

Company: ENCANA OIL & GAS (USA) INC

Well: HMU 6-13A (J6SEB)

Field: MAMM CREEK

County: GARFIELD

State: COLORADO

TEMPERATURE LOG
CCL

County:	GARFIELD		
Field:	MAMM CREEK		
Location:	SHL: 1945 FSL & 1908 FEL		
Well:	HMU 6-13A (J6SEB)		
Company:	ENCANA OIL & GAS (USA) INC		
LOCATION			
SHL: 1945 FSL & 1908 FEL BHL: 1198 FSL & 745 FWL		Elev.: K.B. 7165.00 ft G.L. 7143.00 ft D.F. 7164.00 ft	
Permanent Datum:	GROUND LEVEL	Elev.: 7143.00 ft	
Log Measured From:	KELLY BUSHING	22.00 ft	above Perm. Datum
Drilling Measured From:	KELLY BUSHING		
API Serial No.	Section 6	Township 8S	Range 92W
05-045-21941-00			

	Run 1	Run 2	Run 3
PVT 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 Date	22-Oct-2013		
Run Number	1		
Depth Driller	8989 ft		
Schlumberger Depth	8947 ft		
Bottom Log Interval	8946 ft		
Top Log Interval	0 ft		
Casing Fluid Type	FRESH WATER		
Salinity			
Density	8.45 lbm/gal		
Fluid Level	0 ft		
BIT/CASING/TUBING STRING			
Bit Size	8.750 in		
From	0 ft		
To	8989 ft		
Casing/Tubing Size	4.500 in		
Weight	11.6 lbm/ft		
Grade	L80		
From	0 ft		
To	8989 ft		
Maximum Recorded Temperatures	222 degF		
Logger On Bottom	22-Oct-2013	6:30	
Unit Number	Location	409 GRAND JUNCTION	
Recorded By	BRANDON CUPP		
Witnessed By	TONY		

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	Location		
Recorded By			
Witnessed By			

DEPTH SUMMARY LISTING

Date Created: 16-JUL-2013 14:30:54

Depth System Equipment

Depth Measuring Device		Tension Device		Logging Cable	
Type:	IDW-B	Type:	CMTD-B/A	Type:	1-25ZT
Serial Number:	6217	Serial Number:	5006	Serial Number:	112135
Calibration Date:	6-26-2012	Calibration Date:	07-16-2013	Length:	20000 FT
Calibrator Serial Number:		Calibrator Serial Number:			
Calibration Cable Type:	1-25ZT	Number of Calibration Points:	10	Conveyance Method:	Wireline
Wheel Correction 1:	1	Calibration RMS:	6	Rig Type:	LAND
Wheel Correction 2:	-3	Calibration Peak Error:	15		

Depth Control Parameters

Log Sequence:	First Log In the Well
Rig Up Length At Surface:	0.00 FT
Rig Up Length At Bottom:	0.00 FT
Rig Up Length Correction:	0.00 FT
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.

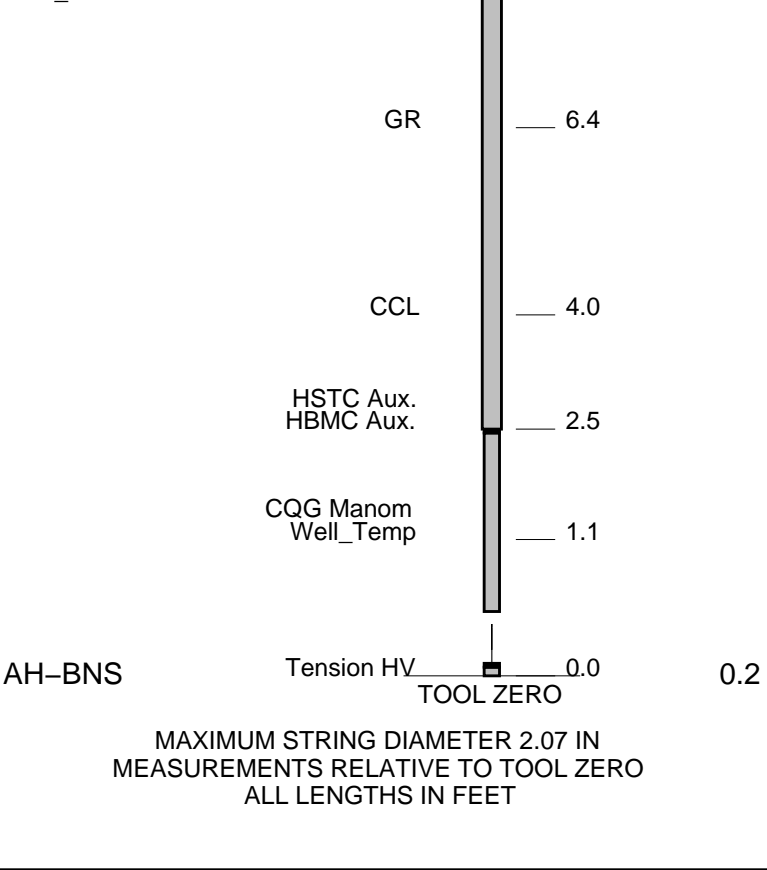
DISCLAIMER

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	OTHER SERVICES2
OS1: NONE	OS1:
OS2:	OS2:
OS3:	OS3:
OS4:	OS4:
OS5:	OS5:
REMARKS: RUN NUMBER 1	REMARKS: RUN NUMBER 2
RUN NUMBER 1	
TOOL RAN AS PER TOOL SKETCH	
ENTRANCE TIME: 05:30	
TIME ON BOTTOM: 06:30	
EXIT TIME: 07:15	

MAXIMUM RECORDED TEMPERATURE: 222 DEGF.					
MAXIMUM RECORDED PRESSURE: 3733 PSIA.					
SHORT JOINTS: 6826' – 6846' , 7818' – 7840'					
THANK YOU FOR USING E&P WIRELINE, A SCHLUMBERGER COMPANY					
CREW: BCUPP, JORTIZ, MPEDLER					
<div> <div>RUN 1</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION:</div> <div>FLUID LEVEL:</div> </div> <div> <div>CJT0-00019</div> <div>19C0-187</div> <div>0 ft</div> </div> </div>			<div> <div>RUN 2</div> <div> <div>SERVICE ORDER #:</div> <div>PROGRAM VERSION:</div> <div>FLUID LEVEL:</div> </div> </div>		
LOGGED INTERVAL	START	STOP	LOGGED INTERVAL	START	STOP

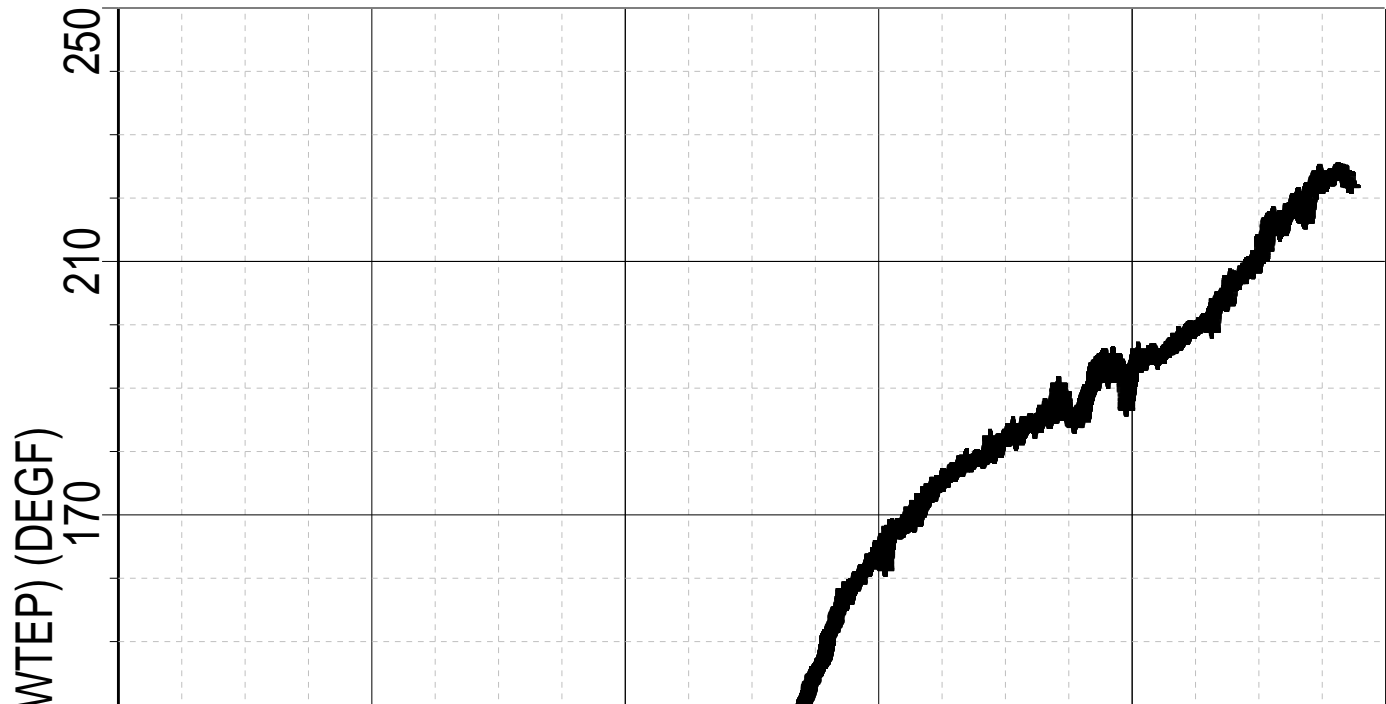
EQUIPMENT DESCRIPTION					
RUN 1			RUN 2		
<div> <div>SURFACE EQUIPMENT</div> <div> <div>WITM-A</div> <div>PSC_16MHZ</div> </div> </div>					
<div> <div>DOWNHOLE EQUIPMENT</div> <div> <div> <div>MH-22</div> <div>MH-22</div> <div>13.1</div> </div> <div> <div>AH-38</div> <div>Detail MT</div> <div>TelStatus</div> <div>CTEM</div> <div>11.6</div> </div> <div> <div>HBMS-B</div> <div>PSC-A</div> <div>HUDH-A</div> <div>HSTC-A</div> <div>HBMC-A</div> <div>GR</div> <div>CCL</div> <div>HBMC</div> <div>HTPS-A</div> <div>HCQG_E_Mano</div> <div>RTD Thermometer</div> <div>11.3</div> </div> </div> </div>					

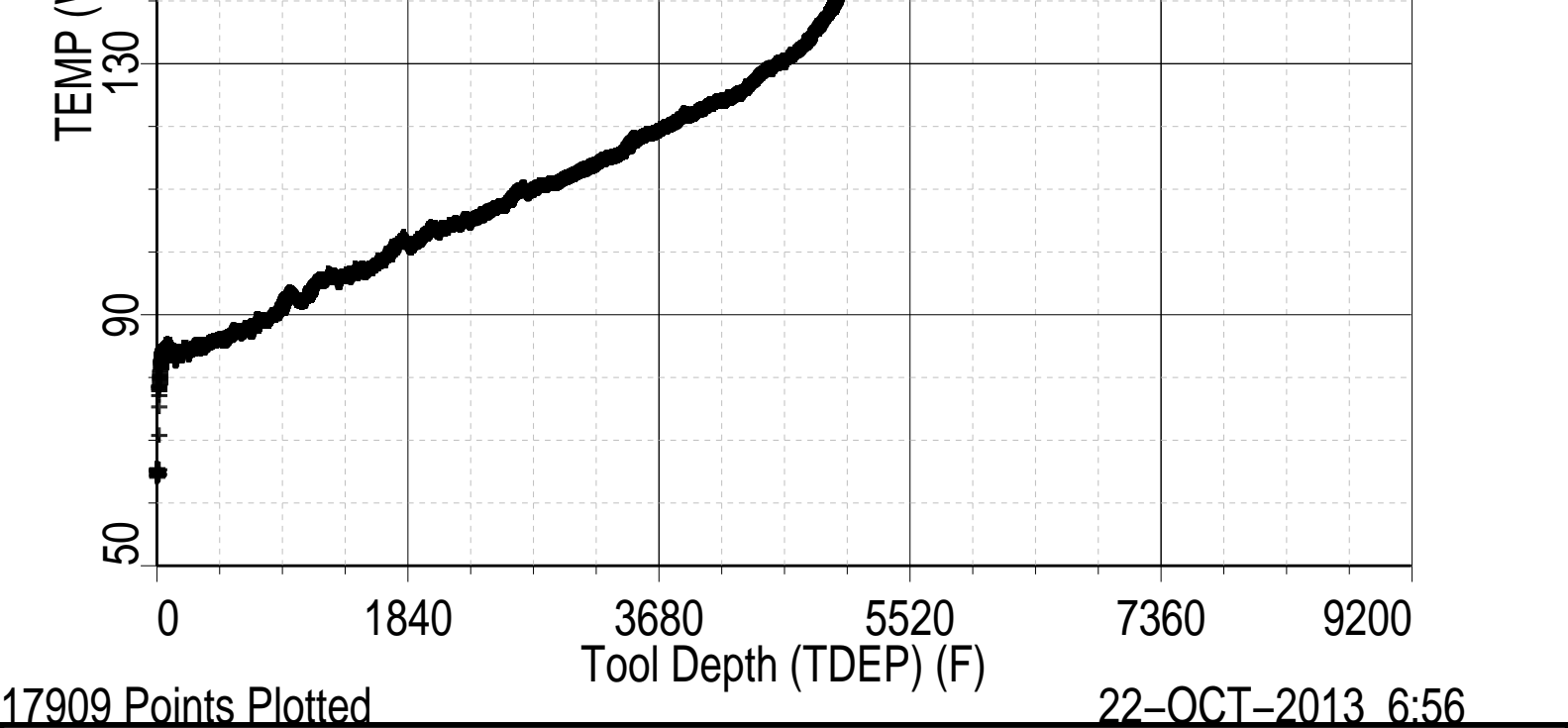


TEMPERATURE PLOT

MAXIS Field Log

Index: 8954.0 – -19.5 FT





TEMPERATURE LOG

MAXIS Field Log

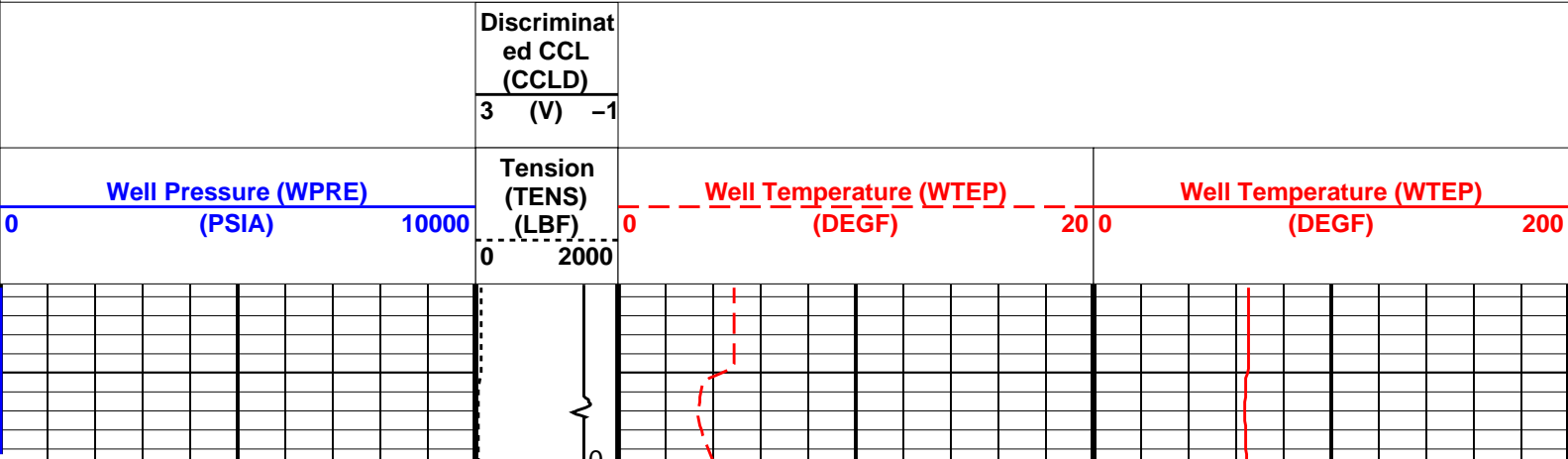
Company: ENCANA OIL & GAS (USA) INC Well: HMU 6-13A (J6SEB)

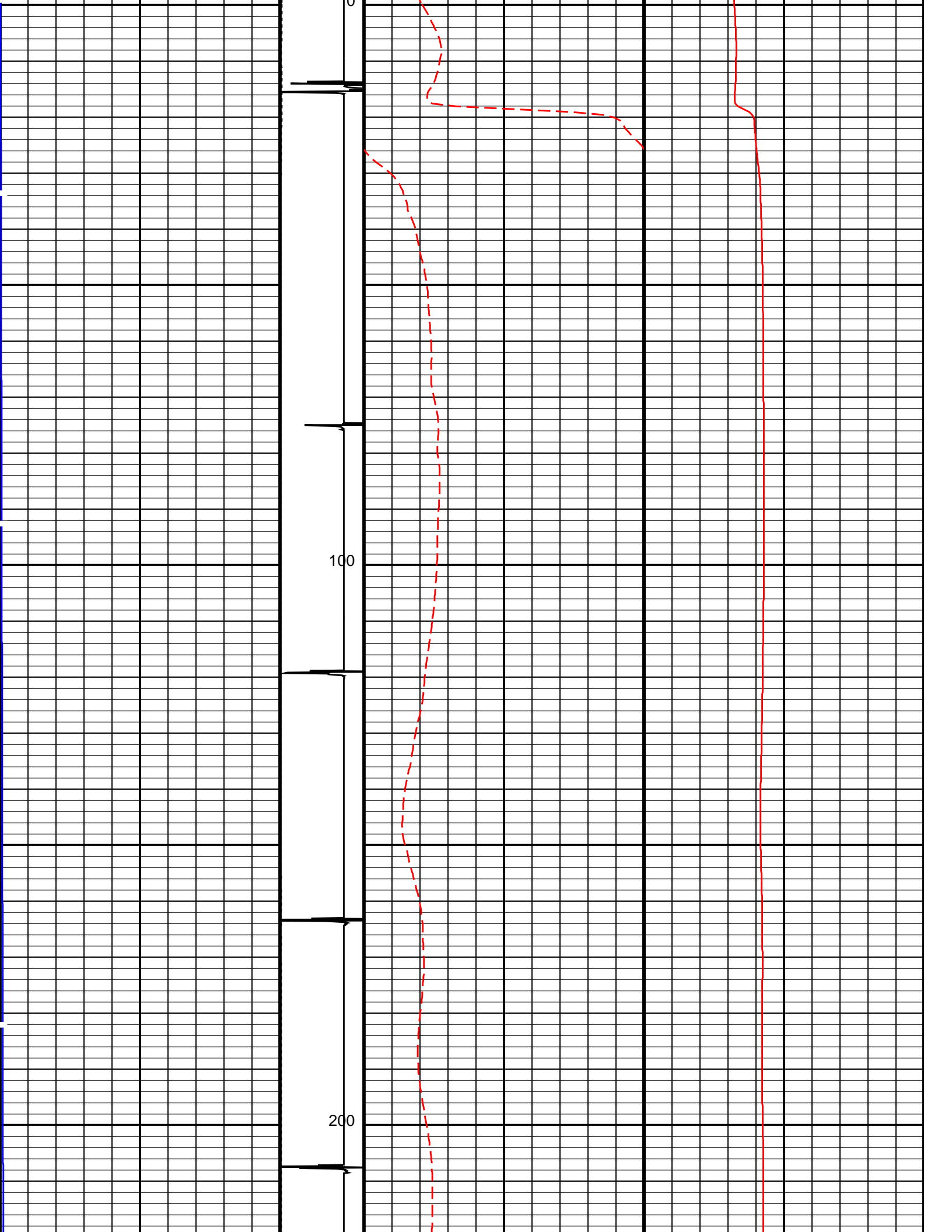
Input DLIS Files					
DEFAULT	Flip_Splice_HBMS_009CUP	PRODUCER	22-Oct-2013 06:42	8963.0 FT	-10.5 FT
Output DLIS Files					
DEFAULT	HBMS_012PUP	FN:8	PRODUCER	22-Oct-2013 06:47	8954.0 FT -19.5 FT

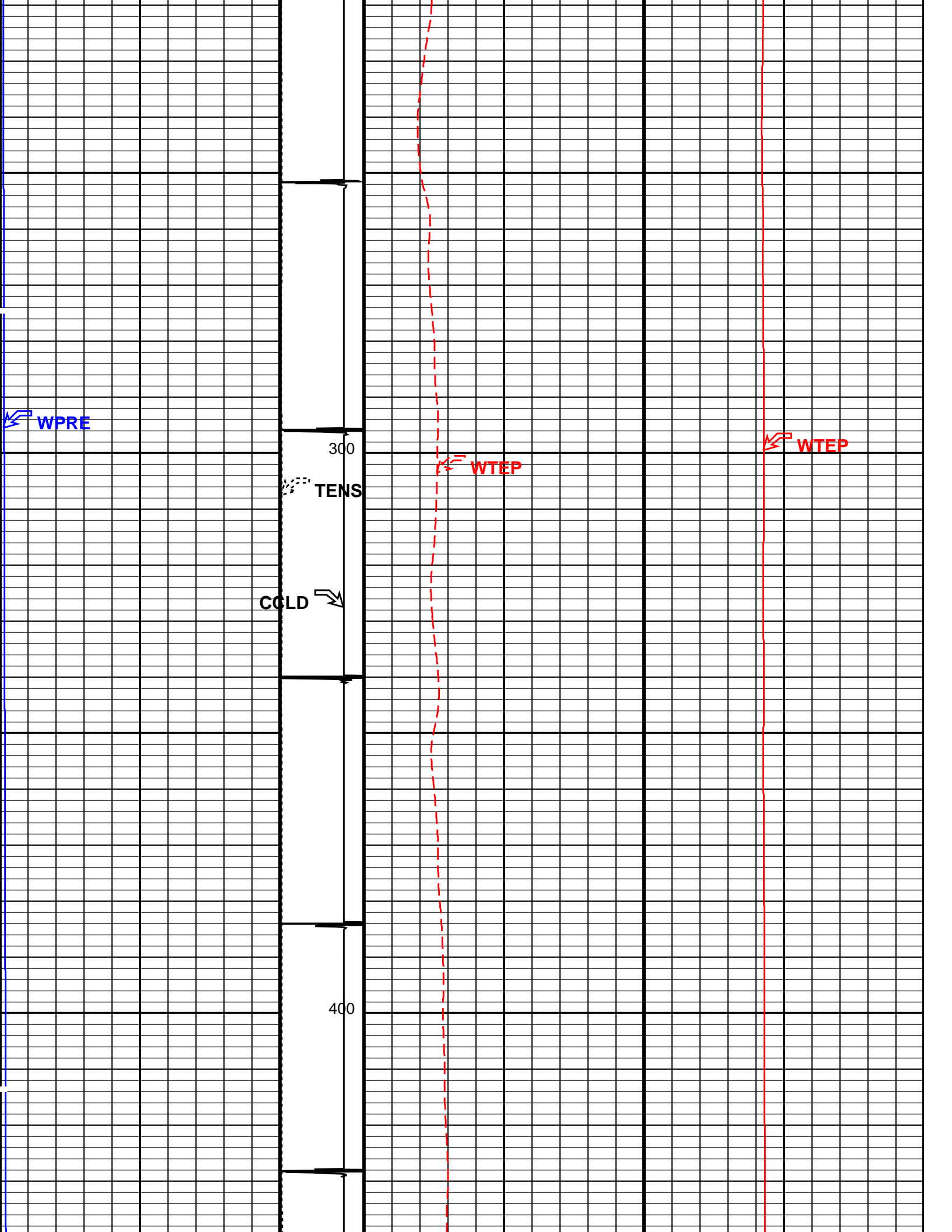
OP System Version: 19C0-187	
HBMS-B	19C0-187

