



FILE NO: CH145366	COMPANY LARAMIE ENERGY LLC
API NO: 05077105110000	WELL BCU 0993-21-04W
	FIELD BUZZARD CREEK
	COUNTY MESA STATE COLORADO

Ver. 4.11	LOCATION: SHL: 871' FNL & 1321' FWL	OTHER SERVICES RAL
SEC <u>21</u>	TWP <u>9 S</u>	RGE <u>93 W</u>

PERMANENT DATUM	GL	ELEVATION	7257 FT	ELEVATIONS: KB 7287 FT DF GL 7257 FT
LOG MEASURED FROM	KB	301 FT	ABOVE P.D.	
DRILL. MEAS. FROM	KB			

DATE	27-NOV-2018
RUN	1
TRIP	1
SERVICE ORDER	US145366
DEPTH DRILLER	7636 FT
DEPTH LOGGER	7621 FT
BOTTOM LOGGED INTERVAL	7621 FT
TOP LOGGED INTERVAL	2204 FT
TIME STARTED	12:00
TIME FINISHED	17:30
OPERATOR RIG TIME	5.5 HOURS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	71 FT
LOGGED CEMENT TOP	1050 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	10 FMIN
MAX. RECORDED TEMP.	253 DEGF
REFERENCE LOG	BAKER HUGHES RAL
REFERENCE LOG DATE	27-NOV-2018
EQUIP. NO.	ML-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		30 FT	

REMARKS
RUN 1 TRIP 1: SJ: 5727' - 5748' SJ: 6790' - 6809'

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: Tue Nov 27 17:15:03 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_BCU_0993_21_04W/p353hA03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2142.883 ft BOTTOM DEPTH: 2837.532 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 27 16:19:39 2018	CASING COLLAR LOCATOR
F1:GR	Nov 27 16:19:39 2018	GAMMA RAY
F1:ISS	Nov 27 16:19:39 2018	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Nov 27 16:19:39 2018	LONG SPACE COUNT RATE
F1:RATO	Nov 27 16:19:39 2018	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Nov 27 16:19:39 2018	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Nov 27 16:19:39 2018	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	Nov 27 16:19:39 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

Presentation : SysA:/dat1a/LARAMIE_BCU_0993_21_04W/04W_RPM_GS.fvpdf [5"/100' Scale]
Plot Interval : 2200 - 2810 Feet

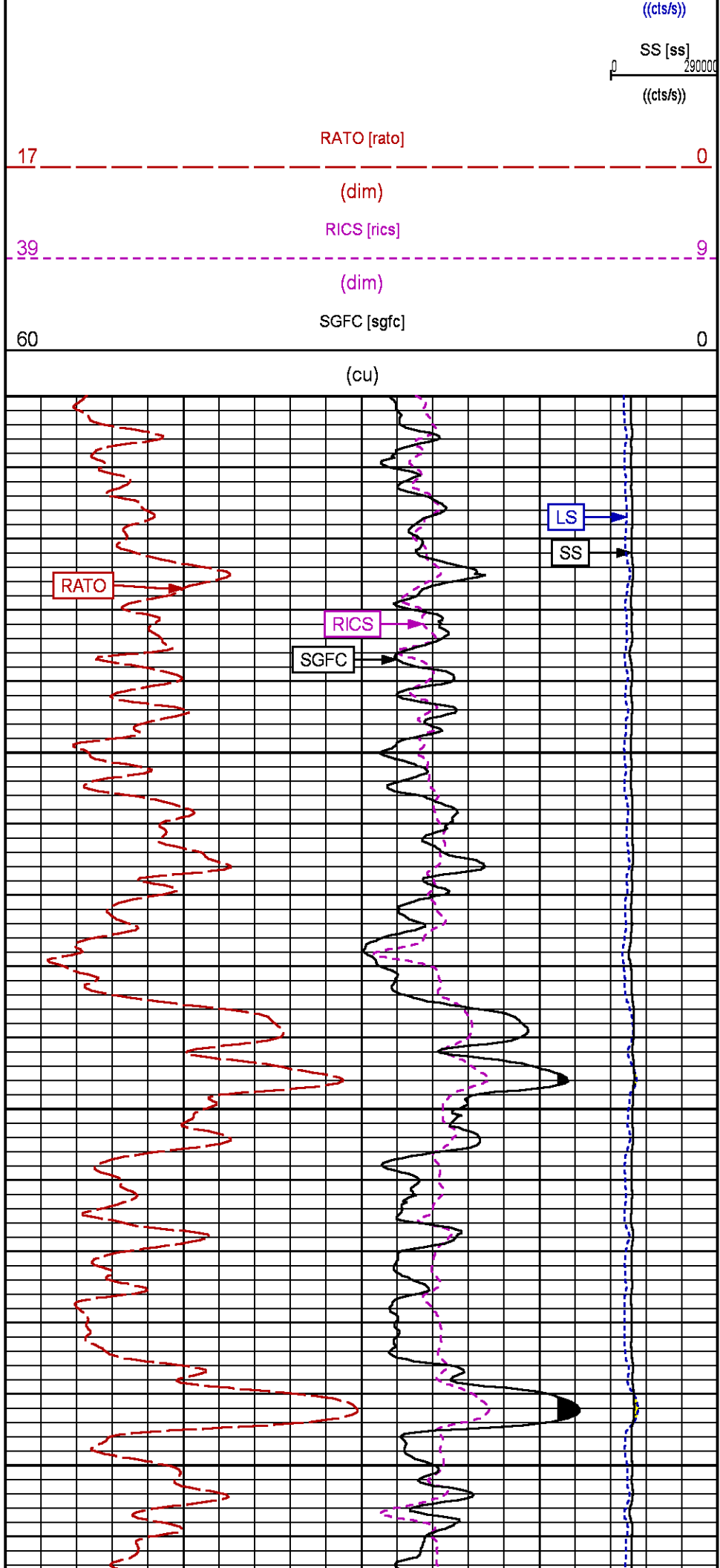
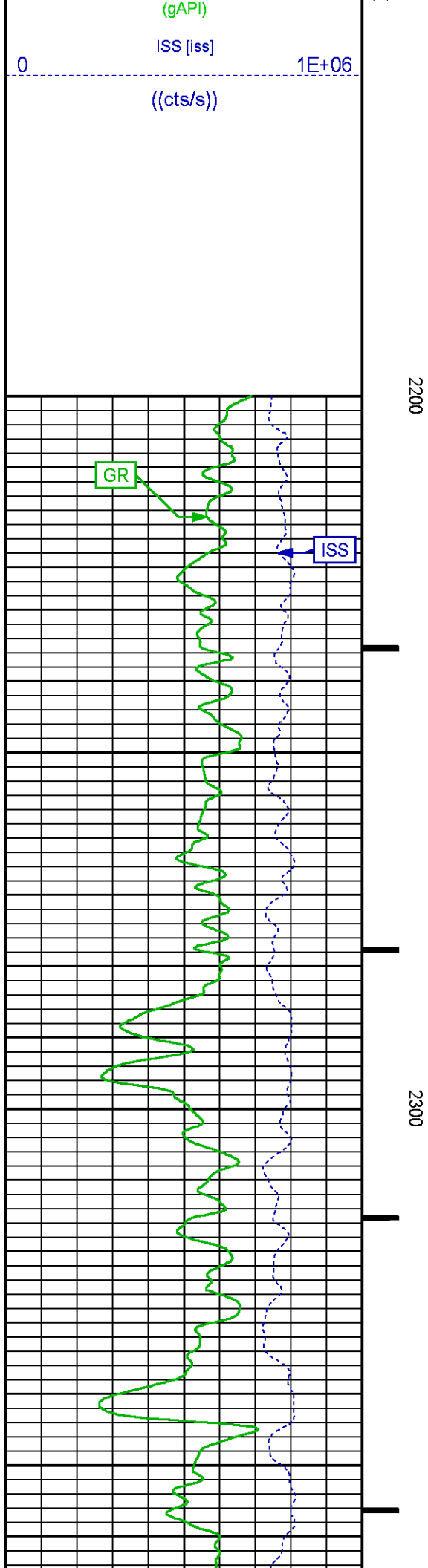
Data File 1 : F1 : SysA:/dat1a/LARAMIE_BCU_0993_21_04W/04W_RPM_GSAND.xtf
Created On : Nov 27 16:19:39 2018
Company : LARAMIE ENERGY LLC
Well : BCU 0993-21-04W
Field : BUZZARD CREEK
File Interval : 2126.25 - 2843.25 Feet
OCT : p353hA

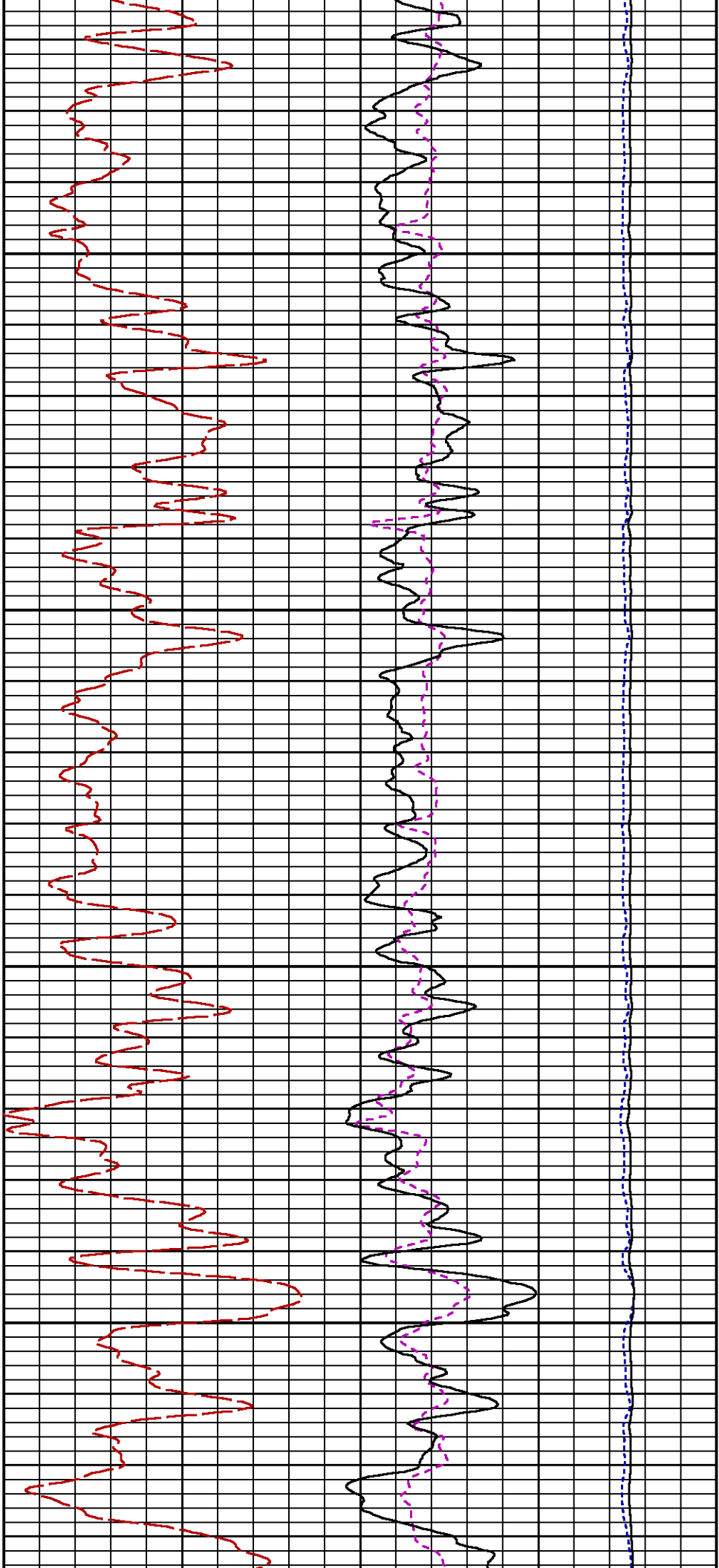
GR BACKUP

GAMMA RAY [gr]

FEET

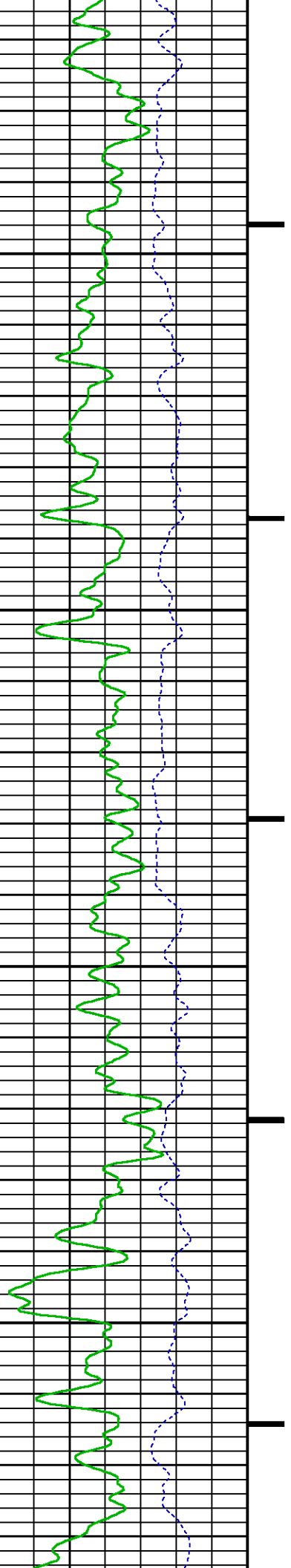
LS [ls]
0 29000

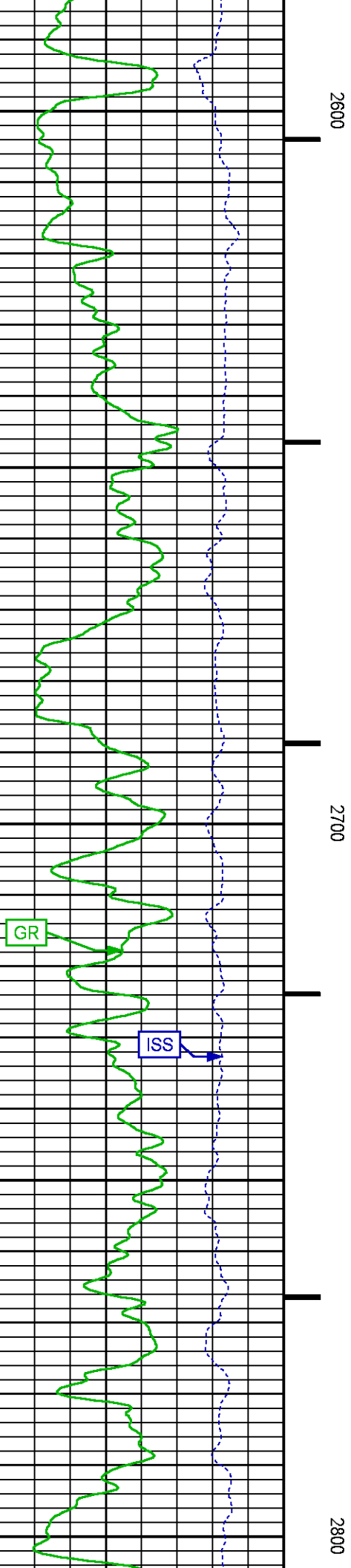
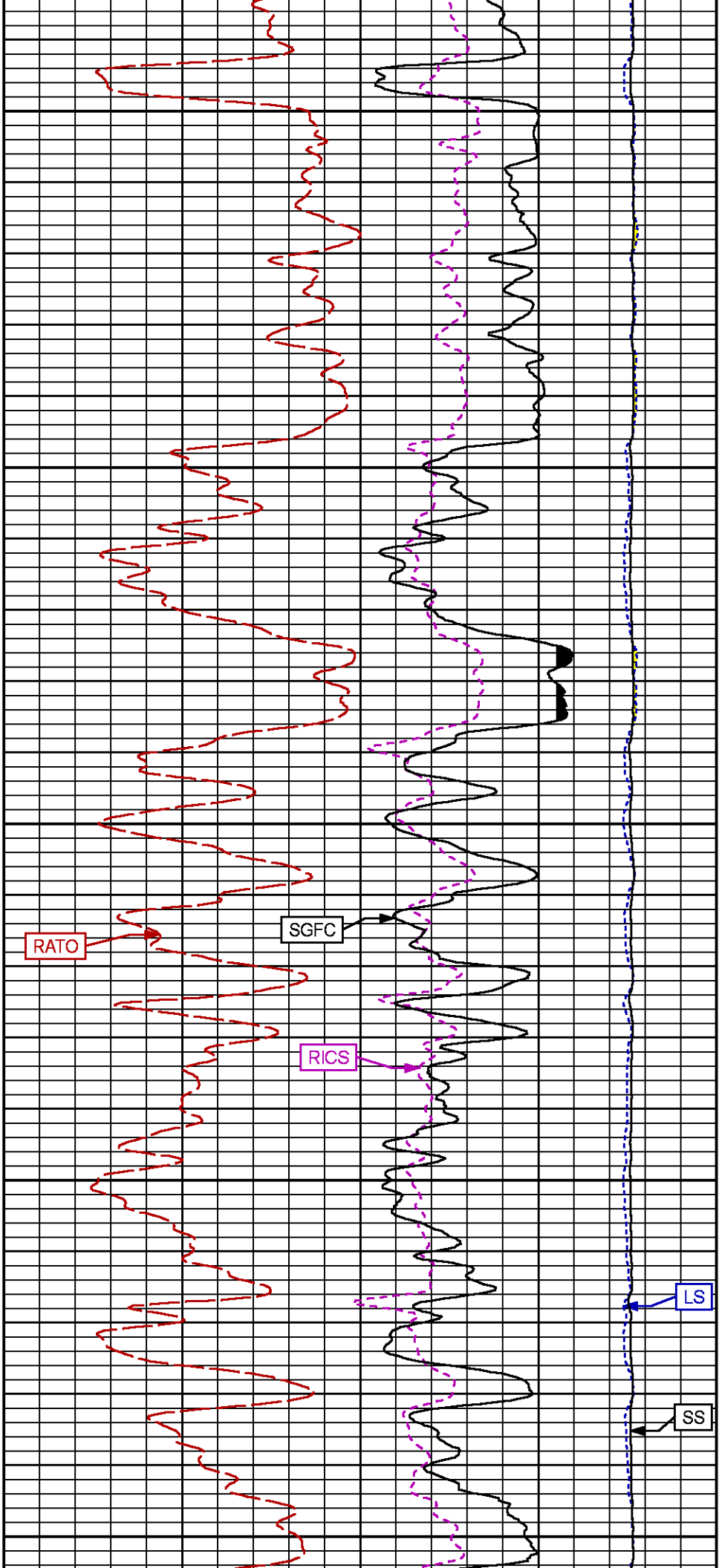


