



FILE NO: CH092541	COMPANY WELL FIELD COUNTY	WPX ENERGY GM 43-12 GRAND VALLEY GARFIELD	STATE COLORADO
API NO: 05045224640000			

Ver. 3.87 12 7S 96W GM 21-12 PAD NABORS 573	LOCATION: SHL: 1205' FNL & 1941' FWL BHL: 2396' FSL & 1191' FEL SEC 12 TWP 7S RGE 96W	OTHER SERVICES BOND LOG
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PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM	GL KB KB GL	ELEVATION 26 FT 5125 FT ABOVE P.D.
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DATE	19-Nov-2014
RUN	1
SERVICE ORDER	US092541
DEPTH DRILLER	7229 FT
DEPTH LOGGER	7213 FT
BOTTOM LOGGED INTERVAL	7203 FT
TOP LOGGED INTERVAL	3882 FT
TIME STARTED	18:00
TIME FINISHED	23:00
OPERATOR RIG TIME	5 HOURS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	74 FT
LOGGED CEMENT TOP	NA
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	10 FMIN
MAX. RECORDED TEMP.	207 DEGF
REFERENCE LOG	BAKER HUGHES BOND LOG
REFERENCE LOG DATE	19-NOV-2014
EQUIP. NO.	HL-6670
LOCATION	NEWELL / RENEAU
RECORDED BY	GRAND JCT.
WITNESSED BY	ORAN JACOBS

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
13.5 IN	26 FT	1530 FT
8.75 IN	1530 FT	7252 FT

CASING RECORD				
SIZE	WEIGHT	GRADE	FROM	TO
9.625 IN			26 FT	1530 FT
4.5 IN	11.6 LB/F	I-80	26 FT	7252 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 19/NOV/2014 at the client's request.

The amount of linear shift is -3 feet.

Logged in PNC-3D mode.

BHT = 207 degF

SJ = 3976' - 3998

## EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	TEMP	8255XA	11774586	FREE
1	1	RPM	8281FA	10307727	FREE
1	1	RPM	8283PA	10160383	FREE
1	1	RPM	8281EA	10190984	FREE
1	1	GR	2812LA	11701636	FREE
1	1	TEL/CCL	8248EA	10590814	FREE
1	1	PCM	8250EA	10408796	FREE

## MAIN SECTION PNC-3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013  
 Updates: 1 Patches: 4

Plotted: Thu Nov 20 10:02:11 2014

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH092541/n354h02.prm  
 LOGGING MODE: DEPTH DIRECTION: UP  
 TOP DEPTH: 3835.500 ft BOTTOM DEPTH: 7217.253 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	Nov 20 09:53:47 2014	CASING COLLAR LOCATOR
F1:GR	Nov 20 09:54:50 2014	GAMMA RAY
F1:ISS	Nov 20 09:54:25 2014	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Nov 20 09:54:25 2014	LONG SPACE COUNT RATE
F1:RATO	Nov 20 09:54:46 2014	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Nov 20 09:54:46 2014	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Nov 20 09:54:49 2014	CORRECTED FORMATION SIGMA
F1:SS	Nov 20 09:54:49 2014	SHORT SPACE COUNT RATE

