PIONEER

DUAL INDUCTION
Pe-DENSITY
COMPENSATED NEUTRON
GAMMA RAY

COMPANY: GRIZZLY OPERATING,LLC
WELL: GOZA 18-2Ae
FIELD: WATTENBERG
COUNTY: WELD STATE: CO.

Location
SHL: 1728' FSL X 711' FEL NESE SEC18 T6N R65W
BHL: 5' FNL x 1312' FEL NENE SEC19 T6N R65W
API# 05-123-38401

Other Services

Elevations
K.B.: 4770 FT
D.F.: 4769 FT
G.L.: 4756 FT

Company:GRIZZLY OPERATING,LLC
Well: GOZA 18-2Ae
Field: WATTENBERG
County: WELD
State: CO.

Permanent Datum: GL Elevation: 4756 FT
Log Meas. From: KB ,16 FT ABOVE PERM. DATUM
Drill. Meas. From: KB

Date	11 NOV 2015		
Run Number	1		
Depth Driller	7640 FT		
Depth Logger	7656 FT		
Bottom Logged Interval	7654 FT		
Top Logged Interval	7650 FT		
Casing Driller	8.625 IN. @ 564 FT		
Casing Logger	550 FT		
Bitsize	7.875 IN.		
Type Fluid in Hole	FW MUD		
Density / Viscosity	9.2 #/GAL	42\ S	
pH / Water Loss	9.0	6.0 CC	
Source of Sample	BOREHOLE		
Rm @ Meas. Temp.	1.2 Ohm-m @ 135 F		
Rmf @ Meas. Temp.	0.9 Ohm-m @ 135 F		
Rmc @ Meas. Temp.	1.5 Ohm-m @ 135 F		
Source Rmf/Rmc	CALC	CALC	
Rm at BHT	0.79 Ohm-m @ 205 F		
End Circulation	2200 10 NOV		
Logger on Bottom	0730 11 NOV		
Max. Recorded Temp.	205		
Equip. No / Location	110 FORT MORGAN		
Recorded by	D TRAVIS		
Witnessed by	GEORGE HINE	MARK SCANNIELLO	

----Fold Here----

REMARKS

SO 2-014083
SP NOISEY, COULD HAVE BEEN DUE TO RIG NOISE, OK PER CUSTOMER
NO REPEAT PASS DUE TO STICKY BOREHOLE CONDITIONS, OK PER CUSTOMER

THANK YOU FOR USING PIONEER WIRELINE SERVICES.

EQUIPMENT DATA

Run	Trip	Instrument	Instrument Type No.	Serial No.	Distance to Reference
		Cable Head	None	1809CableHead	0.000 ft
		TCMRT	024	1831A	2.690 ft
		Telemetry	021	0930A	7.562 ft
		Orientation	013	1211	11.860 ft
		Compensated Neutro	015	1468A	18.839 ft
		PE Density Microlog	016	1486A	26.388 ft
		DIL	013	1141A	37.162 ft
		Bull Plug	None	BP	61.736 ft

Cable Head
Identifier : 1809CableHead

61.88 ft

Asset Number : None
Length : 2.690 ft
Diameter : 3.4 inch
Weight : 37.3 lbs

TCMRT
Identifier : 1831A
Asset Number : 024
Length : 4.872 ft
Diameter : 3.4 inch
Weight : 103.6 lbs
Measure Point : 2.575 ft : BHT
Measure Point : 2.838 ft : Mud
Measure Point : 4.396 ft : Tension

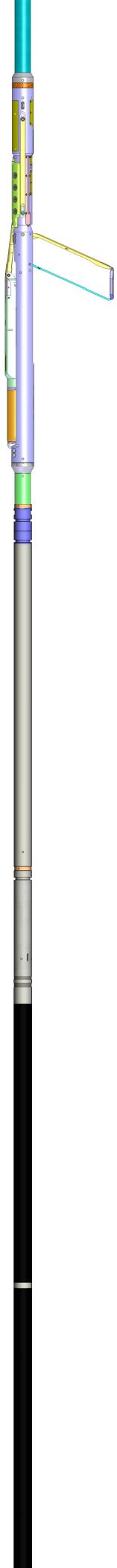
Telemetry
Identifier : 0930A
Asset Number : 021
Length : 4.298 ft
Diameter : 3.4 inch
Weight : 75.4 lbs
Measure Point : 1.329 ft : GR

Orientation
Identifier : 1211
Asset Number : 013
Length : 6.978 ft
Diameter : 3.4 inch
Weight : 101.4 lbs
Measure Point : 0.000 ft : Orientation

Compensated Neutron
Identifier : 1468A
Asset Number : 015
Length : 7.549 ft
Diameter : 3.4 inch
Weight : 104.7 lbs
Measure Point : 2.165 ft : Short
Measure Point : 2.562 ft : Long

Tension 58.72 ft
Mud 57.16 ft
BHT 56.90 ft
GR 51.35 ft
Orientation 43.04 ft
Long 38.06 ft
Short 37.66 ft

PE Density Microlog
Identifier : 1486A
Asset Number : 016
Length : 10.774 ft
Diameter : 4.8 inch
Weight : 349.4 lbs
Measure Point : 2.854 ft : RNML
Measure Point : 2.936 ft : RLML
Measure Point : 3.133 ft : Long
Measure Point : 3.481 ft : Short

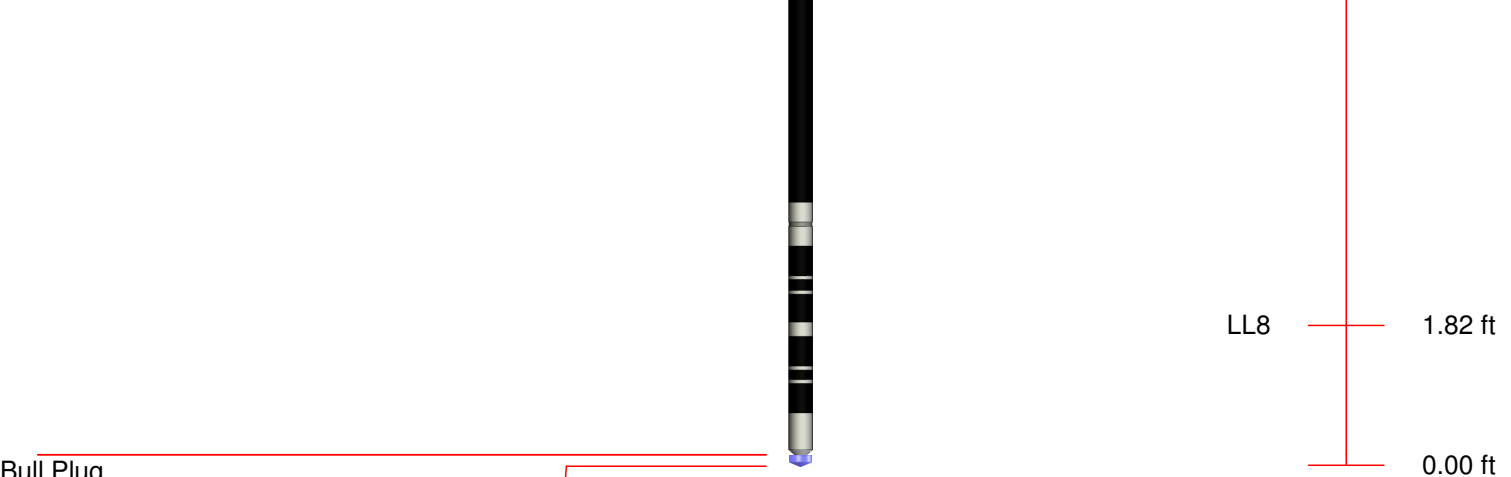


Short 28.20 ft
Long 27.85 ft
RLML 27.66 ft
RNML 27.58 ft

DIL
Identifier : 1141A
Asset Number : 013
Length : 24.573 ft
Diameter : 3.6 inch
Weight : 295.4 lbs
Measure Point : 1.673 ft : LL8
Measure Point : 7.513 ft : Medium
Measure Point : 10.958 ft : Deep
Measure Point : 10.958 ft : SP

SP 11.11 ft
Deep 11.11 ft

Medium 7.66 ft



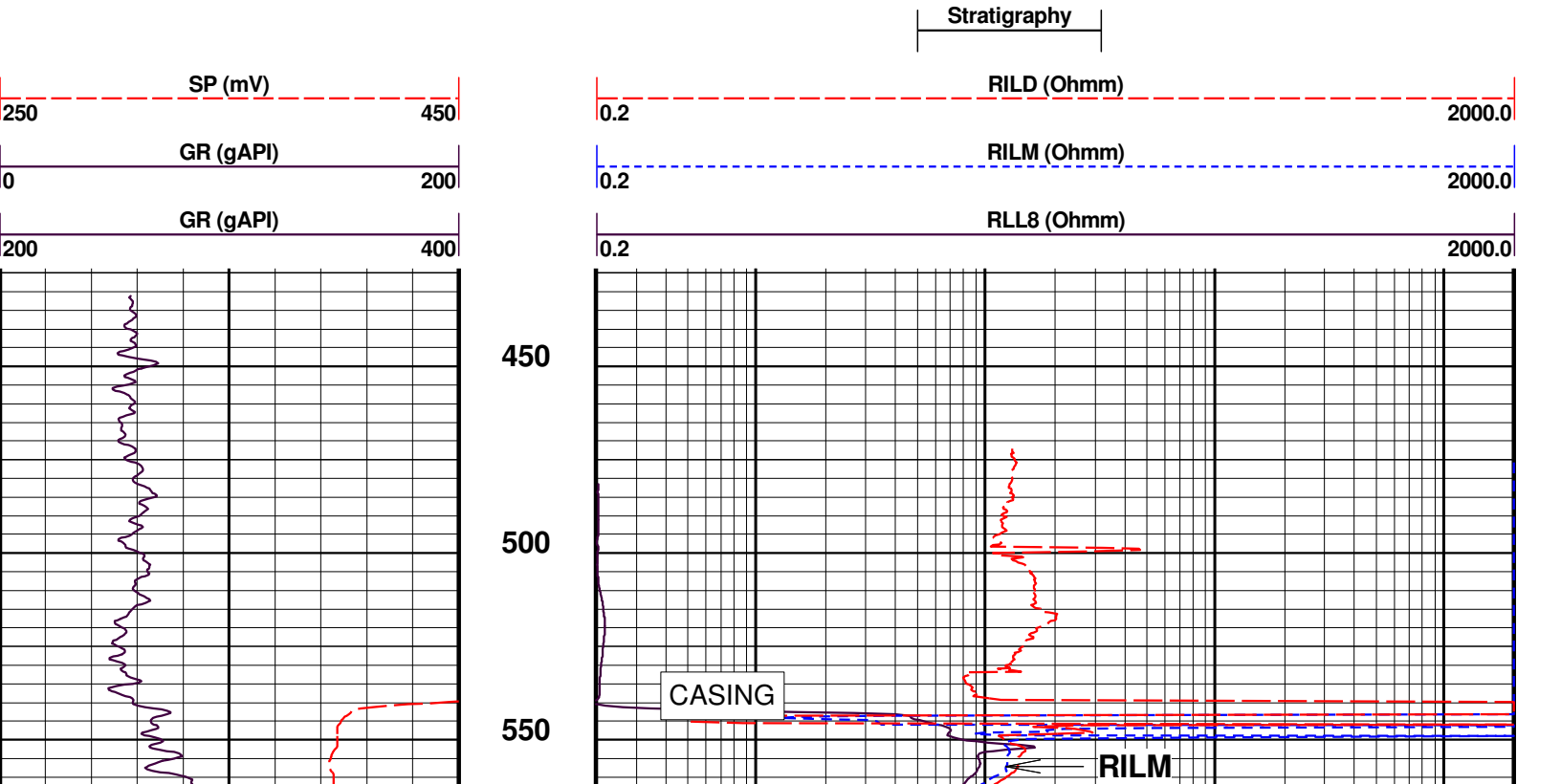
Bull Plug
Identifier : BP
Asset Number : None
Length : 0.148 ft
Diameter : 3.4 inch
Weight : 6.6 lbs

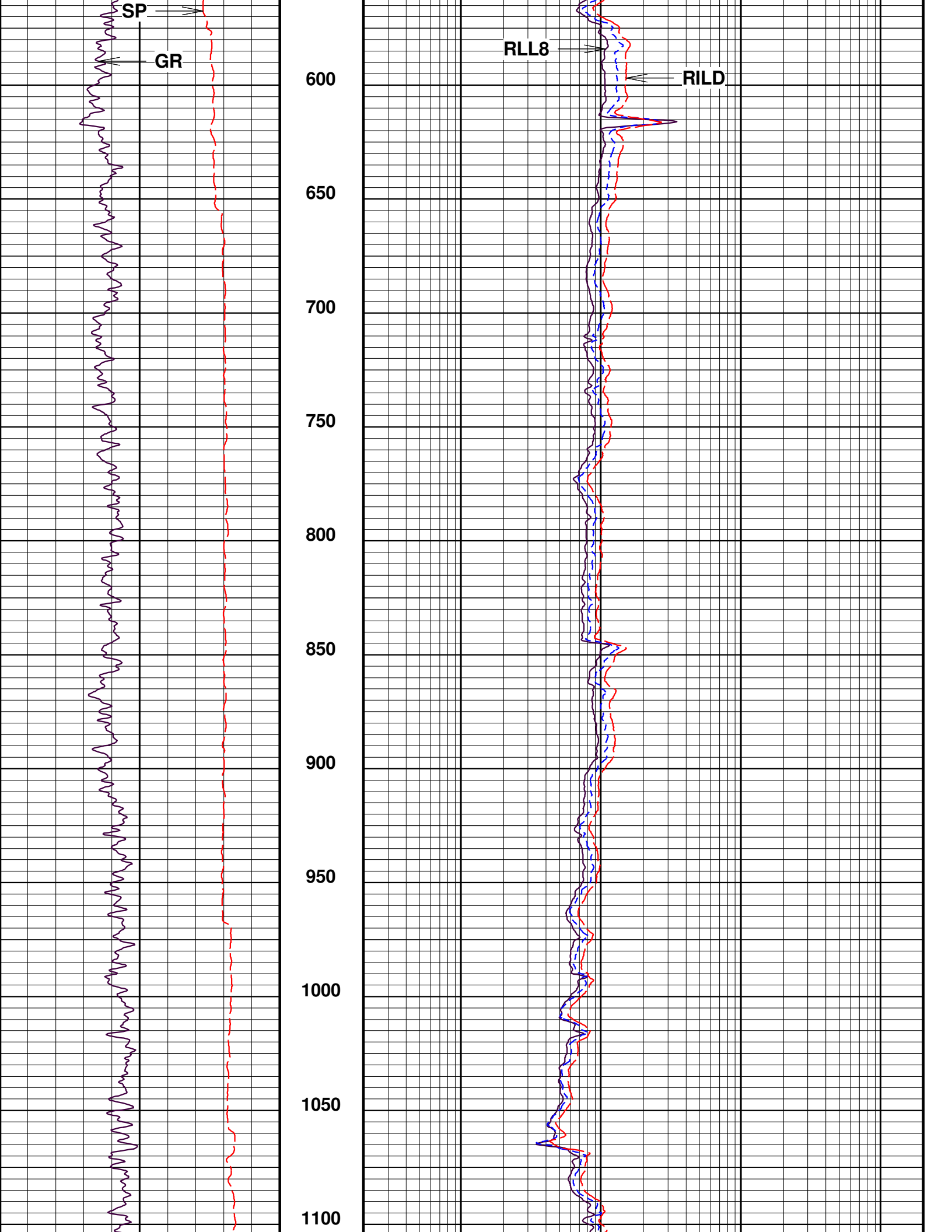
Total Length : 61.88 ft
Total Weight : 1073.86 lbs
Max Diameter : 4.8 inch

2"/100' MAIN PASS

Company : GRIZZLY OPERATING,LLC
Well : GOZA 18-2Ae
Scale : 1 : 600
Depth in : ft
Software : WinAPlot Ver. 5, 91, 4, 0