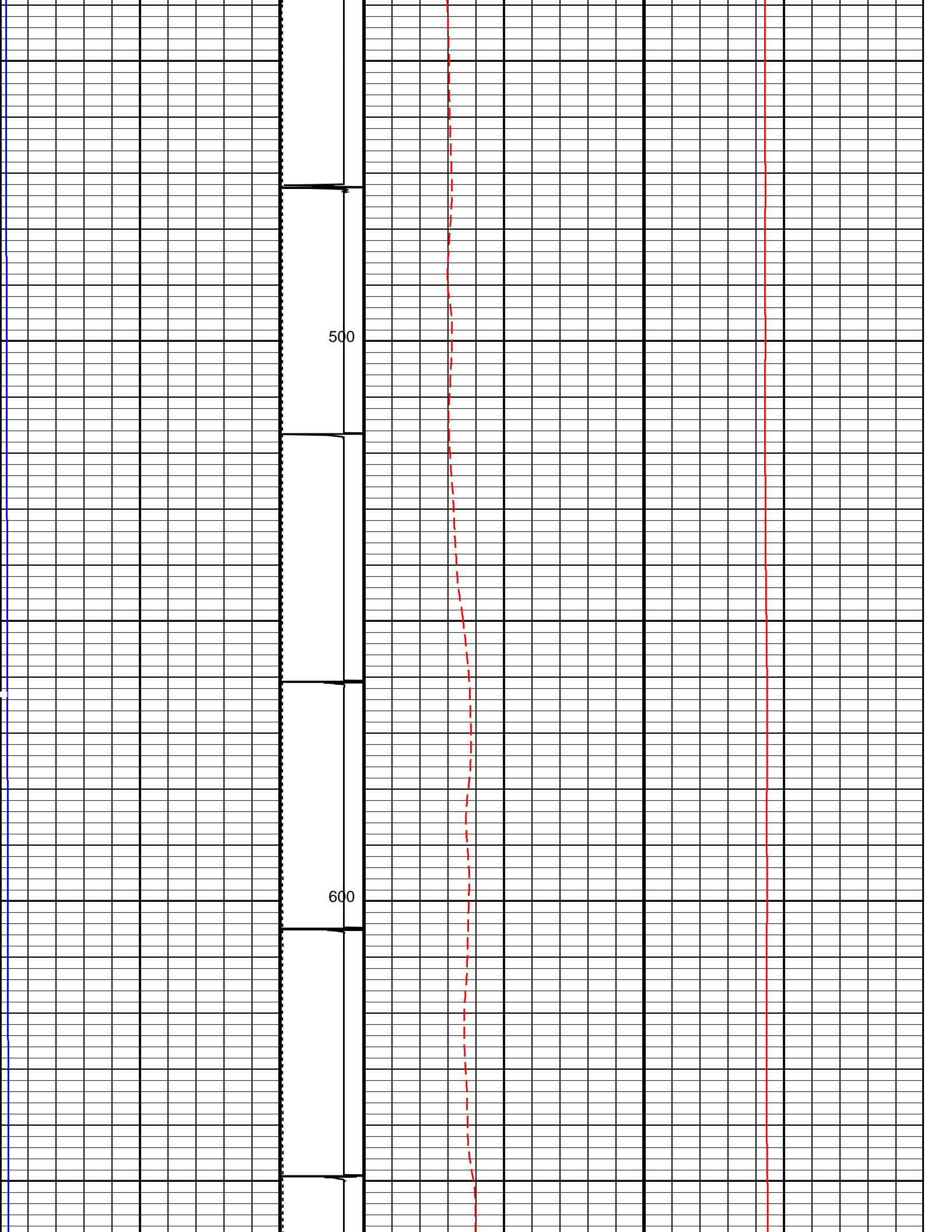
PIP SUMMARY

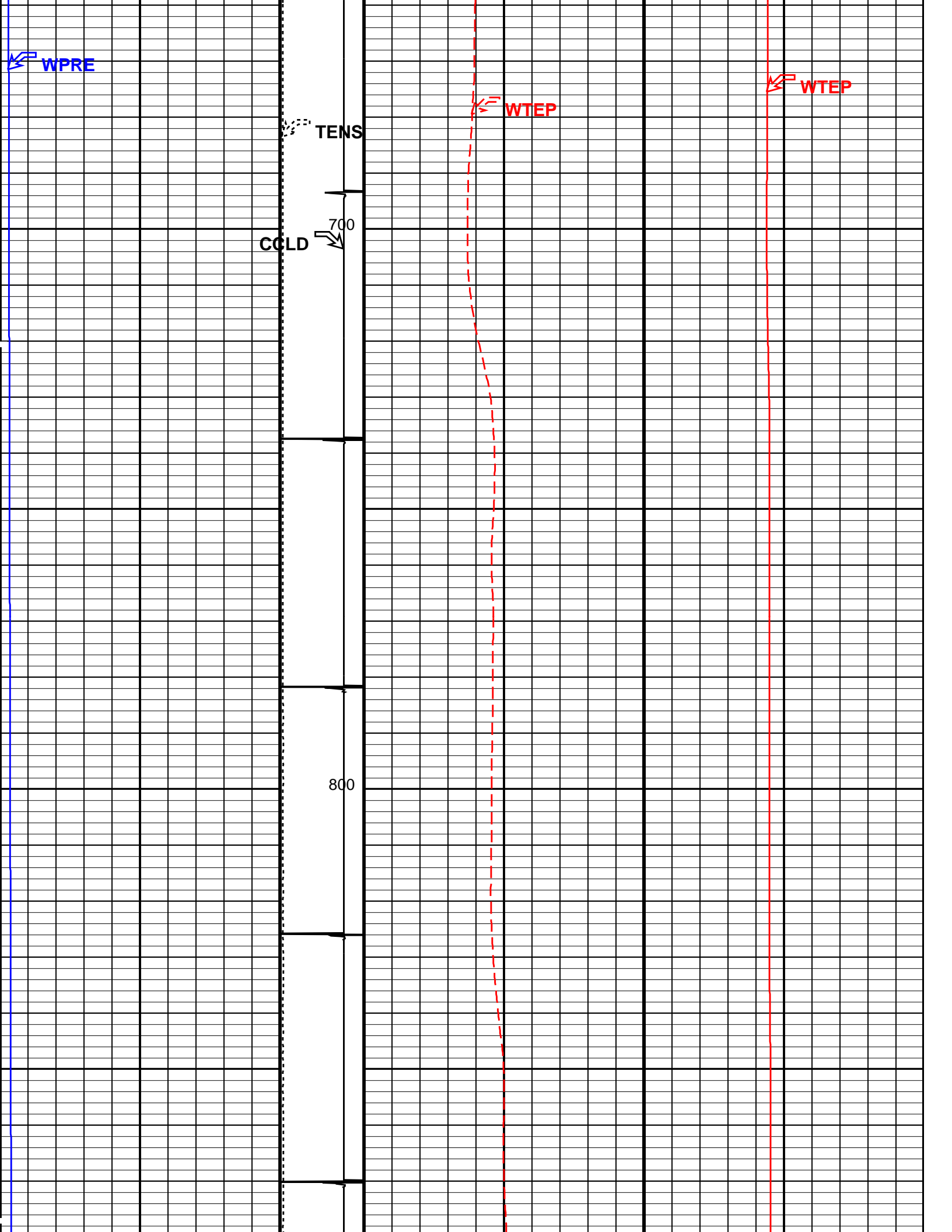
☒ Time Mark Every 60 S

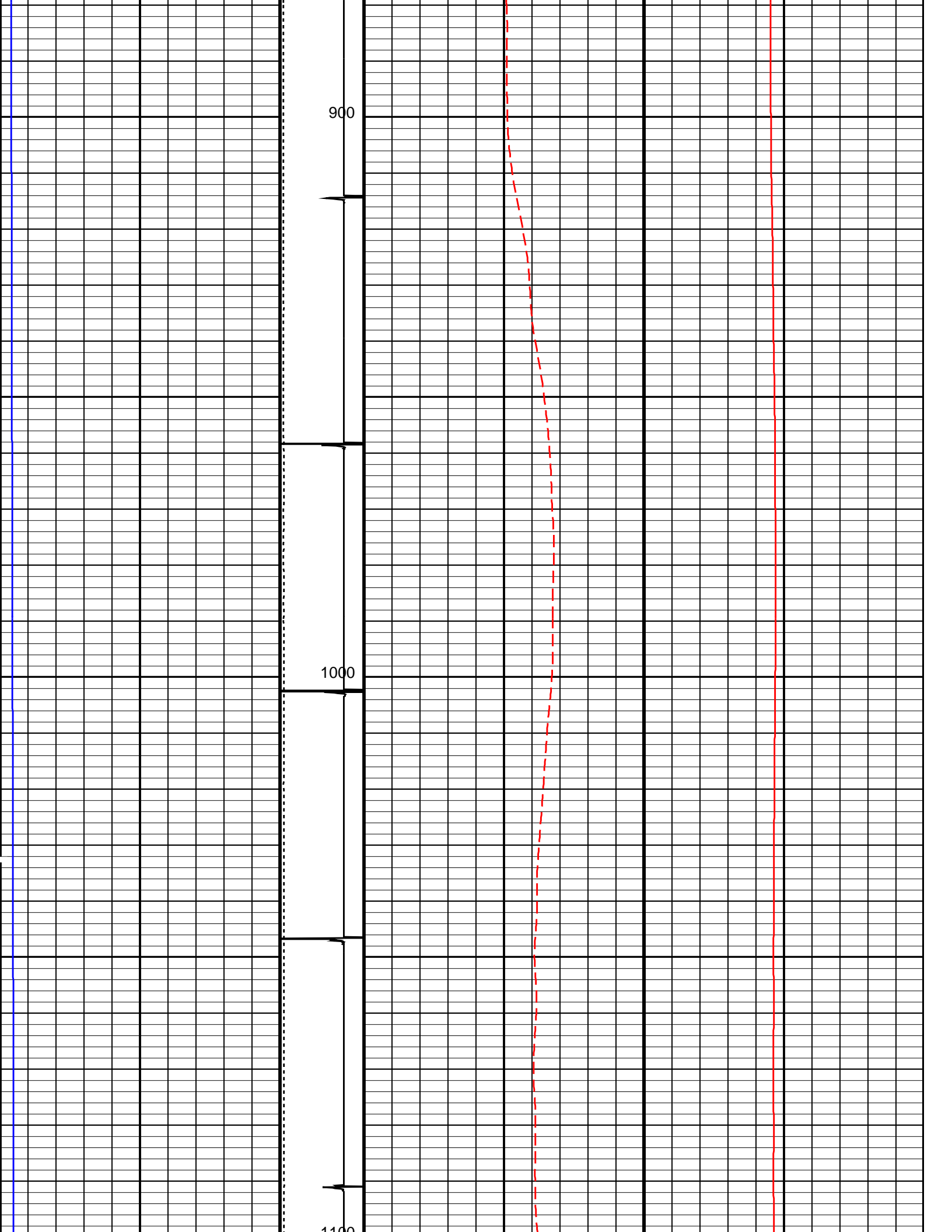


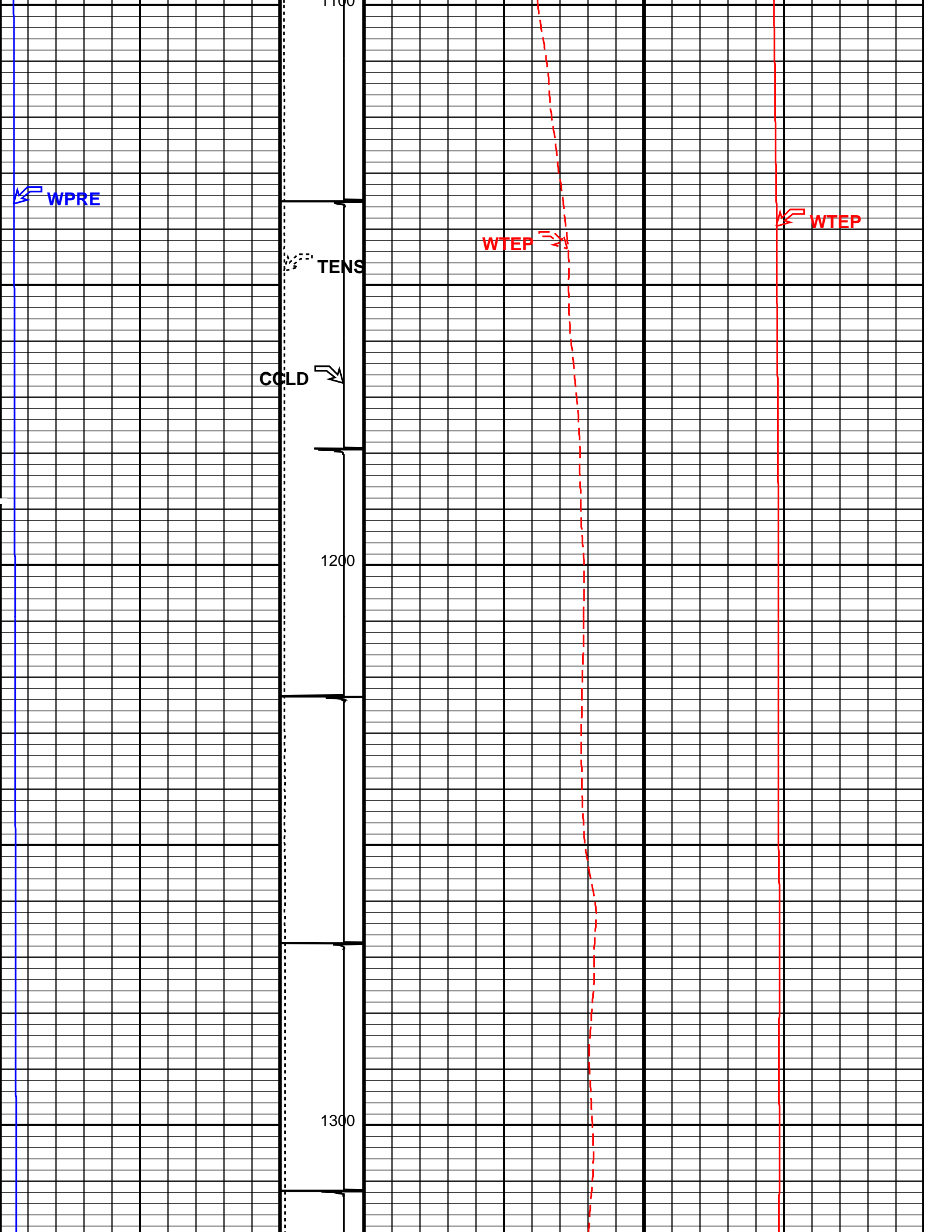


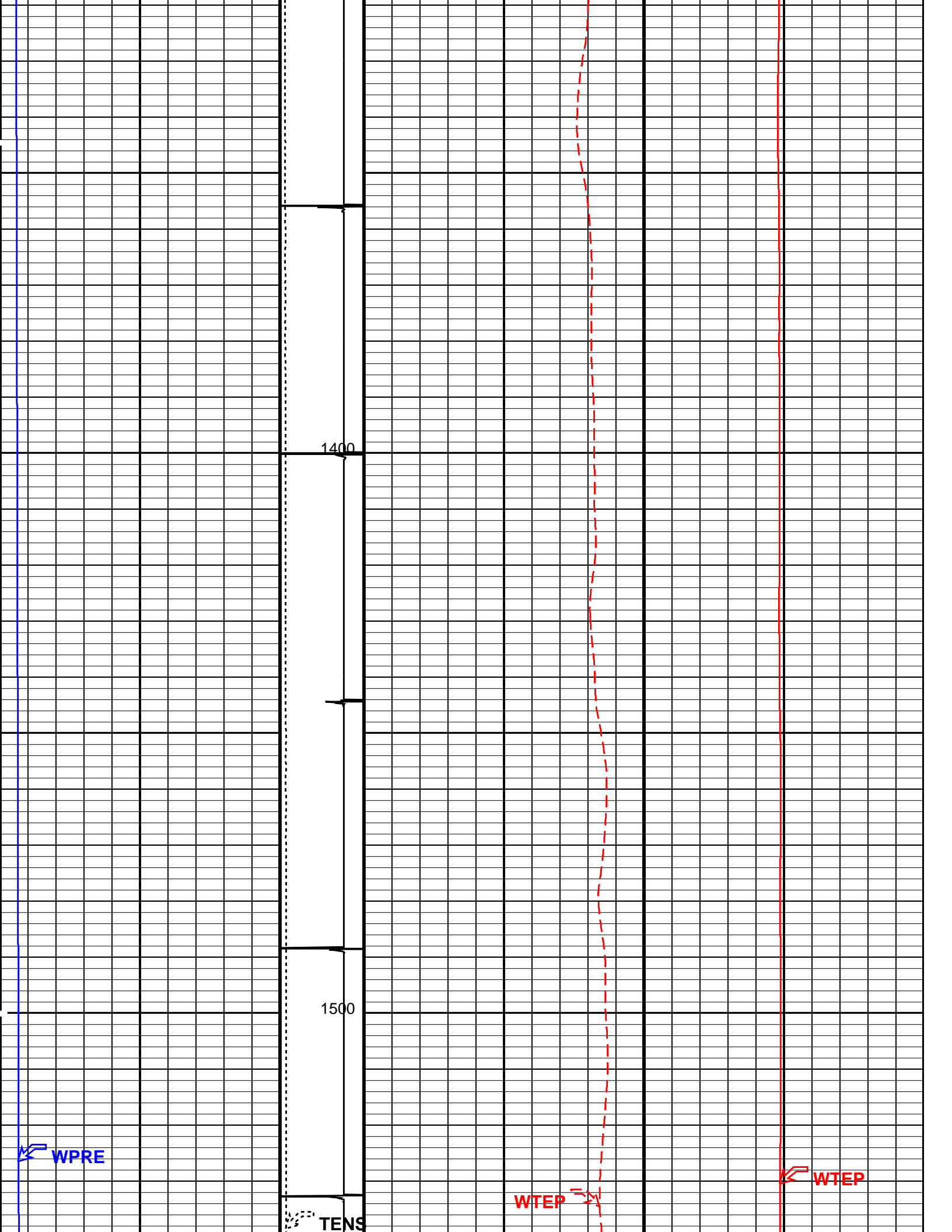


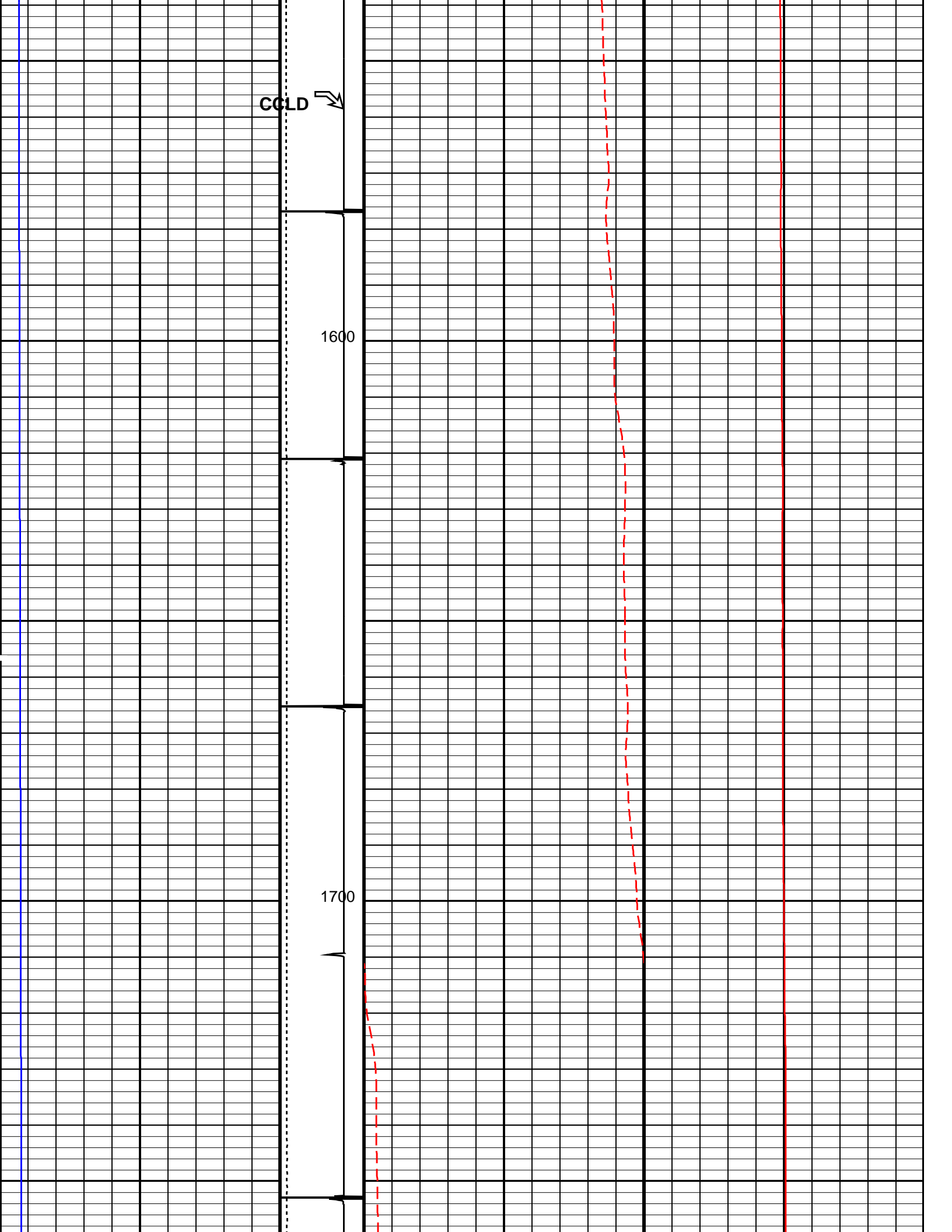


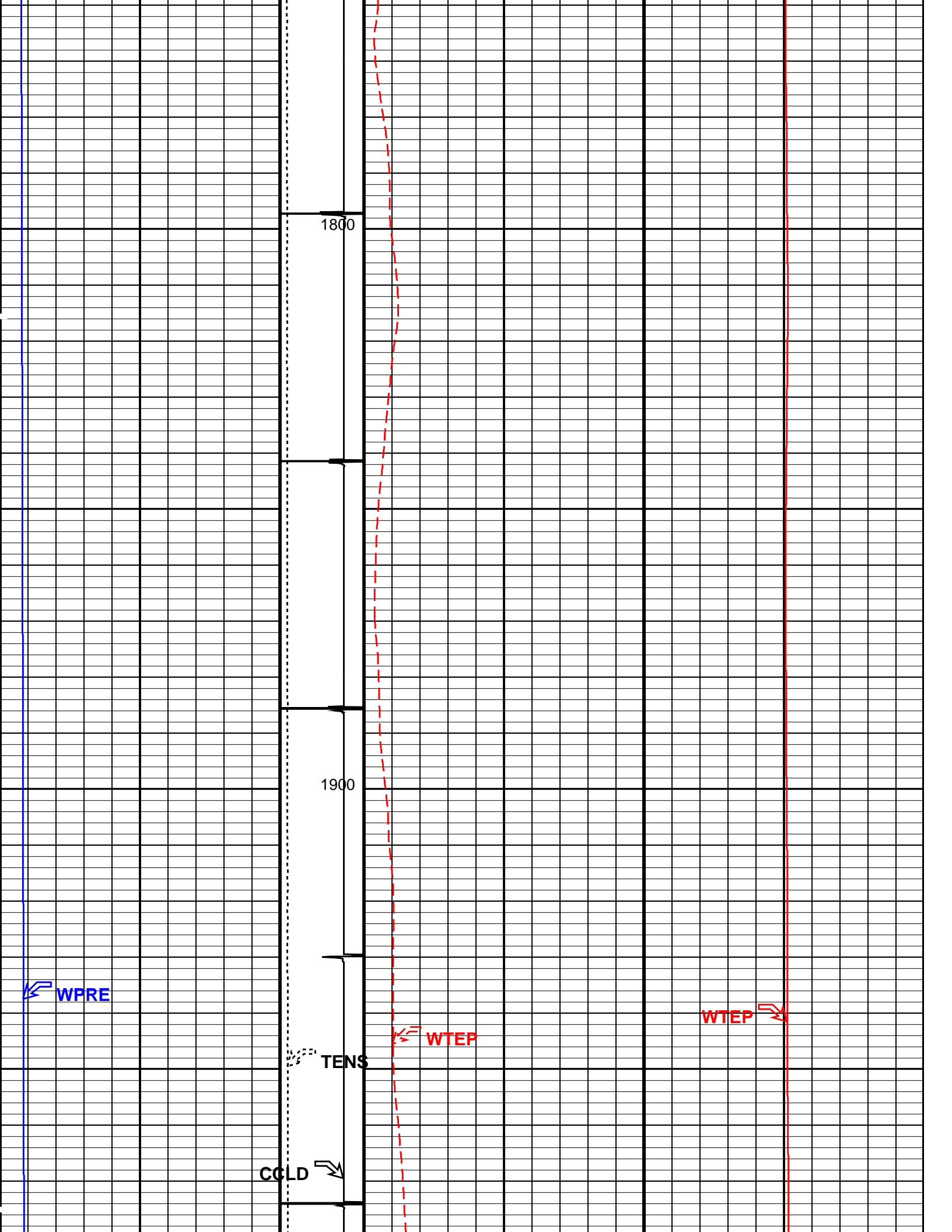


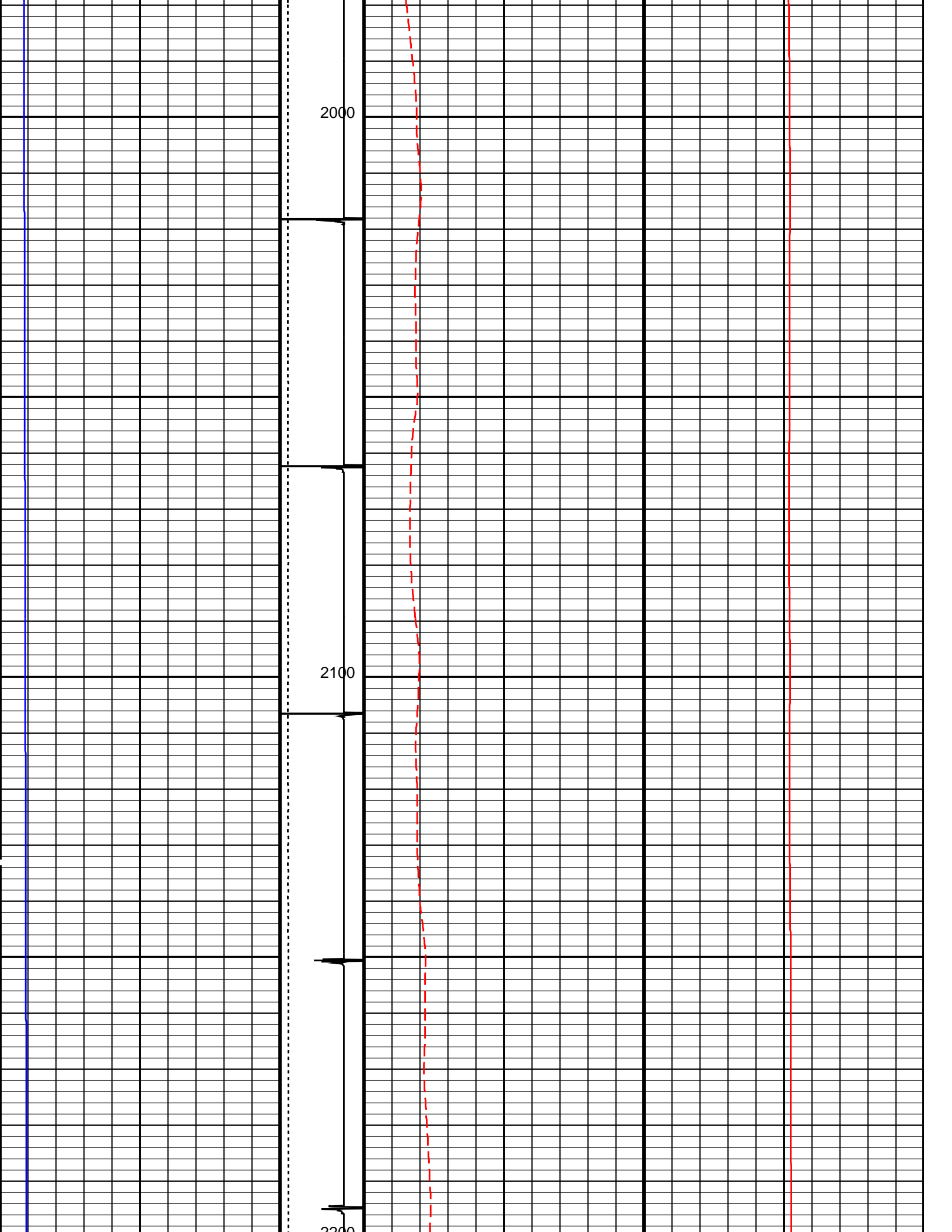


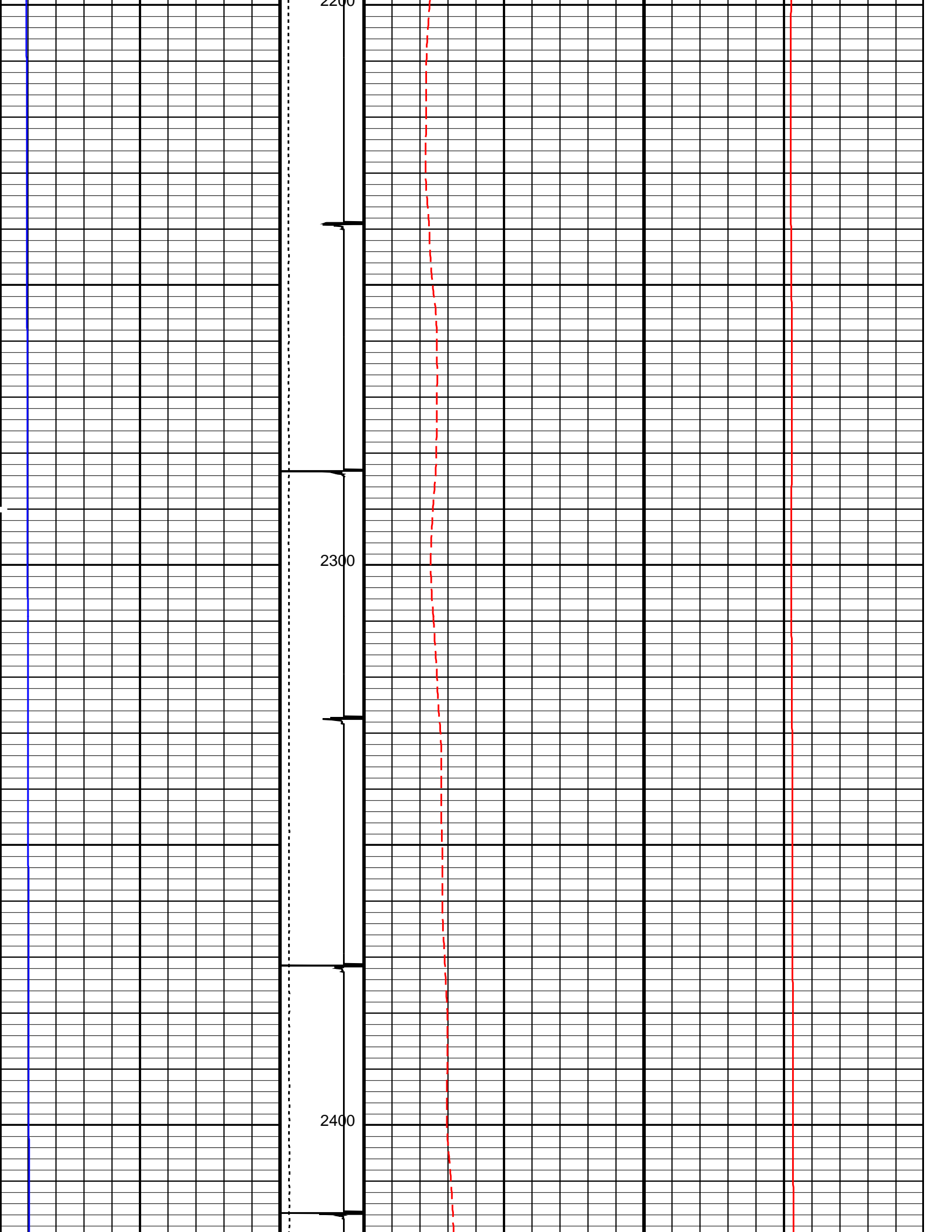


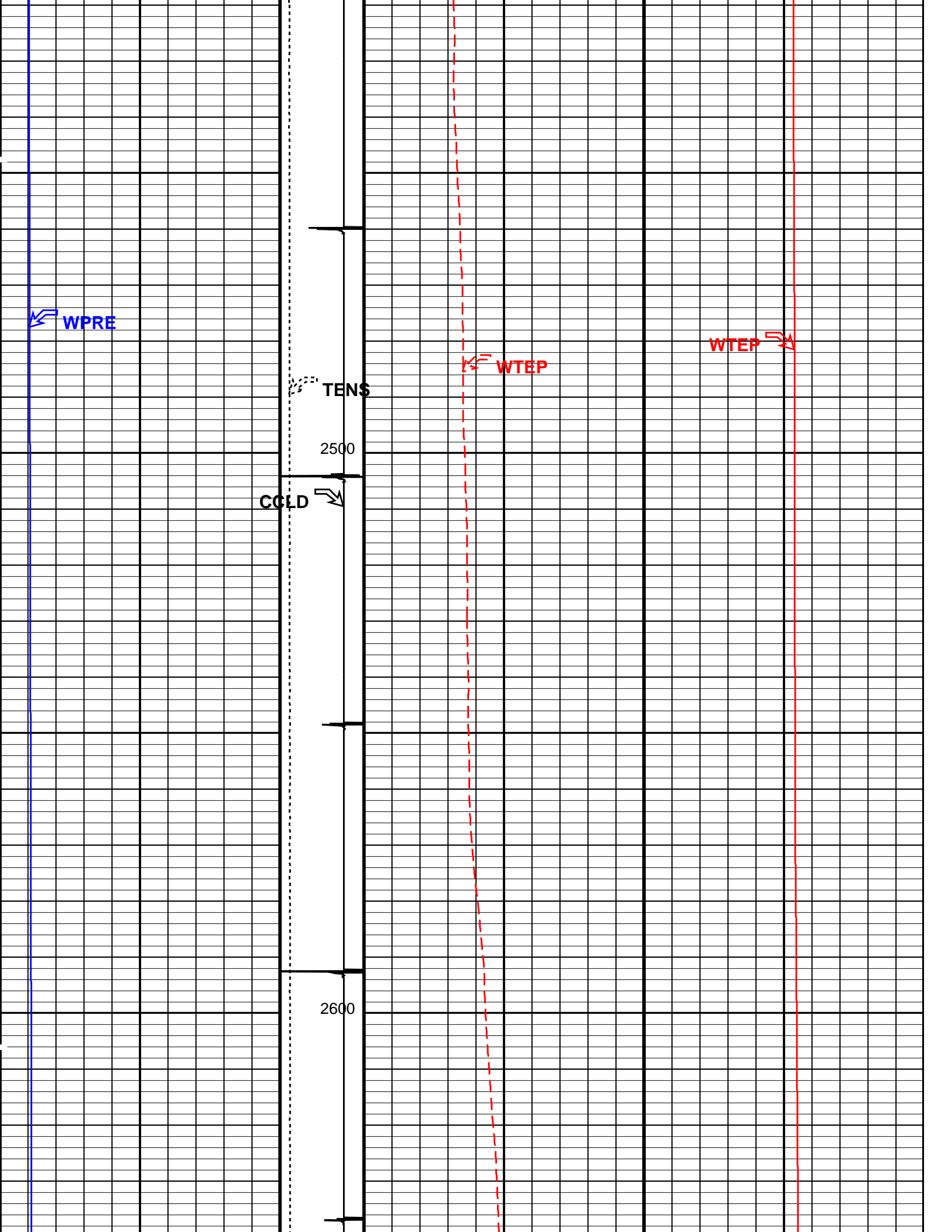


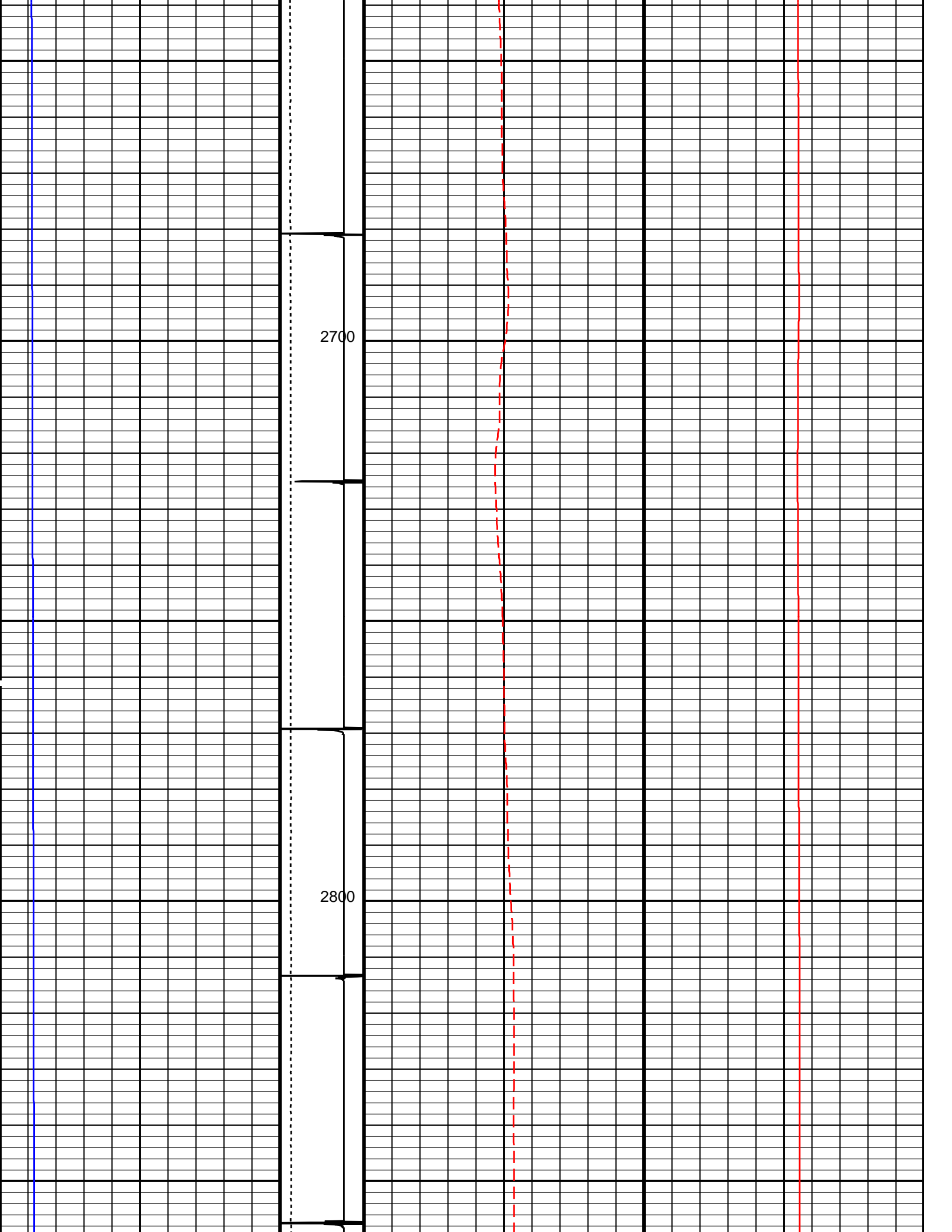


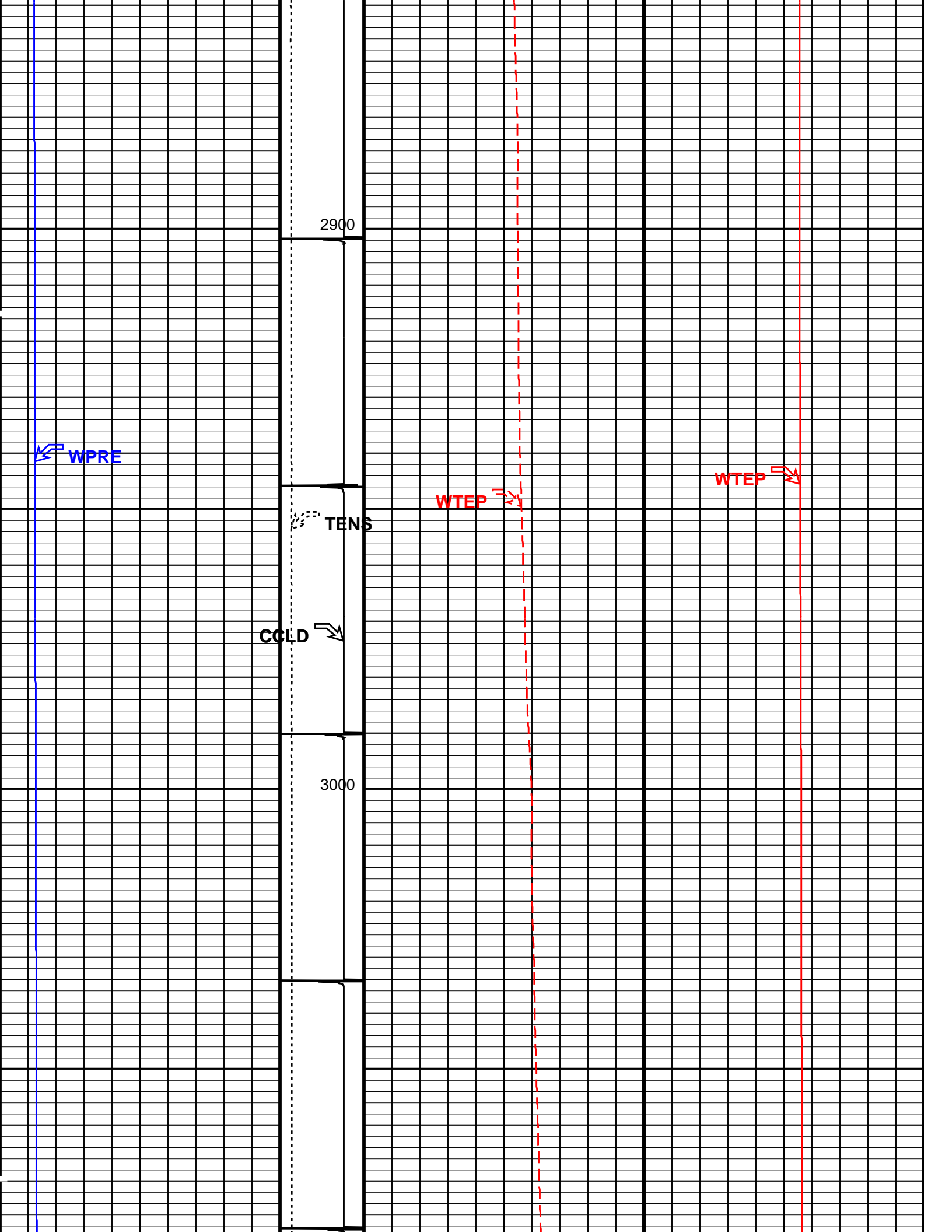


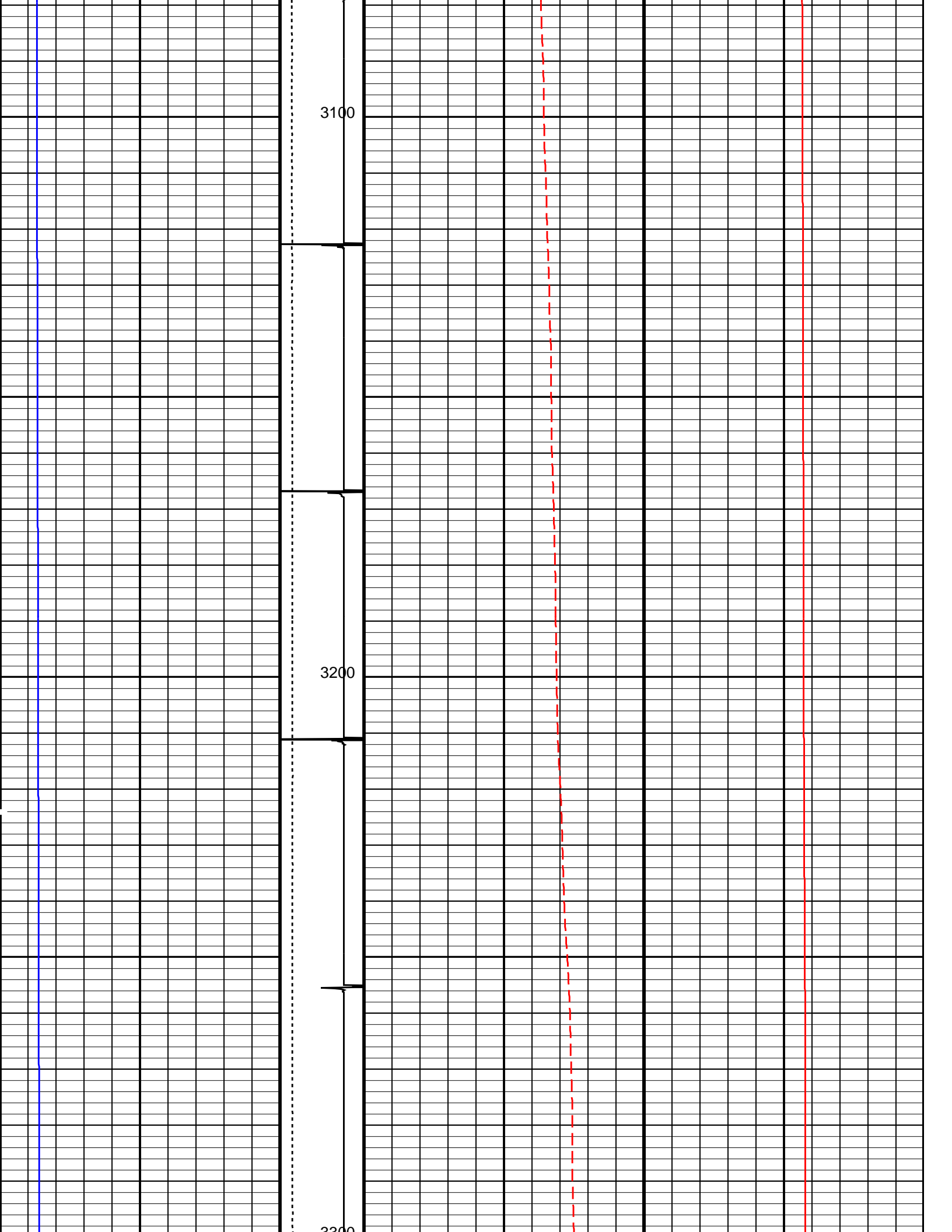


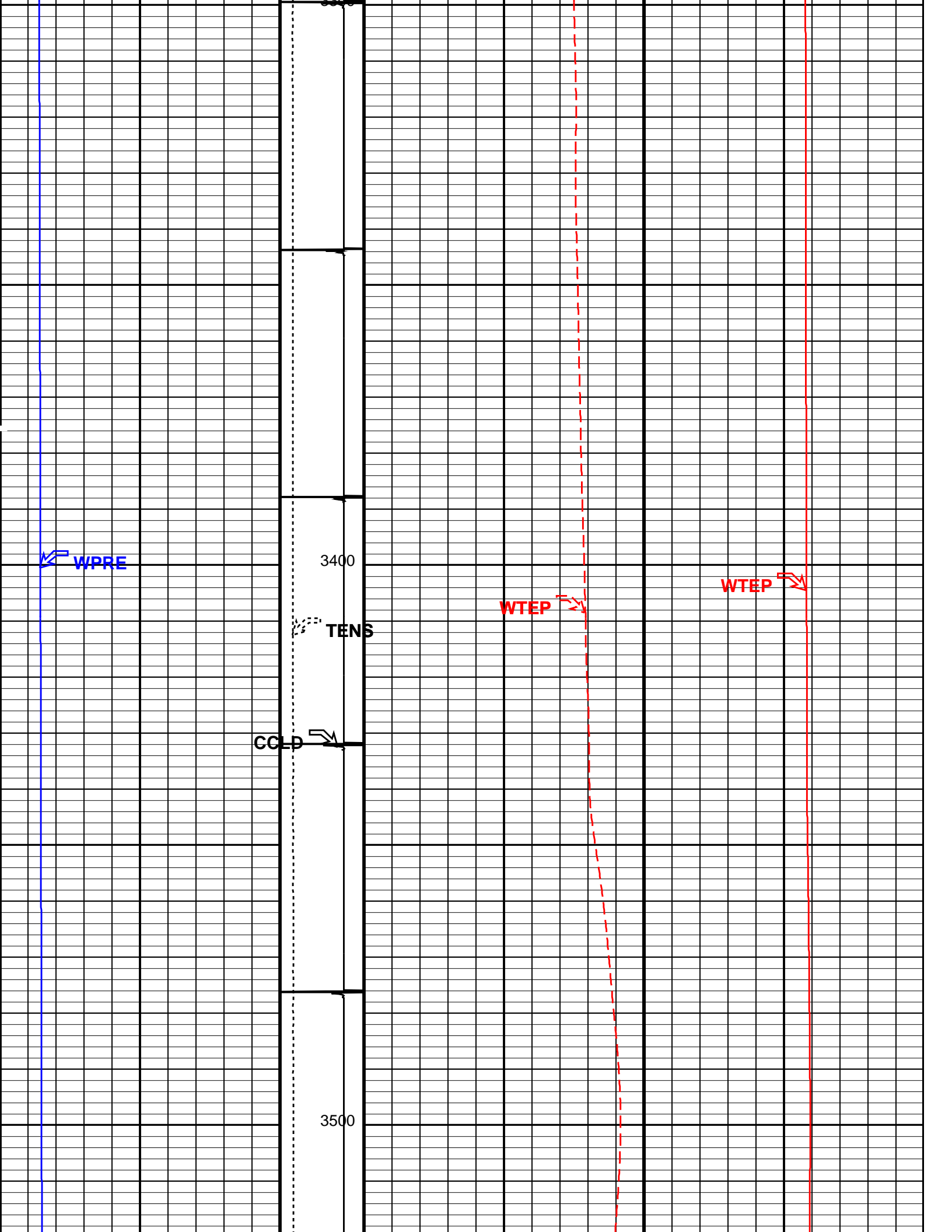


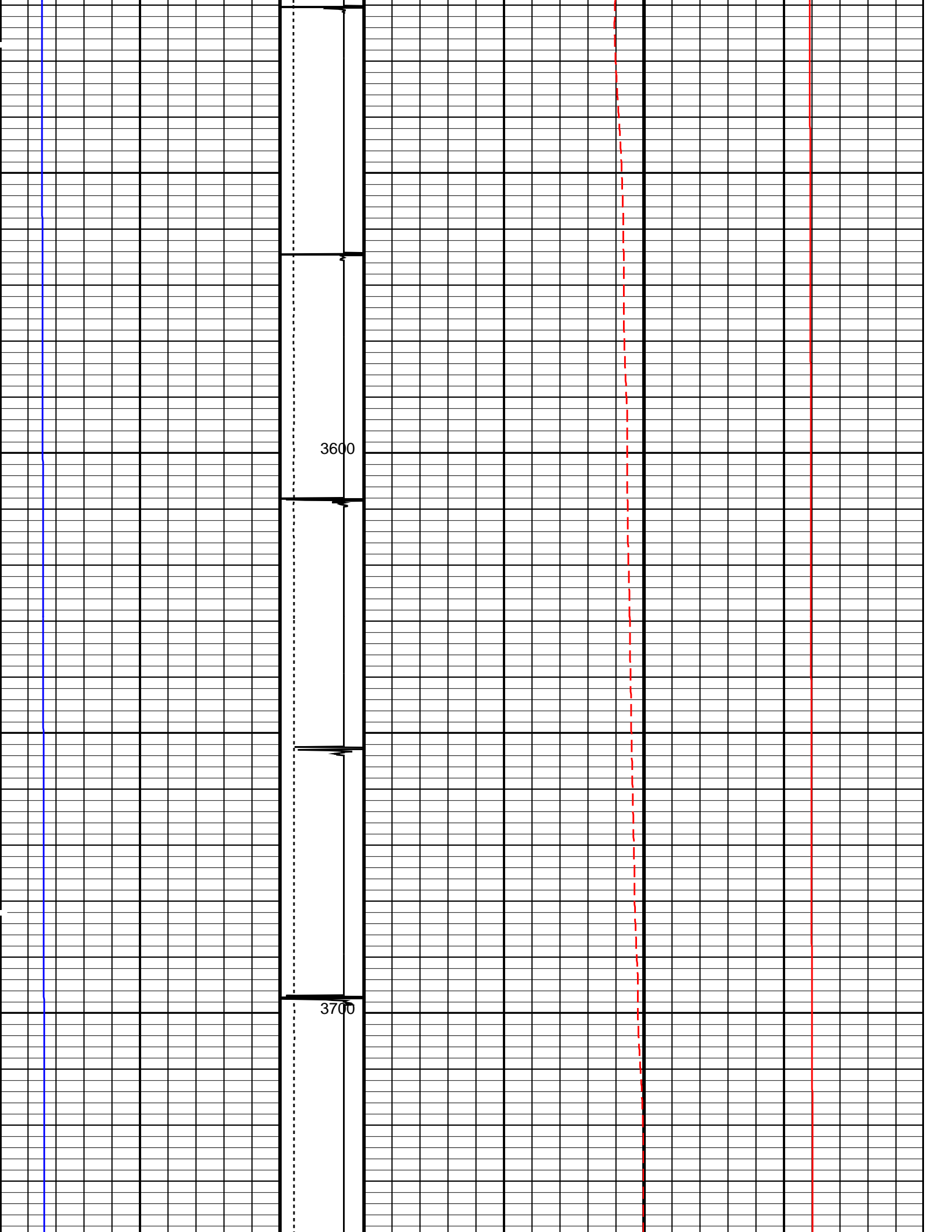


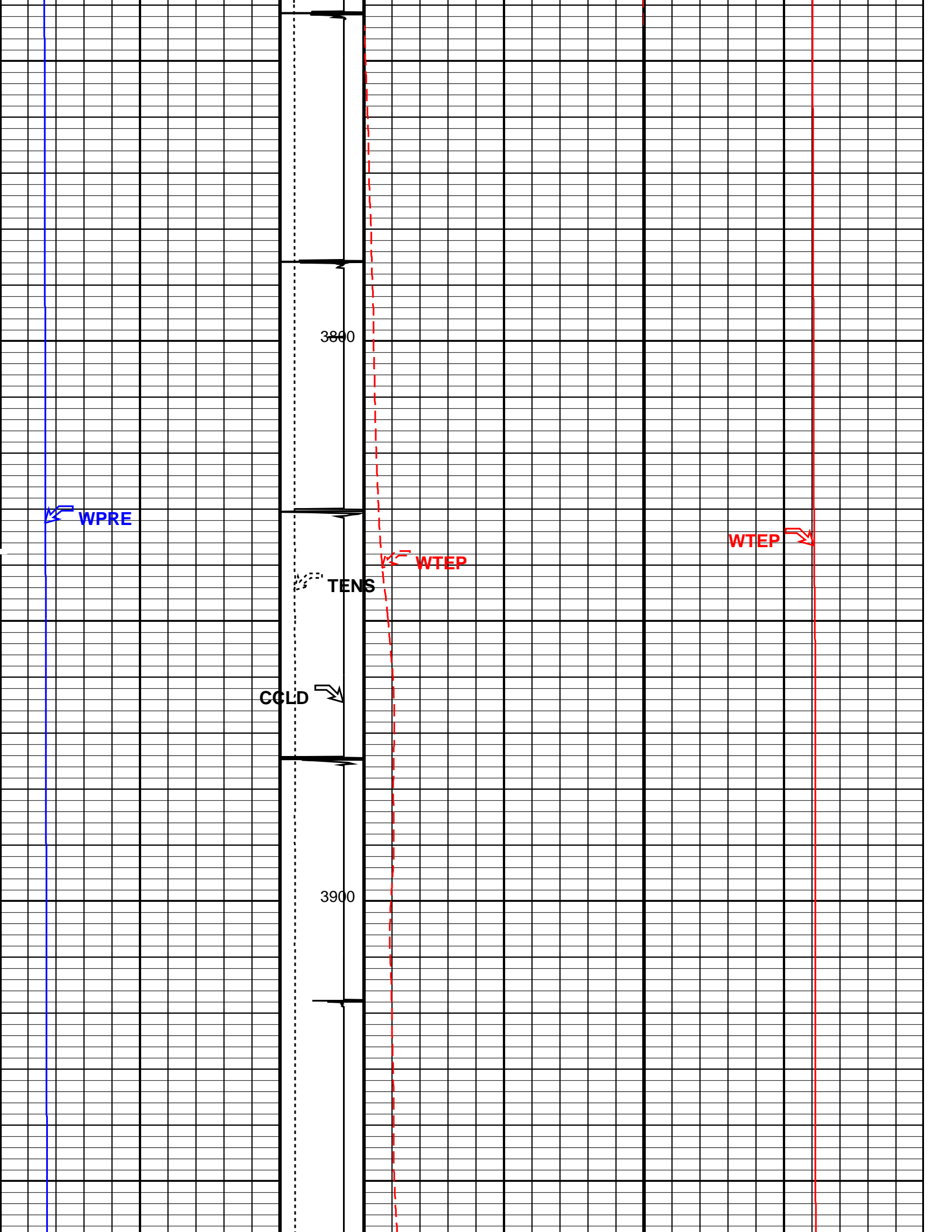


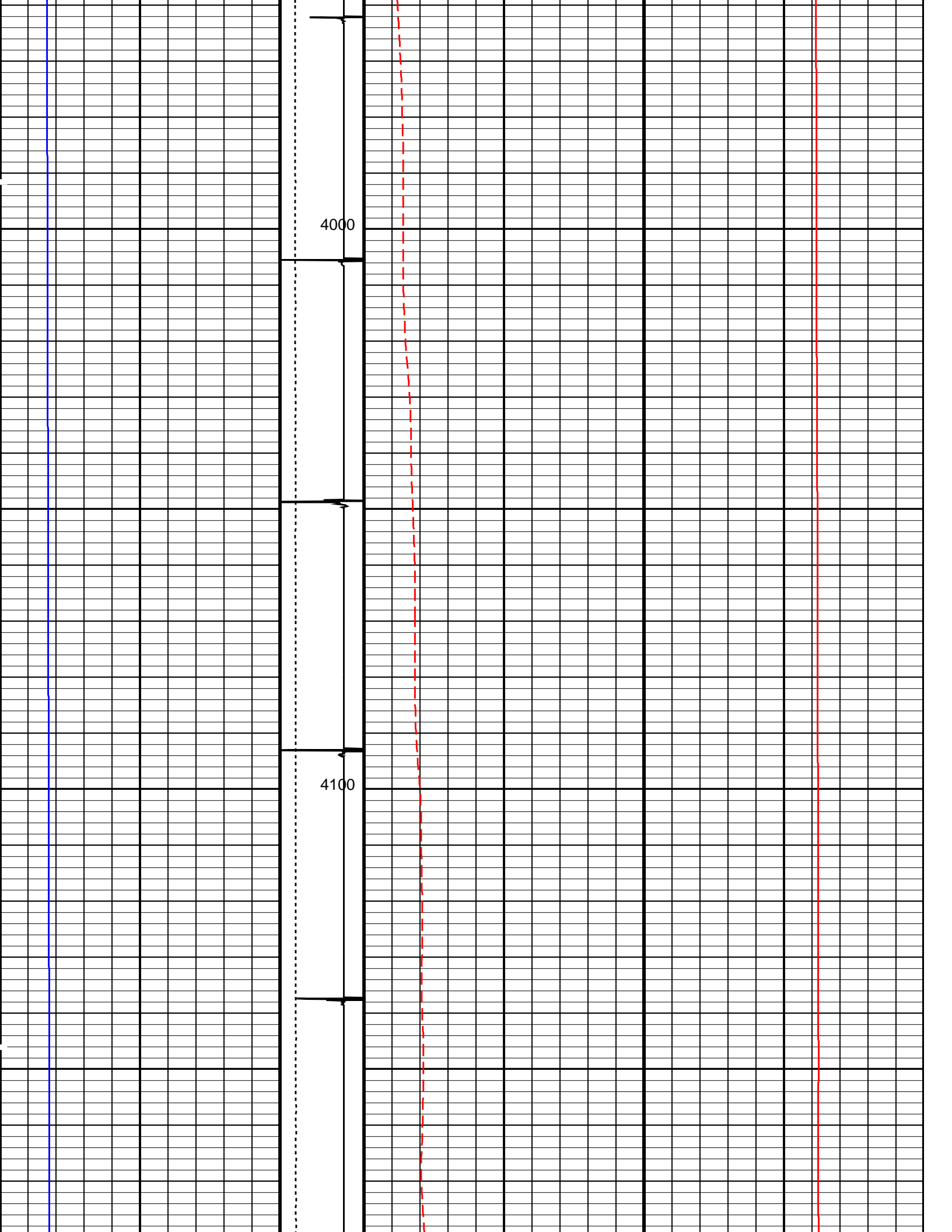


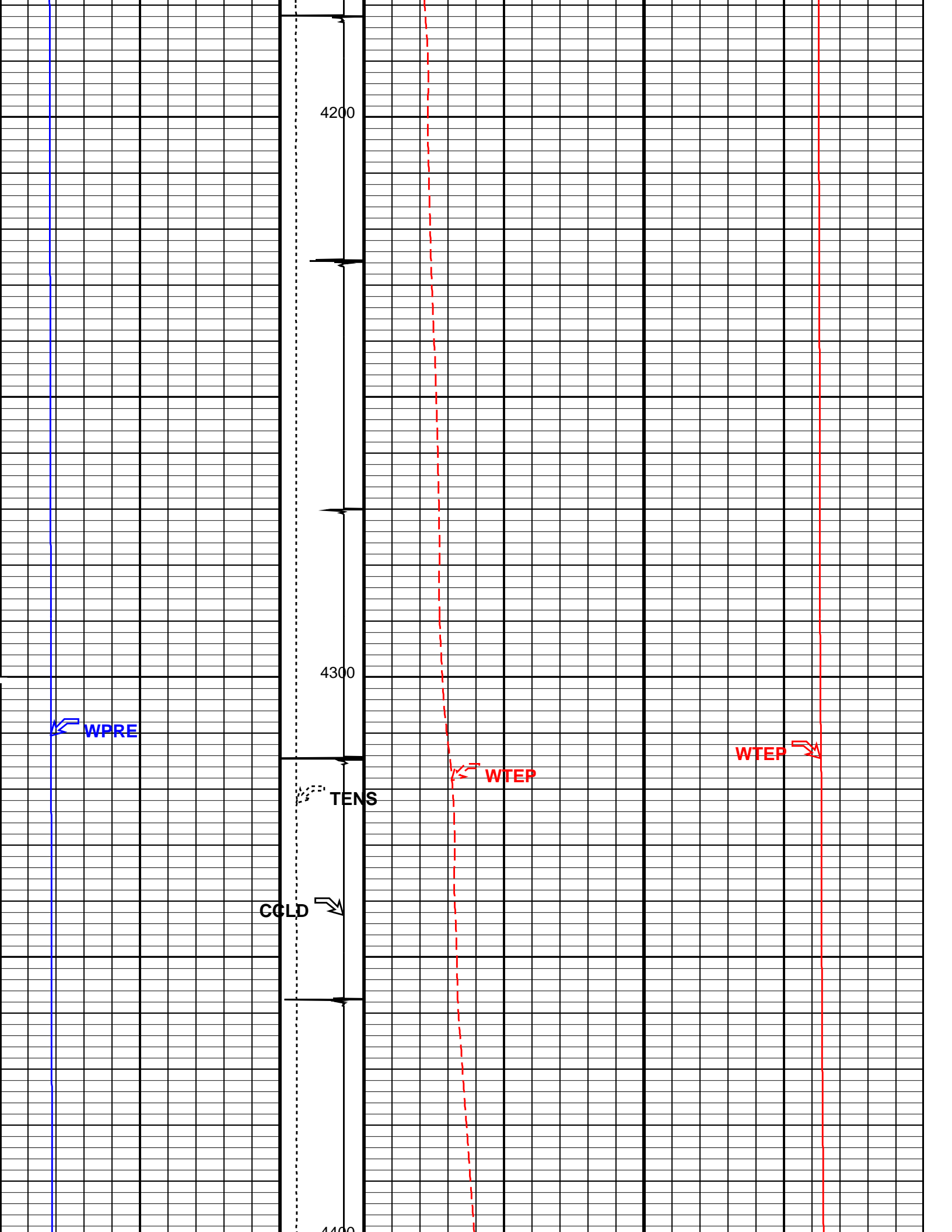


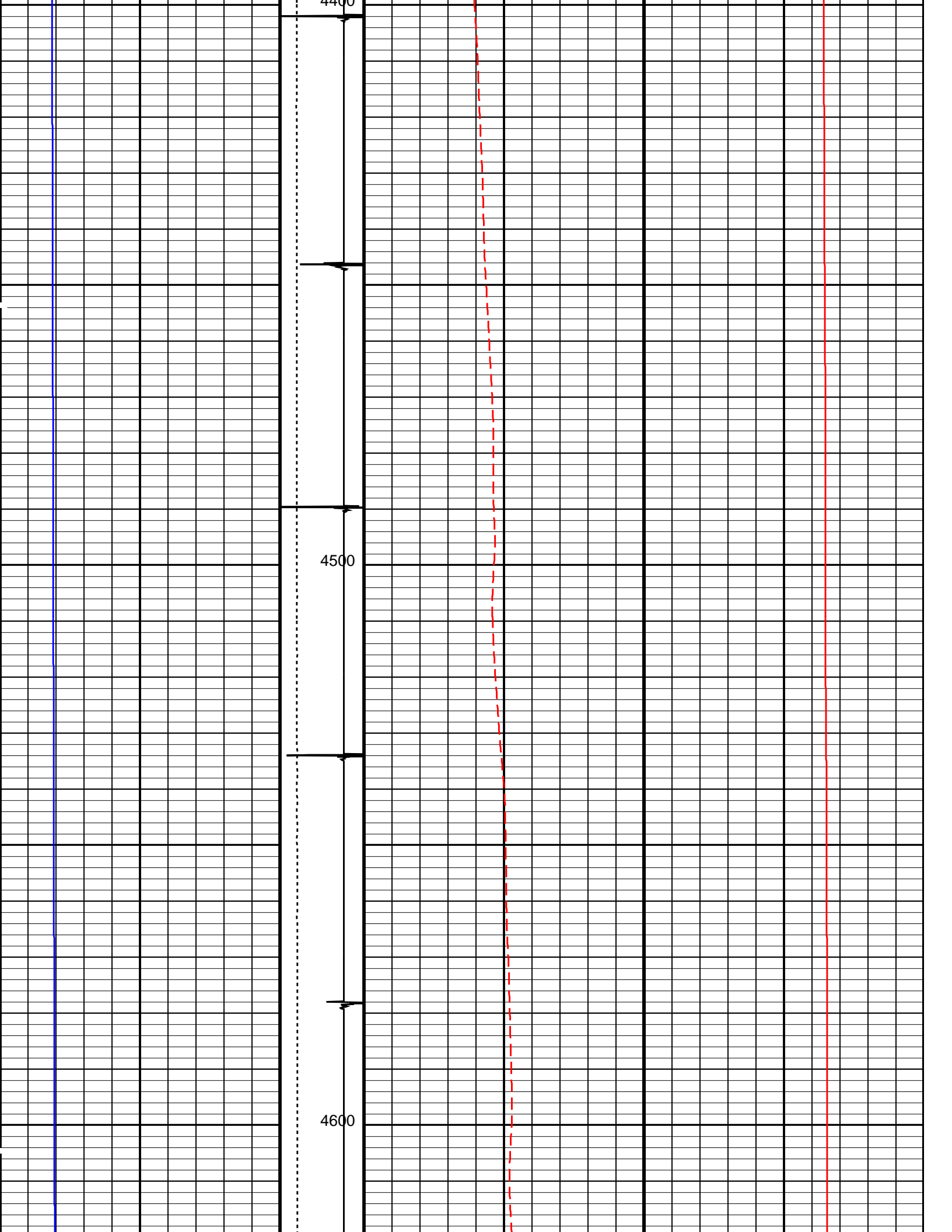


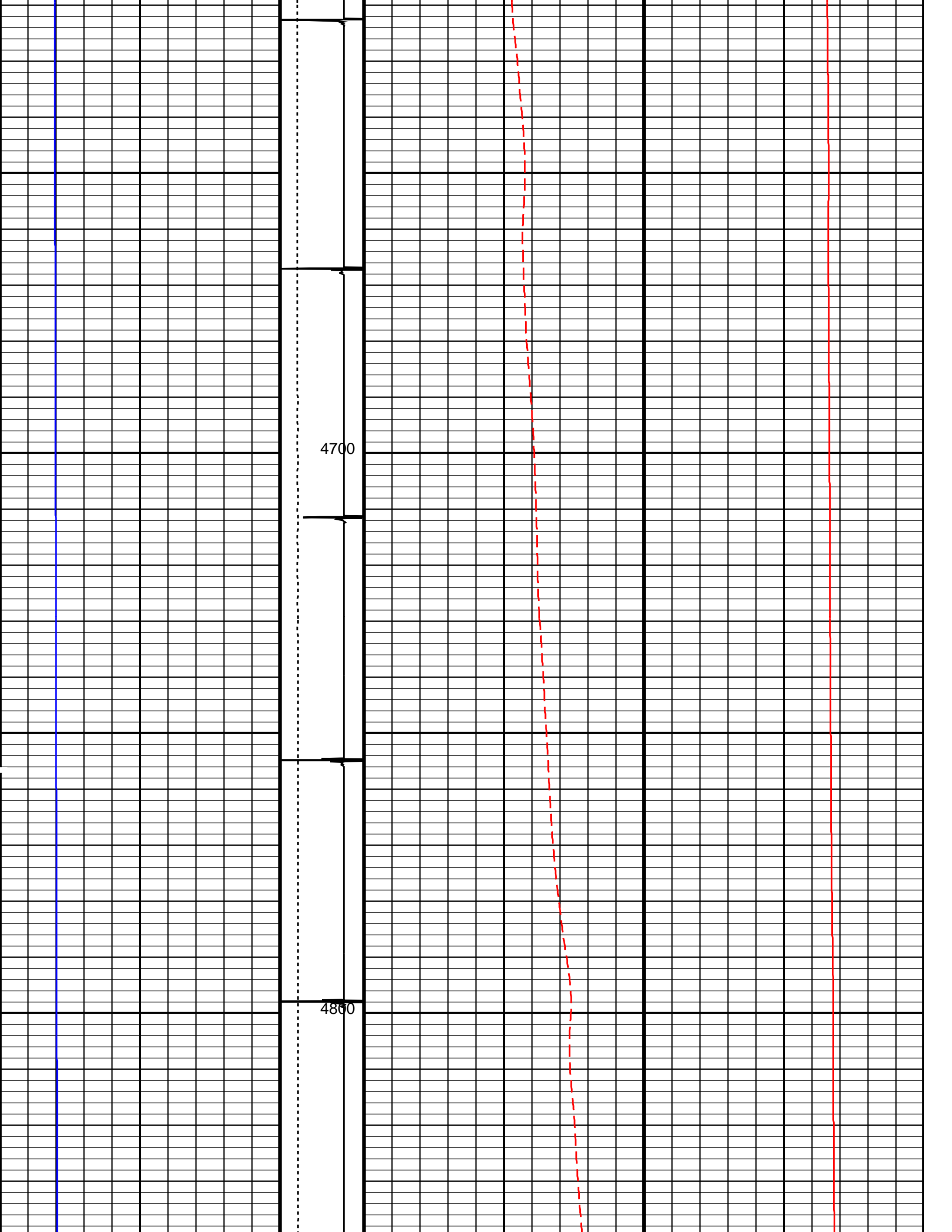


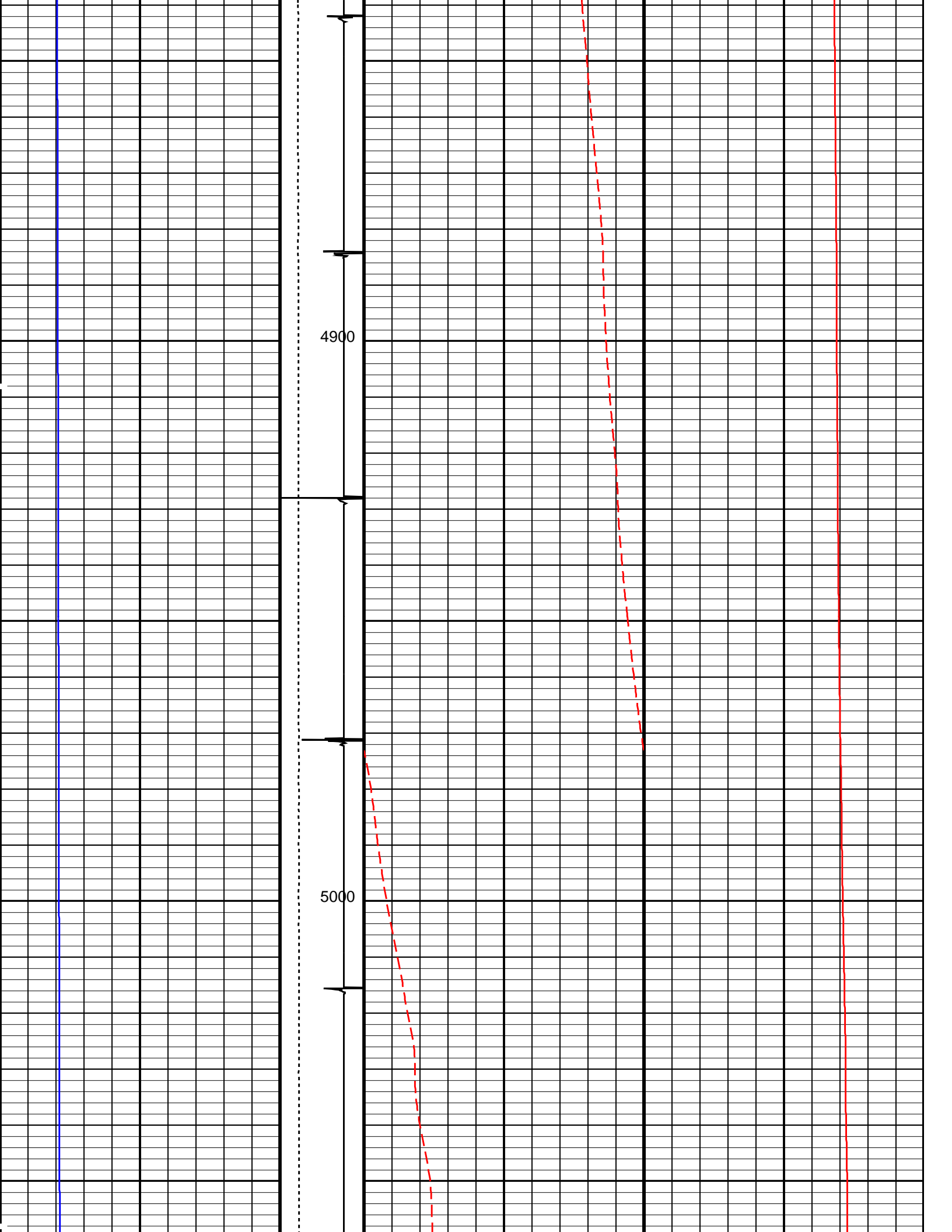


