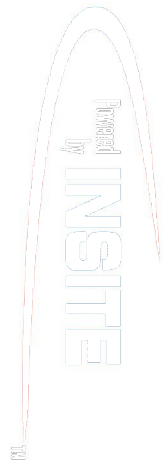


**ADR Azimuthal Deep Resistivity**  
**DGR Dual Gamma Ray**  
**PCG Pressure Case Gamma Ray**



Company : Conoco Phillips Company									
Rig : H&P 280									
Well : Tebo 29-2H									
Field : Niobrara									
Country : USA									
API Number : 05-005-07209-00									
Permanent Datum : Ground Level									
Log Measured From : Drill Floor									
Drilling Measured From : Drill Floor									
Elevation : 5838.00 ft									
24.00 ft Above Permanent Datum									
MD LOG									
Unit No. : 11703725									
Job No. : CA-XX-0900647299									
Date Logged : 06-Feb-14 To 19-Feb-14									
Total Depth MD : 12,436.00 ft TVD : 7,807.00 ft									
Spud Date : 06-Feb-14									
Plot Type : Final									
Plot Date : 03-Mar-14									
Run No.									
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Max Tool Temp (degF) / Source	190.82 / HCIM	229.65 / HCIM		
Rm @ Max Tool Temp (degF)	N/A @ 190.82	0.3842 @ 229.65		
Lead MWD Engineer	Ryan Rogge	Ryan Rogge		
Customer Representative	Wes Evans	Wes Evans		

## SENSOR INFORMATION

### Downhole Processor Information

Tool Type	HCIM	HCIM		
Software Version	88.56	88.56		
Sub Serial Number	11670500	11862964		
Insert Serial Number	11673127	11324296		
Date and Time Initialized	09-Feb-14 00:53	16-Feb-14 11:20		
Date and Time Read	13-Feb-14 13:00	01-Jan-70 00:00		
ECMB SW Version	N/A	N/A		

### Directional Sensor Information

Tool Type	PCDC	PCDC		
Distance From Bit (ft)	62.31	63.05		
Software Version	6.21	6.21		
Sub Serial Number	11414843	11627568		
Sonde Serial Number	11297515	11478196		
Sensor ID Number	N/A	N/A		
Toolface Offset (deg)	228.55	140.97		

### Gamma Ray Sensor Information

Tool Type	DGR	PCG		
Distance From Bit (ft)	31.44	54.54		
Recorded Sample Period (sec)	8	10		
Software Version	N/A	8.15		
Sub Serial Number	11753332	11069033		
Insert/Sonde Serial Number	11671559	11681029		

### Pulser Controller Sensor Information

Tool Type	PCM	PCM		
Software Version	8.17	8.17		
PIC Software Version				
Sub/HOC Serial Number	11414843	11633653		
Insert/Probe/Module SN	11227407	11055839		
Battery Serial Number	N/A	N/A		
Valve Insert SN	N/A	N/A		
DC Insert Serial Number	N/A	N/A		
Choke Size (32nd)	N/A	N/A		
Driver Current (amps)	N/A	N/A		
Driver SMI Current (amps)	N/A	N/A		
Boot Strap Version				

### DDSr-DGR Sensor Information

Tool Type	DDSr-DGR	N/A		
Distance From Bit (ft)	0.00	N/A		
Recorded Sample Period (sec)	12	N/A		
Software Version	10.88	N/A		
Sub Serial Number	11753332	N/A		
Insert Serial Number	11713283	N/A		
Sensor ID Number	8901	N/A		

**DDSr-HCIM Sensor Information**

Tool Type	DDSr-HCIM	DDSr-HCIM			
Distance From Bit (ft)	0.00	0.00			
Recorded Sample Period (sec)	12	8			
Software Version	20.87	20.87			
Sub Serial Number	11670500	11597572			
Insert Serial Number	11730234	270736			
Sensor ID Number	8636	6585			

**ADR SENSOR INFORMATION**

Tool Type	ADR	ADR			
Tool Orientation	Deep Receiver Down	Deep Receiver Down			
Distance From SWRO to Bit (ft)	48.31	88.43			
Recorded Sample Period (sec)	10	10			
Tool SAP	11670500	11425890			
Receiver Insert SAP	11678233	11324296			
Transmitter Insert SAP	11142061	11625109			
Antenna Collar SAP	11670500	11425890			
App Firmware Version	415	415			
Processor Board FirmWare Version	306	306			
Processor FPGA FirmWare Version	4	4			
Transmitter PIC SW Version	1,025	1,025			
Tool Size	6.75"	4.75"			
Processor SIDS No.	281475250914838	281475276964646			
Processor PCB Rev.	0	0			
Receiver Board Upper SIDS No.	16607023626657138	16607023626211554			
Receiver Board Upper PCB Rev.	0	0			
Receiver Board Lower SIDS No.	16607023626655811	16607023626215284			
Receiver Board Lower PCB Rev.	0	0			
Receiver Board Deep SIDS No.	16607023626653422	16607023626216721			
Receiver Board Deep PCB Rev.	0	0			
Receiver Insert SIDS No.	11258999116224112	11258999094197754			
Transmitter Insert SIDS No.	4503634011660316	4503634022050133			
Antenna Collar SIDS No.	12666374059015591	12666373998151675			

**REMARKS**

1. All depths are calibrated to the driller's pipe tally and are measured from the drill floor.

2. No depth corrections have been made for pipe stretch or compression.

3. All data presented is recorded (memory data) unless otherwise stated.

4. All data presented was logged while drilling

5. The following smoothing parameters have been applied to the data:

ROPA: 0.5 ft interval, 1.2 ft coersion, 3ft gap fill

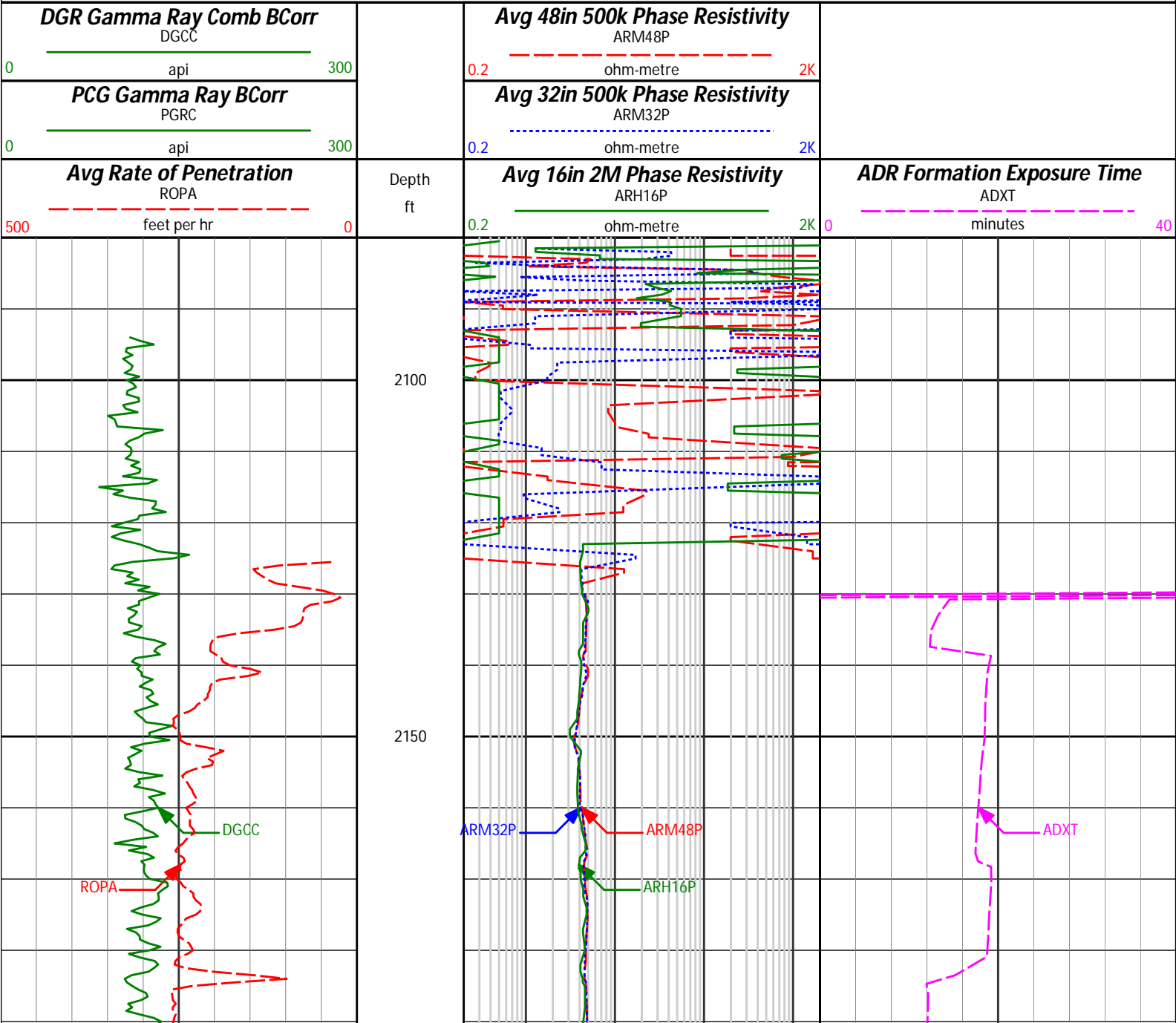
All other curves: 0.5ft interval, 0.6ft coersion, 3ft gap fill

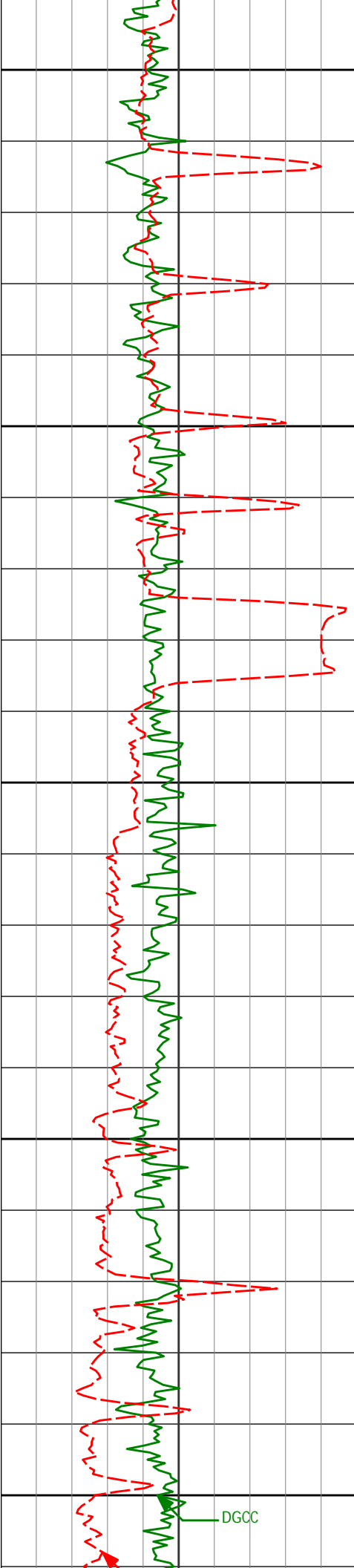
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**HALLIBURTON**  
**Sperry Drilling Services**  
**MD Detail Log 1:240**

ConocoPhillips  
Tebo 29-2H  
H&P 280  
05-005-07209-0000





2200

2250

2300

2350

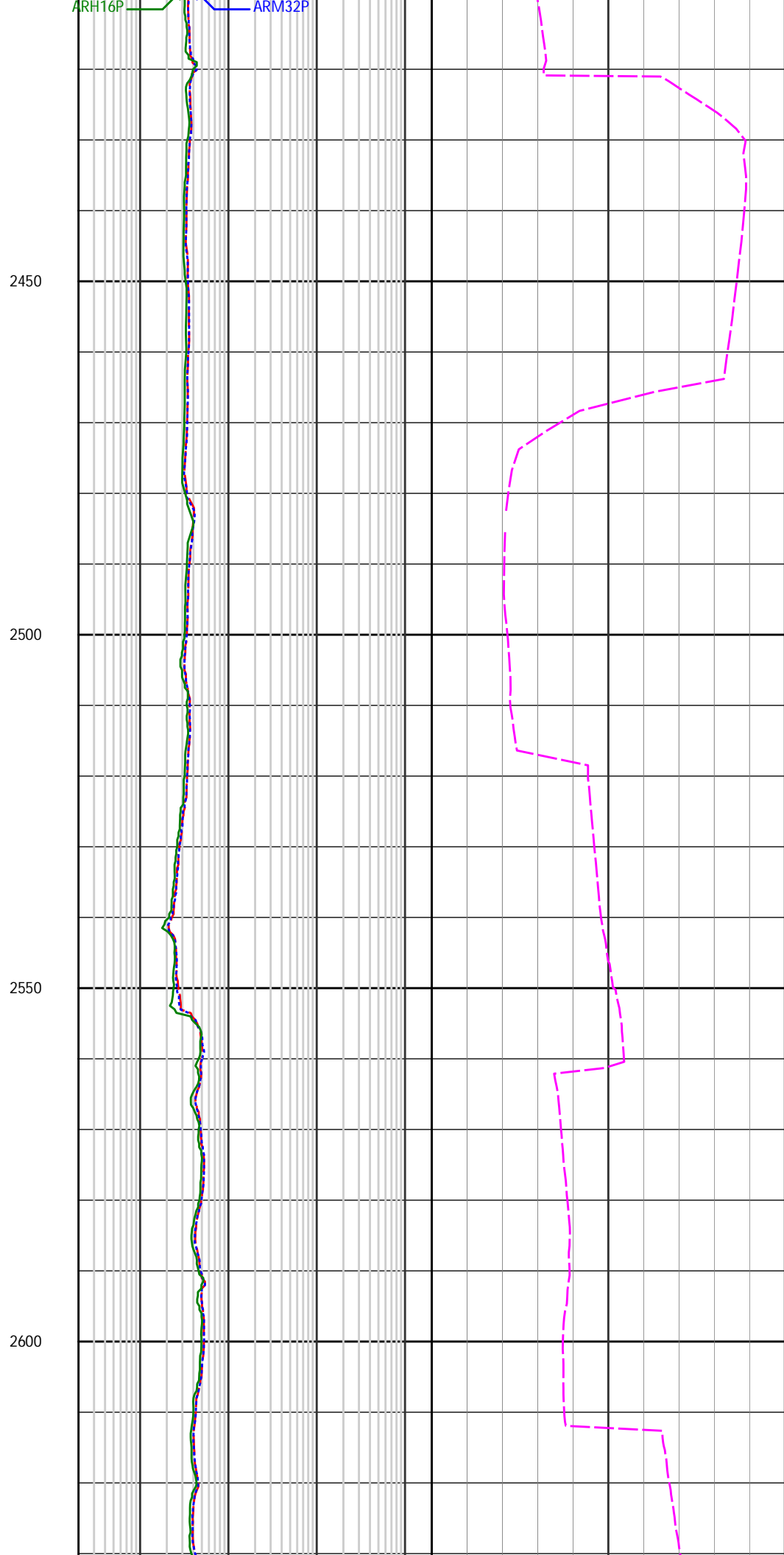
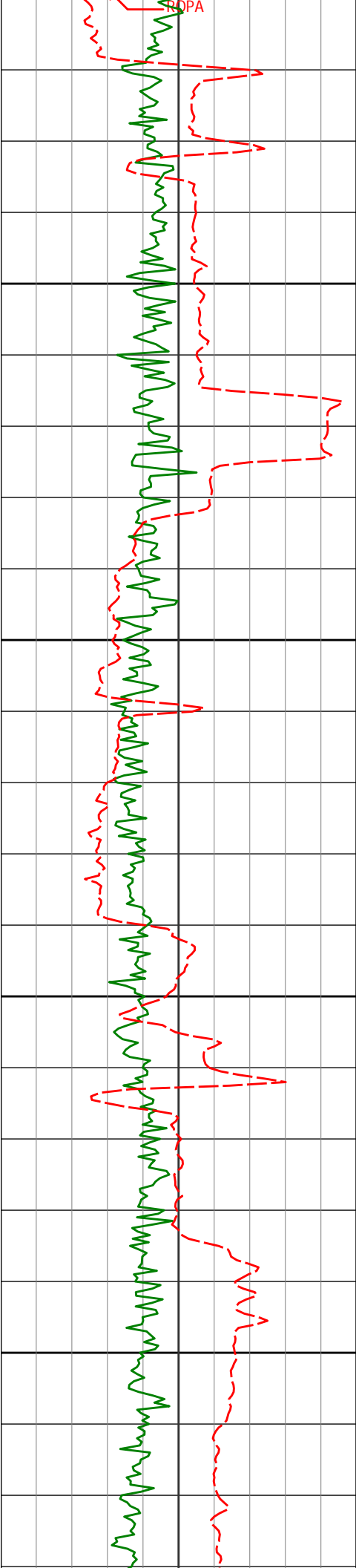
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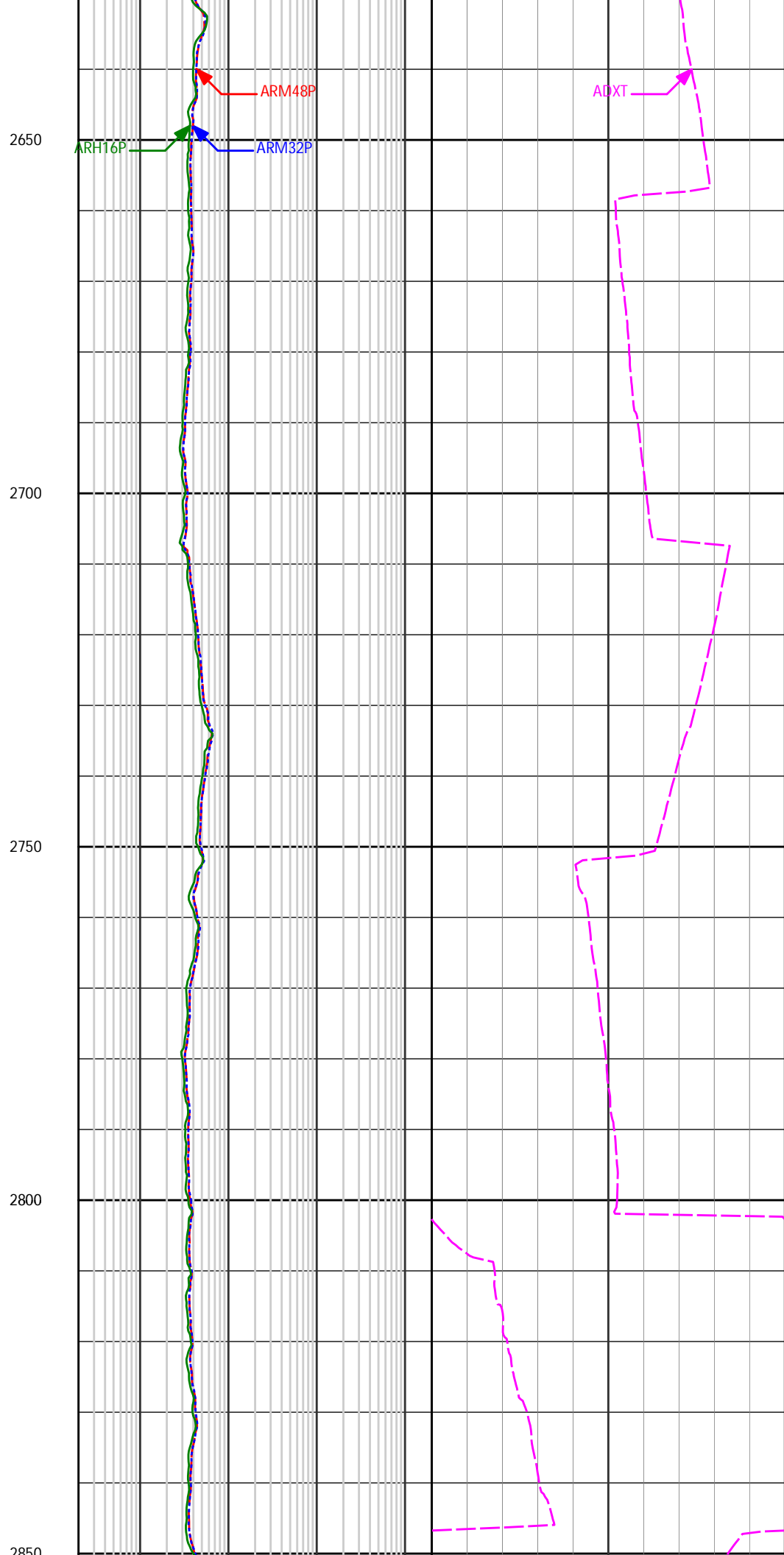
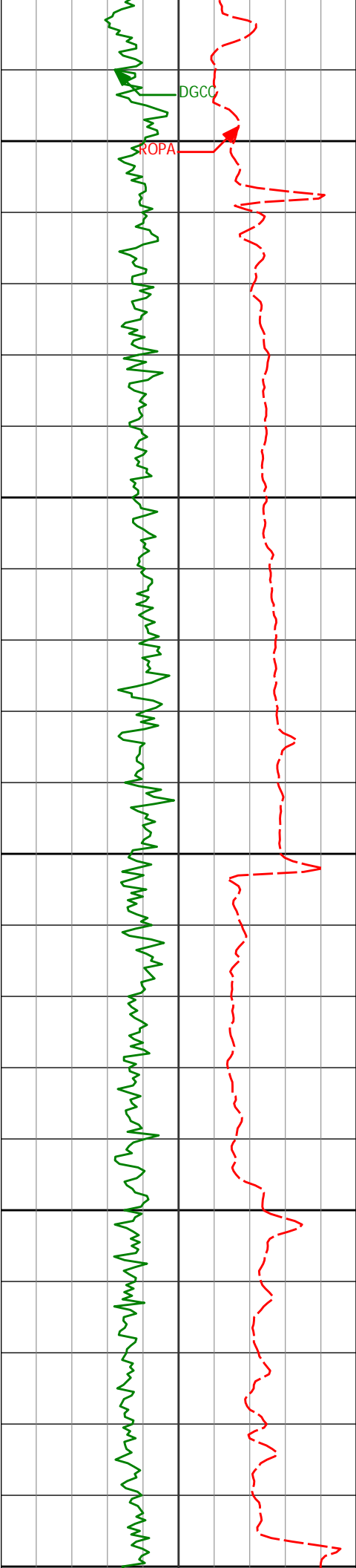


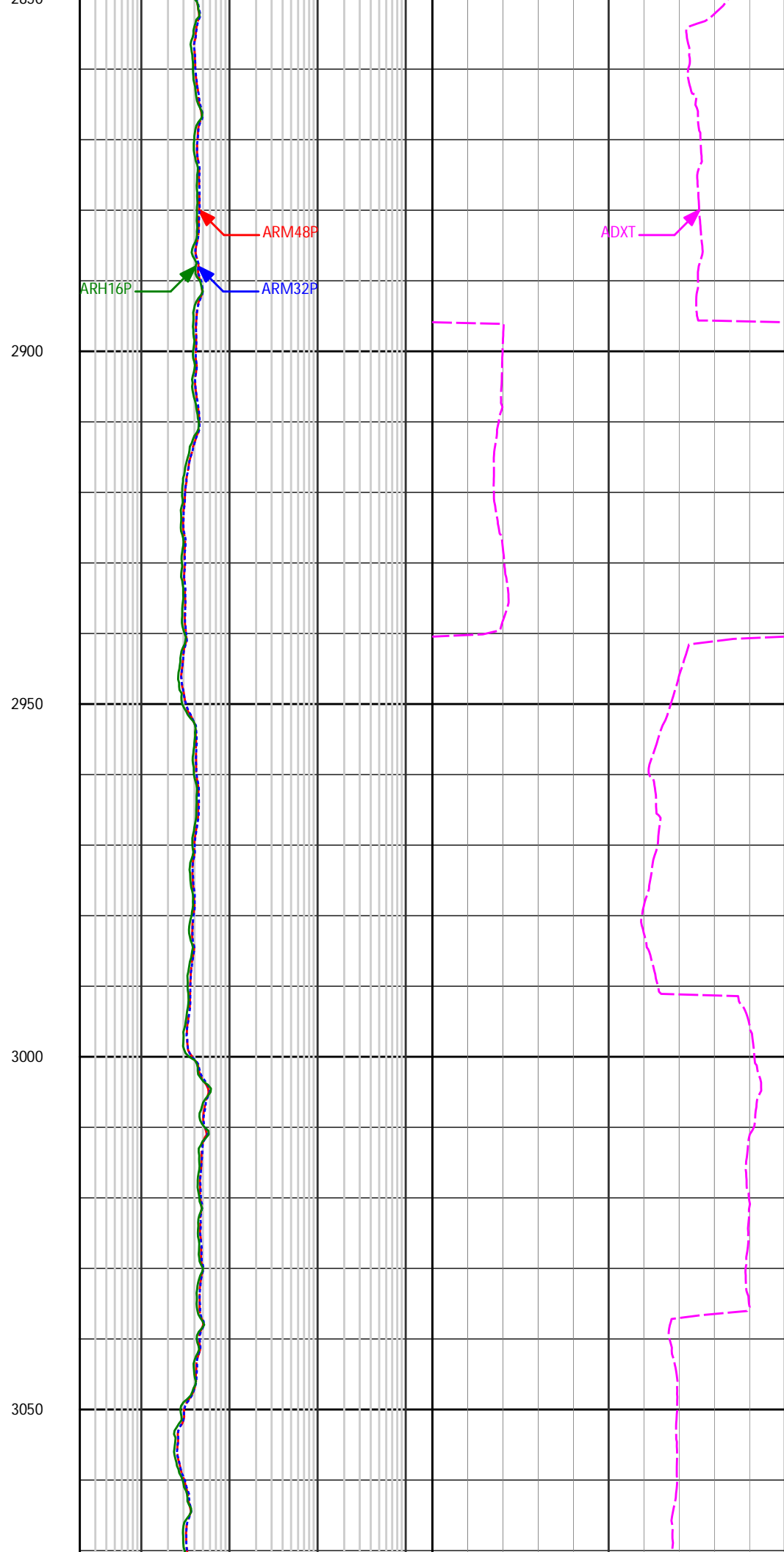
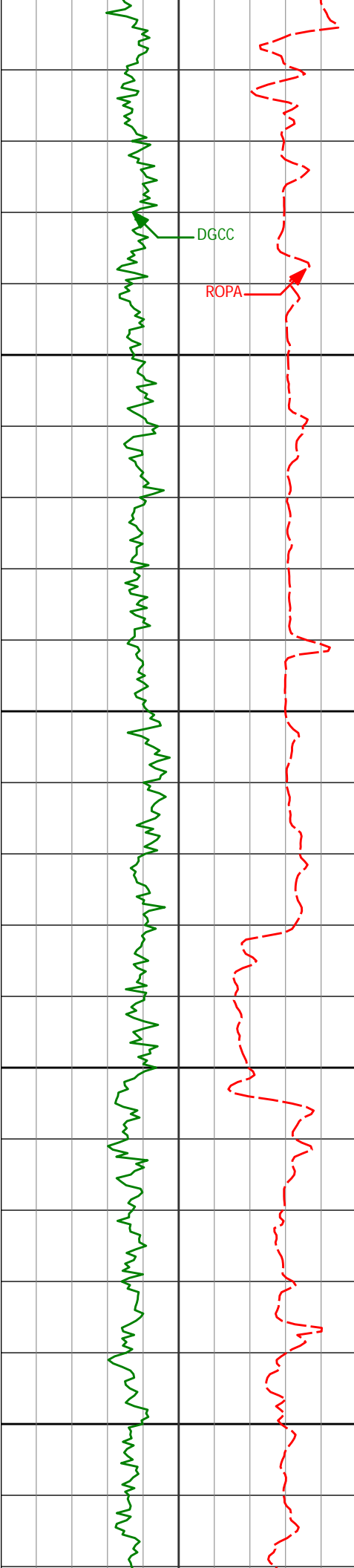
ARM48P

