



FILE NO:

CH145362

COMPANY

LARAMIE ENERGY LLC

WELL

BCU-0993-21-06W

FIELD

BUZZARD CREEK

COUNTY

MESA

STATE COLORADO

API NO:  
05077105240000

Ver. 4.11

LOCATION:

SHL: 1361' FNL &amp; 1280' FWL

BHL: 1361' FNL &amp; 1280' FWL

SEC 21 TWP 09 S RGE 93W

OTHER SERVICES  
RAL

PERMANENT DATUM

GL

ELEVATION

7263 FT

LOG MEASURED FROM

KB

30 FT

ABOVE P.D.

ELEVATIONS:

KB 7293 FT

DF

GL 7263 FT

DRILL. MEAS. FROM

KB

DATE

17-NOV-18

RUN

TRIP

1

1

SERVICE ORDER

US145362

DEPTH DRILLER

7608 FT

DEPTH LOGGER

7532 FT

BOTTOM LOGGED INTERVAL

7532 FT

TOP LOGGED INTERVAL

0 FT

TIME STARTED

08:00

TIME FINISHED

13:30

OPERATOR RIG TIME

5.5 HOURS

TYPE OF FLUID IN HOLE

WATER

FLUID DENSITY

NA

FLUID SALINITY

NA

FLUID LEVEL

72 FT

LOGGED CEMENT TOP

1040 FT

WELLHEAD PRESSURE

0 PSI

MAXIMUM HOLE DEVIATION

N/A

NOMINAL LOGGING SPEED

10 FMIN

MAX. RECORDED TEMP.

253 DEGF

REFERENCE LOG

BAKER HUGHES RAL

REFERENCE LOG DATE

15-NOV-2018

EQUIP. NO.

HL 4268

LOCATION

GRAND JCT.

RECORDED BY

TIM NEWELL

WITNESSED BY

NA

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

## CASING RECORD

SIZE	WEIGHT	GRADE	FROM	TO
4.5 IN	11.6 LB/F	N/A	30 FT	7608 FT

## REMARKS

RUN 1 TRIP 1: SJ: 5652' - 5673'  
SJ: 6700' - 6721'

## EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	PCM	8250EA	166326	FREE
1	1	TEL/CCL	8248ED	387150	FREE
1	1	GR	8262XA	10456406	FREE
1	1	RPM	8281EA	12210975	FREE
1	1	RPM	8283PA	11768879	FREE
1	1	RPM	8281FA	11778241	FREE
1	1	TEMP	8255XA	166343	FREE

# RPM MAIN PASS G-SAND

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

Updates: 1

Plotted: Sat Nov 17 11:16:30 2018

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_BCU\_0993\_21\_06W/p353h02.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 2242.250 ft BOTTOM DEPTH: 3034.923 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	8.50	in	" "
	LARGEST CASING OD	7.00	in	" "
	MATRIX	SANDSTONE		" "

## CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Nov 15 13:19:43 2018	CASING COLLAR LOCATOR
F1:GR	Nov 15 13:19:43 2018	GAMMA RAY
F1:ISS	Nov 15 13:19:43 2018	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Nov 15 13:19:43 2018	LONG SPACE COUNT RATE
F1:RATO	Nov 15 13:19:43 2018	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Nov 15 13:19:43 2018	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Nov 15 13:19:43 2018	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	Nov 15 13:19:43 2018	SHORT SPACE COUNT RATE

## CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75	SS	-12.75

Presentation : SysA:/dat1a/LARAMIE\_BCU\_0993\_21\_06W/06W\_RPM\_GS.fvpdf [5"/100' Scale]  
 Plot Interval : 2290 - 2910 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE\_BCU\_0993\_21\_06W/06W\_RPM\_GS.xtf  
 Created On : Nov 15 13:19:43 2018  
 Company : LARAMIE ENERGY LLC  
 Well : BCU-0993-021-06W  
 Field : BUZZARD CREEK  
 File Interval : 2219 - 3033.75 Feet  
 OCT : p353h

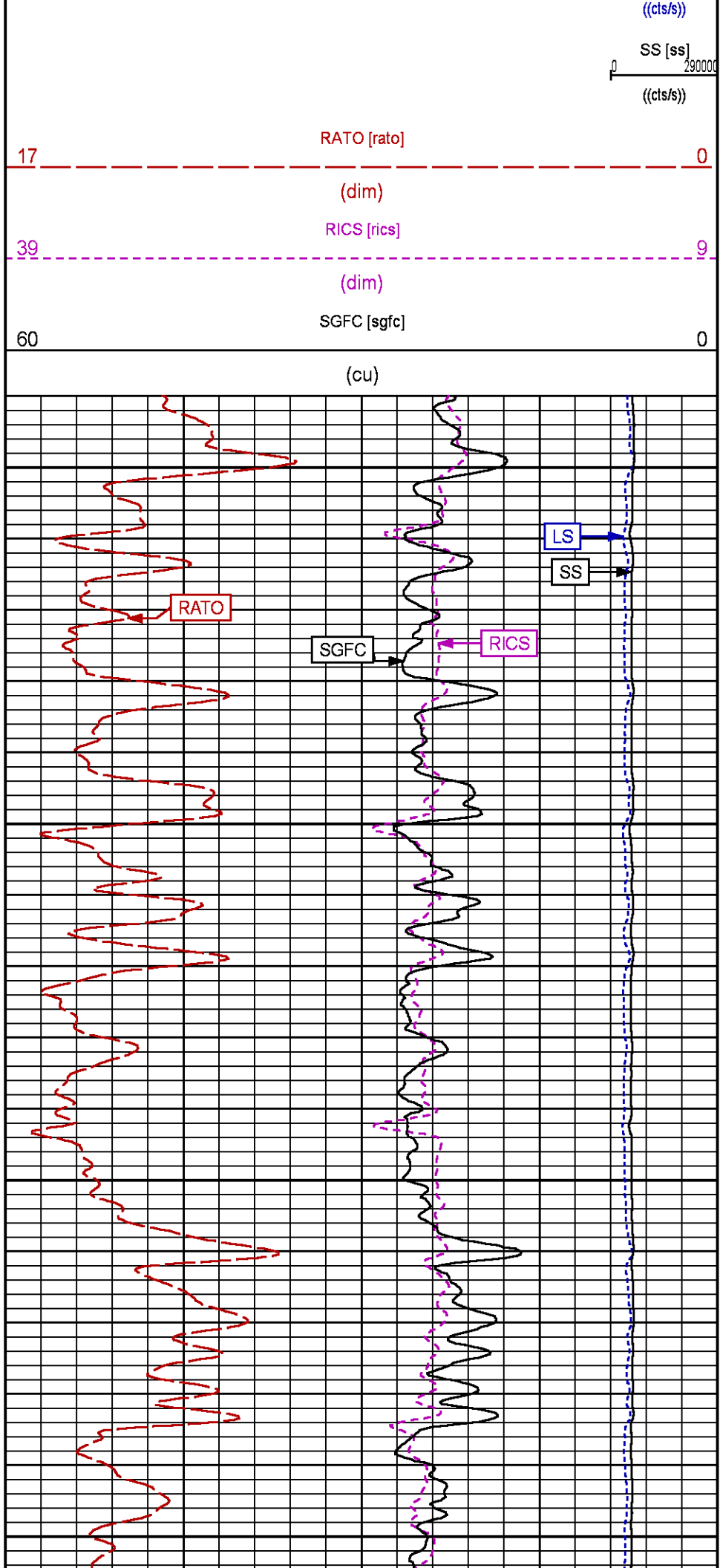
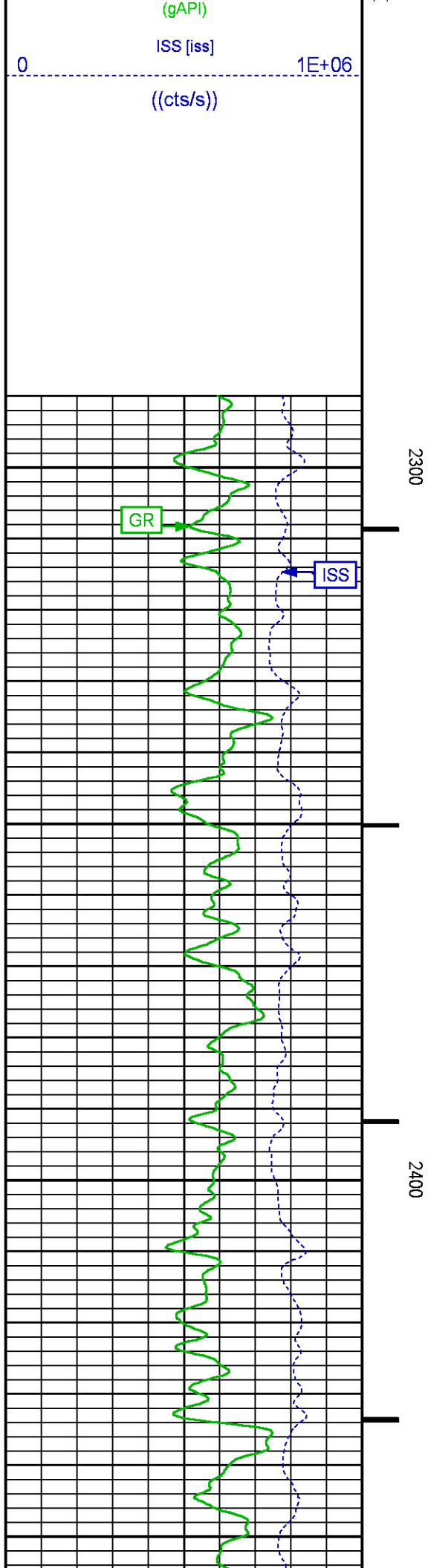
GR BACKUP

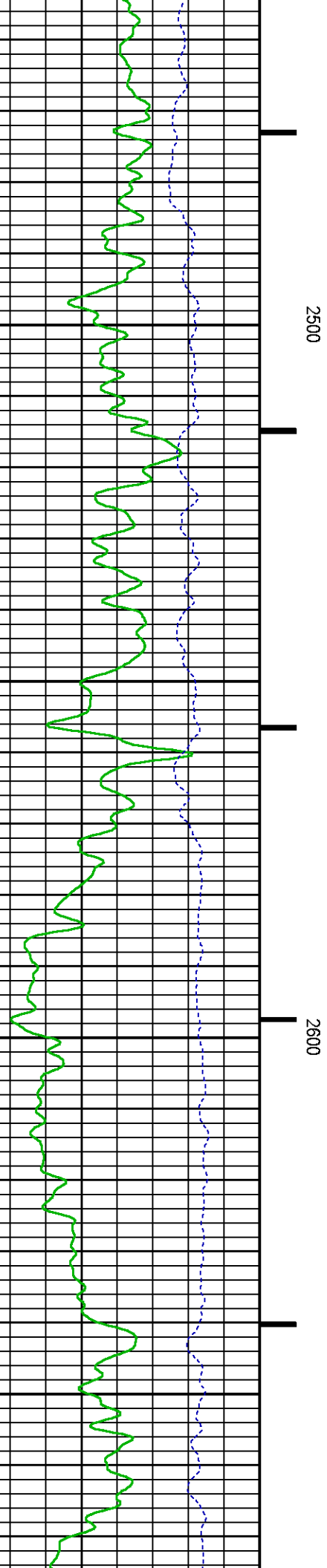
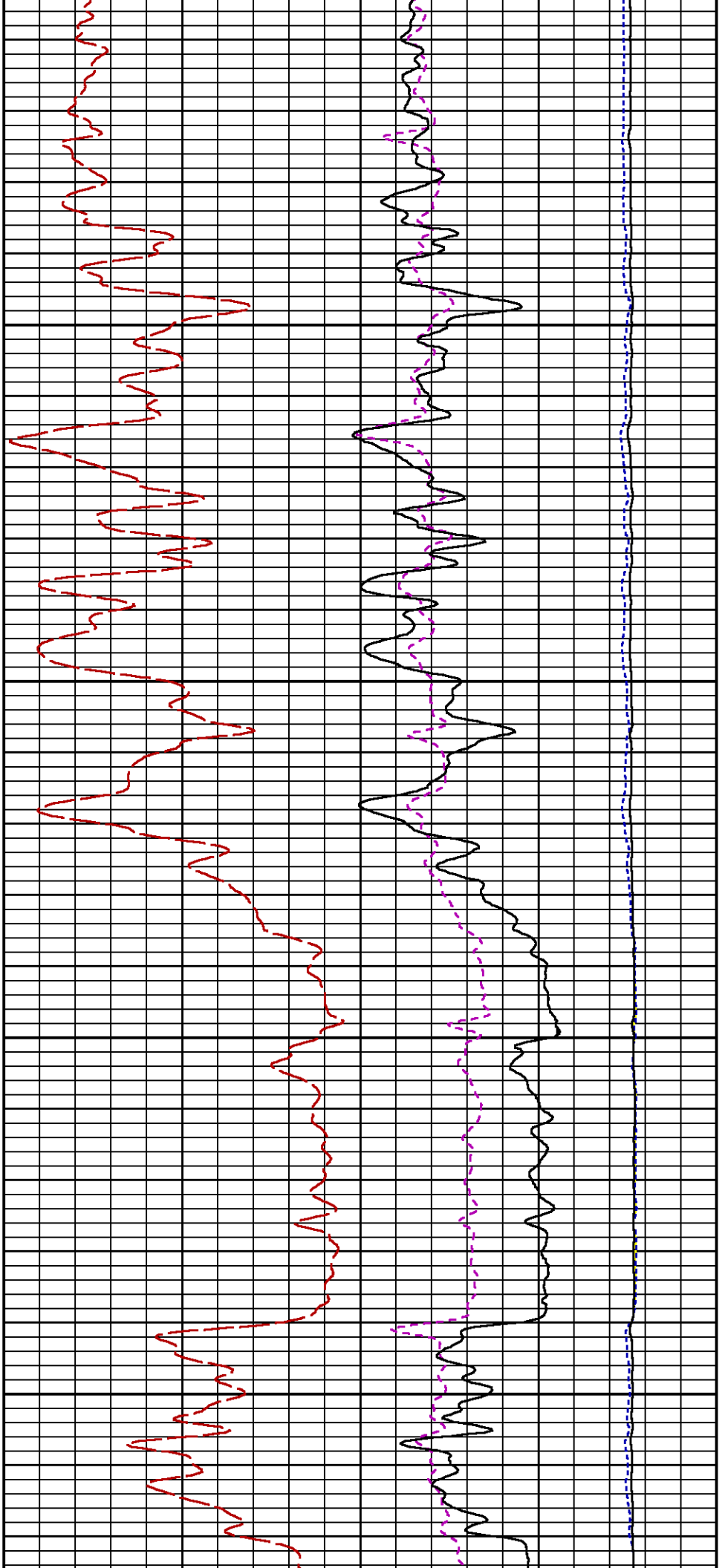
GAMMA RAY [gr]

