

Company: ENCANA OIL & GAS (USA) INC

Well: ENCANA FEDERAL 24-10D (K19CNE)

Field: MAMM CREEK

County: GARFIELD

State: COLORADO

County: GARFIELD

Field: MAMM CREEK

Location: SHL: 2330 FSL & 305 FWL

Well: ENCANA FEDERAL 24-10D (K19CNE)

Company: ENCANA OIL & GAS (USA) INC

TEMPERATURE LOG

CCL - TEMPERATURE

SHL: 2330 FSL & 305 FWL

BHL: 1855 FSL & 1760 FEL

Elev.: K.B. 5693.00 ft

G.L. 5671.00 ft

D.F. 5692.00 ft

Permanent Datum: GROUND LEVEL

Elev.: 5671.00 ft

Log Measured From: KELLY BUSHING

Drilling Measured From: KELLY BUSHING

API Serial No. 05-045-20778-00

Section 19

Township 7S

Range 92W

			Run 1	Run 2	Run 3
OIL DATA					
Oil Density					
Water Salinity					
Gas Gravity					
Bo					
Bw					
1/Bg					
Bubble Point Pressure					
Bubble Point Temperature					
Solution GOR					
Maximum Deviation					
CEMENTING DATA					
Primary/Squeeze			Primary		
Casing String No					
Lead Cement Type					
Volume					
Density					
Water Loss					
Additives					
Tail Cement Type					
Volume					
Density					
Water Loss					
Additives					
Expected Cement Top					

Logging Date1-Mar-2013

Run Number1

Depth Driller8285 ft

Schlumberger Depth8202 ft

Bottom Log Interval8202 ft

Top Log Interval0 ft

Casing Fluid TypeFRESH WATER

Salinity

Density8.4 lbm/gal

Fluid Level22 ft

BIT/CASING/TUBING STRING

Bit Size8.750 in

From0 ft

To8285 ft

Casing/Tubing Size4.500 in

Weight11.6 lbm/ft

GradeS80

From22 ft

To8269 ft

Maximum Recorded Temperatures201 degF

Logger On Bottom1-Mar-2013

Unit Number391

Recorded ByJASON BARRY

Witnessed ByENCANA REPRESENTATIVE

Time4:15

LocationGRAND JUNCTION

Logging Date					
Run Number					
Depth Driller					
Schlumberger Depth					
Bottom Log Interval					
Top Log Interval					
Casing Fluid Type					
Salinity					
Density					
Fluid Level					
BIT/CASING/TUBING STRING					
Bit Size					
From					
To					
Casing/Tubing Size					
Weight					
Grade					
From					
To					
Maximum Recorded Temperatures					
Logger On Bottom					
Unit Number					
Recorded By					
Witnessed By					
Time					
Location					

DEPTH SUMMARY LISTING

Date Created: 29-JAN-2013 10:07:01

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	1-25ZT
Serial Number:	6214	Serial Number:	3421	Serial Number:	112136
Calibration Date:	24-APR-2012	Calibration Date:	29-JAN-2013	Length:	19500 FT
Calibrator Serial Number:		Calibrator Serial Number:	174878	Conveyance Method:	Wireline
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10	Rig Type:	LAND
Wheel Correction 1:	-3	Calibration RMS:	13		
Wheel Correction 2:	-4	Calibration Peak Error:	23		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	
Rig Up Length At Bottom:	
Rig Up Length Correction:	
Stretch Correction:	
Tool Zero Check At Surface:	

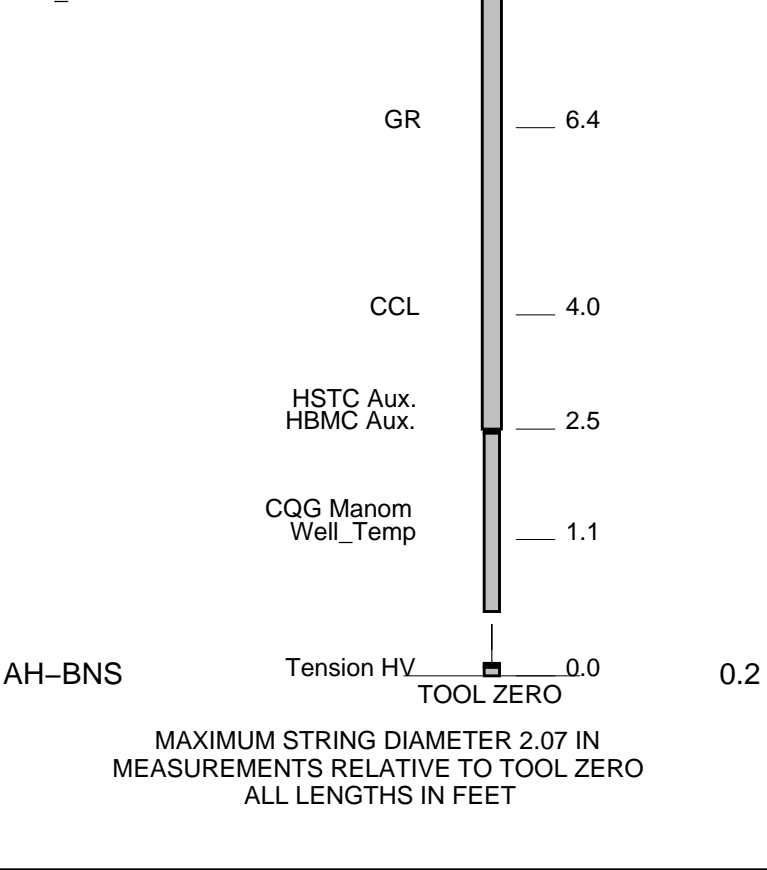
Depth Control Remarks

1. ALL SCHLUMBERGER DEPTH CONTROL POLICIES APPLIED
2. IDW USED AS PRIMARY DEPTH REFERENCE
3. SWPT DRUM COUNTER USED AS SECONDARY DEPTH REFERENCE
- 4.
- 5.
- 6.

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.

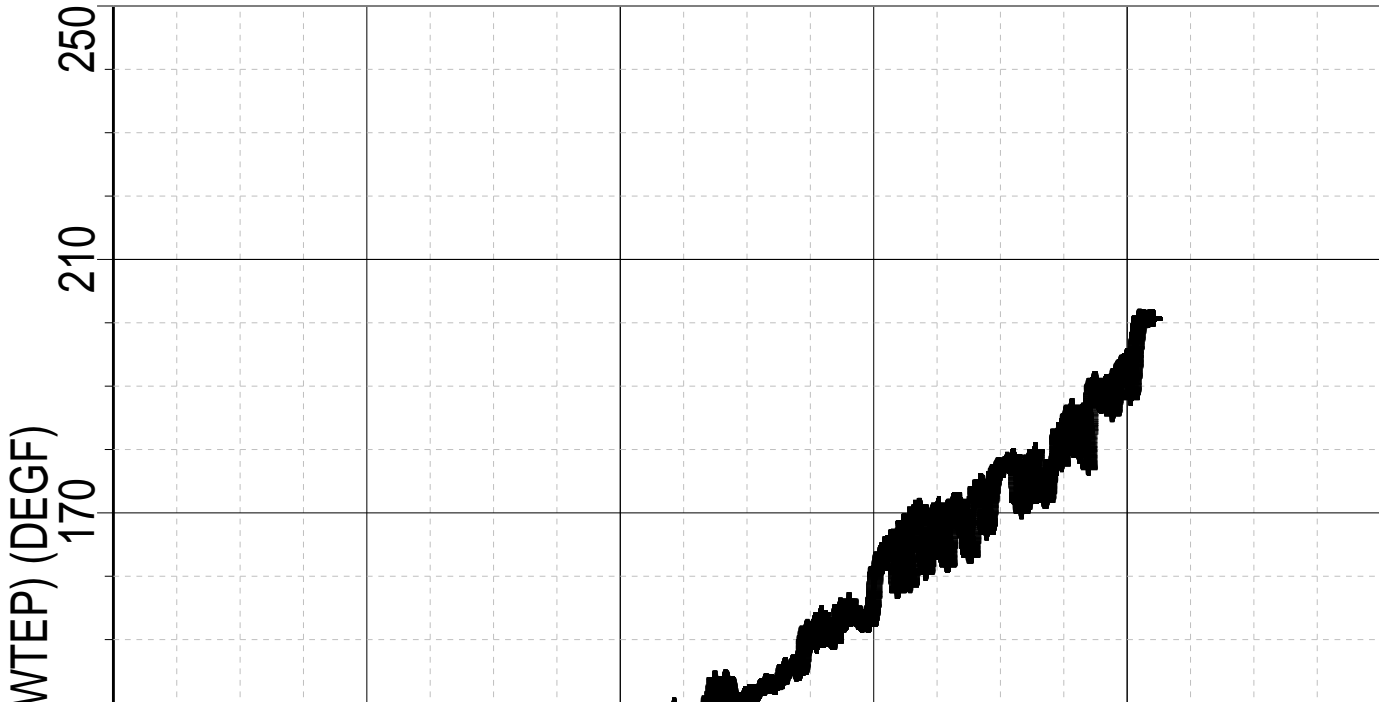
OTHER SERVICES1 OS1: NONE OS2: OS3: OS4: OS5:	OTHER SERVICES2 OS1: OS2: OS3: OS4: OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
FIRST RUN IN HOLE	
TOOL RAN AS PER TOOL SKETCH	
ENTRANCE TIME: 3:30	
TIME ON BOTTOM: 4:15	
EXIT TIME: 5:00	

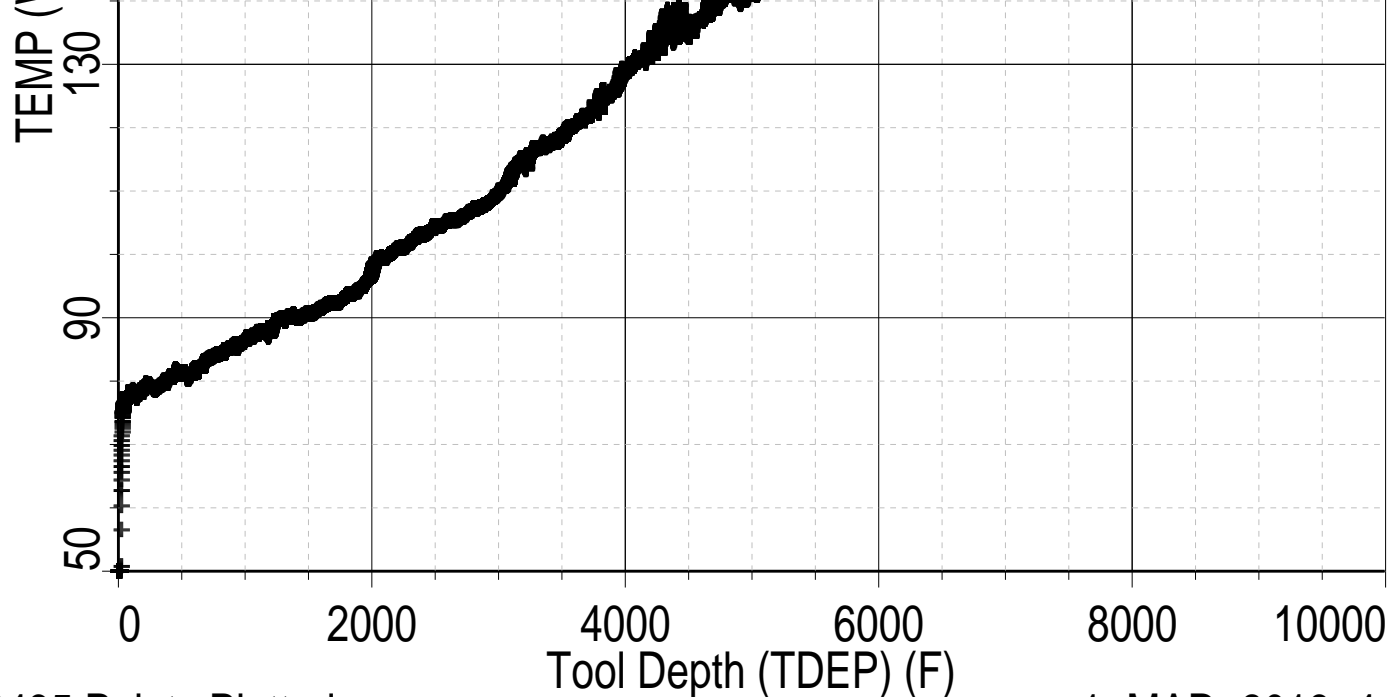


TEMPERATURE PLOT

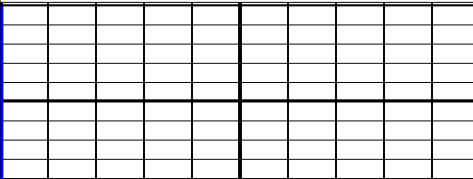
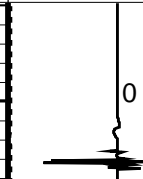
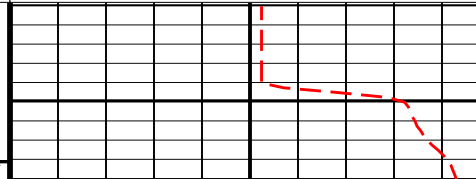
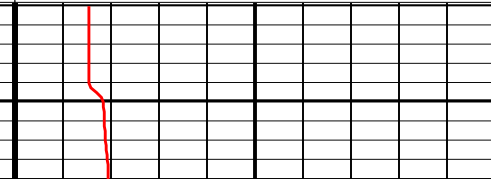
MAXIS Field Log

