LWD MEMORY COMPOSITE LOG

Gamma Ray

Baker Hughes

Scale:	1:1200 Measured Depth
Depth Reference:	Driller's Depth
Status:	Final Print
API No:	05-123-51619
Job ID:	111143569

Company: Bayswater E&P
Well: Blehm 7
Field: Weld County (NAD83/TRUE NORTH)
County: Weld **Country:** United States
State: Colorado

Surface Location:
Latitude: 40° 34' 27.364" N
Longitude: 104° 49' 33.160" W

Other Services:
Directional

Permanent Datum (P.D.):	Mean Sea Level	Elevation:	0.00 ft	Elev. KB:	N/A
Log Measured From:	Rig Floor	Above P.D.:	5099.00 ft	Elev. DF:	5099.00 ft
				Elev. GL:	5076.00 ft

Dates		Interval				Magnetic Field Reference	
From:	2022-01-19	Drilled (ft)		Logged (ft)		Azi Reference North: True	Dip Angle: (deg) 67.04
To:	2022-01-24	Top:	95.00	Top:	95.00	Total Magnetic Field Strength: (nT)	52361
Spud:	N/A	Bottom:	17885.00	Bottom:	17872.00	Mag to Reference North Correction: (deg)	7.44

Borehole Record

Hole Size (in)	From (ft)	To (ft)
13.500	23.00	1600.00
8.500	1600.00	17880.00

Casing Record

Size (in)	Weight (lb/ft)	From (ft)	To (ft)
9.625	N/A	23.00	1550.00

Mud Record

Type	From (ft)	To (ft)
Oil Based Mud	63.00	17885.00

Deviation Record

Hole Size (in)	Interval (ft)	Inc | Az (Start)	Inc | Az (End)
13.500	1498.00	0.73 | 85.20	4.99 | 260.18
8.500	16325.00	4.99 | 260.18	90.18 | 270.64

Acquisition System	Software Version
Cadence	RT 6.1
Plot Studio	6.1.9289.2

Other

Rig: Ensign 153
Contractor: Ensign Drilling
District: RMA Unit: N/A

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Log Run Summary

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 Logging	Date / Time End Logging	Circ. Hours (h)
1	1	13.500	PDC	6.00	Steerable	95.00	1561.00	95.00	1561.00	2021-12-11 10:00	2021-12-11 18:34	8.64
2	2	8.500	PDC	4.00	AutoTrak Curve	1600.00	13067.00	1600.00	13080.00	2022-01-19 21:58	2022-01-21 22:02	41.62
3	2 RR	8.500	PDC	4.00	AutoTrak Curve	13067.00	17872.00	13080.00	17885.00	2022-01-22 15:58	2022-01-23 16:43	25.17

Crew

Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite	Name	Arrive Wellsite	Depart Wellsite
Joe Urbank	2021-12-10	2021-12-12						

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+ (%)
2022-01-19 14:00	2	1561.00	Oil Based Mud	9.8	24	N/A	N/A	80/20	Flow Line	33000	0.00
2022-01-20 14:00	2	7046.00	Oil Based Mud	9.7	19	N/A	N/A	82.1/17.9	Flow Line	29000	0.00
2022-01-21 14:00	2	11559.00	Oil Based Mud	9.8	21	N/A	N/A	80.2/19.8	Flow Line	34000	0.00
2022-01-22 09:51	3	13080.00	Oil Based Mud	9.8	21	N/A	N/A	80.2/19.8	Flow Line	32000	0.00
2022-01-23 02:00	3	15093.00	Oil Based Mud	9.9	23	N/A	N/A	79.9/20.1	Flow Line	35000	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)

				(ft)	(ft)	(in)	(in)
1	NaviTrak	ZDHP899	VSS	0.00	36.21	8.125	3.250
1	NaviTrak	ZDHP899	Directional (mag)	16.07	52.28	8.125	3.250
2	AutoTrak Curve Steering Unit	15219852	Near Bit Inclination	5.93	6.73	7.000	4.330
2	AutoTrak Curve Steering Unit	15219852	Near Bit VSS	5.93	6.73	7.000	4.330
2	AutoTrak Curve MWD	14146737	Gamma (single)	2.83	12.90	7.000	3.250
2	AutoTrak Curve MWD	14146737	Directional (mag)	12.27	22.34	7.000	3.250
3	AutoTrak Curve Steering Unit	14986107	Near Bit Inclination	5.93	6.73	7.000	4.330
3	AutoTrak Curve Steering Unit	14986107	Near Bit VSS	5.93	6.73	7.000	4.330
3	AutoTrak Curve MWD	12577852	Gamma (single)	2.75	12.90	7.000	3.250
3	AutoTrak Curve MWD	12577852	Directional (mag)	12.27	22.42	7.000	3.250

Service and Tool Mnemonics

Mnemonic	Name	Description
NTK	NaviTrak	Probe Based Directional Module, NaviTrak Platform
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

1 Depth measurements were 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 and the unverified depths as supplied to Bake Hughes are being used to present logging data

2 Baker Hughes Company Run #1 utilized 6 ¾ inch Navi Trak services(Directional) behind an 13 ½ inch PDC bit and steerable assembly from 23 to 1560 feet MD (23 to 1560 feet TVD).

3 Baker Hughes Company Runs #2 and #3 utilized 6 ¾ inch Auto Trak services (Gamma Ray and Directional) behind an 8 ½ inch PDC bit and rotary steerable assembly from 1560 to 17885 feet MD (23 to 7217 feet TVD).