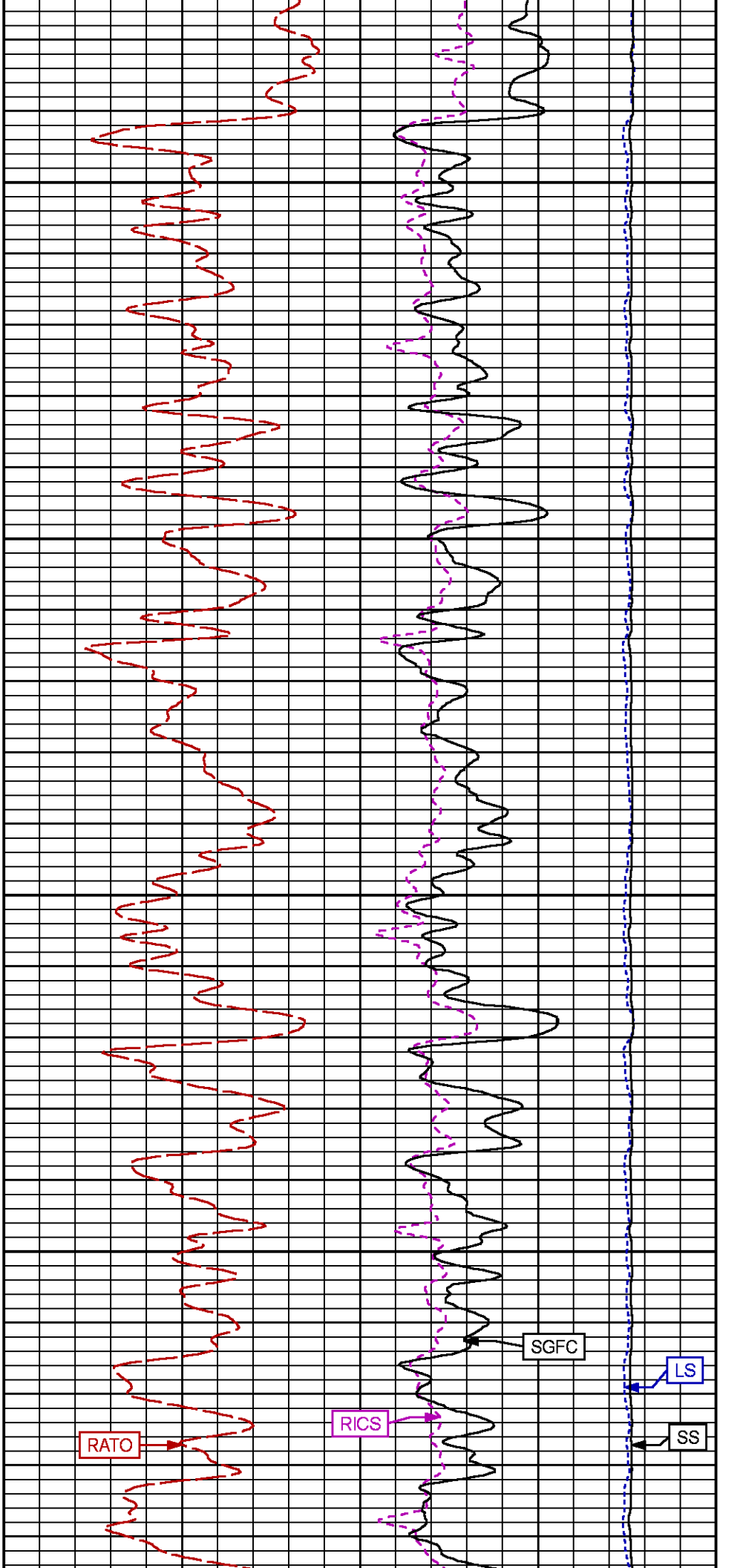
FEET

LS [ls]

29000

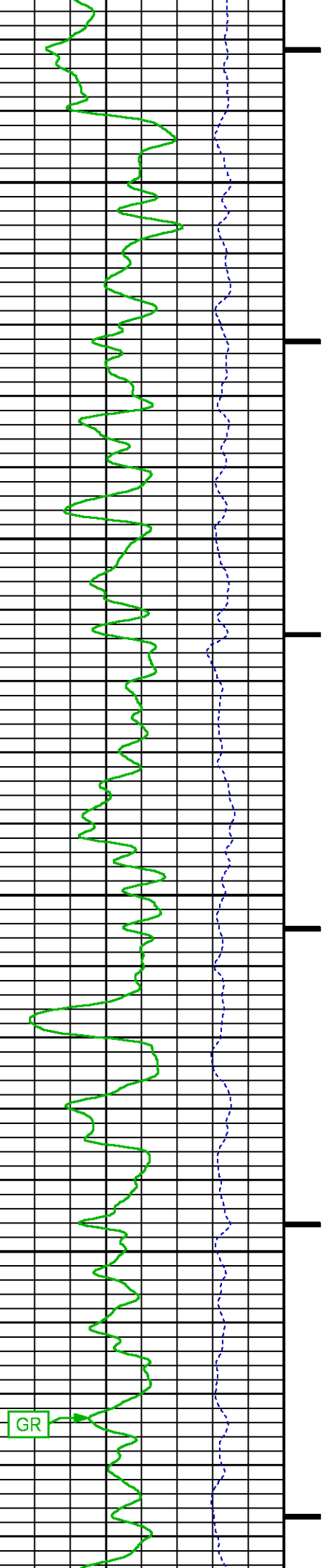






2700

2800



GR

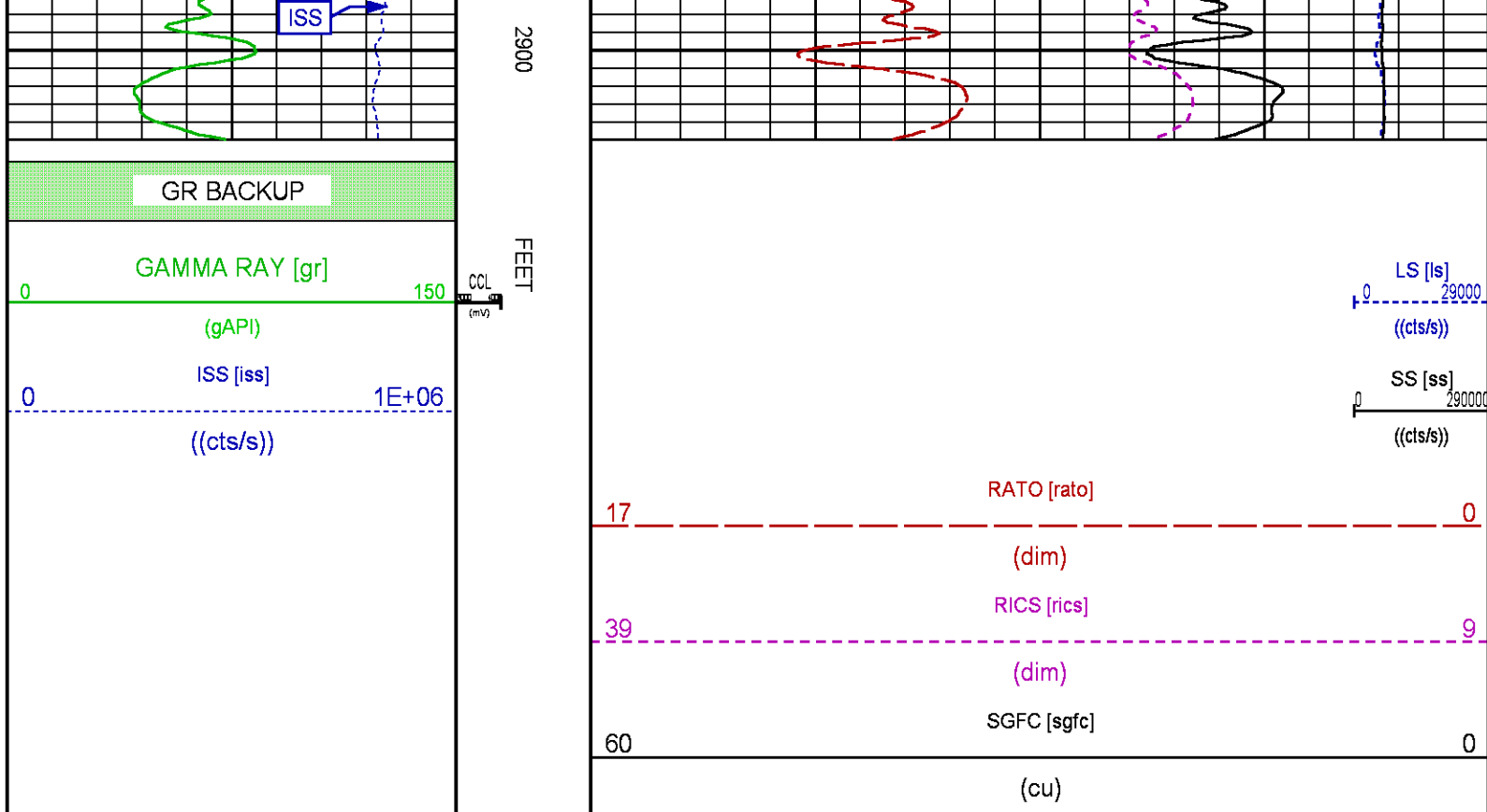
RATO

RICS

SGFC

LS

SS



## RPM MAIN PASS WILLIAMS FORK

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

Updates: 1

Plotted: Sat Nov 17 12:52:06 2018

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_BCU\_0993\_21\_06W/p353hA02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 4132.750 ft BOTTOM DEPTH: 7548.826 ft

### SYMMETRIC FILTER

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

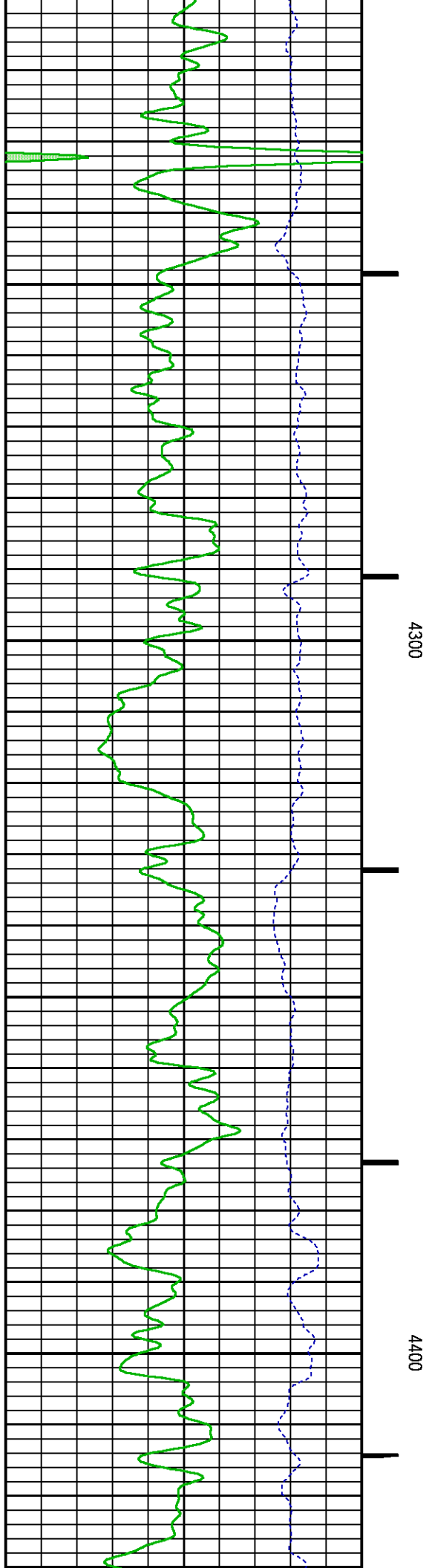
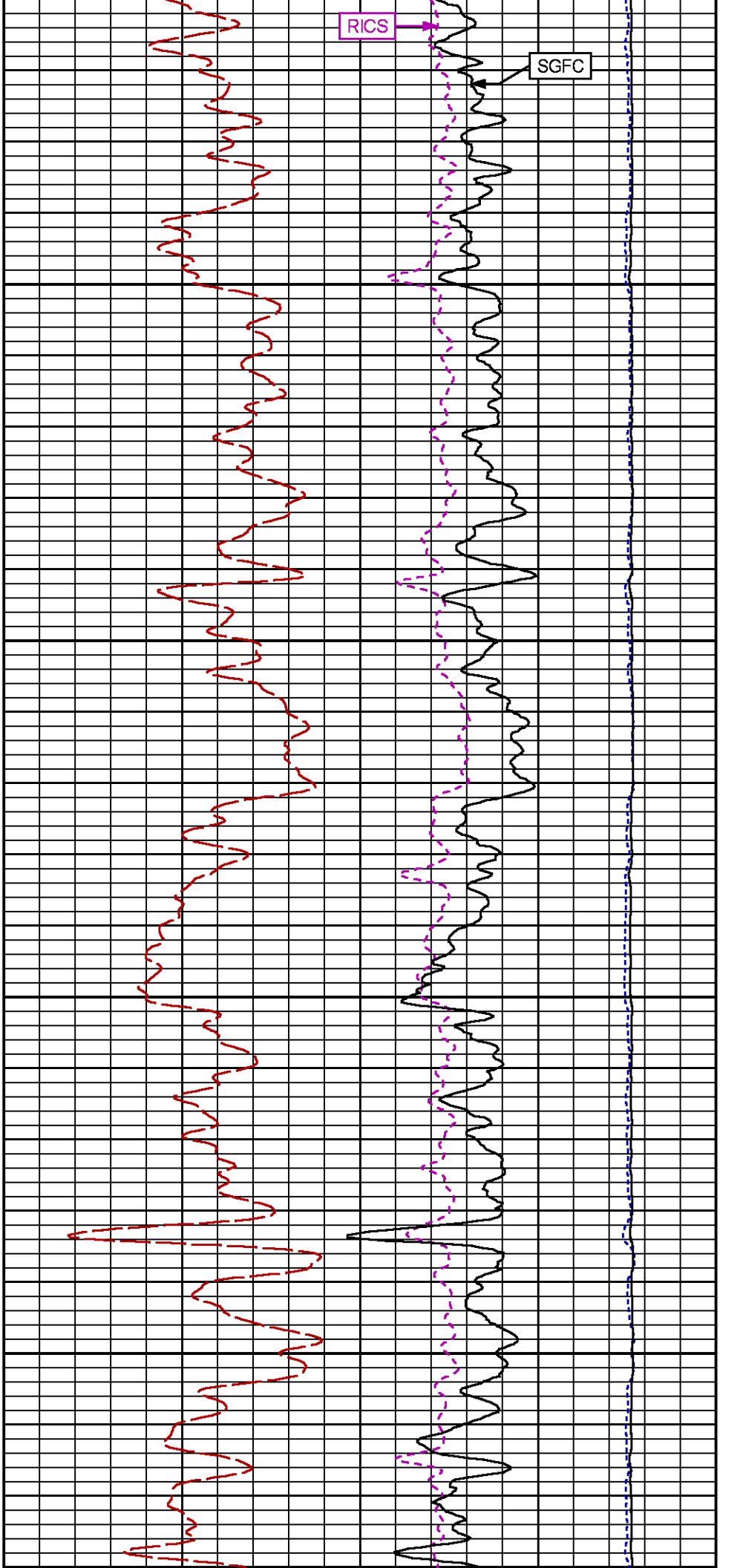
### RPM PROCESSING

