Realtime Log

BAKER HUGHES

Natural Formation Evaluation
Gamma Ray

Scale:
1:240
Measured Depth

Company: Anadarko
Well: Spurling 35N-34HZ
Field: Weld County
County: Weld **State:** Colorado

Status:
Final Print

API Number:
05-123-38950-00

Surface Location:
Latitude: 40° 6' 3.593" N
Longitude: 104° 52' 57.108" W
SEC: 34 TWP: 2N RNG: 67W

Other Services:
Directional
VSS

Permanent Datum (P.D.):	Ground Level	Elevation:	5013.00 ft.
Log Measured From:	Rig Floor	5029.00 ft.	Above P.D.
Depth Reference:	Driller's Depth		

Elevations:
KB: N/A
DF: 5029.00 ft.
GL: 5013.00 ft.

Interval Logged		Dates		Magnetic Field Reference			
Top:	6860.0 ft.	Date From:	14/May/14	Dip Angle:	66.67 °	Azi Reference North:	True
Bottom:	11951.0 ft.	Date To:	20/May/14	Total		Mag to Reference	
		Spud Date:	14/May/14	Field Strength:	52841.0 nT	North Correction:	8.60 °

Borehole Record			Casing Record			
Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1076.0 ft.	9.625 in.	36.00 lb/ft	Surface	1066.0 ft.
8.750 in.	1066.0 ft.	7860.0 ft.	7.000 in.	26.00 lb/ft	Surface	7850.0 ft.
6.125 in.	7850.0 ft.	11951.0 ft.				

Mud Record			Deviation Record			
Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Fresh Water	Surface	5643.0 ft.	13.500 in.	1076.0 ft.	0.0 ° / 0.0 °	0.4 ° / 276.2 °
Water Based Mud	5643.0 ft.	11951.0 ft.	8.750 in.	6794.0 ft.	0.4 ° / 268.3 °	89.7 ° / 182.4 °
			6.125 in.	4101.0 ft.	89.2 ° / 182.3 °	89.8 ° / 180.6 °
					/	/
					/	/
					/	/

Acquisition System	Software Version		Other	
Advantage	2.20U4	Rig:	Xtreme 6	/ Xtreme Coil Drilling Corp
PATS	6.4.1.34	Job No:	6324625	
		District: / Unit:	RMD	/ D&E

Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Length (in.)	Assembly Type	Logged Interval Top (ft.)	Logged Interval Bottom (ft.)	Bit Depth Interval From (ft.)	Bit Depth Interval To (ft.)	Date / Time Start	Date / Time End	Circ. Time (hrs.)
1	1	2	8.750	PDC	6.000	Steerable	6860.0	7860.0	1076.0	7860.0	14/May/2014 23:15	17/May/2014 12:00	45.6
2	2	3	6.125	PDC	4.800	Steerable	7814.0	11951.0	7860.0	11951.0	18/May/2014 13:45	20/May/2014 14:00	30.1

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Delmore	14/May/2014	20/May/2014	Jake Miller	14/May/2014	20/May/2014			

Witness

Name	LWD Run Number
Pat Cane	1, 2
Derrick Perry	1, 2

Mud Properties Record

Date / Time	LWD Run No.	Measured Depth (ft.)	Mud Type	Density (ppg)	Viscosity (cp)	pH	Fluid Loss (cc)	Oil / Water	Source	Total Chlorides (ppm)	K+ (%)
14/May/2014 22:00	1	1066.0	Fresh Water	8.5	27	7.8	N/A	0 / 99	Active Mud Pit	1100	0.0
15/May/2014 09:00	1	2561.0	Fresh Water	8.6	29	8.1	N/A	0 / 99	Active Mud Pit	1900	0.0
15/May/2014 21:00	1	5643.0	Water Based Mud	9.5	42	9.0	5.4	0 / 94	Active Mud Pit	2700	0.0
16/May/2014 09:00	1	7040.0	Water Based Mud	10.5	43	9.5	4.8	0 / 90	Active Mud Pit	2800	0.0
16/May/2014 21:00	1	7522.0	Water Based Mud	10.5	53	9.4	5.1	0 / 90	Active Mud Pit	2500	0.0
17/May/2014 09:00	1	7860.0	Water Based Mud	10.6	49	9.2	4.8	0 / 90	Active Mud Pit	2300	0.0
18/May/2014 21:00	2	7868.0	Water Based Mud	9.4	39	9.3	5.2	0 / 94	Active Mud Pit	2300	0.0
19/May/2014 09:00	2	9507.0	Water Based Mud	9.4	43	9.4	5.0	0 / 94	Active Mud Pit	2200	0.0
19/May/2014 20:00	2	10959.0	Water Based Mud	9.4	40	9.0	4.6	0 / 90	Active Mud Pit	2100	0.0

Mnemonics

Curve	Description	Units
GRAX	Gamma Ray Apparent, 0.5 ft. Avg.	API
GRIX	Gamma Ray Data Density	points
GRSI	Gamma Ray Sliding Indicator	unitless
GRTX	Gamma Ray Time Since Drilled	min
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	degF
TVD	True Vertical Depth	ft.
WOBA	Surface Weight on Bit, 1.0 ft. Avg.	klbs

Equipment and Service Data

LWD Run No.	Tool	Serial Number	Measurement	Bit Offset (ft)	Max O.D. (in.)	Min I.D. (in.)
1	DIR	12546339	Directional	46.49	6.750	3.250
1	SRIG	12578114	Gamma	43.12	6.750	3.250
2	DIR	12235770	Directional	49.78	4.750	2.750
2	SRIG	12622667	Gamma	46.40	4.750	2.750

Service and Tool Mnemonics

Mnemonic	Name	Description
DIR	Directional	Wellbore directional survey
SRIG	Inclination and Gamma	Probe based gamma ray and inclination module

Comments

1.) Baker Hughes LWD run 1 utilized 6 3/4 inch NaviTrak Services (VSS, Directional) from 1076 to 6860 ft. MD (1075.96 to 6833.13 ft. TVD) and NaviGamma Services (VSS, Directional, Gamma Ray) from 6860 to 7860 ft. MD (6833.13 to 7443.92 ft. TVD) behind an 8 3/4 inch bit and steerable assembly.

2.) Baker Hughes LWD run 2 utilized 4 3/4 inch NaviGamma Services (VSS, Directional, Gamma Ray) from 7860 to 11951 ft. MD (7443.92 ft. to 7447.63 TVD) behind an 6 1/8 inch bit and steerable assembly.

3.) A sliding indicator is shown on the left edge of track 1 as a heavy line. This indicator has been depth-shifted to the gamma ray sensor offset to correspond with gamma ray data.

4.) Depth measurements obtained from a depth control system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes logging engineers, depth calibrations and measurements could not be independently verified.

Remarks

Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	7841	6.125	2	The interval from 7820 to 7862 ft. MD (7443.47 to 7444.36 ft. TVD) was logged up to 41.4 hours after being drilled due to a trip out of the hole to lay down the curve assembly, run intermediate casing, cementing operations, and to pick up the lateral assembly.
2	11925	6.125	2	The interval from 11906 to 11951 ft. MD (7447.48 to 7447.63 ft. TVD) does not contain GRAX, GRIX or GRTX due to the bit to sensor offset.

