



5	4	8.500	PDC	3.00	AutoTrak Curve	0.00	0.00	0.00	0.00	N/A	N/A	16.47
6	5	8.500	PDC	4.00	AutoTrak Curve	20006.00	23922.00	20021.00	23960.00	2018-11-28 07:38	2018-11-29 18:16	42.31

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Garrett Gerdson	2018-11-18	2018-11-23	Jason Roben	2018-11-18	2018-12-02	Alan Atemoh	2018-11-23	2018-12-02

Mud Properties Record

Date / Time	Run No.	Measured Depth (ft)	Mud Type	Density  (ppg)	Viscosity  (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+  (%)
2018-11-19 05:02	1	6012.00	Diesel-Oil Based Mud	11.0	28	N/A	N/A	63.6/36.4	Active Pit	19589	0.00
2018-11-20 10:35	1	8795.00	Diesel-Oil Based Mud	11.0	25	N/A	N/A	63.6/36.4	Active Pit	19589	0.00
2018-11-21 03:22	2	11552.00	Diesel-Oil Based Mud	11.0	27	N/A	N/A	64.4/35.6	Active Pit	16650	0.00
2018-11-22 19:32	2	15120.00	Diesel-Oil Based Mud	11.0	26	N/A	N/A	62.5/37.5	Active Pit	24295	0.00
2018-11-23 14:36	3	19175.00	Diesel-Oil Based Mud	11.0	26	N/A	N/A	62.1/37.9	Active Pit	20568	0.00
2018-11-24 02:45	4	19175.62	Diesel-Oil Based Mud	11.0	26	N/A	N/A	64.4/35.6	Active Pit	18609	0.00
2018-11-25 05:33	4	19495.00	Diesel-Oil Based Mud	11.0	28	N/A	N/A	64.4/35.6	Active Pit	18609	0.00
2018-11-26 18:57	5	20021.04	Diesel-Oil Based Mud	11.0	28	N/A	N/A	64.3/35.7	Active Pit	18609	0.00
2018-11-27 05:56	5	20021.04	Diesel-Oil Based Mud	11.0	28	N/A	N/A	64.2/35.8	Active Pit	18609	0.00
2018-11-27 14:32	6	20021.05	Diesel-Oil Based Mud	11.0	28	N/A	N/A	64.2/35.8	Active Pit	18609	0.00
2018-11-28 05:05	6	20021.04	Diesel-Oil Based Mud	11.0	27	N/A	N/A	65.2/34.8	Active Pit	16650	0.00
2018-11-29 05:03	6	22349.00	Diesel-Oil Based Mud	11.0	25	N/A	N/A	63.6/36.4	Active Pit	18609	0.00

Equipment and Service Data

Run No.	Tool	Serial Number	Measurement	Sensor Offset (ft)	Bit Offset (ft)	Max O.D. (in)	Min I.D. (in)
1	AutoTrak Curve Steering Unit	14316013	Near Bit VSS	5.93	6.90	7.000	4.330
1	AutoTrak Curve Steering Unit	14316013	Near Bit Inclination	5.93	6.90	7.000	4.330
1	AutoTrak Curve MWD	14283532	Gamma (single)	2.75	13.07	7.000	3.250
1	AutoTrak Curve MWD	14283532	Directional (mag)	12.27	22.59	7.000	3.250
2	AutoTrak Curve Steering Unit	14316013	Near Bit VSS	5.93	6.90	7.000	4.330
2	AutoTrak Curve Steering Unit	14316013	Near Bit Inclination	5.93	6.90	7.000	4.330
2	AutoTrak Curve MWD	14283532	Gamma (single)	2.75	13.07	7.000	3.250
2	AutoTrak Curve MWD	14283532	Directional (mag)	12.27	22.59	7.000	3.250
3	AutoTrak Curve Steering Unit	14316013	Near Bit VSS	5.93	6.90	7.000	4.330
3	AutoTrak Curve Steering Unit	14316013	Near Bit Inclination	5.93	6.90	7.000	4.330
3	AutoTrak Curve MWD	14283532	Gamma (single)	2.75	13.07	7.000	3.250
3	AutoTrak Curve MWD	14283532	Directional (mag)	12.27	22.59	7.000	3.250
4	AutoTrak Curve Steering Unit	14316013	Near Bit VSS	5.93	6.90	7.000	4.330
4	AutoTrak Curve Steering Unit	14316013	Near Bit Inclination	5.93	6.90	7.000	4.330
4	AutoTrak Curve MWD	14283532	Gamma (single)	2.75	13.07	7.000	3.250
4	AutoTrak Curve MWD	14283532	Directional (mag)	12.27	22.59	7.000	3.250
5	AutoTrak Curve Steering Unit	14316013	Near Bit VSS	5.93	6.90	7.000	4.330
5	AutoTrak Curve Steering Unit	14316013	Near Bit Inclination	5.93	6.90	7.000	4.330
5	AutoTrak Curve MWD	14283532	Gamma (single)	2.75	13.07	7.000	3.250
5	AutoTrak Curve MWD	14283532	Directional (mag)	12.27	22.59	7.000	3.250
6	AutoTrak Curve Steering Unit	14236907	Near Bit Inclination	5.93	7.03	7.000	4.330
6	AutoTrak Curve Steering Unit	14236907	Near Bit VSS	5.93	7.03	7.000	4.330
6	AutoTrak Curve MWD	12188140	Gamma (single)	2.75	13.20	7.000	3.250
6	AutoTrak Curve MWD	12188140	Directional (mag)	12.27	22.72	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
ATC SU	AutoTrak Curve SU	Auto Trak Curve Steering Unit
ATC MWD	AutoTrak Curve MWD	Auto Trak Curve MWD

## Comments



- |   |   |
|---|---|
| 1 | Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to lack of control by Baker Hughes logging engineers depth calibrations and measurements could not be independently verified. |
| 2 | Baker Hughes LWD Runs 1, 2, 3, 4, 5 and 6 utilized a 6 3/4 inch NaviGamma services (Gamma Ray and Directional ) behind an 8 1/2 inch bit and steerable assembly from 1739 to 23960 feet MD ( 1739 to 7978 feet TVD).                |
| 3 | Gamma Ray Curves (GRAM) are presented 0 to 300 API per customer request.  |

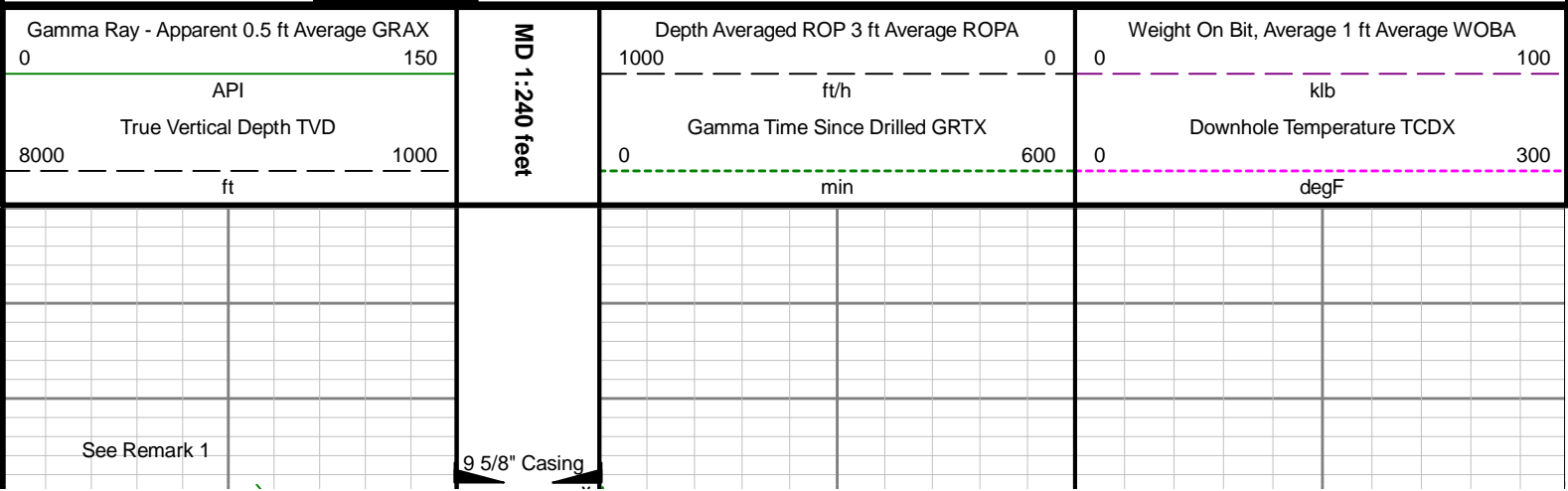
## Remarks

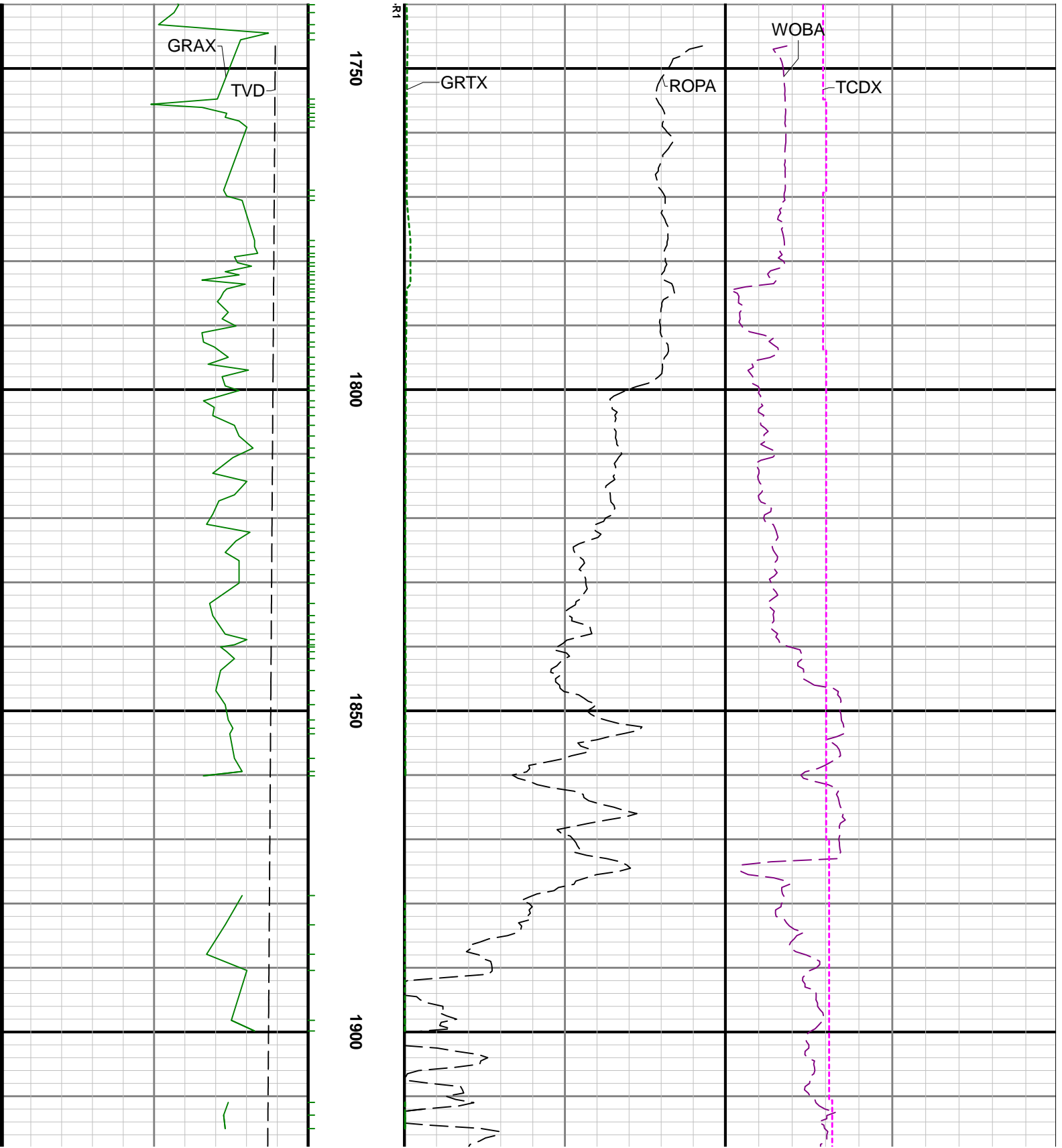
Number	Measured Depth (ft)	Hole Section (in)	Run No.	Remark
1	1739.00	8.500	1	Gamma Ray logging operations began at 1739 feet (1739 feet TVD) per customer request.
2	11540.00	8.500	2	The interval from 11535 to 11552 feet MD (7927 feet TVD) was logged up to 10.59 hours after being drilled due to trip out of the hole to change BHA.
3	19165.00	8.500	3	The interval from 19162 to 19175 feet MD (7927 feet TVD) was logged up to 24 hours after being drilled due to trip out of the hole to change BHA.
4	19480.00	8.500	4	The interval from 19479 to 19493 feet MD (7978 feet TVD) was logged up to 25.83 hours after being drilled due to trip out of hole to change BHA.
5	20020.00	8.500	6	The interval from 20006 to 20021 feet MD (7978 feet TVD) was logged up to 3.8 days after being drilled due to trip out of hole because of stuck pipe and due to BHA change.
6	22700.00	8.500	6	The interval from 22680 to 22710 feet MD (7968 feet TVD) was not logged due to a down hole tool reset due to drilling conditions.
7	23920.00	8.500	6	The interval from 23922 to 23960 feet MD (7978 feet TVD) was not logged after being drilled due to sensor to bit offset at well TD.

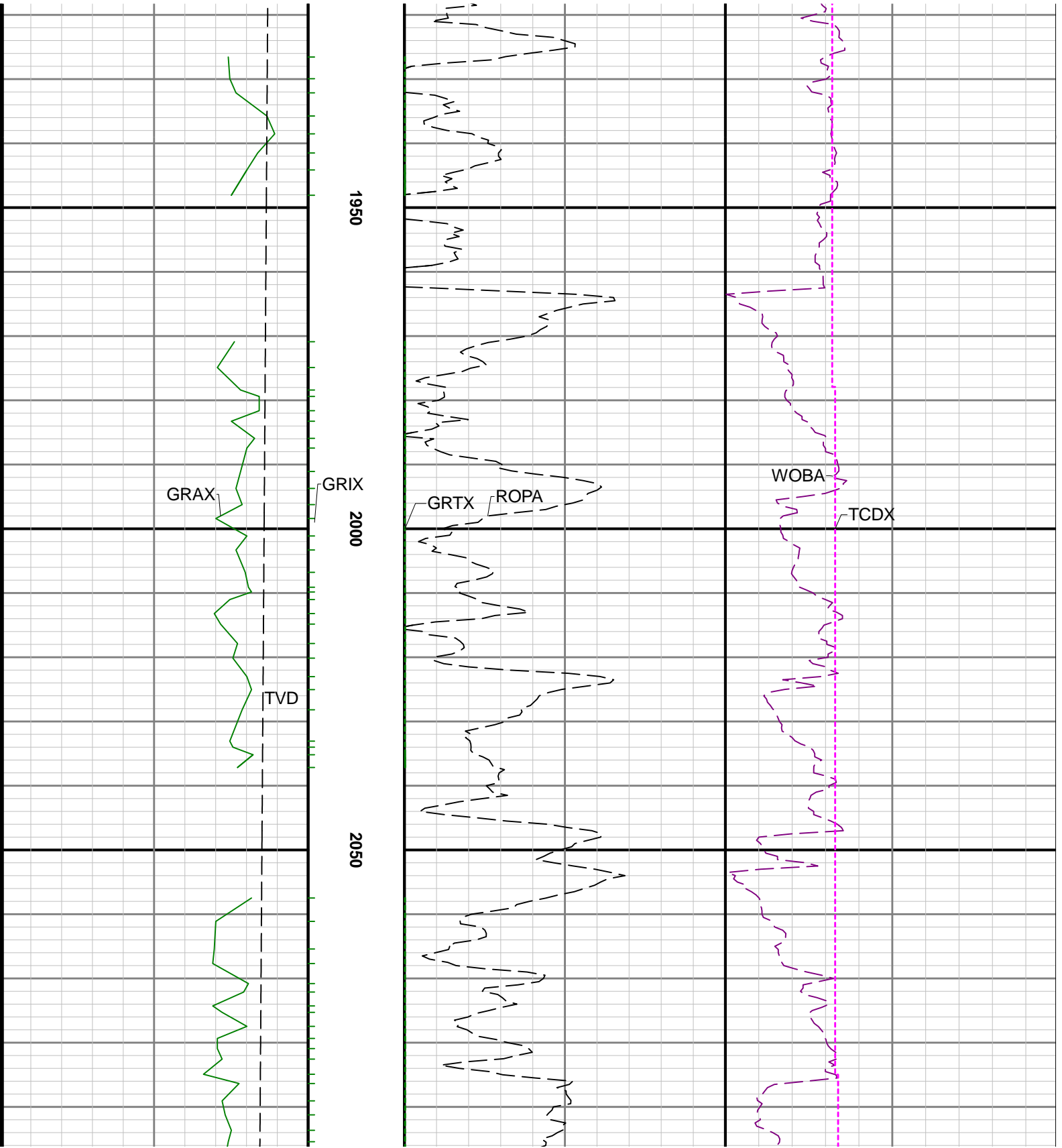
## Curve Mnemonics

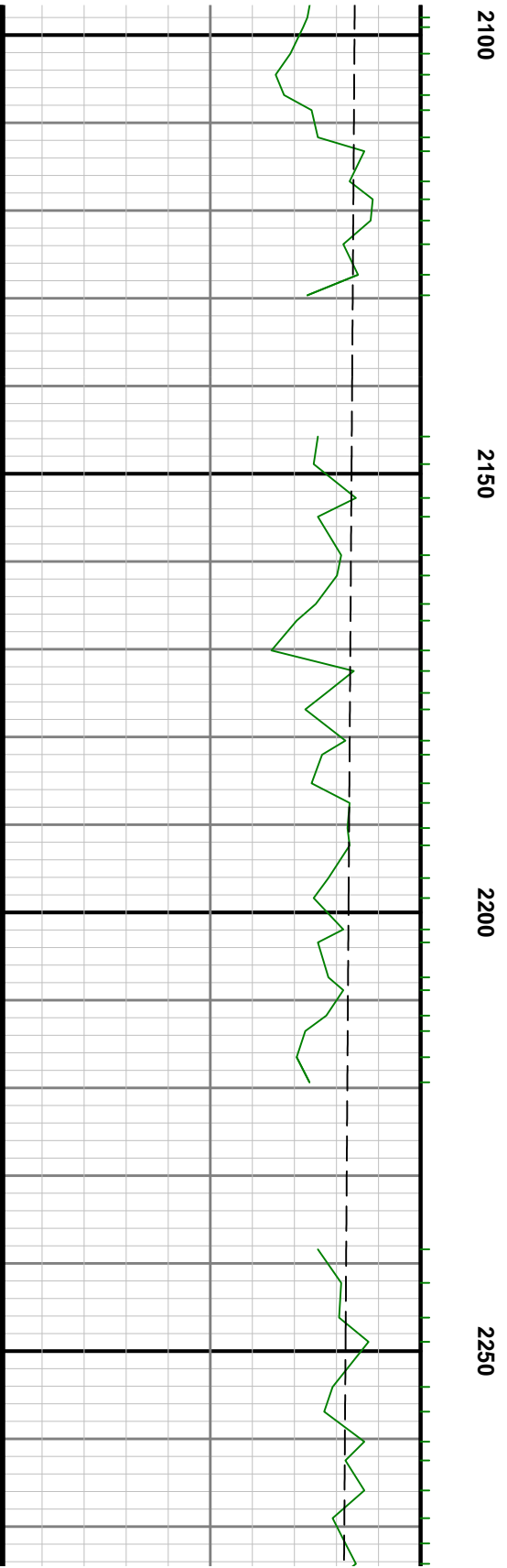
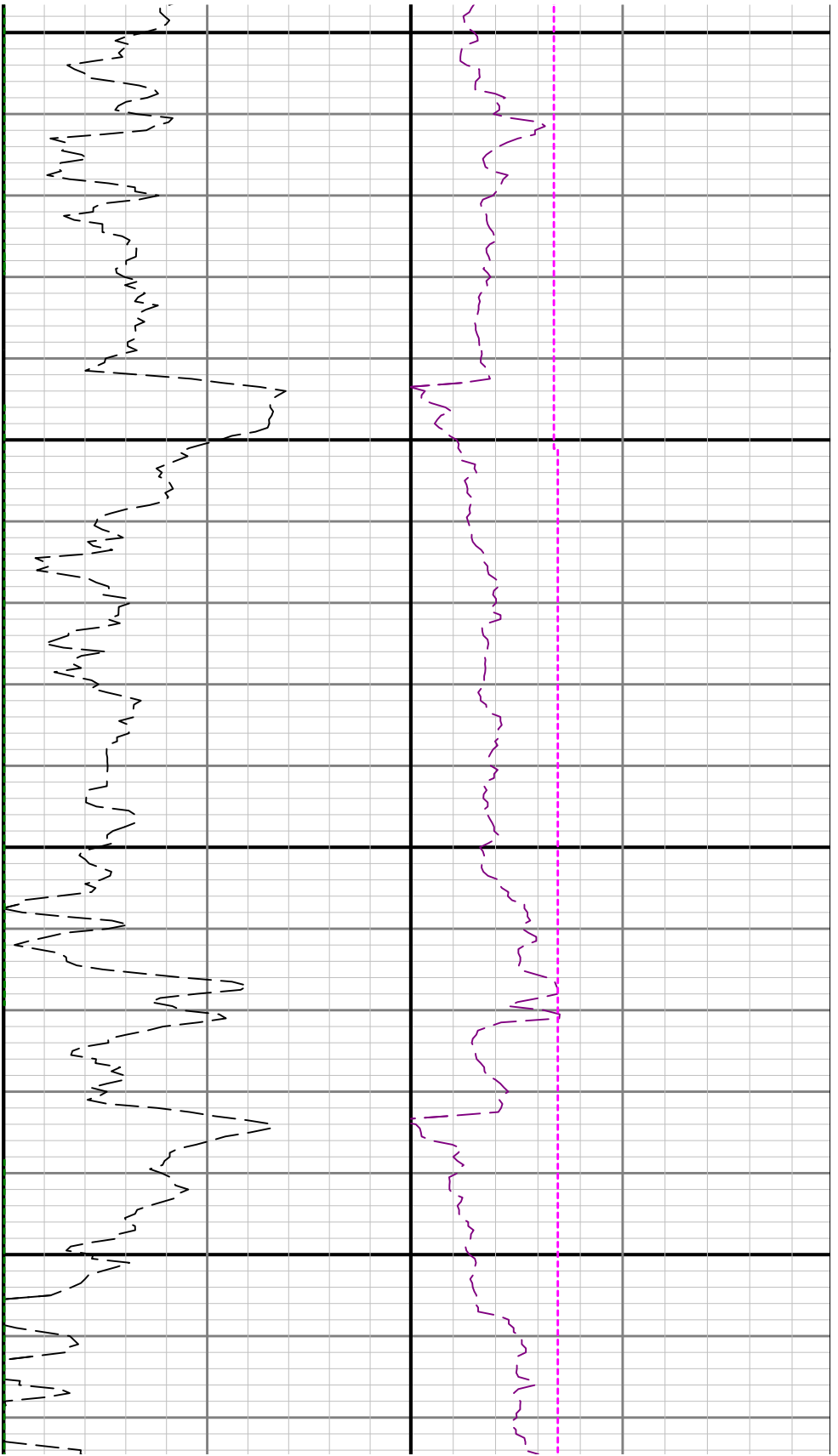
Presented Curves	Description	Units
TCDX	Downhole Temperature	degF
ROPA	Depth Averaged ROP 3 ft Average	ft/h
TVD	True Vertical Depth	ft
WOBA	Weight On Bit, Average 1 ft Average	klb
GRAX	Gamma Ray - Apparent - Real-Time 0.5 ft Average	API
GRIX	Gamma Ray - Data Point Indicator - Real-Time	unitless
GRTX	Gamma Ray - Time Since Drilled - Real-Time	min

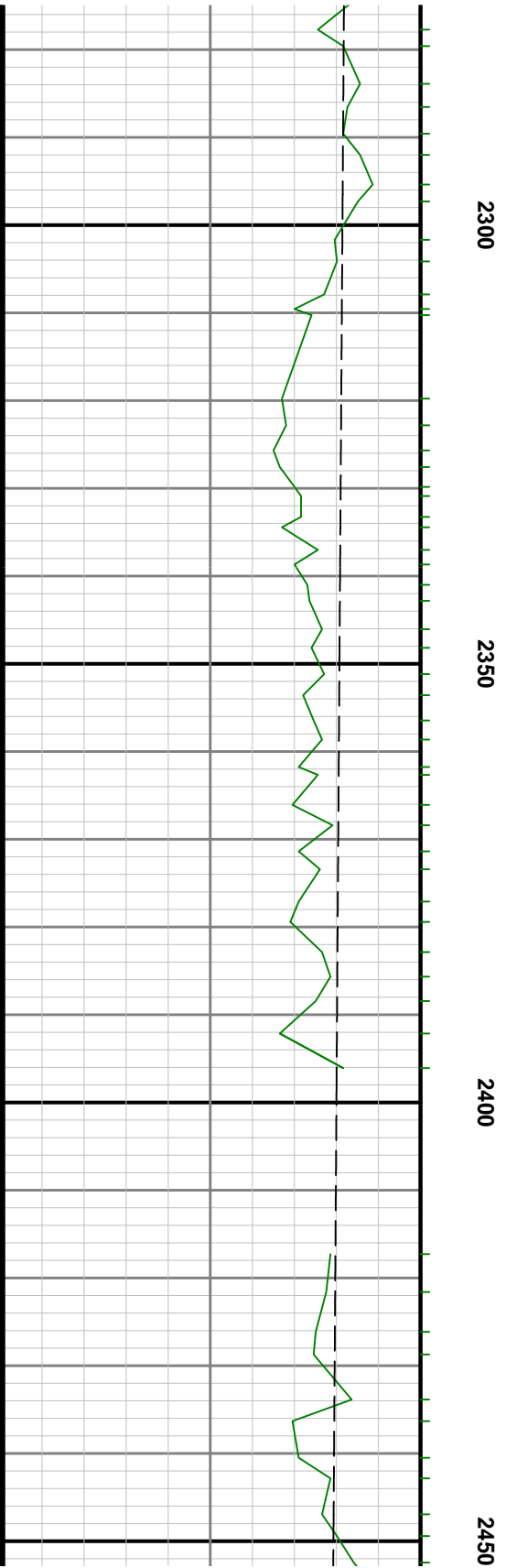
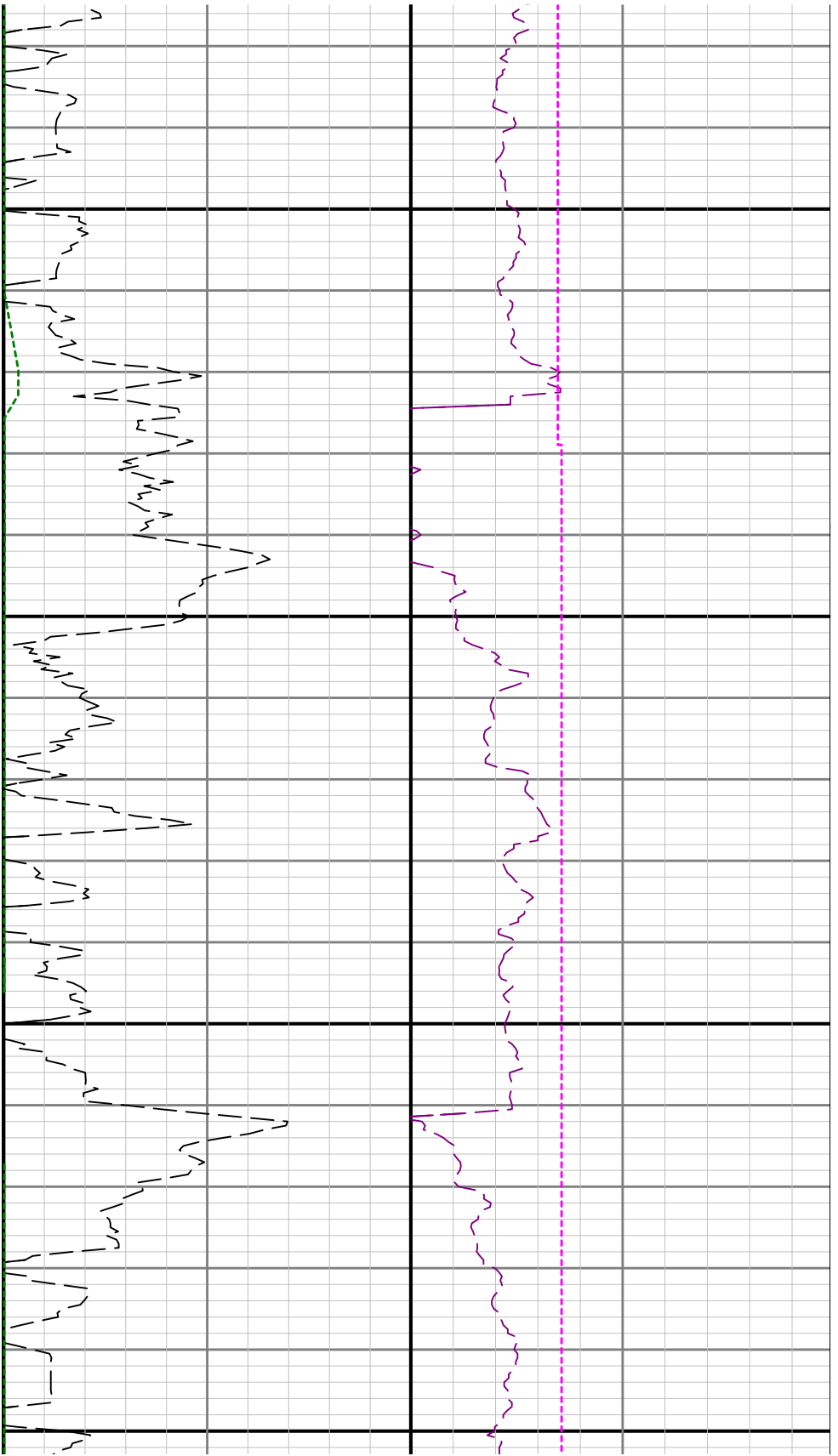
 	<b>Company</b>	GREAT WESTERN OPERATING CO LLC		
	<b>Well</b>	SELTZER LD 21-031HC		
	<b>Interval</b>	<b>Date From:</b>	2018-11-18 13:28	<b>Top:</b> 1739.00 ft
		<b>Date To:</b>	2018-11-30 21:06	<b>Bottom:</b> 23960.00 ft
<b>Created</b>	2018-12-01 17:02:38			

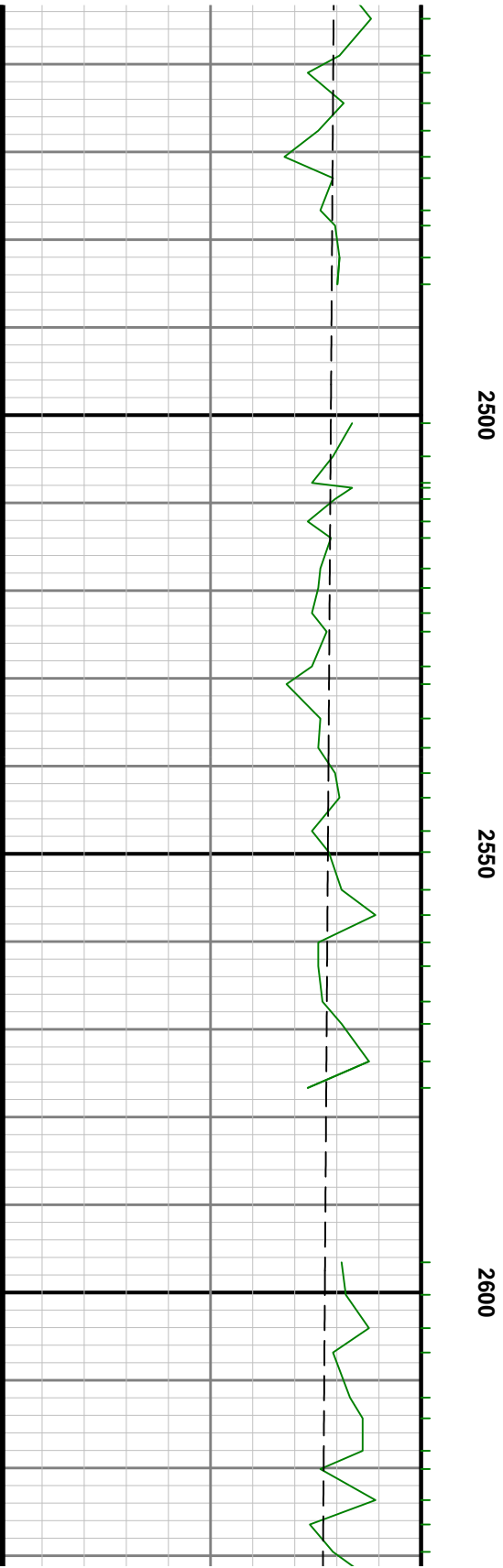
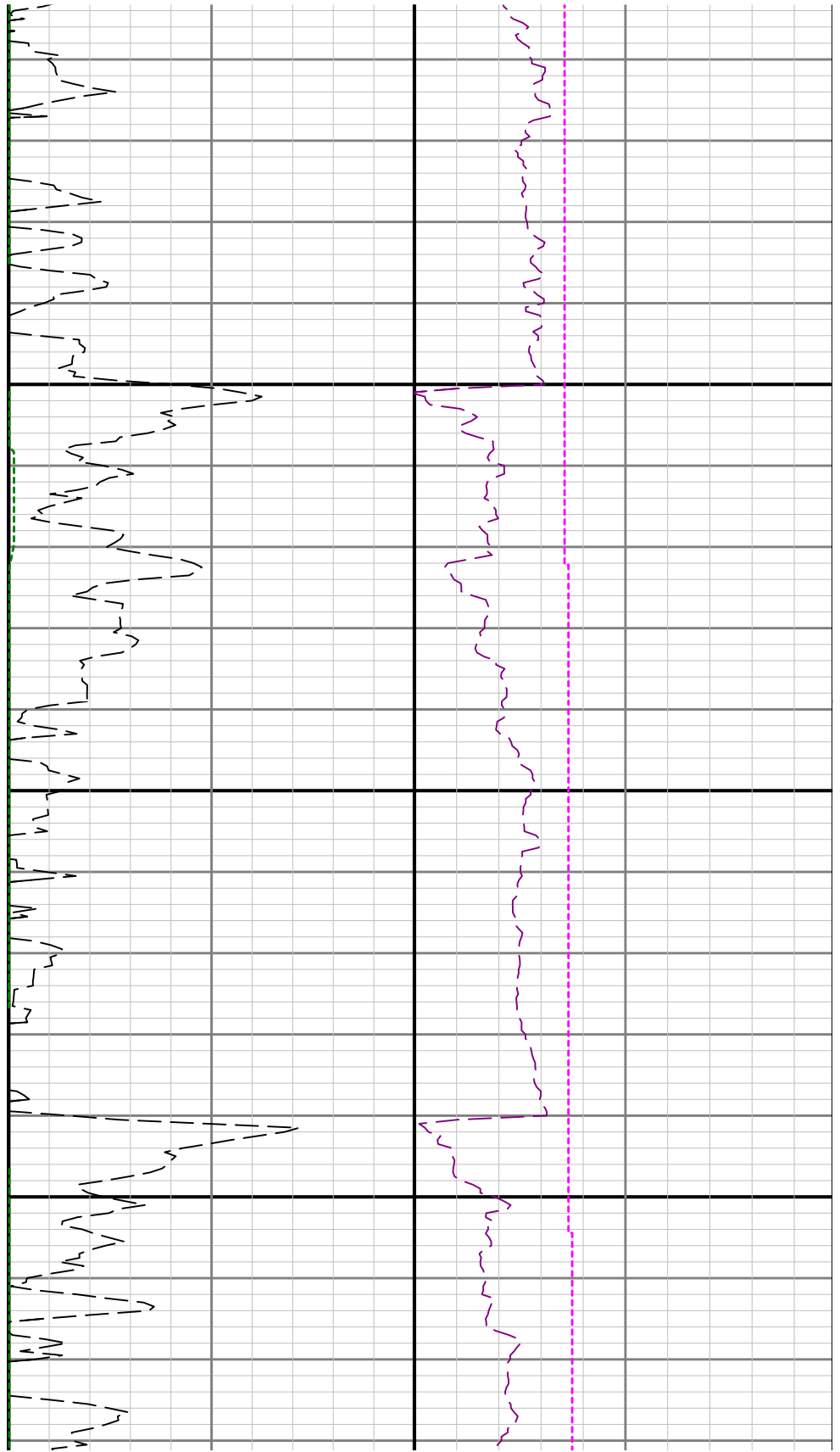




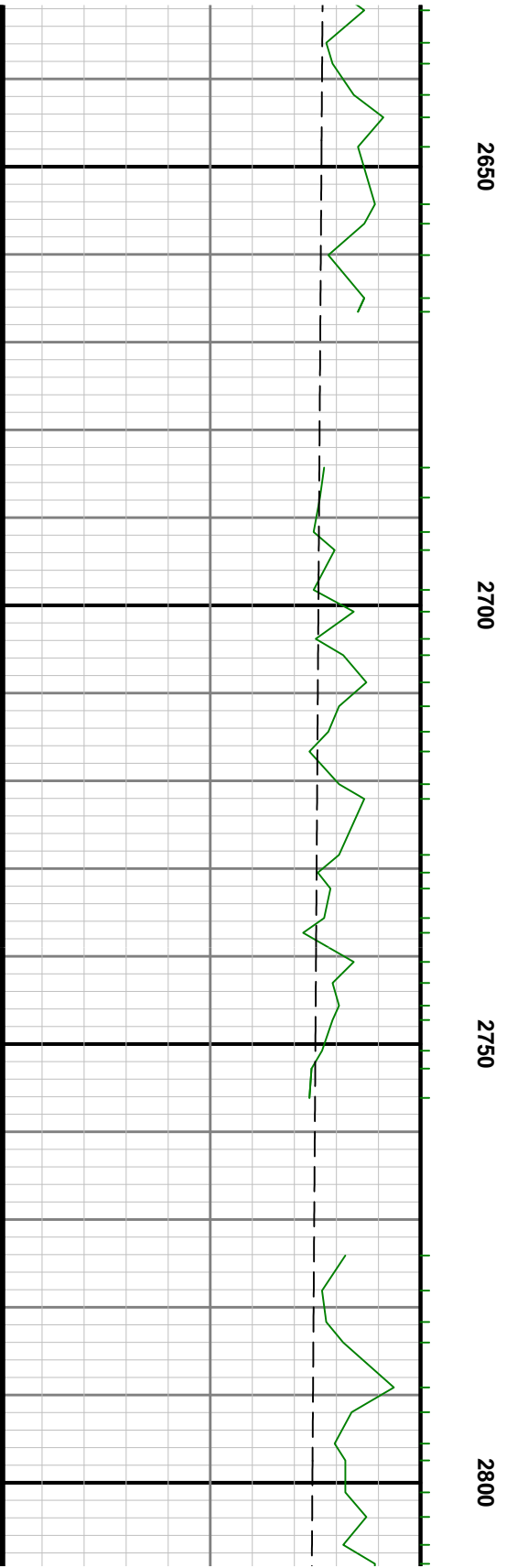
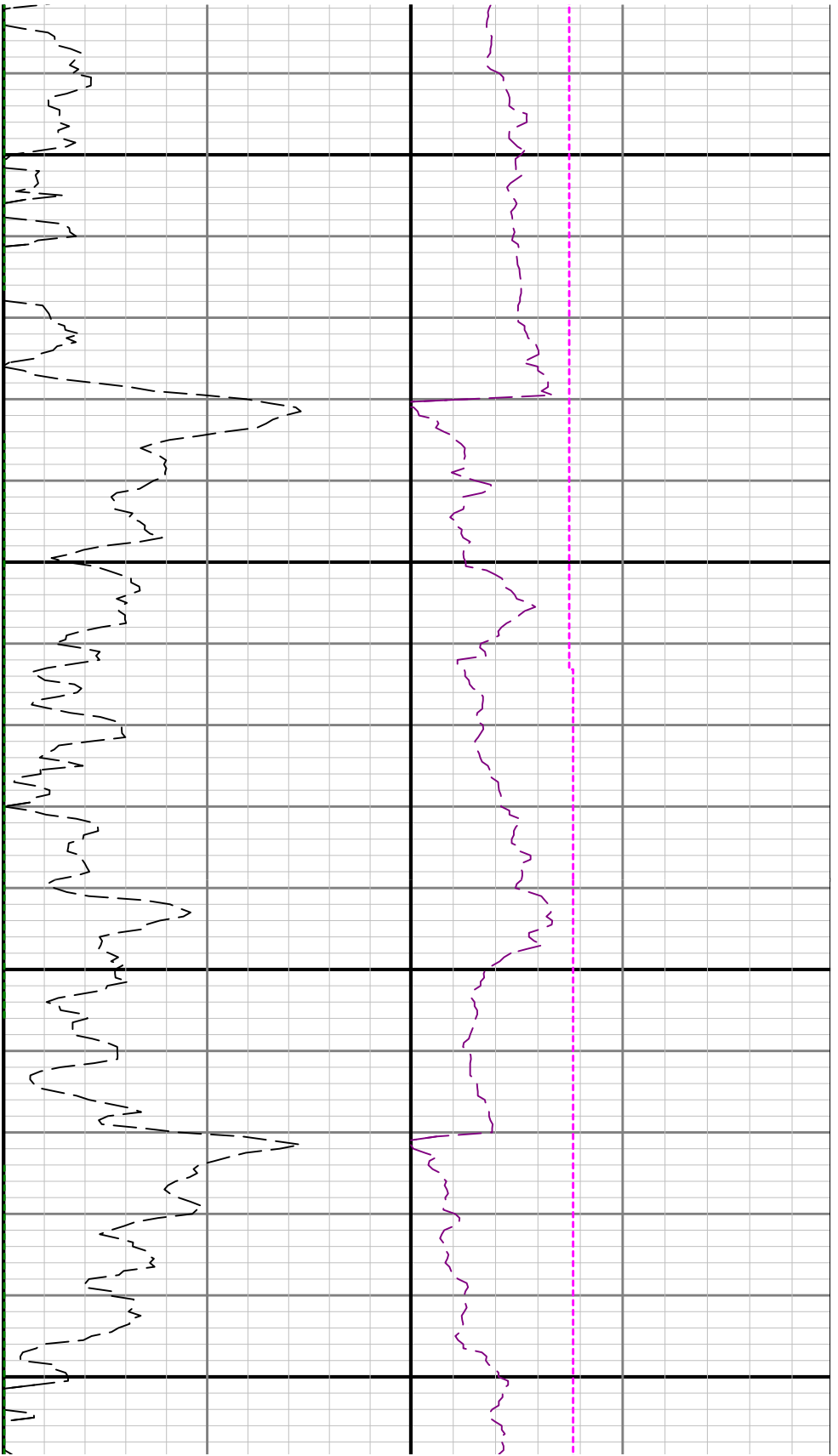


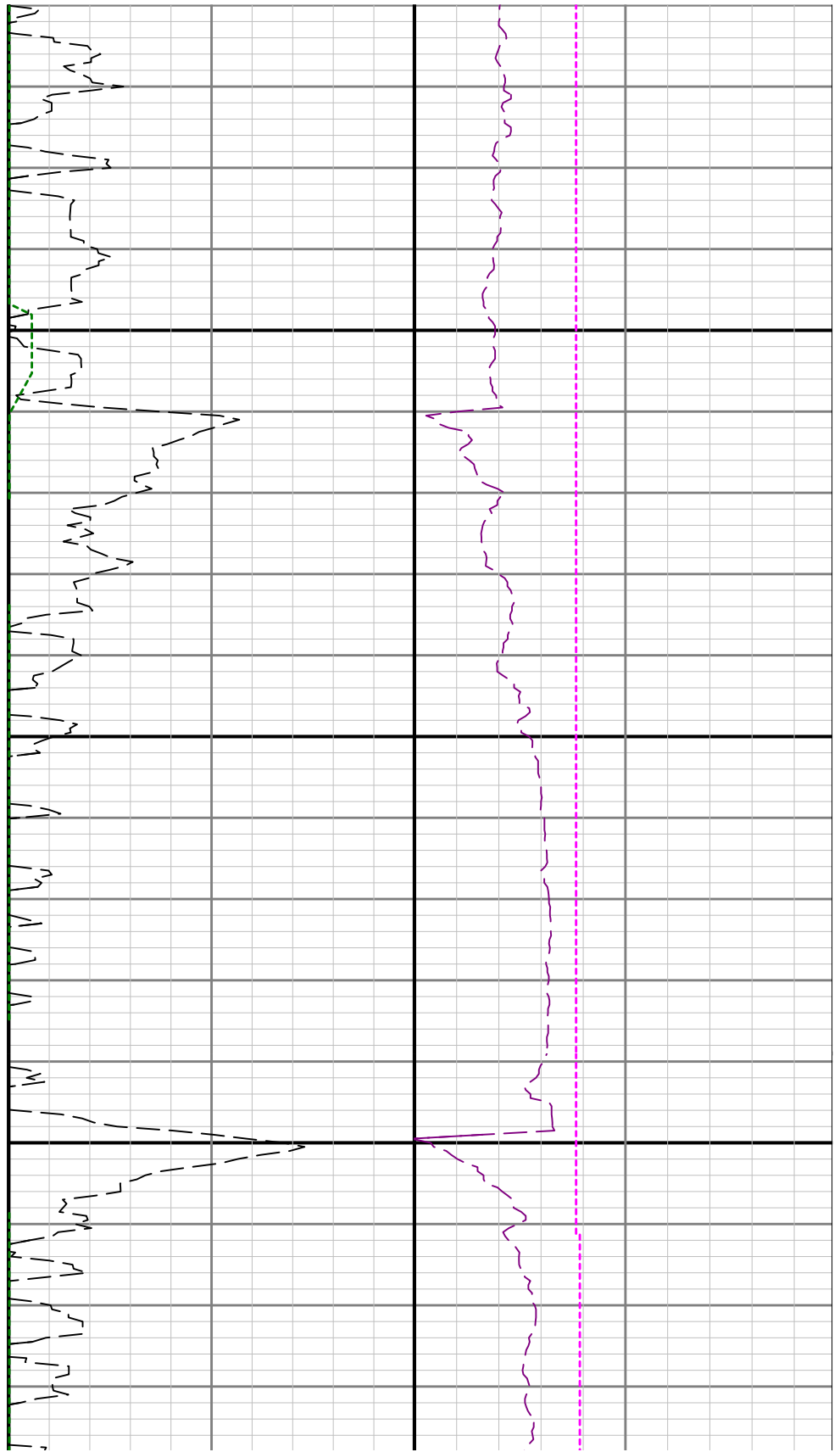








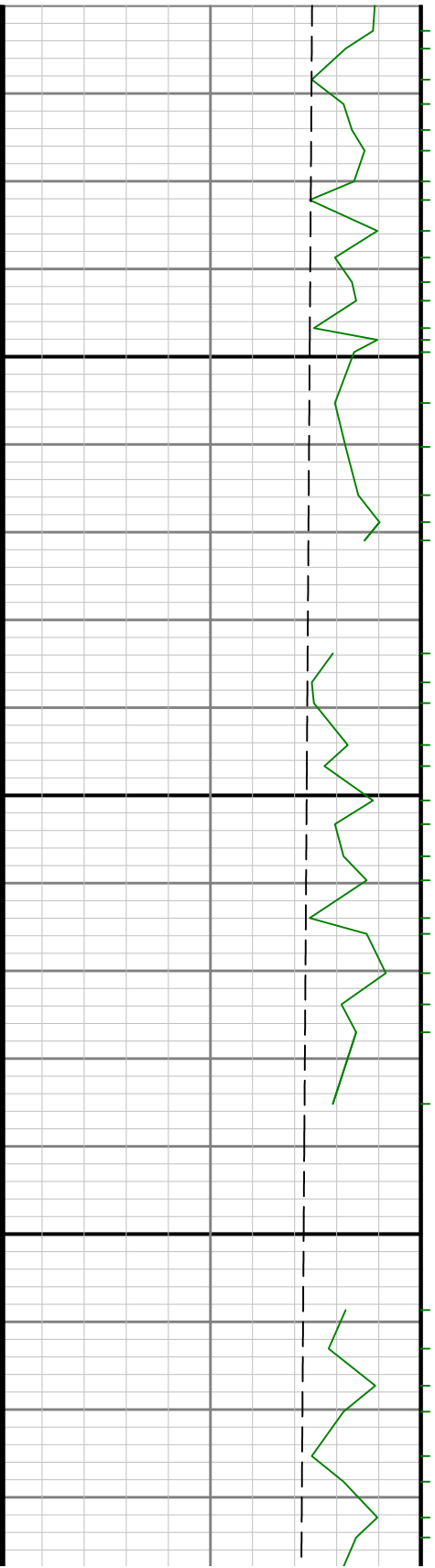


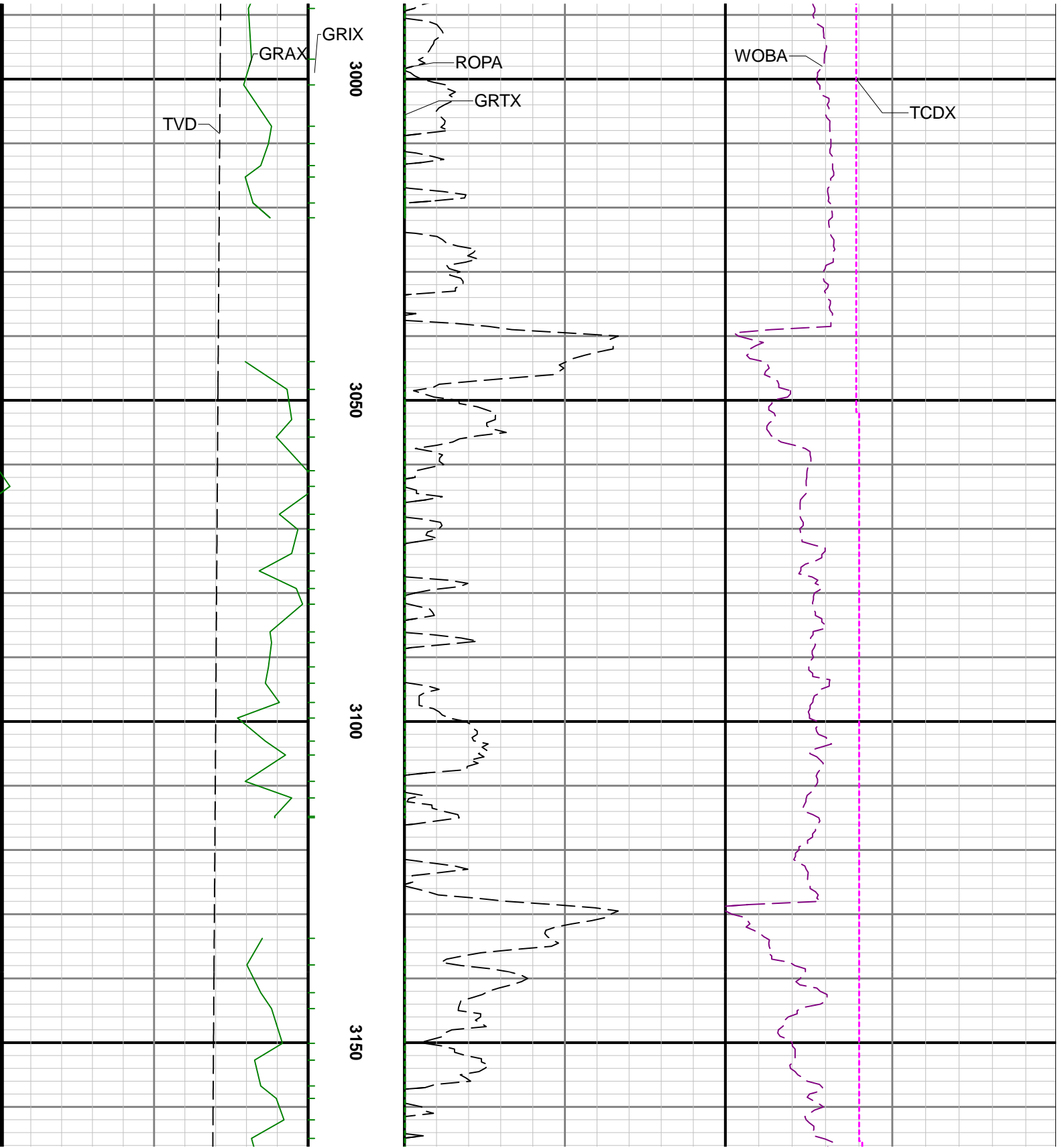


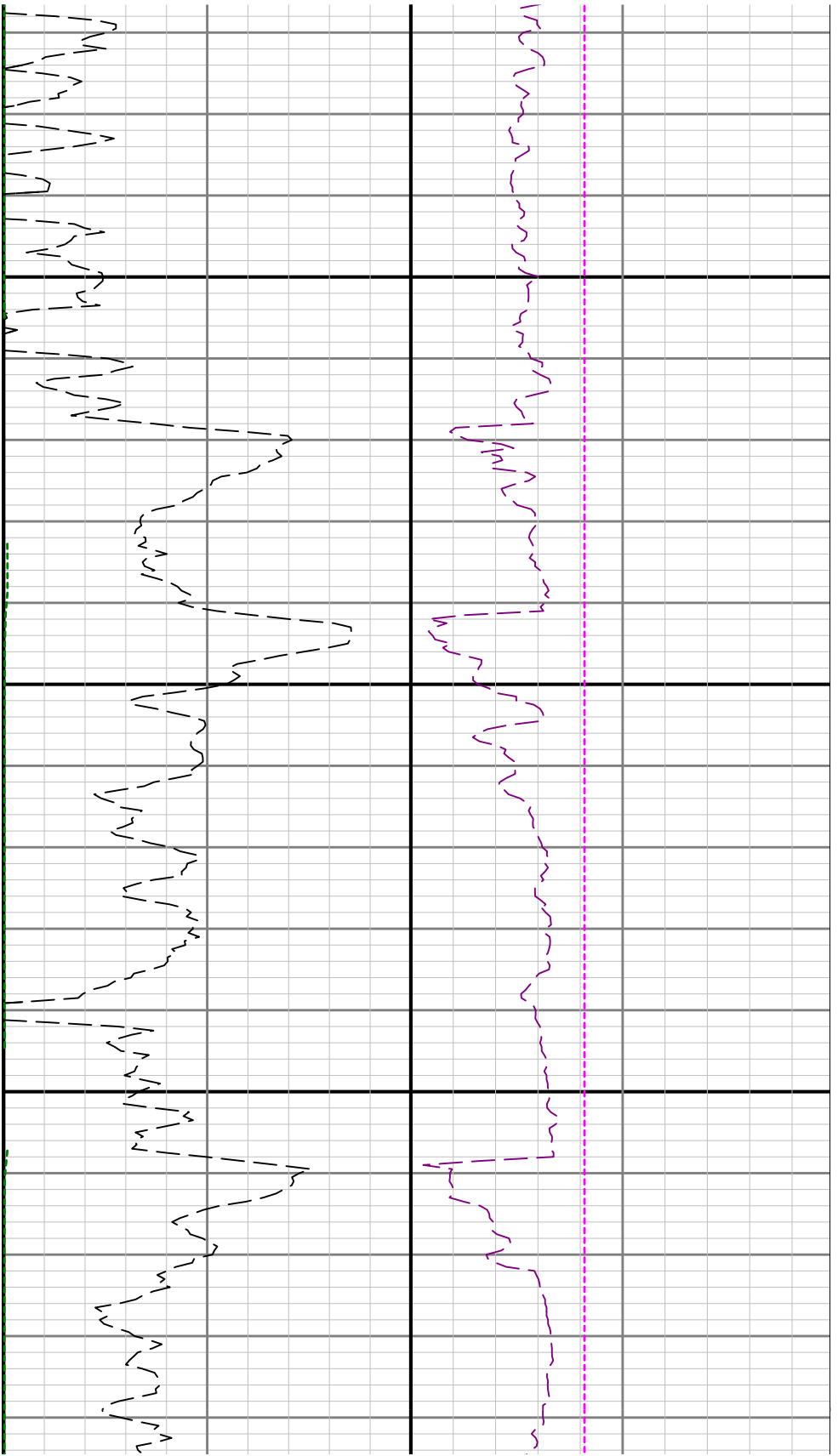
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2900

2950



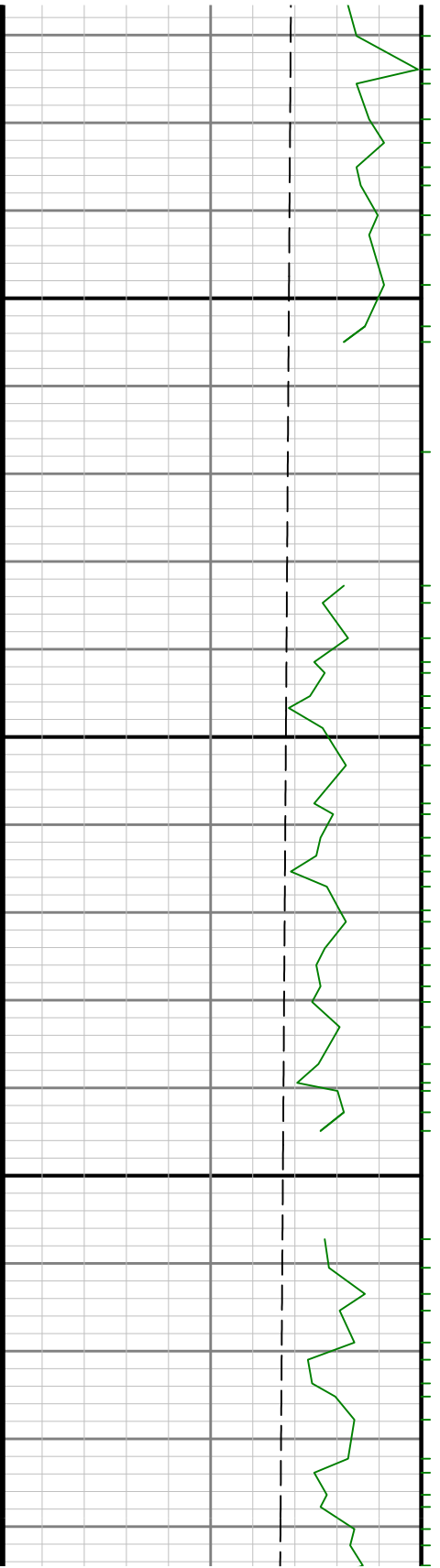


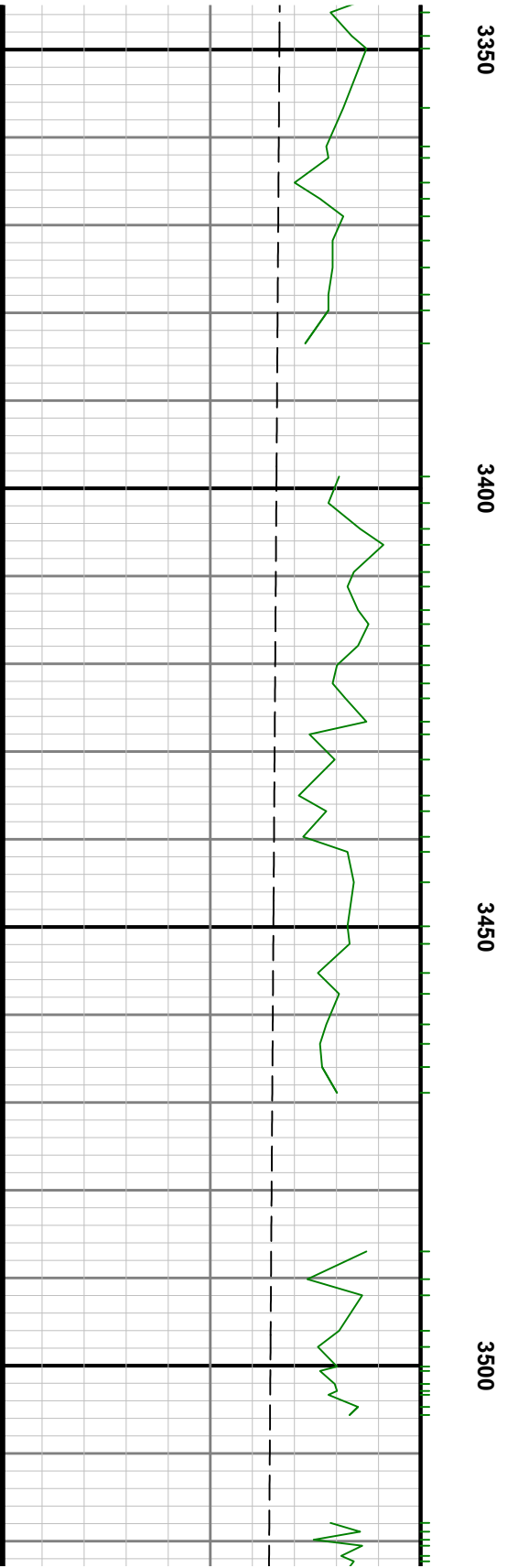
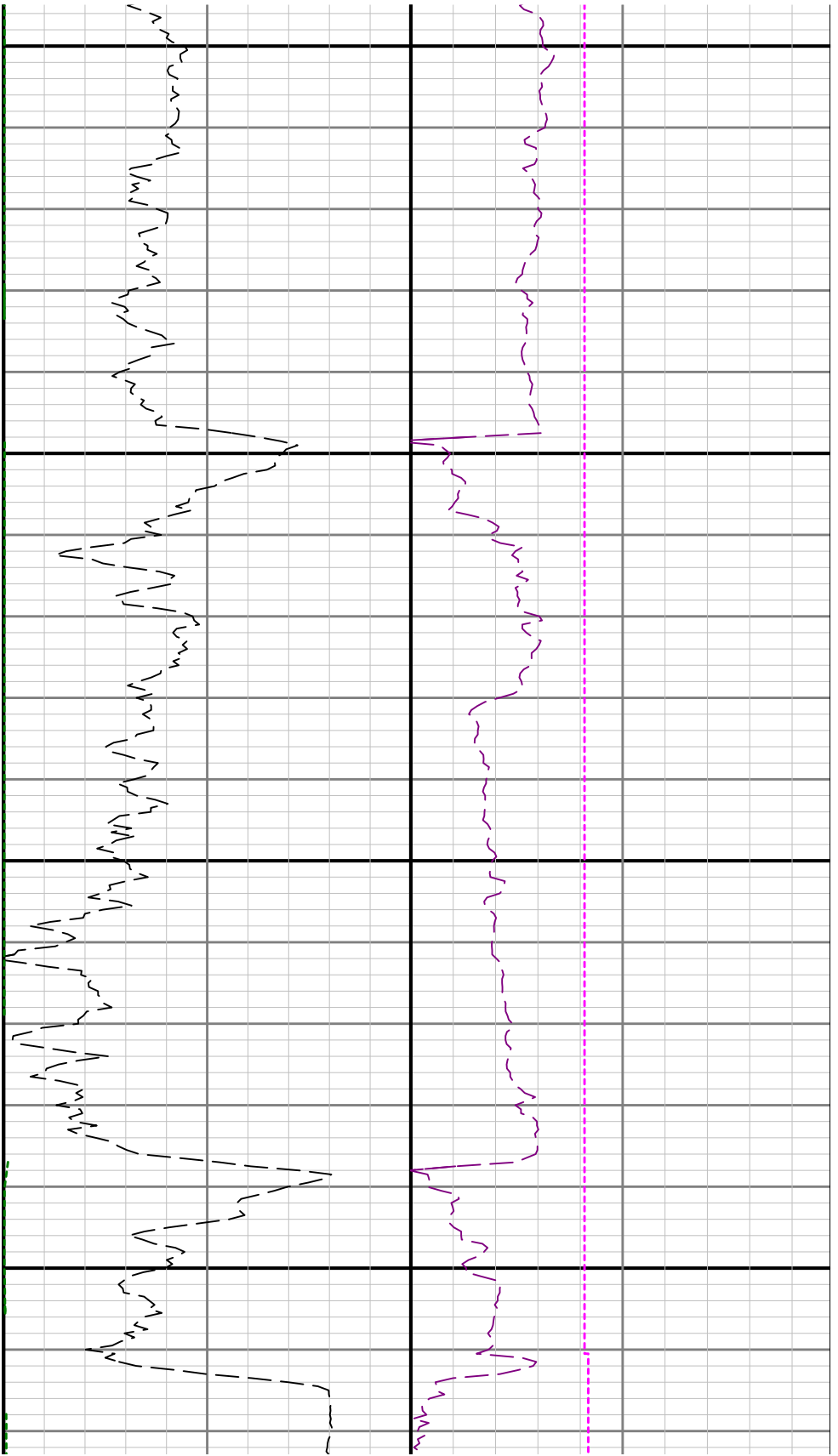


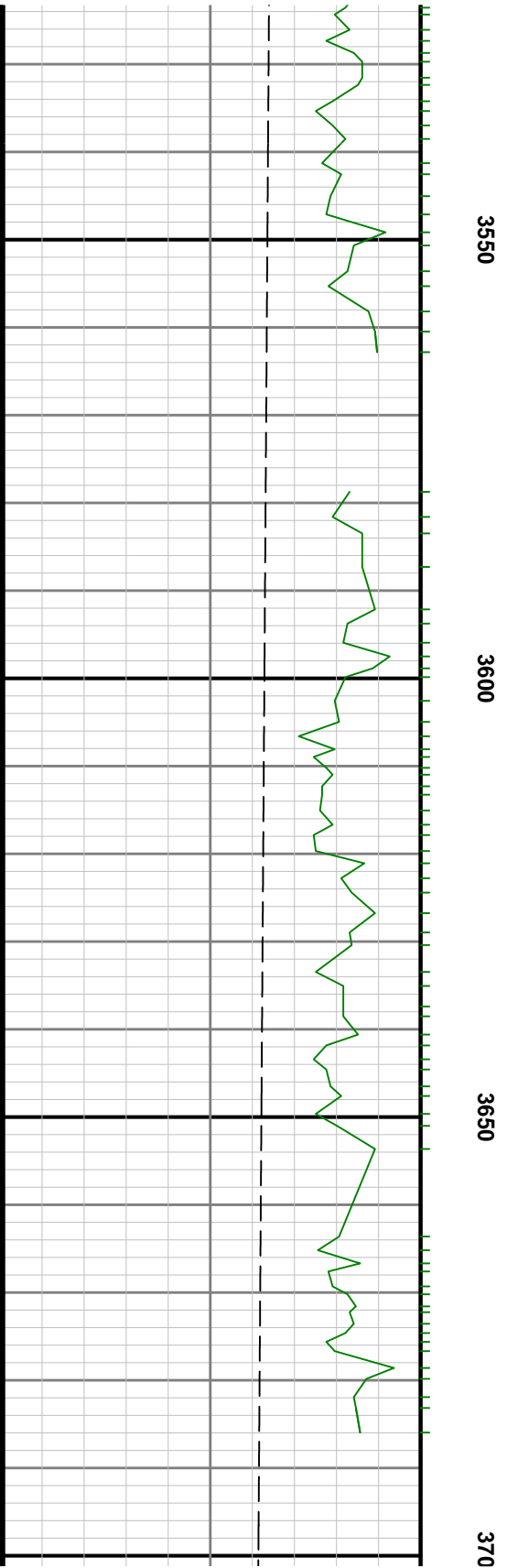
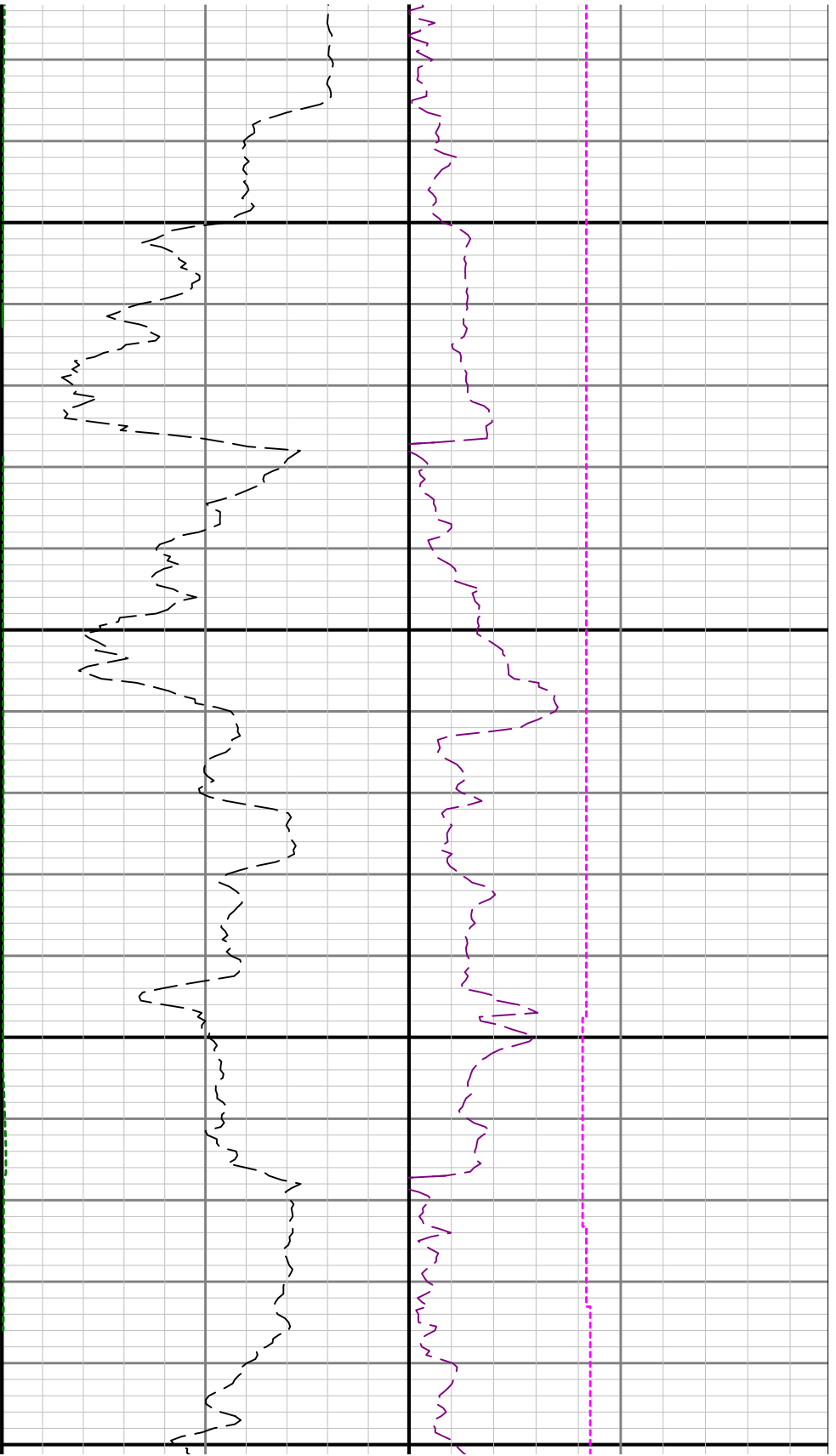
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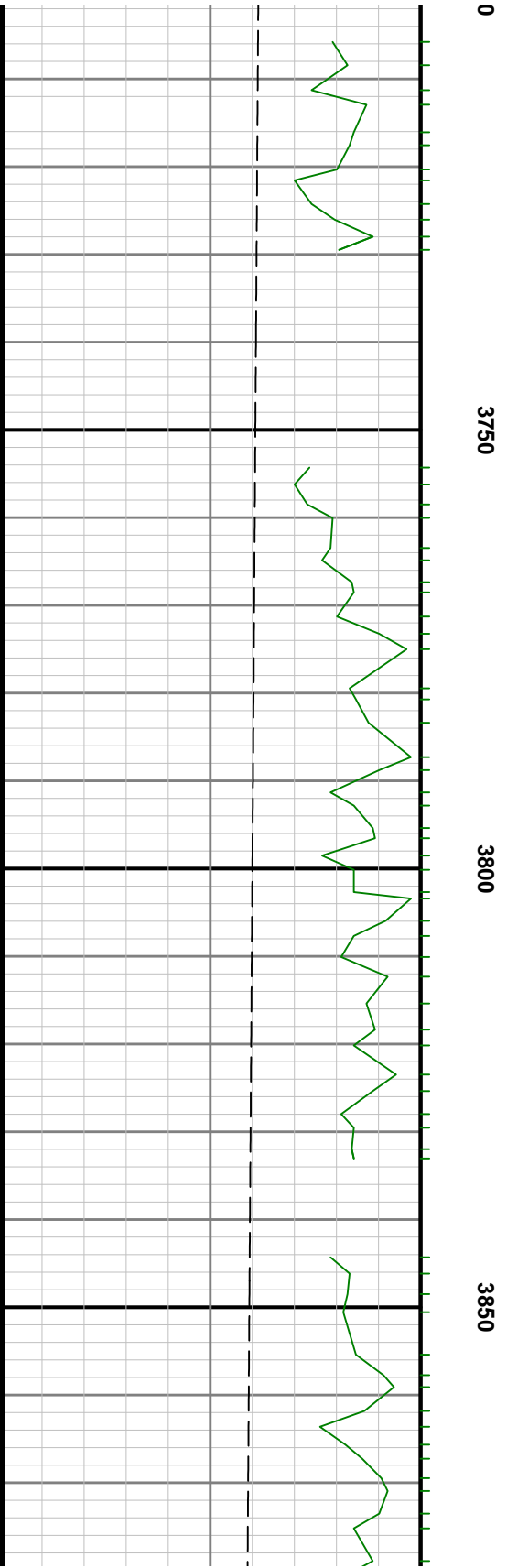
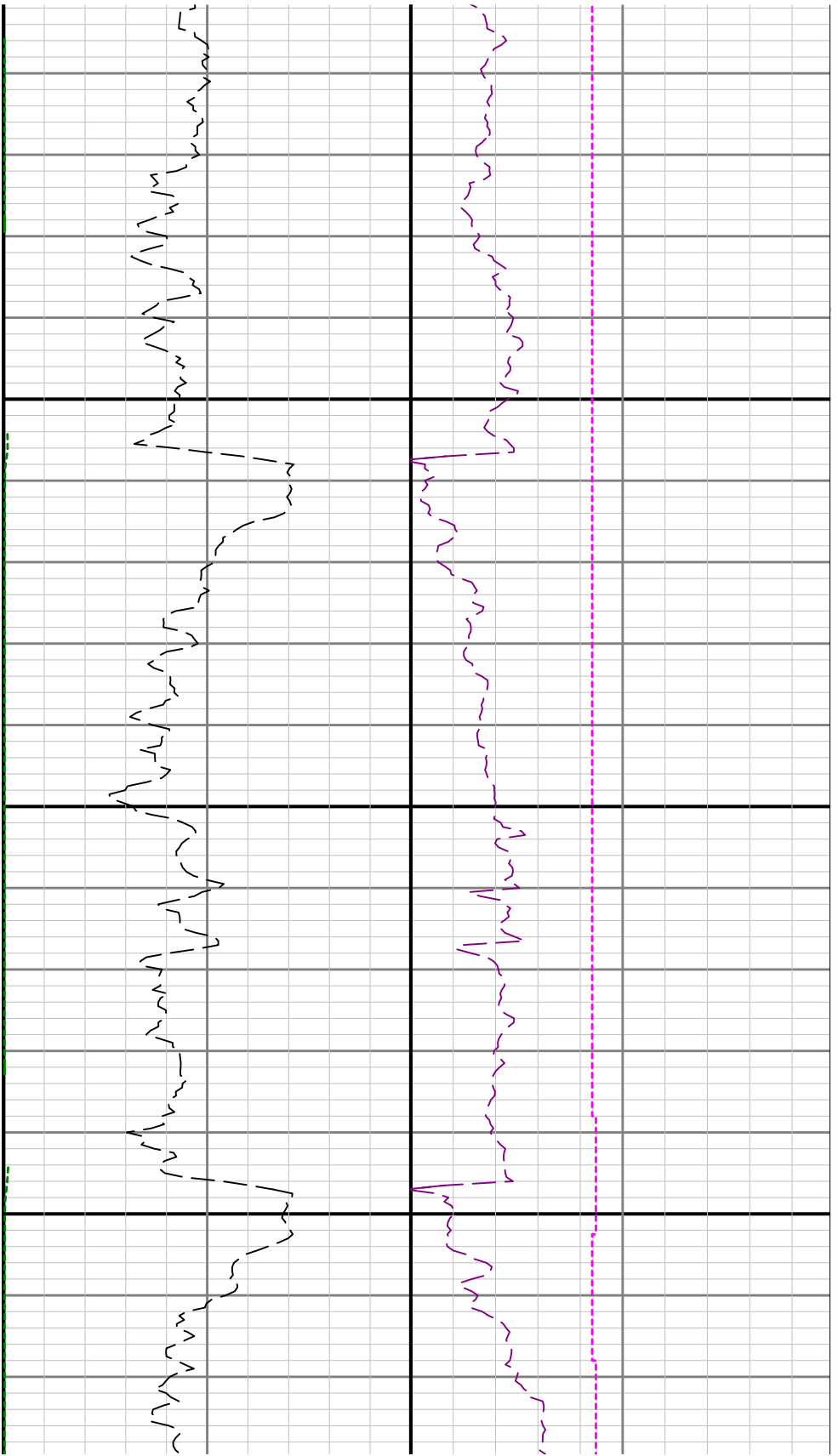
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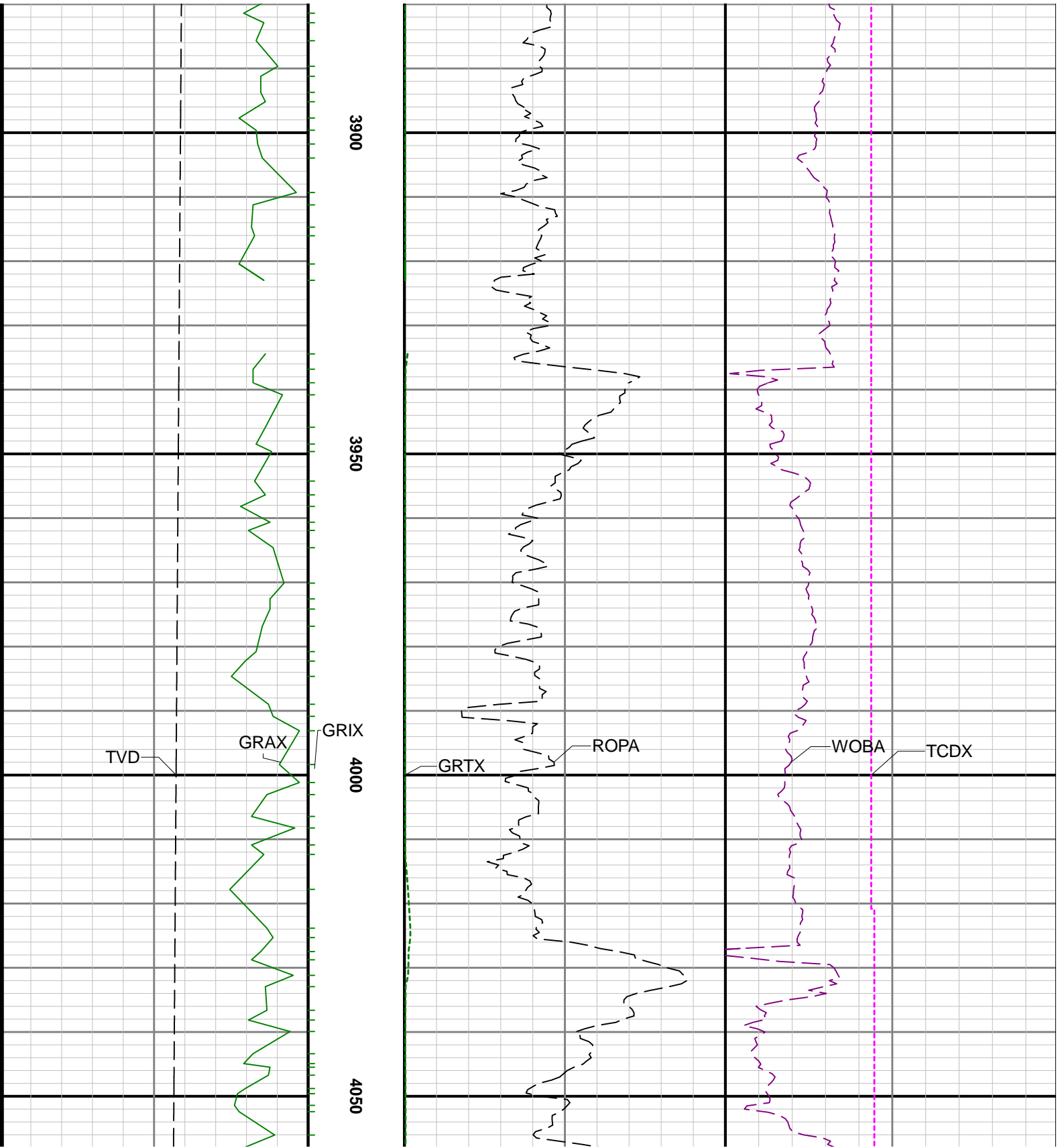
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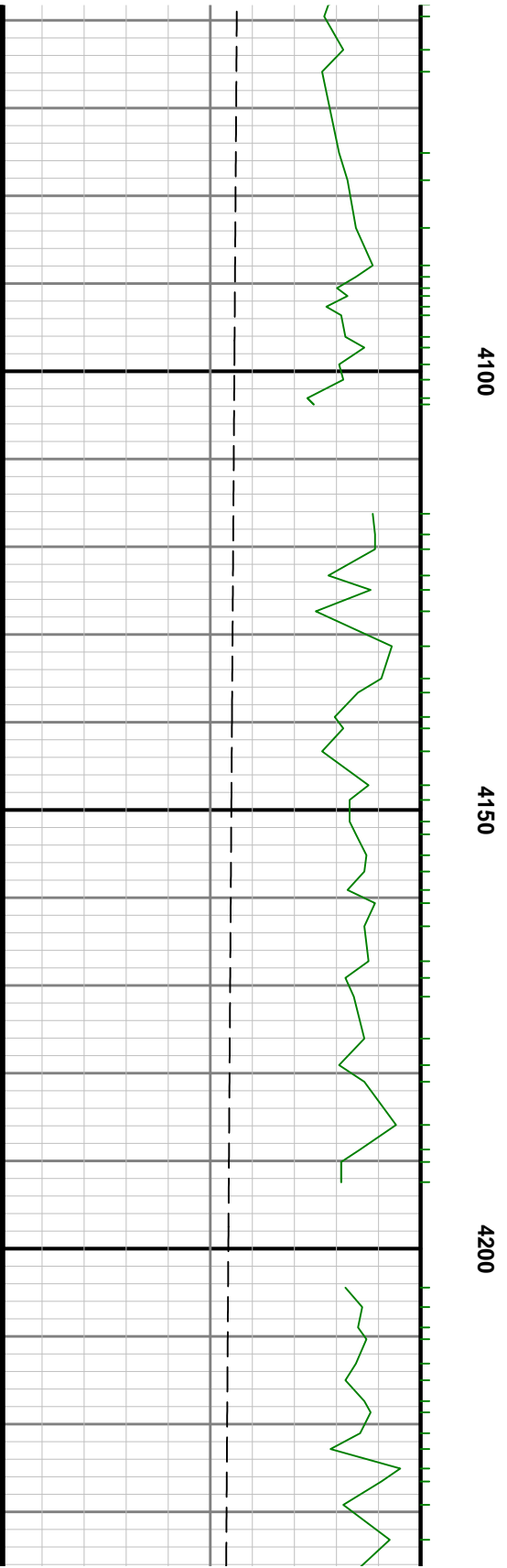
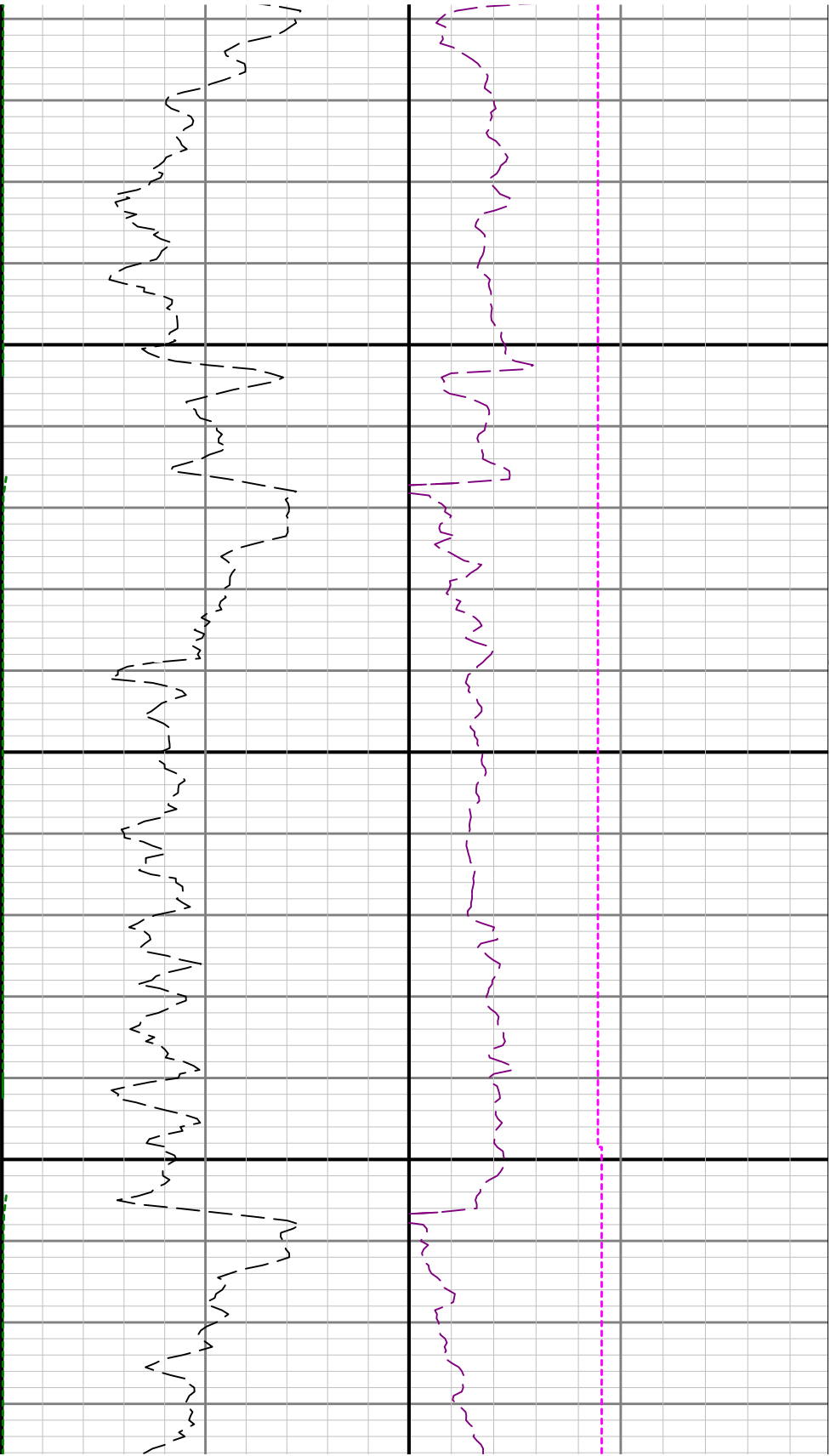