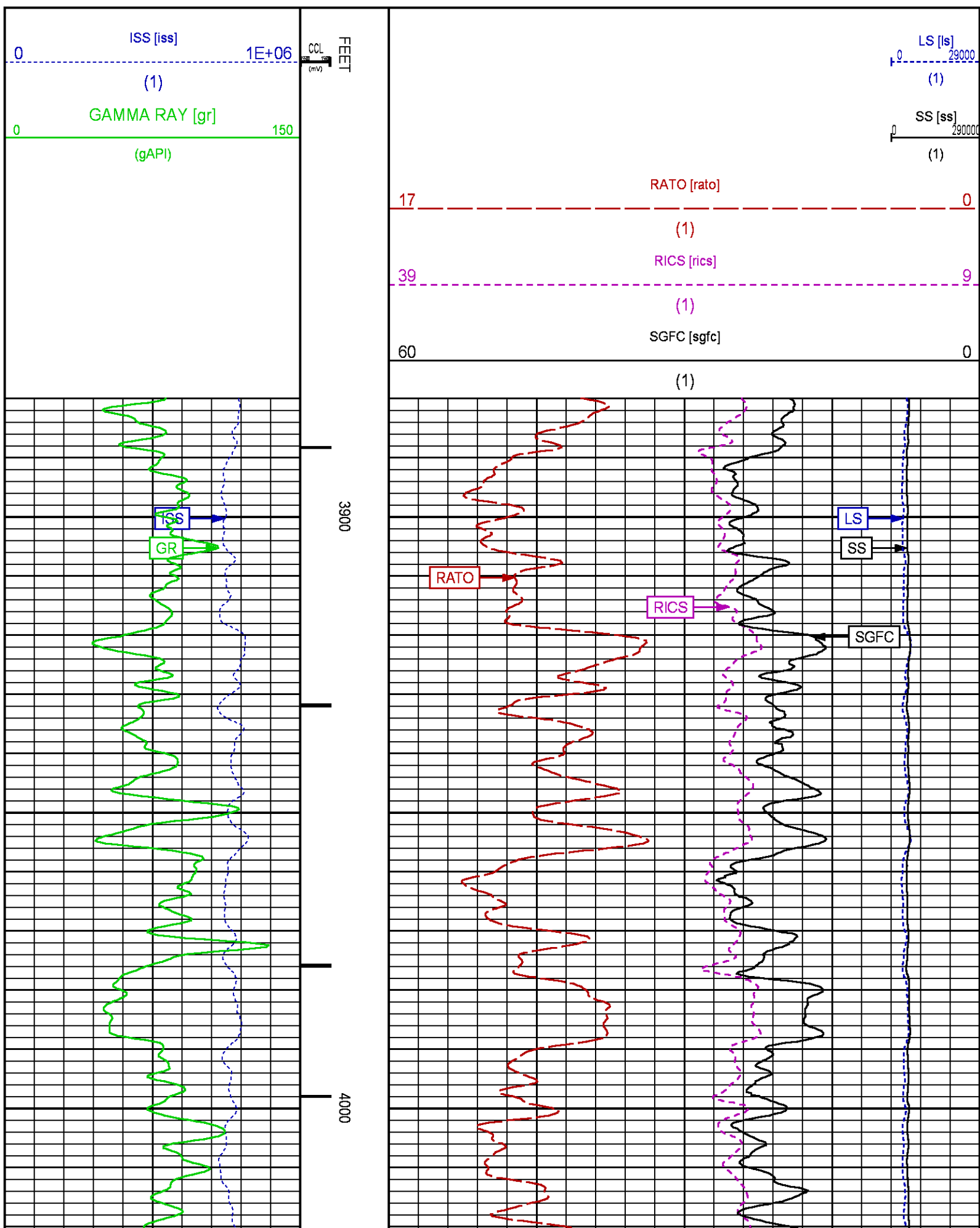
## CURVE MEASURE POINT OFFSET

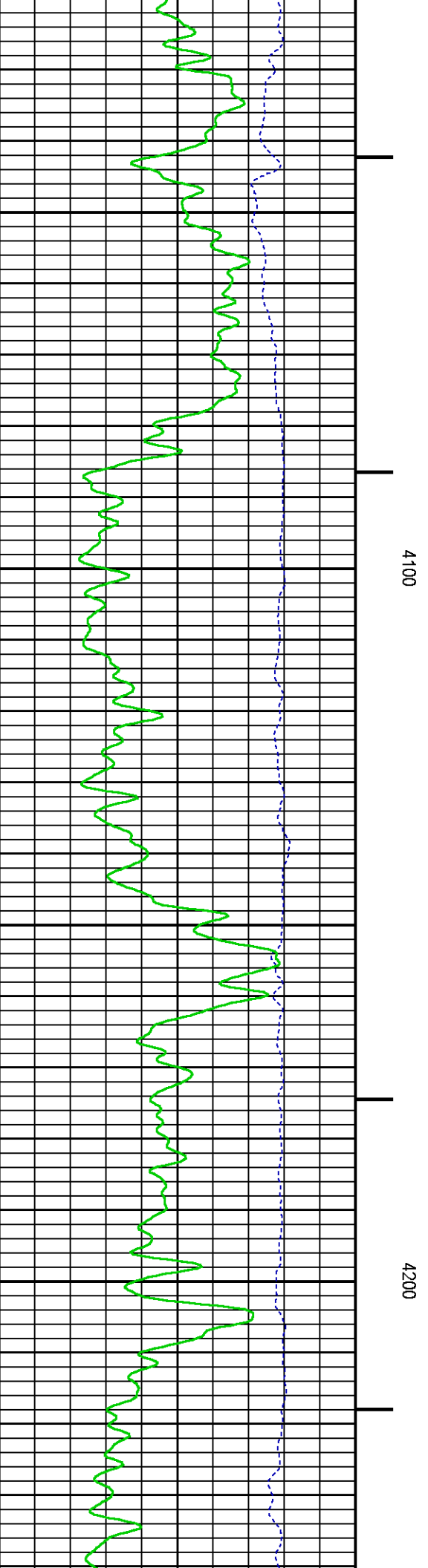
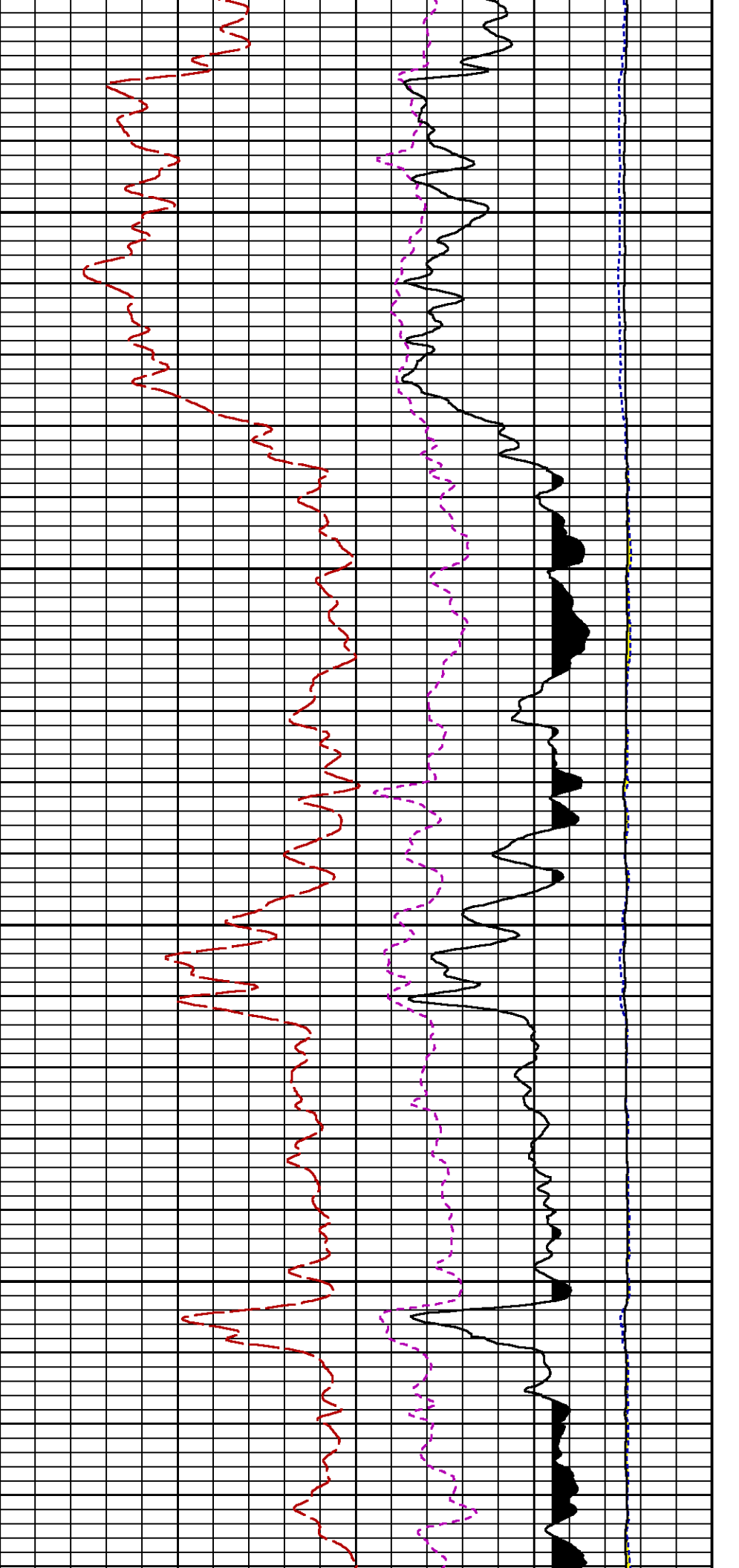
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
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GR	22.75	LS	12.75	RICS	12.75	SS	12.75

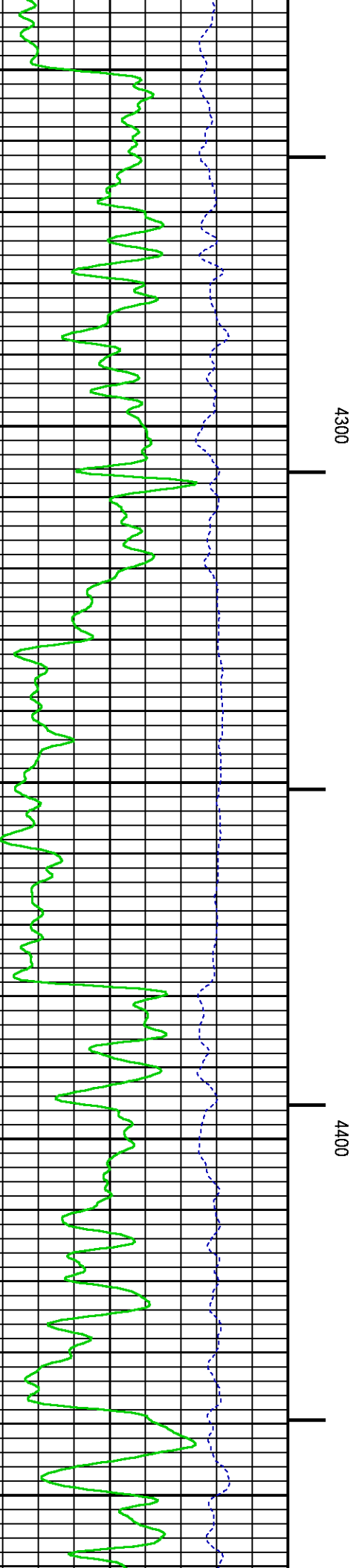
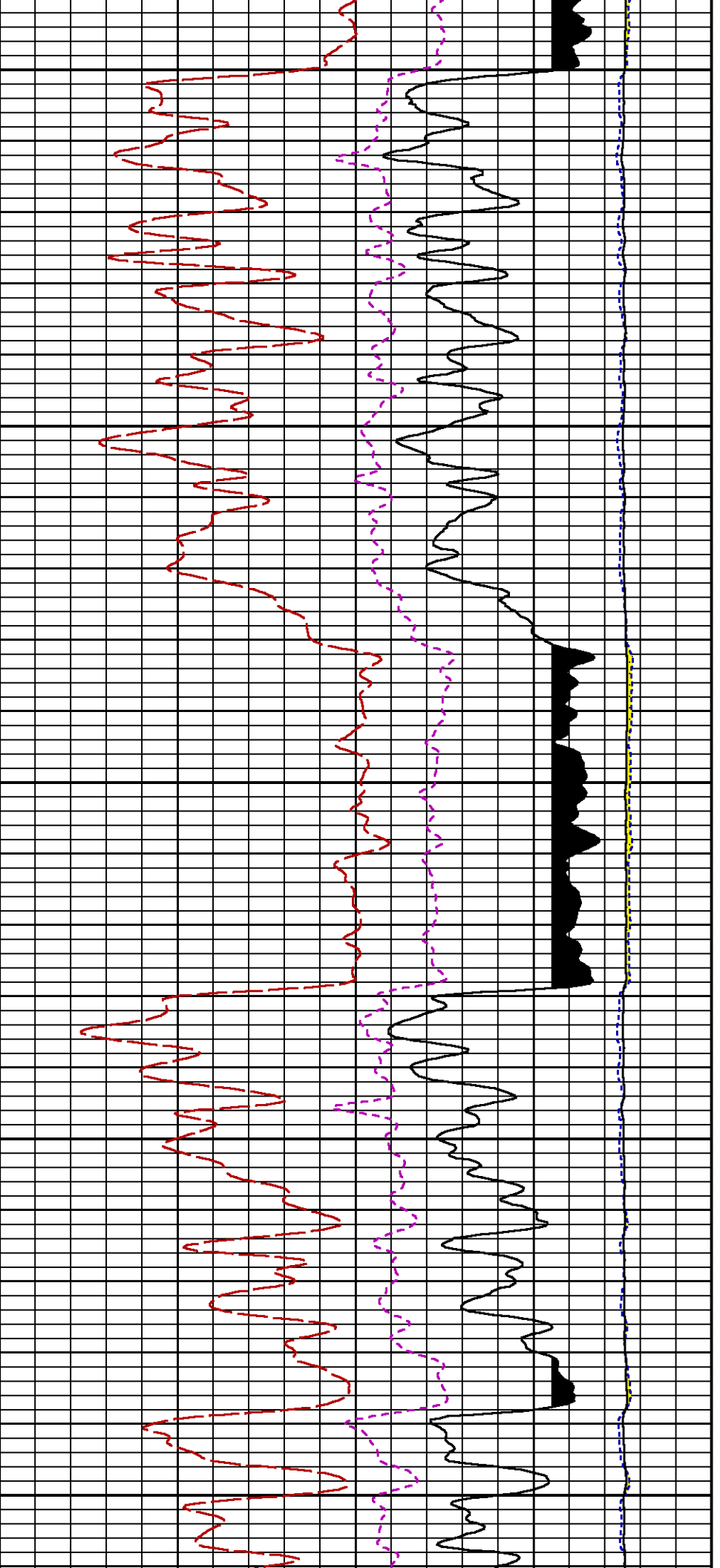
Presentation : HL6670:/dat1a/CH092541/43RPM\_MAIN.fvpdf [5"/100' Scale]  
 Plot Interval : 3880 - 7218 Feet

