



FILE NO:

COMPANY

LARAMIE ENERGY

WELL

PICEANCE FEDERAL 29-22E

FIELD

VEGA

API NO:  
05-077-10361-0000

COUNTY

MESA

STATE COLORADO

Ver. 4.06

LOCATION:

SHL: LAT:39.248411N; LONG:107.788286W  
BHL: LAT:39.241502N; LONG:107.793034W

OTHER SERVICES

SEC 29 TWP 09 S RGE 93 W

PERMANENT DATUM GL ELEVATION 7631 FT  
LOG MEASURED FROM KB 30 FT ABOVE P.D.  
DRILL. MEAS. FROM KBELEVATIONS:  
KB 7661 FT  
DF  
GL 7631 FT

DATE 28-MAY-2017

RUN TRIP

2

1

SERVICE ORDER

US123650J

DEPTH DRILLER

8400 FT

DEPTH LOGGER

8243 FT

BOTTOM LOGGED INTERVAL

8243 FT

TOP LOGGED INTERVAL

2740 FT

TIME STARTED

10:00

TIME FINISHED

14:00

OPERATOR RIG TIME

6 HRS

TYPE OF FLUID IN HOLE

WATER

FLUID DENSITY

NA

FLUID SALINITY

NA

FLUID LEVEL

53 FT

LOGGED CEMENT TOP

NA

WELLHEAD PRESSURE

0 PSI

MAXIMUM HOLE DEVIATION

NA

NOMINAL LOGGING SPEED

15 FMIN

MAX. RECORDED TEMP.

243 DEGF

REFERENCE LOG

BAKER HUGHES GR/CBL

REFERENCE LOG DATE

28-MAY-2017

EQUIP. NO. LOCATION

HL-6670

WOODWARD

RECORDED BY

S.YASSA

WITNESSED BY

R.CATES/A.MCCARTHY

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 - 0 FT 8400 FT

## REMARKS

RUN 2 TRIP 1: \*2 OPERATIONS IN WELL\*

\*\*OPERATION 2: CCL/GR/RPM RUN IN COMBINATION\*\*

LOGGED WITH 0 PSI AT THE WELLHEAD

SJ1: 7379'-7357'

SJ2: 6285' - 6262'

CREW: JOE.PENA , S.AKKOUCH

## EQUIPMENT DATA

RUN TRIP TOOL SERIES NO. SERIAL NO. POSITION

2	1	TELEMETRY	8250 EA/8248 ED	1510000/11908681	FREE
2	1	GAMMA RAY	8262 XA	10317216	FREE
2	1	RPM ELEC	8281 EA	10309421	FREE
2	1	RPM	8283 PA/8281 FA	10414345/10401926	FREE
2	1	TEMP	8255 XA	120516	FREE

## G-SAND SECTION PNC 3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013  
 Updates: 1 Patches: 9

Plotted: Sun May 28 16:22:13 2017

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_22E/RPM\_PNC3D03.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 2724.750 ft BOTTOM DEPTH: 3392.250 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	8.75	in	"	"
	CASING SIZE	4.50	in	"	"
	MATRIX	SANDSTONE		"	"
	CORRECTION BUFFER	11		"	"

### CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	May 28 15:36:36 2017	CASING COLLAR LOCATOR
F1:GR	May 28 15:36:36 2017	GAMMA RAY
F1:ISS	May 28 15:36:36 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	May 28 15:36:36 2017	LONG SPACE COUNT RATE
F1:RATO	May 28 15:36:36 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	May 28 15:36:36 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	May 28 15:36:36 2017	CORRECTED FORMATION SIGMA
F1:SS	May 28 15:36:36 2017	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	: cpu100:/dat1a/LARAMIE_PICEANCE_FEDERAL_29_22E/rpm_pnc3d+01-GSAND-29_22E-5.fvpdf [5"/100' Scale]
Plot Interval	: 2698.5 - 3382.25 Feet
Data File 1	: F1 : cpu100:/dat1a/LARAMIE_PICEANCE_FEDERAL_29_22E/RPM_GSAND_22E.xtf
Created On	: May 28 15:36:36 2017
Company	: LARAMIE ENERGY
Well	: PICEANCE 29-22E
Field	: VEGA
File Interval	: 2697.75 - 3392.25 Feet
OCT	: RPM_PNC3

GR BACKUP

GAMMA RAY [gr]

(gAPI)

ISS [iss]

((cts/s))

FEET

CCL  
(mV)

2800

GR

ISS

LS [ls]

((cts/s))

SS [ss]

((cts/s))

RATO [rato]

(dim)

RICS [rics]

(dim)

SGFC [sgfc]

(cu)

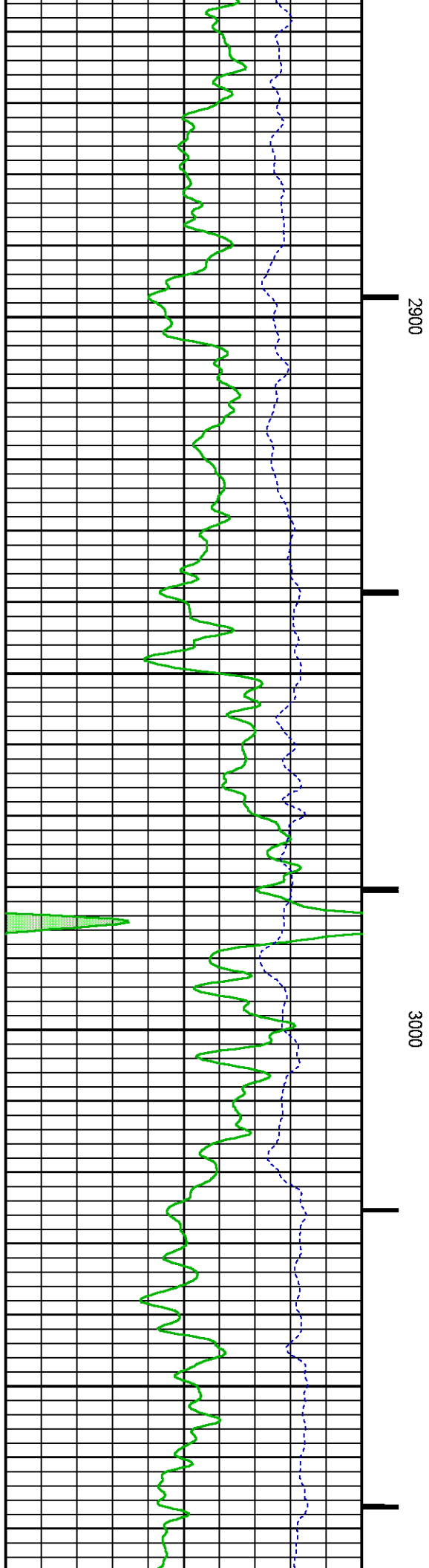
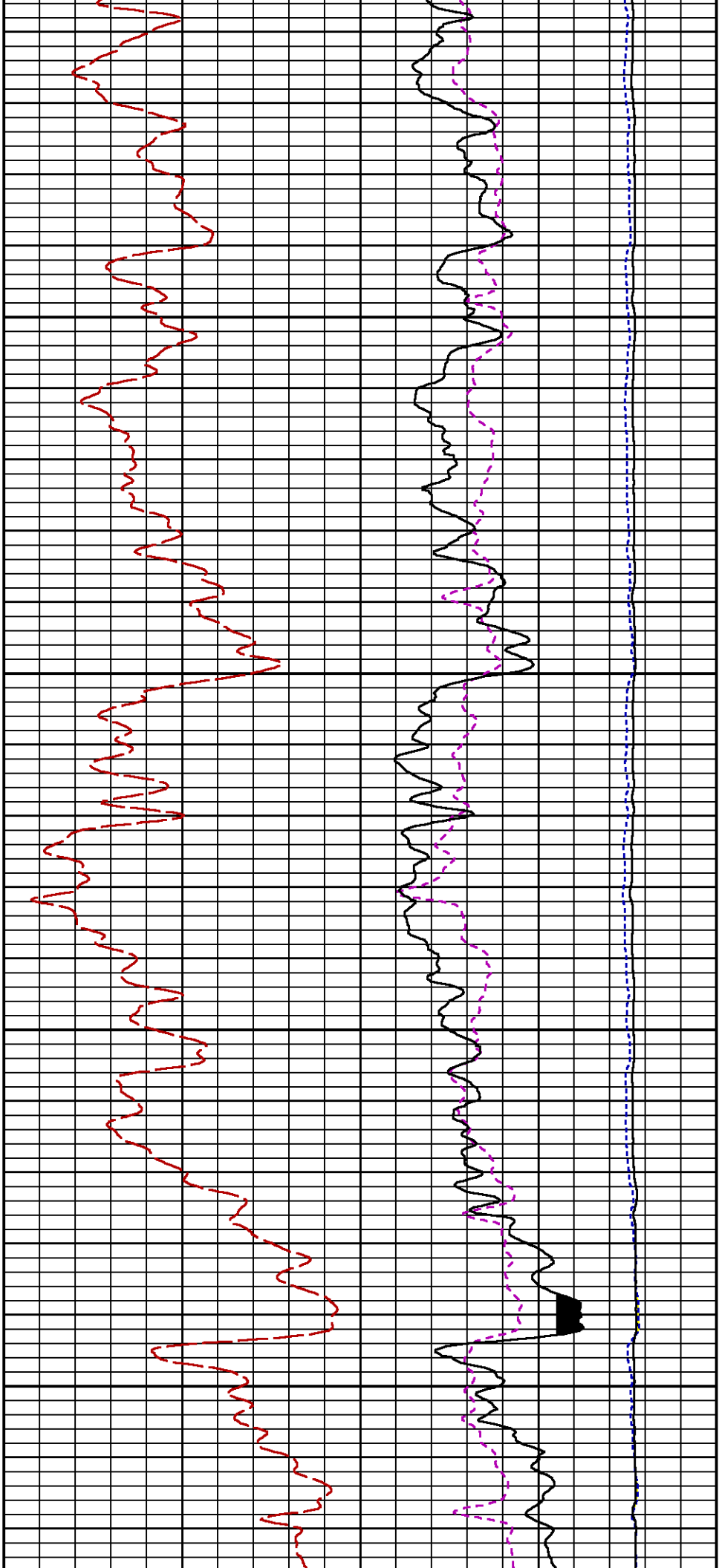
RATO