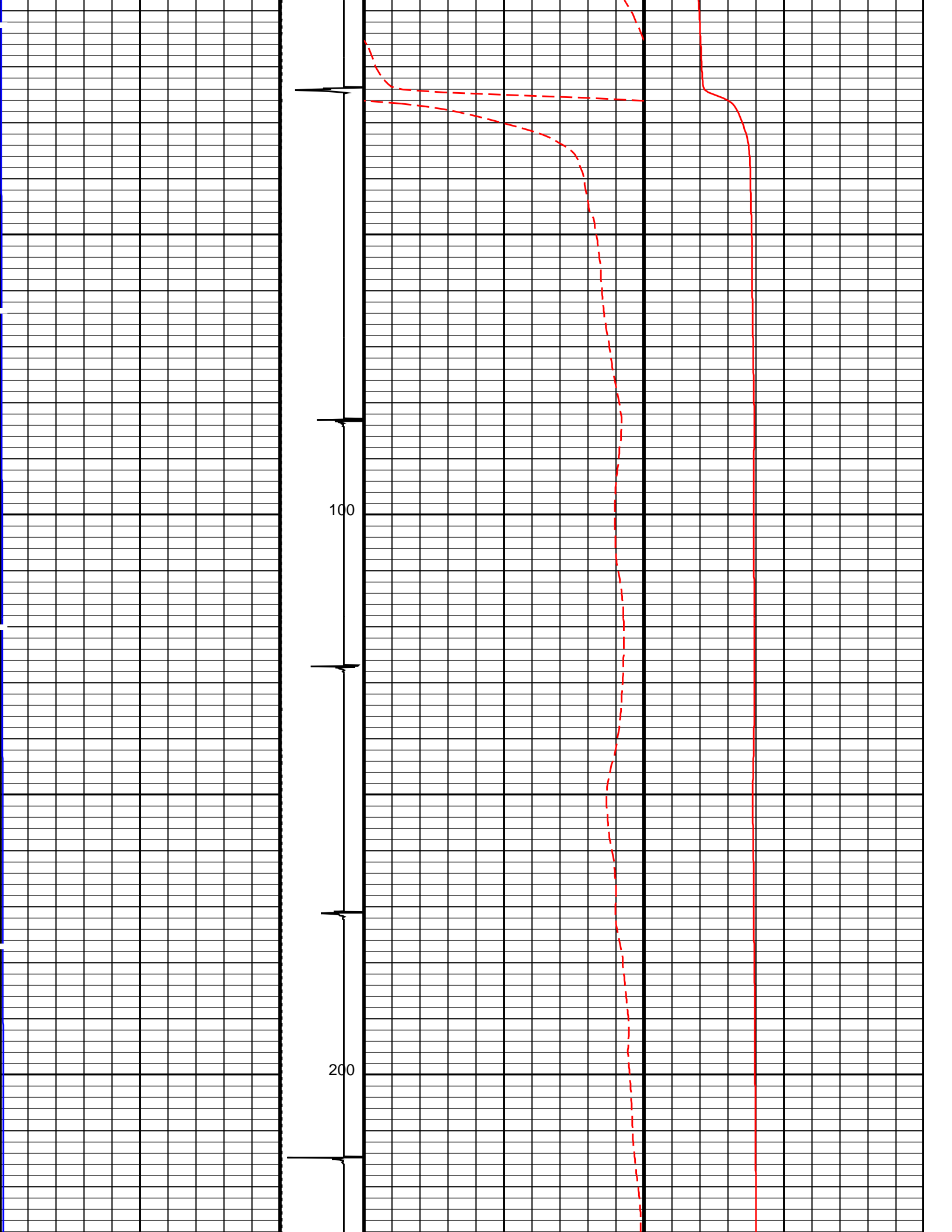
Index: 8217.0 – -10.5 FT

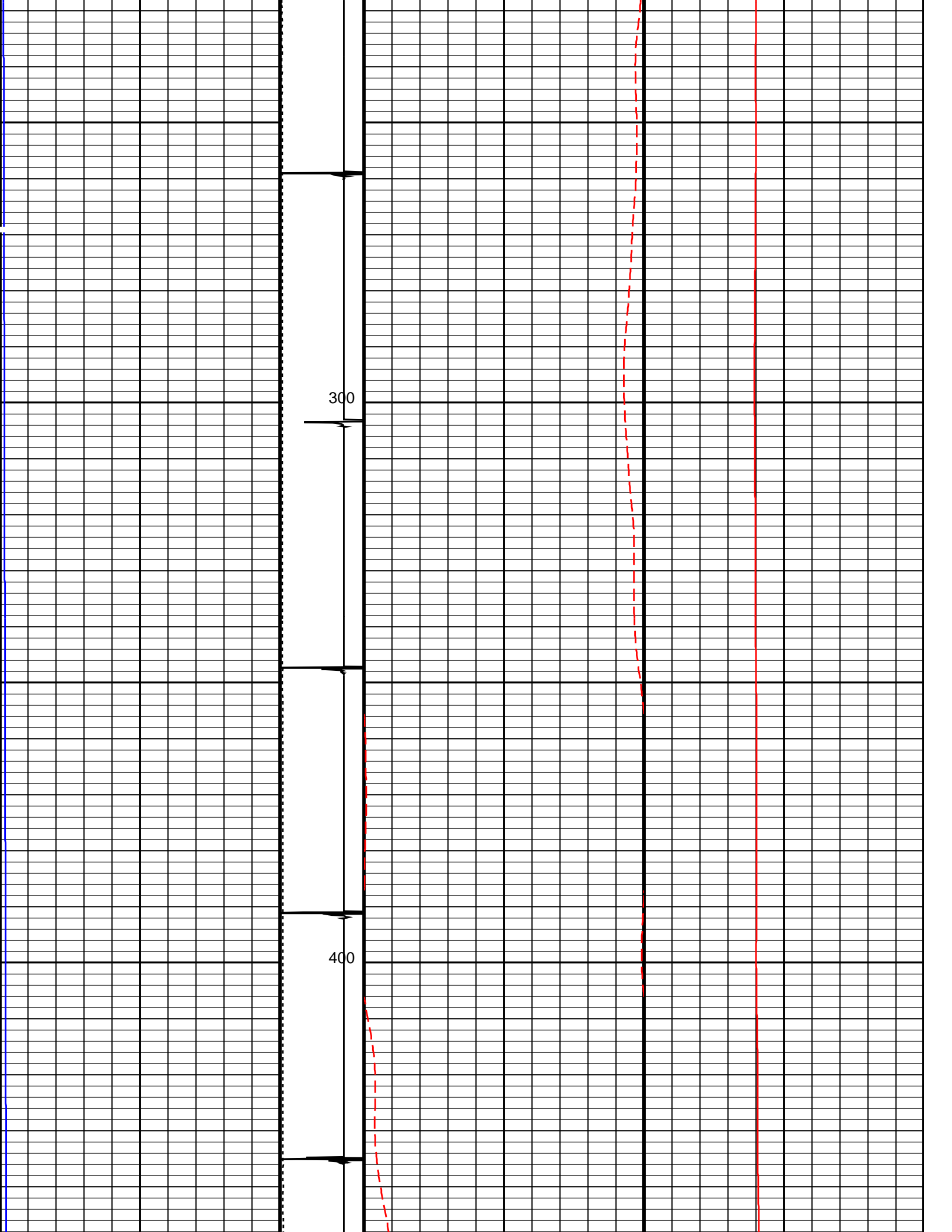


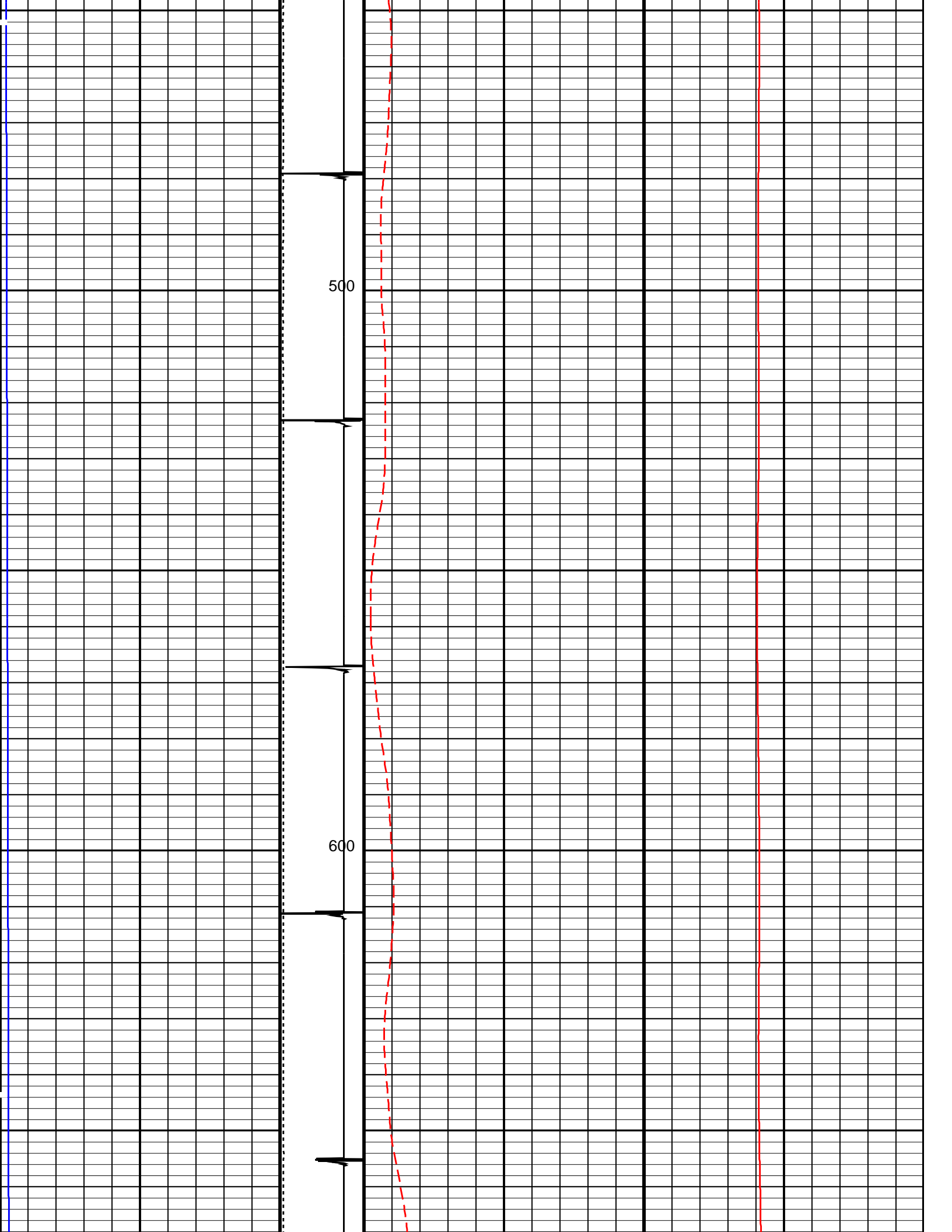


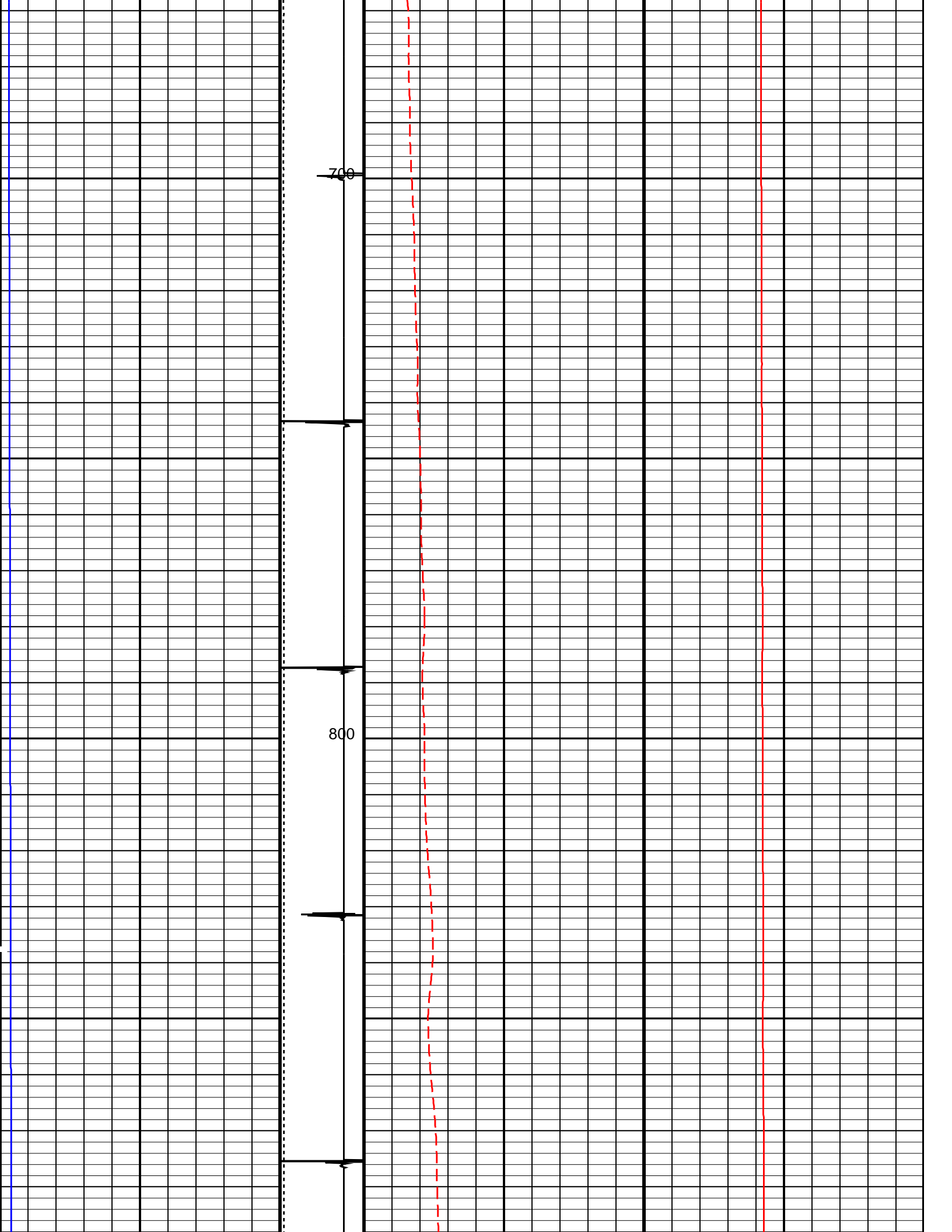
MAXIS Field Log

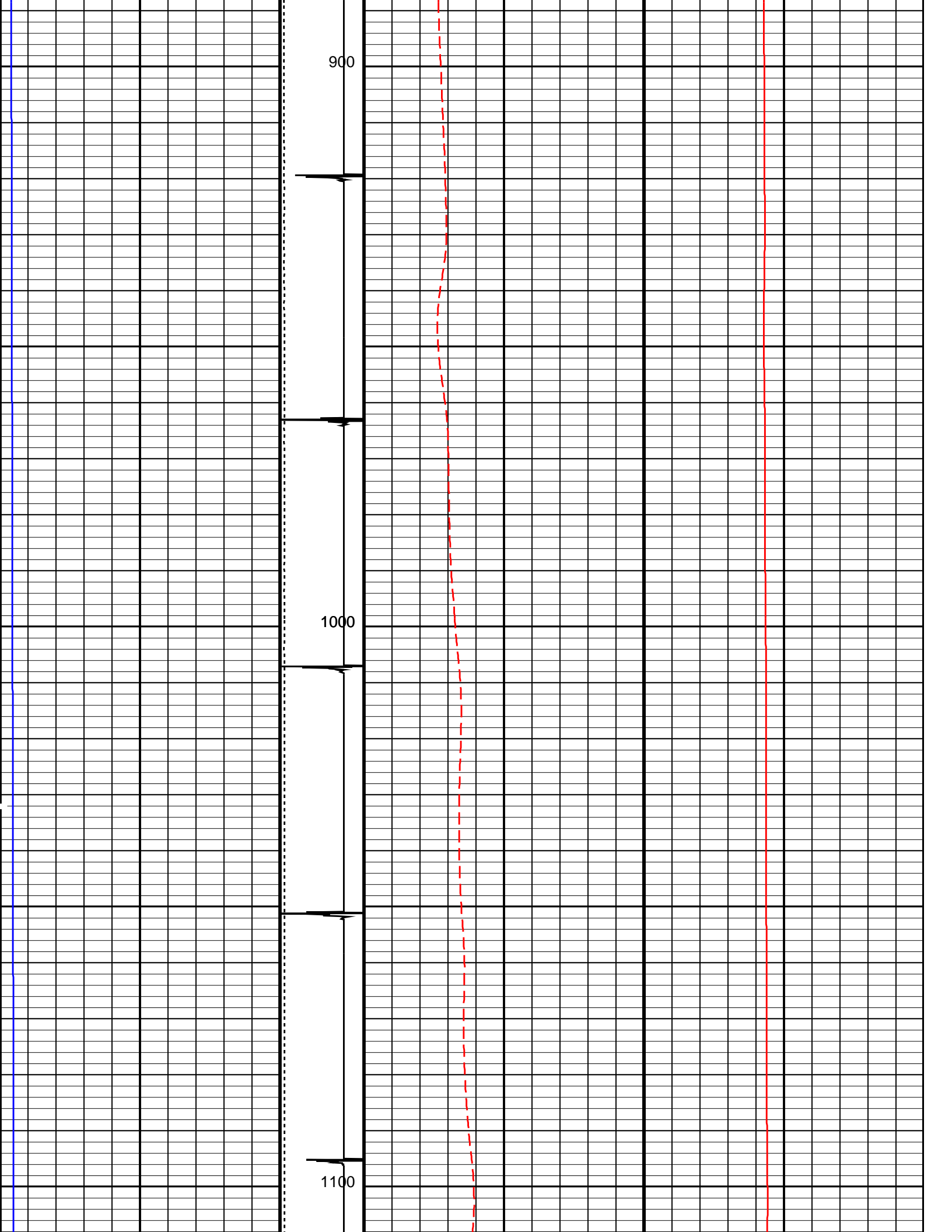
		Discriminat ed CCL (CCLD)		
		3 (V) -1		
Well Pressure (WPRE) (PSIA)		Tension (TENS) (LBF)	Well Temperature (WTEP) (DEGF)	Well Temperature (WTEP) (DEGF)
0	10000	0 2000	0 200	0 200
				

