



FILE NO: CH137655	COMPANY <b>LARAMIE ENERGY LLC</b>
API NO: 05077103980000	WELL <b>NICHOLS 0994-24-19W</b>
	FIELD <b>VEGA</b>
	COUNTY <b>MESA</b> STATE <b>COLORADO</b>

Ver. 4.10	LOCATION: SHL: 2315' FNL & 2781' FWL BHL: 670' FSL & 1550' FWL SEC <u>24</u> TWP <u>9S</u> RGE <u>94W</u>	OTHER SERVICES RAL
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PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM	GL KB KB	ELEVATION 24 FT ABOVE P.D.	ELEVATIONS: KB 7236 FT DF GL 7212 FT
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DATE	RUN	TRIP		
			1	1
SERVICE ORDER			US137655	
DEPTH DRILLER			7856 FT	
DEPTH LOGGER			7810 FT	
BOTTOM LOGGED INTERVAL			7810 FT	
TOP LOGGED INTERVAL			2219 FT	
TIME STARTED			16:00	
TIME FINISHED			21:30	
OPERATOR RIG TIME			5.5 HOURS	
TYPE OF FLUID IN HOLE			WATER	
FLUID DENSITY			NA	
FLUID SALINITY			NA	
FLUID LEVEL			65 FT	
LOGGED CEMENT TOP			995 FT	
WELLHEAD PRESSURE			0 PSI	
MAXIMUM HOLE DEVIATION			NA	
NOMINAL LOGGING SPEED			10 FMIN	
MAX. RECORDED TEMP.			226 DEGF	
REFERENCE LOG			BAKER HUGHES RAL	
REFERENCE LOG DATE			23-JUN-2018	
EQUIP. NO.		LOCATION	ML-4268	GRAND JCT.
RECORDED BY			T. 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.

### REMARKS

RUN 1 TRIP 1: 2 OPERATIONS RUN IN THE WELL

\*OPERATION 1: RAL/GR/CCL RUN CENTRALIZED\*

\*\*OPERATION 2: RPM/GR/CCL RUN IN PNC-3D MODE\*\*

SJ: 6040' - 6060'

SJ: 6948' - 6970'

### EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	PCM	8250EA	11908682	FREE
1	1	TEL/CCL	8248ED	10460602	FREE
1	1	GR	2812LB	11621284	FREE
1	1	RPM	8281EA	10190985	FREE
1	1	RPM	8283PA	10068031	FREE
1	1	RPM	8281FA	10076673	FREE
1	1	TEMP	8255XXA	166341	FREE

# RPM MAIN PASS G-SAND

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

Patches: 4

Plotted: Tue Jul 3 22:22:13 2018

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-19W/p354h03.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 2187.846 ft BOTTOM DEPTH: 2839.531 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	N/A	CASING COLLAR LOCATOR
F1:GR2	N/A	GAMMA RAY 2
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	N/A	SHORT SPACE COUNT RATE

## CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-21.75	ISS	-9.50	RATO	-9.50	SGFC	-9.50
GR2	-19.25	LS	-9.50	RICS	-9.50	SS	-9.50

Presentation : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-19W/19W\_RPM\_GS.fvpdf [5"/100' Scale]  
Plot Interval : 2200 - 2830 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-19W/19W\_RPM\_GS.xtf  
Created On : N/A  
Company : LARAMIE ENERGY LLC  
Well : NICHOLS 0994-24-19W  
Field : VEGA  
File Interval : 2180.75 - 2852 Feet  
OCT : p354h

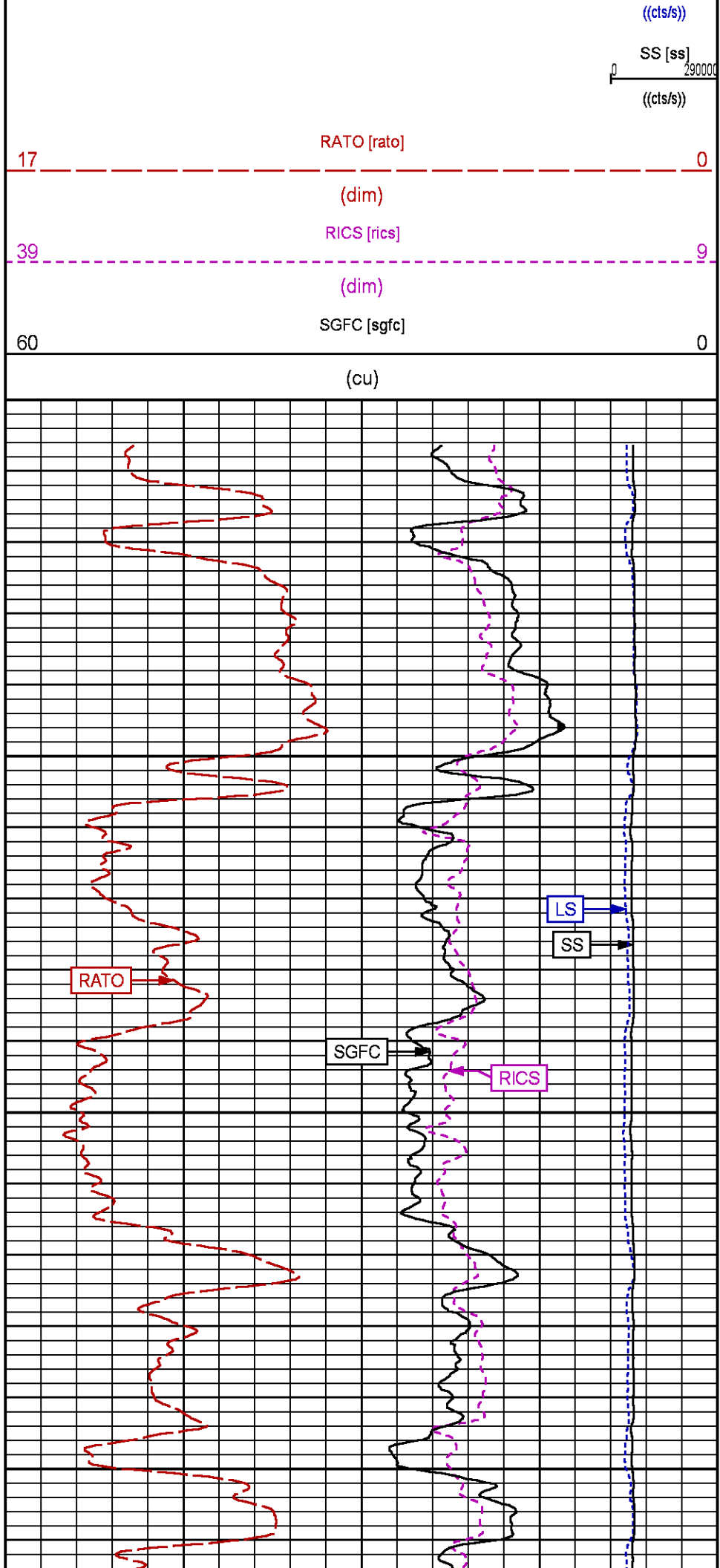
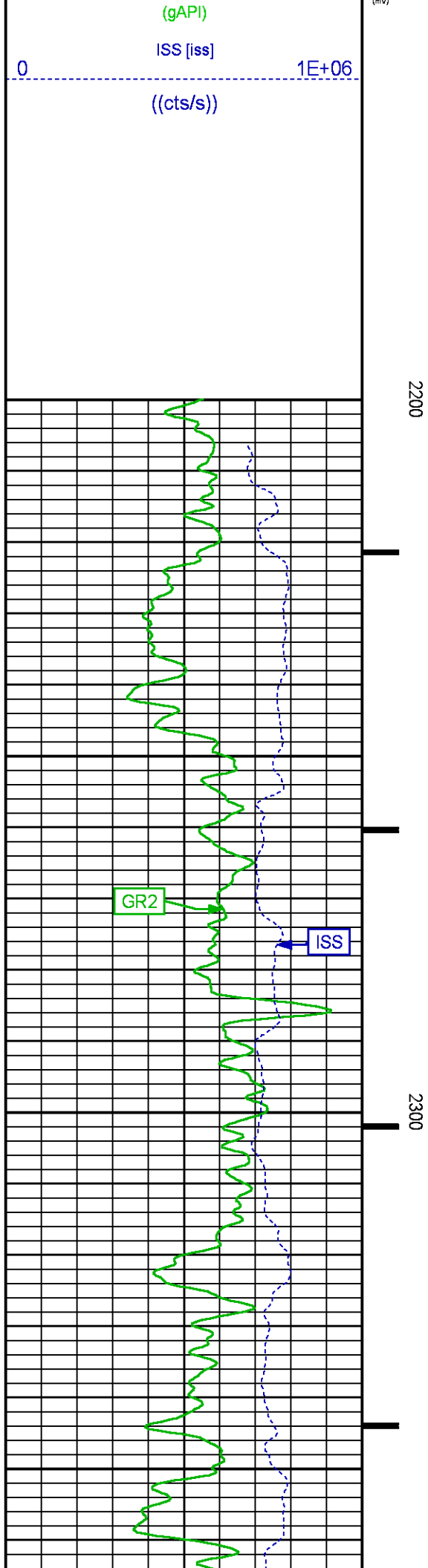
GR BACKUP

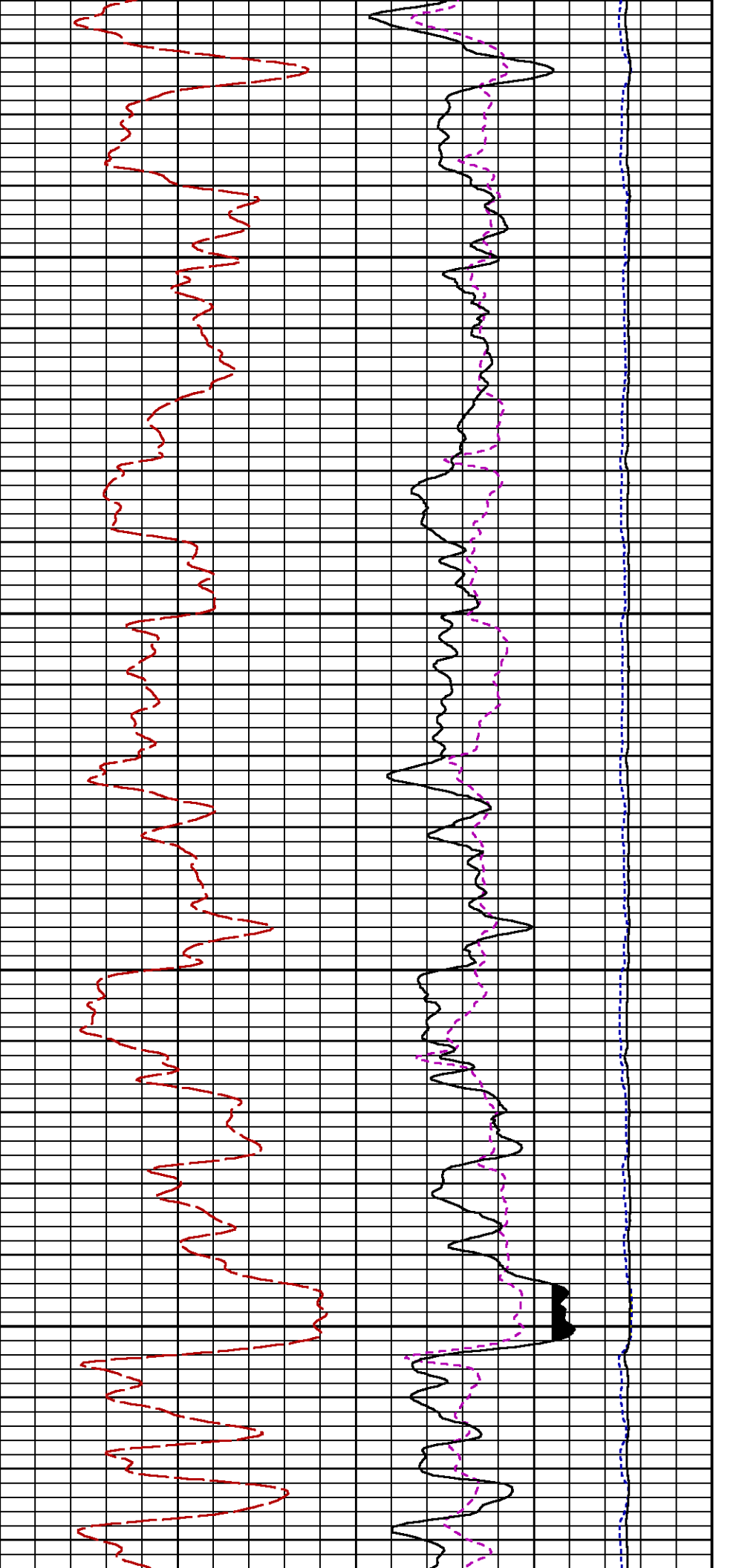
GAMMA RAY [gr2]

FEET

LS [ls]