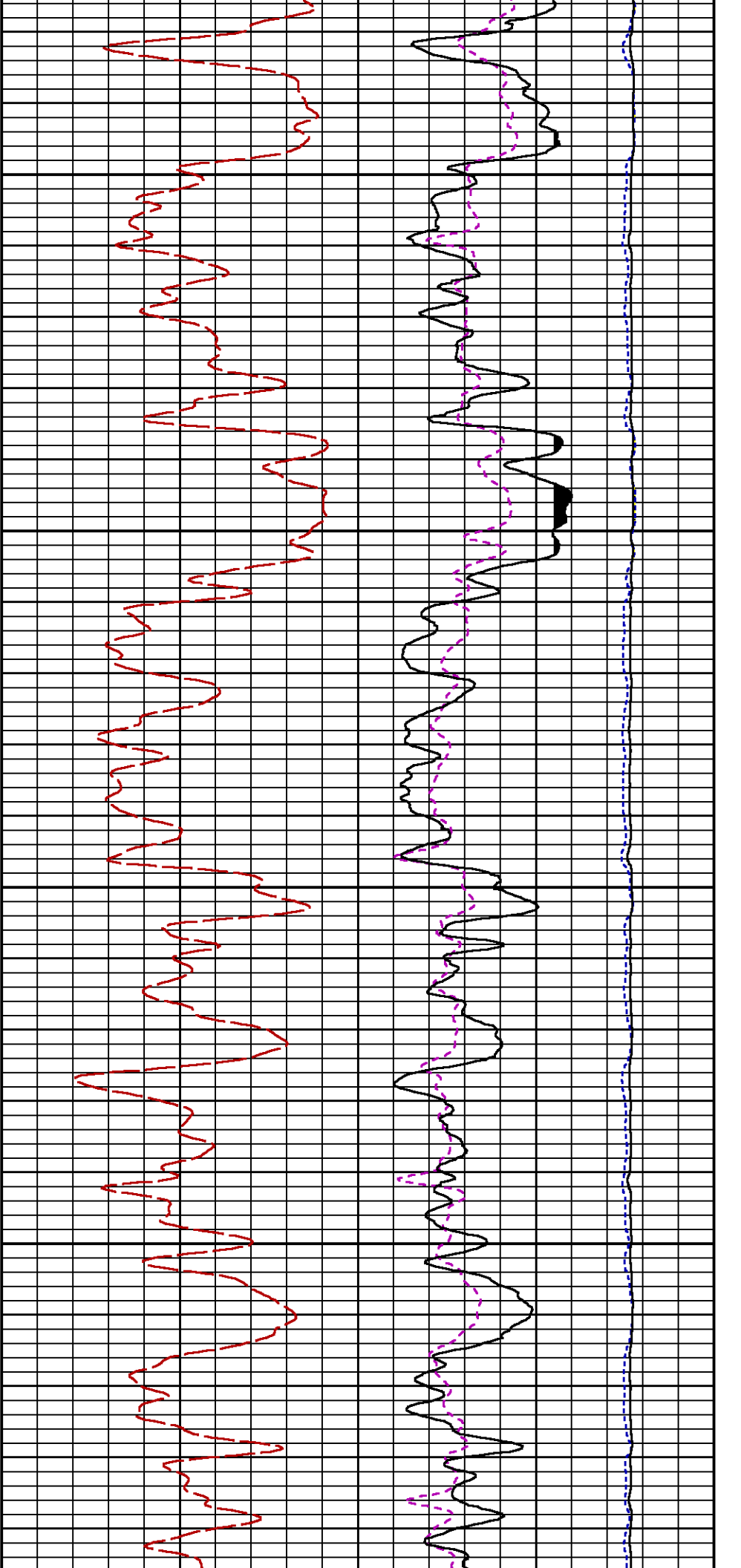
SGFC

LS

SS

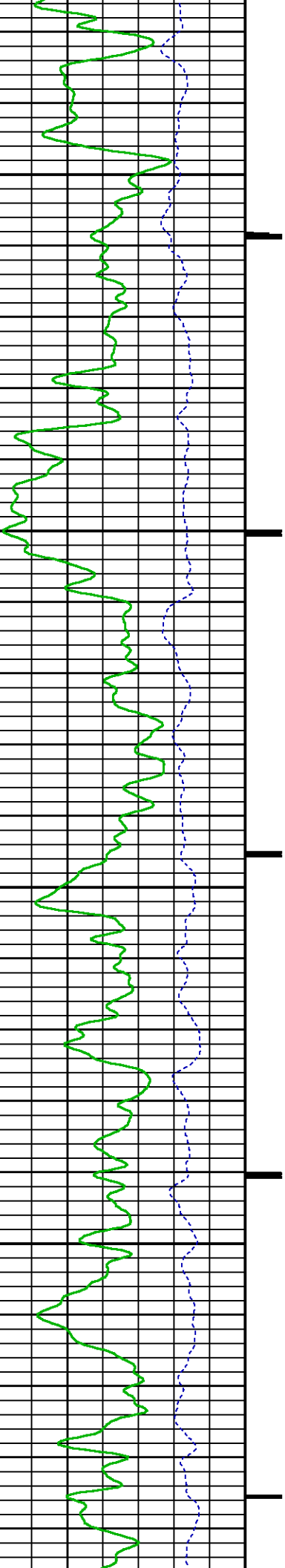
RICS

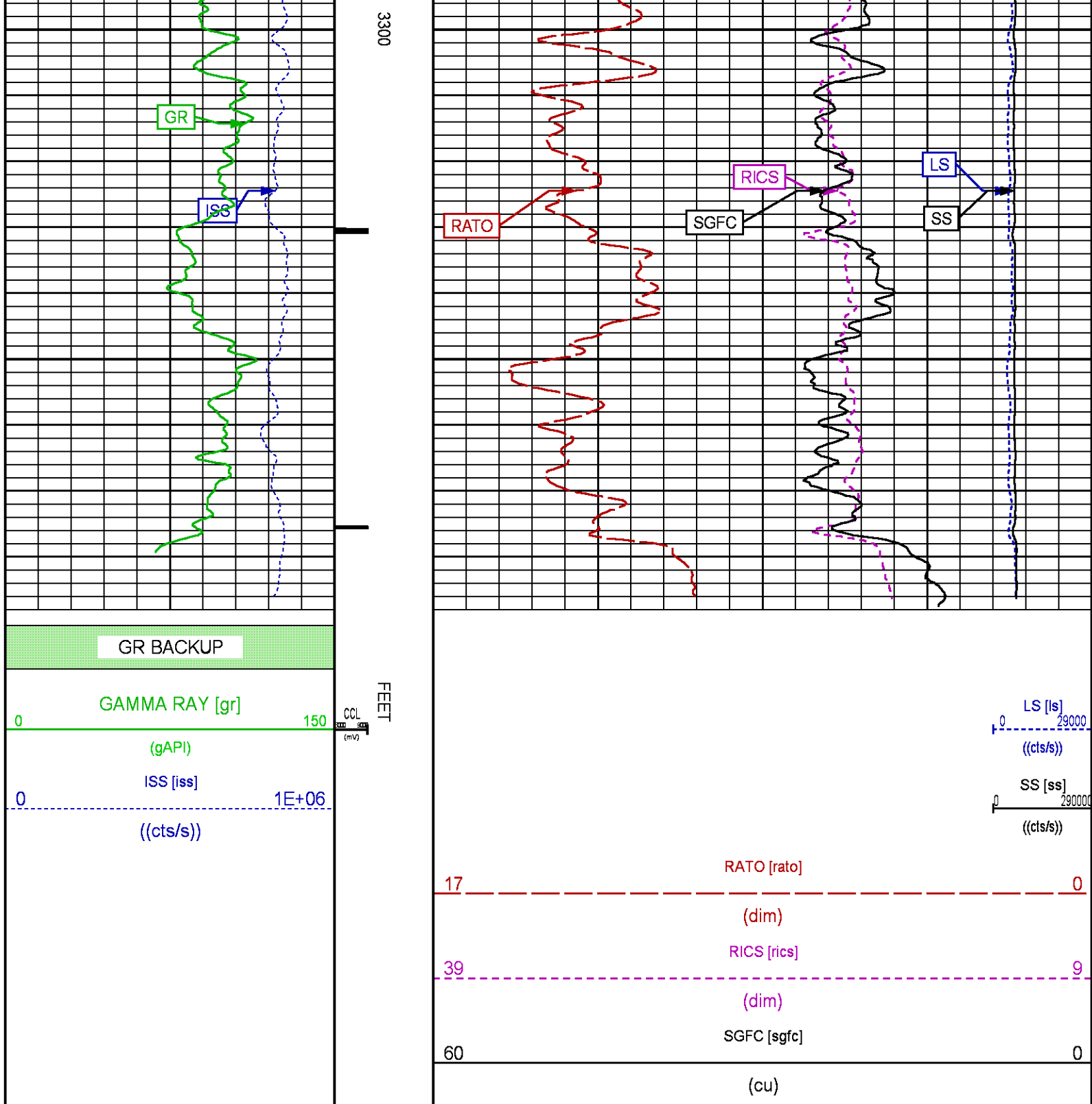




3100

3200





MAIN PNC 3D MODE

# PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_22E/RPM\_PNC3D02.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 4837.500 ft BOTTOM DEPTH: 8266.138 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	8.75	in	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

## CURVE DESCRIPTION REPORT

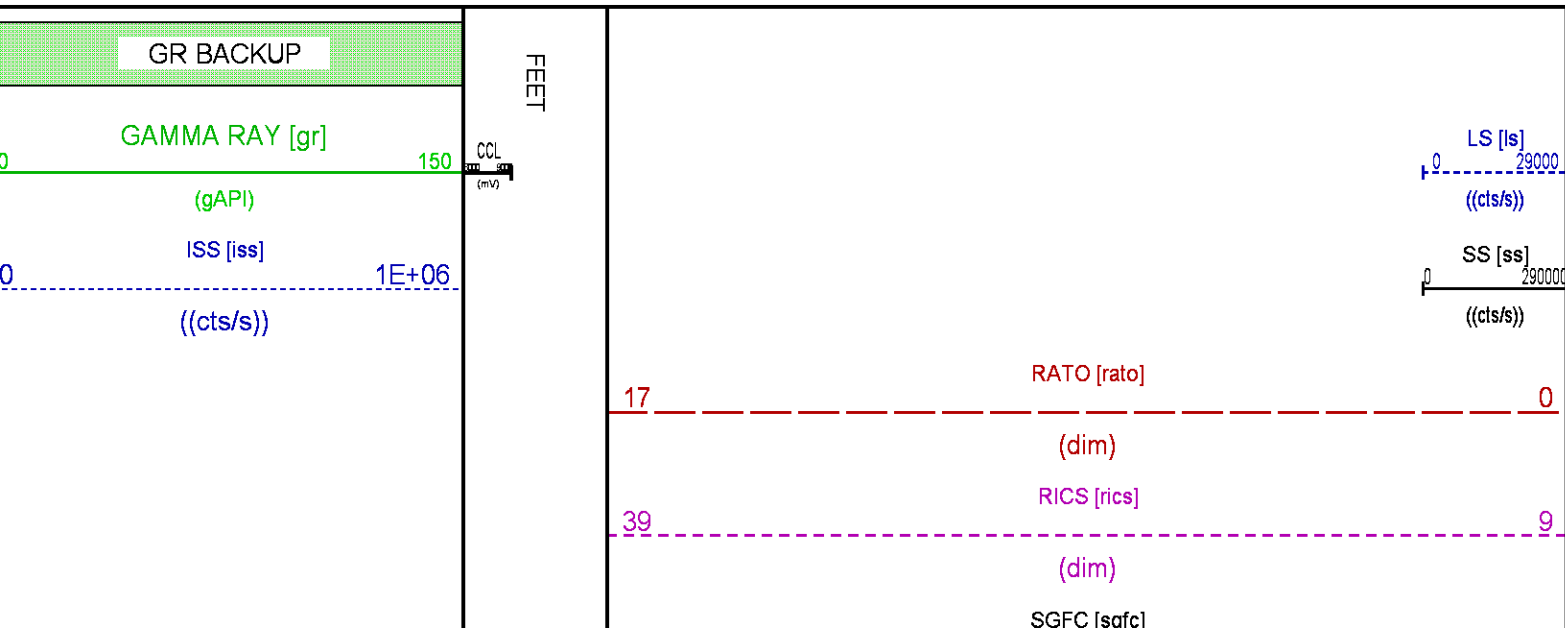
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	May 28 11:54:29 2017	CASING COLLAR LOCATOR
F1:GR	May 28 11:54:29 2017	GAMMA RAY
F1:ISS	May 28 11:54:29 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	May 28 11:54:29 2017	LONG SPACE COUNT RATE
F1:RATO	May 28 11:54:29 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	May 28 11:54:29 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	May 28 11:54:29 2017	CORRECTED FORMATION SIGMA
F1:SS	May 28 11:54:29 2017	SHORT SPACE COUNT RATE

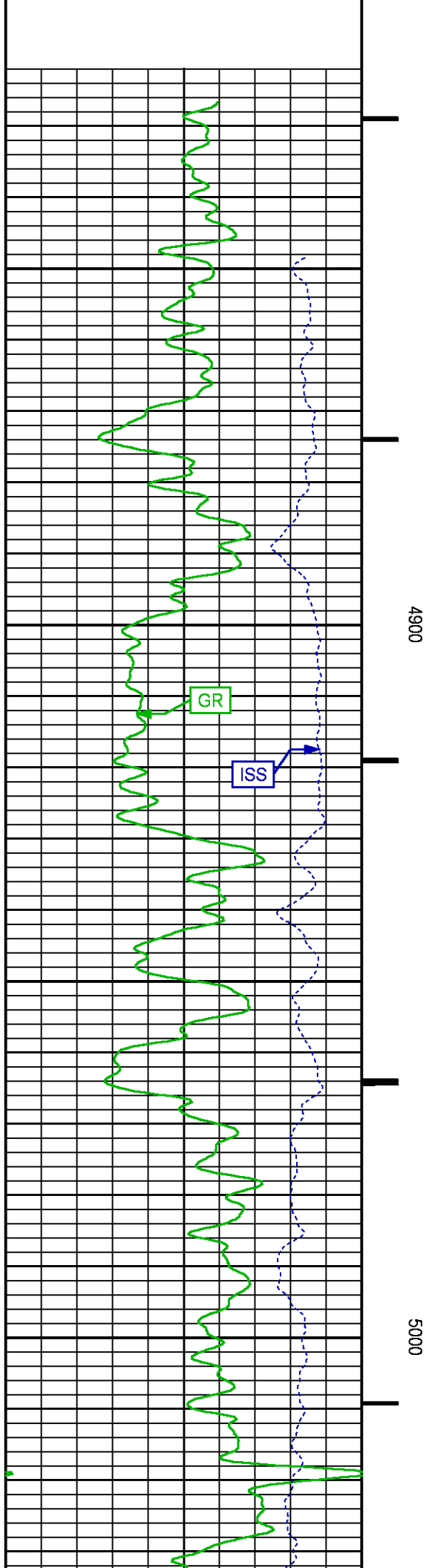
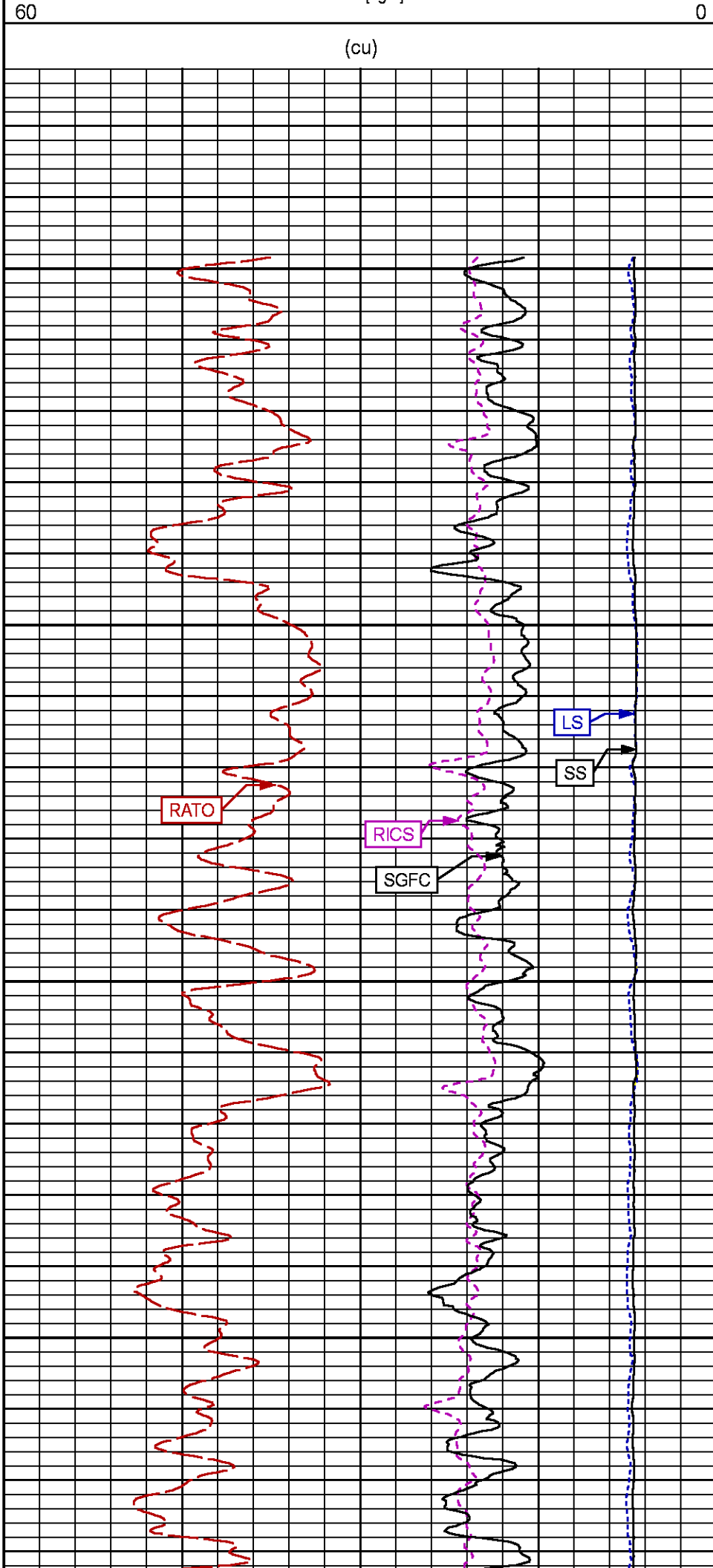
## CURVE MEASURE POINT OFFSET

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

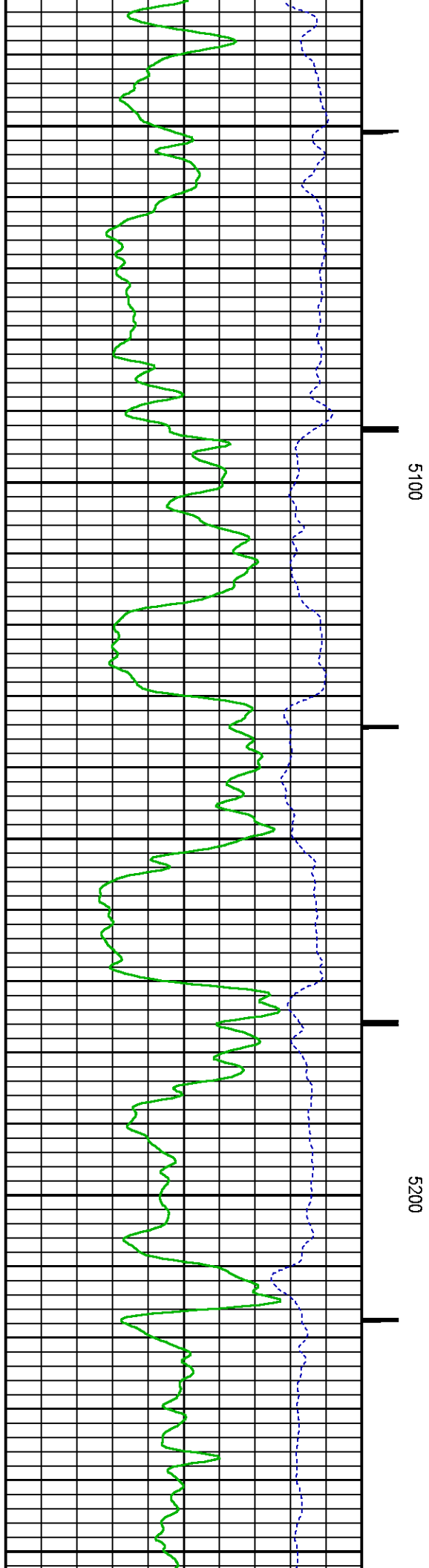
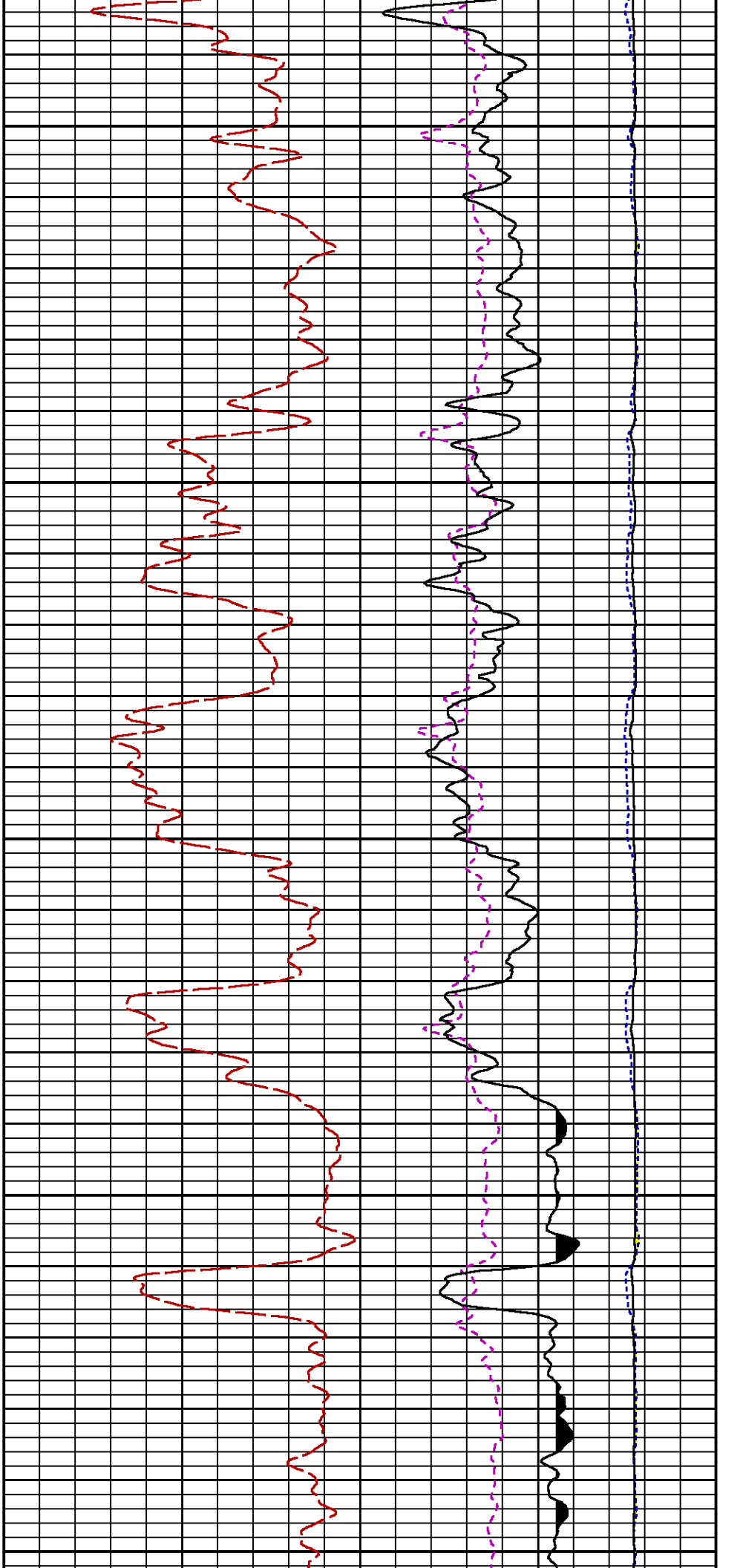
Presentation : cpu100:/dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_22E/rpm\_pnc3d+01-MAIN-29\_22E\_5.fvpdf [5"/100' Scale]  
 Plot Interval : 4822.5 - 8266.5 Feet