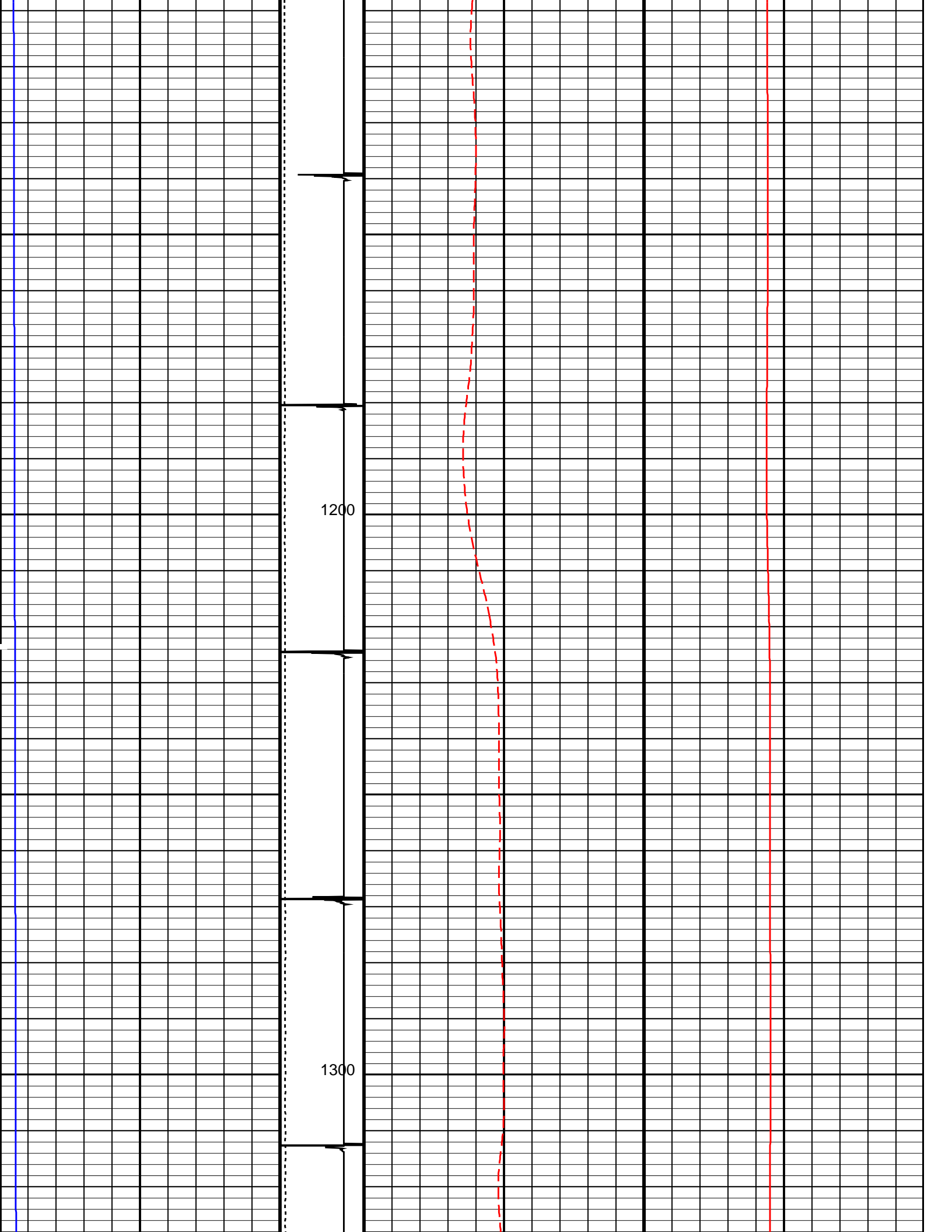


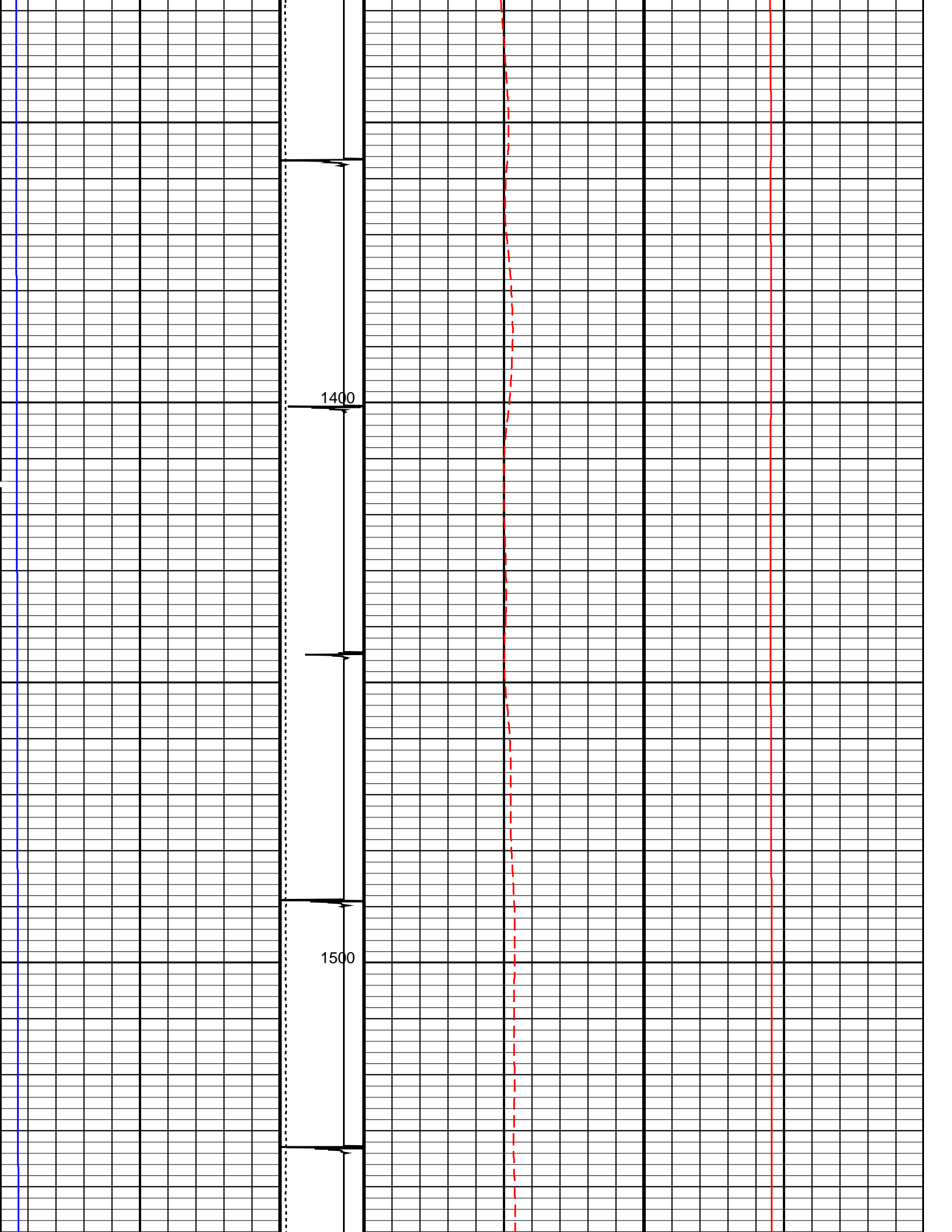


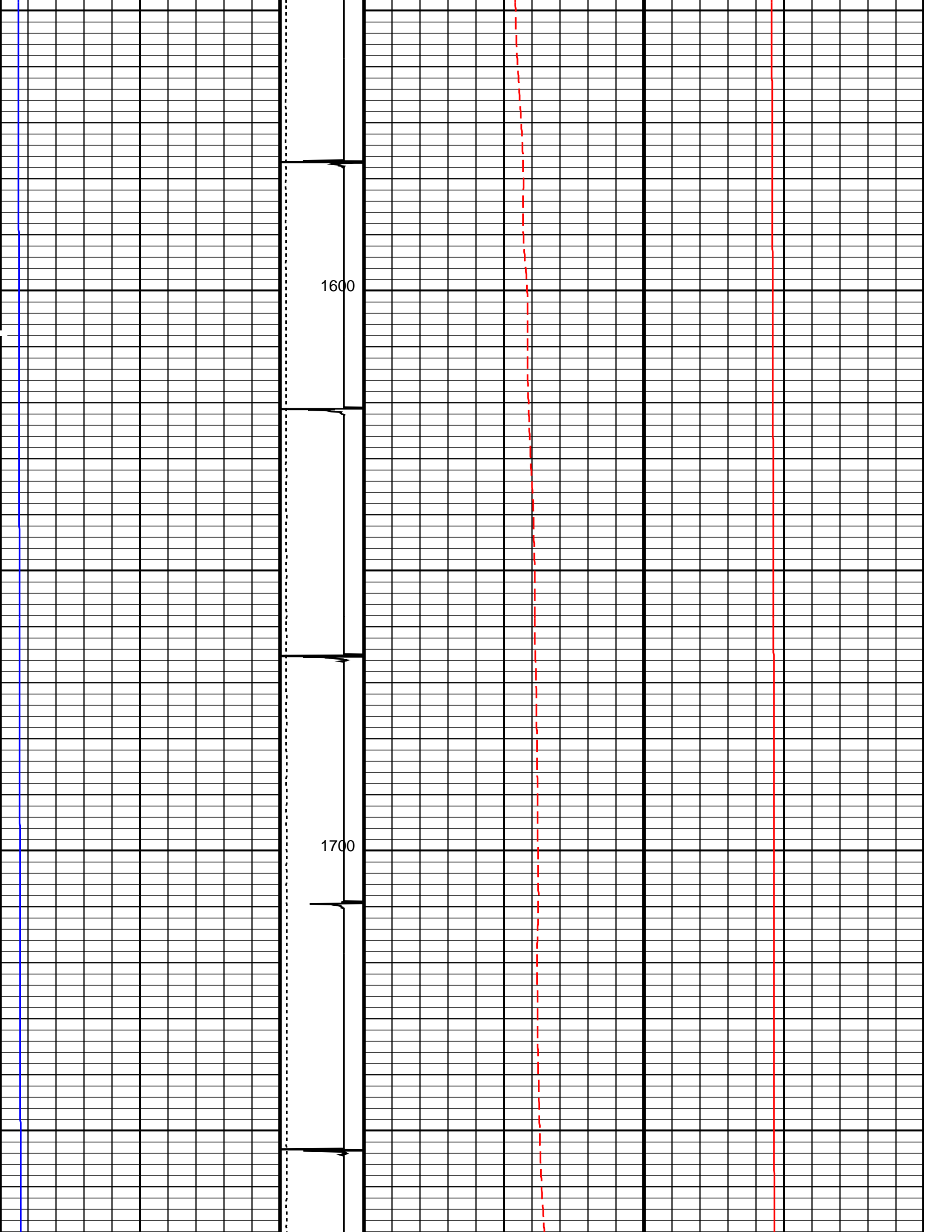


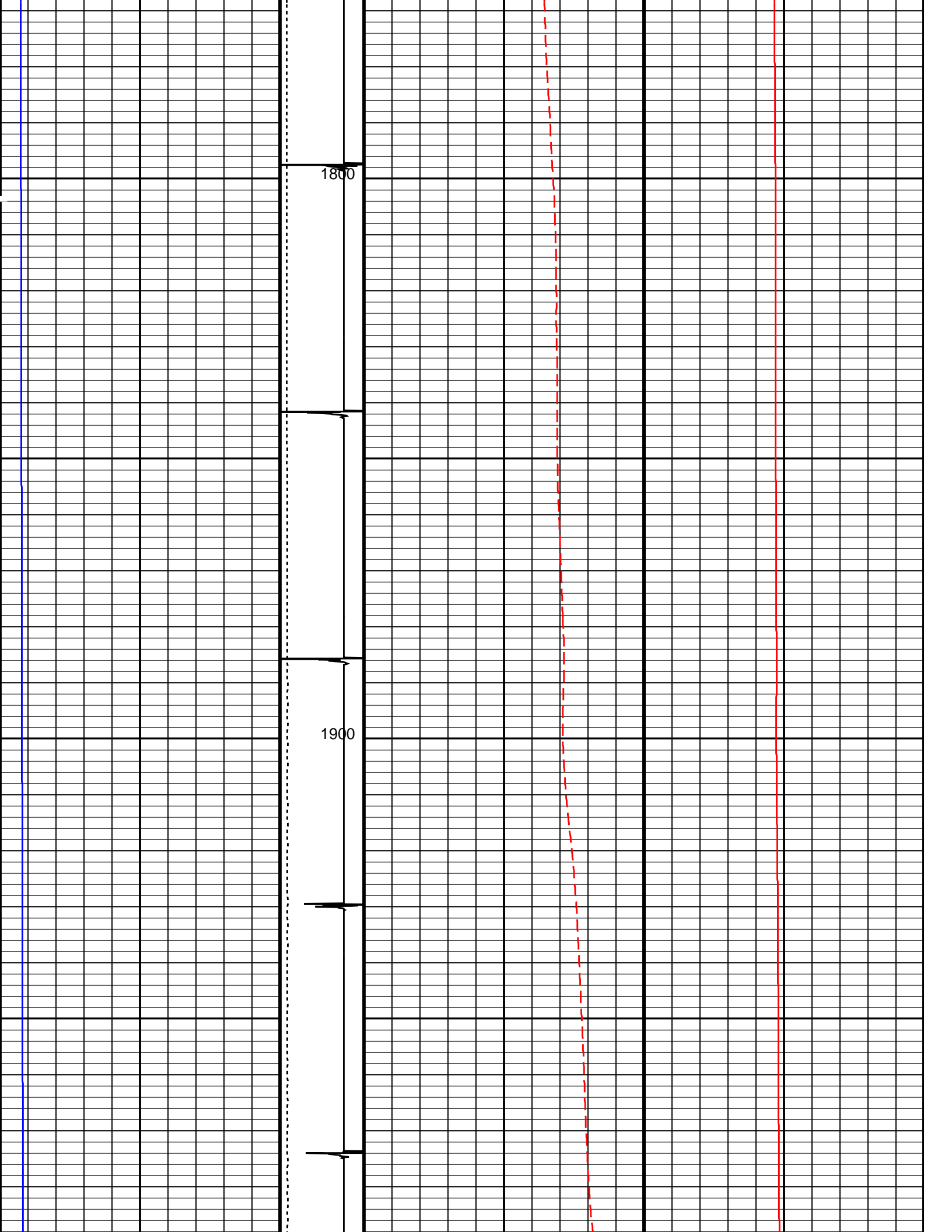


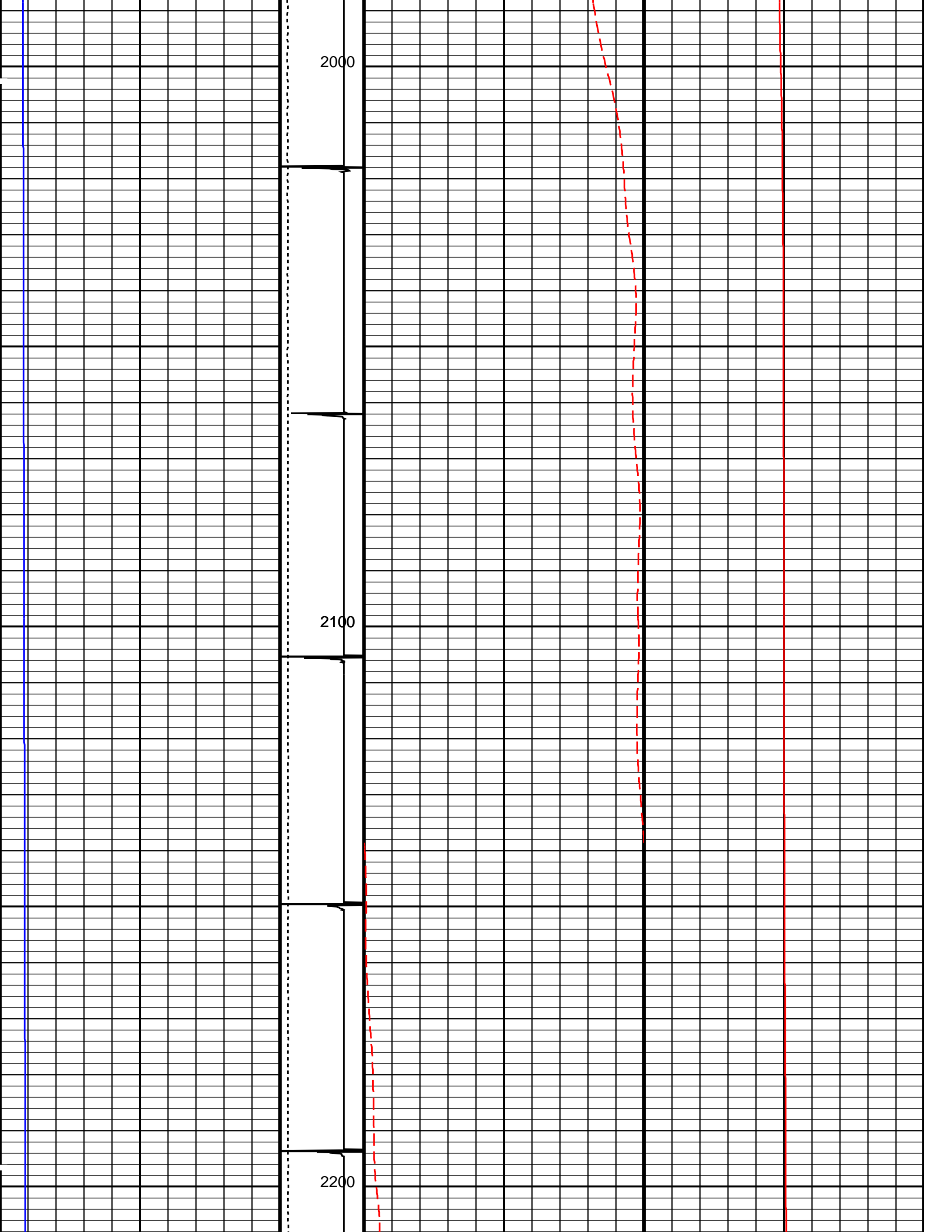


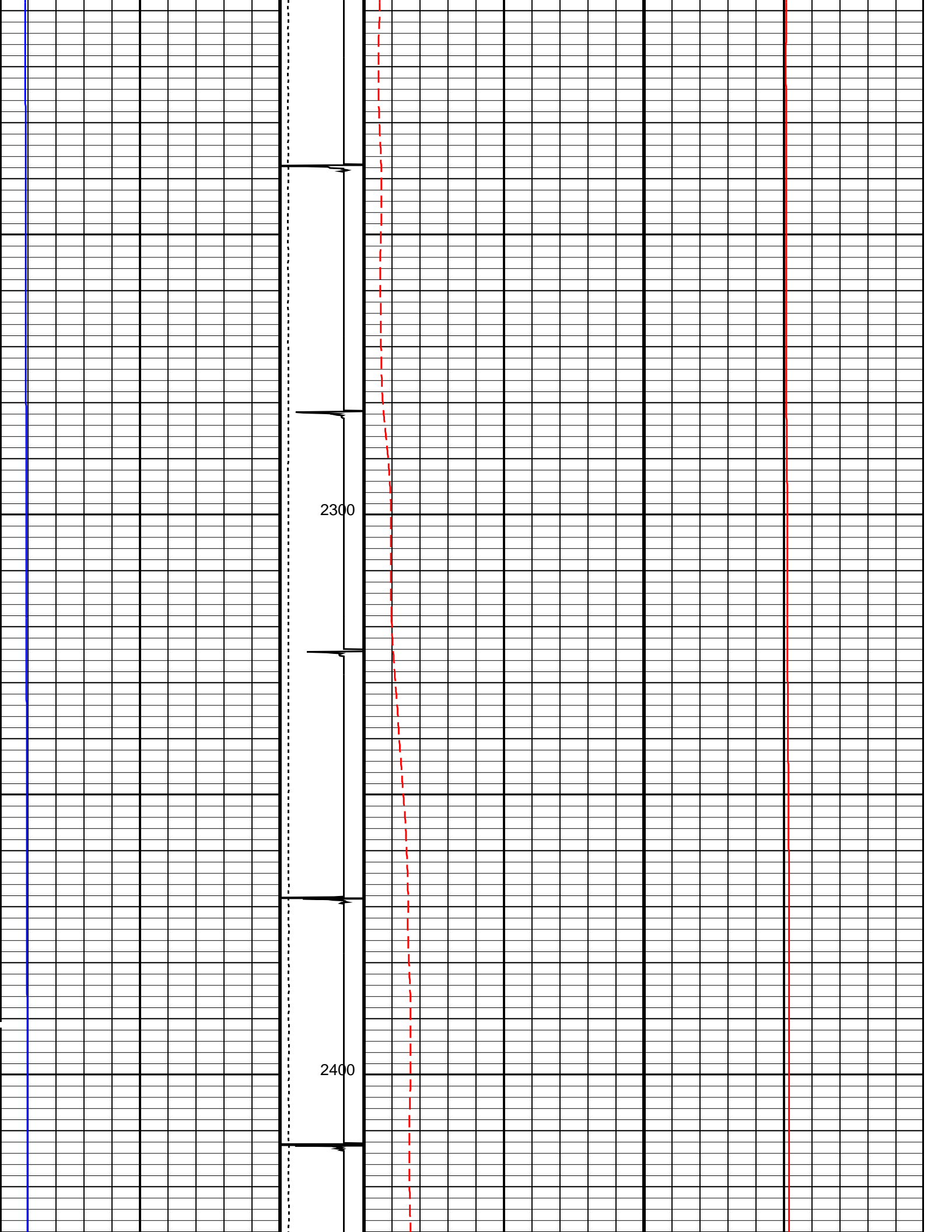


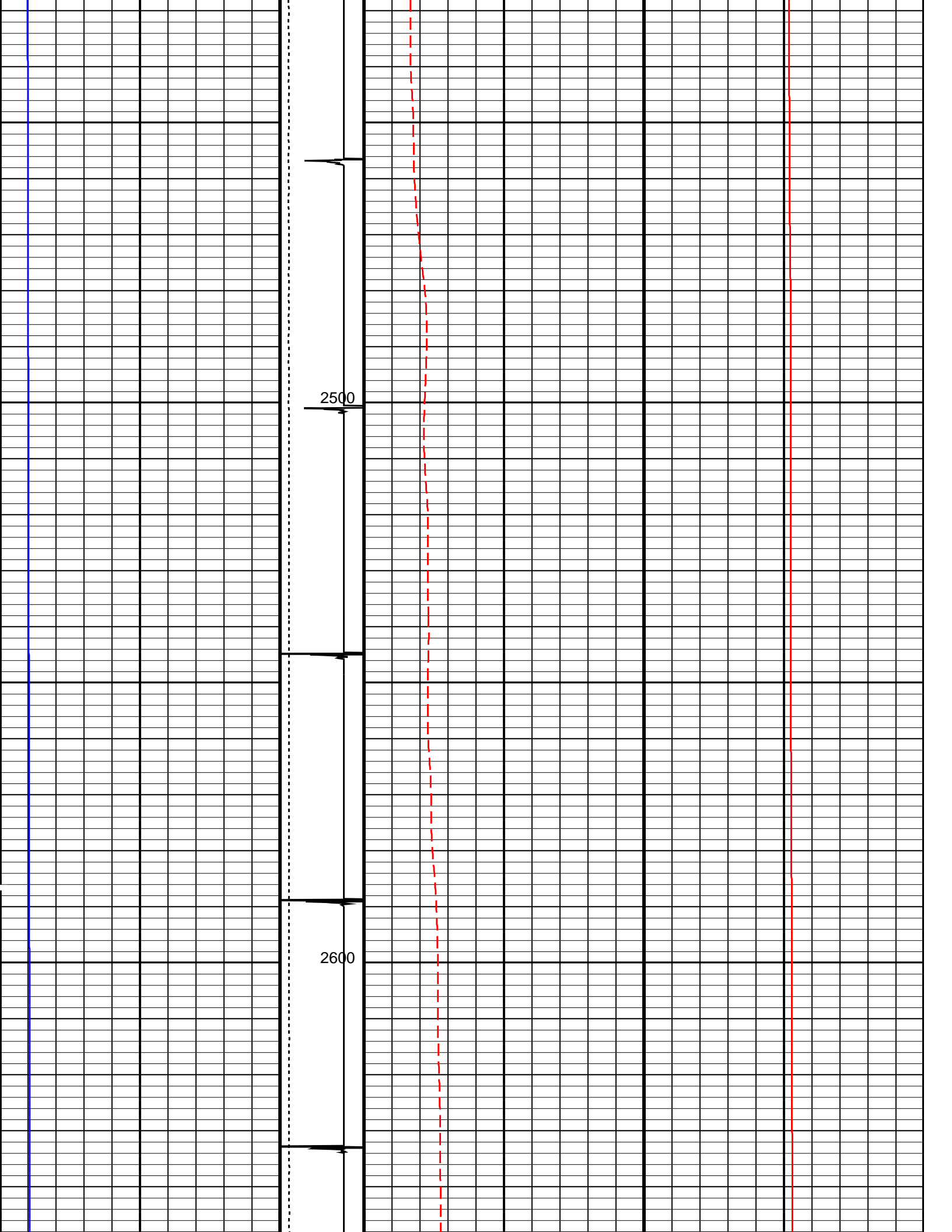


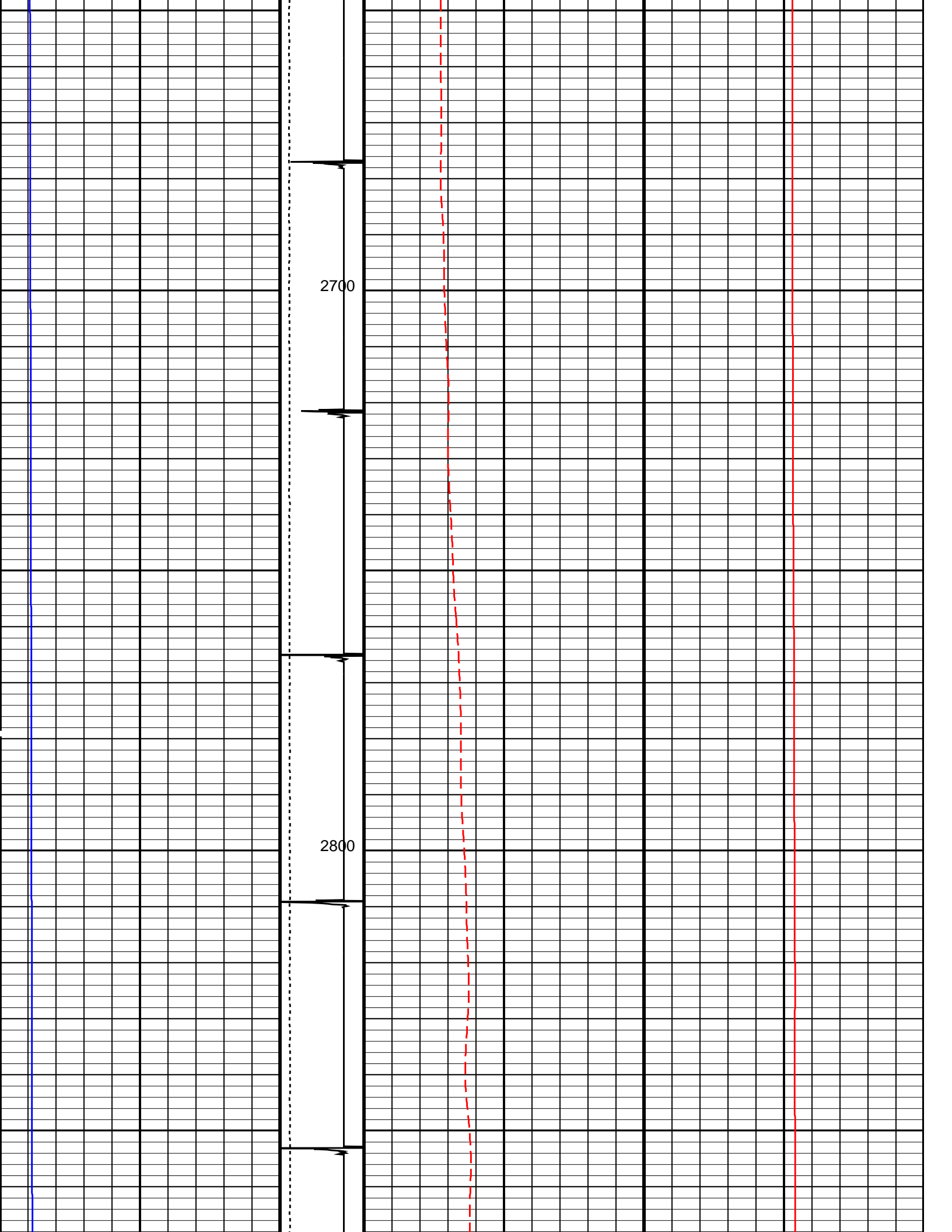


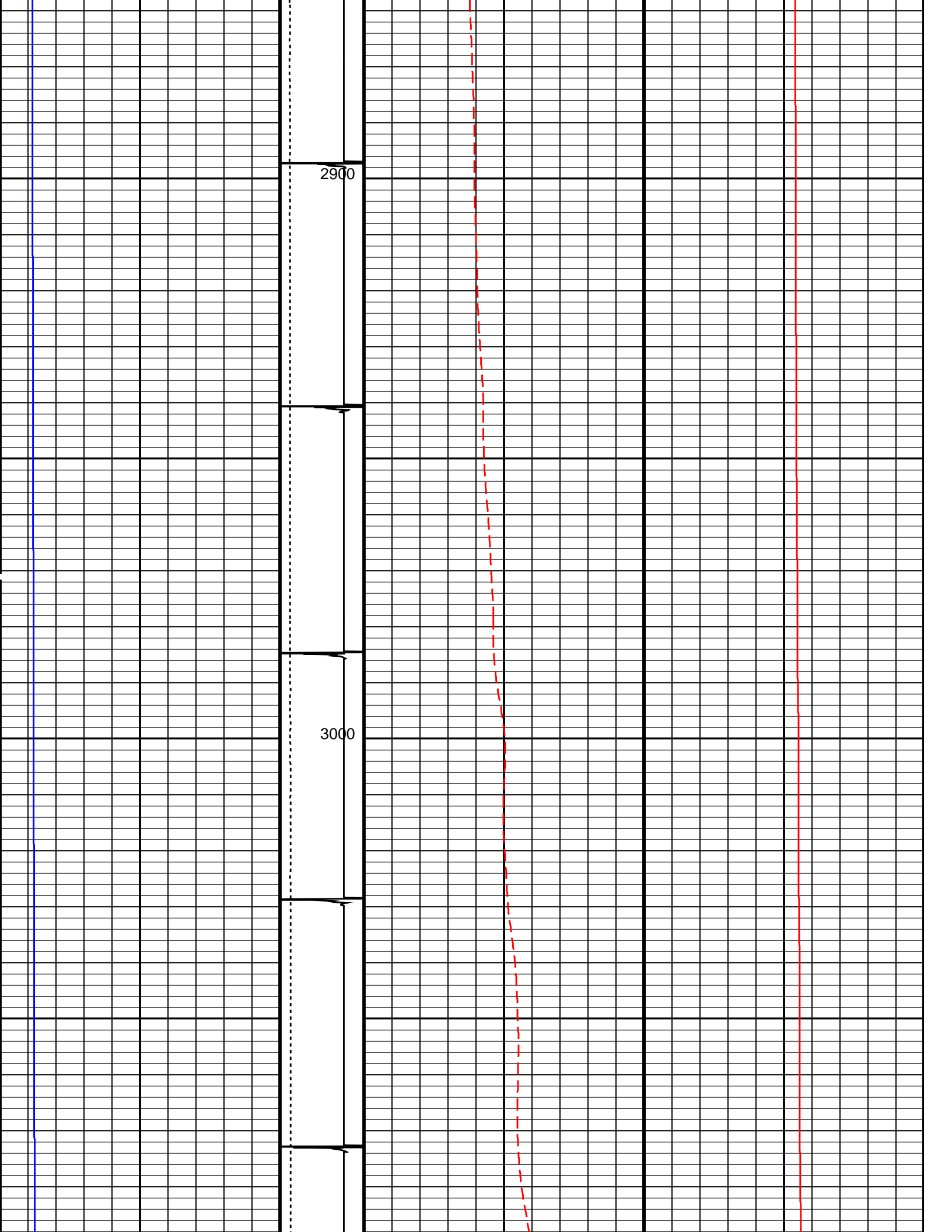


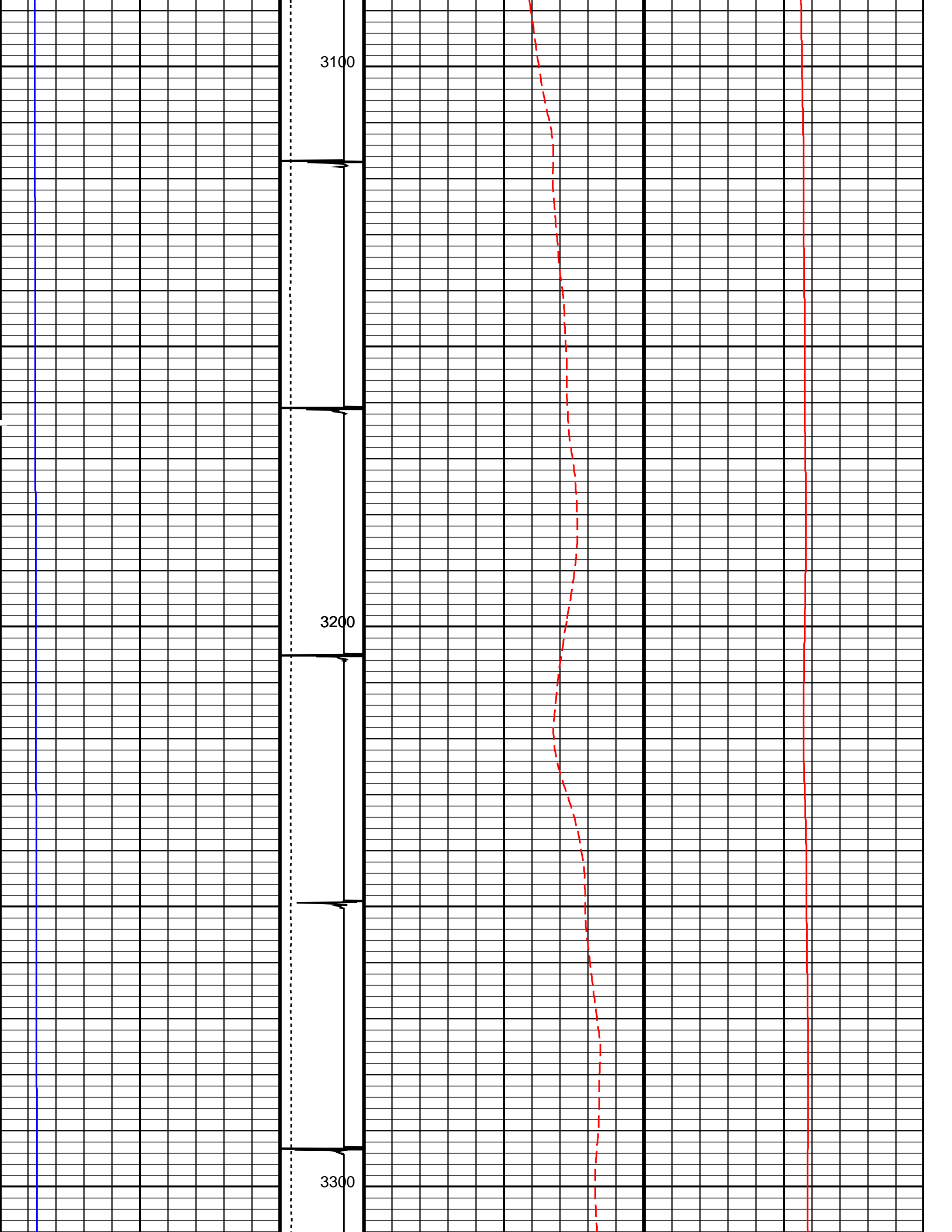


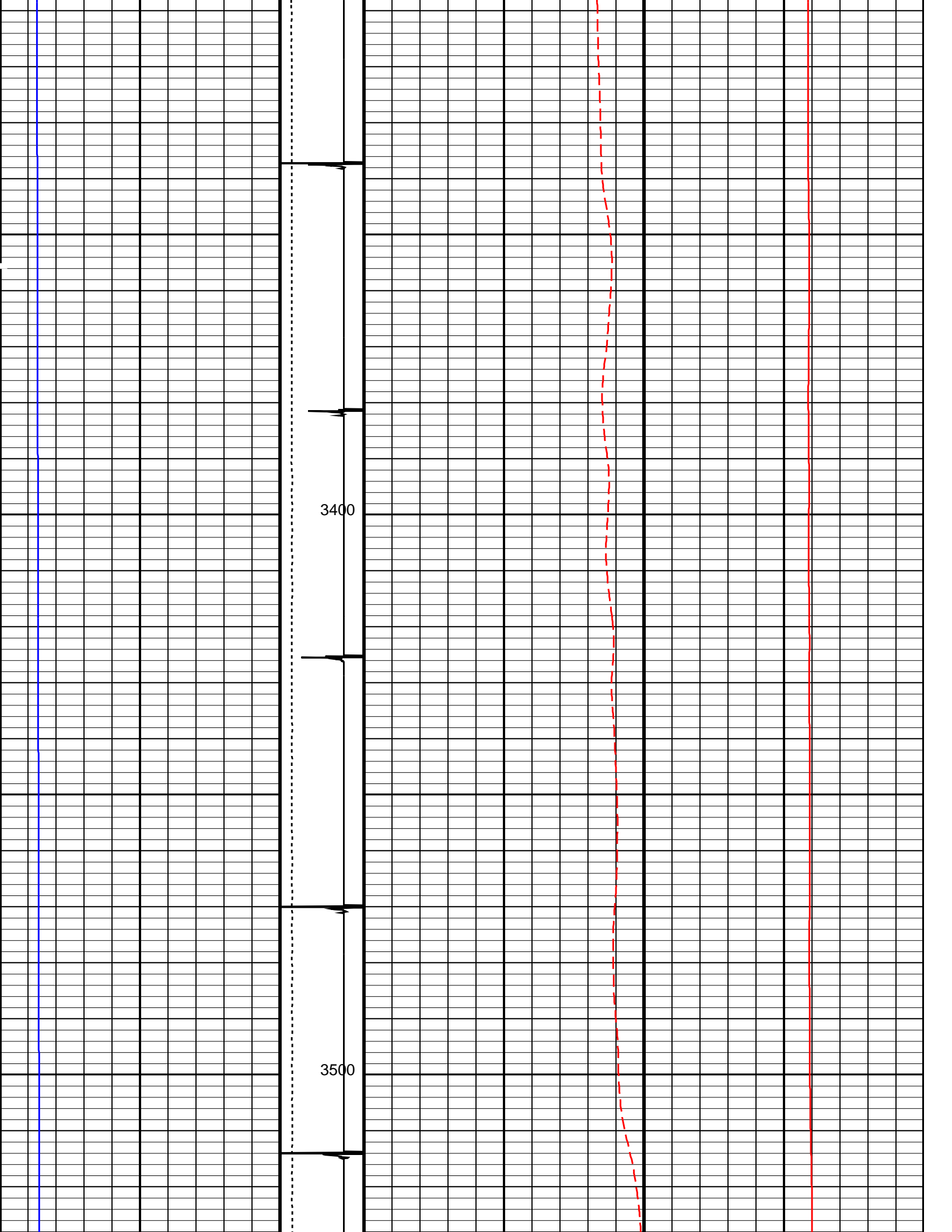


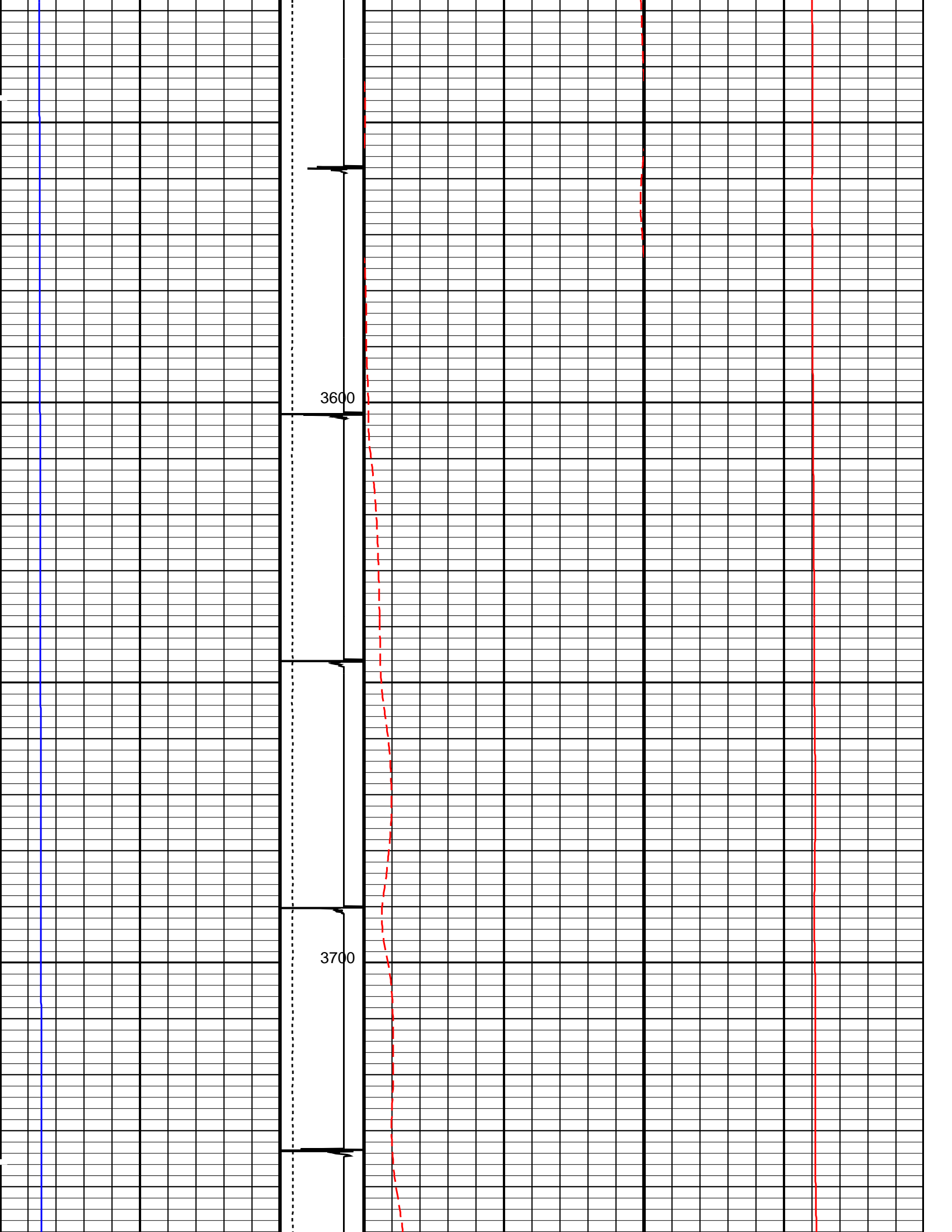


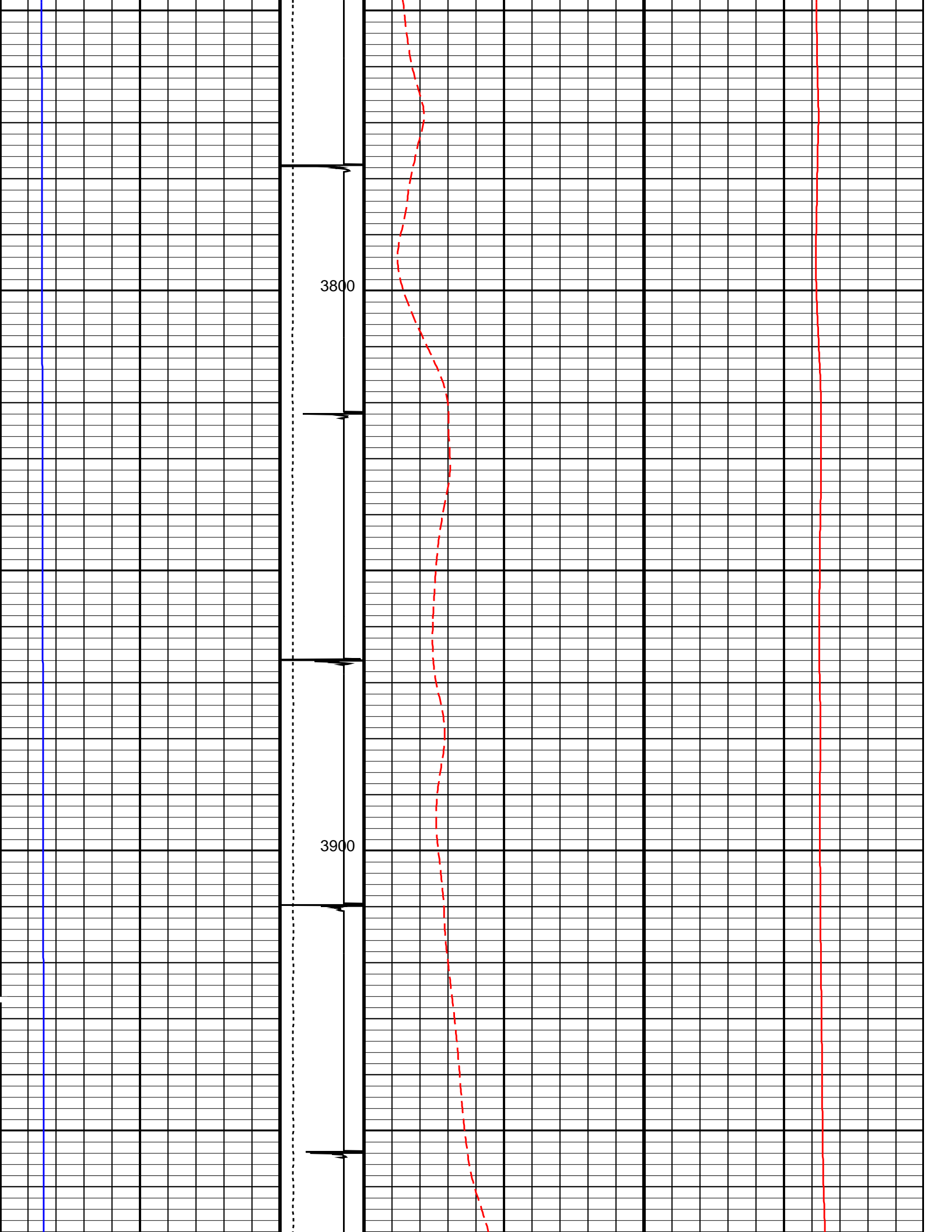


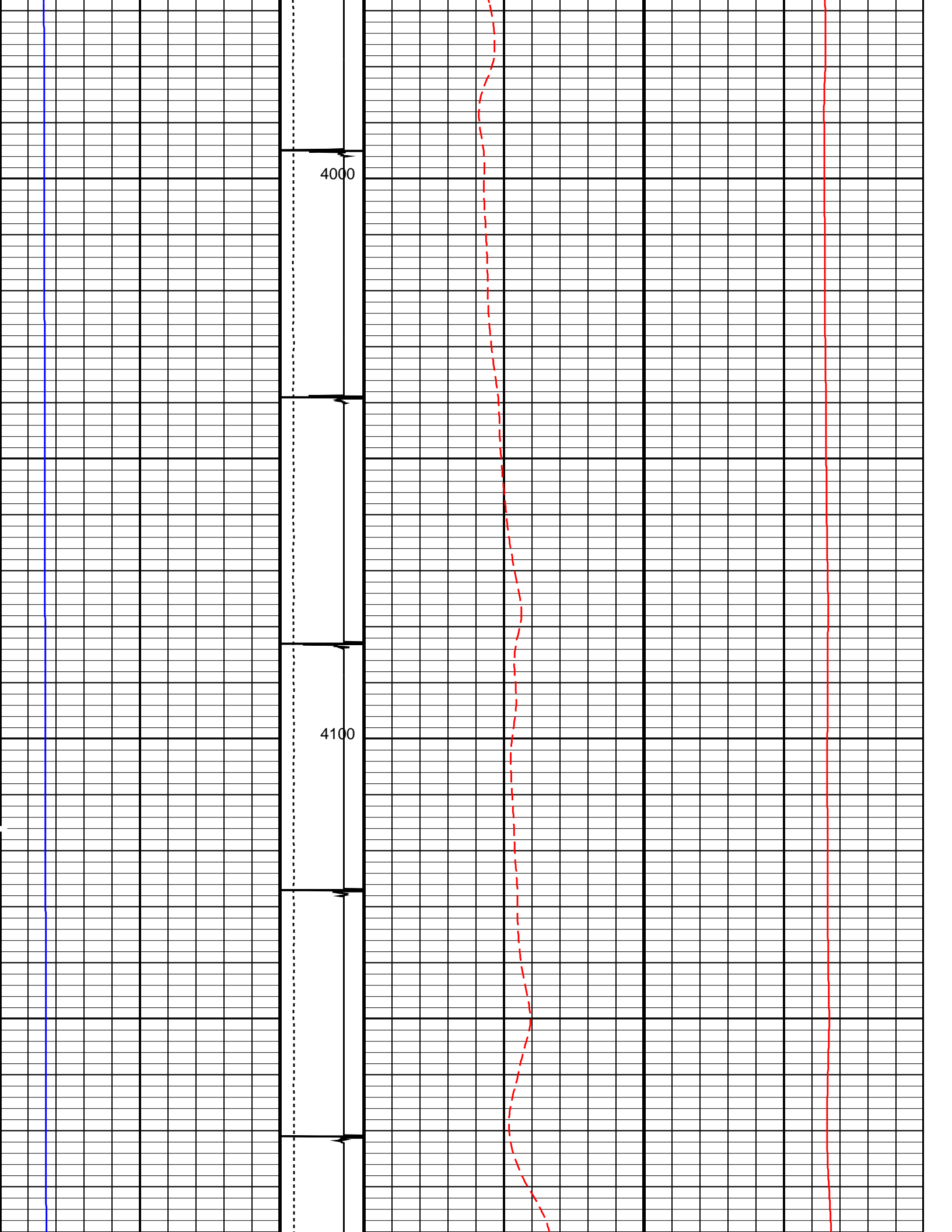


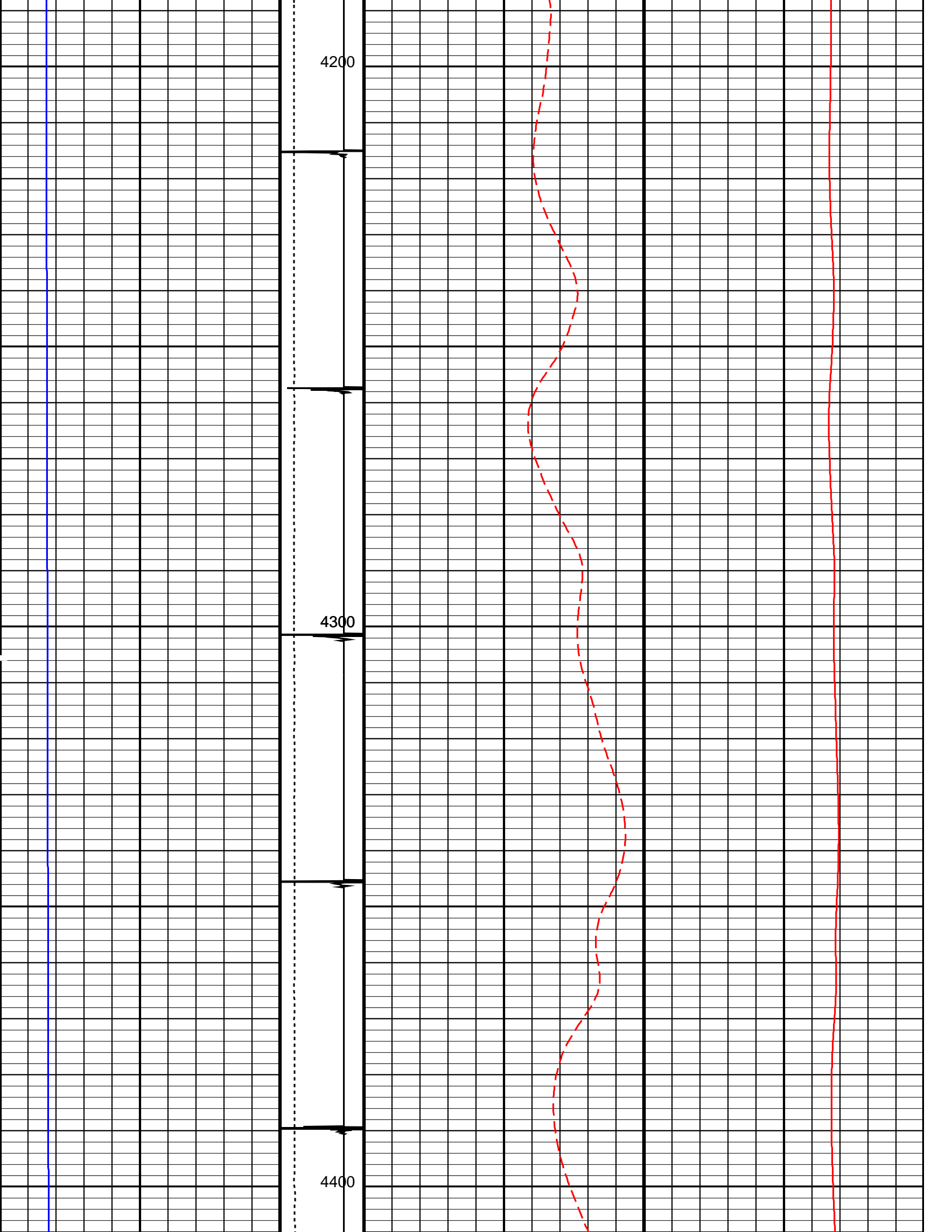


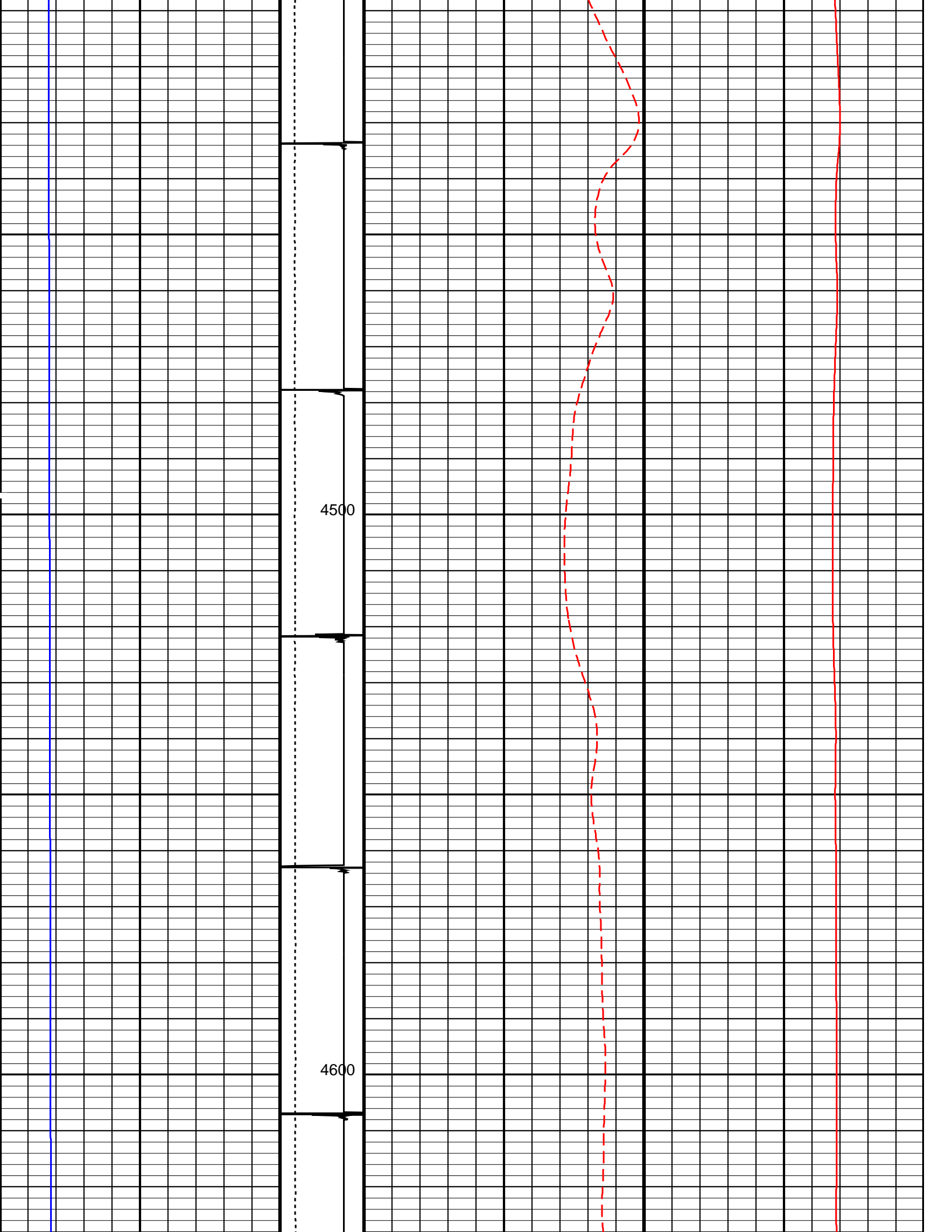


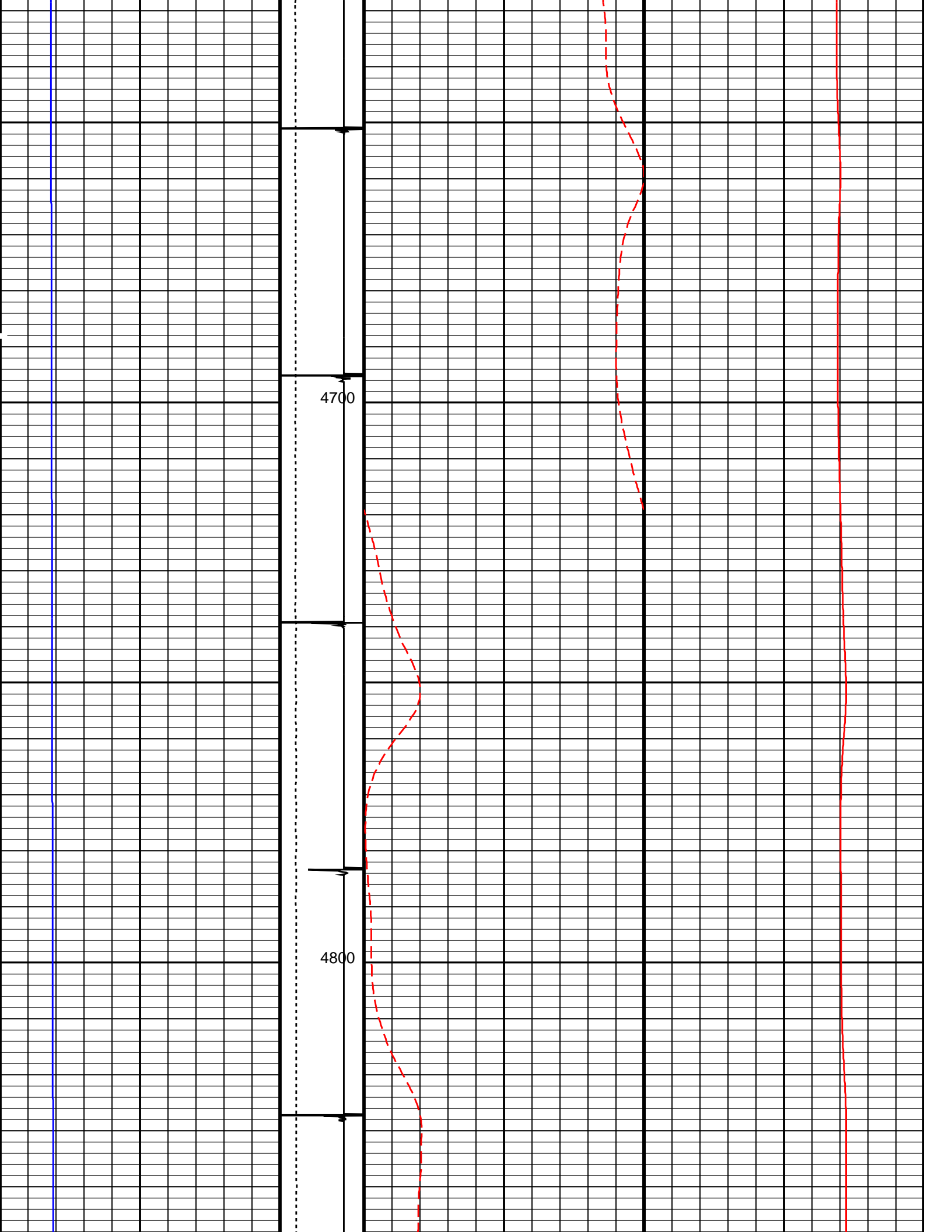


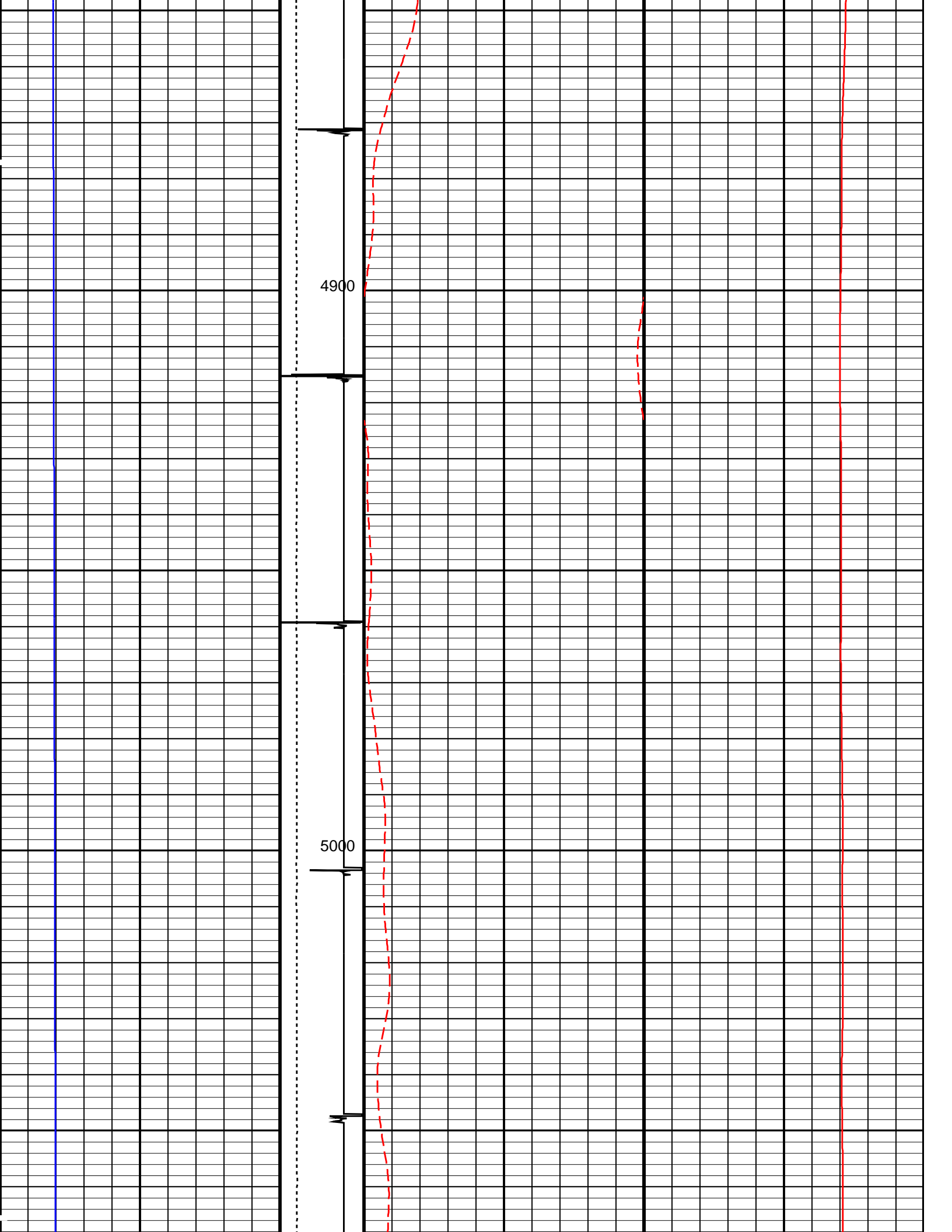


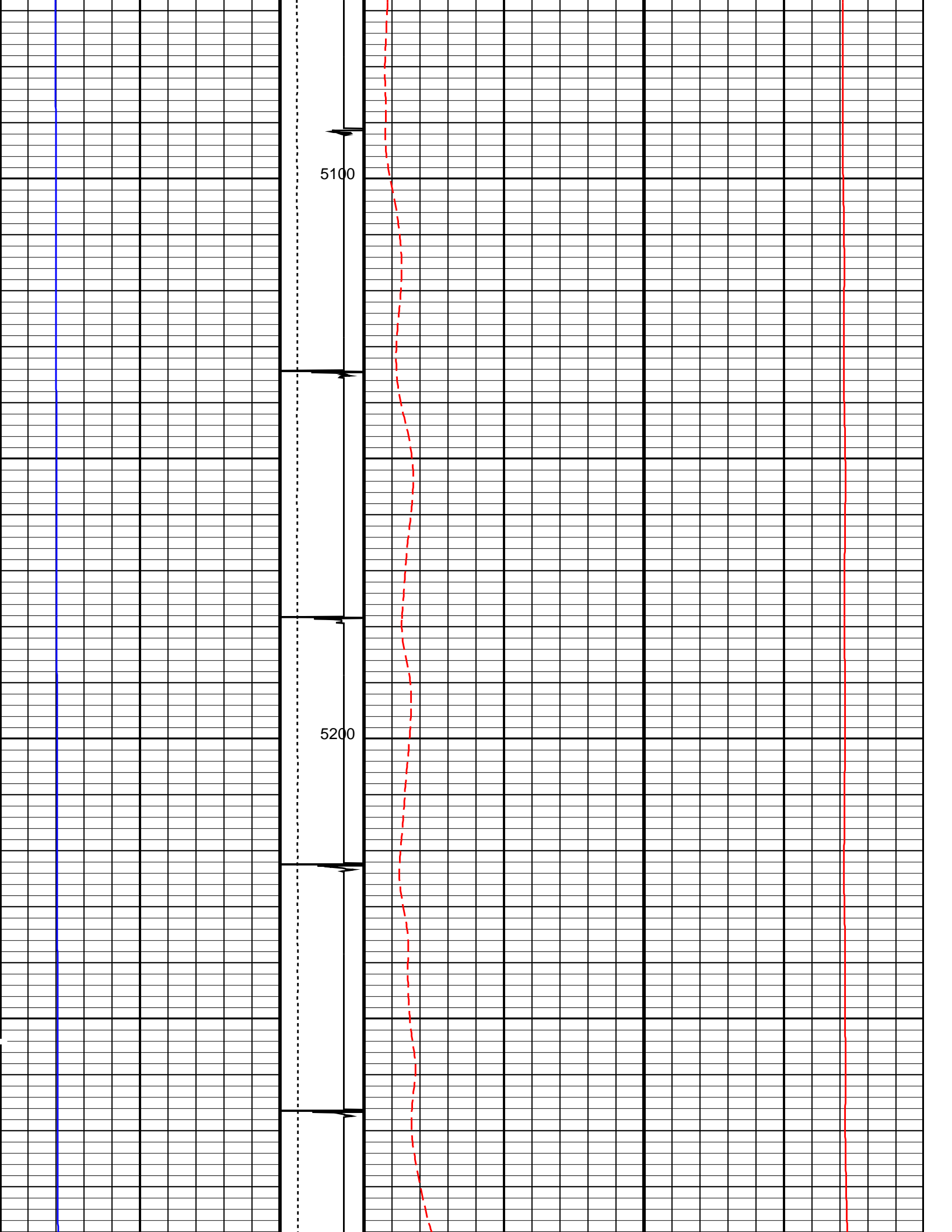


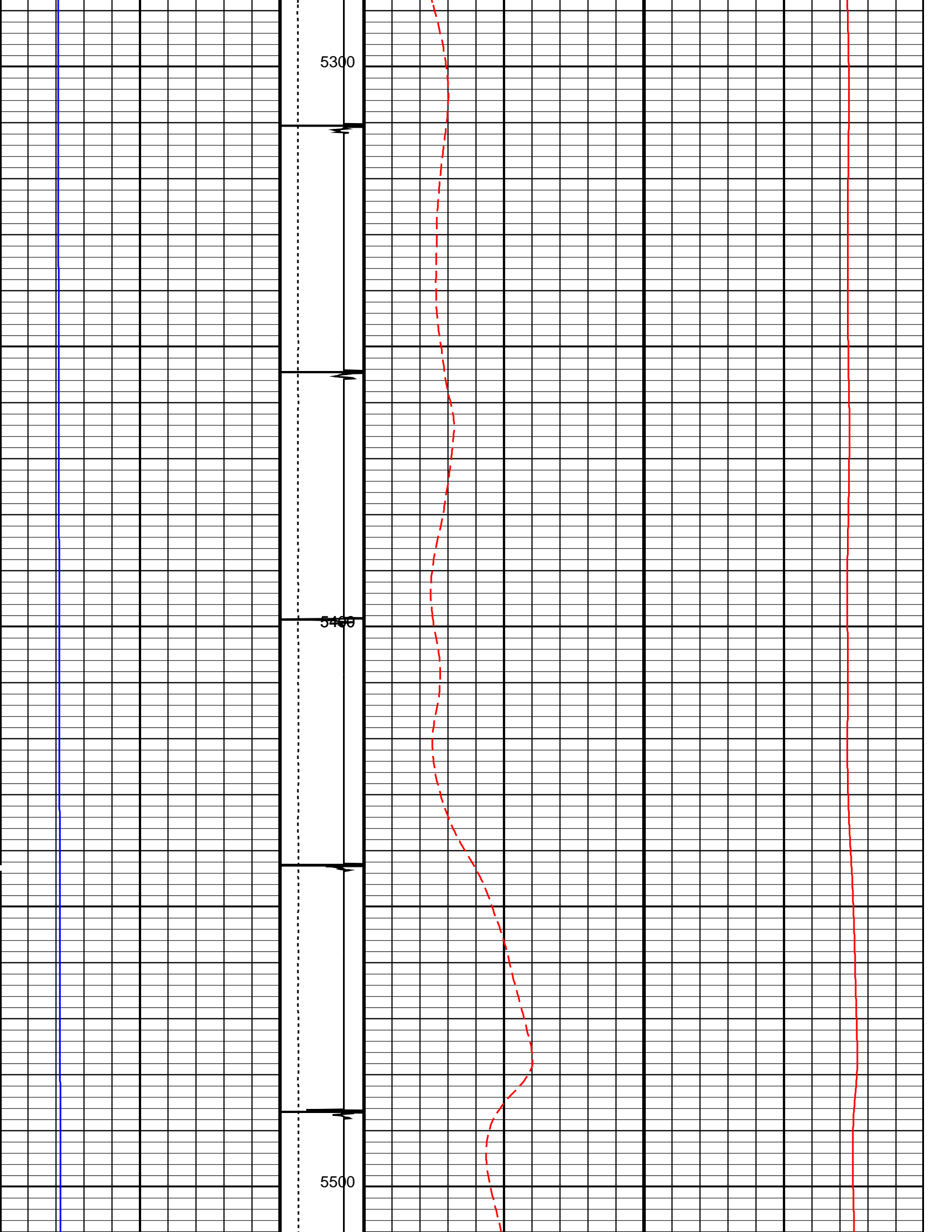


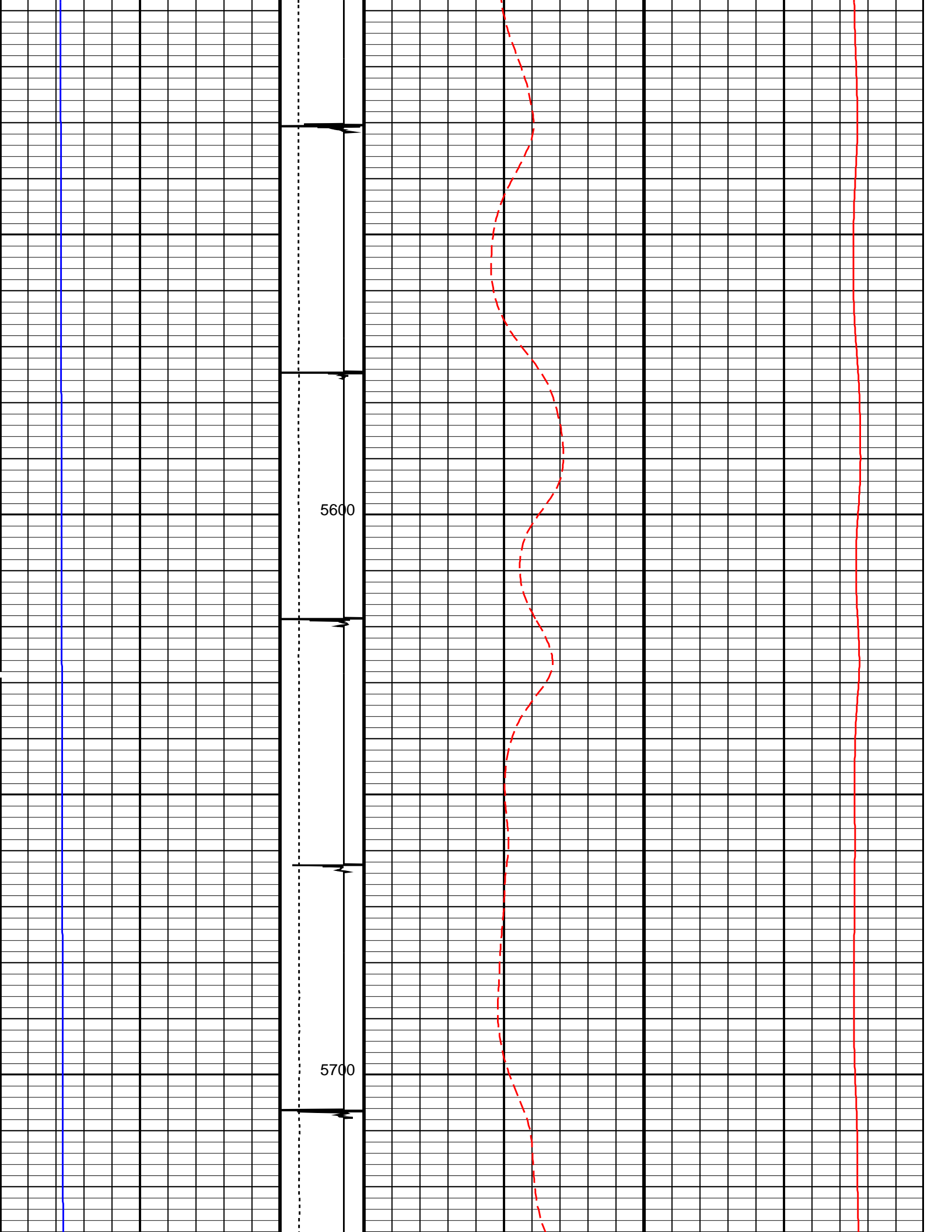


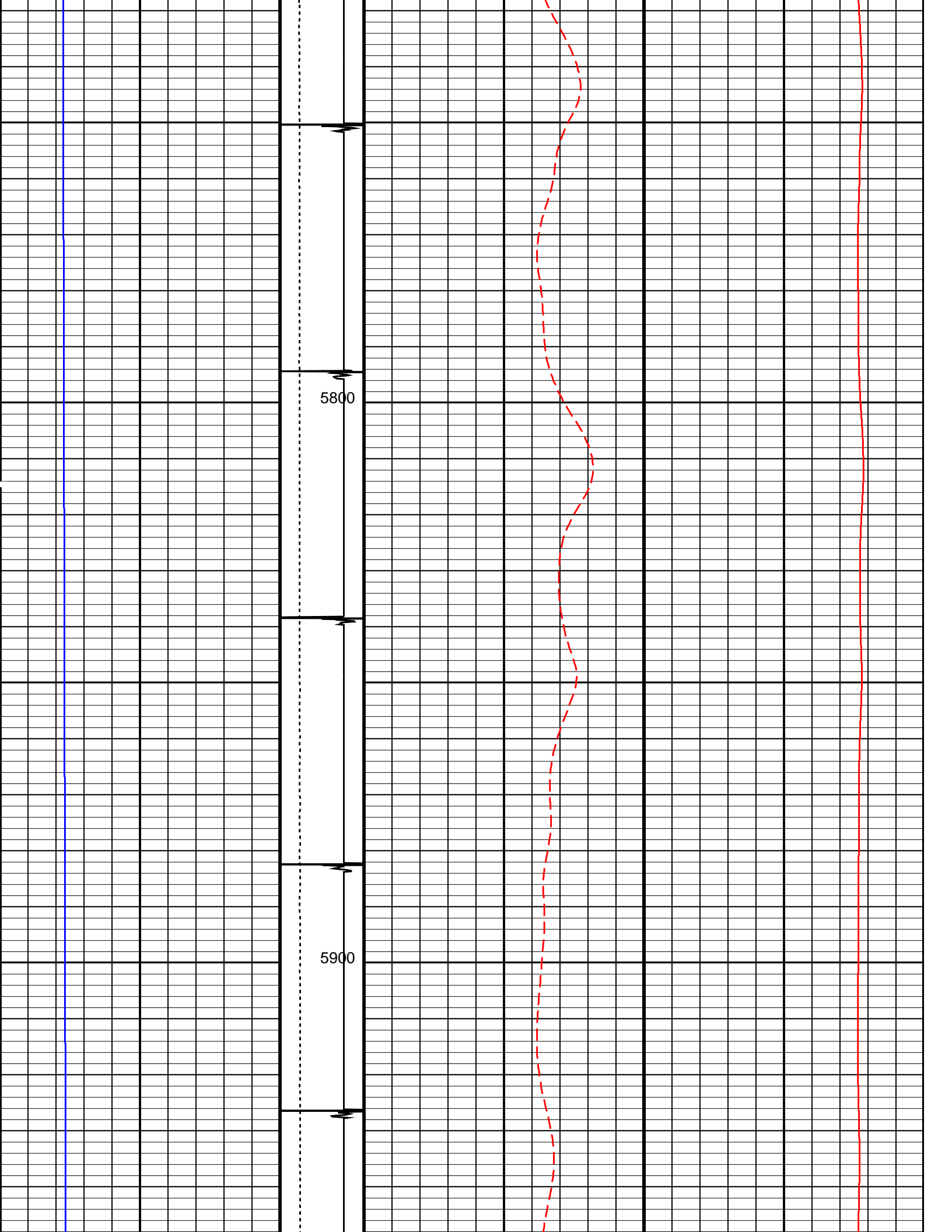


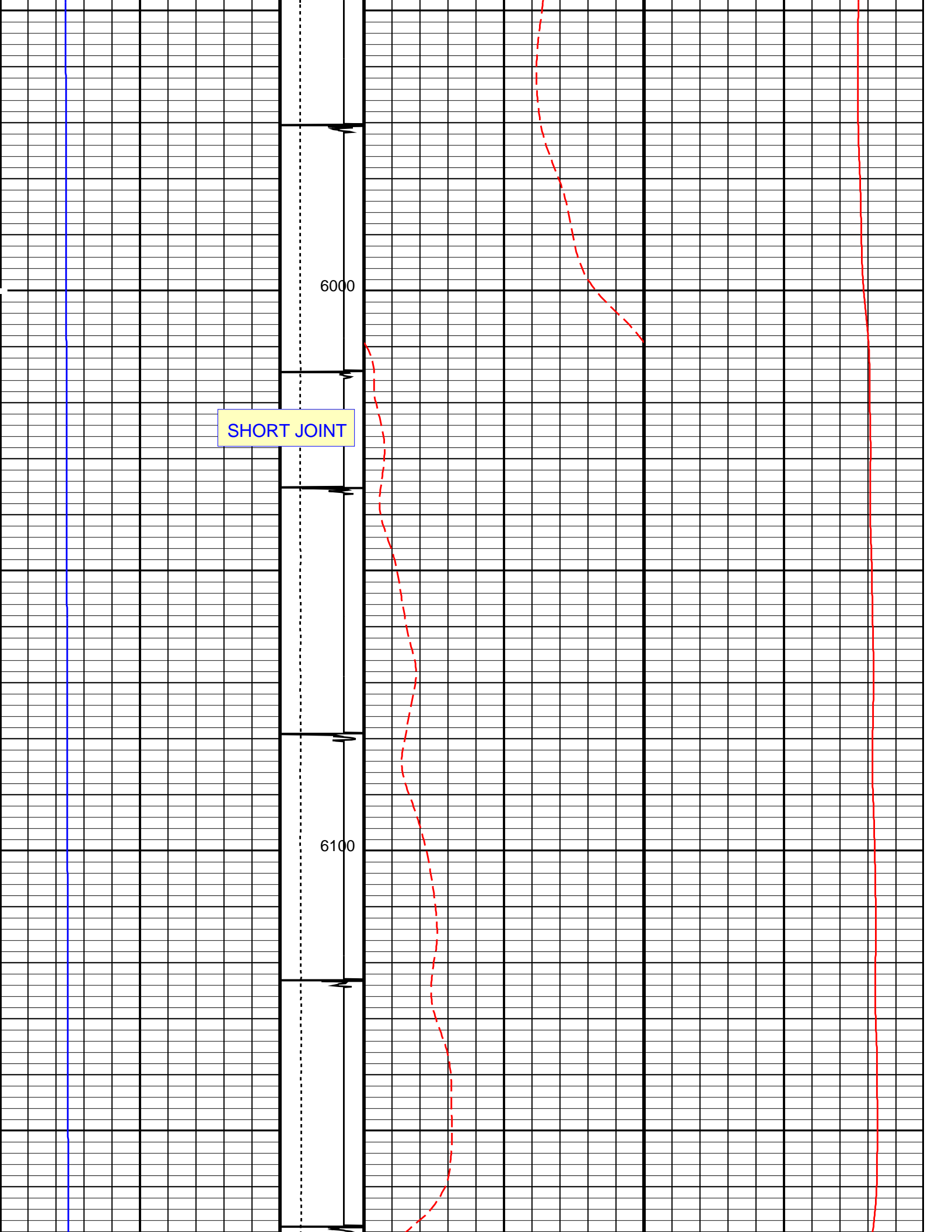


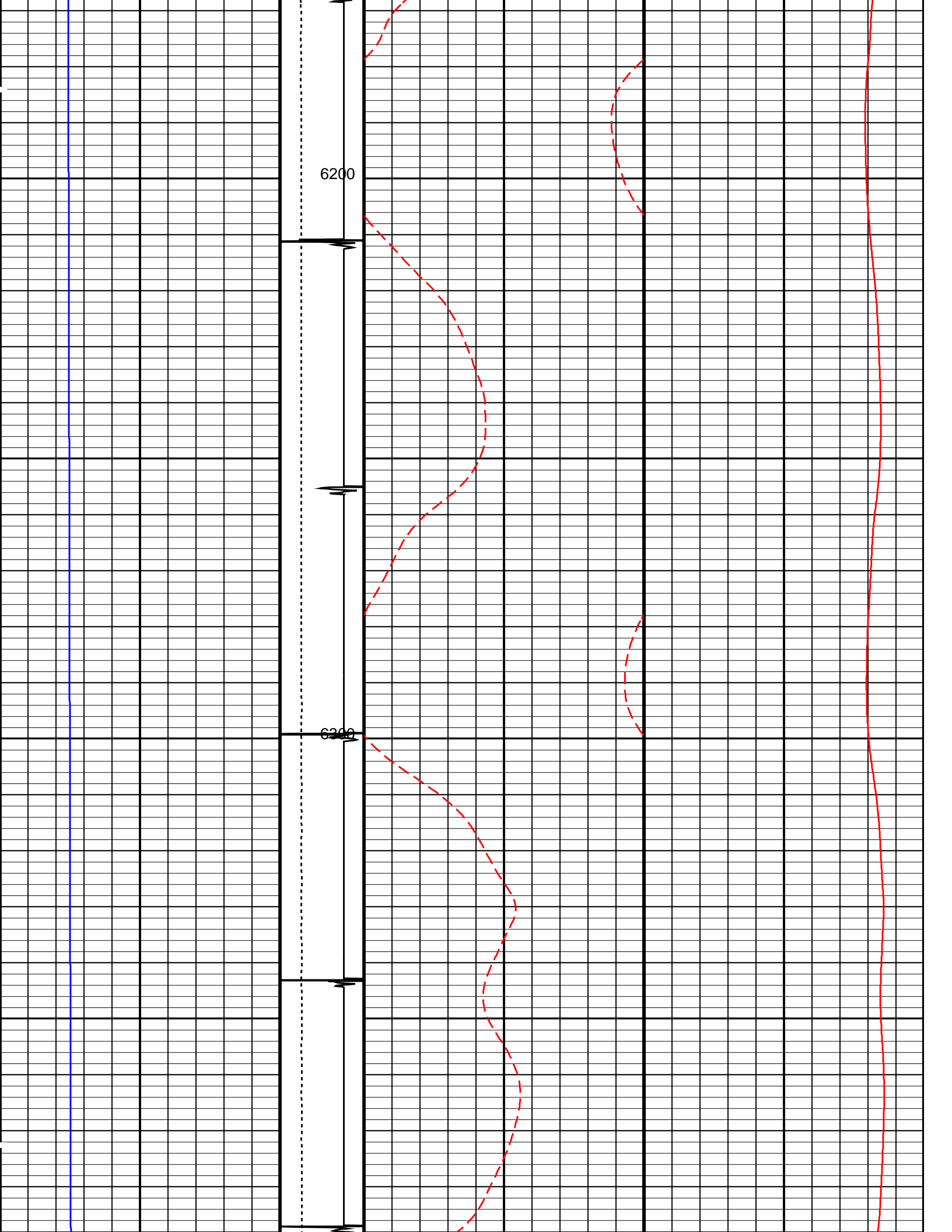


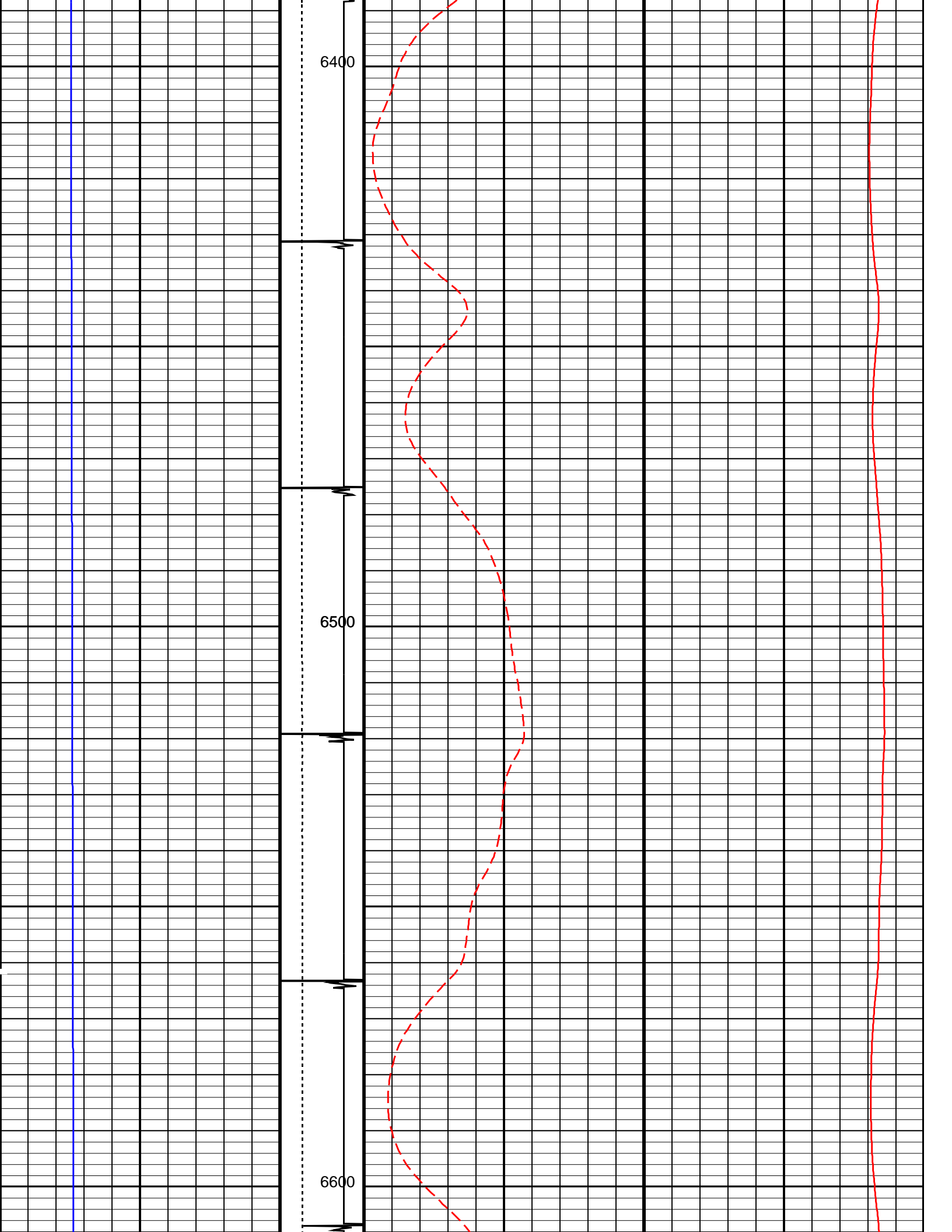


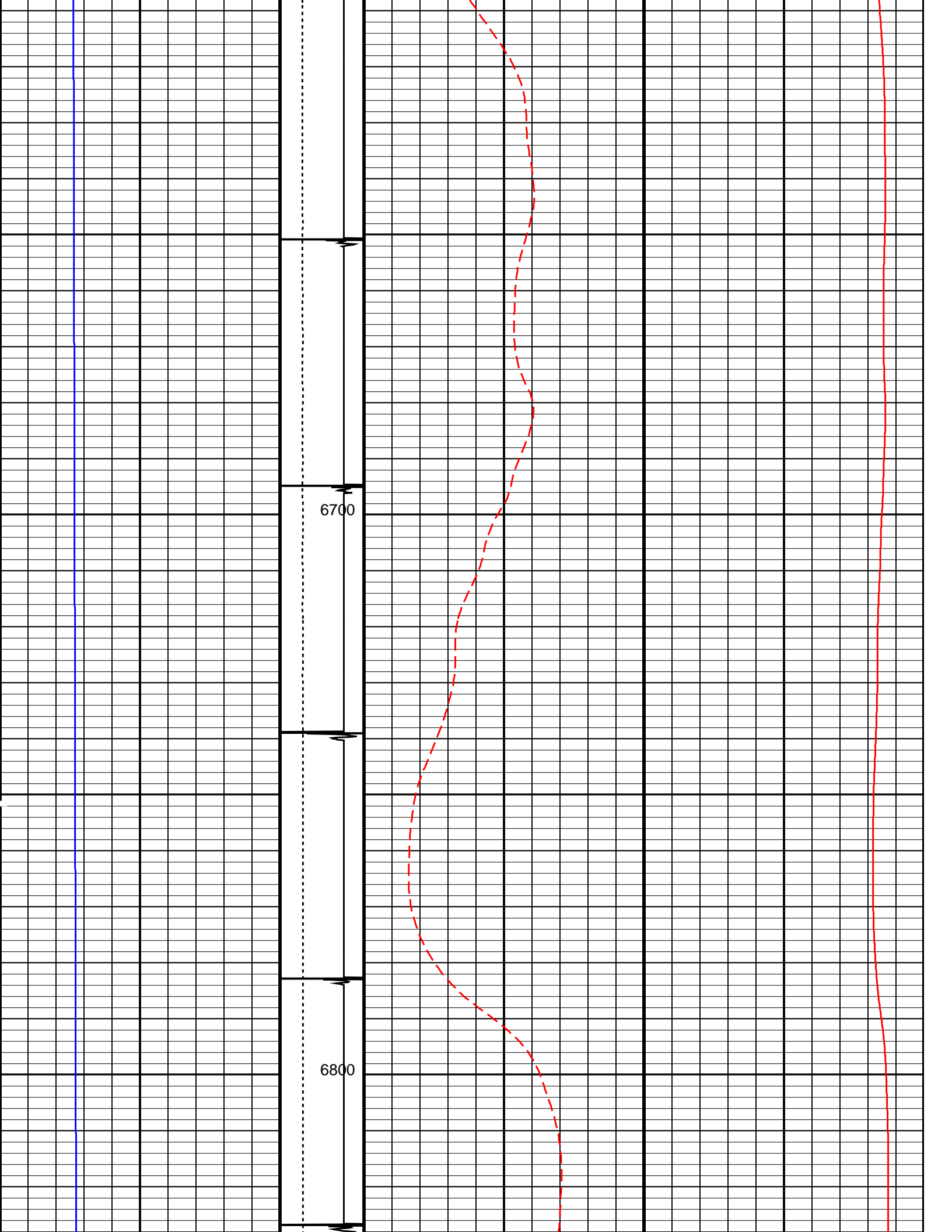


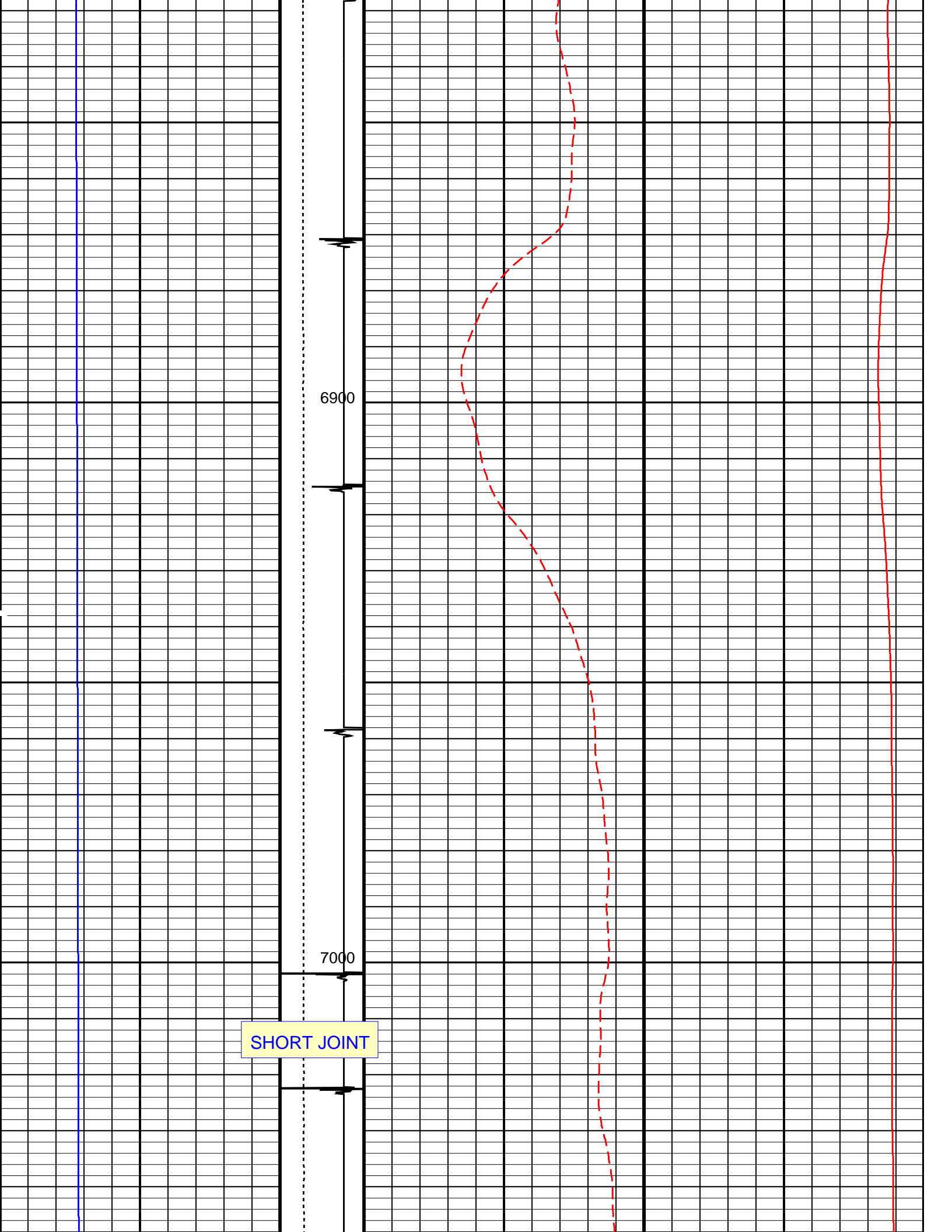