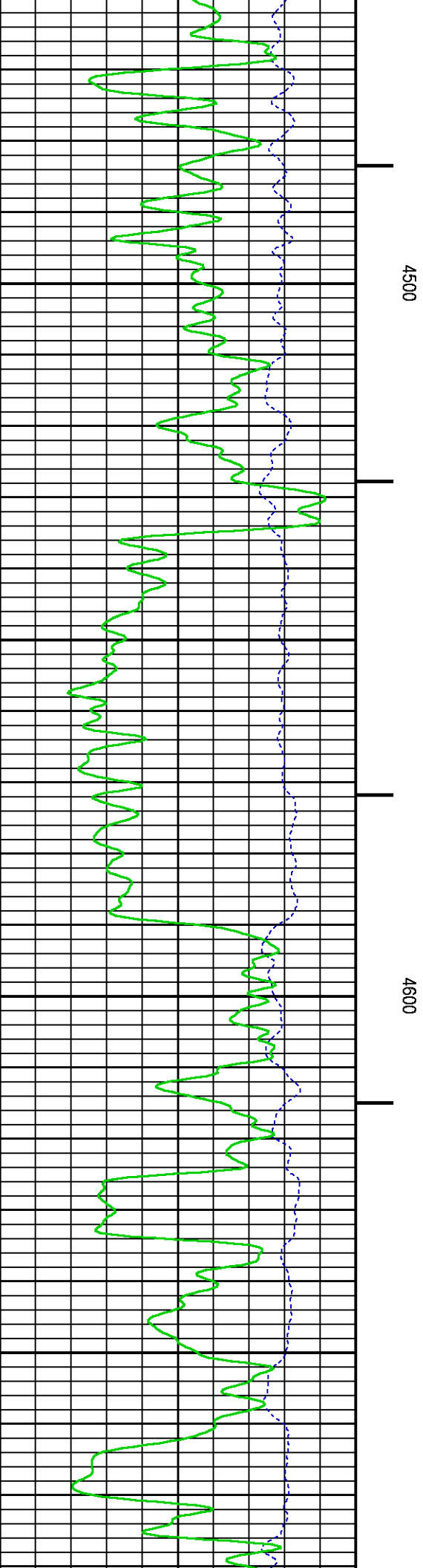
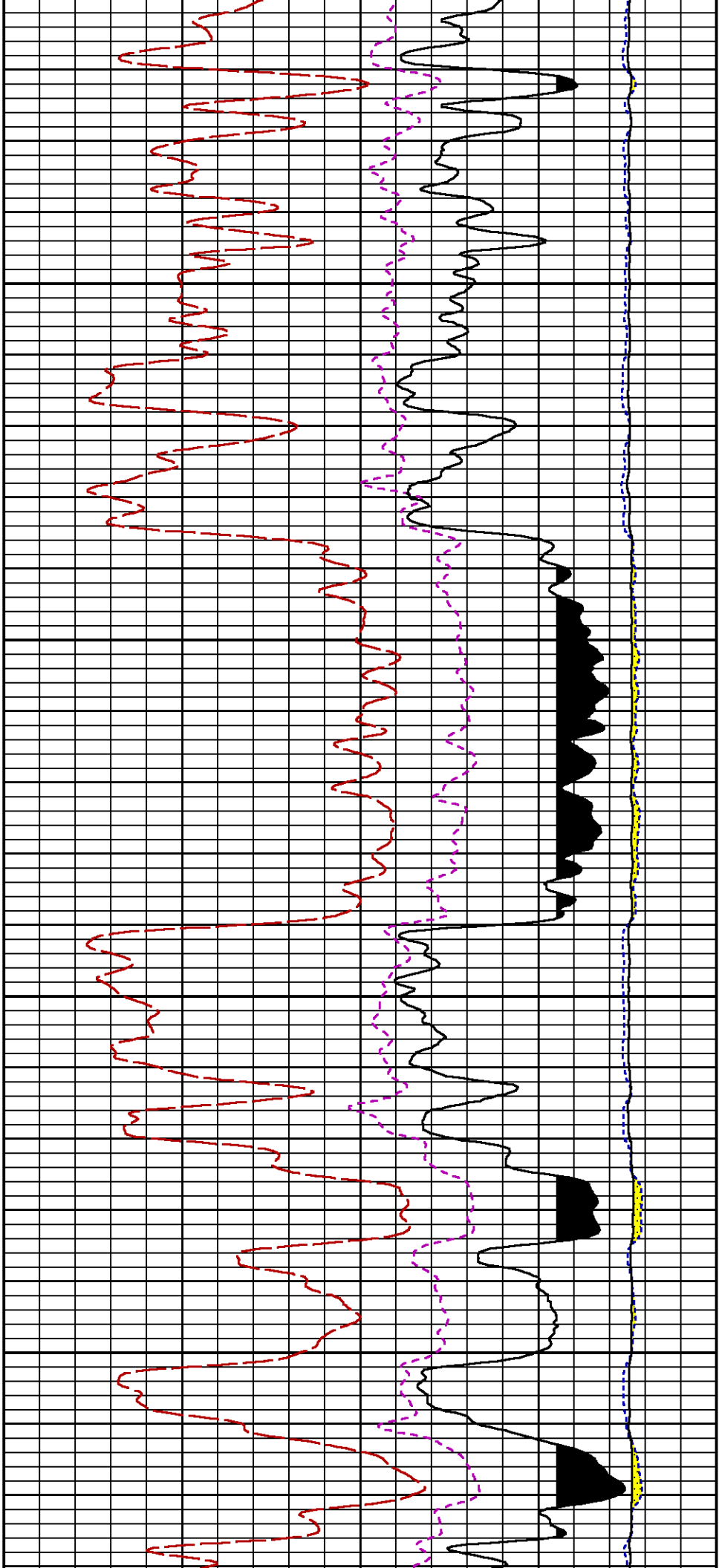
Data File 1 : F1 : HL6670:/dat1a/CH092541/43MAIN\_RPM.xtf  
 Created On : Nov 20 09:53:34 2014  
 Company : WPX ENERGY  
 Well : CM 43-43

