HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY FIELD PRINT

COMPANY	KERR-MCGEE OIL & GAS ONSHORE LP
WELL	CANNON 22-3
FIELD	WATTENBERG
COUNTY	WELD
STATE	CO

COMPANY KERR-MCGEE OIL & GAS ONSHORE LP
WELL CANNON 22-3
FIELD WATTENBERG
COUNTY WELD **STATE** CO

API No. 05123325590000

Location SURFACE: 2006' FFNL & 631' FWL FWNW
BOTTOM: 2408' FNL & 1368' FWL SENW

LAT: 40.169143°
LONG: -104.656954°

Sect. 3 Twp. 2N Rge. 65W

Other Services:

Permanent Datum	GL	Elev. 4847.0 ft	Elev.: K.B.	4861.0 ft
Log measured from	KB	, 14.0 ft above perm. Datum	D.F.	4860.0 ft
Drilling measured from	KB		G.L.	4847.0 ft

Date		12-Jul-11				
Run No.		ONE				
Depth - Driller		8086.00 ft				
Depth - Logger		8030.0 ft				
Bottom - Logged Interval		8021 ft				
Top - Logged Interval		CSG				
Casing - Driller		8.625 in @ 747.0 ft		@		@
Casing - Logger		3525.0 ft				
Bit Size		7.875 in		@		@
Type Fluid in Hole		WATER BASED MUD				
Density	Viscosity	8.4 ppg	26.00 s/qt			
PH	Fluid Loss	26.00 pH	0.0 cptm			
Source of Sample		MUD CELL				
Rm @ Meas. Temperature		0.950 ohmm @ 75.00 degF		@		@
Rmf @ Meas. Temperature		0.80 ohmm @ 75.00 degF		@		@
Rmc @ Meas. Temperature		0.867 ohmm @ 75.00 degF		@		@
Source Rmf	Rmc	CHART	CHART			
Rm @ BHT		0.37 ohmm @ 205.0 degF		@		@
Time Since Circulation		10.0 hr				
Time on Bottom		12-Jul-11 11:38				
Max. Rec. Temperature		205.0 degF @ 8035.0 ft		@		@
Equipment	Location	11454566	BRIGHTON			
Recorded By		F. LODER				
Witnessed By		J. ADAMS		W. TEKELL		

Fold here

Service Ticket No.: 8311650	API Serial No.: 05123325590000	PGM Version: WL INSITE R3.2.5 (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
OEN	SACRt 714-718	N/A	FREE	N/A

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	11577722	Serial No.		Serial No.	M43P31N34	Serial No.	11581734
Model No.	S4TG	Model No.		Model No.	SSDL	Model No.	SDSN
Diameter	2.35"	No. of Cent.		Diameter	2.35"	Diameter	2.35"
Detector Model No.	2G8BICORN	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	Cs137	Source Type	Am241Be
Length	8"	LSA [Y/N]		Serial No.	5265GW	Serial No.	DSN434
Distance to Source	10'	FWDA [Y/N]		Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL	GAMMA	ACOUSTIC	DENSITY	NEUTRON

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	8030'	3525'	REC	0 API	200 API				20 %	0 %	2.71 g/cc	20 %	0 %	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks: SCH-S4TG-SDSN-SSDL-SACT RAN IN COMBINATION

TENSION PULLS AND BOREHOLE RUGOSITY AFFECT LOG RESPONSE

ANNULAR HOLE VOLUME CALCULATED USING 4.5 INCH PRODUCTION CASING

CREW: M. BURNETT, R. PERSHALL RIG: PATTERSON 189

THANK YOU FOR USING HALLIBURTON ENERGY SERVICES -- BRIGHTON, CO -- 303.825.4346

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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	8.400	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	0.950	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	4.500	in
	SHARED	ST	Surface Temperature	80.0	degF
	SHARED	TD	Total Well Depth	8066.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	S4TG	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	
	S4TG	GROK	Process Gamma Ray?	Yes	
	S4TG	GRSO	Gamma Tool Standoff	0.000	in
	S4TG	GEOK	Process Gamma Ray EVR?	No	
	S4TG	TPOS	Tool Position	Eccentered	
	SDSN	DNOK	Process DSN?	Yes	

SDSN	DNOK	Process DSN?	Yes	
SDSN	DEOK	Process DSN EVR?	No	
SDSN	NLIT	Neutron Lithology	Limestone	
SDSN	DNSO	DSNTool Standoff	0.000	in
SDSN	DNTP	Temperature Correction Type	None	
SDSN	DPRS	DSN Pressure Correction Type	None	
SDSN	SHCO	View More Correction Options	No	
SDSN	UTVD	Use TVD for Gradient Corrections?	No	
SDSN	LHWT	Logging Horizontal Water Tank?	No	
SDSN	UCLA	Classic Neutron Parameter utilized?	No	
SSDL	DNOK	Process Density?	Yes	
SSDL	DNOK	Process Density EVR?	No	
SSDL	CB	Logging Calibration Blocks?	No	
SSDL	SPVT	SDLT Pad Temperature Valid?	Yes	
SSDL	DTWN	Disable temperature warning	No	
SSDL	MLPE	Higher PE Accuracy?	No	
SSDL	DMA	Formation Density Matrix	2.710	g/cc
SSDL	DFL	Formation Density Fluid	1.000	g/cc
SSDL	CLOK	Process Caliper Outputs?	Yes	
SACRT	RTOK	Process ACRt?	Yes	
SACRT	MNSO	Minimum Tool Standoff	1.50	in
SACRT	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
SACRT	TPOS	Tool Position	Free Hanging	
SACRT	RMOP	Rmud Source	Mud Cell	
SACRT	RMIN	Minimum Resistivity for MAP	0.20	ohmm
SACRT	RMIN	Maximum Resistivity for MAP	200.00	ohmm
SACRT	THQY	Threshold Quality	0.50	

BOTTOM

Data: CANNON_22_3\0001 SLIM_TRIPLE\004 12-Jul-11 13:40 Up @8028.3f **Date: 12-Jul-11 14:58:26**

HALLIBURTON

Plot Time: 12-Jul-11 16:45:24
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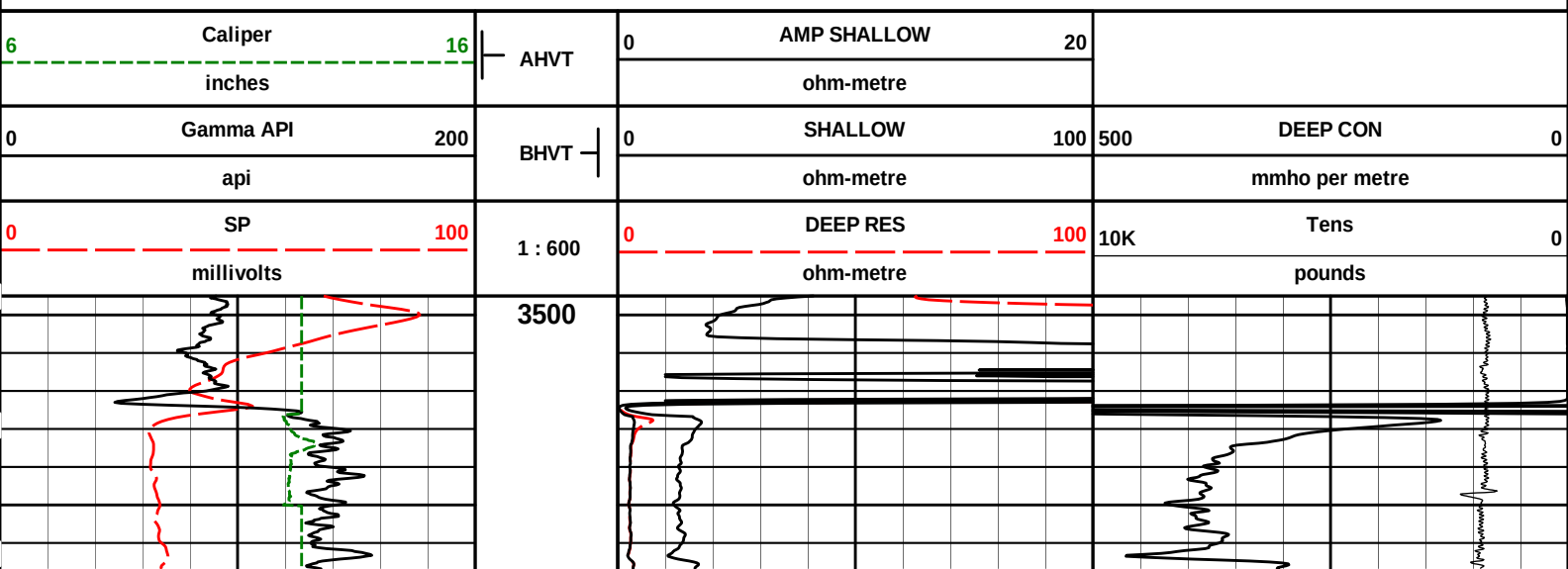
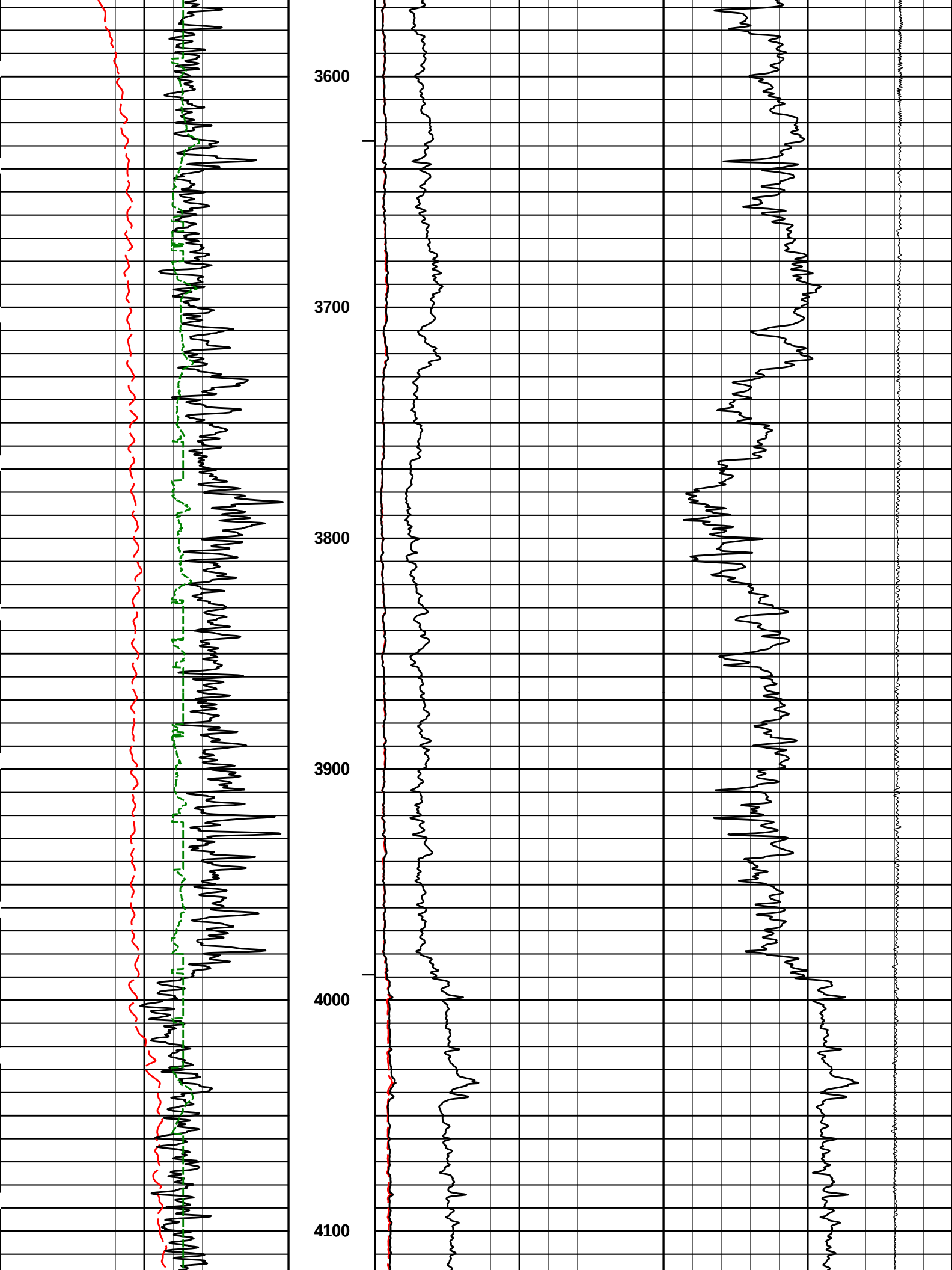
Plot File: \\ACRT\IQ_ACRt_2IN_RM

MAIN PASS 2" = 100'