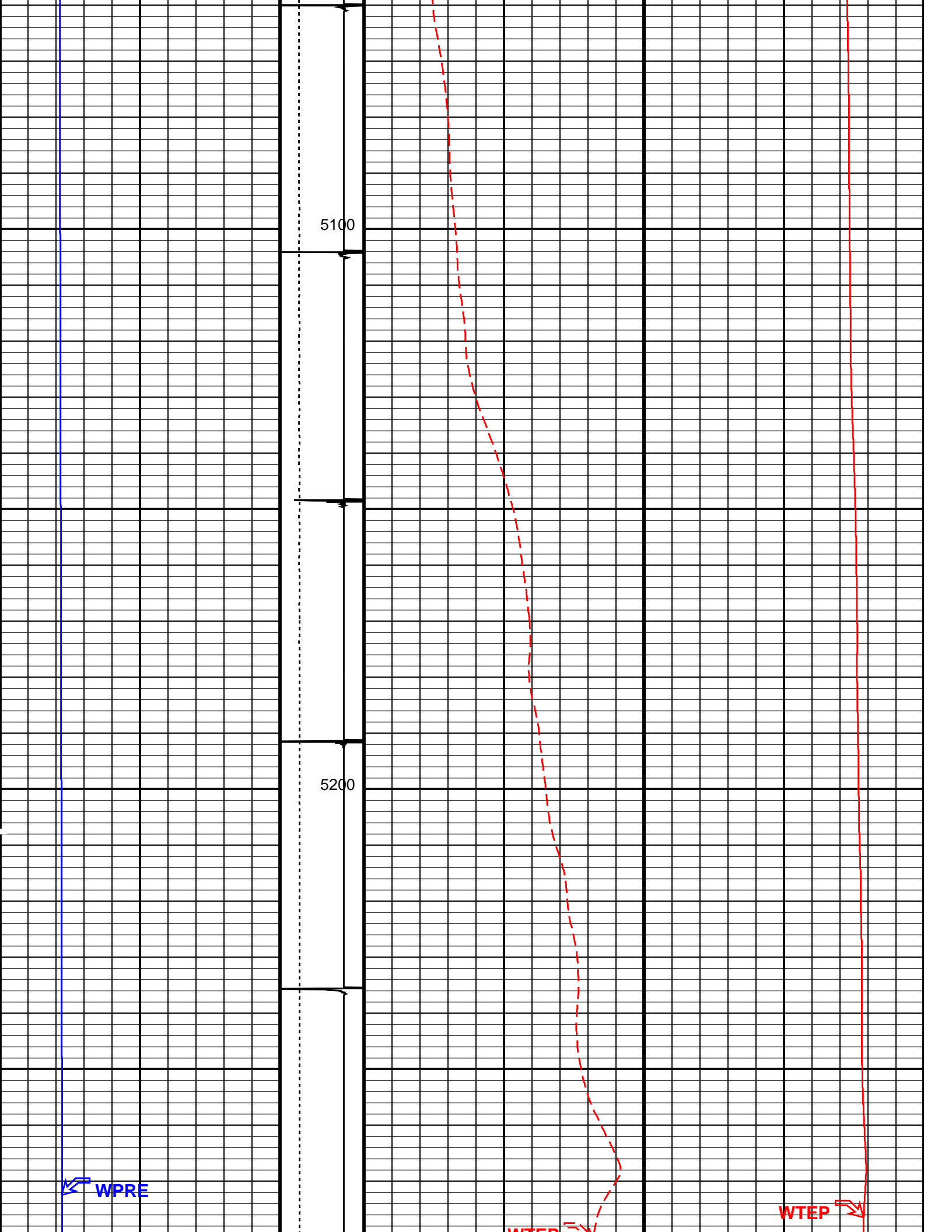


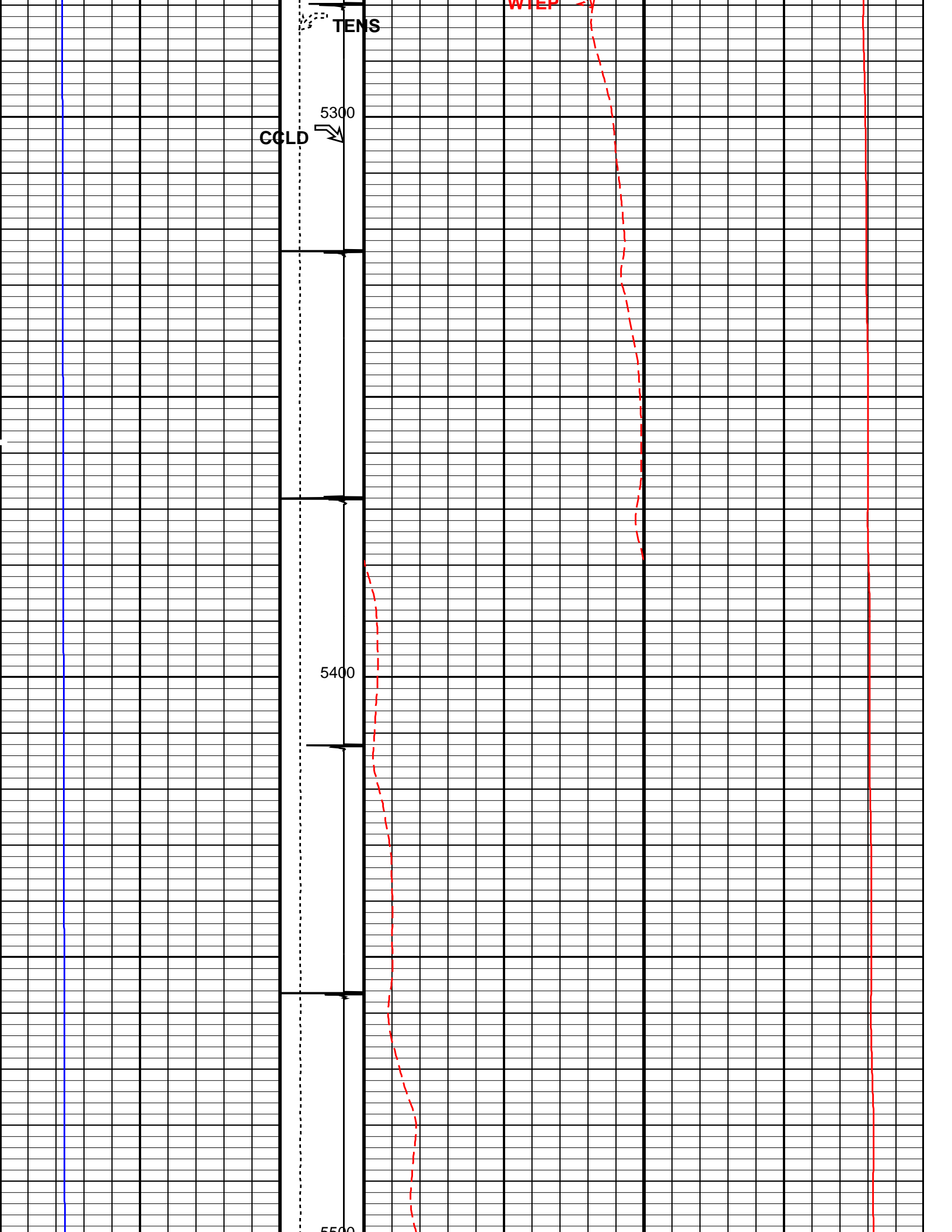


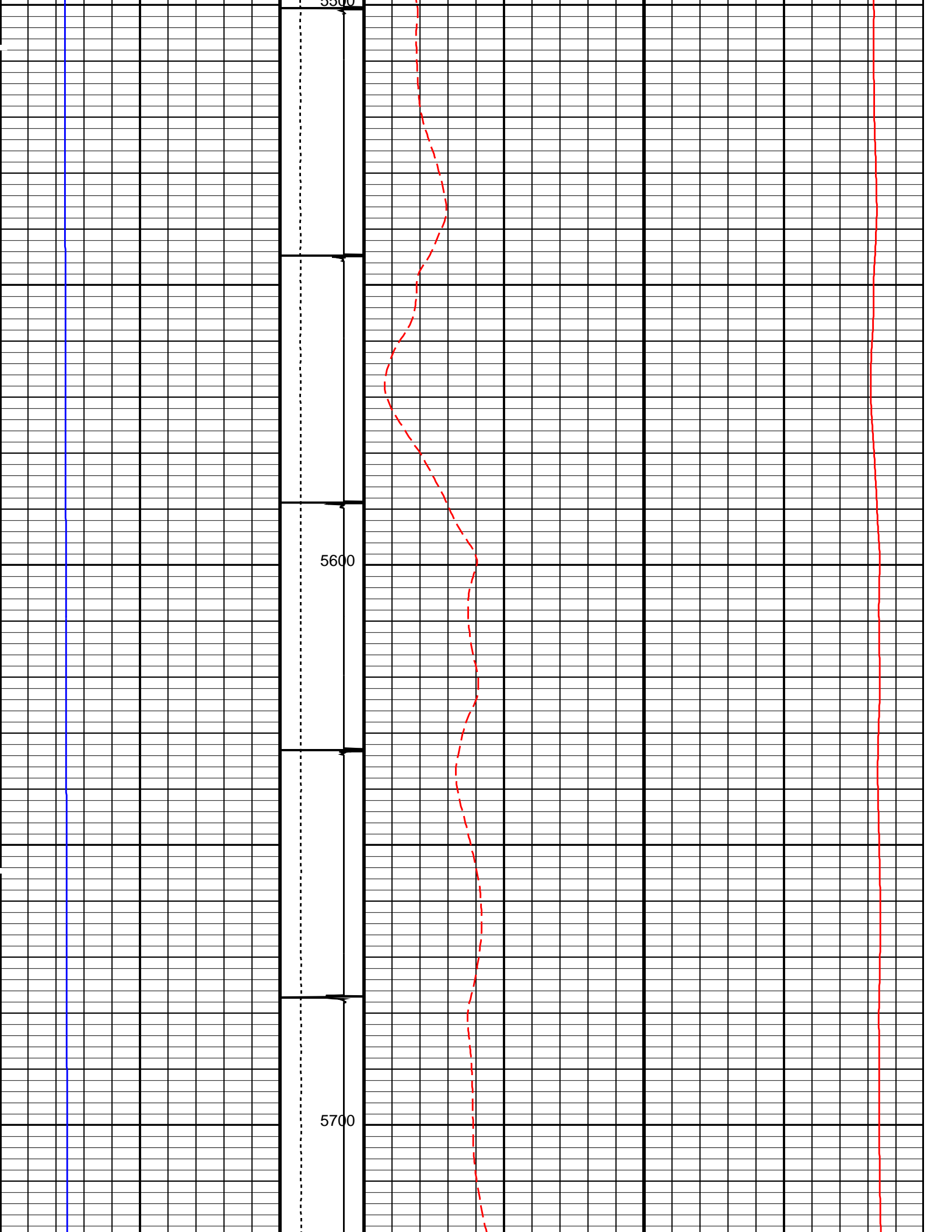


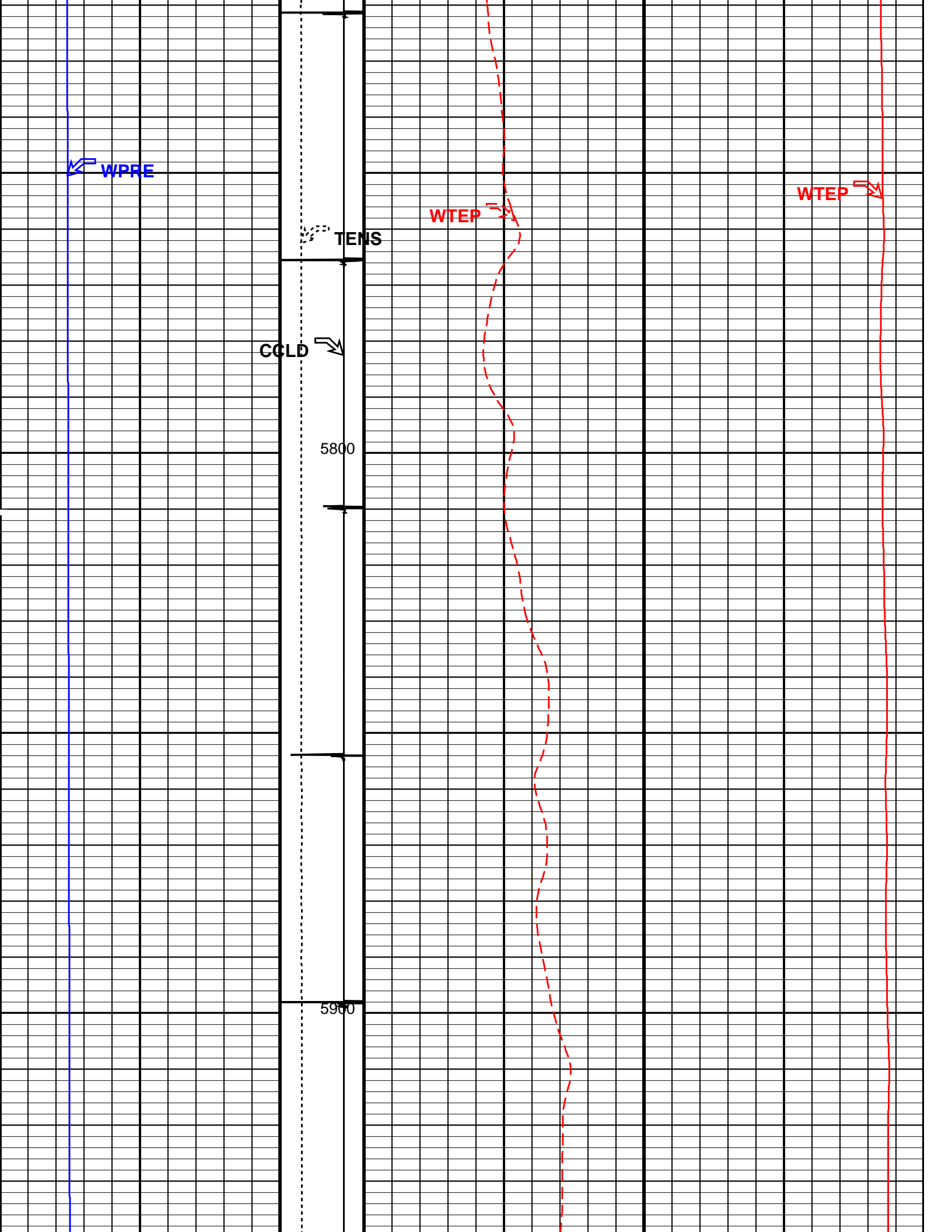


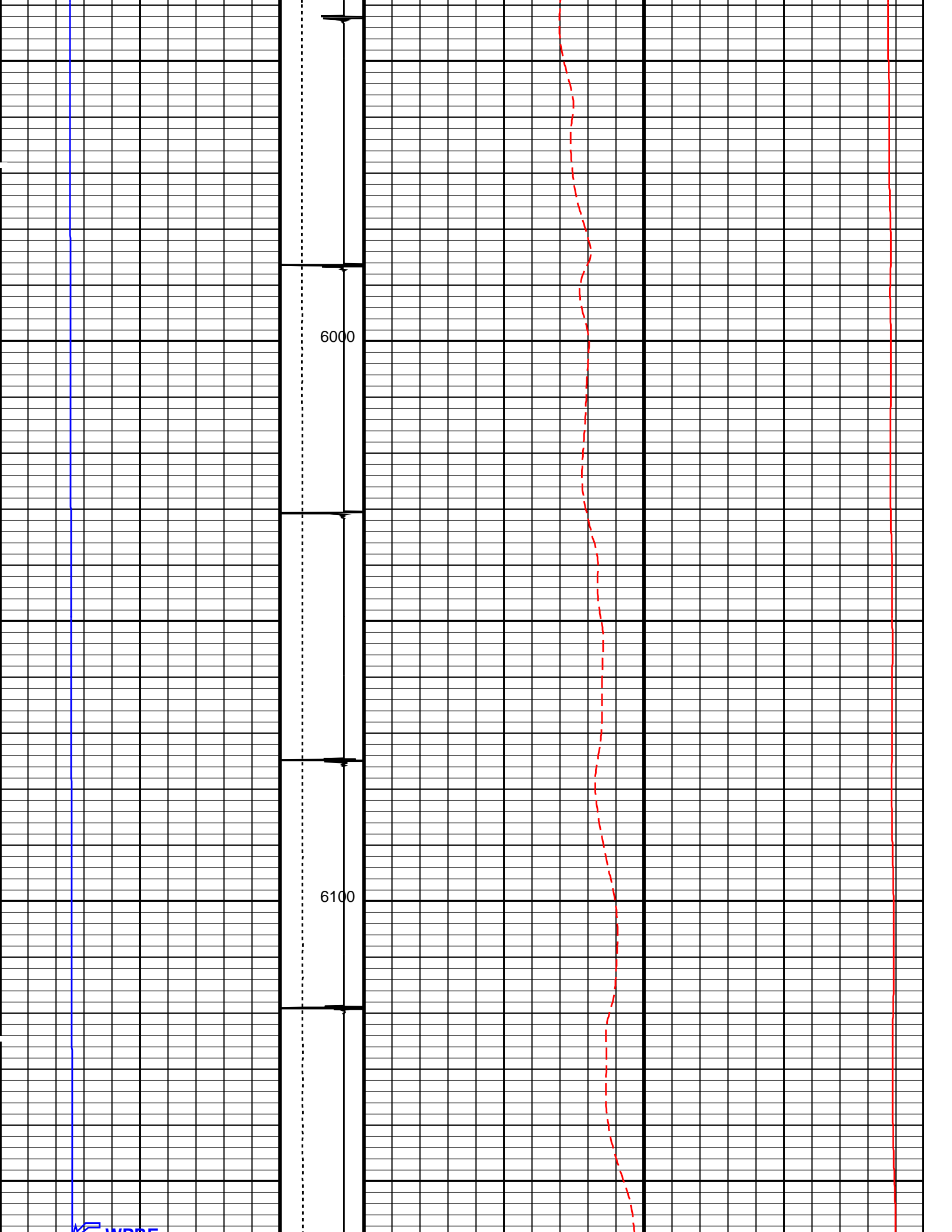












WPKE

TENS

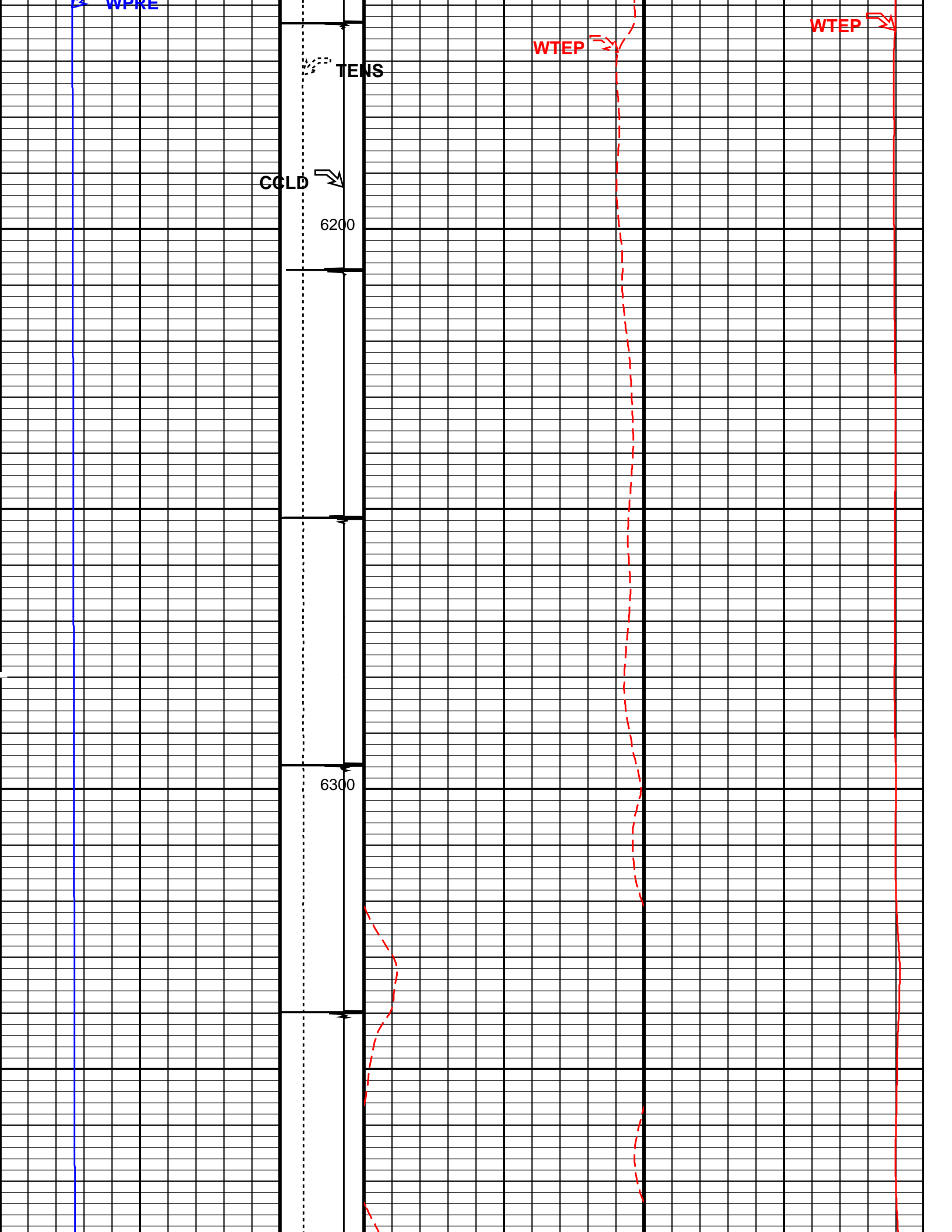
GCLD

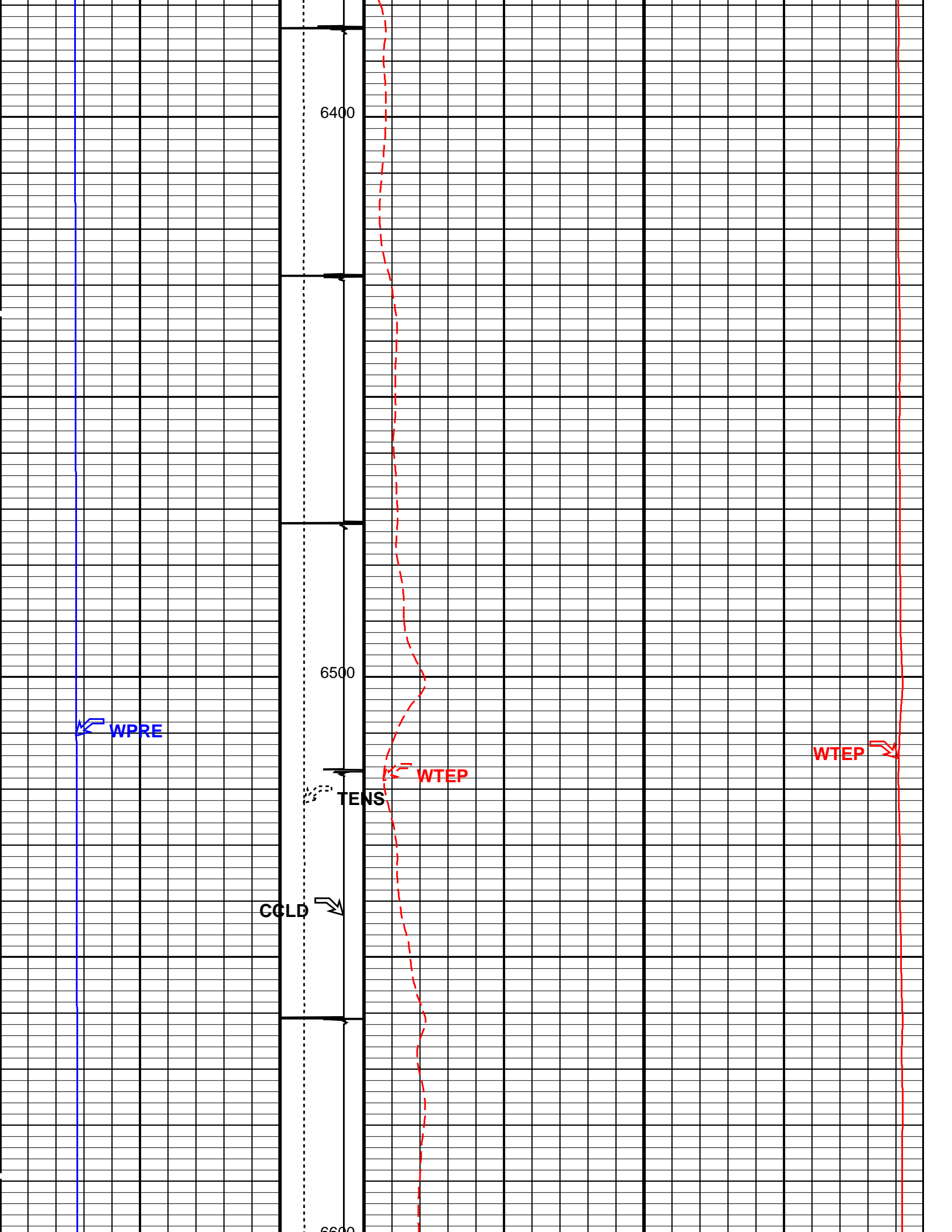
6200

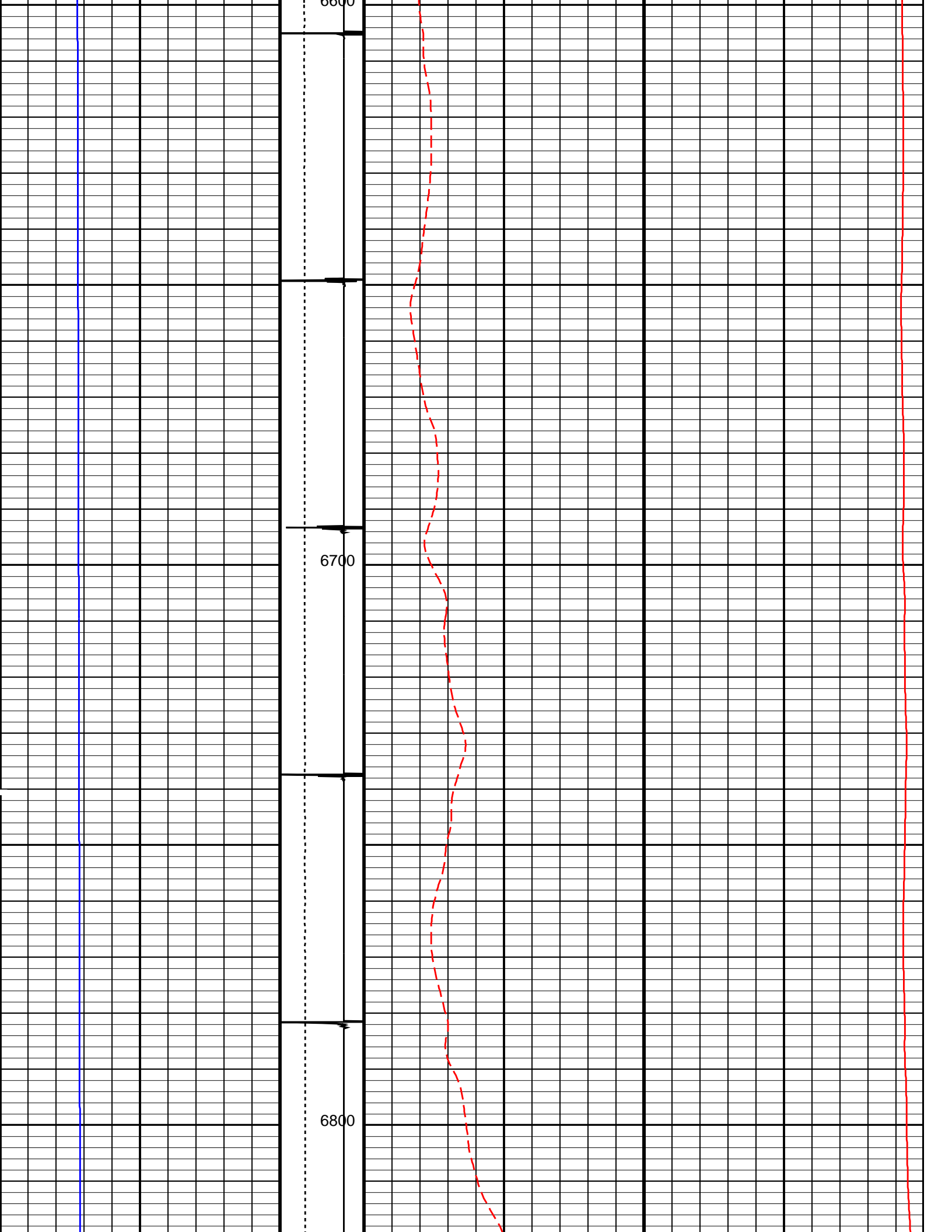
6300

WTEP

WTEP







SHORT JOINT

6900

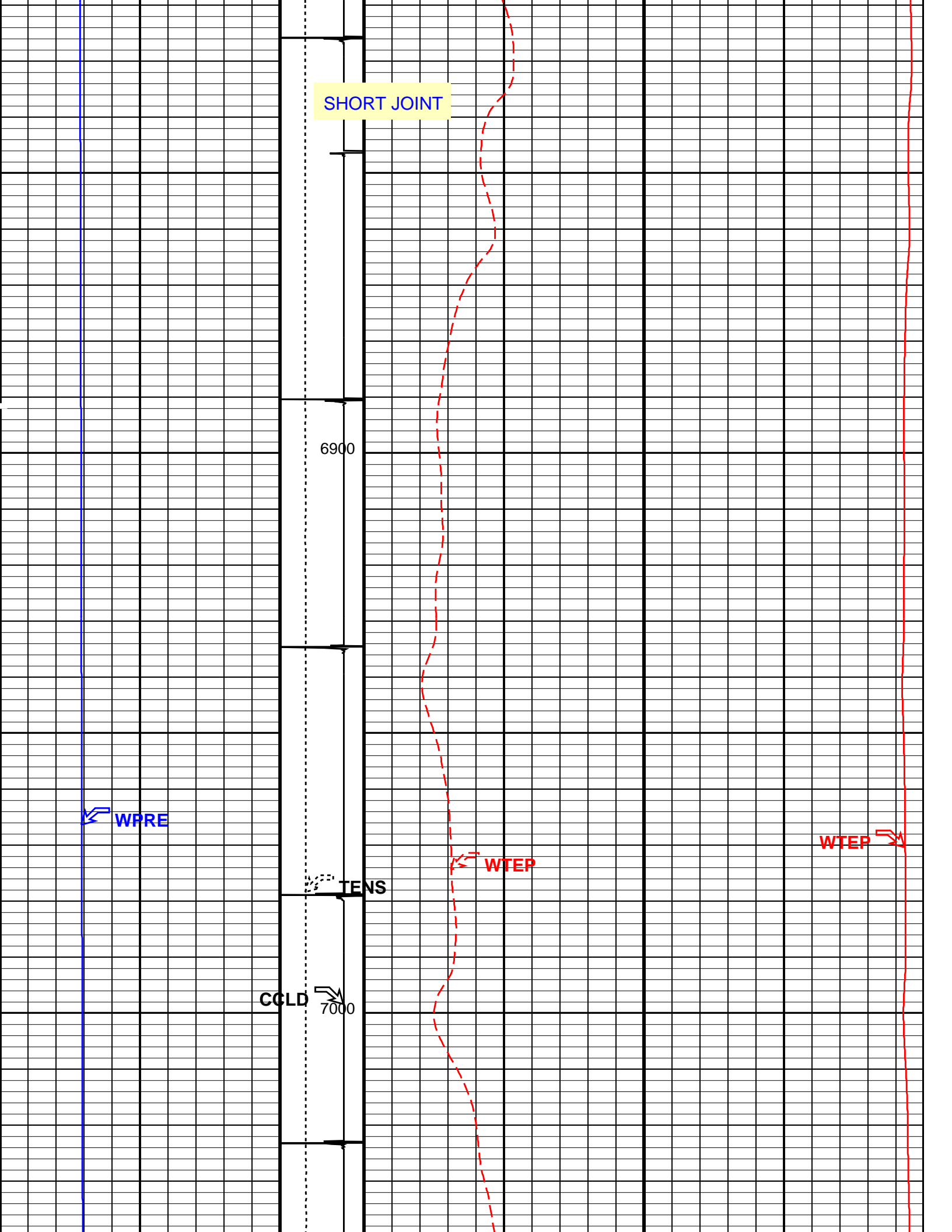
WPRE

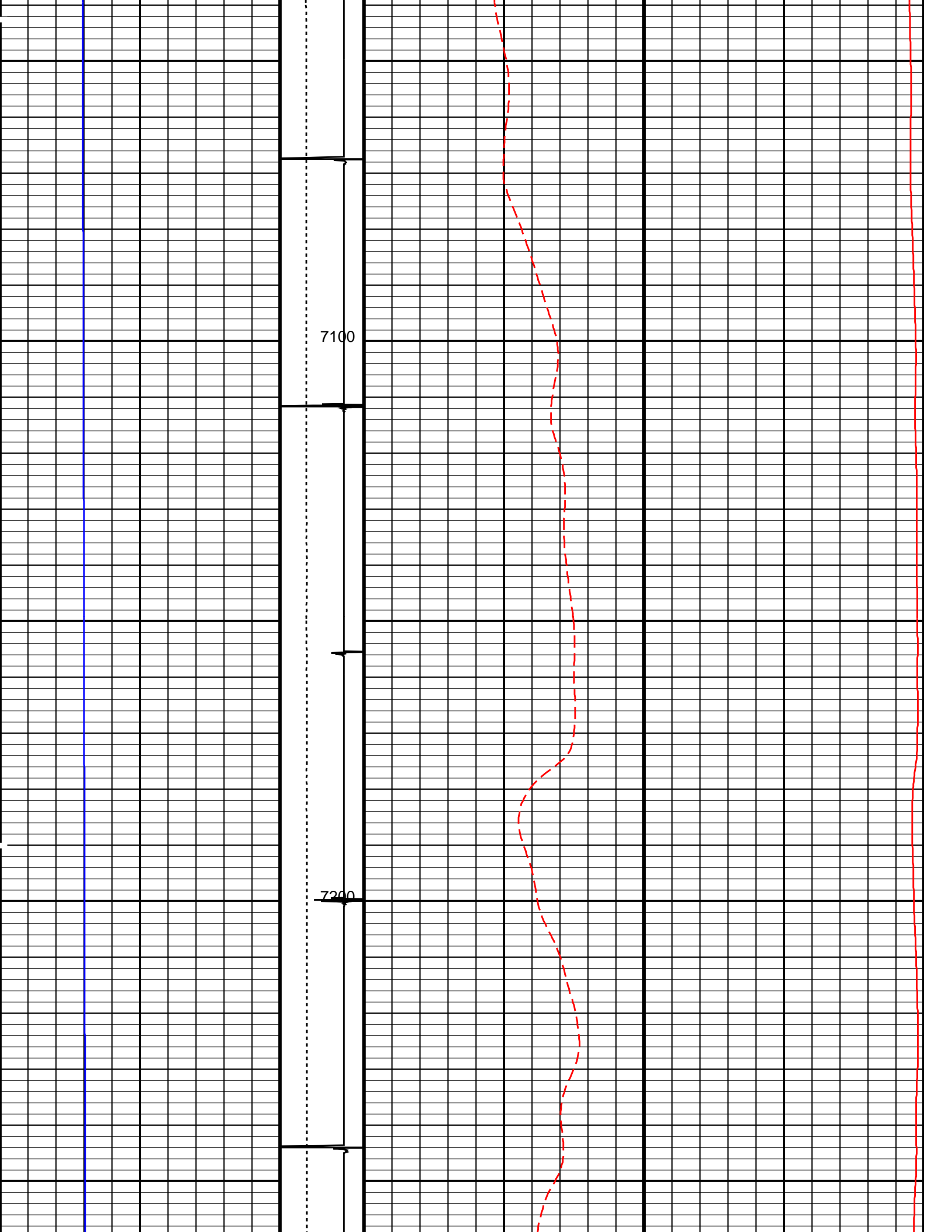
TENS

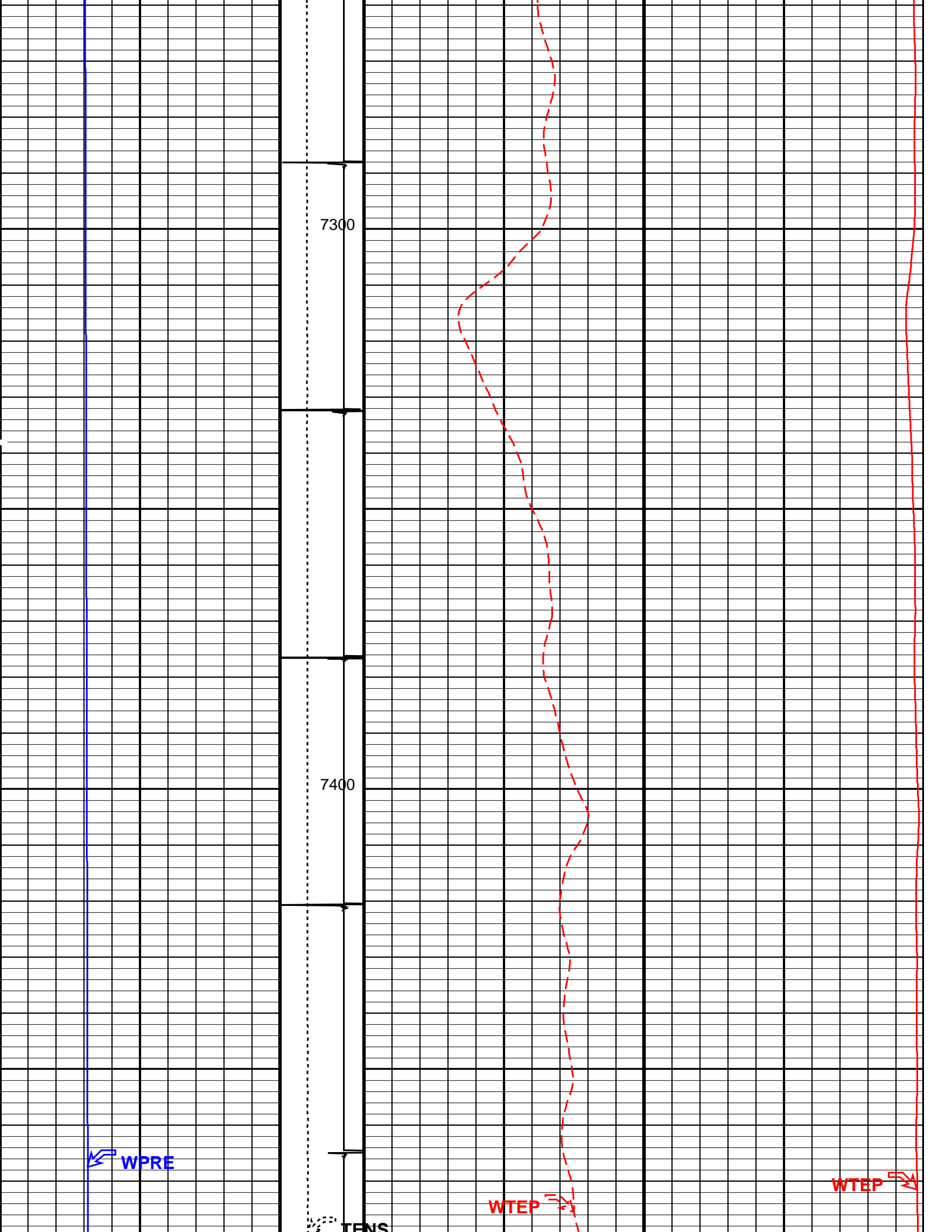
CCLD 7000

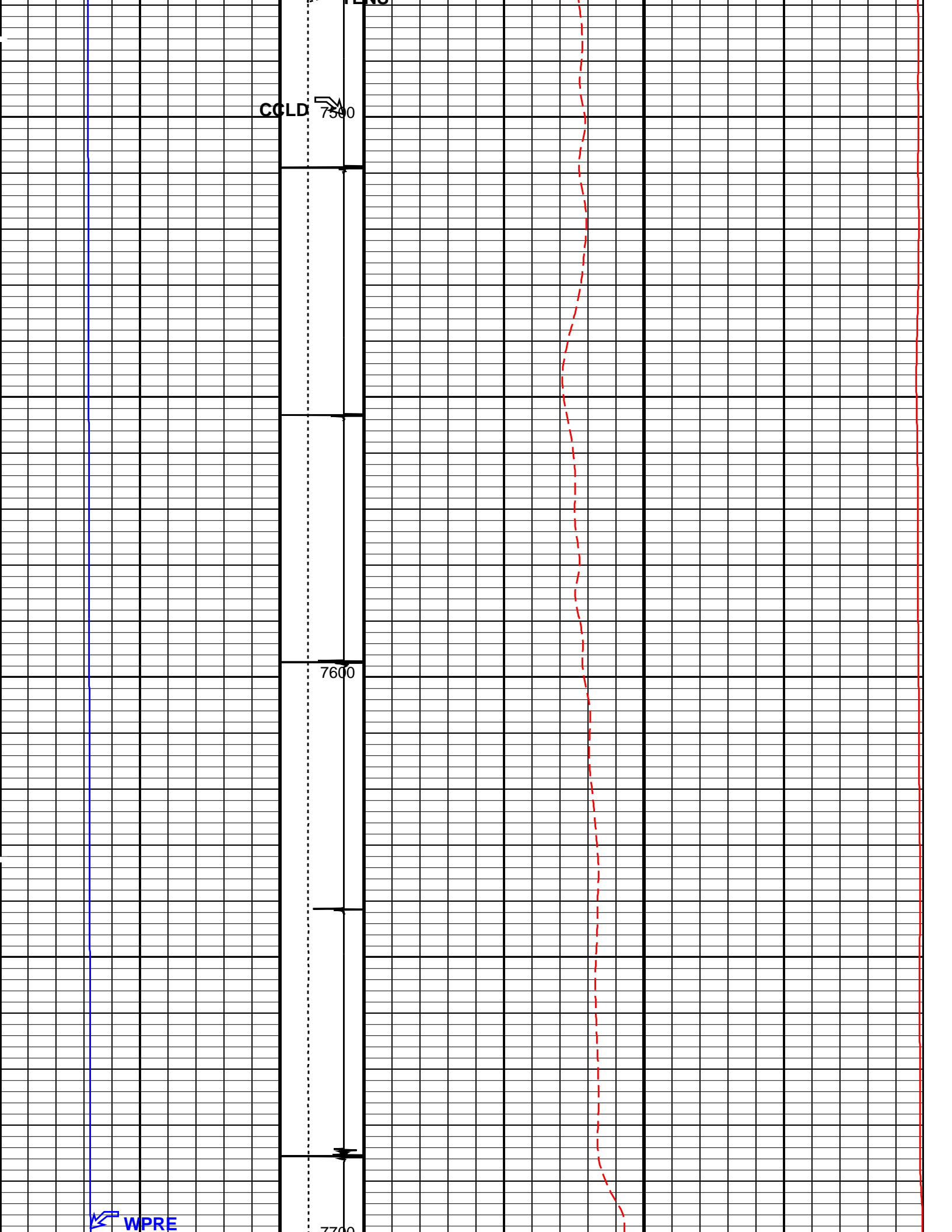
WTEP

WTEP







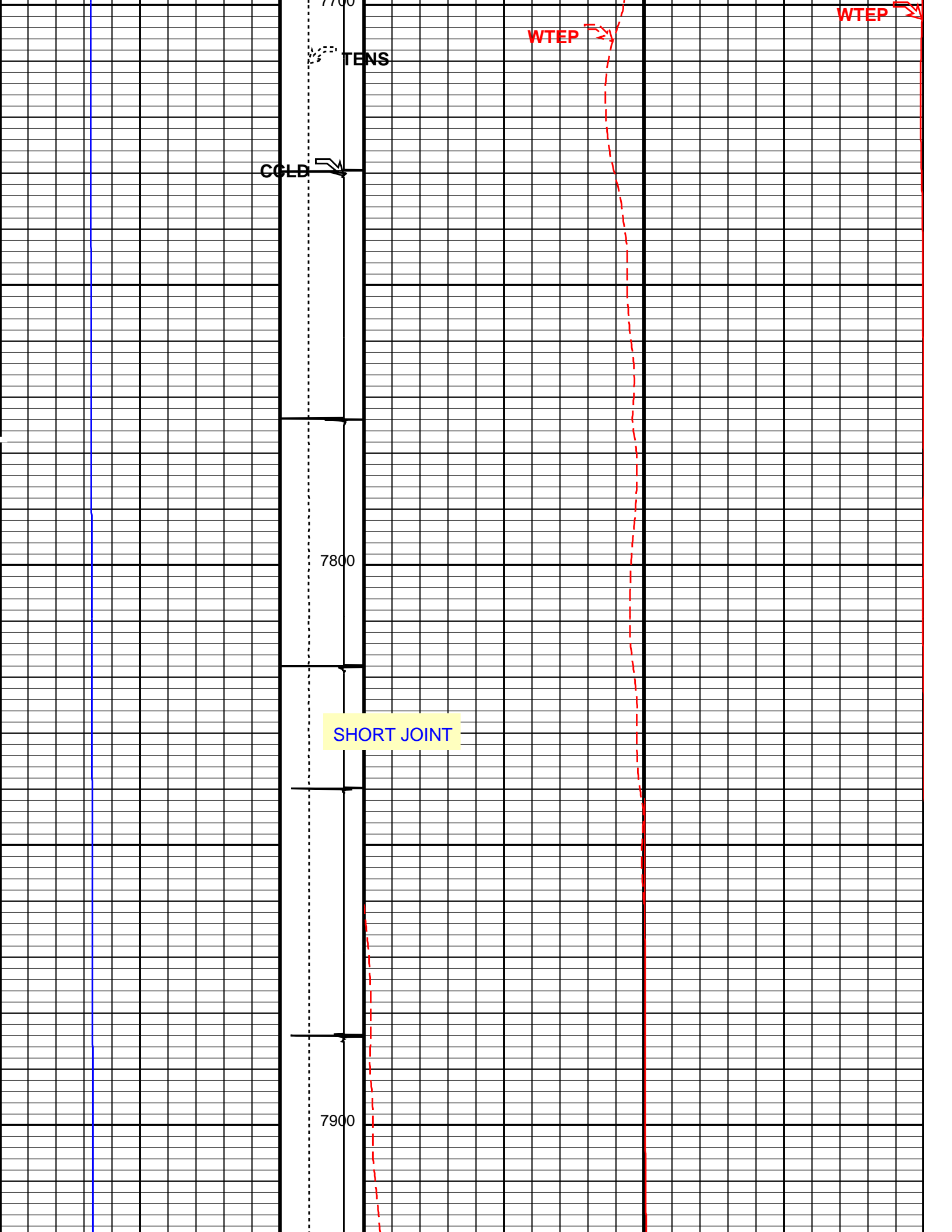


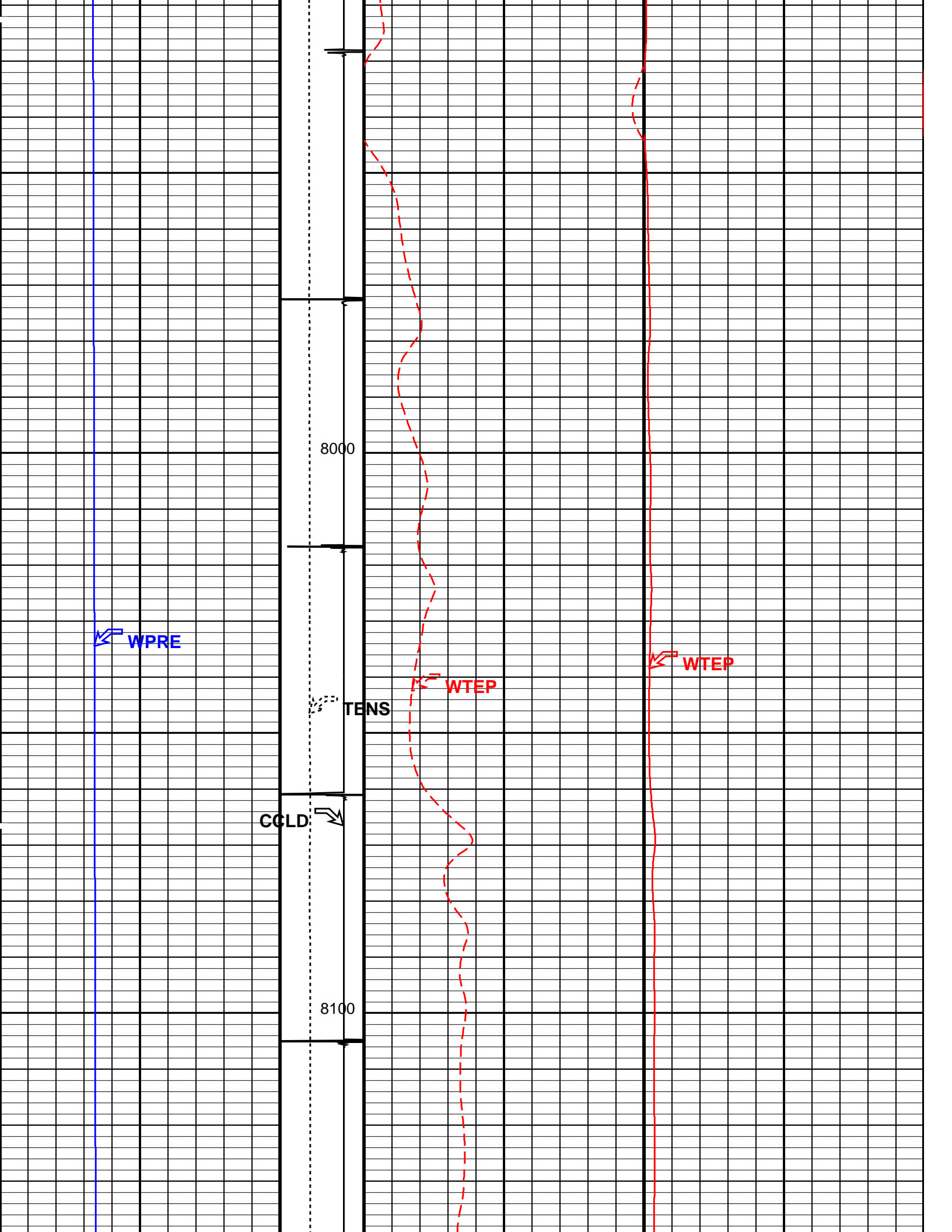
CCLD 7500

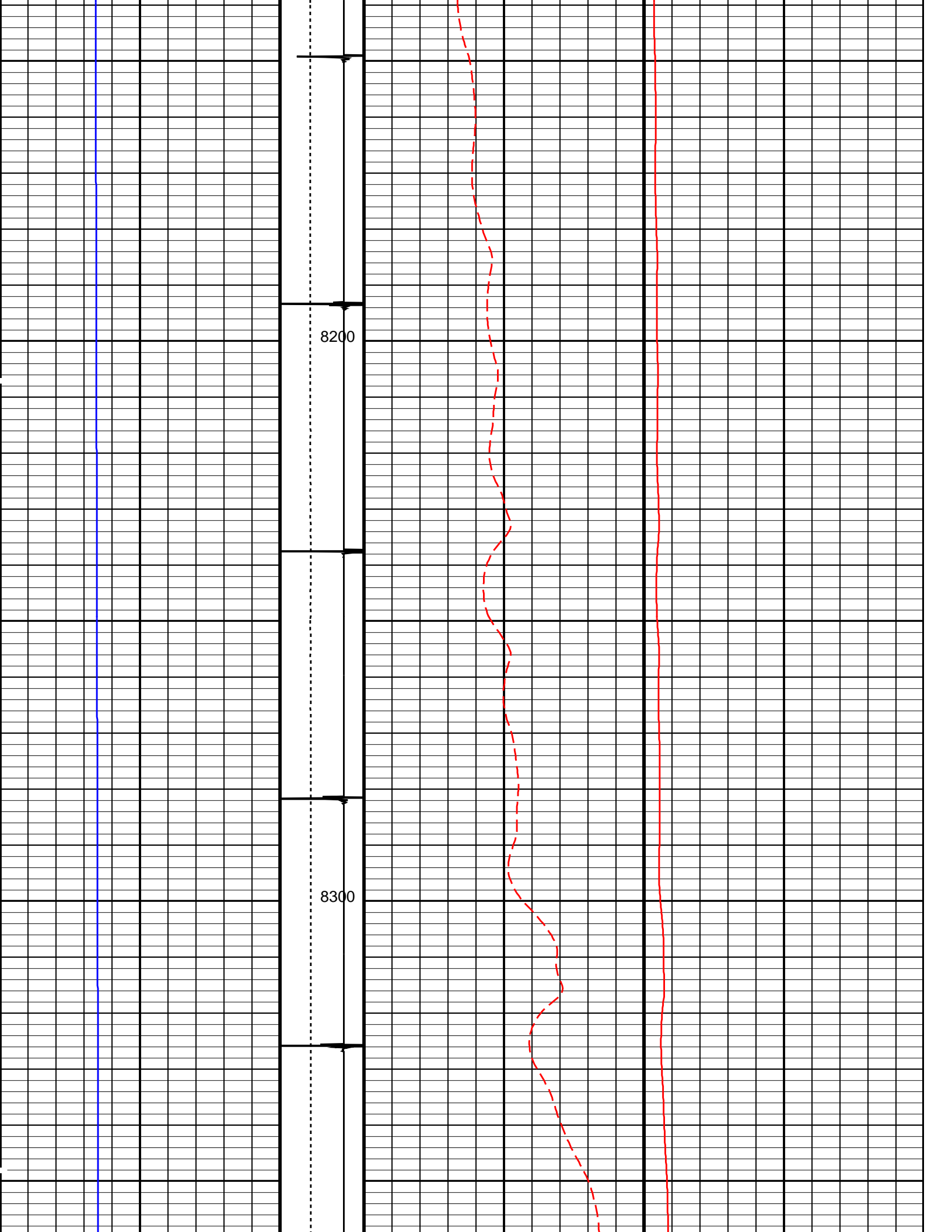
7600

7700

WPPE







WPRE

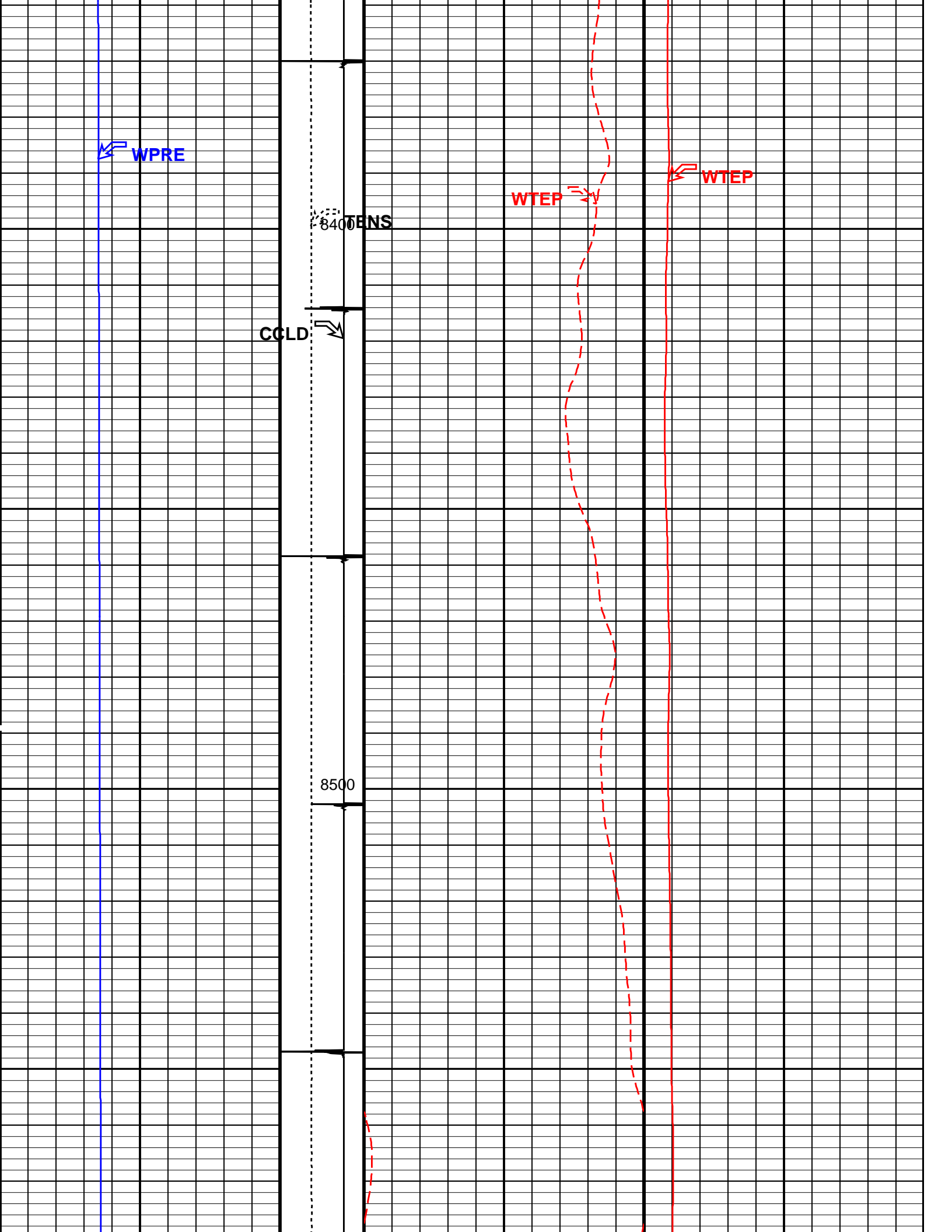
WTEP

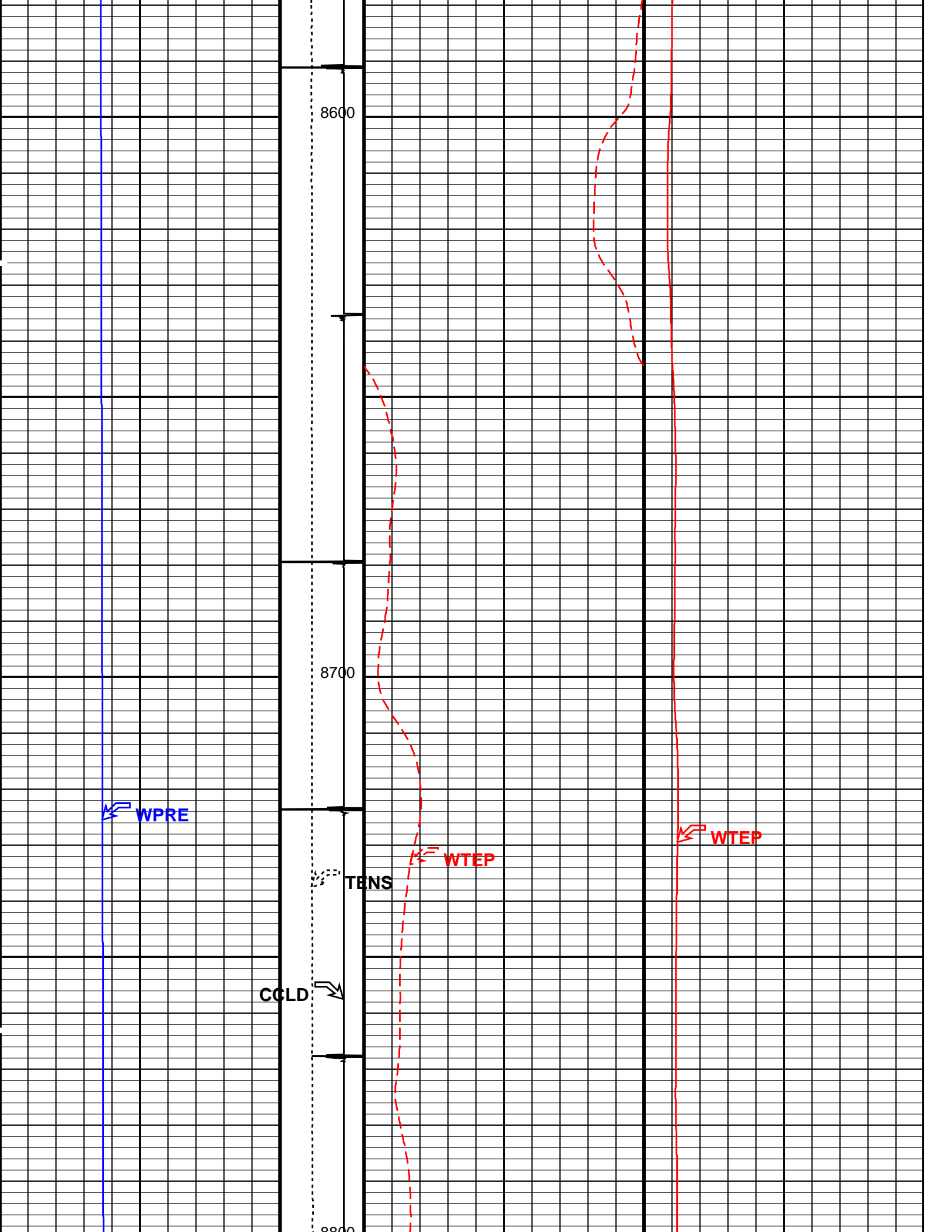
WTEP

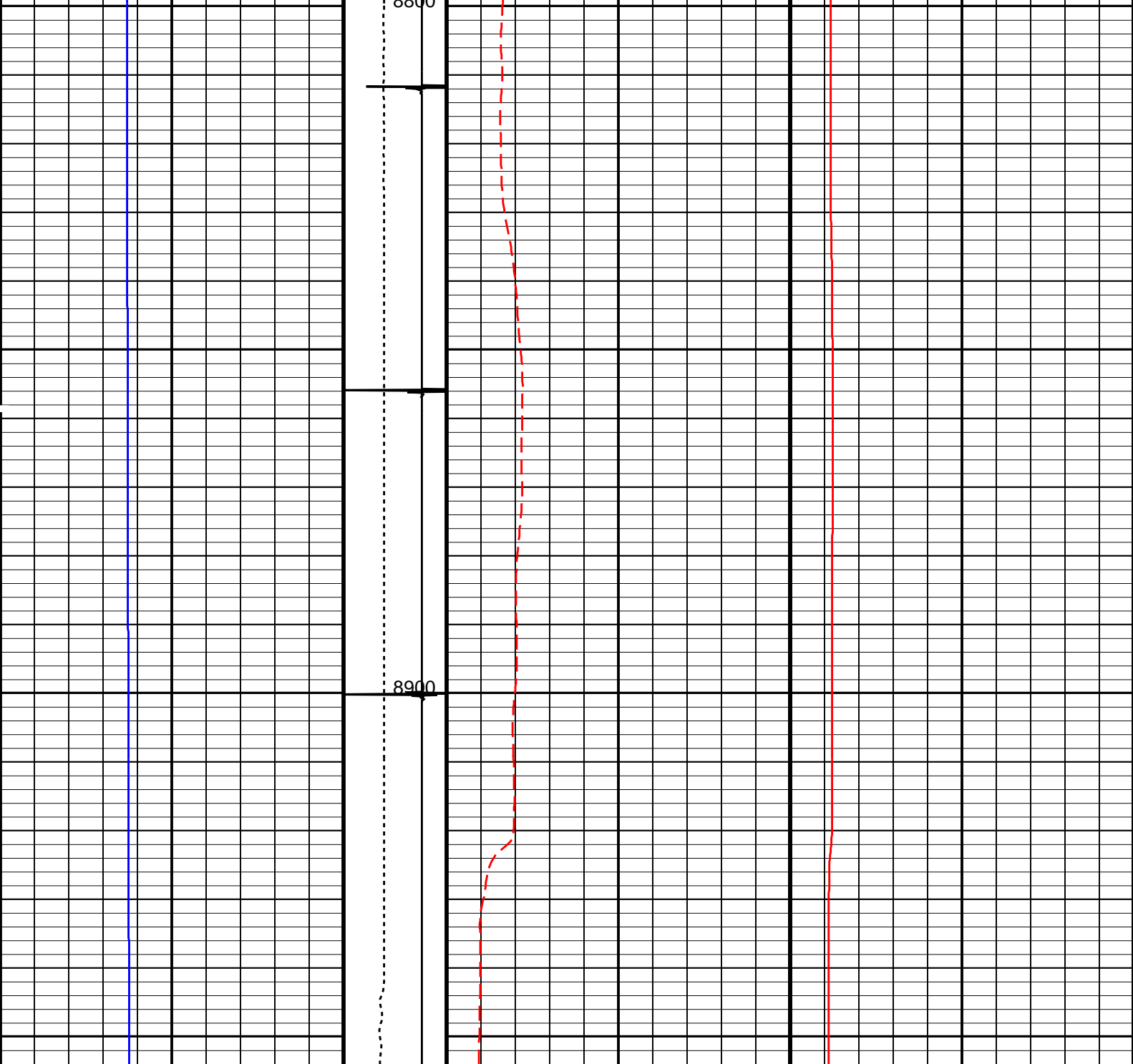
