

LWD MEMORY COMPOSITE LOG



Gamma Ray

Scale:  <b>1:240</b> <b>Measured Depth</b>	<b>Company:</b> Noble Energy
	<b>Well:</b> GIG-EM STATE Y9-740
	<b>Field:</b> Weld County
Depth Reference:  <b>Driller's Depth</b>	<b>County:</b> Weld <b>Country:</b> United States
	<b>State:</b> Colorado
Status:  <b>Final Print</b>	Surface Location: Latitude: 40° 08' 38.796" N Longitude: 104° 33' 01.980" W  Other Services:  Directional
API: 05123518370000	
Job ID: 111683769	SEC: 16 TWN: 2N RGE: 64W

Operational Summary

Rig & Elevations

Dates	Drilled (ft)	Logged (ft)	Rig Contractor: Patterson-UTI	Rig: Patterson 268	Elev. KB: (ft)	4972.00
From: 2023-03-12	Top: 109.00	Top: 0.00	Permanent Datum (P.D.): Mean Sea Level	Elevation: (ft)	4943.00	Elev. DF: (ft) 4972.00
To: 2023-03-14	Bottom: 17433.00	Bottom: 17420.00	Log Measured From: Rig Floor	Above P.D.: (ft)	4972.00	Elev. GL: (ft) 4943.00

(C) 2023 Baker Hughes Company - All rights reserved. Baker Hughes and its affiliates provides this information on an "as is" basis for general information purposes and believes it to be accurate as of the date of publication. Baker Hughes does not make any representation as to the accuracy or completeness of the information and makes no warranties of any kind, specific, implied or oral, to the fullest extent permissible by law, including those of merchantability and fitness for a particular purpose or use. Baker Hughes hereby disclaims any and all liability for any direct, indirect, consequential or special damages, claims for lost profits, or third party claims arising from the use of the information, whether a claim is asserted in contract, tort, or otherwise. The Baker Hughes logo is a trademark of Baker Hughes Company.

Log Run Summary

Run No	Bit Run No.	Bit Size (in)	Bit Type	Bit Gauge Length (in)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time		Circ. Hours (h)
						Top (ft)	Bottom (ft)	From (ft)	To (ft)	Start Logging	End Logging	
1	1	13.500	PDC	4.00	Rotary	N/A	N/A	109.00	2062.00	N/A	N/A	7.50
2	2	8.500	PDC	2.50	AutoTrak Curve	2049.00	17420.00	2062.00	17433.00	2023-03-12 16:29	2023-03-14 19:33	46.03

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Abdullah Alkhoja	2023-03-11	2023-03-15	Adam Schlenz	2023-03-11	2023-03-15	Eric Davis	2023-03-11	2023-03-15
Marcos Favela	2023-03-11	2023-03-15						

Mud Properties Record

Date / Time	Run No.	Depth (ft)	Mud Type	Density (ppg)	Viscosity (cP)	pH	Fluid Loss (cm3)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
2023-03-04 23:32	1	110.00	Water Based Mud	8.4	2	7.3	N/A	0/100	Active Pit	695	N/A
2023-03-13 05:00	2	6462.00	Oil Based Mud	9.6	13	N/A	N/A	81.9/18.1	Active Pit	26725	N/A
2023-03-13 16:00	2	7693.00	Oil Based Mud	10.0	15	N/A	N/A	81.99/18.01	Active Pit	26725	N/A
2023-03-14 05:00	2	13380.00	Oil Based Mud	10.2	15	N/A	N/A	82.39/17.61	Active Pit	23324	N/A
2023-03-14 16:00	2	16736.00	Oil Based Mud	10.5	16	N/A	N/A	82.86/17.14	Active Pit	23324	N/A

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	EvoOne	15069834G8000133	Gamma (single)	9.40	21.32	8.000	3.250
1	EvoOne	15069834G8000133	Directional (mag)	10.40	22.32	8.000	3.250
2	AutoTrak Curve Steering Unit	15954117	Near Bit Inclination	5.93	6.78	7.000	4.330
2	AutoTrak Curve Steering Unit	15954117	Near Bit VSS	5.93	6.78	7.000	4.330
2	AutoTrak Curve MWD	15117777	Gamma (single)	2.20	13.15	6.875	3.250
2	AutoTrak Curve MWD	15117777	Directional (mag)	12.27	23.22	6.875	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
MWD	EvoOne - Dir Gamma	EvoOne
ATC SU	AutoTrak Curve SU	Auto Trak Curve Steering Unit

ATC MWD	AutoTrak Curve MWD	Auto Trak Curve MWD
ATC LCPM	AutoTrak Curve LCPM	Auto Trak Curve LCPM

**Comments**


- Baker Hughes Company run 1 utilized 8" EVO (Directional-only) services behind a 13 1/2" bit from 109 to 2062 ft md (109 to 2061 ft tvd). This Run was directional only, therefore no logging data was acquired.
- Baker Hughes Company run 2 utilized 6 3/4 inch NaviGamma services (Gamma Ray and Directional) behind an 8 1/2 inch PDC bit and rotary steerable assembly from 2062 to 17434 feet MD (2061 to 6975 feet TVD).
- Depth measurements were obtained from a depth control system not supplied or operated by Baker Hughes. Due to a lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified and the unverified depths as supplied to Baker Hughes are being used to present logging data.

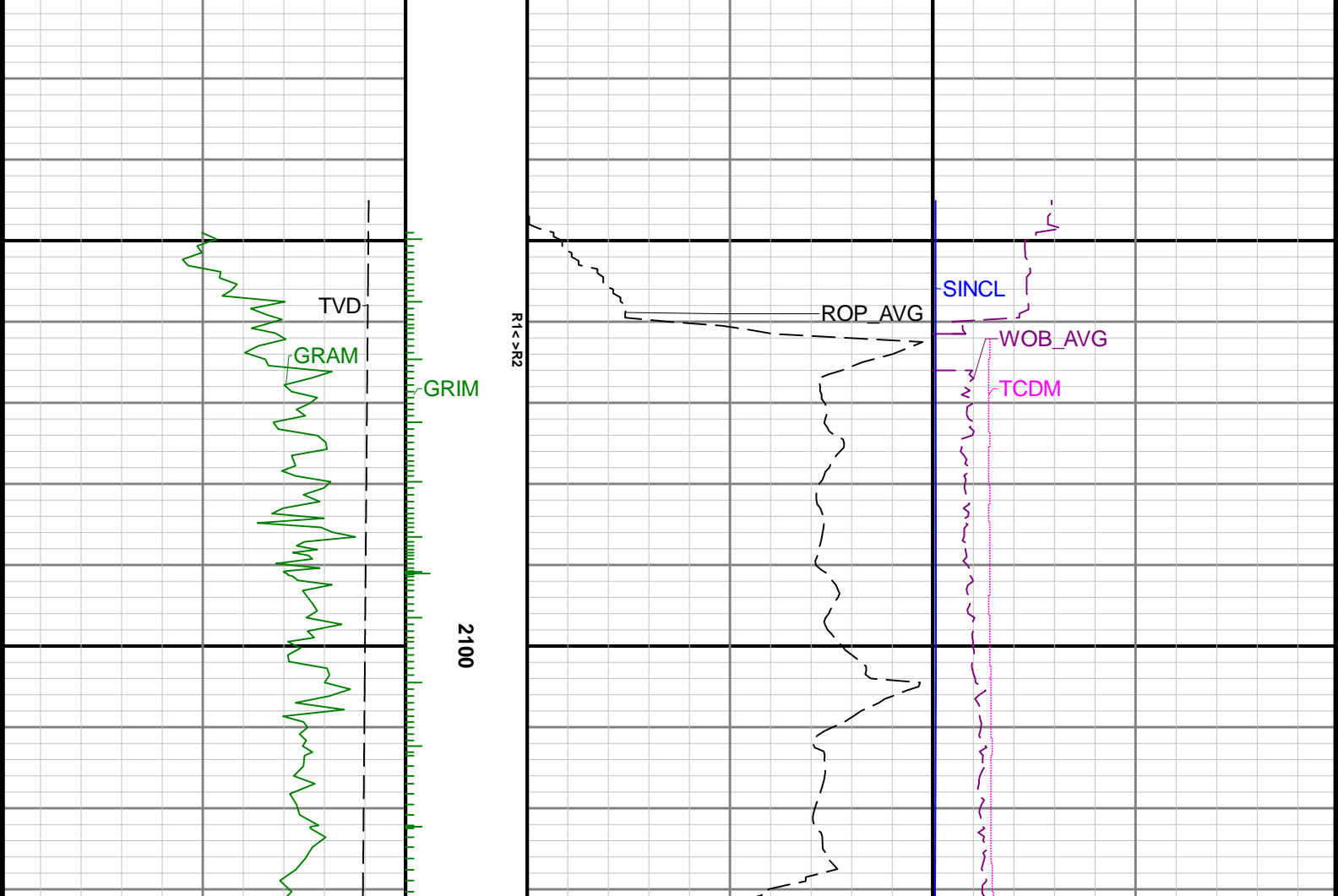
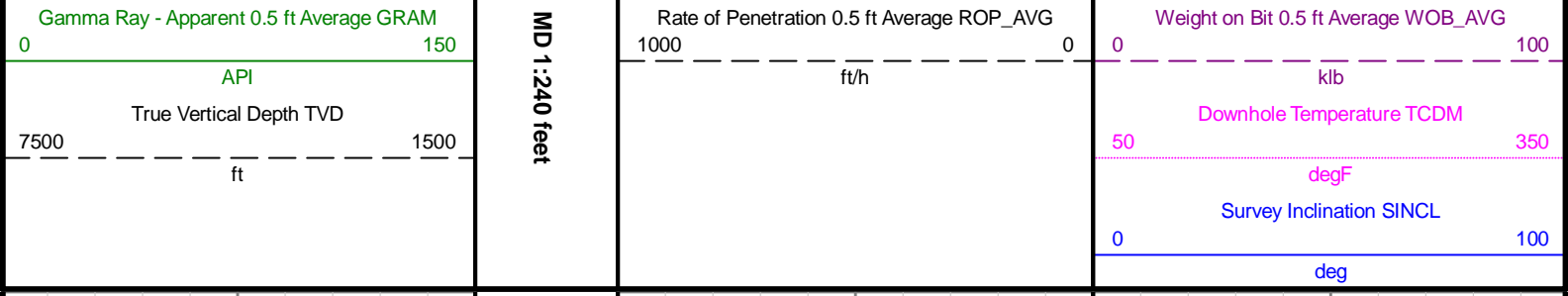
**Remarks**

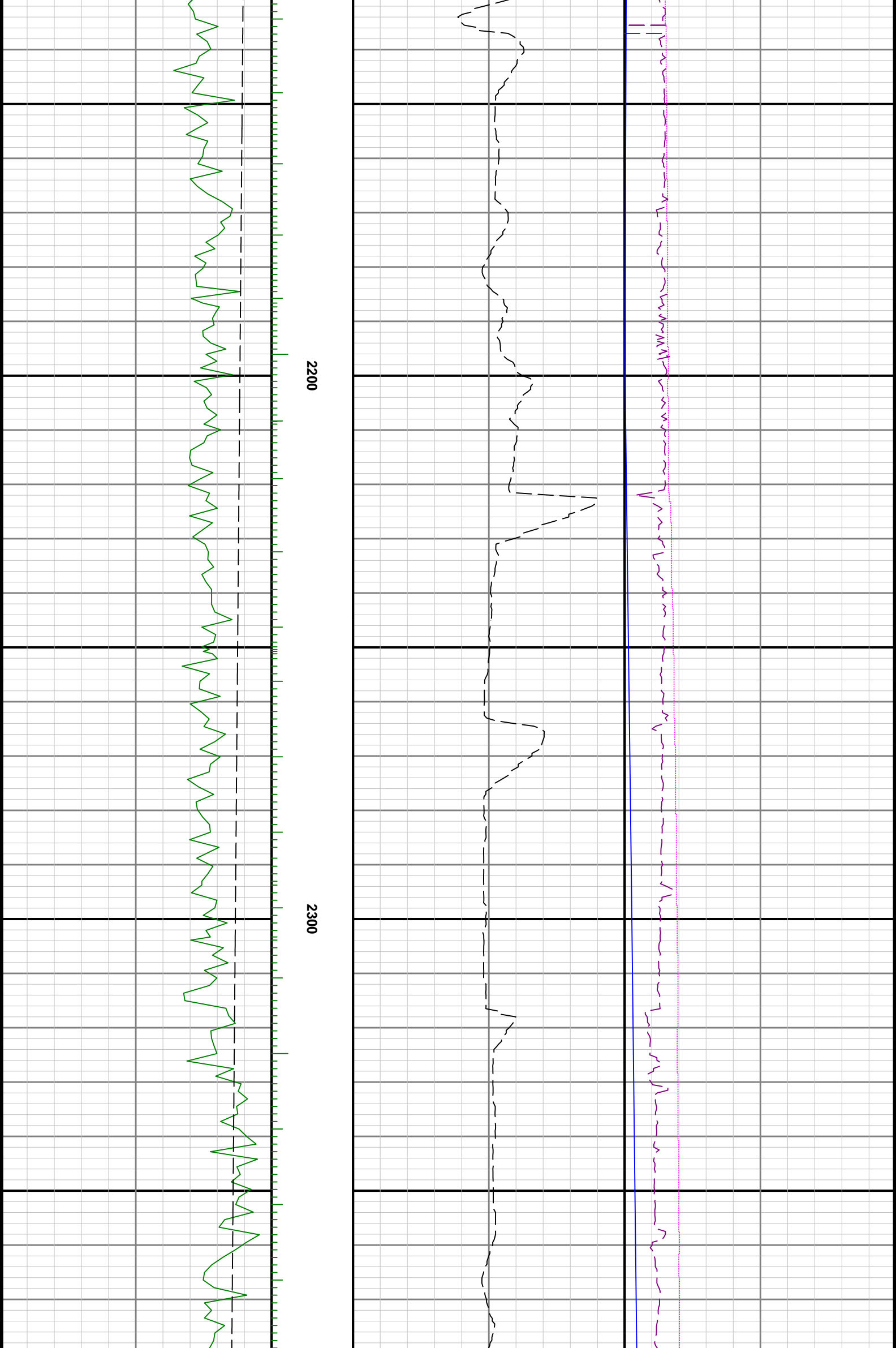
Number	Depth (ft)	Hole Section (in)	Run No.	Remark
1	17434.00	8.500	2	The interval from 17420 to 17434 feet MD (6976 to 6976 feet TVD) was not logged due to sensor to bit offset at well TD.

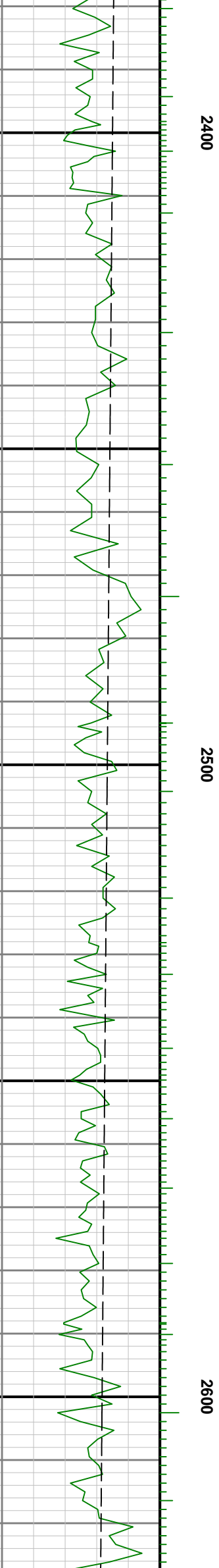
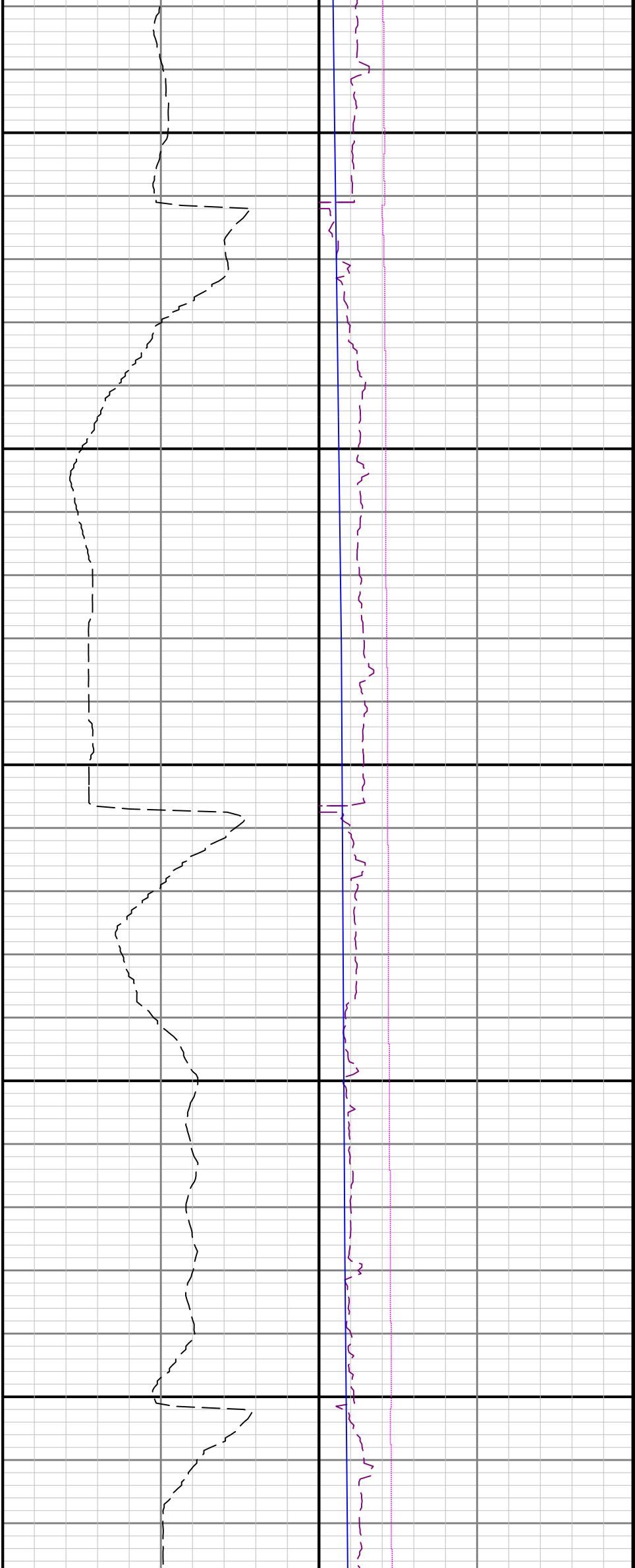
**Curve Mnemonics**

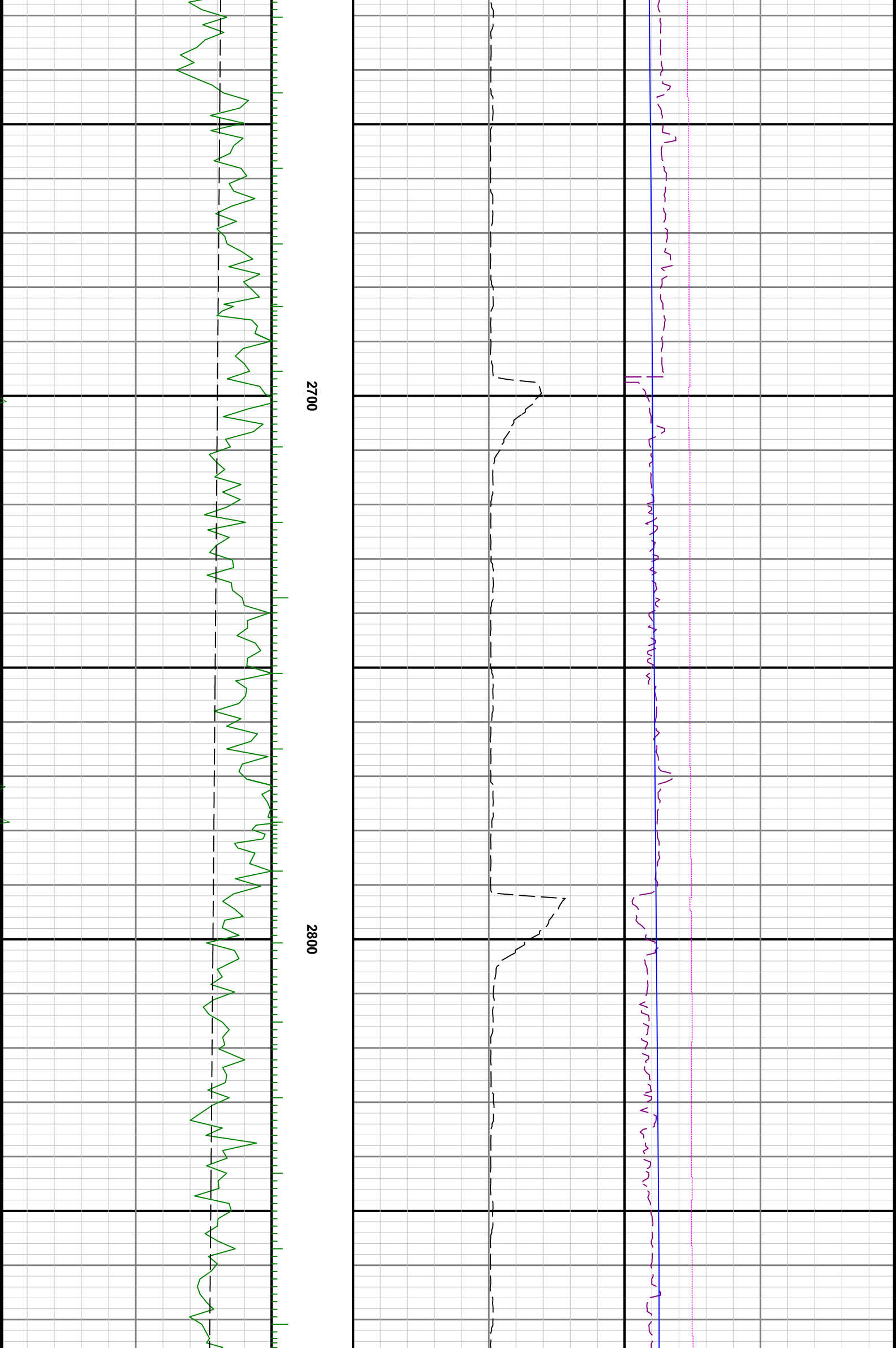
Presented Curves	Description	Units
ROP_AVG	Rate of Penetration of bit, Average	ft/h
TVD	True Vertical Depth	ft
WOB_AVG	Weight On Bit, Average	klb
GRAM	Gamma Ray - Apparent - Memory 0.5 ft Average	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
TCDM	Directional Real-Time Survey Temperature	degF
SINCL	Survey Inclination	deg

	<b>Company</b>	Noble Energy			
	<b>Well</b>	GIG-EM STATE Y9-740			
	<b>Interval</b>	<b>Date From:</b>	2023-03-12 16:29	<b>Interval Drilled: (ft)</b>	109.00 - 17433.00
		<b>Date To:</b>	2023-03-14 19:33	<b>Interval Logged: (ft)</b>	0.00 - 17420.00
<b>Created</b>	2023-03-15 05:51:00				