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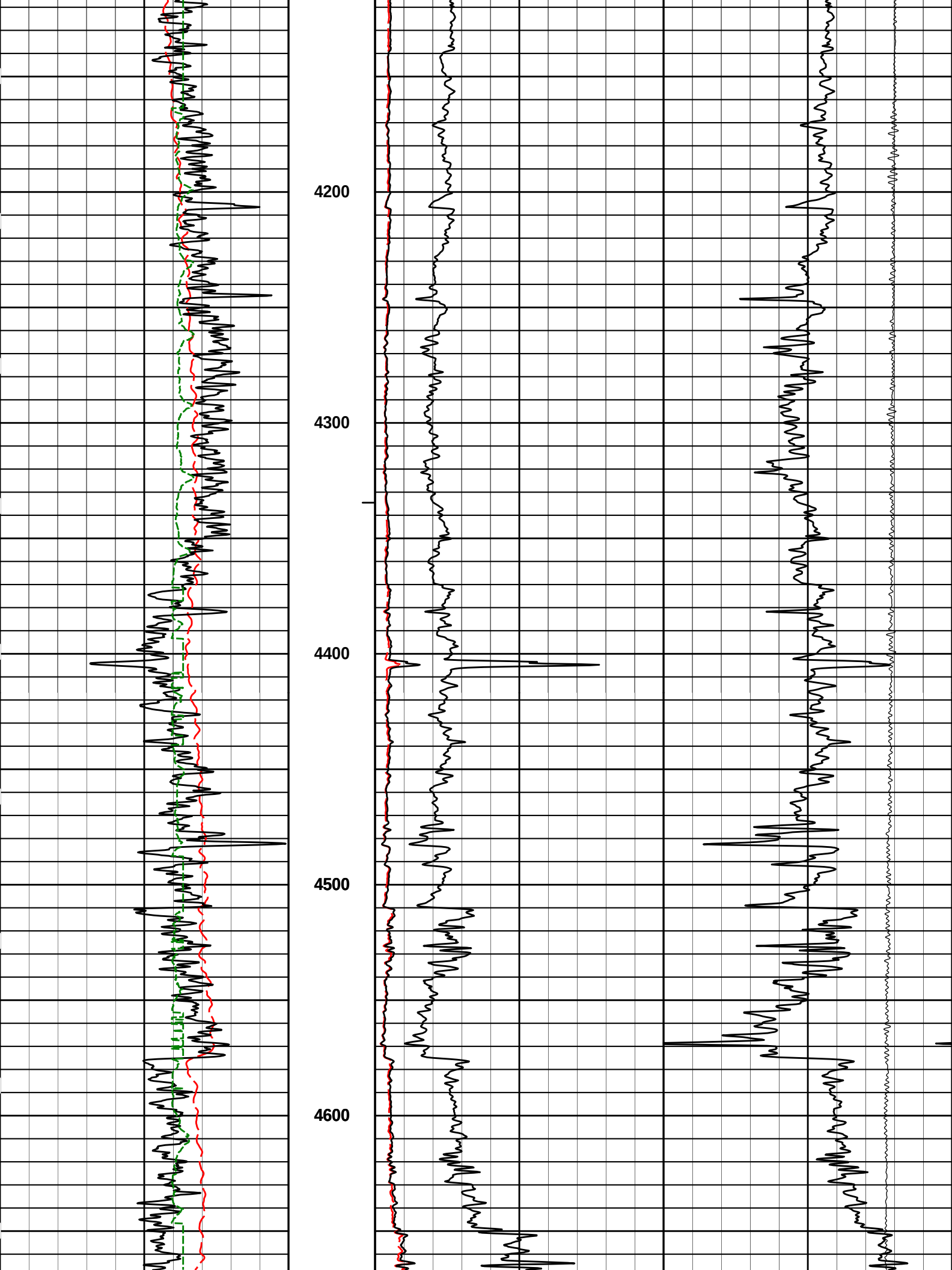
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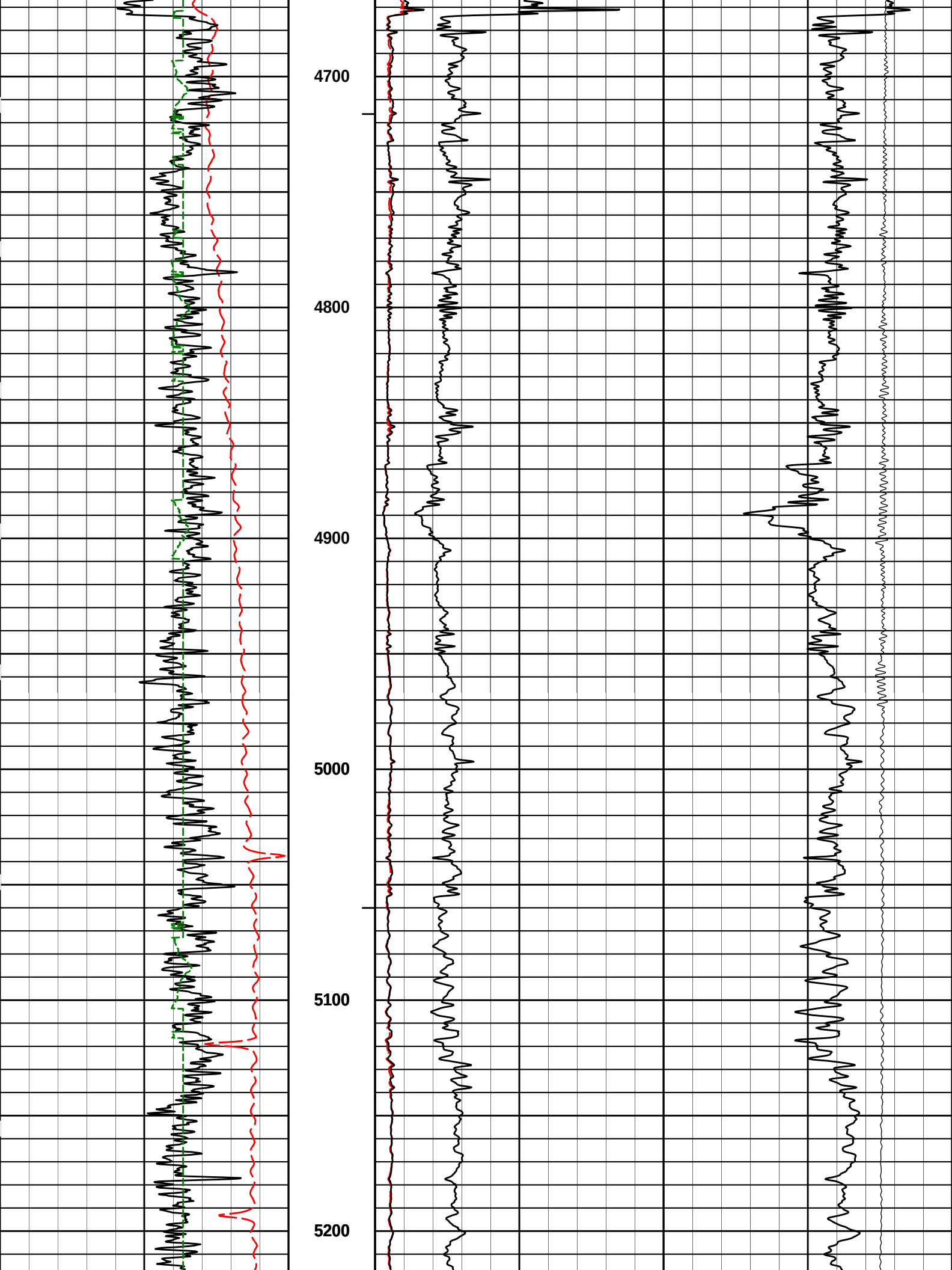
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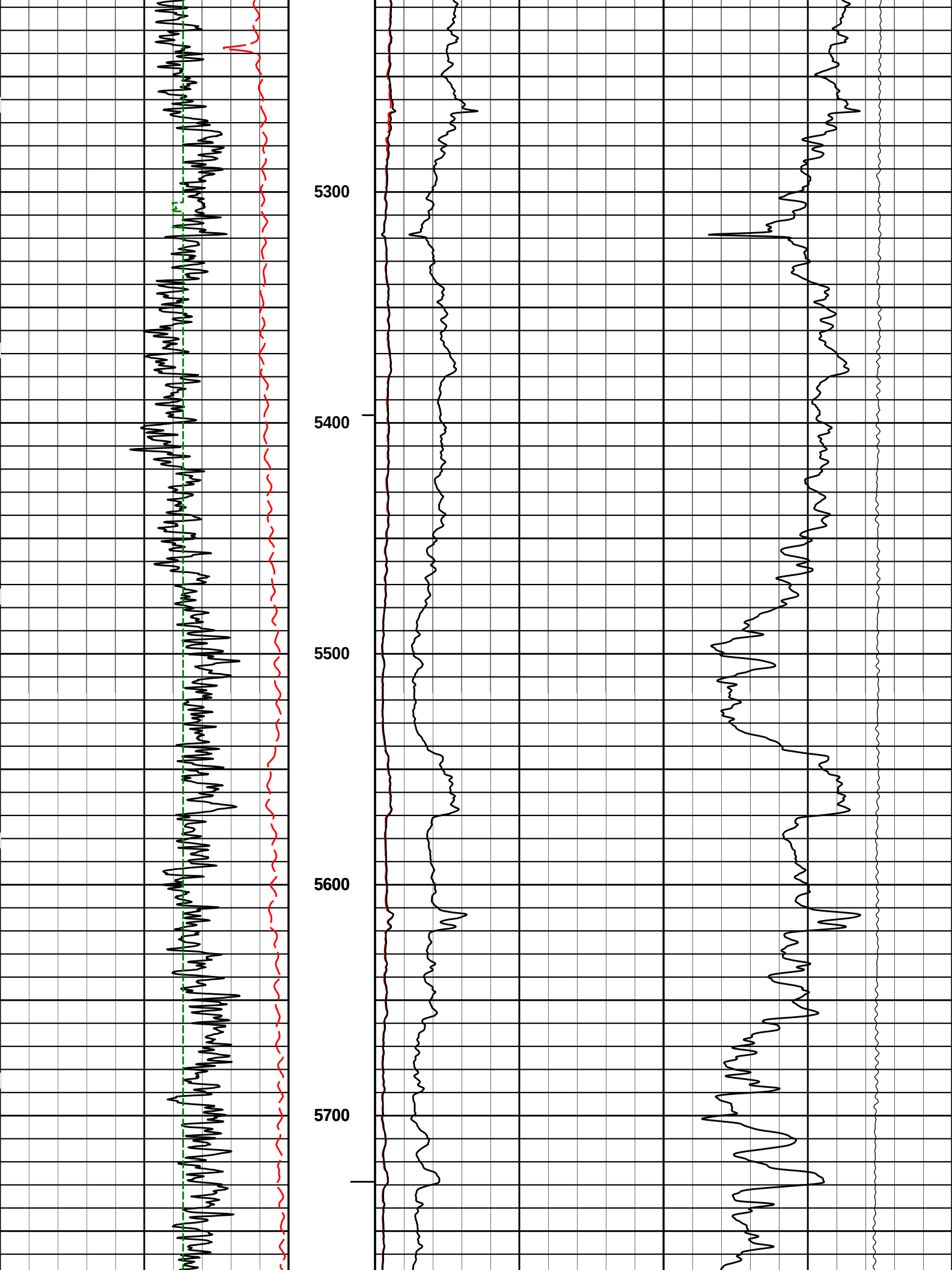
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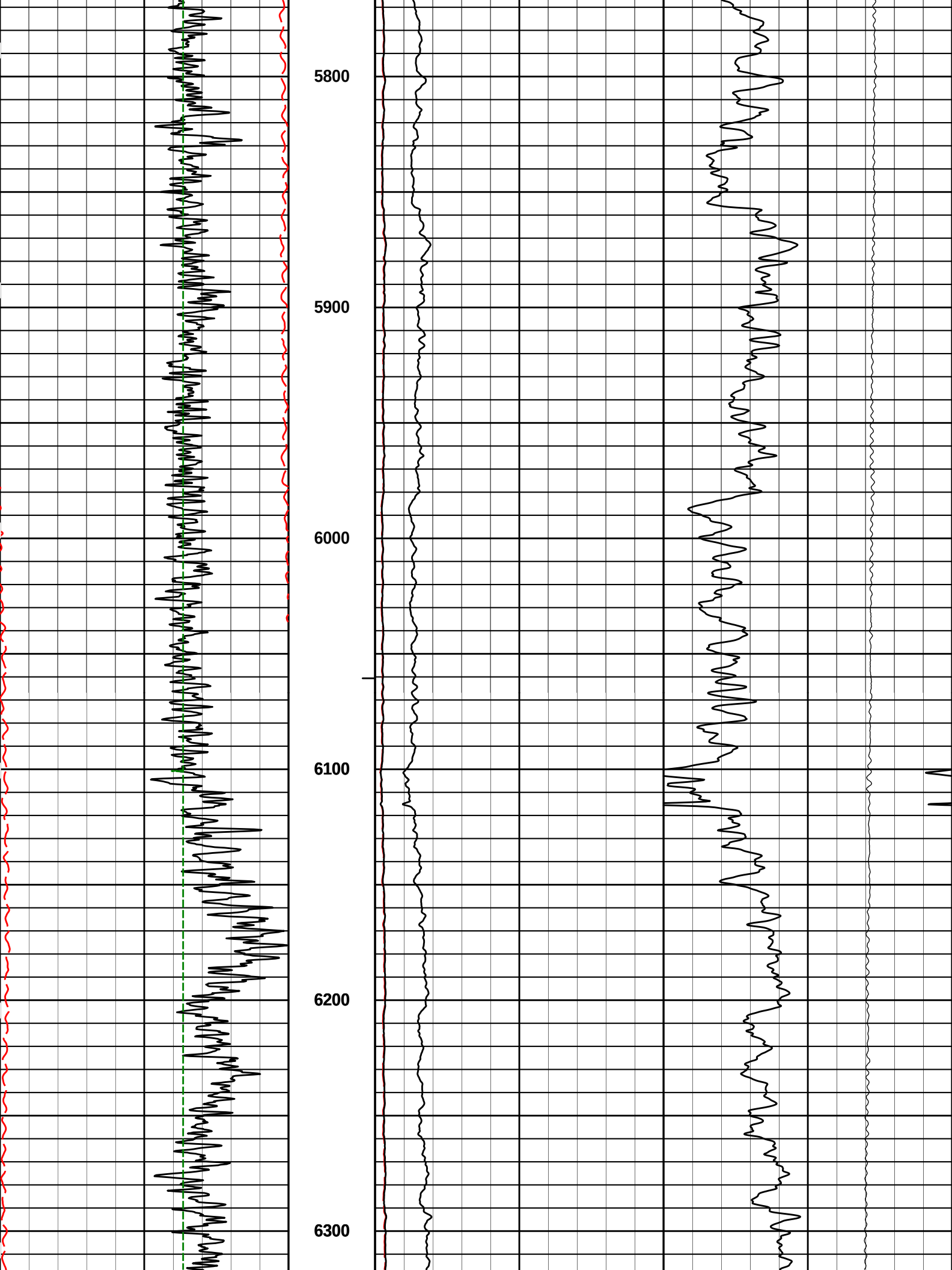
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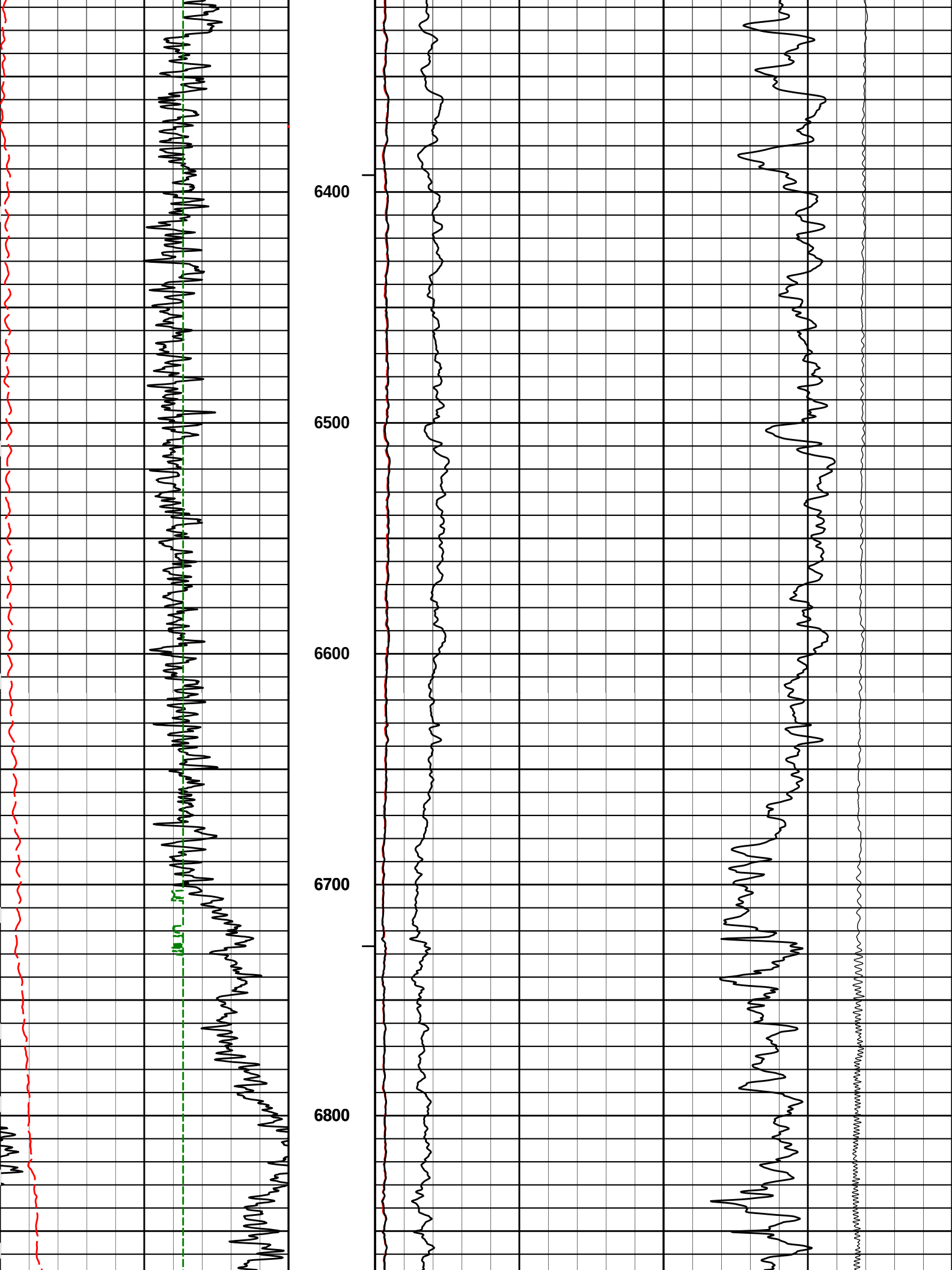
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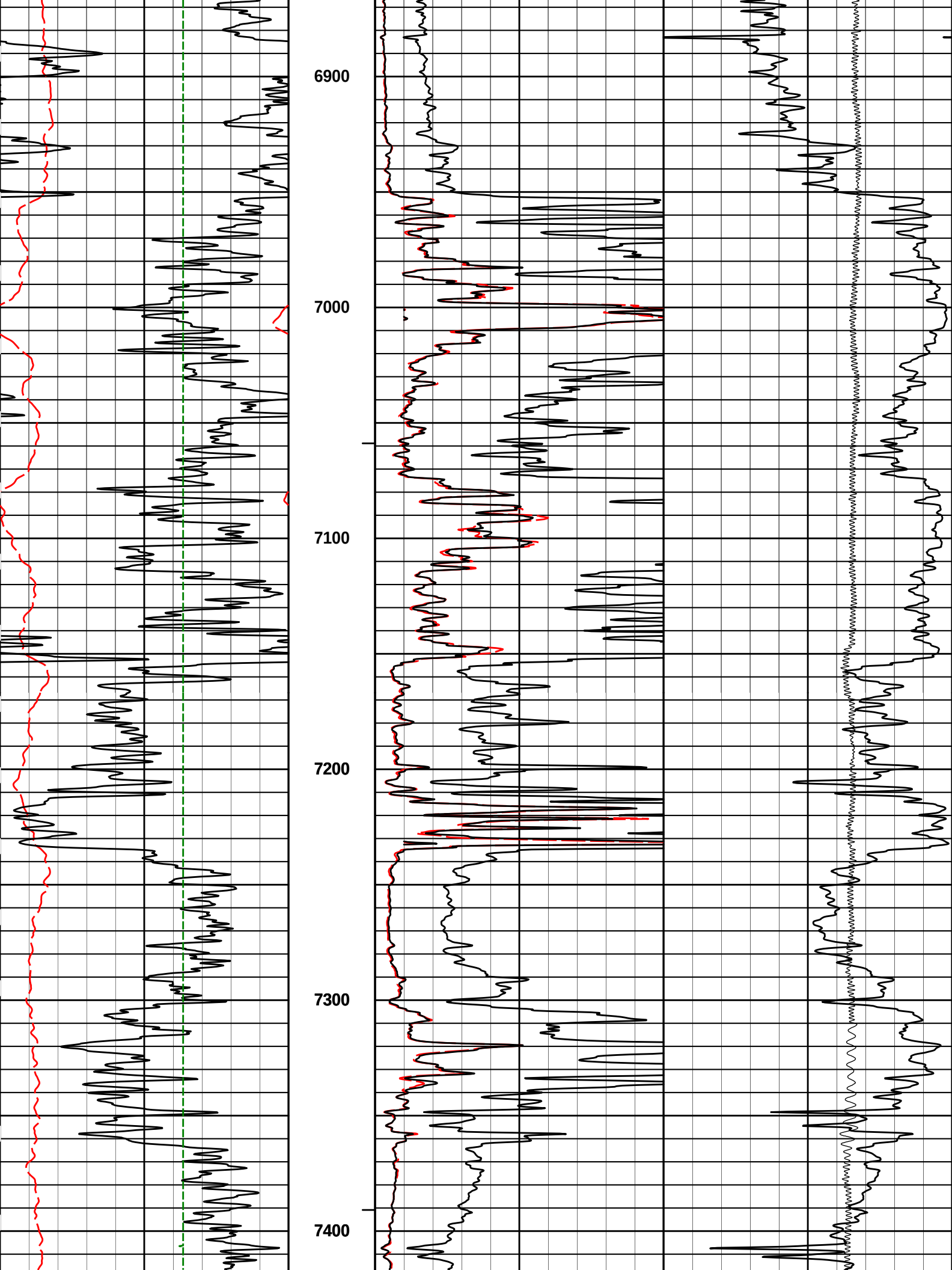
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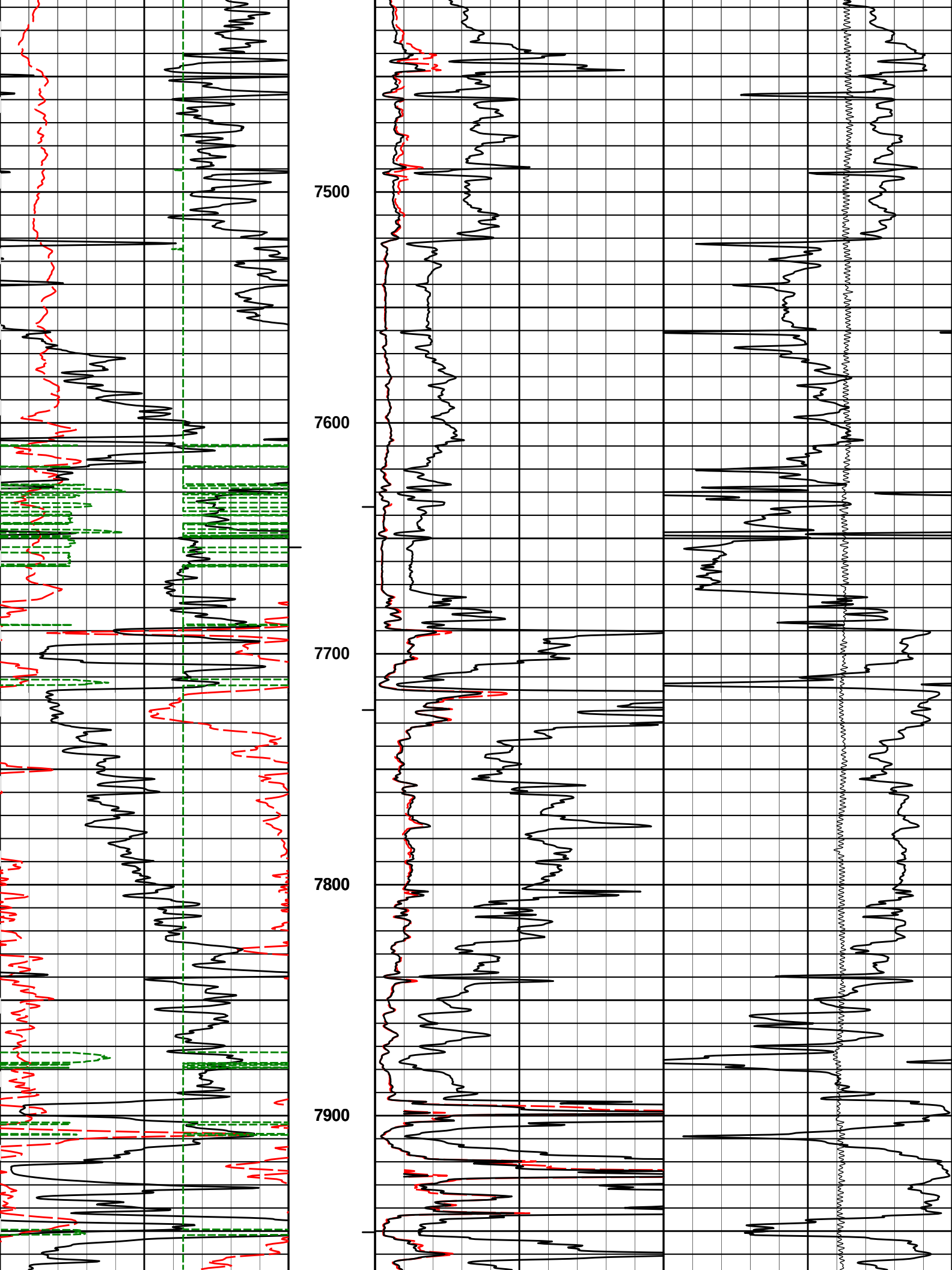
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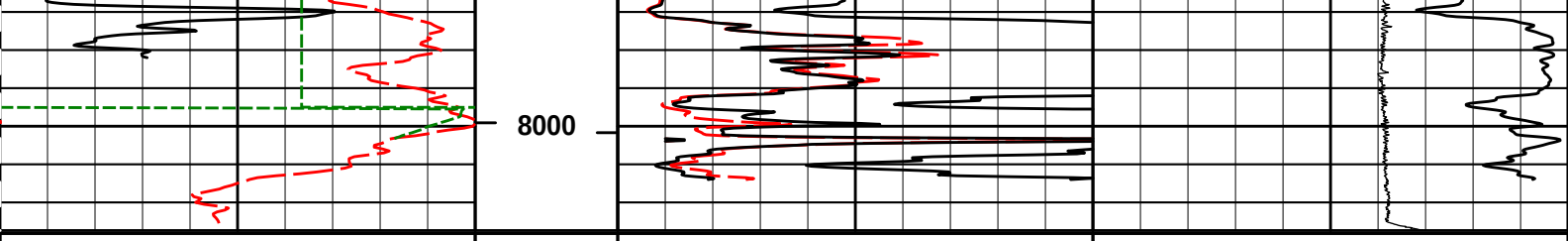