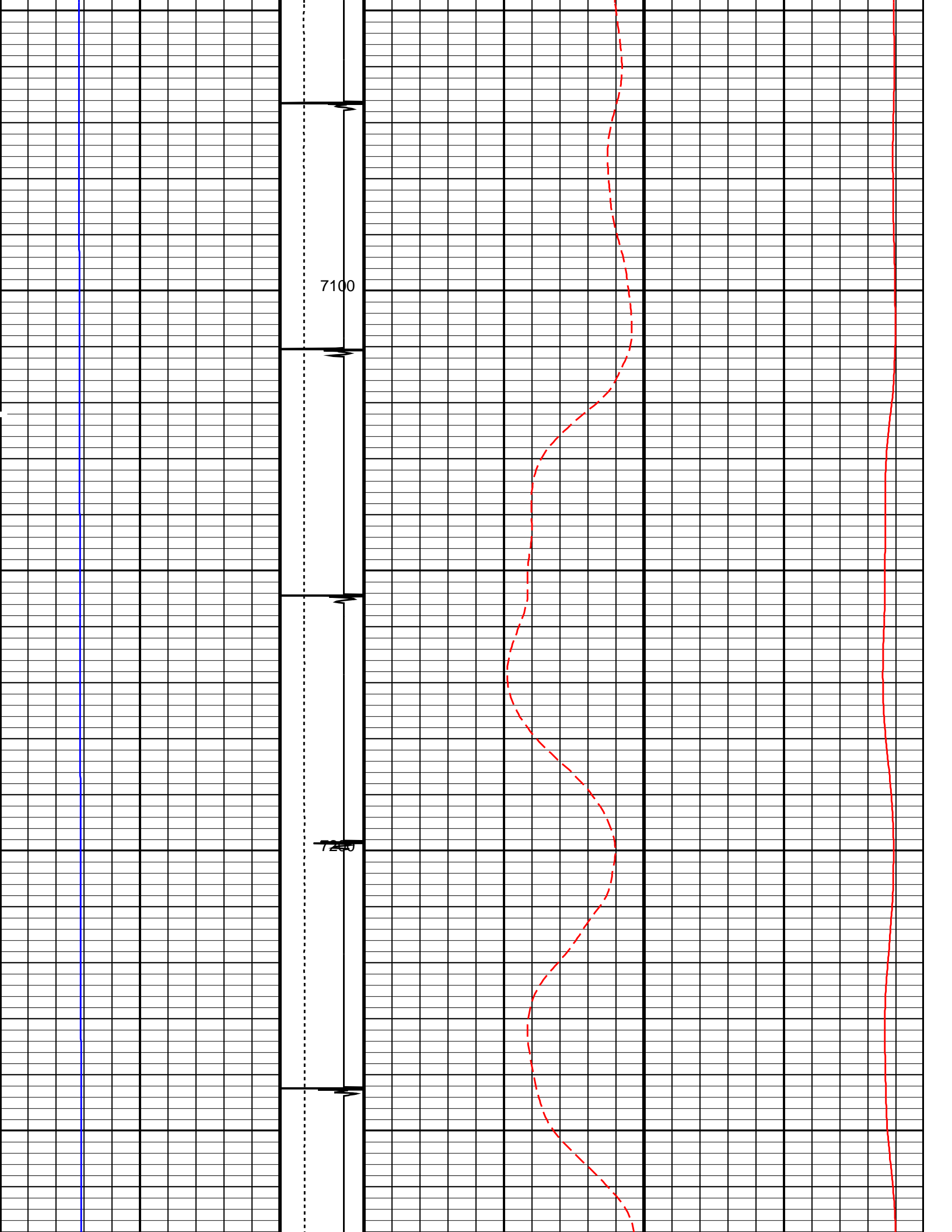


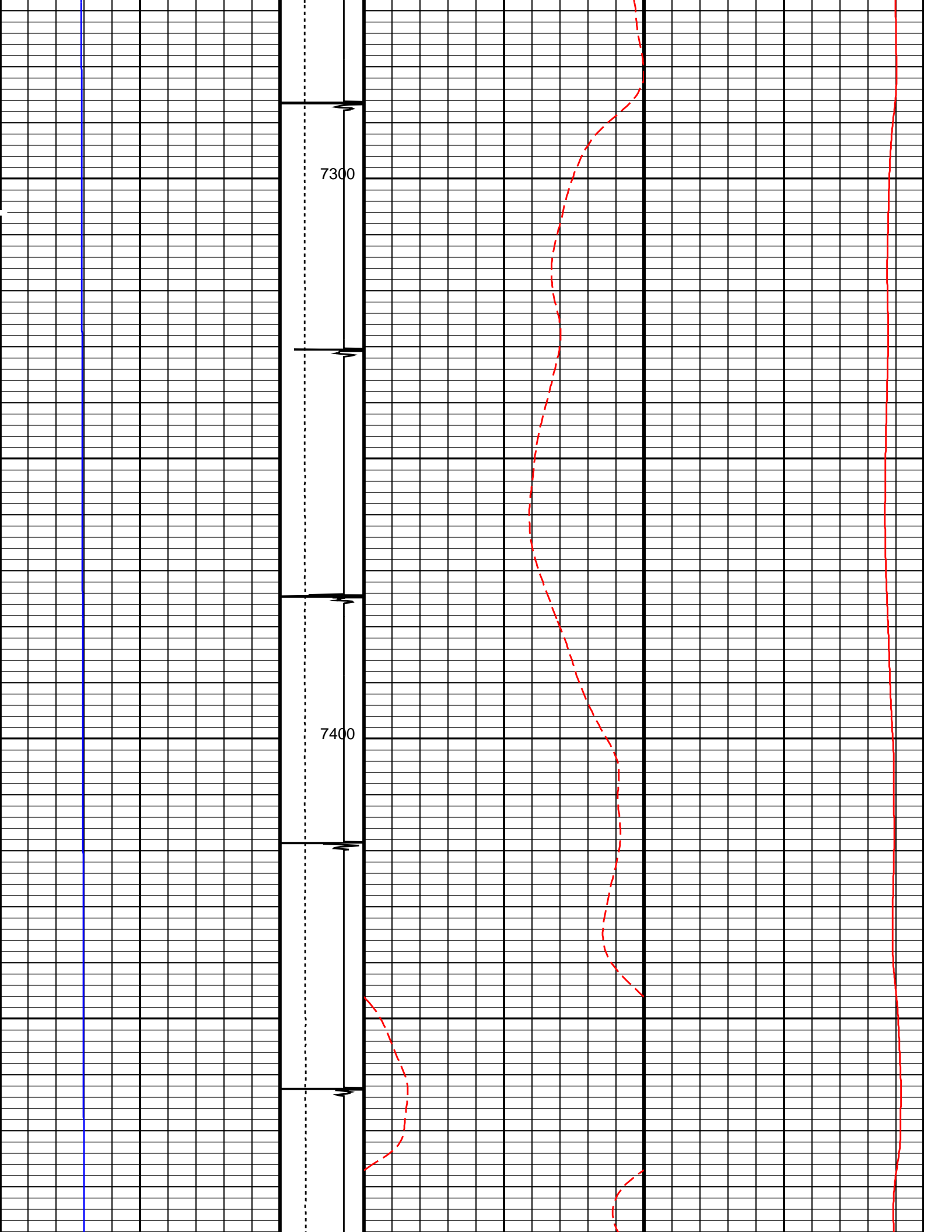


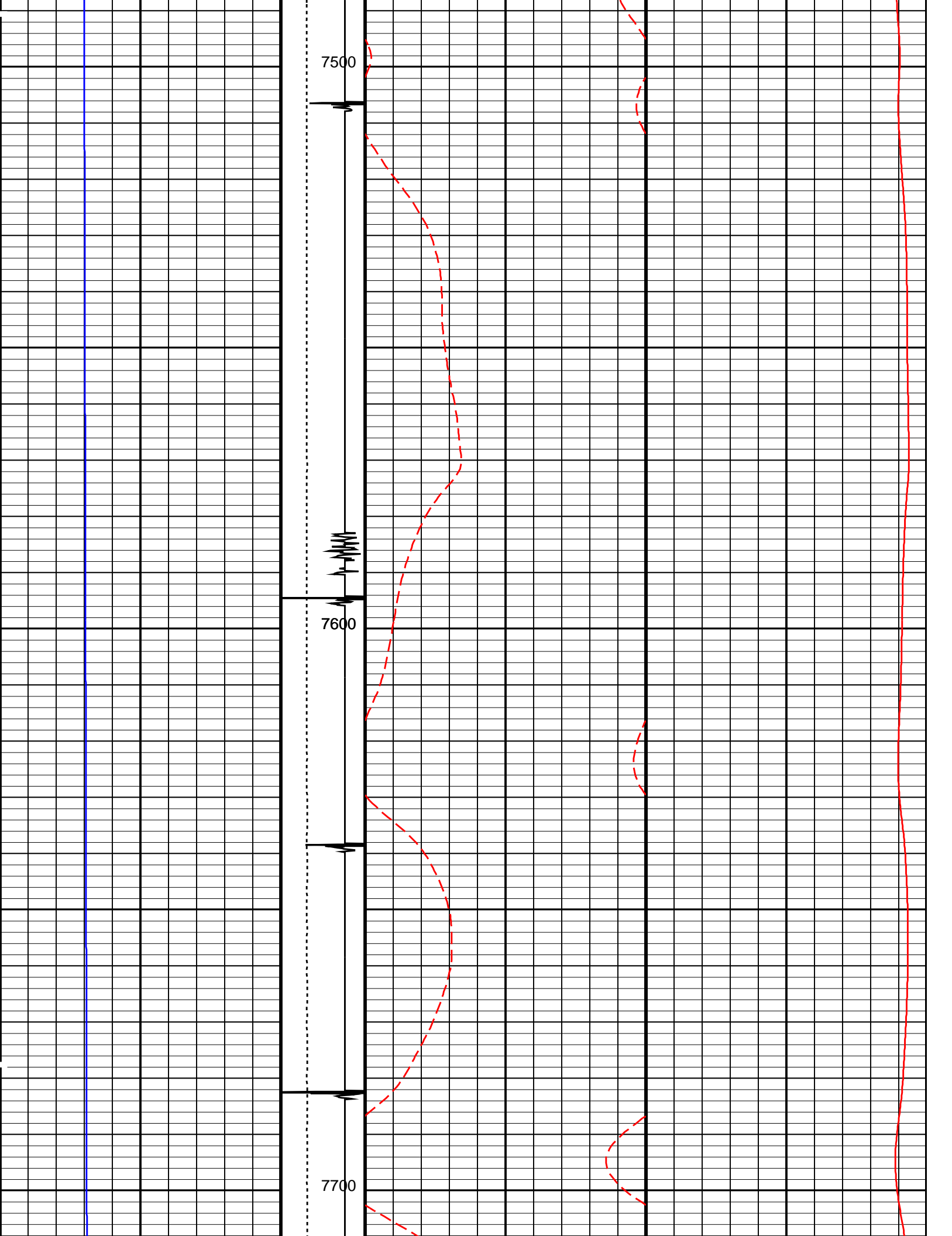


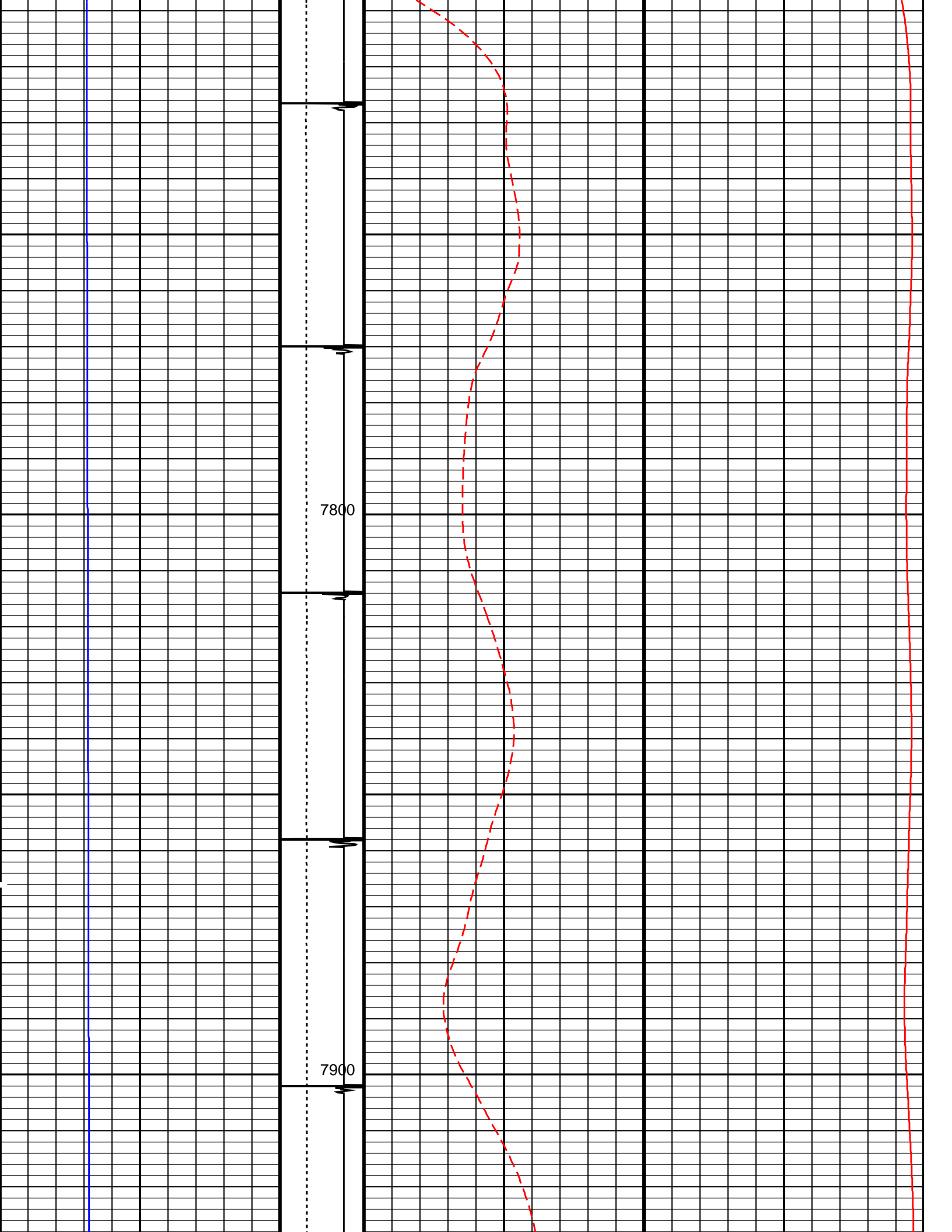


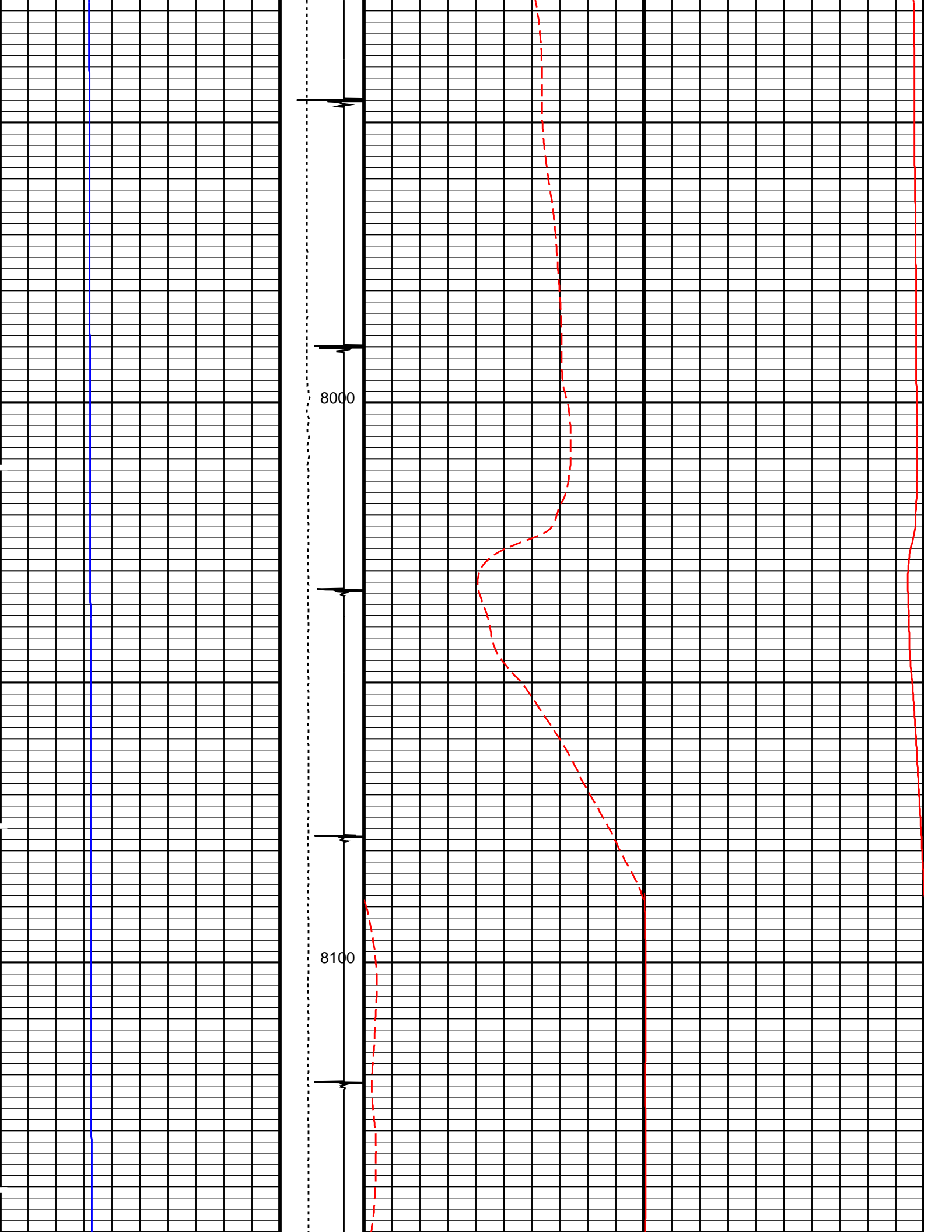


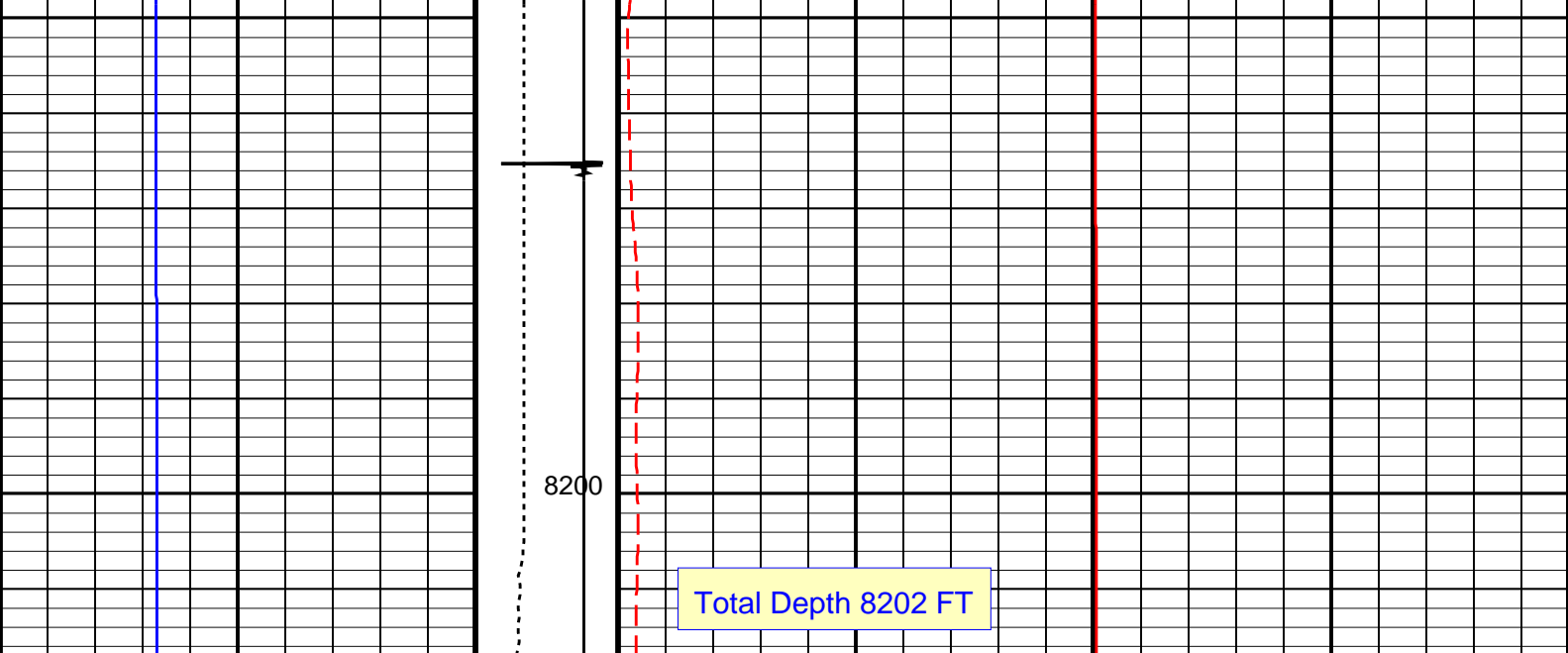












Well Pressure (WPRE) (PSIA)		10000	Tension (TENS) (LBF)	0	Well Temperature (WTEP) (DEGF)	20	Well Temperature (WTEP) (DEGF)	200
0			2000					
			Discriminat ed CCL (CCLD)					
			3 (V) -1					

PIP SUMMARY

 Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
DO PP	System and Miscellaneous Depth Offset for Playback Playback Processing	0.0 FT RECOMPUTE

Format: TEMP LOG Vertical Scale: 5" per 100' Graphics File Created: 01-Mar-2013 04:14

OP System Version: 19C0-187

HBMS-B SRPC-5214-H2-2012-OP19

Input DLIS Files

DEFAULT Flip_HBMS_004LUP PRODUCER 01-Mar-2013 04:13 8217.0 FT -10.5 FT

Output DLIS Files

DEFAULT HBMS_006PUP FN:3 PRODUCER 01-Mar-2013 04:14

Schlumberger

REPEAT ANALYSIS

Input DLIS Files

DEFAULT	Flip_HBMS_005LUP	PRODUCER	01-Mar-2013 04:13	8014.5 FT	7733.0 FT
DEFAULT	HBMS_006PUP	FN:3	PRODUCER	01-Mar-2013 04:14	8217.0 FT
					-10.5 FT

Output DLIS Files