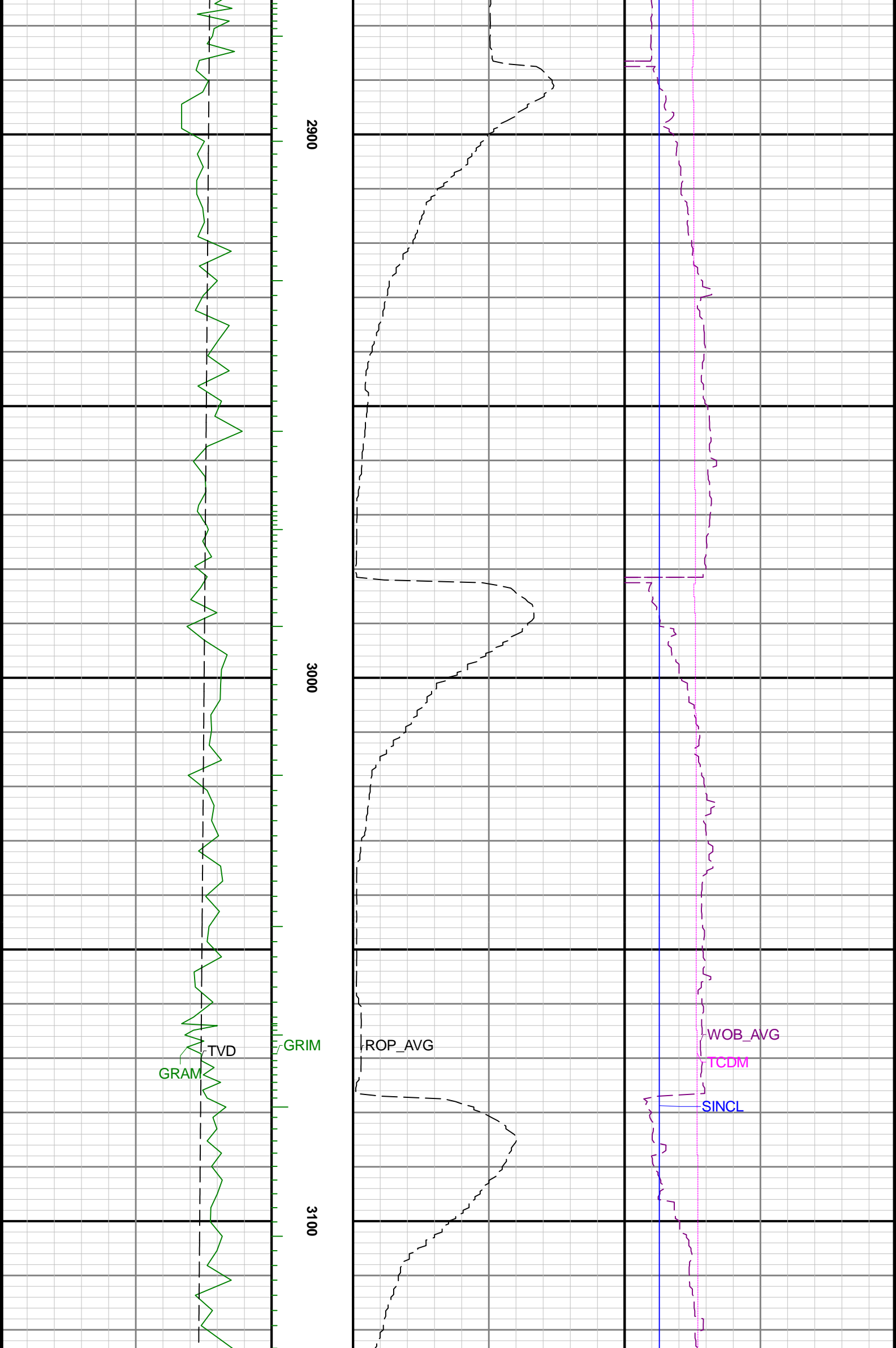


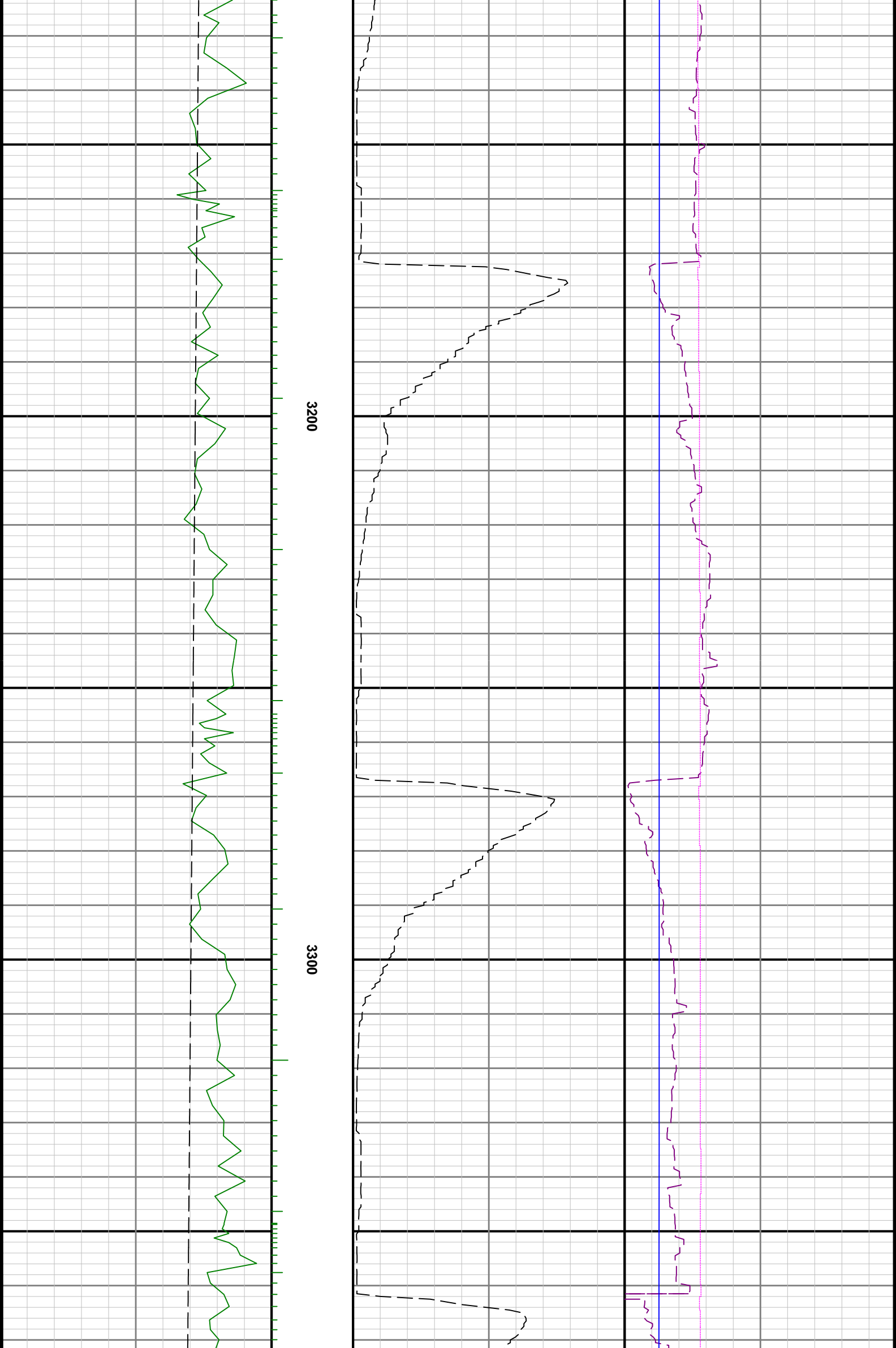


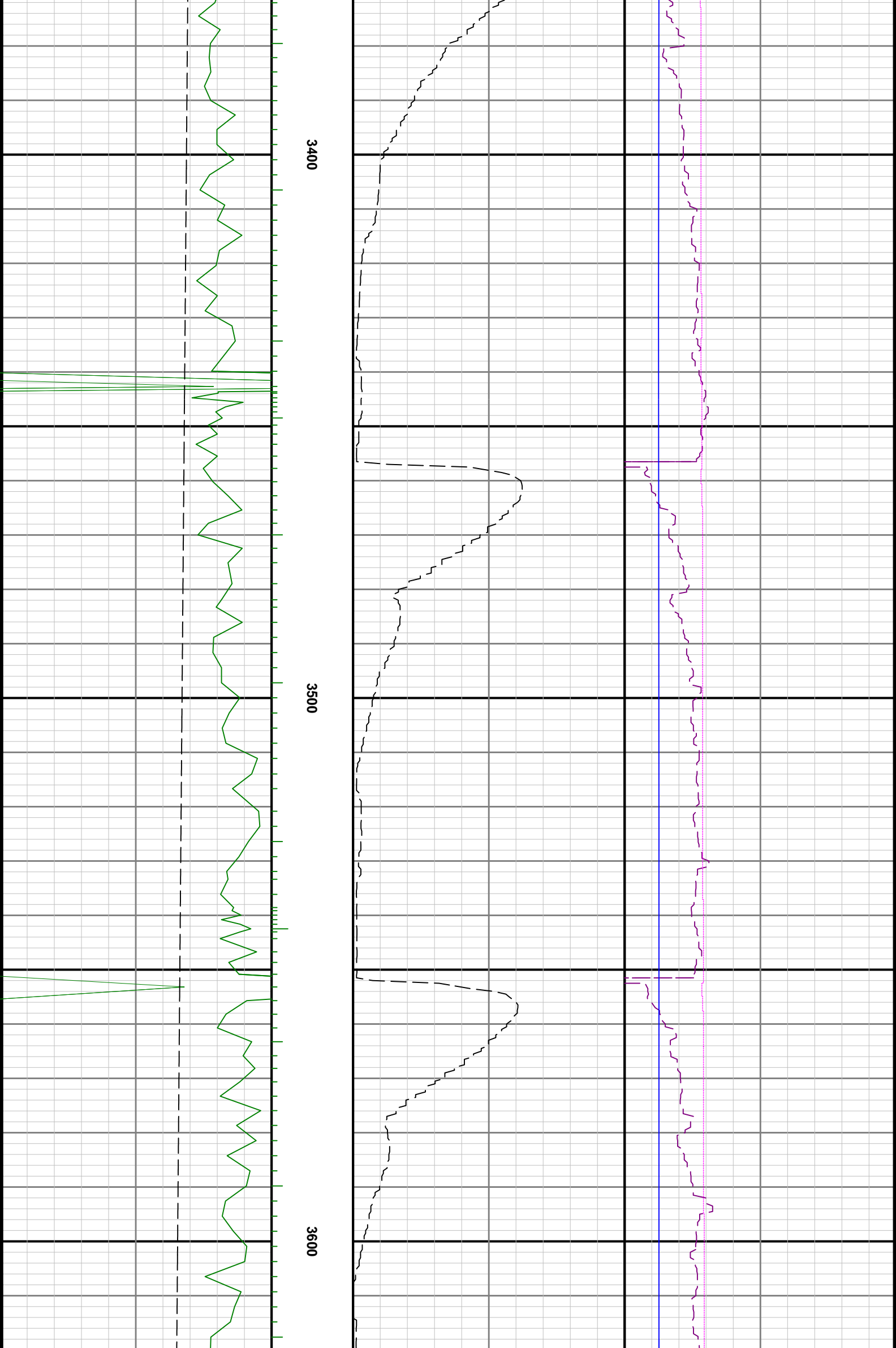


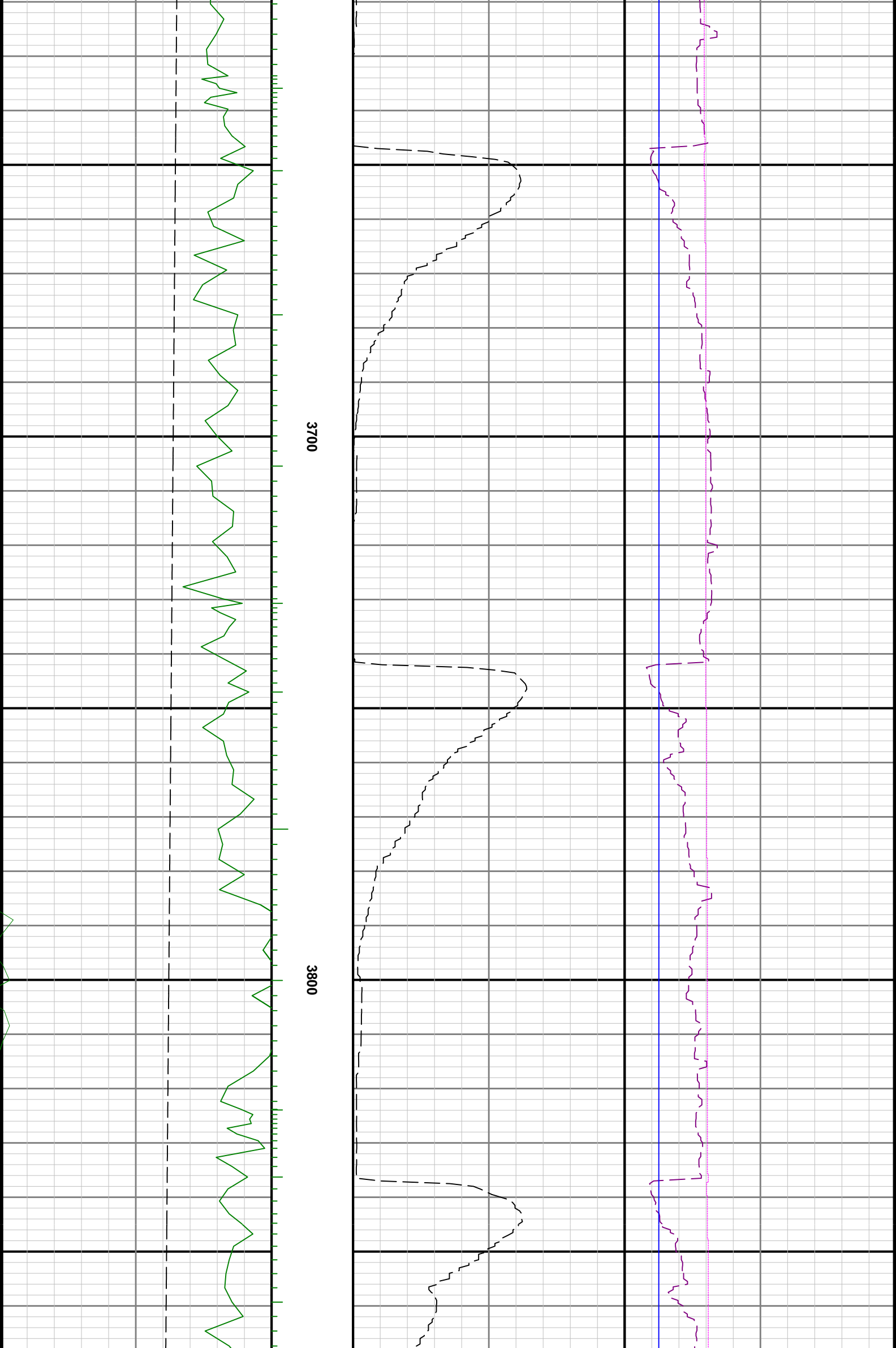
2700

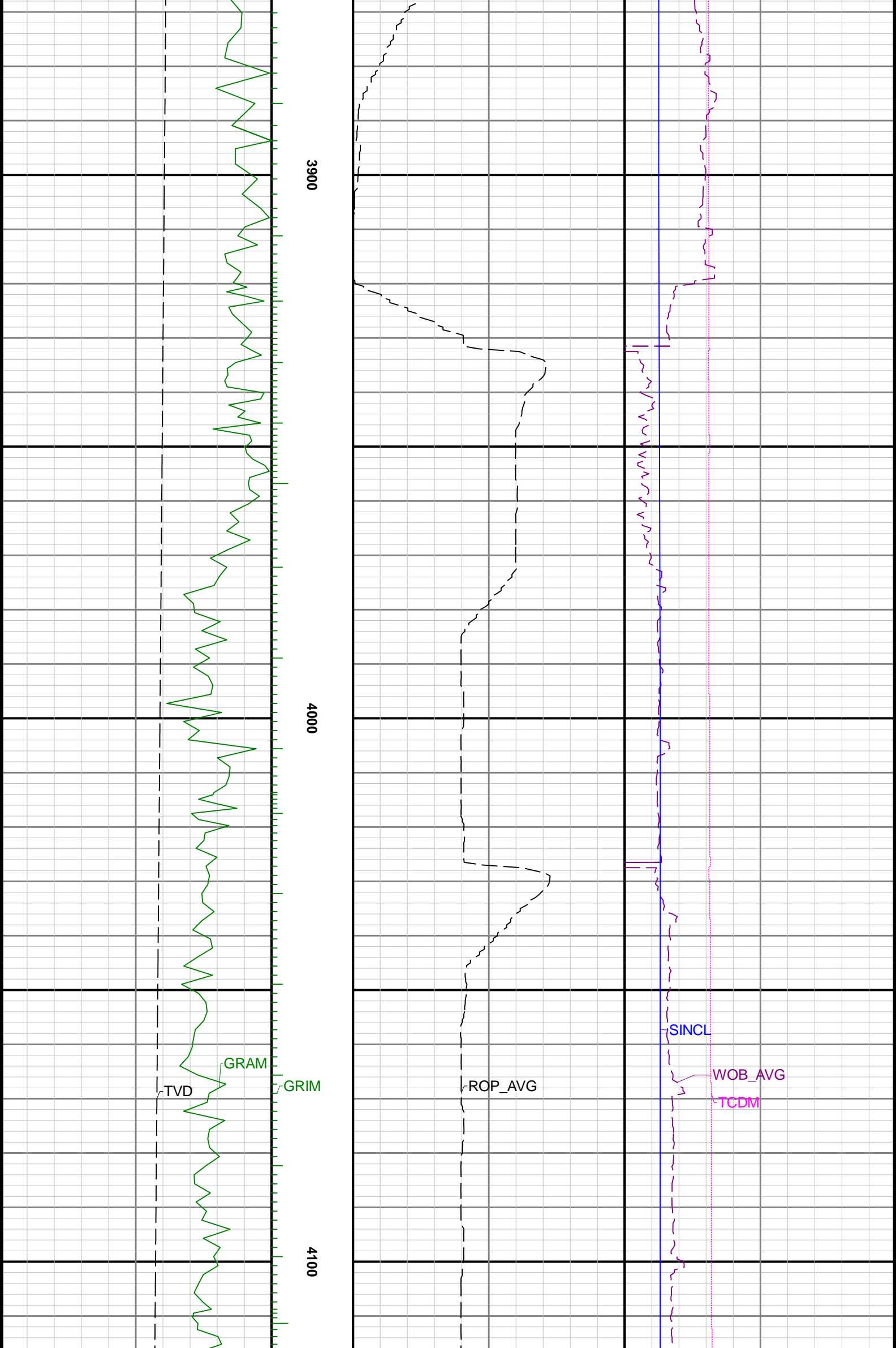
2800

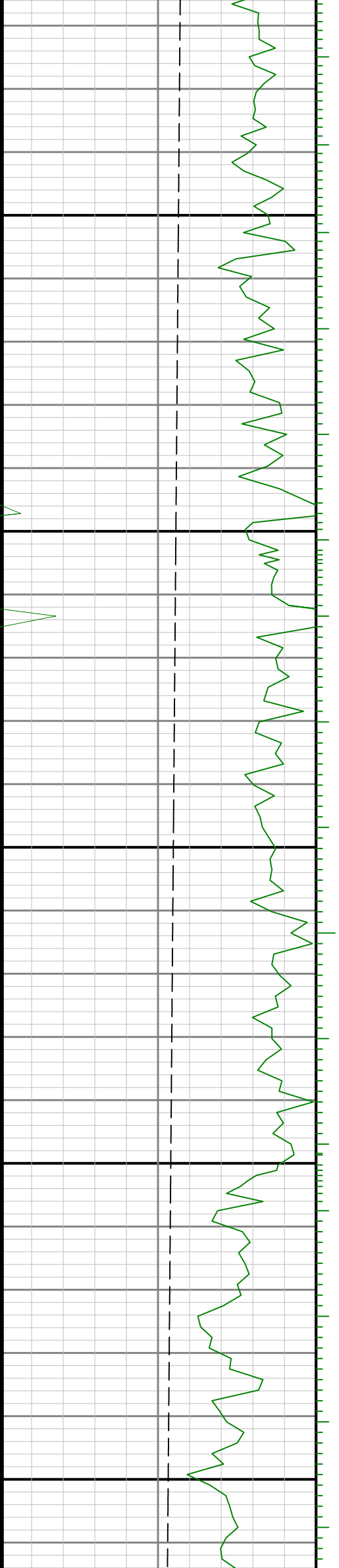






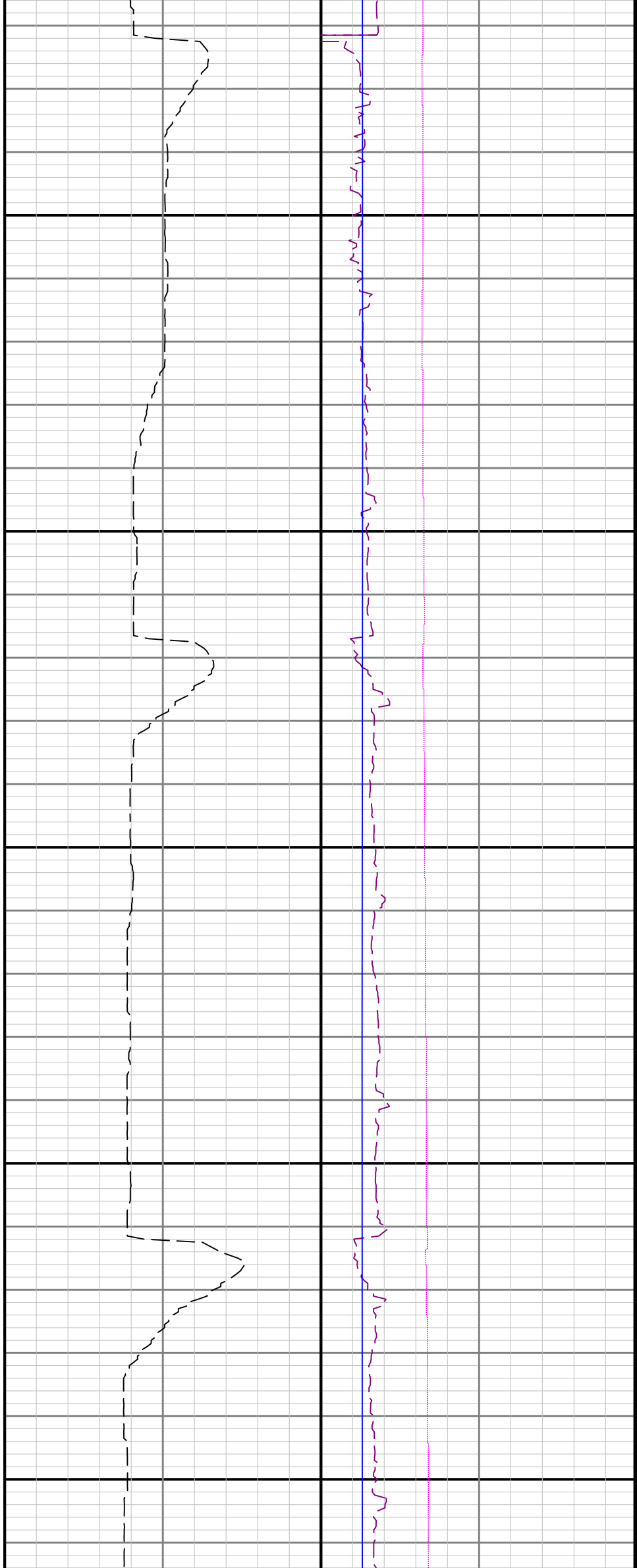


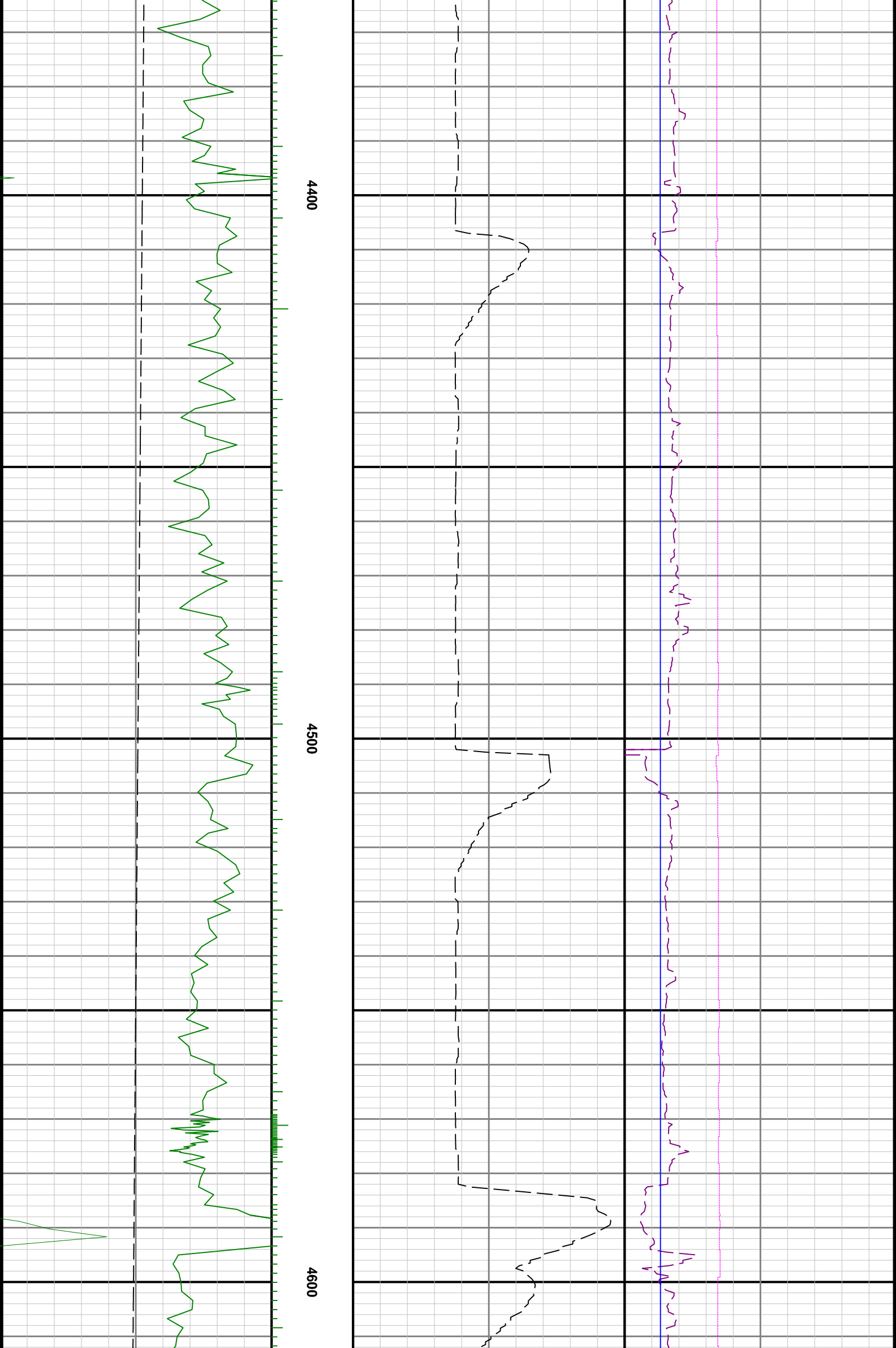




4200

4300

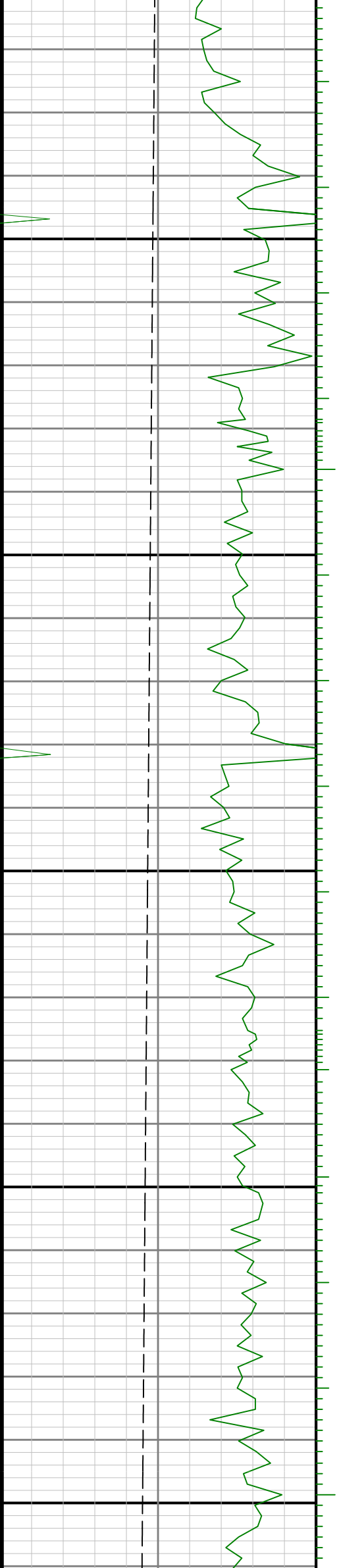




4400

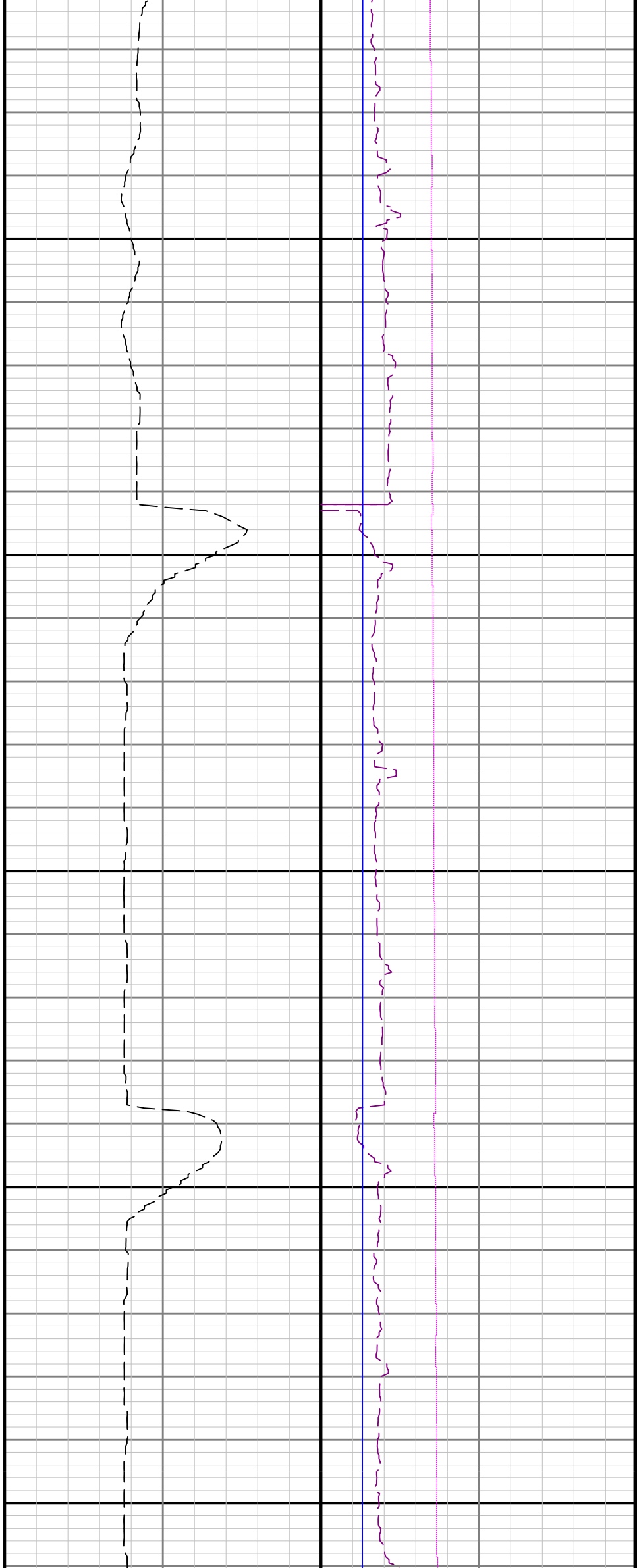
4500

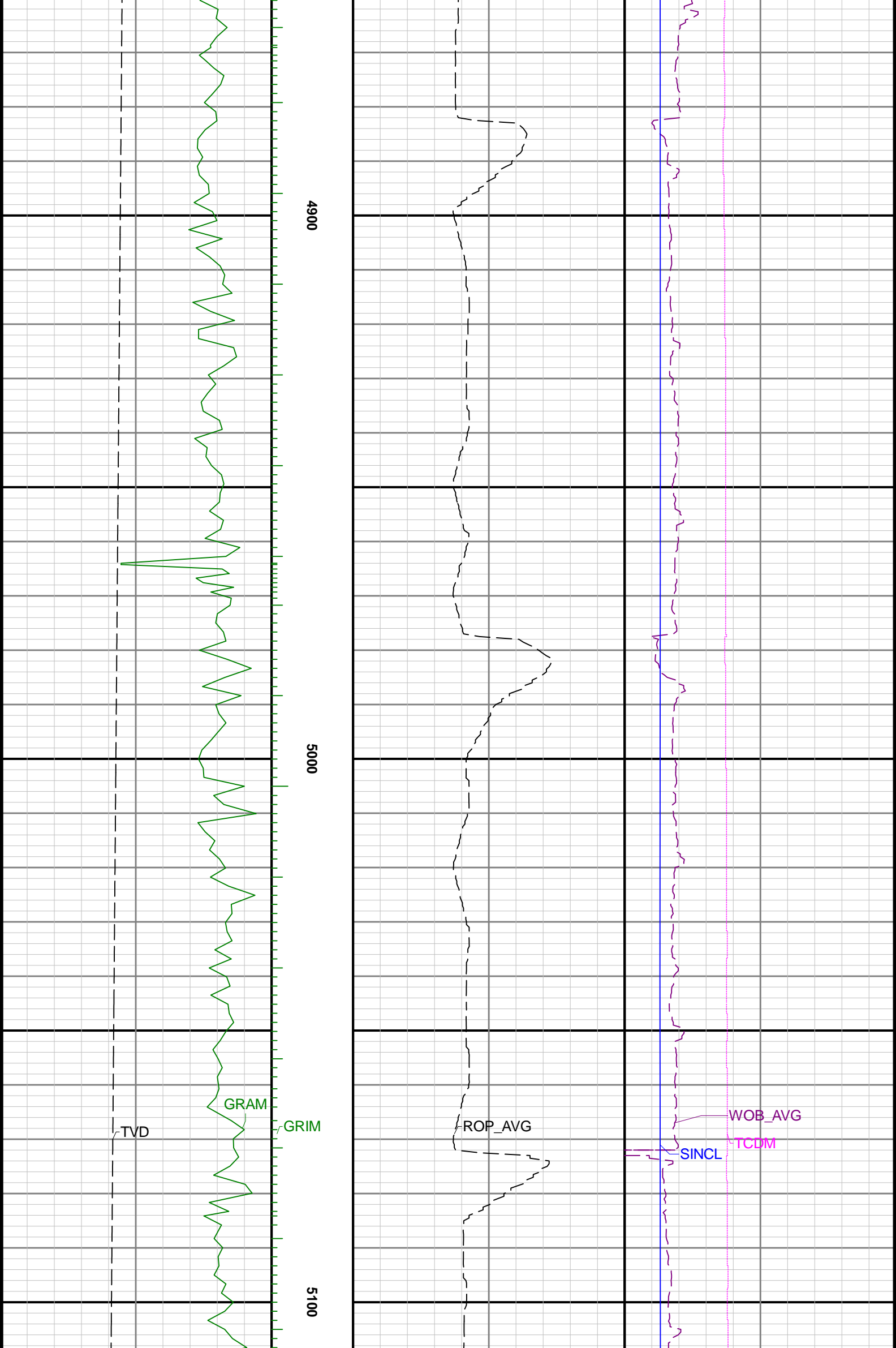
4600

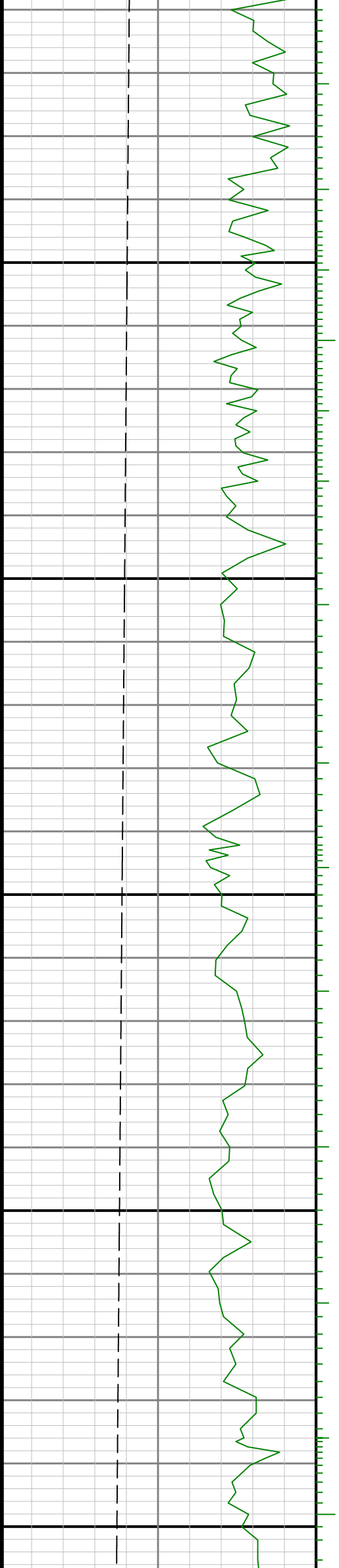