0 SP 100	1 : 600	0 DEEP RES 100	10K Tens 0
millivolts		ohm-metre	pounds
0 Gamma API 200	BHVT	0 SHALLOW 100	500 DEEP CON 0
api		ohm-metre	mmho per metre
6 Caliper 16	AHVT	0 AMP SHALLOW 20	
inches		ohm-metre	

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Plot Time: 12-Jul-11 16:45:43
Plot Range: 3495 ft to 8027.42 ft
Data: {ActiveWell}\Well Based\MAIN*
Plot File: \\ACRT\IQ_ACRt_2IN_RM

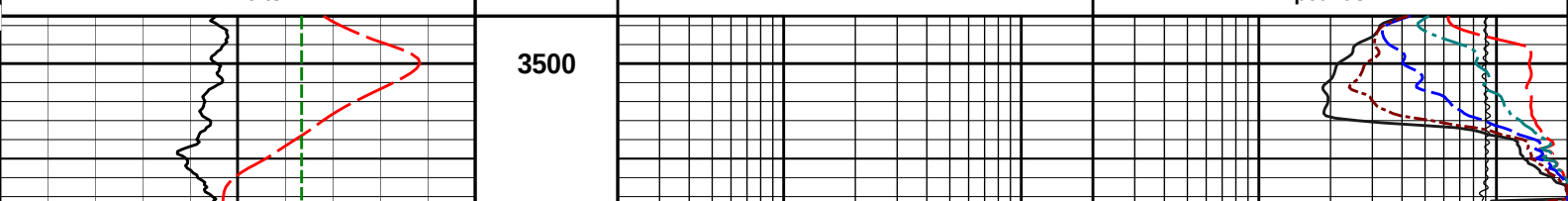
MAIN PASS 2" = 100'

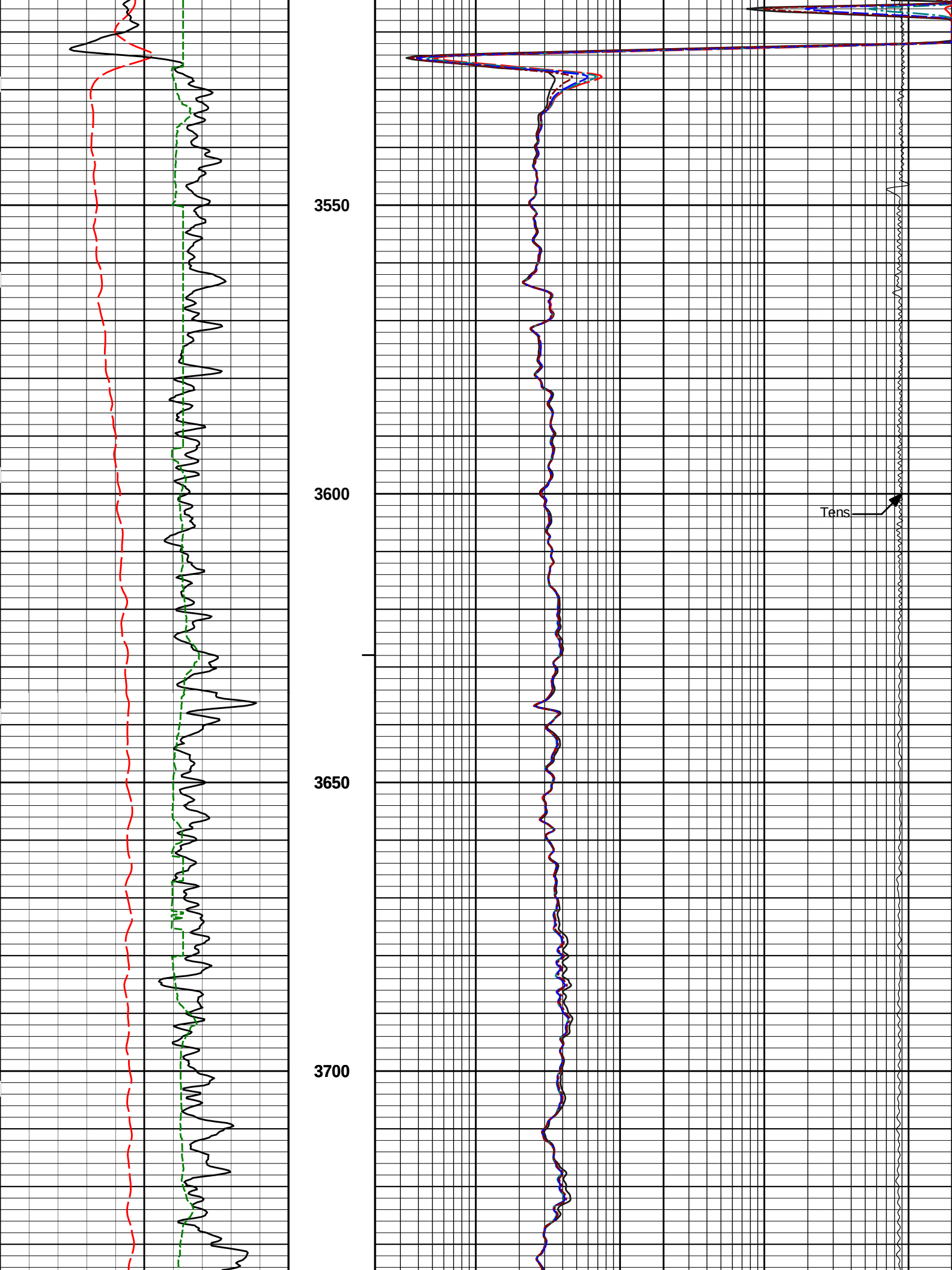
HALLIBURTON

Plot Time: 12-Jul-11 16:45:43
Plot Range: 3495 ft to 8027.42 ft
Data: {ActiveWell}\Well Based\MAIN\
Plot File: \\ACRT\IQ_ACRt_5IN_RM

MAIN PASS 5" = 100'

		0.2 RT10 2K
		ohmm
		0.2 RT20 2K
		ohmm
		0.2 RT30 2K
		ohmm
6 Caliper 16	AHVT	0.2 RT60 2K
inches		ohmm
0 Gamma API 200	BHVT	0.2 RT90 2K
api		ohmm
0 SP 100	1 : 240	10K Tens 0
millivolts		pounds

