

Jack Bates
Exploration
Otway Basin
Amrit-1
SANTOS – INPEX – UNOCAL

Total depth:	2979.0 m	K.B. Top Drive
Spud date:	20-Nov-2004	G.L. -1396.0 m
Runs:	1 To 4	D.F. 29.0 m
		Elevation

Permanent datum:	LAT	Elev.: 0 m
Log measured from:	Rotary Table	29.0 m above Perm. datum
Depth reference:	Driller's Pipe Tally	

API serial no.	X	Y	Longitude	Latitude
	X = 563729.6mE	Y =5690204.1mN	141° 44' 07.08"E	38° 56' 05.20"S

Depth logged:	1425.0 m To 2763.0 m	Mag decl:	10.48 deg.	Other services:
Date logged:	20-Nov-04 To 7-Dec-04	Mag dip:	-70.25 deg.	Directional Survey/s

g record

Hole size	from	to	Size	Density	from	to
26 in.	1425.0 m	1835.0 m	30 in.	456/309 lb/ft	1425.0 m	1510.0 m
17.5 in.	1835.0 m	2459.0 m	20 in.	133 lb/ft	1425.0 m	1822.0 m
12.25 in.	2459.0 m	2979.0 m	13.375 in.	68 lb/ft	1425.0 m	2454.5 m
Type	from	to	M/in	Max	from	to
Seawater	1425.0 m	1835.0 m	0.26 deg.	1.07 deg.	1425.0 m	1835.0 m
KCl/HPA/Glycol	1835.0 m	2979.0 m	0.12 deg.	0.40 deg.	1835.0 m	2459.0 m
			0.00 deg.	0.07 deg.	2459.0 m	2797.0 m

Run number		1	2	3	4						
Bit size	in	26	17.5	12.25	12.25						
Bit start depth	m	1425.0	1835.0	2459.0	2695.0						
Bit end depth	m	1835.0	2459.0	2695.0	2979.0						
Top interval logged	m	1425.0	1820.0	2444.0	2678.5						
Bottom interval logged	m	1820.0	2444.0	2678.5	2963.0						
Begin log: time		08:20:00	13:10:00	03:50:00	8:30:00						
Begin log: date		20-Nov-04	27-Nov-04	4-Dec-04	6-Dec-04						
End log: time		16:30:00	22:15:00	7:00:00	16:00:00						
End log: date		22-Nov-04	1-Dec-04	6-Dec-04	7-Dec-04						
Mud data											
Depth	m	1835.0	2459.0	2695.0	2979.0						
Type		Sea water	KCl/PHPA/Glycol	KCl/PHPA/Glycol	KCl/PHPA/Glycol						
Mud weight	ppg	8.6	9.2	9.5	9.6						
Solids	%	N/A	4.0	8.8	9.5						
Chlorides	mg/l	N/A	38500	52500	48000						
Rm	OHMM@°C	N/A	0.1192@25.1	0.078@26.3	0.0968@25.2						
Rmf	OHMM@°C	N/A	0.1087@24.9	0.0732@25.8	0.0891@24.9						
Rmc	OHMM@°C	N/A	0.1248@26.8	0.1005@25.5	0.1285@24.5						

Potassium	%	N/A	4.0	5.4	5.1						
Environmental data											
GR											
Mud weight	ppg	8.6	9.2	9.5	9.6						
Bit size	in	26	17.5	12.25	12.25						
Resistivity											
Neutron porosity											
Hole Size	in	26	17.5	12.25	12.25						
Mud weight	ppg	8.6	9.2	9.5	9.6						
Bottom Hole Temperature	°C	17.0	23.0	24.0	26.0						
Mud salinity	ppm	N/A	N/A	N/A	N/A						
Formation salinity	ppm	N/A	N/A	N/A	N/A						
Recording rate 1	SEC	6	6	6	6	GR-APWD RES					
Recording rate 2	SEC	6	6	6	6						
Filtering GR		3-Point	3-point	3-point	3-point						
Filtering density		N/A	N/A	N/A	N/A						
Filtering Neutron		N/A	N/A	N/A	N/A						
Company representative		D. Atkins	P. King	J. Young	R. Subramanian						
Anadrill personnel		D. Borges	O. Radicevic	L. Watson	B. Manjenic						

<p style="text-align: center;">DISCLAIMER</p> <p>THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.</p>		
OTHER SERVICES FOR RUN1 Directional Surveys Performance Drilling Annular Pressure, ECD & Temperature Internet Web Witness	OTHER SERVICES FOR RUN2 Directional Surveys Performance Drilling Annular Pressure, ECD & Temperature Internet Web Witness	OTHER SERVICES FOR RUN3 Directional Surveys Performance Drilling Annular Pressure, ECD & Temperature Multi Vibrational Chassis (MVC) Internet Web Witness
REMARKS: RUN NUMBER 1 Depth is Driller's Depth. CDR gamma ray is corrected for bit size, mud weight and tool size. CDR resistivity is borehole compensated but not environmentally corrected. Run Objective: Jet in 30" casing & continue to drill 26" to TD. POOH: Section TD. Remarks: Low Gamma Ray readings are due to enlarged hole size.	REMARKS: RUN NUMBER 2 Depth is Driller's Depth. CDR gamma ray is corrected for bit size, mud weight and tool size. CDR resistivity is borehole compensated but not environmentally corrected. Run Objective: Drill 17.5" section to TD. POOH: Section TD.	REMARKS: RUN NUMBER 3 Depth is Driller's Depth. CDR gamma ray is corrected for bit size, mud weight and tool size. CDR resistivity is borehole compensated but not environmentally corrected. Run Objective: Drill 12.25" section to TD. POOH: Rate of penetration.

EQUIPMENT DESCRIPTION		
RUN1	RUN2	RUN3
DOWNHOLE F	DOWNHOLE F	DOWNHOLE F

DOWNHOLE E

DOWNHOLE E

DOWNHOLE E

PowerPl
Software ver:
s/n W4

CDR
Software ver:
s/n L96

26" WB Sta
s/n 536

Float S
s/n 32

A962GT Po
s/n 10
lobes
Stabilizer Sleeve

26" Mill To
Smith MSDS, Jets 2x
s/n MR3

Maximum string dian
All lengths in



28.6
— 24.3
— 18.4
— 15.7
— 15.0

PowerPl
Software ver:
s/n: W4

CDR
Software ver:
s/n: L96

17 1/2" String
s/n 207

Float S
s/n: 32

A962GT Po
s/n: 1C
lobes
Stabiilizer sleeve

17 1/2" Mill 1
Reed T11C, Jets
s/n: J61

Maximum string dian
All lengths in



— 24.4
— 18.6
— 15.8
— 15.1

PowerPl
Software ver
s/n: ED

In Line Sta
OD 12
s/n: 2132
CDR
Software ver:
OD 8

12 1/4" String
s/n: AIB

XO
s/n: X/1

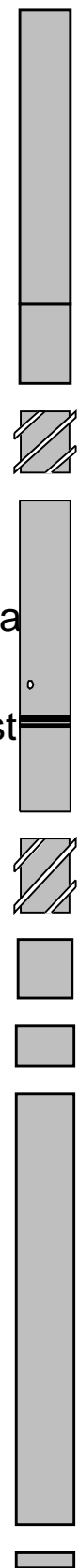
Float S
s/n: 37

A962GT Po
s/n: 2C
lobes:
Stabilizer sleeve

XO
s/n: L 9

12 1/4" PI
Hughes HCH606
s/n 7003

Maximum string dian
All lengths in



— 26.7
— 26.0
22.0
21.5
— 19.4
— 16.6
— 16.1
14.5
12.5
11.5
10.5
0.6
— 0.0
0.3

DISCLAIMER

THE USE OF AND RELIANCE UPON THIS RECORDED-DATA BY THE HEREIN NAMED COMPANY (AND ANY OF ITS AFFILIATES, PARTNERS, REPRESENTATIVES, AGENTS, CONSULTANTS AND EMPLOYEES) IS SUBJECT TO THE TERMS AND CONDITIONS AGREED UPON BETWEEN SCHLUMBERGER AND THE COMPANY, INCLUDING: (a) RESTRICTIONS ON USE OF THE RECORDED-DATA; (b) DISCLAIMERS AND WAIVERS OF WARRANTIES AND REPRESENTATIONS REGARDING COMPANY'S USE OF AND RELIANCE UPON THE RECORDED-DATA; AND (c) CUSTOMER'S FULL AND SOLE RESPONSIBILITY FOR ANY INFERENCE DRAWN OR DECISION MADE IN CONNECTION WITH THE USE OF THIS RECORDED-DATA.

OTHER SERVICES FOR RUN4 Directional Surveys Performance Drilling Annular Pressure, ECD & Temperature Multi Vibrational Chassis (MVC) Internet Web Witness	OTHER SERVICES FOR RUN	OTHER SERVICES FOR RUN
REMARKS: RUN NUMBER 4 Depth is Driller's Depth. CDR gamma ray is corrected for bit size, mud weight and tool size. CDR resistivity is borehole compensated but not environmentally corrected. Run Objective: Drill 12.25" section to TD. POOH: TD of Armit-1.	REMARKS: RUN NUMBER	REMARKS: RUN NUMBER

EQUIPMENT DESCRIPTION

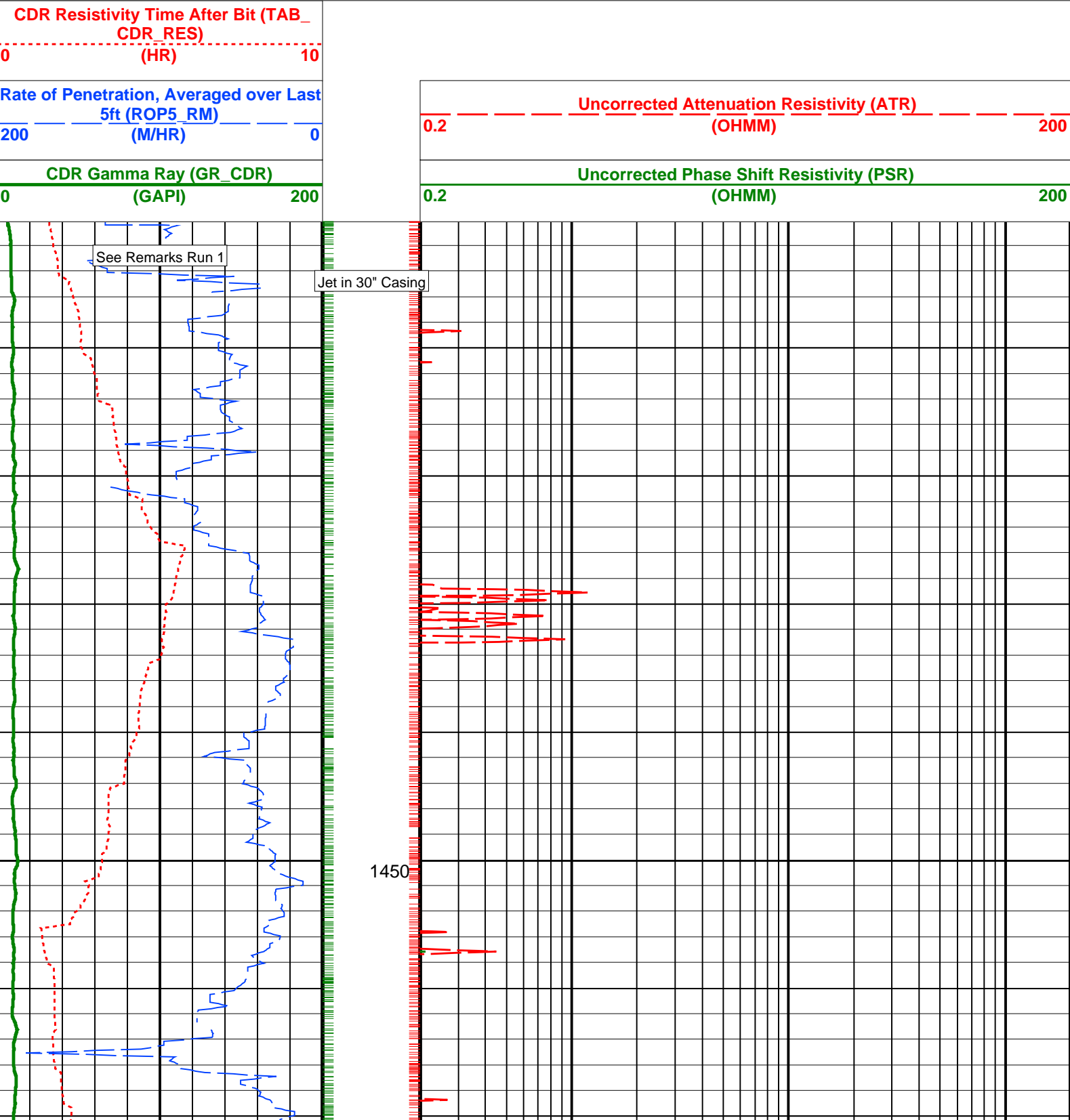
RUN4	RUN	RUN
<div>DOWNHOLE E</div> <div><div>PowerPul</div><div>Software version: ED</div><div><div>D&I MVC</div><div><div></div><div>30.9</div></div><div><div></div><div>26.7</div></div><div><div></div><div>26.0</div></div></div><div><div>In Line Station</div><div>OD 12</div><div><div></div><div>22.5</div></div></div></div>		

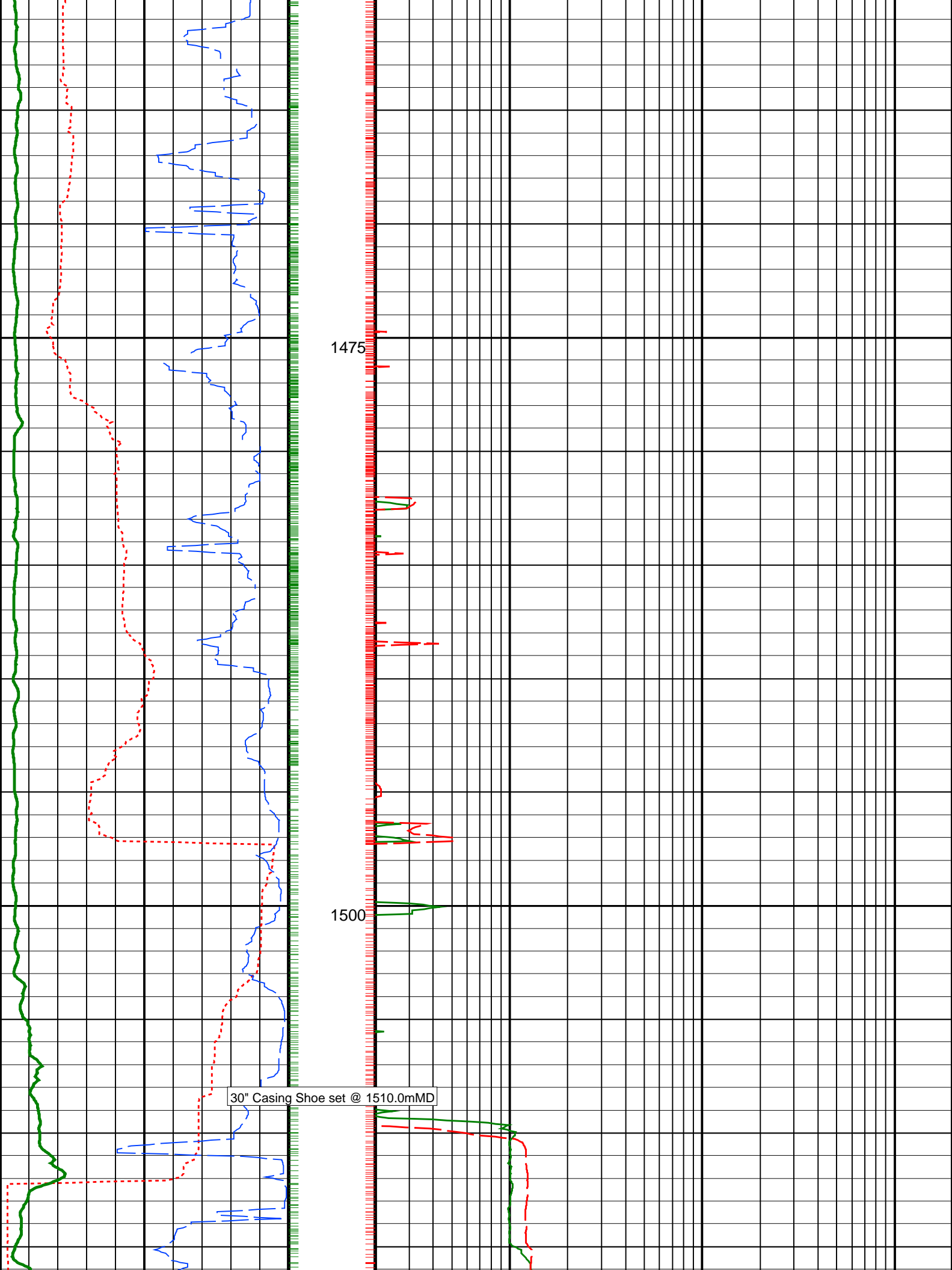
Parameters

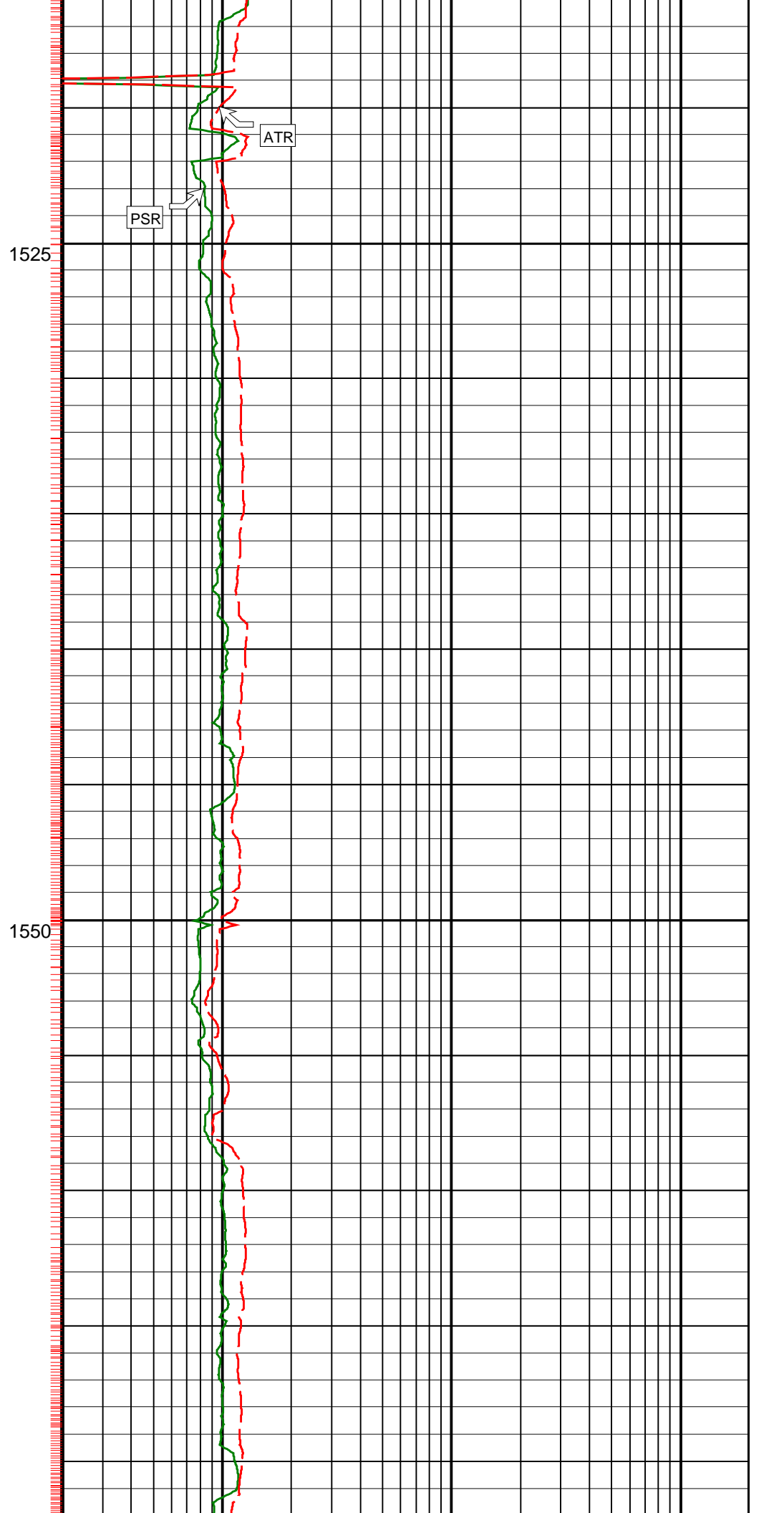
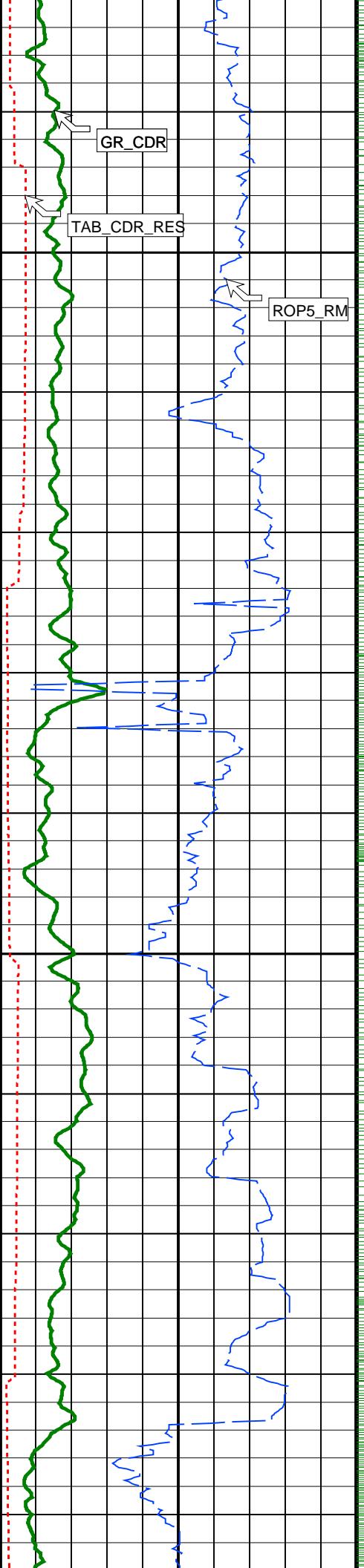
DLIS Name	Description	Value
DO	Depth Offset	0.0 m