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

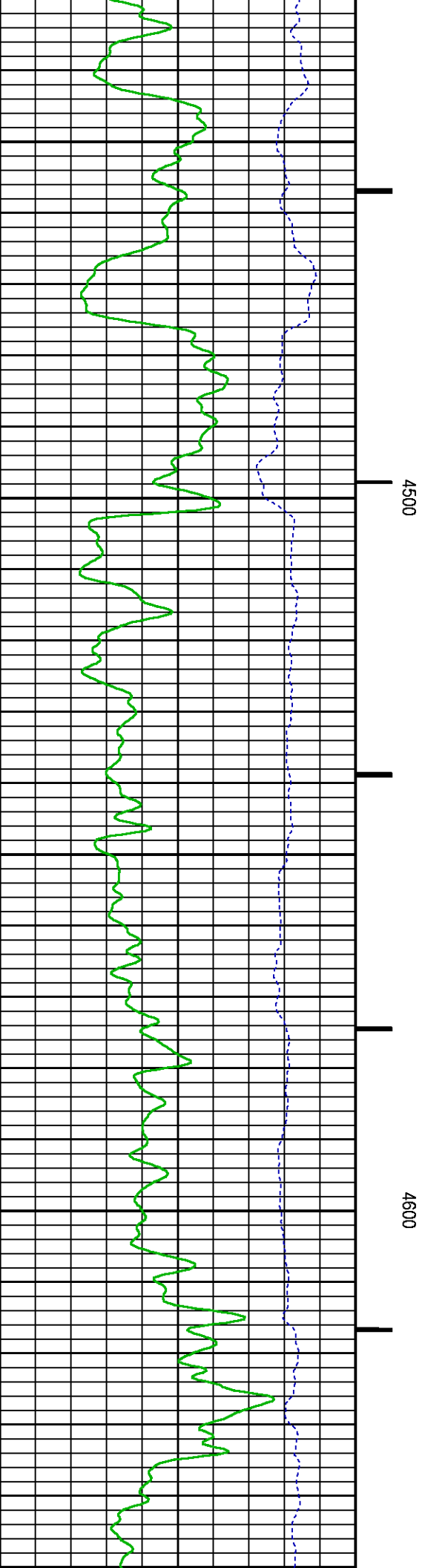
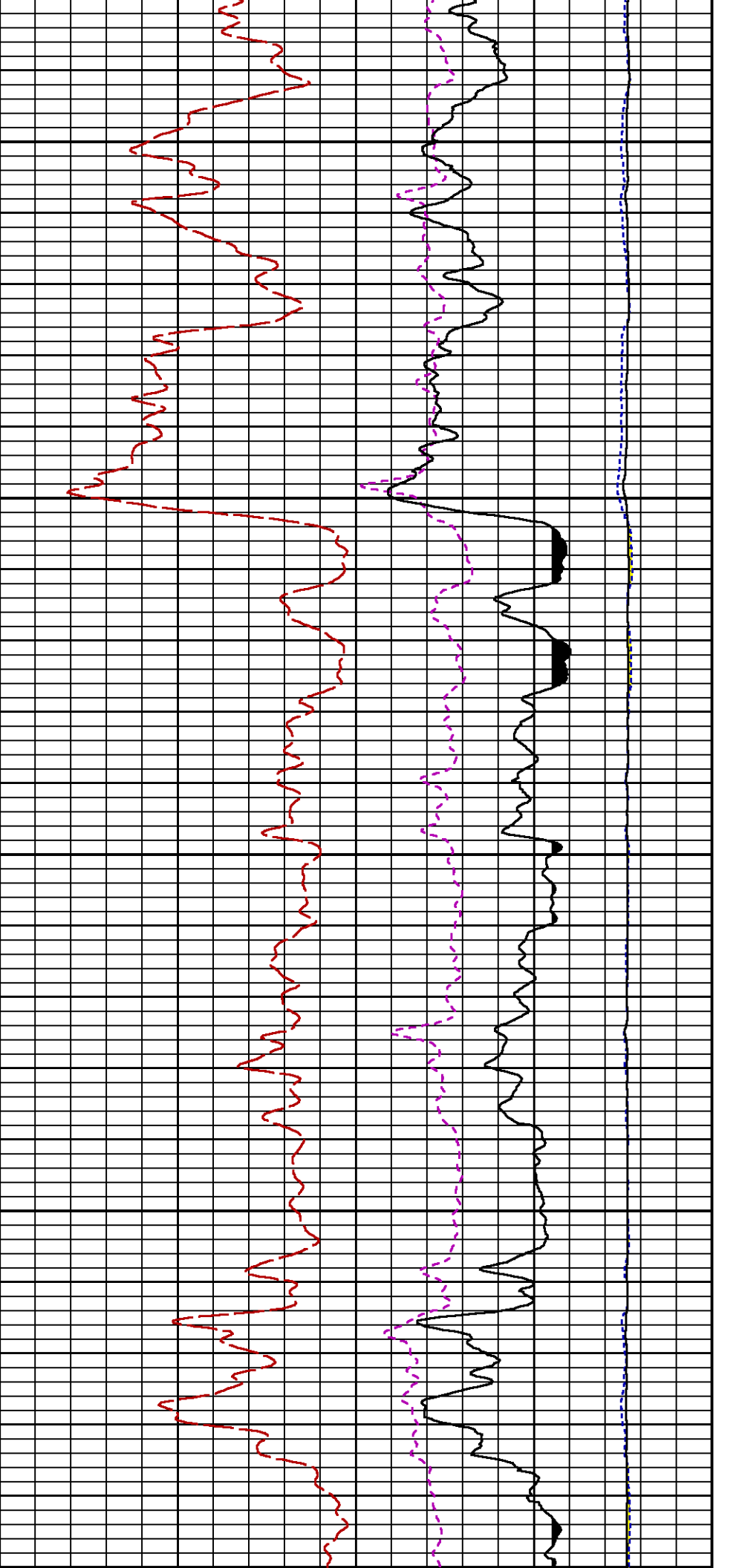
### CURVE DESCRIPTION REPORT

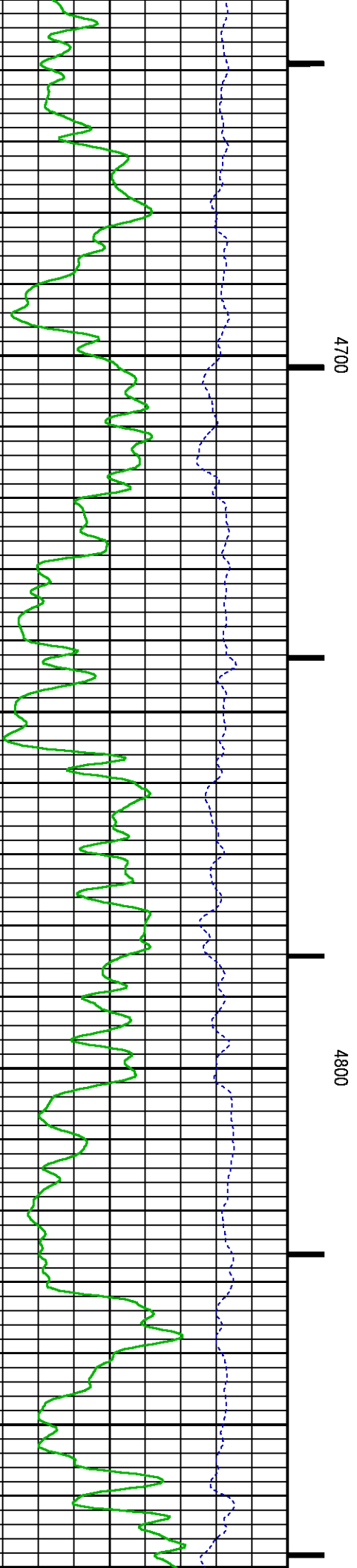
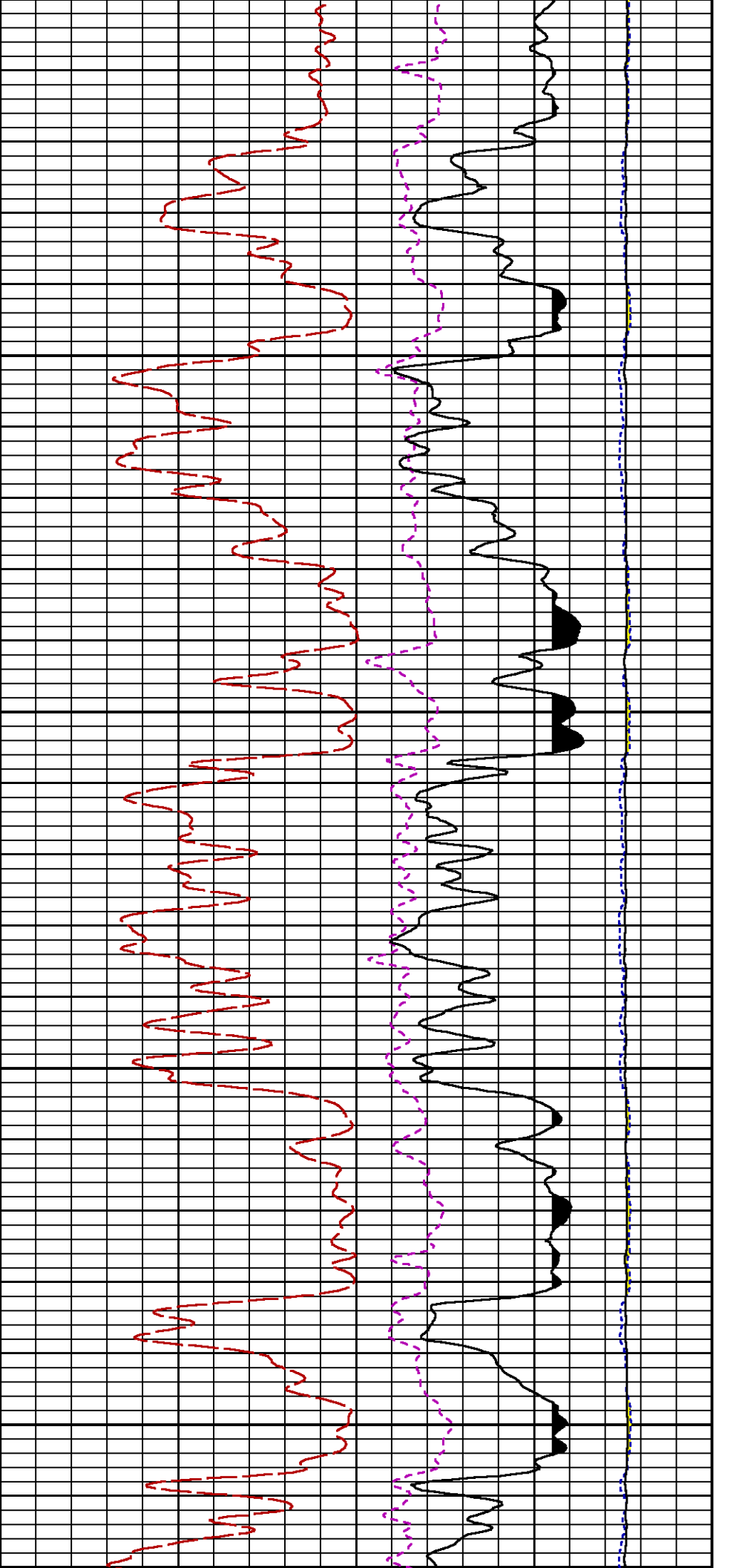
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Nov 17 09:17:39 2018	CASING COLLAR LOCATOR

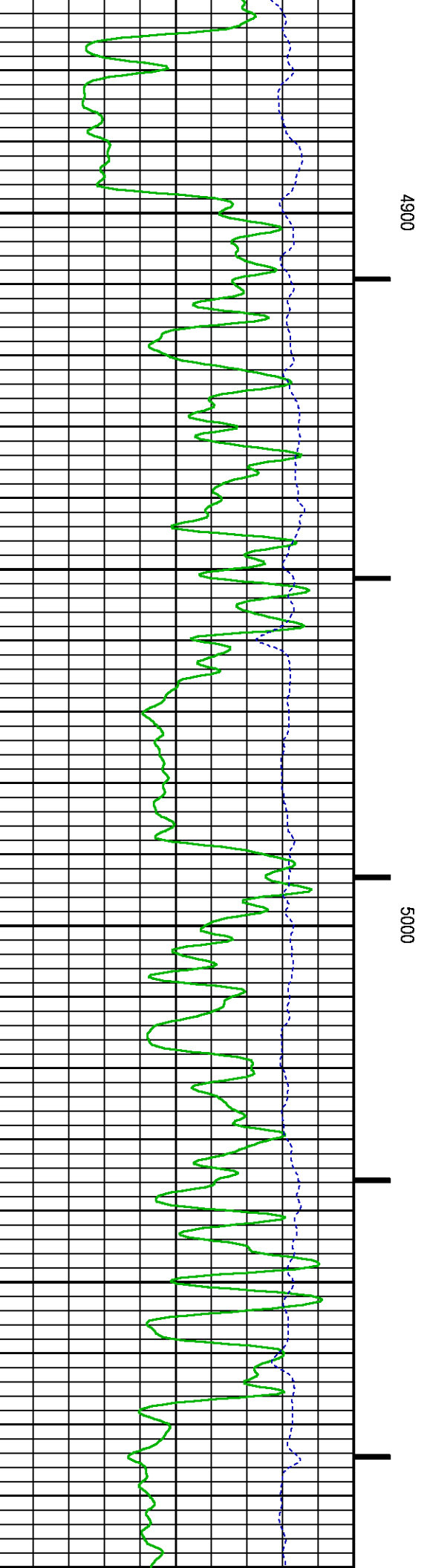
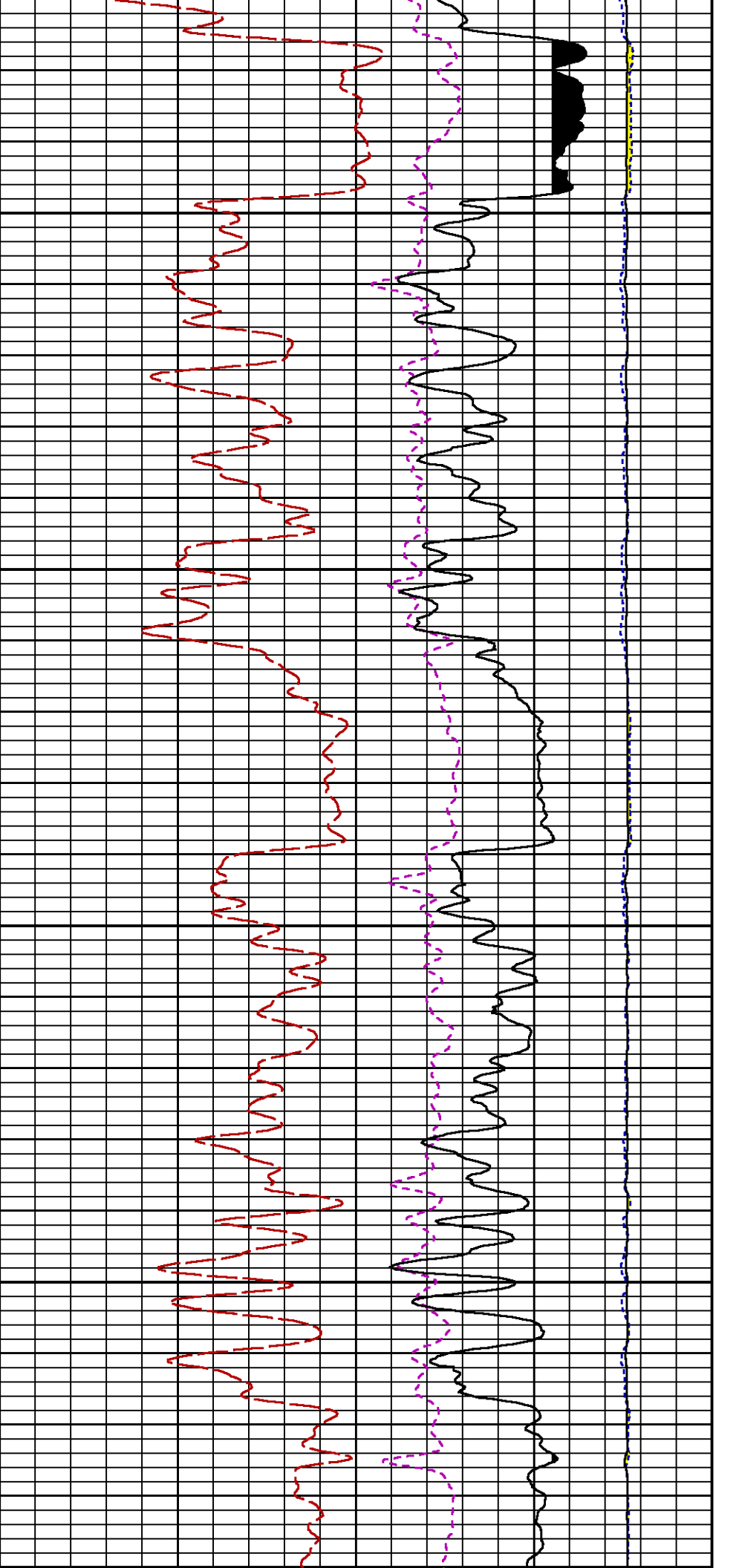