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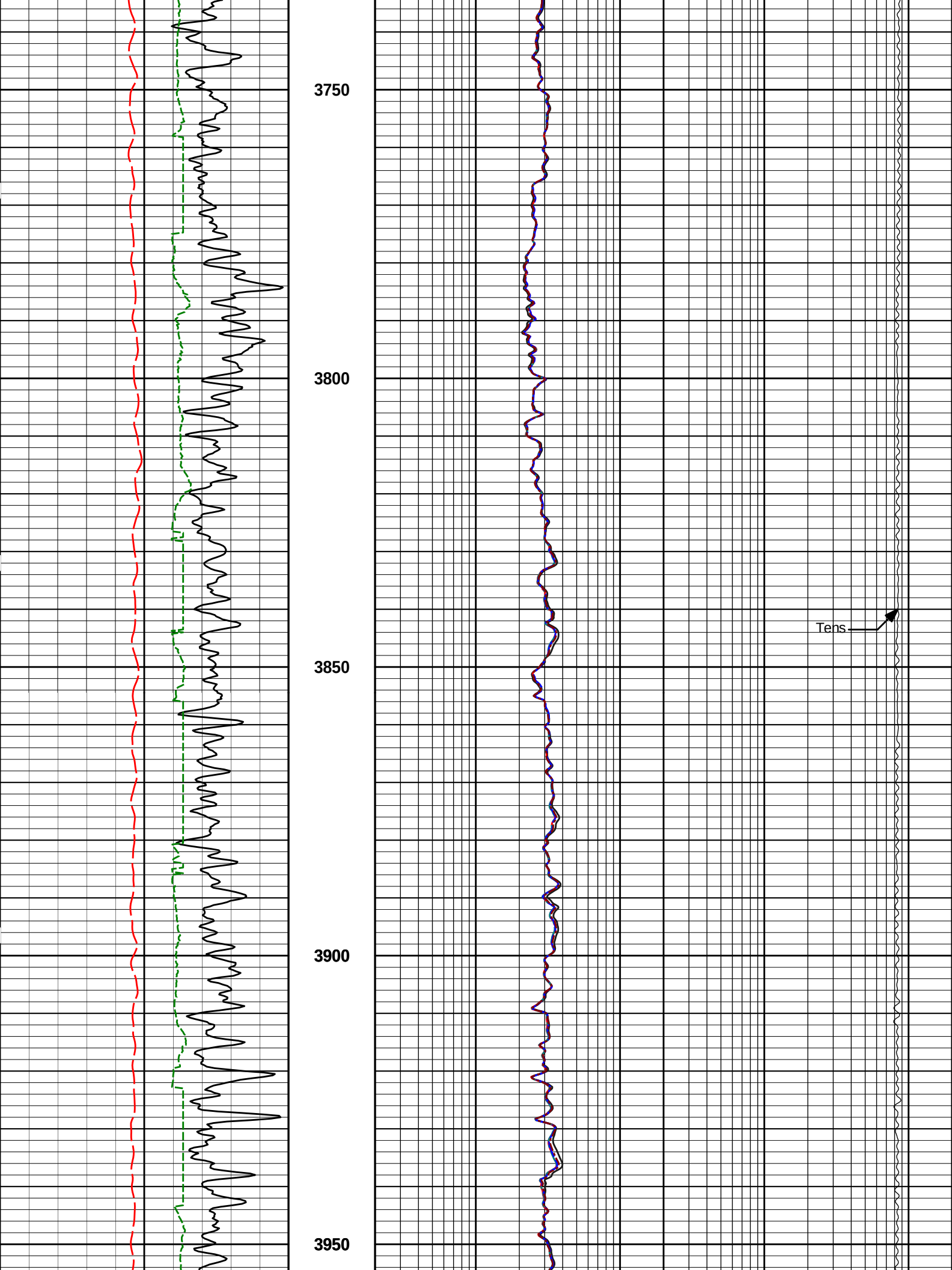
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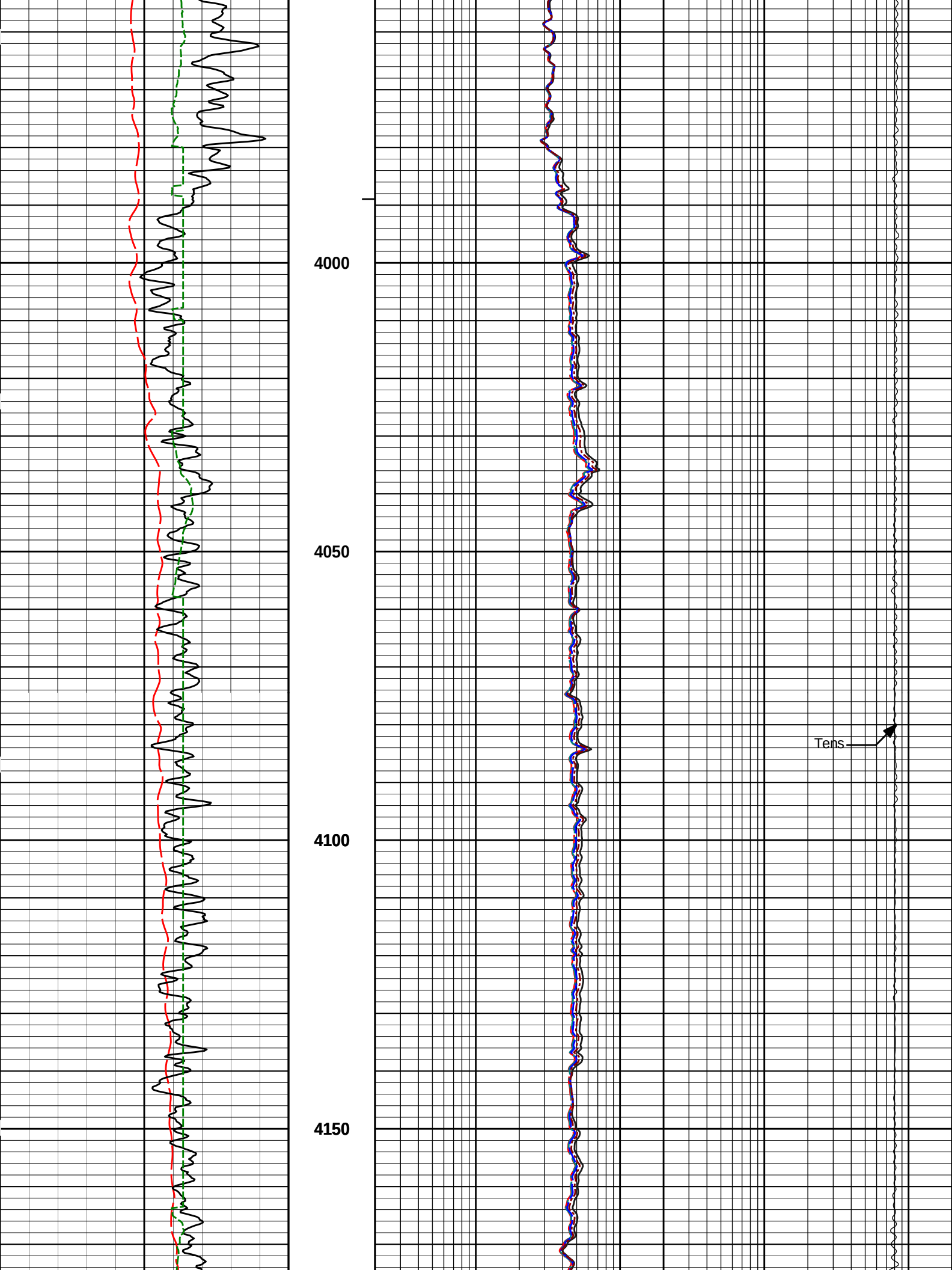
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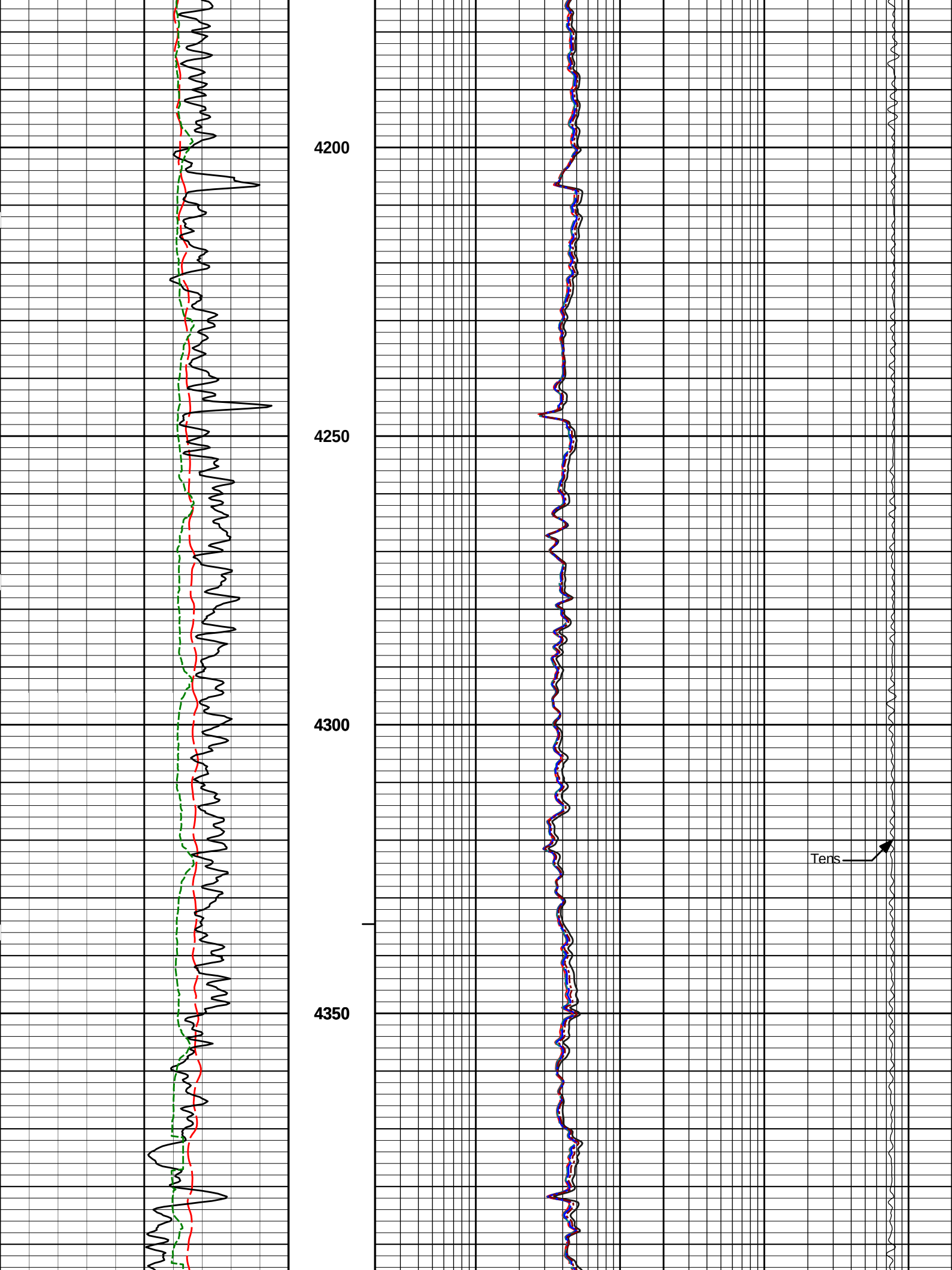
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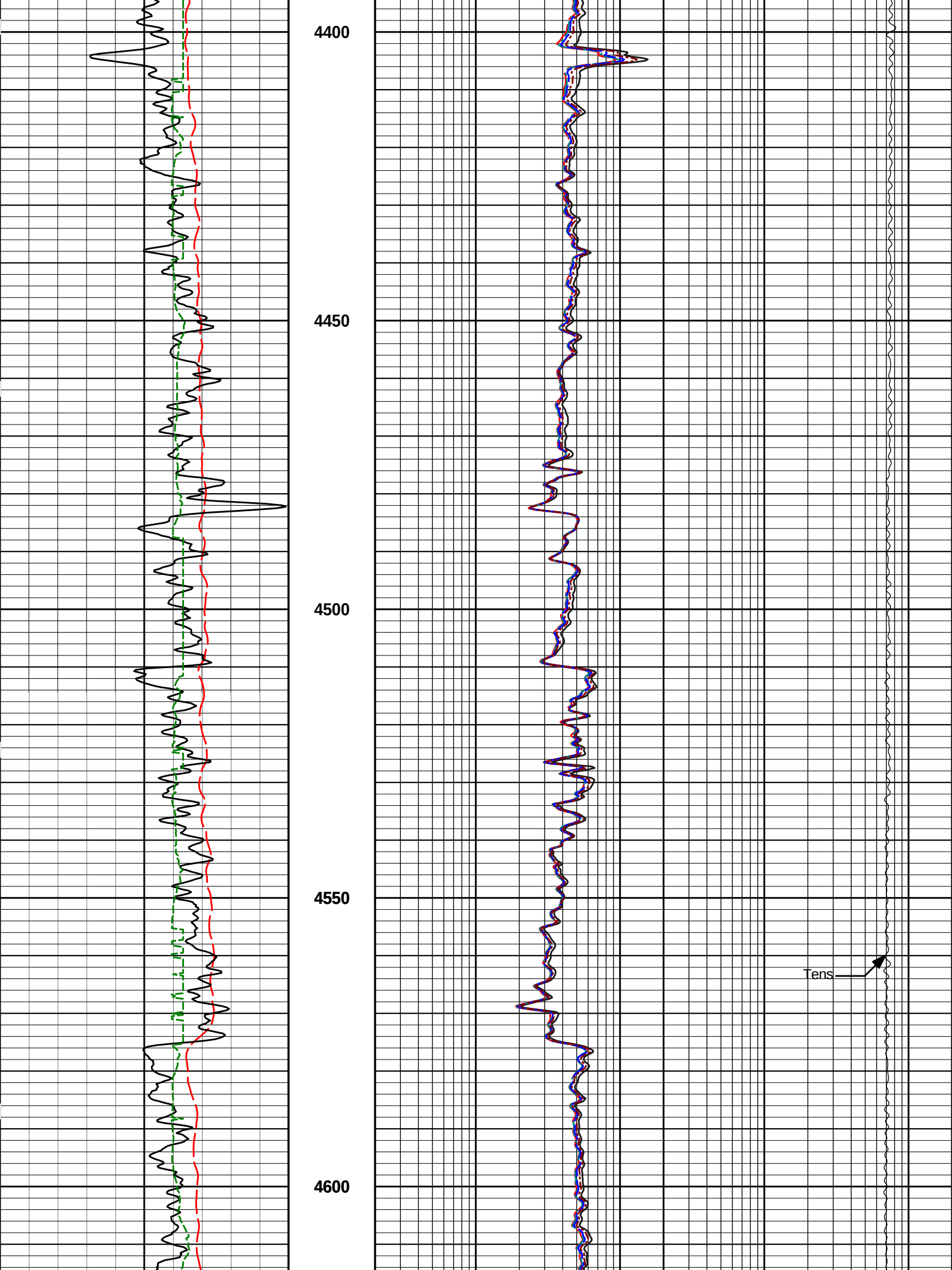
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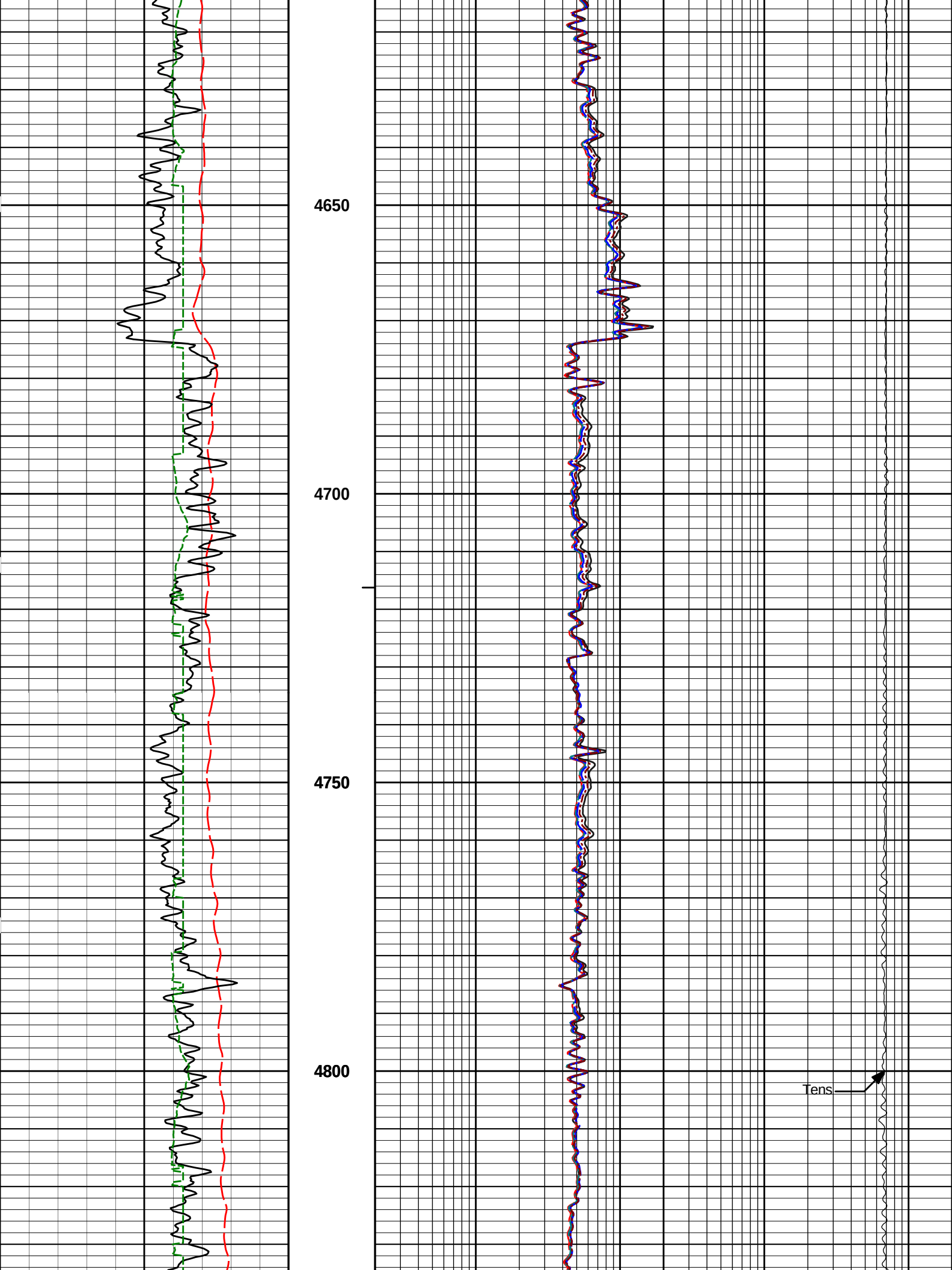
