



Weatherford

**DRILLING SERVICES
END OF WELL REPORT**

FOR

Kurtis Schmitz

Devon Energy

Thistle Unit 46H

Lea County, New Mexico

30-025-4118



Weatherford Drilling Services job start date : 7-19-2013

Weatherford Drilling Services job end date : 8-4-2013

Presented By:

Damien Tarpley
Area Manager

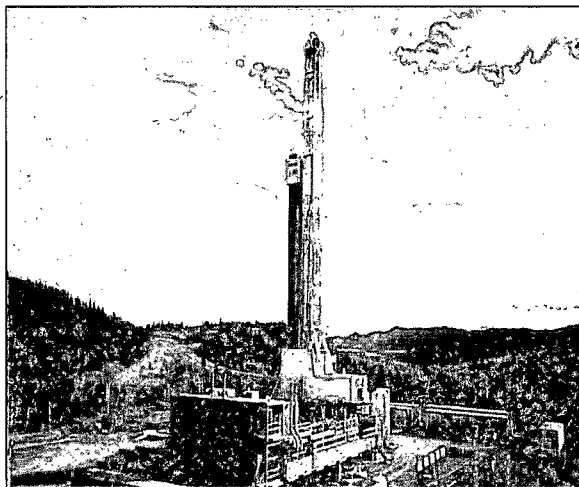
Scott Dixon
Account Manager

Orry Armendariz
Directional Drilling Coordinator

Jesse Aguilar
MWD Coordinator

H&P 416

HOBBS OCD
OCT 10 2013
RECEIVED



NOV 14 2013



10000 West County Road 116
P.O. Box 61028
Midland, Texas 79711
Phone (432) 561-8892

August 12, 2013

Kurtis Schmitz
20 North Broadway
Oklahoma City, OK 73102

Reference Well Name : Thistle Unit 46H
Location : Lea County, New Mexico
Wft Job # : 4030046
Rig : H&P 416

Dear Mr. Schmitz

Thank you for allowing us the opportunity to provide our services on your Thistle Unit 46H in Lea County, New Mexico.

Please find the final End Of Well (EOW) report enclosed behind this coverletter.

The EOW report contains the following information :

Section 1 - Weatherford (Wft) Final Definitive Survey & 8.5" x 11".

* Note: This survey contains the Directional Survey's obtained by Weatherford Drilling Services via Weatherford MWD Services, and any gyro survey needed for Tie On (if required).

Section 2- Days vs. Feet Drilled (24 hrs) and Days vs. Depth Graphs

Section 3- Wft Gamma Logs

Section 4 - Wft Final BHA reports (BHA Graphic Reports, BHA Detail Reports, Motor Evaluation Reports, and BHA Slide Reports).

Section 5 - Wft Final Daily Drilling reports.

Section 6 - Wft Personnel list with contact numbers.

We at *Weatherford Drilling Services*' understand the importance of this project to you and hope that you were satisfied with our Directional Drilling and MWD services provided.

Please feel free to contact me if you have any questions.

Sincerely,

Damien Tarpley
Area Manager
Weatherford Drilling Services
Midland, TX (432) 561-8892



Weatherford

Devon Energy
Thistle Unit 46H
Lea County, New Mexico

Section 1

Weatherford (Wft) Final Definitive

Plot & Survey



Thistle Unit 46H
Lea County, New Mexico



KB ELEV: 3685
GL ELEV: 3660

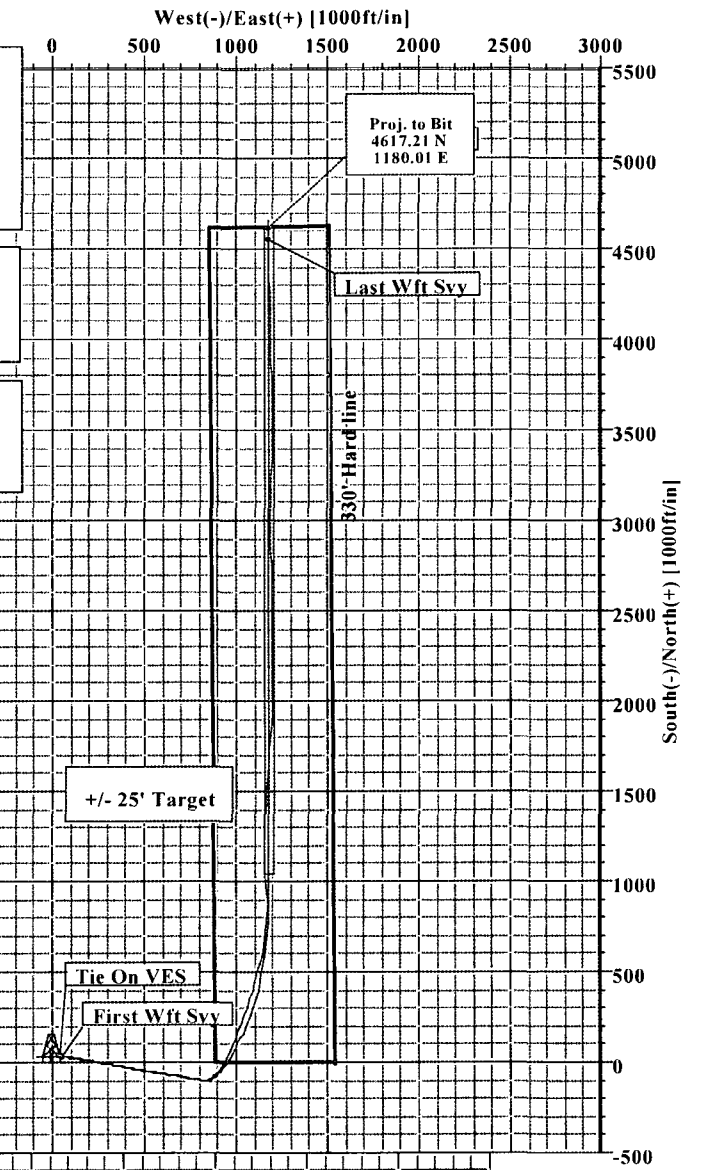
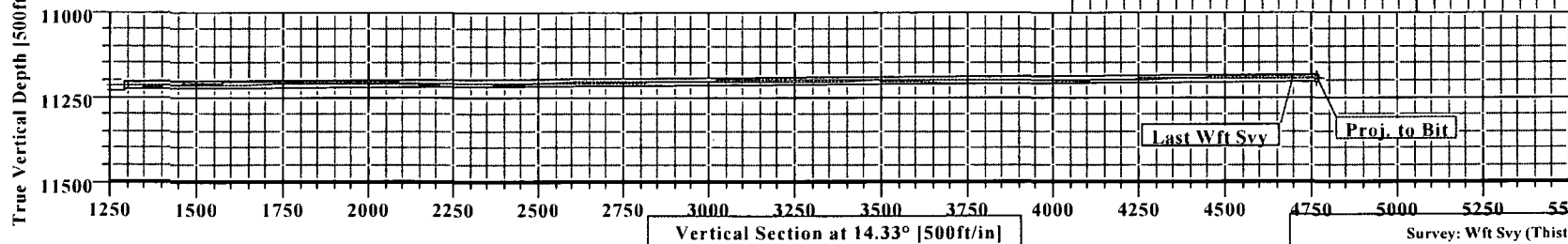
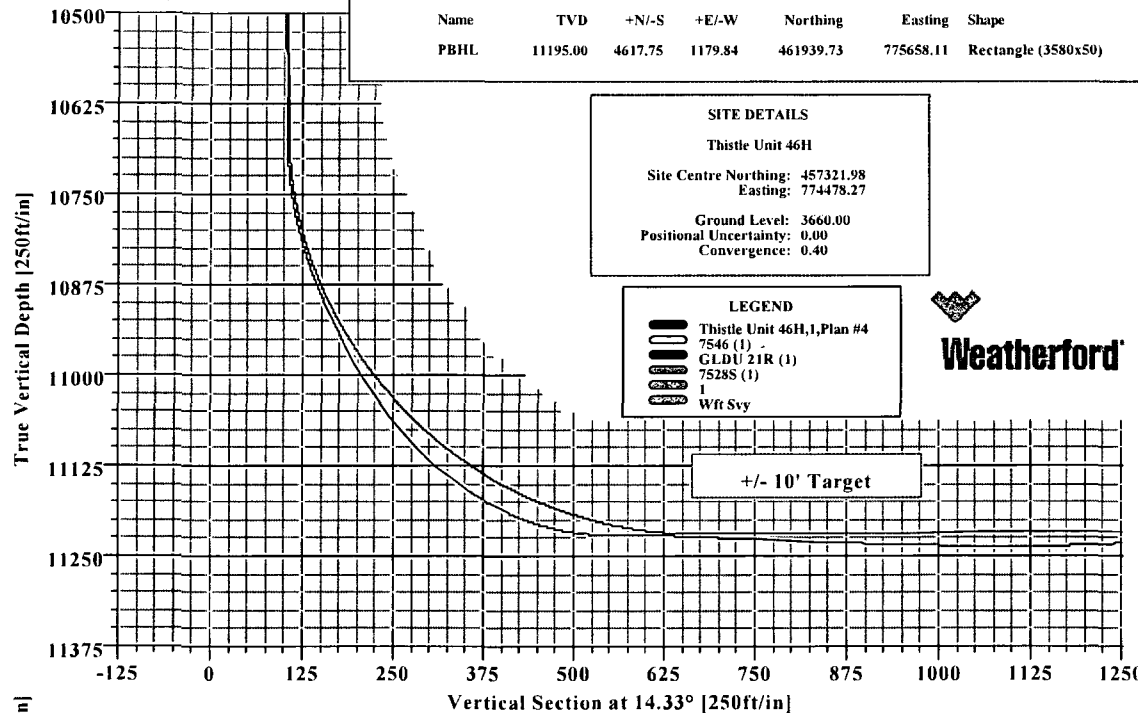
SECTION DETAILS										
Sec	MD	Inc	Azi	TVD	+N/-S	+E/-W	DLeg	TFace	VSec	Target
1	5200.00	3.89	110.88	5197.49	38.15	44.14	0.00	0.00	47.89	
2	5400.00	3.89	110.88	5397.02	33.31	56.82	0.00	0.00	46.34	
3	5566.13	8.75	100.00	5562.10	29.11	74.54	3.00	340.70	46.65	
4	10727.85	8.75	100.00	10663.75	-107.24	847.83	0.00	0.00	105.94	
5	11620.74	90.34	16.90	11219.70	419.25	1097.11	10.00	276.87	677.75	
6	12183.93	90.34	0.00	11216.35	974.30	1179.58	3.00	-89.96	1235.94	
7	15827.45	90.34	0.00	11195.00	4617.75	1179.84	0.00	0.00	4766.09	PBHL

WELL DETAILS							
Name	+N/-S	+E/-W	Northing	Easting	Latitude	Longitude	Slot
Thistle Unit 46H	0.00	0.00	457321.98	774478.27	32°15'17.999N	103°34'44.965W	N/A

TARGET DETAILS						
Name	TVD	+N/-S	+E/-W	Northing	Easting	Shape
PBHL	11195.00	4617.75	1179.84	461939.73	775658.11	Rectangle (3580x50)

SITE DETAILS	
Thistle Unit 46H	
Site Centre Northing: 457321.98 Easting: 774478.27	
Ground Level: 3660.00 Positional Uncertainty: 0.00 Convergence: 0.40	

LEGEND	
	Thistle Unit 46H, 1, Plan #4
	7546 (1)
	GLDU 21R (1)
	7528S (1)
	Wft Svy





Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company: Devon Energy Date: 8/4/2013 Time: 14:42:19 Page: 1
Field: Lea County, New Mexico (NAD 83) Co-ordinate(NE) Reference: Well: Thistle Unit 46H, Grid North
Site: Thistle Unit 46H Vertical (TVD) Reference: SITE 3685.0
Well: Thistle Unit 46H Section (VS) Reference: Well (0.00N, 0.00E, 14.33Azi)
Wellpath: 1 Survey Calculation Method: Minimum Curvature Db: Sybase

Survey: Wft Svy Start Date: 7/22/2013
Company: Weatherford Engineer: Russell W. Joyner
Tool: MWD;MWD - Standard Tied-to: User Defined

Site: Thistle Unit 46H

Site Position: Northing: 457321.98 ft Latitude: 32 15 17.999 N
From: Map Easting: 774478.27 ft Longitude: 103 34 44.965 W
Position Uncertainty: 0.00 ft North Reference: Grid
Ground Level: 3660.00 ft Grid Convergence: 0.40 deg

Well: Thistle Unit 46H Slot Name:
Well Position: +N/-S 0.00 ft Northing: 457321.98 ft Latitude: 32 15 17.999 N
+E/-W 0.00 ft Easting: 774478.27 ft Longitude: 103 34 44.965 W
Position Uncertainty: 0.00 ft

Wellpath: 1 Drilled From: Surface
Current Datum: SITE Height 3685.00 ft Tie-on Depth: 0.00 ft
Magnetic Data: 8/15/2013 Above System Datum: Mean Sea Level
Field Strength: 48443 nT Declination: 7.33 deg
Vertical Section: Depth From (TVD) +N/-S Mag Dip Angle: 60.16 deg
ft ft ft deg
0.00 0.00 0.00 14.33

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
5200.00	3.89	110.88	5197.49	38.15	44.14	0.00	47.89	457360.13	774522.41	Tie On VES First Wft Svy
5359.00	3.37	108.07	5356.17	34.78	53.62	0.35	46.97	457356.76	774531.89	
5390.00	3.12	110.59	5387.12	34.20	55.28	0.93	46.82	457356.18	774533.55	
5422.00	3.91	99.91	5419.06	33.70	57.17	3.20	46.81	457355.68	774535.44	
5516.00	5.88	94.40	5512.71	32.78	65.13	2.15	47.88	457354.76	774543.40	
5580.00	6.41	97.16	5576.34	32.09	71.94	0.95	48.89	457354.07	774550.21	
5674.00	6.76	98.66	5669.72	30.60	82.62	0.41	50.10	457352.58	774560.89	
5769.00	7.74	96.33	5763.96	29.05	94.50	1.08	51.54	457351.03	774572.77	
5863.00	8.39	97.92	5857.03	27.41	107.59	0.73	53.19	457349.39	774585.86	
5958.00	8.59	109.11	5951.00	24.13	121.15	1.75	53.37	457346.11	774599.42	
6052.00	7.85	101.34	6044.03	20.57	134.08	1.42	53.12	457342.55	774612.35	
6146.00	7.12	103.00	6137.23	18.00	146.05	0.81	53.59	457339.98	774624.32	
6241.00	8.58	97.33	6231.34	15.77	158.82	1.74	54.59	457337.75	774637.09	
6335.00	7.85	95.68	6324.37	14.24	172.16	0.82	56.41	457336.22	774650.43	
6430.00	9.31	101.88	6418.31	12.02	186.14	1.82	57.71	457334.00	774664.41	
6524.00	9.38	103.10	6511.06	8.71	201.04	0.22	58.20	457330.69	774679.31	
6618.00	8.81	102.22	6603.88	5.45	215.54	0.62	58.63	457327.43	774693.81	
6713.00	8.58	102.55	6697.79	2.37	229.56	0.25	59.12	457324.35	774707.83	
6807.00	7.93	101.29	6790.81	-0.42	242.77	0.72	59.68	457321.56	774721.04	
6901.00	7.43	101.27	6883.97	-2.88	255.09	0.53	60.35	457319.10	774733.36	
6996.00	8.30	101.16	6978.08	-5.40	267.84	0.92	61.06	457316.58	774746.11	
7090.00	9.25	98.95	7070.98	-7.89	281.96	1.07	62.14	457314.09	774760.23	
7185.00	8.85	100.52	7164.79	-10.41	296.68	0.49	63.34	457311.57	774774.95	
7280.00	8.37	99.33	7258.72	-12.87	310.69	0.54	64.43	457309.11	774788.96	
7374.00	9.05	99.22	7351.64	-15.16	324.74	0.72	65.68	457306.82	774803.01	
7469.00	8.70	98.95	7445.50	-17.48	339.21	0.37	67.02	457304.50	774817.48	
7563.00	8.42	99.68	7538.45	-19.74	353.02	0.32	68.25	457302.24	774831.29	
7658.00	9.56	100.83	7632.28	-22.39	367.63	1.21	69.29	457299.59	774845.90	
7752.00	8.68	102.32	7725.10	-25.37	382.22	0.97	70.02	457296.61	774860.49	
7847.00	8.32	102.34	7819.05	-28.37	395.94	0.38	70.51	457293.61	774874.21	



Weatherford International Ltd.

WFT Survey Report X & Y's

**Weatherford**

Company: Devon Energy
Field: Lea County, New Mexico (NAD 83)
Site: Thistle Unit 46H
Well: Thistle Unit 46H
Wellpath: 1

Date: 8/4/2013 Time: 14:42:19 Page: 2
Co-ordinate(NE) Reference: Well: Thistle Unit 46H, Grid North
Vertical (TVD) Reference: SITE 3685.0
Section (VS) Reference: Well (0.00N,0.00E,14.33Azi)
Survey Calculation Method: Minimum Curvature Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
7941.00	8.34	101.44	7912.06	-31.18	409.27	0.14	71.09	457290.80	774887.54	
8036.00	9.13	102.04	8005.96	-34.12	423.39	0.84	71.74	457287.86	774901.66	
8131.00	8.43	102.74	8099.84	-37.22	437.55	0.75	72.23	457284.76	774915.82	
8225.00	8.68	100.76	8192.80	-40.07	451.24	0.41	72.86	457281.91	774929.51	
8320.00	8.14	100.88	8286.78	-42.68	464.89	0.57	73.72	457279.30	774943.16	
8414.00	8.80	99.91	8379.75	-45.17	478.51	0.72	74.67	457276.81	774956.78	
8509.00	8.80	99.00	8473.63	-47.56	492.84	0.15	75.91	457274.42	774971.11	
8603.00	9.78	101.30	8566.40	-50.25	507.78	1.11	77.00	457271.73	774986.05	
8698.00	8.92	101.22	8660.14	-53.26	522.91	0.91	77.82	457268.72	775001.18	
8792.00	10.24	100.55	8752.82	-56.21	538.28	1.41	78.77	457265.77	775016.55	
8887.00	9.74	101.64	8846.38	-59.38	554.45	0.56	79.70	457262.60	775032.72	
8982.00	8.99	97.77	8940.12	-62.00	569.67	1.03	80.93	457259.98	775047.94	
9077.00	8.34	99.80	9034.03	-64.18	583.82	0.76	82.32	457257.80	775062.09	
9171.00	9.00	95.73	9126.96	-66.07	597.85	0.96	83.96	457255.91	775076.12	
9266.00	8.26	96.69	9220.88	-67.61	612.02	0.79	85.98	457254.37	775090.29	
9360.00	8.46	92.13	9313.88	-68.65	625.64	0.74	88.33	457253.33	775103.91	
9455.00	8.77	95.56	9407.81	-69.61	639.83	0.63	90.92	457252.37	775118.10	
9550.00	8.66	96.27	9501.72	-71.10	654.15	0.16	93.02	457250.88	775132.42	
9644.00	7.97	98.48	9594.73	-72.83	667.63	0.81	94.68	457249.15	775145.90	
9739.00	7.25	100.40	9688.89	-74.88	680.04	0.80	95.76	457247.10	775158.31	
9835.00	8.96	105.03	9783.93	-77.92	693.22	1.91	96.08	457244.06	775171.49	
9929.00	9.18	104.71	9876.75	-81.72	707.54	0.24	95.95	457240.26	775185.81	
10024.00	9.28	103.20	9970.52	-85.39	722.33	0.28	96.05	457236.59	775200.60	
10119.00	8.51	104.93	10064.38	-88.95	736.58	0.86	96.12	457233.03	775214.85	
10213.00	9.69	99.28	10157.20	-92.02	751.10	1.57	96.75	457229.96	775229.37	
10307.00	9.75	97.62	10249.85	-94.35	766.80	0.30	98.37	457227.63	775245.07	
10402.00	9.10	97.34	10343.56	-96.38	782.22	0.69	100.23	457225.60	775260.49	
10496.00	8.28	98.11	10436.48	-98.28	796.30	0.88	101.87	457223.70	775274.57	
10591.00	8.10	102.72	10530.52	-100.72	809.60	0.72	102.79	457221.26	775287.87	
10661.00	7.41	101.29	10599.88	-102.69	818.84	1.02	103.17	457219.29	775297.11	
10689.00	7.06	103.83	10627.65	-103.45	822.28	1.69	103.28	457218.53	775300.55	
10721.00	7.30	99.63	10659.40	-104.26	826.19	1.80	103.47	457217.72	775304.46	
10752.00	9.32	90.02	10690.08	-104.59	830.64	7.89	104.25	457217.39	775308.91	
10784.00	12.07	76.78	10721.52	-103.83	836.49	11.47	106.44	457218.15	775314.76	
10815.00	15.31	70.29	10751.64	-101.71	843.50	11.55	110.23	457220.27	775321.77	
10846.00	18.61	64.52	10781.29	-98.20	851.83	11.94	115.69	457223.78	775330.10	
10878.00	20.62	58.30	10811.43	-93.04	861.23	9.05	123.02	457228.94	775339.50	
10909.00	22.18	50.02	10840.30	-86.41	870.36	10.96	131.70	457235.57	775348.63	
10941.00	24.92	45.53	10869.64	-77.80	879.80	10.23	142.37	457244.18	775358.07	
10973.00	27.40	45.05	10898.36	-67.88	889.83	7.78	154.47	457254.10	775368.10	
11004.00	28.42	48.48	10925.75	-57.95	900.40	6.13	166.71	457264.03	775378.67	
11035.00	30.42	47.20	10952.75	-47.72	911.68	6.76	179.41	457274.26	775389.95	
11067.00	31.69	42.85	10980.17	-36.06	923.35	8.06	193.60	457285.92	775401.62	
11098.00	34.38	38.80	11006.16	-23.26	934.37	11.22	208.73	457298.72	775412.64	
11130.00	37.48	35.51	11032.07	-8.29	945.69	11.41	226.03	457313.69	775423.96	
11162.00	40.10	32.90	11057.01	8.29	956.95	9.65	244.89	457330.27	775435.22	
11193.00	43.51	29.87	11080.12	25.94	967.69	12.78	264.64	457347.92	775445.96	
11225.00	45.80	28.70	11102.88	45.55	978.69	7.60	286.37	457367.53	775456.96	
11256.00	48.68	27.43	11123.93	65.64	989.39	9.76	308.47	457387.62	775467.66	
11288.00	53.18	27.05	11144.09	87.72	1000.75	14.09	332.68	457409.70	775479.02	
11319.00	58.18	26.54	11161.56	110.57	1012.29	16.19	357.68	457432.55	775490.56	
11351.00	61.40	27.45	11177.66	135.21	1024.84	10.36	384.65	457457.19	775503.11	



Weatherford International Ltd.