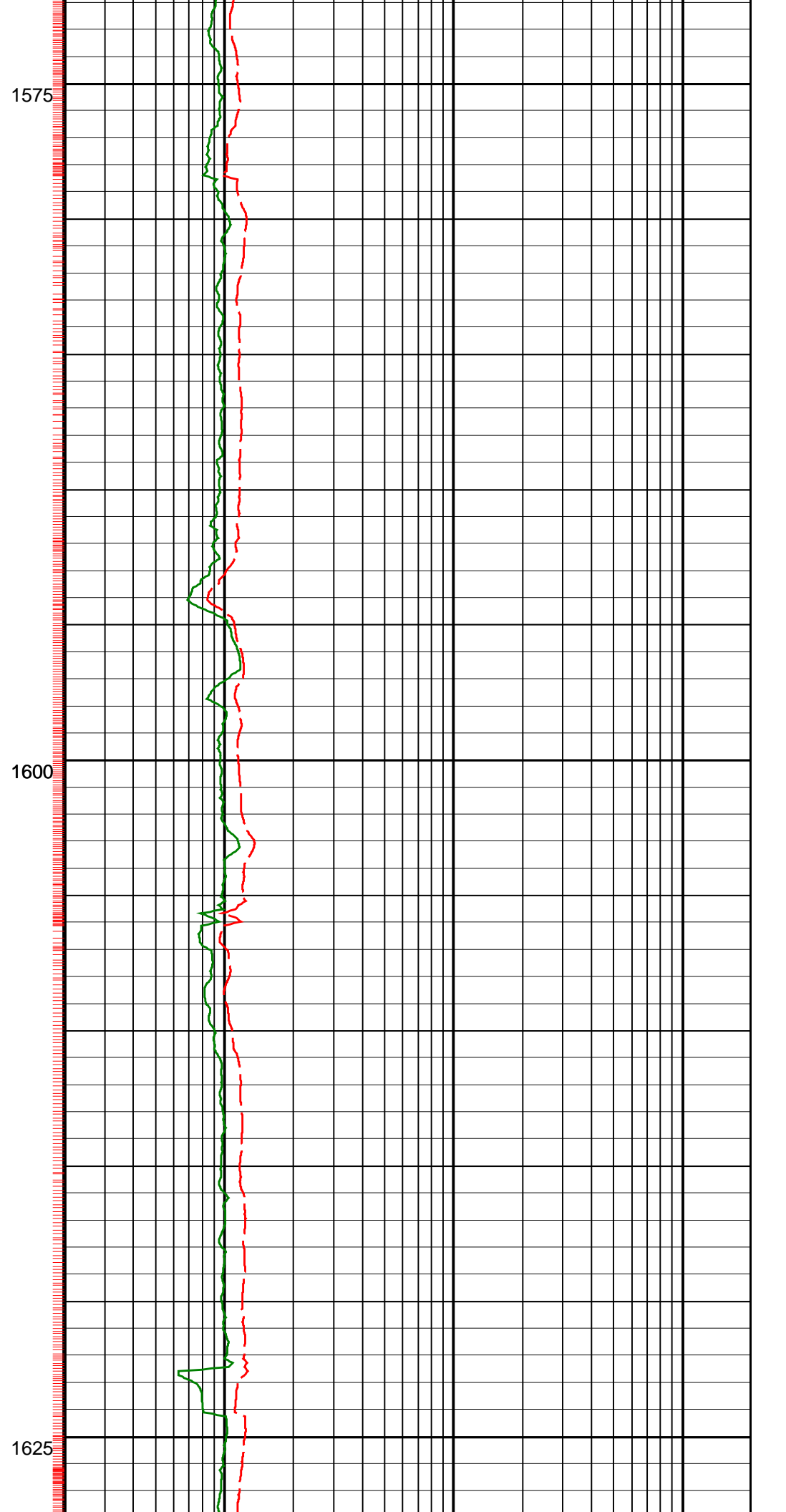
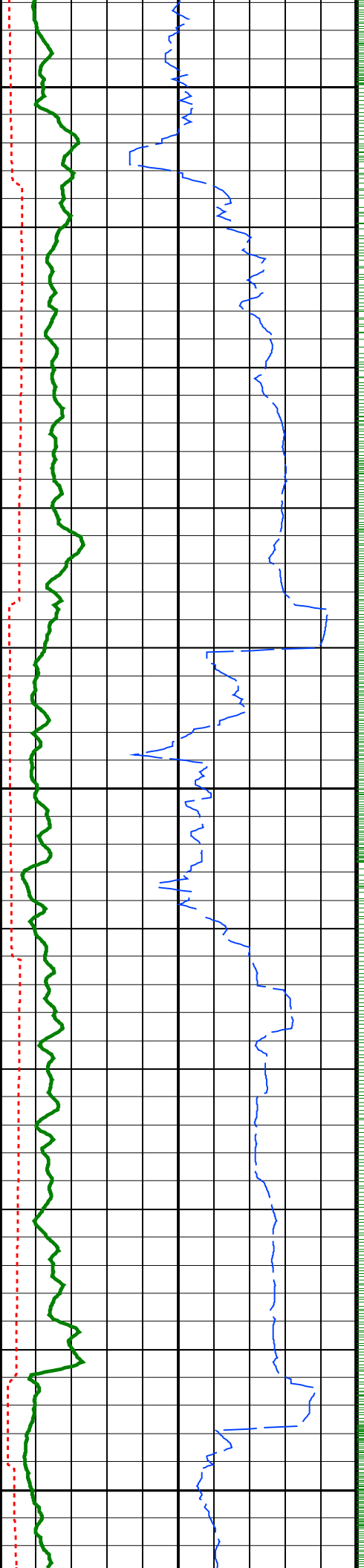
PIP SUMMARY

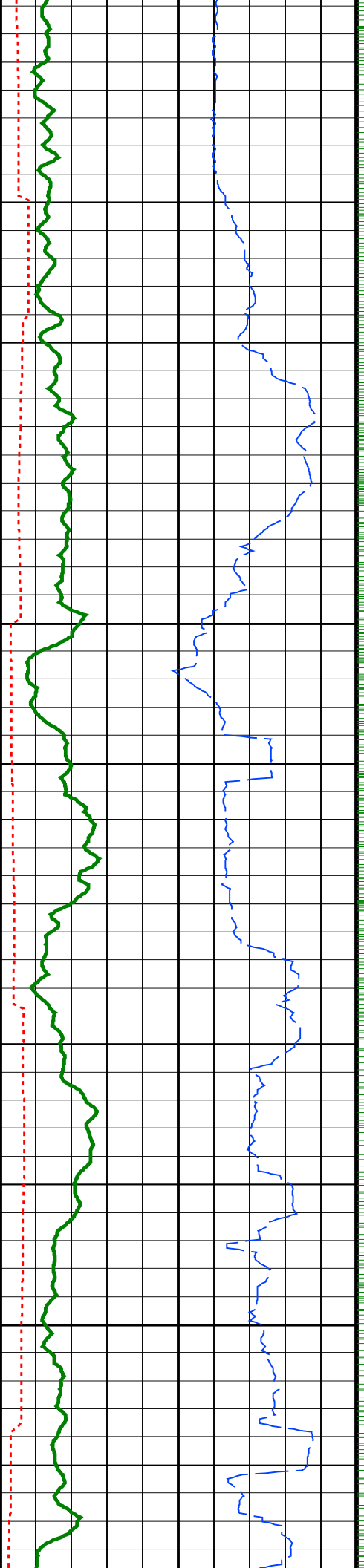
- Gamma Ray samples
- Resistivity samples





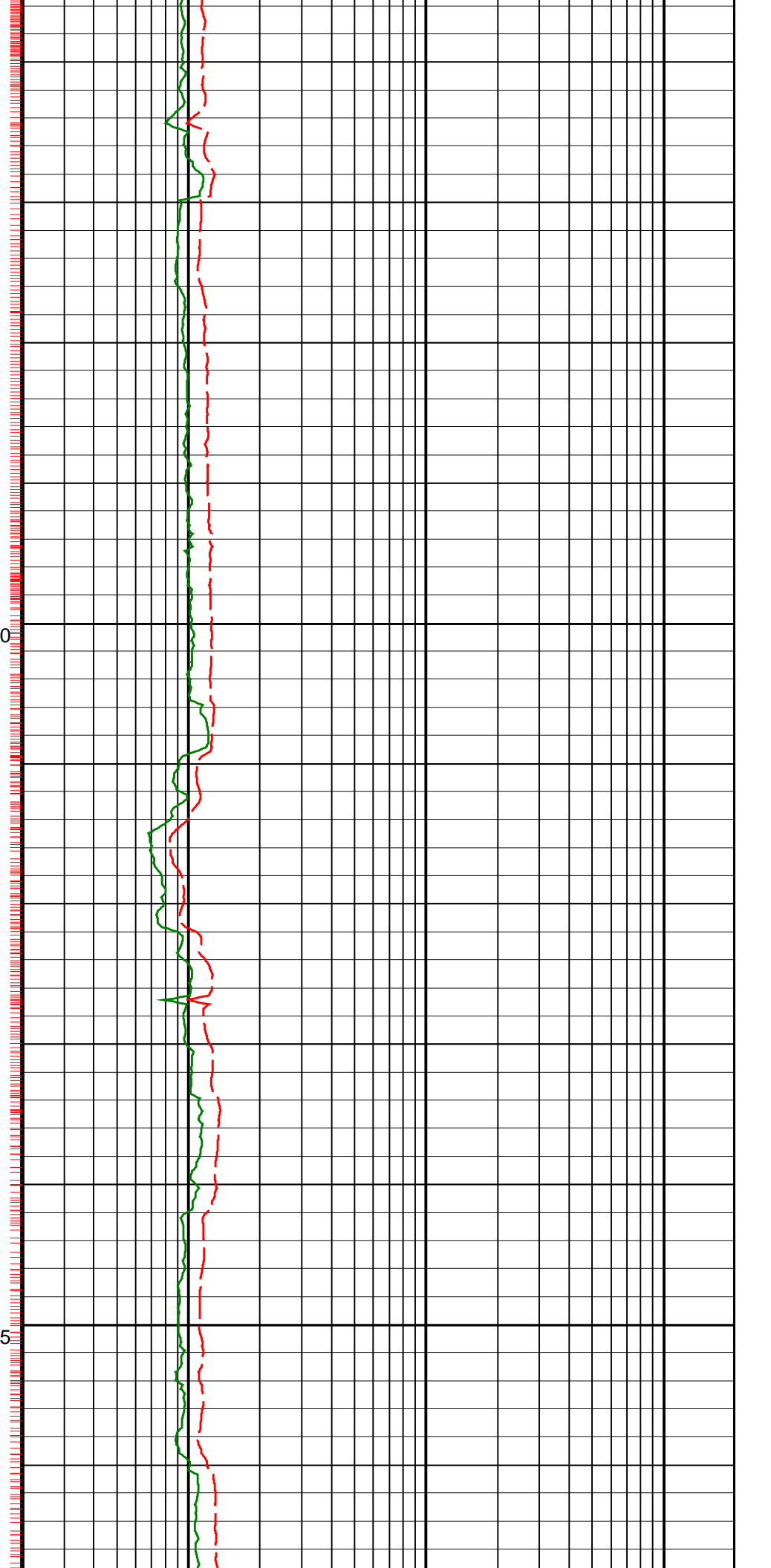


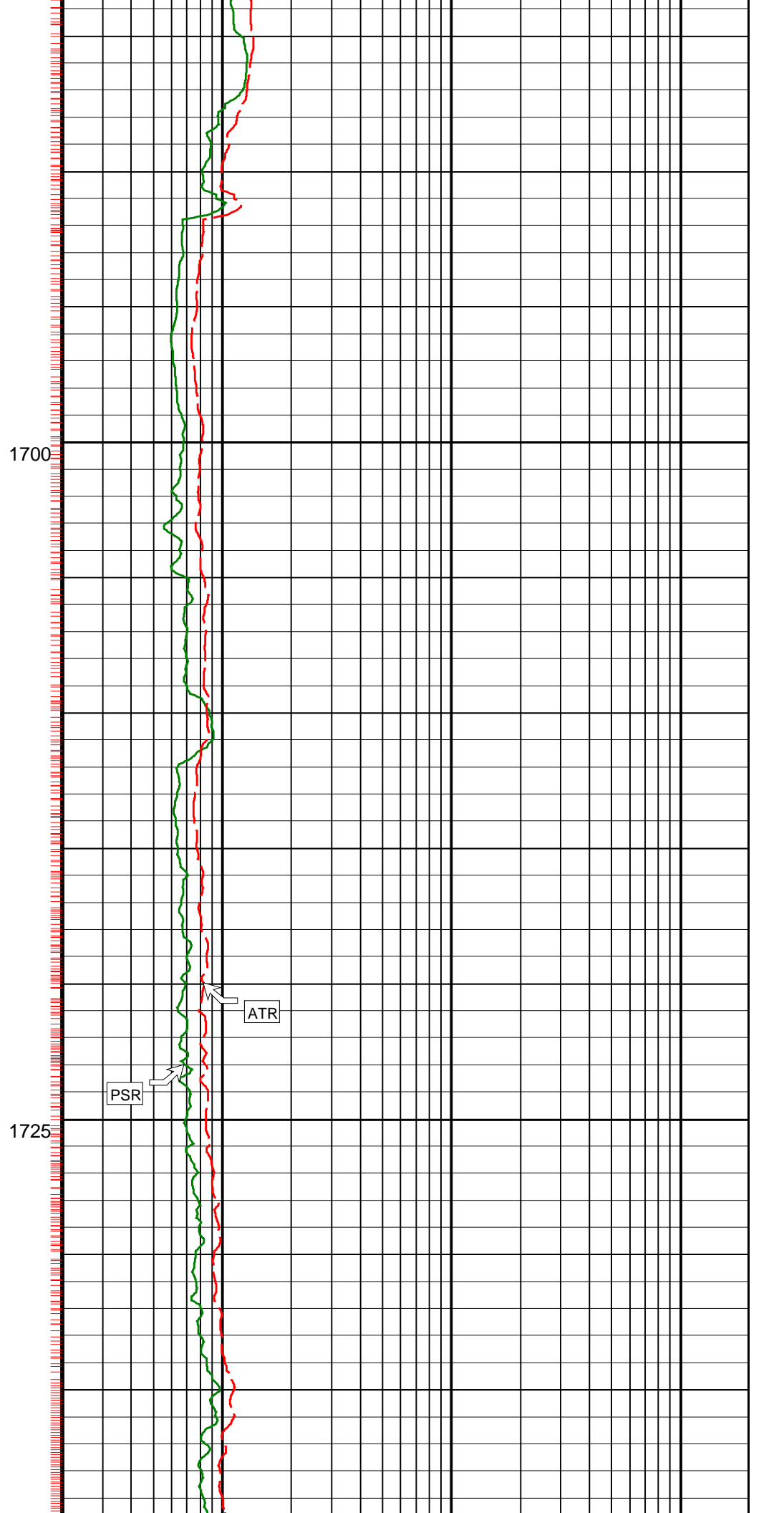
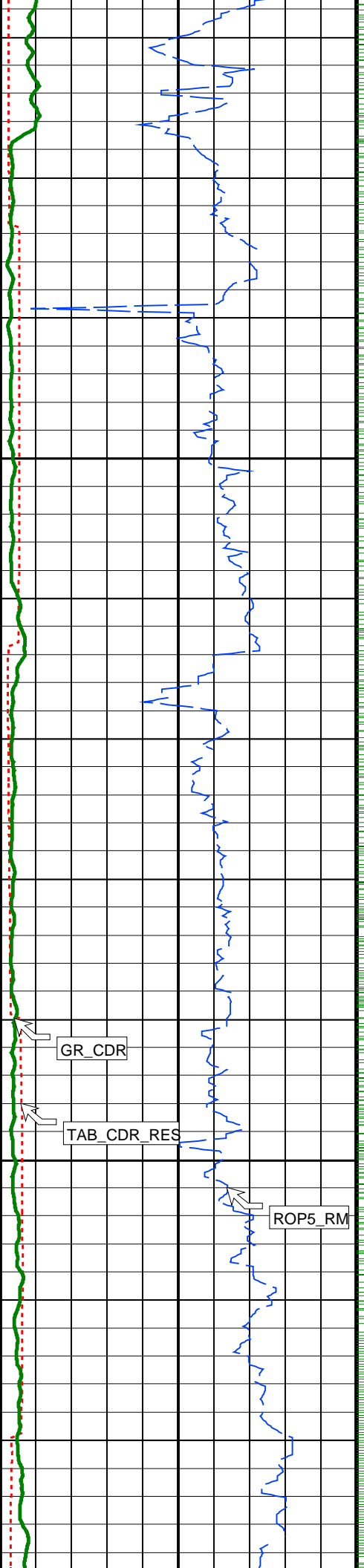