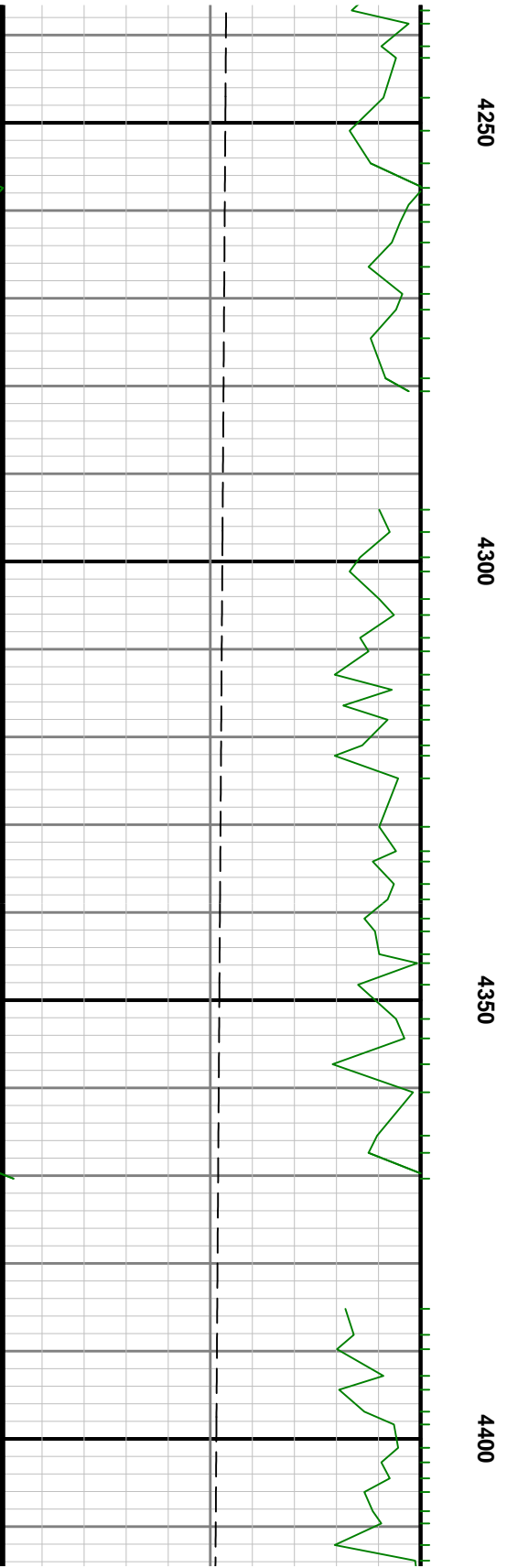
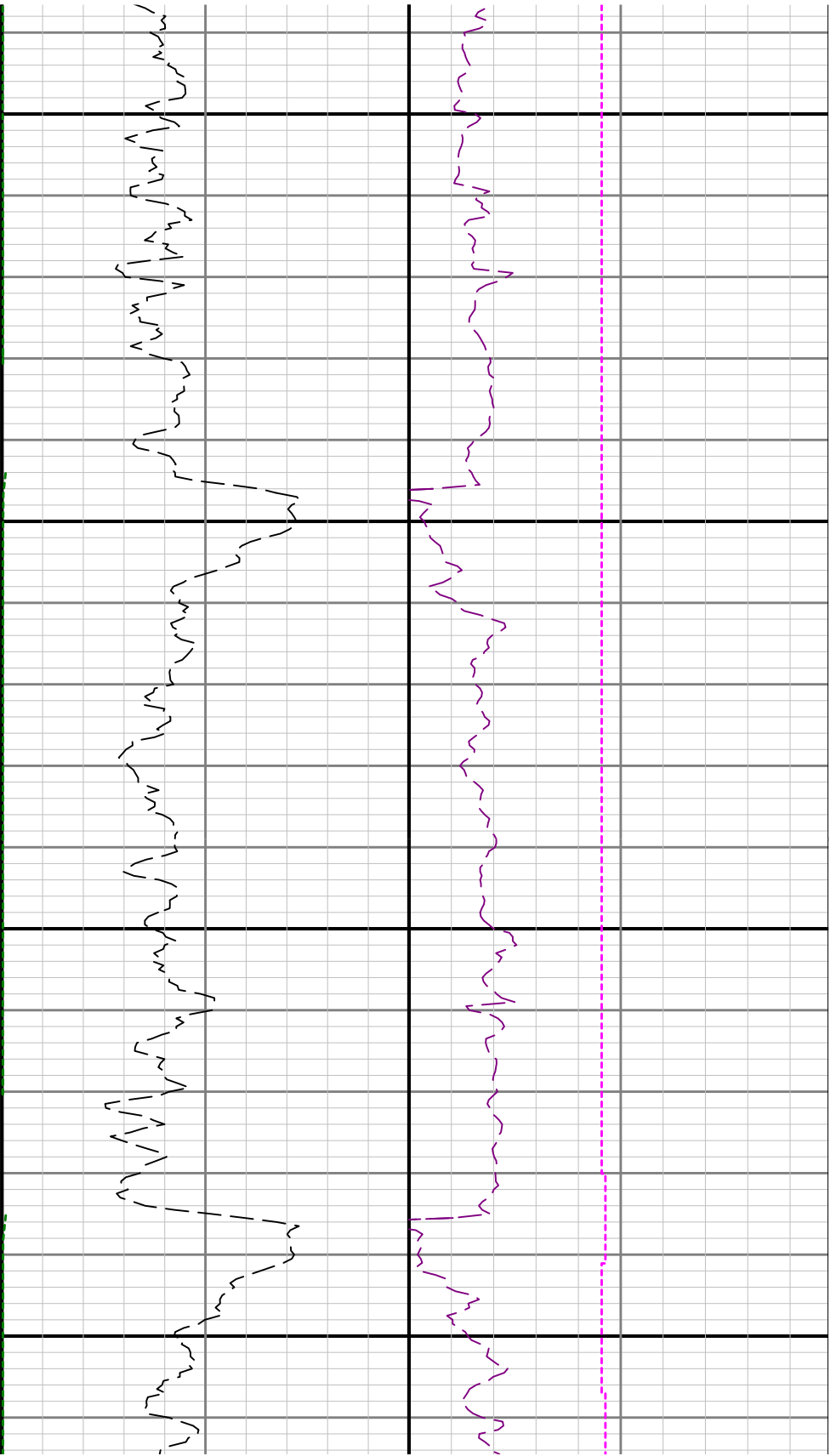


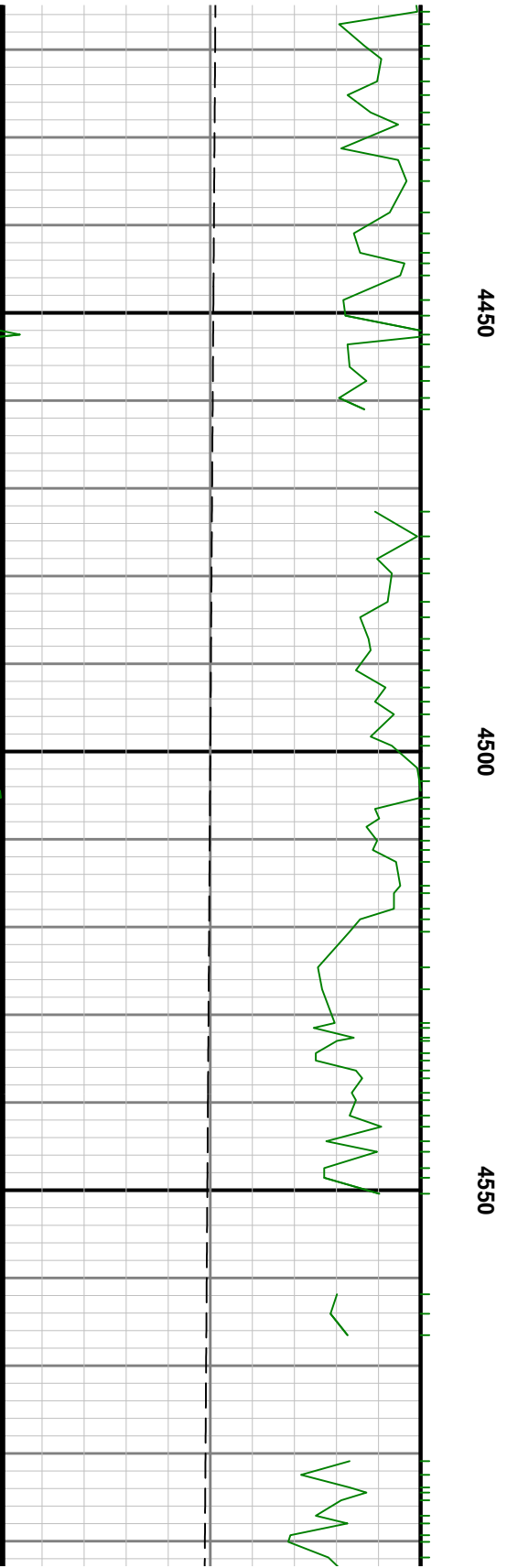
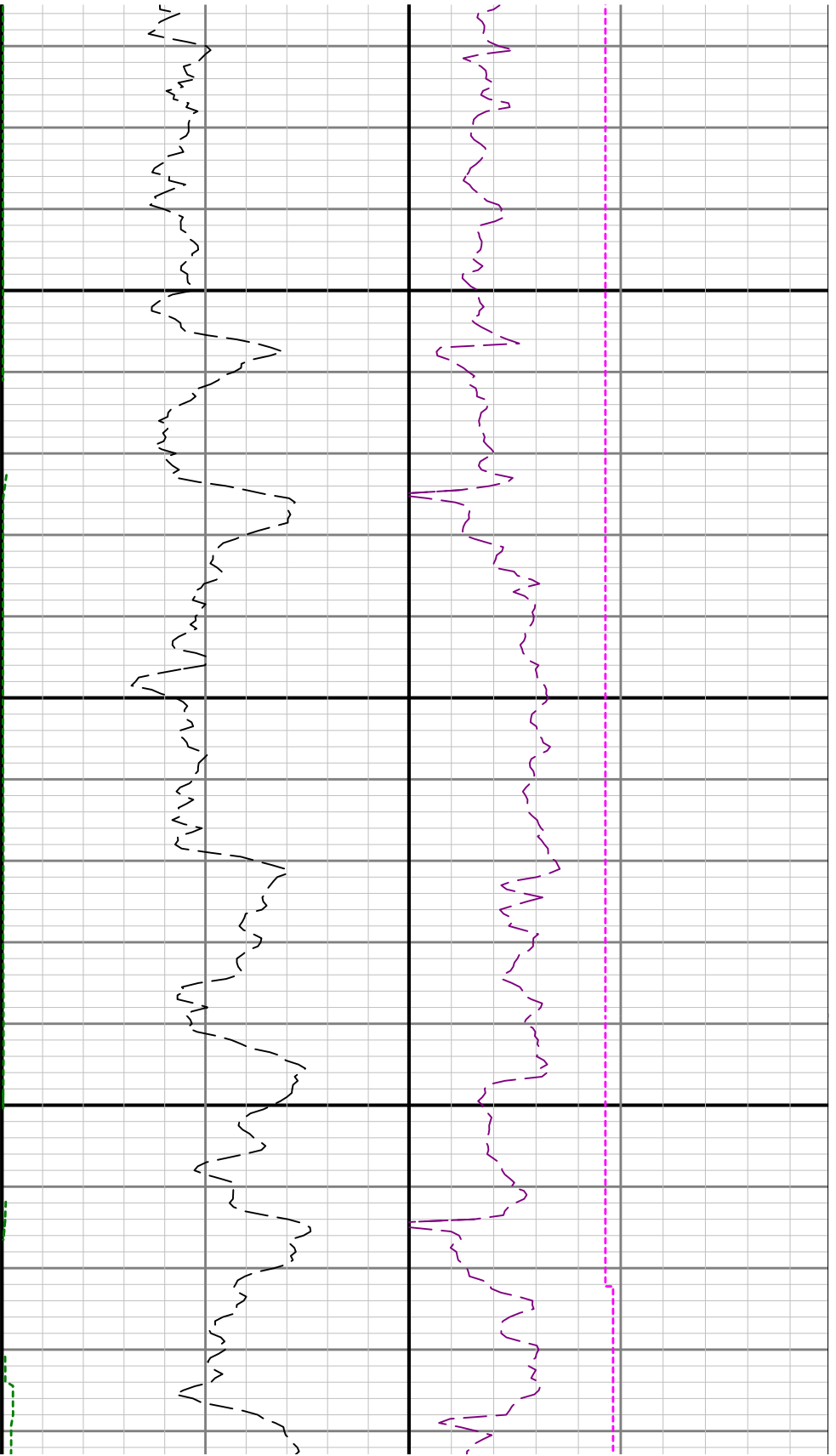


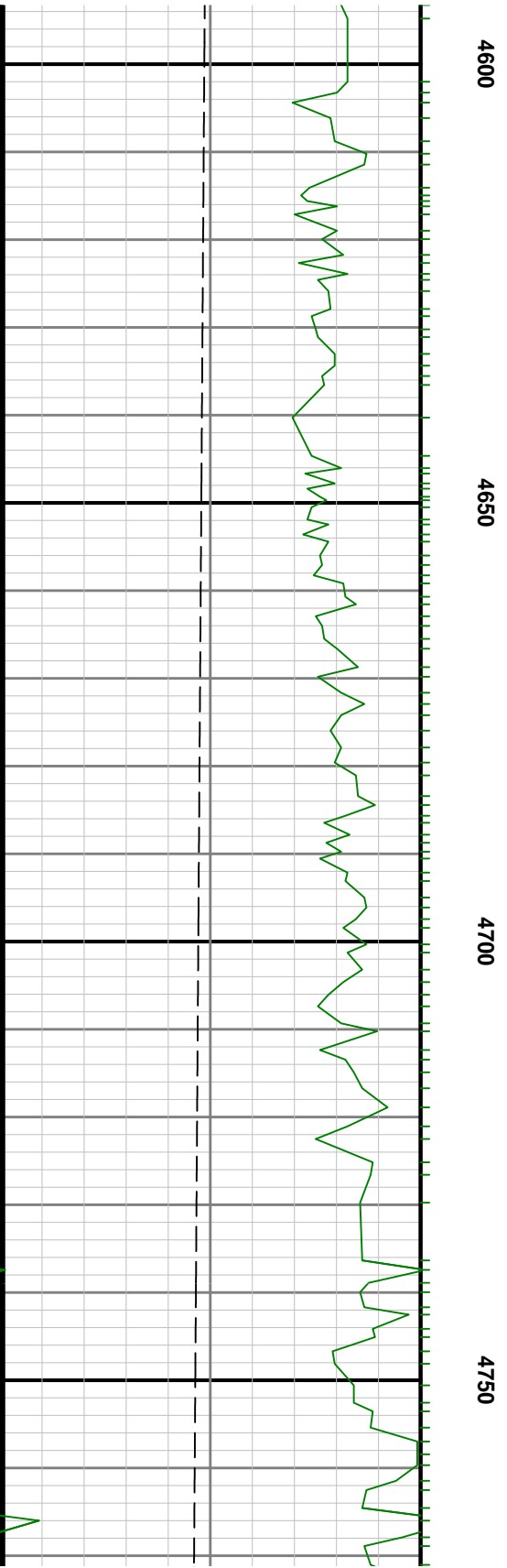
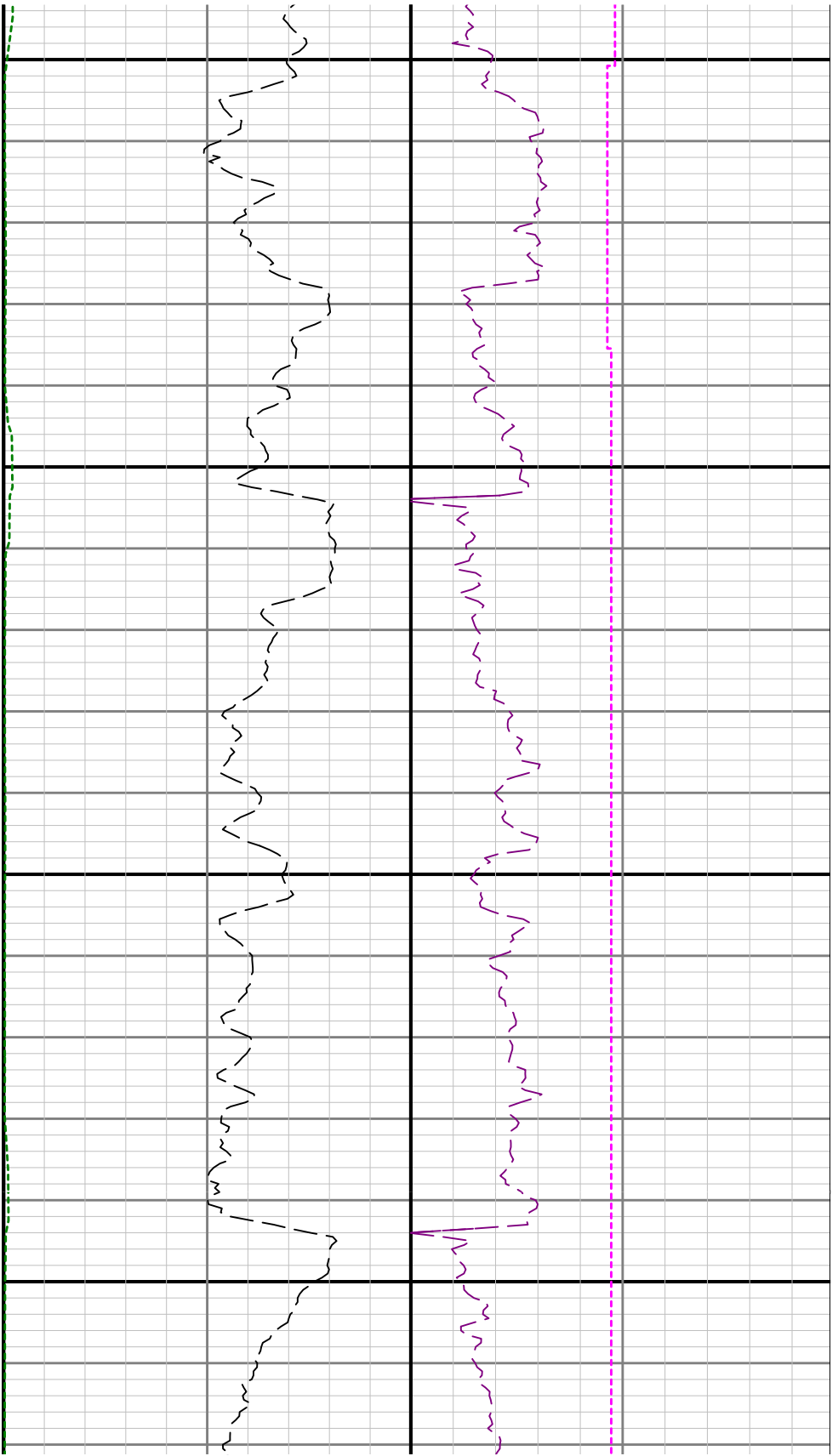


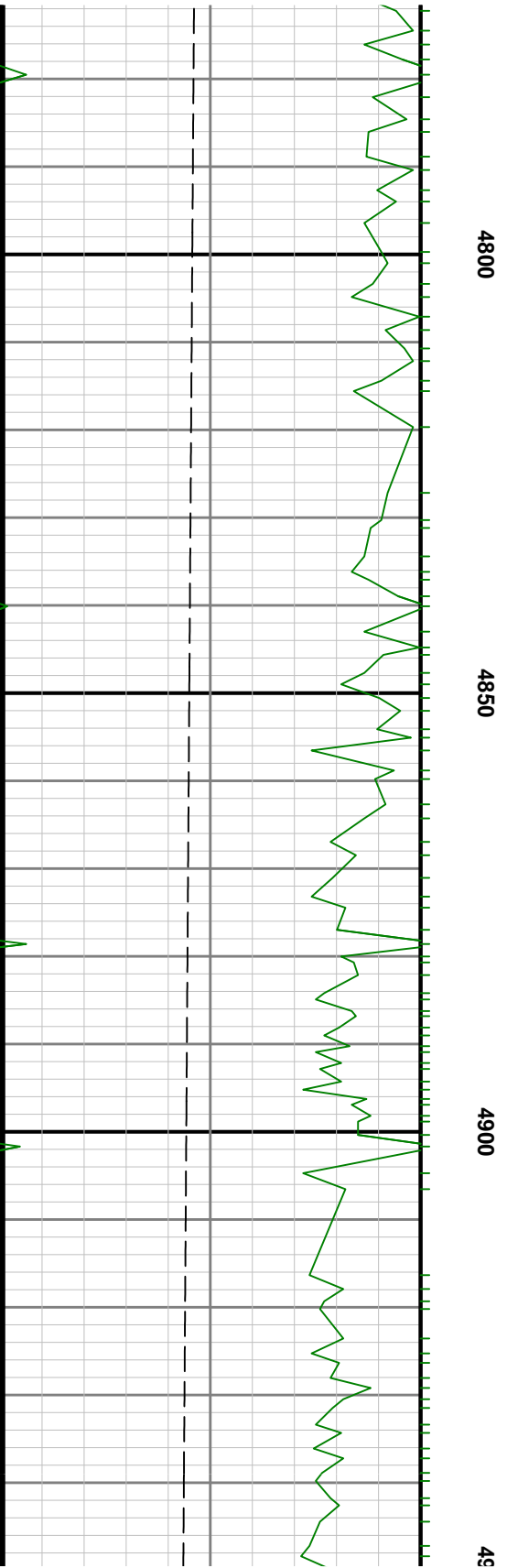
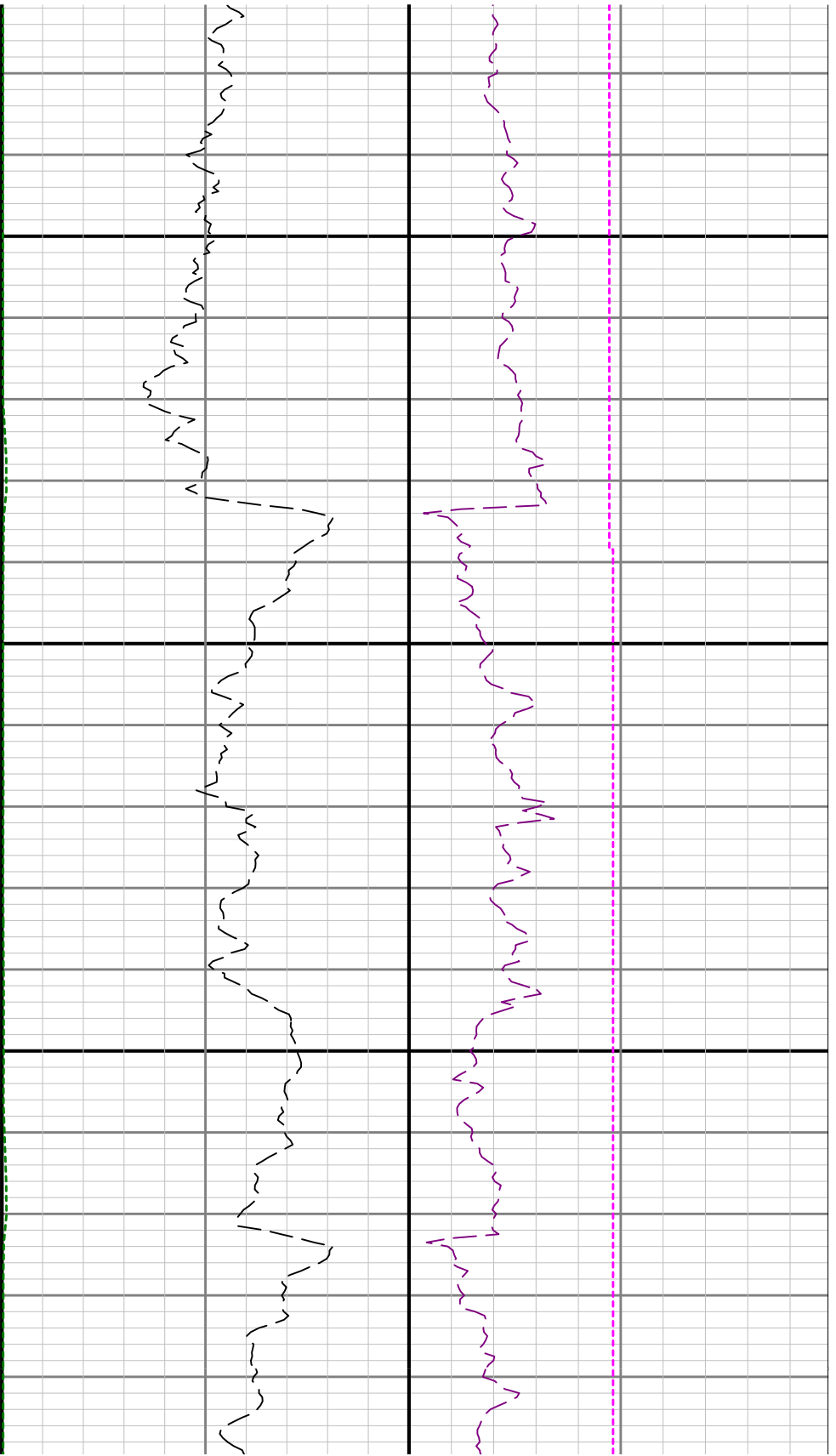


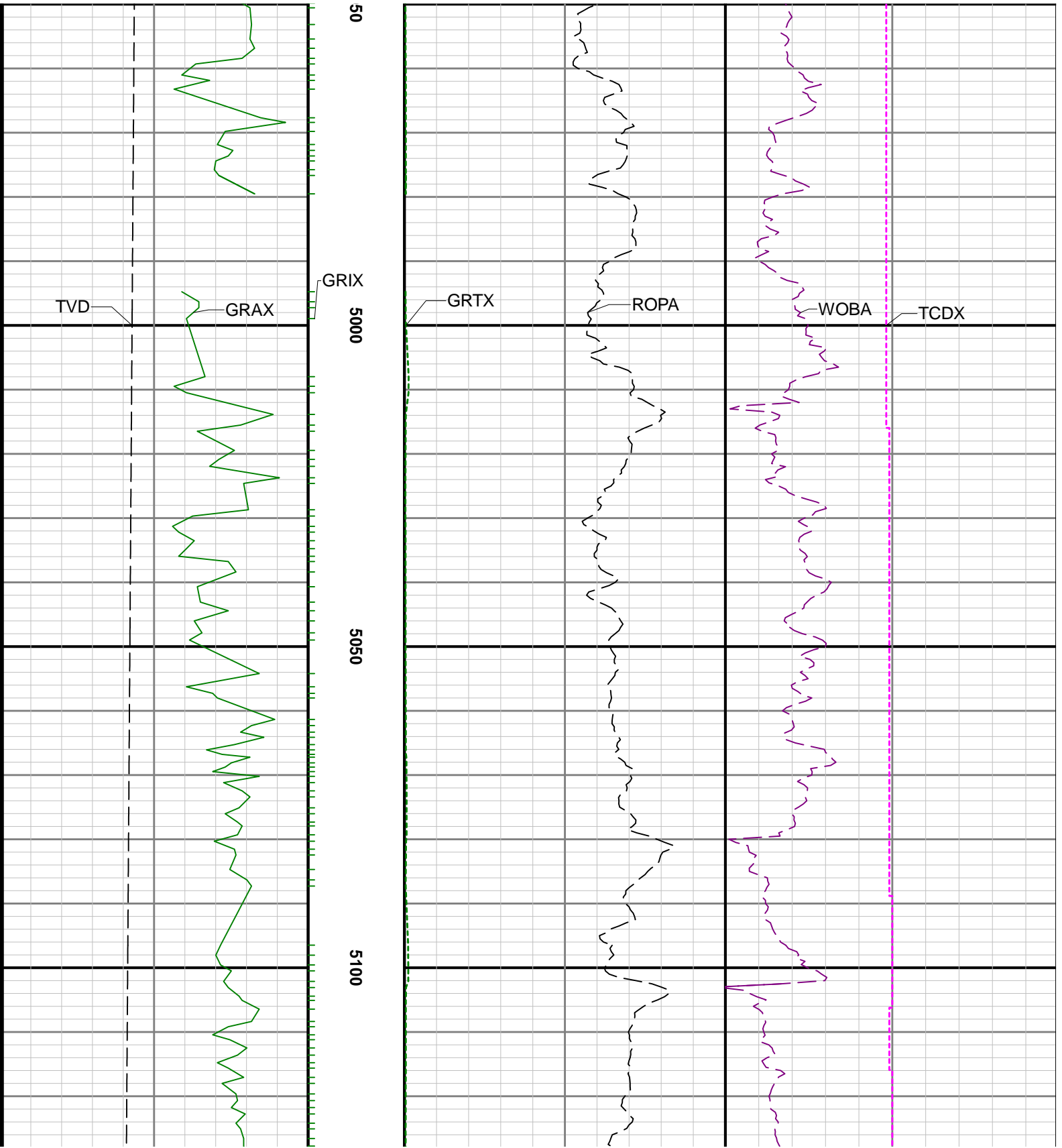


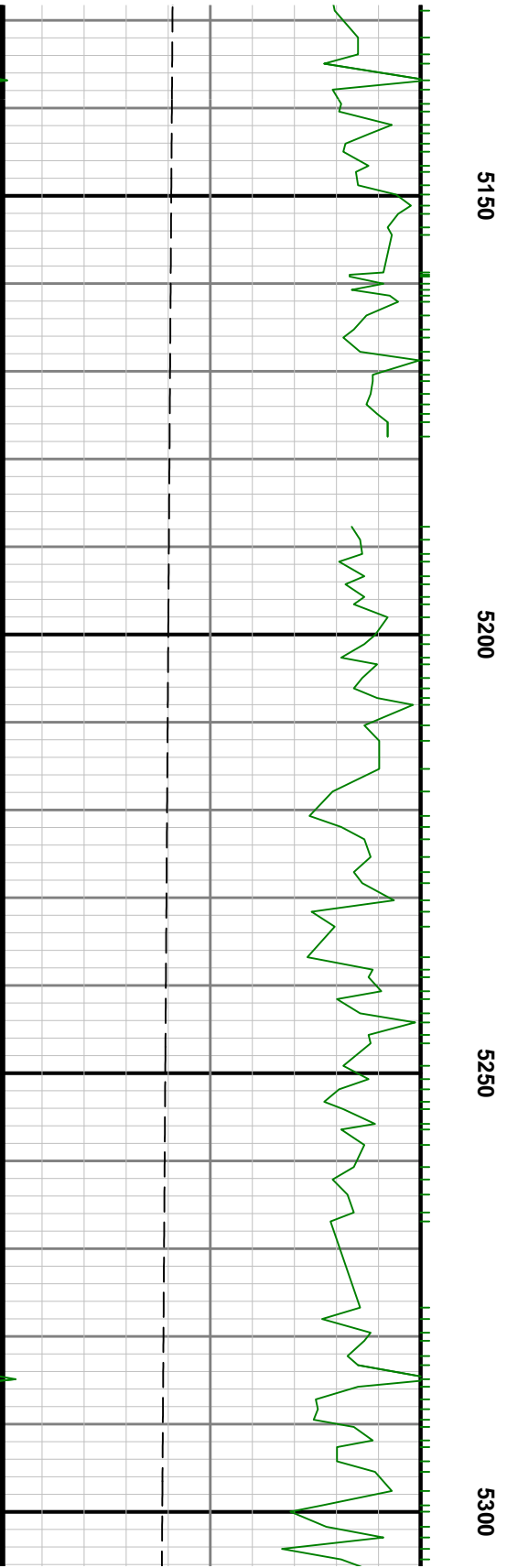
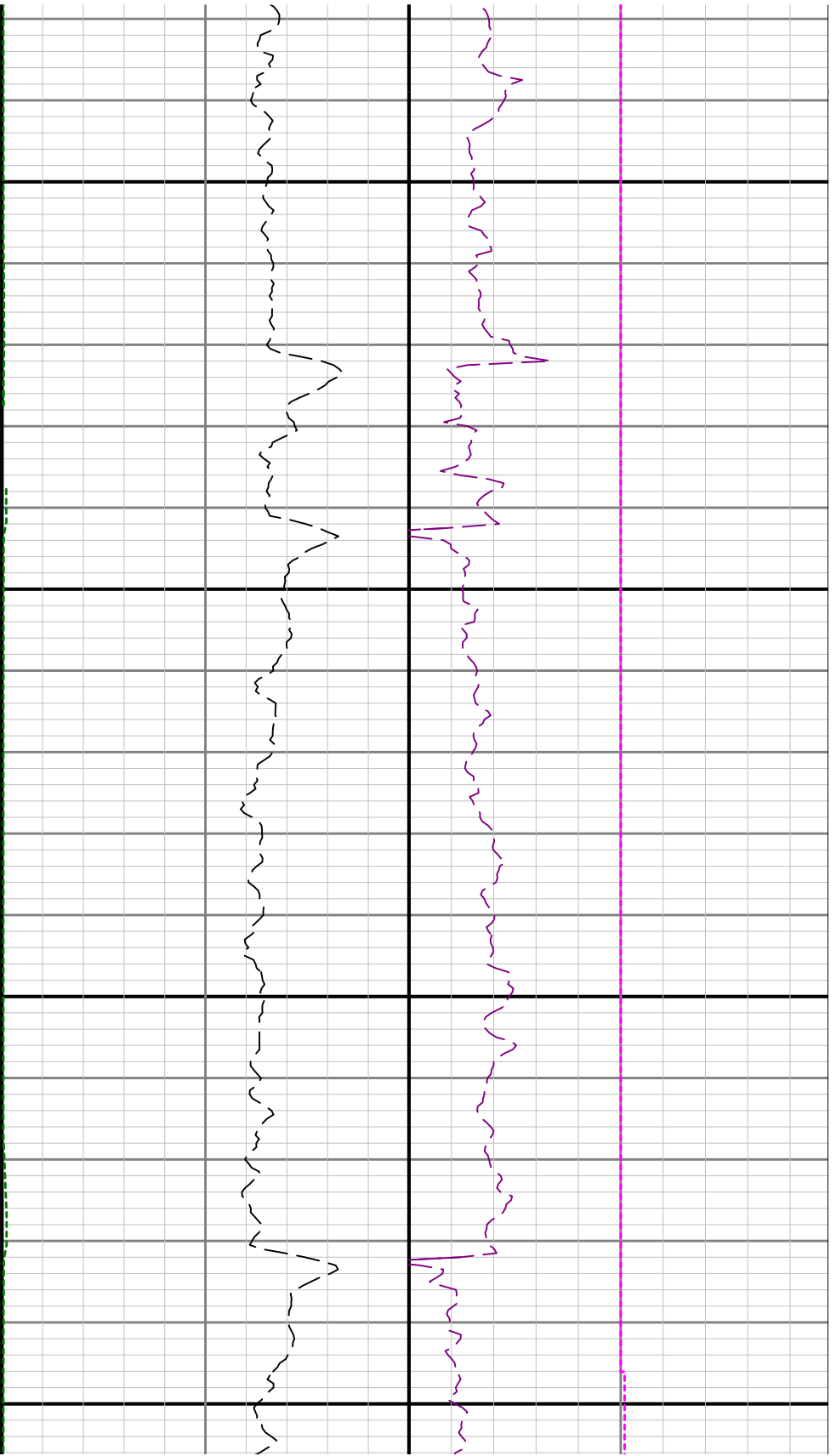


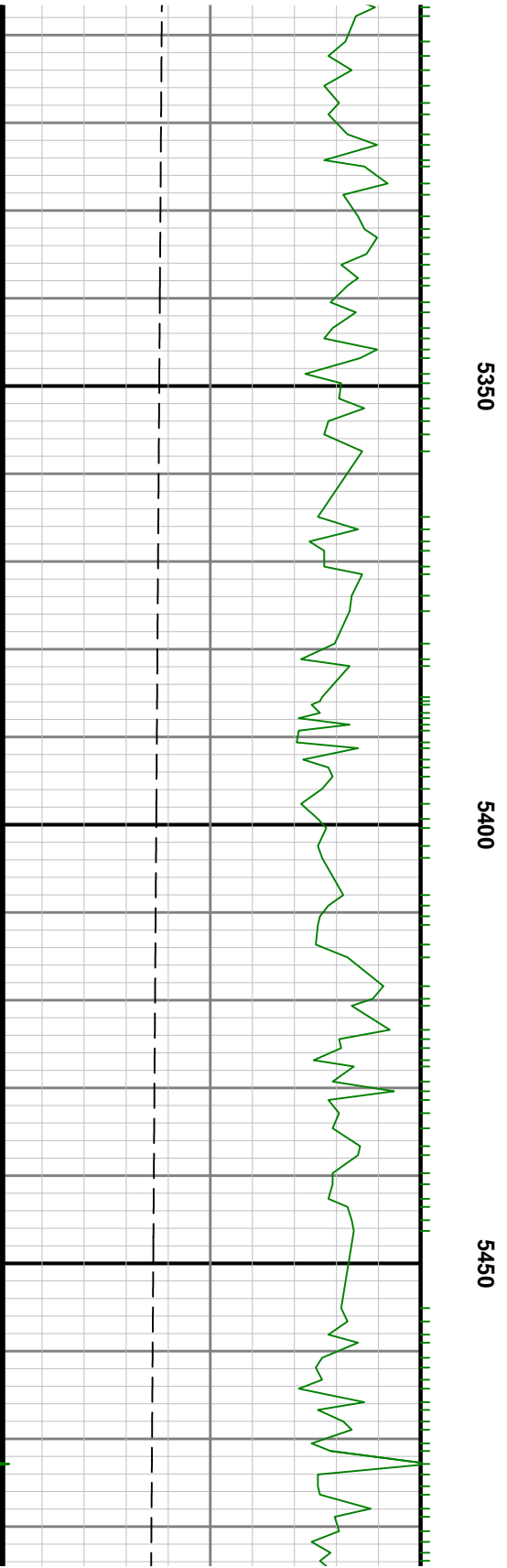
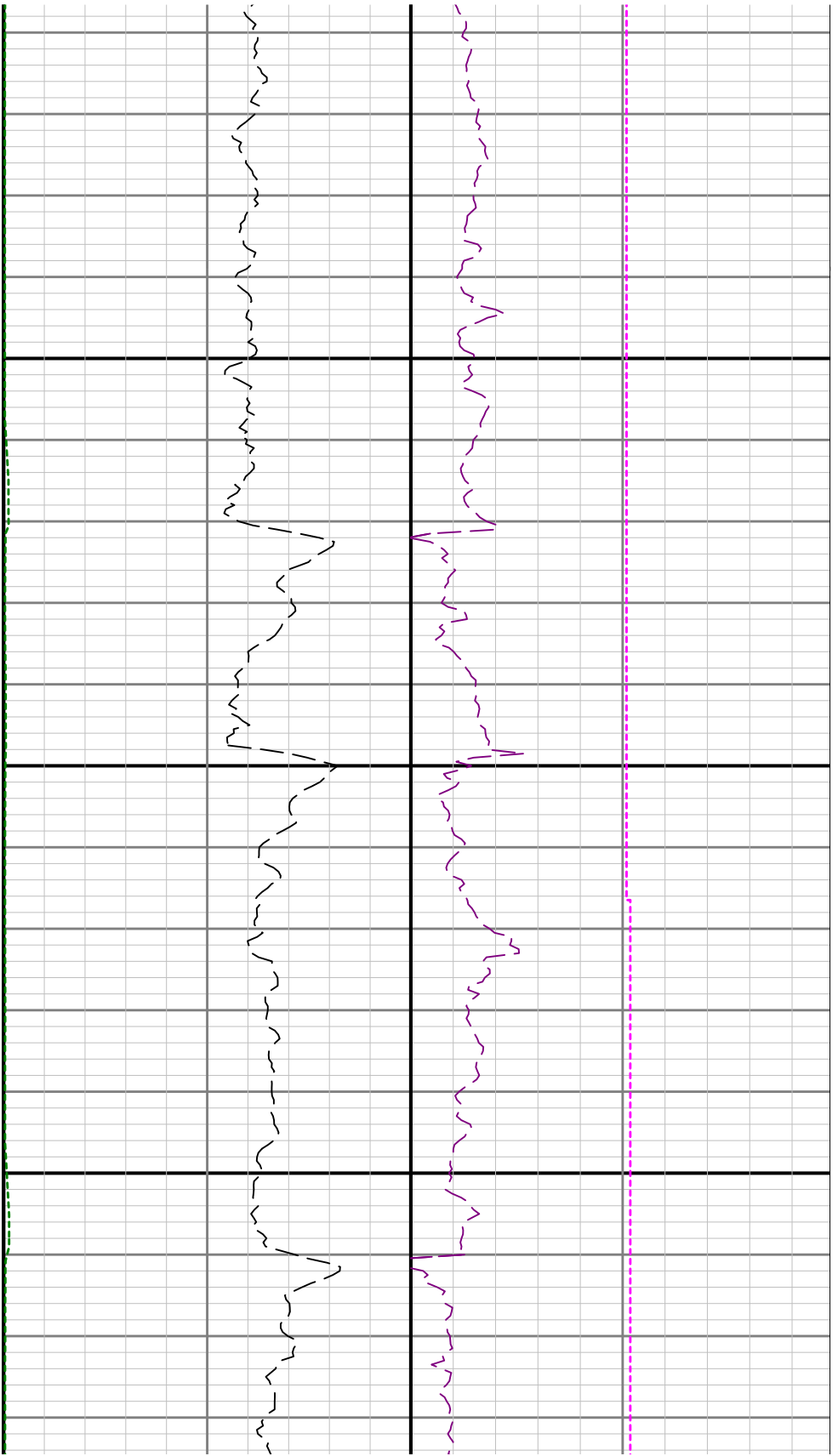




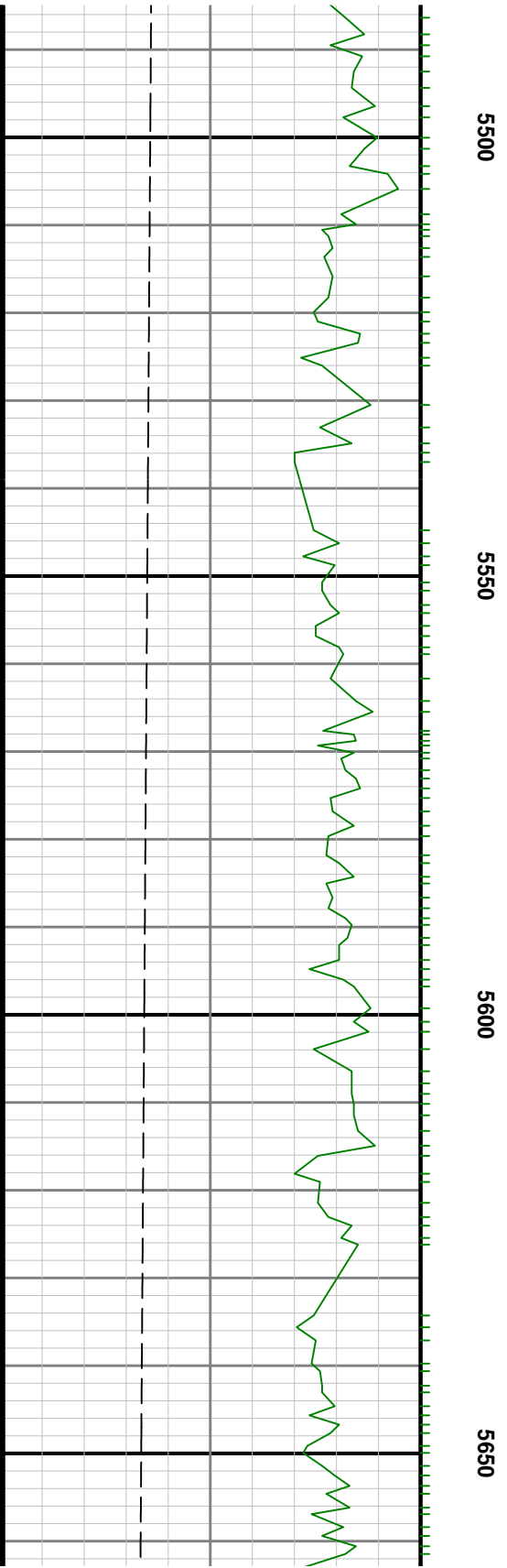
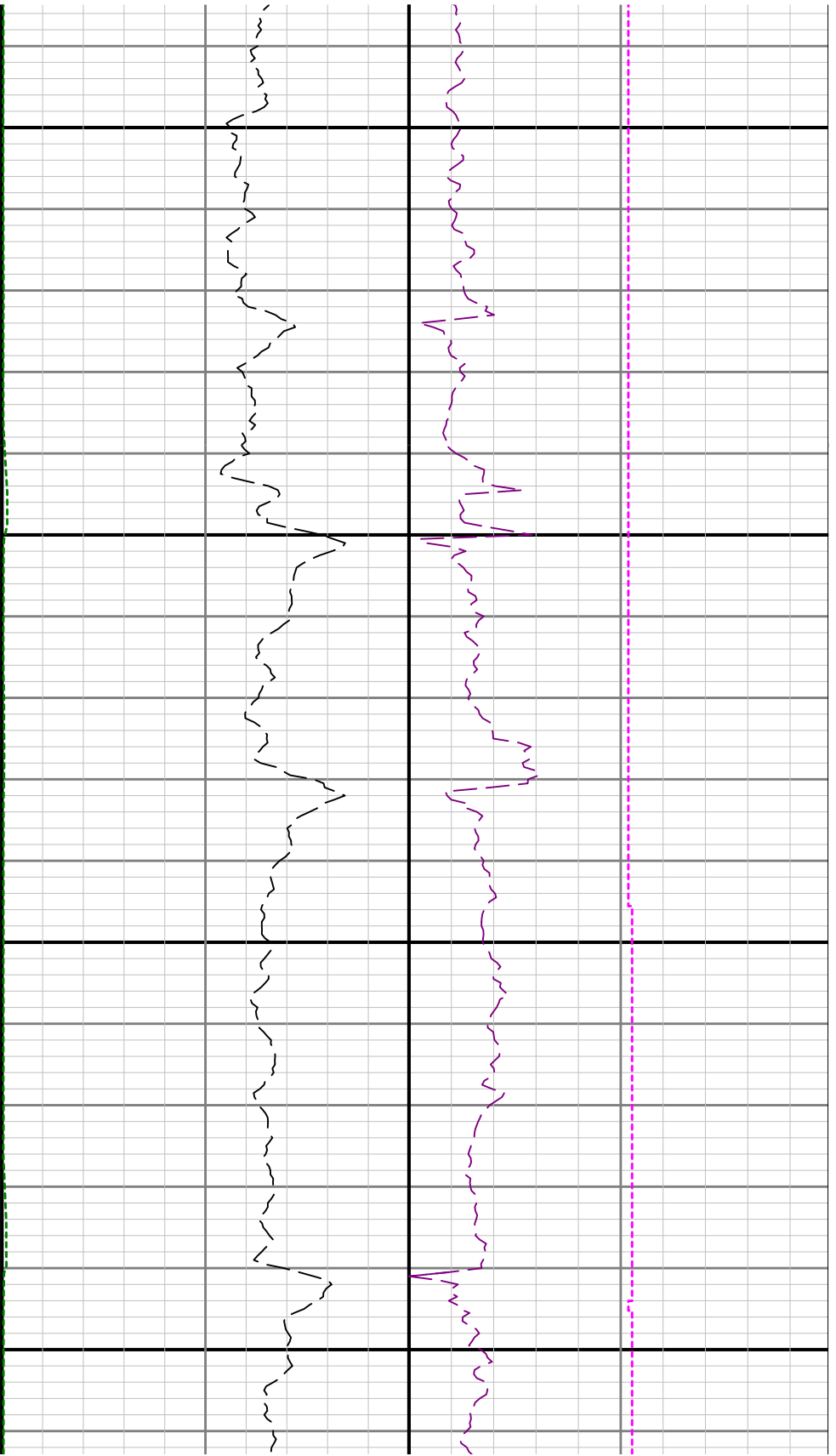


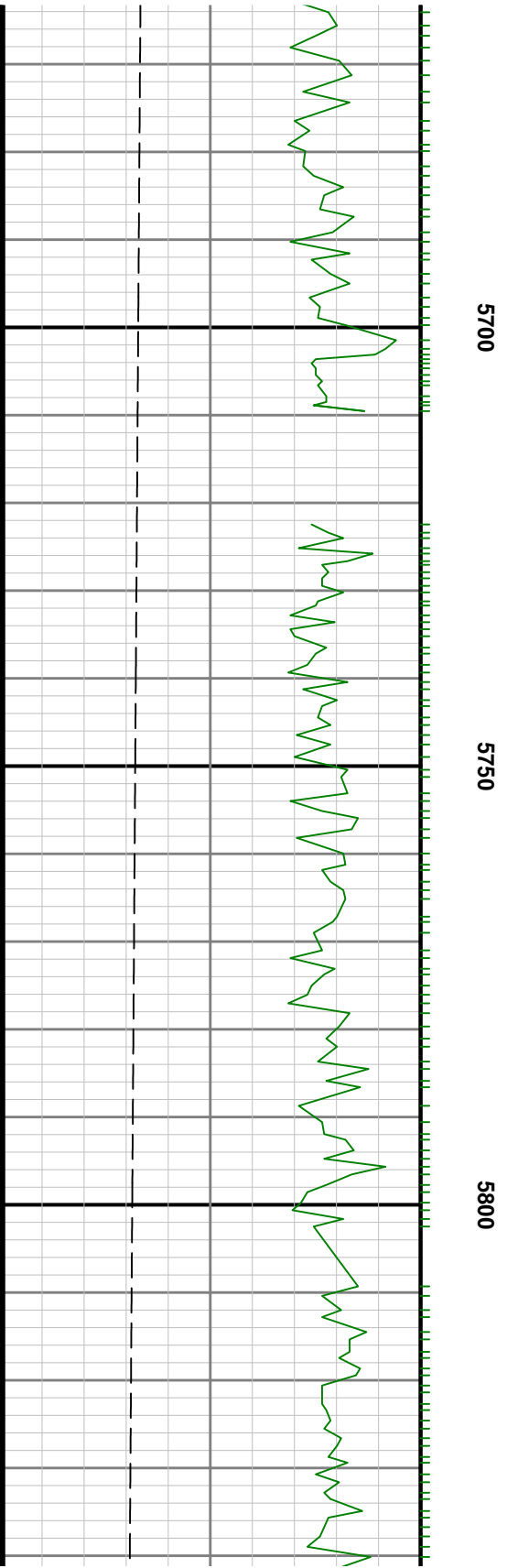
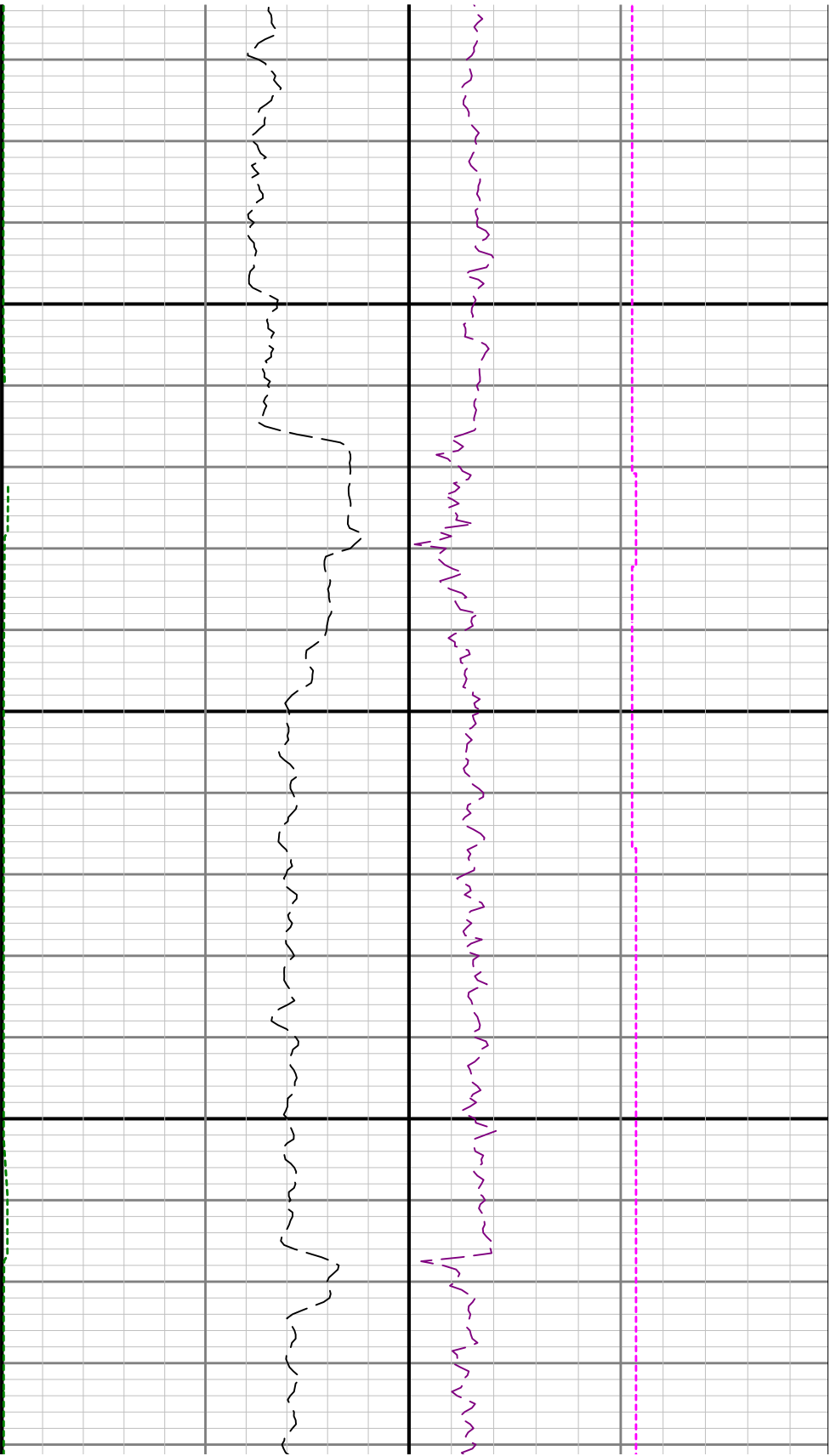


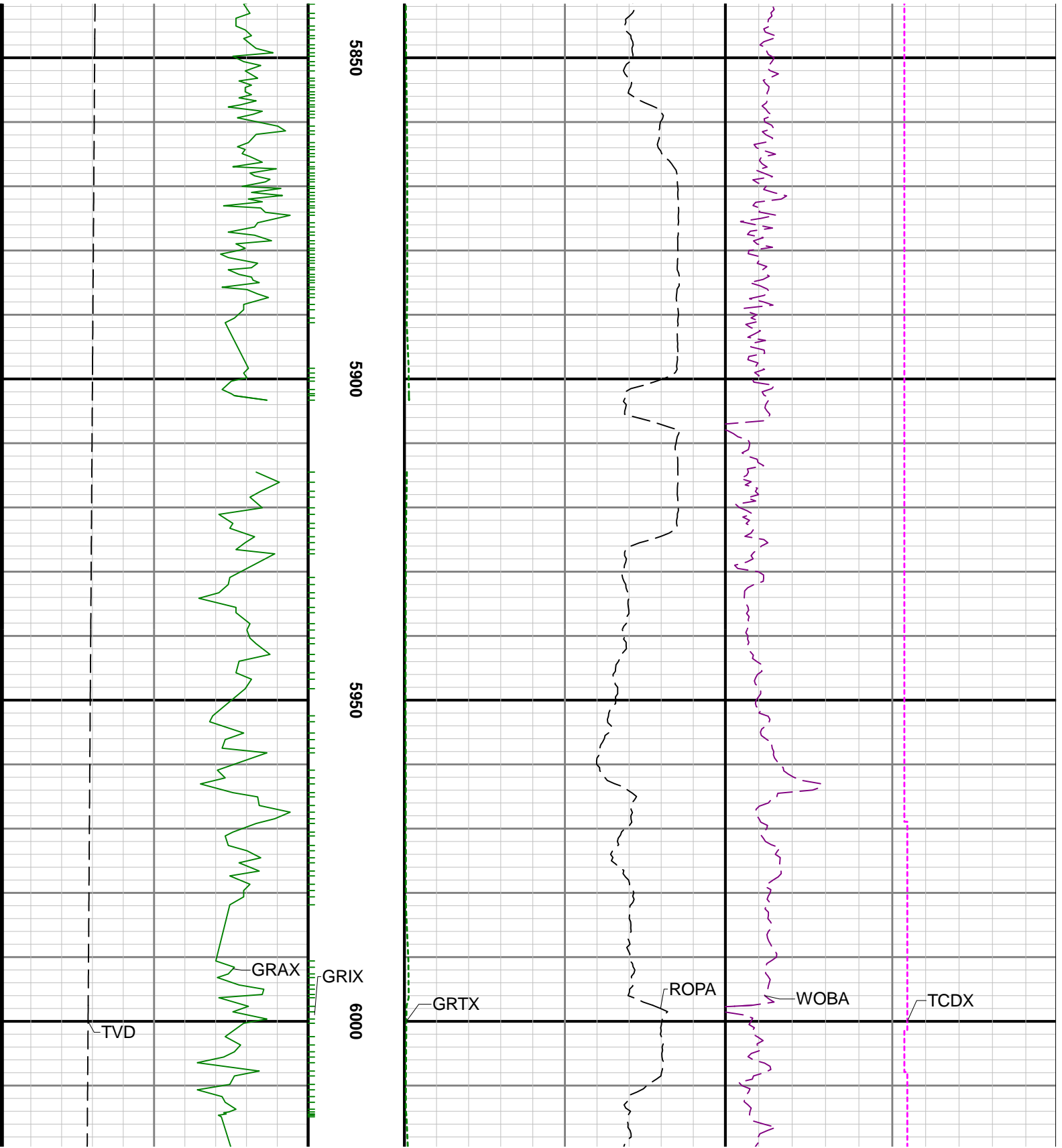


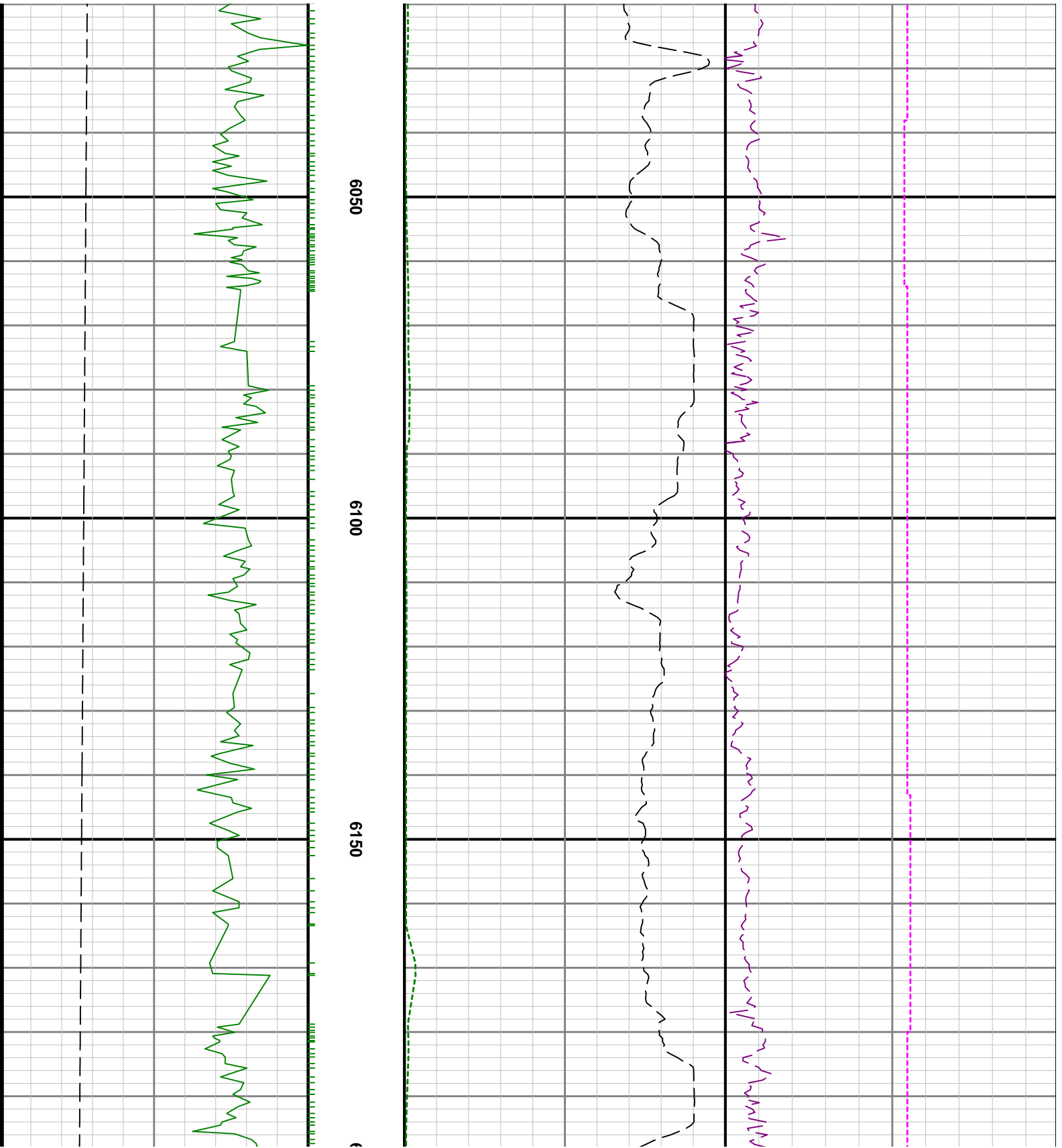


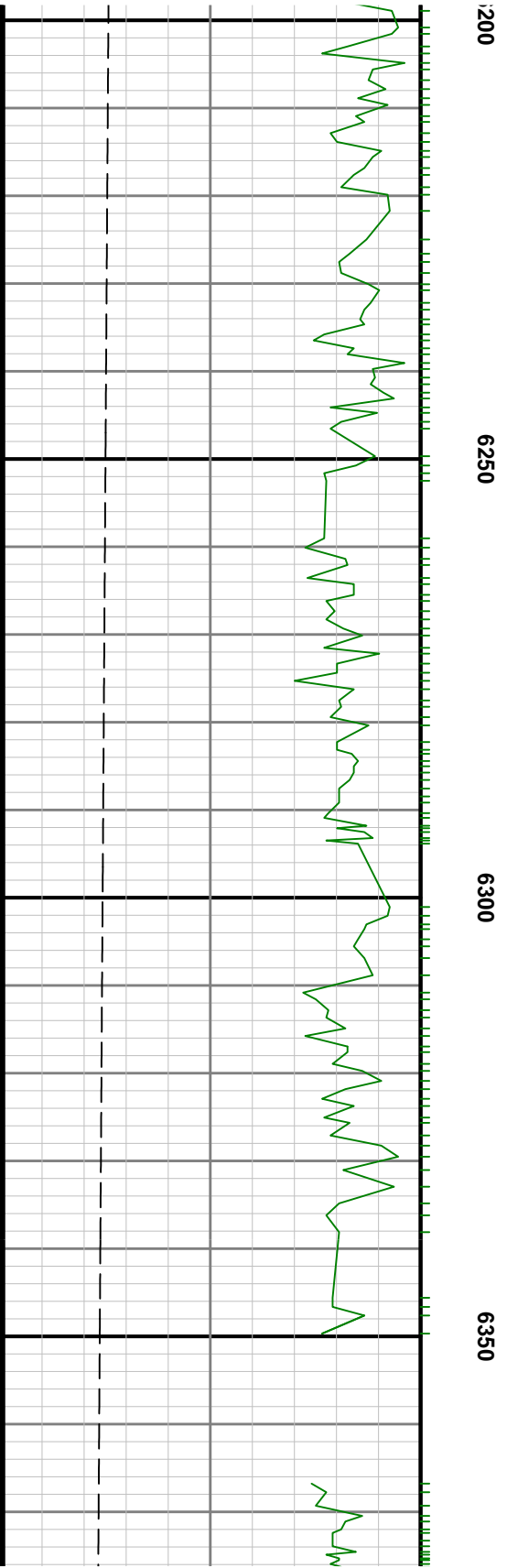
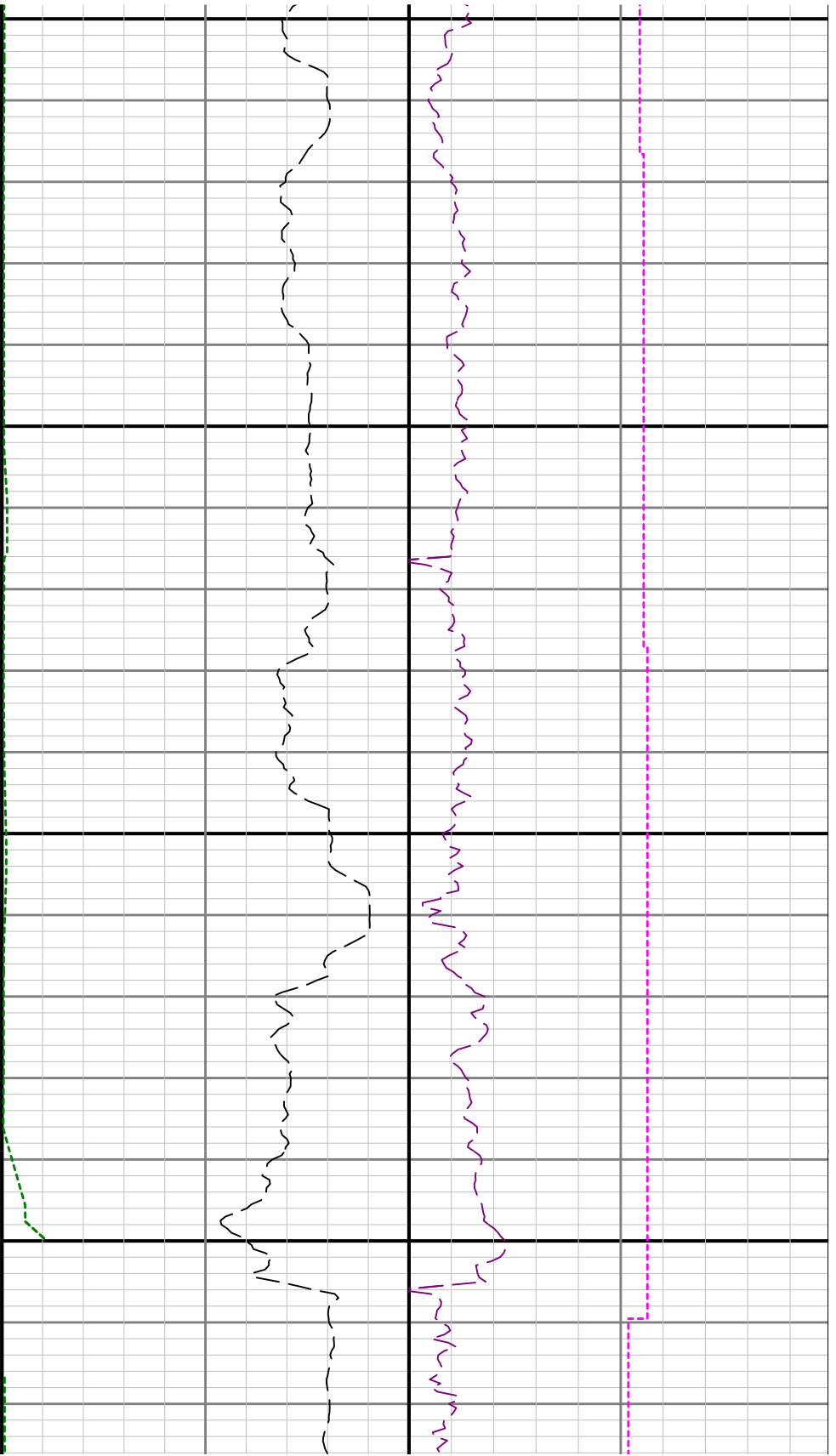


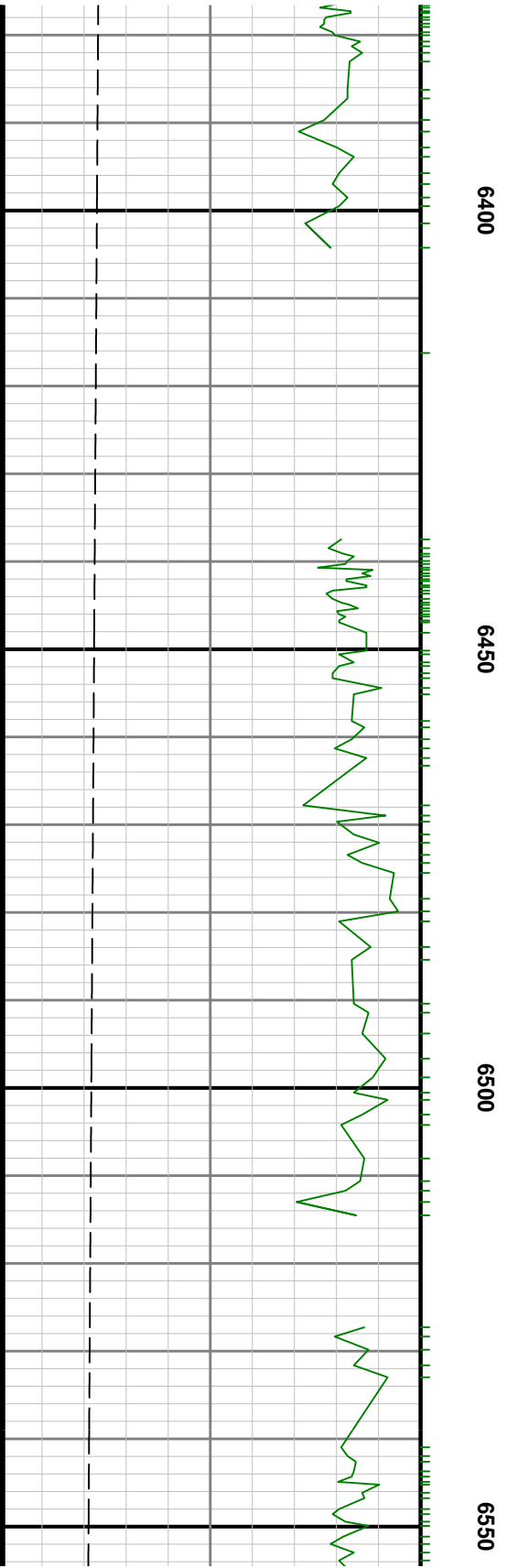
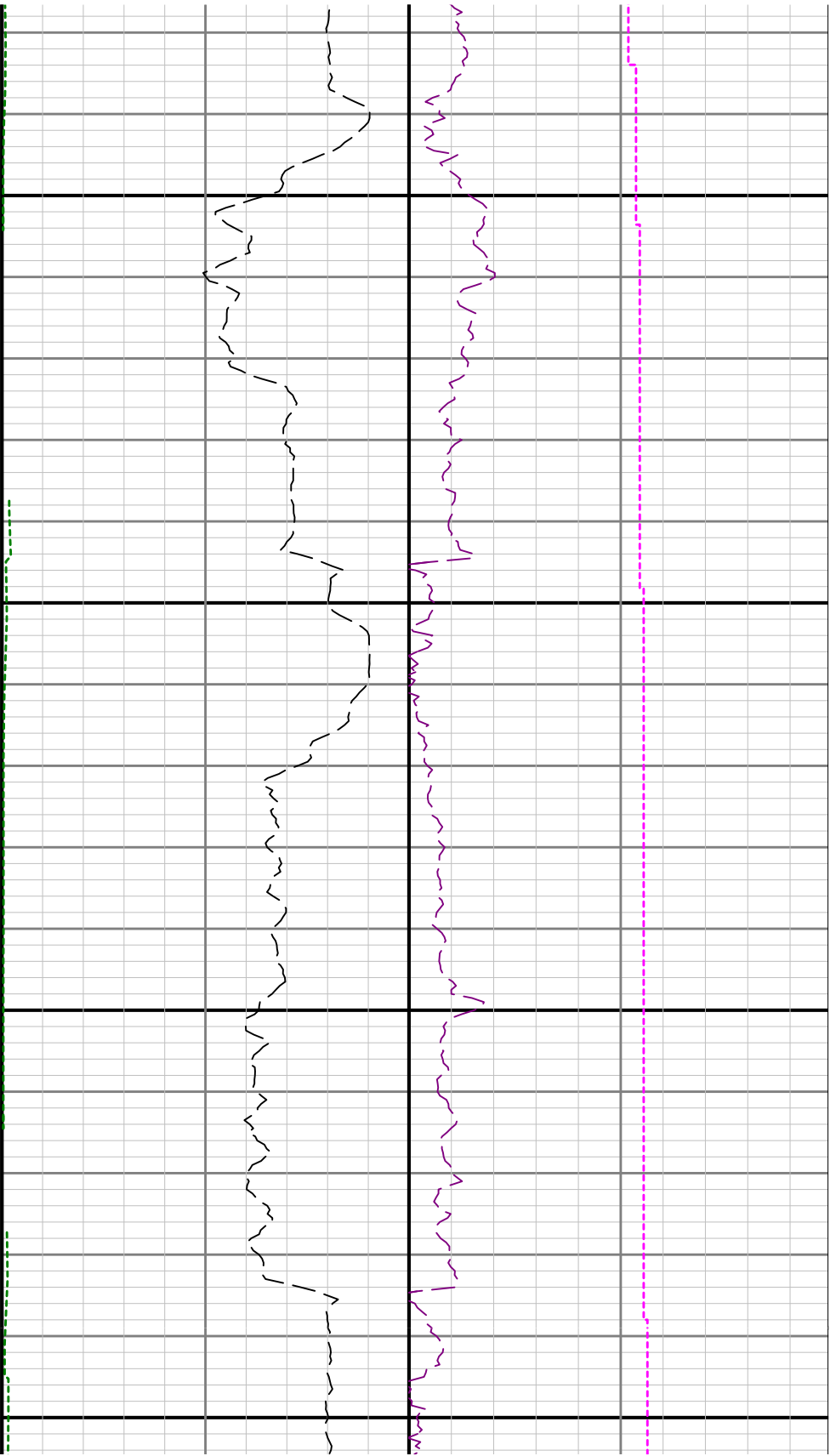