WFT Survey Report X & Y's

**Weatherford**

Company: Devon Energy	Date: 8/4/2013	Time: 14:42:19	Page: 3
Field: Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference:	Well: Thistle Unit 46H, Grid North	
Site: Thistle Unit 46H	Vertical (TVD) Reference:	SITE 3685.0	
Well: Thistle Unit 46H	Section (VS) Reference:	Well (0.00N,0.00E,14.33Azi)	
Wellpath: 1	Survey Calculation Method:	Minimum Curvature	Db: Sybase

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
11382.00	66.33	26.06	11191.31	160.05	1037.36	16.40	411.82	457482.03	775515.63	
11414.00	71.42	25.68	11202.84	186.90	1050.38	15.94	441.06	457508.88	775528.65	
11445.00	76.17	24.29	11211.49	213.88	1062.94	15.92	470.31	457535.86	775541.21	
11477.00	81.44	22.46	11217.70	242.68	1075.39	17.40	501.30	457564.66	775553.66	
11507.00	87.27	20.42	11220.65	270.46	1086.29	20.58	530.91	457592.44	775564.56	
11539.00	89.93	16.78	11221.44	300.77	1096.49	14.09	562.80	457622.75	775574.76	
11571.00	89.30	13.89	11221.65	331.63	1104.96	9.24	594.79	457653.61	775583.23	
11634.00	87.34	13.39	11223.50	392.82	1119.81	3.21	657.76	457714.80	775598.08	
11728.00	87.76	11.12	11227.52	484.59	1139.74	2.45	751.60	457806.57	775618.01	
11823.00	87.76	7.34	11231.23	578.27	1154.96	3.98	846.14	457900.25	775633.23	
11918.00	88.53	5.70	11234.31	672.60	1165.74	1.91	940.20	457994.58	775644.01	
12013.00	89.16	2.42	11236.22	767.33	1172.47	3.52	1033.65	458089.31	775650.74	
12107.00	90.35	358.41	11236.62	861.31	1173.15	4.45	1124.87	458183.29	775651.42	
12202.00	92.31	353.43	11234.42	956.01	1166.39	5.63	1214.95	458277.99	775644.66	
12297.00	95.26	356.12	11228.15	1050.38	1157.76	4.20	1304.26	458372.36	775636.03	
12391.00	95.61	358.74	11219.24	1143.86	1153.56	2.80	1393.78	458465.84	775631.83	
12486.00	93.08	1.53	11212.04	1238.57	1153.79	3.96	1485.60	458560.55	775632.06	
12581.00	91.54	2.80	11208.21	1333.42	1157.38	2.10	1578.39	458655.40	775635.65	
12675.00	89.86	3.03	11207.07	1427.29	1162.16	1.80	1670.52	458749.27	775640.43	
12770.00	90.42	2.73	11206.83	1522.17	1166.93	0.67	1763.63	458844.15	775645.20	
12864.00	91.19	3.86	11205.51	1616.00	1172.33	1.45	1855.88	458937.98	775650.60	
12959.00	89.79	5.17	11204.70	1710.70	1179.81	2.02	1949.48	459032.68	775658.08	
13054.00	88.46	4.95	11206.15	1805.31	1188.19	1.42	2043.23	459127.29	775666.46	
13148.00	84.11	2.69	11212.24	1898.88	1194.44	5.21	2135.43	459220.86	775672.71	
13243.00	86.57	1.82	11219.96	1993.48	1198.16	2.75	2228.01	459315.46	775676.43	
13338.00	91.96	359.62	11221.18	2088.43	1199.35	6.13	2320.30	459410.41	775677.62	
13401.00	94.27	359.63	11217.75	2151.33	1198.94	3.67	2381.14	459473.31	775677.21	
13496.00	91.26	359.20	11213.17	2246.20	1197.97	3.20	2472.82	459568.18	775676.24	
13527.00	90.07	358.95	11212.81	2277.19	1197.47	3.92	2502.73	459599.17	775675.74	
13622.00	90.21	359.13	11212.58	2372.18	1195.88	0.24	2594.36	459694.16	775674.15	
13717.00	91.19	359.53	11211.42	2467.17	1194.77	1.11	2686.12	459789.15	775673.04	
13812.00	91.40	359.58	11209.27	2562.14	1194.03	0.23	2777.95	459884.12	775672.30	
13906.00	91.68	0.29	11206.75	2656.10	1193.93	0.81	2868.97	459978.08	775672.20	
14001.00	90.91	358.28	11204.60	2751.07	1192.74	2.27	2960.68	460073.05	775671.01	
14096.00	91.75	359.96	11202.39	2846.03	1191.28	1.98	3052.33	460168.01	775669.55	
14190.00	89.37	359.56	11201.47	2940.01	1190.89	2.57	3143.29	460261.99	775669.16	
14285.00	89.72	0.13	11202.23	3035.01	1190.63	0.70	3235.27	460356.99	775668.90	
14379.00	89.86	0.62	11202.57	3129.01	1191.25	0.54	3326.49	460450.99	775669.52	
14474.00	90.49	0.93	11202.28	3224.00	1192.53	0.74	3418.85	460545.98	775670.80	
14569.00	87.83	0.58	11203.68	3318.97	1193.78	2.82	3511.17	460640.95	775672.05	
14663.00	88.04	0.67	11207.06	3412.90	1194.81	0.24	3602.44	460734.88	775673.08	
14758.00	88.04	0.54	11210.31	3507.84	1195.81	0.14	3694.67	460829.82	775674.08	
14852.00	89.09	0.03	11212.67	3601.81	1196.28	1.24	3785.83	460923.79	775674.55	
14946.00	90.42	358.97	11213.07	3695.80	1195.46	1.81	3876.70	461017.78	775673.73	
15041.00	92.66	358.84	11210.51	3790.74	1193.64	2.36	3968.23	461112.72	775671.91	
15136.00	93.42	358.81	11205.48	3885.59	1191.70	0.80	4059.65	461207.57	775669.97	
15230.00	91.75	358.59	11201.24	3979.47	1189.57	1.79	4150.08	461301.45	775667.84	
15324.00	92.10	358.51	11198.08	4073.38	1187.19	0.38	4240.48	461395.36	775665.46	
15419.00	91.05	358.74	11195.47	4168.32	1184.91	1.13	4331.90	461490.30	775663.18	
15514.00	91.61	359.14	11193.26	4263.28	1183.15	0.72	4423.47	461585.26	775661.42	
15609.00	91.19	359.12	11190.94	4358.24	1181.71	0.44	4515.12	461680.22	775659.98	
15704.00	90.07	359.71	11189.90	4453.22	1180.74	1.33	4606.91	461775.20	775659.01	
15798.00	90.98	359.76	11189.04	4547.22	1180.31	0.97	4697.87	461869.20	775658.58	Last Wft Svy



Weatherford International Ltd.

WFT Survey Report X & Y's



Weatherford

Company: Devon Energy	Date: 8/4/2013	Time: 14:42:19	Page: 4
Field: Lea County, New Mexico (NAD 83)	Co-ordinate(NE) Reference: Well: Thistle Unit 46H, Grid North		
Site: Thistle Unit 46H	Vertical (TVD) Reference: SITE 3685.0		
Well: Thistle Unit 46H	Section (VS) Reference: Well (0.00N,0.00E,14.33Azi)		
Wellpath: 1	Survey Calculation Method: Minimum Curvature	Db: Sybase	

Survey

MD ft	Incl deg	Azim deg	TVD ft	N/S ft	E/W ft	DLS deg/100ft	VS ft	MapN ft	MapE ft	Comment
15868.00	90.98	359.76	11187.84	4617.21	1180.01	0.00	4765.61	461939.19	775658.28	Proj. to Bit

Annotation

MD ft	TVD ft	
5200.00	5197.49	Tie On VES
5359.00	5356.17	First Wft Svy
15798.00	11189.04	Last Wft Svy
15868.00	11187.84	Proj. to Bit



Weatherford®

30-025-41118

Devon Energy
Thistle Unit 46H
Lea County, New Mexico

Section 2

Days vs. Depth

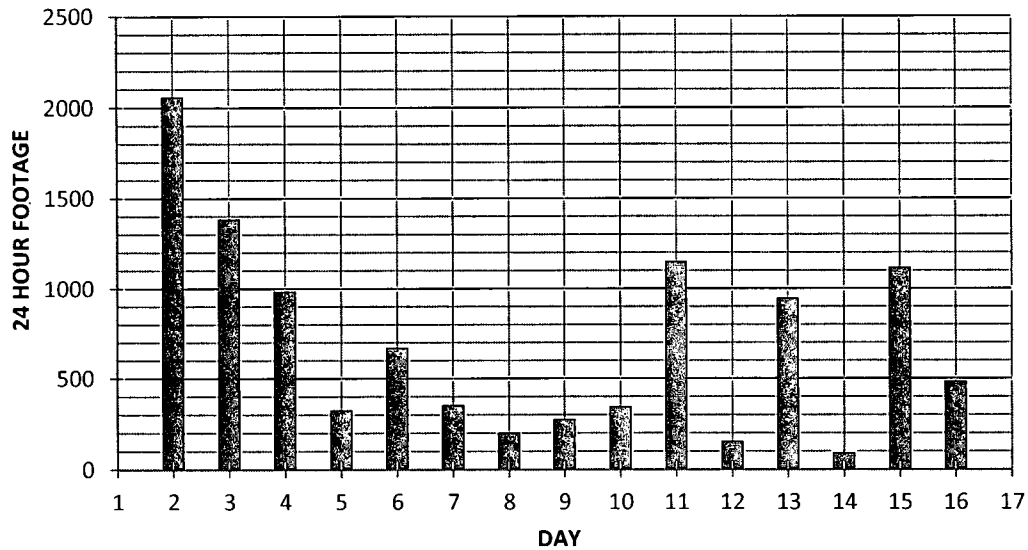


Devon Energy
Thistle Unit 46H
Lea Co., New Mexico

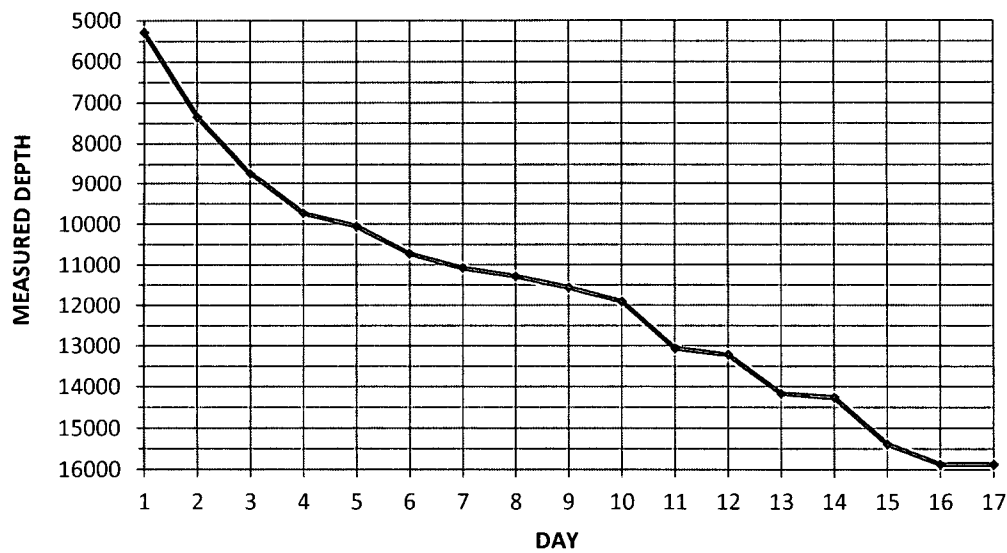


Weatherford®

DAYS VS FEET DRILLED /24 HOURS



DAYS VS DEPTH





Weatherford

Devon Energy
Thistle Unit 46H
Lea County, New Mexico

Section 3

Weatherford Gamma Logs



MWD Gamma Ray Log
5 Inch Measured Depth
Real Time Final Copy

Company: Devon Energy
Well: Thistle Unit 46H
Field: Lea
Rig: HP 416
State: NM Country: USA

COMPANY Devon Energy
WELL Thistle Unit 46H
FIELD Lea
RIG HP 416
STATE NM COUNTRY USA
API 30-025-41027

Location
Latitude: 32.255000 ° N Mag Decl: 7.43 °
Longitude: 103.579150 ° W Grid Corr: 0.40 °
Other Services: Deviation Surveys Total Corr: 7.03 °

Permanent Datum: Mean Sea Level
Log Measured From: Top Drive @ 3683.00 ft above Permanent Datum
Depth Reference: Driller's Depth Total Depth: 15867.00 ft
Depth Logged: 11282.00 ft to 15814.00 ft Runs: 4
Date Logged: 25-Jul-13 to 3-Aug-13 Spud Date: 12-Jul-13

Elevation
K.B. 3685.00 ft
G.L. 3660.00 ft
D.F. 3683.00 ft
W.D. n/a

Borehole Record

Casing Record

Hole Size	From	To	Size	Weight	From	To
17.5 in	145.00 ft	1351.00 ft	13.375 in	54.50 lb/ft	surface	1351.00 ft
12.5 in	1351.00 ft	5285.00 ft	9.625 in	40.00 lb/ft	surface	5279.00 ft
8.75 in	5285.00 ft	15867.00 ft				

Borehole Deviation Record

Mud Record

Hole Size	Min. Inc.	Max. Inc.	Type	Weight	From	To
8.75 in	7.30 °	95.61 °	WBM	8.60 lb/gal	10724.00 ft	11282.00 ft
			WBM	8.80 lb/gal	11282.00 ft	11560.00 ft
			WBM	8.90 lb/gal	11560.00 ft	13217.00 ft
			WBM	8.90 lb/gal	13217.00 ft	15867.00 ft

All interpretations of log data are opinions based on inferences from electrical or other measurements. Weatherford Drilling Services does not guarantee the accuracy or correctness of any interpretation or recommendation and we shall not be liable or responsible for any loss, cost, damages or expenses incurred or sustained by anyone resulting from any interpretation or recommendation made by any of our employees or agents.

RUN SUMMARY

Run Number	1	2	3	4	5	6	7	8
Bit Size in	8.750	8.750	8.750	8.750				
Bit Type	PDC	Tri-Cone	PDC	PDC				
Bit TFA in ²	0.55	0.45	0.66	0.66				
Bit Start Depth ft	10724.00	11282.00	11560.00	13217.00				
Bit End Depth ft	11282.00	11560.00	13217.00	15867.00				
Top Log Interval ft	10683.00	11241.00	11507.00	13164.00				
Bottom Log Interval ft	11241.00	11518.00	13164.00	15814.00				
Begin Log Time hh:mm	16:15	2:15	16:00	4:45				
Begin Log Date DD-MMM-YY	25-Jul-13	27-Jul-13	28-Jul-13	31-Jul-13				
End Log Time hh:mm	16:30	22:30	2:30	8:30				
End Log Date DD-MMM-YY	26-Jul-13	27-Jul-13	30-Jul-13	03-Aug-13				

Drill or Wipe or Both		Drill	Drill	Drill	Drill				
Flow Rate	gal/min	635	629	700	630				
Min Inc @ Depth	deg @ ft	7.30@10712	48.68@11256	87.27@11507	87.83@14569				
Max Inc @ Depth	deg @ ft	45.08@11225	81.44@11477	95.61@12391	94.27@13338				
MUD DATA									
Depth	ft	11282	11560	13217	15867				
Fluid Type		WBM	WBM	WBM	WBM				
Mud Weight	lb/gal	8.60	8.80	9.00	8.90				
Viscosity	sec/qt	27	28	29	27				
Solids / Sand	%	1.9 / 0.1	3.0 / 0.1	3.0 / 0.1	3.0 / 0.1				
pH / Fluid Loss	ml/30 min	9.5	9.5	9.4	9				
Max Tool Temp / Tool	deg F	146	150	163	177				
Client Representative		Jeff Foster	Jeff Foster	Jeff Foster	Jeff Foster				
Weatherford Engineer		Dave Latch	Dave Latch	Dave Latch	Dave Latch				

EQUIPMENT SUMMARY

Run Number	1	2	3	4	5	6	7	8
BTR / CDS Serial Number	908 / 873	908 / 873	908 / 873	908 / 873				
Battery Serial Number	404007679	404007679	404007678	404007678				
Gamma Ray Serial Number	48246	48246	48246	48246				
Pressure Probe Serial Number	N/A	N/A	N/A	N/A				
CMS Serial Number	1771	1771	1771	1771				
Pulser Serial Number	10746	10746	10746	10746				

