Schlumberger

Company: **Orr Energy, LLC**

Well: **Lakes 31−22D**
Field: **LaPoudre South**
County: **Weld** State: **Colorado**

Platform Express
Triple Combo

County: Weld
Field: LaPoudre South
Location: Sec. 31, T6N, R66W
Well: Lakes 31−22D
Company: Orr Energy, LLC

LOCATION

Sec. 31, T6N, R66W
2178' FSL X 2541' FWL (Surface) NESW
1981' FNL X 62323' FWL (Bottom) NESW

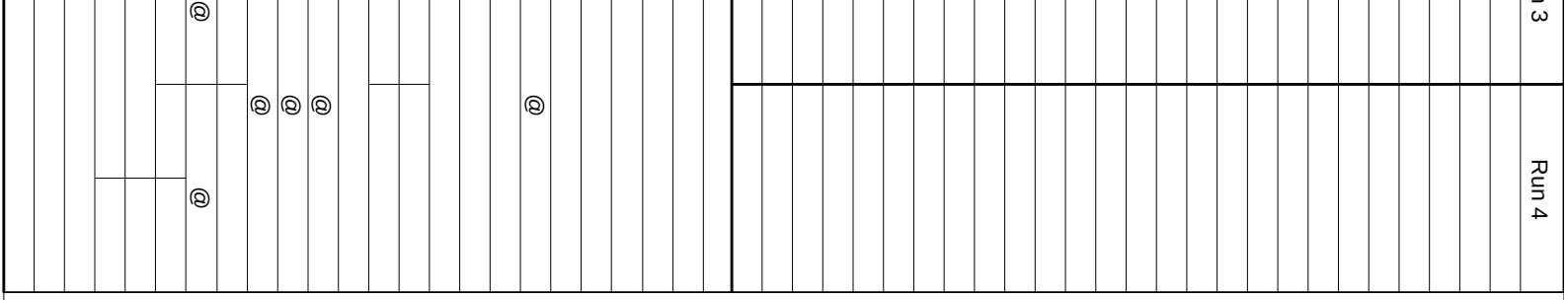
Elev.: K.B. 4732 ft
G.L. 4718 ft
D.F. 4731 ft

Permanent Datum: Ground Level Elev.: 4718 ft
Log Measured From: Kelly Bushing 14.0 ft above Perm. Datum
Drilling Measured From: Kelly Bushing

API Serial No.	Section	Township	Range
05−123−25688−0(	31	6N	66W

	Run 1	Run 2	Run
Logging Date	9−Jun−2008		
Run Number	1		
Depth Driller	7769 ft		
Schlumberger Depth	7769 ft		
Bottom Log Interval	7761 ft		
Top Log Interval	854 ft		
Casing Driller Size @ Depth	8.625 in @ 848 ft	@	@
Casing Schlumberger	854 ft		
Bit Size	7.875 in		
Type Fluid In Hole	KCL Polymer		
MUD Density / Viscosity	9.2 lbm/gal / 38 s		
MUD Fluid Loss / PH	/		
MUD Source Of Sample	AIT − Mud Sensor		
RM @ Measured Temperature	1.350 ohm.m @ 185 degF	@	@
RMF @ Measured Temperature	1.013 ohm.m @ 185 degF	@	@
RMC @ Measured Temperature	2.025 ohm.m @ 185 degF	@	@
Source RMF / RMC	Calculated / Calculated		
RM @ MRT / RMF @ MRT	1.194 @ 210 / 0.896 @ 210	@ /	@
Maximum Recorded Temperatures	210 degF		
Circulation Stopped / Time	9−Jun−2008 / 9:00		
Logger On Bottom / Time	9−Jun−2008 / 12:55		
Unit Number / Location	3003 / Fort Morgan, CO		
Recorded By	Matt Baldwin		
Witnessed By	Don Libhart & Rick Grimmette		

	Run 1	Run 2	Run
Logging Date			
Run Number			
Depth Driller			
Schlumberger Depth			
Bottom Log Interval			
Top Log Interval			
Casing Driller Size @ Depth		@	
Casing Schlumberger			
Bit Size			
Type Fluid In Hole			
MUD Density / Viscosity			
MUD Fluid Loss / PH			
MUD Source Of Sample			
RM @ Measured Temperature		@	
RMF @ Measured Temperature		@	
RMC @ Measured Temperature		@	
Source RMF / RMC			
RM @ MRT / RMF @ MRT	@	@	
Maximum Recorded Temperatures			
Circulation Stopped / Time			
Logger On Bottom / Time			
Unit Number / Location			
Recorded By			
Witnessed By			



DEPTH SUMMARY LISTING

Date Created: 9−JUN−2008 13:18:22

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW−B	Type:	CMTD−B/A	Type:	7−46P
Serial Number:	−999	Serial Number:	1937	Serial Number:	4142
Calibration Date:	10−Apr−2008	Calibration Date:	3−Jun−2008	Length:	11290.00 FT
Calibrator Serial Number:	1	Calibrator Serial Number:	100513		
Calibration Cable Type:	7−46P	Calibration Gain:	1.01	Conveyance Method:	Wireline
Wheel Correction 1:	−2	Calibration Offset:	597.00	Rig Type:	LAND
Wheel Correction 2:	−4				

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 FT
Rig Up Length At Bottom:	0.00 FT
Rig Up Length Correction:	0.00 FT
Stretch Correction:	13.00 FT
Tool Zero Check At Surface:	0.00 FT

Depth Control Remarks

1. All Schlumberger depth policy procedures applied
2. This is the primary depth reference
3.
4.
5.
6.

OTHER SERVICES1	OTHER SERVICES2
OS1: GPIT	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
This is first run in hole	
Tool run as per tool sketch	
Matrix changes noted on porosity log	

Rig: Cade 22

Crew: Matt Baldwin, Ian Derry & Josh Strand

RUN 1		RUN 2	
SERVICE ORDER #:	11989911	SERVICE ORDER #:	
PROGRAM VERSION:	15C0−309	PROGRAM VERSION:	
FLUID LEVEL:		FLUID LEVEL:	

LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

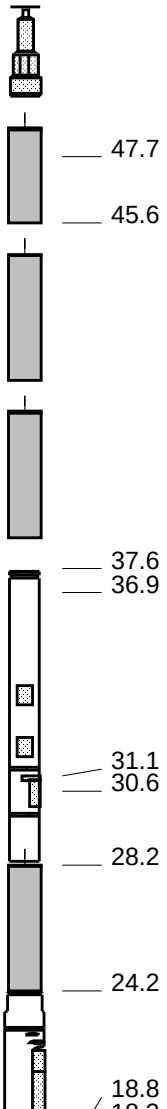
EQUIPMENT DESCRIPTION

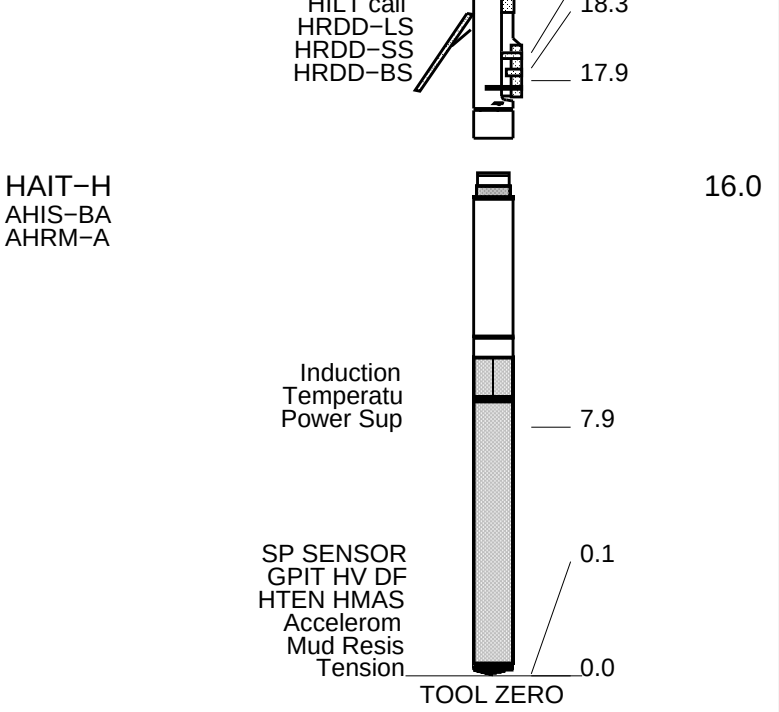
RUN 1 RUN 2

SURFACE EQUIPMENT

GSR−U/Y
NCT−B
CNB−AB
NCS−VB
WITM (DTS)−A

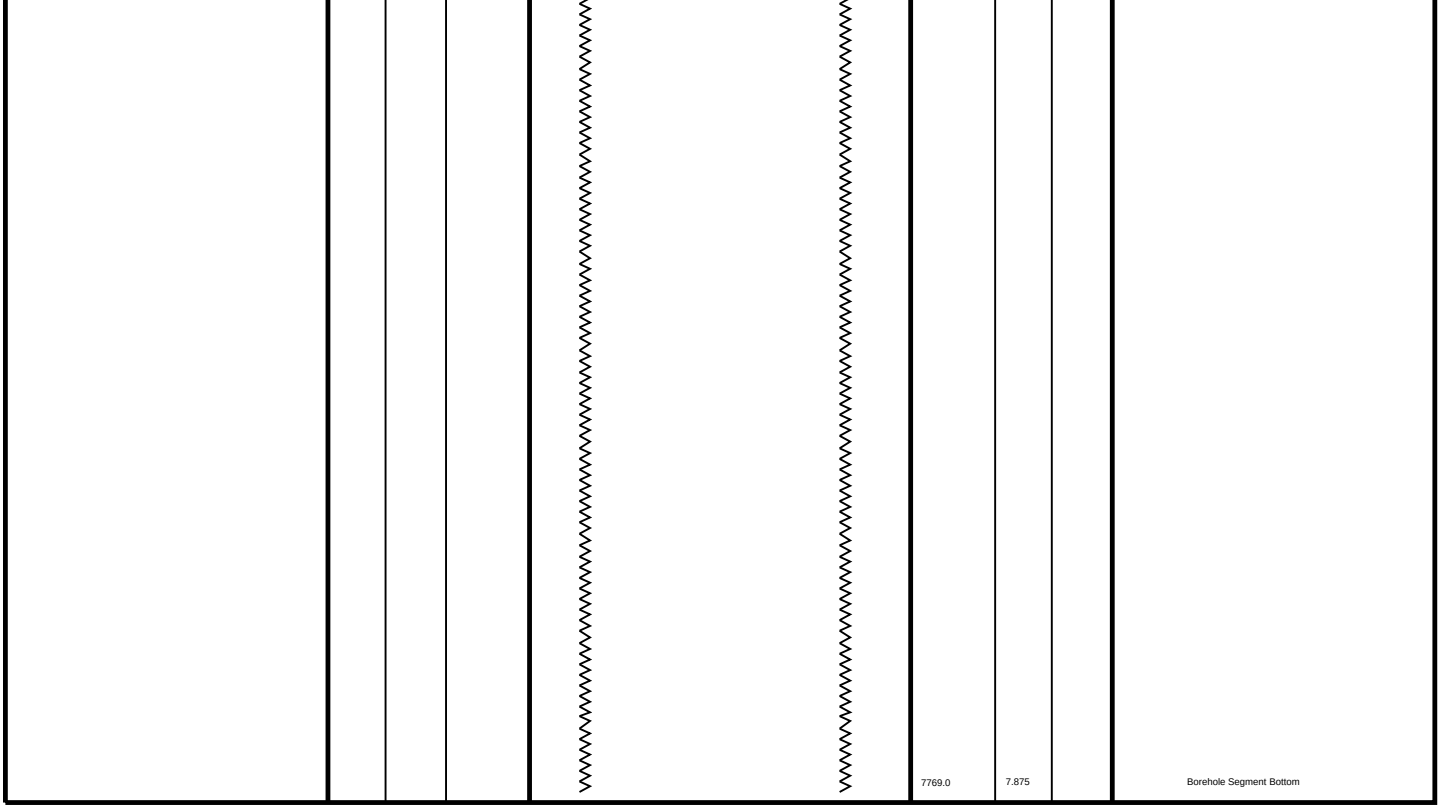
DOWNHOLE EQUIPMENT





MAXIMUM STRING DIAMETER 4.63 IN
MEASUREMENTS RELATIVE TO TOOL ZERO
ALL LENGTHS IN FEET

Production String	(in) OD	(in) ID	(ft) MD	Well Schematic	(ft) MD	(in) OD	(in) ID	Casing String
					0.0	8.625		Casing String, 24.0 lbm/ft
					848.0	8.625		Casing Shoe
					848.0	7.875		Borehole Segment



ALL DEPTHS AS PER DRILLER

Company: Orr Energy, LLC **Well: Lakes 31−22D**

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_009LUP	FN:8	PRODUCER	09−Jun−2008 13:22	7794.0 FT	0.0 FT

OP System Version: 15C0−309

MCM

HAIT−H	15C0−309	HILTB−FTB	15C0−309
GPIT−C	15C0−309	DTC−H	15C0−309

Changed Parameter Summary

DLIS Name	New Value	Previous Value	Depth & Time
MATR	SANDSTONE	SANDSTONE	7794.0 13:23:40
	SANDSTONE	SANDSTONE	7420.0 13:31:04
MDEN	2.65 G/C3	2.68 G/C3	7794.0 13:23:40
	2.68 G/C3	2.65 G/C3	7420.0 13:31:04