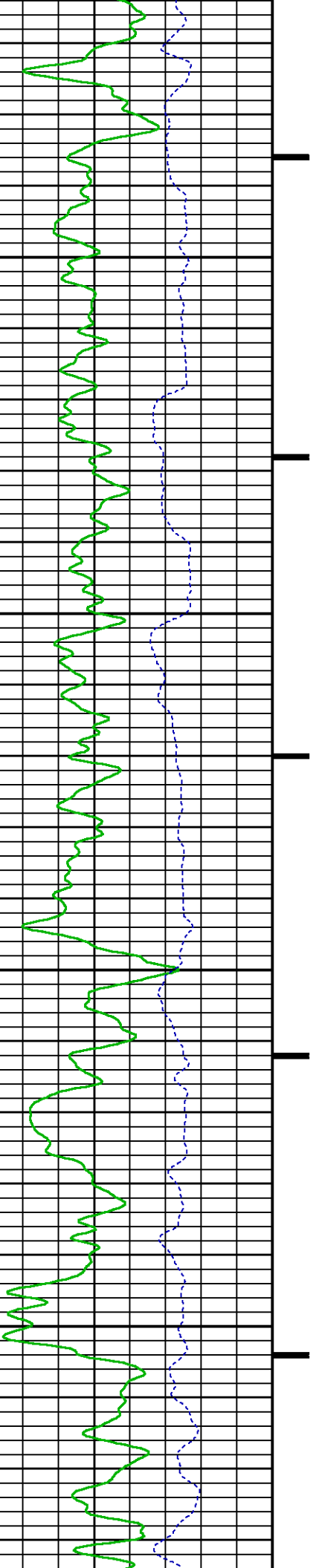
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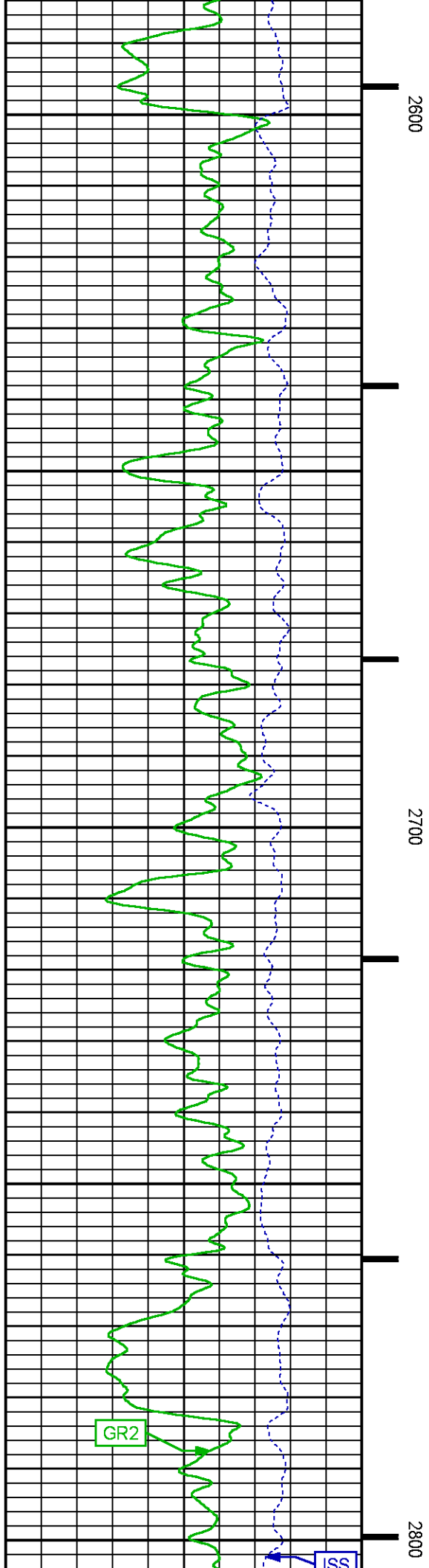
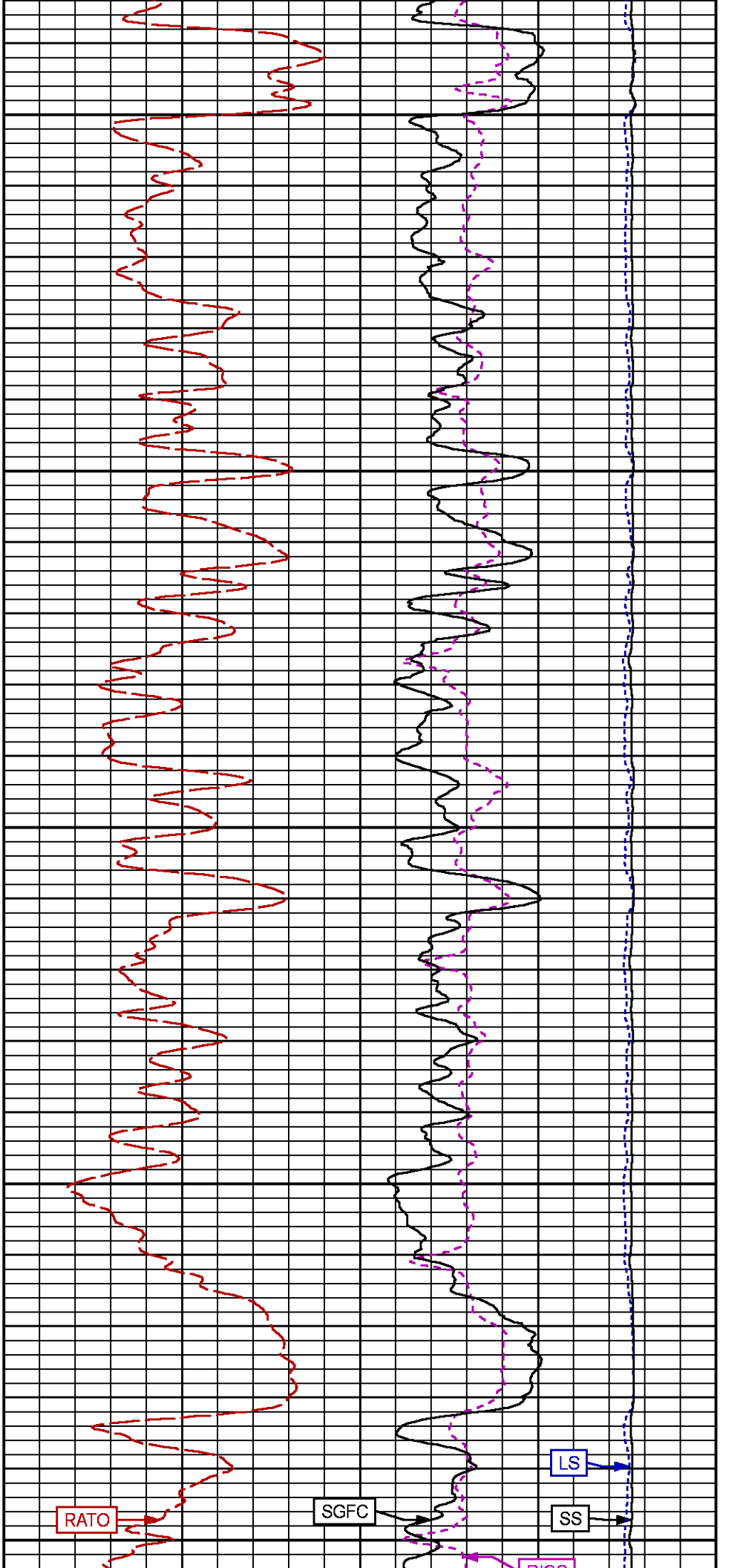


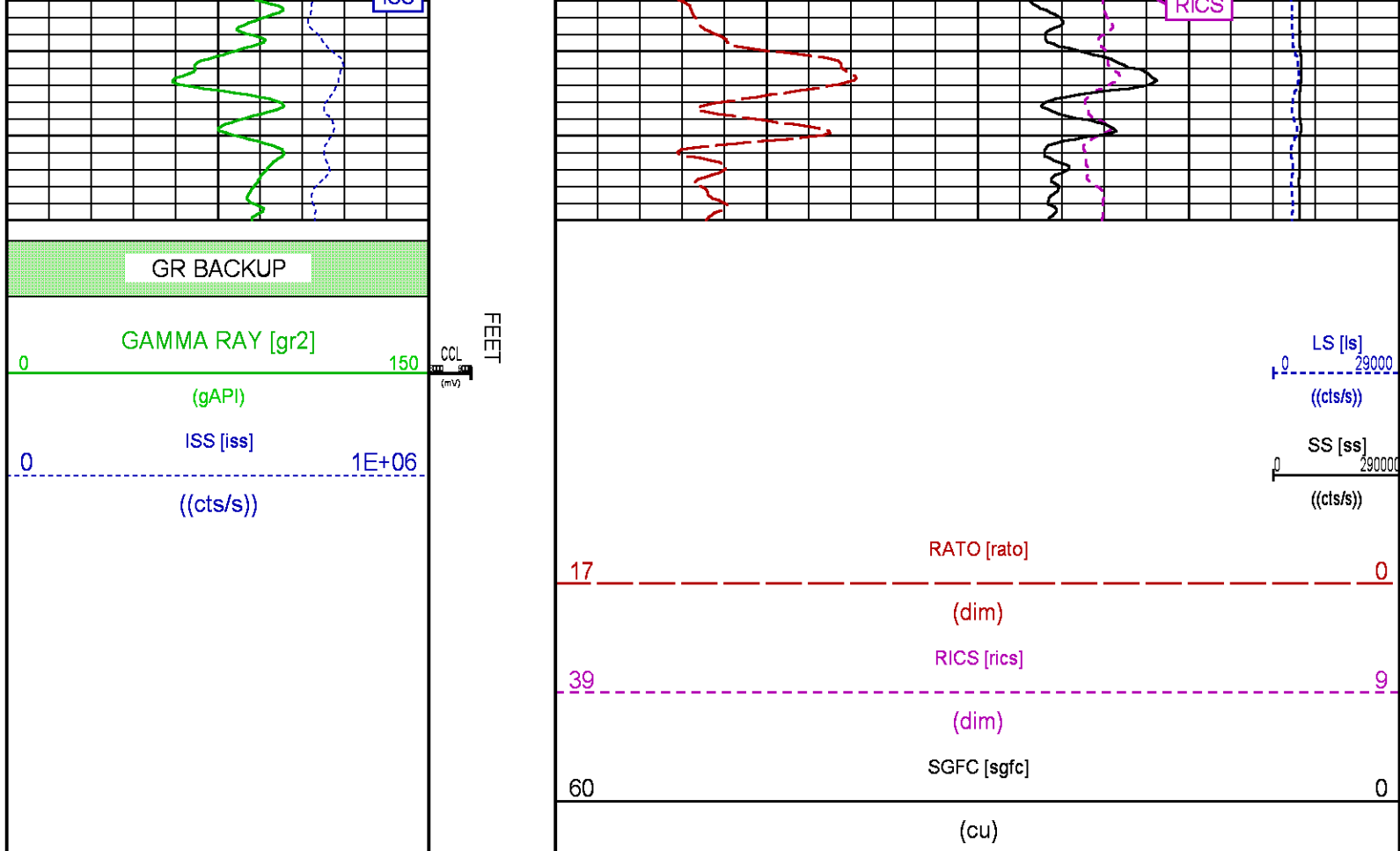


2400

2500







## RPM MAIN PASS WILLIAMS FORK

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017  
Patches: 4

Plotted: Tue Jul 3 22:17:38 2018

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-19W/p354h02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 4488.000 ft BOTTOM DEPTH: 7808.063 ft

### SYMMETRIC FILTER

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

### RPM PROCESSING

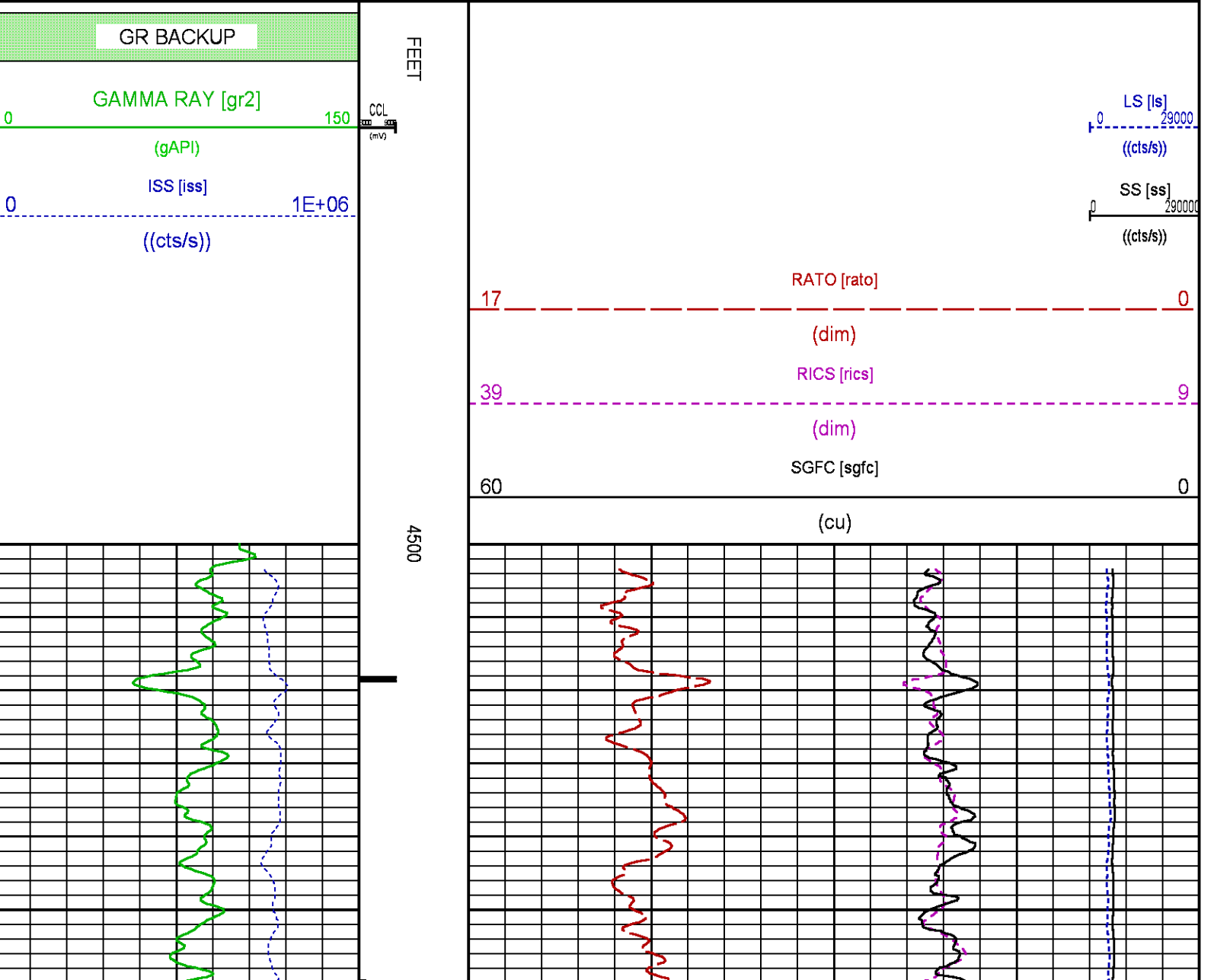
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP BOTTOM
	OPEN/CASED HOLE	CASED HOLE		" "
	BOREHOLE SIZE	7.88	in	" "
	LARGEST CASING OD	4.50	in	" "
	MATRIX	SANDSTONE		" "

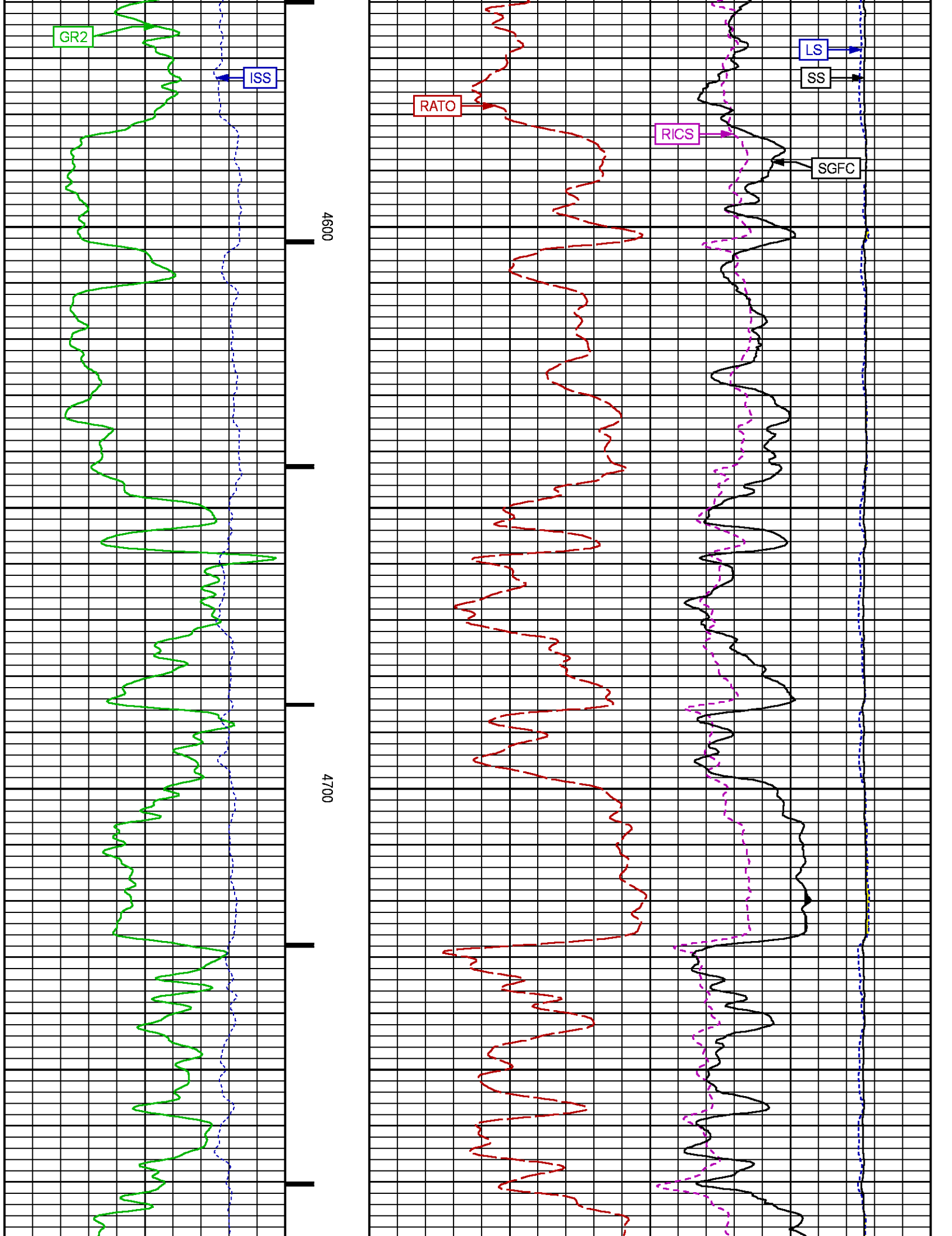
### CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR2	N/A	GAMMA RAY 2
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	N/A	SHORT SPACE COUNT RATE