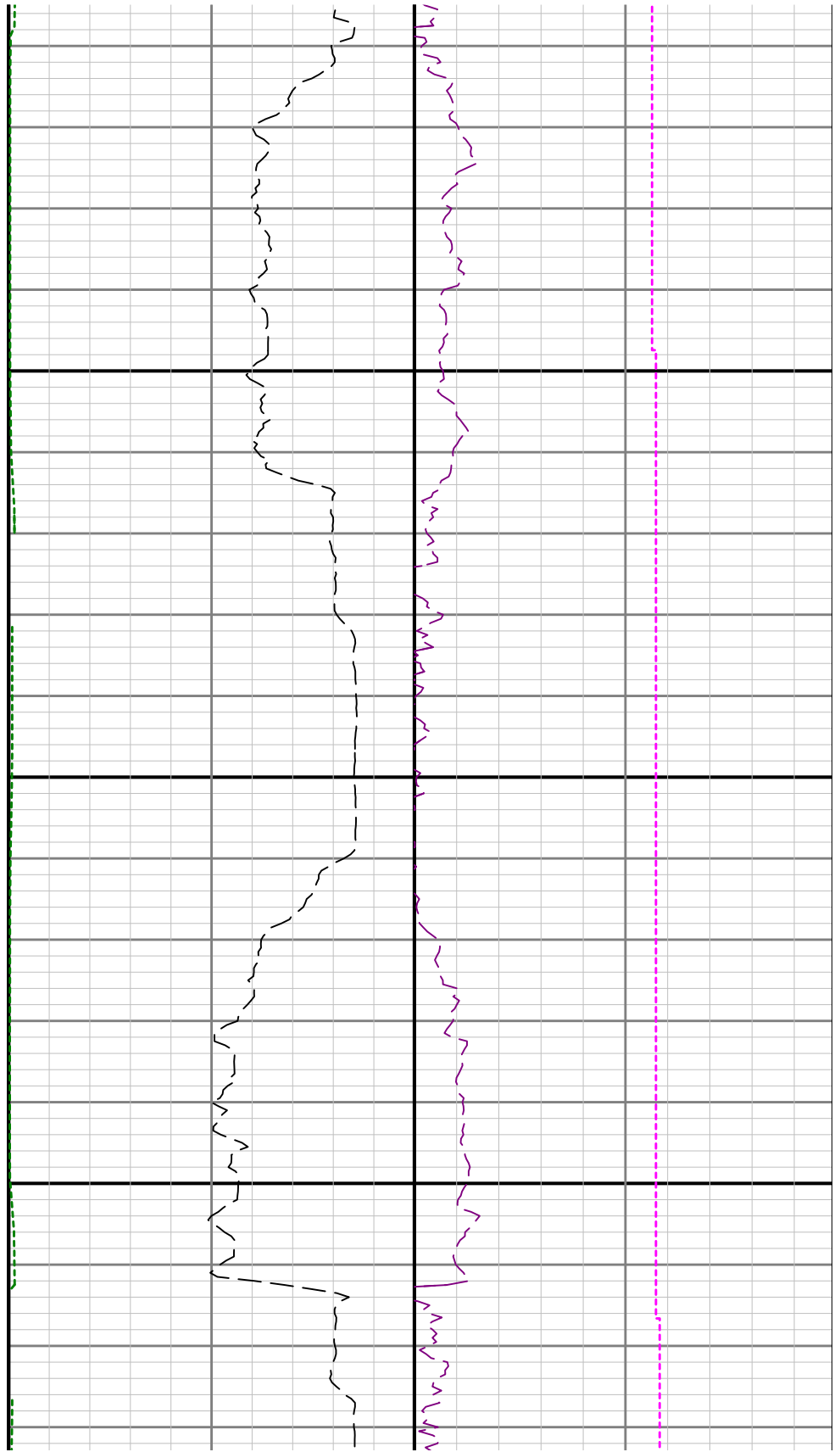
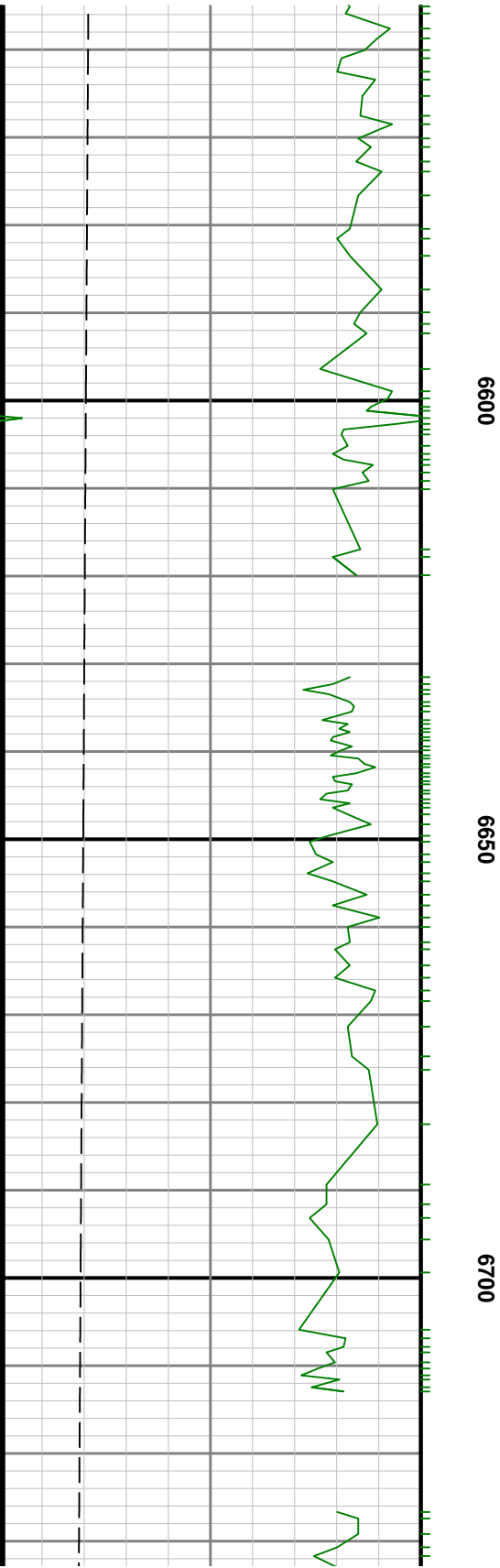






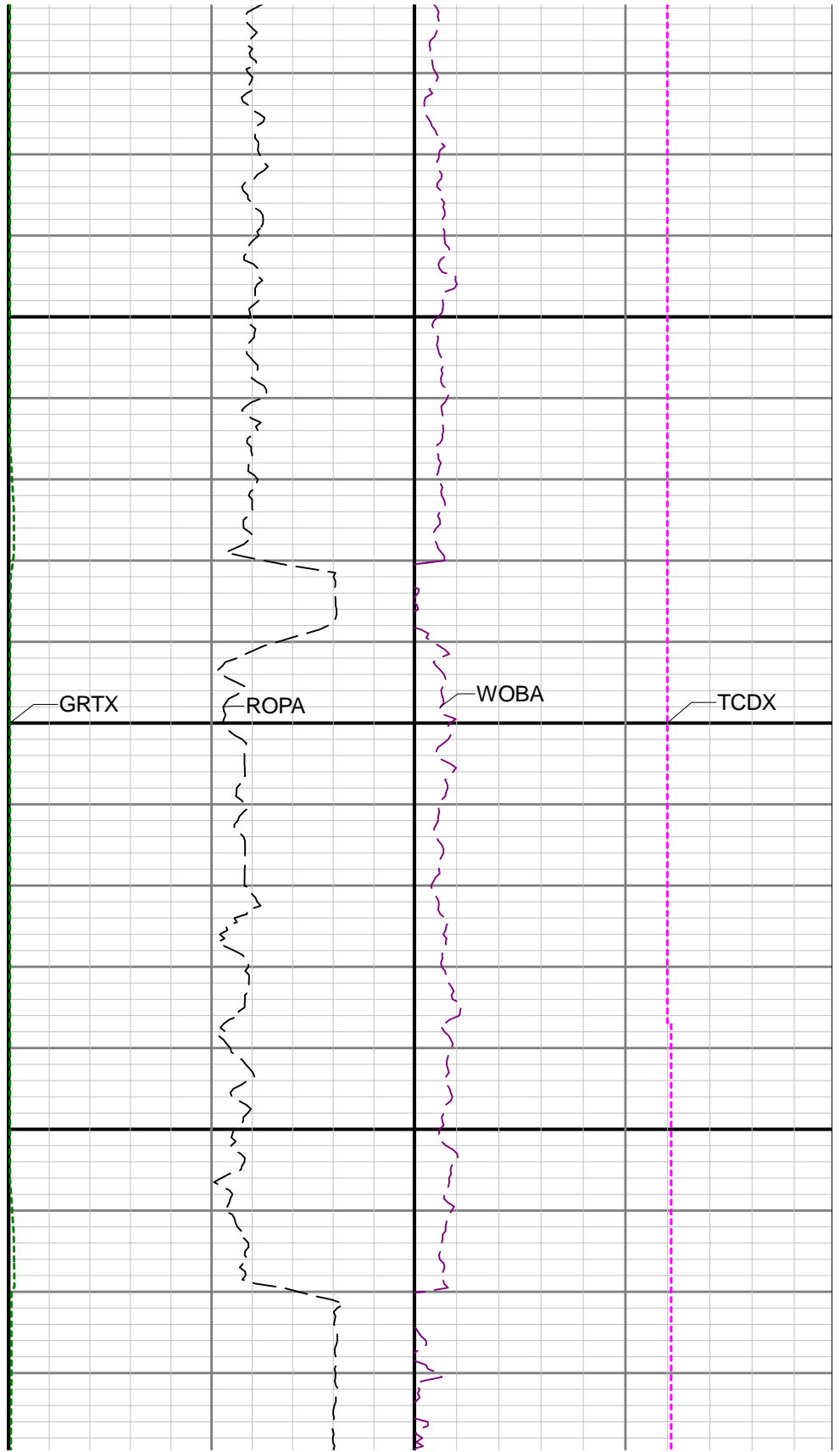
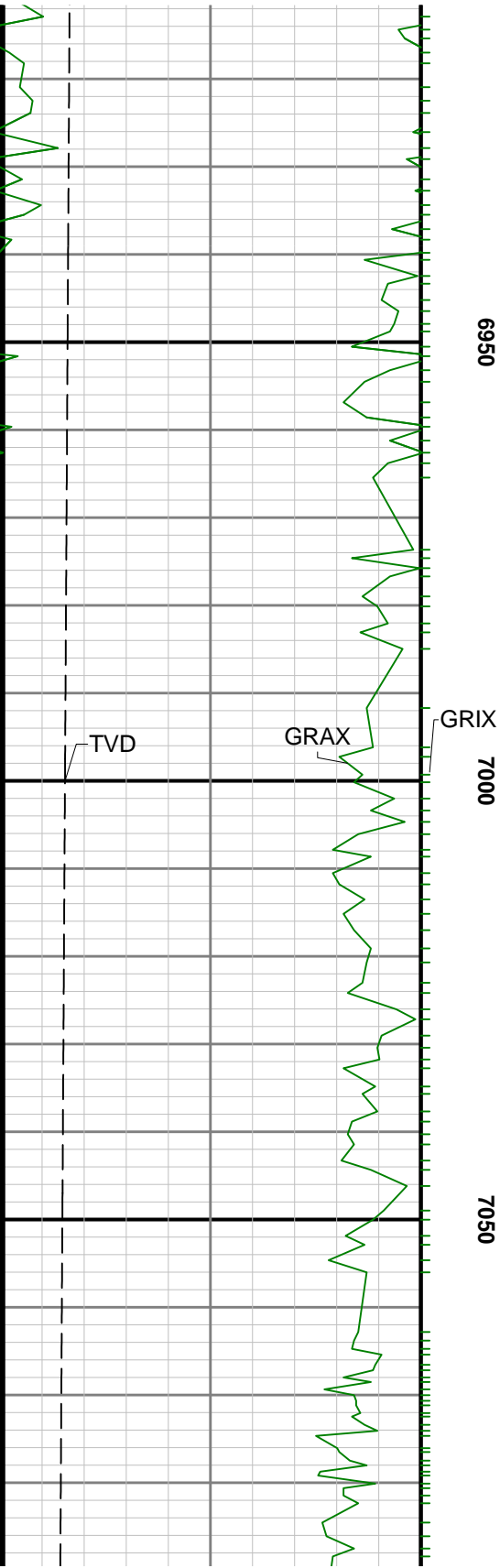


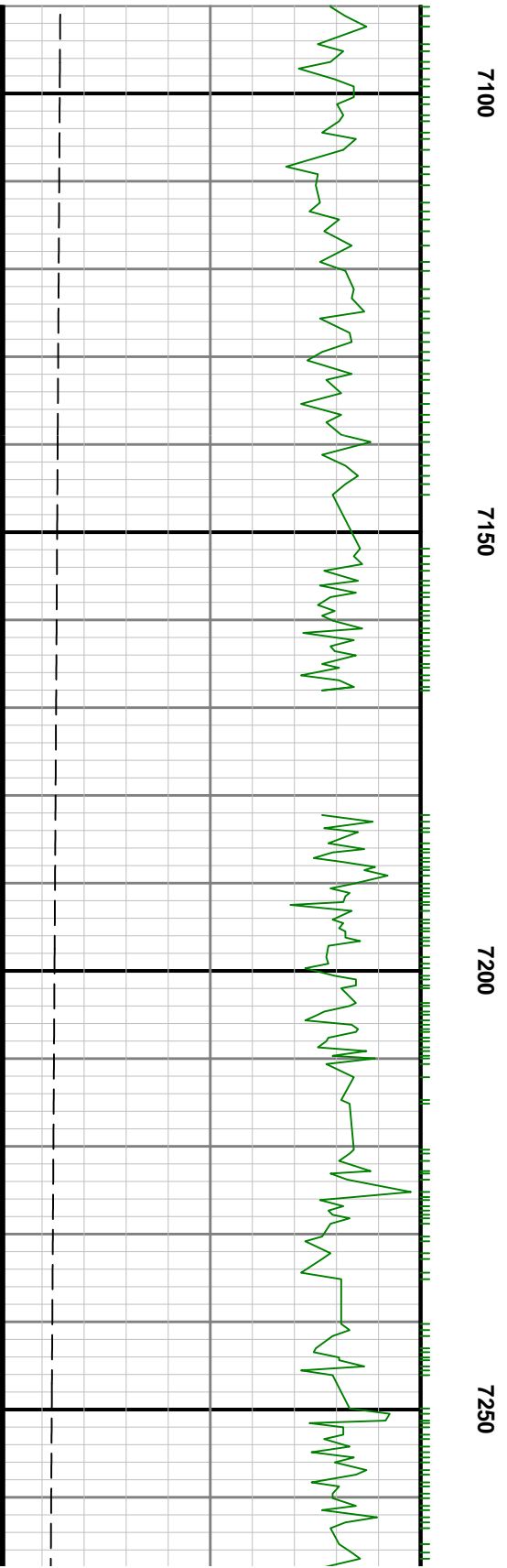
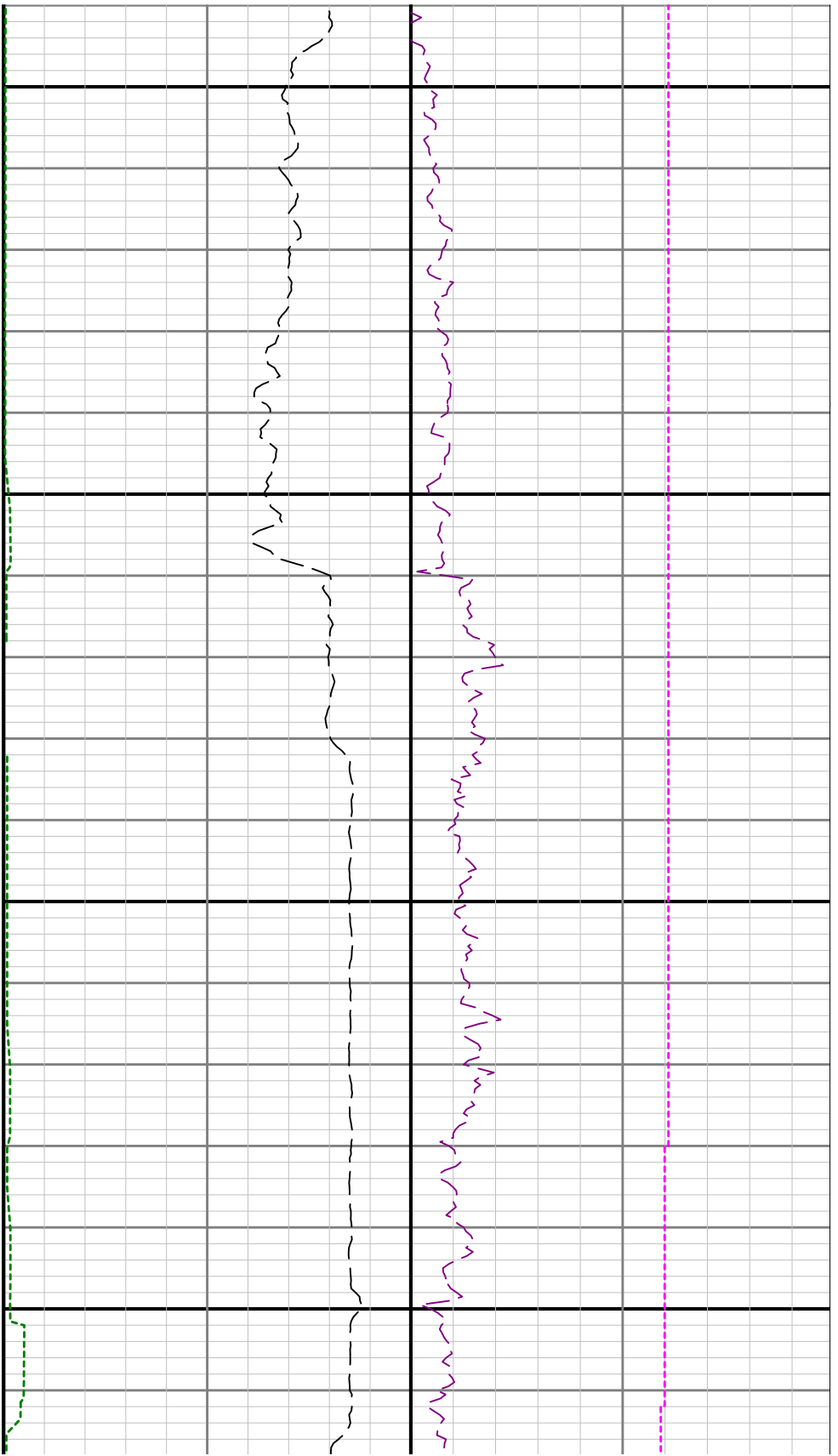


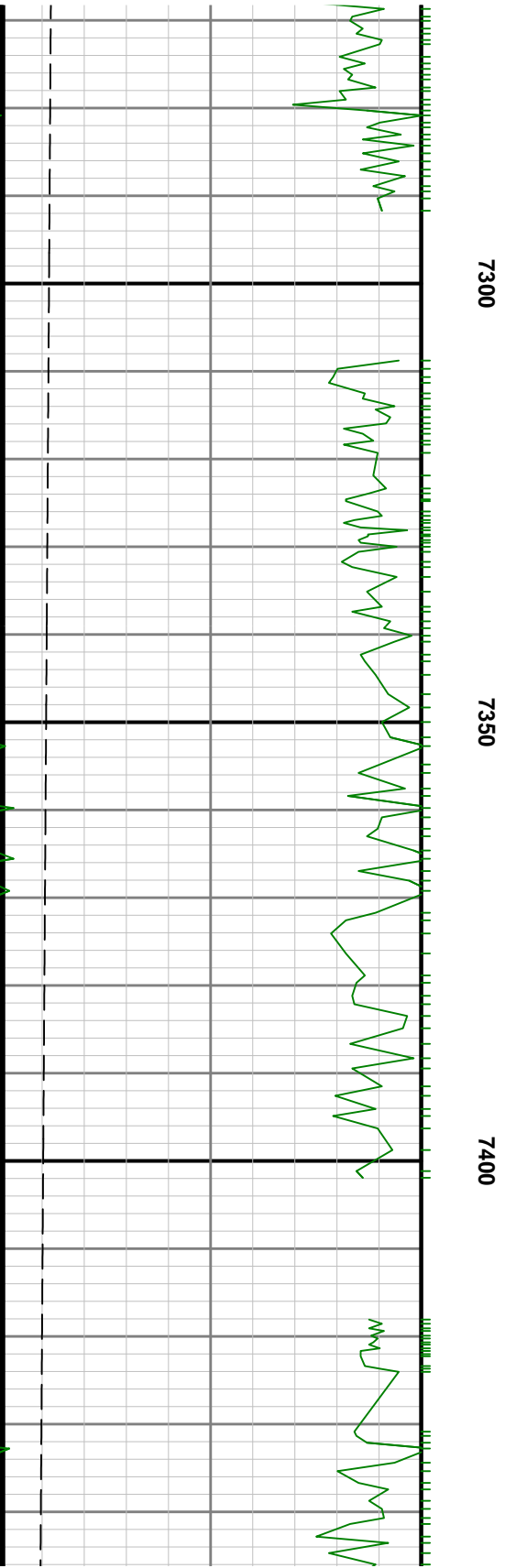
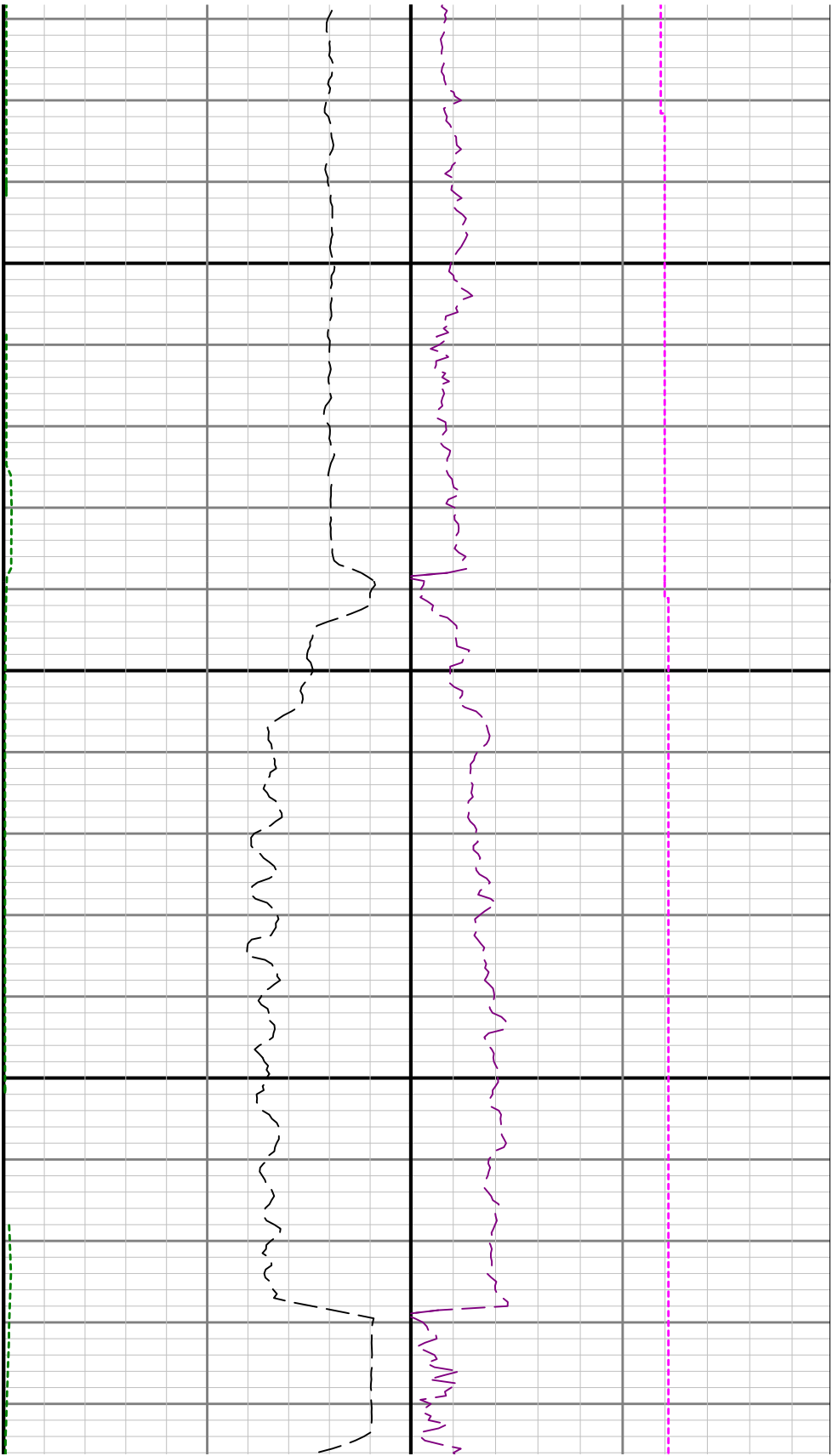


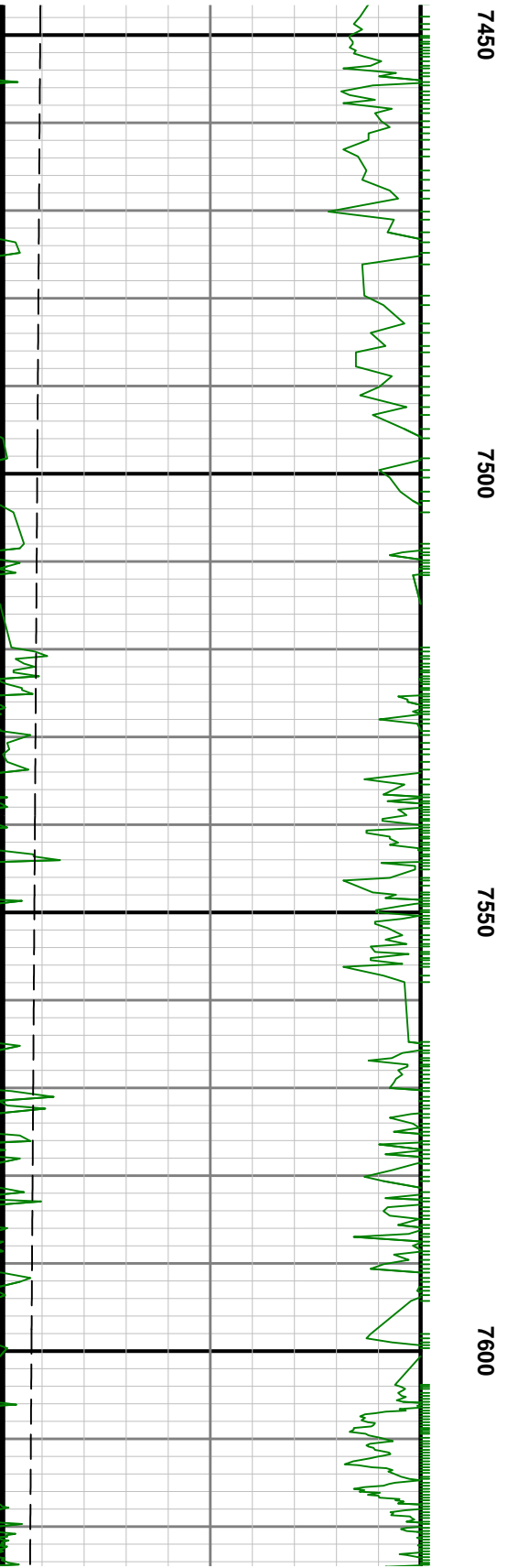
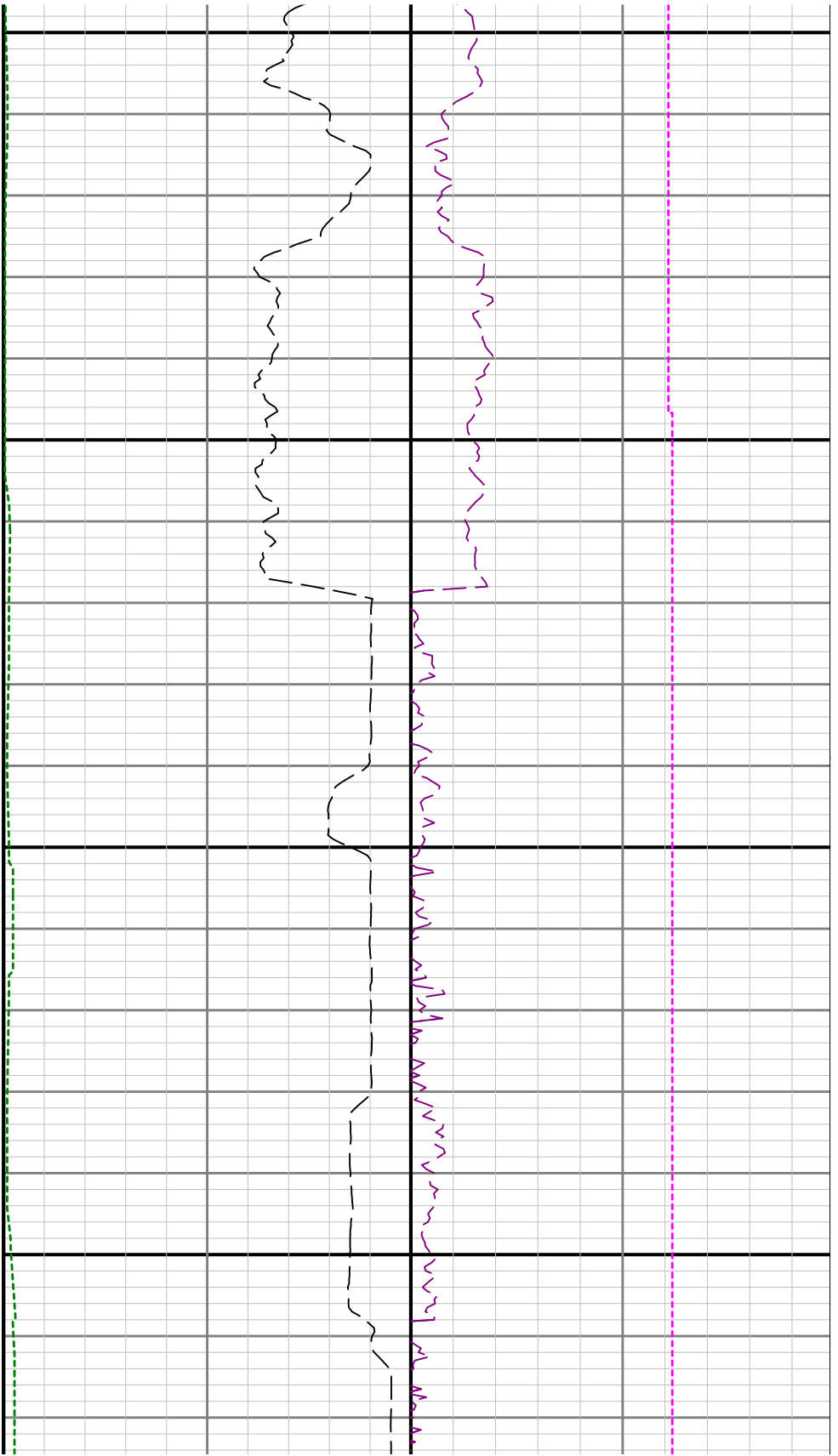


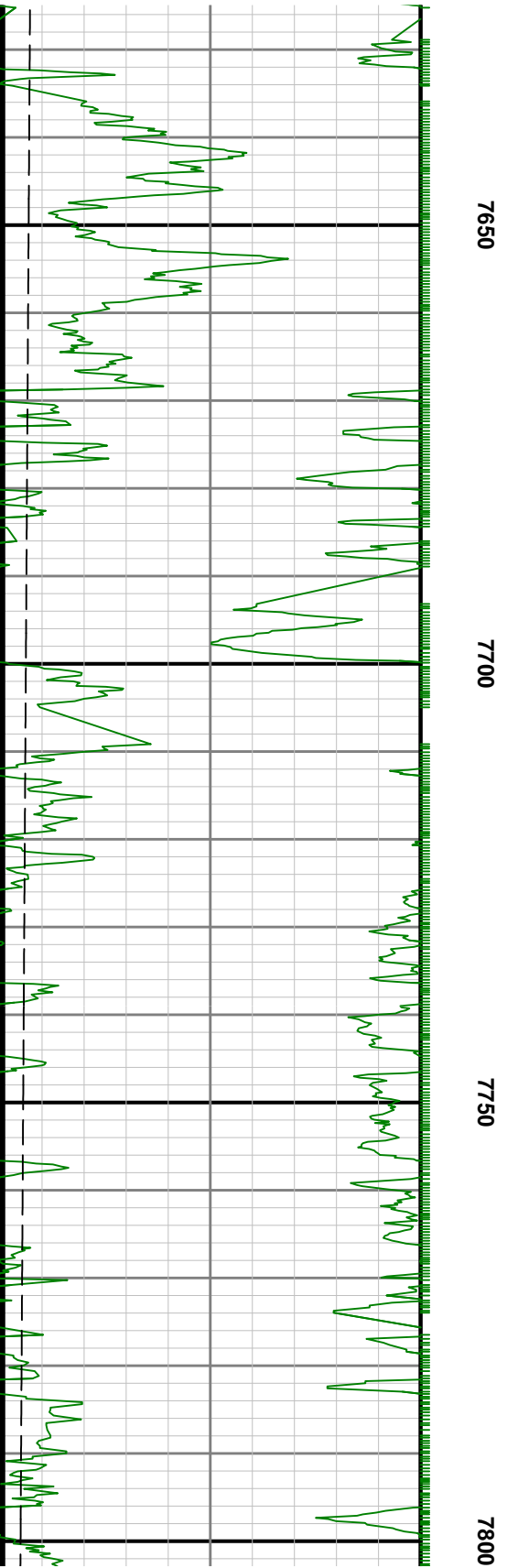
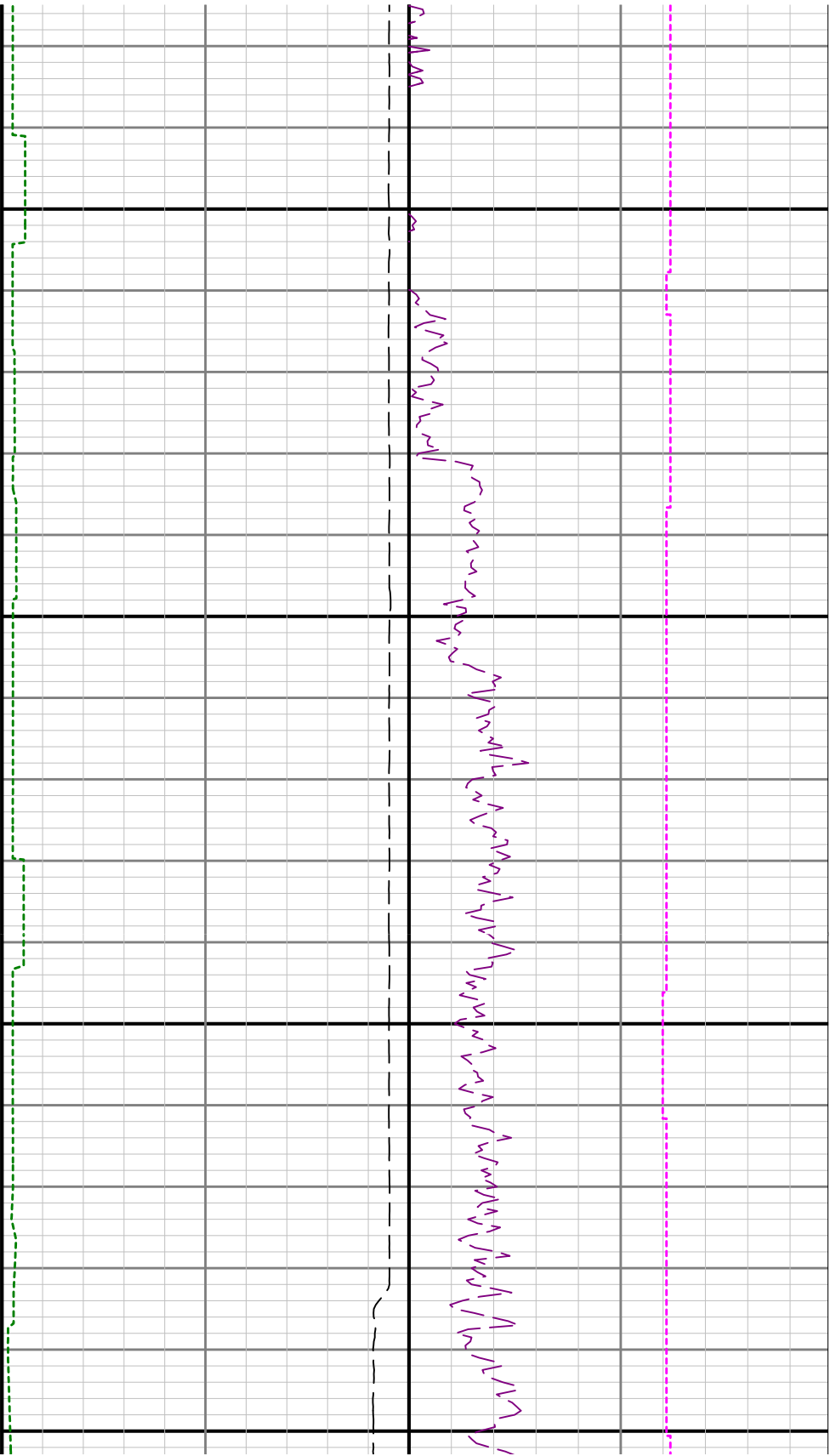


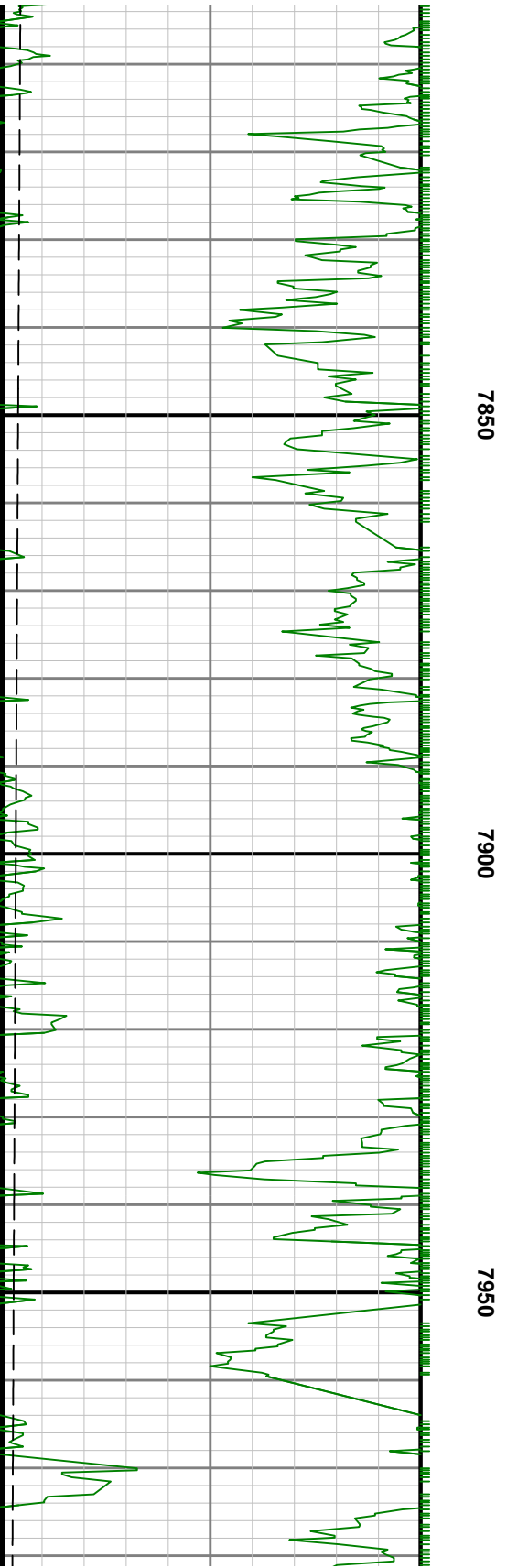
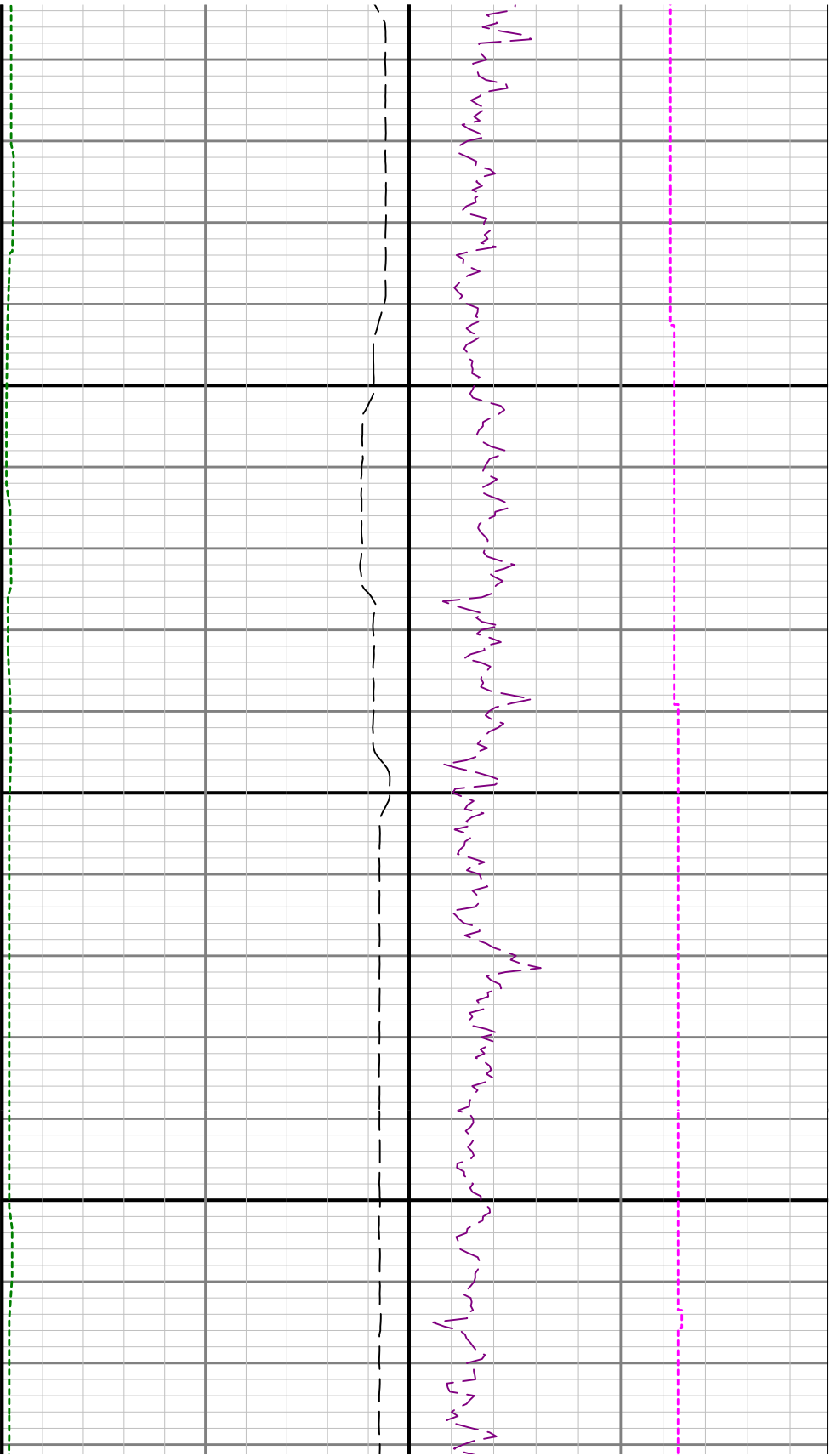


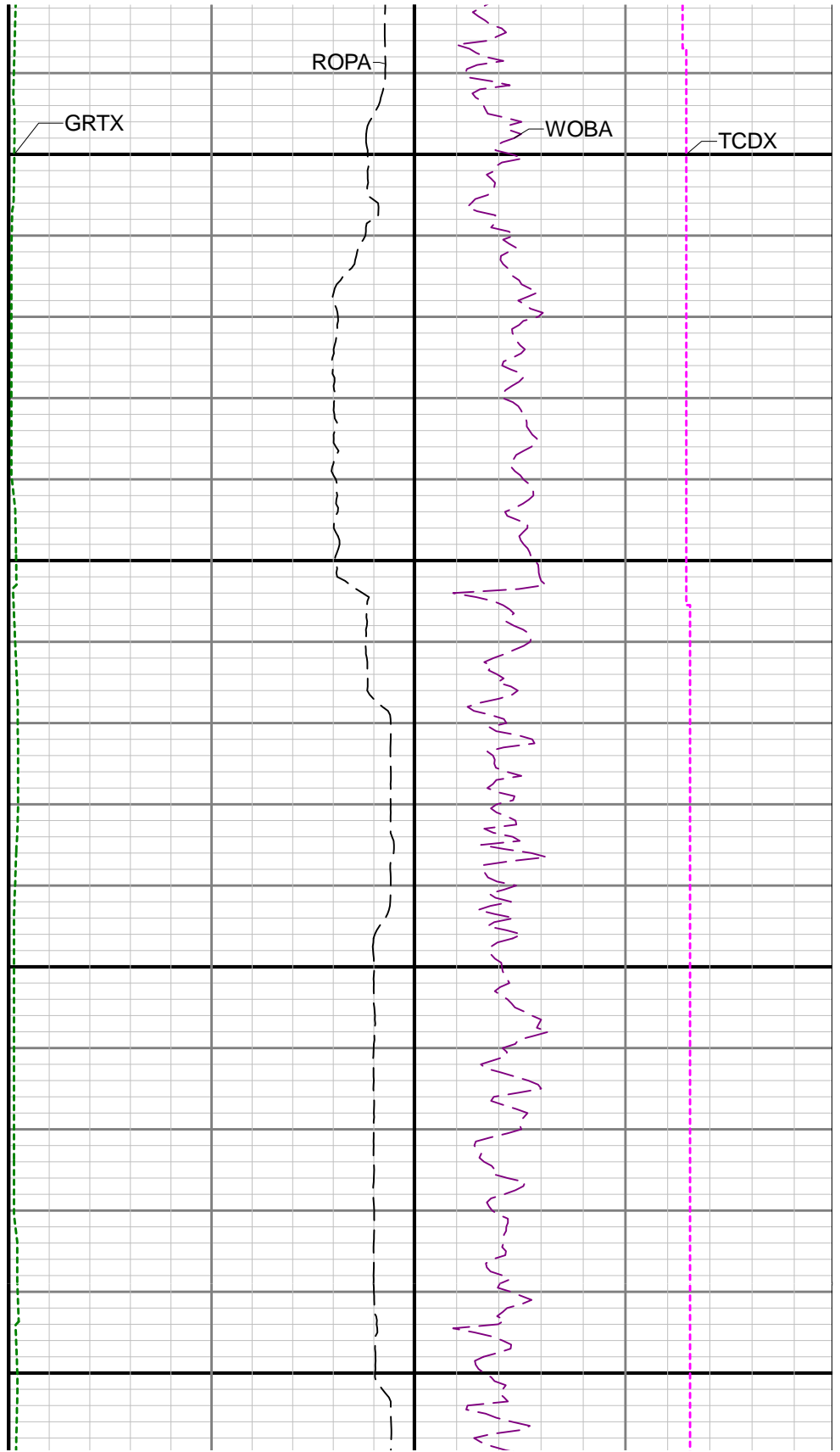
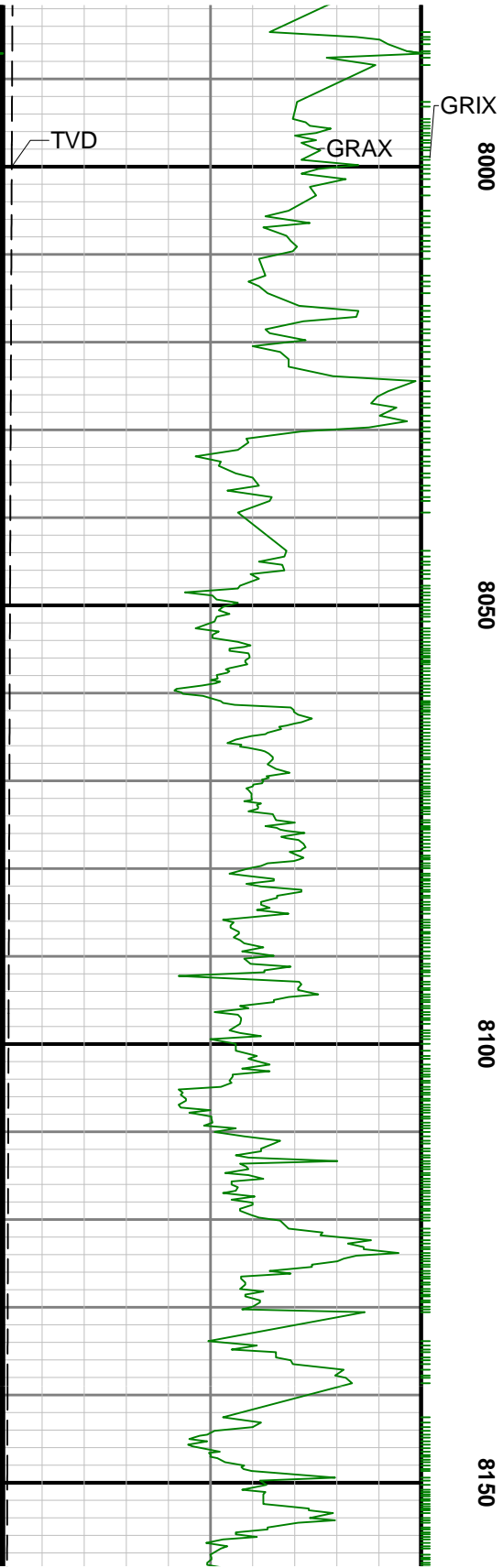


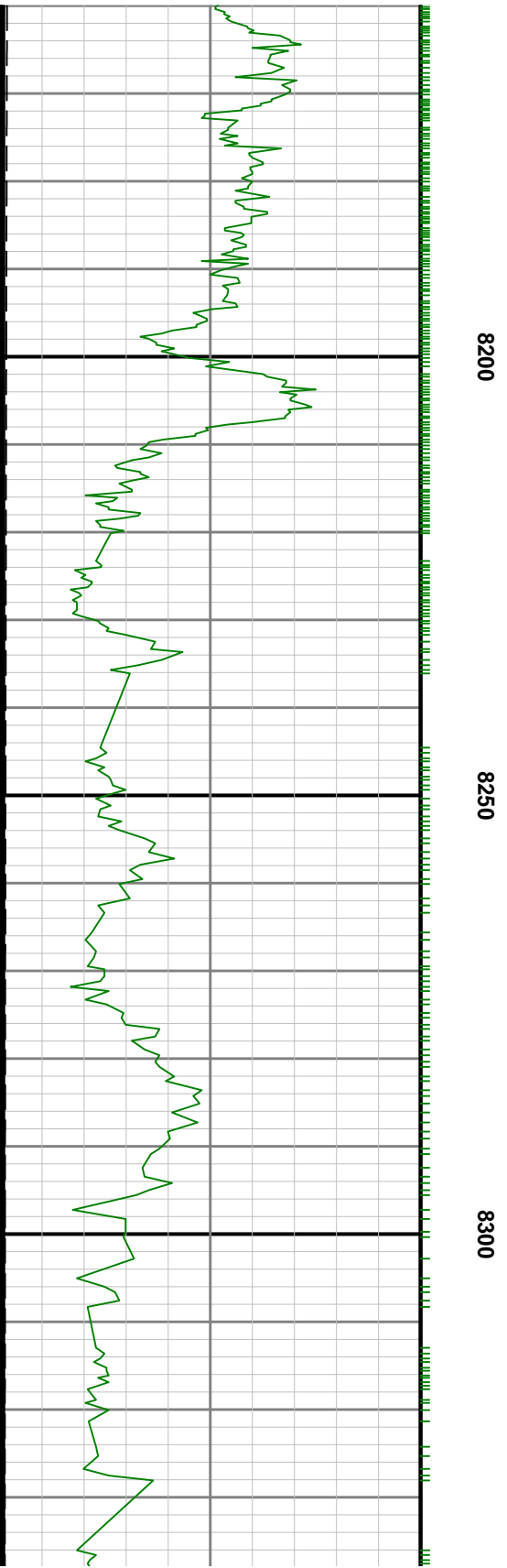
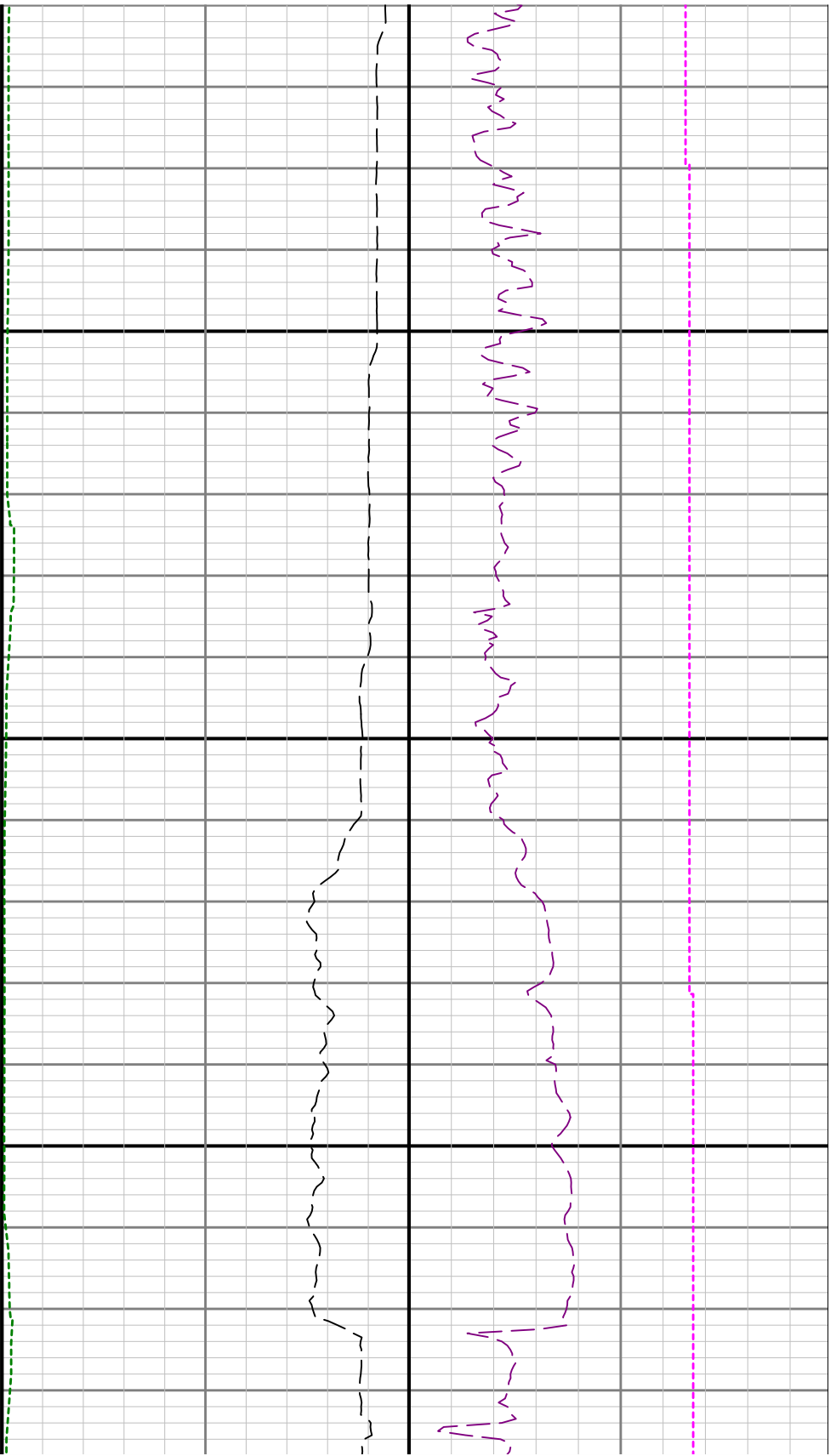




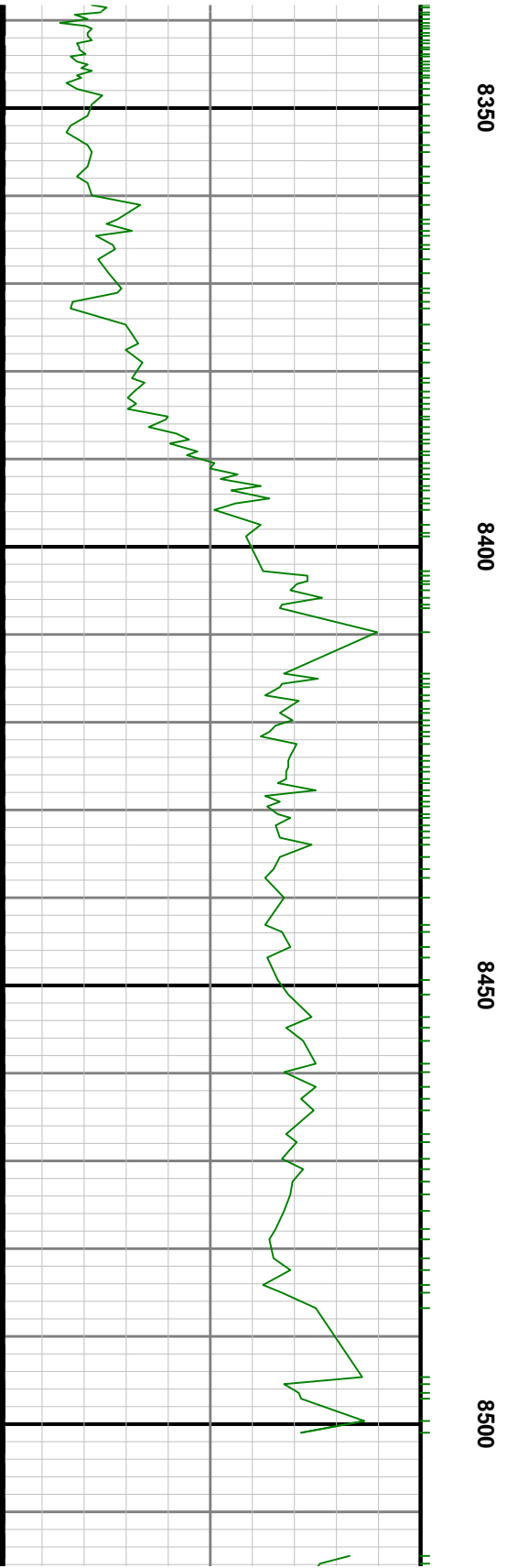
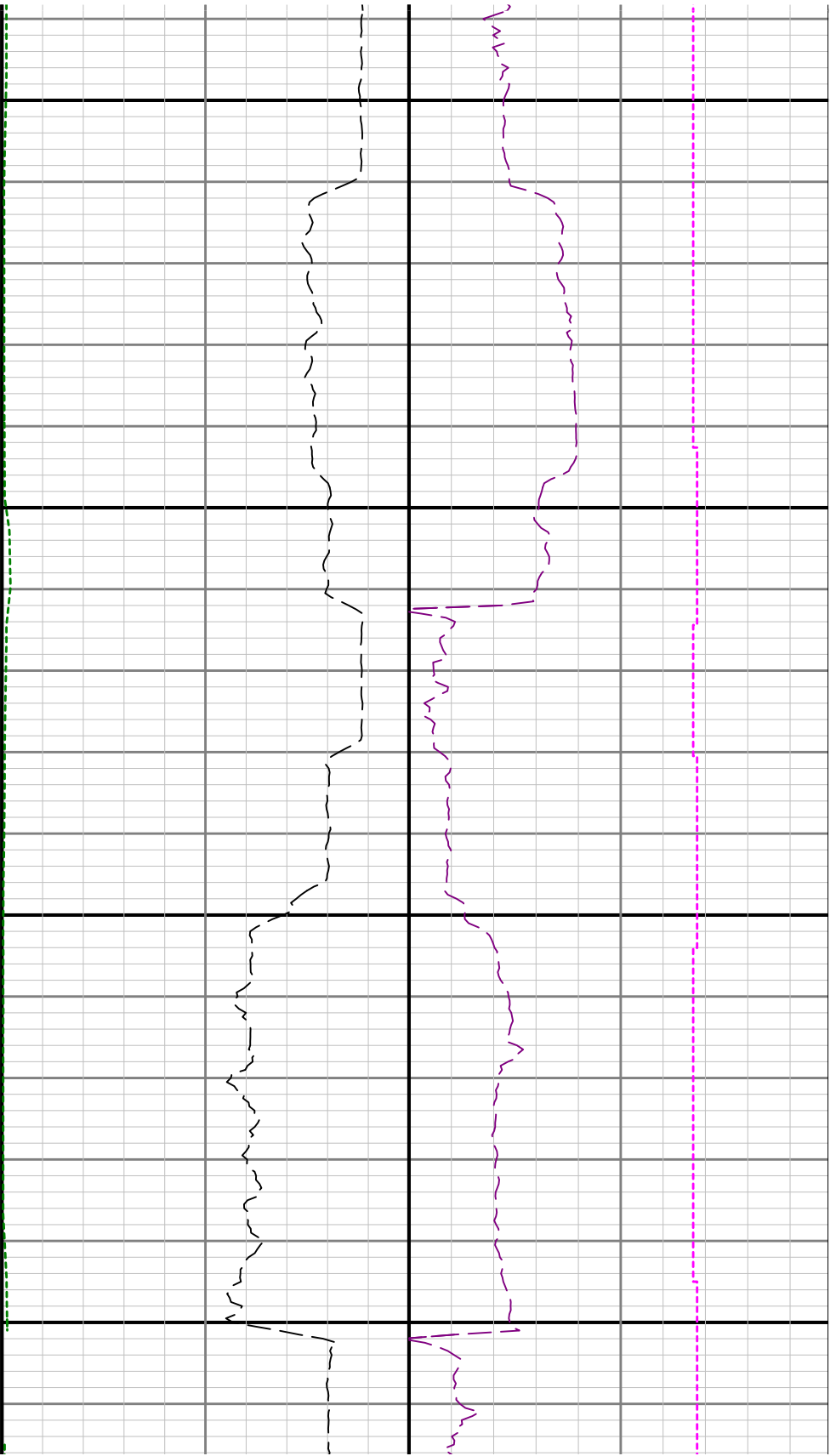


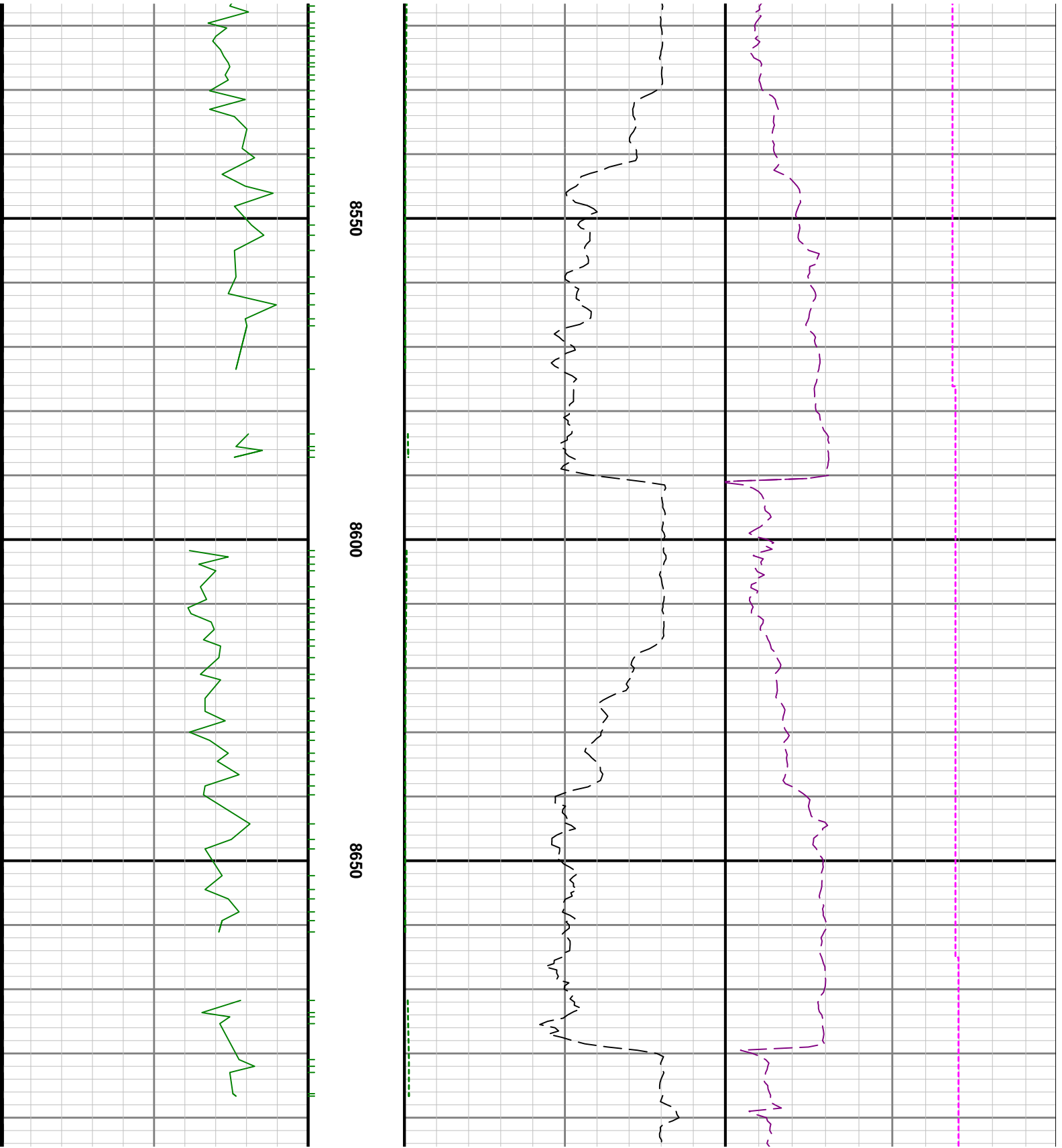


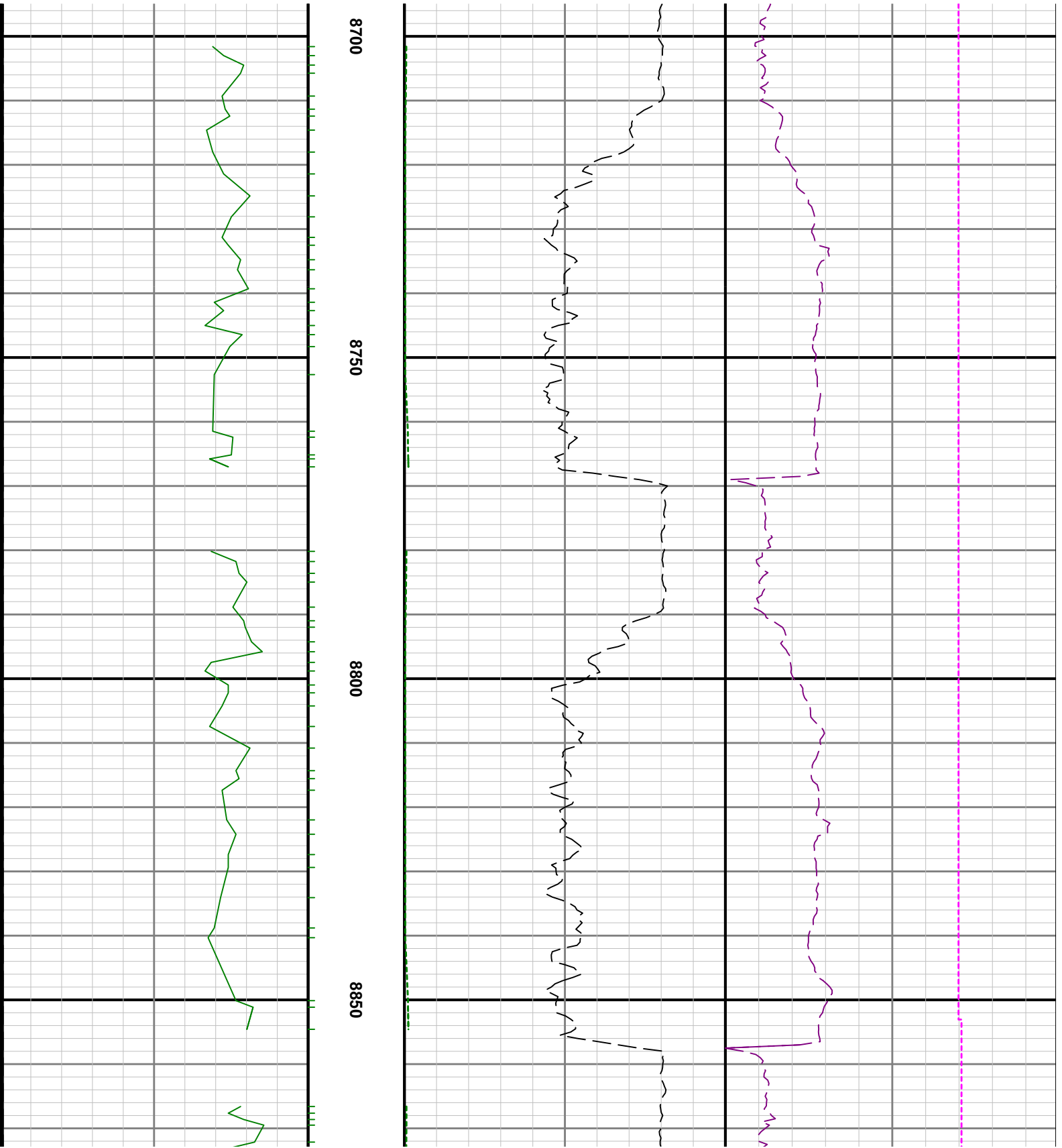


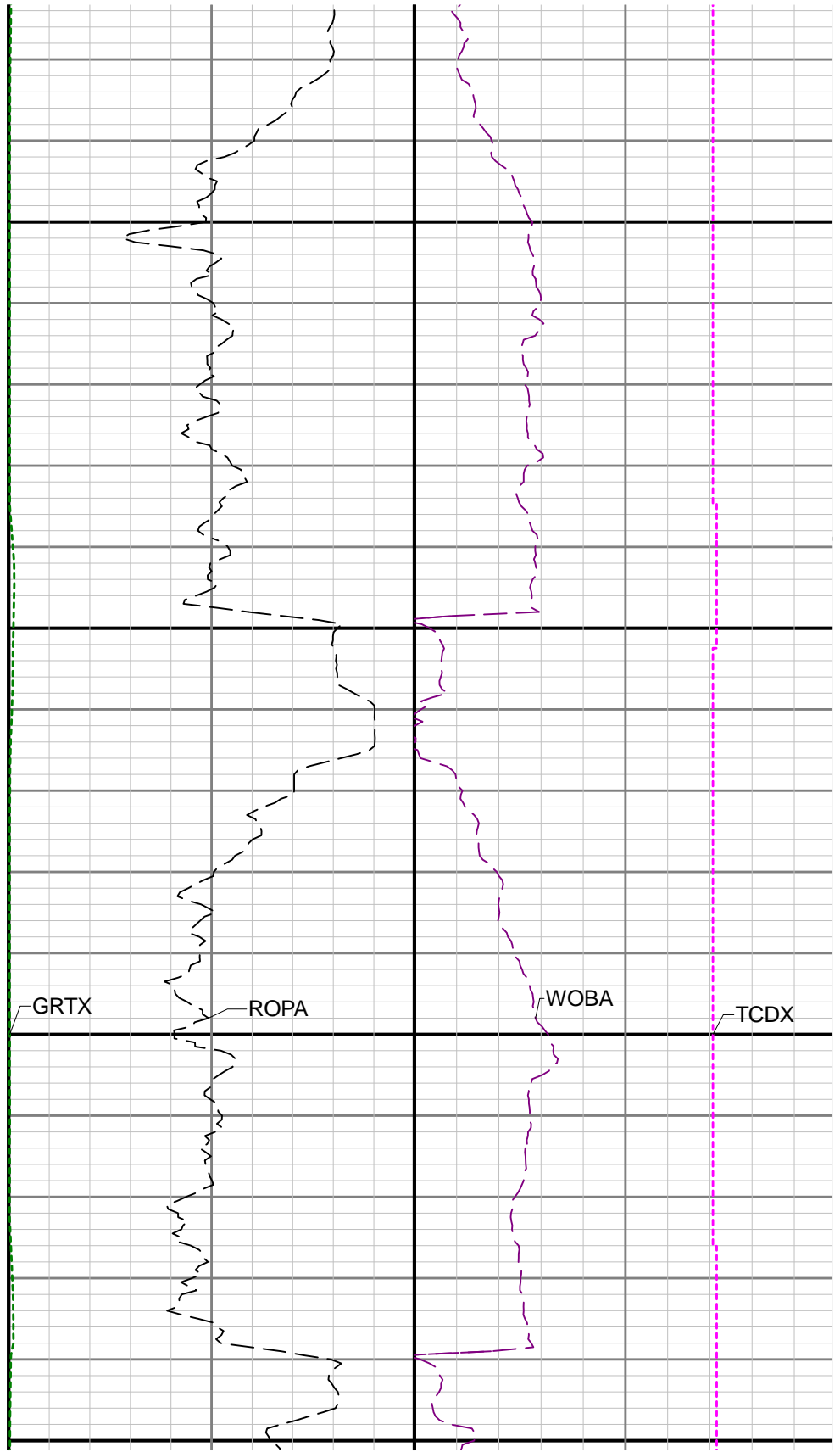
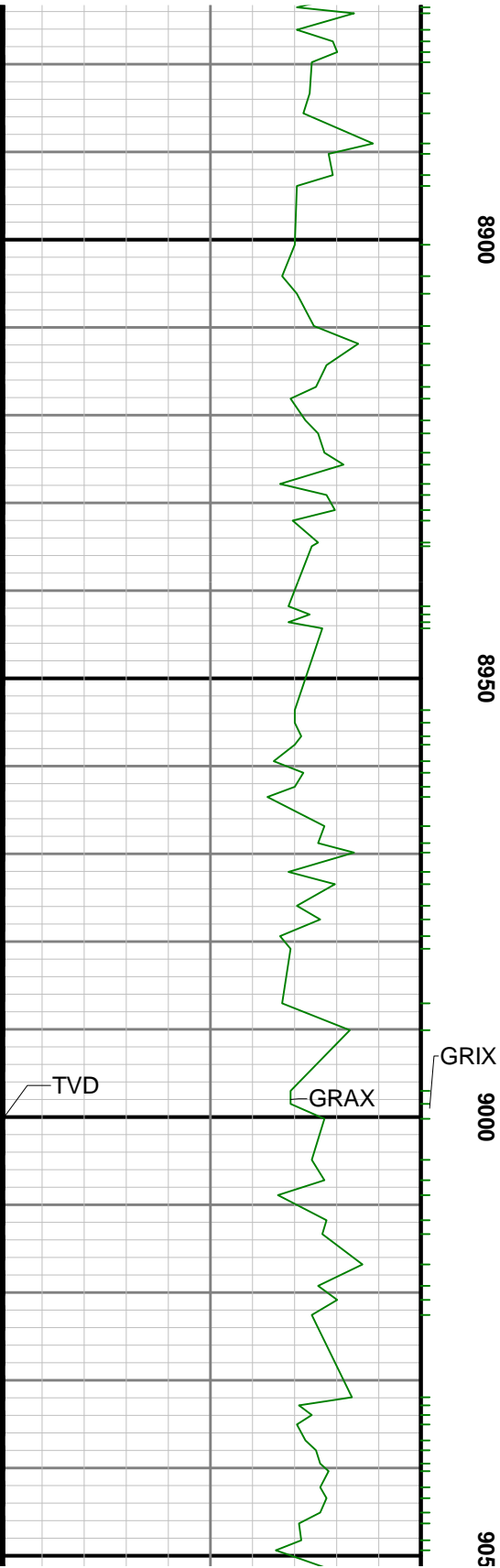


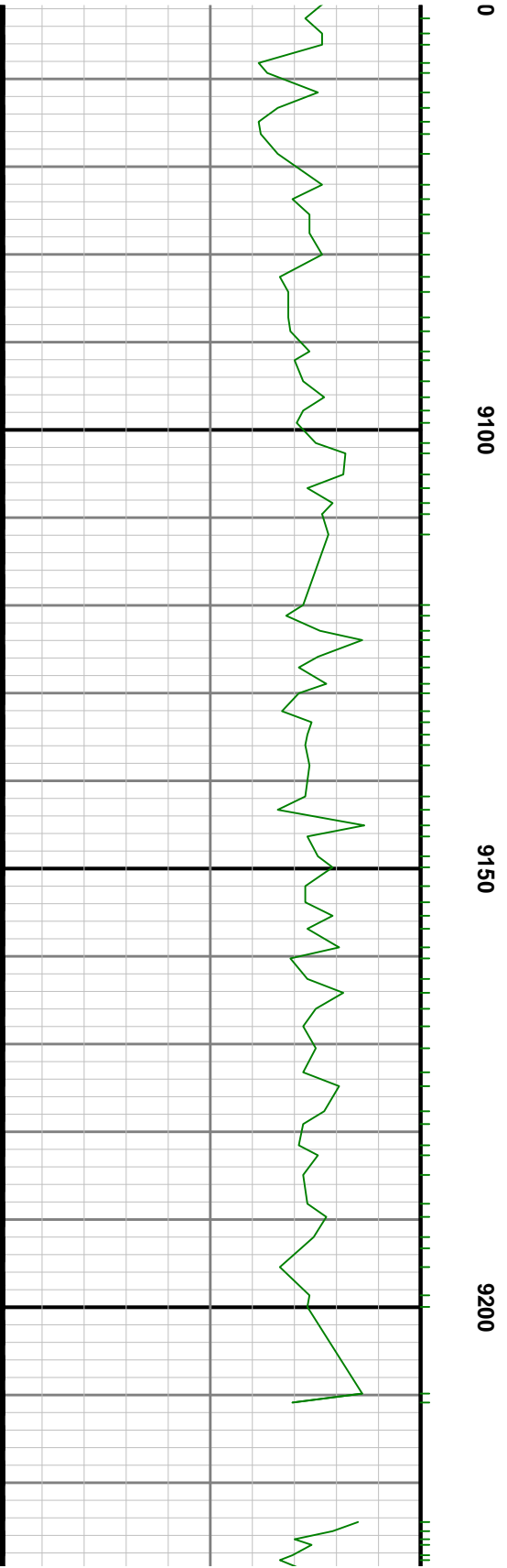


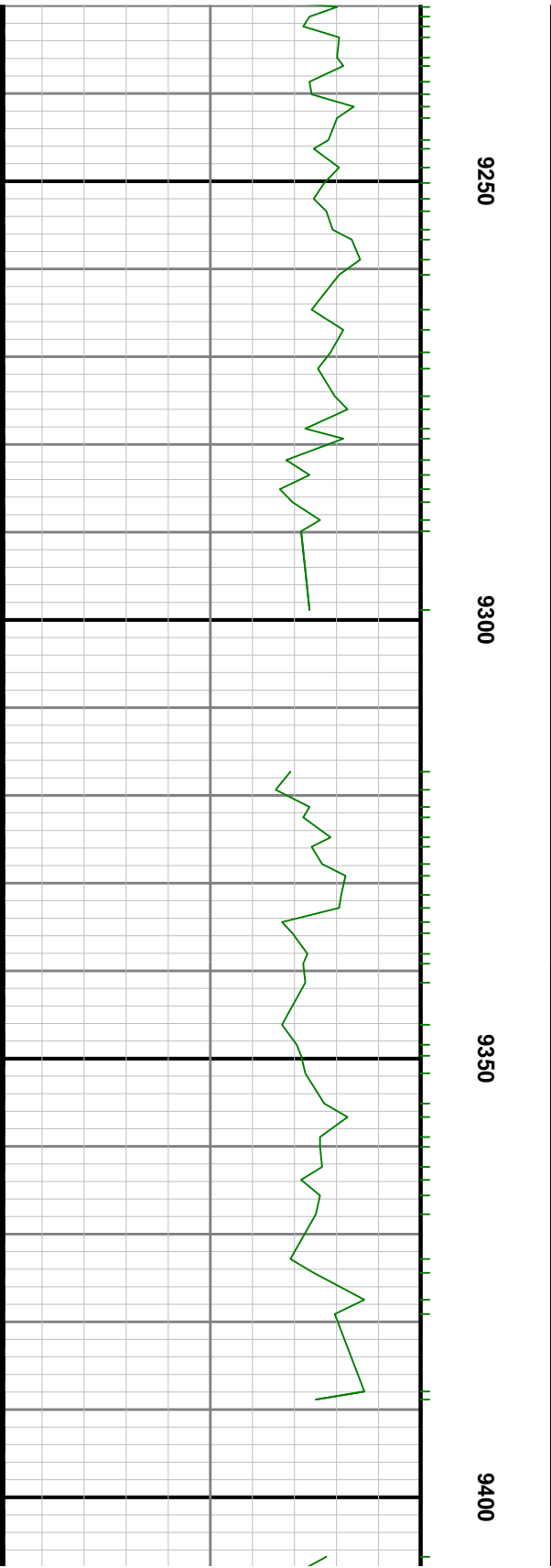
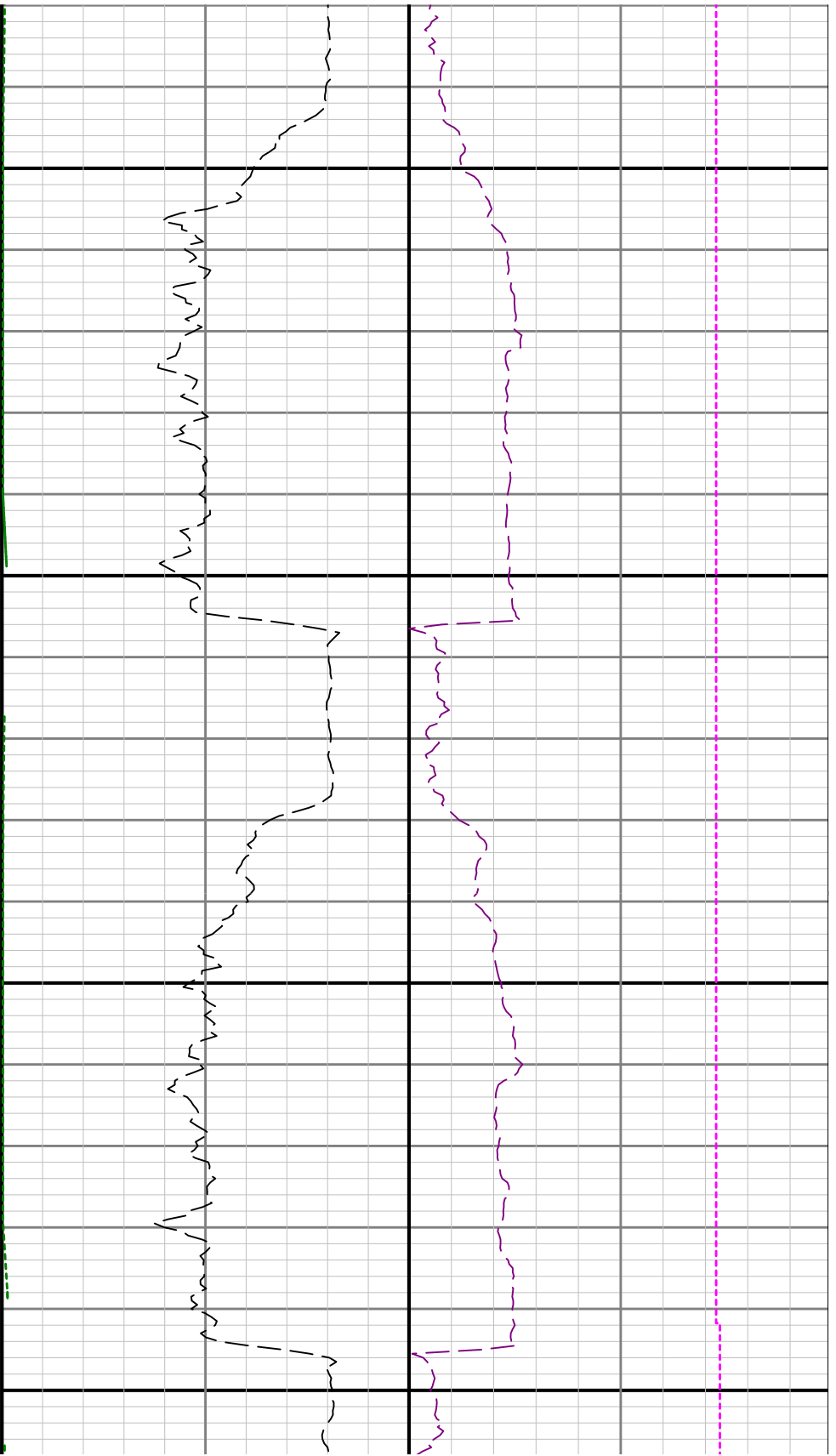


