


<div></div> <div>PHOENIX TECHNOLOGY SERVICES</div>		MD 1:240 Feet	
		MWD Gamma / ROP (5")	
Client: Whiting Oil and Gas			
Well Name: Razor #12F-0102B			
UWID: 051-23-38722-00			
Licence #: 15-1251			
Province: Colorado		Country: USA	
Surface Location: Sec. T10N-R58W			
Longitude: 103° 49' 5.79163 W Latitude: 40° 51' 16.77612 N		Personnel	
Rig Name: Unit 409 Job Number: 1524094 Ground Level: 4936.00 ft Kelly Bushing: 4957.00 ft Permanent Datum: Mean Sea Level Drilling Measured From: Kelly Bushing Spud Date: October 25, 2015 Bottom Hole Temp: 246 °F Log Start Depth: 1950.00 ft Log End Depth: 13750.00 ft Data Start Depth (MD): 1952.03 ft Data End Depth (MD): 13736.00 ft		Company Representative Kenny Wilkerson Geologist Directional Driller(s) John Spencer Mark Gentry MWD Operator(s) Clayton Carter Jason DuBose	
Reference Data			
North Reference: True North Magnetic Declination: 7.32 Total Mag Correction: 7.32			
Comments:		Leg Name	
		Main Leg	
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Operational Run Summary

1524094

	Run 1	Run 2	Run 3	Run 4	Run 5	
Run Start Depth (ft)	0.00	1895.08	6394.26	6578.42	7130.77	
Run End Depth (ft)	1895.08	6394.26	6578.42	7130.77	16384.75	
Run Start Date	10/25/2015	10/26/2015	10/27/2015	10/28/2015	10/28/2015	
Run Start Time	12:06 AM	9:58 AM	7:31 AM	5:55 AM	9:01 PM	
Run End Date	10/25/2015	10/27/2015	10/27/2015	10/28/2015	10/31/2015	
Run End Time	6:33 PM	3:51 AM	3:37 PM	8:37 PM	8:03 PM	

Tool Information Summary

1524094

	Run 1	Run 2	Run 3	Run 4	Run 5	
Gamma Probe Serial No		-	G0111	G0111	G0111	
Probe Cal Ratio	1	1	1.4	1.38	1.4	
Gamma Scale Factor	1	2.85	8.864	4.341	4.44	
Tool Carrier ID (in)	3.500	0.000	2.750	2.750	2.750	
Tool Carrier OD (in)	8.000	0.000	6.500	4.750	4.750	
Survey-to-Bit (PTB) (ft)	56.33	50.00	54.00	55.88	55.53	
Gamma-to-Bit (GTB) (ft)	0.00	0.00	41.73	43.63	43.28	
Annular Pressure-to-Bit (APTb) (ft)	0.00	0.00	0.00	0.00	0.00	

Borehole Fluids and Measurements Summary

1524094

	Run 1	Run 2	Run 3	Run 4	Run 5	
Hole Size (in)	13.50	0.00	8.75	8.75	8.75	
Casing Start Depth (ft)	0.00	0.00	0.00	0.00	0.00	
Casing End Depth (ft)	0.00	0.00	1893.00	6578.00	6598.00	
Casing ID Size (in)	0.000	0.000	11.000	9.000	9.000	

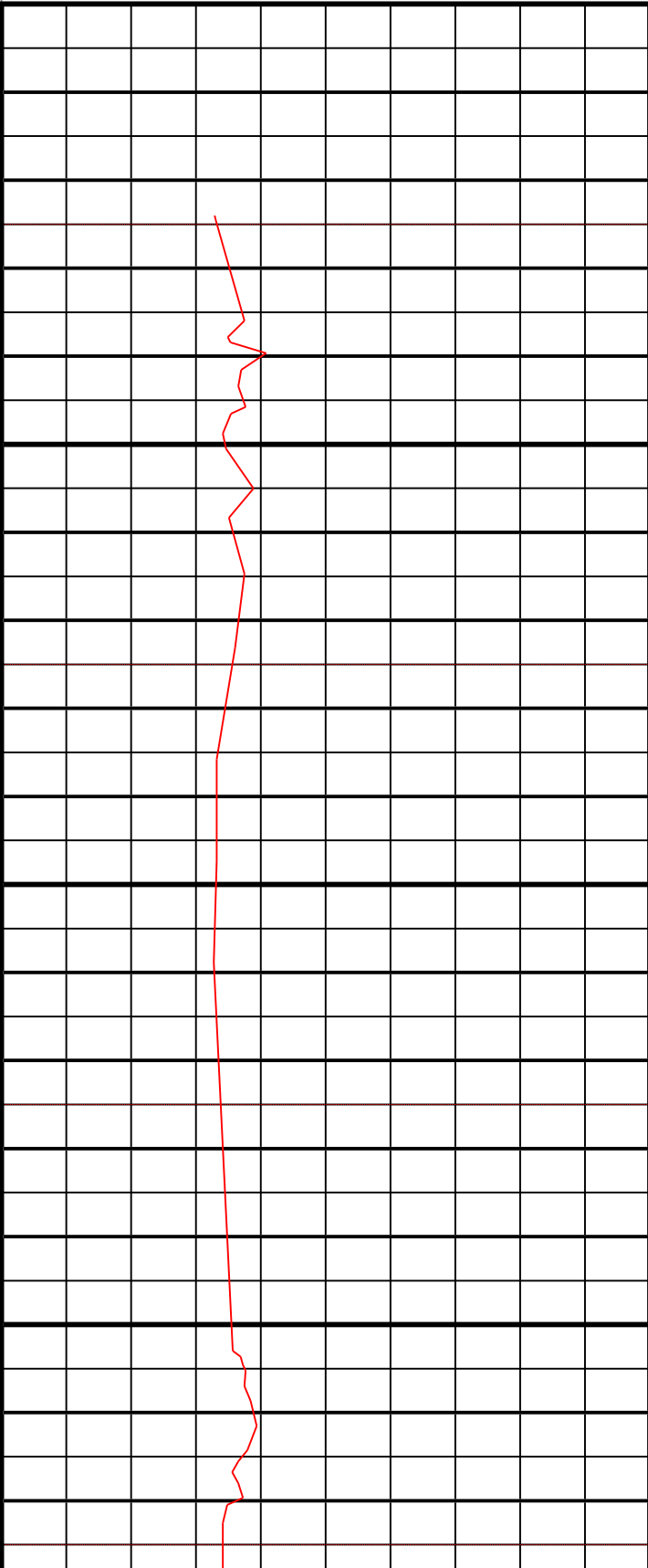
Casing Size (in)	0.000	0.000	11.000	9.000	9.000	
Mud Type	Freshwater	-	WBM	WBM	Water-Based Mud (WBM)	
Mud Weight (lb/gal)	8.5	0.0	10.2	10.1	10.3	
Mud Viscosity (s)	40	0	39	48	49	
Weighting Agent	Barite	Light Mud	Barite	Barite	Barite	
Mud KCL Content (%)	0.000	0.000	0.000	0.000	0.000	

Log

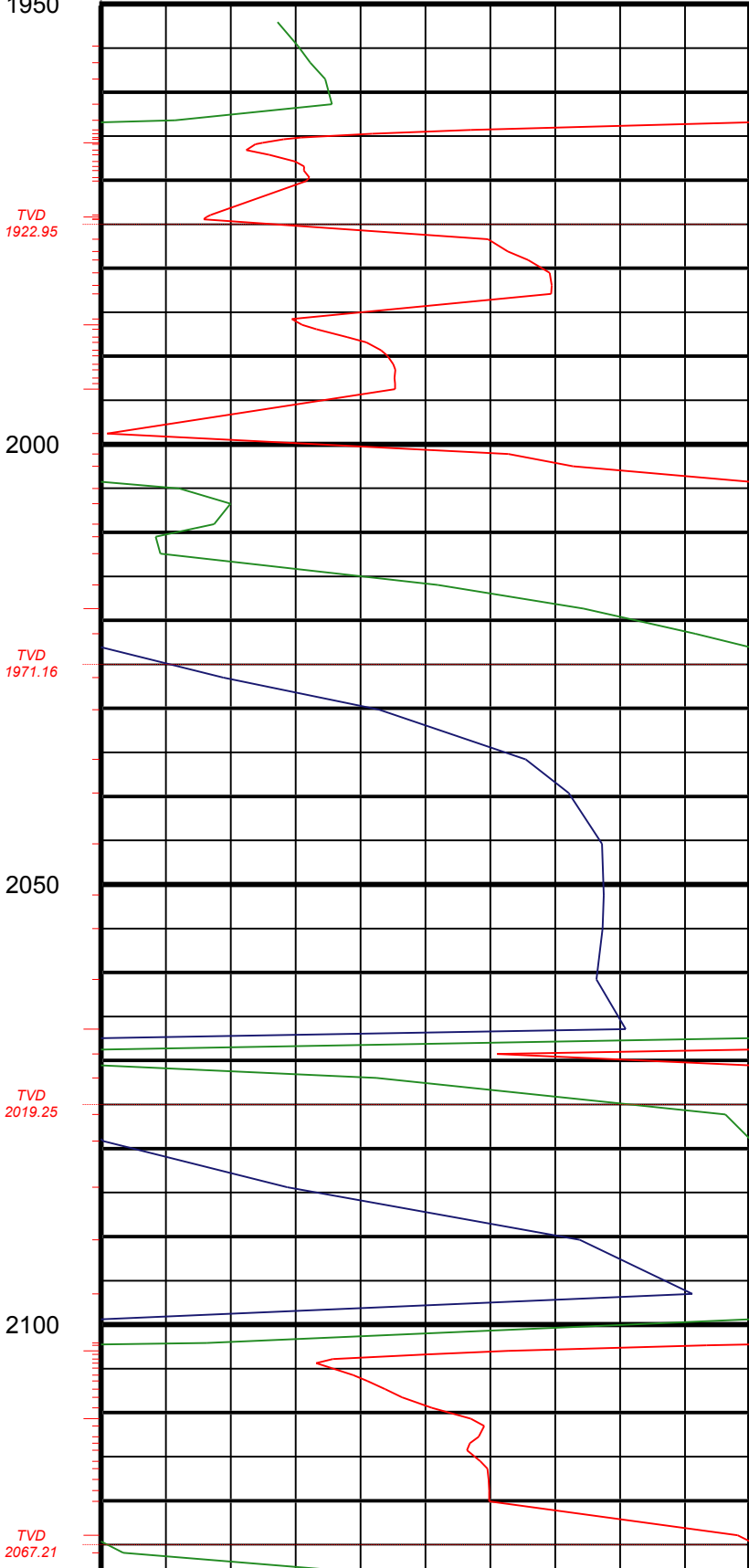
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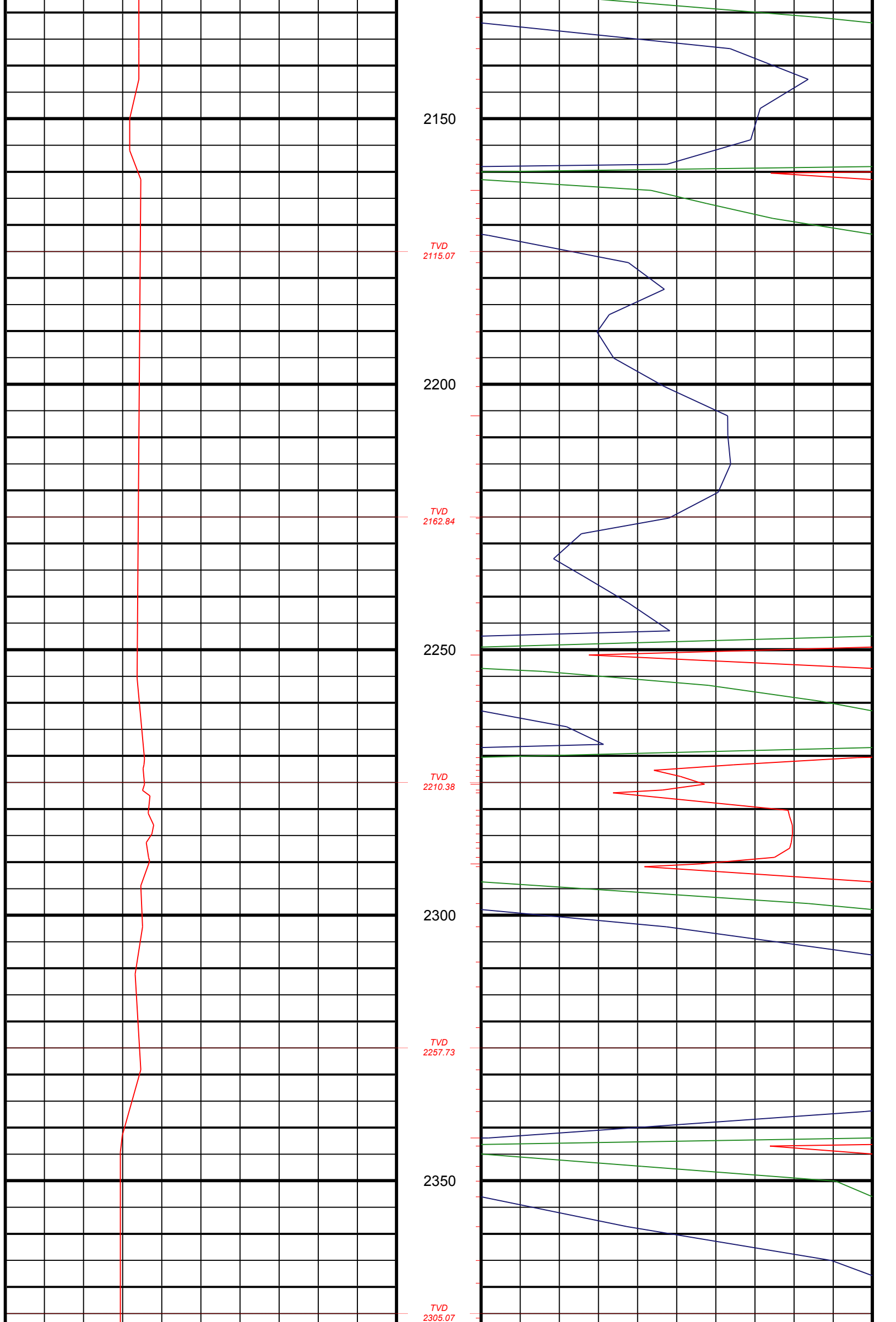
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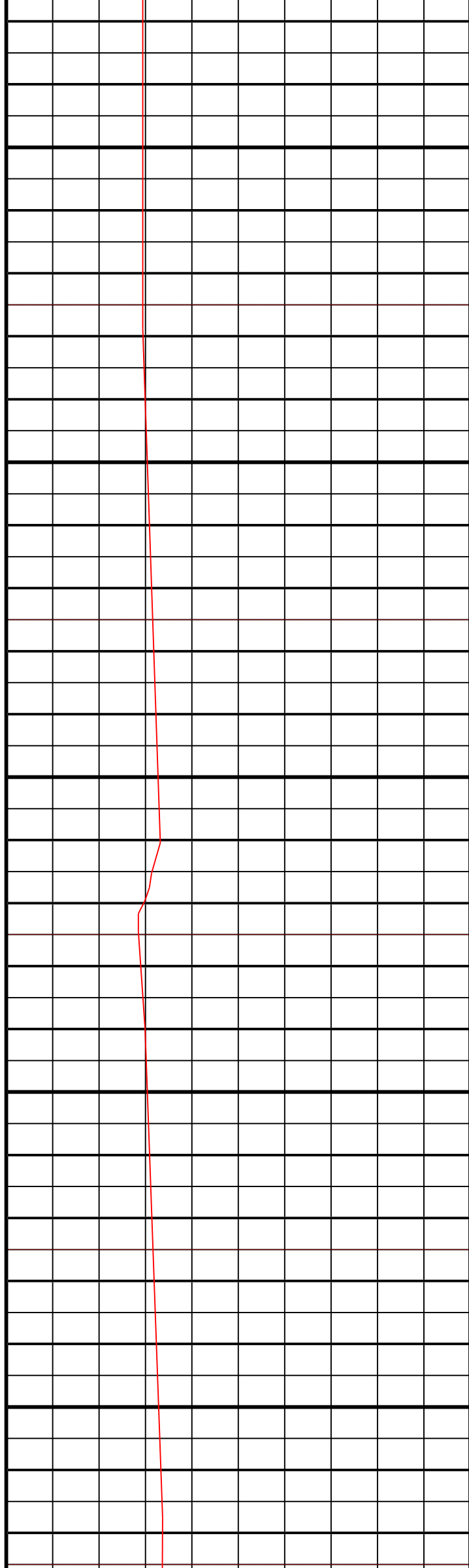
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0	AAP	300
	Gamma	Gama
300	AAP	600
	Gamma	Gama
600	AAP	900
	Gamma	Gama
900	AAP	1200