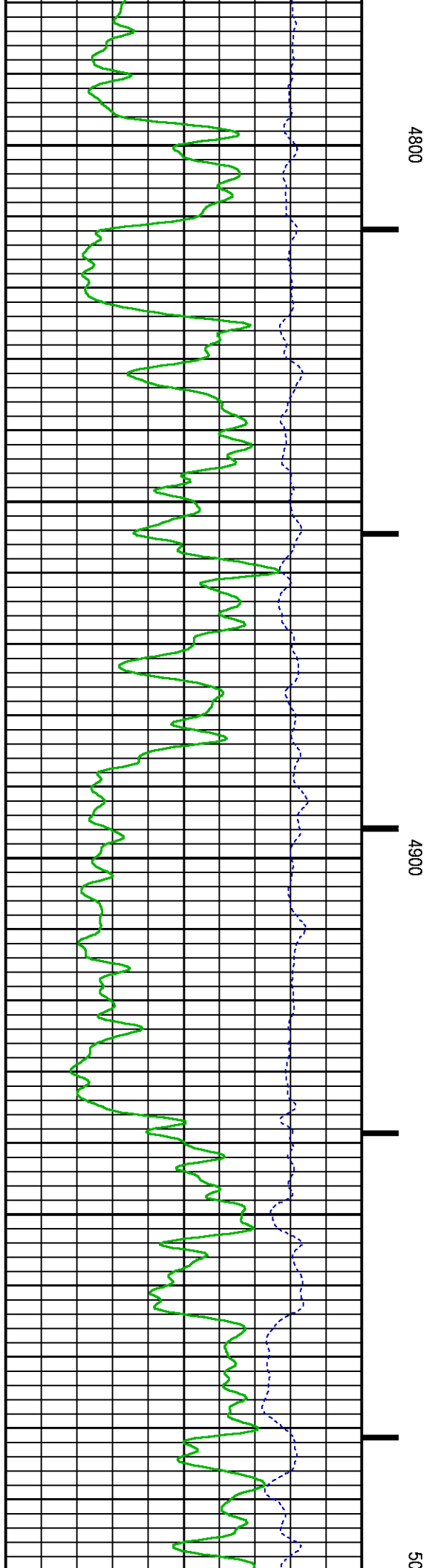
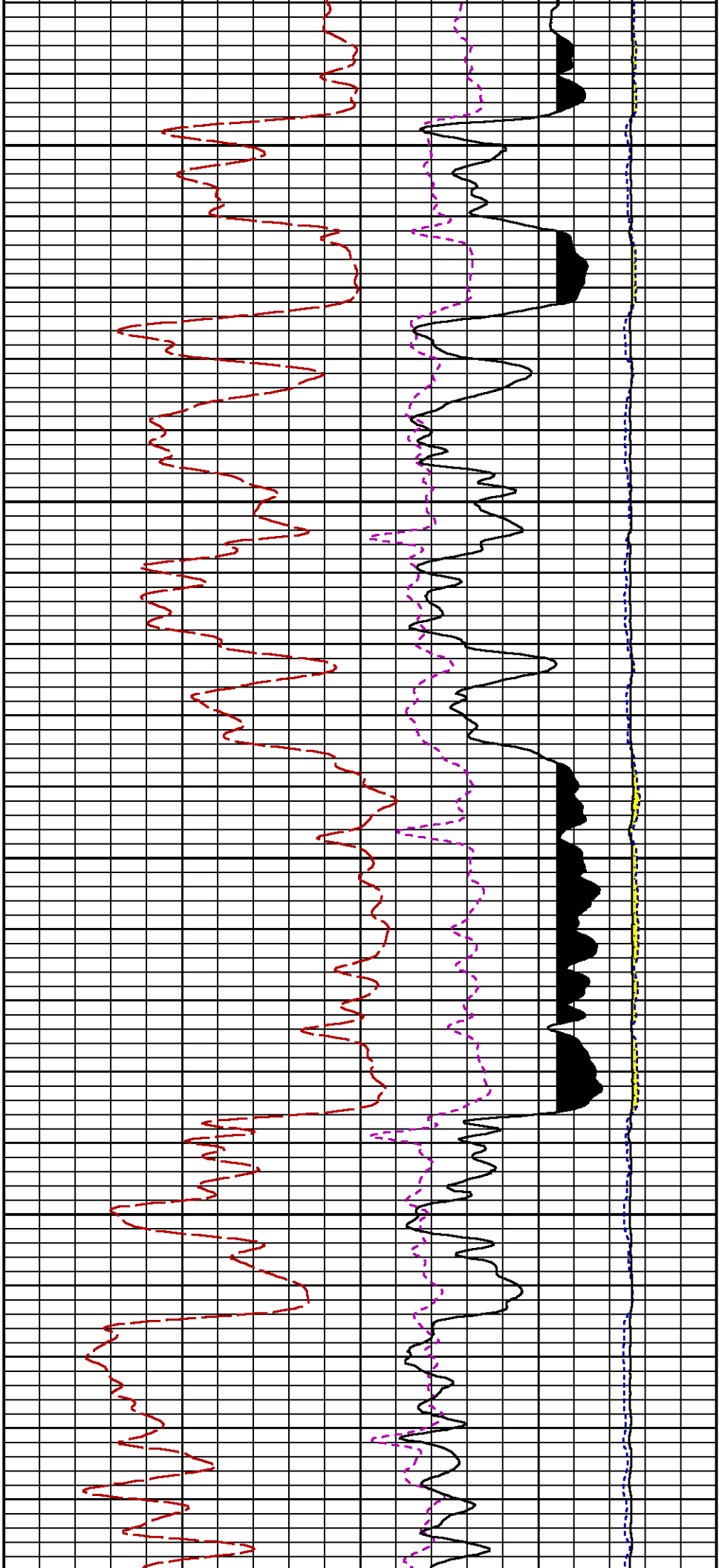
CURVE MEASURE POINT OFFSET							
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-21.75	ISS	-9.50	RATO	-9.50	SGFC	-9.50
GR2	-19.25	LS	-9.50	RICS	-9.50	SS	-9.50

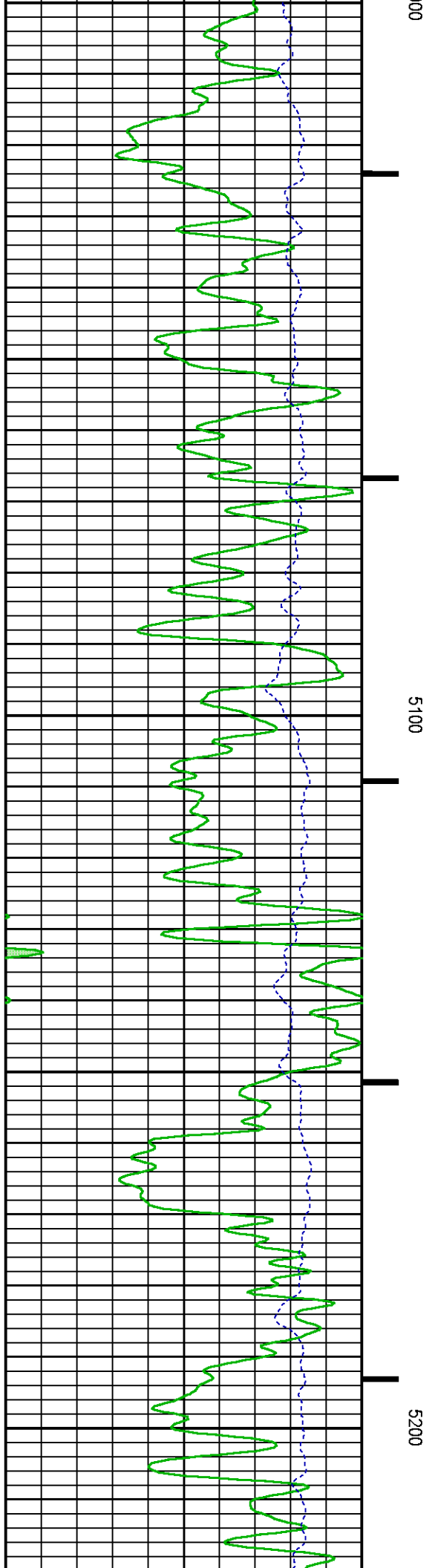
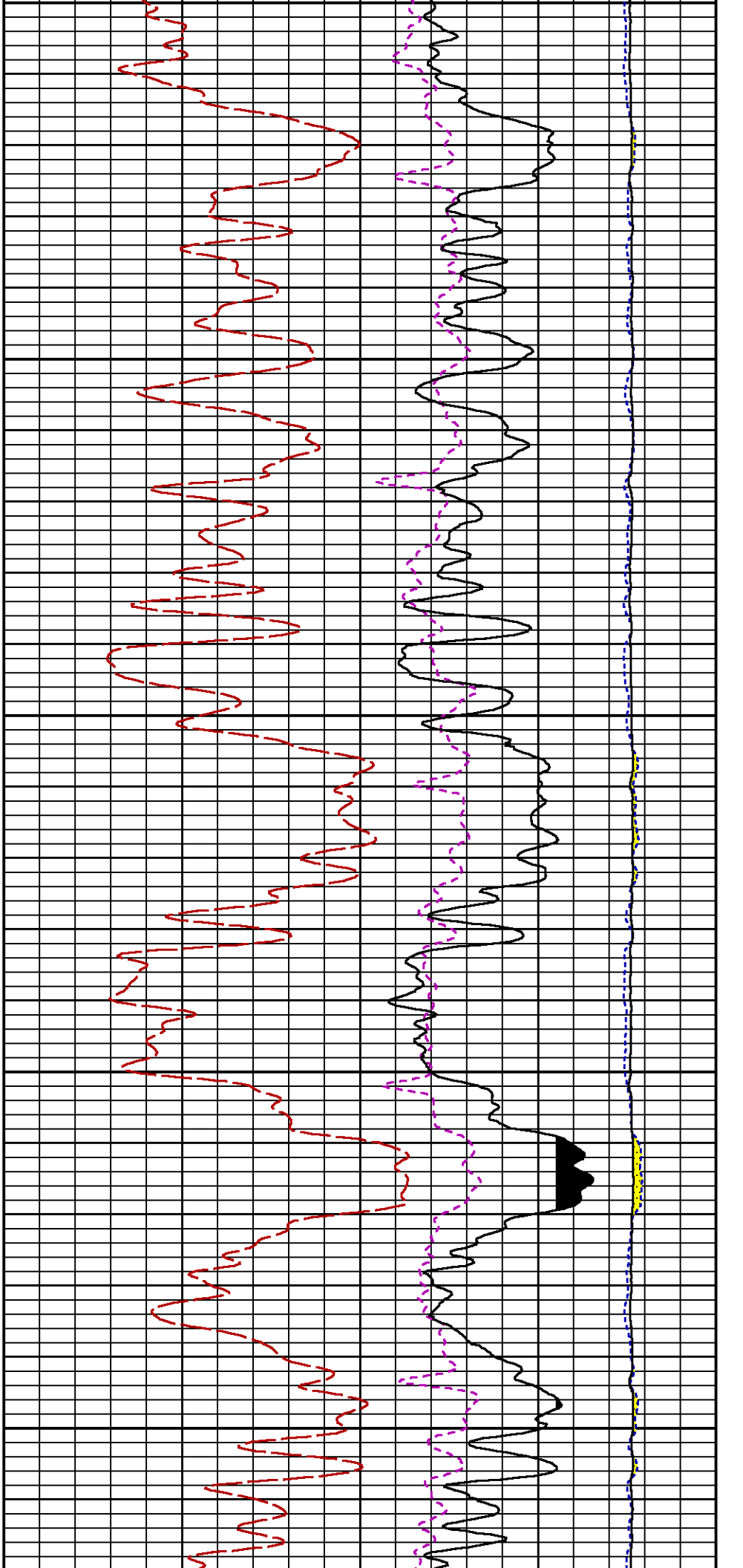
Presentation	: SysA:/dat1a/LARAMIE_NICHOLS_0994-24-19W/19W_RPM_WF.fvpdf [5"/100' Scale]
Plot Interval	: 4500 - 7815.75 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-19W/19W_RPM_WF.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: NICHOLS 0994-24-19W
Field	: VEGA
File Interval	: 4477.75 - 7816 Feet
OCT	: p354h

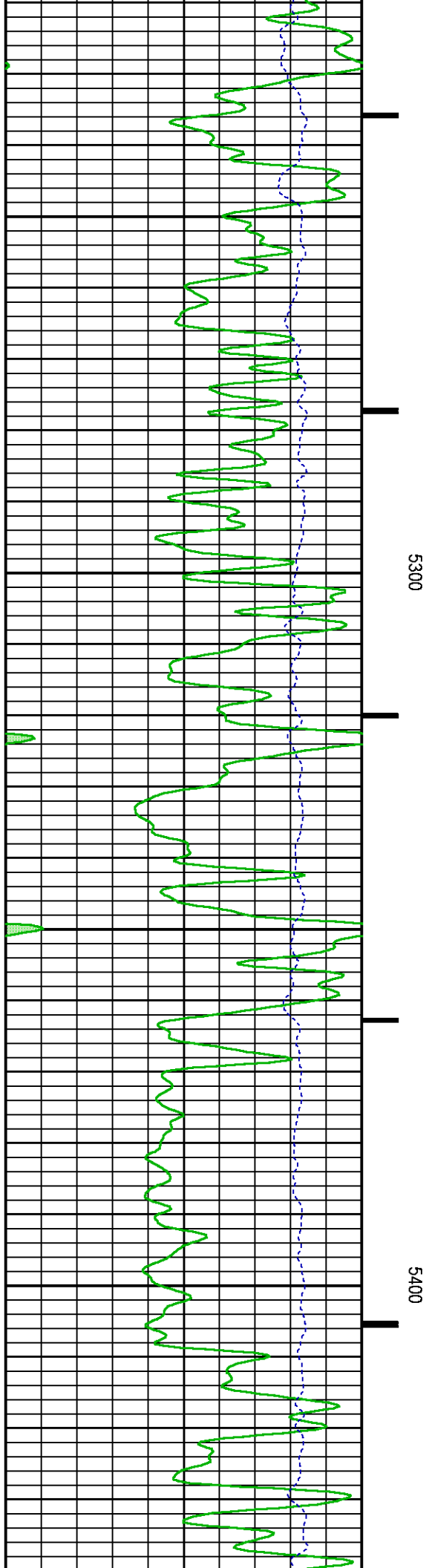
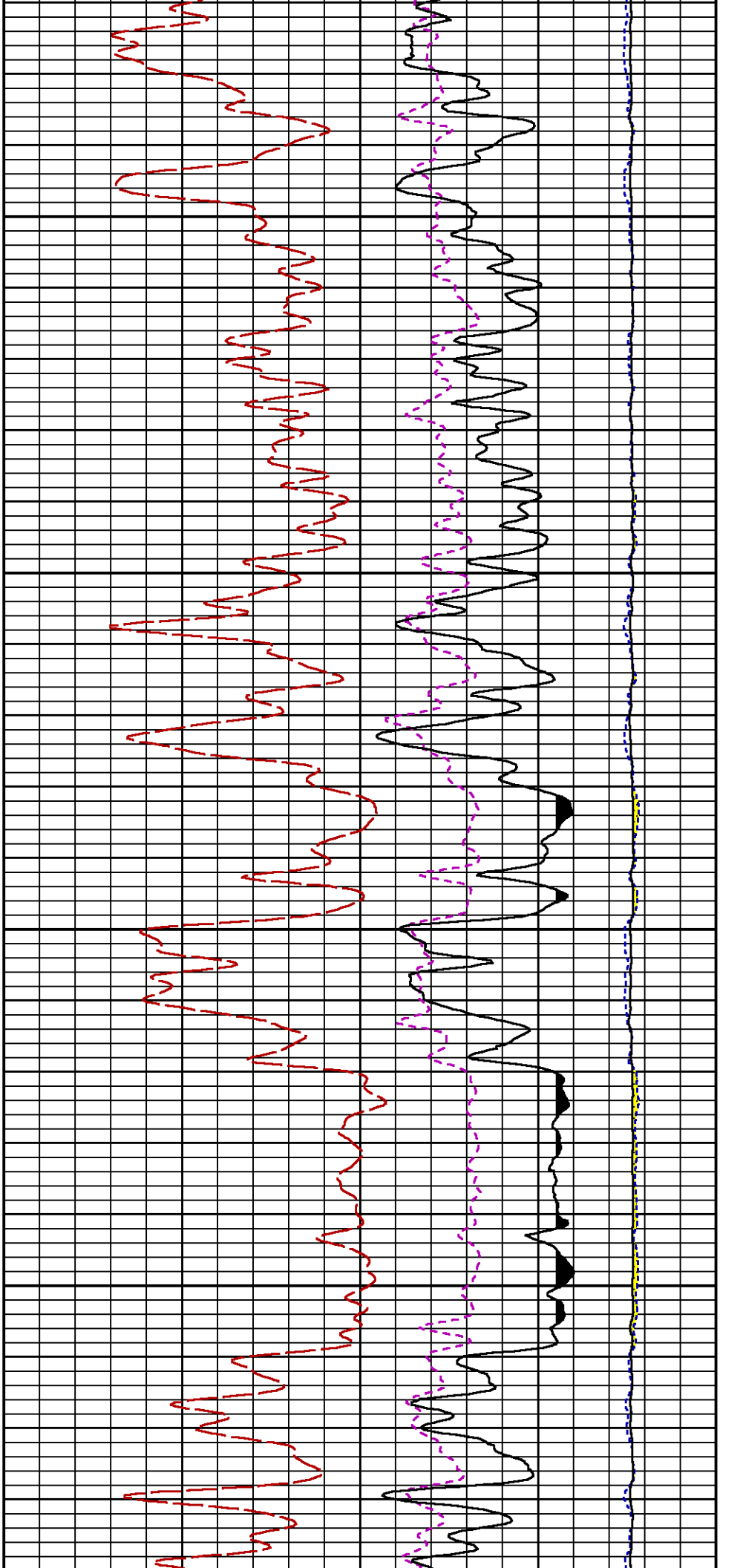