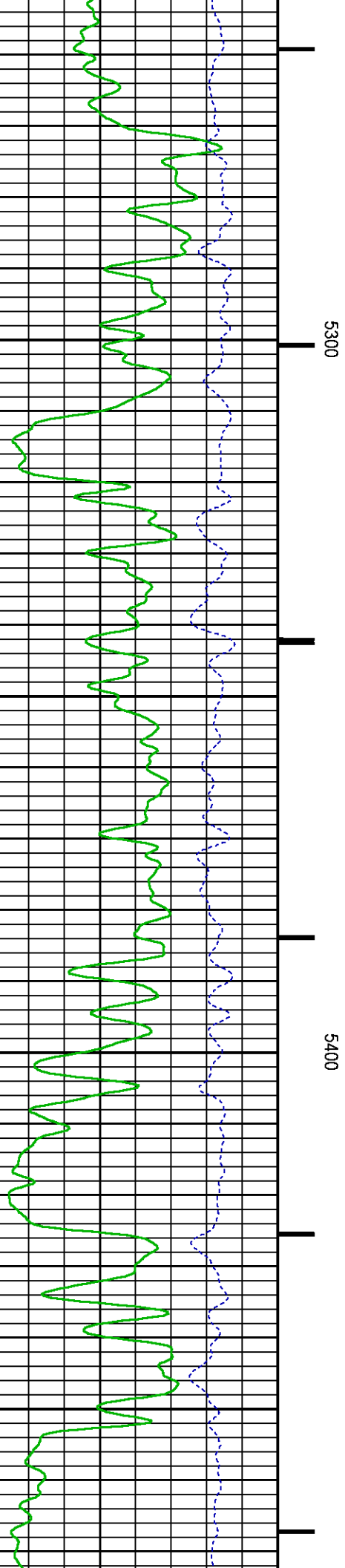
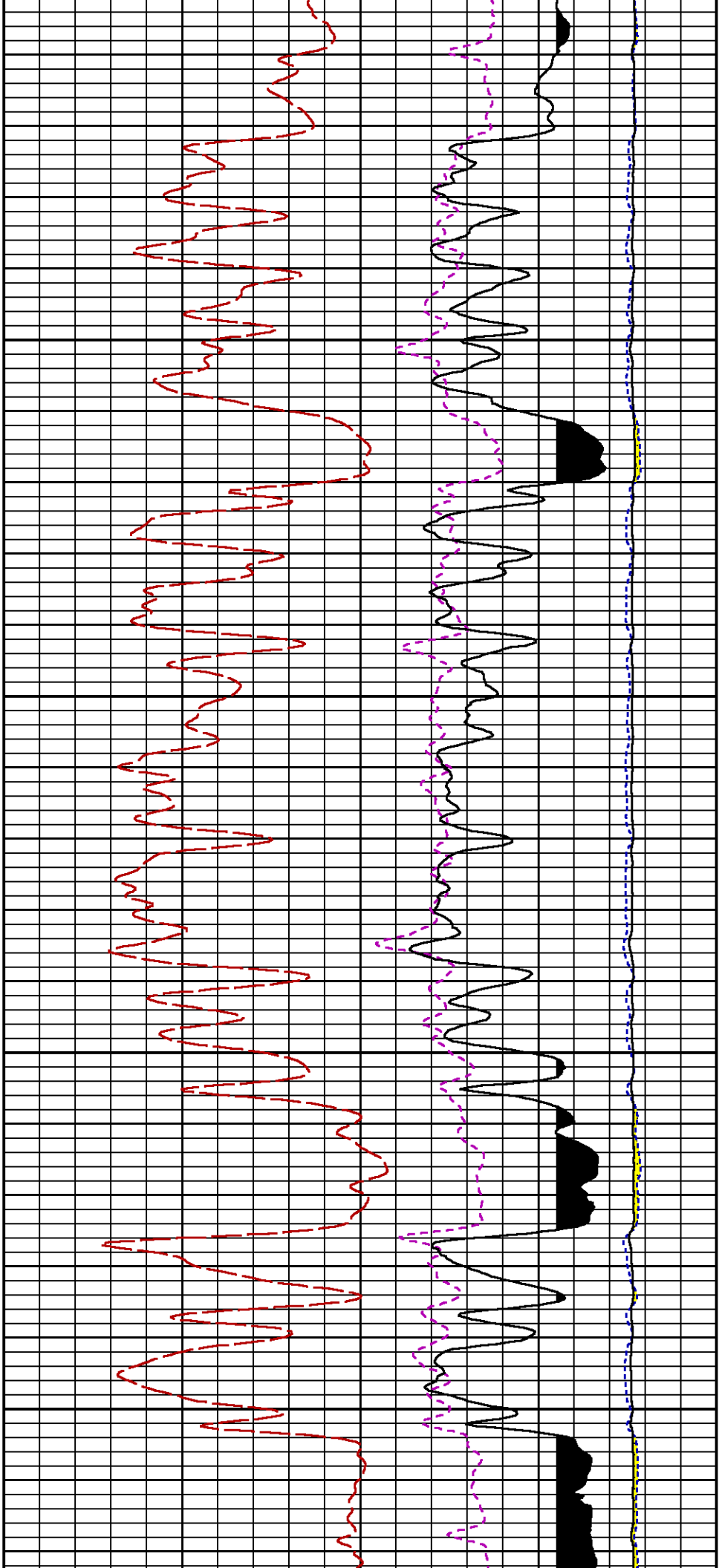
Data File 1 : F1 : cpu100:/dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_22E/RPM\_MAIN\_22E.xtf  
 Created On : May 28 11:54:29 2017  
 Company : LARAMIE ENERGY  
 Well : PICEANCE 29-22E  
 Field : VEGA  
 File Interval : 4821.75 - 8275.25 Feet  
 OCT : RPM\_PNC3

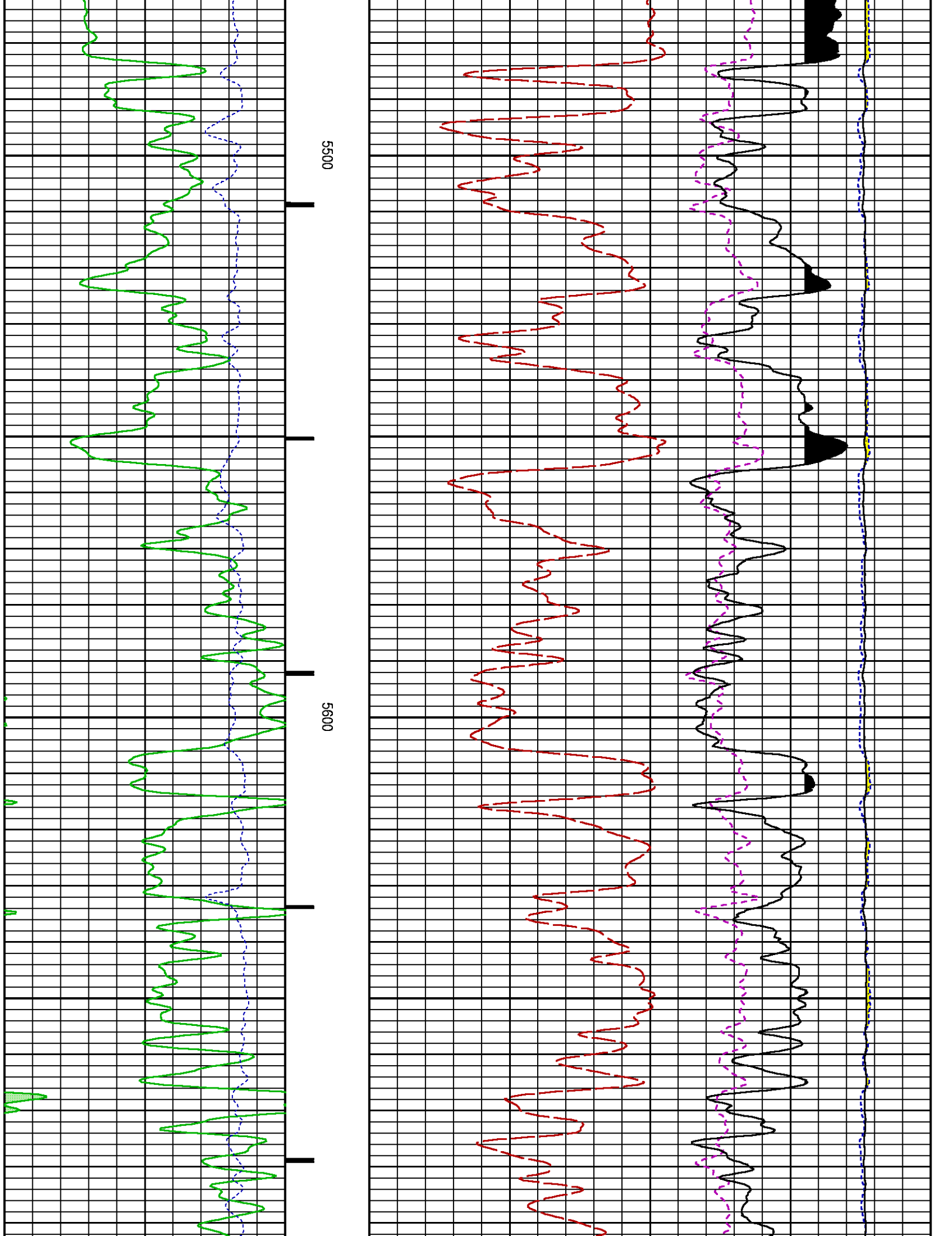


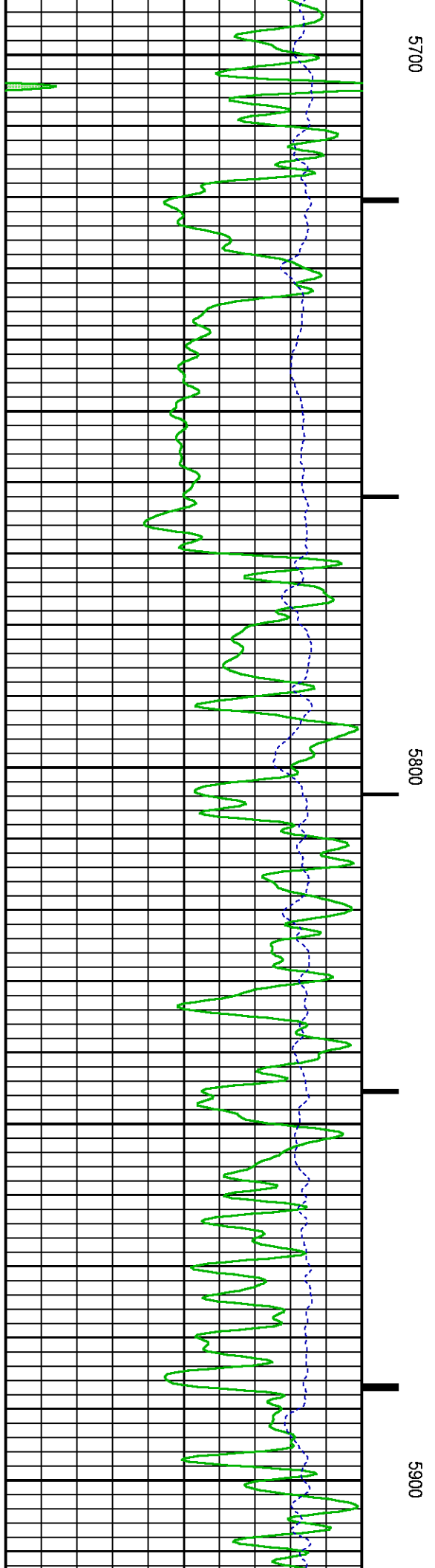
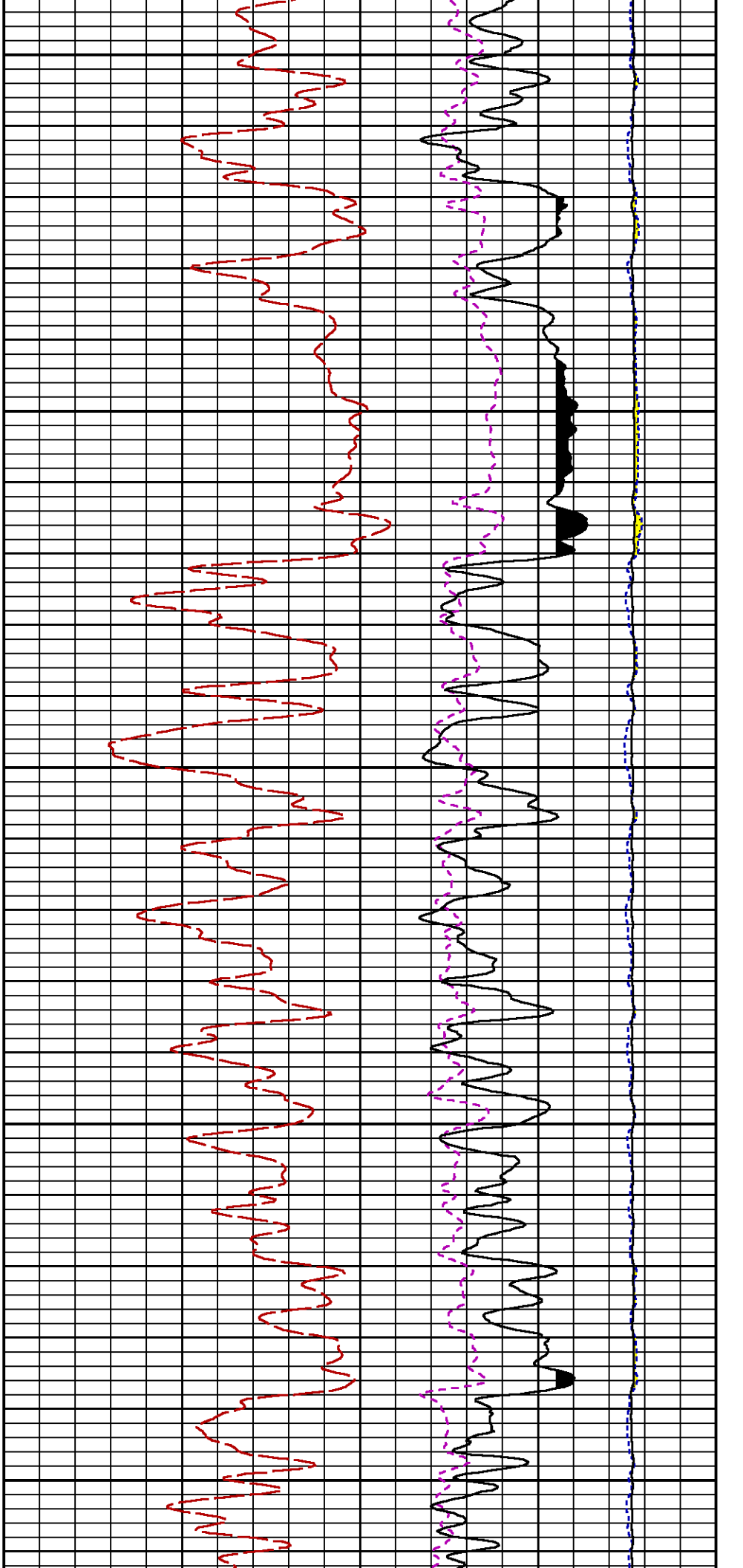