ADXT

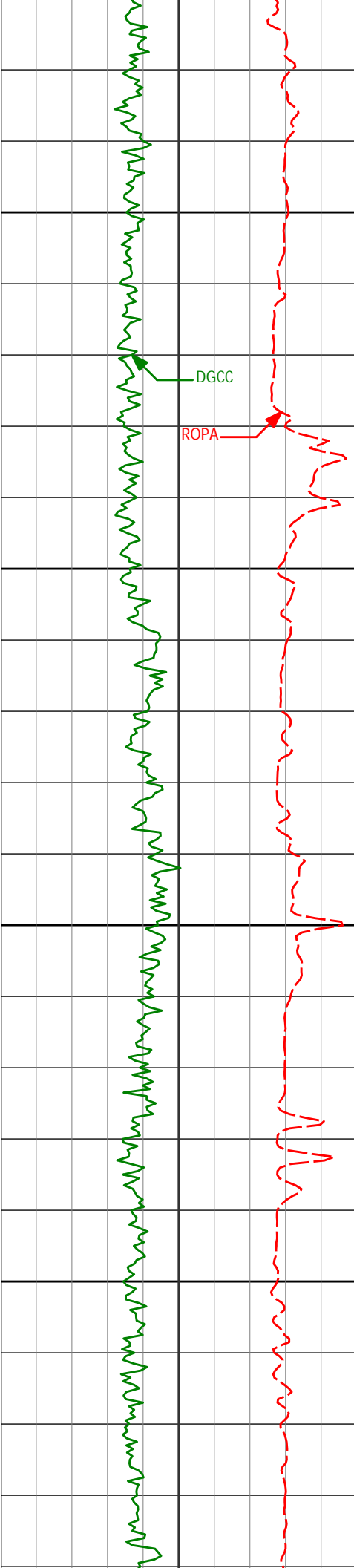
DGCC











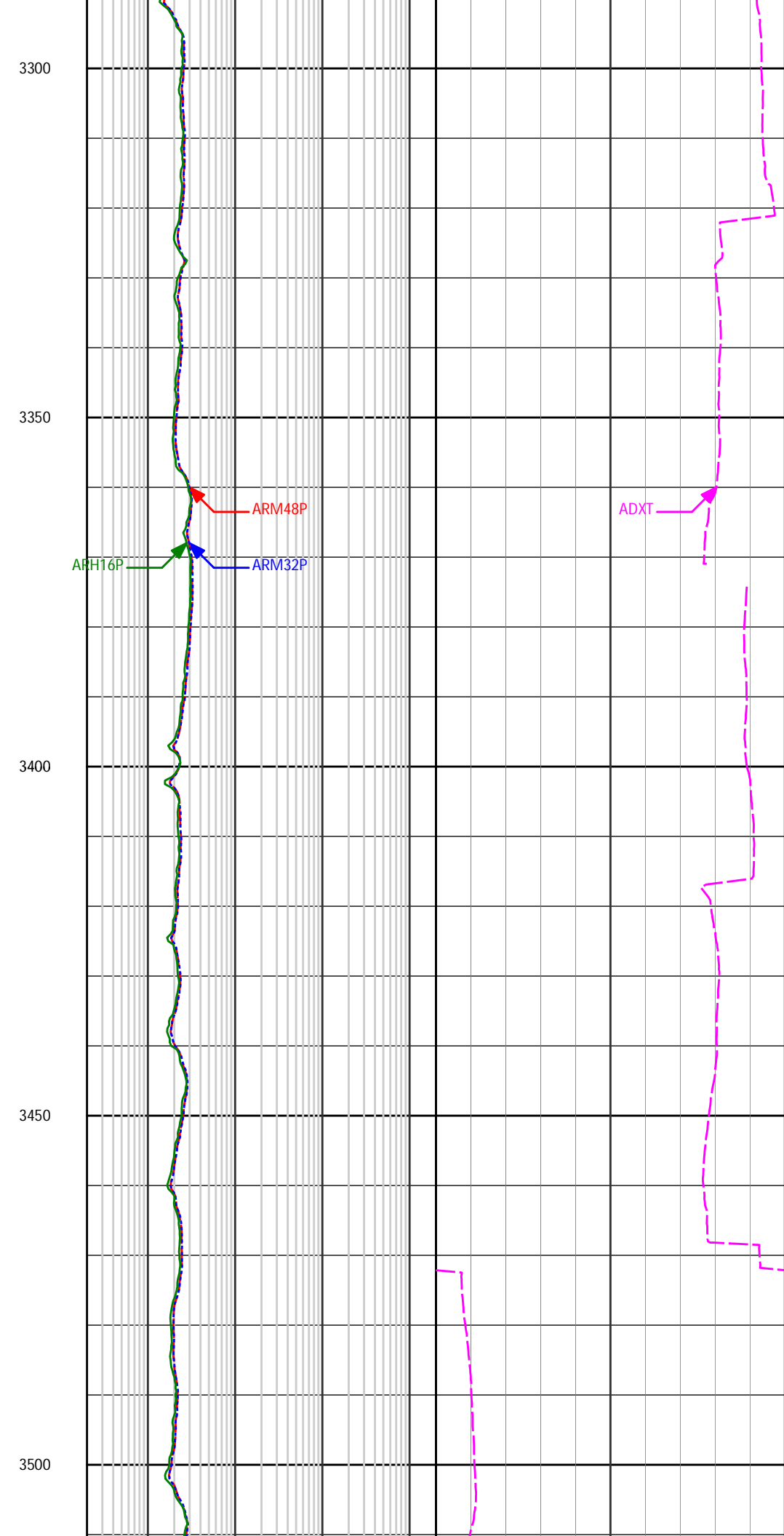
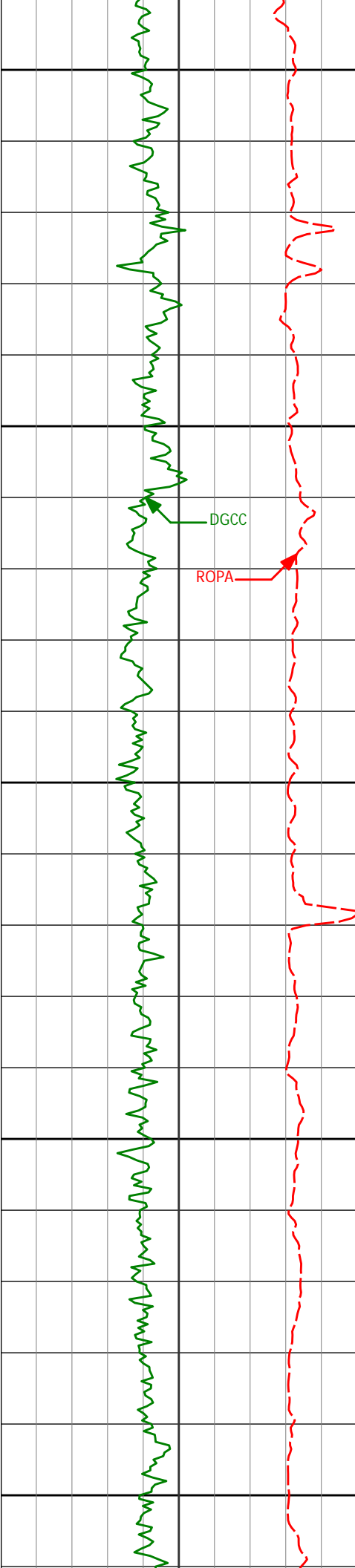
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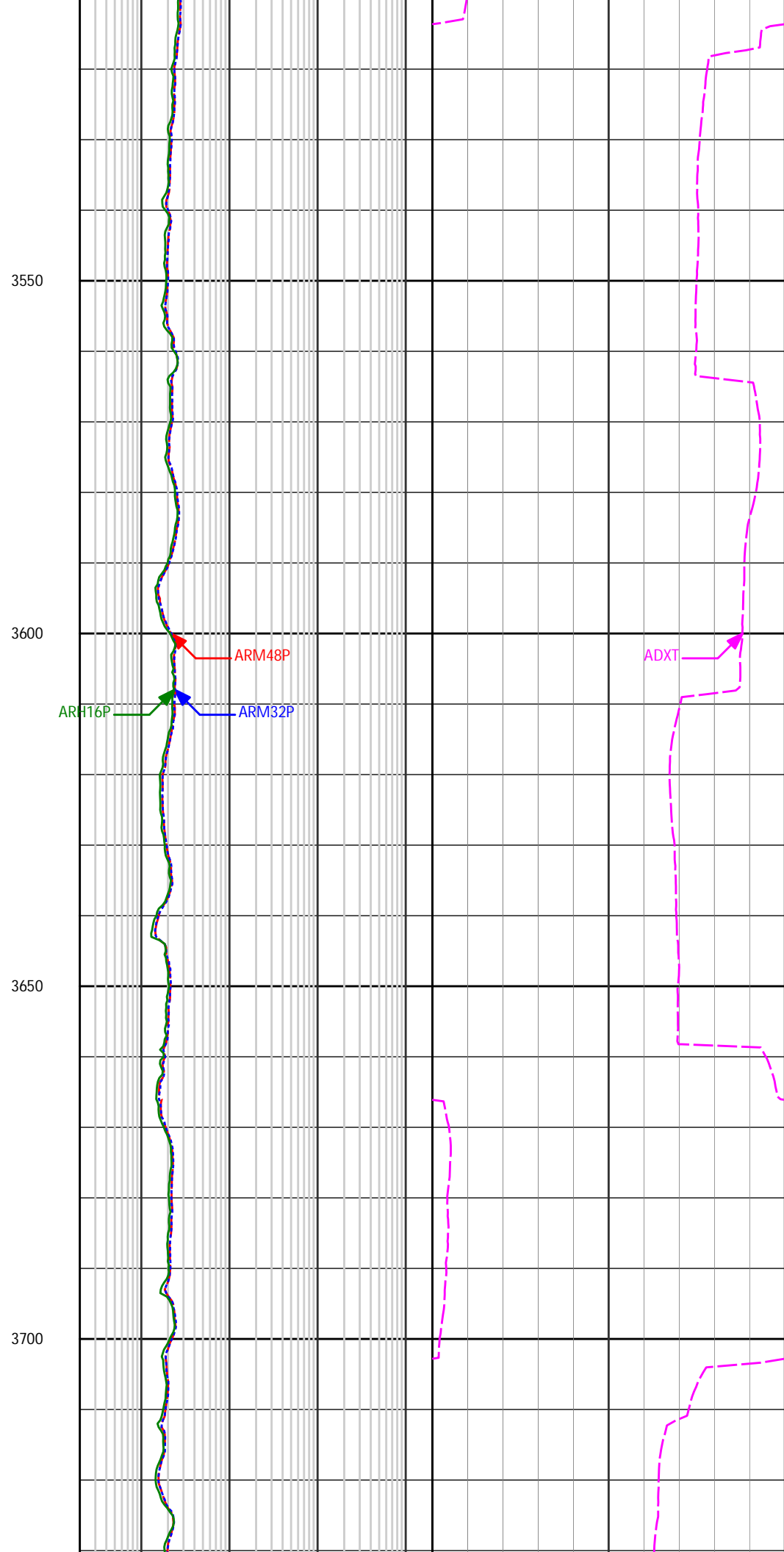
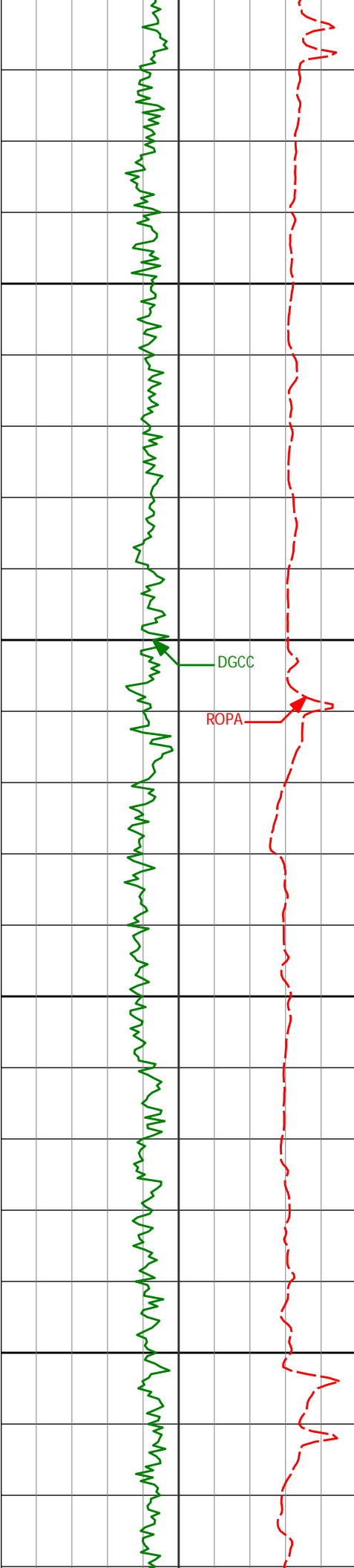
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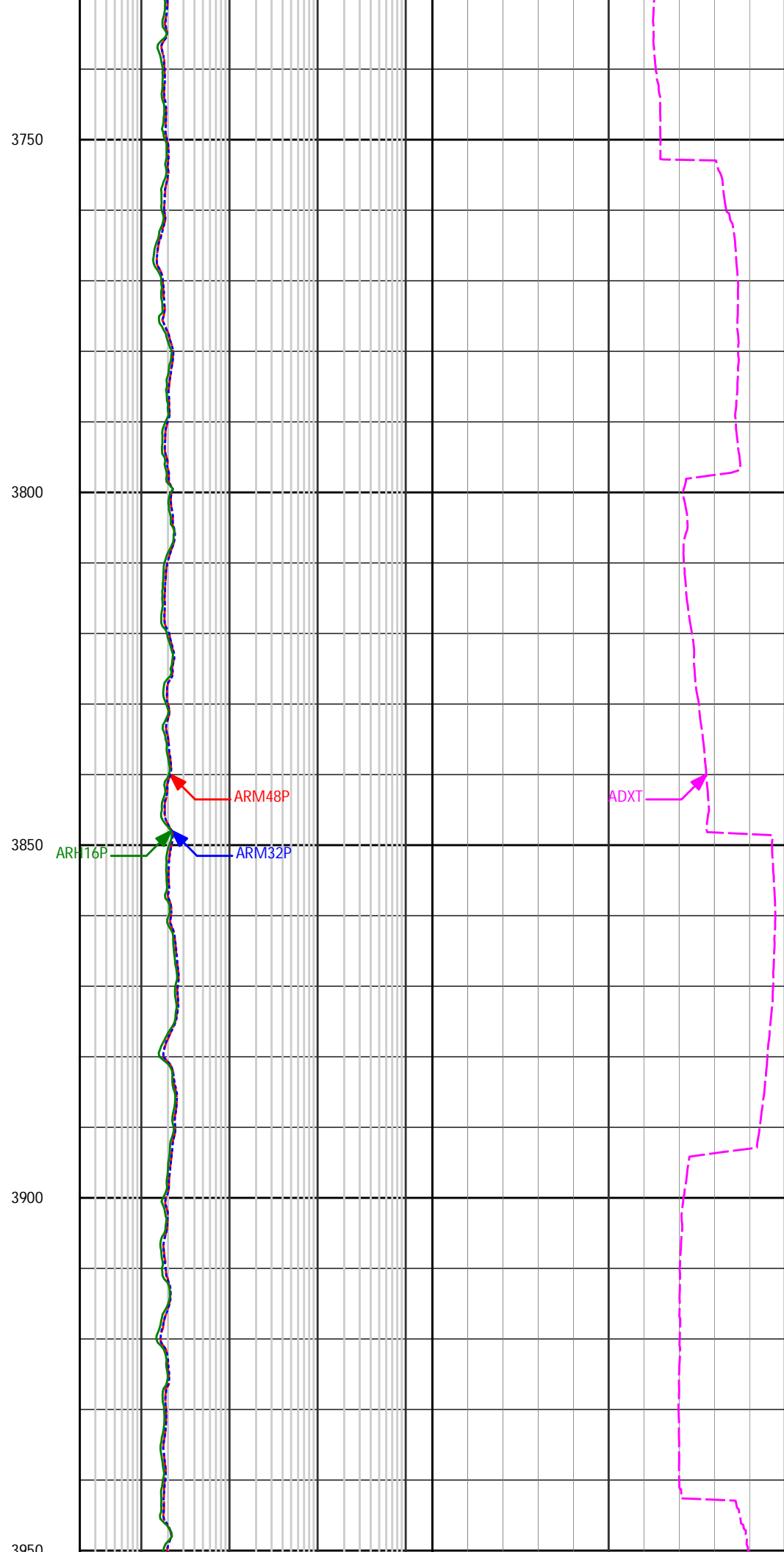
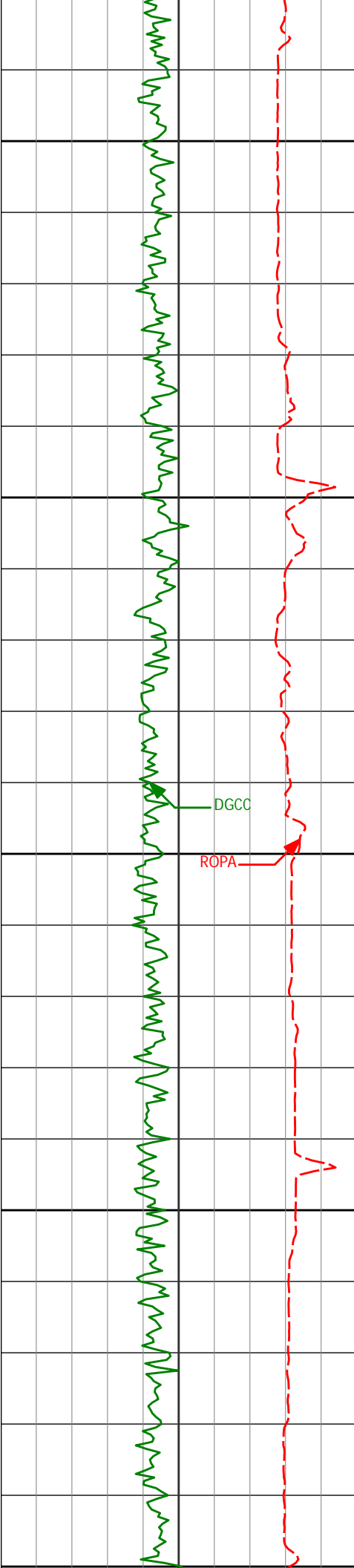
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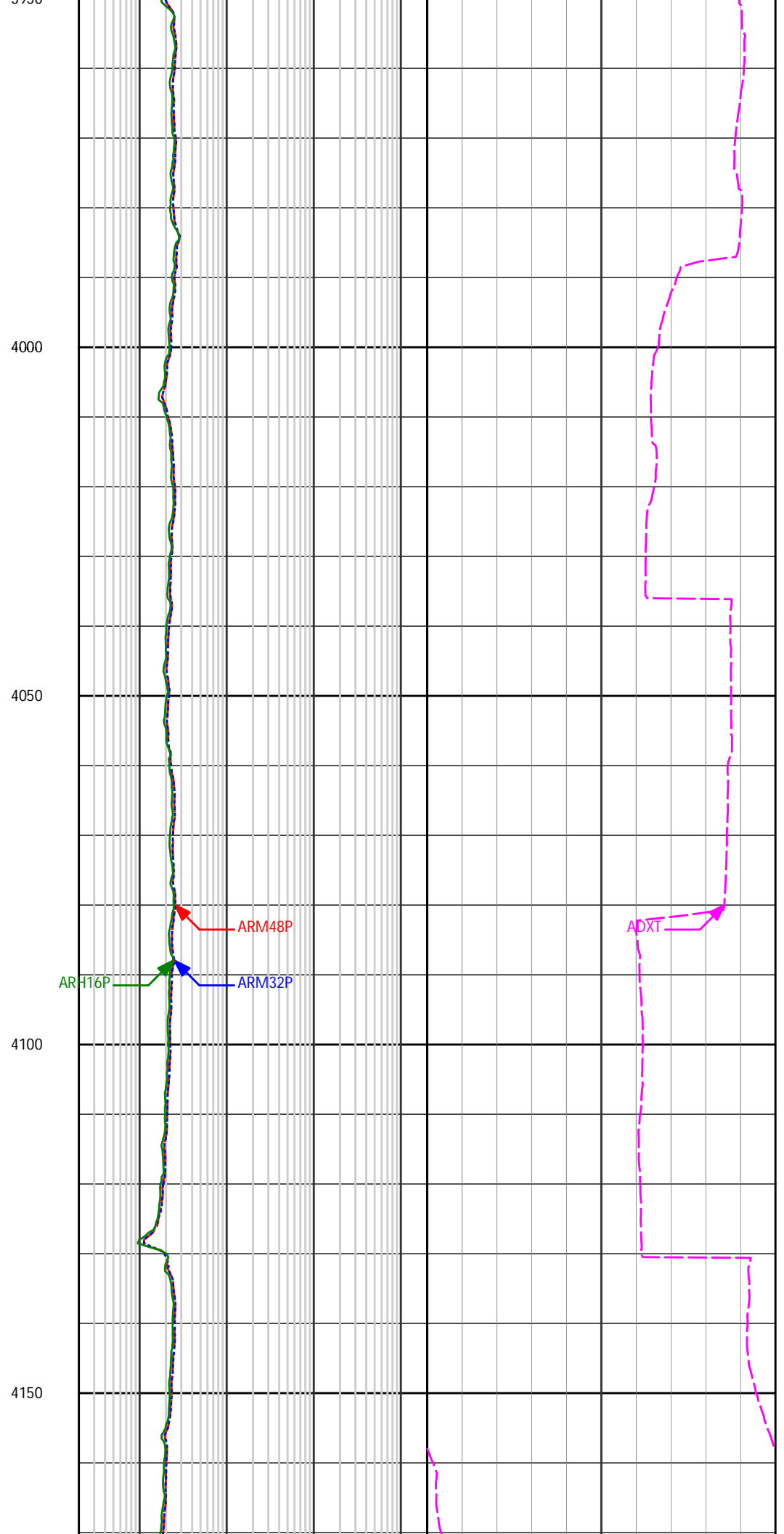
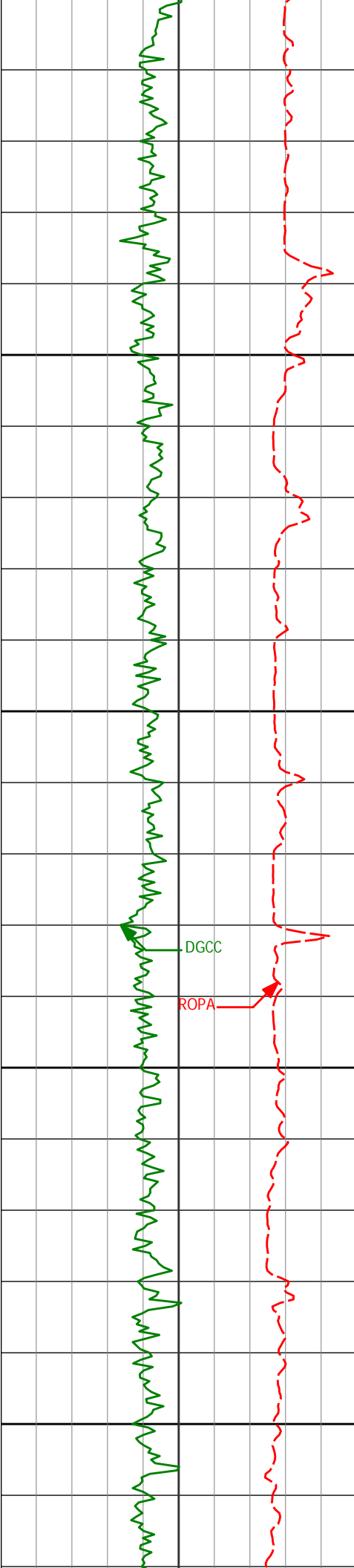
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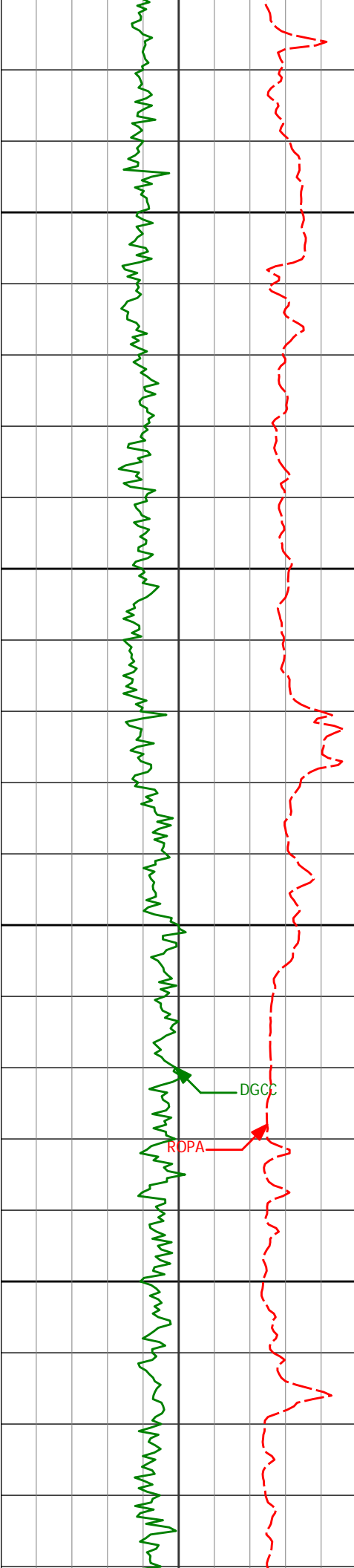










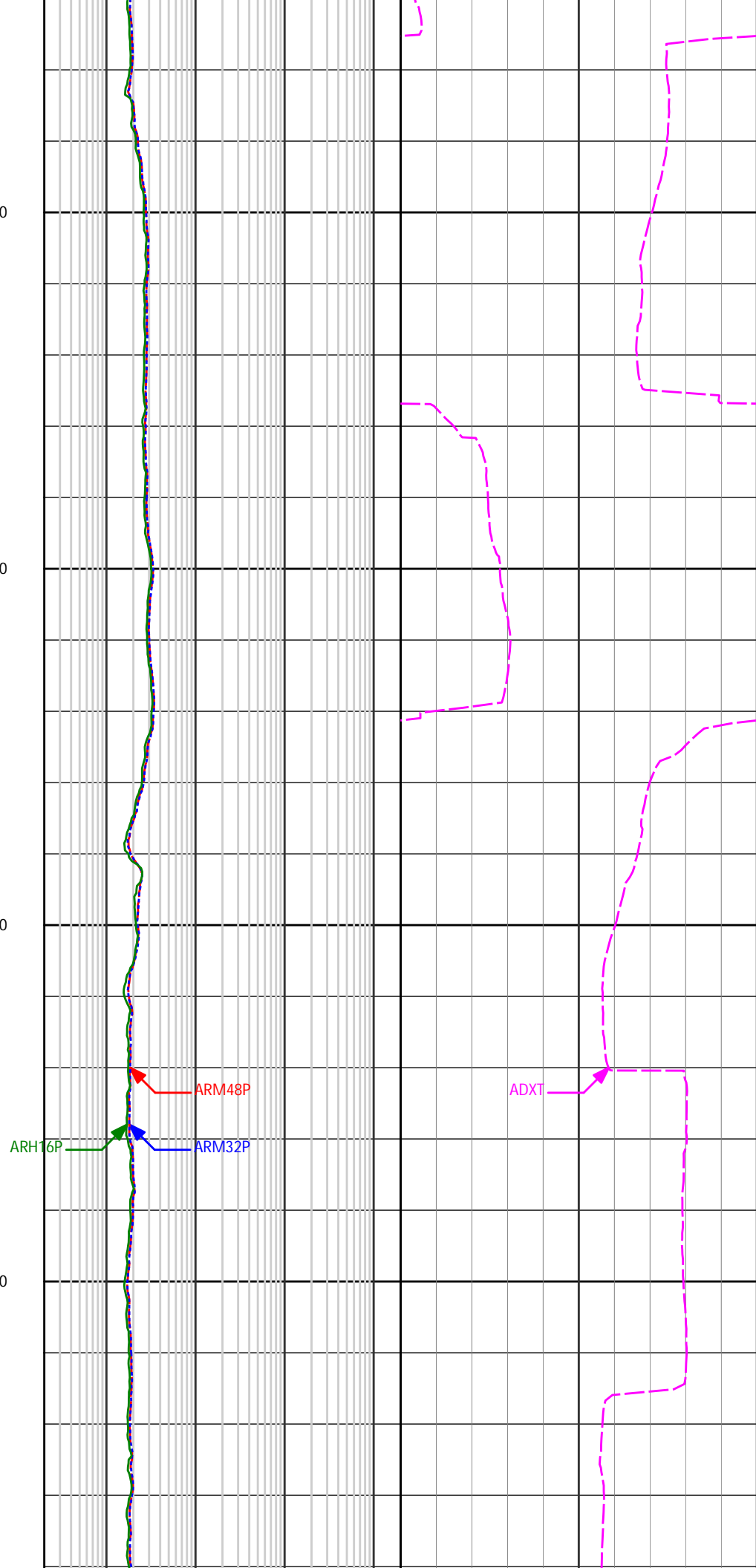


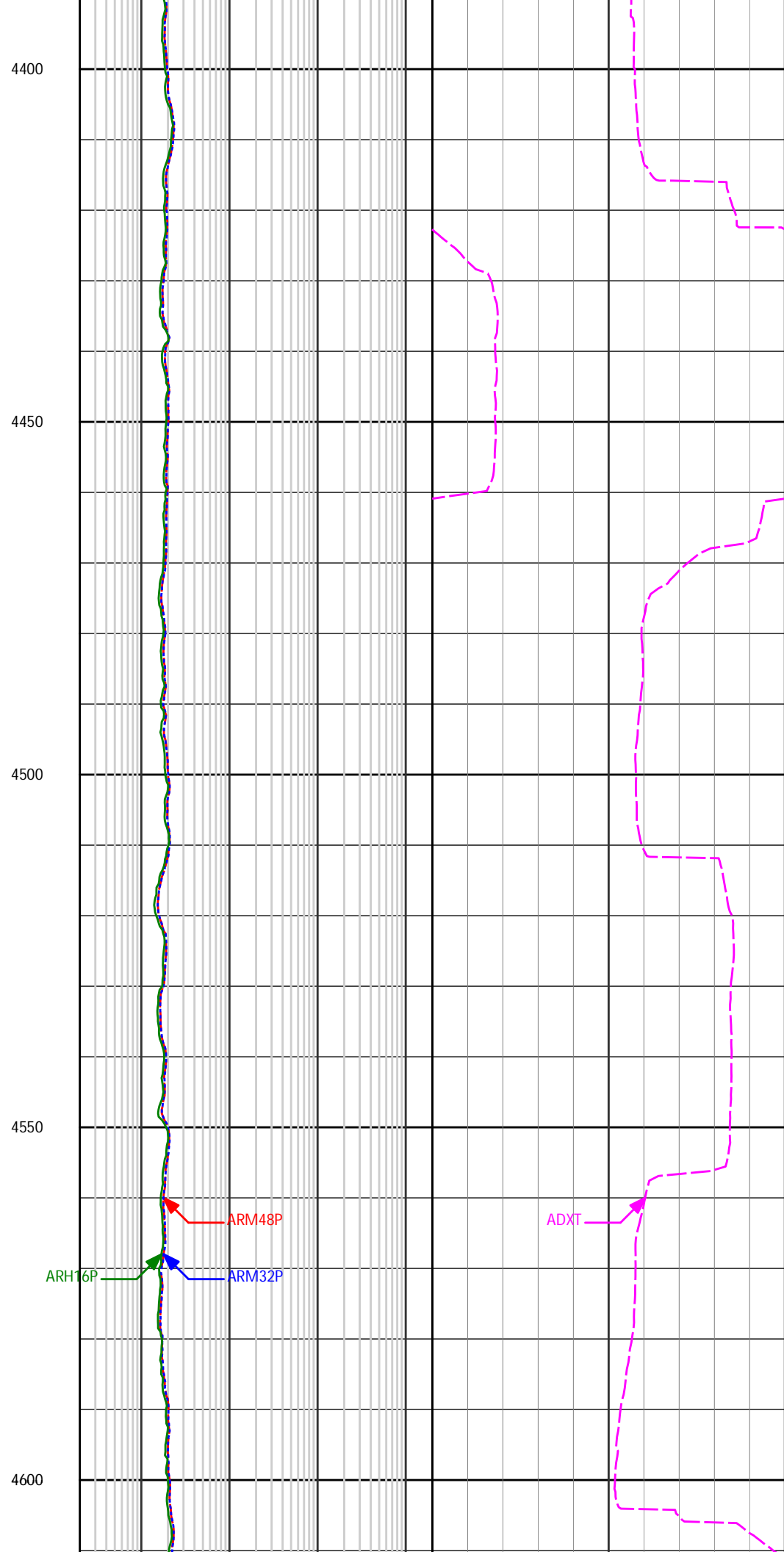
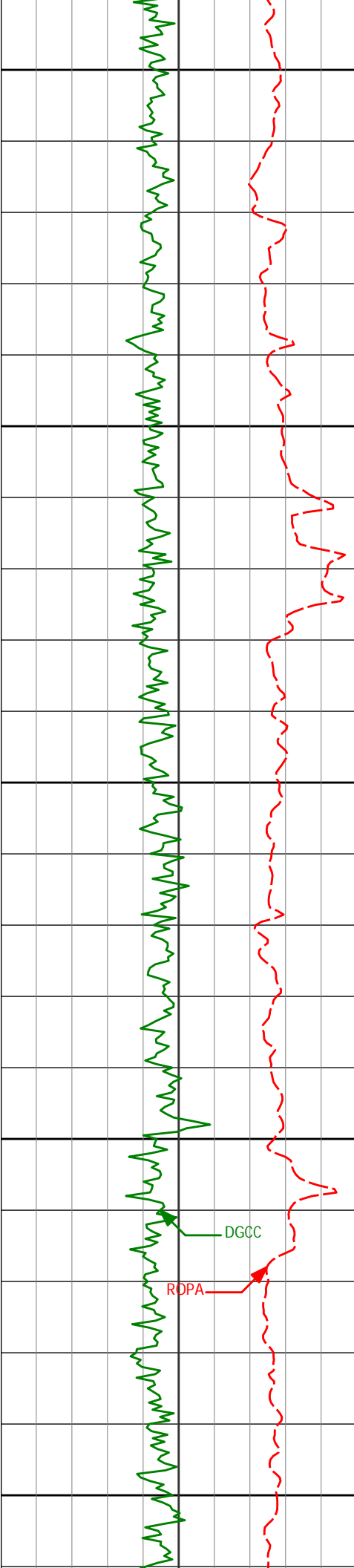
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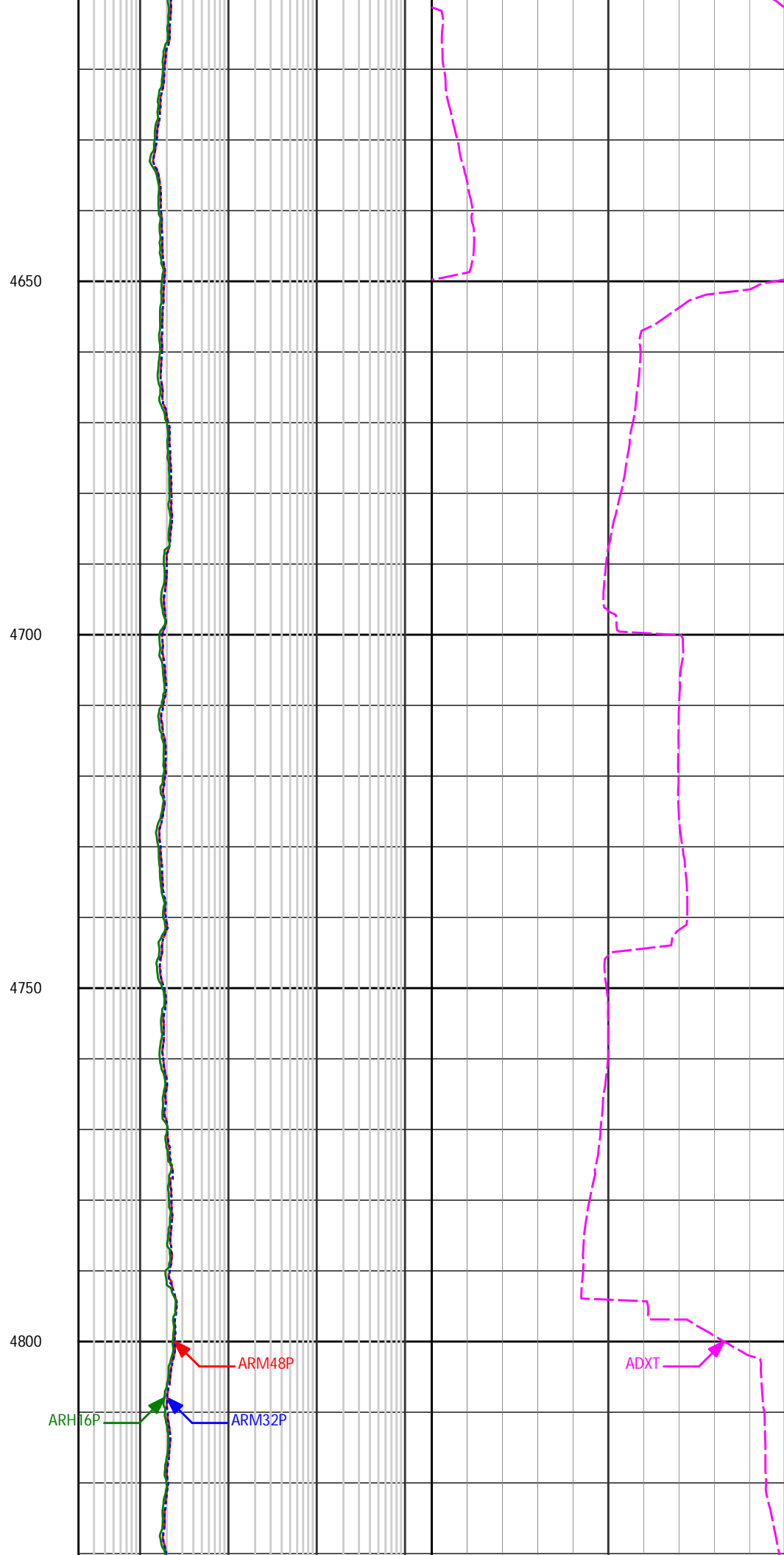
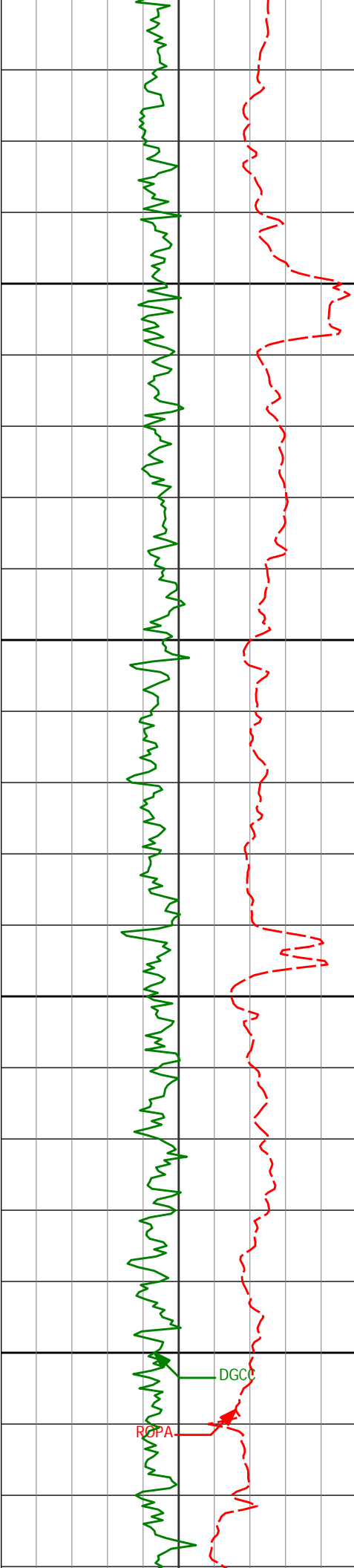
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4300