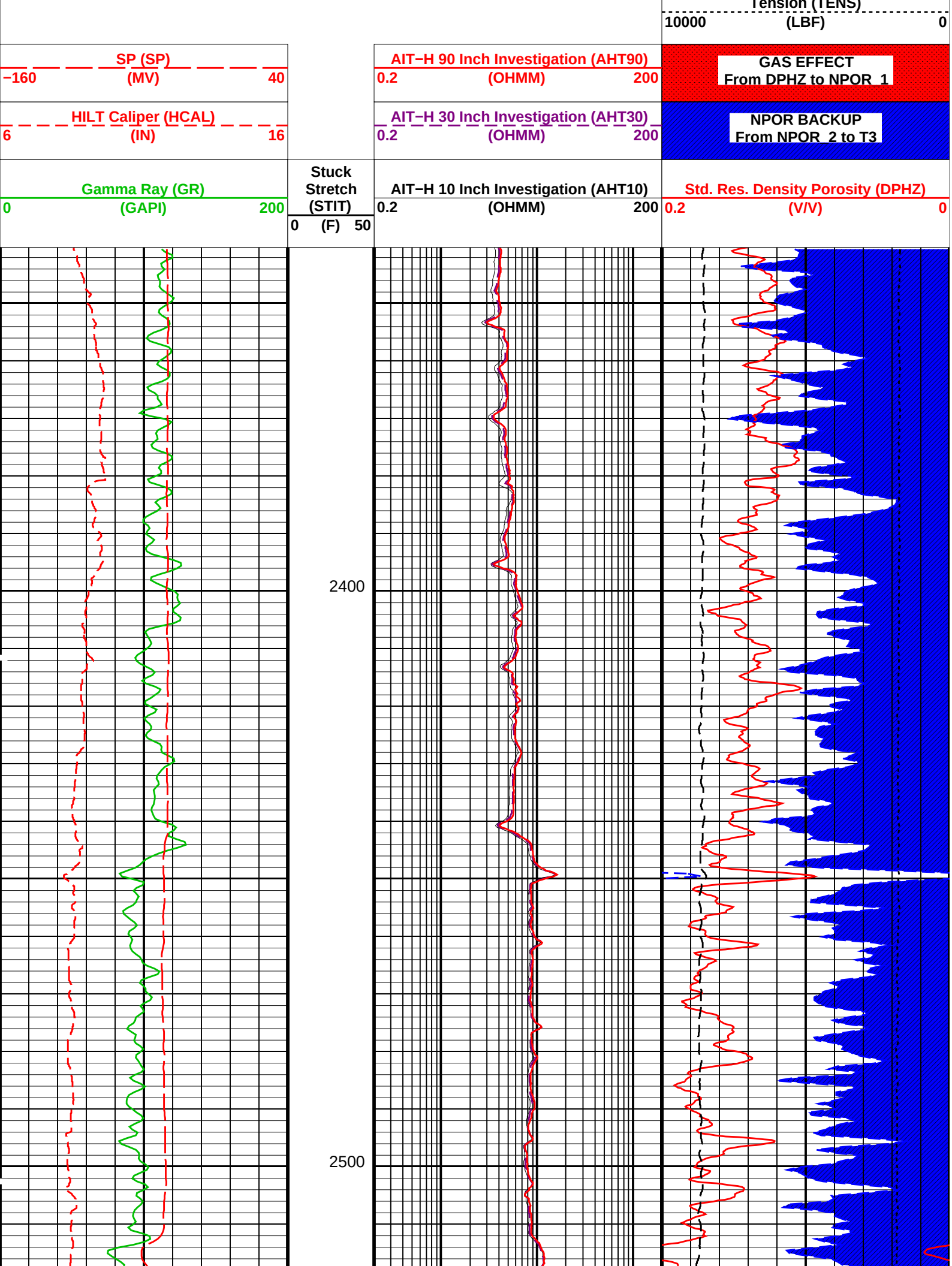
PIP SUMMARY

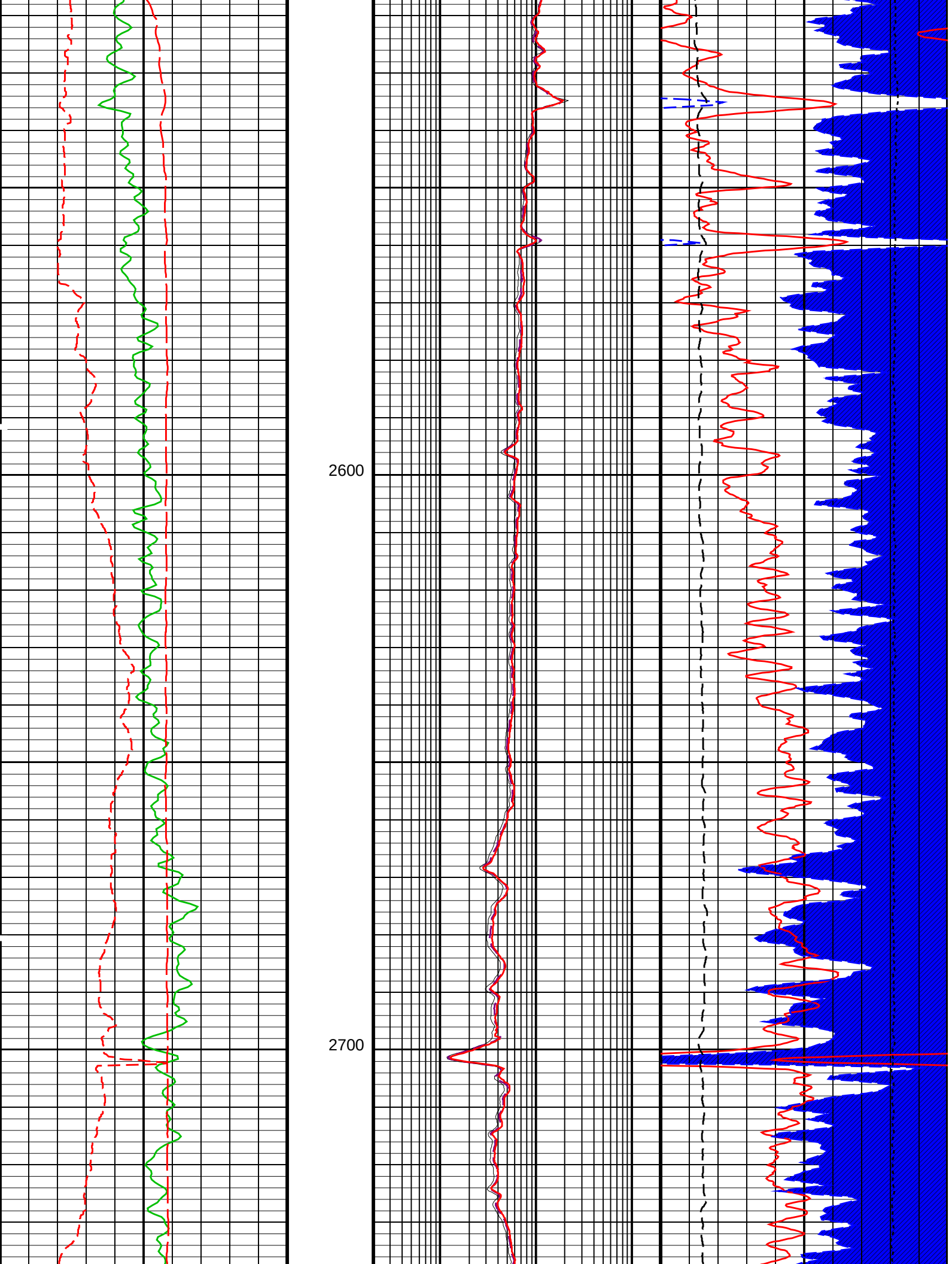
Time Mark Every 60 S

Std. Res. Formation Pe (PEFZ)	
0 (---- 10	

Alpha Processed Neutron Porosity (NPOR)	
0.2 (V/V)	0

Tension (TENS)