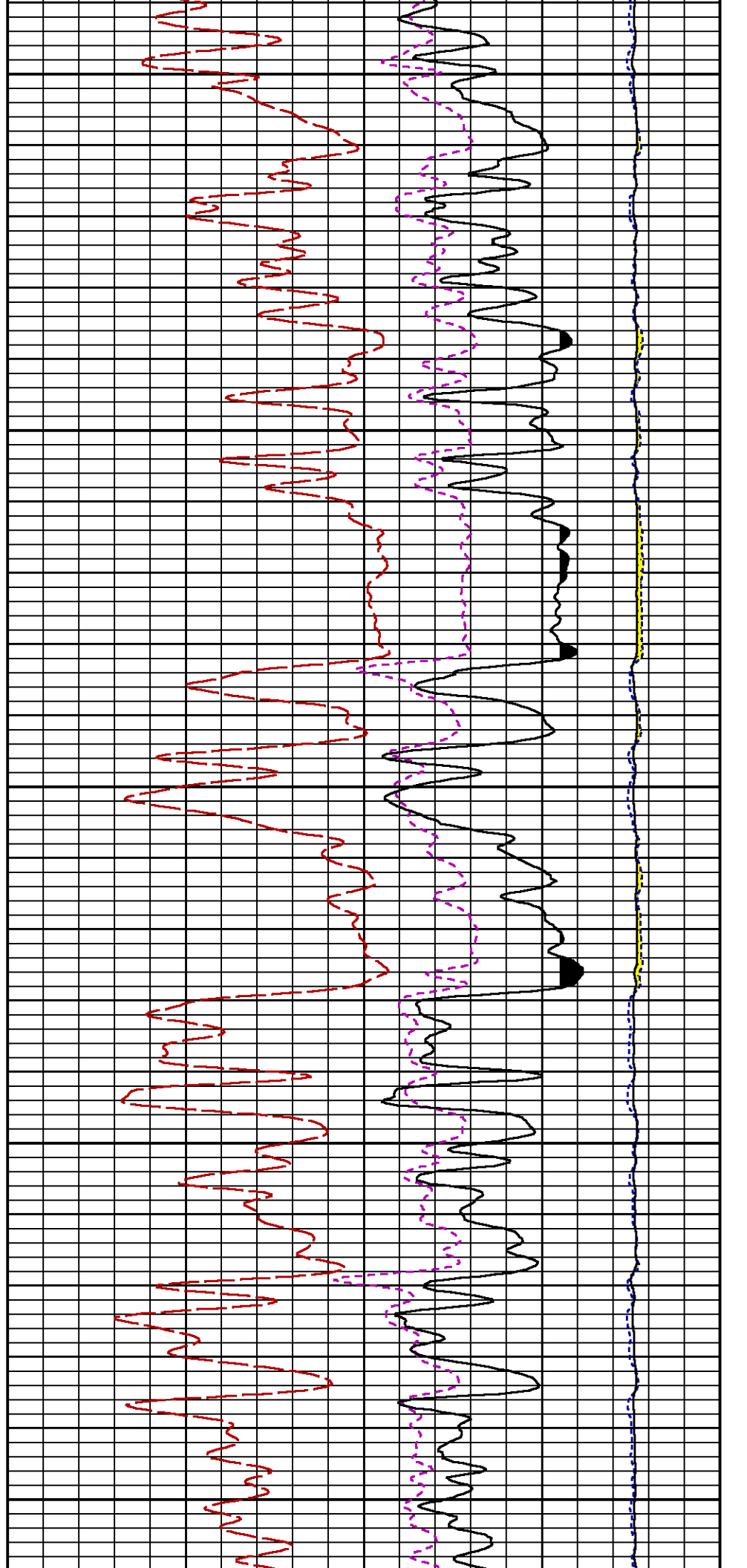
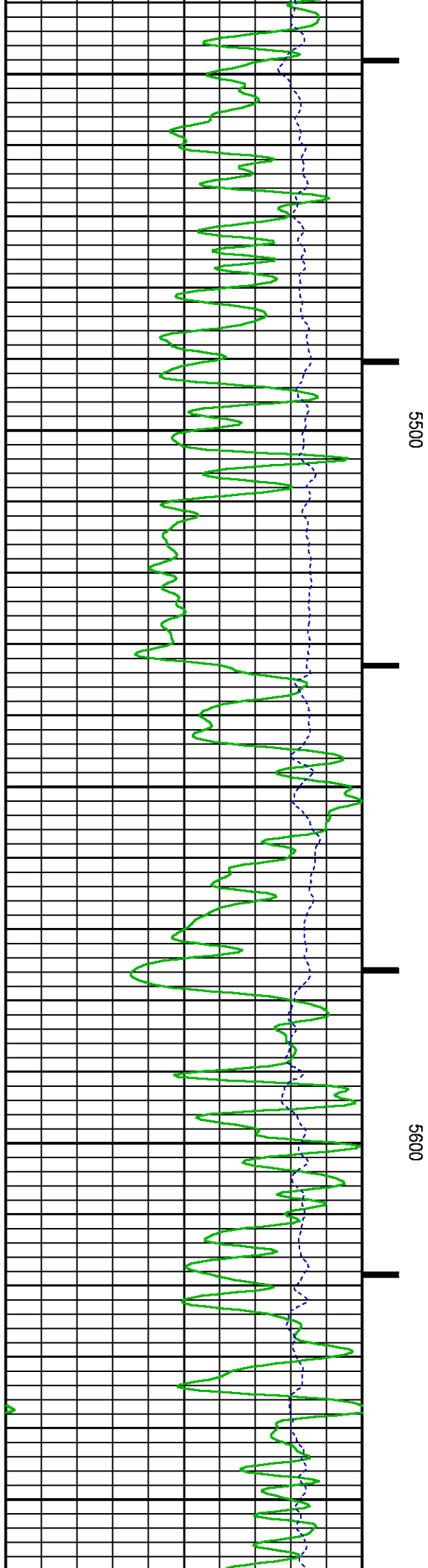


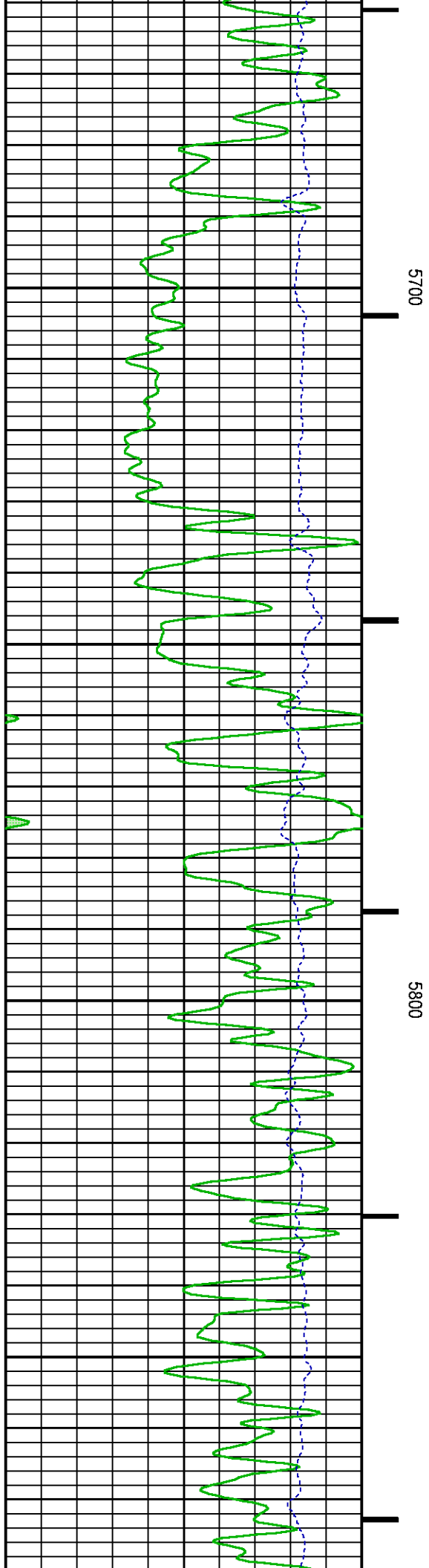
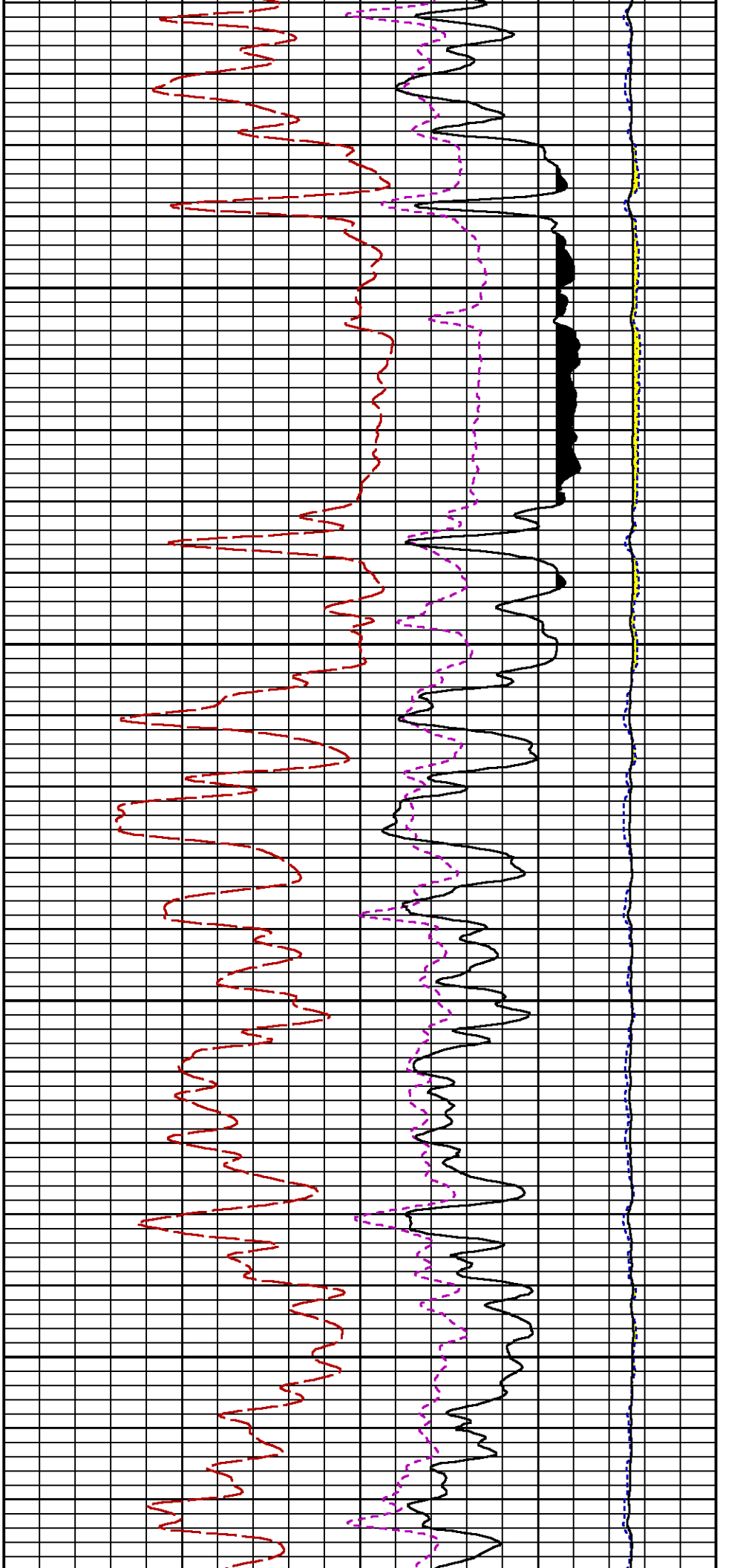