	ROP	ROP
0	ft/hr	500
	ROP	ROP
500	ft/hr	1000
	ROP	ROP
1000	ft/hr	1500







2400

TVD
2352.42

2450

TVD
2399.78

2500

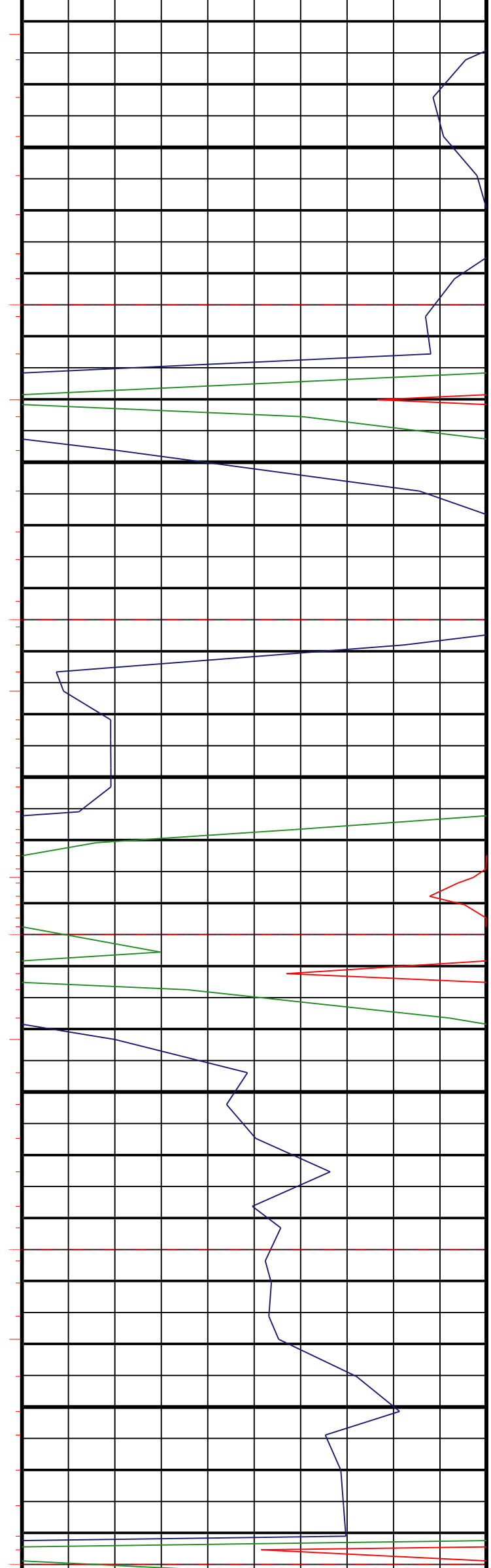
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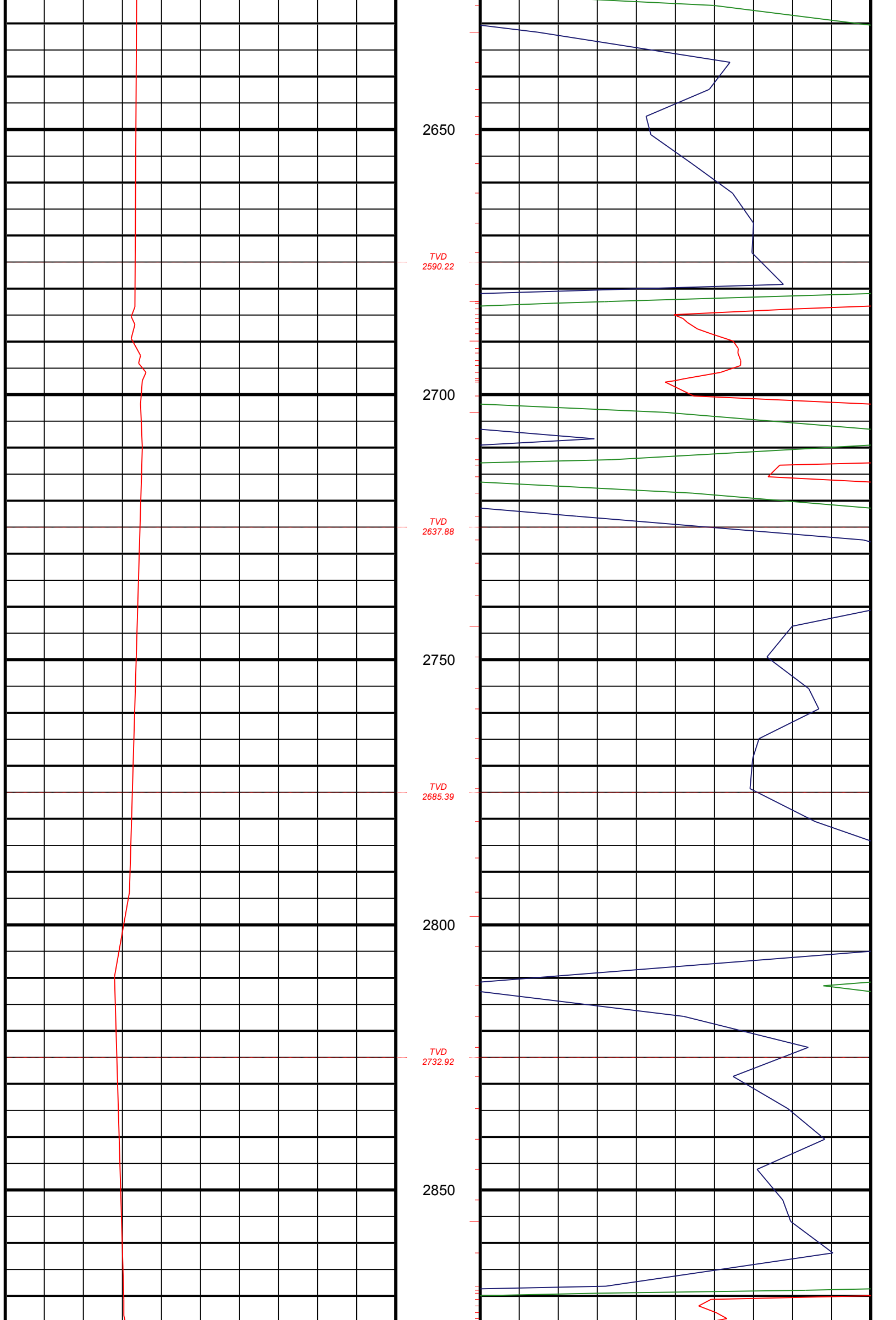
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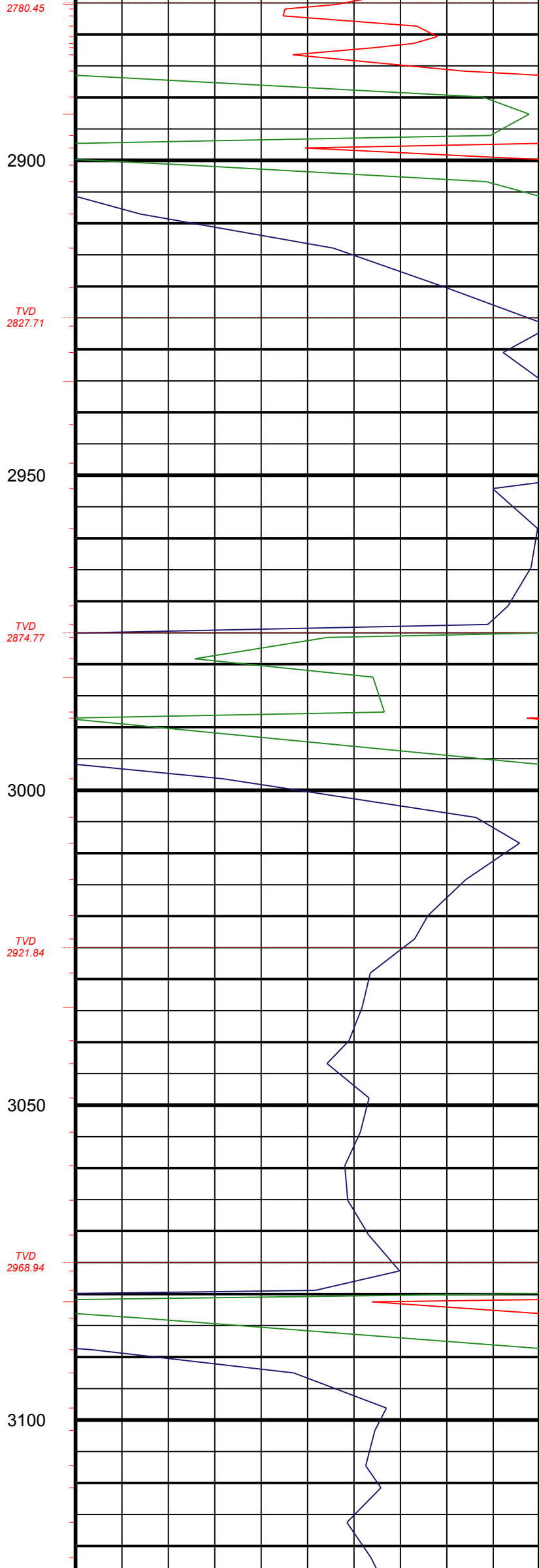
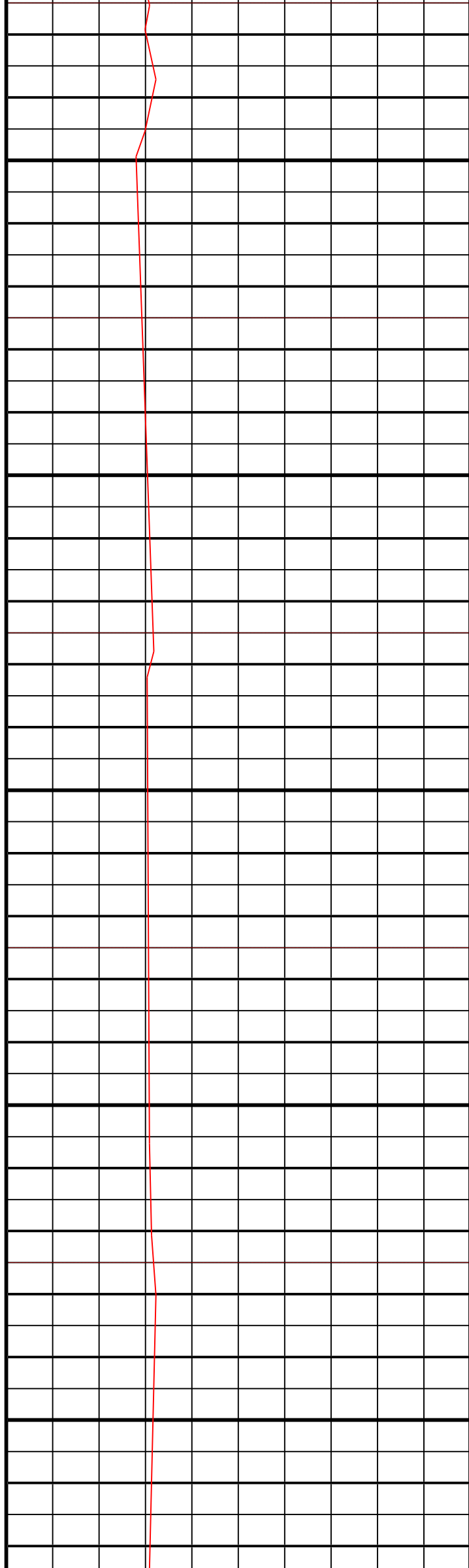
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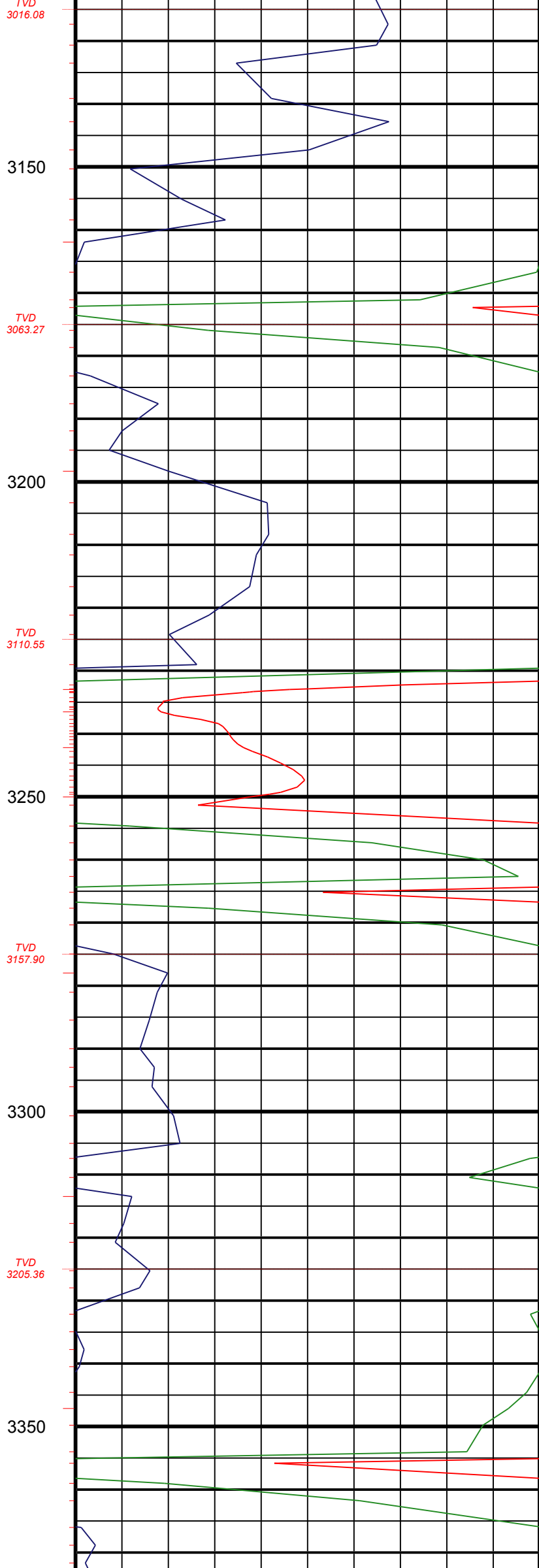
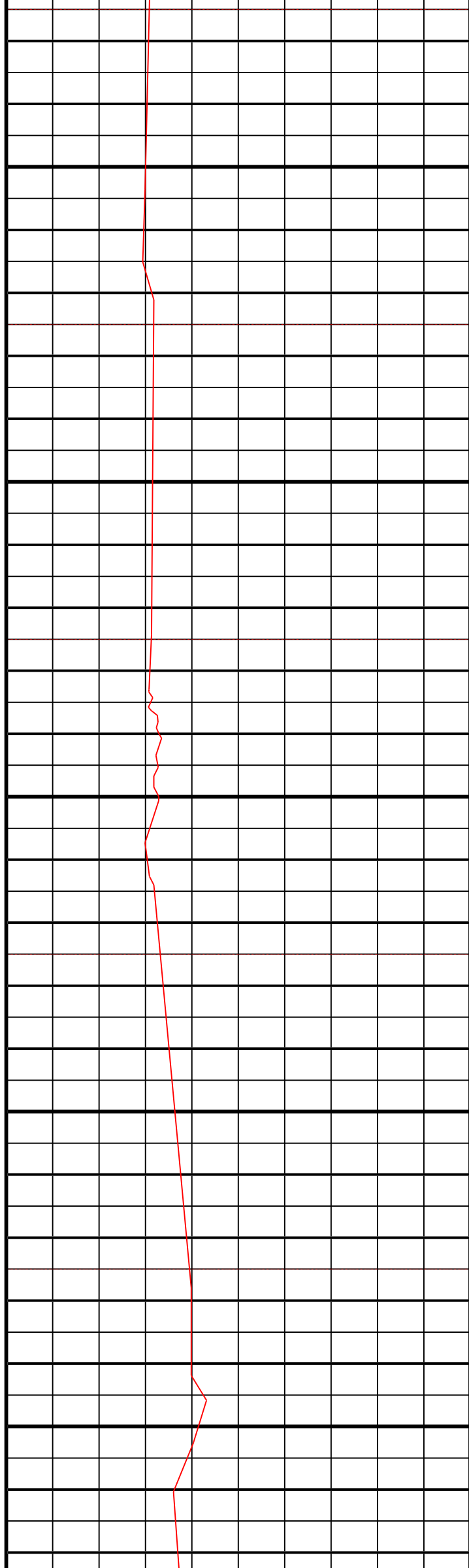
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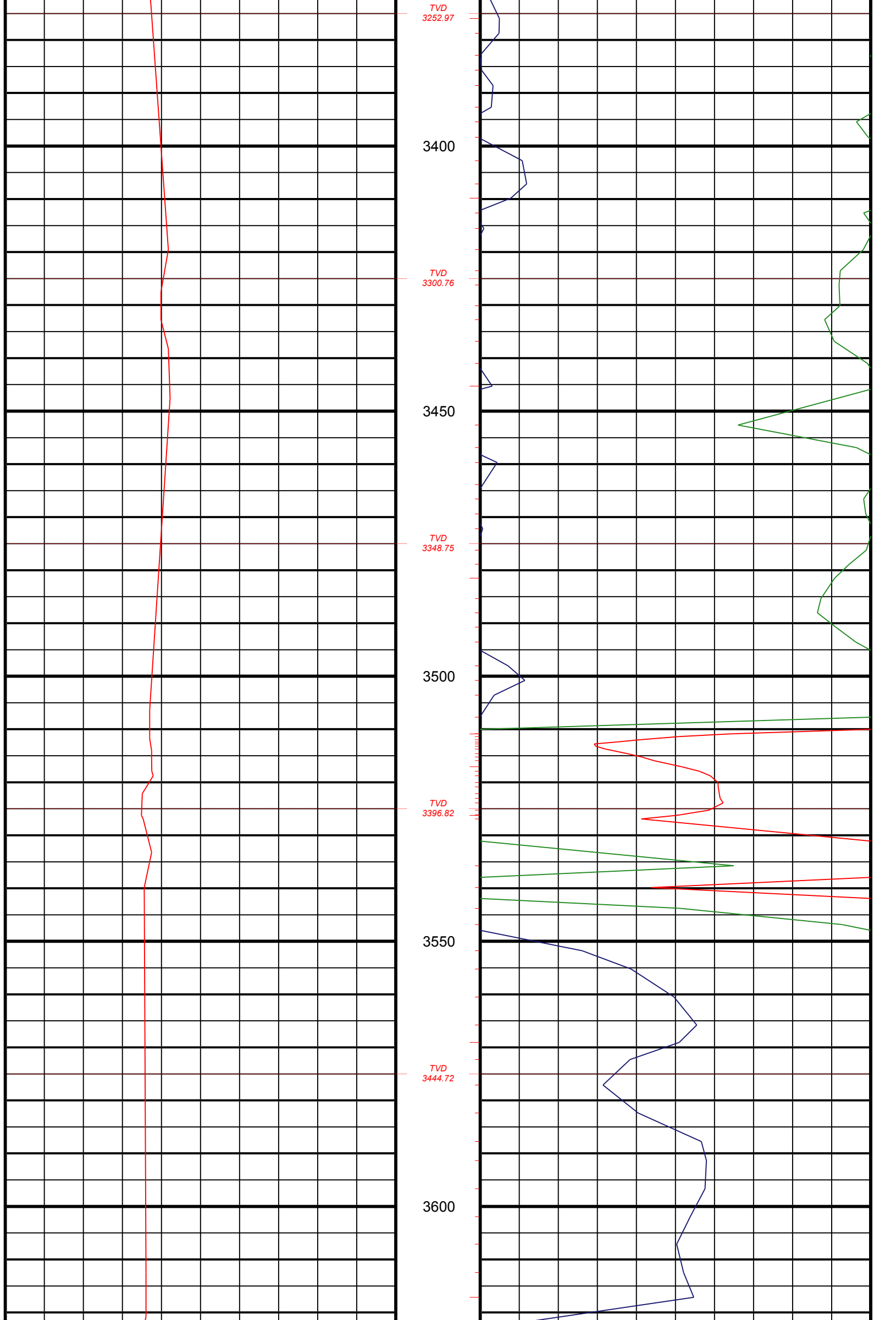
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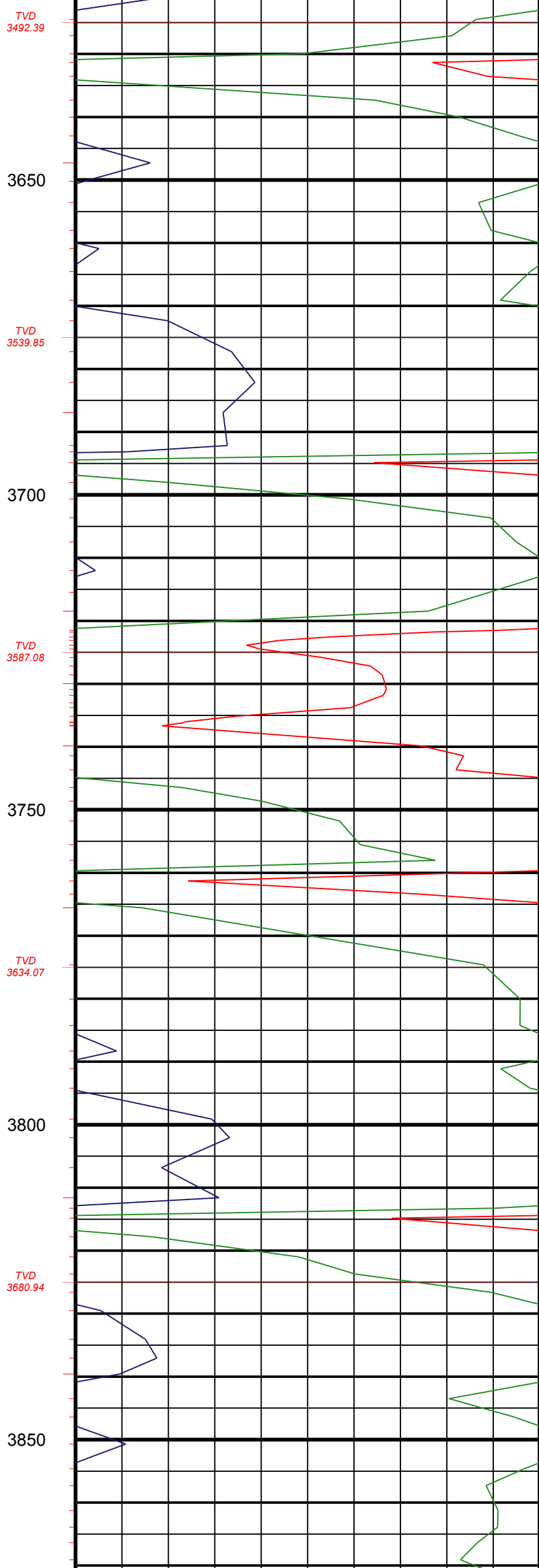
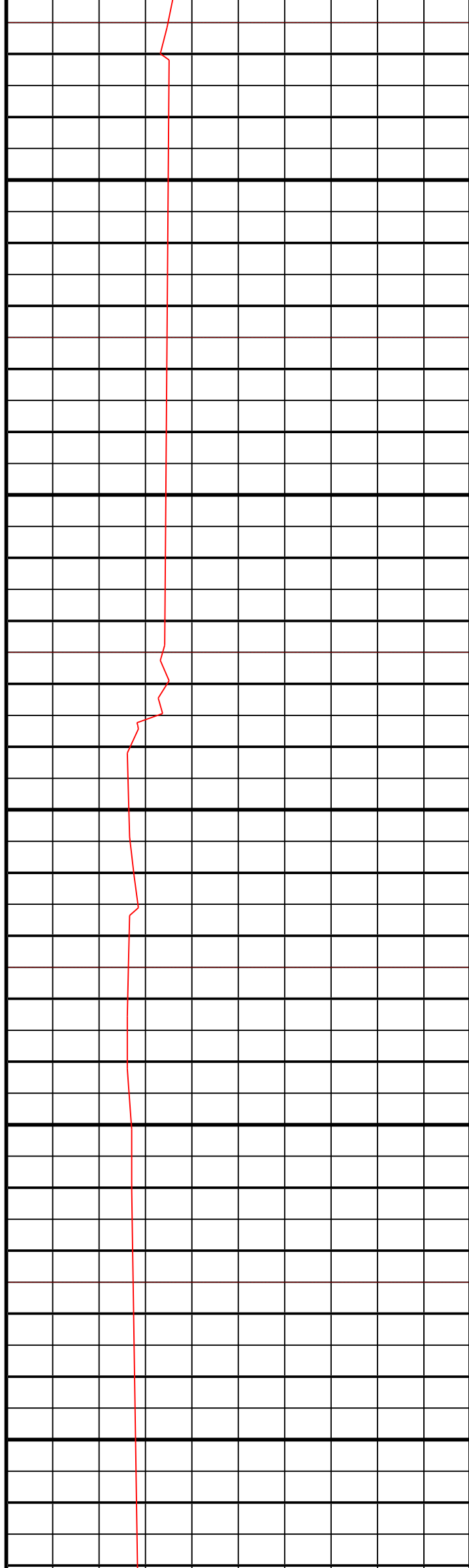


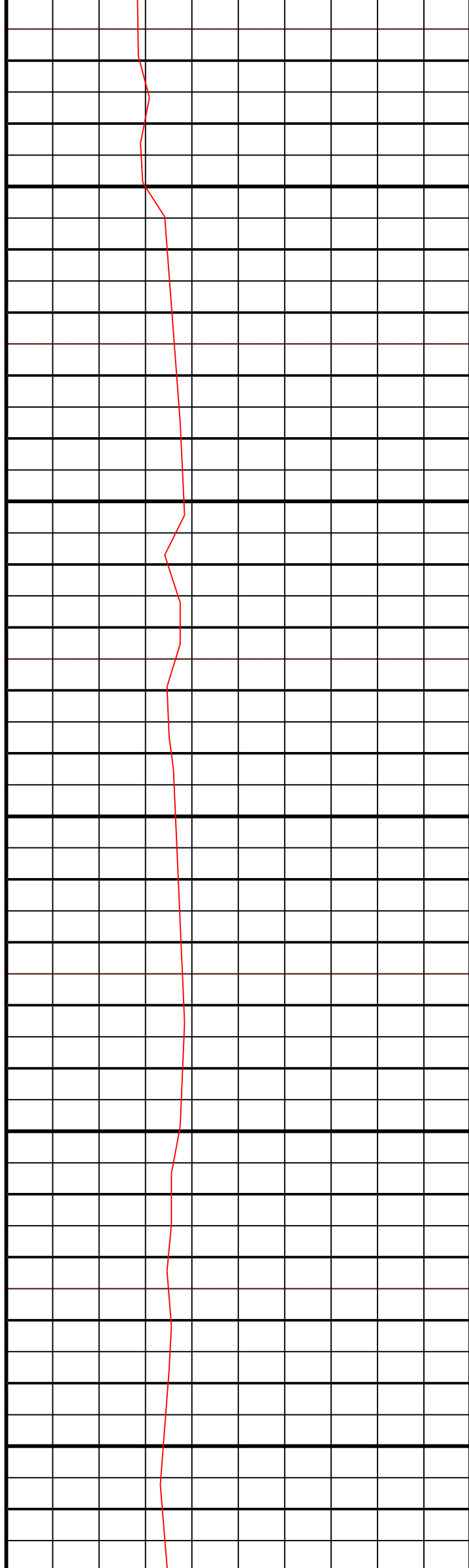












TVD
3727.77

3900

TVD
3774.65

3950

TVD
3821.59

4000

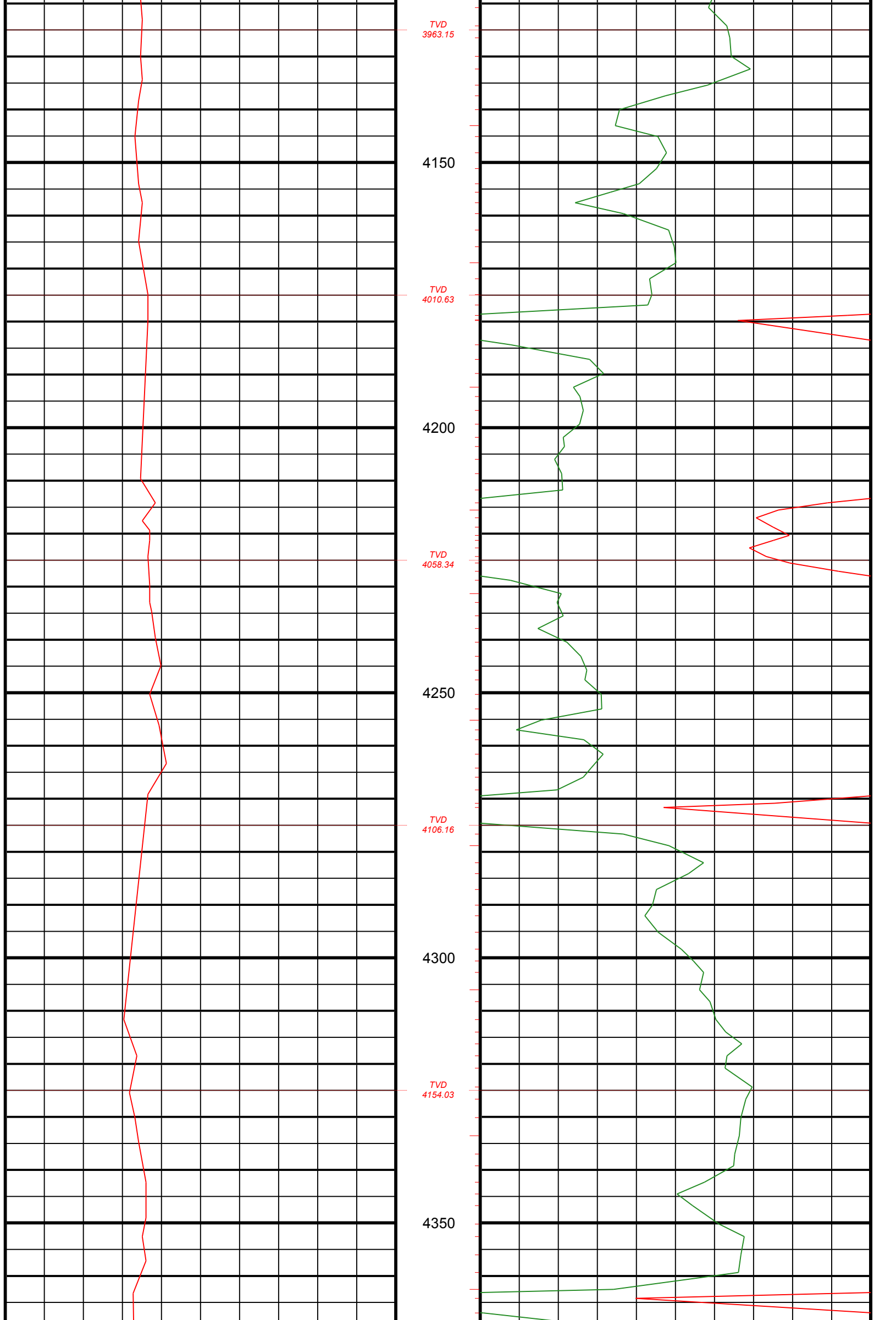
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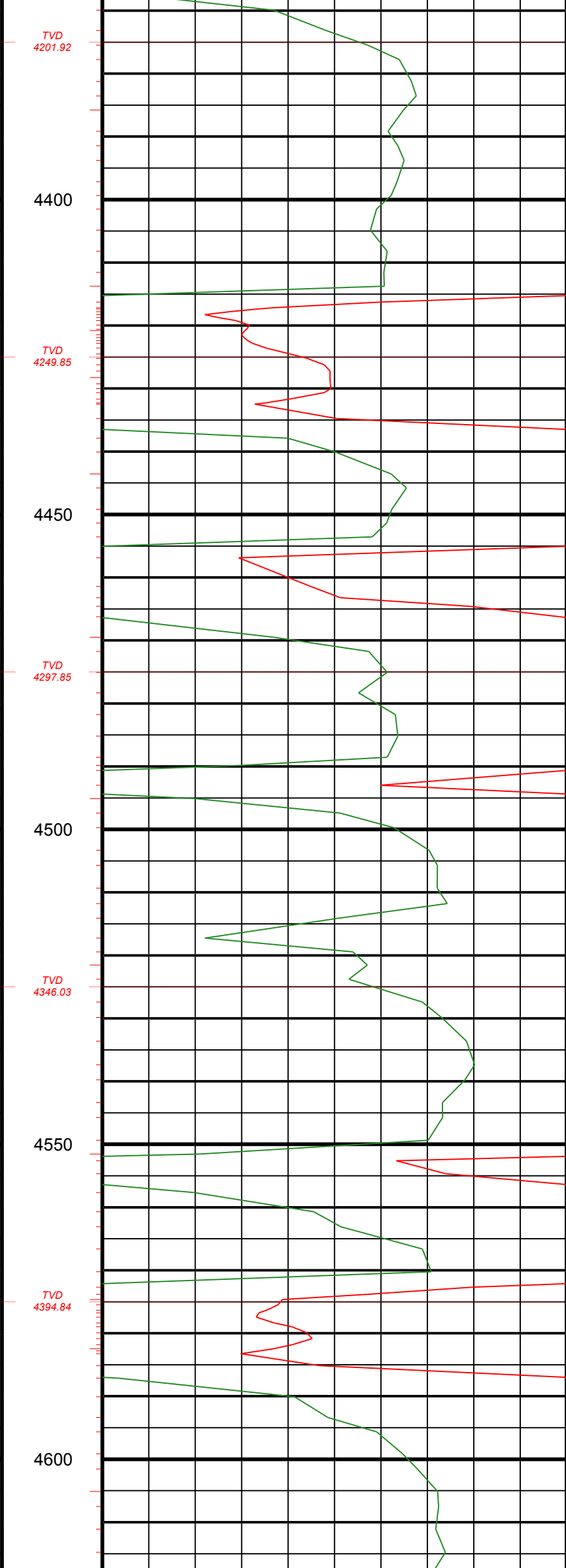
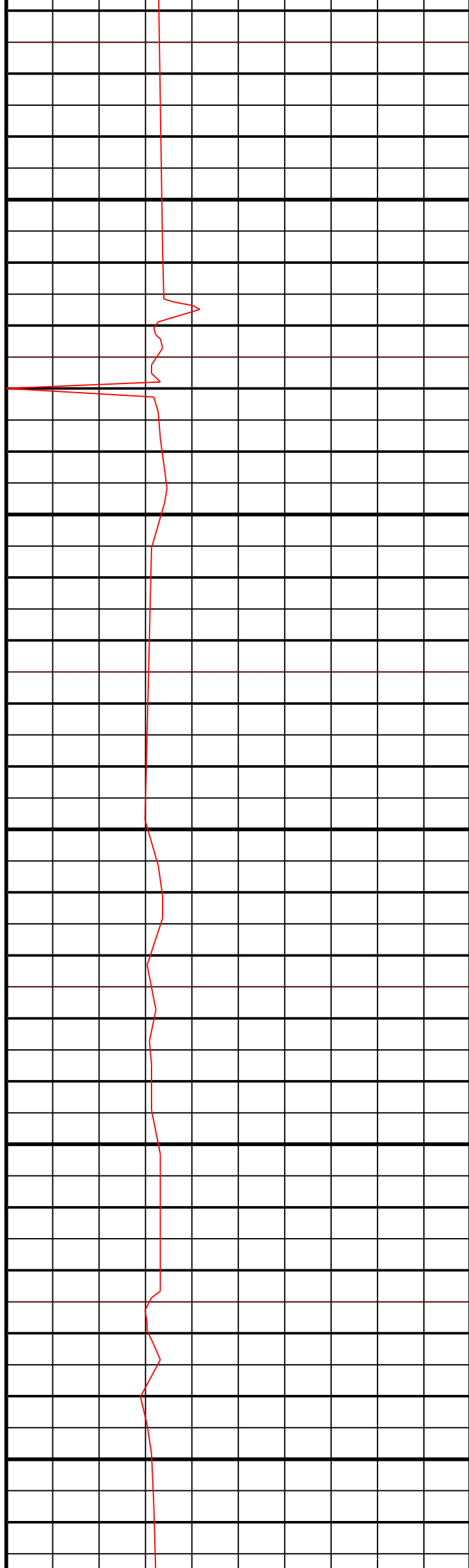
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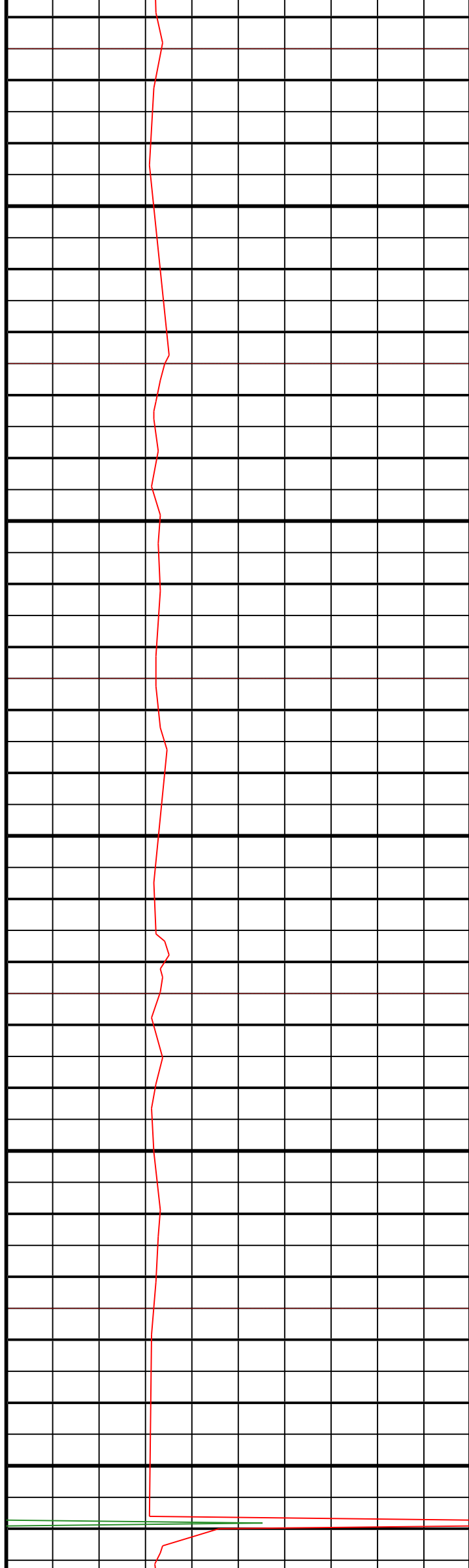
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TVD
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4650