Date : 11.11.2015
Time : 10:14:06
Remarks : SO 2-014083
File Name : original log

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GR
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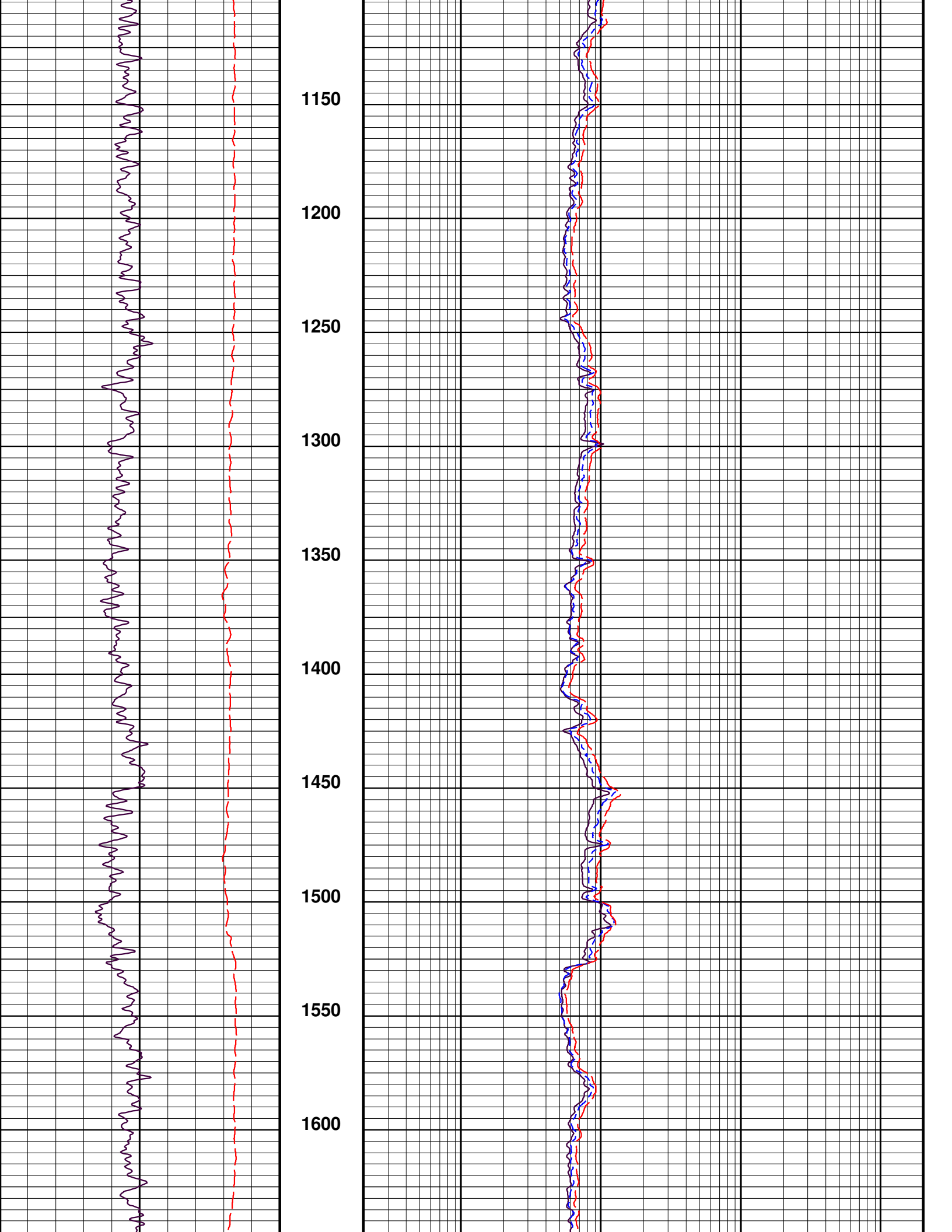
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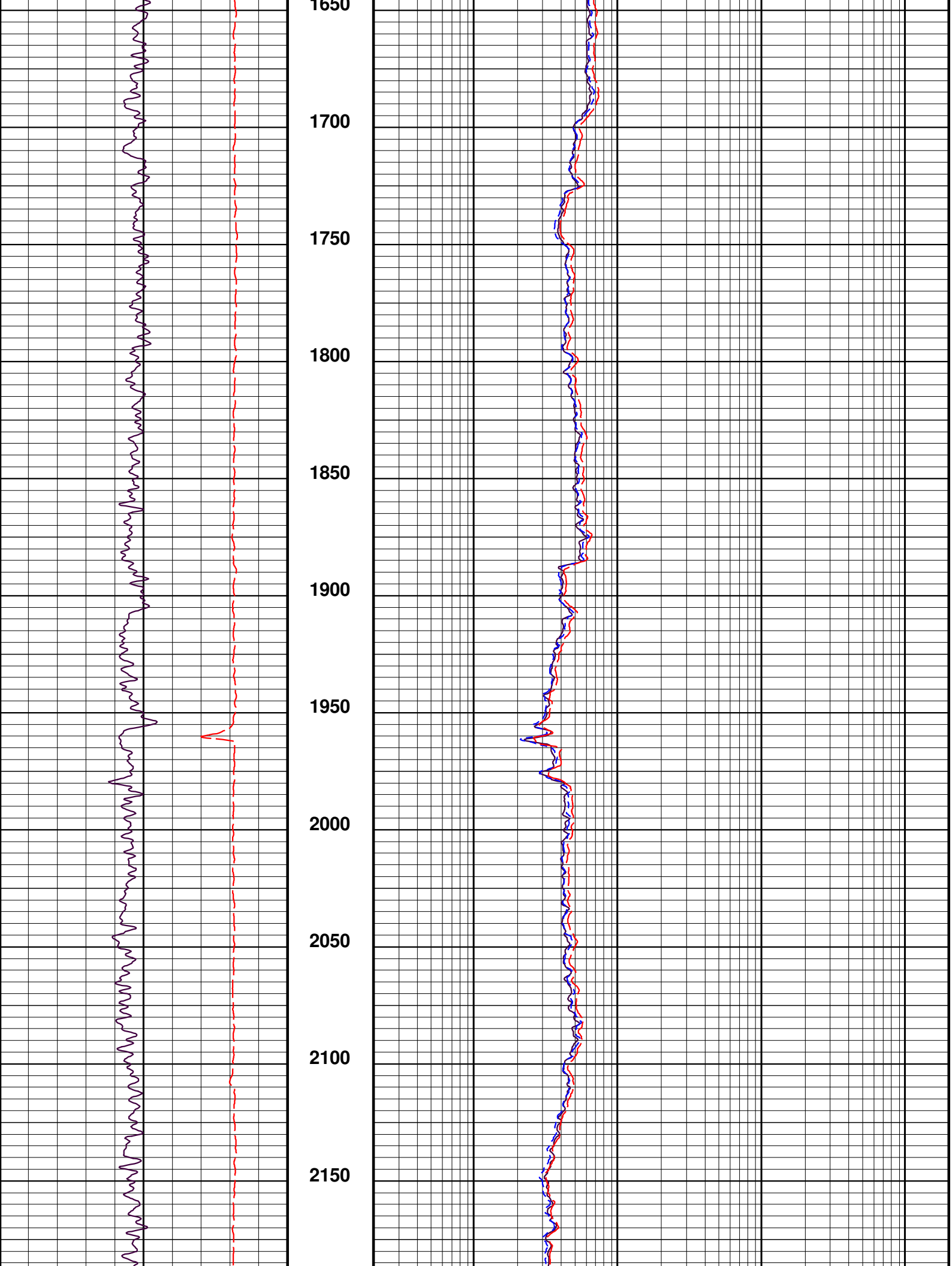
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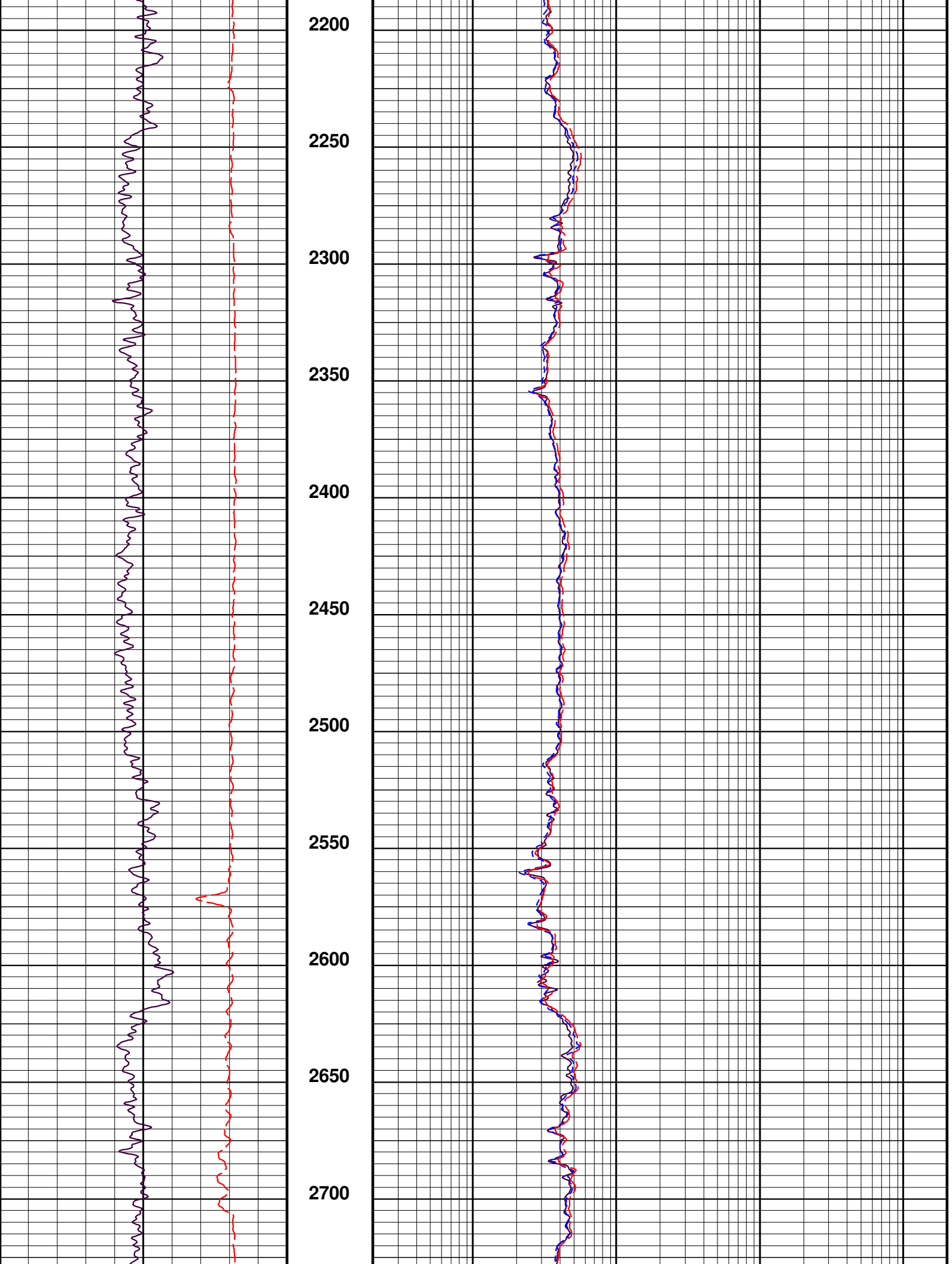
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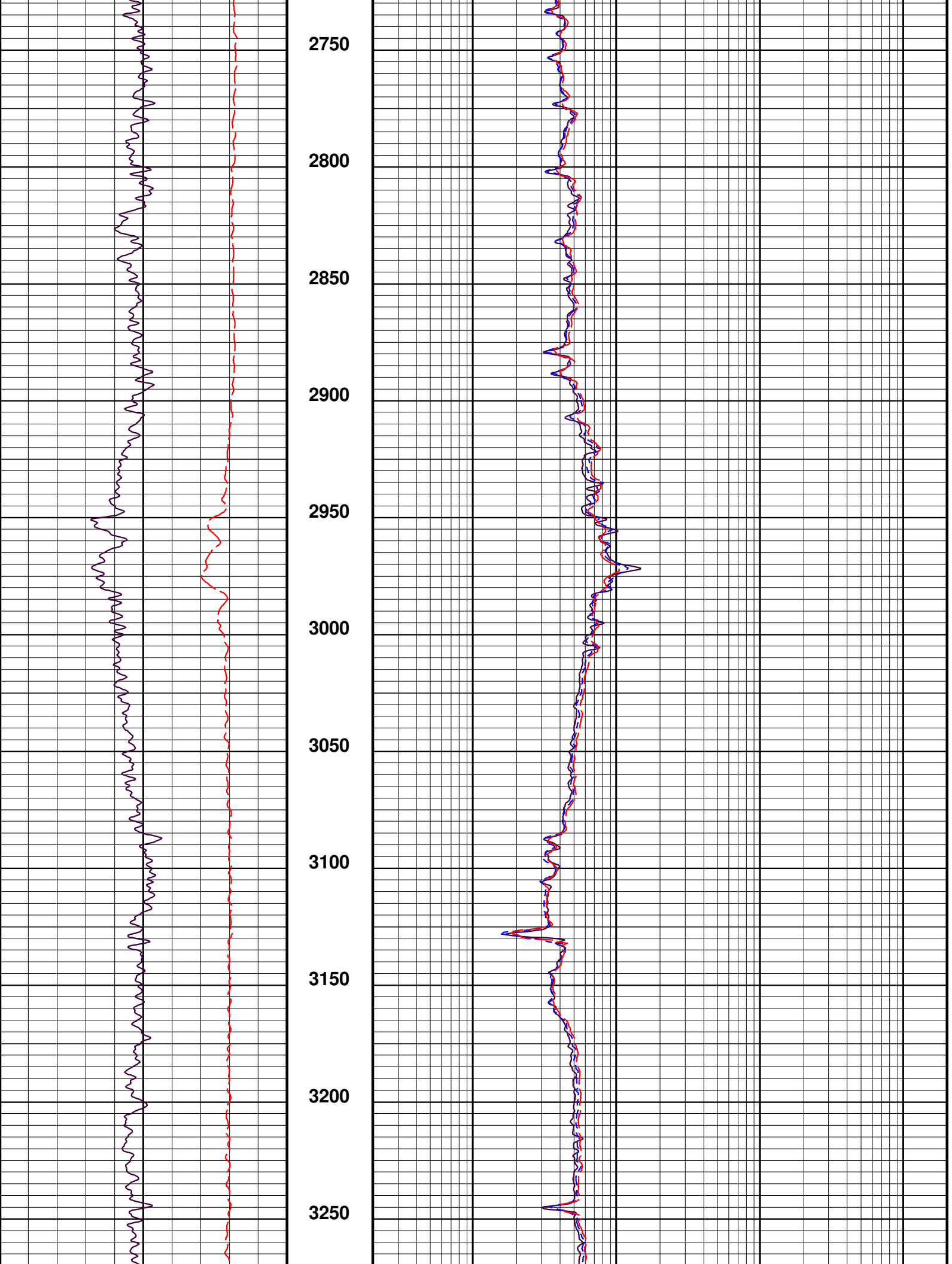
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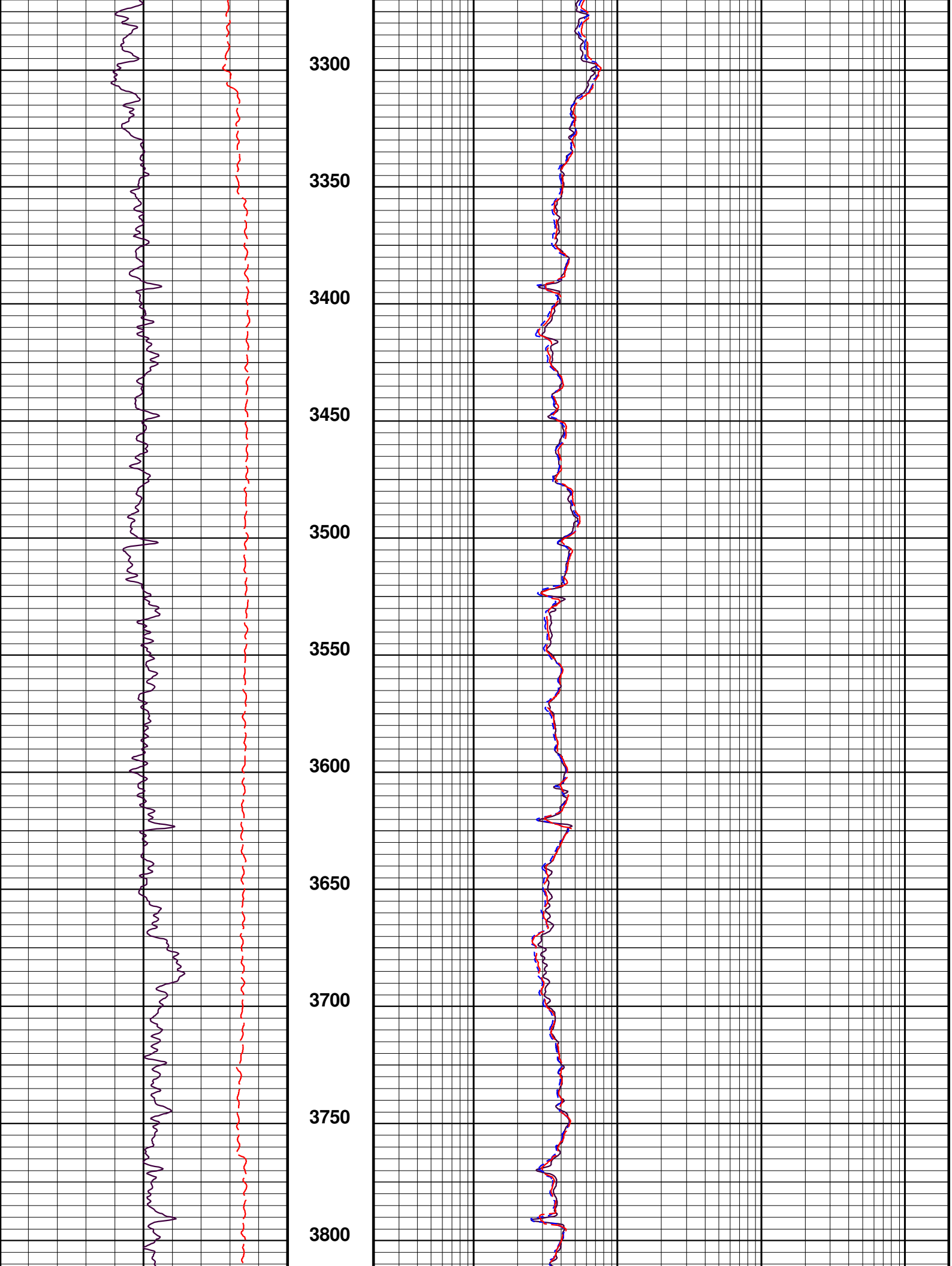
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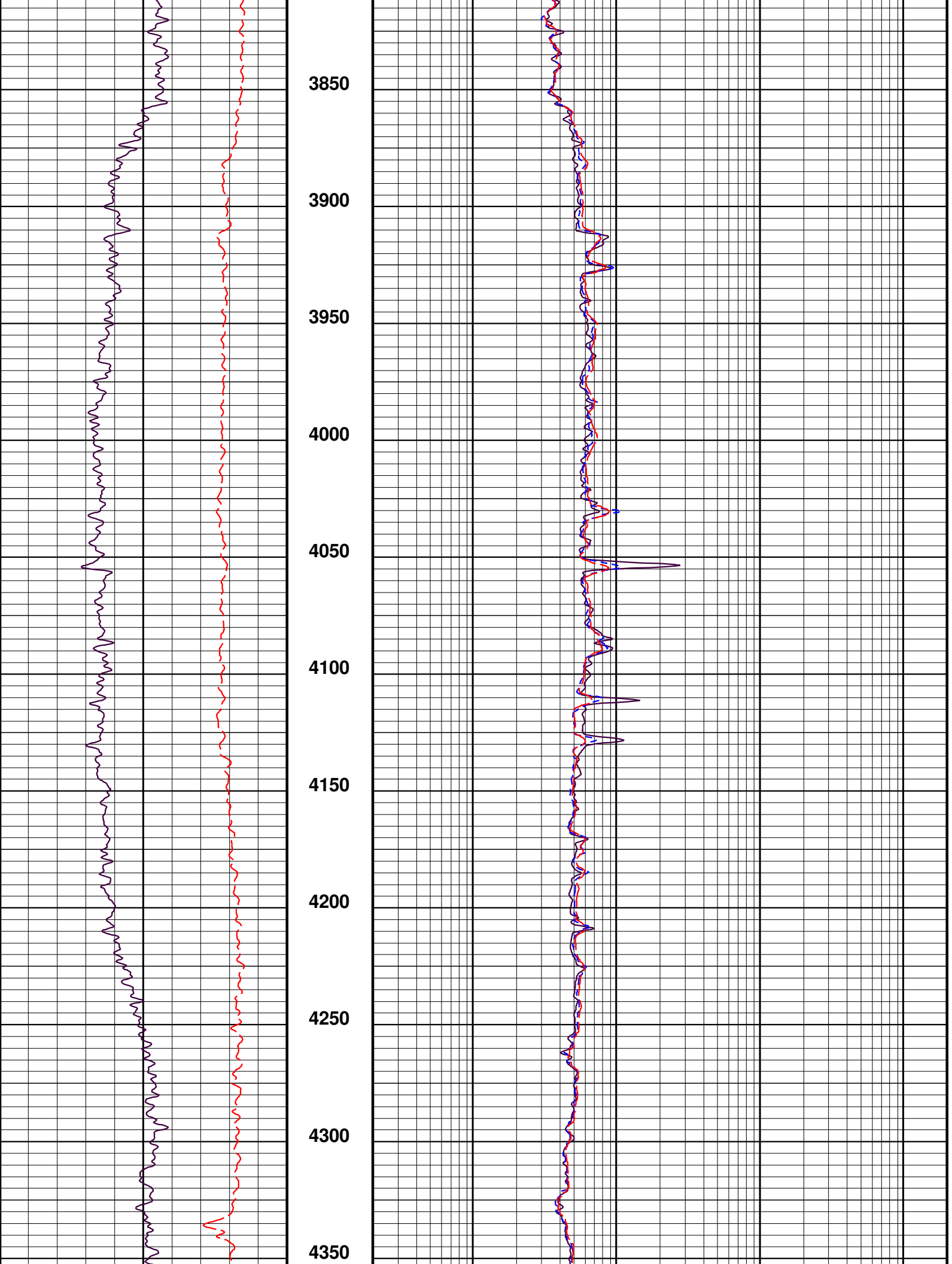