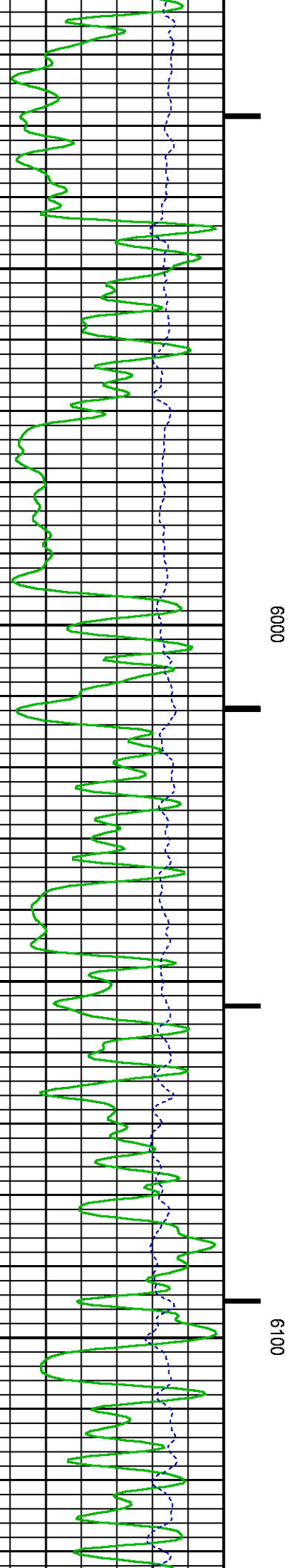
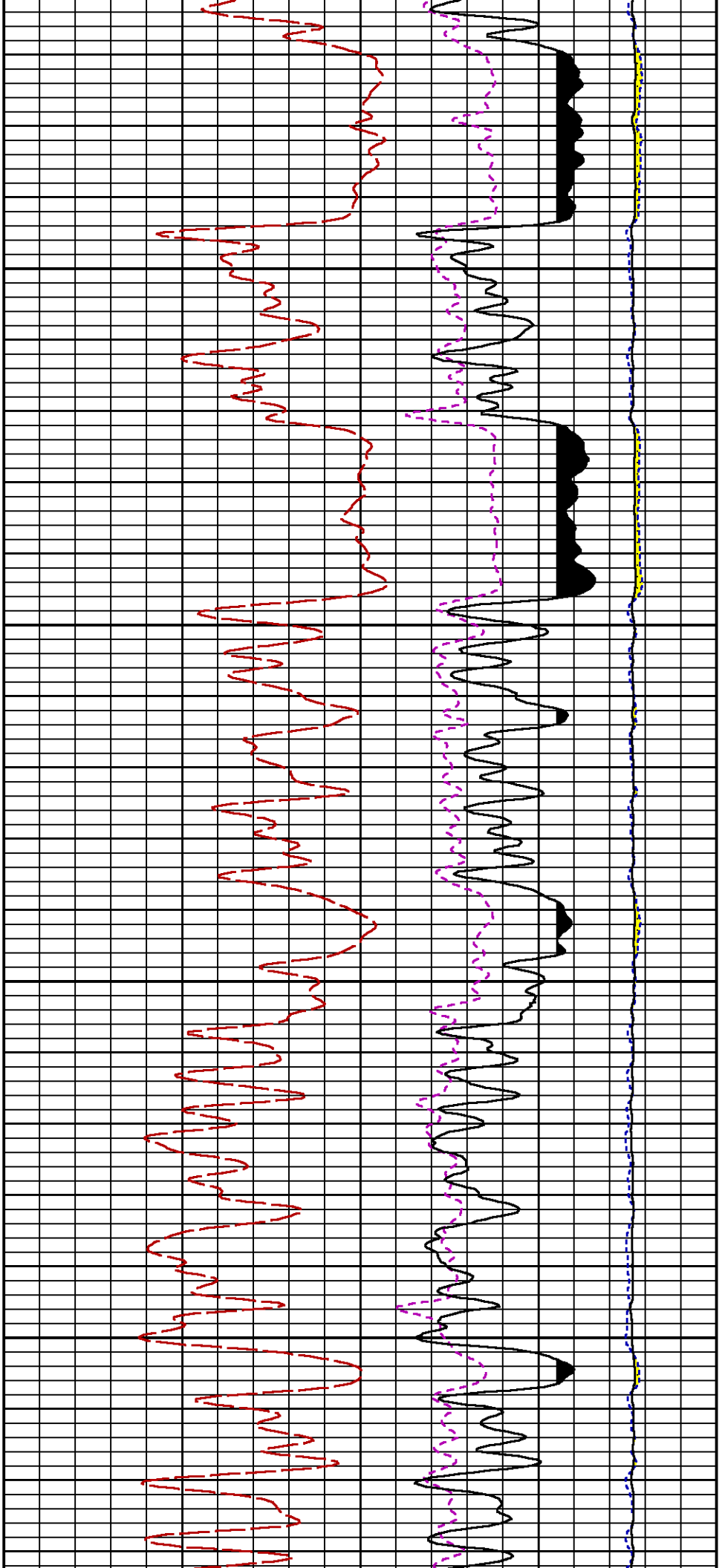


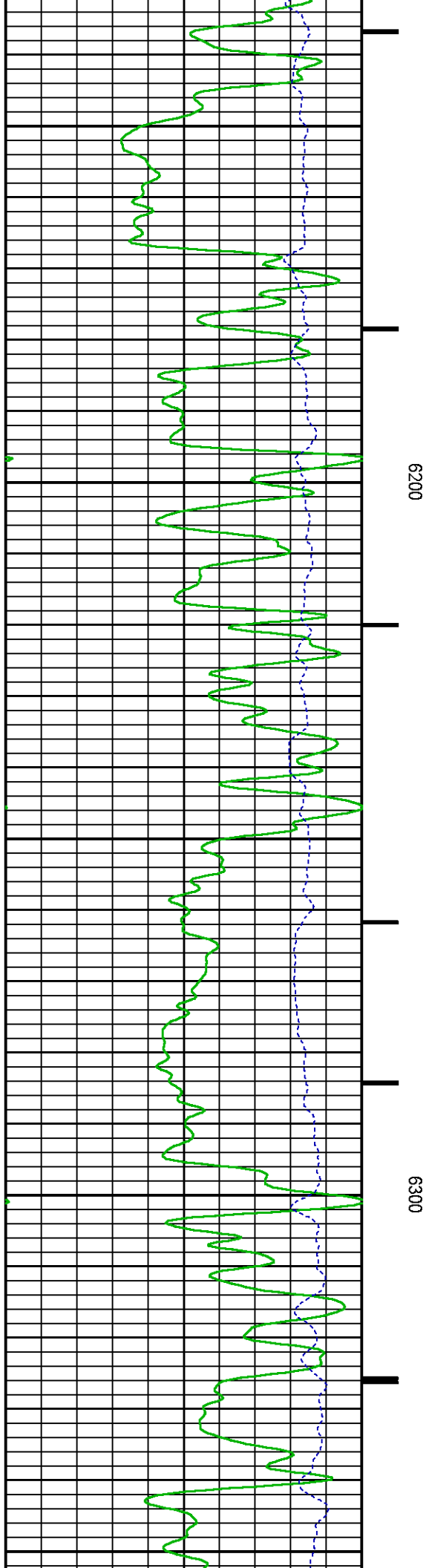
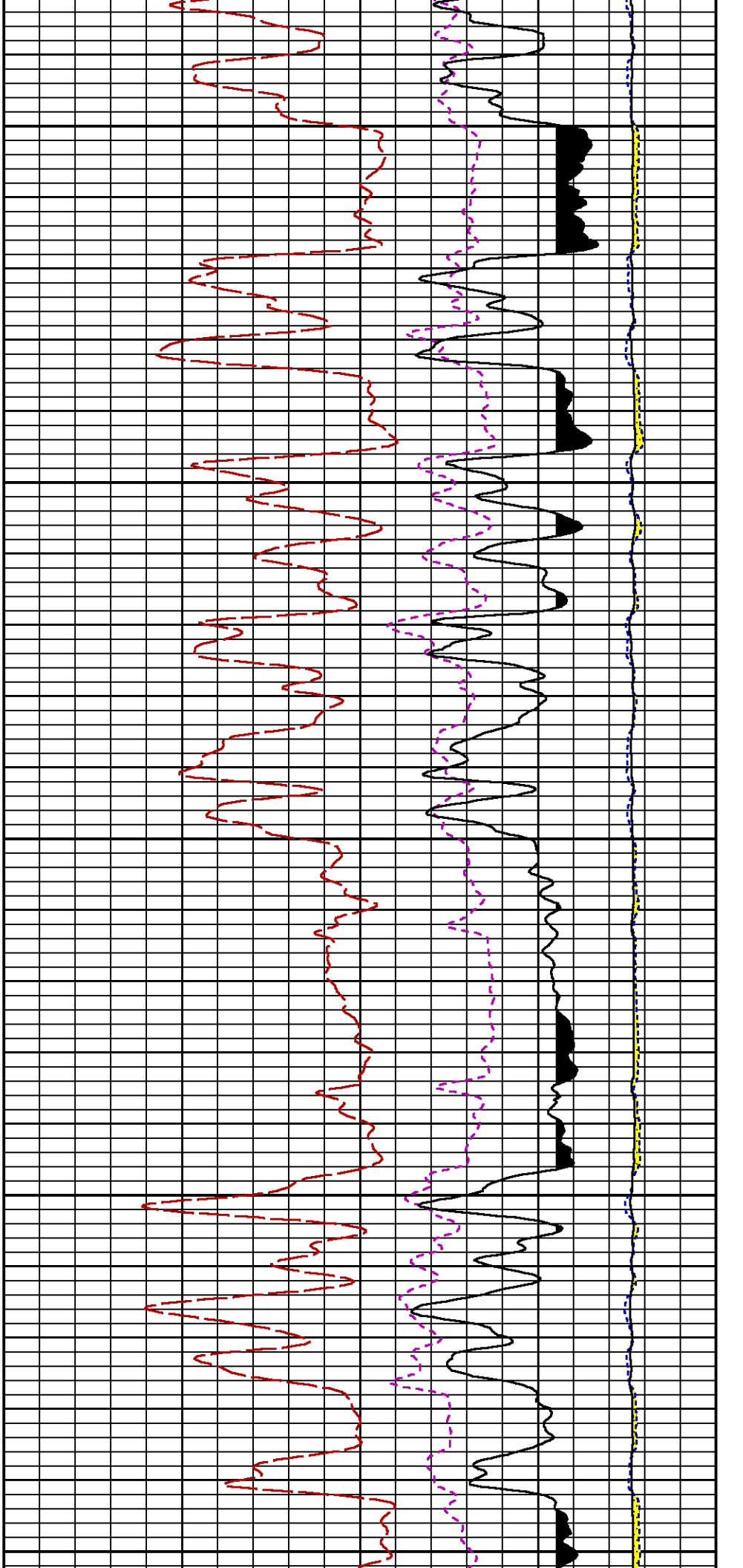


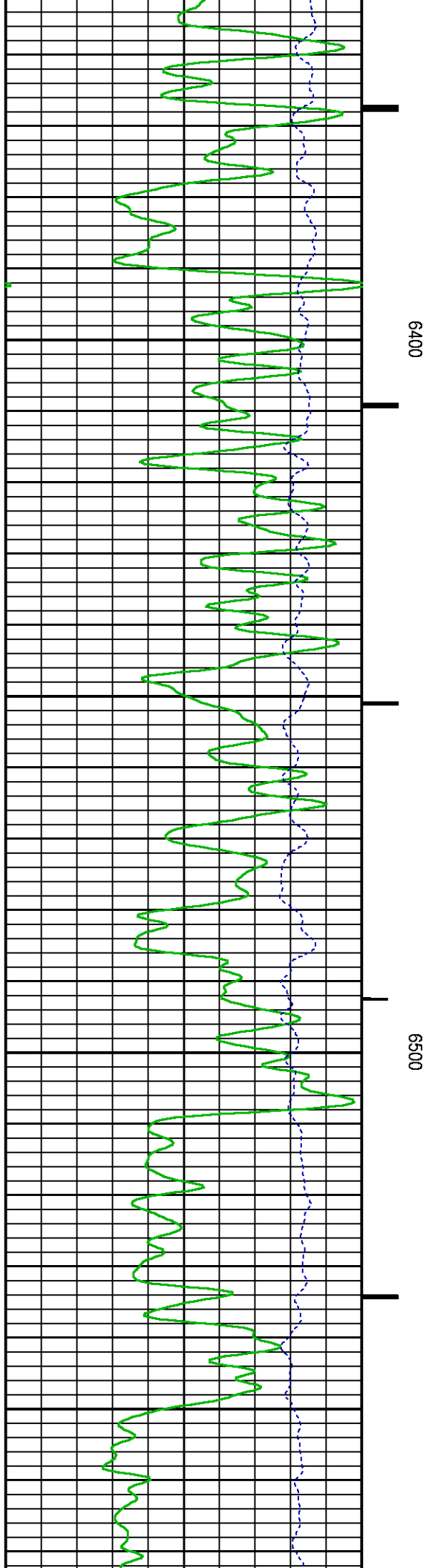
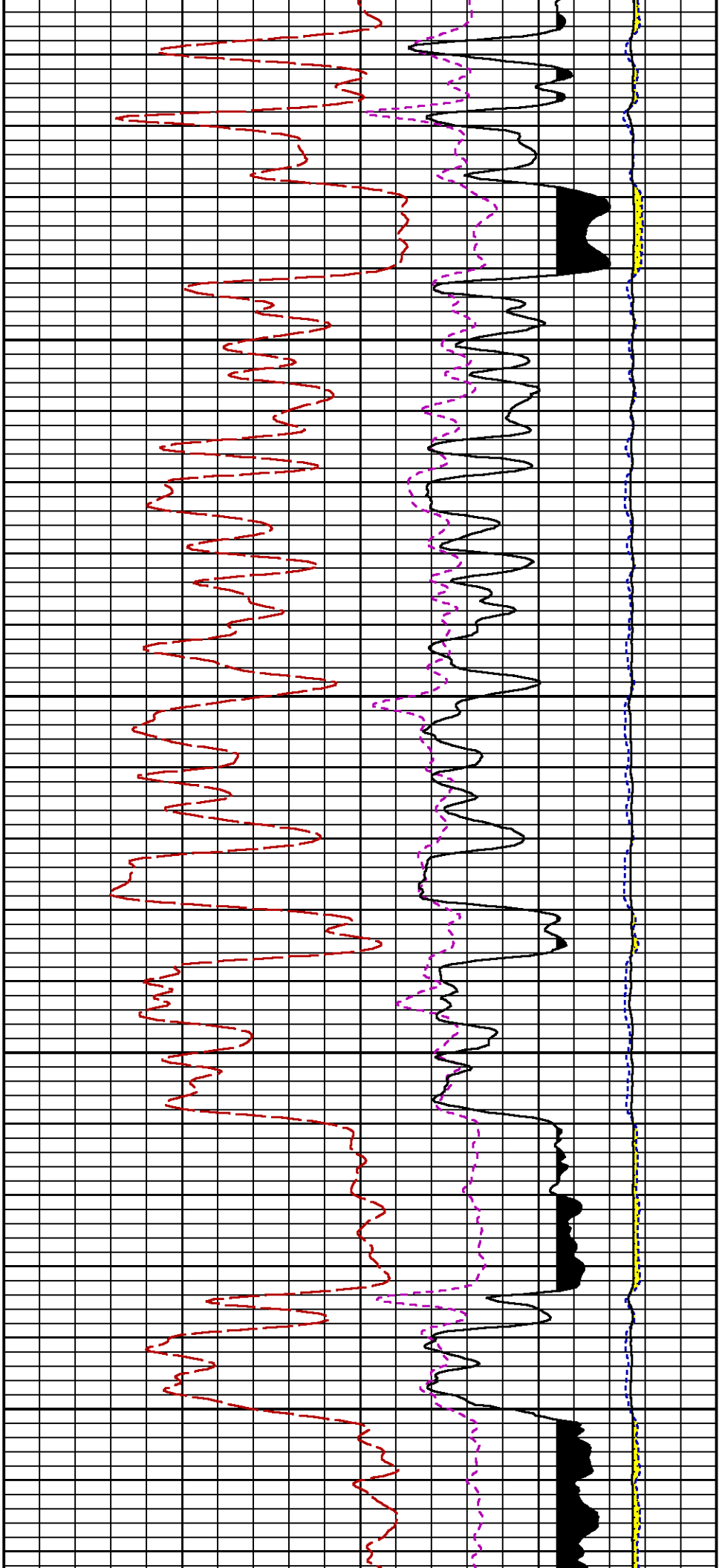


