



FILE NO: CH092546	COMPANY WPX ENERGY
API NO: 05103121410000	WELL FEDERAL RGU 534-23-198
	FIELD SULPHUR CREEK
	COUNTY RIO BLANCO
	STATE CO

Version 23 1S 98W RGU 43-23-198 AZTEC 1000	LOCATION: SHL: 1023' FSL & 651' FEL BHL: 44' FSL & 1897' FEL SEC 23 TWP 1S RGE 98W	OTHER SERVICES BOND LOG
---	---	----------------------------

PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM	GL KB KB GL	ELEVATION 25 FT 6567 FT 6592 FT 6567 FT	ABOVE P.D.
---	----------------------	---	------------

DATE	15-Dec-2014	
RUN	1	TRIP
SERVICE ORDER	US092546	
DEPTH DRILLER	12757 FT	
DEPTH LOGGER	12711 FT	
BOTTOM LOGGED INTERVAL	12701 FT	
TOP LOGGED INTERVAL	7200 FT	
TIME STARTED	15:00	
TIME FINISHED	23:00	
OPERATOR RIG TIME	8 HOURS	
TYPE OF FLUID IN HOLE	WATER	
FLUID DENSITY	NA	
FLUID SALINITY	NA	
FLUID LEVEL	83 FT	
LOGGED CEMENT TOP	NA	
WELLHEAD PRESSURE	0 PSI	
MAXIMUM HOLE DEVIATION	NA	
NOMINAL LOGGING SPEED	10 F/MIN	
MAX. RECORDED TEMP.	288 DEGF	
REFERENCE LOG	BAKER HUGHES BOND LOG	
REFERENCE LOG DATE	15-Dec-2014	
EQUIP. NO.	4271	LOCATION
RECORDED BY	NEWELL	
WITNESSED BY	DUSTIN WELSH	

IN MAKING INTERPRETATIONS OF LOGS OUR EMPLOYEES WILL GIVE THE CUSTOMER THE BENEFIT OF THEIR BEST JUDGEMENT. BUT SINCE ALL INTERPRETATIONS ARE OPINIONS BASED ON INFERENCES FROM ELECTRICAL OR OTHER MEASUREMENTS, WE CANNOT, AND WE DO NOT GUARANTEE THE ACCURACY OR CORRECTNESS OF ANY INTERPRETATION. WE SHALL NOT BE LIABLE OR RESPONSIBLE FOR ANY LOSS, COST, DAMAGES, OR EXPENSES WHATSOEVER INCURRED OR SUSTAINED BY THE CUSTOMER RESULTING FROM ANY INTERPRETATION MADE BY ANY OF OUR EMPLOYEES.

BOREHOLE RECORD		
BIT SIZE	FROM	TO
30 IN	0 FT	80 FT
13.5 IN	80 FT	3903 FT
8.75 IN	3903 FT	12791 FT

CASING RECORD				
SIZE	WEIGHT	GRADE	FROM	TO
18 IN			0 FT	80 FT
9.625 IN			0 FT	3903 FT
4.5 IN	11.6 LB/F	P-110	0 FT	12791 FT

## REMARKS

RUN 1 TRIP 1: All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 15/DEC/2014 at the client's request.

The depth matching process creates potential for collar lengths to vary from those recorded on other cased hole wireline units without a Gamma Ray reference.

The amount of linear shift is 4 feet.

Logged in PNC-3D mode.

BHT = 288 degF  
SJ = 7325' - 7347'

## EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	PCM	8250EA	Z166326	FREE
1	1	TEL/CCL	8248ED	10387150	FREE
1	1	GR	2812LA	10274382	FREE
1	1	RPM	8281EA	10423671	FREE
1	1	RPM	8283PA	10585555	FREE
1	1	RPM	8281FA	10460082	FREE
1	1	TEMP	8255XA	Z120516	FREE

## MAIN SECTION PNC-3D MODE

ECLIPS 6.2wu1 PC-ECLIPS General Release Rel 6.2w Update 1 Fri Apr 25 10:54:53 Central Daylight Time 2014  
Updates: 31 Patches: 2

Plotted: Mon Dec 15 23:32:02 2014

## PARAMETER AND FILTER SUMMARY REPORT

FILE: D:\dat1a\092546\534RPM\_MAIN.fvpdf  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 7194.000 ft BOTTOM DEPTH: 12719.727 ft

## SYMMETRIC FILTER

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
GR	FILTER ( )	medium (1)		TOP BOTTOM

## RPM PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP BOTTOM
	OPEN/CASED HOLE	CASED HOLE		" "
	BOREHOLE SIZE	7.88	in	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

## CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Dec 15 16:33:46 2014	CASING COLLAR LOCATOR
F1:GR	Dec 15 16:33:46 2014	GAMMA RAY
F1:ISS	Dec 15 16:33:46 2014	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Dec 15 16:33:46 2014	LONG SPACE COUNT RATE
F1:RATO	Dec 15 16:33:46 2014	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Dec 15 16:33:46 2014	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Dec 15 16:33:46 2014	CORRECTED FORMATION SIGMA
F1:SS	Dec 15 16:33:46 2014	SHORT SPACE COUNT RATE

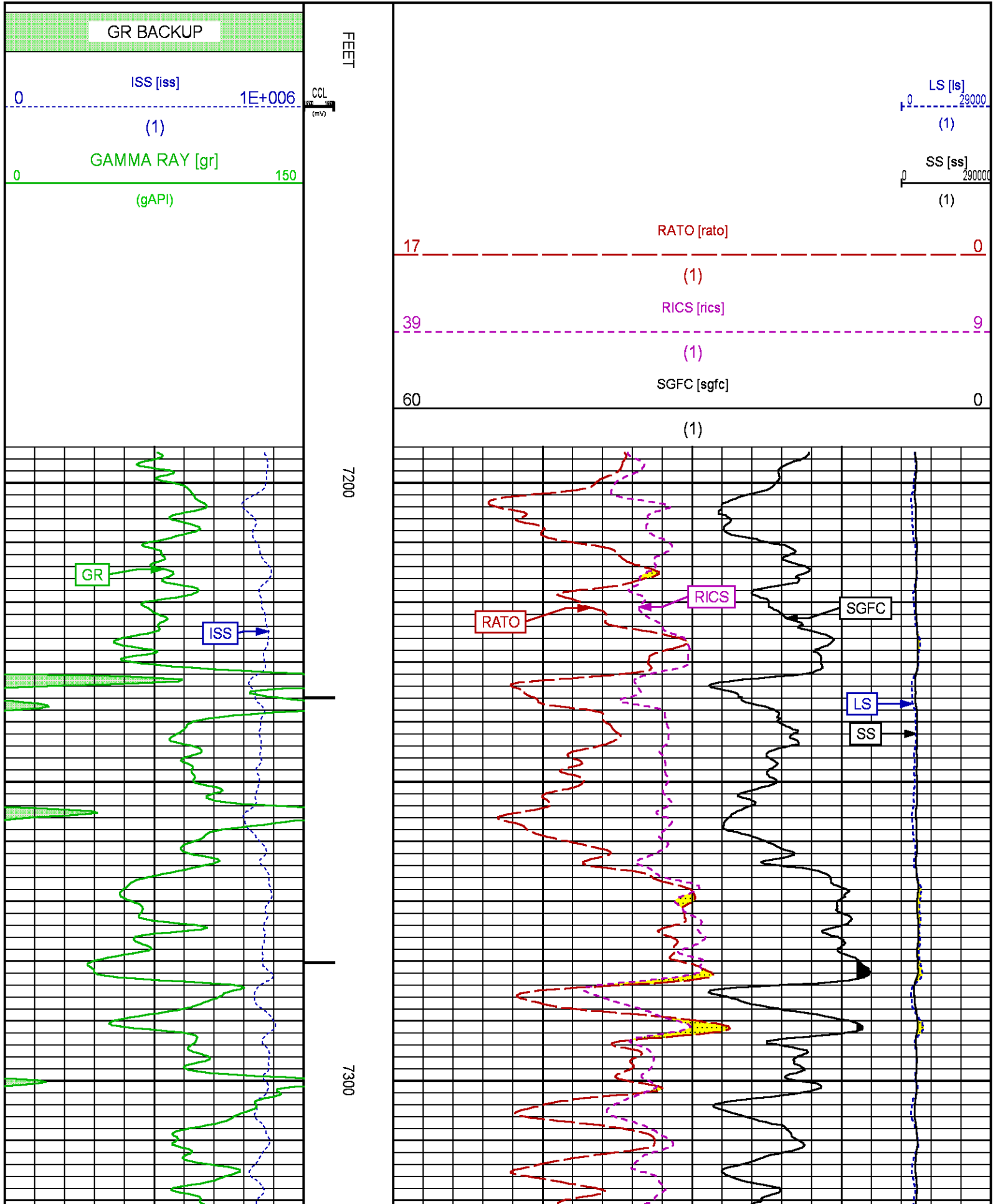
## CURVE MEASURE POINT OFFSET

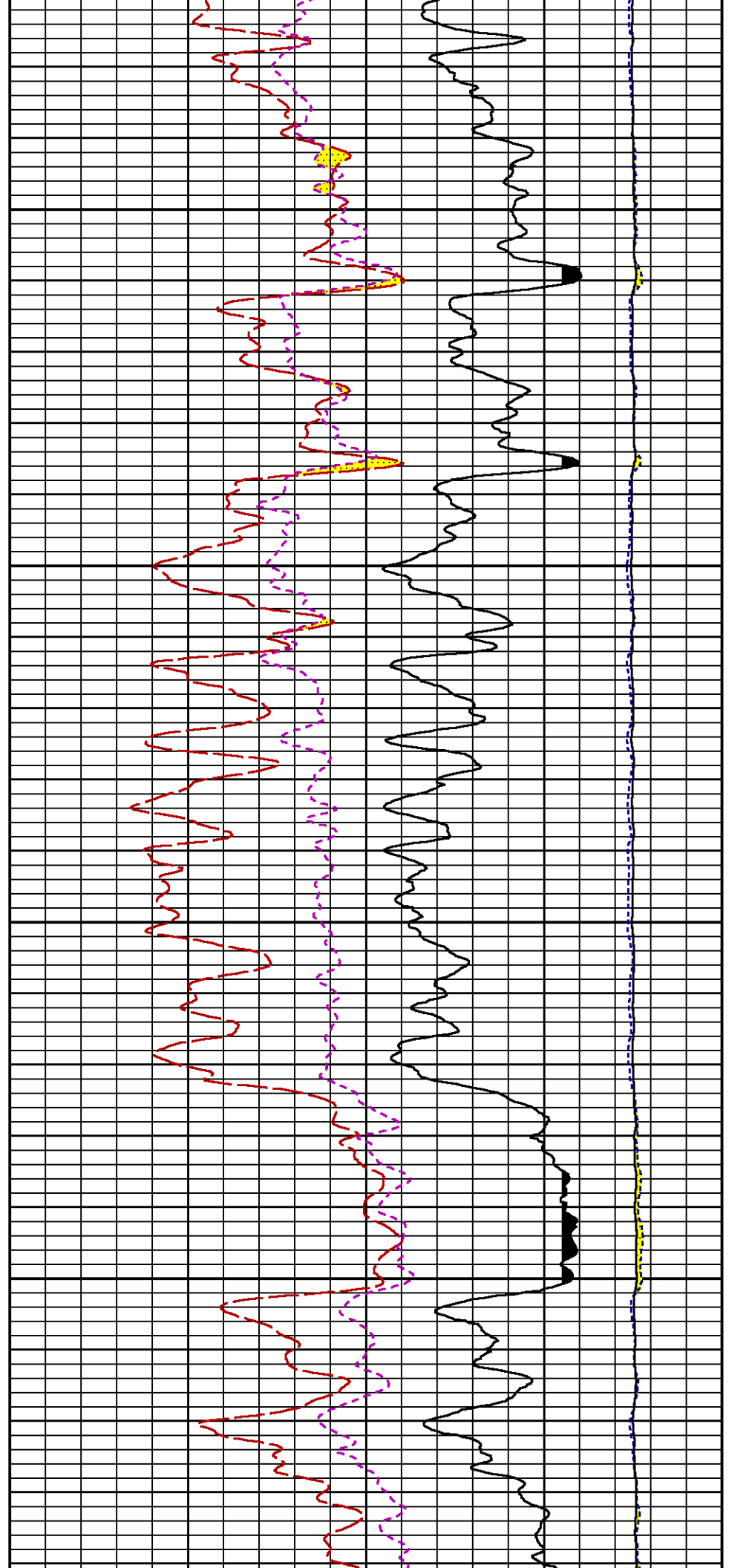
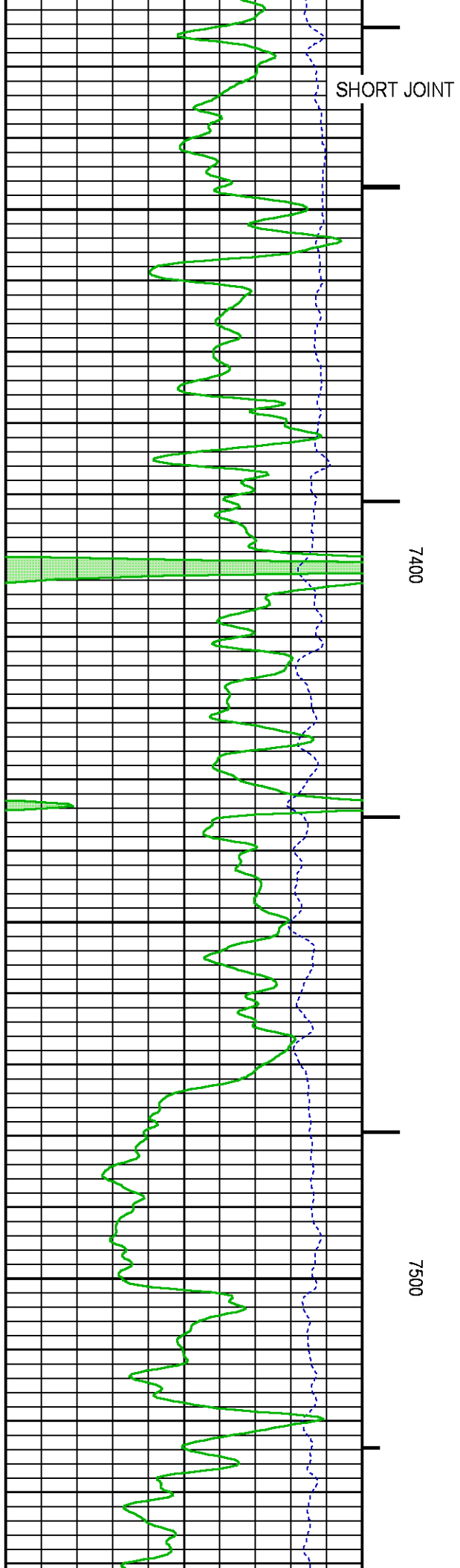
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	25.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	22.75	LS	12.75	RICS	12.75	SS	12.75

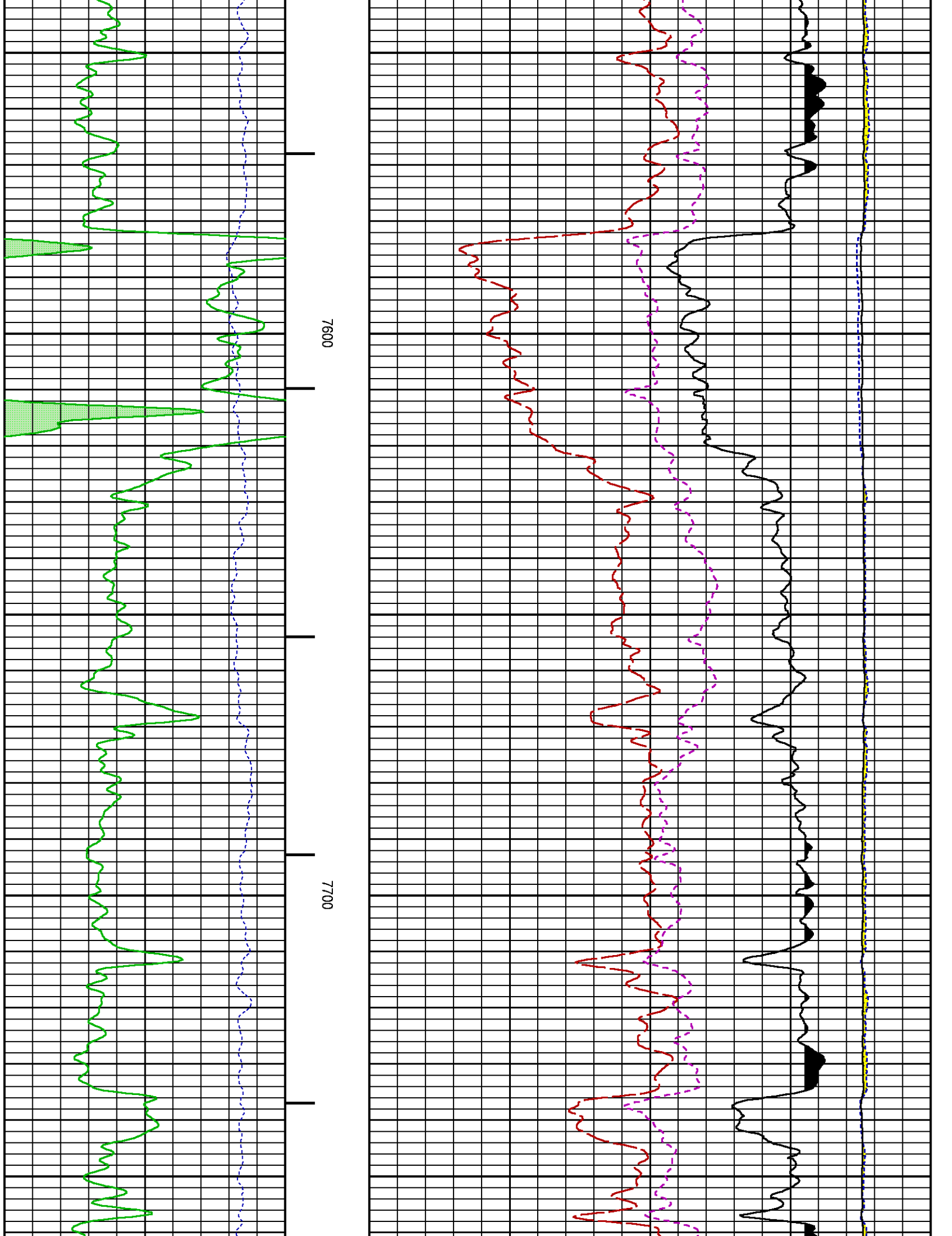
Presentation : BHIBX9FSY1:D:\dat1a\092546\534RPM\_MAIN.fvpdf [5"/100' Scale]  
Plot Interval : 7195 - 12716 Feet