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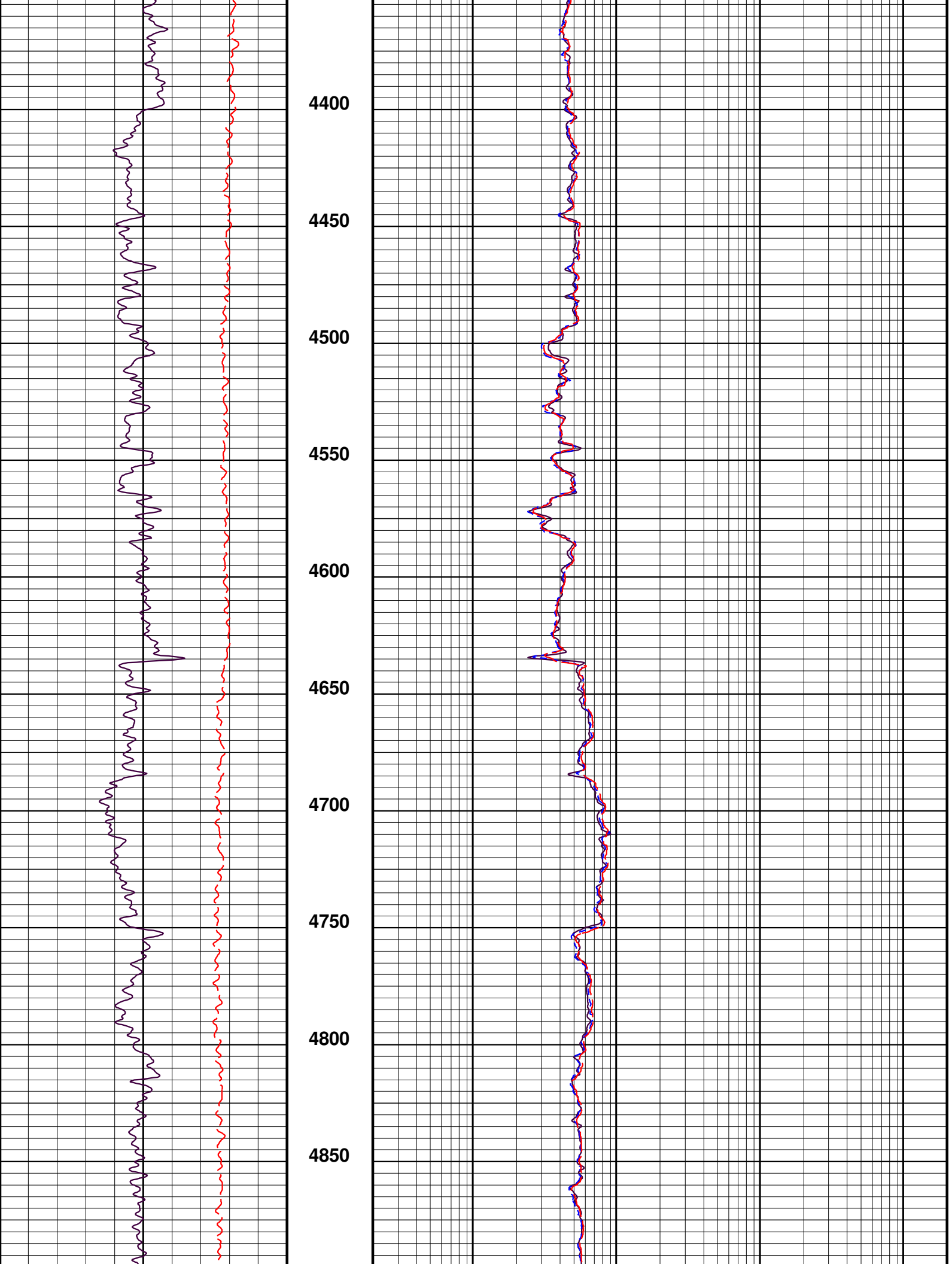
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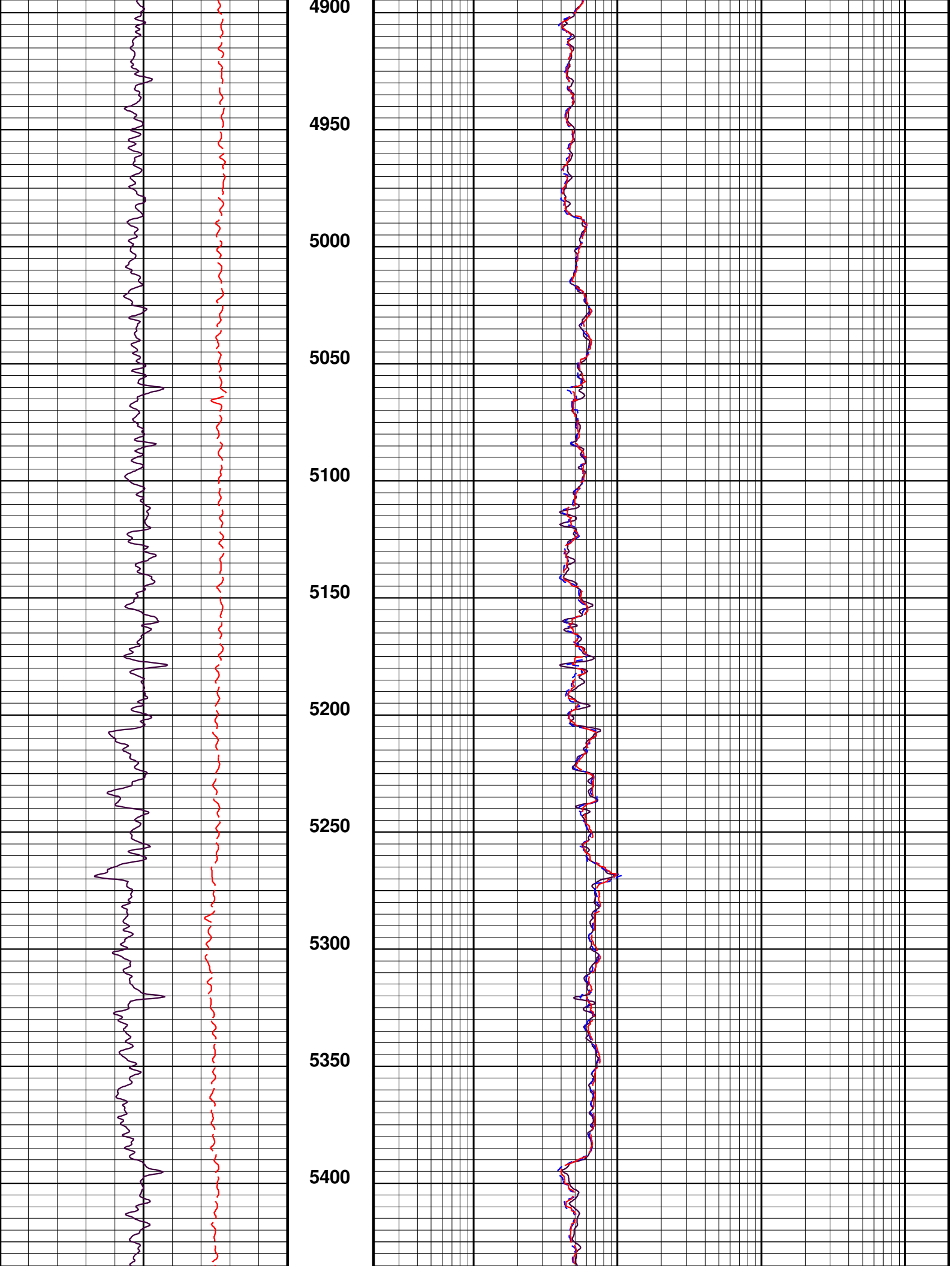
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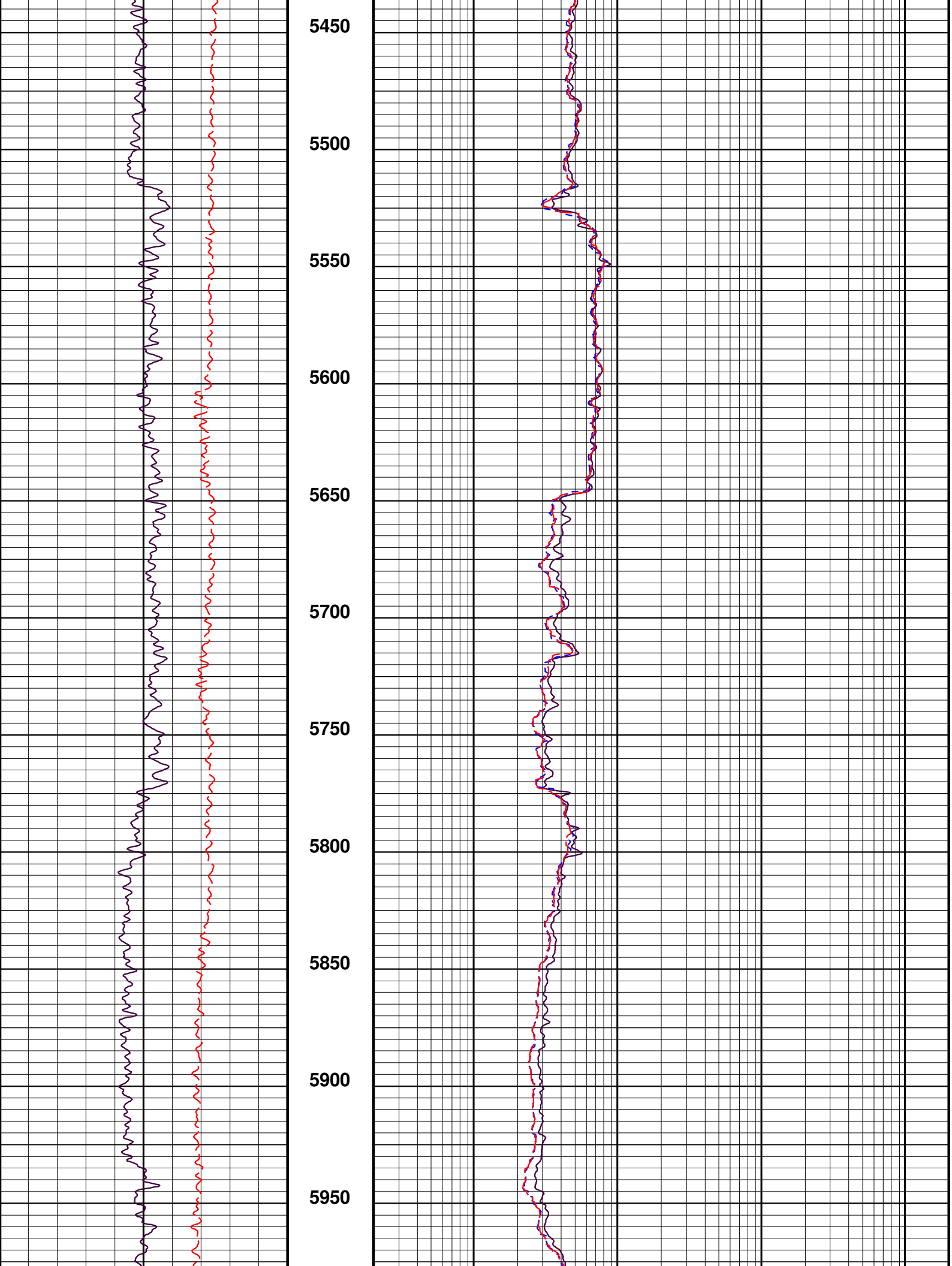
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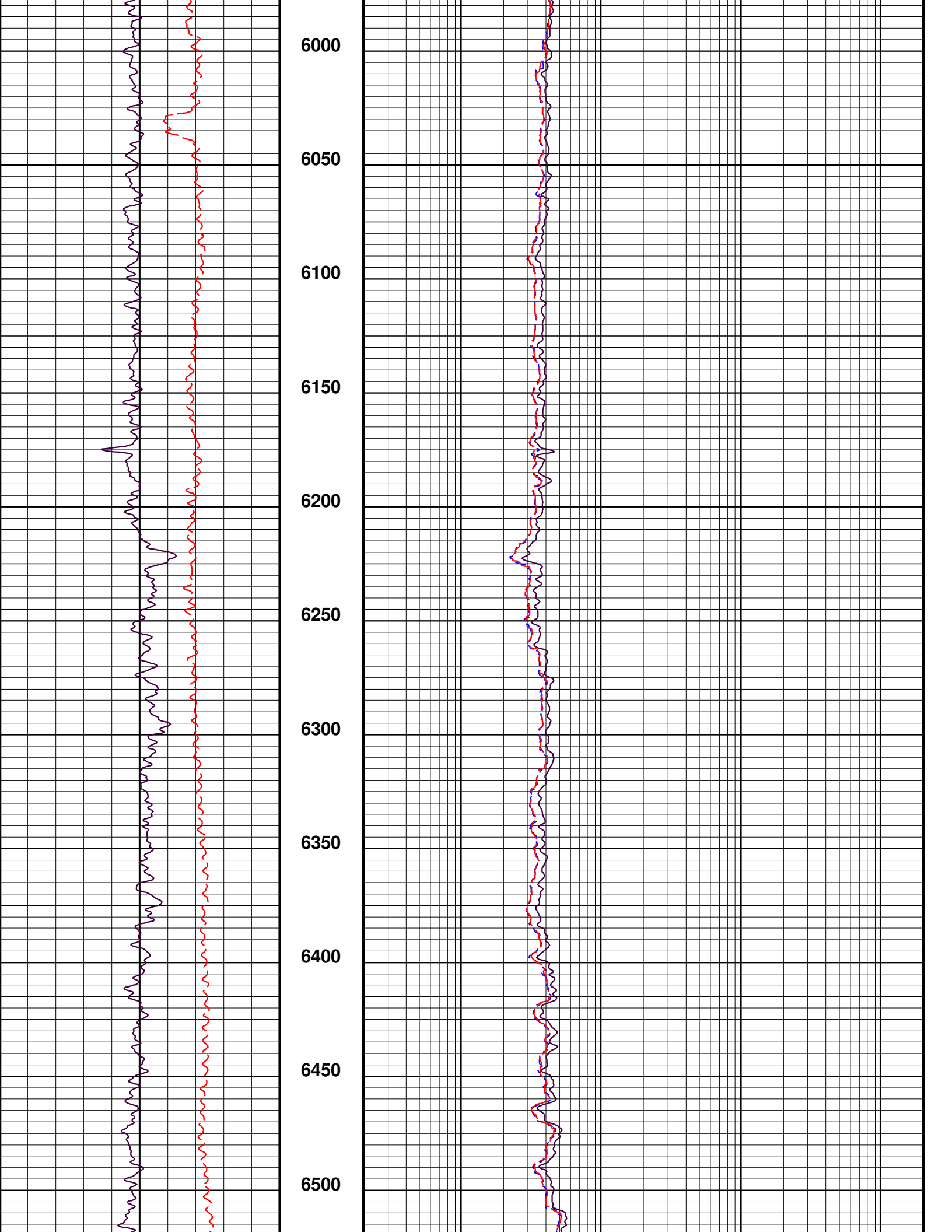
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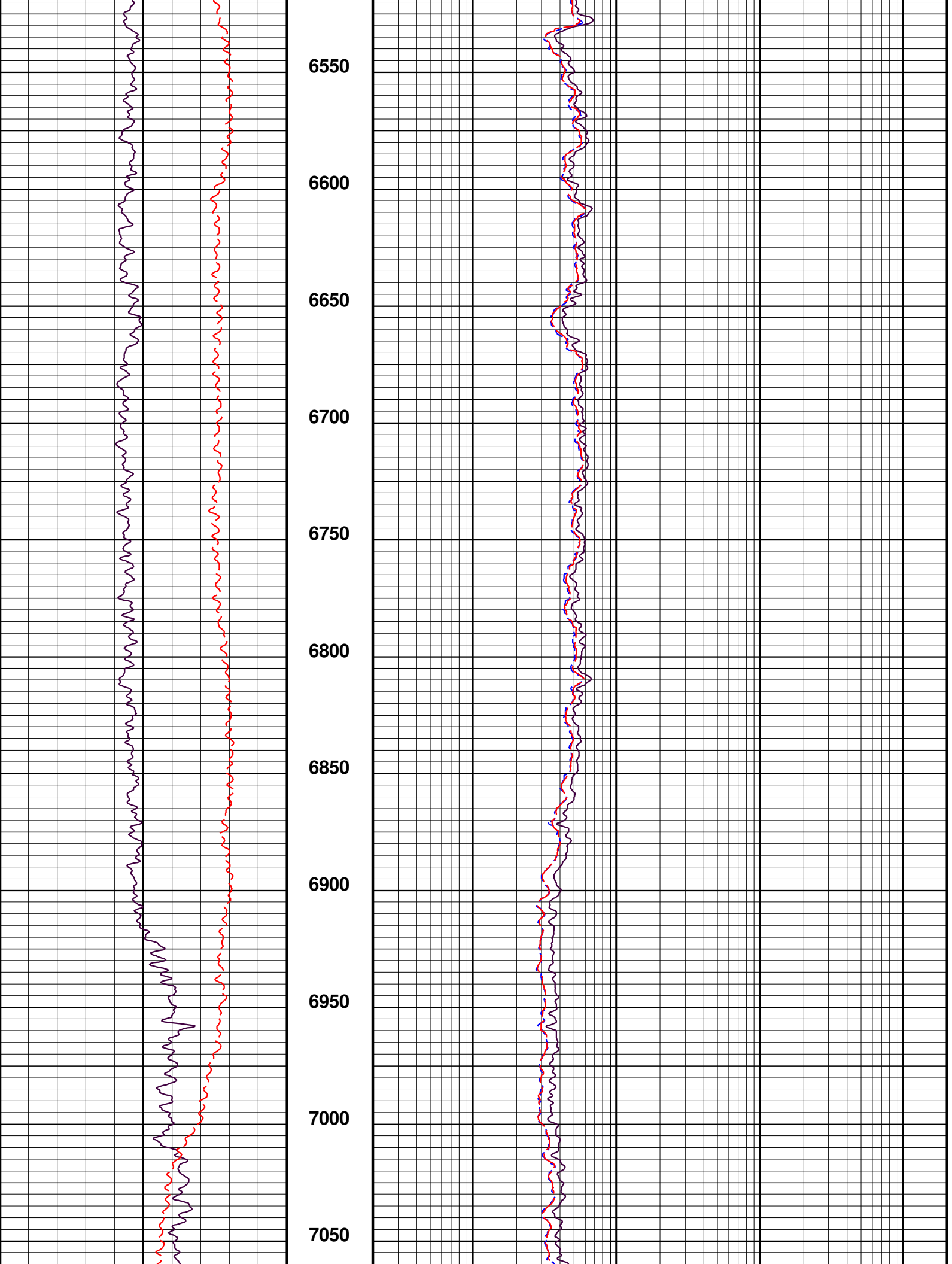
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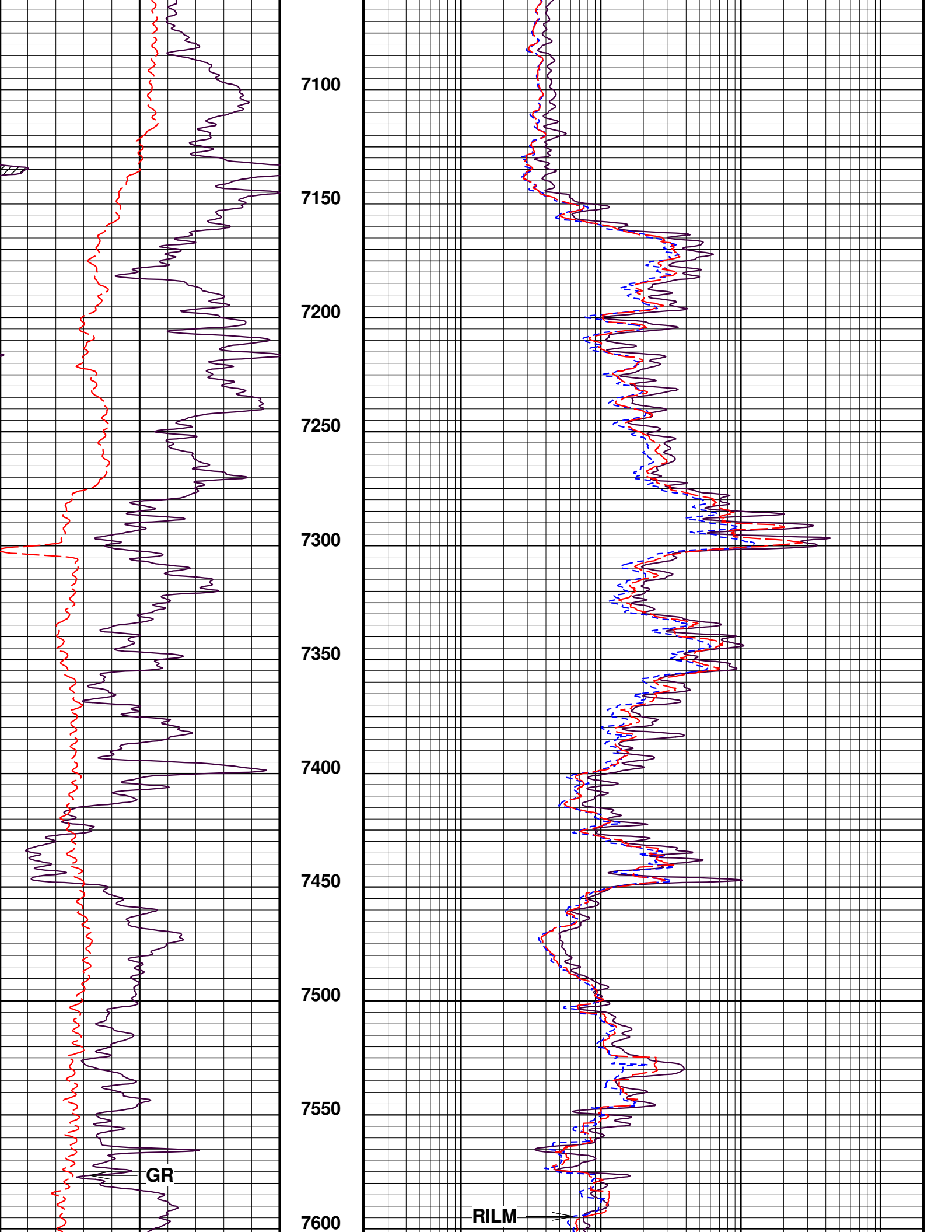
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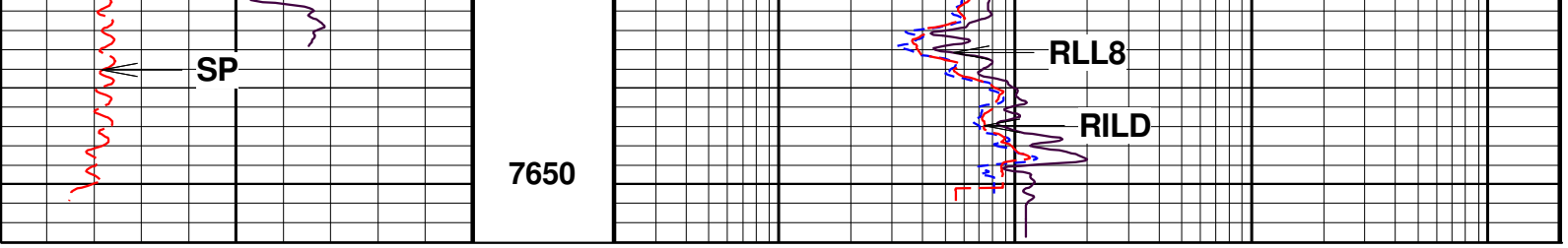
GR
RILM