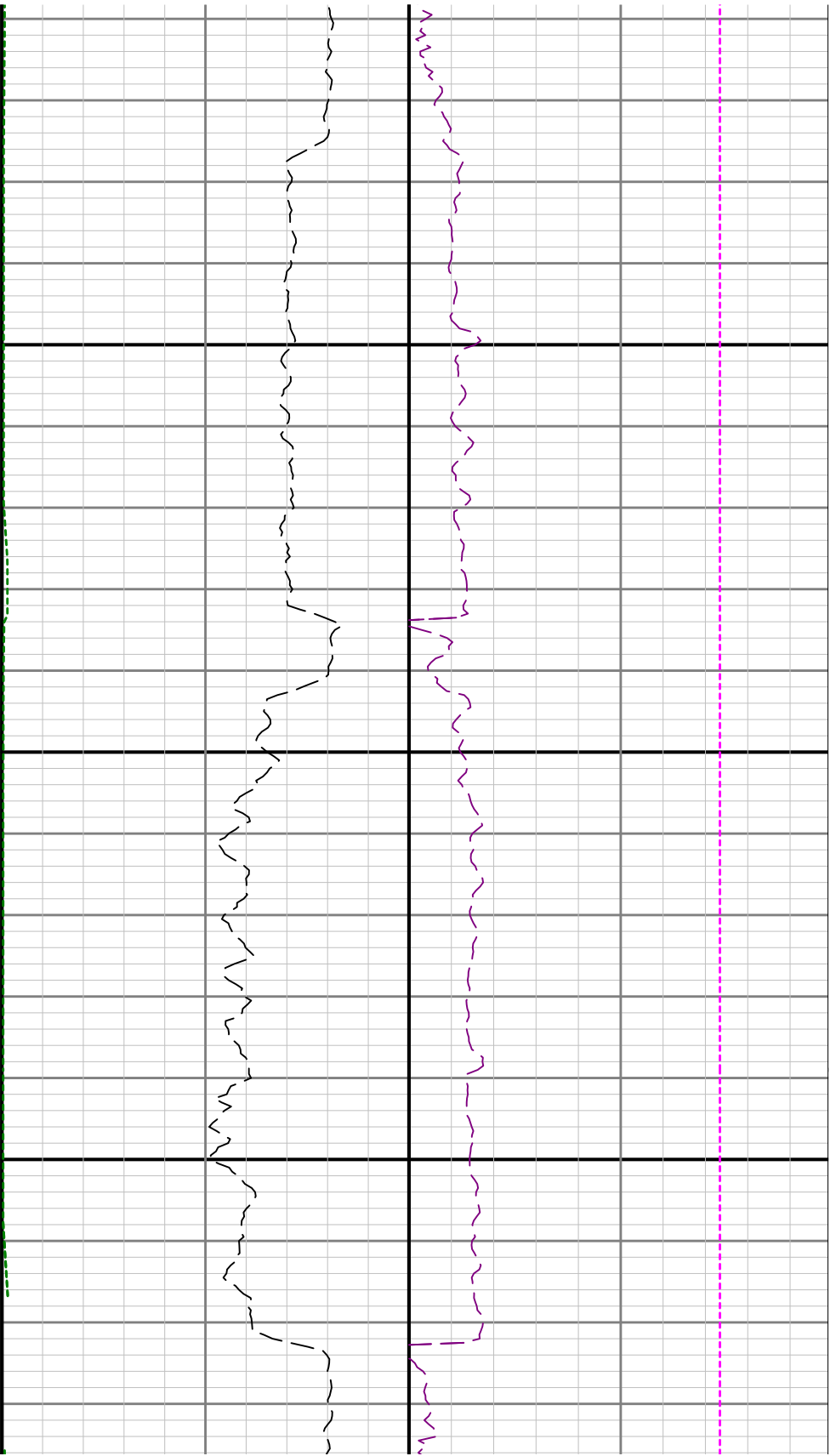








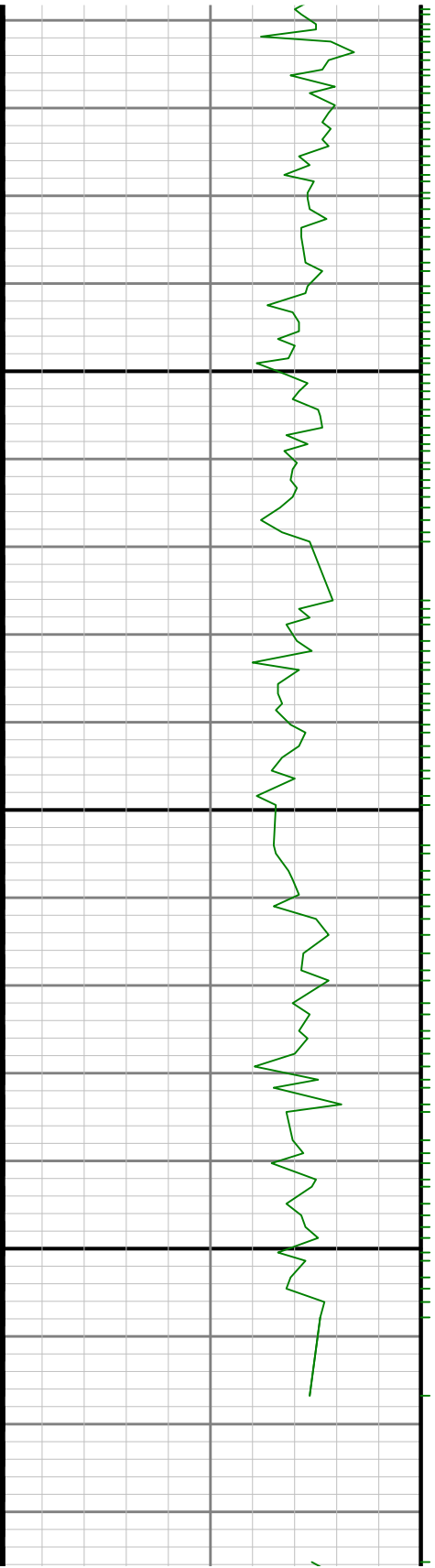


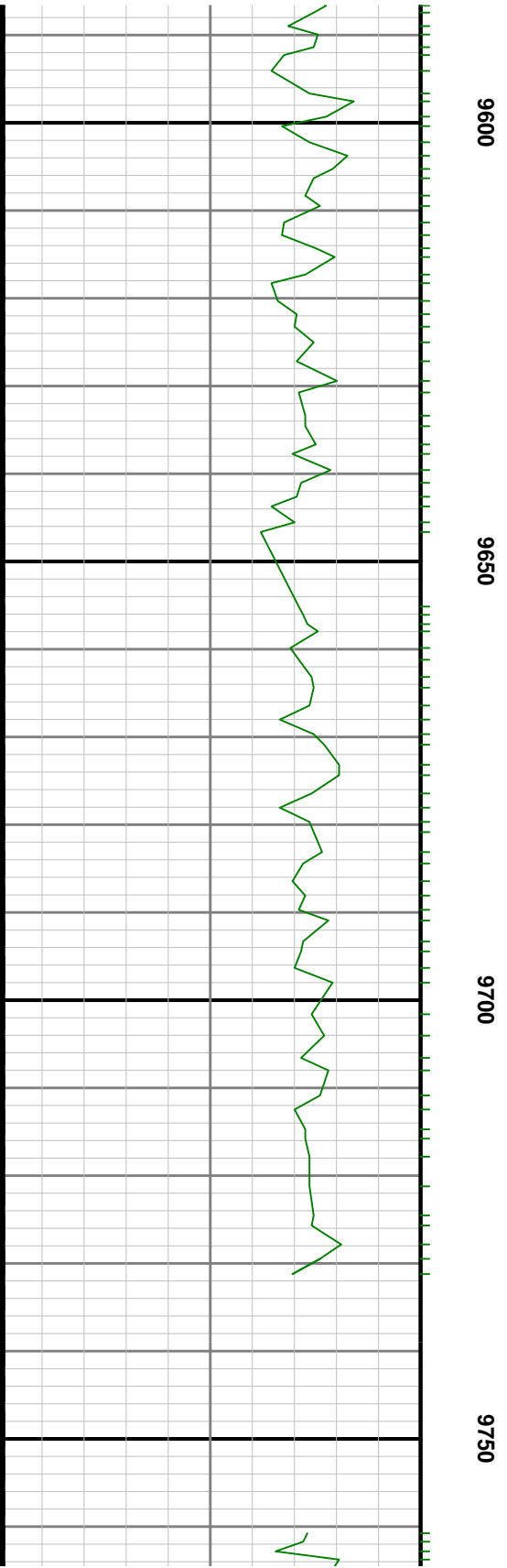
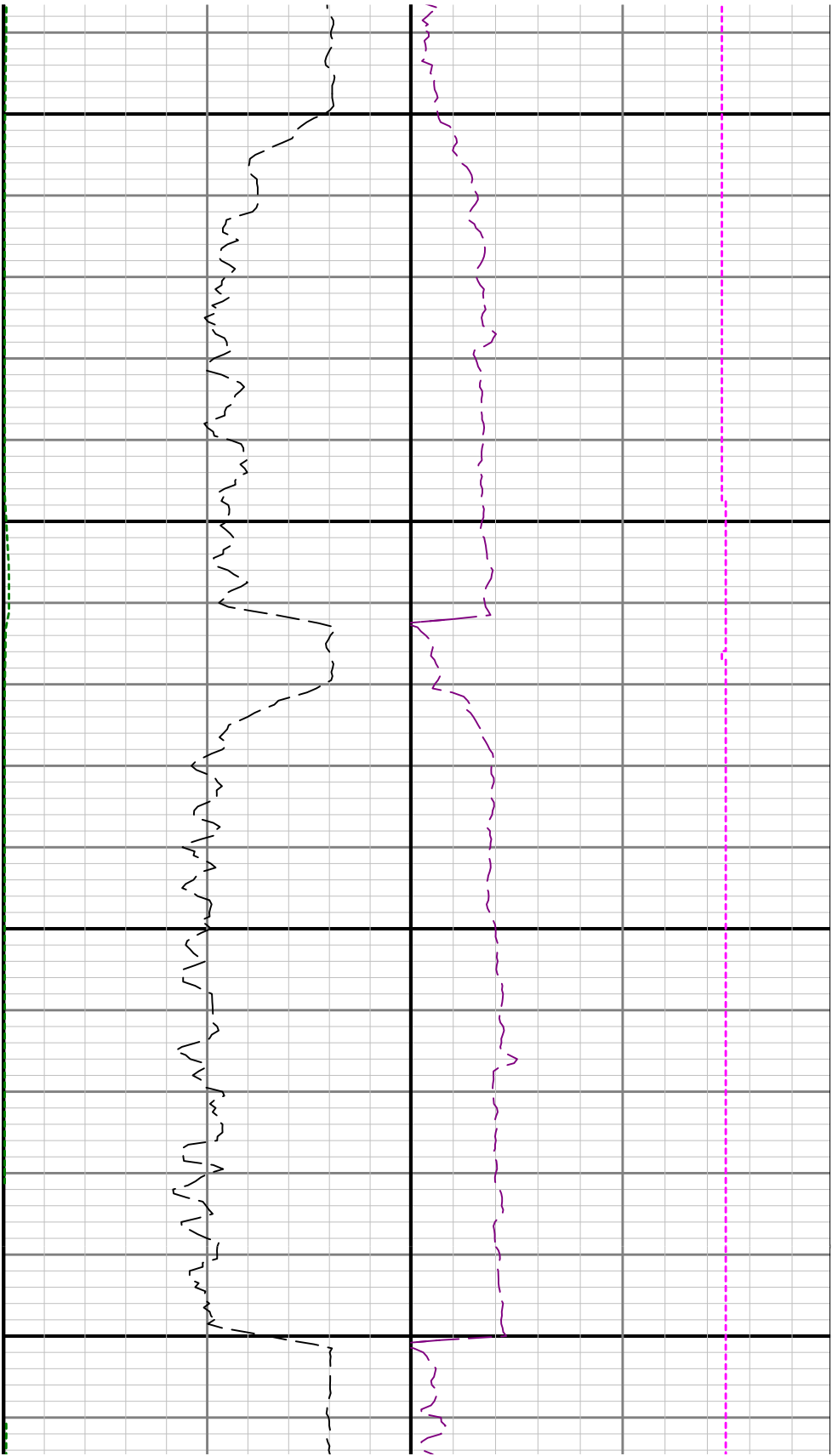


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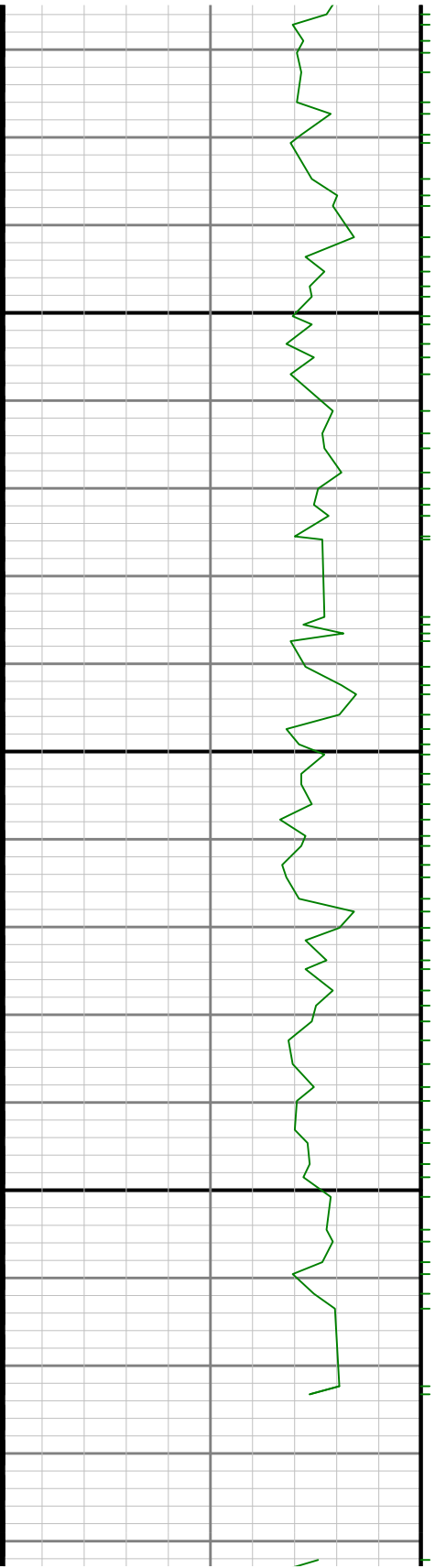
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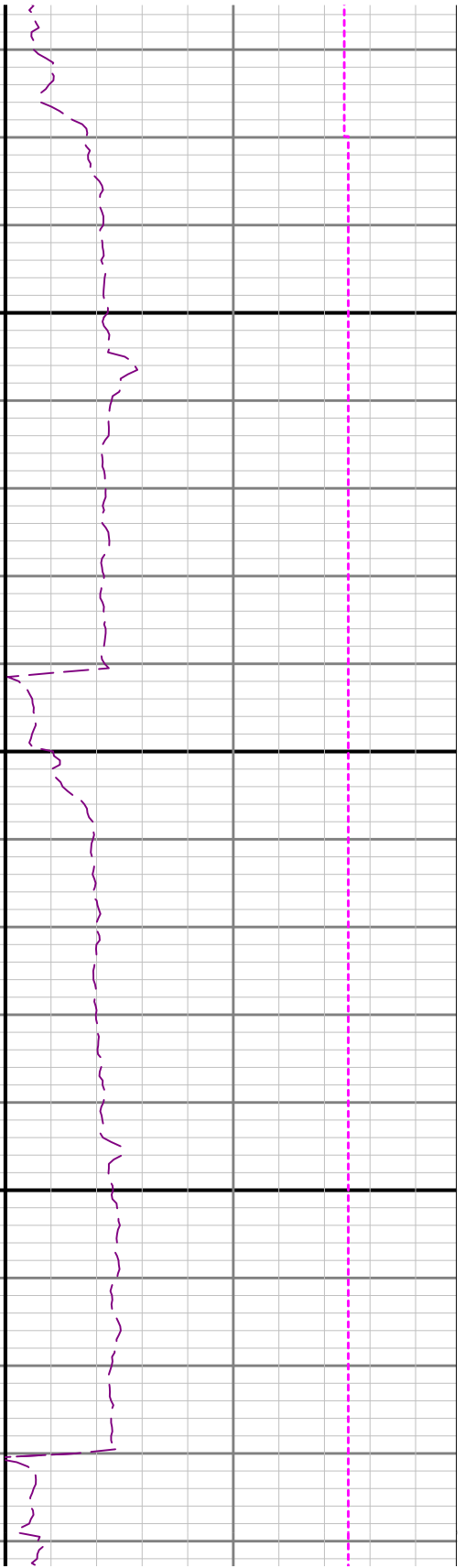
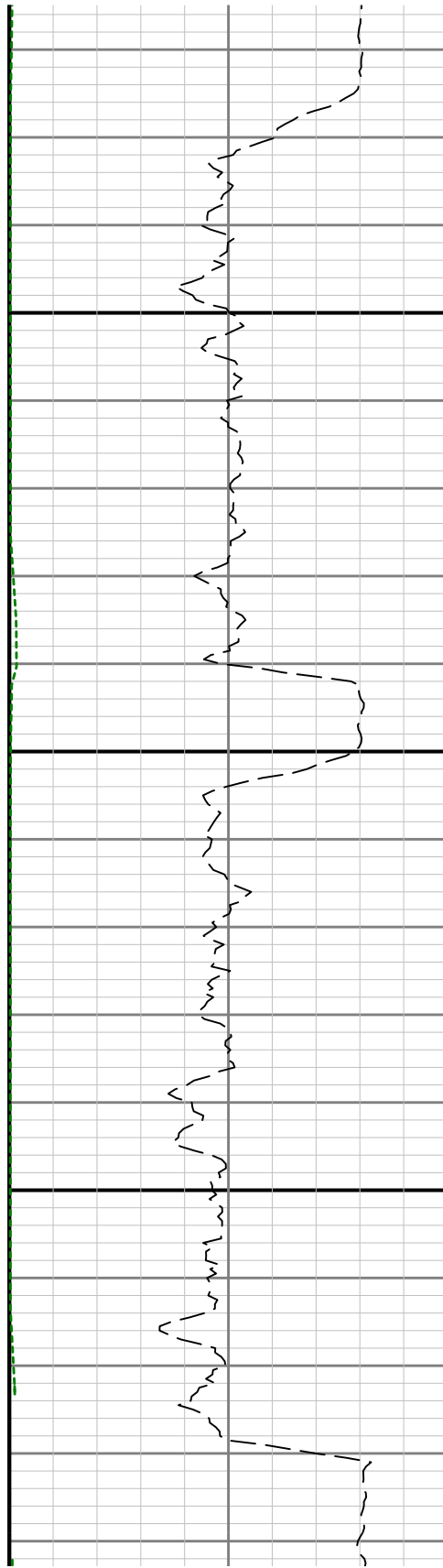


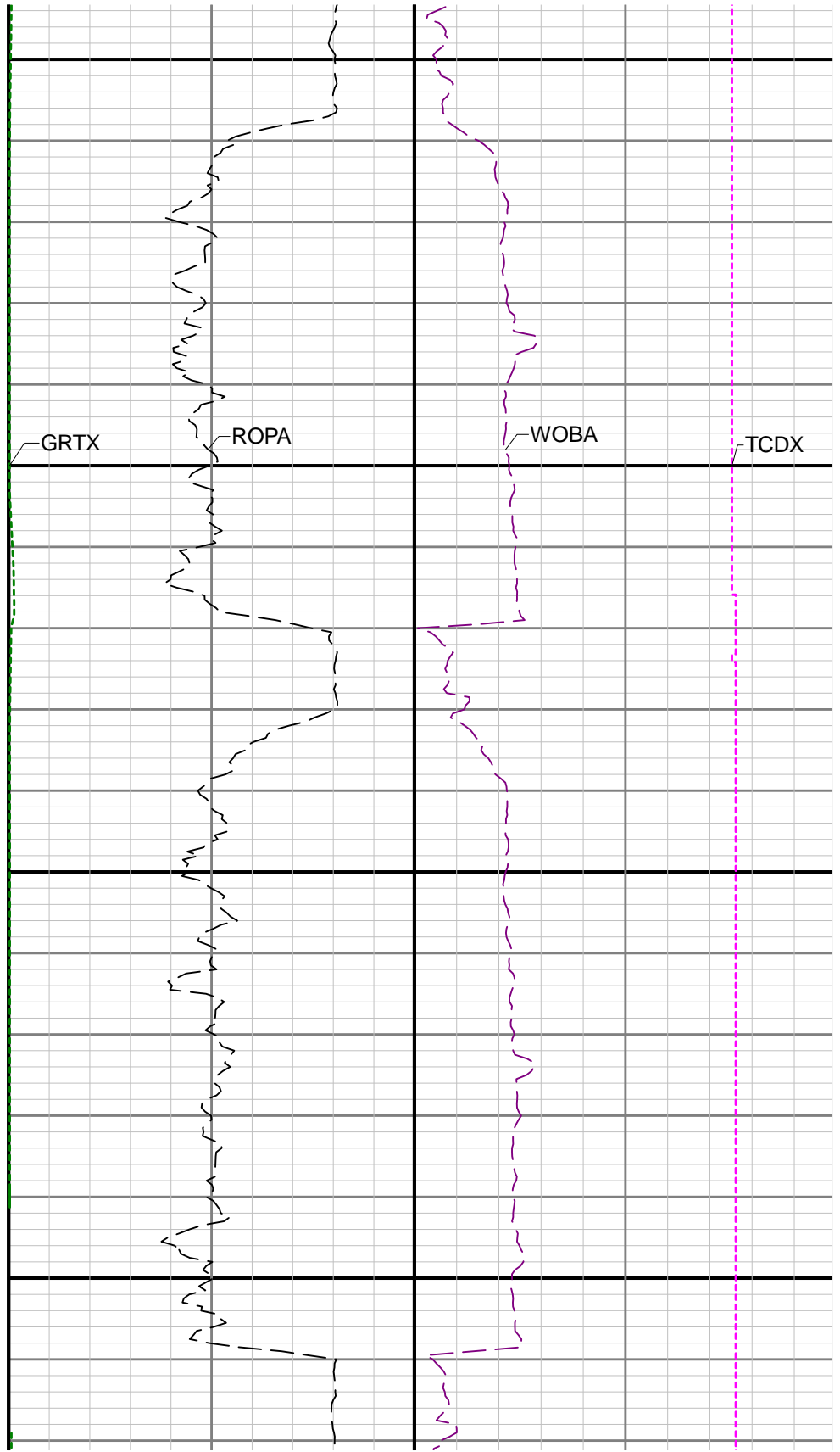
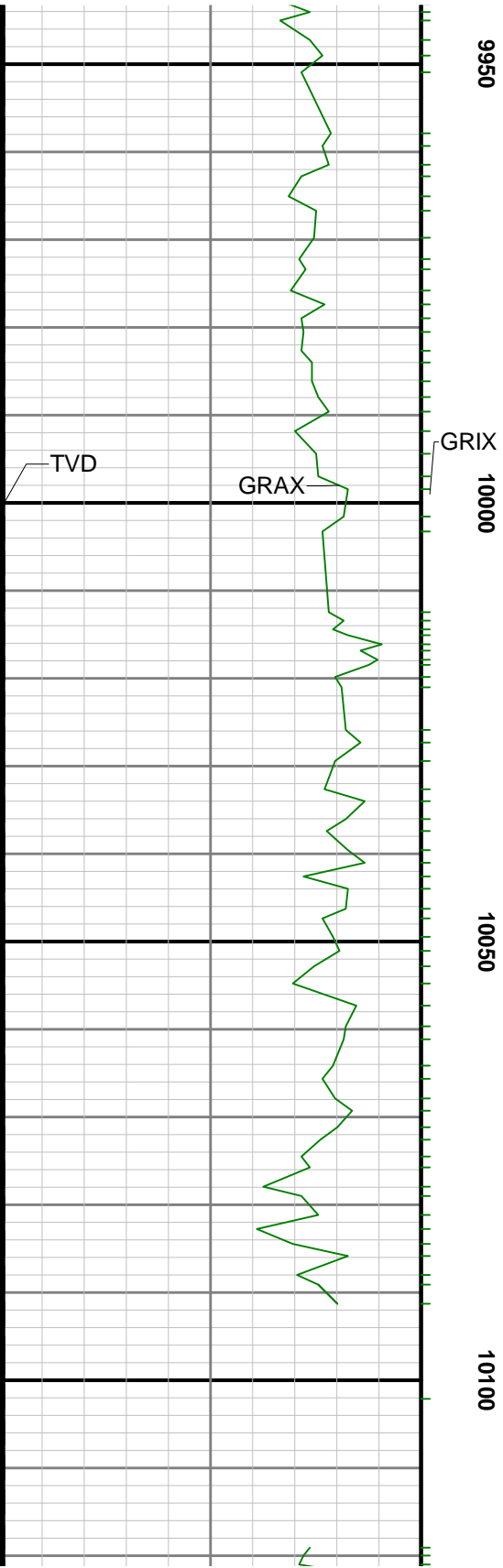


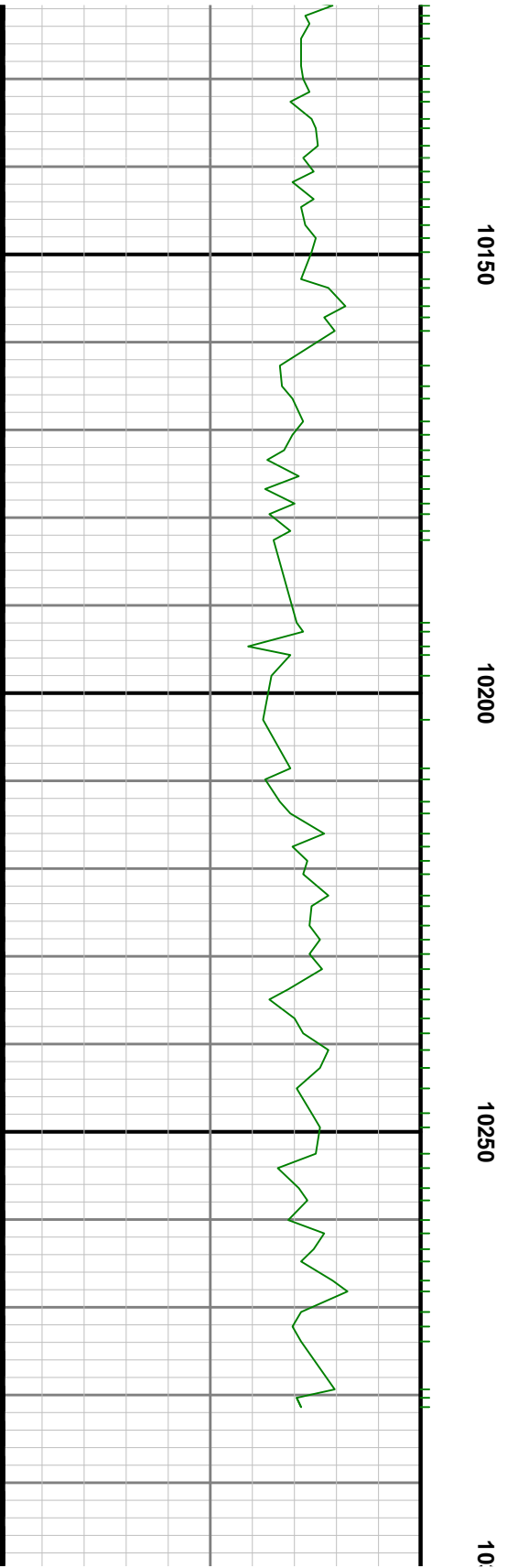
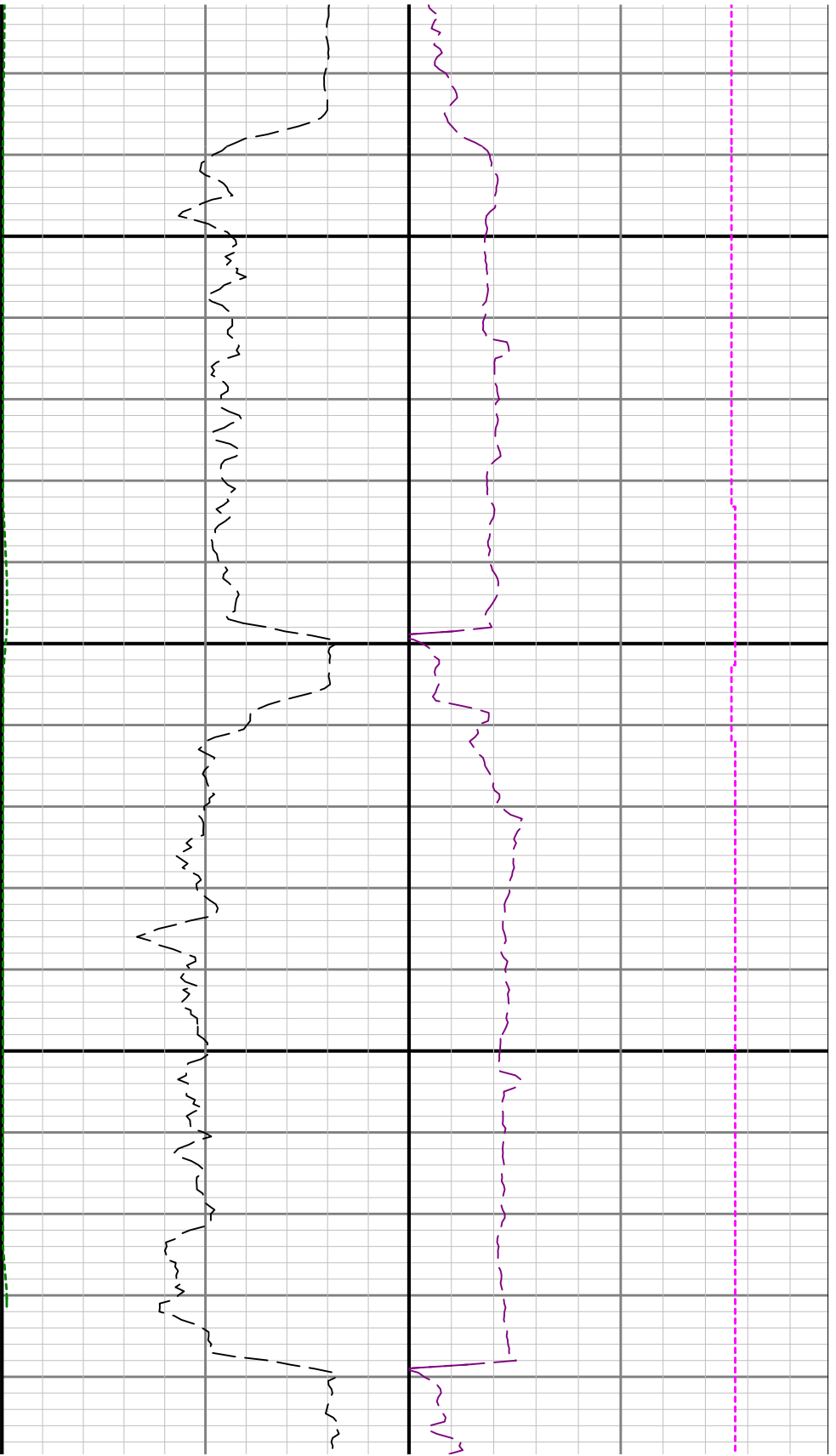
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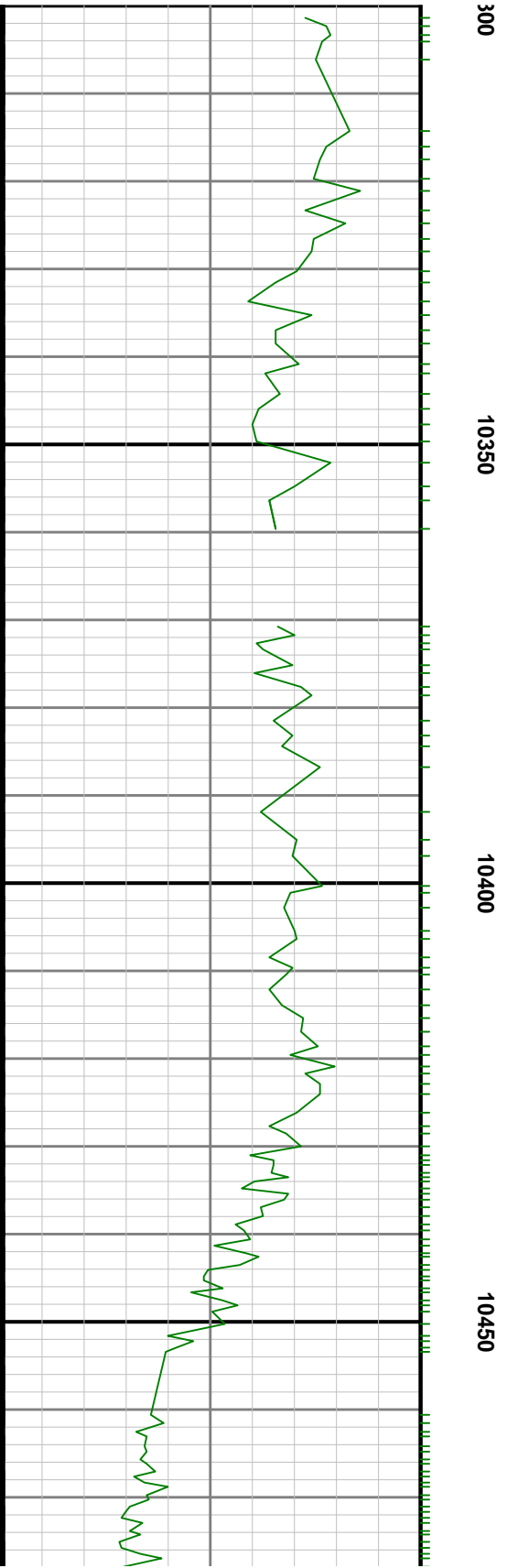
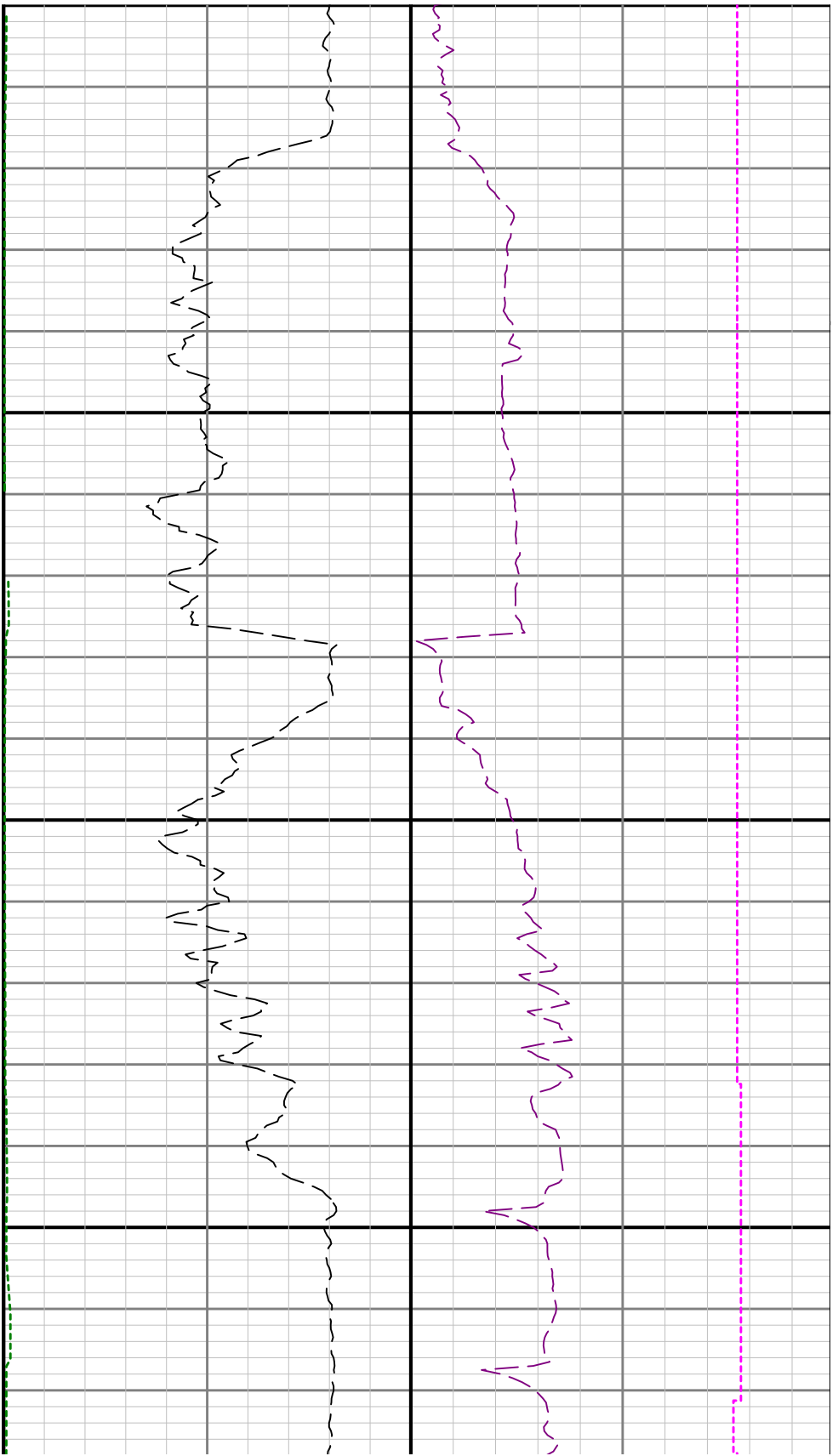
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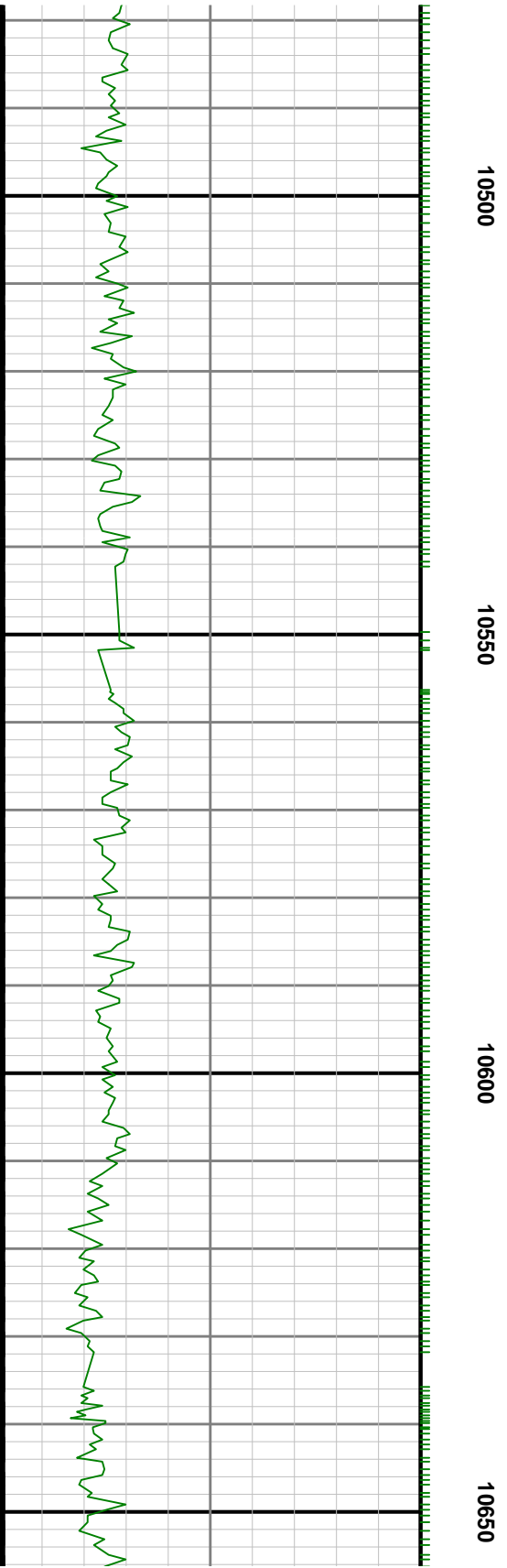
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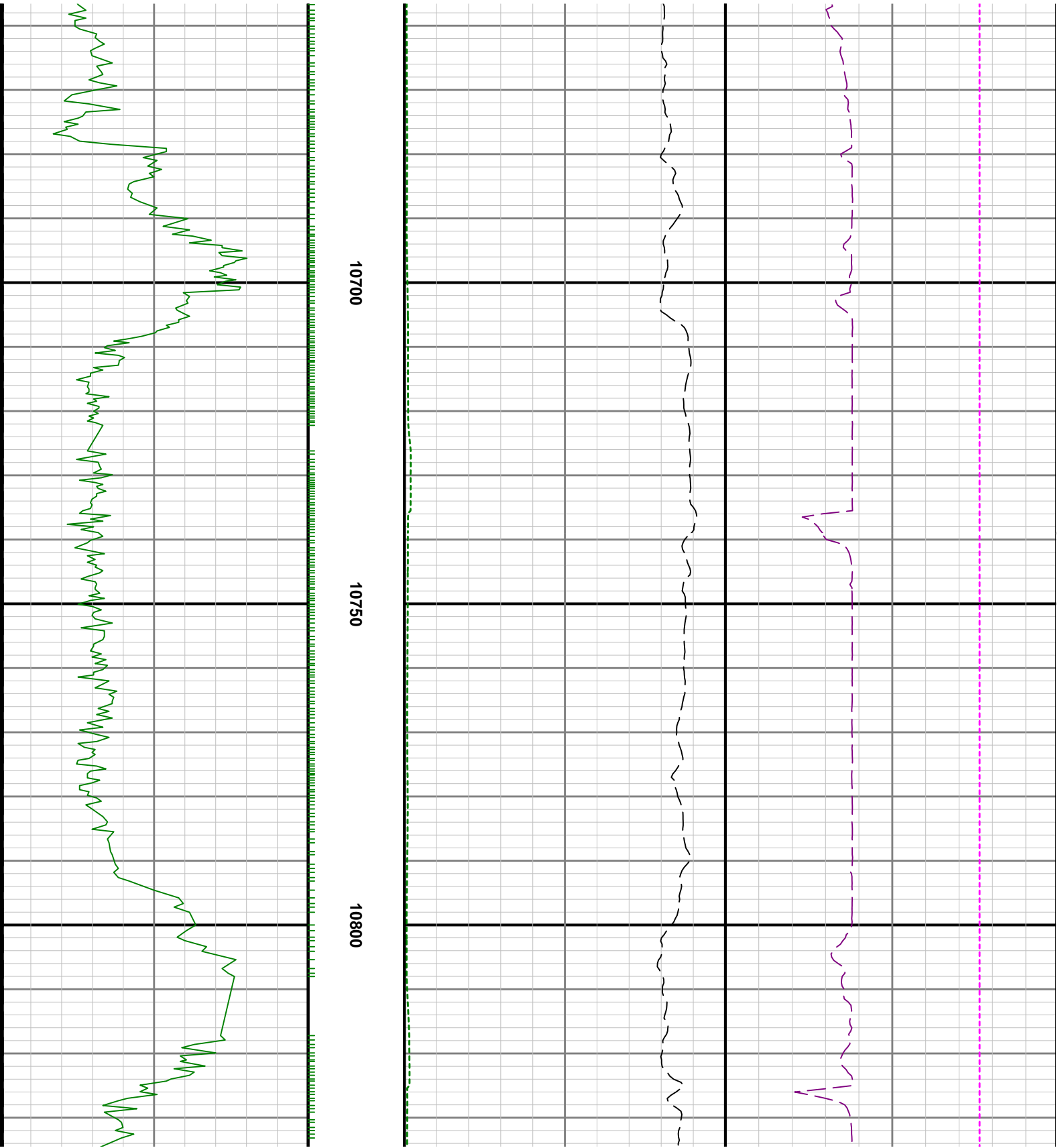


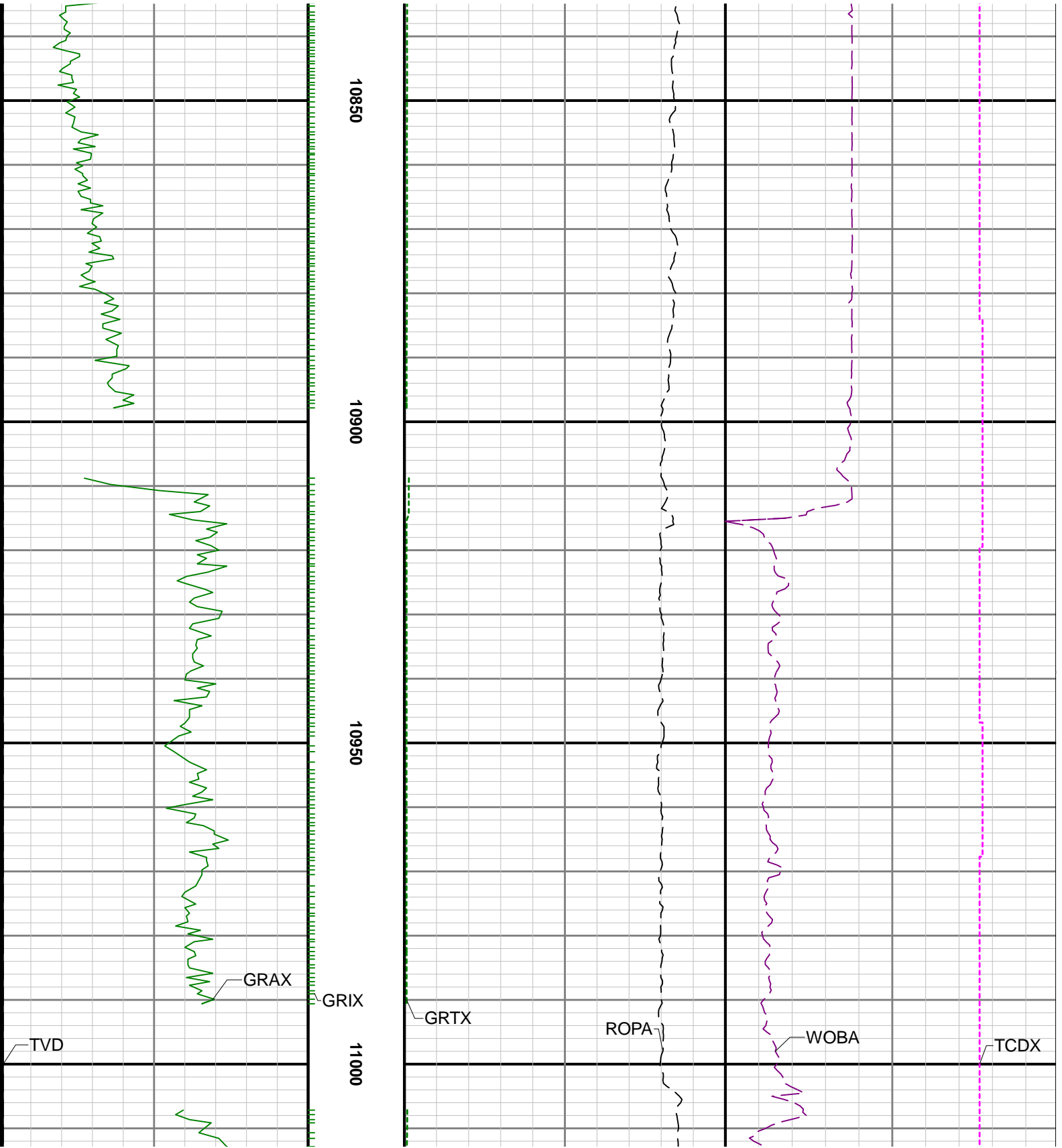


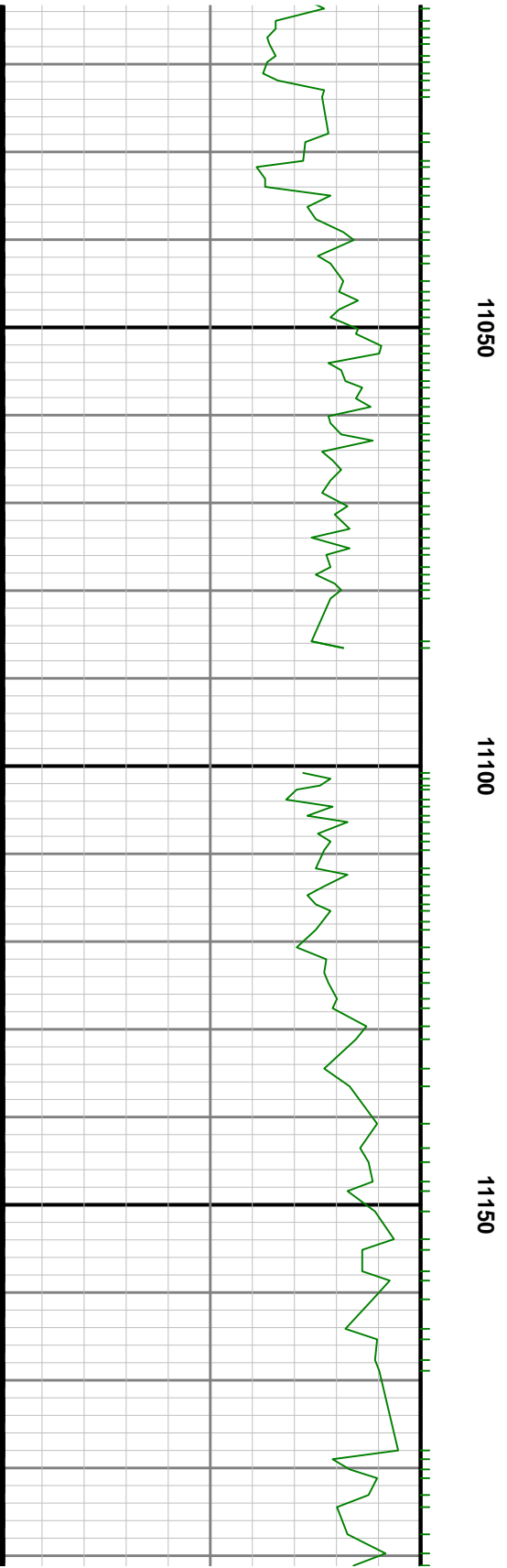
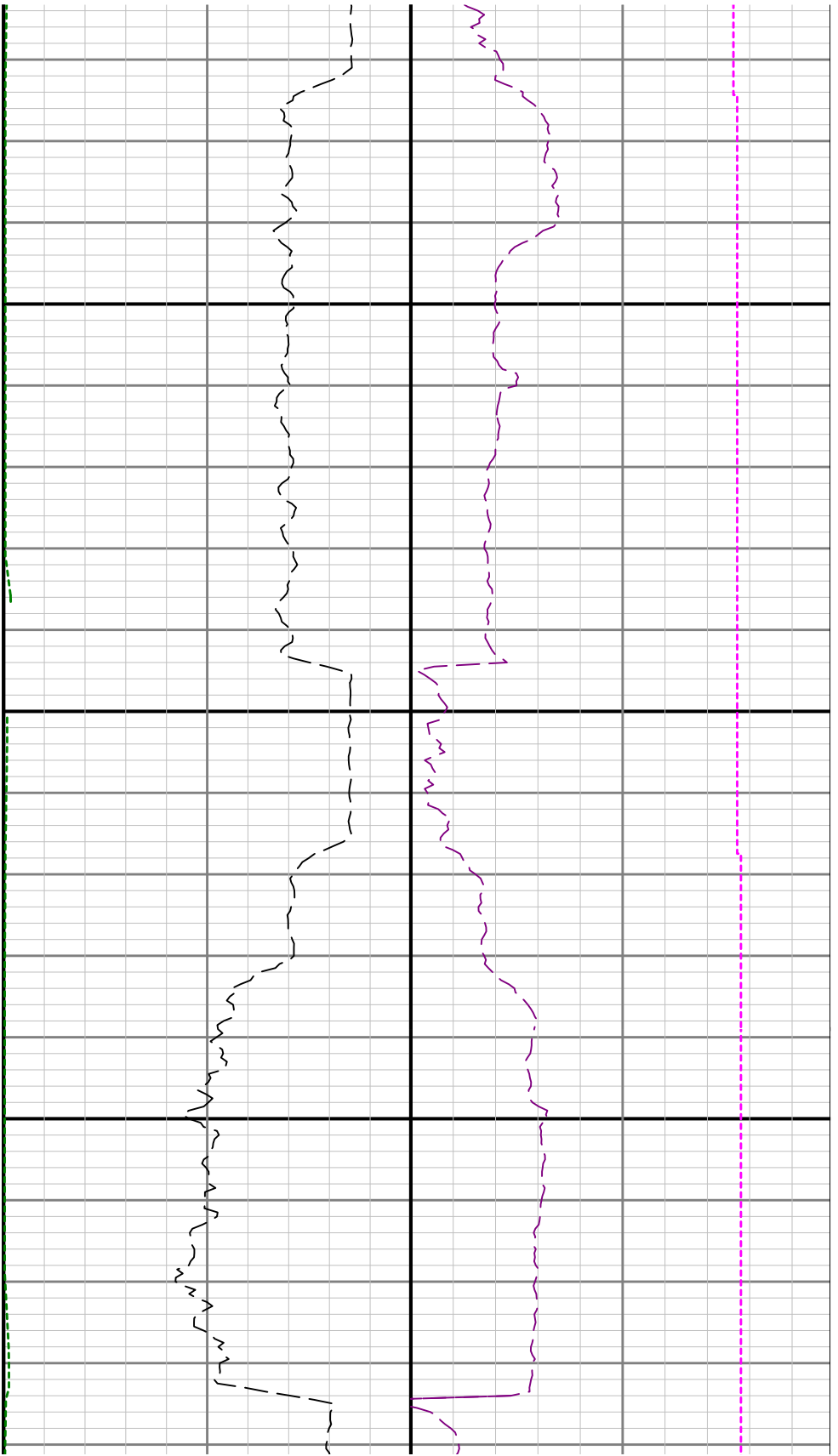




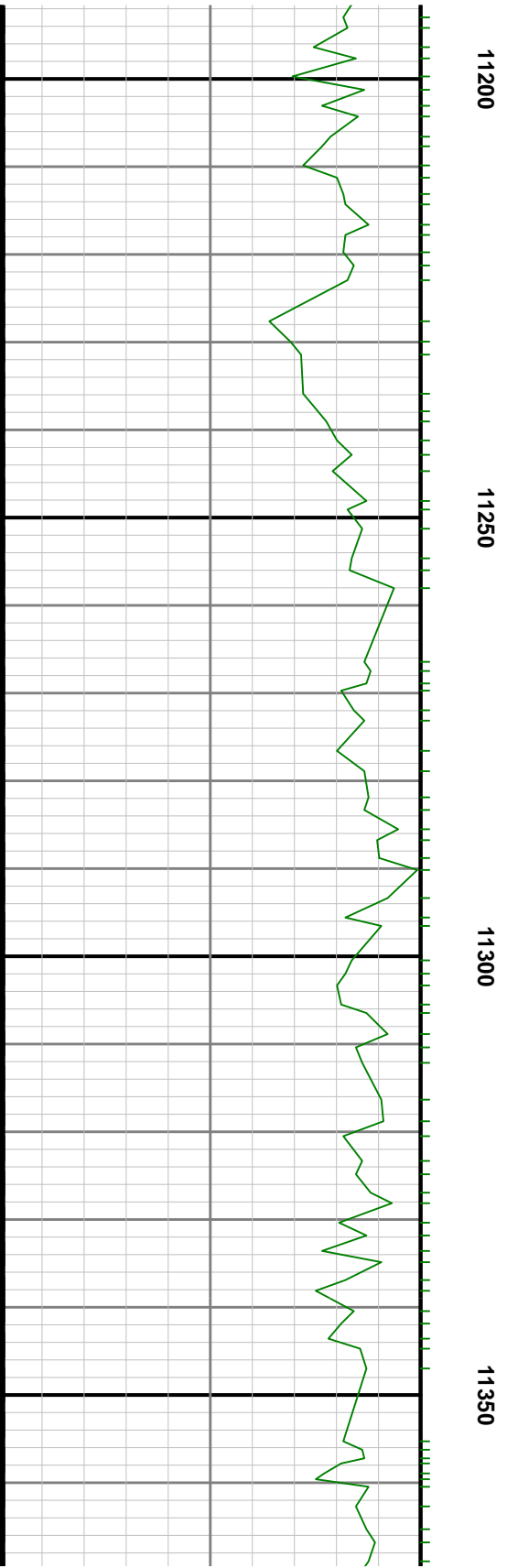
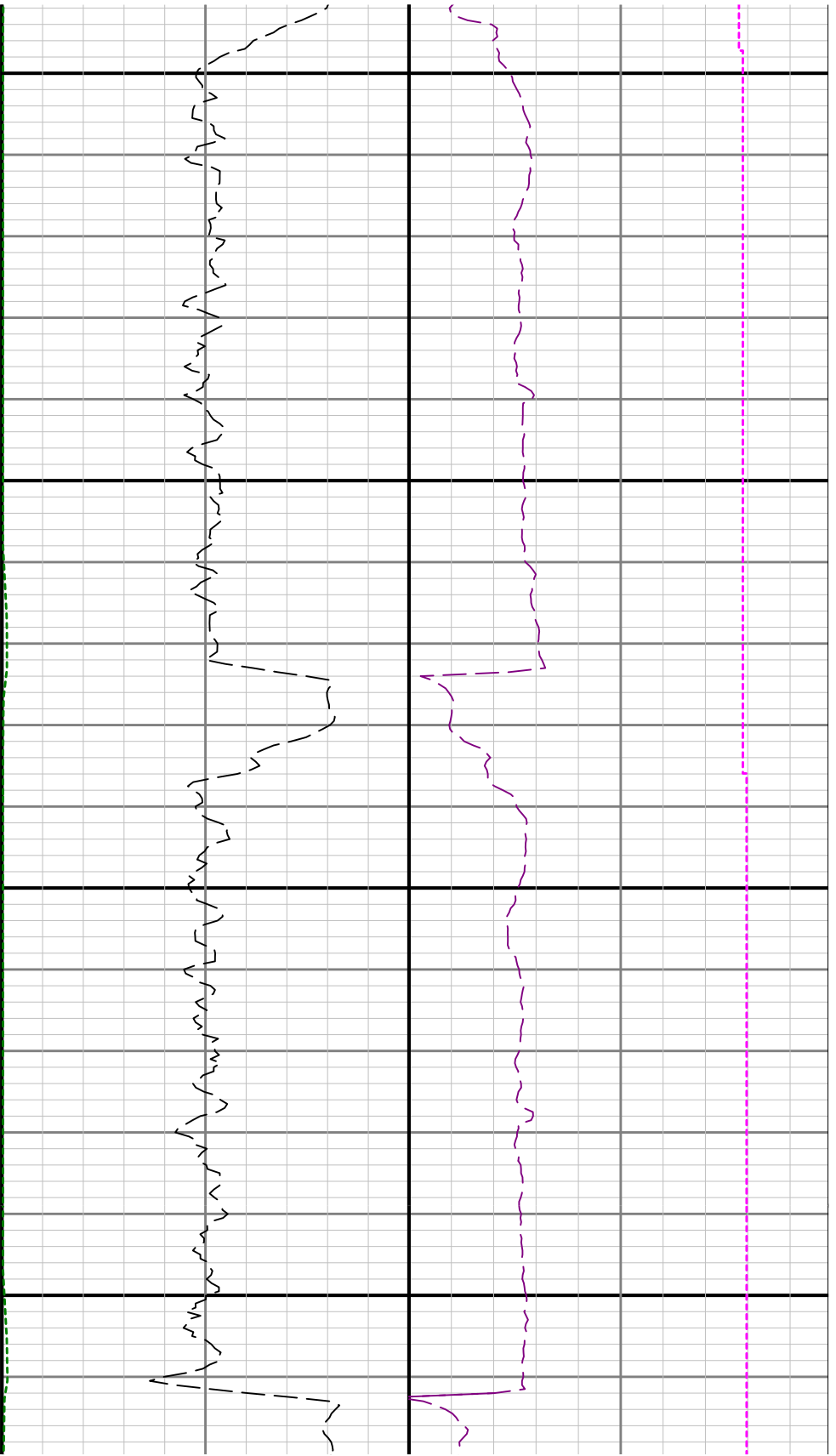


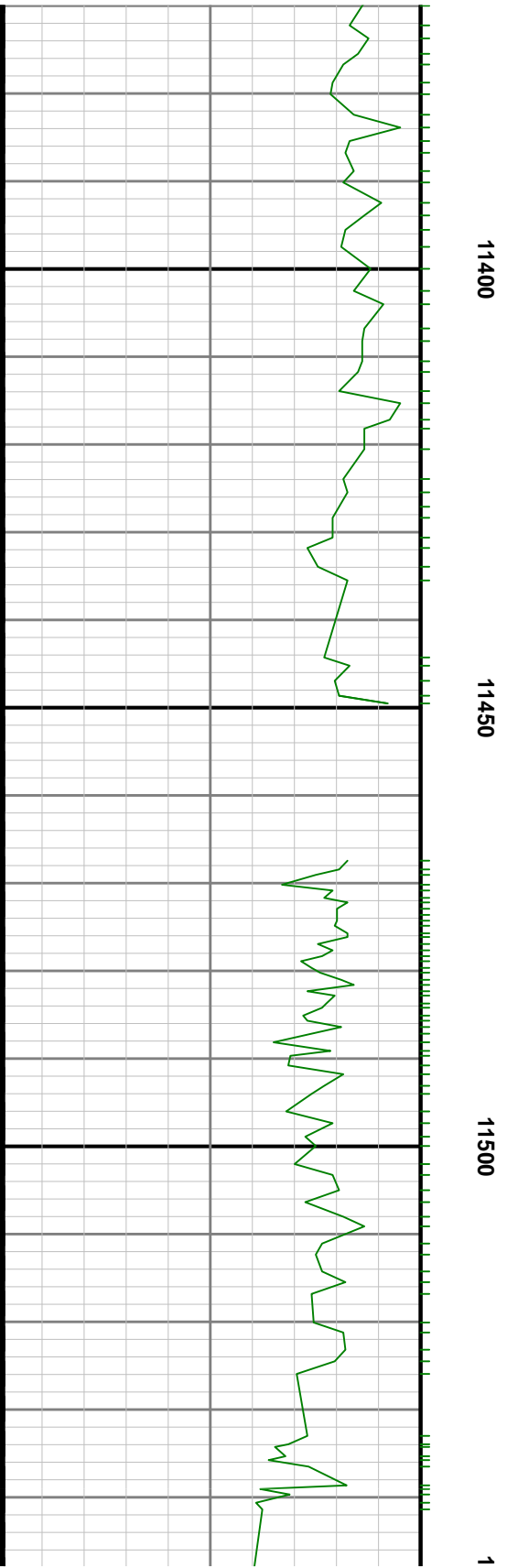
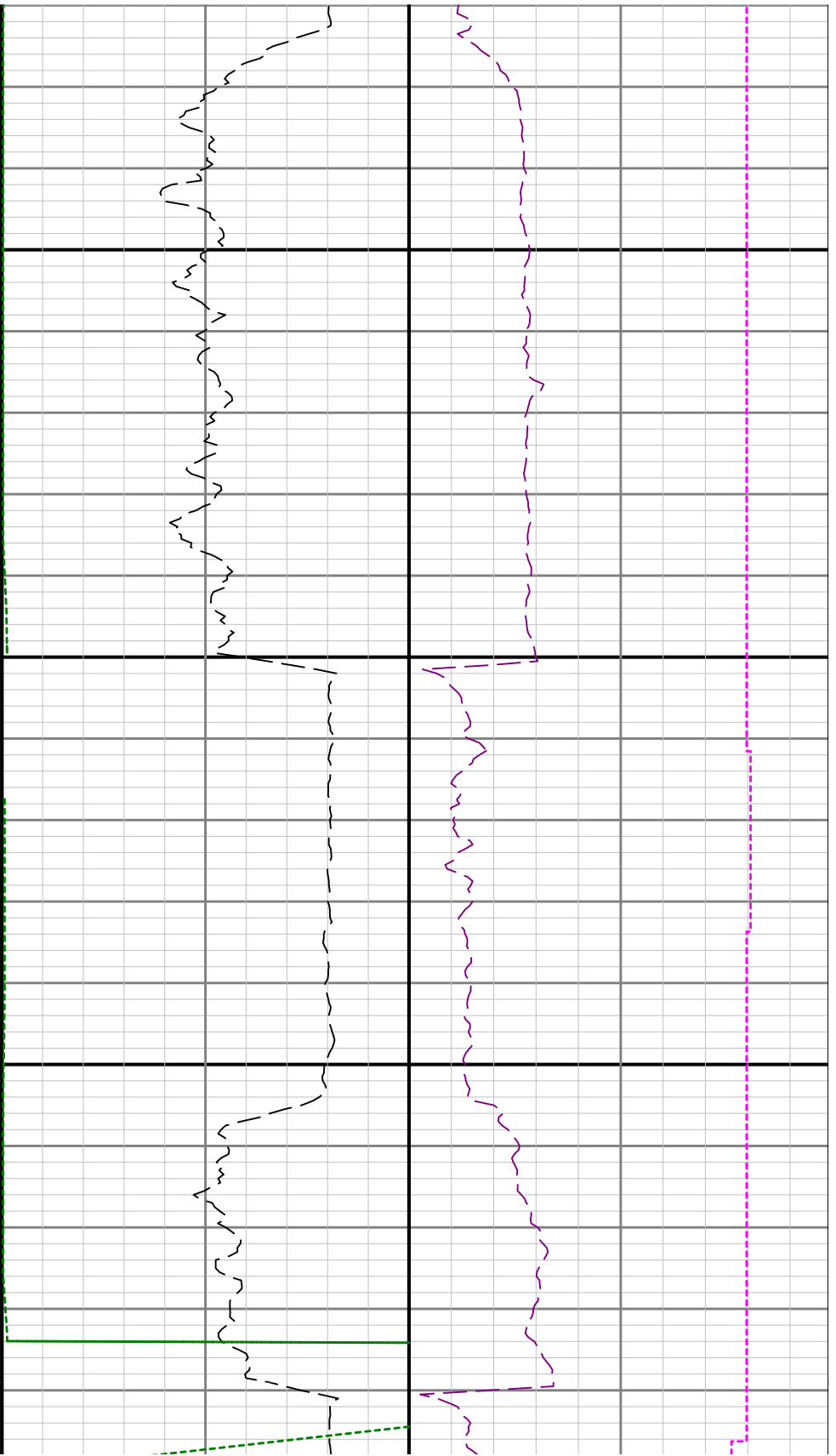


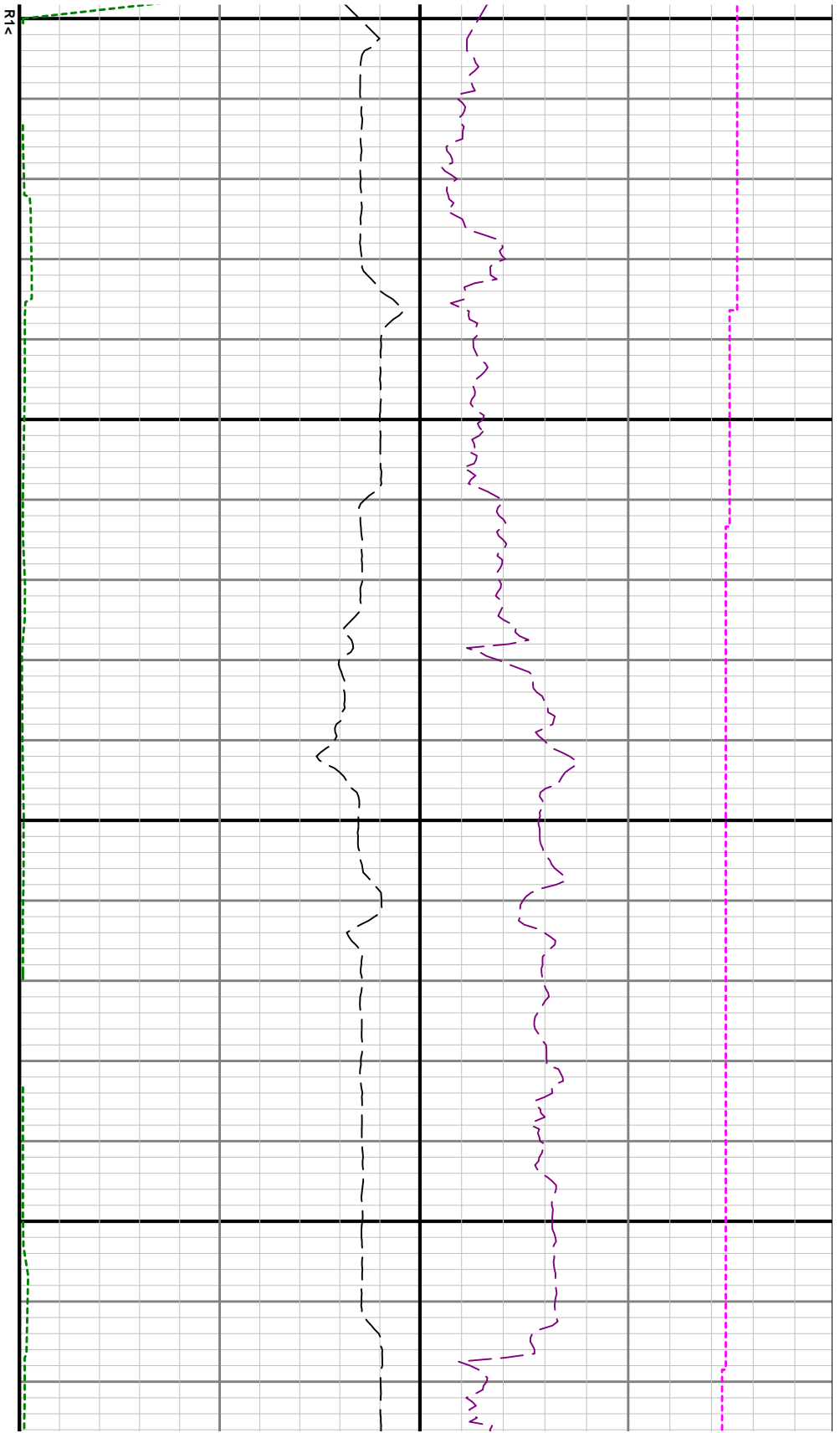












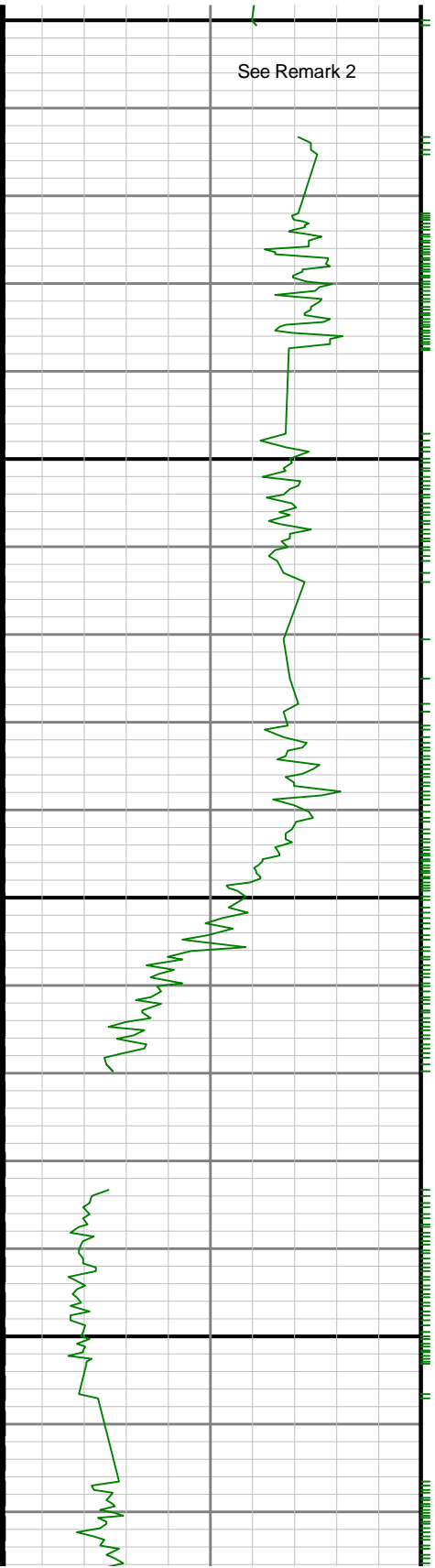
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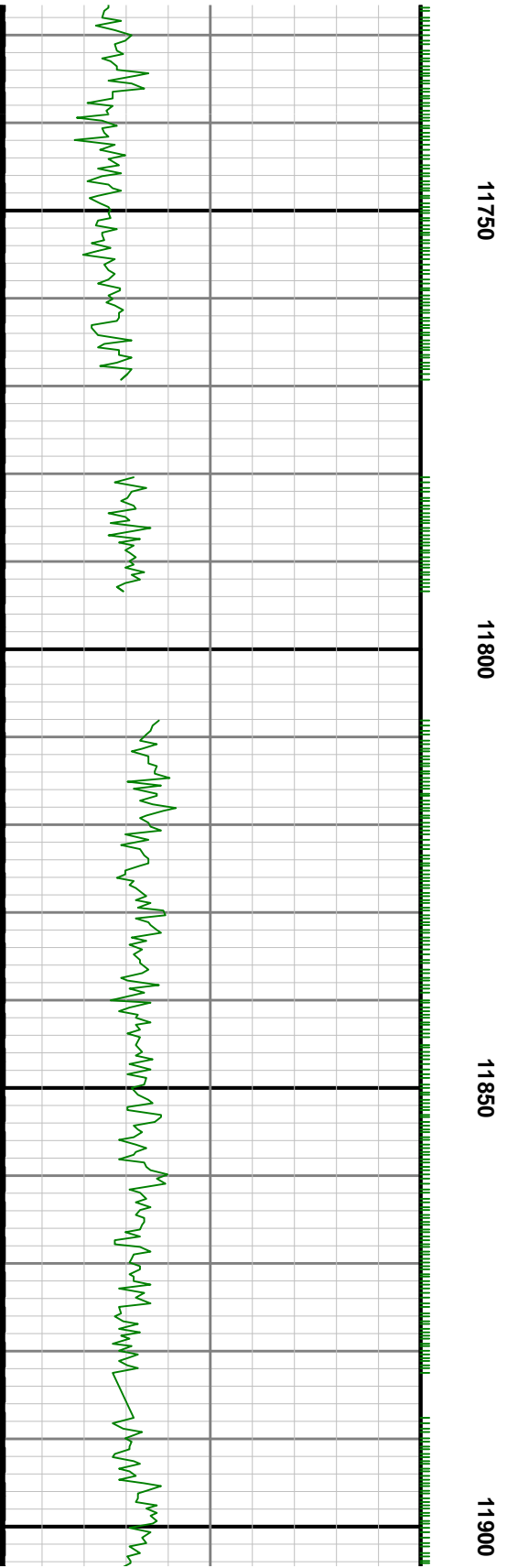
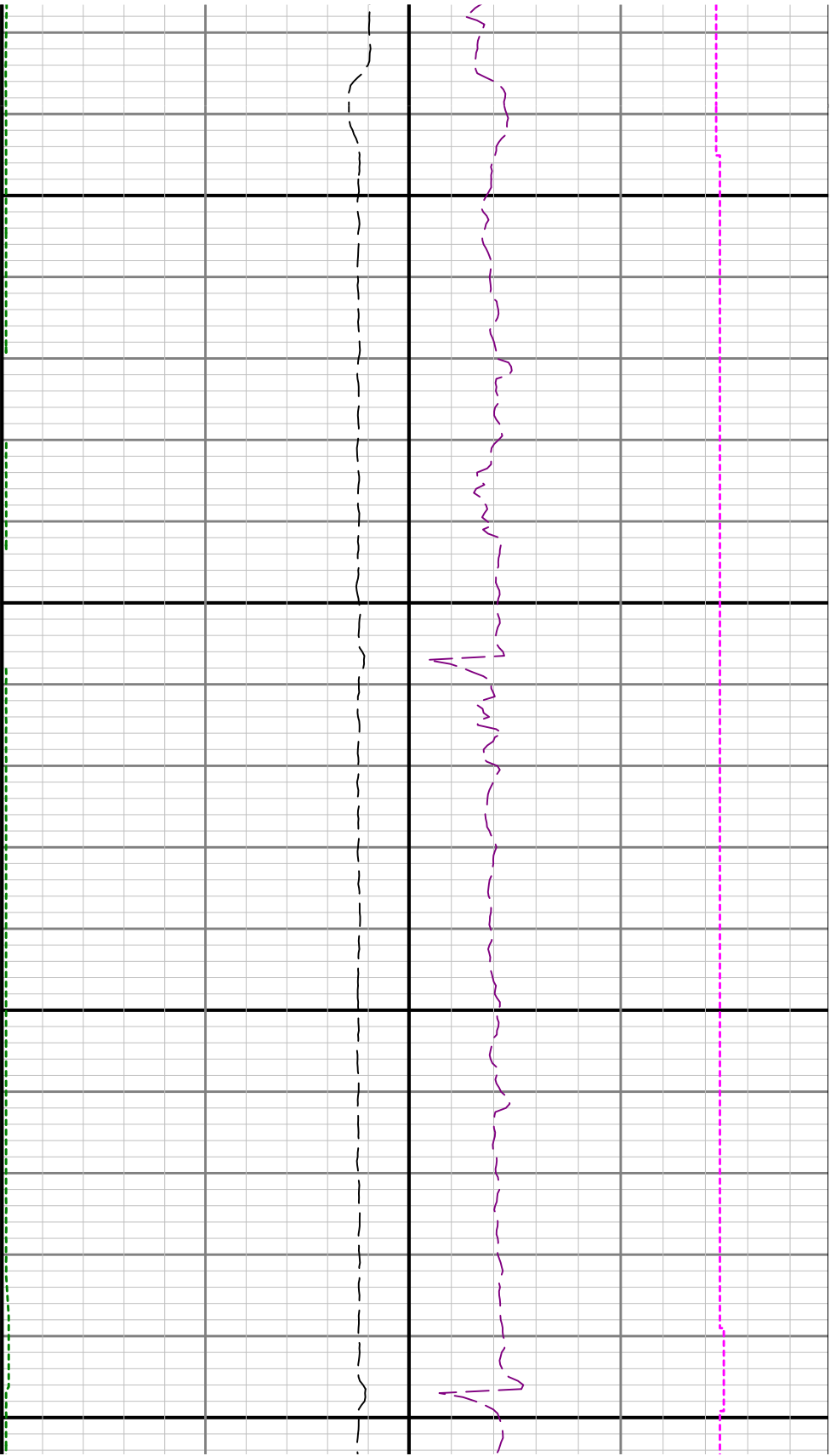
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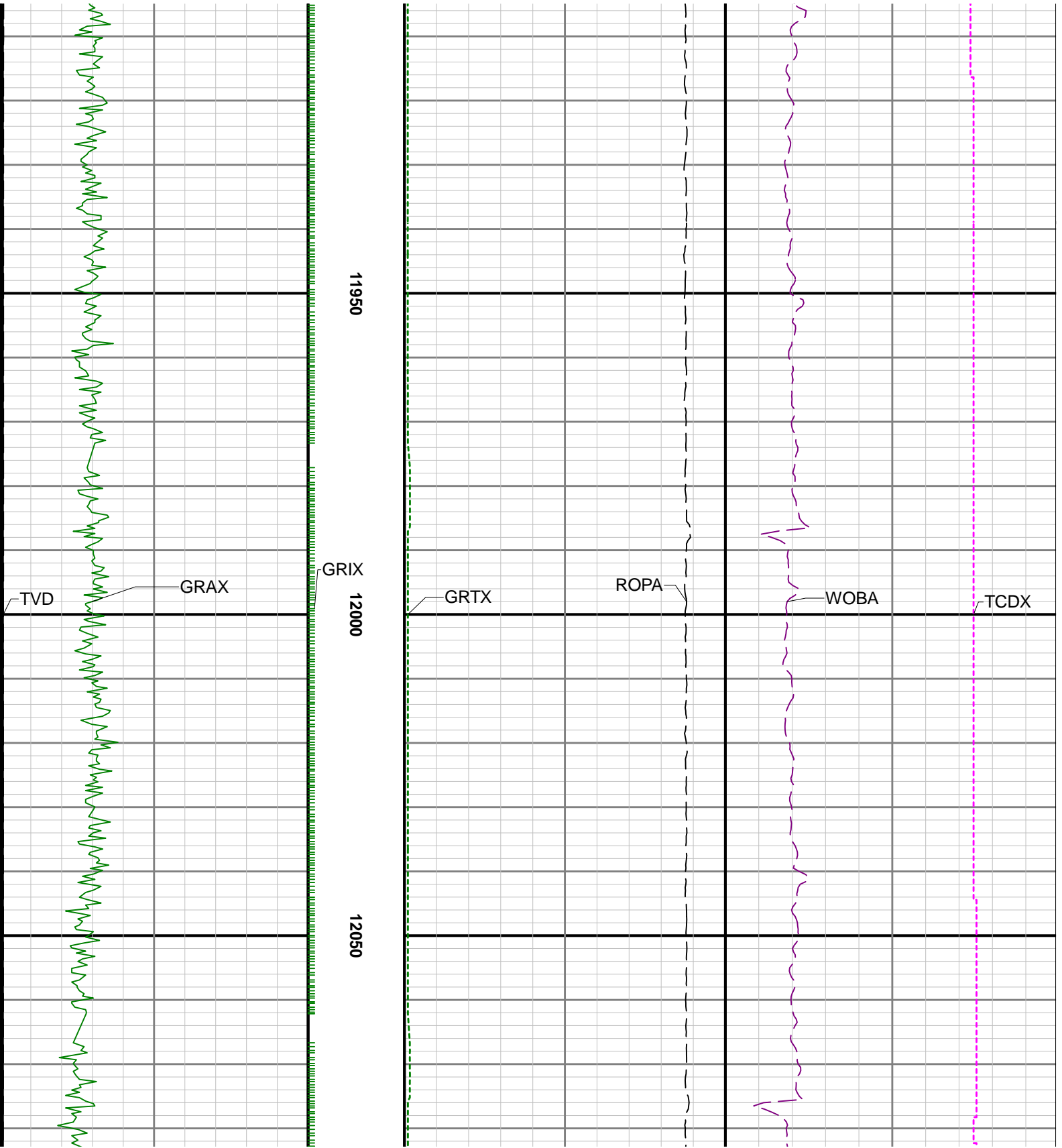
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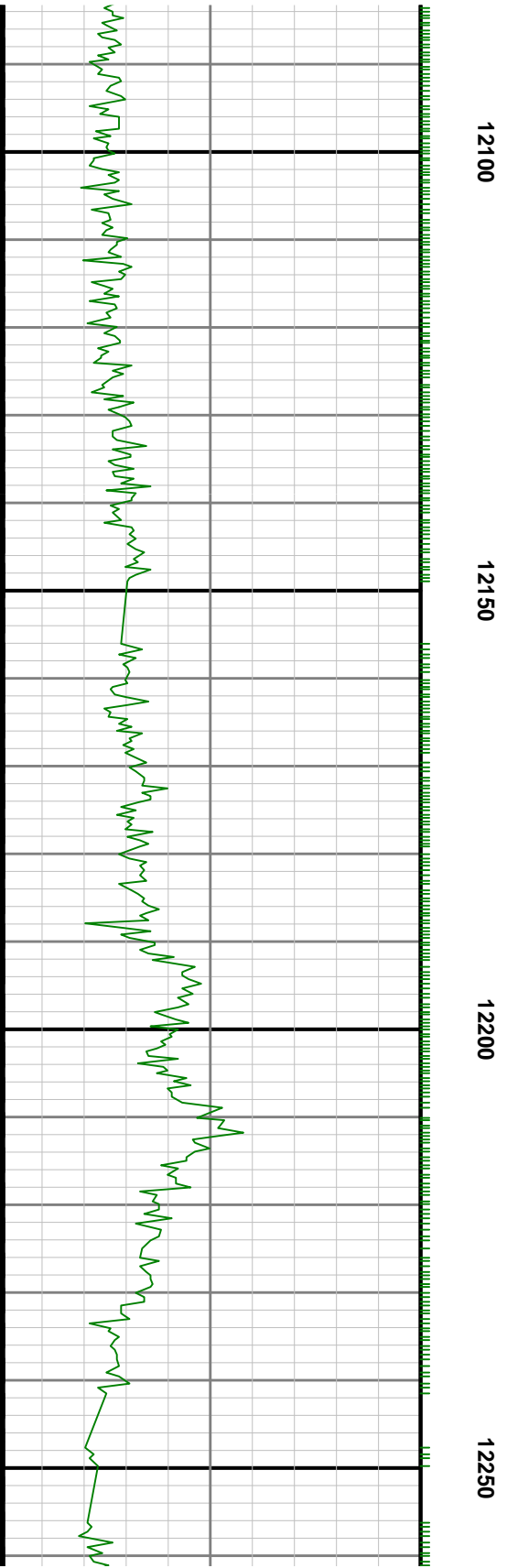
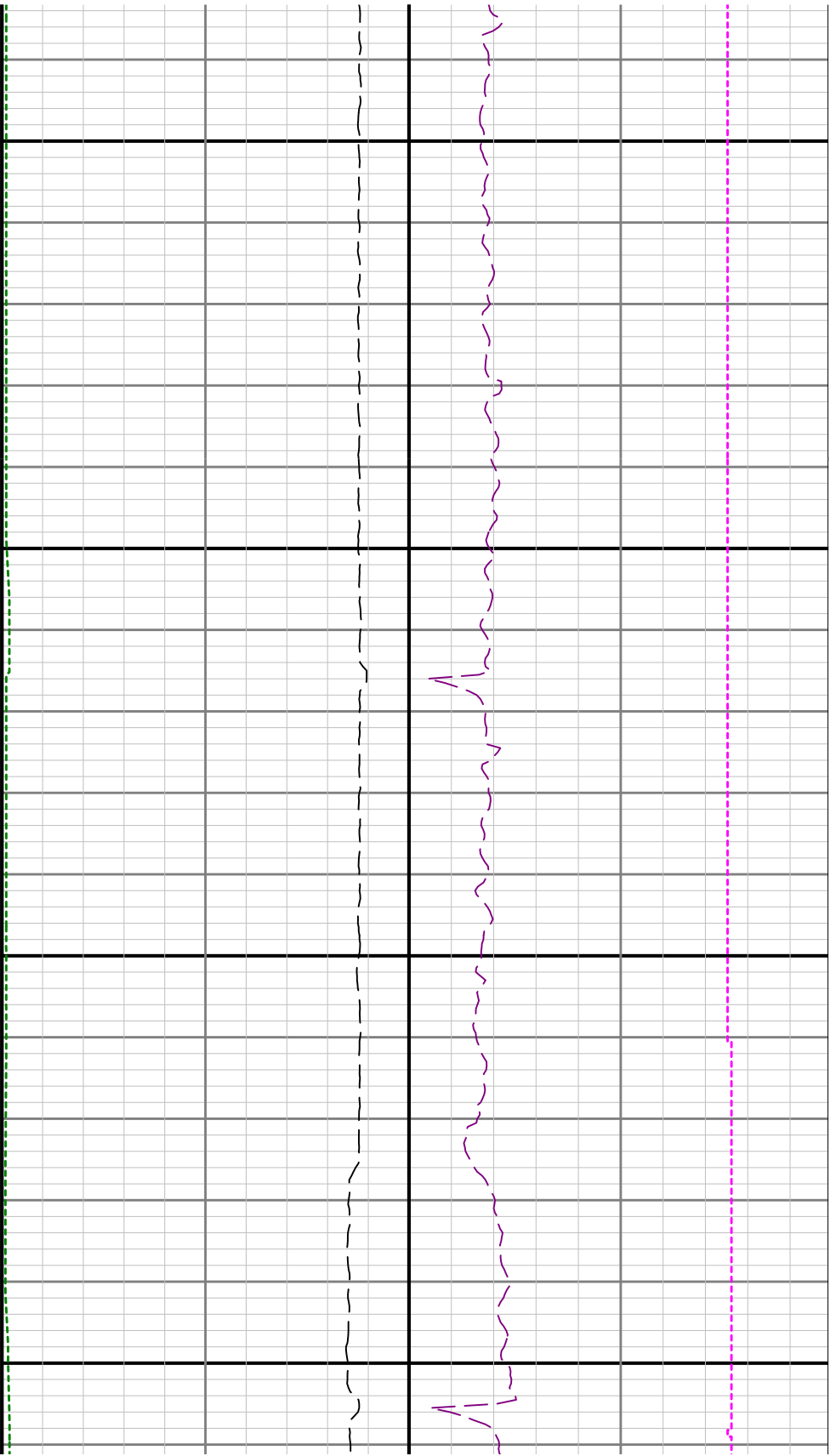
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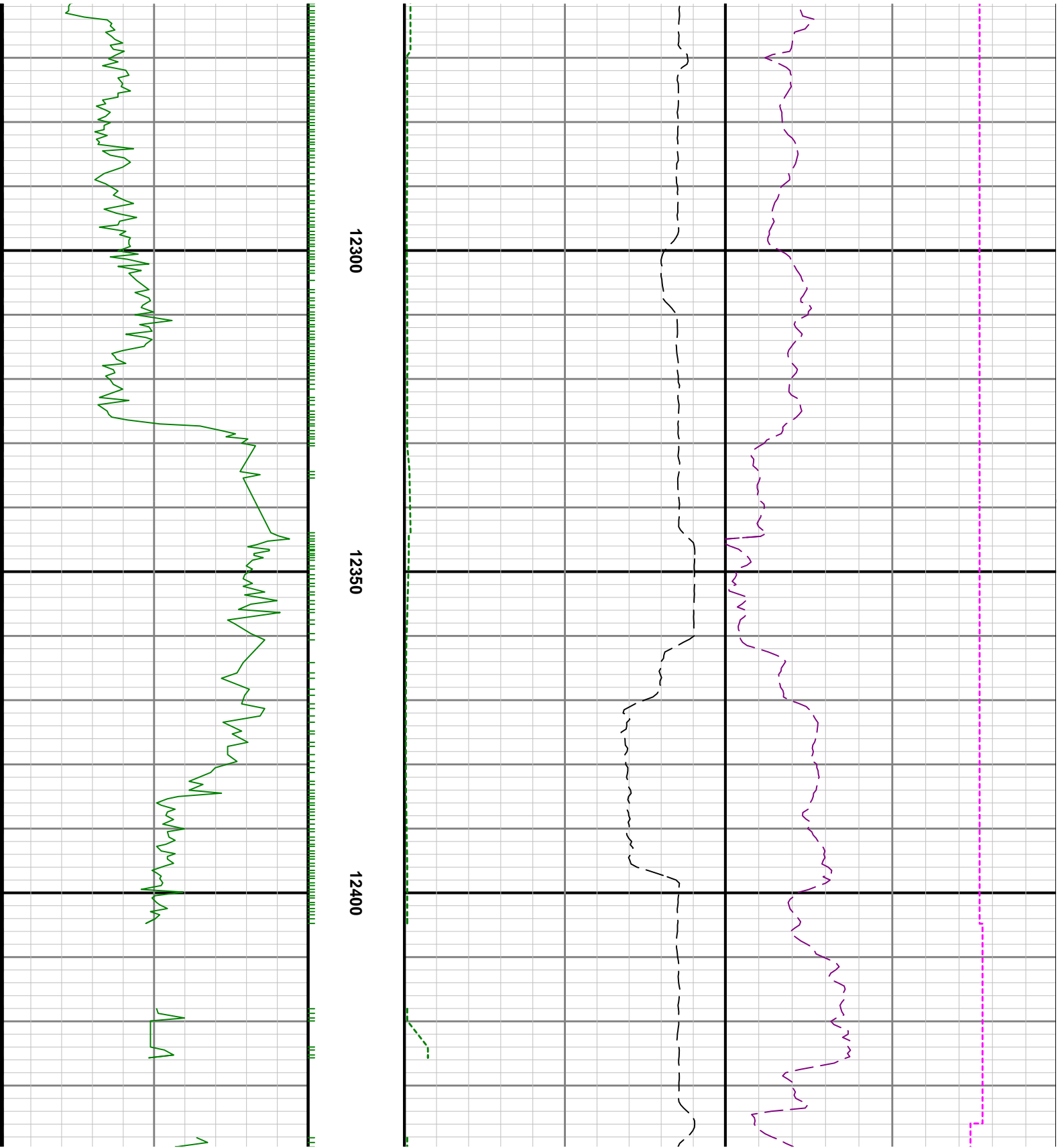
See Remark 2