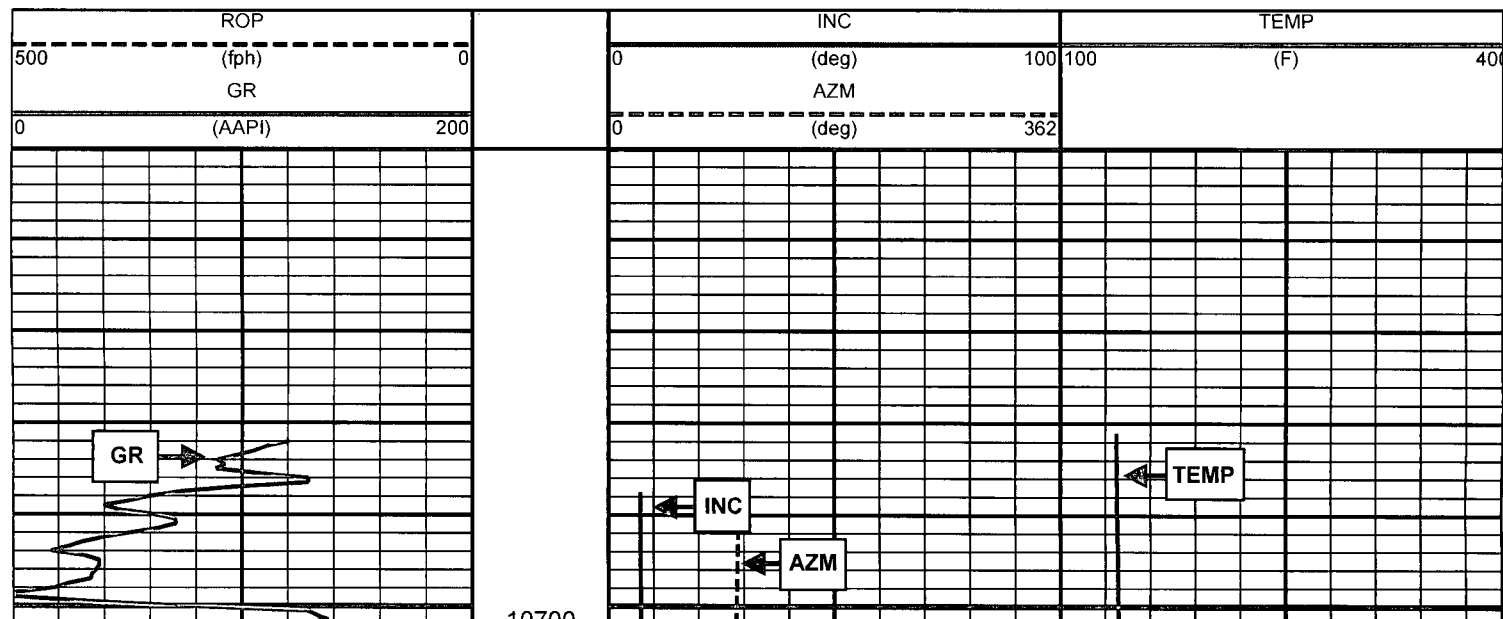
Bit to Sensor Offsets

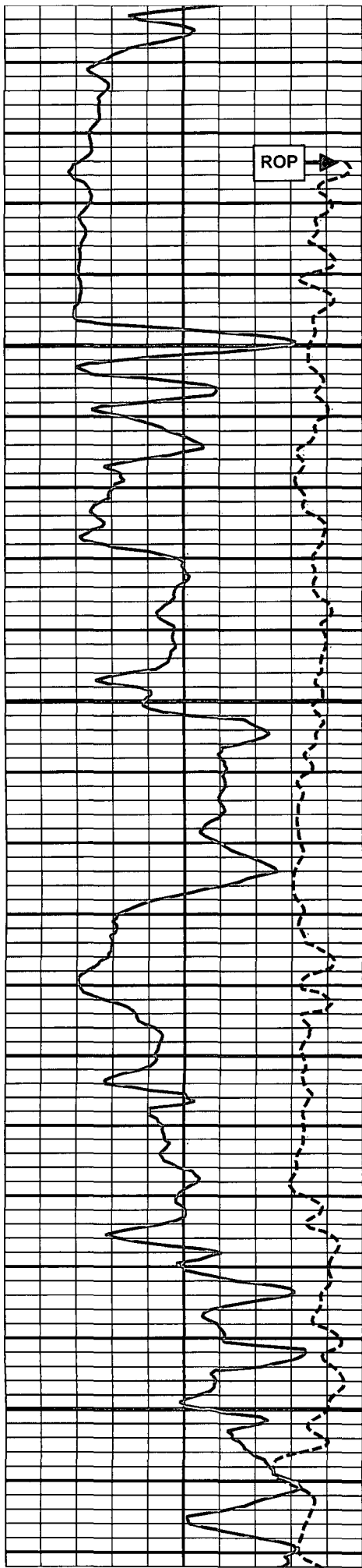
Directional	ft	55.90	55.90	67.13	67.18				
Gamma Ray	ft	41.69	41.69	52.92	52.97				

Other Information

BHA Assembly Type		Steerable	Steerable	Steerable	Steerable				
Run Circulating Time	hrs	17.69	18.22	35.26	74.22				
Run Drilling Time	hrs	8.83	12.52	21.33	34.00				

5 Inch - Measured Depth

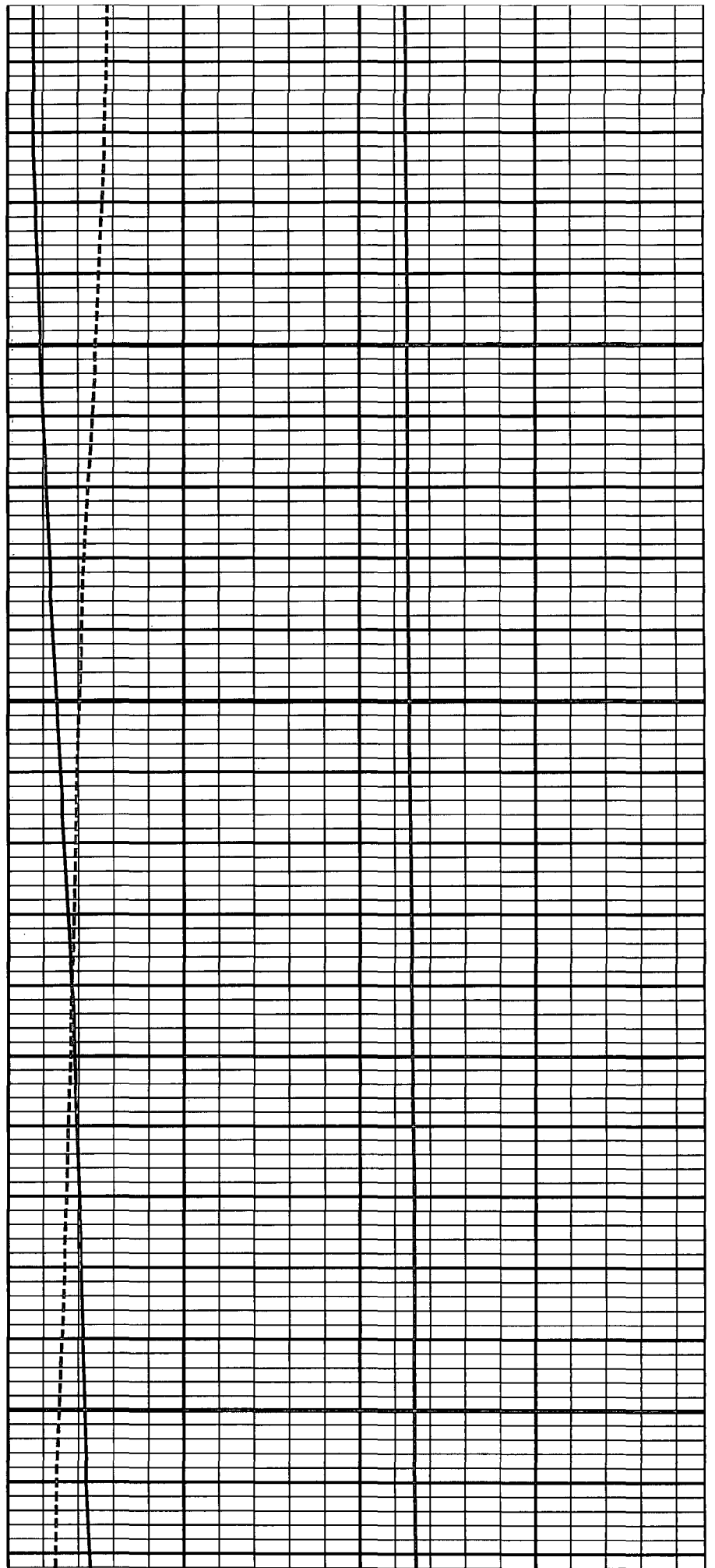


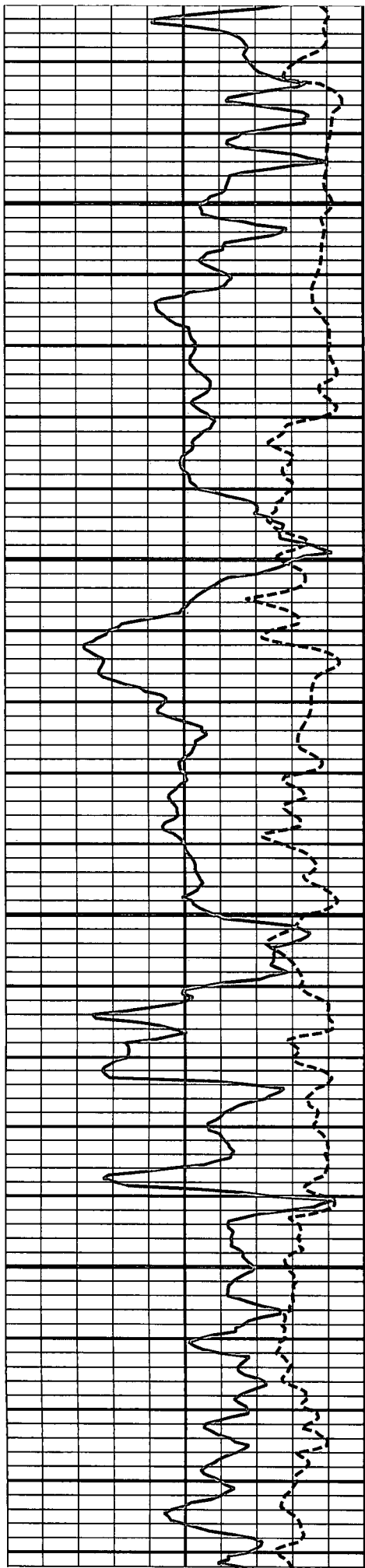


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MD

10800
MD

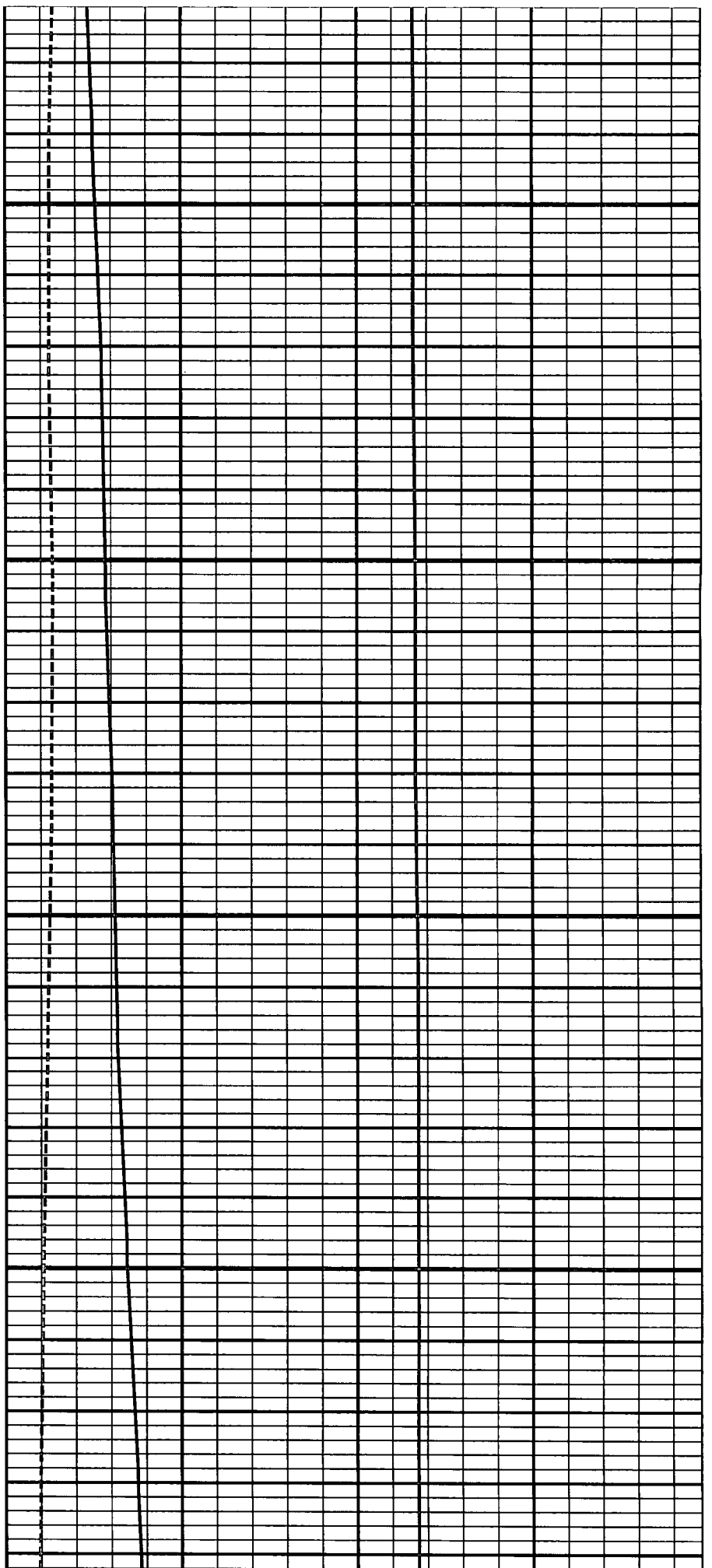
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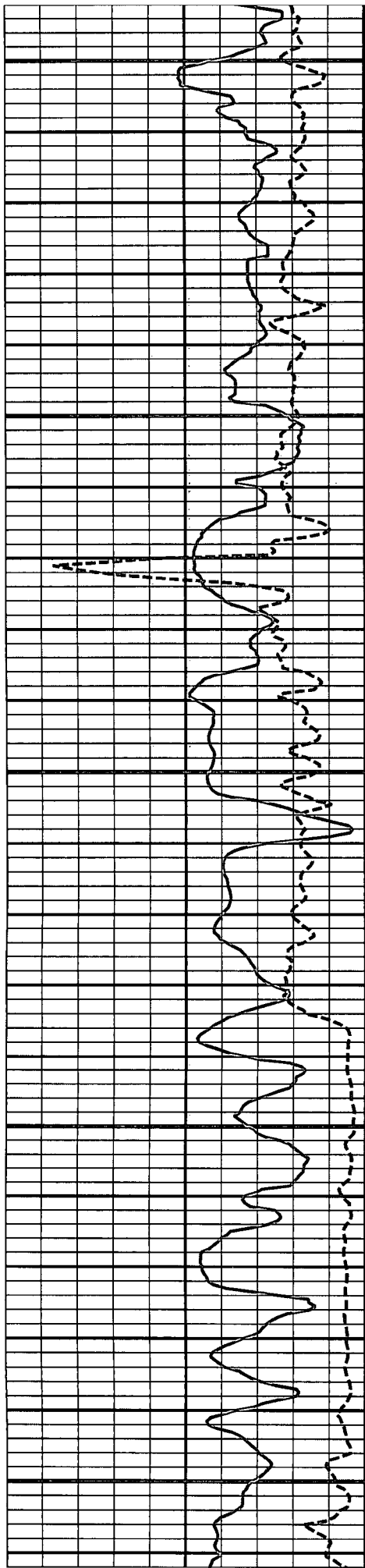




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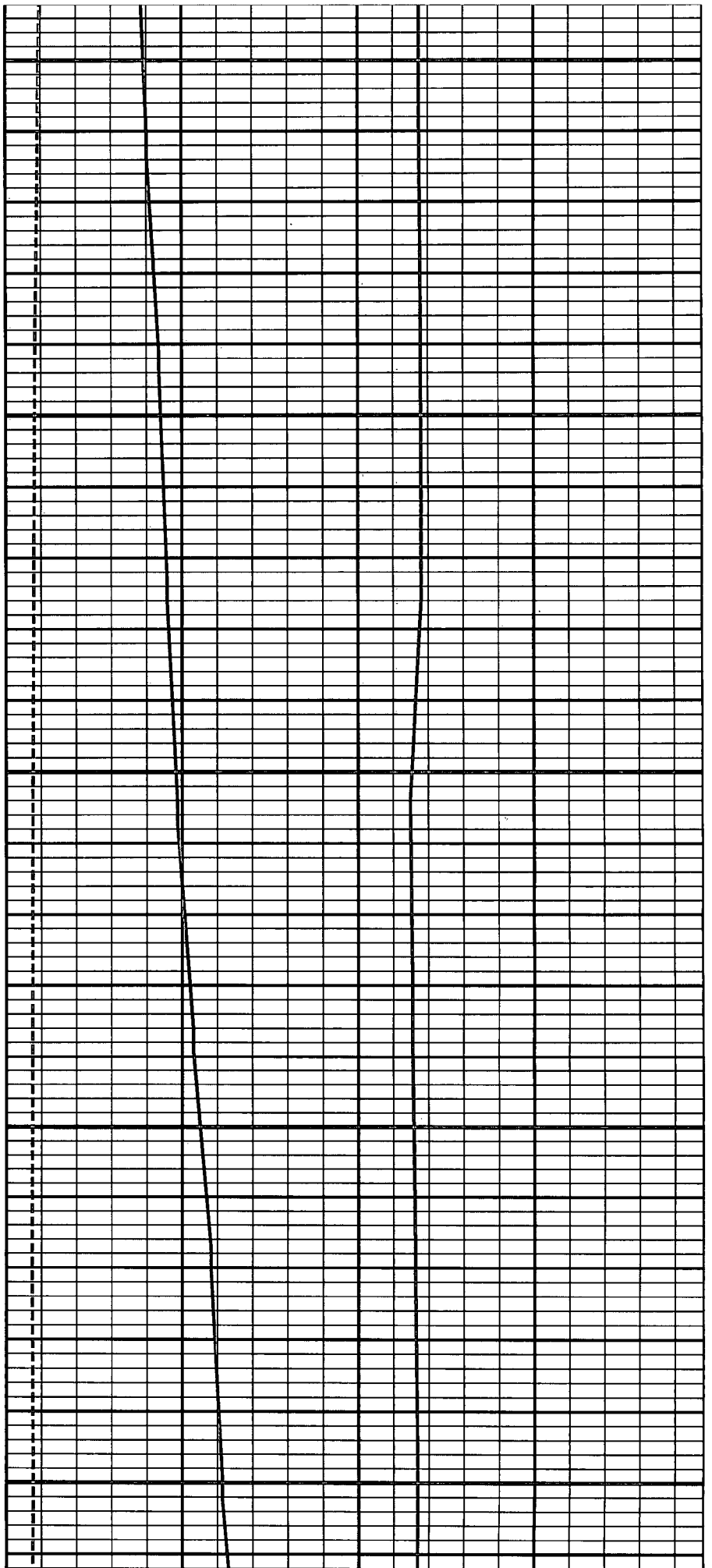
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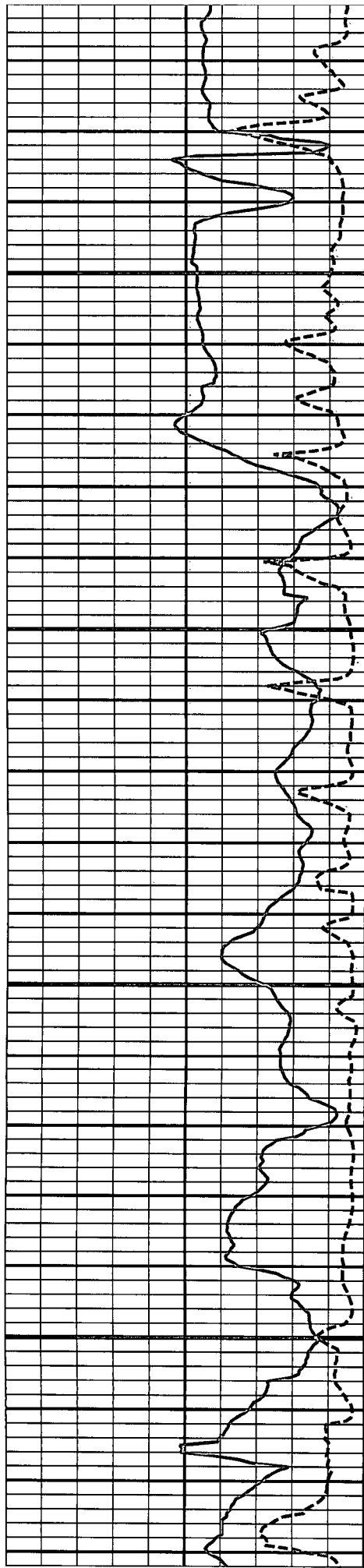