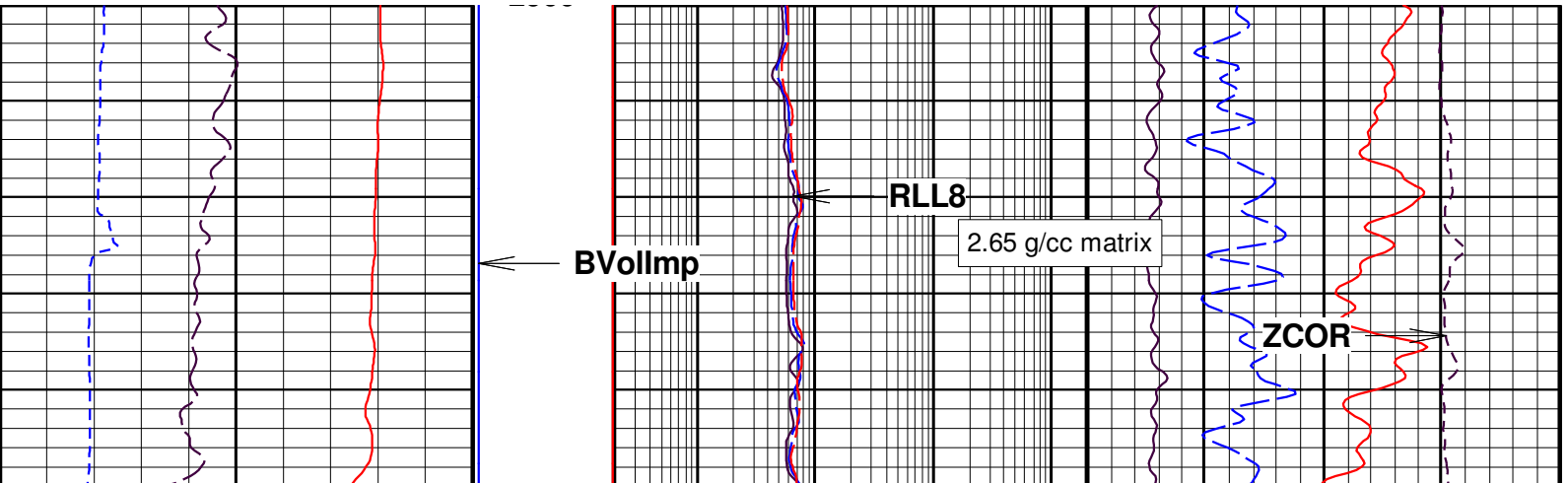
GR (gAPI) 0 200
GR (gAPI) 200 400
SP (mV) 250 450
RLL8 (Ohmm) 0.2 2000.0
RILM (Ohmm) 0.2 2000.0
RILD (Ohmm) 0.2 2000.0
Stratigraphy

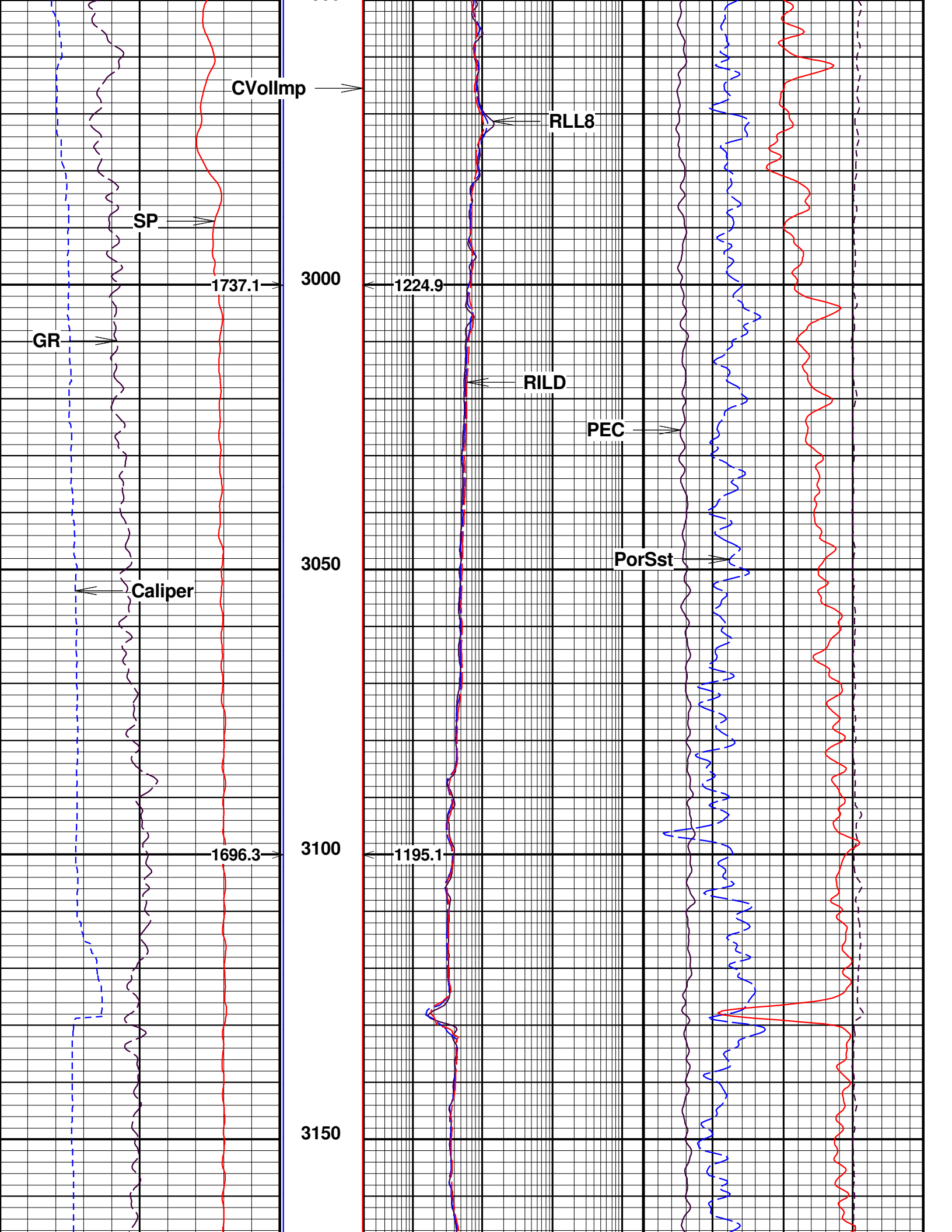
GR

5" / 100' MAIN PASS

Company	: GRIZZLY OPERATING,LLC	Date	: 11.11.2015
Well	: GOZA 18-2Ae	Time	: 10:14:06
Scale	: 1 : 240	Remarks	: SO 2-014083
Depth in	: ft		
Software	: WinAPlot Ver. 5, 91, 4, 0	File Names	: 2
			: original with volume

PorLst (pu) 40 0
CVolImp (cu ft) 500 Periodic 0
D7.PorD (pu) 40 0
BVolImp (cu ft) 0.0 Periodic 500.0
d5.PorD (pu) 40 0
SP (mV) 250 450
RILD (Ohmm) 0.2 2000.0
PorD (pu) 40 0
Caliper (inch) 6 16
RILM (Ohmm) 0.2 2000.0
PEC (b/e) 0.0 10.0
ZCOR (g/ccm) -0.5 0.5
GR (gAPI) 0 200
RLL8 (Ohmm) 0.2 2000.0
PorSst (pu) 40 0