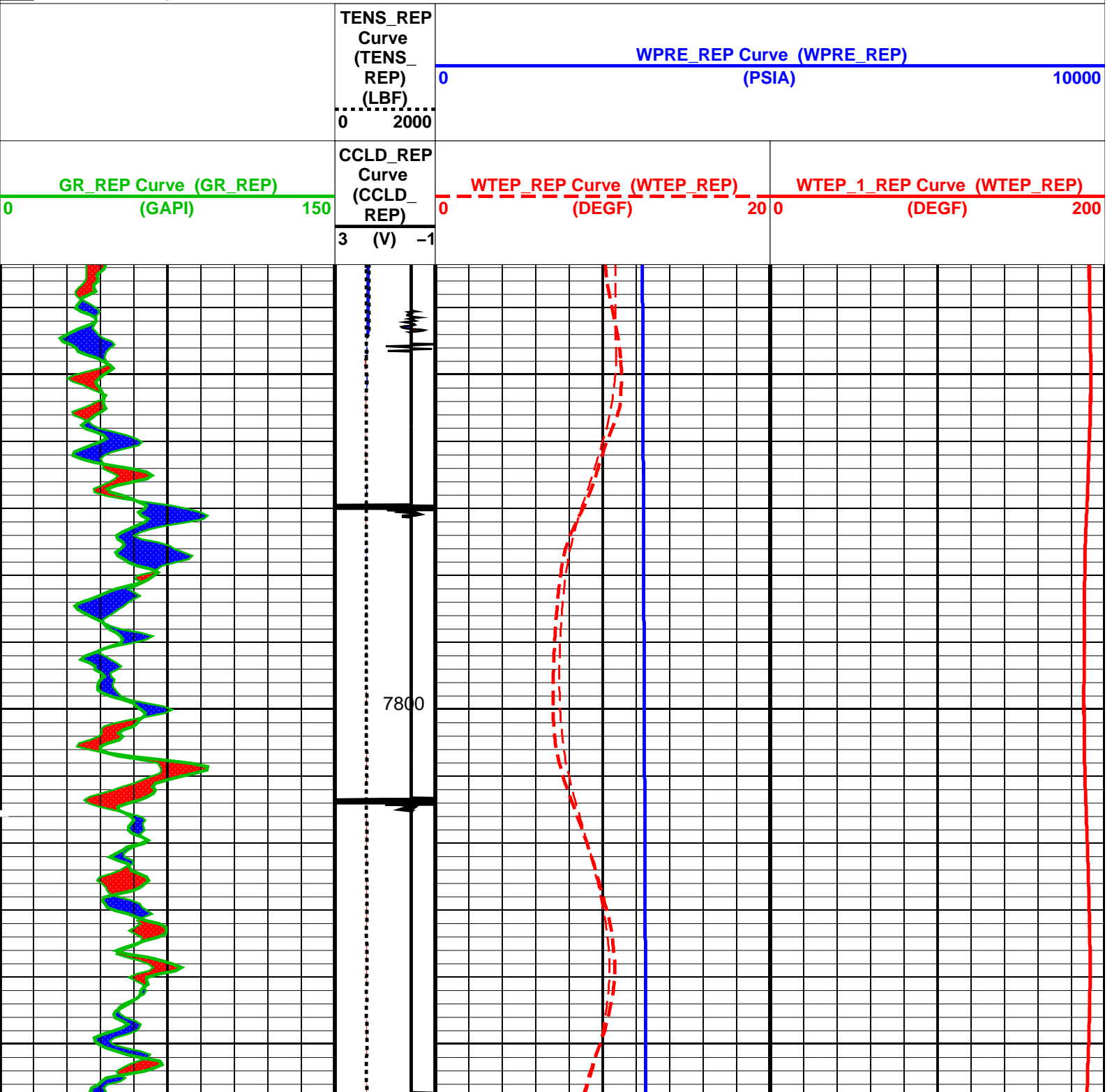
DEFAULT	HBMS_007PUP	FN:4	PRODUCER	01-Mar-2013 04:19	8014.5 FT	7733.0 FT
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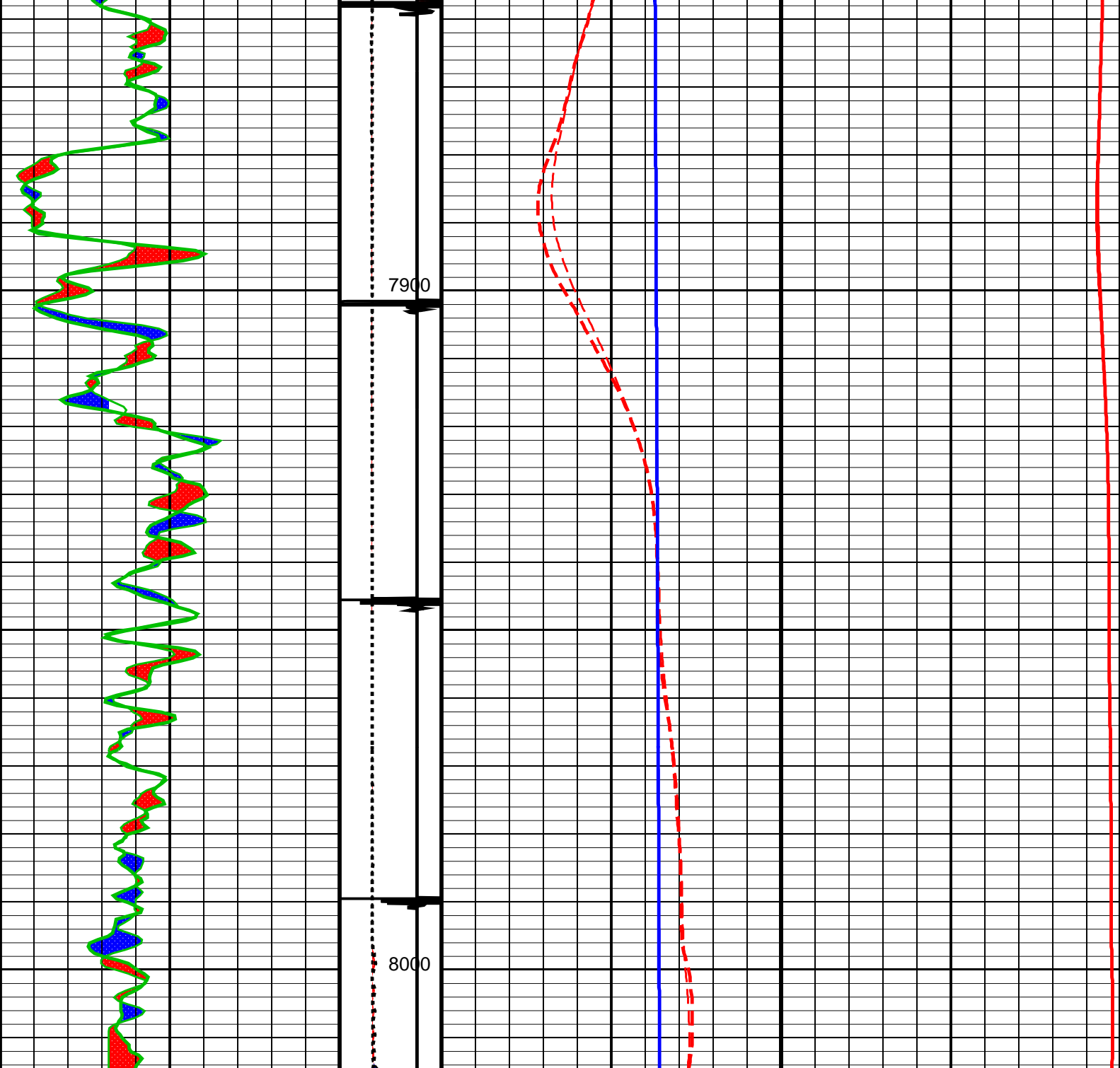
OP System Version: 19C0-187

HBMS-B SRPC-5214-H2-2012-OP19

PIP SUMMARY

Time Mark Every 60 S






<div>GR_REP Curve (GR_REP) (GAPI)</div> <div>0150</div>		<div>CCLD_REP Curve (CCLD_ REP)</div> <div>3 (V) -1</div>	<div>WTEP_REP Curve (WTEP_REP) (DEGF)</div> <div>020</div>		<div>WTEP_1_REP Curve (WTEP_REP) (DEGF)</div> <div>0200</div>	
		<div>TENS_REP Curve (TENS_ REP) (LBF)</div> <div>02000</div>	<div>WPRE_REP Curve (WPRE_REP) (PSIA)</div> <div>010000</div>			

PIP SUMMARY

Time Mark Every 60 S

Parameters		
DLIS Name	Description	Value
Custom and Miscellaneous		

System and Miscellaneous		Depth Offset for Playback		0.0 FT	
DO		Depth Offset for Repeat Analysis		0.0 FT	
DORL		Playback Processing		RECOMPUTE	
PP					
Format: TEMP LOG_REP		Vertical Scale: 5" per 100'		Graphics File Created: 01-Mar-2013 04:19	
OP System Version: 19C0-187					
HBMS-B		SRPC-5214-H2-2012-OP19			
Input DLIS Files					
DEFAULT	Flip_HBMS_005LUP	PRODUCER	01-Mar-2013 04:13	8014.5 FT	7733.0 FT