4700

4800



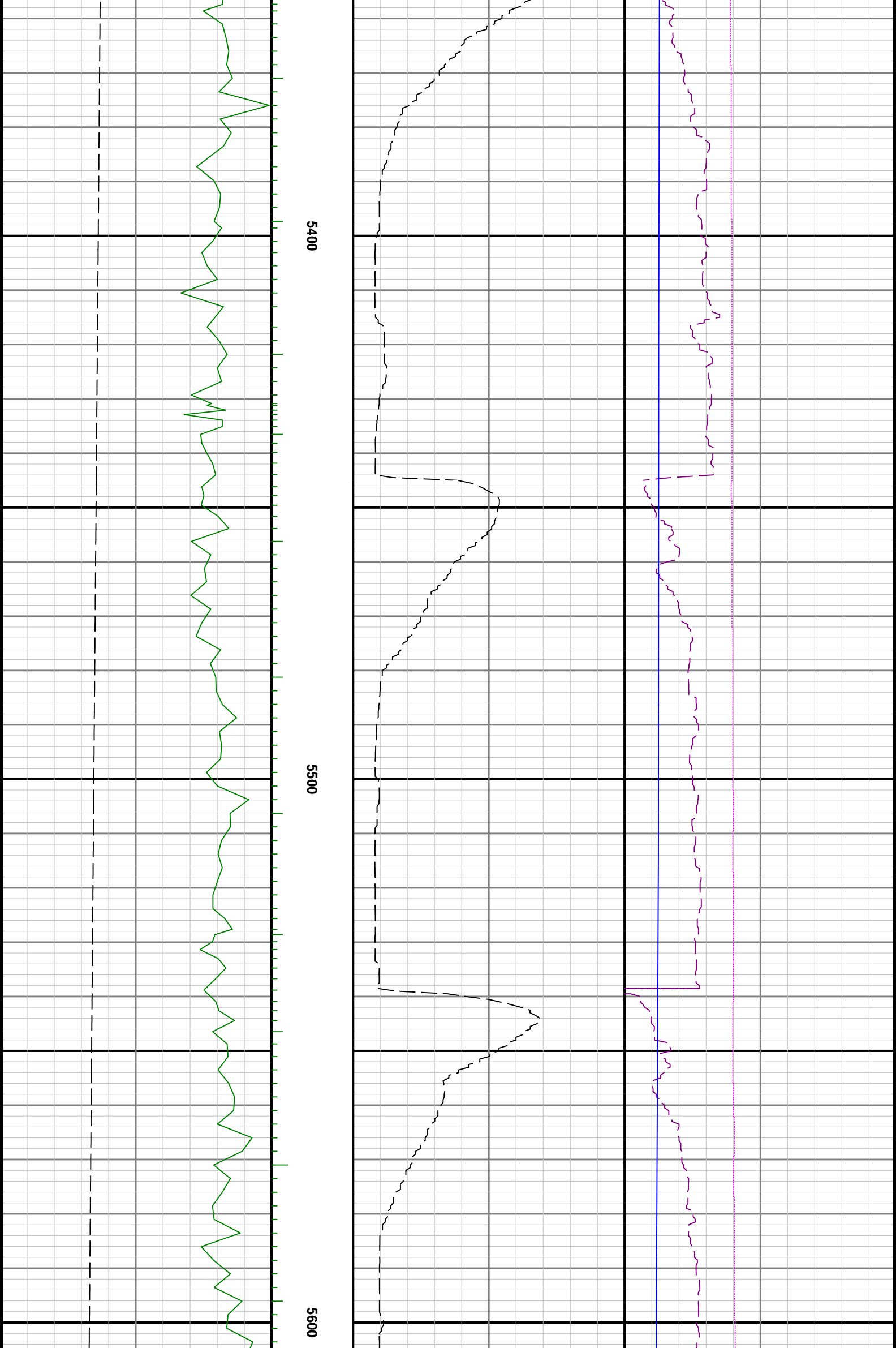


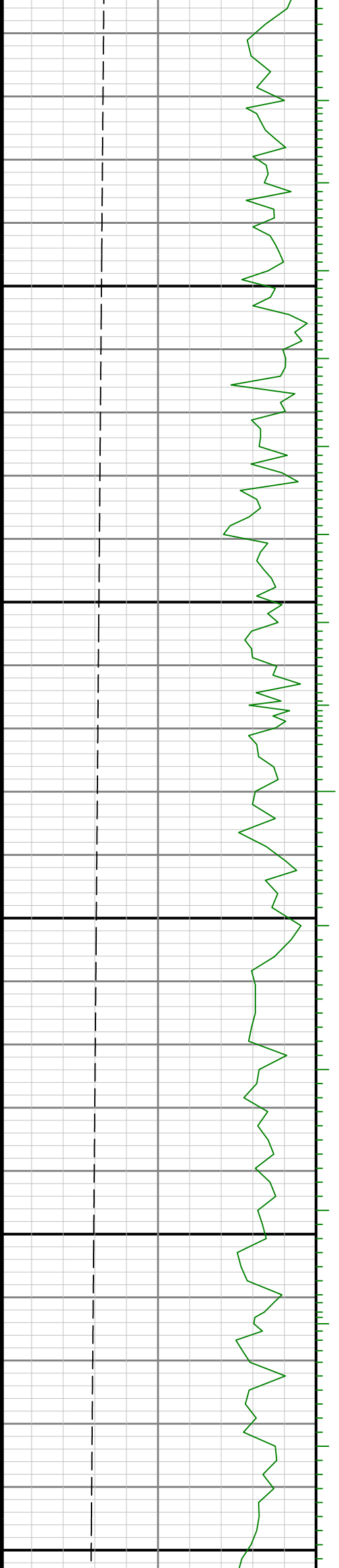


5200

5300

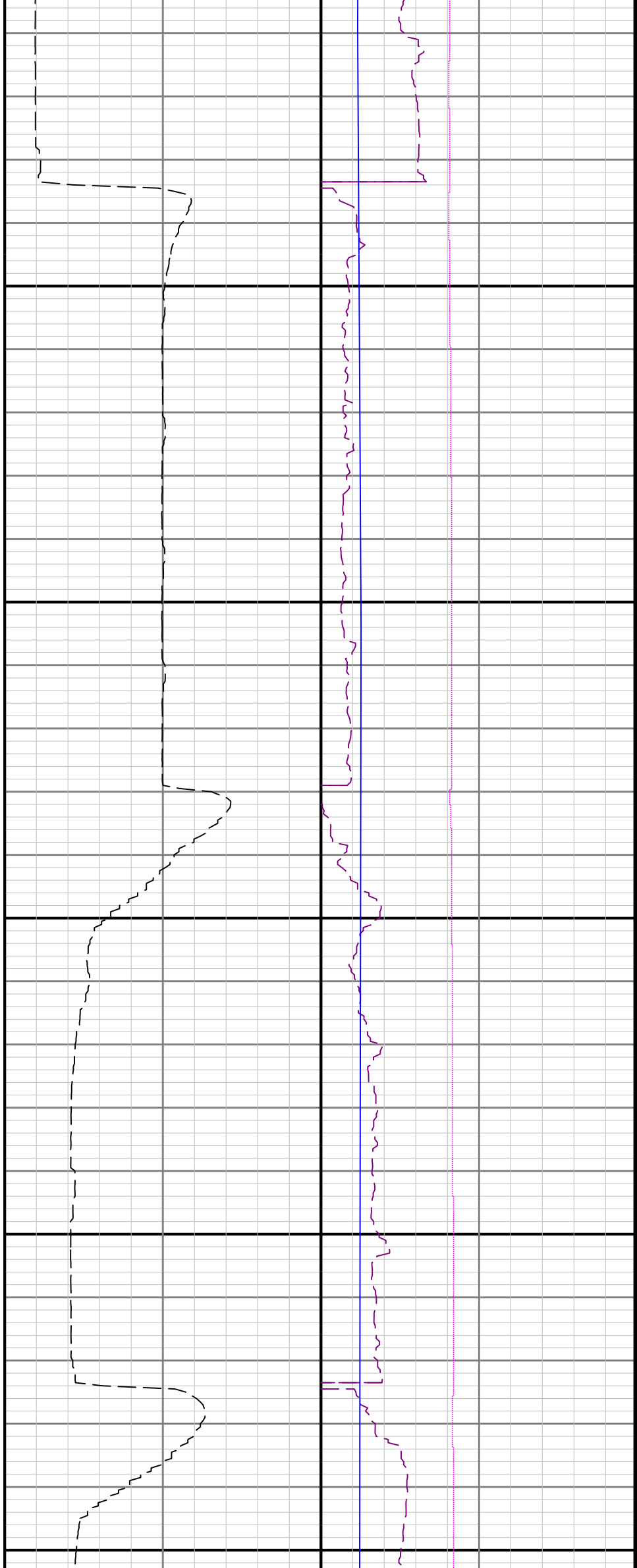


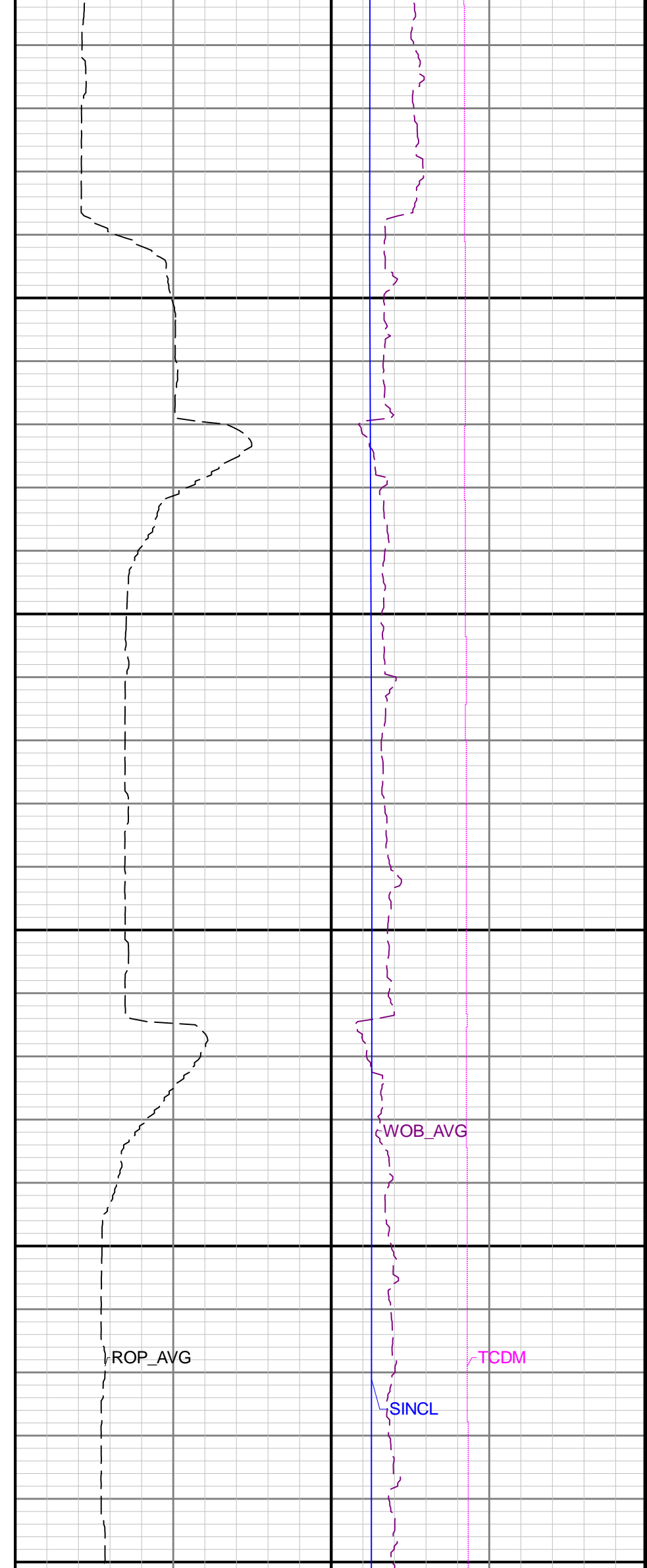
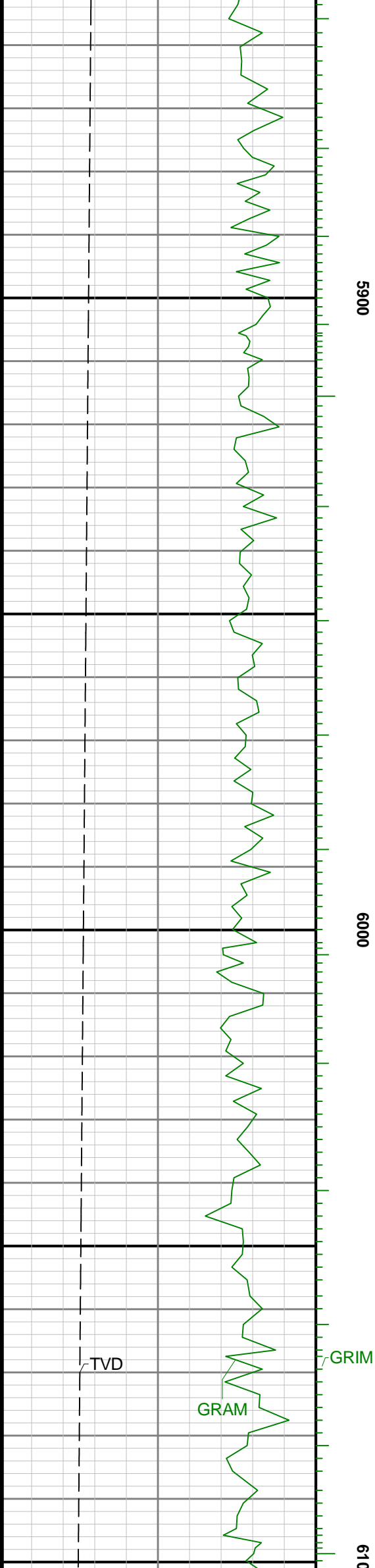


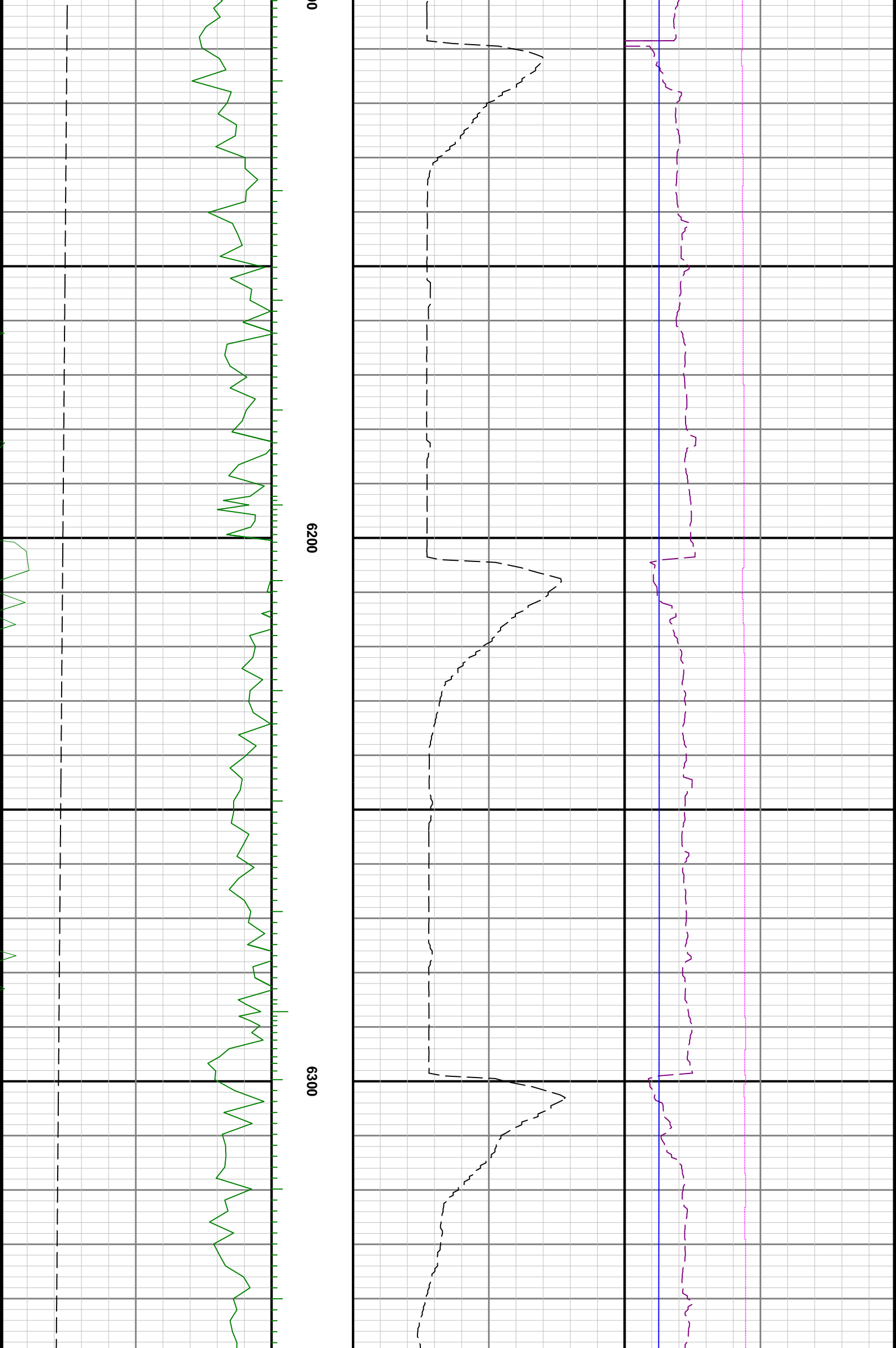


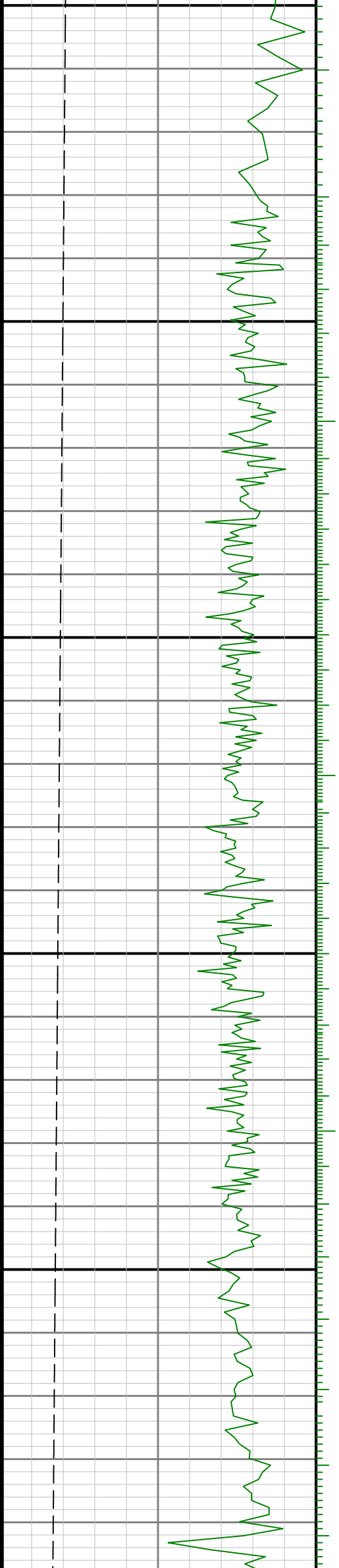
5700

5800



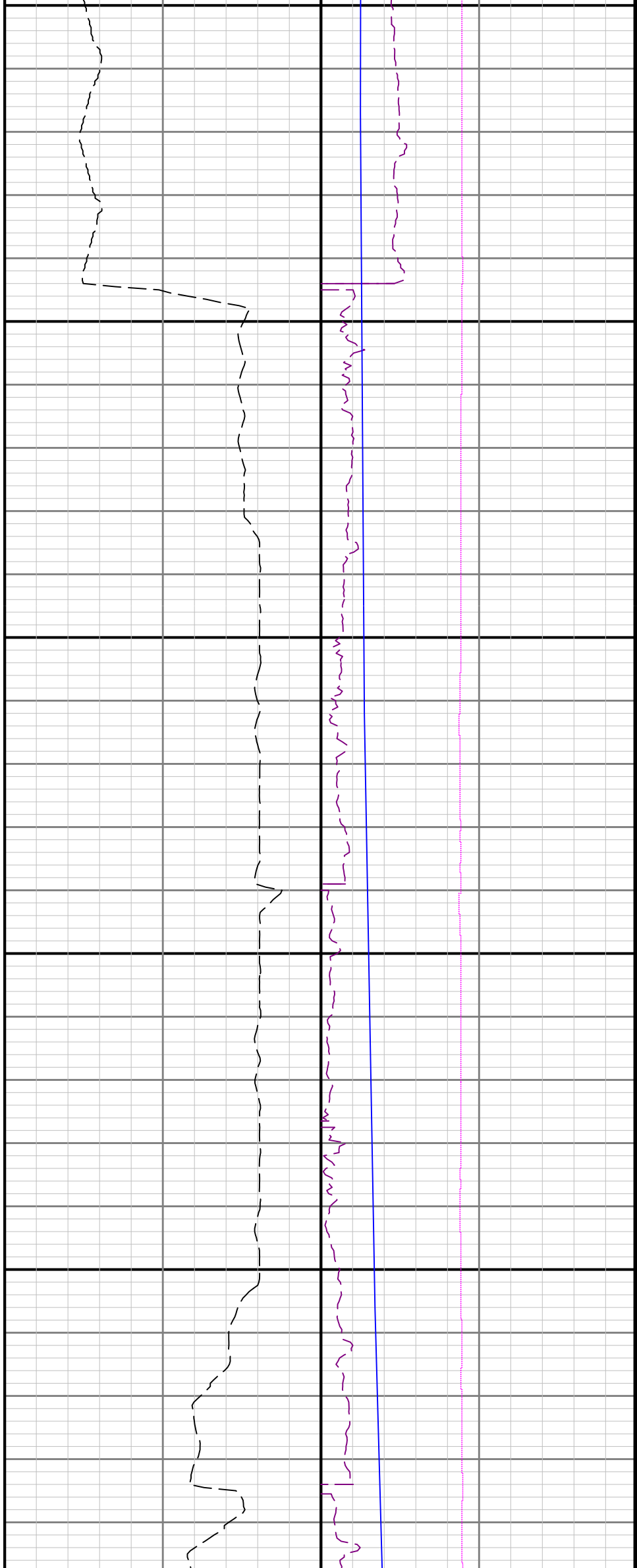


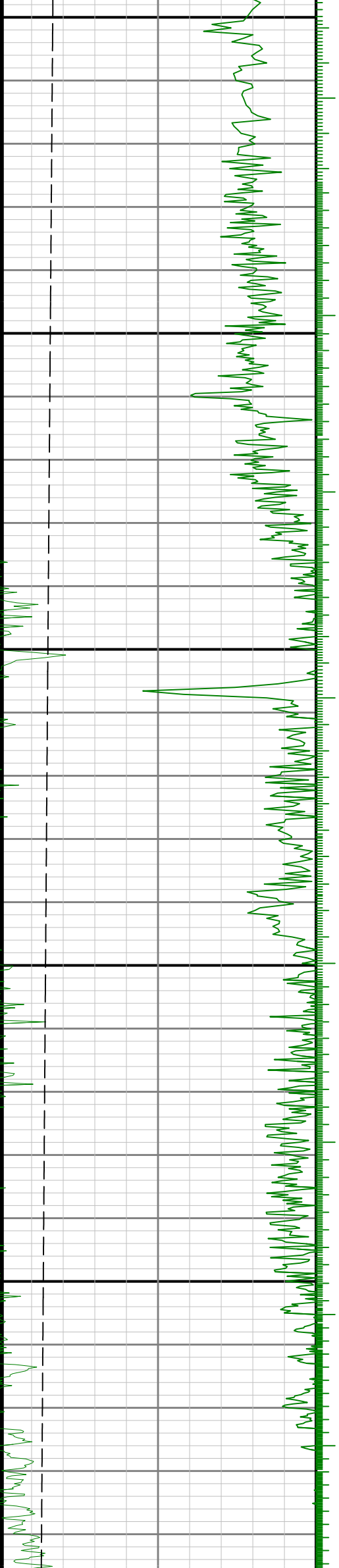




6400

6500



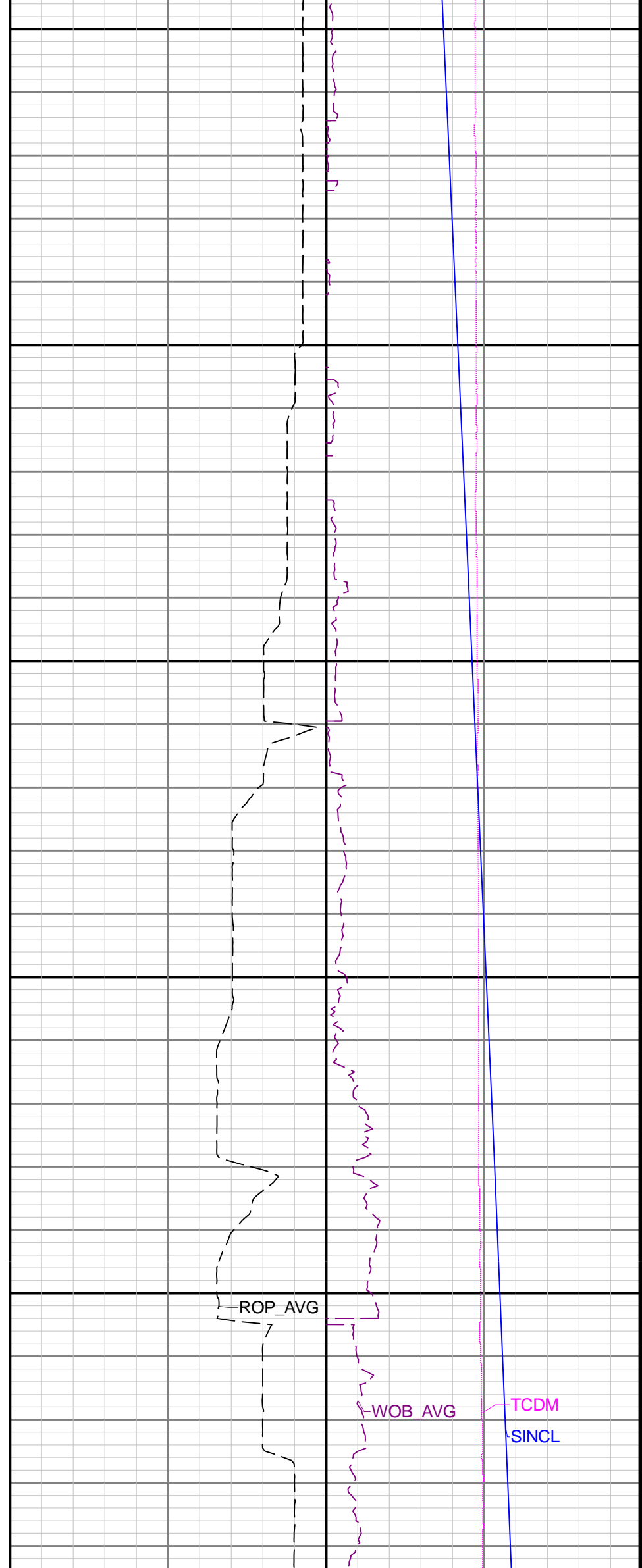
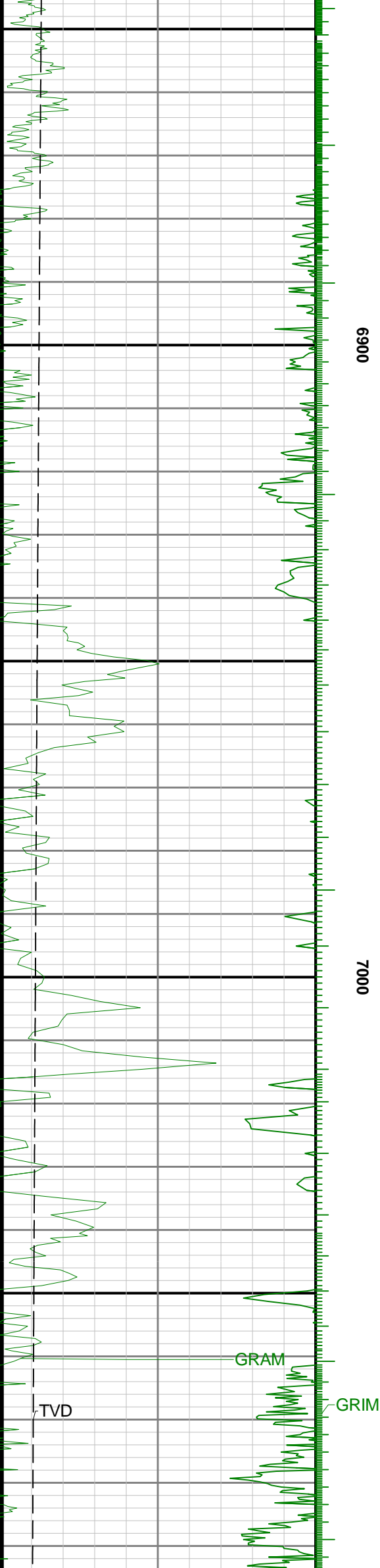