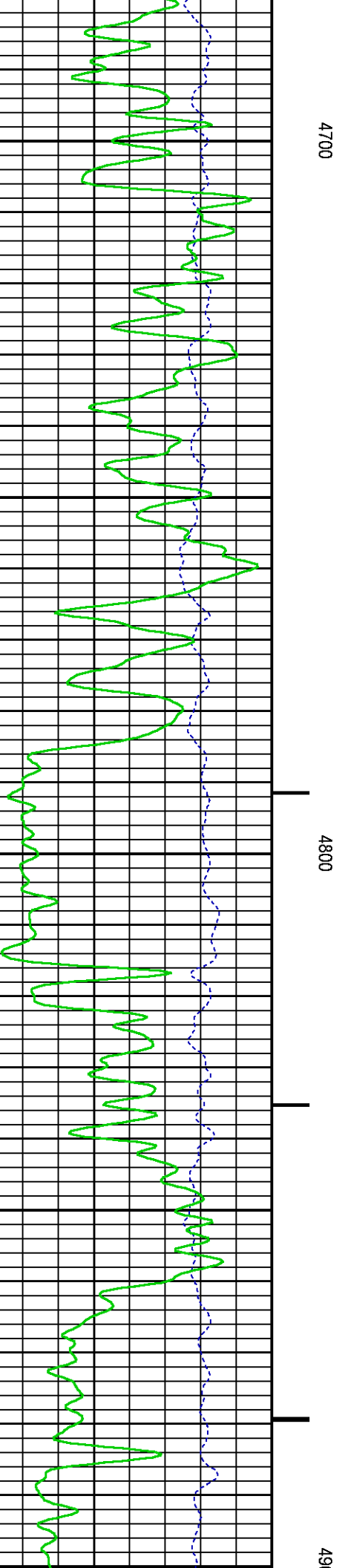
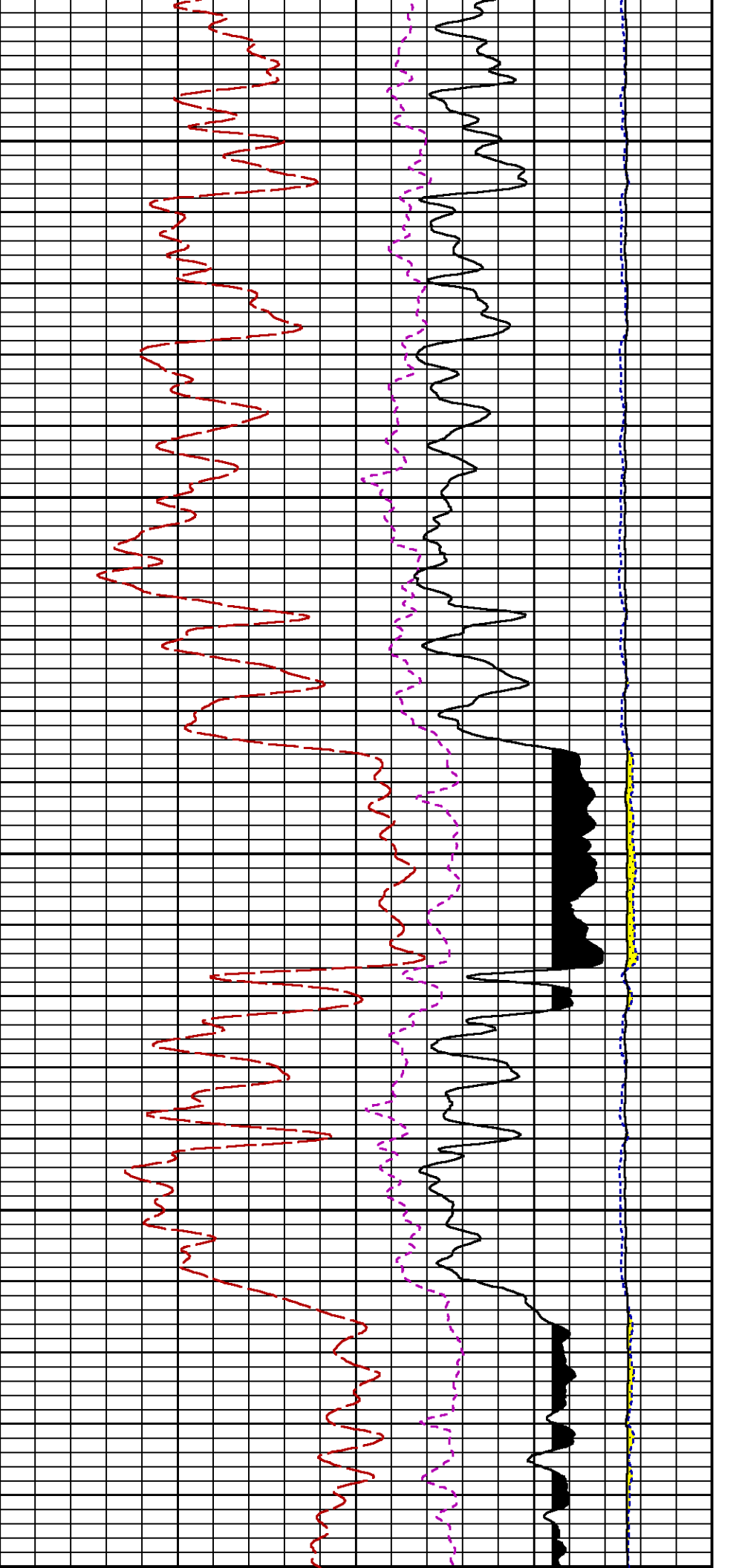
Well : GM 43-12  
Field : GRAND VALLEY  
File Interval : 20.25 - 7214.5 Feet  
OCT : n354h

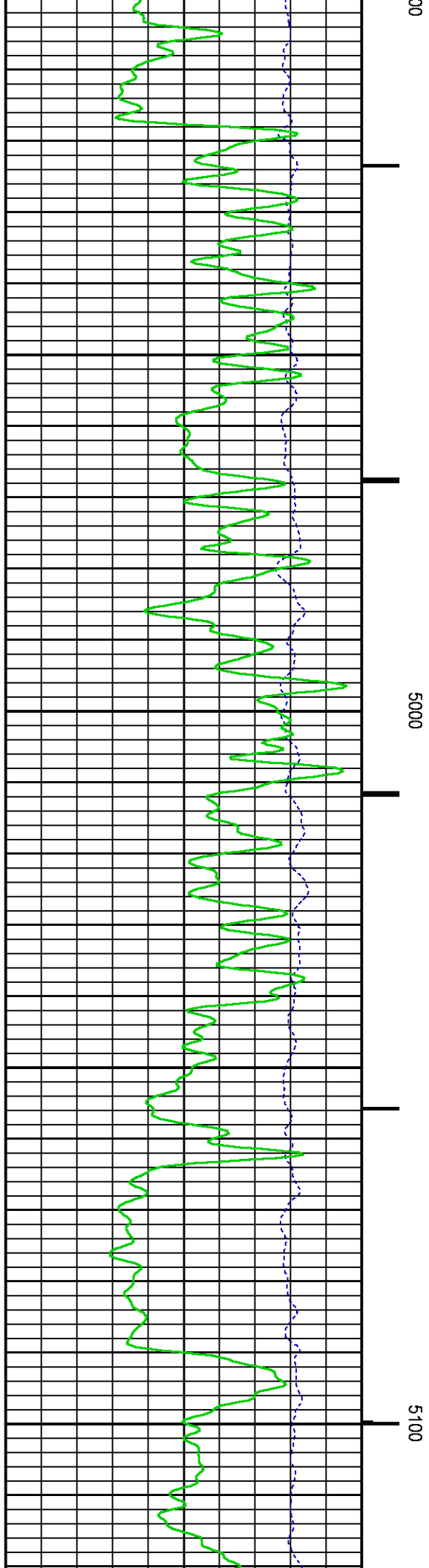
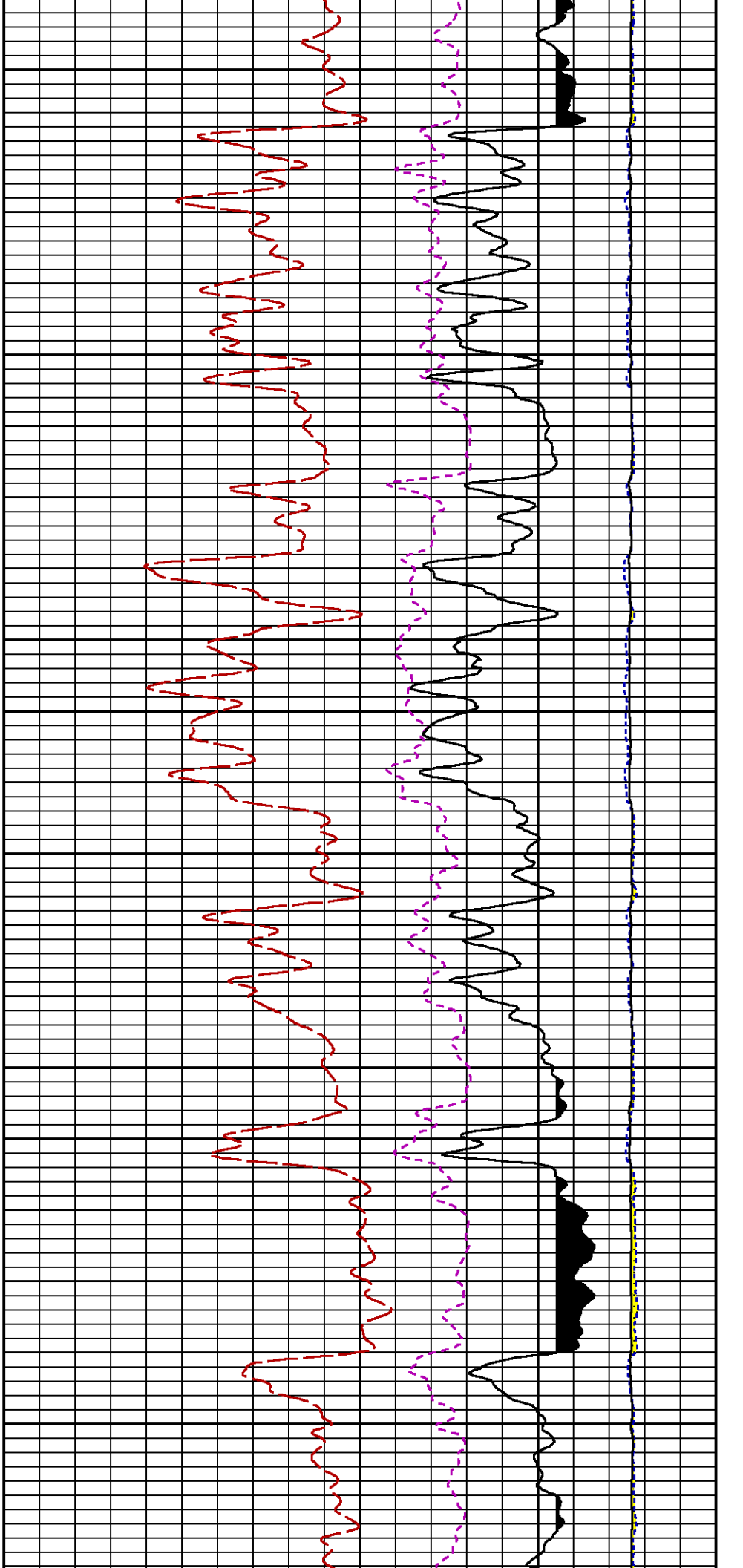