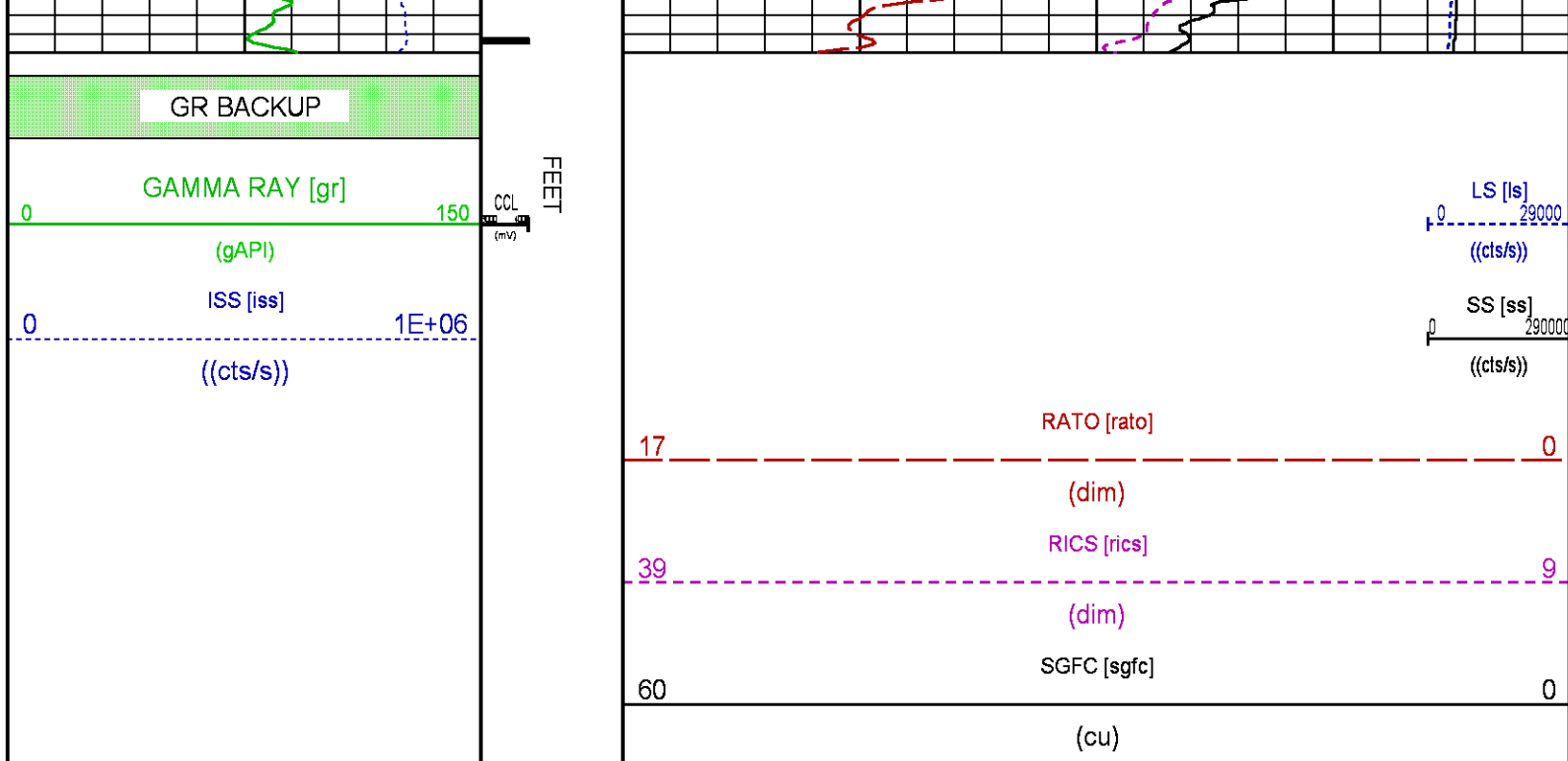


2400

2500







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: Tue Nov 27 17:09:31 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_BCU_0993_21_04W/p353hA02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4155.766 ft BOTTOM DEPTH: 7623.208 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 27 12:50:54 2018	CASING COLLAR LOCATOR
F1:GR	Nov 27 12:50:54 2018	GAMMA RAY
F1:ISS	Nov 27 12:50:54 2018	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Nov 27 12:50:54 2018	LONG SPACE COUNT RATE
F1:RATO	Nov 27 12:50:54 2018	SHORT/LONG SPACE COUNT RATE RATIO

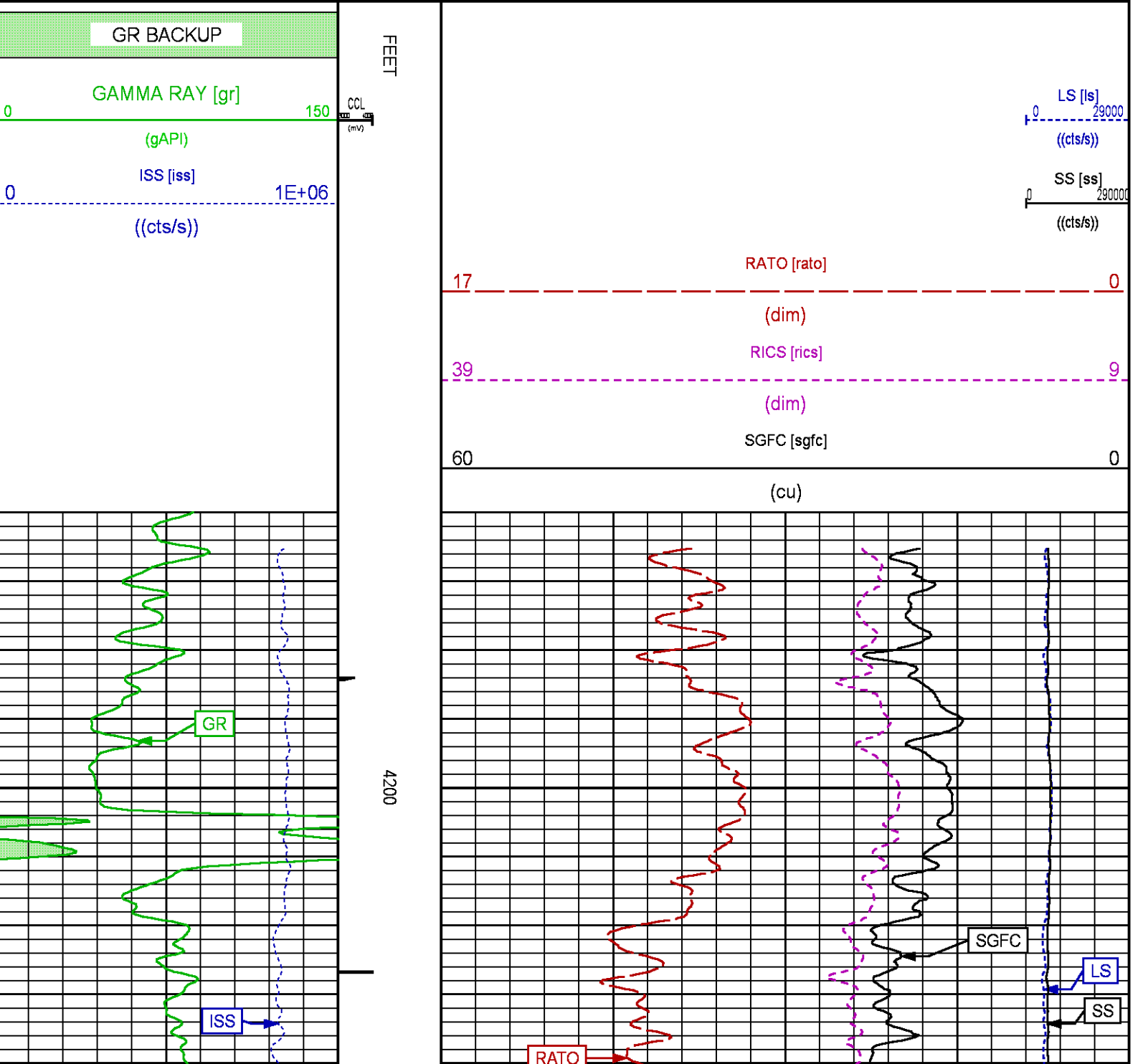
F1:RARS	Nov 27 12:50:54 2018	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO
F1:RICS	Nov 27 12:50:54 2018	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO ((ISS/CSS))
F1:SGFC	Nov 27 12:50:54 2018	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	Nov 27 12:50:54 2018	SHORT SPACE COUNT RATE

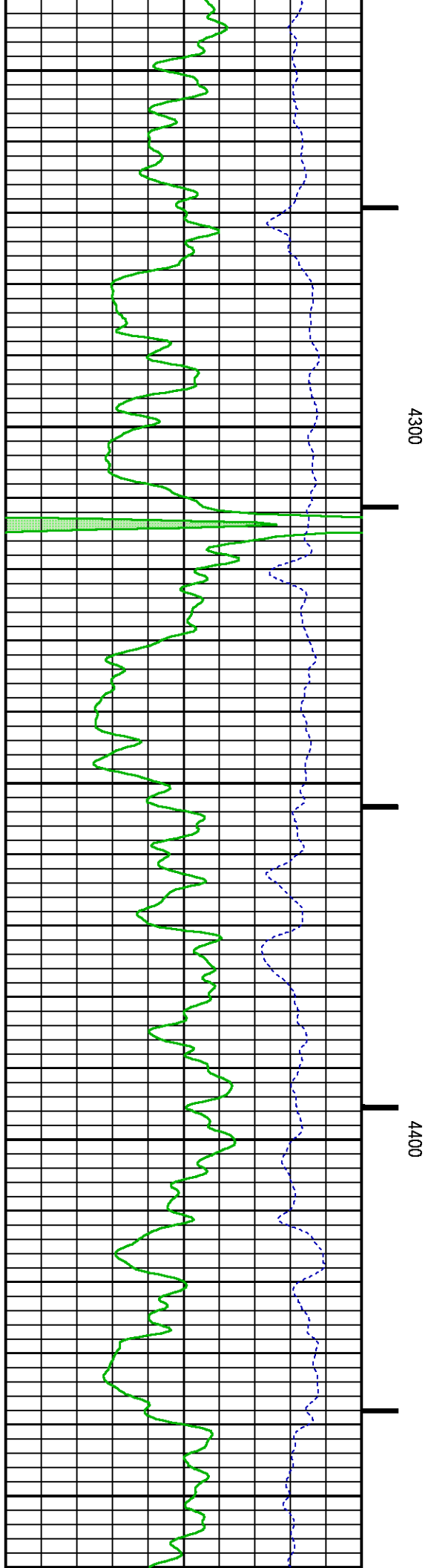
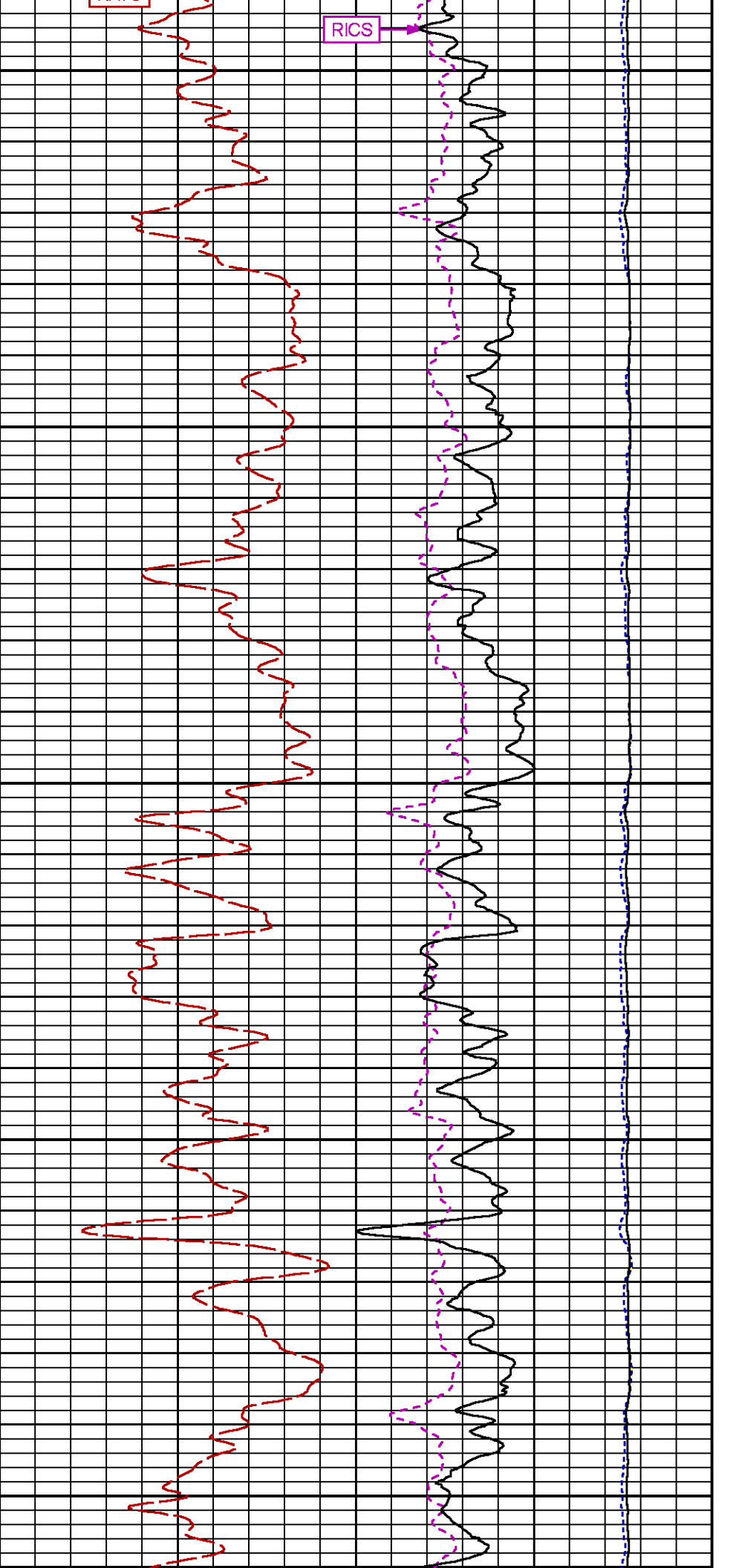
CURVE MEASURE POINT OFFSET