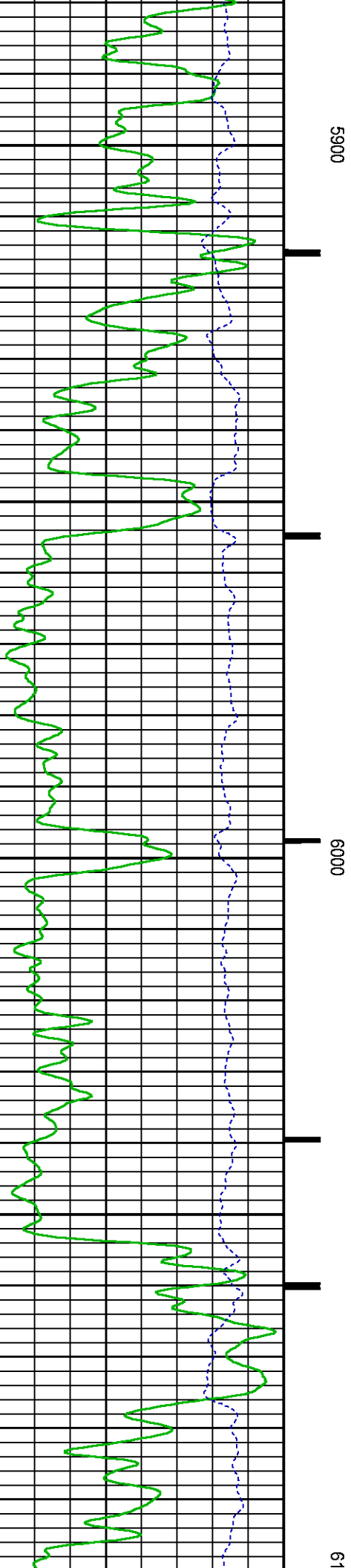
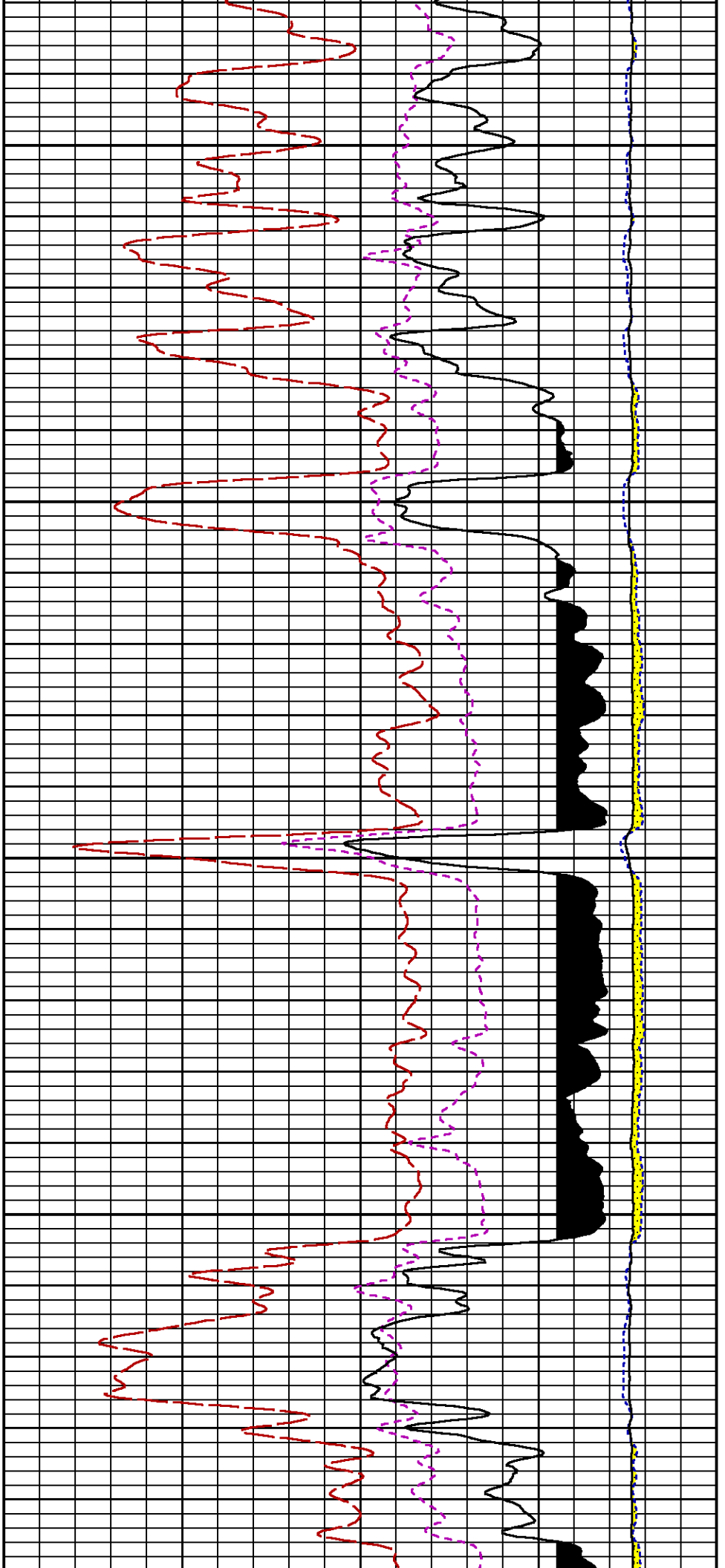


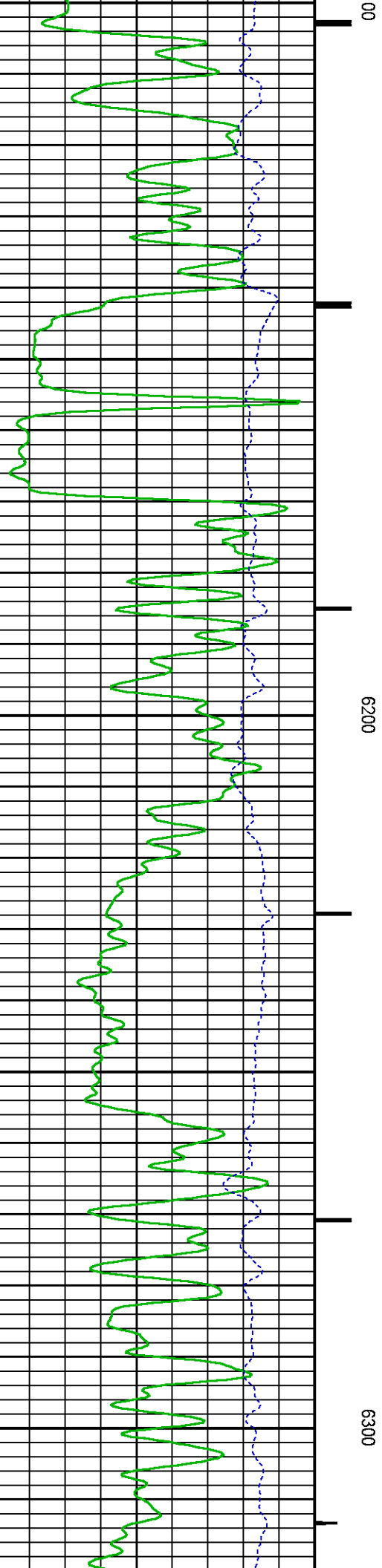
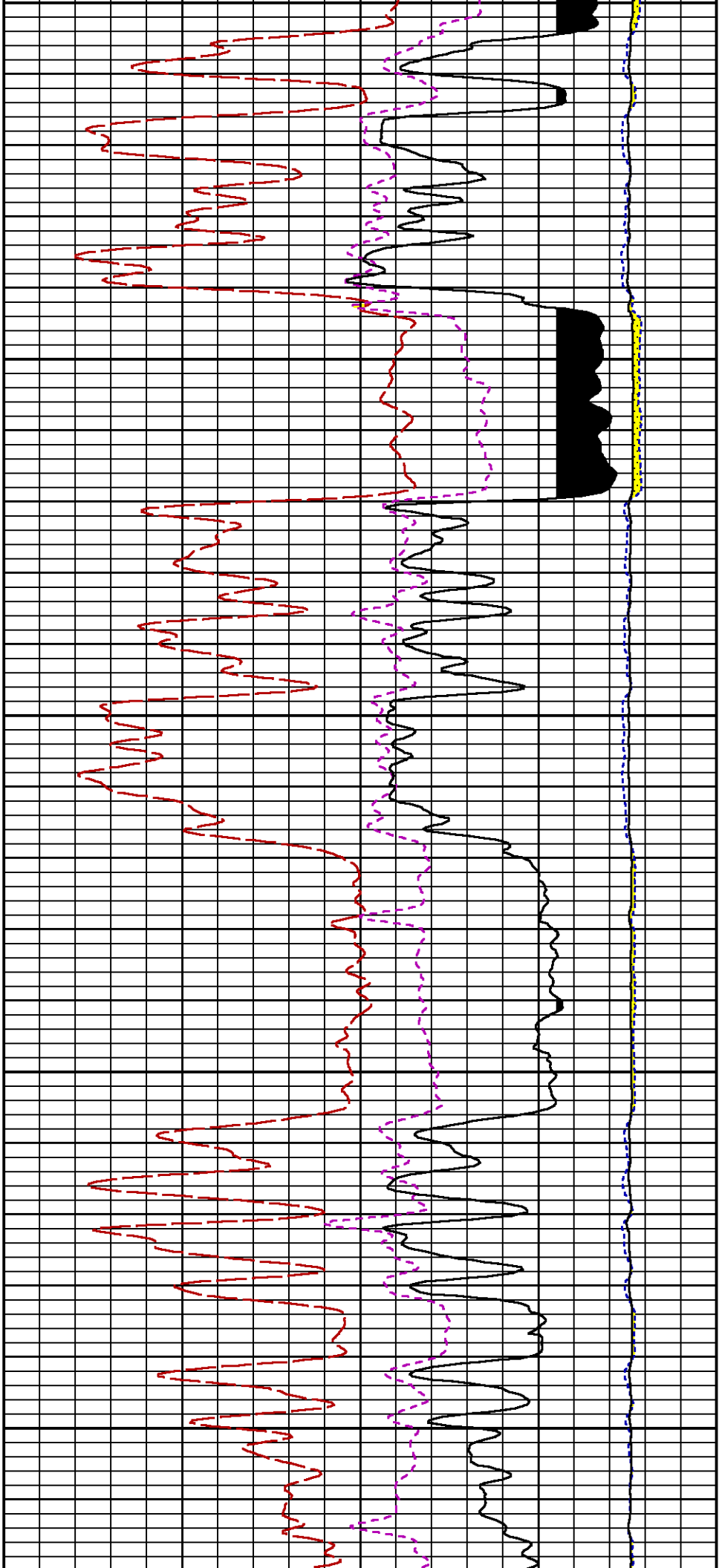


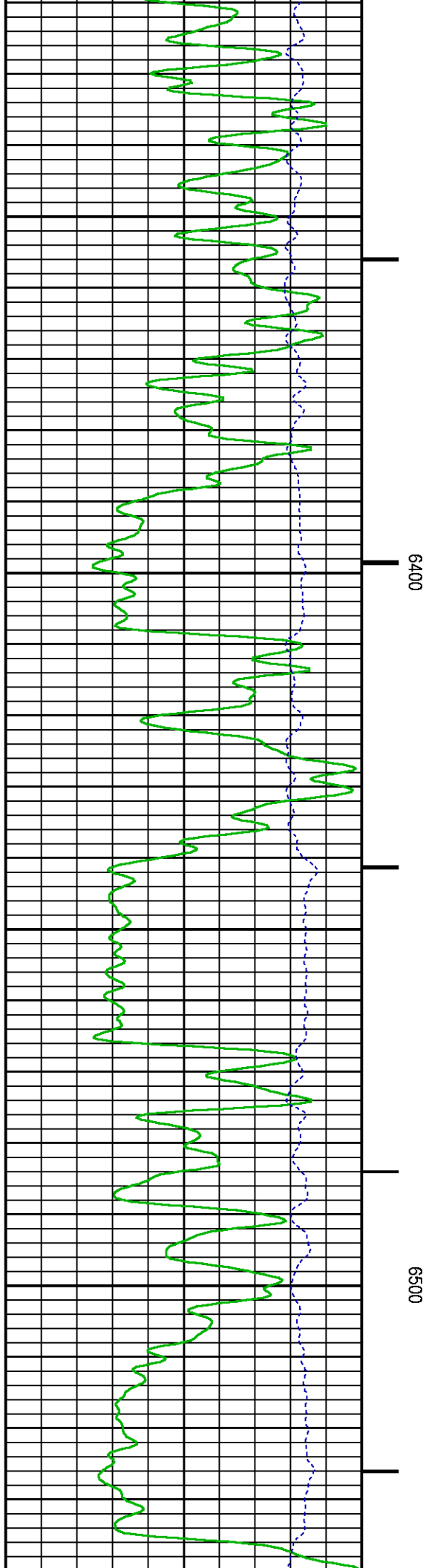
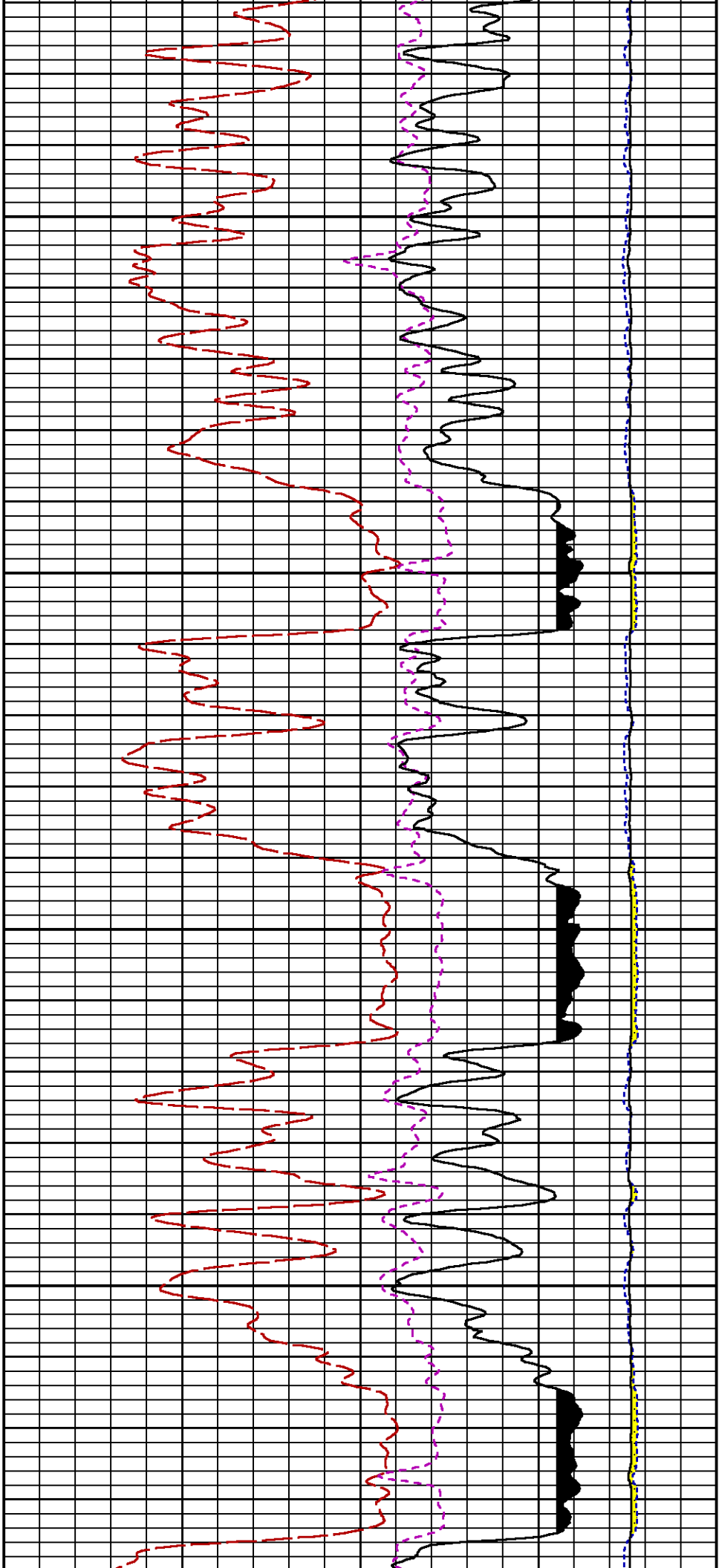