CVolImp
RLL8
SP
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GR
RILD
PEC
PorSst
3050
Caliper
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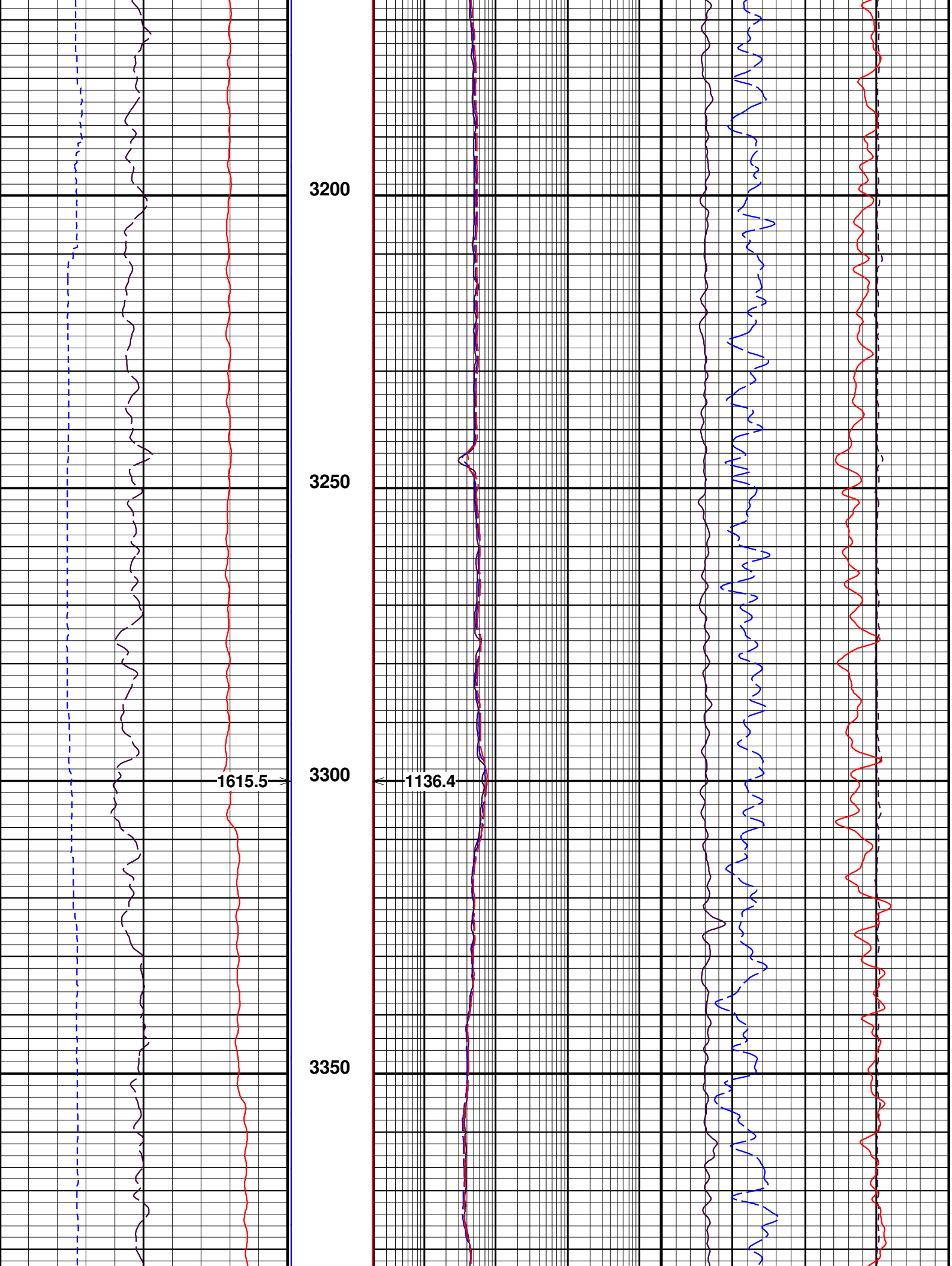
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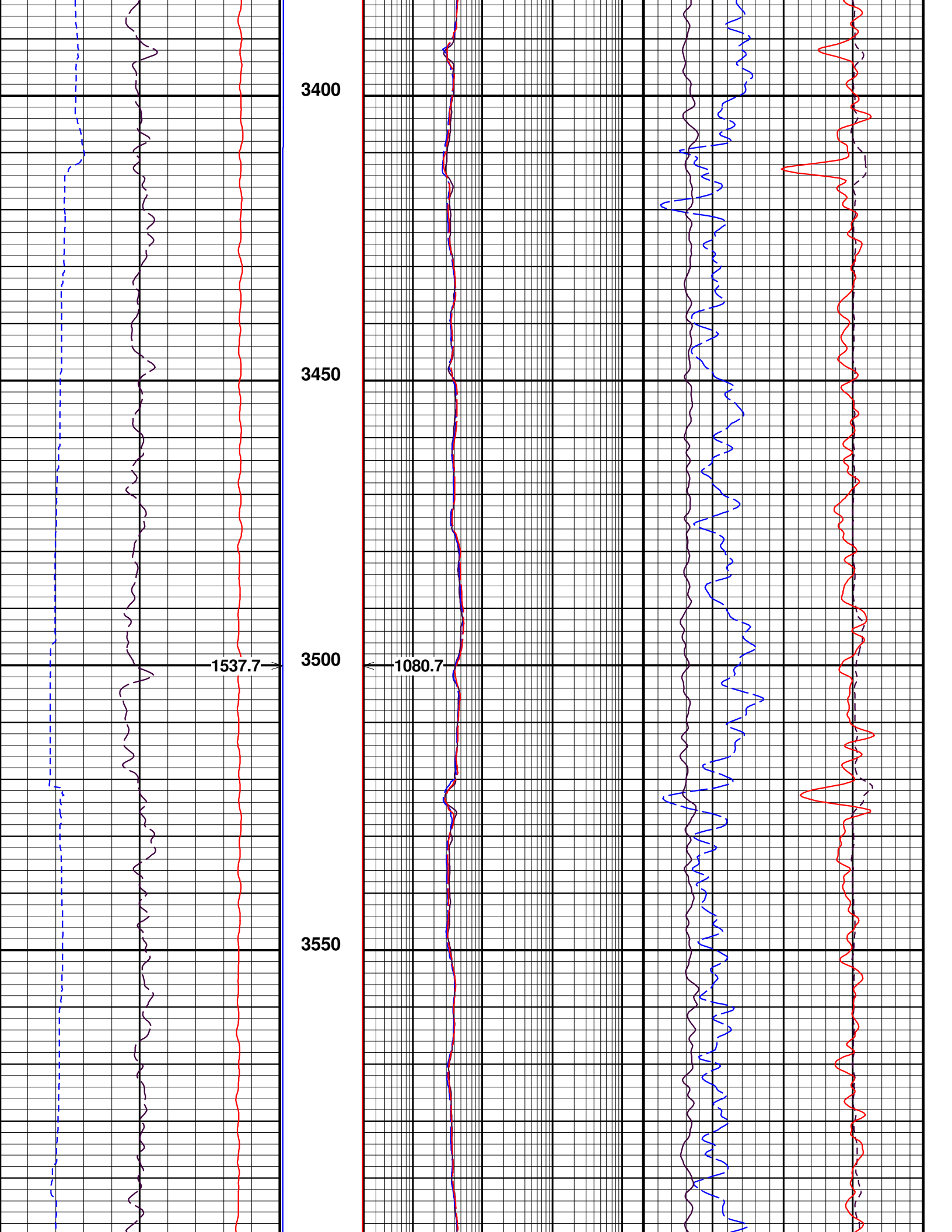
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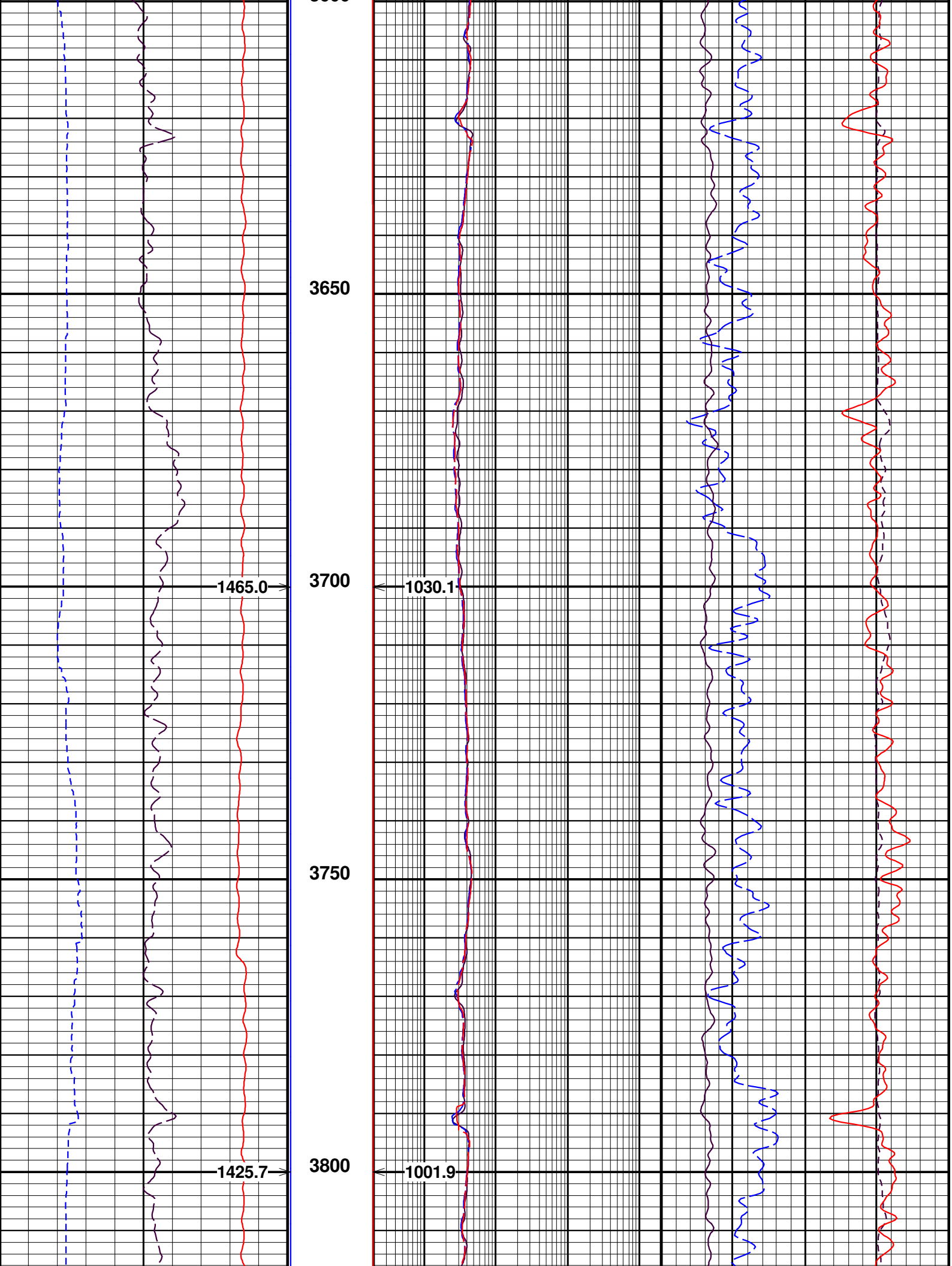
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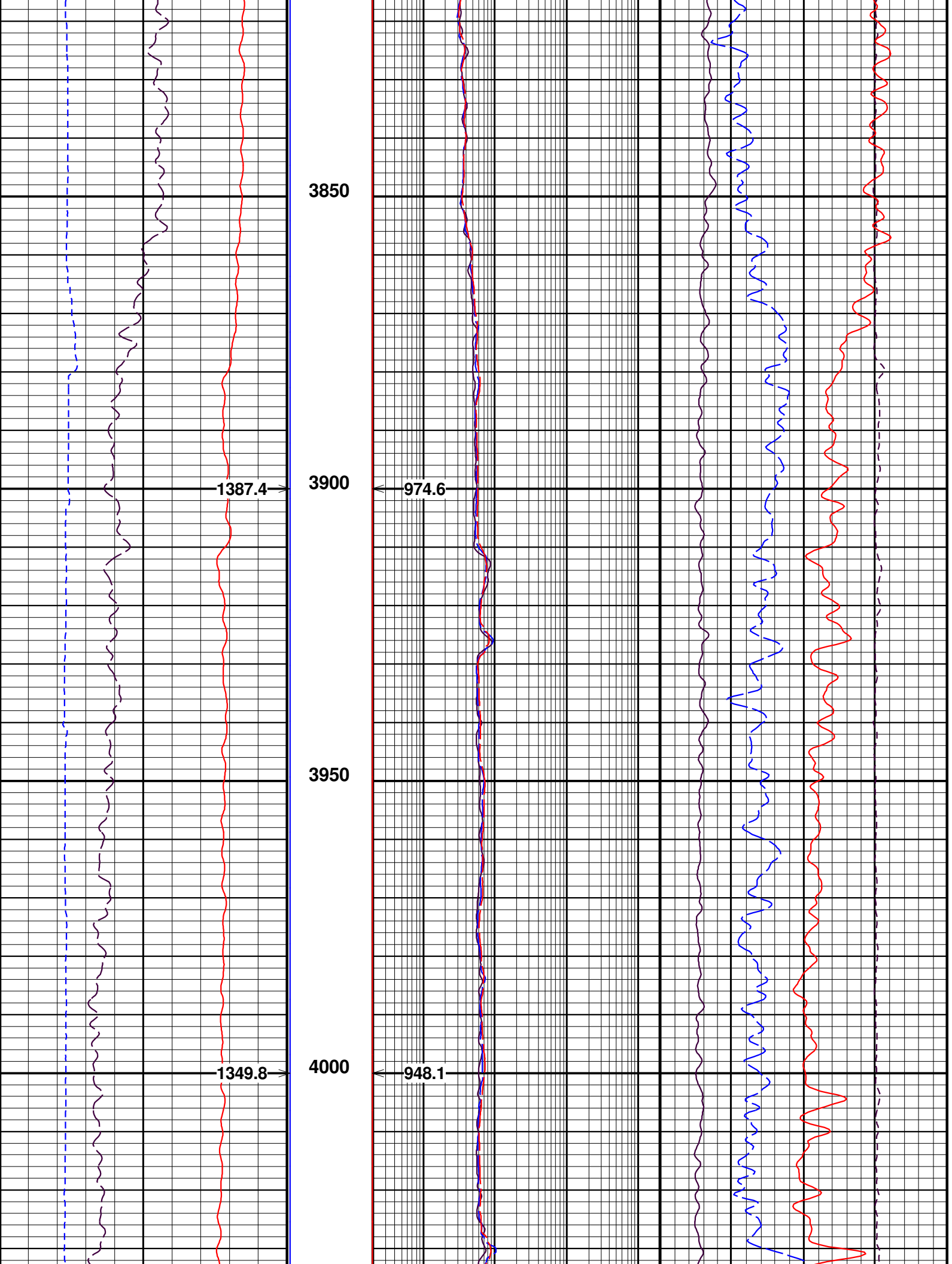
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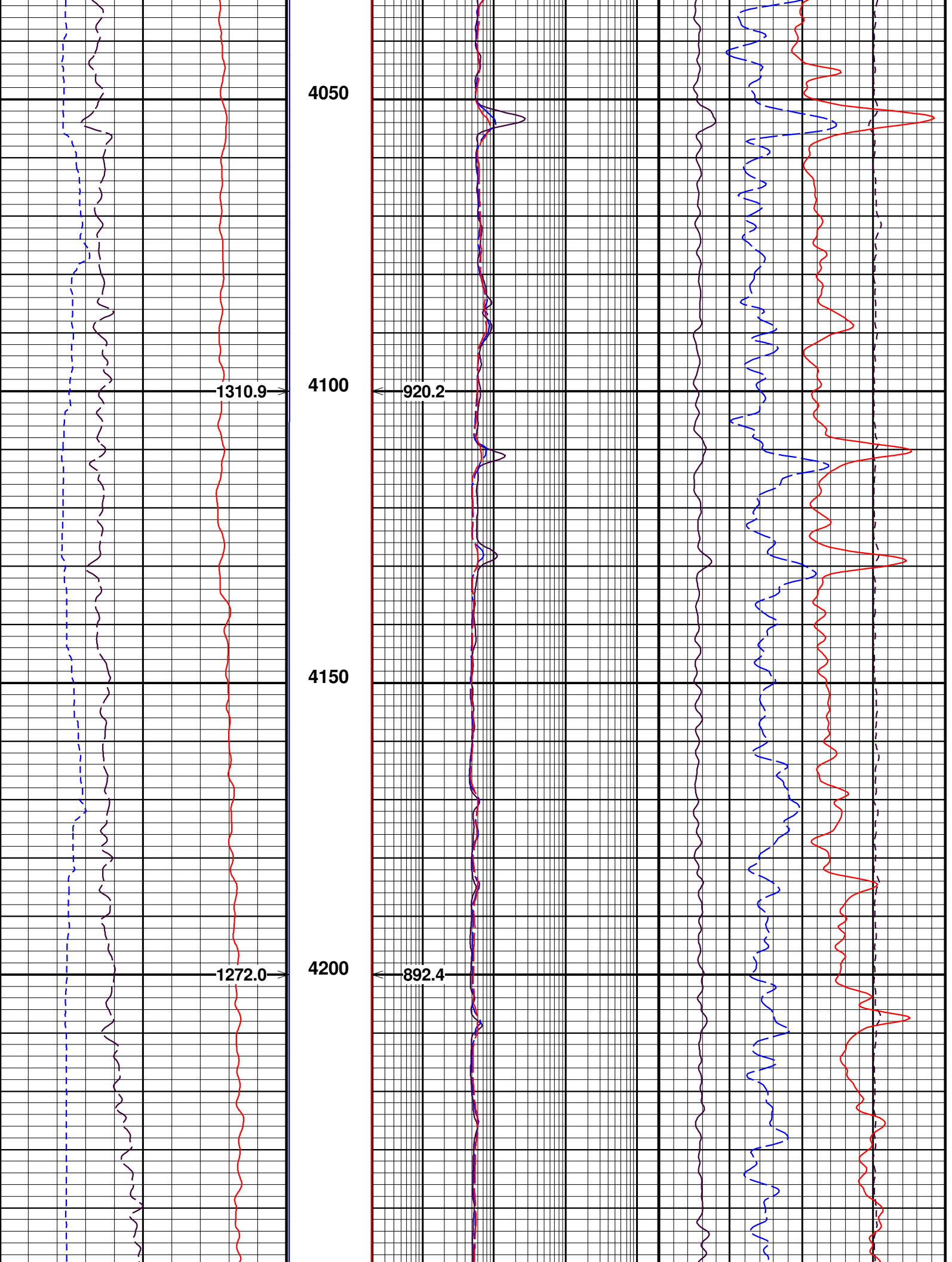
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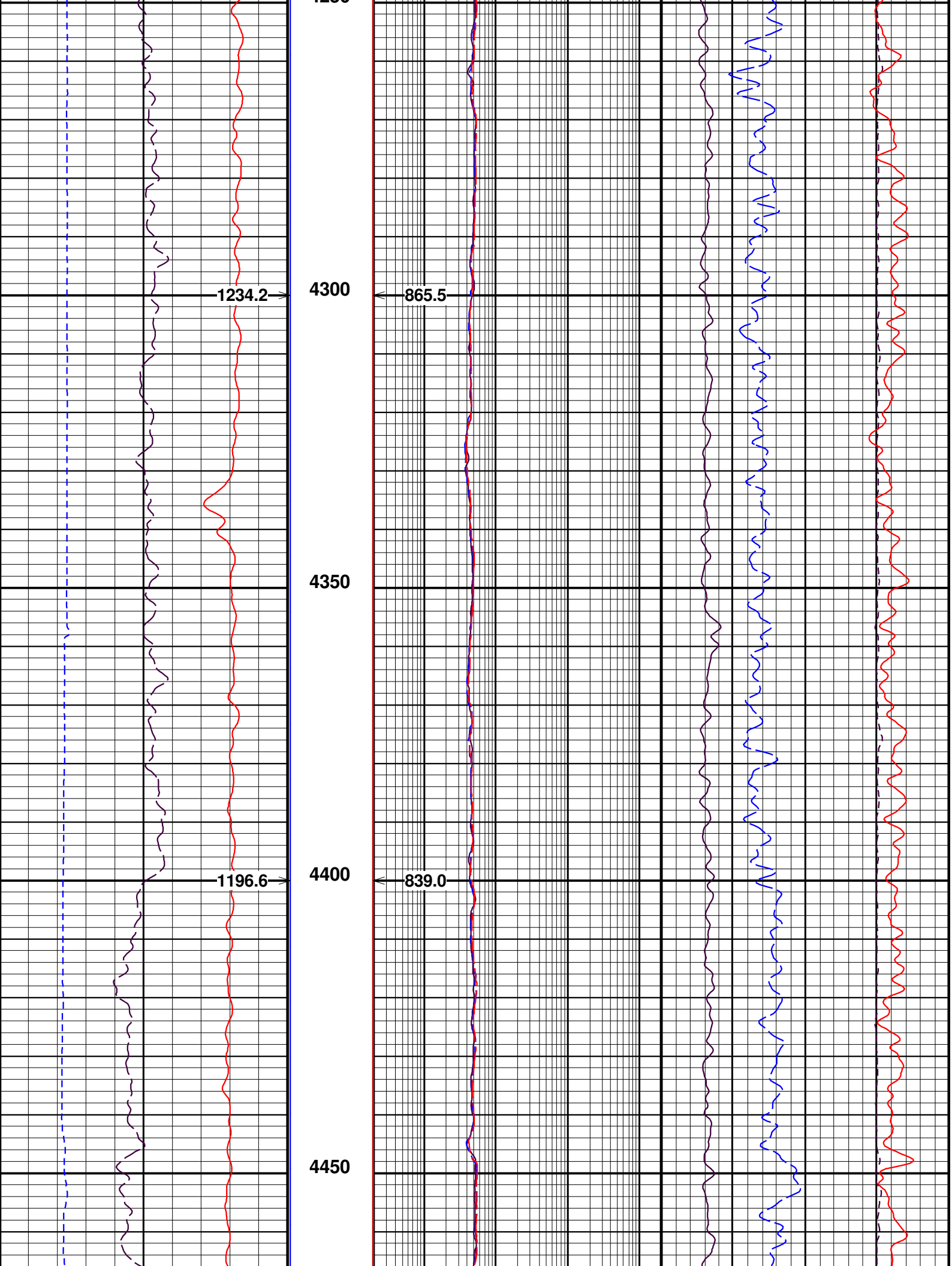