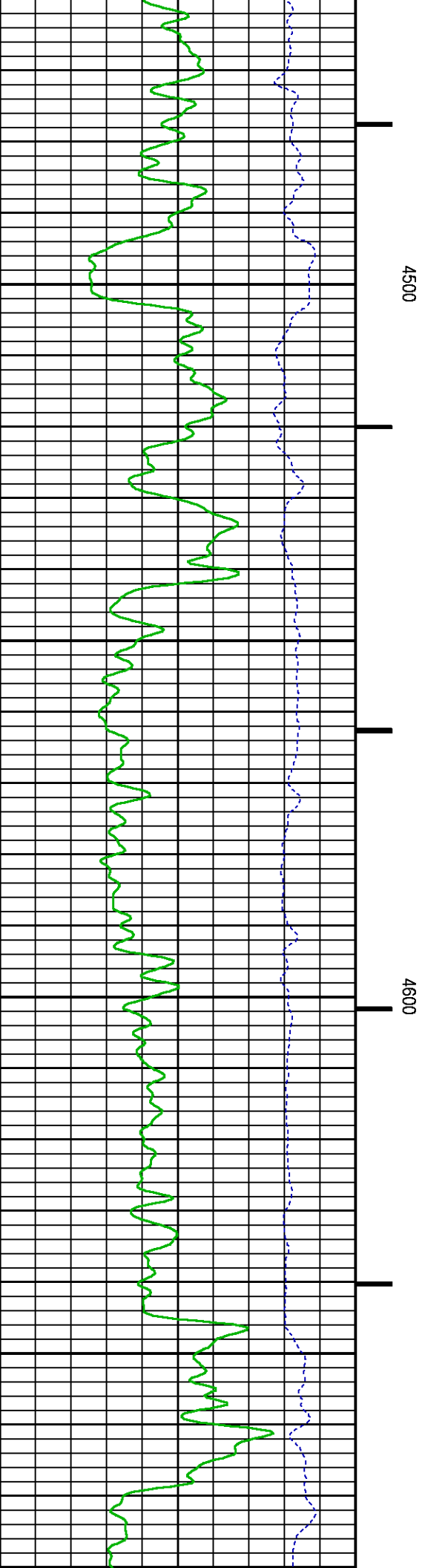
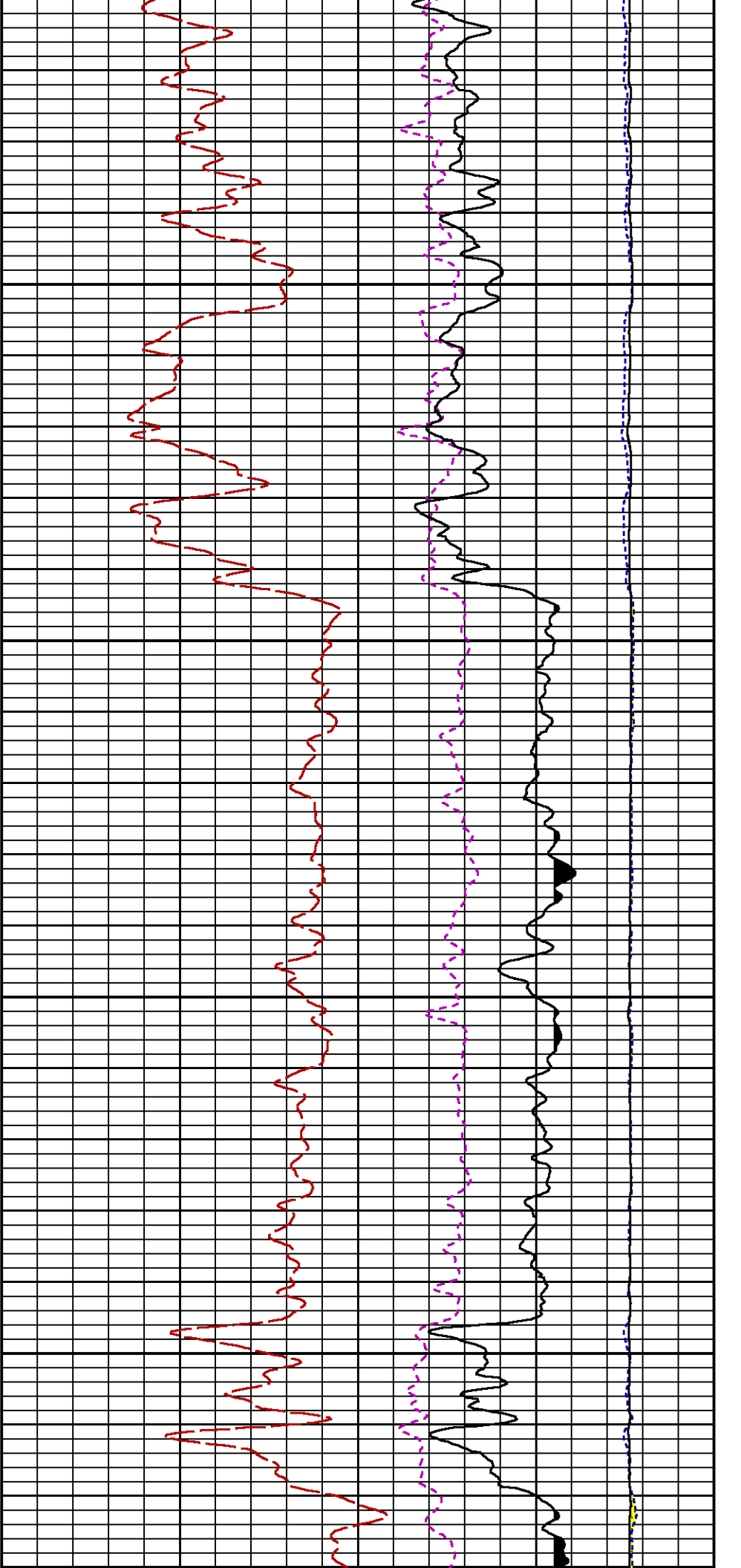
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75	SS	-12.75

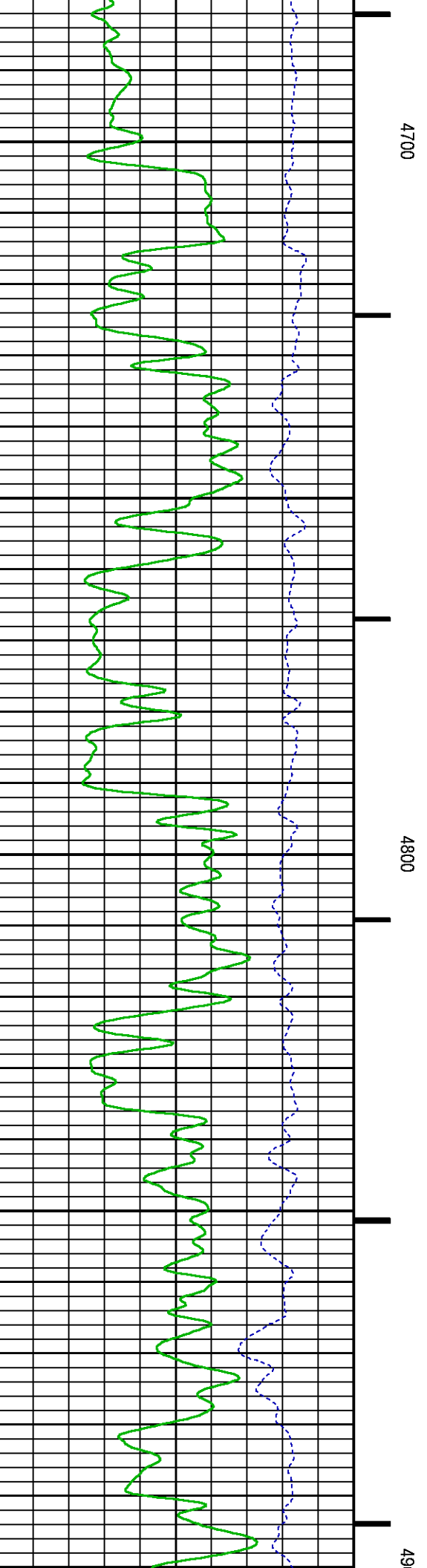
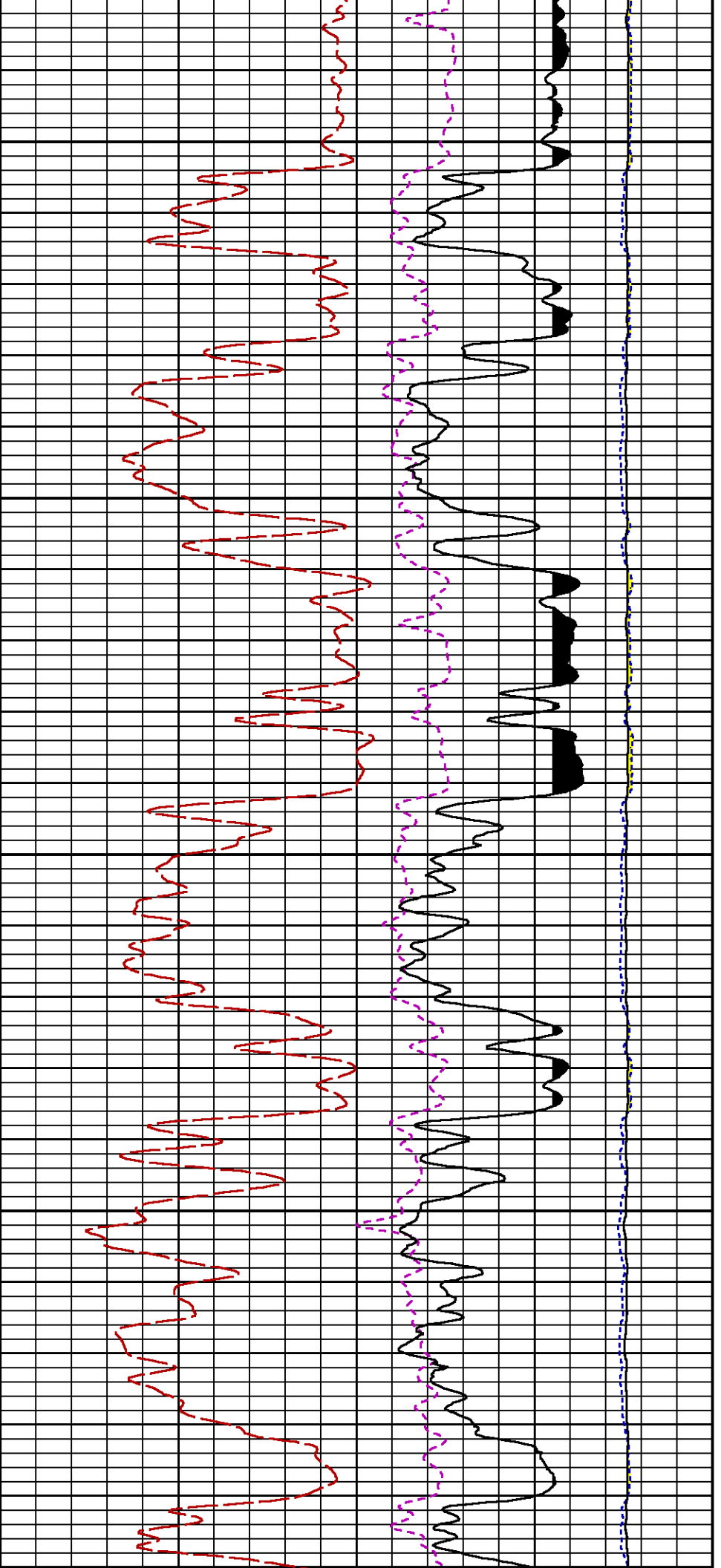
Presentation : SysA:/dat1a/LARAMIE_BCU_0993_21_04W/04W_RPM_WF.fvpdf [5"/100' Scale]
Plot Interval : 4160 - 7629.5 Feet

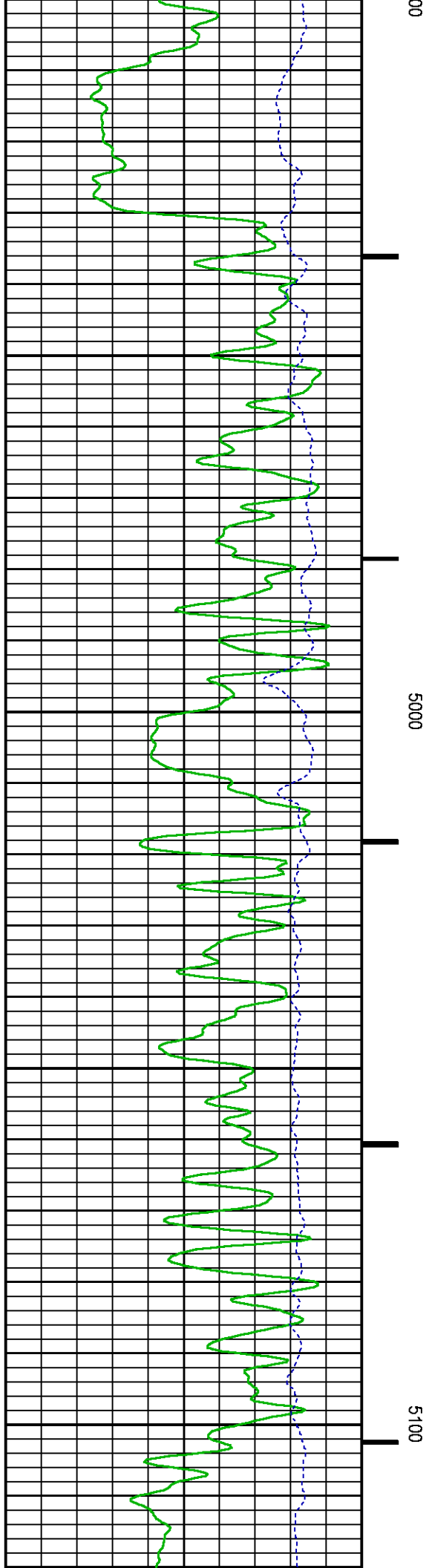
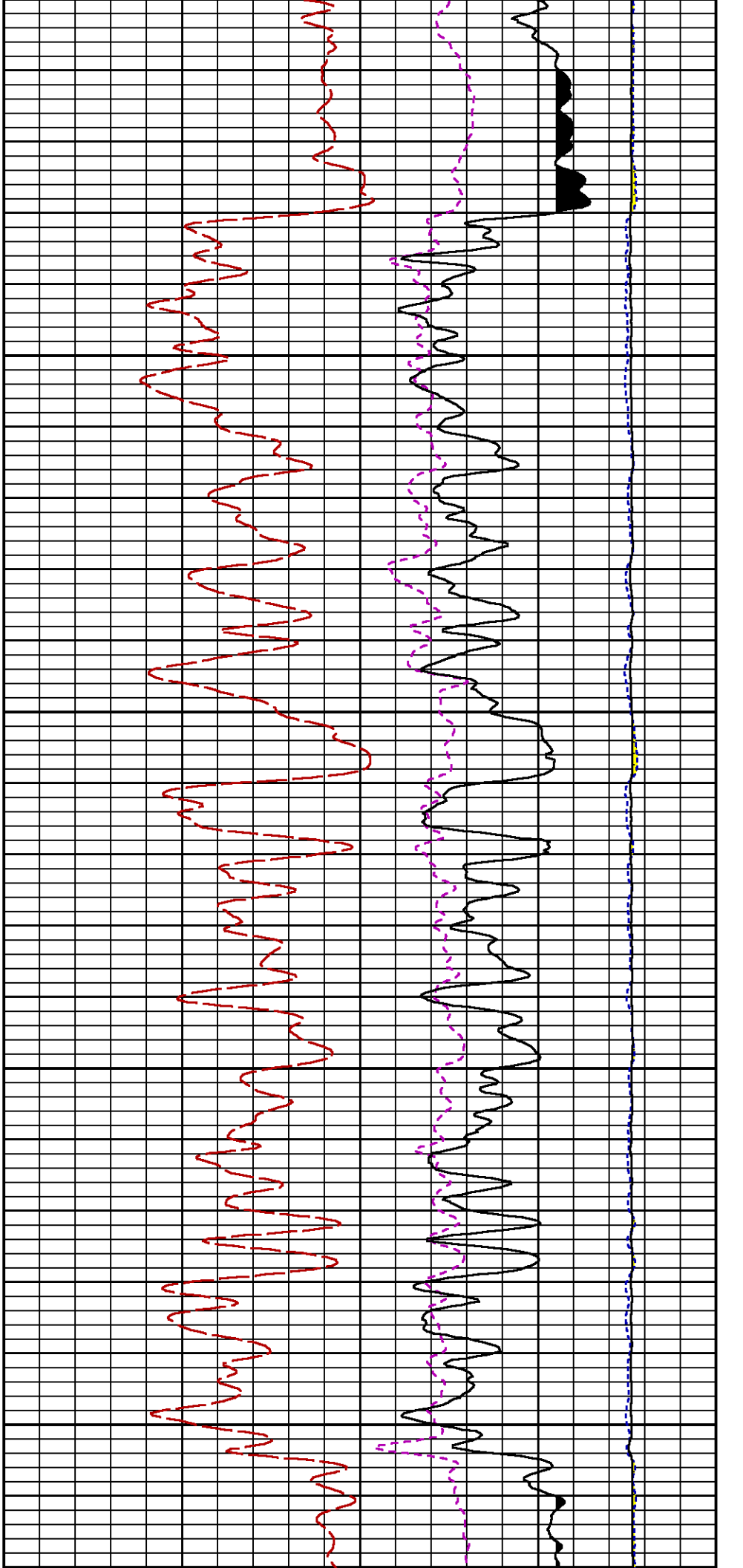
Data File 1 : F1 : SysA:/dat1a/LARAMIE_BCU_0993_21_04W/04W_RPM_WF.xtf
Created On : Nov 27 12:50:54 2018
Company : LARAMIE ENERGY LLC
Well : BCU 0993-21-04W
Field : BUZZARD CREEK
File Interval : 4138.5 - 7629.75 Feet
OCT : p353hA