CCLD

8400 TENS

8500







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

PIP SUMMARY

Time Mark Every 60 S

Parameters

DLIS Name	Description	Value
System and Miscellaneous		
DO	Depth Offset for Playback	-9.0 FT
PP	Playback Processing	NORMAL

OP System Version: 19C0-187

HBMS-B	19C0-187					
Input DLIS Files						
DEFAULT	Flip_Splice_HBMS_009CUP	PRODUCER	22-Oct-2013 06:42	8963.0 FT	-10.5 FT	
Output DLIS Files						
DEFAULT	HBMS_012PUP	FN:8	PRODUCER	22-Oct-2013 06:47		



REPEAT ANALYSIS

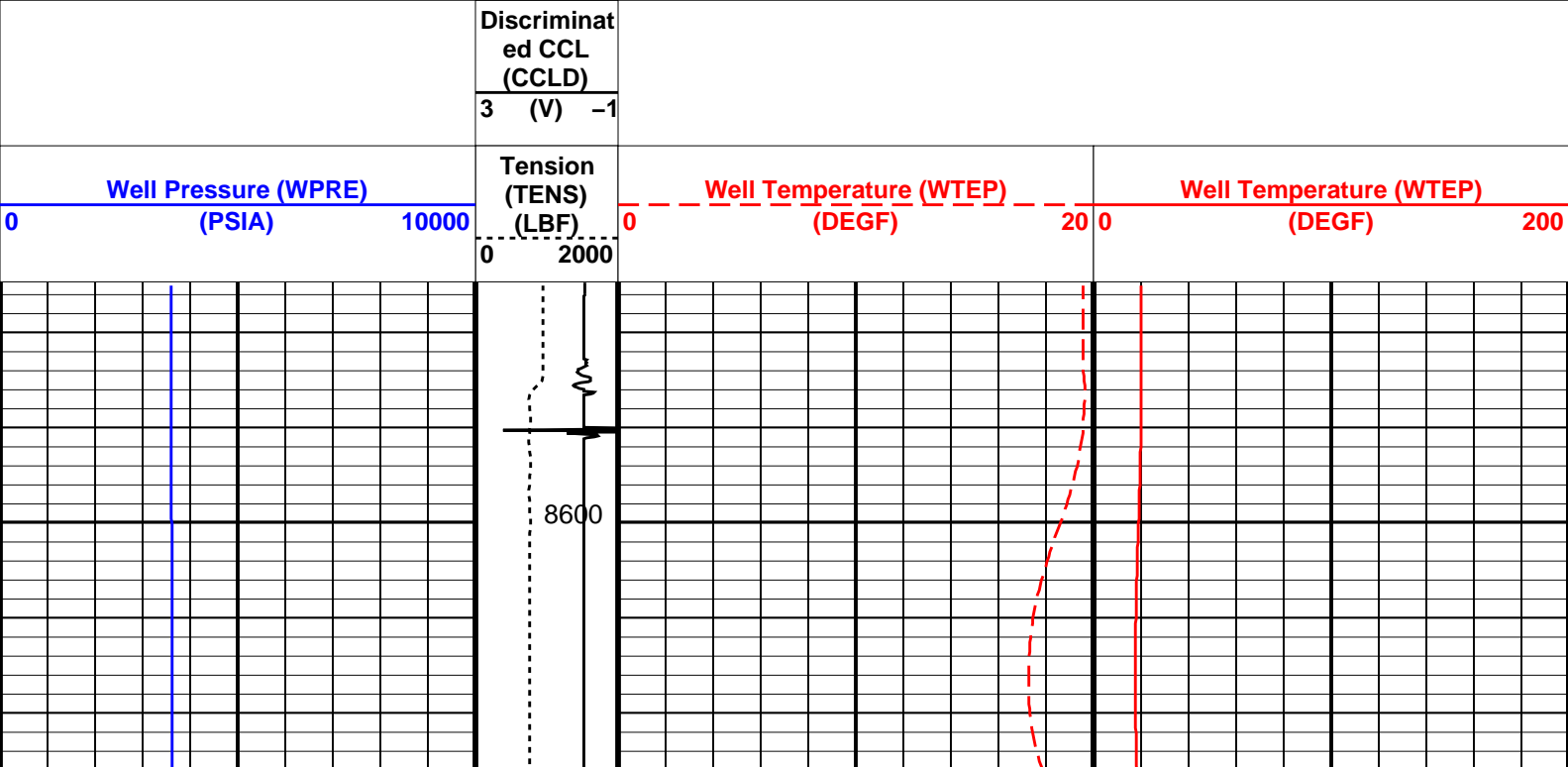
MAXIS Field Log

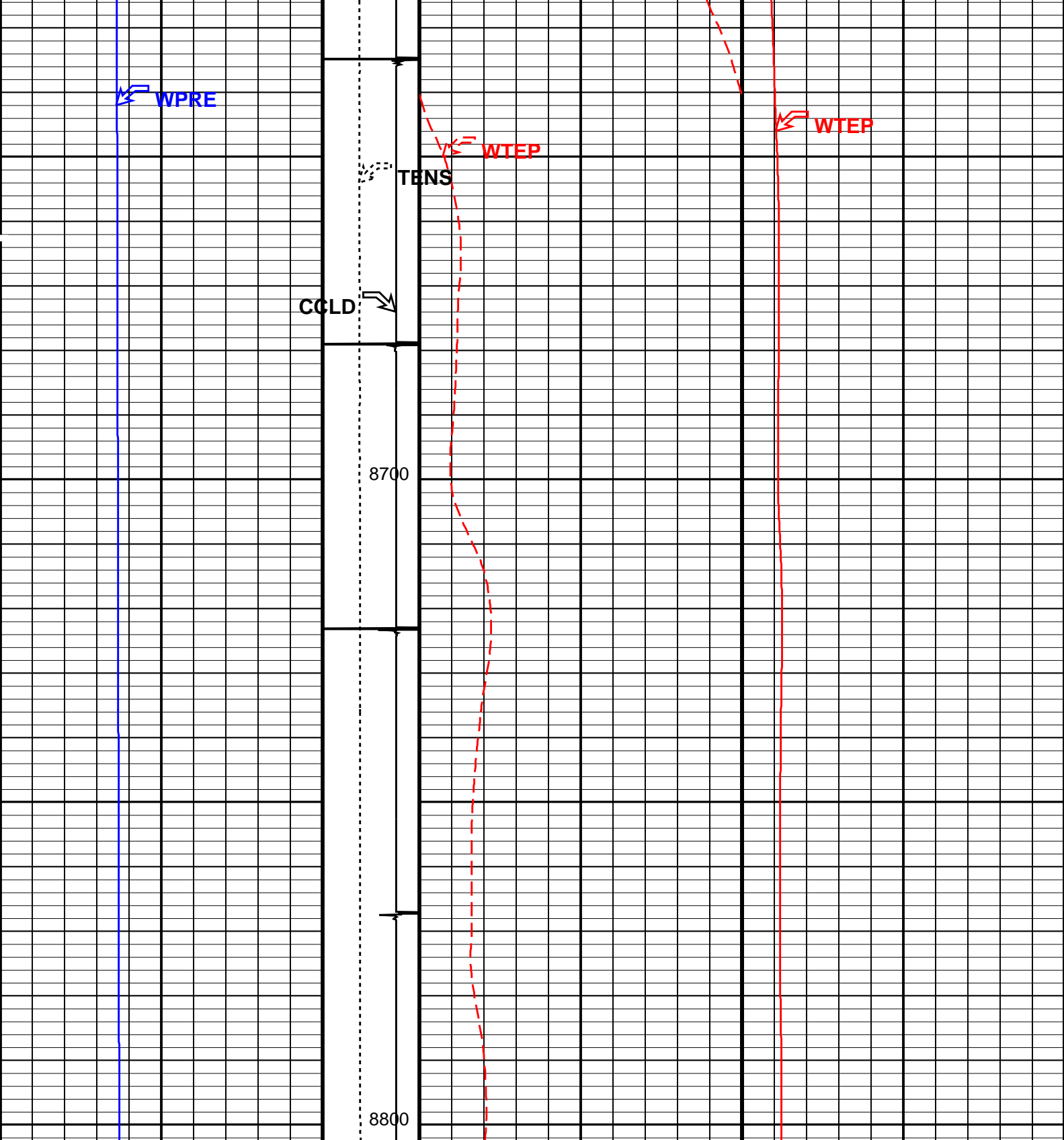
Company: ENCANA OIL & GAS (USA) INC				Well: HMU 6-13A (J6SEB)		
Input DLIS Files						
DEFAULT	Flip_HBMS_010LUP	PRODUCER	22-Oct-2013 06:43	8811.5 FT	8583.5 FT	
Output DLIS Files						
DEFAULT	HBMS_013PUP	FN:9	PRODUCER	22-Oct-2013 06:57	8802.5 FT	8574.5 FT

OP System Version: 19C0-187

HBMS-B	19C0-187				