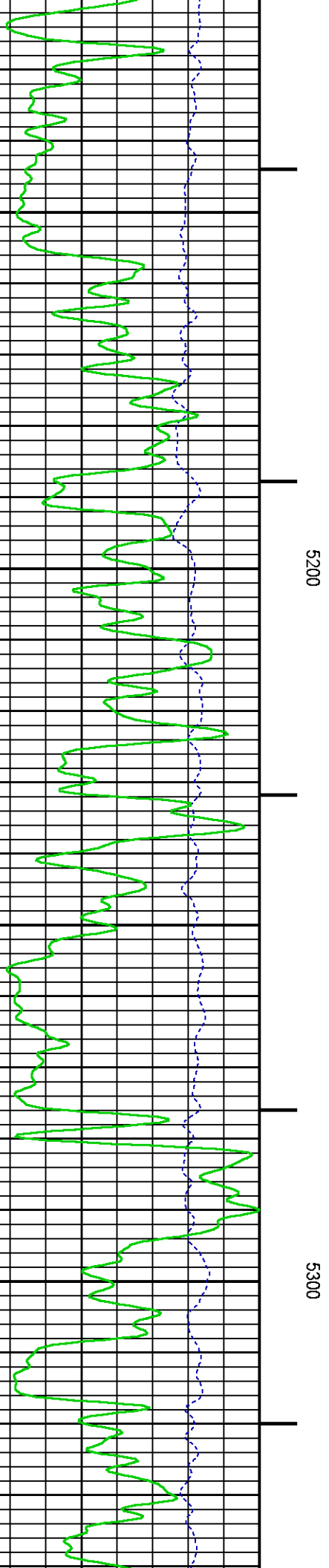
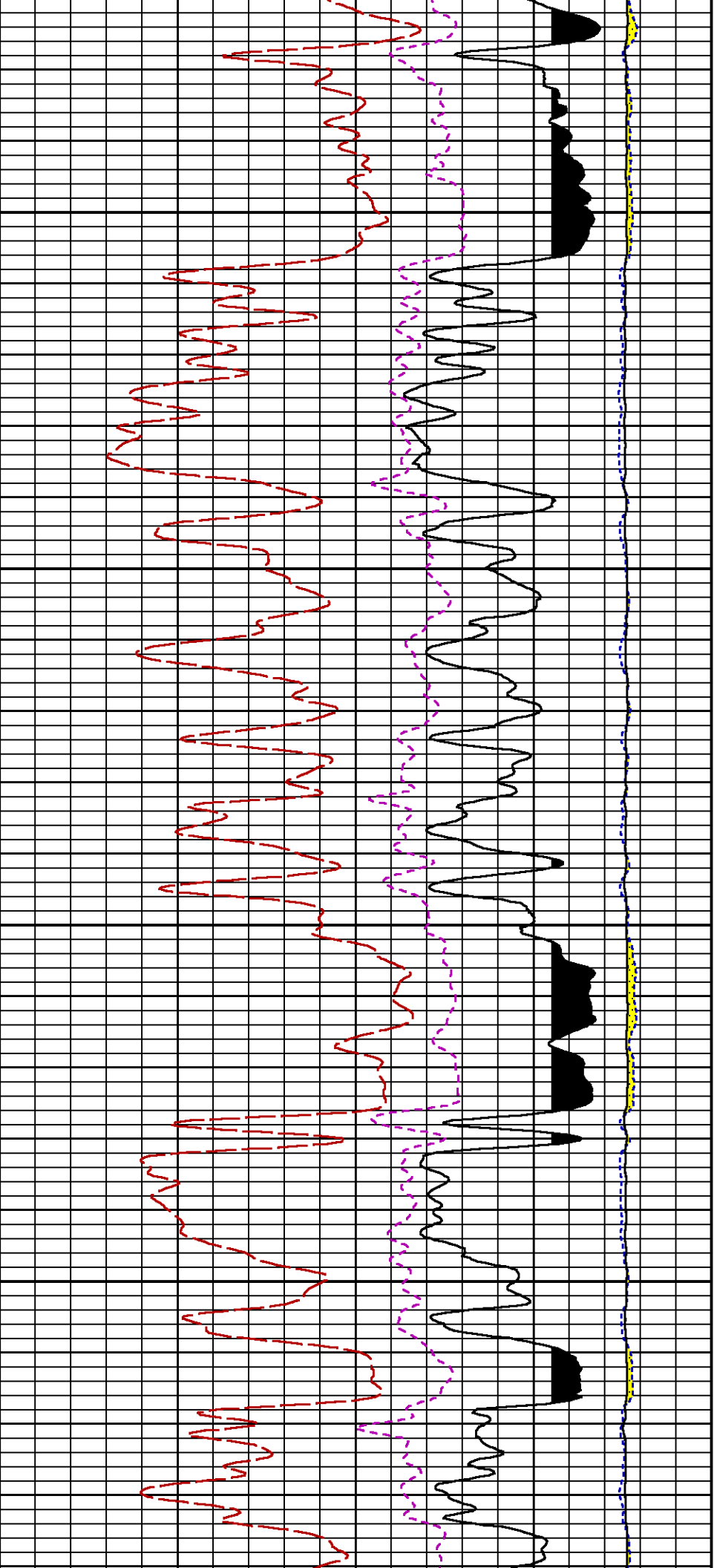


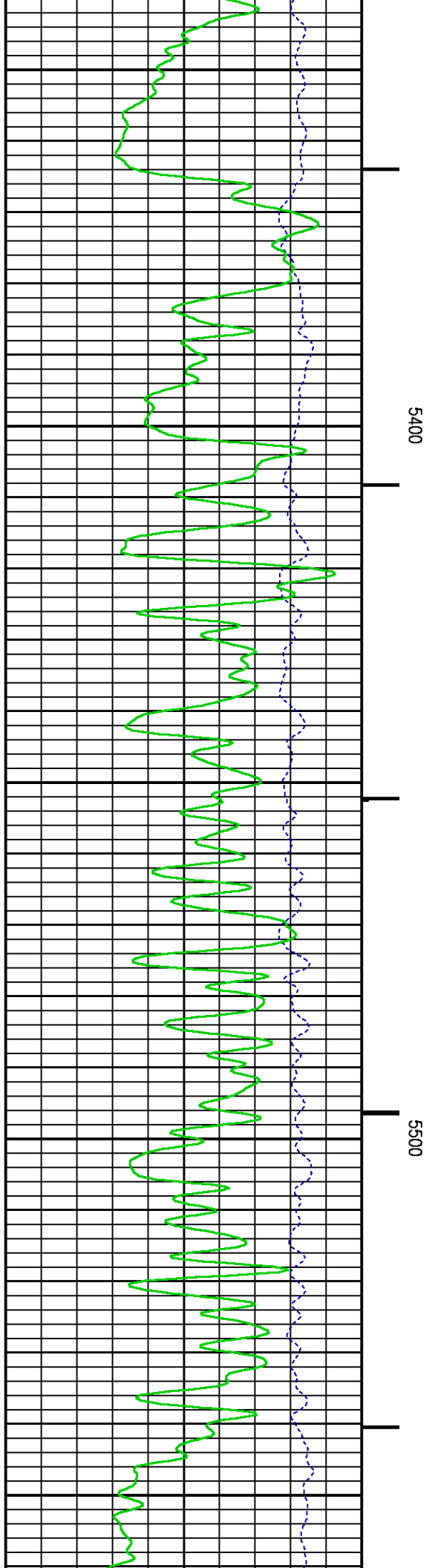
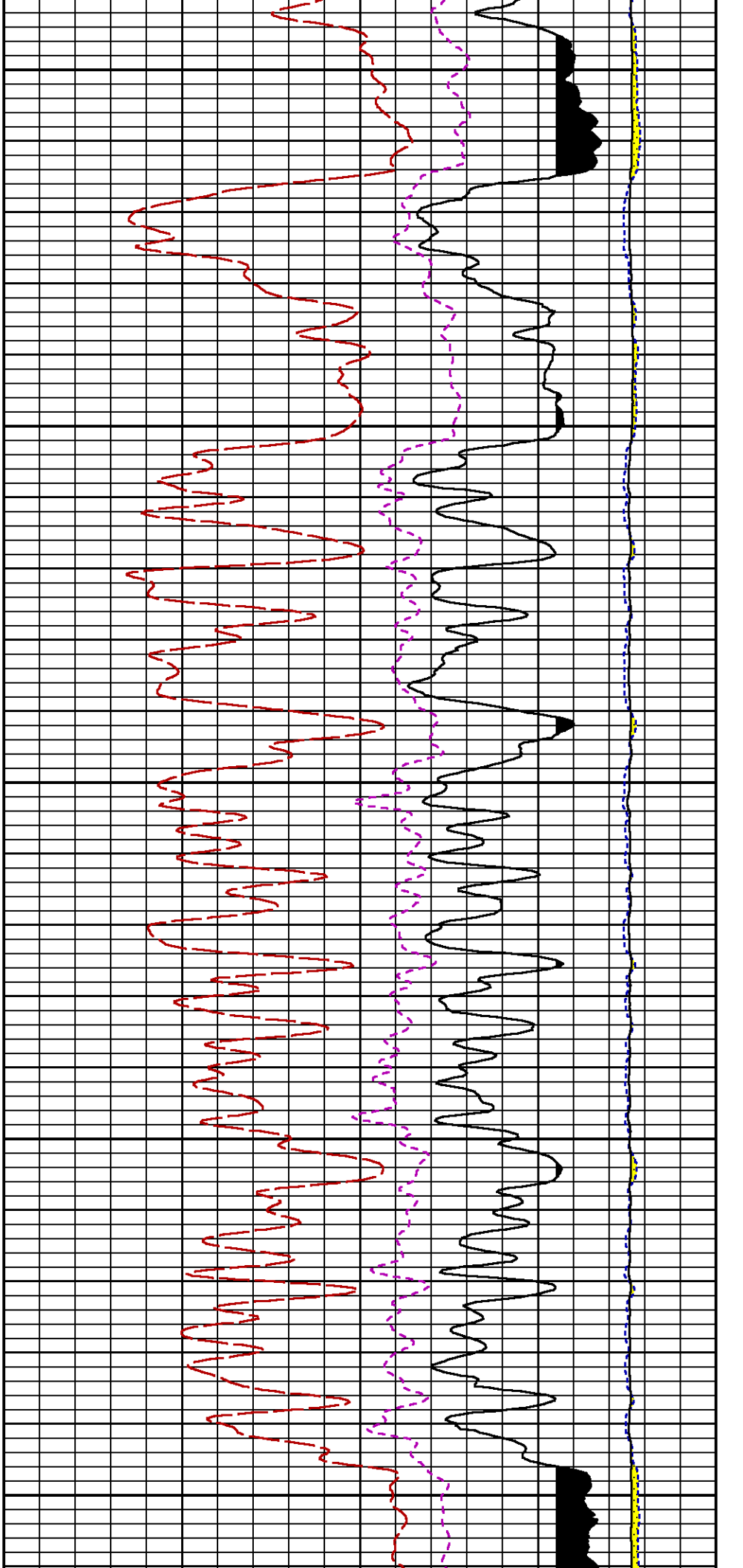