4 Gaps in realtime data are caused by drilling ahead during surveys and downlinks.

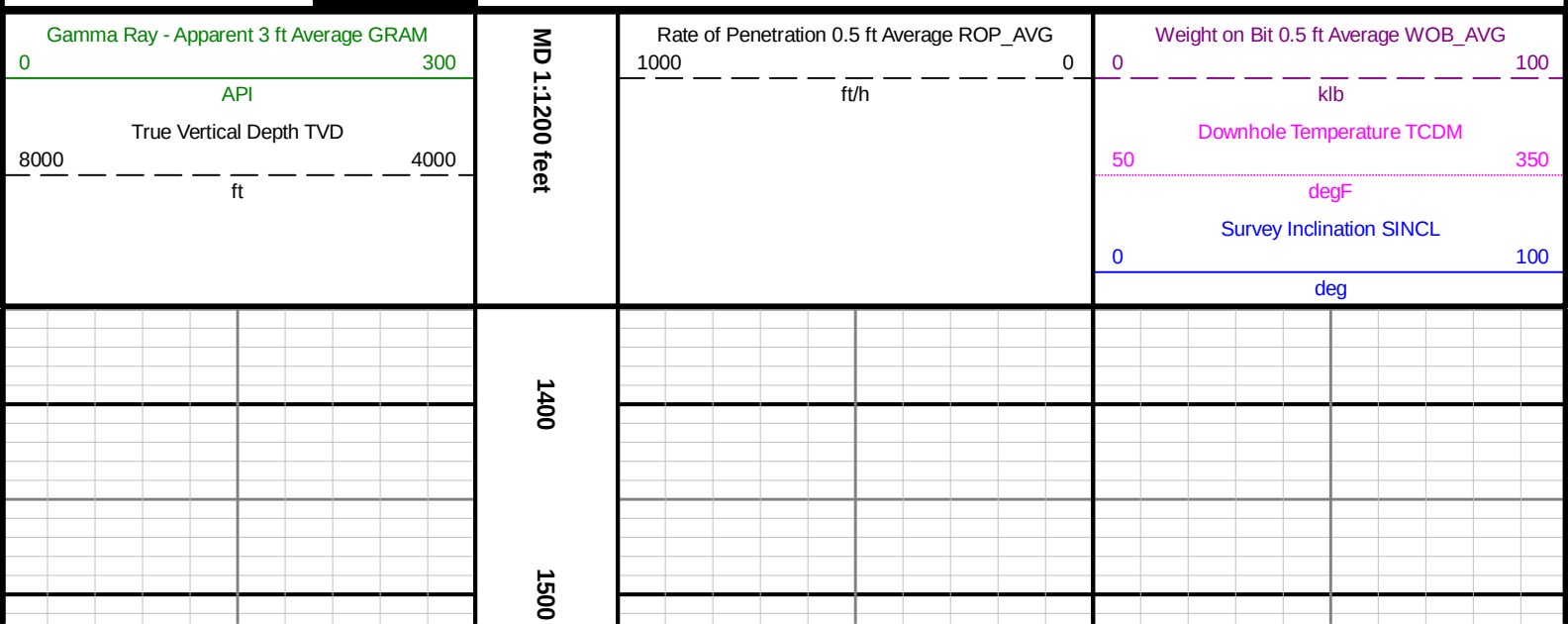
Remarks

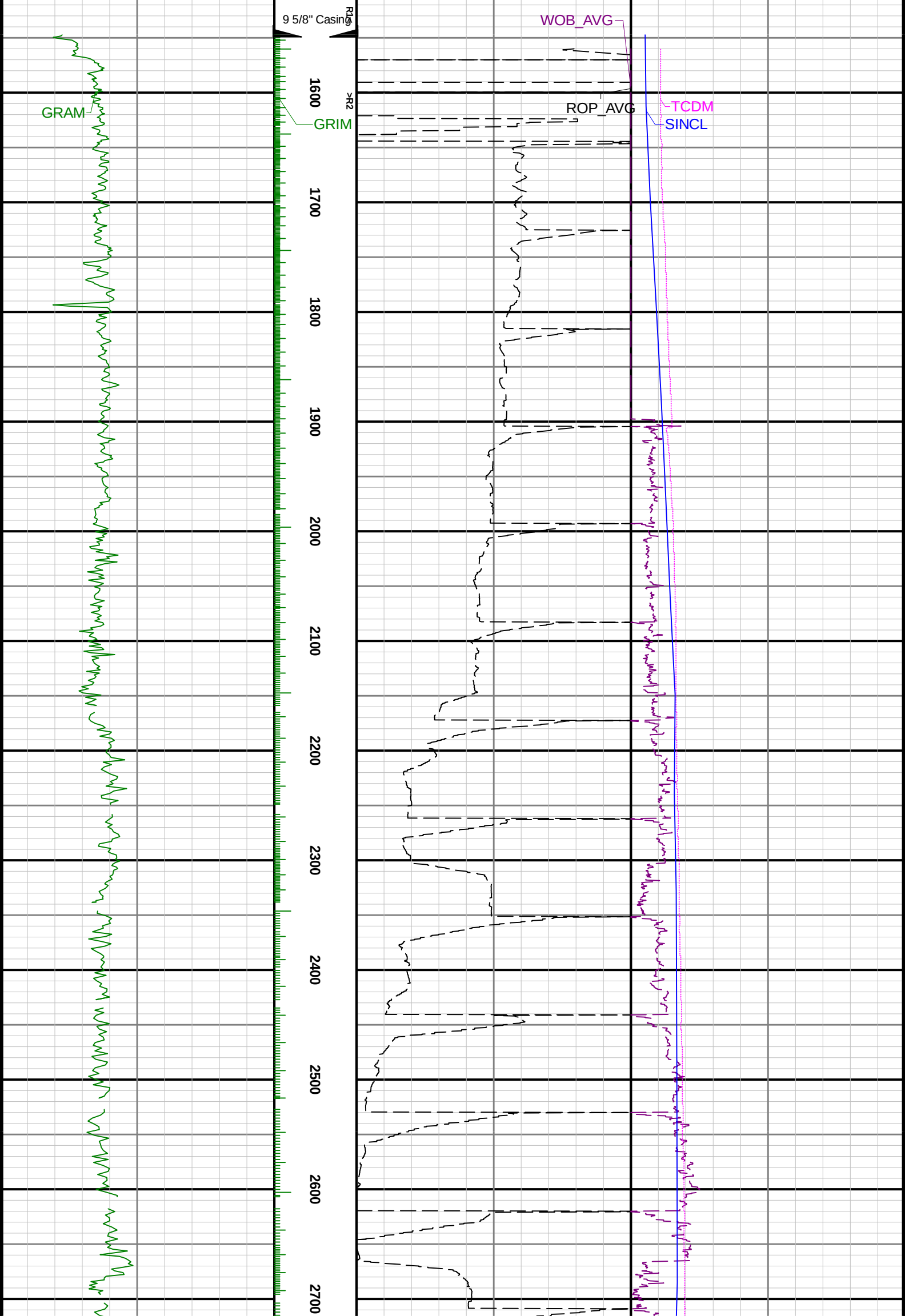
Number	Depth (ft)	Hole Section (in)	Run No.	Remark
1	13080.00	8.500	3	The interval from 13067 to 13080 feet MD (7363 to 7364 feet TVD) was logged up to 18 hours after being drilled due to a trip out of the hole for MWD tool failure.
2	17885.00	8.500	3	The interval from 17872 to 17885 feet MD was not logged due to survey sensor to bit offset at the end of the well.