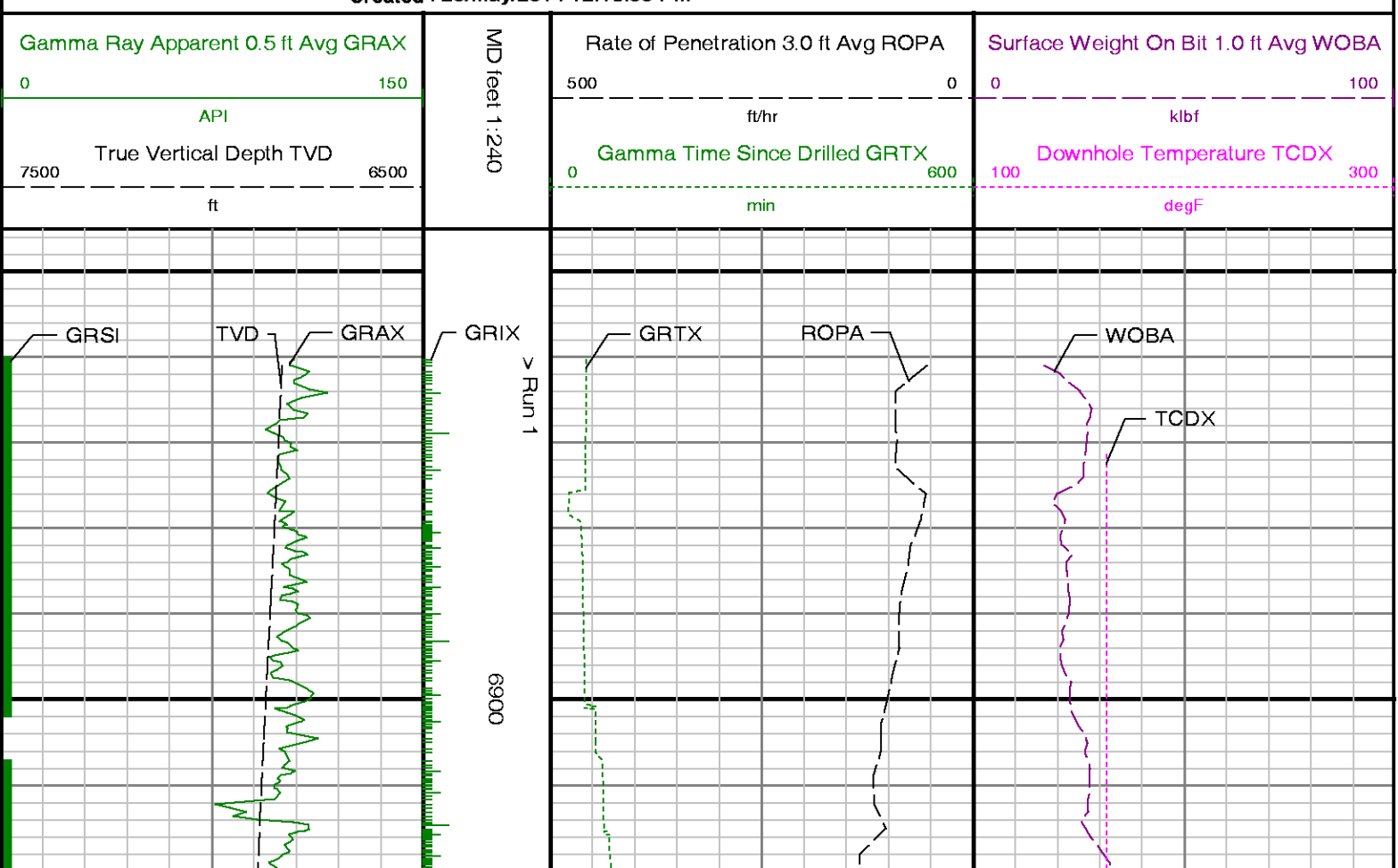
BAKER HUGHES

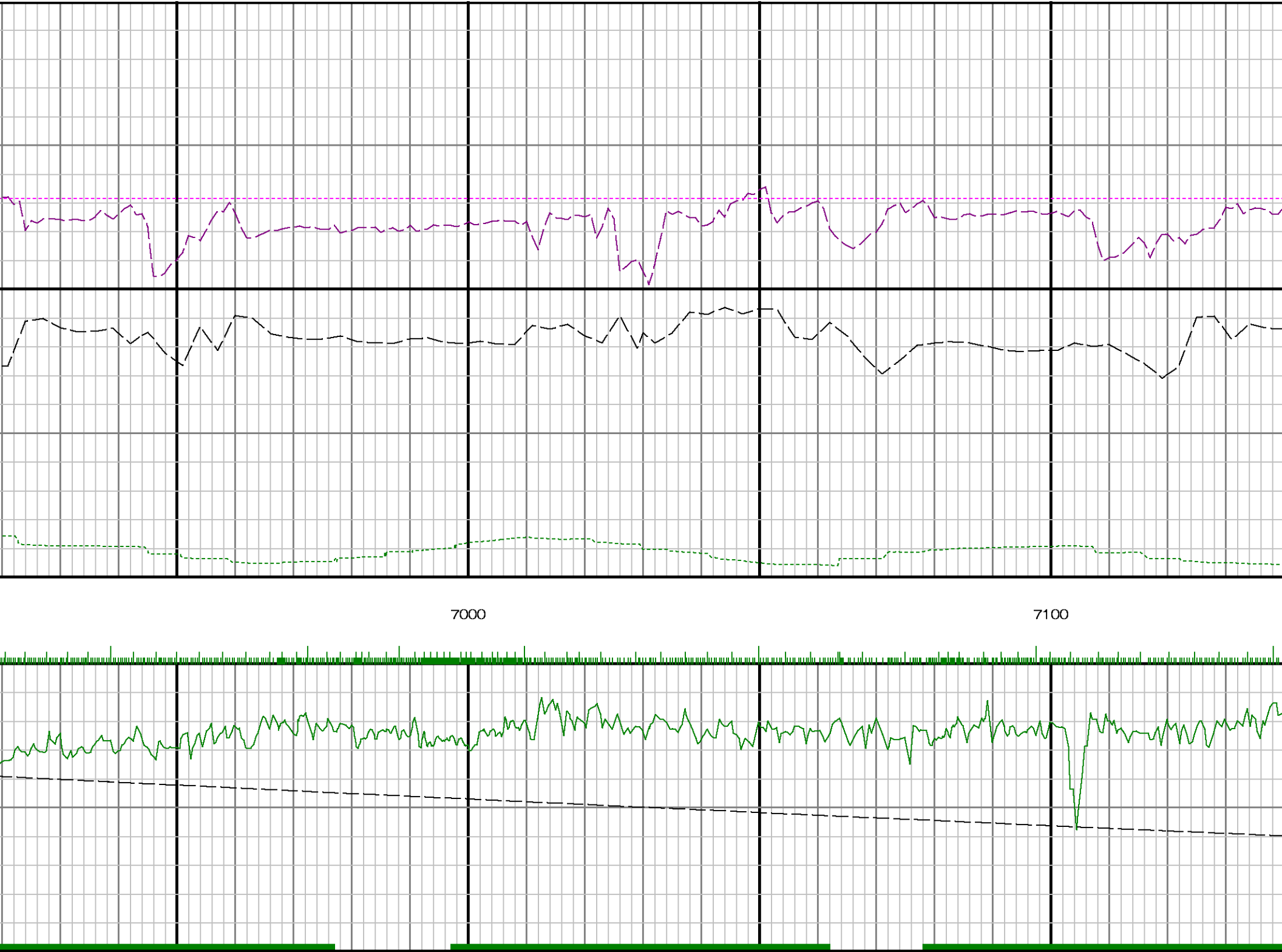
Company : Anadarko

Well : Spurling 35N-34HZ

Interval : 6845.00 - 11975.00 feet

Created : 20/May/2014 12:18:00 PM

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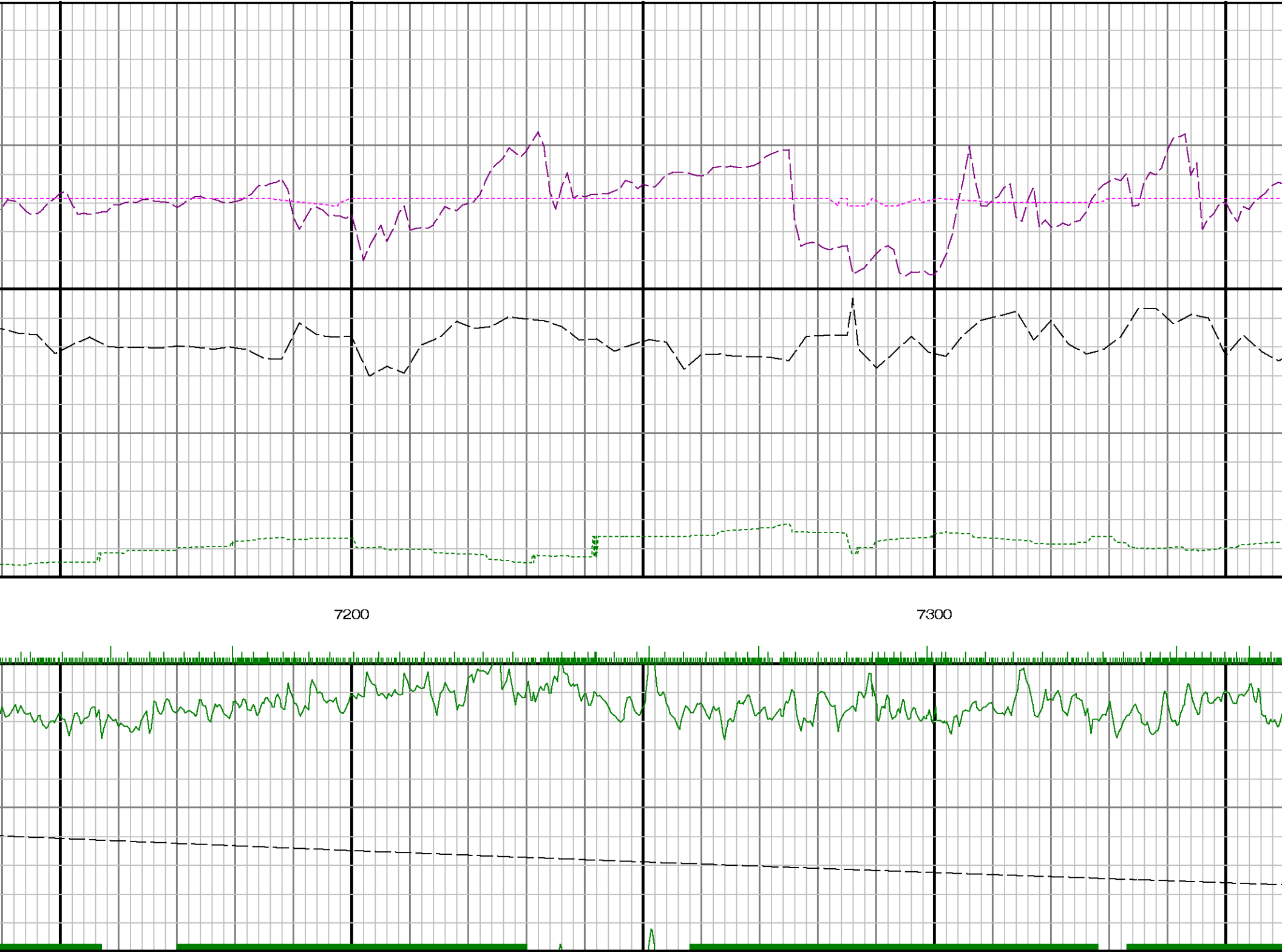
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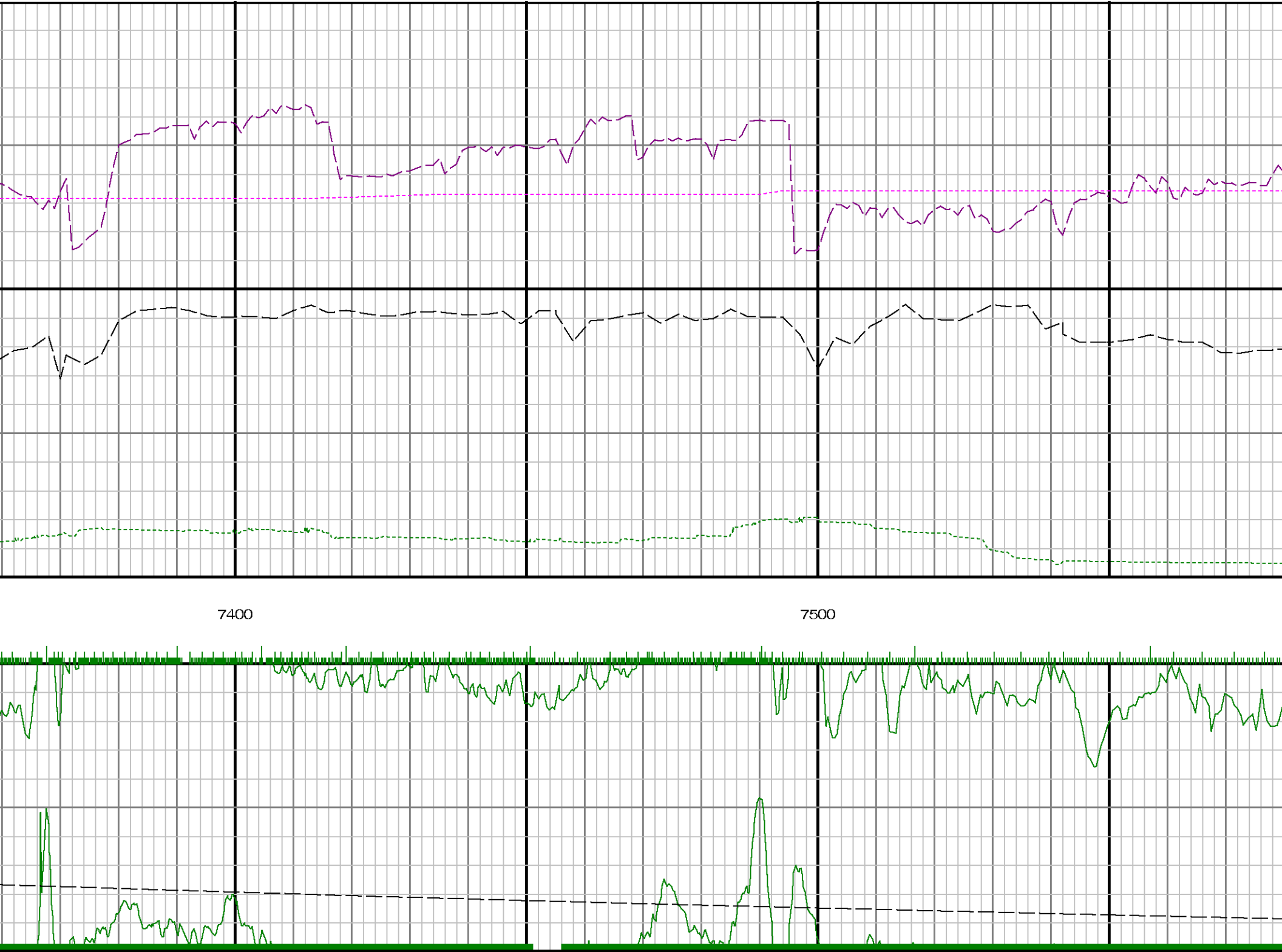
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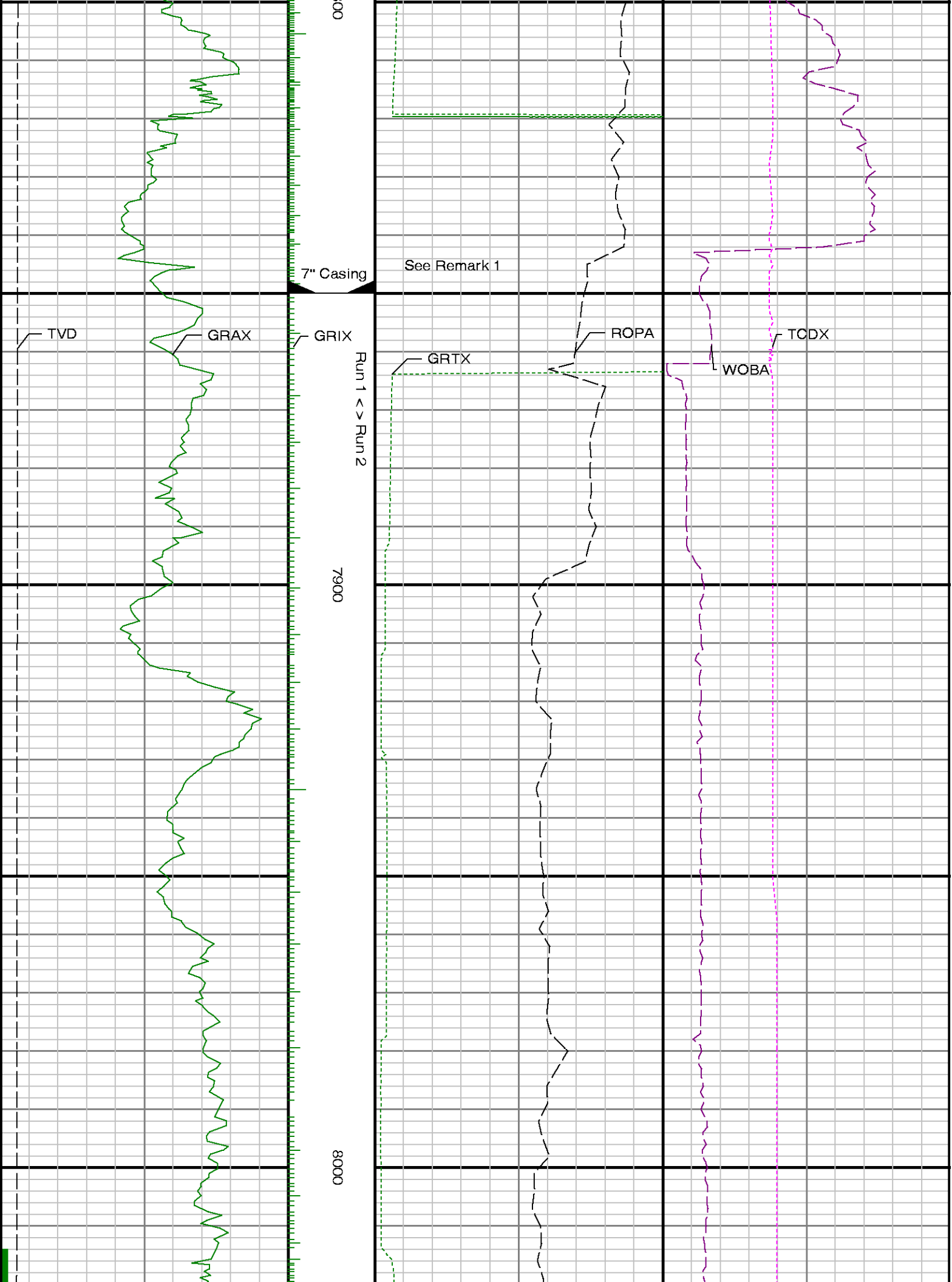
7500