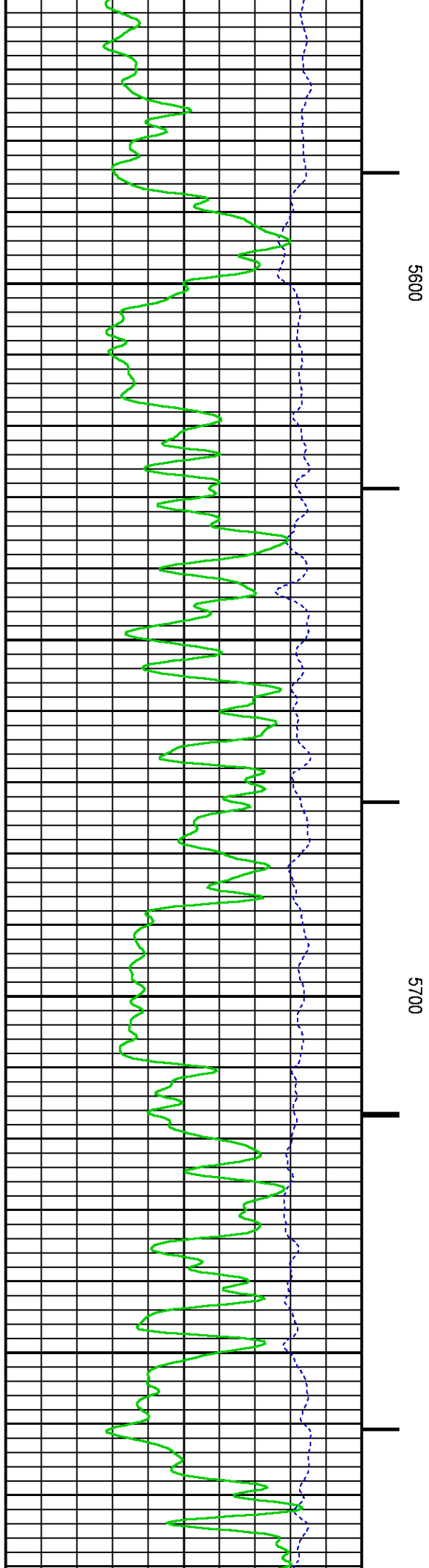
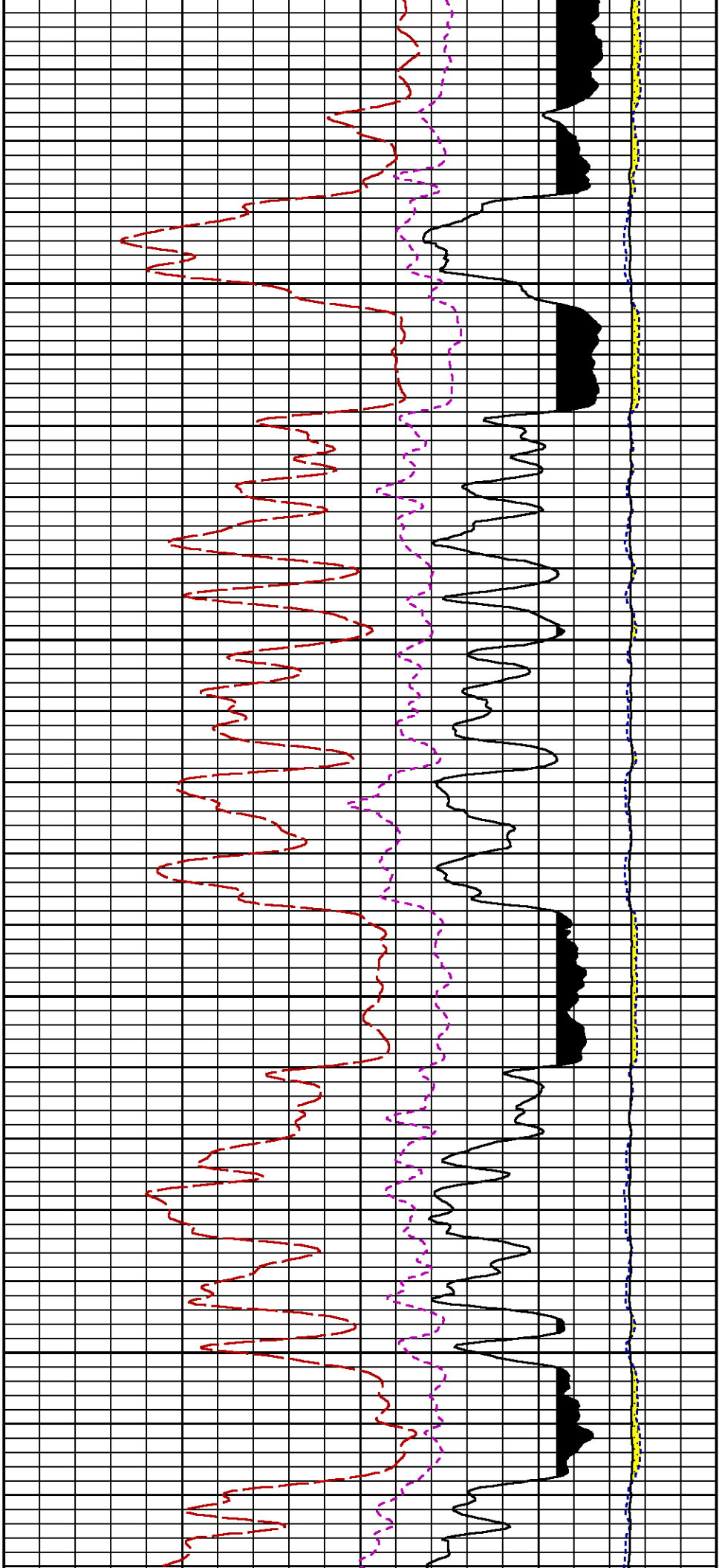