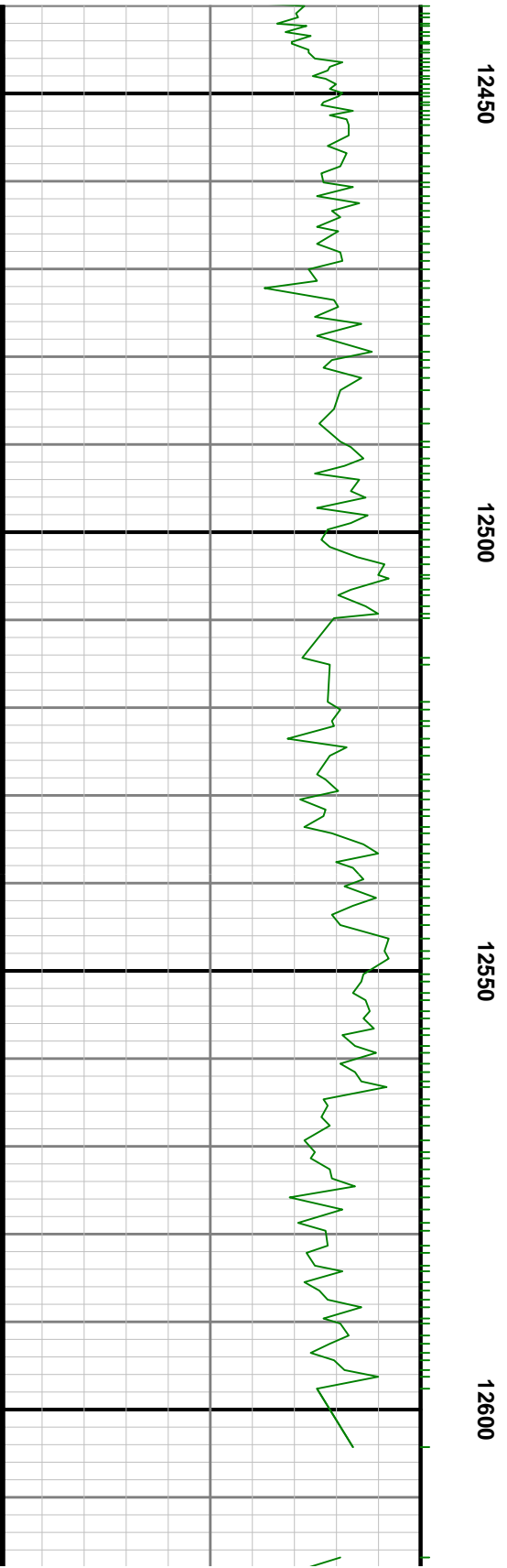




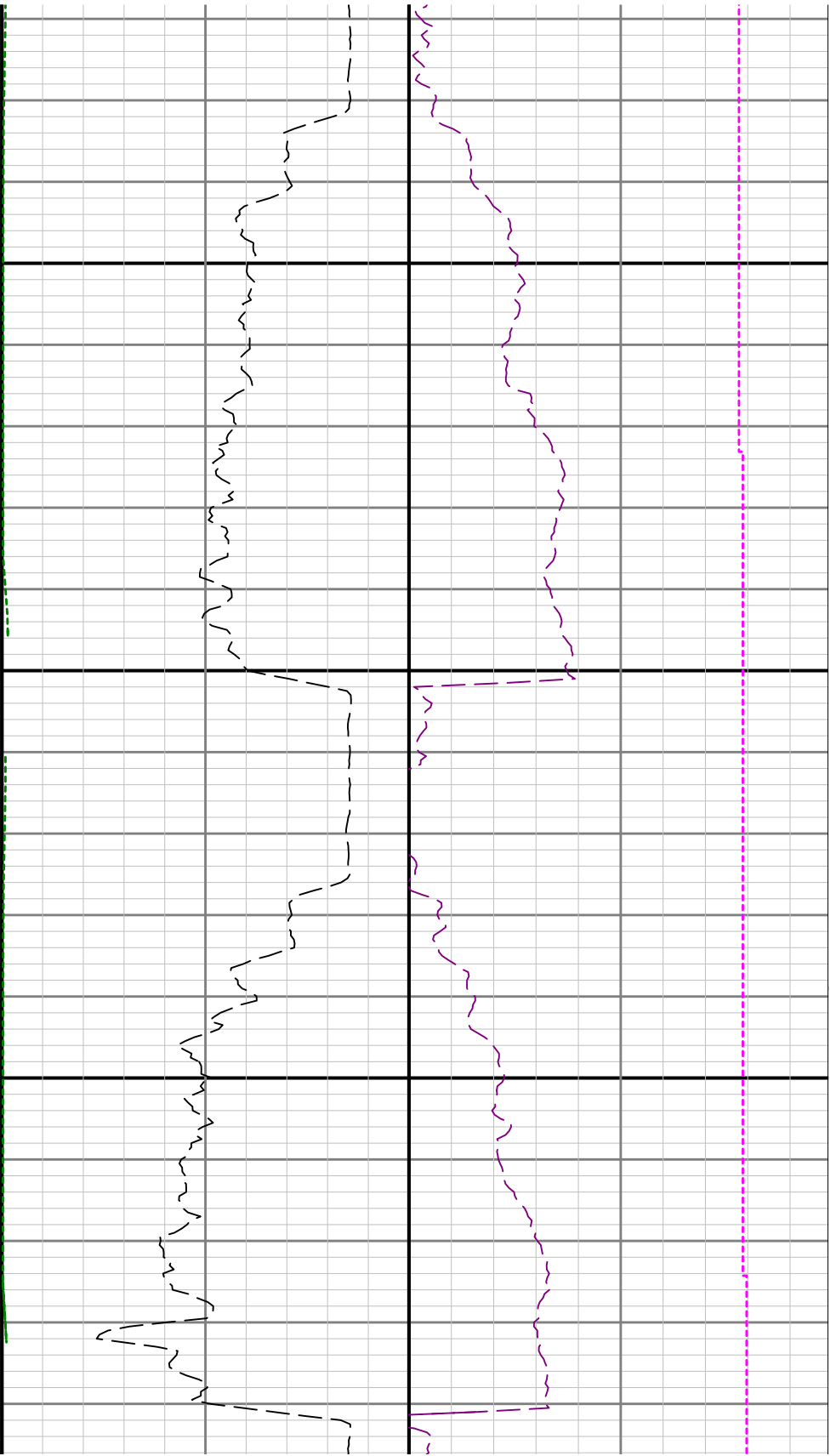








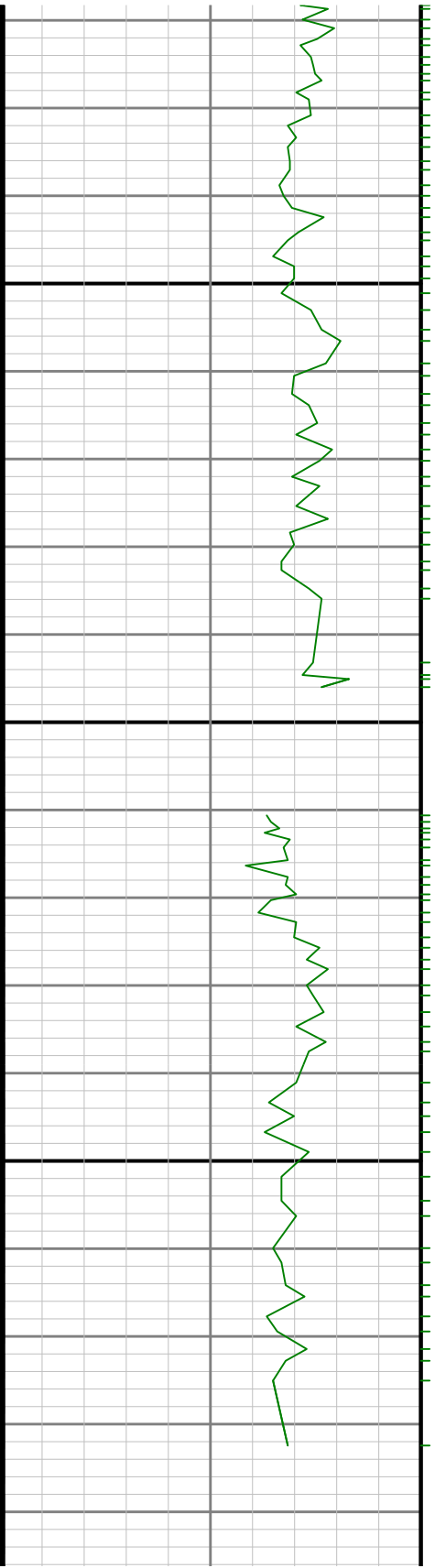


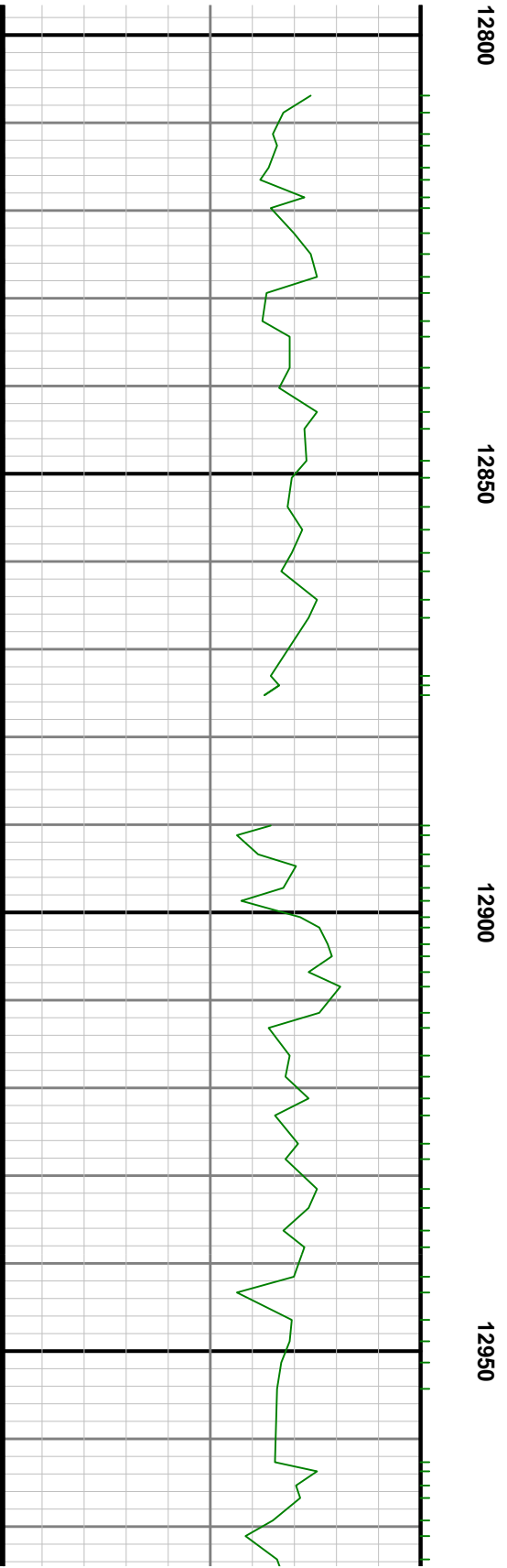


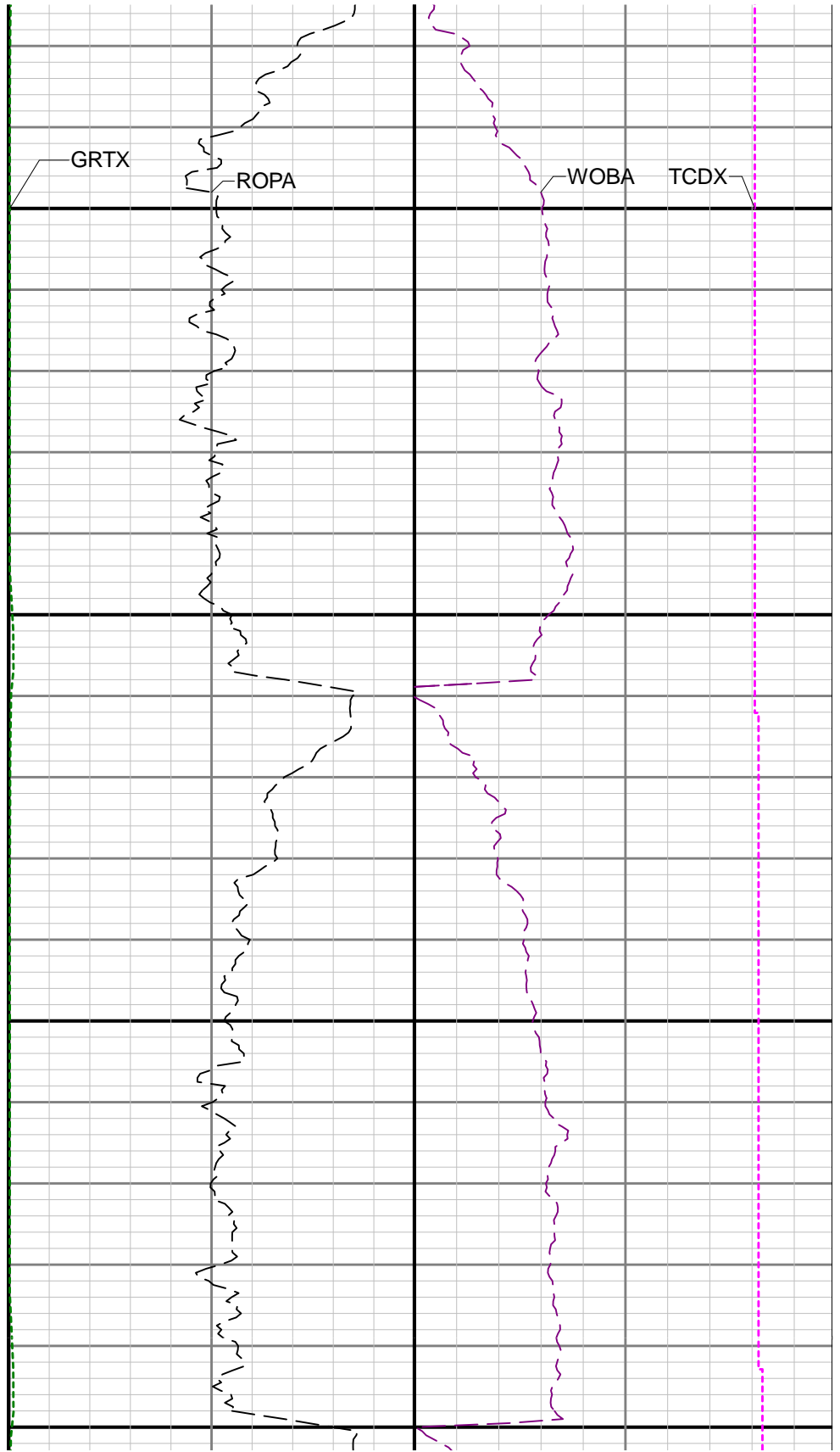
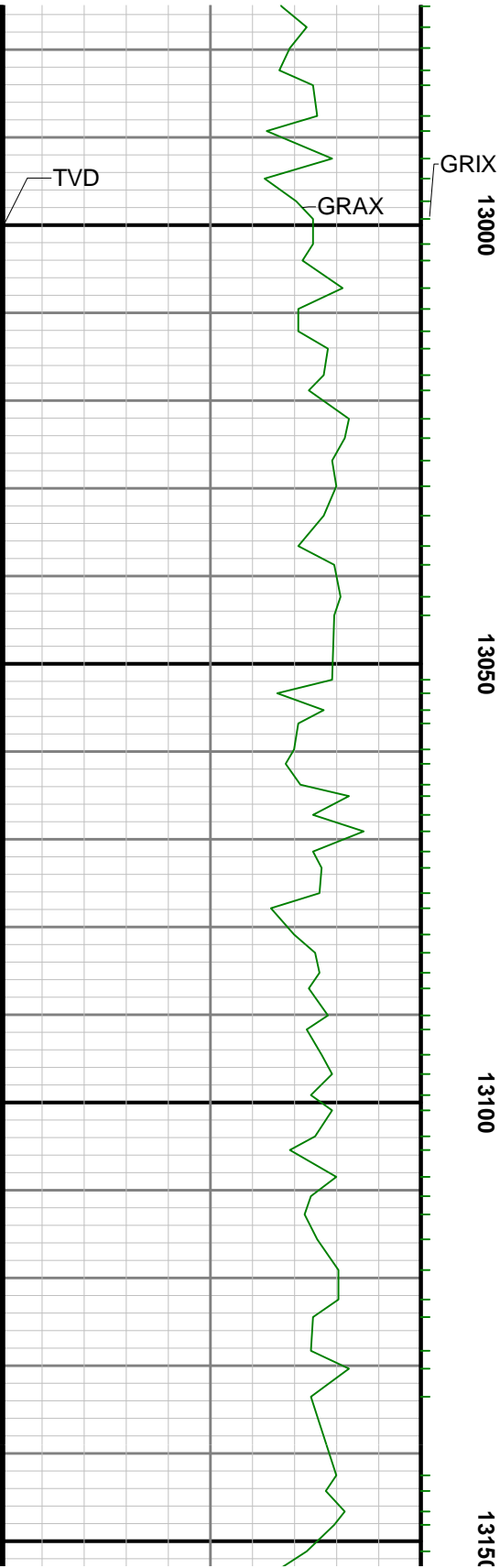
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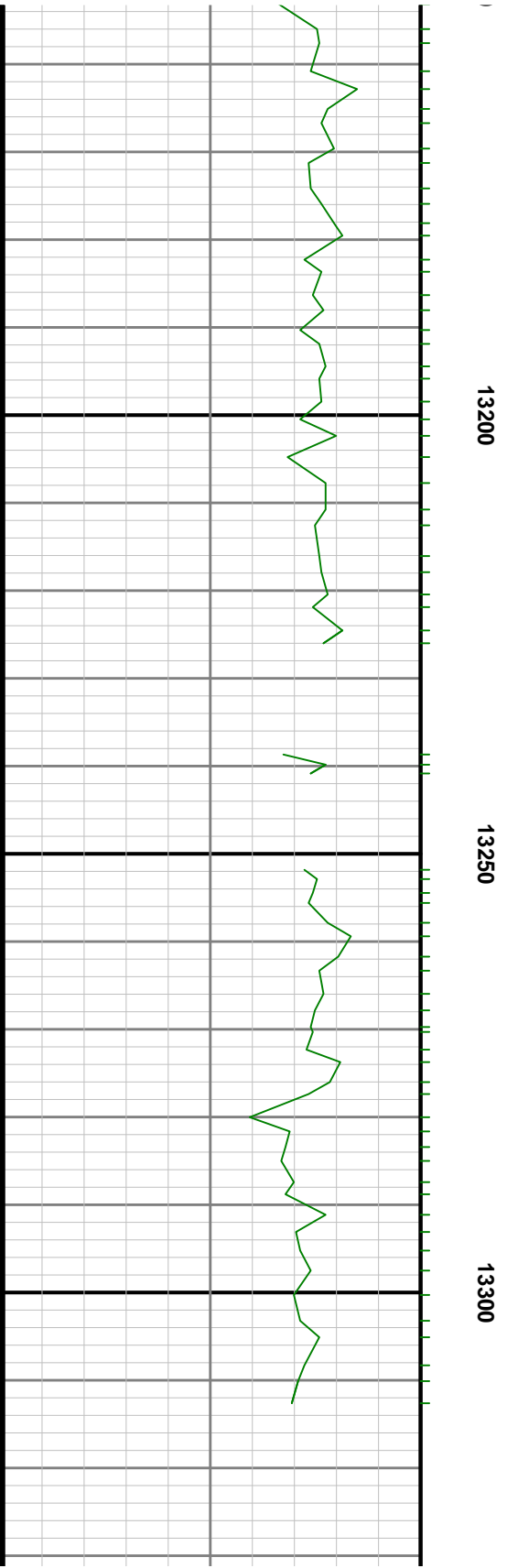
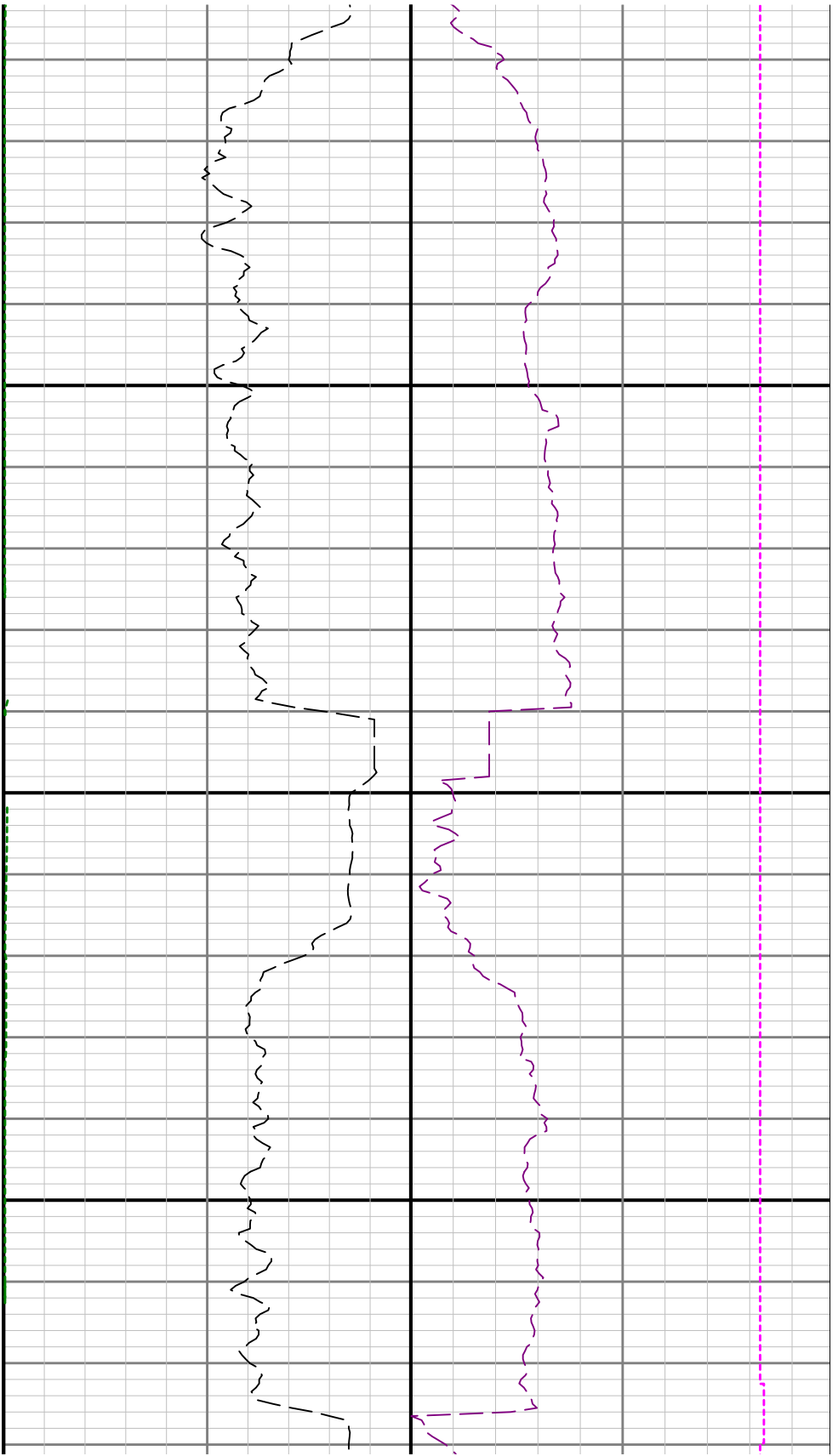
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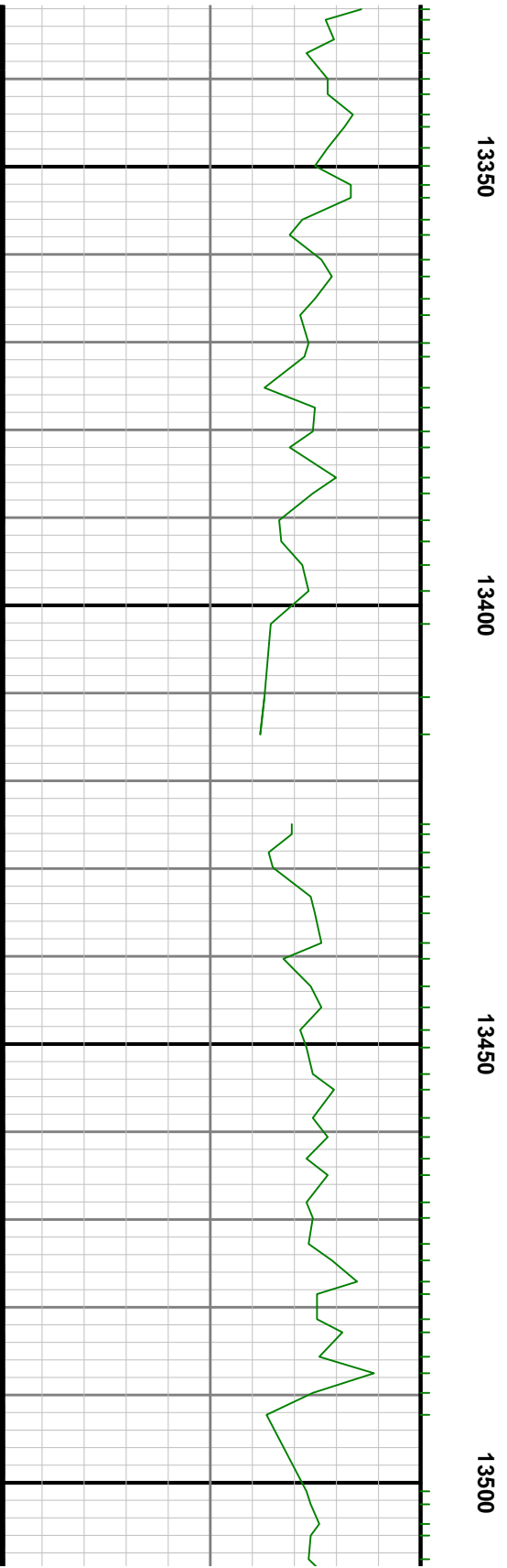
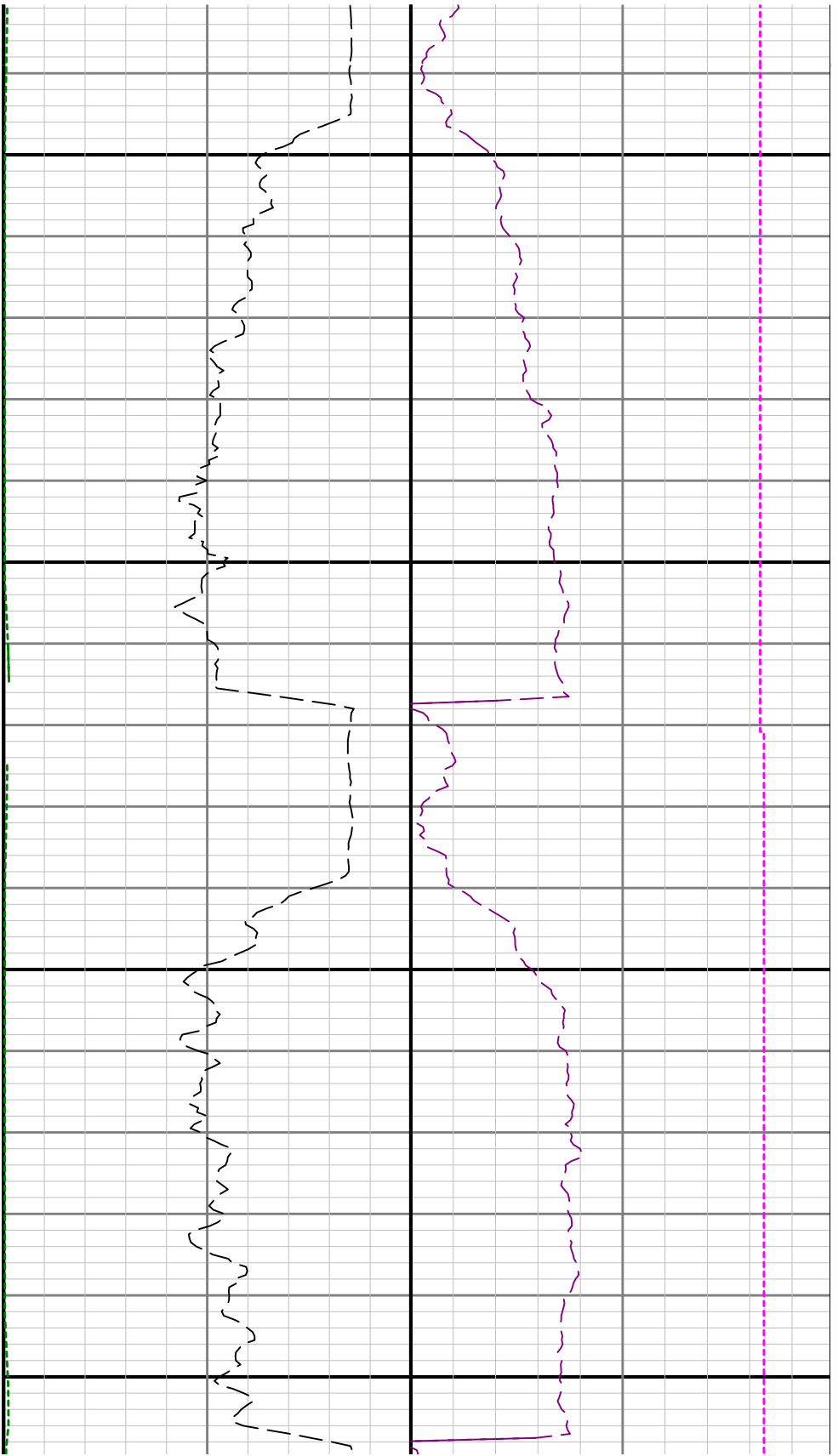
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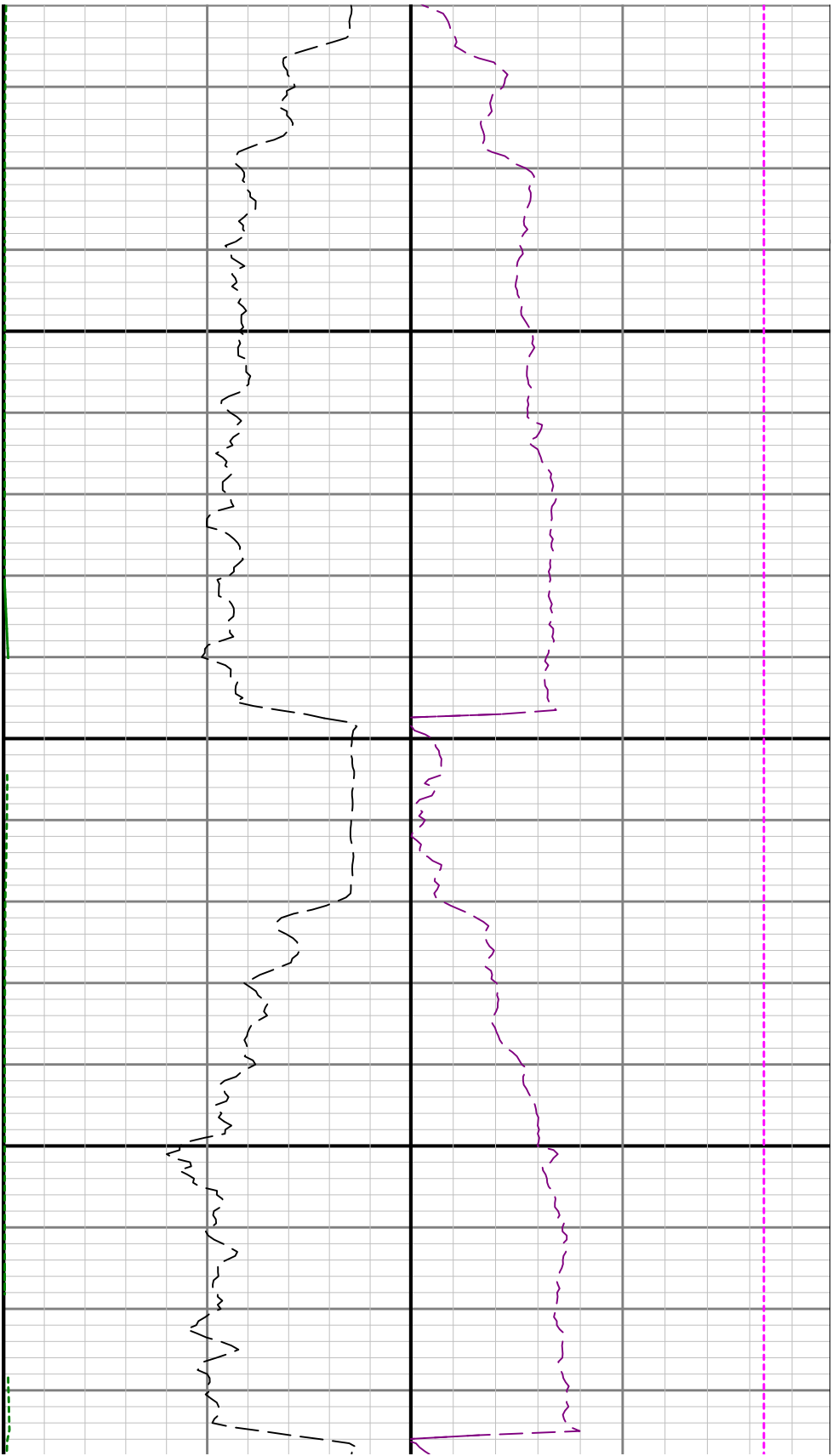


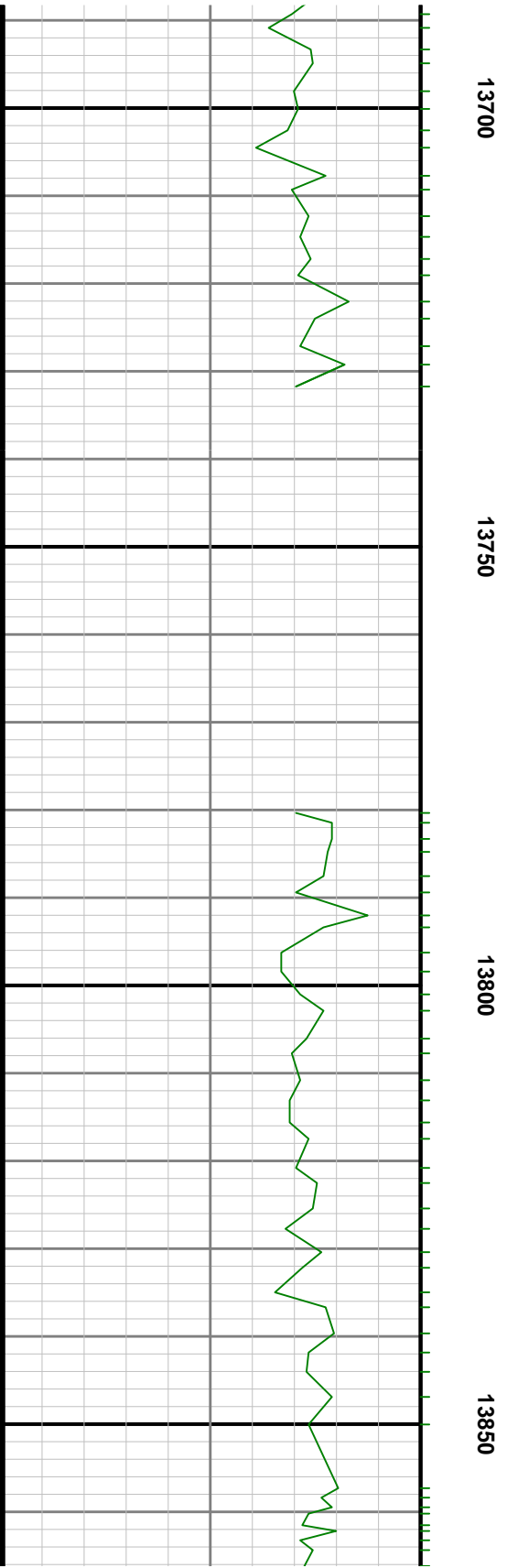
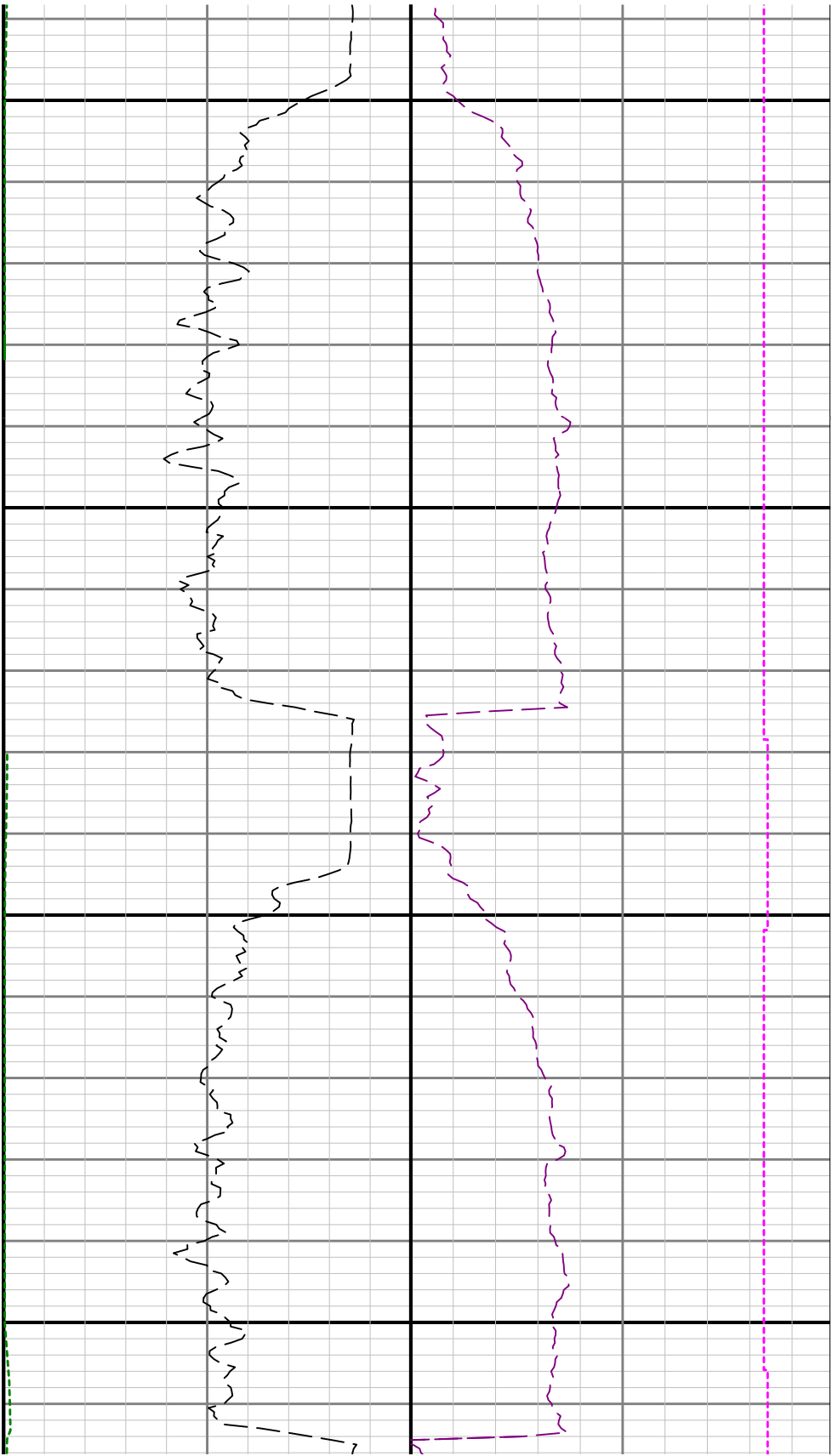


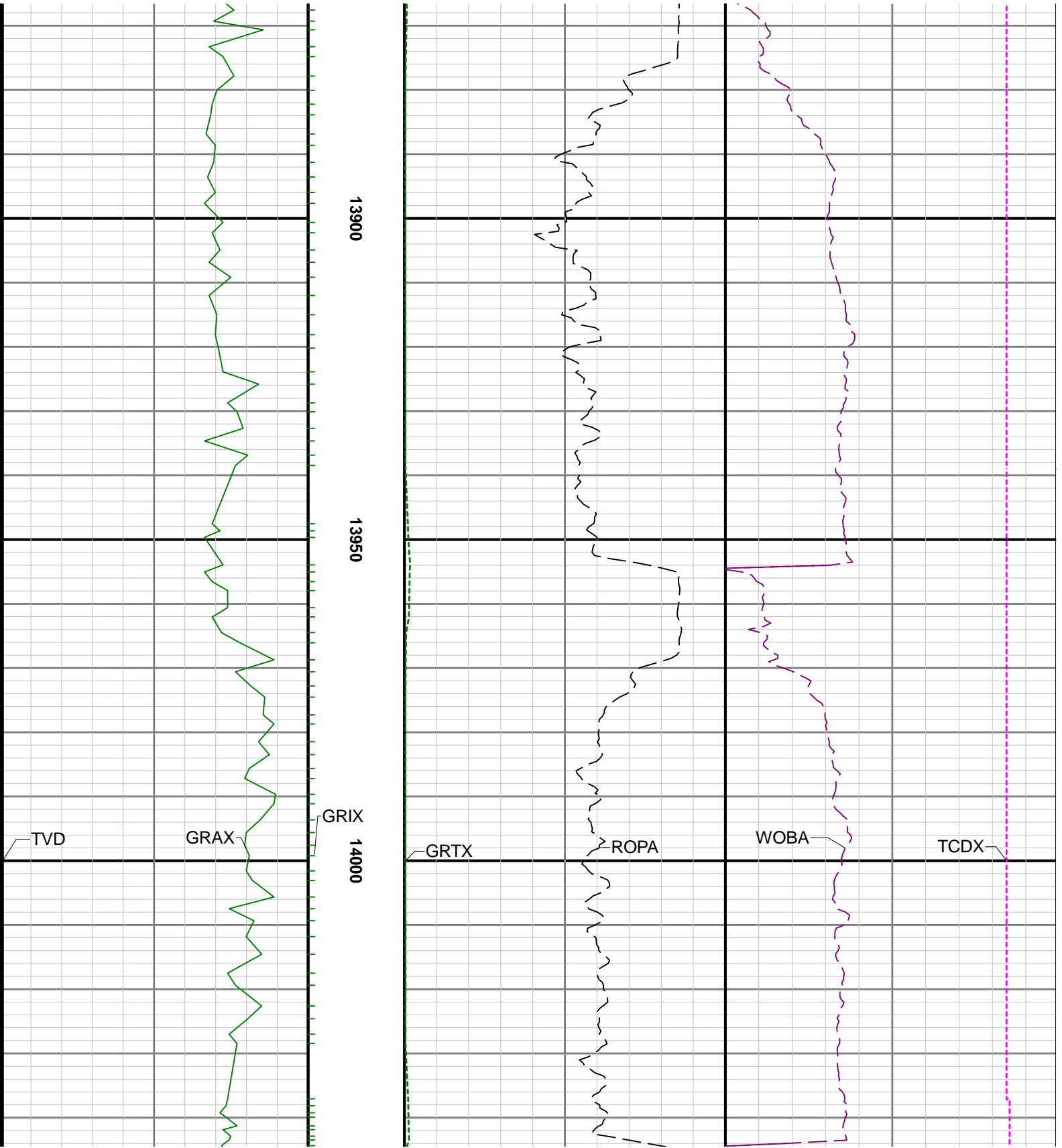




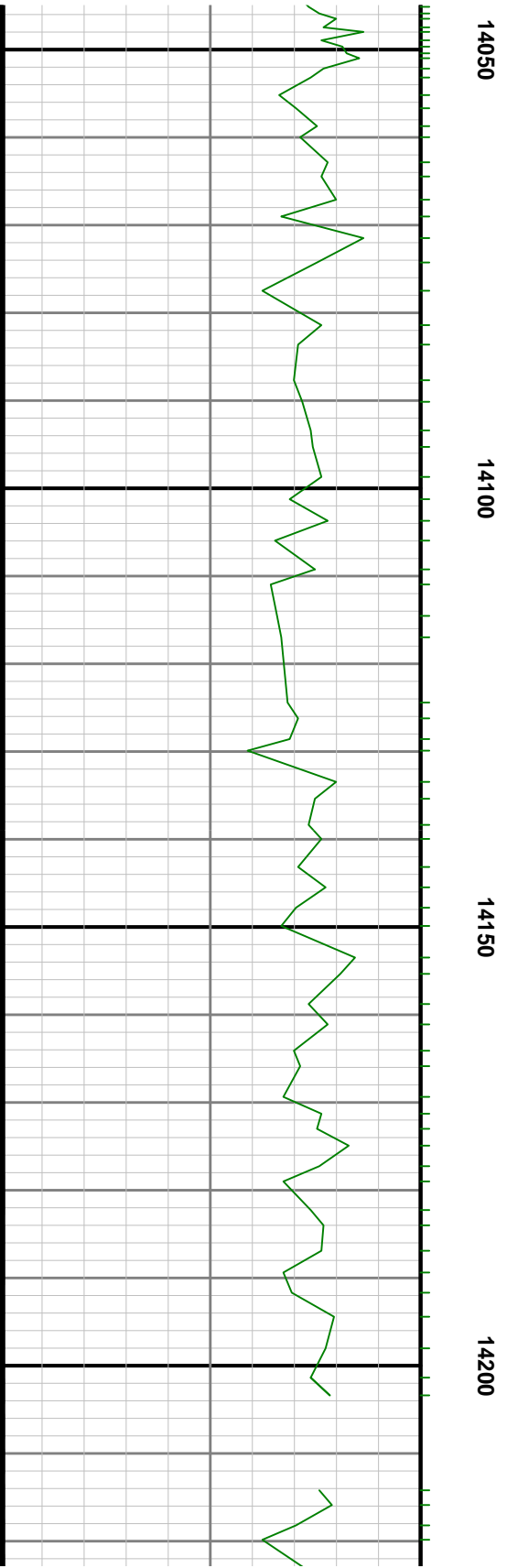
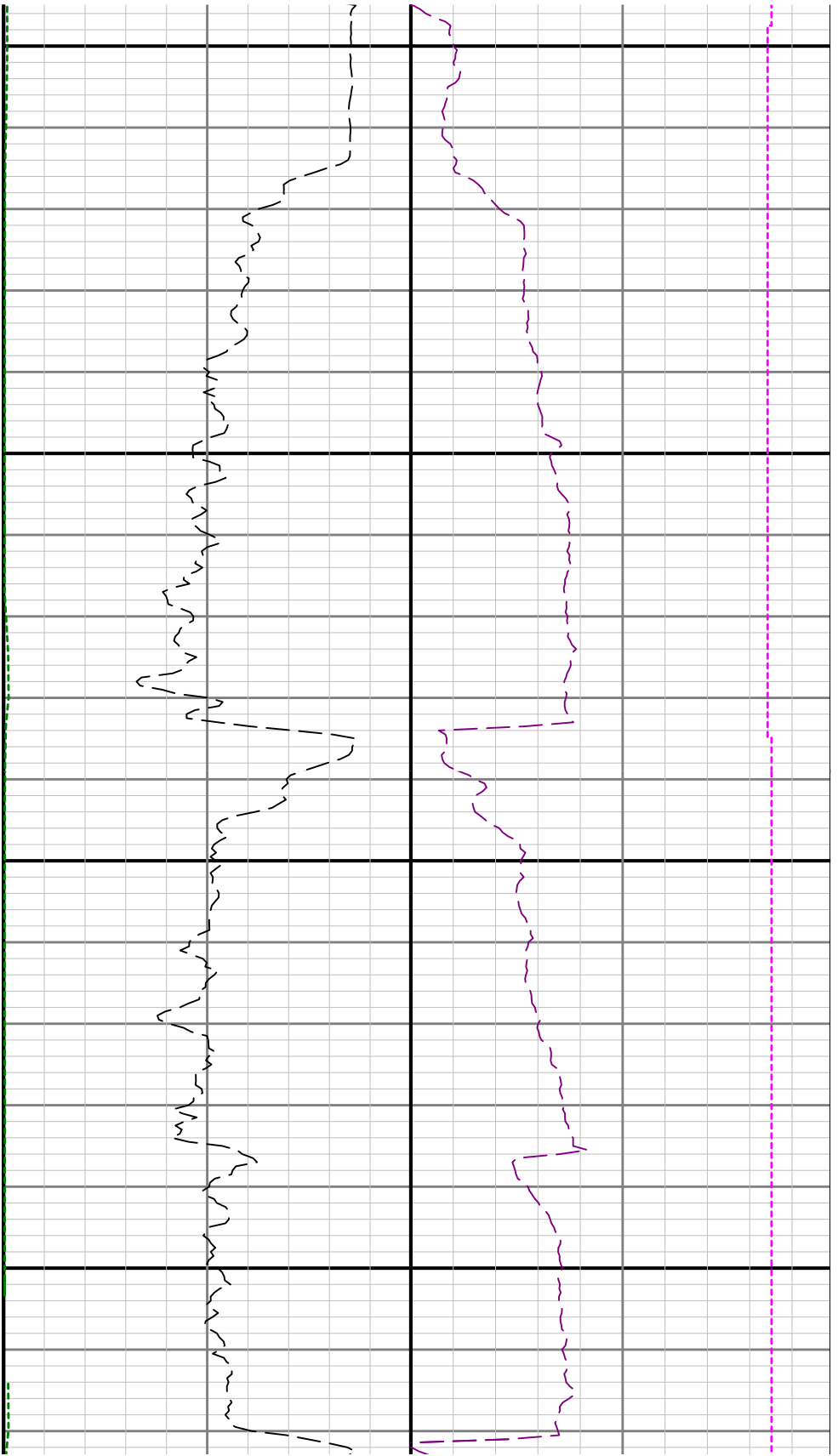


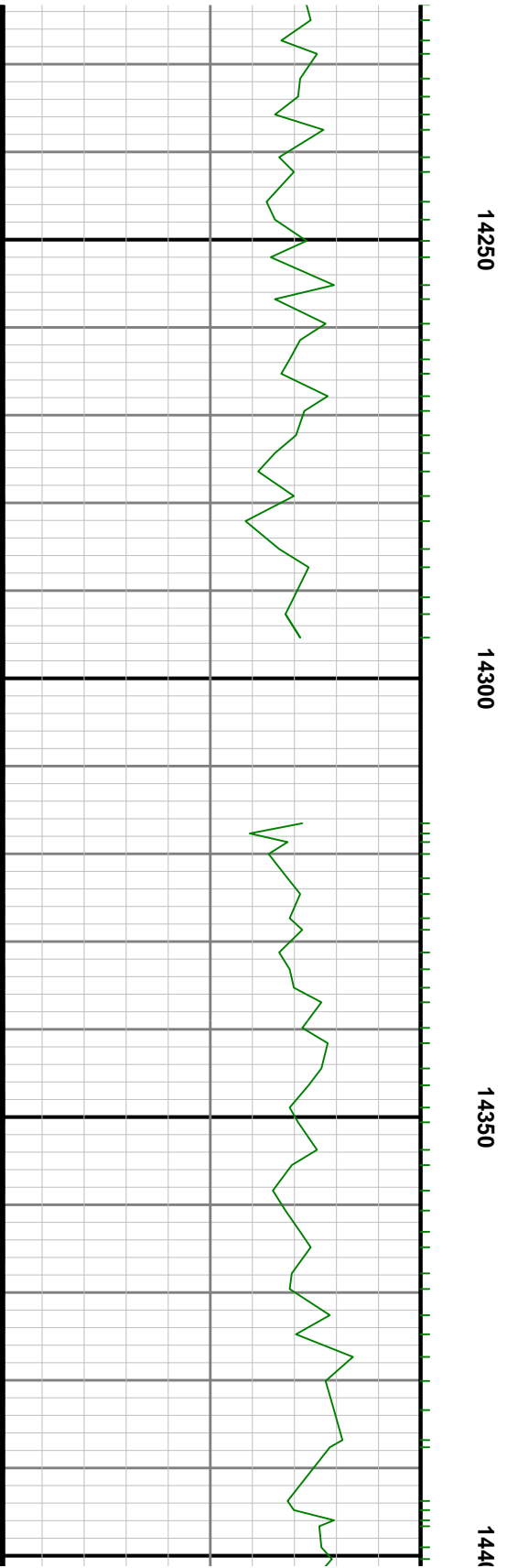
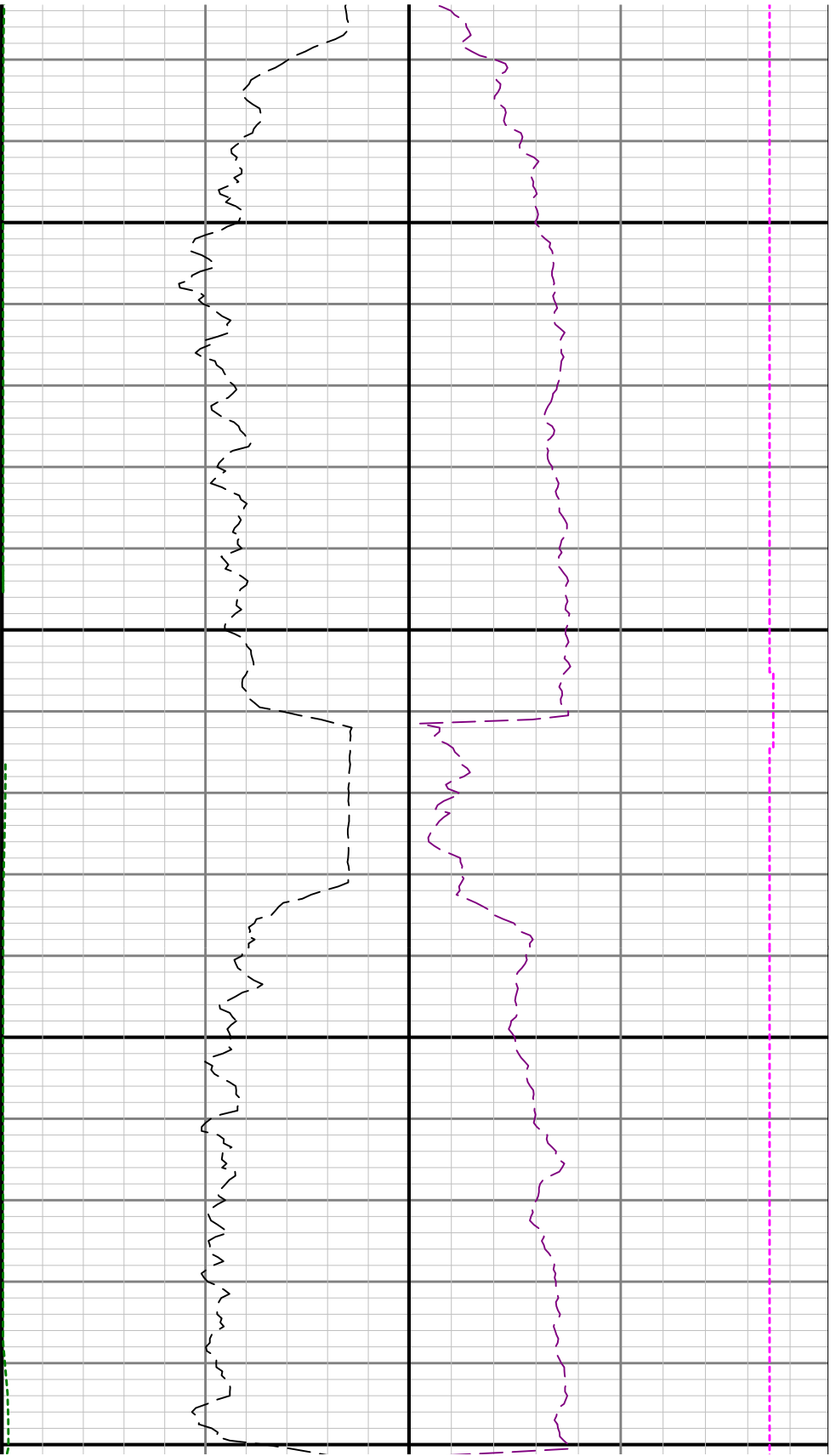


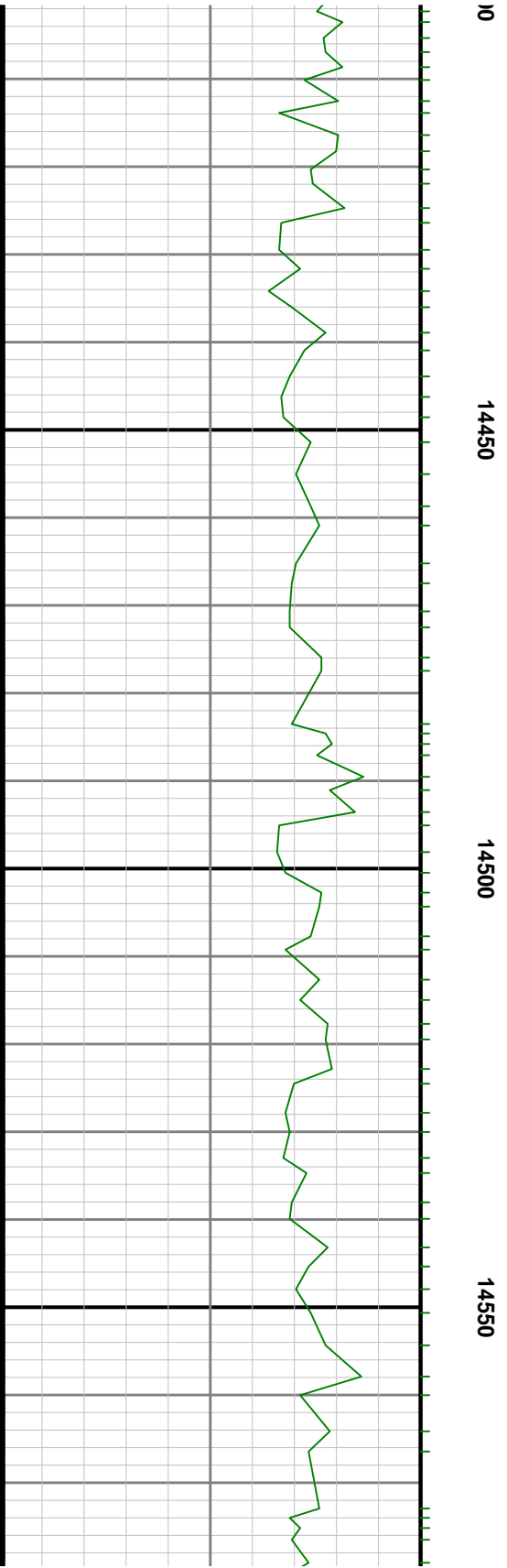
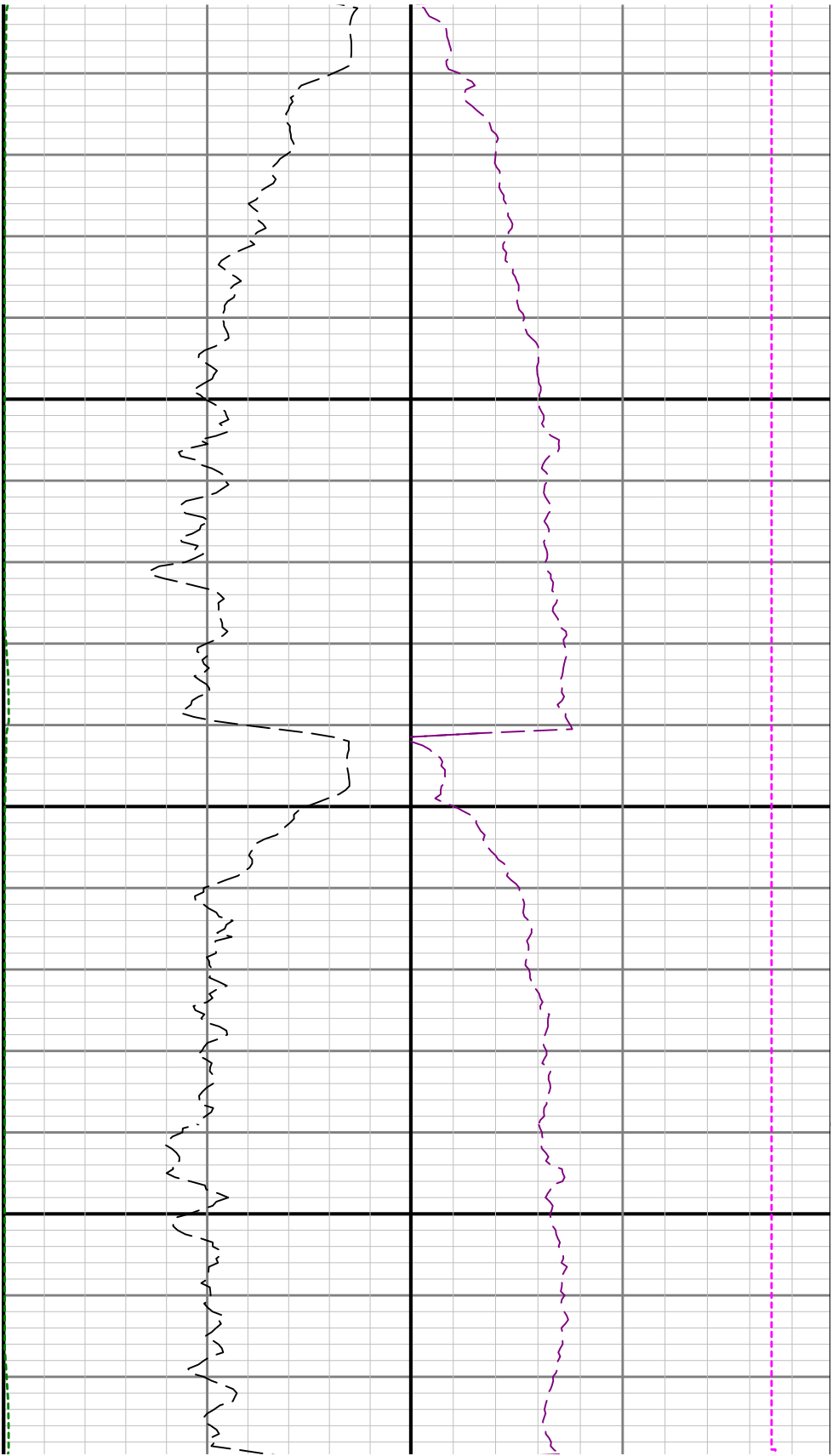


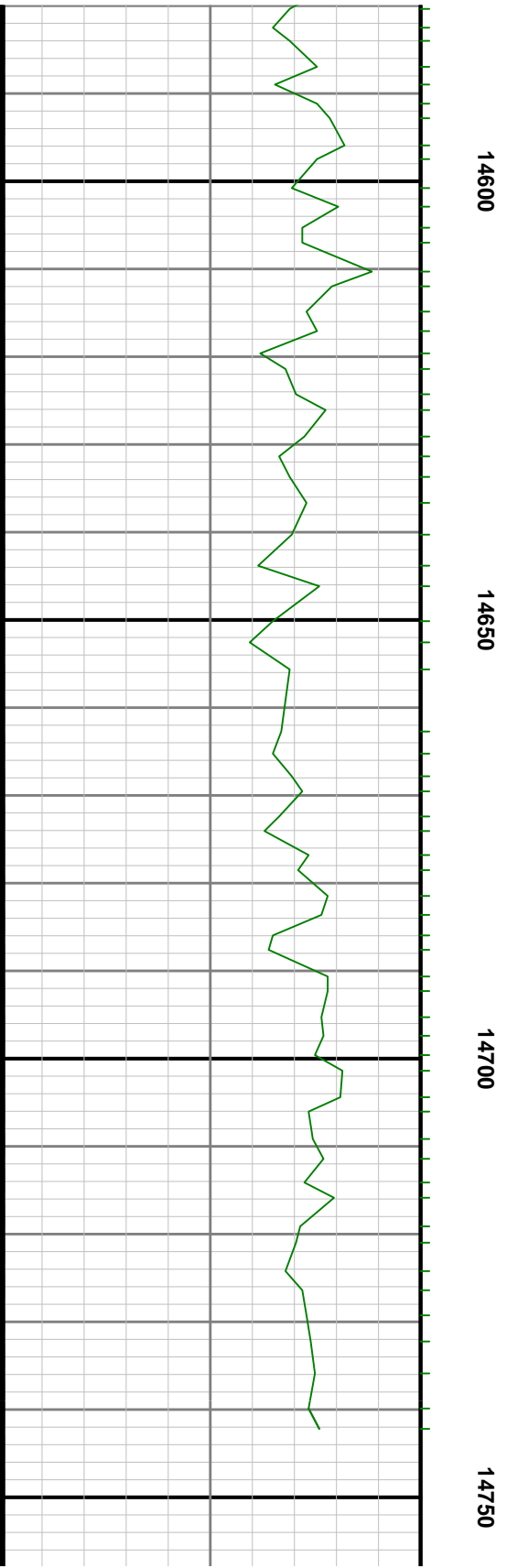
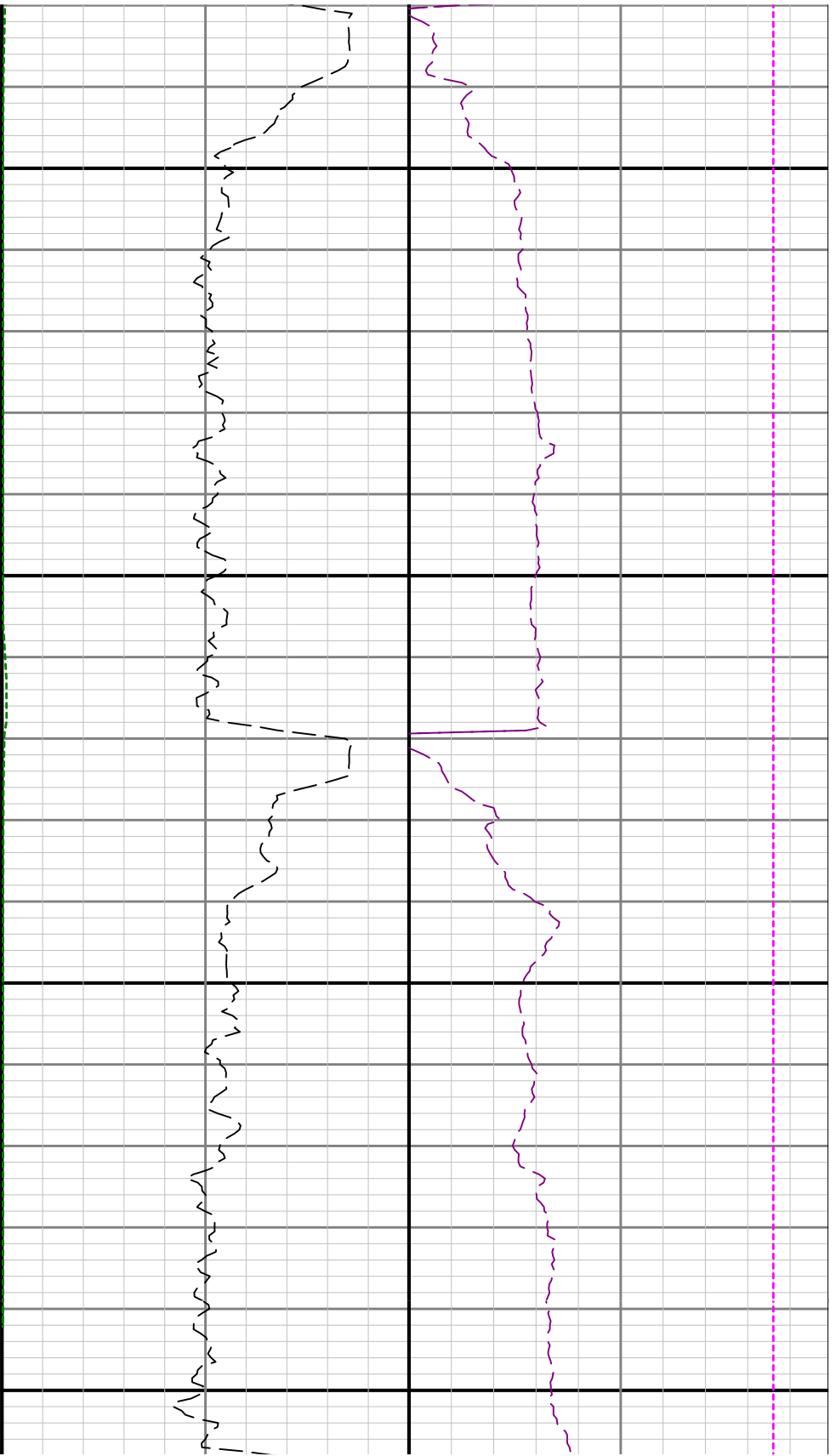