PIP SUMMARY					

 Time Mark Every 60 S





Well Pressure (WPRE) (PSIA)		0	10000
Tension (TENS) (LBF)		0	2000
Well Temperature (WTEP) (DEGF)		0	20
Well Temperature (WTEP) (DEGF)		0	200
Discriminated 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	-9.0 FT NORMAL
Format: TEMP LOG Vertical Scale: 5" per 100'		Graphics File Created: 22-Oct-2013 06:57
OP System Version: 19C0-187		
HBMS-B	19C0-187	
Input DLIS Files		
DEFAULT	Flip_HBMS_010LUP	PRODUCER 22-Oct-2013 06:43 8811.5 FT 8583.5 FT
Output DLIS Files		
DEFAULT	HBMS_013PUP	FN:9 PRODUCER 22-Oct-2013 06:57

Schlumberger

HBMS COEFFICIENTS

MAXIS Field Log

Client:	ENCANA OIL & GAS (USA) INC	Tool:	PSP
Field:	MAMM CREEK	Sub Type:	PBMS
Well:	HMU 6-13A (J6SEB)	Sensor:	CQG
Run date:	22-Oct-2013		

PBMS Quartz Gauge type F

Sonde Serial NB	COEFFICIENTS FOR CQG PBMS-B.2955 S/N:
Sensor Serial NB	2955
Calib Date ddmmyy	140513
Matrix Size	66
Coeff CRC	AD6E

Pres Coeff