Tension (TENS)
10000 (LBF) 0
SP (SP)
−160 (MV) 40
HILT Caliper (HCAL)
6 (IN) 16
AIT−H 90 Inch Investigation (AHT90)
0.2 (OHMM) 200
AIT−H 30 Inch Investigation (AHT30)
0.2 (OHMM) 200
GAS EFFECT
From DPHZ to NPOR_1
NPOR BACKUP
From NPOR_2 to T3
Gamma Ray (GR)
0 (GAPI) 200
Stuck
Stretch
(STIT)
0 (F) 50
AIT−H 10 Inch Investigation (AHT10)
0.2 (OHMM) 200
Std. Res. Density Porosity (DPHZ)
0.2 (V/V) 0
2400
2500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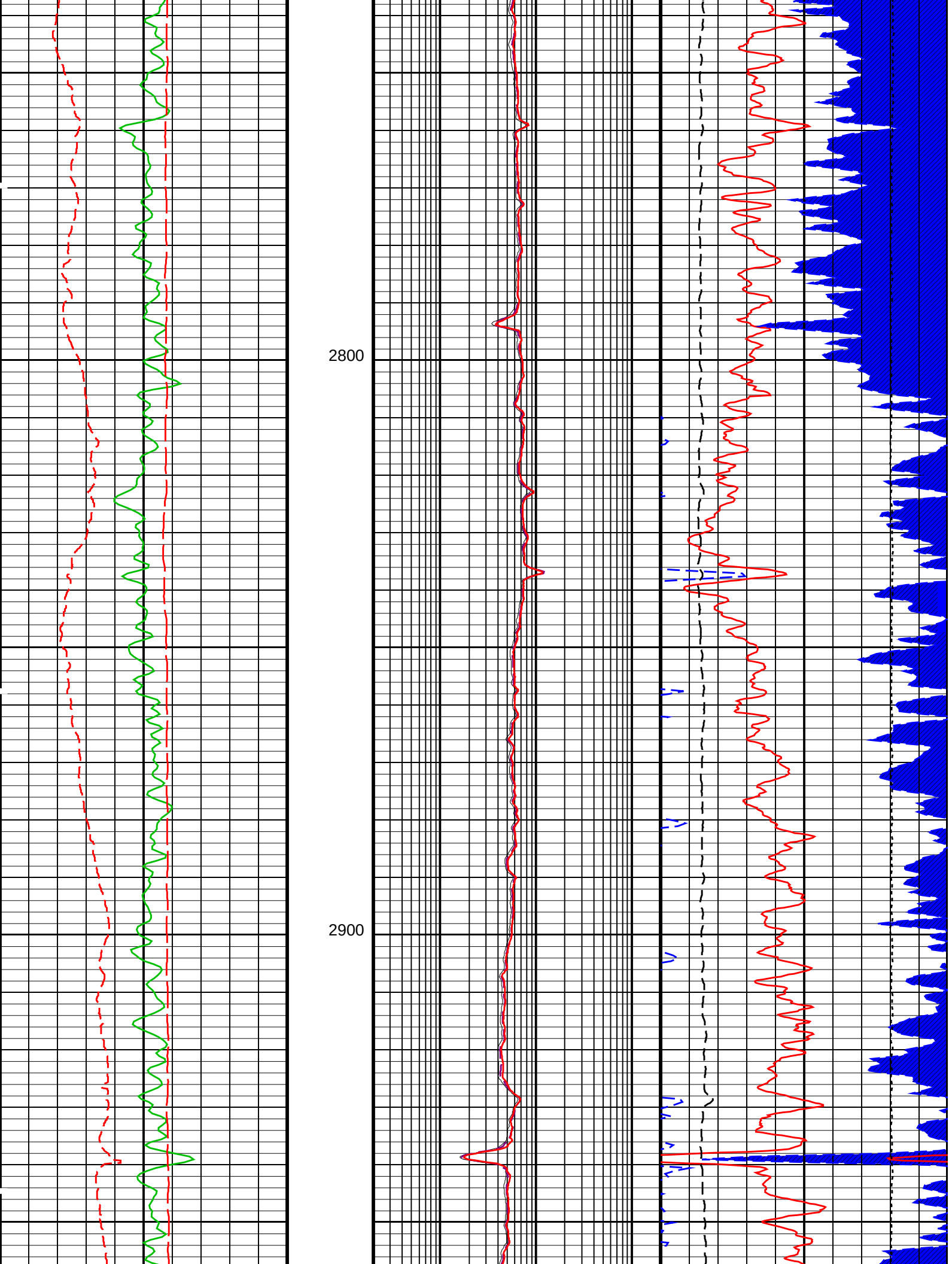
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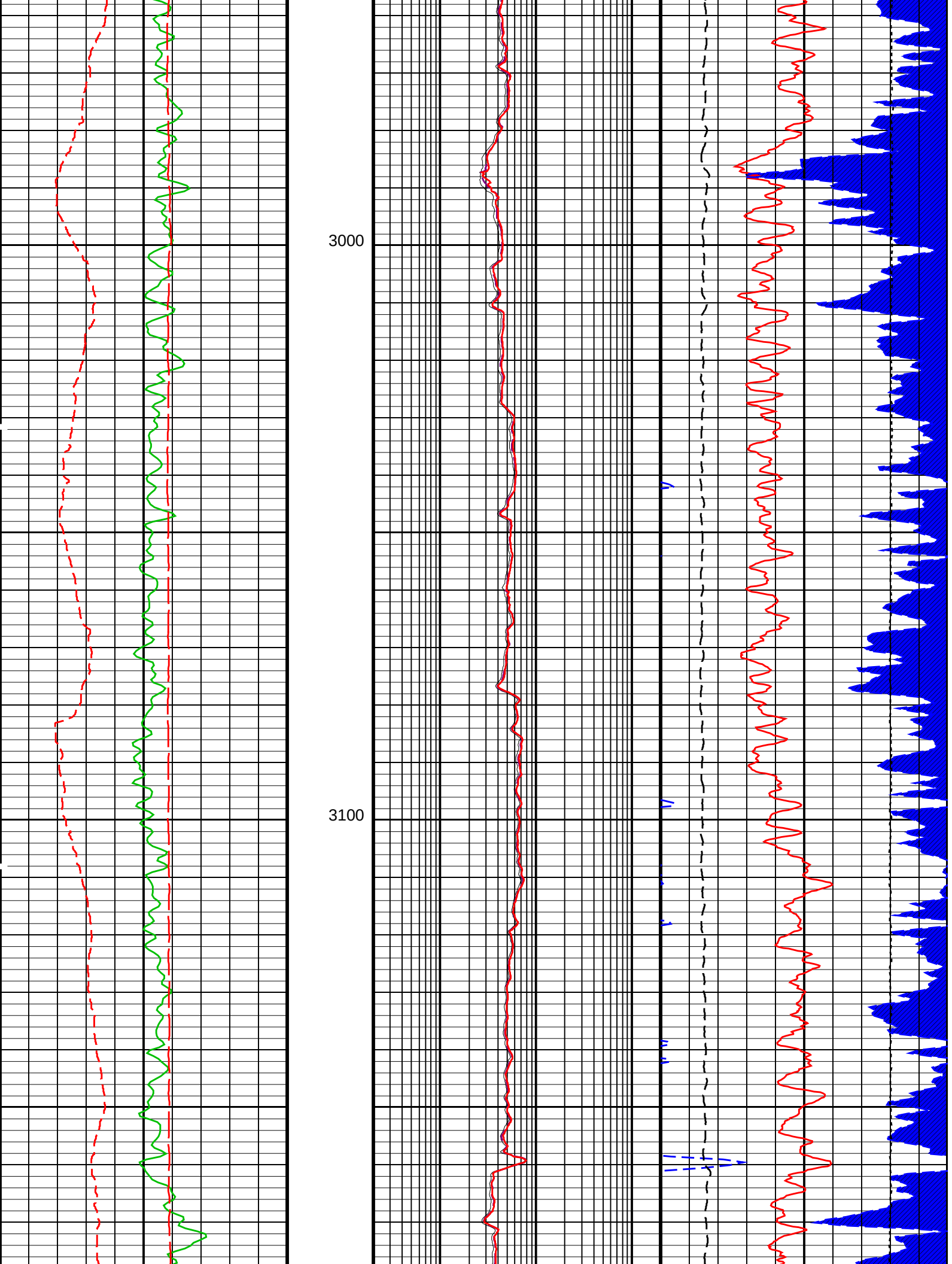