TVD
4493.49

4700

TVD
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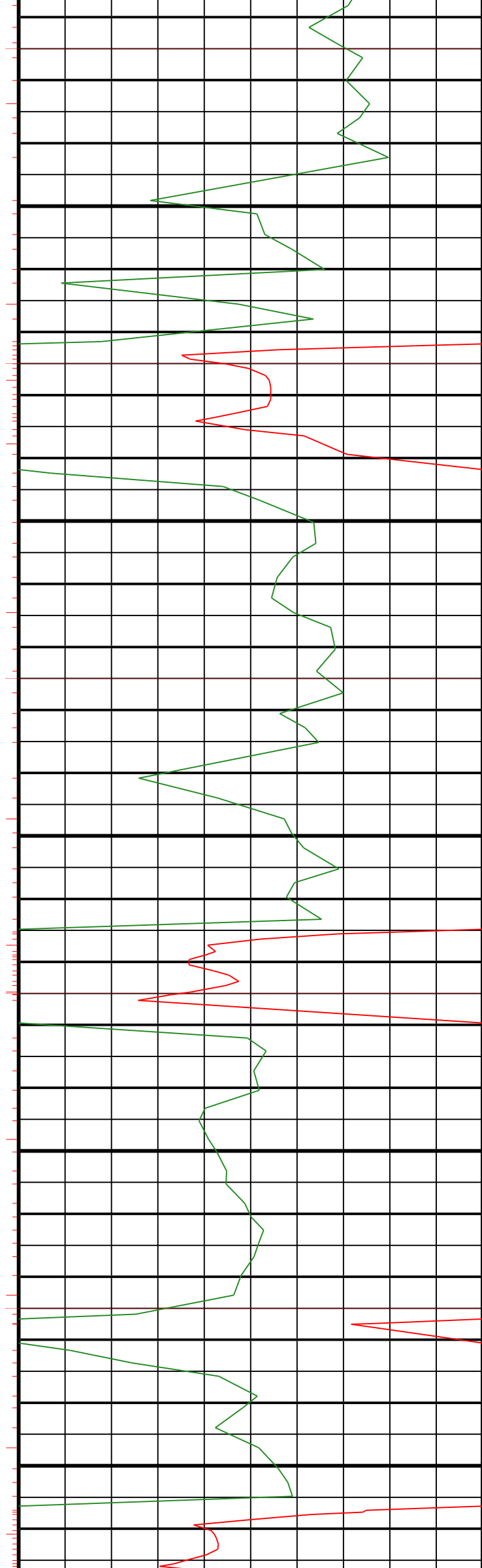
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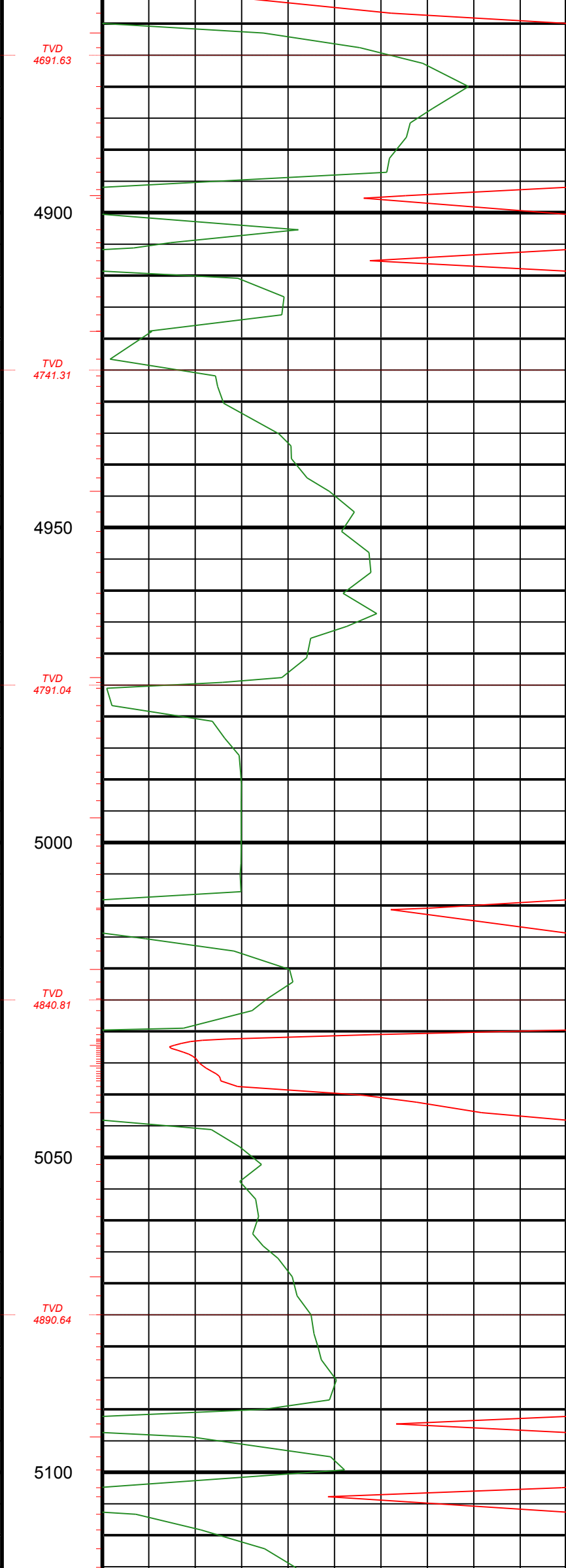
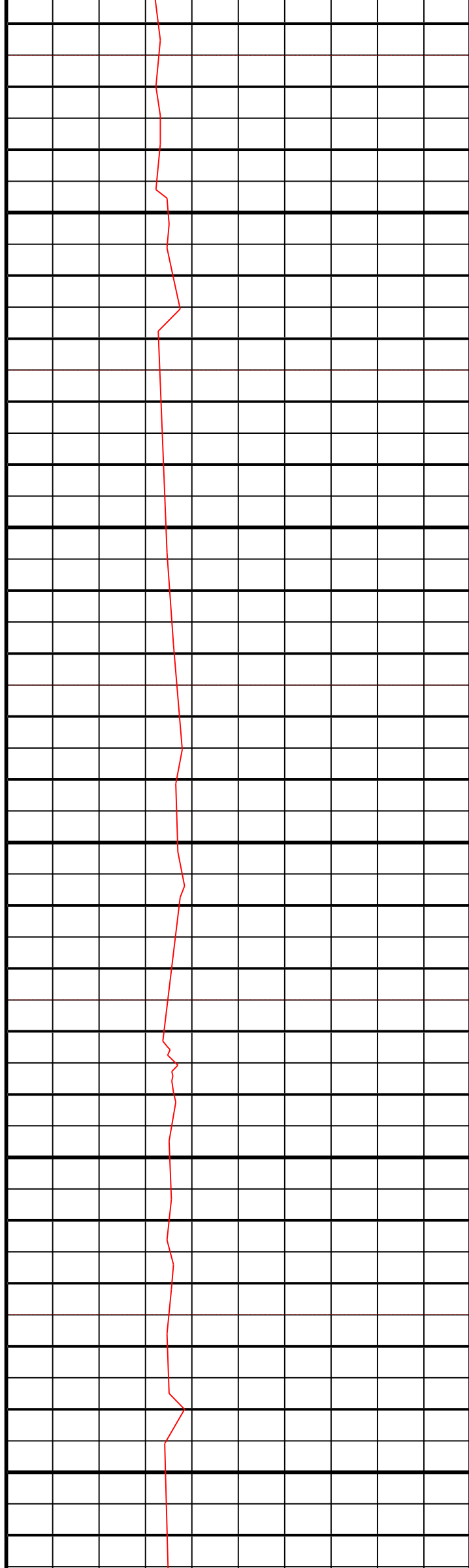
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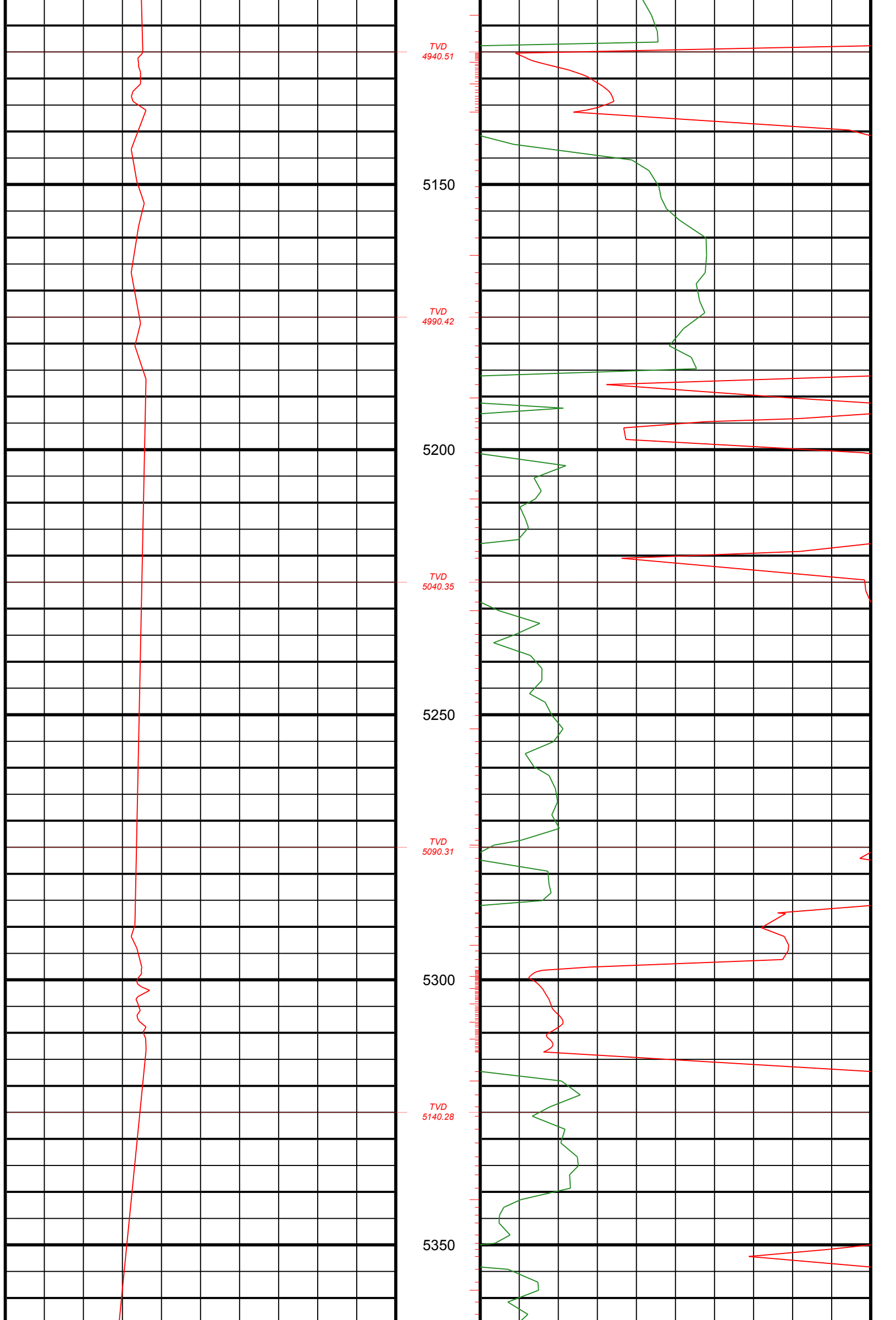
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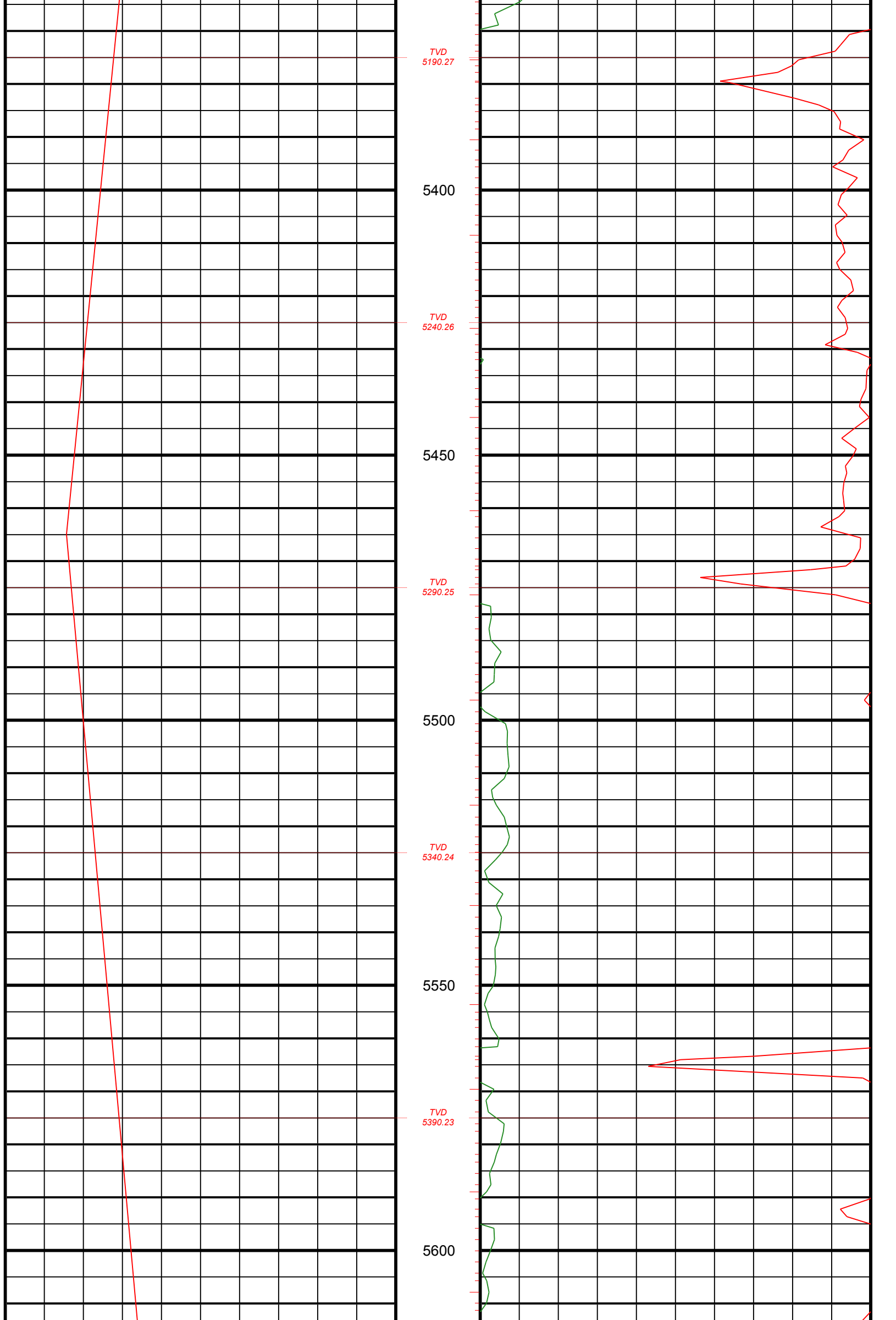
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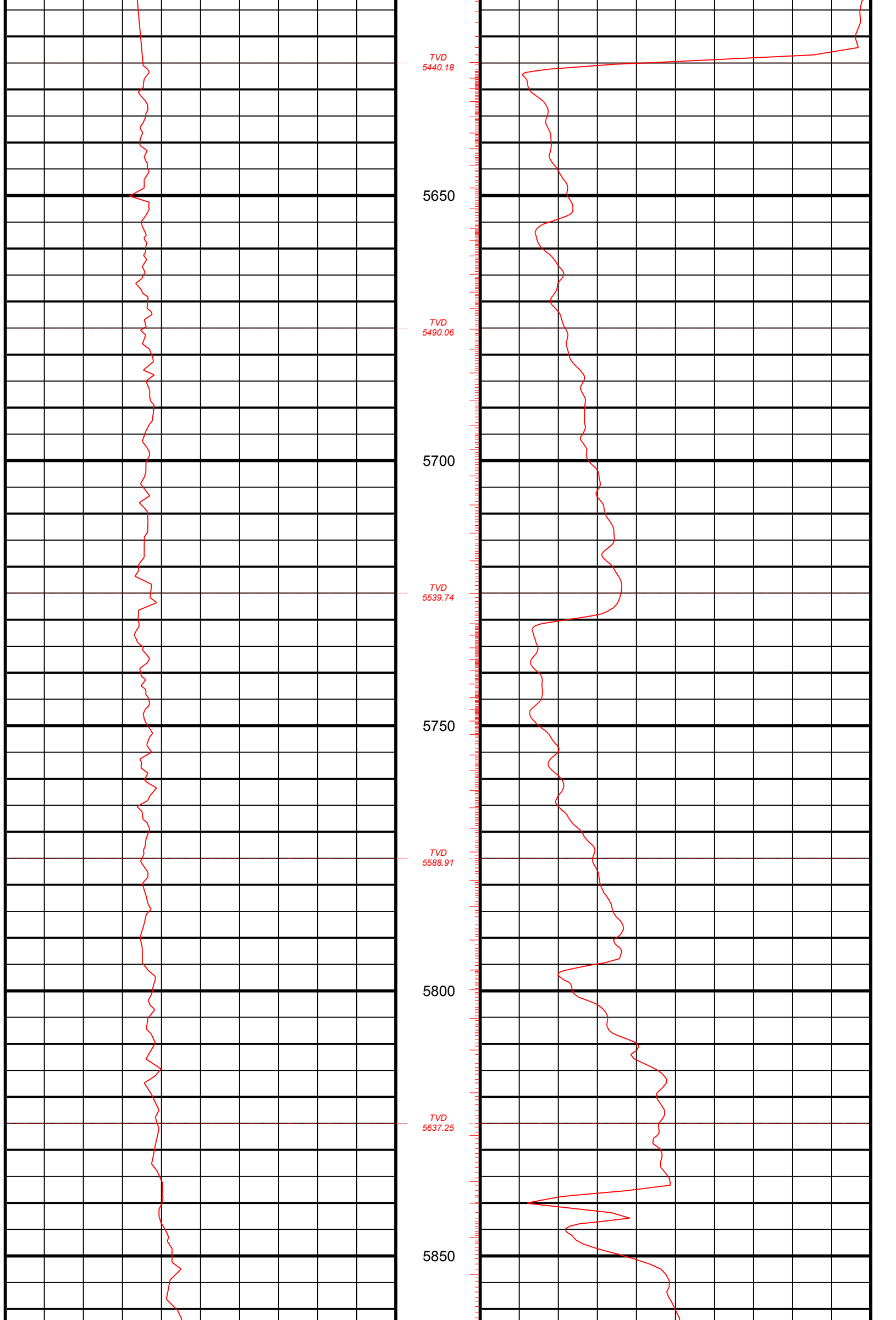
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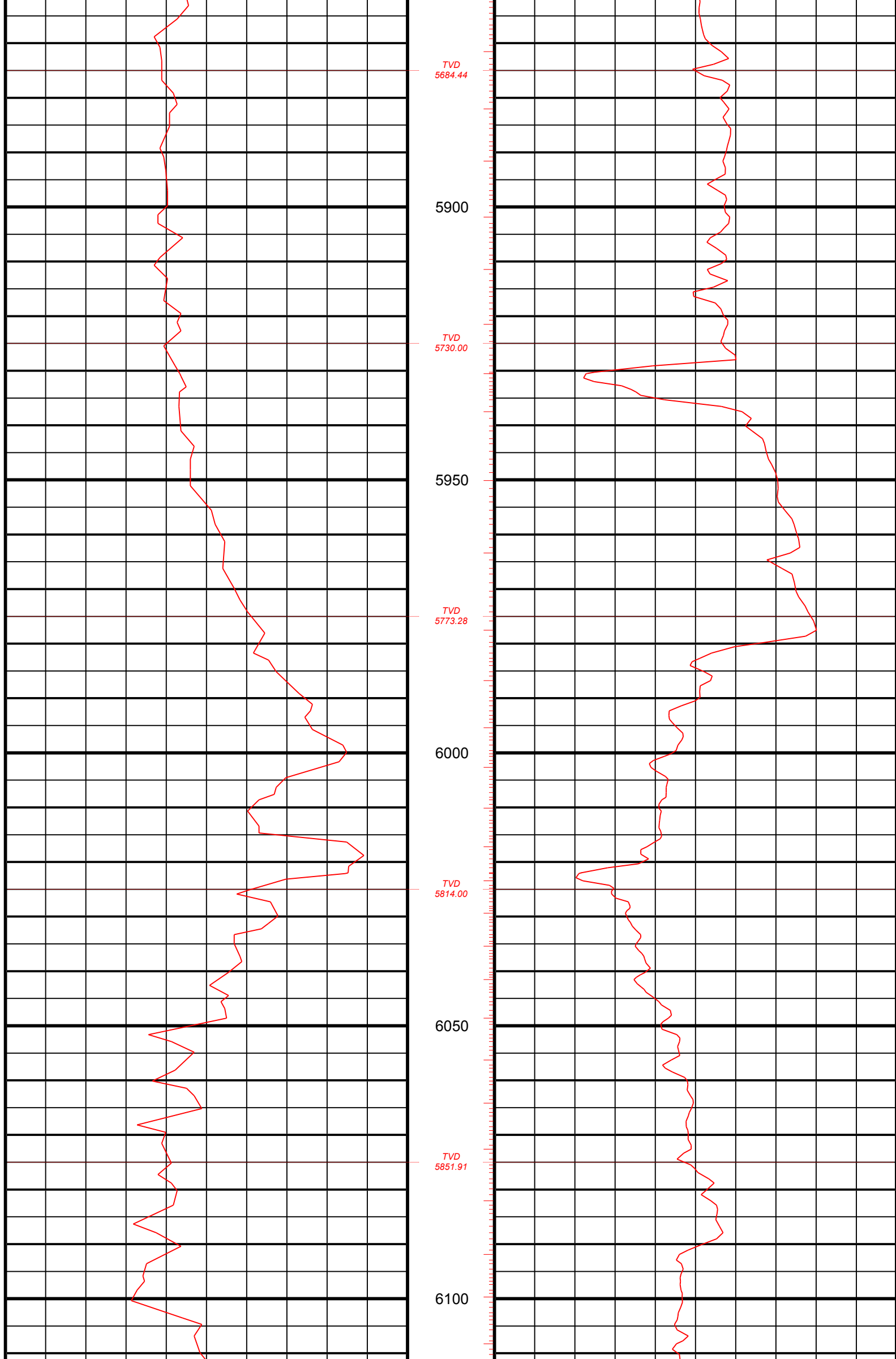