Curve Mnemonics

Presented Curves	Description	Units
ROP_AVG	Rate of Penetration - Average	ft/h
TVD	True Vertical Depth	ft
WOB_AVG	Weight on Bit - Average	klb
GRAM	Gamma Ray - Apparent - Memory 3 ft Average	API
GRIM	Gamma Ray - Data Point Indicator - Memory	unitless
TCDM	Directional Real-Time Survey Temperature	degF
SINCL	Survey Inclination	deg

Company	Bayswater E&P				
Well	Blehm 7				
Interval	**Date From:**	2022-01-19 00:00	**Interval Drilled: (ft)**	95.00 -	17885.00
	Date To:	2022-01-24 00:00	**Interval Logged: (ft)**	95.00 -	17872.00
Created	2022-01-24 09:28:33				

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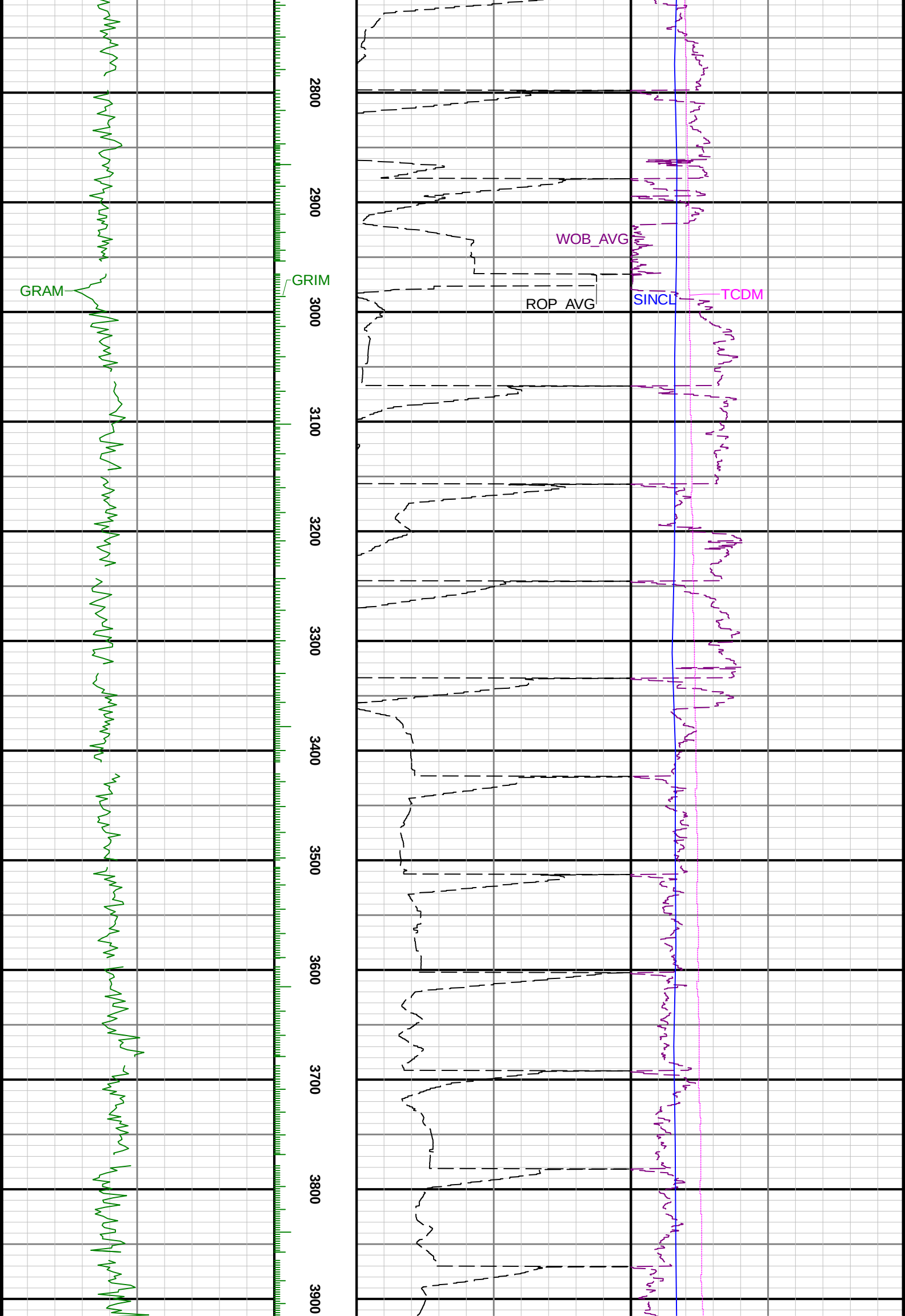
2400
2500
2600
2700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3500
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3800
3900
WOB_AVG
ROP_AVG
SINCL
TCDM

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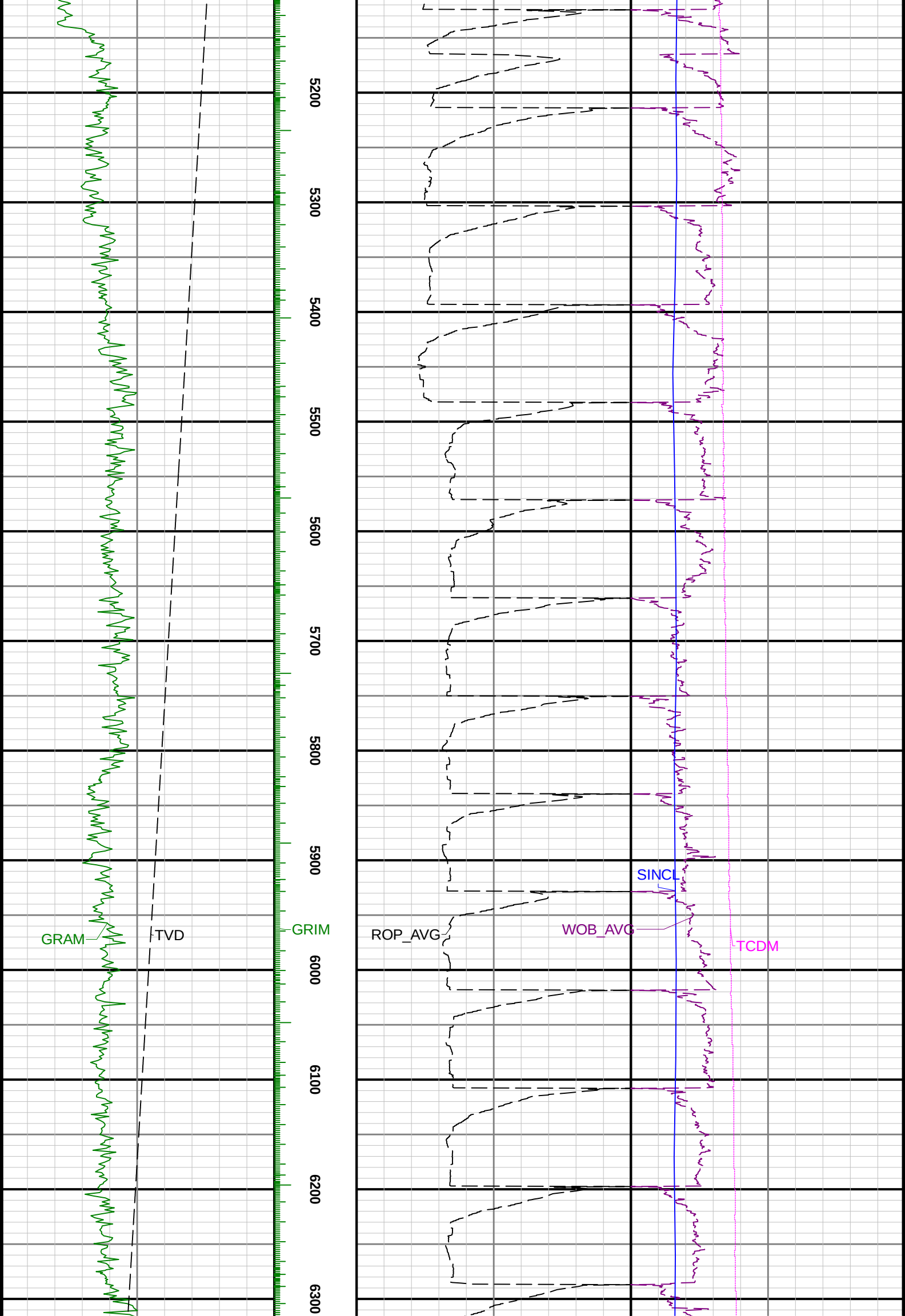
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5800
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6000
6100
6200
6300
GRAM
TVD
GRIM
ROP_AVG
SINCL
WOB_AVG
TCDM