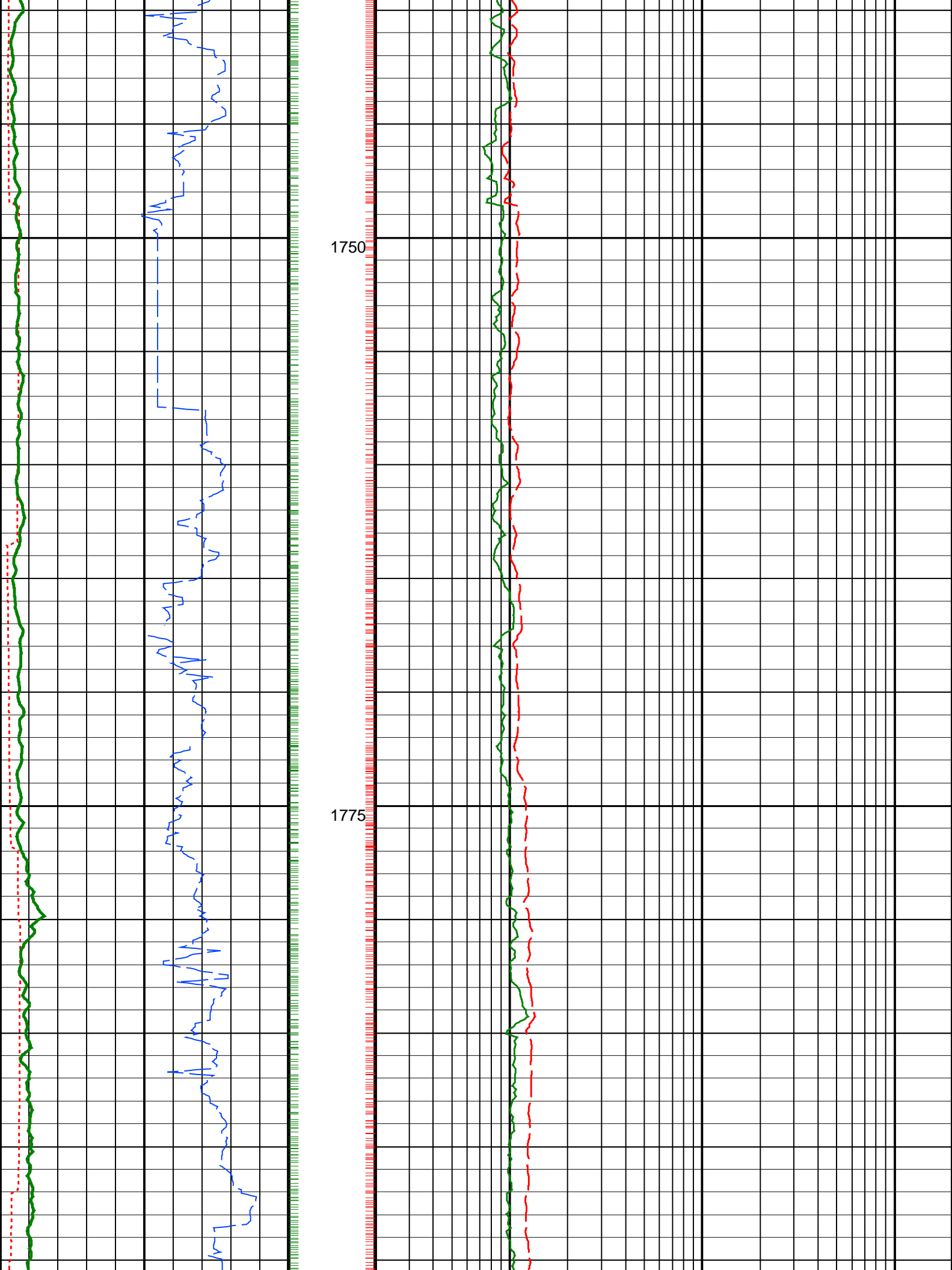


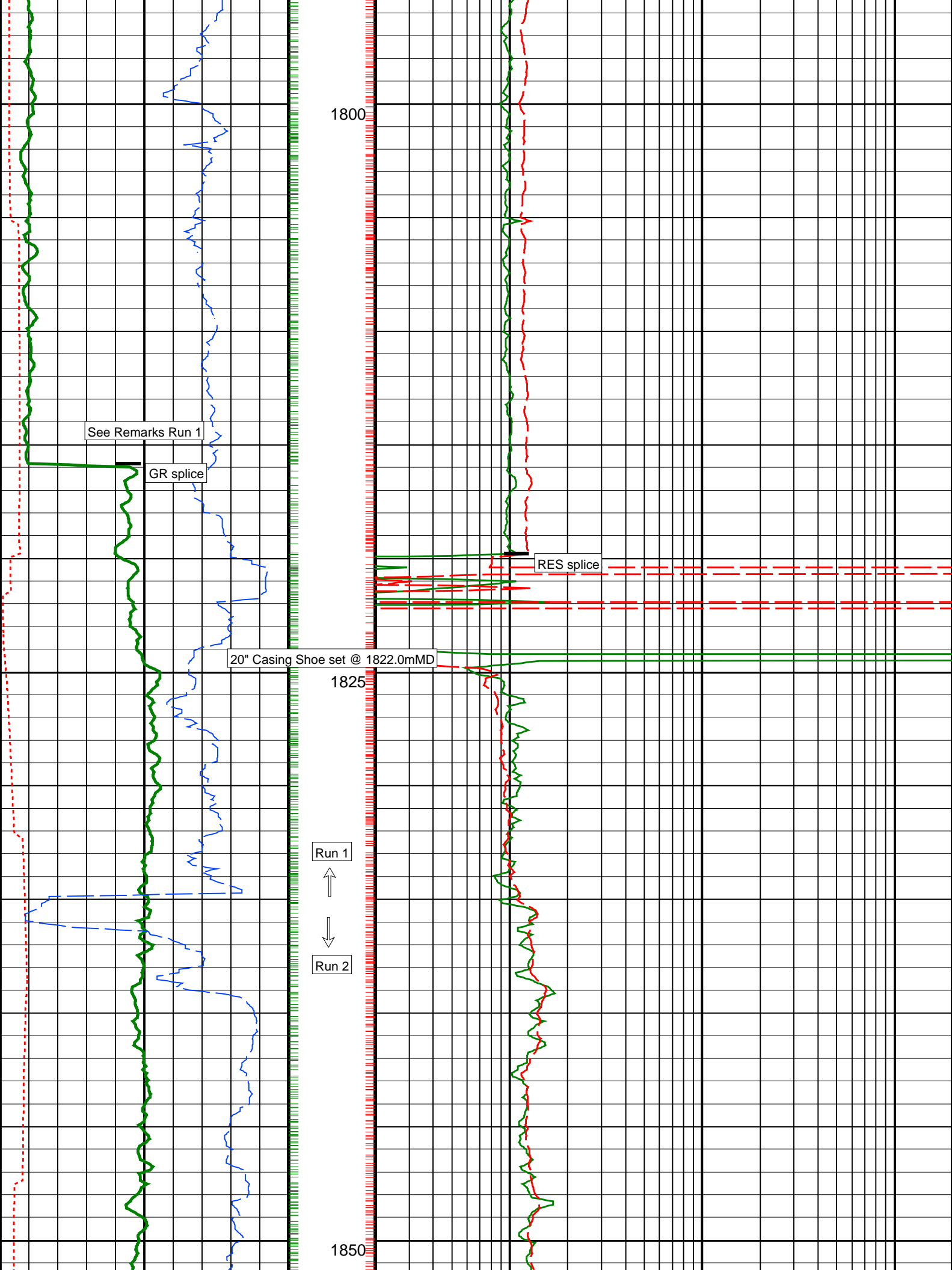
1650

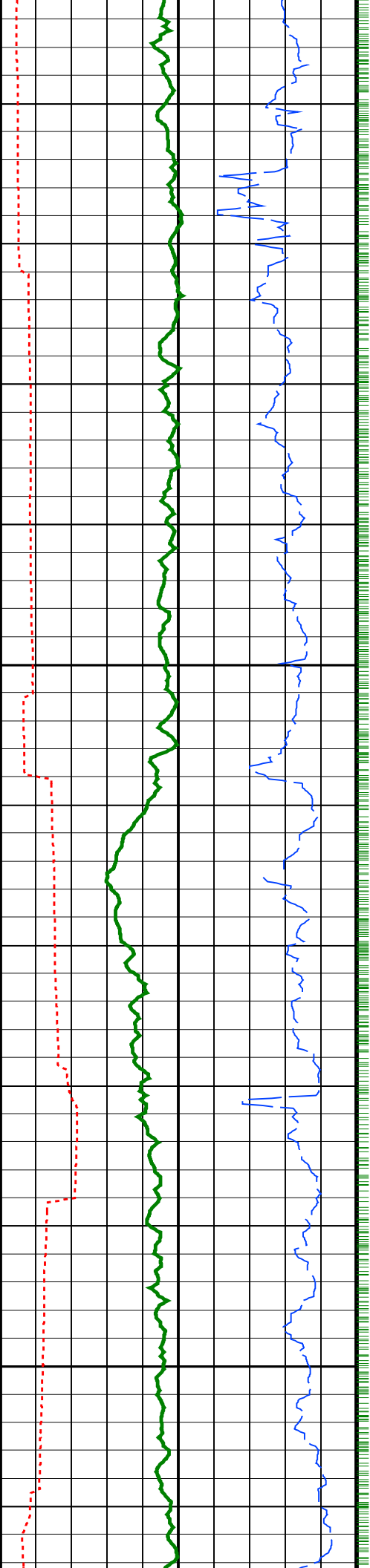
1675





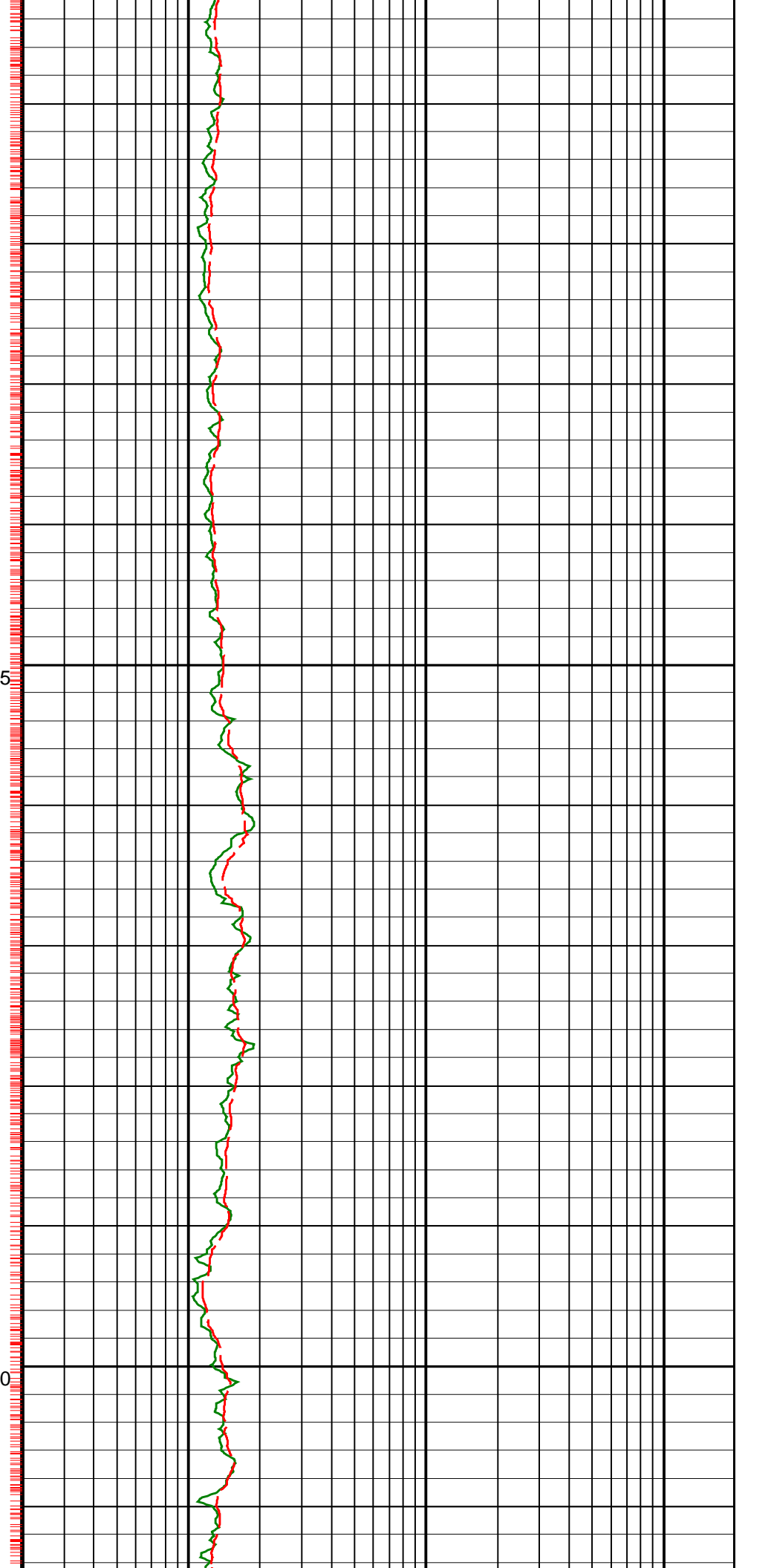


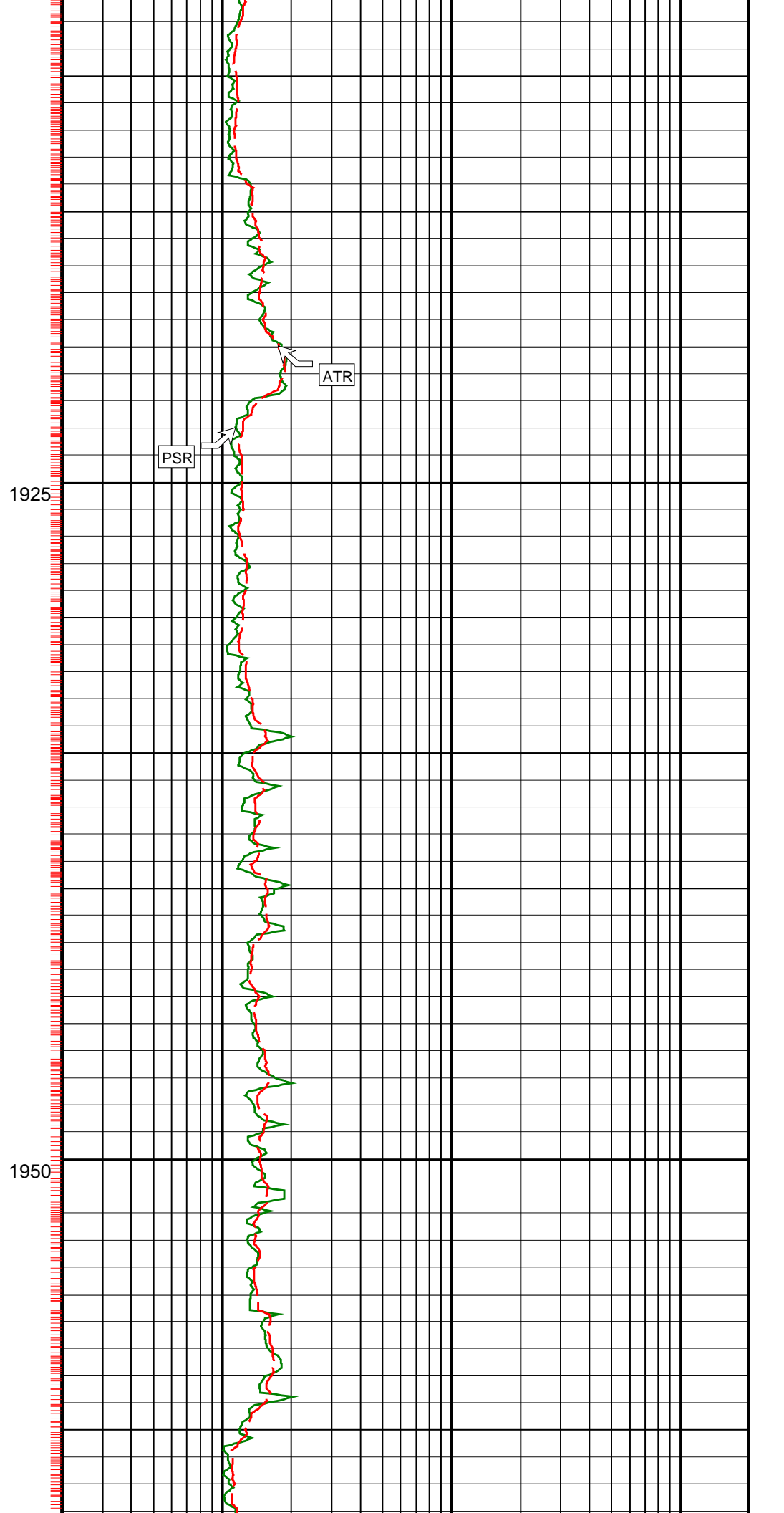
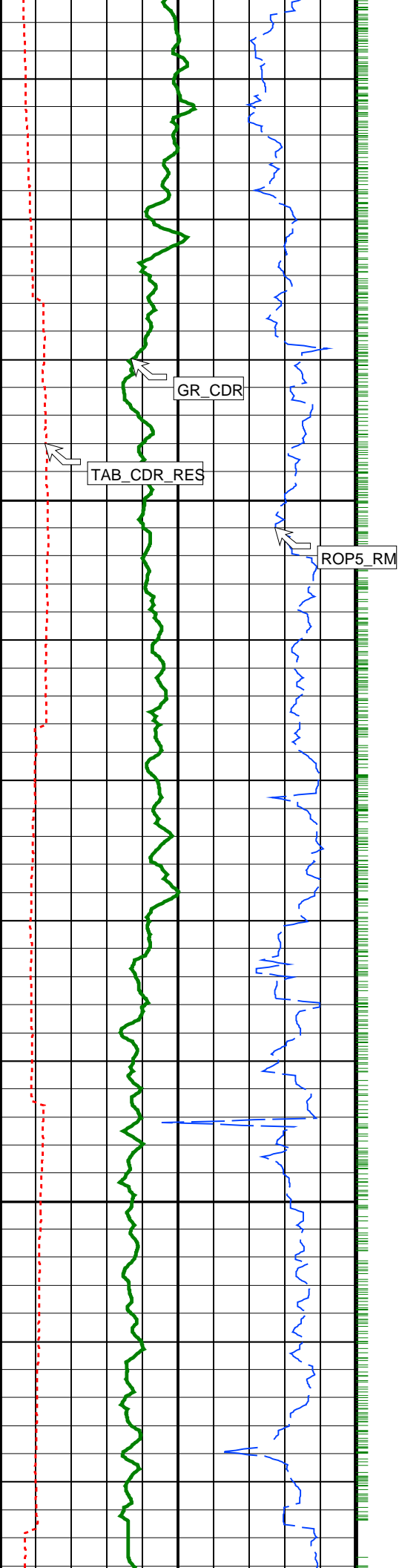