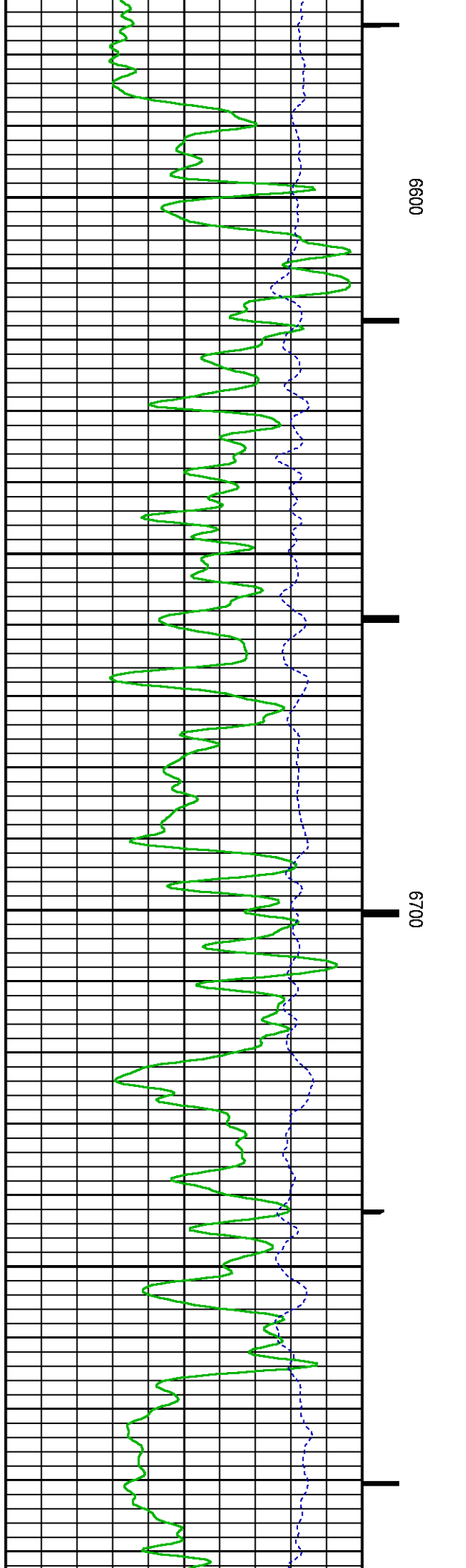
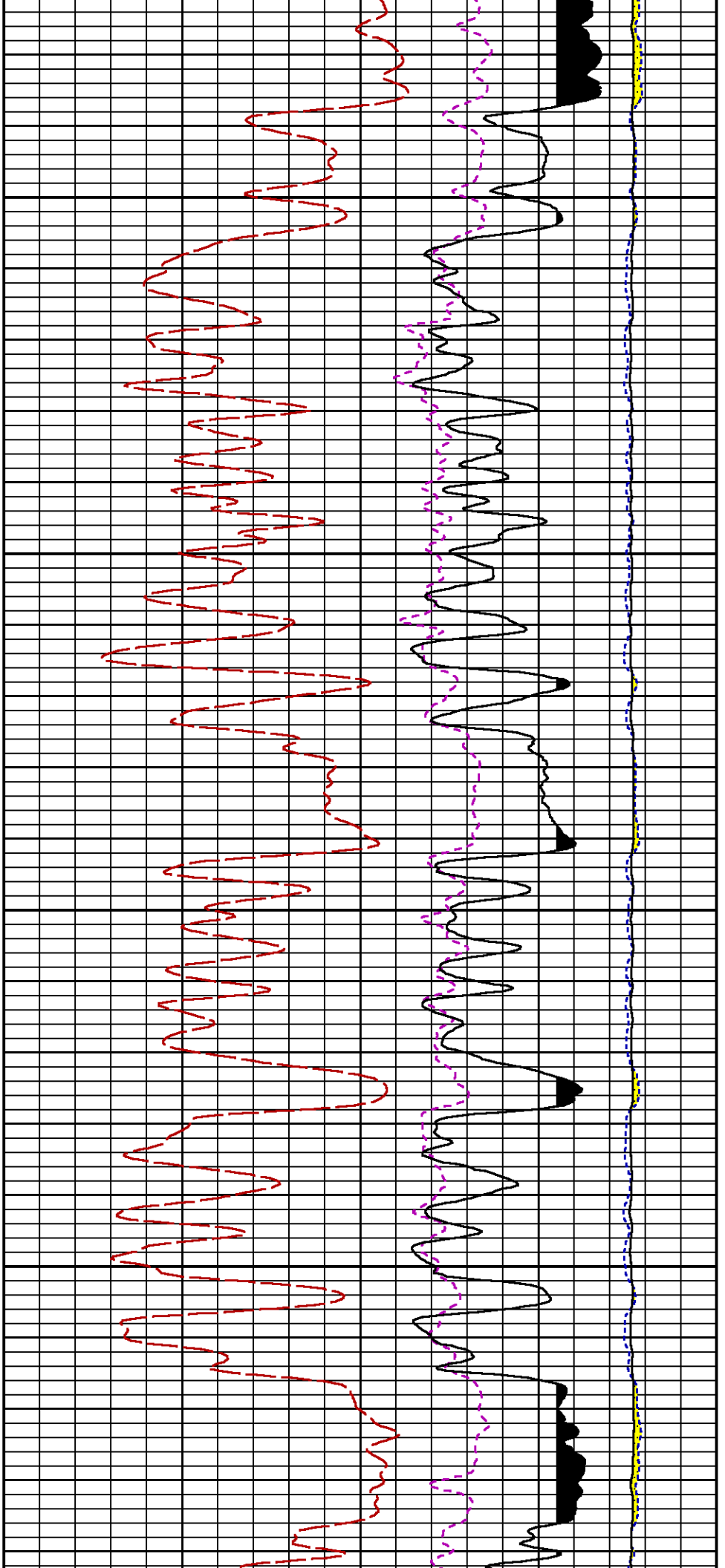




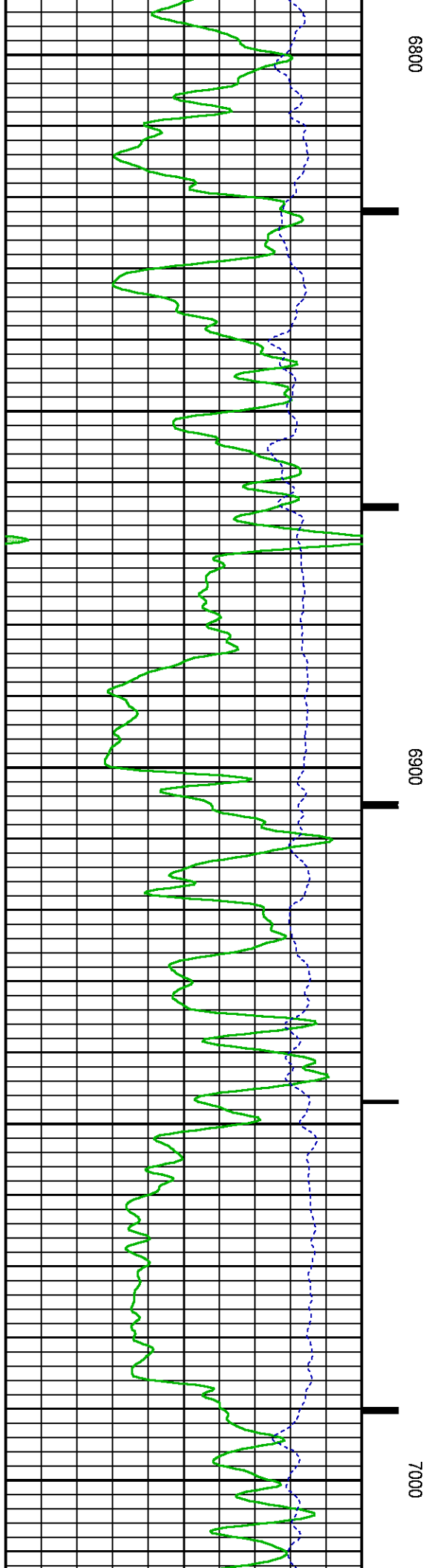
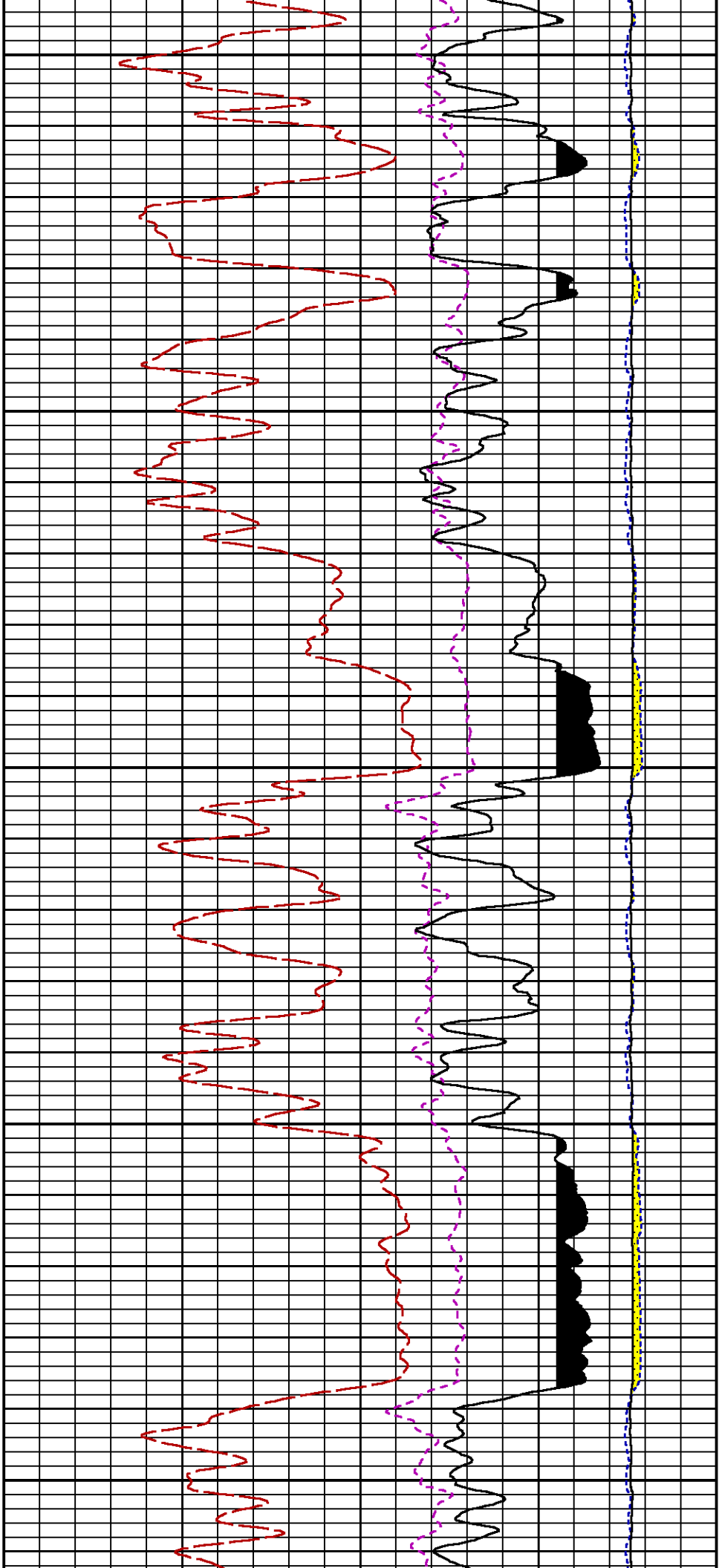


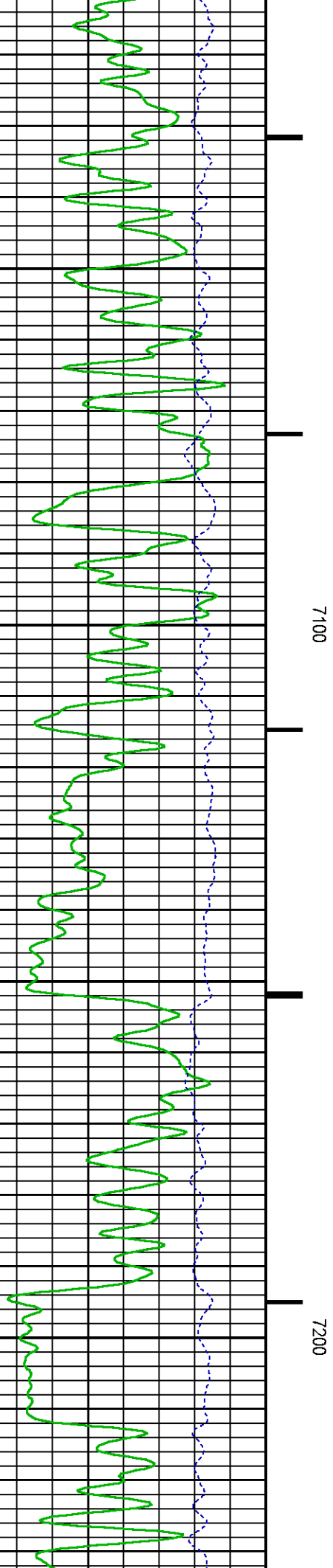
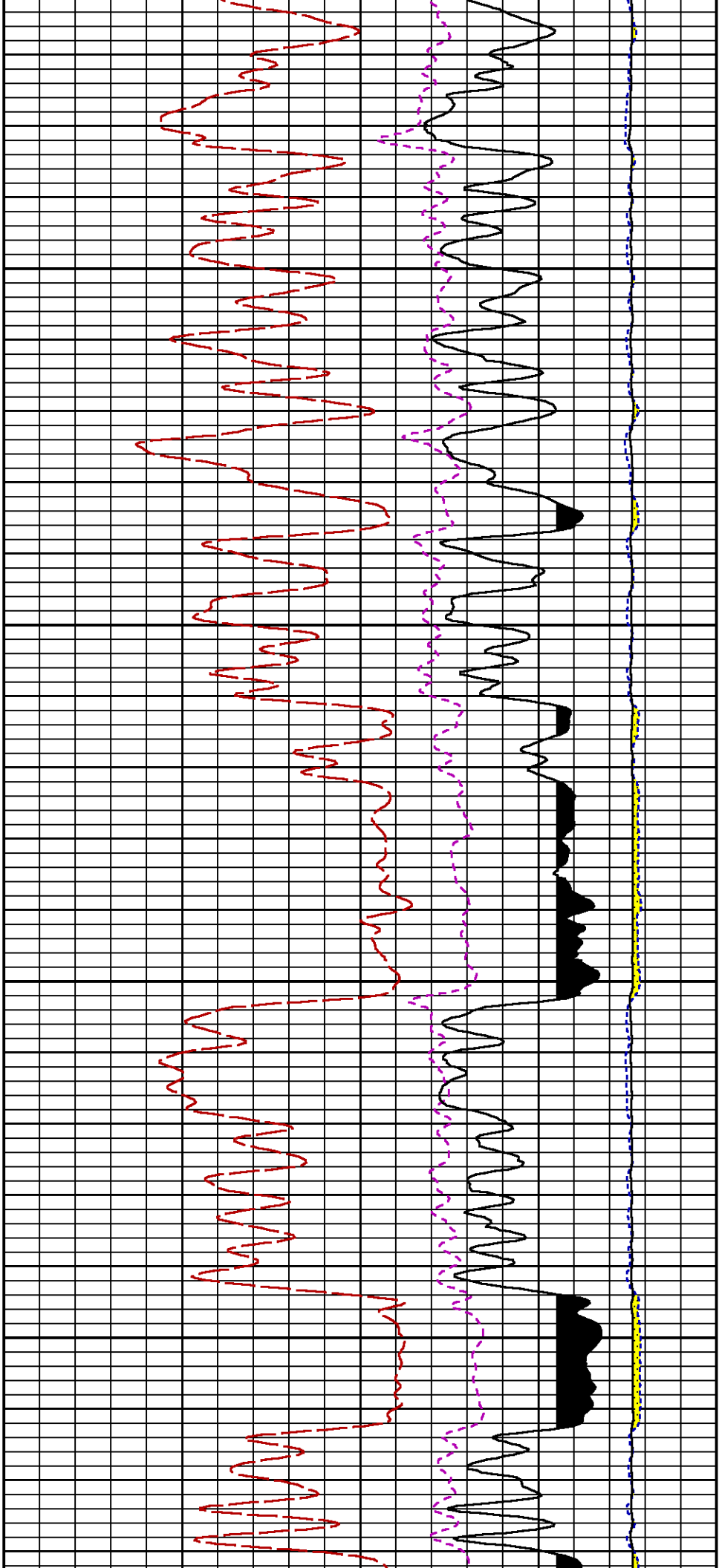