6400
6500
6600
6700
6800
6900
7000
7100
7200
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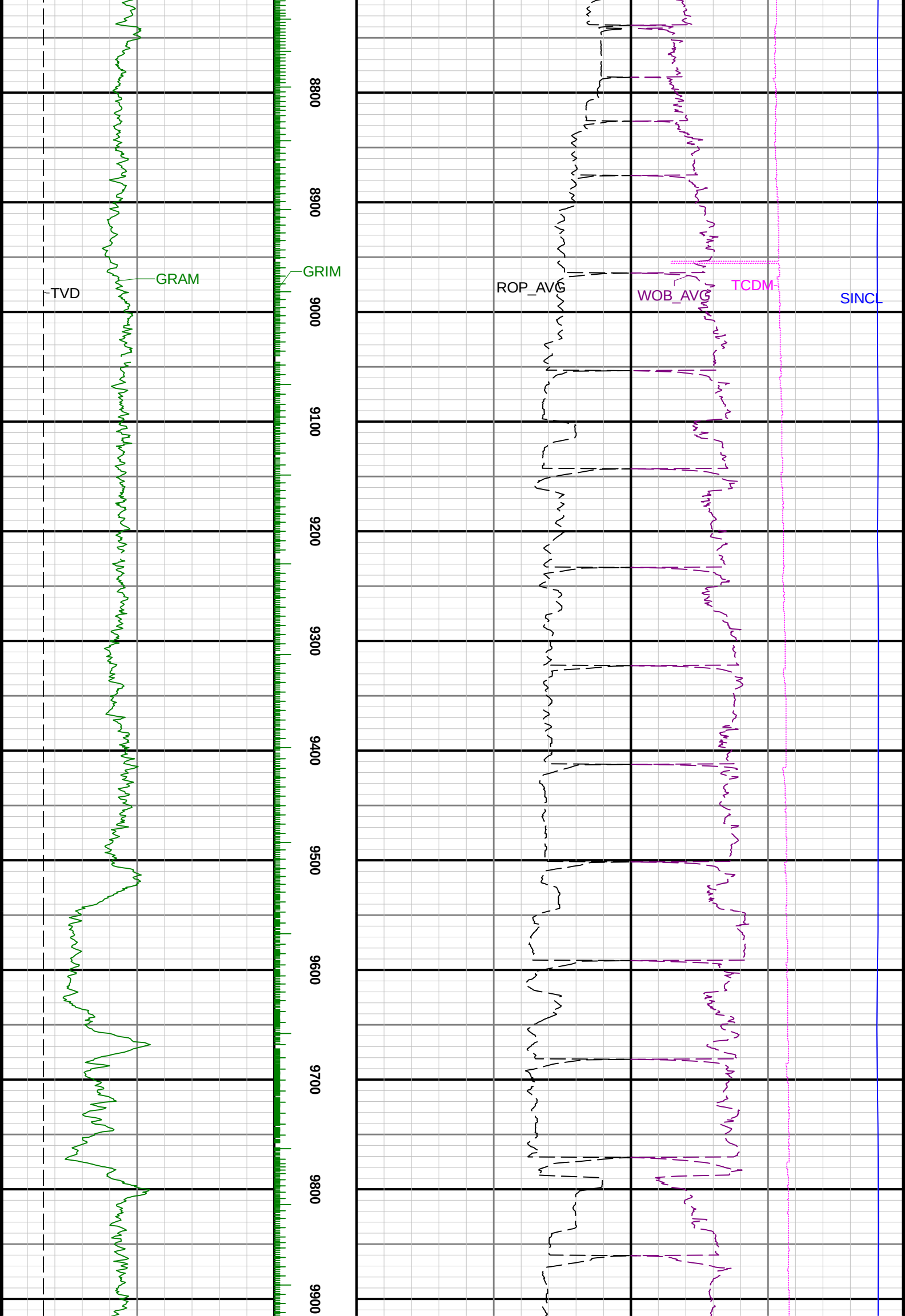
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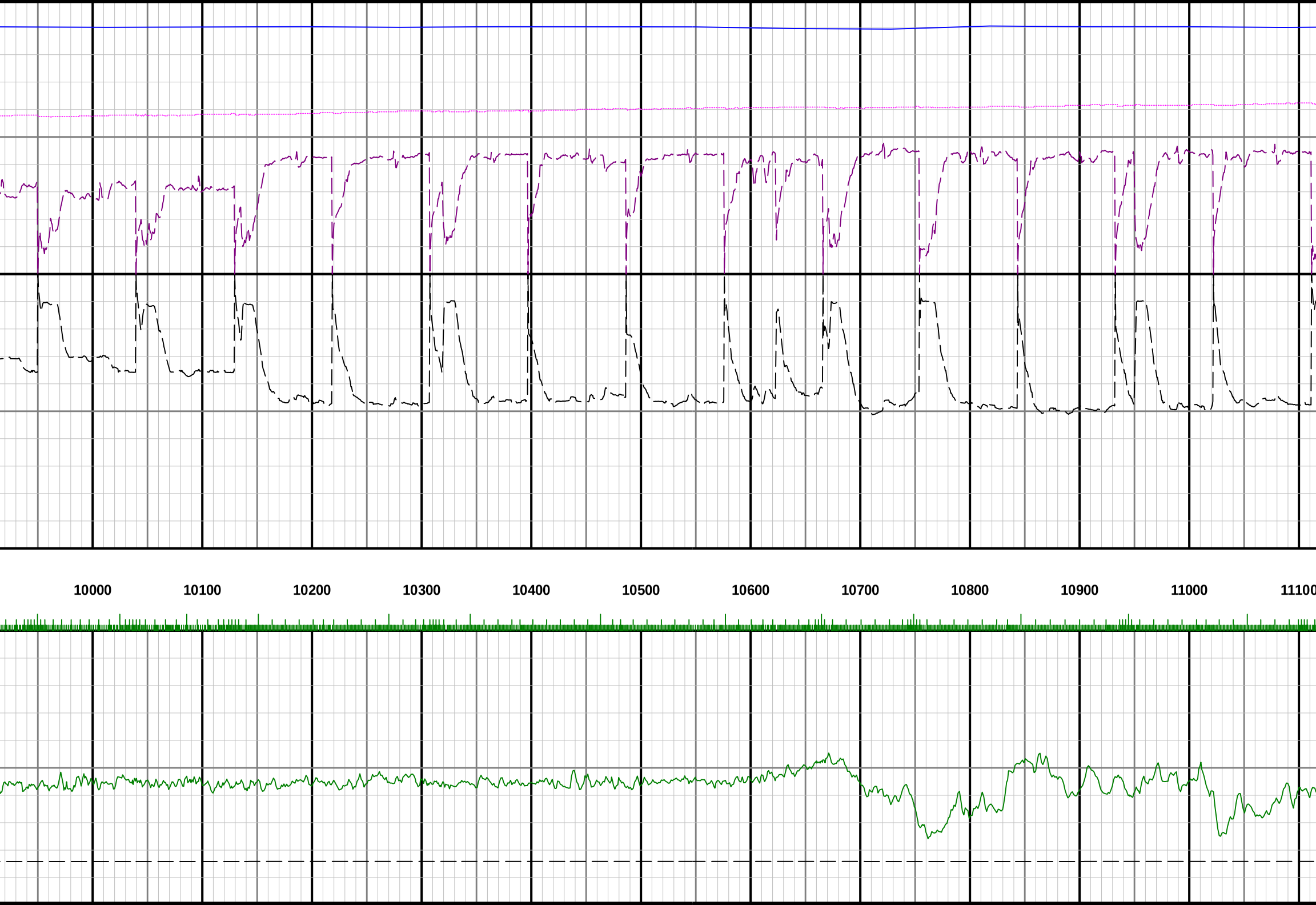