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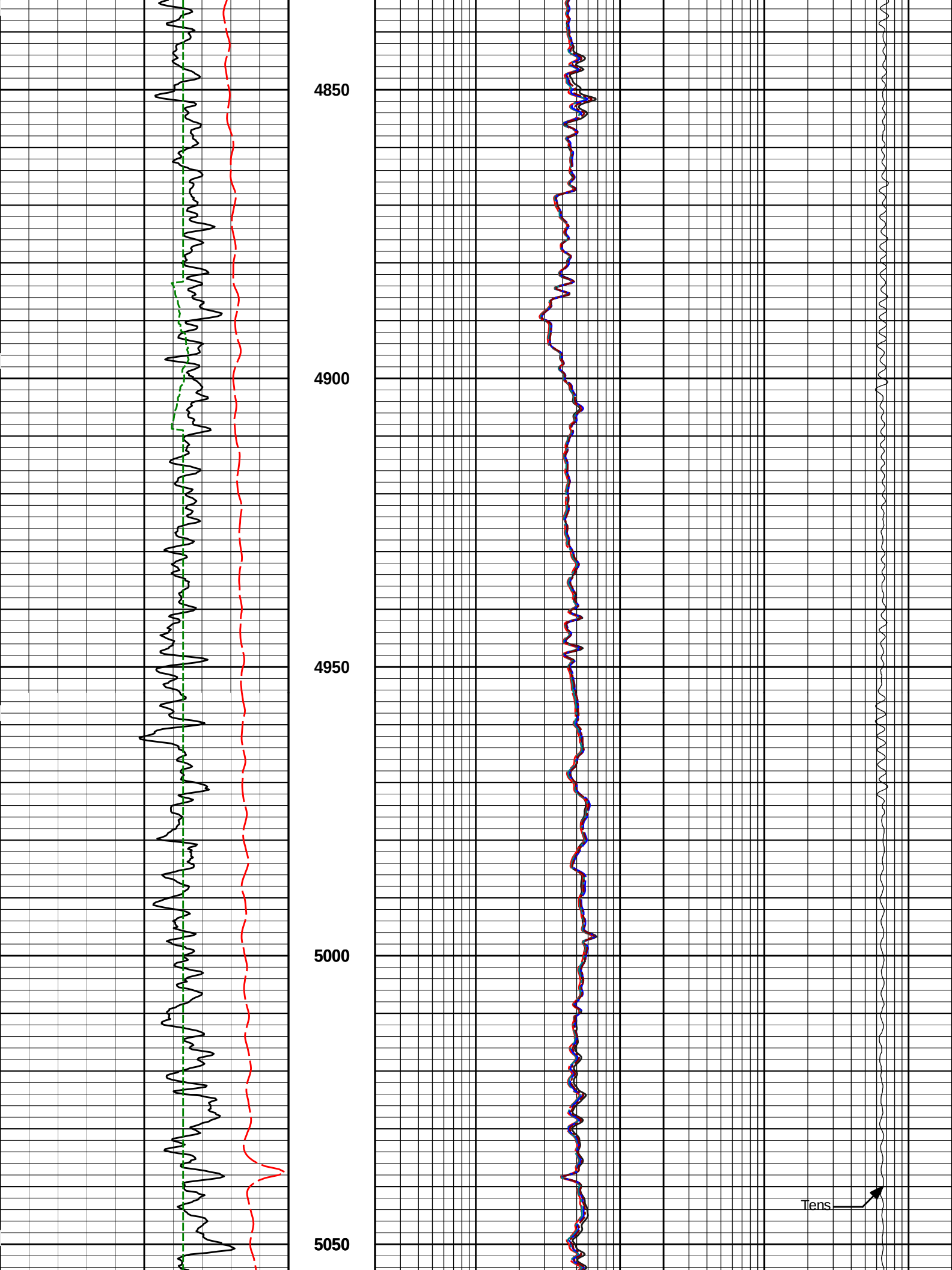
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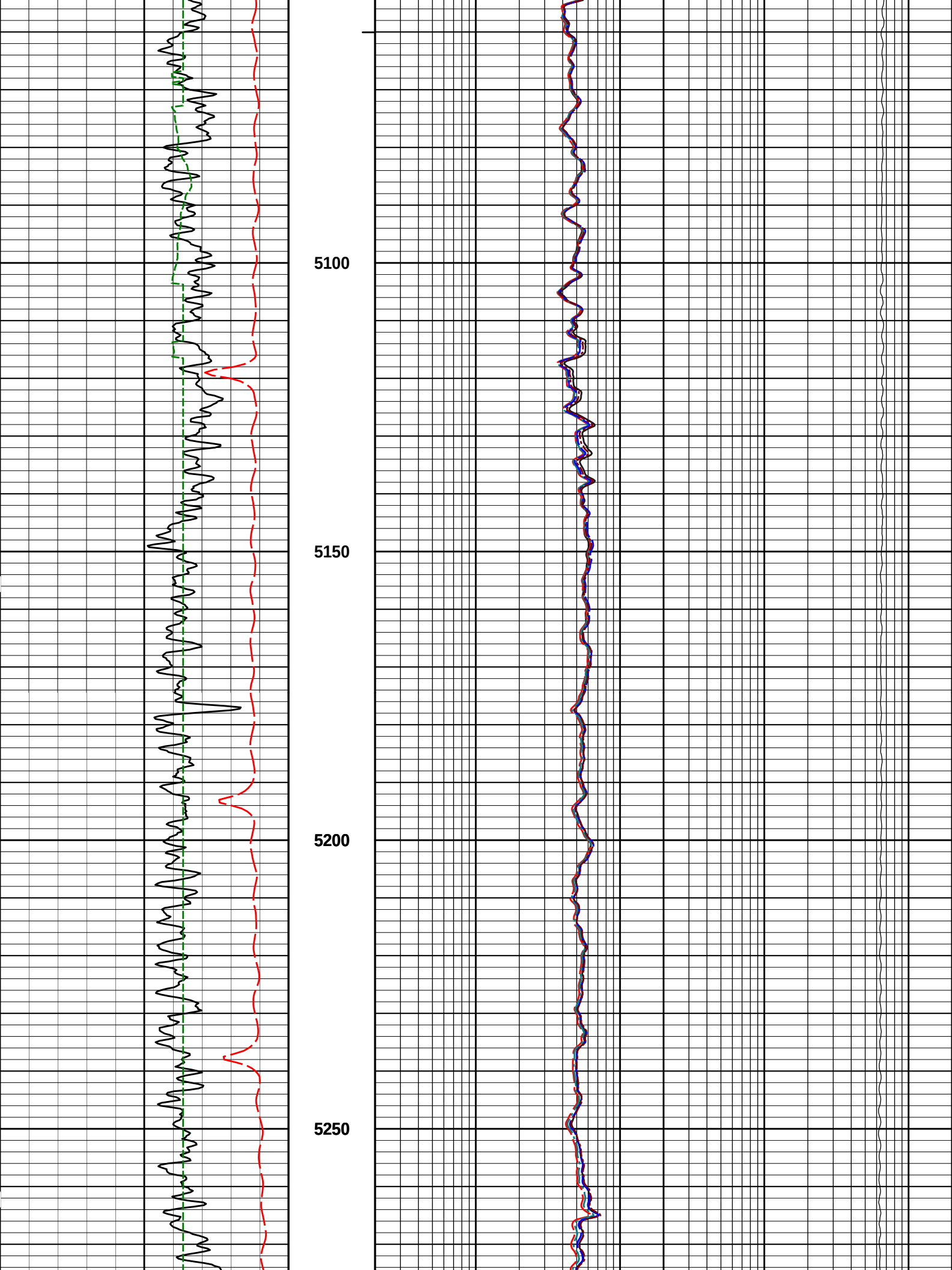
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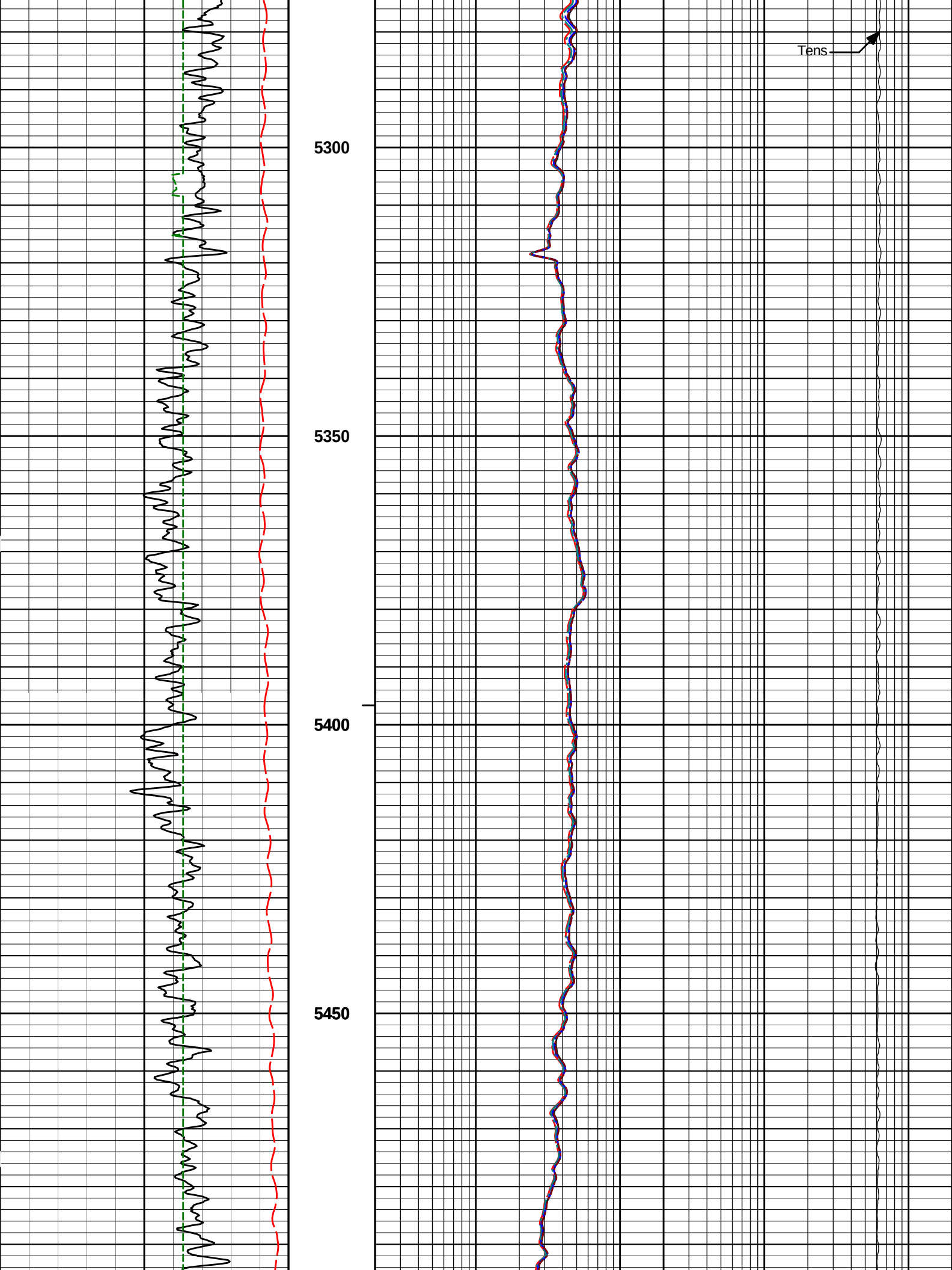
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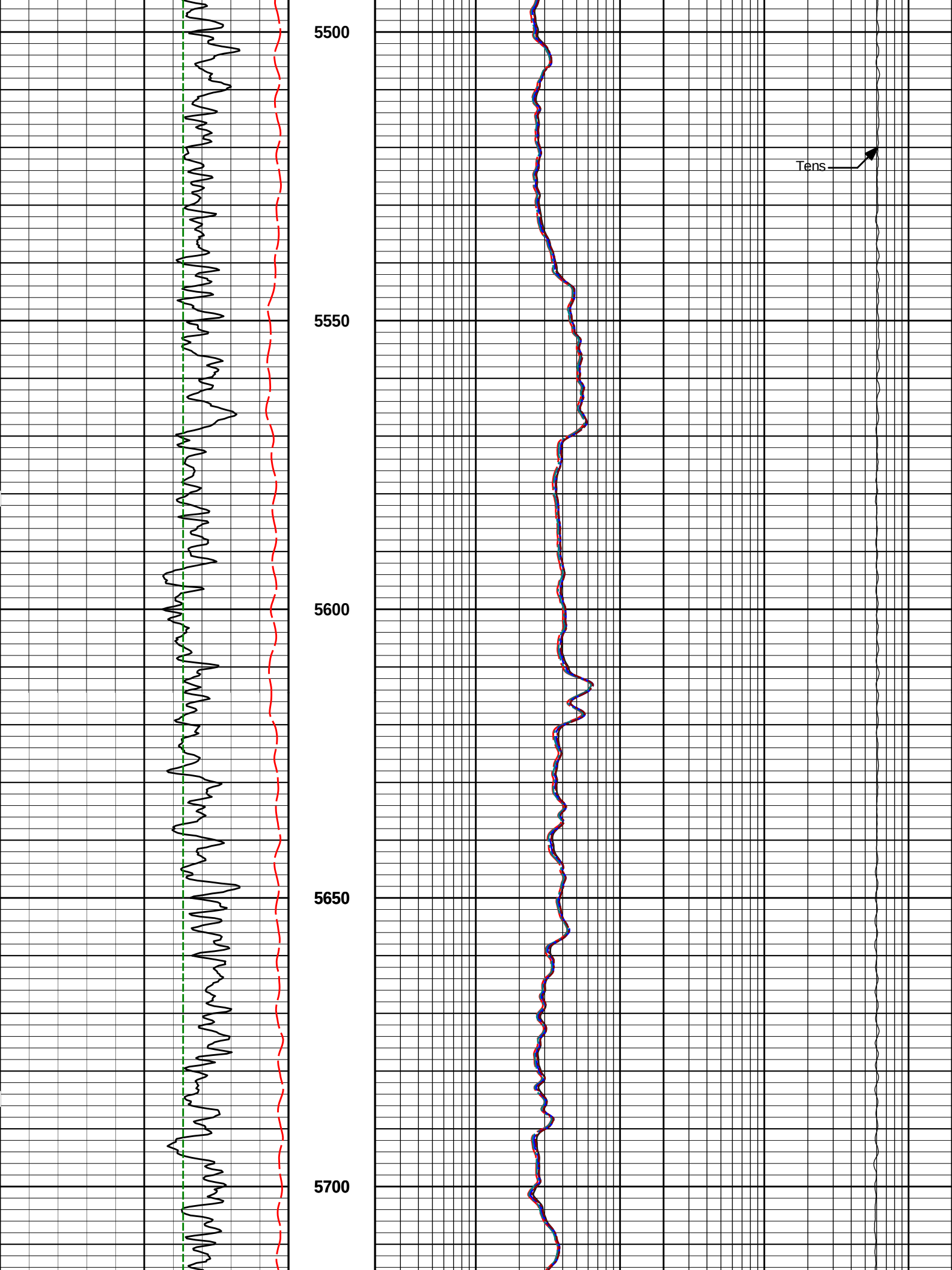
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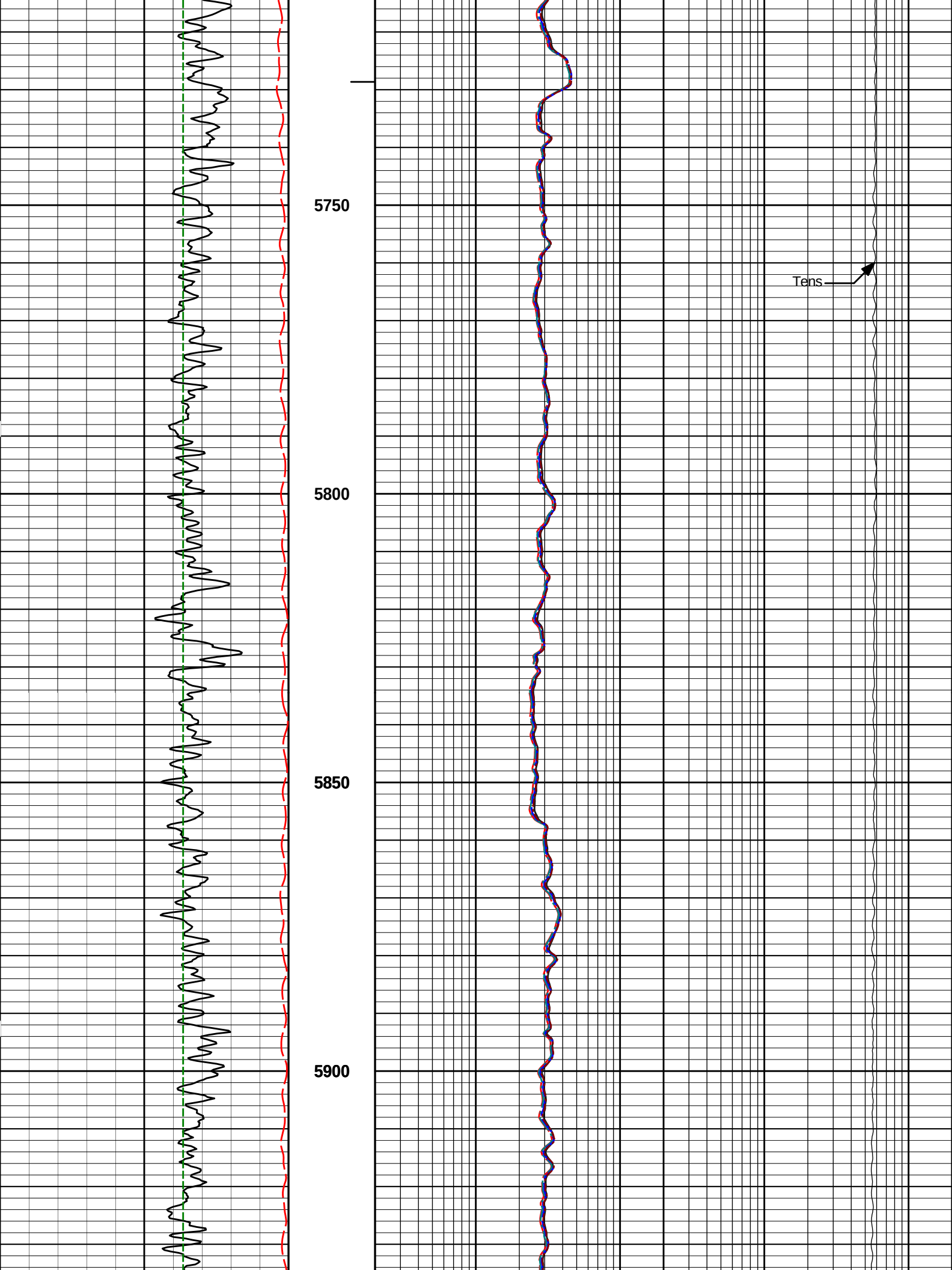