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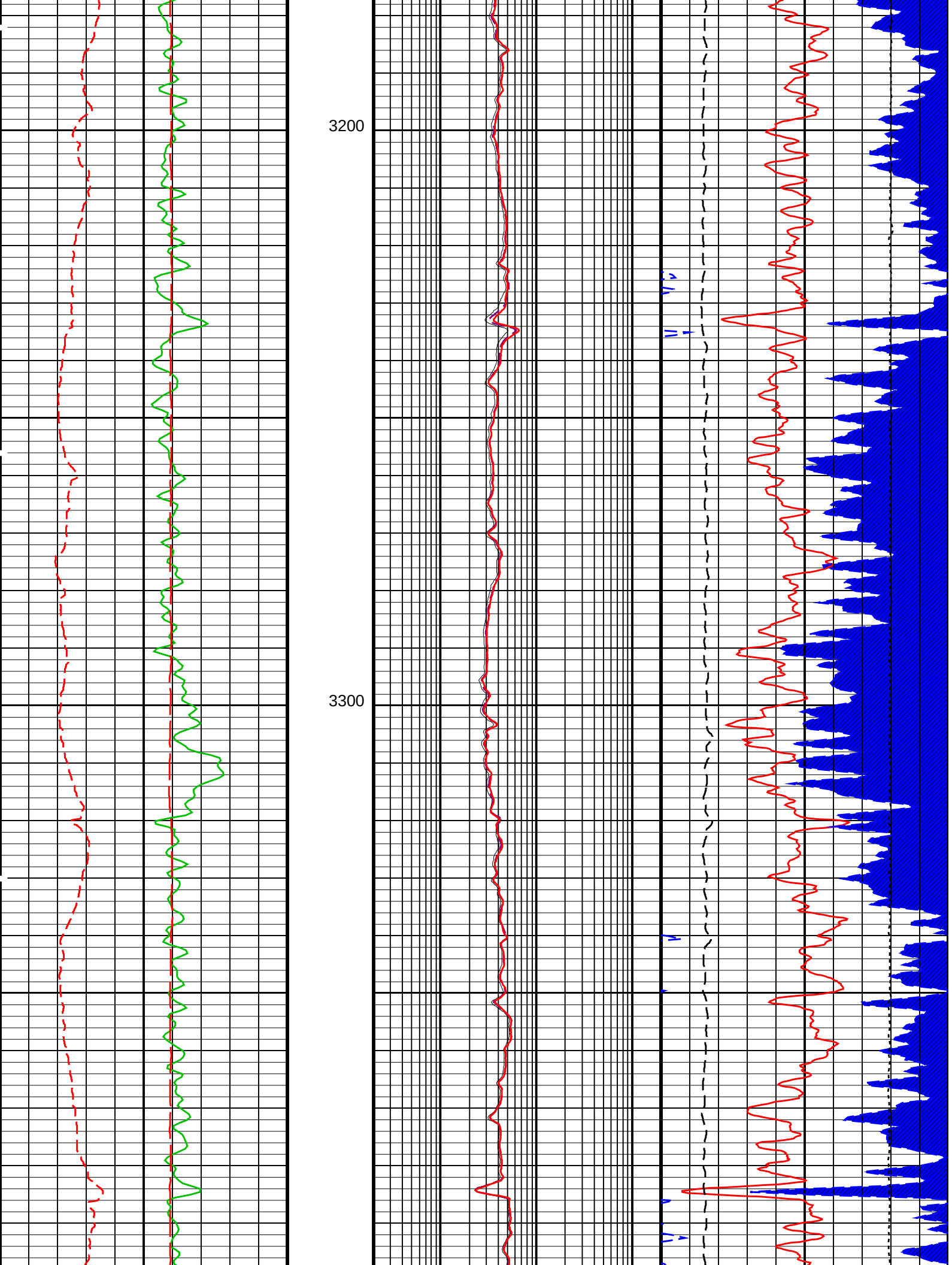
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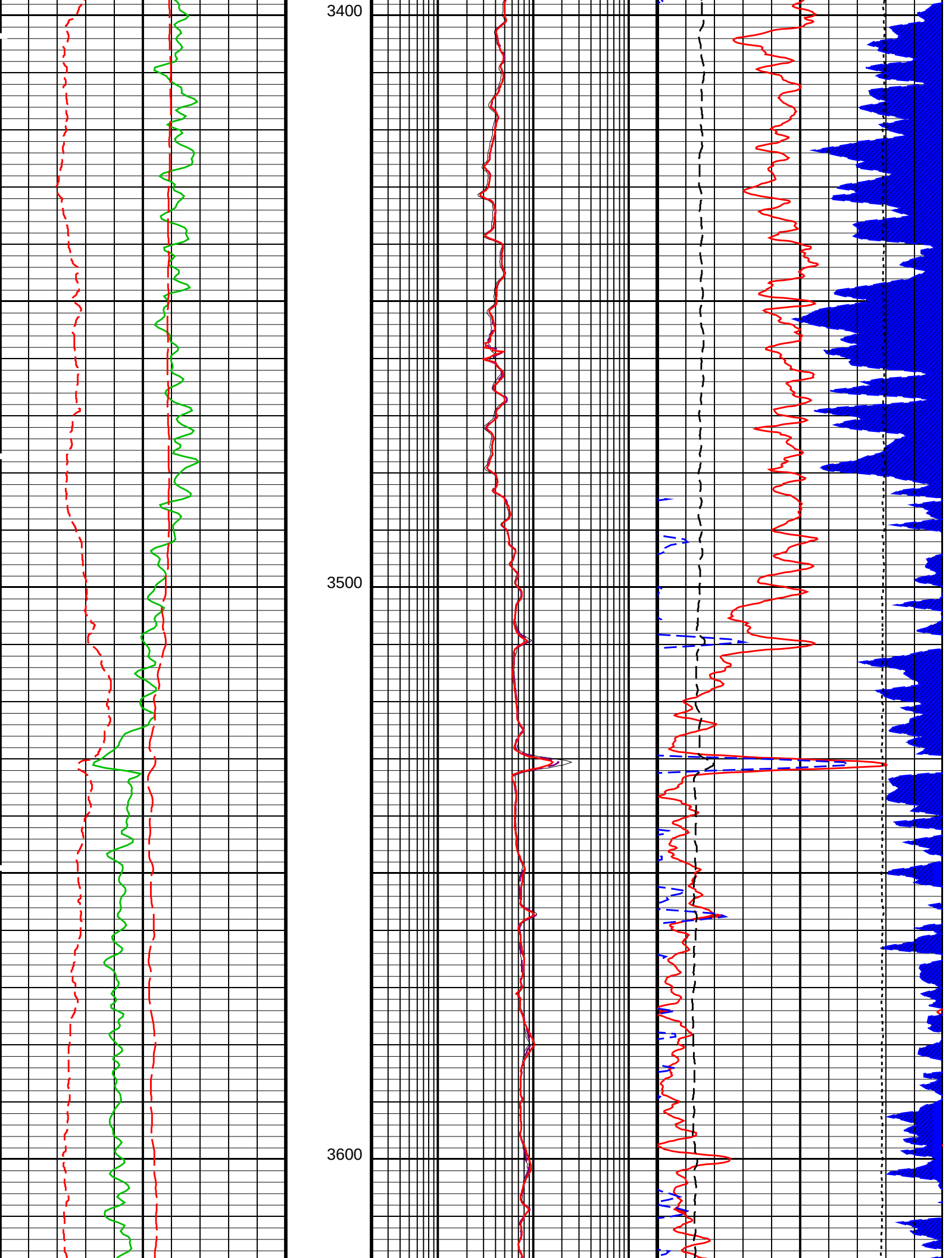
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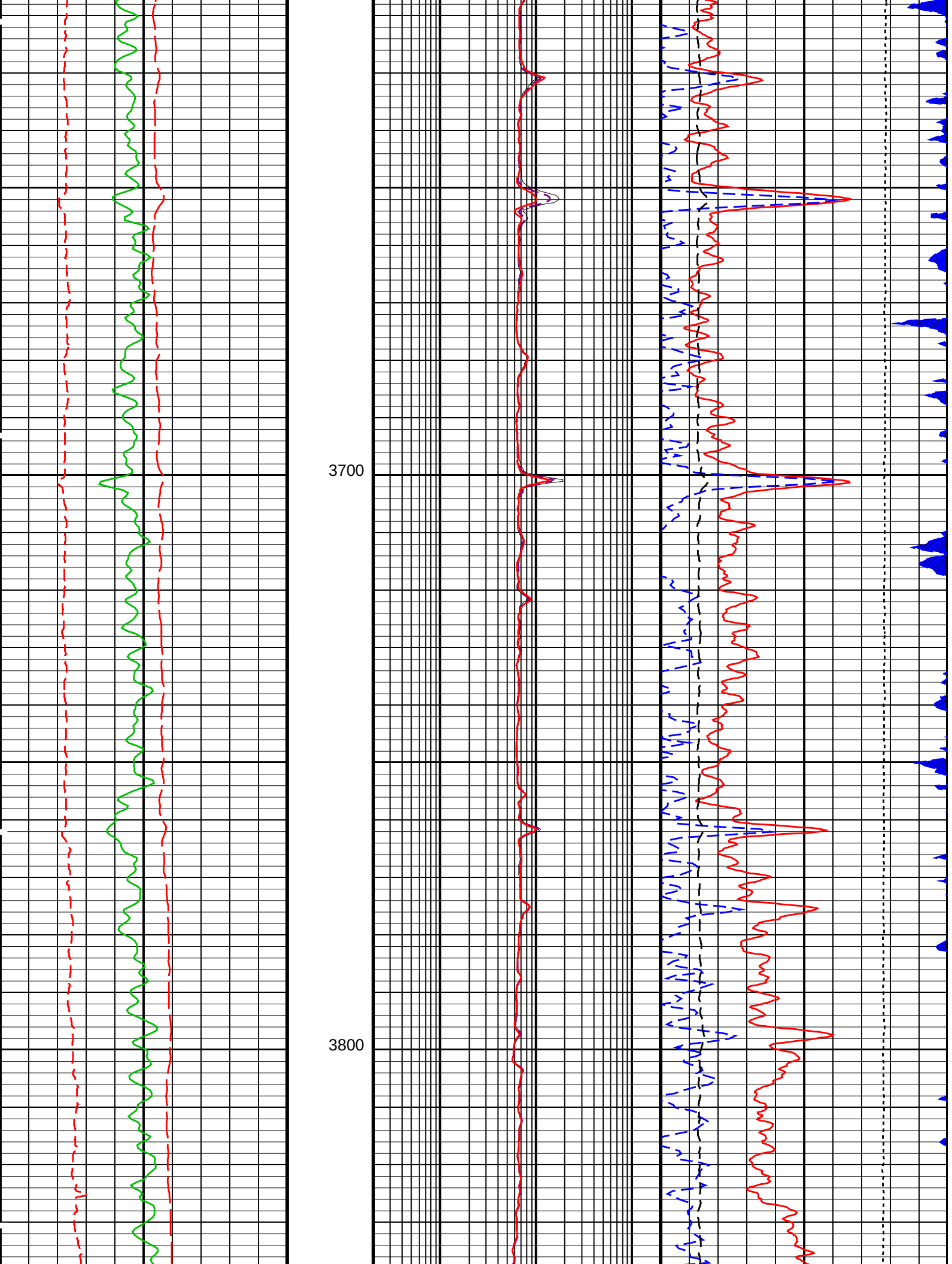
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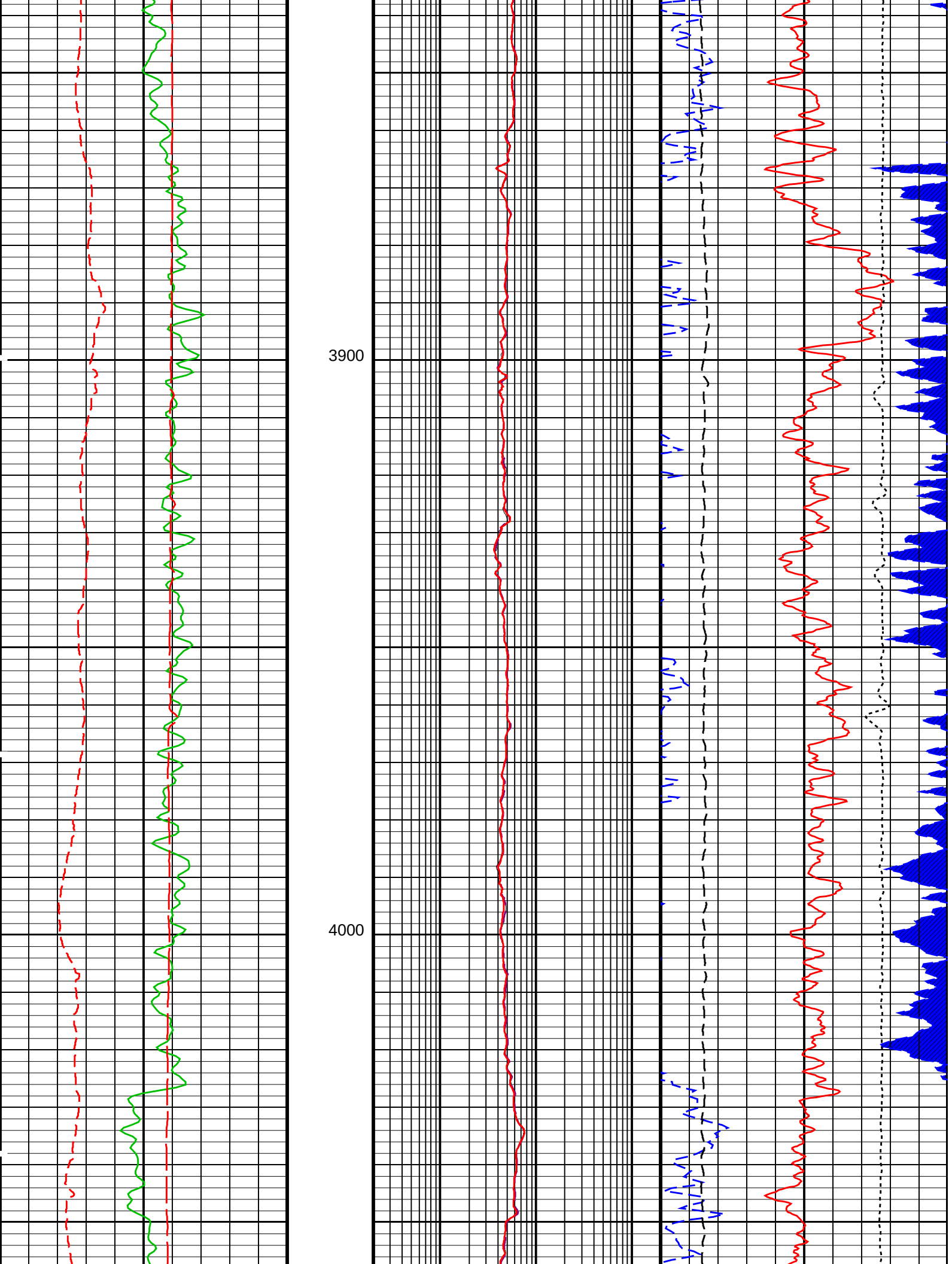
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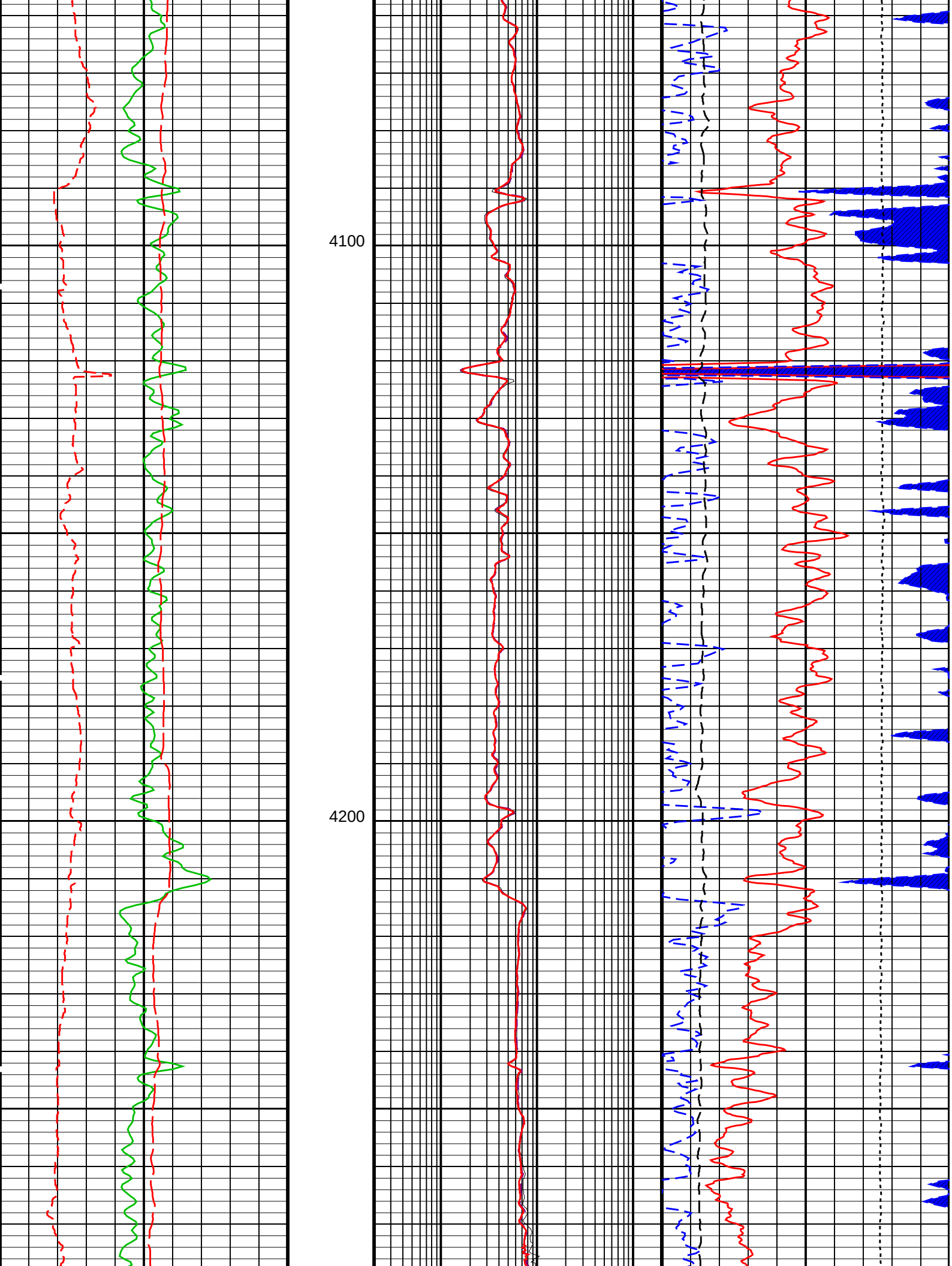
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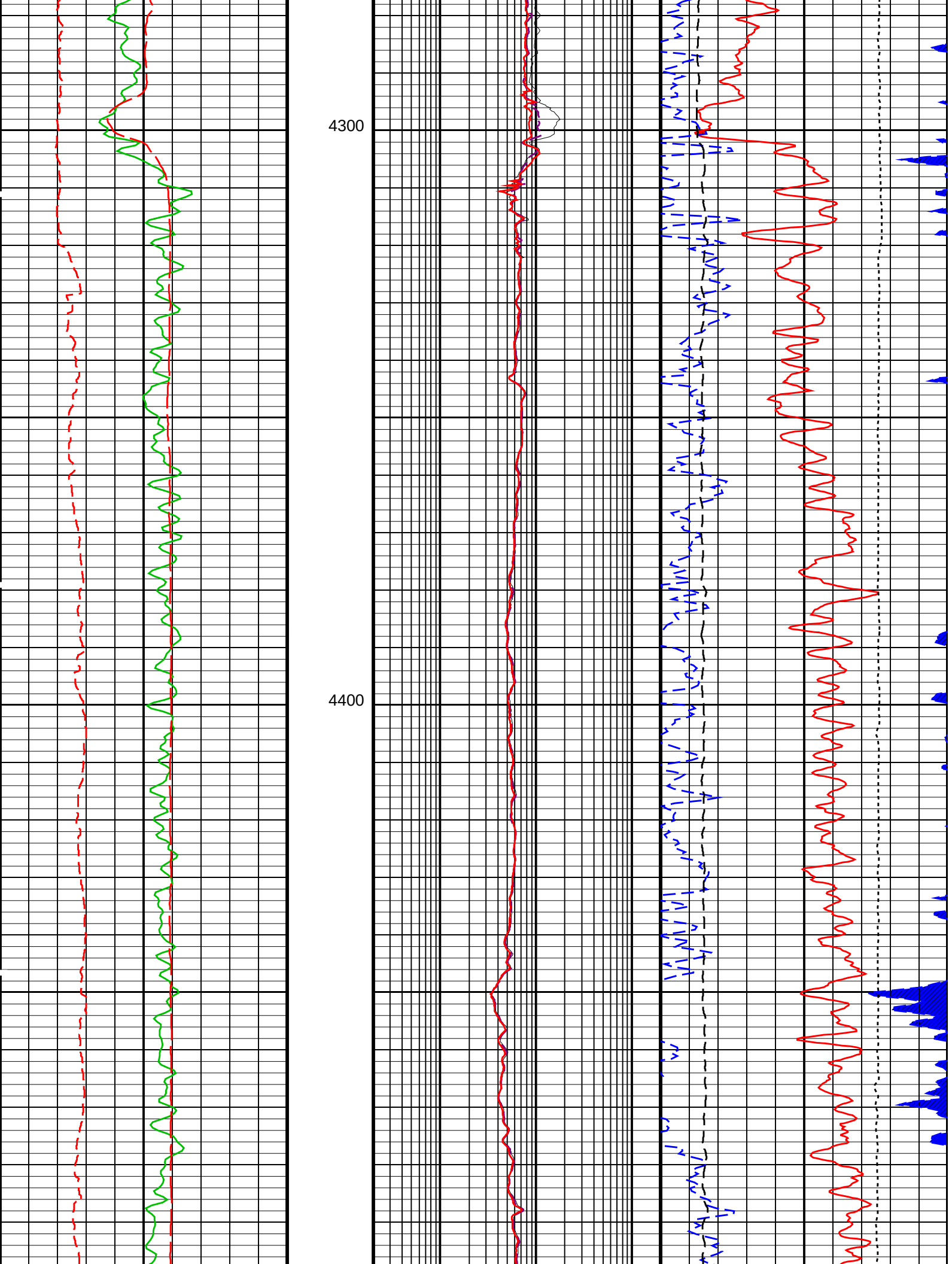