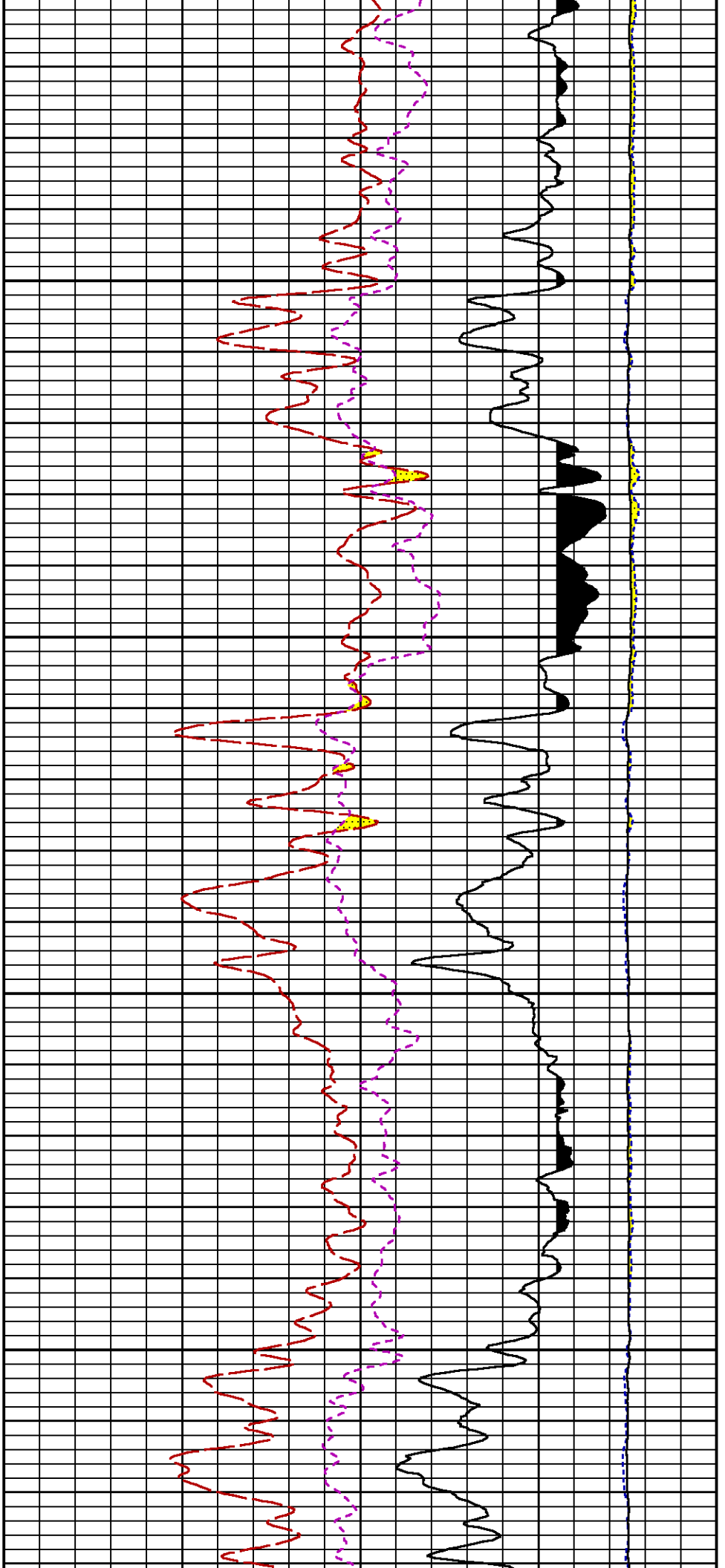
Data File 1 : F1 : BHIBX9FSY1:D:\dat1a\092546\534RPM\_MAIN.xtf  
Created On : Dec 15 16:33:46 2014

Created On : Dec 15 10:55:40 2014  
Company : WPX ENERGY  
Well : FEDERAL RGU 534-23-198  
Field : SULPHUR CREEK  
File Interval : 20 - 12719 Feet  
OCT : n354h



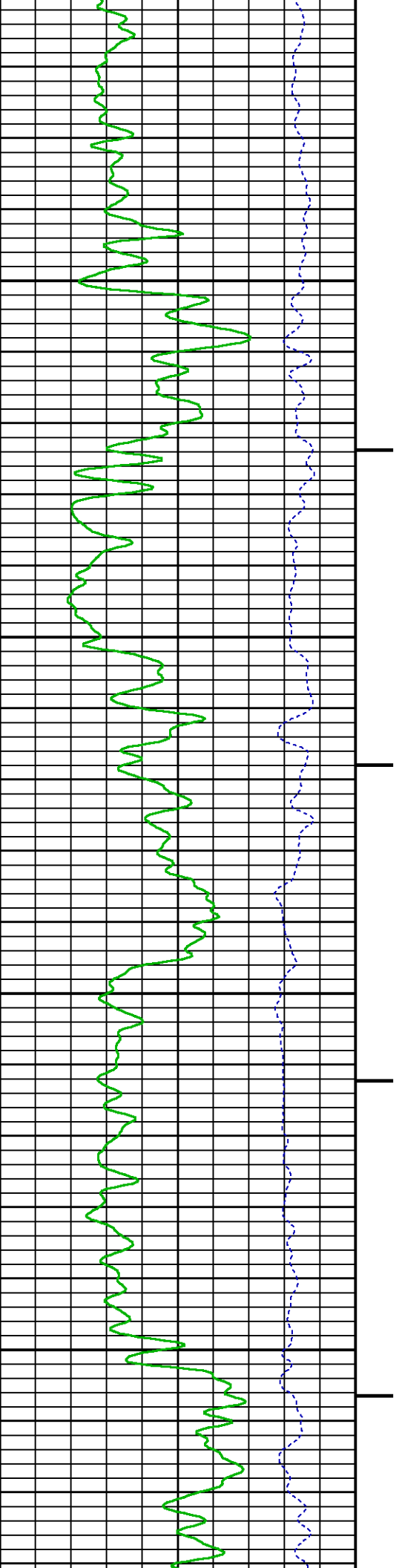


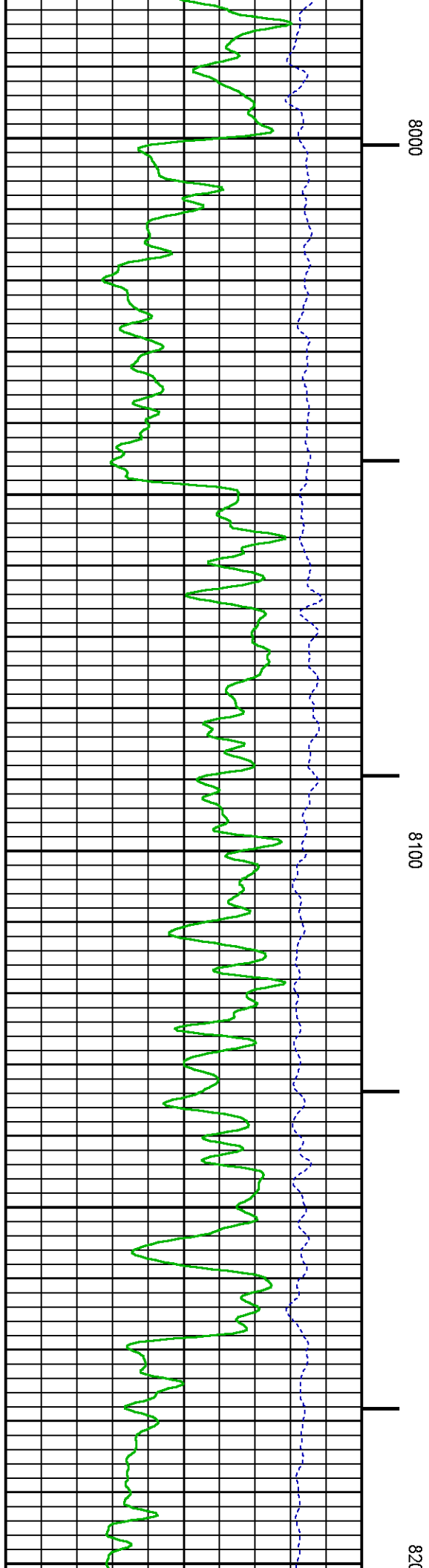
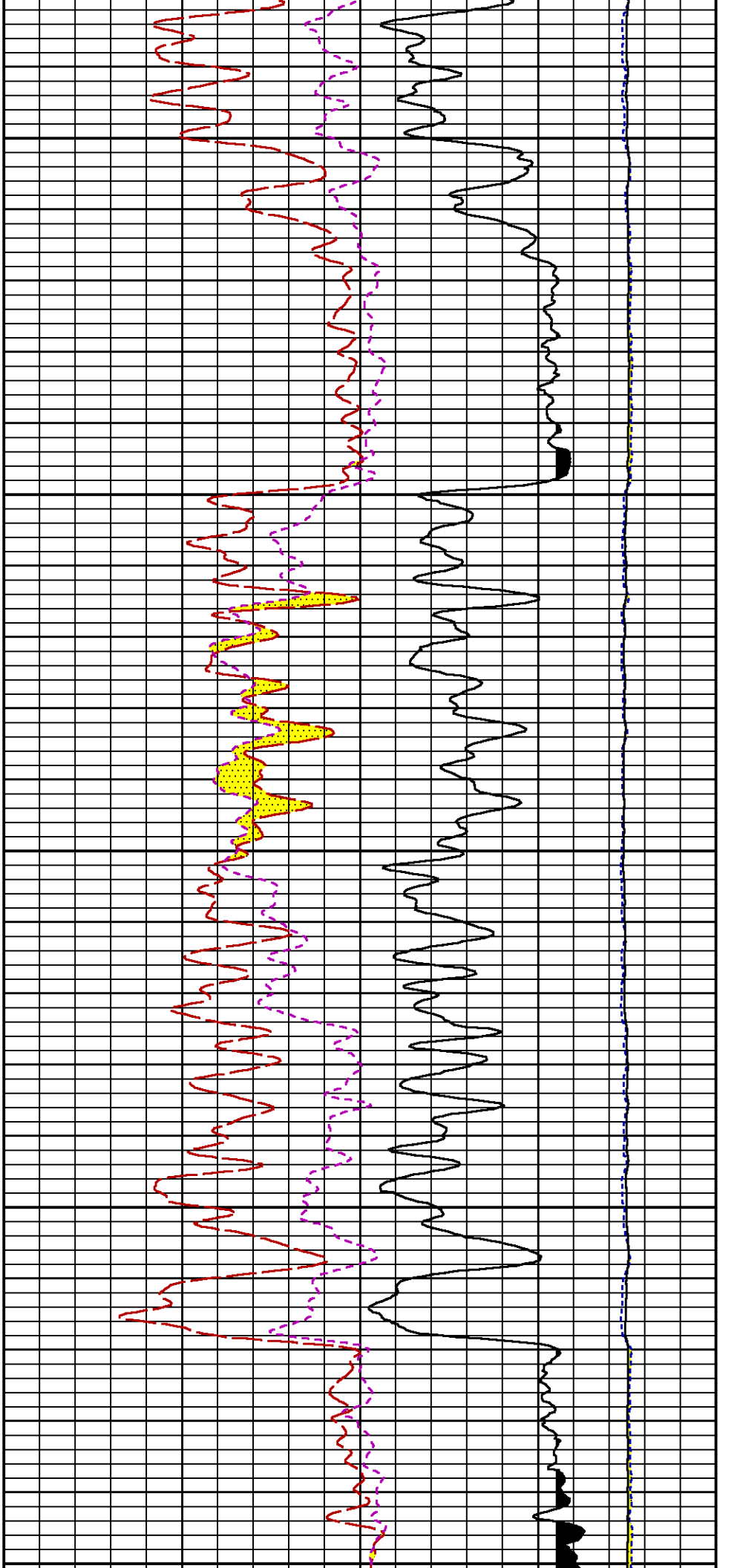


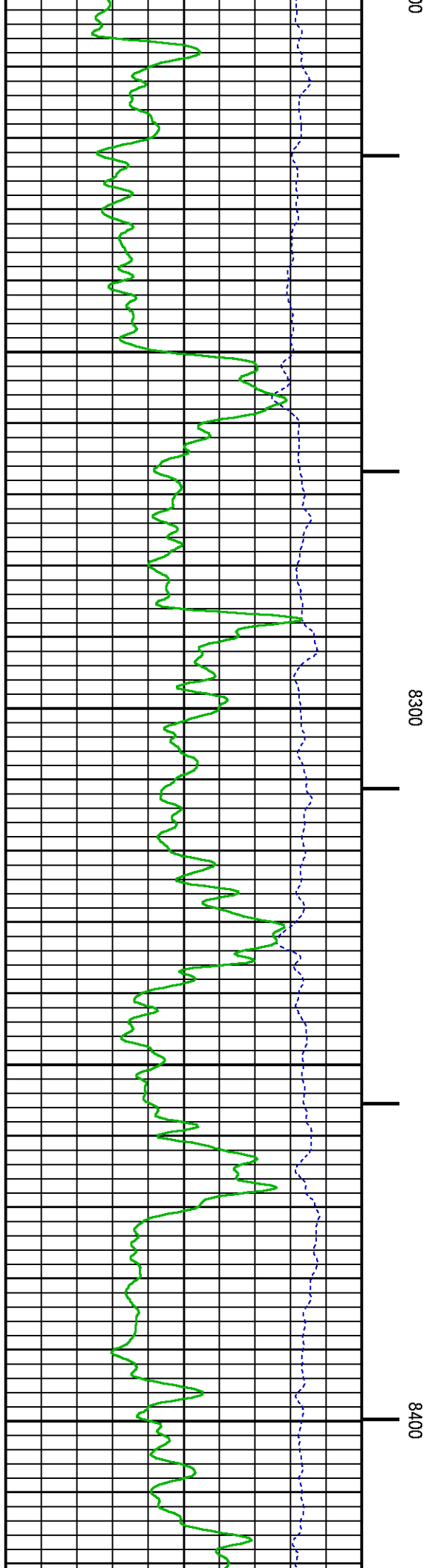
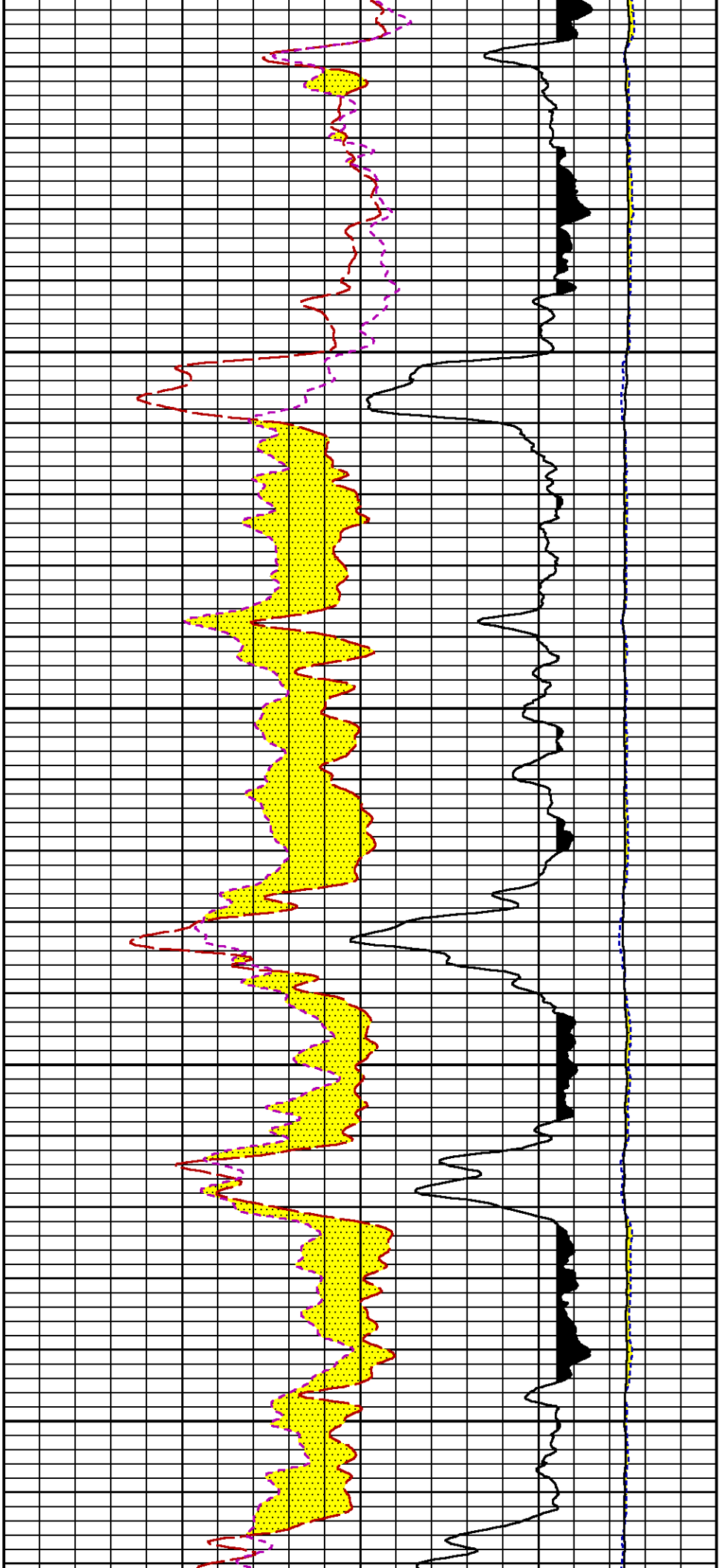