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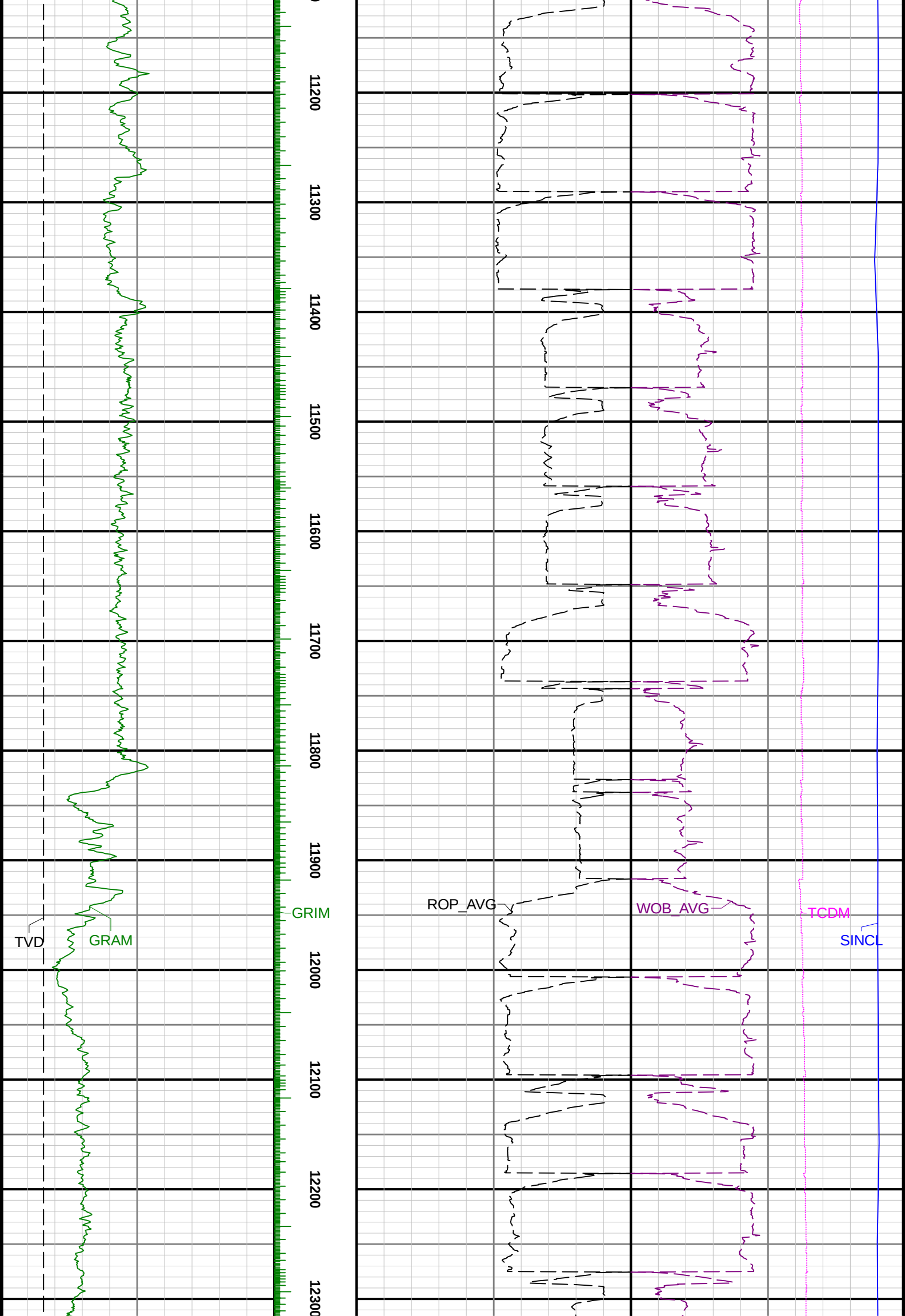
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GRAM
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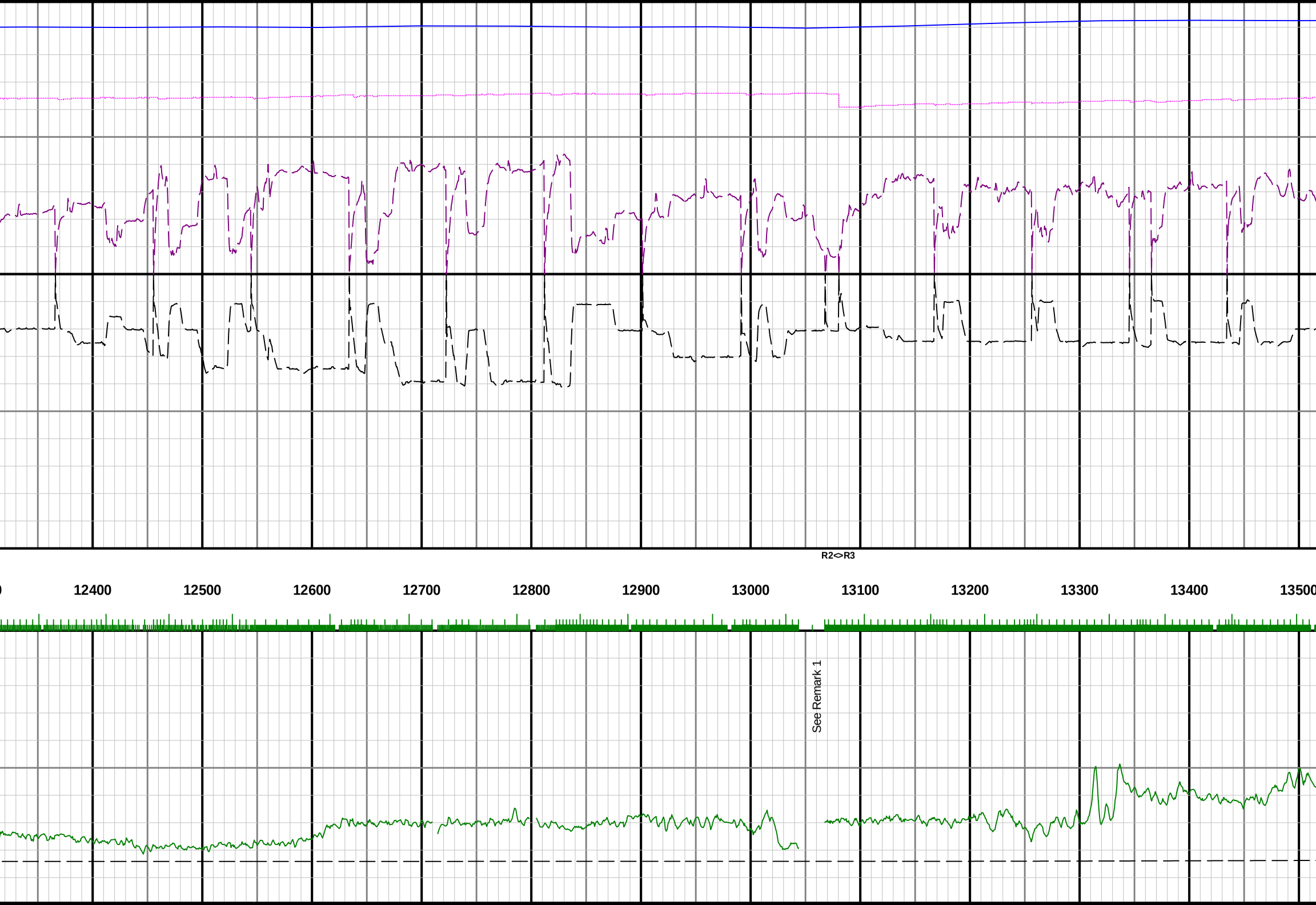
ROP_AVG
WOB_AVG
TCDM