DEFAULT	HBMS_006PUP	FN:3	PRODUCER	01-Mar-2013 04:14	8217.0 FT
Output DLIS Files					
DEFAULT	HBMS_007PUP	FN:4	PRODUCER	01-Mar-2013 04:19	



HBMS COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	ENCANA FEDERAL 24-10D (K19CNE)	Sensor:	GR
Run date:	1-Mar-2013		

PBMS Gamma Ray

Sonde Serial NB	RESISTORS FOR GR SENSOR N.34384,TOOL HBMS-BA2880. SENSOR S/N:
Sensor Serial NB	34384
Calib Date ddmmyy	160206
Matrix Size	12
Coeff CRC	D8B5

GR HV Rt

Rt**0	Rt**1		
Rt**0	<table><tr><td>+.200000000000e+04</td><td>+.173000000000e+04</td></tr></table>	+.200000000000e+04	+.173000000000e+04
+.200000000000e+04	+.173000000000e+04		

Client: ENCANA OIL & GAS (USA) INC

Field: MAMM CREEK

Well: ENCANA FEDERAL 24–10D (K19CNE)

Run date: 1–Mar–2013

Tool: PSP

Sub Type: PBMS

Sensor: WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

COEFFICIENTS FOR RTD THERMOMETER PBMS–B.2880 S/N:

2880

260408

16

A3AF

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	–.104337336008E+04	+.798824971753E+03	–.251944021281E+03
	Tt**3	Tt**4	Tt**5
Tt**0	+.406192777109E+02	–.240958437264E+01	0.0

Client: ENCANA OIL & GAS (USA) INC