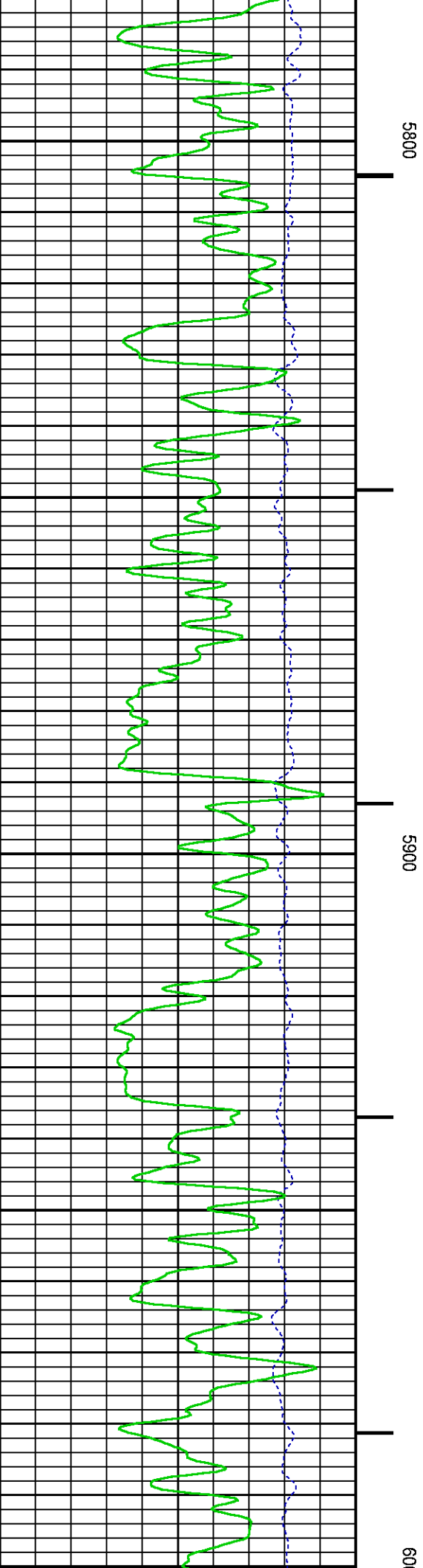
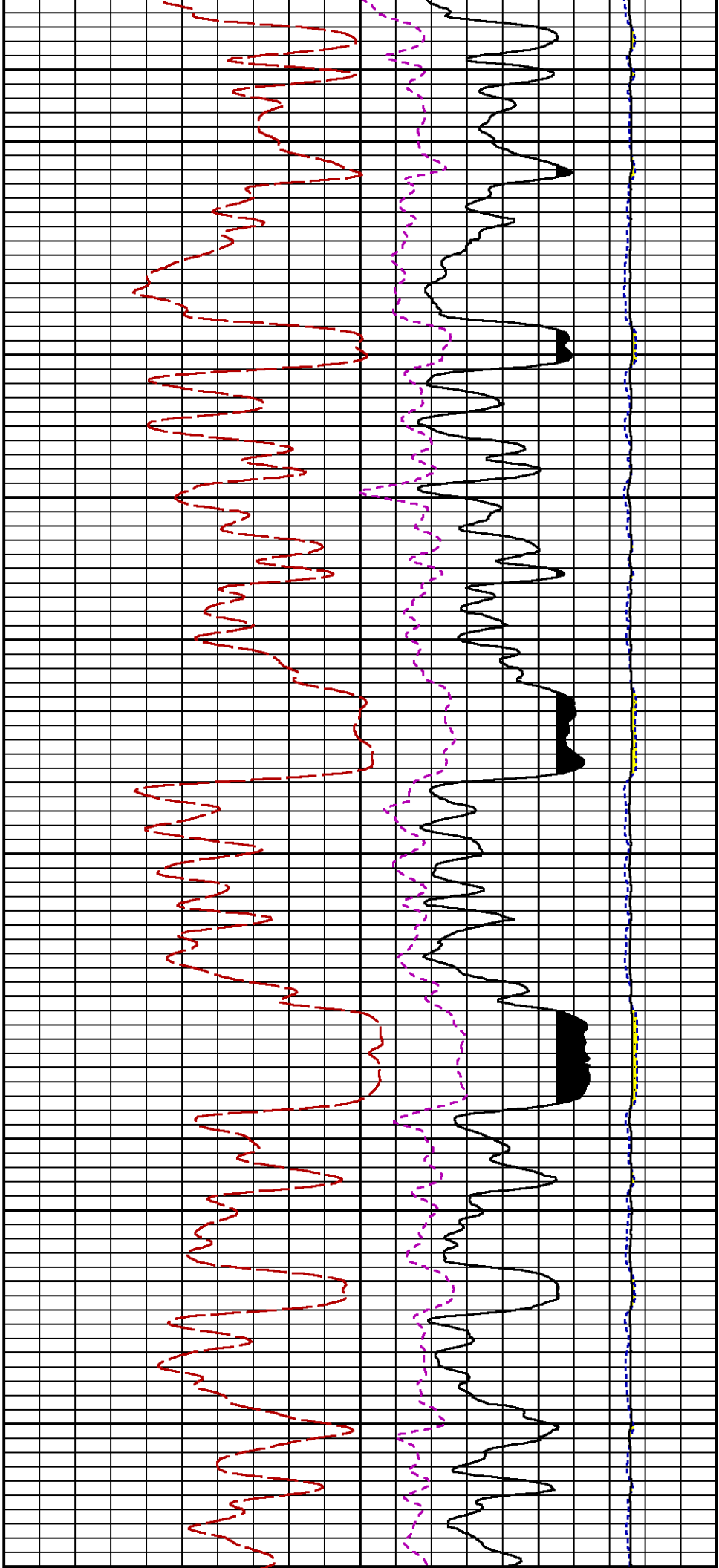


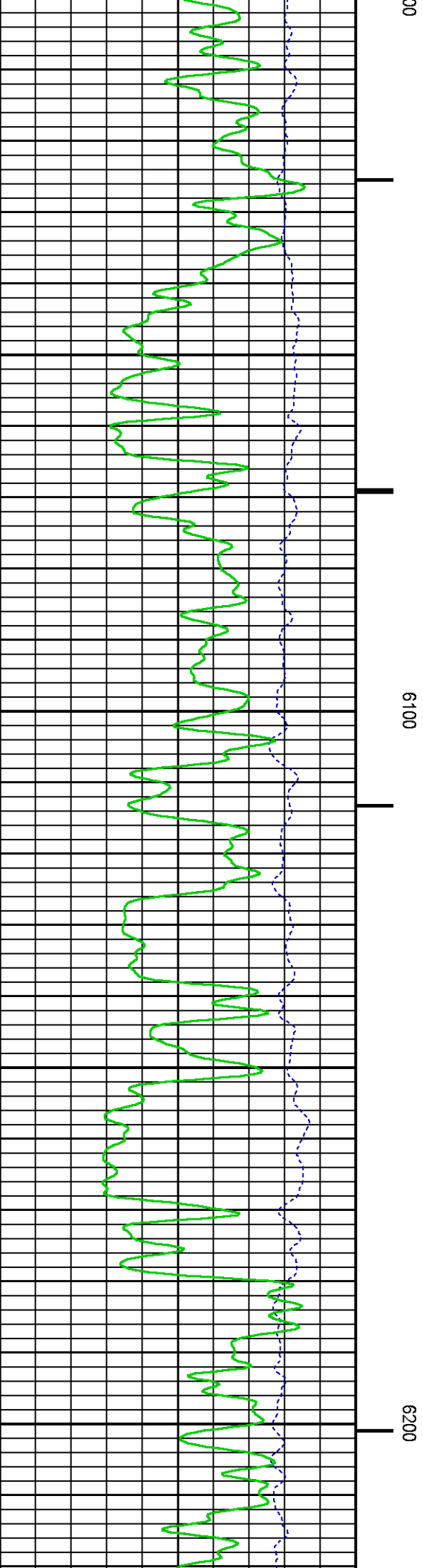
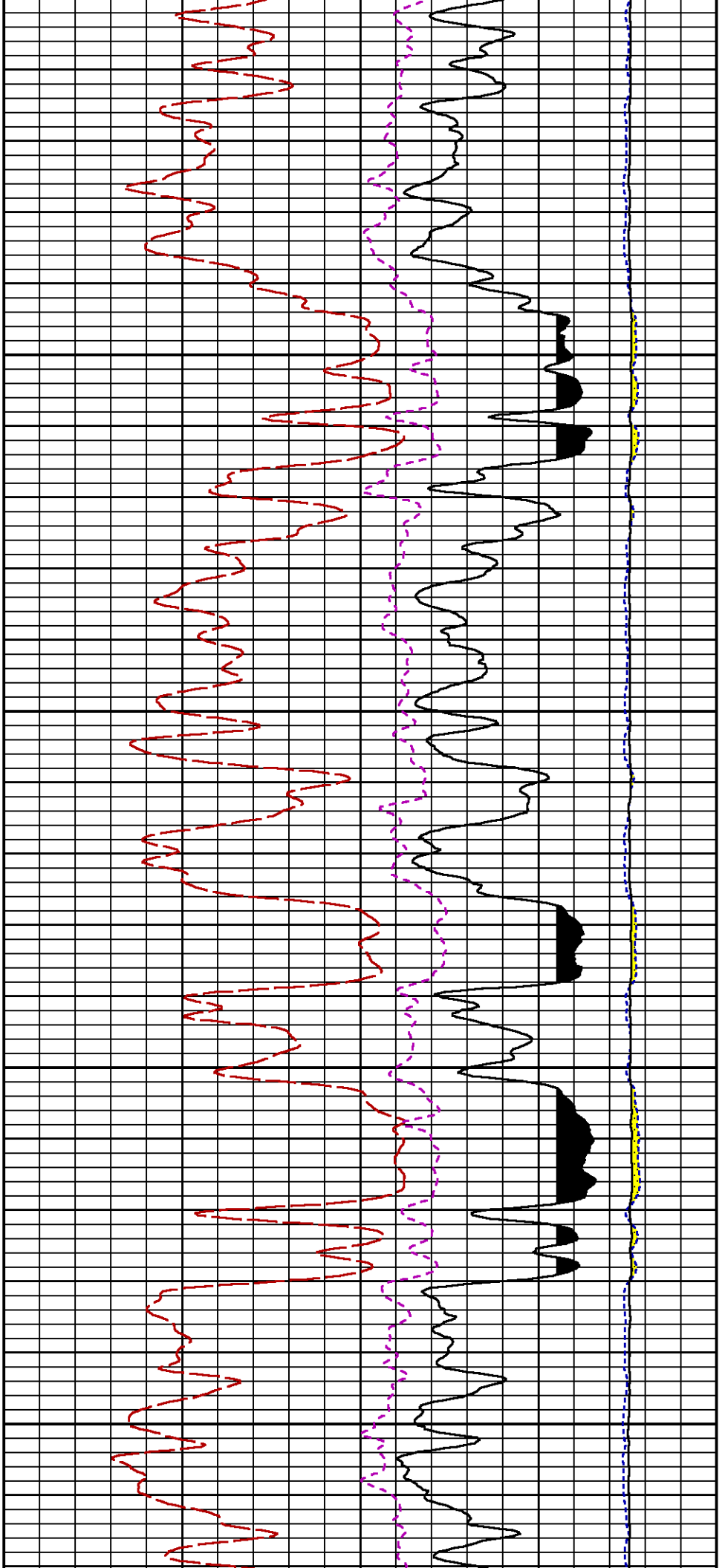


