



Natural Formation Evaluation

Gamma Ray

Scale:

Company: Noble Energy Inc

1:240	Well:	Wells Ranch DD01-033
True Vertical Depth	Field:	Weld County

County: Weld State: Colorado

Status:	Surface Location:	Other Services

Final Print

APL Number: _____

05-123-41916-00

Permanent Datum (P.D.):	Ground Level	Elevation:	4678.00 ft.
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Log Measured From:	Rig Floor	30.00 ft.	Above P.L.
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Depth Reference:	Driller's Depth	GL:	4678.00 ft.
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Interval	Logged	Dates	Magnetic Field Reference
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Top: 1882.0 ft. Date From: 07/Jan/2016 Dip Angle: 67.23° Azi Reference North: Grid

Bottom:	6528.0 ft.	Date	10/14/Jan/2016	Total	Mag to Reference

Spud Date: 06/Jan/2016 Field Strength: 52489.4 nT North Correction: 7.31°

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
13.500 in.	Surface	1883.0 ft.	9.625 in.	36.00 lb/ft	Surface	1883.0 ft.
8.500 in.	1883.0 ft.	16335.0 ft.				

Mud Record

Type	From	To	Hole Size	Interval	Inc / Az (Start)	Inc / Az (End)
Oil Based Mud	Surface	16335.0 ft.	13.500 in.	1853.0 ft.	0.1 ° / 266.2 °	0.5 ° / 245.8
			8.500 in.	14452.0 ft.	0.5 ° / 247.0 °	89.9 ° / 272.6
					/	/
					/	/
					/	/
					/	/
					/	/

Acquisition System	Software Version
...	...

Advantage	2.20U4	Rig:	H&P 321	/ Helmerich & Payne INC
PATS	6.4.1.34	Job No:	7707633	
		District: / Unit:	RMD	/ D&E

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Log Run Summary

LWD Run No.	BHA Run No.	Bit Run No.	Bit Size (in.)	Bit Type	Bit Gauge Lenath (in.)	Assembly Type	Logged Interval		Bit Depth Interval		Date / Time				Circ. Time (hrs.)
							Top	Bottom	From	To	Start		End		
							(ft.)	(ft.)	(ft.)	(ft.)					
1	1	2	8.500	PDC	2.000	Steerable	1882.0	5849.0	1893.0	5849.0	07/Jan/2016 21:00	08/Jan/2016 23:45	13.5		
2	2	3	8.500	PDC	2.000	Rotary Steerable	5837.0	13902.0	5849.0	13902.0	08/Jan/2016 22:00	12/Jan/2016 22:44	62.8		
3	3	4	8.500	PDC	2.000	Rotary Steerable	13880.0	16335.0	13902.0	16335.0	13/Jan/2016 00:53	14/Jan/2016 20:00	26.2		

Crew

Name	Arrive	Depart	Name	Arrive	Depart	Name	Arrive	Depart
	Wellsite	Wellsite		Wellsite	Wellsite		Wellsite	Wellsite
Matthew Delmore	07/Jan/2016	14/Jan/2016	Nick Williams	07/Jan/2016	14/Jan/2016	Garrett Gerdson	07/Jan/2016	09/Jan/2016
Mike Gurnsey	07/Jan/2016	14/Jan/2016	Chad Hough	07/Jan/2016	14/Jan/2016	David Browning	10/Jan/2016	14/Jan/2016

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+ (%)
08/Jan/2016	02:30	1	1893.0	Oil Based Mud	9.3	16	N/A	9.2	60.0/30.0	Active Pits	55000	N/A
08/Jan/2016	13:30	1	4550.0	Oil Based Mud	9.3	18	N/A	12.0	60.0/30.5	Active Pits	60000	N/A
09/Jan/2016	02:30	2	5849.0	Oil Based Mud	9.3	19	N/A	10.5	60.0/29.8	Active Pits	54000	N/A
09/Jan/2016	13:30	2	6901.0	Oil Based Mud	9.7	17	N/A	10.0	61.0/27.5	Active Pits	55000	N/A
10/Jan/2016	02:30	2	8605.0	Oil Based Mud	9.7	18	N/A	9.6	60.5/28.0	Active Pits	42000	N/A
10/Jan/2016	13:30	2	10403.0	Oil Based Mud	9.8	18	N/A	10.0	60.7/26.5	Active Pits	50000	N/A
11/Jan/2016	02:30	2	11812.0	Oil Based Mud	10.0	19	N/A	10.0	59.7/26.5	Active Pits	48000	N/A
11/Jan/2016	13:30	2	12999.0	Oil Based Mud	10.1	21	N/A	9.6	61.0/24.0	Active Pits	45000	N/A
12/Jan/2016	02:30	2	13268.0	Oil Based Mud	10.1	23	N/A	9.8	60.2/24.5	Active Pits	47000	N/A
12/Jan/2016	13:30	2	13902.0	Oil Based Mud	10.3	25	N/A	10.0	58.0/26.0	Active Pits	43000	N/A
13/Jan/2016	02:30	3	13902.0	Oil Based Mud	10.2	27	N/A	9.0	59.0/25.5	Active Pits	40000	N/A
13/Jan/2016	13:30	3	14576.0	Oil Based Mud	10.2	27	N/A	9.2	57.4/27.0	Active Pits	47000	N/A
14/Jan/2016	02:30	3	15925.0	Oil Based Mud	10.5	32	N/A	9.4	58.0/25.0	Active Pits	40000	N/A

Mnemonics

Curve	Description	Units
GRAM	Gamma Ray Apparent, 0.5 ft. Avg.	API
ROPA	Rate of Penetration, 3.0 ft. Avg.	ft/hr
TCDX	Downhole Temperature	degF
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	CS	12445995	-	83.90	7.000	2.165
1	BCPM	11823270	Telemetry	73.70	7.000	2.165
1	FLEX SUB	13651950	-	66.55	6.250	2.165
1	OTK	12349020	Directional	61.68	7.031	2.165
1	OTK	12349020	Resistivity	55.87	7.031	2.165
1	OTK	12349020	Gamma	51.84	7.031	2.165
1	OTK	12349020	Pressure	50.95	7.031	2.165
1	CS	13351962	-	48.25	7.000	2.165
2	ATC_LCPM	11810969	-	N/A	6.750	2.875
2	ATC_MWD	12656414	Directional	22.24	6.750	2.875
2	ATC_MWD	12656414	Gamma	12.17	6.750	2.875
3	ATC_SU	11995000	Near Bit Inclination	6.55	6.750	2.875
3	ATC_LCPM	12149972	-	N/A	6.750	2.875
3	ATC_MWD	12023678	Directional	22.36	6.750	2.875

3	ATC_MWD	12023678	Gamma	12.29	6.750	2.875
3	ATC_SU	12798941	Near Bit Inclination	6.67	6.750	2.875

Service and Tool Mnemonics

Mnemonic	Name	Description
AT-LCMP	AT-Curve	AutoTrak Curve MWD
BCPM	BCPM	Mud pulse telemetry and downhole tool power module
FLEX SUB	Flex Sub	Flexible sub connection
OTK	OnTrak	Propagation resistivity, propagation conductivity, gamma ray, directional, annular pressure, system memory and VSS
CS	Closure Sub	BHA power ring isolator allowing insertion of inert sub into electrically powered BHA

Comments

1. Baker Hughes run 1 utilized 6 3/4 inch Ontrak Services. (Multiple Propagation Resistivity, Gamma Ray, VSS, and Directional) behind an 8 1/2 inch bit and steerable assembly from 1893 to 5849 feet MD (1892.97 to 5820.79 feet TVD).
2. Baker Hughes runs 2 and 3 utilized a 6 3/4 inch AutoTrak Curve (Directional and Gamma Ray) tool behind an 8 1/2 inch bit and rotary steerable assembly from 1893 feet MD (1892.97 feet TVD) to 16335 feet MD (6524.95 feet TVD).
3. A sliding indicator is shown to the left of track 1 as a heavy green line. The indicator has been depth-shifted to the gamma sensor offset to correspond with data acquired while sliding.
4. Depth measurements were obtained from a depth tracking system not supplied or operated by Baker Hughes. Due to the lack of control by Baker Hughes LWD 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.

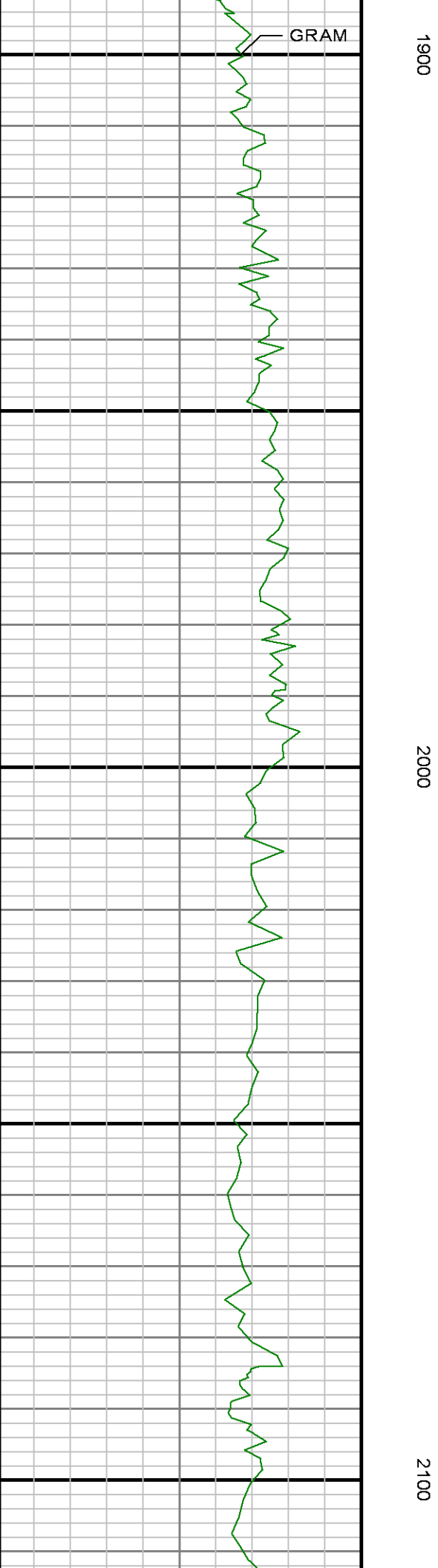
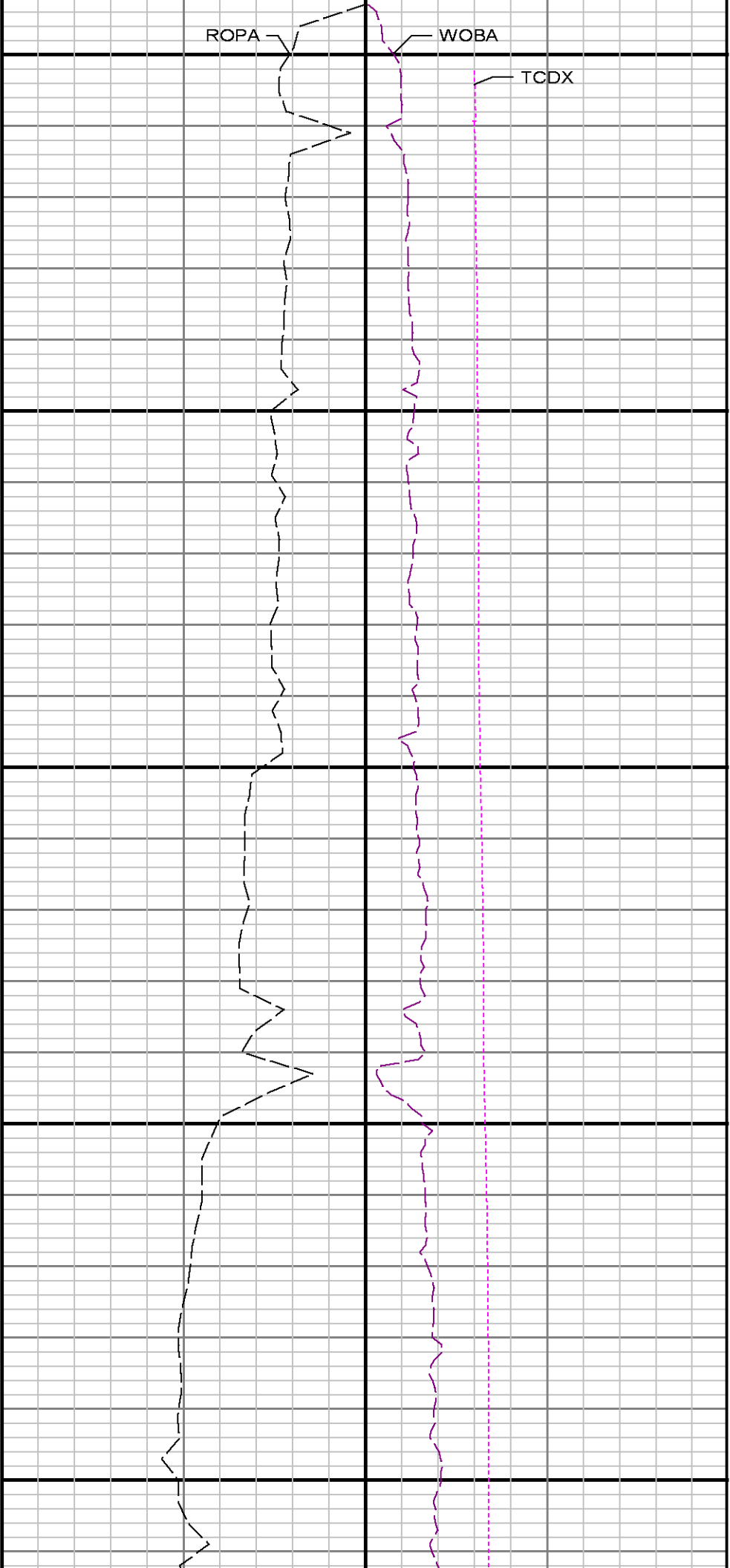
Remarks

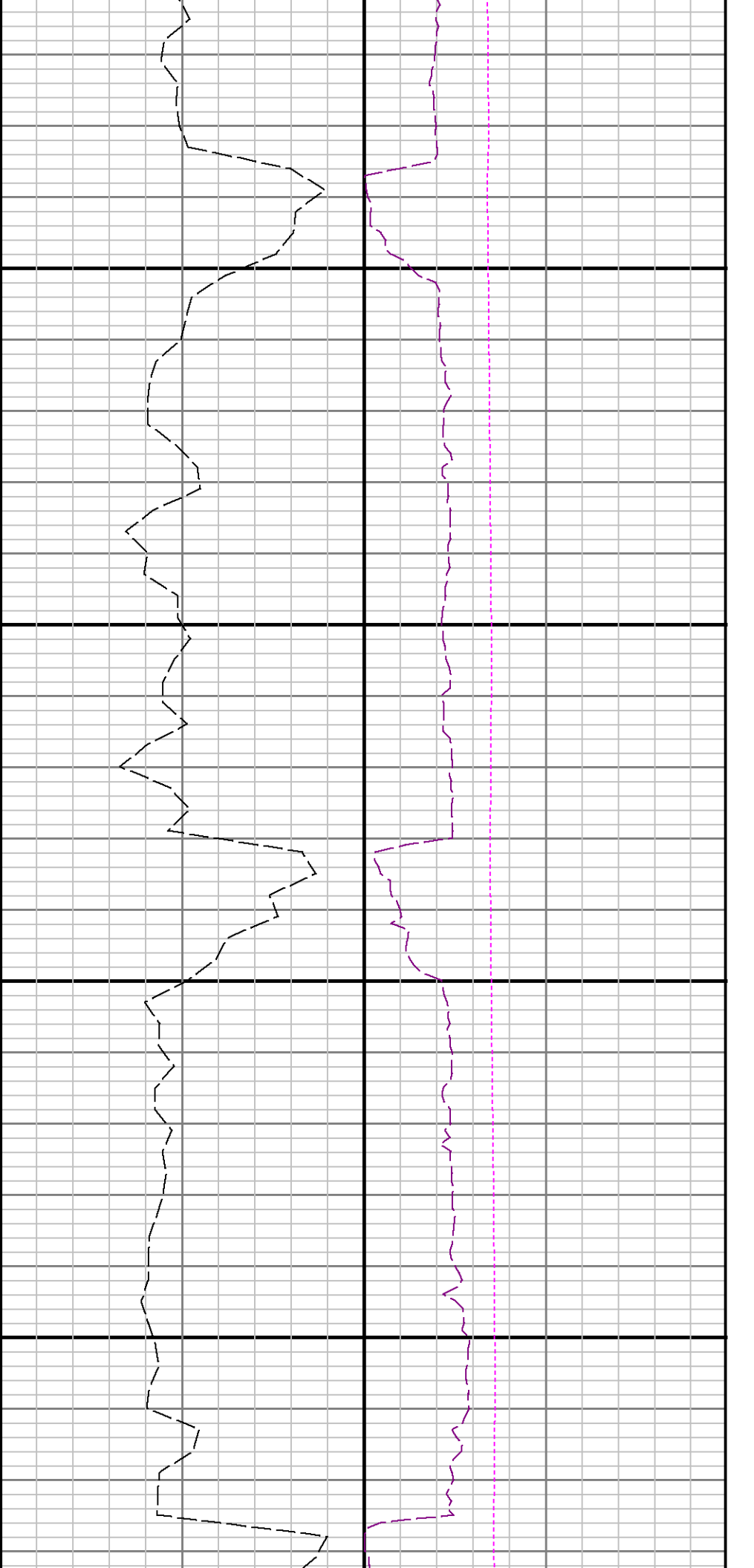
Number	Measured Depth (ft)	Hole Section (in.)	LWD Run No.	Remark
1	1887	8.500	1	As per customer request, Gamma logging was initiated at 1882.0 ft. MD (1881.9 ft. TVD)
2	5802	8.500	2	Interval from 5798.0 to 5819.0 ft. MD (5769.8 to 5790.79 ft TVD) the GRAM, GRTM and GRIX is not present due to bit to Gamma Ray sensor offset.