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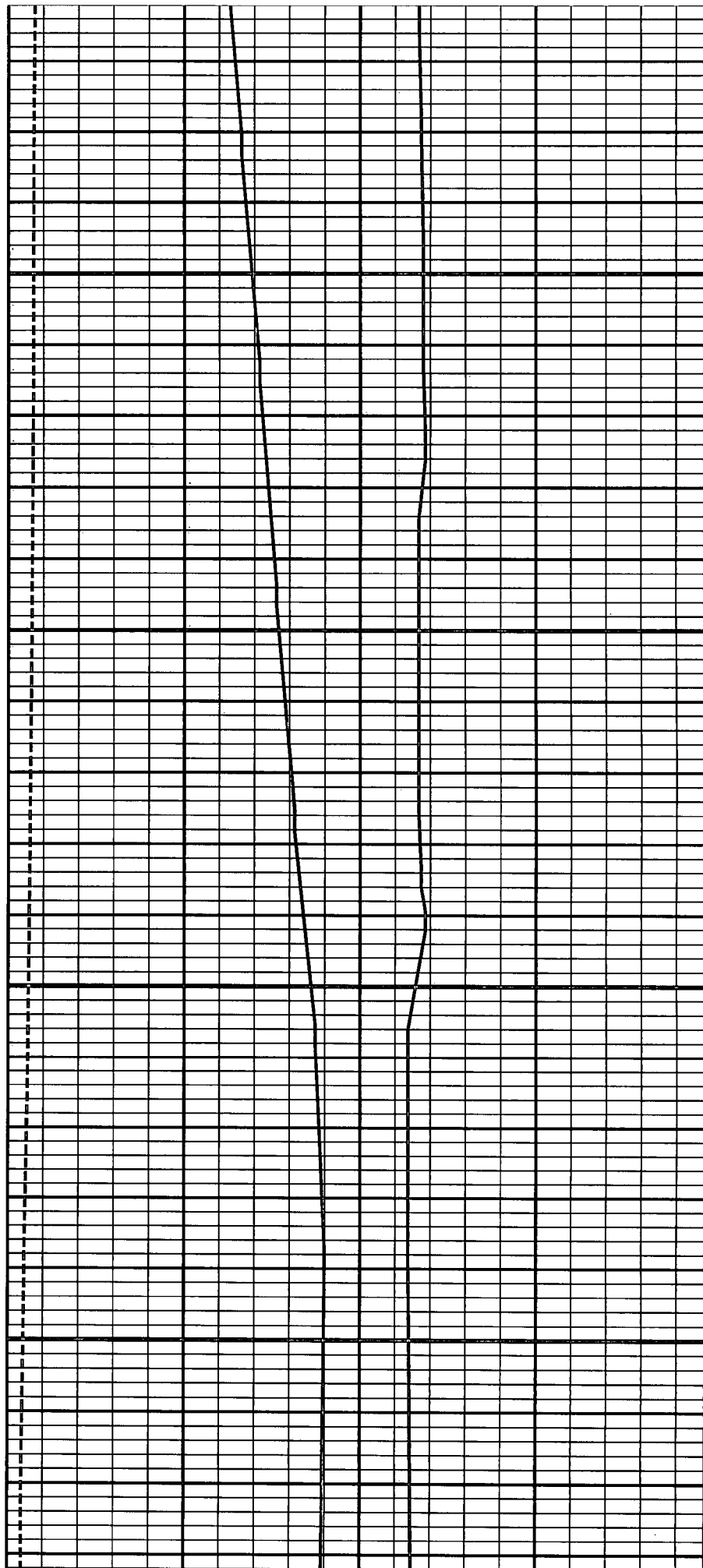
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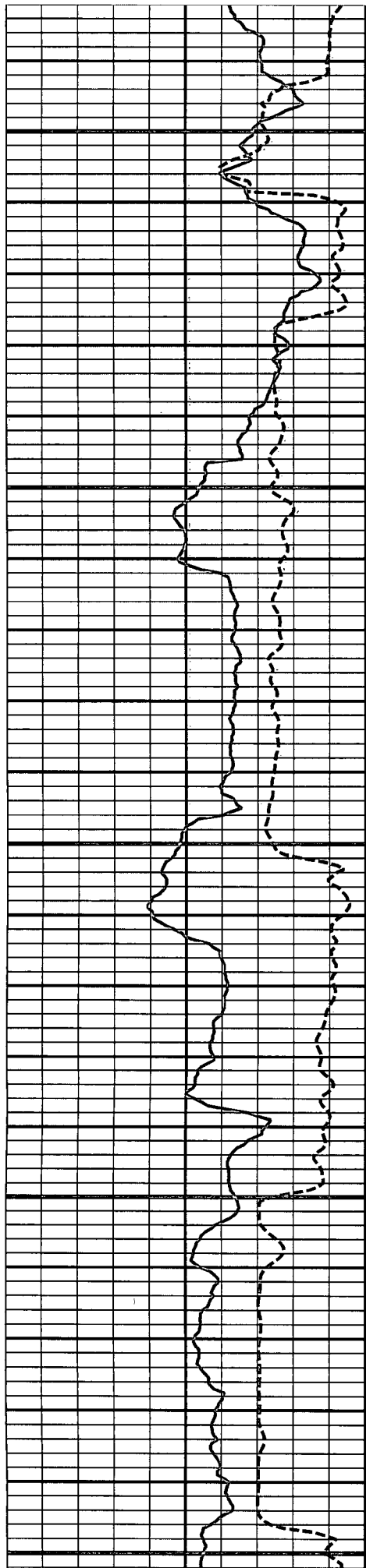




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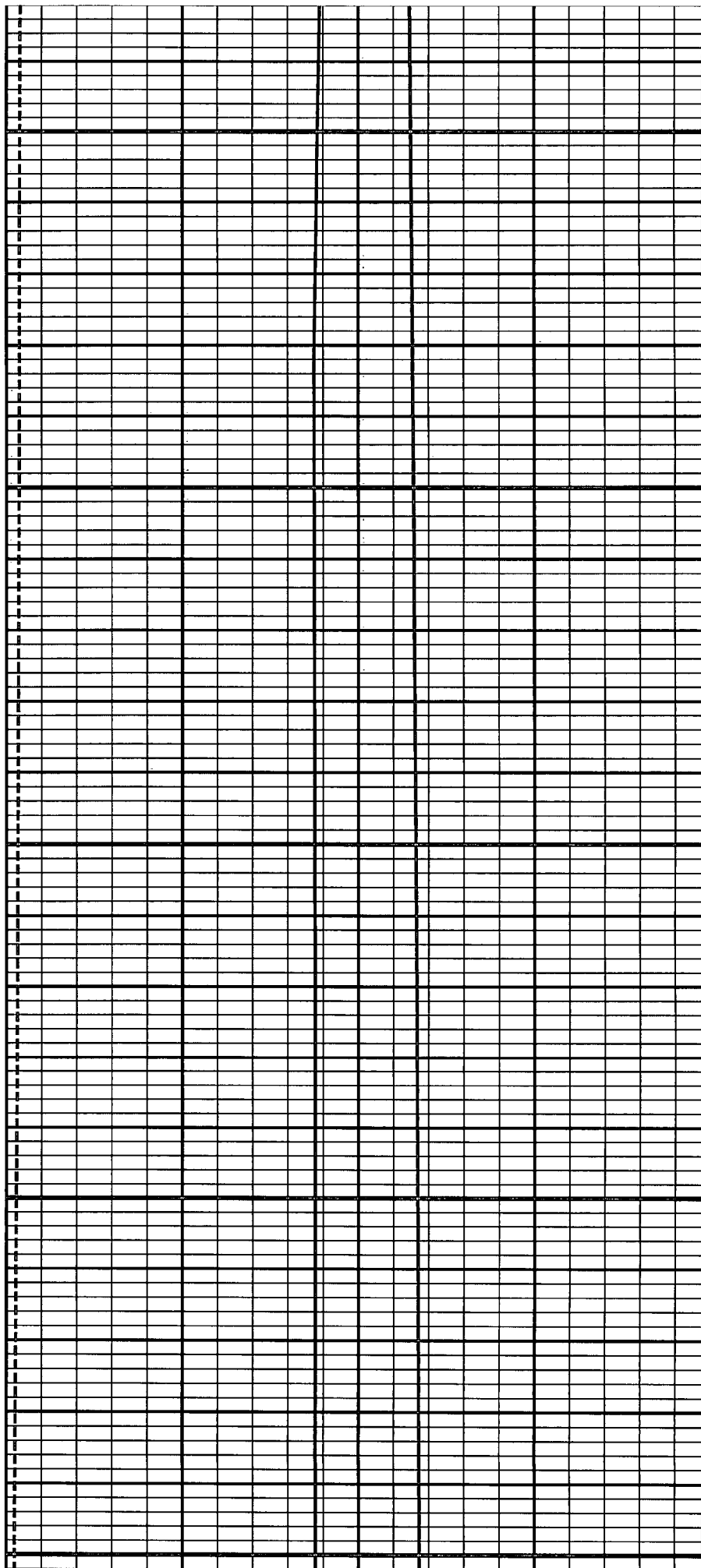


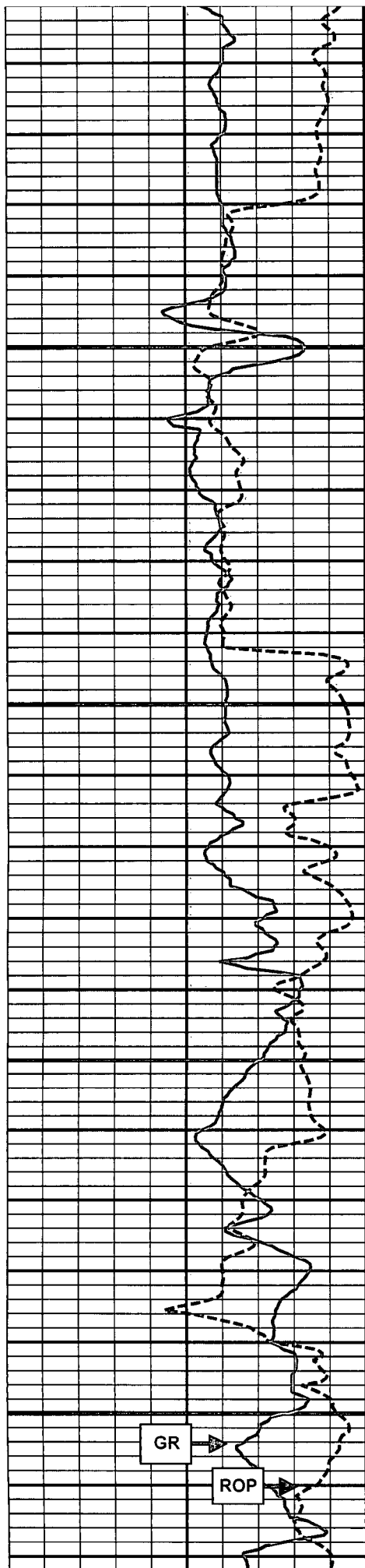


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11700
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11800





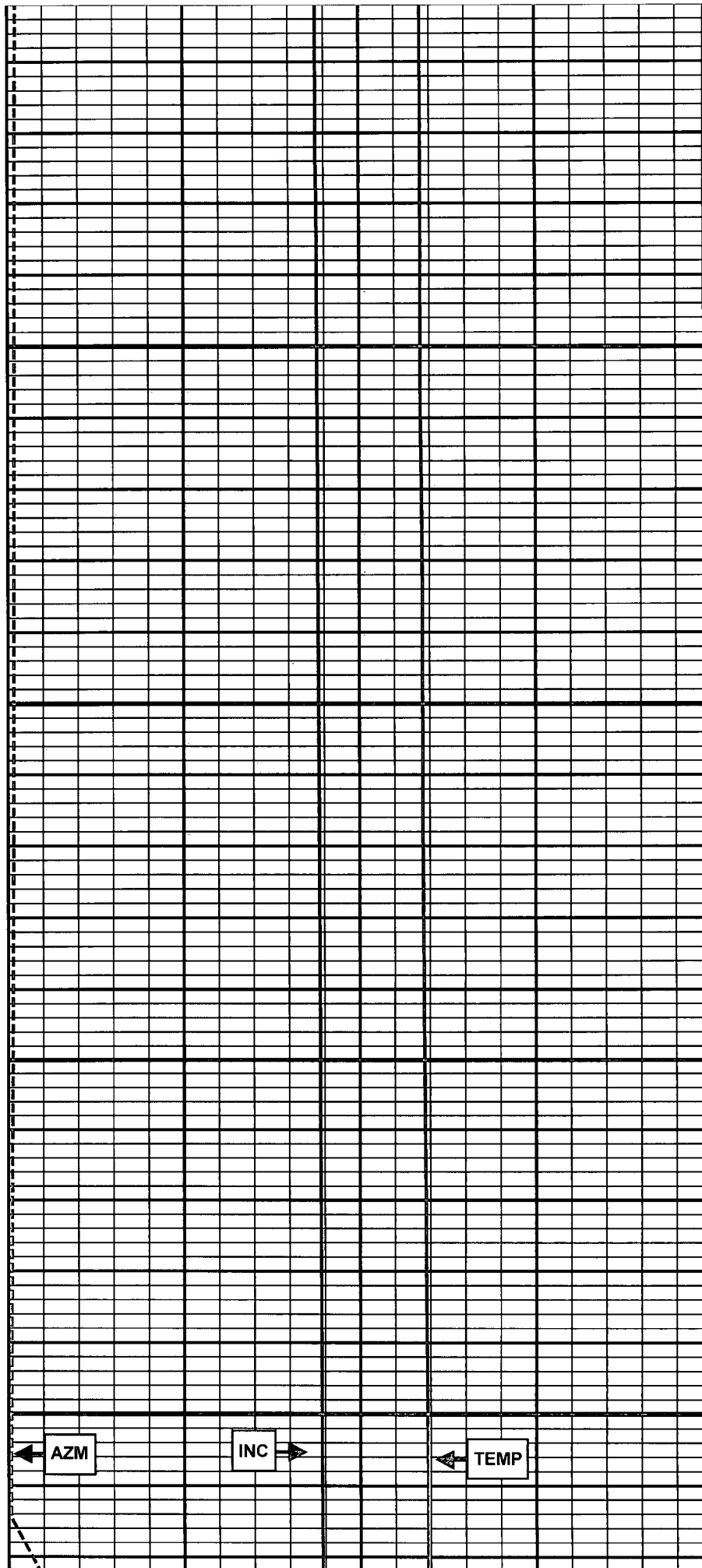
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MD

12000
MD

GR

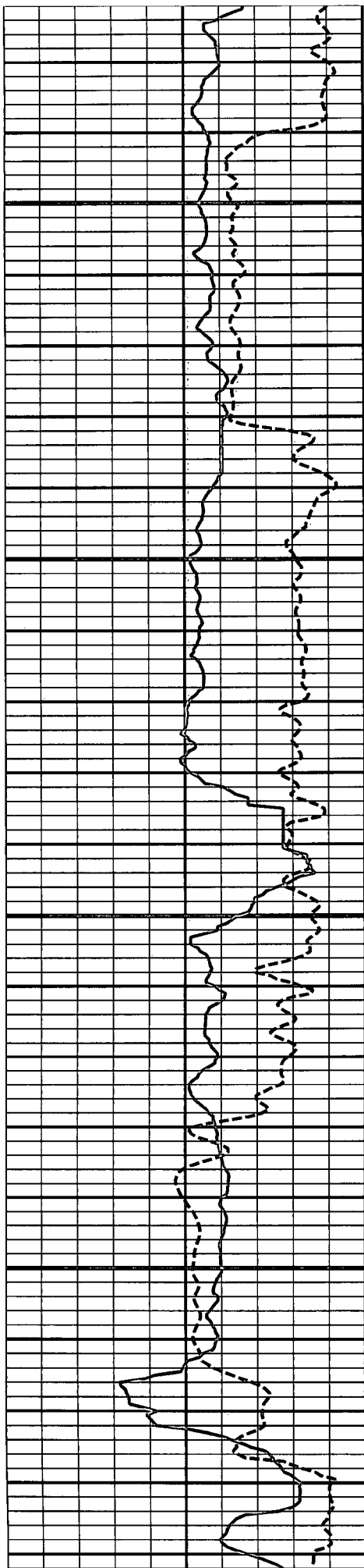
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AZM

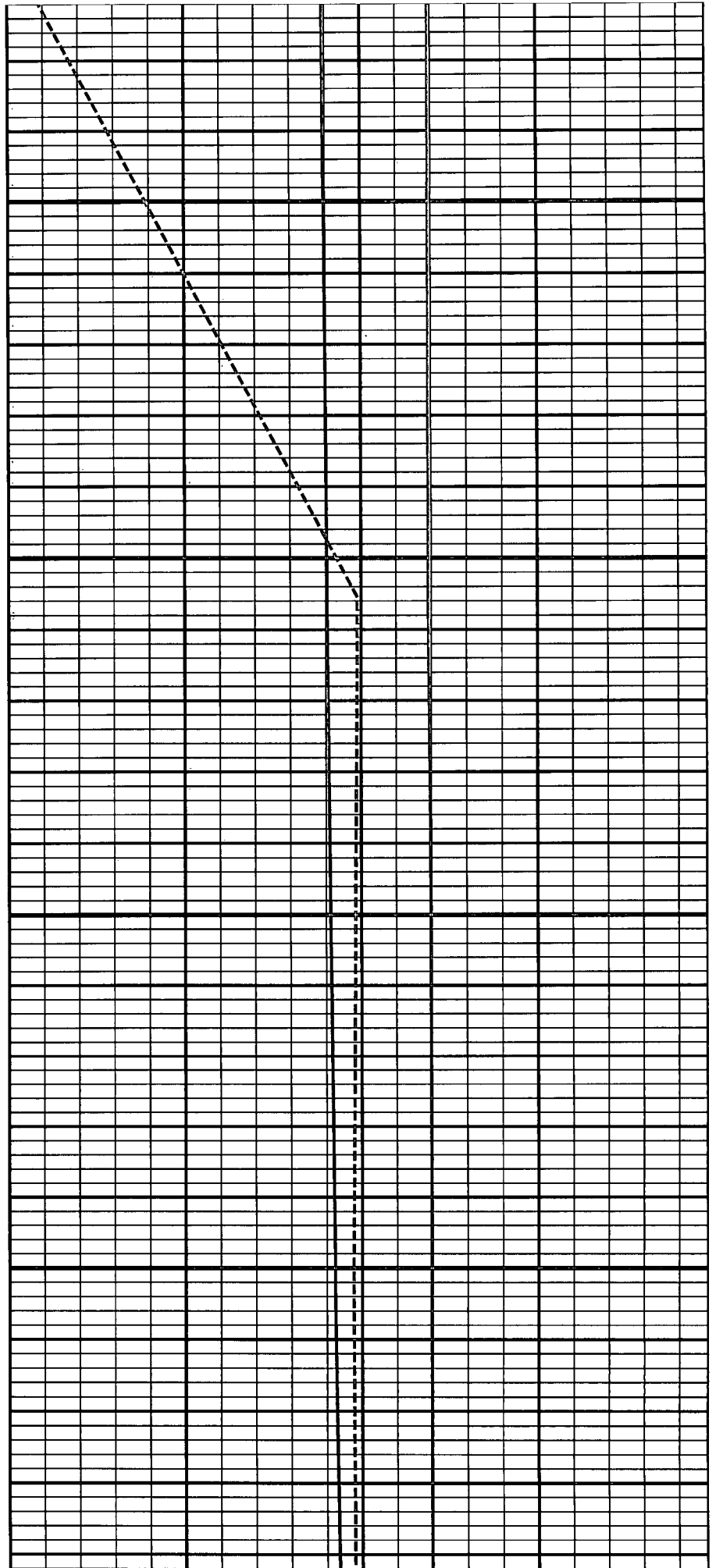
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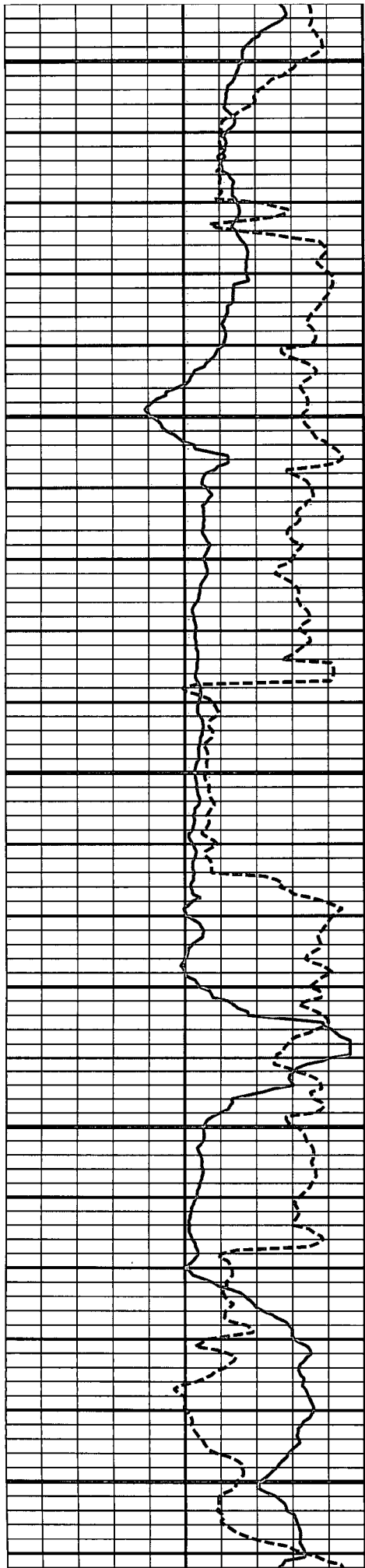
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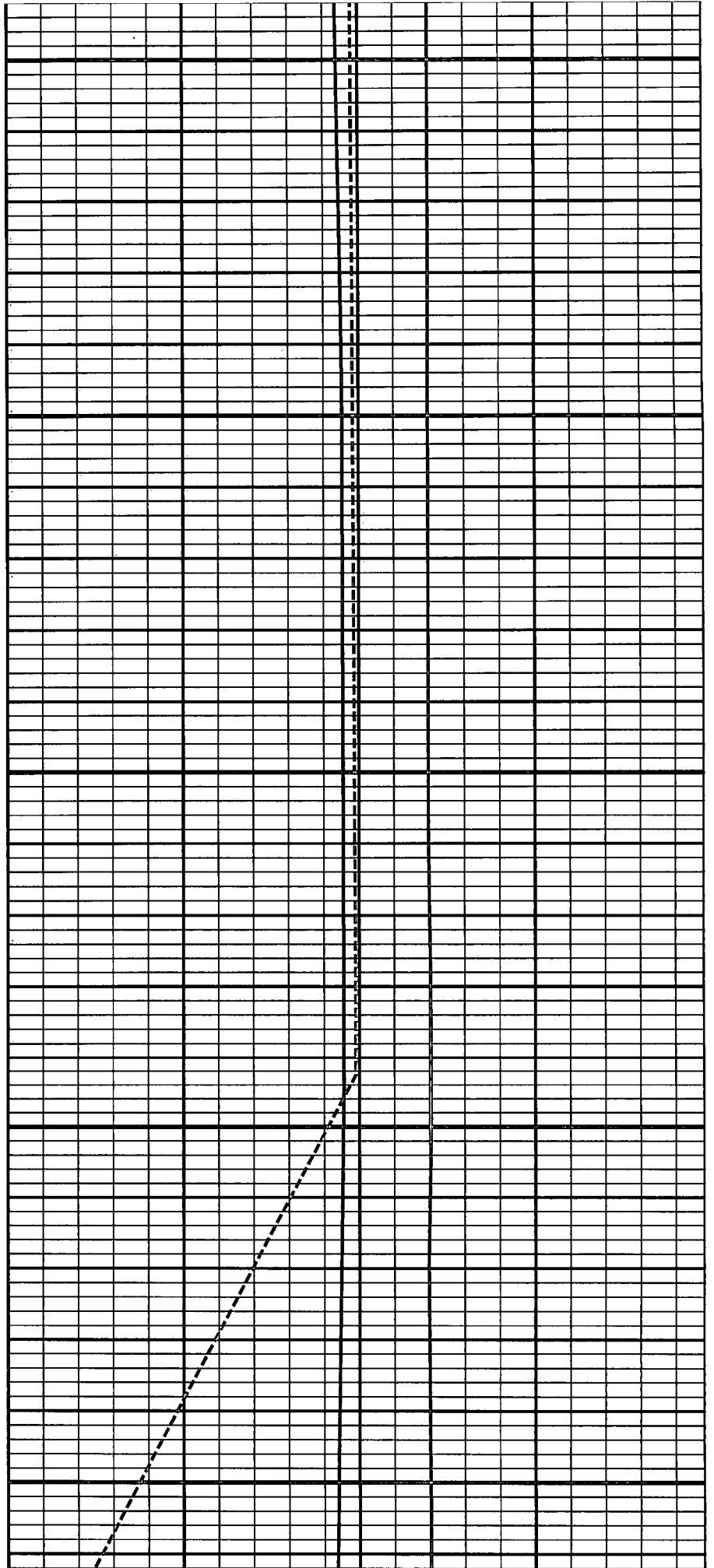
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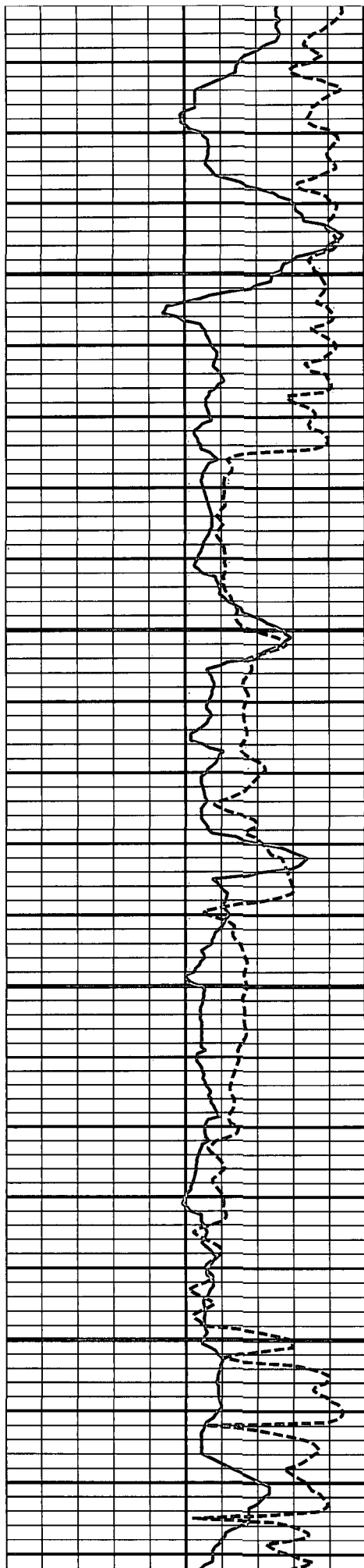