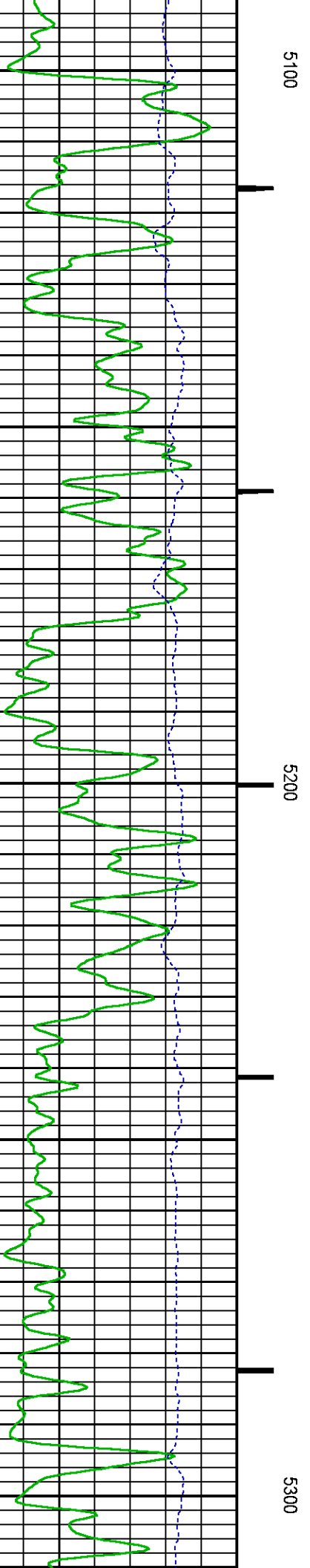
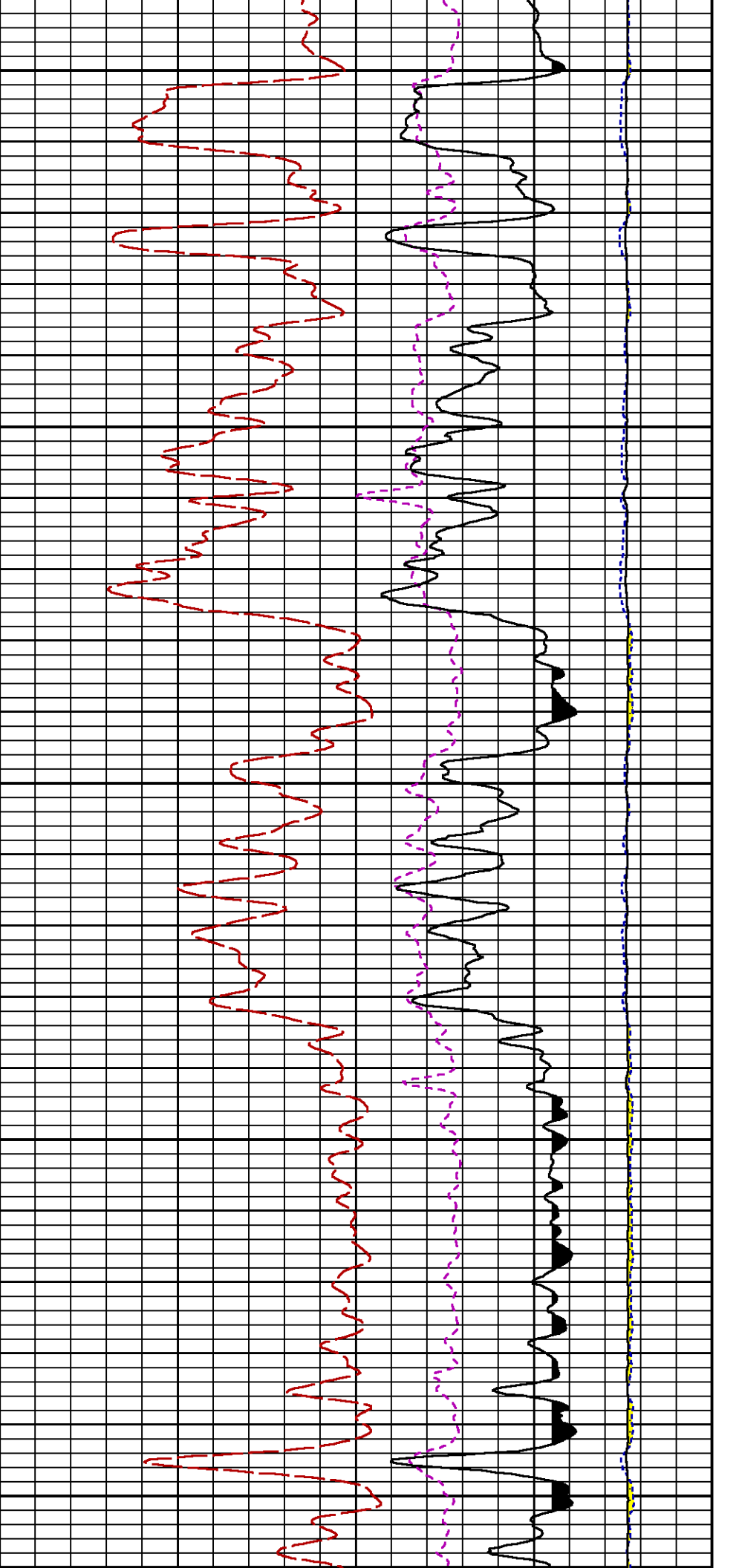


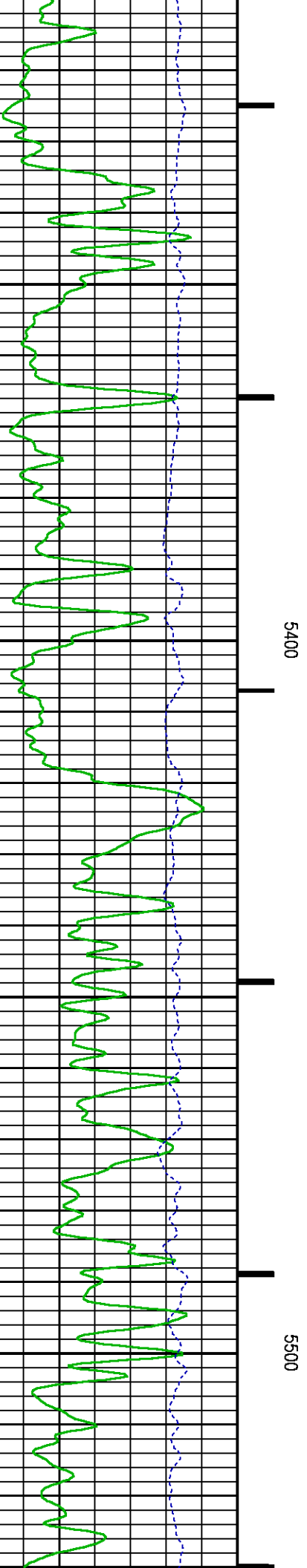
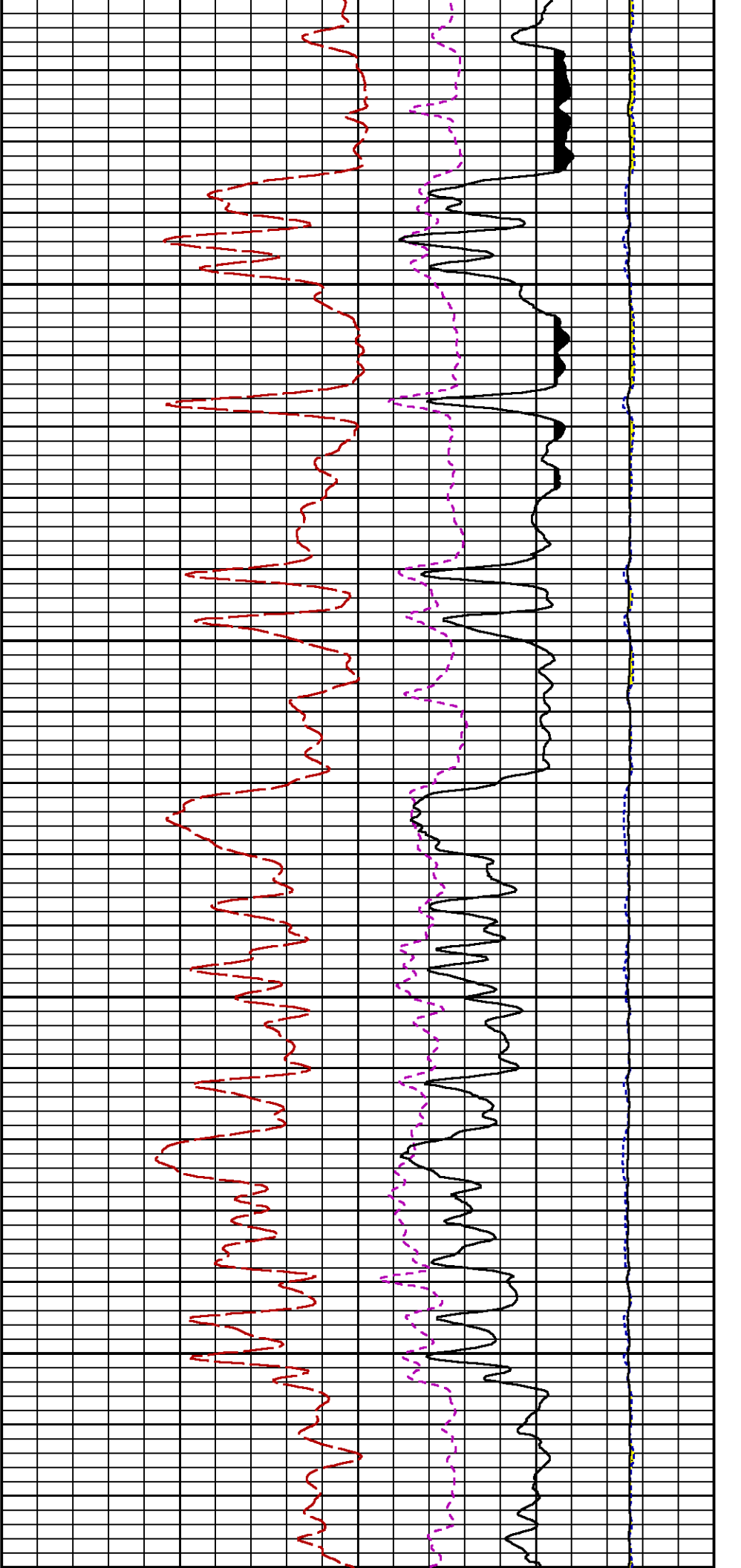


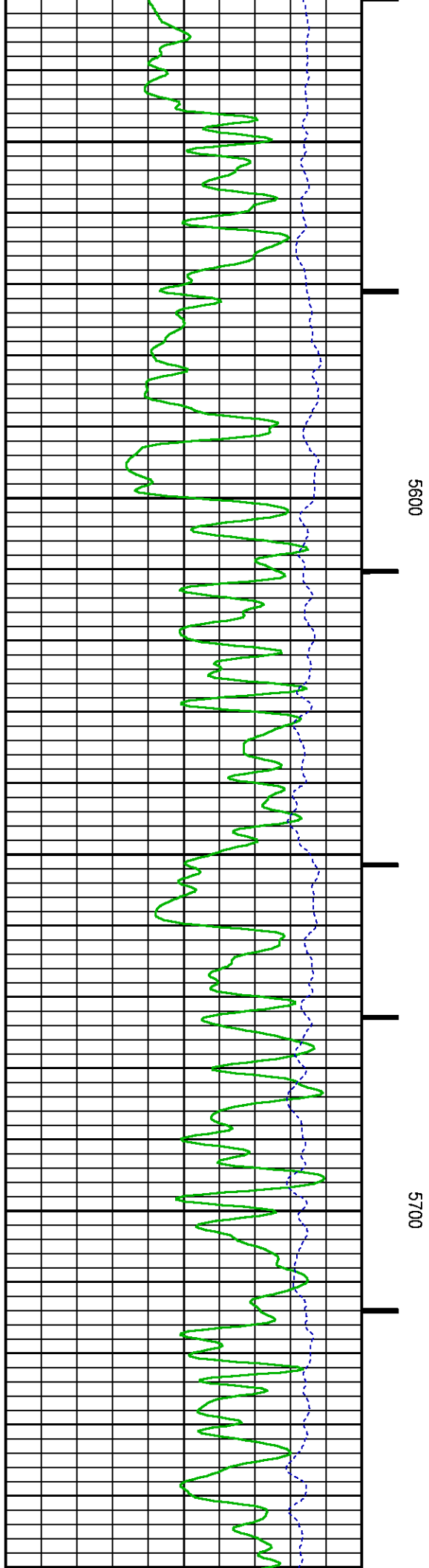
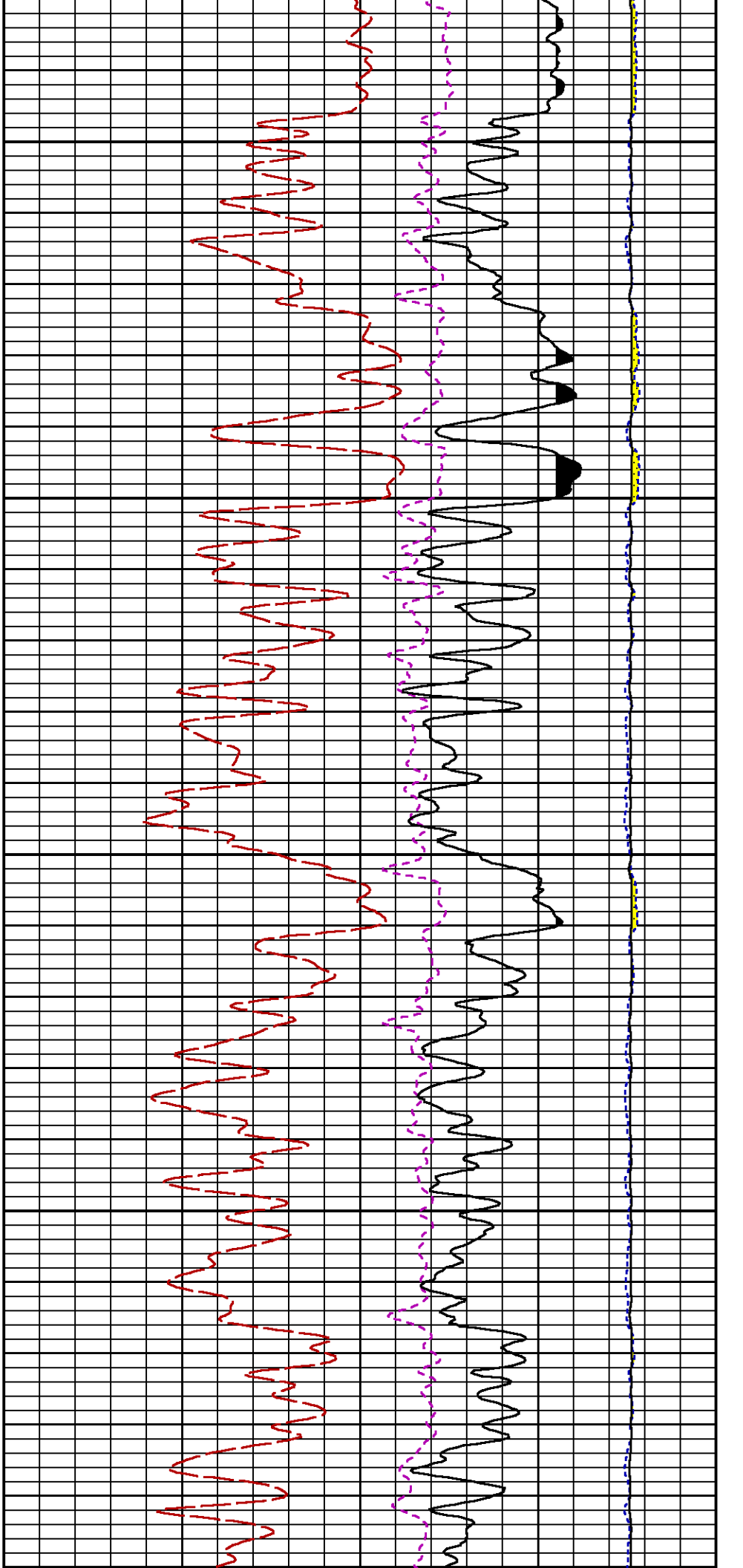