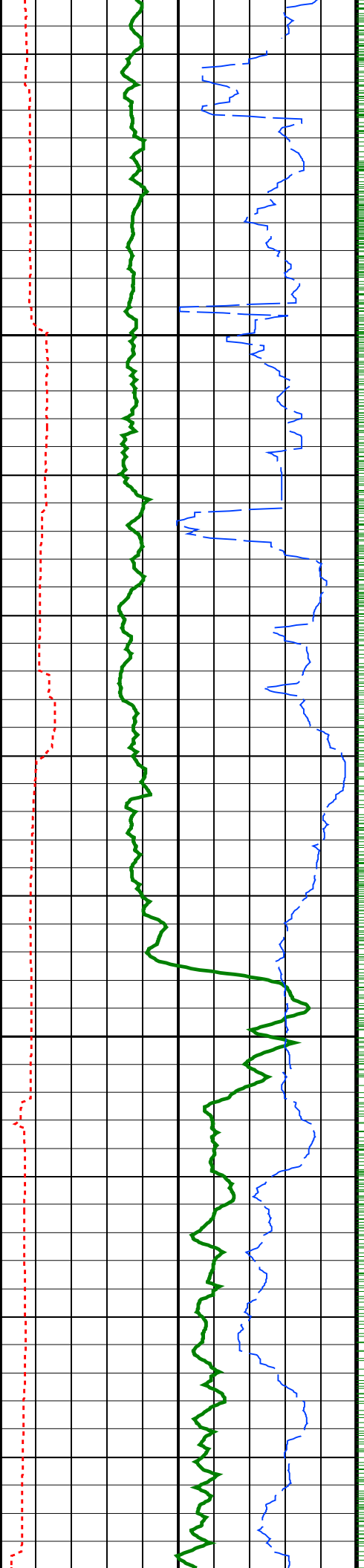


1875

1900

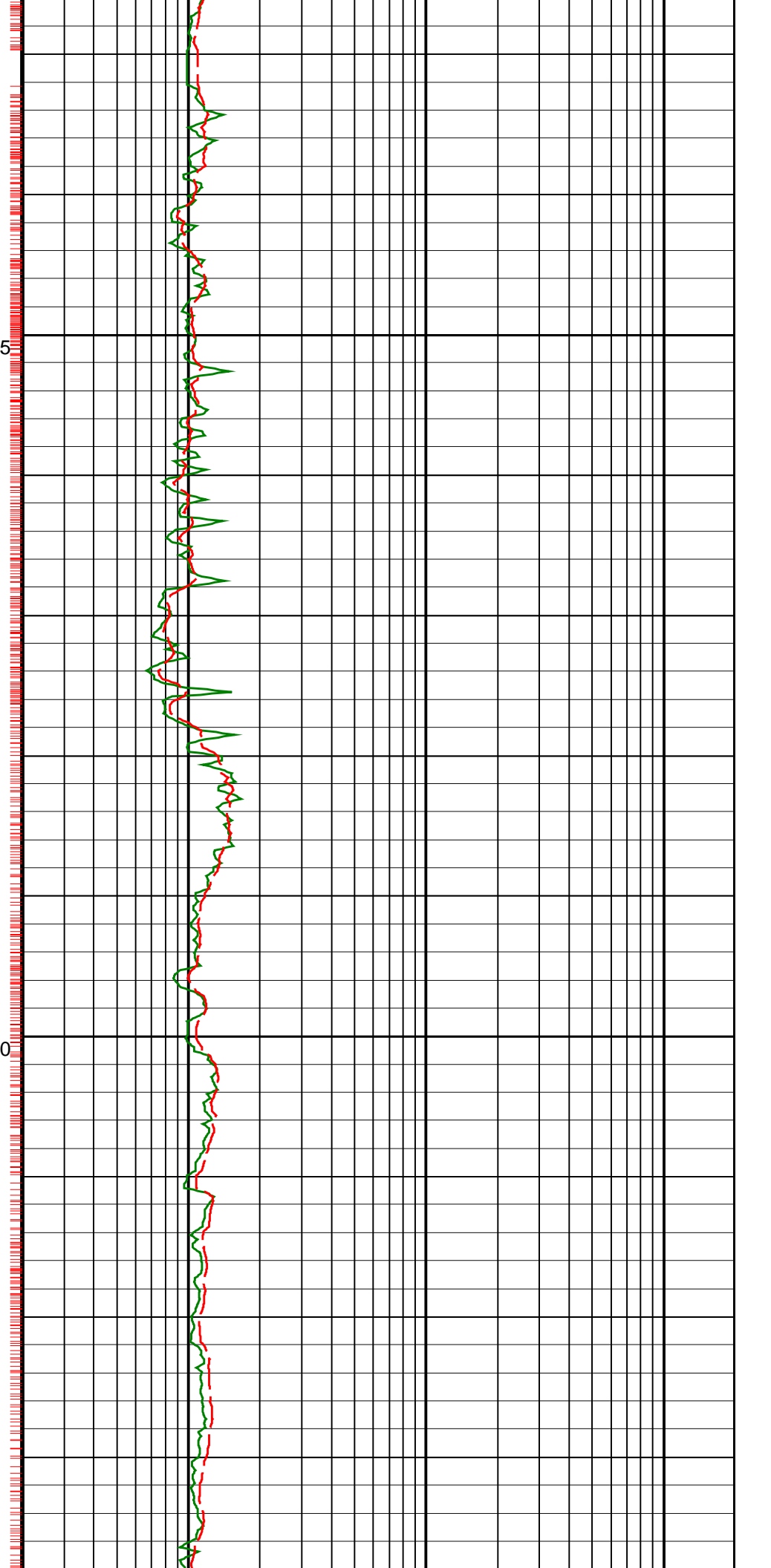


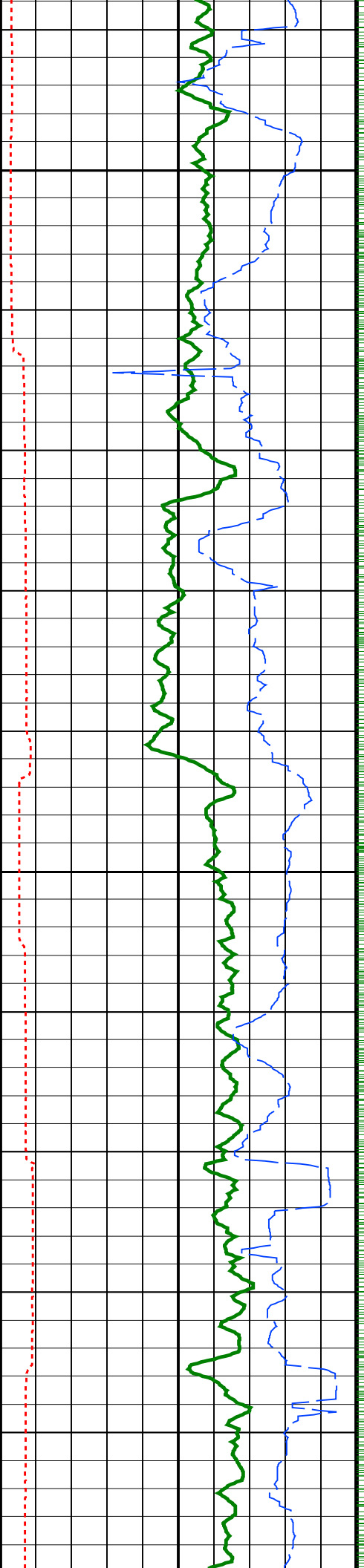




1975

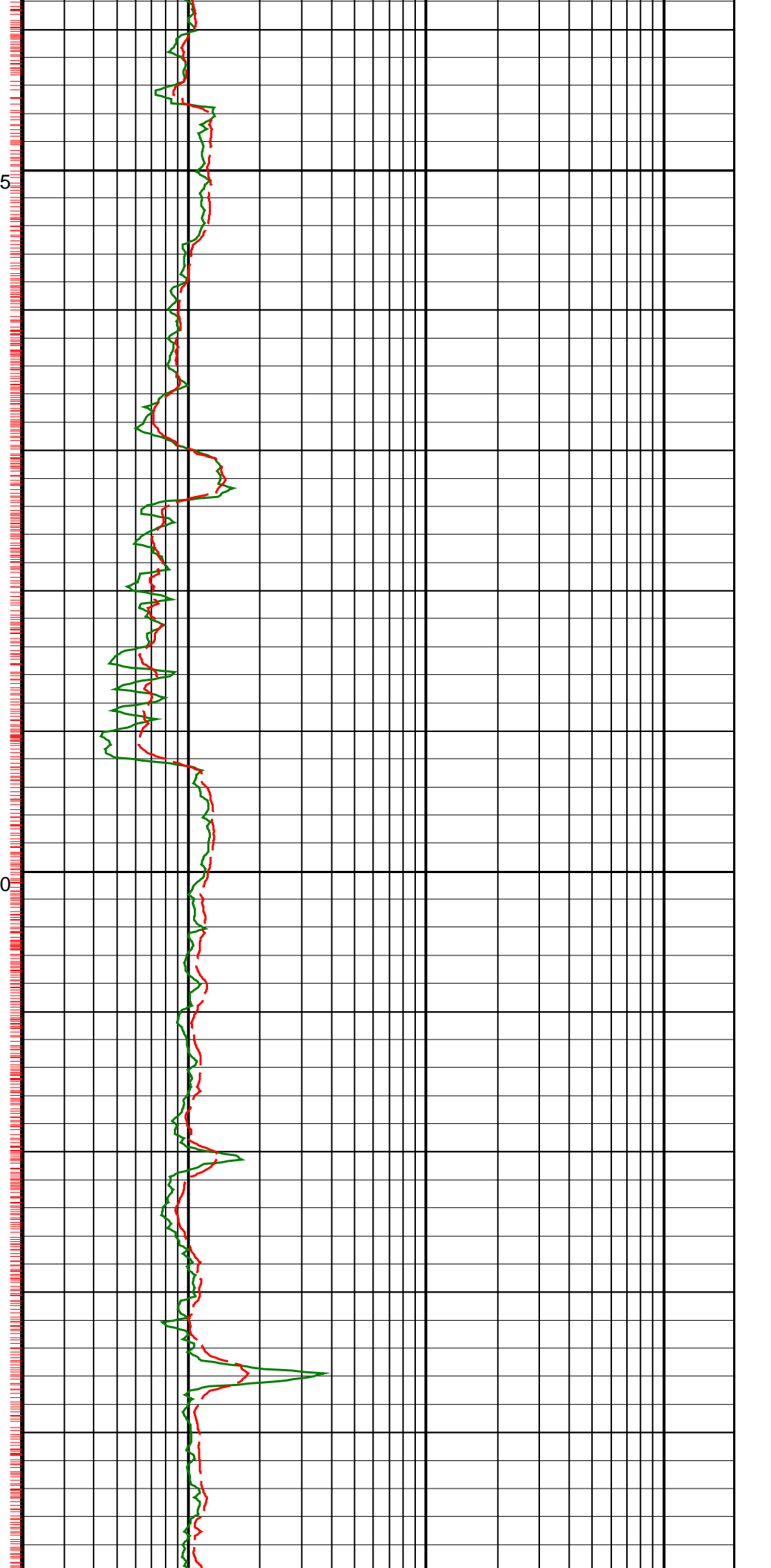
2000

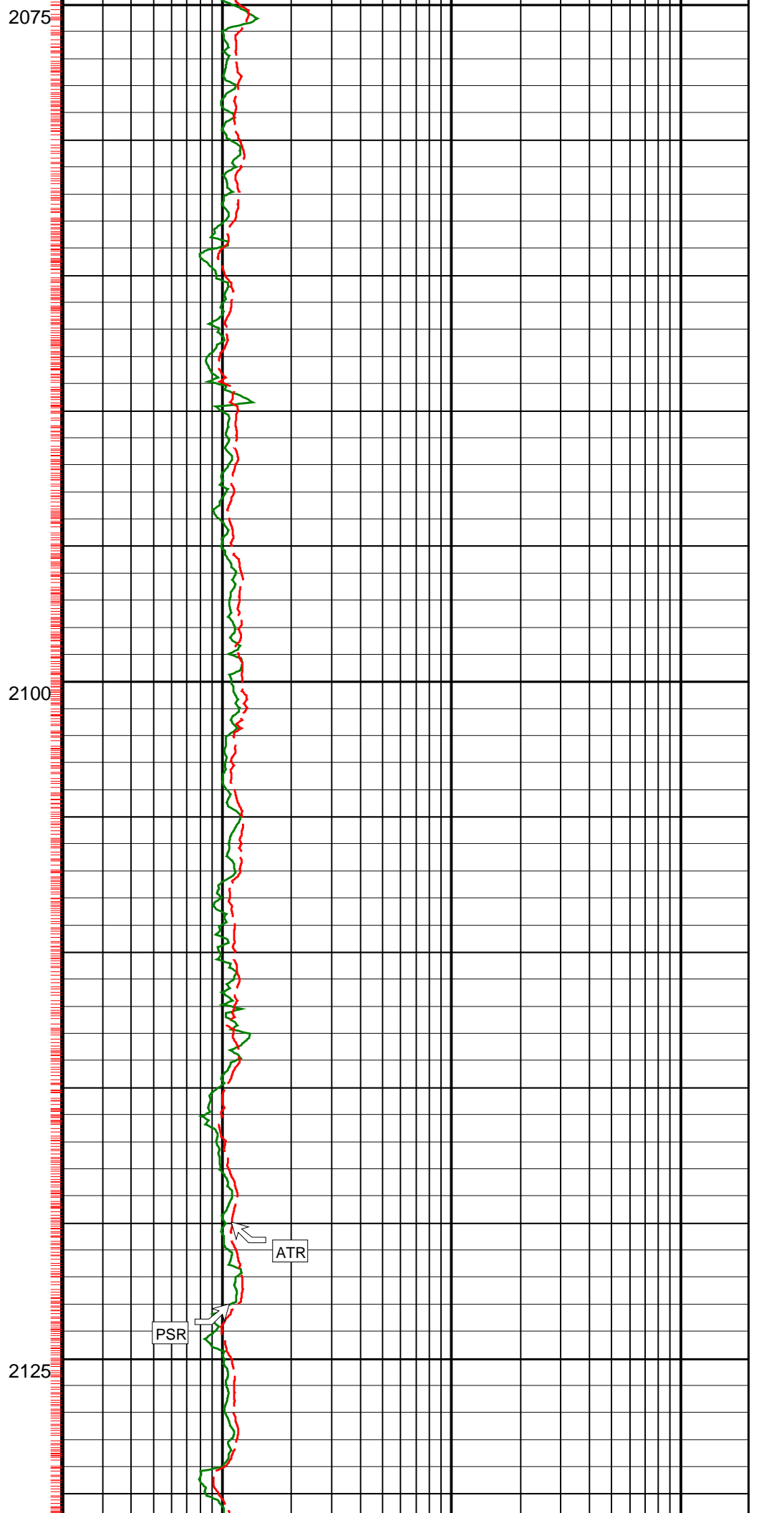
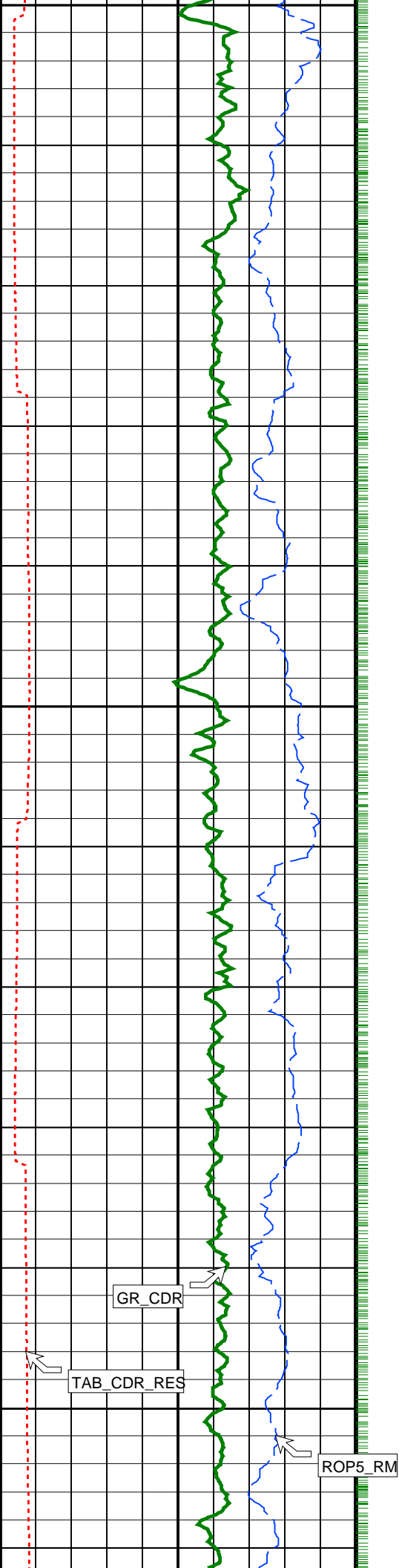