7800

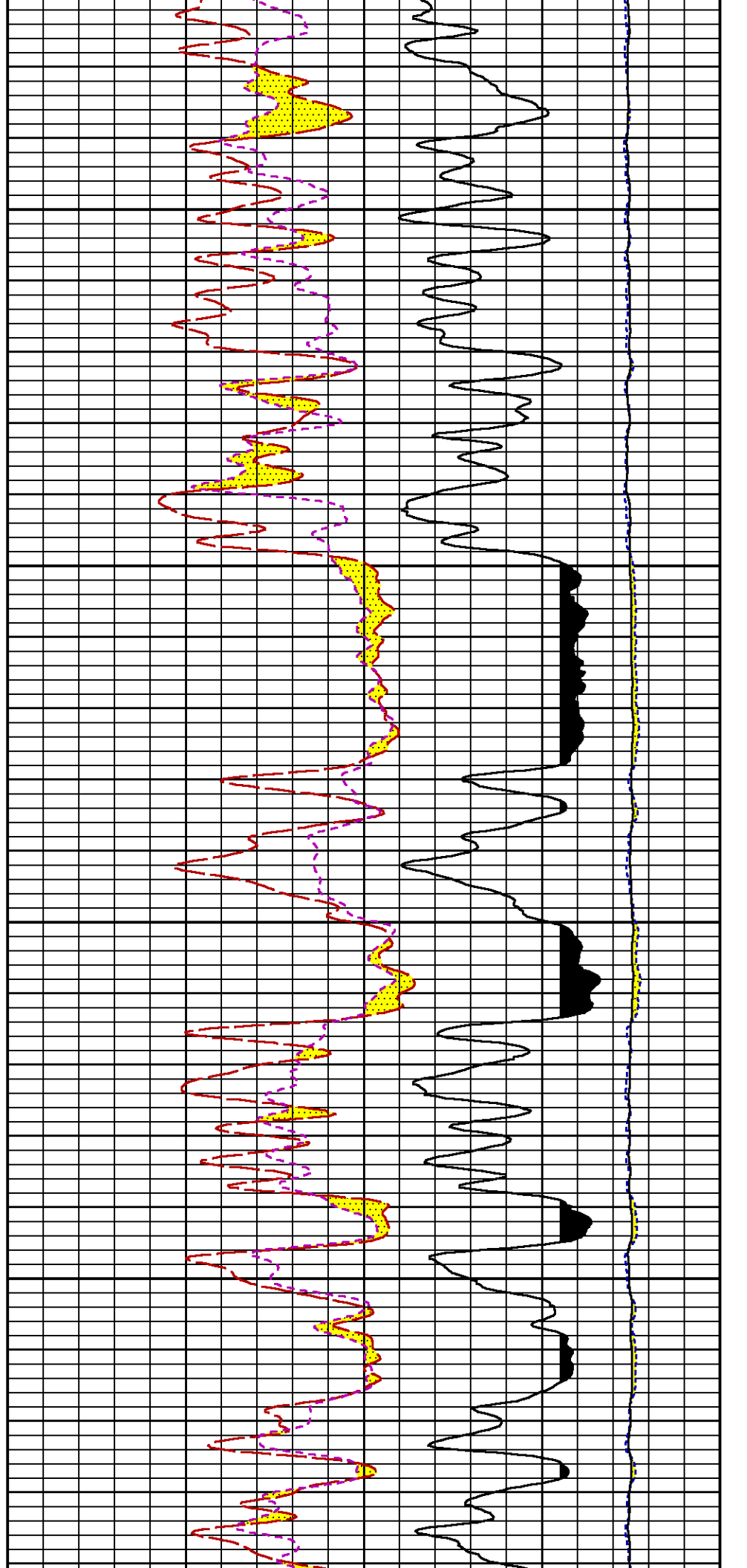
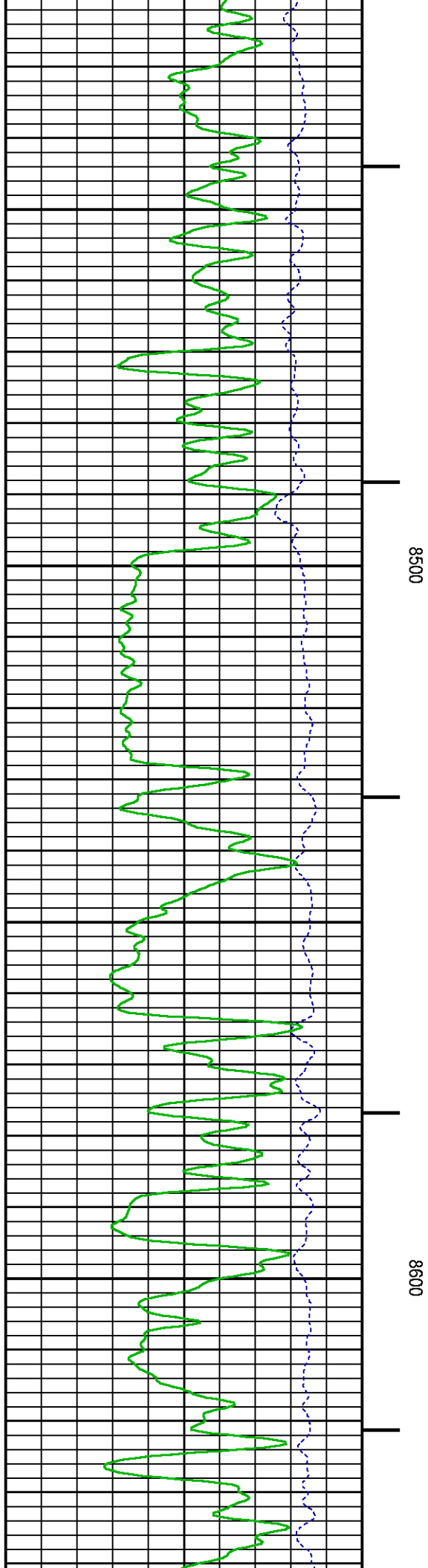
7900

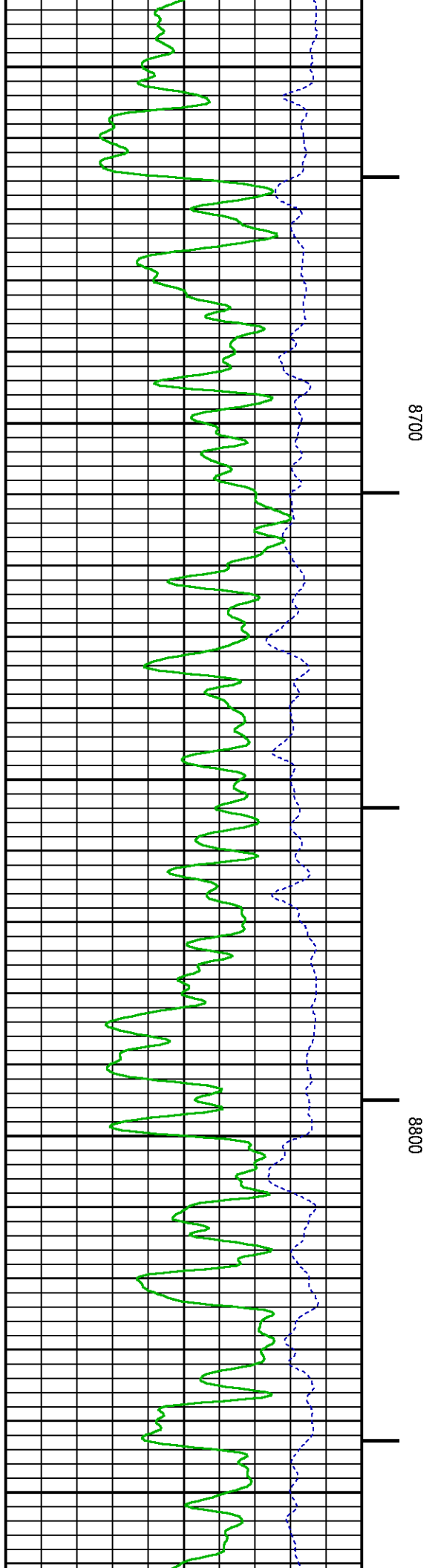
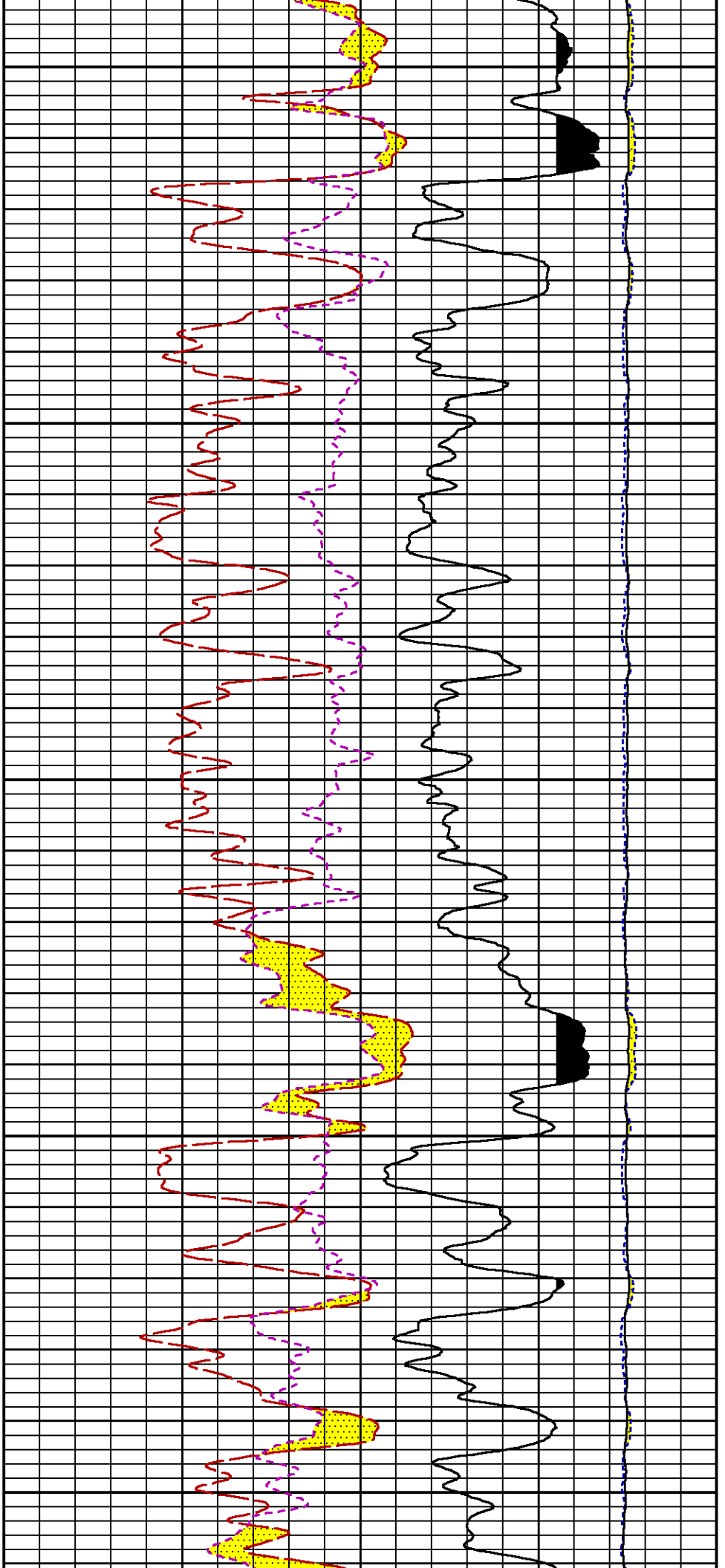


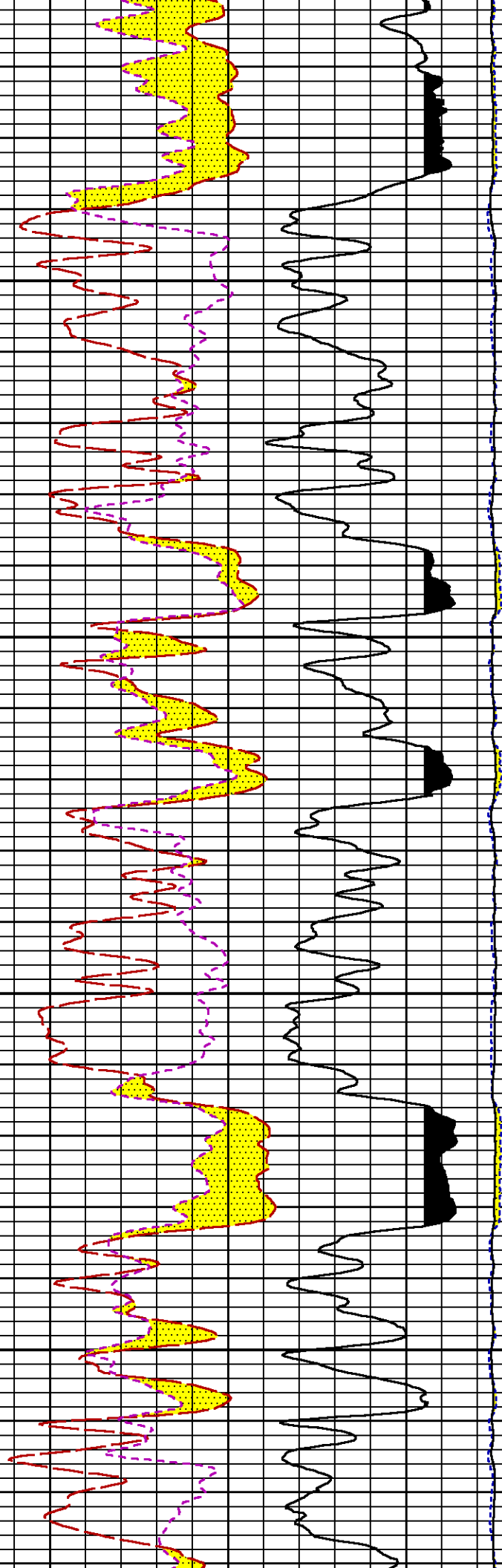
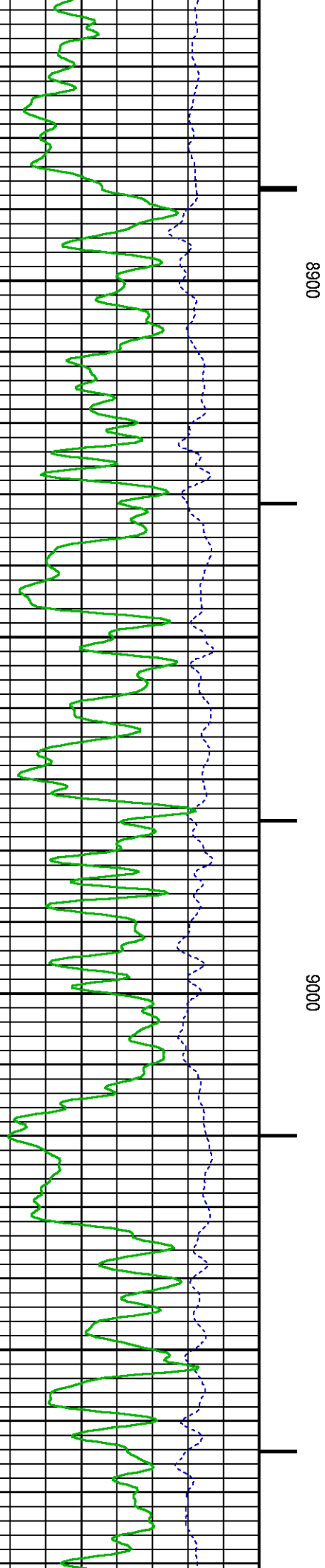


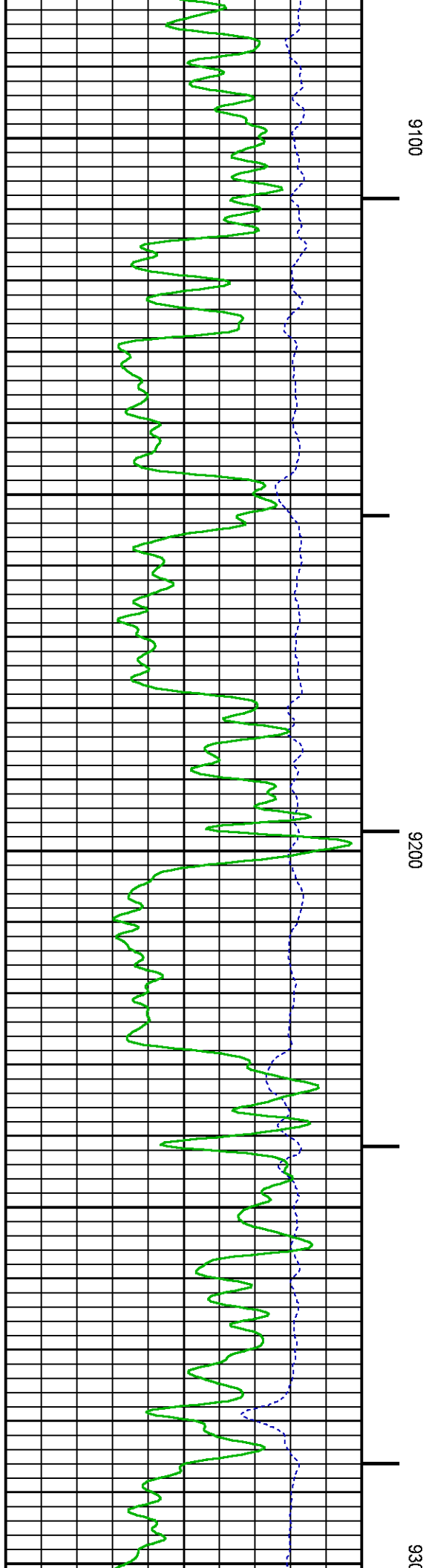
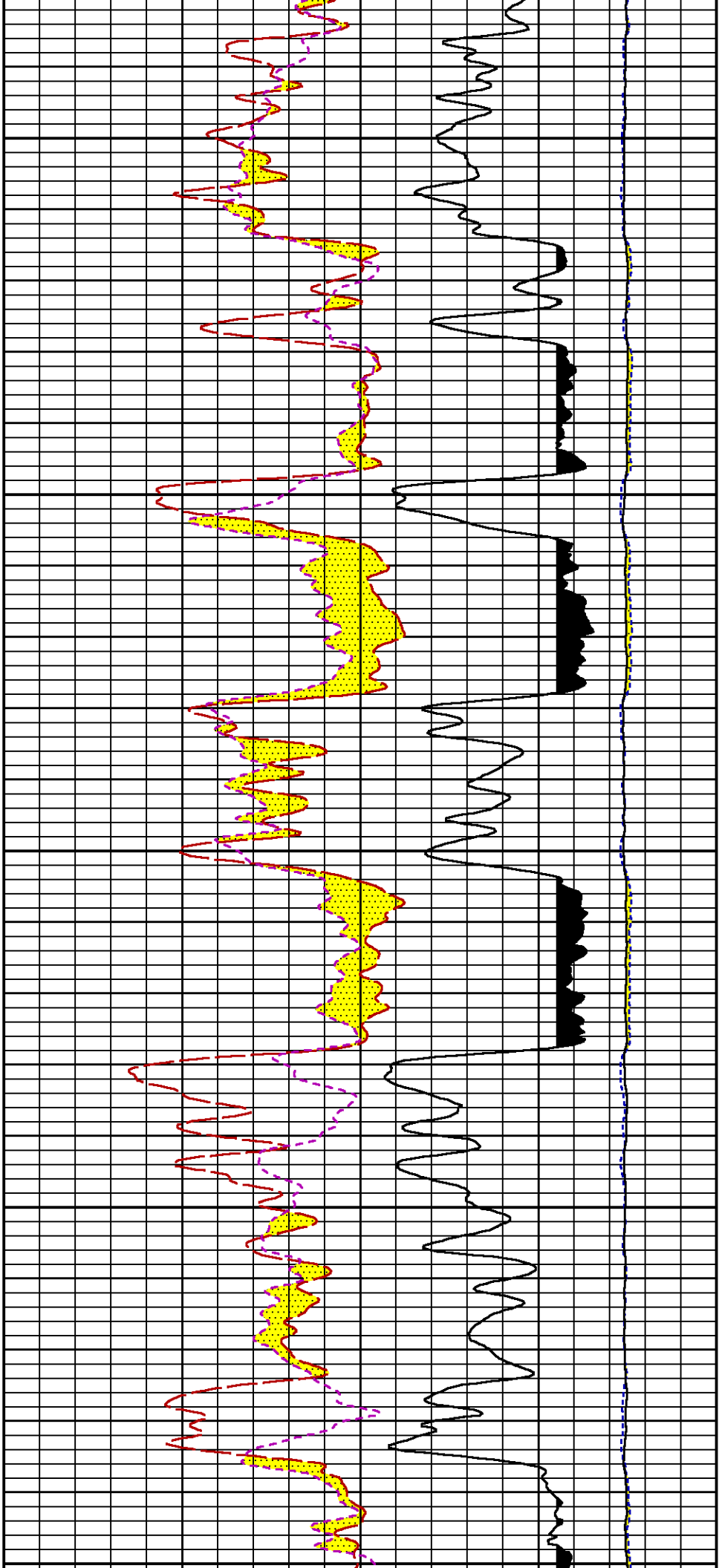