Company : Noble Energy Inc.
Well : WELLS RANCH BB01-655
Interval : 1870.00 - 6550.00 feet
Created : 14/Jan/2016 10:40:05 AM

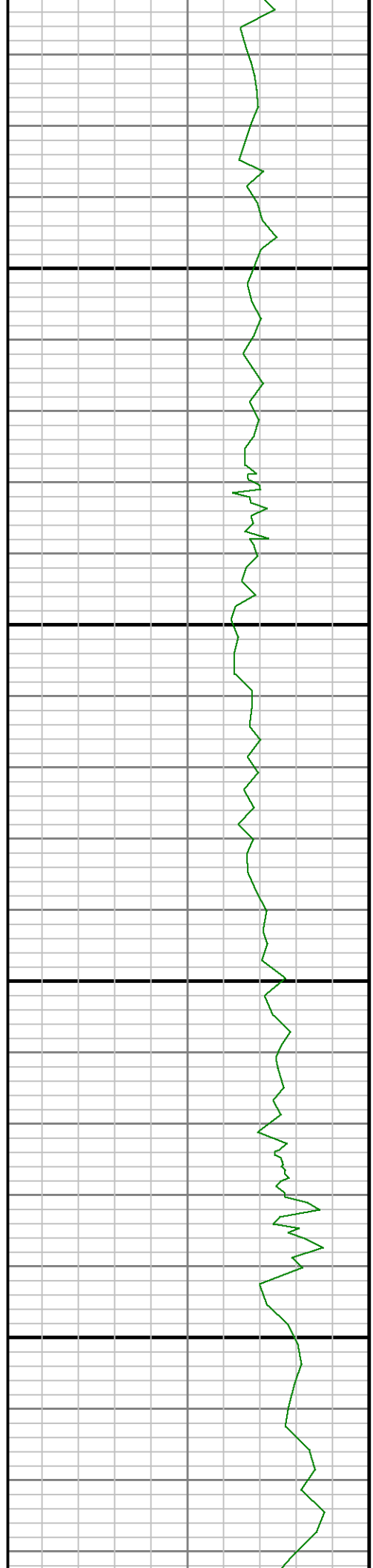
Gamma Ray Apparent 0.5 ft Avg GRAM	TVD feet 1:240	Rate of Penetration 3.0 ft Avg ROPA	Surface Weight On Bit 1.0 ft Avg WOBA
0150		15000ft/hr	0100klbf
API			Downhole Temperature TCDX 0300degF
	9-5/8" Casing	See Remark 1	

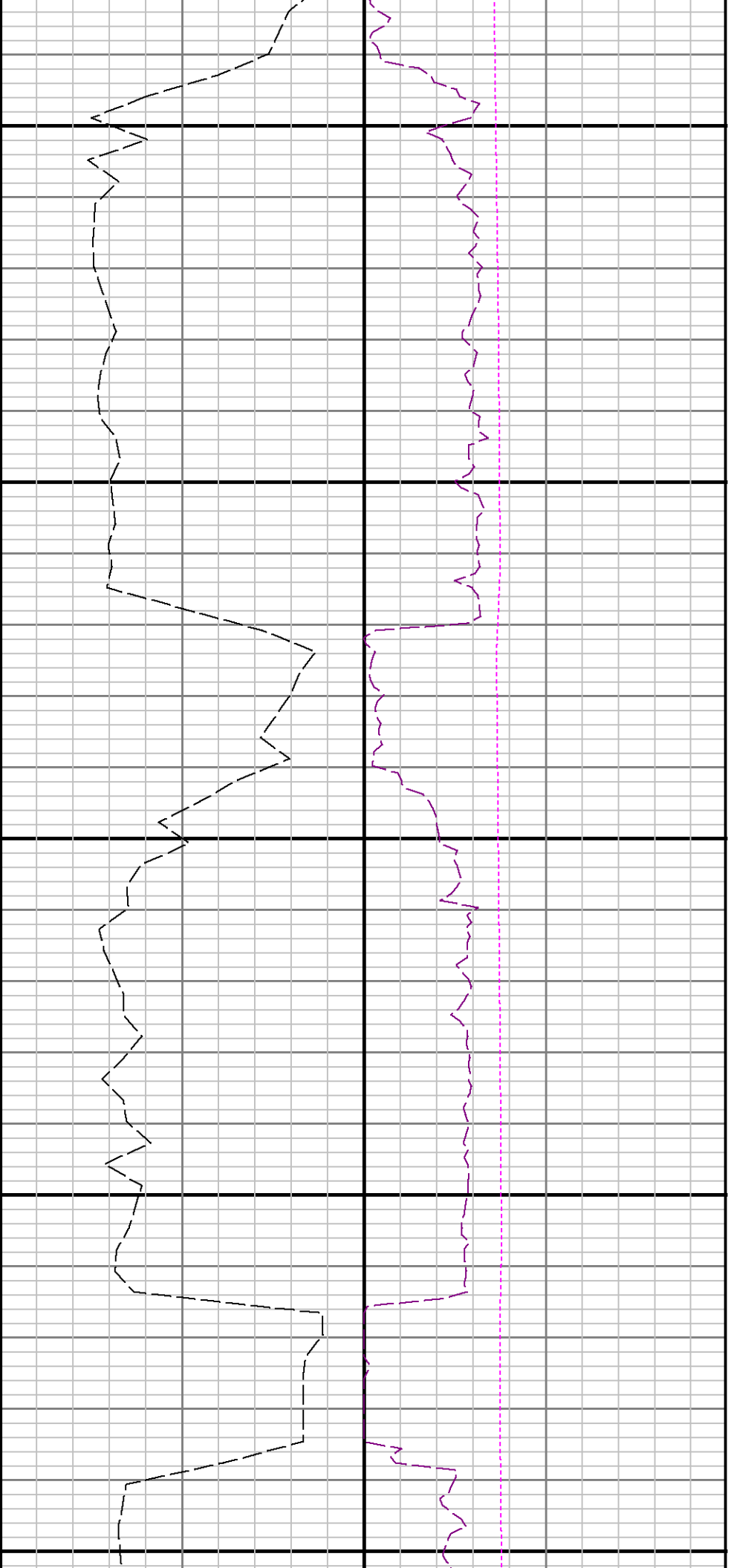




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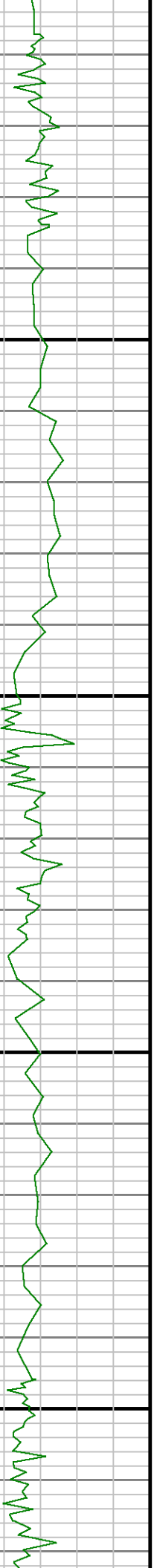
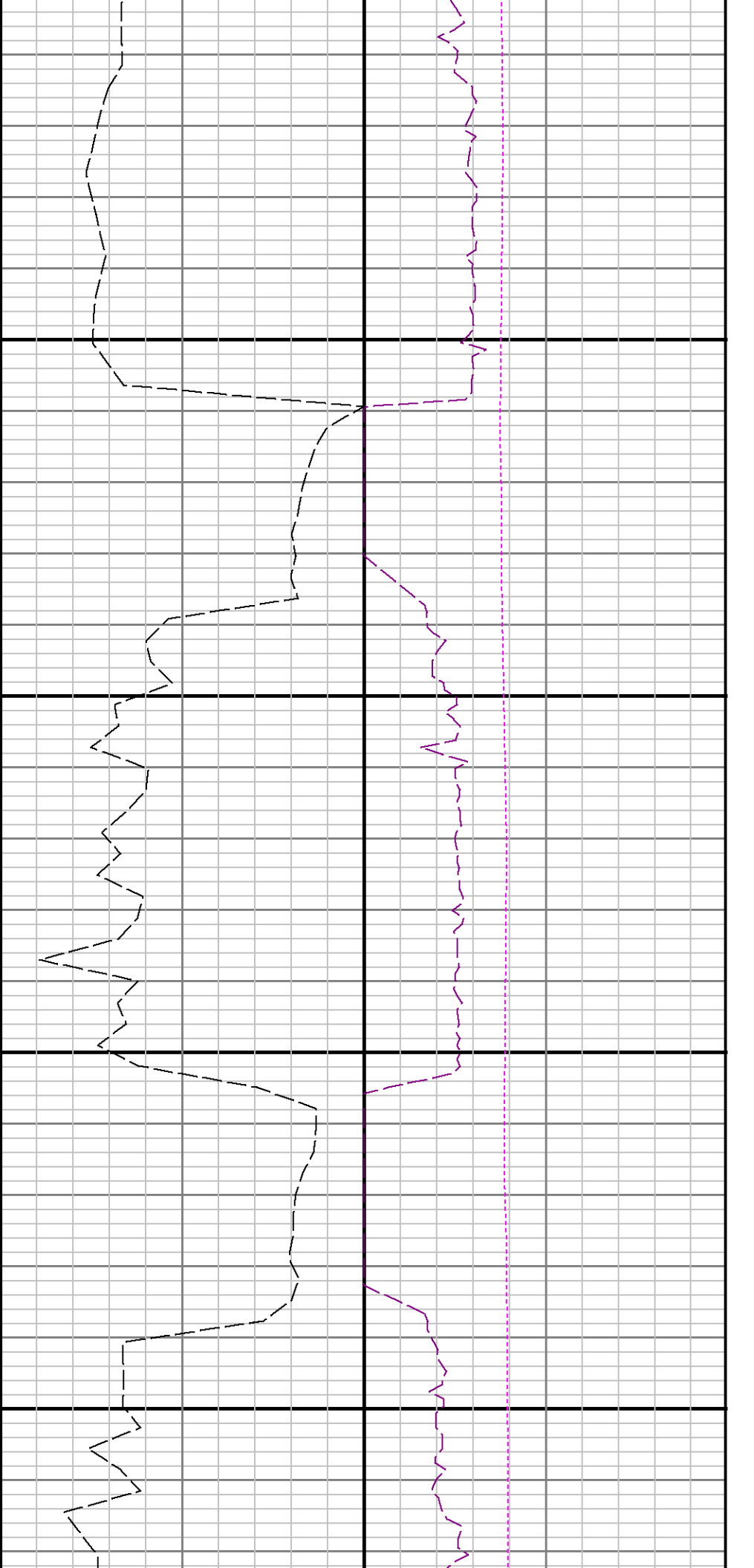