GRSI

7600

7700


7" Casing
See Remark 1
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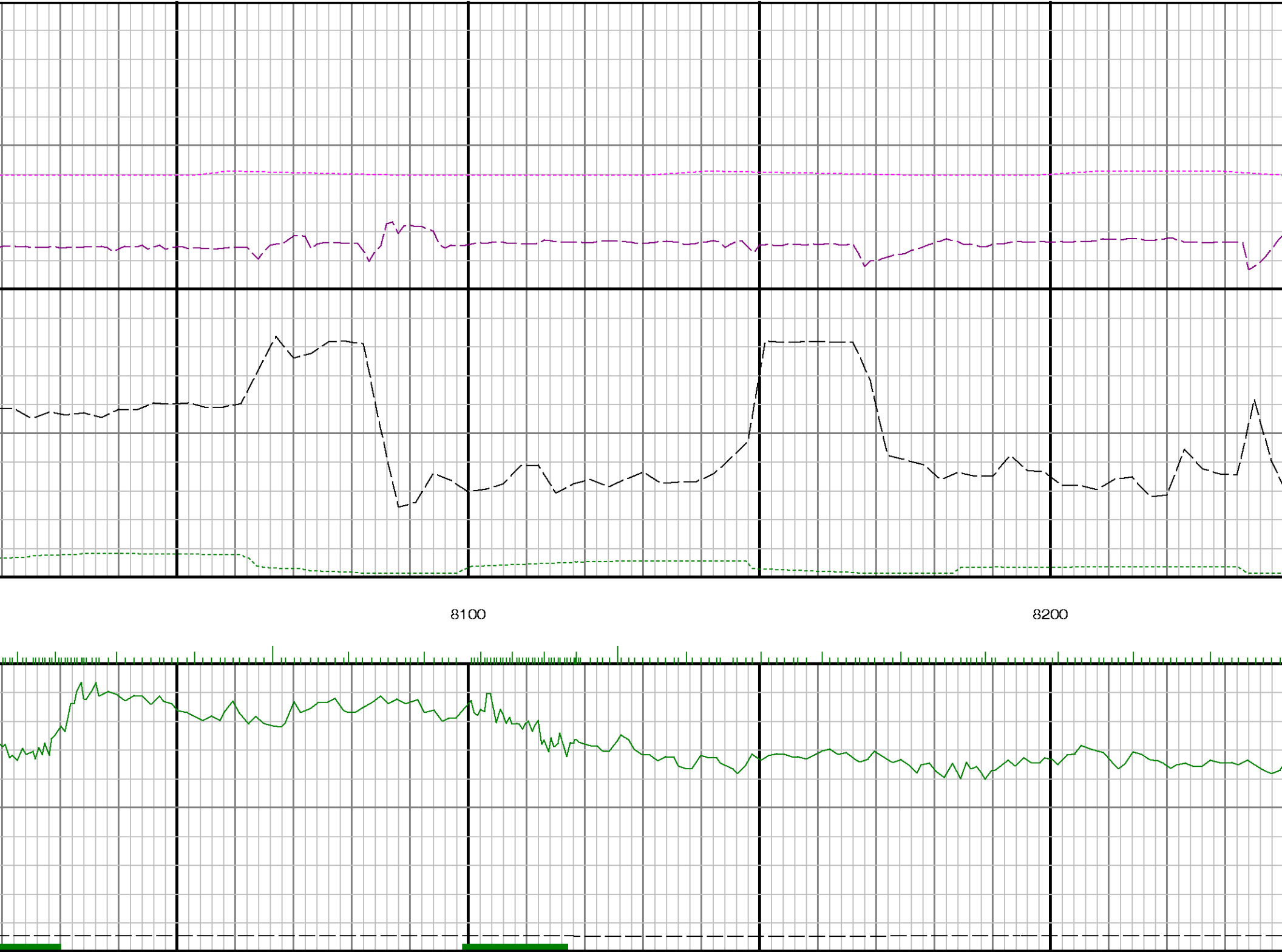
GRAX
GRIX
Run 1 < > Run 2
GRTX
ROPA
WOBA
TCDX
7900
8000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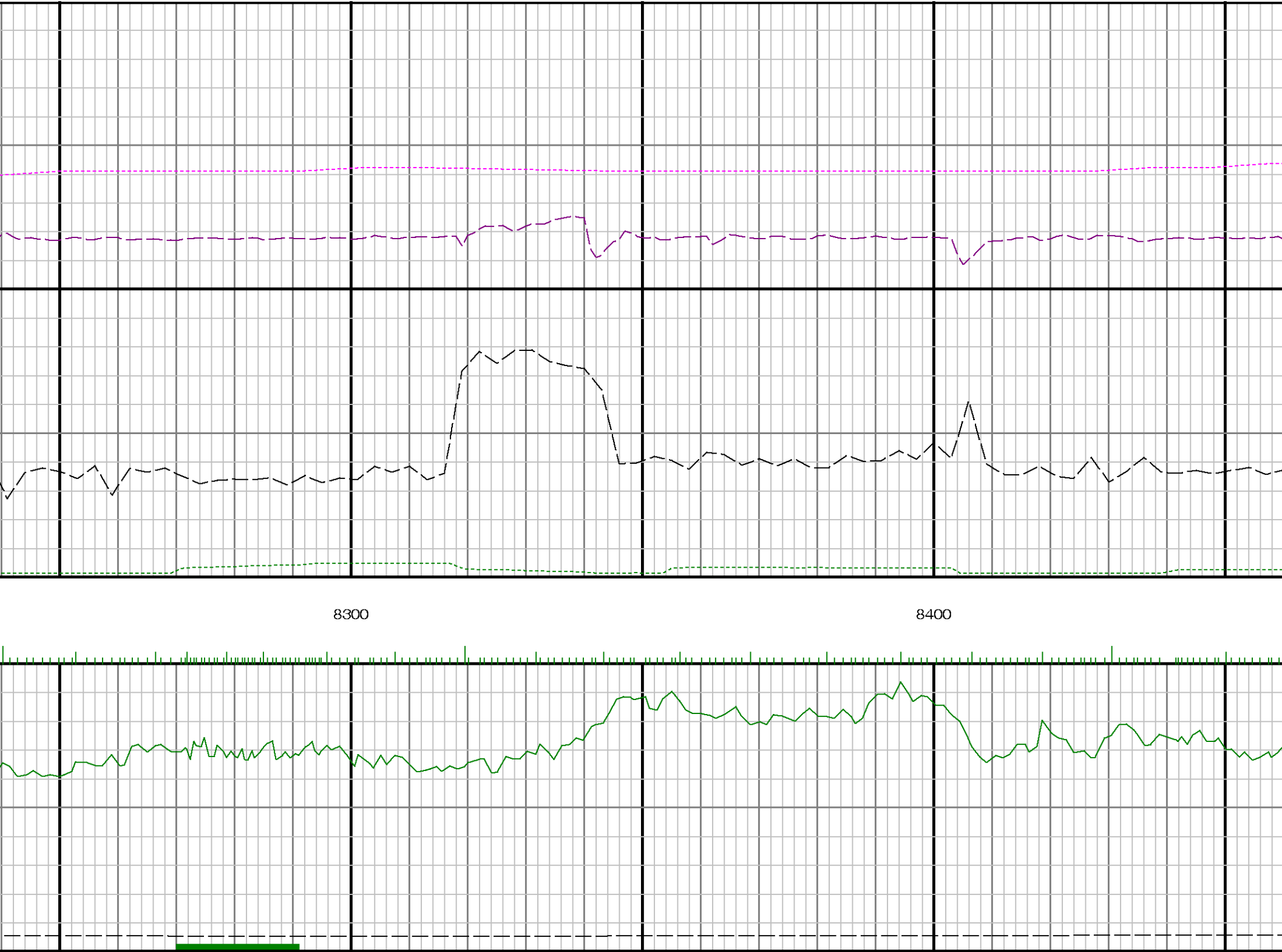
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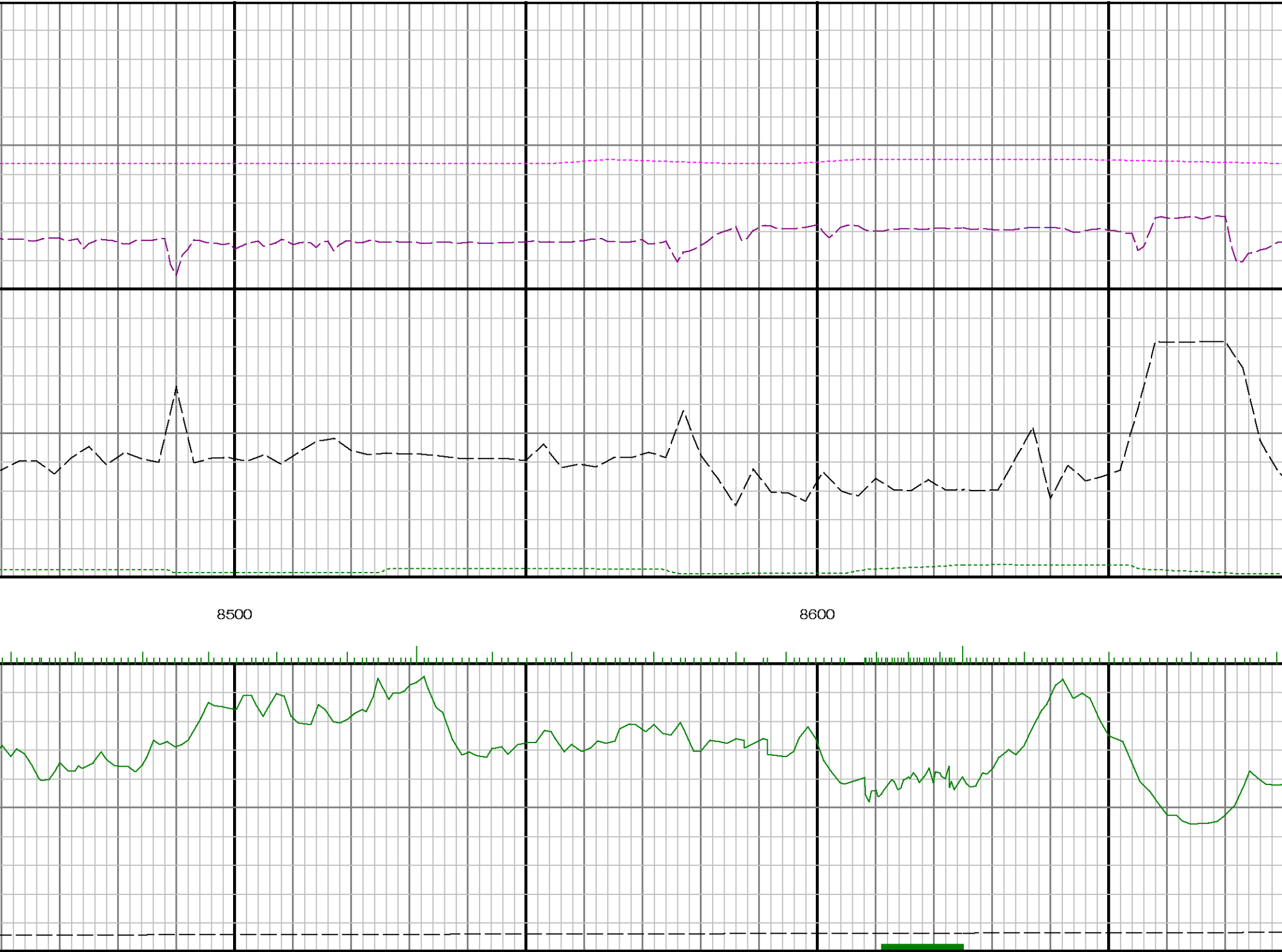