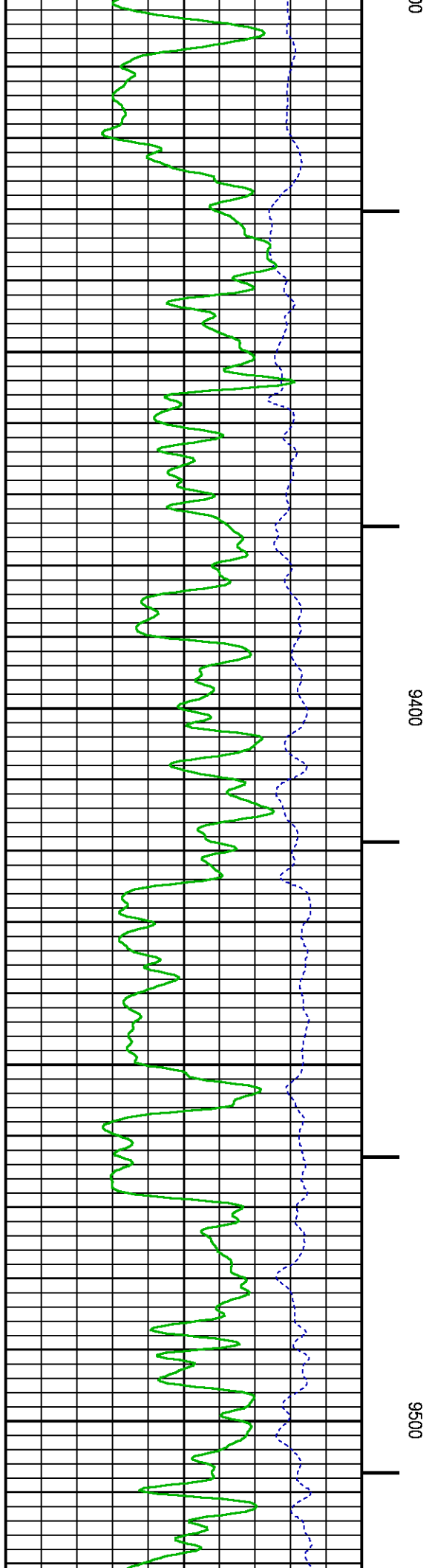
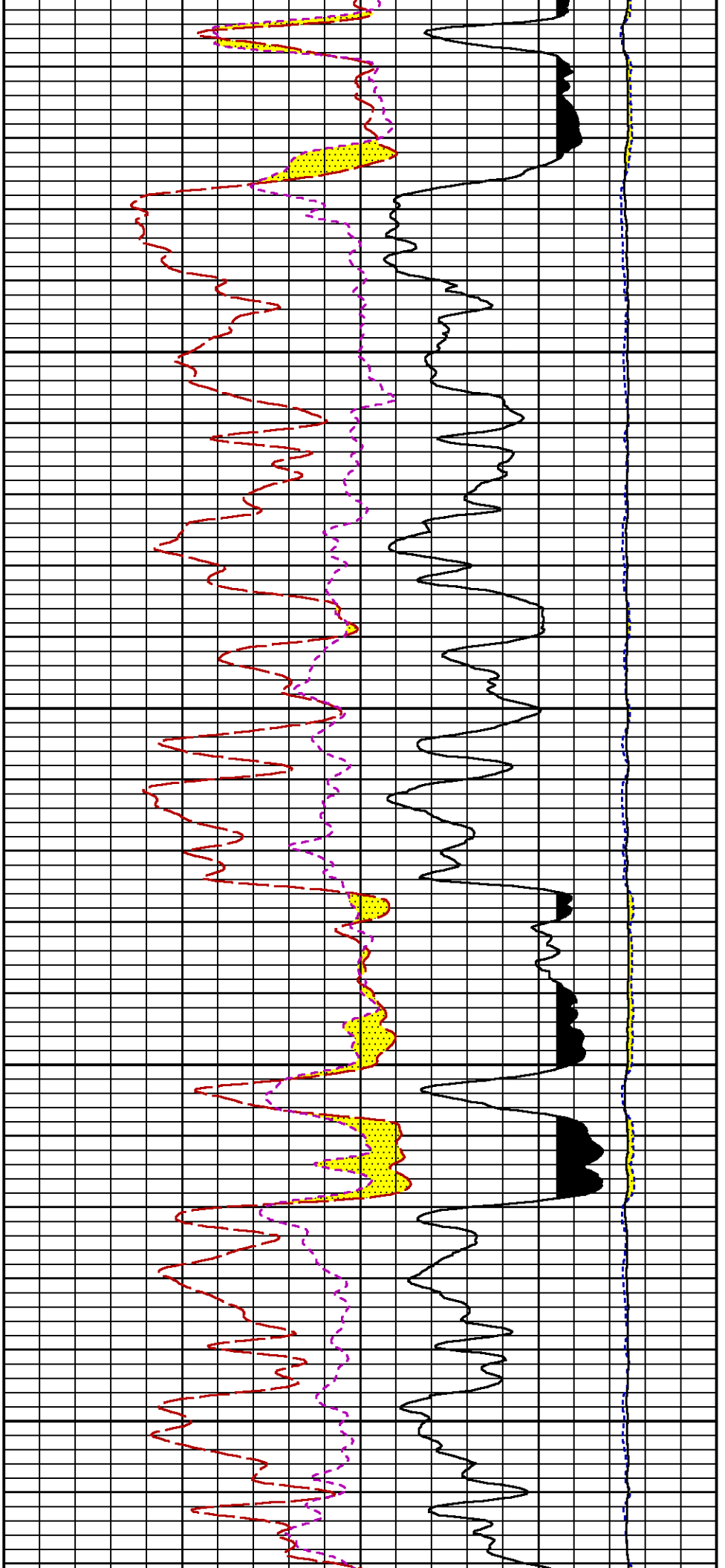






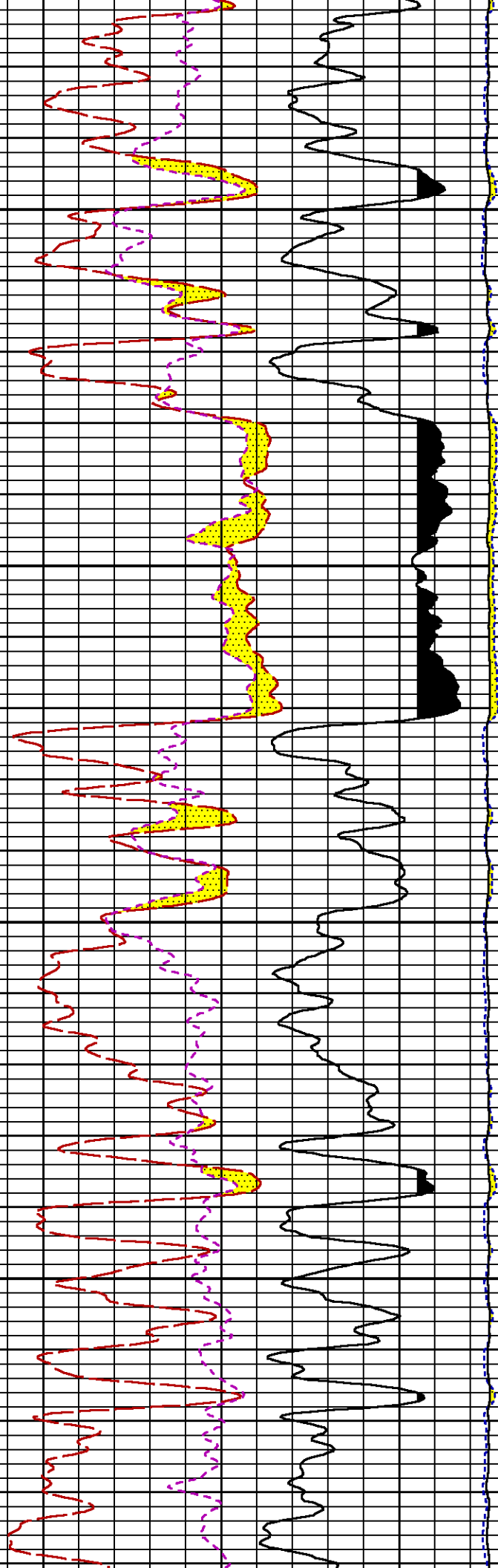
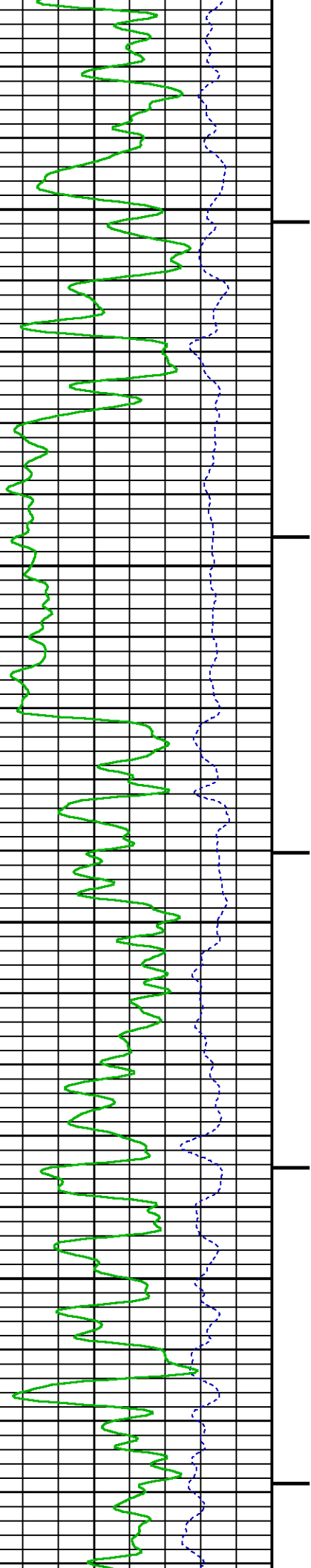


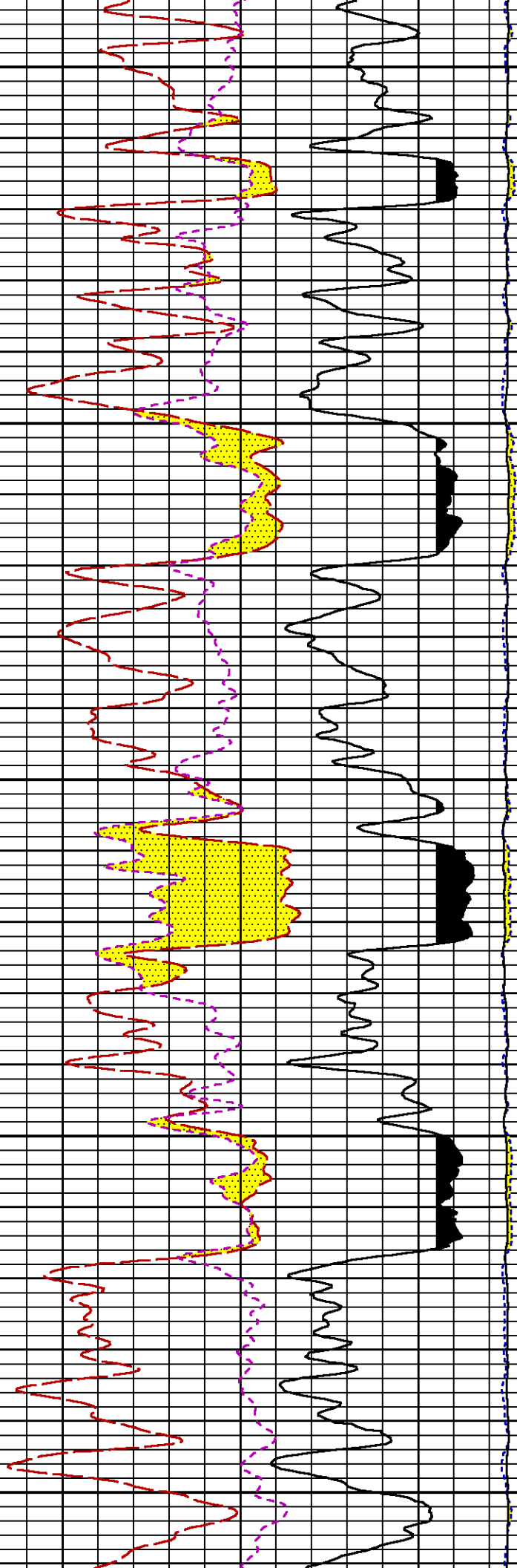
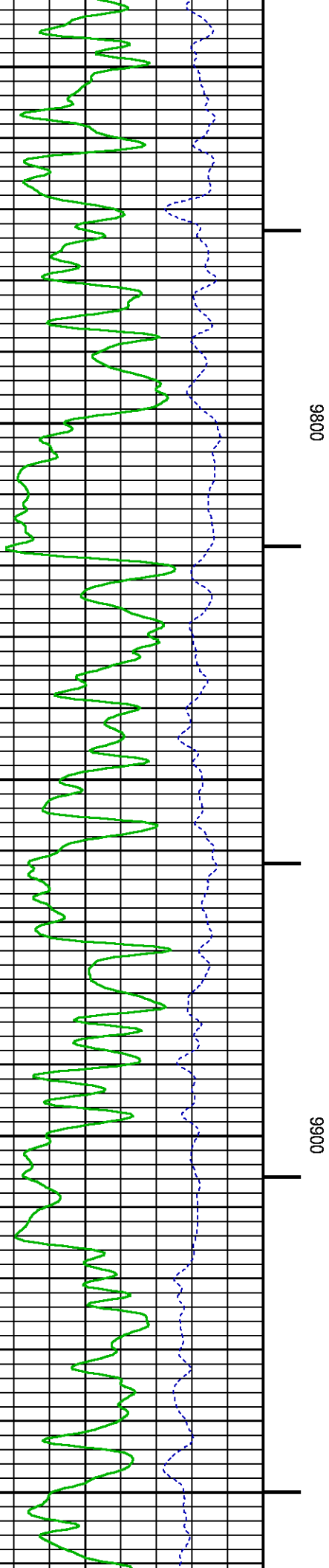


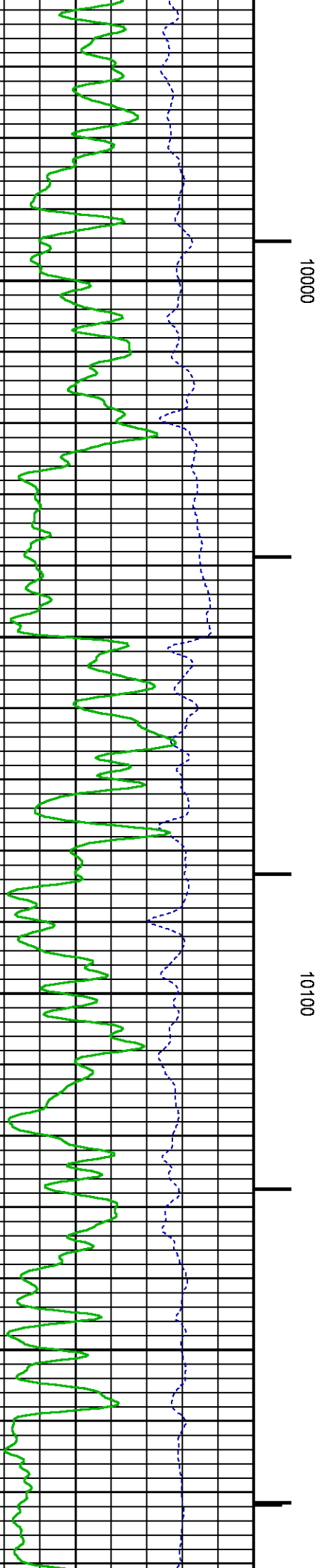
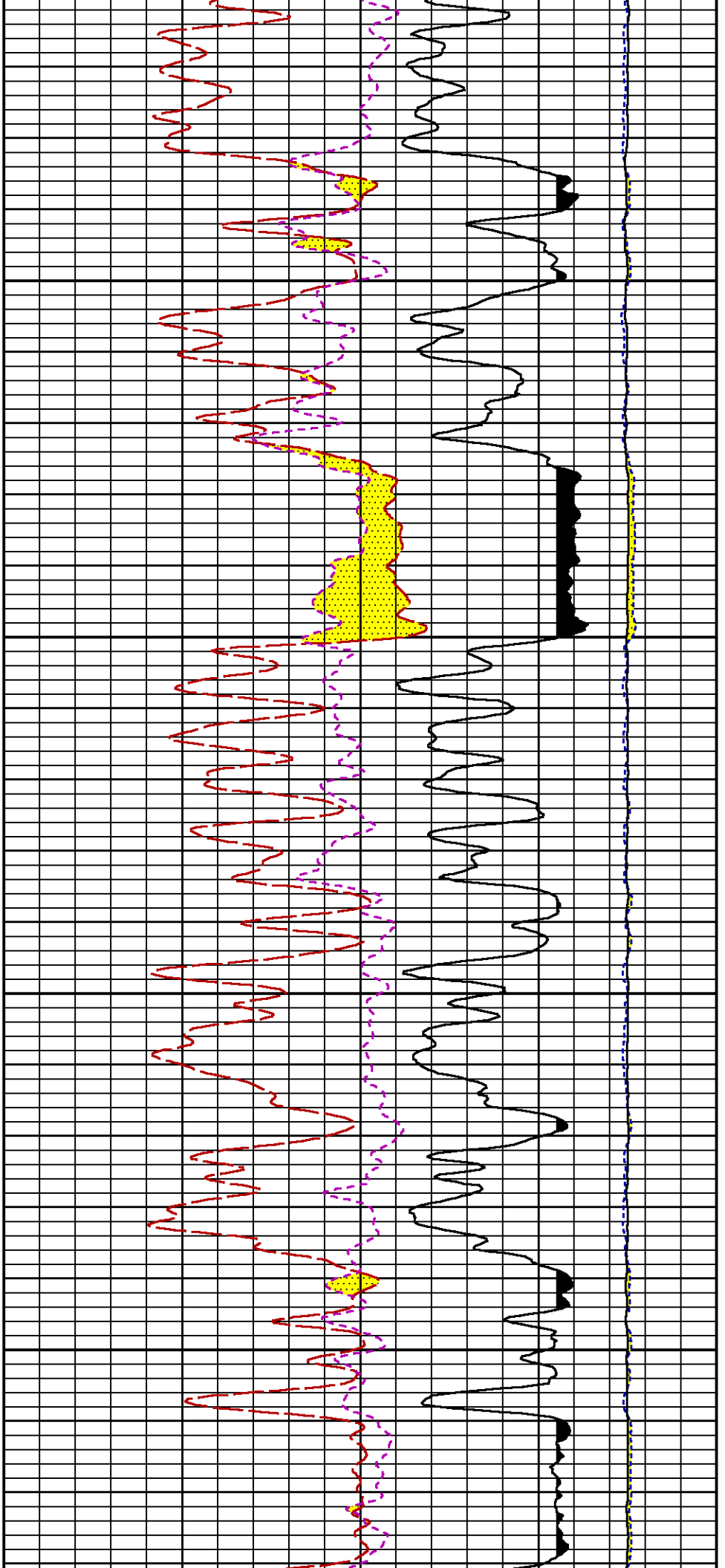