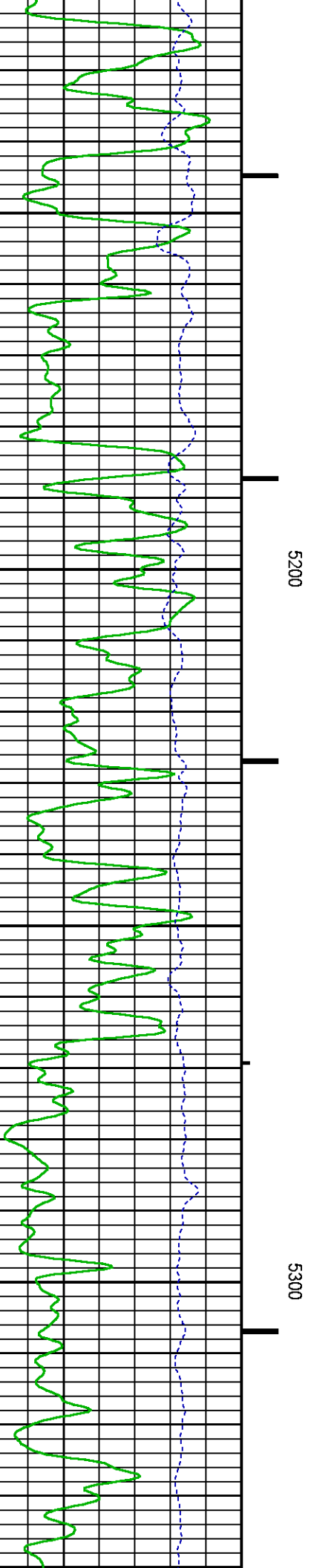
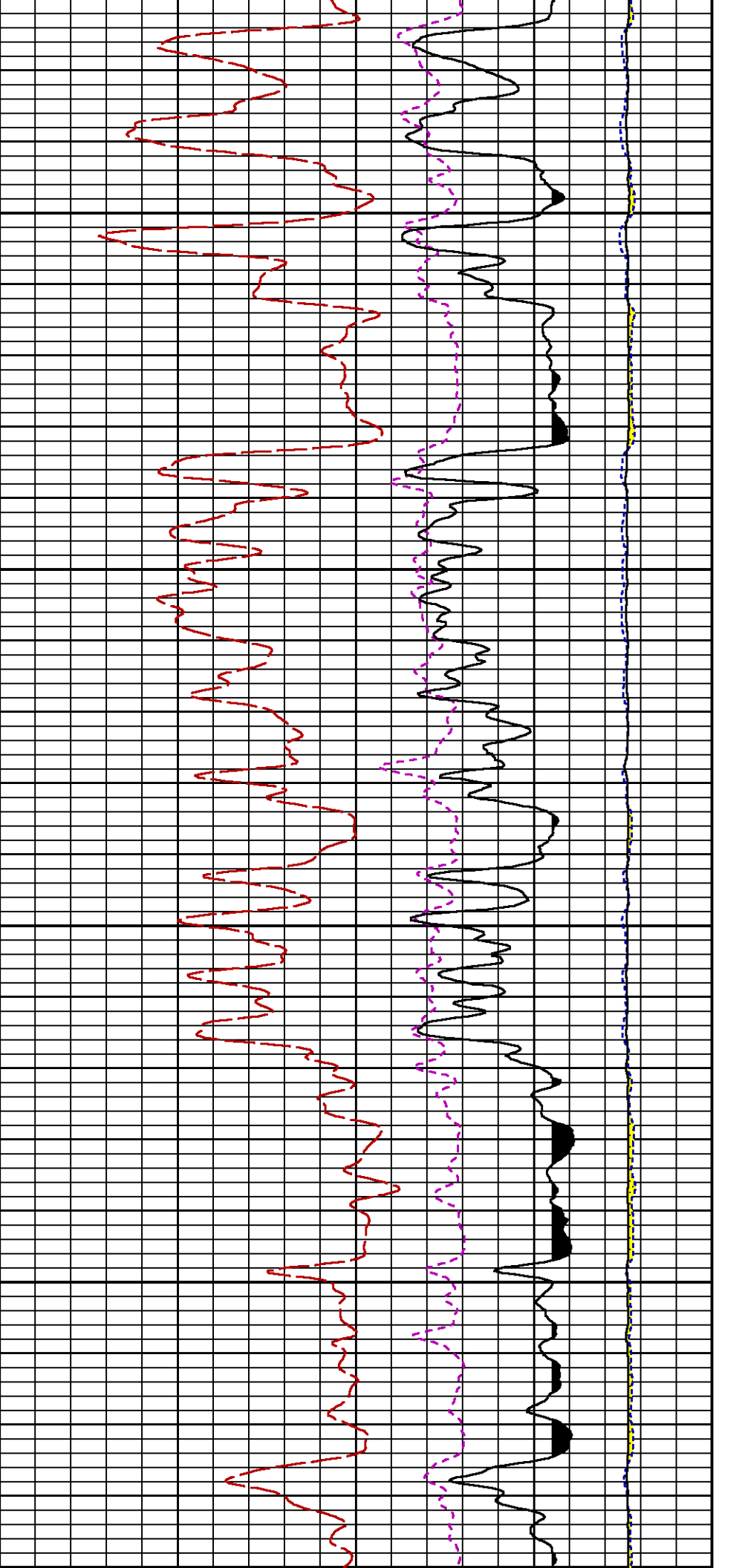


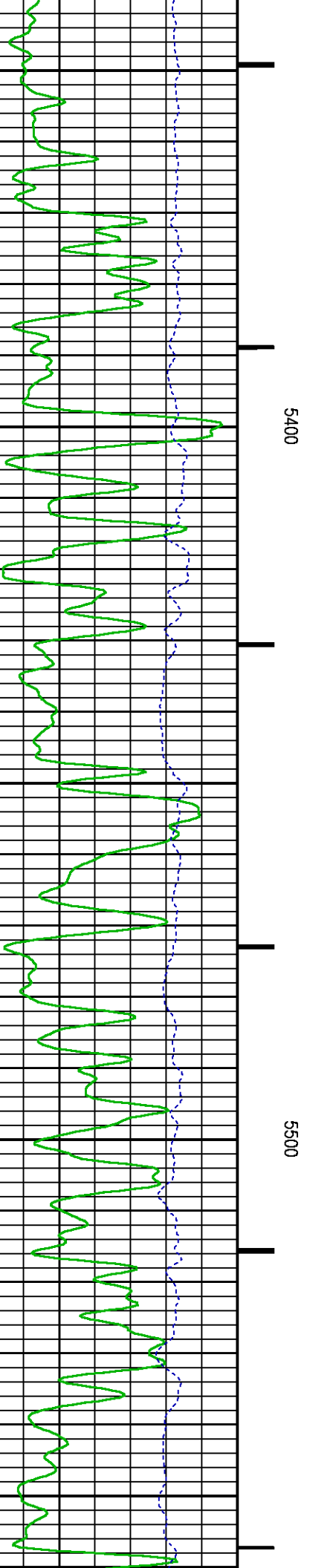
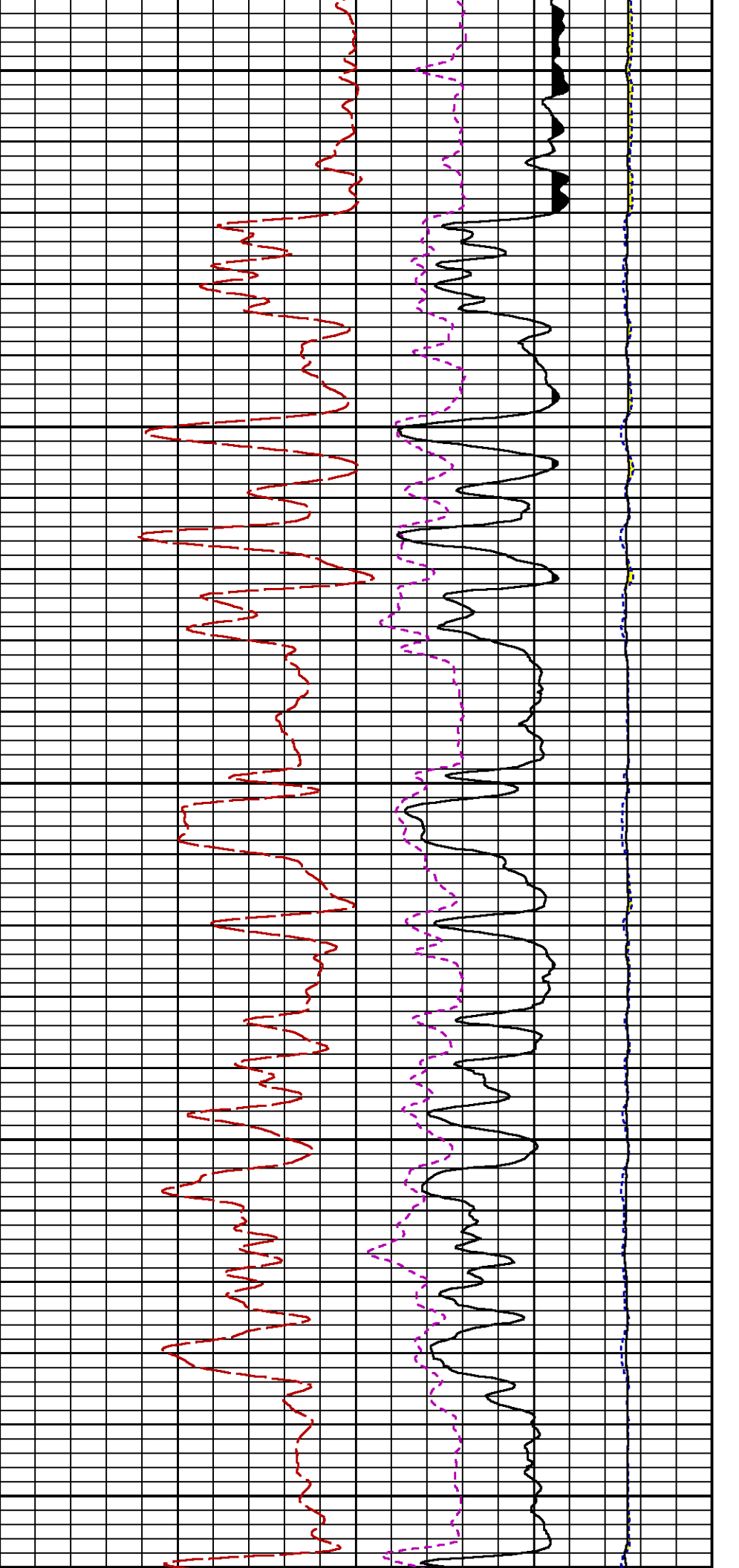


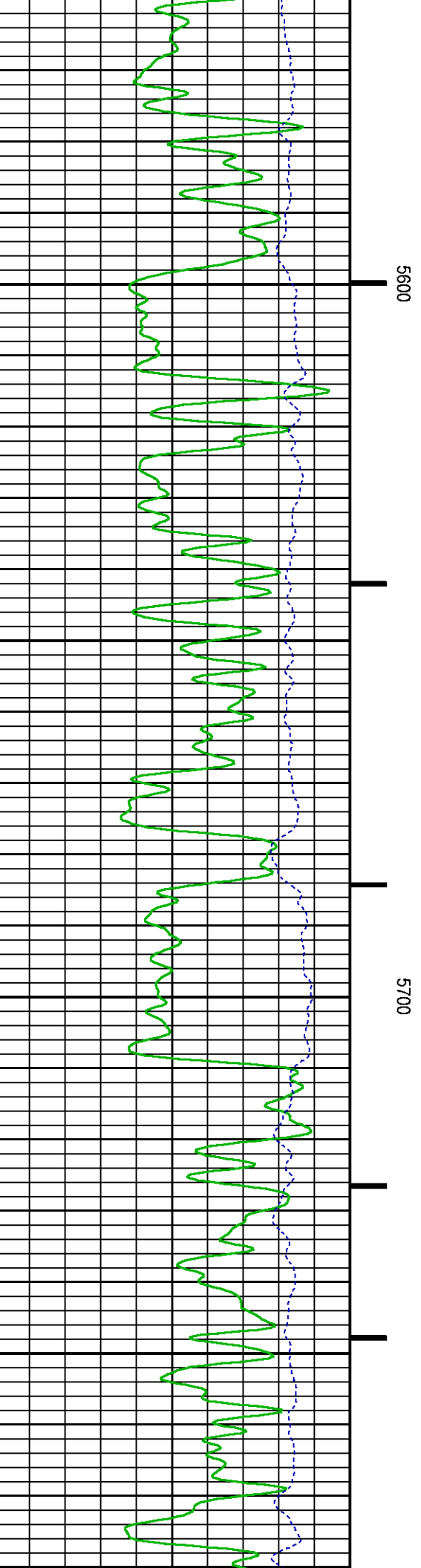
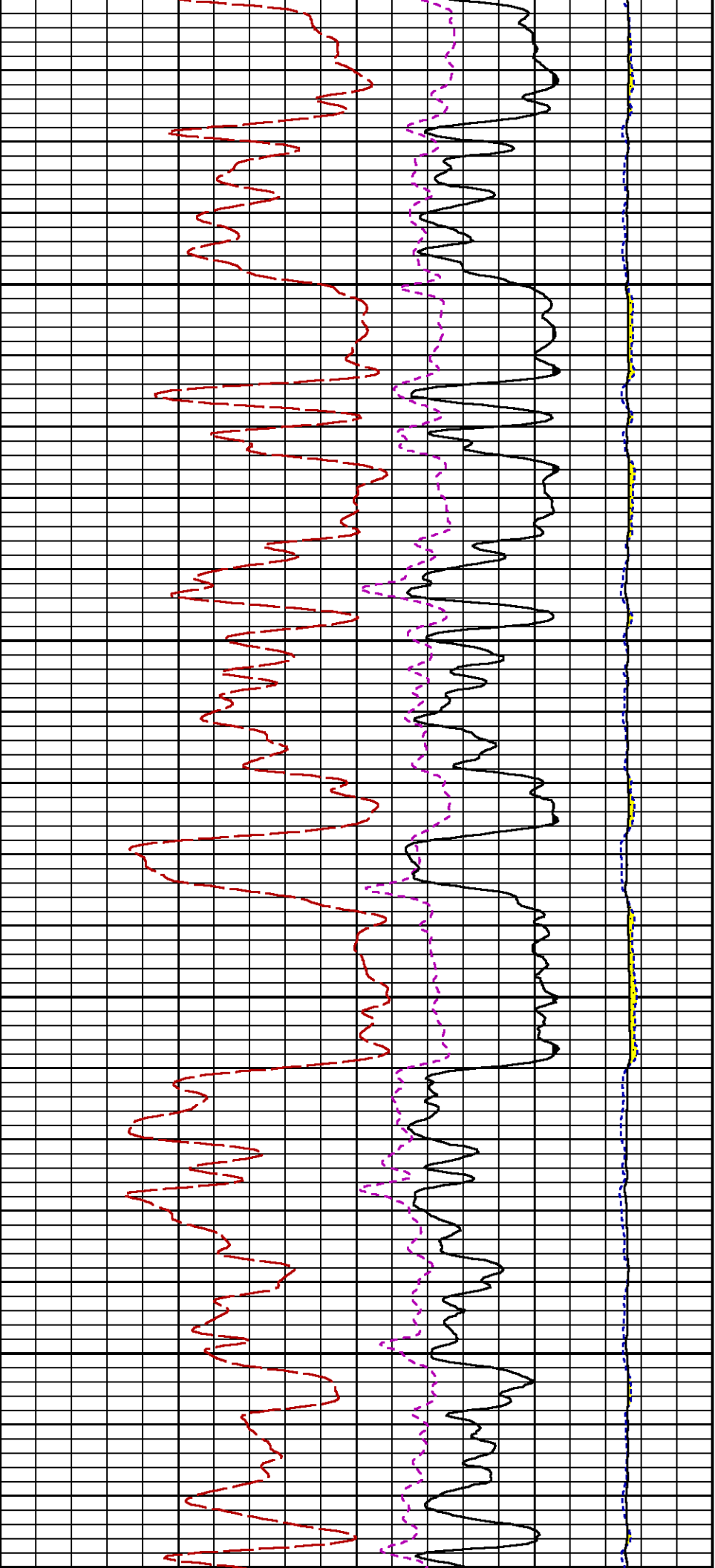