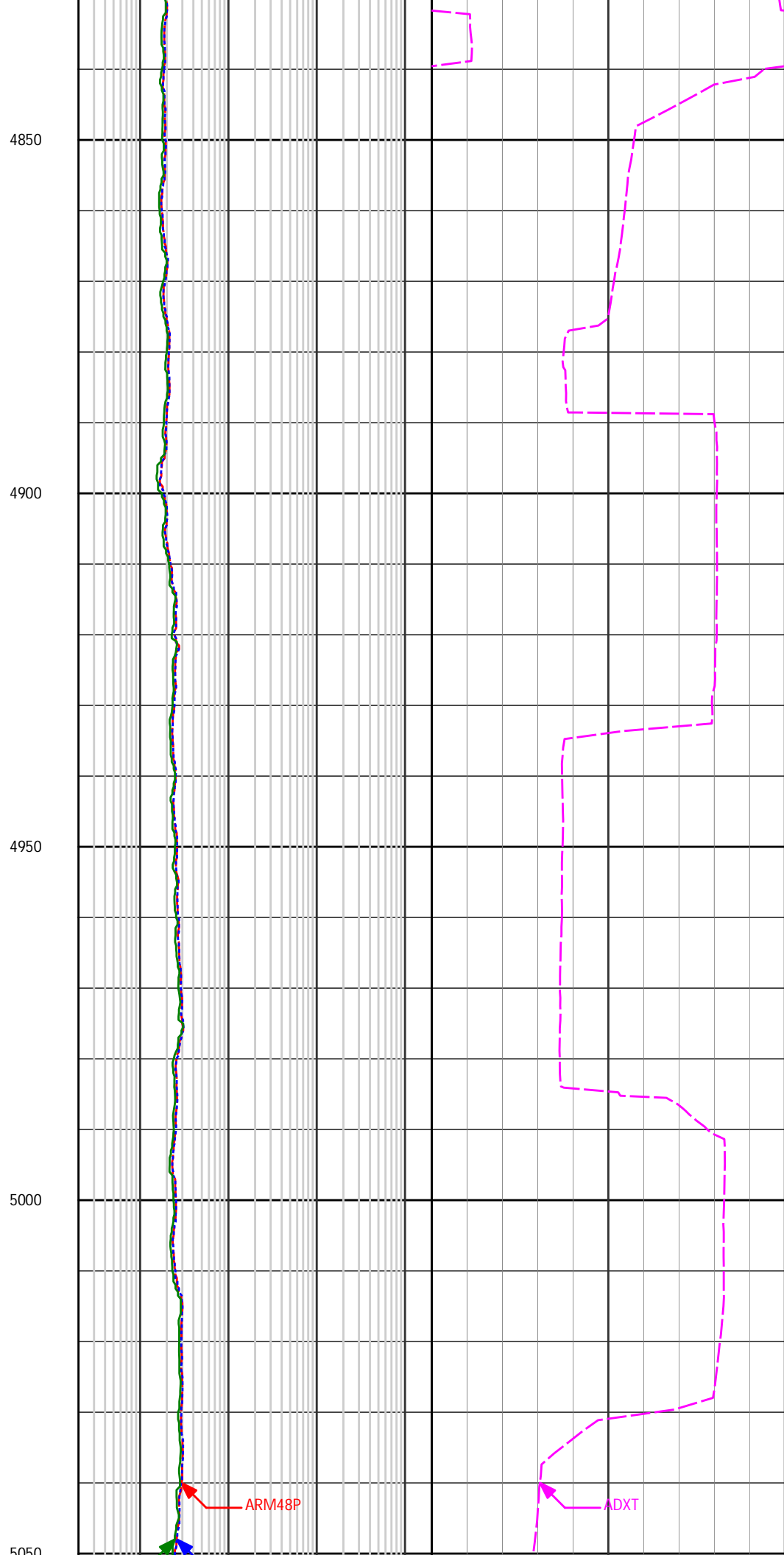
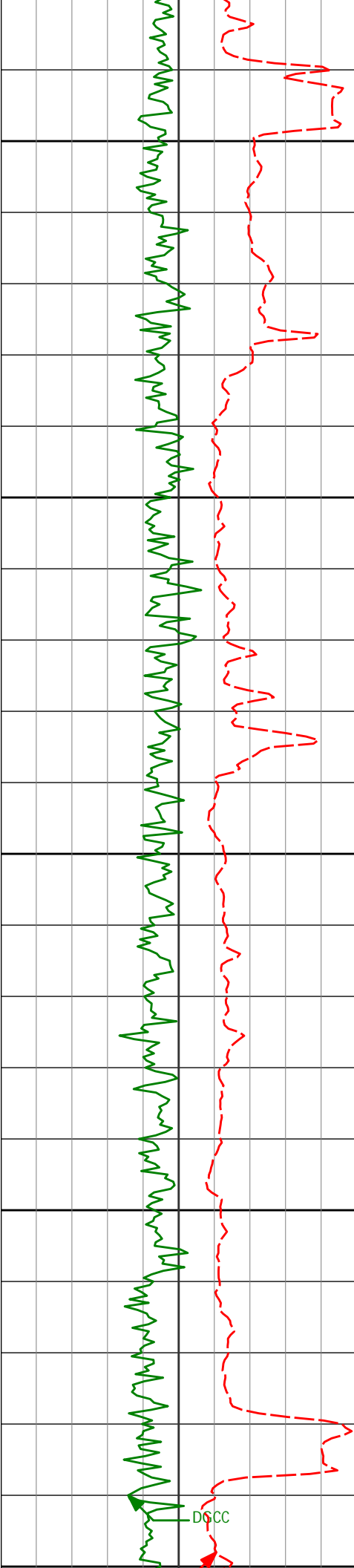
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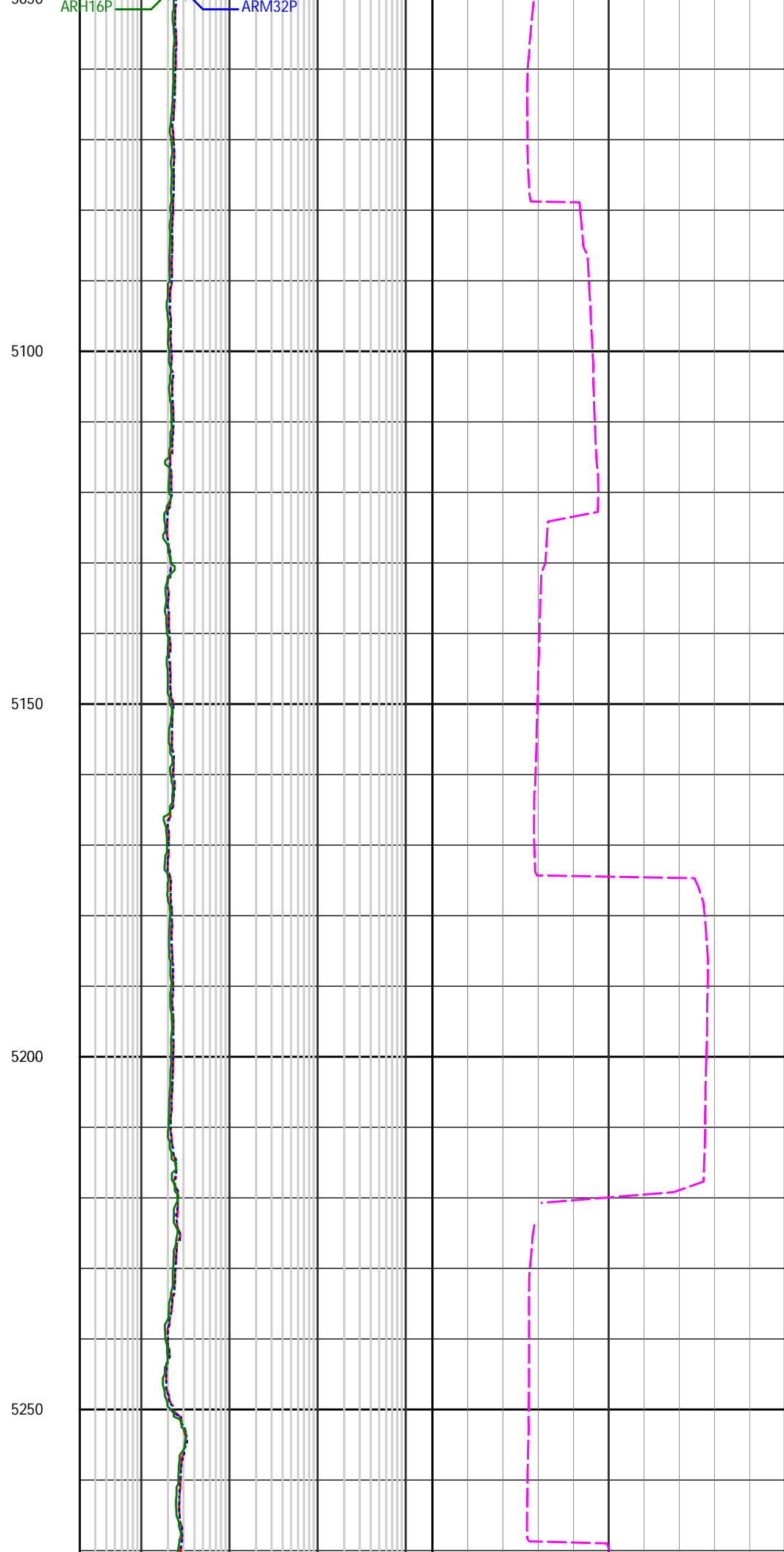
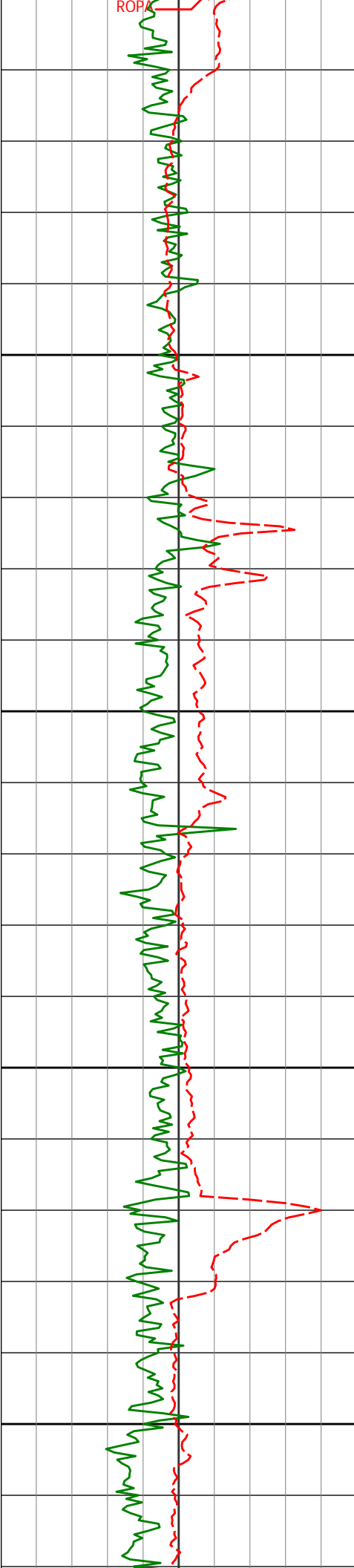


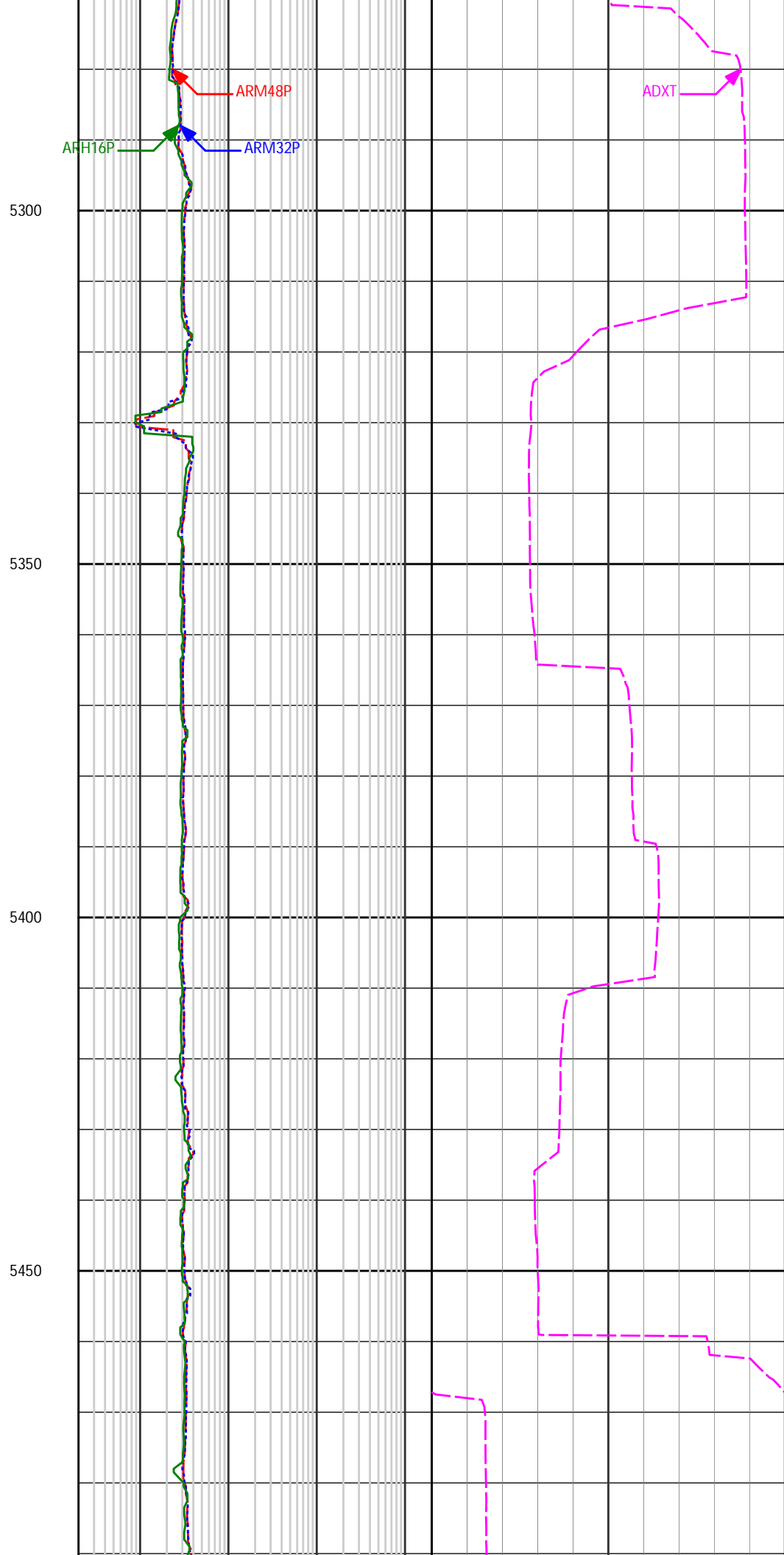
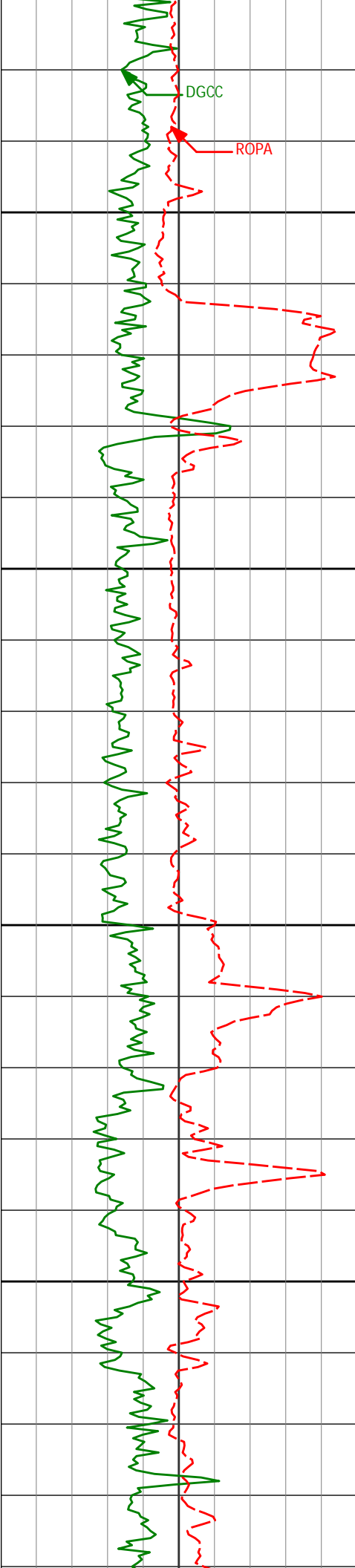


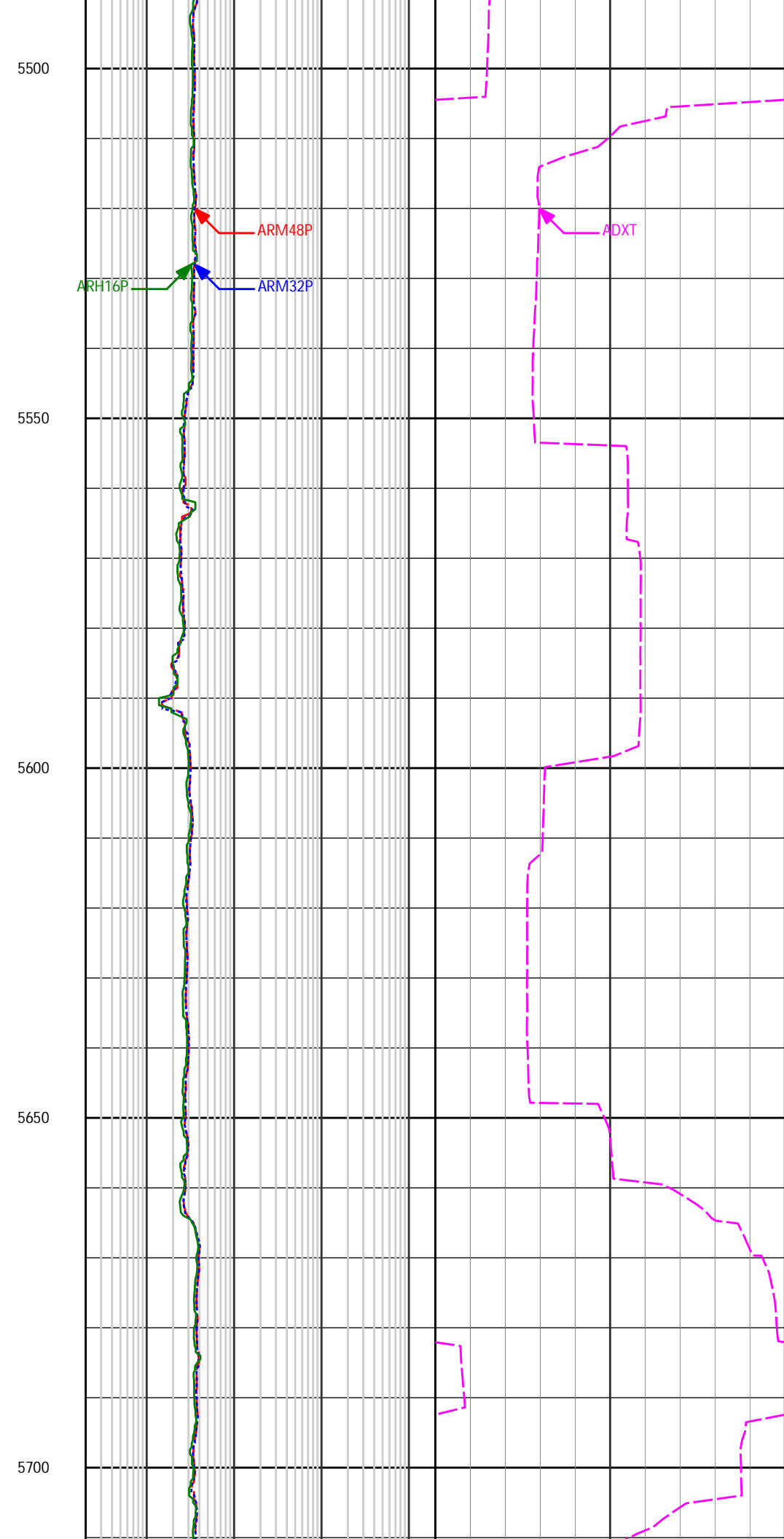
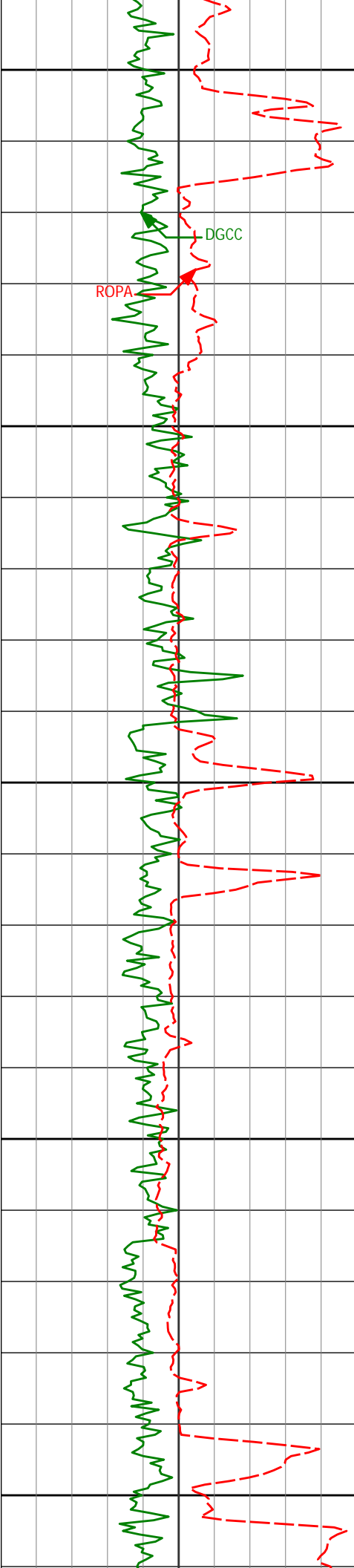


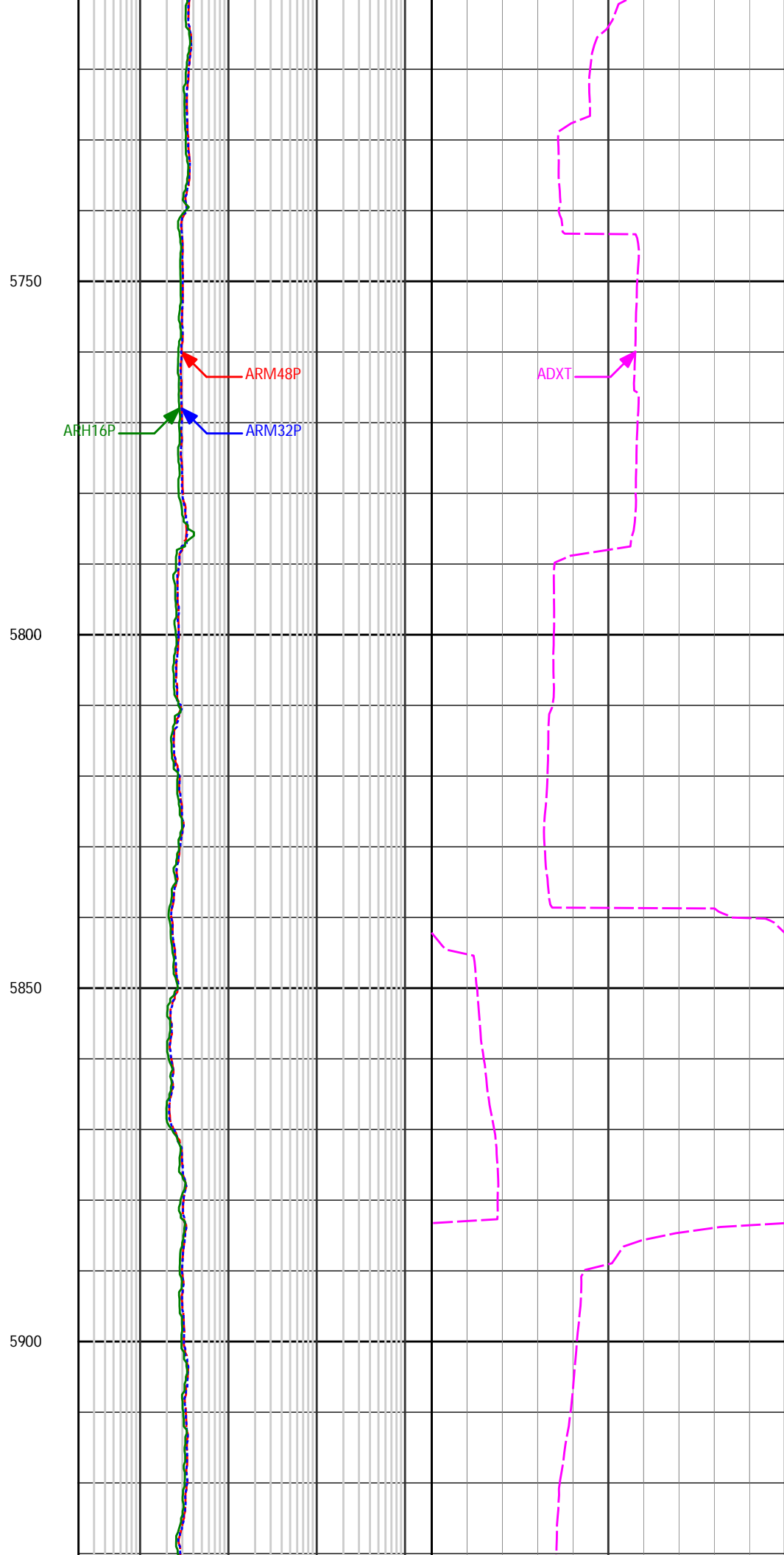
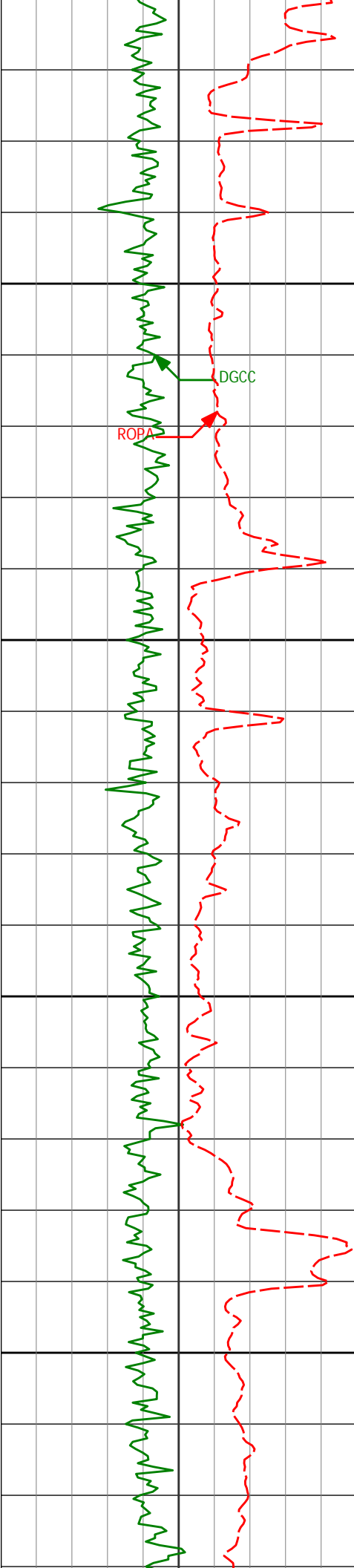