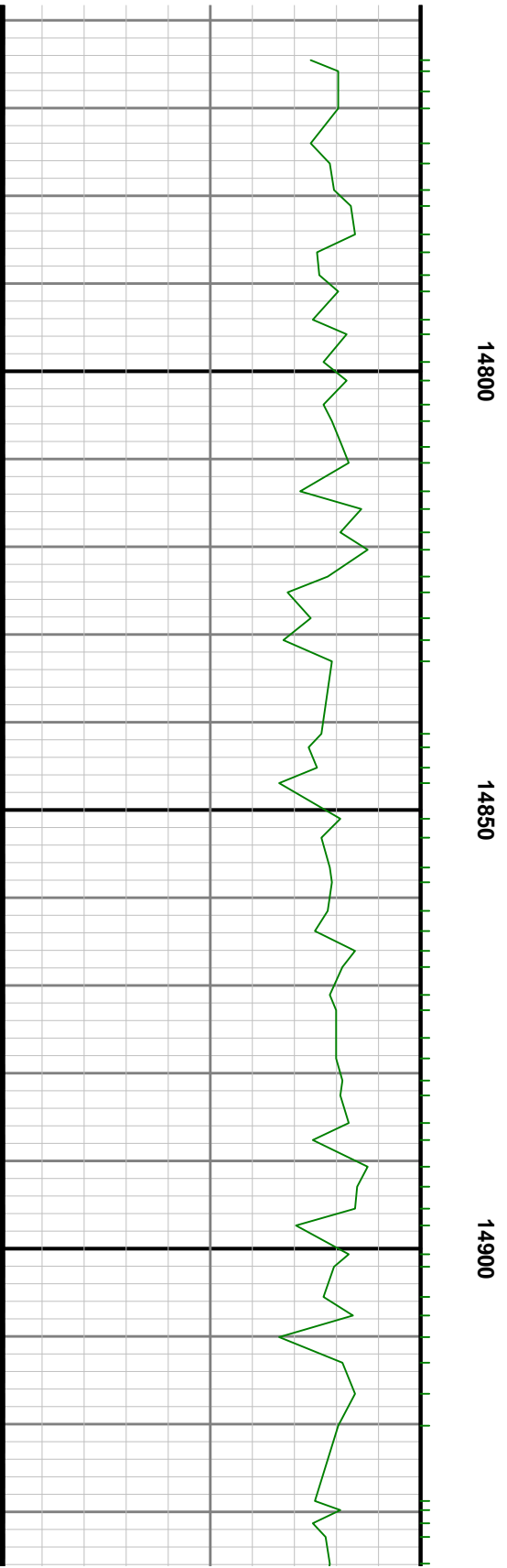
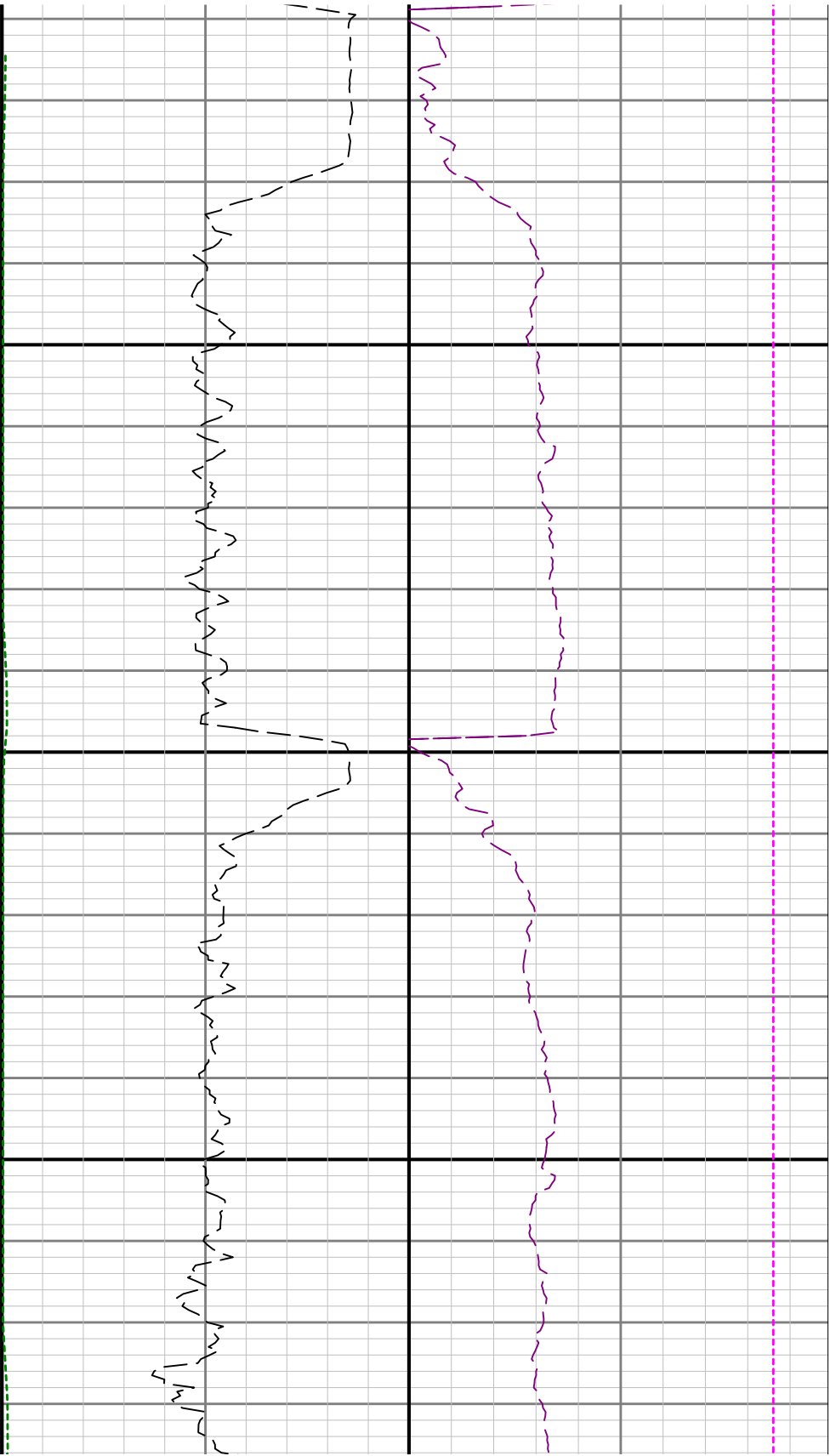


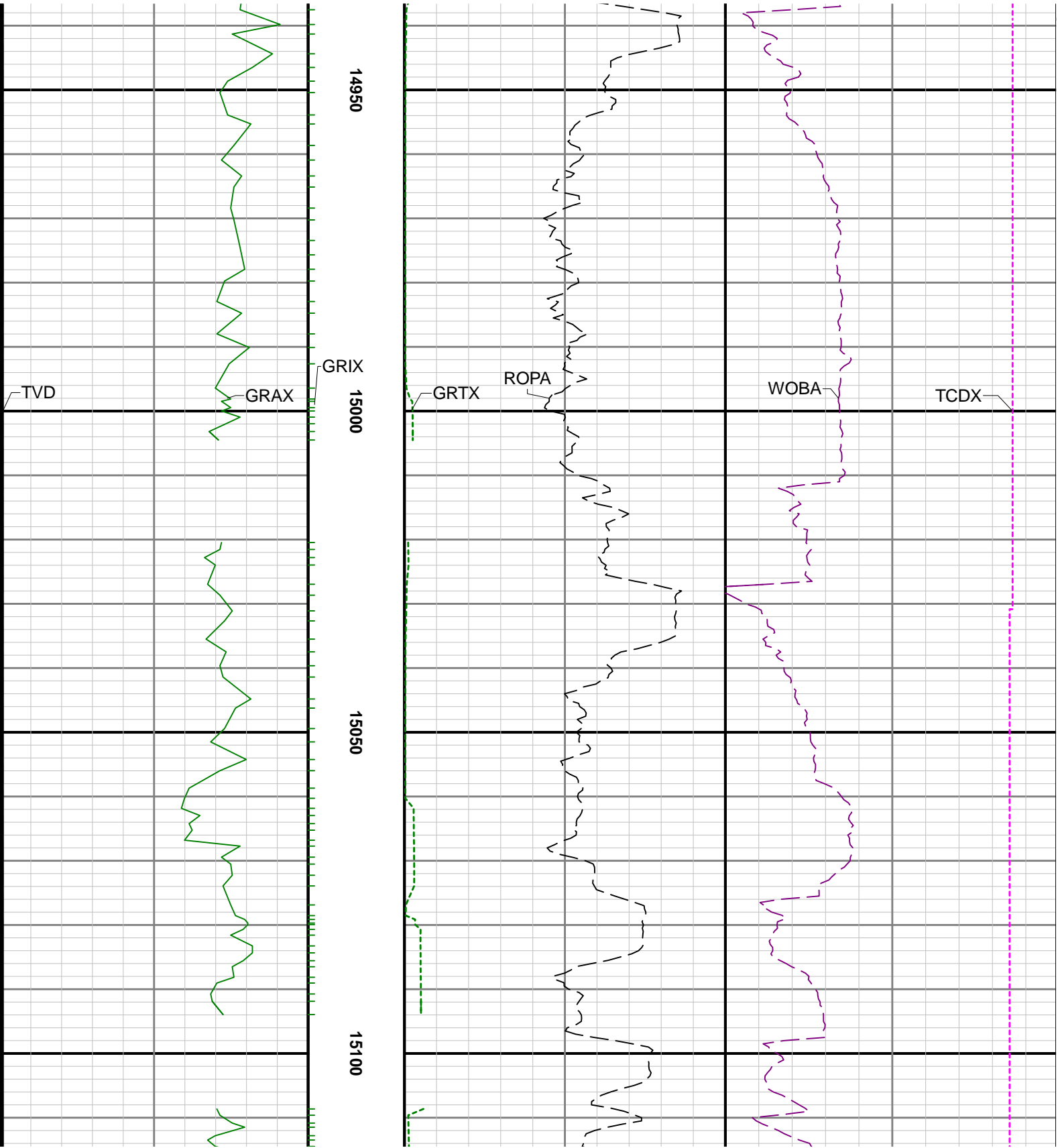


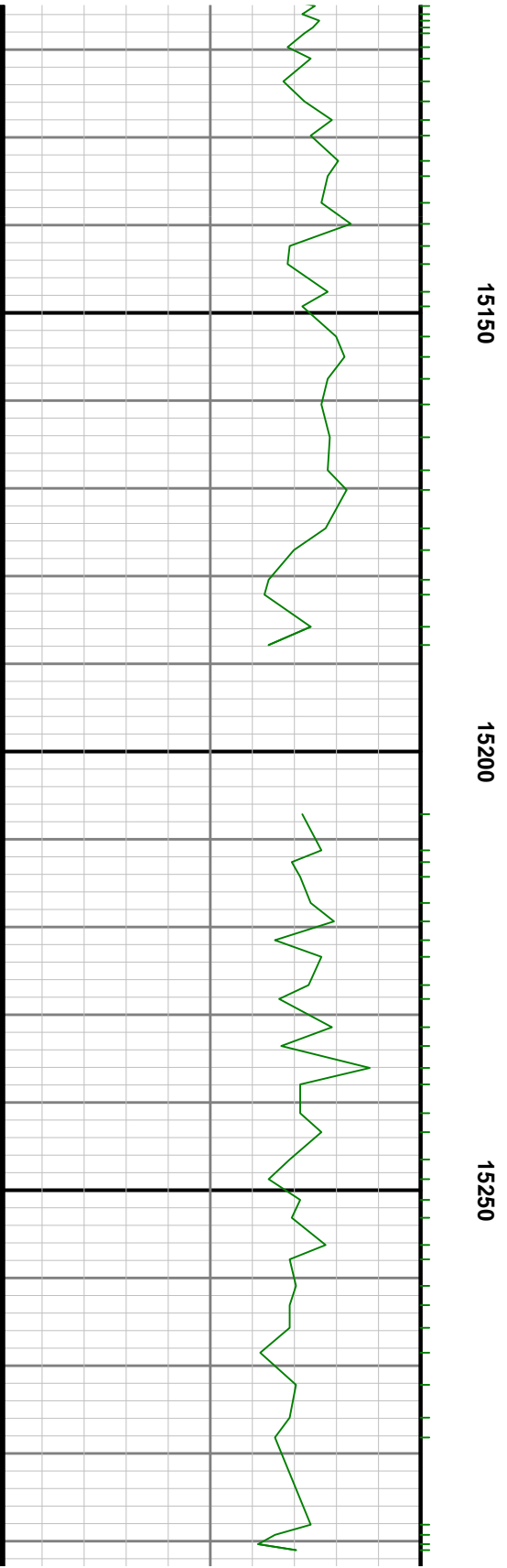


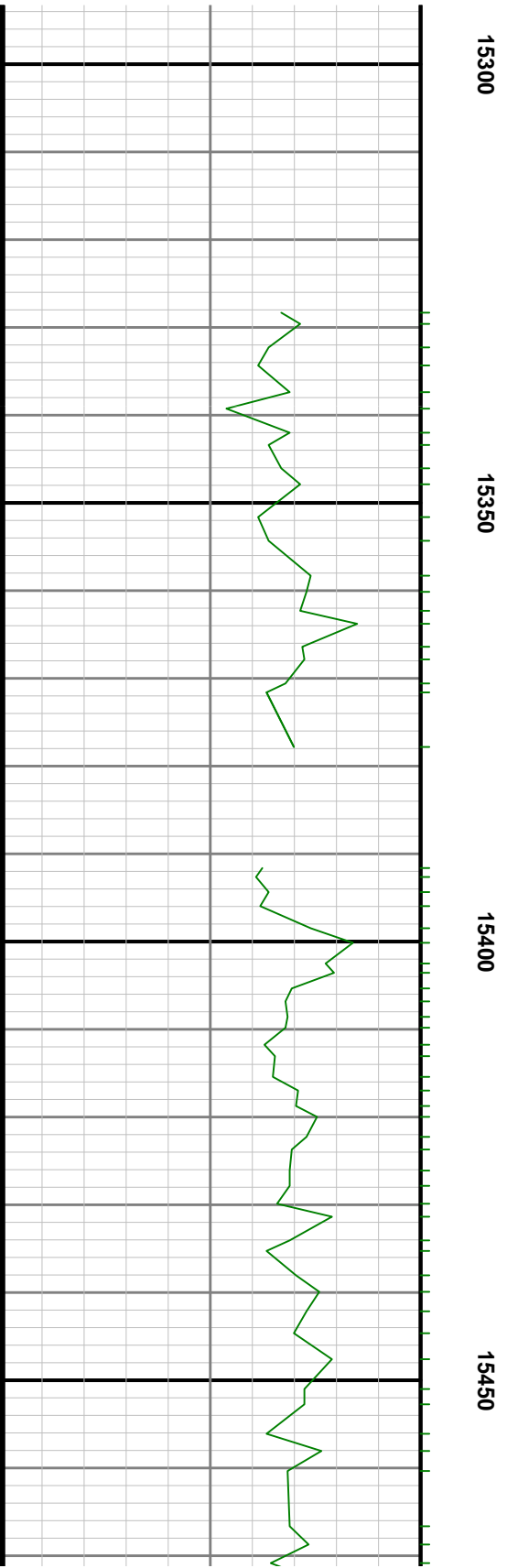
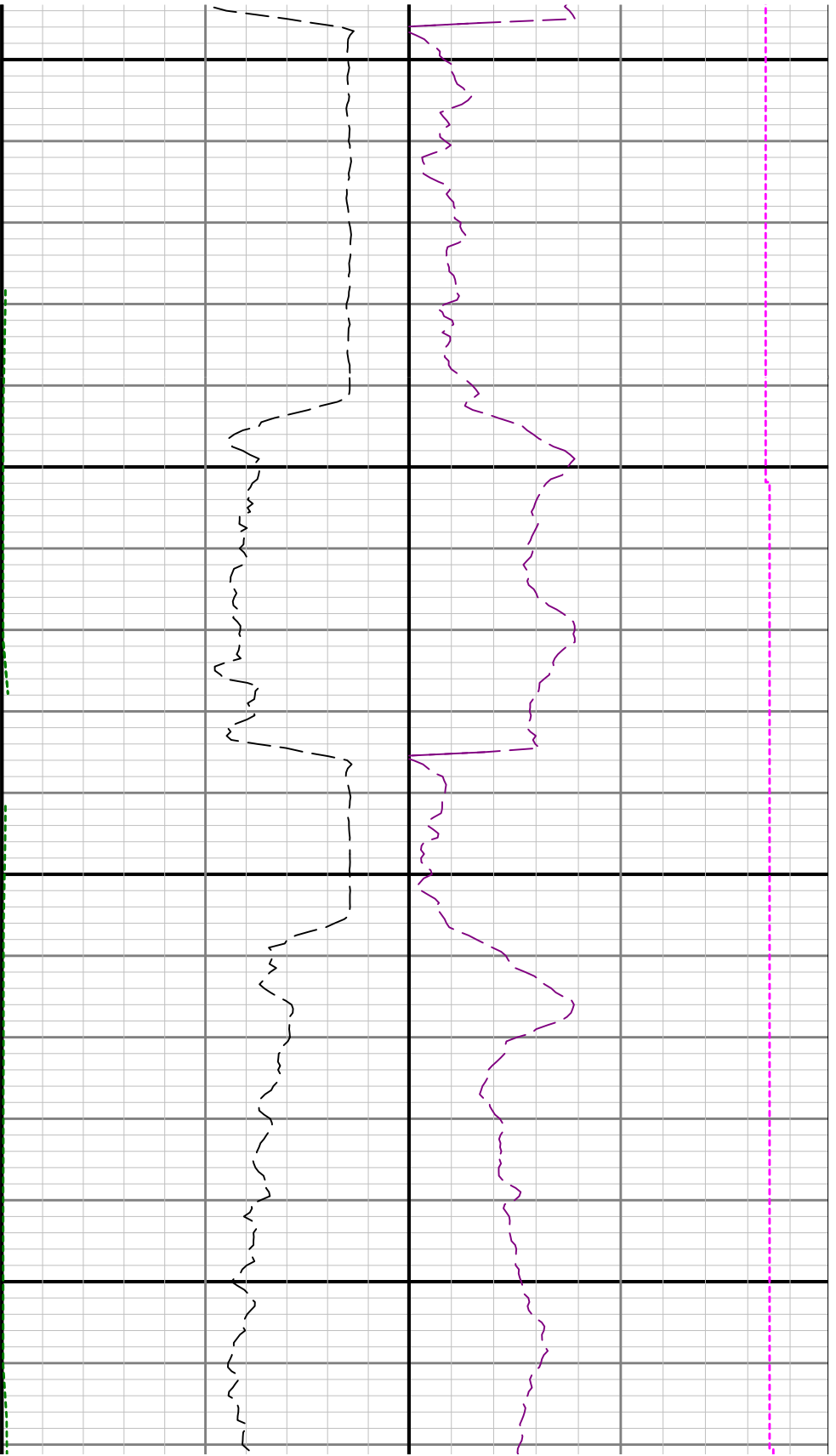




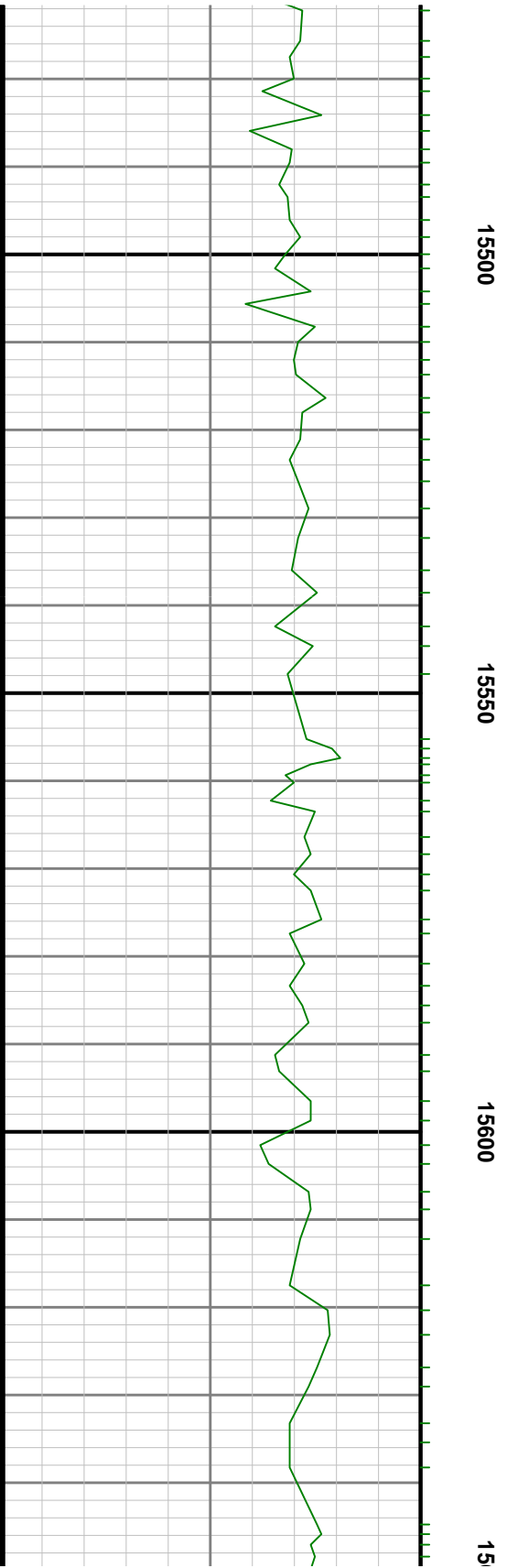
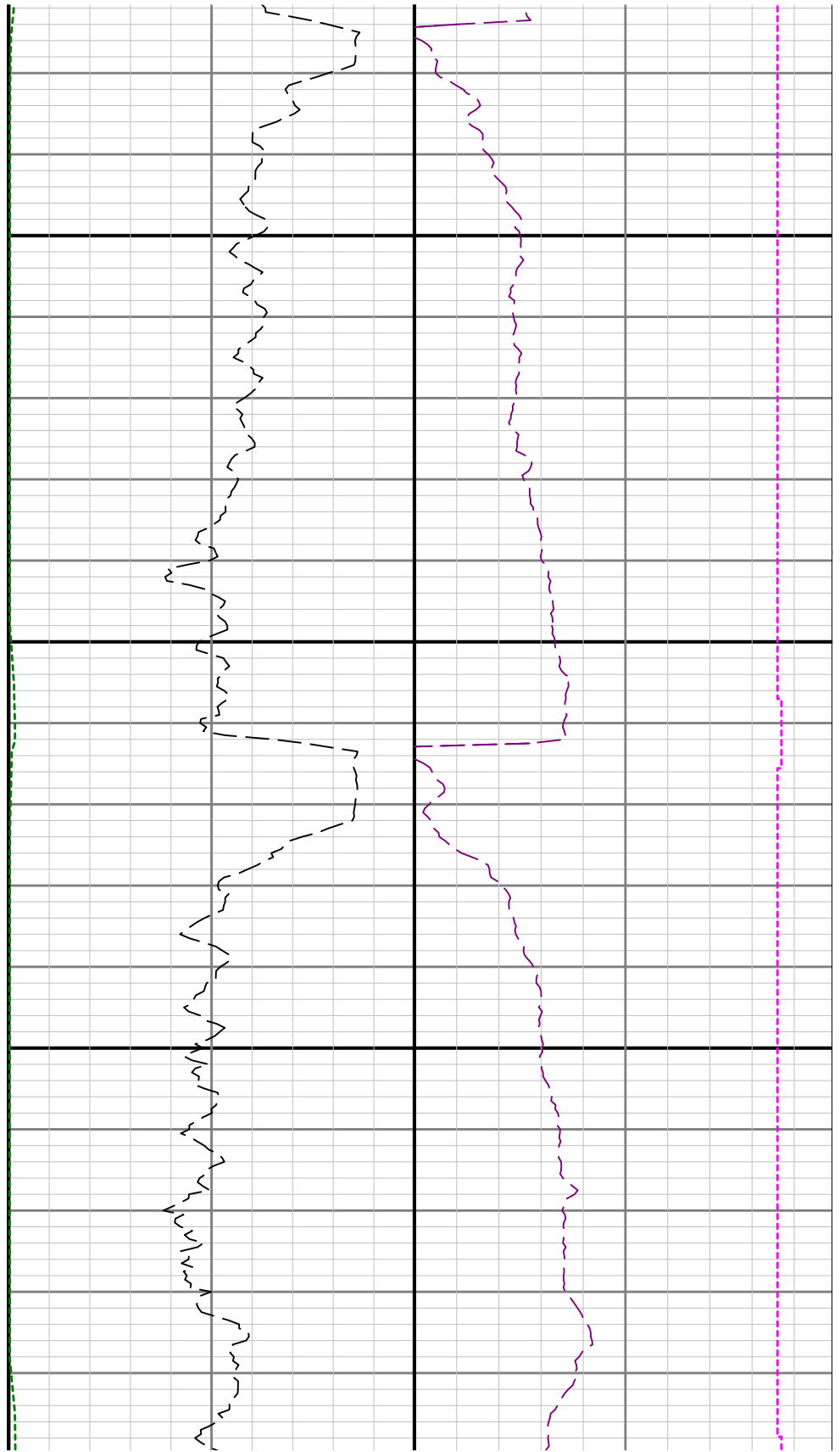


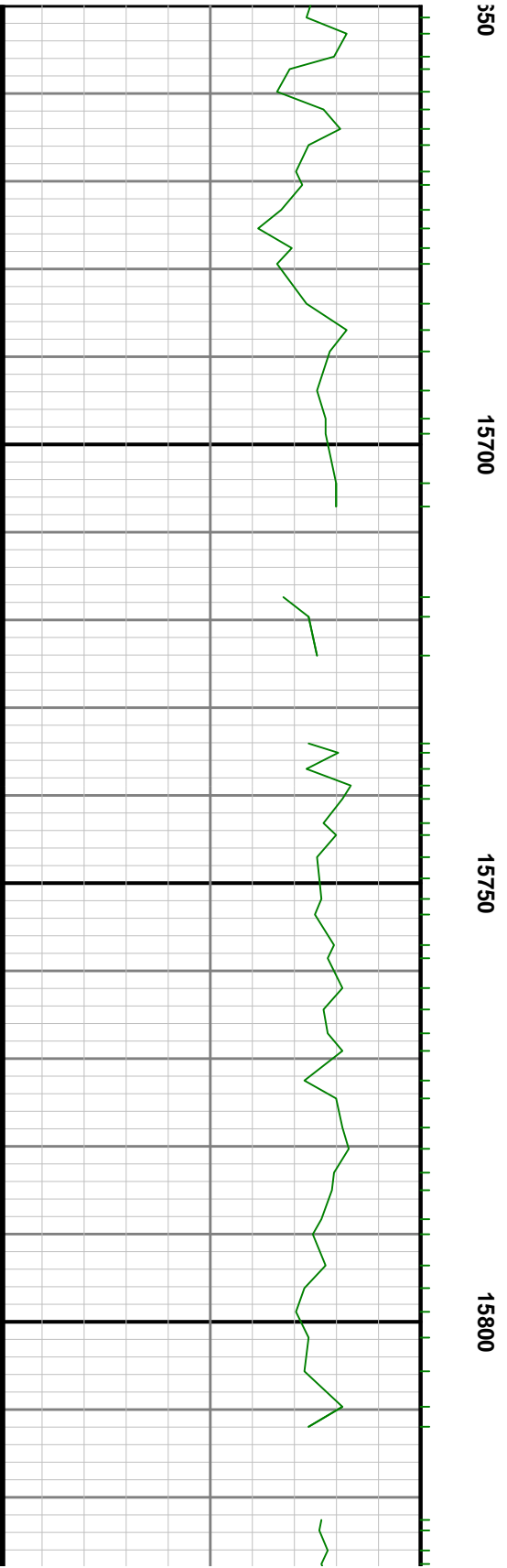
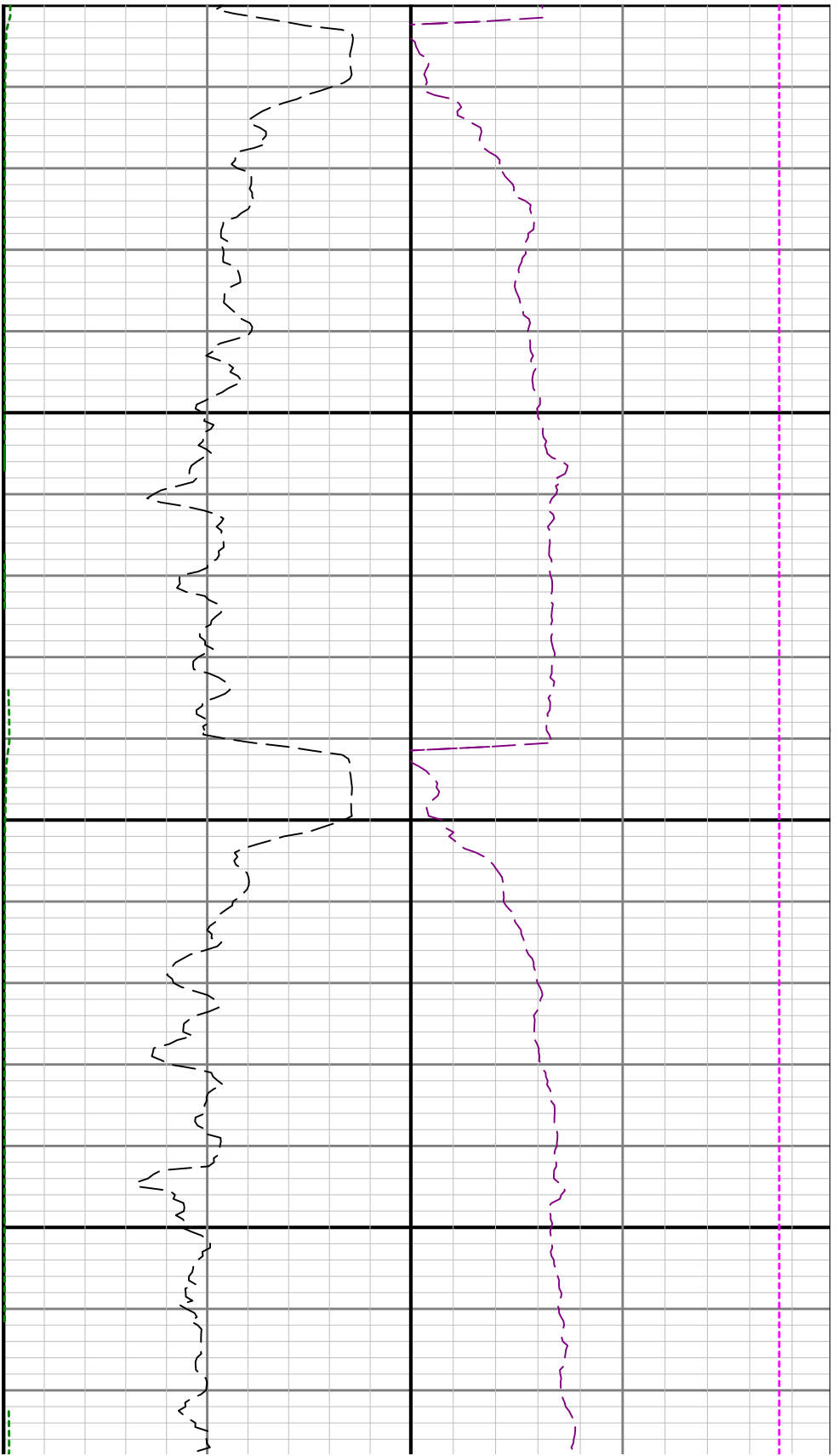


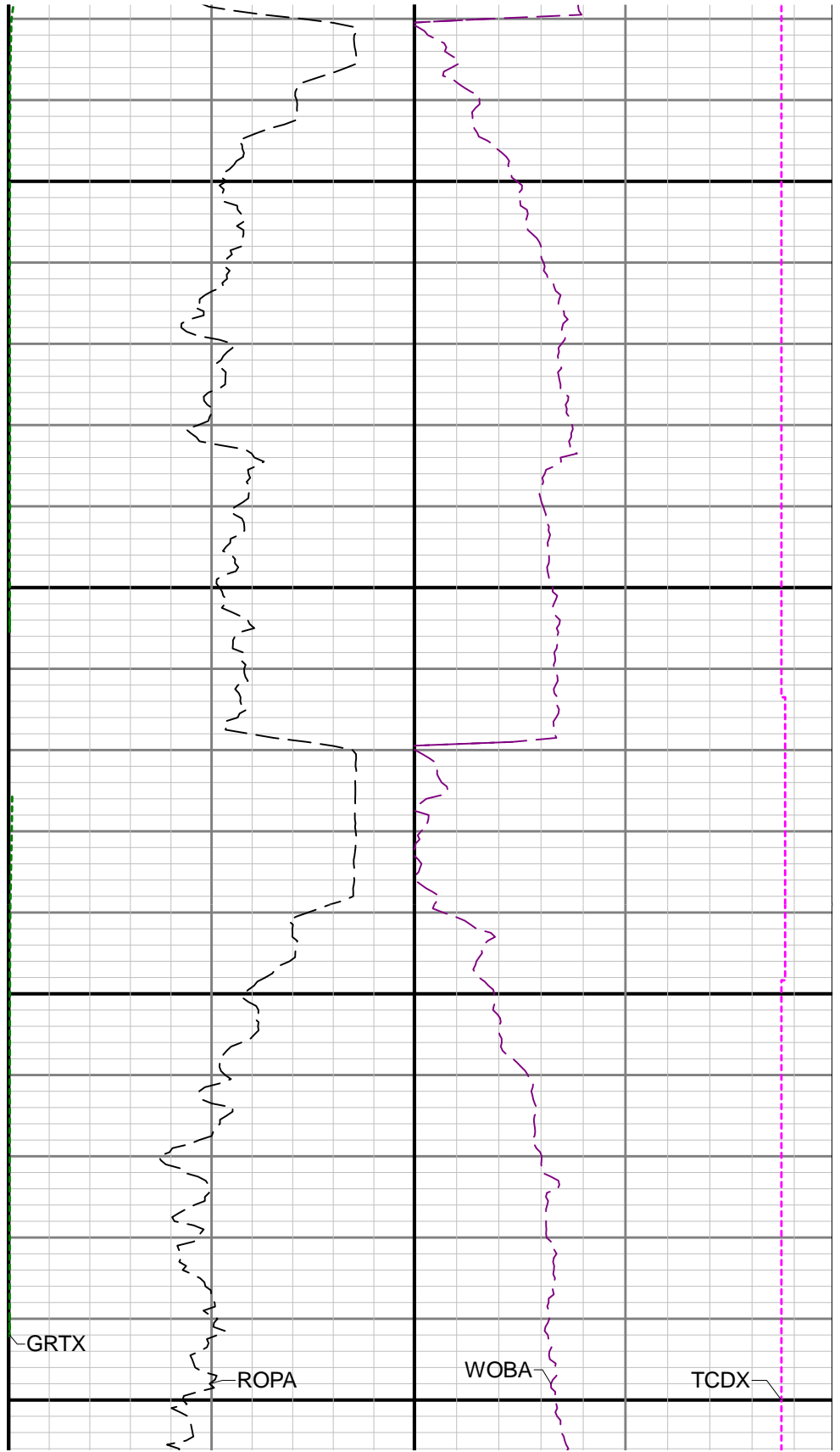
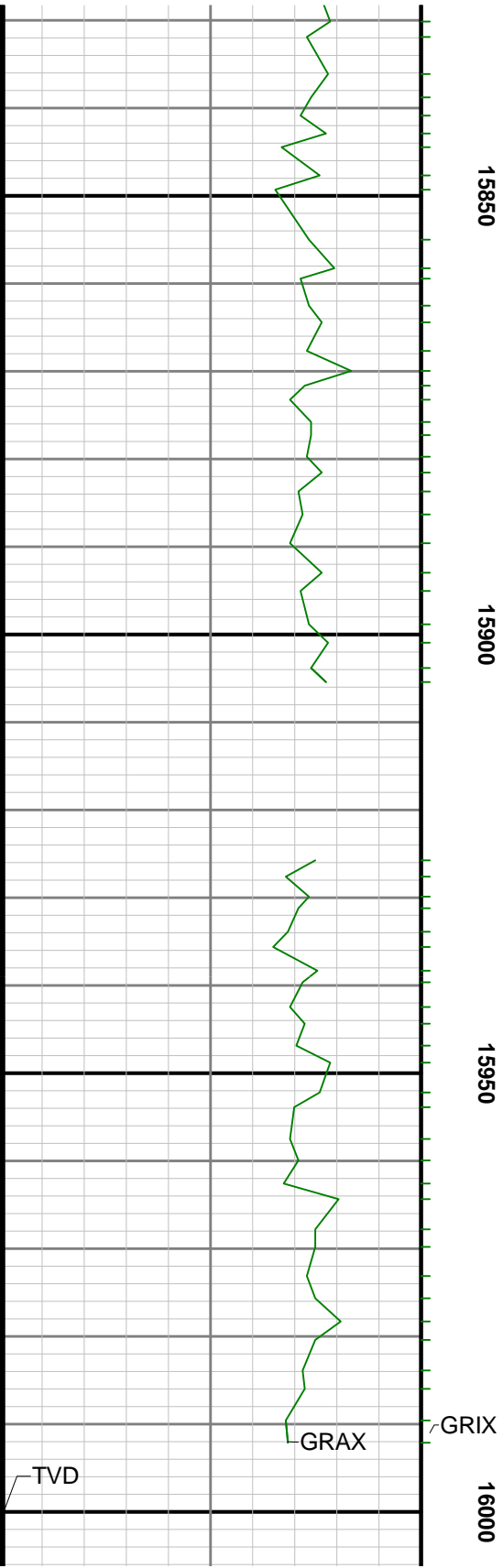


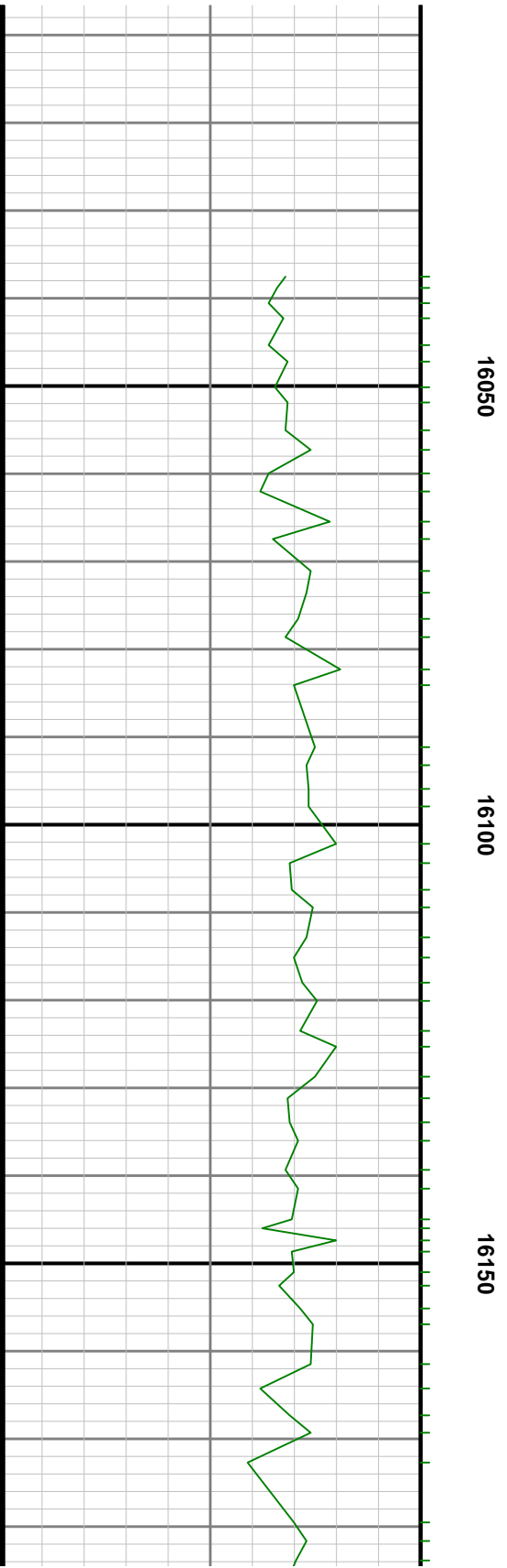
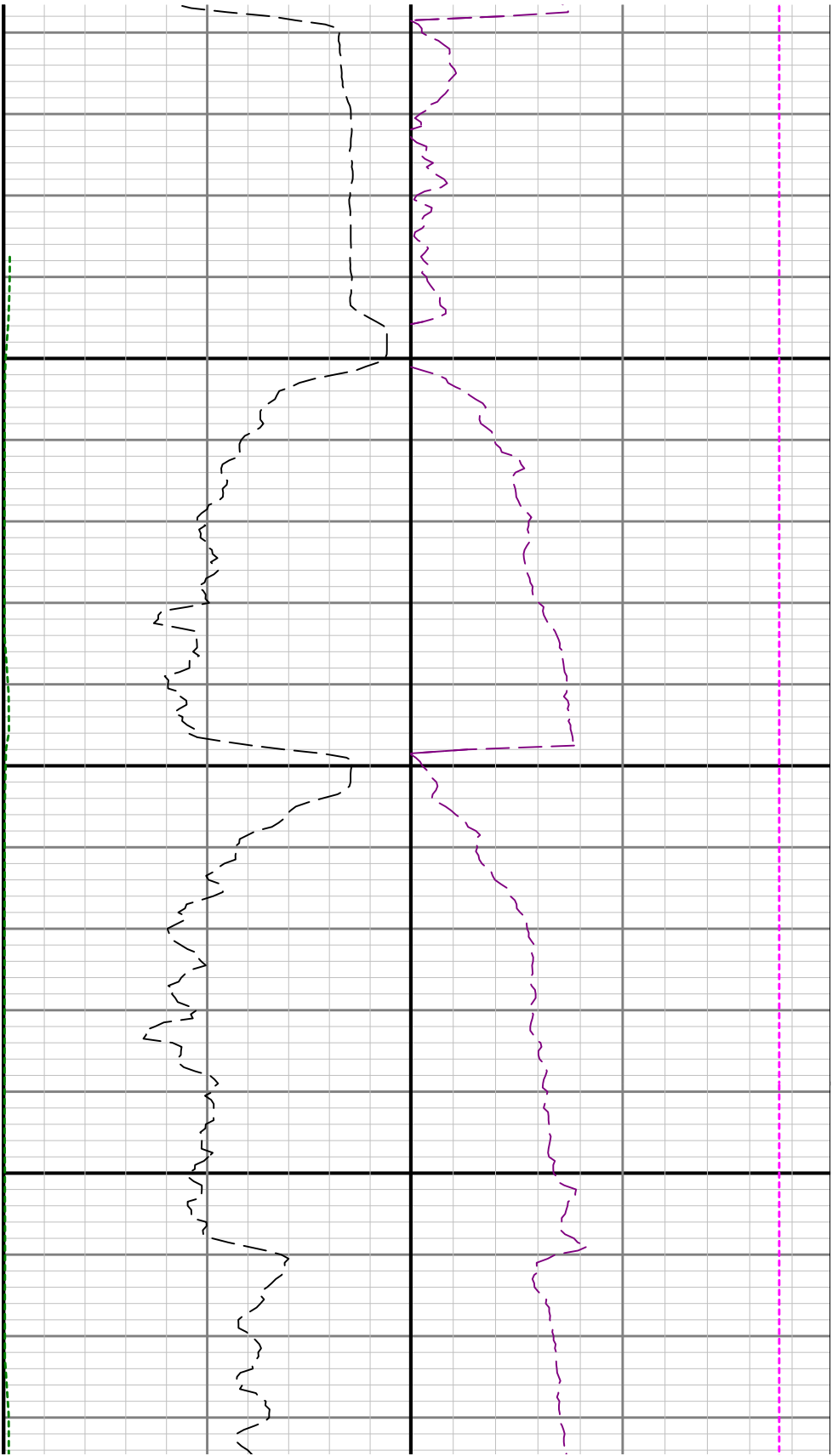


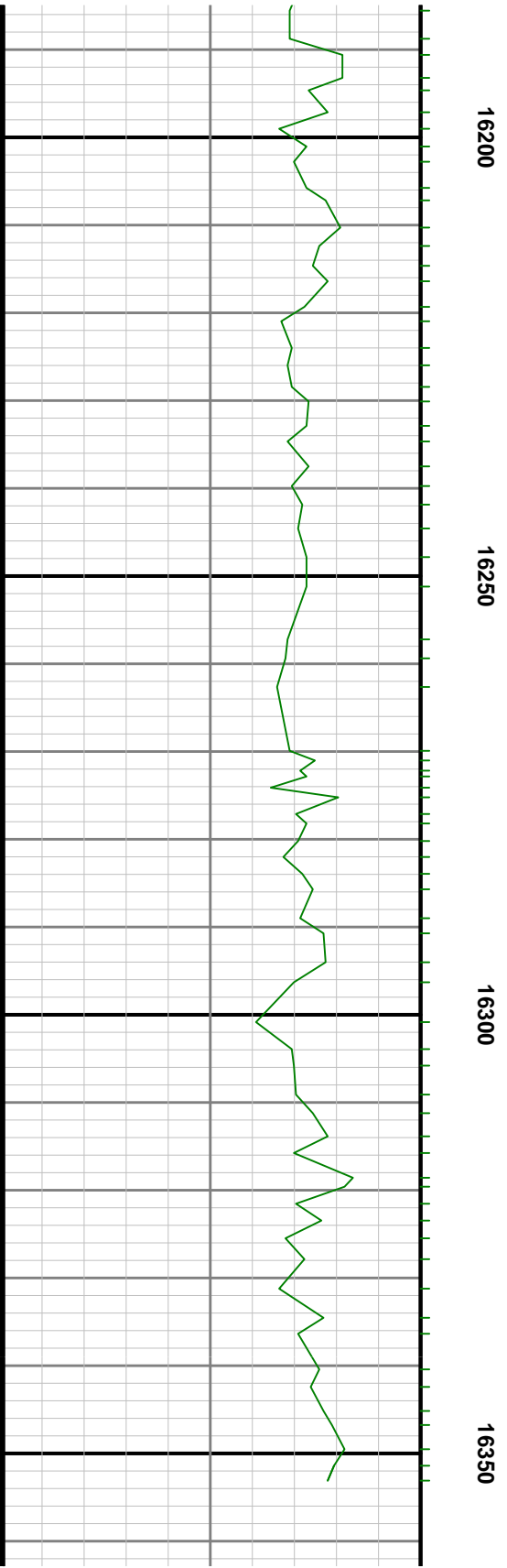
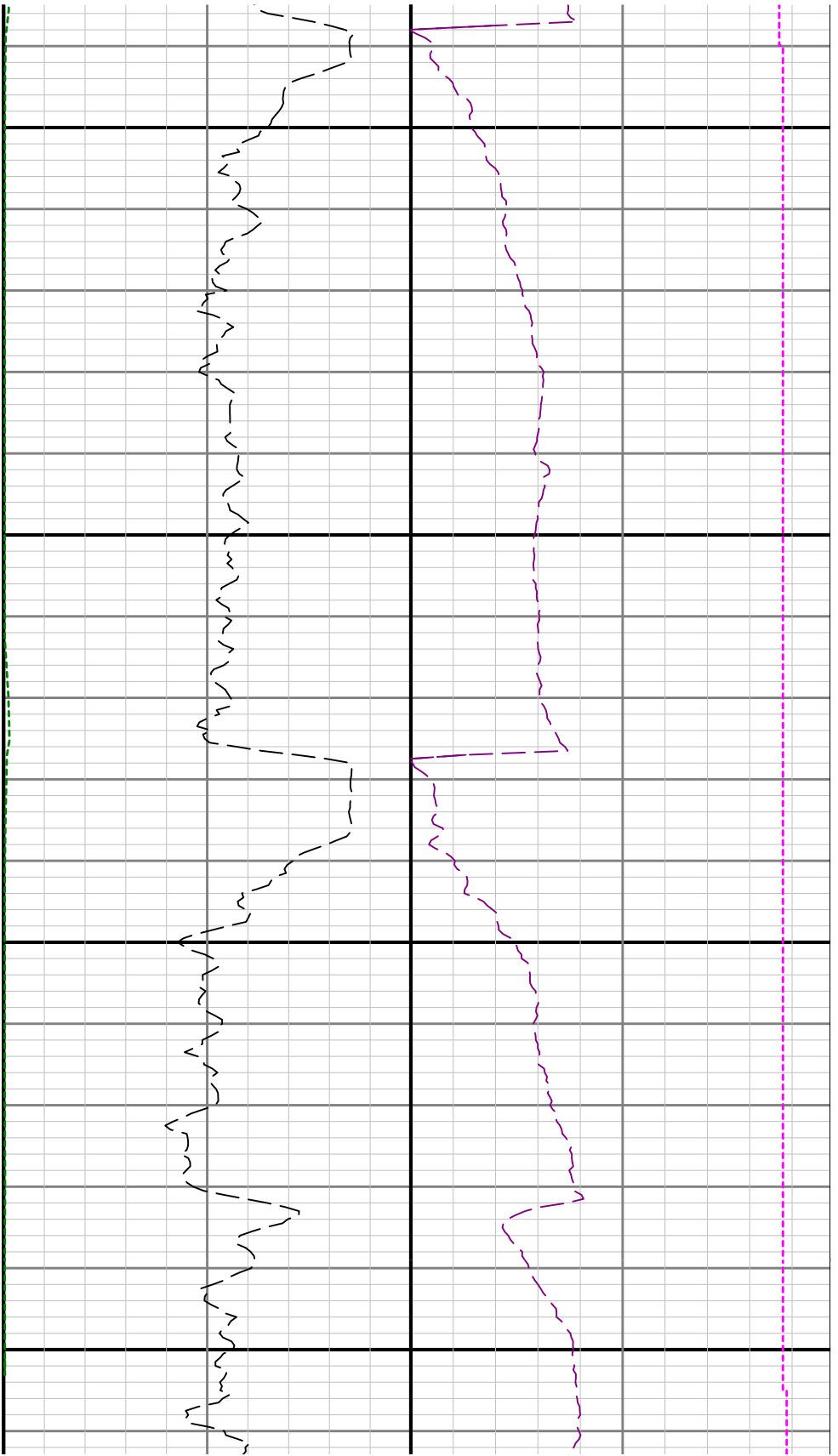


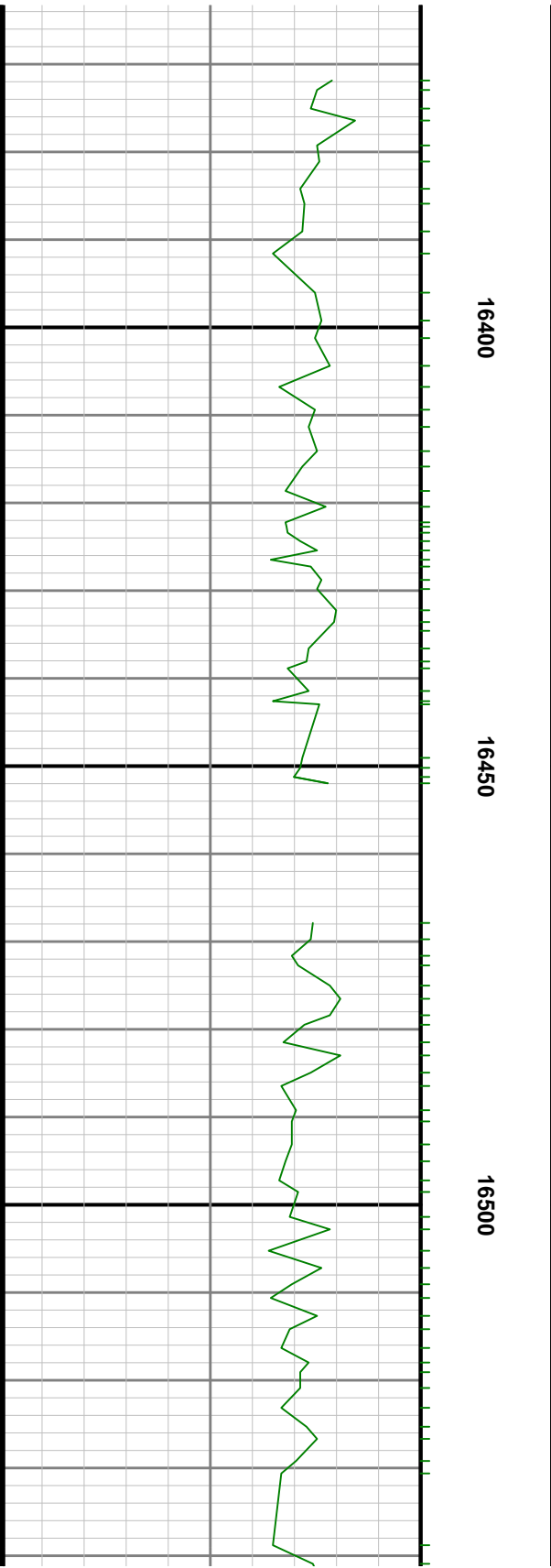
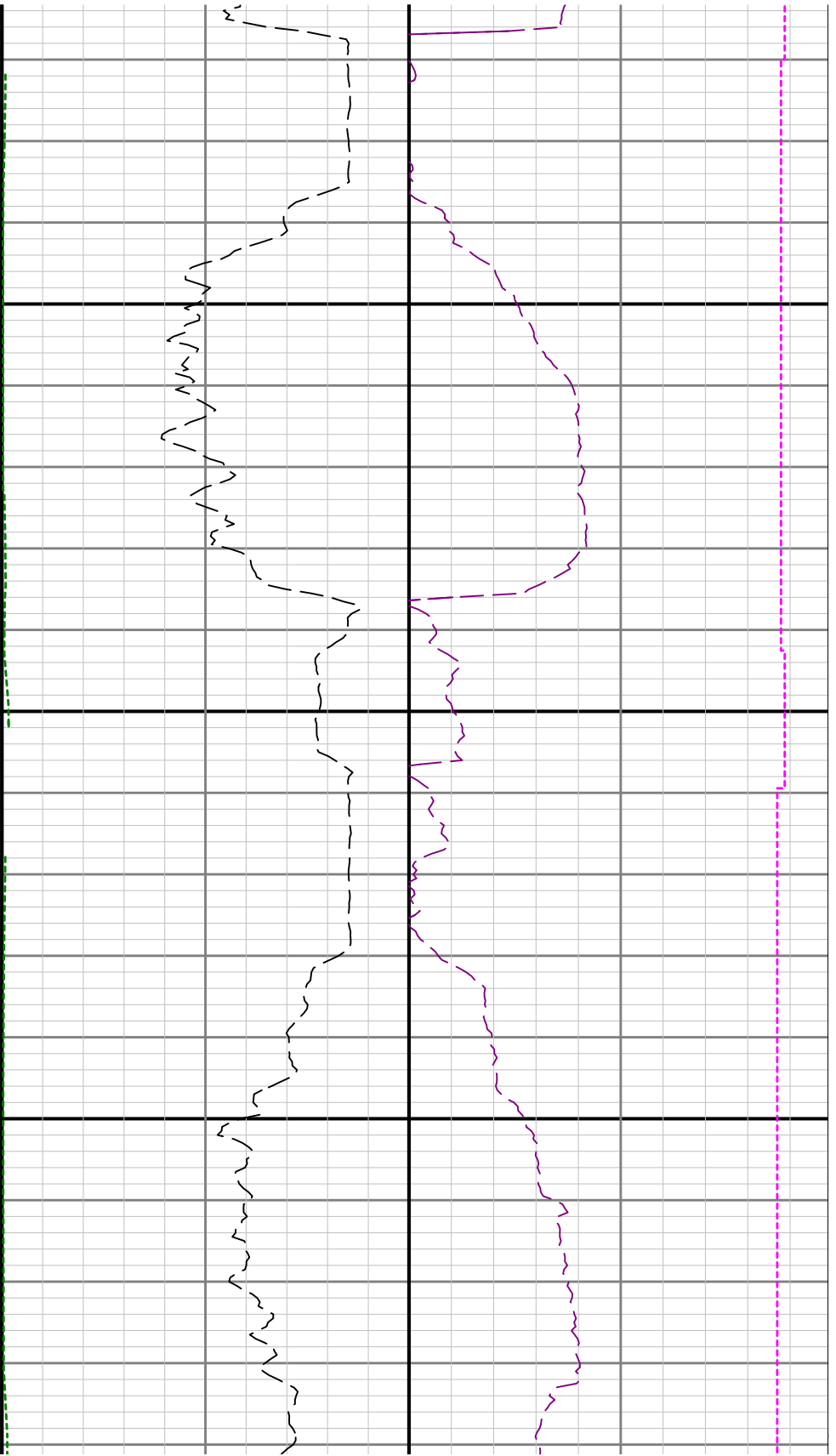


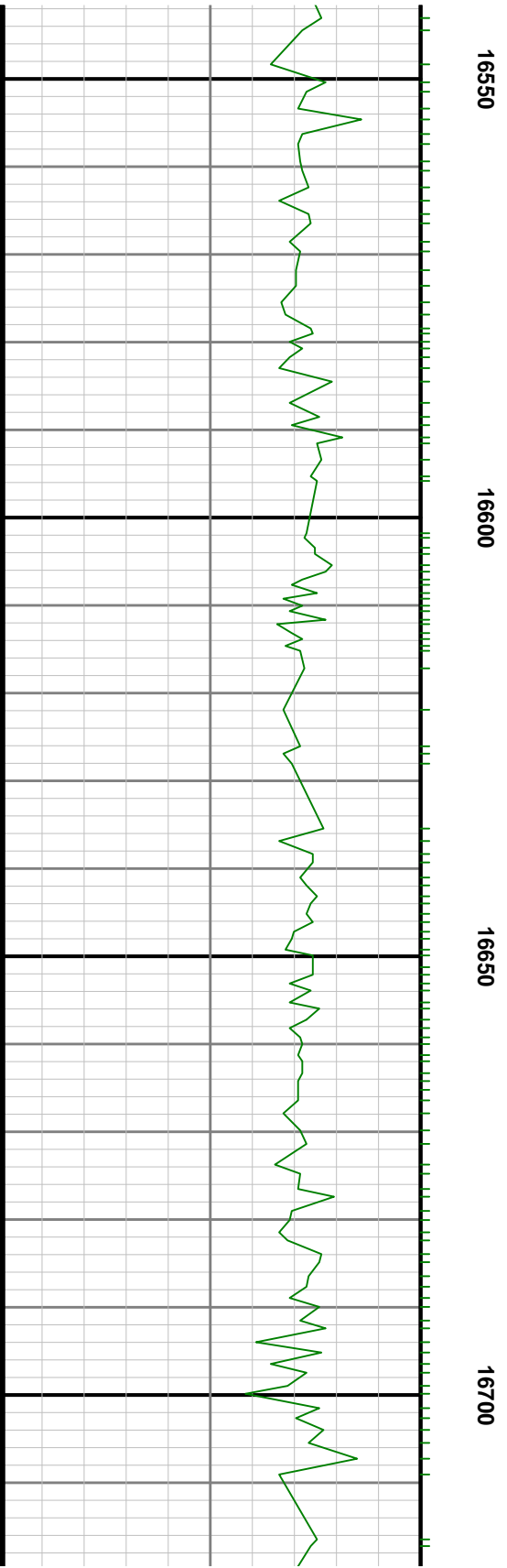
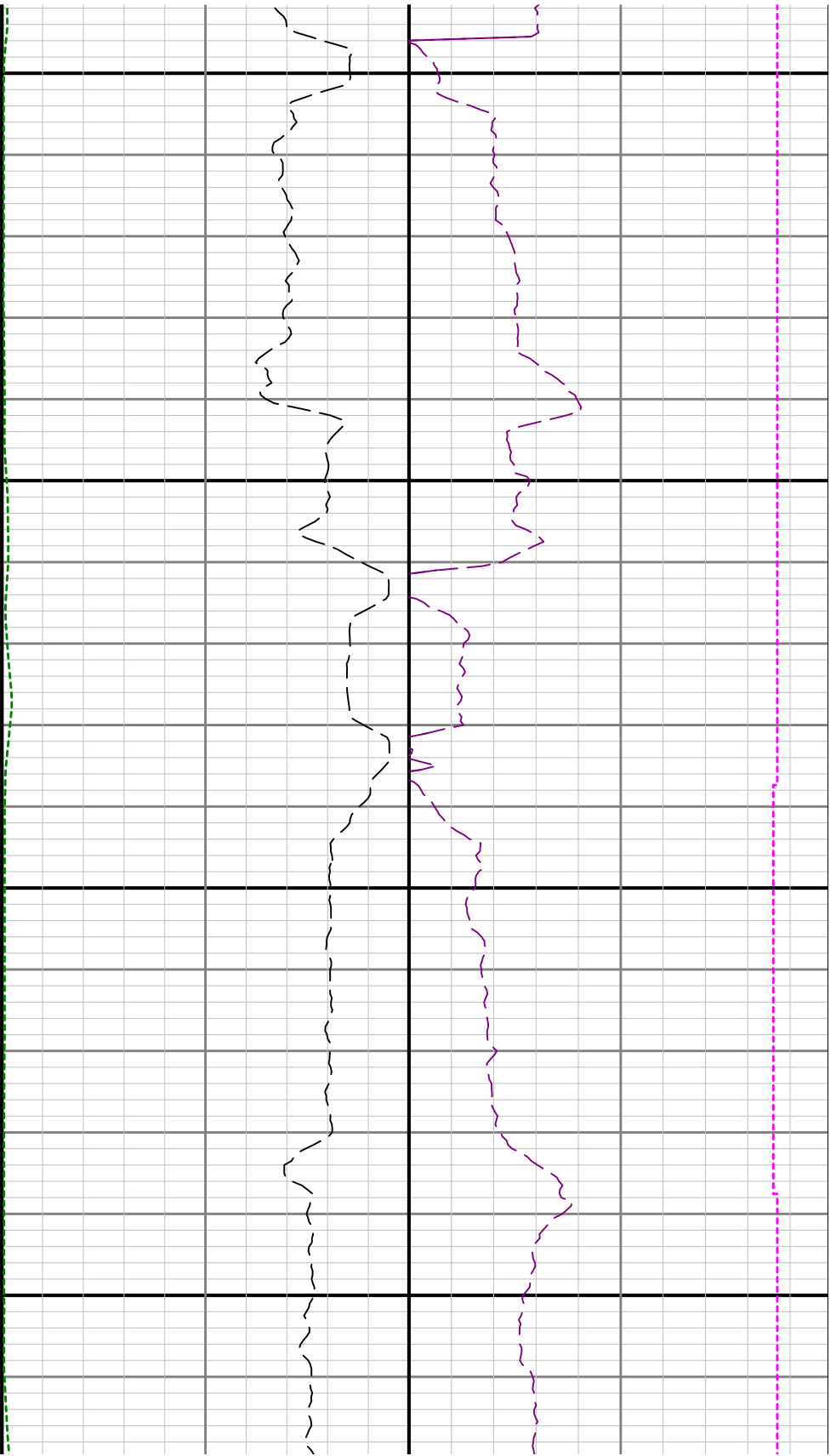


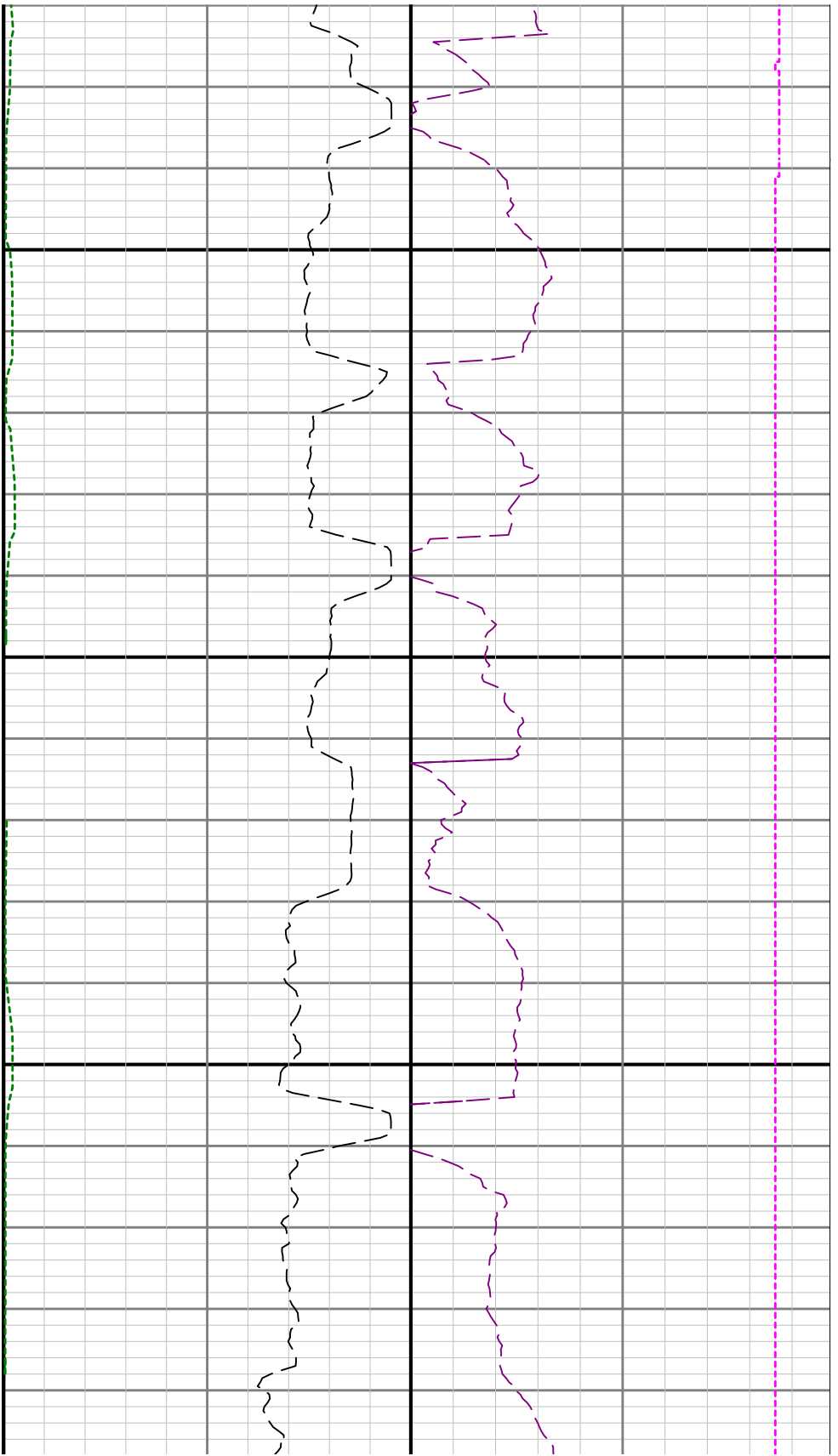












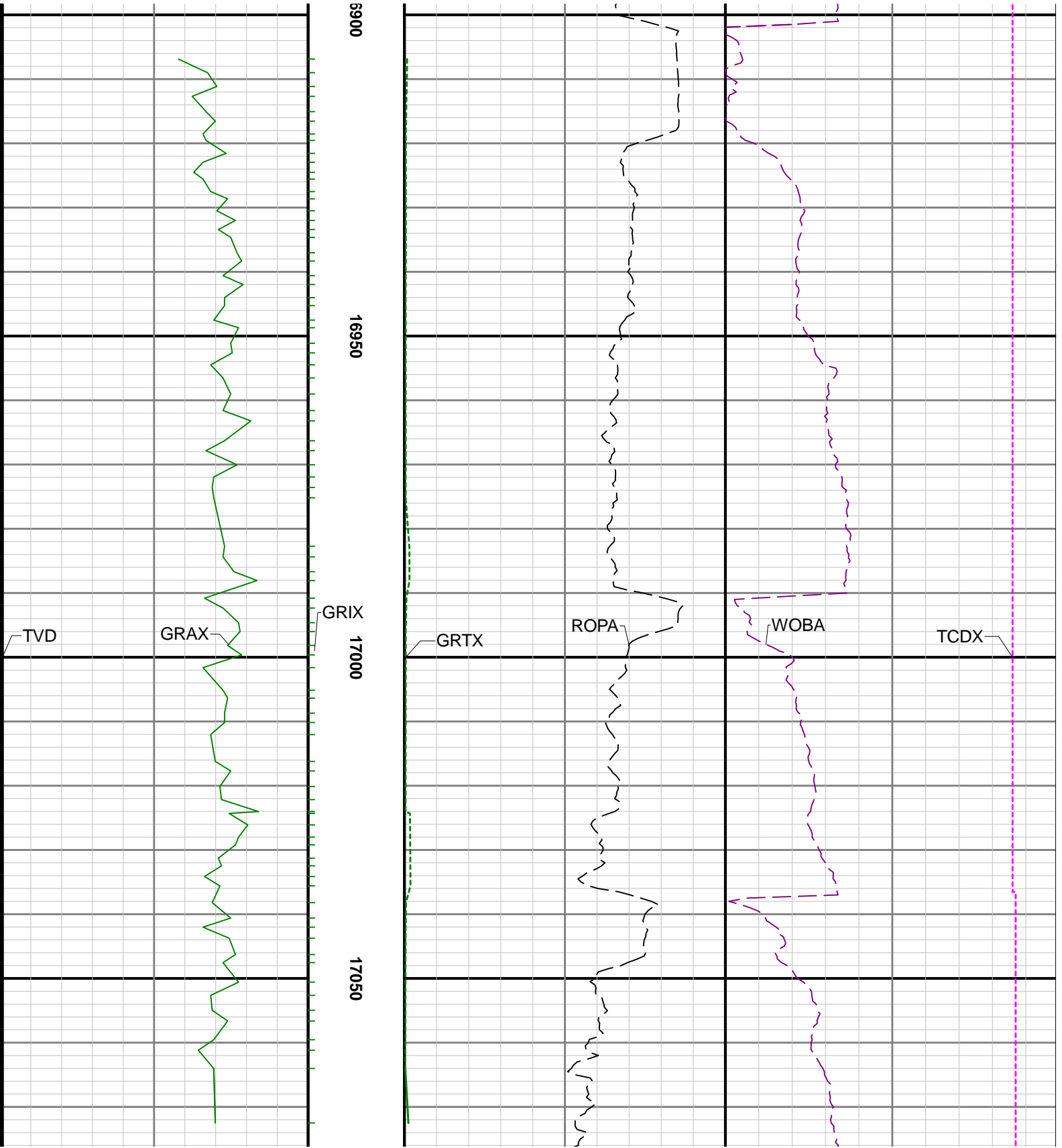
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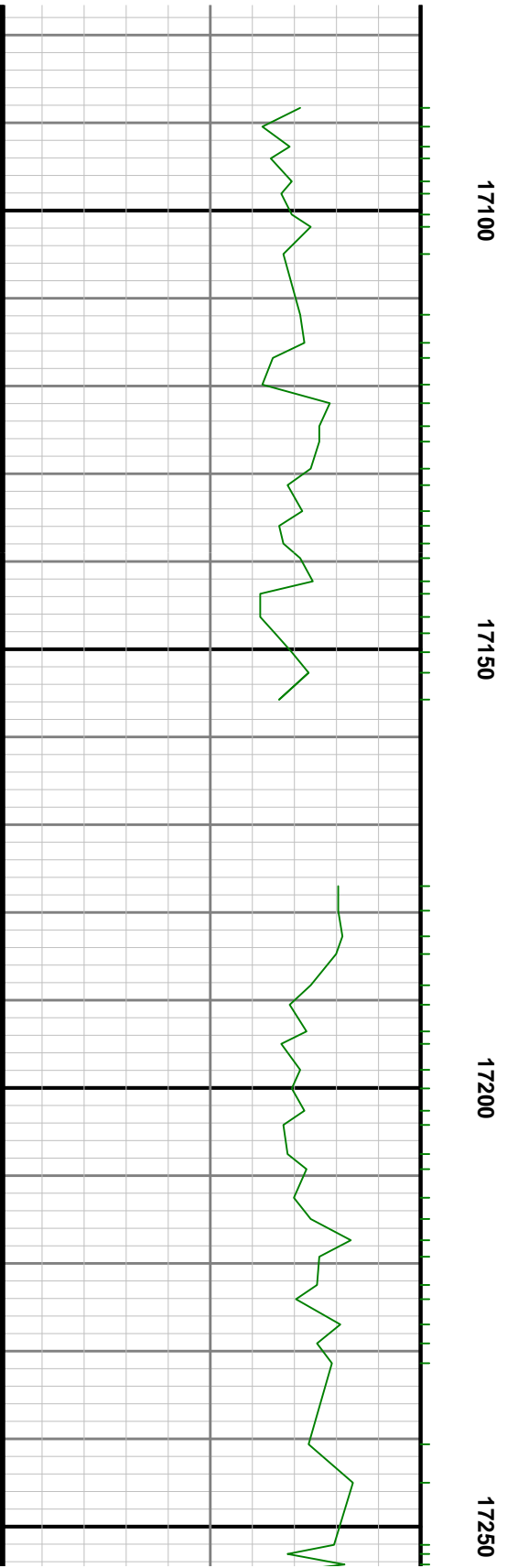
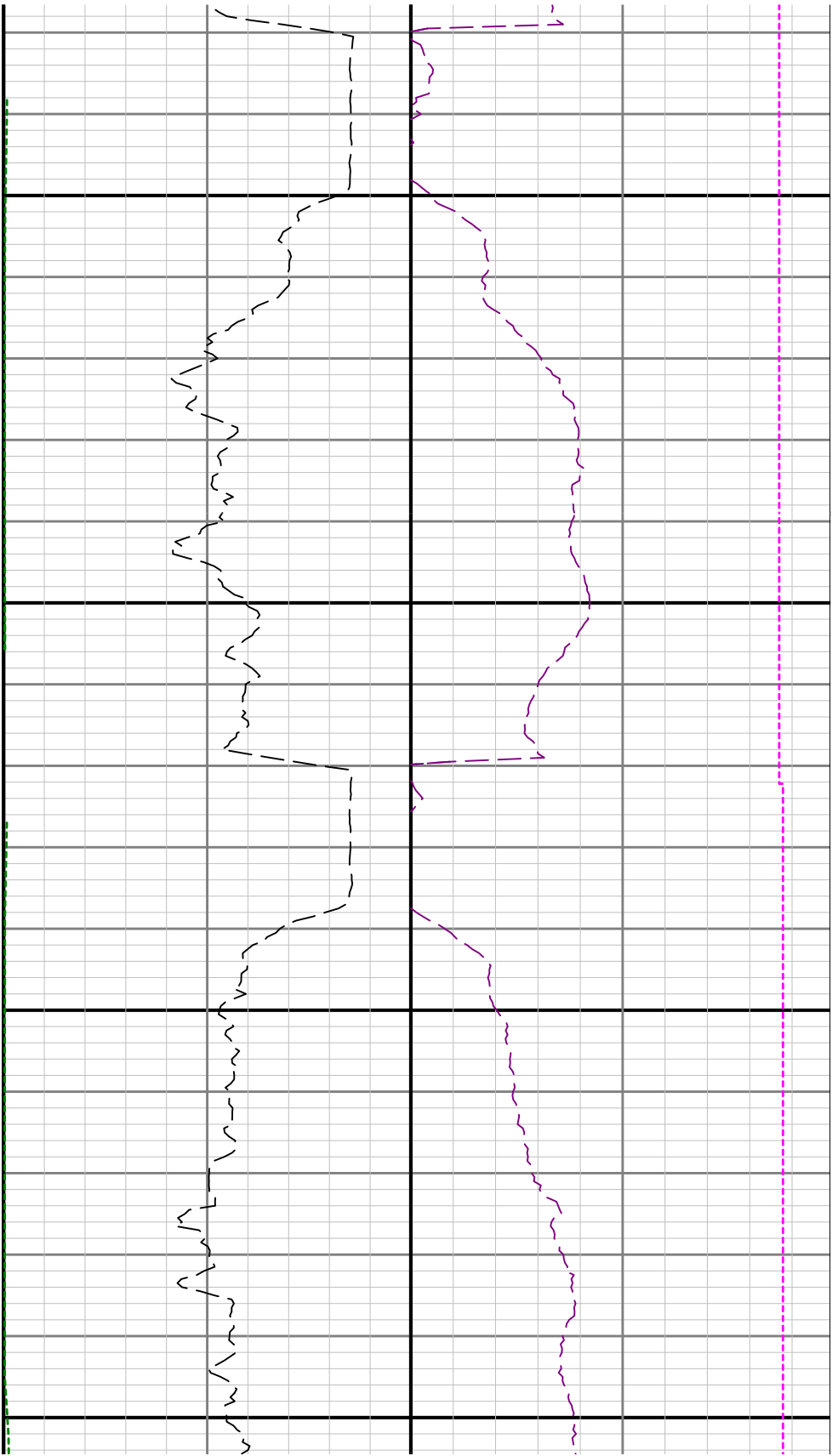
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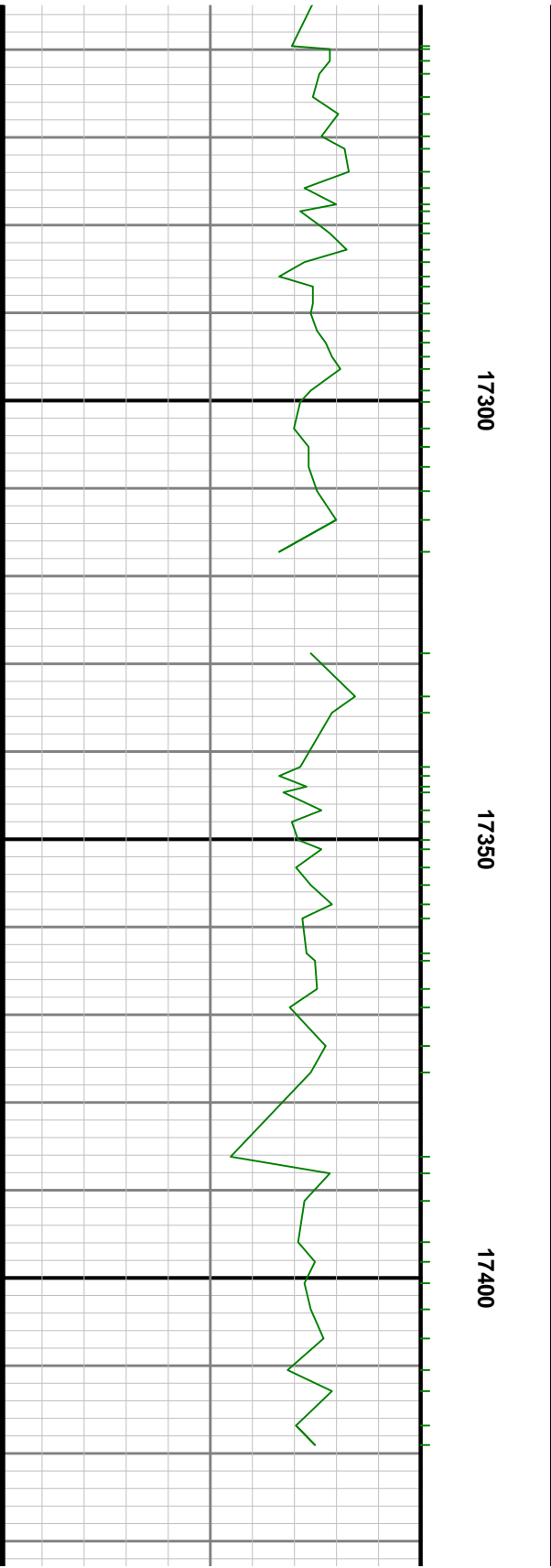
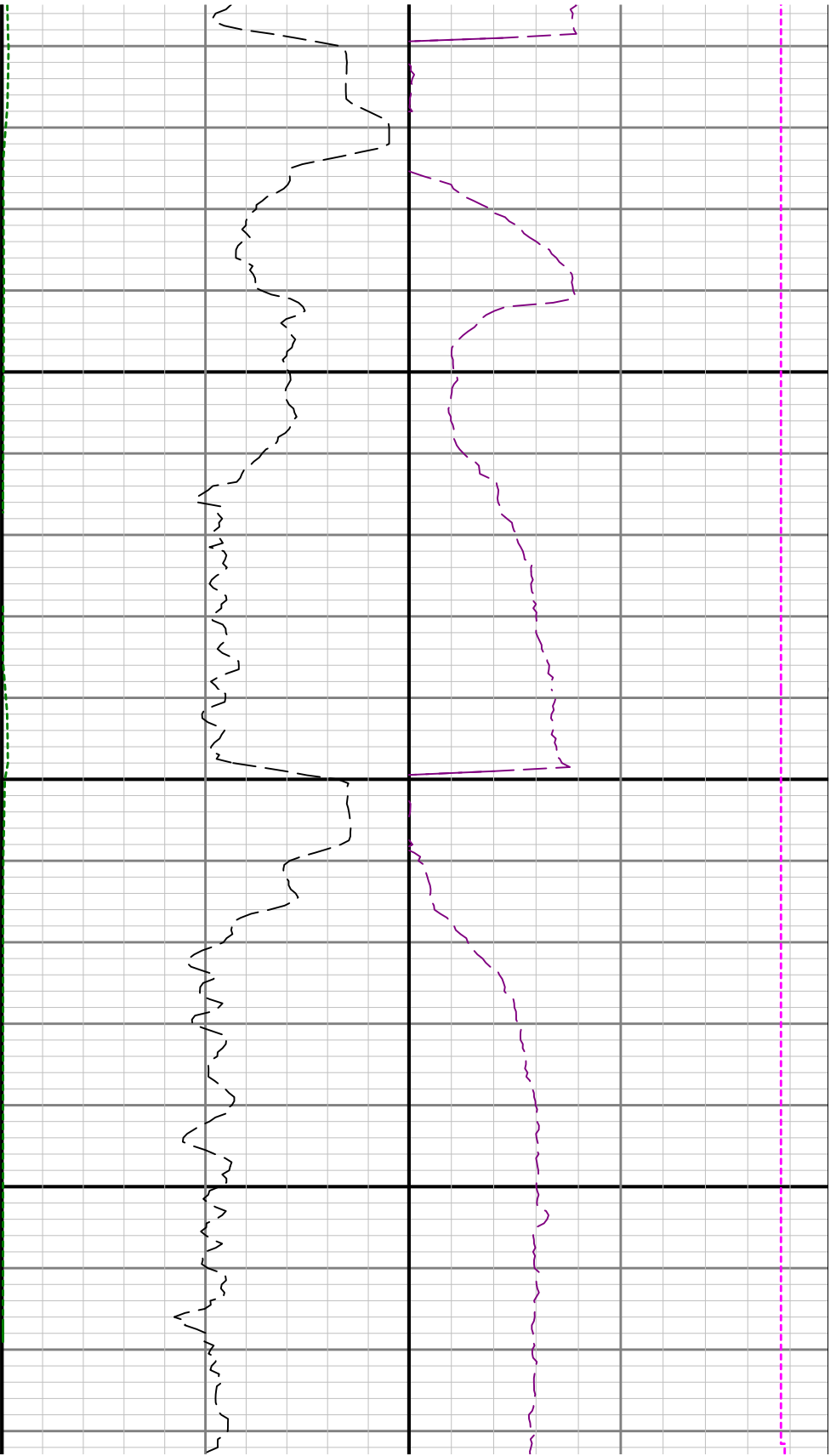
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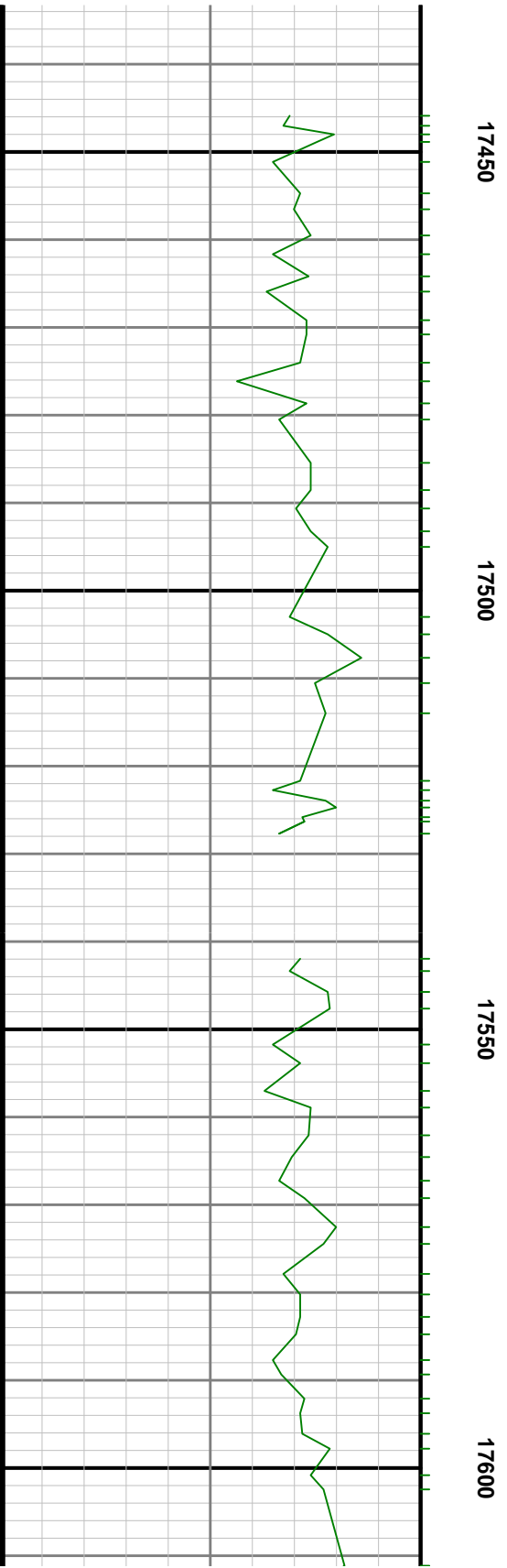
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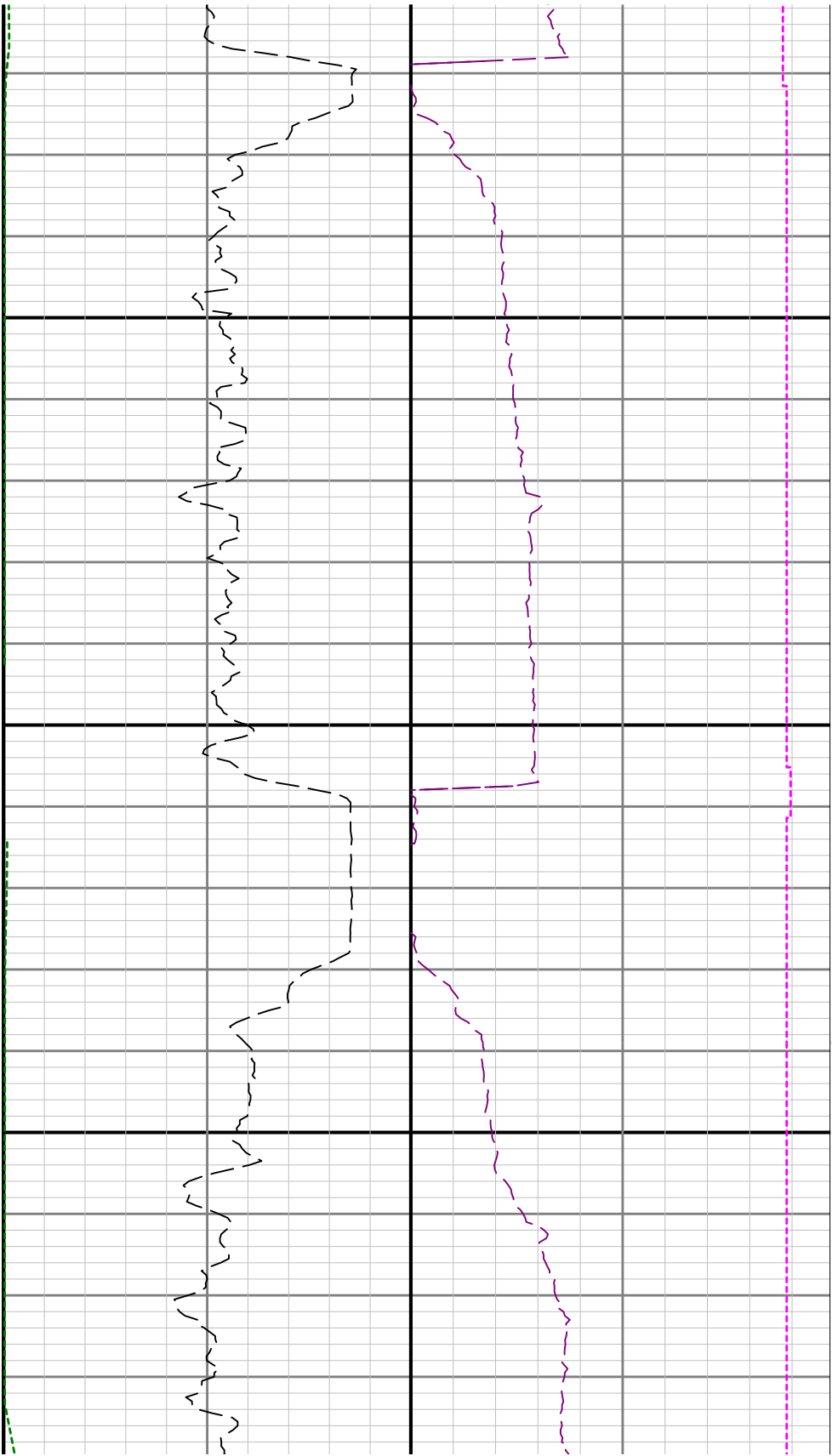












