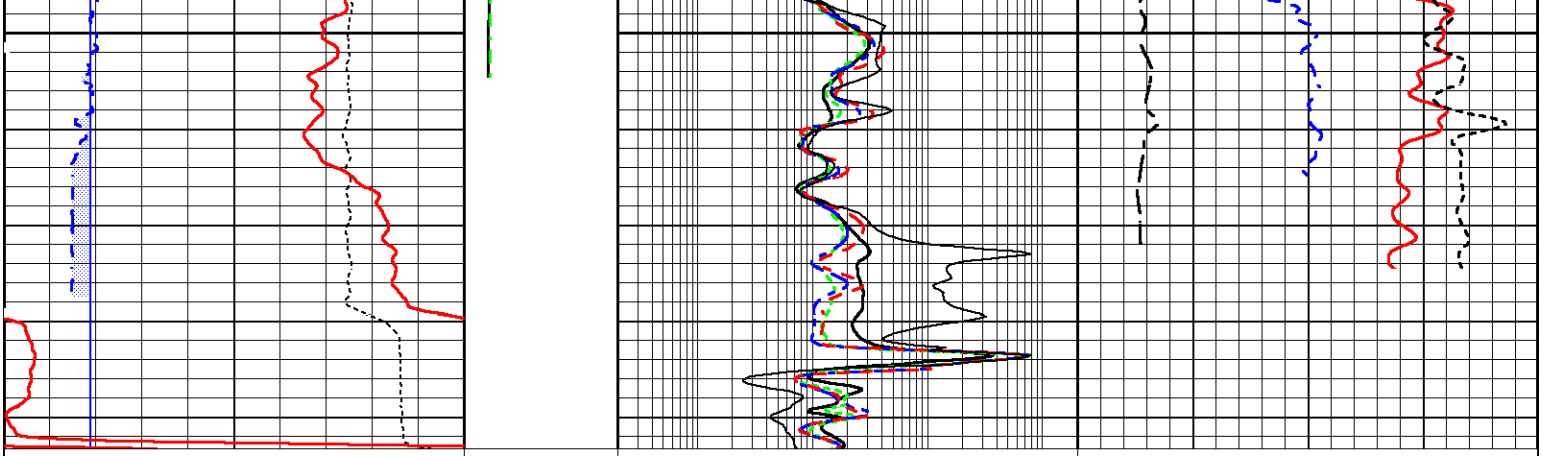

Log Variables

DatabaseF:\Bengalia-Faris#2-35\bengalia-faris2-35.db
Dataset field/well/run1/pass7/_vars_

Top - 1822.00 ft

MAXAMPL mV	MINAMPL mV	MINATTN db/ft	COMPACT	SVFLUID usec/ft	SVMATRIX usec/ft	FRMSALIN kppm	MUDSALIN kppm
0	1	0.8	1	189	47.6	0	0
DEVI deg	**SRFTEMP degF**	**SO in**	**DE-CENT**	**CASED?**	**CASEWGHT lb/ft**	**NPORSEL**	**AIR_HOLE?**
0	90	0.25	Yes	Yes	11.5	Limestone	No
MudWgt lb/gal	**FLUIDDEN g/cc**	**MATRXDEN g/cc**	**SPSHIFT mV**	**CASETHCK in**	**CASEOD in**	**PERFS**	**TDEPTH ft**
9.5	1	2.71	0	0	8.625	0	0
BOTTEMP degF	**BOREID in**						
133	12.25						

1822.00 ft - Bottom

MAXAMPL mV	MINAMPL mV	MINATTN db/ft	COMPACT	SVFLUID usec/ft	SVMATRIX usec/ft	FRMSALIN kppm	MUDSALIN kppm
0	1	0.8	1	189	47.6	0	0
DEVI deg	**SRFTEMP degF**	**SO in**	**DE-CENT**	**CASED?**	**CASEWGHT lb/ft**	**NPORSEL**	**AIR_HOLE?**
0	90	**0**	Yes	**No**	11.5	Limestone	No
MudWgt lb/gal	**FLUIDDEN g/cc**	**MATRXDEN g/cc**	**SPSHIFT mV**	**CASETHCK in**	**CASEOD in**	**PERFS**	**TDEPTH ft**
9.5	1	2.71	0	0	**5.5**	0	0
BOTTEMP degF	**BOREID in**						
133	**7.875**						

Calibration Report

Database File	F:\Bengalia-Faris#2-35\bengalia-faris2-35.db
Dataset Pathname	pass7
Dataset Creation	Mon Aug 26 18:38:58 2019 by Log Sondex

Induction Array Tool Calibration Report

Serial Number:	B10106
Tool Model:	002

Master Calibration Performed:	Tue Nov 28 10:59:51 2017
Temperature:	68.7 degF

Sonde Error:

Array	1	2	3	4	5	6	7	
Real	192.8	-11.9	-39.2	-13.2	-1.7	1.8	6.3	mmho/m
Imaginary	-65.1	-116.4	-28.7	-0.7	-6.9	-21.0	-0.3	mmho/m

Loop Gain:

Array	1	2	3	4	5	6	7	
Loop (real)	537.7	678.5	1295.3	1394.1	1144.8	712.8	404.8	mmho/m
Loop (imaginary)	73.3	92.5	389.8	419.5	344.5	214.5	121.8	mmho/m
Real	751.4	713.1	1269.0	1383.2	1170.0	744.4	431.8	mmho/m
Imaginary	7.4	-22.6	351.2	413.7	341.5	200.9	128.1	mmho/m
Gain (real)	0.963	0.936	0.990	0.998	0.977	0.960	0.951	
Gain (imaginary)	1.012	0.986	1.026	1.012	0.989	0.967	0.948	

Before Survey Verification Performed:	Tue Aug 04 09:42:06 2015
Sonde 1 Temperature:	83.1 degF
Sonde 2 Temperature:	79.2 degF
Array 1 Temperature:	81.6 degF

Array	1	2	3	4	5	6	7
TxIR	-0.0	-0.0	0.1	0.1	0.1	0.1	0.1
TxIX	-0.0	-0.0	-0.2	-0.2	-0.2	-0.2	-0.2
Tx Magnitude	0.0	0.0	0.2	0.2	0.2	0.2	0.2
Gain	50.5	64.5	54.5	66.5	80.2	108.5	158.9
RxCR	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
RxCX	0.1	0.1	0.1	0.1	0.2	0.1	0.1
RxC Magnitude	0.1	0.1	0.1	0.1	0.2	0.1	0.1

Tool Module Parameters

Software Version:	8.0.0.4
Borehole Size Source:	BOREID
Mud Resistivity Source:	MUDRES
Mud Resistivity At Surface:	N/A
Mud Resistivity Surface Temperature:	N/A
Borehole Corrections:	Automatic
Minimum Standoff:	0.4 in

Litho Density Tool Calibration Report

Serial Number:	B113S50129B
Tool Model:	002

Caliper Calibration Performed:	Wed May 08 11:18:07 2019

	Diameter		Reading	
Small Ring:	9.000	in	1625.400	cps
Large Ring:	13.000	in	1968.300	cps

Gain:	0.0117
Offset:	-9.9606

Master Calibration Performed: Tue Aug 06 09:27:49 2019

Source Number: 50129B
Medium: Air
Al Block Density: 2.6002 g/cc

	Background	Al Block	Al Block + Fe	
SS1	701.8	4330.7	4100.6	cps
SS2	1970.9	29367.3	27598.8	cps
SSTOTAL	4623.7	46788.7	43546.8	cps
LITH	85.1	504.8	331.2	cps
LL	167.8	803.4	785.4	cps
LU	474.2	1007.7	1000.1	cps
LS	642.0	1811.1	1785.5	cps
LSTOTAL	1207.0	4499.4	3989.5	cps
SSHV	1559.4	1558.9	1559.0	V
LSHV	1483.1	1485.3	1486.3	V
SSFF	0.006	0.009	-0.004	
LSFF	0.002	-0.008	-0.008	

Before Survey Verification Performed:
After Survey Verification Performed:

	Master Background	Before Survey Background	After Survey Background	
SS1	701.8			cps
SS2	1970.9			cps
SSTOTAL	4623.7			cps
LITH	85.1			cps
LL	167.8			cps
LU	474.2			cps
LS	642.0			cps
LSTOTAL	1207.0			cps
SSHV	1559.4			V
LSHV	1483.1			V
SSFF	0.006			
LSFF	0.002			

Tool Module Parameters

Software Version: 8.0.0.6
Borehole Size Source: CALI
Pad Type: 2

Compensated Neutron Tool Calibration Report

Serial Number: C10071
Tool Model: 009

Master Calibration Performed: Tue Aug 06 10:29:05 2019

Source Number: 87624G

Short Spacing Counts:	5837.76	cps
Long Spacing Counts:	212.24	cps
High Voltage:	1363.91	V
Target Ratio:	27.2000	
Ratio:	27.5051	
K-Factor:	0.9889	

Before Survey Verification Performed: Tue Aug 06 10:35:35 2019

Before Survey Verification Performed: Tue Aug 06 10:35:55 2019
After Survey Verification Performed: Tue Aug 06 10:36:58 2019

Verifier Number: 6489

Verifier Values	Master Cal	Before Survey	After Survey	
Short Spacing Counts:	269.00	267.48	267.12	cps
Long Spacing Counts:	233.21	234.27	231.91	cps
High Voltage:	1363.86	1363.85	1363.85	V
Ratio:	1.1535	1.1417	1.1518	