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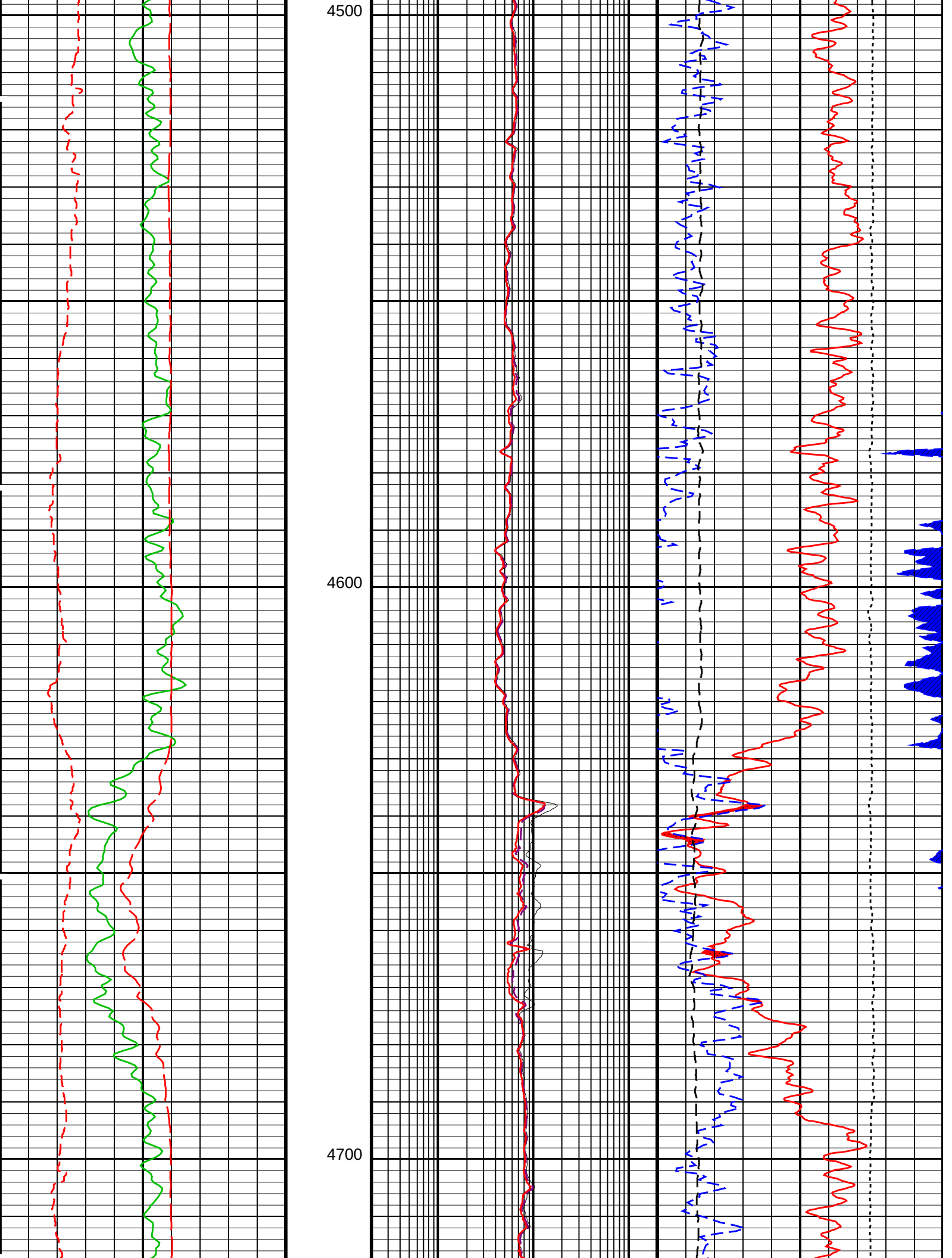
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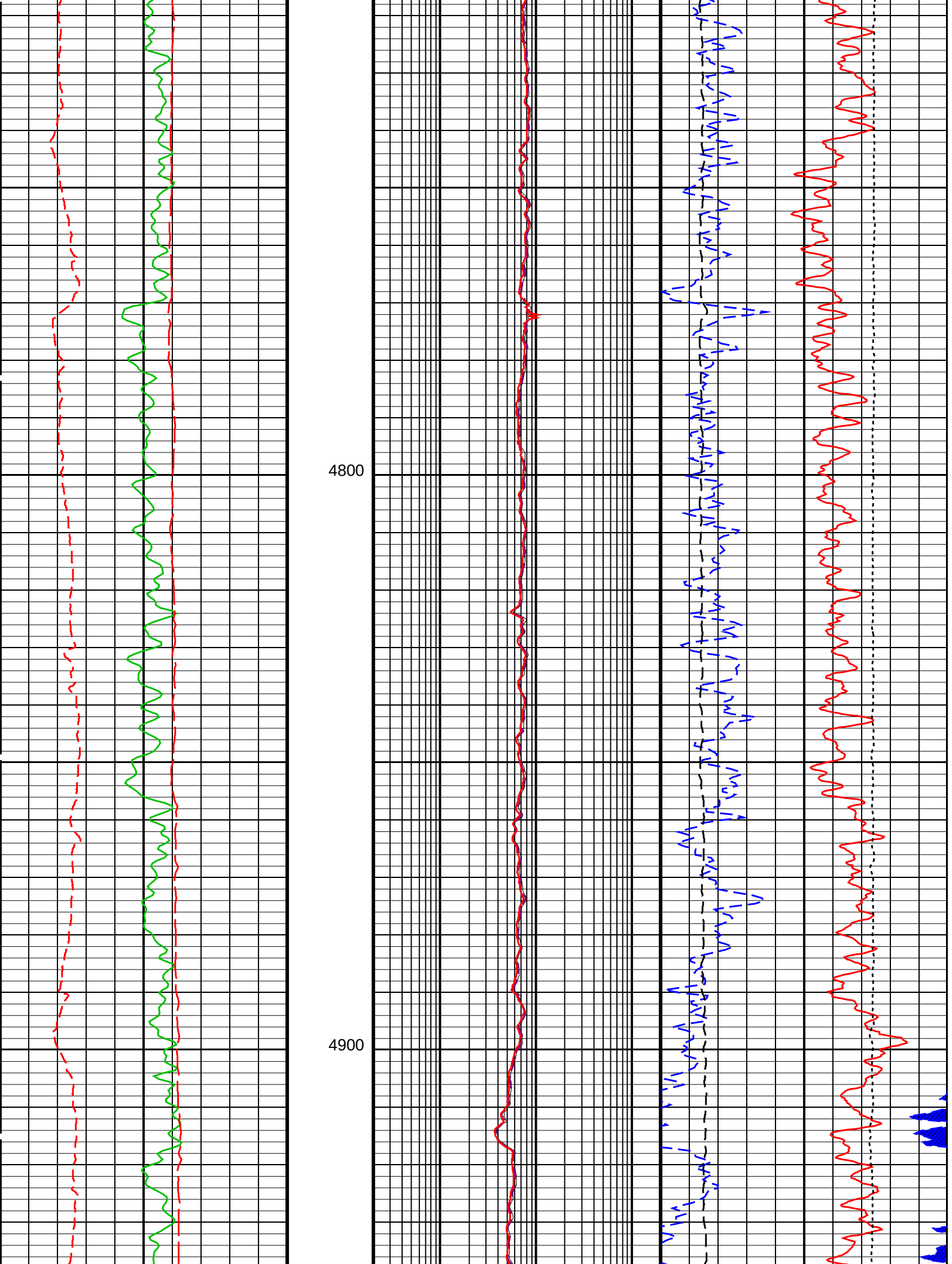
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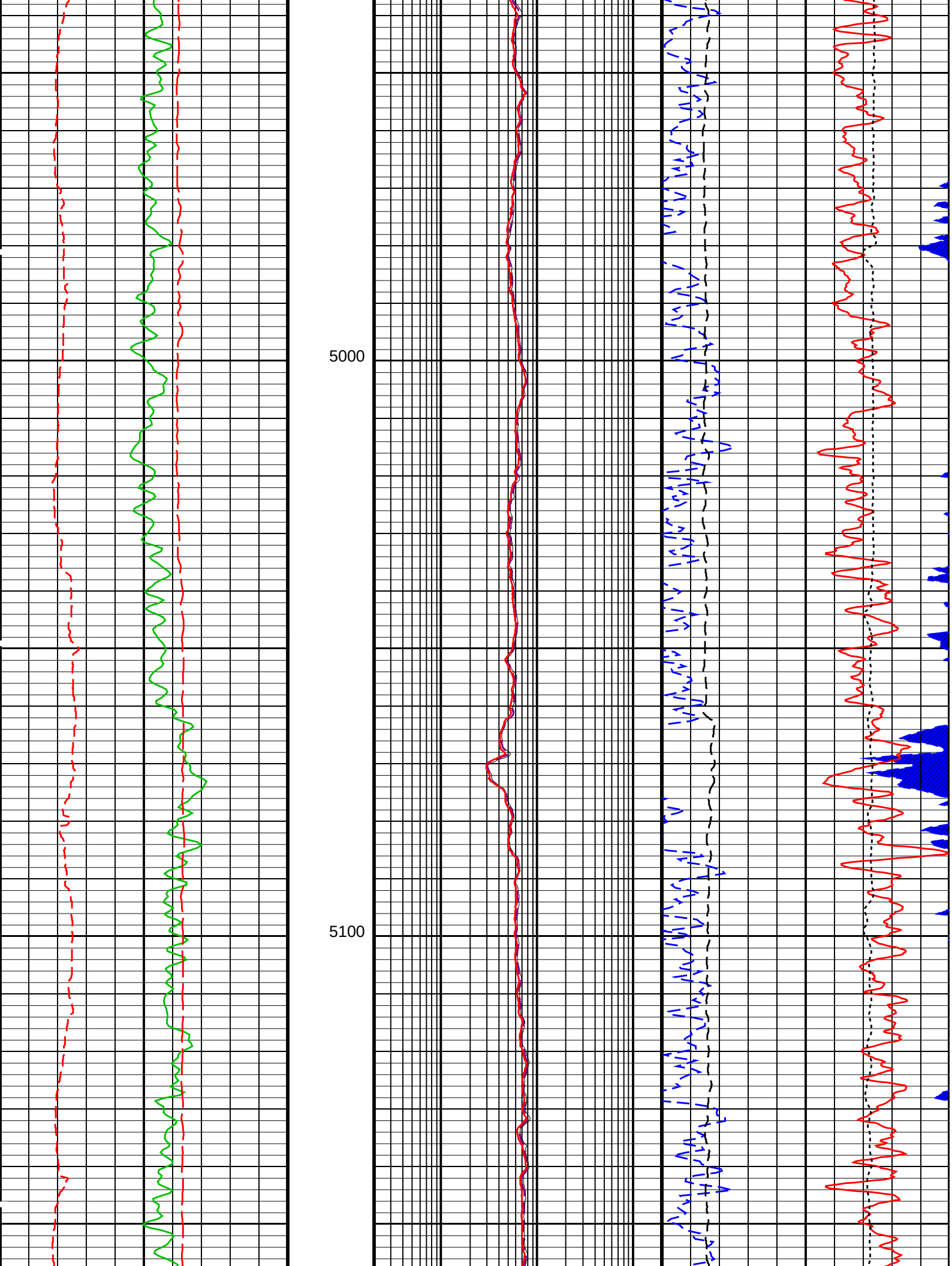
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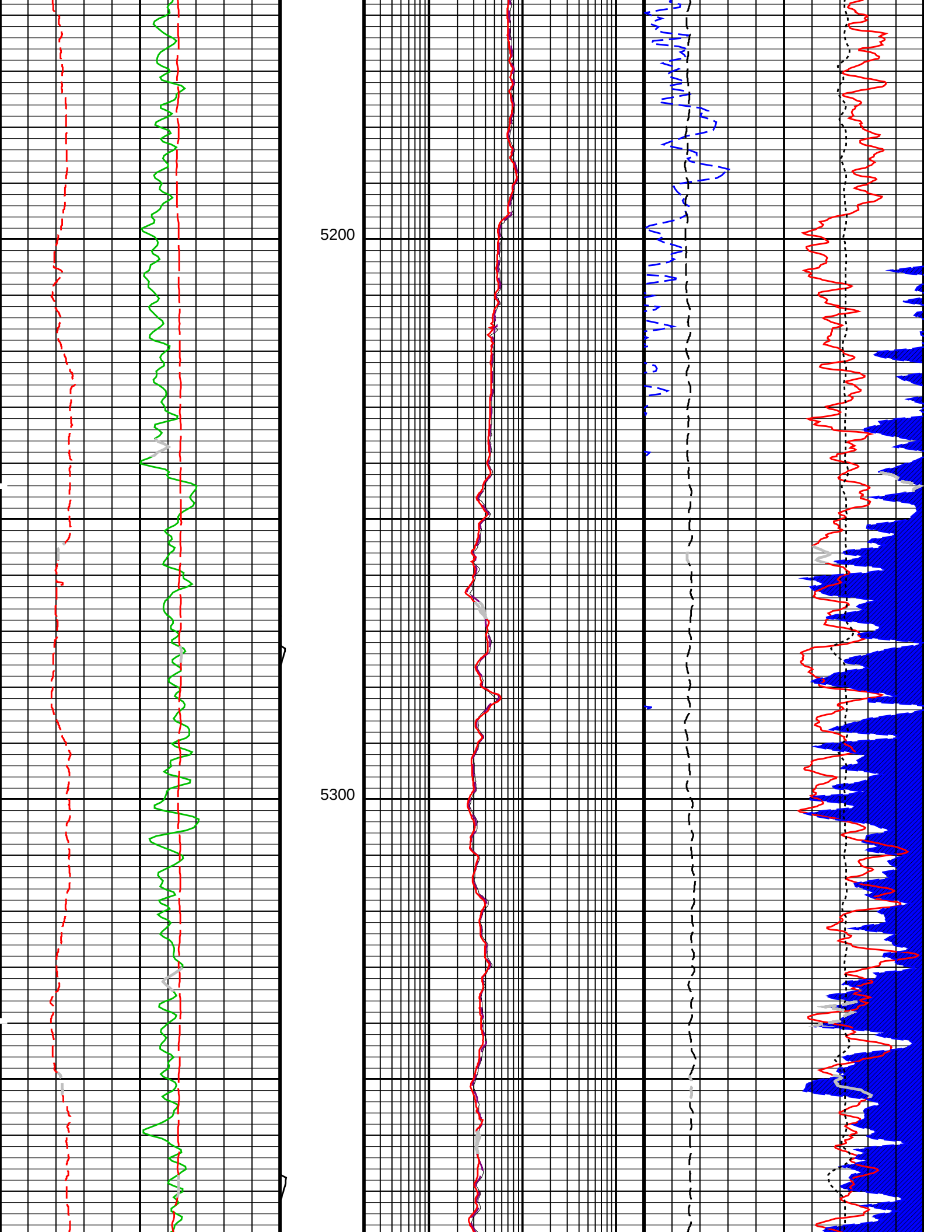
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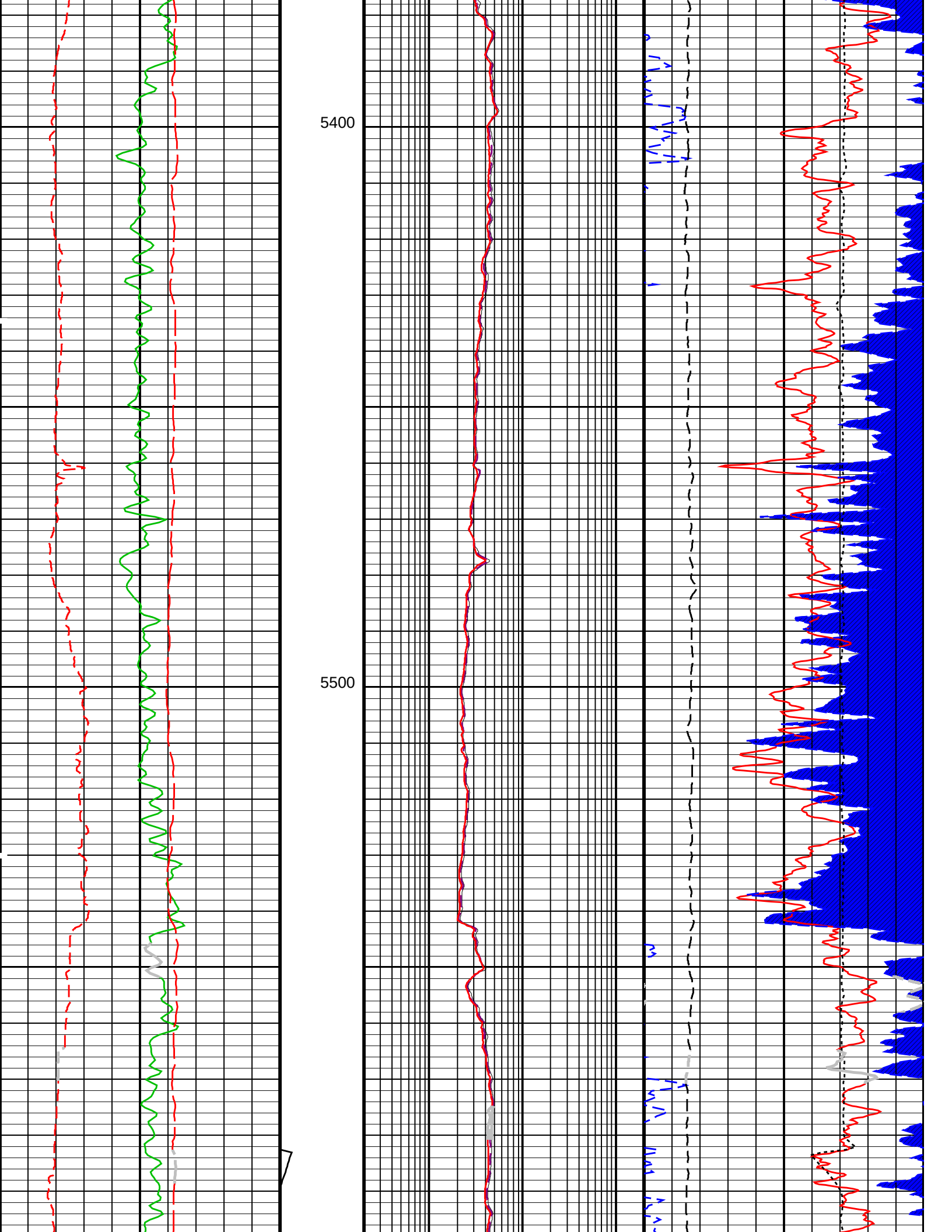
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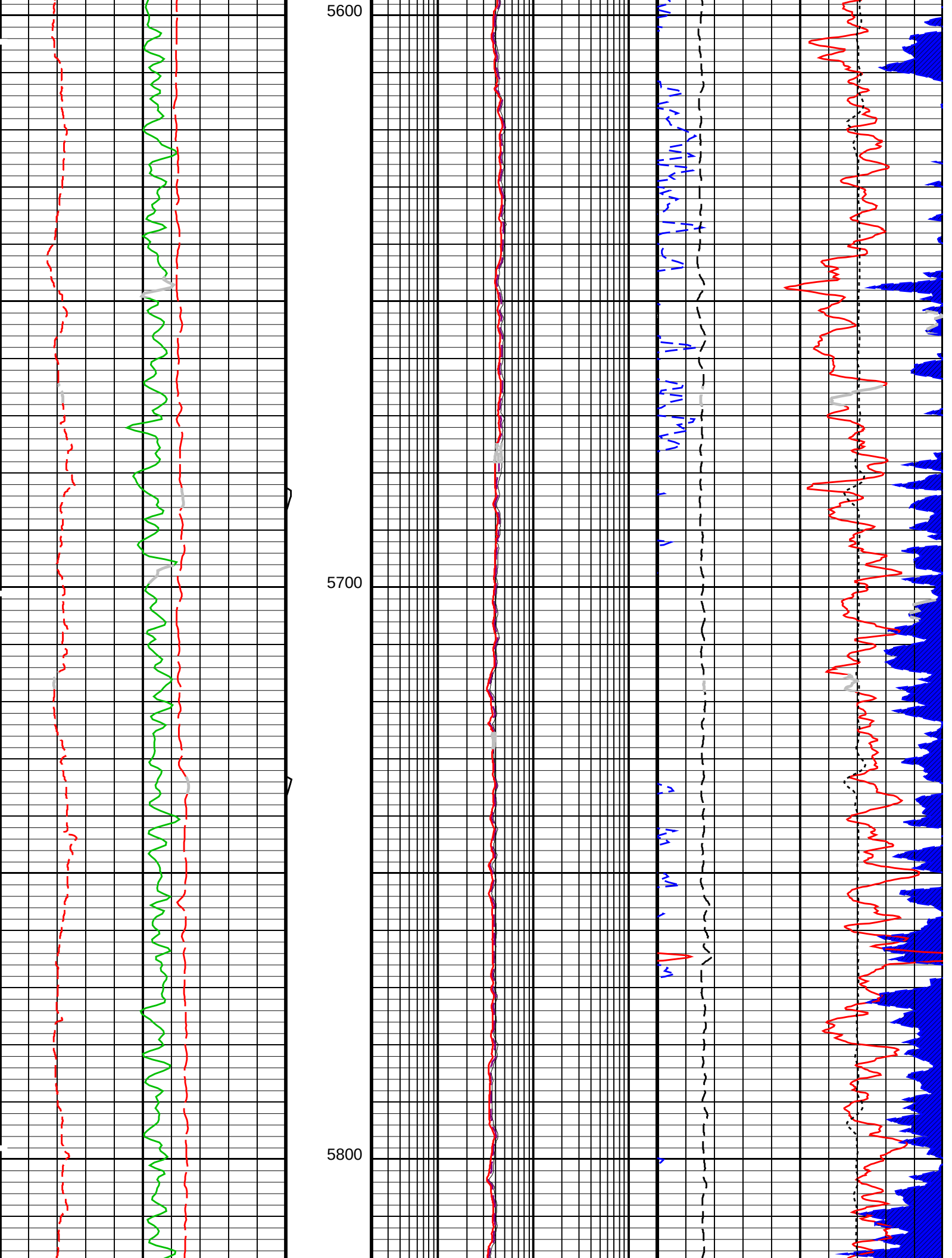