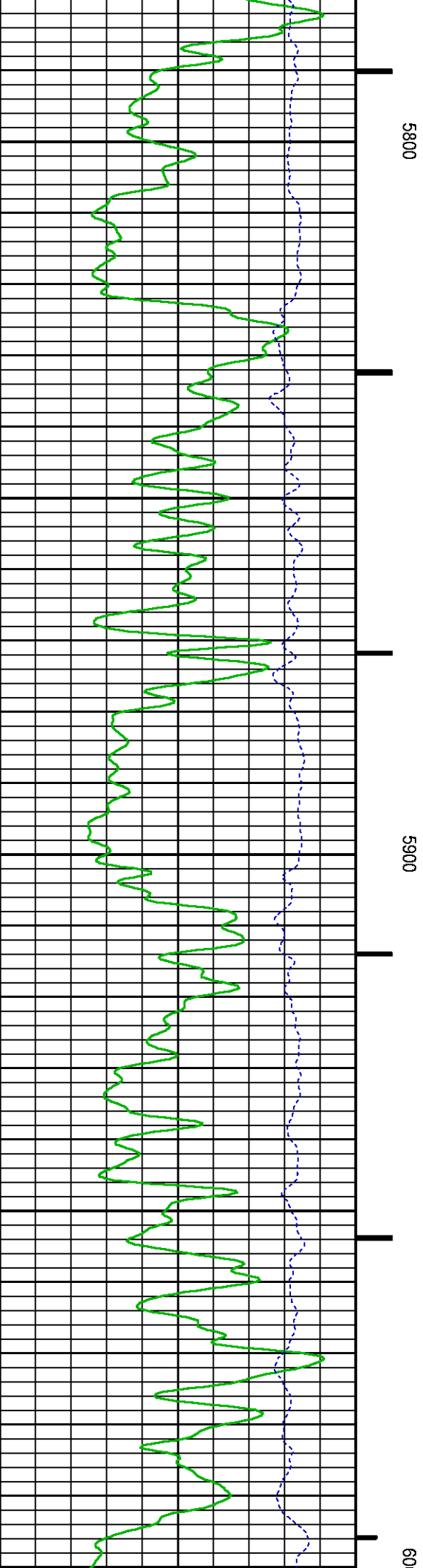
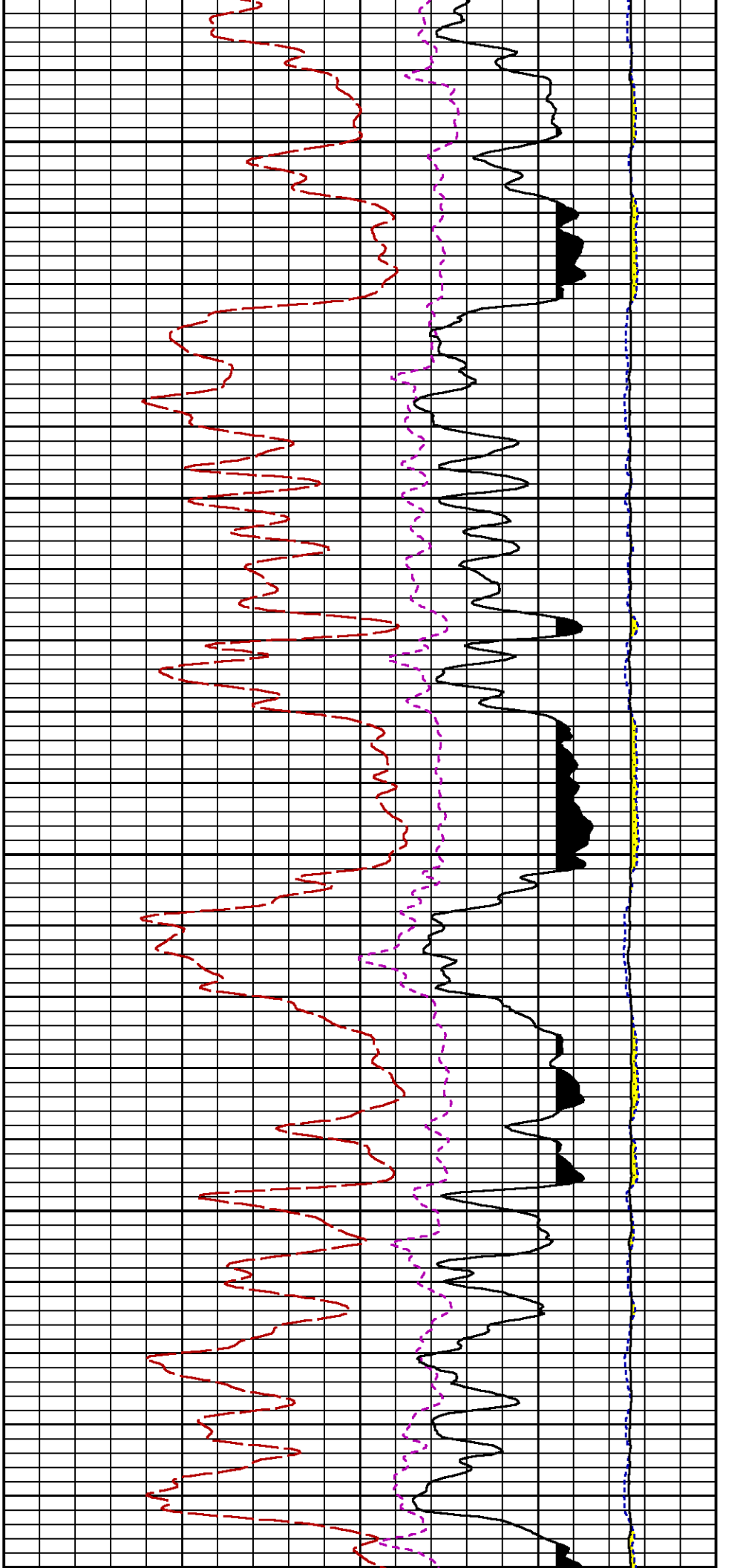


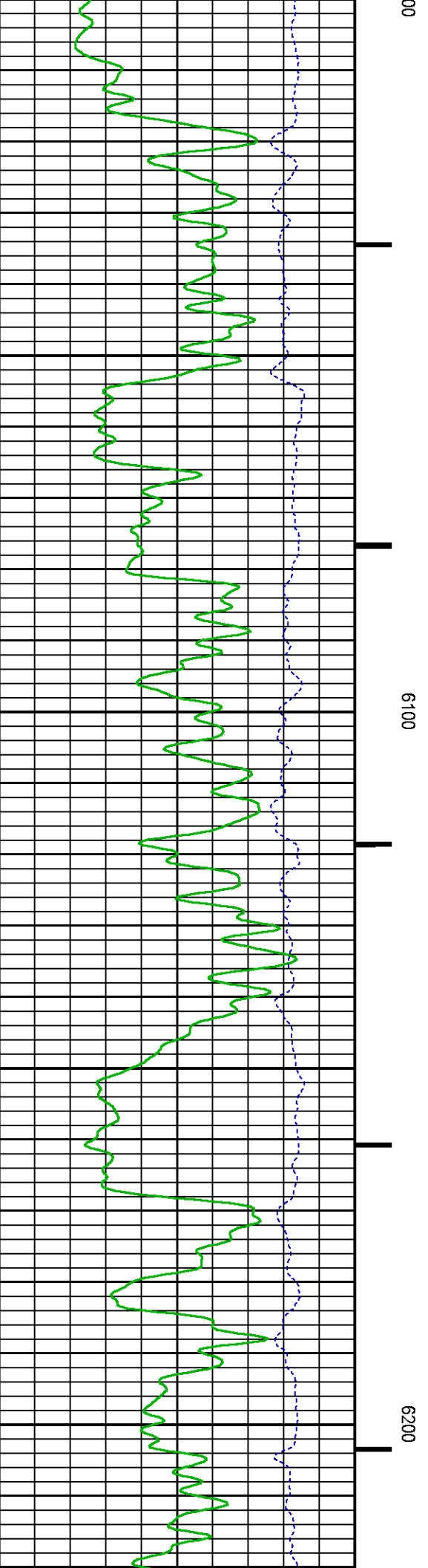
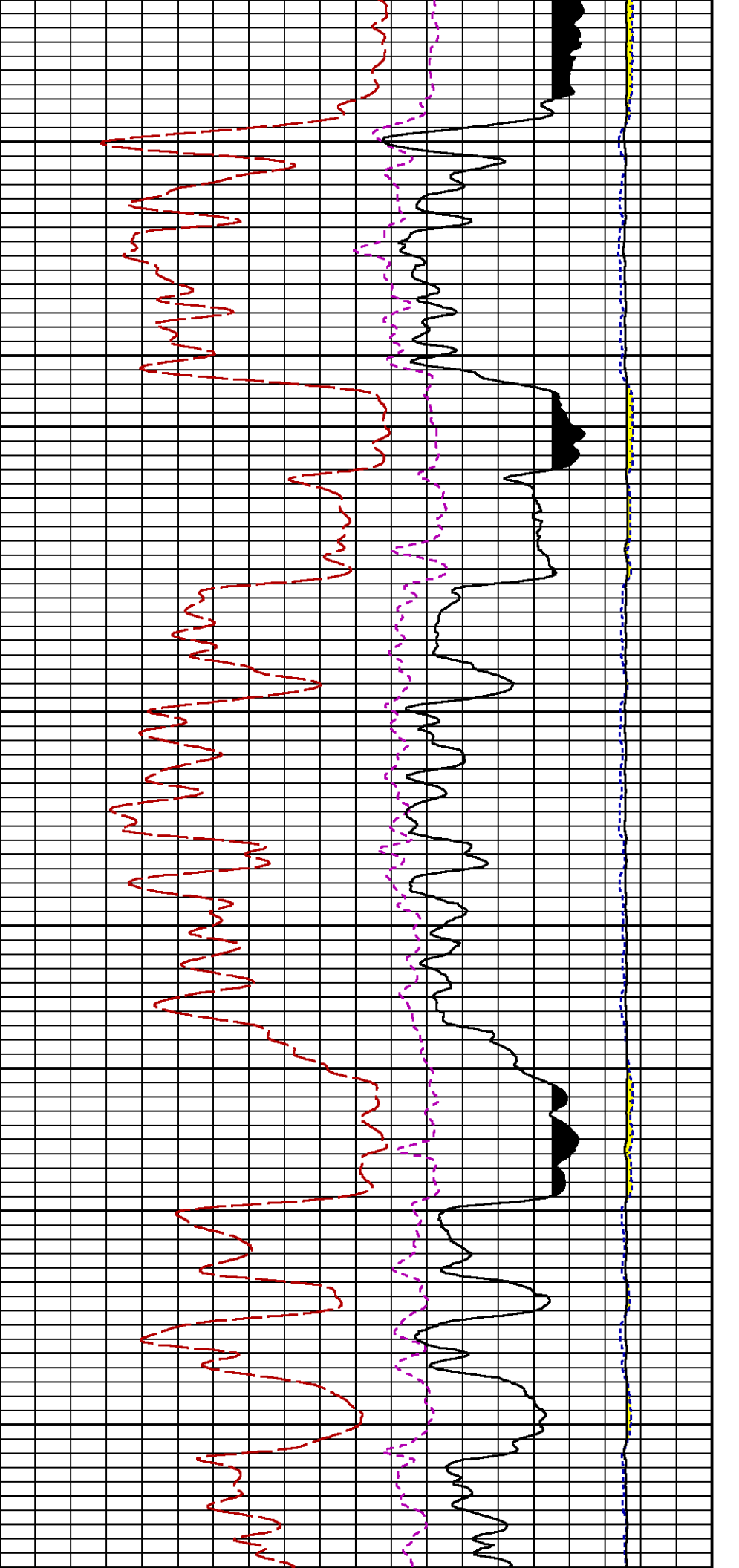


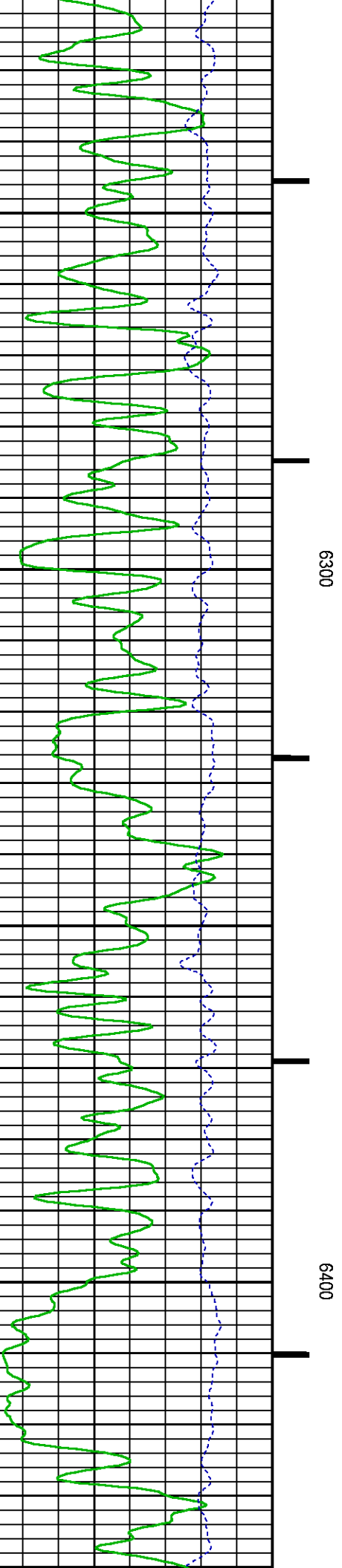
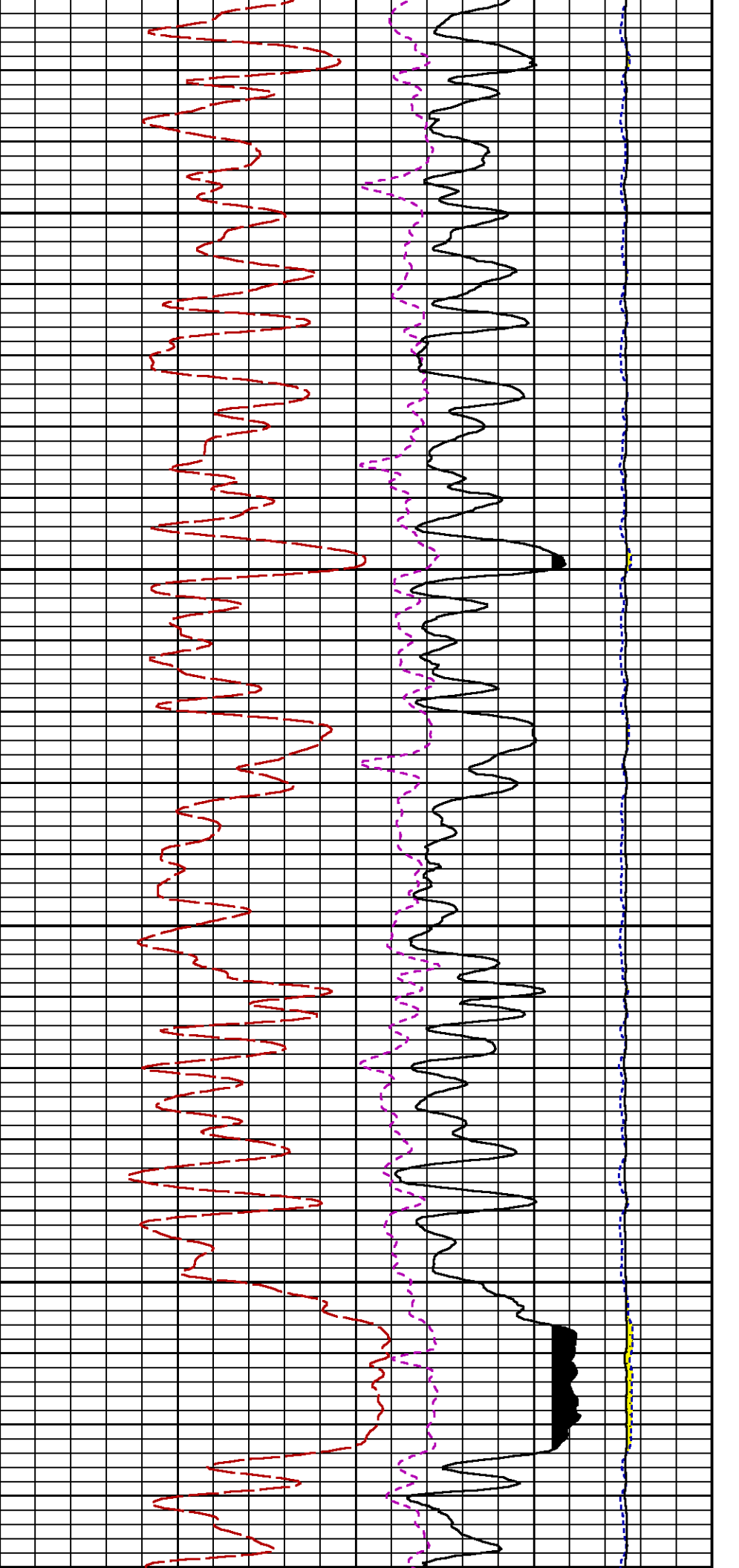