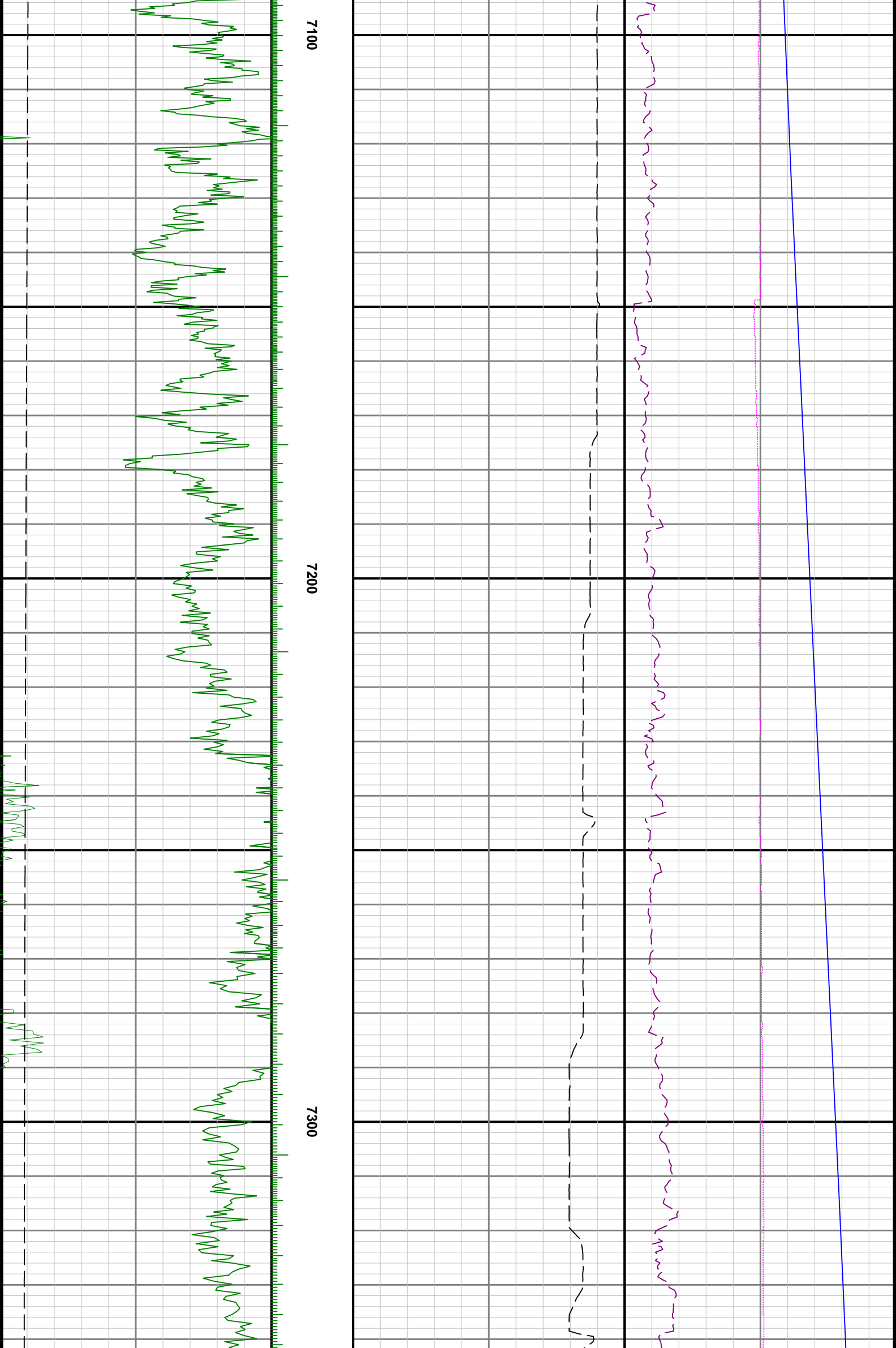
0099

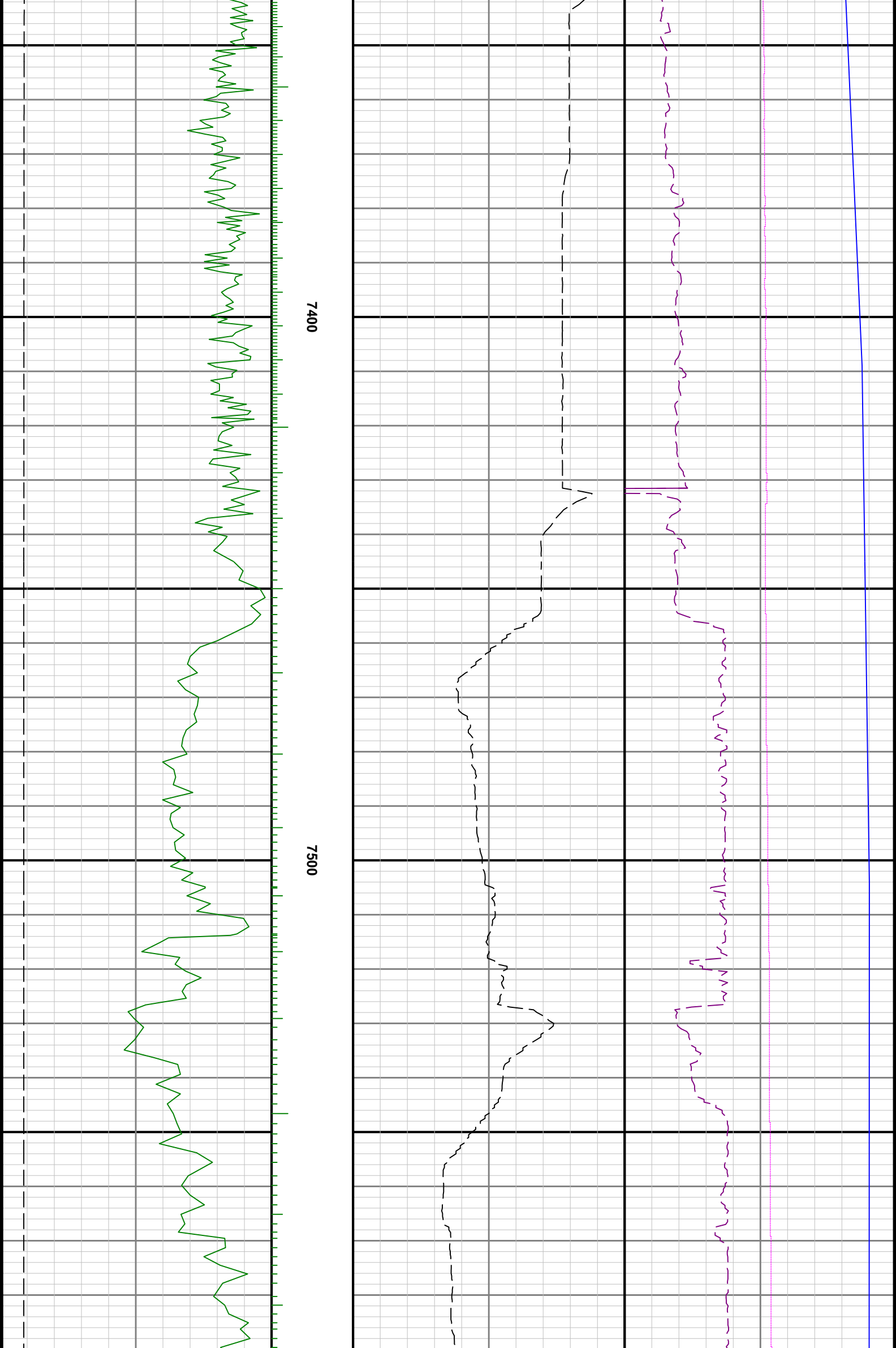
0070

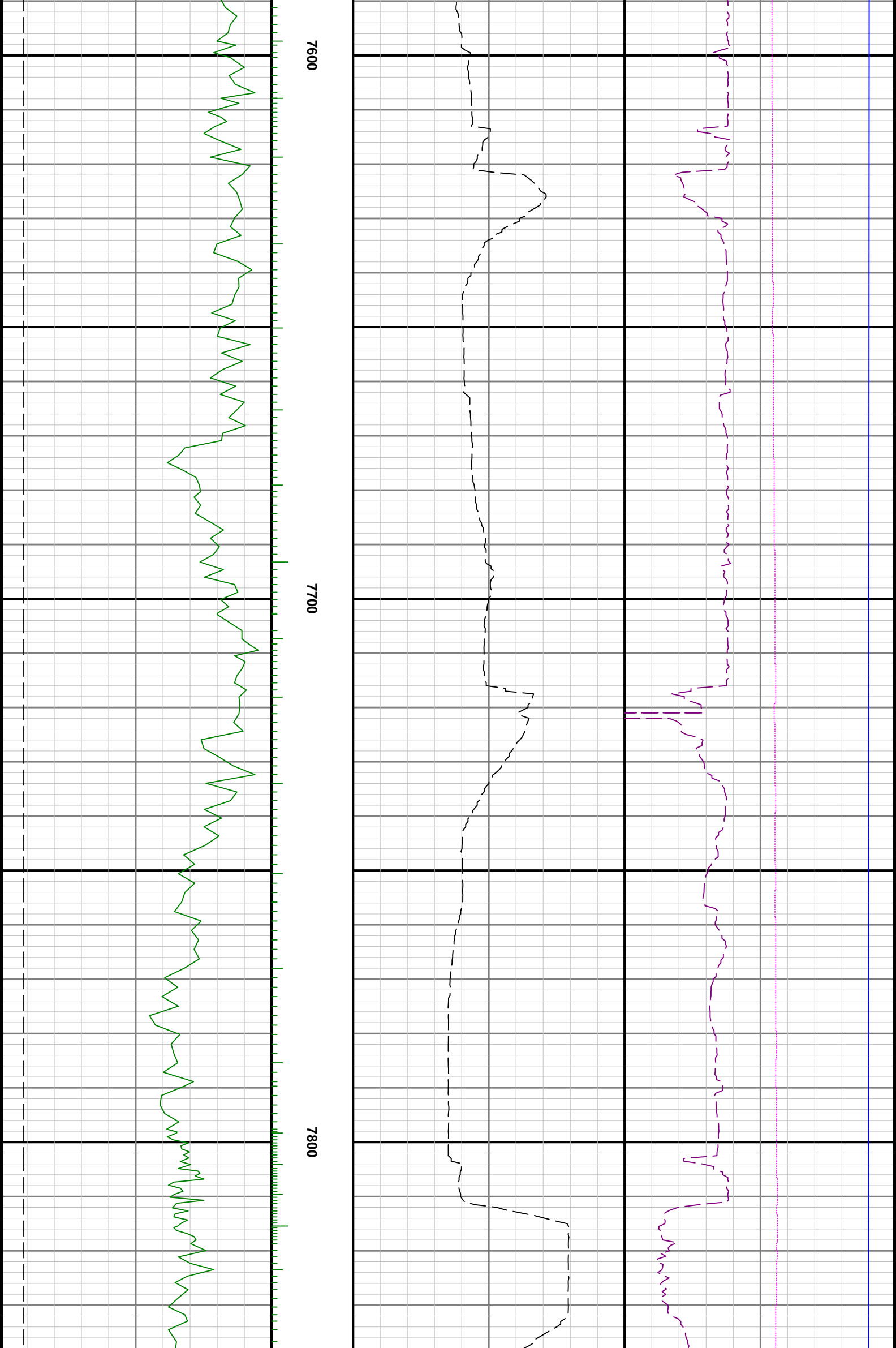
0089

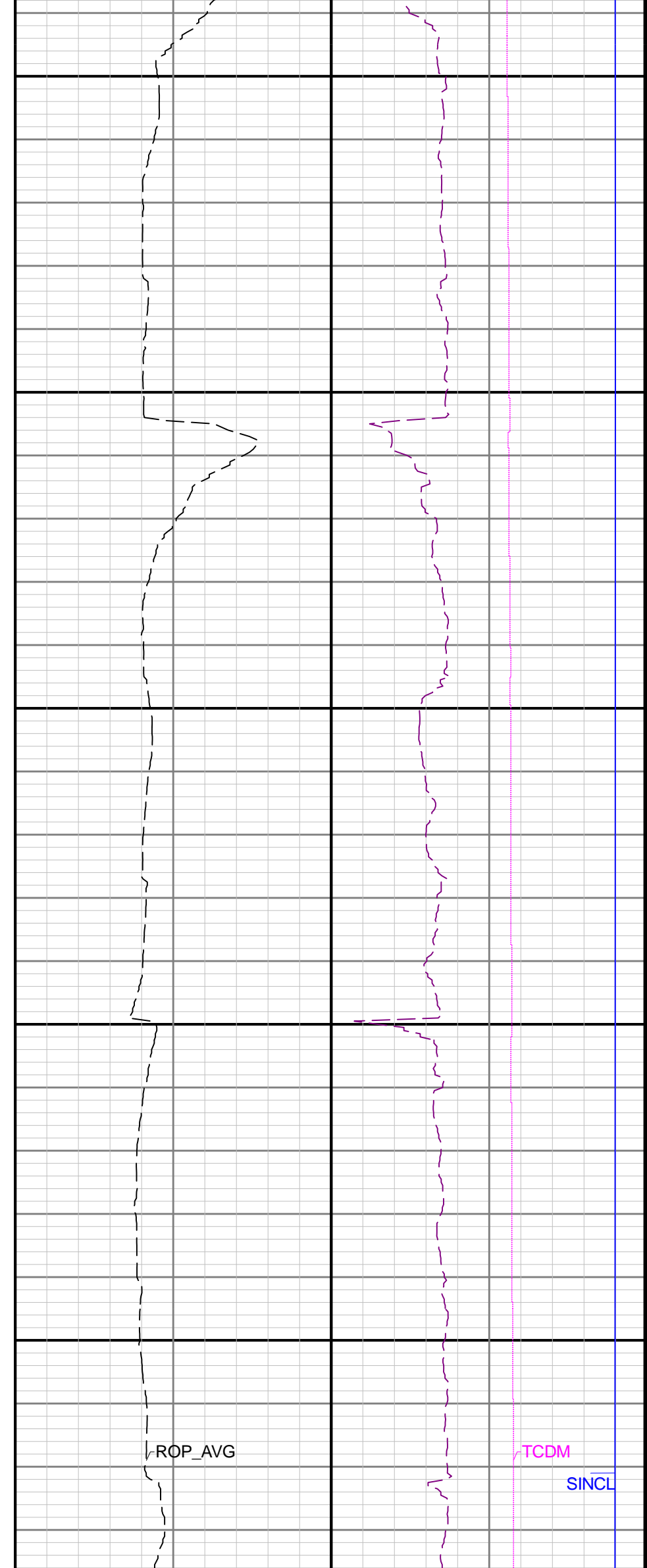
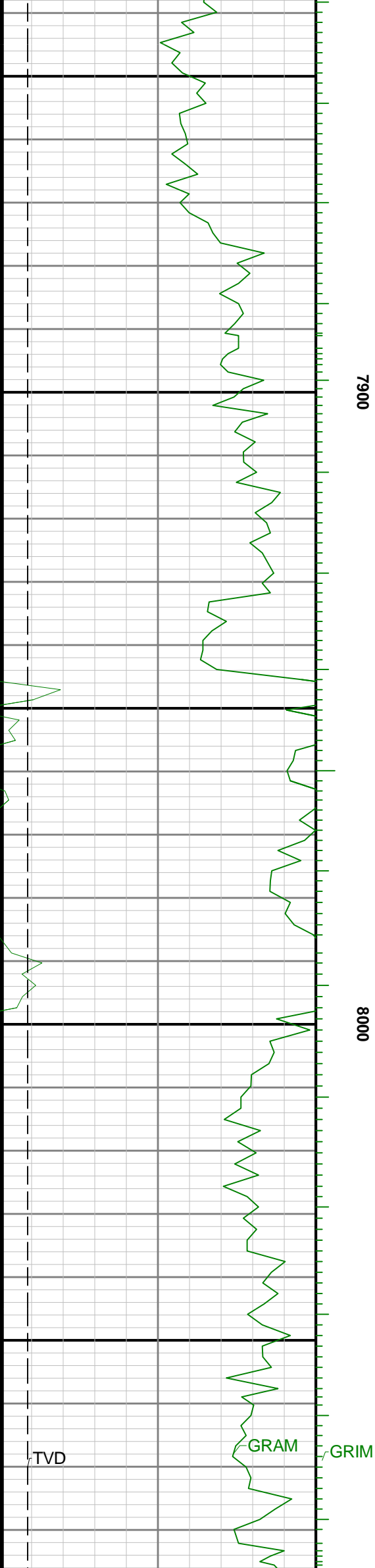


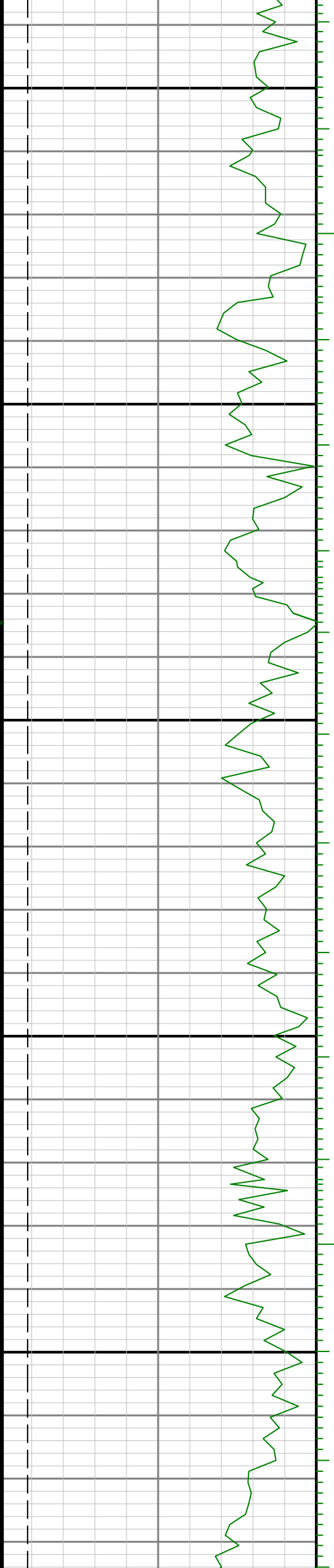








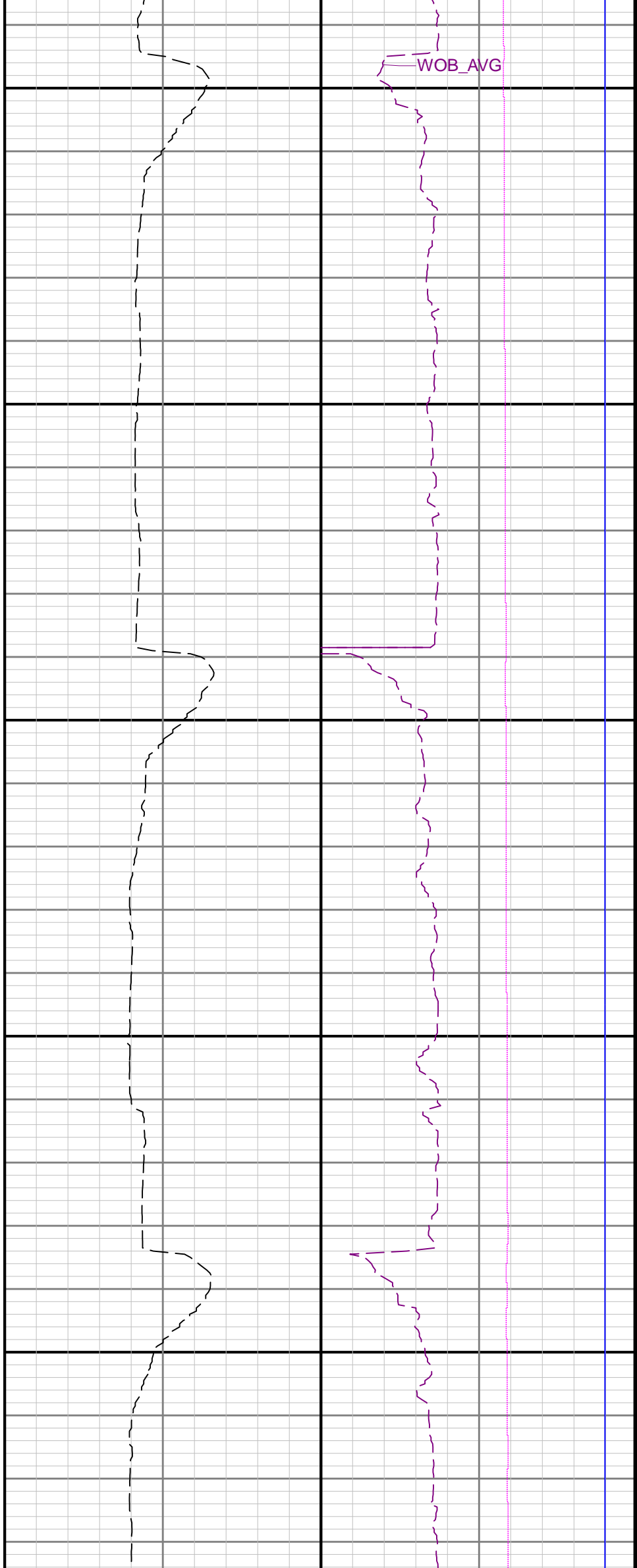


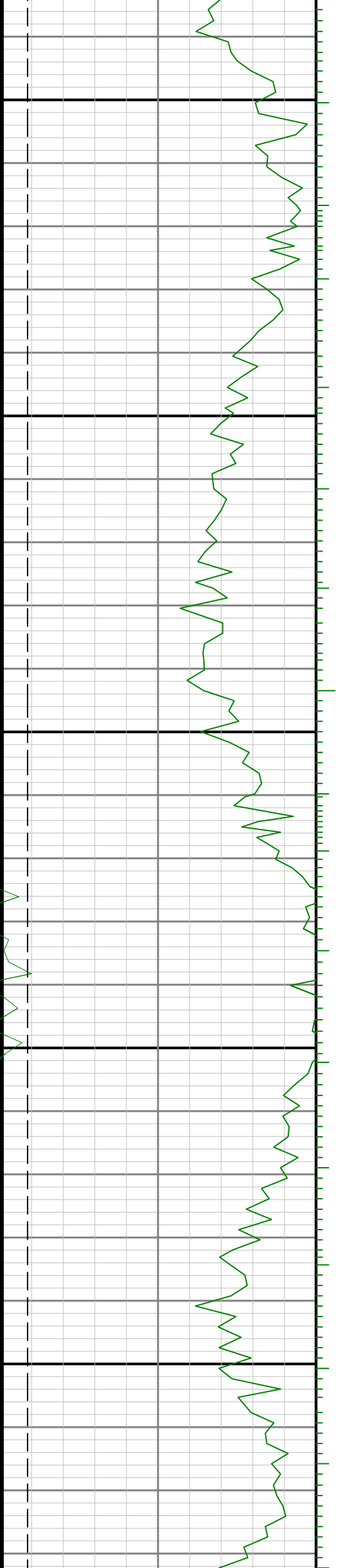


8100

8200

8300

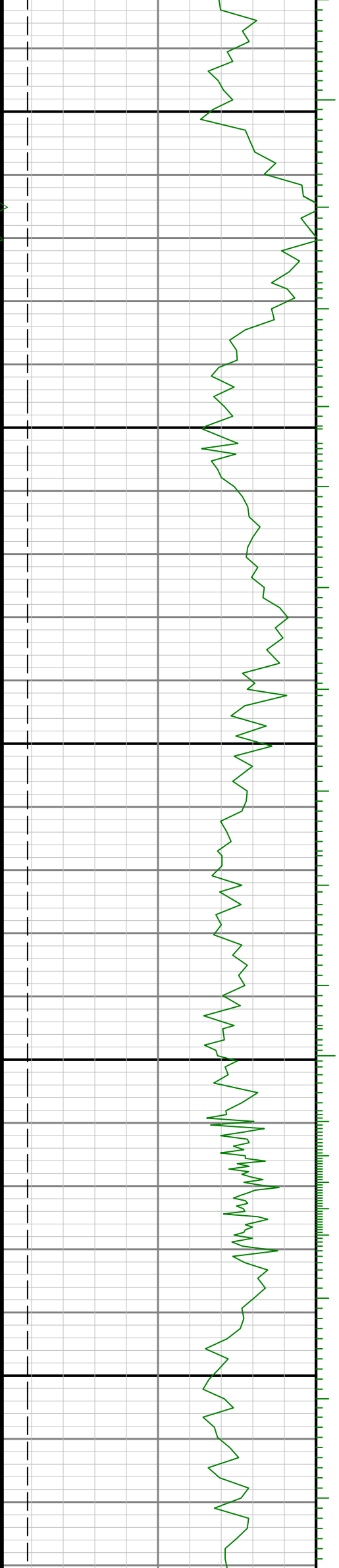




8400

8500

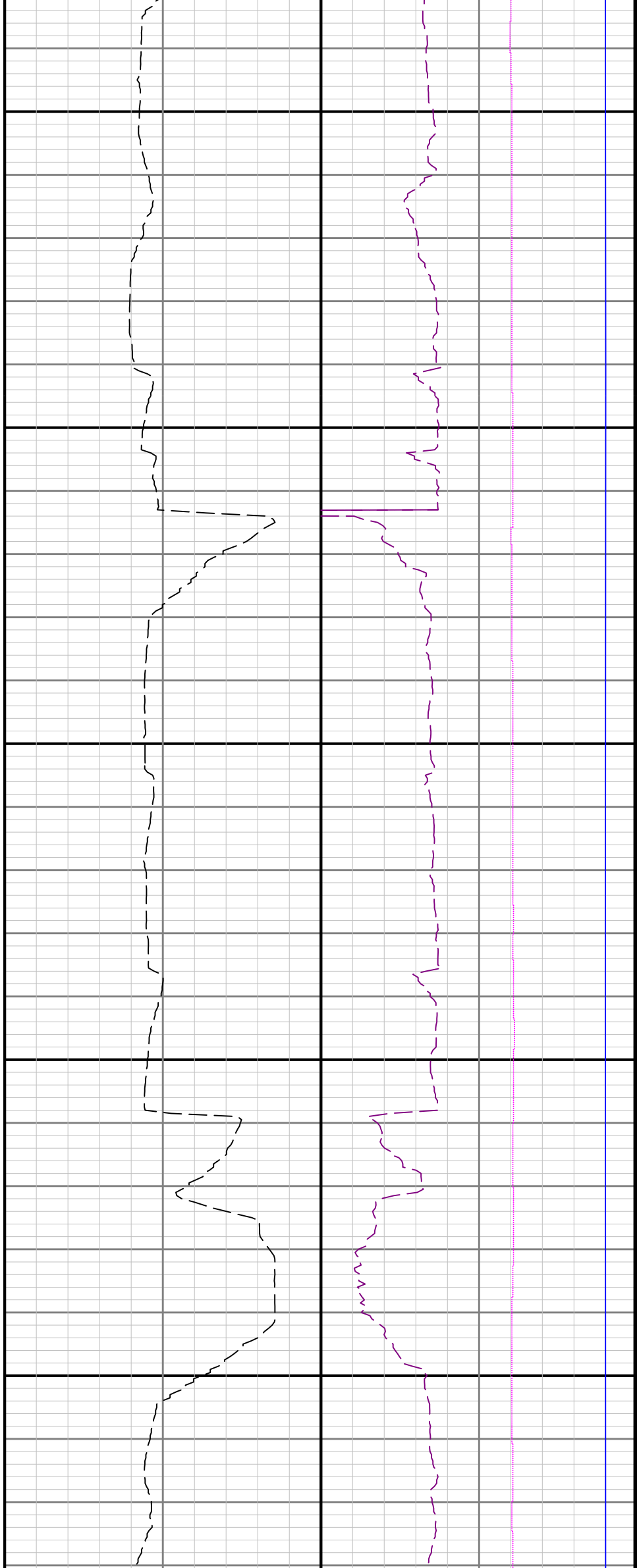


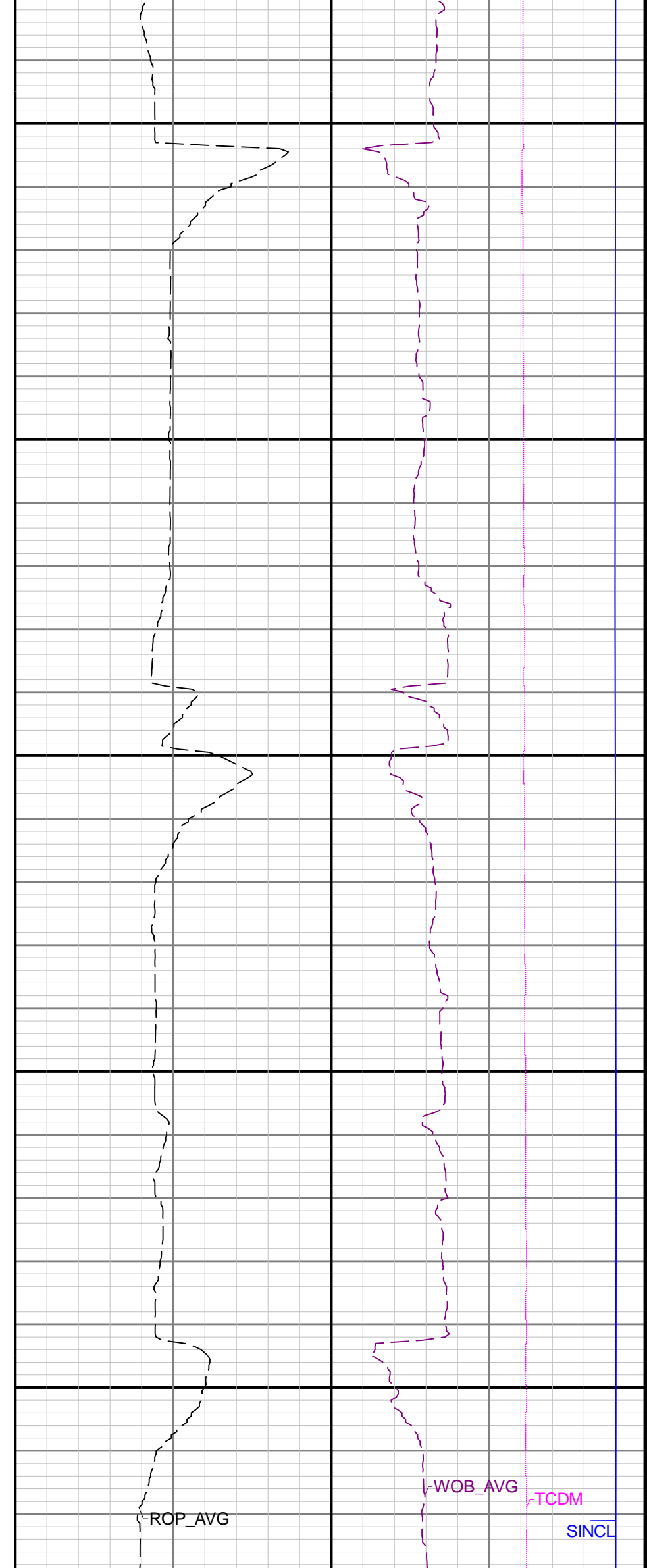
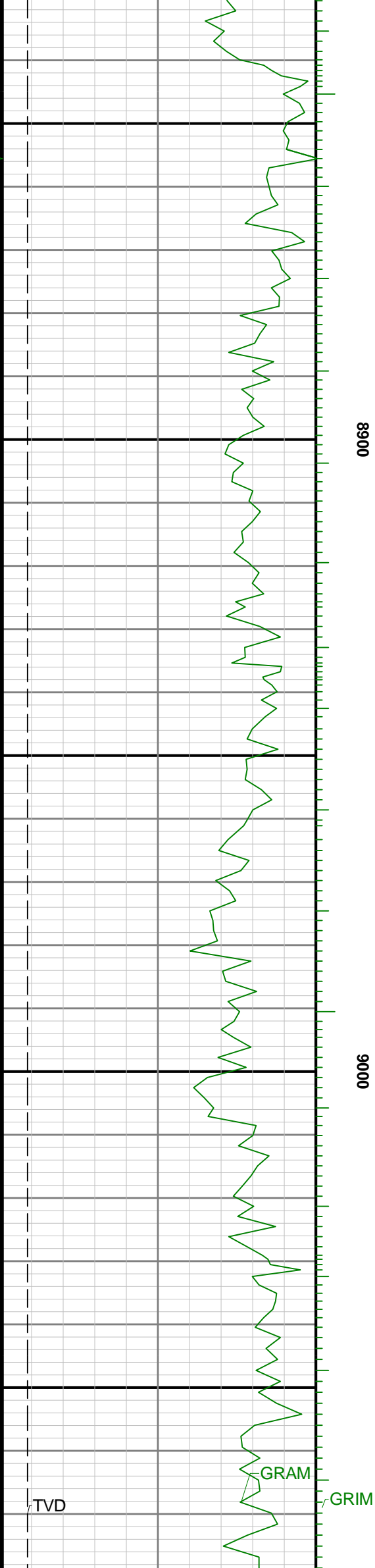