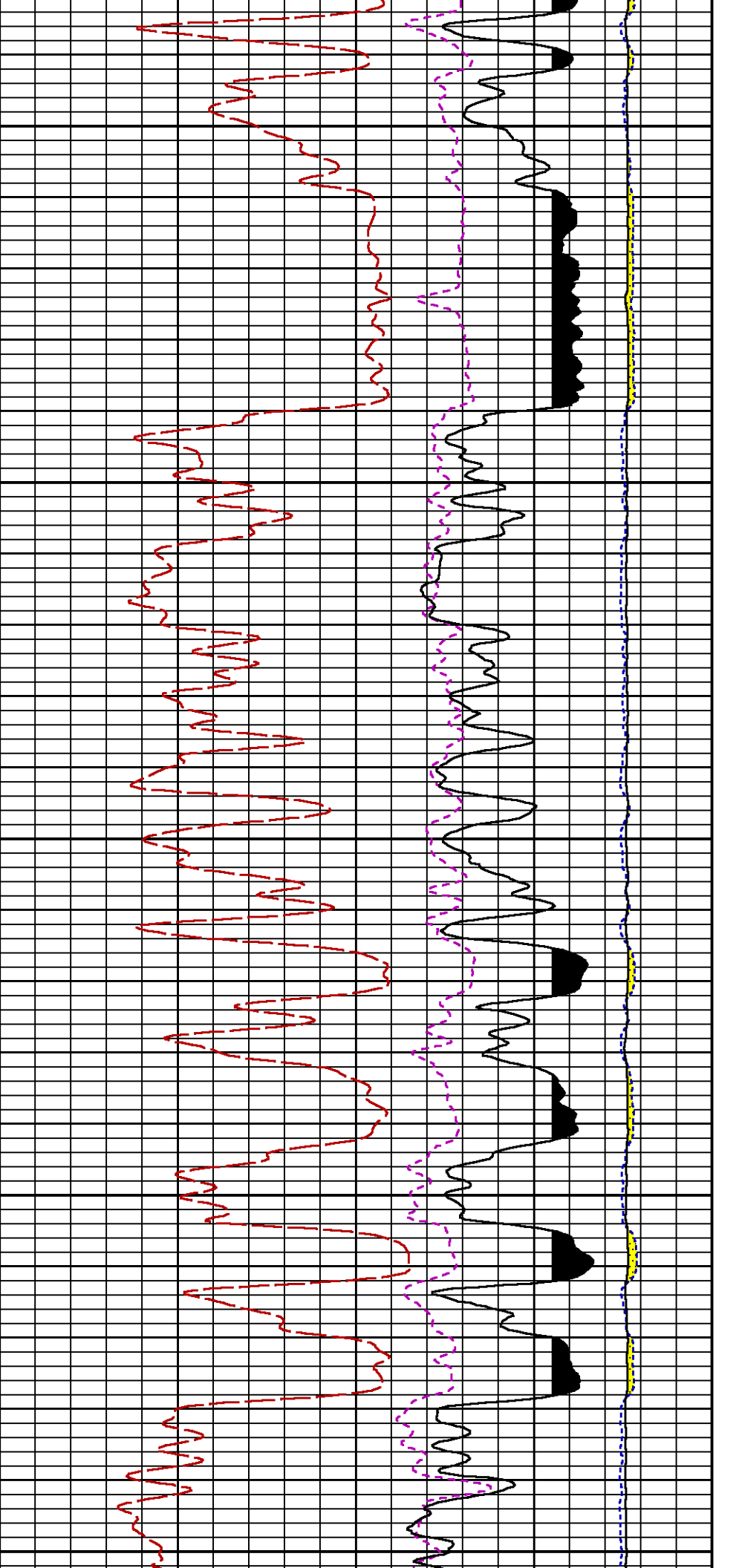






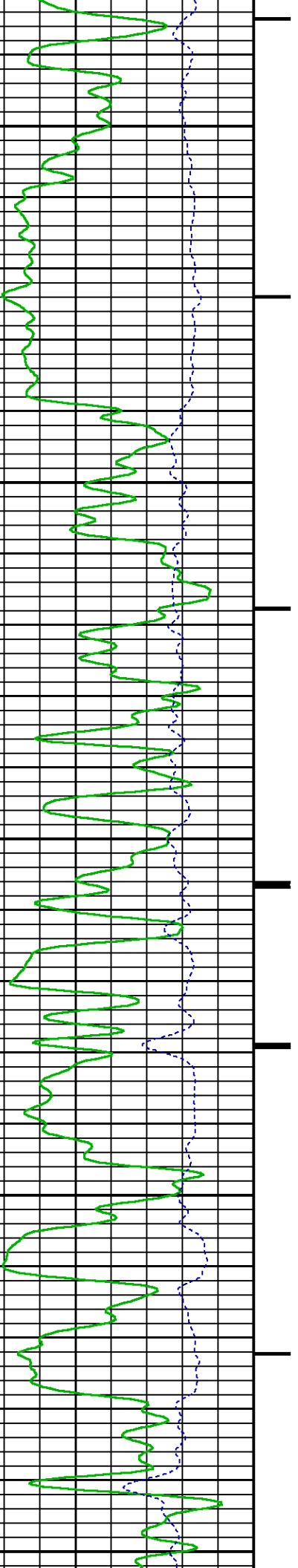


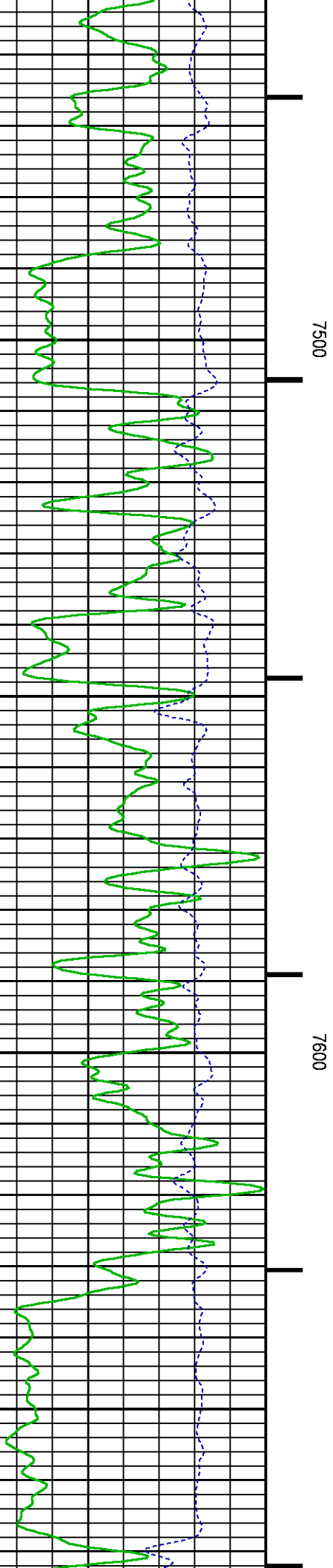
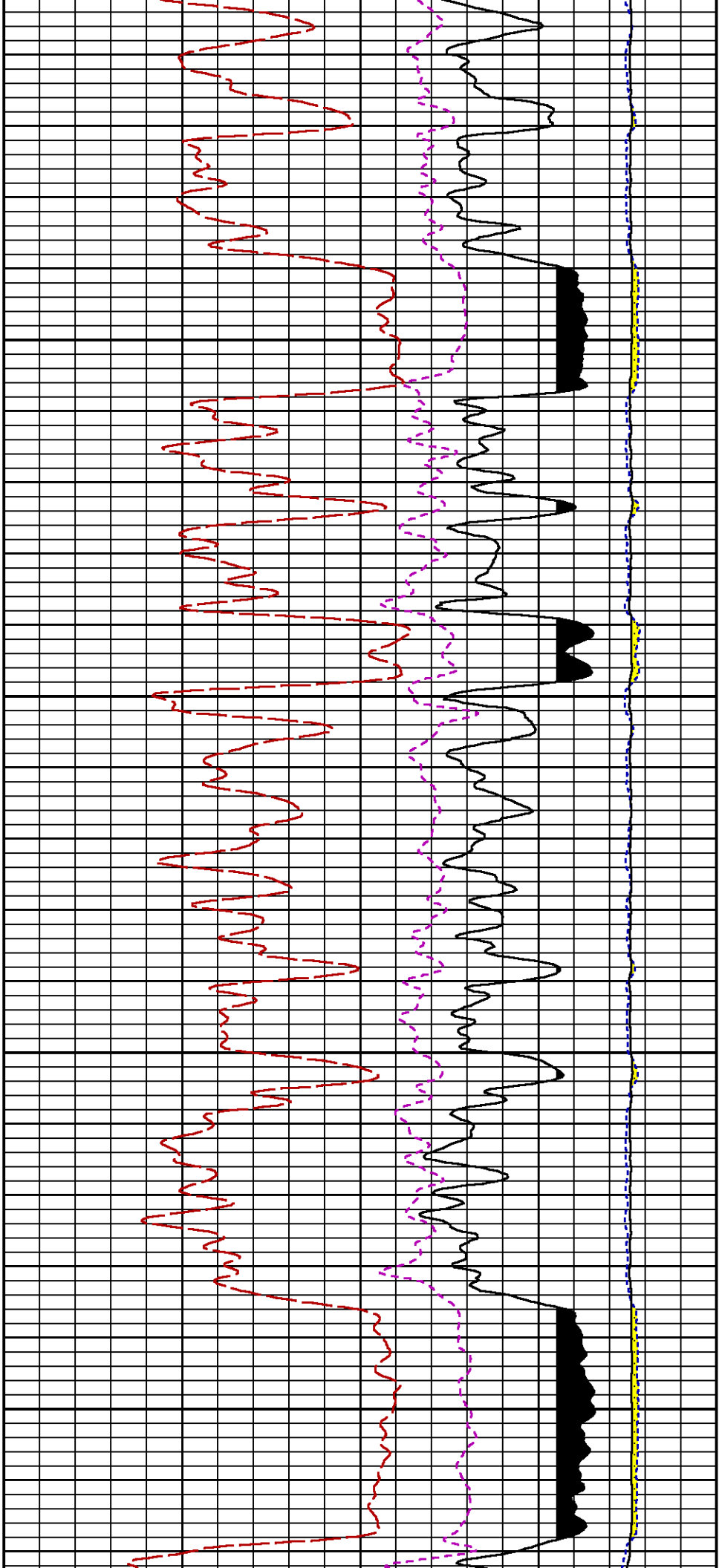


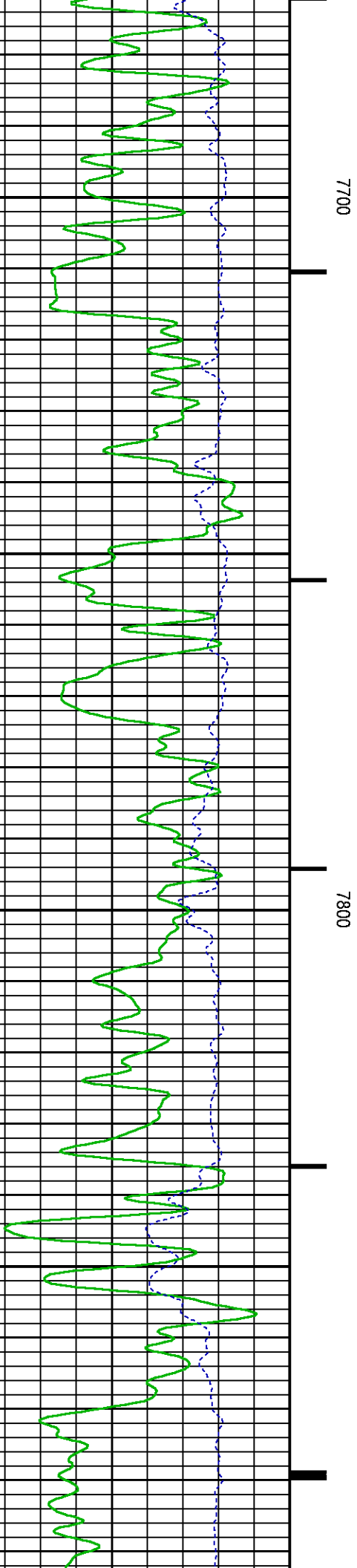
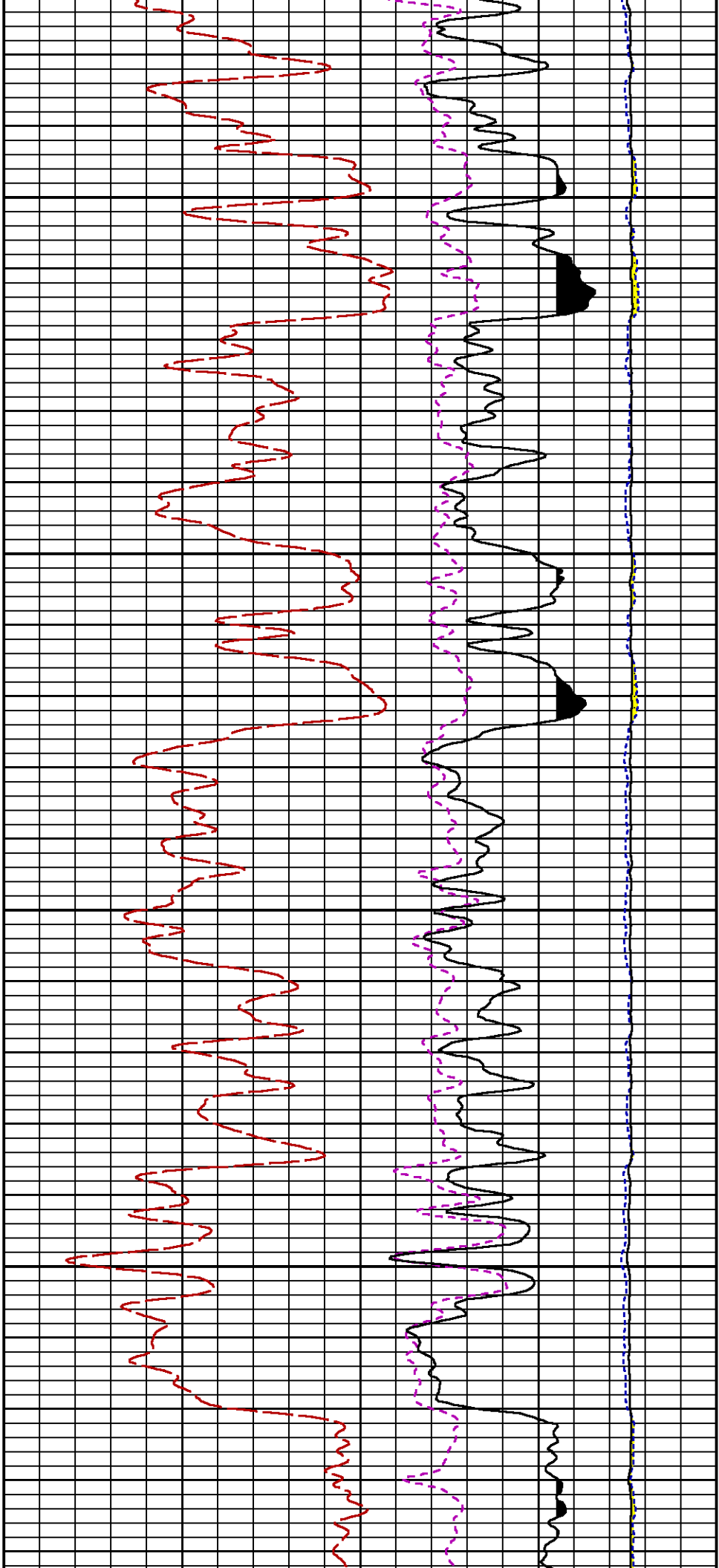