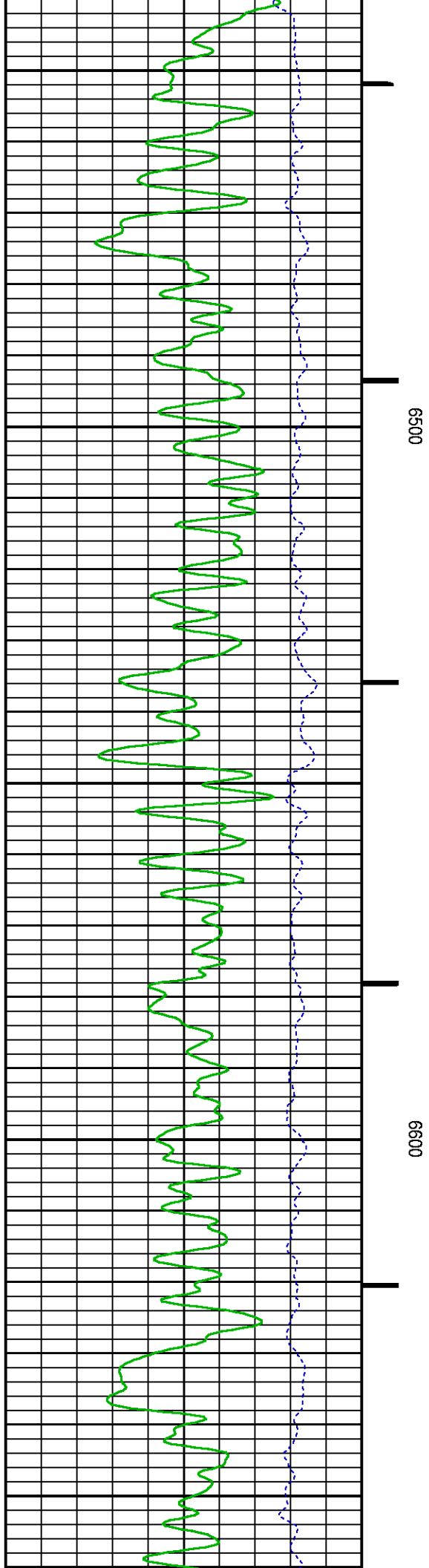
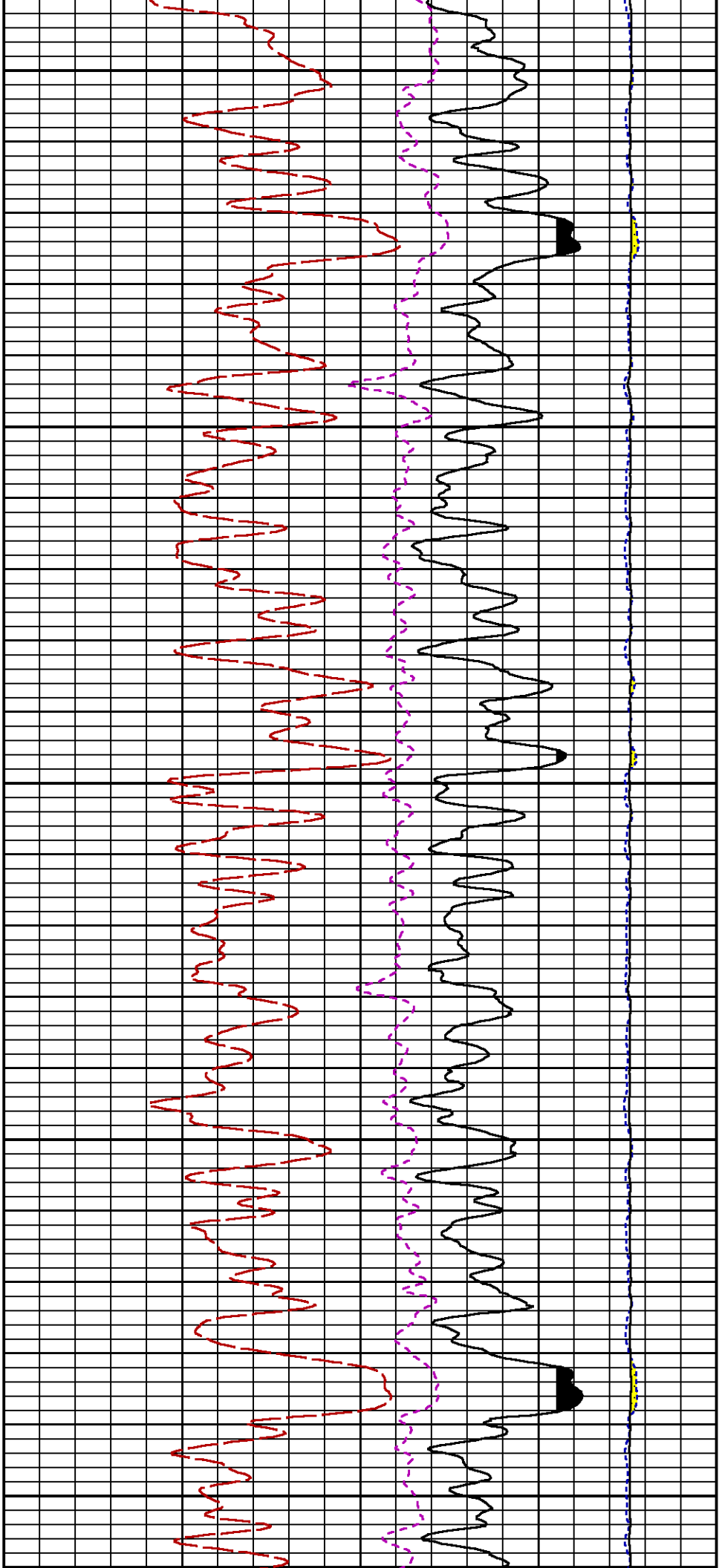


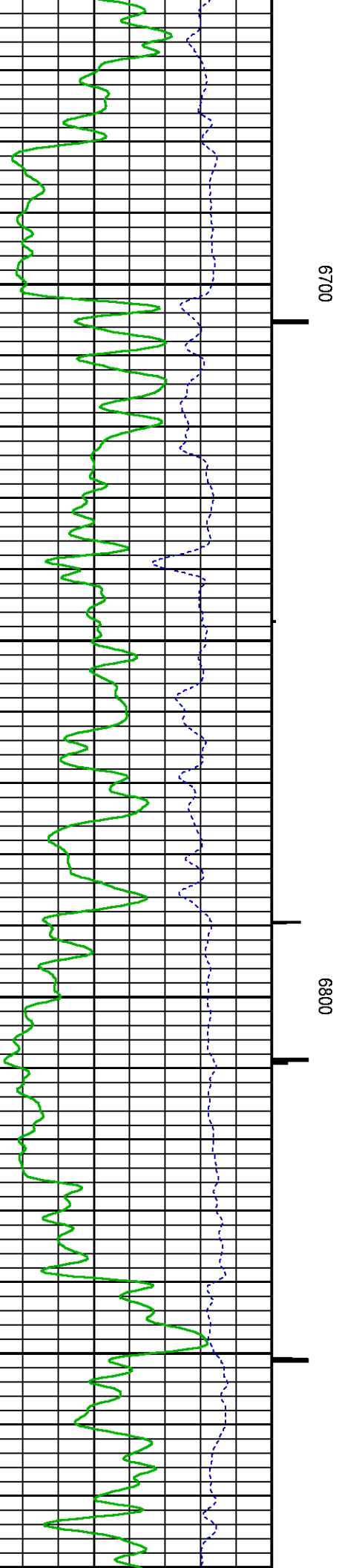
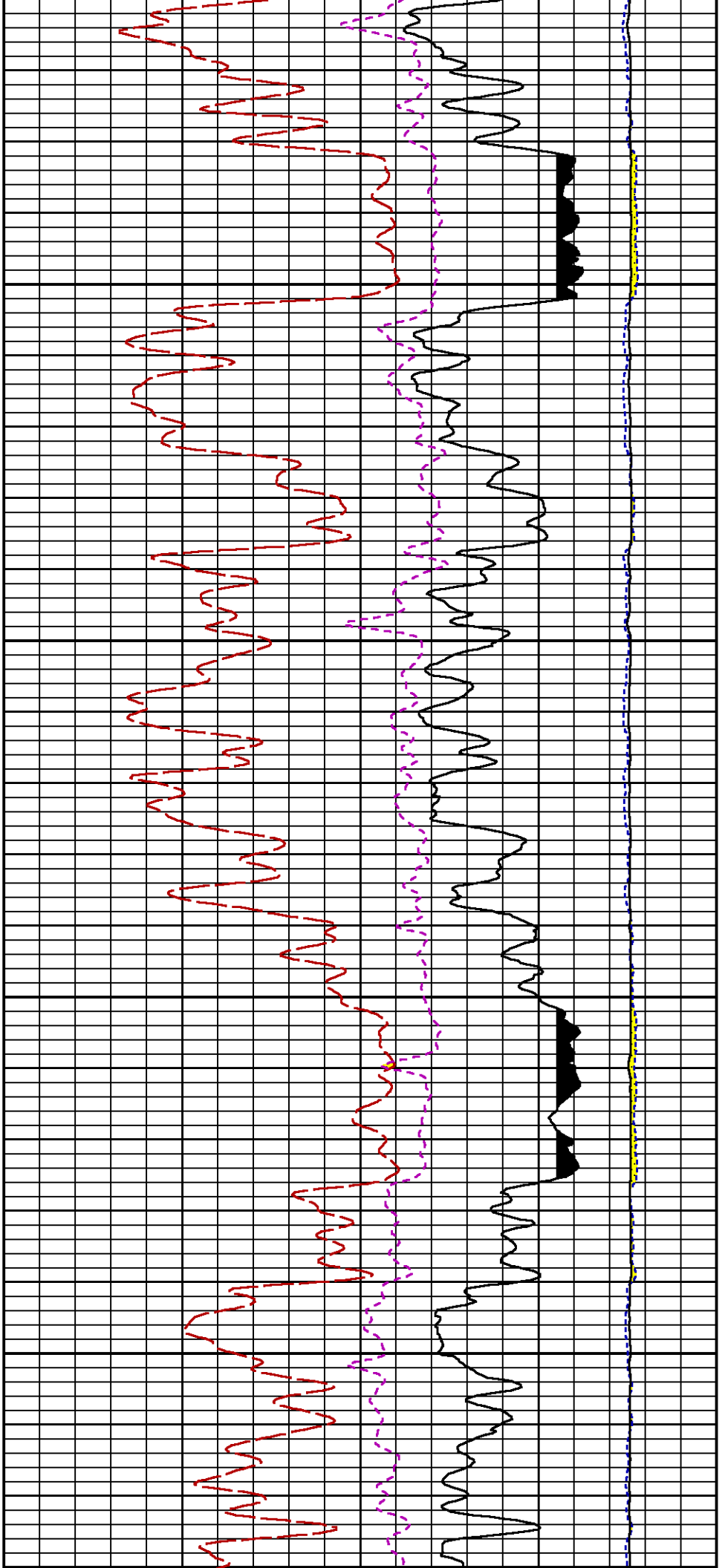


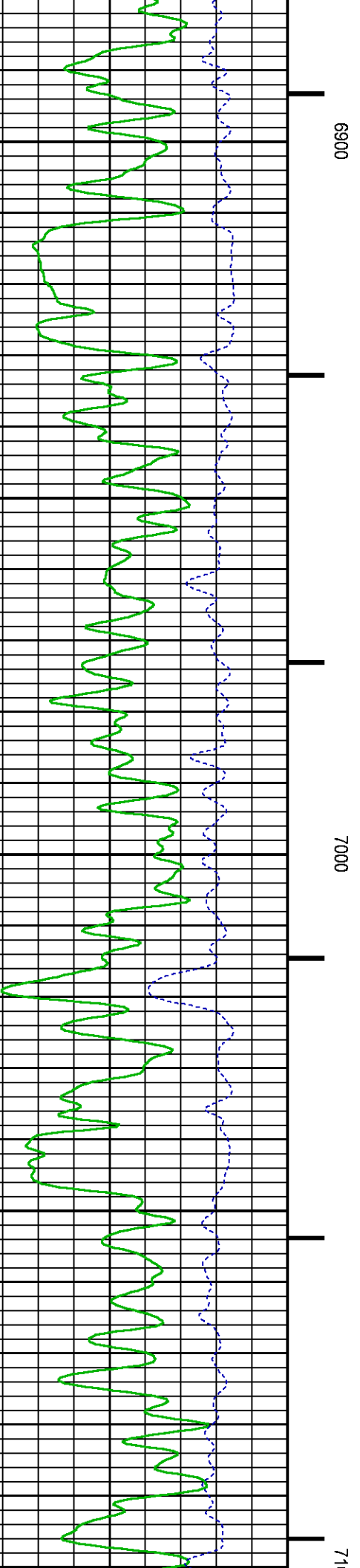
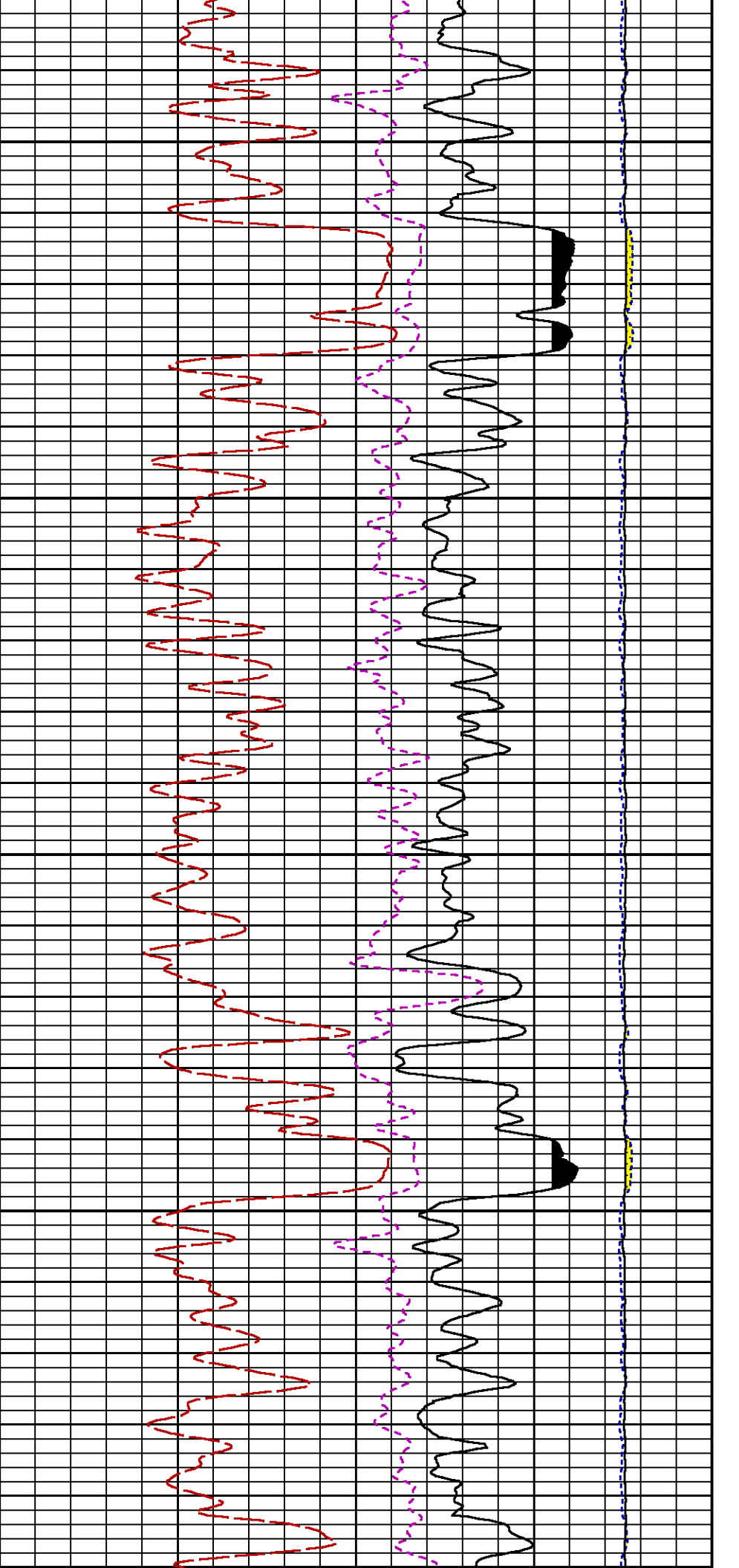