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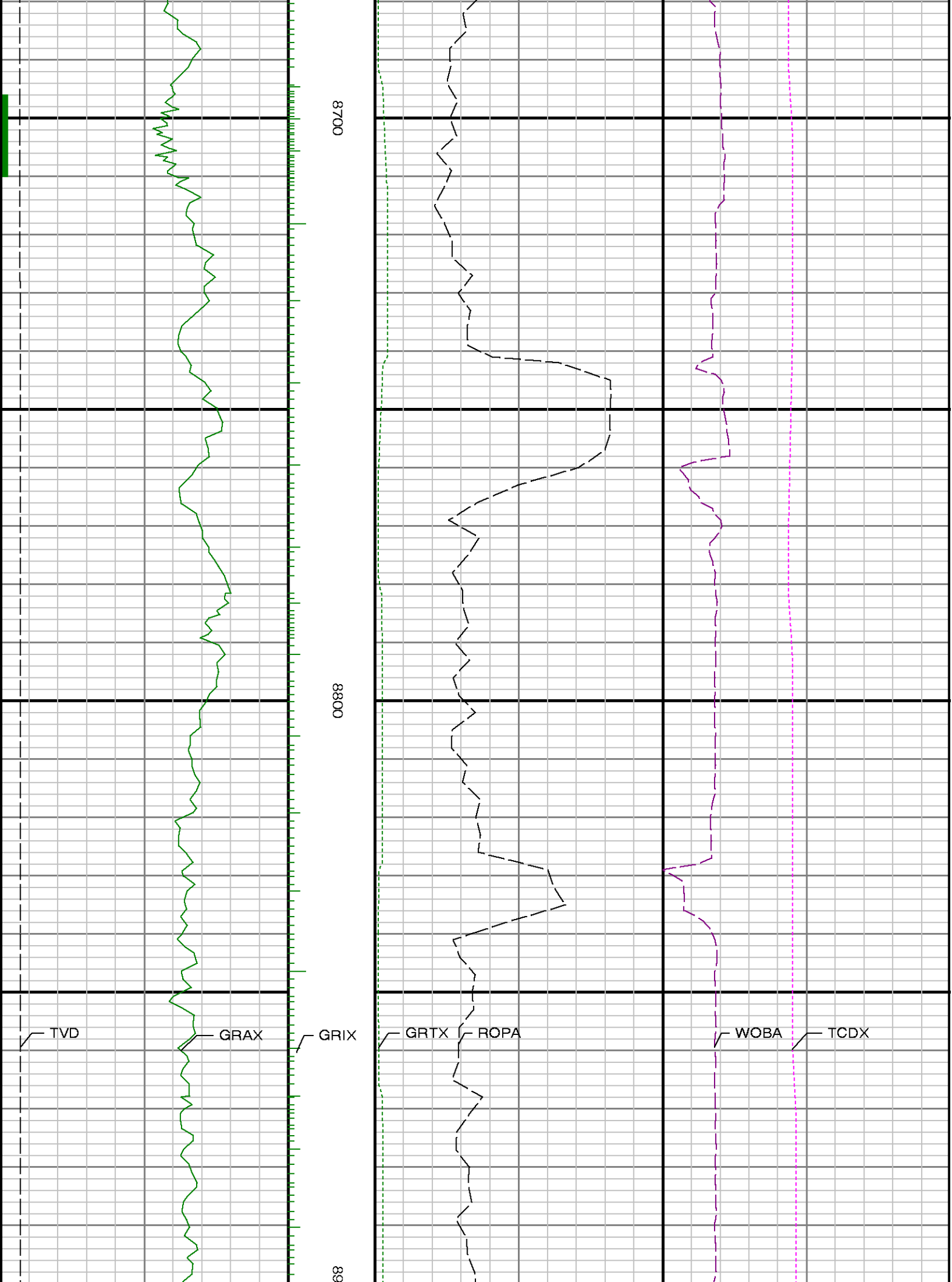
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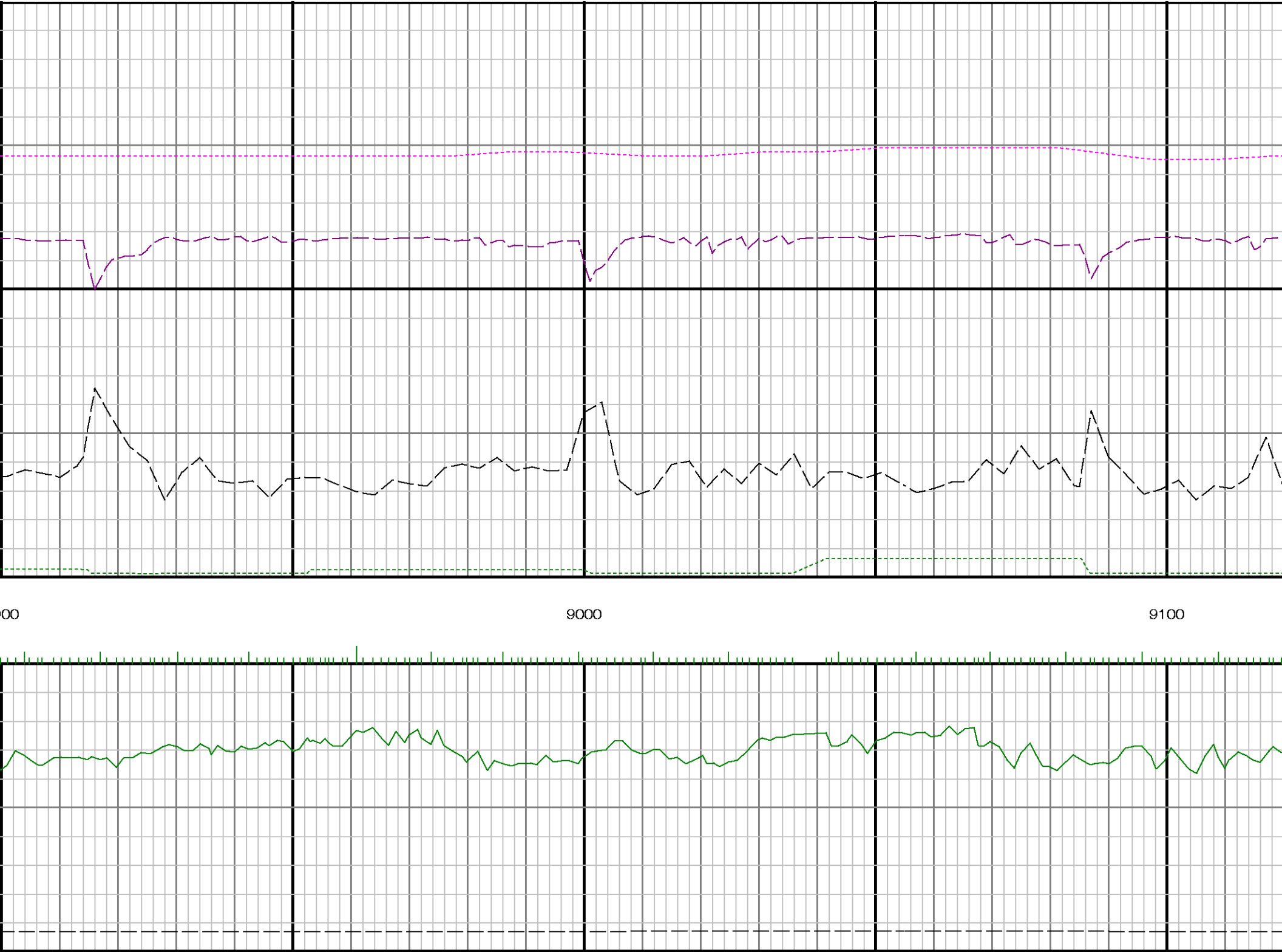
GRAX
GRIX
GRTX
ROPA
WOBA
TCDX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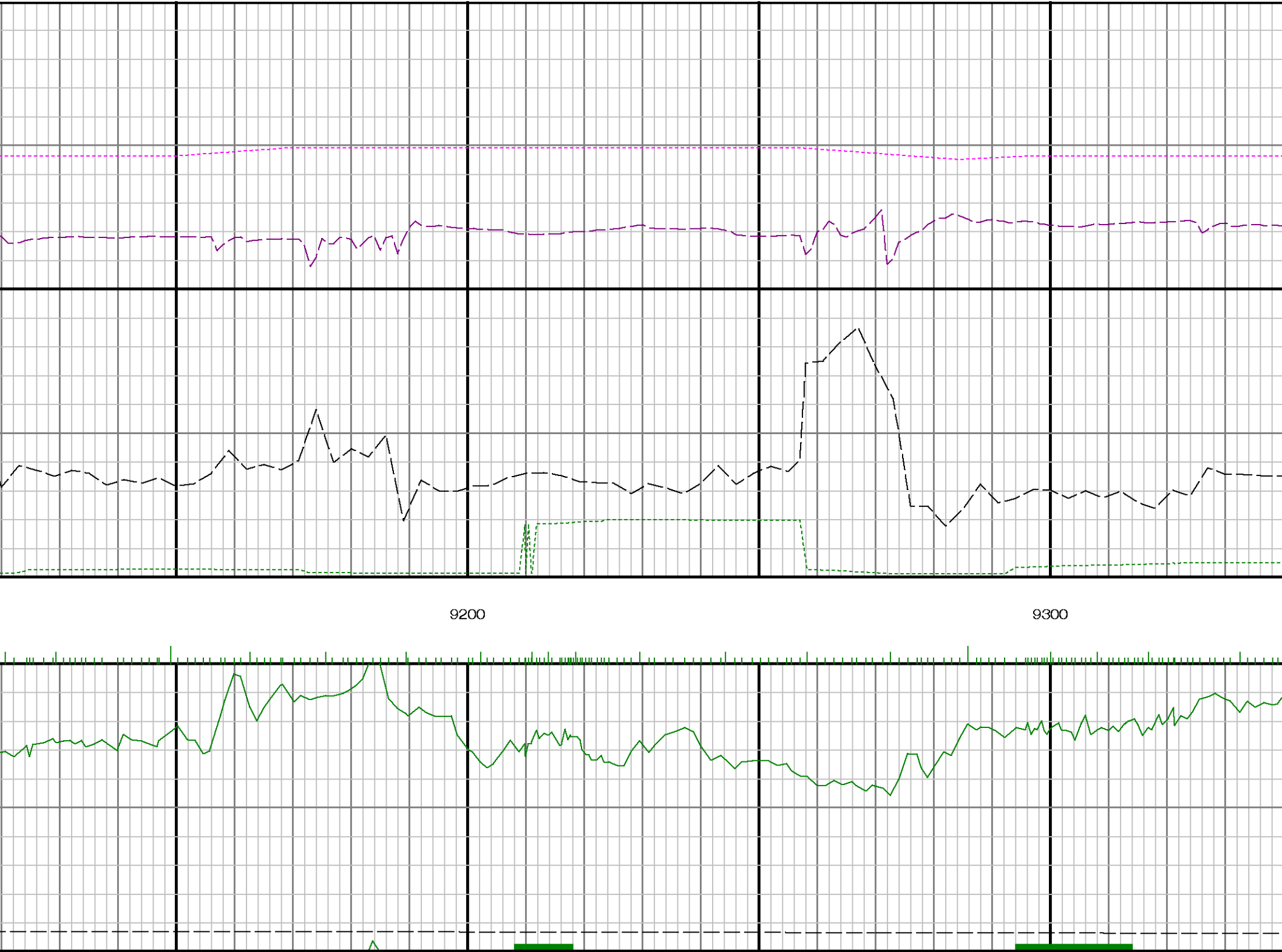
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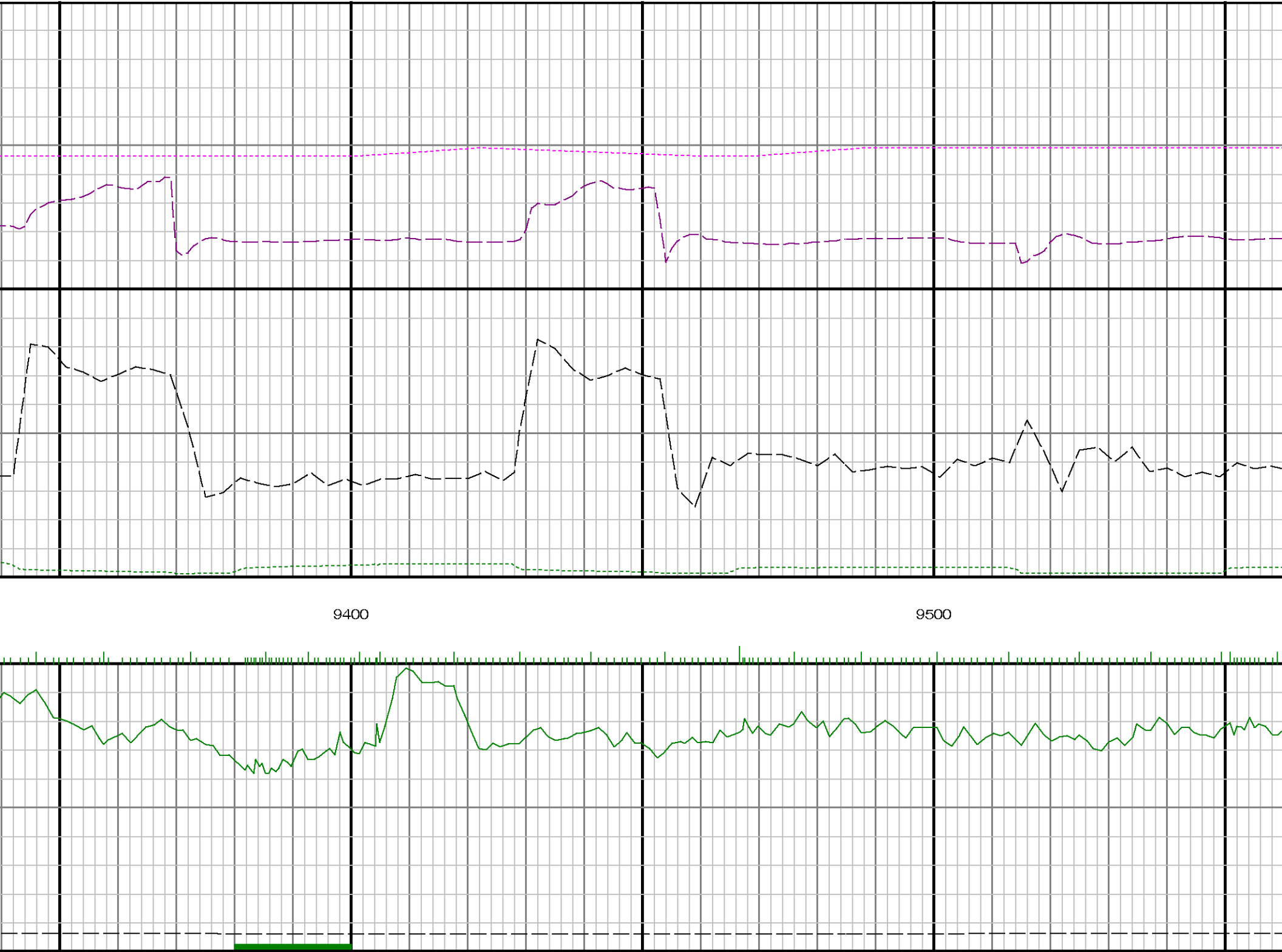
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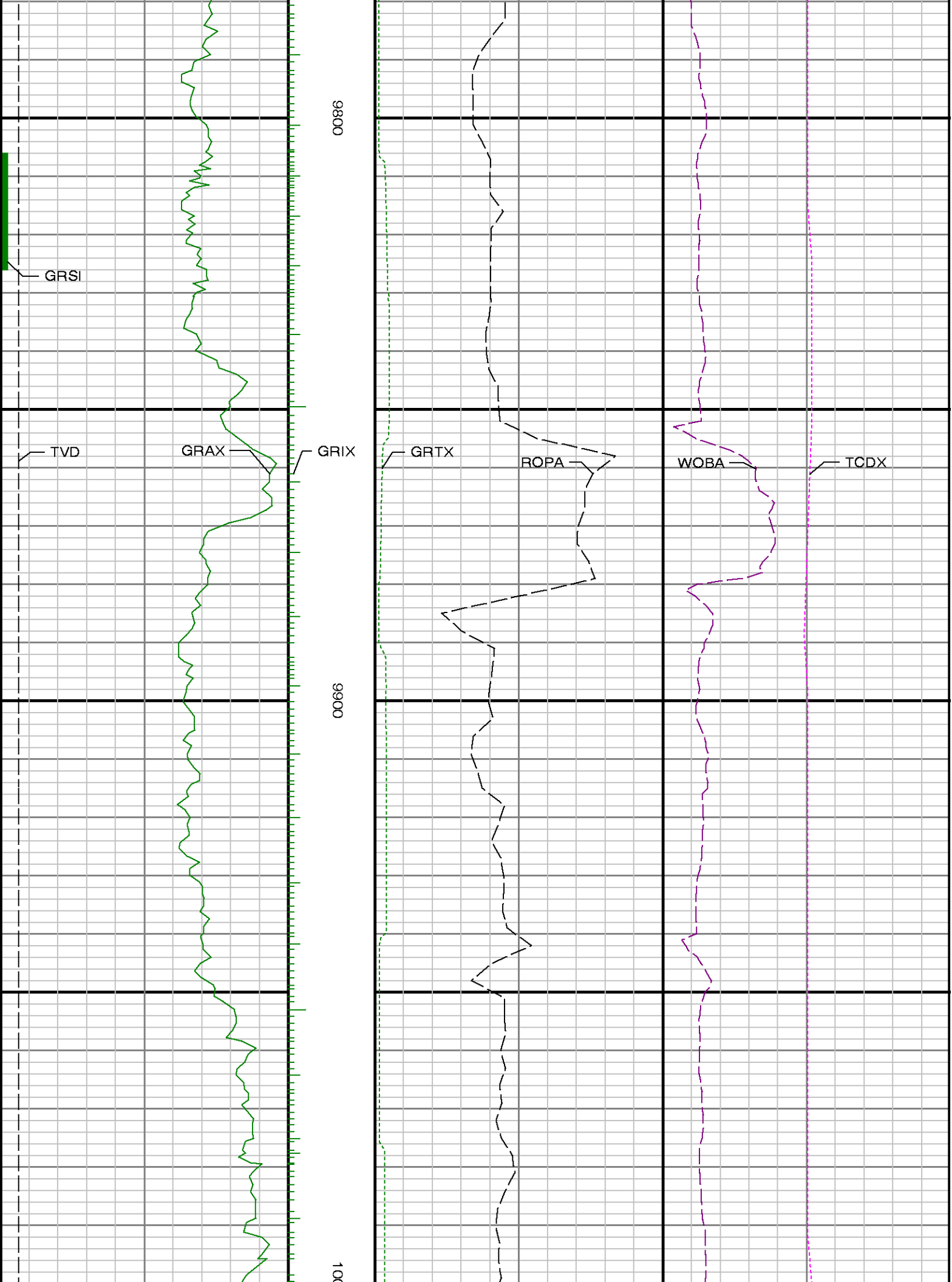