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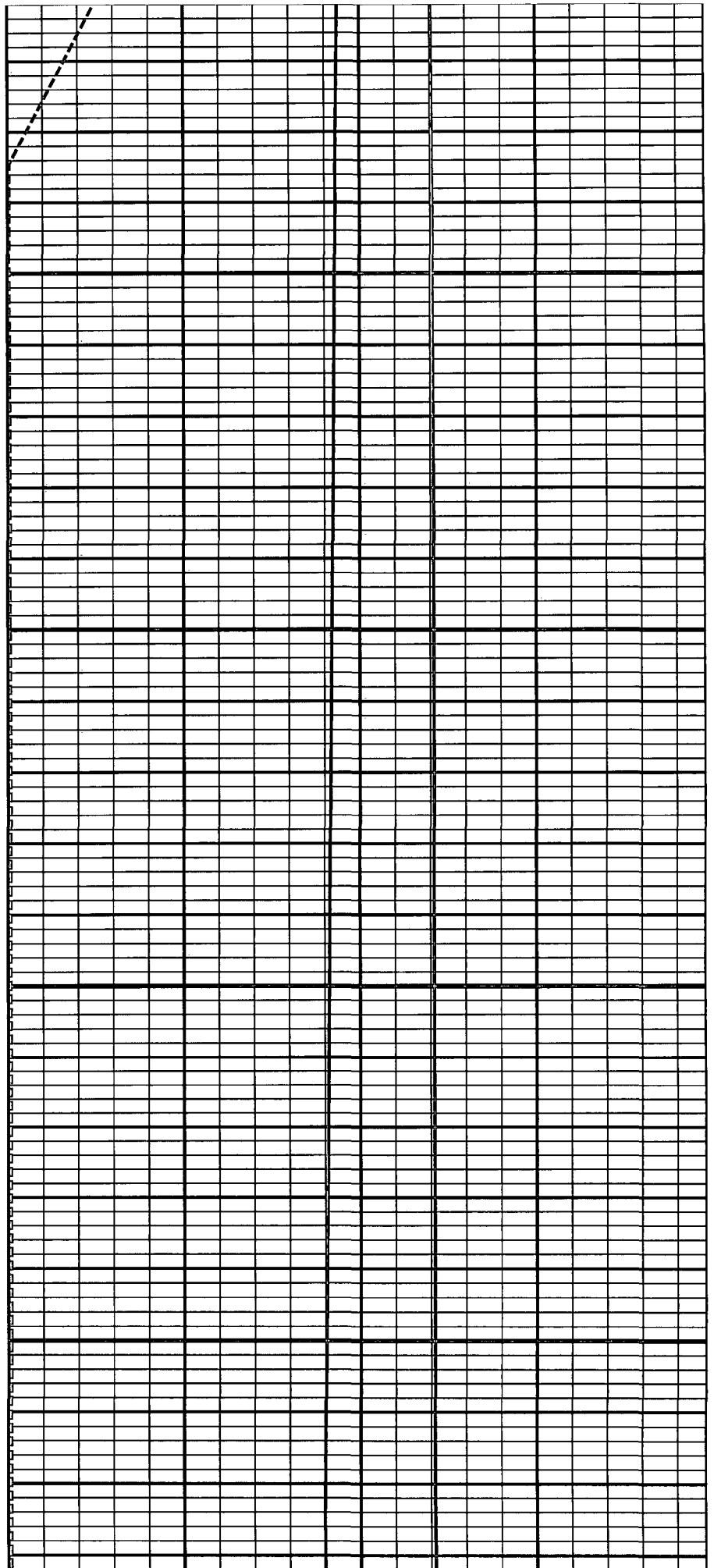
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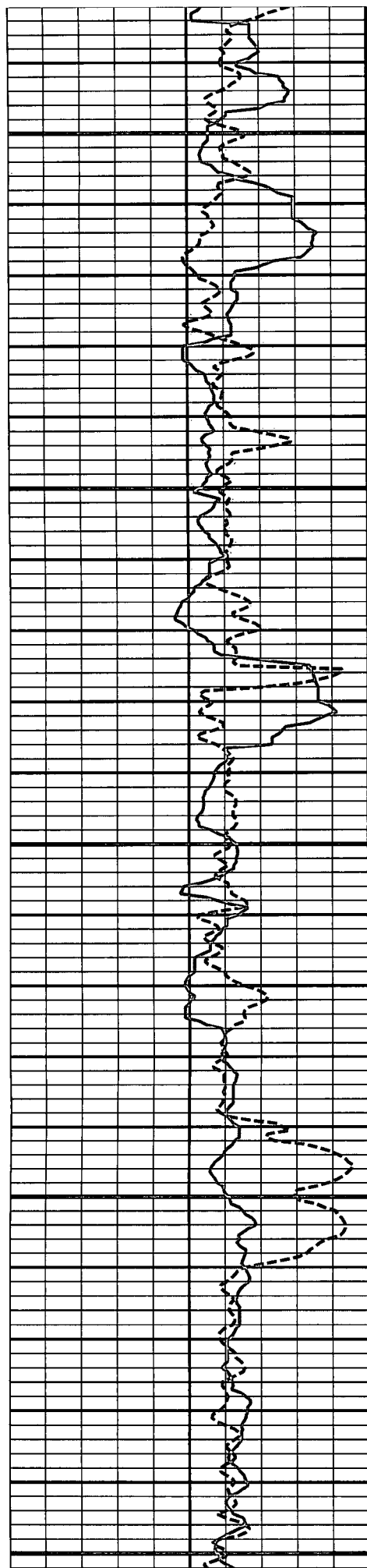




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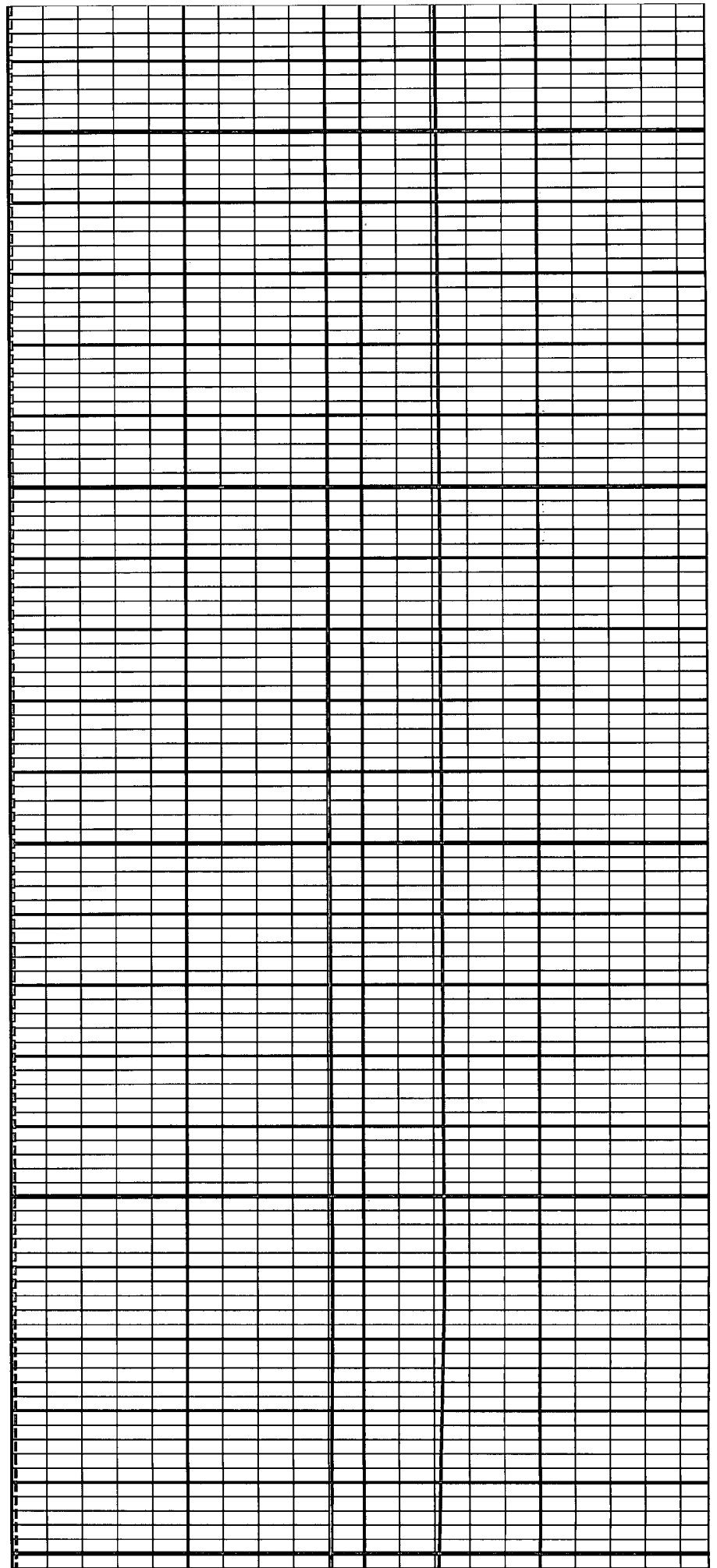