SINCL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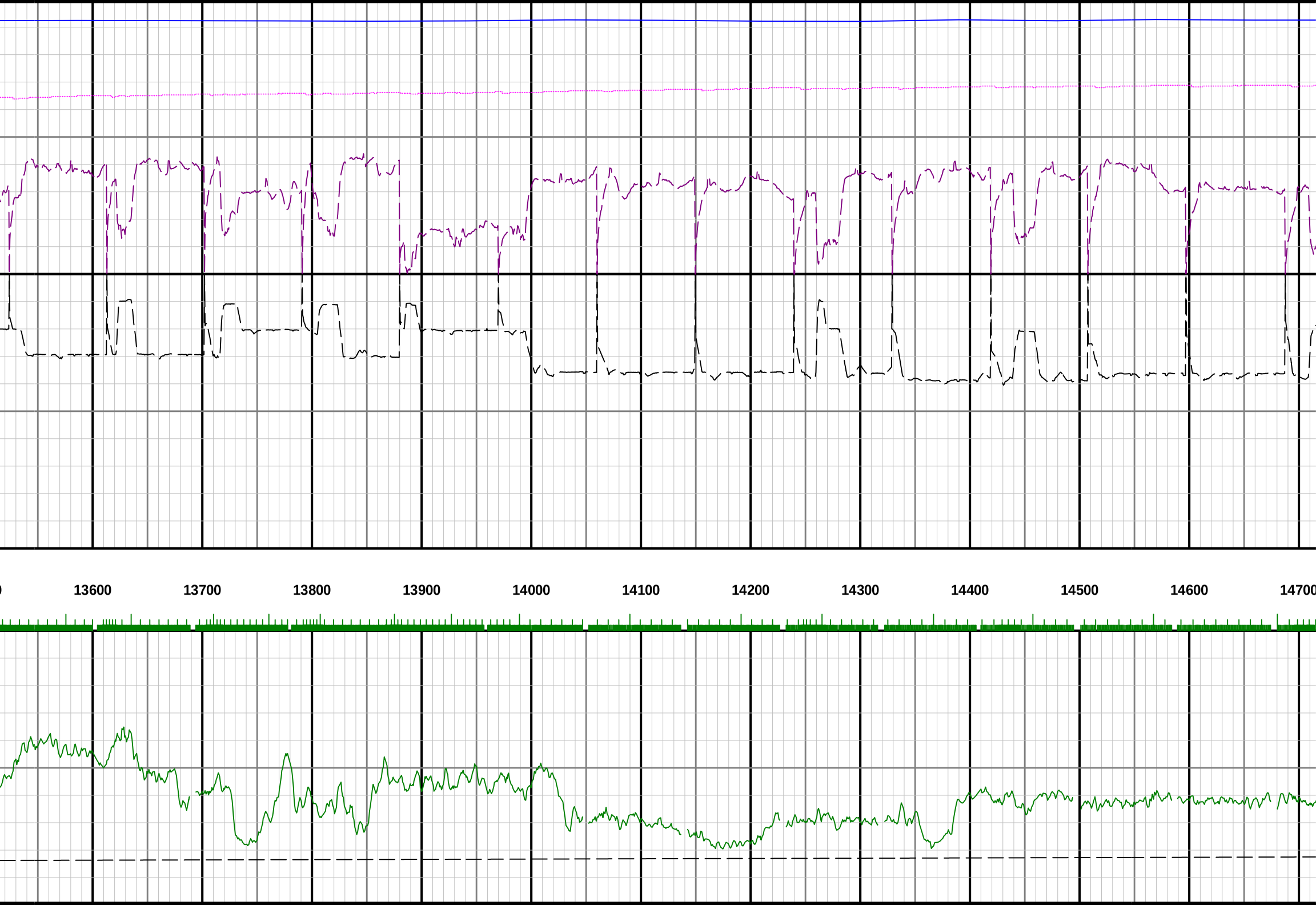
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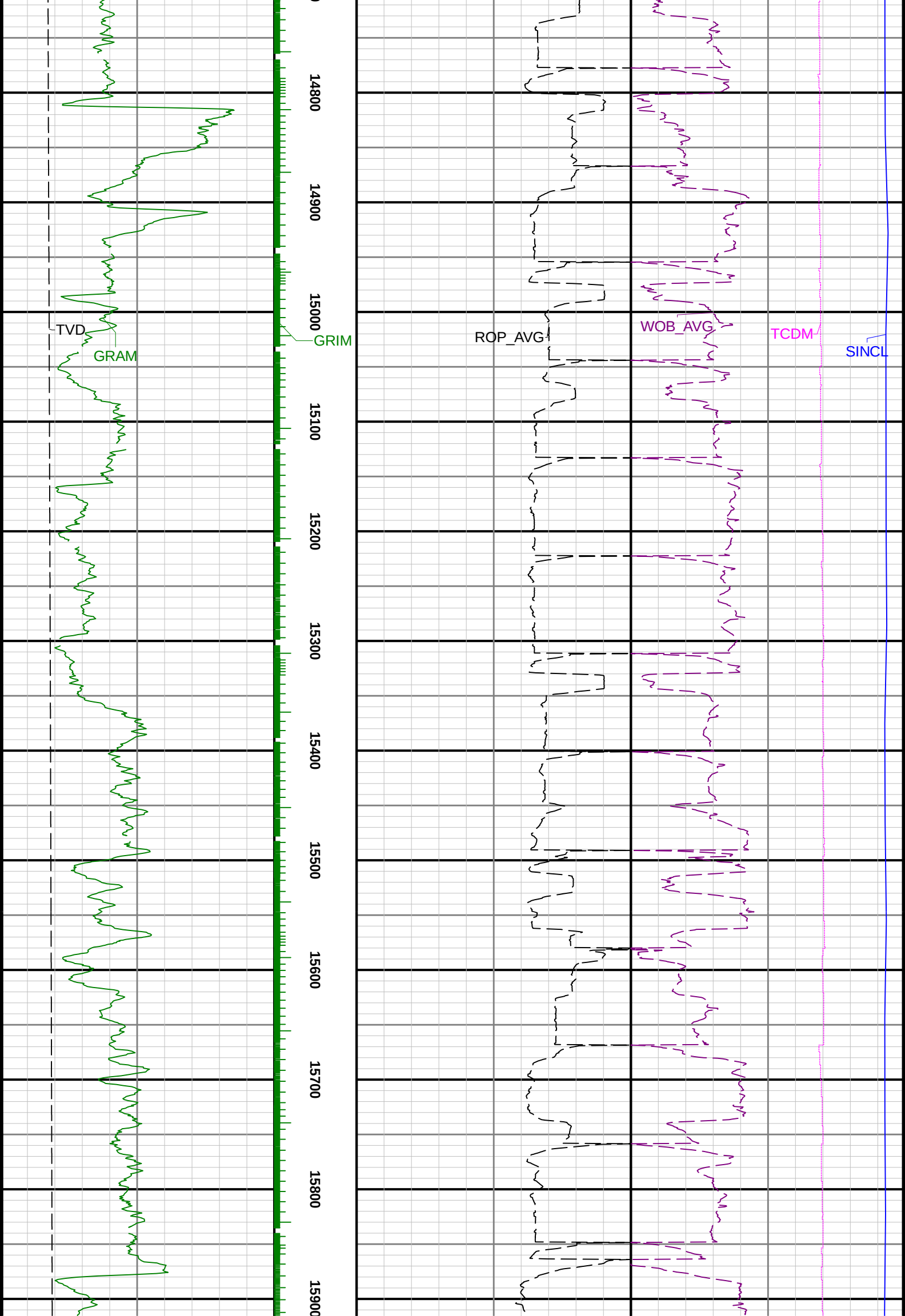
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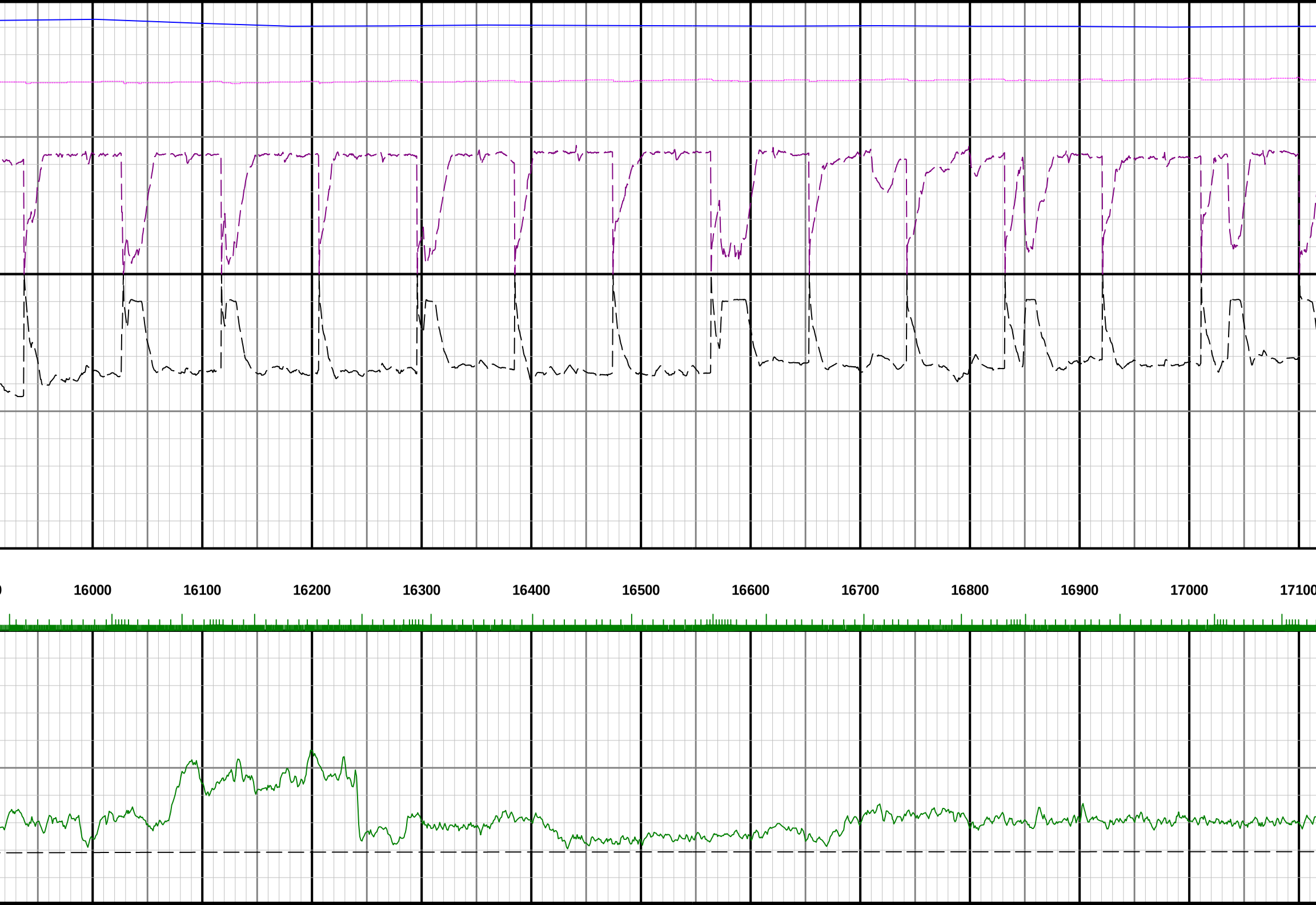