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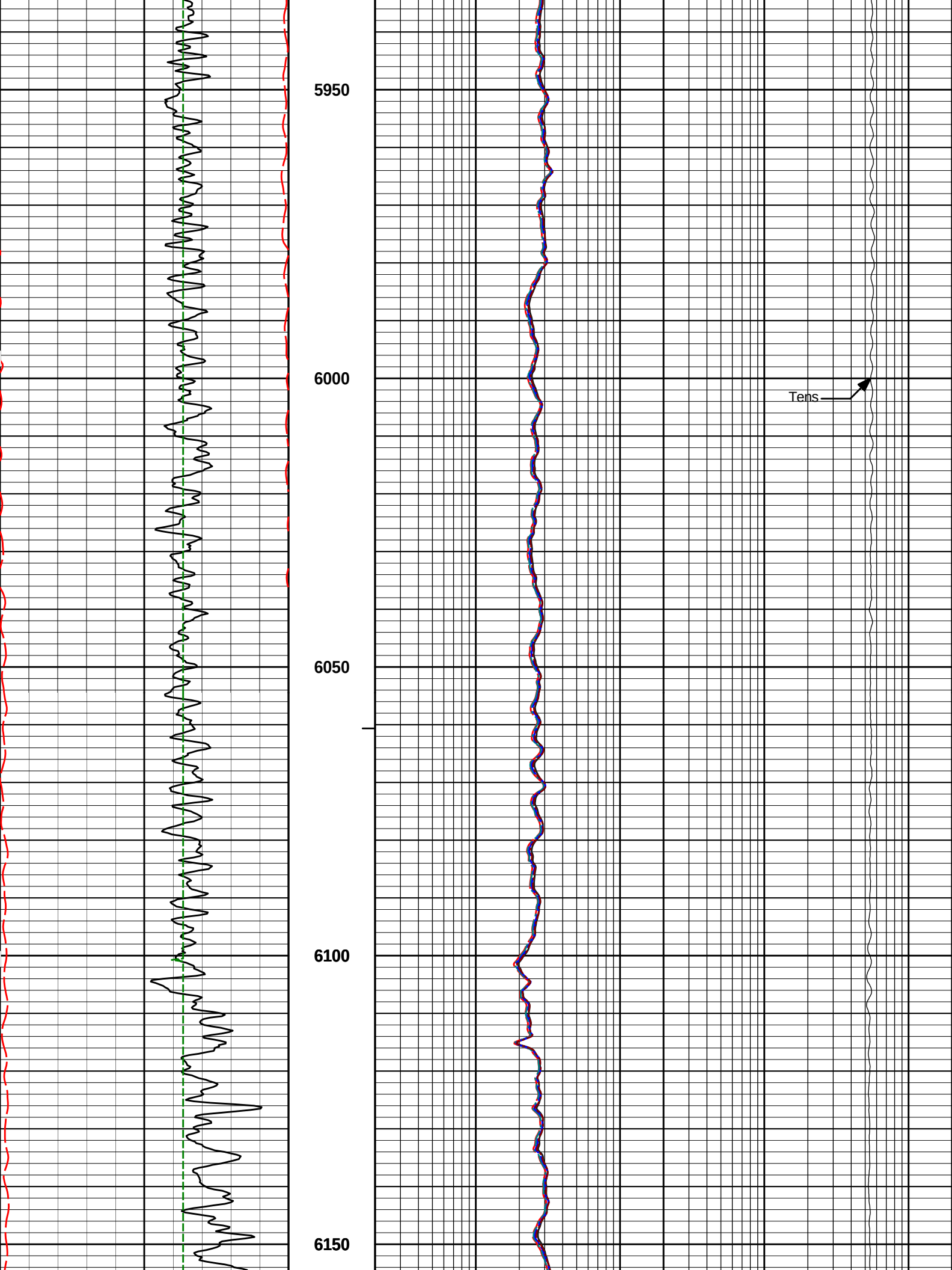
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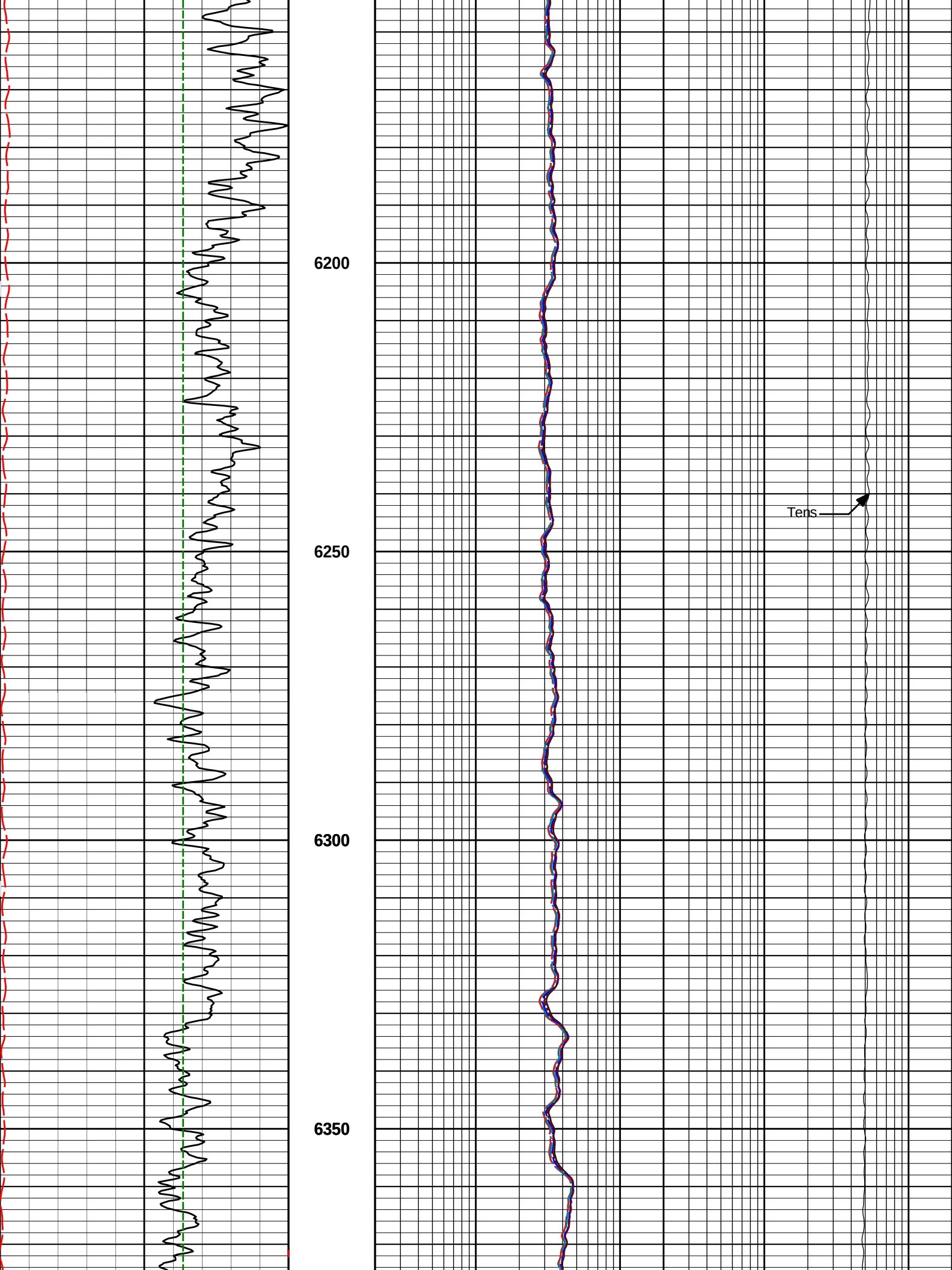
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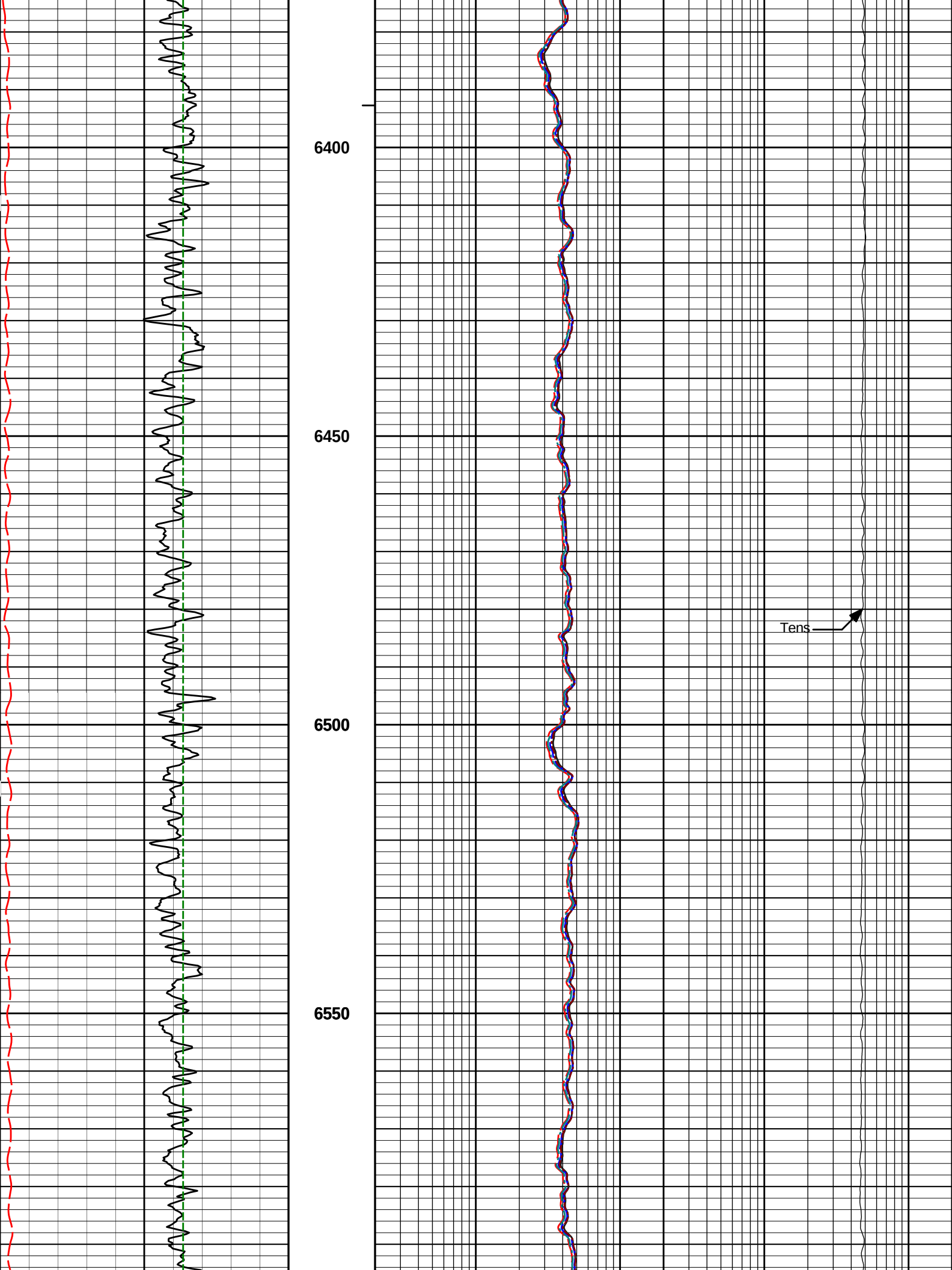
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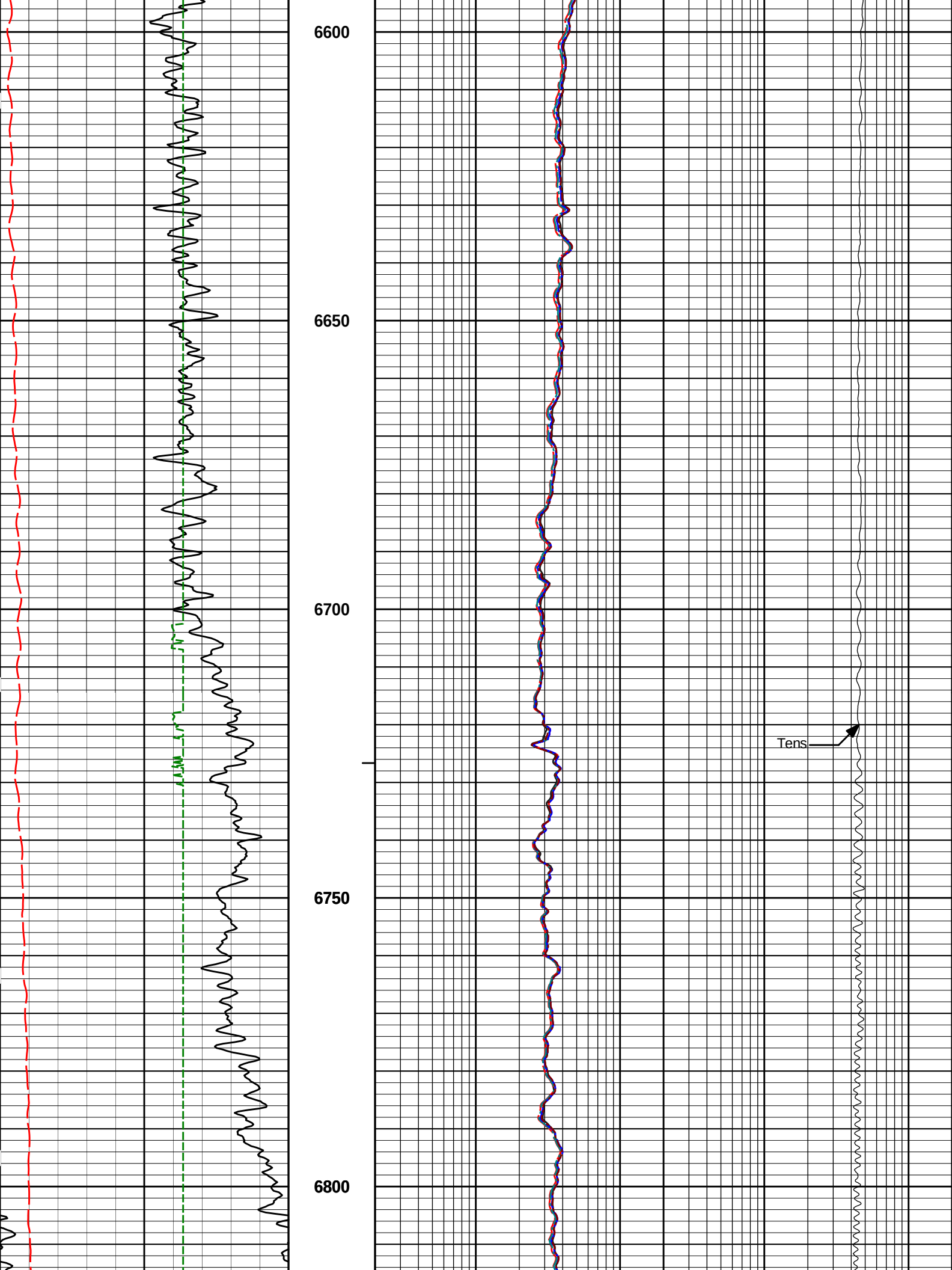
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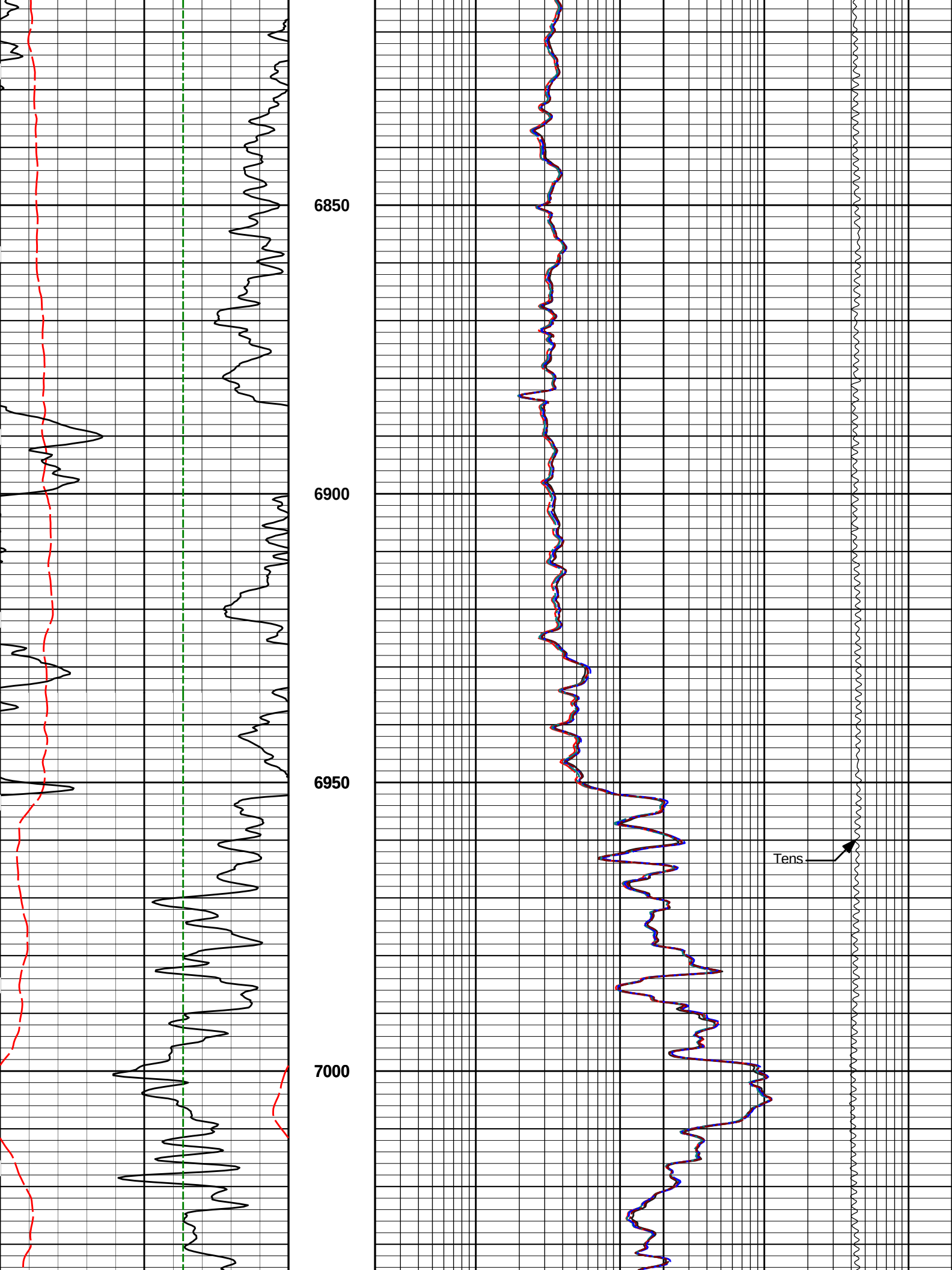