17650

17700

17750

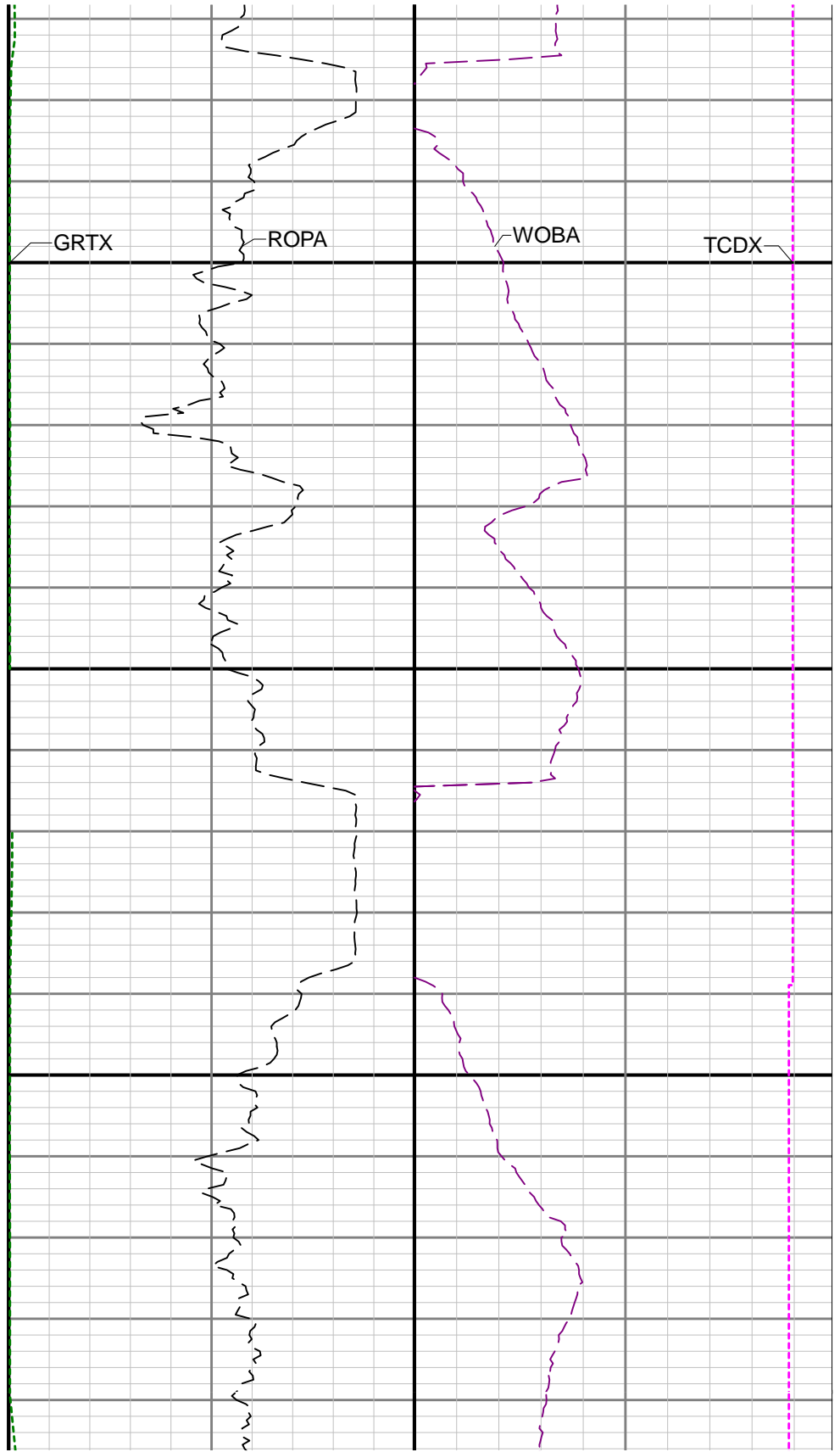
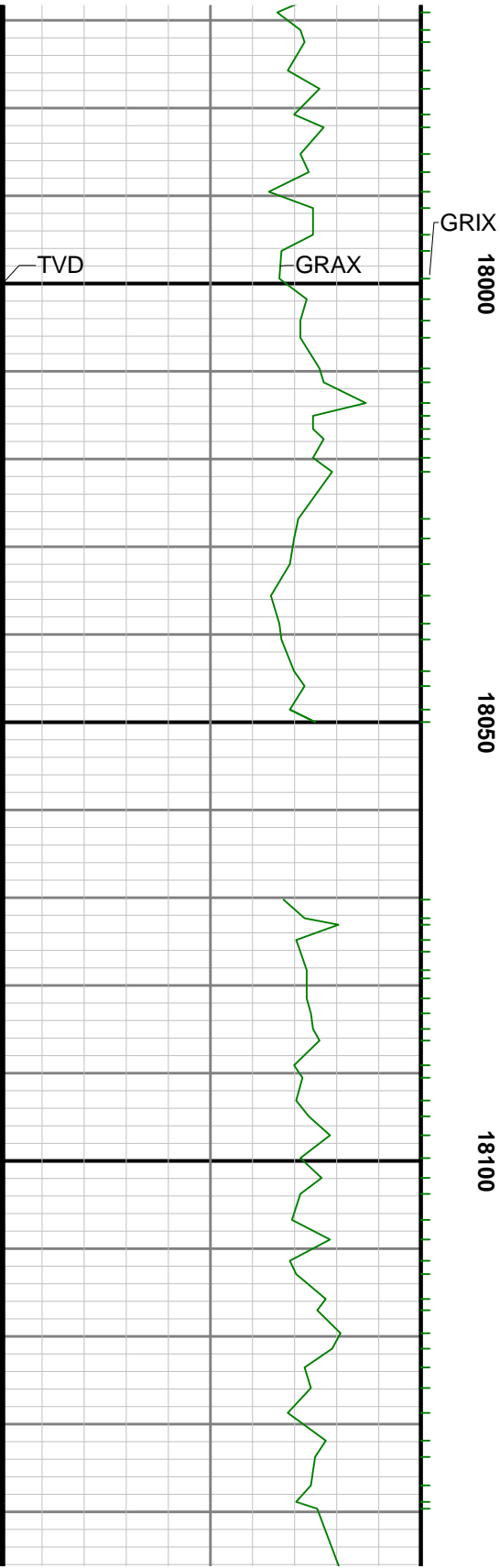


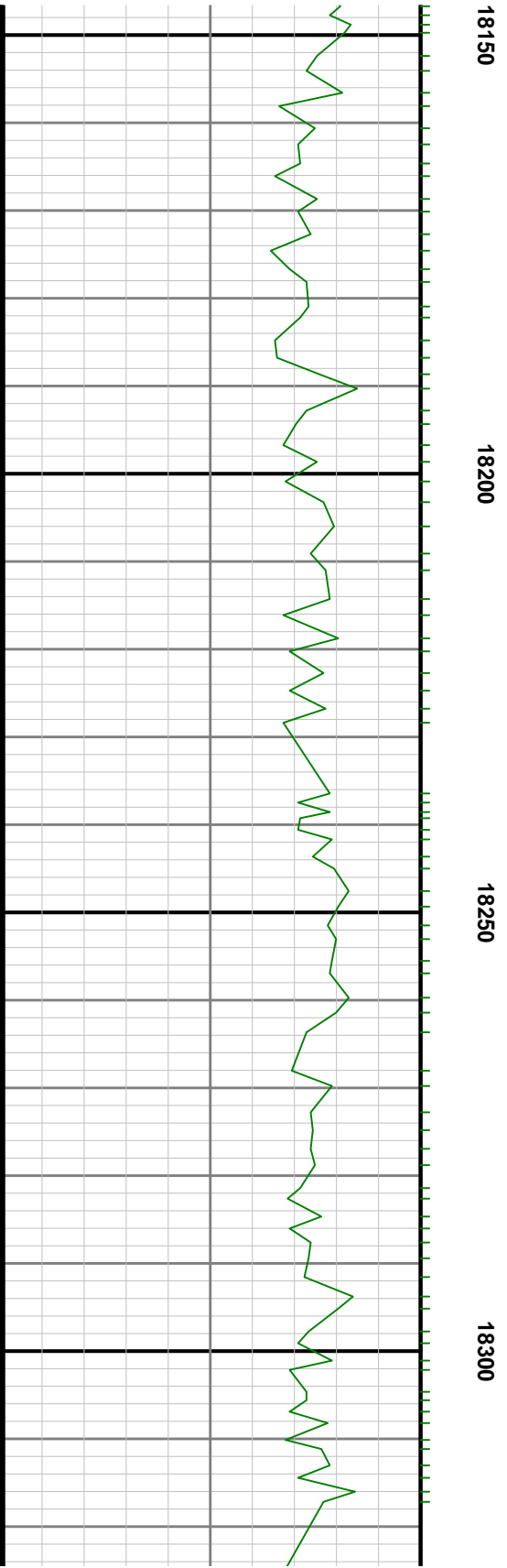
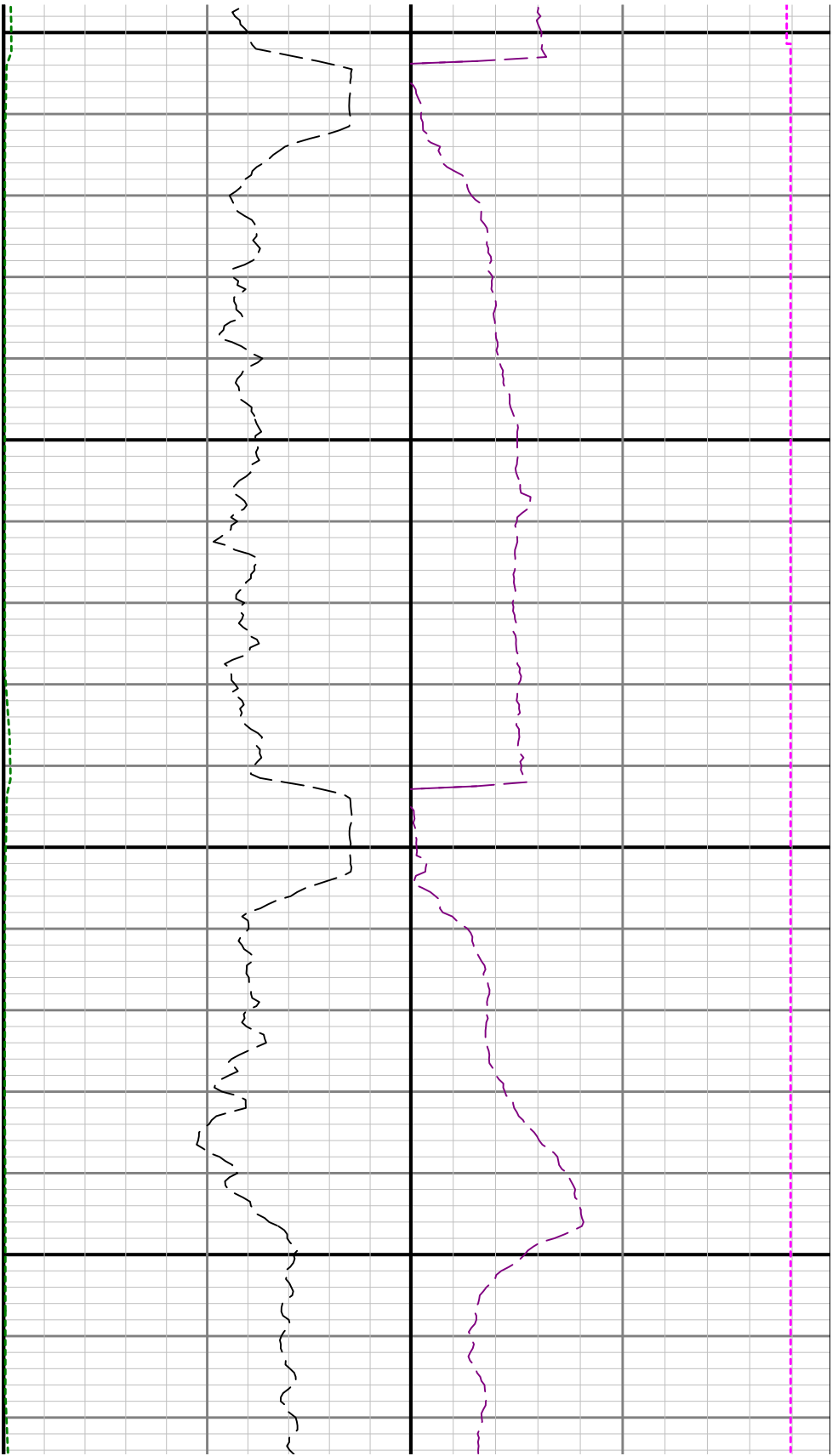
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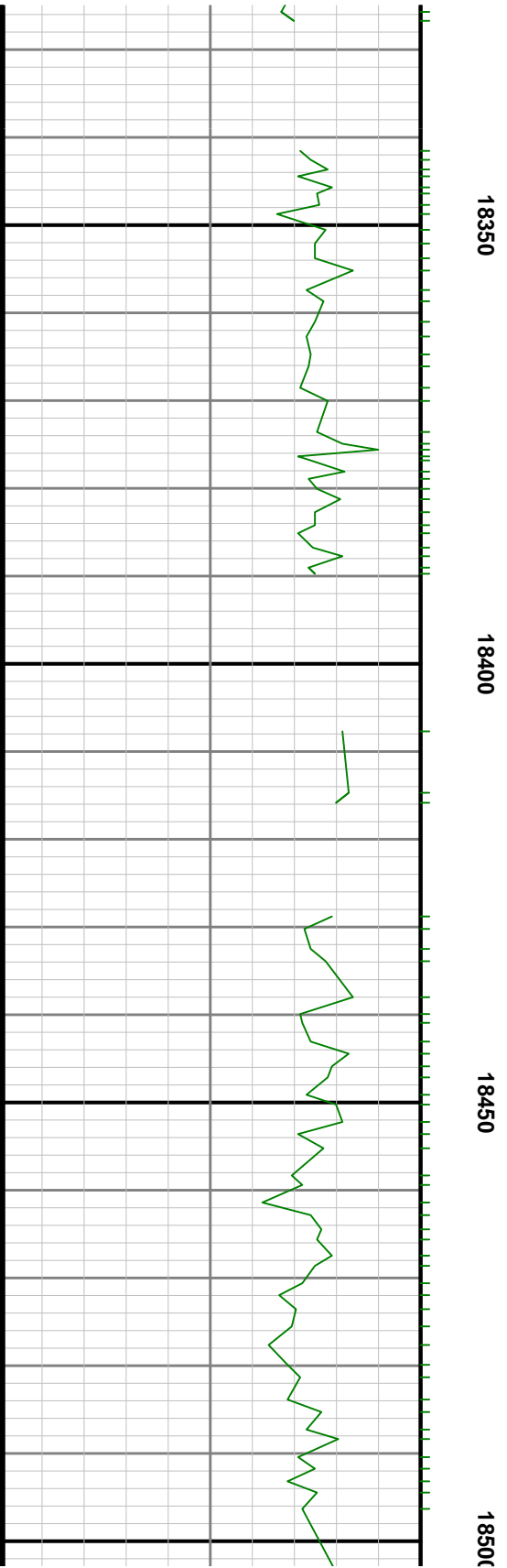
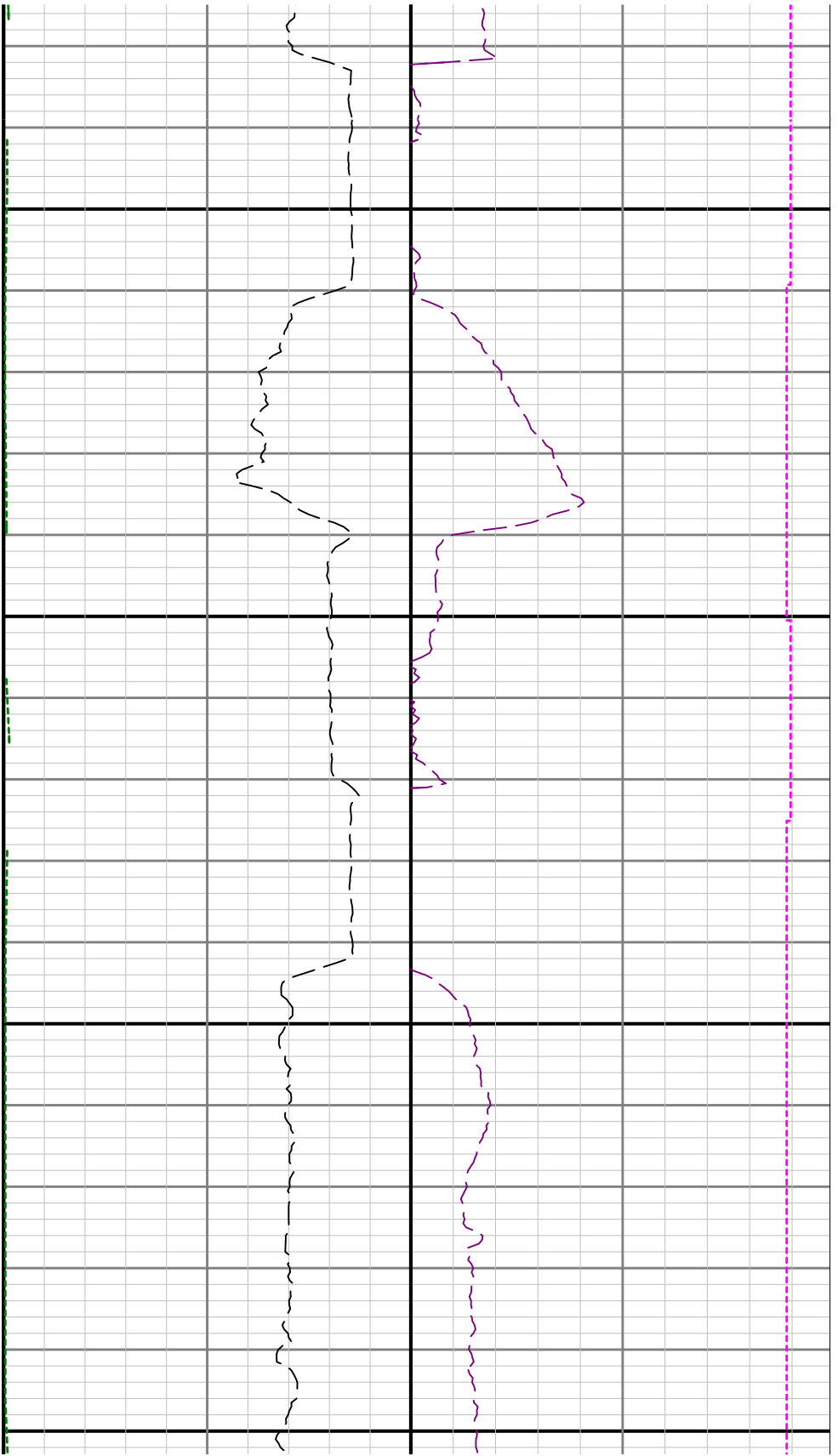
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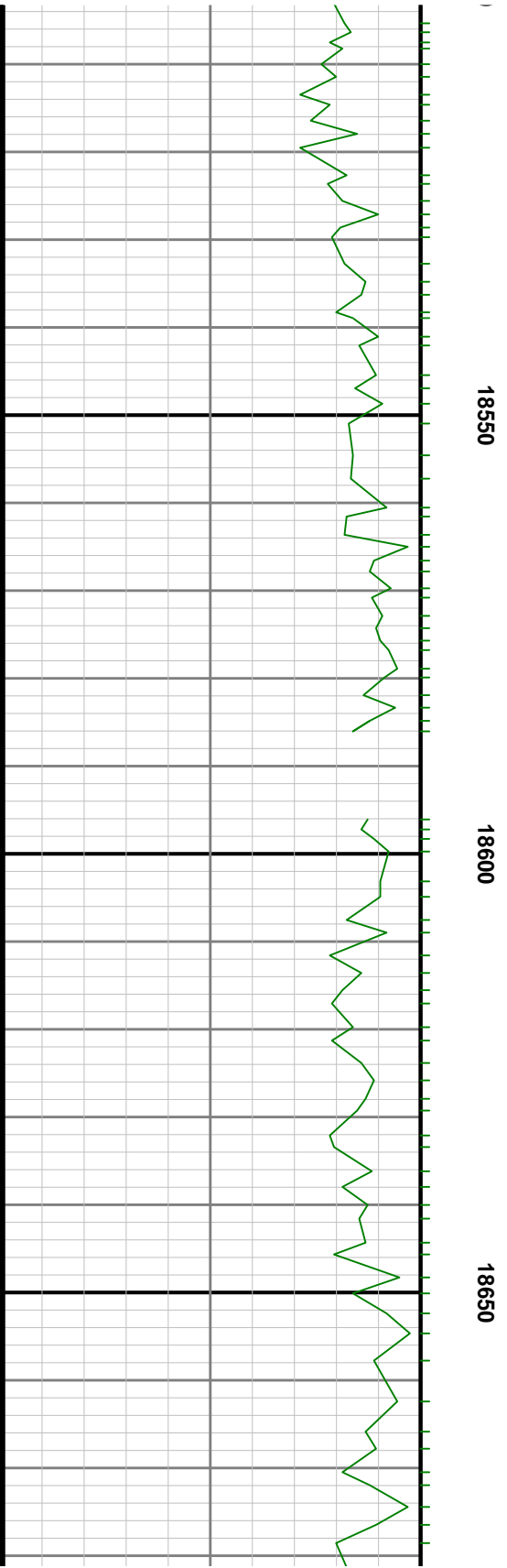
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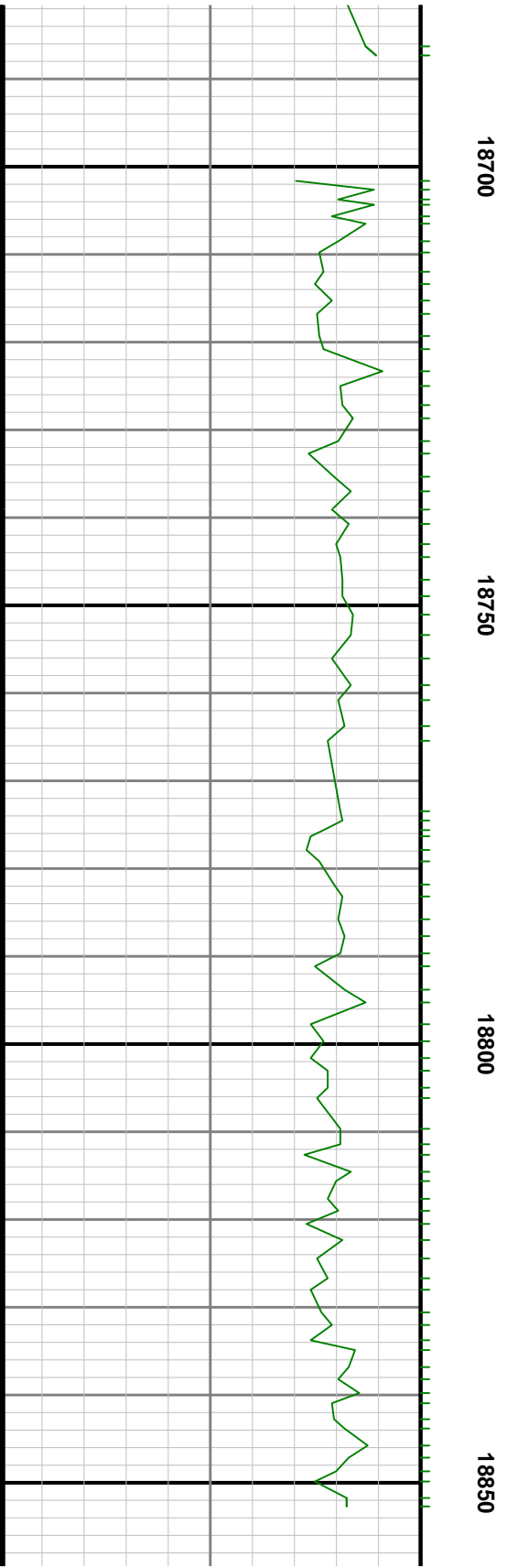
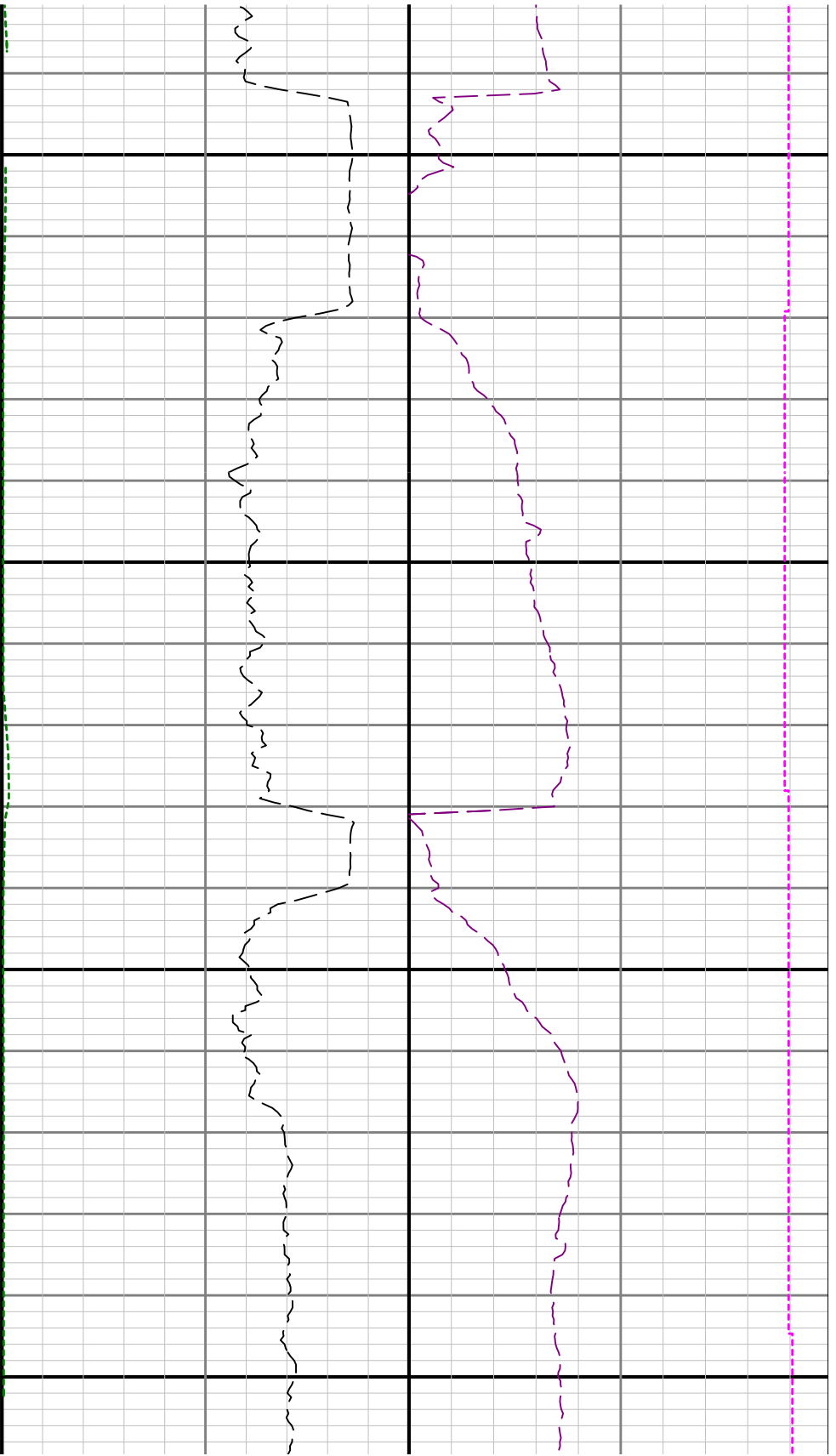


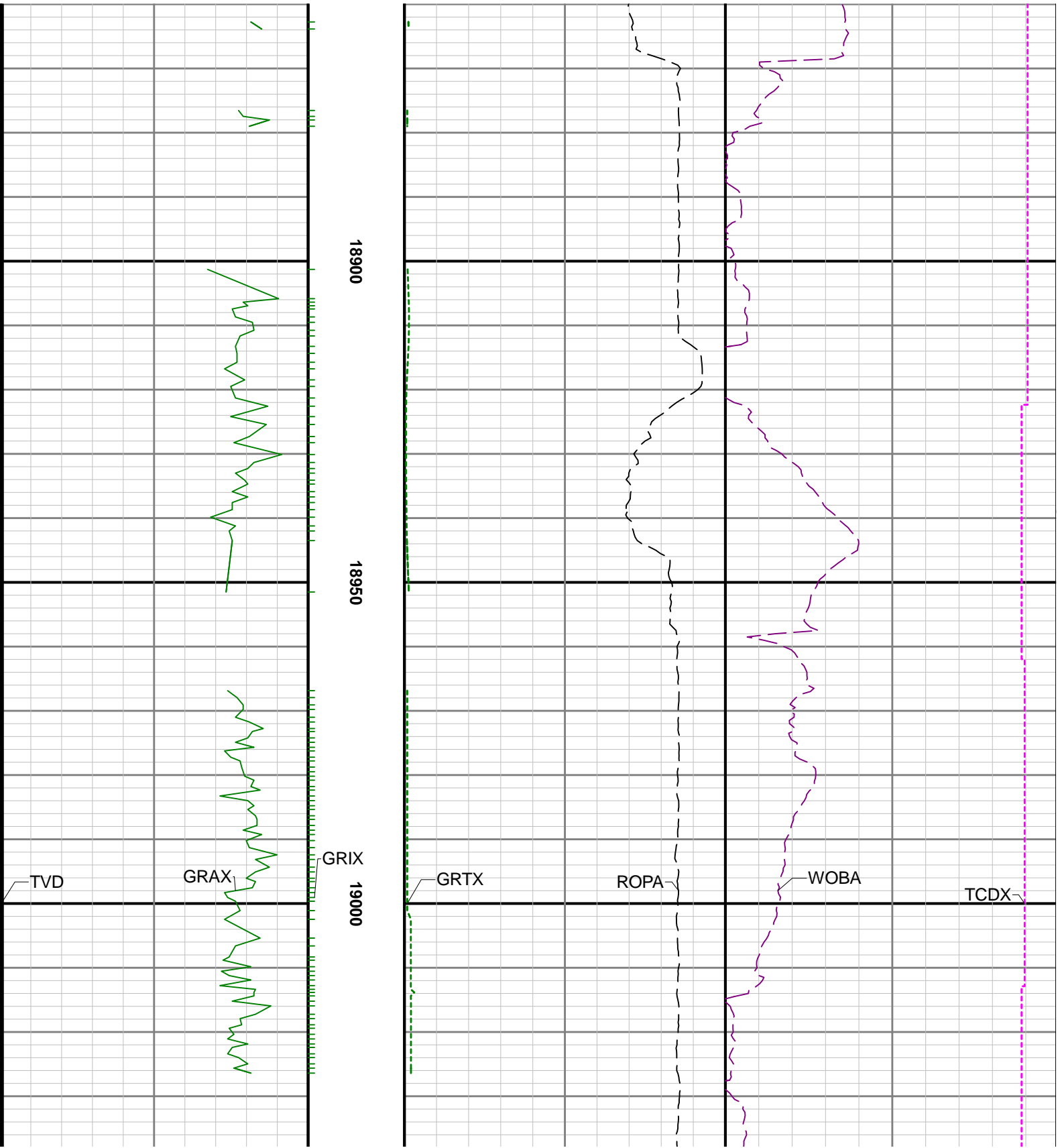


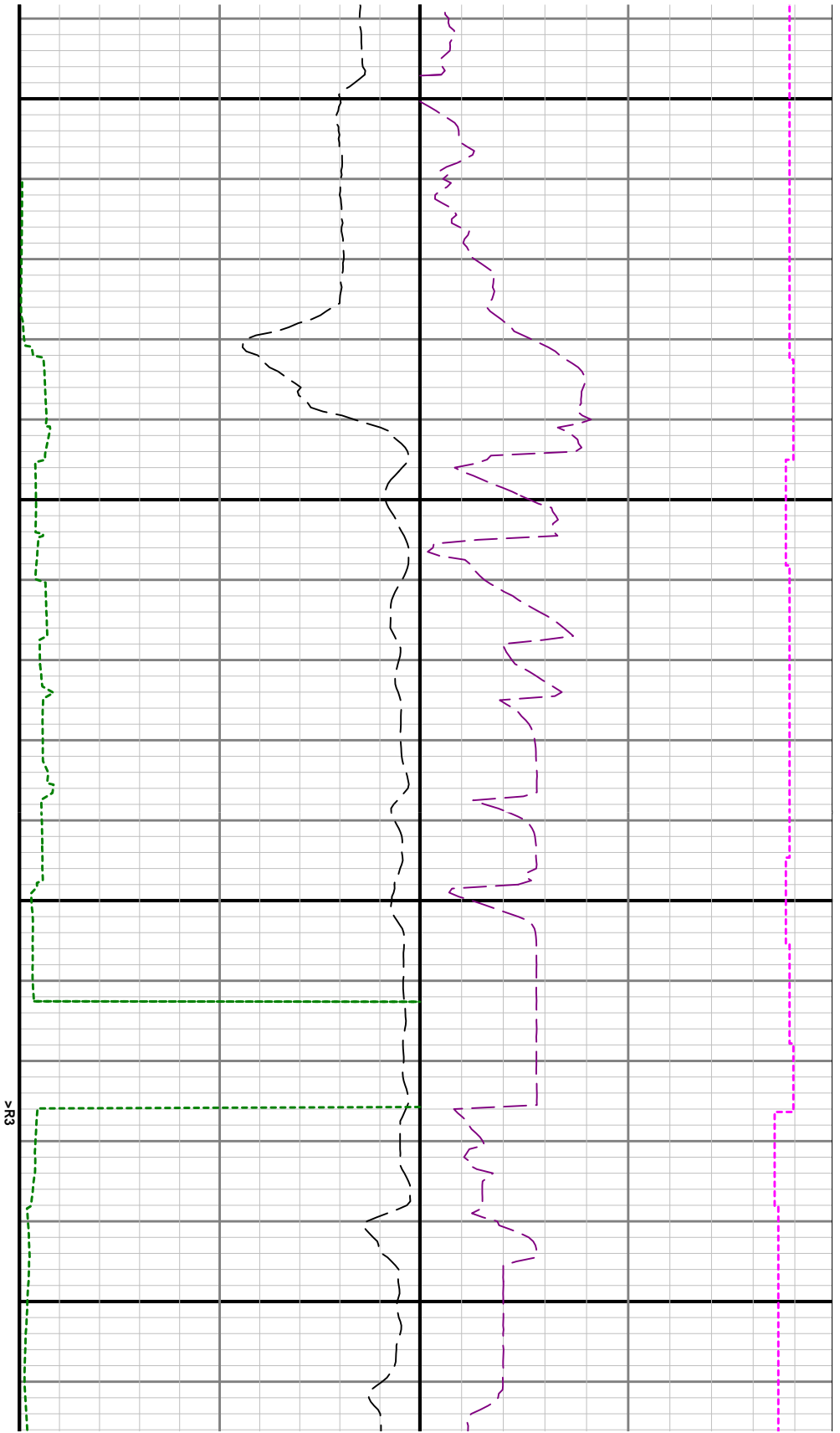












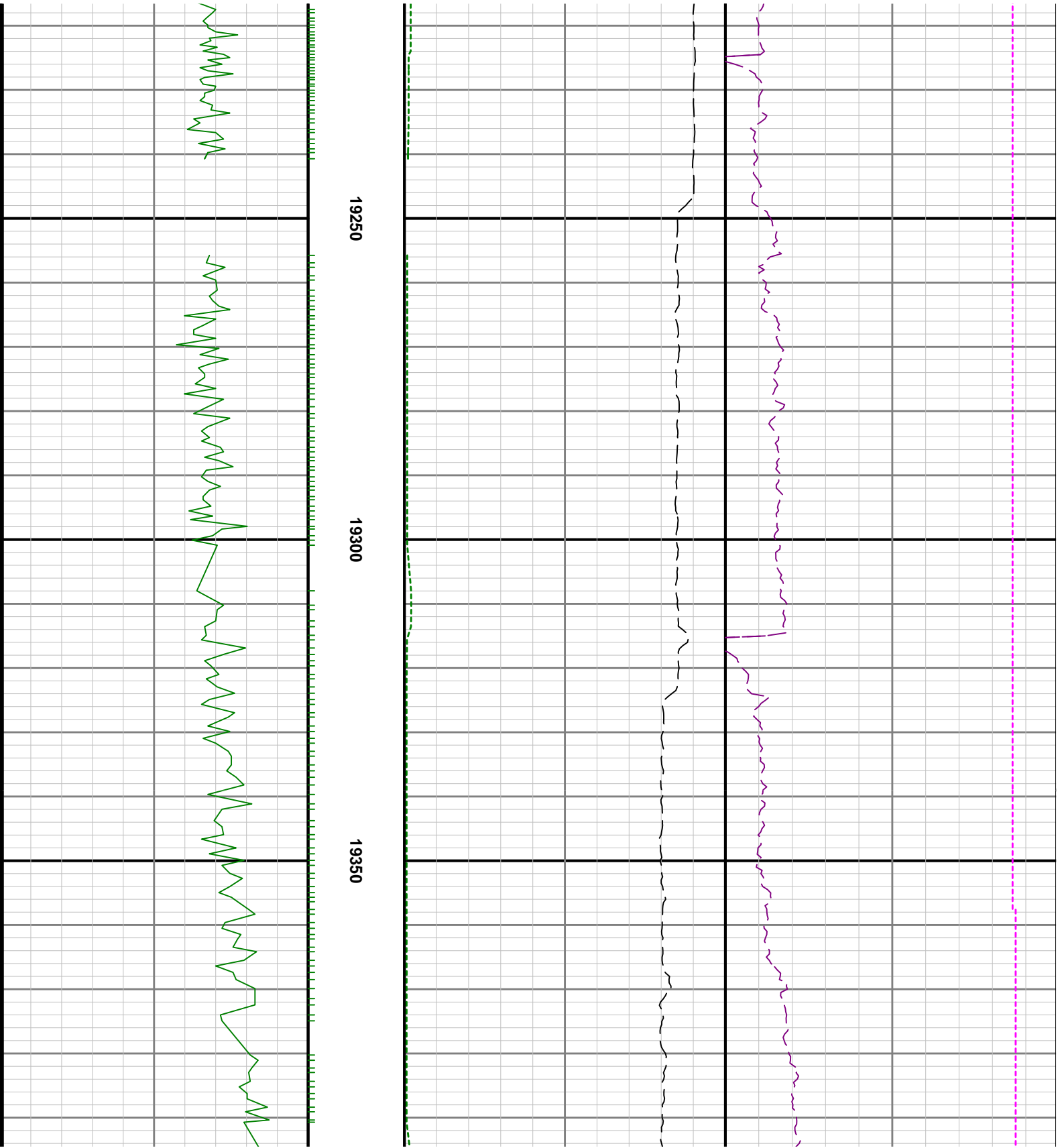
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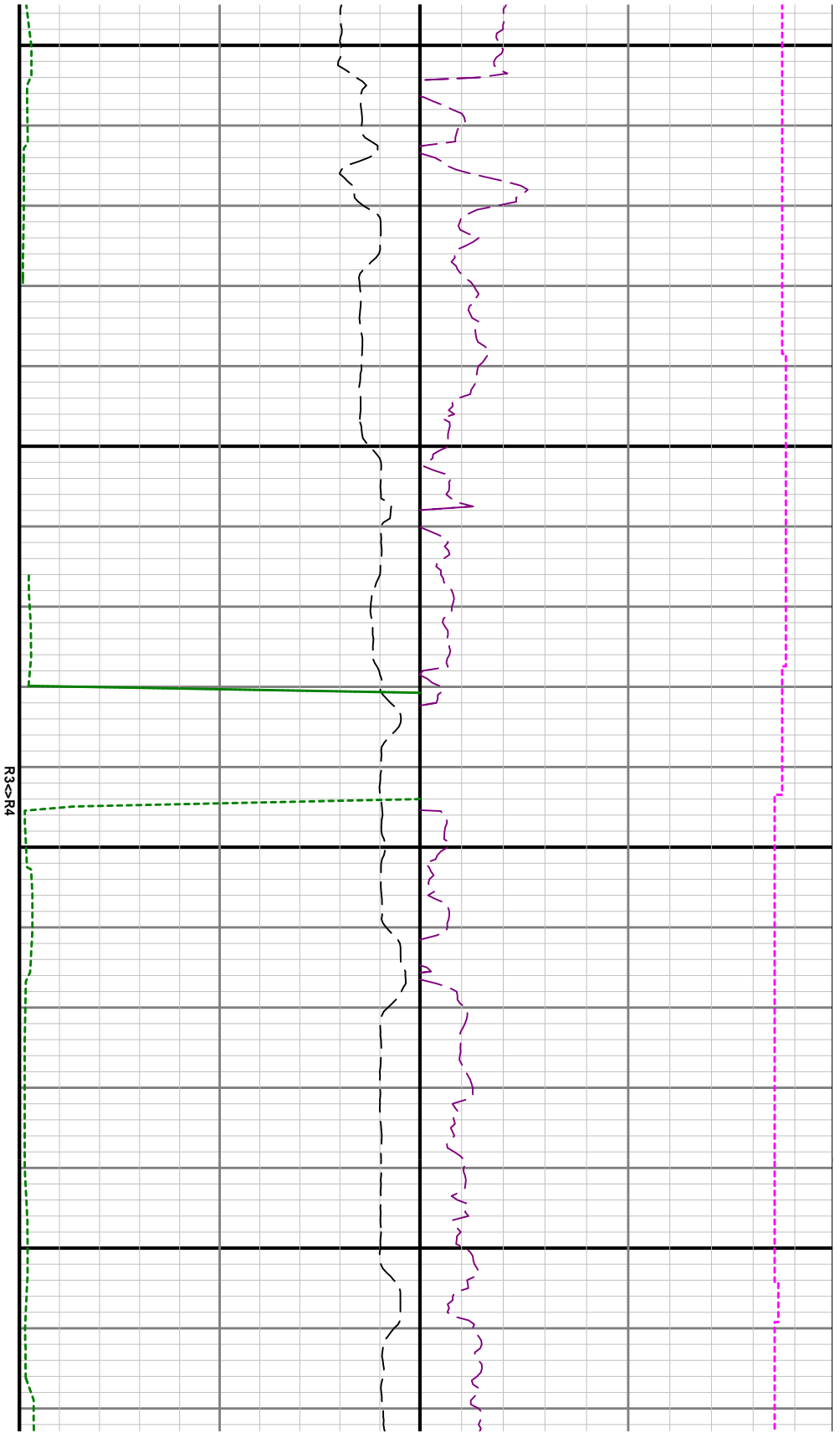
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19150

19200

See Remark 3





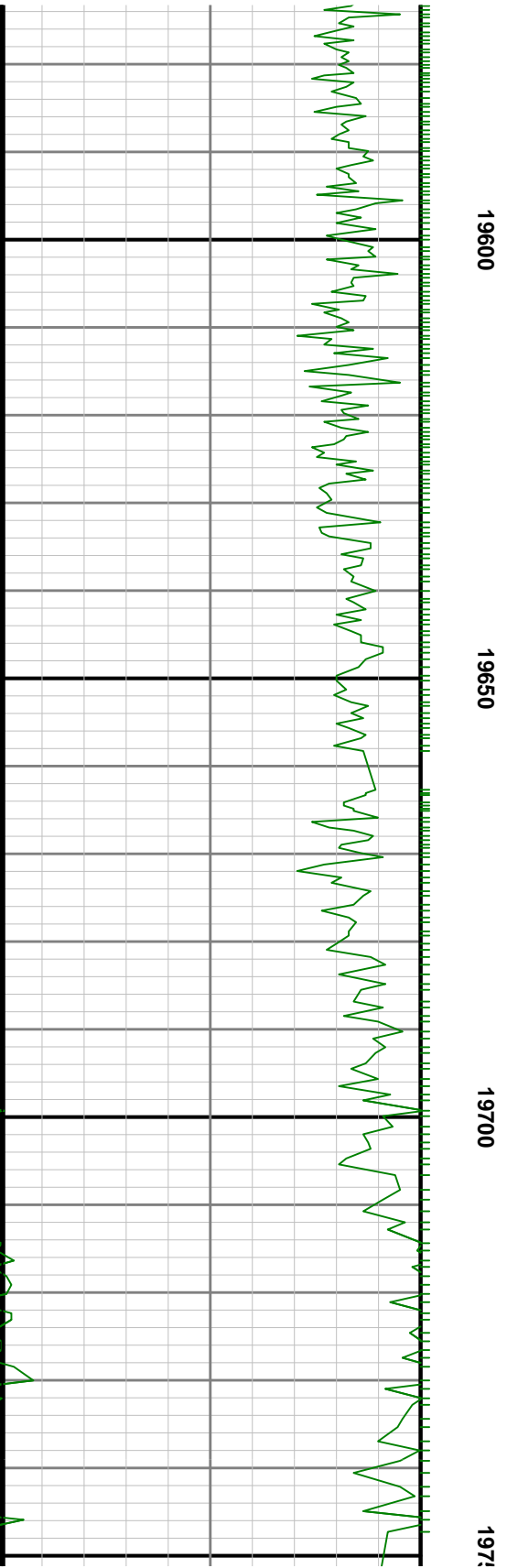
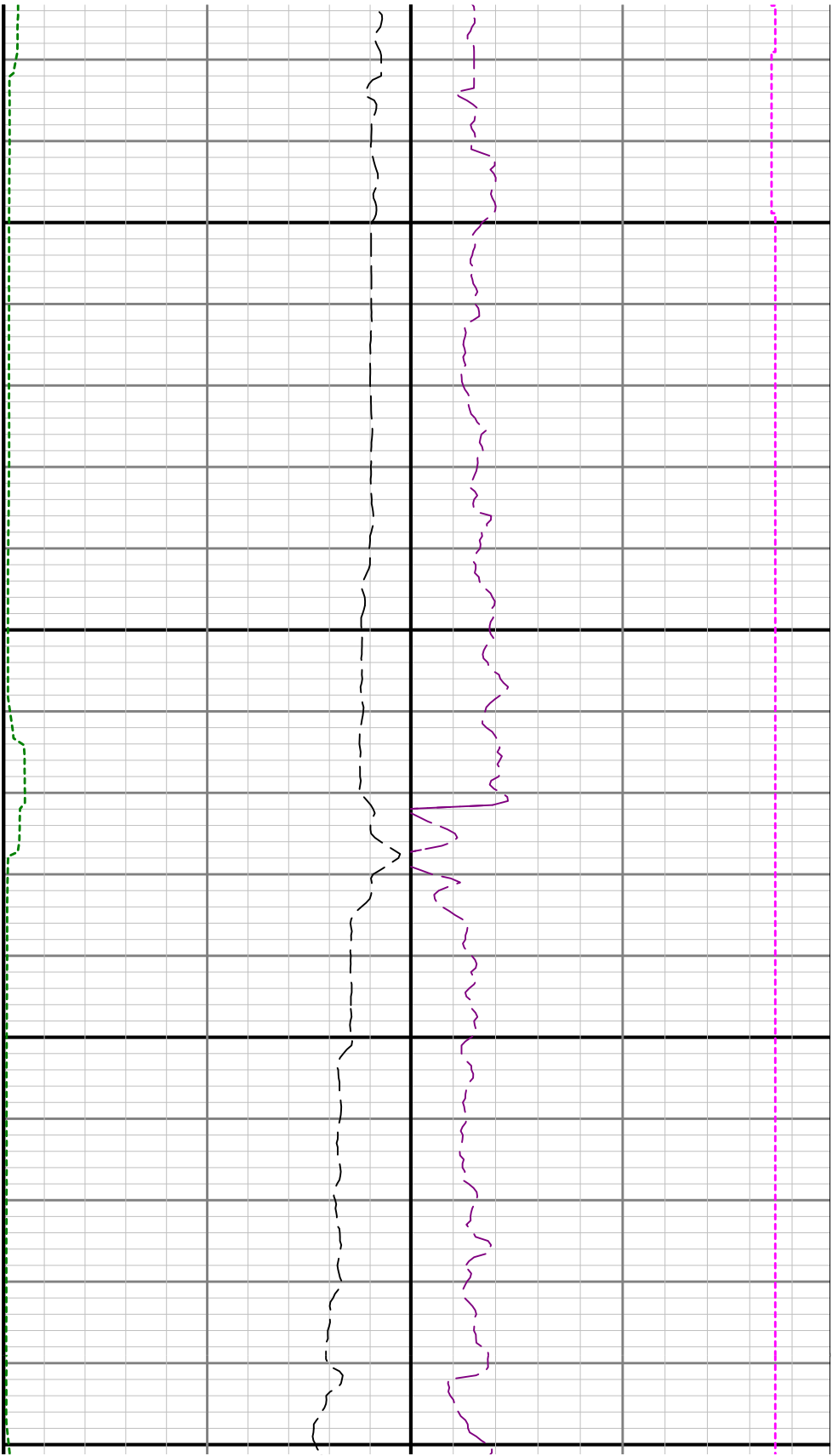
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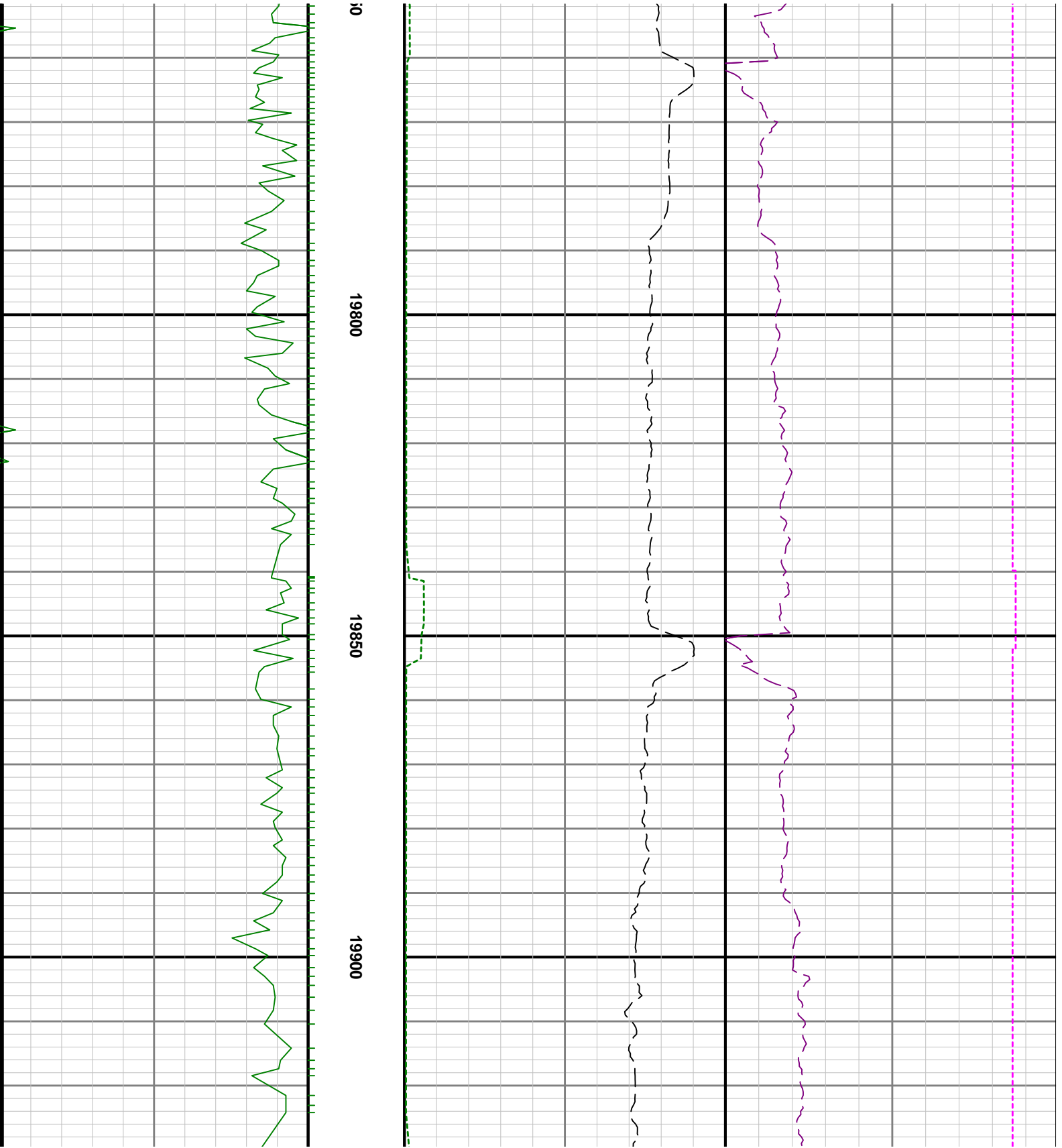
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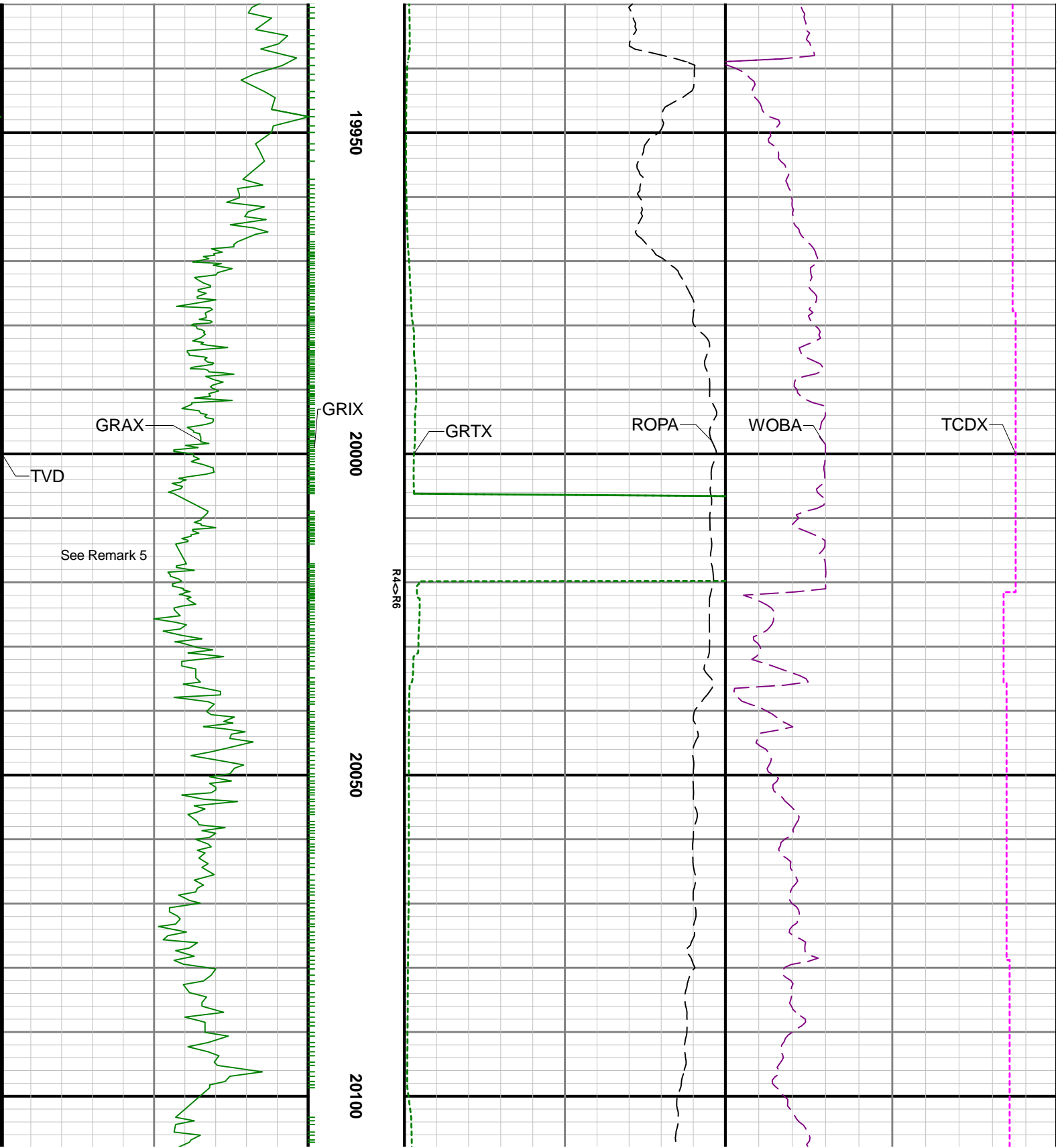
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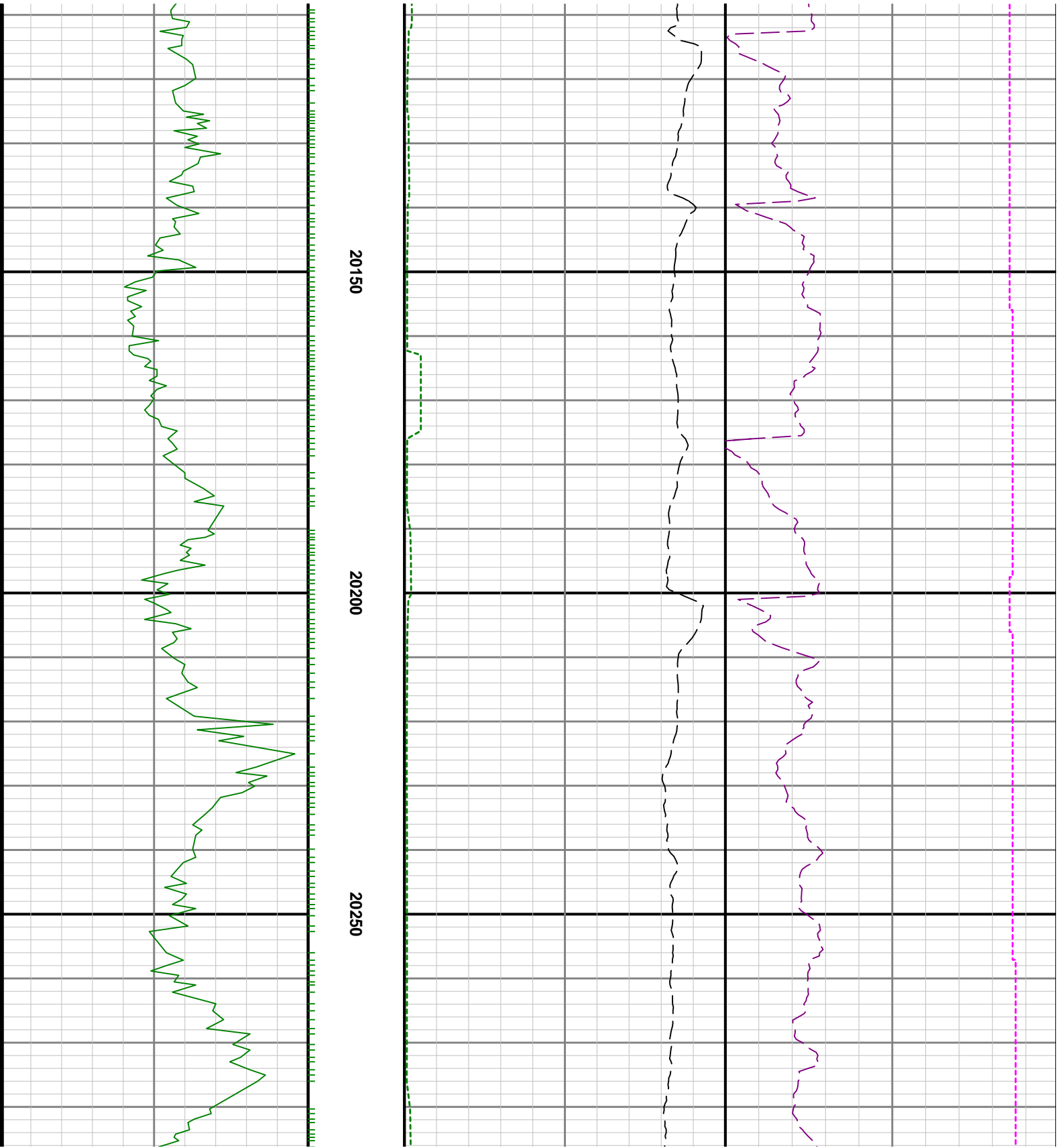
See Remark 4

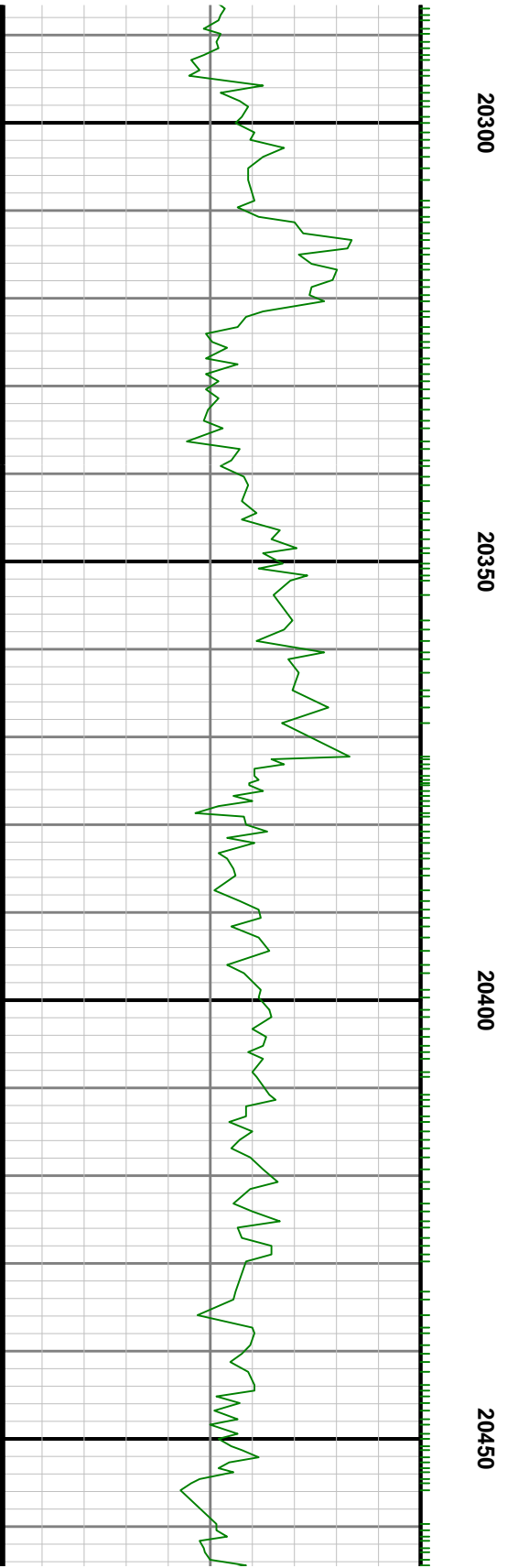
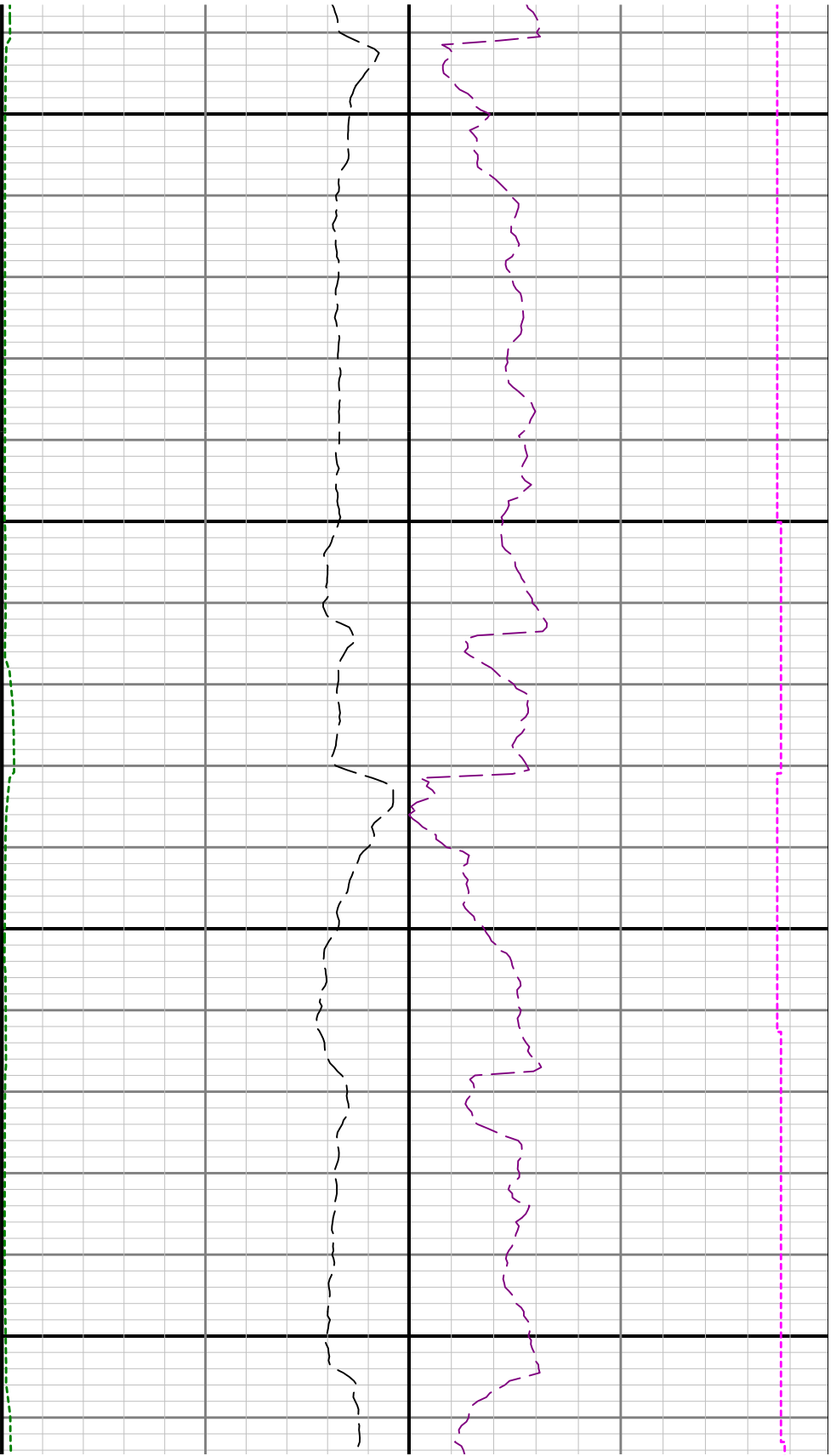


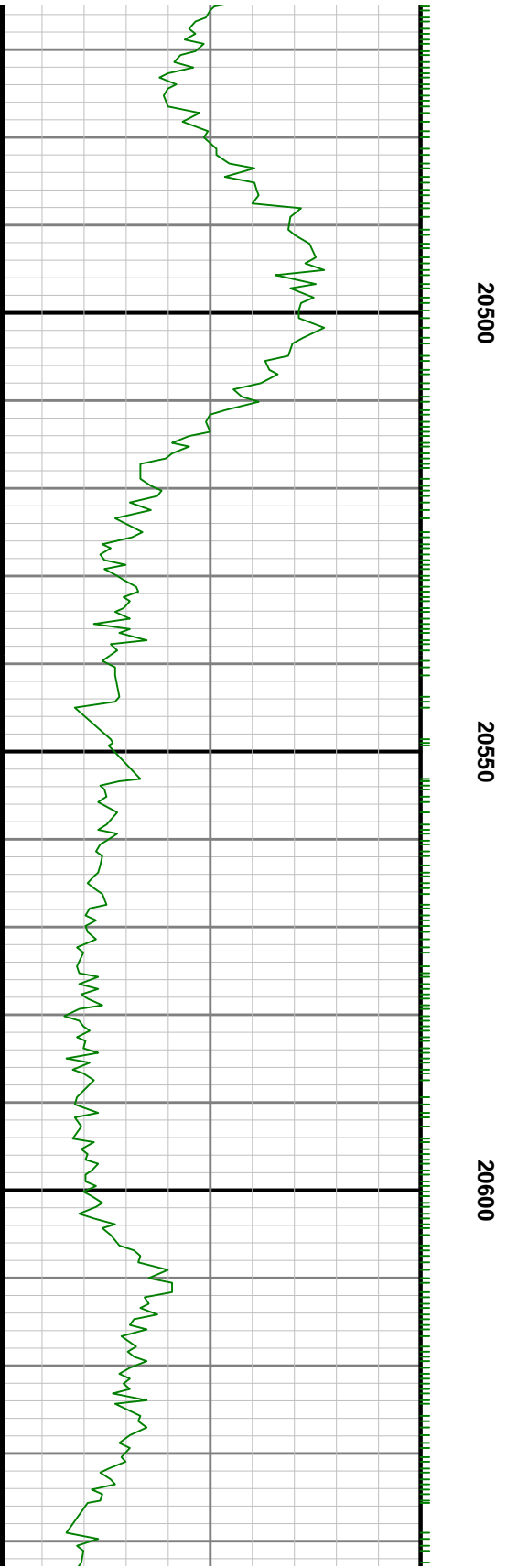
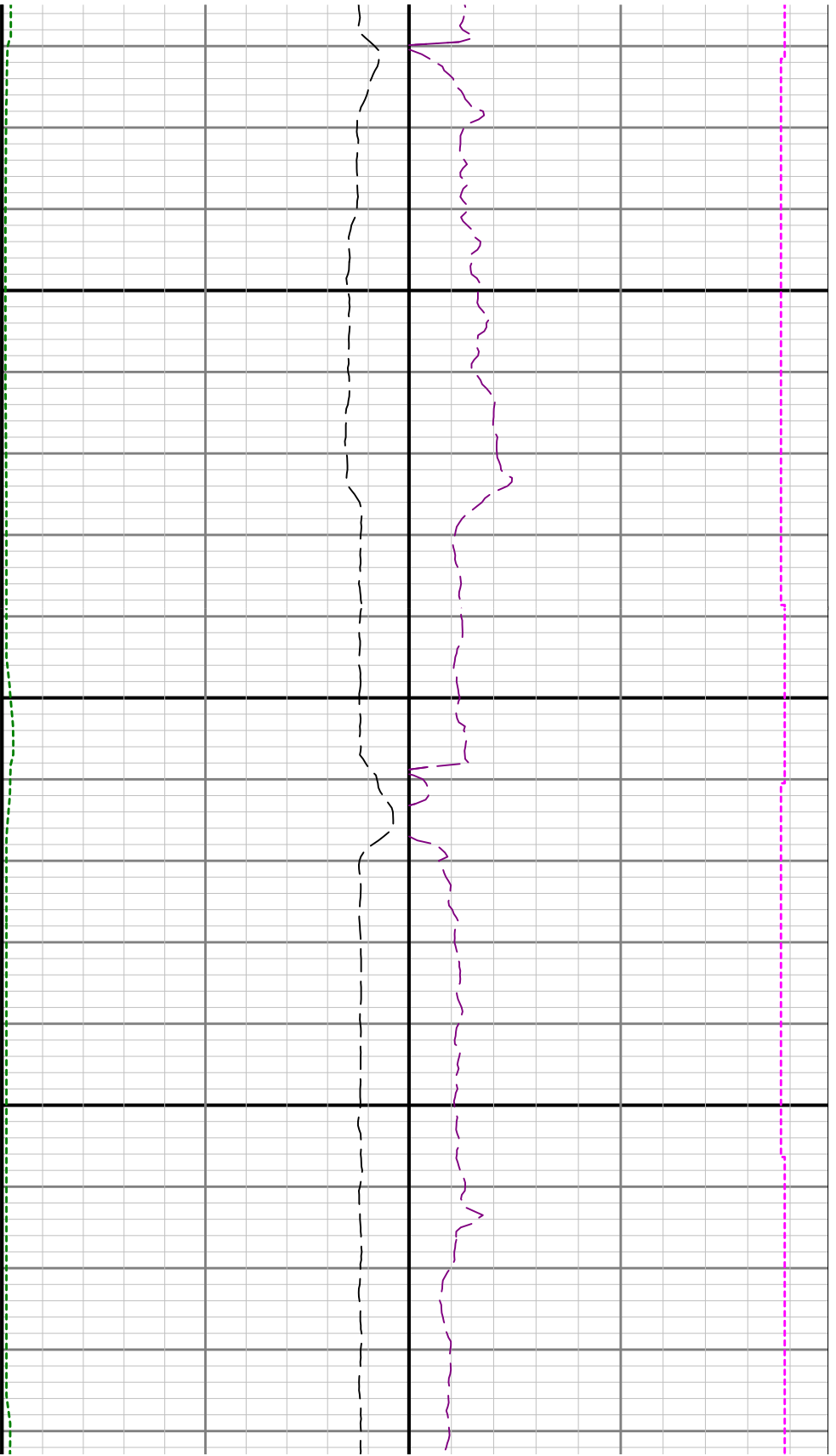