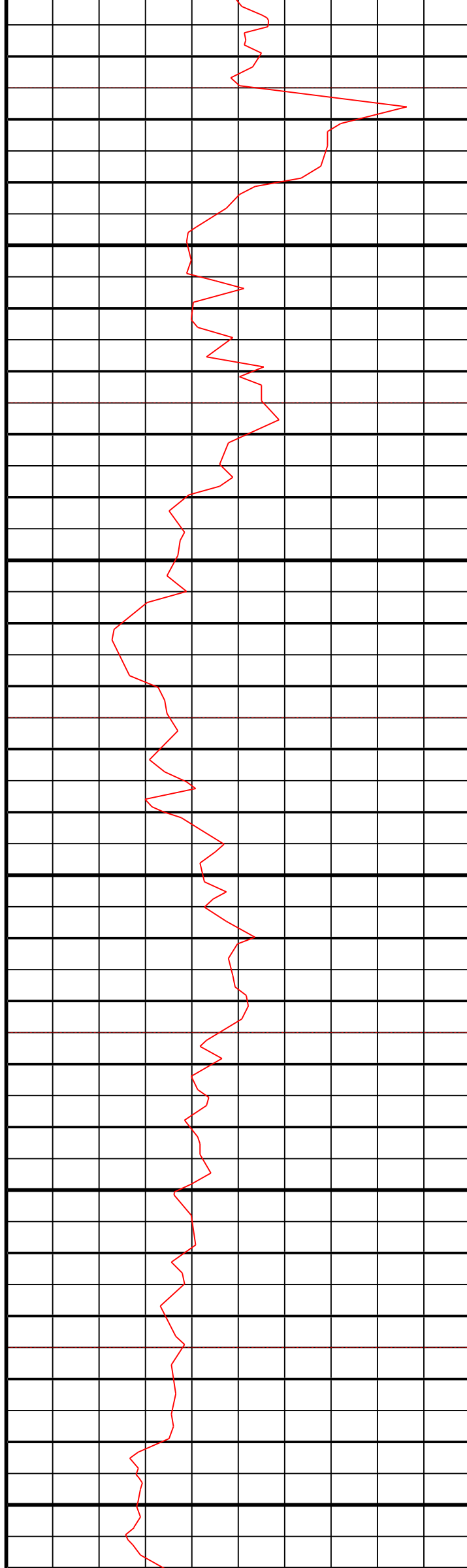












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6150

TVD
5916.94

6200

TVD
5944.10

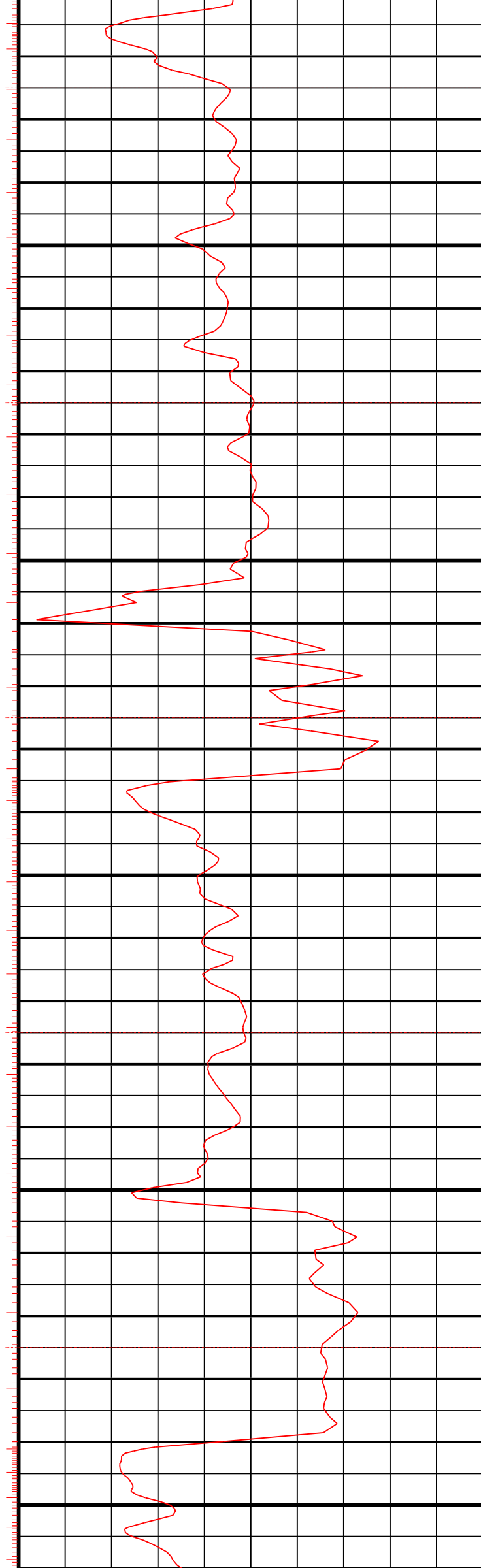
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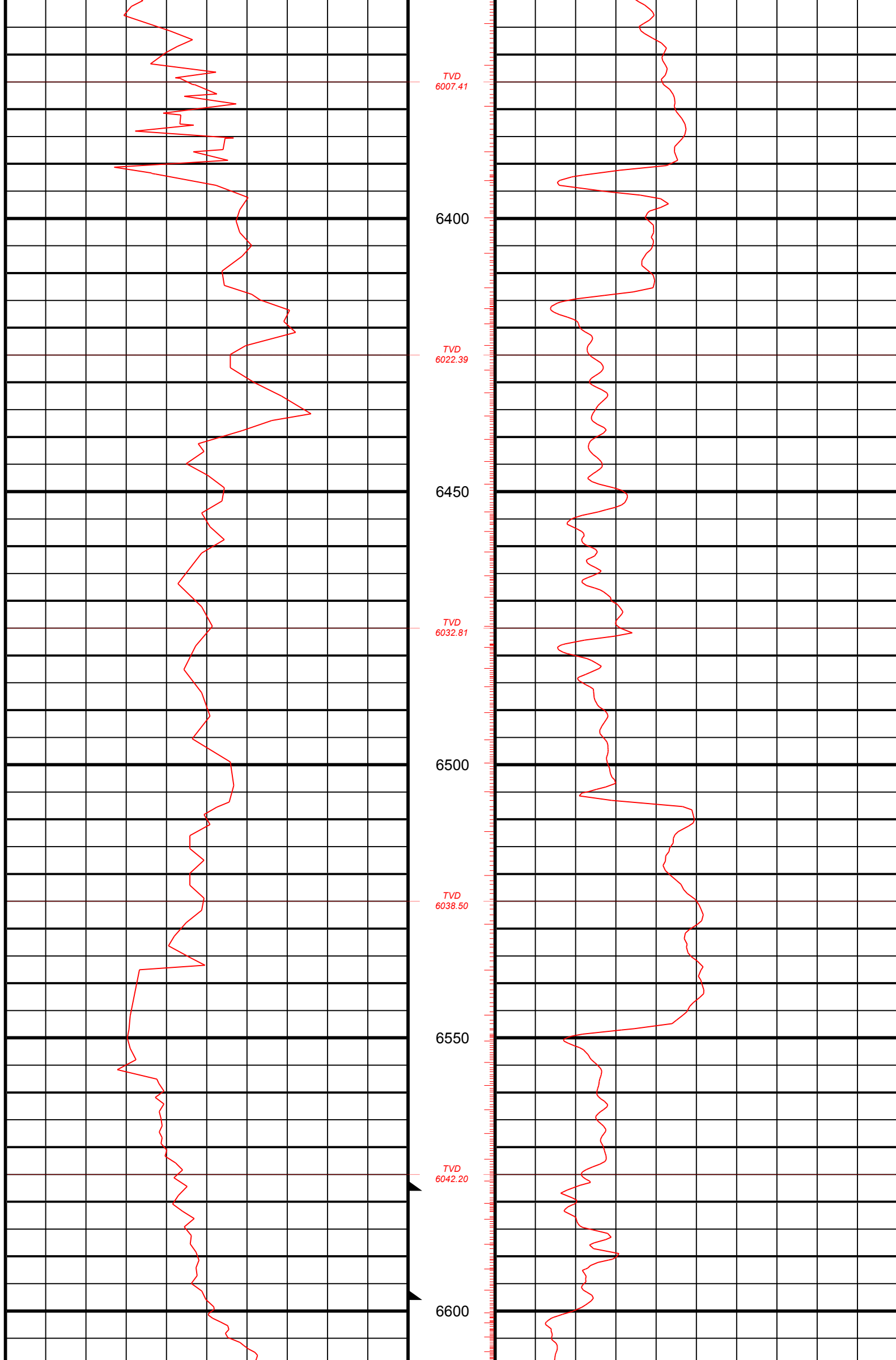
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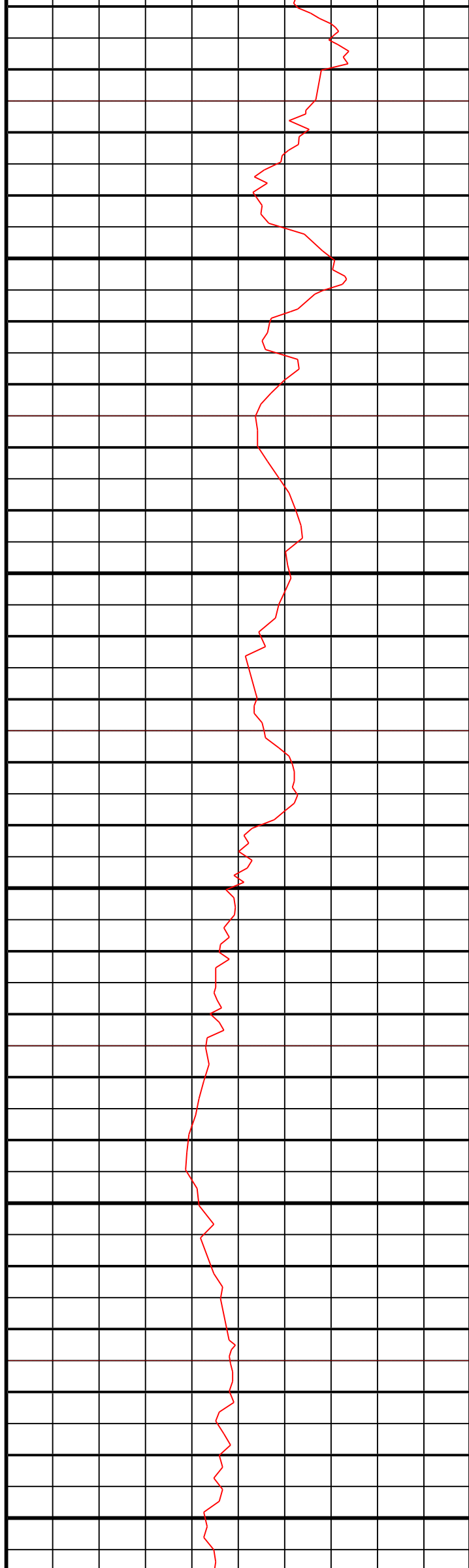
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TVD
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TVD
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6700

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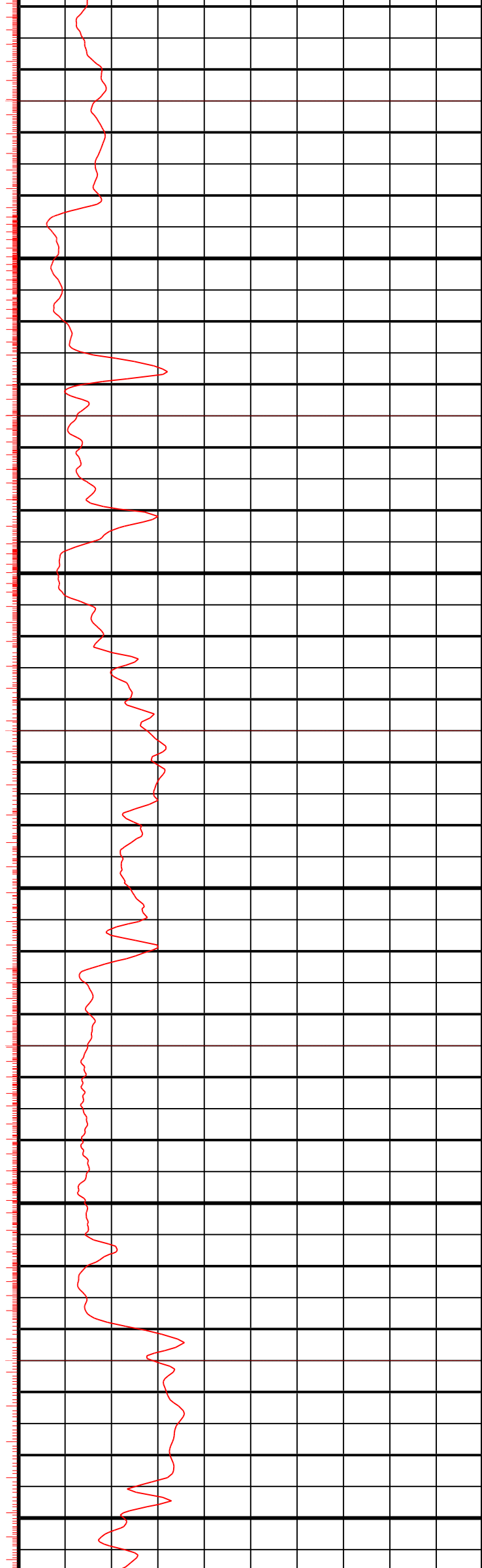
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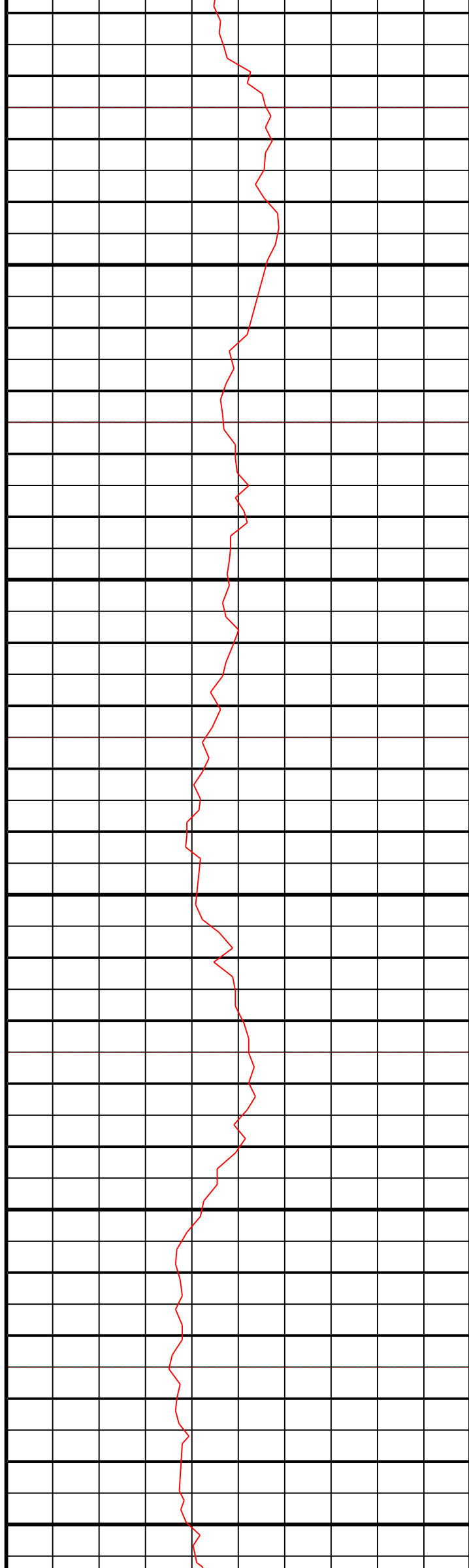
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TVD
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6850





TVD
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6900

TVD
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6950

TVD
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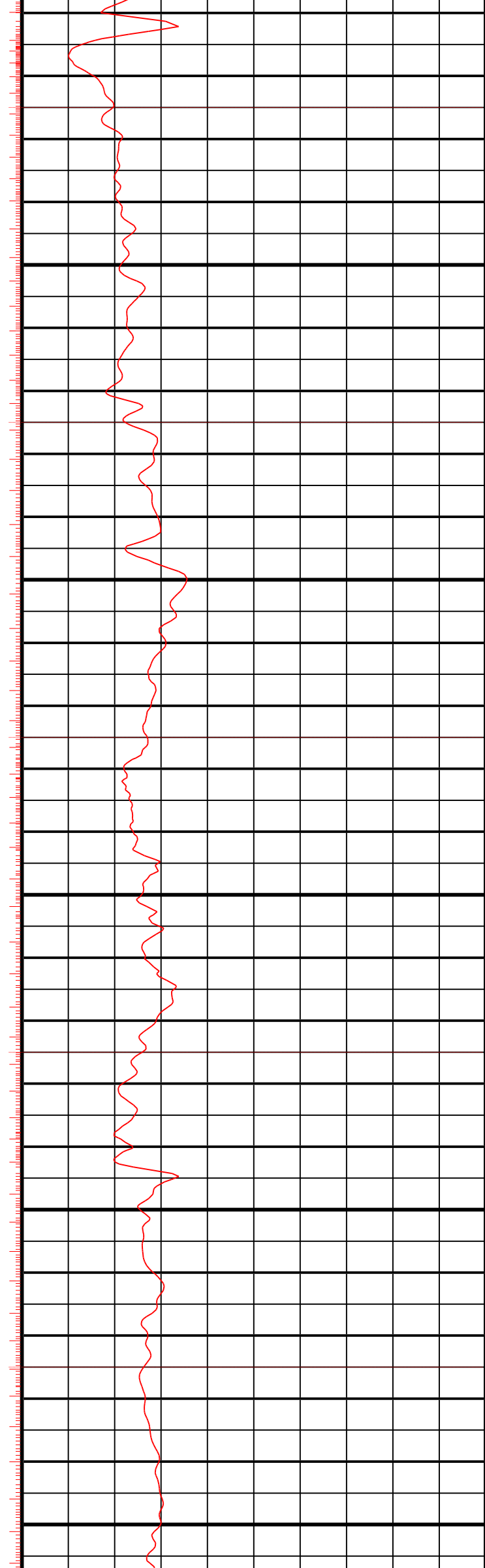
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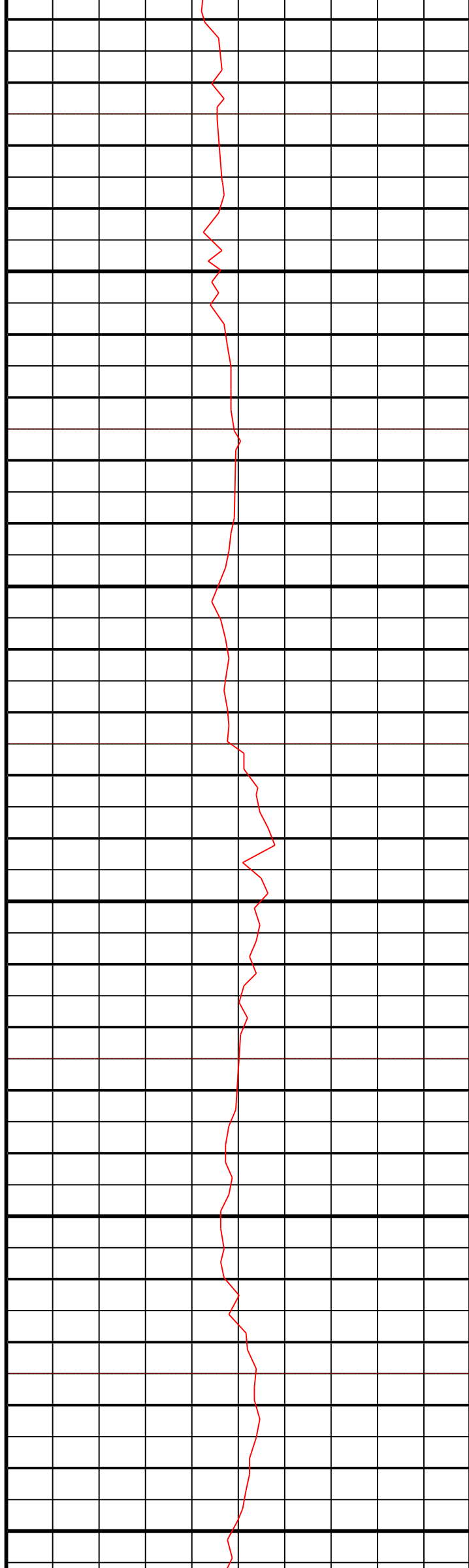
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TVD
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TVD
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7150