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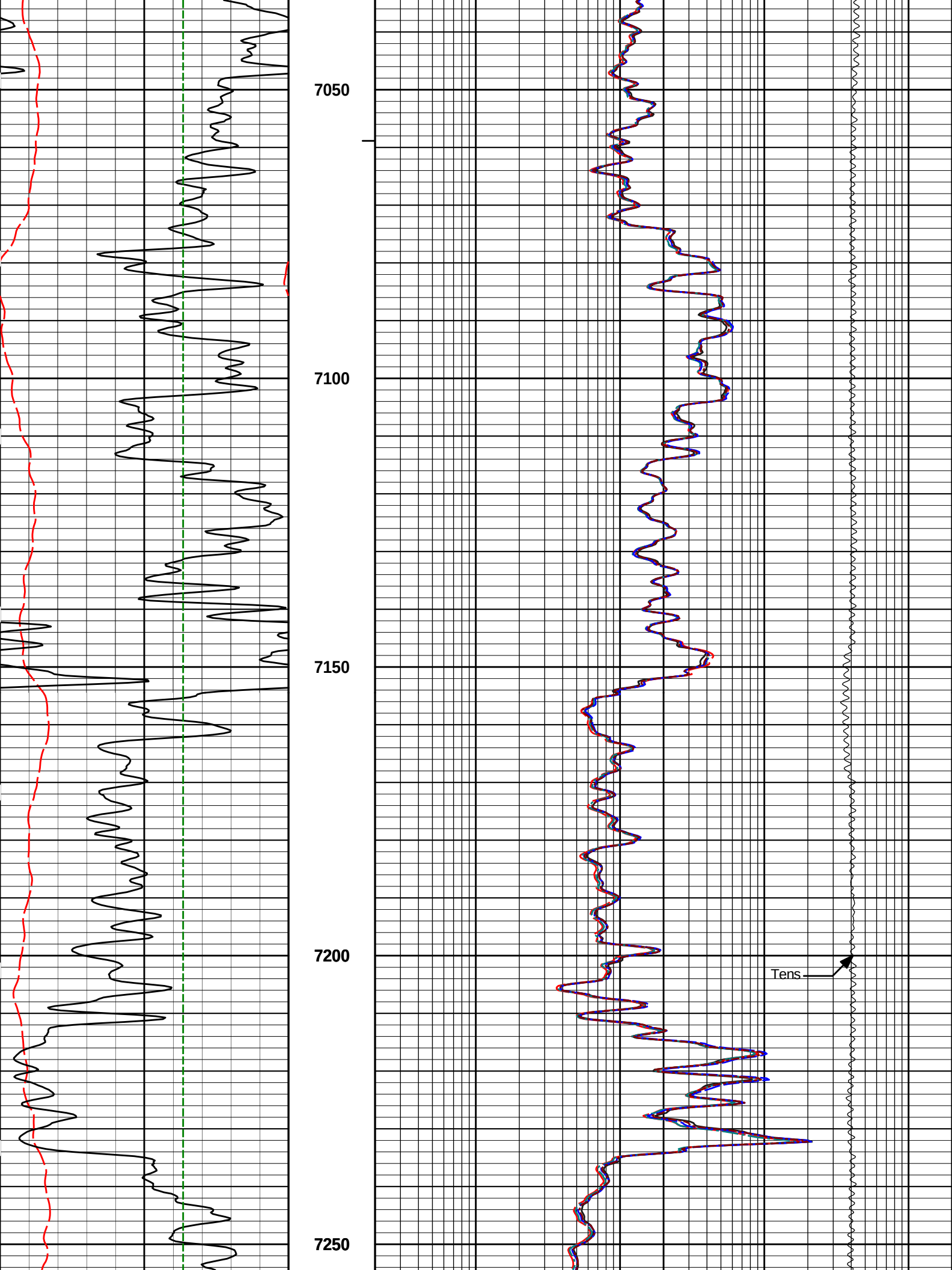
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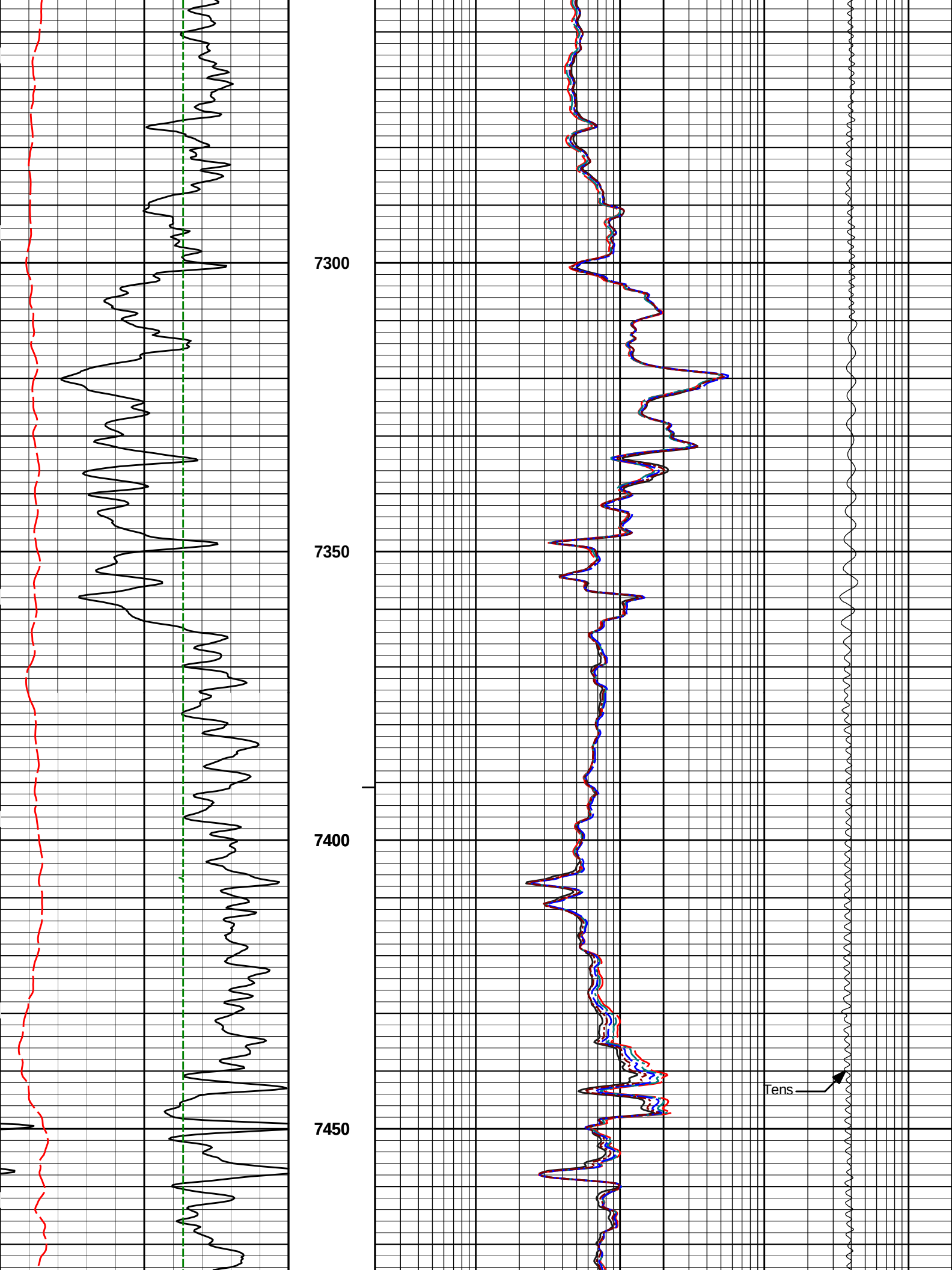
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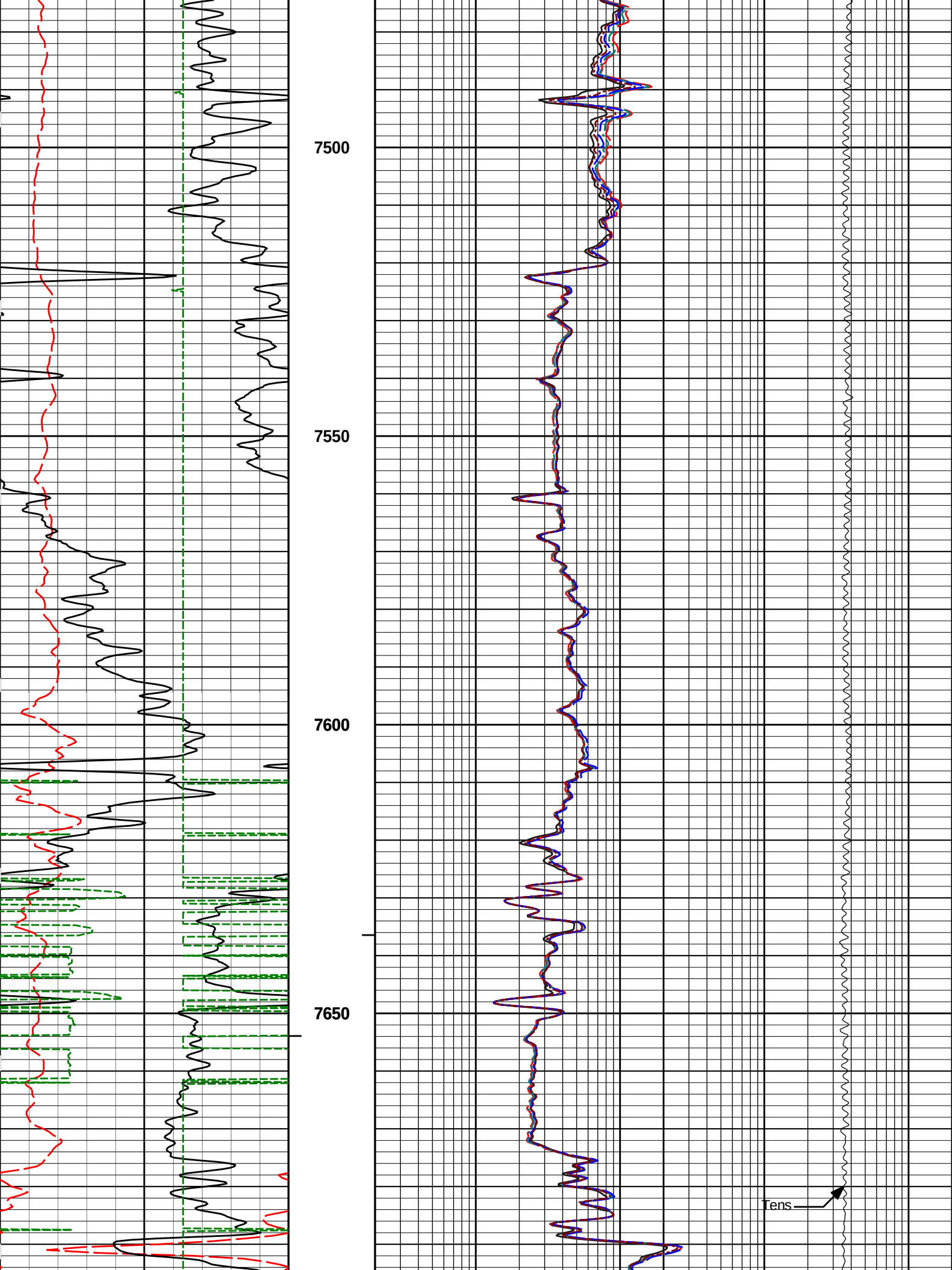
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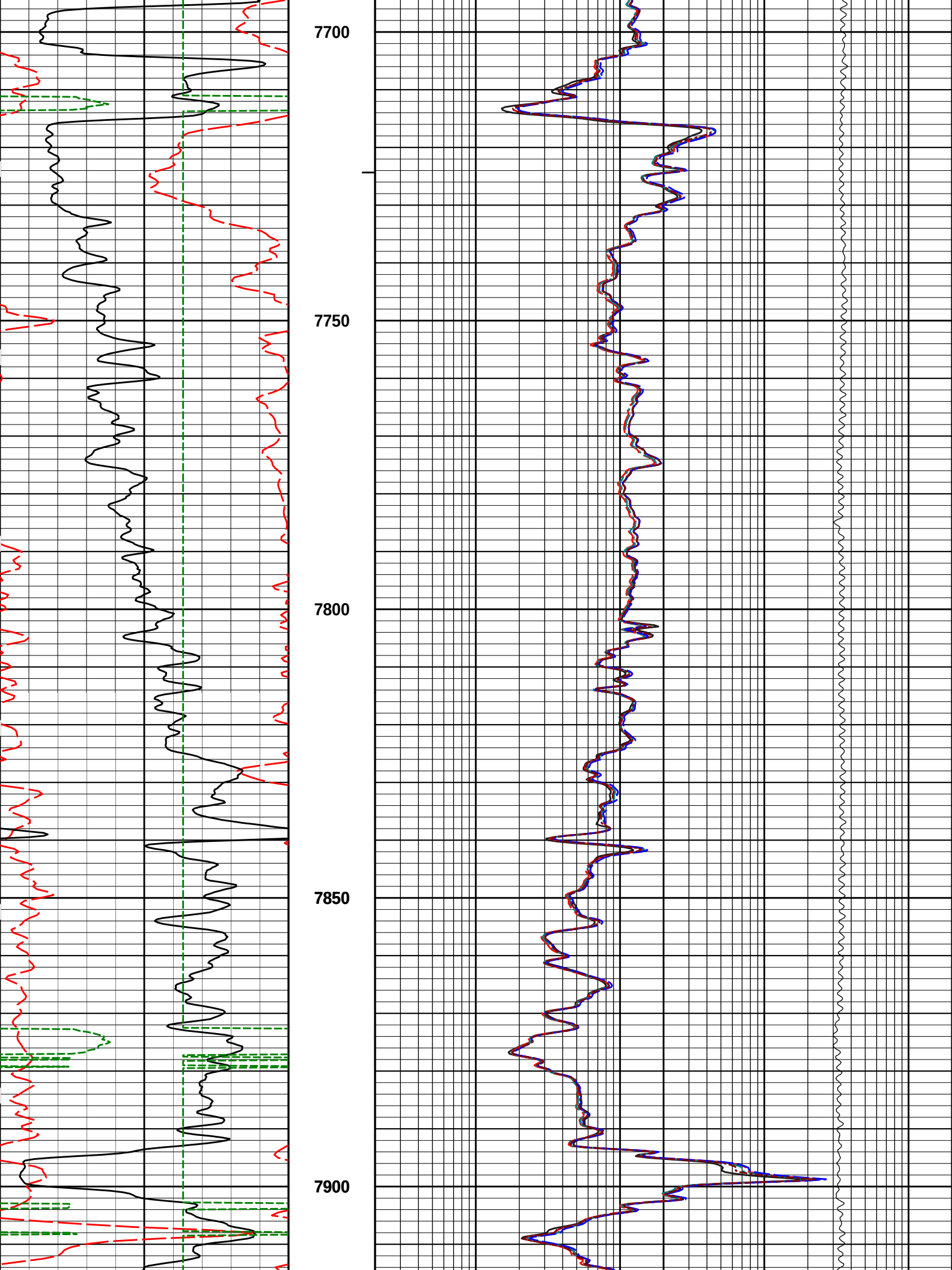
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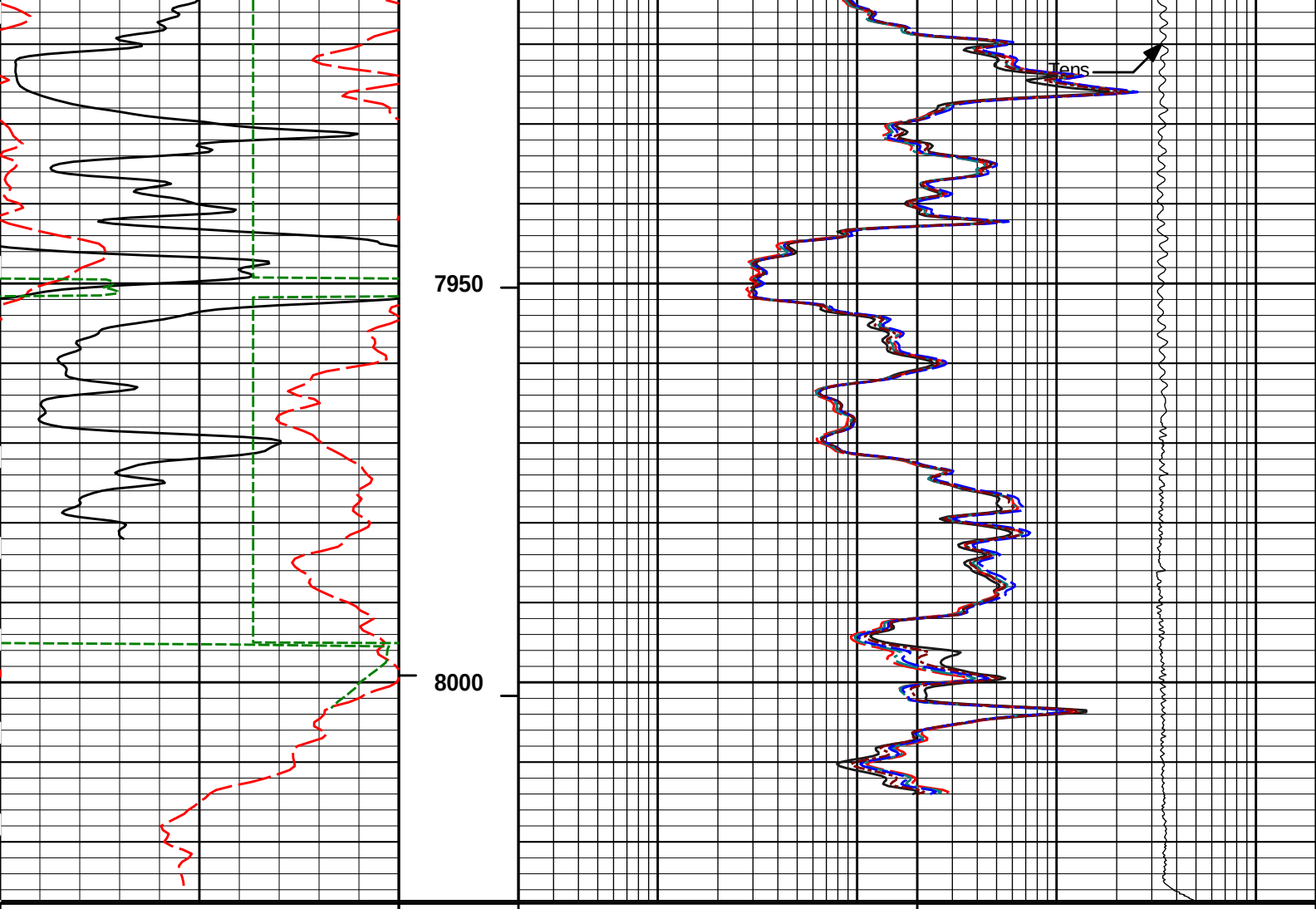