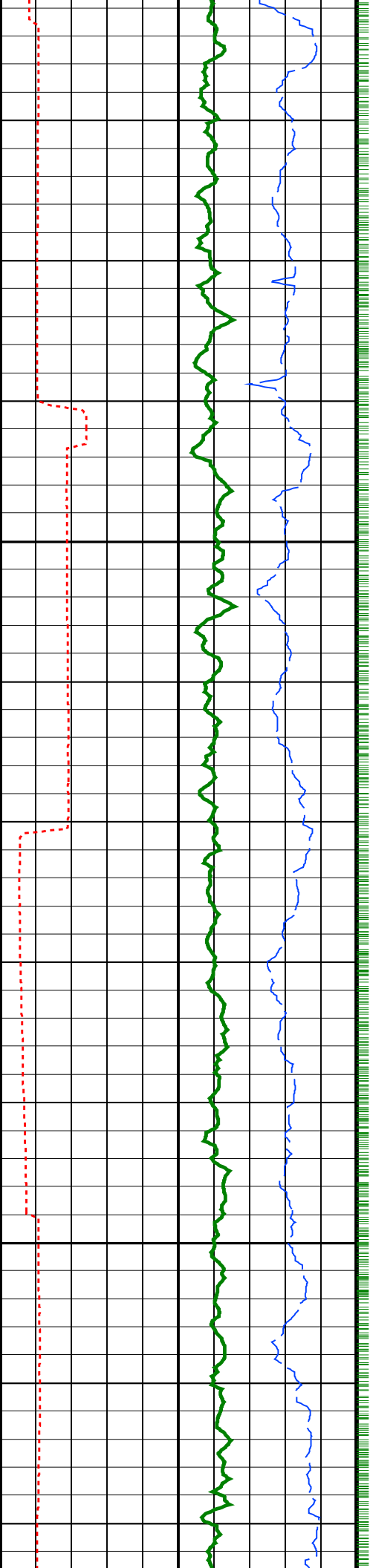


2025

2050

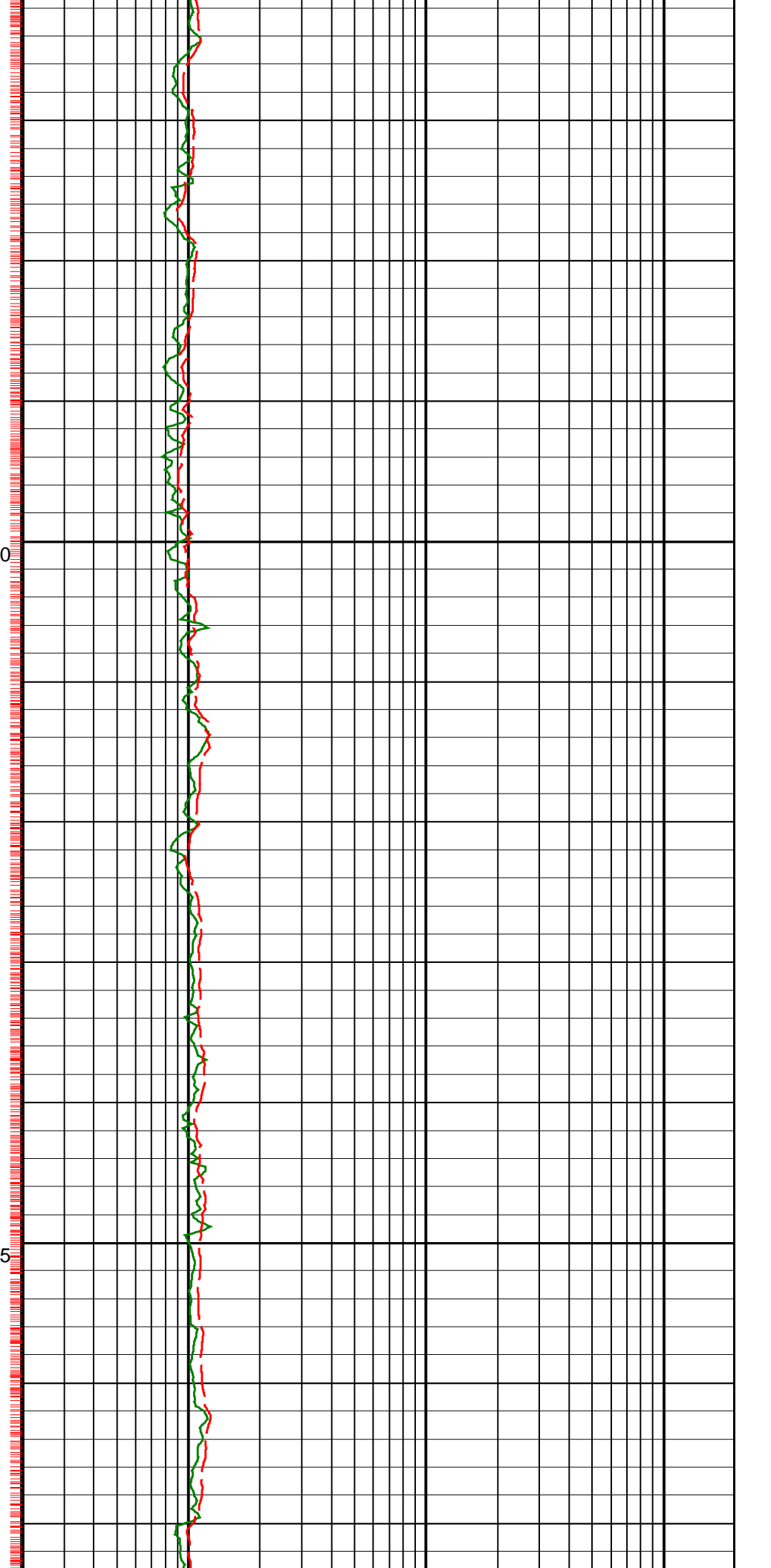


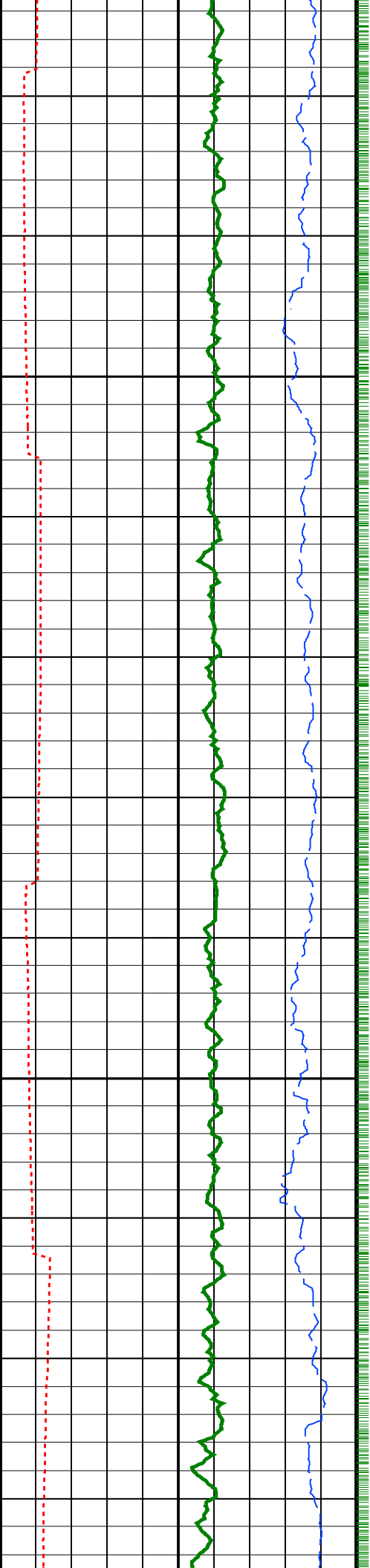




2150

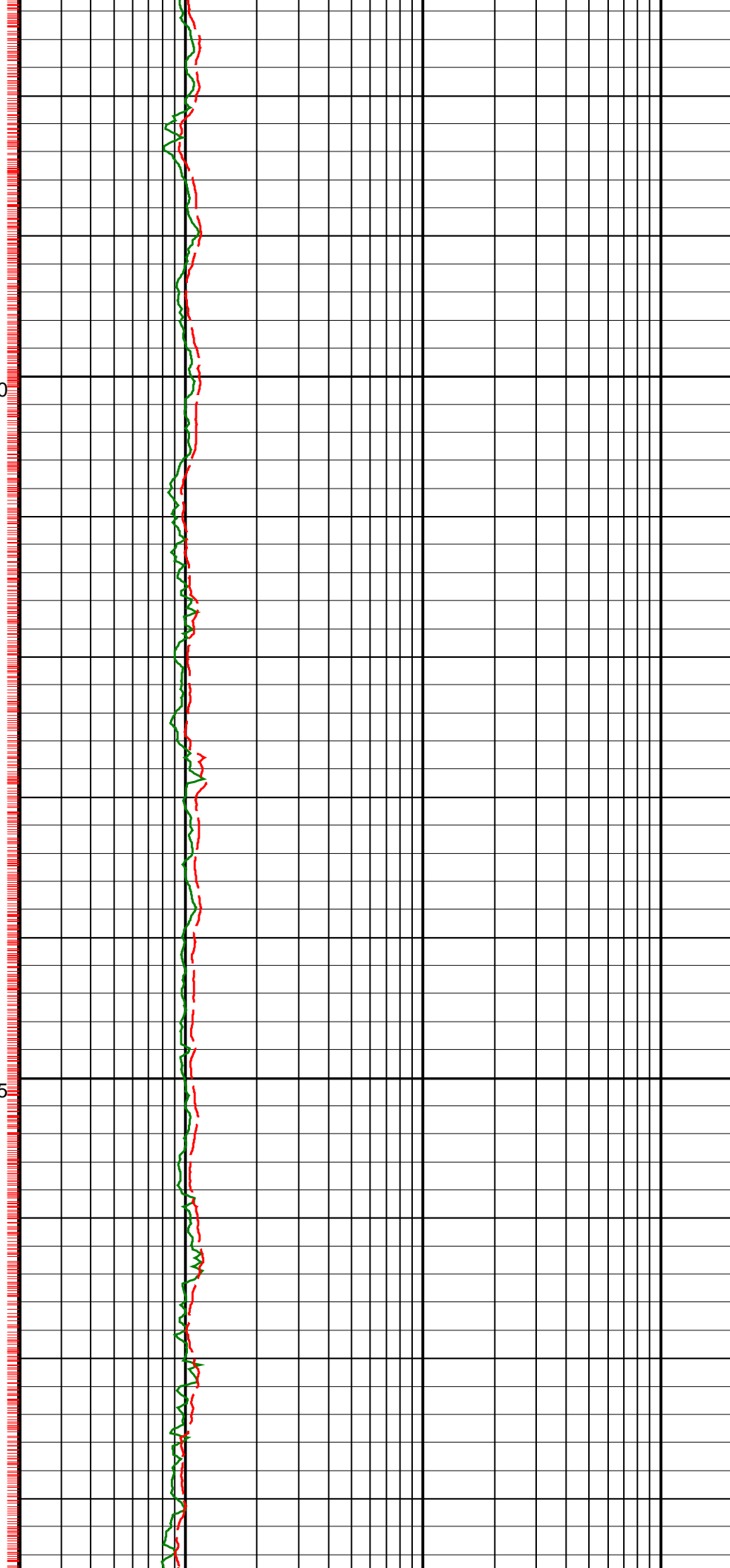
2175

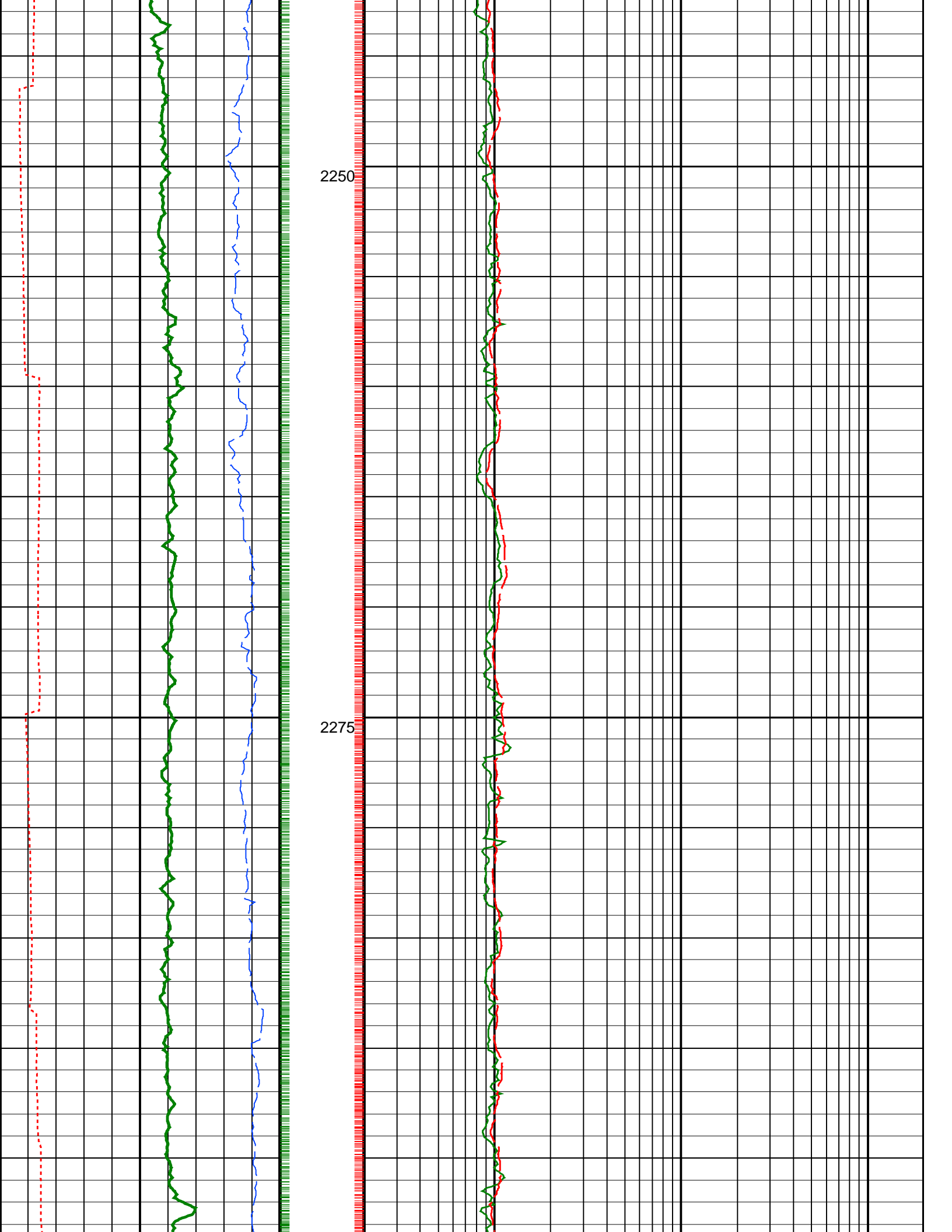


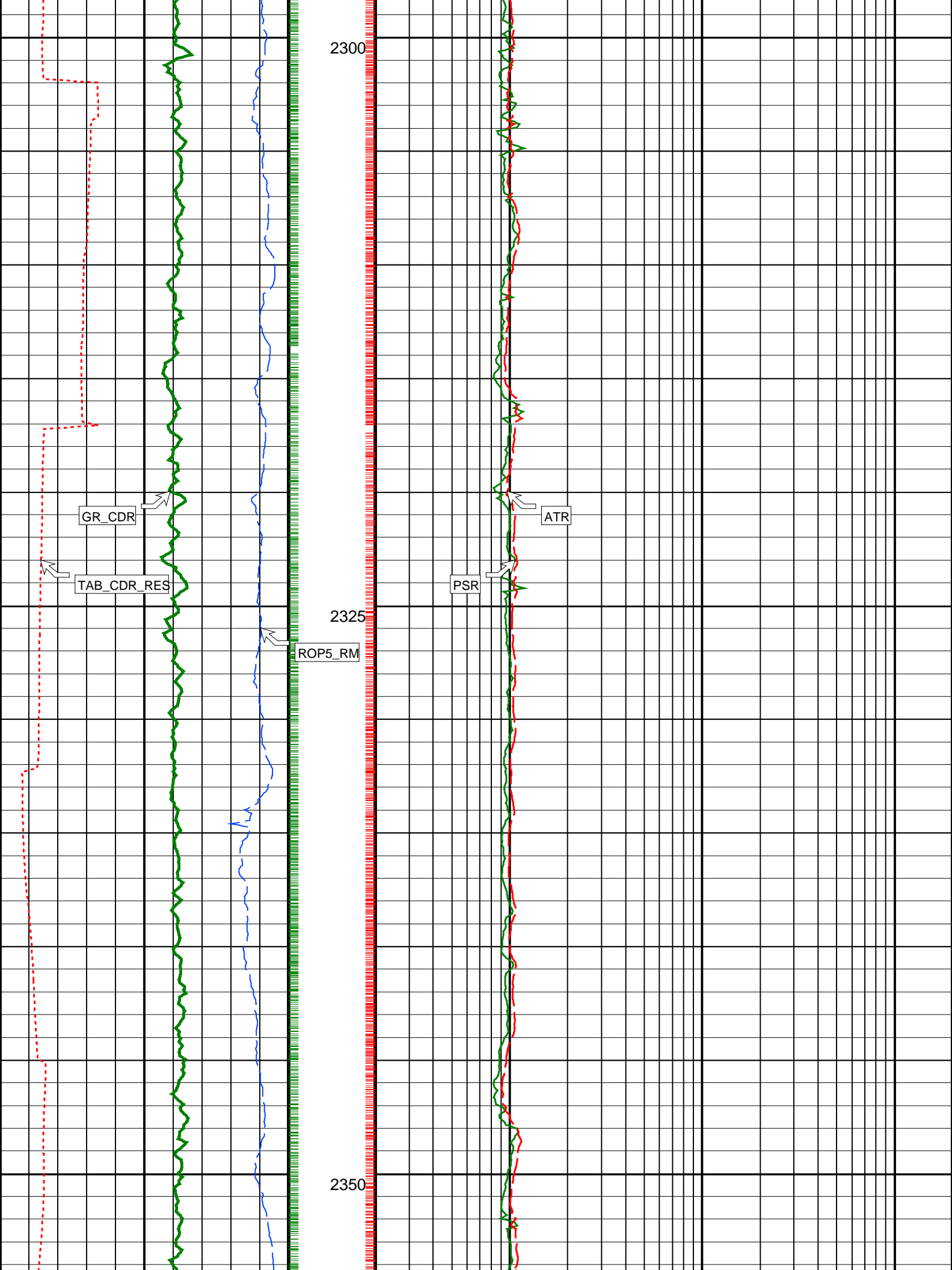


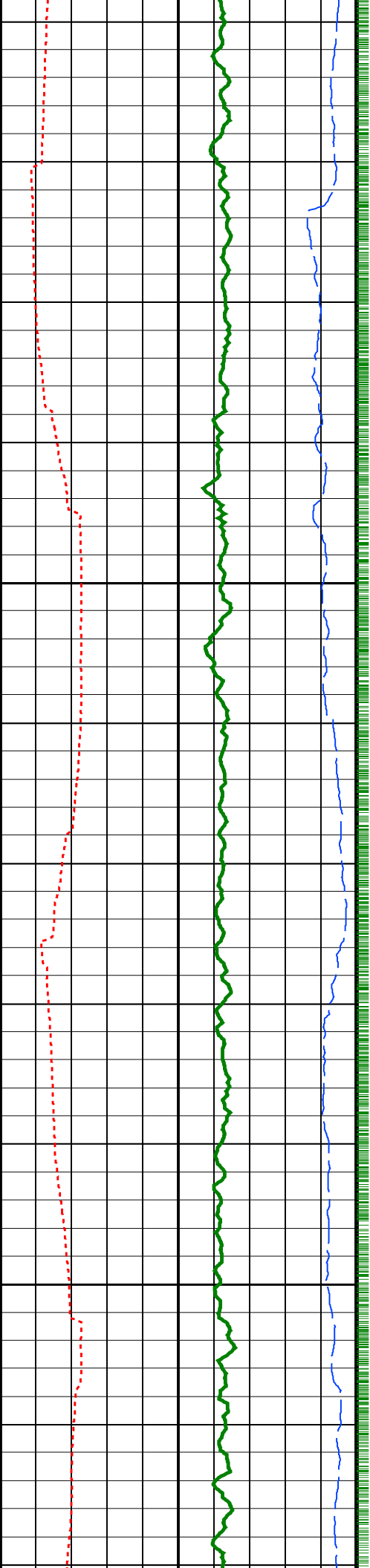
2200