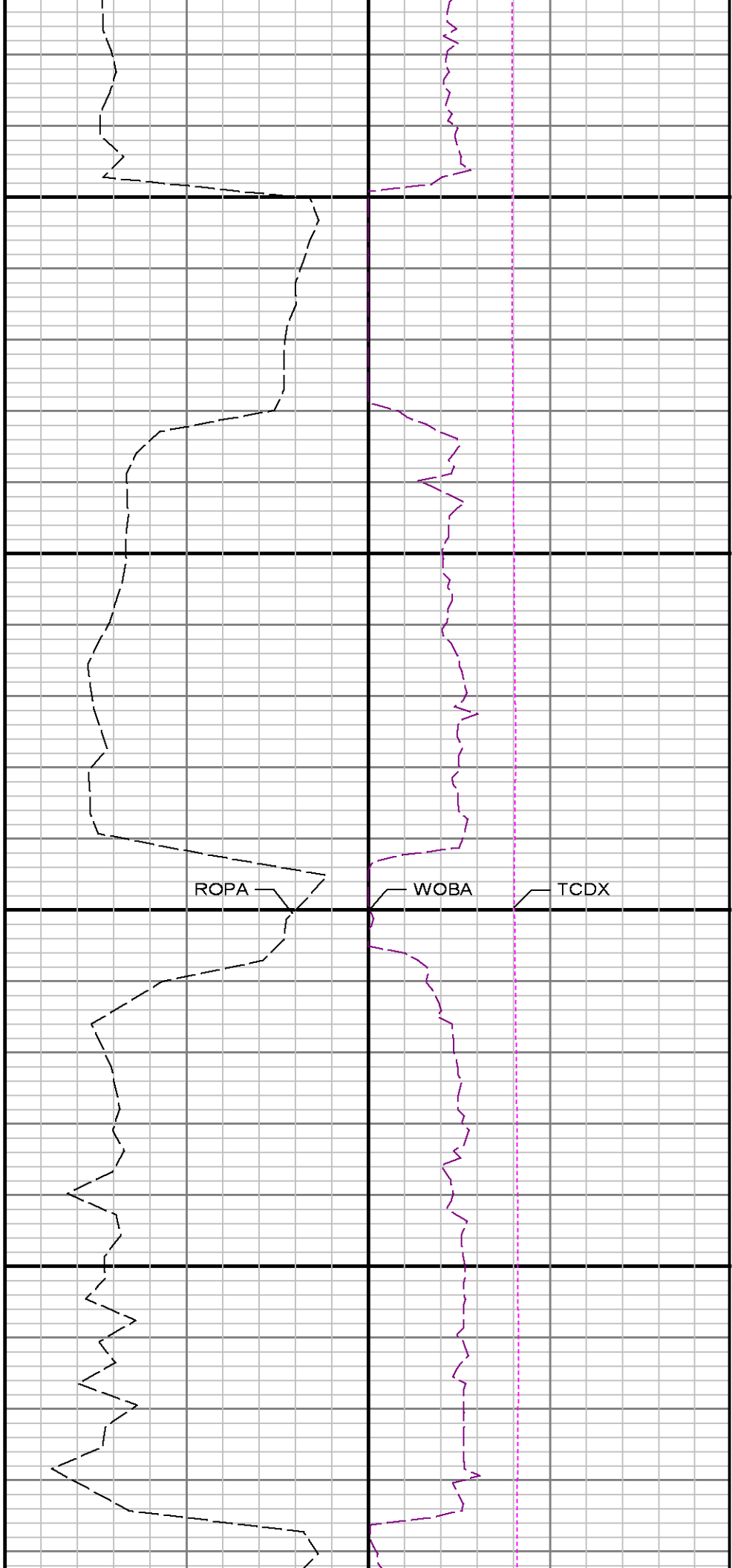


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2500







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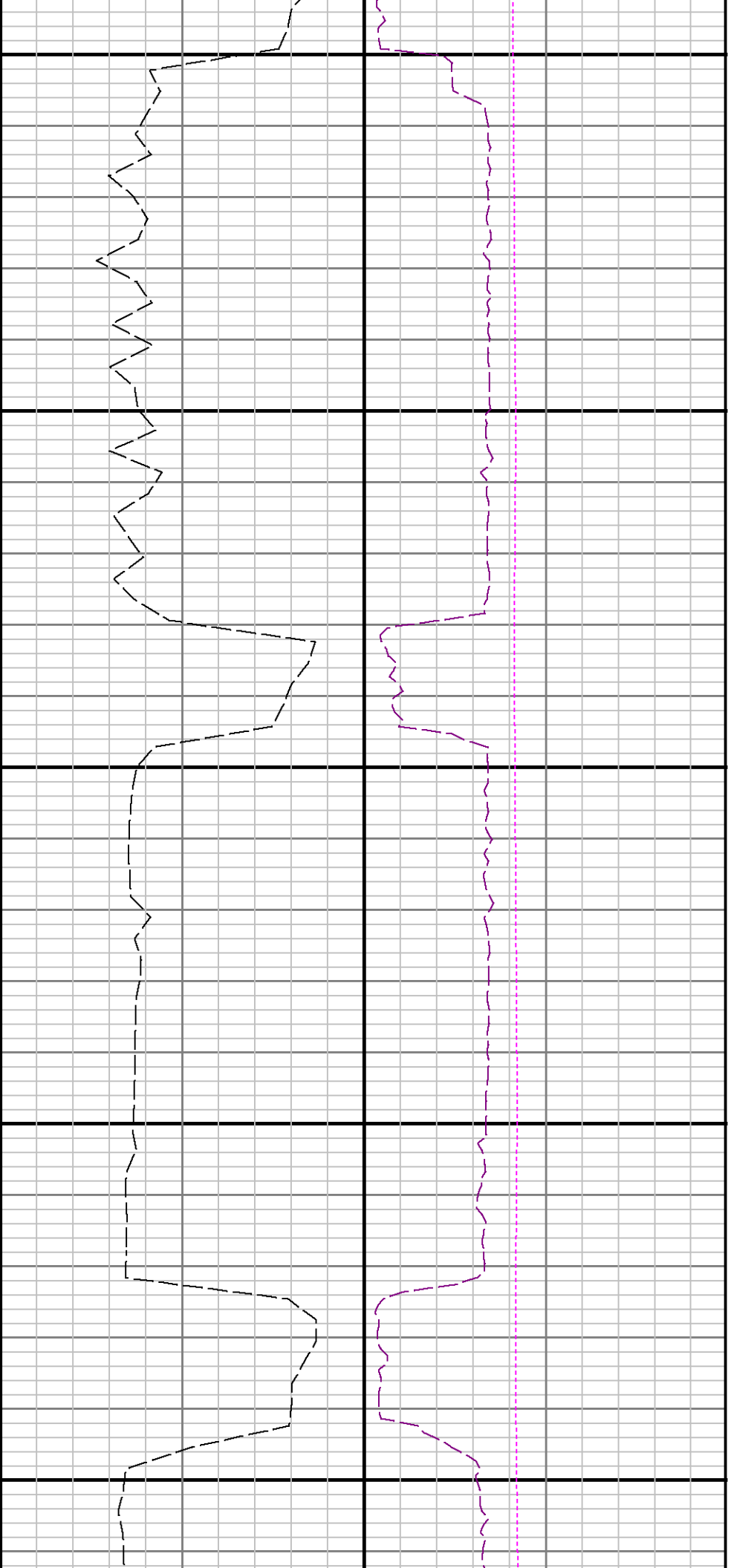
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GRAM

ROPA

WOBA

TCDX



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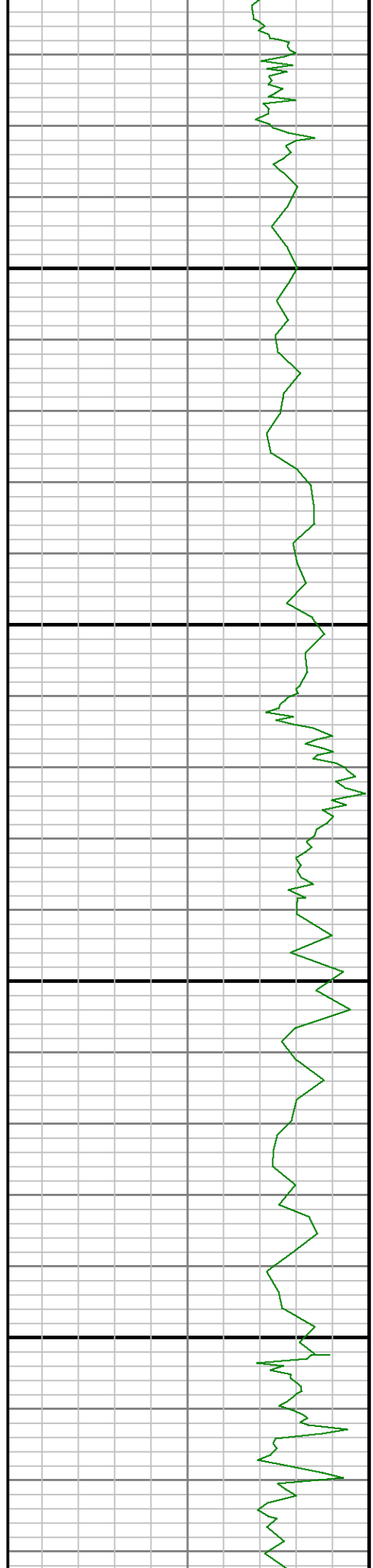
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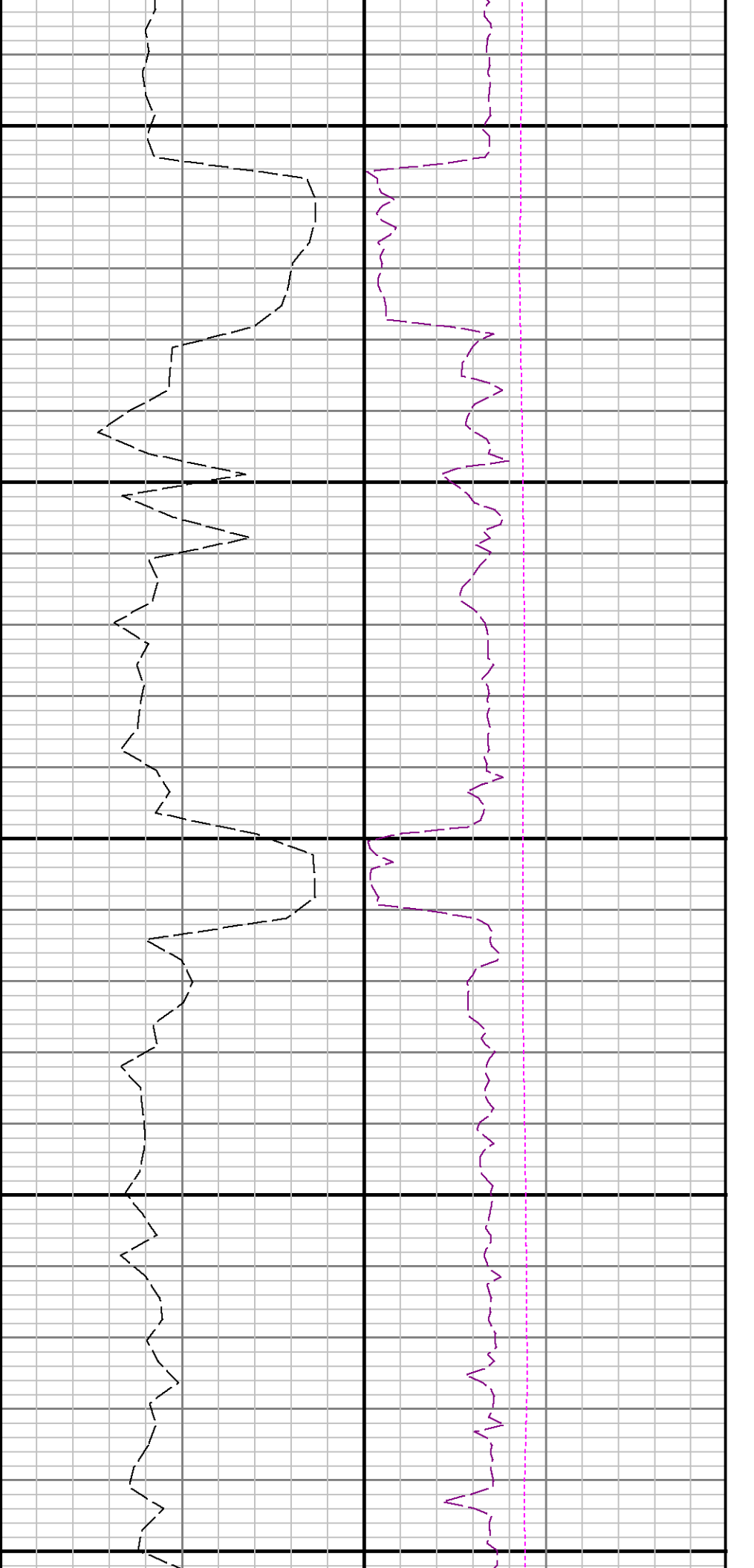
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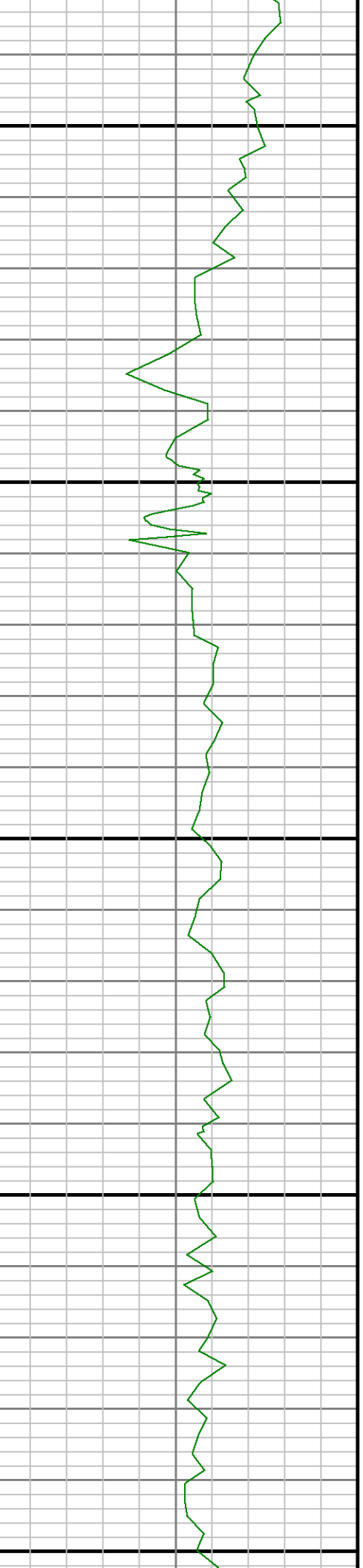
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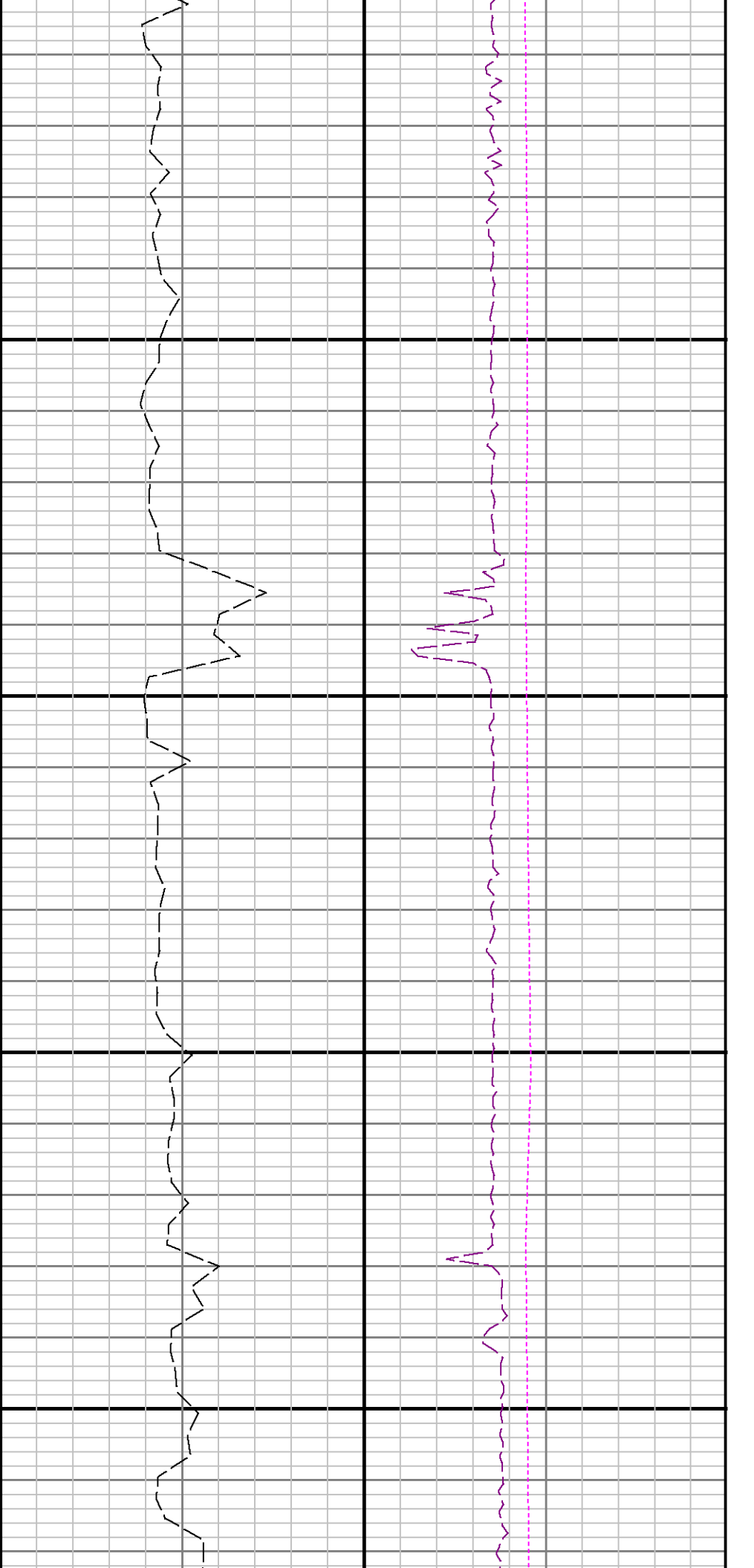




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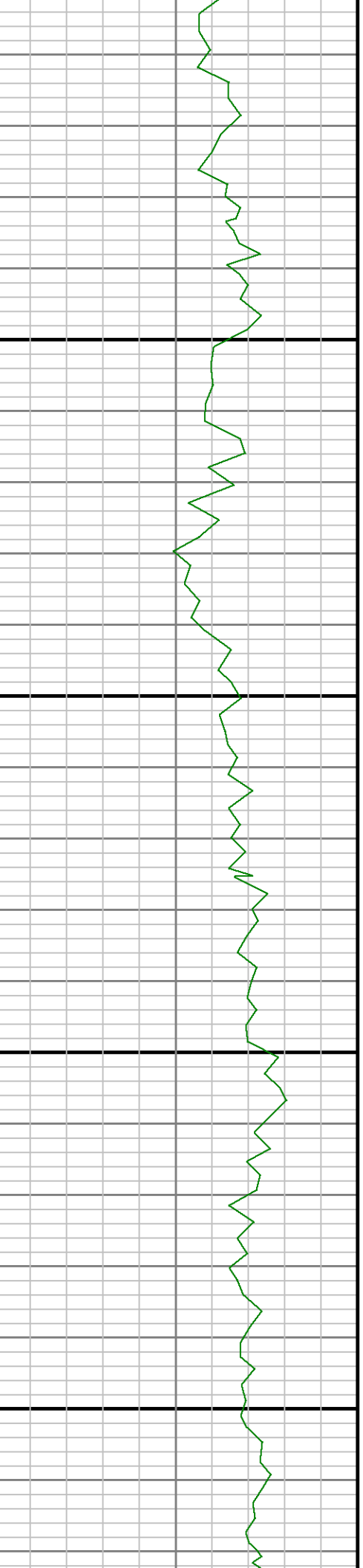
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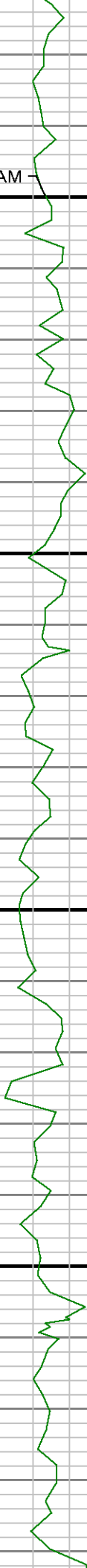