Field: MAMM CREEK

Well: ENCANA FEDERAL 24–10D (K19CNE)

Run date: 1–Mar–2013

Tool: PSP

Sub Type: PBMS

Sensor: CQG

PBMS Quartz Gauge type F

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

COEFFICIENTS FOR CQG PBMS–B.2880 S/N:

2880

260408

66

66B8

Pres Coeff

	Fb**0	Fb**1	Fb**2
Fc**0	+.694668499013E+04	+.138137467574E–01	–.206148488488E–06

Fc**1	−.104285125976E+01	−.125721589078E−04	−.971577899959E−10
Fc**2	+.101045175546E−05	+.480801816357E−10	+.889110474366E−15
Fc**3	+.127326781620E−11	+.130693902354E−15	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0
Fb**3Fb**4Fb**5			
Fc**0	−.802395356069E−10	−.148392899370E−14	−.162952476494E−19
Fc**1	+.114970383999E−15	+.186330526680E−19	0.0
Fc**2	0.0	0.0	0.0
Fc**3	0.0	0.0	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :
Sensor Serial NB 2880
Calib Date ddmmyy 260408
Matrix Size 66
Coeff CRC 3690

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+.114978632240E+03	−.318843725686E−03	+.651766172344E−08
Fb**1	−.590205352250E−02	+.168686572404E−07	+.162345150354E−12
Fb**2	−.362996279263E−07	+.407654559315E−12	+.452411391342E−17