9600

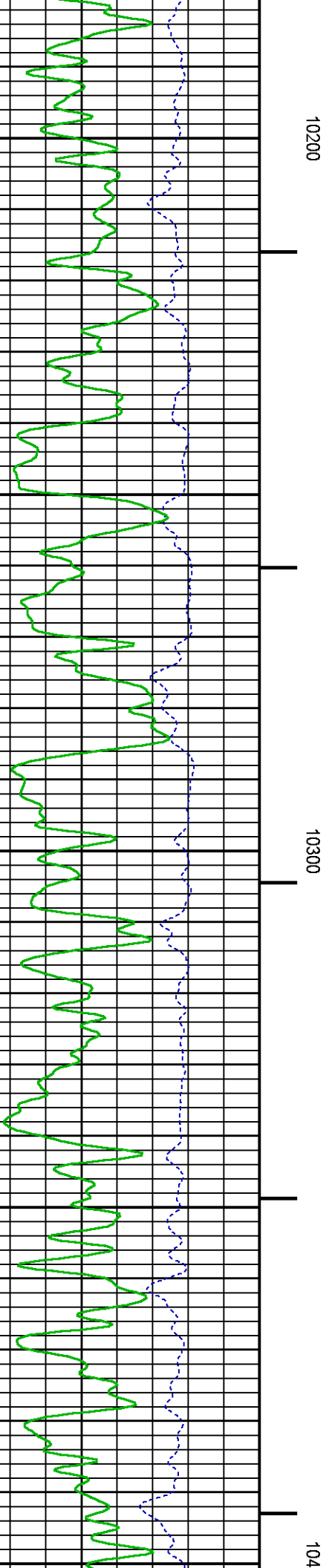
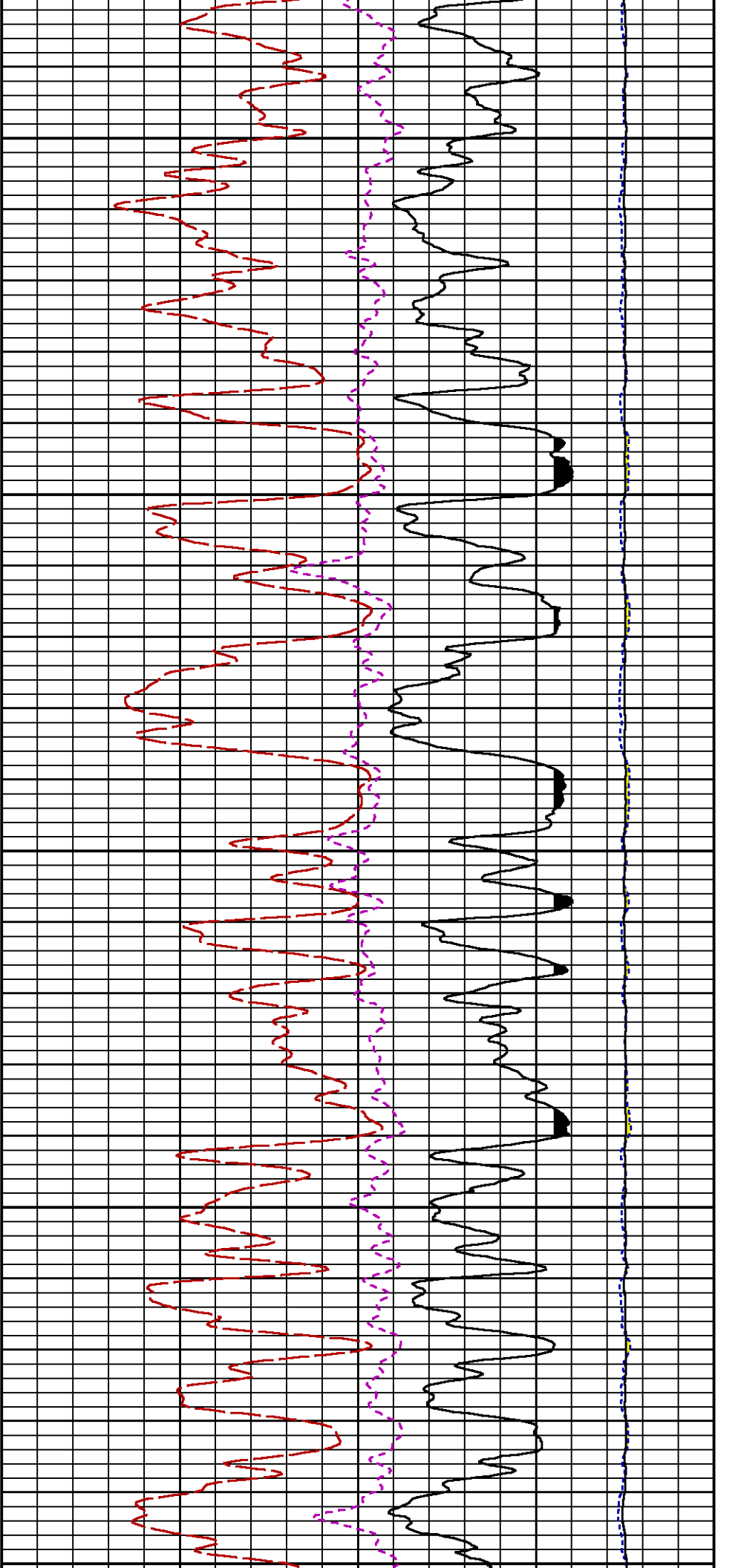
9700

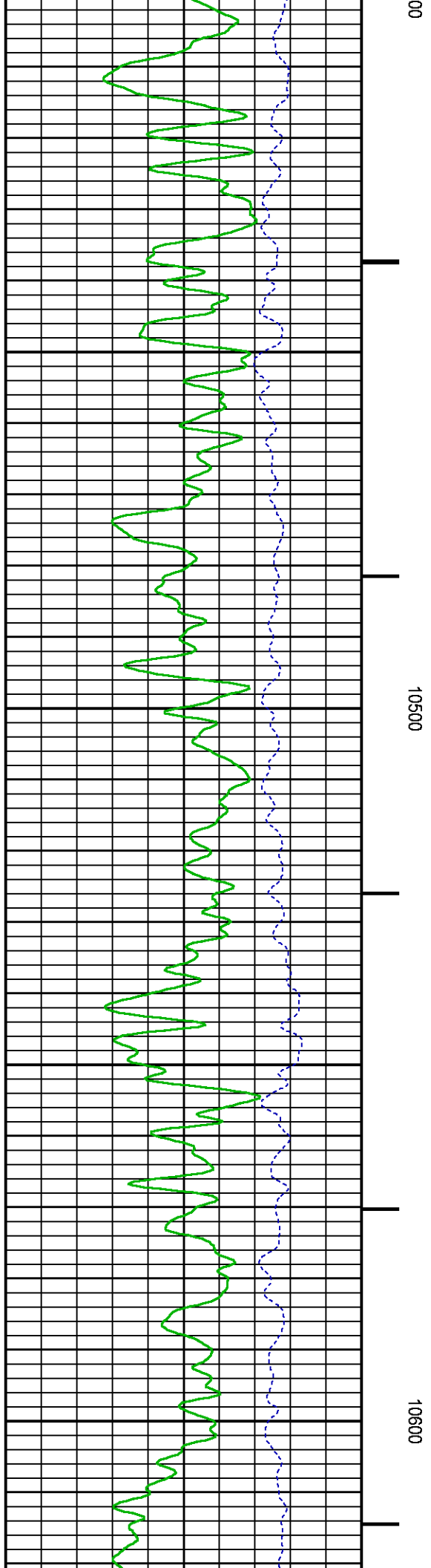
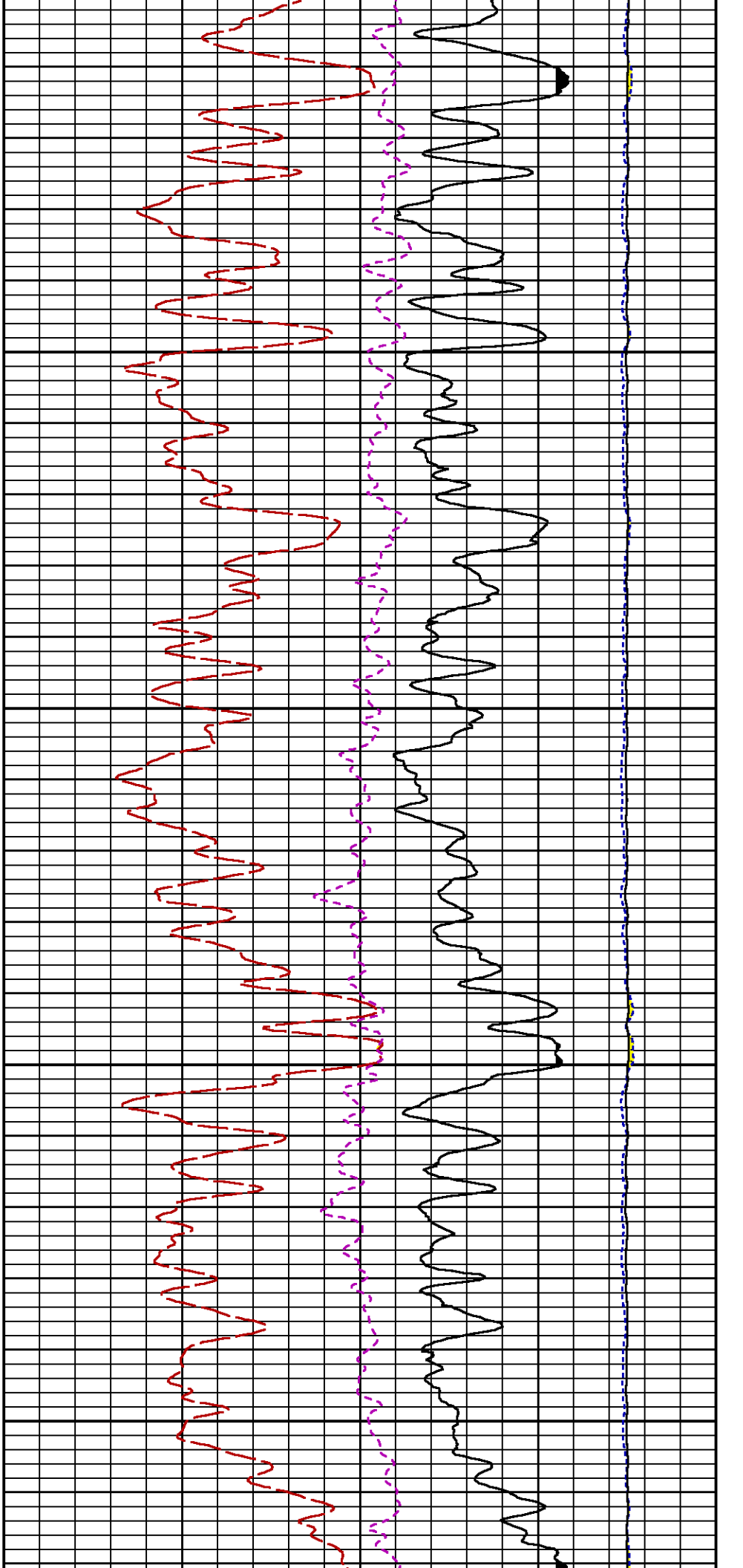


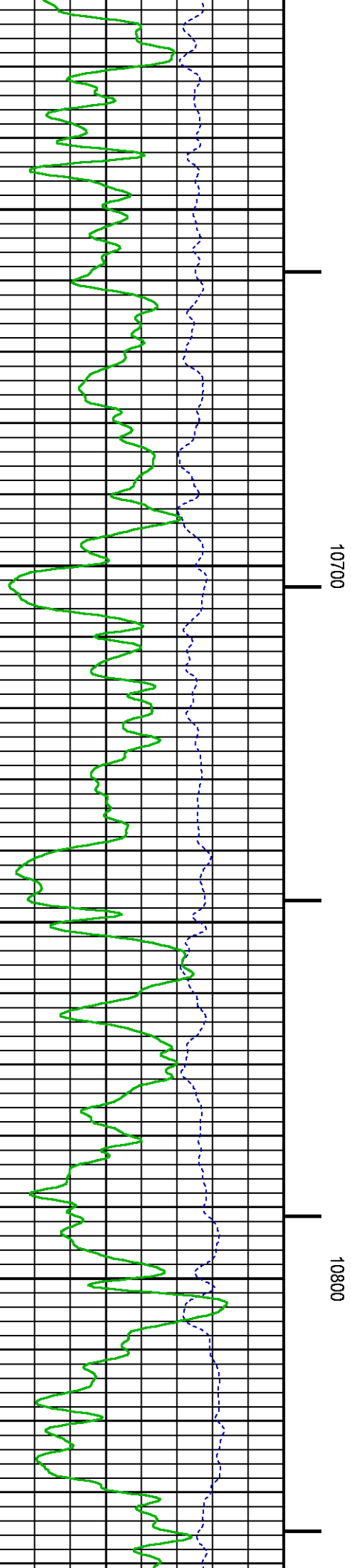
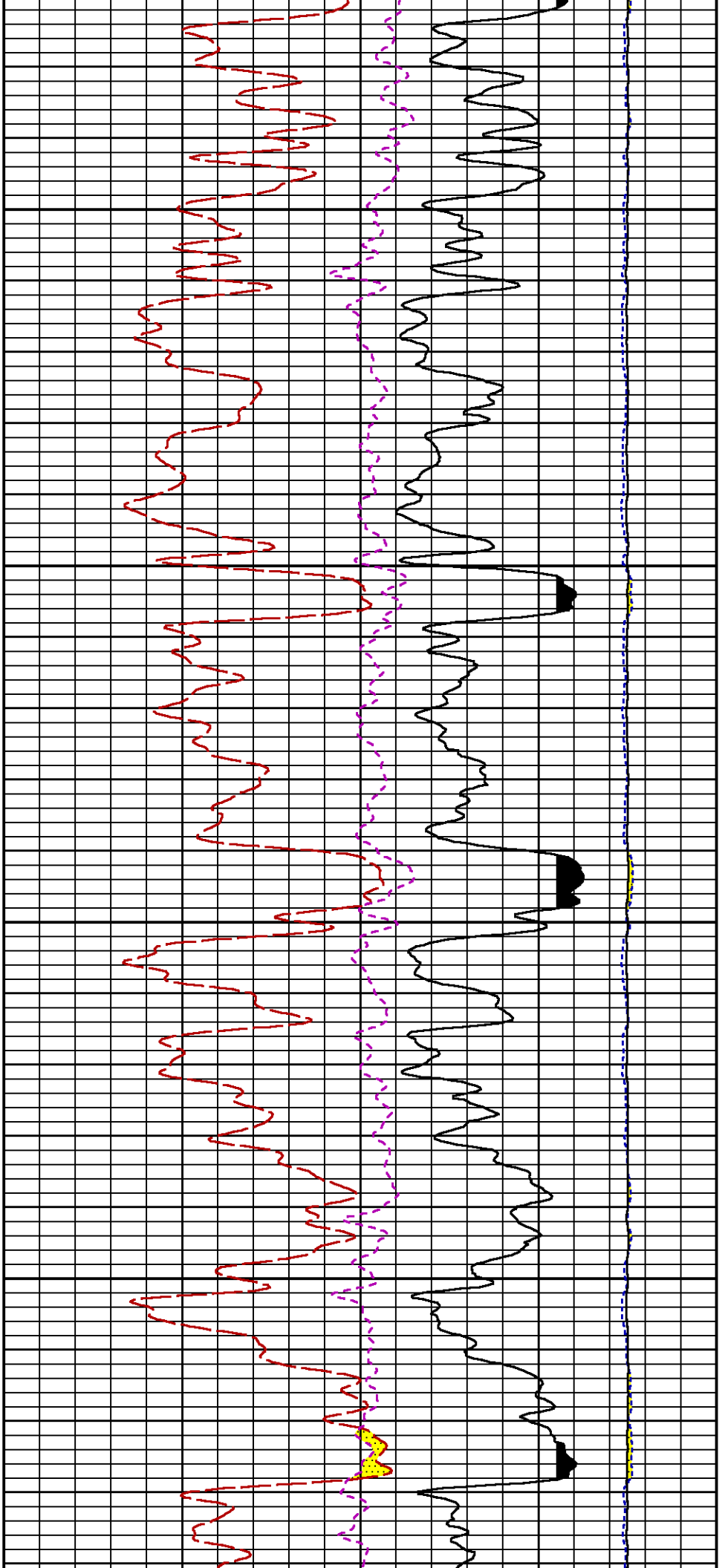