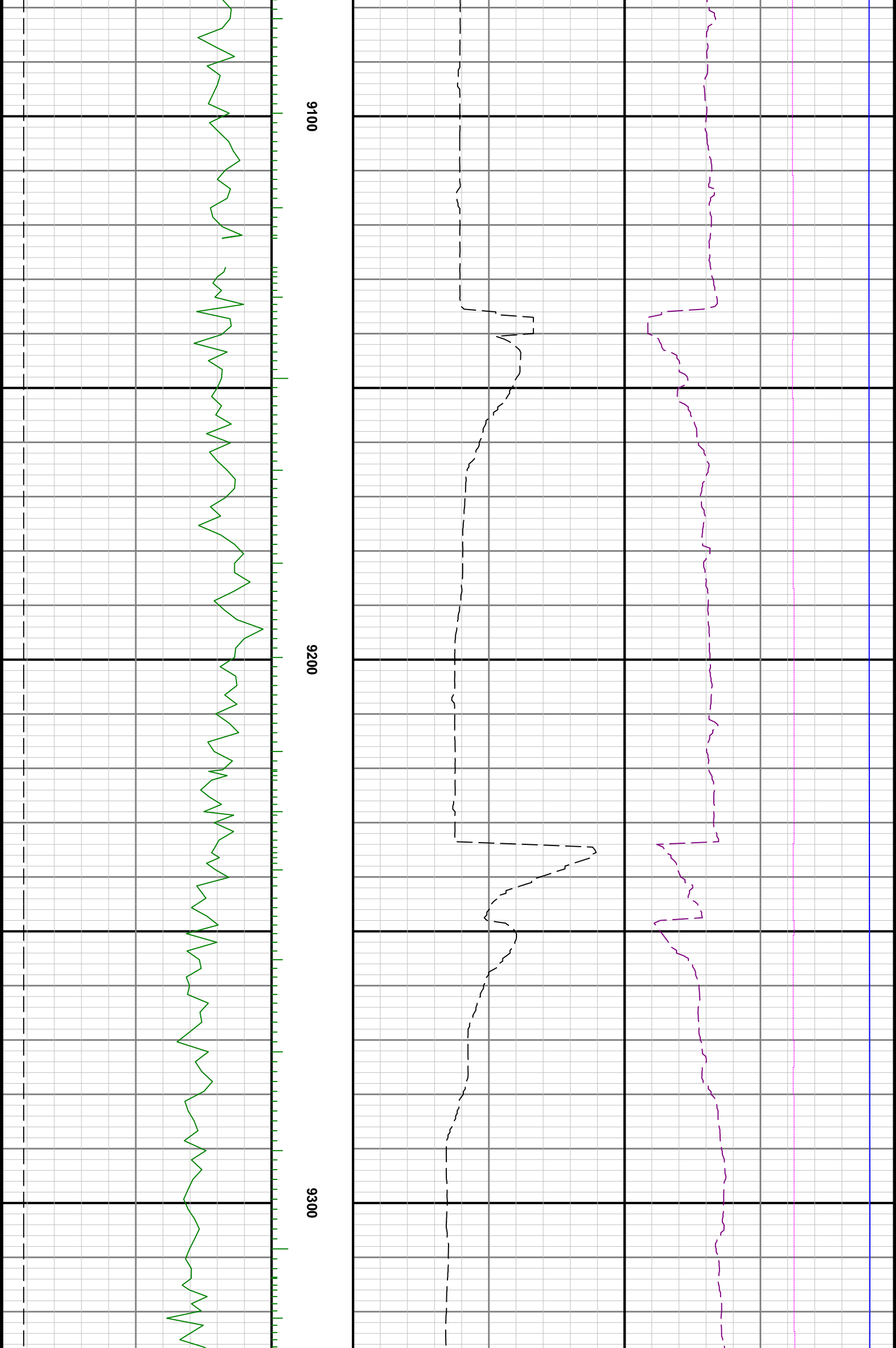
8600

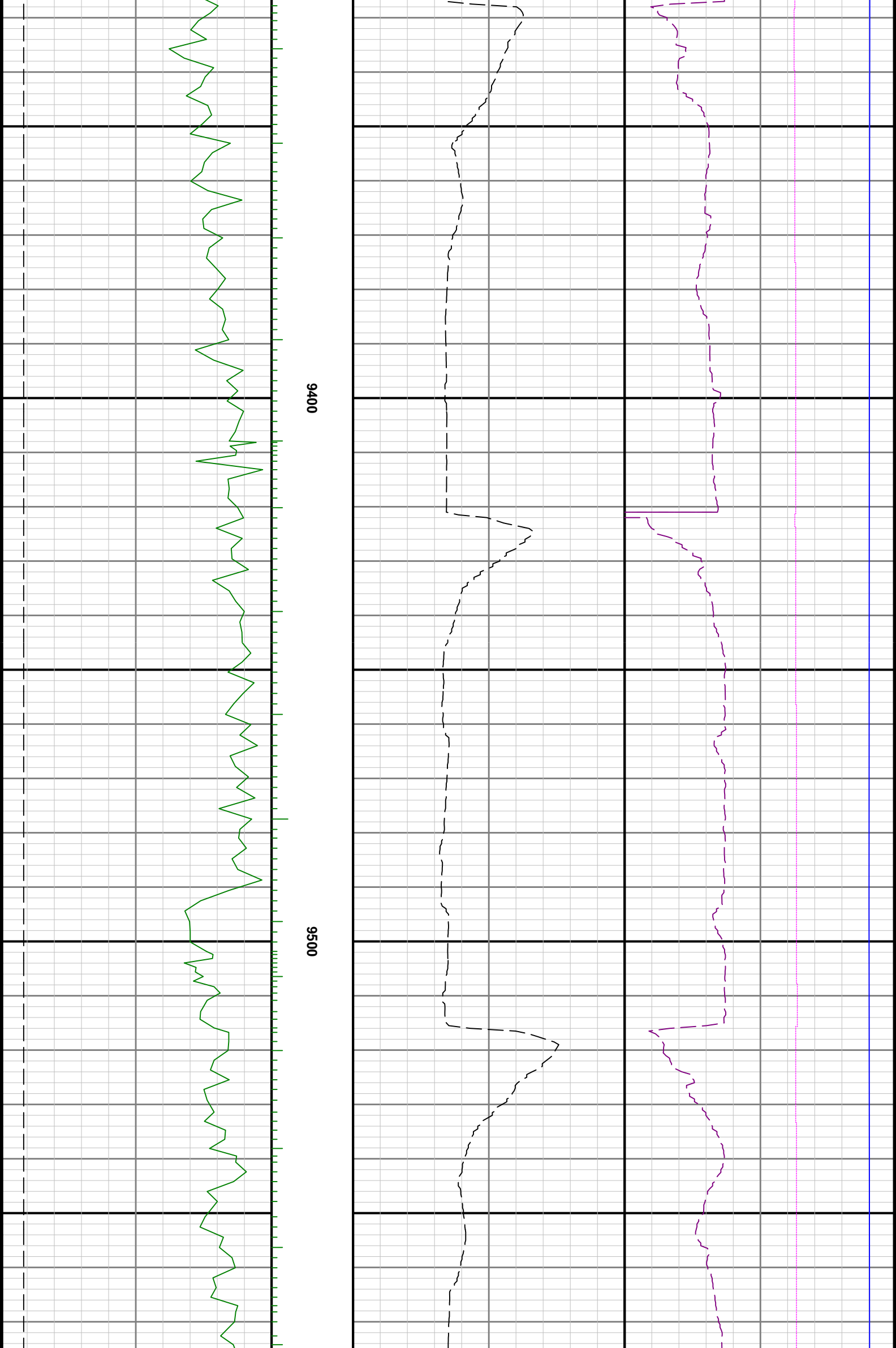
8700

8800



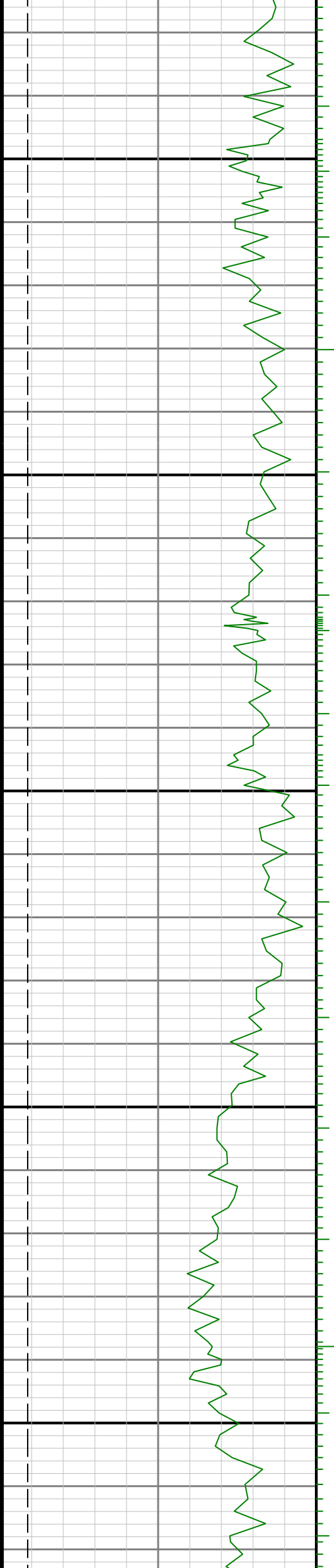






9400

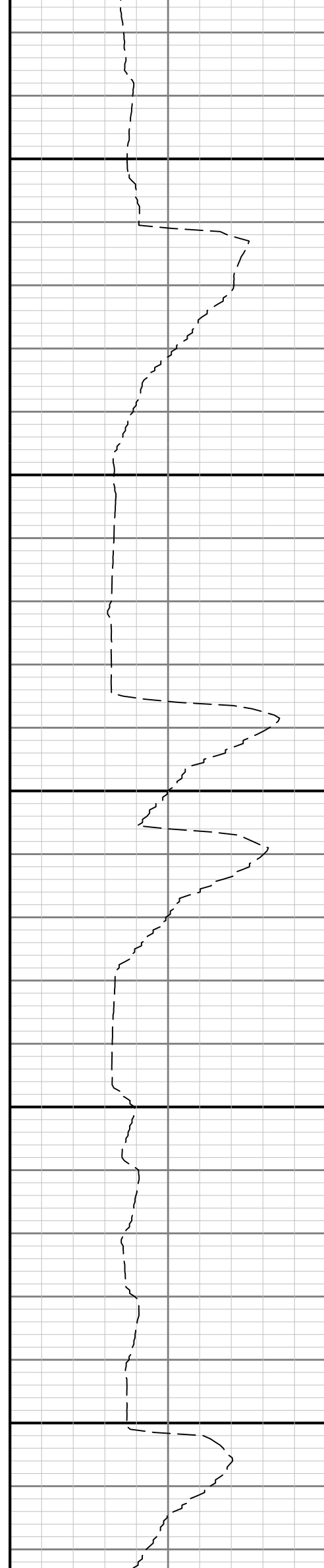
9500

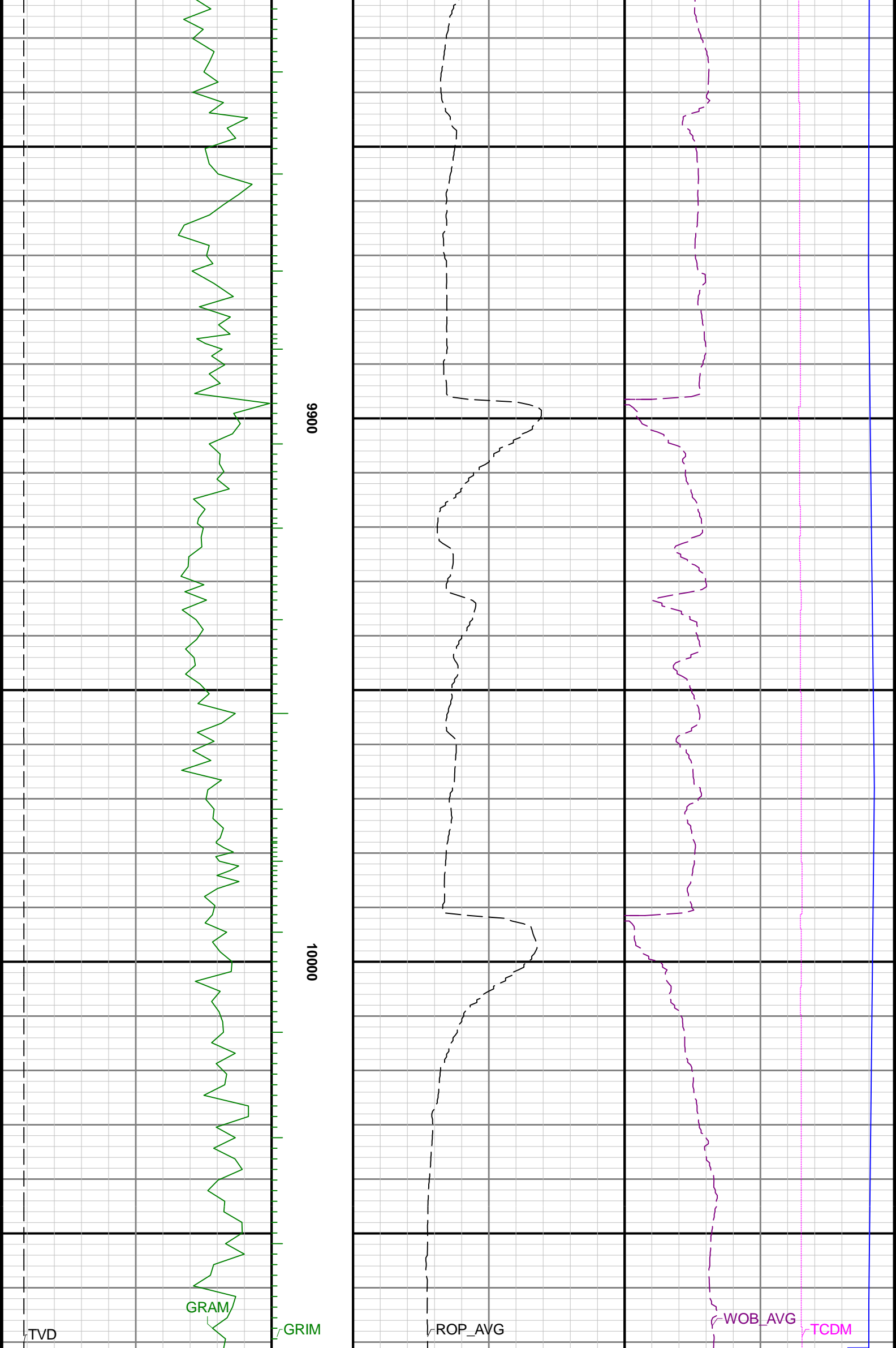


0086

0096

0096





TVD

GRAM

GRIM

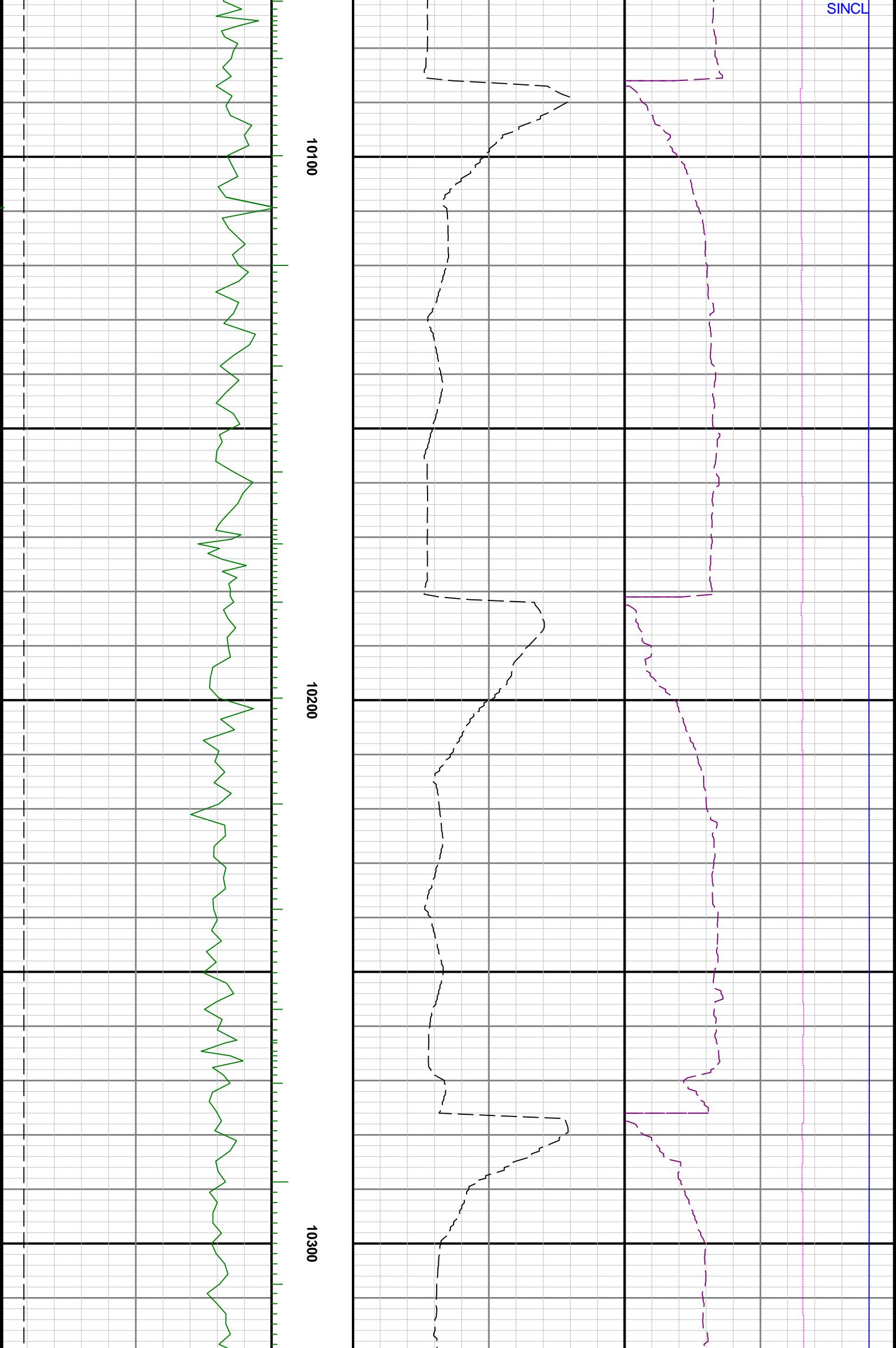
ROP\_AVG

WOB\_AVG

TCDM

9900

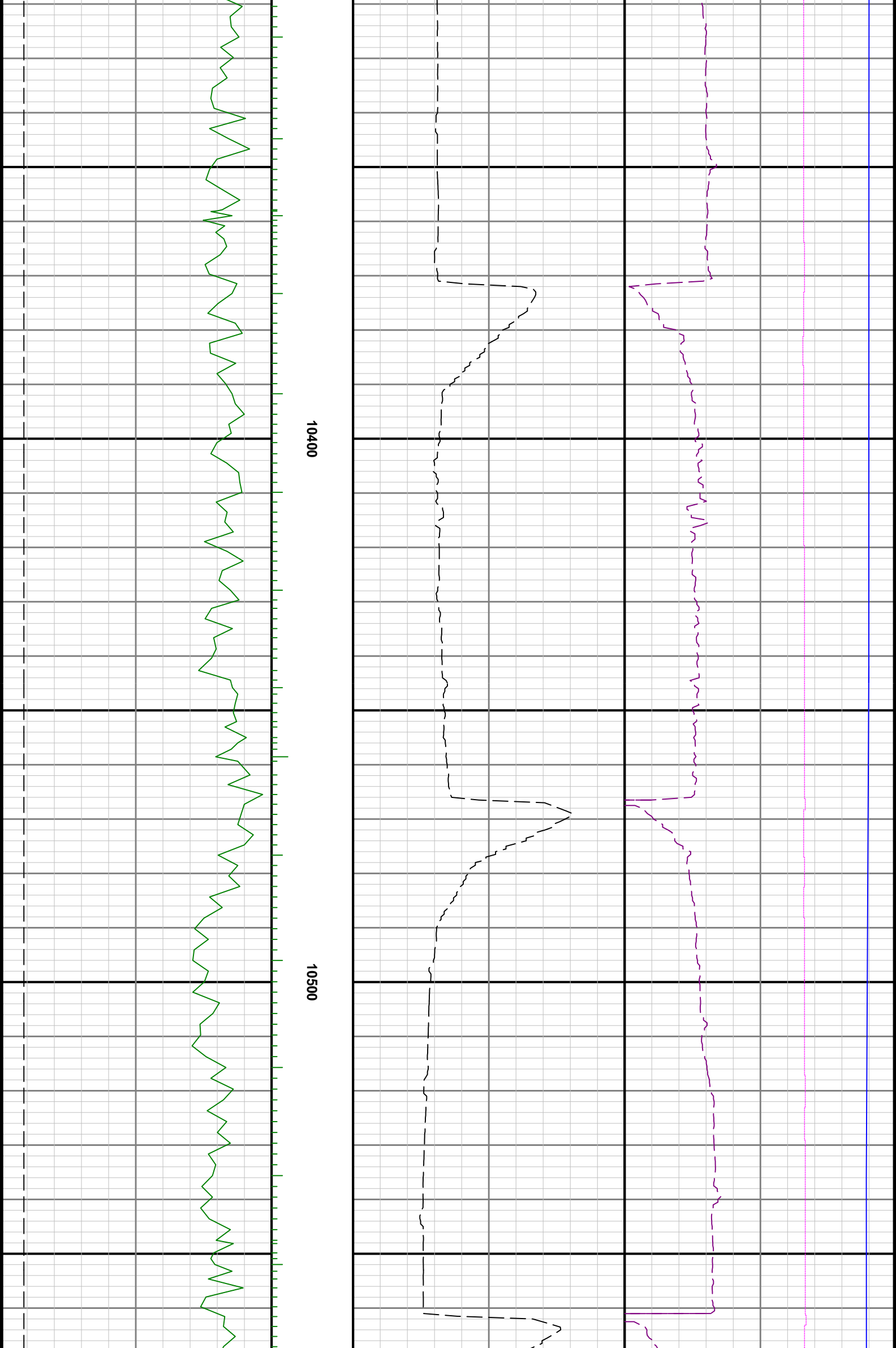
10000

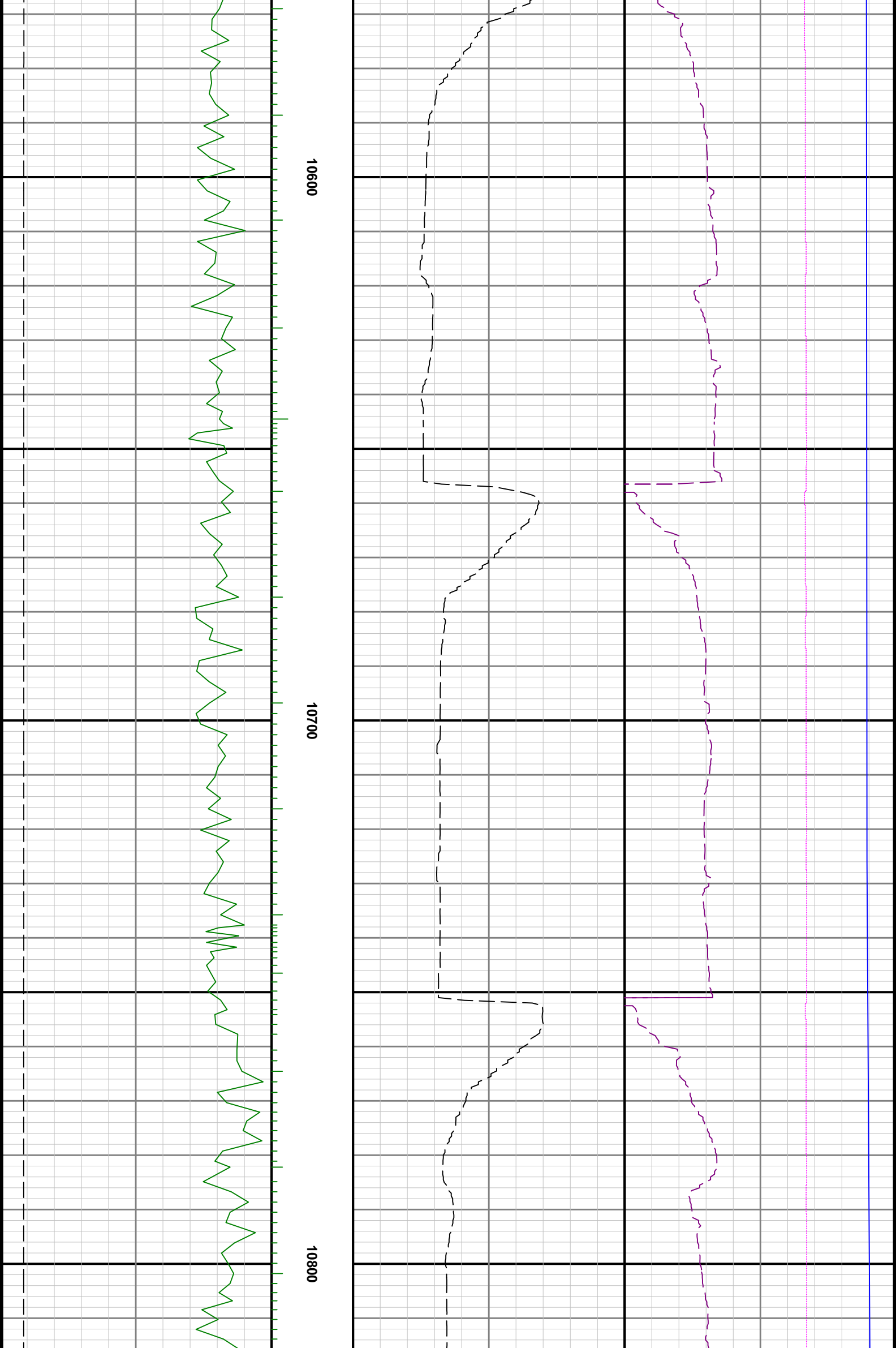


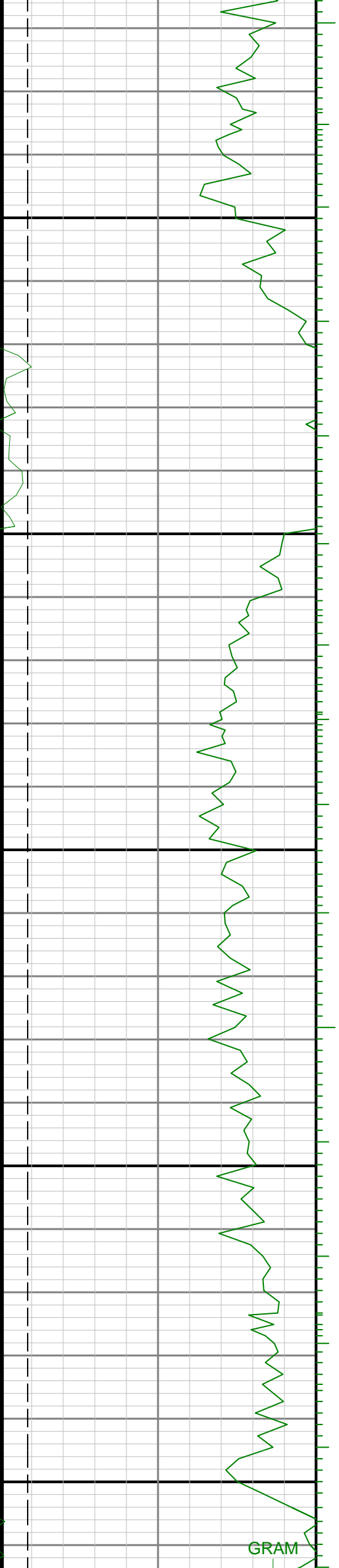
10100

10200

10300