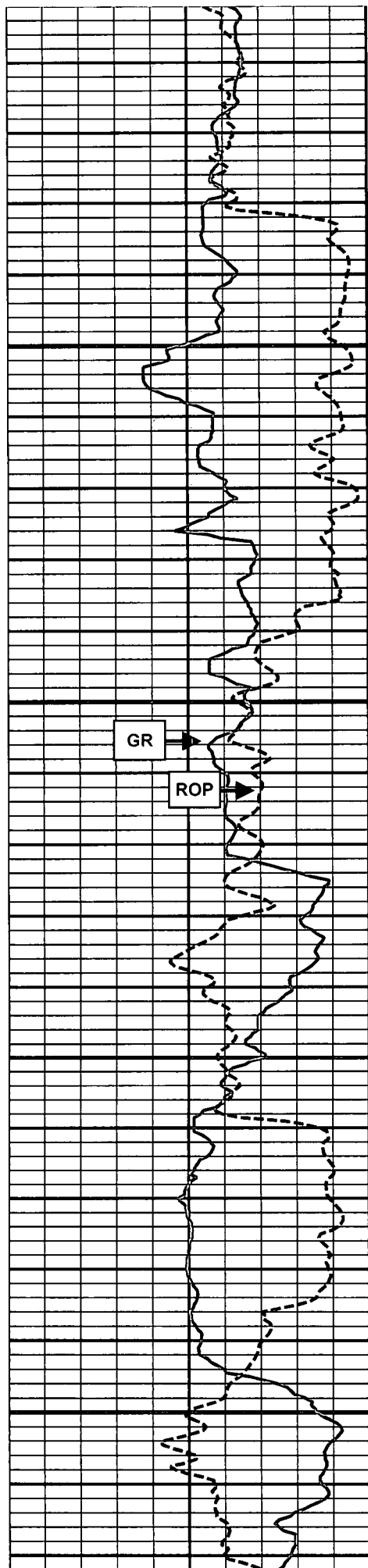


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MD

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MD

12900

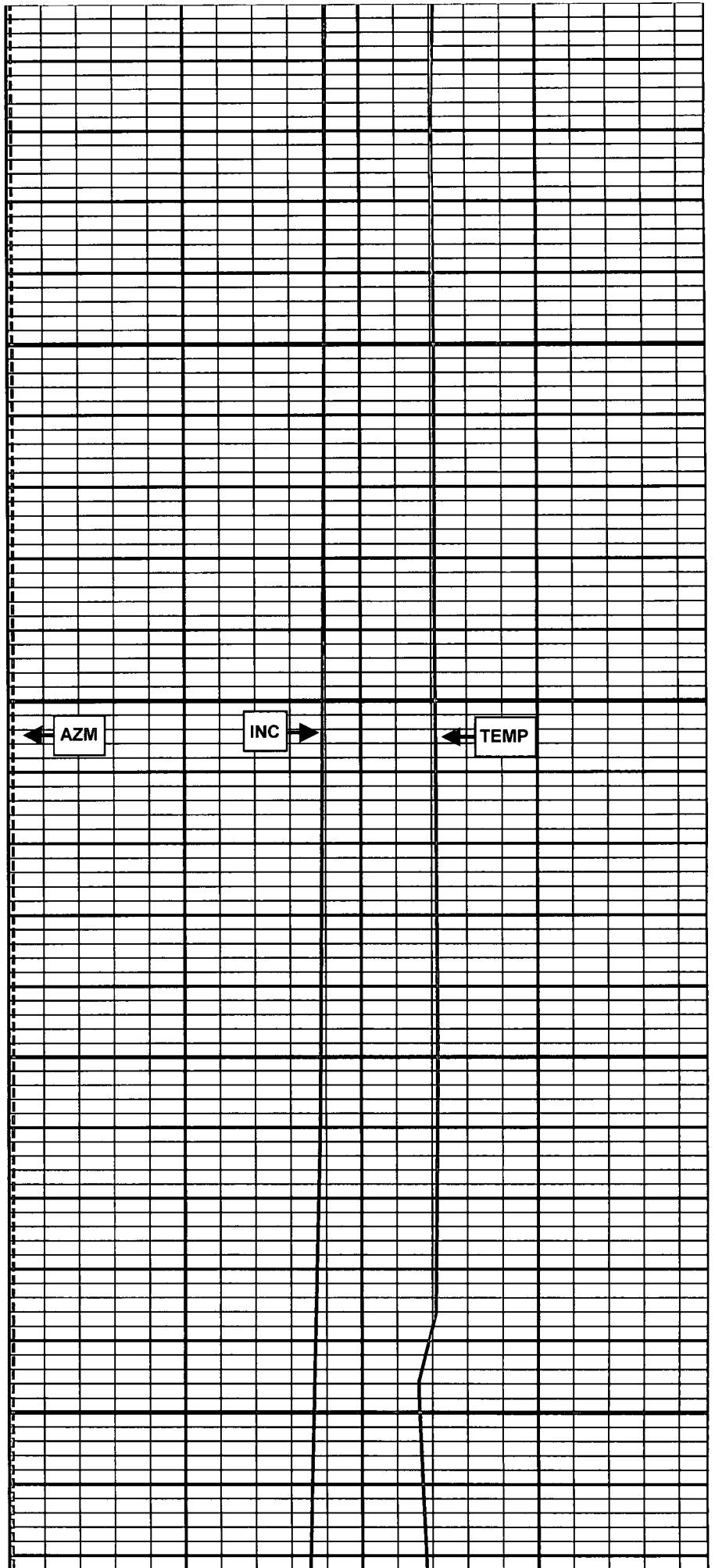


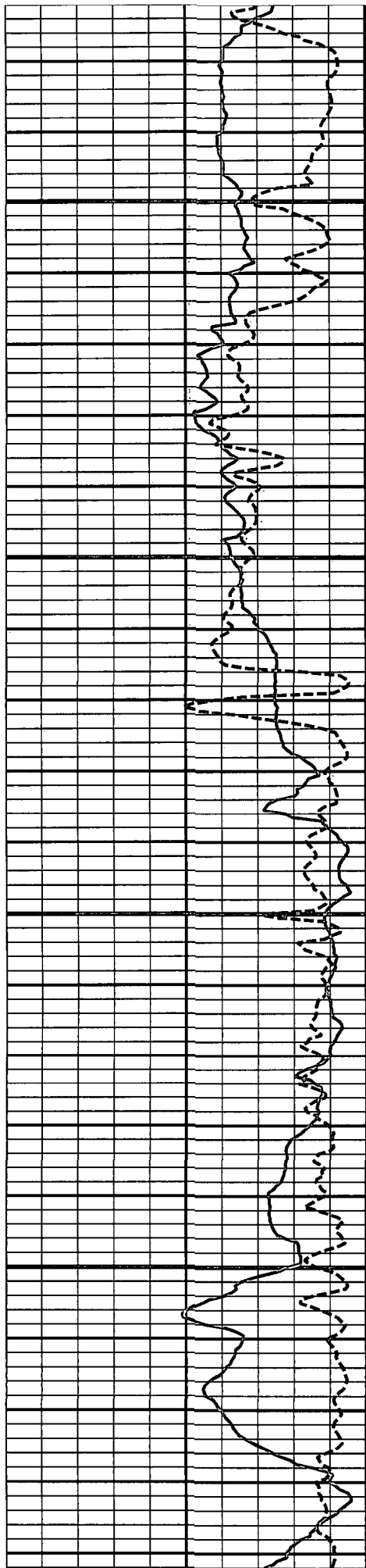


MD

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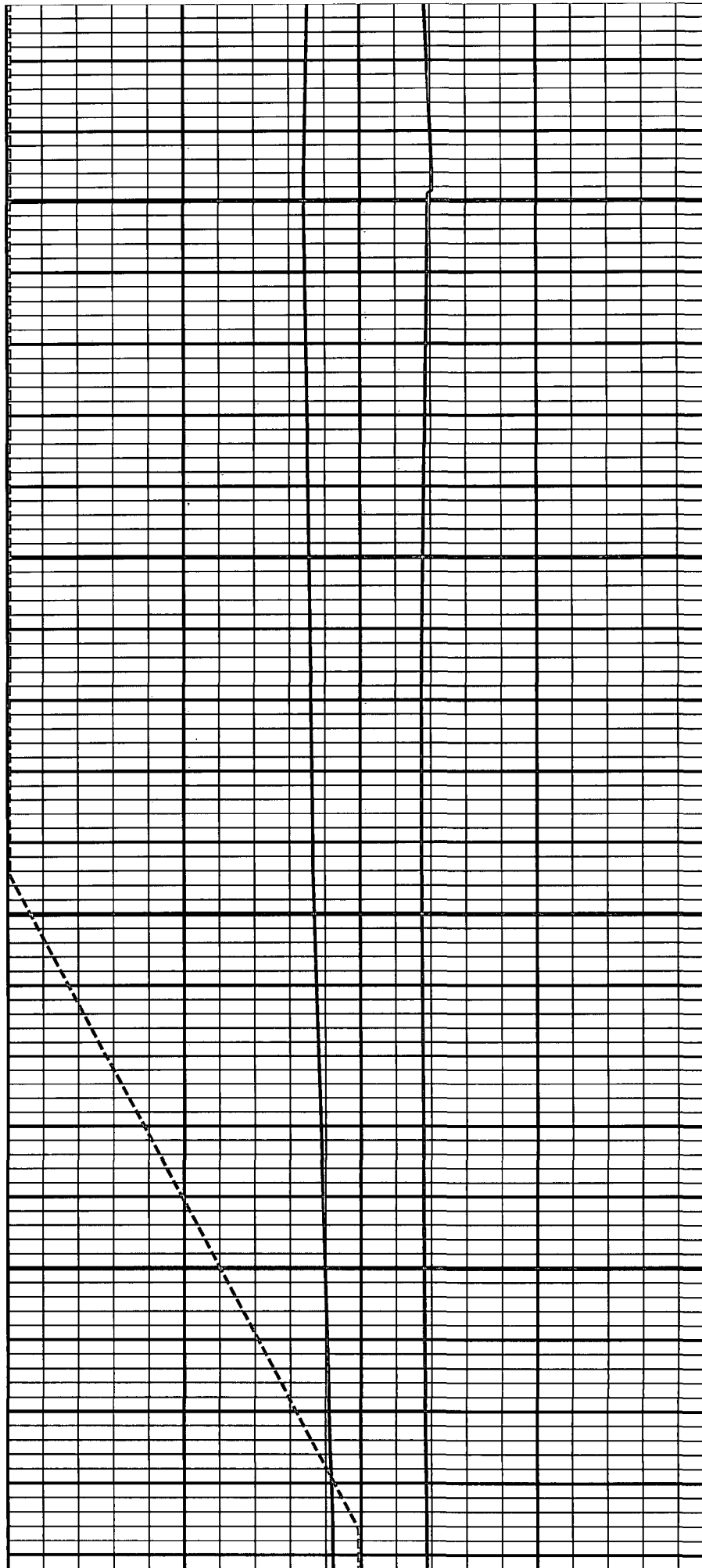
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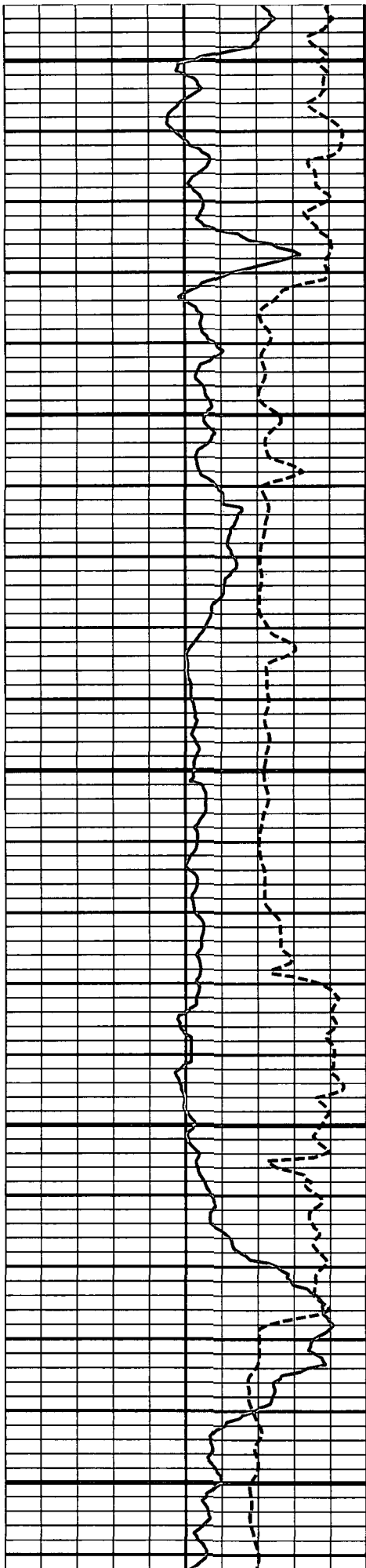




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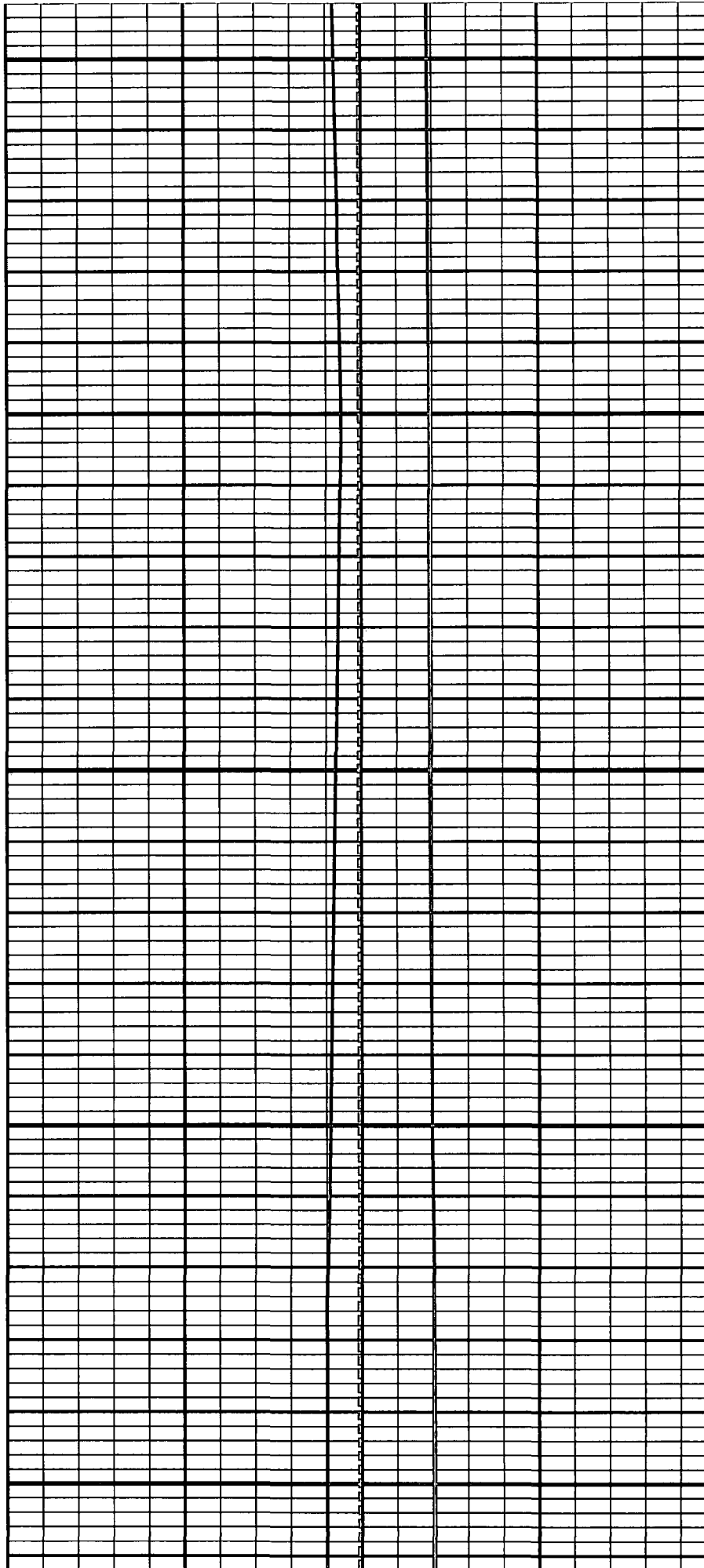
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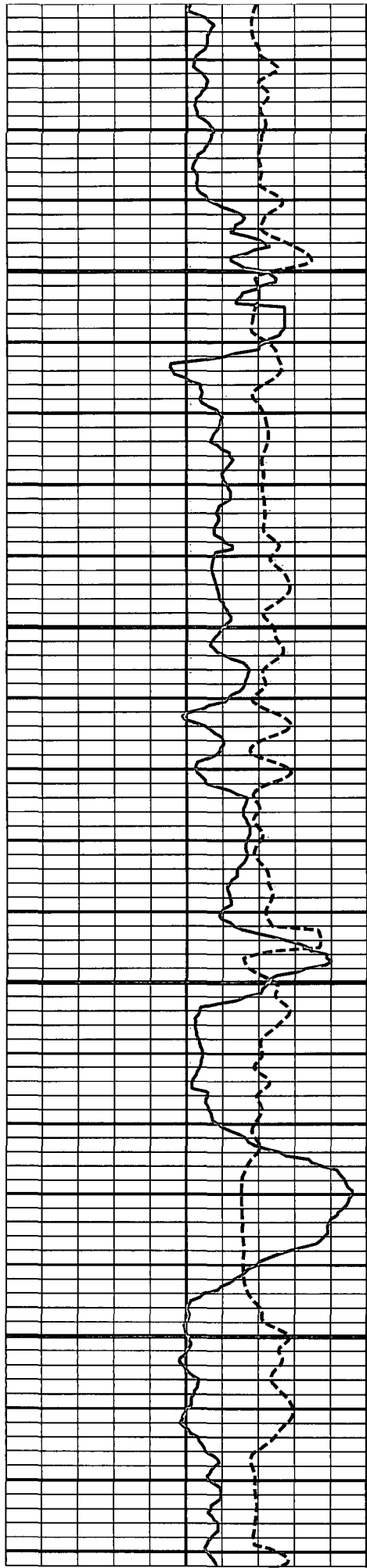




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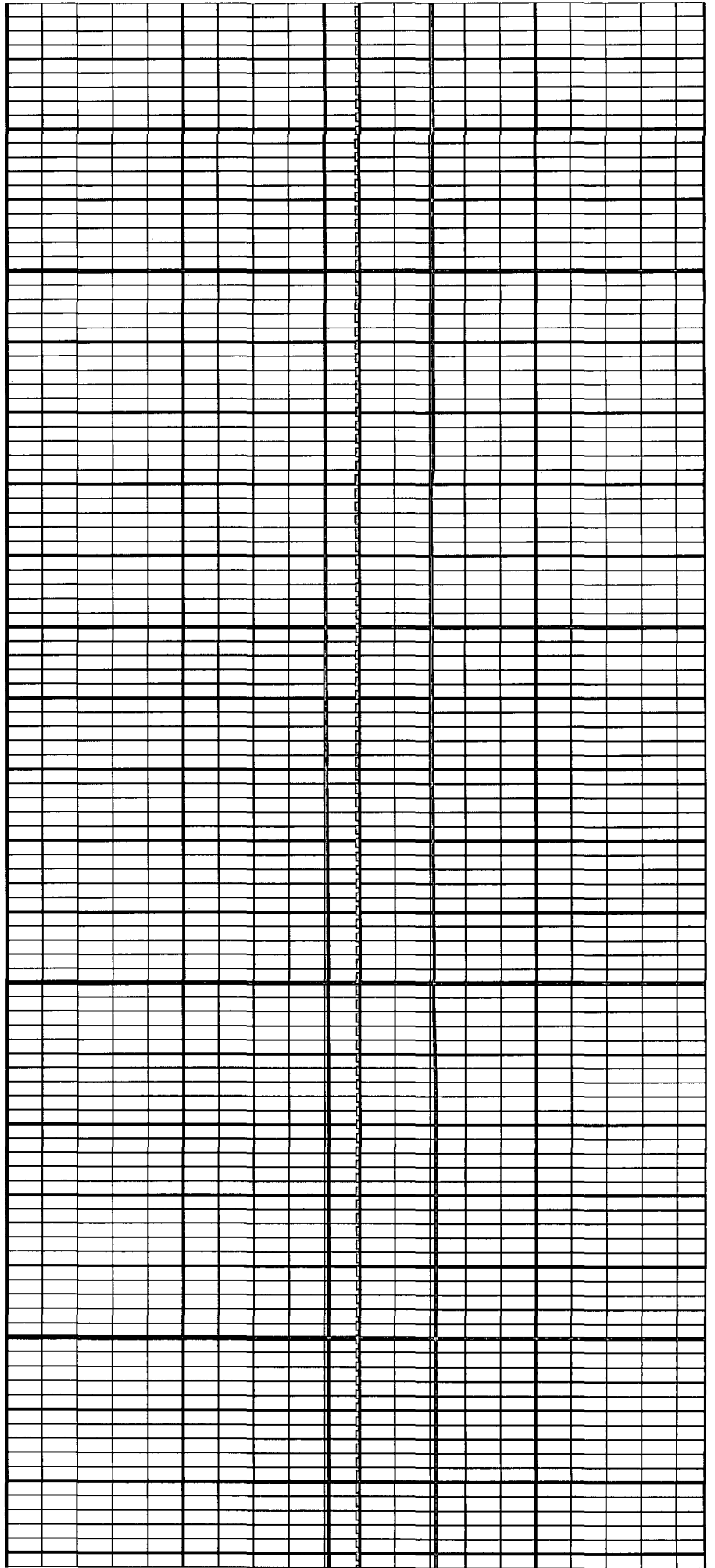
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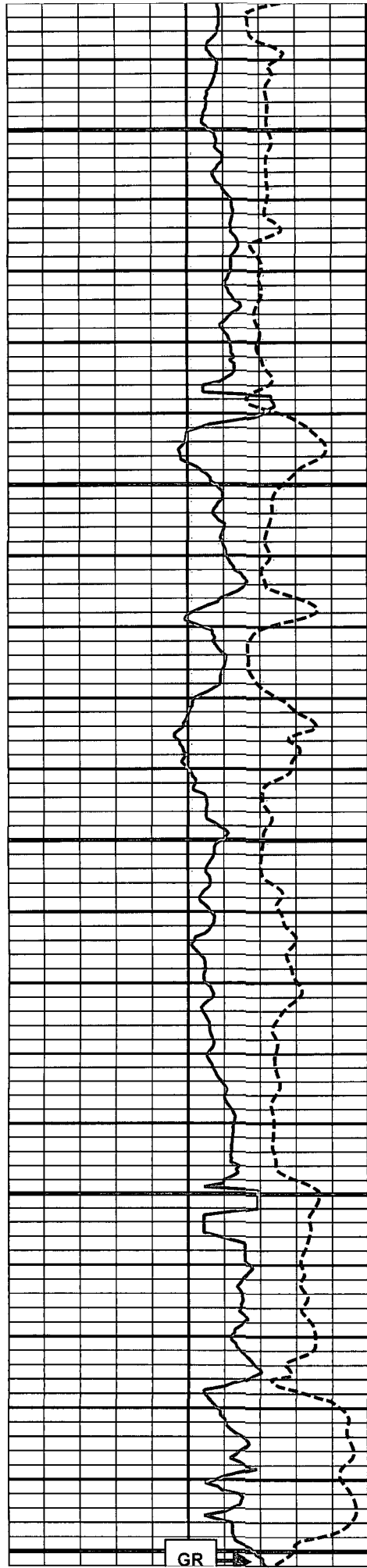




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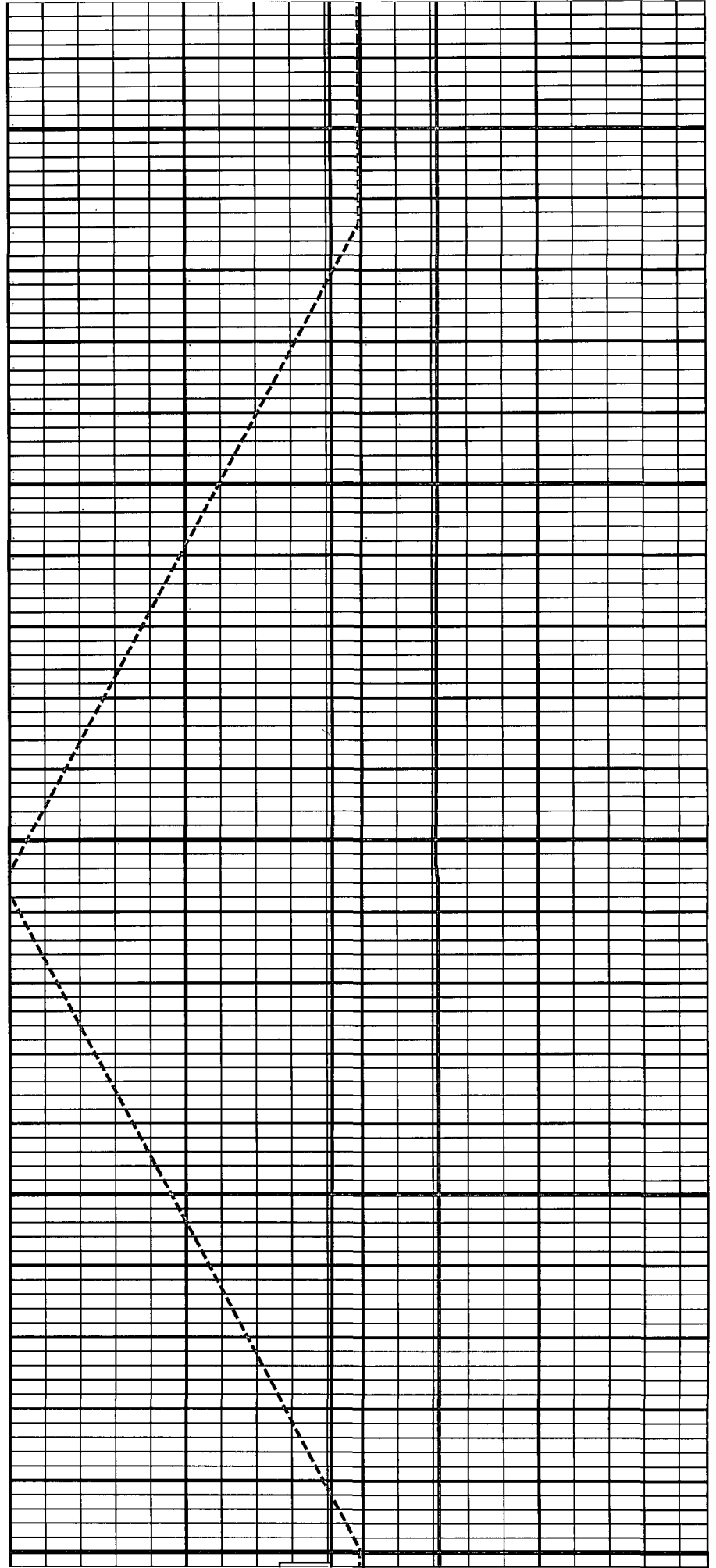