	Fb**0	Fb**1	Fb**2
Fc**0	+.805218055799E+04	+.230687803777E-01	+.120020876821E-07
Fc**1	-.107970514637E+01	-.131245085272E-04	-.102678735701E-09
Fc**2	+.111466223414E-05	+.524200534425E-10	+.949904926223E-15
Fc**3	+.255809900188E-11	+.160726360322E-15	0.0
Fc**4	0.0	0.0	0.0
Fc**5	0.0	0.0	0.0

	Fb**3	Fb**4	Fb**5
Fc**6	772569928667E-10	145272228445E-14	218727246914E-19

Fc**0	-.772560939667E-10	-.145379238115E-14	-.218737246914E-19
Fc**1	+.968642492374E-16	+.223810216552E-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 2955
 Calib Date ddmmyy 140513
 Matrix Size 66
 Coeff CRC EC8A

Temp Coeff

	Fc**0	Fc**1	Fc**2
Fb**0	+.120725065588E+03	-.313379211795E-03	+.708634488020E-08
Fb**1	-.596235012256E-02	+.182626448637E-07	+.104369551702E-12
Fb**2	-.295513003186E-07	+.341136223414E-12	-.998721617444E-18
Fb**3	-.375208992867E-12	+.712560466778E-17	0.0
Fb**4	0.0	0.0	0.0
Fb**5	0.0	0.0	0.0

	Fc**3	Fc**4	Fc**5