ROP_AVG
WOB_AVG
TCDM
SINCL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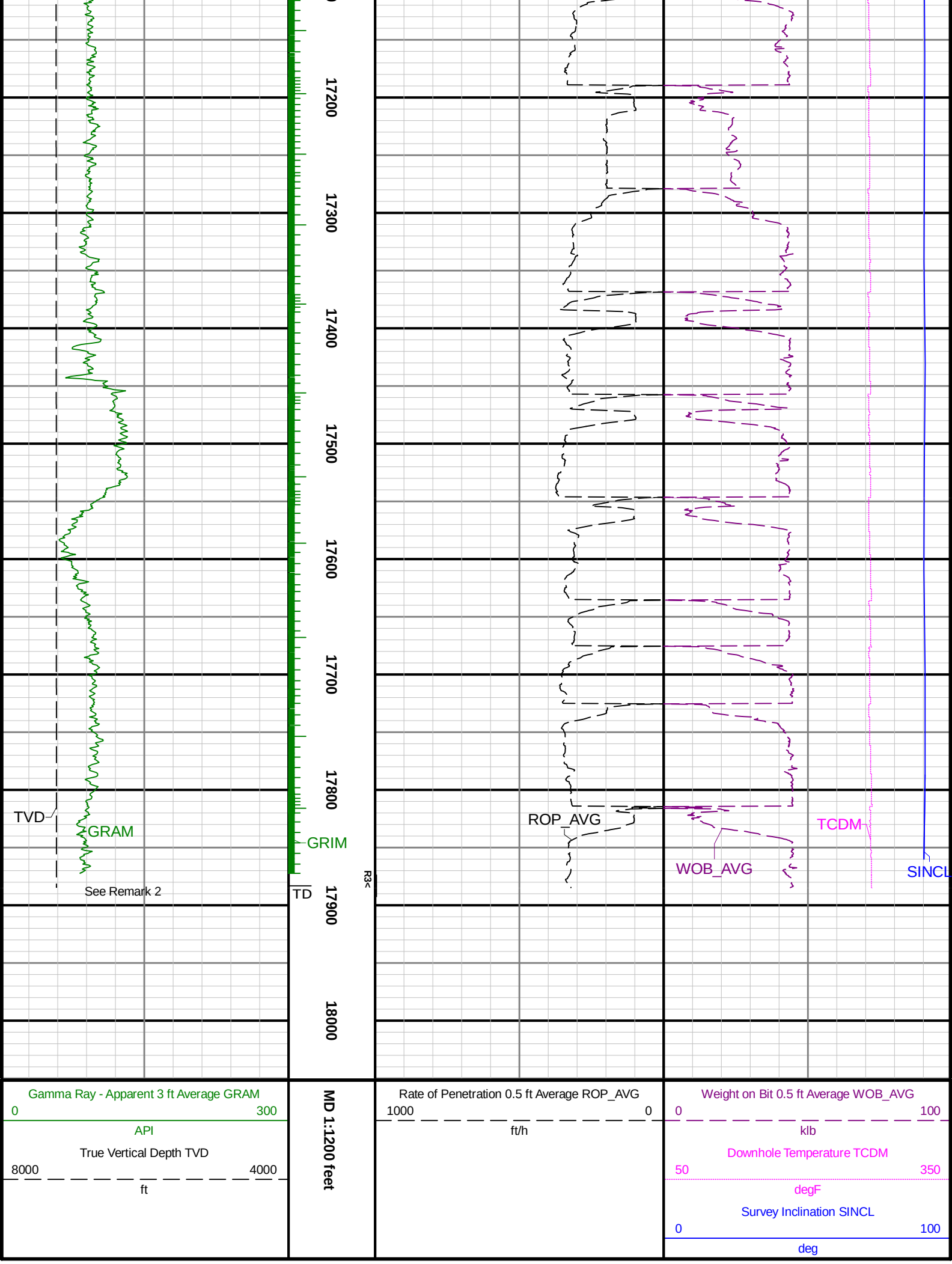
17100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18000
TVD
GRAM
See Remark 2
GRIM
TD
R3<
ROP_AVG
WOB_AVG
TCDM
SINCL
Gamma Ray - Apparent 3 ft Average GRAM
0
300
API
True Vertical Depth TVD
8000
4000
ft
MD 1:1200 feet
Rate of Penetration 0.5 ft Average ROP_AVG
1000
0
ft/h
Weight on Bit 0.5 ft Average WOB_AVG
0
100
klb
Downhole Temperature TCDM
50
350
degF
Survey Inclination SINCL
0
100
deg