2225



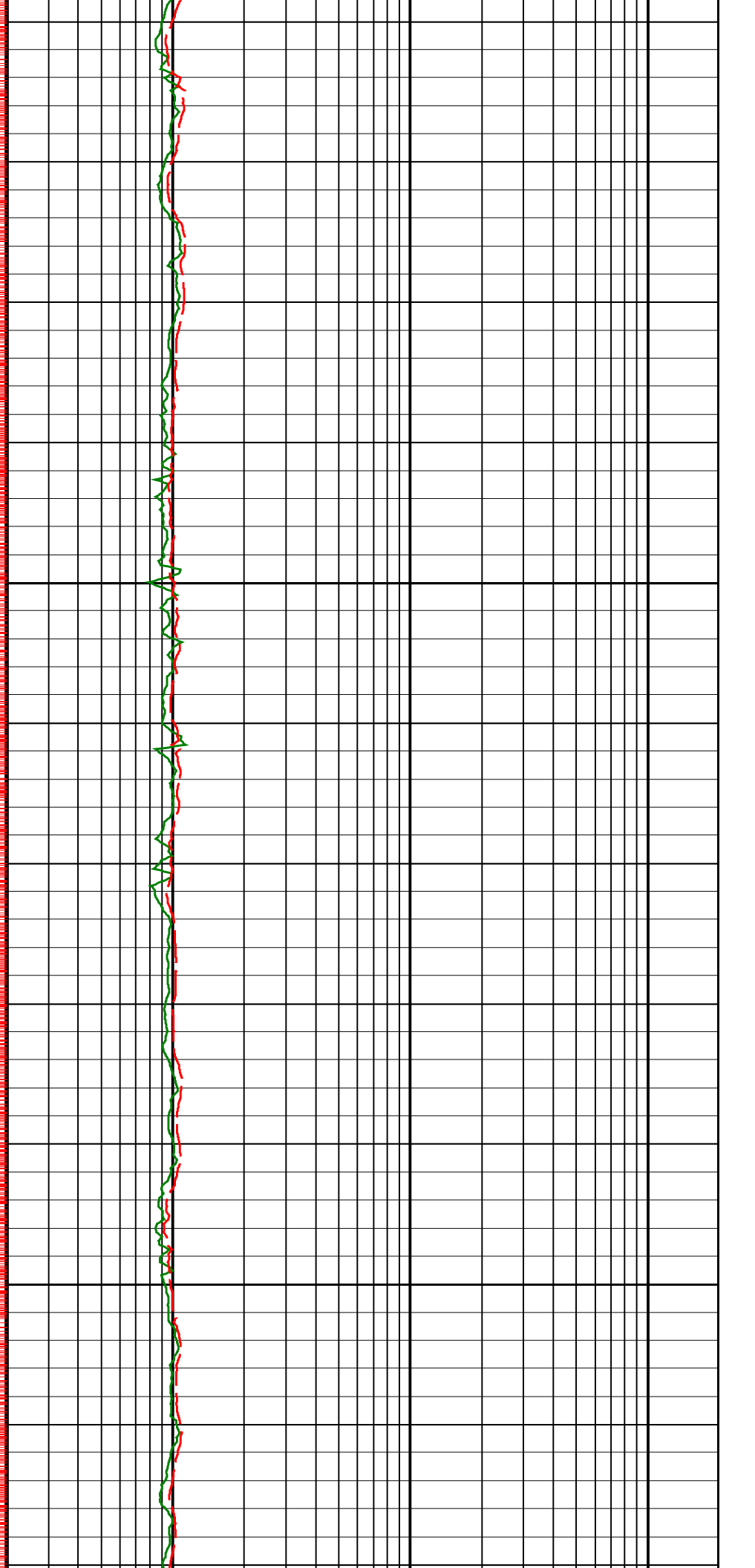


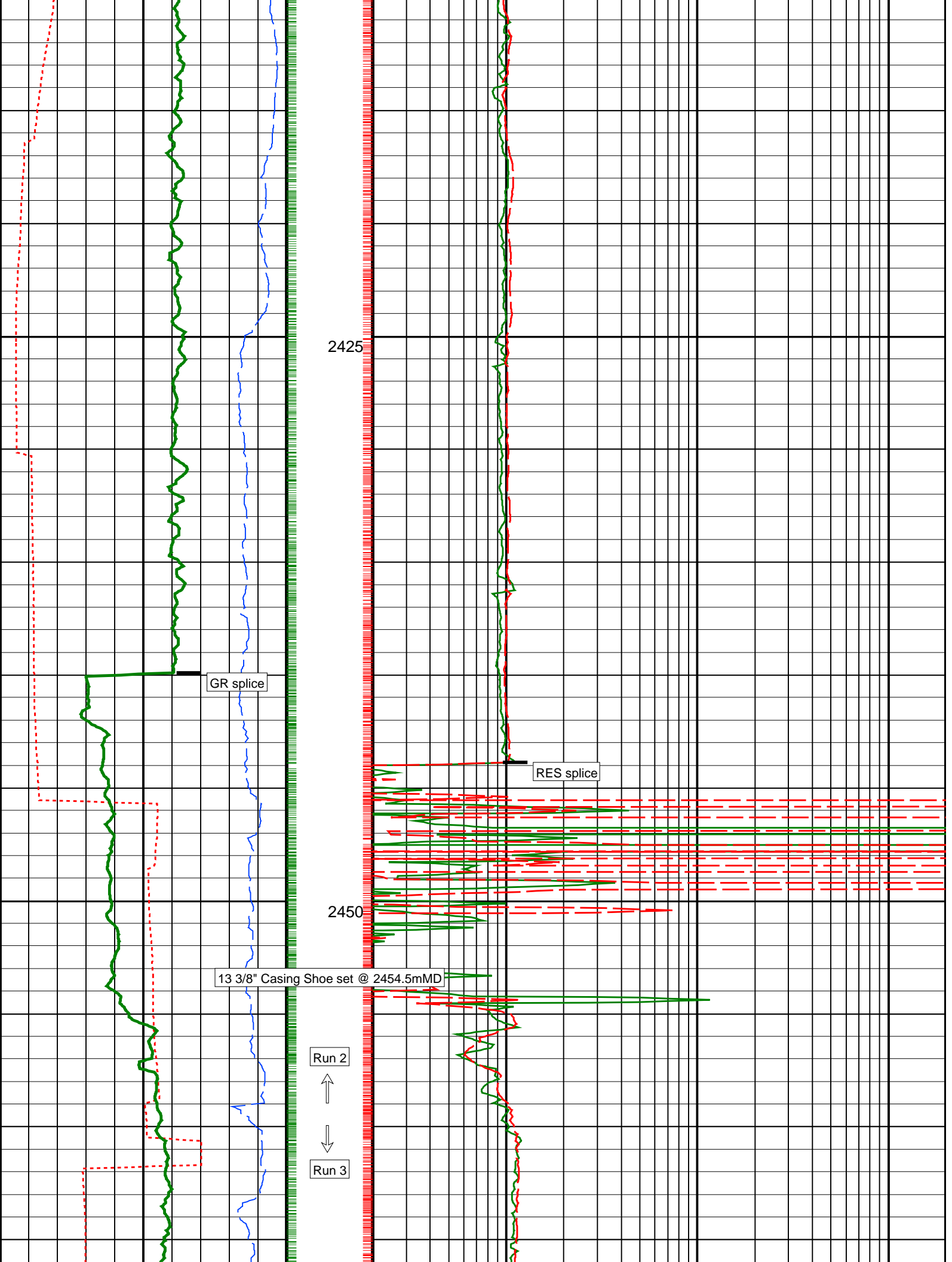


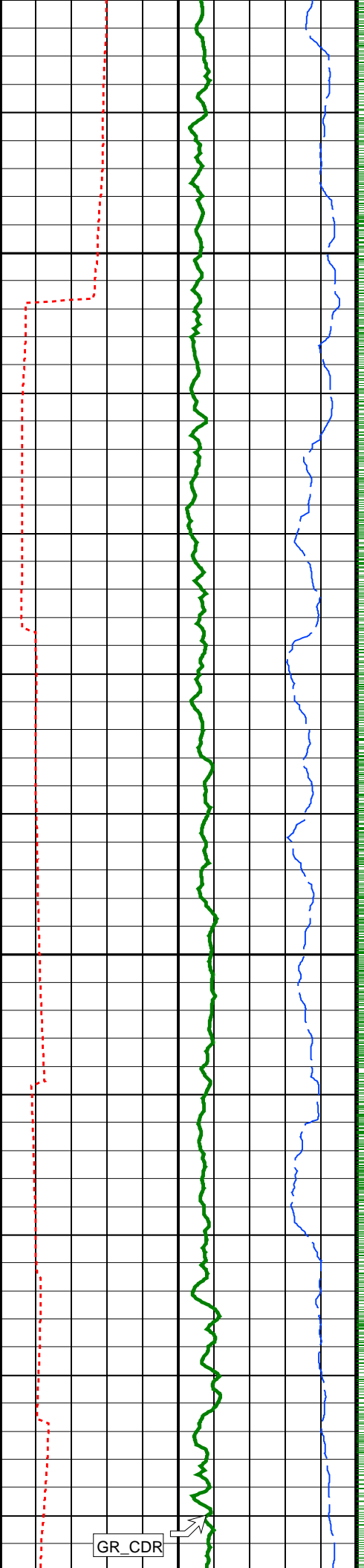


2375

2400

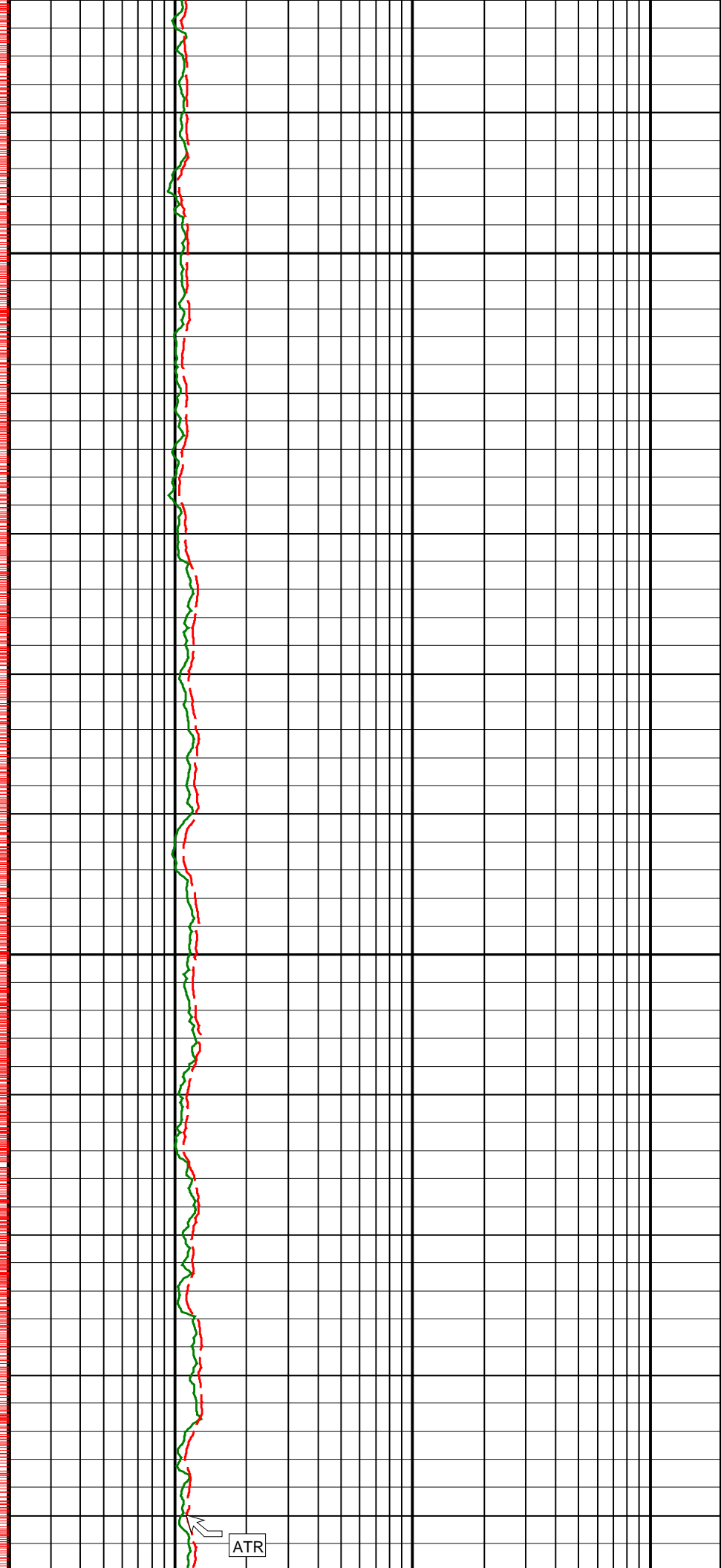






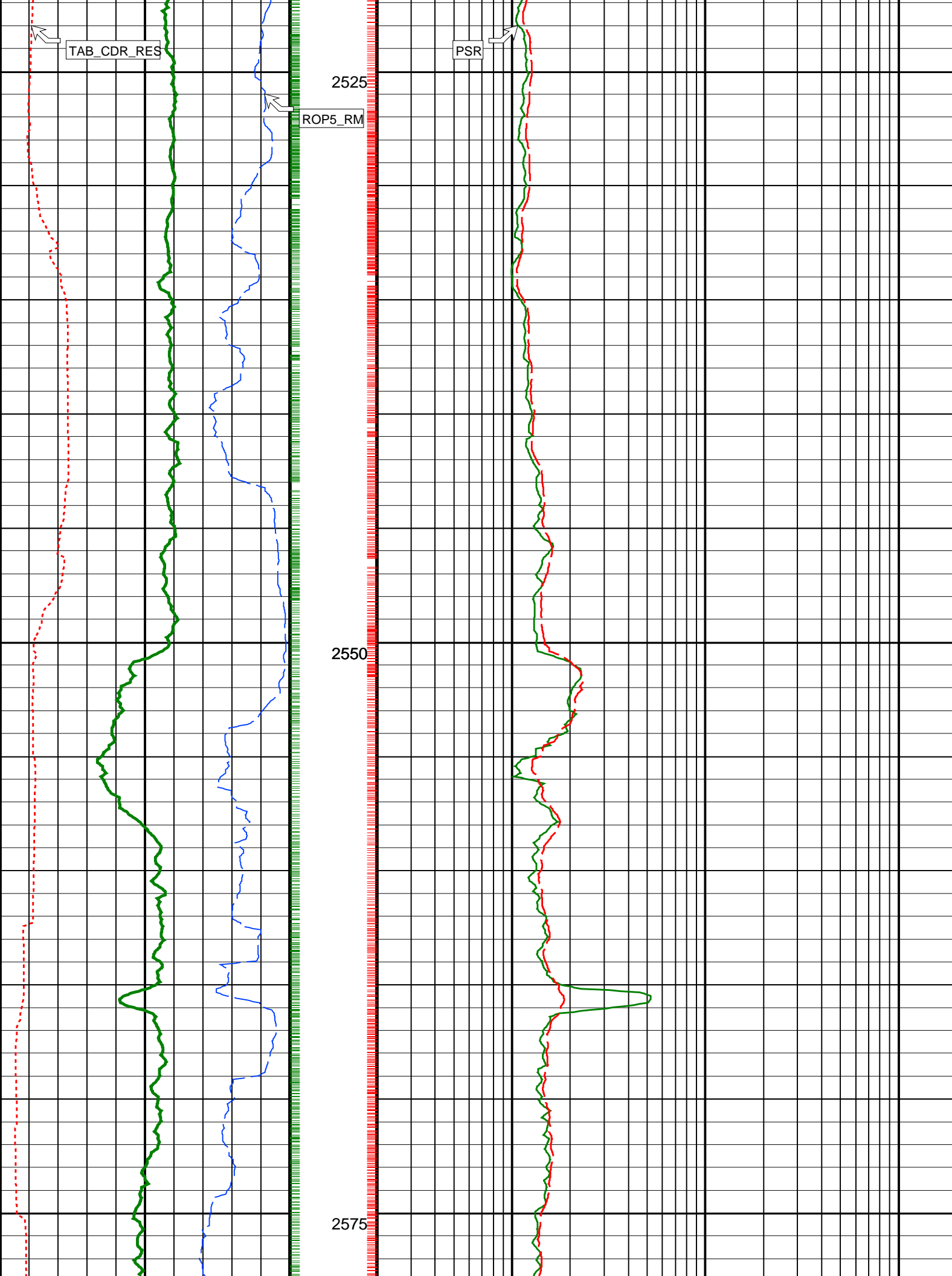
2475

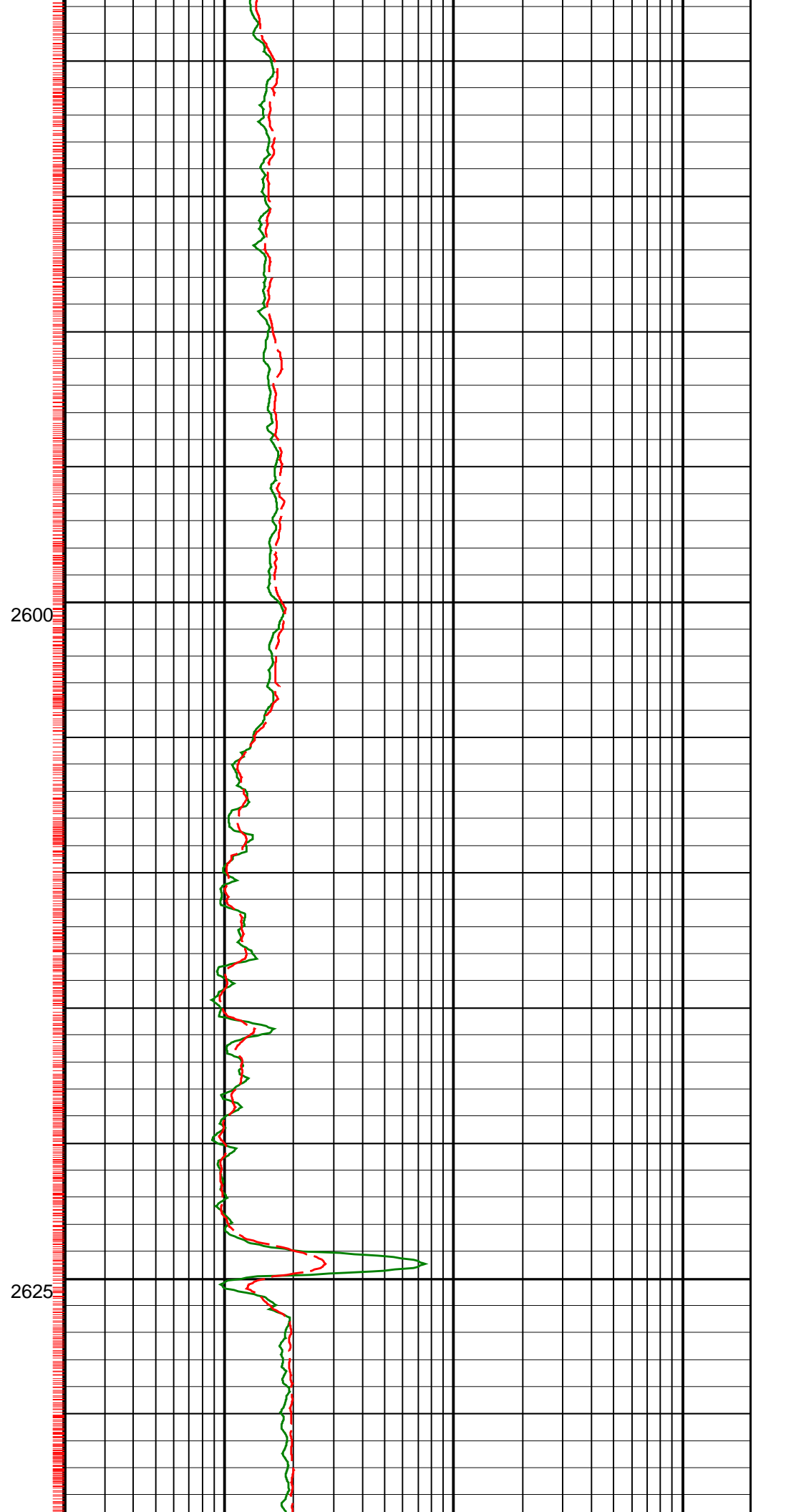
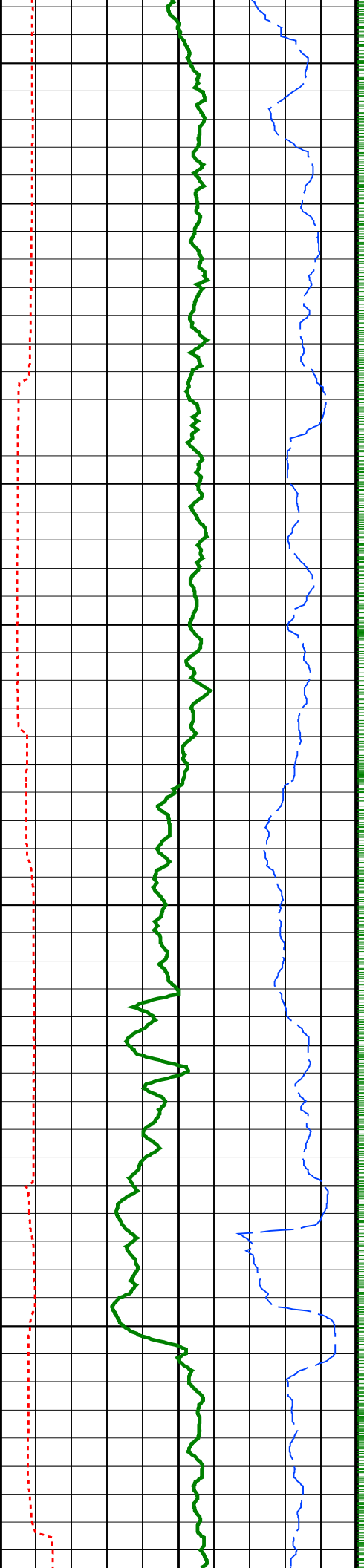
2500