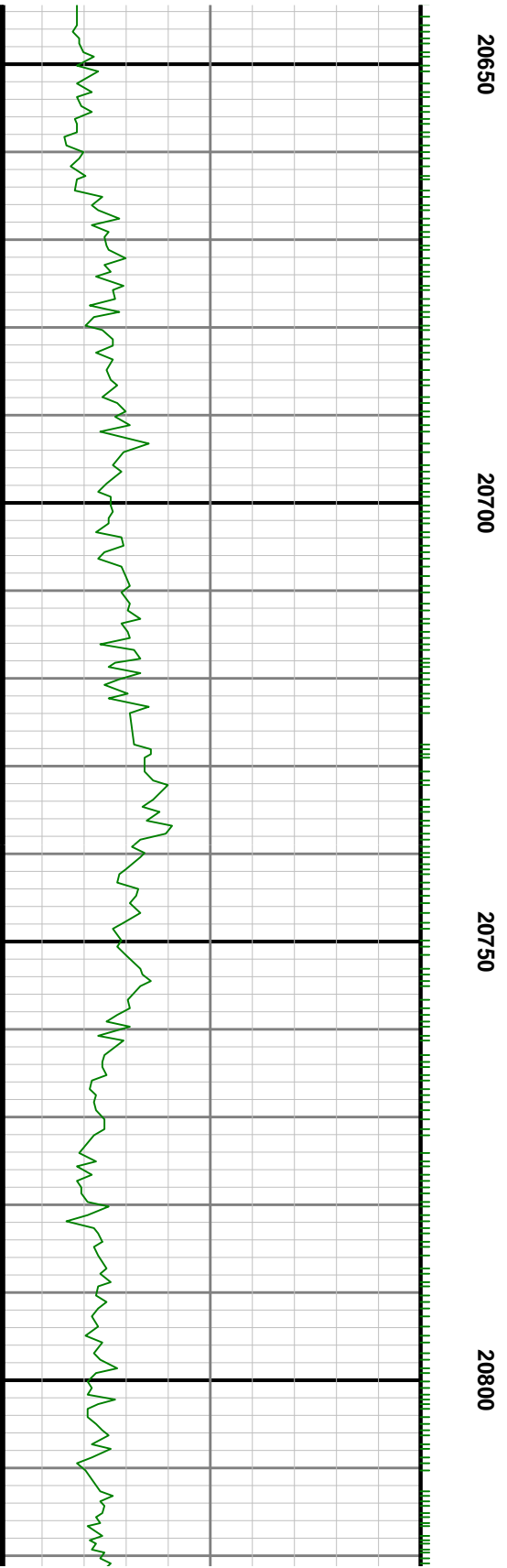
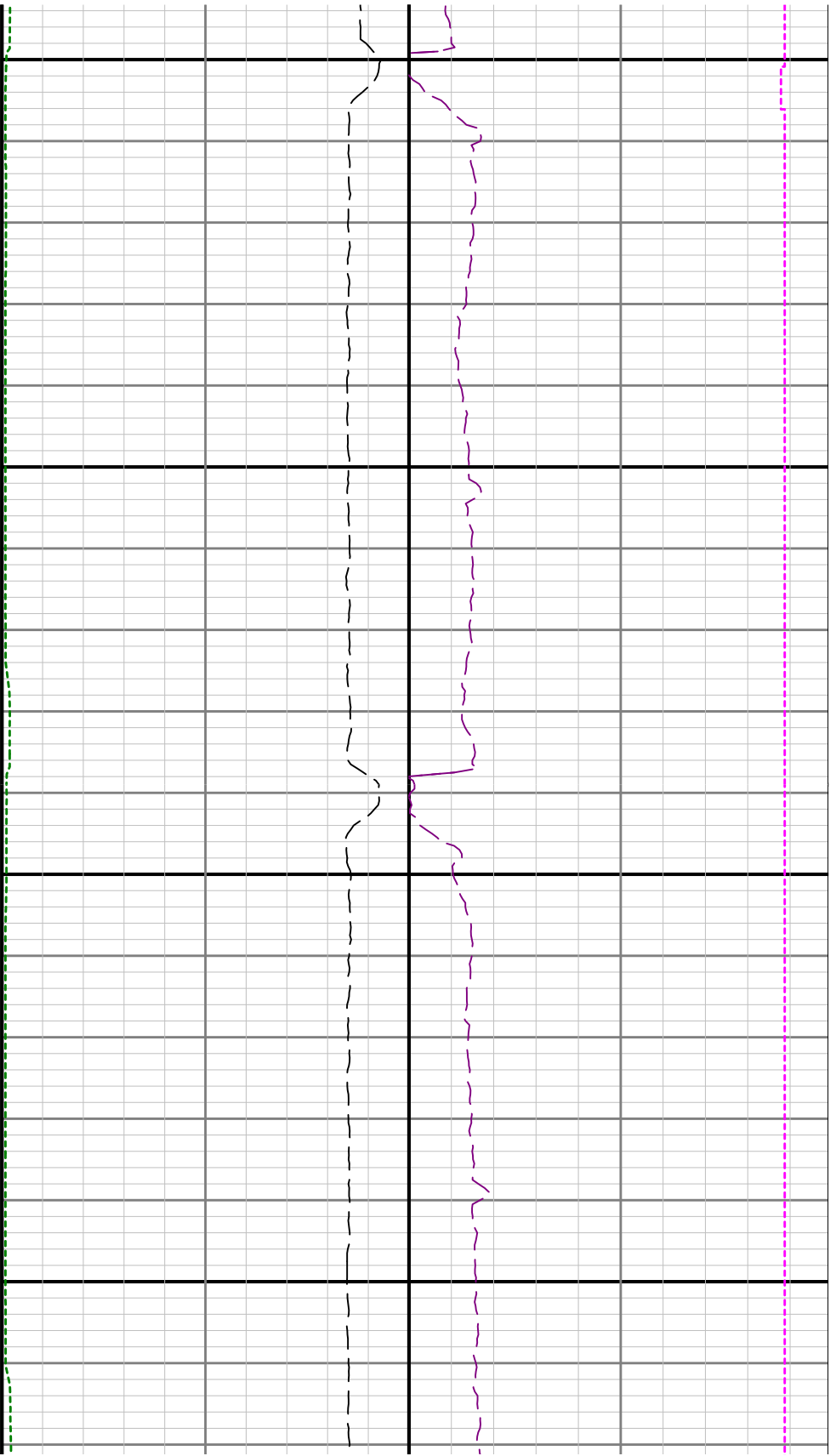


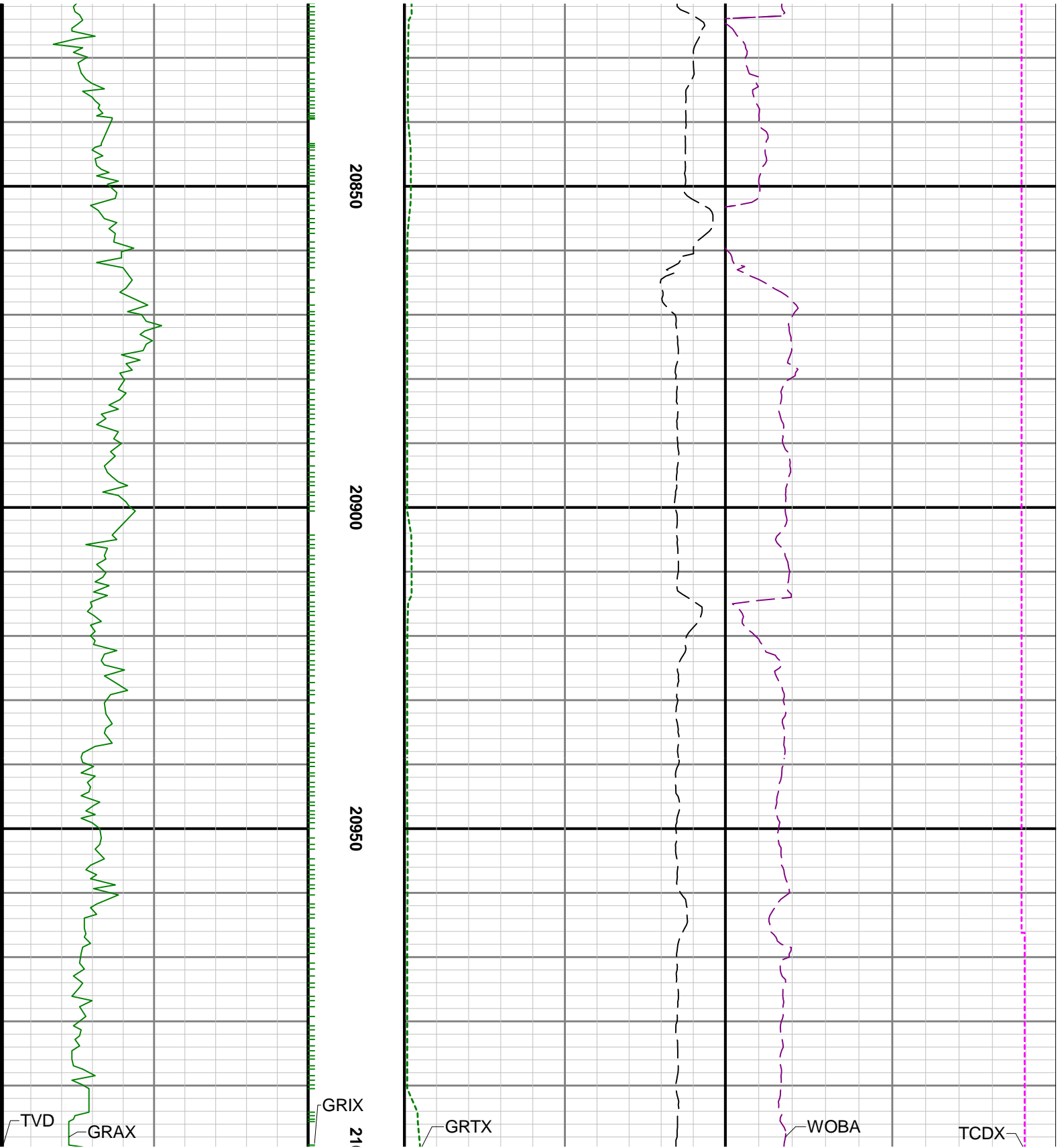


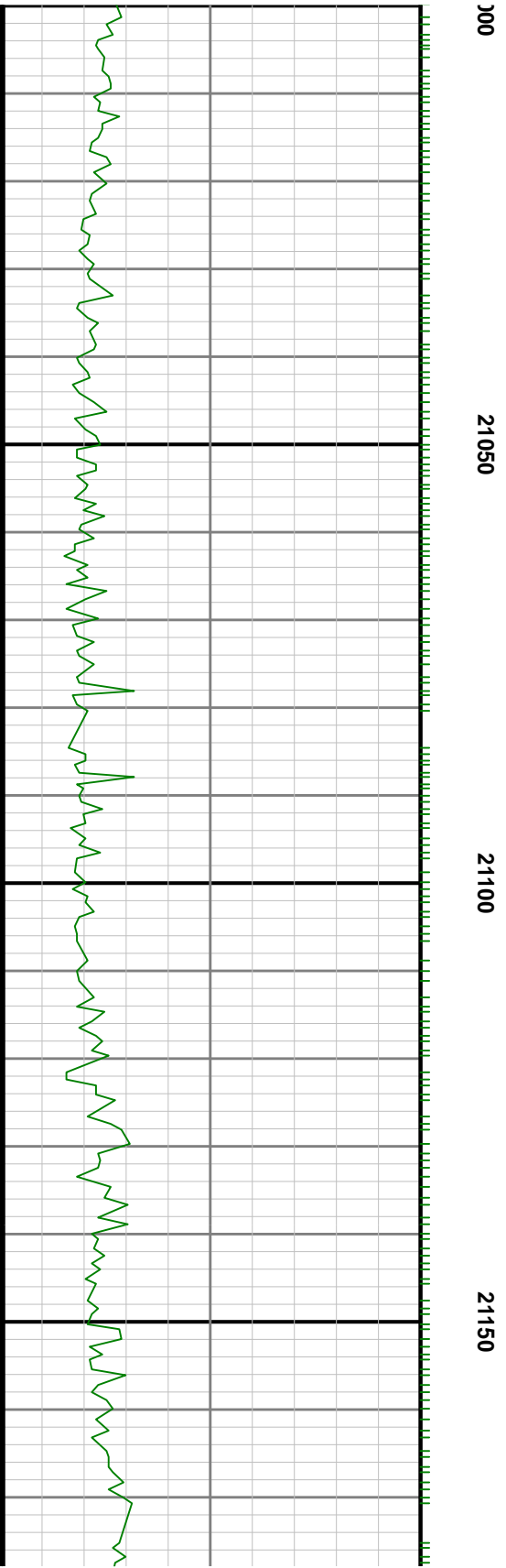
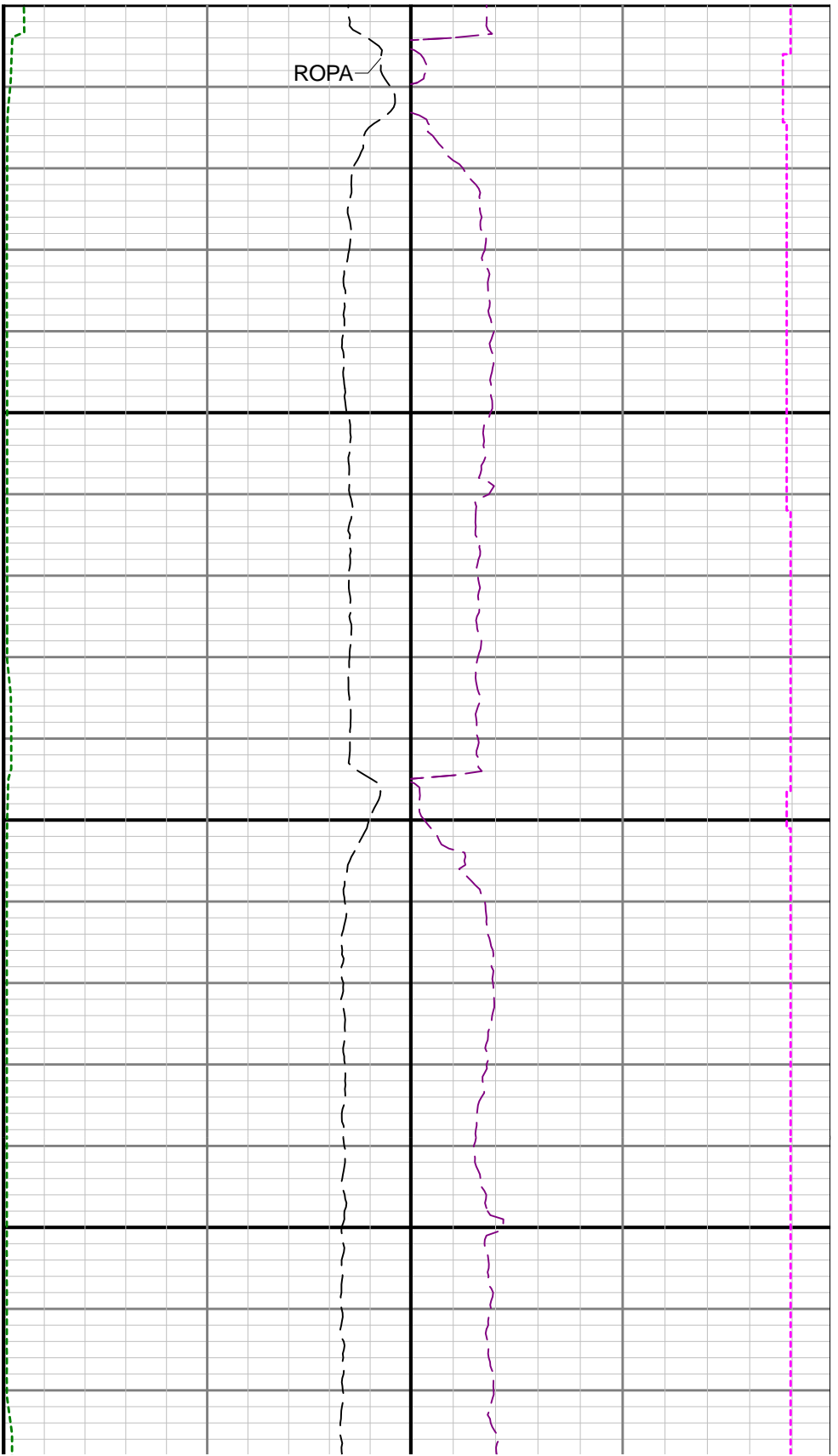




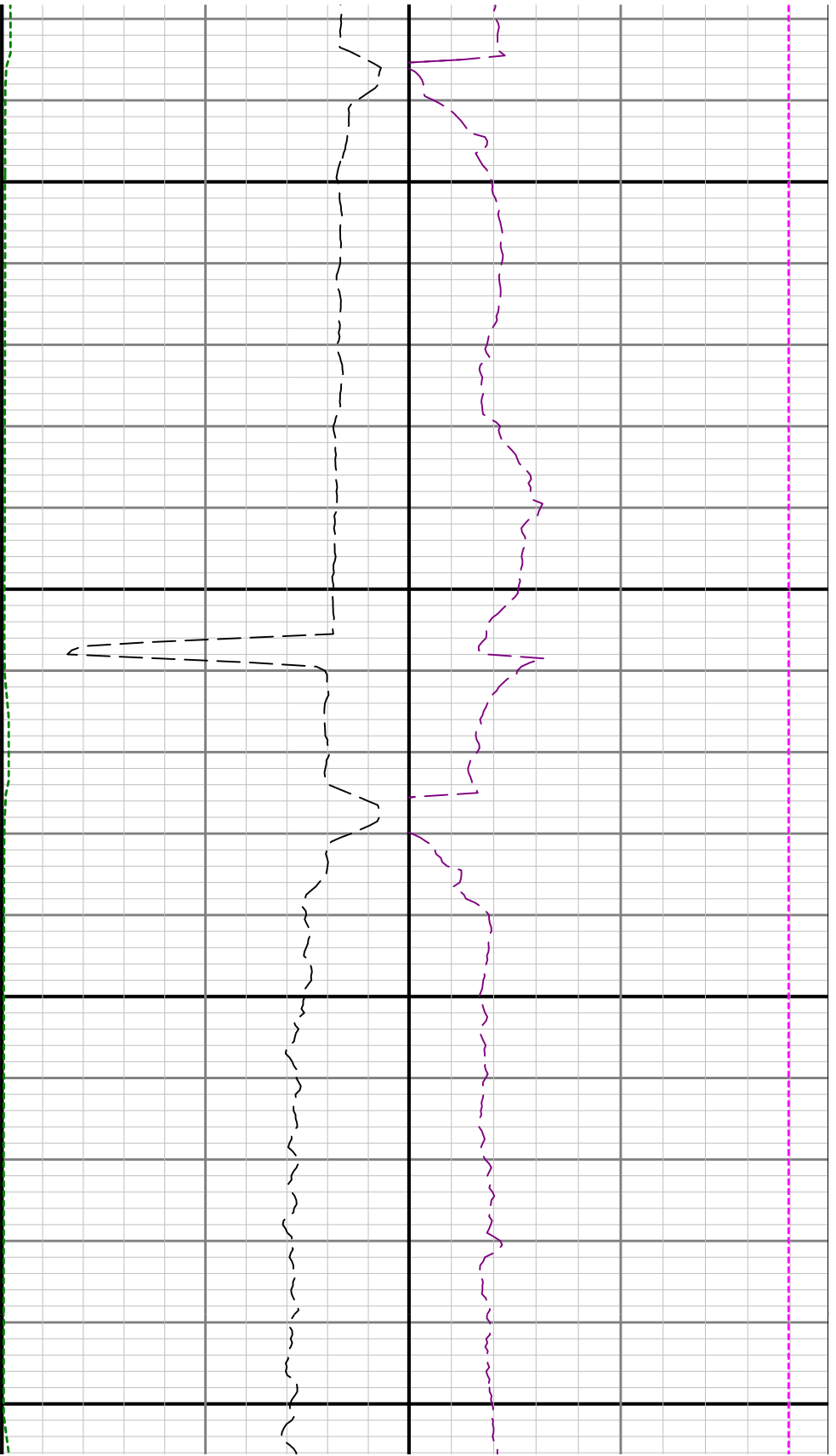










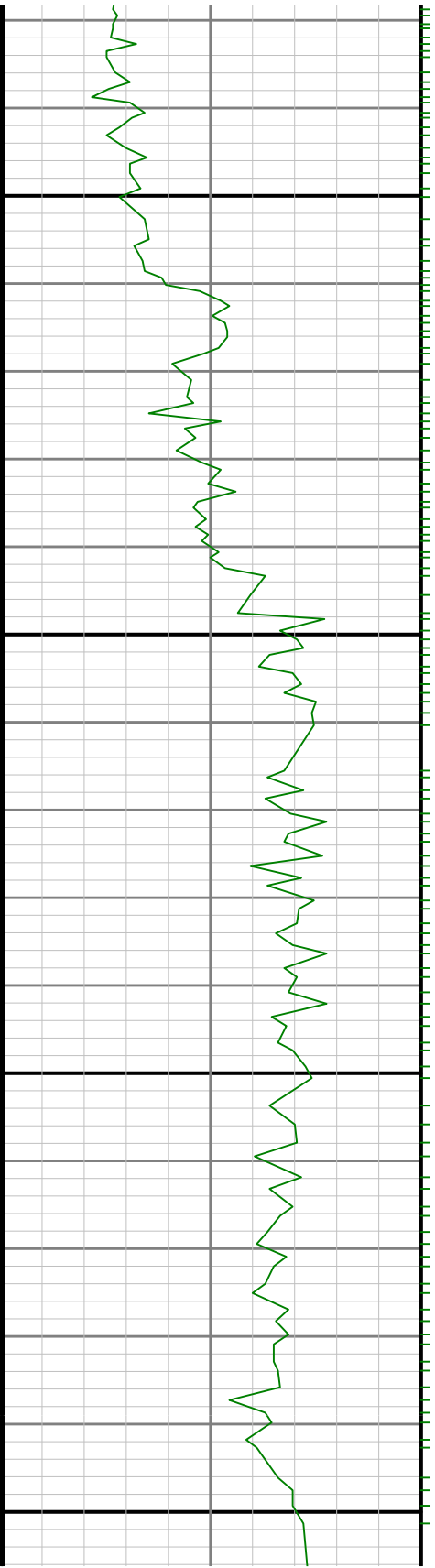


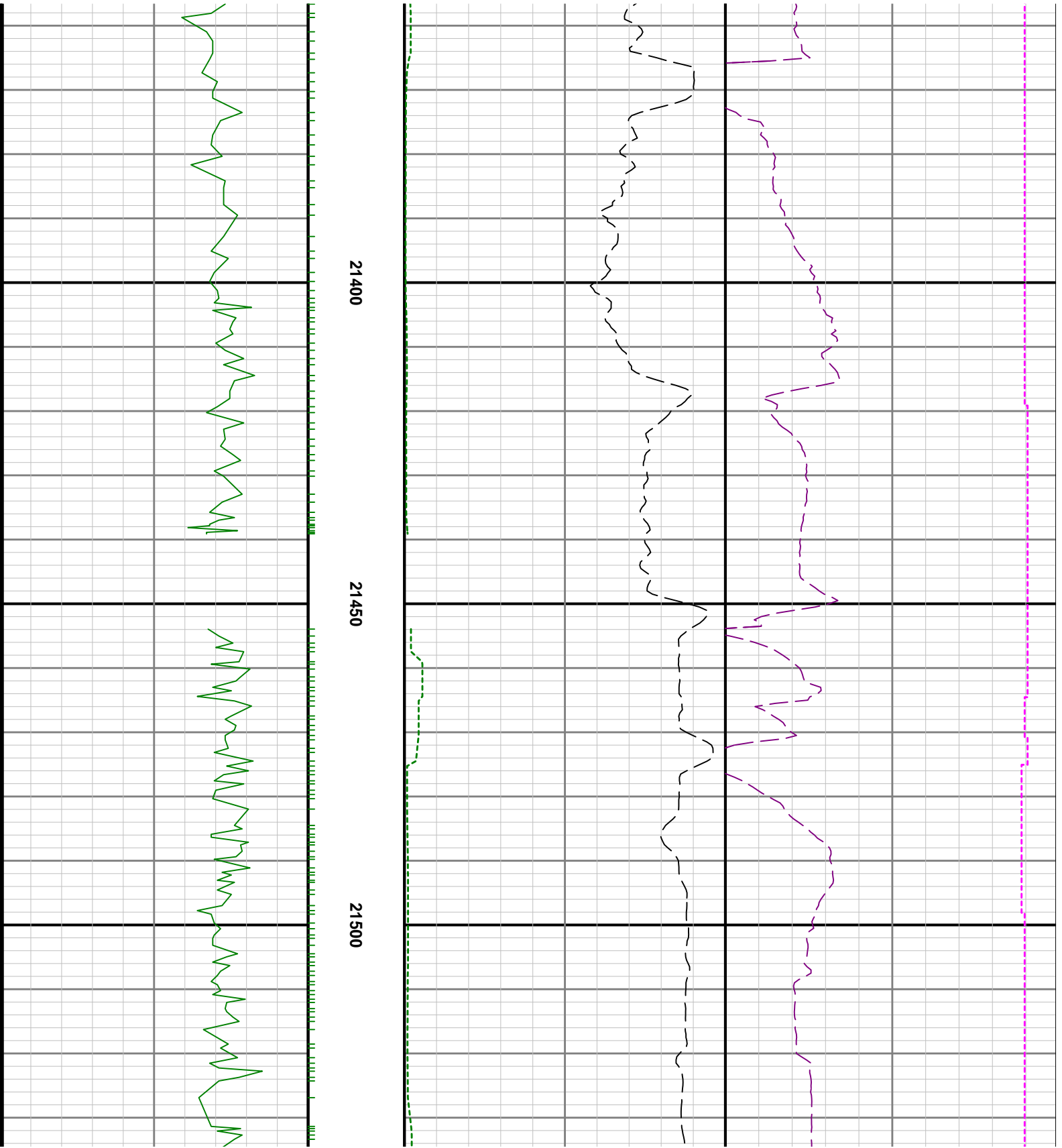
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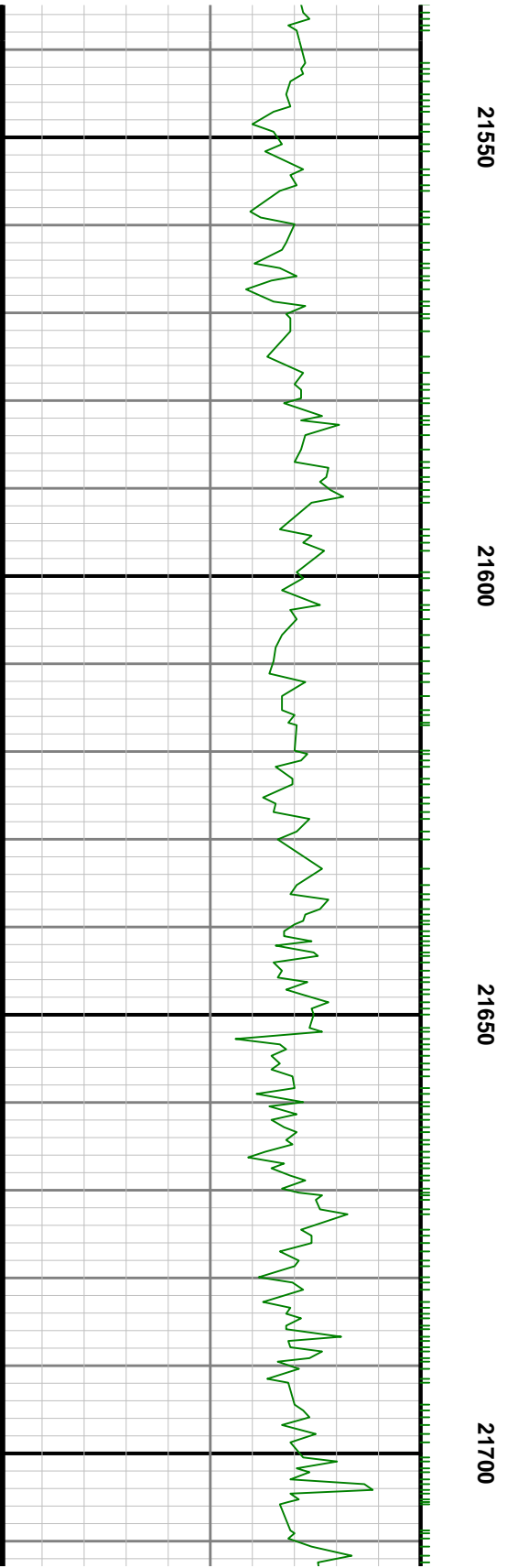
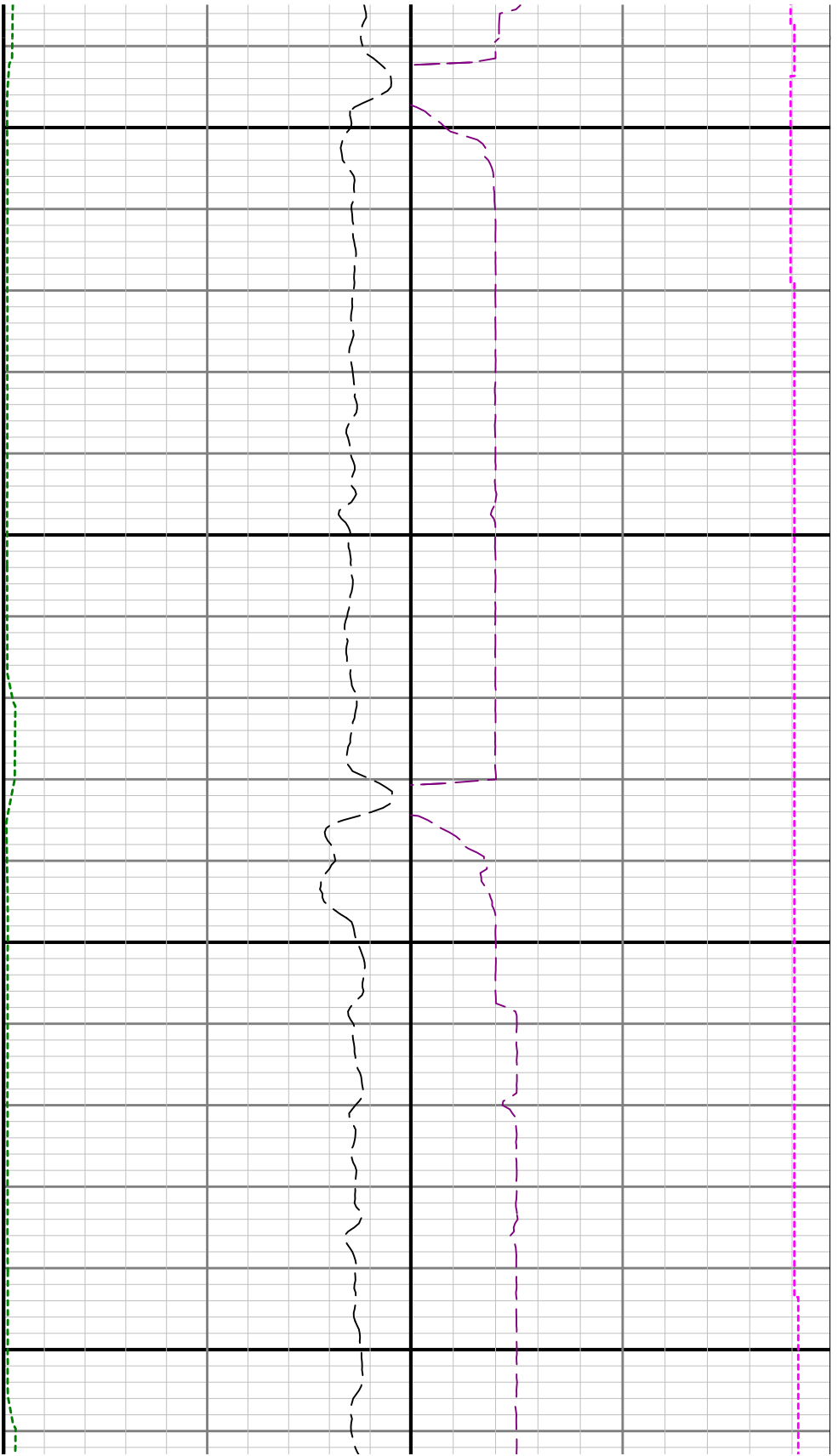
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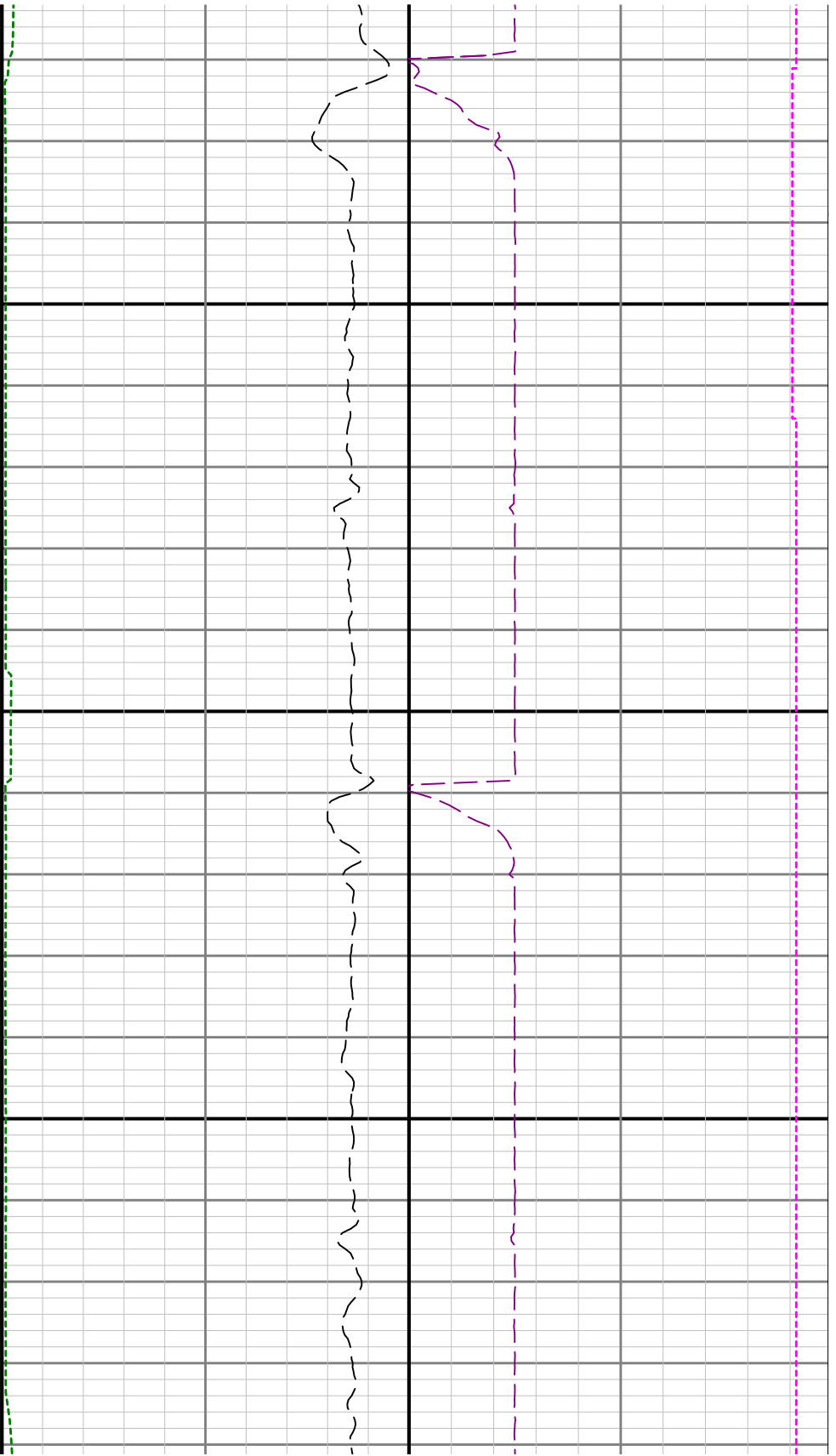
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21350





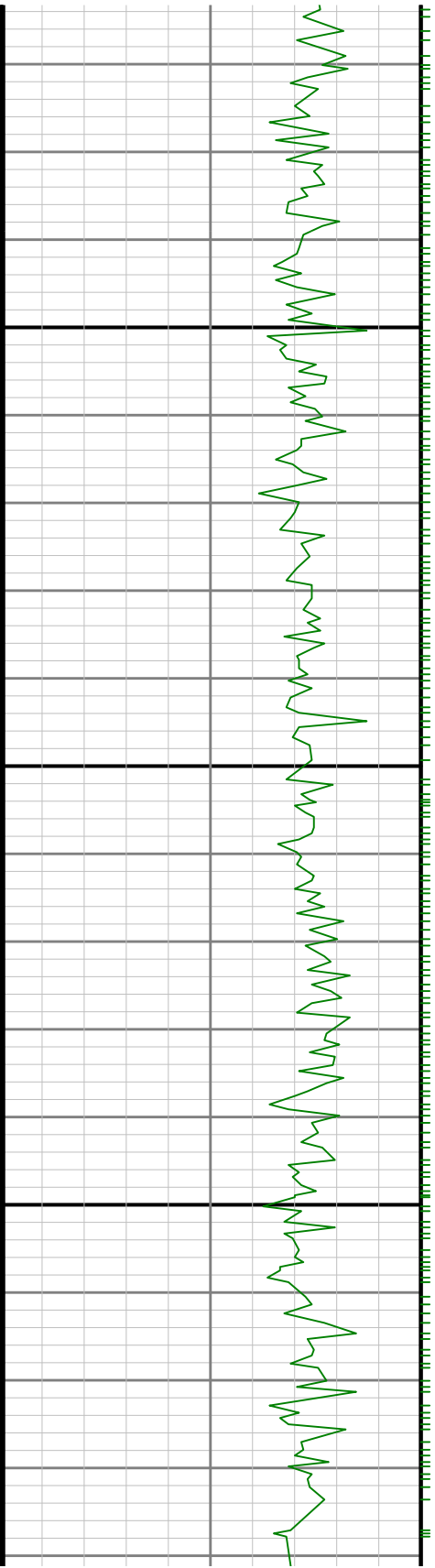


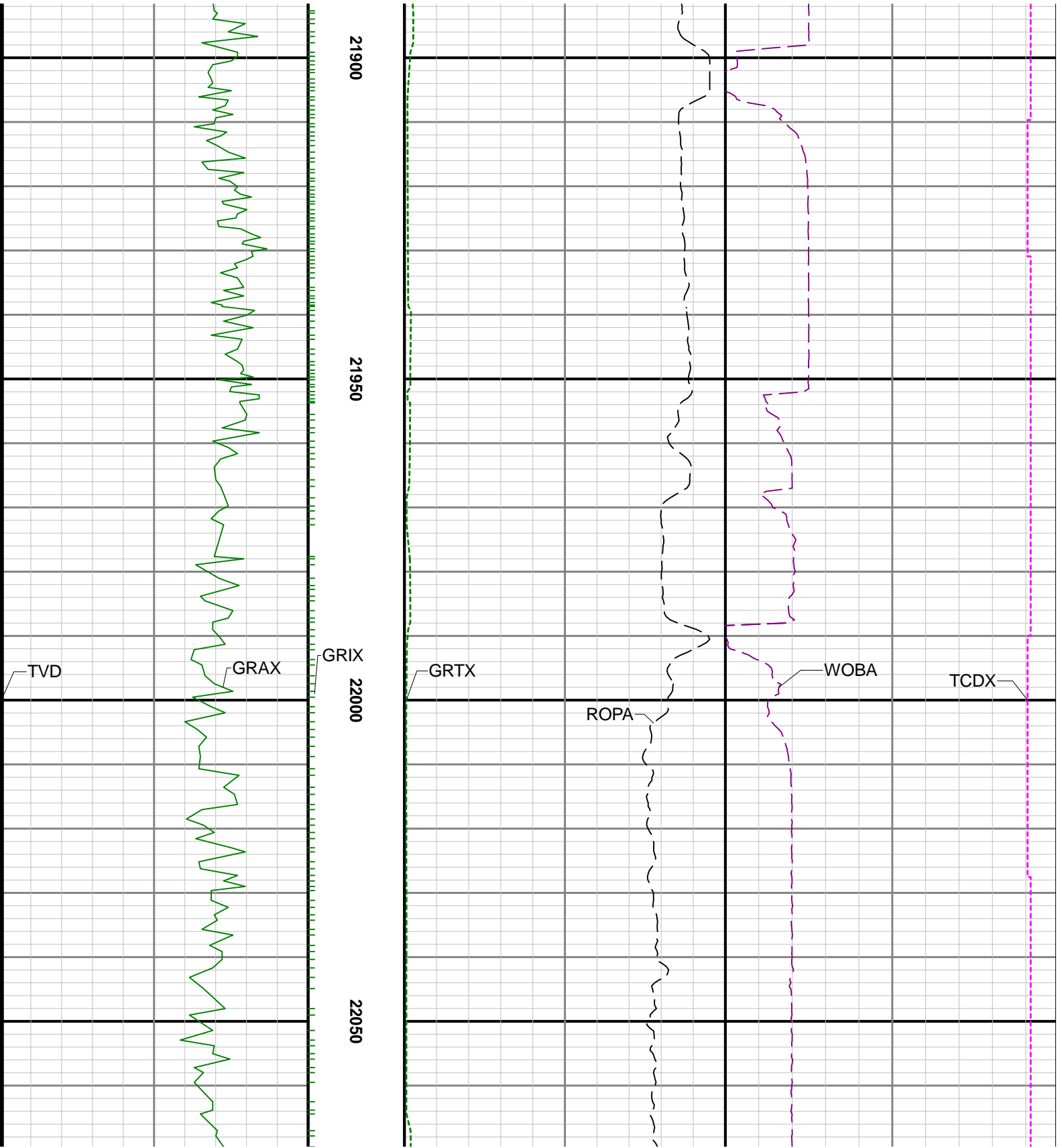


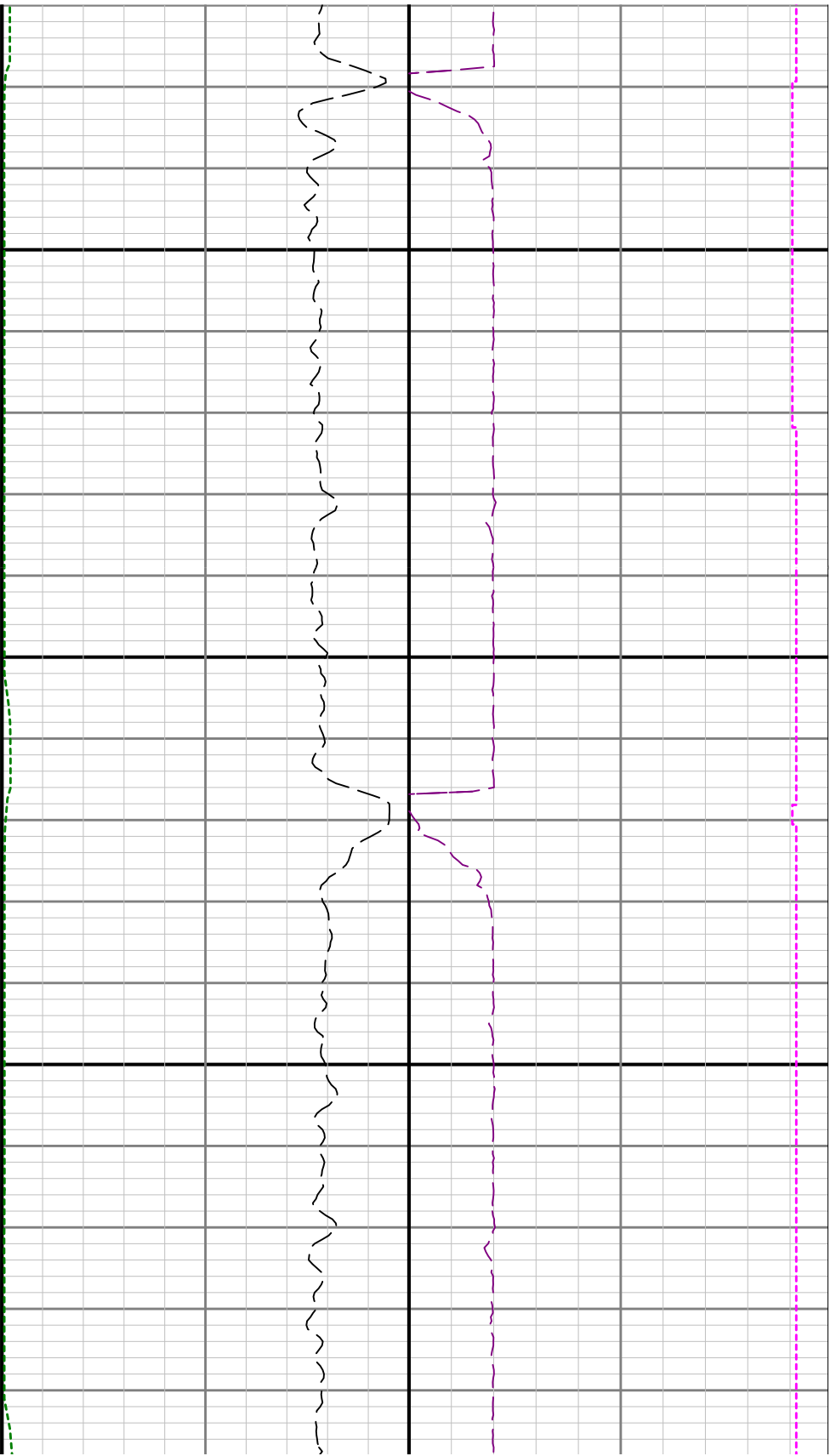
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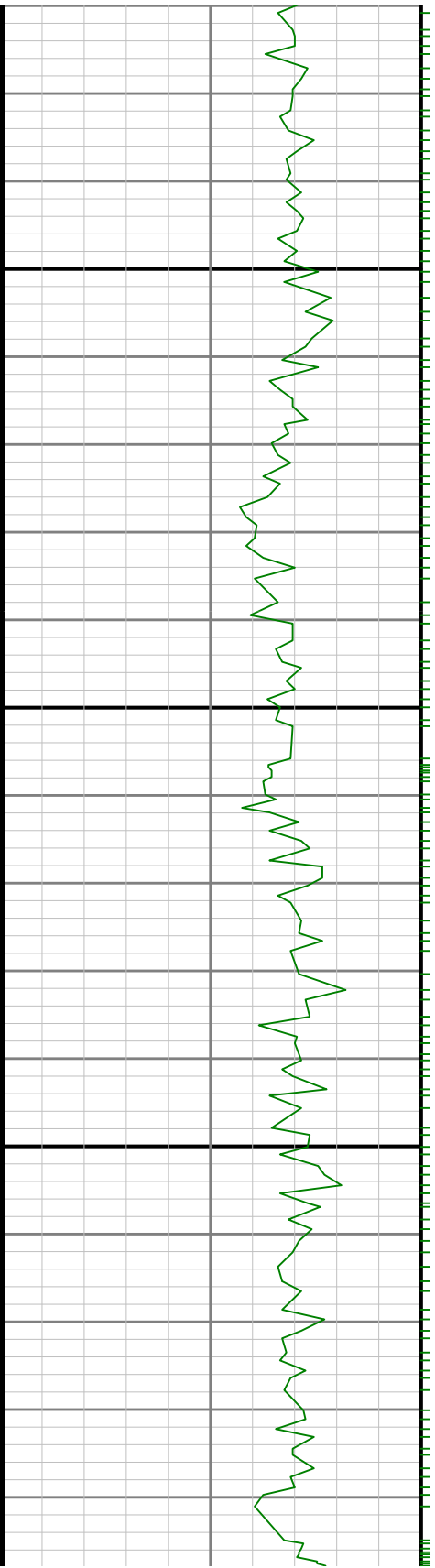


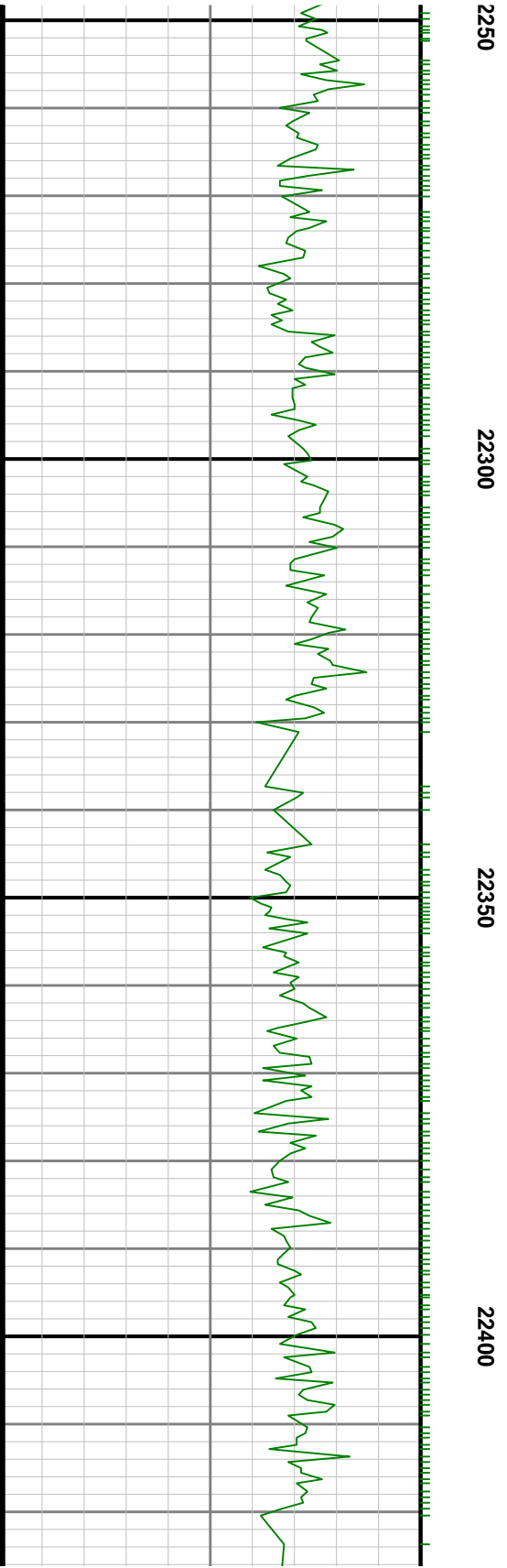
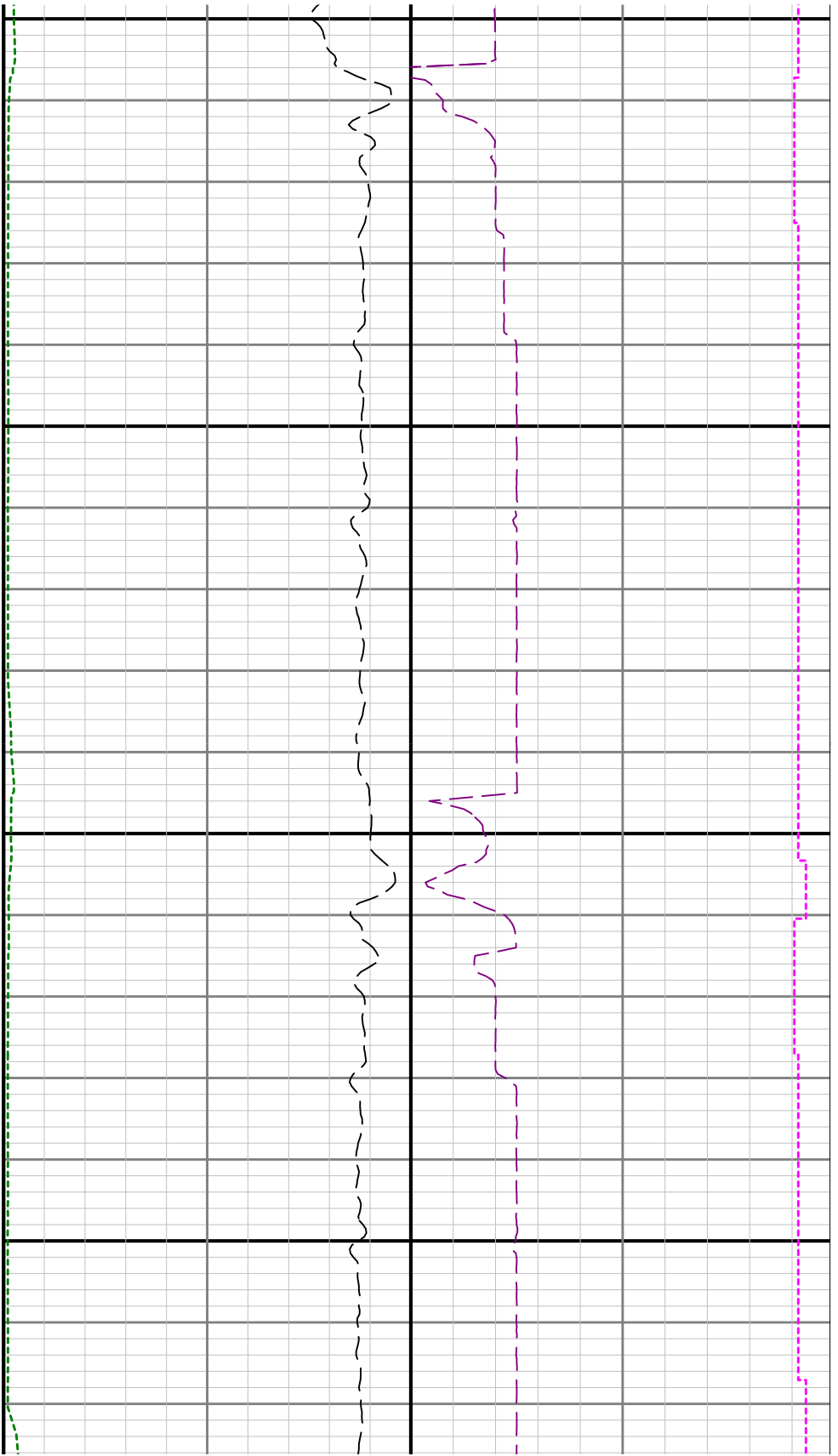
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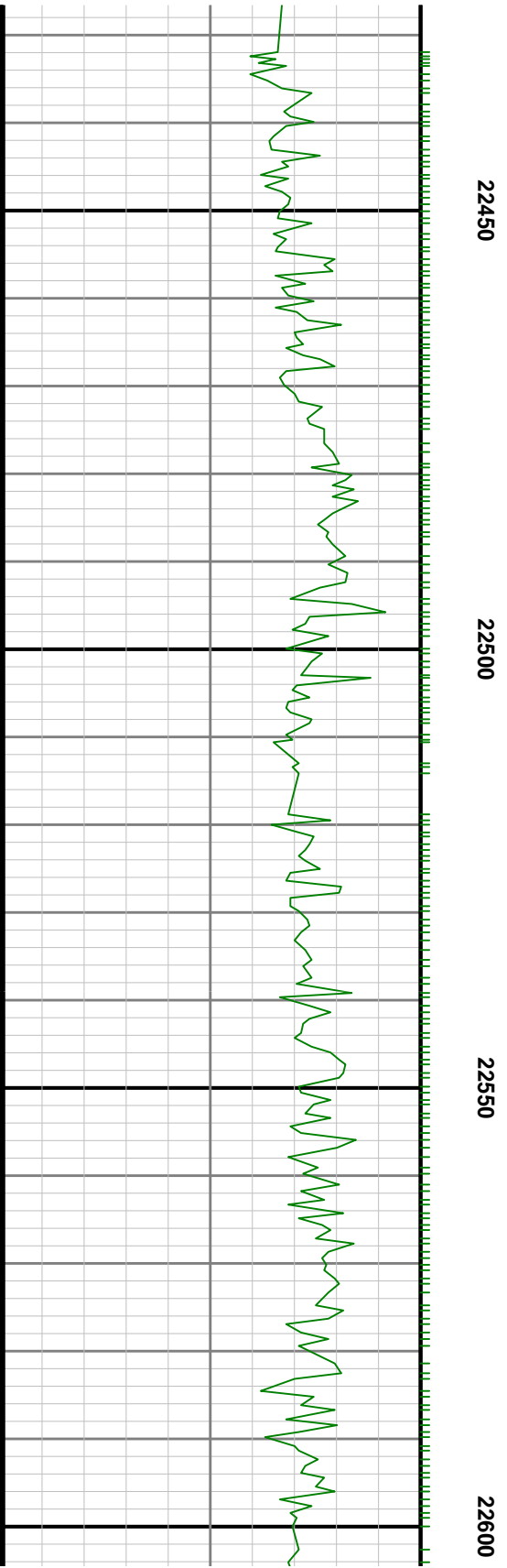
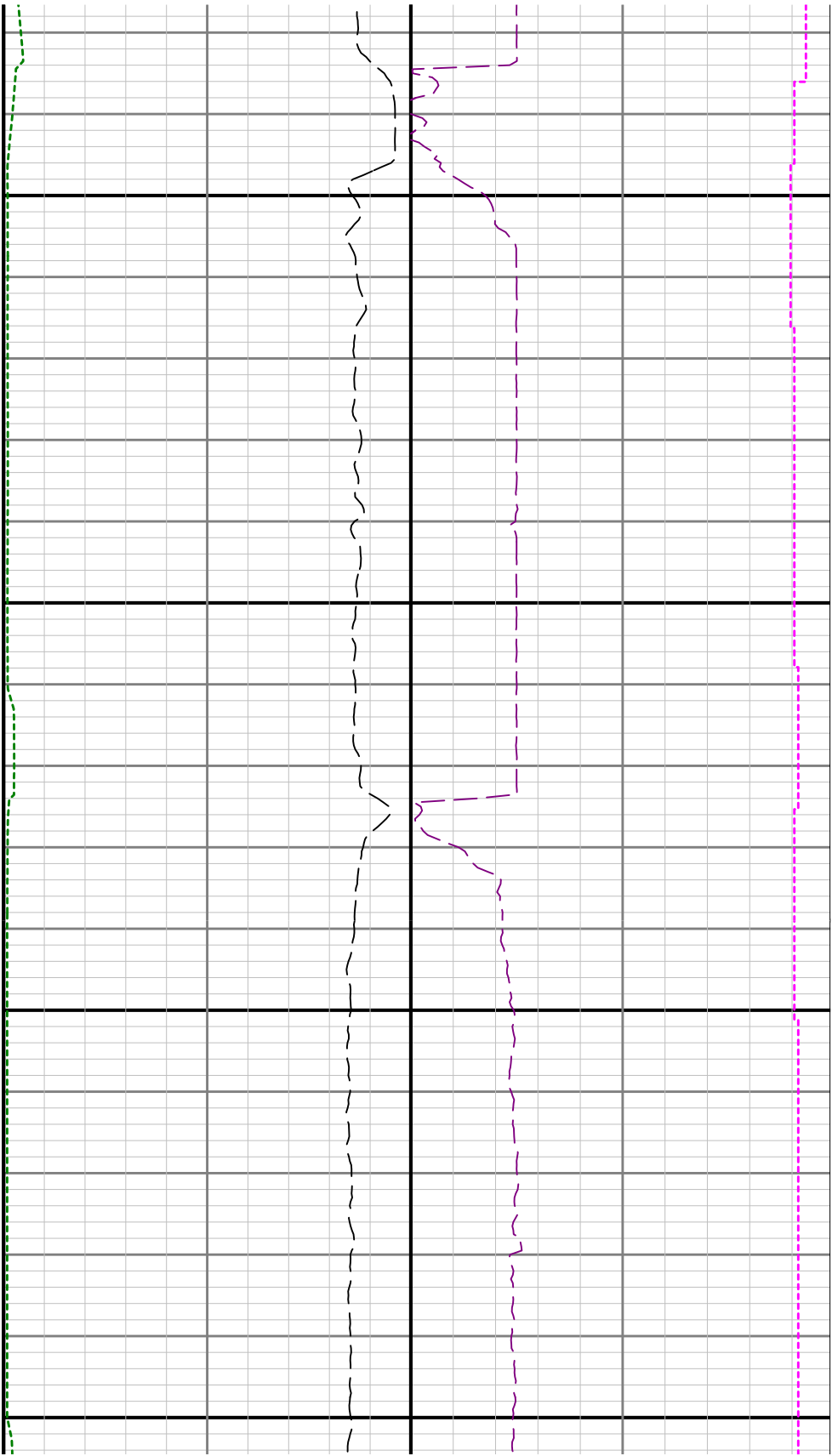
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22200

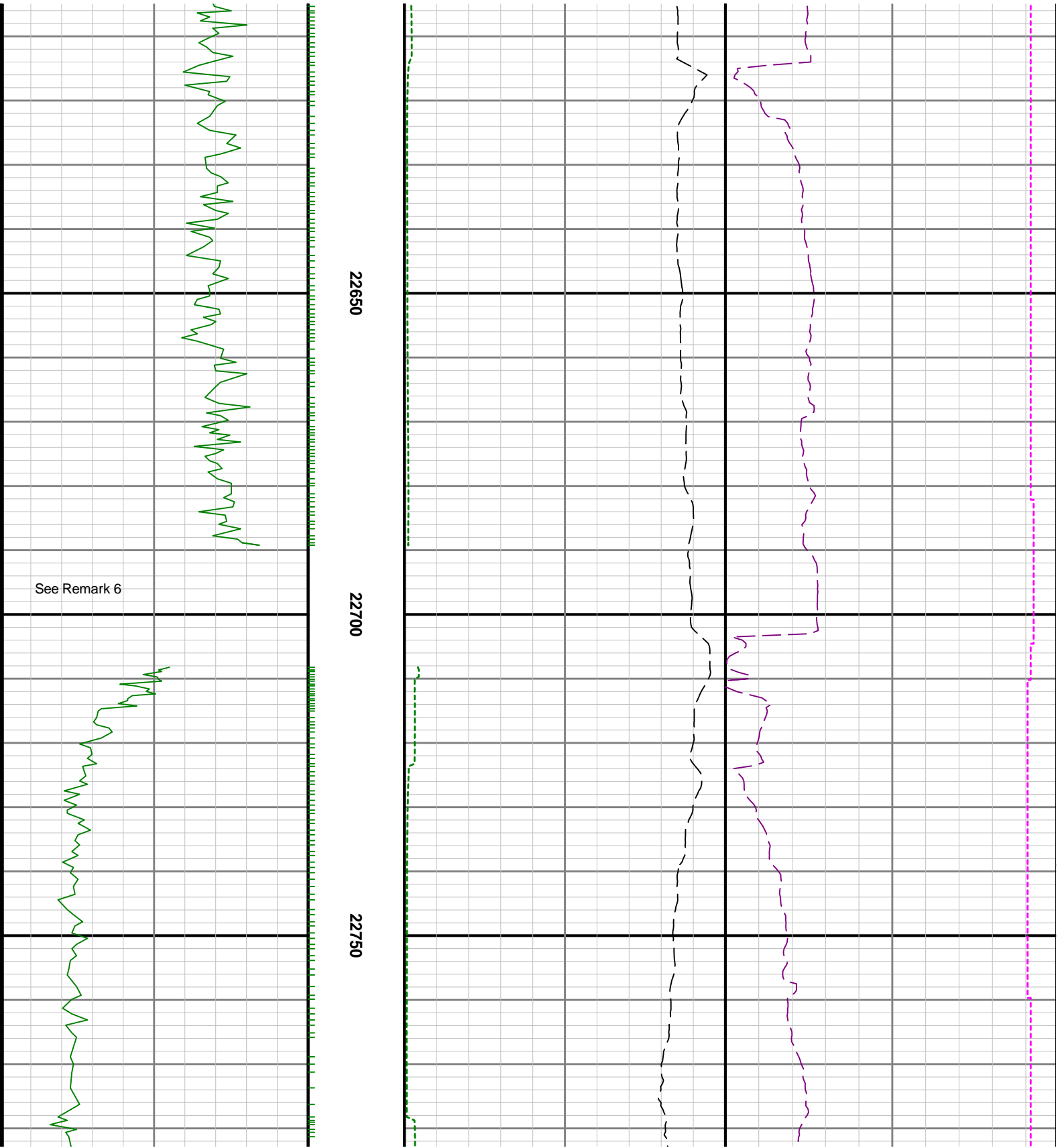
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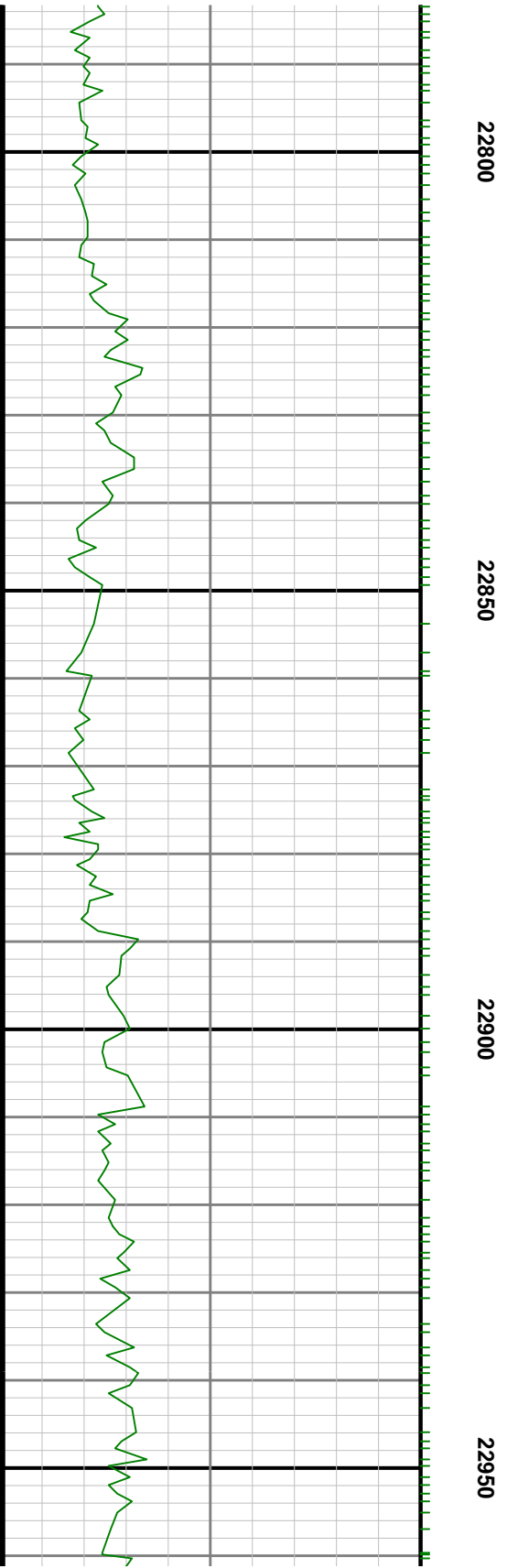


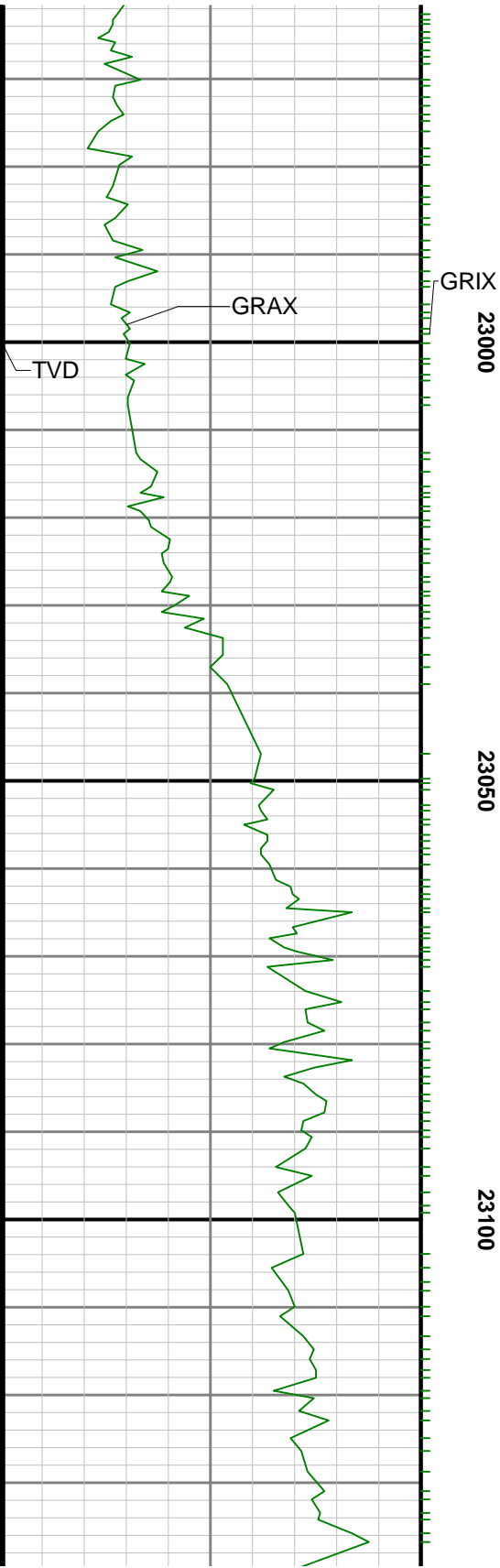


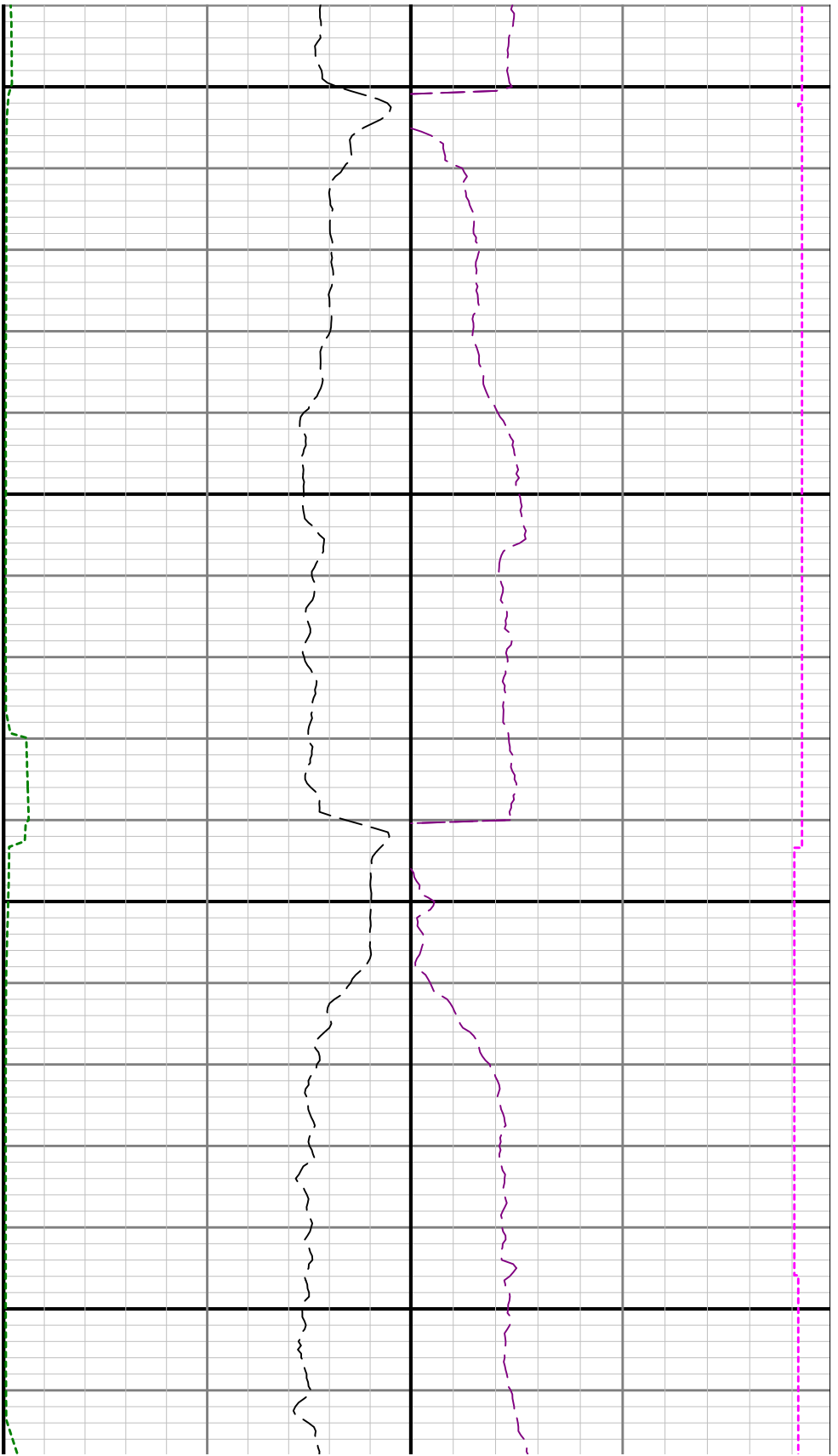










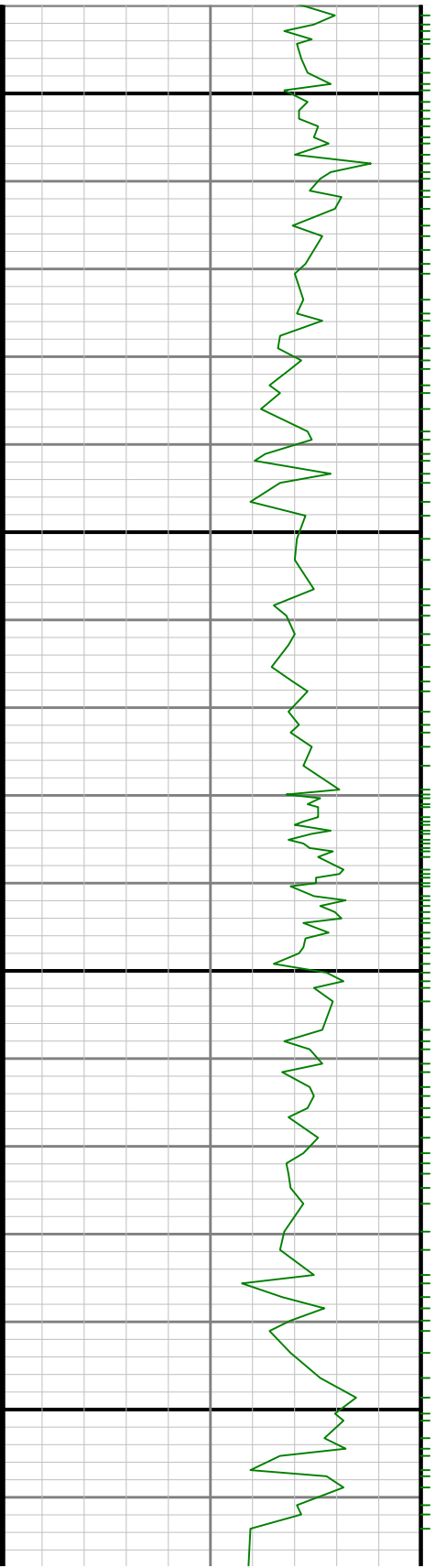


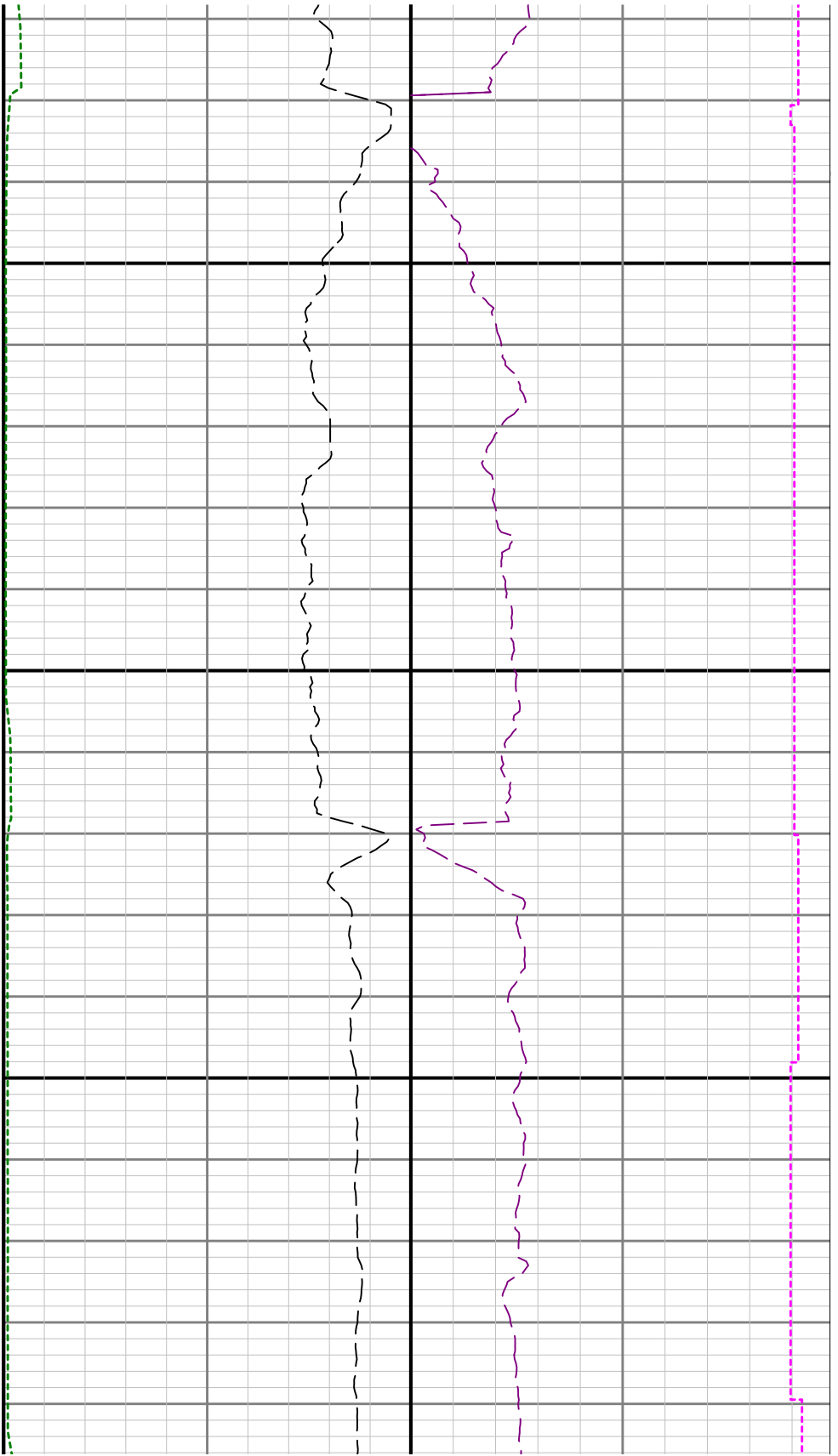
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23200

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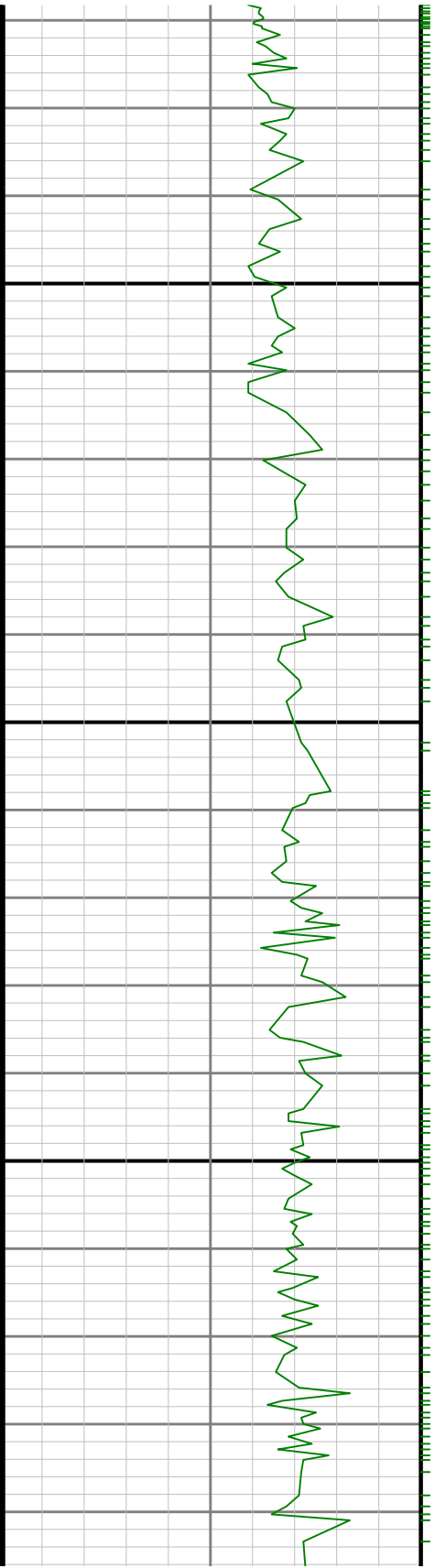


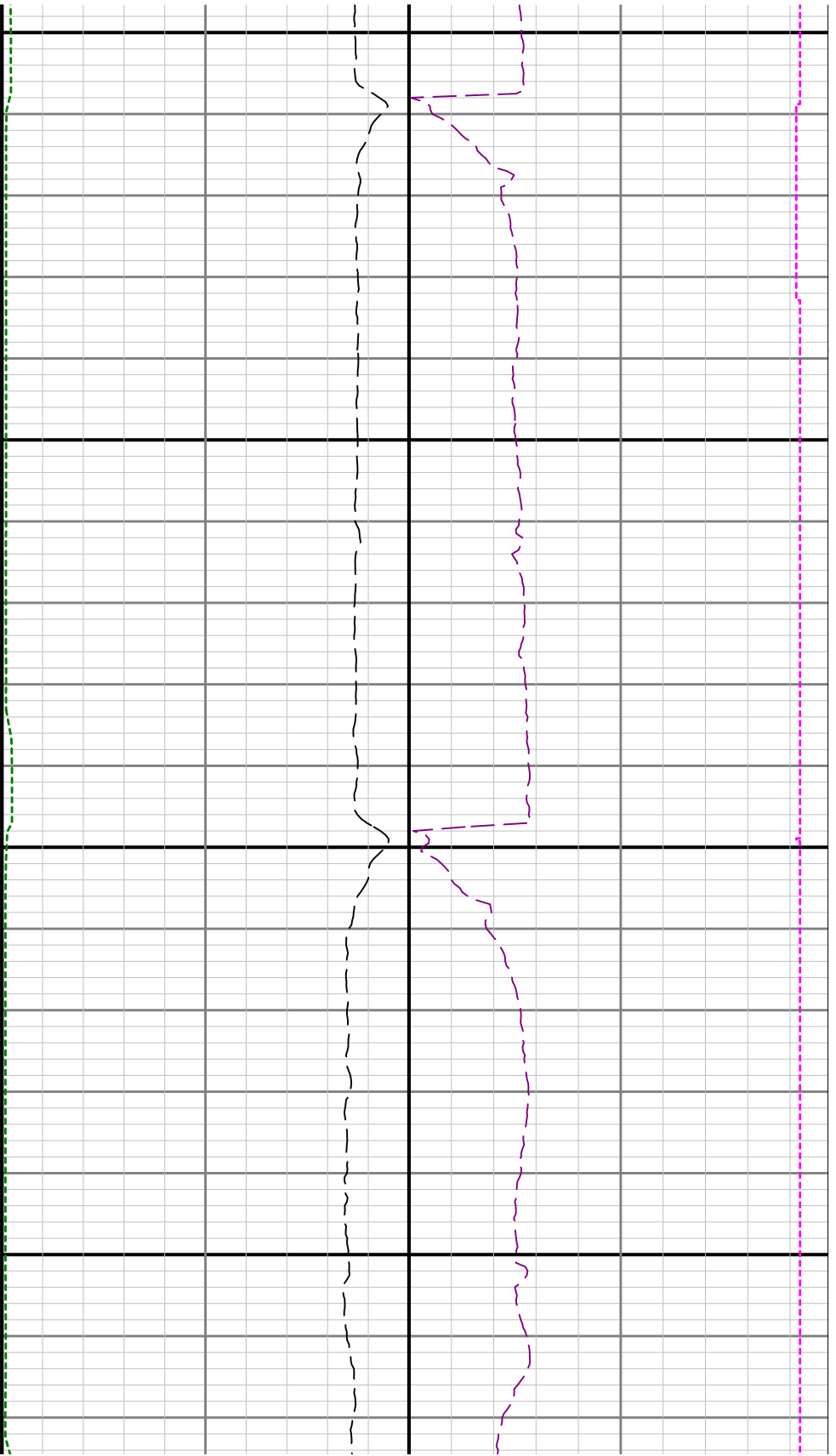


23350

23400

23450





23500

23550

23600

23650