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3800



GRAM



3900

4000

ROPA

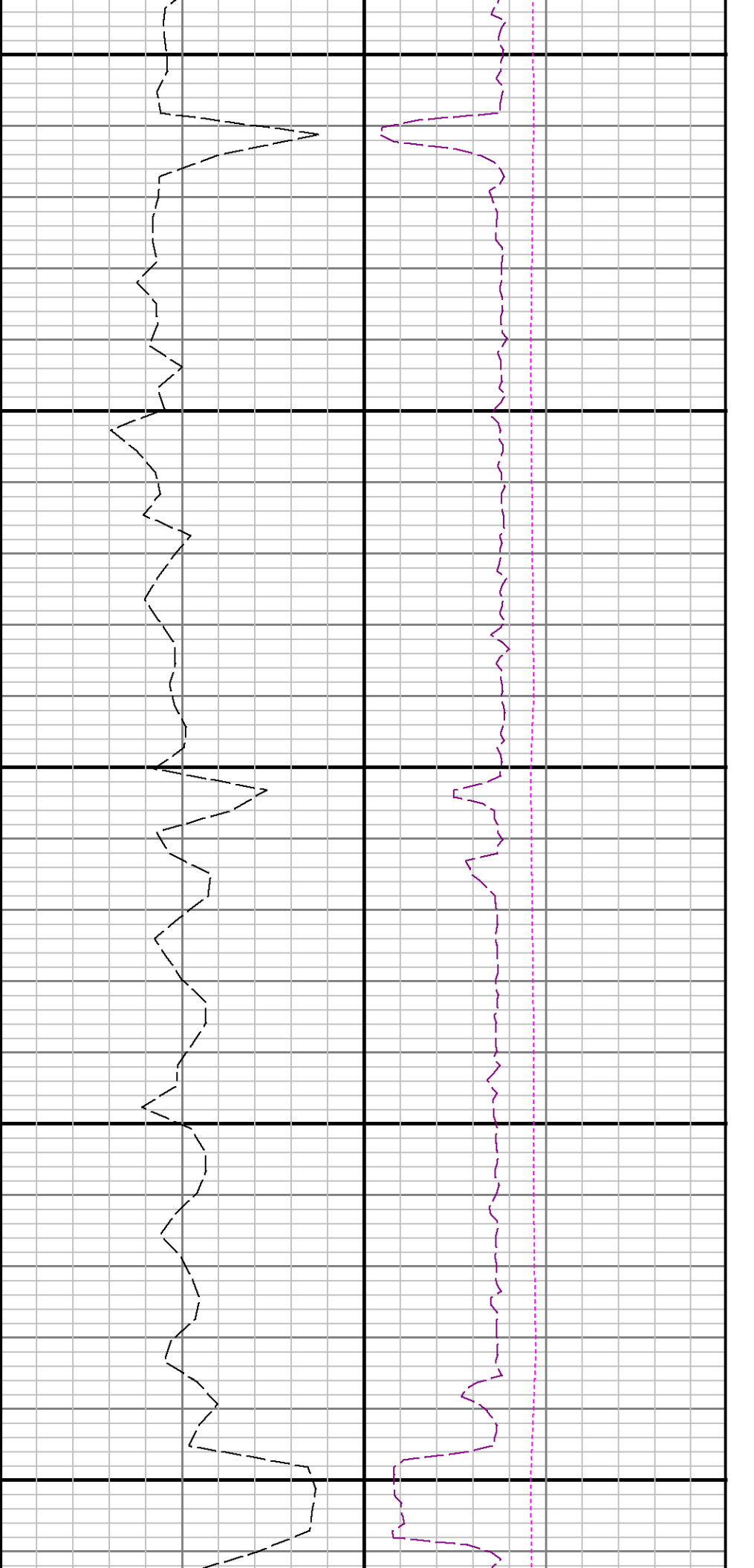


WOBA



TCDX

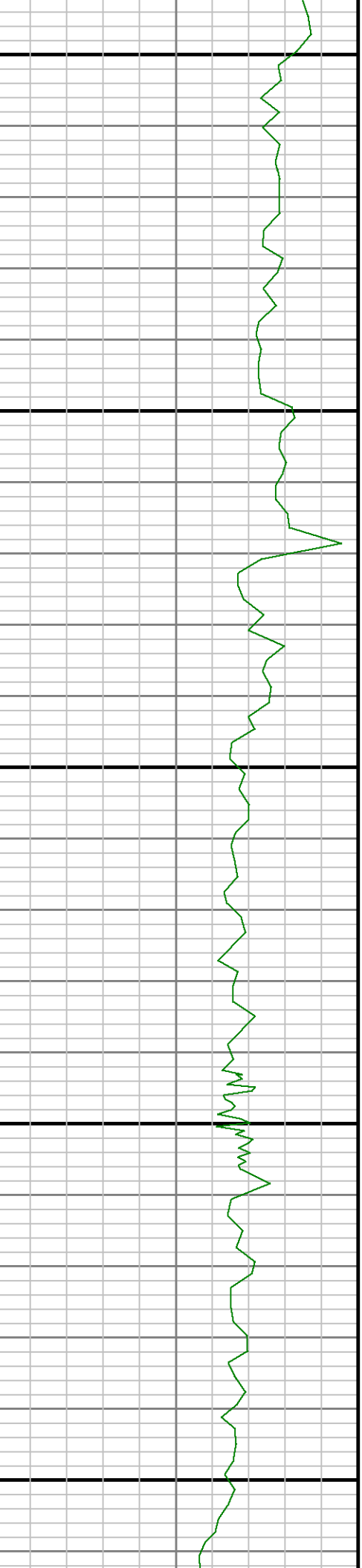


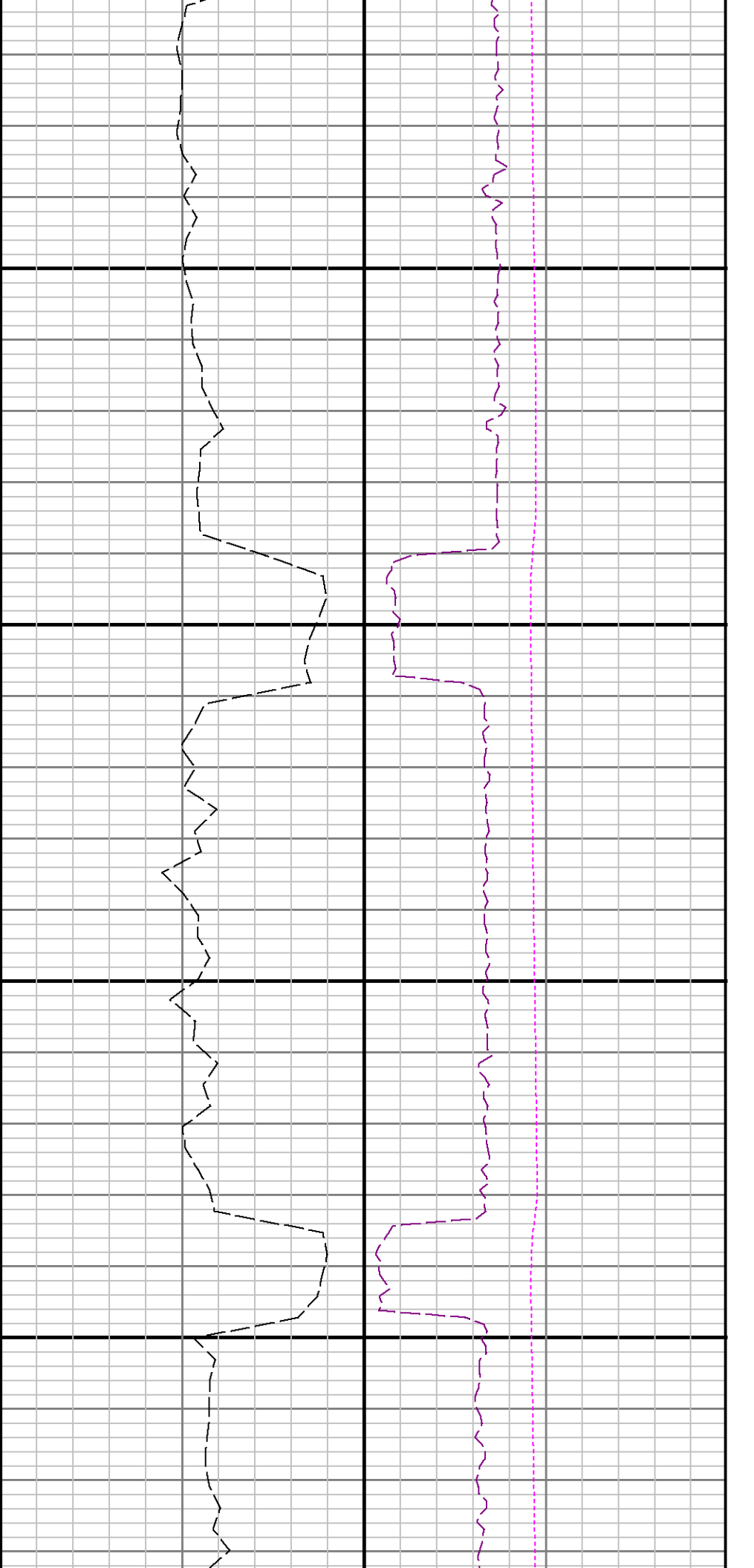


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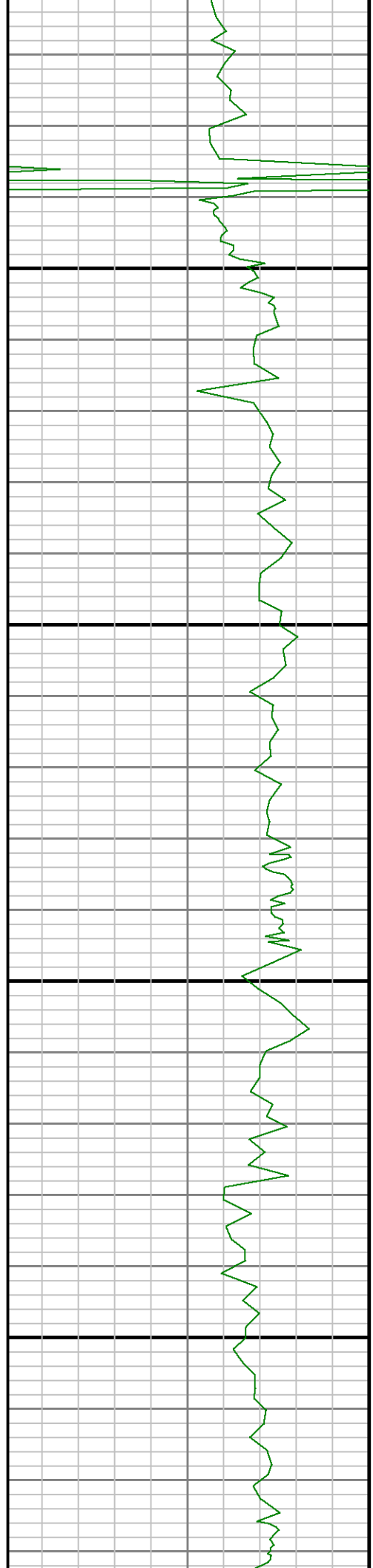
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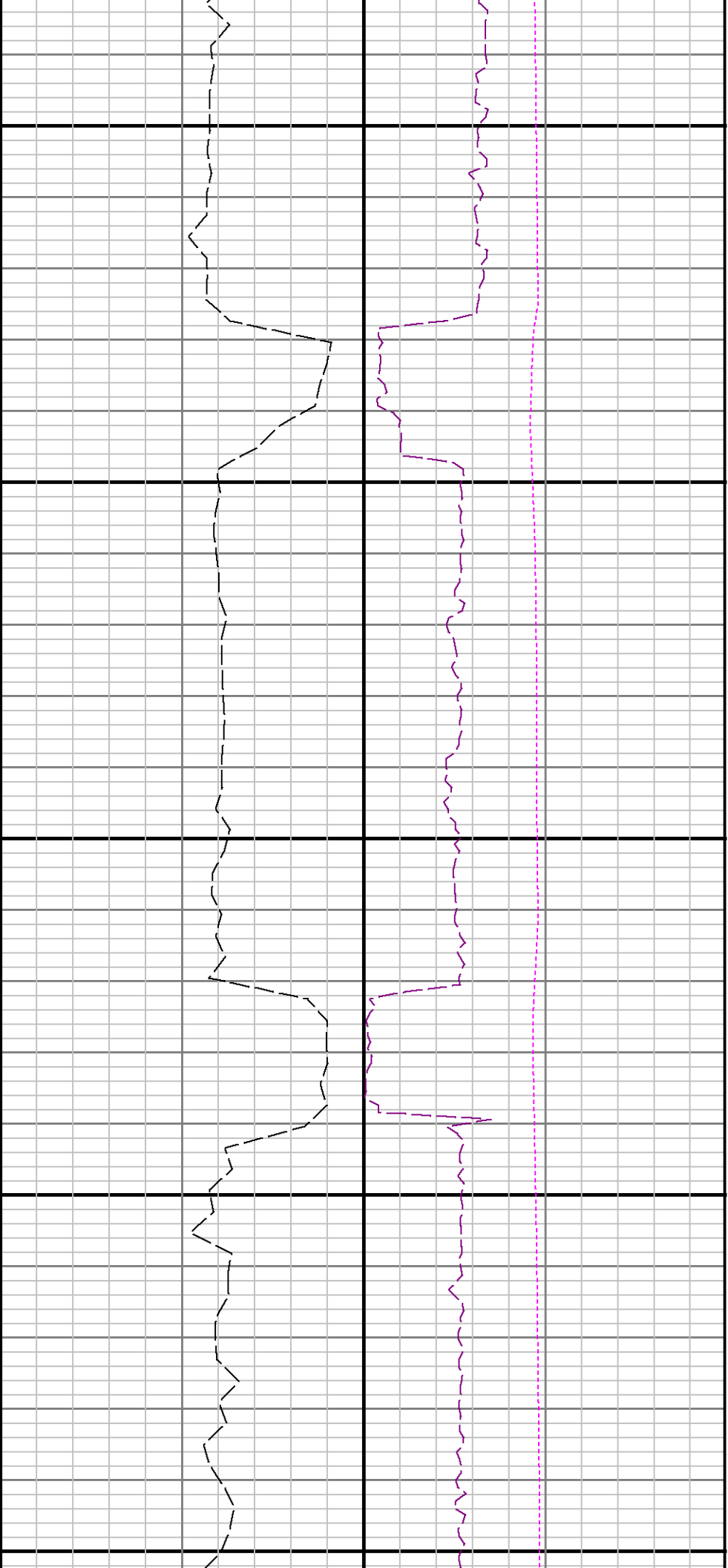




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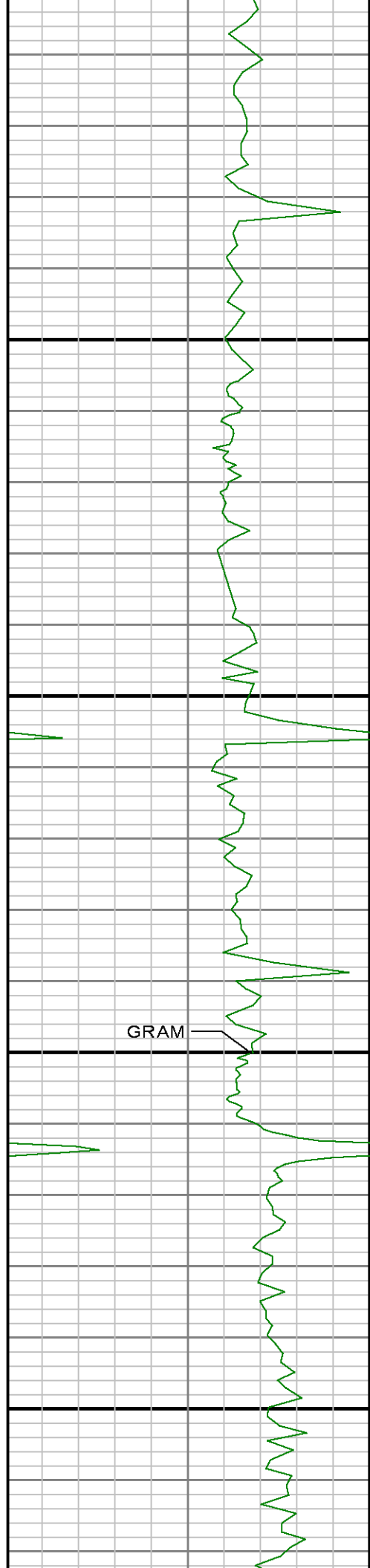