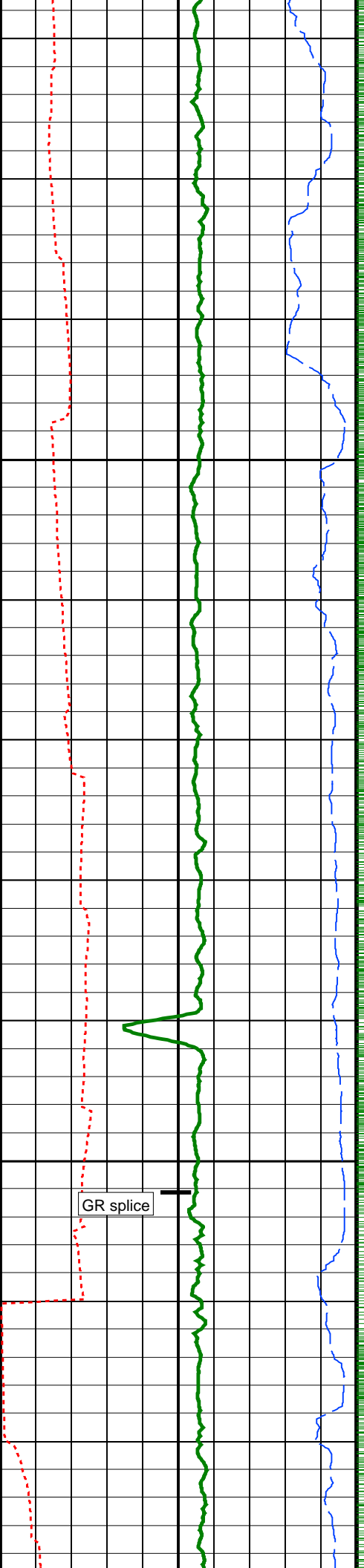


GR_CDR

ATR

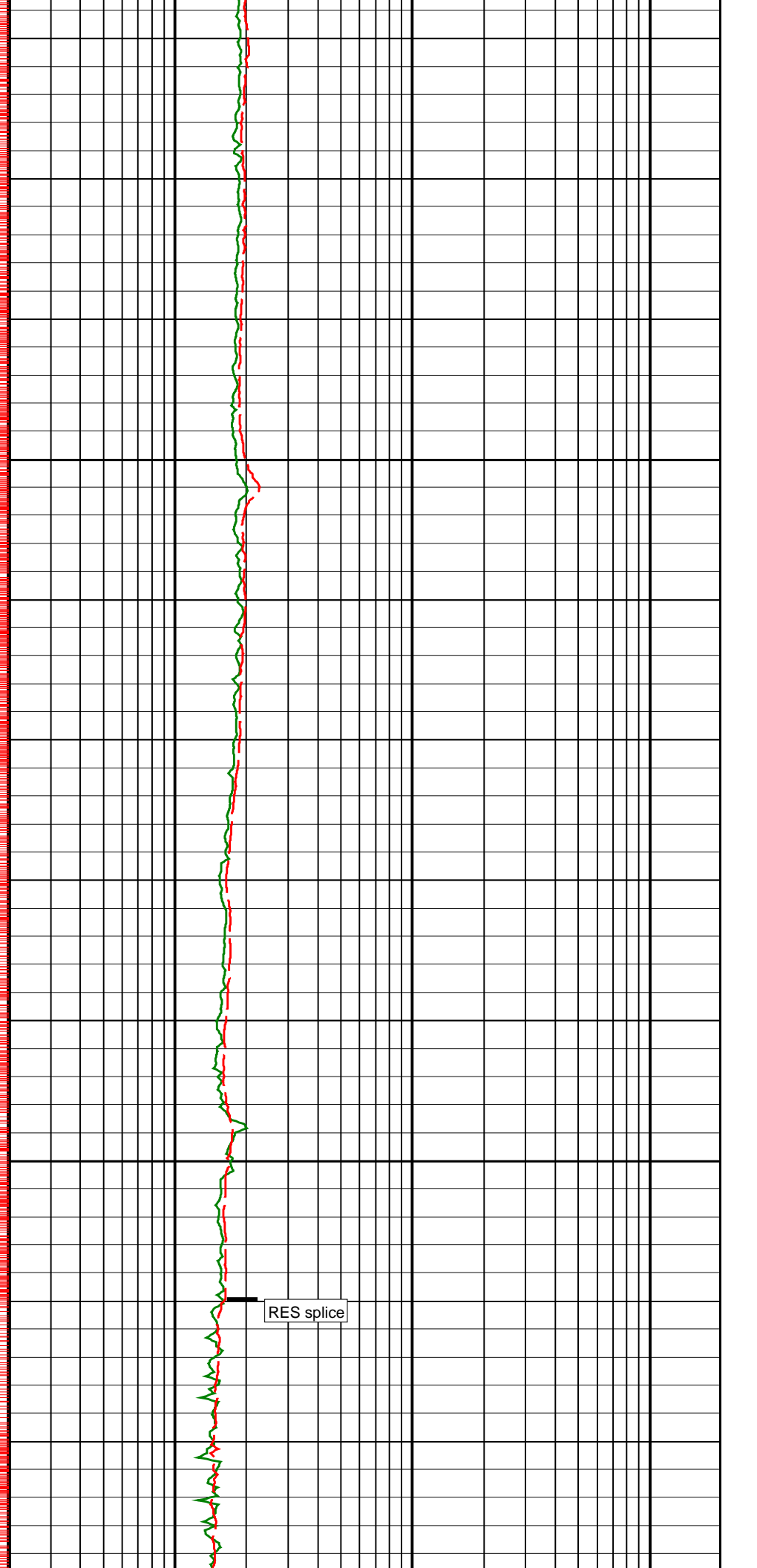


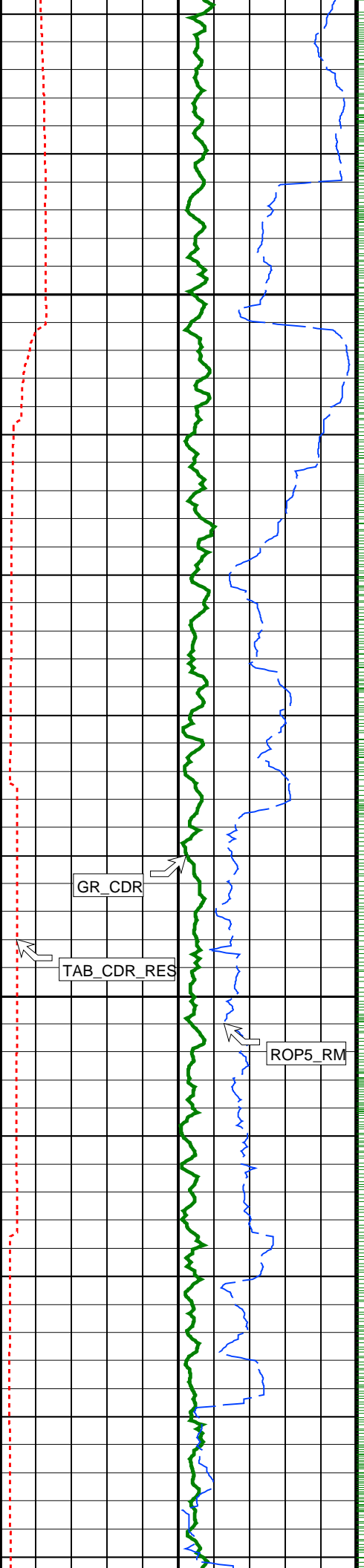




2650

2675





Run 3

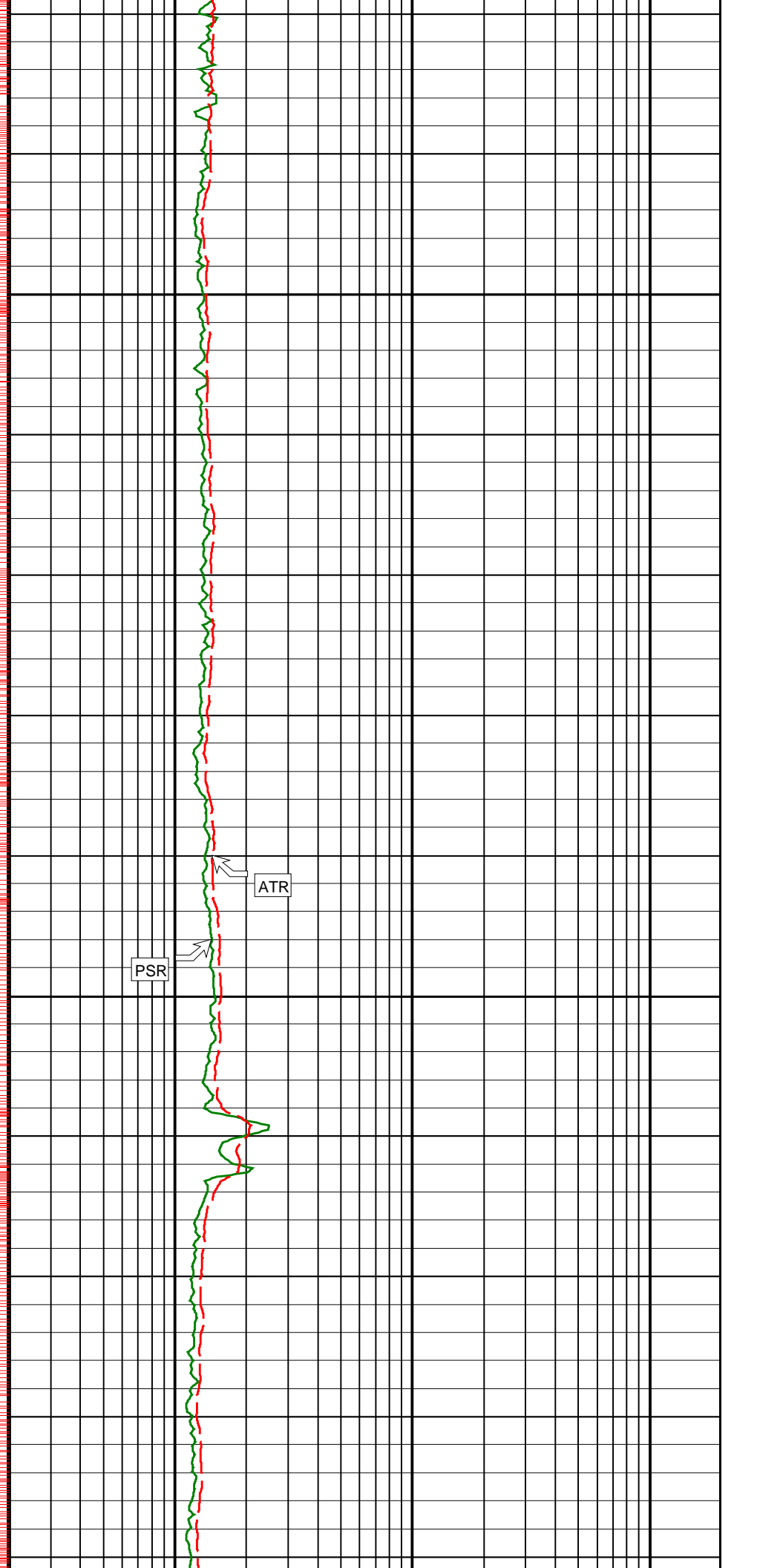


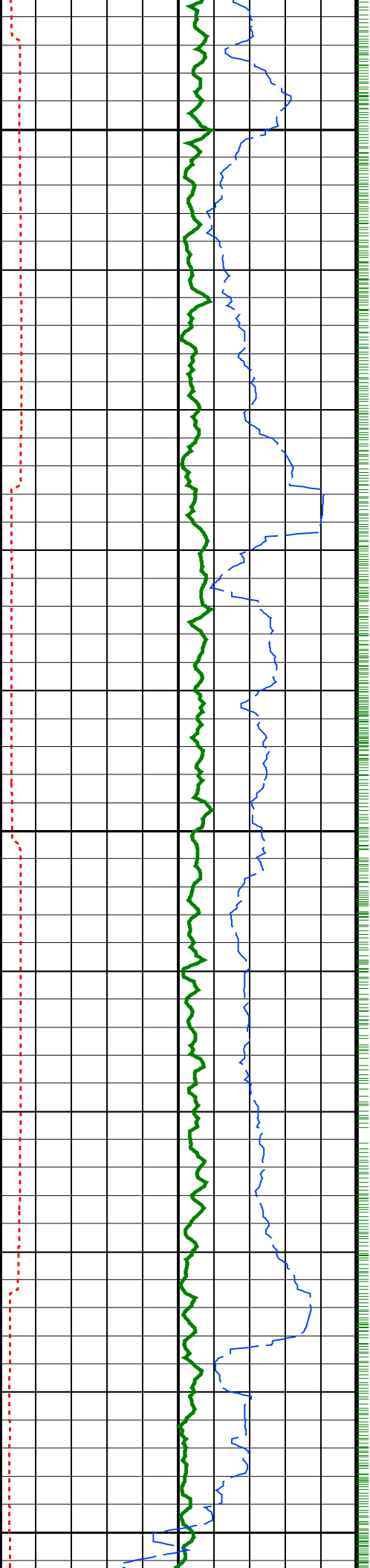
Run 4



2700

2725

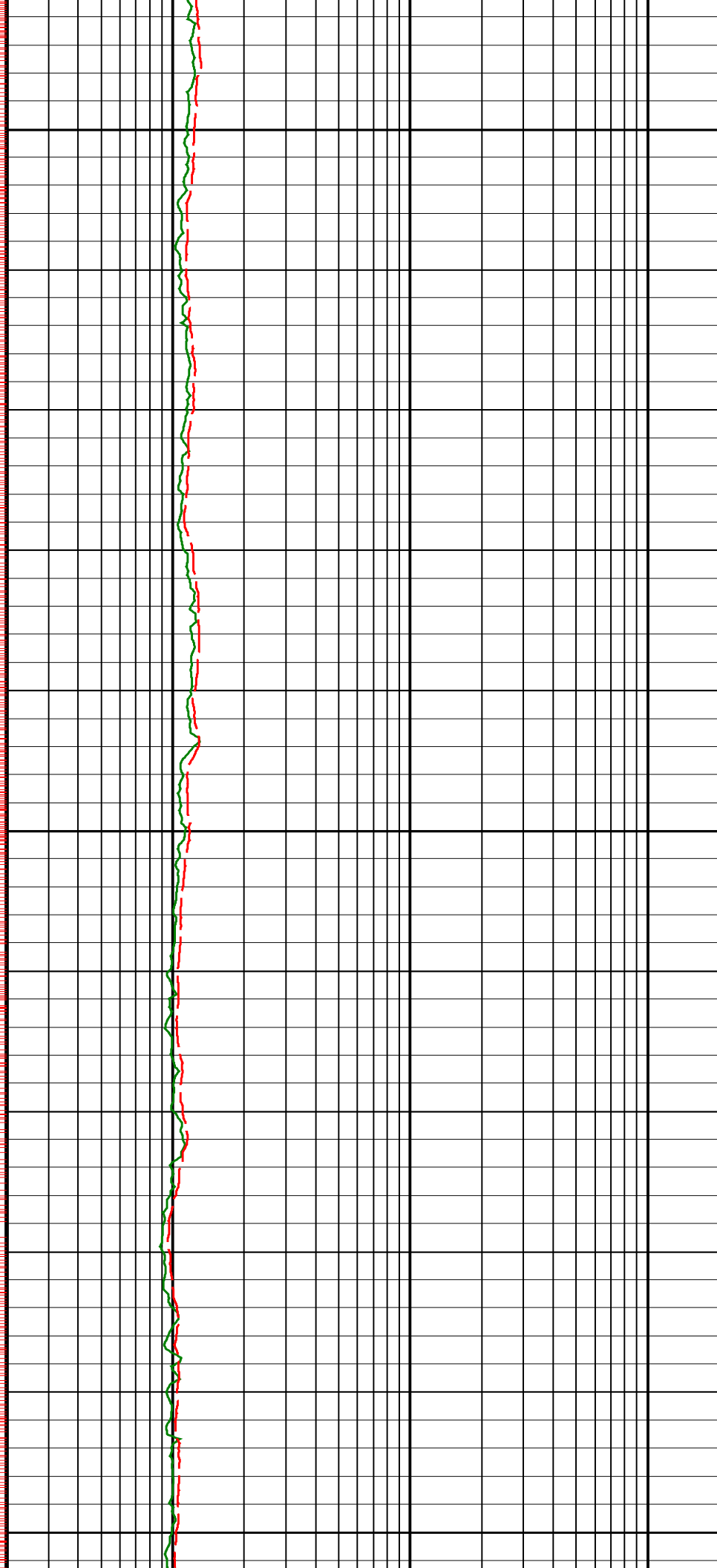


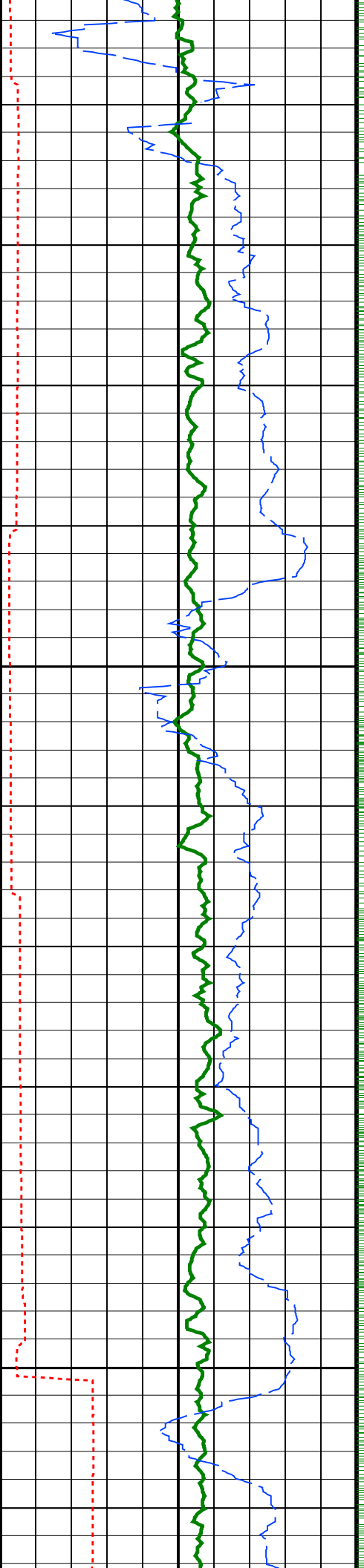


2750

2775

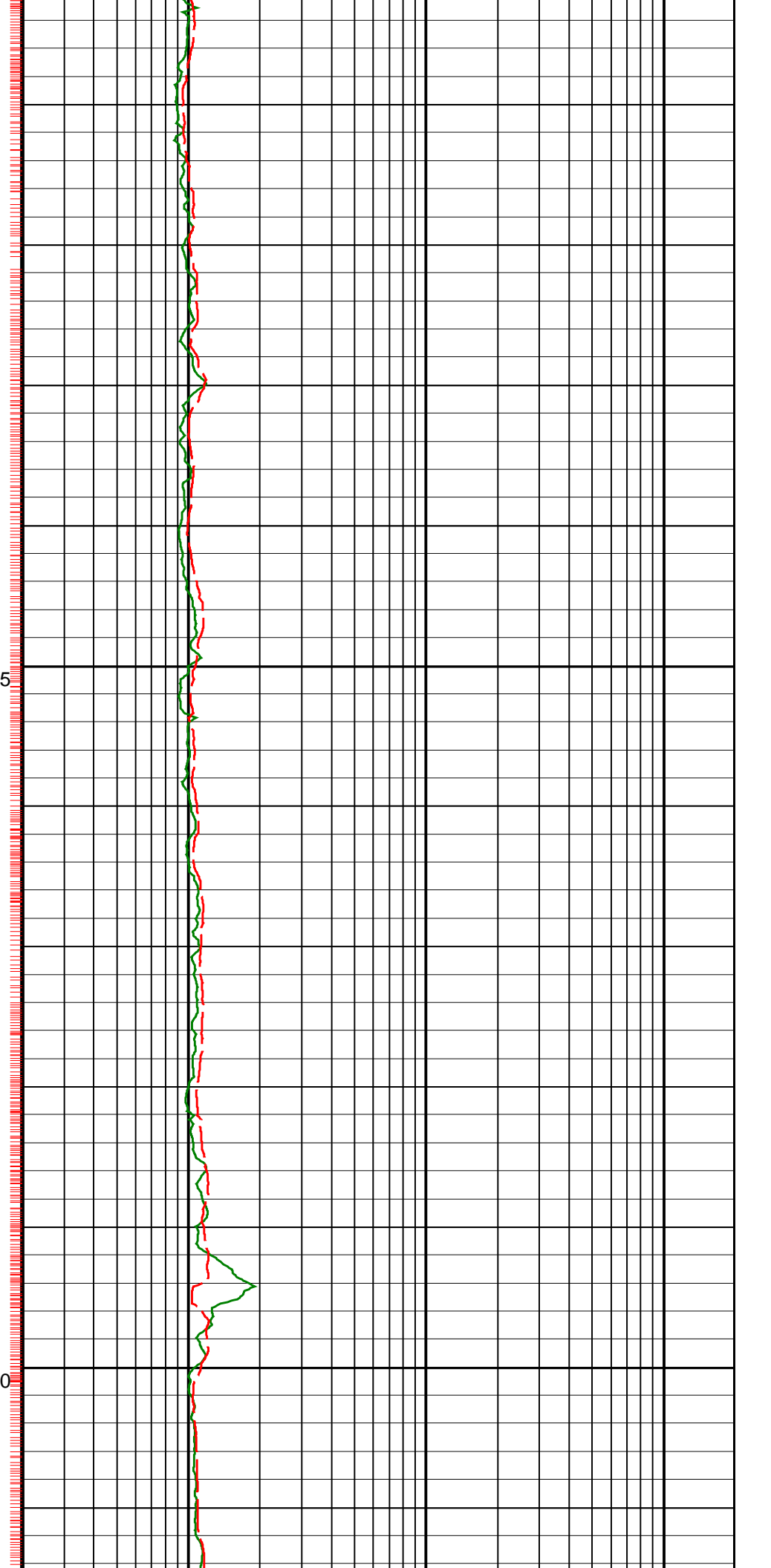
2800

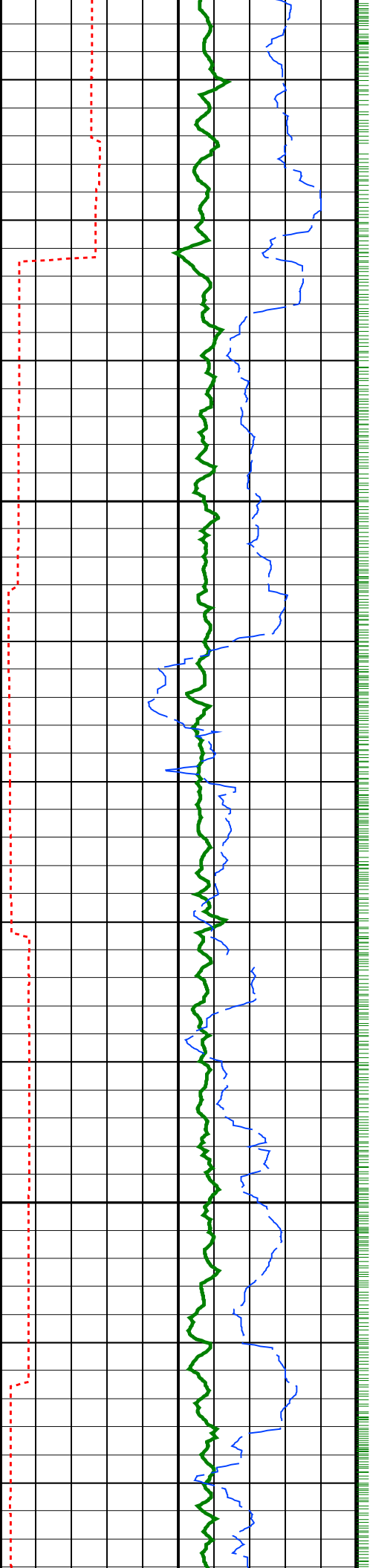




2825

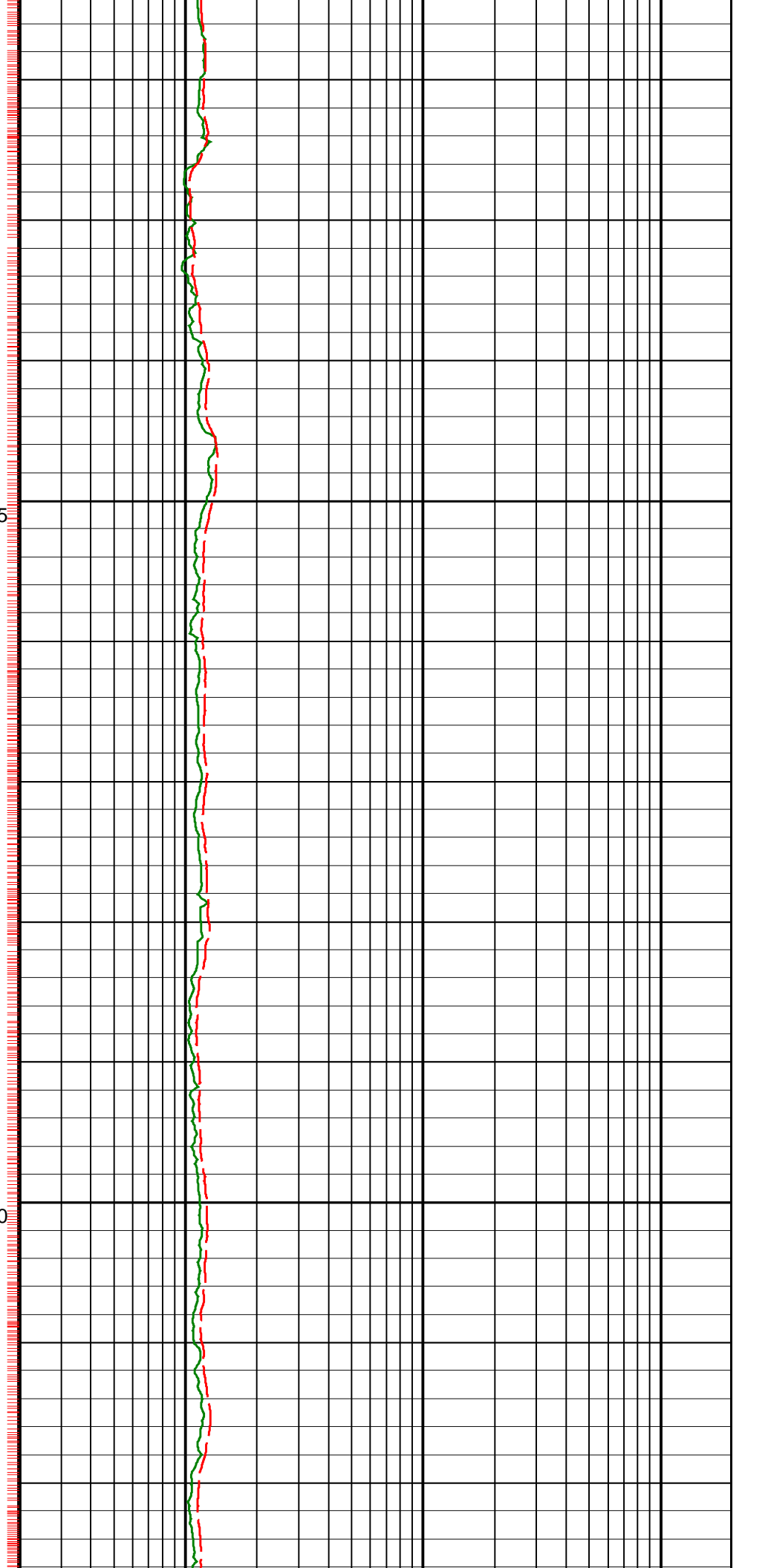
2850

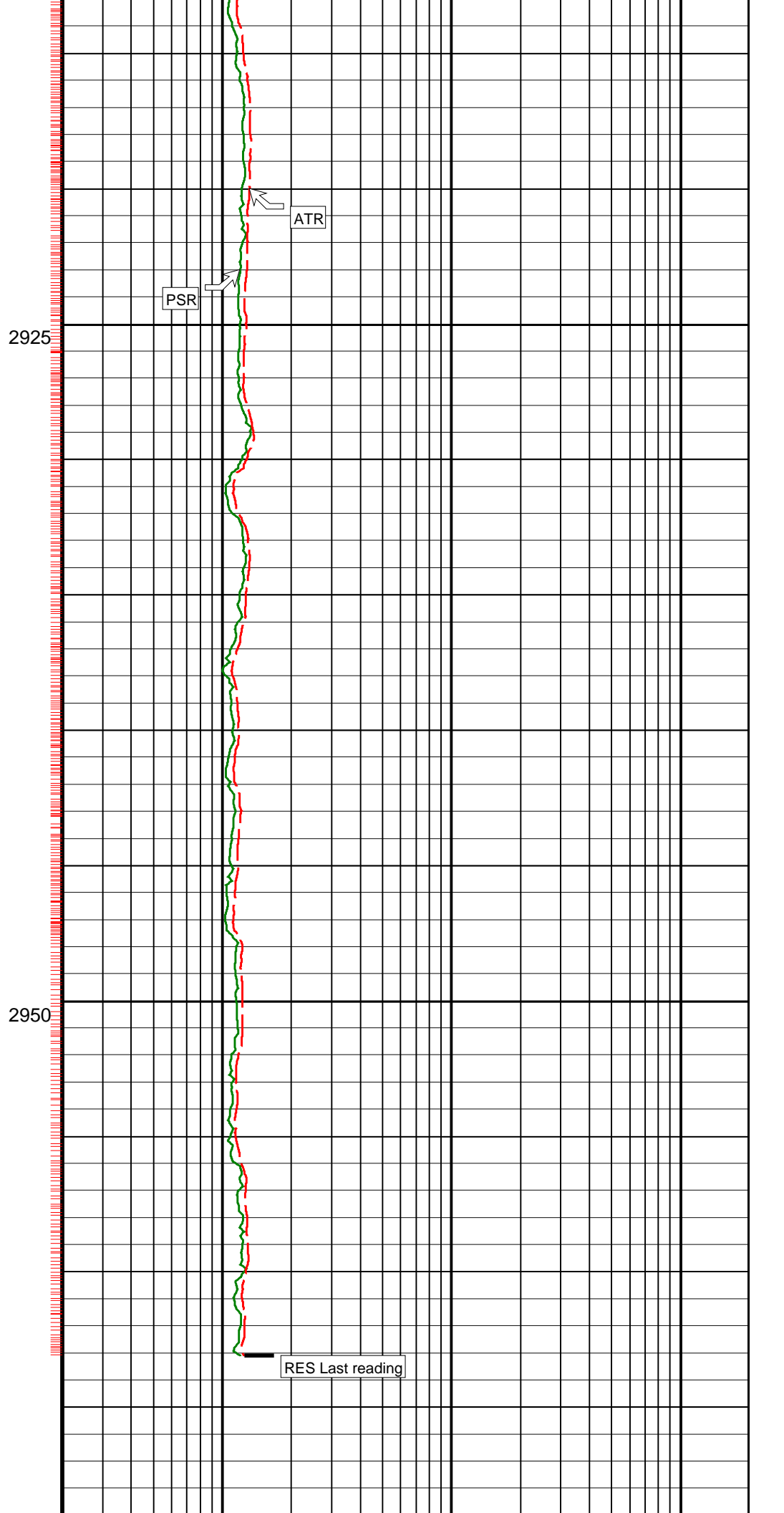
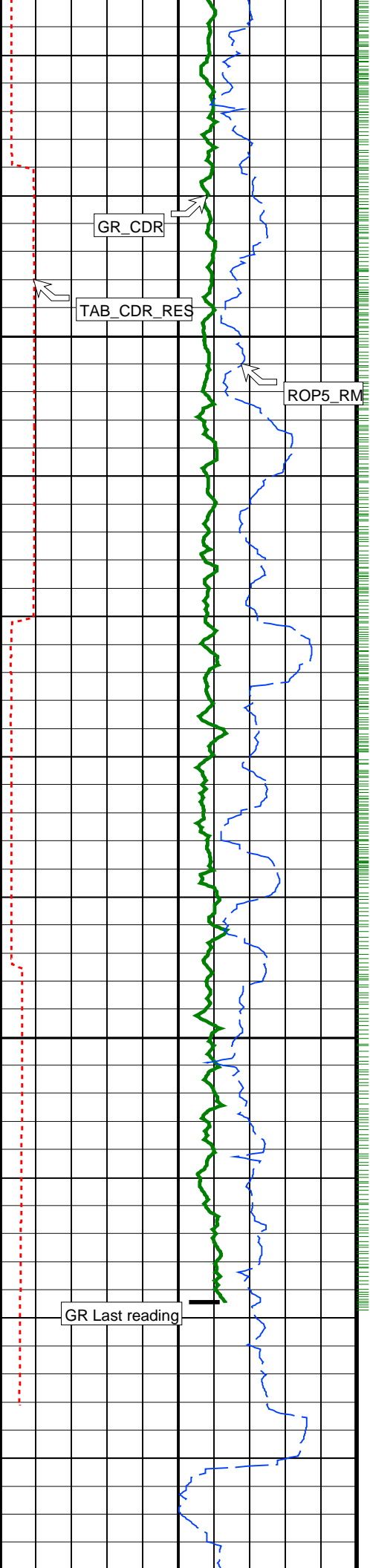


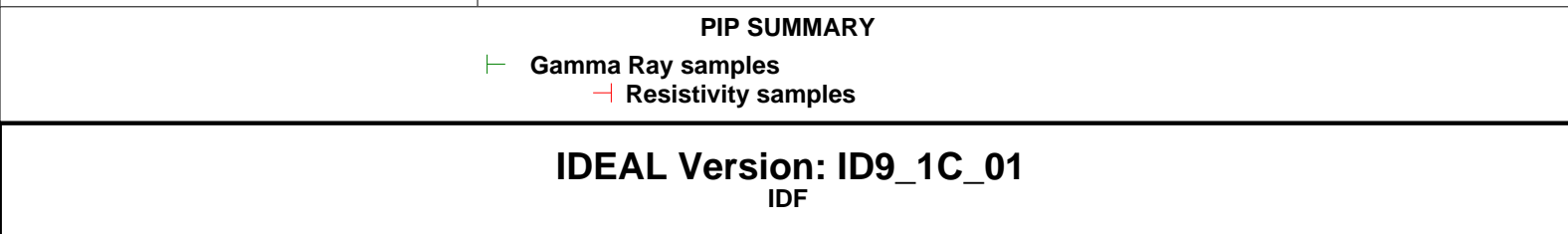


2875

2900







Master: 2-Oct-2004 7:55			
9.50-in. Compensated Dual Resistivity Calibration			
Gamma Ray: Blanket			
Phase	Gain		Value
Master			0.9923
	0.8000 (Minimum)	1.000 (Nominal)	1.200 (Maximum)

8.25-in. Compensated Dual Resistivity / Equipment Identification

Primary Equipment:

Tool Name and Serial Number

Gamma Ray Type

Calibration Status

CDR8 – AA

8001




Plat – GR

-

Master: 3–Nov–2004 2:01

8.25-in. Compensated Dual Resistivity Calibration




Resistivity: Air

Phase	Attenuation down DB	Value	Phase	Attenuation up DB	Value	Phase	BHC attenuation DB	Value
Master		4.993	Master		4.928	Master		4.960
	4.400 (Minimum)	5.000 (Nominal)	5.600 (Maximum)		4.400 (Minimum)	5.000 (Nominal)	5.600 (Maximum)	
					4.900 (Minimum)	5.000 (Nominal)	5.100 (Maximum)	

Master: 3–Nov–2004 2:01

8.25-in. Compensated Dual Resistivity Calibration


Resistivity: Air

Phase	Phase shift down DEG	Value	Phase	Phase shift up DEG	Value	Phase	BHC phase shift DEG	Value
Master		-0.2902	Master		0.6567	Master		0.1833
	-2.400 (Minimum)	0.1000 (Nominal)	2.600 (Maximum)		-2.400 (Minimum)	0.1000 (Nominal)	2.600 (Maximum)	
					-0.9000 (Minimum)	0.1000 (Nominal)	1.100 (Maximum)	

Master: 3–Nov–2004 4:17

8.25-in. Compensated Dual Resistivity Calibration

Gamma Ray: Blanket

Phase	Gain	Value
Master		0.8570
	0.8000 (Minimum)	1.000 (Nominal)
		1.200 (Maximum)

SCHLUMBERGER

Survey report

Client.....: SANTOS – INPEX – UNOCAL
Field.....: Amrit

Well.....: Amrit-1 Spud date.....: 20–Nov–2004
API number.....: Last survey date.....: 07–Dec–04
Engineer.....: D.Borges, L.Watson, O.Radicevic Total accepted surveys....: 44
MD of first survey.....: 0.00 m
RIG.....: Jack Bates MD of last survey.....: 2979.00 m
STATE.....: Victoria

----- Survey calculation methods----- ----- Geomagnetic data -----
Method for positions.....: Minimum curvature Magnetic model.....: BGGM version 2004
Method for DLS.....: Mason & Taylor Magnetic date.....: 20–Nov–2004
Magnetic field strength...: 1221.99 HCNT
----- Depth reference ----- Magnetic dec (+E/W-).....:
Permanent datum.....: LAT Magnetic dip.....: -70.25 degrees
Depth reference.....: Driller's Pipe Tally
GL above permanent.....: -1396.00 m ----- MWD survey Reference Criteria -----
KB above permanent.....: Top Drive Reference G.....: 1000.09 mGal
DF above permanent.....: 29.00 m Reference H.....: 1221.99 HCNT
Reference Dip.....: -70.25 degrees
----- Vertical section origin----- Tolerance of G.....: (+/-)
Latitude (+N/S-).....: 0.00 m Tolerance of H.....: (+/-) 6.00 HCNT
Departure (+E/W-).....: 0.00 m Tolerance of Dip.....: (+/-) 0.45 degrees

----- Platform reference point----- ----- Corrections -----
Latitude (+N/S-).....: 0.00 m Magnetic dec (+E/W-).....: 10.48 degrees
Departure (+E/W-).....: 0.00 m Grid convergence (+E/W-).....: -0.46 degrees
Total az corr (+E/W-).....: 10.94 degrees
Azimuth from Vsect Origin to target: 0.00 degrees (Total az corr = magnetic dec – grid conv)
Survey Correction Type ...:
I=Sag Corrected Inclination
M=Schlumberger Magnetic Correction
S=Shell Magnetic Correction
F=Failed Axis Correction
P=Platform Tilt Correction

[(c)2004 IDEAL ID9 1C 011]

#	depth	angle	angle	length	depth	section	+N/S-	+E/W-	displ	Azim	(deg/	tool	Corr
-	(m)	(deg)	(deg)	(m)	(m)	(m)	(m)	(m)	(deg)	10m)	type	(deg)	