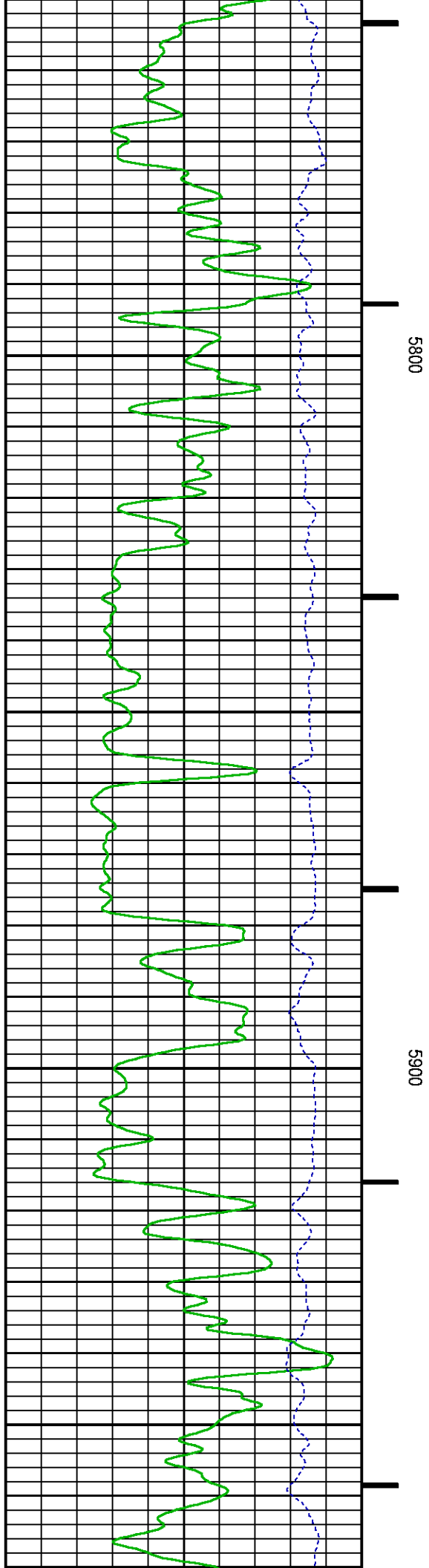
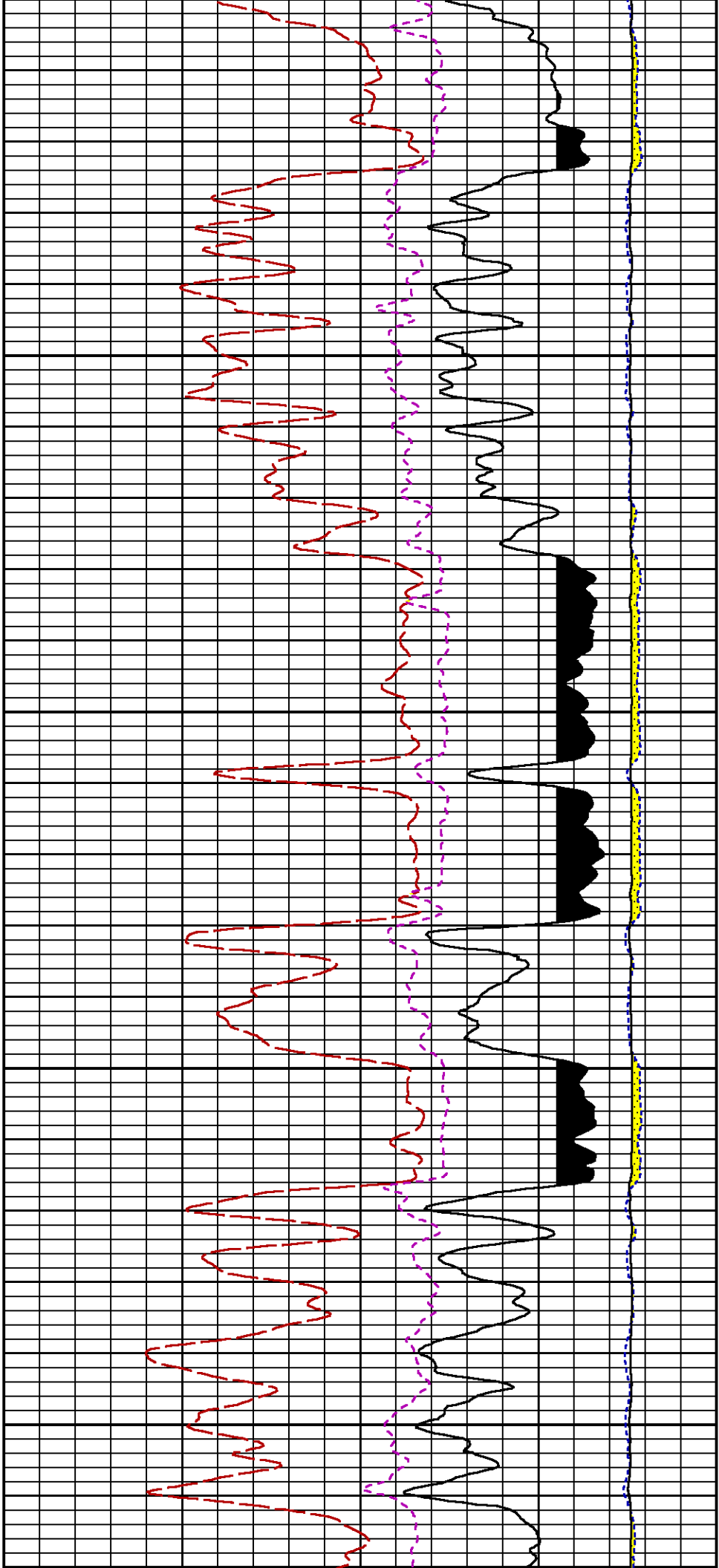


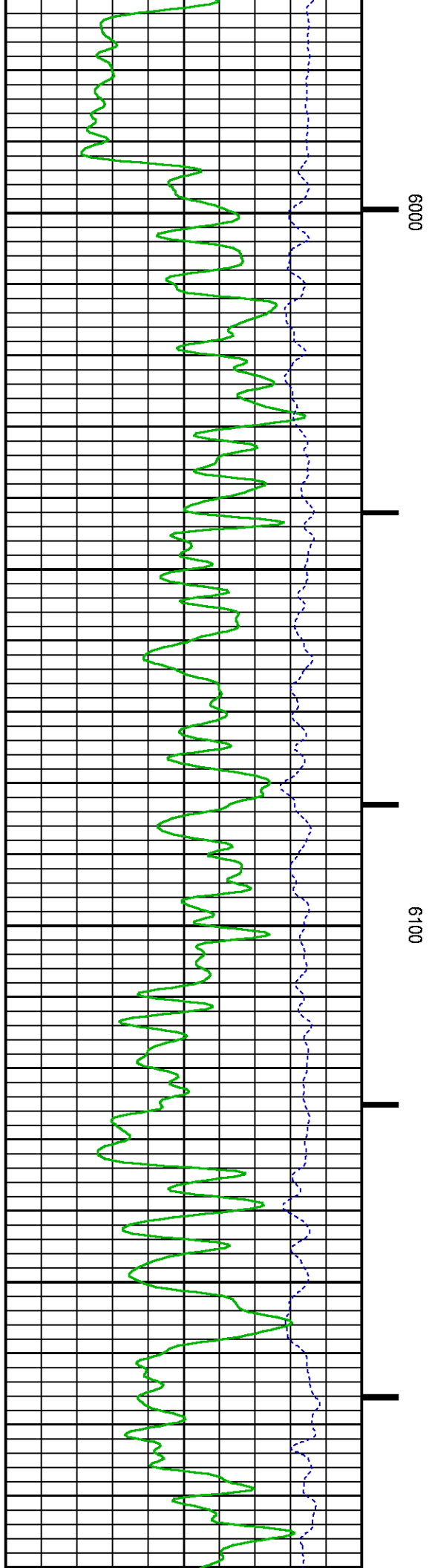
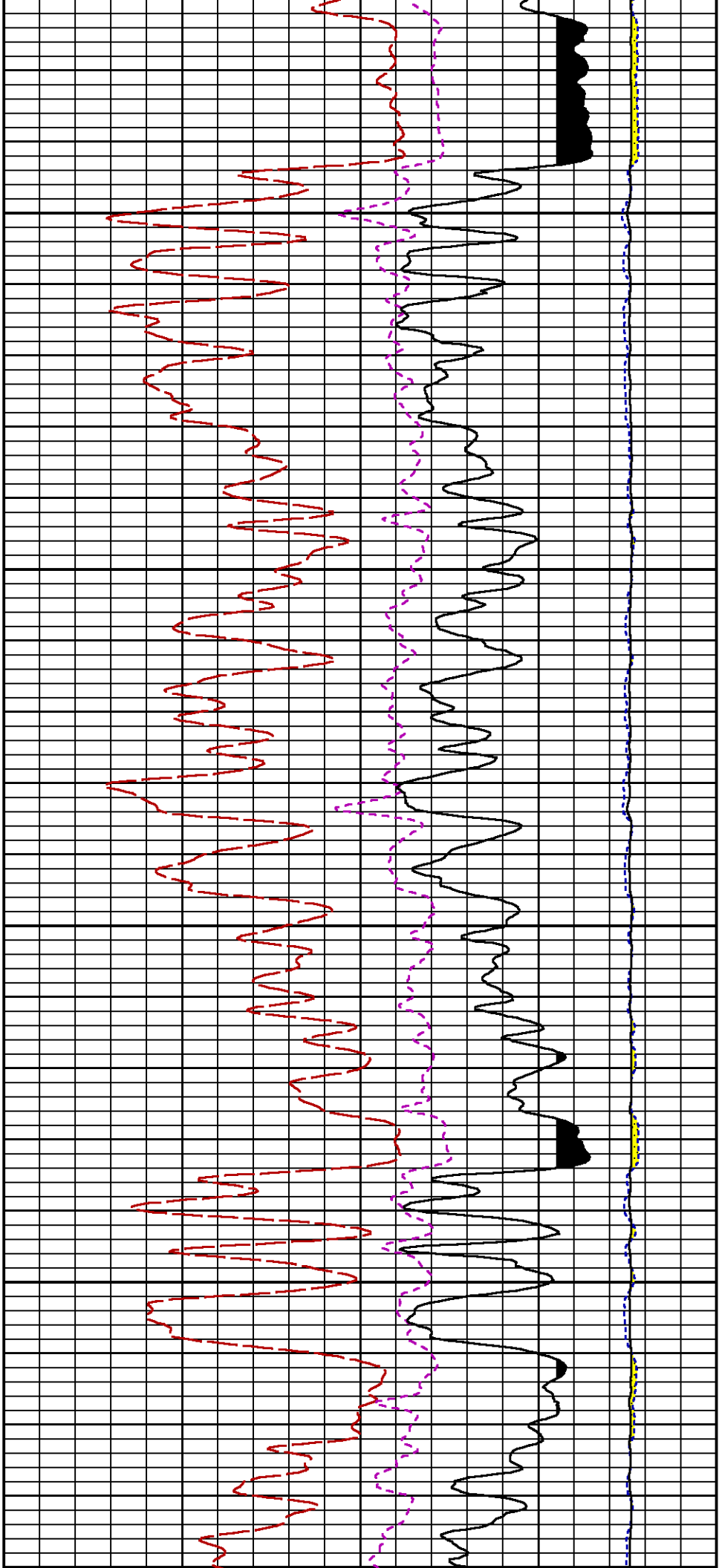