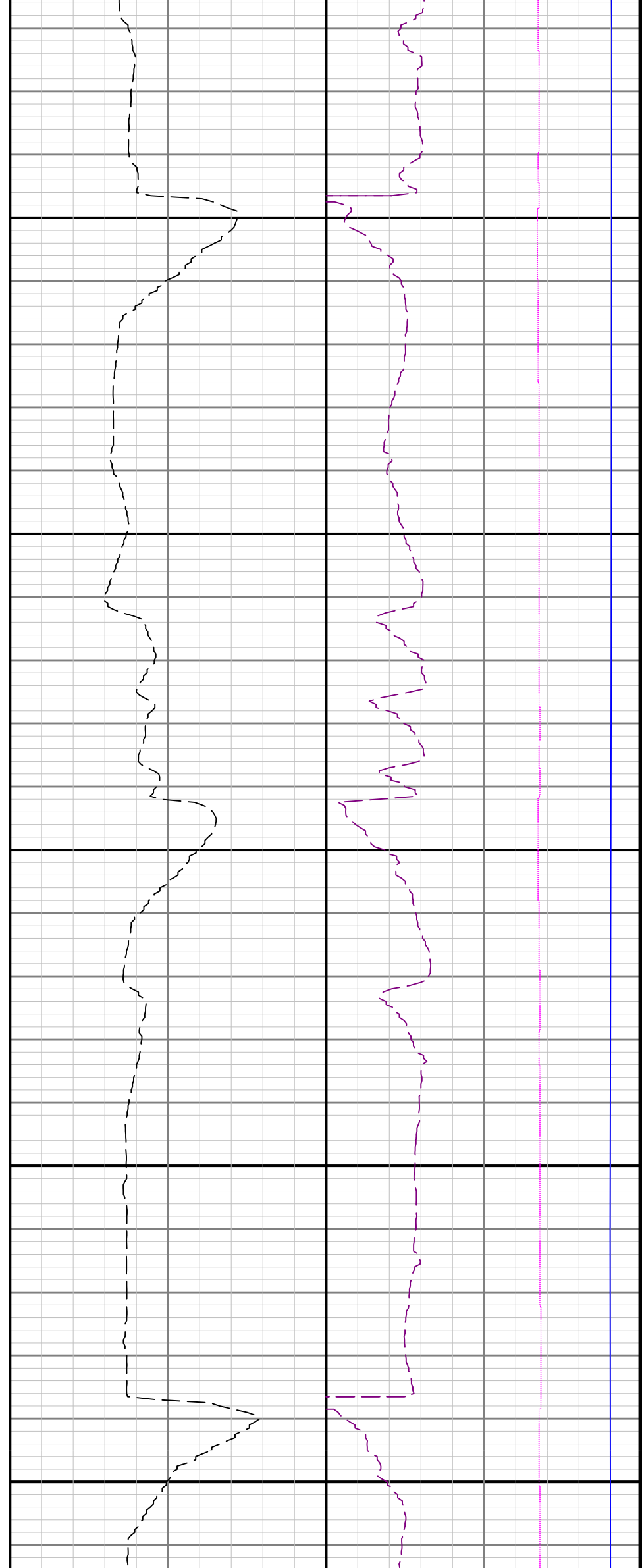


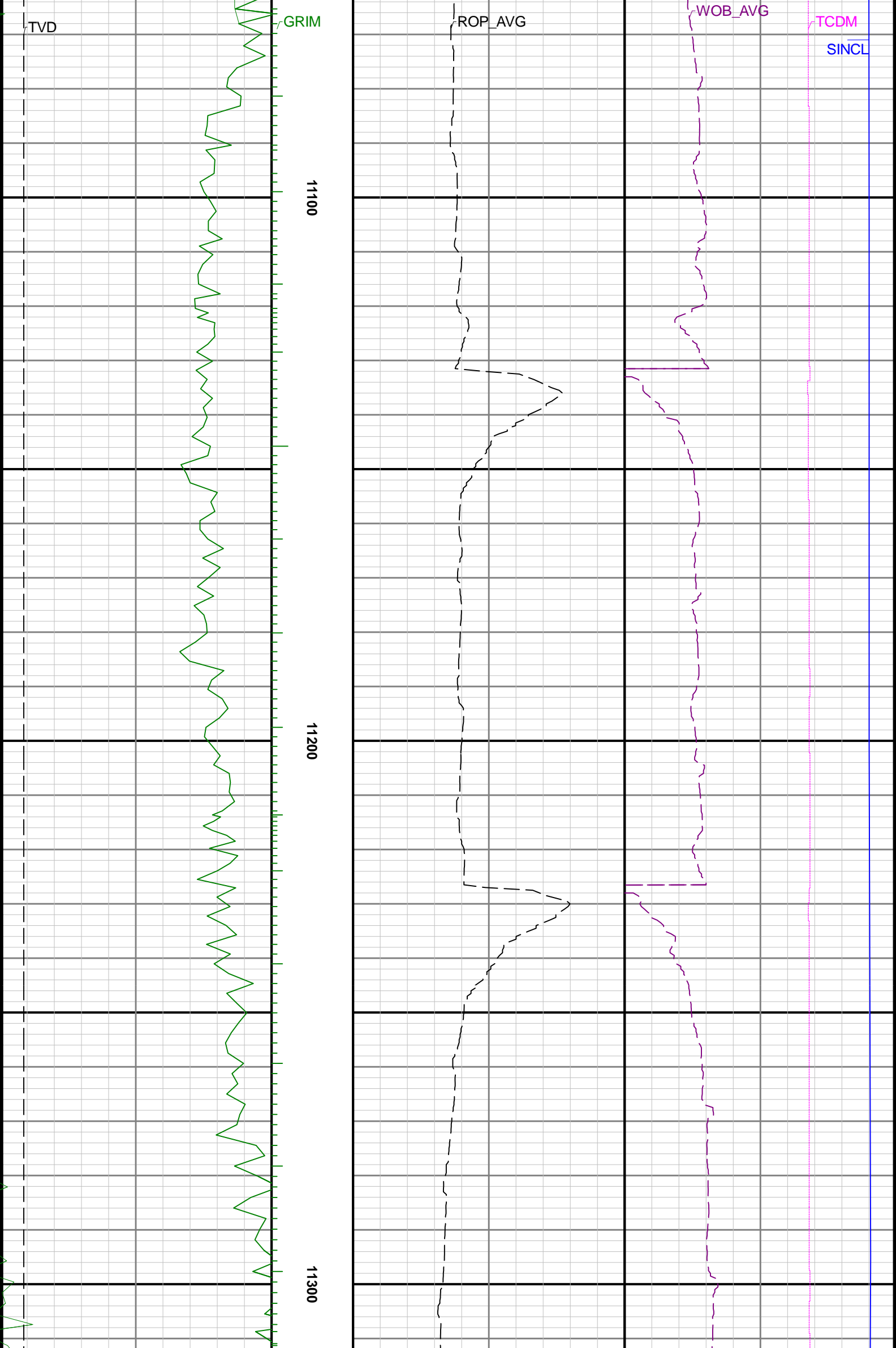


10900

11000

GRAM





TVD

GRIM

ROP\_AVG

WOB\_AVG

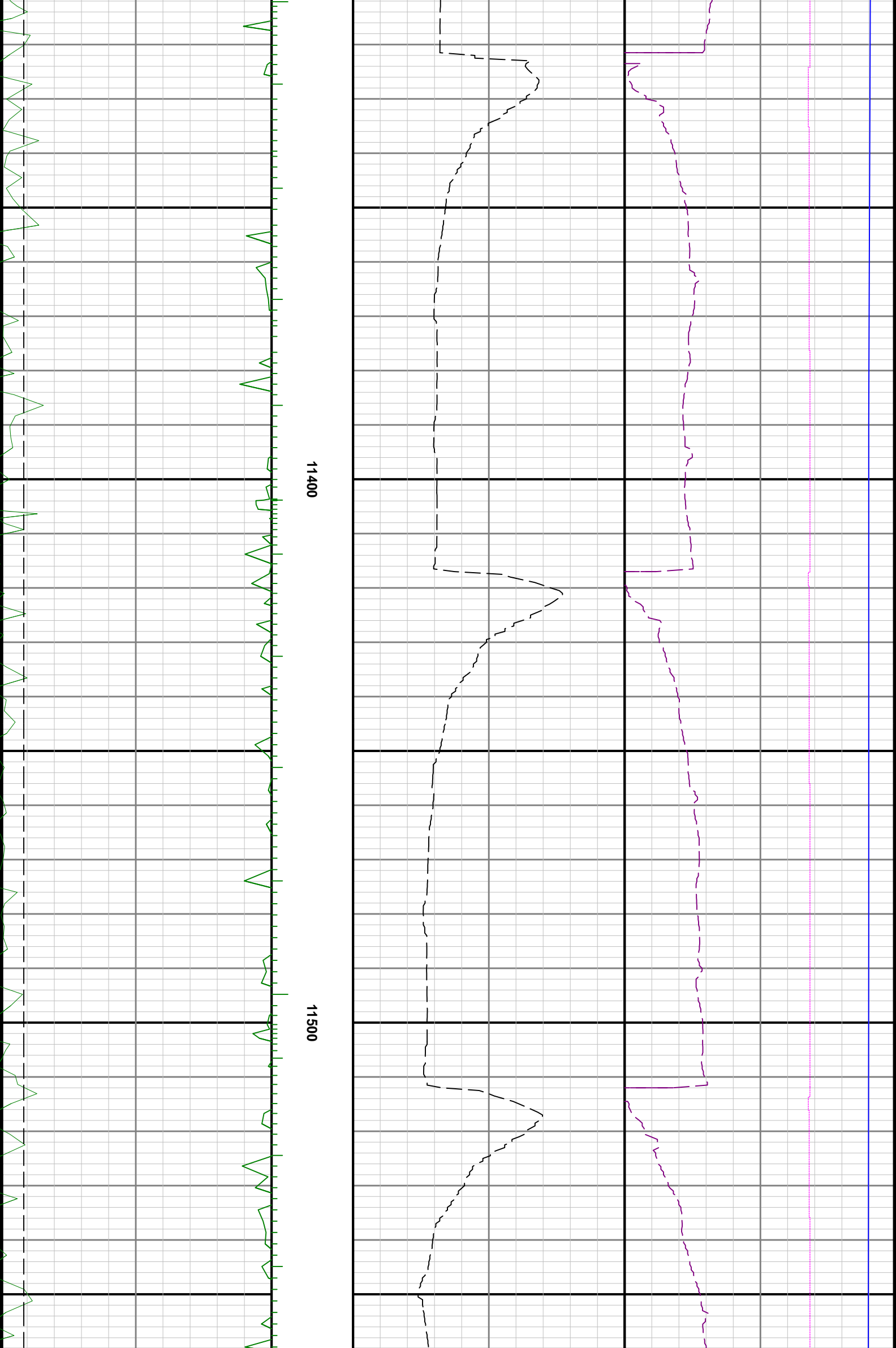
TCDM

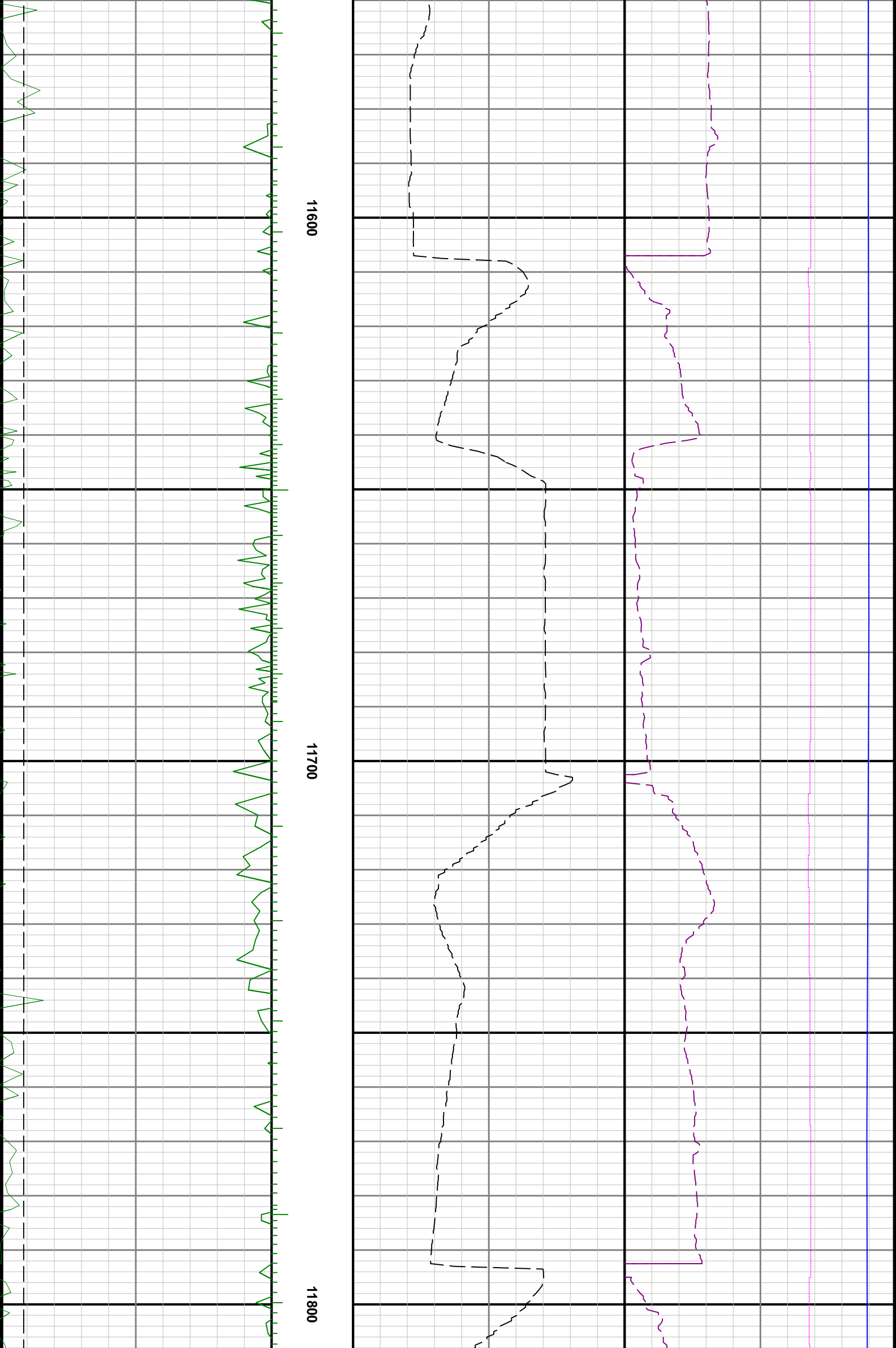
SINCL

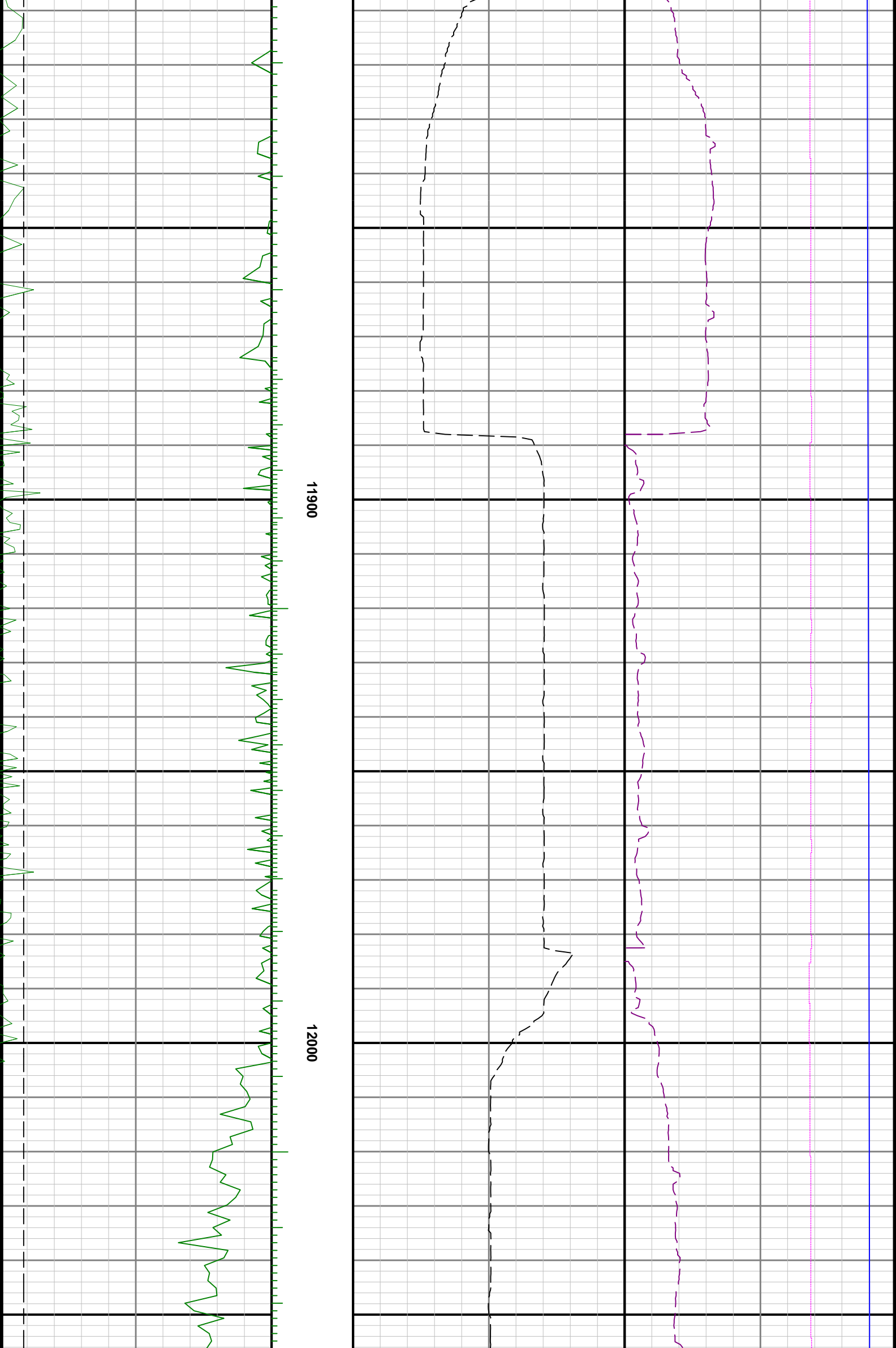
11100

11200

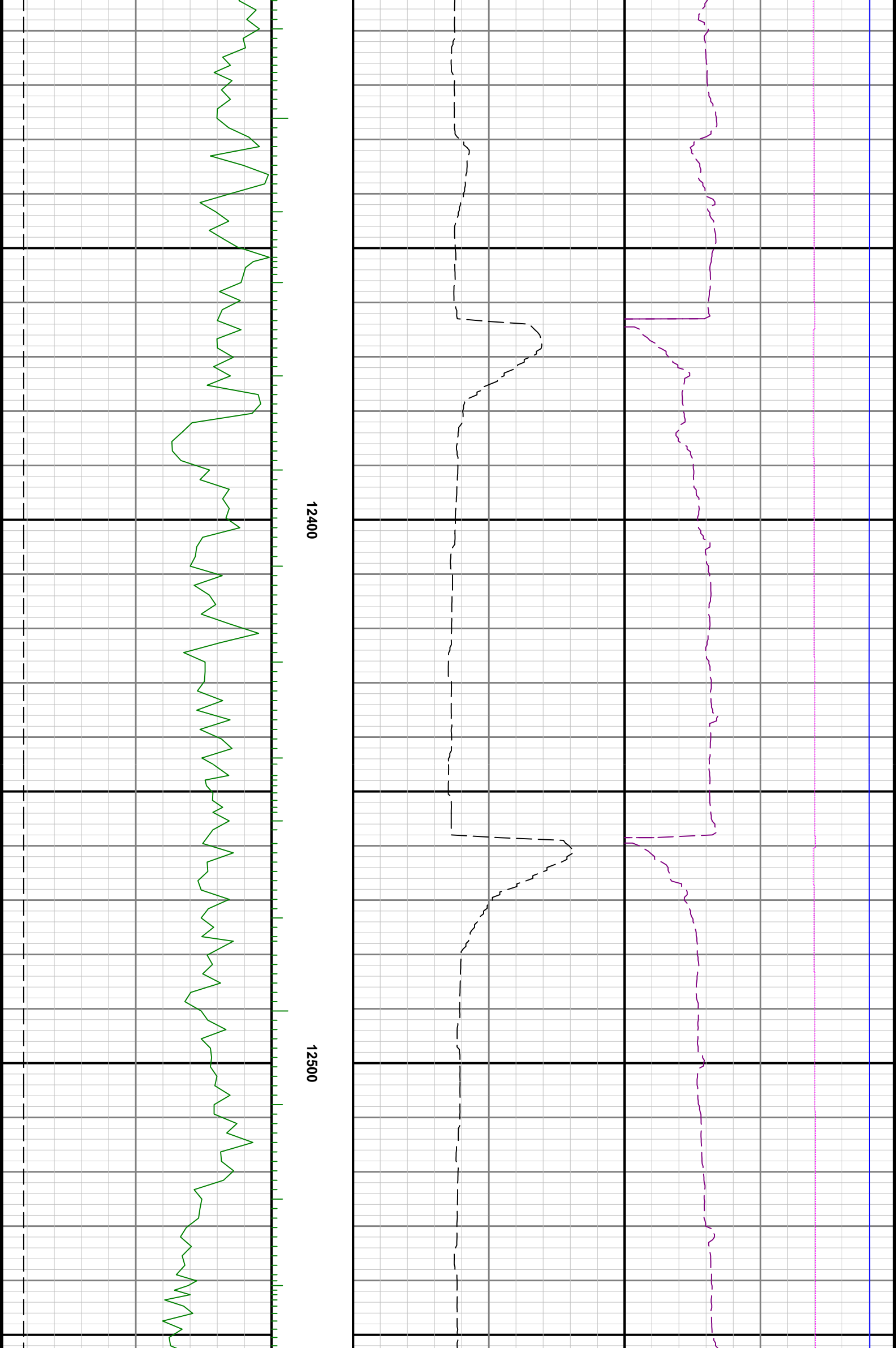
11300





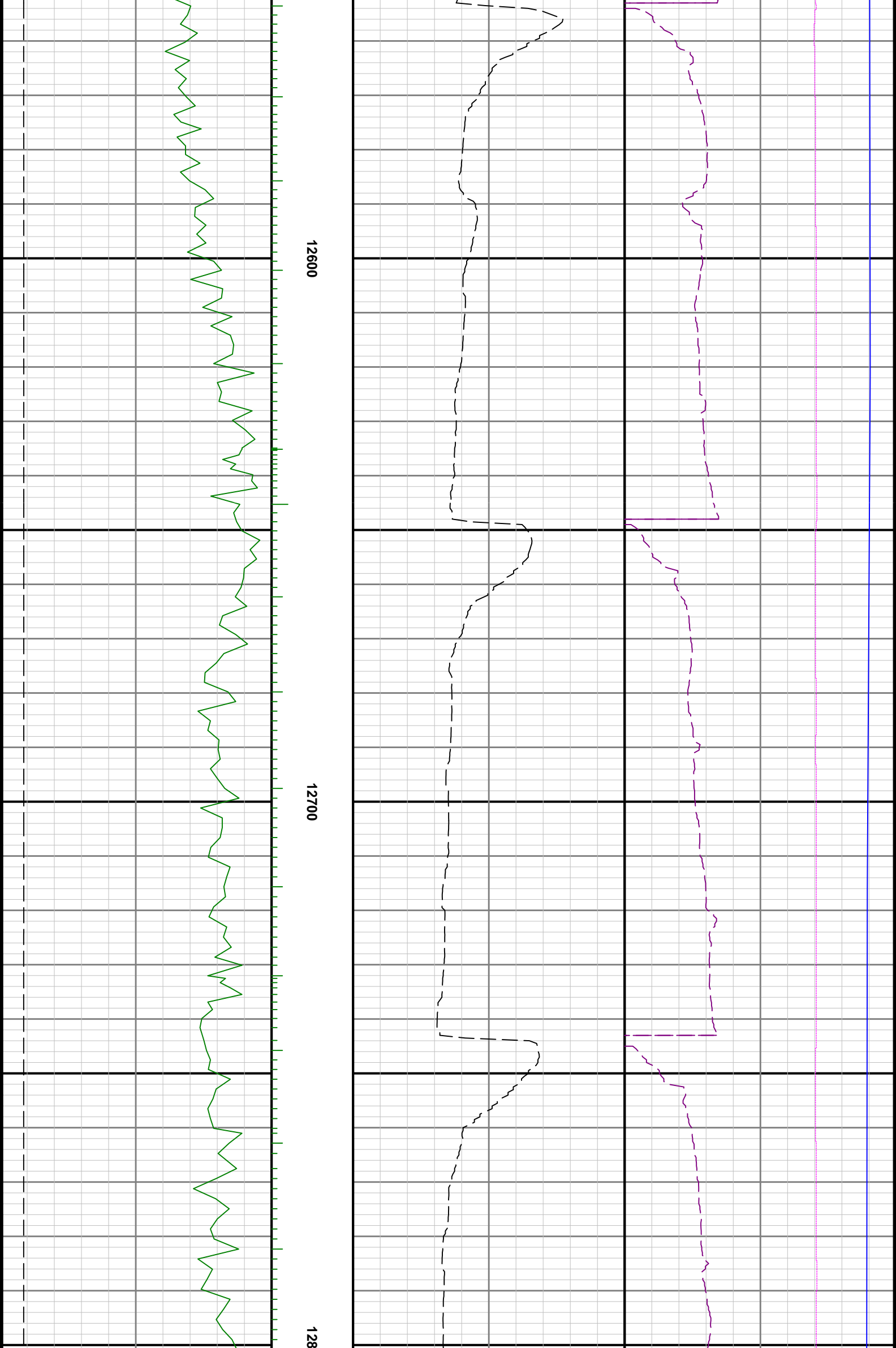


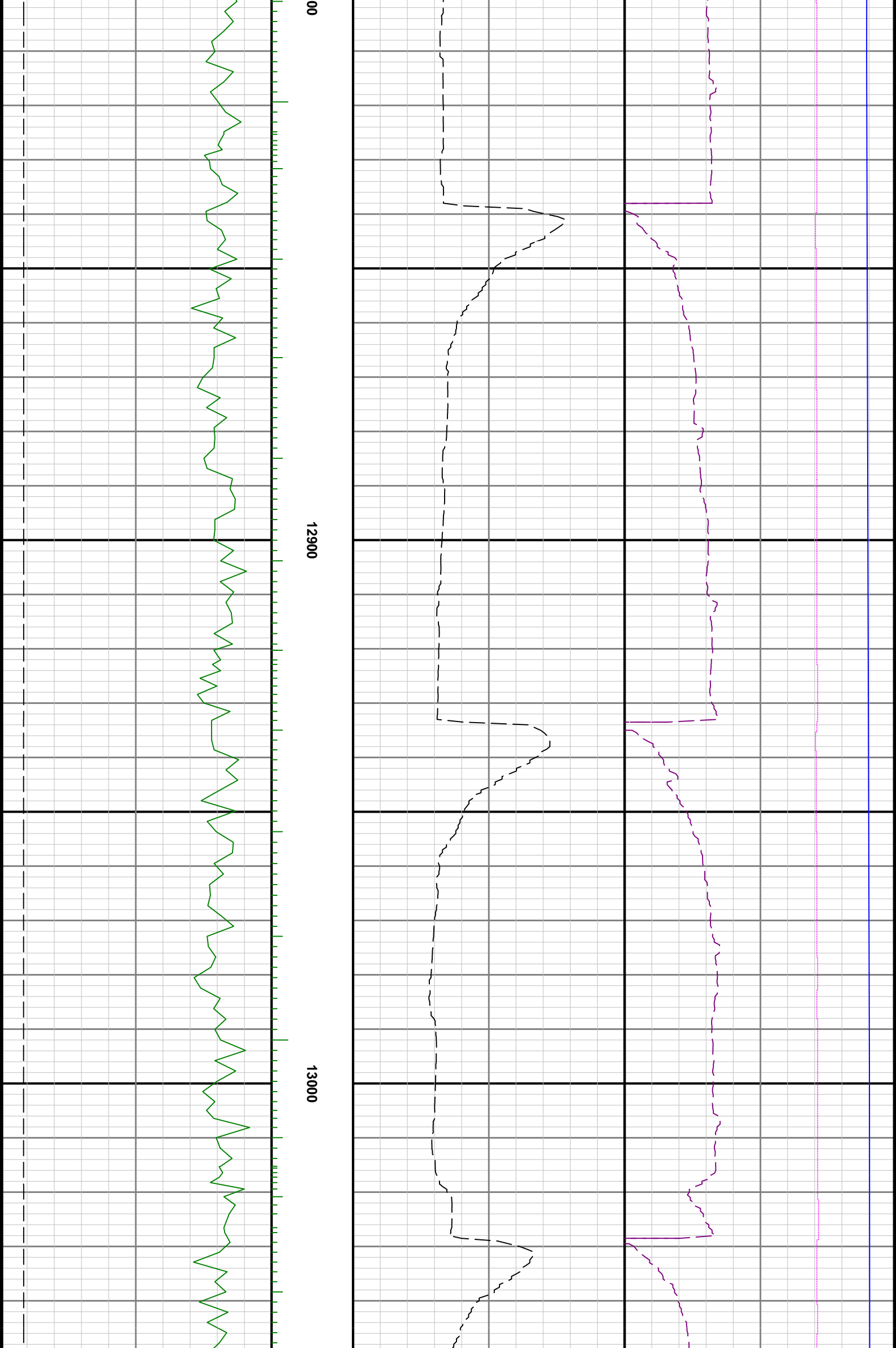


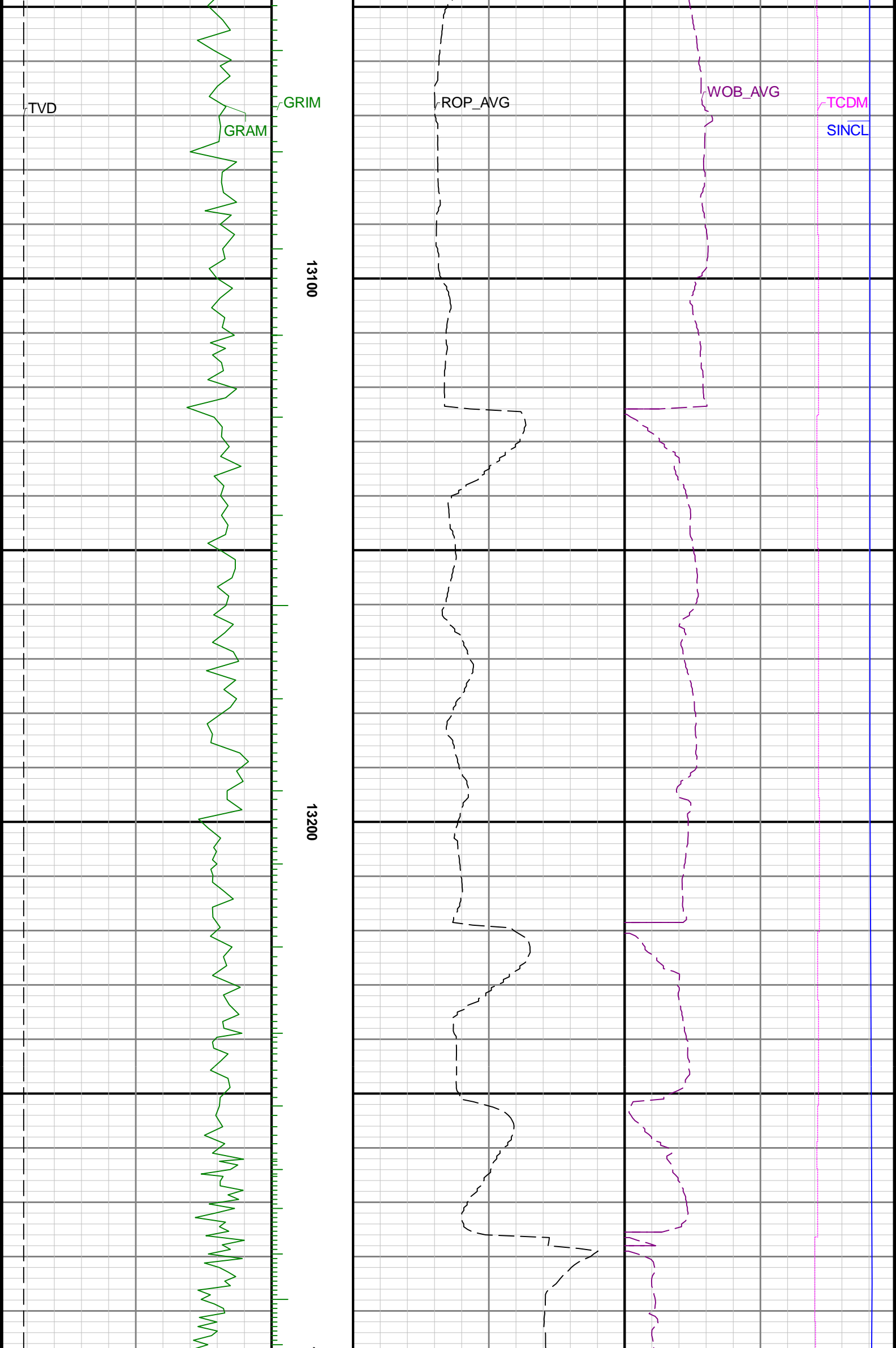


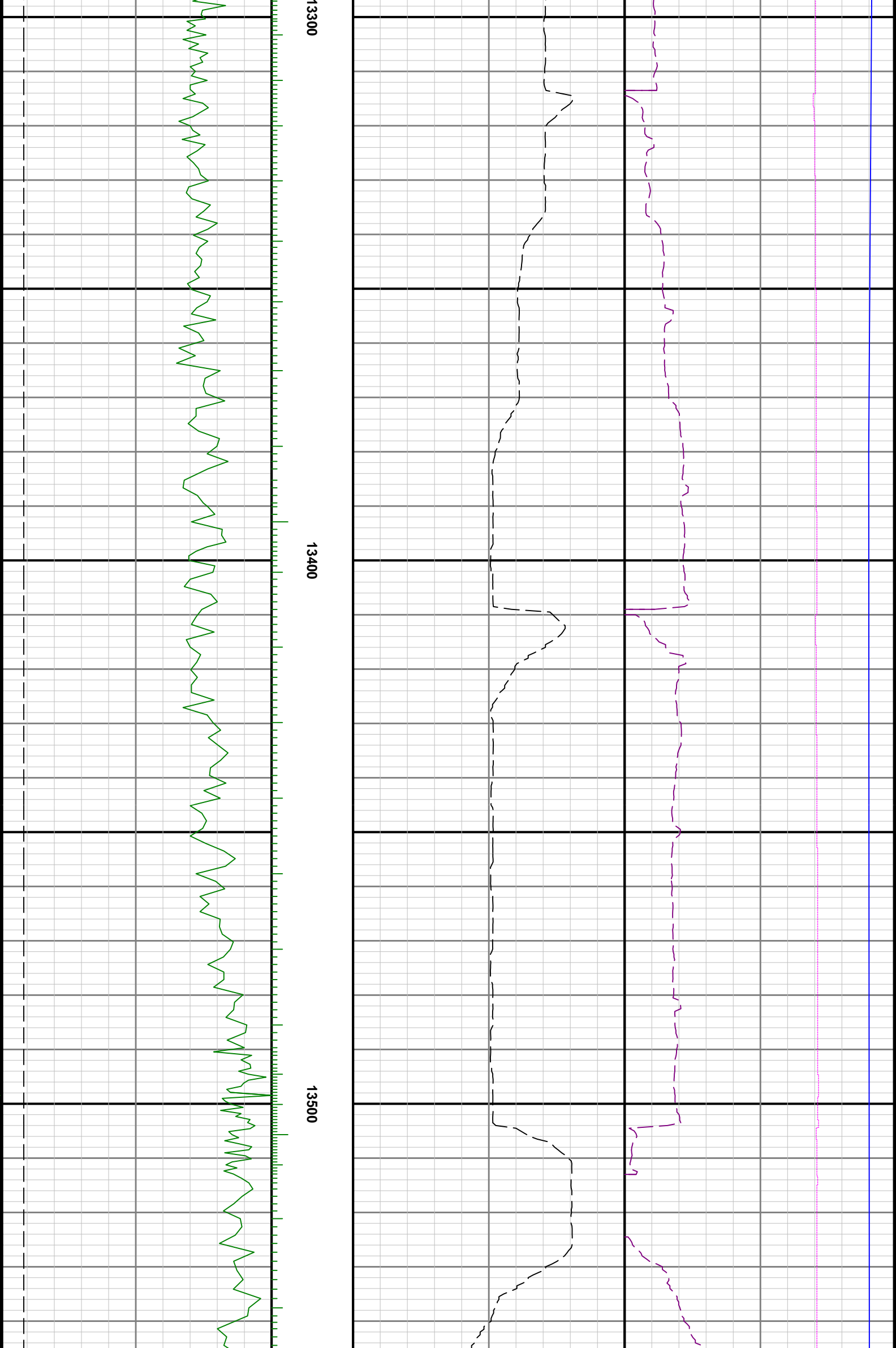
12400

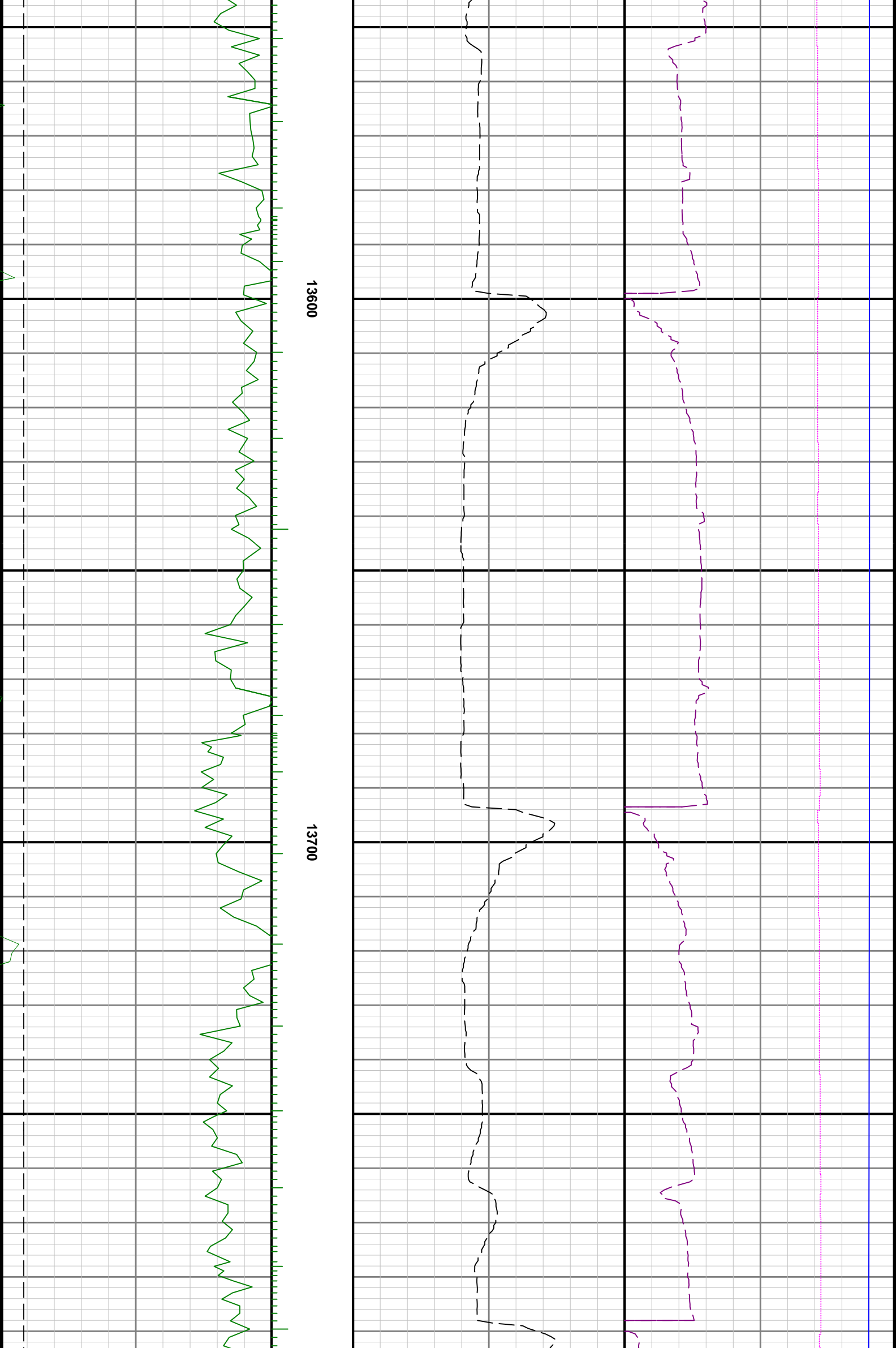