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GRTX
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WOBA
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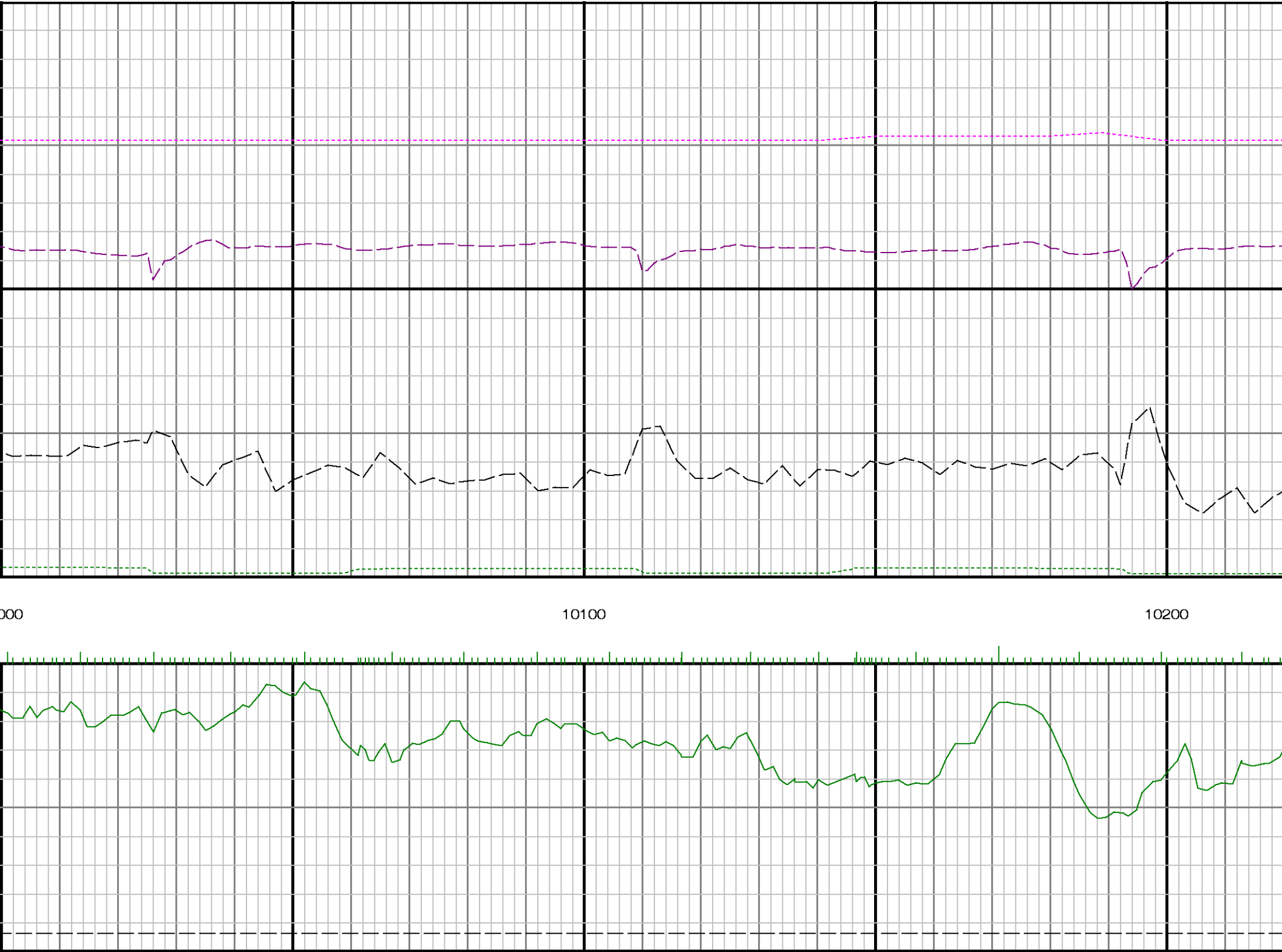
10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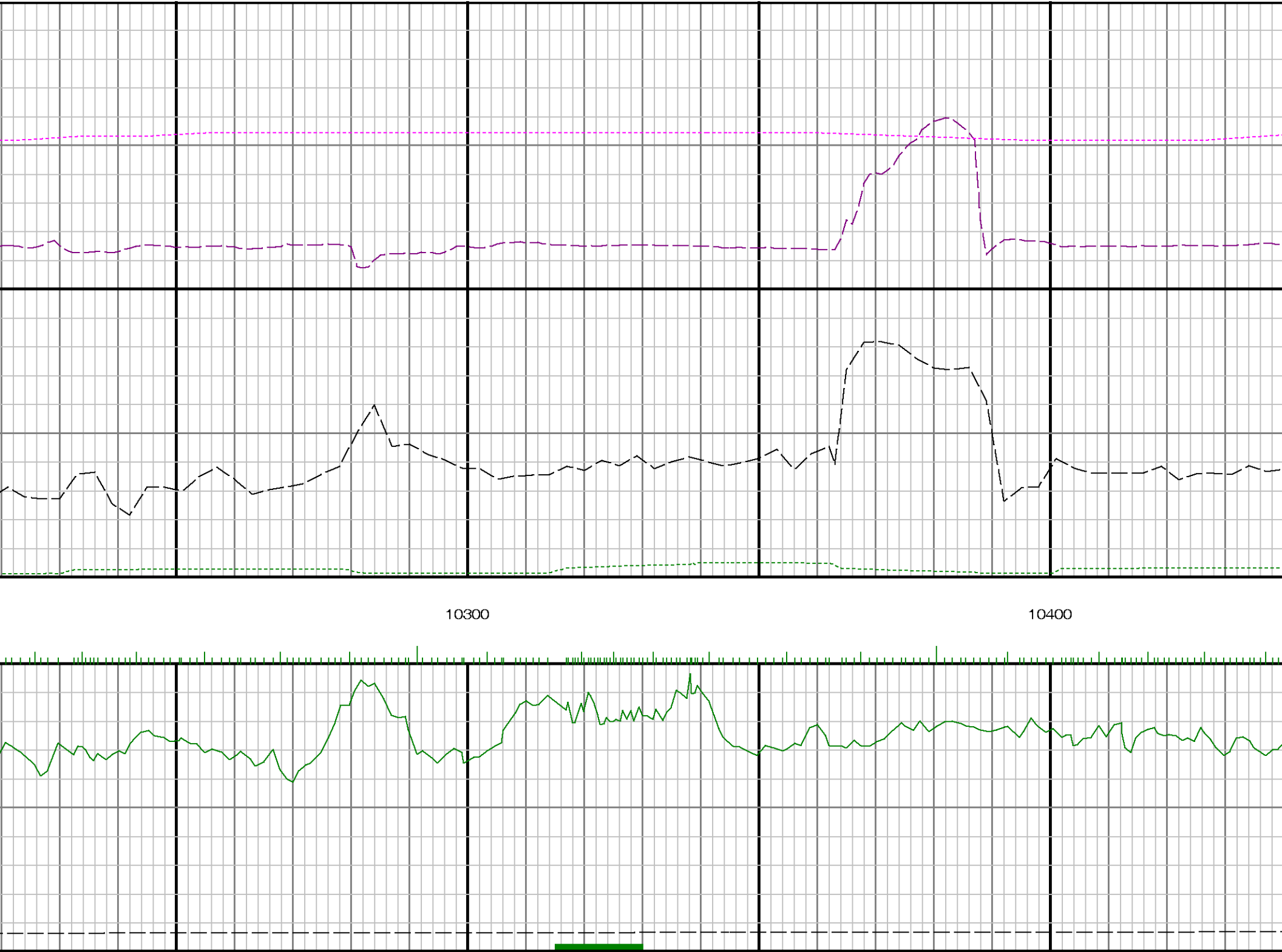
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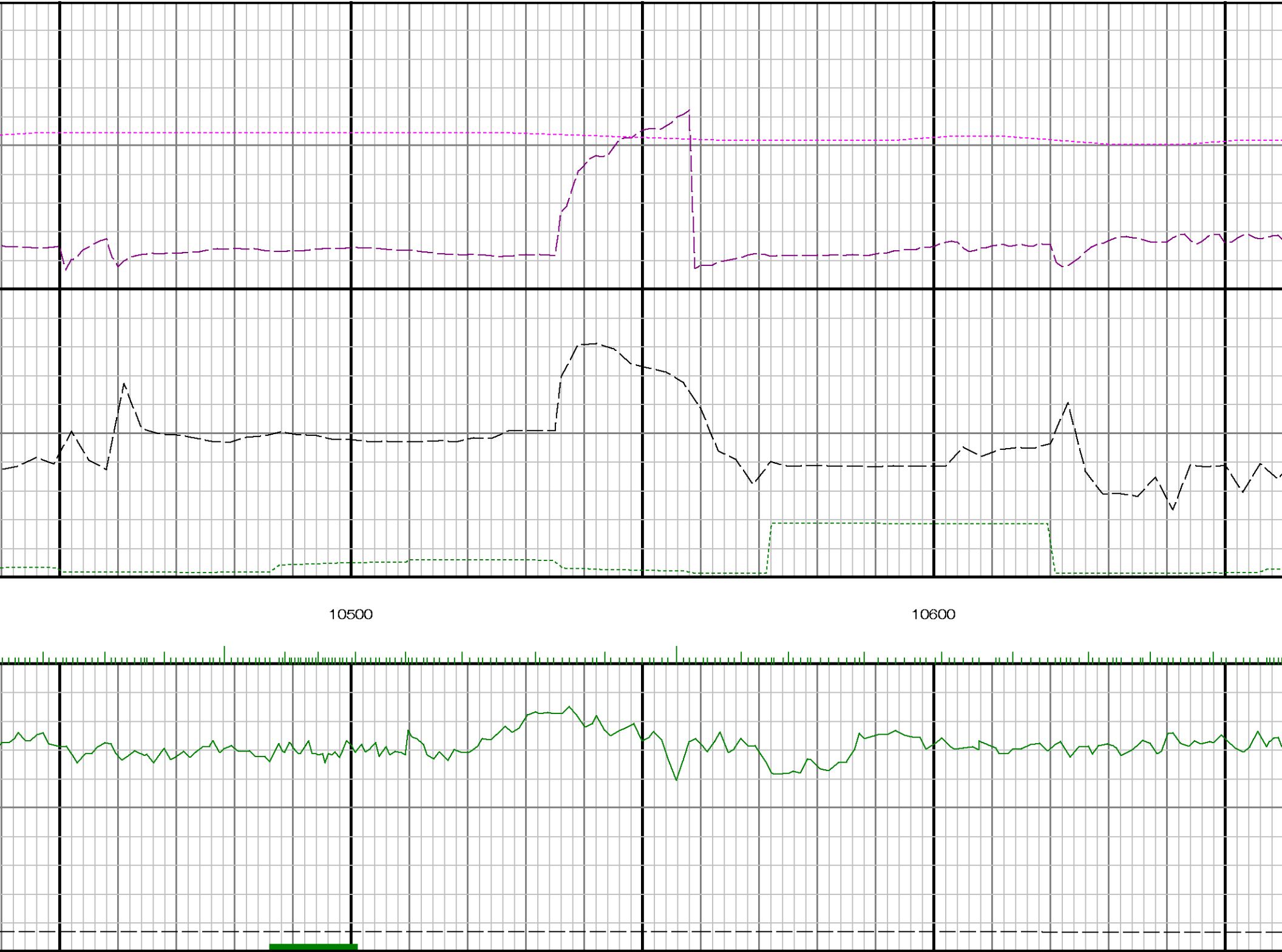