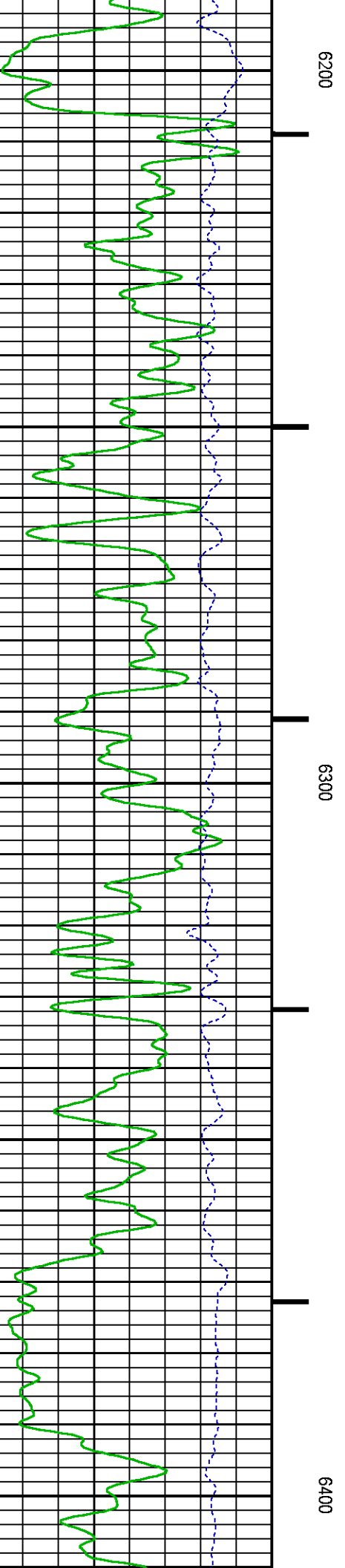
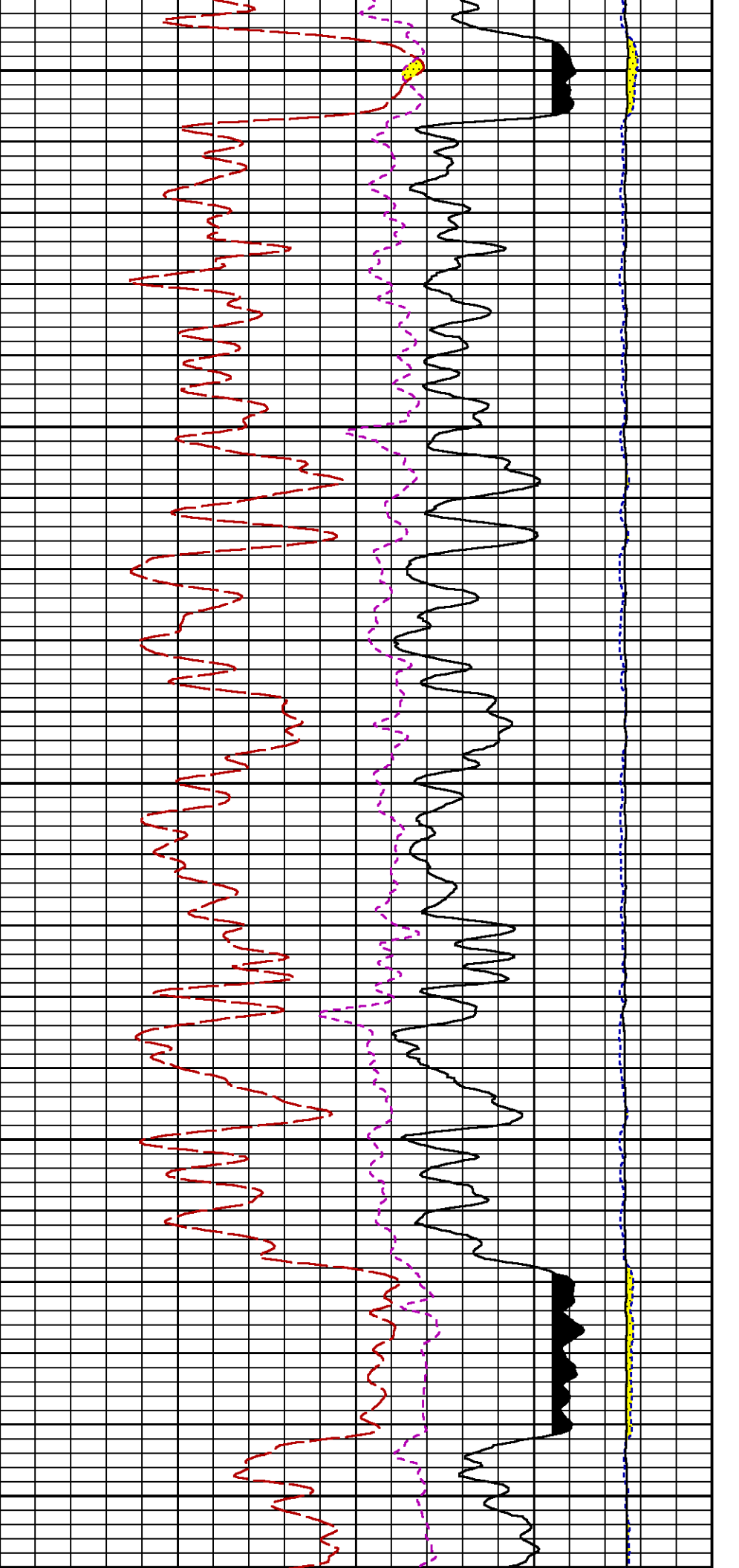


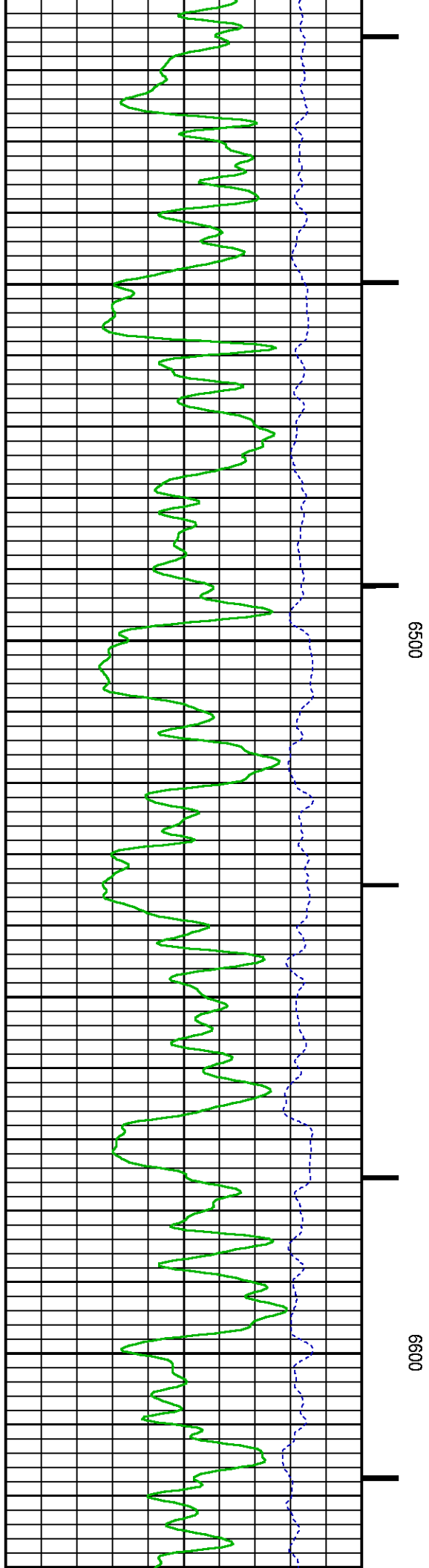
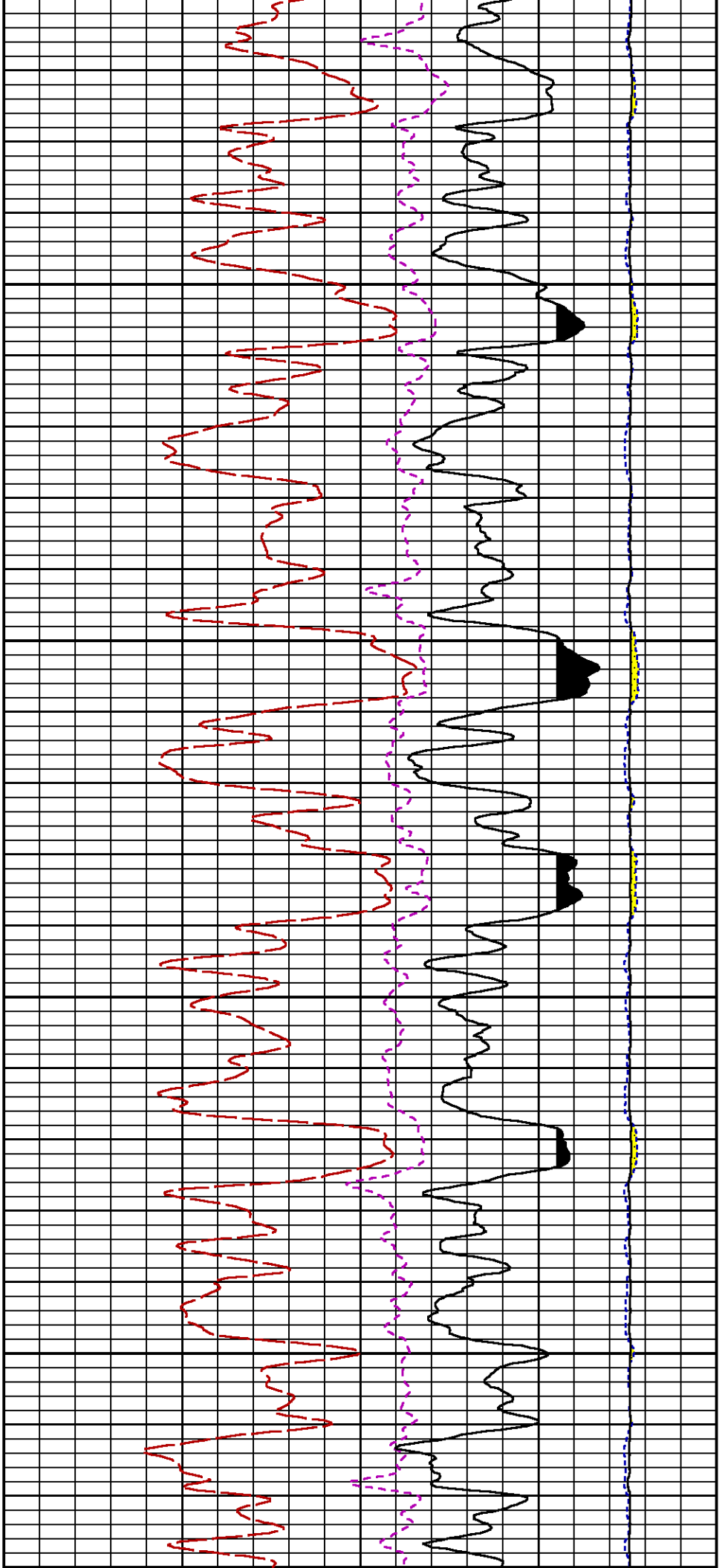


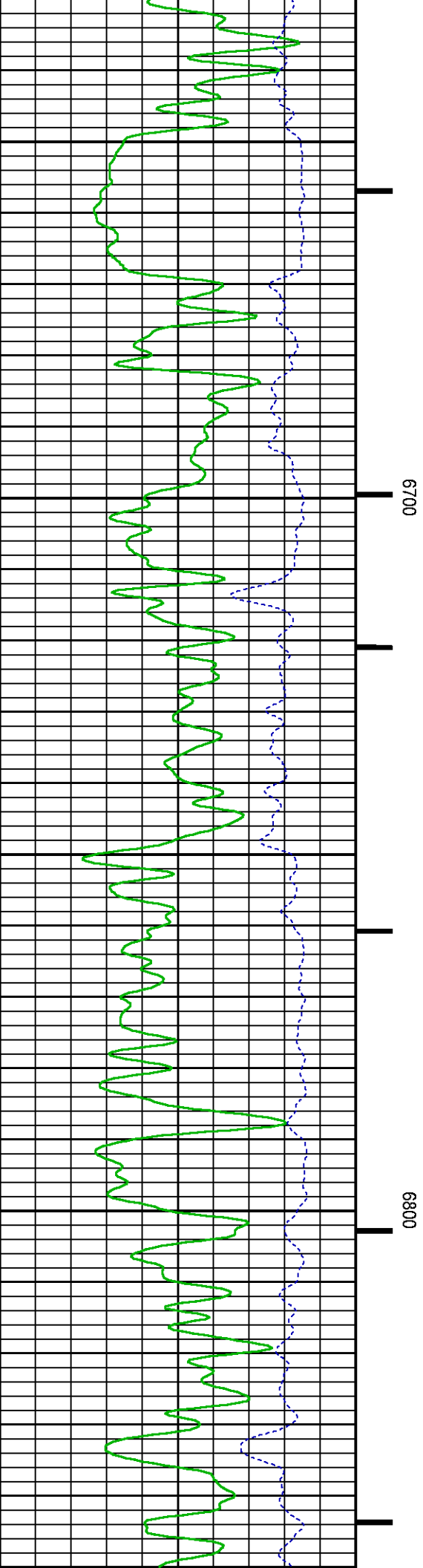
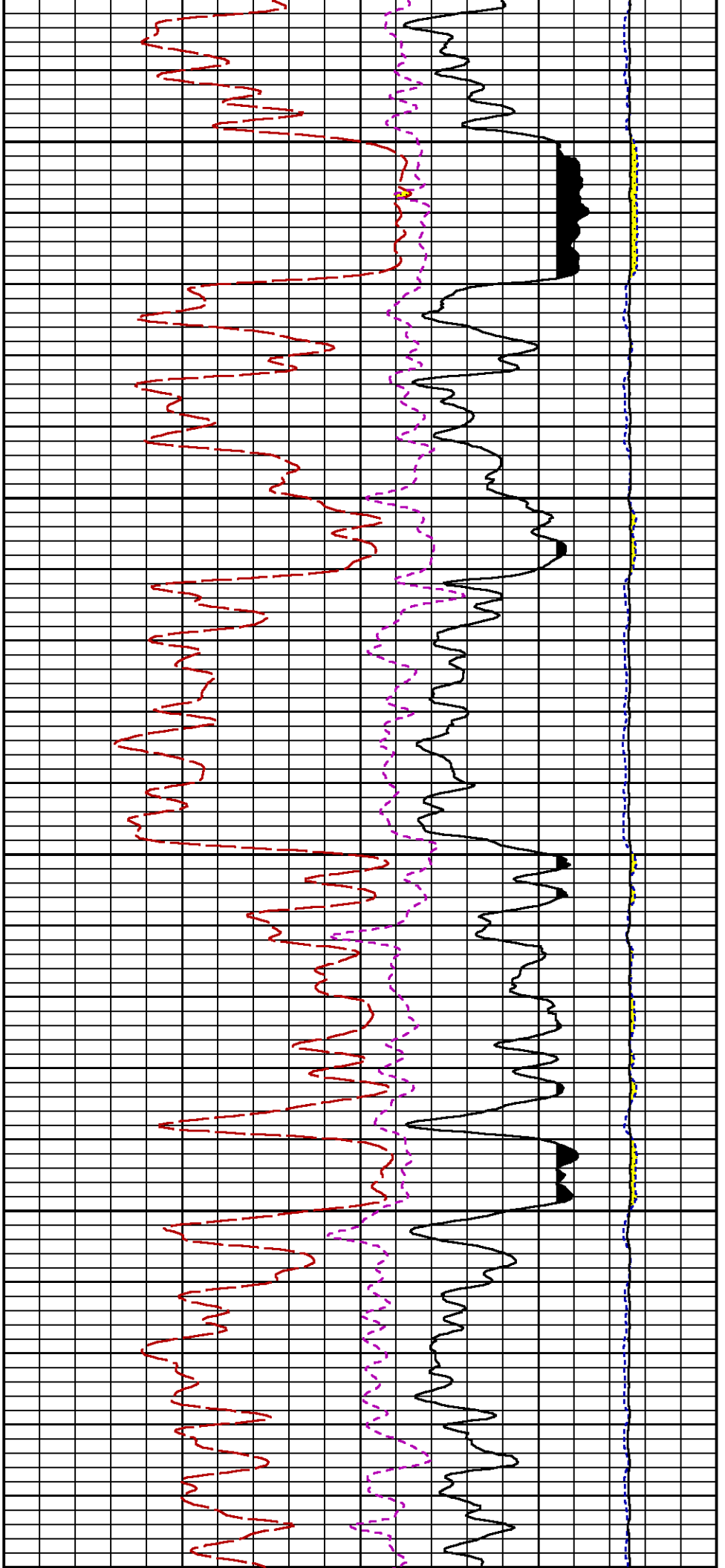