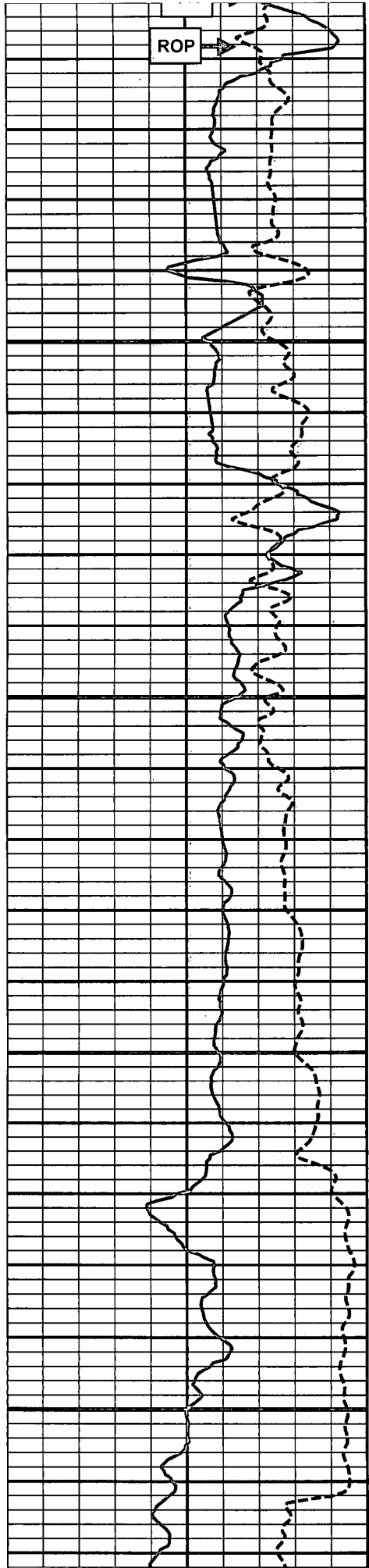


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MD

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MD

14000

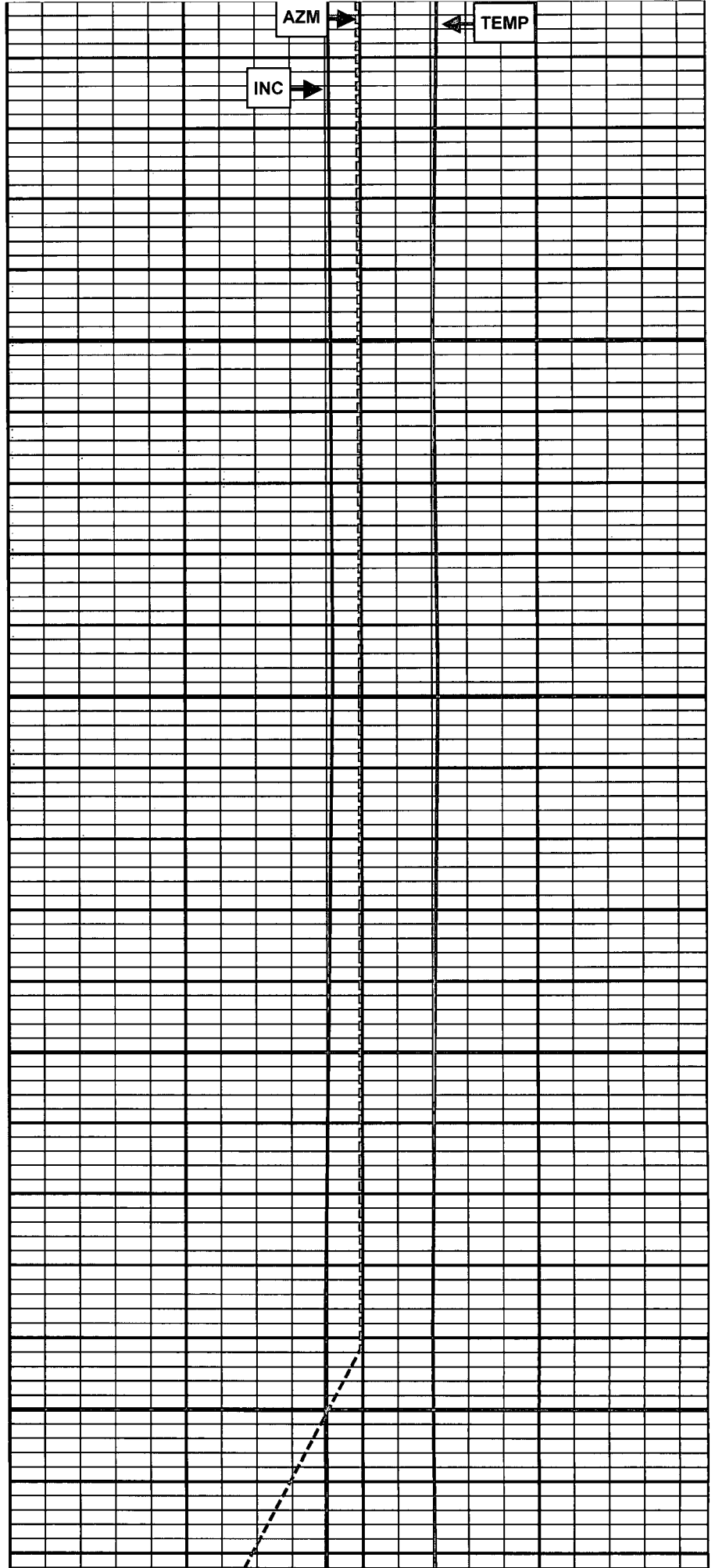




MD

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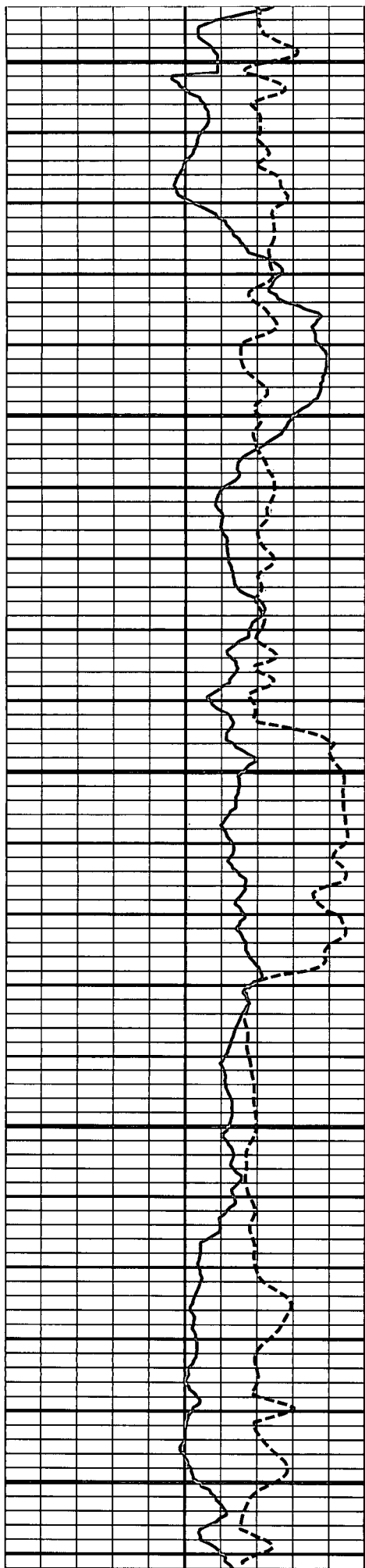
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AZM

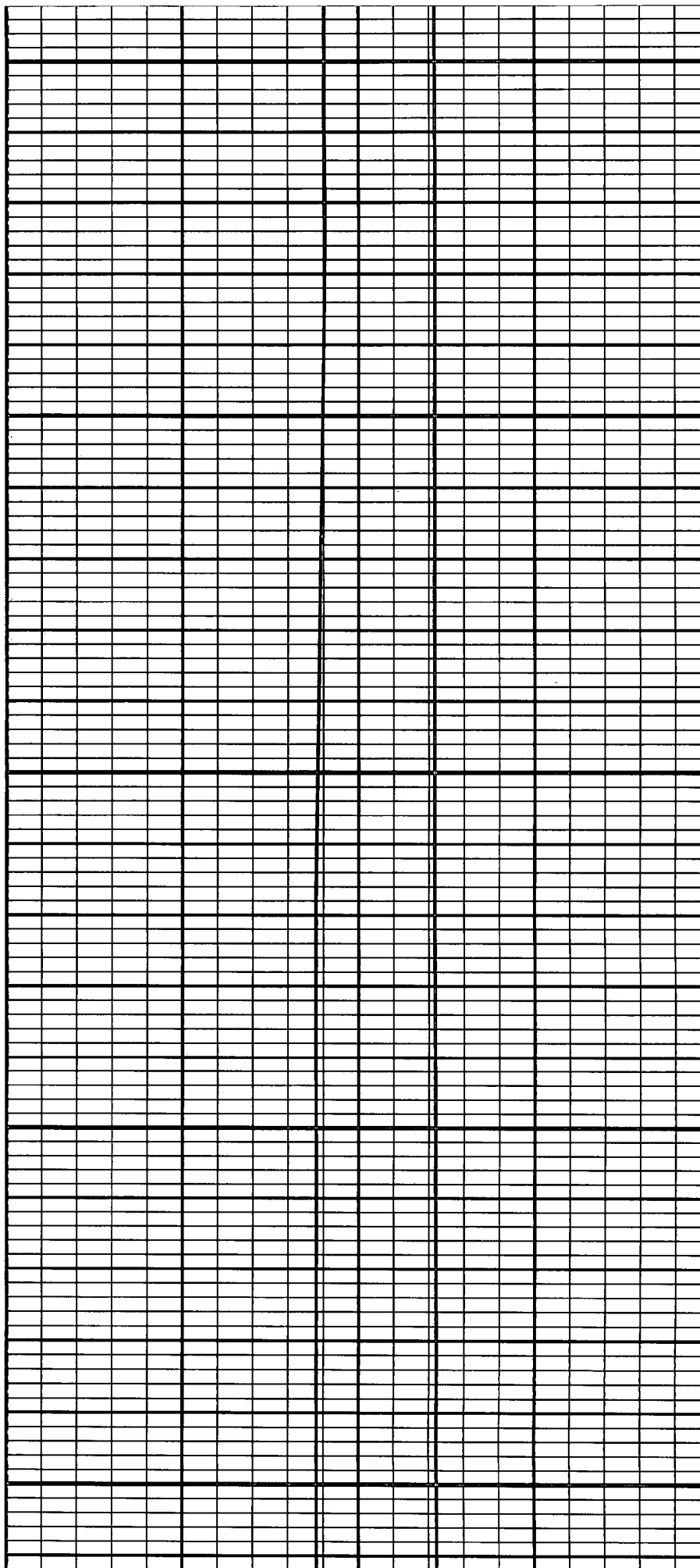
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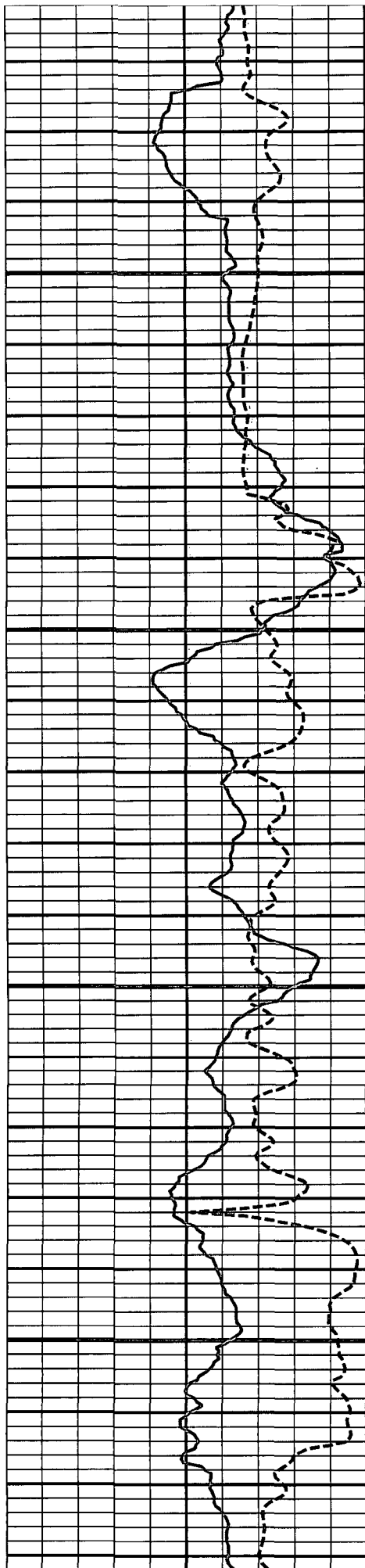
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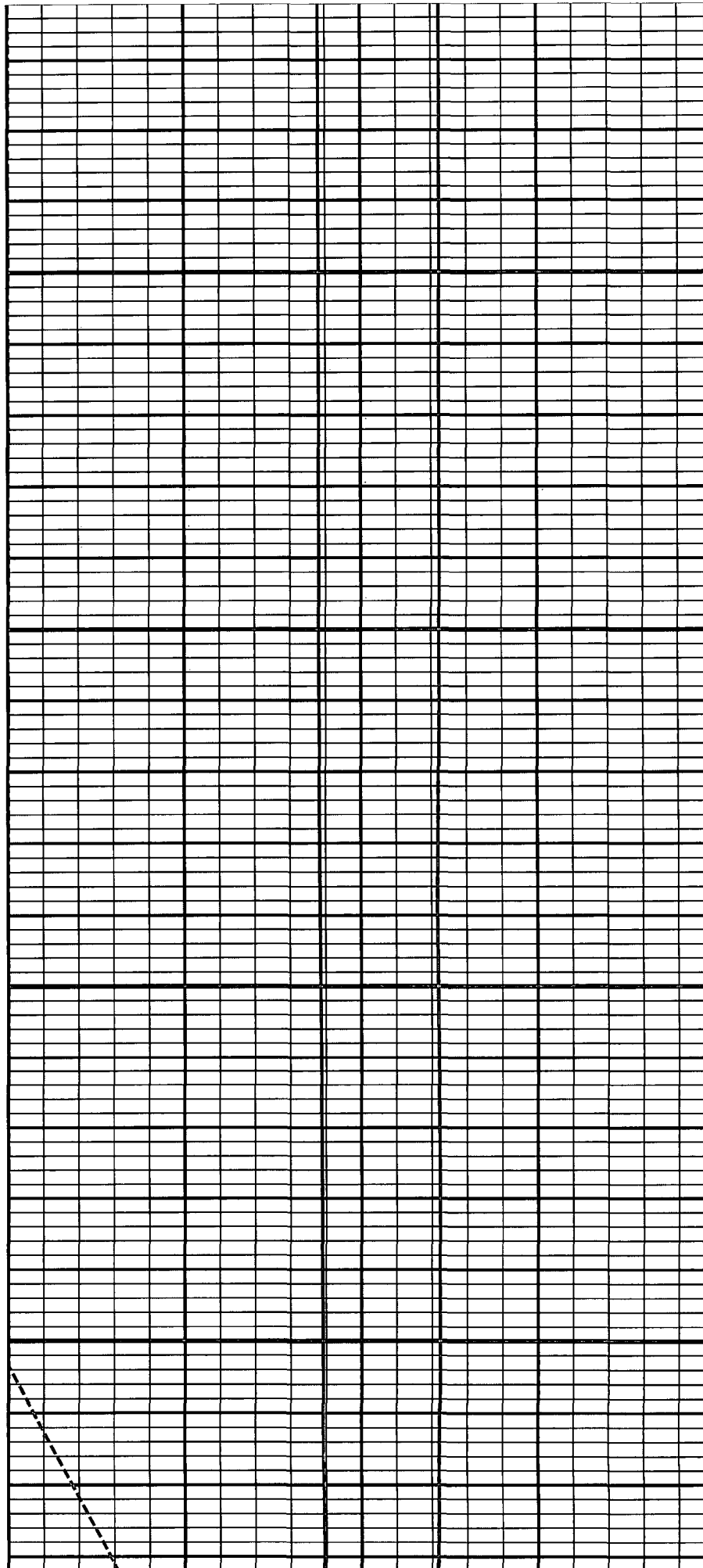
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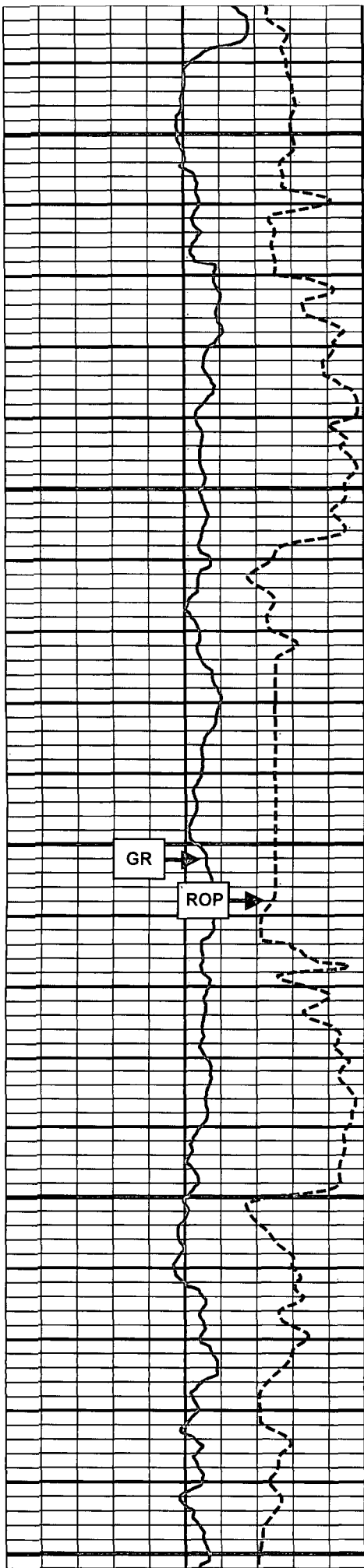




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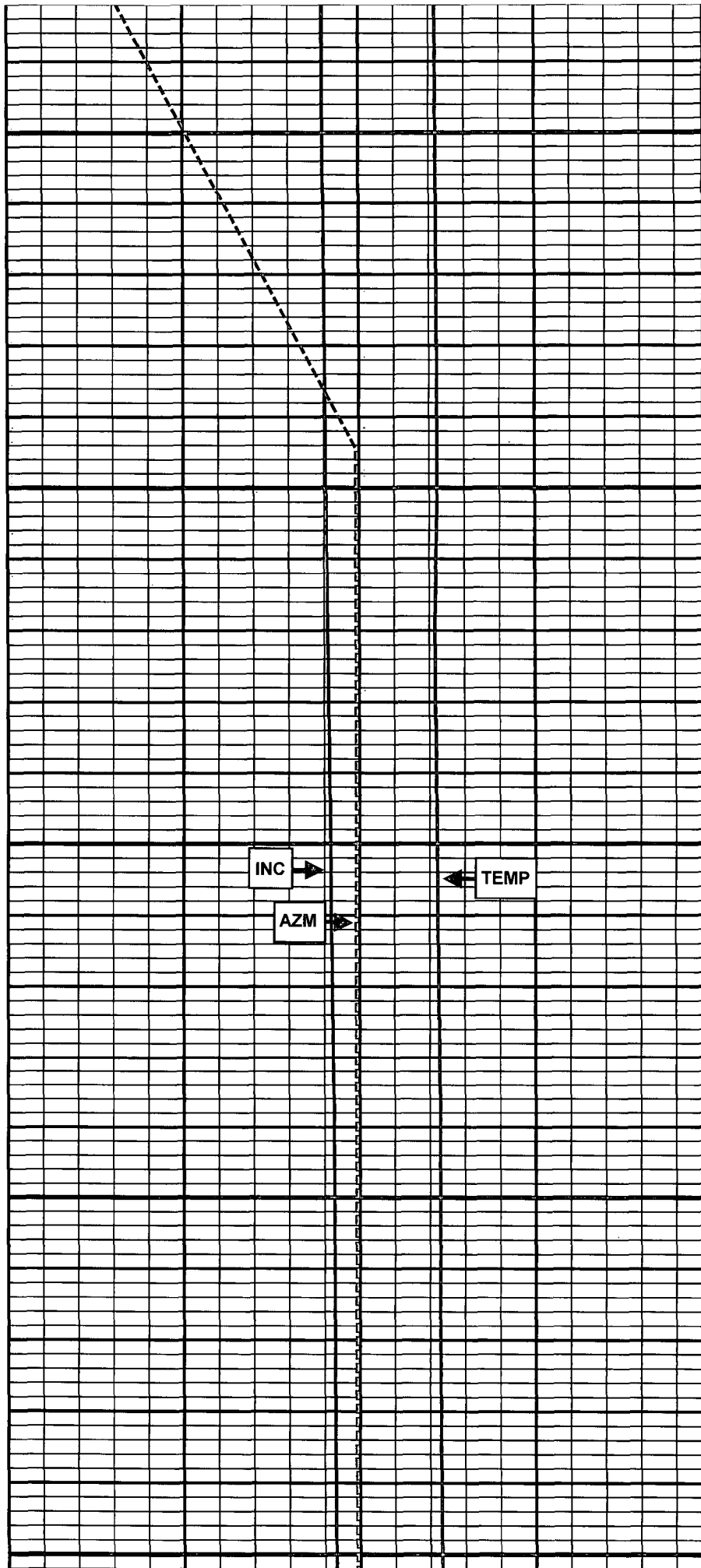