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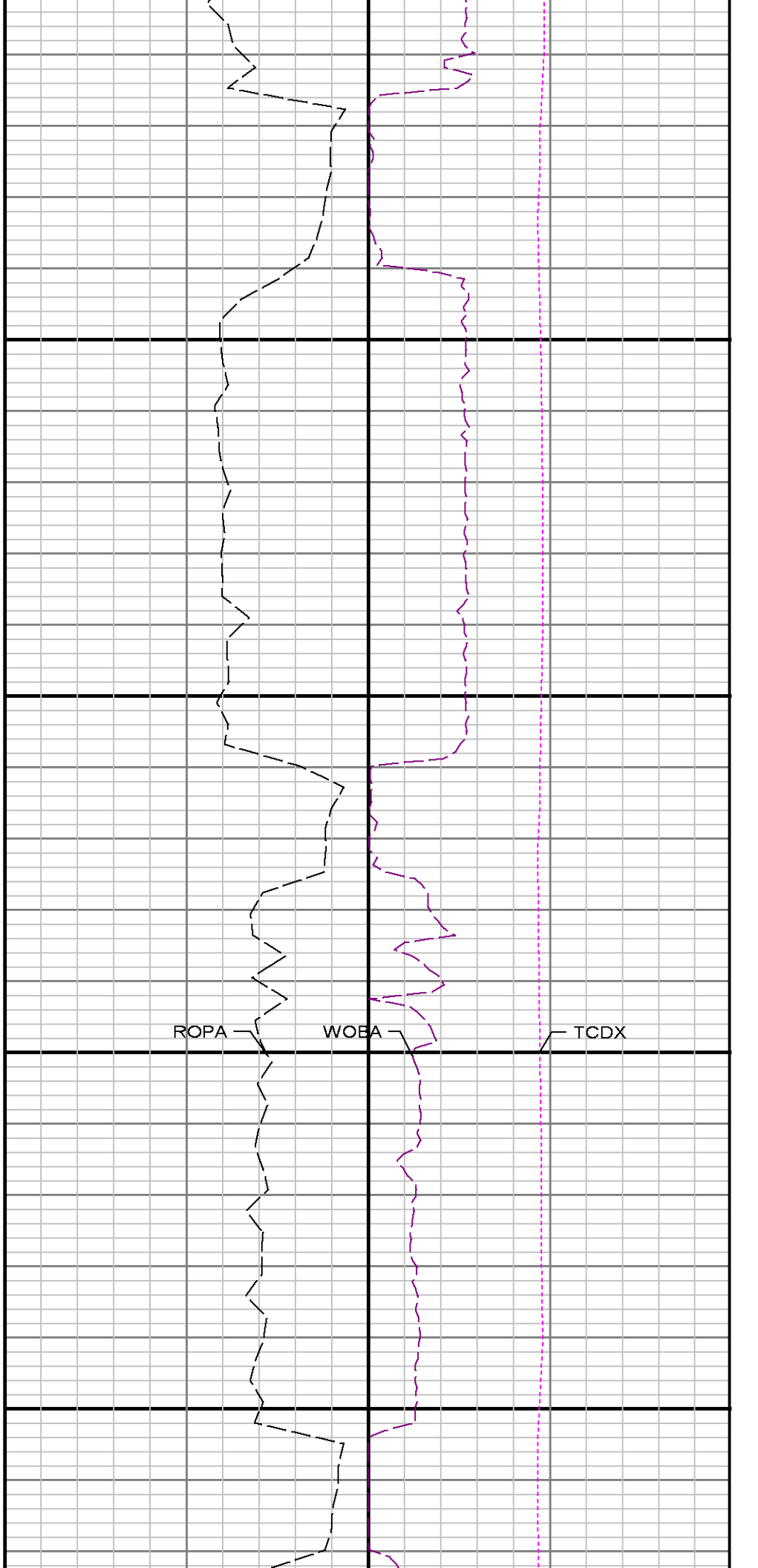
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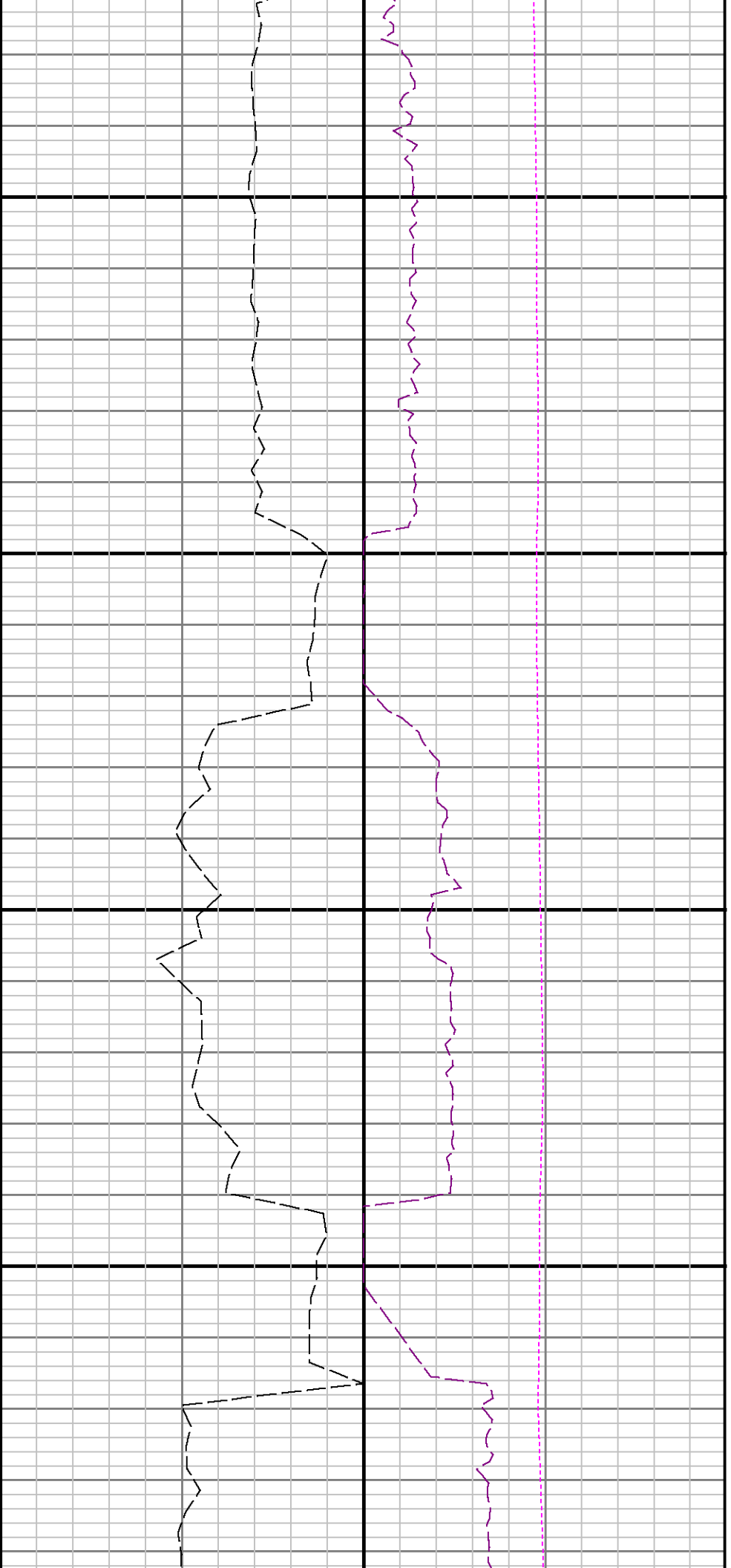




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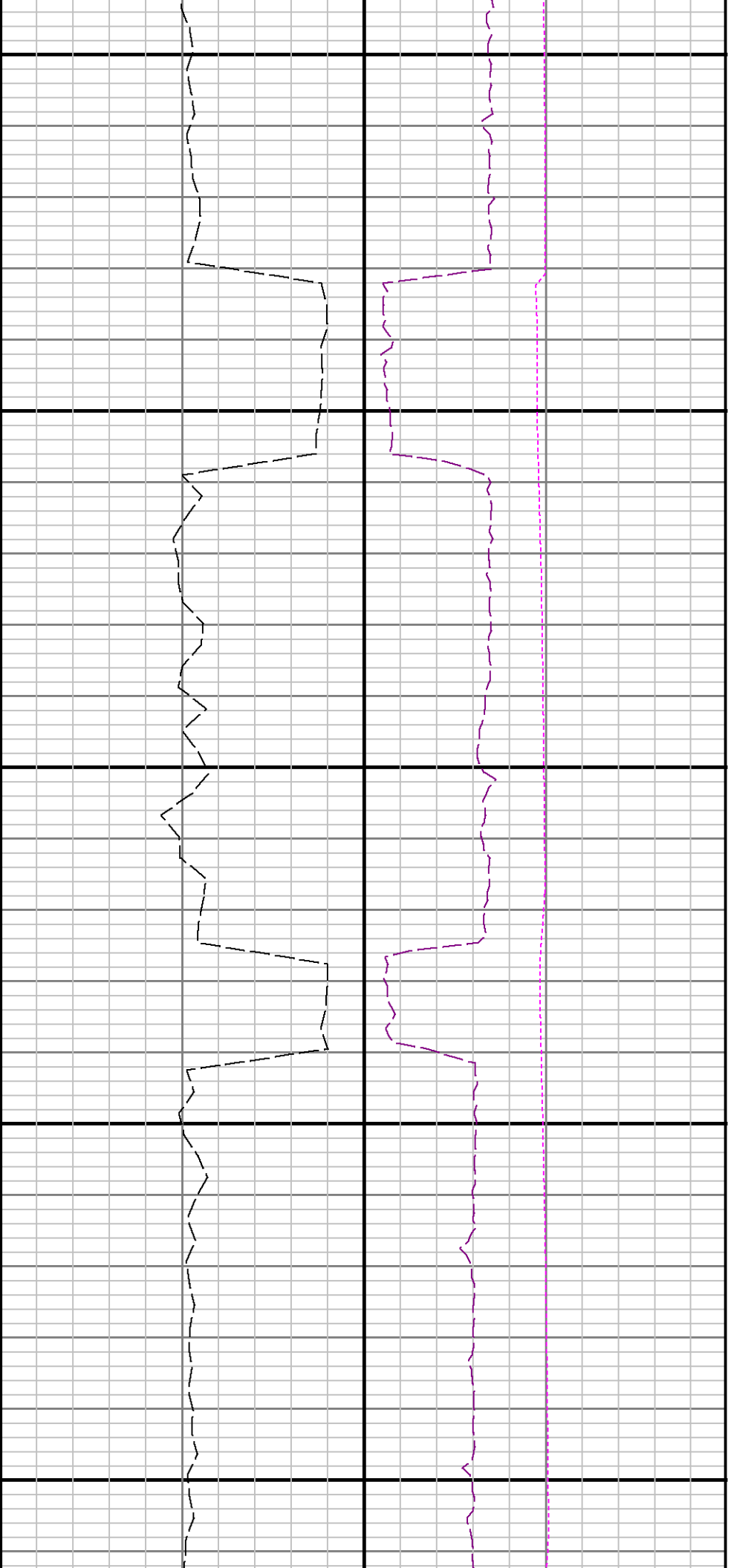
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5000

5100

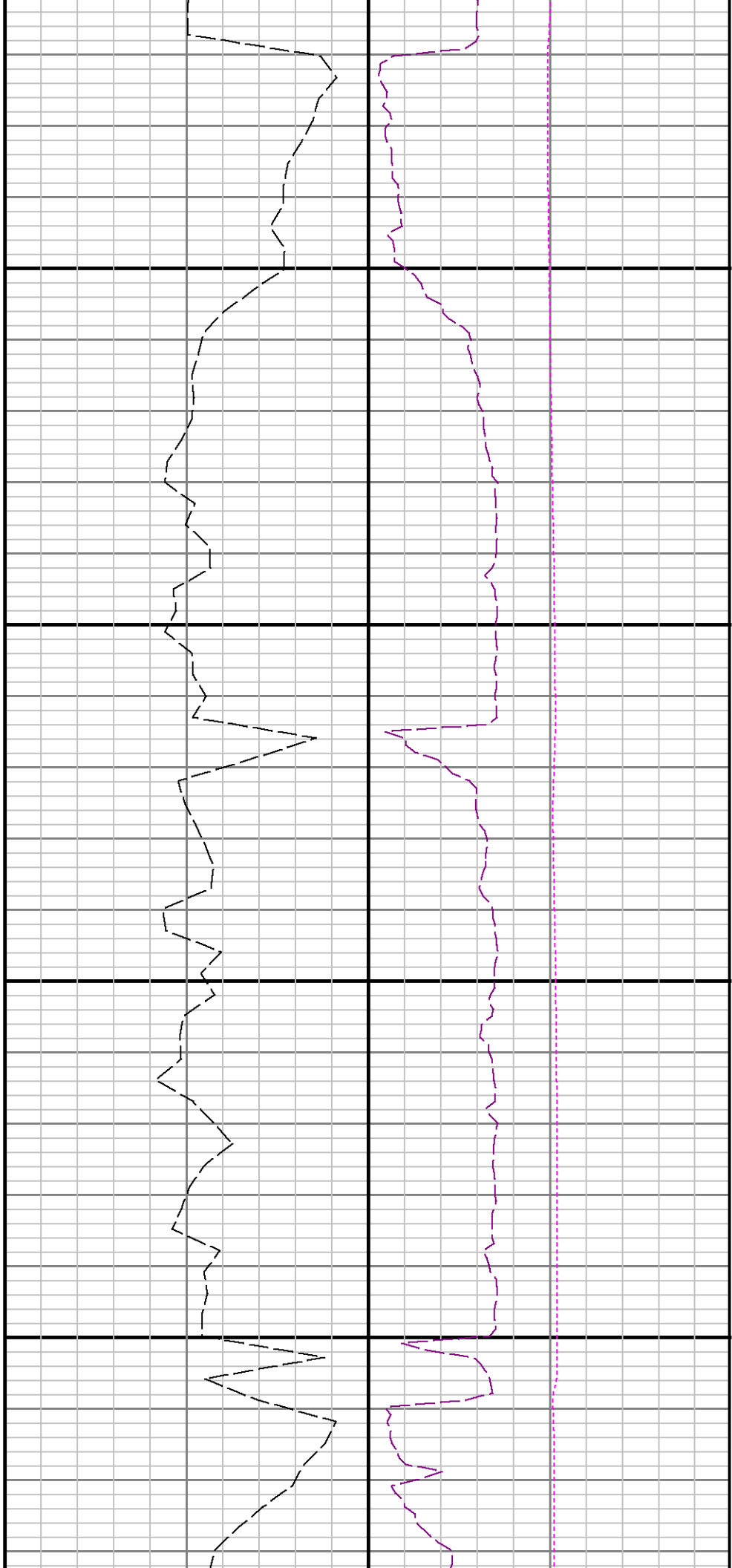


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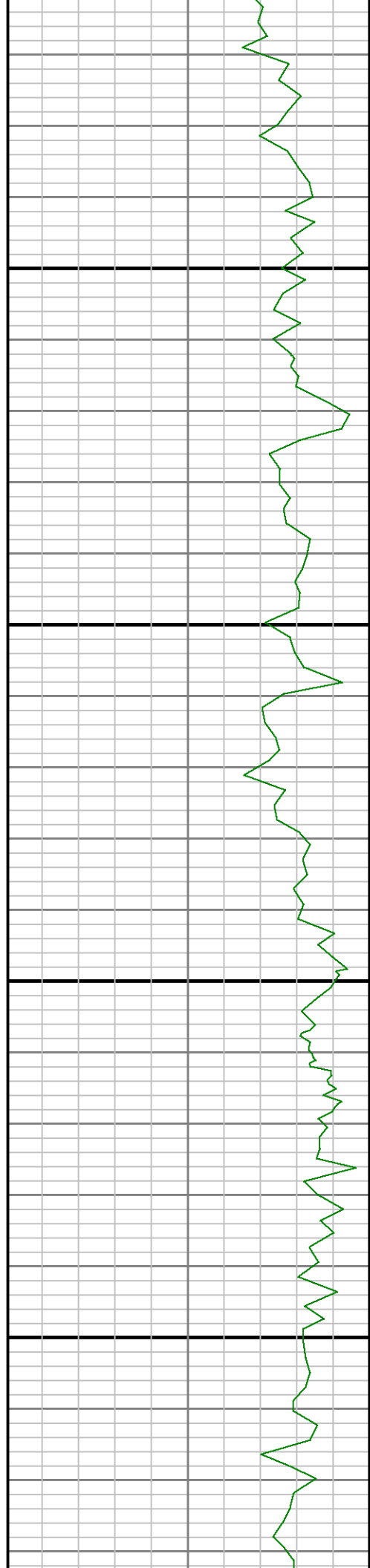
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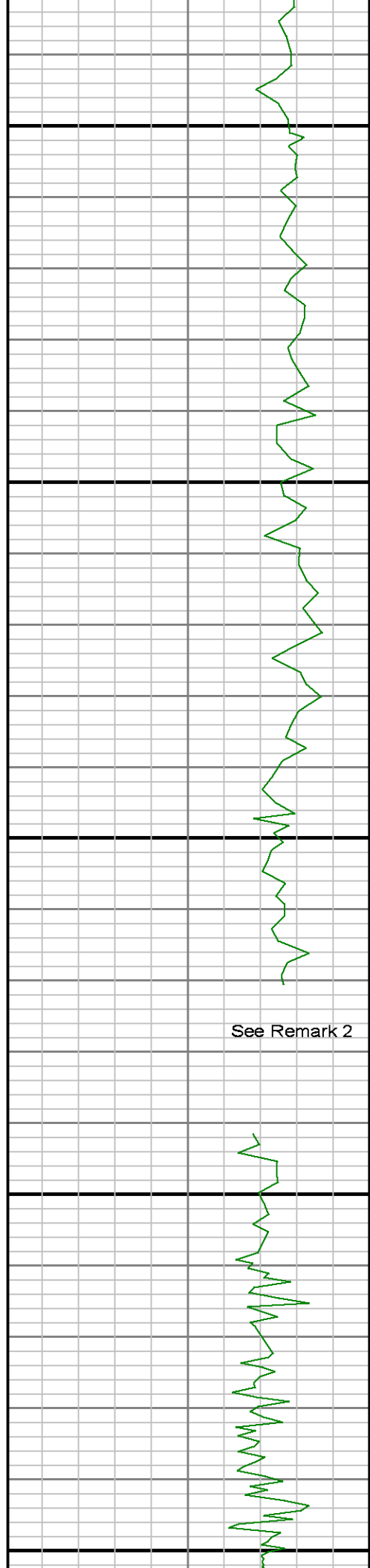