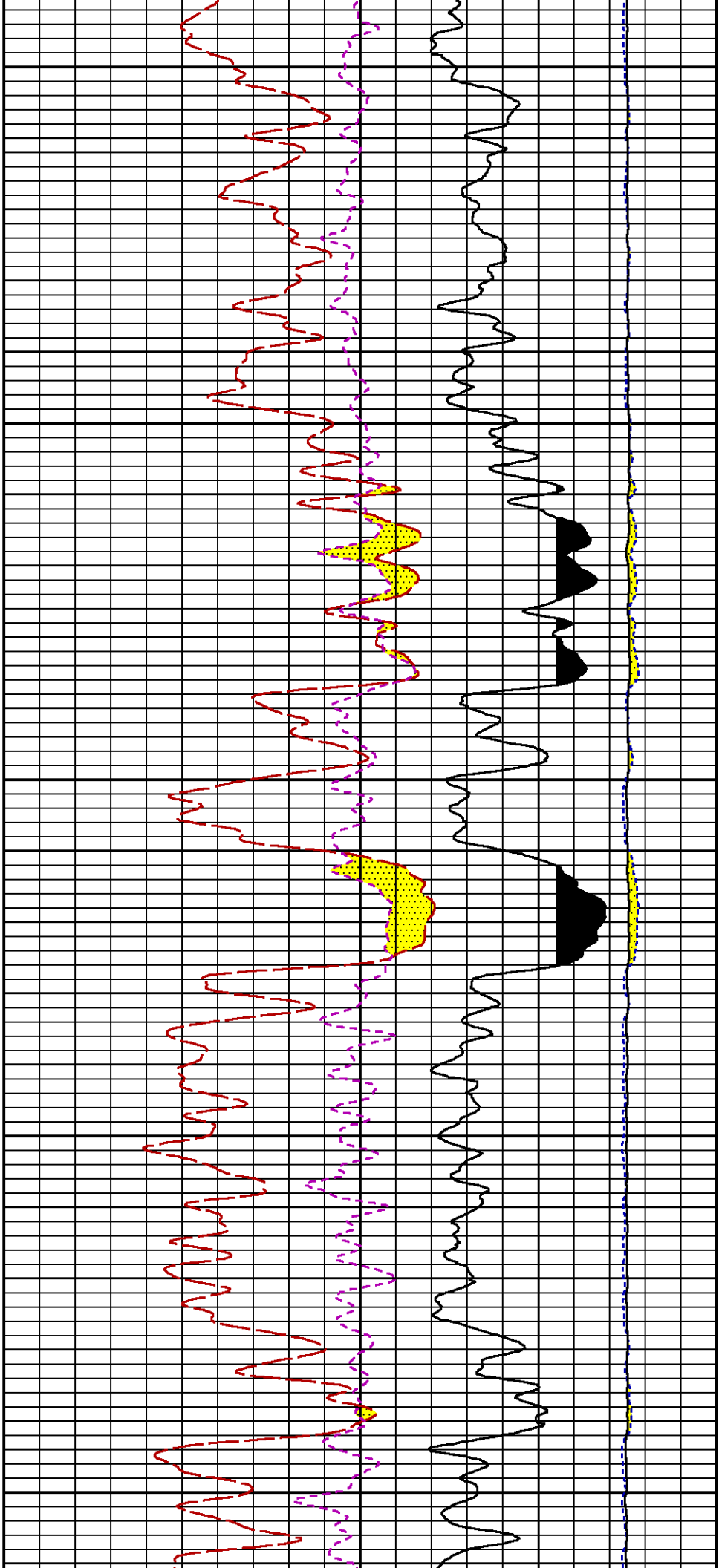






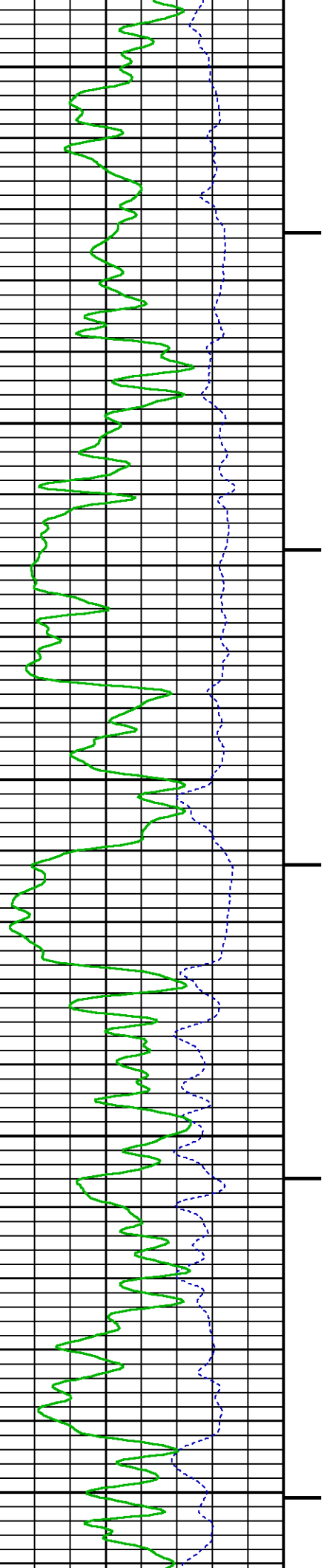


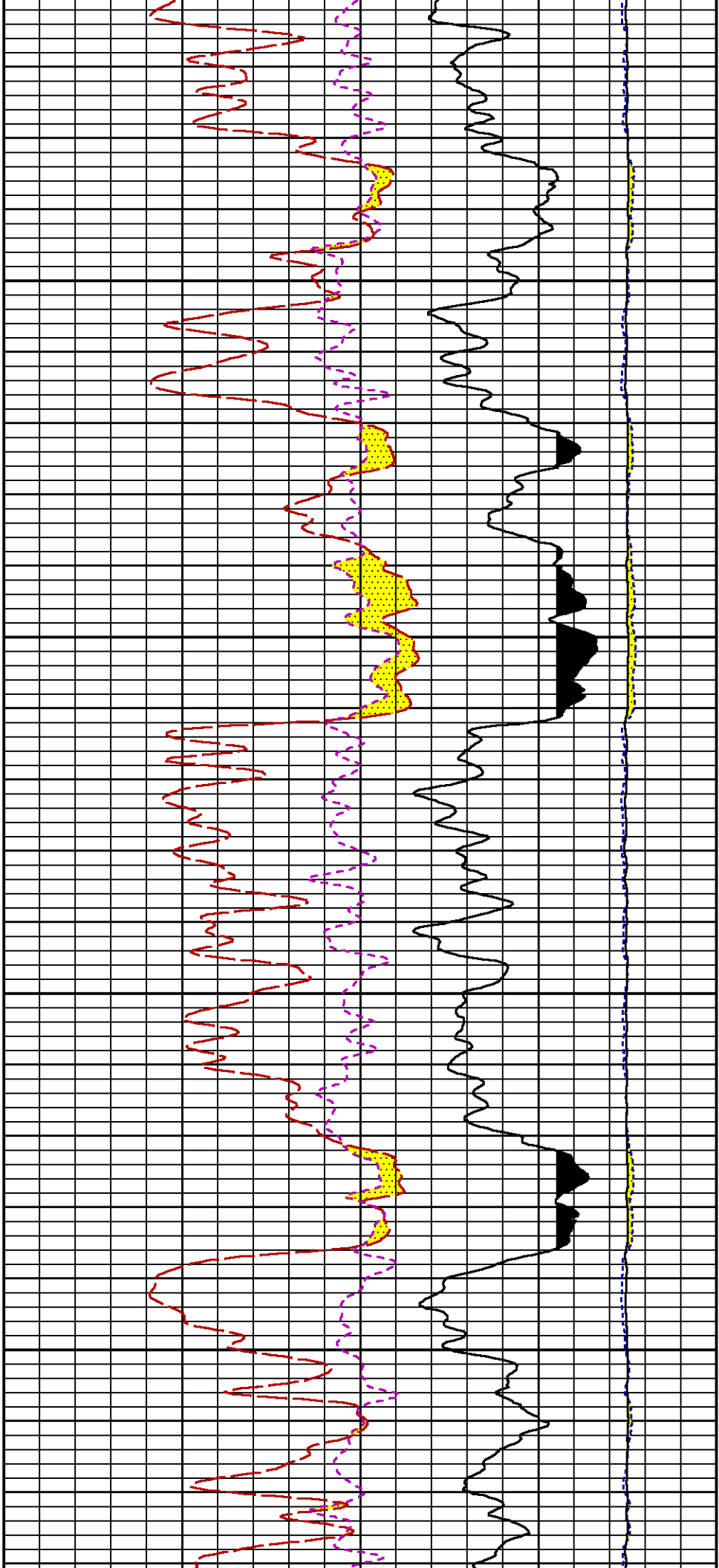




10900

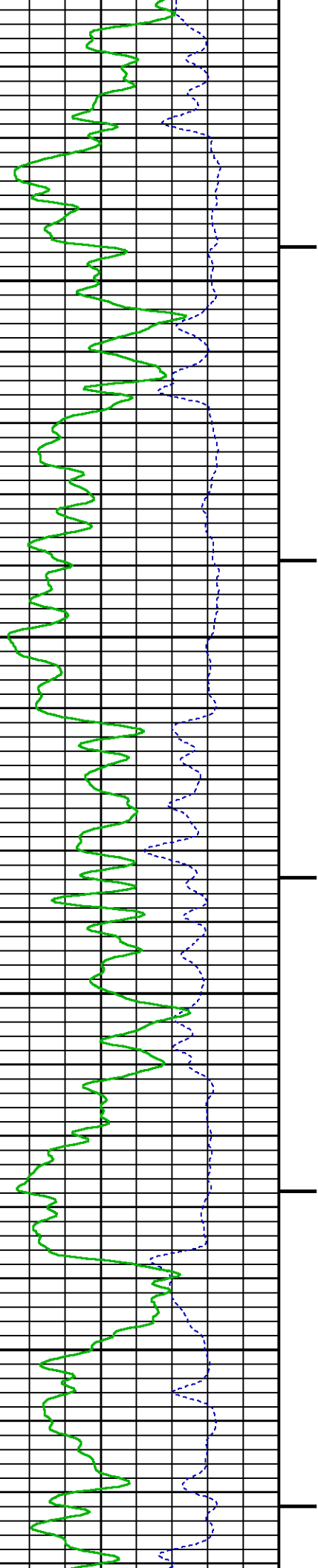
11000

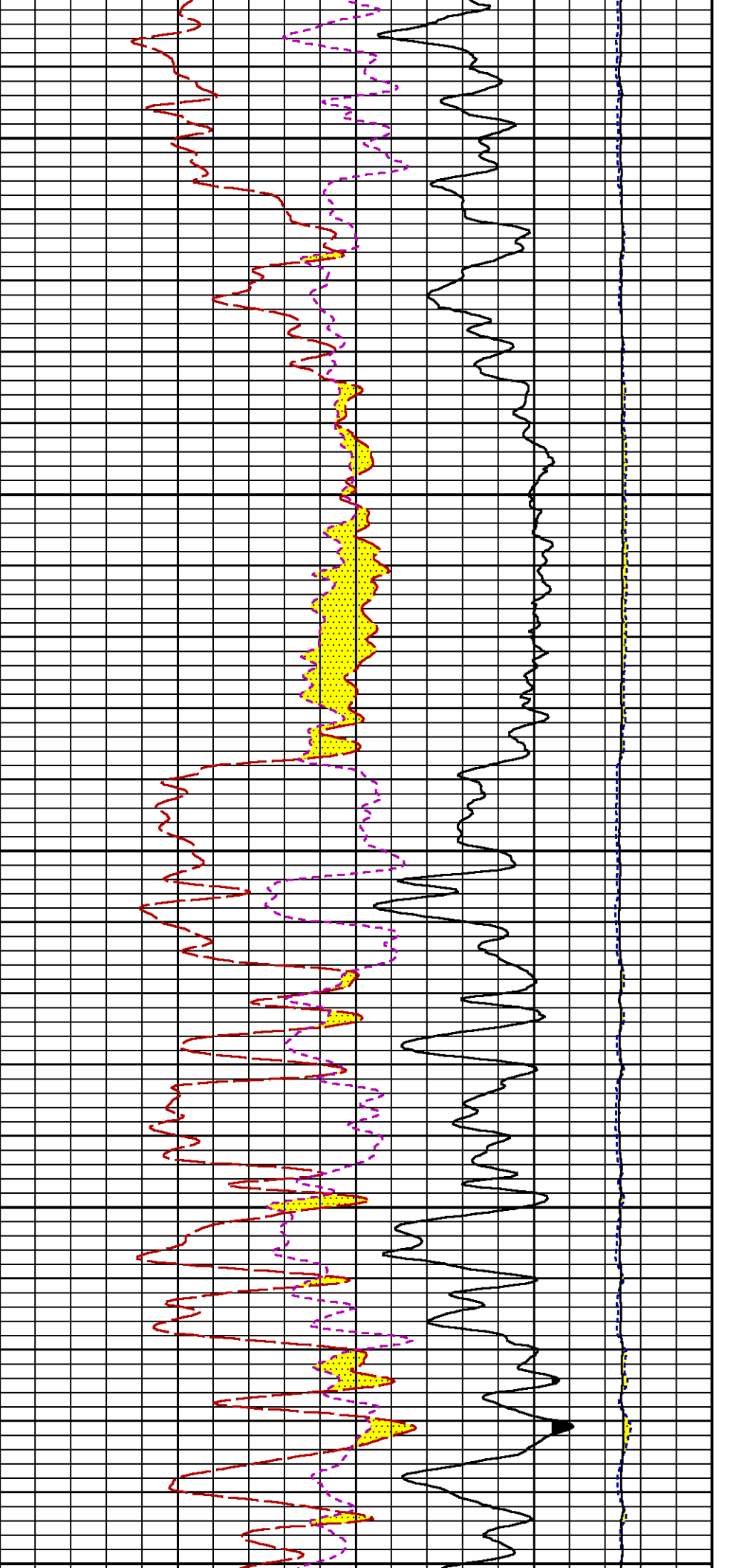




11100

11200

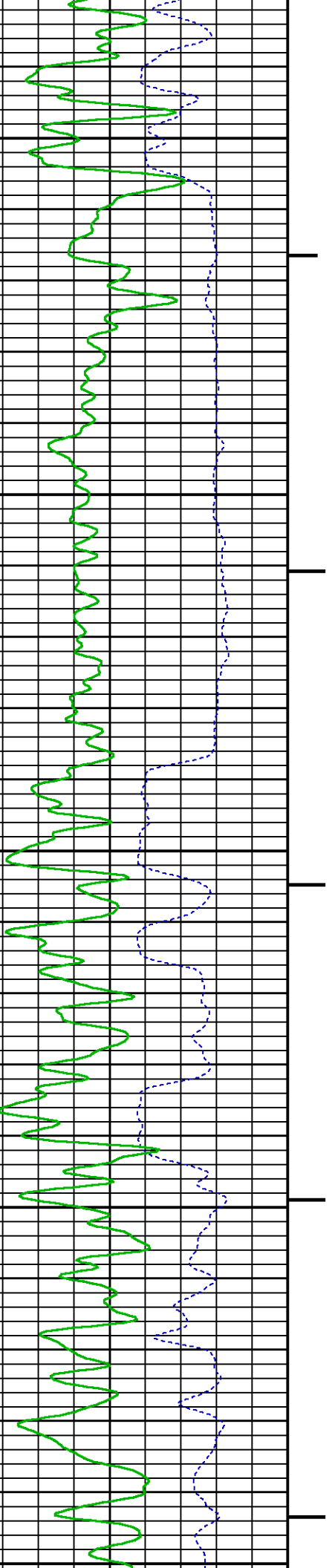


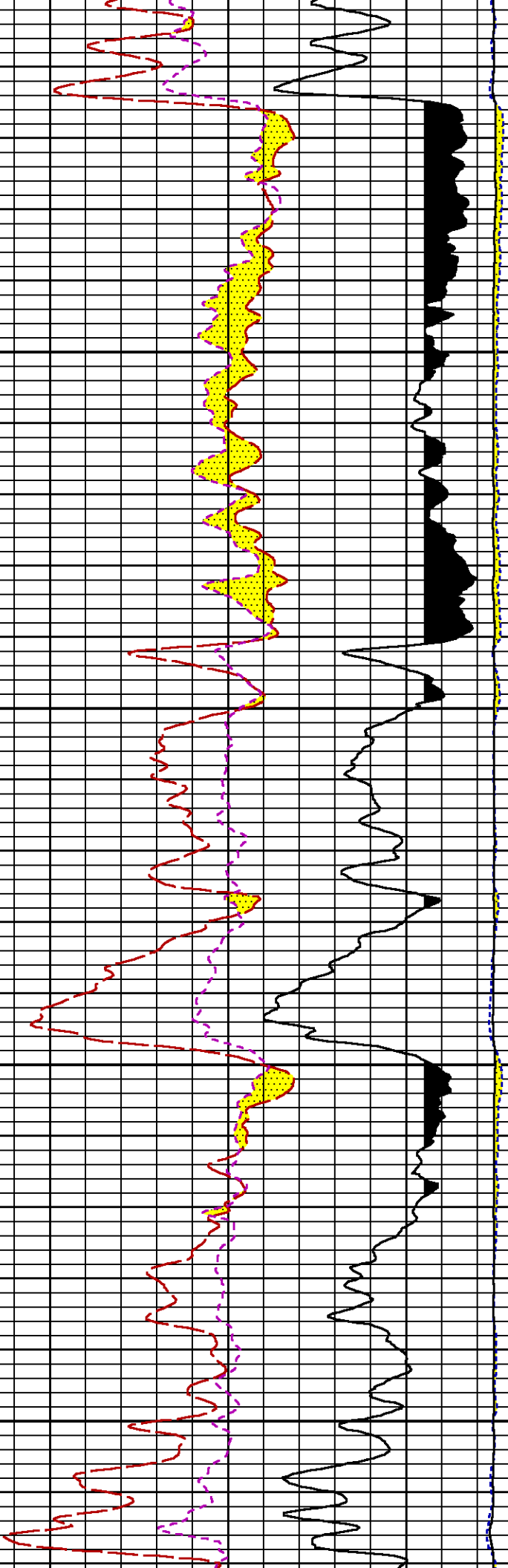


11300