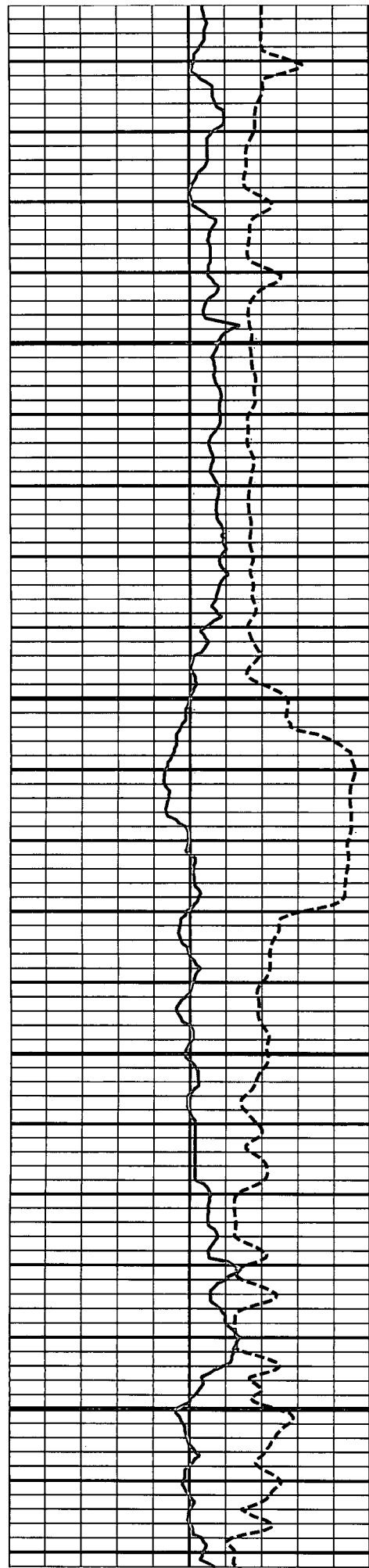


14900
MD

15000
MD

15100

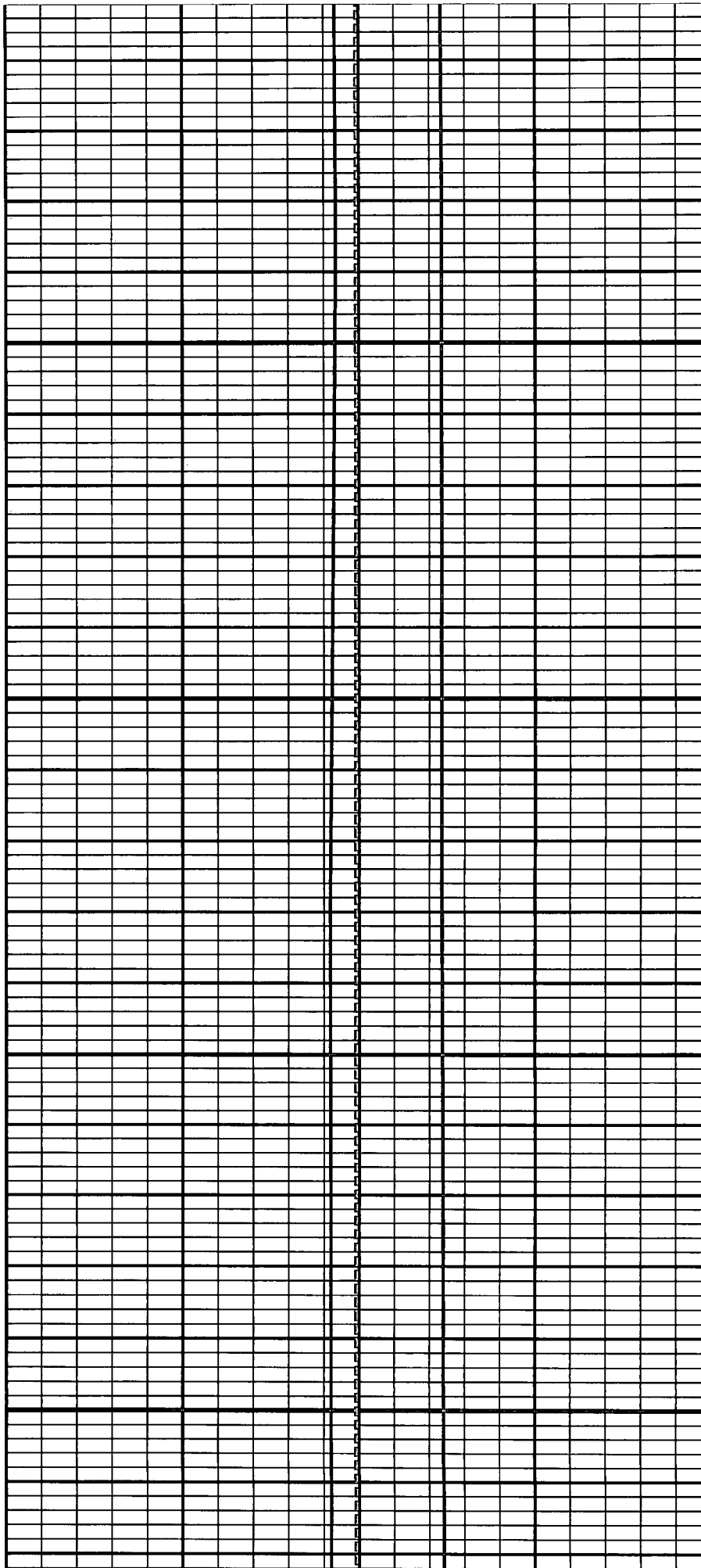


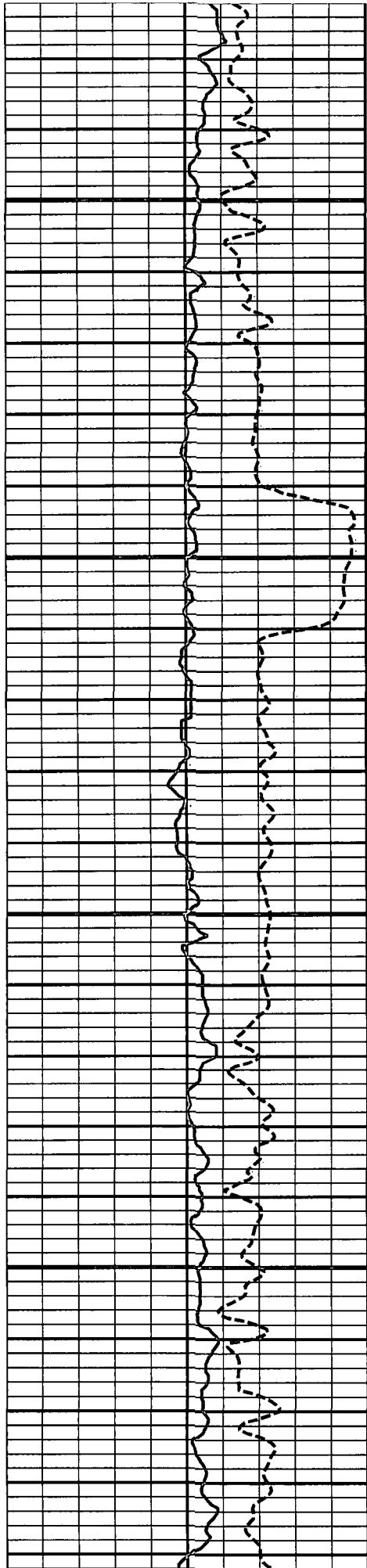


MD

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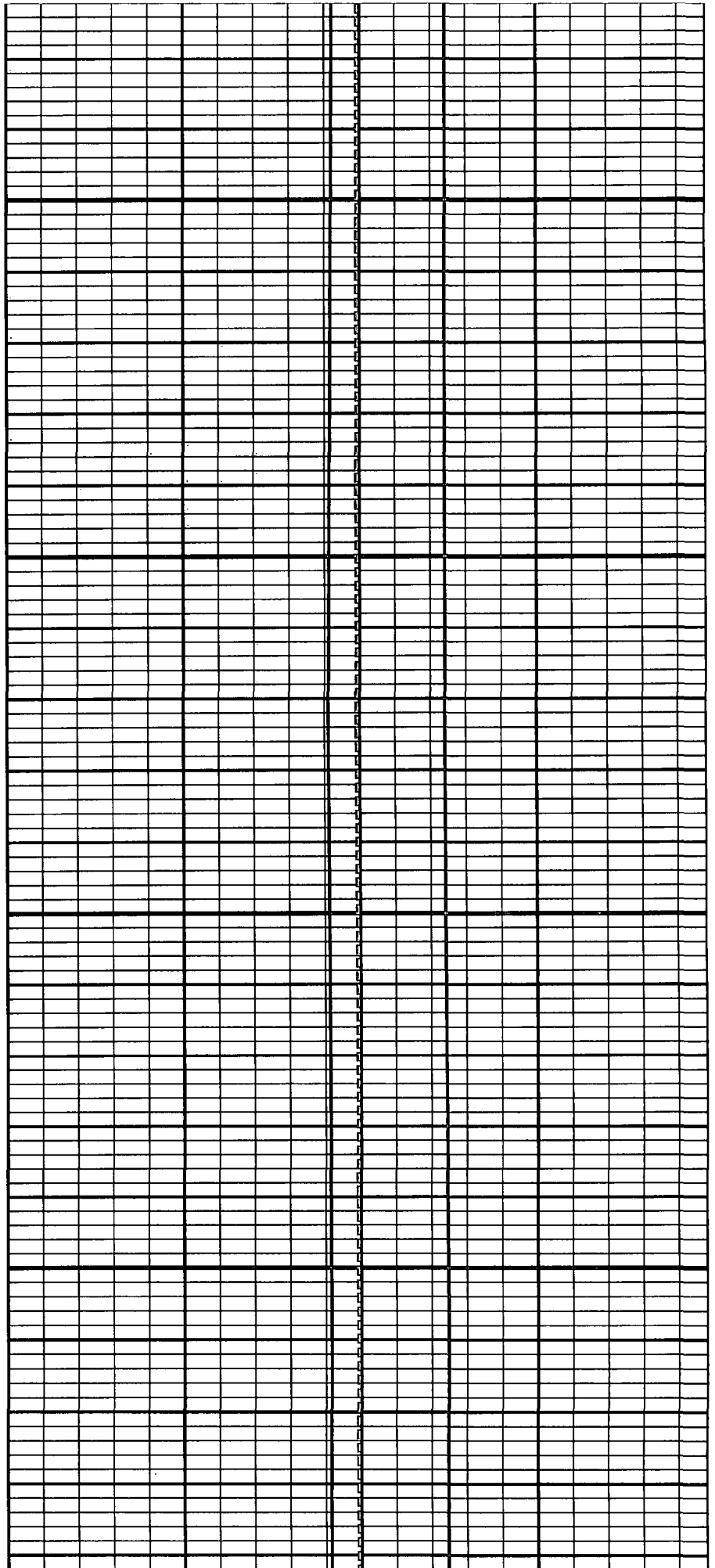
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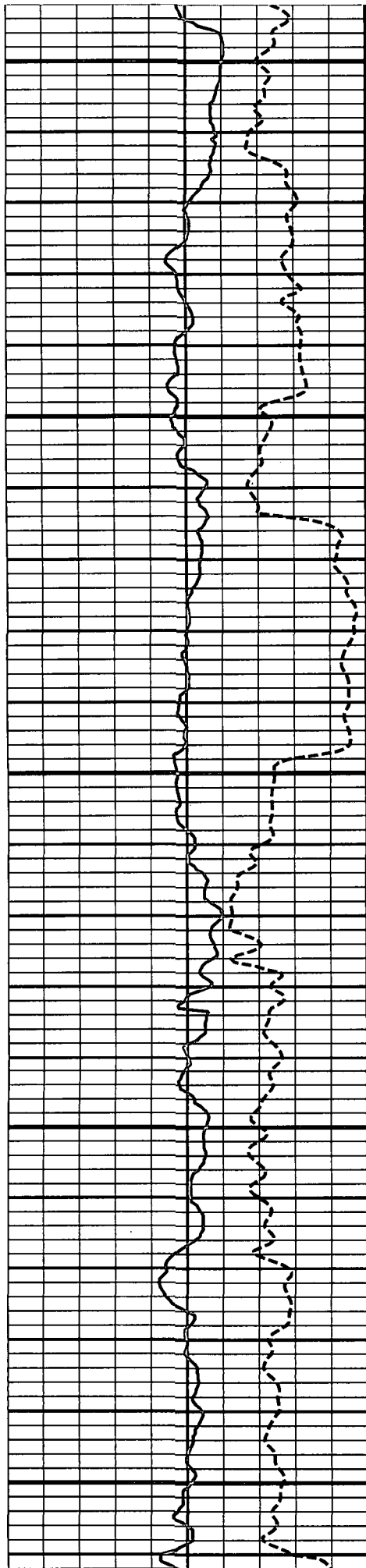




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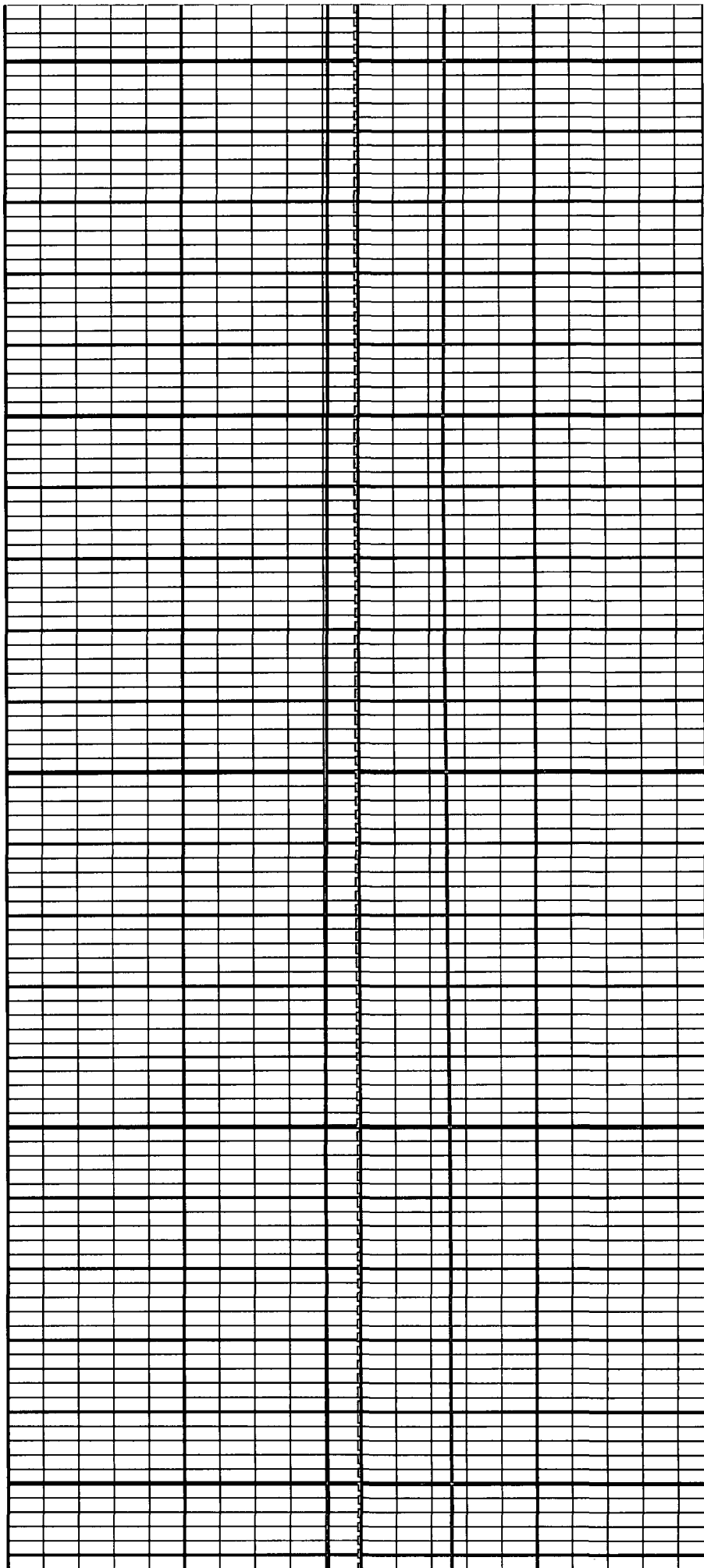
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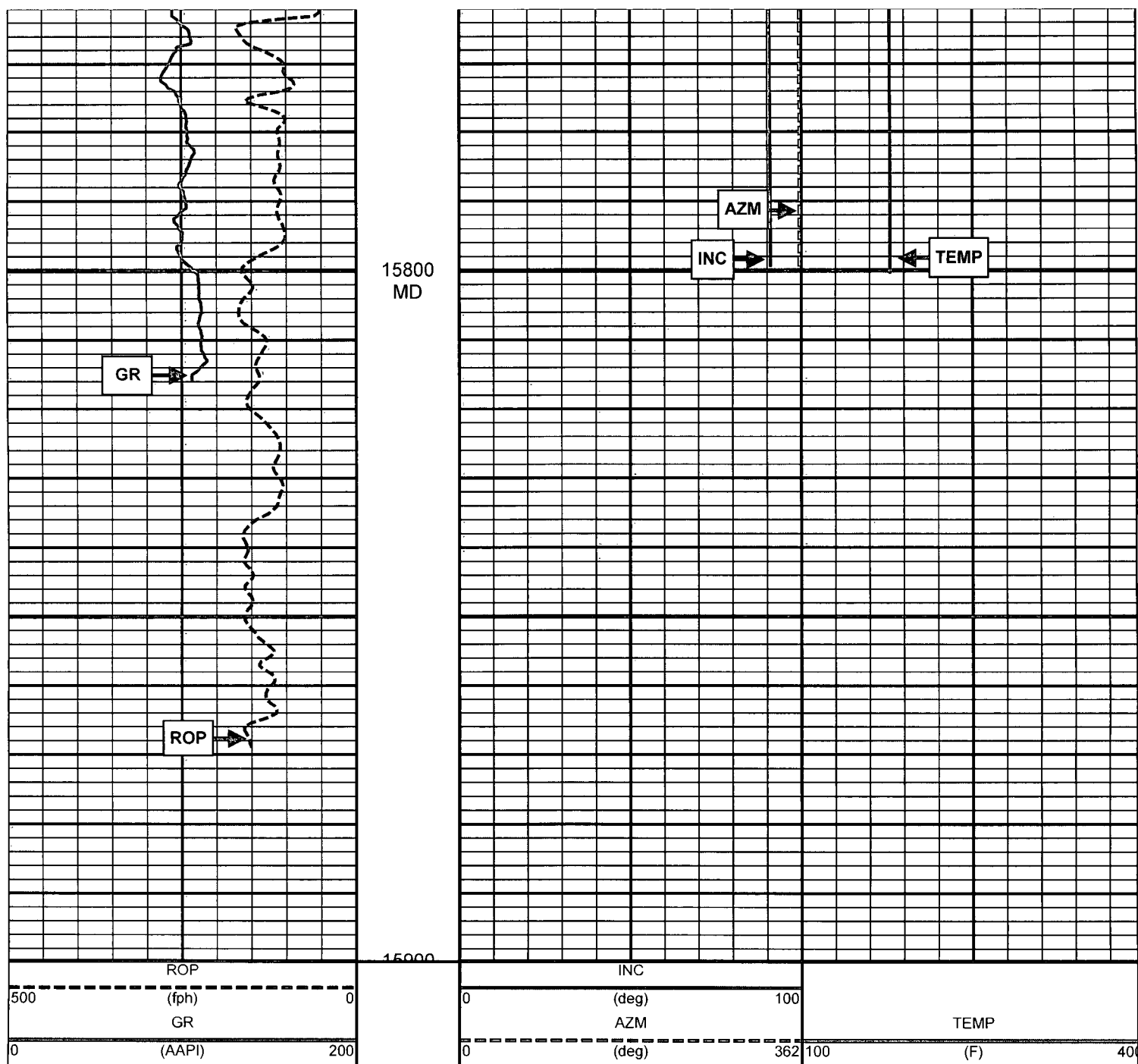




15600
MD

15700
MD





5 Inch Measured Depth

COMPANY Devon Energy

WELL Thistle Unit 46H

FIELD Lea

RIG HP 416

STATE NM CNTRY USA