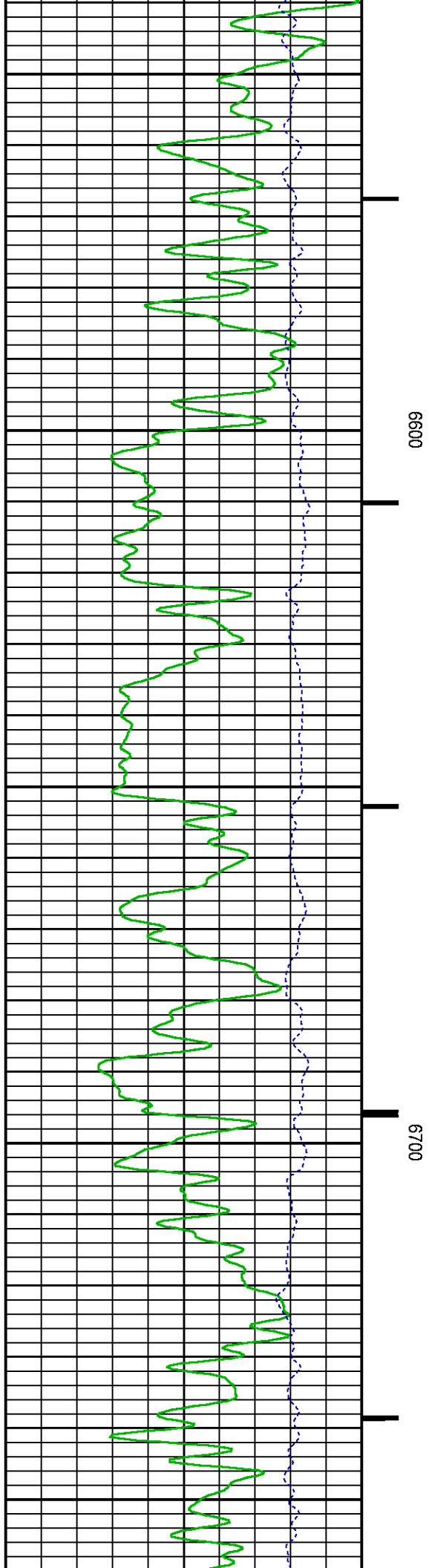
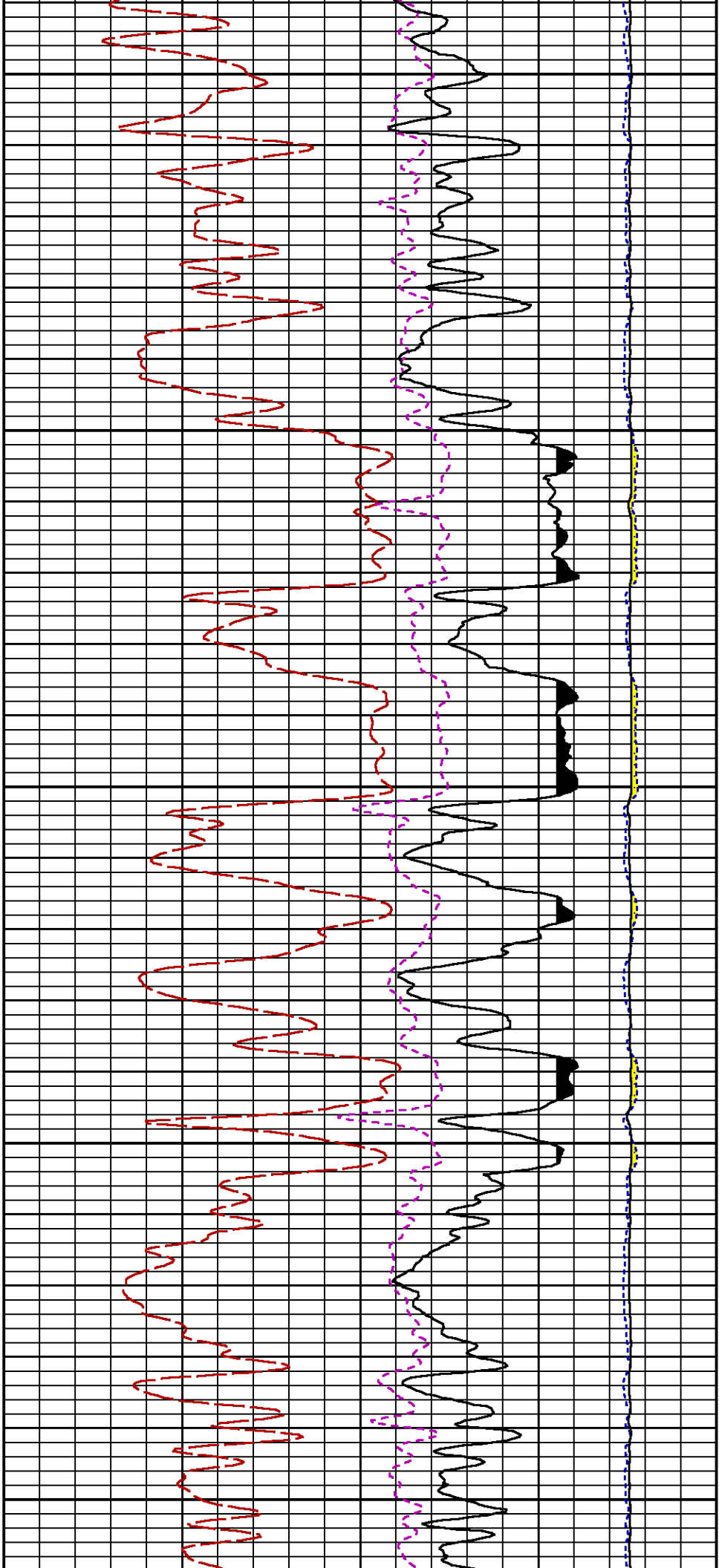


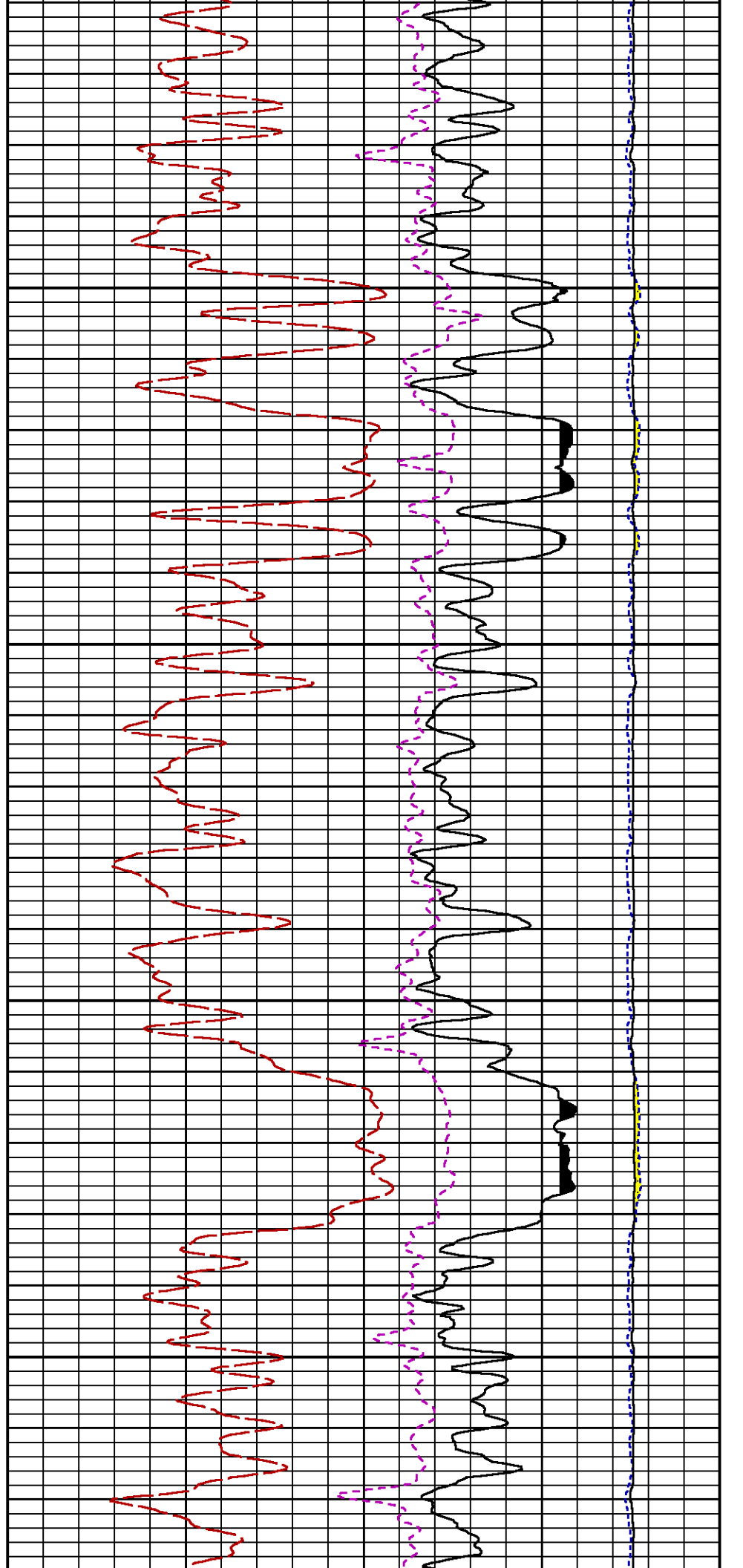
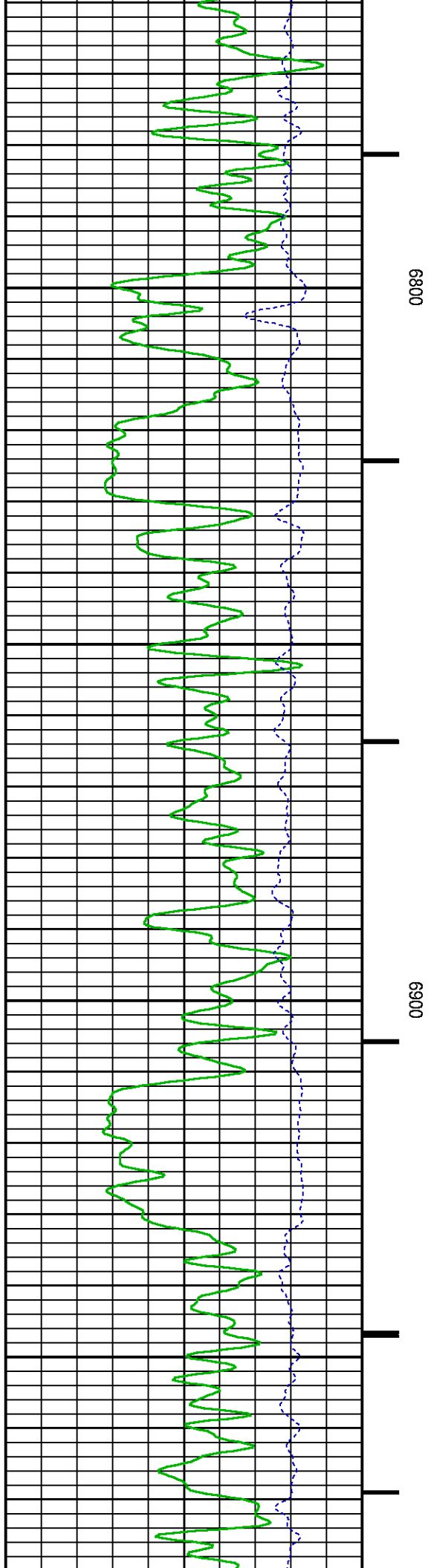


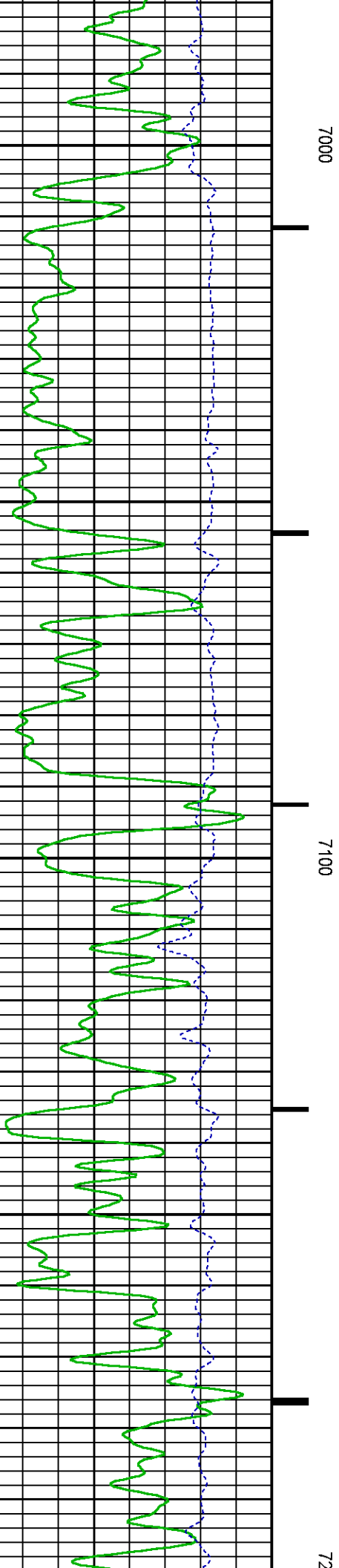
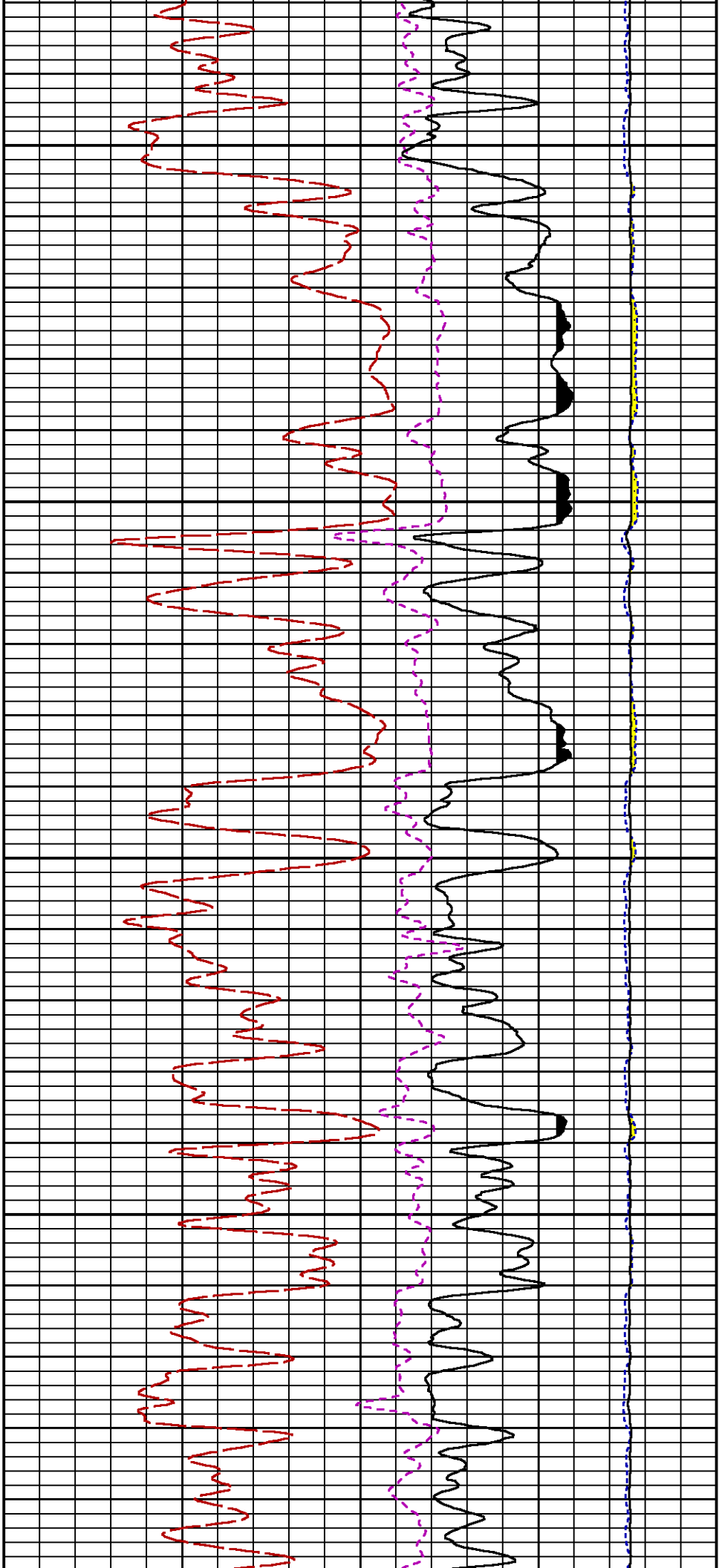