11400

115

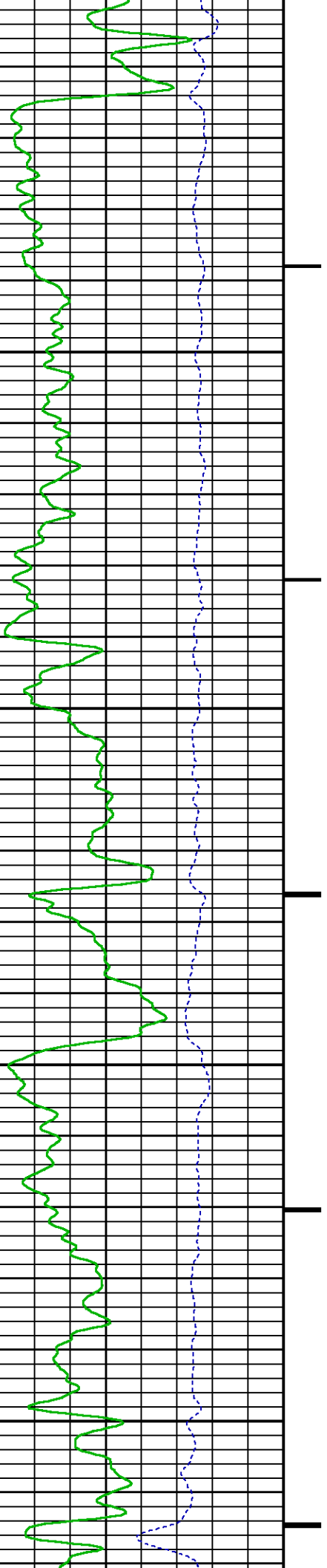


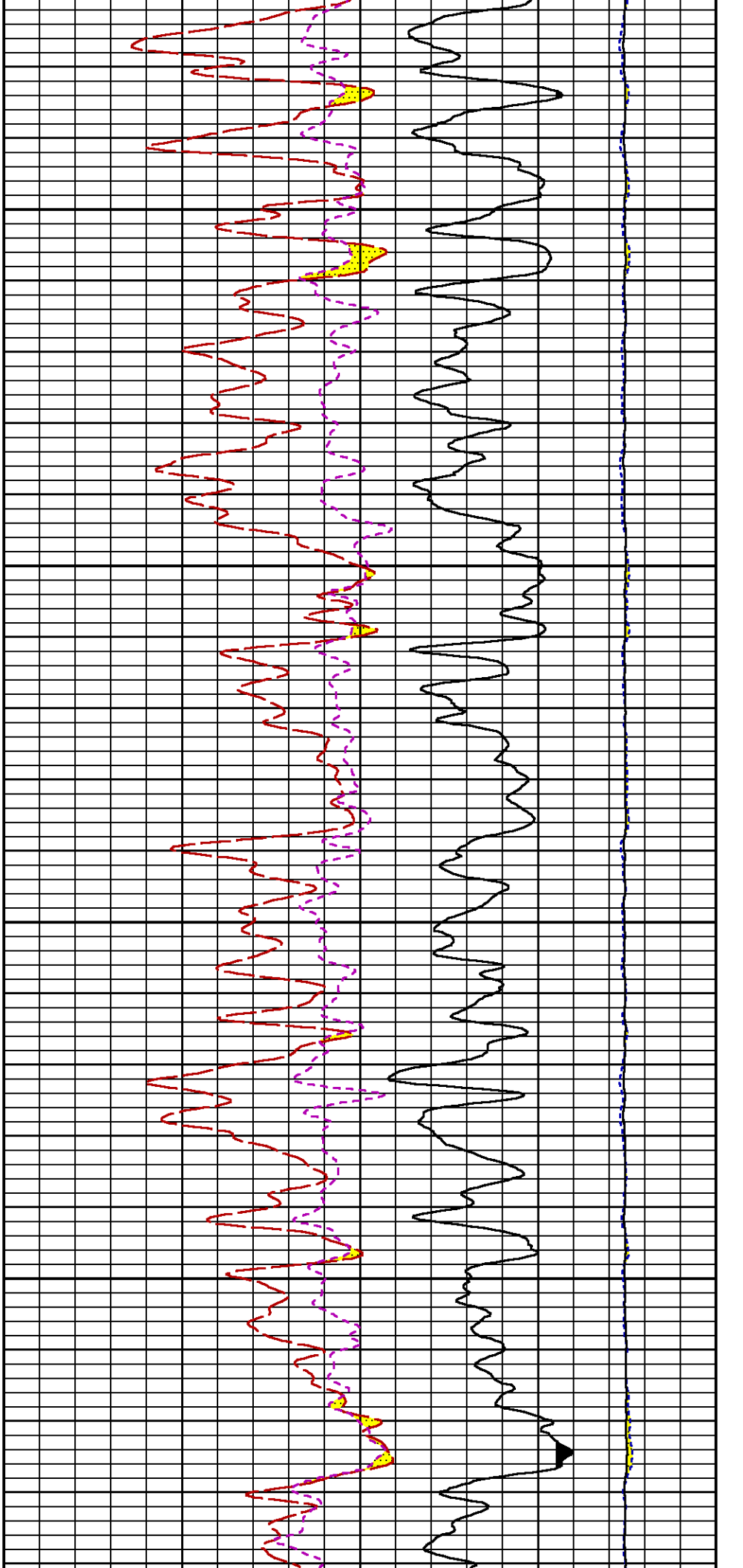


00

11600

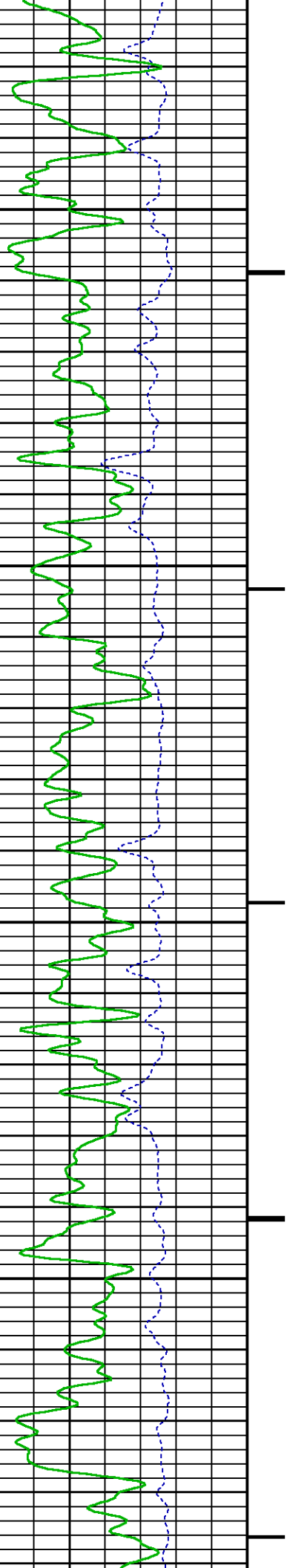
11700



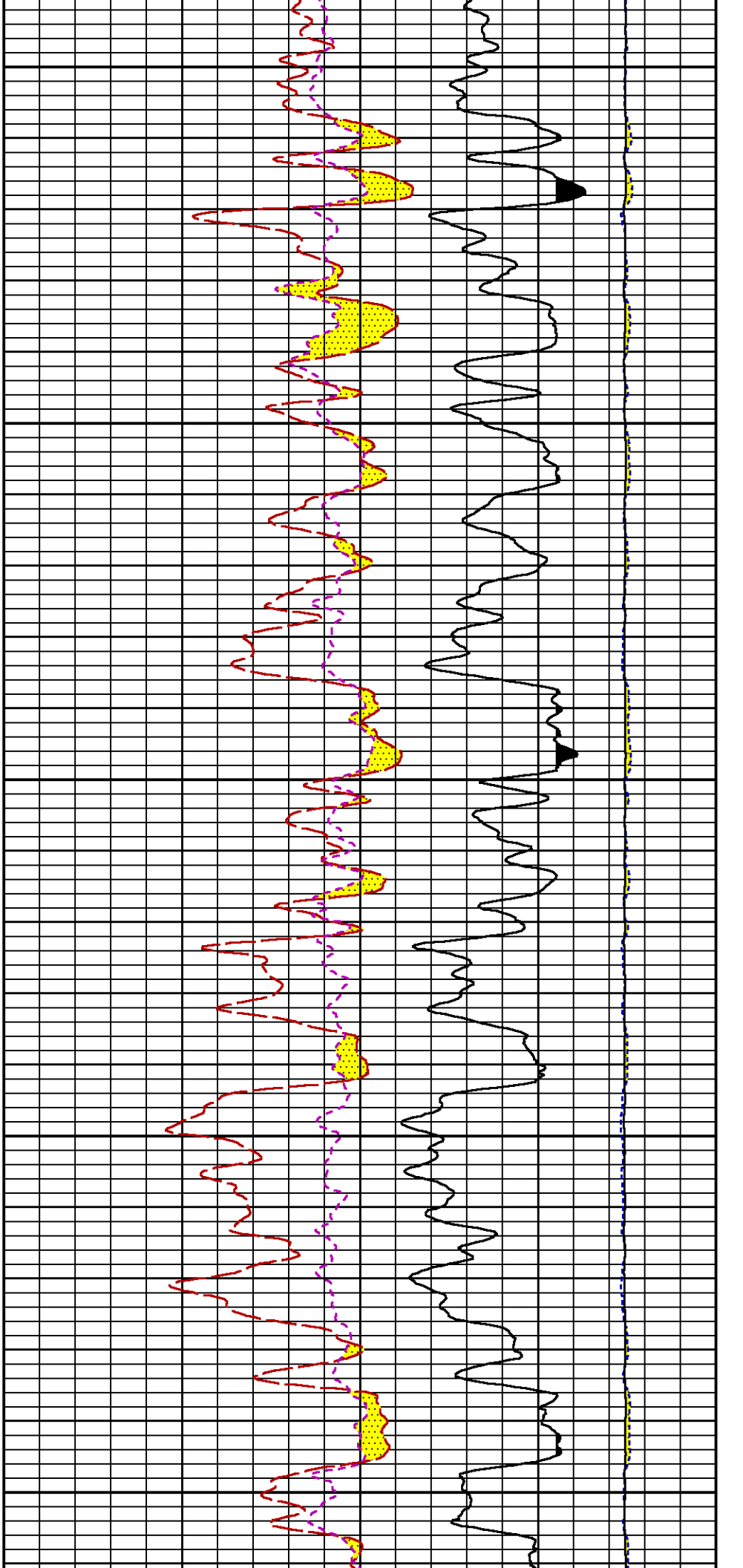


11800

11900

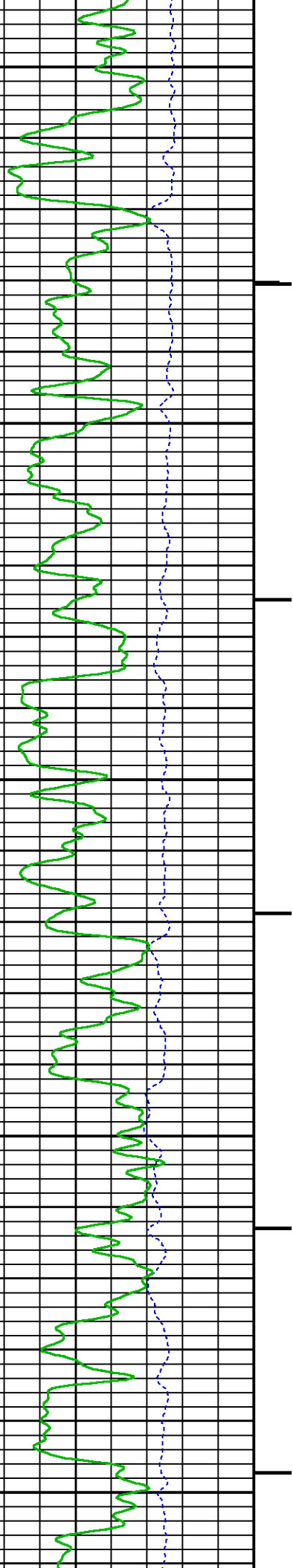


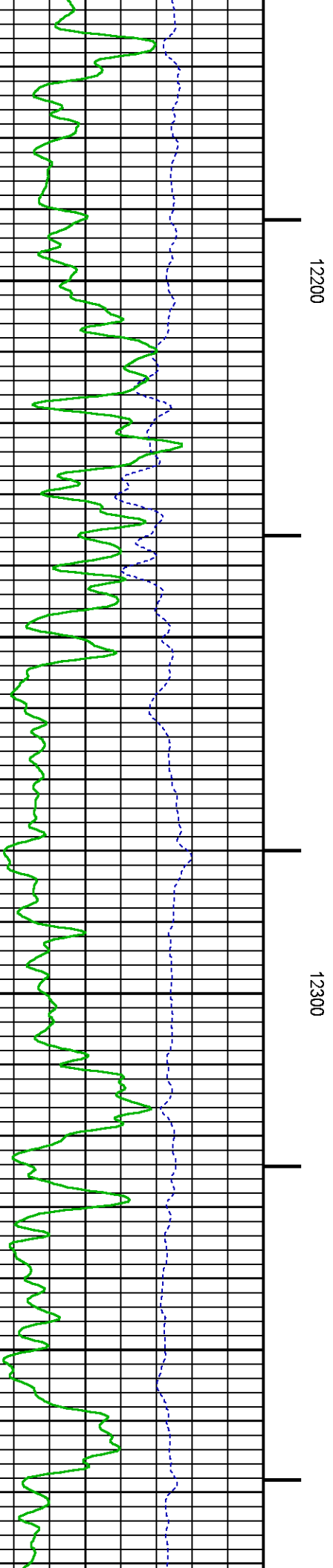
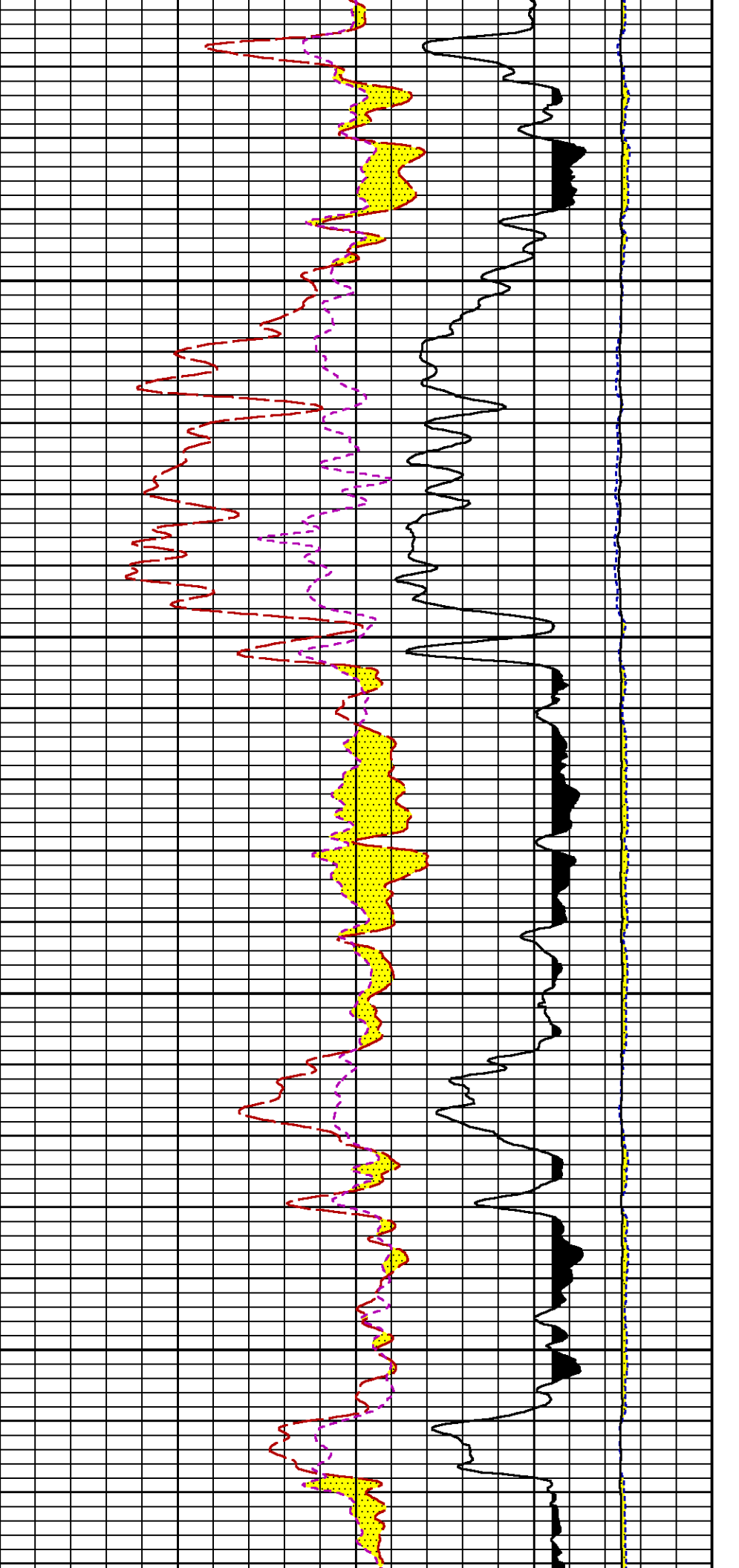