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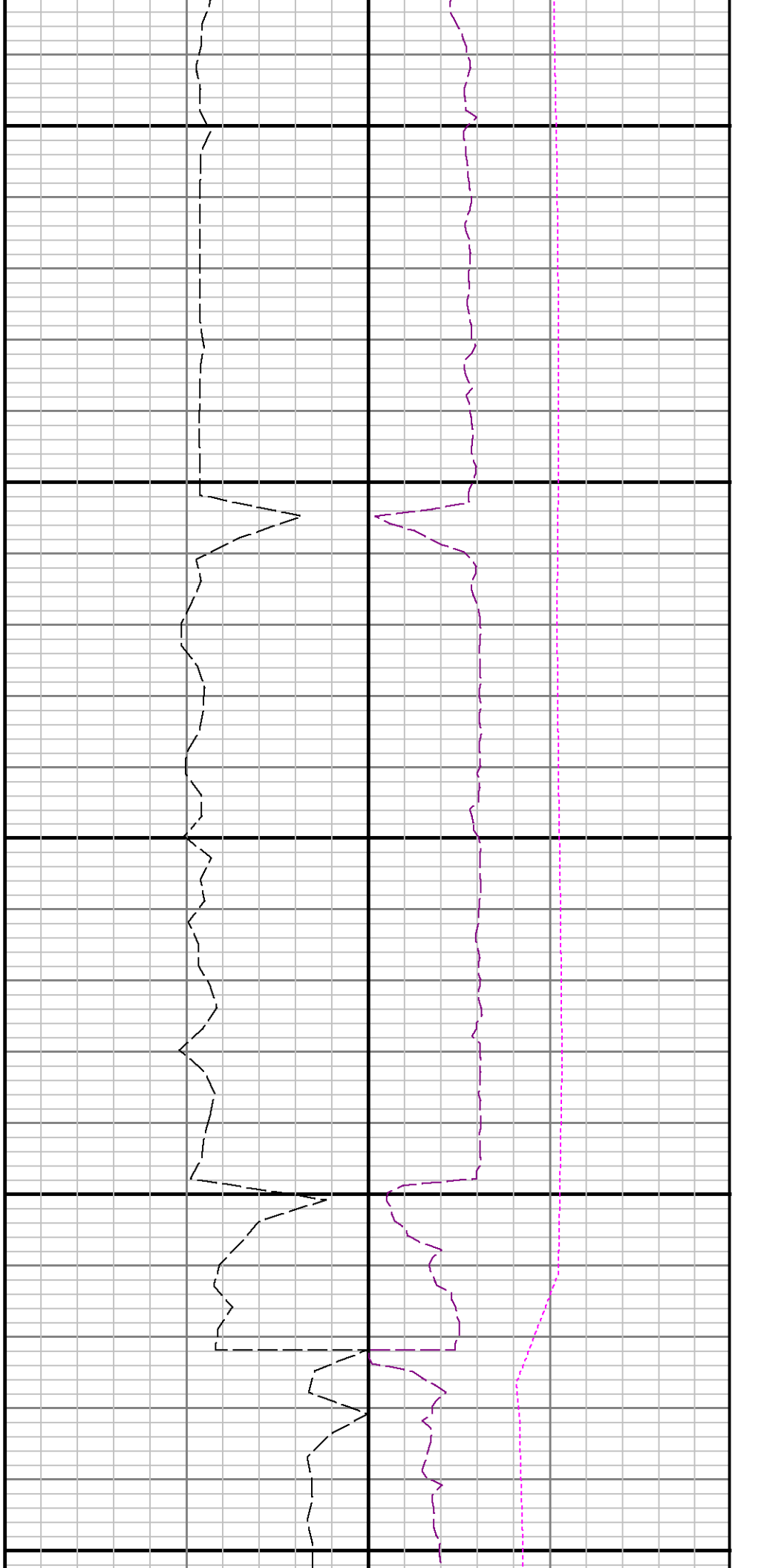
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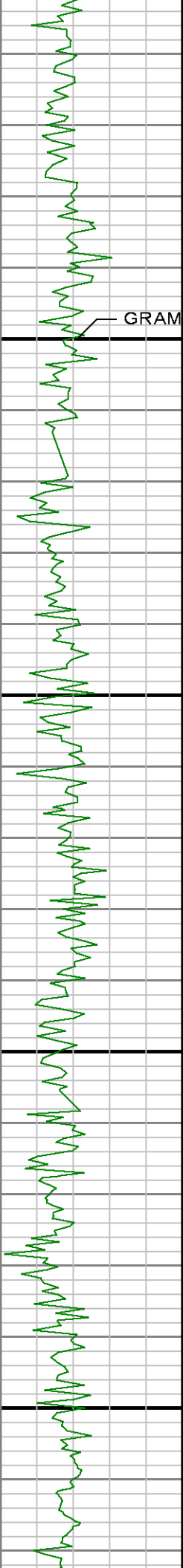




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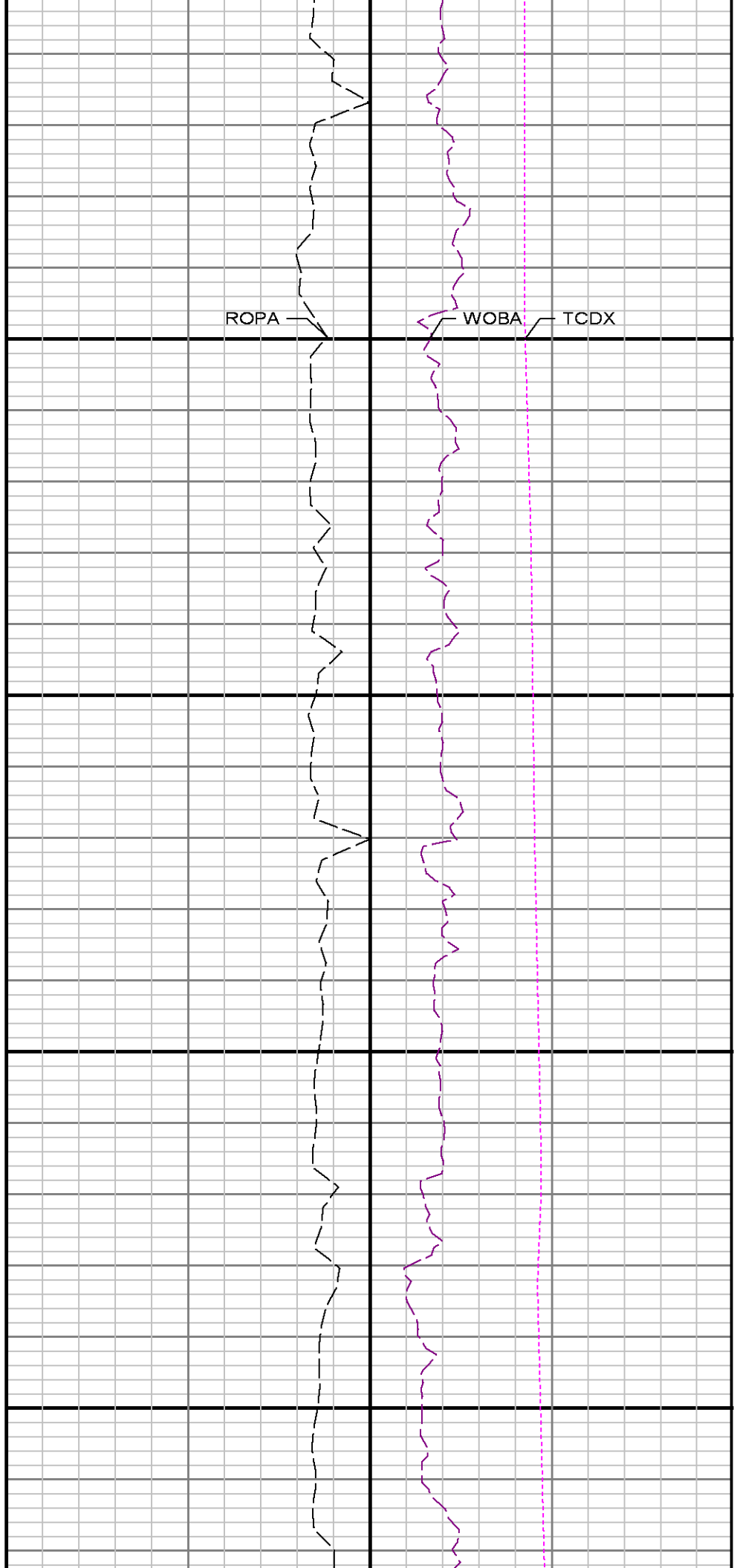
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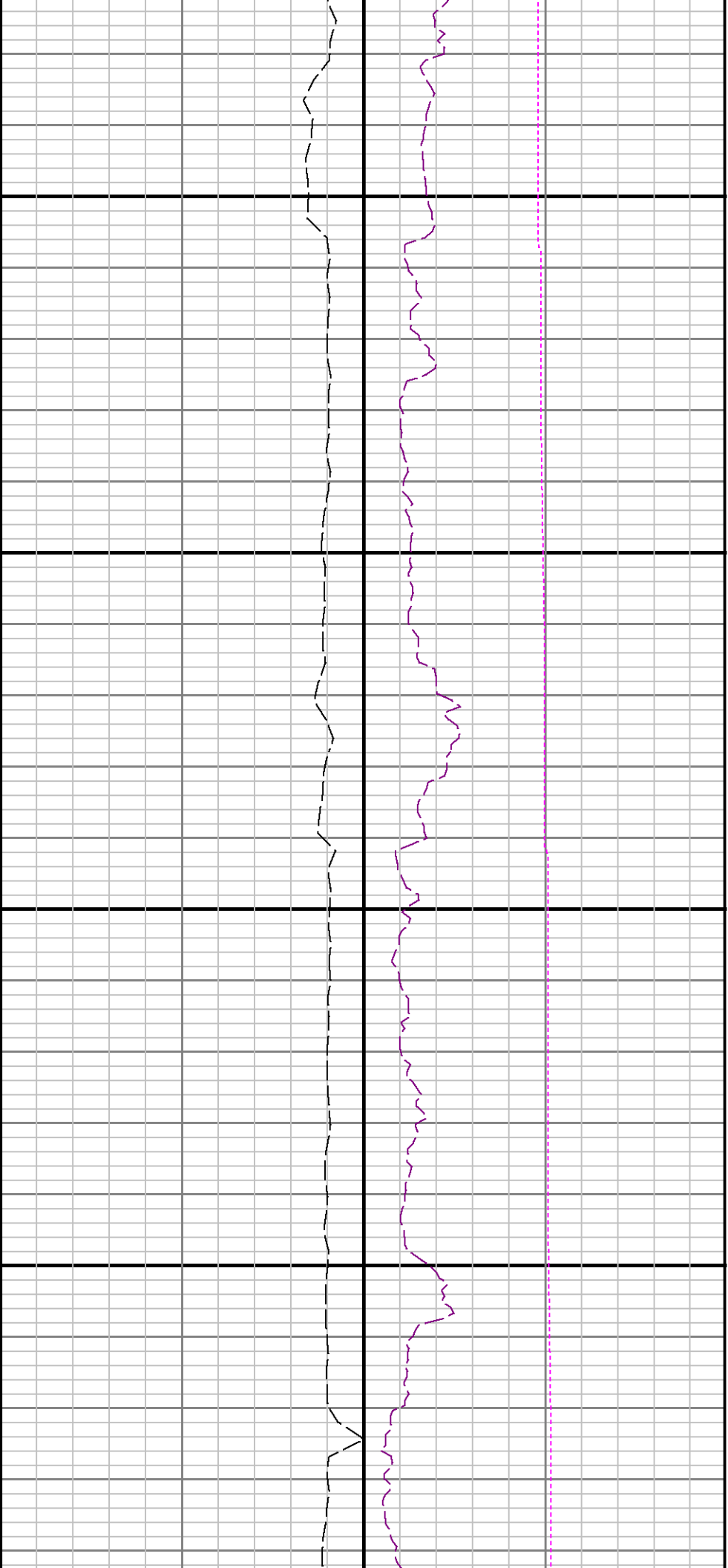