1	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	TIP	None	
2	1425.49	0.59	234.33	1425.49	1425.46	-4.28	-4.28	-5.96	7.34	234.33	0.00	MWD	None
3	1454.01	1.07	295.89	28.52	1453.98	-4.25	-4.25	-6.32	7.62	236.09	0.33	MWD	None
4	1487.29	0.97	129.33	33.28	1487.26	-4.29	-4.29	-6.38	7.69	236.08	0.61	MWD	None
5	1510.95	0.86	56.64	23.66	1510.92	-4.32	-4.32	-6.08	7.46	234.60	0.46	MWD	None
6	1539.34	0.80	303.78	28.39	1539.31	-4.09	-4.09	-6.07	7.32	235.99	0.49	MWD	None
7	1568.02	0.85	315.97	28.68	1567.98	-3.83	-3.83	-6.38	7.44	239.03	0.06	MWD	None
8	1595.59	0.53	308.57	27.57	1595.55	-3.60	-3.60	-6.62	7.54	241.45	0.12	MWD	None
9	1624.12	0.56	304.38	28.53	1624.08	-3.44	-3.44	-6.84	7.66	243.29	0.02	MWD	None
10	1653.18	0.34	298.89	29.06	1653.14	-3.32	-3.32	-7.03	7.78	244.73	0.08	MWD	None
11	1681.34	0.26	305.03	28.16	1681.30	-3.24	-3.24	-7.16	7.86	245.63	0.03	MWD	None
12	1709.52	0.31	319.56	28.18	1709.48	-3.15	-3.15	-7.26	7.91	246.56	0.03	MWD	None
13	1737.89	0.40	311.67	28.37	1737.85	-3.02	-3.02	-7.38	7.98	247.73	0.04	MWD	None
14	1766.33	0.35	299.78	28.44	1766.29	-2.92	-2.92	-7.53	8.08	248.85	0.03	MWD	None
15	1809.32	0.26	261.27	42.99	1809.28	-2.86	-2.86	-7.74	8.26	249.70	0.05	MWD	None
16	1849.73	0.23	231.00	40.41	1849.69	-2.93	-2.93	-7.90	8.42	249.65	0.03	MWD	None
17	1878.02	0.37	193.70	28.29	1877.98	-3.05	-3.05	-7.96	8.53	249.02	0.08	MWD	None
18	1908.10	0.34	223.98	30.08	1908.06	-3.21	-3.21	-8.05	8.67	248.24	0.06	MWD	None
19	1935.76	0.18	265.57	27.66	1935.72	-3.28	-3.28	-8.15	8.78	248.11	0.09	MWD	None
20	1963.97	0.17	252.91	28.21	1963.92	-3.29	-3.29	-8.23	8.87	248.21	0.01	MWD	None
21	1991.95	0.12	204.40	27.98	1991.90	-3.33	-3.33	-8.29	8.93	248.11	0.05	MWD	None
22	2020.87	0.20	231.00	28.92	2020.82	-3.39	-3.39	-8.34	9.00	247.88	0.04	MWD	None
23	2049.42	0.23	223.20	28.55	2049.37	-3.46	-3.46	-8.41	9.10	247.64	0.01	MWD	None
24	2077.78	0.26	214.74	28.36	2077.73	-3.56	-3.56	-8.49	9.21	247.27	0.02	MWD	None
25	2105.32	0.33	183.75	27.54	2105.27	-3.69	-3.69	-8.53	9.29	246.63	0.06	MWD	None
26	2134.71	0.29	176.46	29.39	2134.66	-3.85	-3.85	-8.53	9.36	245.74	0.02	MWD	None
27	2162.92	0.22	203.34	28.21	2162.87	-3.97	-3.97	-8.55	9.42	245.11	0.05	MWD	None
28	2192.60	0.14	180.37	29.68	2192.55	-4.06	-4.06	-8.57	9.48	244.68	0.04	MWD	None
29	2220.68	0.29	203.20	28.08	2220.63	-4.15	-4.15	-8.60	9.55	244.21	0.06	MWD	None
30	2248.46	0.15	220.05	27.78	2248.41	-4.25	-4.25	-8.65	9.64	243.85	0.05	MWD	None
31	2277.42	0.31	183.89	28.96	2277.37	-4.35	-4.35	-8.68	9.71	243.36	0.07	MWD	None
32	2306.21	0.34	216.07	28.79	2306.16	-4.50	-4.50	-8.74	9.83	242.74	0.06	MWD	None
33	2334.13	0.40	185.07	27.92	2334.08	-4.67	-4.67	-8.79	9.95	242.05	0.07	MWD	None
34	2361.66	0.37	221.08	27.53	2361.61	-4.83	-4.83	-8.86	10.09	241.42	0.09	MWD	None
35	2390.55	0.33	232.85	28.89	2390.50	-4.95	-4.95	-8.99	10.26	241.17	0.03	MWD	None
36	2419.57	0.32	200.20	29.02	2419.52	-5.08	-5.08	-9.08	10.40	240.81	0.06	MWD	None
37	2433.15	0.24	208.59	13.58	2433.10	-5.14	-5.14	-9.11	10.46	240.59	0.07	MWD	None
38	2476.28	0.50	232.35	43.13	2476.23	-5.33	-5.33	-9.30	10.72	240.19	0.07	MWD	None
39	2534.29	0.33	216.60	58.01	2534.24	-5.62	-5.62	-9.60	11.13	239.67	0.04	MWD	None
40	2649.13	0.37	195.11	114.84	2649.07	-6.24	-6.24	-9.90	11.70	237.76	0.01	MWD	None
41	2762.85	0.23	199.79	113.72	2762.79	-6.81	-6.81	-10.07	12.16	235.92	0.01	MWD	None
42	2878.16	0.23	190.81	115.31	2878.10	-7.26	-7.26	-10.19	12.51	234.55	0.00	MWD	None
43	2950.00	0.26	140.59	71.84	2949.94	-7.52	-7.52	-10.11	12.61	233.35	0.03	MWD	None
44	2979.00	0.26	140.59	29.00	2978.94	-7.63	-7.63	-10.03	12.60	232.76	0.00	Proj. to TD	

[(c)2004 IDEAL ID9_1C_011]

Company: **SANTOS – INPEX – UNOCAL****Schlumberger**Well: **Amrit-1**Field: **Exploration**Rig: **Jack Bates****VIC-P-52**State: **Victoria**

CDR – Resistivity
1:200 Measured Depth
Recorded Mode Data