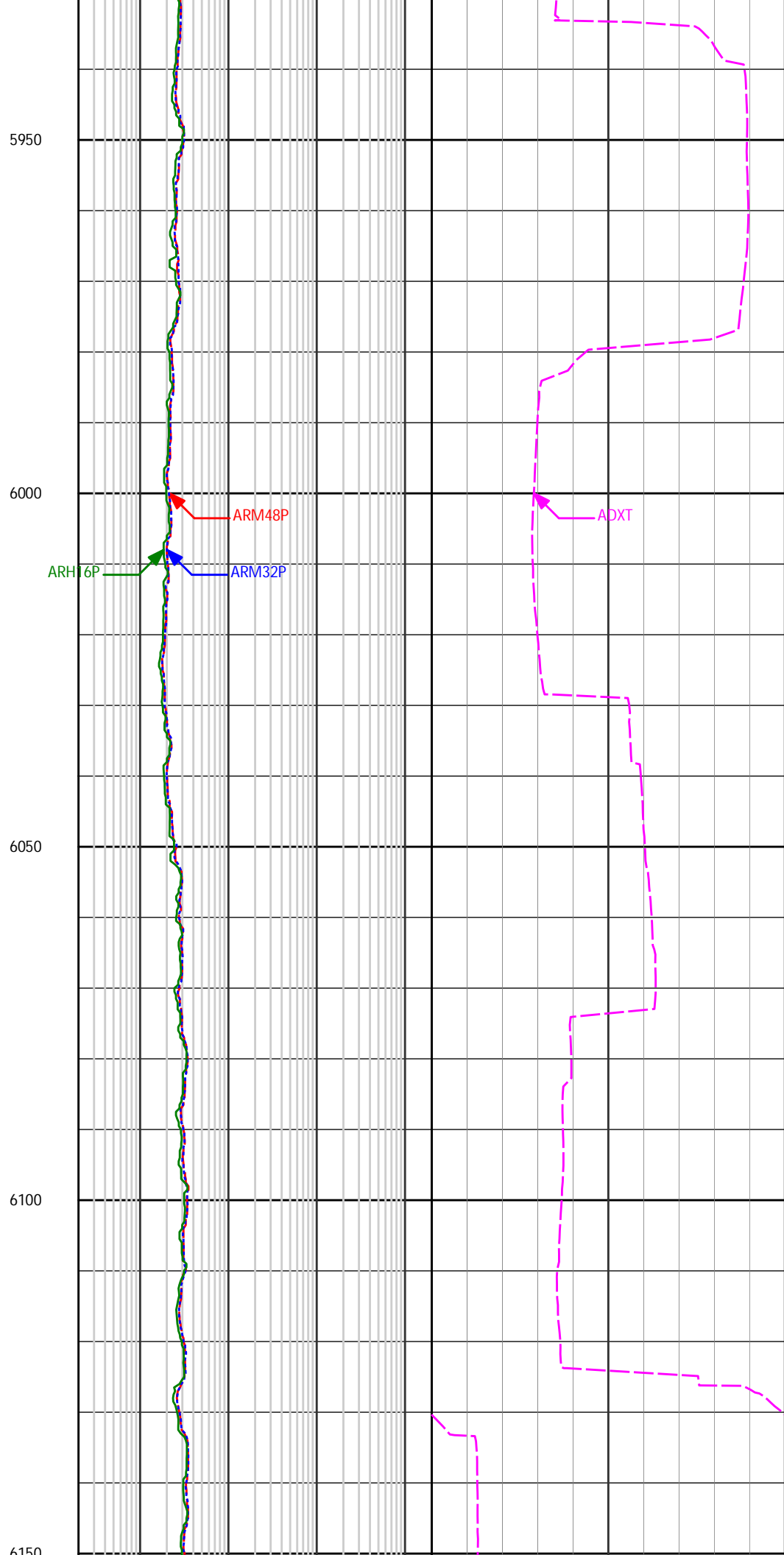
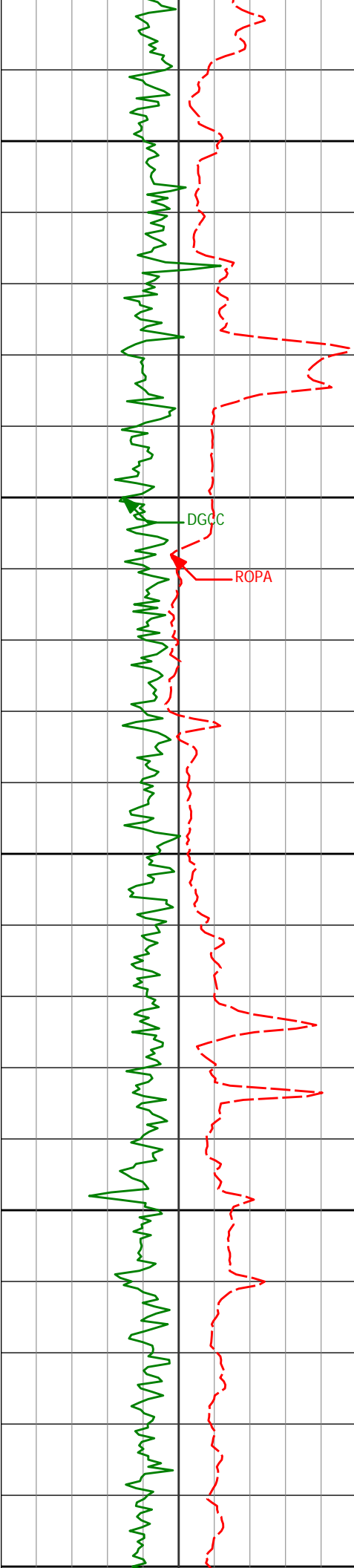


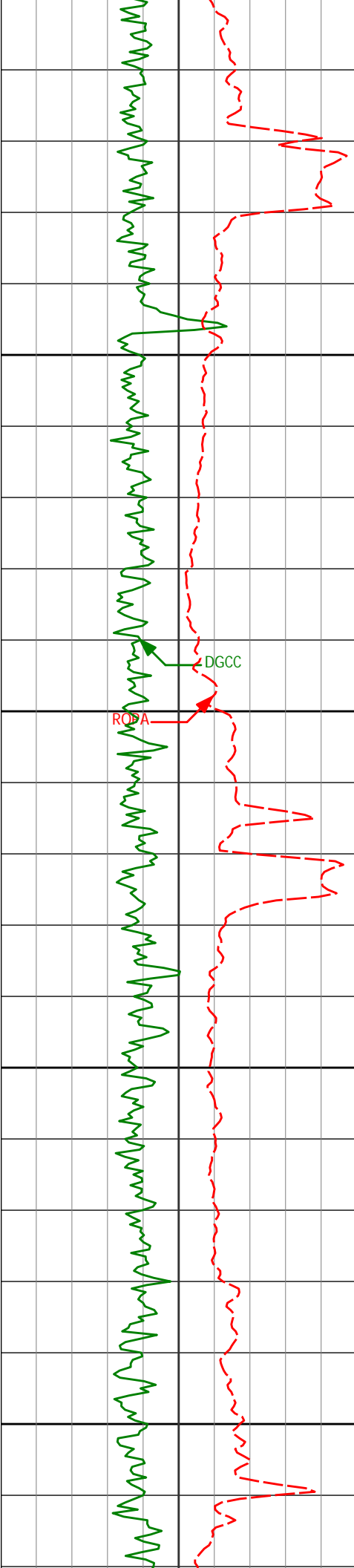












6150

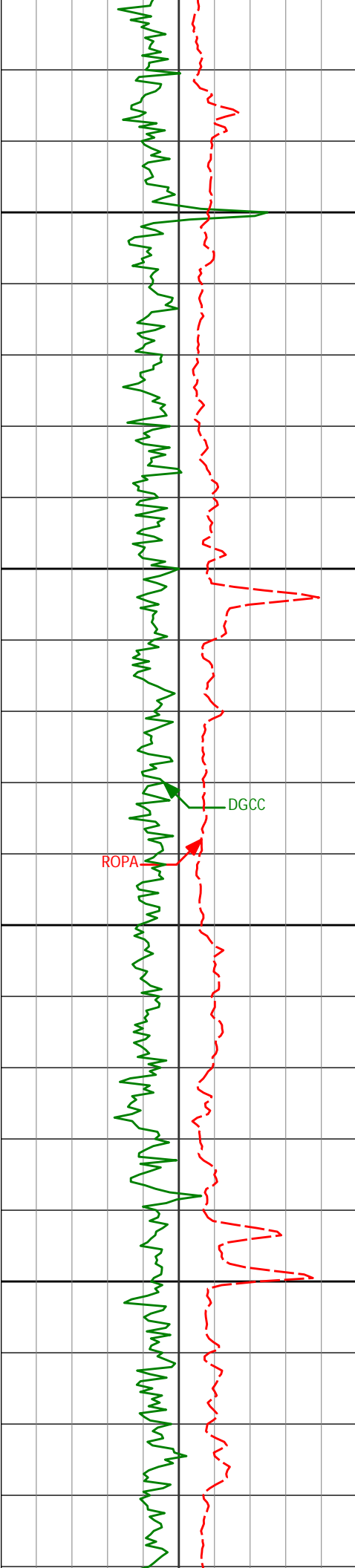
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6250

6300

6350



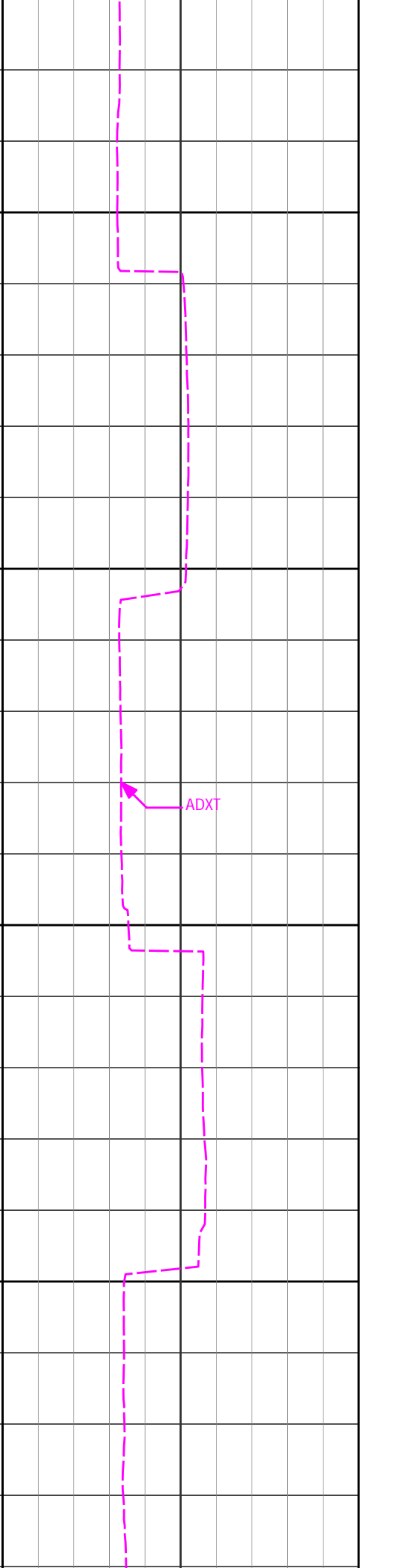
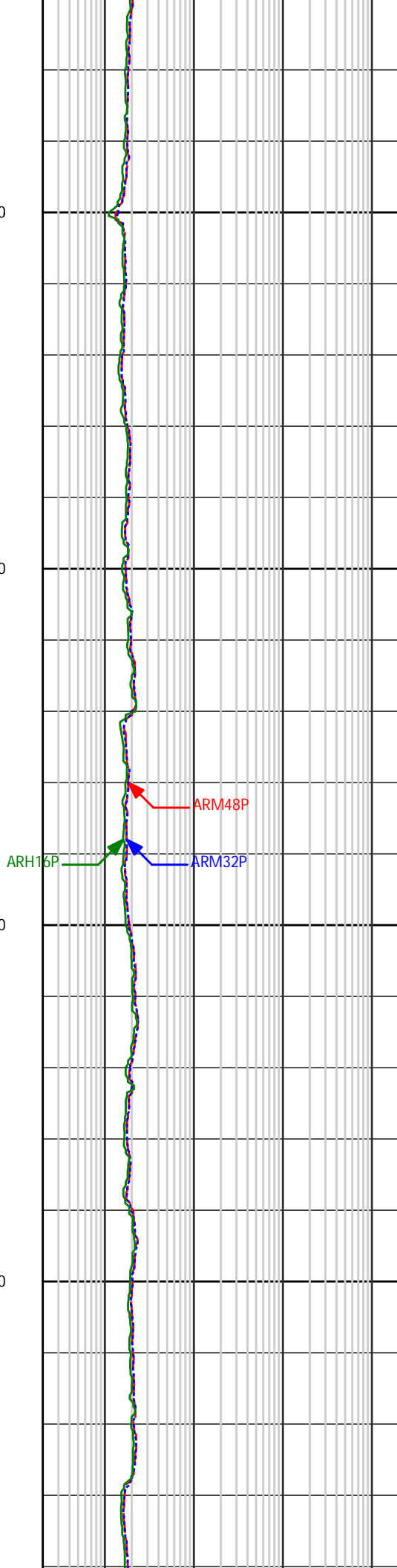


6400

6450

6500

6550



ROPA

DGCC

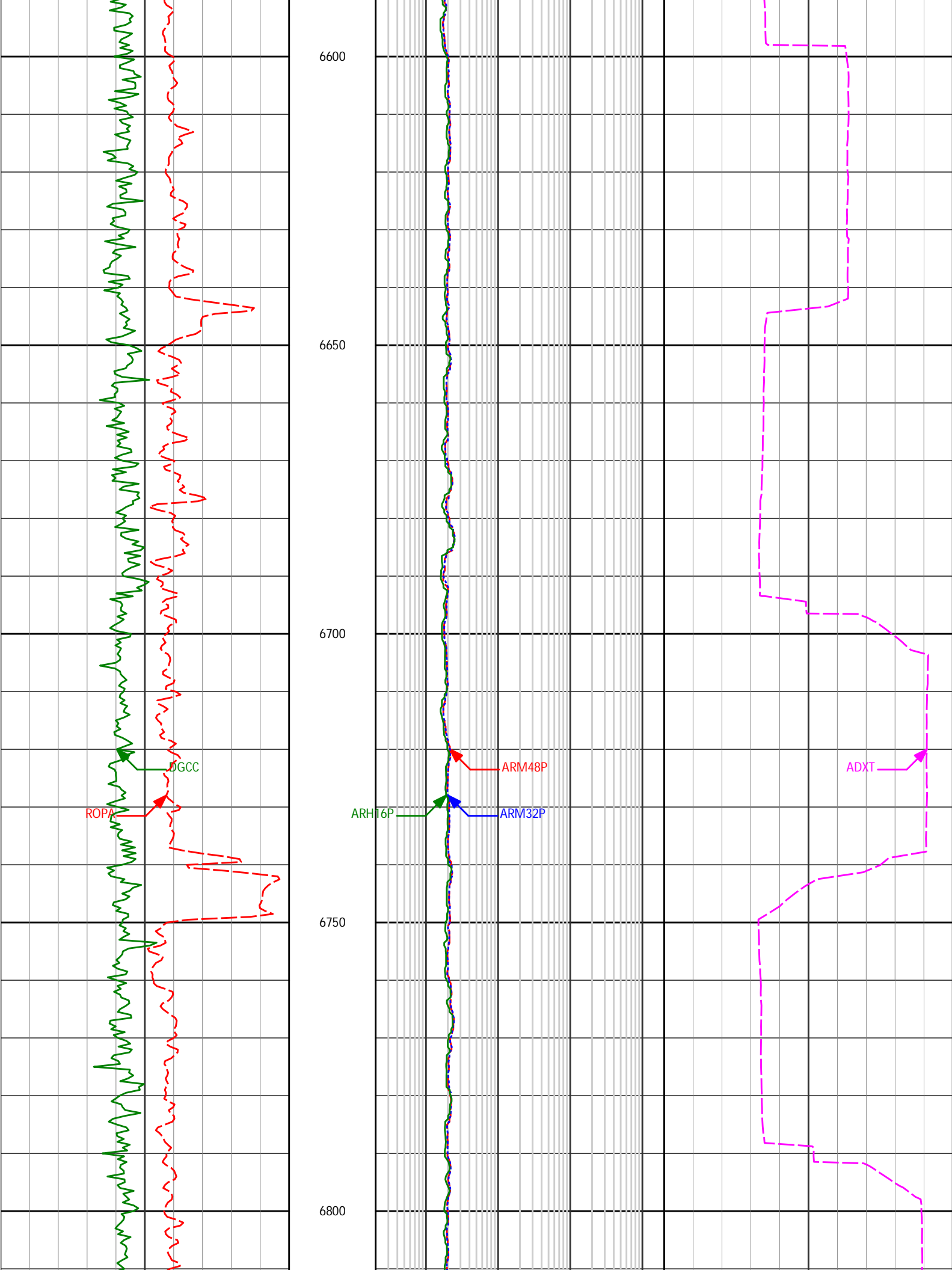
ARH16P

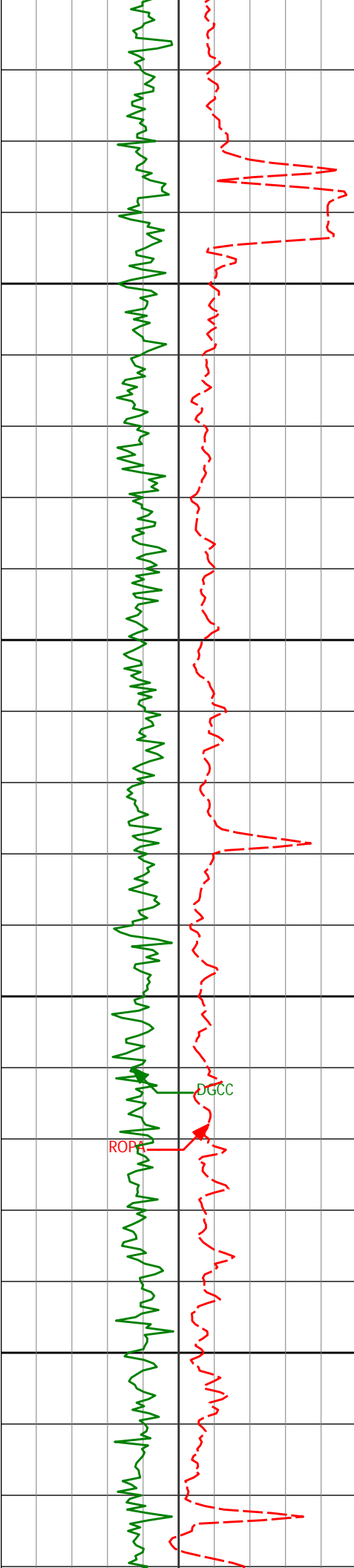
ARM48P

ARM32P

ADXT





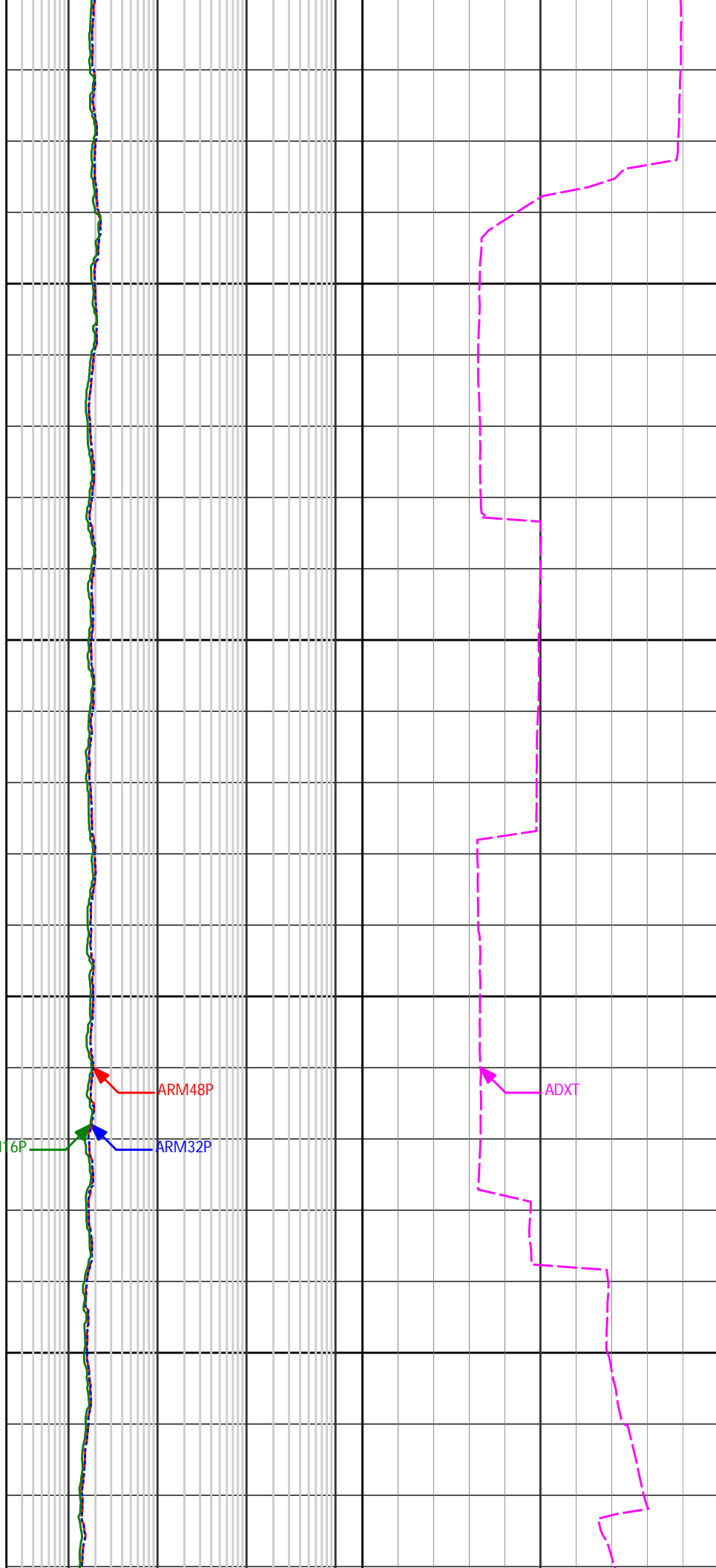


6850

6900

6950

7000

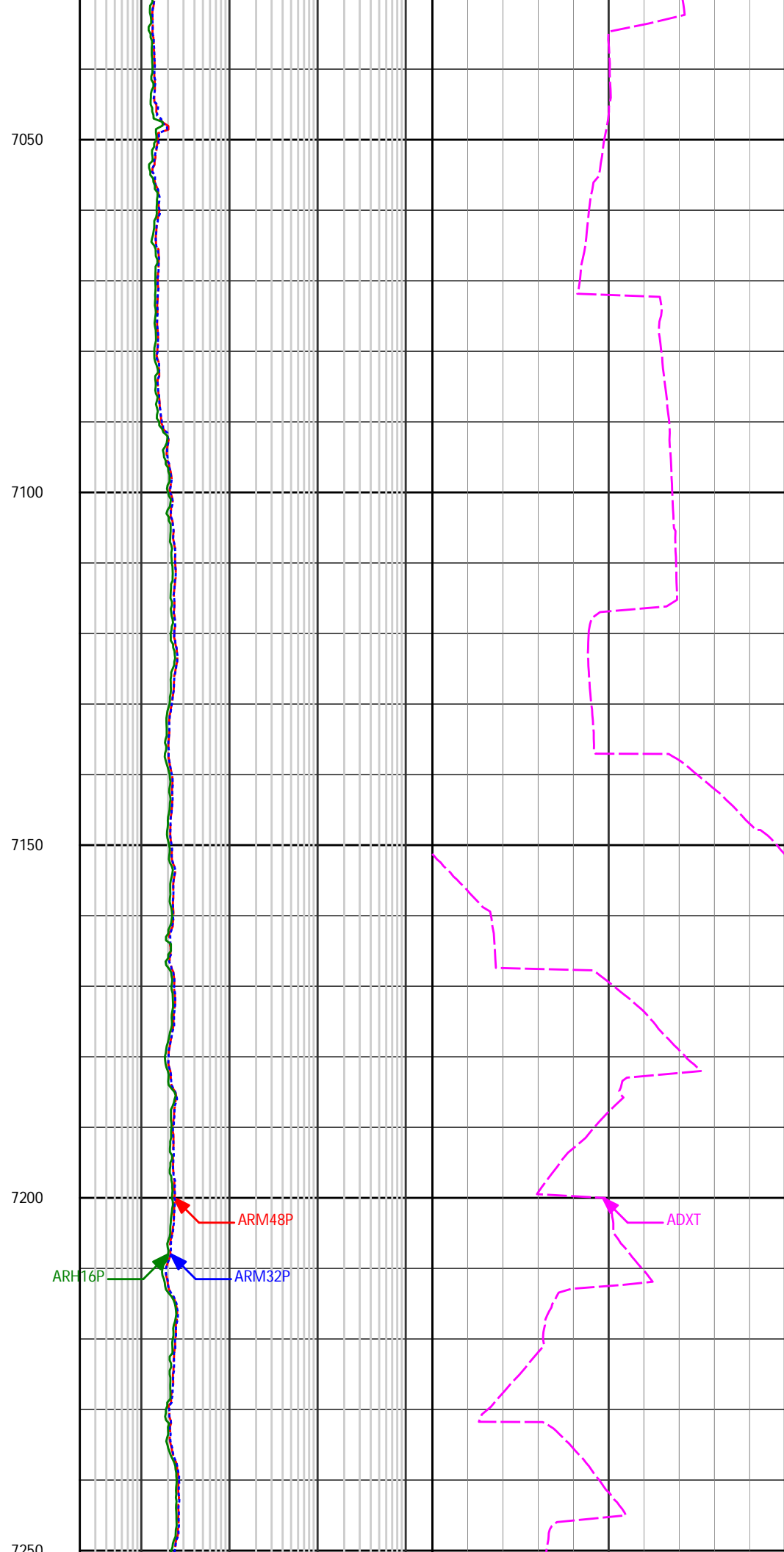
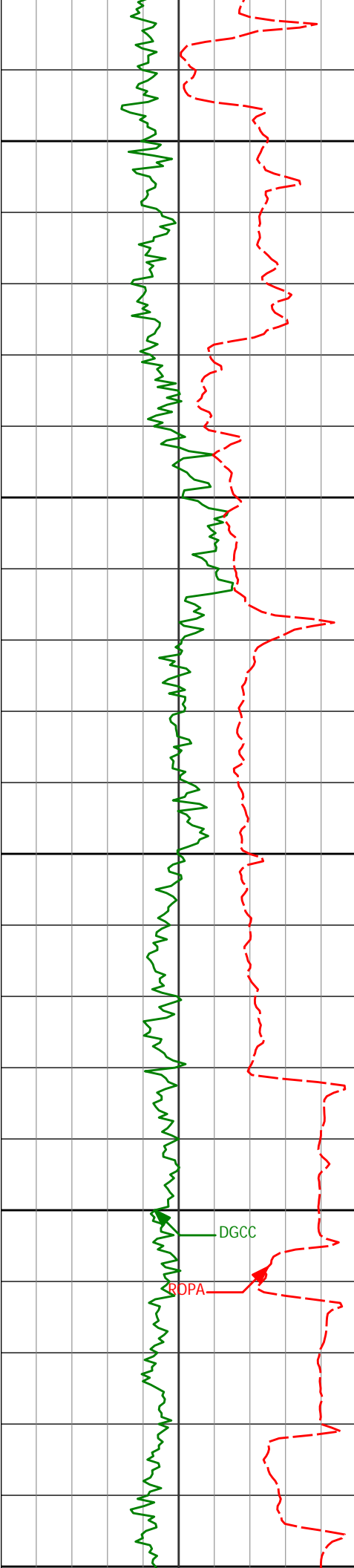


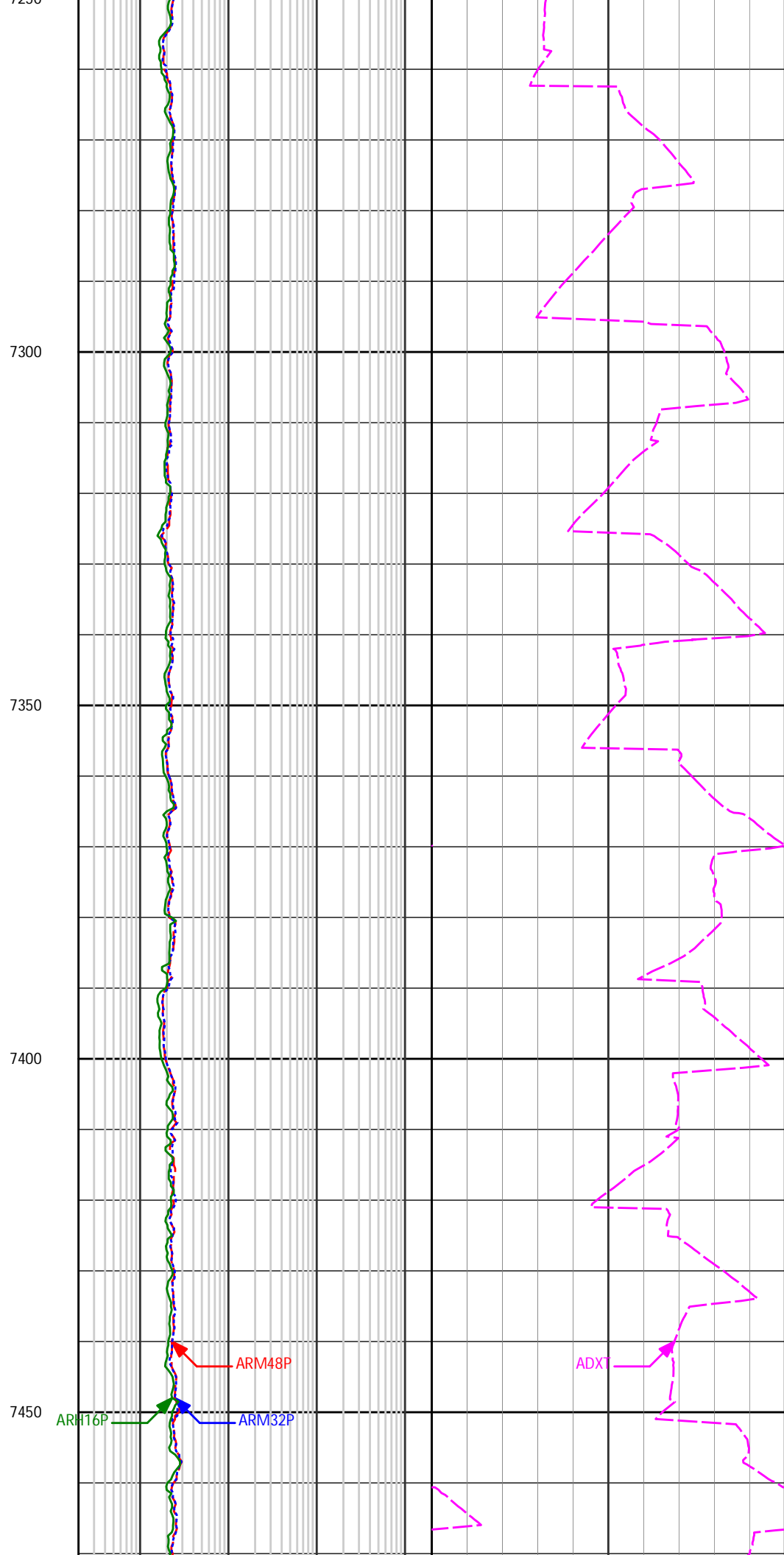
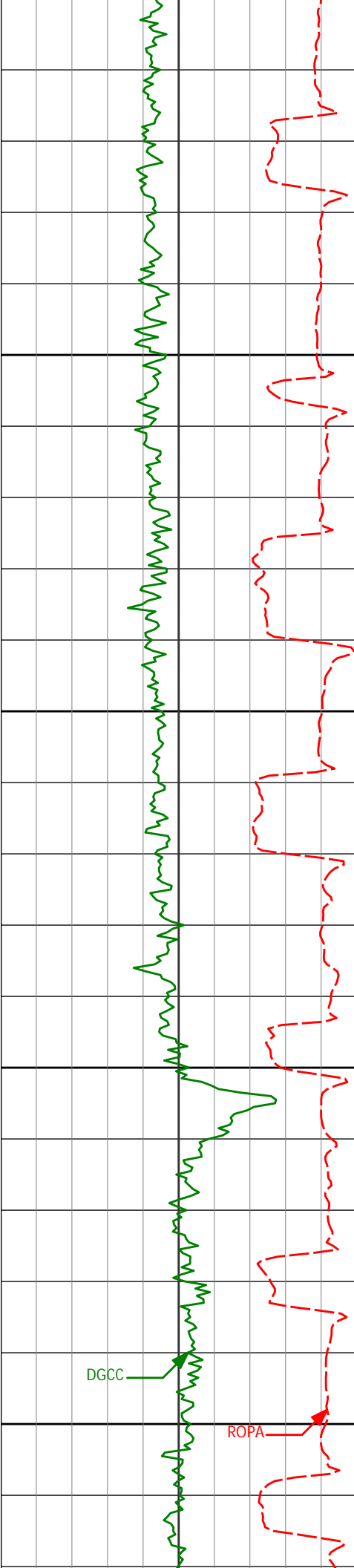
ARM48P