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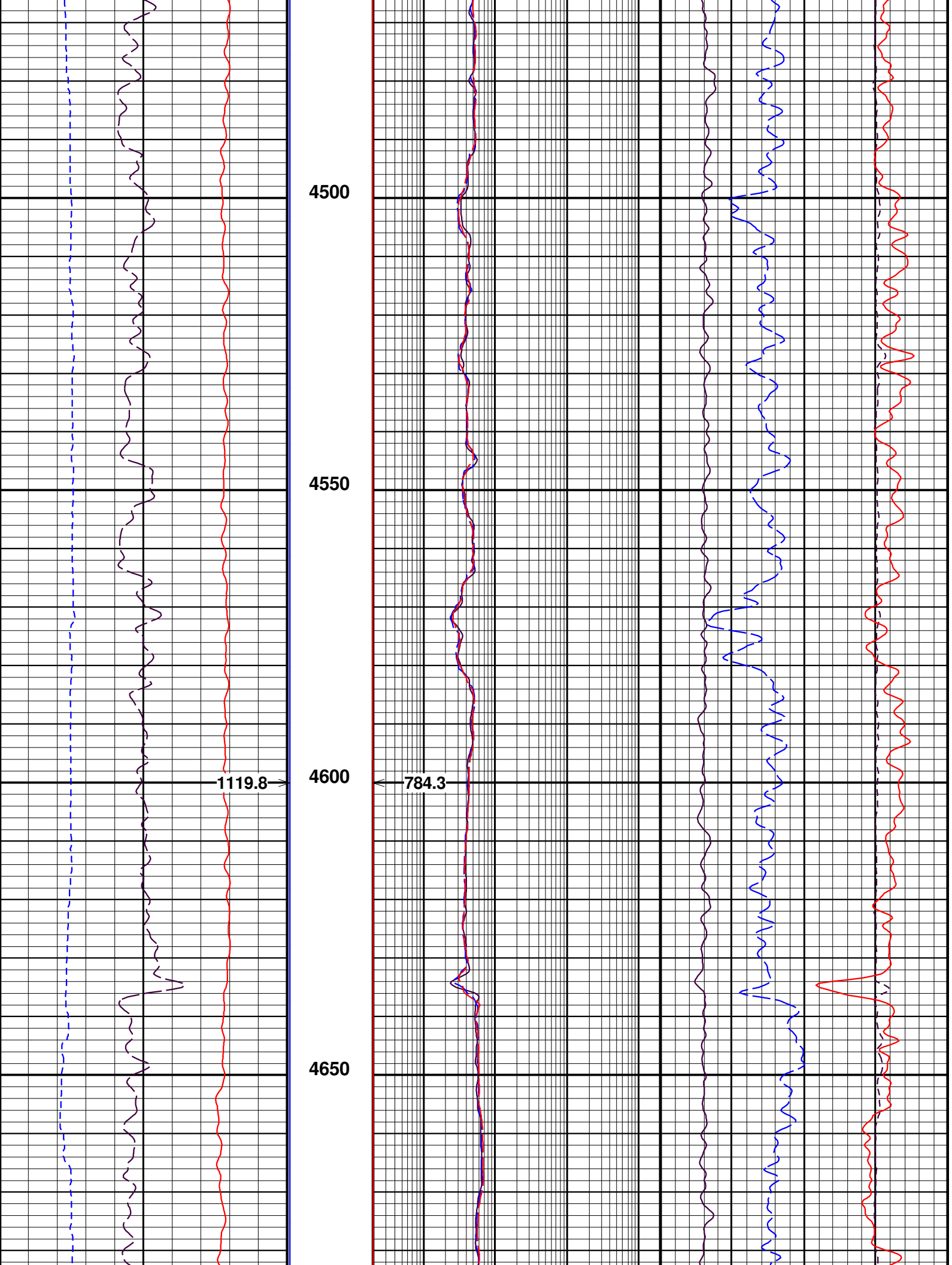
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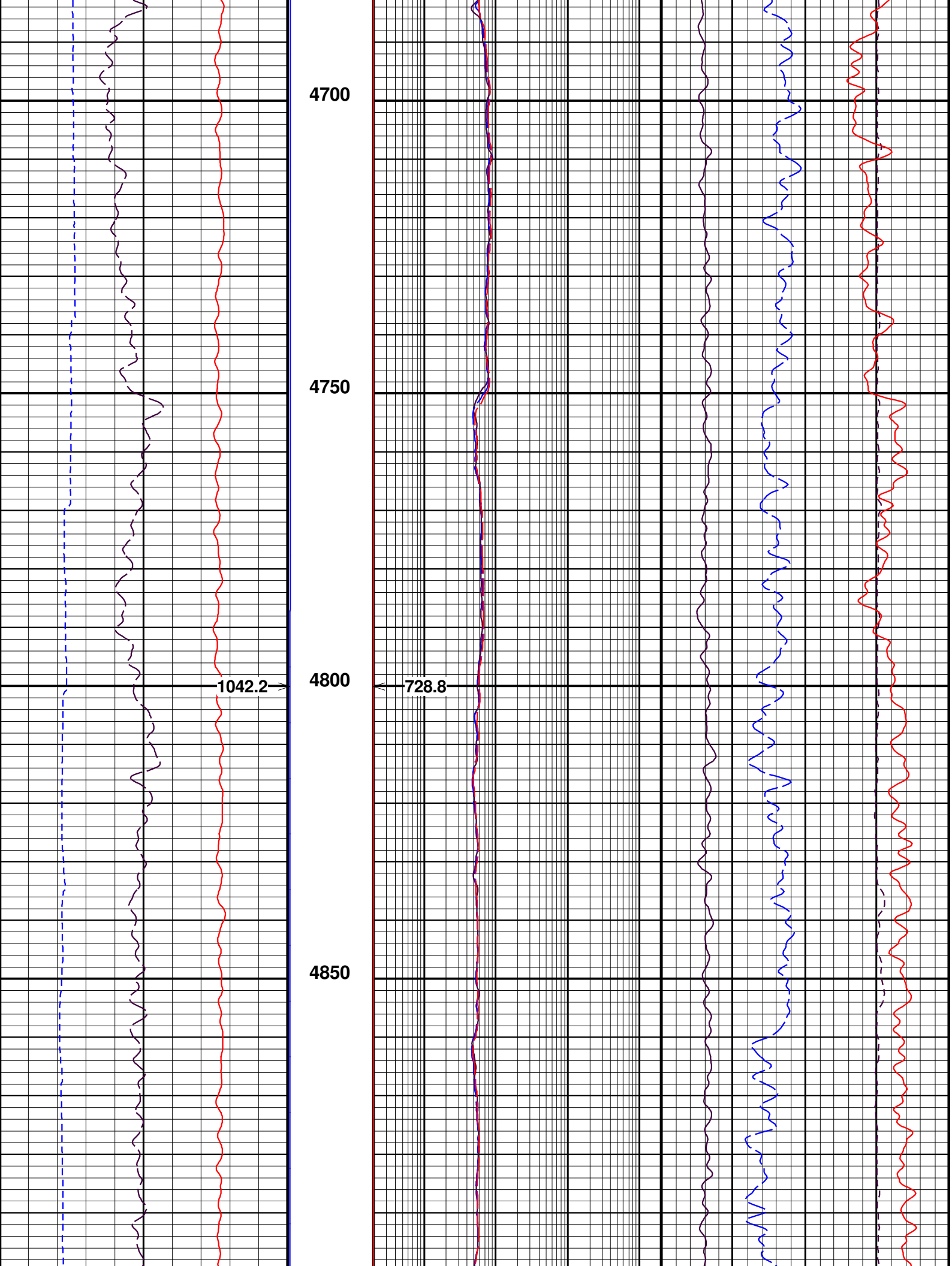
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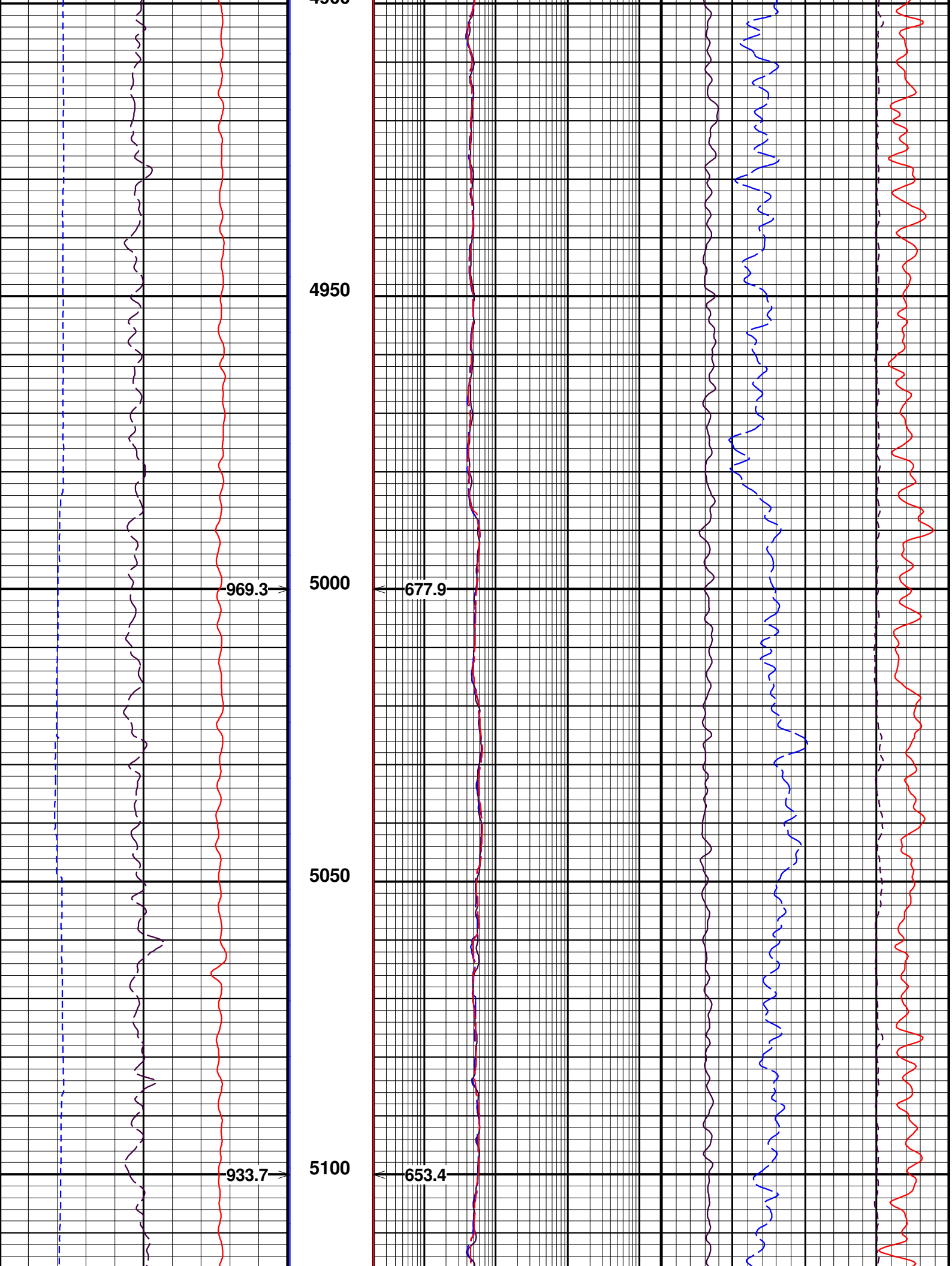
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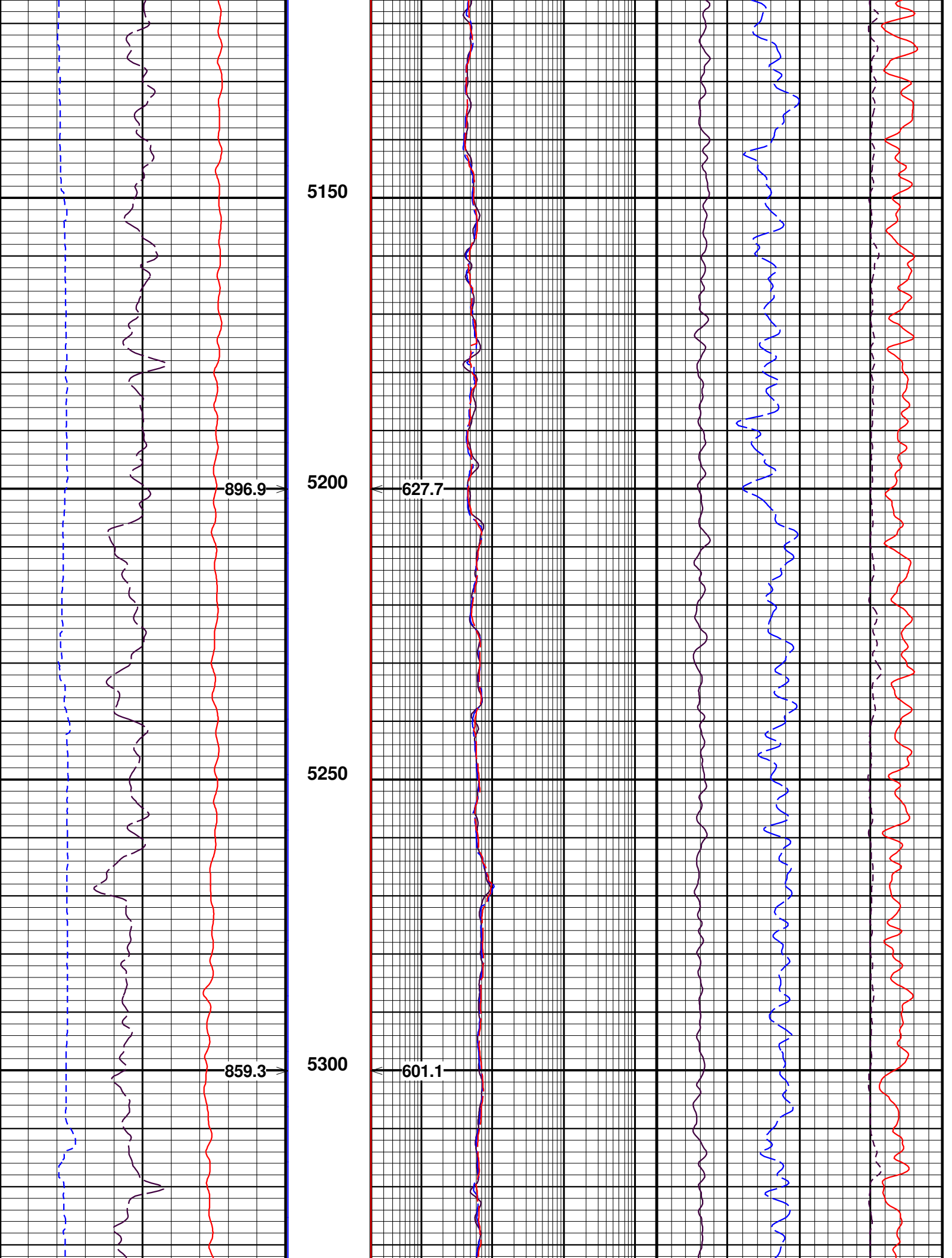
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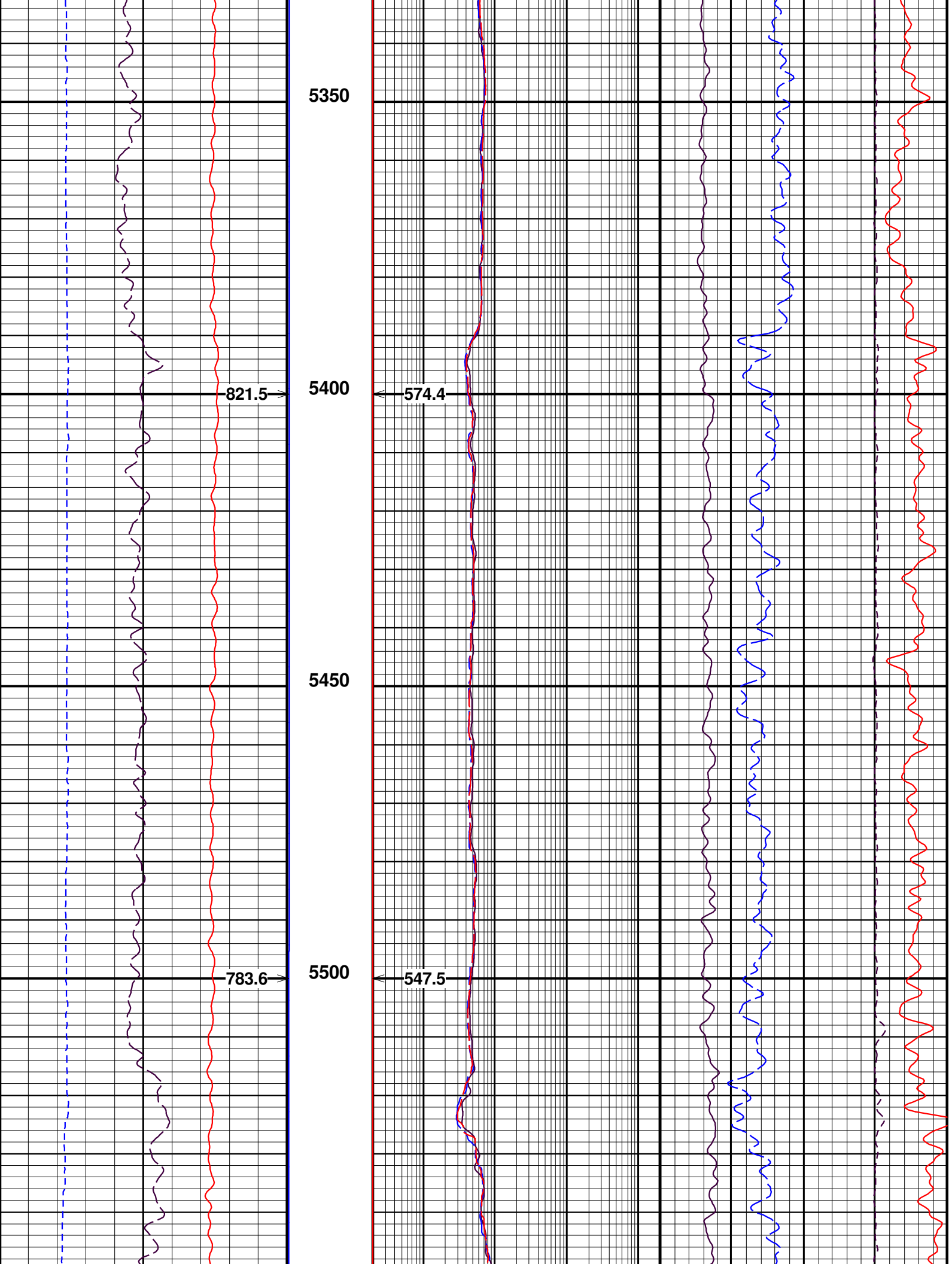
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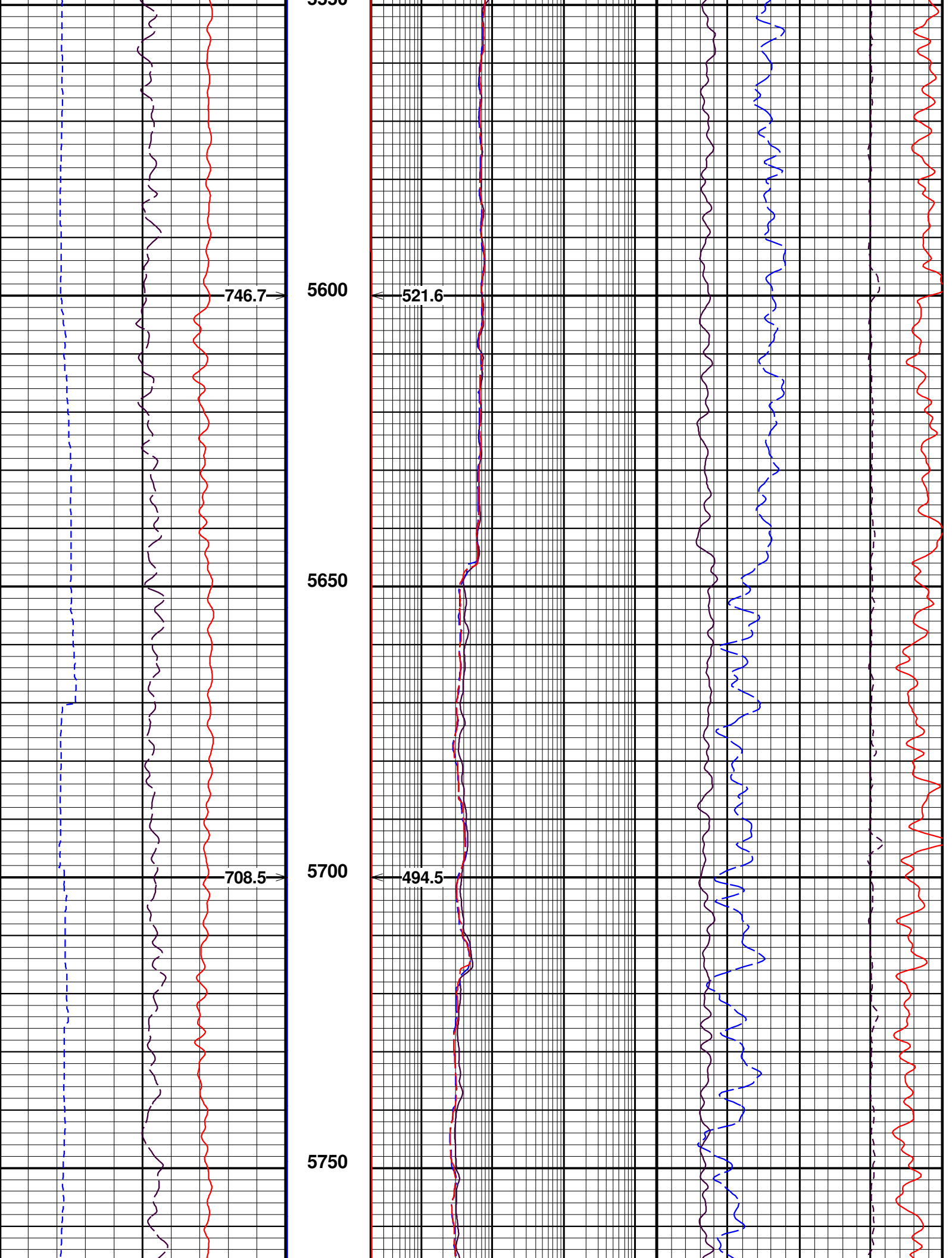
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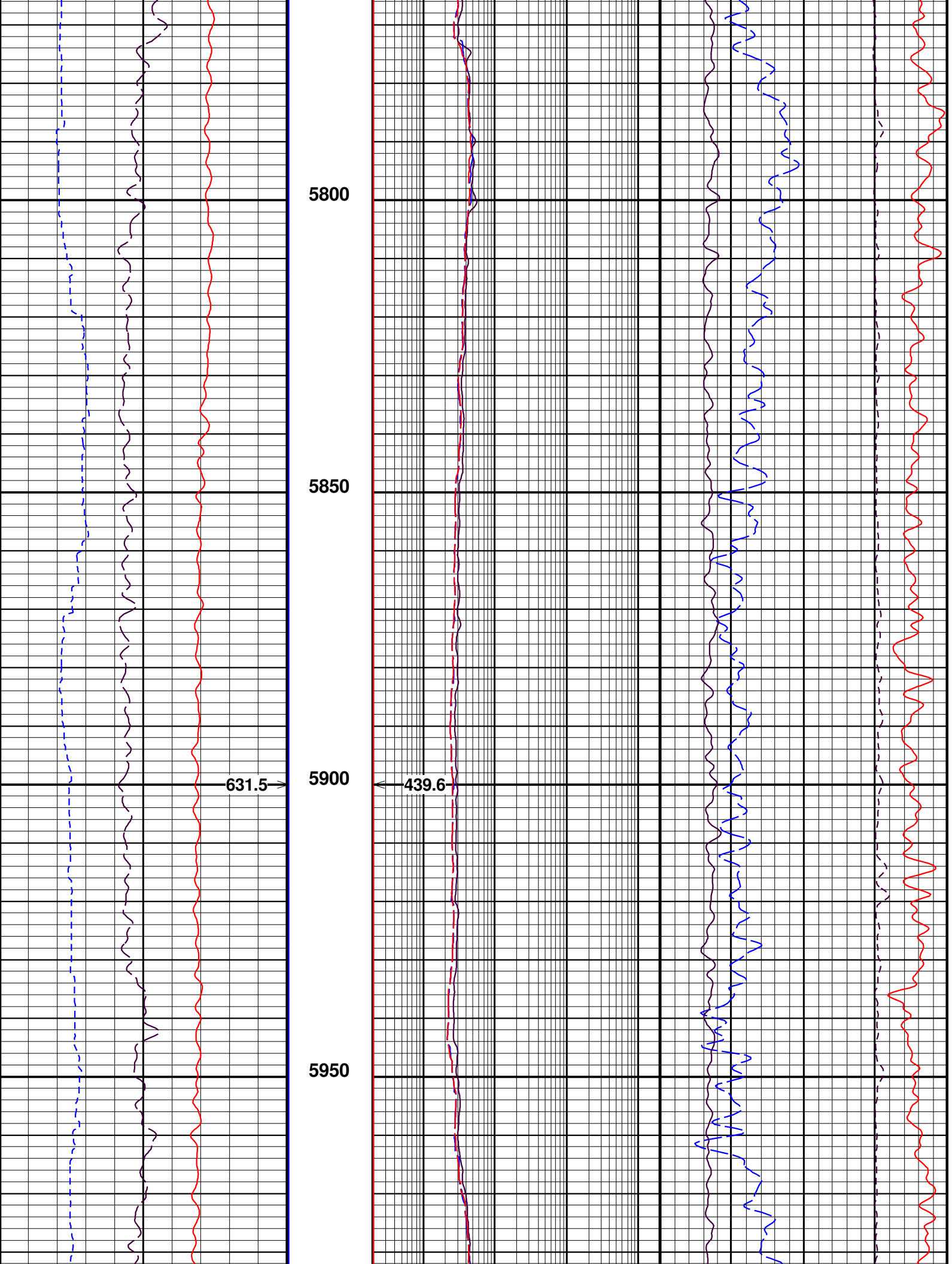
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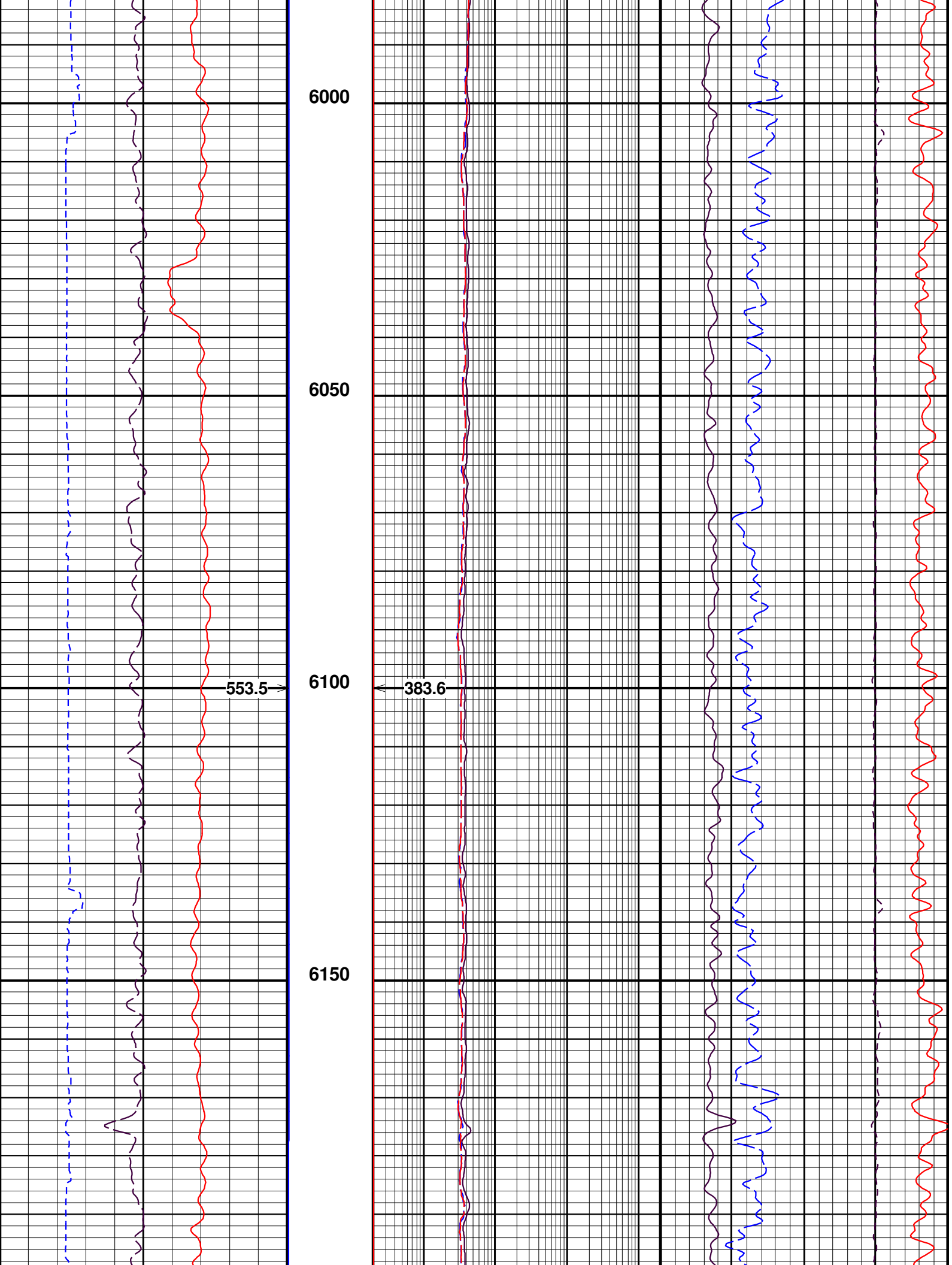