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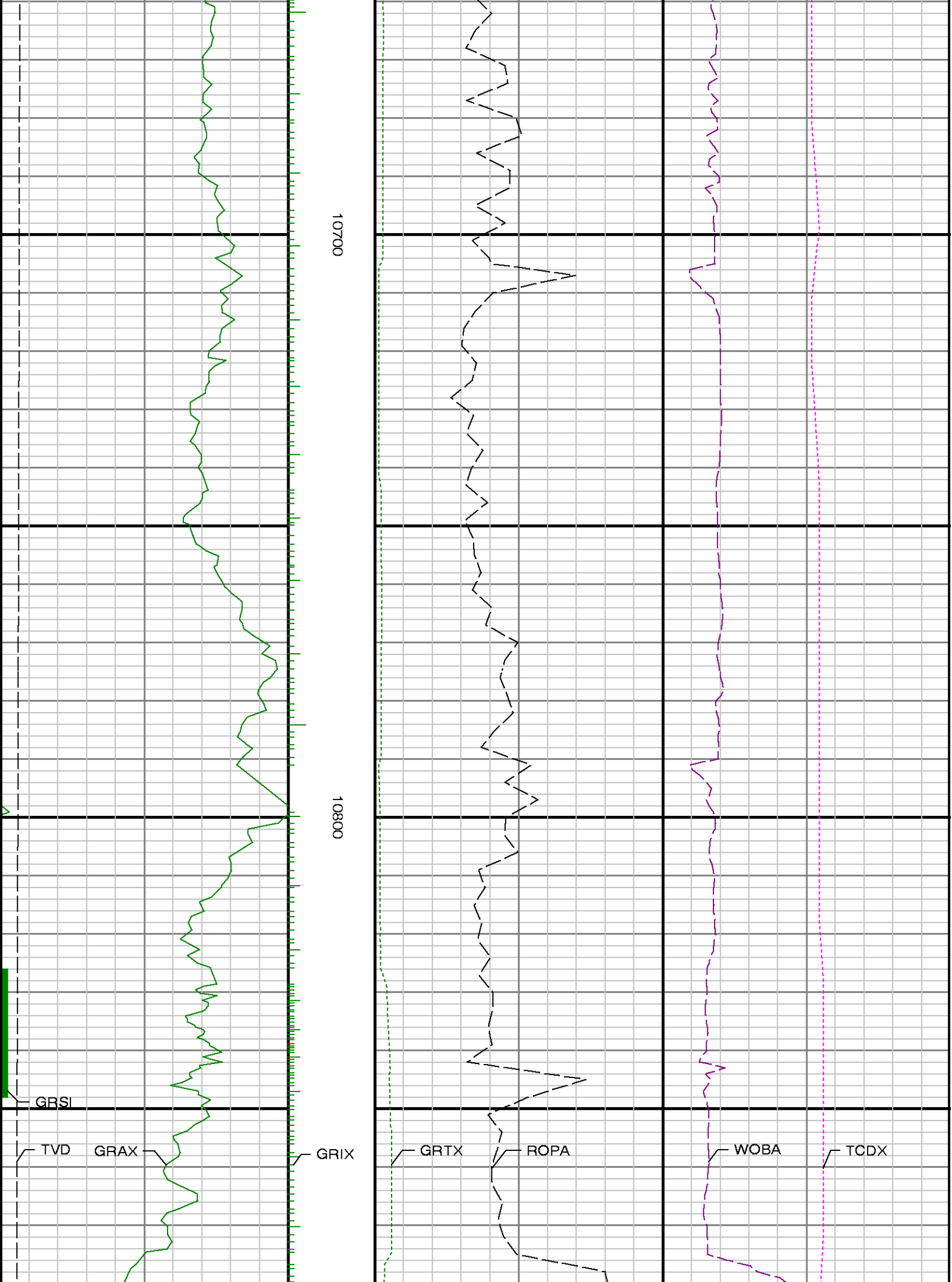
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GRSI
TVD
GRAX
GRIX
GRTX
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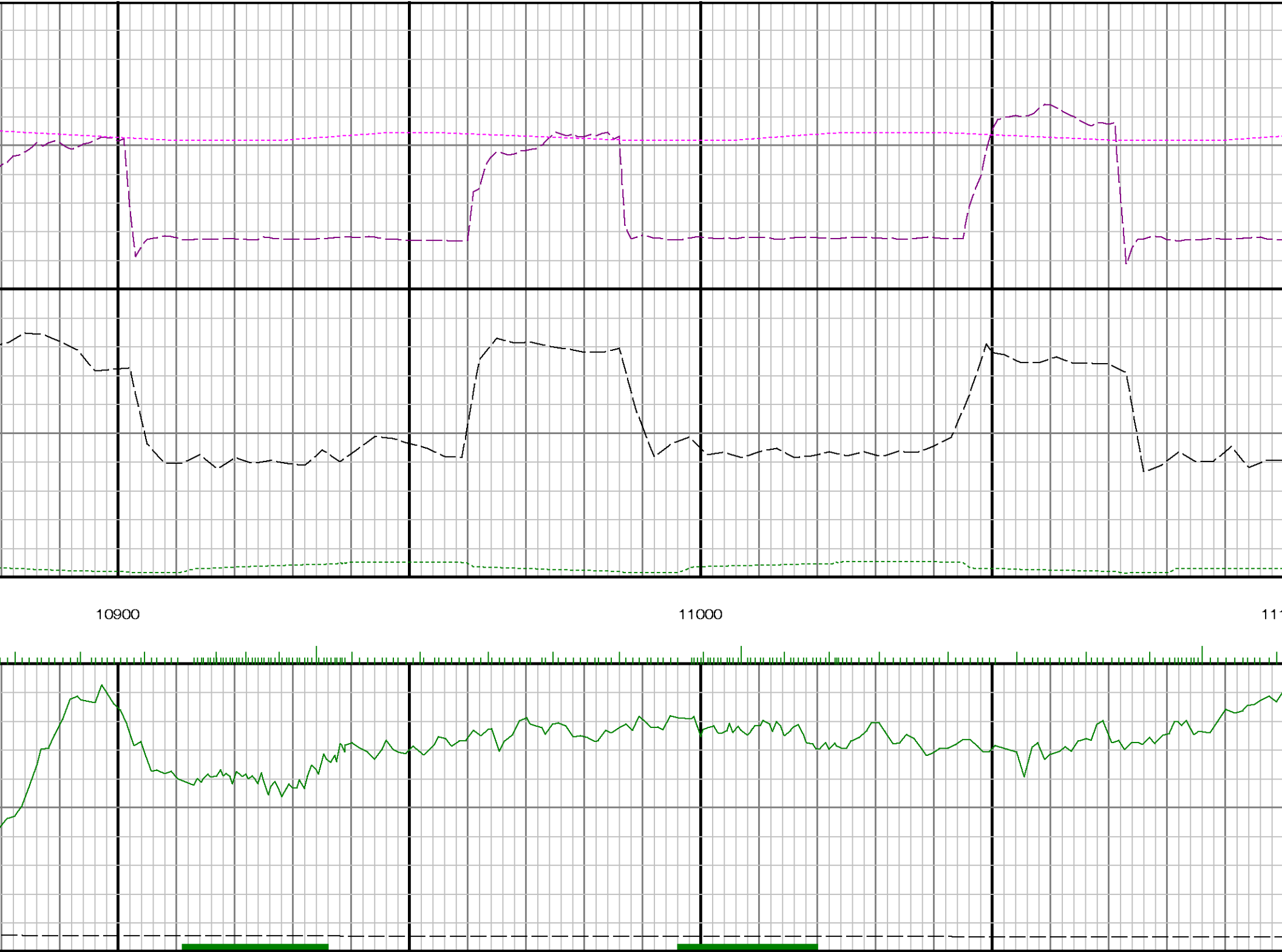
WOBA
TCDX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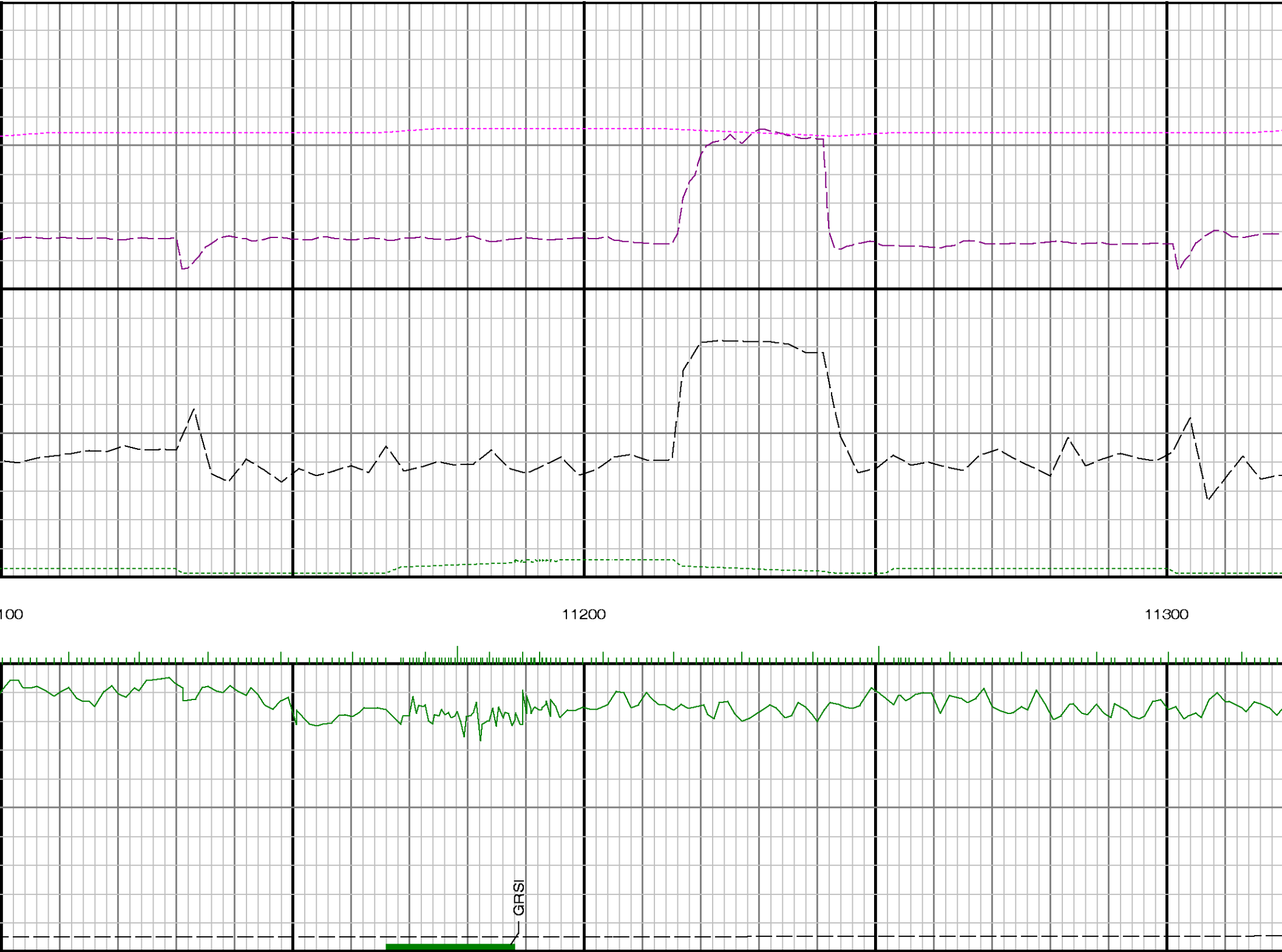