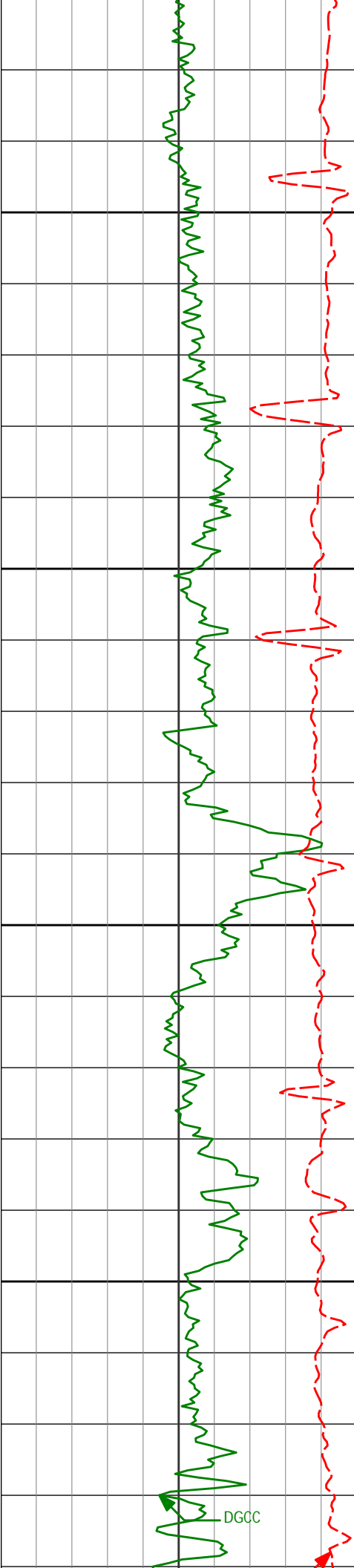
ADXT

ARH16P

ARM32P







7500

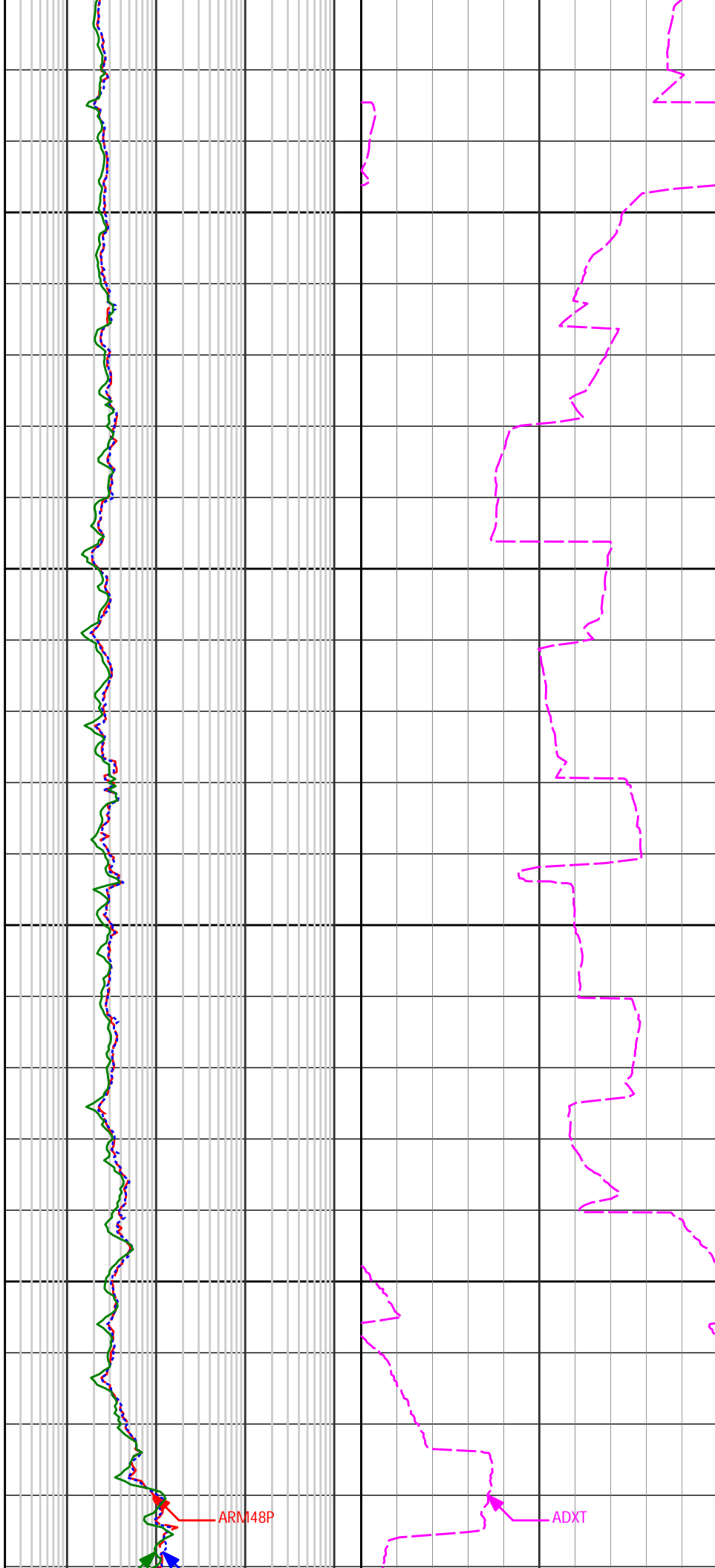
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7600

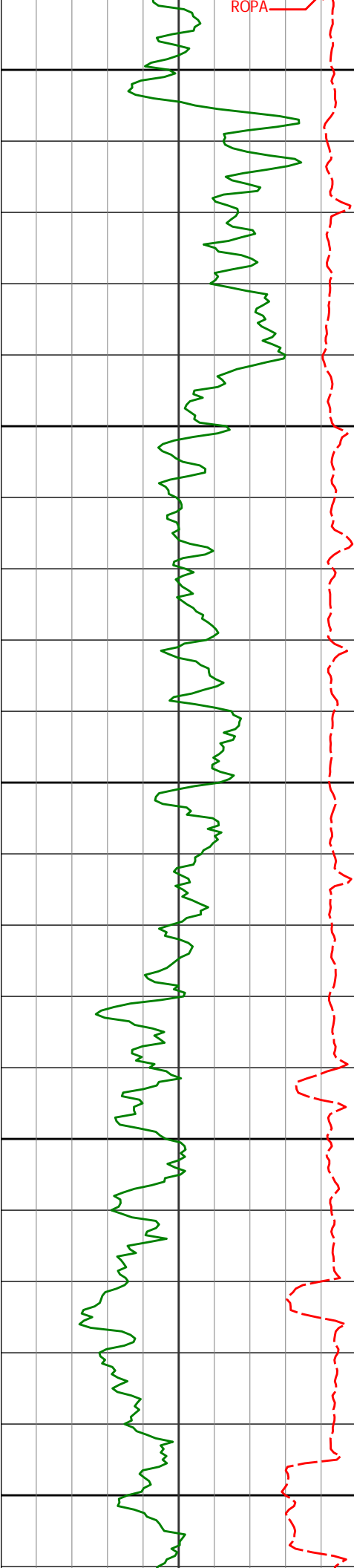
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DGCC

ARM48P



ADXT



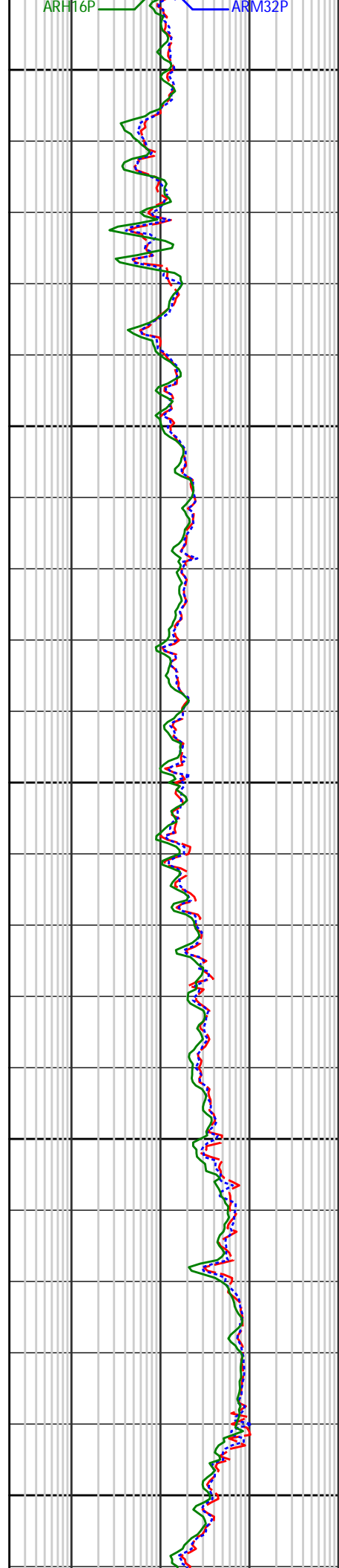
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7750

7800

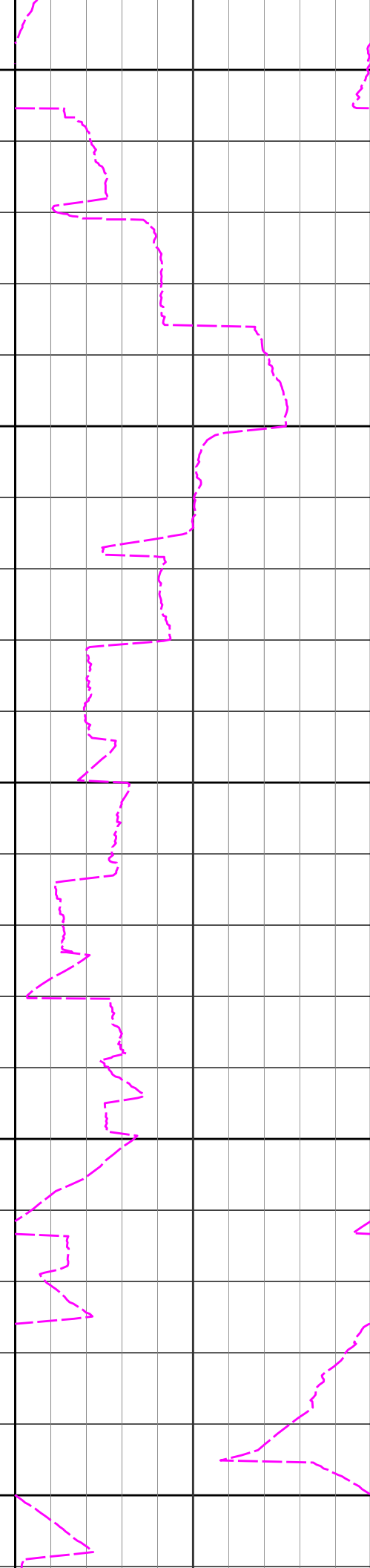
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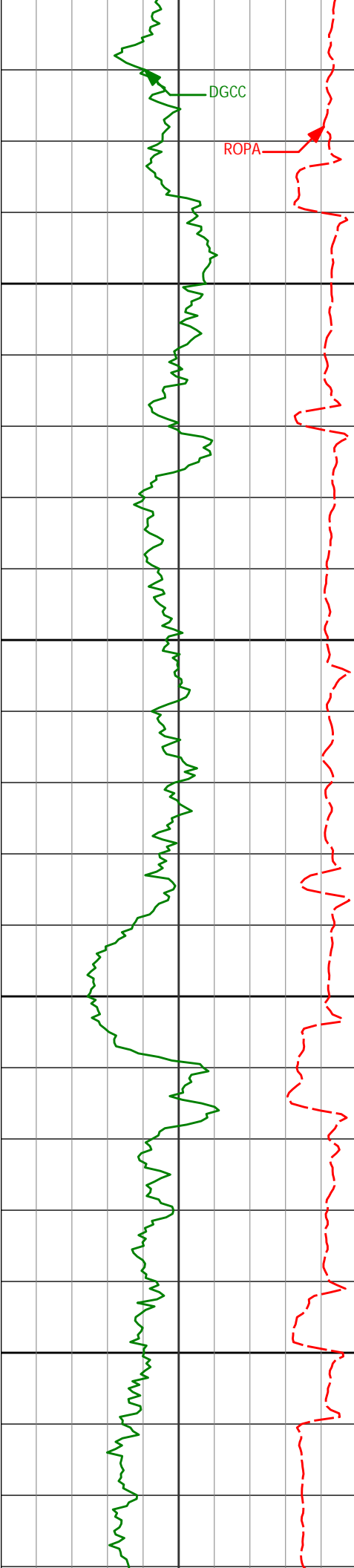
7900



ARH16P

ARM32P



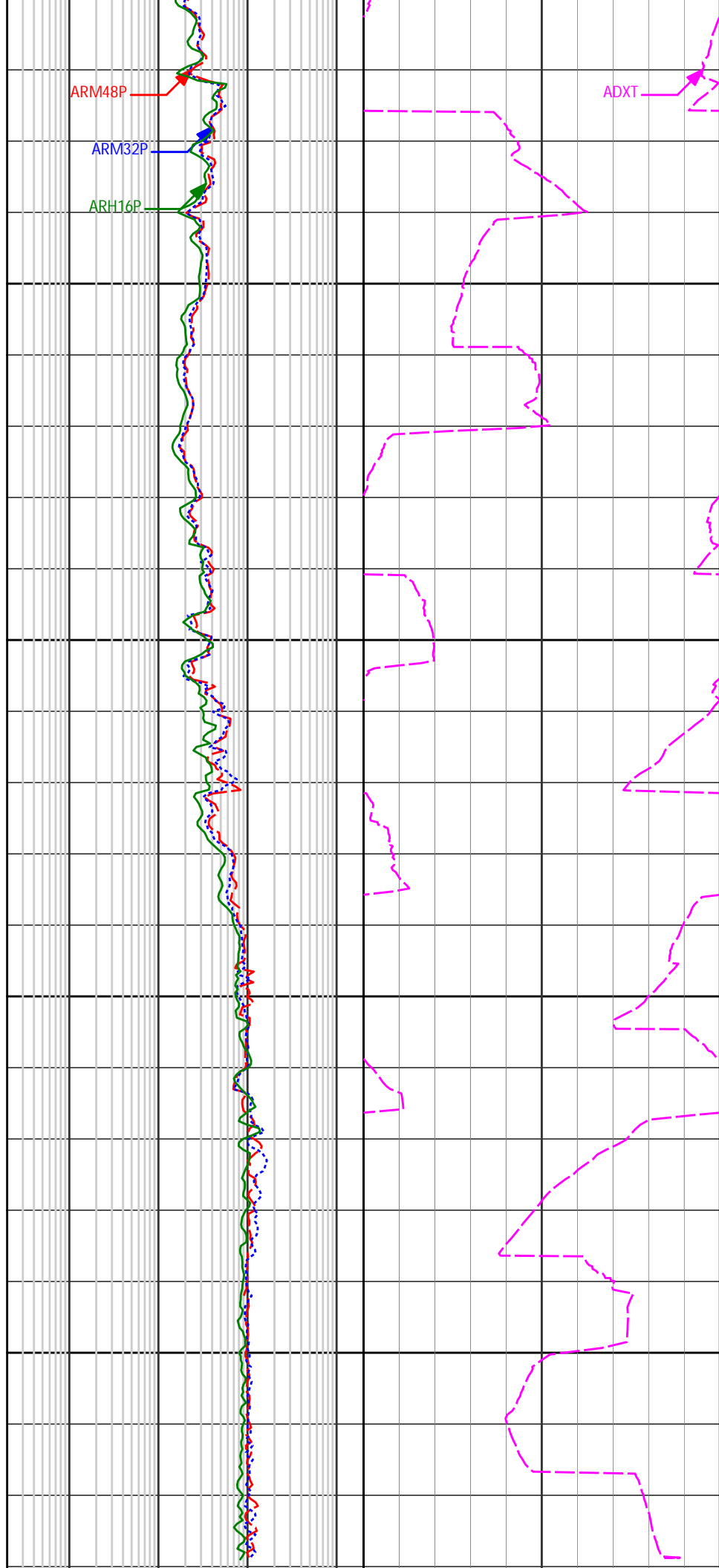


7950

8000

8050

8100

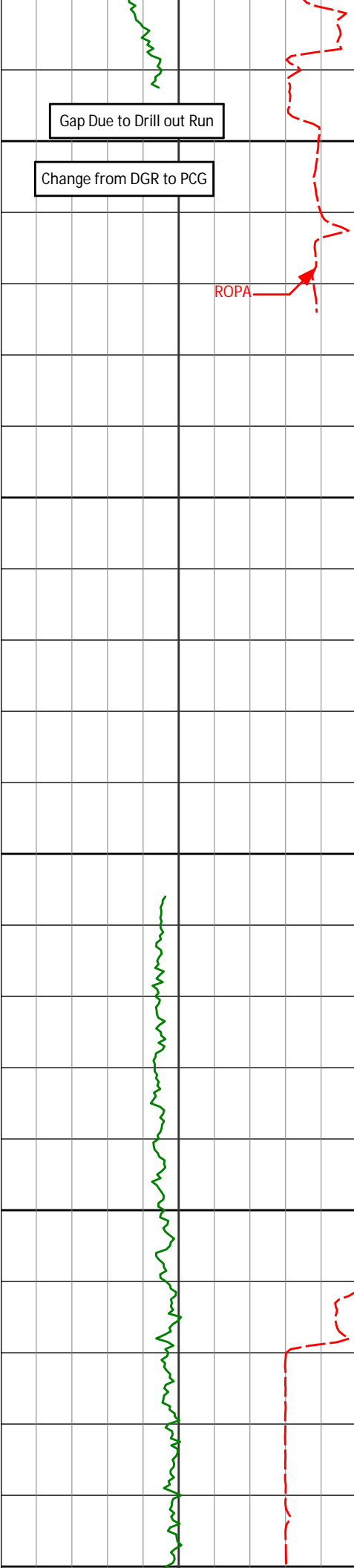


ARM48P

ARM32P

ARH16P

ADXT



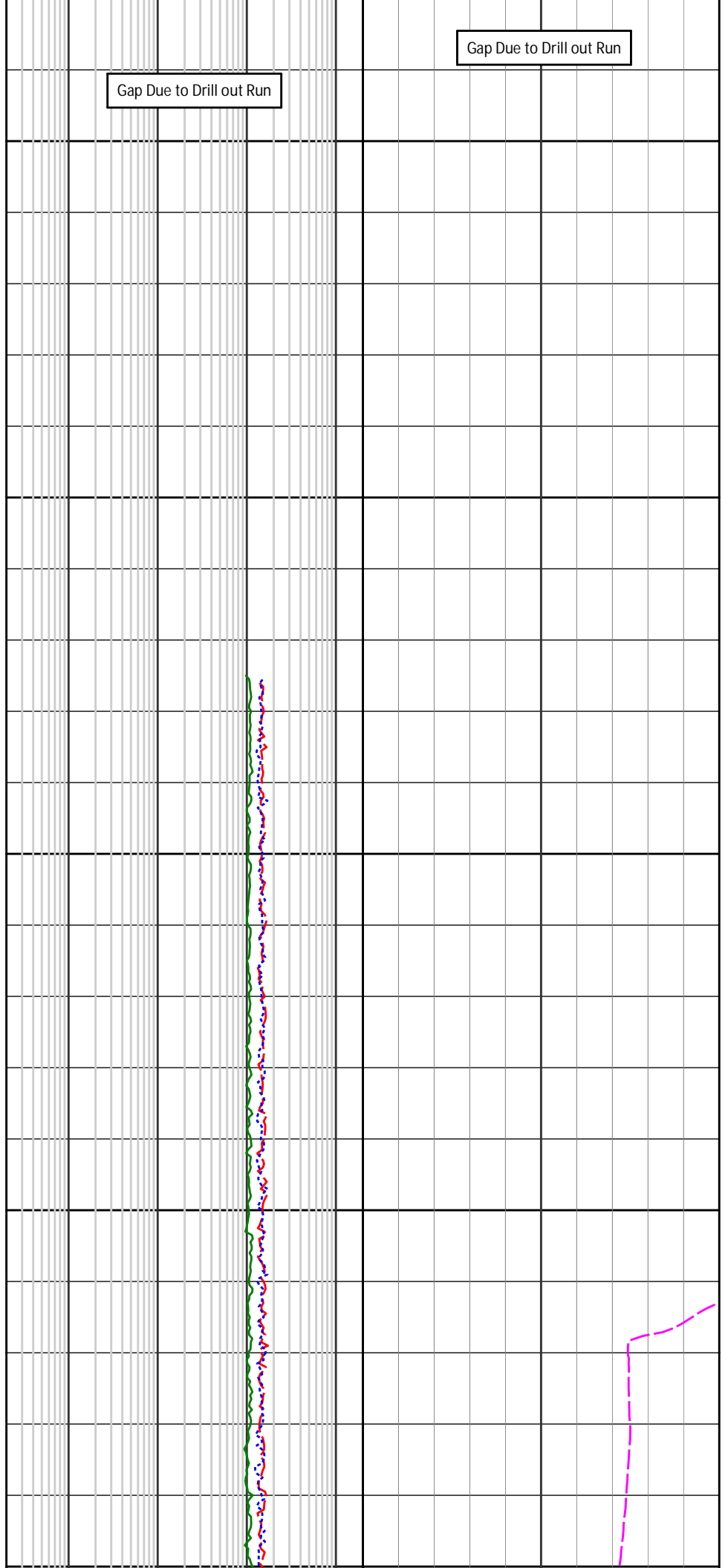
8150

8200

8250

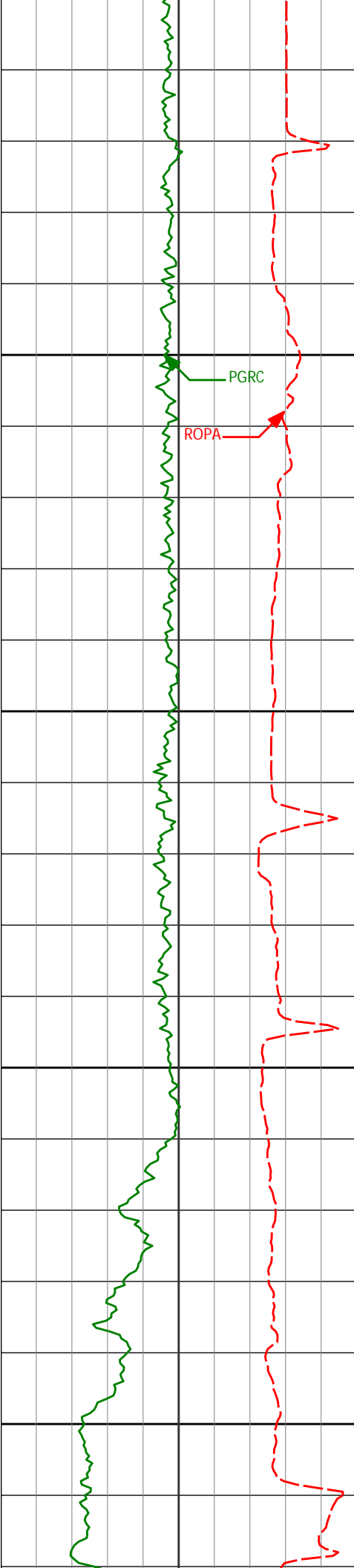
8300

8350



Gap Due to Drill out Run





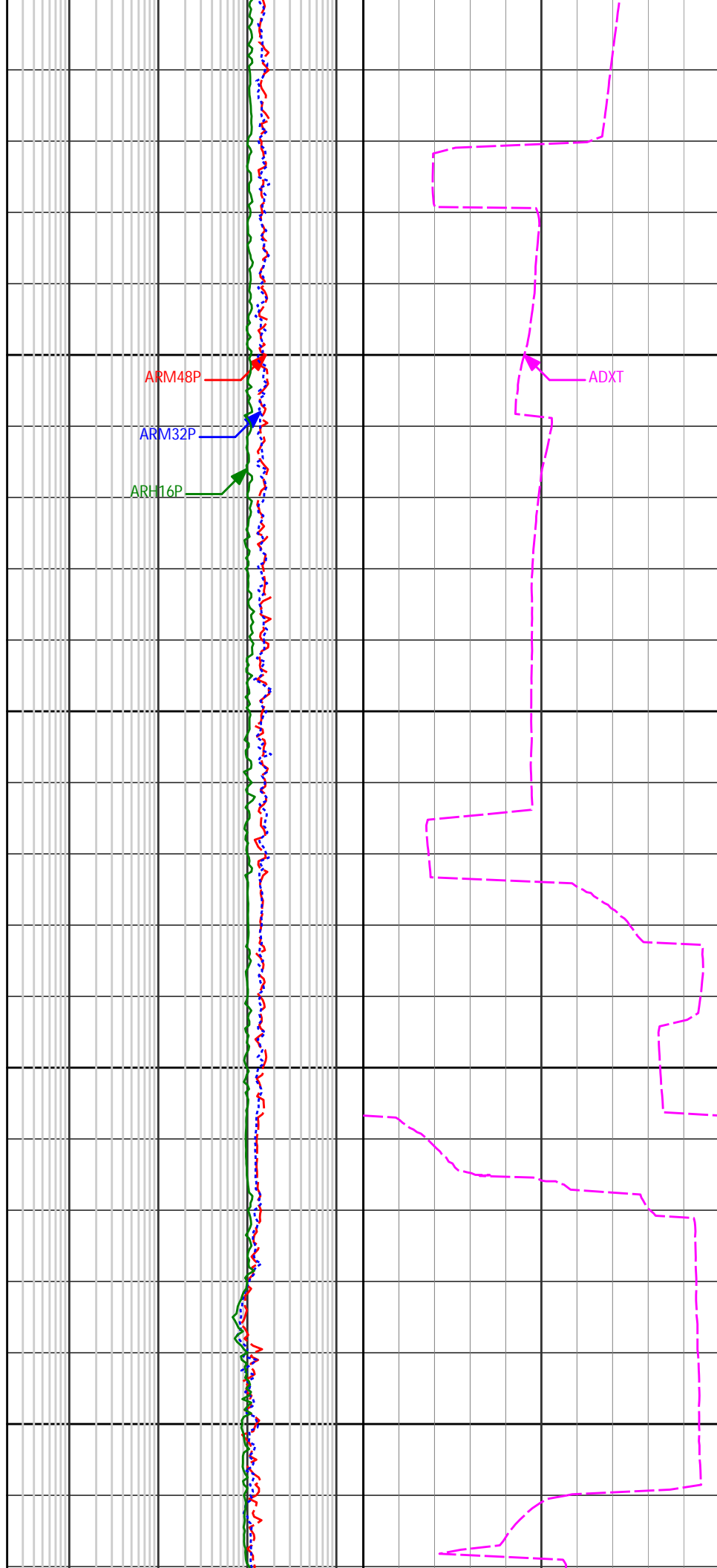
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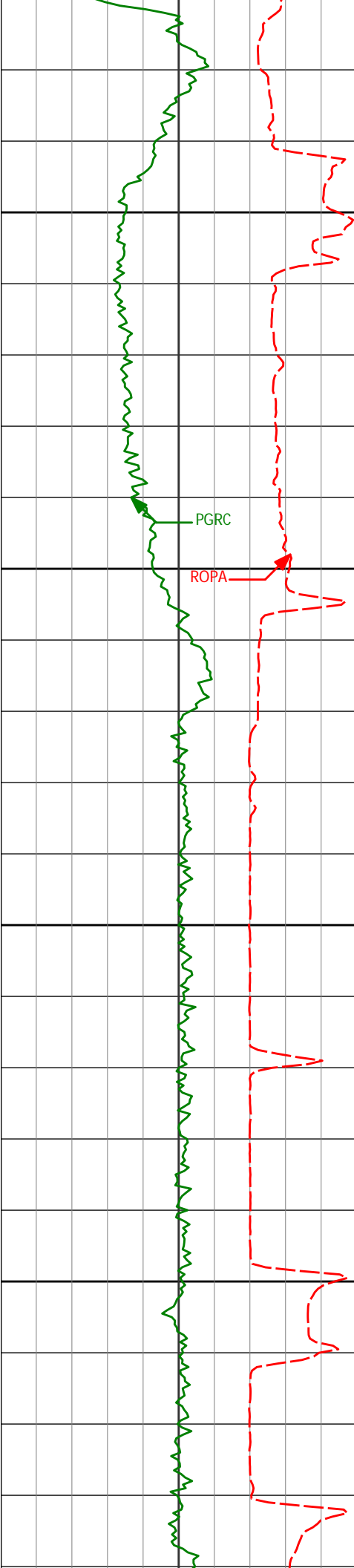
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8450

8500

8550





8600

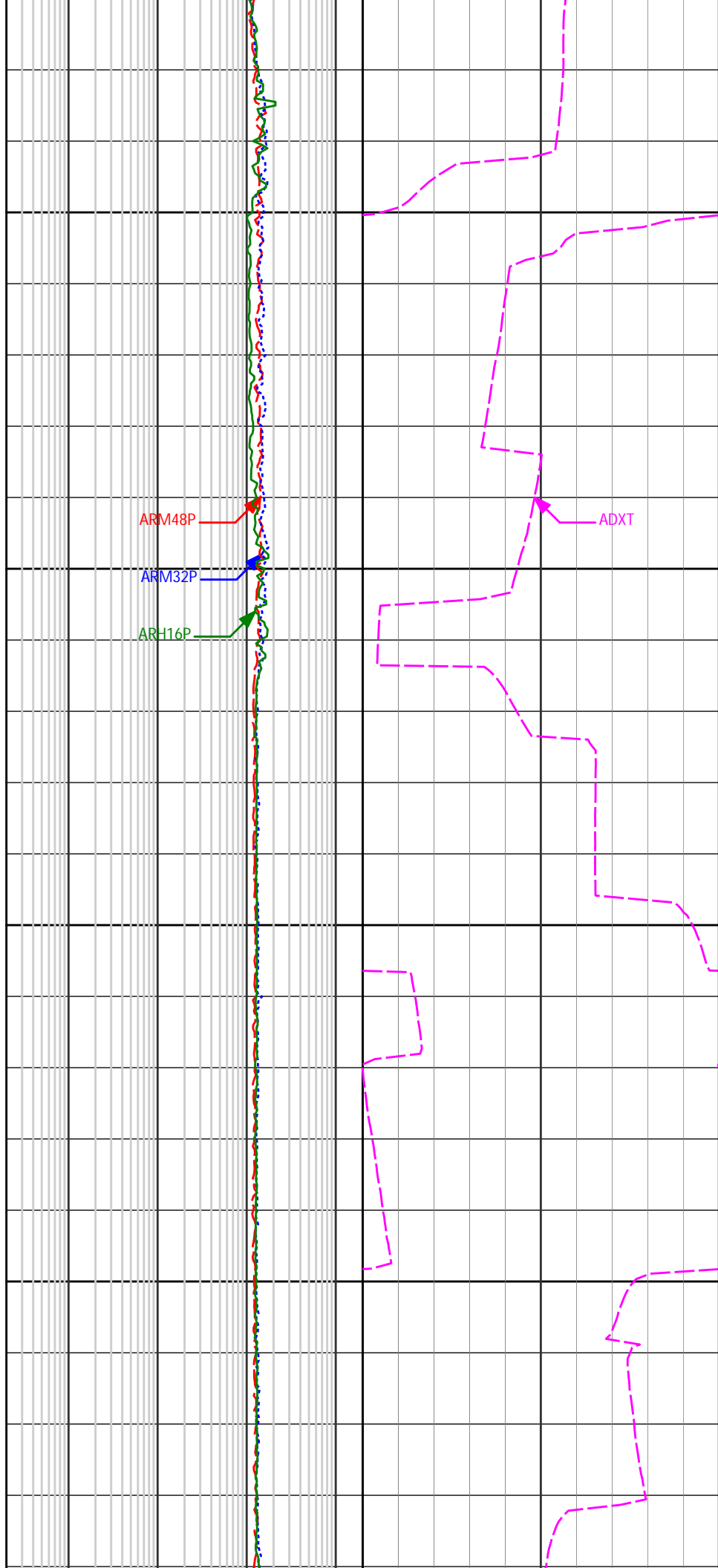
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8700