Tool Module Parameters

Software Version: 8.0.0.5
Borehole Size Source: CALI
Clip Crossplot Porosity: YES
Lithology Identification Parameters:

	Calcite	Quartz	Dolomite	
Uma:	13.77	4.79	9.03	barns/cc
RHOma:	2.71	2.65	2.88	g/cc

Micro Electric Log Calibration Report

Serial Number: 10022649
Tool Model: 003

Caliper Calibration Performed: Mon Nov 13 12:40:50 2017

	Pad Arm			Backup Arm		
	Radius		Reading	Radius		Reading
Small Jig:	9.000	in	1847.200	9.000	in	1677.000
Large Jig:	13.000	in	2371.600	13.000	in	2315.300
Gain:			0.0076			0.0063
Offset:			-5.0900			-1.5092

Pad Calibration

	Inverse	Normal
Gain:	0.3000	0.3500
Offset:	0.0000	0.0000

Tool Module Parameters

Software Version: 8.0.0.4

Multi Array Sonic Calibration Report

Serial Number: C10037LS
Tool Model: 001LS

Tool Module Parameters

Software Version: 8.0.0.2
Integrated Transit Time Source: DT100120
Porosity Source: DT100120
Porosity Method: Wyllie
Raymer Hunt Constant: N/A

Gamma Ray Calibration Report

Serial Number: 10015939
Tool Model: 001

Performed: Mon Nov 13 12:01:40 2017

Calibrator Value: 156.0 GAPI

Background Reading:	117.4	cps
Calibrator Reading:	567.2	cps
Sensitivity:	0.3468	GAPI/cps

Borehole Fluid Resistivity Calibration Report

Serial Number:	P004
Tool Model:	002

Master Calibration Performed: Wed May 25 15:17:37 2016

Resistivity Polynomial Equation:

0.1429x^3 - 0.4495x^2 + 1.2097x - 0.2854

Temperature Calibration:

Reference		Reading	
71.60	degF	559.80	bits
167.00	degF	659.50	bits

Head Tension Unit Calibration Report

Serial Number:	00001
Tool Model:	011

Performed: Tue Nov 29 12:33:39 2016

Point #	Reference		Reading	
1	-19894.000	lb	8957.860	cps
2	-15010.000	lb	13965.100	cps
3	-9998.000	lb	19076.100	cps
4	-5007.000	lb	24133.000	cps
5	-1009.000	lb	28232.100	cps
6	1017.000	lb	30185.400	cps
7	5040.000	lb	34439.700	cps
8	9970.000	lb	39346.900	cps
9	14955.000	lb	44466.000	cps
10	19770.000	lb	49397.800	cps

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			CHD-001 (000004) Cable Head	2.19	3.38	35.00
HTEN	73.78		XTU-008 (1399 High Power) Crossover Ultrawire Toolbus to Ultralink	2.08	3.38	47.00
			HTU-011 (00001) Head Tension Unit	2.18	3.38	55.00
BFR	70.14		BFR-002 (P004) Borehole Fluid Resistivity	4.39	3.38	94.00
GR	67.38		GRT-001 (10015939) Gamma Ray Tool	3.22	3.38	69.00
			Centralizer-Overbody Overbody Centralizer	2.00	6.88	5.00
WVFATR8	55.26		MAS-001LS (C10037LS) Multi Array Sonic Tool (LS)	19.83	3.38	340.00
WVFATR7	55.01					
WVFATR6	54.76					
WVFATR5	54.51					
WVFATR4	54.26					
WVFATR3	54.01					

WVFATR2	53.76				
WVFATR1	53.51				
WVF5FT	53.01				
WVF3FT	52.01	MEL-003 (10022649) Micro Electric Log	9.17	3.38	190.00
MEL	37.55				
		CEN-001 (C10025) Inline OH Springbow Centraliser	4.27	3.38	66.00
		KJT-001 (000001) Knuckle Joint	2.86	3.38	72.00
CNLSC	25.59	CNL-009 (C10071) Compensated Neutron Logging Tool	5.28	3.38	100.00
CNSSC	25.09				
		LDT-002 (B113S50129B) Litho Density Tool	9.75	4.50	310.00
LDT	15.44				
		Standoff-Rubber Rubber Fin Standoff	1.08	4.88	3.00
IAT	8.44				
		IAT-002 (B10106) Induction Array Tool	13.22	3.88	196.00
SP	0.43	Short-1 Short Hole Finder	0.38	3.88	6.00

Dataset: bengalia-faris2-35.db: field/well/run1/pass7
Total length: 78.81 ft
Total weight: 1588.00 lb
O.D.: 6.88 in

WIRELINE LOGGING SOLUTIONS

Company: Bengalia Land & Cattle Company
Well: Faris # 2-35
Field: WC
State: Kansas