0 SP 100 millivolts	1 : 240		10K Tens 0 pounds
0 Gamma API 200 api	BHVT	0.2 RT90 2K ohmm	
6 Caliper 16 inches	AHVT	0.2 RT60 2K ohmm	
		0.2 RT30 2K ohmm	
		0.2 RT20 2K ohmm	
		0.2 RT10 2K ohmm	

HALLIBURTON

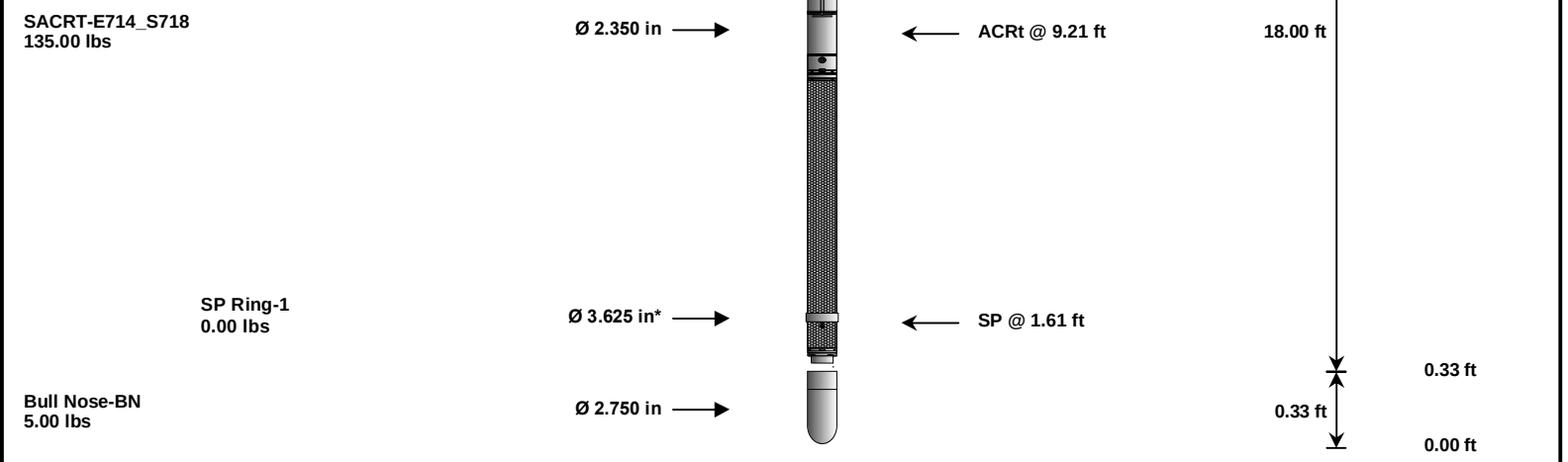
Plot Time: 12-Jul-11 16:45:47
Plot Range: 3495 ft to 8027.42 ft
Data: {ActiveWell}\Well Based\MAIN\
Plot File: \\ACRT\IQ_ACRt_5IN_RM

MAIN PASS 5" = 100'

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						58.32 ft
SCHD-001 40.00 lbs		Ø 2.350 in →		← Temperature @ 56.32 ft	4.00 ft	
						54.32 ft
SBIS-001 15.00 lbs		Ø 2.350 in →			1.11 ft	
						53.21 ft
S4TG-11577722 90.00 lbs		Ø 2.350 in →			9.63 ft	
				← GammaRay @ 44.63 ft		
						43.58 ft
SCEN-001 75.00 lbs		Ø 2.750 in →			5.25 ft	
						38.33 ft
SDSN-11581734 100.00 lbs		Ø 2.350 in →		← DSN Far @ 32.70 ft ← DSN Near @ 31.86 ft	9.00 ft	
						29.33 ft
SSDL-M43P31N34 130.00 lbs		Ø 2.350 in ↘ SDL Arm Caliper @ 23.50 ft →		← SDL Pad Caliper @ 23.42 ft ← SDL @ 23.01 ft	11.00 ft	
						18.33 ft
				← Mud Resistivity @ 13.19 ft		



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
SCHD	Ultra-Slim Cable Head	001	40.00	4.00		54.32	300.00
SBIS	Ultra-Slim Battery and Inverter Sub	001	15.00	1.11		53.21	300.00
S4TG	Ultra-Slim Quad Telemetry Gamma Cartridge	11577722	90.00	9.63		43.58	60.00
SCEN	SLIM DECENTRALIZER	001	75.00	5.25		38.33	300.00
SDSN	Ultra-Slim Hole Dual Spaced Neutron	11581734	100.00	9.00		29.33	60.00
SSDL	Ultra-Slim Hole Spectral Density	M43P31N34	130.00	11.00		18.33	60.00
SACRT	Array Compensated True Resistivity	E714_S718	135.00	18.00		0.33	300.00
SP	SP Ring	1	0.00	0.25	*	1.61	300.00
BLNS	Bull Nose	BN	5.00	0.33		0.00	300.00
Total			**590.00**	**58.32**			

* Not included in Total Length and Length Accumulation.

Data: CANNON_22_3\0001 SLIM_TRIPLE\004 12-Jul-11 13:40 Up @8028.3f **Date: 12-Jul-11 14:57:50**

COMPANY	**KERR-MCGEE OIL & GAS ONSHORE LP**
WELL	**CANNON 22-3**
FIELD	**WATTENBERG**
COUNTY	**WELD** STATE **CO**

HALLIBURTON

ARRAY COMPENSATED TRUE RESISTIVITY LOG