TVD
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7200

TVD
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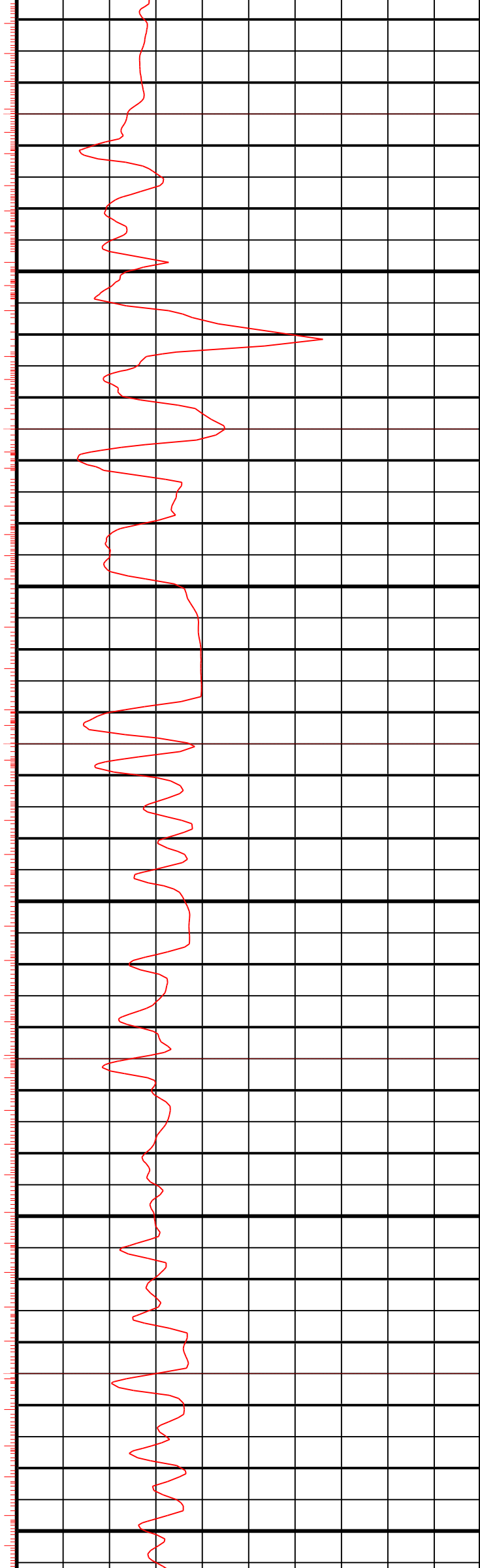
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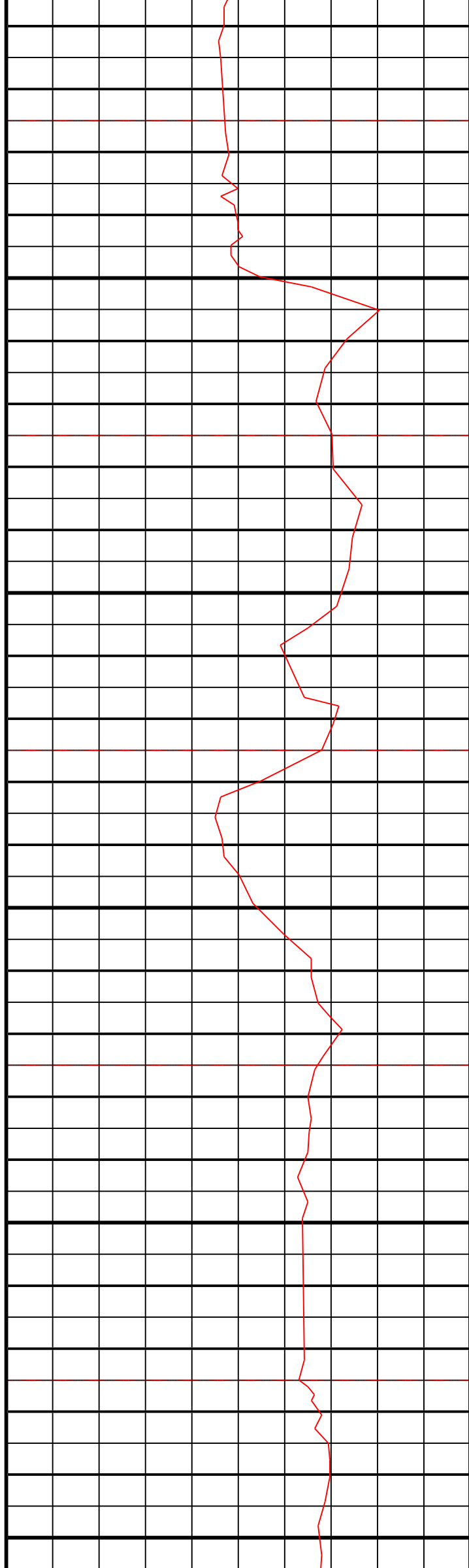
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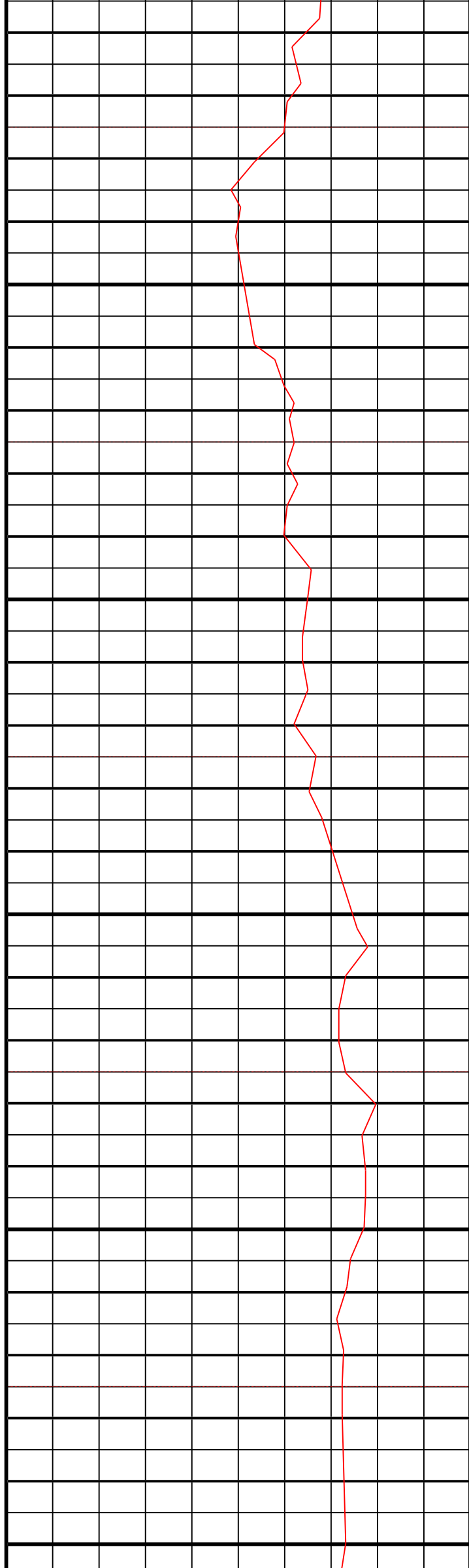
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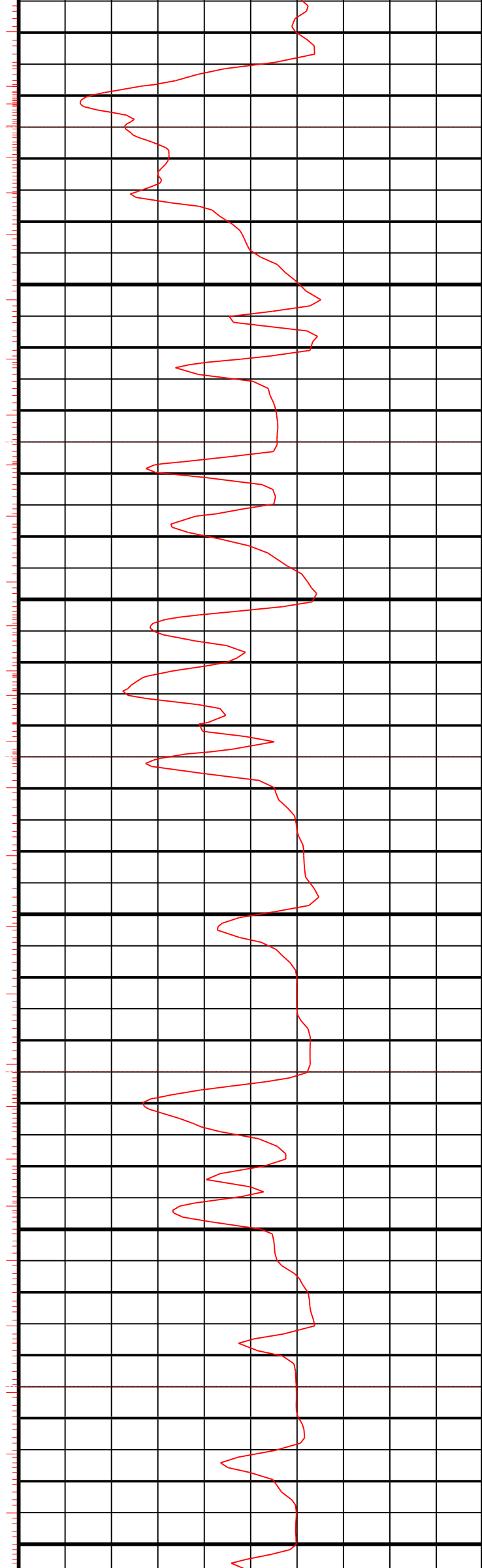
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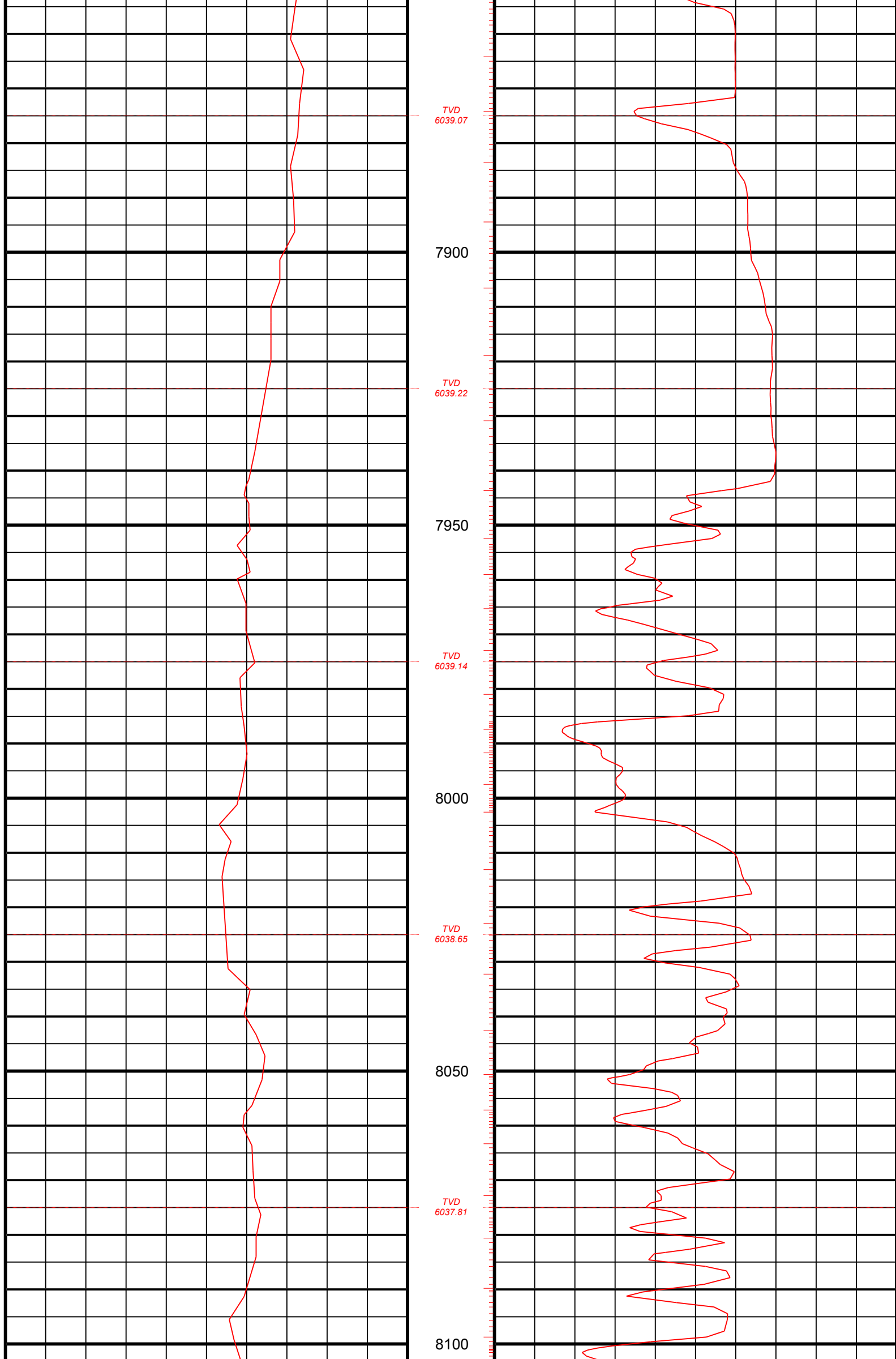
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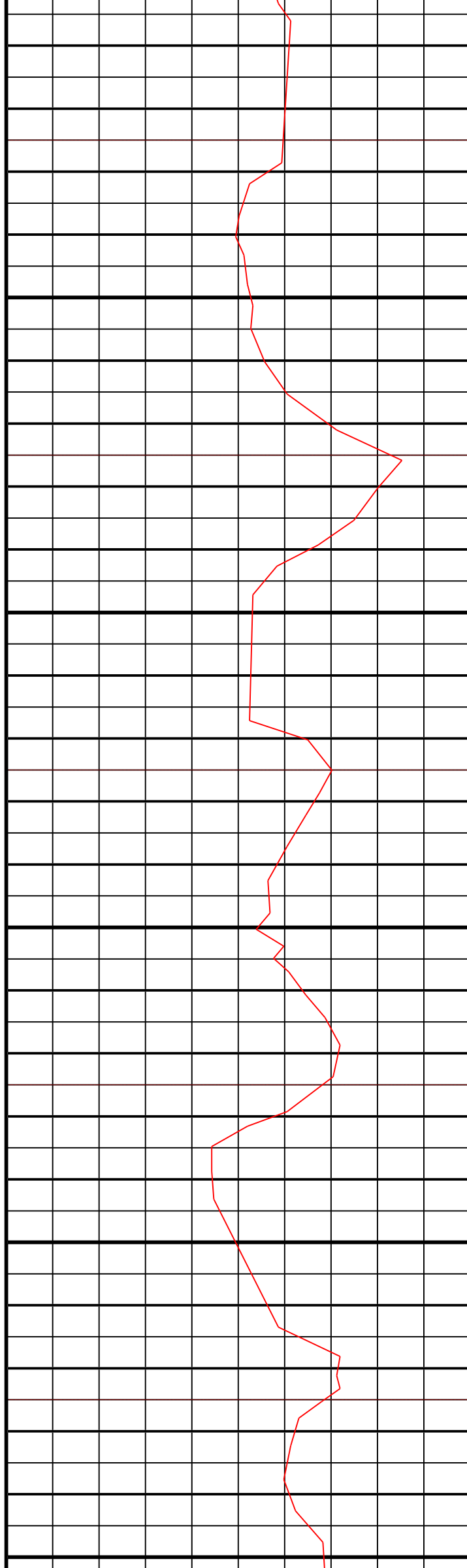
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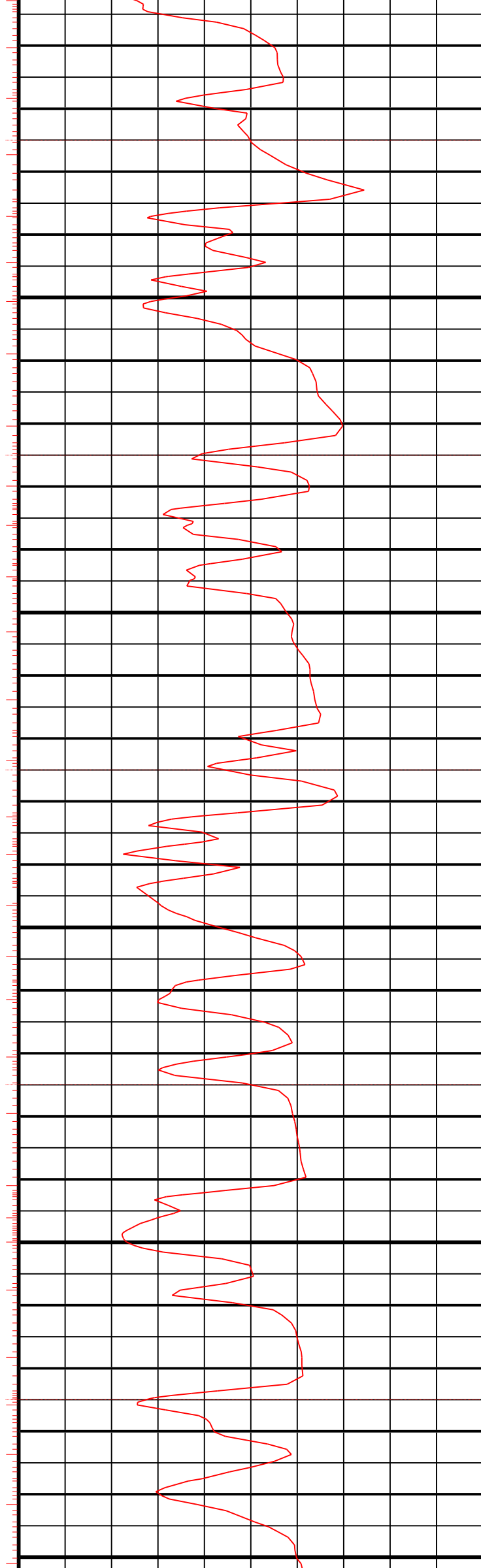
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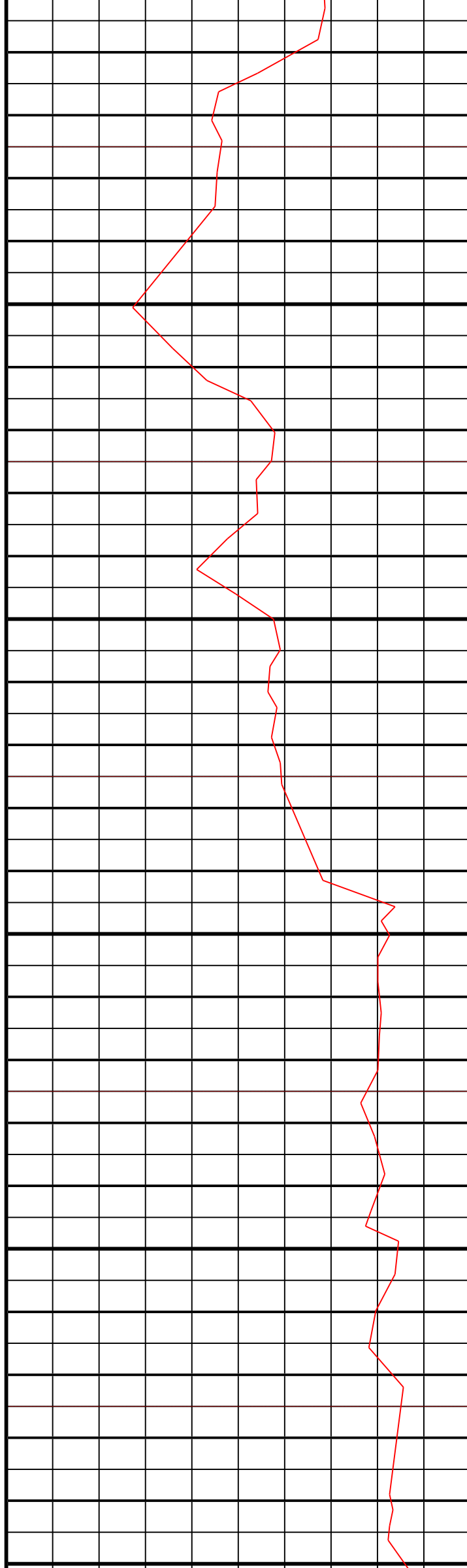
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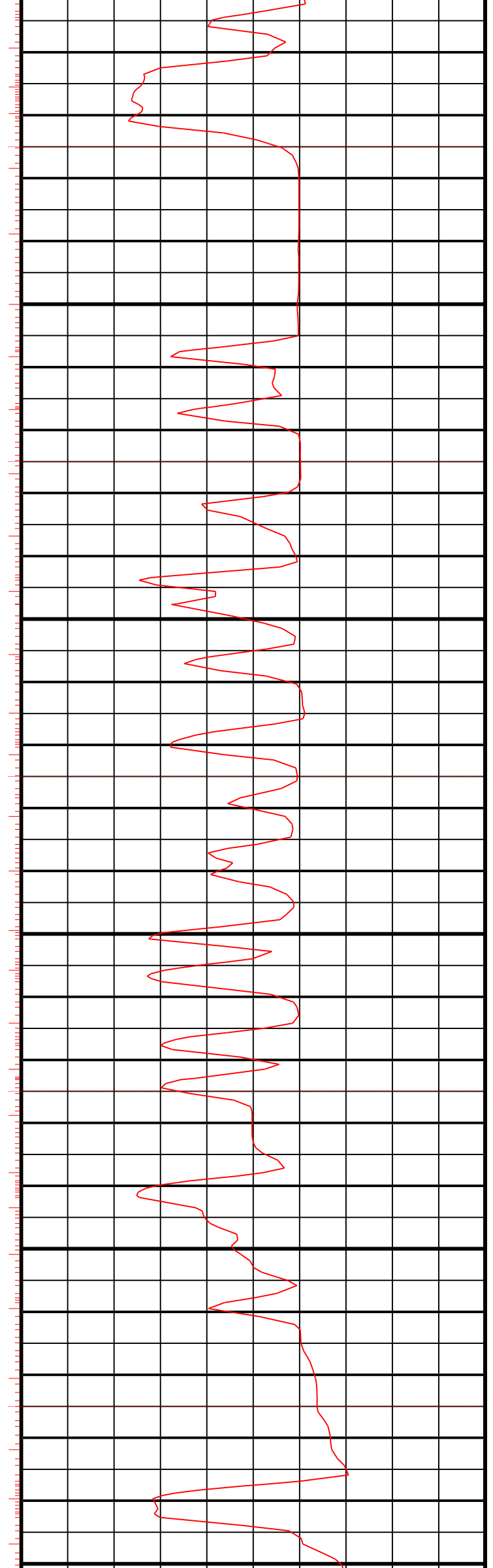
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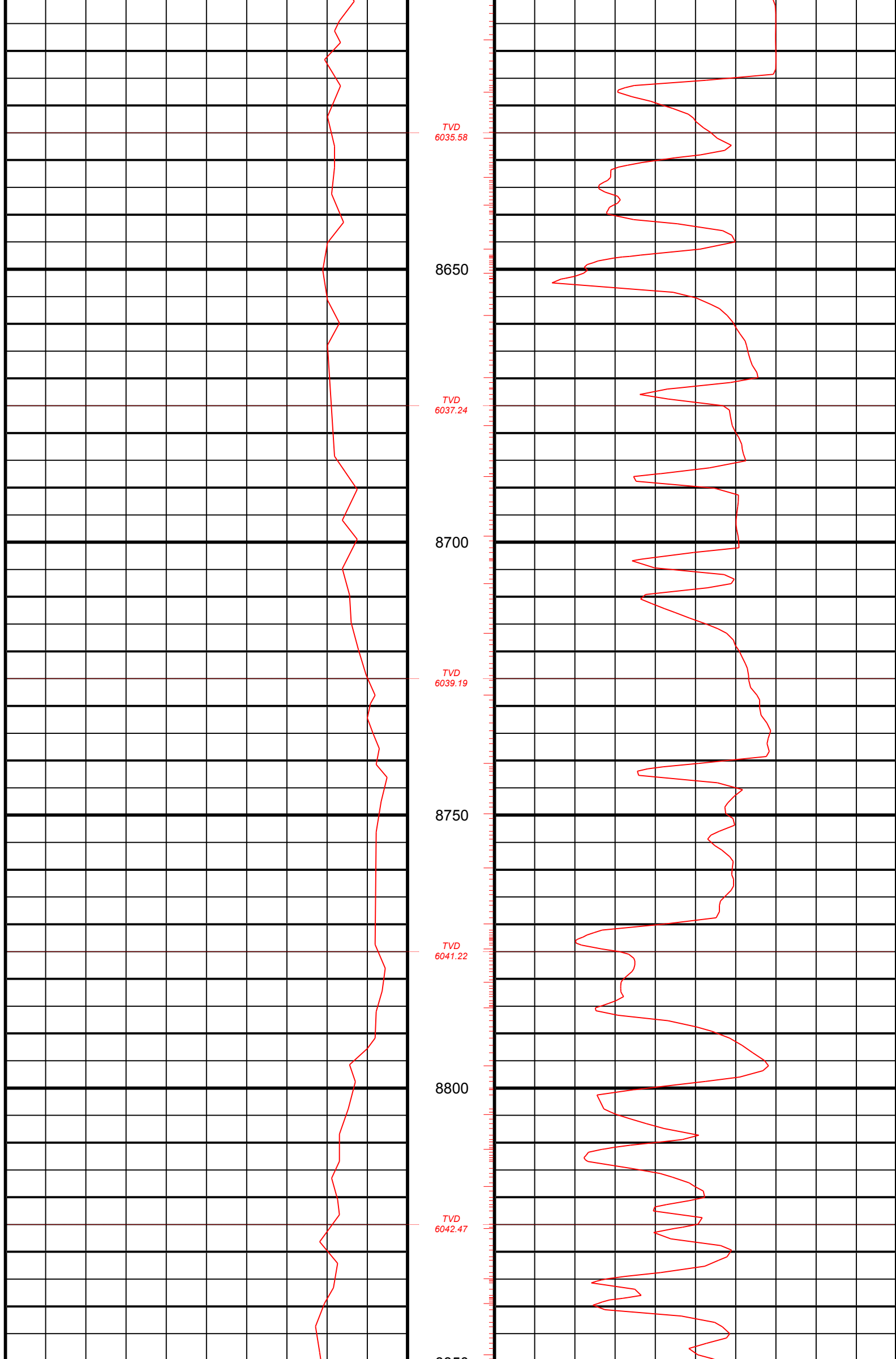
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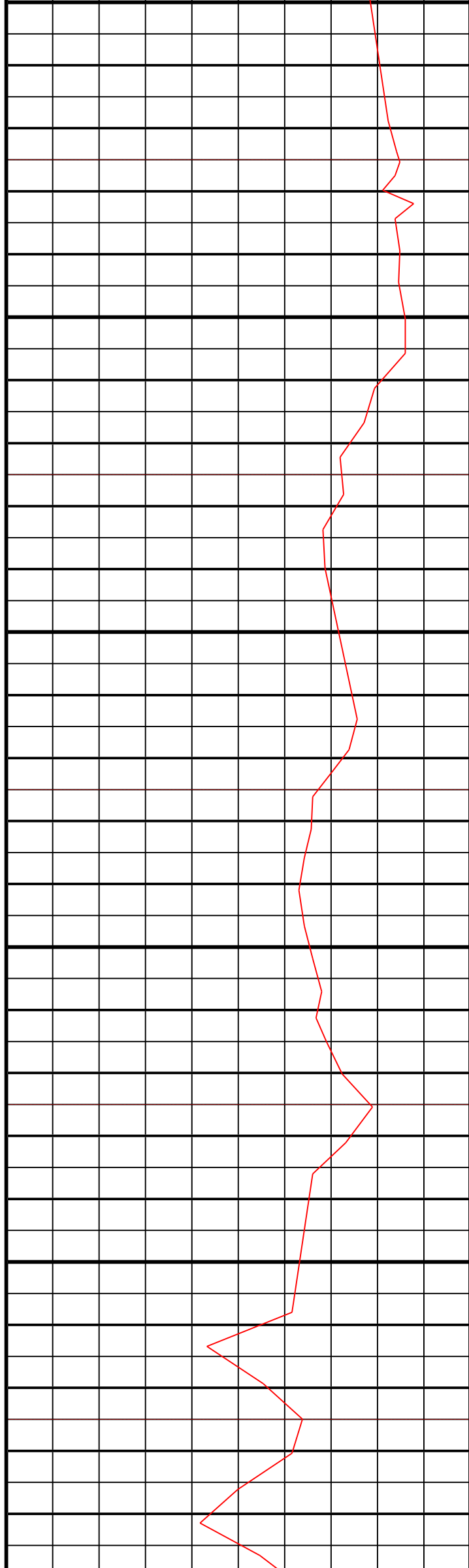
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TVD
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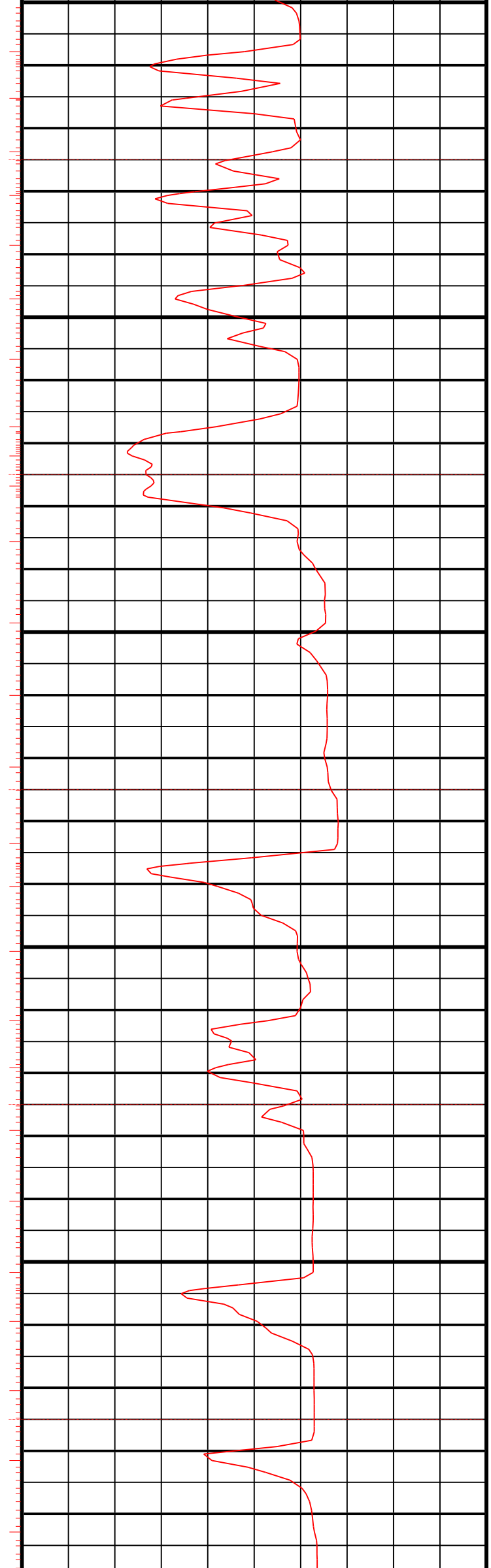
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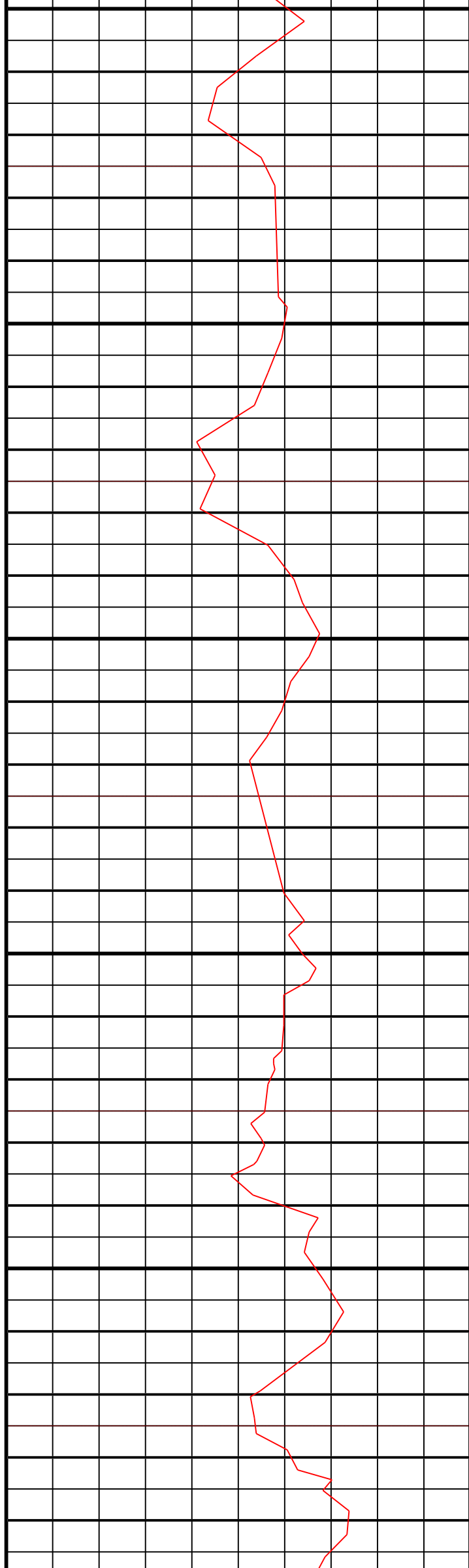
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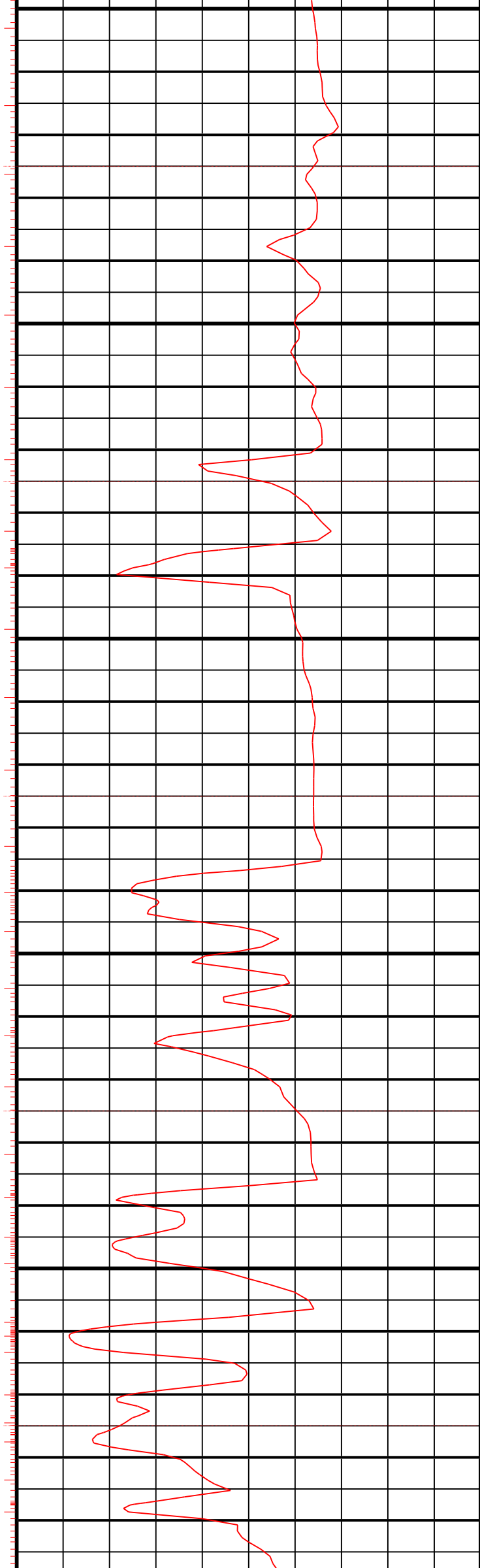
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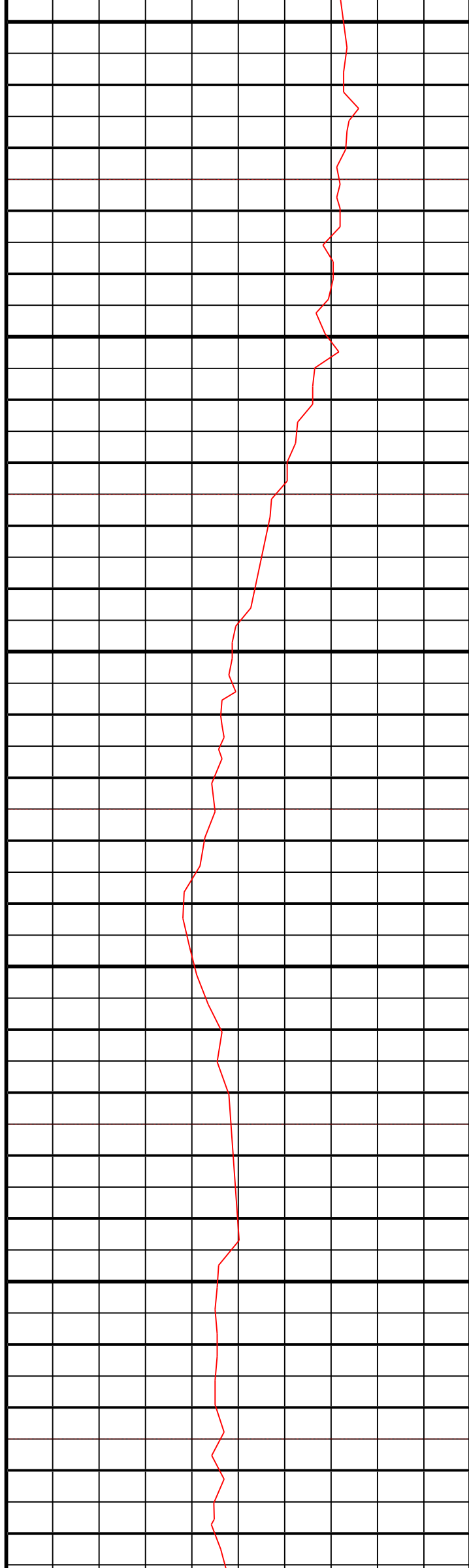
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9600