8750

PGRC

ROPA

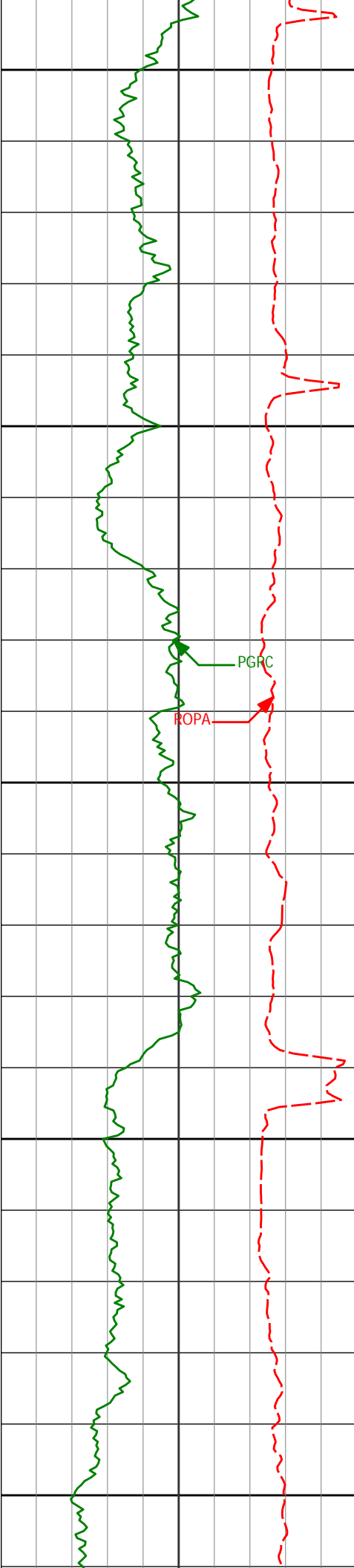


ARM48P

ARM32P

ARM16P

ADXT



8800

8850

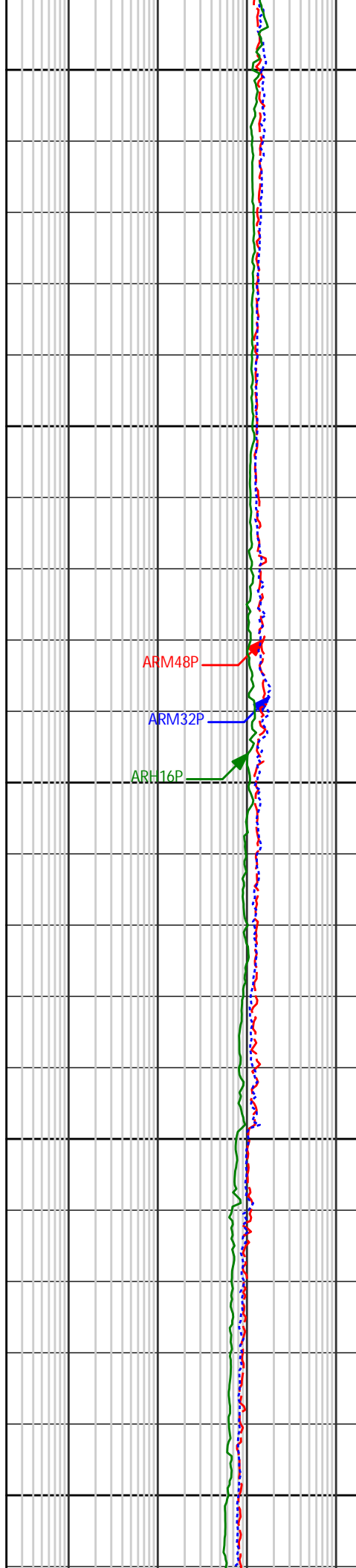
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8950

9000

PGRC

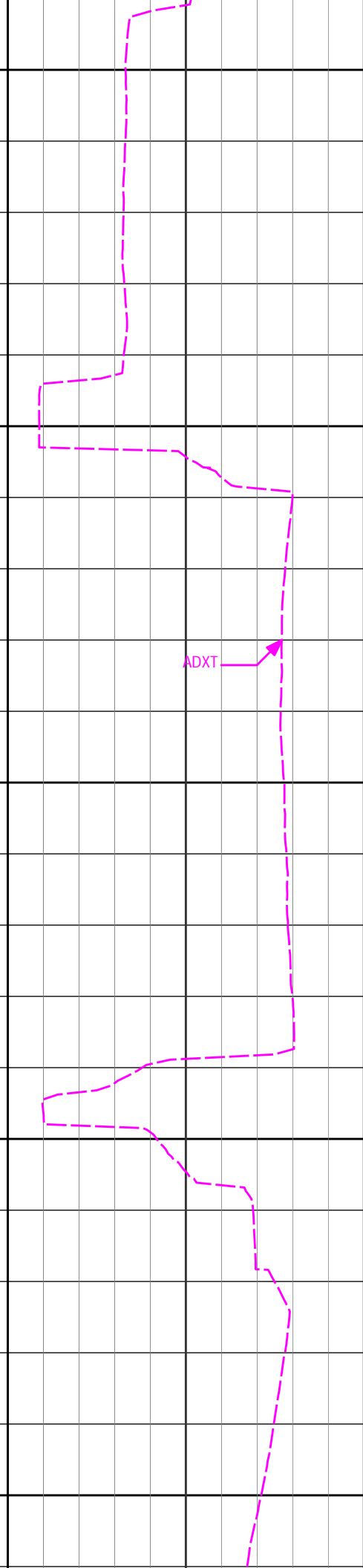
ROPA



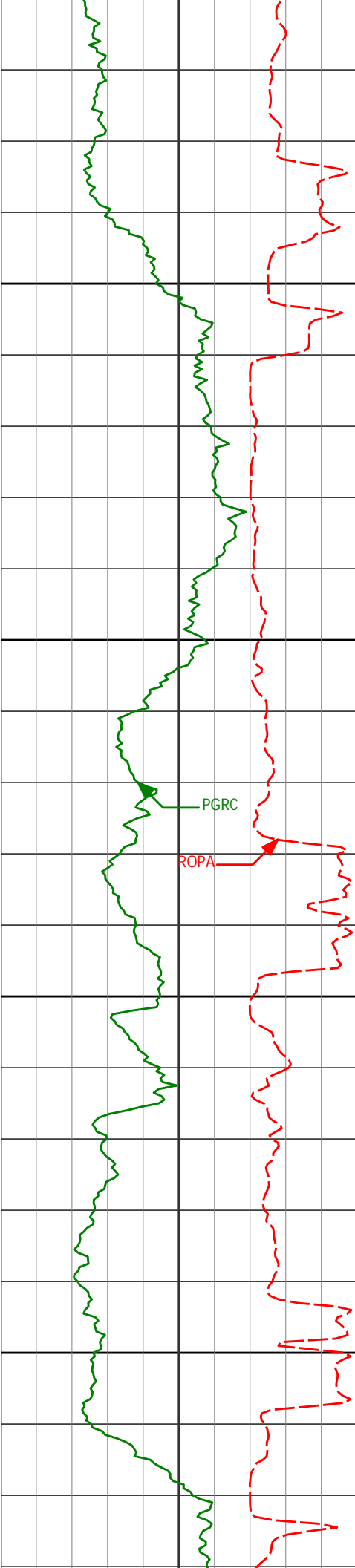
ARM48P

ARM32P

ARM16P



ADXT



9050

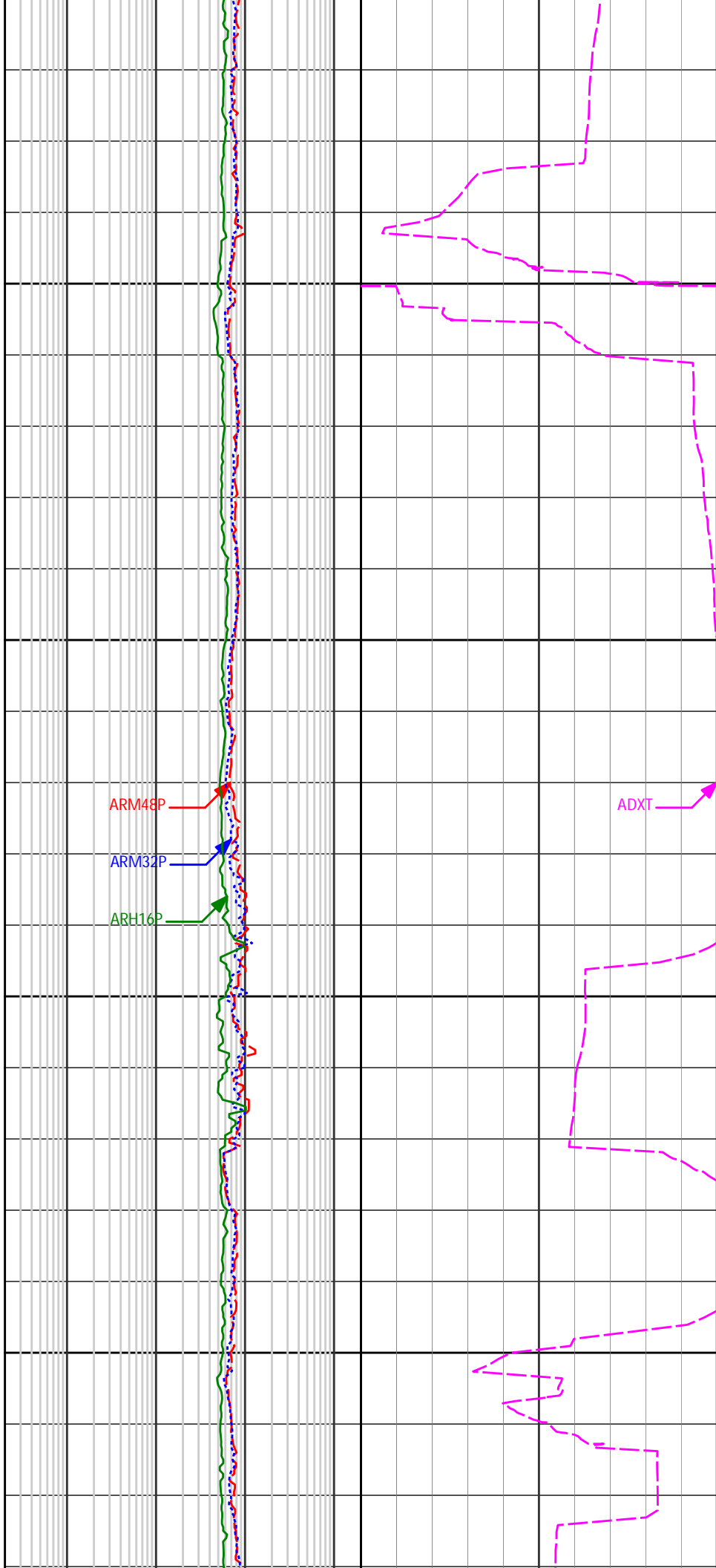
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9150

9200

PGRC

ROPA

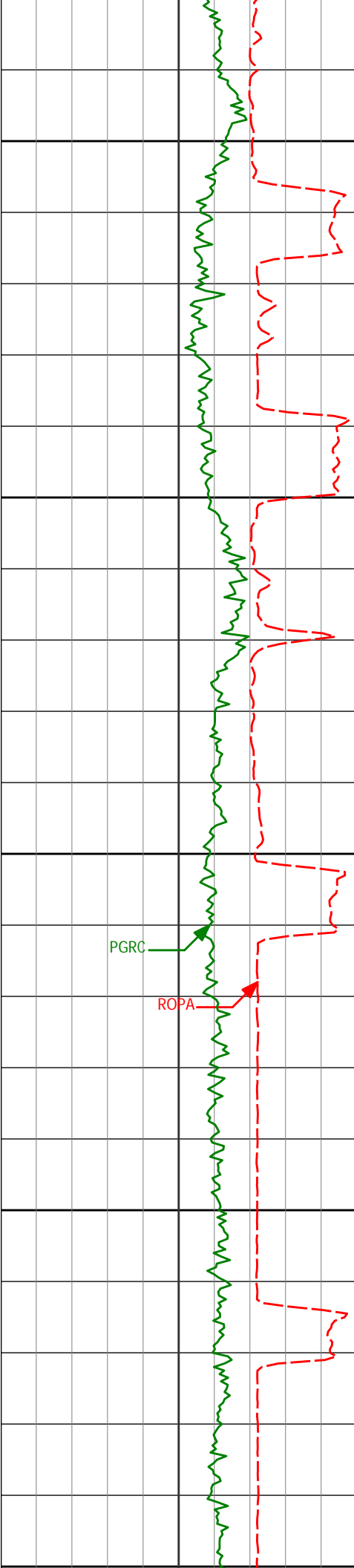


ARM48P

ARM32P

ARH16P

ADXT



9250

9300

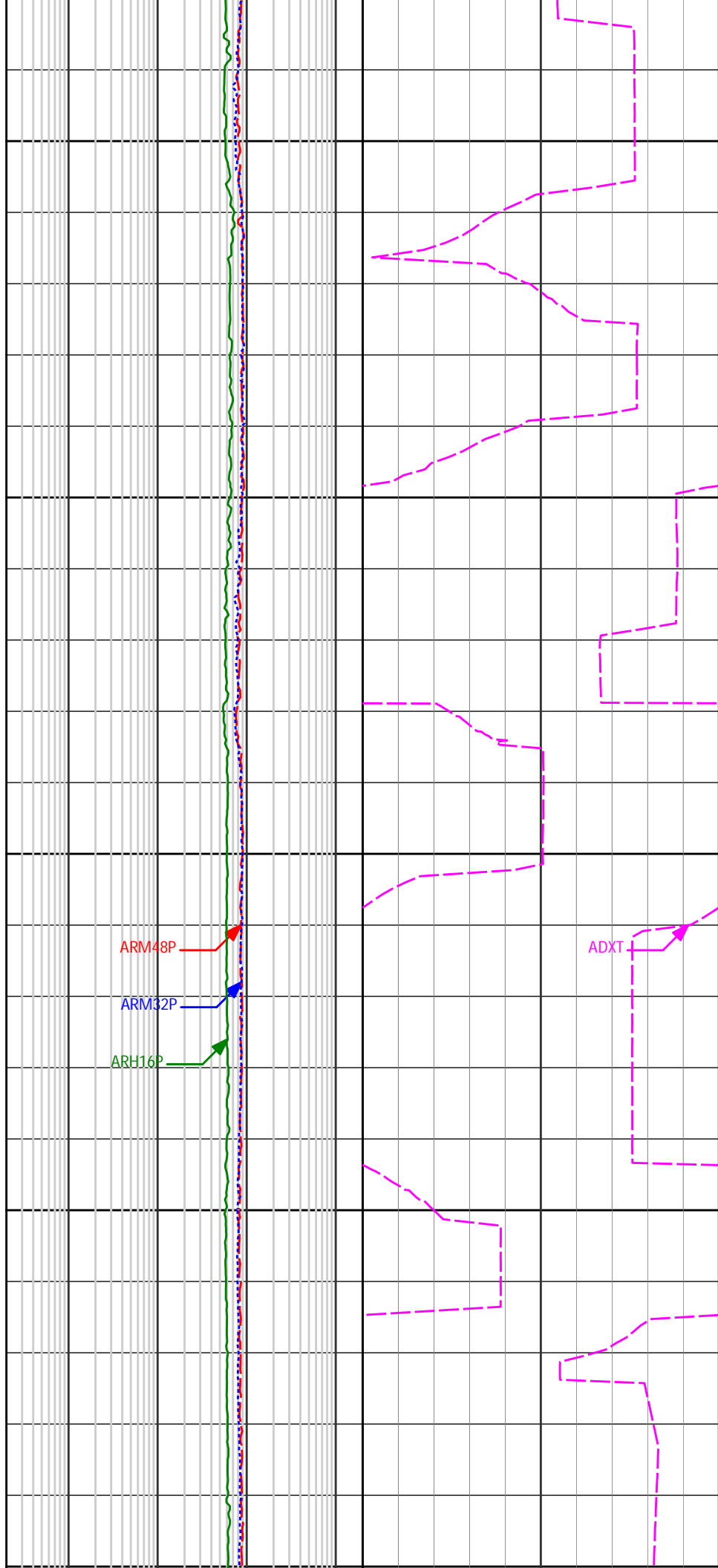
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9400

9450

PGRC

ROPA

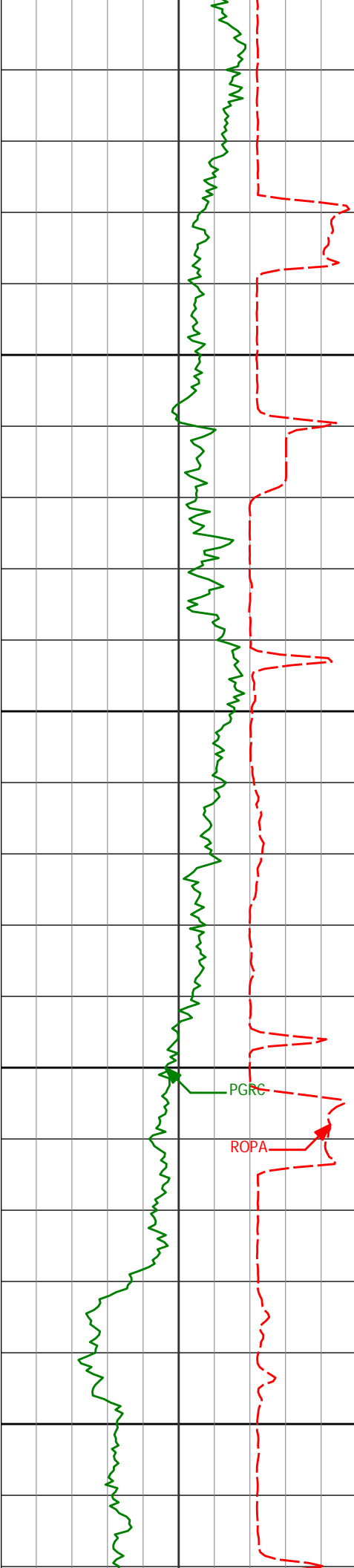


ARM48P

ARM32P

ARM16P

ADXT



9450

9500

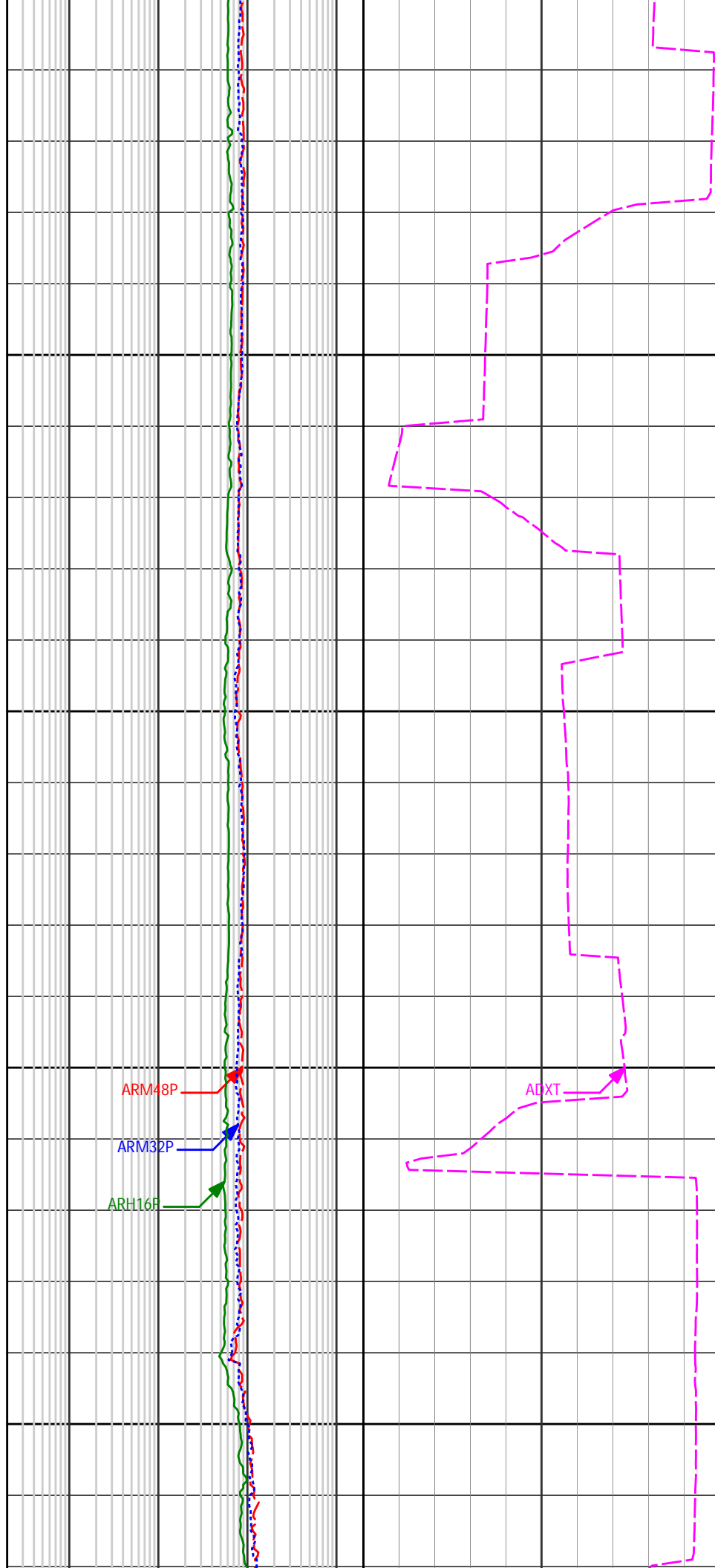
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9600

9650

PGRG

ROPA

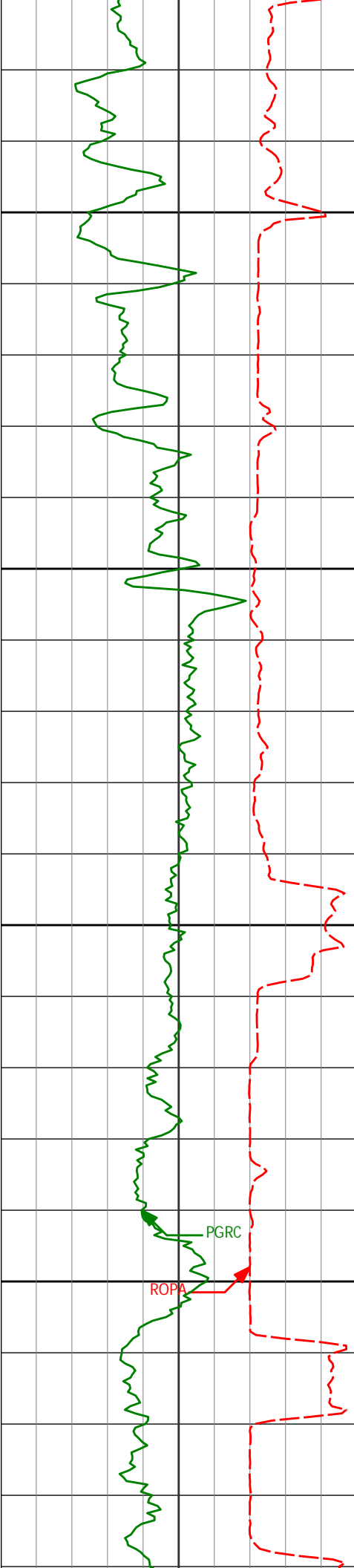


ARM48P

ARM32P

ARH16P

ADXT



9700

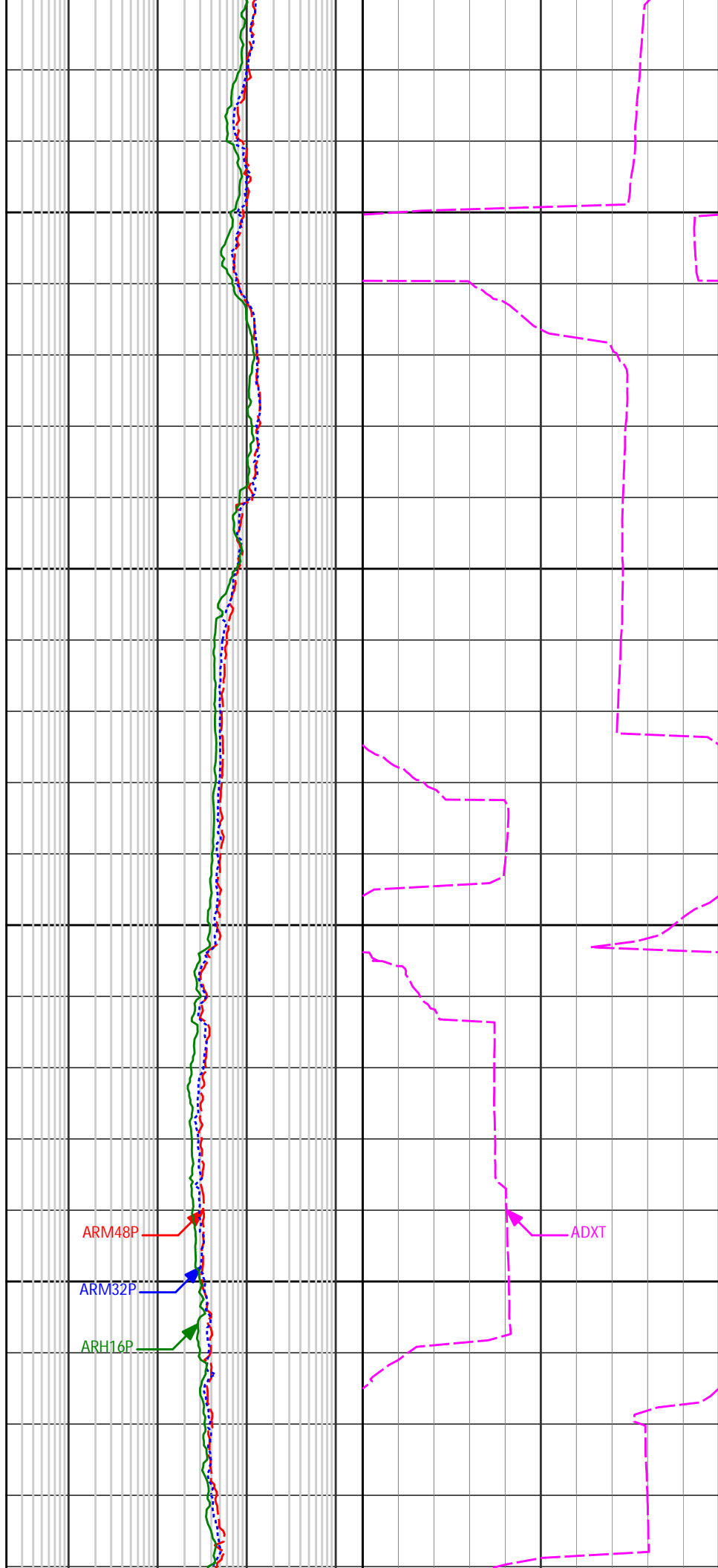
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9800

9850

PGRC

ROPA

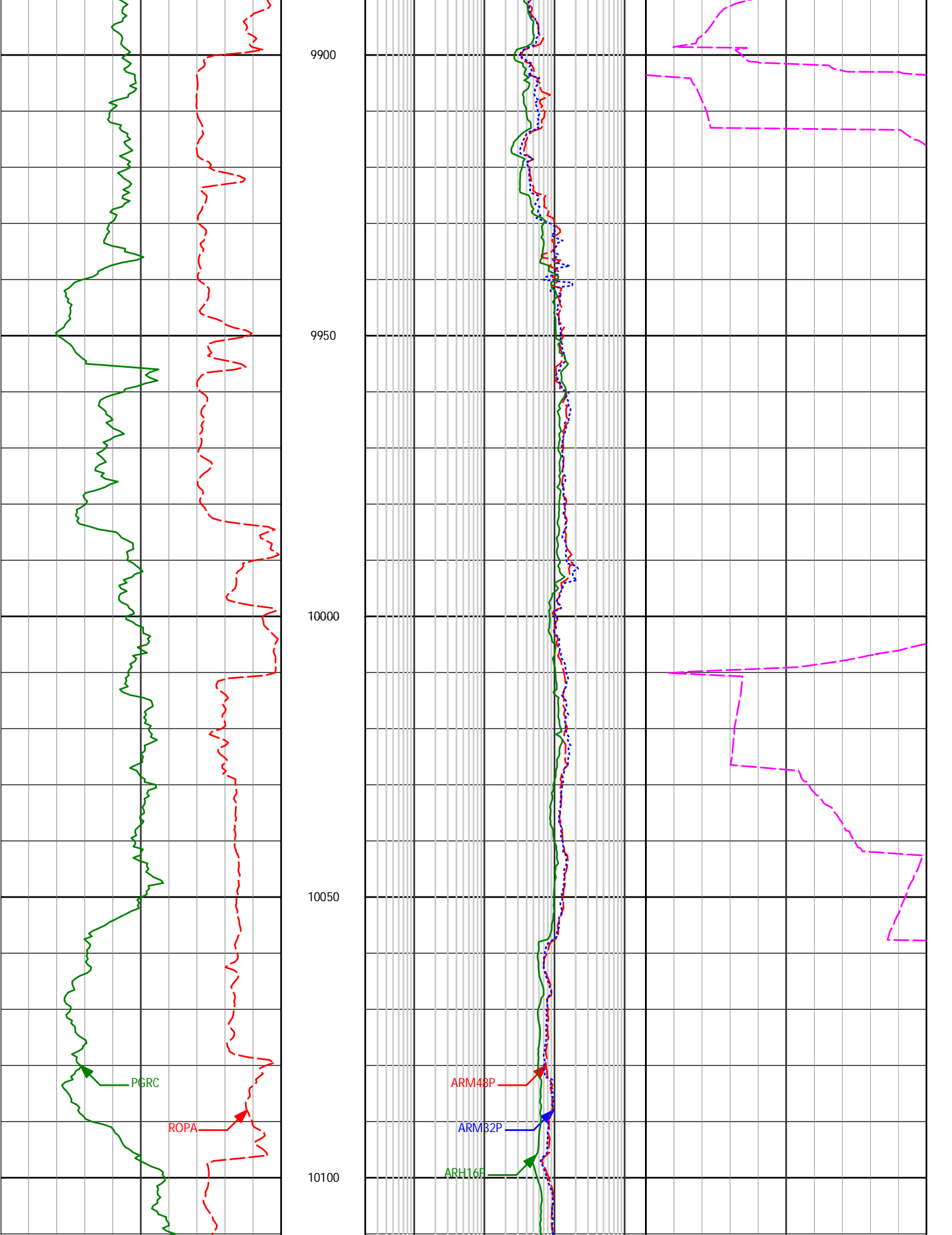


ARM48P

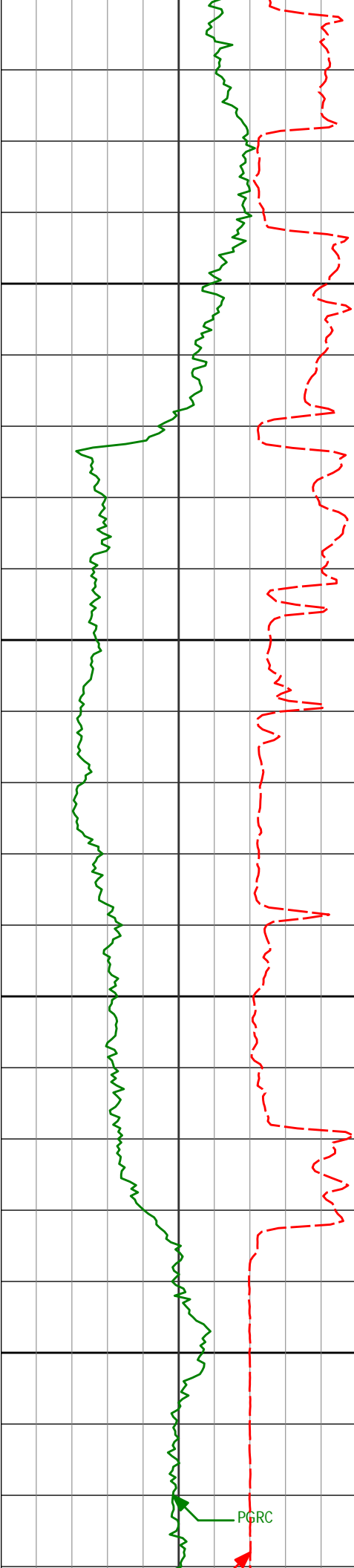
ARM32P

ARM16P

ADXT







10150

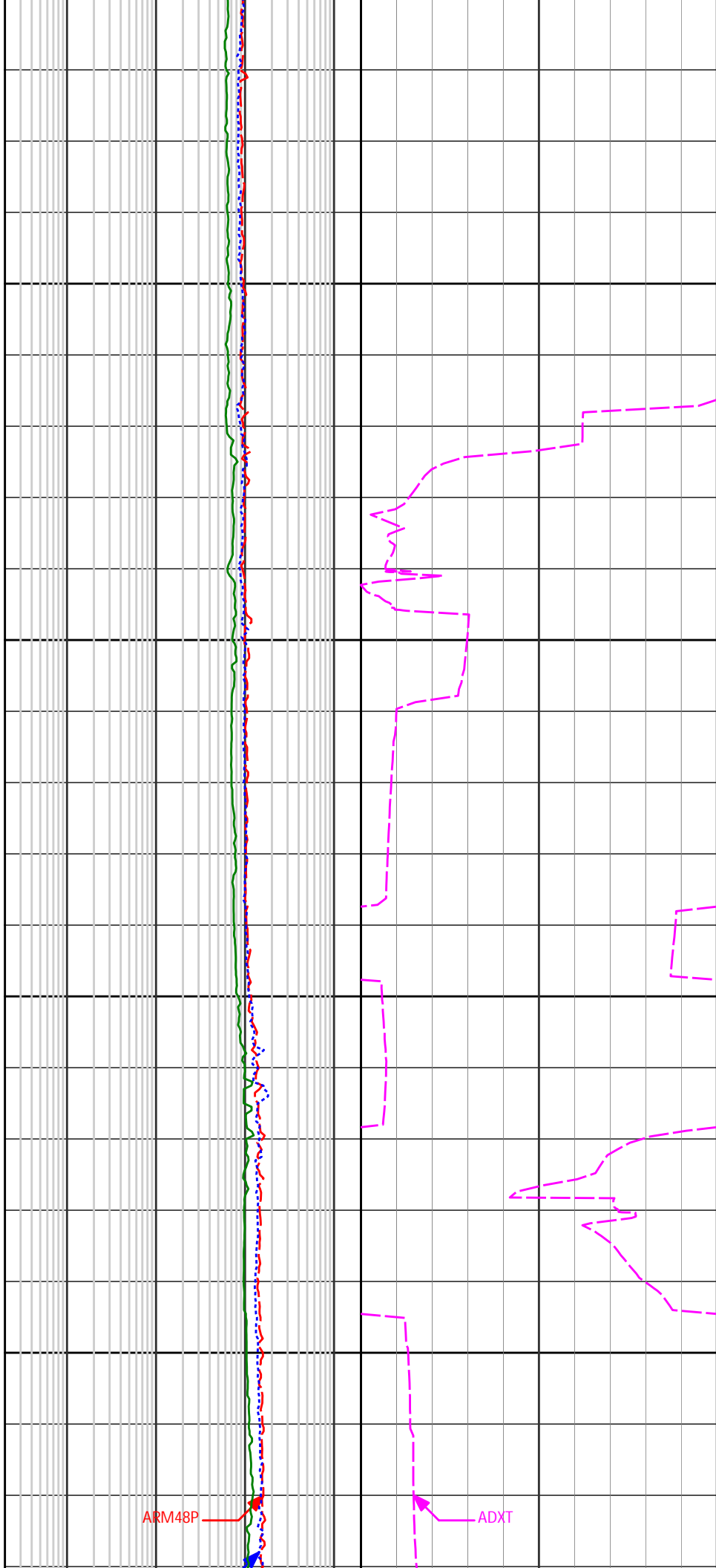
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10250