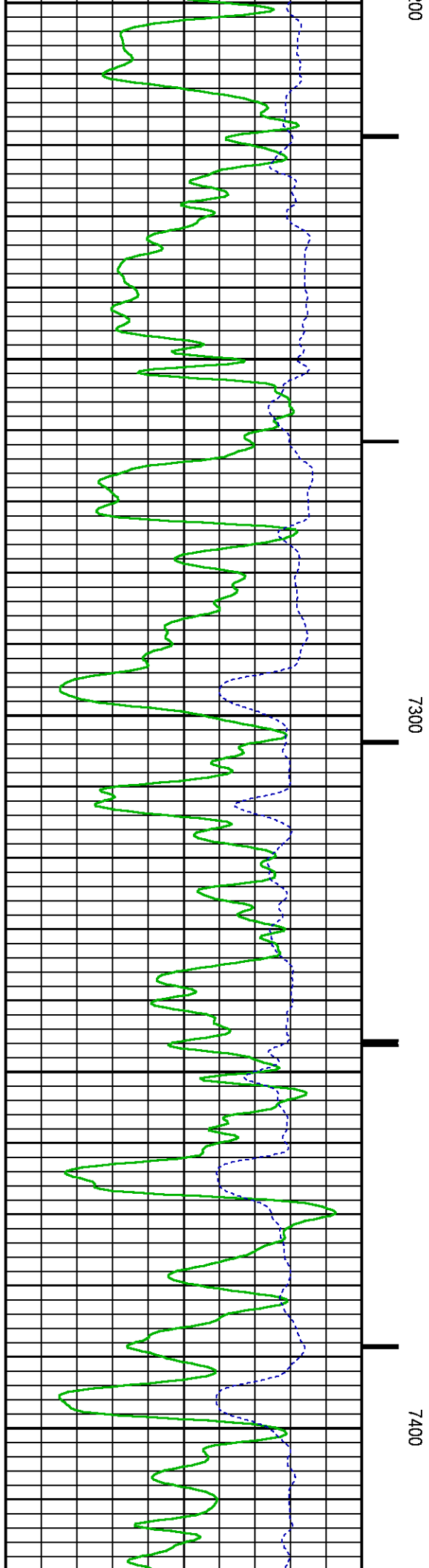
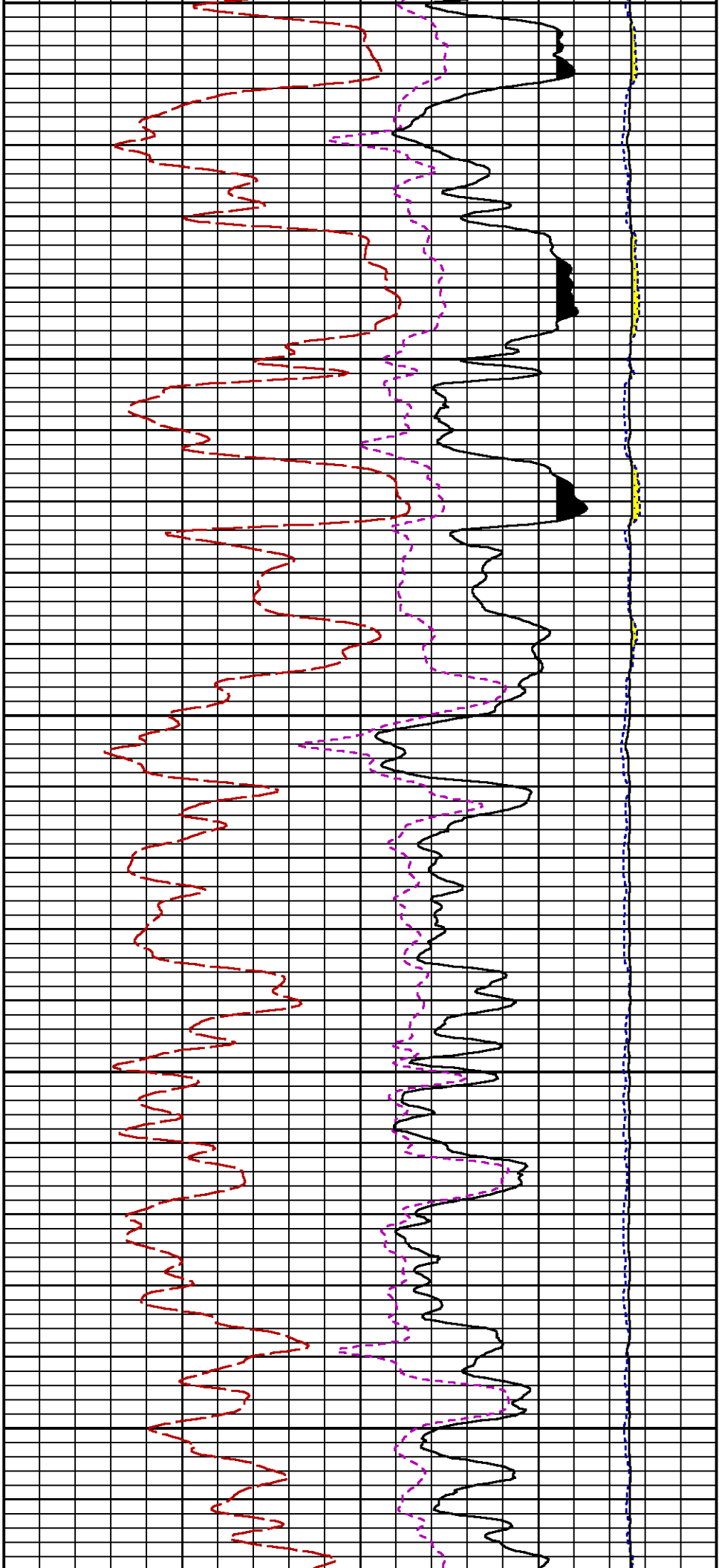


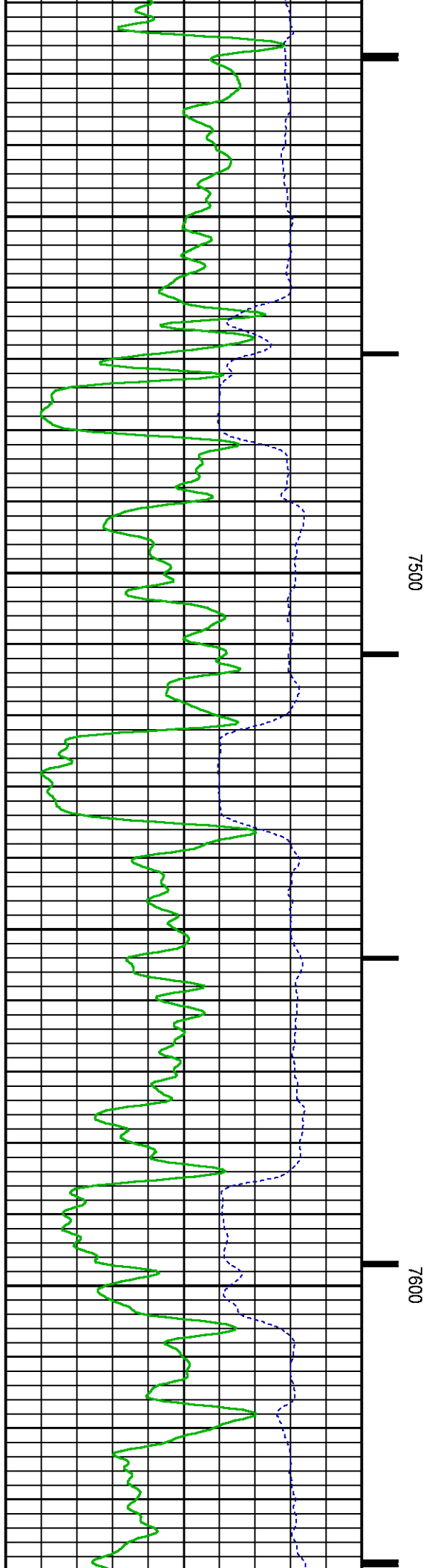
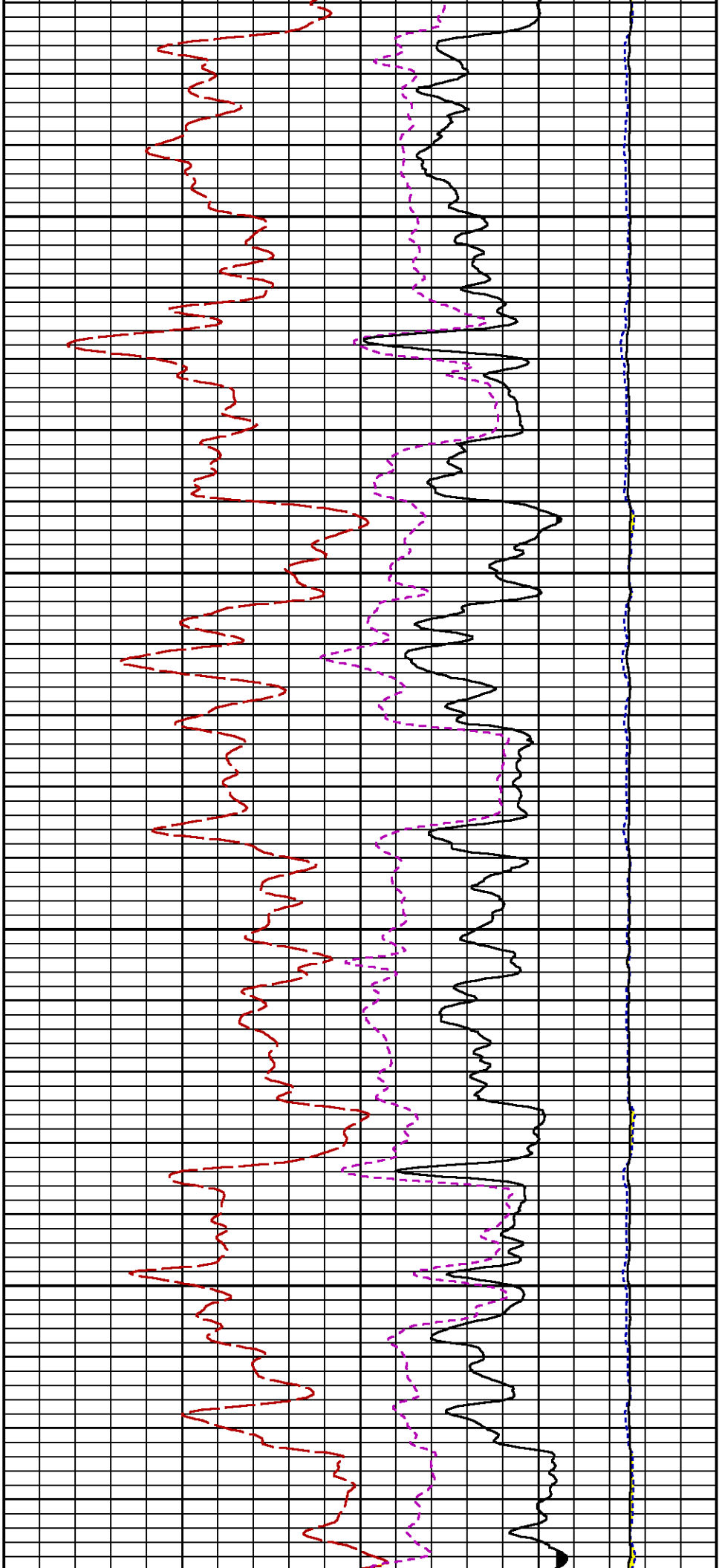


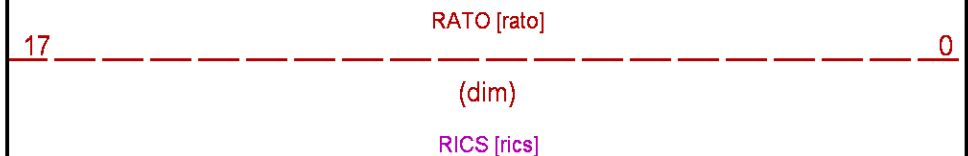
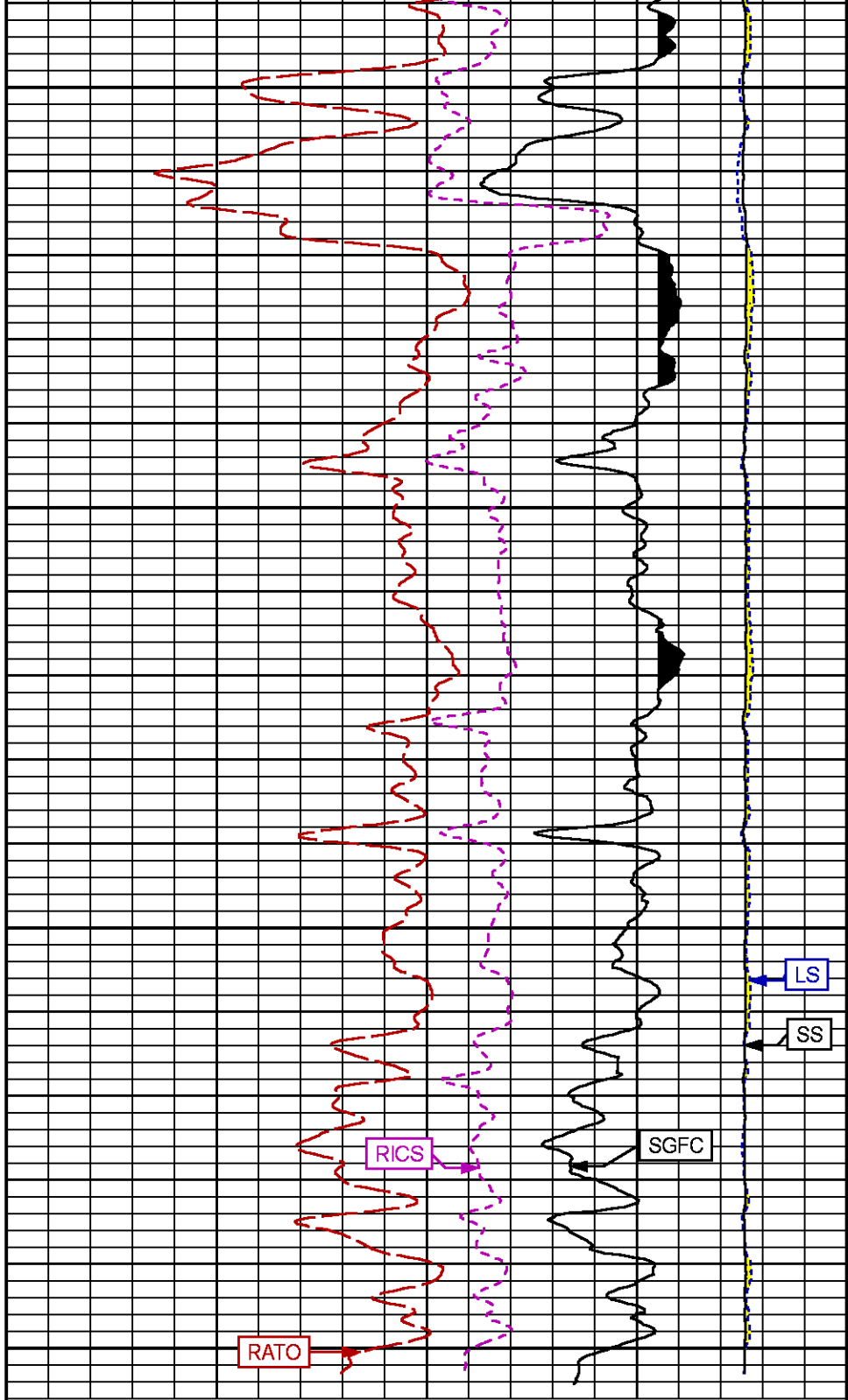
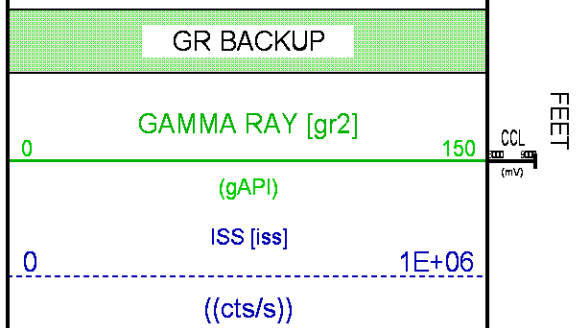
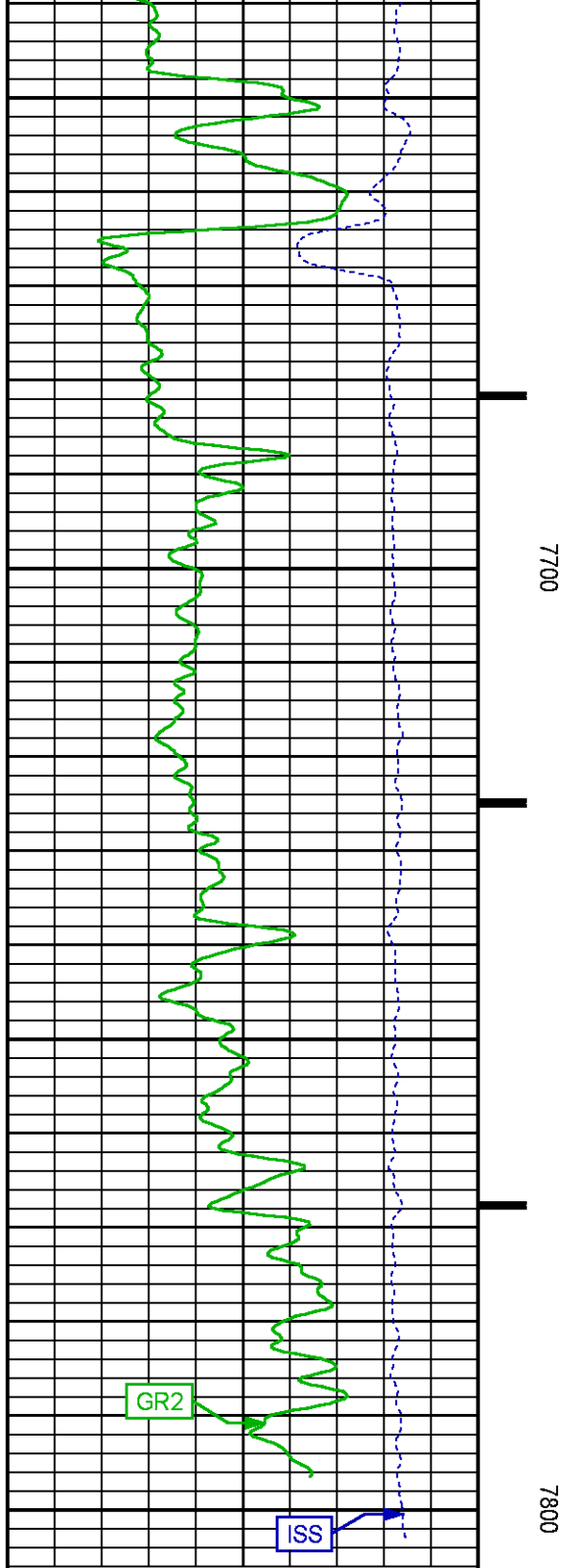