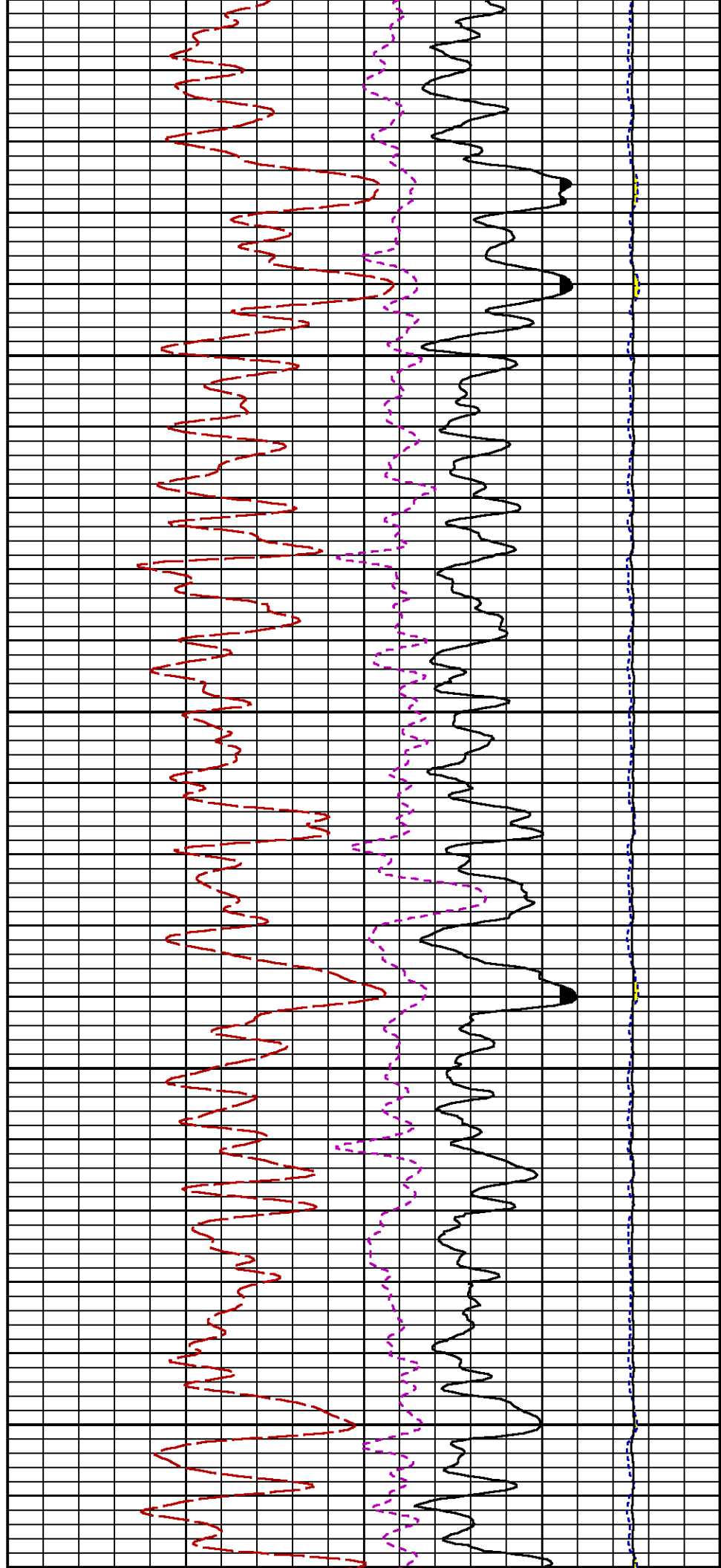
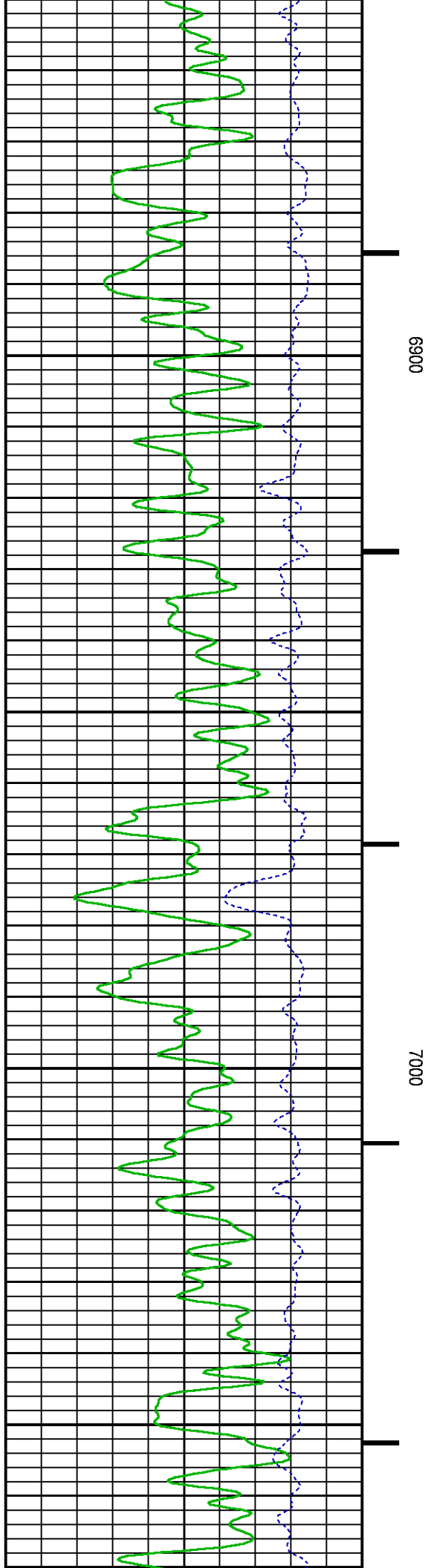


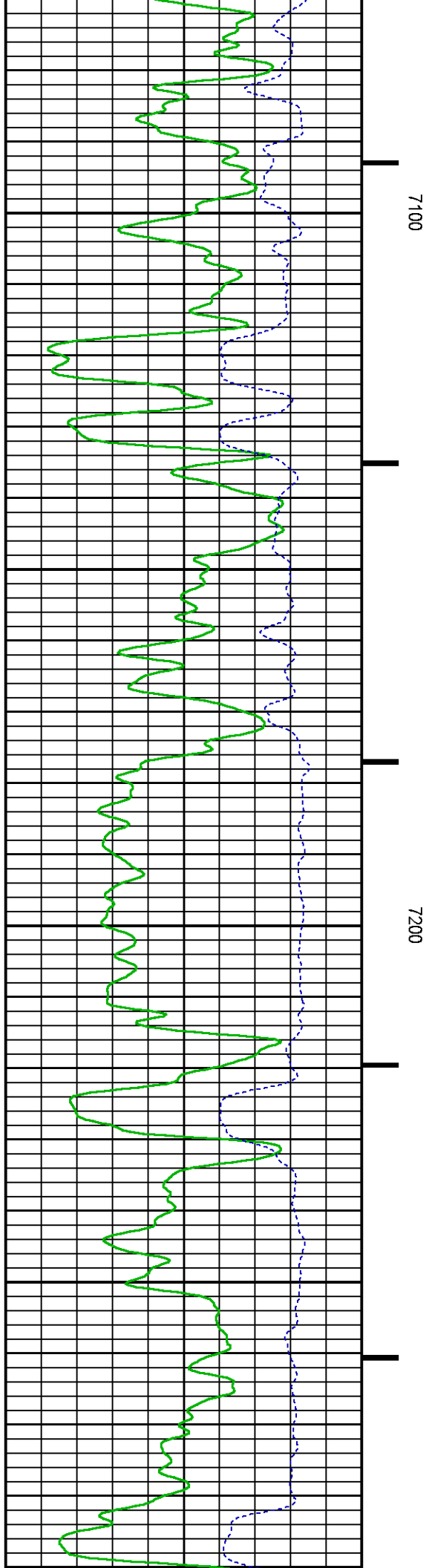
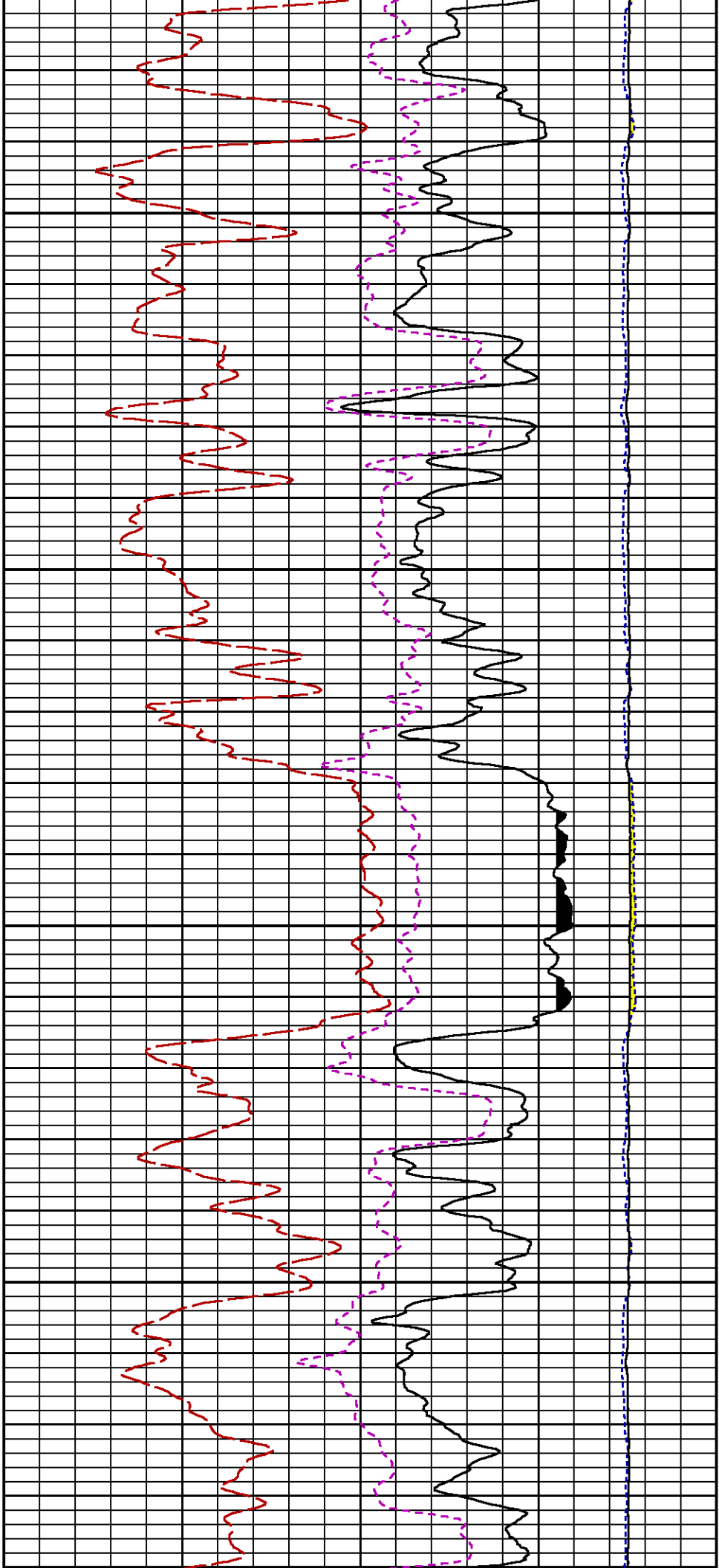


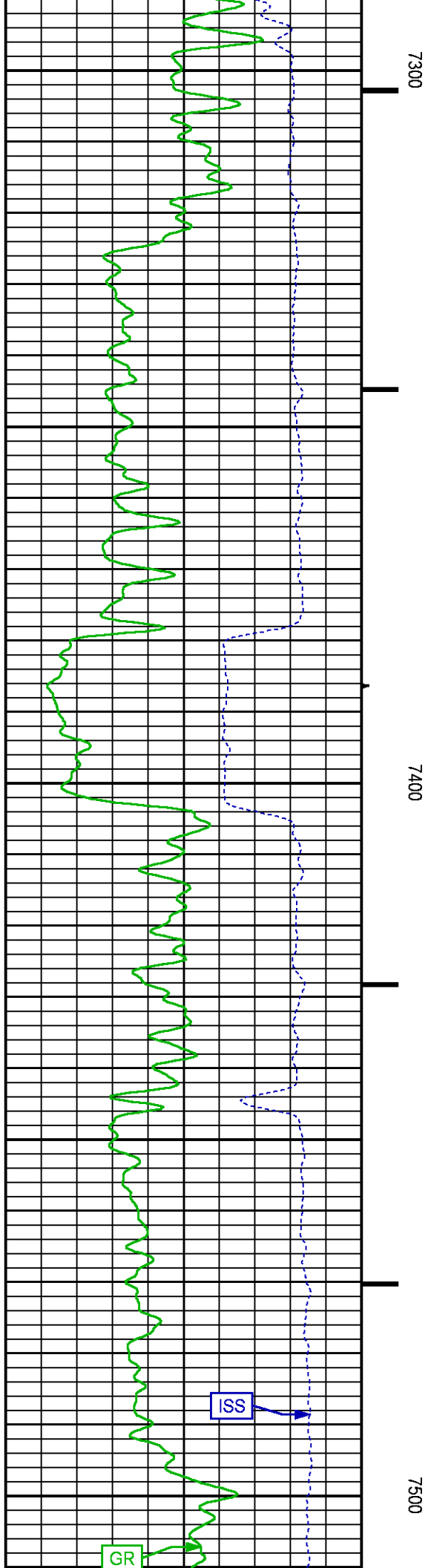
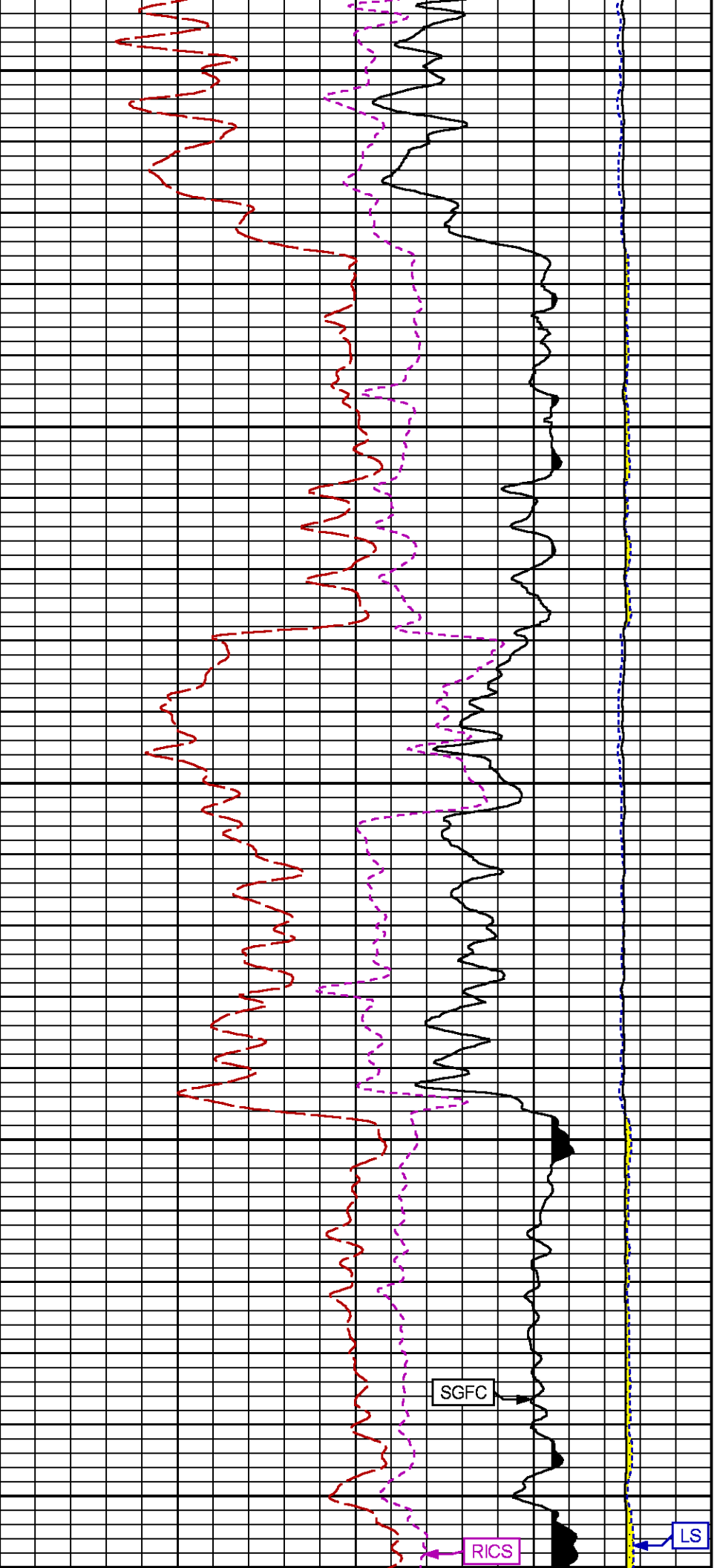