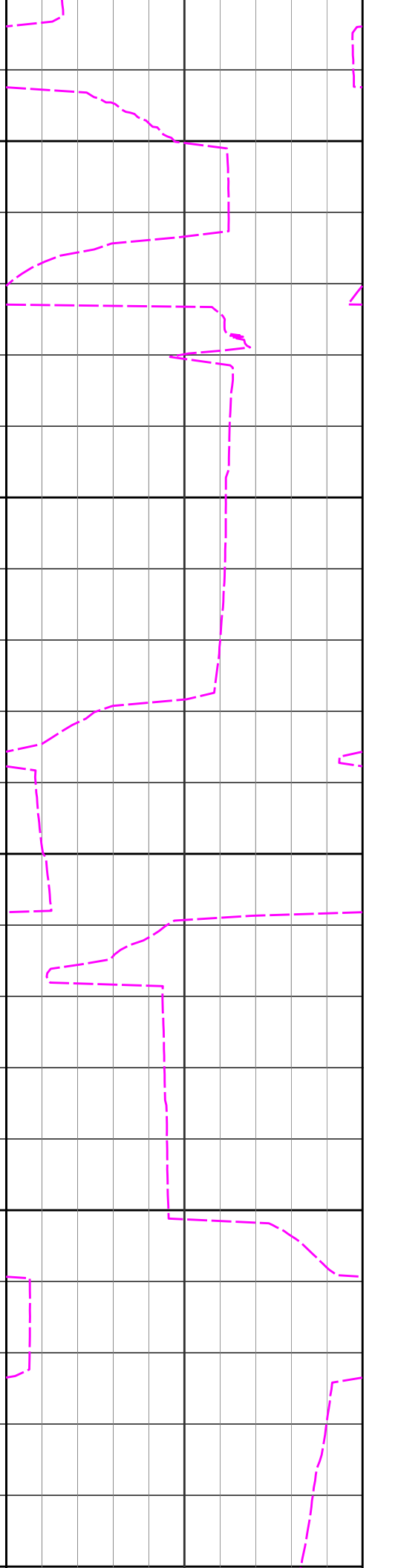
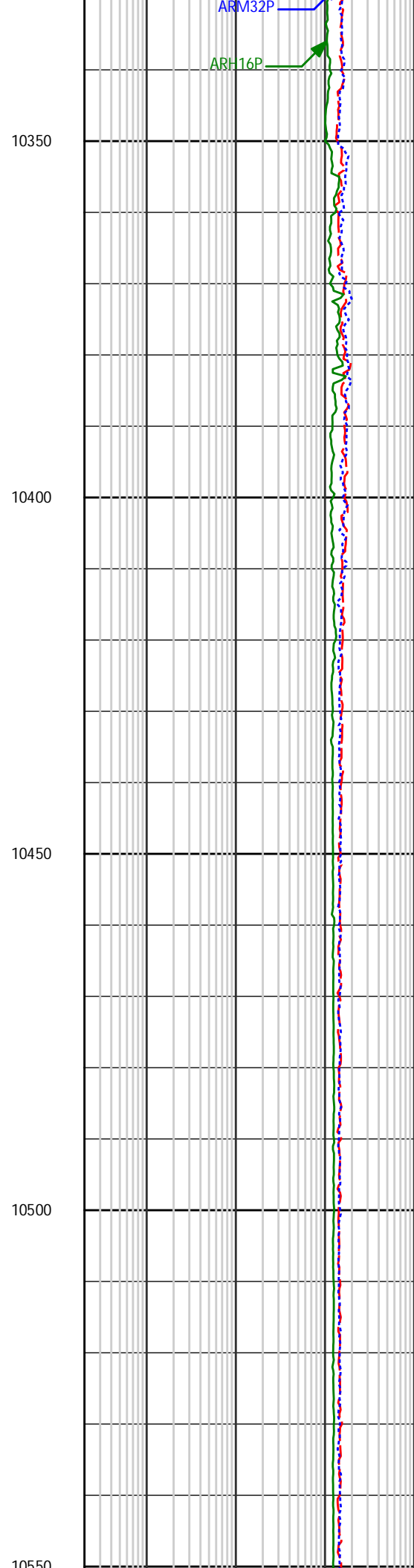
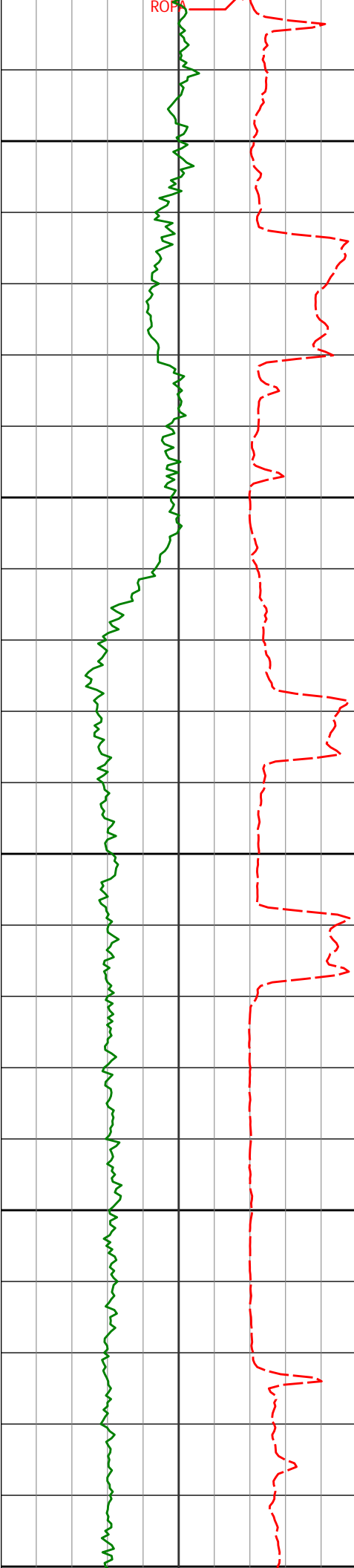
10300

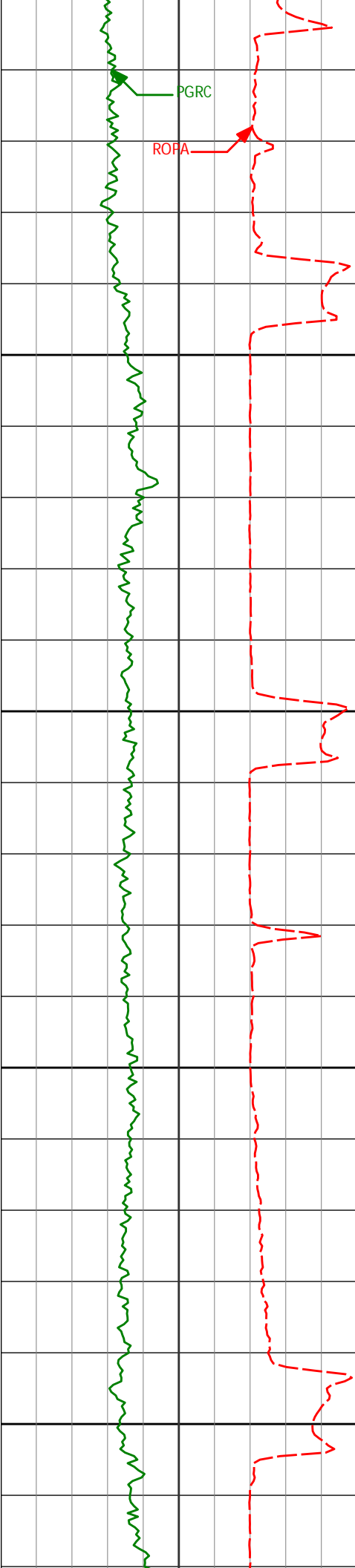
PGRC

ARM48P



ADXT





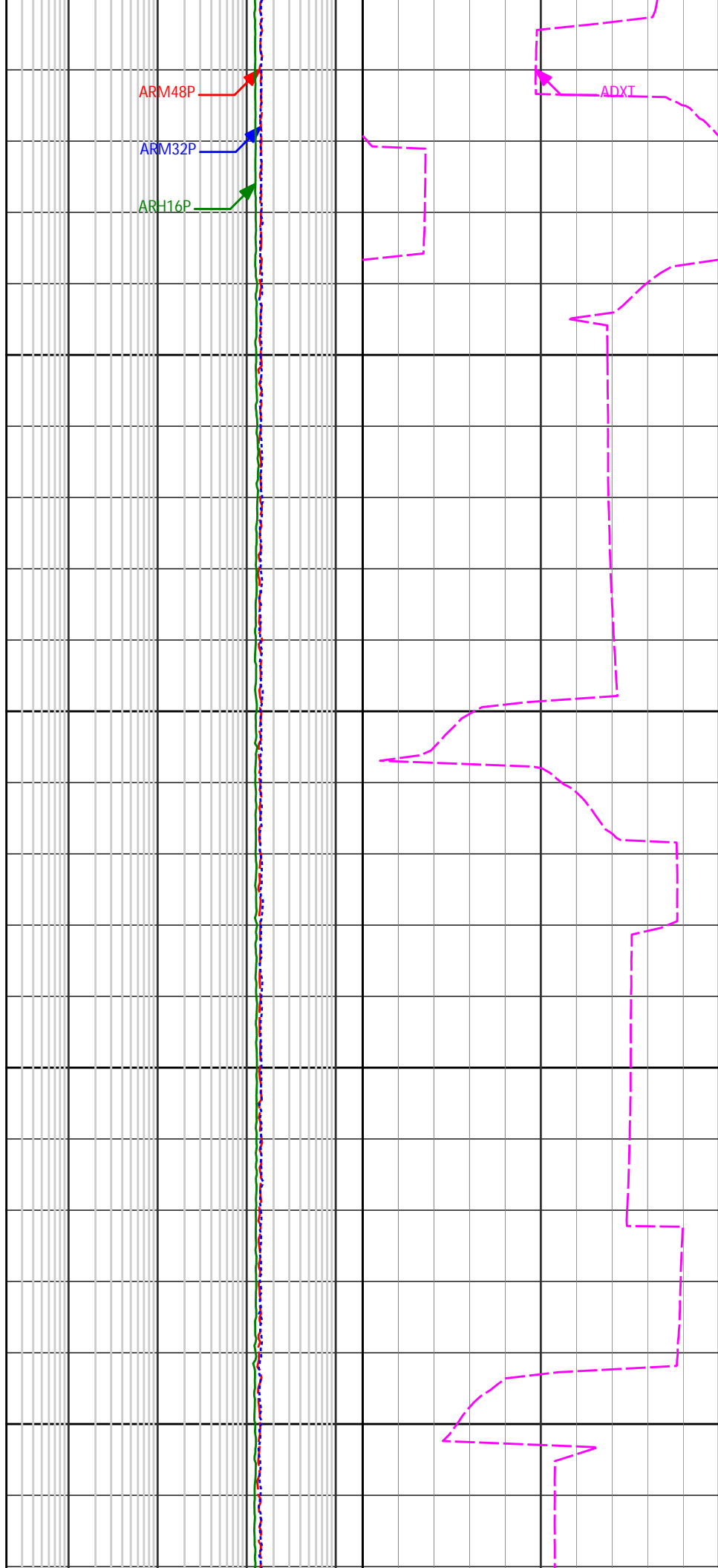
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10600

10650

10700

10750

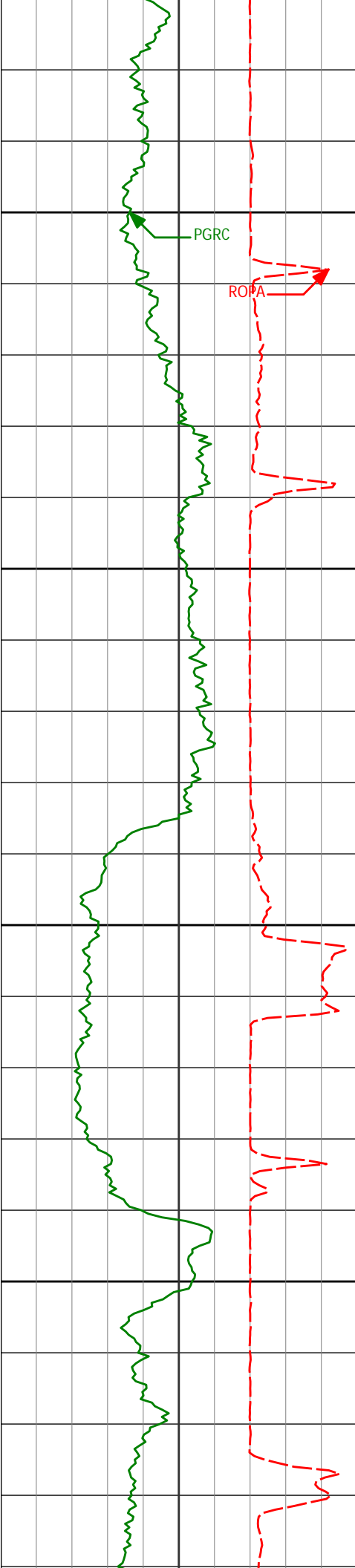


ARM48P

ARM32P

ARM16P

ADXT

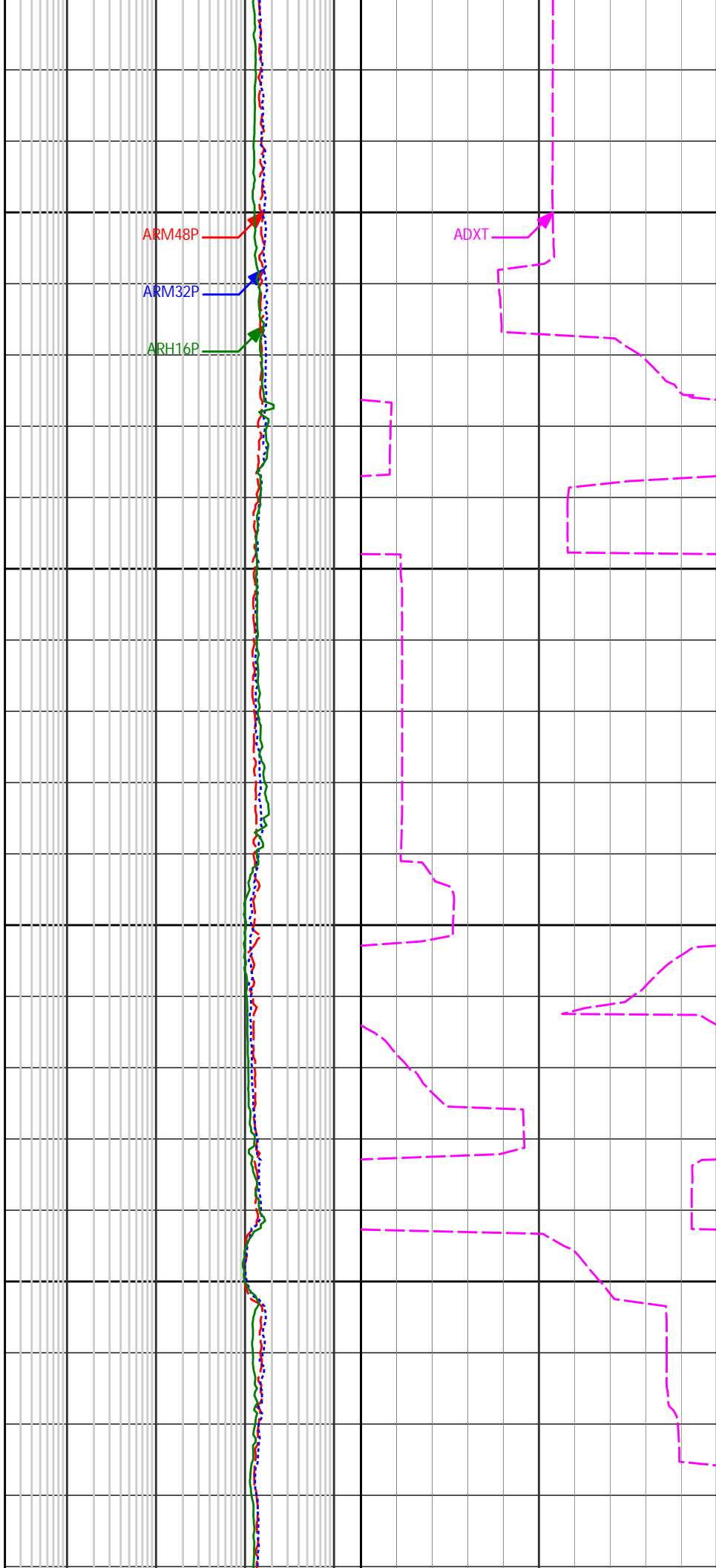


10800

10850

10900

10950

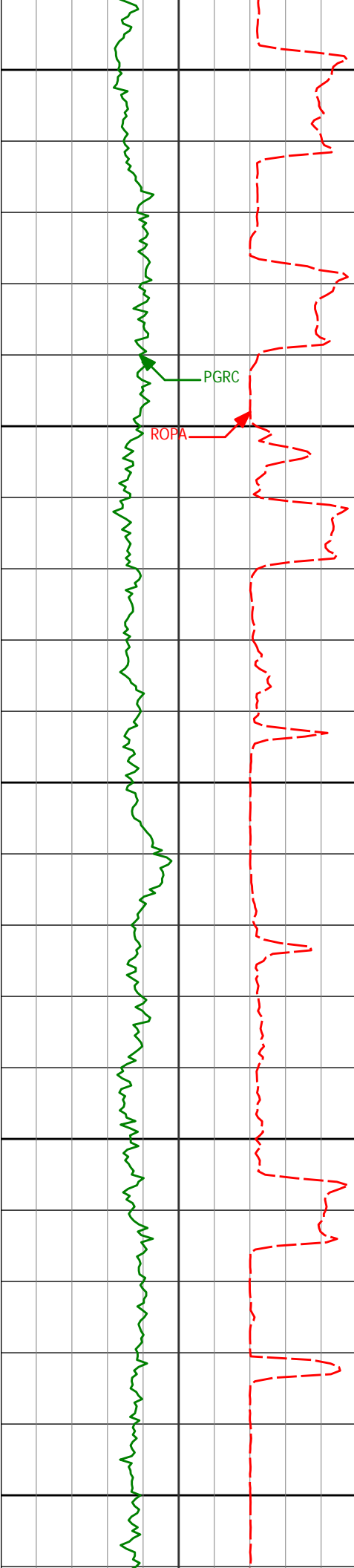


ARM48P

ARM32P

ARH16P

ADXT



11000

11050

11100

11150

11200

PGRC

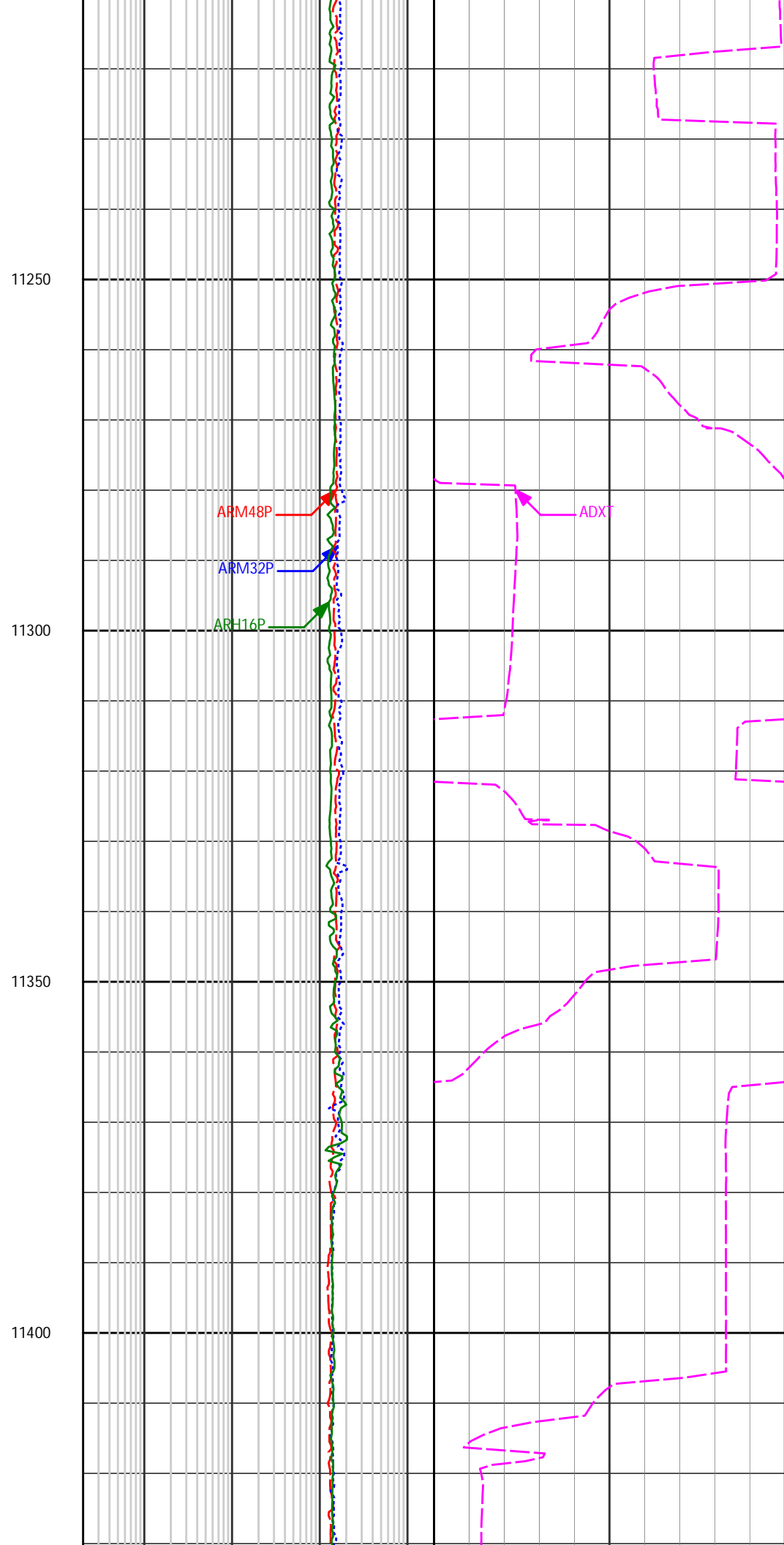
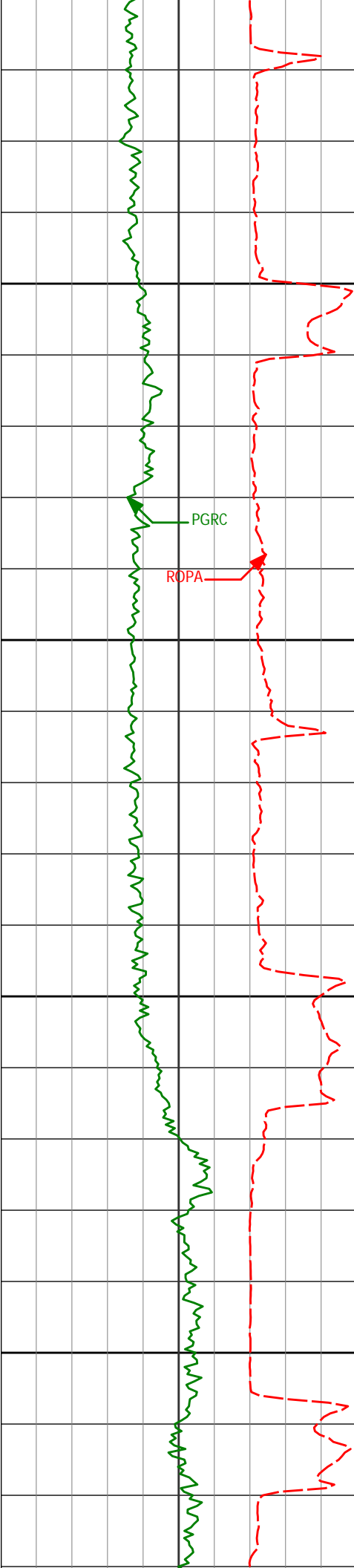
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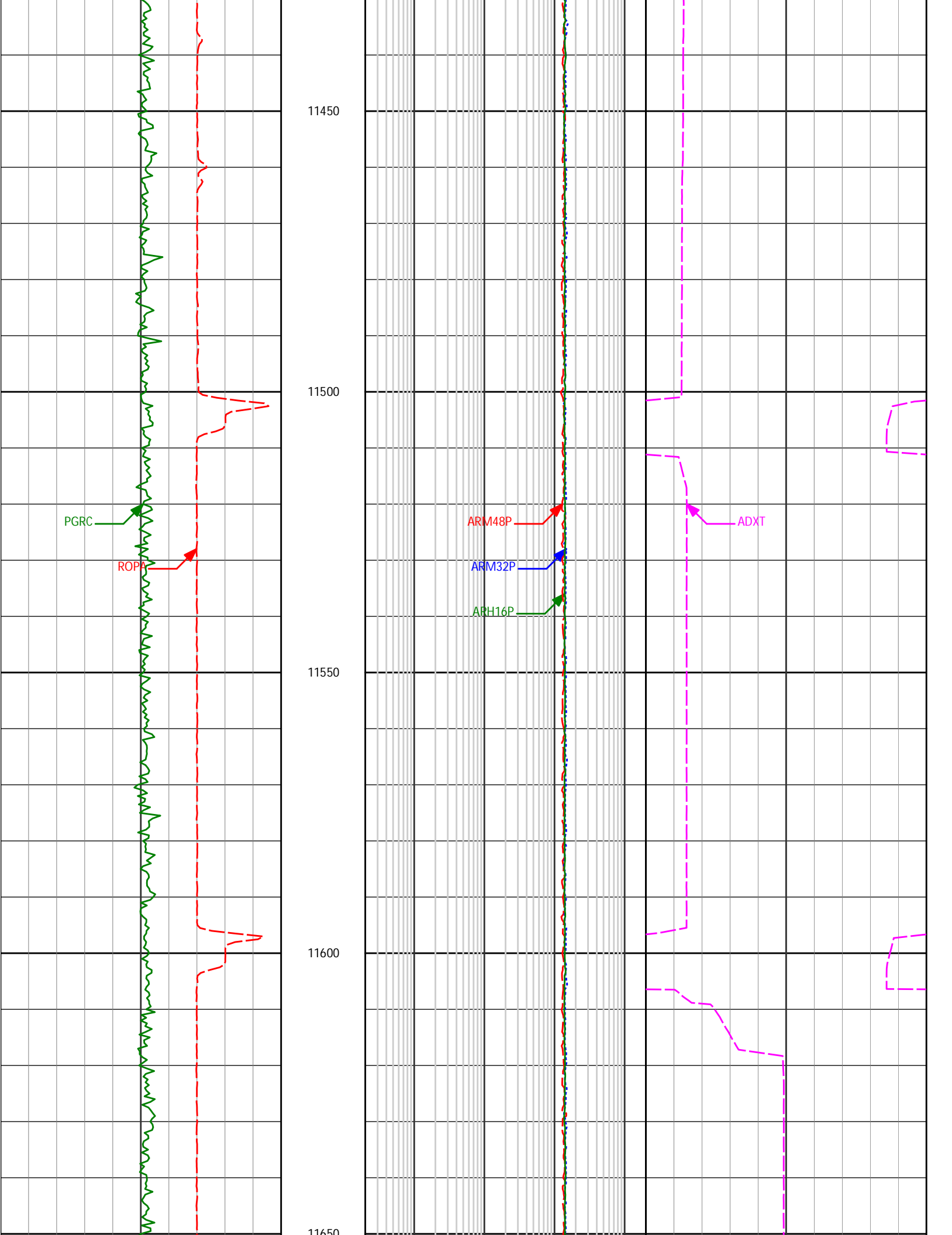
ARM48P