Fb**3	−.276281361281E−12	+.871817059405E−17	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0
Fc**3Fc**4Fc**5			
Fb**0	+.199118144093E−13	−.260997933236E−18	+.618908211390E−21
Fb**1	+.250084591851E−17	+.455070709200E−21	0.0
Fb**2	0.0	0.0	0.0
Fb**3	0.0	0.0	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

PBMS Quartz Gauge type F

Sonde Serial NB :
Sensor Serial NB 2880
Calib Date ddmmyy 260408
Matrix Size 16
Coeff CRC 71B5

Clock Freq Coeff

	(Fb'–Fc')**0	(Fb'–Fc')**1	(Fb'–Fc')**2
(Fb'–Fc')**0	+.310736316923E+05	+.273670214709E–02	+.731815197856E–06
	(Fb'–Fc')**3	(Fb'–Fc')**4	(Fb'–Fc')**5
(Fb'–Fc')**0	–.654219198492E–10	–.150585137208E–15	–.117697151708E–19

PBMS Quartz Gauge type F

Sonde Serial NB :
Sensor Serial NB 2880
Calib Date ddmmyy 260408
Matrix Size 16
Coeff CRC ECB5

Clock Temp Coeff

	(Fb'–Fc')**0	(Fb'–Fc')**1	(Fb'–Fc')**2
(Fb'–Fc')**0	+.116053417872E+03	–.554118045908E–02	–.348241454518E–07
	(Fb'–Fc')**3	(Fb'–Fc')**4	(Fb'–Fc')**5
(Fb'–Fc')**0	+.207992675474E–12	–.353168788938E–17	–.345142848607E–21

Company: ENCANA OIL & GAS (USA) INC



Well: ENCANA FEDERAL 24–10D (K19CNE)
Field: MAMM CREEK
County: GARFIELD
State: COLORADO

TEMPERATURE LOG
CCL – TEMPERATURE