TVD
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TVD
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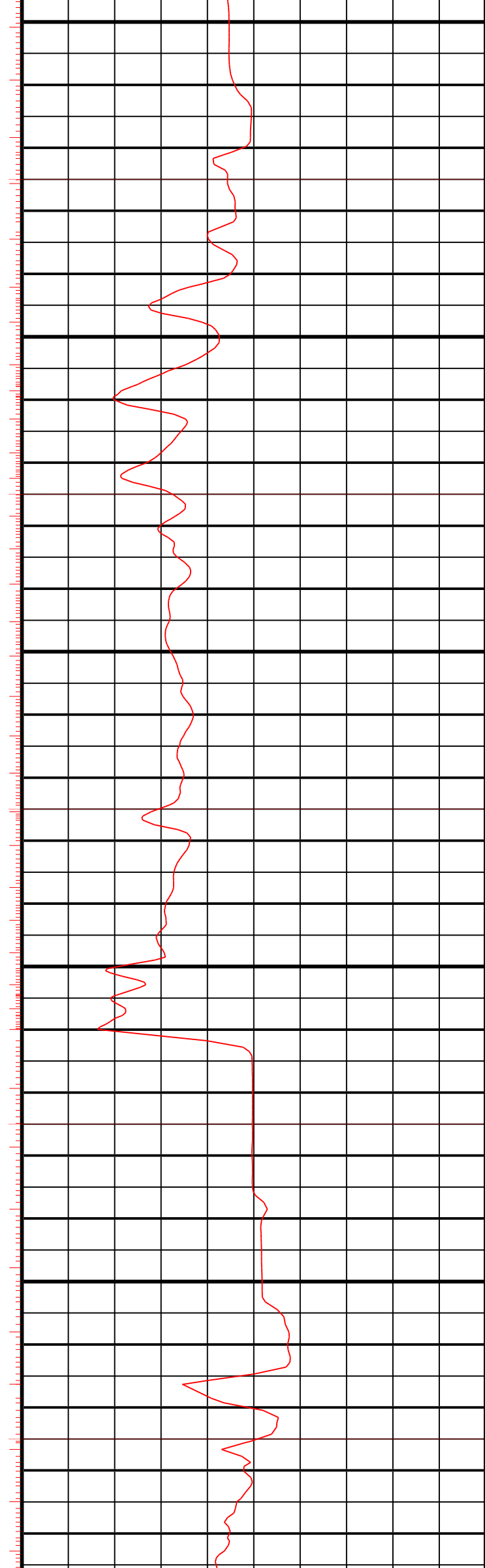
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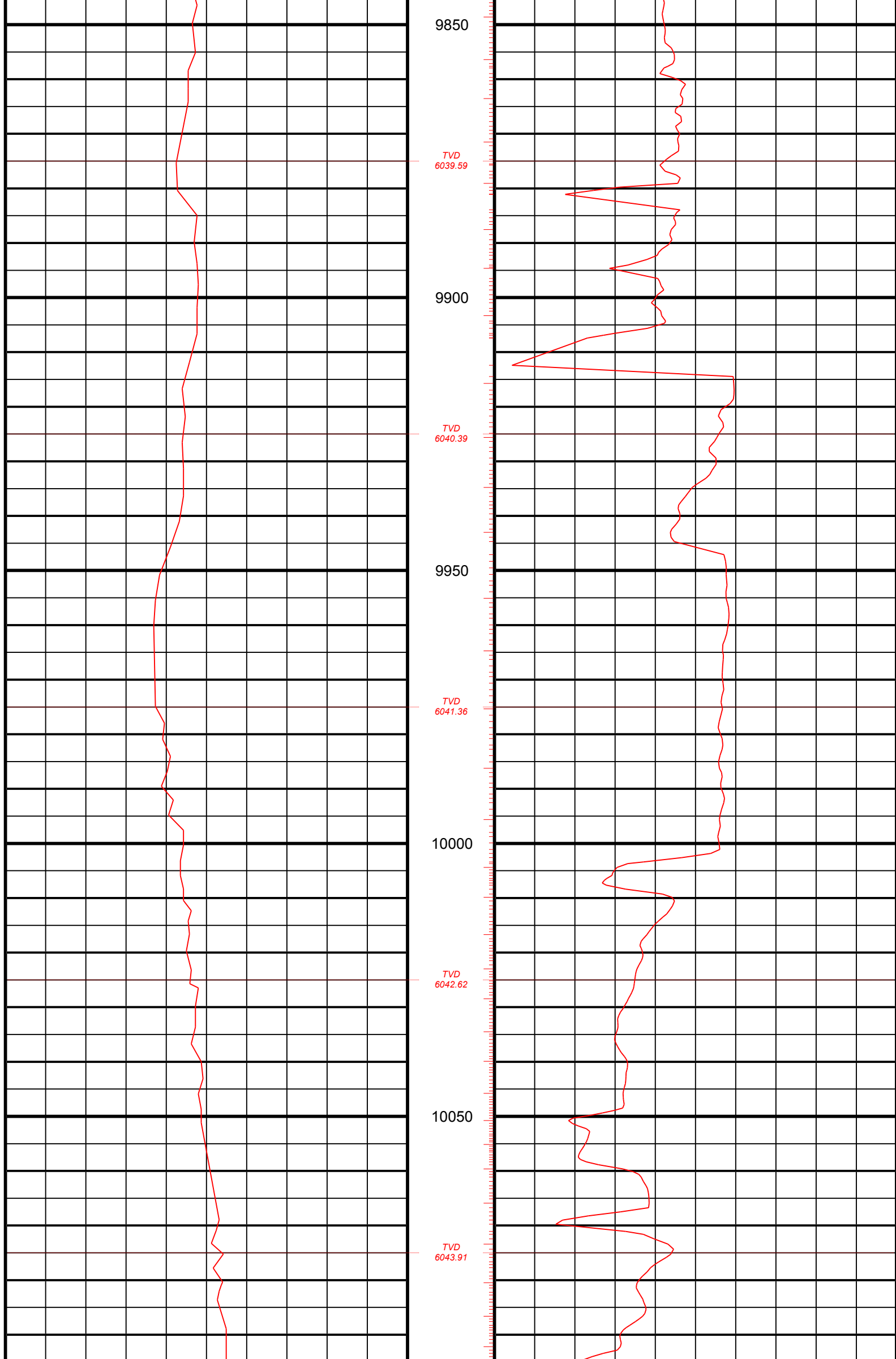
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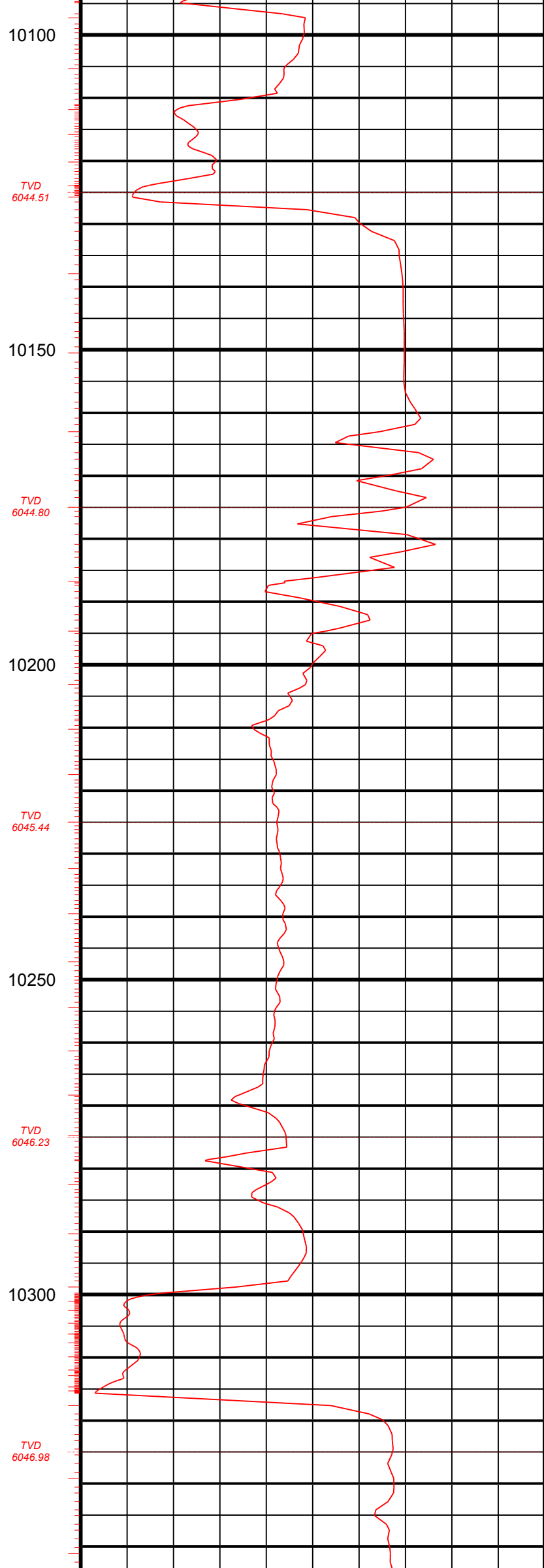
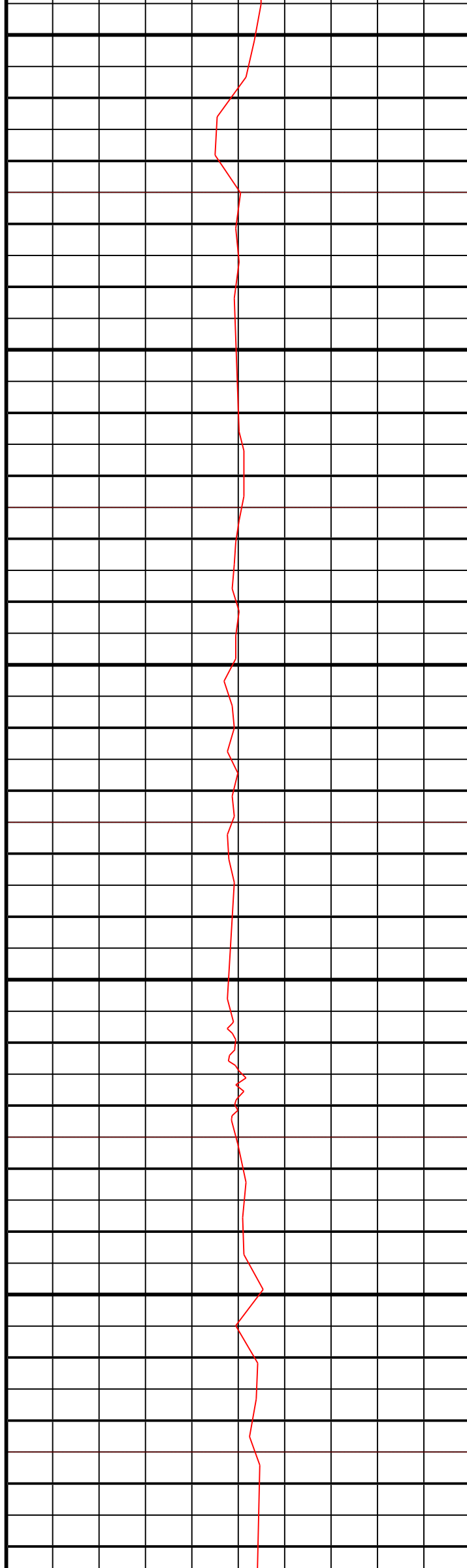
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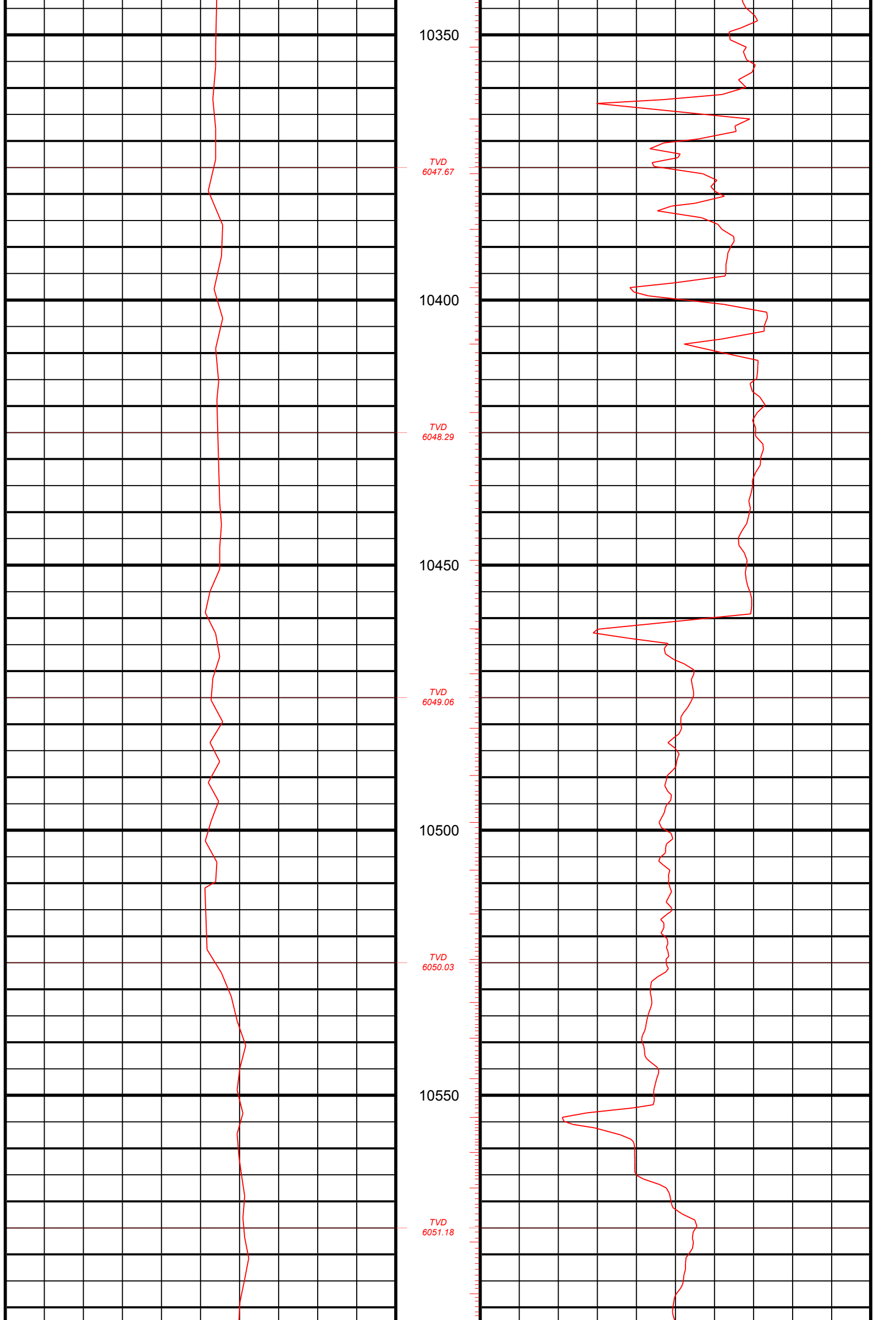
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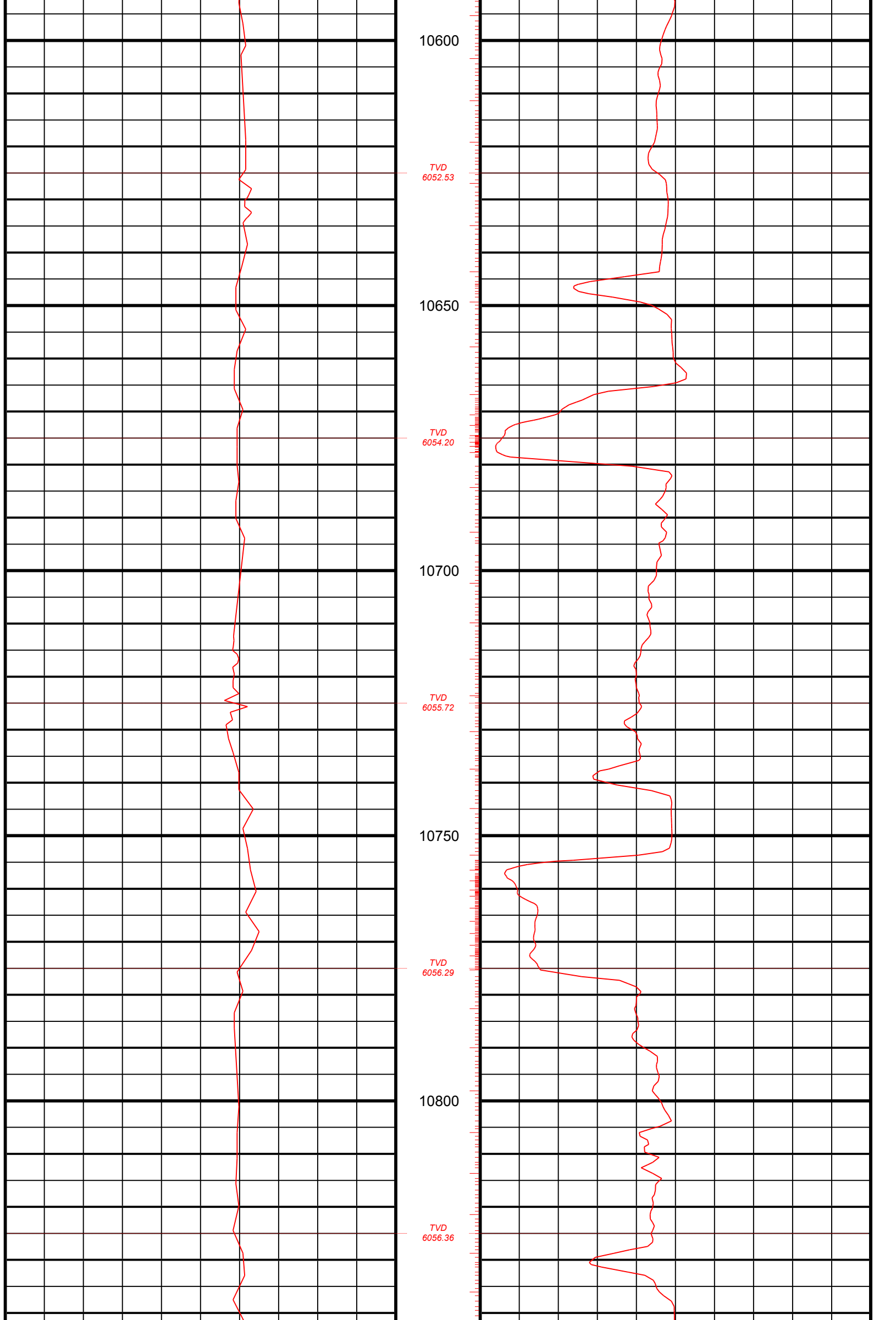
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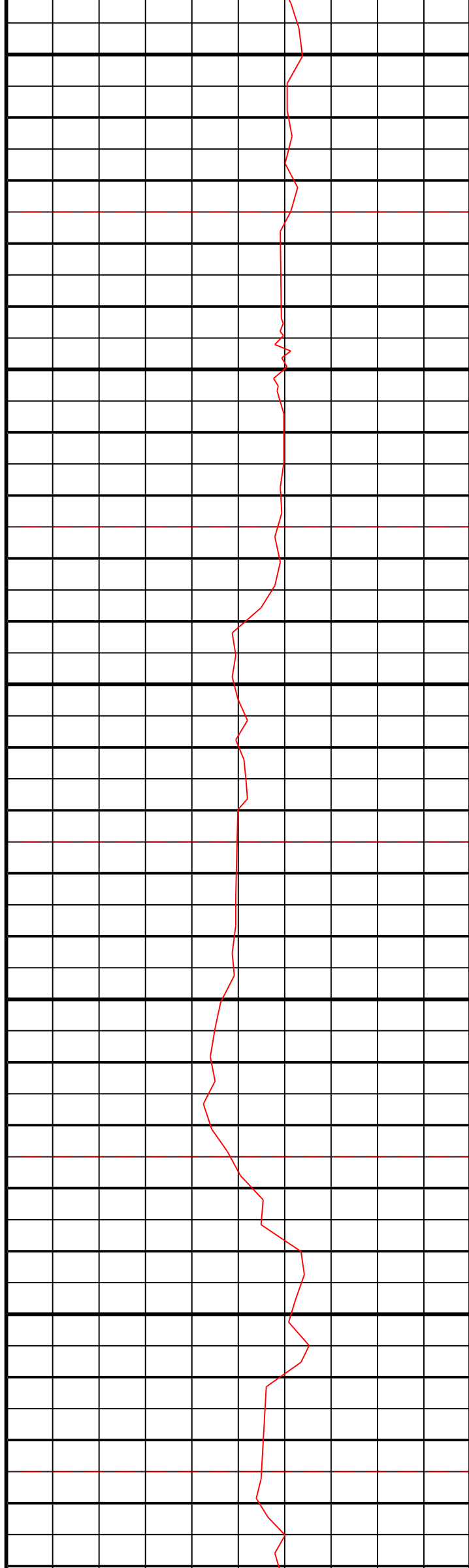