Fb**0	+.136541410168E-12	-.403343086990E-17	-.830542374631E-21
Fb**1	-.618398112617E-18	+.429129395353E-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 2955
 Calib Date ddmmyy 140513
 Matrix Size 16
 Coeff CRC 6C01

Clock Freq Coeff

	(Fb'-Fc')**0	(Fb'-Fc')**1	(Fb'-Fc')**2
(Fb'-Fc')**0	+.310812532328E+05	+.224728840165E-02	+.742962292518E-06

	(Fb'–Fc')**3	(Fb'–Fc')**4	(Fb'–Fc')**5
(Fb'–Fc')**0	–.673865003325E–10	–.911707425039E–16	–.961889742081E–20

PBMS Quartz Gauge type F

Sonde Serial NB :
 Sensor Serial NB 2955
 Calib Date ddmmyy 140513
 Matrix Size 16
 Coeff CRC D6FA

Clock Temp Coeff

	(Fb'–Fc')**0	(Fb'–Fc')**1	(Fb'–Fc')**2
(Fb'–Fc')**0	+1.122085335110E+03	–.602096613375E–02	–.167139647989E–07
	(Fb'–Fc')**3	(Fb'–Fc')**4	(Fb'–Fc')**5
(Fb'–Fc')**0	–.105604526136E–11	–.109719083283E–15	+1.100037226713E–19

Client: ENCANA OIL & GAS (USA) INC
 Field: MAMM CREEK
 Well: HMU 6–13A (J6SEB)
 Run date: 22–Oct–2013

Tool: PSP