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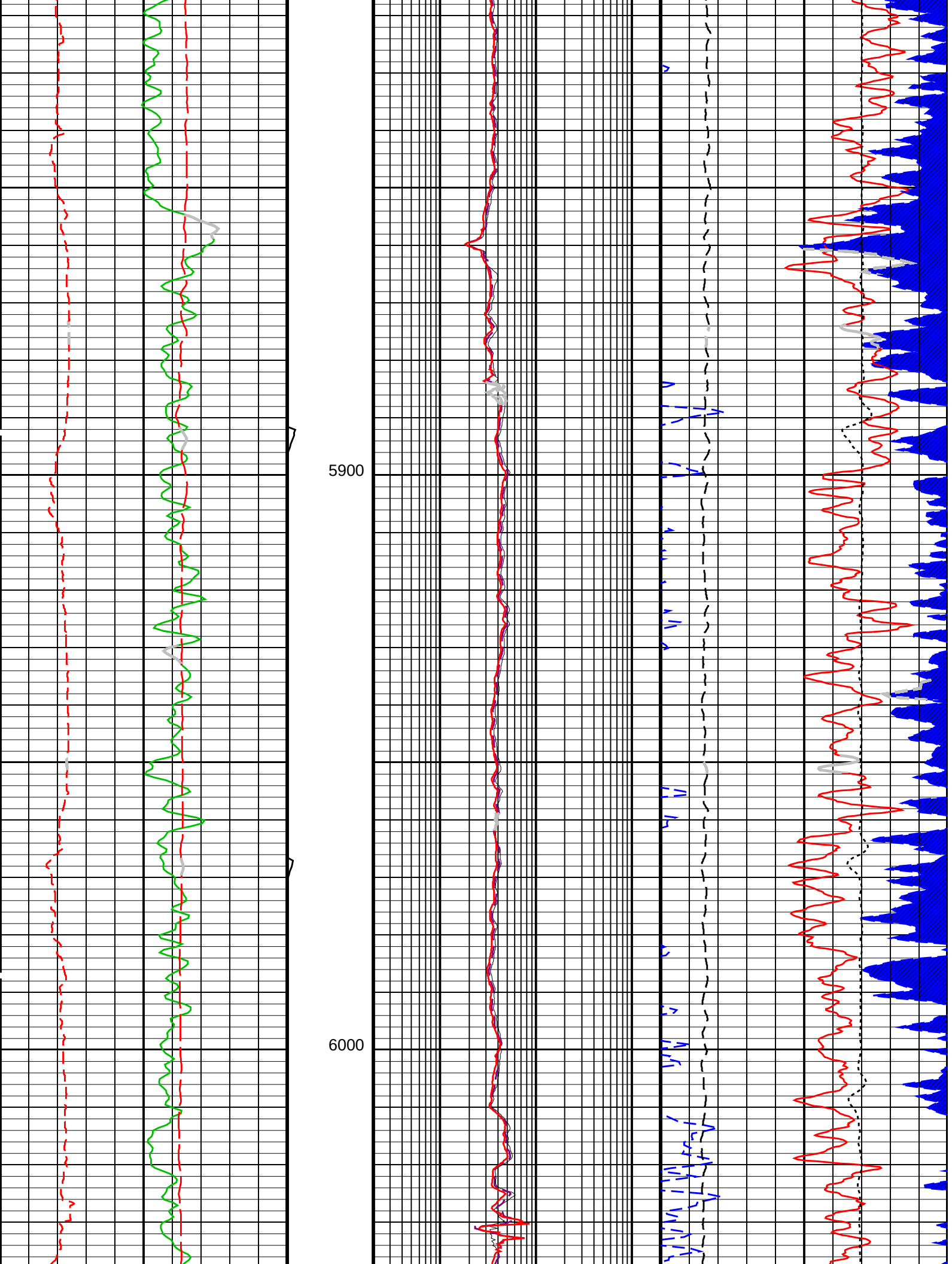
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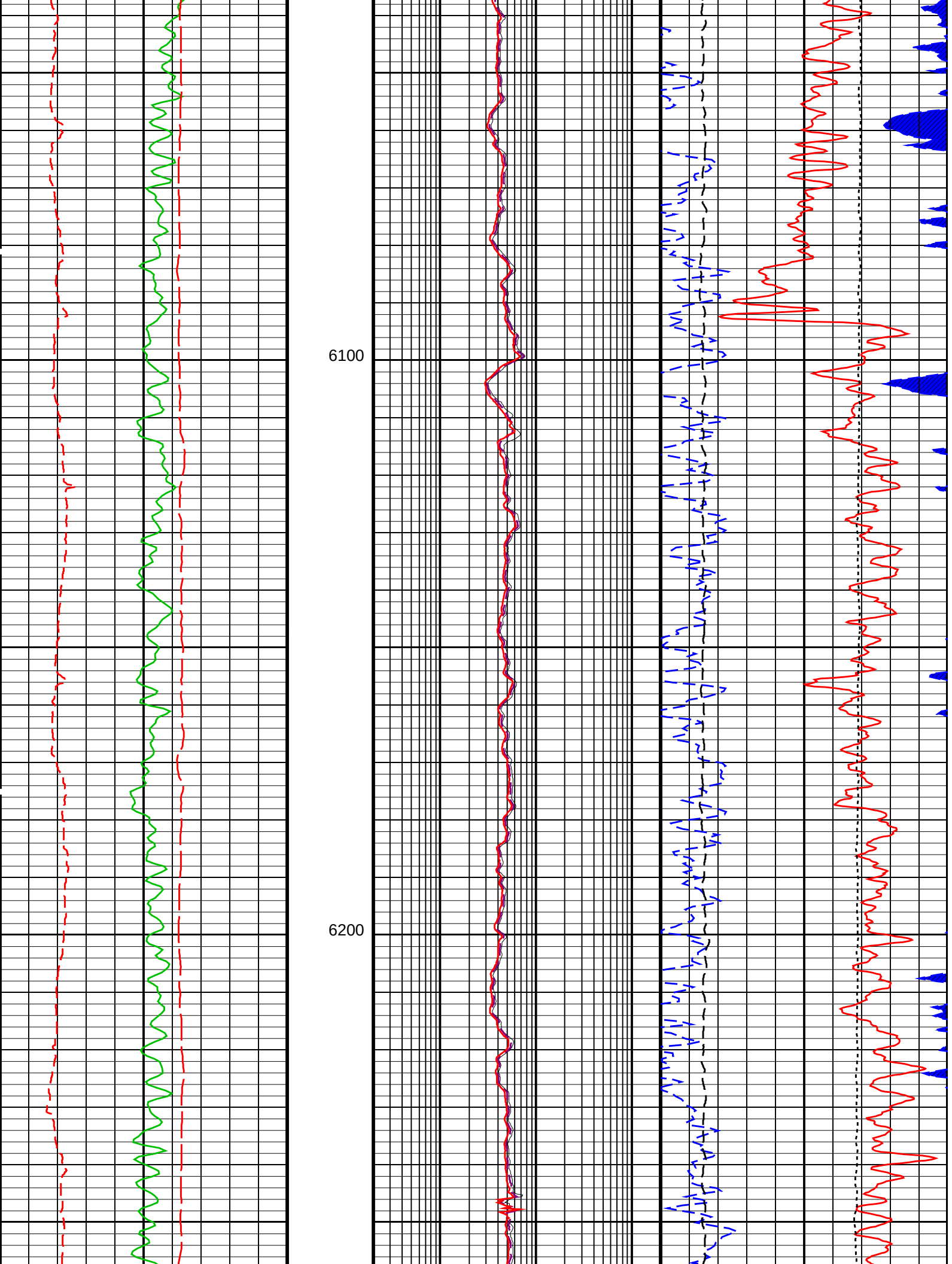
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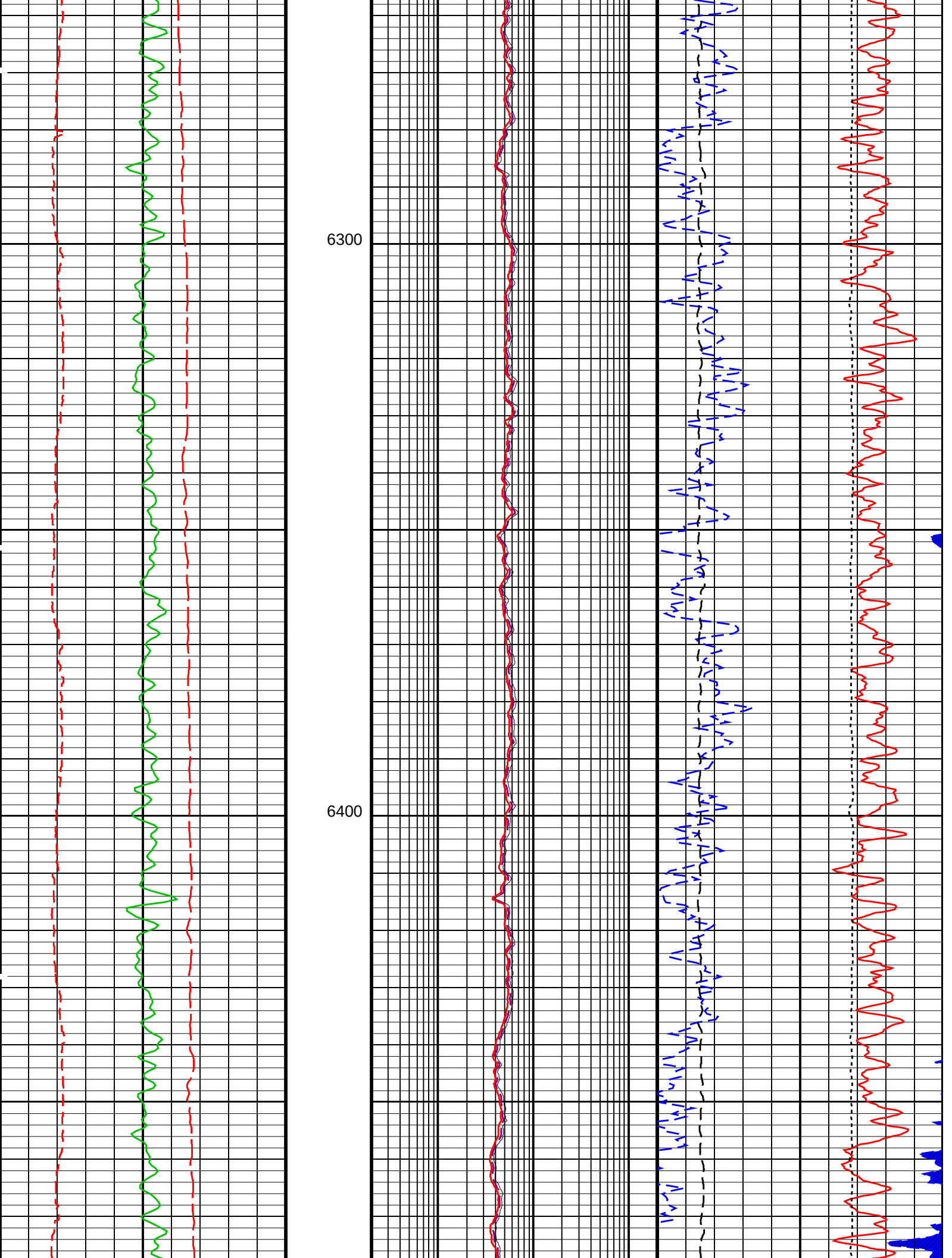
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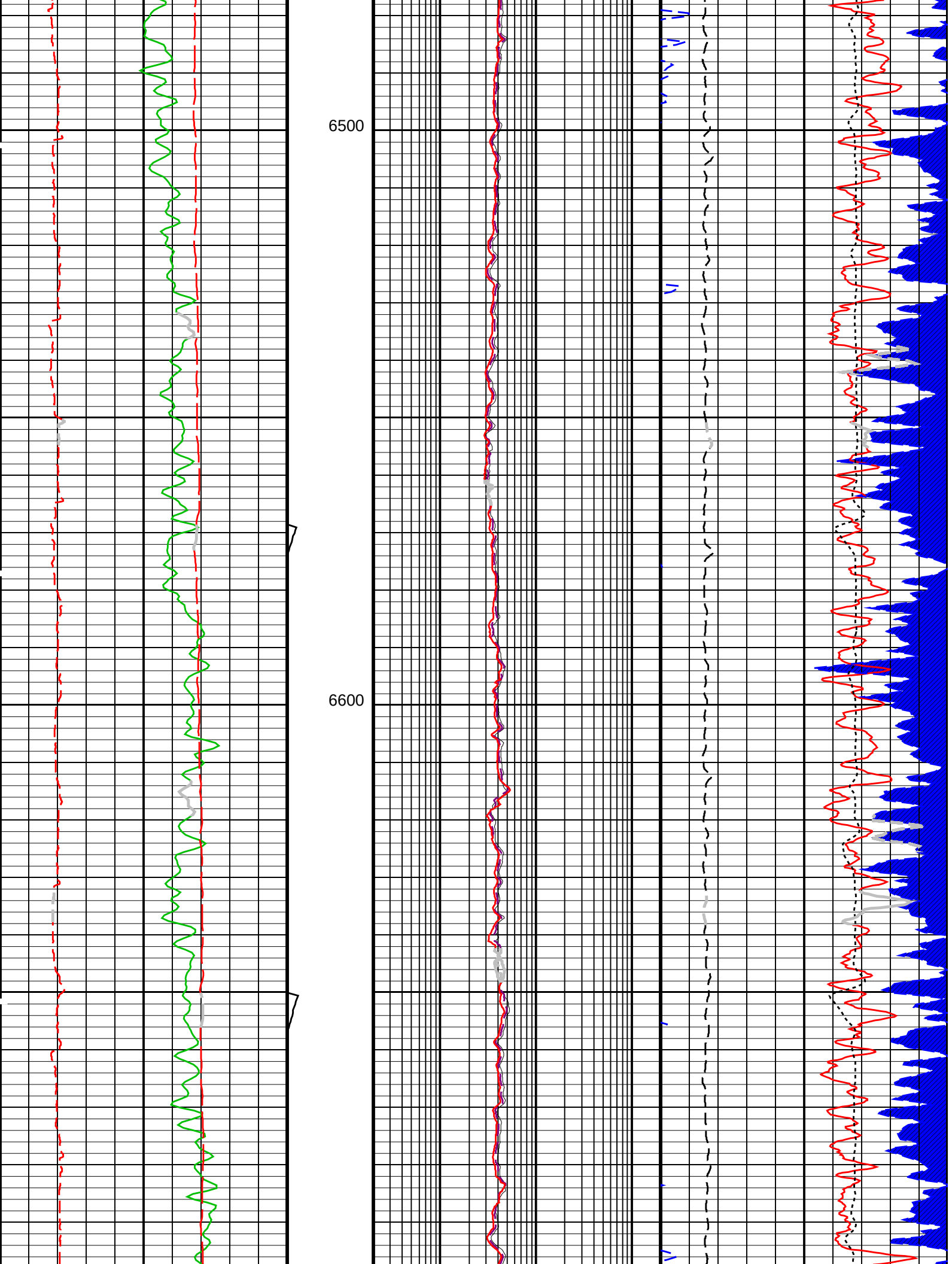
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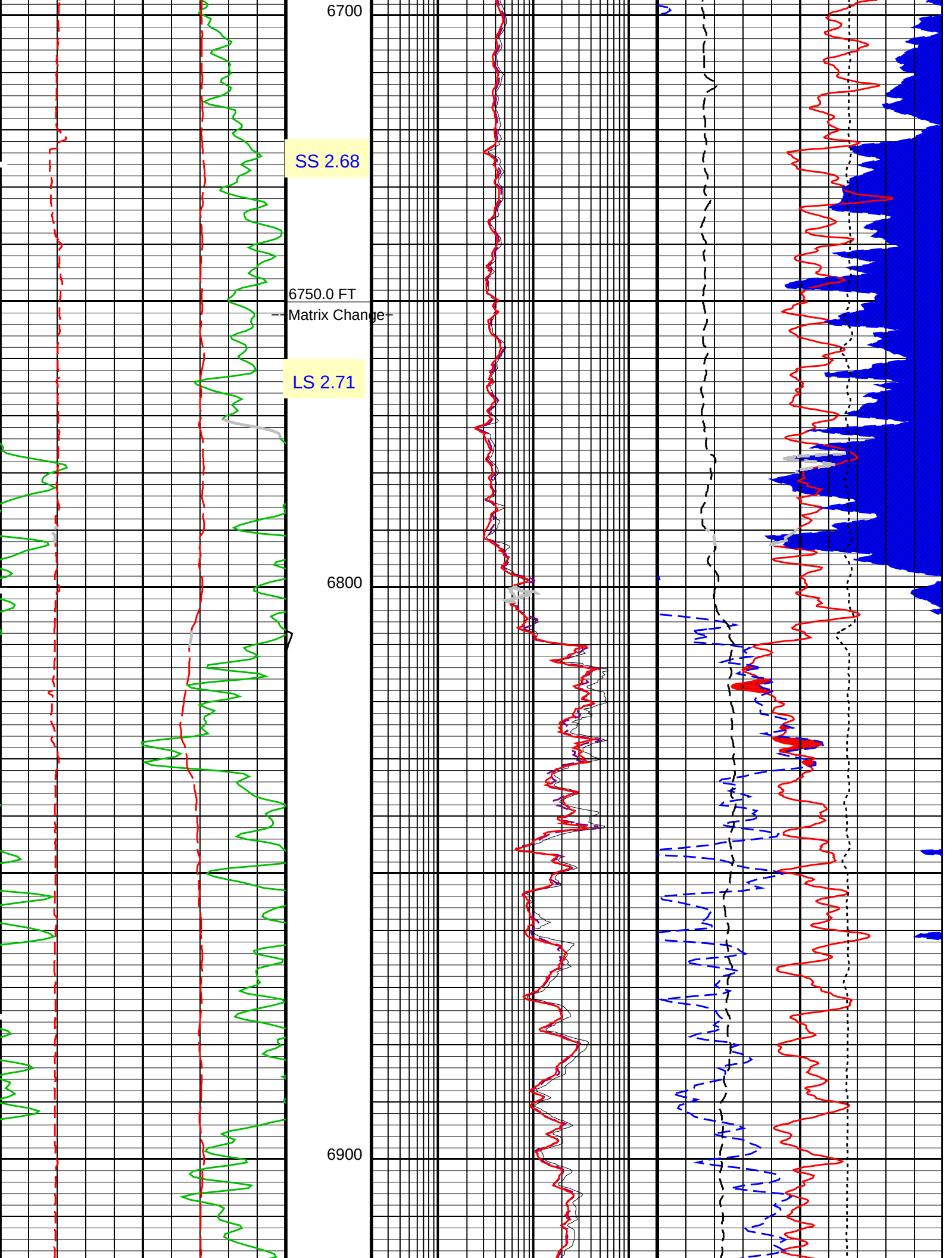
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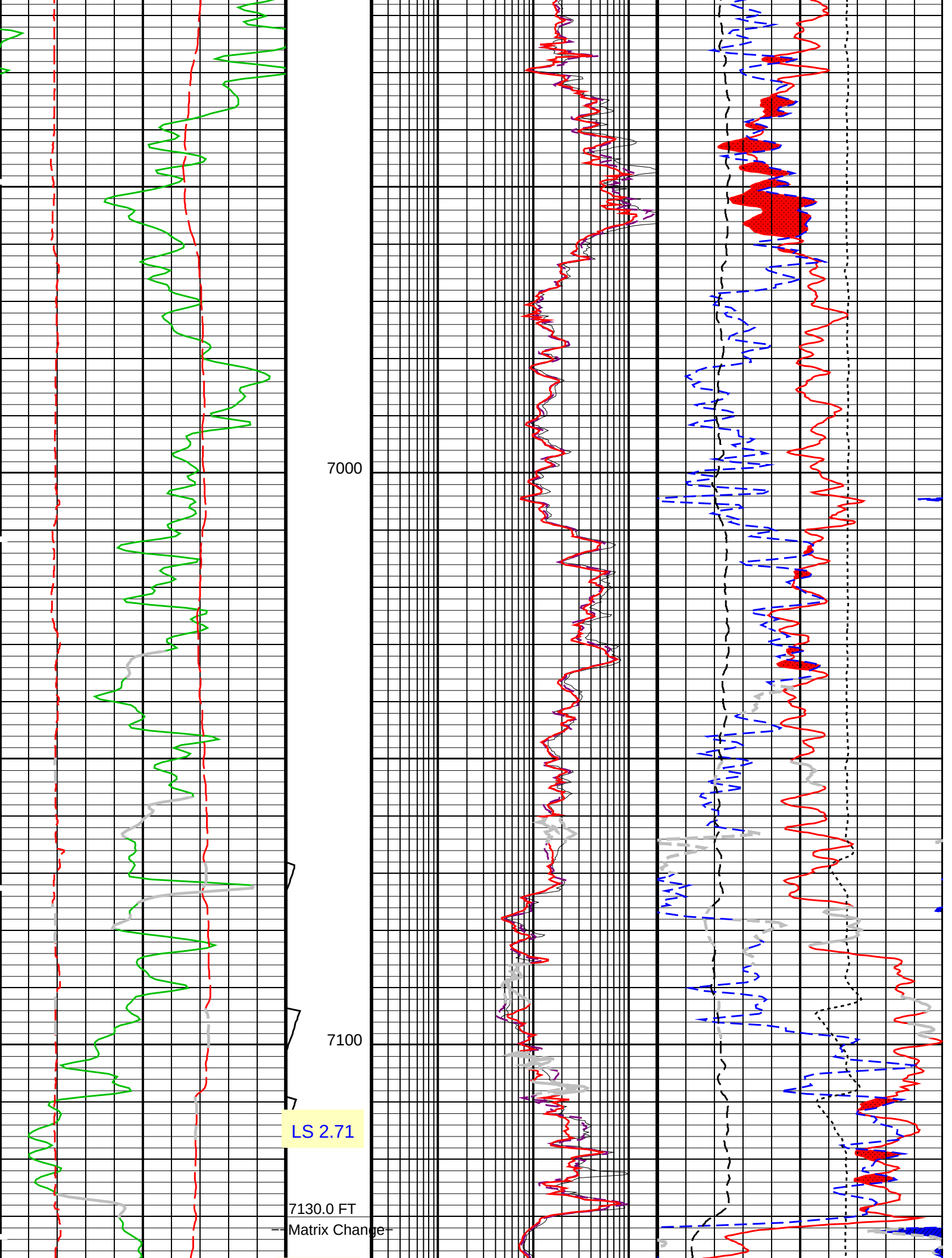