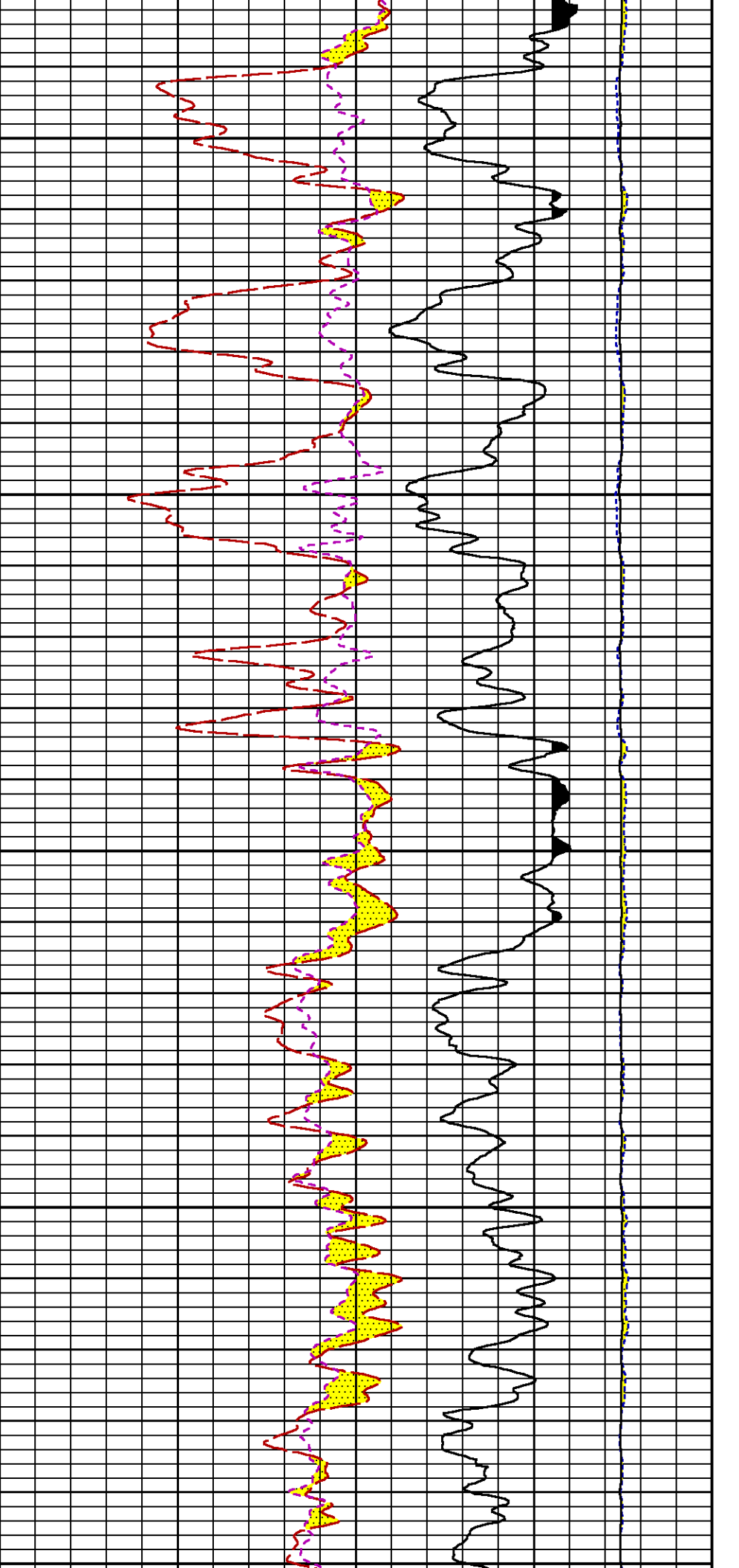


12000

12100



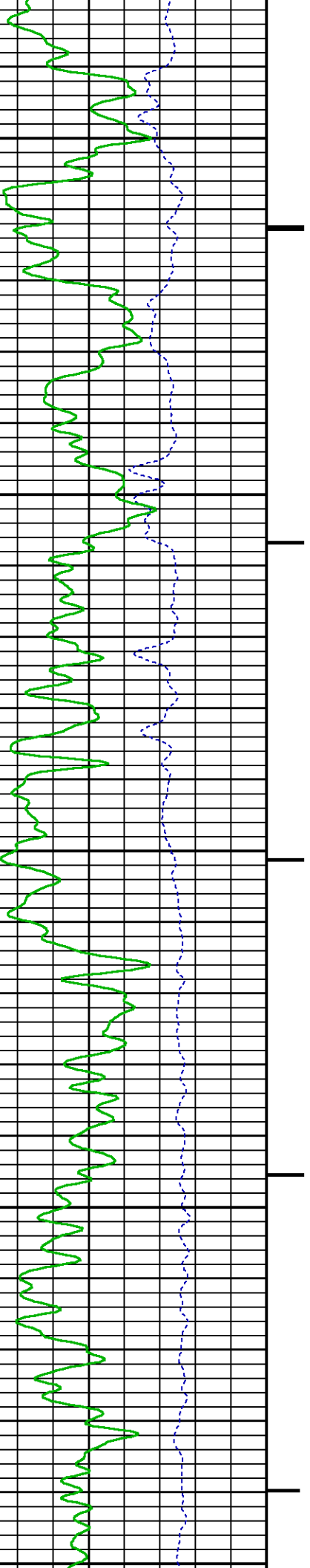


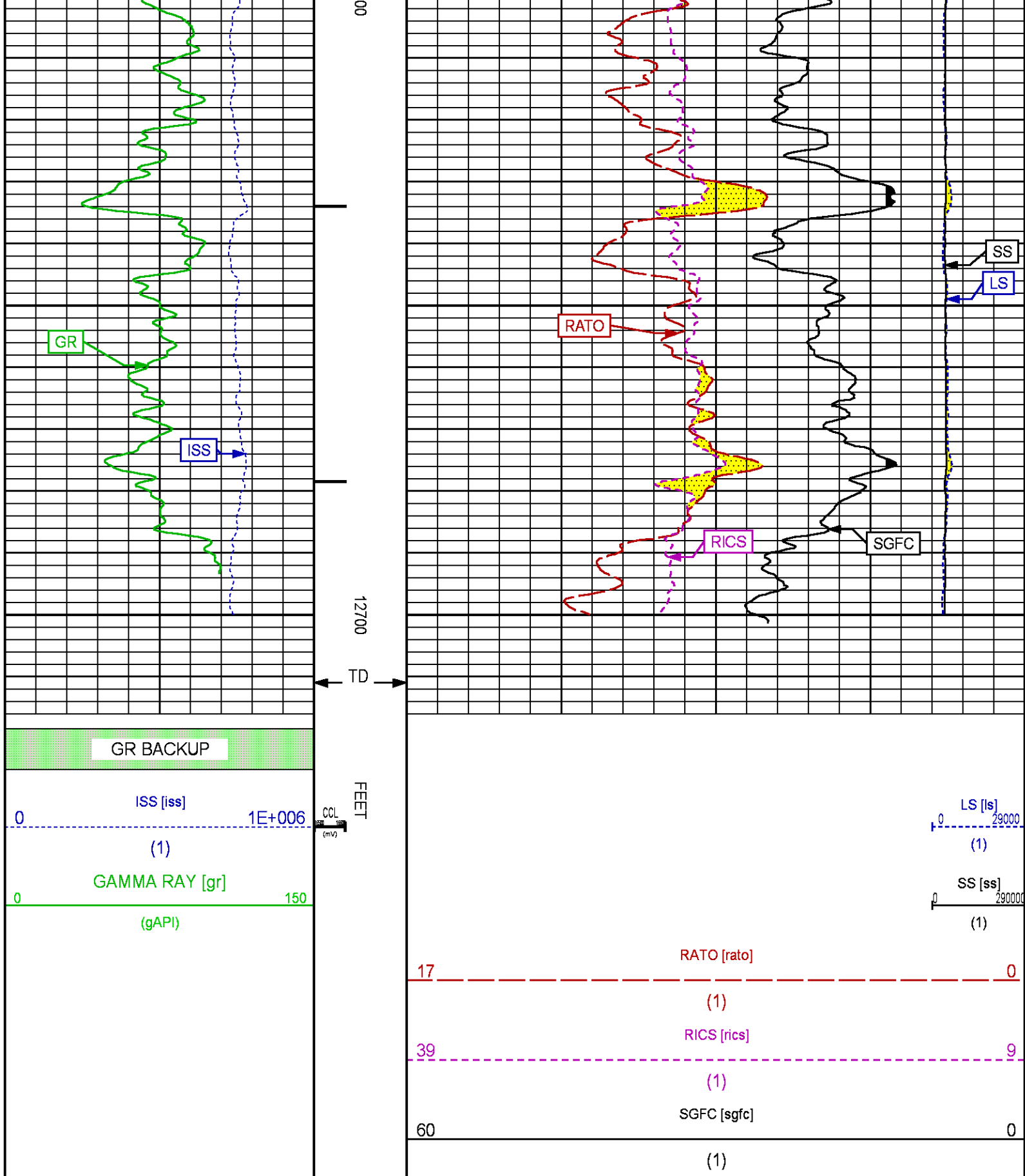


12400

12500

126





REPEAT SECTION PNC-3D MODE

Plotted: Mon Dec 15 23:28:50 2014

PARAMETER AND FILTER SUMMARY REPORT

FILE: D:\dat1a\092546\354h01.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 11822.750 ft BOTTOM DEPTH: 12161.000 ft

SYMMETRIC FILTER				
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
GR	FILTER ( )	medium (1)		TOP BOTTOM

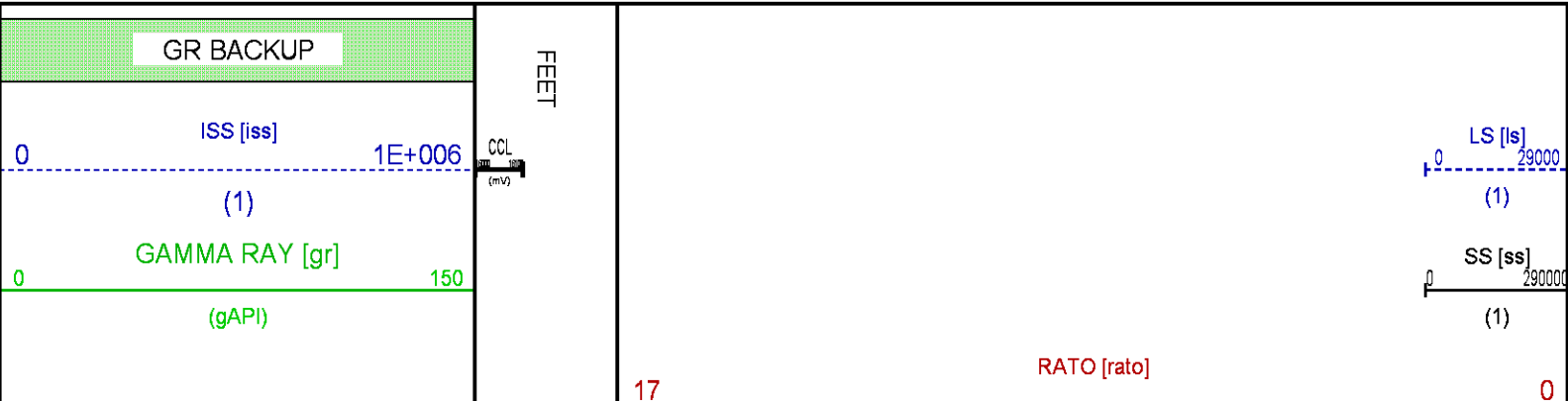
RPM PROCESSING				
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP BOTTOM
	OPEN/CASED HOLE	CASED HOLE		" "
	BOREHOLE SIZE	7.88	in	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

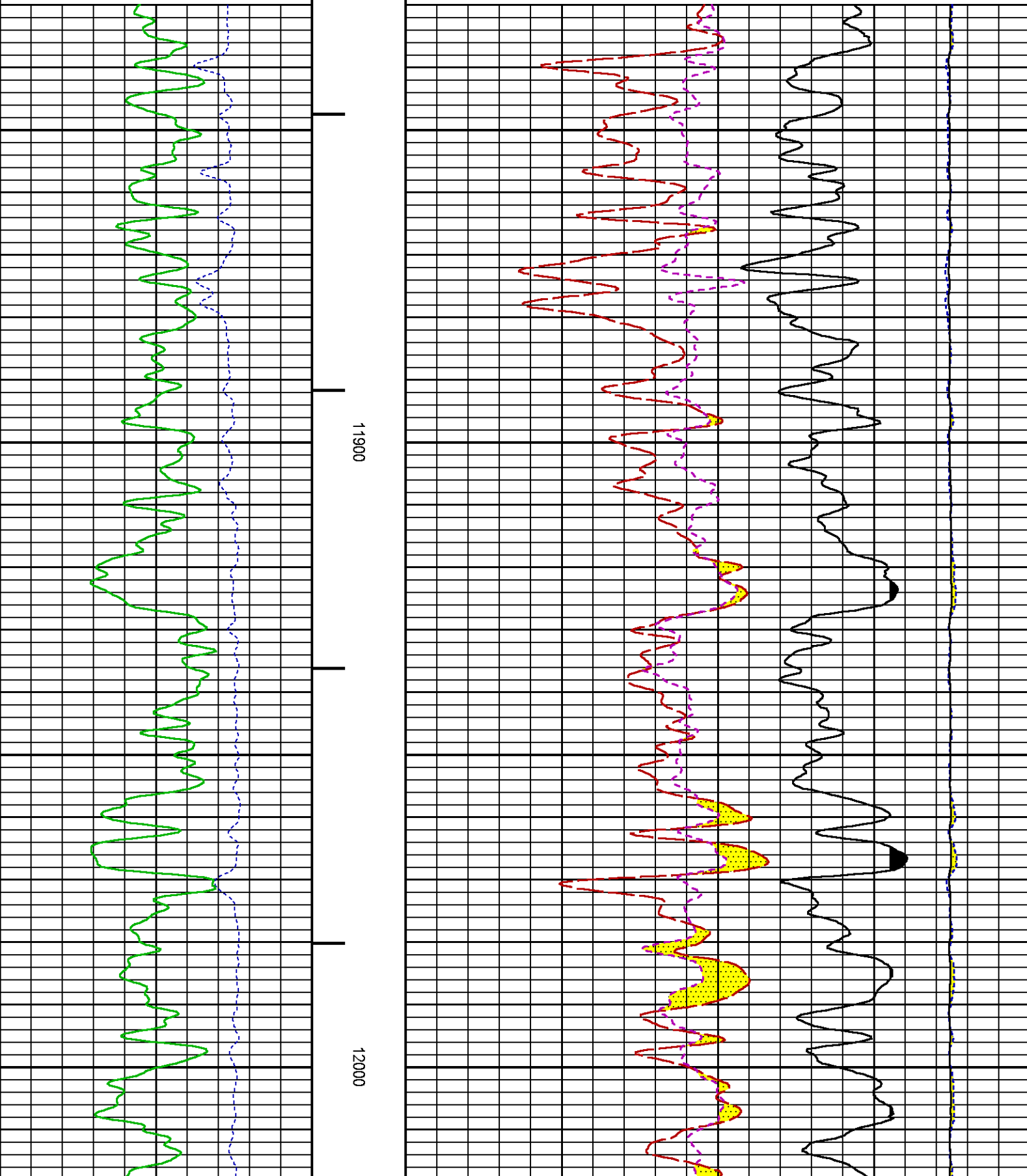
CURVE DESCRIPTION REPORT		
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Dec 15 16:04:42 2014	CASING COLLAR LOCATOR
F1:GR	Dec 15 16:04:42 2014	GAMMA RAY
F1:ISS	Dec 15 16:04:42 2014	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Dec 15 16:04:42 2014	LONG SPACE COUNT RATE
F1:RATO	Dec 15 16:04:42 2014	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Dec 15 16:04:42 2014	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Dec 15 16:04:42 2014	CORRECTED FORMATION SIGMA
F1:SS	Dec 15 16:04:42 2014	SHORT SPACE COUNT RATE

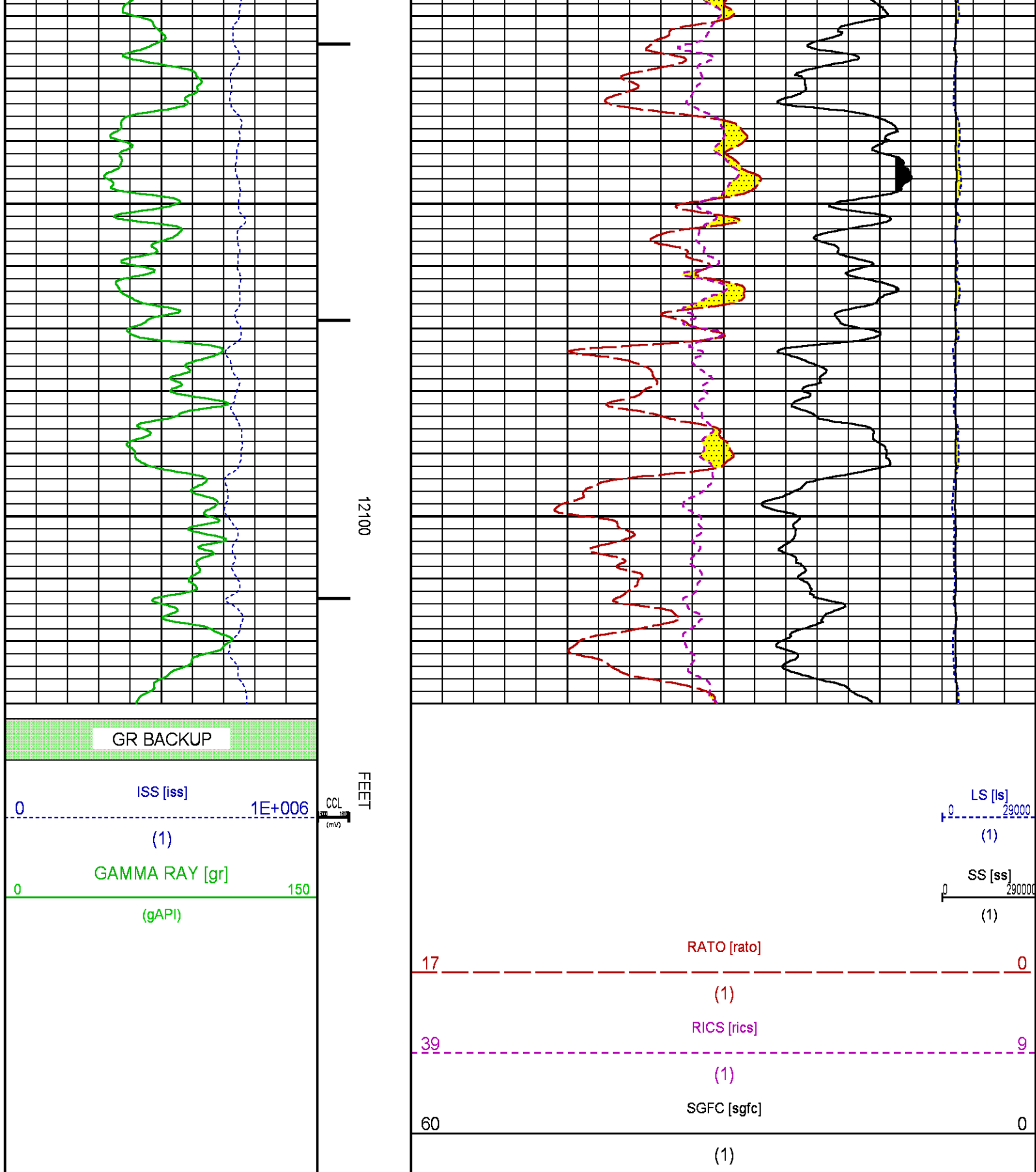
CURVE MEASURE POINT OFFSET							
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	25.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	22.75	LS	12.75	RICS	12.75	SS	12.75

Presentation : BHIBX9FSY1:D:\dat1a\092546\534RPM\_REPEAT.fvpdf [5"/100' Scale]  
Plot Interval : 11830 - 12130 Feet

Data File 1 : F1 : BHIBX9FSY1:D:\dat1a\092546\534RPM\_REPEAT.xtf  
Created On : Dec 15 16:04:42 2014  
Company : WPX ENERGY  
Well : FEDERAL RGU 534-23-198  
Field : SULPHUR CREEK  
File Interval : 11787.5 - 12155 Feet  
OCT : n354h







## CALIBRATION / VERIFICATION SUMMARY

## GR PRIMARY CALIBRATION SUMMARY

TOOL #: 2812LA 10274382

DATE/TIME PERFORMED: Tue Dec 09 14:04:49 2014

UNIT #: 3885TD Z004271

CALB JIG #: 4702NK WA-612

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	61.18	268.02	206.8	1.015	62.11	272.11	210

## GR PRIMARY VERIFICATION SUMMARY

TOOL #: 2812LA 10274382

DATE/TIME PERFORMED: Tue Dec 09 14:07:05 2014

UNIT #: 3885TD Z004271

VERI JIG #: 4702NK WA-612

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	63.11	273.93	1.015	64.07	278.11	214.04
						200.00 220.00

## RPM\_PNC\_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10585555

DATE/TIME PERFORMED: Tue Dec 09 13:08:21 2014

UNIT: 3885TD Z004271

CALIBRATOR: 2437XB 112674

SOURCE: 8281AA 11765054

HOURS: 8281AA 670

	ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	801712	124	2342	2286	2235	111	7	0.9721

Interpolated	1300000	147	2317	2281	2228
--------------	---------	-----	------	------	------

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	801712	6404	989	140	26.08	0.15	24.23	0.33
					25.35 26.40	0.00 0.20	23.60 24.80	0.00 0.40

	ISS	ILS	IXS	SS	SS2	LS	CSS	CLS
Raw Data	801712	170477	26574	89502	31836	8242	54189	13205
Fit Quality %		0.952	0.776	0.752	0.741	1.017	0.683	0.990

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	801712	1.43	4.70	30.18	14.80	10.86	3.86	4.10
		1.42 1.45	3.55 5.52	22.20 32.70	10.99 16.34	10.06 11.10	3.57 3.95	3.76 4.22
Fit Quality %		0.051	0.164	0.223	0.184	0.174	0.189	0.168
Reduced	1392560	1.43	4.71	30.20	14.80	10.88	3.87	4.11
		1.42 1.45	4.33 5.52	27.60 32.70	13.70 16.34	10.06 11.10	3.57 3.95	3.76 4.22

## TPSETEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 8255XA 120516

DATE/TIME PERFORMED: Tue Nov 18 15:59:55 2014

UNIT #: 2570LE 4271

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Temp	-8.673169E+00	9.576065E-02	6.395448E-06	-9.461013E-10



# INSTRUMENT CONFIGURATION

Source File: D:\dat1a\092546\RPM-tdg.meta

## A3 CABLEHEAD

Diameter : 1.37"

## PCM POWER SUPPLY

Diameter : 1.70"  
Length : 3.86'  
Weight : 18 lbs  
Series : 8250EA  
Mnemonic : PCM

## TELEMETRY / CCL

Diameter : 1.70"  
Length : 4.46'  
Weight : 20 lbs  
Series : 8248ED  
Mnemonic : PCM  
Measure Point: 1.00': CCL MP

## SONDEX GAMMA RAY

Diameter : 1.69"  
Length : 2.17'  
Weight : 11 lbs  
Series : 2812LA  
Mnemonic : GR  
Measure Point: 0.63': GR MP

## RPM ELECTRONICS

Diameter : 1.70"  
Length : 4.48'  
Weight : 16 lbs  
Series : 8281EA  
Mnemonic : RPM

## RPM C DETECTOR SECTION

Diameter : 1.70"  
Length : 9.40'  
Weight : 41 lbs  
Series : 8283PA  
Mnemonic : RPM  
Measure Point: 5.45': XLS DETECTOR  
Measure Point: 5.04': LS DETECTOR  
Measure Point: 4.79': SS DETECTOR

33.24'

CCL MP 25.19'

GR MP 22.64'

XLS DETECTOR 13.58'  
LS DETECTOR 13.16'  
SS DETECTOR 12.91'

RPM SOURCE SECTION

Diameter : 1.70"  
 Length : 4.70'  
 Weight : 18 lbs  
 Series : 8281FA  
 Mnemonic : RPM

TEMPERATURE / PRESSURE

Diameter : 1.70"  
 Length : 3.30'  
 Weight : 13 lbs  
 Series : 8255XA  
 Mnemonic : SRPL  
 Measure Point: 1.52': TEMP MP


TEMP MP  
 PRES MP

1.65'

BULL PLUG 1 11/16

0.00'

TOTAL LENGTH: 33.24'  
 TOTAL WEIGHT: 140 lbs  
 MAX DIAMETER: 0'1.70"

	<b>COMPANY</b> <u>WPX ENERGY</u>		<b>FILE NO:</b> <u>CH092546</u>
	<b>WELL</b> <u>FEDERAL RGU 534-23-198</u>		<b>API NO:</b> <u>05103121410000</u>
	<b>FIELD</b> <u>SULPHUR CREEK</u>	<b>COUNTY</b> <u>RIO BLANCO</u>	<b>STATE</b> <u>CO</u>
<b>LOCATION:</b> SHL: 1023' FSL & 651' FEL BHL: 44' FSL & 1897' FEL		<b>ELEVATIONS:</b> KB 6592 FT DF GL 6567 FT	23 1S 98W RGU 43-23-198 AZTEC 1000
<b>SEC</b> <u>23</u> <b>TWP</b> <u>1S</u> <b>RGE</b> <u>98W</u>		<b>DATE</b> <u>15-Dec-2014</u>	