12500

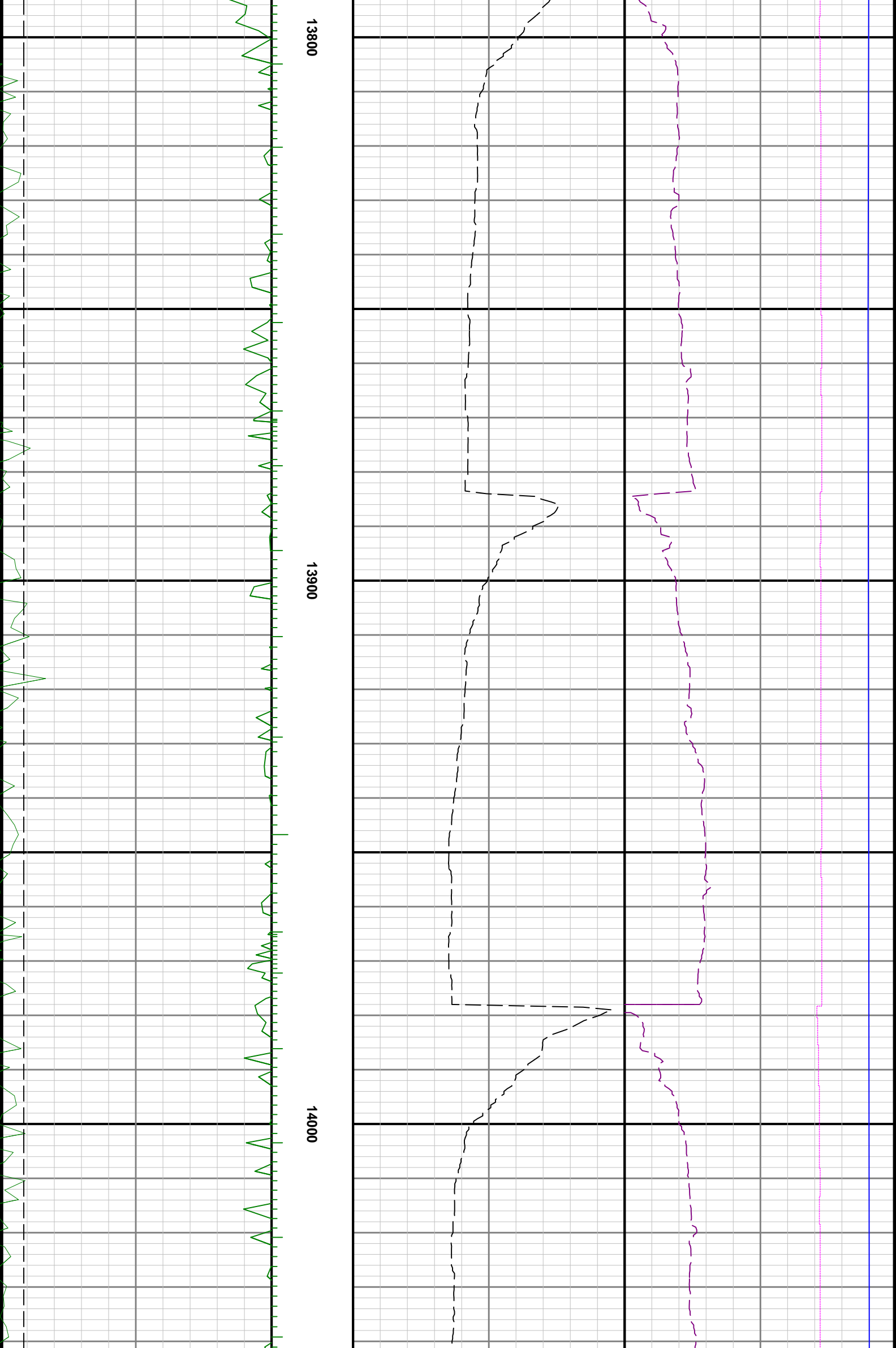


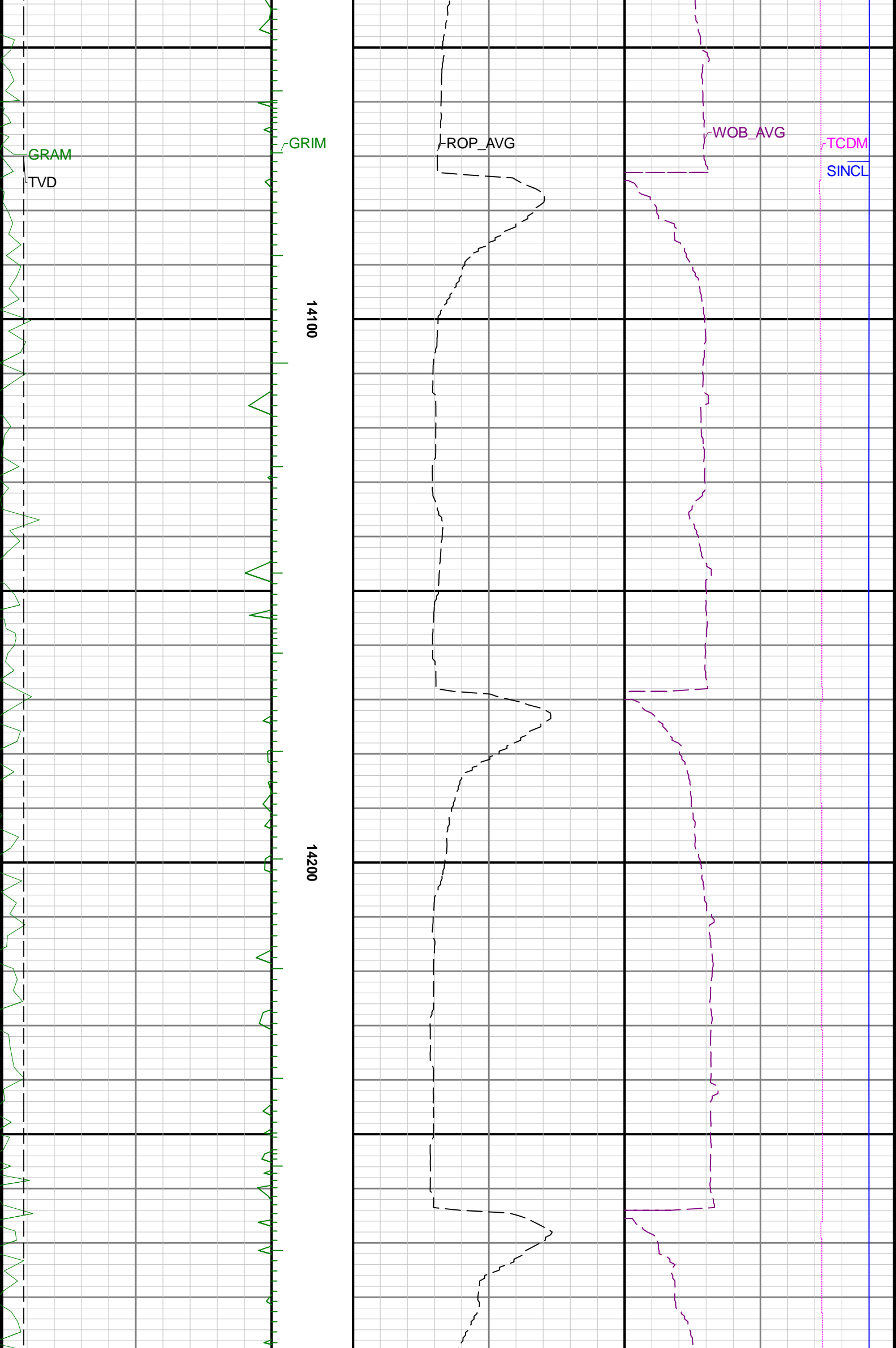












GRAM

TVD

GRIM

ROP\_AVG

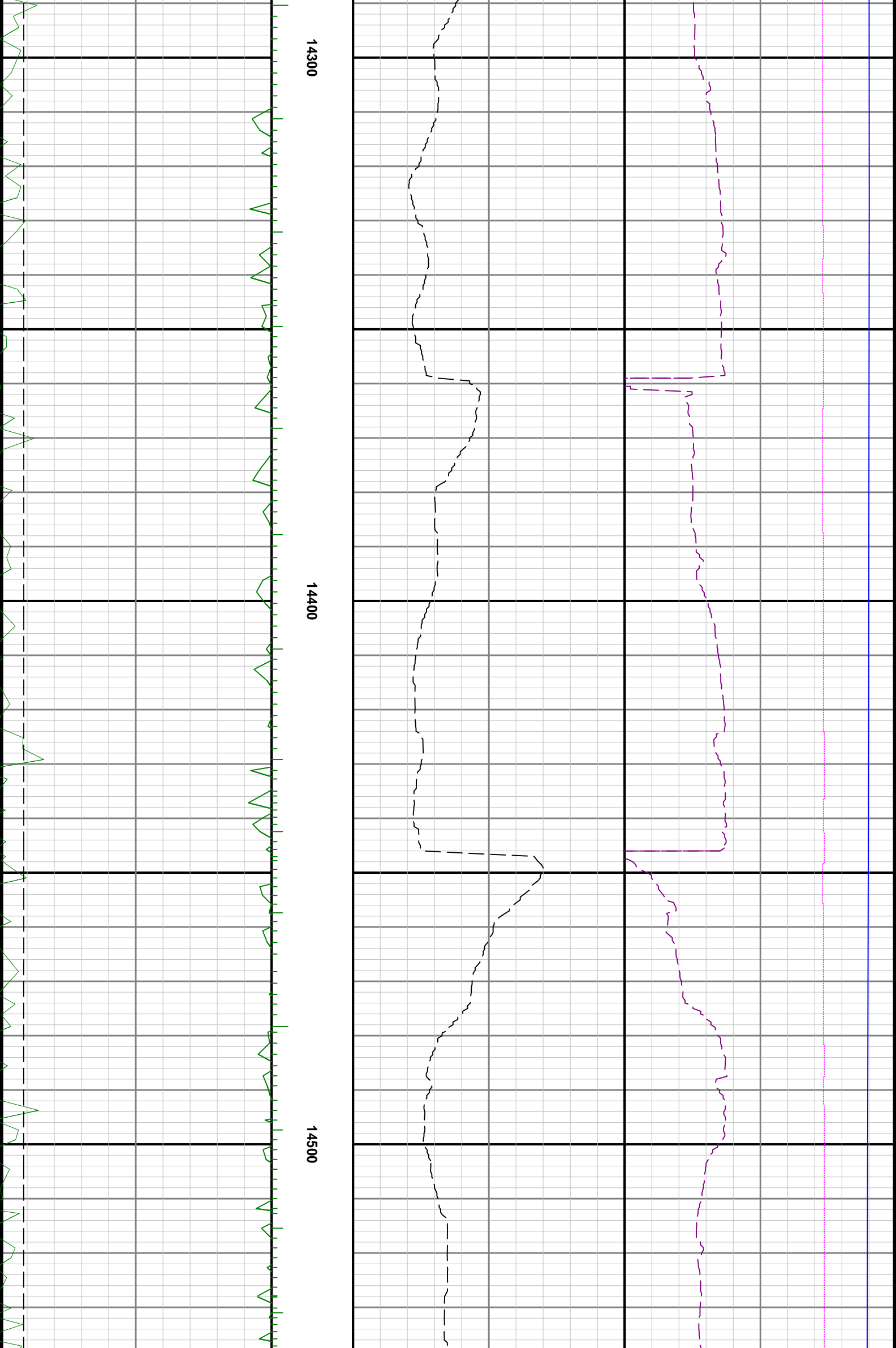
WOB\_AVG

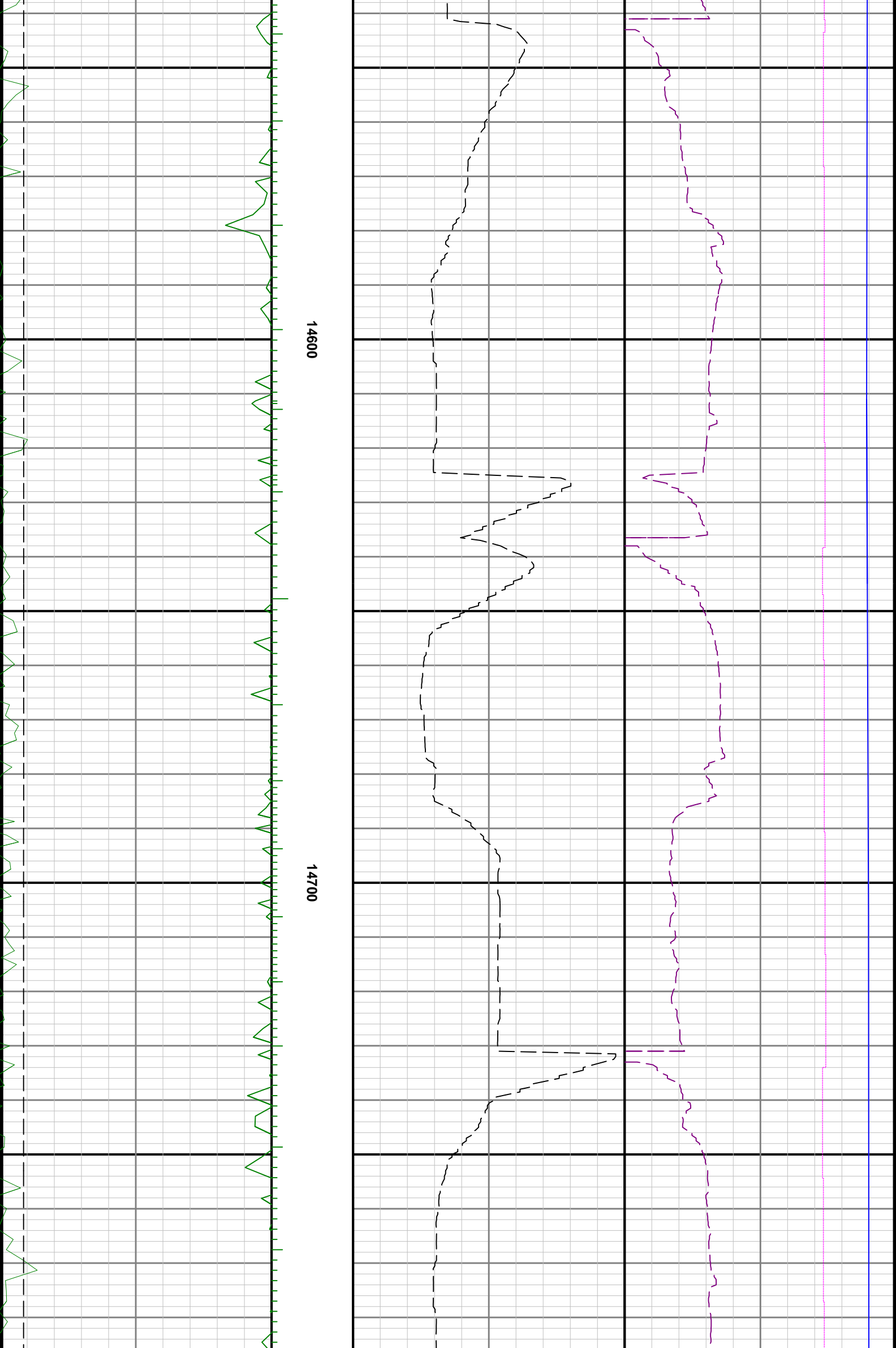
TCDM

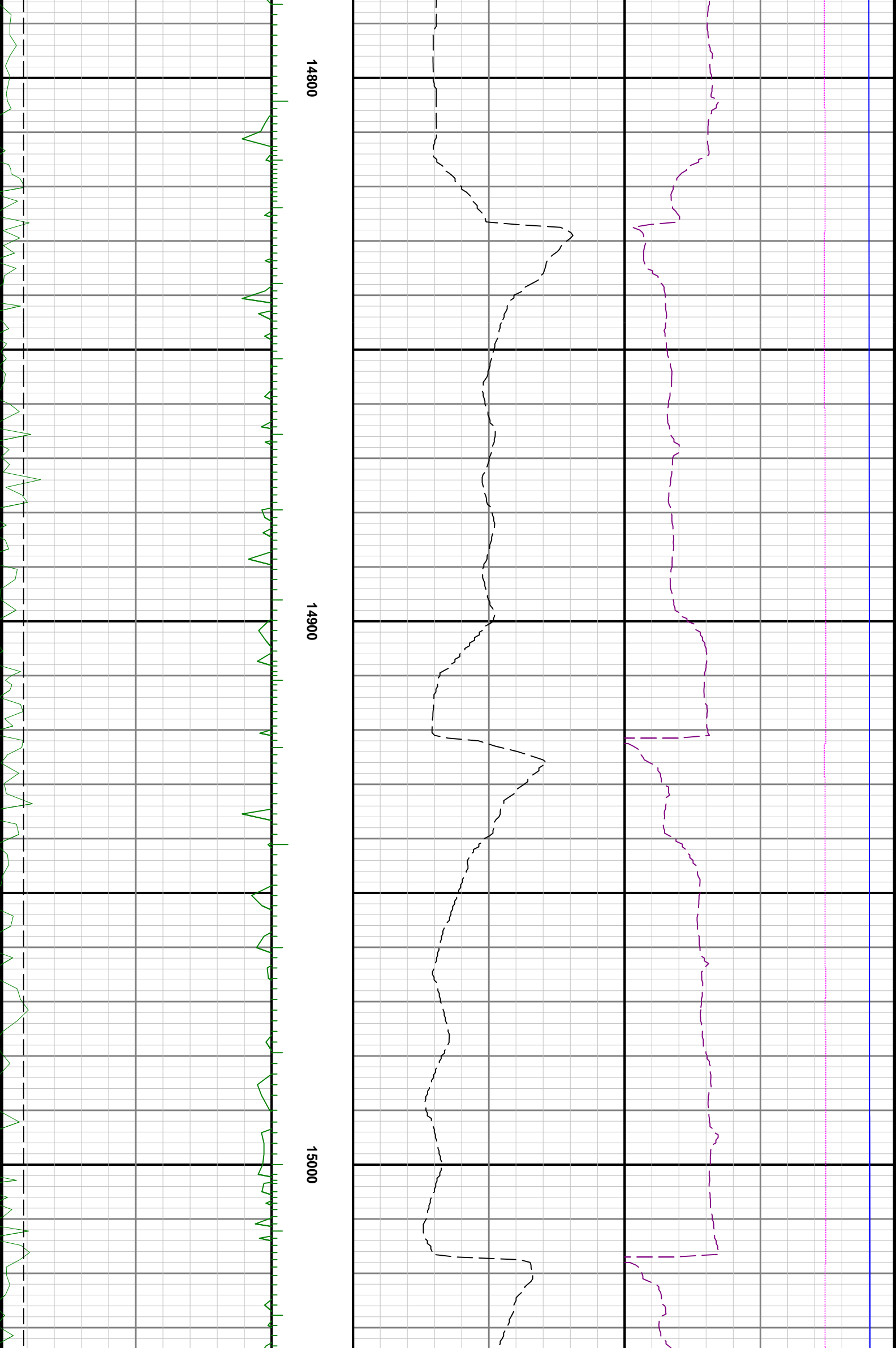
SINCL

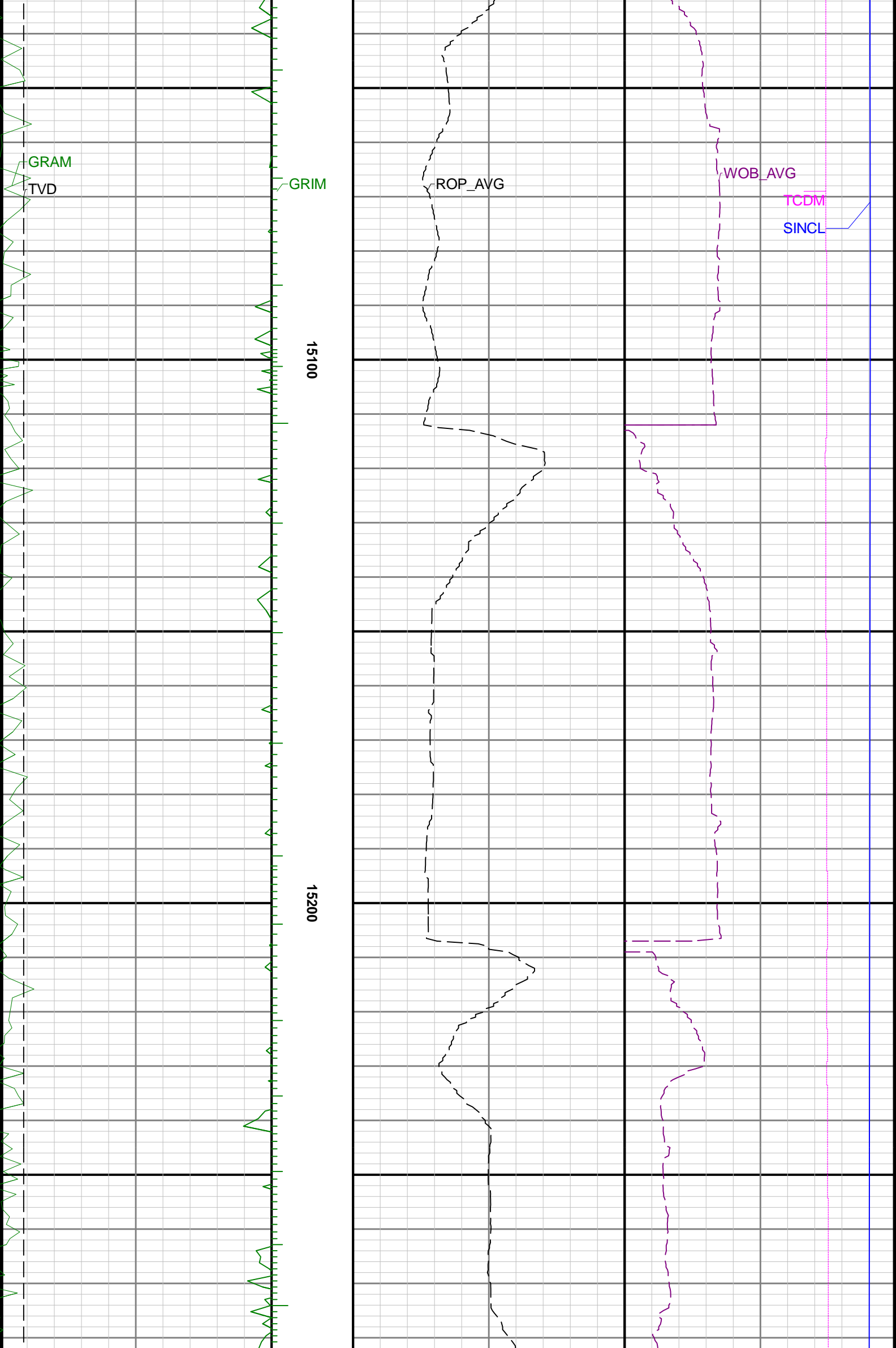
14100

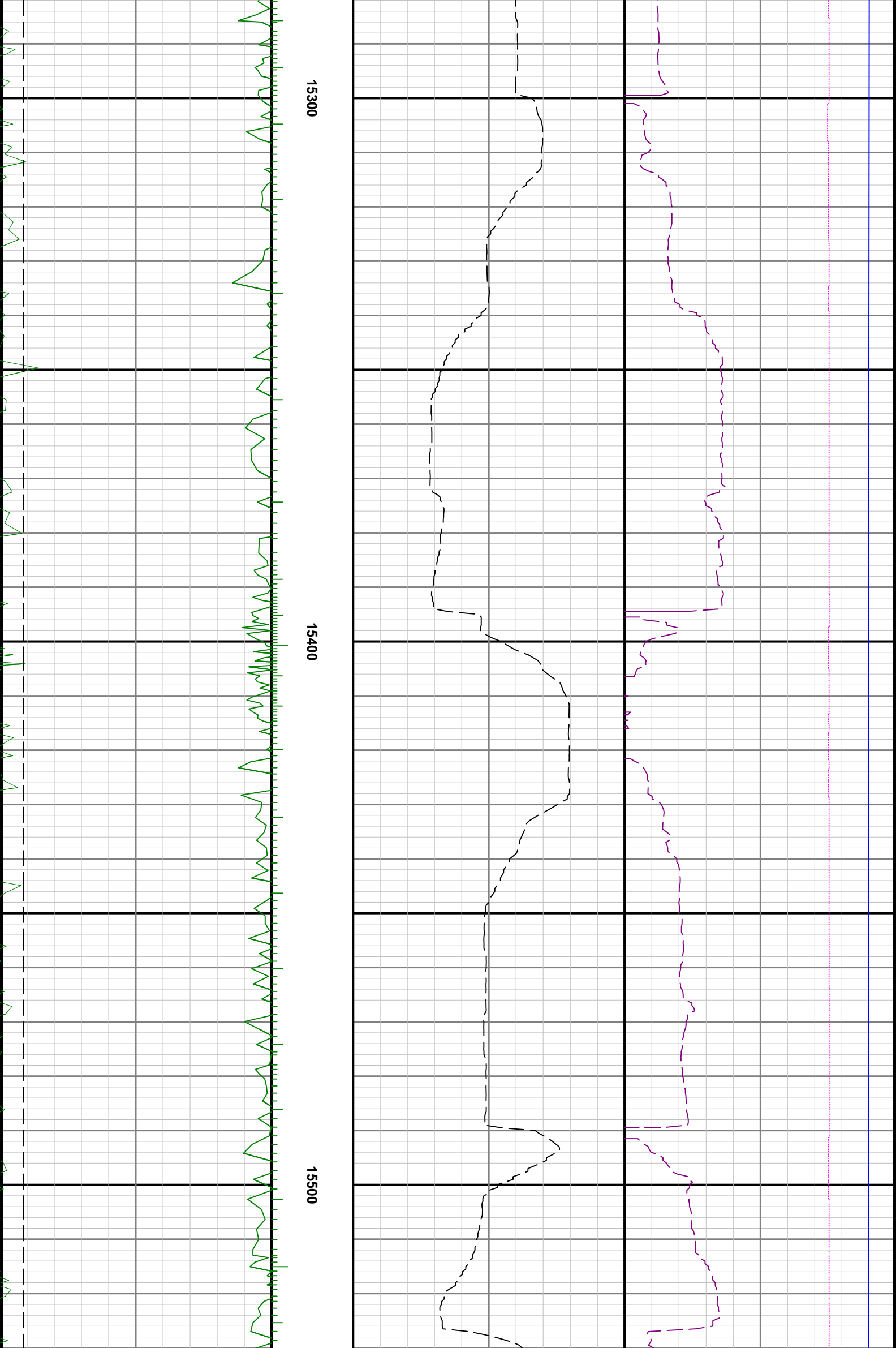
14200

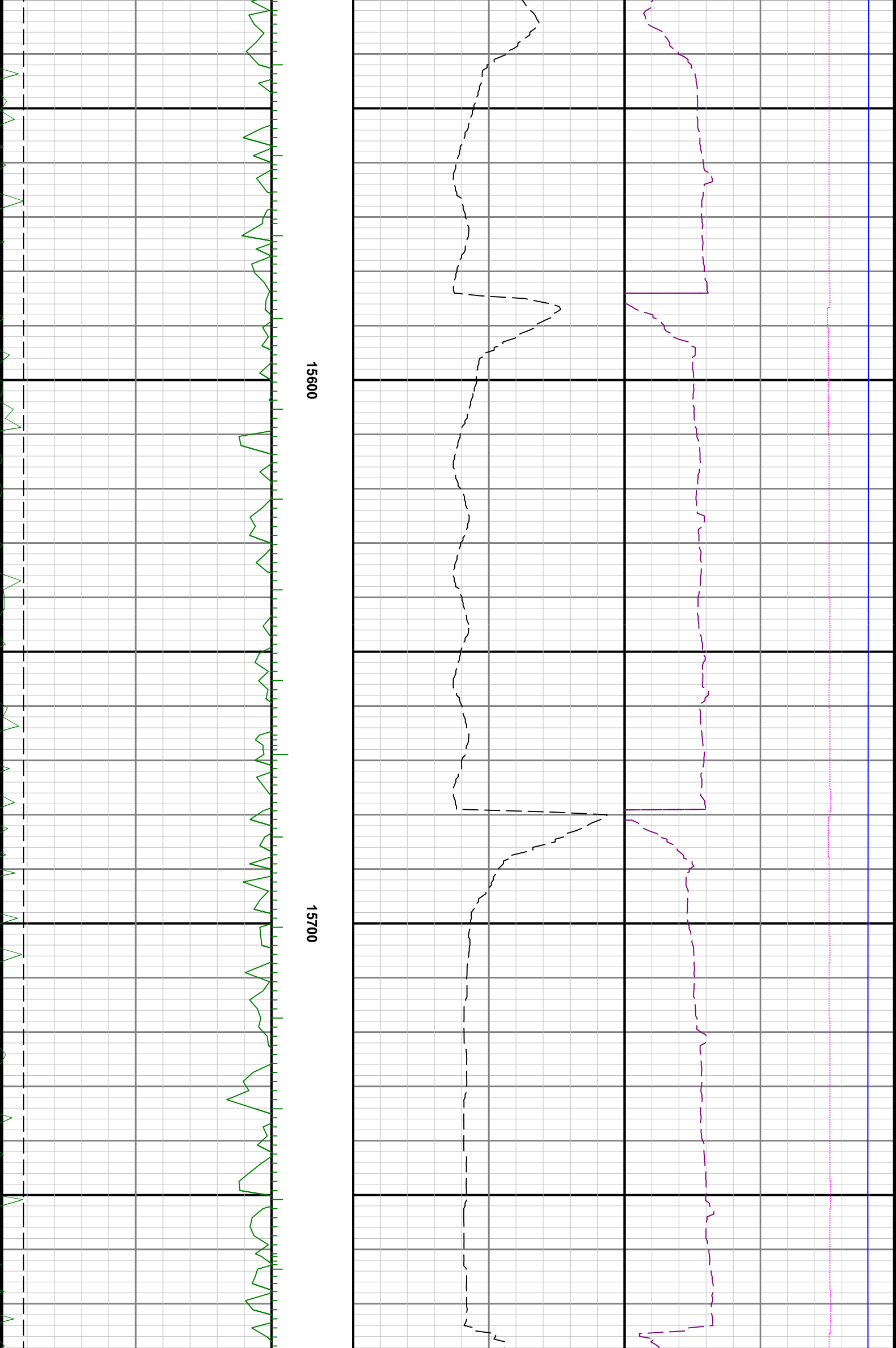


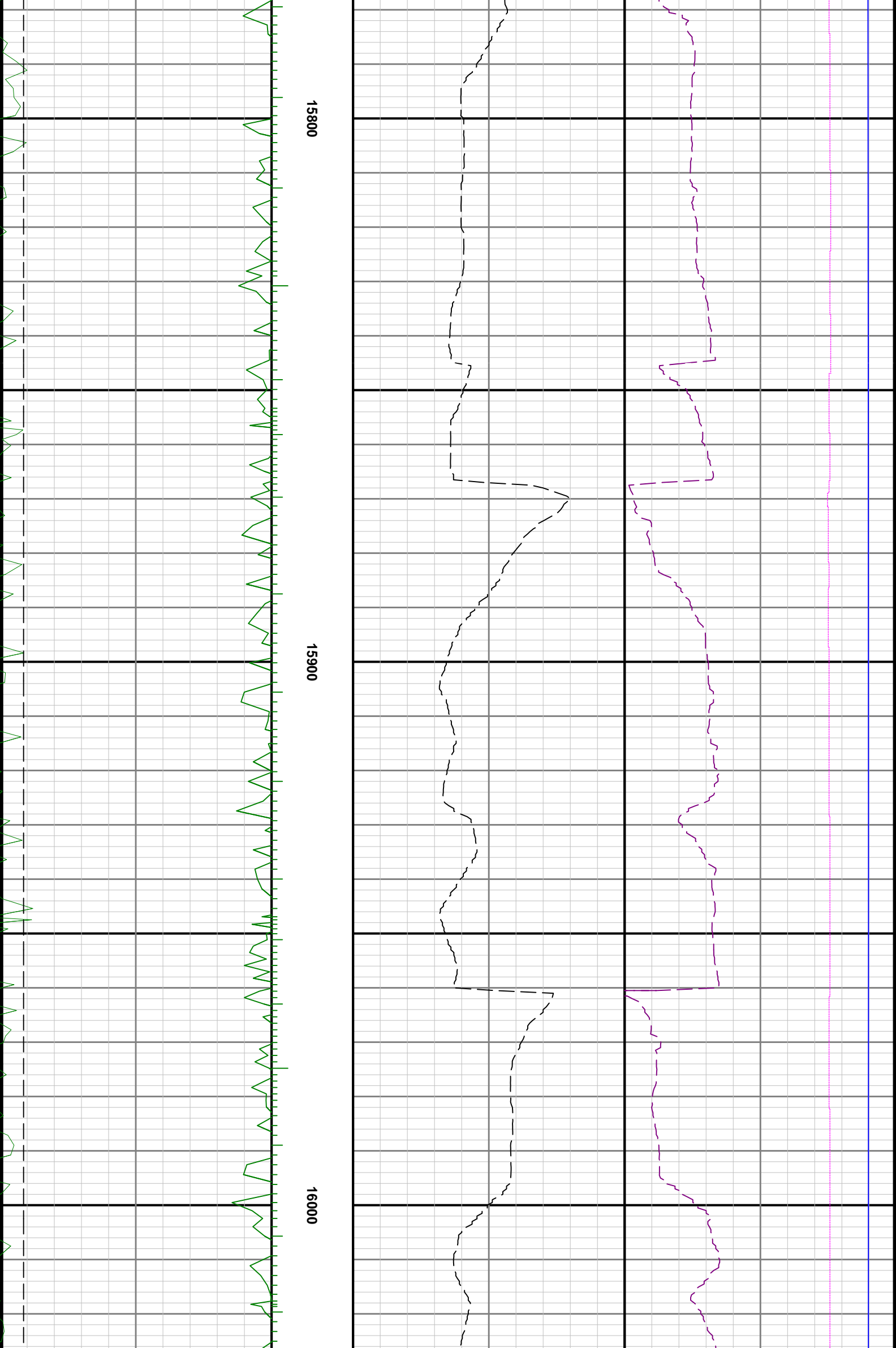


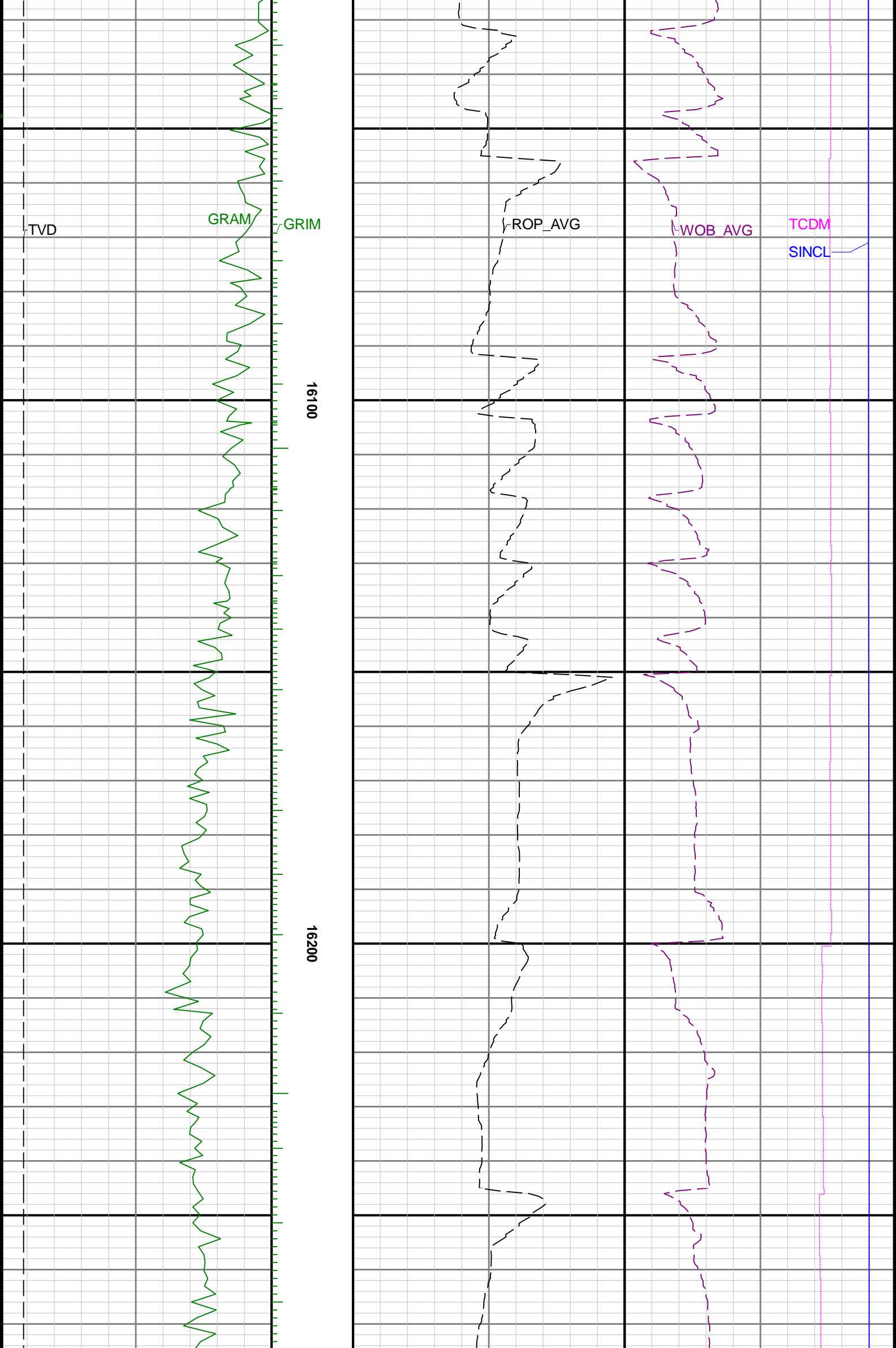


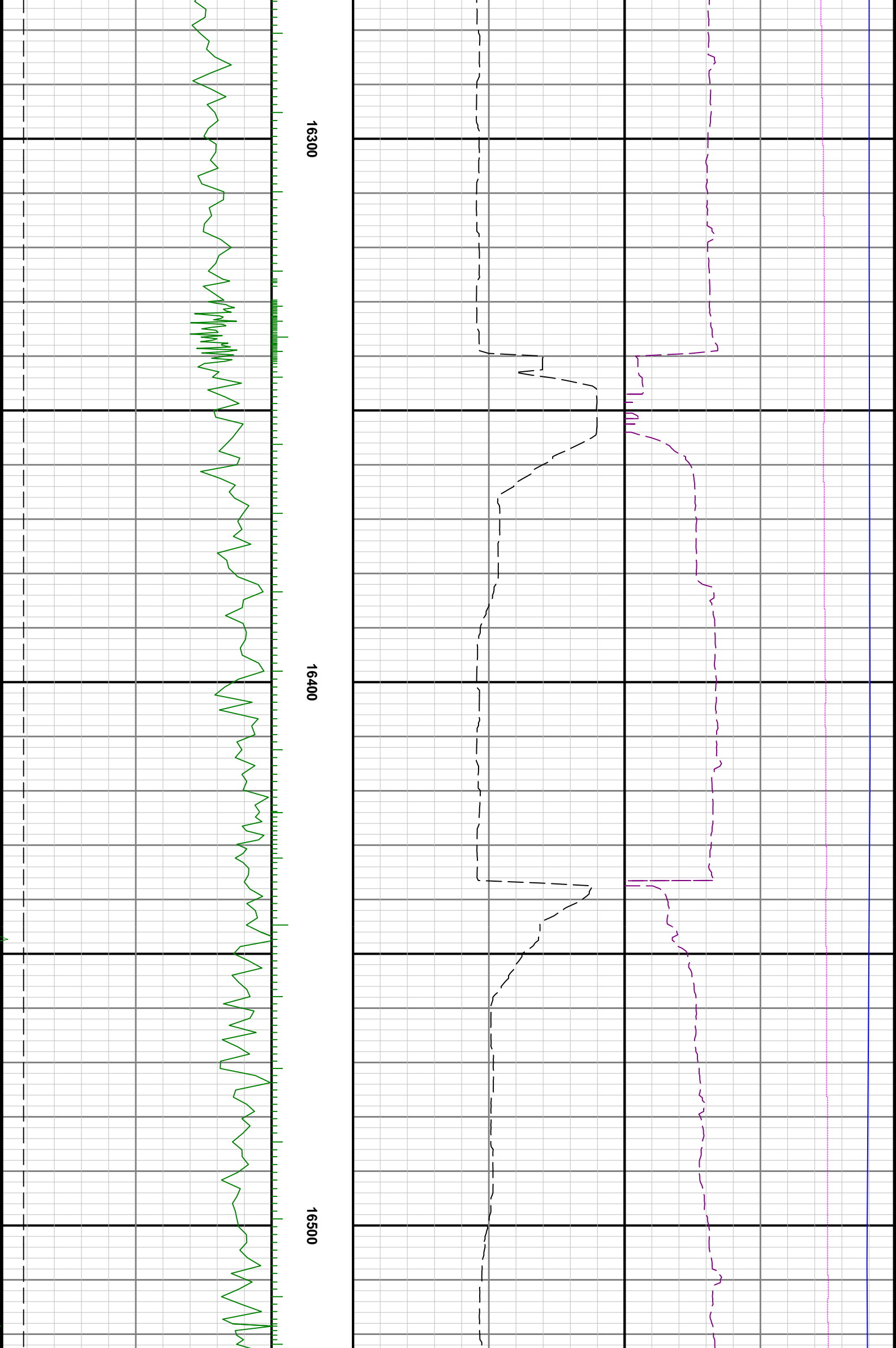