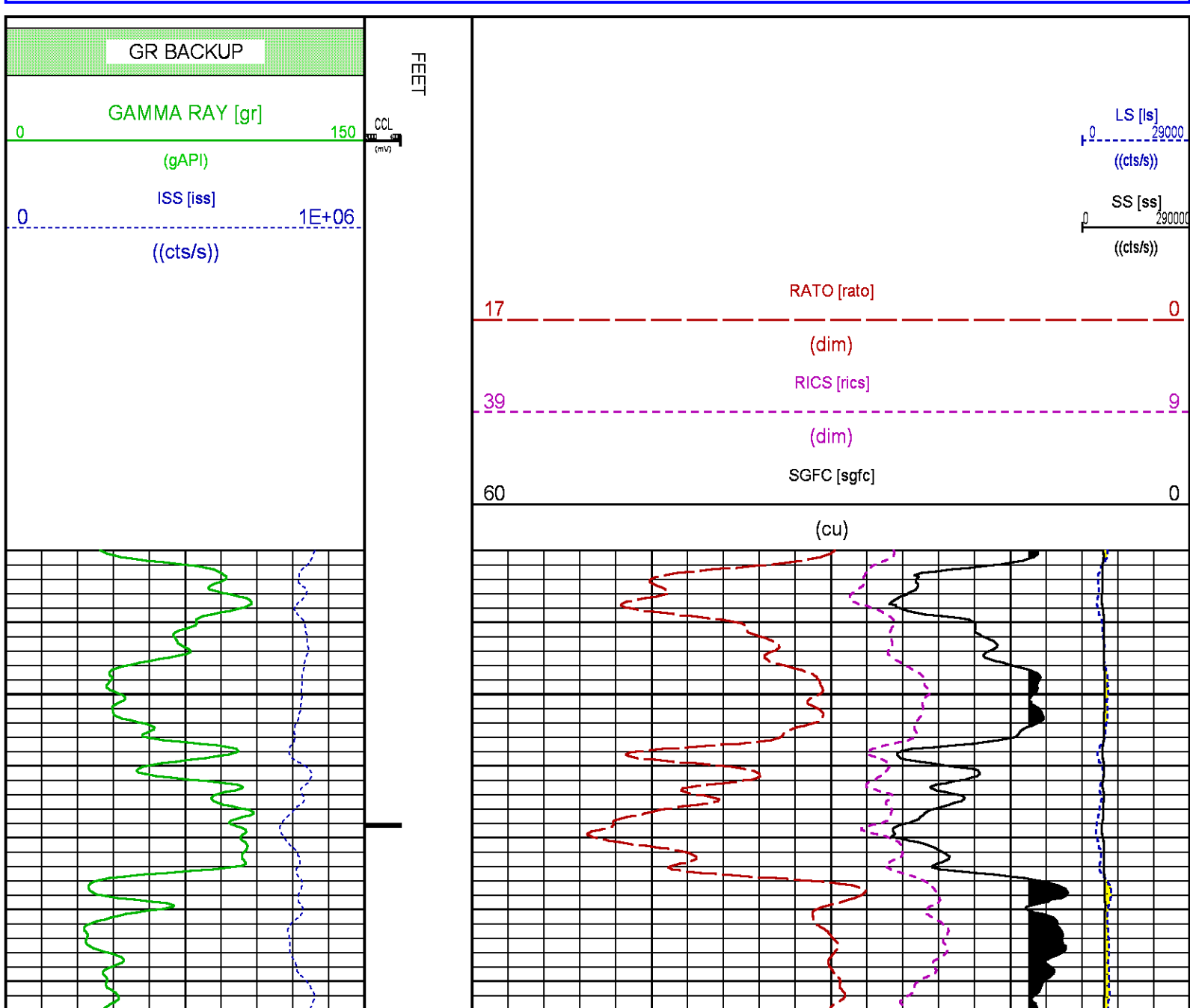


CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Nov 17 08:50:39 2018	CASING COLLAR LOCATOR
F1:GR	Nov 17 08:50:39 2018	GAMMA RAY
F1:ISS	Nov 17 08:50:39 2018	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Nov 17 08:50:39 2018	LONG SPACE COUNT RATE
F1:RATO	Nov 17 08:50:39 2018	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Nov 17 08:50:39 2018	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Nov 17 08:50:39 2018	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	Nov 17 08:50:39 2018	SHORT SPACE COUNT RATE

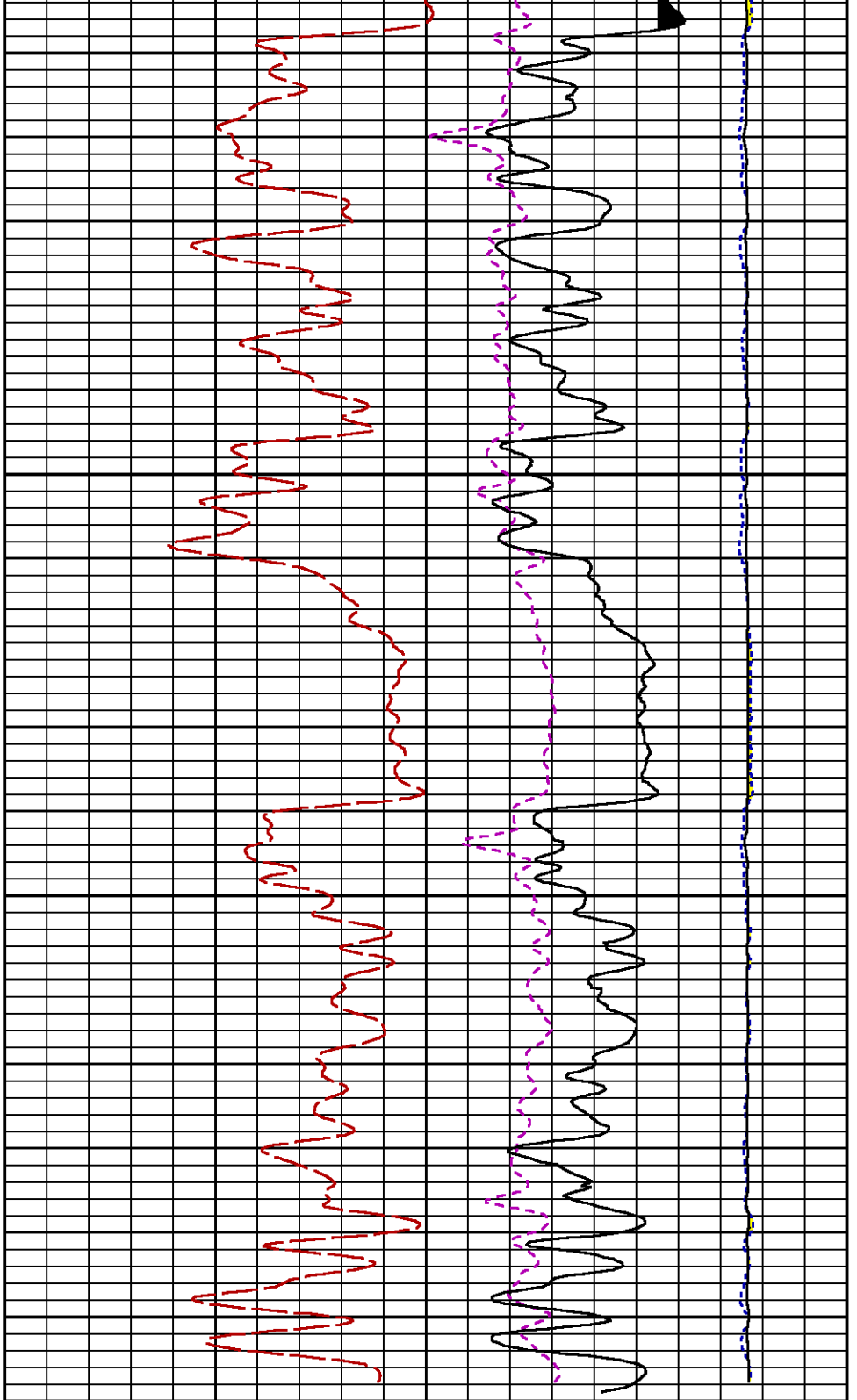
### CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75	SS	-12.75

<b>Presentation</b>	: SysA:/dat1a/LARAMIE_BCU_0993_21_06W/06W_RPM_REPEAT.fvpdf [5"/100' Scale]
<b>Plot Interval</b>	: 4830 - 5073.75 Feet
<b>Data File 1</b>	: F1 : SysA:/dat1a/LARAMIE_BCU_0993_21_06W/06W_RPM_REPEAT.xtf
<b>Created On</b>	: Nov 17 08:50:39 2018
<b>Company</b>	: LARAMIE ENERGY LLC
<b>Well</b>	: BCU-0993-21-06W
<b>Field</b>	: BUZZARD CREEK
<b>File Interval</b>	: 4785 - 5074 Feet
<b>OCT</b>	: p353hA





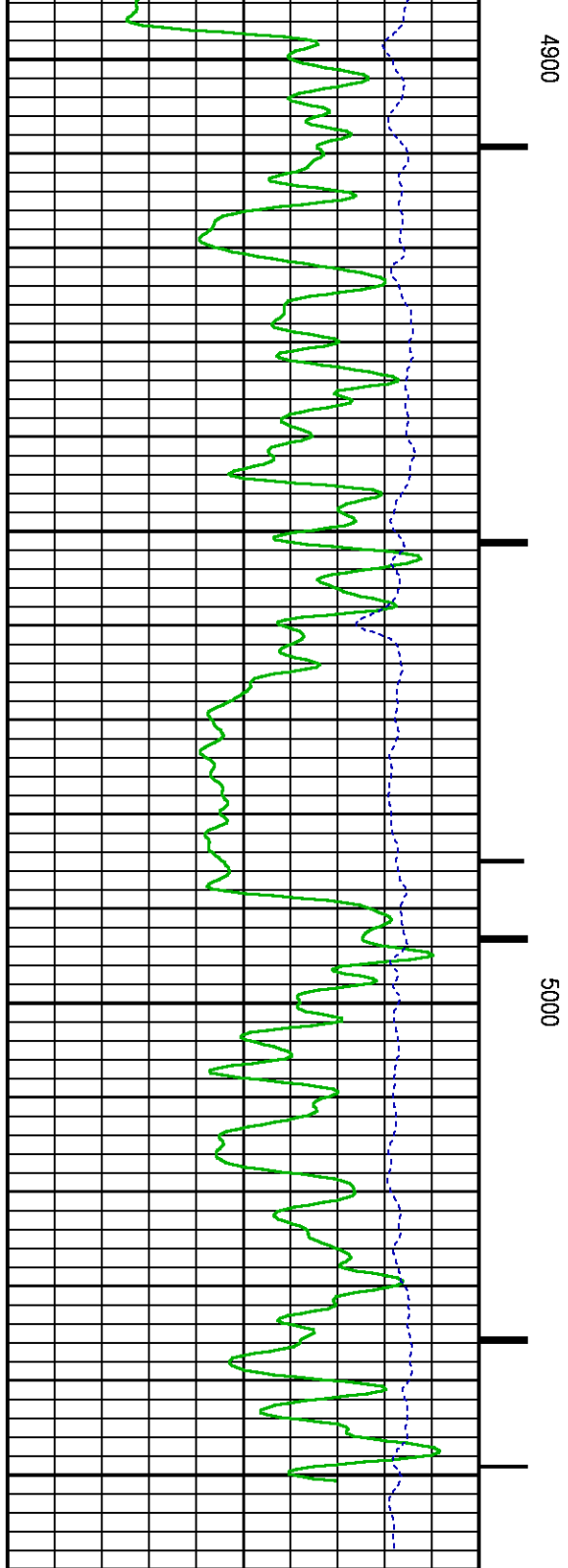


LS [ls]  
0 29000  
((cts/s))

SS [ss]  
0 29000  
((cts/s))

RATO [rato]  
17 0  
(dim)

RICS [rics]  
0 0



FEET  
CCL  
(mV)

GR BACKUP

GAMMA RAY [gr]  
0 150

(gAPI)

ISS [iss]  
0 1E+06  
((cts/s))

		39	(dim)	
		60	SGFC [sgfc]	0
			(cu)	

## CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE\_BCU\_0993\_21\_06W/p353hA.tp1

### GR PRIMARY CALIBRATION SUMMARY

TOOL #: 8262XA 10456406

DATE/TIME PERFORMED: Fri Sep 14 11:40:12 2018

UNIT #: 5753XD 10412898

CALB JIG #: 4702NK BA-869

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	159.02	499.09	340.1	0.529	84.17	264.17	180

### GR PRIMARY VERIFICATION SUMMARY

TOOL #: 8262XA 10456406

DATE/TIME PERFORMED: Fri Sep 14 11:42:18 2018

UNIT #: 5753XD 10412898

VERI JIG #: 4702NK BA-869

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	159.53	501.09	0.529	84.44	265.23	180.79
						170.00 190.00

### RPM\_PNC\_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 11768879

DATE/TIME PERFORMED: Thu Nov 8 21:54:03 2018

UNIT: 5753XD 10412898

CALIBRATOR: 2437XB 112674

SOURCE: 8281AA 10220690

HOURS: 8281AA 70

	ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	803537	124	2236	2175	2182	101	9.5	0.9686
Interpolated	1300000	148	2212	2169	2178			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	803537	8701	4296	466	26.15	0.15	24.17	0.37
					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	803537	173305	26482	92381	32838	8458	55917	13580
Fit Quality %		1.076	1.409	1.049	1.083	1.132	0.965	1.149

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	803537	1.43	4.64	30.36	14.37	10.93	3.89	4.12
		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 %		0.064	0.219	0.122	0.239	0.042	0.028	0.045
Reduced	1390124	1.43	4.64	30.35	14.37	10.94	3.89	4.12

# INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE\_BCU\_0993\_21\_05W/RPM-tdg

## 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

## GAMMA RAY

Diameter : 1.70"  
Length : 3.02'  
Weight : 15 lbs  
Series : 8262XA  
Mnemonic : GR  
Measure Point: 0.89': GR MP

## RPM ELECTRONICS

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

## RPM C DETECTOR SECTION

Diameter : 1.70"

34.08'

CCL MP 26.03'

GR MP 22.90'

XLS MP 13.58'

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

LS MP 13.16'  
SS MP 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 1.65'  
PRES MP

BULL PLUG 1 11/16

TOTAL LENGTH: 34.08'  
TOTAL WEIGHT: 144 lbs  
MAX DIAMETER: 0'1.70"

0.00'

**BAKER  
HUGHES**  
a GE company



**ECLIPS**

**COMPANY** LARAMIE ENERGY LLC  
**WELL** BCU-0993-21-06W  
**FIELD** BUZZARD CREEK  
**COUNTY** MESA **STATE** COLORADO

**FILE NO:**  
CH145362  
**API NO:**  
05077105240000

**LOCATION:**

SHL: 1361' FNL & 1280' FWL  
BHL: 1361' FNL & 1280' FWL

**ELEVATIONS:**

KB 7293 FT  
DF  
GL 7263 FT

**SEC** 21 **TWP** 09 S **RGE** 93W

**DATE** 17-NOV-18