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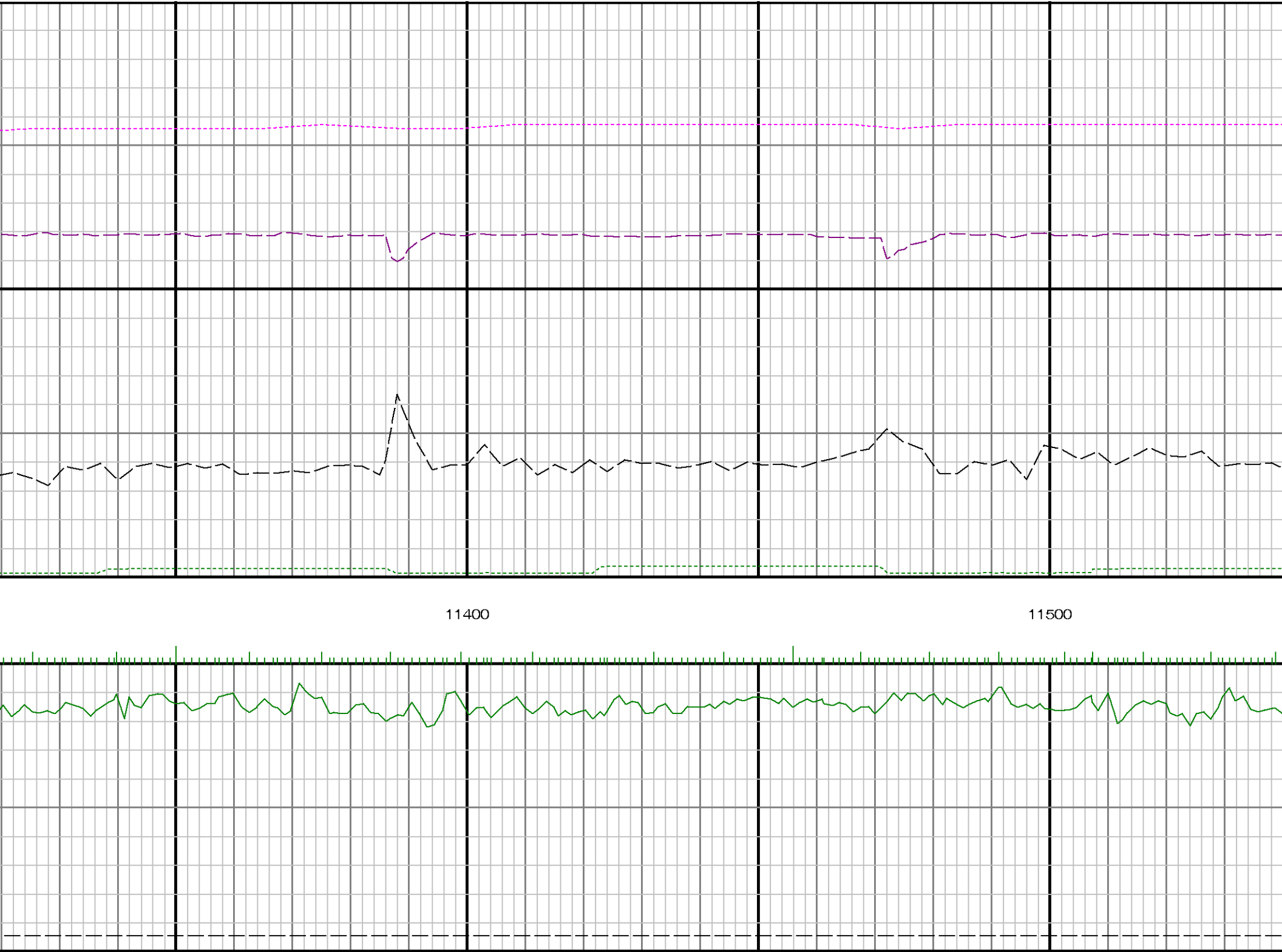
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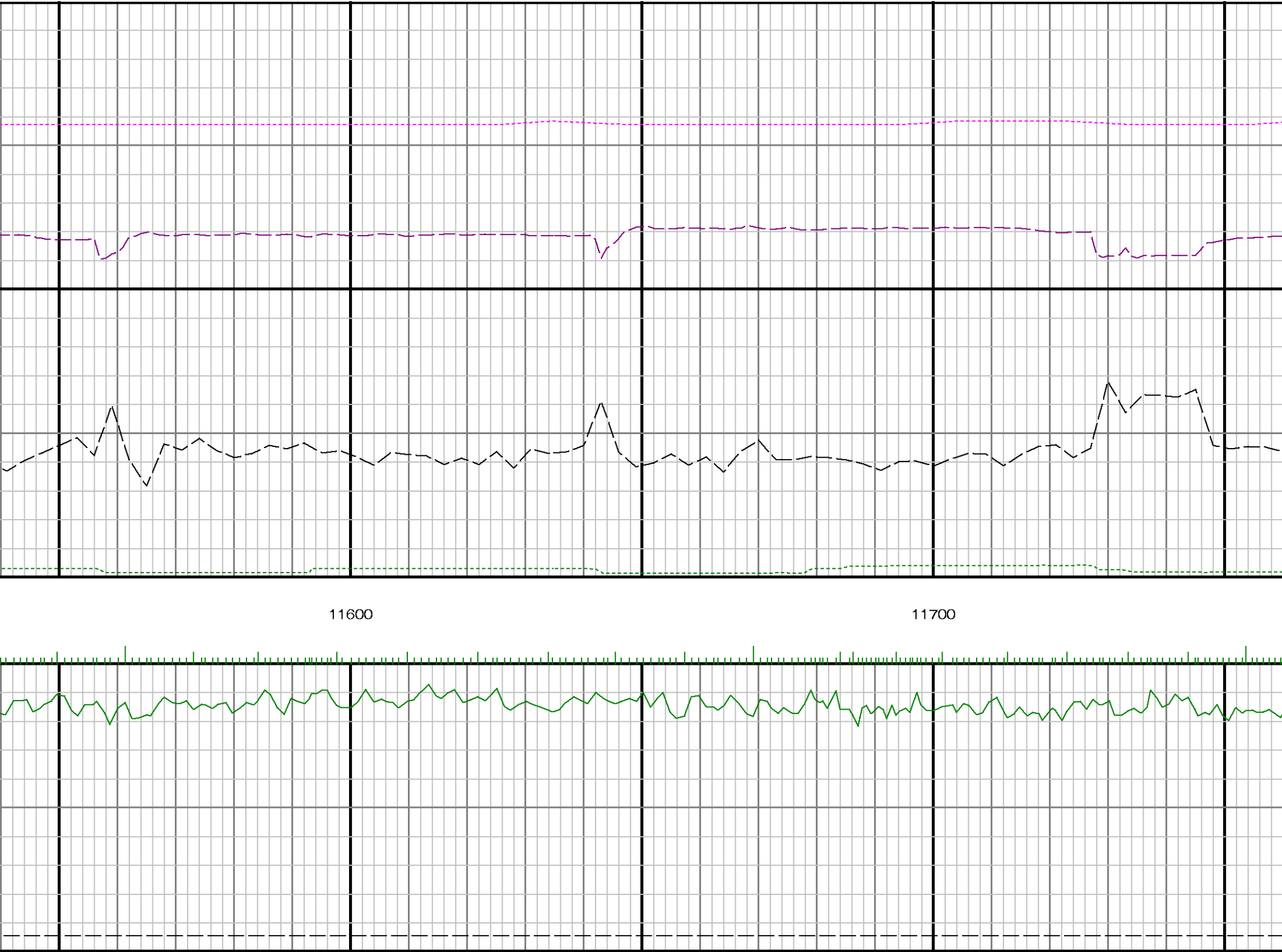
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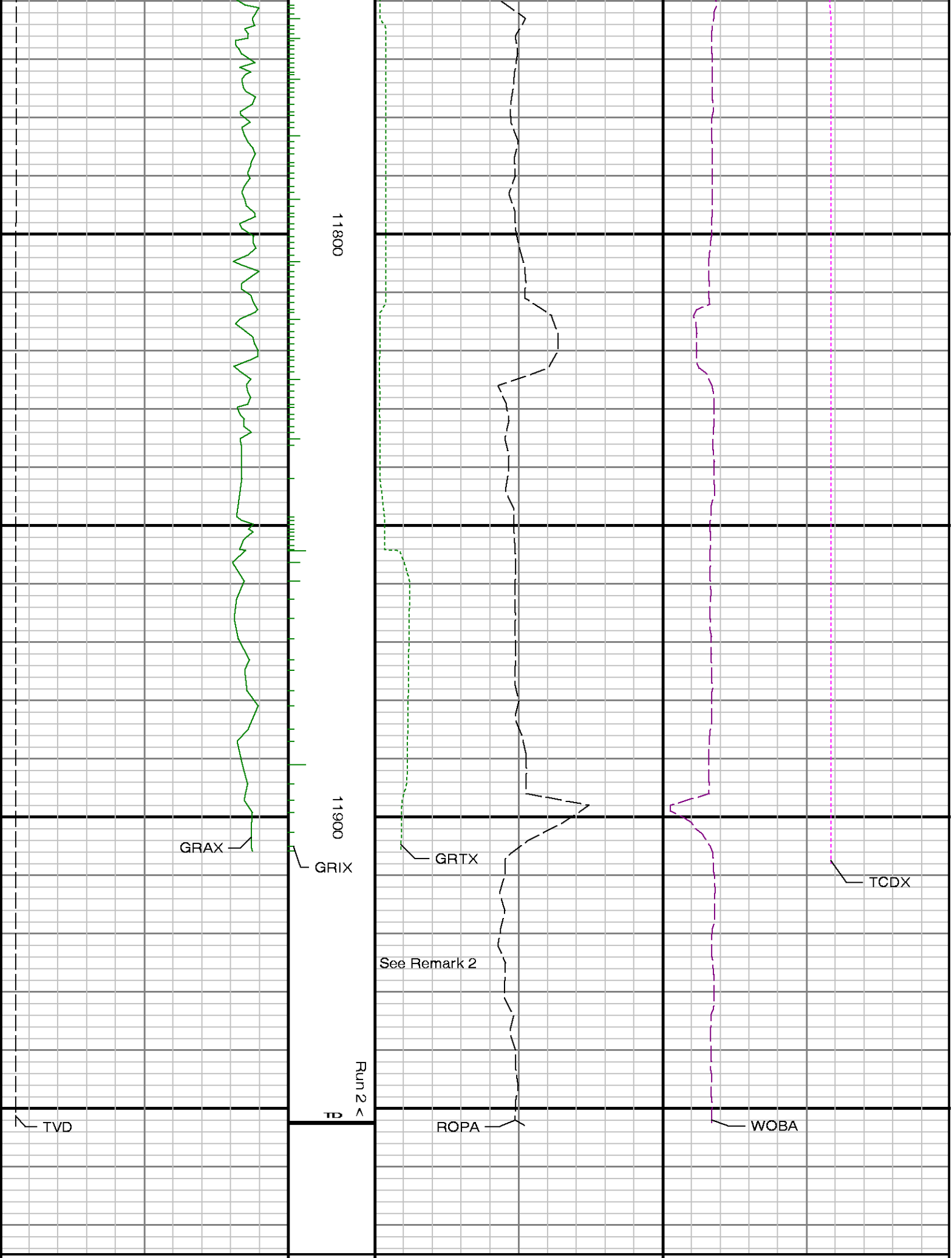
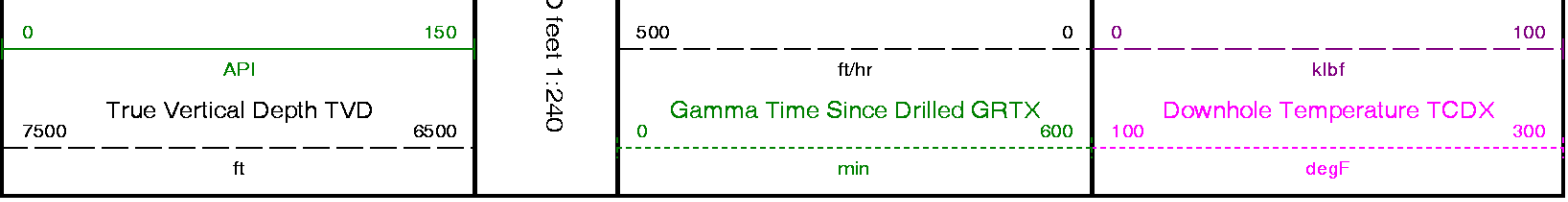

11800
11900
GRAX
GRIX
GRTX
TCDX
See Remark 2
Run 2
TD
TVD
ROPA
WOBA
Gamma Ray Apparent 0.5 ft Avg GRAX
MD
Rate of Penetration 3.0 ft Avg ROPA
Surface Weight On Bit 1.0 ft Avg WOBA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API
True Vertical Depth TVD
7500
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ft
MD feet 1:240
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Gamma Time Since Drilled GRTX
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min
0
100
klbf
Downhole Temperature TCDX
100
300
degF