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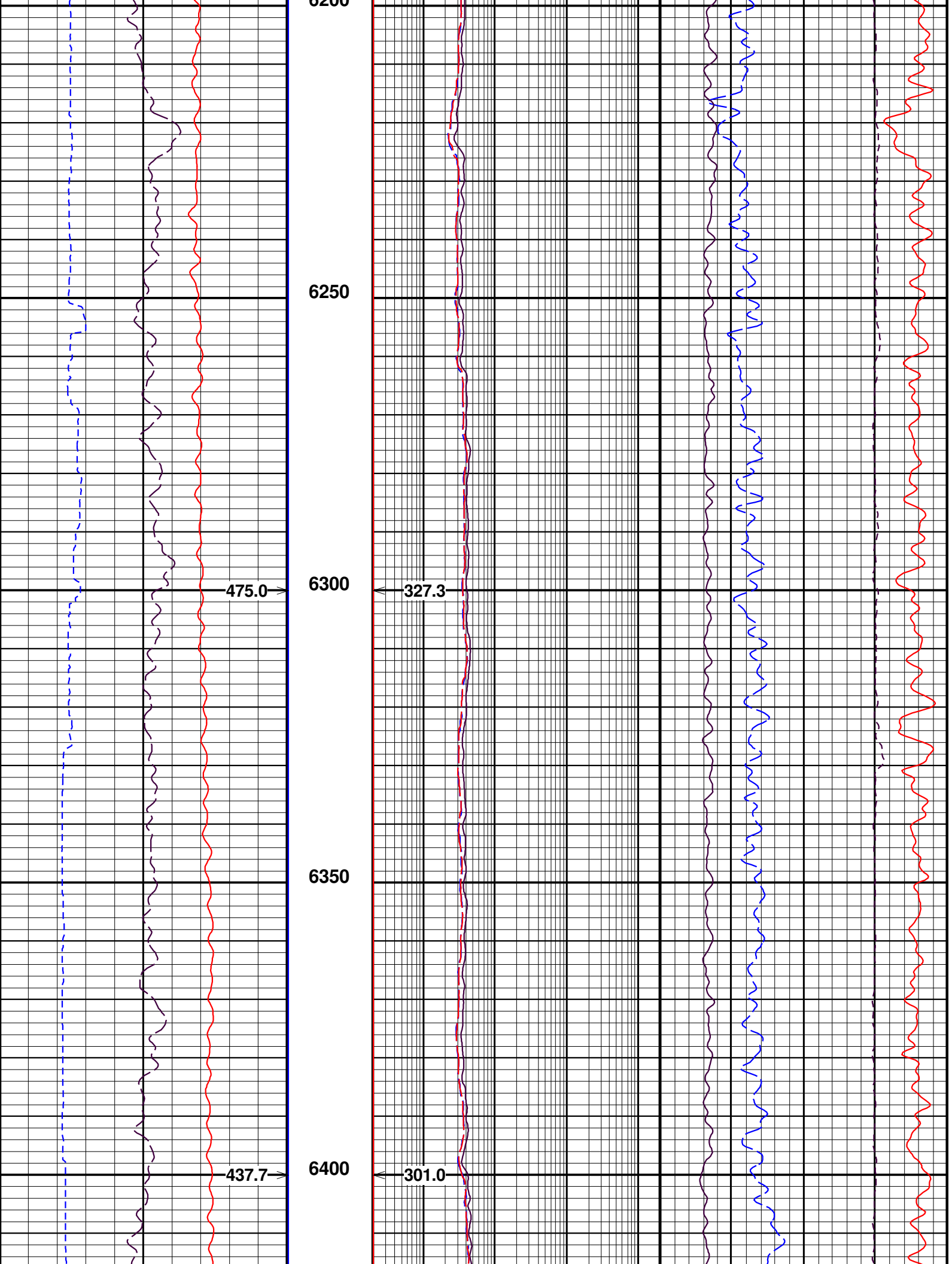
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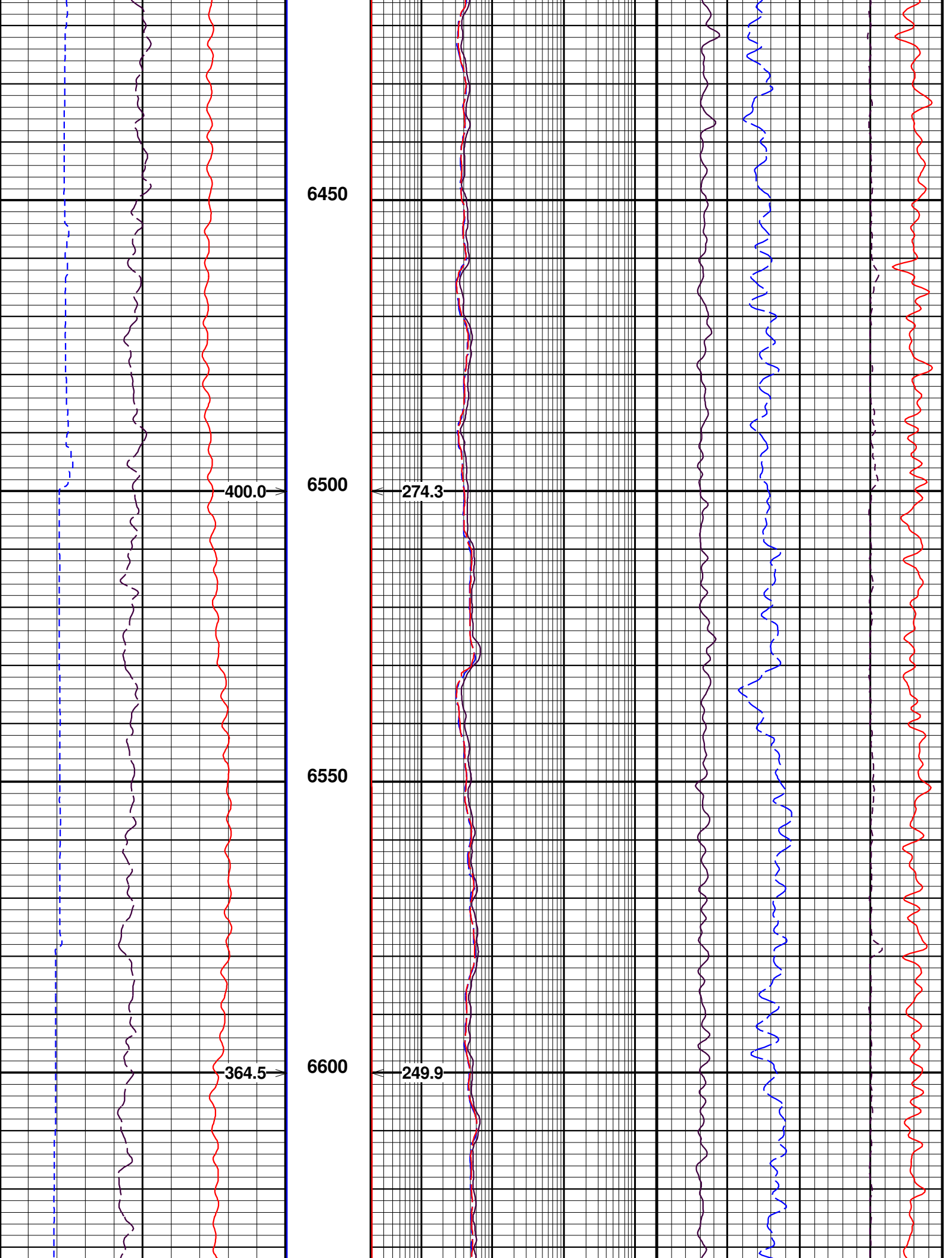
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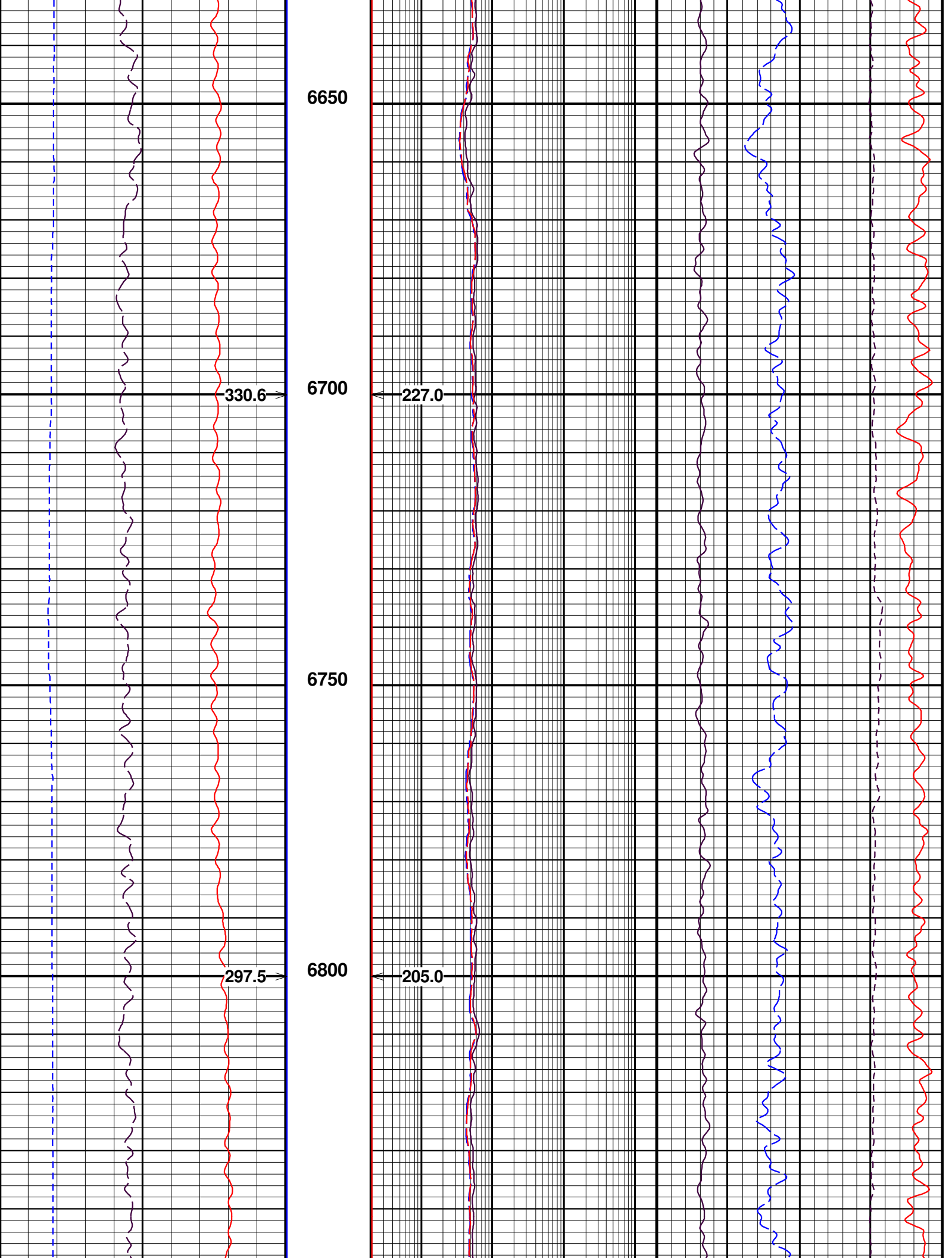
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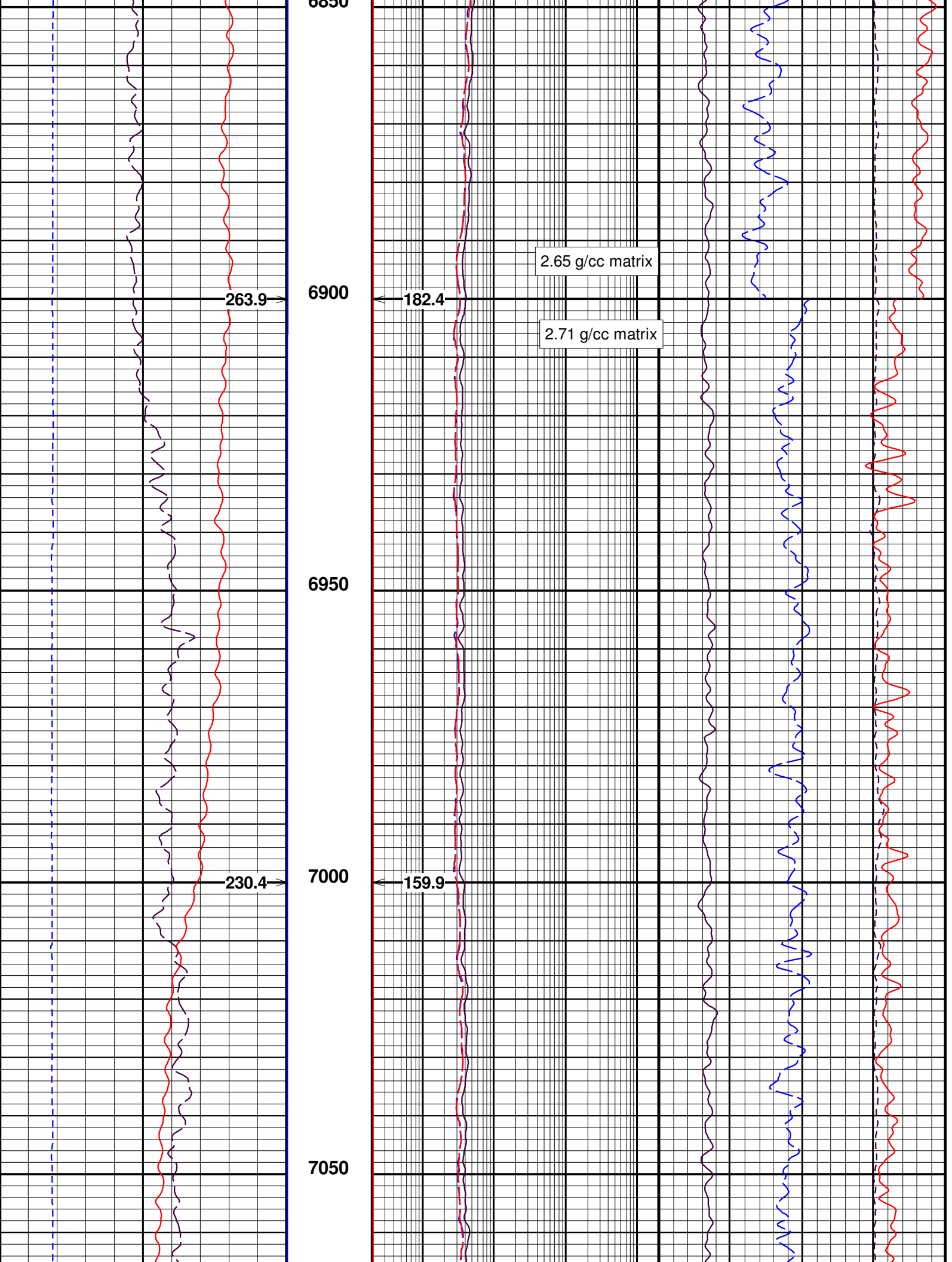
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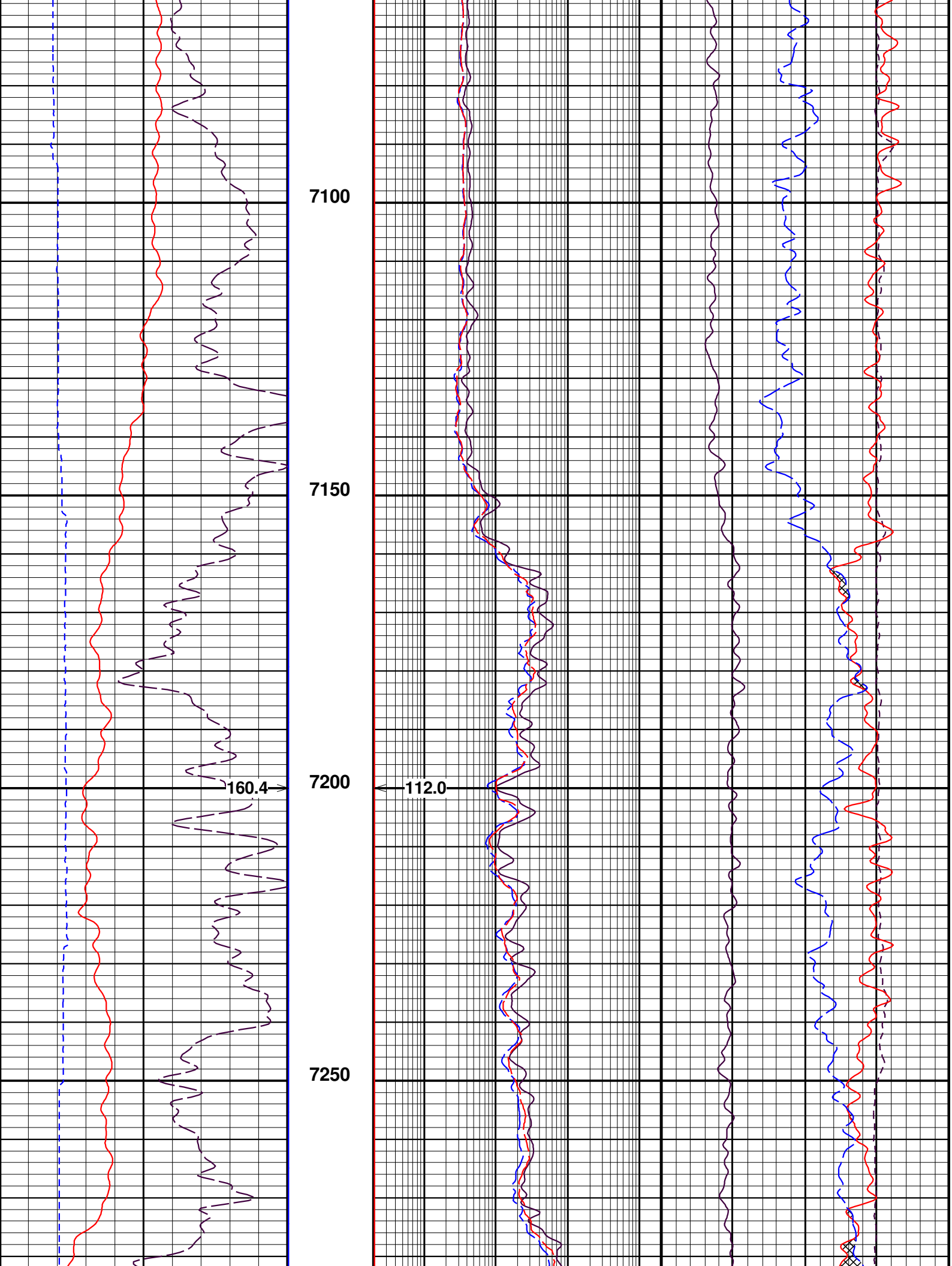
182.4
159.9
2.65 g/cc matrix
2.71 g/cc matrix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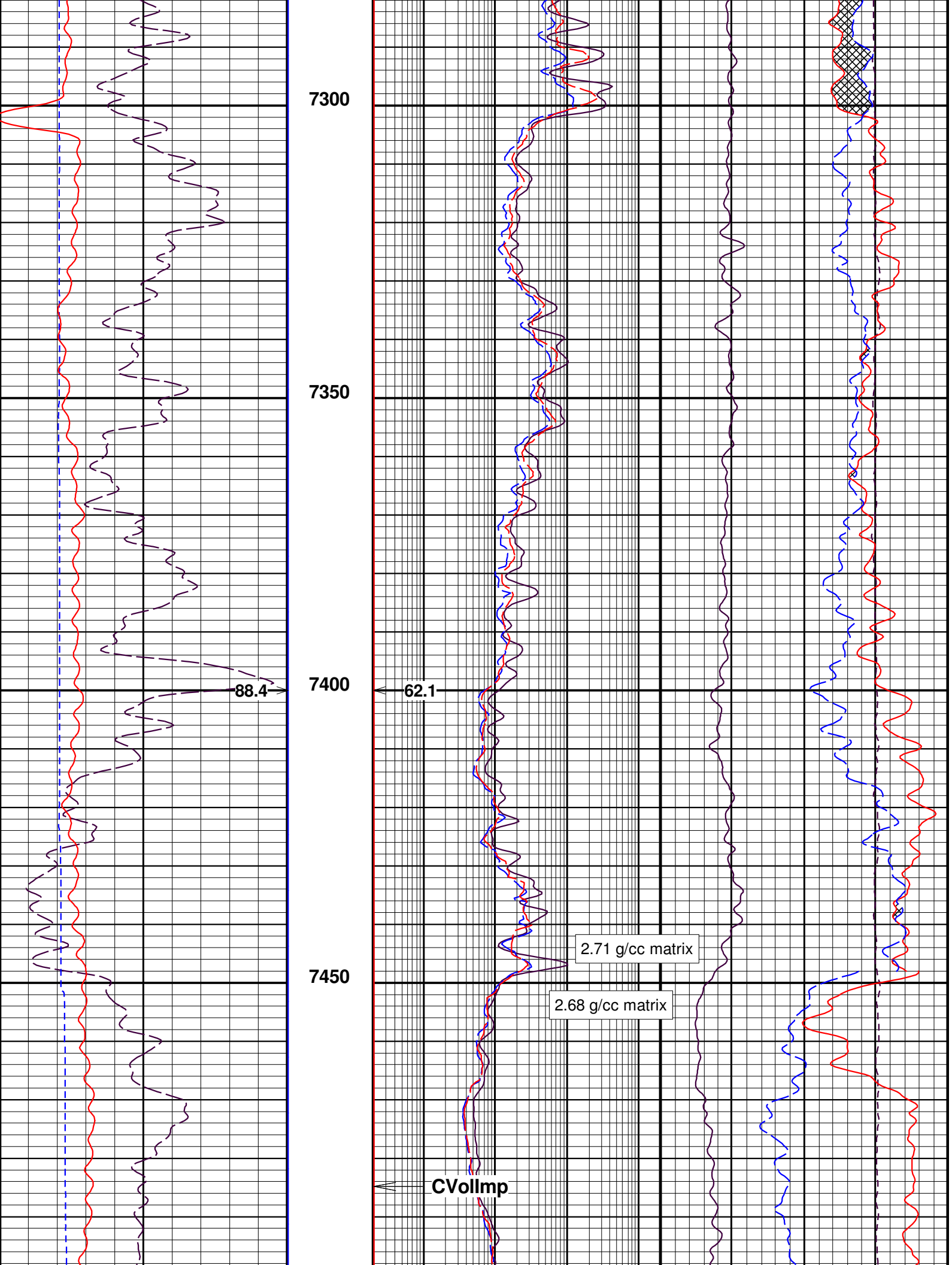
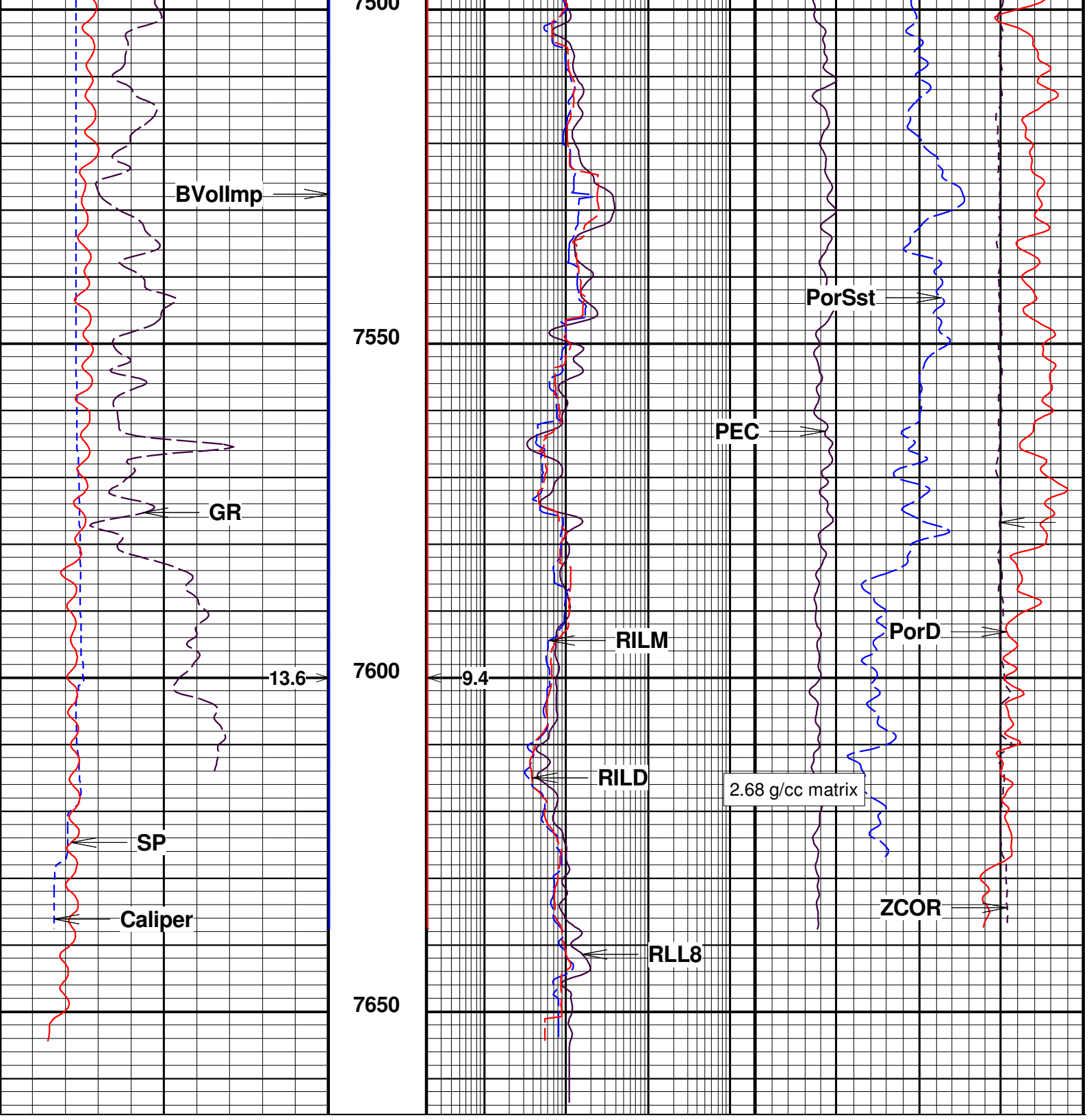
160.4
112.0