SS 2.68
6750.0 FT
Matrix Change
LS 2.71
6800
6900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7100
LS 2.71
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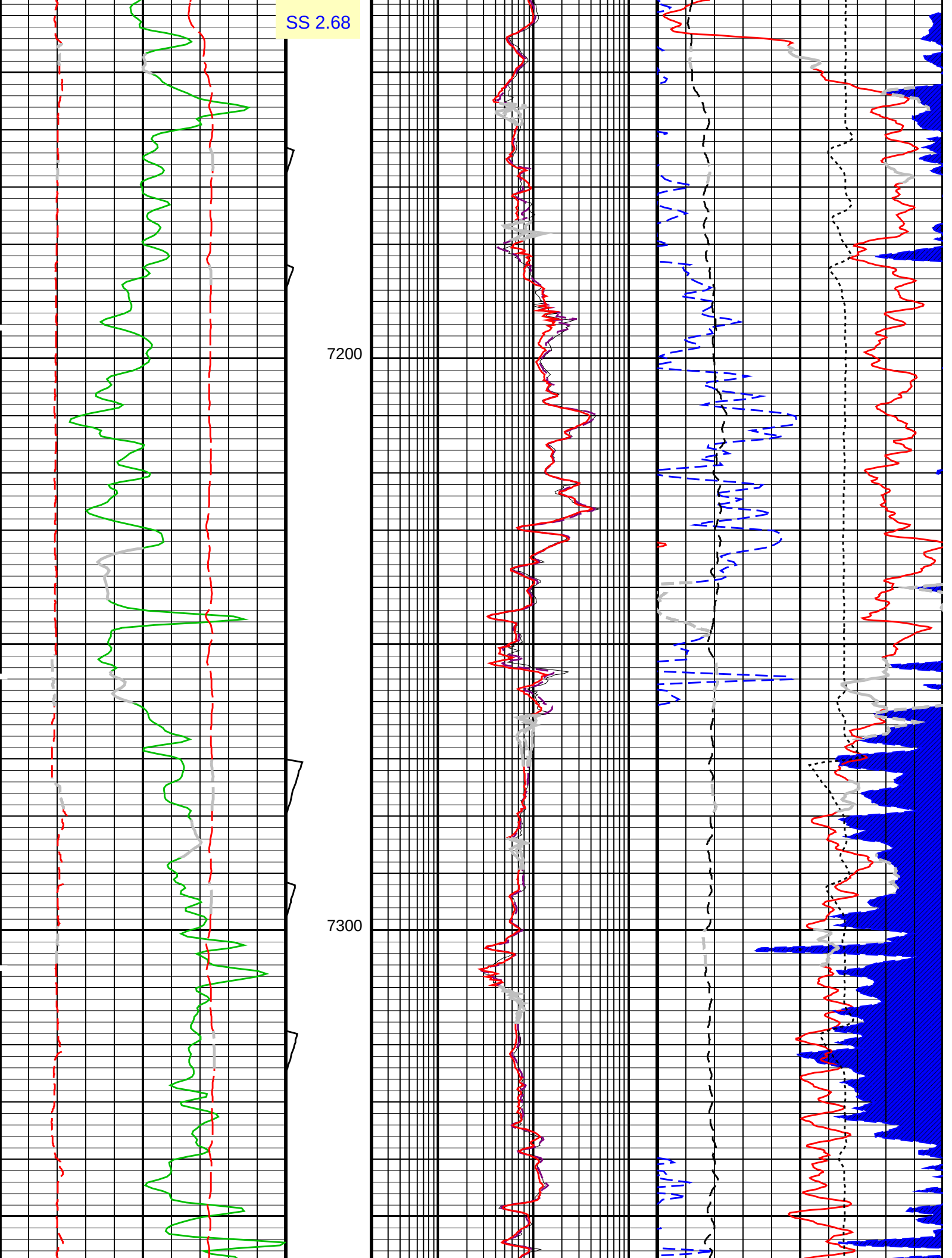
Matrix Change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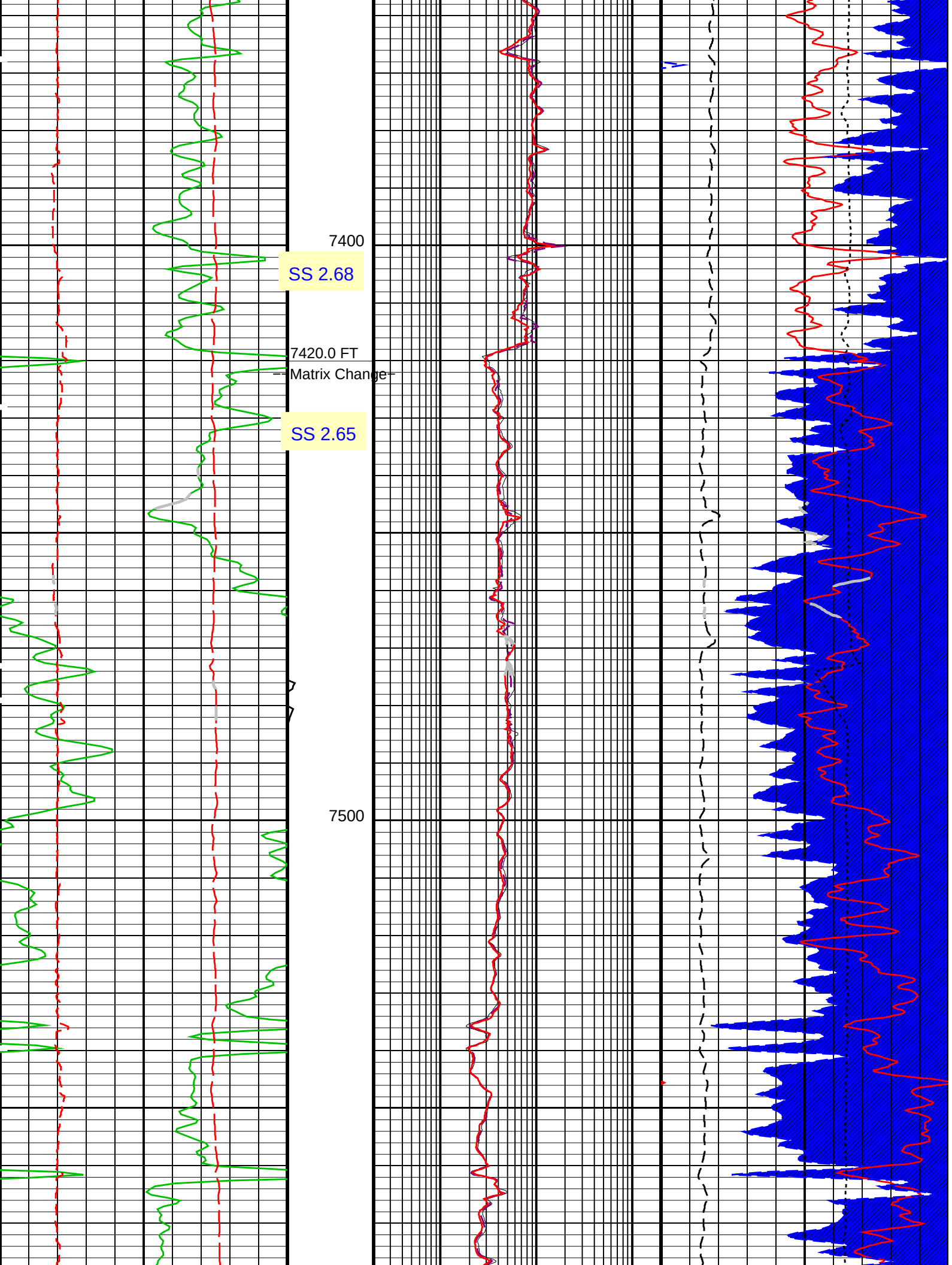
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Matrix Change
SS 2.65
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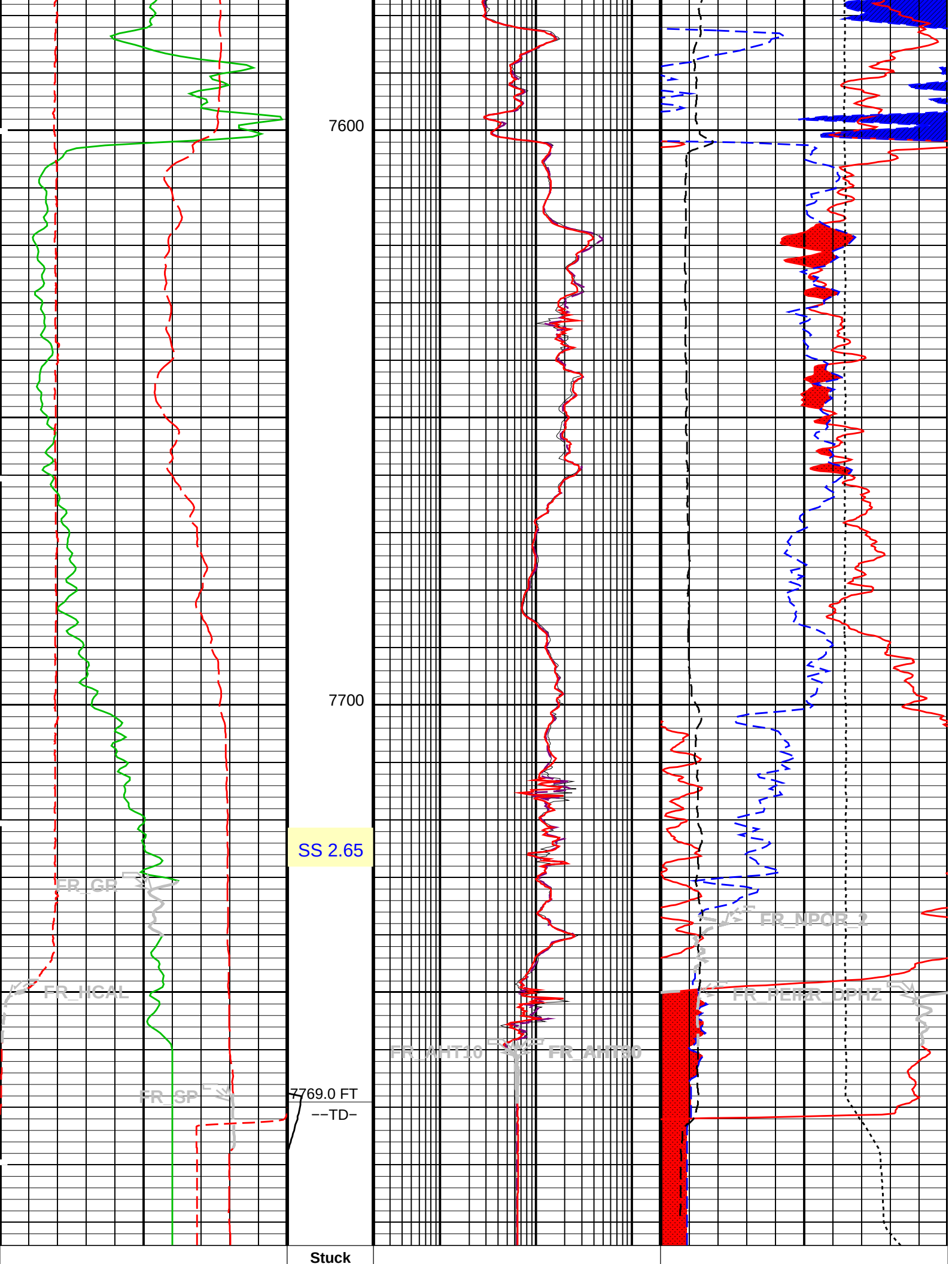
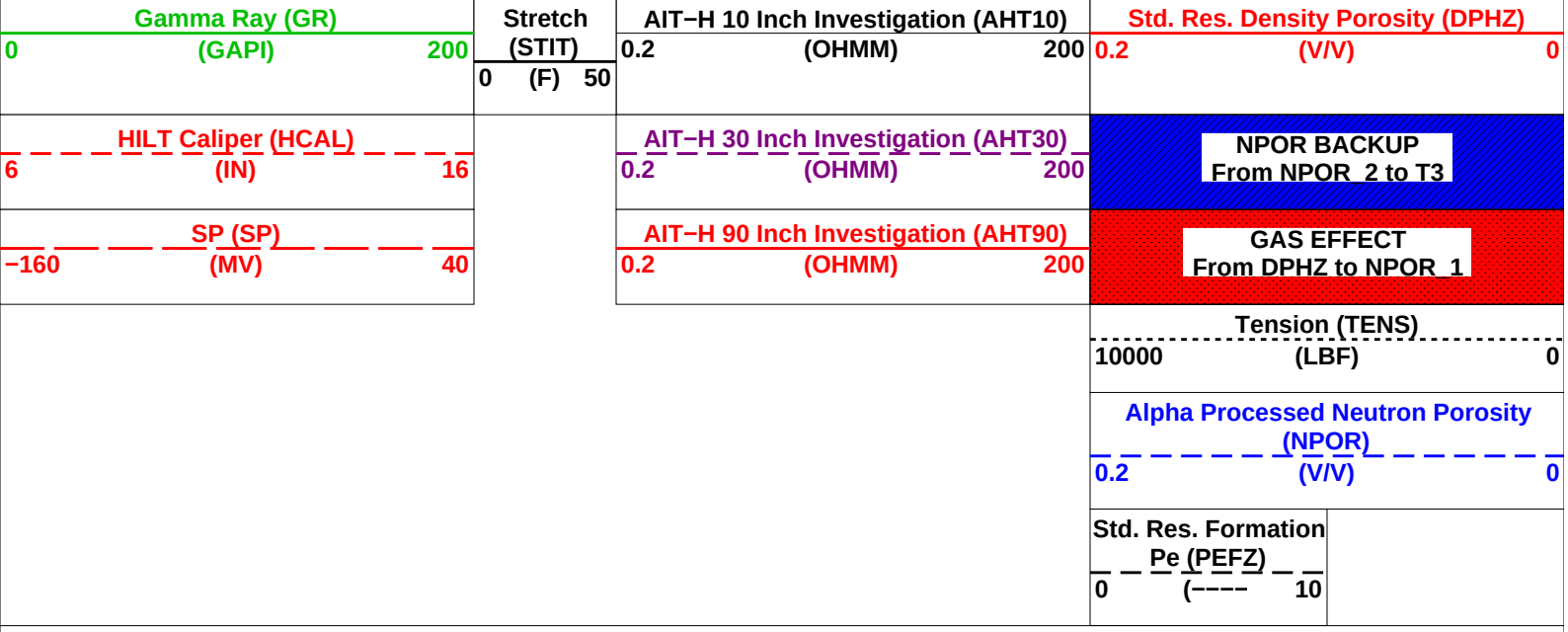