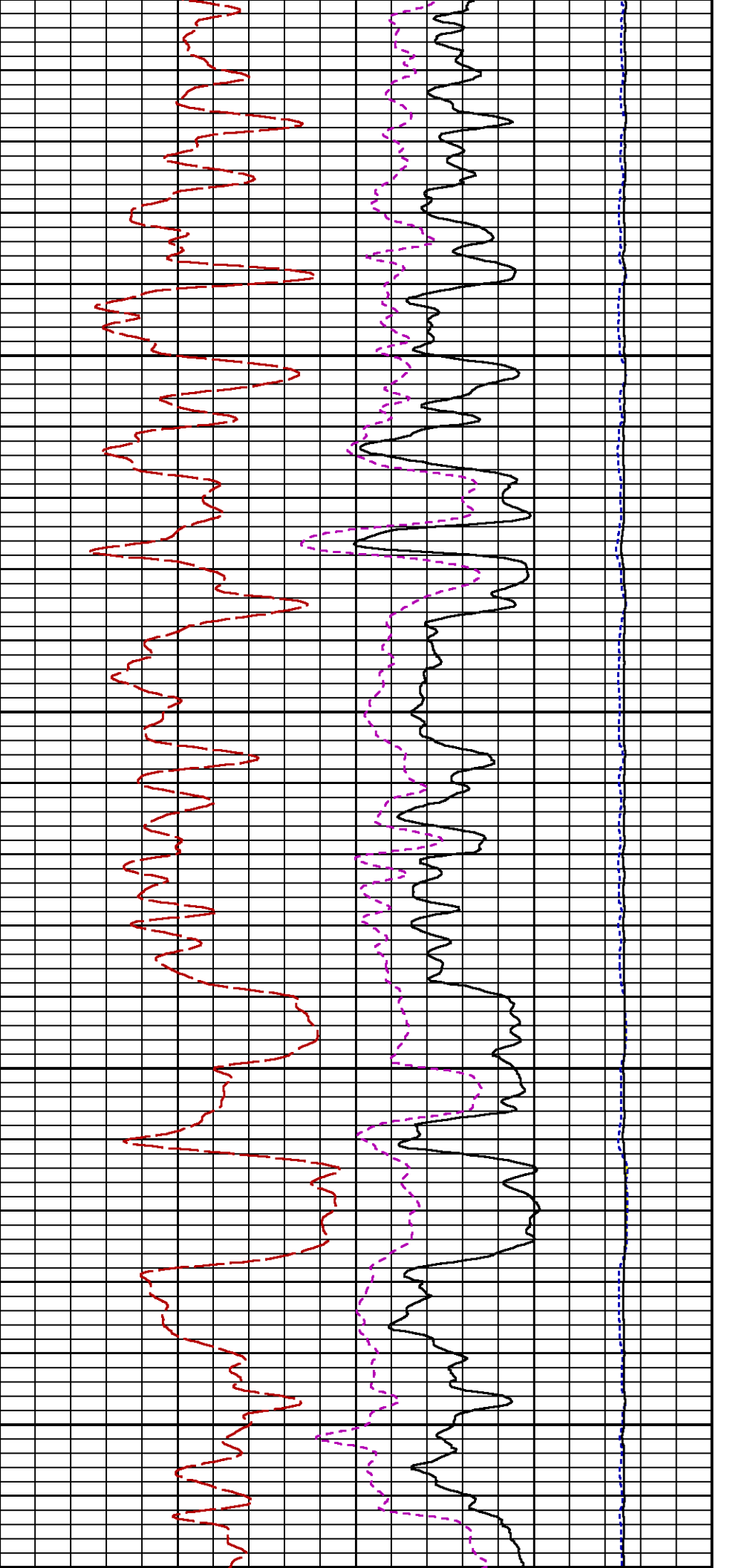








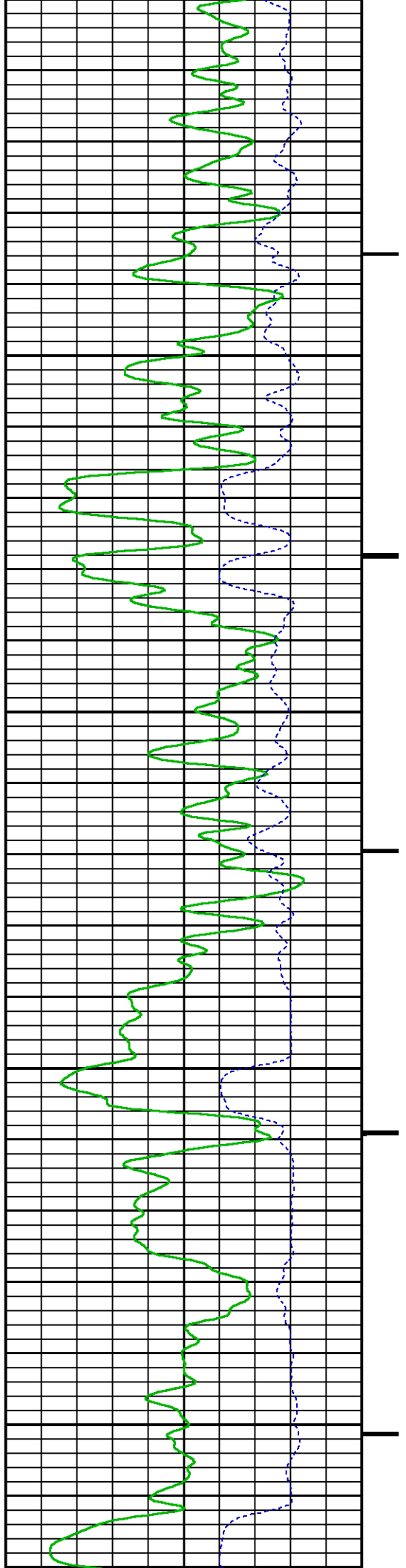


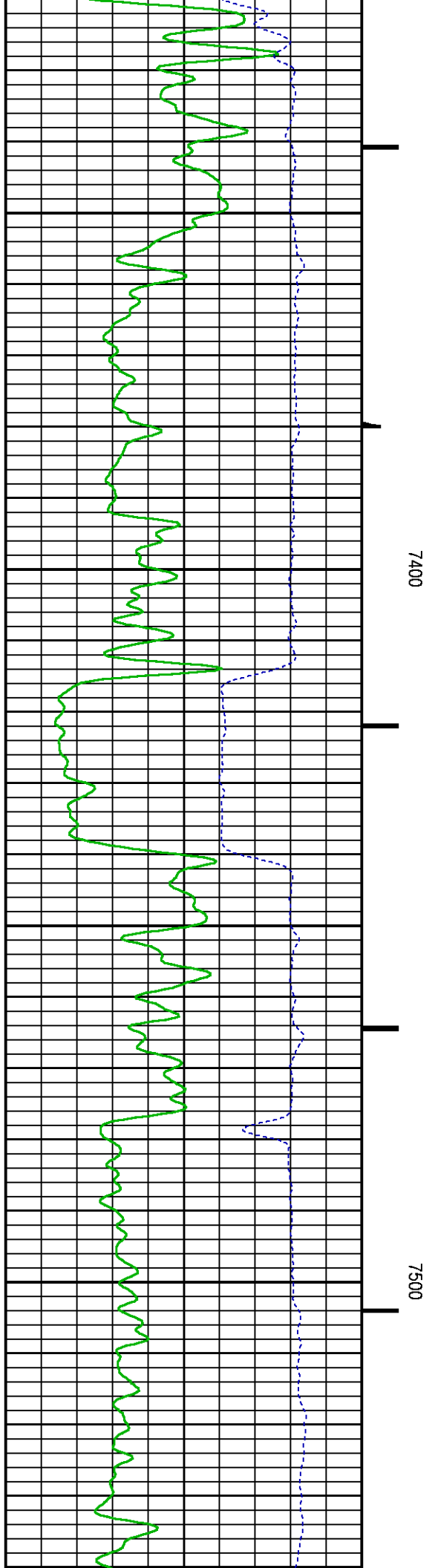
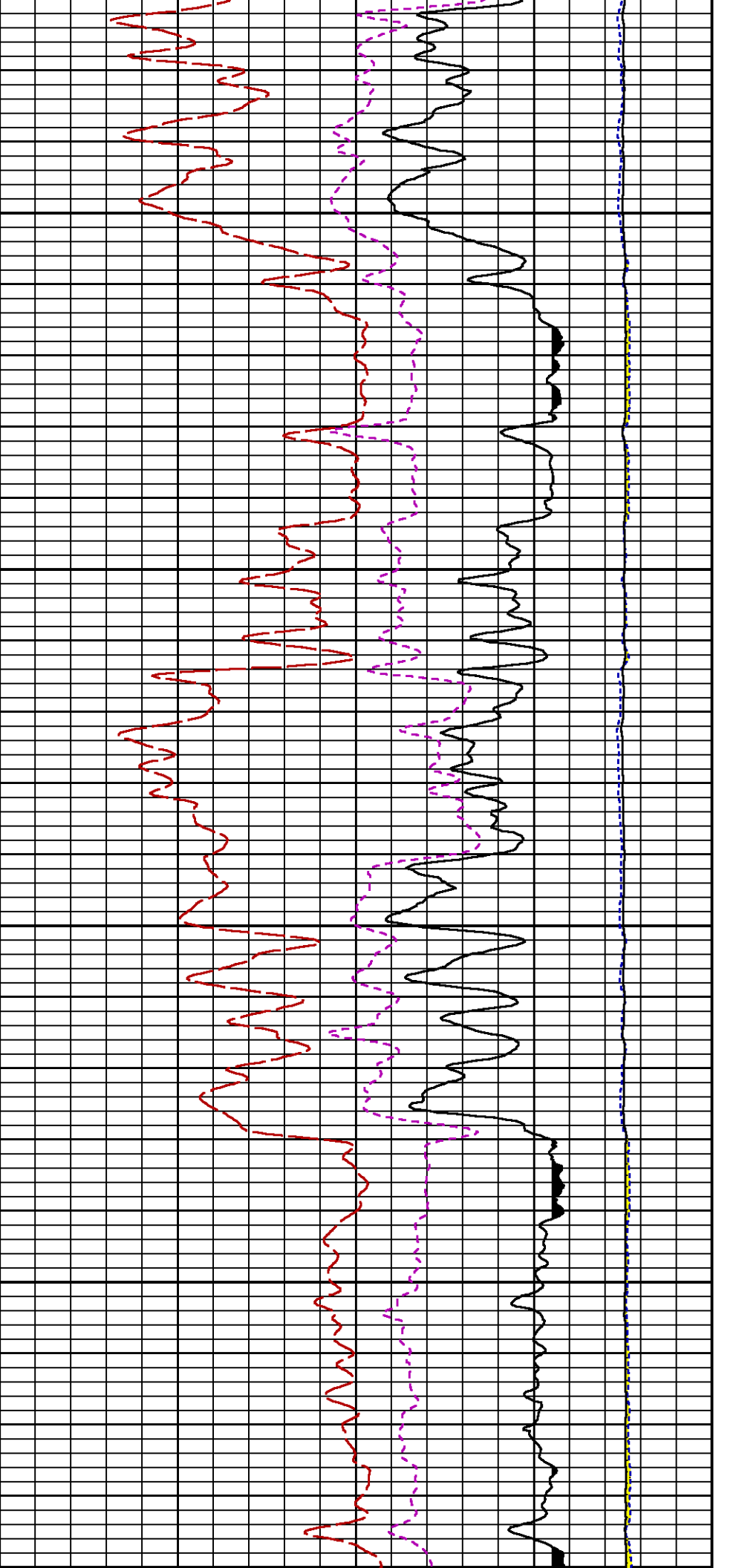


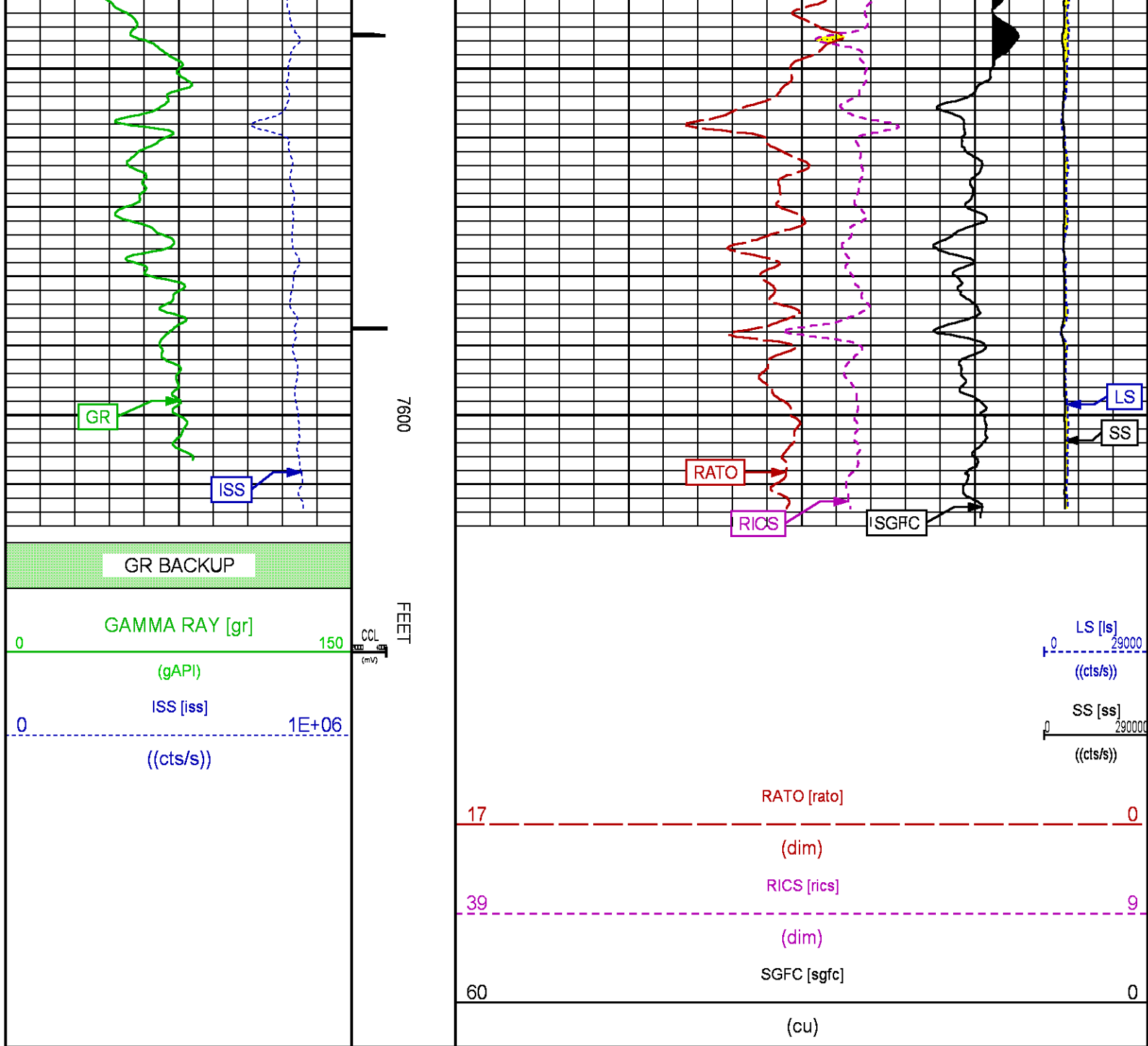
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7200