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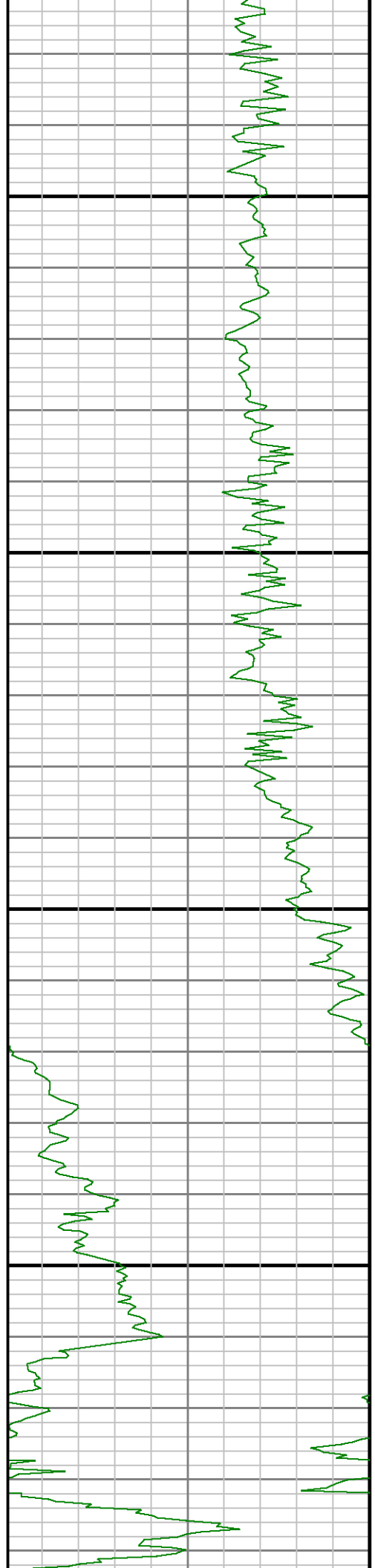
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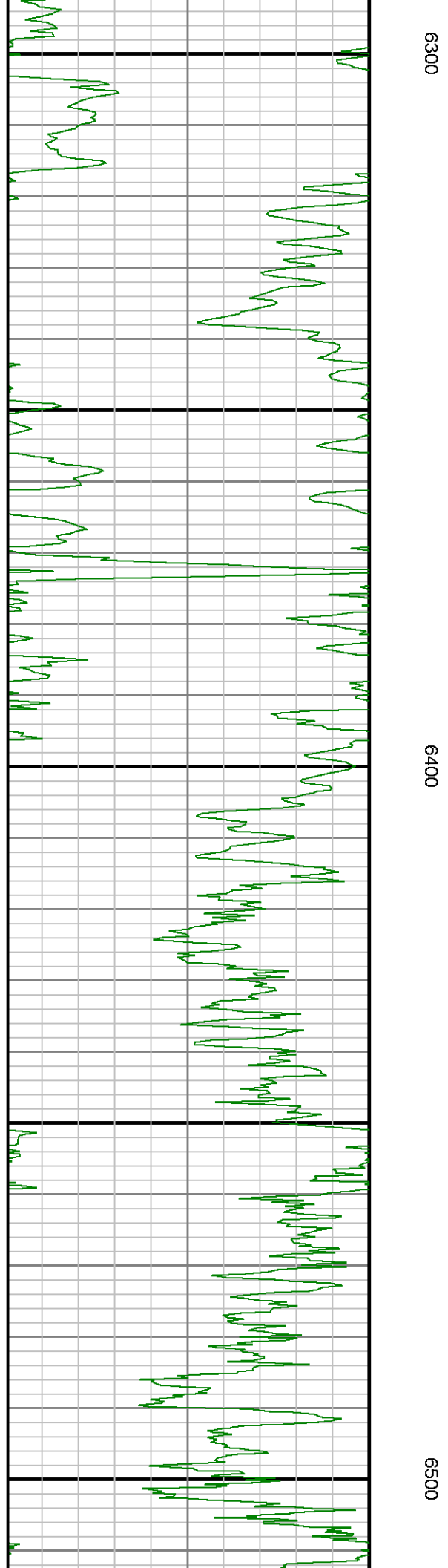
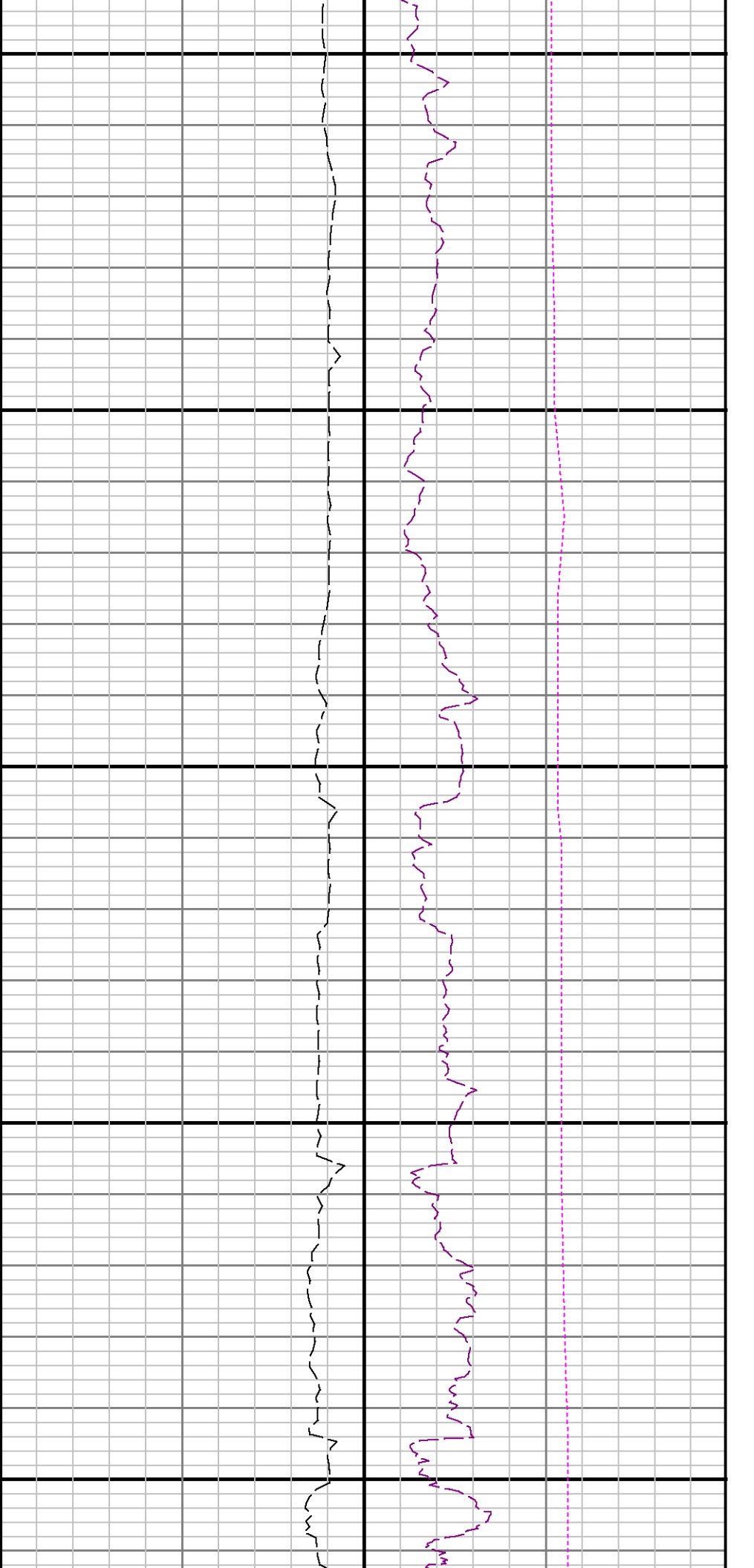


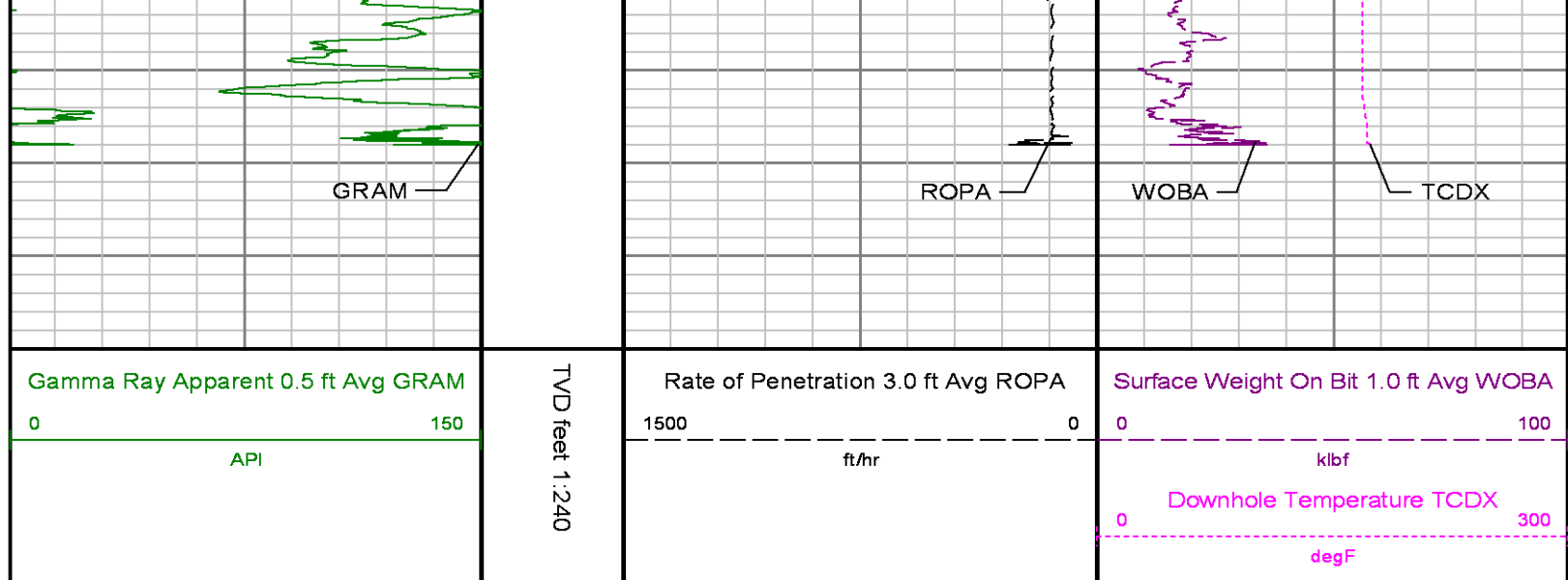


6100

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ADVANTAGE Final Survey Listing

Operator : Noble Energy Inc. Field : Weld County API No : 05-123-41976-0
 Well : WELLS RANCH BB01-655 Rig : H&P 321 Job : 7707633
 Wellbore : WELLS RANCH BB01-655 Orig Hole

Well Origin

Latitude	40.4301 deg	Longitude	-104.3551 deg
North Reference	Grid	Drill Depth Zero	Rig Floor
Vertical Datum is	Ground Level	Vertical Datum to DDZ	30.00 ft
Vertical Section North	0.00 ft	Vertical Section East	0.00 ft
Vertical Section Azimuth	267.9800 deg	Vertical Section Depth	0.00ft
Grid Convergence	-0.7200 deg	Magnetic Declination	8.0300 deg
Total Correction	7.3100 deg	TVD Calculation Method	Minimal Curvature
D-Raw Calculation	None	Local Magnetic Field	52505 nT
Local Magnetic Dip Angle	67.2200 deg	Local Gravity Field	9.799 m/s^2

Tie	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Incr VS ft	Crs Len ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	0.00	0.0000	0.0000	0.00	0.00	0.00	0.00	0.00				
	82.00	0.1900	266.1900	-0.01	-0.14	82.00	0.14	0.14	82.00	0.23	0.23	-114.40
	177.00	0.2500	206.5600	-0.20	-0.39	177.00	0.39	0.45	95.00	0.24	0.06	-62.77
	269.00	0.3600	128.0400	-0.56	-0.25	269.00	0.27	0.84	92.00	0.43	0.12	-85.35
	361.00	0.2800	102.4500	-0.79	0.20	361.00	-0.17	1.34	92.00	0.18	-0.09	-27.82
	453.00	0.4300	99.7400	-0.90	0.76	453.00	-0.73	1.91	92.00	0.16	0.16	-2.95
	548.00	0.1300	92.6400	-0.96	1.22	547.99	-1.18	2.37	95.00	0.32	-0.32	-7.47
	642.00	0.4100	17.1200	-0.64	1.42	641.99	-1.40	2.75	94.00	0.42	0.30	-80.34
	737.00	0.1800	249.6900	-0.37	1.38	736.99	-1.37	3.02	95.00	0.57	-0.24	-134.14
	831.00	0.1800	187.3500	-0.57	1.23	830.99	-1.21	3.28	94.00	0.20	0.00	-66.32
	926.00	0.2600	166.9100	-0.93	1.26	925.99	-1.22	3.64	95.00	0.12	0.08	-21.52
	1021.00	0.4100	255.9700	-1.22	0.98	1020.99	-0.93	4.04	95.00	0.51	0.16	93.75
	1115.00	0.4600	299.9900	-1.11	0.32	1114.99	-0.28	4.70	94.00	0.35	0.05	46.83
	1210.00	0.8000	234.6500	-1.31	-0.55	1209.98	0.59	5.60	95.00	0.78	0.36	-68.78
	1304.00	0.4500	297.0600	-1.52	-1.41	1303.98	1.47	6.49	94.00	0.76	-0.37	66.39
	1399.00	0.5300	287.2100	-1.22	-2.16	1398.97	2.21	7.30	95.00	0.12	0.08	-10.37
	1494.00	0.2800	105.9600	-1.15	-2.36	1493.97	2.40	7.50	95.00	0.85	-0.26	188.16
	1588.00	0.2500	212.3300	-1.39	-2.25	1587.97	2.30	7.76	94.00	0.45	-0.03	113.16
	1683.00	0.4300	212.8100	-1.86	-2.55	1682.97	2.62	8.33	95.00	0.19	0.19	0.51
	1778.00	0.4000	267.5100	-2.18	-3.08	1777.97	3.15	8.94	95.00	0.40	-0.03	57.58
	1872.00	0.4800	248.4400	-2.34	-3.77	1871.97	3.85	9.65	94.00	0.18	0.09	-20.29
	1980.00	0.8400	239.6200	-2.90	-4.88	1979.96	4.98	10.89	108.00	0.35	0.33	-8.17
	2075.00	0.8000	242.2600	-3.56	-6.06	2074.95	6.19	12.25	95.00	0.06	-0.04	2.78
	2169.00	1.4100	249.1700	-4.28	-7.73	2168.93	7.87	14.06	94.00	0.66	0.65	7.35
	2264.00	1.8500	248.4800	-5.26	-10.24	2263.89	10.42	16.76	95.00	0.46	0.46	-0.73
	2359.00	2.3200	256.6500	-6.26	-13.54	2358.83	13.75	20.21	95.00	0.58	0.49	8.60