7600
7700
SS 2.65
FR_GR
FR_HCAL
FR_SP
FR_AHT10
FR_AHT30
FR_NPOR_2
FR_PERR_DPHZ
7769.0 FT
--TD-
Stuck



Parameters

DLIS Name	Description	Value	
	HAIT−H: Array Induction Tool − H		
AHBHM	Array Induction Borehole Correction Mode	2_ComputeStandoff	
AHBHV	Array Induction Borehole Correction Code Version Number	900	
AHBLM	Array Induction Basic Logs Mode	6_One_Two_and_Four	
AHBLV	Array Induction Basic Logs Code Version Number	223	
AHCDE	Array Induction Casing Detection Enable	Yes	
AHCEN	Array Induction Tool Centering Flag (in Borehole)	Eccentered	
AHFRSV	Array Induction Response Set Version for Four ft Resolution	41.70.24.20	
AHMRF	Array Induction Mud Resistivity Factor	1	
AHORSV	Array Induction Response Set Version for One ft Resolution	41.70.24.20	
AHRFV	Array Induction Radial Profiling Code Version Number	701	
AHRPV	Array Induction Radial Parametrization Code Version Number	232	
AHSTA	Array Induction Tool Standoff	0.125	IN
AHTRSV	Array Induction Response Set Version for Two ft Resolution	41.70.24.20	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	210	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	68	DEGF
SPNV	SP Next Value	0	MV
	HILTB−FTB: High resolution Integrated Logging Tool−DTS		
BHFL	Borehole Fluid Type	WATER	
BHFL_TLD	HILT Nuclear Mud Base	WATER	
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	210	DEGF
BSCO	Borehole Salinity Correction Option	NO	
CCCO	Casing & Cement Thickness Correction Option	NO	
DHC	Density Hole Correction	BS	
FD	Fluid Density	1	G/C3
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
FSAL	Formation Salinity	−50000	PPM
FSCO	Formation Salinity Correction Option	NO	
GCLF	Germany Coal−like Formation Option	NO	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
HSCO	Hole Size Correction Option	YES	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
MCCO	Mud Cake Correction Option	NO	
MCOR	Mud Correction	NATU	
MDEN	Matrix Density	2.68	G/C3
MWCO	Mud Weight Correction Option	NO	

MWCO	Mud Weight Correction Option	NO	
NAAC	HRDD APS Activation Correction	OFF	
NMT	HILT Nuclear Mud Type	NOBARITE	
NPRM	HRDD Processing Mode	StdRes	
NSAR	HRDD Depth Sampling Rate	1	IN
PTCO	Pressure/Temperature Correction Option	NO	
SDAT	Standoff Data Source	SOCN	
SHT	Surface Hole Temperature	68	DEGF
SOCN	Standoff Distance	0.125	IN
SOCO	Standoff Correction Option	YES	
	FEQL: Formation Evaluation Quick Look		
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
	HOLEV: Integrated Hole/Cement Volume		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	210	DEGF
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	68	DEGF
	PERT: Preliminary Evaluation − Real Time		
BHS	Borehole Status	OPEN	
BHT	Bottom Hole Temperature (used in calculations)	210	DEGF
FEXP	Form Factor Exponent	2	
FNUM	Form Factor Numerator	1	
GCSE	Generalized Caliper Selection	HCAL	
GDEV	Average Angular Deviation of Borehole from Normal	0	DEG
GGRD	Geothermal Gradient	0.01	DF/F
GRSE	Generalized Mud Resistivity Selection	AITH_RESIST	
GTSE	Generalized Temperature Selection	HSTS_HTEM	
MATR	Rock Matrix for Neutron Porosity Corrections	SANDSTONE	
SHT	Surface Hole Temperature	68	DEGF
	STI: Stuck Tool Indicator		
LBFR	Trigger for MAXIS First Reading Label	TDL	
STKT	STI Stuck Threshold	2.5	FT
TDD	Total Depth − Driller	7769.00	FT
TDL	Total Depth − Logger	7769.00	FT
	System and Miscellaneous		
BS	Bit Size	7.875	IN
BSAL	Borehole Salinity	−50000.00	PPM
CSIZ	Current Casing Size	8.625	IN
CWEI	Casing Weight	24.00	LB/F
DFD	Drilling Fluid Density	9.20	LB/G
DORL	Depth Offset for Repeat Analysis	0.0	FT
FLEV	Fluid Level	−50000.00	FT
MST	Mud Sample Temperature	185.00	DEGF
RMFS	Resistivity of Mud Filtrate Sample	1.0125	OHMM
TD	Total Depth	7769	FT

Format: COMBO **Vertical Scale: 5" per 100'** **Graphics File Created: 09−Jun−2008 13:22**

OP System Version: 15C0−309

MCM

HAIT−H	15C0−309	HILTB−FTB	15C0−309
GPIT−C	15C0−309	DTC−H	15C0−309

Output DLIS Files

DEFAULT	AIT_TLD_MCFL_CNL_009LUP	FN:8	PRODUCER	09−Jun−2008 13:22

Company: **Orr Energy, LLC**

Schlumberger

Well: **Lakes 31−22D**
Field: **LaPoudre South**
County: **Weld**
State: **Colorado**

Platform Express
Triple Combo