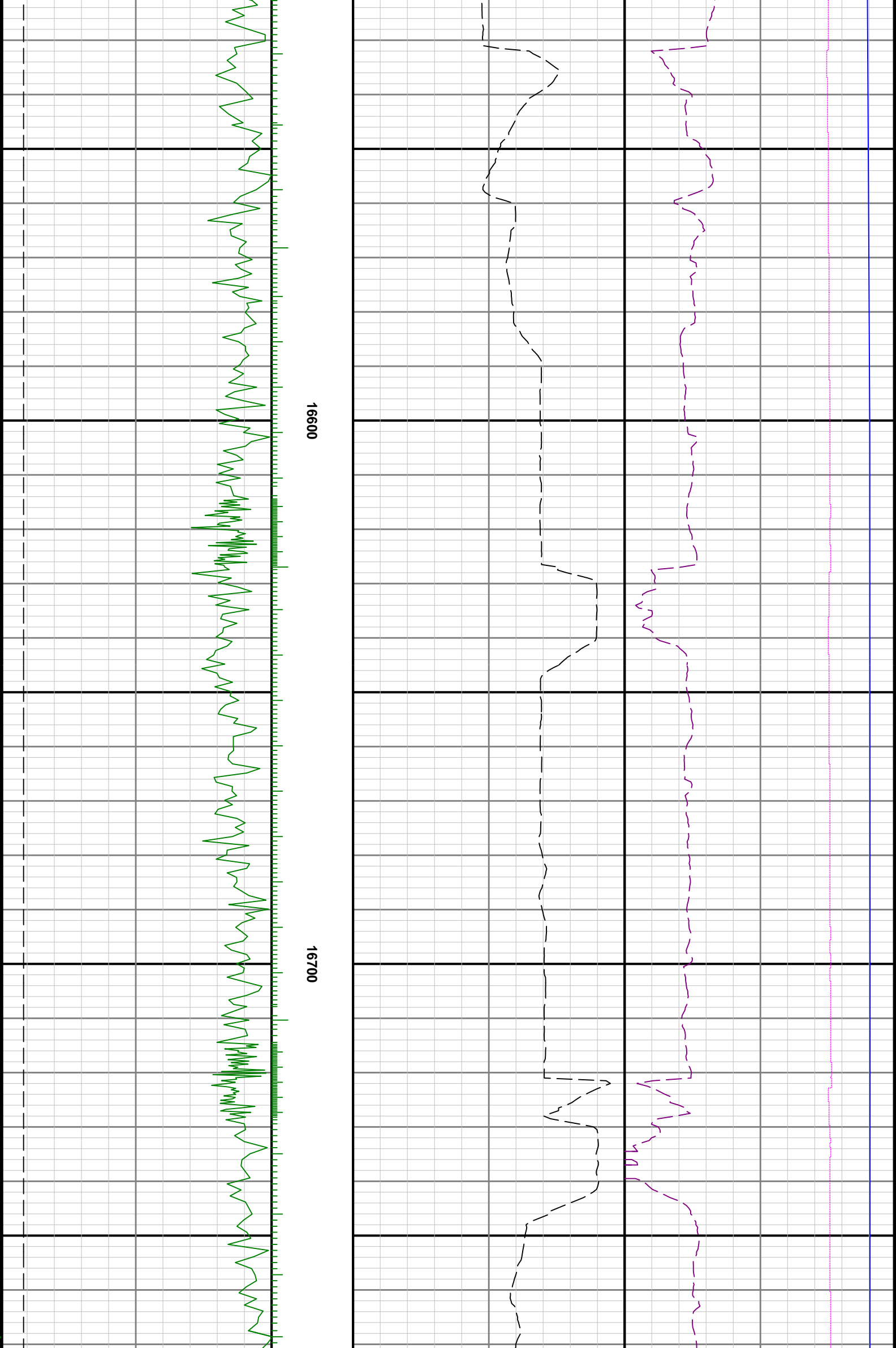






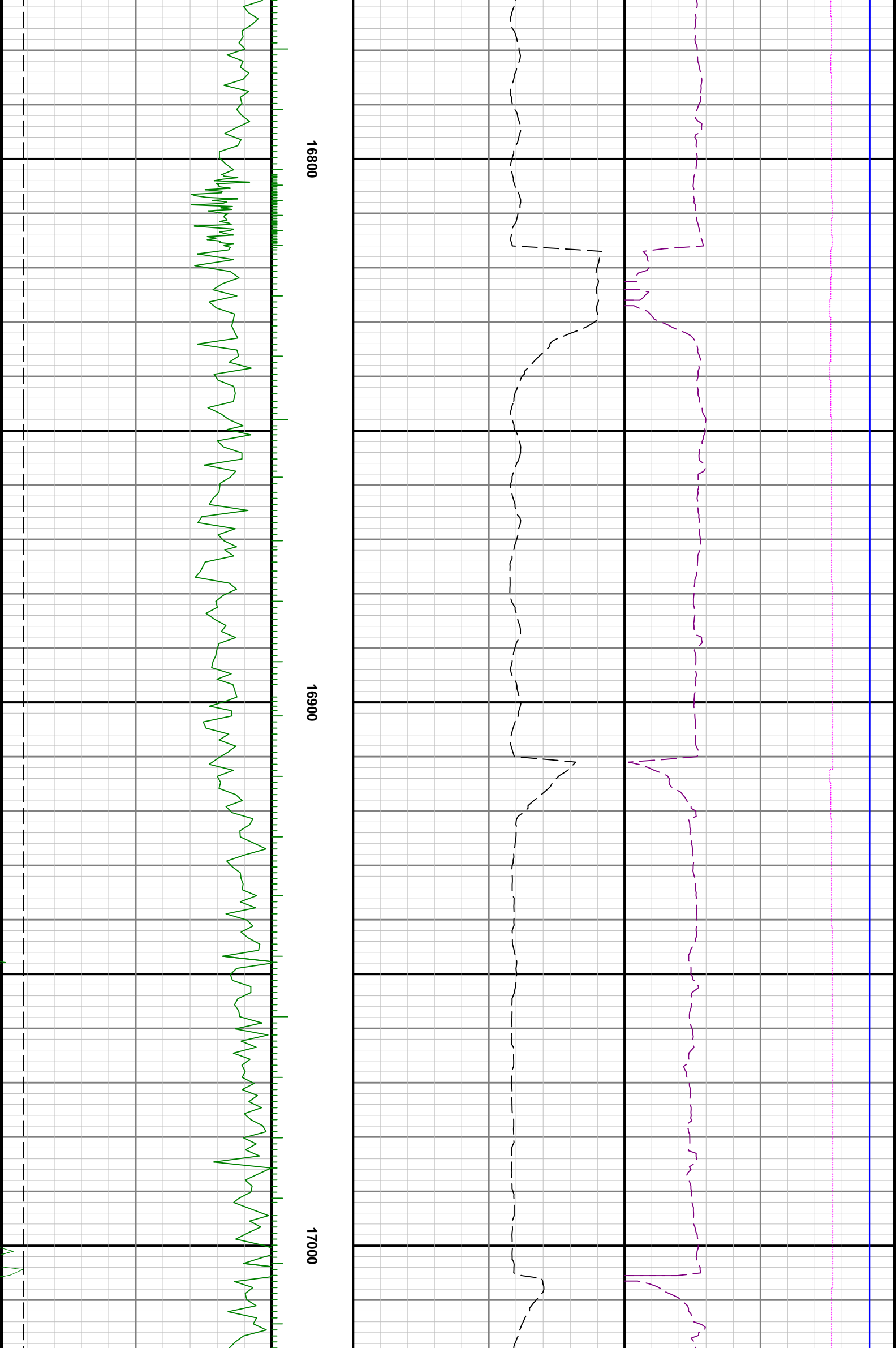






16600

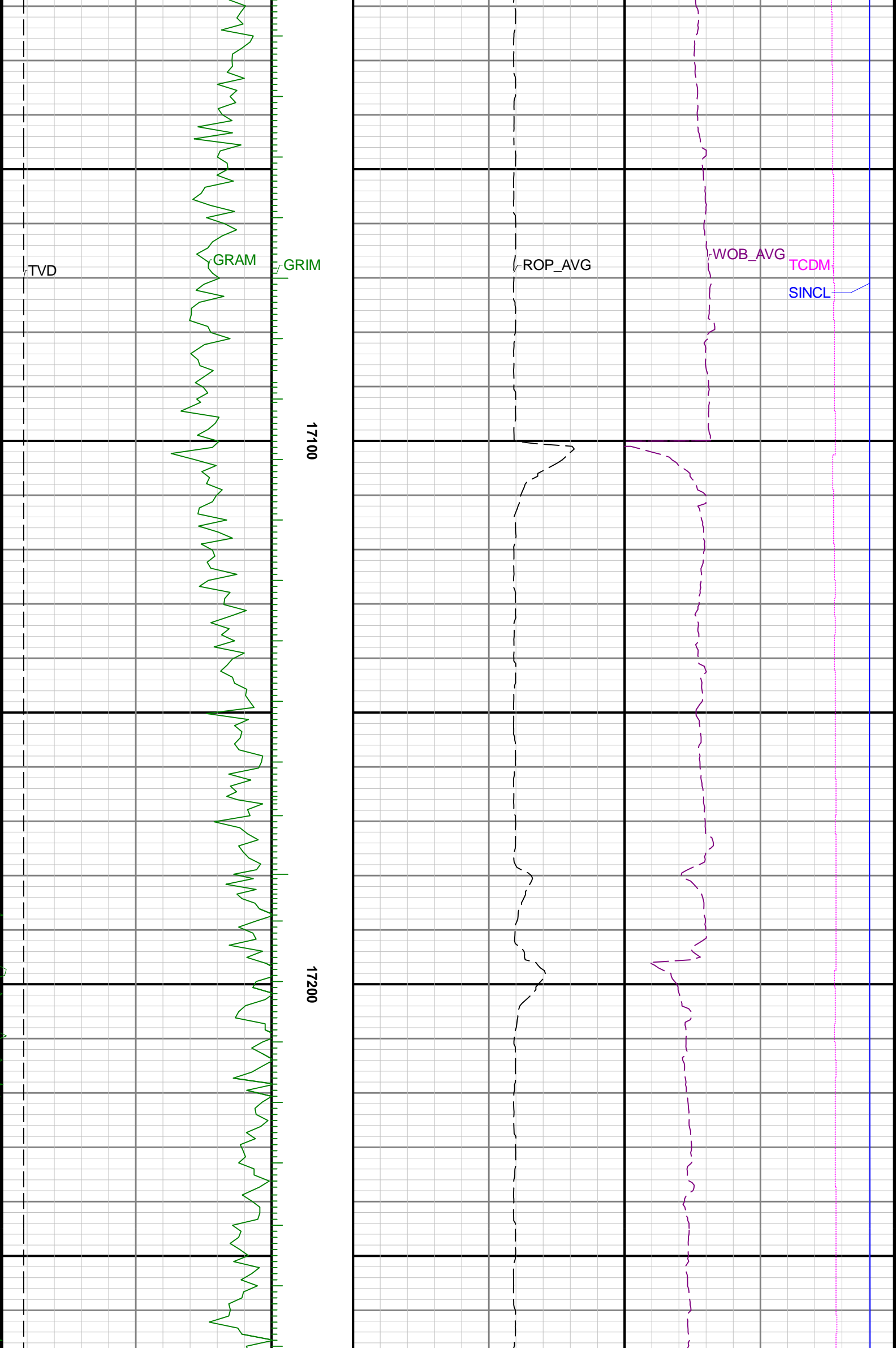
16700

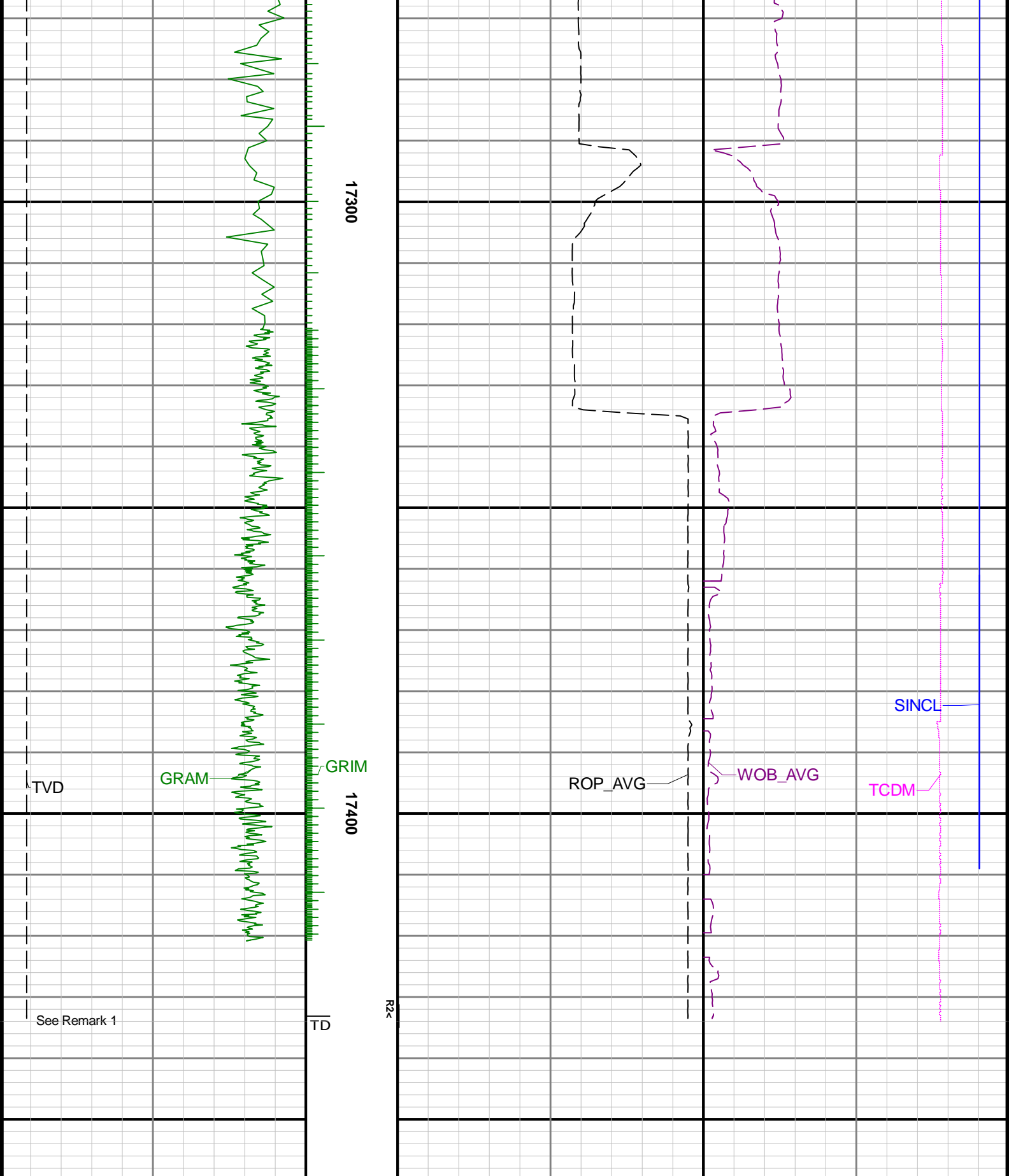


16800

16900

17000





Gamma Ray - Apparent 0.5 ft Average GRAM	0	150
API		
True Vertical Depth TVD	7500	1500
ft		

**MD 1:240 feet**

Rate of Penetration 0.5 ft Average ROP_AVG	1000	0
ft/h		

Weight on Bit 0.5 ft Average WOB_AVG	0	100
klb		
Downhole Temperature TCDM	50	350
degF		
Survey Inclination SINCL	0	100
deg		