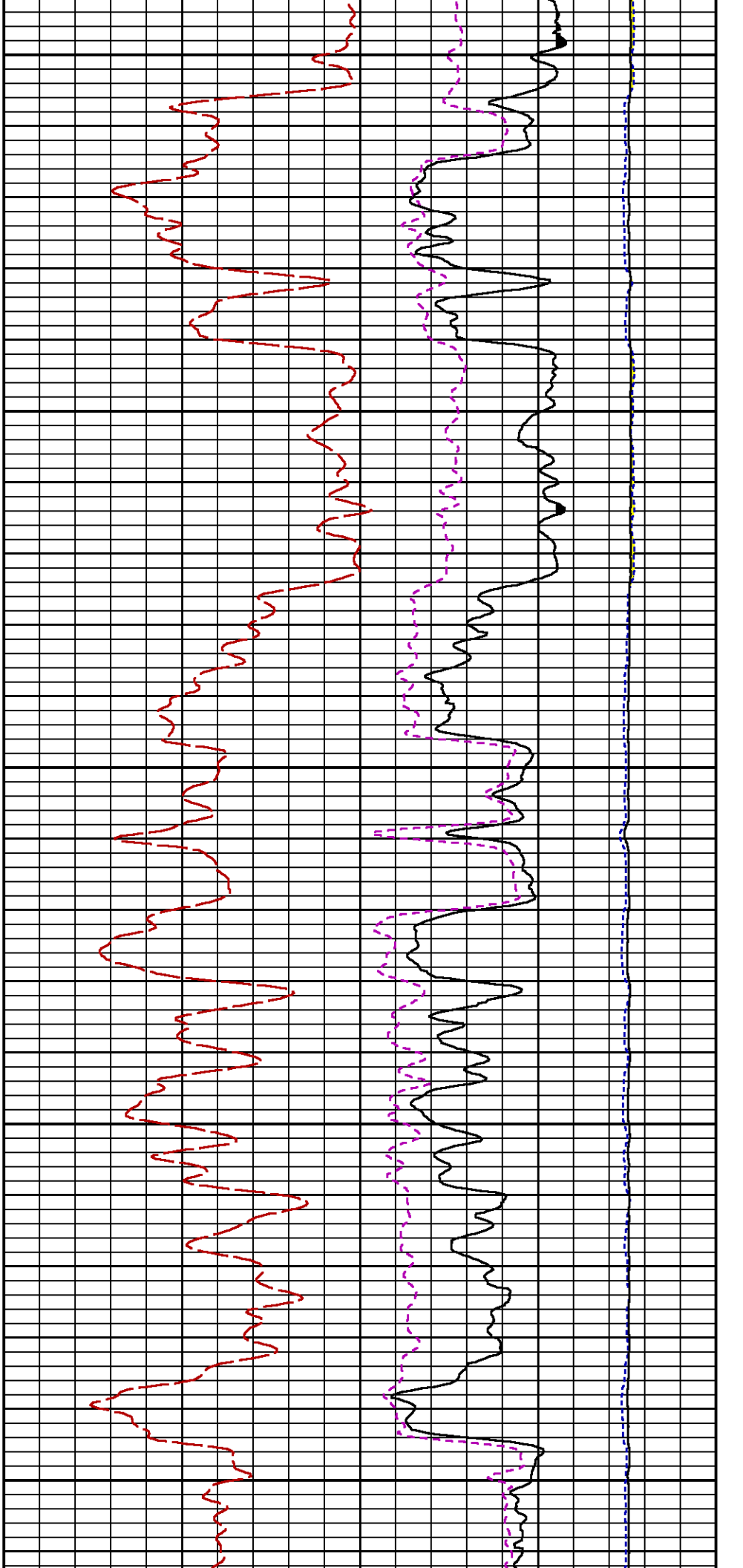
7300

7400





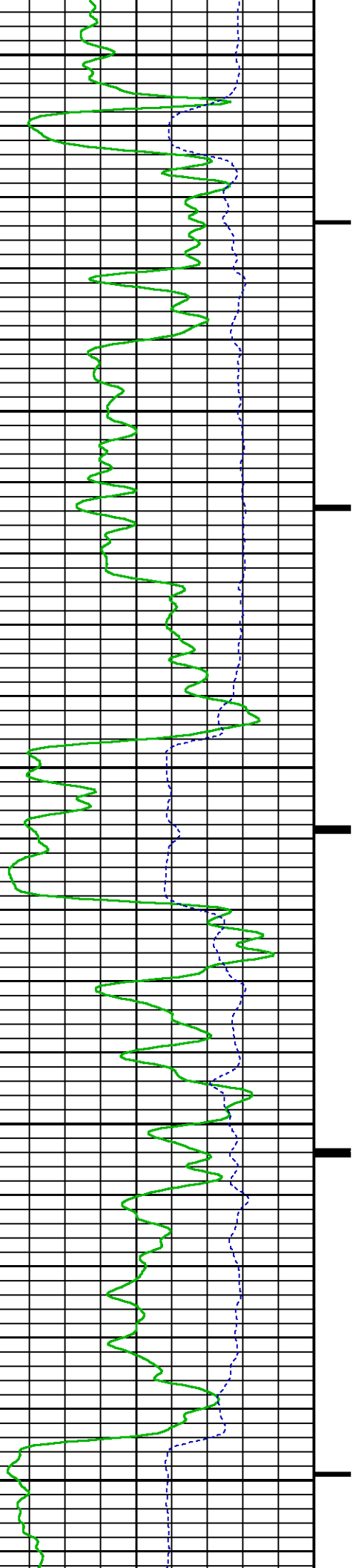


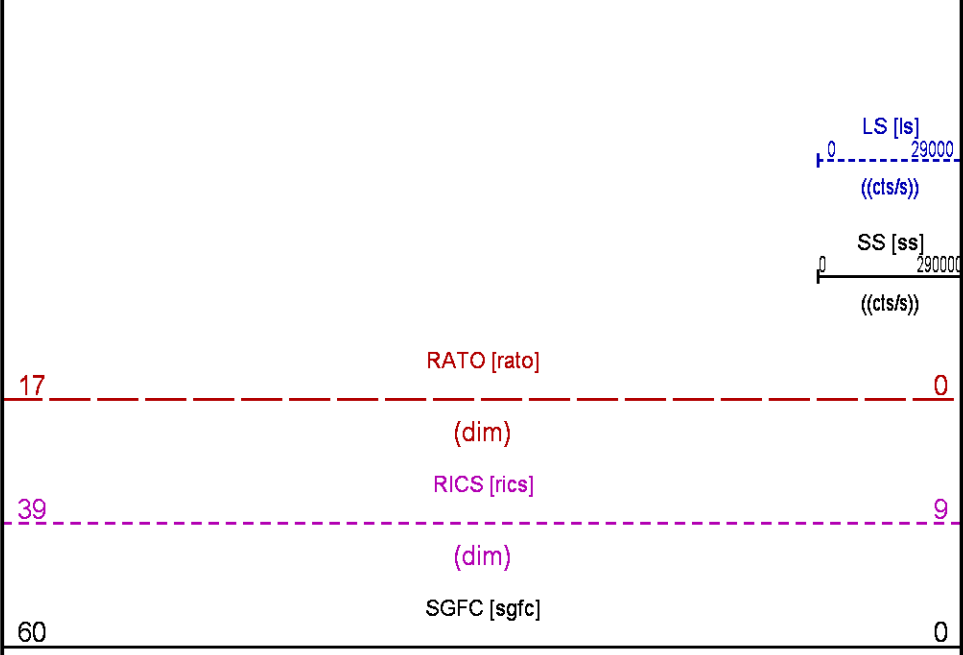
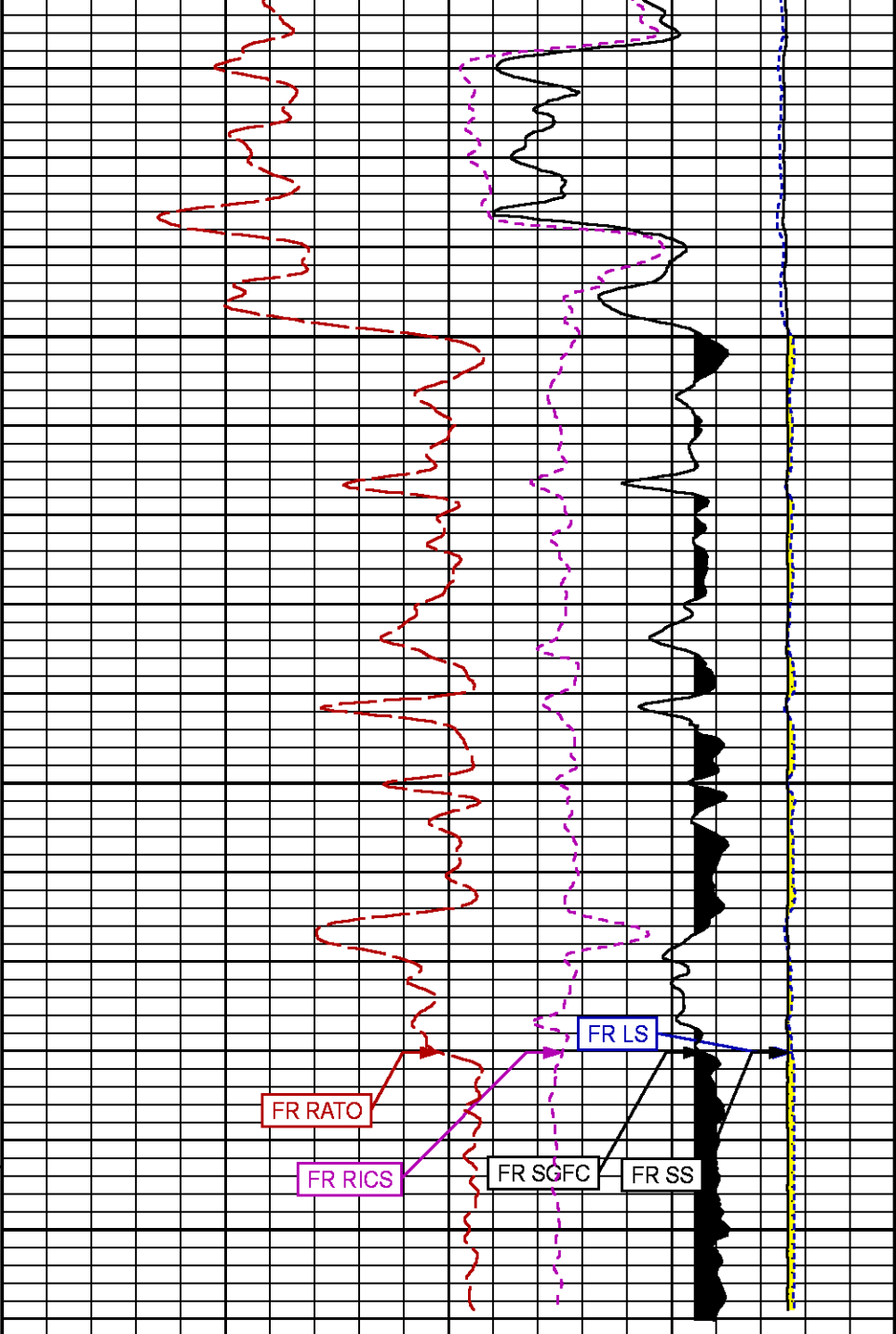
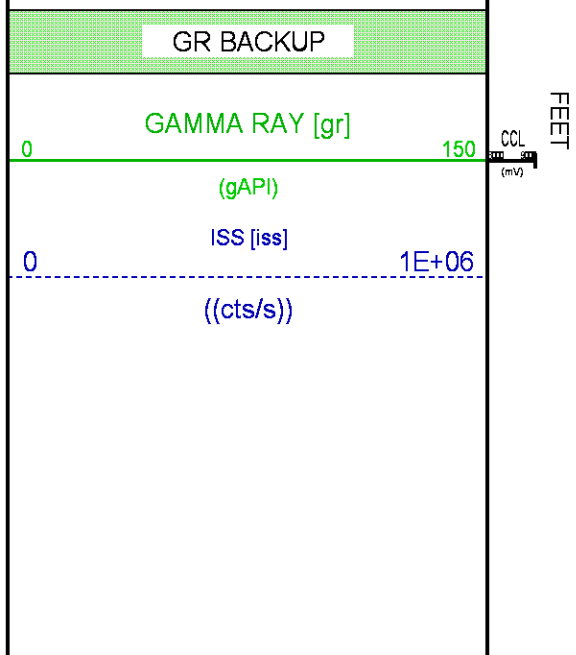
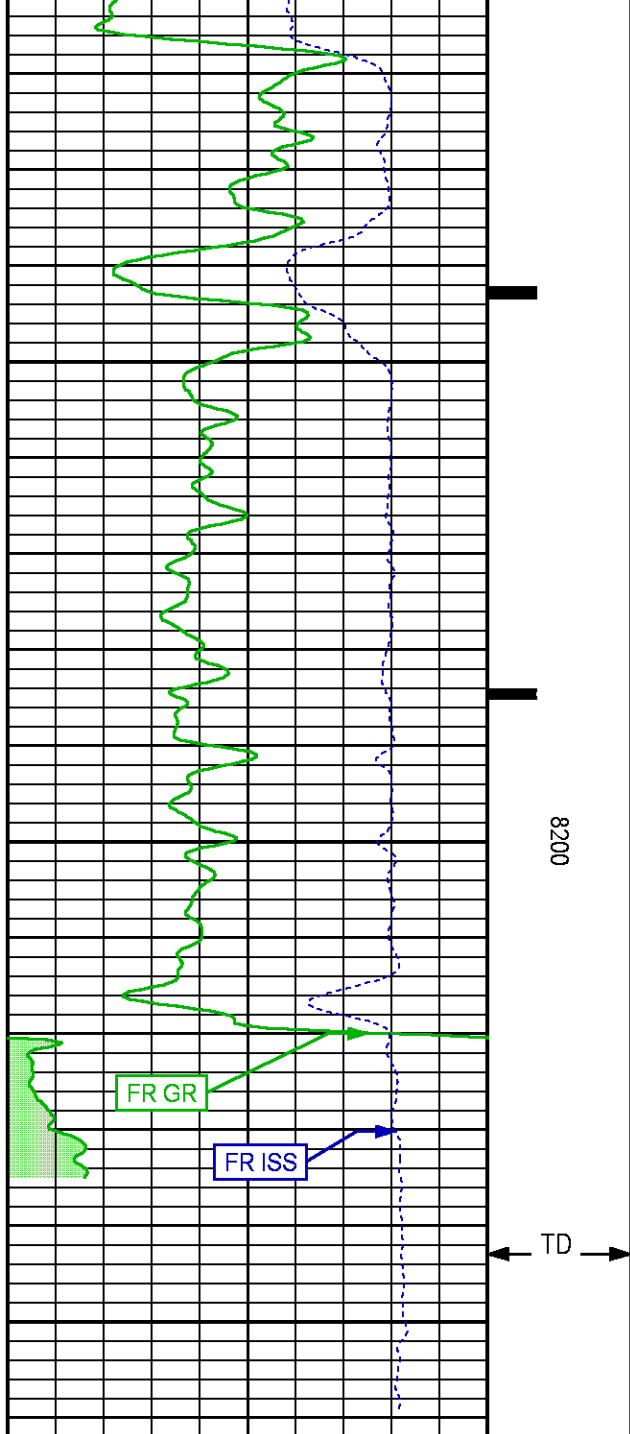


7900

8000

8100





## REPEAT PNC 3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013

Updates: 1 Patches: 9

Plotted: Sun May 28 11:53:52 2017

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_22E/RPM\_PNC3D01.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 7366.000 ft BOTTOM DEPTH: 7582.000 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	8.75	in	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

### CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	May 28 11:35:51 2017	CASING COLLAR LOCATOR
F1:GR	May 28 11:35:51 2017	GAMMA RAY
F1:ISS	May 28 11:35:51 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	May 28 11:35:51 2017	LONG SPACE COUNT RATE
F1:RATO	May 28 11:35:51 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	May 28 11:35:51 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	May 28 11:35:51 2017	CORRECTED FORMATION SIGMA
F1:SS	May 28 11:35:51 2017	SHORT SPACE COUNT RATE