		39	(dim)	
		60	SGFC [sgfc]	0
			(cu)	

REPEAT PASS

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

Patches: 4

Plotted: Tue Jul 3 22:18:06 2018

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-19W/p354h01.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 5515.000 ft BOTTOM DEPTH: 5747.688 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	N/A	CASING COLLAR LOCATOR
F1:GR2	N/A	GAMMA RAY 2
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS	N/A	SHORT SPACE COUNT RATE

### CURVE MEASURE POINT OFFSET

CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-21.75	ISS	-9.50	RATO	-9.50	SGFC	-9.50
GR2	-19.25	LS	-9.50	RICS	-9.50	SS	-9.50

Presentation : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-19W/19W\_RPM\_REPEAT.fvpdf [5"/100' Scale]  
 Plot Interval : 5513.75 - 5763.75 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-19W/19W\_RPM\_REPEAT.xtf  
 Created On : N/A  
 Company : LARAMIE ENERGY LLC  
 Well : NICHOLS 0994-24-19W  
 Field : VEGA  
 File Interval : 5513 - 5764 Feet

GR BACKUP

GAMMA RAY [gr2]

(gAPI)

ISS [iss]

((cts/s))

FEET

CCL  
(mV)

5600

LS [ls]

((cts/s))

SS [ss]

((cts/s))

RATO [rato]

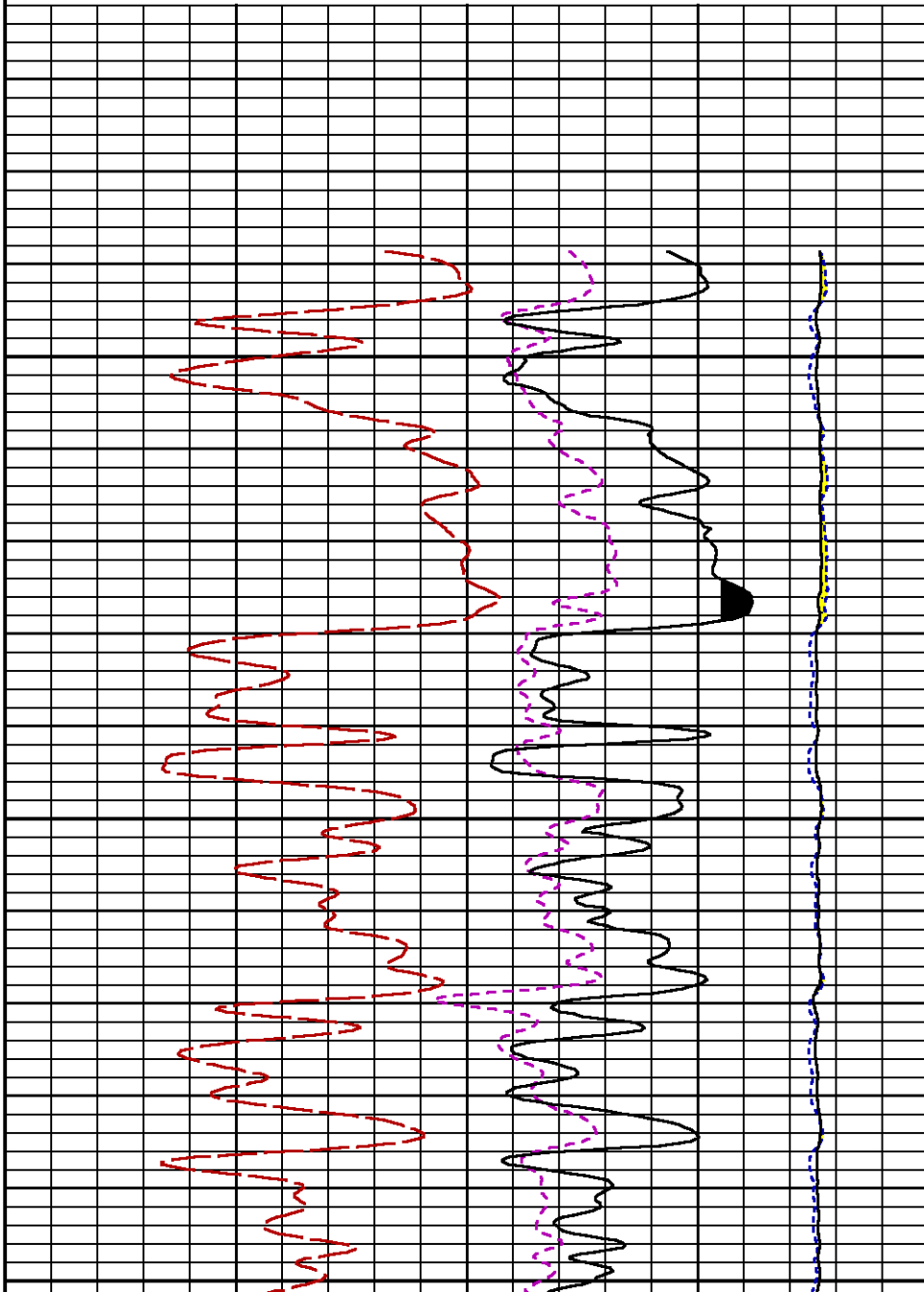
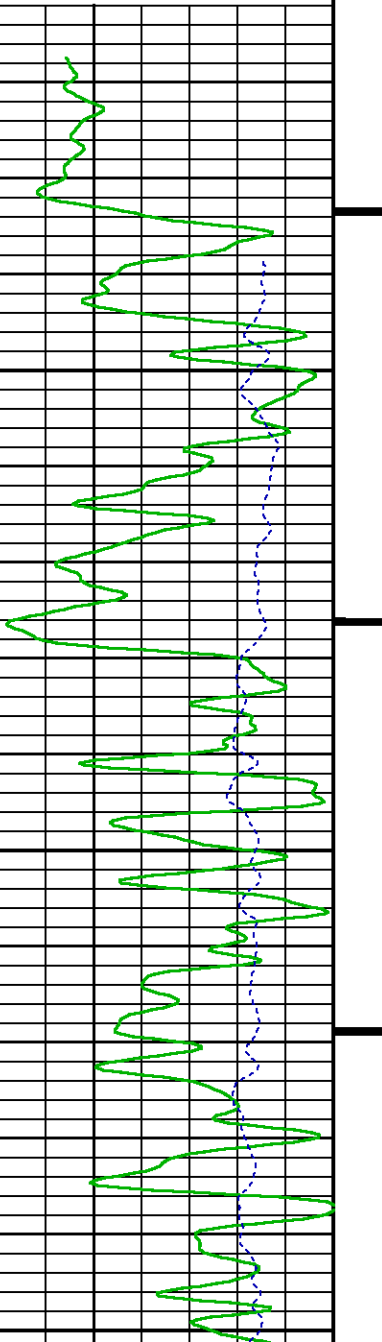
(dim)

RICS [rics]

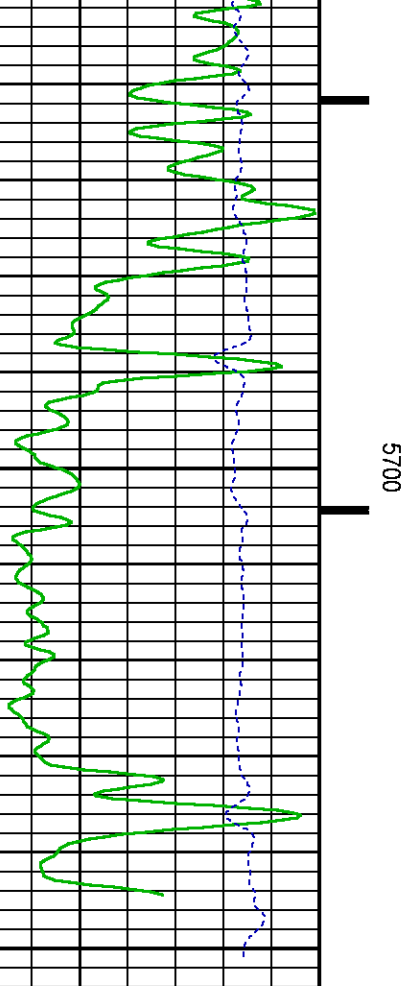
(dim)

SGFC [sgfc]

(cu)







### GR BACKUP

GAMMA RAY [gr2]

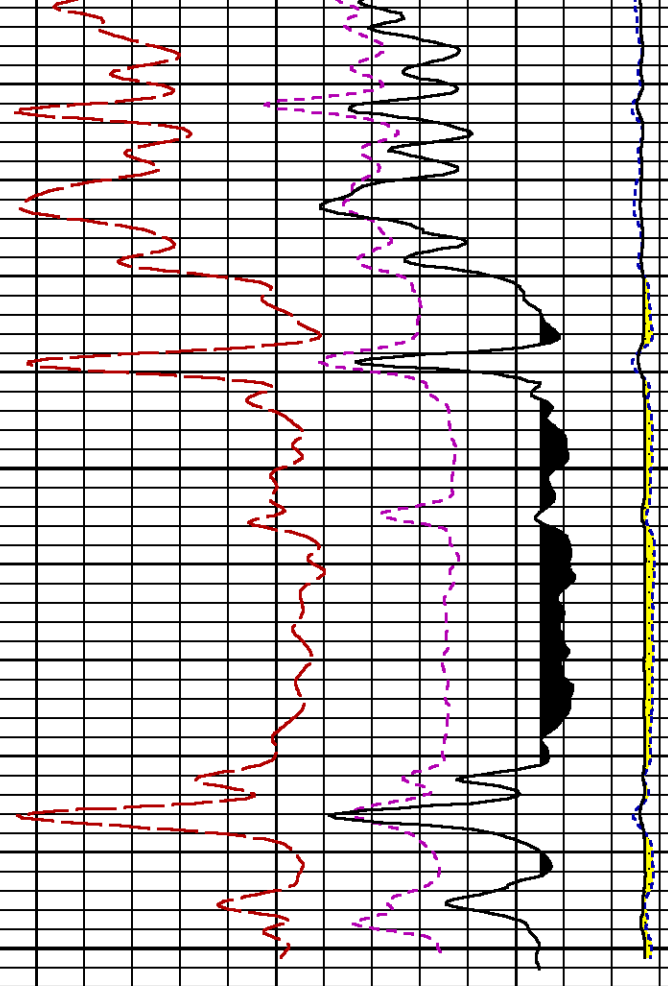
(gAPI)

ISS [jss]

((cts/s))

FEET

CCL  
(mV)



LS [ls]

((cts/s))

SS [ss]

((cts/s))

RATO [rato]

(dim)

RICS [rics]

(dim)

SGFC [sgfc]

(cu)

## CALIBRATION / VERIFICATION SUMMARY

TOOL #: 2812LB 11621284 DATE/TIME PERFORMED: Fri May 11 07:38:13 2018

UNIT #: 3885TD SHAFT1 CALB JIG #: 4702NK BA-930

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	63.62	275.42	211.8	0.992	63.08	273.08	210

## GR PRIMARY VERIFICATION SUMMARY

TOOL #: 2812LB 11621284 DATE/TIME PERFORMED: Fri May 11 07:40:26 2018

UNIT #: 3885TD SHAFT1 VERI JIG #: 4702NK BA-930

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	58.89	276.18	0.992	58.39	273.83	215.44
						200.00 220.00

## RPM\_PNC\_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10068031 DATE/TIME PERFORMED: Mon May 7 23:51:27 2018

UNIT: 5753XD 111111 CALIBRATOR: 2437XB 112674 SOURCE: 8281AA 10047980 HOURS: 8281AA 63

	ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	802814	119	2217	2481	2198	114	8.0	1.0138

Interpolated	1300000	139	2201	2485	2184
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	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	802814	7129	1185	158	25.96	0.15	24.13	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	802814	174125	28683	86762	30909	8359	52608	13370
Fit Quality %		0.791	0.627	0.866	0.857	0.798	0.841	0.839

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	802814	1.44	4.61	28.00	15.26	10.38	3.70	3.94
		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 %		0.030	0.272	1.006	0.137	0.113	0.110	0.077
Reduced	1449874	1.44	4.61	27.83	15.26	10.37	3.69	3.93
		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\_GUNDERSON\_0994-13-17W/RPM-tdg

A3 CABLEHEAD  
Diameter : 1.37"

PCM POWER SUPPLY  
Diameter : 1.70"  
Length : 3.86'

33.24'

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

CCL MP 25.19'

GAMMA RAY, 1 11/16"

Diameter : 1.69"  
Length : 2.17'  
Weight : 10 lbs  
Series : 2812LA  
Mnemonic : GR

GR MP 22.64'

RPM ELECTRONICS

Diameter : 1.70"  
Length : 4.48'  
Weight : 16 lbs  
Series : 2812EA  
Mnemonic : RPM

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"

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

0.00'

**BAKER  
HUGHES**  
a GE company



**ECLIPS**

**COMPANY** LARAMIE ENERGY LLC

**WELL** NICHOLS 0994-24-19W

**FIELD** VEGA

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

**FILE NO:**

CH137655

**API NO:**

05077103980000

**LOCATION:**

SHL; 2315' FNL & 2781' FWL

BHL; 670' FSL & 1550' FWL

**SEC** 24 **TWP** 9S **RGE** 94W

**ELEVATIONS:**

KB 7236 FT

DF

GL 7212 FT

**DATE** 03-Jul-2018