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TVD
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10950

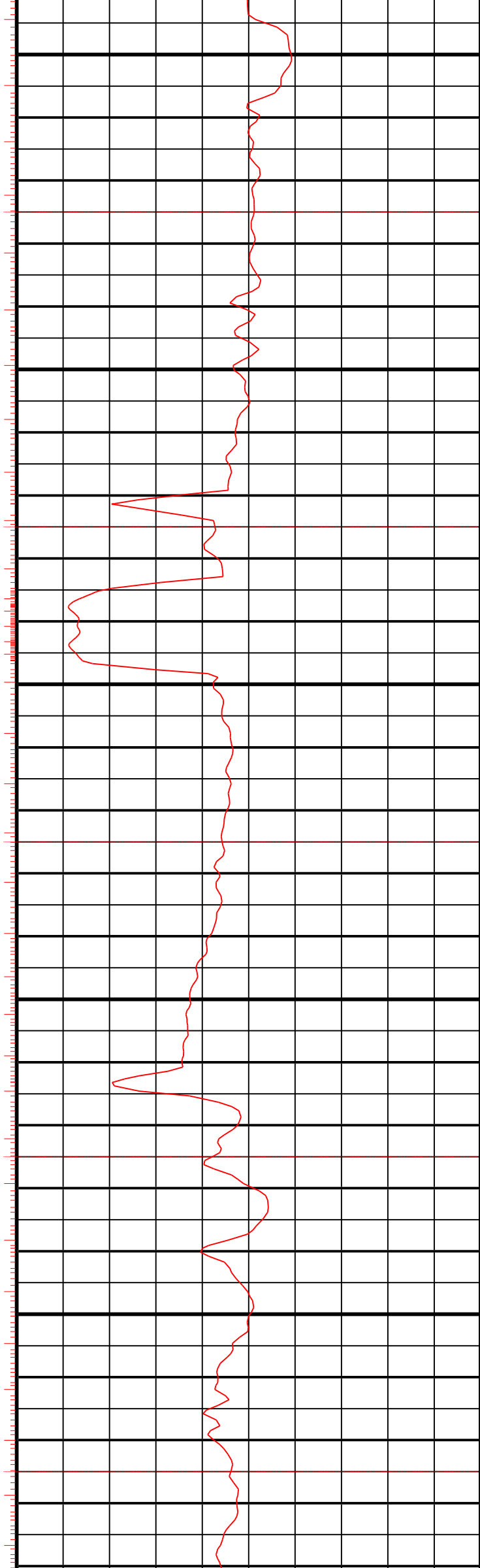
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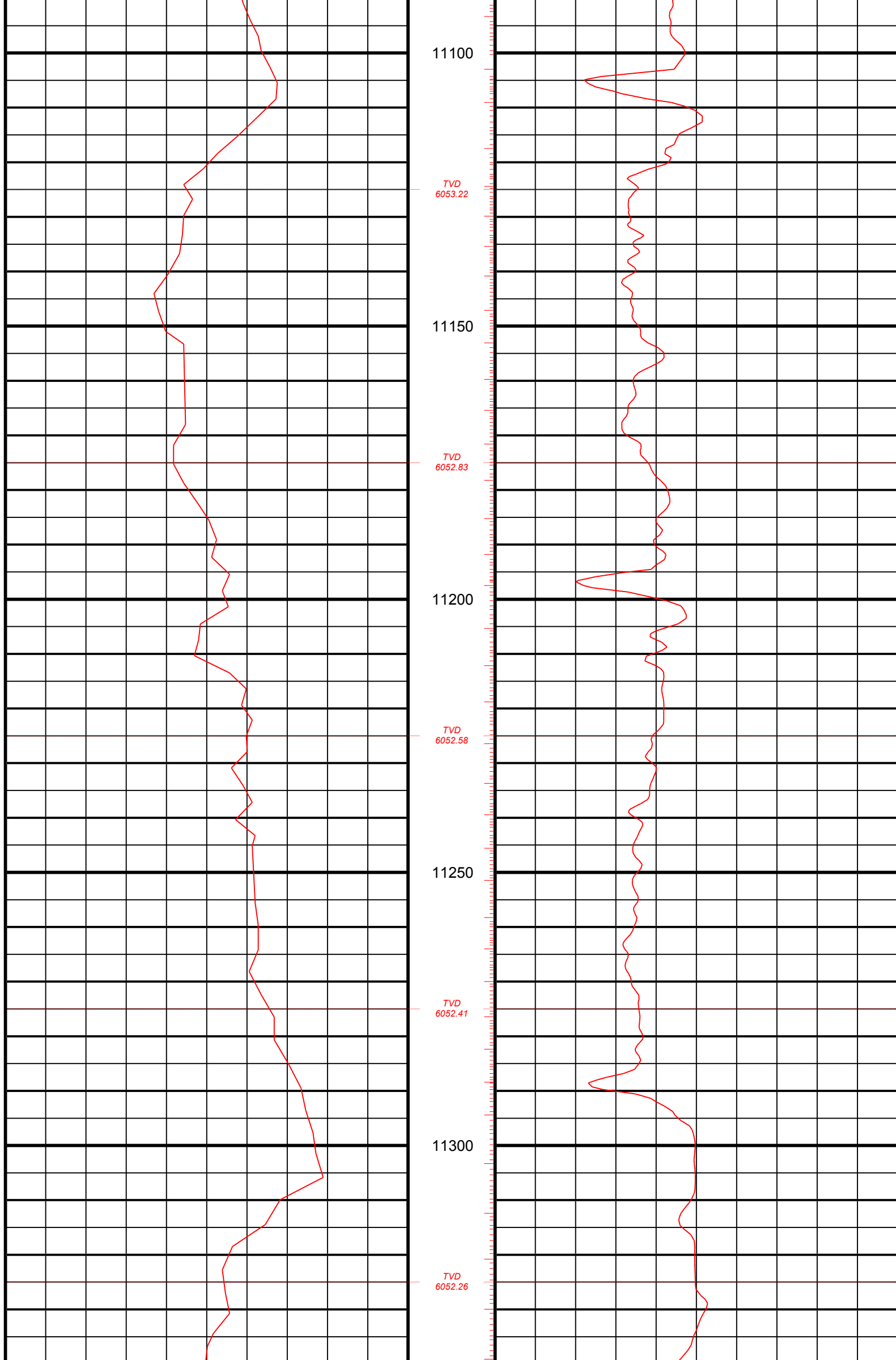
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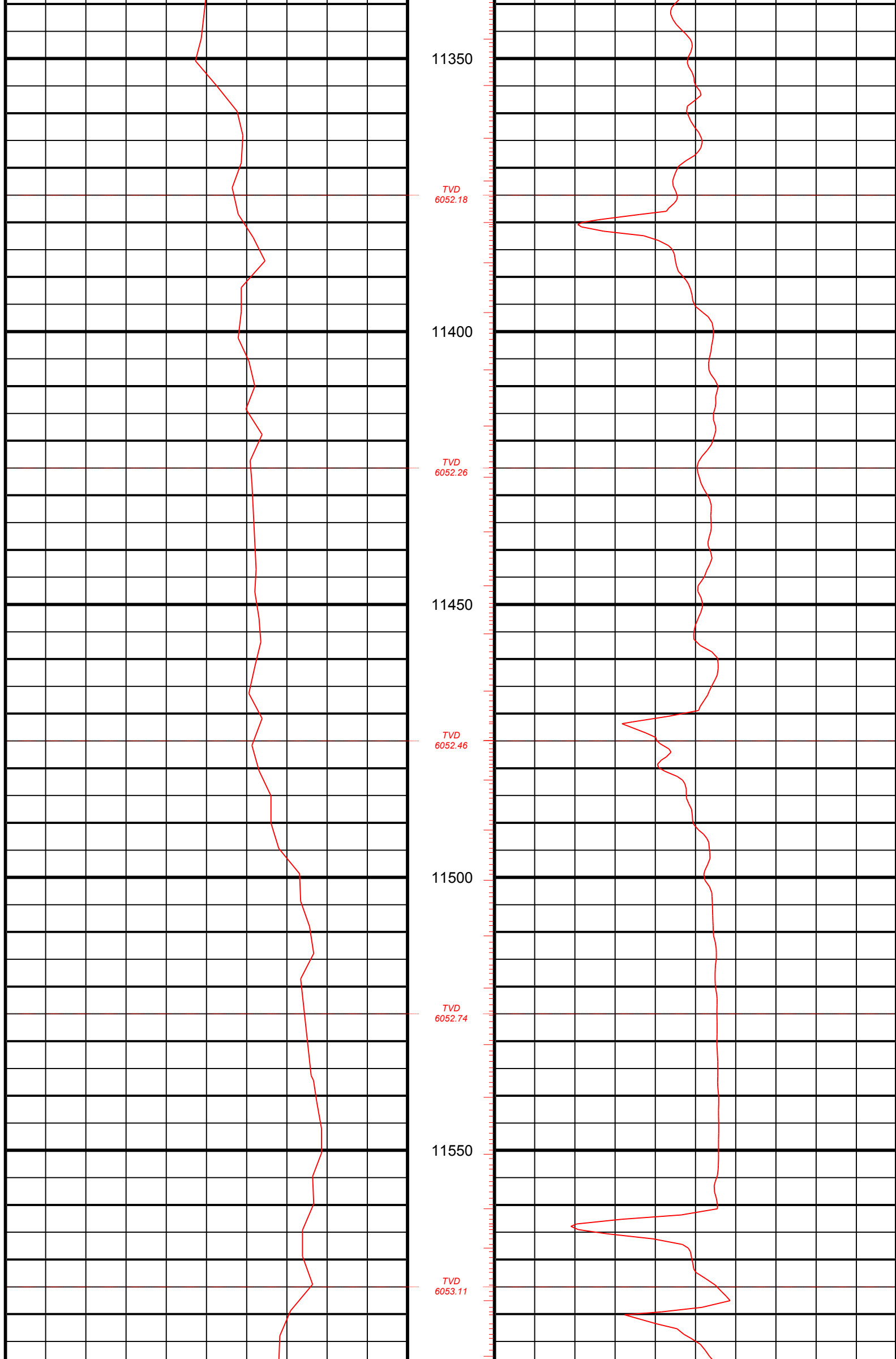
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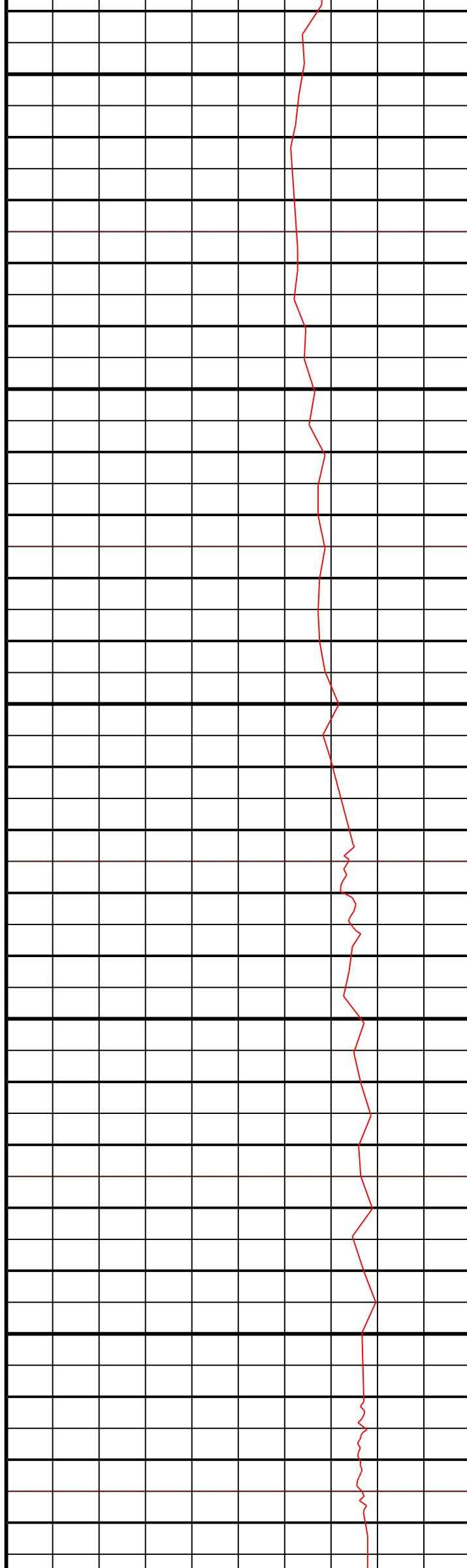
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TVD
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11650

TVD
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11700

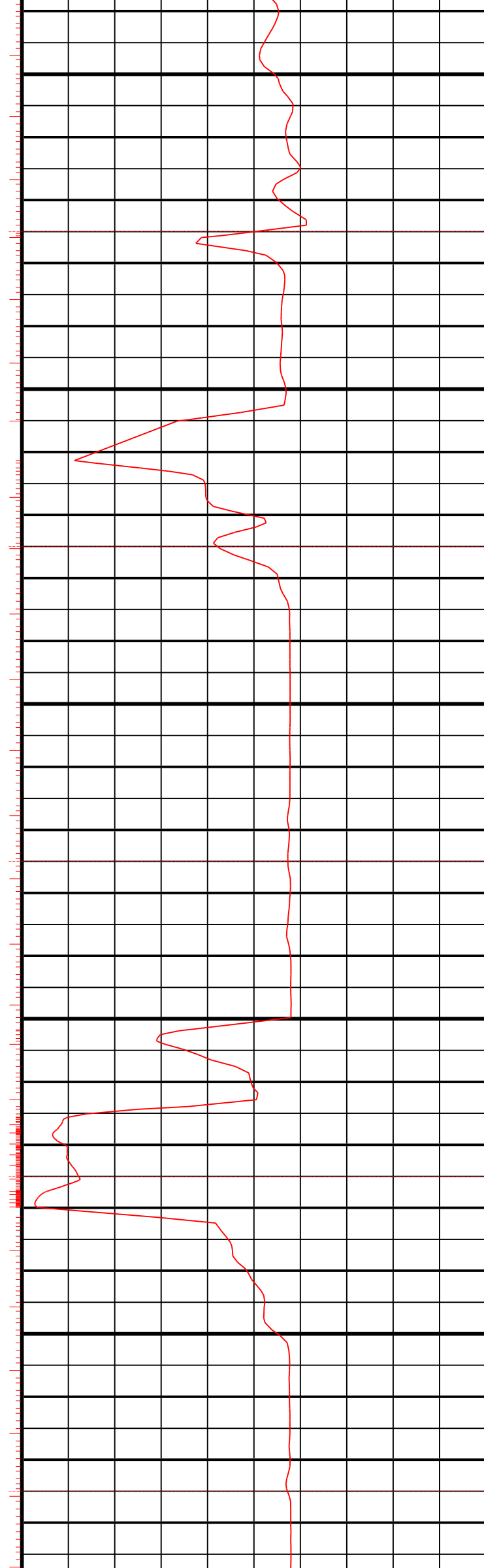
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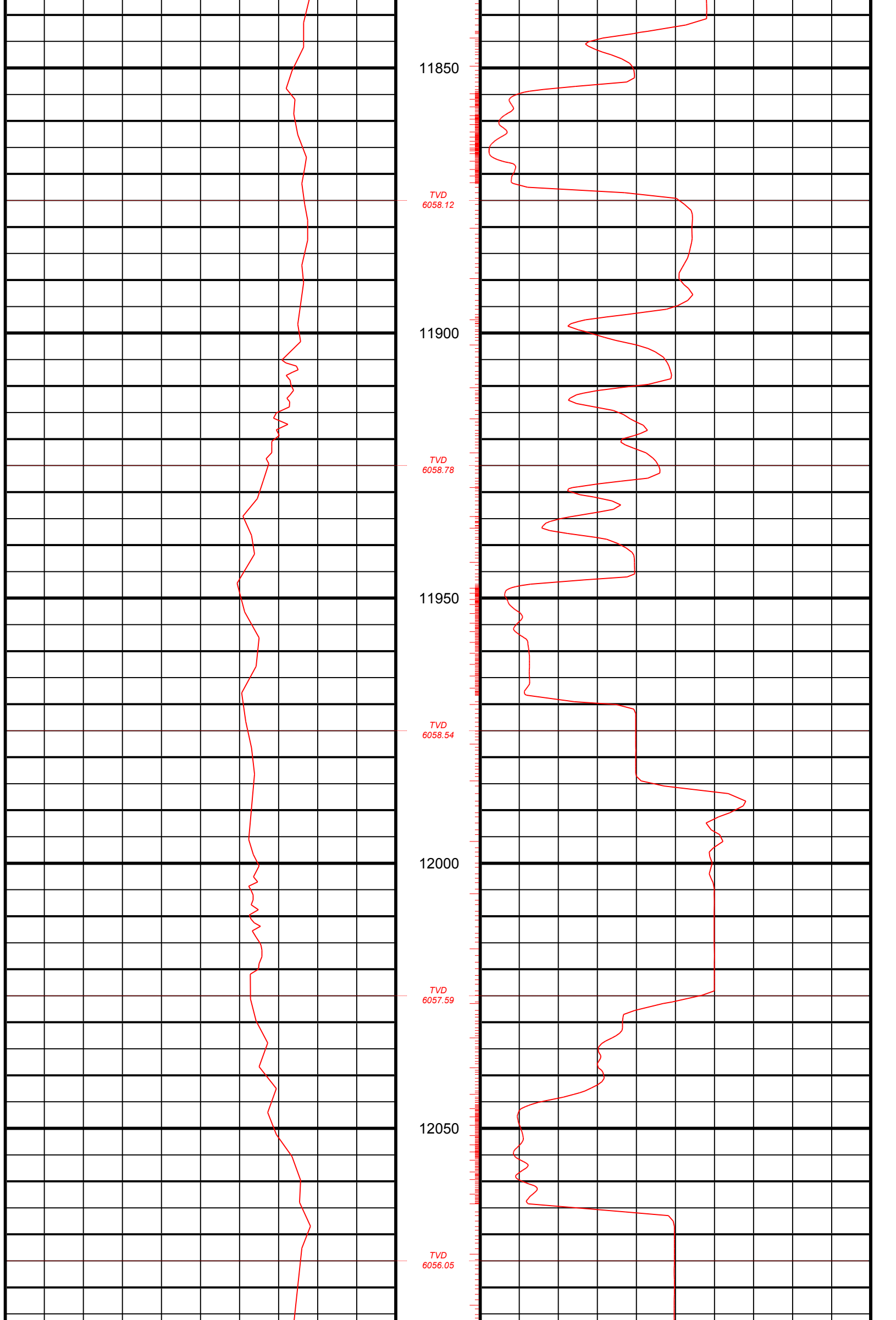
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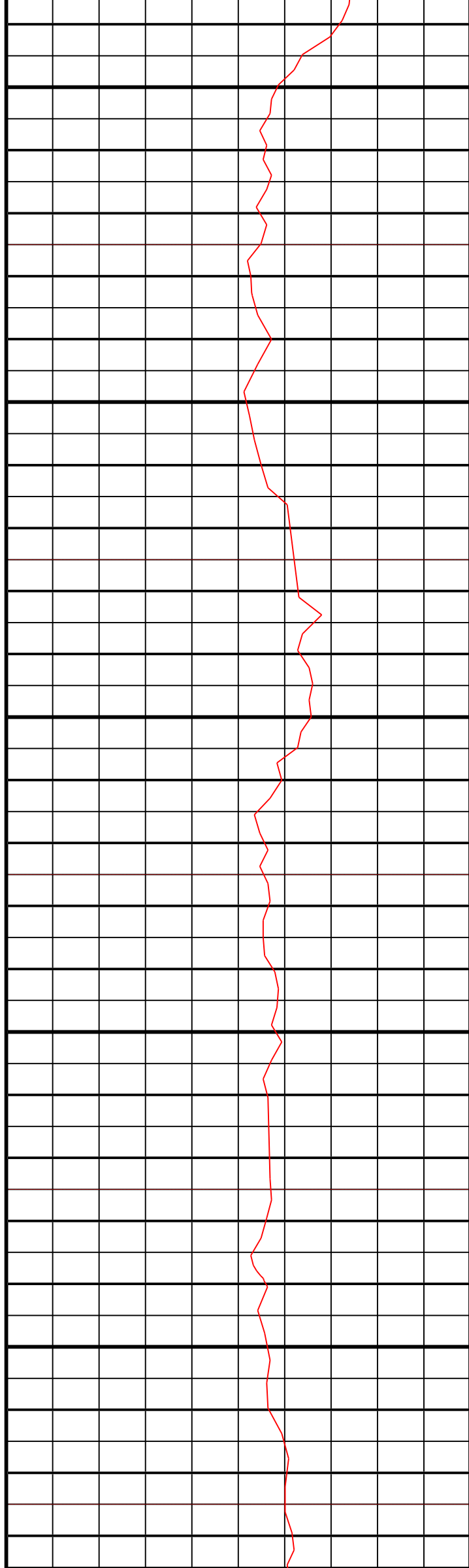
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TVD
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TVD
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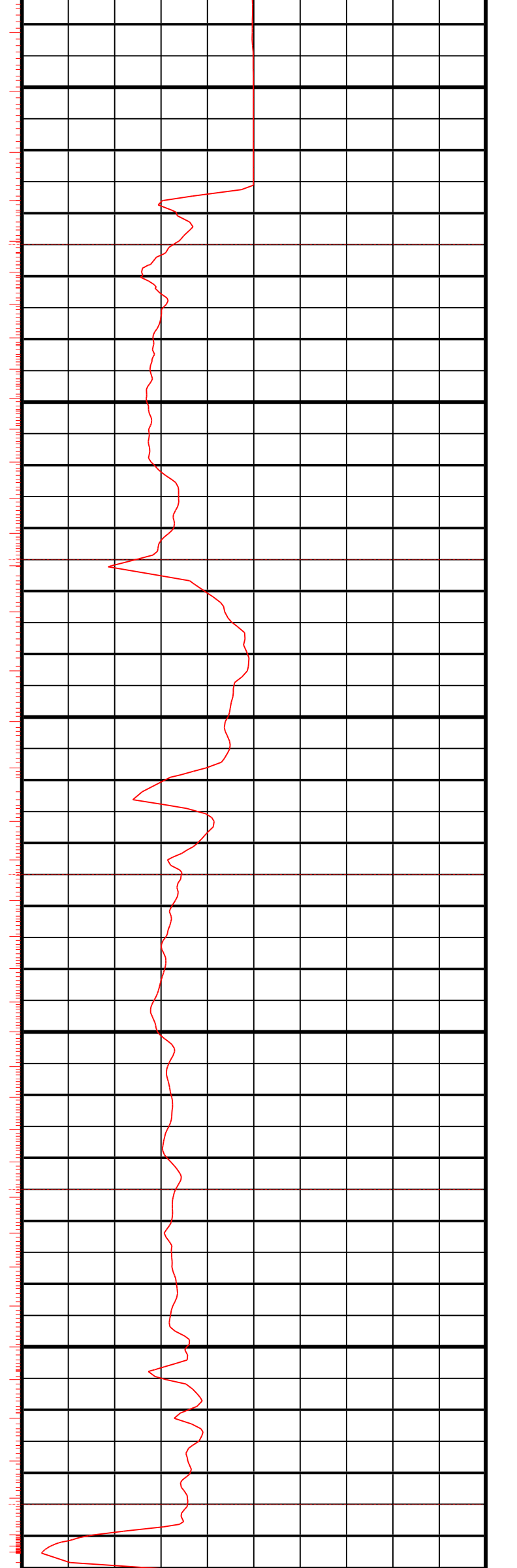
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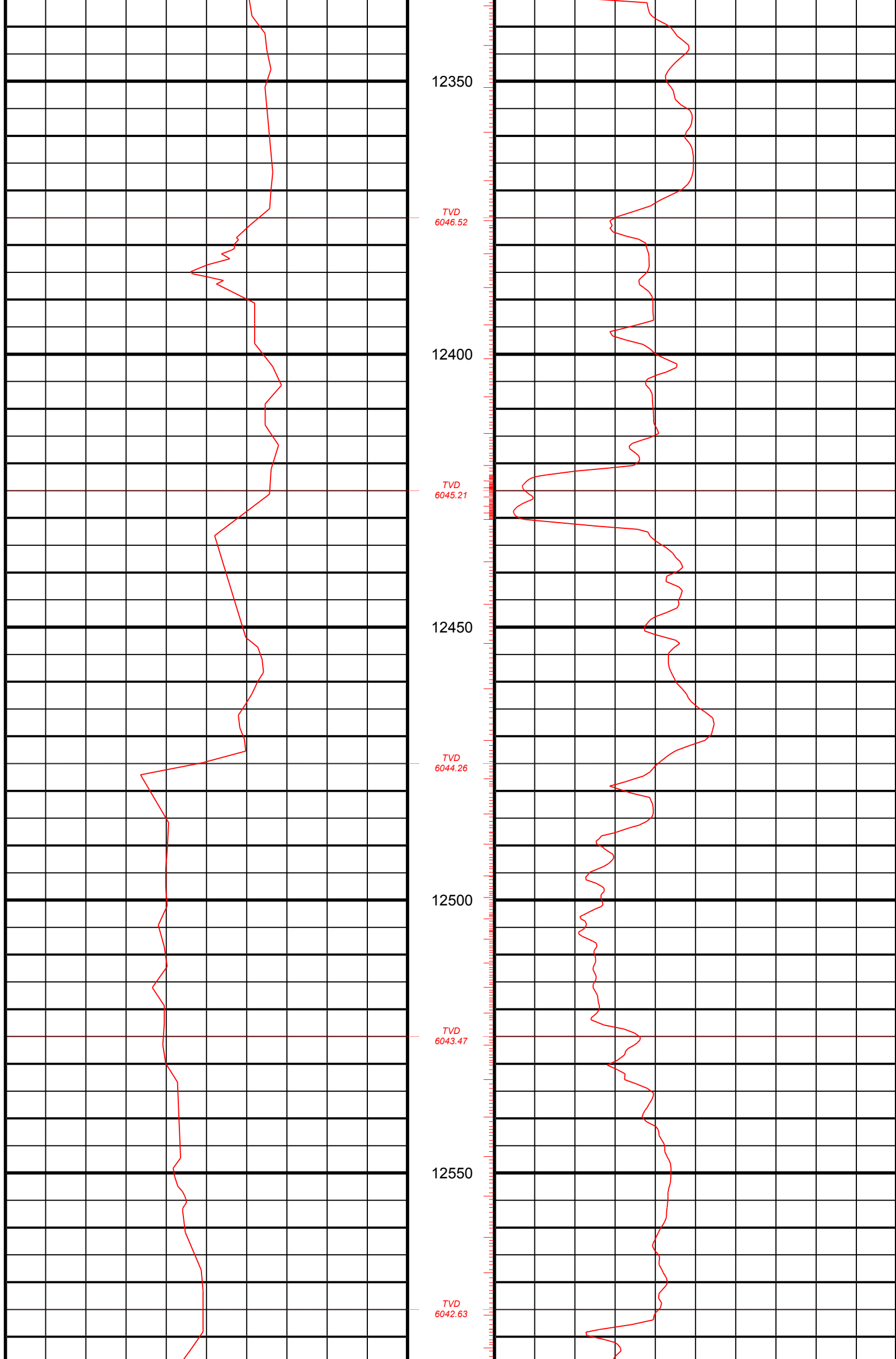
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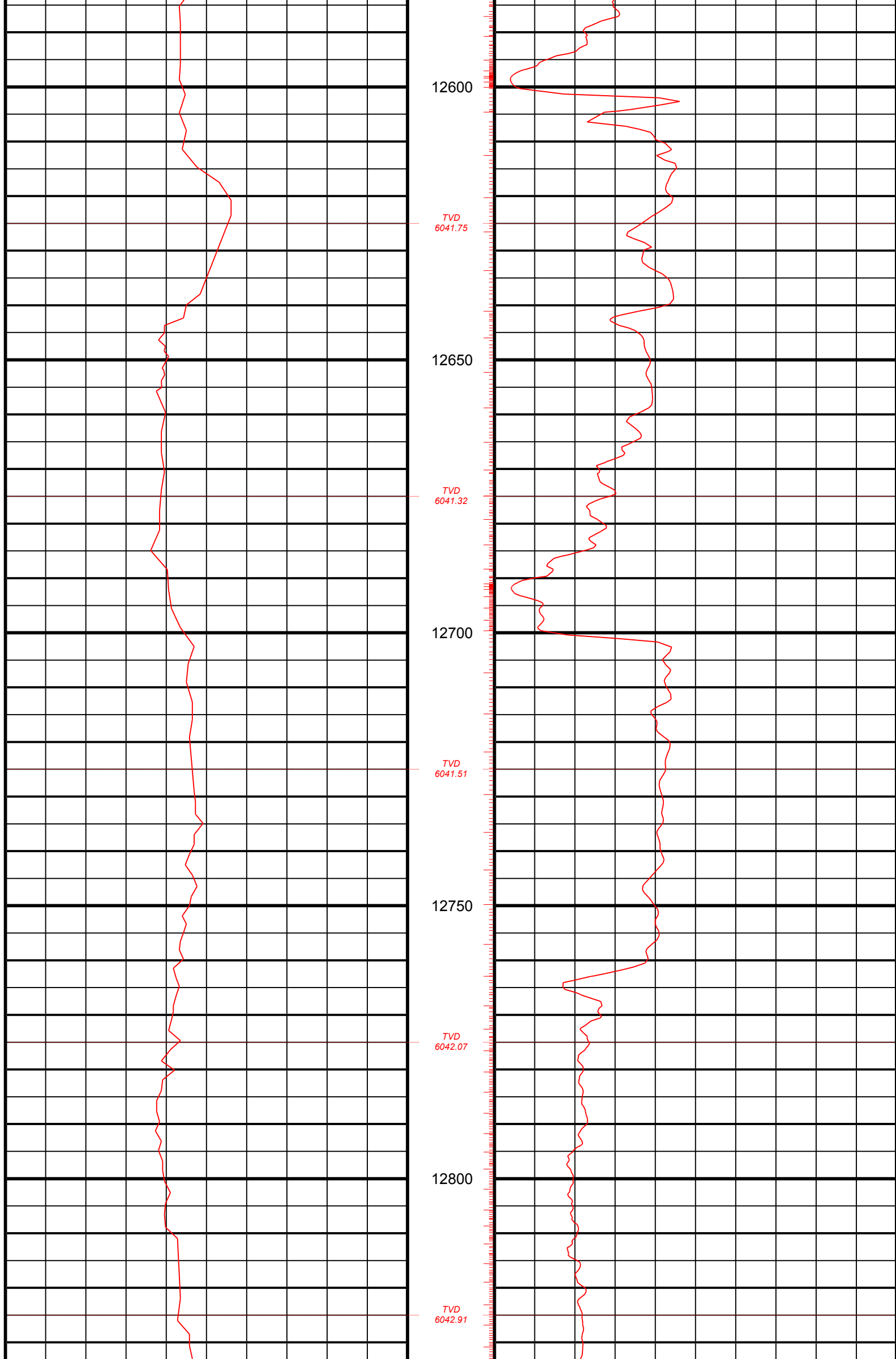
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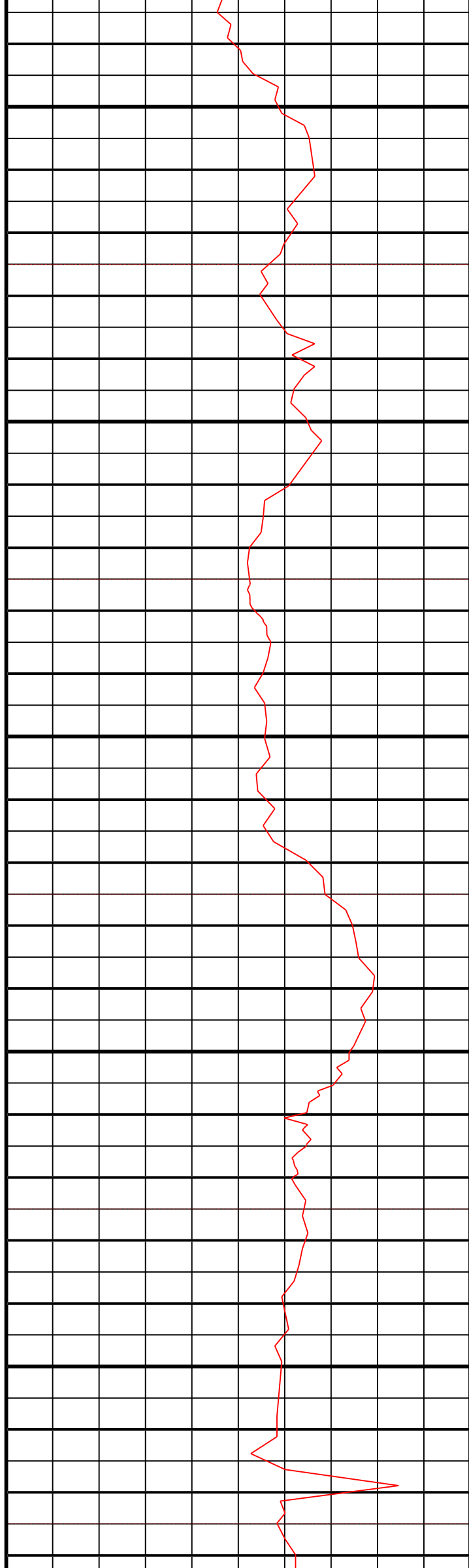
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TVD
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TVD
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12950