	2453.00	3.1500	260.0300	-7.15	-17.94	2452.72	18.18	24.69	94.00	0.90	0.88	3.60
	2548.00	4.1000	260.5600	-8.16	-23.86	2547.53	24.13	30.70	95.00	1.00	1.00	0.56
	2643.00	5.2100	254.8900	-9.84	-31.37	2642.22	31.70	38.40	95.00	1.26	1.17	-5.97
	2737.00	6.6600	250.4600	-12.78	-40.63	2735.71	41.06	48.11	94.00	1.62	1.54	-4.71
	2832.00	8.1900	248.4300	-17.11	-52.12	2829.91	52.69	60.39	95.00	1.63	1.61	-2.14
	2926.00	8.2500	246.7400	-22.23	-64.54	2922.95	65.28	73.83	94.00	0.26	0.06	-1.80
	3021.00	7.9300	247.6600	-27.41	-76.86	3017.00	77.78	87.19	95.00	0.36	-0.34	0.97
	3116.00	7.7800	248.5000	-32.26	-88.91	3111.11	89.99	100.18	95.00	0.20	-0.16	0.88
	3210.00	7.2500	249.7600	-36.65	-100.39	3204.30	101.62	112.47	94.00	0.59	-0.56	1.34
	3305.00	6.6400	248.9600	-40.69	-111.14	3298.60	112.51	123.96	95.00	0.65	-0.64	-0.84
	3399.00	7.0700	249.4200	-44.68	-121.63	3391.93	123.13	135.18	94.00	0.46	0.46	0.49
	3494.00	8.2800	250.7200	-48.99	-133.56	3486.08	135.20	147.86	95.00	1.29	1.27	1.37
	3588.00	9.5200	249.5100	-53.95	-147.23	3578.95	149.04	162.40	94.00	1.33	1.32	-1.29
	3683.00	10.1700	250.3300	-59.52	-162.49	3672.55	164.48	178.65	95.00	0.70	0.68	0.86
	3778.00	10.3400	250.0700	-65.25	-178.40	3766.03	180.59	195.56	95.00	0.19	0.18	-0.27
	3872.00	9.9400	250.2500	-70.87	-193.97	3858.56	196.34	212.11	94.00	0.43	-0.43	0.19
	3967.00	9.4500	250.1100	-76.29	-209.02	3952.20	211.58	228.11	95.00	0.52	-0.52	-0.15
	4061.00	8.9800	250.2600	-81.39	-223.18	4044.99	225.91	243.16	94.00	0.50	-0.50	0.16
	4156.00	8.4500	250.0300	-86.28	-236.72	4138.89	239.61	257.55	95.00	0.56	-0.56	-0.24
	4251.00	8.0900	247.5500	-91.22	-249.46	4232.90	252.52	271.22	95.00	0.53	-0.38	-2.61
	4345.00	8.0500	249.7500	-96.02	-261.74	4325.97	264.97	284.41	94.00	0.33	-0.04	2.34
	4440.00	8.3100	250.4000	-100.63	-274.45	4420.01	277.83	297.93	95.00	0.29	0.27	0.68
	4535.00	8.0900	254.9900	-104.66	-287.38	4514.04	290.89	311.47	95.00	0.73	-0.23	4.83
	4629.00	7.6900	251.9800	-108.32	-299.75	4607.15	303.38	324.36	94.00	0.61	-0.43	-3.20
Tie	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Incr VS ft	Crs Len ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	4724.00	7.3200	251.6900	-112.19	-311.54	4701.33	315.30	336.77	95.00	0.39	-0.39	-0.31
	4818.00	8.0500	250.0500	-116.31	-323.41	4794.49	327.31	349.34	94.00	0.81	0.78	-1.74
	4913.00	7.9200	249.7600	-120.85	-335.80	4888.57	339.85	362.54	95.00	0.14	-0.14	-0.31
	5008.00	6.9400	248.5700	-125.21	-347.29	4982.77	351.48	374.82	95.00	1.04	-1.03	-1.25
	5102.00	6.5700	246.5100	-129.43	-357.50	5076.12	361.84	385.88	94.00	0.47	-0.39	-2.19
	5197.00	6.2100	244.7400	-133.79	-367.14	5170.53	371.62	396.45	95.00	0.43	-0.38	-1.86
	5291.00	6.1400	247.1300	-137.91	-376.37	5263.98	380.99	406.56	94.00	0.28	-0.07	2.54
	5386.00	5.1700	244.5800	-141.72	-384.91	5358.52	389.67	415.92	95.00	1.05	-1.02	-2.68
	5481.00	4.6700	244.4700	-145.23	-392.27	5453.17	397.14	424.06	95.00	0.53	-0.53	-0.12
	5576.00	3.3000	236.7300	-148.39	-398.04	5547.94	403.03	430.65	95.00	1.55	-1.44	-8.15
	5670.00	1.9000	244.9800	-150.54	-401.72	5641.84	406.78	434.91	94.00	1.54	-1.49	8.78
	5765.00	1.1200	240.0500	-151.67	-403.95	5736.80	409.05	437.41	95.00	0.83	-0.82	-5.19
	5837.00	0.8200	221.6300	-152.40	-404.90	5808.79	410.02	438.61	72.00	0.60	-0.42	-25.58
	5932.00	7.9700	287.4400	-150.93	-411.65	5903.47	416.71	445.51	95.00	8.07	7.53	69.27
	6027.00	17.2400	268.7200	-149.27	-432.06	5996.11	437.05	465.99	95.00	10.54	9.76	-19.71
	6121.00	22.1900	270.3300	-149.48	-463.75	6084.58	468.73	497.69	94.00	5.30	5.27	1.71
	6216.00	27.7300	272.1300	-148.55	-503.81	6170.67	508.73	537.76	95.00	5.89	5.83	1.89
	6310.00	34.9000	268.8600	-148.28	-552.62	6250.93	557.50	586.56	94.00	7.84	7.63	-3.48
	6405.00	42.5800	267.0500	-150.47	-611.98	6324.98	616.90	645.96	95.00	8.17	8.08	-1.91
	6500.00	50.1100	265.4400	-155.03	-680.51	6390.51	685.55	714.64	95.00	8.02	7.93	-1.69
	6594.00	59.8500	266.8000	-160.18	-757.22	6444.39	762.39	791.53	94.00	10.43	10.36	1.45
	6689.00	68.2200	269.2600	-163.05	-842.50	6485.95	847.72	876.86	95.00	9.11	8.81	2.59
	6784.00	76.9200	270.4500	-163.26	-933.05	6514.38	938.22	967.40	95.00	9.24	9.16	1.25
	6878.00	88.3000	272.0900	-161.18	-1026.09	6526.46	1031.13	1060.47	94.00	12.23	12.11	1.74
	6973.00	89.9000	270.9100	-158.69	-1121.04	6527.95	1125.93	1155.45	95.00	2.09	1.68	-1.24
	7067.00	89.9600	270.9100	-157.20	-1215.02	6528.06	1219.81	1249.45	94.00	0.06	0.06	0.00
	7162.00	90.3900	268.4500	-157.73	-1310.01	6527.77	1314.76	1344.44	95.00	2.63	0.45	-2.59
	7257.00	90.1700	266.8000	-161.66	-1404.93	6527.31	1409.75	1439.44	95.00	1.75	-0.23	-1.74
	7351.00	90.3900	265.1700	-168.25	-1498.69	6526.85	1503.69	1533.43	94.00	1.75	0.23	-1.73
	7446.00	90.1700	266.0600	-175.51	-1593.41	6526.38	1598.61	1628.43	95.00	0.97	-0.23	0.94
	7540.00	90.2400	265.6200	-182.33	-1687.16	6526.05	1692.54	1722.43	94.00	0.47	0.07	-0.47
	7635.00	90.2700	265.5300	-189.66	-1781.88	6525.62	1787.46	1817.43	95.00	0.10	0.03	-0.09
	7730.00	90.1400	266.4800	-196.28	-1876.65	6525.29	1882.40	1912.43	95.00	1.01	-0.14	1.00
	7824.00	90.2700	266.9300	-201.68	-1970.49	6524.95	1976.38	2006.43	94.00	0.50	0.14	0.48
	7919.00	90.2100	267.1200	-206.61	-2065.36	6524.55	2071.36	2101.43	95.00	0.21	-0.06	0.20
	8013.00	90.2400	267.8400	-210.74	-2159.27	6524.18	2165.36	2195.43	94.00	0.77	0.03	0.77
	8108.00	90.2100	268.5100	-213.77	-2254.22	6523.81	2260.36	2290.42	95.00	0.71	-0.03	0.71
	8203.00	90.1400	268.2600	-216.44	-2349.18	6523.52	2355.35	2385.42	95.00	0.27	-0.07	-0.26
	8297.00	90.3600	269.1900	-218.54	-2443.16	6523.11	2449.34	2479.42	94.00	1.02	0.23	0.99
	8392.00	90.3300	267.9100	-220.94	-2538.12	6522.54	2544.33	2574.42	95.00	1.35	-0.03	-1.35
	8487.00	90.3000	268.7100	-223.74	-2633.08	6522.01	2639.33	2669.42	95.00	0.84	-0.03	0.84
	8581.00	90.2400	269.2200	-225.44	-2727.06	6521.57	2733.32	2763.41	94.00	0.55	-0.06	0.54
	8676.00	90.3000	267.9900	-227.75	-2822.03	6521.12	2828.31	2858.41	95.00	1.30	0.06	-1.29
	8771.00	90.3600	268.7000	-230.50	-2916.99	6520.58	2923.30	2953.41	95.00	0.75	0.06	0.75

	8865.00	90.0200	270.2800	-231.33	-3010.98	6520.26	3017.27	3047.41	94.00	1.72	-0.36	1.68
	8960.00	90.0800	273.8700	-227.89	-3105.91	6520.18	3112.01	3142.39	95.00	3.78	0.06	3.78
	9054.00	90.0500	270.2300	-224.53	-3199.83	6520.07	3205.76	3236.37	94.00	3.87	-0.03	-3.87
	9149.00	90.1400	268.0200	-225.98	-3294.81	6519.92	3300.73	3331.37	95.00	2.33	0.09	-2.33
	9244.00	90.0200	266.1800	-230.79	-3389.69	6519.78	3395.71	3426.36	95.00	1.94	-0.13	-1.94
	9338.00	89.9900	266.8500	-236.50	-3483.51	6519.78	3489.68	3520.36	94.00	0.71	-0.03	0.71
Tie	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Incr VS ft	Crs Len ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	9433.00	89.7400	264.9200	-243.32	-3578.26	6520.00	3584.62	3615.36	95.00	2.05	-0.26	-2.03
	9528.00	89.7700	264.3600	-252.19	-3672.85	6520.41	3679.45	3710.36	95.00	0.59	0.03	-0.59
	9622.00	89.9600	263.9700	-261.75	-3766.36	6520.63	3773.24	3804.36	94.00	0.46	0.20	-0.41
	9717.00	90.0800	265.6600	-270.33	-3860.97	6520.59	3868.10	3899.35	95.00	1.78	0.13	1.78
	9812.00	90.0200	267.6300	-275.89	-3955.80	6520.51	3963.06	3994.35	95.00	2.07	-0.06	2.07
	9906.00	89.8700	268.2500	-279.27	-4049.74	6520.60	4057.06	4088.35	94.00	0.68	-0.16	0.66
	10001.00	89.9300	268.8800	-281.65	-4144.71	6520.77	4152.06	4183.35	95.00	0.67	0.06	0.66
	10096.00	90.1400	268.8100	-283.57	-4239.69	6520.71	4247.05	4278.35	95.00	0.23	0.22	-0.07
	10190.00	89.9600	268.4400	-285.82	-4333.66	6520.63	4341.04	4372.35	94.00	0.44	-0.19	-0.39
	10285.00	89.9000	267.5100	-289.18	-4428.60	6520.74	4436.04	4467.35	95.00	0.98	-0.06	-0.98
	10380.00	90.0200	268.1300	-292.79	-4523.53	6520.81	4531.04	4562.35	95.00	0.66	0.13	0.65
	10474.00	89.9000	267.7600	-296.16	-4617.47	6520.88	4625.04	4656.35	94.00	0.41	-0.13	-0.39
	10569.00	90.1100	266.9700	-300.53	-4712.37	6520.87	4720.03	4751.34	95.00	0.86	0.22	-0.83
	10663.00	89.9000	270.1800	-302.87	-4806.33	6520.86	4814.02	4845.33	94.00	3.42	-0.22	3.41
	10758.00	90.0200	271.4700	-301.50	-4901.32	6520.93	4908.90	4940.33	95.00	1.36	0.13	1.36
	10853.00	89.0700	269.5400	-300.66	-4996.30	6521.68	5003.80	5035.32	95.00	2.26	-1.00	-2.03
	10947.00	90.1700	271.2000	-300.06	-5090.29	6522.30	5097.71	5129.32	94.00	2.12	1.17	1.77
	11042.00	89.9600	271.6500	-297.69	-5185.26	6522.20	5192.54	5224.31	95.00	0.52	-0.22	0.47
	11136.00	90.0500	270.4100	-296.00	-5279.25	6522.19	5286.40	5318.31	94.00	1.32	0.10	-1.32
	11230.00	89.5000	267.9000	-297.39	-5373.23	6522.56	5380.37	5412.30	94.00	2.73	-0.59	-2.67
	11325.00	90.0500	265.4800	-302.87	-5468.06	6522.93	5475.34	5507.30	95.00	2.61	0.58	-2.55
	11420.00	89.8300	263.8400	-311.72	-5562.65	6523.03	5570.18	5602.29	95.00	1.74	-0.23	-1.73
	11514.00	90.3000	266.3900	-319.72	-5656.30	6522.92	5664.05	5696.28	94.00	2.76	0.50	2.71
	11609.00	90.2000	268.0700	-324.31	-5751.18	6522.51	5759.04	5791.28	95.00	1.77	-0.11	1.77
	11703.00	90.0200	266.8000	-328.52	-5845.09	6522.33	5853.03	5885.28	94.00	1.36	-0.19	-1.35
	11798.00	90.5100	267.4300	-333.30	-5939.96	6521.89	5948.02	5980.28	95.00	0.84	0.52	0.66
	11892.00	90.3600	268.6900	-336.48	-6033.90	6521.17	6042.02	6074.27	94.00	1.35	-0.16	1.34
	11987.00	90.1700	271.1600	-336.60	-6128.90	6520.74	6136.95	6169.26	95.00	2.61	-0.20	2.60
	12081.00	90.0500	270.2200	-335.47	-6222.89	6520.55	6230.85	6263.26	94.00	1.01	-0.13	-1.00
	12176.00	90.2600	273.0000	-332.80	-6317.84	6520.30	6325.65	6358.25	95.00	2.93	0.22	2.93
	12271.00	89.8000	276.3200	-325.09	-6412.51	6520.25	6419.99	6453.24	95.00	3.53	-0.48	3.49
	12365.00	89.8600	275.0300	-315.79	-6506.05	6520.53	6513.14	6547.24	94.00	1.37	0.06	-1.37
	12460.00	90.0800	274.1700	-308.17	-6600.74	6520.58	6607.50	6642.24	95.00	0.93	0.23	-0.91
	12555.00	89.6500	274.9900	-300.59	-6695.44	6520.80	6701.87	6737.23	95.00	0.97	-0.45	0.86
	12649.00	89.8300	272.2900	-294.62	-6789.24	6521.23	6795.40	6831.22	94.00	2.88	0.19	-2.87
	12744.00	89.7100	270.1300	-292.61	-6884.21	6521.61	6890.25	6926.22	95.00	2.28	-0.13	-2.27
	12839.00	89.6800	268.3400	-293.88	-6979.20	6522.11	6985.22	7021.21	95.00	1.88	-0.03	-1.88
	12933.00	90.0800	267.1900	-297.55	-7073.12	6522.31	7079.22	7115.21	94.00	1.30	0.43	-1.22
	13028.00	90.0500	268.2800	-301.30	-7168.05	6522.20	7174.21	7210.21	95.00	1.15	-0.03	1.15
	13123.00	89.9200	270.0100	-302.72	-7263.03	6522.23	7269.19	7305.21	95.00	1.83	-0.14	1.82
	13217.00	90.0800	269.9600	-302.74	-7357.03	6522.23	7363.13	7399.21	94.00	0.18	0.17	-0.05
	13312.00	90.0200	270.2300	-302.59	-7452.03	6522.15	7458.07	7494.21	95.00	0.29	-0.06	0.28
	13407.00	89.9900	269.2000	-303.06	-7547.03	6522.14	7553.02	7589.20	95.00	1.08	-0.03	-1.08
	13502.00	89.9200	269.7600	-303.92	-7642.03	6522.21	7647.99	7684.20	95.00	0.59	-0.07	0.59
	13596.00	89.9900	268.2900	-305.52	-7736.01	6522.29	7741.97	7778.20	94.00	1.57	0.07	-1.56
	13691.00	89.9900	268.2400	-308.40	-7830.97	6522.30	7836.97	7873.20	95.00	0.05	0.00	-0.05
	13785.00	90.1100	267.0500	-312.26	-7924.89	6522.22	7930.97	7967.20	94.00	1.27	0.13	-1.27
	13879.00	89.8700	268.6700	-315.77	-8018.82	6522.24	8024.96	8061.20	94.00	1.74	-0.26	1.72
	13974.00	90.0300	269.0600	-317.65	-8113.80	6522.32	8119.95	8156.20	95.00	0.44	0.17	0.41
	14069.00	90.2100	269.6800	-318.70	-8208.79	6522.12	8214.92	8251.20	95.00	0.68	0.19	0.65
Tie	MD ft	Incl deg	Azim deg	North ft	East ft	TVD ft	VS ft	Incr VS ft	Crs Len ft	DLS deg/100ft	Build deg/100ft	Turn deg/100ft
	14163.00	90.0000	270.2800	-318.73	-8302.79	6521.95	8308.87	8345.19	94.00	0.68	-0.22	0.64
	14258.00	90.0900	269.9700	-318.52	-8397.79	6521.87	8403.80	8440.19	95.00	0.34	0.09	-0.33
	14353.00	90.0600	273.3400	-315.78	-8492.74	6521.75	8498.59	8535.18	95.00	3.55	-0.03	3.55
	14448.00	90.3400	273.9500	-309.74	-8587.54	6521.42	8593.13	8630.18	95.00	0.71	0.29	0.64
	14542.00	90.0000	273.1600	-303.91	-8681.36	6521.14	8686.68	8724.18	94.00	0.91	-0.36	-0.84
	14637.00	90.0900	268.3000	-302.70	-8776.33	6521.06	8781.54	8819.15	95.00	5.12	0.09	-5.12
	14732.00	89.6900	266.9000	-306.68	-8871.24	6521.25	8876.54	8914.15	95.00	1.53	-0.42	-1.47
	14826.00	89.7500	264.3600	-313.84	-8964.96	6521.71	8970.45	9008.14	94.00	2.70	0.06	-2.70
	14921.00	89.8100	263.6600	-323.75	-9059.44	6522.07	9065.22	9103.14	95.00	0.74	0.06	-0.74
	15016.00	89.8400	265.9800	-332.33	-9154.04	6522.36	9160.07	9198.13	95.00	2.44	0.03	2.44

15111.00	90.0600	265.8200	-339.12	-9248.80	6522.44	9255.01	9293.13	95.00	0.29	0.23	-0.17
15205.00	89.8100	267.6500	-344.48	-9342.64	6522.55	9348.98	9387.13	94.00	1.96	-0.27	1.95
15300.00	90.1500	268.5200	-347.65	-9437.59	6522.58	9443.98	9482.12	95.00	0.98	0.36	0.92
15395.00	89.9100	270.5800	-348.40	-9532.58	6522.53	9538.94	9577.12	95.00	2.18	-0.25	2.17
15489.00	89.9100	272.5800	-345.81	-9626.54	6522.68	9632.75	9671.11	94.00	2.13	0.00	2.13
15584.00	89.7500	269.0600	-344.45	-9721.52	6522.96	9727.62	9766.10	95.00	3.71	-0.17	-3.71
15679.00	89.7500	268.3900	-346.56	-9816.49	6523.38	9822.61	9861.10	95.00	0.71	0.00	-0.71
15773.00	89.9400	269.8500	-348.00	-9910.48	6523.63	9916.58	9955.09	94.00	1.57	0.20	1.55
15868.00	89.9100	269.9500	-348.17	-10005.48	6523.76	10011.53	10050.09	95.00	0.11	-0.03	0.11
15962.00	89.8800	270.7300	-347.61	-10099.47	6523.93	10105.45	10144.09	94.00	0.83	-0.03	0.83
16057.00	89.7500	267.0100	-349.48	-10194.44	6524.24	10200.42	10239.08	95.00	3.92	-0.14	-3.92
16151.00	89.9100	265.8000	-355.38	-10288.25	6524.51	10294.38	10333.07	94.00	1.30	0.17	-1.29
16246.00	89.8500	268.7800	-359.87	-10383.13	6524.71	10389.37	10428.06	95.00	3.14	-0.06	3.14
16311.00	89.8500	272.6400	-359.06	-10448.12	6524.88	10454.28	10493.05	65.00	5.94	0.00	5.94
Projection to TD:											
16335.00	89.8500	272.6400	-357.96	-10472.09	6524.95	10478.20	10517.05	24.00	0.00	0.00	0.00