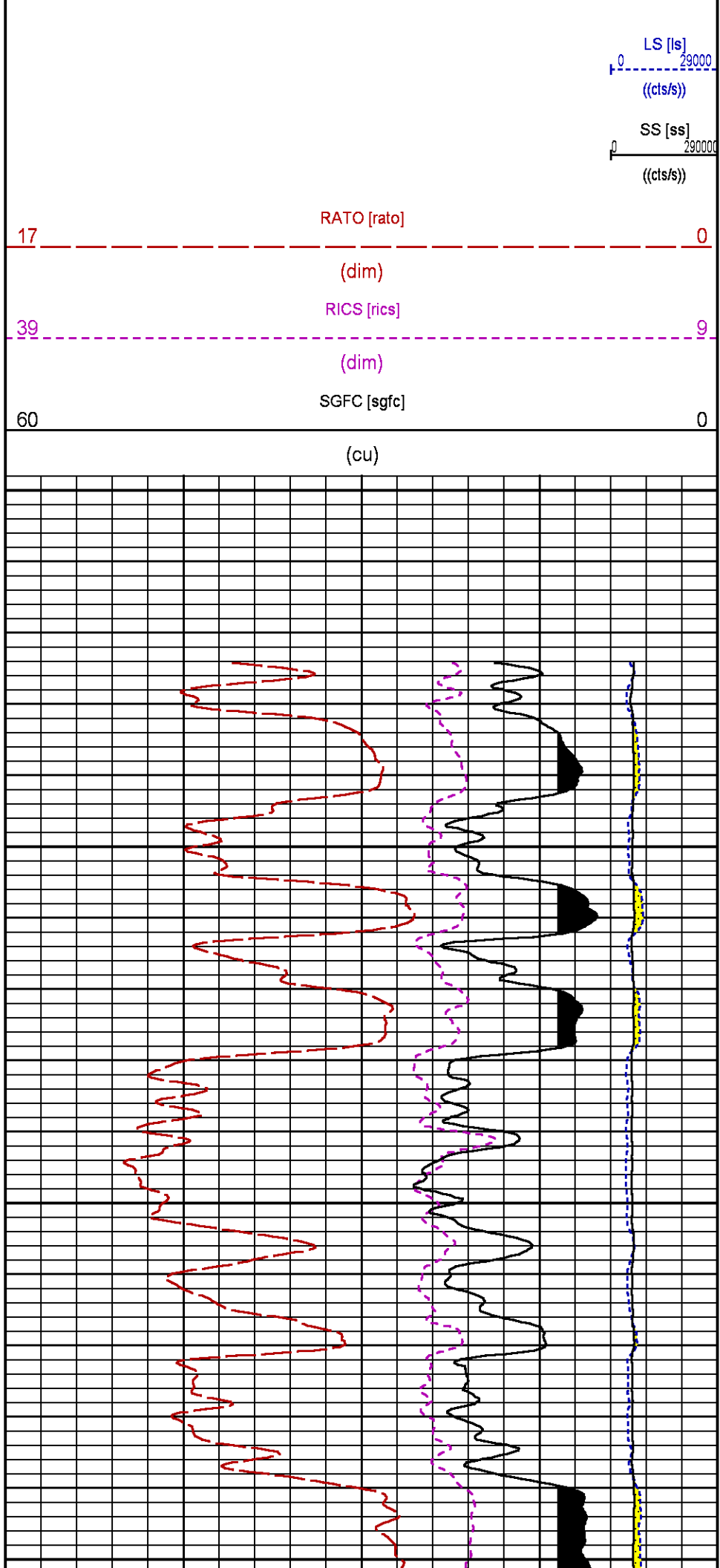
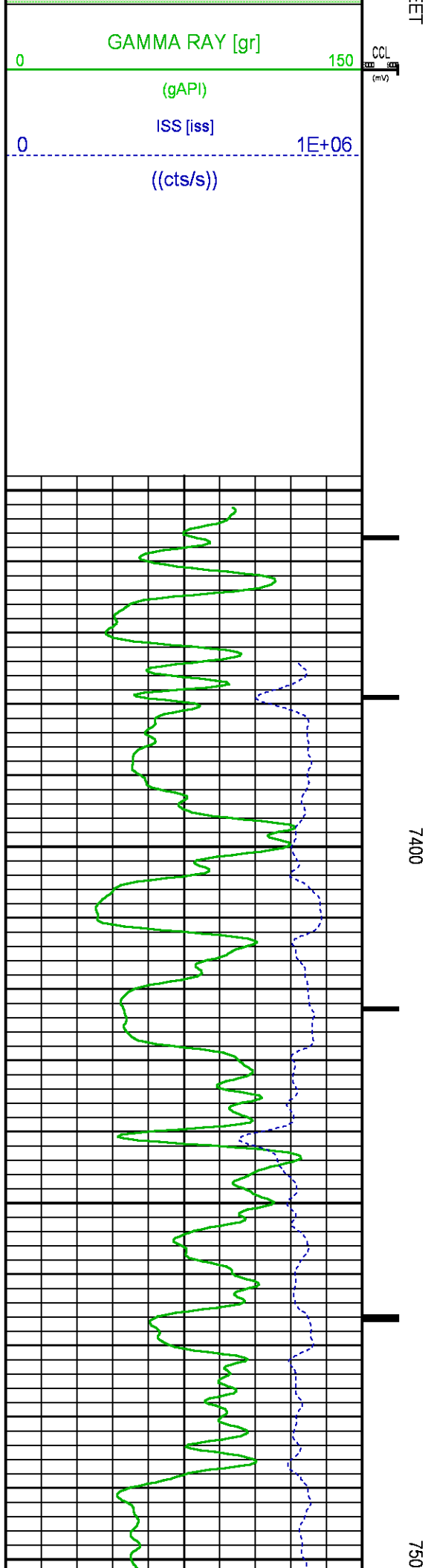
### CURVE MEASURE POINT OFFSET

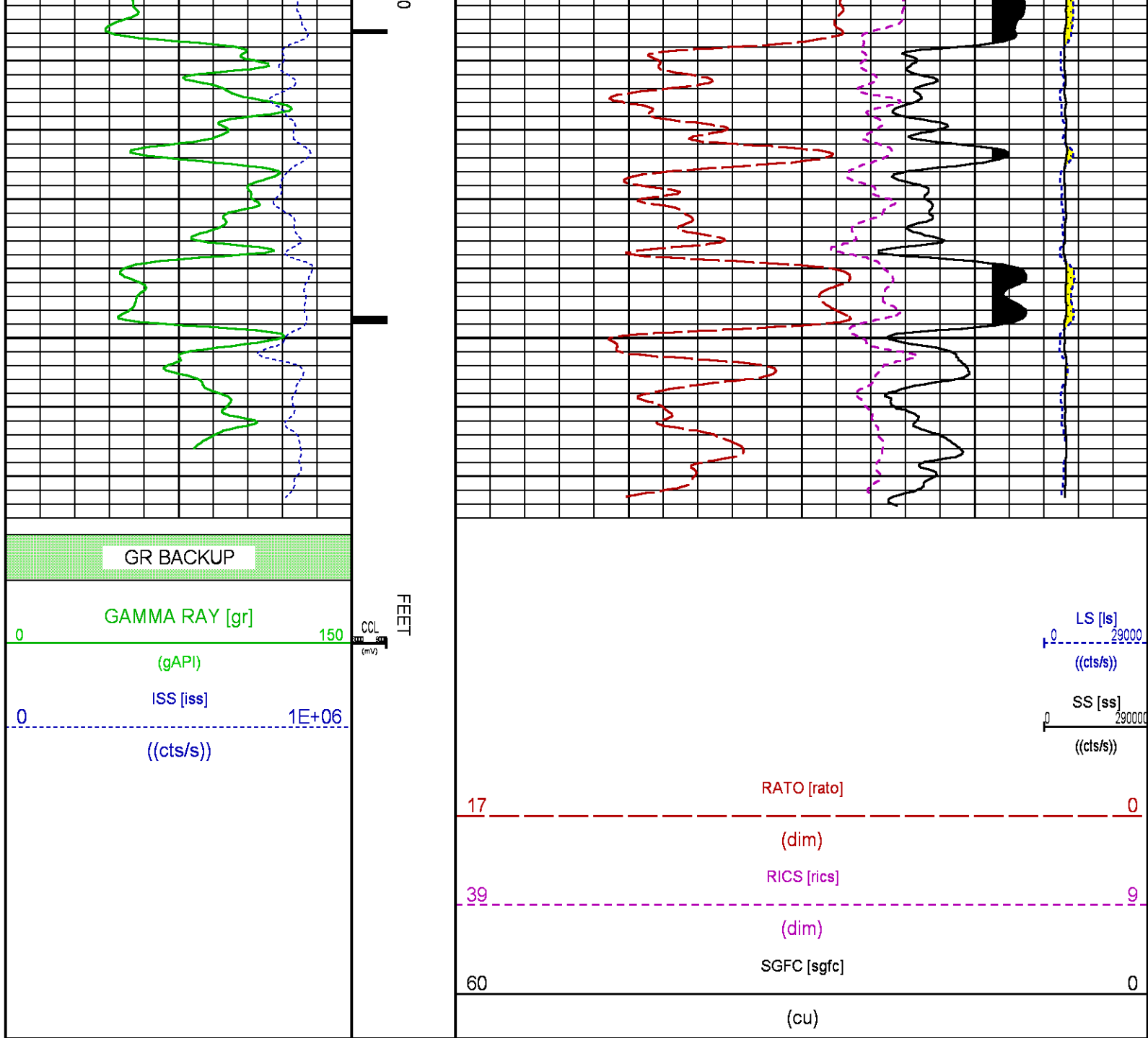
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	26.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	23.00	LS	12.75	RICS	12.75	SS	12.75

Presentation : cpu100:rpm\_pnc3d+01-REPEAT-29\_22E\_5.fvpdf [5"/100' Scale]  
 Plot Interval : 7339.75 - 7572 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_22E/RPM\_REPT\_22E.xtf  
 Created On : May 28 11:35:51 2017  
 Company : LARAMIE ENERGY  
 Well : PICEANCE 29-22E  
 Field : VEGA  
 File Interval : 7339 - 7582 Feet  
 OCT : RPM\_PNC3







### CALIBRATION / VERIFICATION SUMMARY

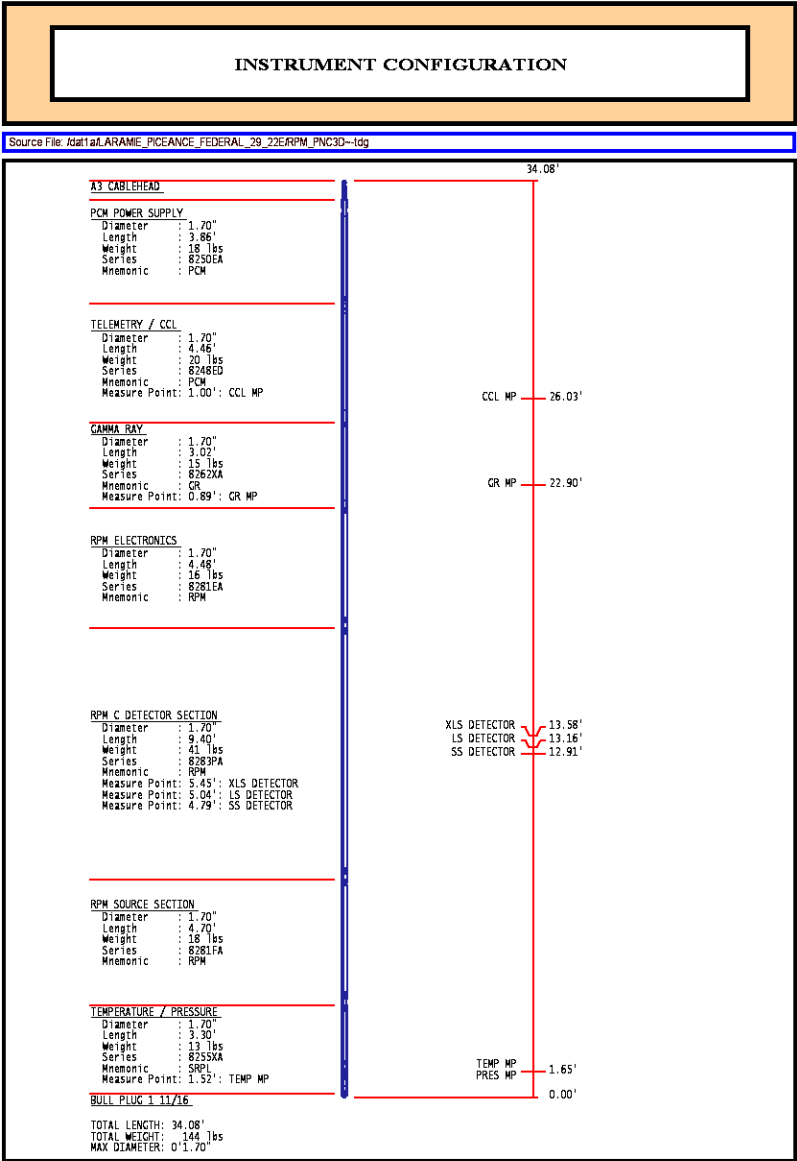
Source File: Adat1a1.ARAMIS\_PCEANCE\_FEDERAL\_29\_22EAPM\_PNC3D1p1


GR PRIMARY CALIBRATION SUMMARY									
TOOL #:		8262XA 10317216			DATE/TIME PERFORMED:		Tue Jan 17 13:40:53 2017		
UNIT #:		3882ML ML4352			CALB JIG #:		4702NK DA_228		
BACKGROUND		CALBRTR ON		GR DIFF		MULT		BACKGROUND	
(cts/s)		(cts/s)		(cts/s)				(gAPI)	
GR	57.62	368.04		310.4		0.596		34.34	
								219.34	
								185	

GR PRIMARY VERIFICATION SUMMARY									
TOOL #:		8262XA 10317216			DATE/TIME PERFORMED:		Tue Jan 17 13:43:12 2017		
UNIT #:		3882ML ML4352			VERI JIG #:		4702NK DA_228		
BACKGROUND		CALBRTR ON		MULT		BACKGROUND		CALBRTR ON	
(cts/s)		(cts/s)				(gAPI)		(gAPI)	
GR	57.62	368.40		0.596		34.34		219.32	
								184.96	

GR	59.80	366.49	0.996	39.92	230.33	194.61
					195.00	196.00

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY								
TOOL: 8283PA10414345			DATE/TIME PERFORMED: Tue Jan 17 16:42:57 2017					
UNIT: 3882ML ML4352	CALIBRATOR: 2437XB 120052	SOURCE: 8281AA 10160601	HOURS: 8281AA 434					
	ISS	Mir Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	804960	126	2324	2294	2282	87	10.0	0.9825
Interpolated	1300000	152	2301	2285	2279			
	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	804960	8856	1380	183	26.33	0.14	24.37	0.31
					26.36	26.40	0.00	0.00
					26.36	26.40	24.36	24.36
					0.00	0.00	0.00	0.00
	ISS	ILS	IXS	SS	SS2	LS	CSS	CLS
Raw Data	804960	178738	27937	96894	34373	8975	58559	14423
Fit Quality %		1.070	1.179	1.032	1.045	1.208	0.910	1.204
	ISS	RBOR	RIN	RIN13	RICS	RATO	RTWO	ROME
			ISS/ALS	ISS/XS	ISS/GSS	SS/LS	SS2/LS	GSS/CLS
Raw Data	804960	1.43	4.50	28.82	13.75	10.80	3.83	4.06
		1.42	1.45	7.50	5.92	22.00	32.70	10.96
					16.34	10.06	11.10	3.59
						3.96	3.96	3.96
								4.22
Fit Quality %		0.089	0.129	0.161	0.220	0.140	0.141	0.129
Reduced	1379928	1.43	4.51	28.90	13.76	10.82	3.84	4.07
		1.42	1.45	7.50	5.92	22.00	32.70	10.96
					16.34	10.06	11.10	3.59
						3.96	3.96	3.96
								4.22



	COMPANY	LARAMIE ENERGY		FILE NO:	
	WELL	PICEANCE FEDERAL 29-22E			
	FIELD	VEGA		API NO:	
	COUNTY	MESA	STATE	COLORADO	05-077-10361-0000
LOCATION:		ELEVATIONS:			
SHL: LAT:39.248411N; LONG:107.788286W		KB 7561 FT			
BHL: LAT:39.241502N; LONG:107.793034W		DF			
SEC 29 TWP 09 S RGE 93 W		GL 7531 FT			
		DATE		28-MAY-2017	