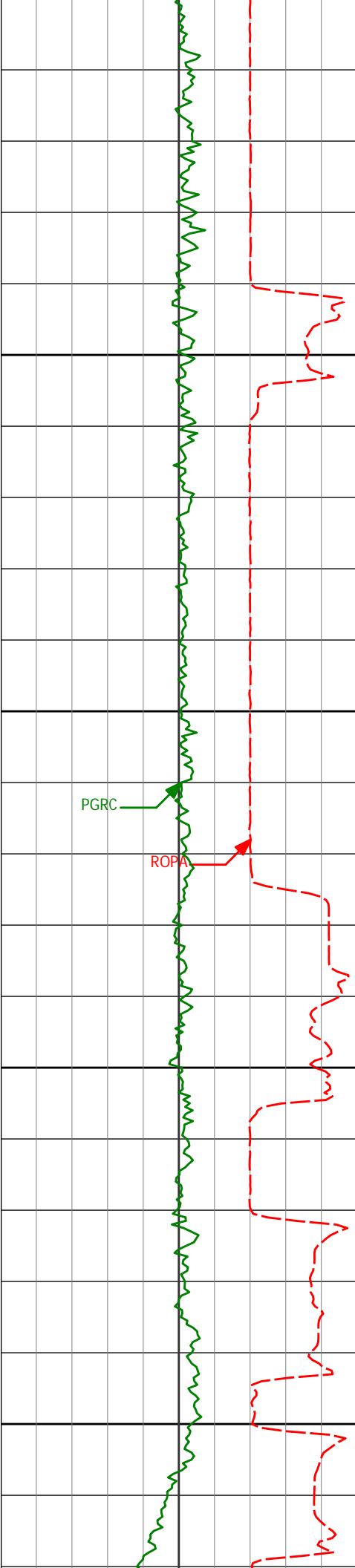
ARM32P

ARM16P

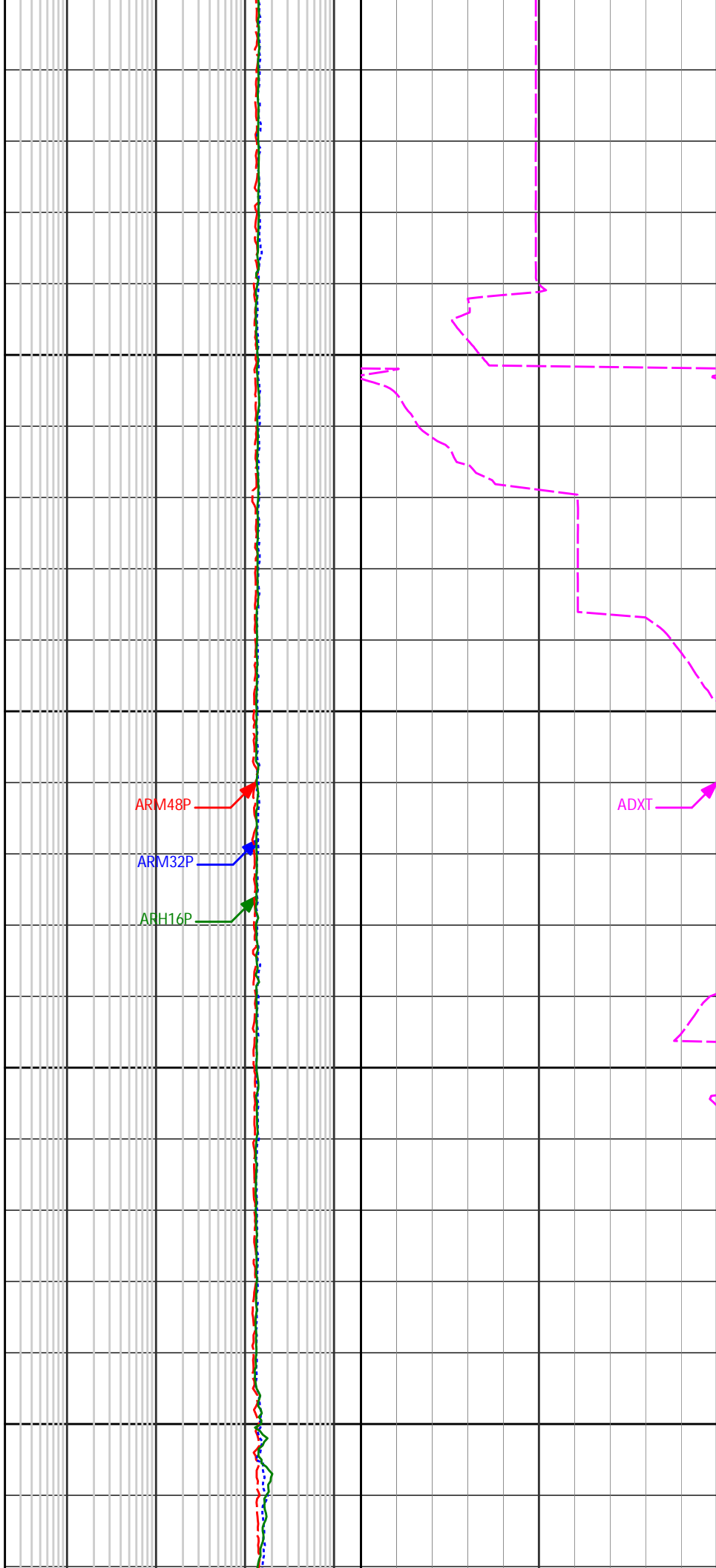
ADXT



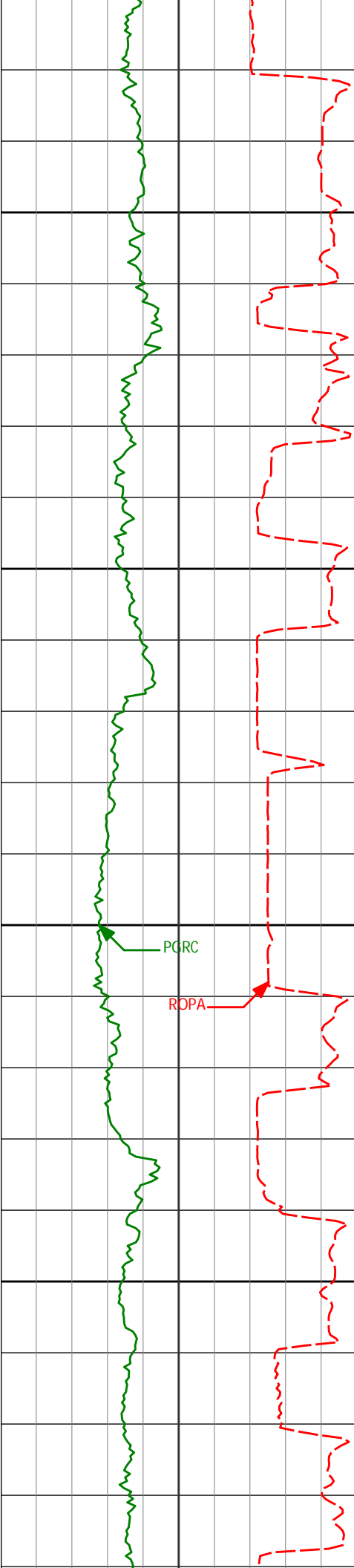




11650  
11700  
11750  
11800  
11850







11900

11950

12000

12050

PGRC

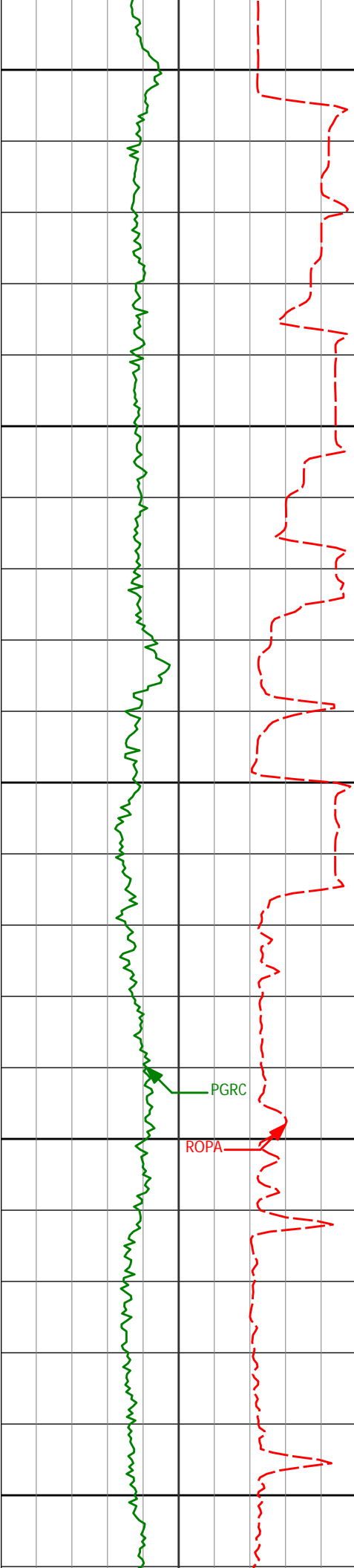
ROPA



ARM48P

ARM32P

ARM16P



12100

12150

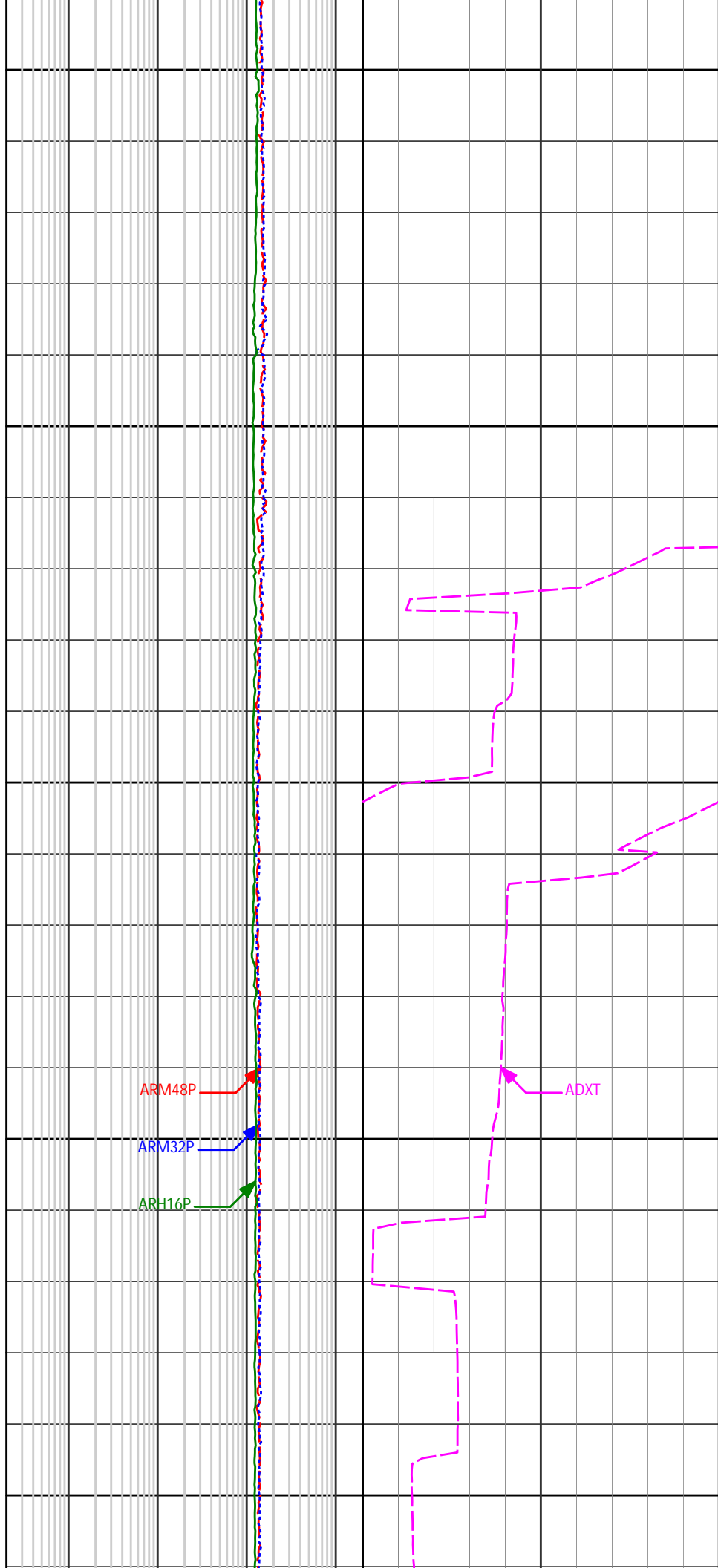
12200

12250

12300

PGRC

ROPA

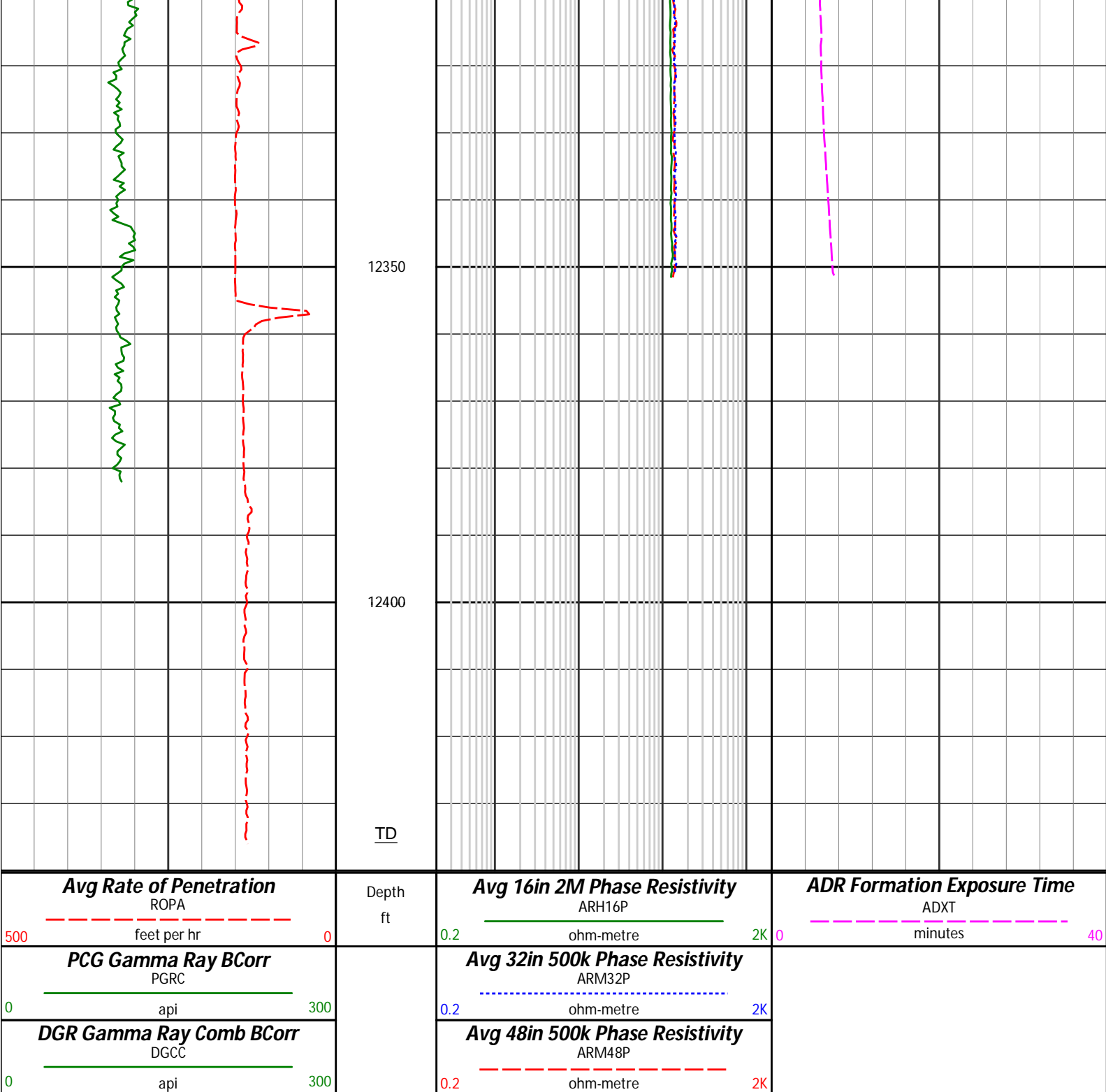


ARM48P

ARM32P

ARM16P

ADXT



**HALLIBURTON**

**DIRECTIONAL SURVEY REPORT**

Conoco Phillips Company  
Tebo 29-2H  
Niobrara  
Arapahoe Colorado  
USA  
CA-XX-0900647299

Measured Depth (feet)	Inclination (degrees)	Direction (degrees)	Vertical Depth (feet)	Latitude (feet)	Departure (feet)	Vertical Section (feet)	Dogleg (deg/100ft)
0.00	0.00	0.00	0.00	0.00 N	0.00 E	0.00	TIE-IN

73.97	0.12	291.86	73.97	0.03 N	0.07 W	0.07	0.16
108.28	0.28	163.50	108.28	0.04 S	0.08 W	0.08	1.07
201.80	0.49	190.65	201.80	0.65 S	0.09 W	0.07	0.29
296.50	0.44	193.44	296.49	1.40 S	0.25 W	0.22	0.06
388.86	0.43	194.61	388.85	2.08 S	0.42 W	0.37	0.01
478.93	0.48	196.78	478.92	2.77 S	0.61 W	0.55	0.06
569.89	0.44	191.98	569.88	3.48 S	0.80 W	0.71	0.06
660.71	0.45	193.91	660.69	4.16 S	0.95 W	0.85	0.02
751.96	0.47	192.56	751.94	4.88 S	1.12 W	1.00	0.02
844.24	0.41	199.12	844.22	5.56 S	1.31 W	1.18	0.08
936.54	0.30	199.88	936.52	6.10 S	1.50 W	1.35	0.12
1028.52	0.30	208.84	1028.49	6.54 S	1.70 W	1.54	0.05
1120.84	0.33	215.28	1120.81	6.96 S	1.97 W	1.80	0.05
1212.50	0.82	224.58	1212.47	7.65 S	2.58 W	2.40	0.54
1304.04	0.76	223.24	1304.00	8.56 S	3.46 W	3.25	0.07
1396.29	0.77	218.86	1396.24	9.48 S	4.27 W	4.04	0.06
1488.18	0.80	217.53	1488.12	10.47 S	5.05 W	4.79	0.04
1580.04	0.82	214.65	1579.97	11.52 S	5.81 W	5.53	0.05
1671.66	0.74	204.56	1671.59	12.60 S	6.43 W	6.12	0.17
1763.55	0.77	208.85	1763.47	13.68 S	6.97 W	6.64	0.07
1855.79	0.76	205.51	1855.70	14.78 S	7.54 W	7.18	0.05
1950.28	0.78	206.12	1950.18	15.92 S	8.09 W	7.70	0.02
2044.71	0.78	205.11	2044.60	17.08 S	8.64 W	8.23	0.01
2107.59	0.78	204.30	2107.48	17.86 S	9.00 W	8.57	0.02
2181.00	0.68	205.41	2180.88	18.71 S	9.40 W	8.94	0.13
2212.00	0.75	200.75	2211.88	19.06 S	9.55 W	9.08	0.30
2307.00	1.32	260.92	2306.86	19.82 S	10.85 W	10.37	1.21
2402.00	1.39	264.18	2401.84	20.11 S	13.08 W	12.59	0.11
2497.00	2.17	288.14	2496.79	19.67 S	15.94 W	15.46	1.12
2592.00	2.43	290.31	2591.72	18.41 S	19.54 W	19.09	0.29
2687.00	2.61	291.13	2686.62	16.93 S	23.44 W	23.03	0.19
2782.00	2.92	290.26	2781.51	15.31 S	27.72 W	27.34	0.33
2877.00	2.29	272.70	2876.42	14.39 S	31.89 W	31.53	1.06
2972.00	2.25	264.36	2971.34	14.48 S	35.64 W	35.28	0.35
3067.00	2.49	263.44	3066.26	14.90 S	39.55 W	39.18	0.25
3162.00	1.88	277.02	3161.19	14.95 S	43.15 W	42.77	0.84
3256.00	1.94	282.16	3255.14	14.42 S	46.23 W	45.87	0.19
3351.00	1.98	282.13	3350.08	13.74 S	49.41 W	49.06	0.04
3446.00	2.18	279.43	3445.02	13.10 S	52.79 W	52.46	0.23
3541.00	2.36	277.82	3539.95	12.54 S	56.51 W	56.19	0.21
3636.00	2.47	277.57	3634.86	12.00 S	60.47 W	60.17	0.12
3731.00	1.56	277.03	3729.80	11.58 S	63.79 W	63.49	0.96
3826.00	1.56	275.71	3824.77	11.29 S	66.36 W	66.07	0.04
3921.00	1.55	278.47	3919.73	10.97 S	68.93 W	68.64	0.08
4016.00	1.56	277.66	4014.70	10.61 S	71.48 W	71.21	0.02
4111.00	1.62	282.60	4109.66	10.14 S	74.08 W	73.81	0.16
4206.00	1.53	287.29	4204.62	9.47 S	76.60 W	76.35	0.17
4300.00	1.94	274.42	4298.58	8.98 S	79.38 W	79.14	0.60
4395.00	2.32	273.03	4393.52	8.75 S	82.90 W	82.67	0.40
4490.00	1.60	267.72	4488.46	8.70 S	86.15 W	85.92	0.78
4585.00	1.61	265.11	4583.42	8.87 S	88.81 W	88.57	0.08
4680.00	1.62	289.26	4678.39	8.54 S	91.40 W	91.17	0.71
4775.00	1.60	297.07	4773.35	7.49 S	93.85 W	93.64	0.23
4870.00	1.17	275.88	4868.32	6.79 S	96.00 W	95.81	0.70
4965.00	1.14	269.95	4963.30	6.69 S	97.91 W	97.72	0.13
5060.00	1.68	277.64	5058.27	6.51 S	100.24 W	100.05	0.60
5155.00	1.69	279.26	5153.23	6.09 S	103.00 W	102.82	0.05
5250.00	1.50	287.12	5248.19	5.50 S	105.58 W	105.42	0.31
5345.00	2.35	278.09	5343.14	4.86 S	108.70 W	108.55	0.95
5439.00	2.60	277.47	5437.05	4.31 S	112.72 W	112.59	0.26
5534.00	2.25	268.55	5531.97	4.08 S	116.72 W	116.59	0.54
5629.00	2.19	261.77	5626.90	4.39 S	120.38 W	120.23	0.28
5724.00	2.27	270.41	5721.83	4.63 S	124.05 W	123.90	0.37
5819.00	2.67	282.68	5816.74	4.13 S	128.09 W	127.96	0.69
5914.00	2.52	279.96	5911.64	3.29 S	132.31 W	132.19	0.20
6009.00	1.99	255.78	6006.57	3.33 S	135.97 W	135.85	1.14
6104.00	2.10	226.46	6101.51	4.93 S	138.83 W	138.67	1.09
6199.00	1.63	246.68	6196.46	6.67 S	141.33 W	141.13	0.84
6294.00	2.03	277.86	6291.41	6.97 S	144.24 W	144.03	1.11
6389.00	2.18	284.21	6386.35	6.30 S	147.67 W	147.47	0.29
6484.00	1.44	284.94	6481.30	5.55 S	150.57 W	150.39	0.79

6579.00	0.84	278.30	6576.28	5.14 S	152.41 W	152.24	0.64
6674.00	0.44	270.40	6671.28	5.04 S	153.46 W	153.29	0.43
6769.00	0.44	237.08	6766.27	5.23 S	154.13 W	153.95	0.26
6863.00	1.26	278.51	6860.26	5.27 S	155.45 W	155.27	1.04
6958.00	1.23	279.31	6955.24	4.95 S	157.49 W	157.32	0.03
7053.00	1.03	269.58	7050.22	4.79 S	159.36 W	159.19	0.29
7116.00	0.94	266.09	7113.21	4.83 S	160.44 W	160.28	0.18
7148.00	0.80	262.30	7145.21	4.88 S	160.93 W	160.76	0.47
7180.00	1.88	270.43	7177.20	4.91 S	161.68 W	161.51	3.39
7211.00	4.63	276.80	7208.15	4.76 S	163.43 W	163.26	8.95
7243.00	7.06	278.12	7239.98	4.33 S	166.66 W	166.50	7.59
7275.00	9.95	277.48	7271.62	3.69 S	171.34 W	171.20	9.05
7306.00	12.68	274.57	7302.02	3.07 S	177.39 W	177.27	8.99
7338.00	14.52	272.51	7333.12	2.61 S	184.90 W	184.79	5.95
7370.00	16.43	271.14	7363.96	2.35 S	193.44 W	193.32	6.06
7401.00	18.72	271.28	7393.51	2.15 S	202.79 W	202.68	7.41
7433.00	21.00	272.30	7423.60	1.81 S	213.66 W	213.55	7.18
7465.00	23.06	273.30	7453.27	1.21 S	225.65 W	225.55	6.56
7496.00	26.01	273.17	7481.46	0.49 S	238.50 W	238.41	9.53
7528.00	28.86	273.42	7509.86	0.36 N	253.22 W	253.15	8.90
7559.00	31.51	273.09	7536.66	1.24 N	268.78 W	268.73	8.57
7591.00	33.93	274.28	7563.58	2.36 N	286.04 W	286.01	7.83
7623.00	36.92	274.37	7589.65	3.76 N	304.53 W	304.53	9.33
7654.00	39.41	274.91	7614.02	5.31 N	323.62 W	323.65	8.13
7686.00	42.61	275.18	7638.16	7.16 N	344.53 W	344.61	10.00
7718.00	46.65	275.04	7660.93	9.16 N	366.92 W	367.04	12.65
7749.00	50.69	275.12	7681.40	11.22 N	390.10 W	390.26	13.02
7781.00	54.24	274.35	7700.89	13.31 N	415.39 W	415.59	11.28
7812.00	58.40	273.18	7718.08	15.00 N	441.12 W	441.36	13.76
7844.00	61.74	272.45	7734.04	16.36 N	468.82 W	469.08	10.64
7876.00	64.38	271.54	7748.54	17.35 N	497.33 W	497.60	8.63
7907.00	66.35	270.55	7761.46	17.86 N	525.50 W	525.78	6.98
7939.00	69.29	269.95	7773.54	17.99 N	555.13 W	555.40	9.36
7971.00	72.81	270.00	7783.93	17.97 N	585.39 W	585.65	10.99
8002.00	76.86	270.73	7792.03	18.16 N	615.30 W	615.56	13.26
8034.00	81.38	270.85	7798.07	18.60 N	646.72 W	646.98	14.14
8065.00	84.06	270.71	7802.00	19.01 N	677.46 W	677.72	8.64
8097.00	86.79	270.73	7804.56	19.41 N	709.35 W	709.62	8.53
8109.00	87.47	270.58	7805.16	19.55 N	721.34 W	721.60	5.82
8306.00	89.14	268.66	7811.00	18.24 N	918.23 W	918.40	1.29
8400.00	89.07	268.22	7812.47	15.68 N	1012.18 W	1012.27	0.48
8495.00	91.17	268.65	7812.26	13.09 N	1107.14 W	1107.14	2.26
8527.00	91.11	268.50	7811.63	12.30 N	1139.12 W	1139.09	0.52
8590.00	89.57	269.64	7811.25	11.28 N	1202.12 W	1202.04	3.05
8685.00	88.83	271.16	7812.58	11.94 N	1297.10 W	1297.01	1.77
8780.00	87.41	275.46	7815.71	17.42 N	1391.87 W	1391.88	4.77
8875.00	86.66	276.40	7820.62	27.22 N	1486.23 W	1486.45	1.26
8970.00	86.85	276.01	7826.00	37.47 N	1580.52 W	1580.97	0.45
9065.00	87.59	274.93	7830.61	46.51 N	1674.98 W	1675.61	1.38
9160.00	87.78	273.85	7834.45	53.77 N	1769.62 W	1770.40	1.15
9255.00	88.70	271.91	7837.37	58.53 N	1864.45 W	1865.32	2.26
9350.00	90.80	270.91	7837.78	60.87 N	1959.41 W	1960.31	2.45
9444.00	88.39	269.22	7838.44	60.98 N	2053.40 W	2054.27	3.13
9539.00	90.62	269.75	7839.26	60.13 N	2148.39 W	2149.21	2.41
9634.00	88.70	268.40	7839.82	58.59 N	2243.37 W	2244.13	2.47
9729.00	89.14	267.93	7841.61	55.55 N	2338.30 W	2338.96	0.67
9824.00	86.85	267.30	7844.94	51.60 N	2433.15 W	2433.69	2.49
9919.00	86.91	268.11	7850.10	47.81 N	2527.93 W	2528.35	0.85
10014.00	86.66	268.38	7855.43	44.90 N	2622.74 W	2623.06	0.39
10109.00	87.84	267.56	7859.98	41.54 N	2717.57 W	2717.78	1.51
10204.00	92.35	269.39	7859.83	39.02 N	2812.51 W	2812.63	5.13
10299.00	92.53	270.25	7855.79	38.72 N	2907.42 W	2907.50	0.92
10394.00	92.22	271.82	7851.85	40.43 N	3002.32 W	3002.42	1.69
10488.00	89.81	273.60	7850.17	44.88 N	3096.19 W	3096.37	3.18
10583.00	89.81	275.93	7850.48	52.76 N	3190.85 W	3191.19	2.45
10678.00	88.83	272.89	7851.61	60.06 N	3285.55 W	3286.04	3.36
10773.00	90.93	273.46	7851.81	65.32 N	3380.40 W	3380.99	2.29
10868.00	90.06	271.85	7850.99	69.73 N	3475.29 W	3475.96	1.93
10963.00	85.98	270.03	7854.27	71.29 N	3570.20 W	3570.88	4.70
11026.00	88.52	270.03	7857.29	71.32 N	3633.12 W	3633.78	4.02
11090.00	90.56	271.19	7857.81	72.00 N	3697.11 W	3697.77	3.66

11153.00	90.00	270.95	7857.51	73.17 N	3760.10 W	3760.77	0.96
11248.00	89.38	270.40	7858.02	74.28 N	3855.09 W	3855.76	0.87
11343.00	88.77	270.36	7859.55	74.91 N	3950.08 W	3950.73	0.65
11438.00	88.89	273.18	7861.50	77.85 N	4045.00 W	4045.70	2.97
11532.00	88.89	276.77	7863.32	86.00 N	4138.61 W	4139.48	3.82
11627.00	88.46	280.28	7865.53	100.08 N	4232.52 W	4233.71	3.72
11722.00	86.60	281.69	7869.62	118.17 N	4325.69 W	4327.28	2.45
11817.00	86.73	283.35	7875.15	138.73 N	4418.27 W	4420.33	1.75
11912.00	87.84	278.75	7879.66	156.91 N	4511.38 W	4513.85	4.97
12007.00	89.75	276.93	7881.66	169.87 N	4605.46 W	4608.22	2.78
12102.00	89.14	273.90	7882.58	178.84 N	4700.02 W	4702.97	3.26
12196.00	88.64	270.96	7884.40	182.82 N	4793.91 W	4796.93	3.17
12291.00	90.25	270.85	7885.32	184.32 N	4888.89 W	4891.92	1.69
12371.00	90.49	269.50	7884.81	184.56 N	4968.88 W	4971.90	1.71
12436.00	90.55	269.25	7884.21	183.86 N	5033.88 W	5036.85	0.39

**CALCULATION BASED ON MINIMUM CURVATURE METHOD**

**SURVEY COORDINATES RELATIVE TO WELL SYSTEM REFERENCE POINT  
TVD VALUES GIVEN RELATIVE TO DRILLING MEASUREMENT POINT**

**VERTICAL SECTION RELATIVE TO WELL HEAD  
VERTICAL SECTION IS COMPUTED ALONG A DIRECTION OF 271.39 DEGREES (TRUE)  
A TOTAL CORRECTION OF 8.39 DEG FROM MAGNETIC NORTH TO TRUE NORTH HAS BEEN APPLIED**

**HORIZONTAL DISPLACEMENT IS RELATIVE TO THE WELL HEAD.  
HORIZONTAL DISPLACEMENT(CLOSURE) AT 12436.00 FEET  
IS 5037.23 FEET ALONG 272.09 DEGREES (TRUE)**

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