7300







ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017
Updates: 1

Plotted: Tue Nov 27 16:22:54 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_BCU_0993_21_04W/p353hA01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4730.500 ft BOTTOM DEPTH: 4987.269 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

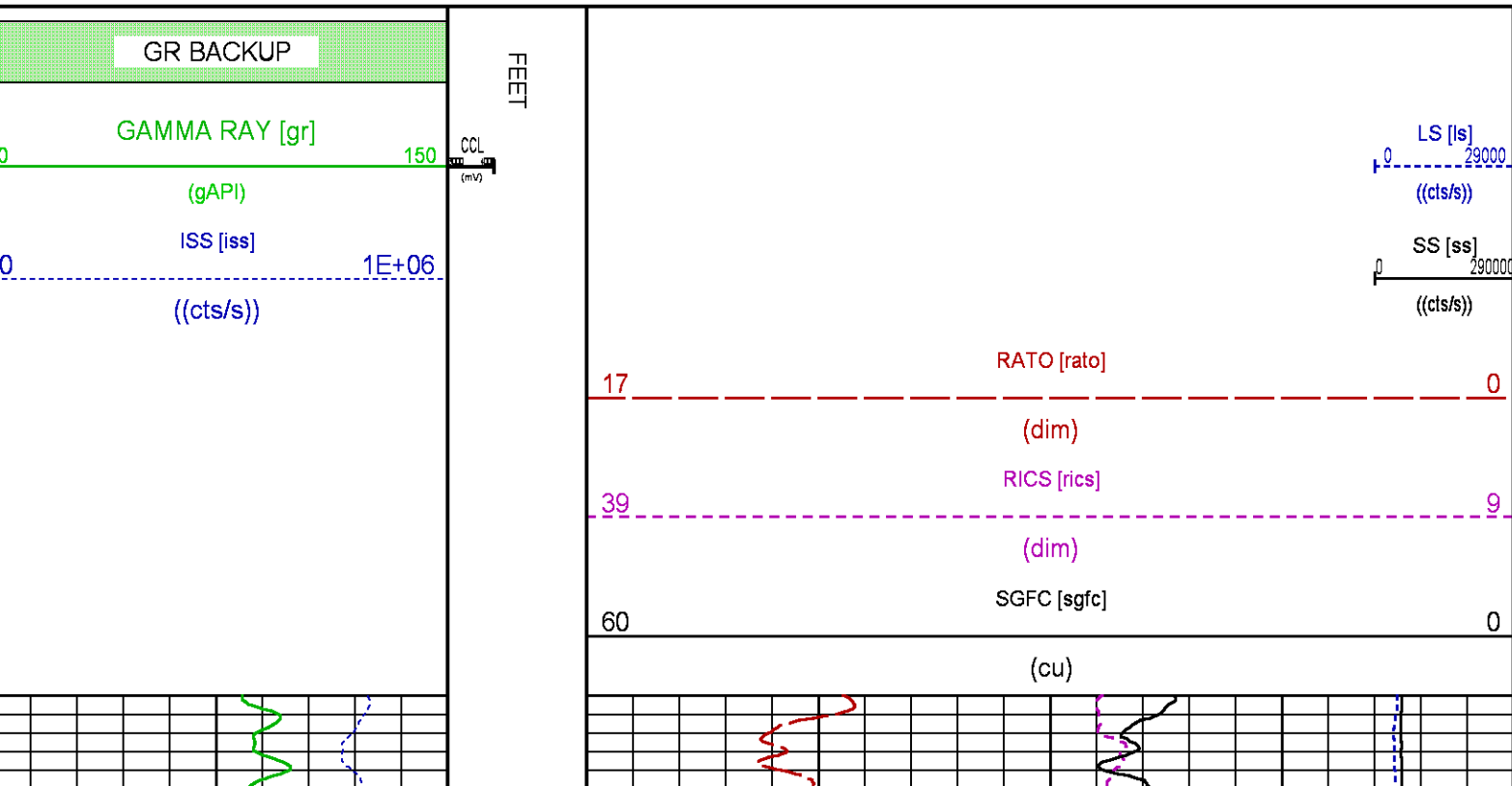
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Nov 27 12:26:19 2018	CASING COLLAR LOCATOR
F1:GR	Nov 27 12:26:19 2018	GAMMA RAY
F1:ISS	Nov 27 12:26:19 2018	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Nov 27 12:26:19 2018	LONG SPACE COUNT RATE
F1:RATO	Nov 27 12:26:19 2018	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Nov 27 12:26:19 2018	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Nov 27 12:26:19 2018	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	Nov 27 12:26:19 2018	SHORT SPACE COUNT RATE

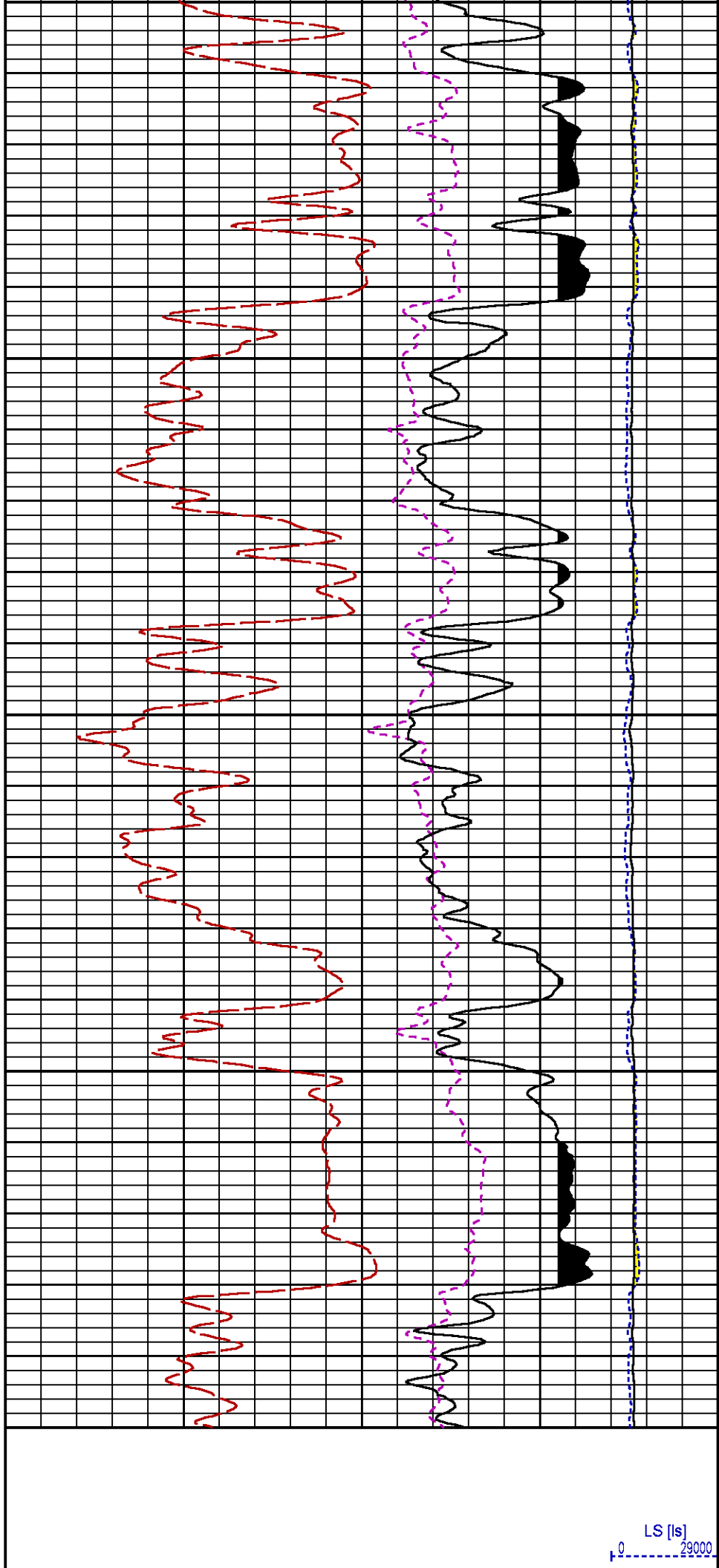
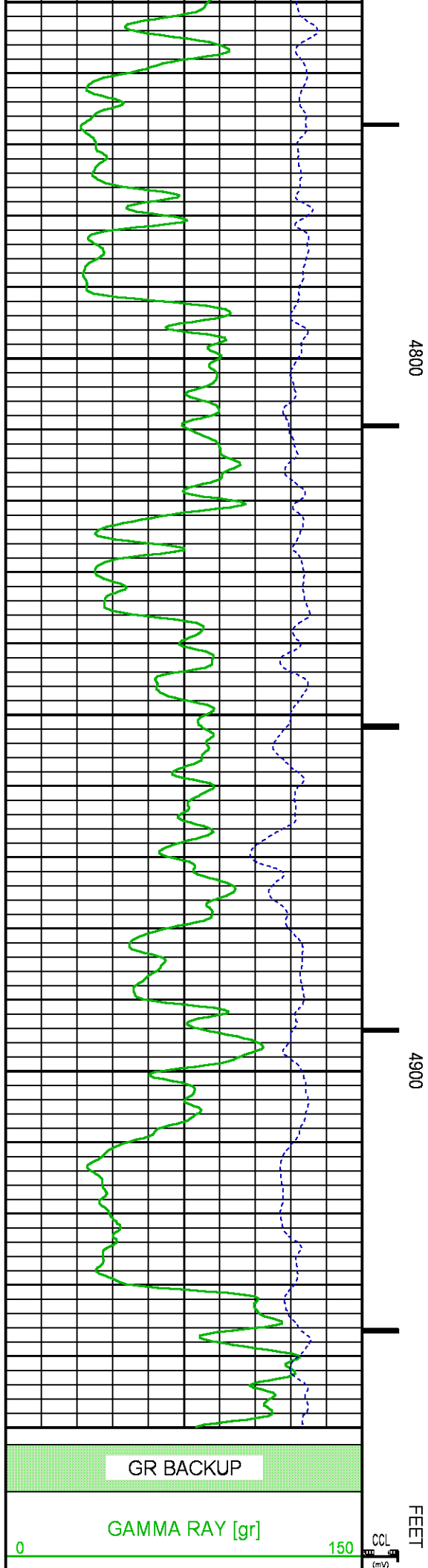
CURVE MEASURE POINT OFFSET

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_04W/04W_RPM_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 4740 - 4950 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_BCU_0993_21_04W/04W_RPM_REPEAT.xtf
Created On : Nov 27 12:26:19 2018
Company : LARAMIE ENERGY LLC
Well : BCU 0993-21-04W
Field : BUZZARD CREEK
File Interval : 4710 - 4988.5 Feet
OCT : p353hA





CALIBRATION / VERIFICATION SUMMARY

GR PRIMARY CALIBRATION SUMMARY

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

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

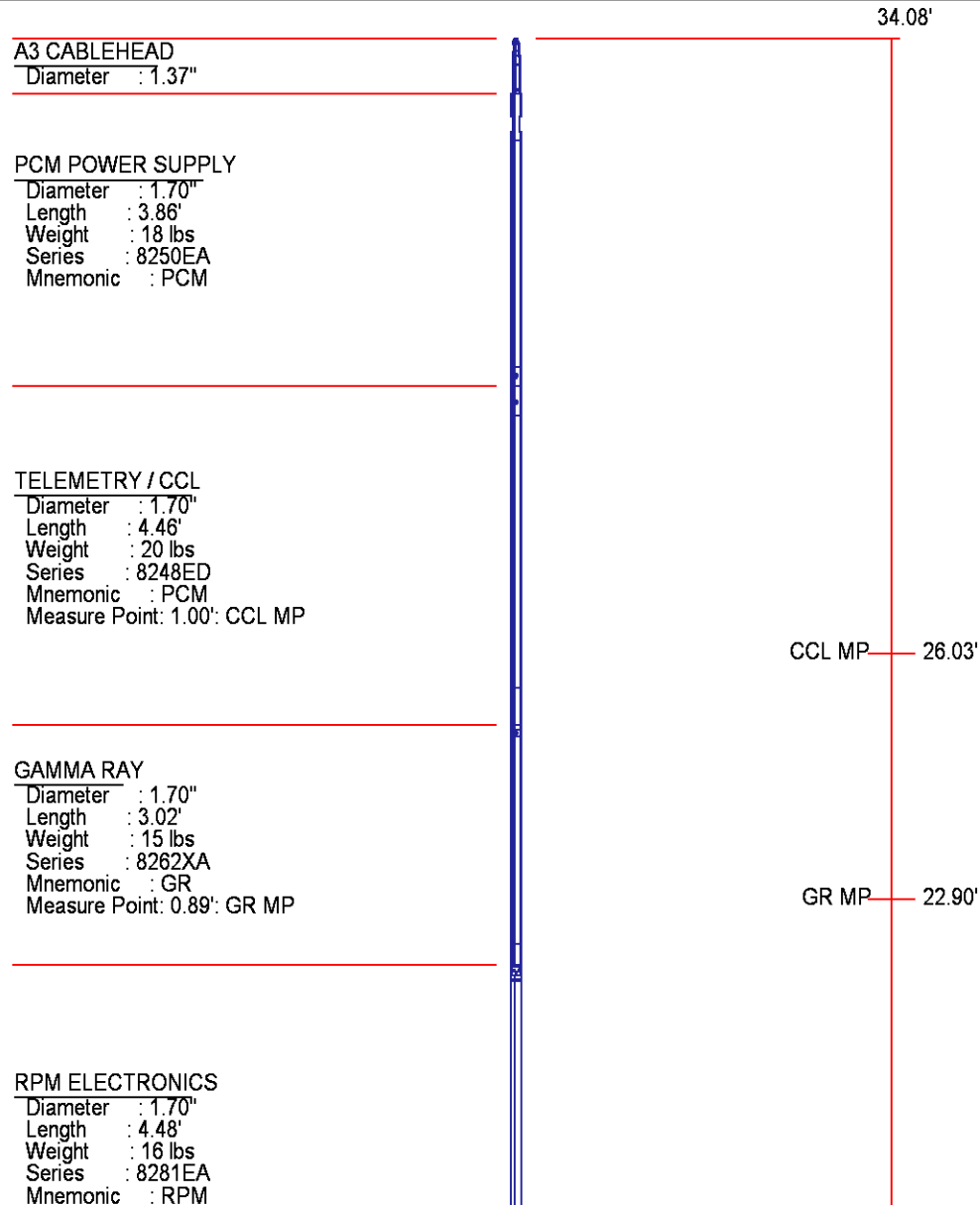
	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	803537	8701	4296	466	26.15	0.15	24.17	0.37
					25.35 26.40	0.00 0.20	23.60 24.80	0.00 0.40

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
		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

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_BCU_0993_21_04W/RPM-tdg



RPM C DETECTOR SECTION

Diameter : 1.70"
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

XLS MP 13.58'
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

0.00'

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



COMPANY **LARAMIE ENERGY LLC**

WELL **BCU 0993-21-04W**

FIELD **BUZZARD CREEK**

COUNTY **MESA** STATE **COLORADO**

FILE NO:

CH145366

API NO:

05077105110000

LOCATION:

SHL: 871' FNL & 1321' FWL

ELEVATIONS:

KB **7287 FT**

DF

GL **7257 FT**

SEC **21** TWP **9 S** RGE **93 W**

DATE **27-NOV-2018**