7300
7350
7400
7450
88.4
62.1
2.71 g/cc matrix
2.68 g/cc matrix
CVolImp



GR (gAPI)
0 200

Caliper (inch)
6 16

SP (mV)
250 450

RLL8 (Ohmm)
0.2 2000.0

RILM (Ohmm)
0.2 2000.0

RILD (Ohmm)
0.2 2000.0

PorSst (pu)
40 0

PEC (b/e)
0.0 10.0

ZCOR (g/ccm)
-0.5 0.5

PorD (pu)
40 0

BVolImp (cu ft)
0.0 Persistent 0.0

CVolImp (cu ft)
Periodic 0

d5.PorD (pu)
40 0

D7.PorD (pu)
40 0

PorLst (pu)
40 0

density

File : C:\Welldata\2-014083_GRIZZLY OPERATING, LLC\2015183.cvf

Tool name : ***Tension*** *Asset :* ***2015183*** *Series :* ***Tension*** *Source ID :*

Tension

Two Point Calibration

Time Oct / 01 / 2015 15:06:00

Setup

Description

Setup Version 00000

Curve Name	*pt*	*Raw Value*	*User Value*	*Device*	*Mult.*	*Add.*
Tension	***1***	***800***	***0 N***		***1.886805***	***-1509.444***
Tension	***2***	***24375.3***	***44482 N***			

File : C:\Welldata\2-014083_GRIZZLY OPERATING, LLC\AFC_1831A_024.cvf

Tool name : ***TCMRT*** *Asset :* ***024*** *Series :* ***1831A*** *Source ID :*

Tension

Tension Calibration

Time

Setup

Description

Setup Version 00000

Curve Name	*pt*	*Raw Value*	*User Value*	*Device*	*Mult.*	*Add.*
CHT	***1***	***0 N***	***0 N***		***1.000000***	***0.000***
	2	***1 N***	***1 N***			

File : C:\Welldata\2-014083_GRIZZLY OPERATING, LLC\AFC_0930A_021.cvf

Tool name : ***Telemetry*** *Asset :* ***021*** *Series :* ***0930A*** *Source ID :*

GR

Gamma Calibration

Time Oct / 22 / 2015 09:30:04

Setup

Description Oct 22

Setup Version 00001

Block	*Raw Value*	*User Value*	*Device*	*Device SN*	*Mult.*
Background	***244.289***				
Jig ON	***795.21***				
Gamma	***550.921***	***150.0003 gAPI***			***0.2722719***

File : C:\Welldata\2-014083_GRIZZLY OPERATING, LLC\AFC_1468A_015.cvf

Tool name : **Compensated Neutron** Asset : **015** Series : **1468A** Source ID :

CN

Compensated Neutron Calibration

Time Sep / 30 / 2015 14:44:18
Setup
Description v5_91 Sep 30
Setup Version 00001

Curve Name	pt	Raw Value	User Value	Device	Mult.
Ratio	1	4.3927	4.94 none		1.124593

File : C:\Welldata\2-014083_GRIZZLY OPERATING, LLC\AFC_1486A_016.cvf

Tool name : **PE Density Microlog** Asset : **016** Series : **1486A** Source ID :

Peak

ZDL Peak Calibration

Time Oct / 19 / 2015 11:17:22
Setup
Description Oct 19
Setup Version 00001

Block	Channel	Energy (keV)	Device
Am241	20.218	59.5	
Cs137	191.45	661.6	

	60-100 keV	100-140 keV	140-200 keV	200-540 keV
Background	177.306	217.987	430.291	1309.79

Tool name : **PE Density Microlog** Asset : **016** Series : **1486A** Source ID :

PeDen

PeDen Calibration

Time Oct / 19 / 2015 11:00:30
Setup
Description Oct 19
Setup Version 00001

	Raw Values SSD	LSD	SHR	Device Values DEN	CORR	PE
MG	17947.6 cps	12670.0 cps	0.801 (0.700 – 0.900)	1.649 g/ccm	0.000 g/ccm	2.14 b/e
AL	9493.2 cps	1636.3 cps		2.550 g/ccm	0.000 g/ccm	
AL + Mg Shim	12788.6 cps	2625.7 cps		2.488 g/ccm	0.120 g/ccm	
MG + St Shim		5642.8 cps	0.310 (0.250 – 0.320)			10.31 b/e
Ratio MG/AL	1.89 none (1.50 – 2.00)	7.74 none (6.80 – 8.50)				
Spine Angle	72.7 deg (72.0 – 75.0)	Rib Angle	52.6 deg (52.0 – 55.0)			

Tool name : **PE Density Microlog** Asset : **016** Series : **1486A** Source ID :

RNML

Resistivity Calibration

Time Oct / 01 / 2015 09:41:24
Setup
Description Fort Morgan
Setup Version 00001

Curve Name	pt	Raw Value	User Value	Device	Mult.	Add.
RNML	1	-0.0577092	0 Ohmm		5.988882	0.346
	2	24.9887	150 Ohmm			

Tool name : **PE Density Microlog** Asset : **016** Series : **1486A** Source ID :

RLML

Resistivity Calibration

Time Oct / 01 / 2015 09:41:38
Setup
Description Fort Morgan
Setup Version 00001

Curve Name	pt	Raw Value	User Value	Device	Mult.	Add.
RLML	1	-0.0162024	0 Ohmm		1.270483	0.021
	2	132.217	168 Ohmm			

Tool name : **PE Density Microlog** Asset : **016** Series : **1486A** Source ID :

Caliper

Caliper Calibration

Time Oct / 19 / 2015 11:24:33
Setup
Description Oct 19
Setup Version 00001

Curve Name	pt	Raw Value	User Value	Device	Mult.	Add.
Caliper	1	6.45196	6 inch		0.949330	-0.125
	2	16.9857	16 inch			

File : C:\Welldata\2-014083_GRIZZLY OPERATING, LLC\AFC_1141A_013.cvf

Tool name : **DIL** Asset : **013** Series : **1141A** Source ID :

Deep

Conductivity Calibration

Time Jun / 18 / 2015 09:46:51
Setup
Description shop_June17 13el_14man
Setup Version 00001

Curve Name	pt	Raw Value	User Value	Device	Mult.	Add.
CILDRaw	1	-2.69737 mV	0 mS/m		0.839323	2.264
	2	474.592 mV	400.6 mS/m			

Tool name : **DIL** Asset : **013** Series : **1141A** Source ID :

CILD

CLL8

Conductivity Calibration

Time Jun / 18 / 2015 10:23:50
Setup
Description
Setup Version 00001

Curve Name	pt	Raw Value	User Value	Device	Mult.	Add.
CLL8	1	518.032 mV	500 mmho		0.965664	-0.245
	2	1.28921 mV	1 mmho			

Tool name : **DIL** Asset : **013** Series : **1141A** Source ID :

Medium

Conductivity Calibration

Time Jun / 18 / 2015 09:54:03
Setup
Description shop_Jun 9 14el_14mand
Setup Version 00001

Curve Name	pt	Raw Value	User Value	Device	Mult.	Add.
CILMRaw	1	-1.24249 mV	0 mS/m		0.981046	1.219
	2	468.664 mV	461 mS/m			

PIONEER

COMPANY: GRIZZLY OPERATING,LLC
WELL: GOZA 18-2Ae
FIELD: WATTENBERG
COUNTY: USA
STATE: CO