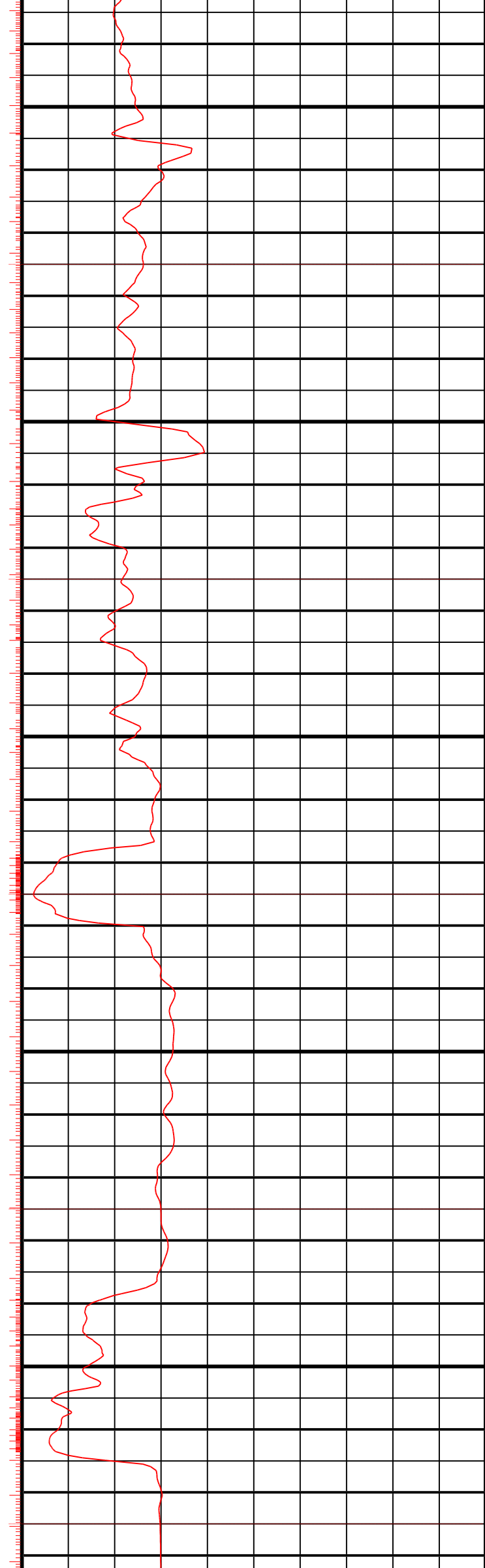
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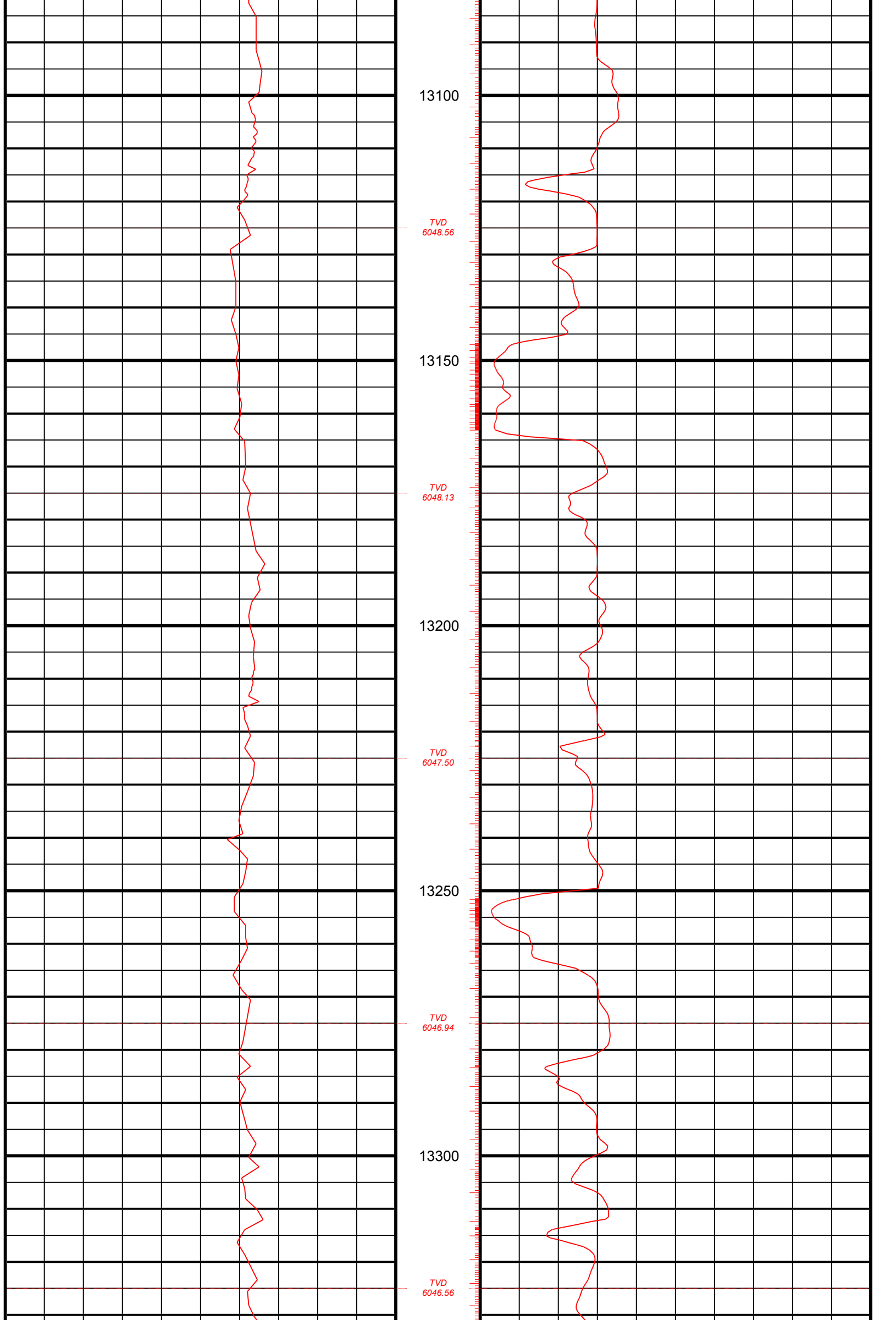
13000

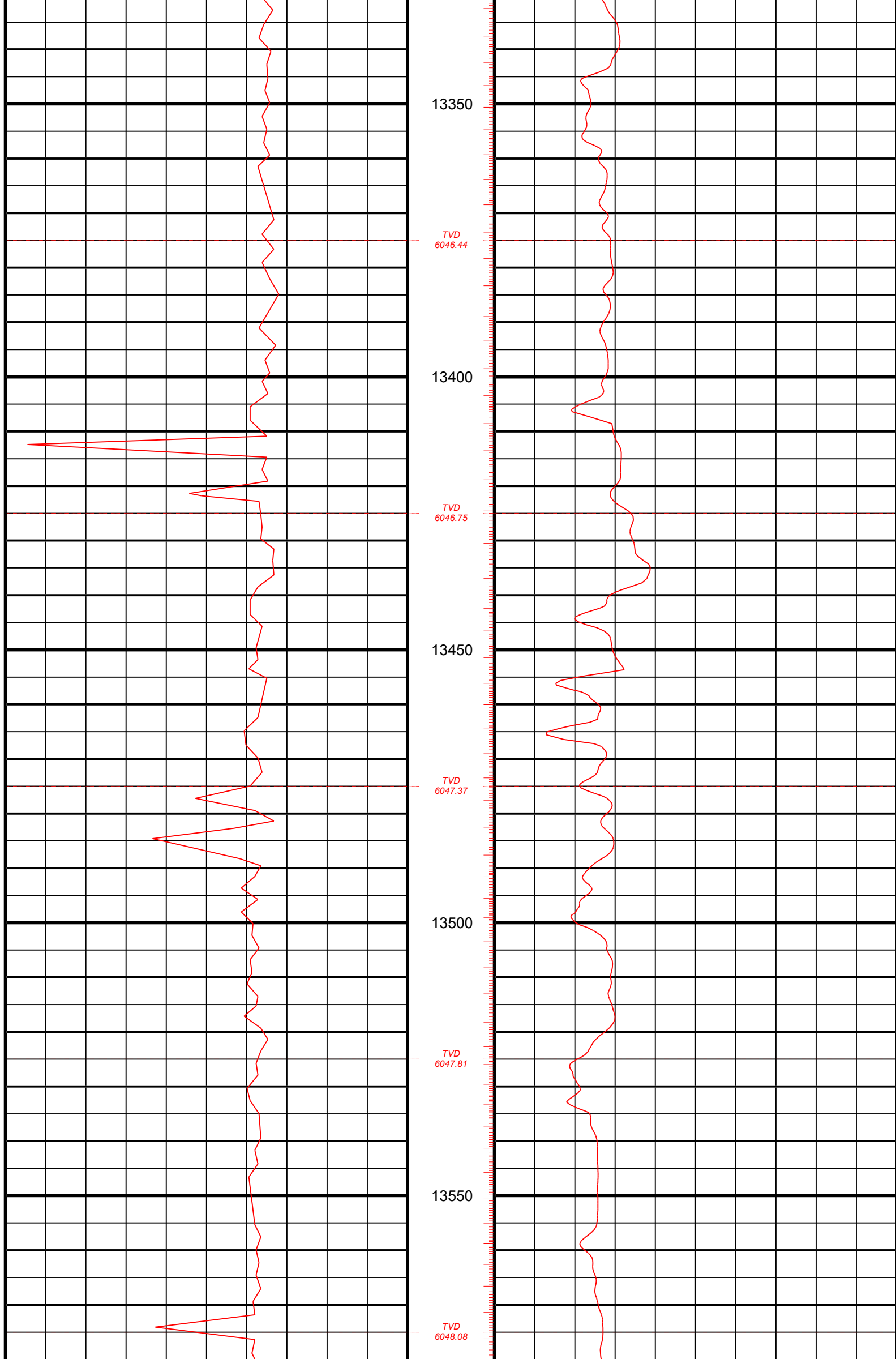
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6047.62

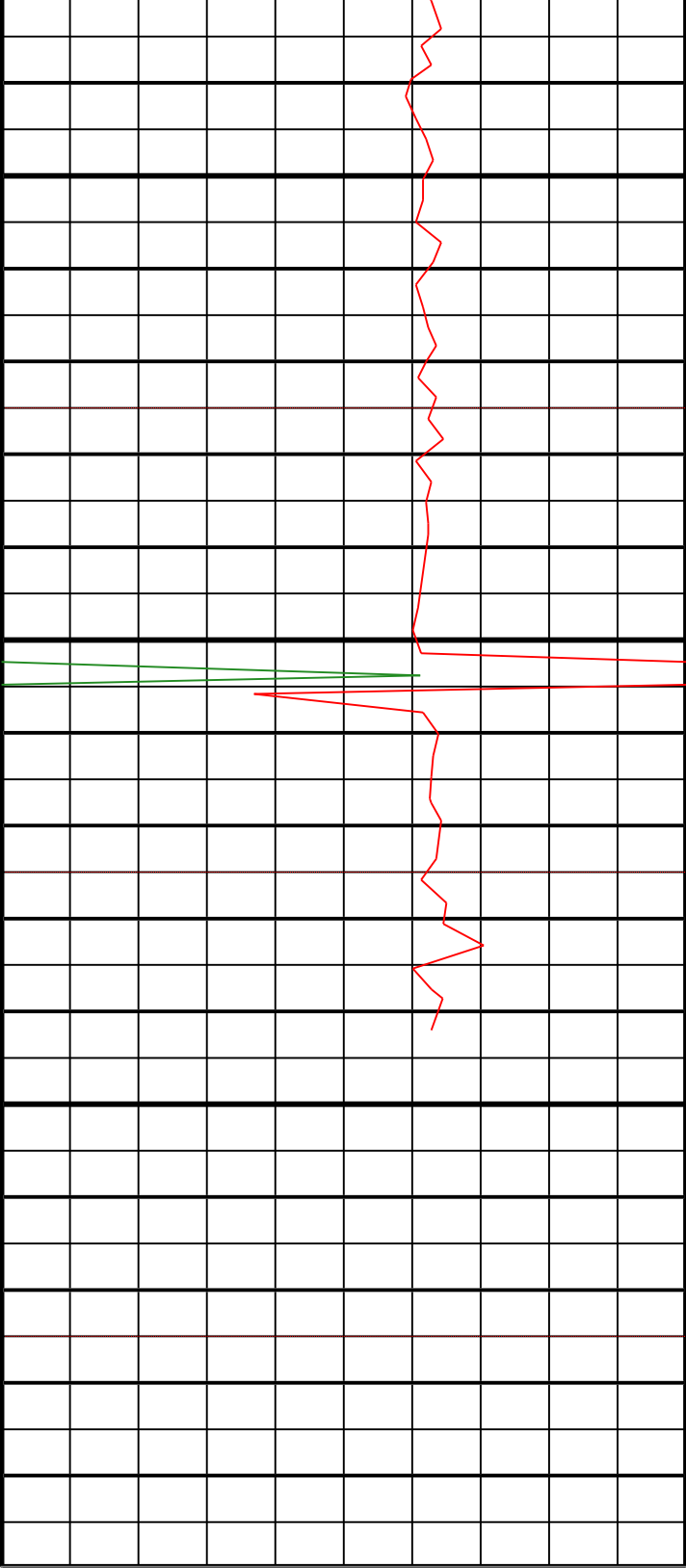
13050

TVD
6048.37

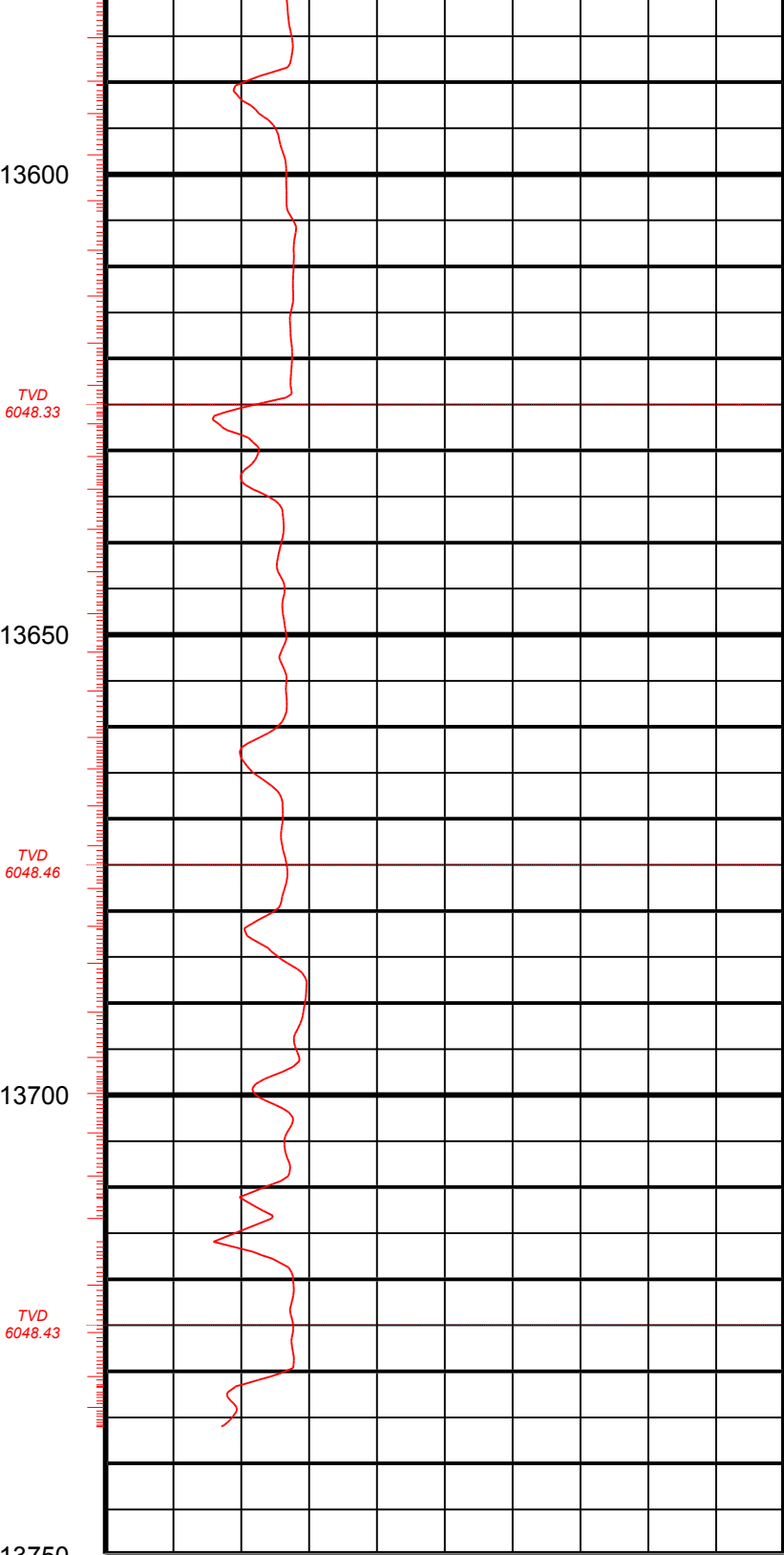








Gamma		Gama
0	AAPI	300
Gamma		Gama
300	AAPI	600
Gamma		Gama
600	AAPI	900
Gamma		Gama
900	AAPI	1200



ROP		ROP
0	ft/hr	500
ROP		ROP
500	ft/hr	1000
ROP		ROP
1000	ft/hr	1500