 Sub Type: PBMS
 Sensor: WellTemp RTD

PBMS RTD Well Thermometer

Sonde Serial NB COEFFICIENTS FOR RTD THERMOMETER PBMS–B.2955 S/N:
 Sensor Serial NB 2955
 Calib Date ddmmyy 140513
 Matrix Size 16
 Coeff CRC 9ABB

WTemp Coeff

	Tt**0	Tt**1	Tt**2
Tt**0	–.579466850375E+03	+3.321000211776E+03	–.769493413393E+02
	Tt**3	Tt**4	Tt**5
Tt**0	+1.118371810108E+02	–.654027317127E+00	0.0

Client: ENCANA OIL & GAS (USA) INC

Field: MAMM CREEK

Well: HMU 6–13A (J6SEB)

Run date: 22–Oct–2013

Tool: PSP

Sub Type: PBMS

Sensor: GR

PBMS Gamma Ray

Sonde Serial NB

Sensor Serial NB

Calib Date ddmmyy

Matrix Size

Coeff CRC

RESISTORS FOR GR SENSOR N.37166,TOOL HBMS–BA2955. SENSOR S/N:

37166

280912

12

6646

GR HV Rt		
	Rt**0	Rt**1
Rt**0	+.2000000000000e+04	+.1930000000000e+04

Company: ENCANA OIL & GAS (USA) INC

Well: HMU 6–13A (J6SEB)

Field: MAMM CREEK

County: GARFIELD

State: COLORADO

TEMPERATURE LOG

CCL

Schlumberger