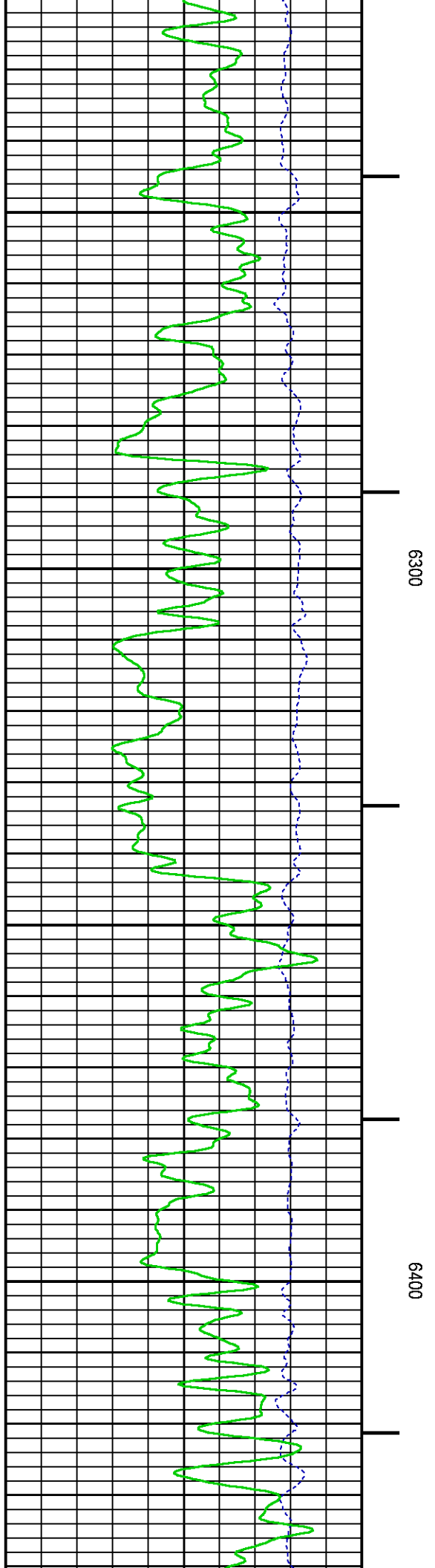
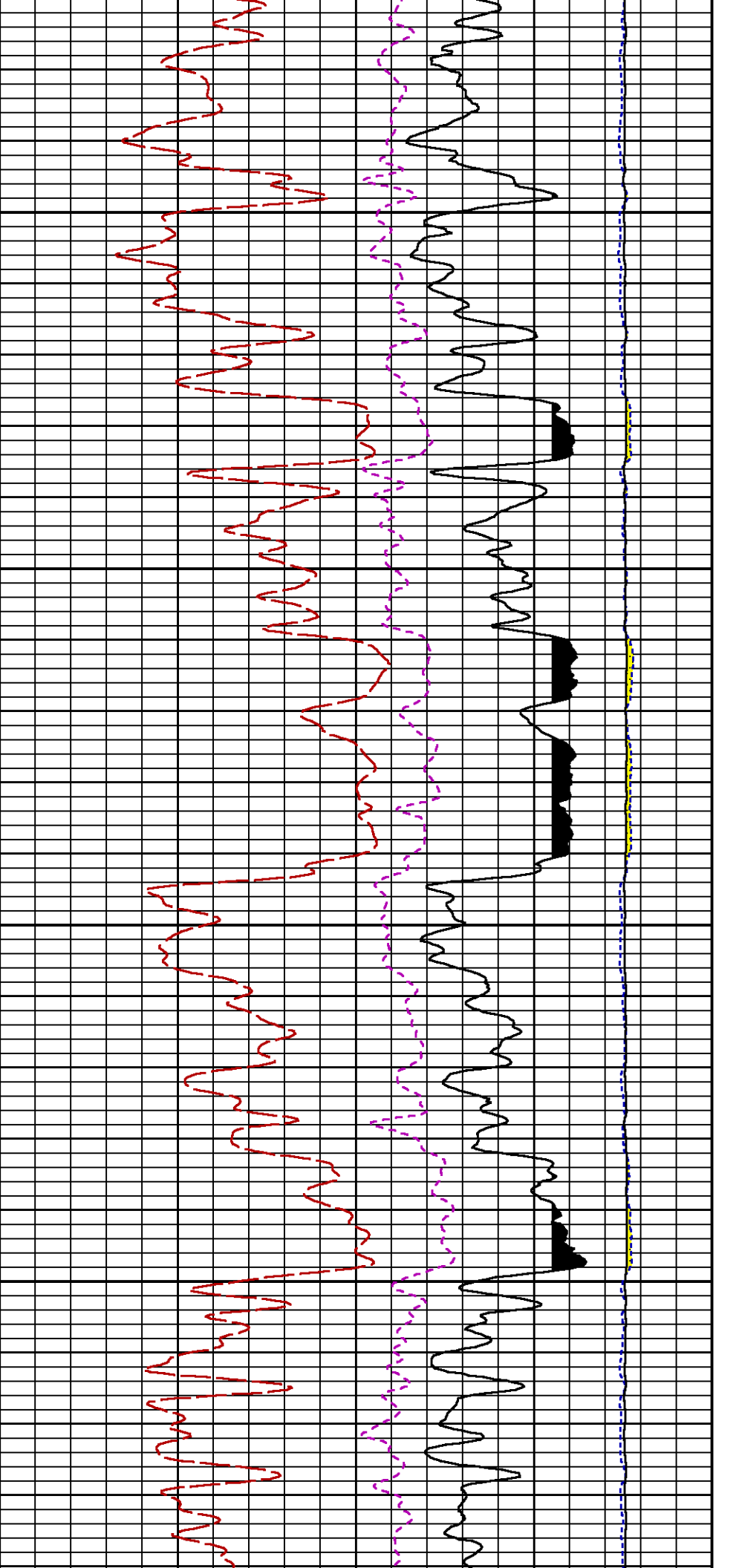


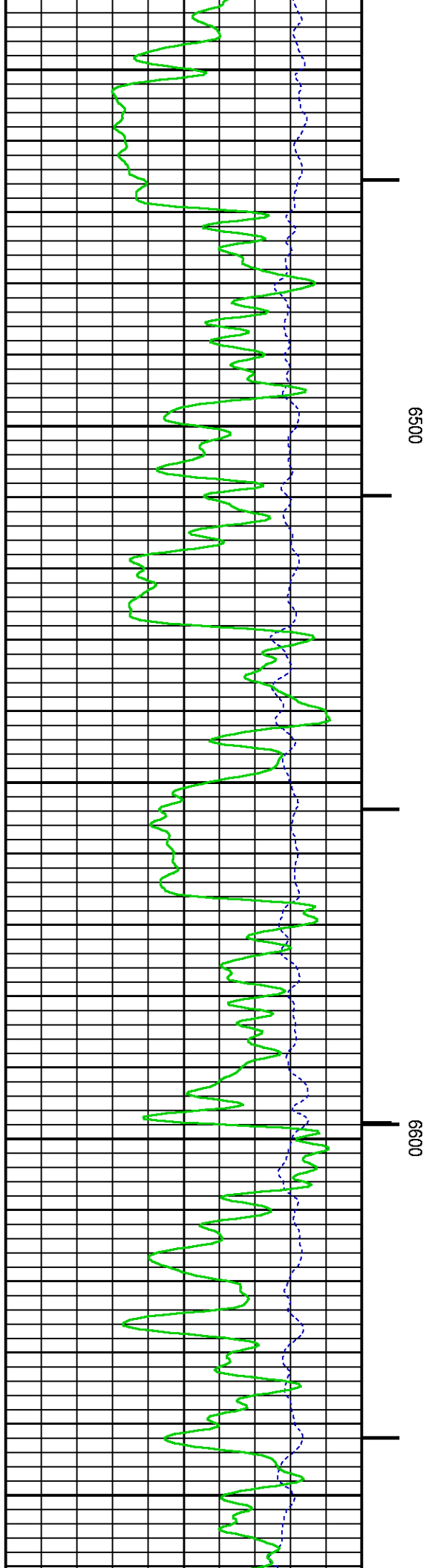
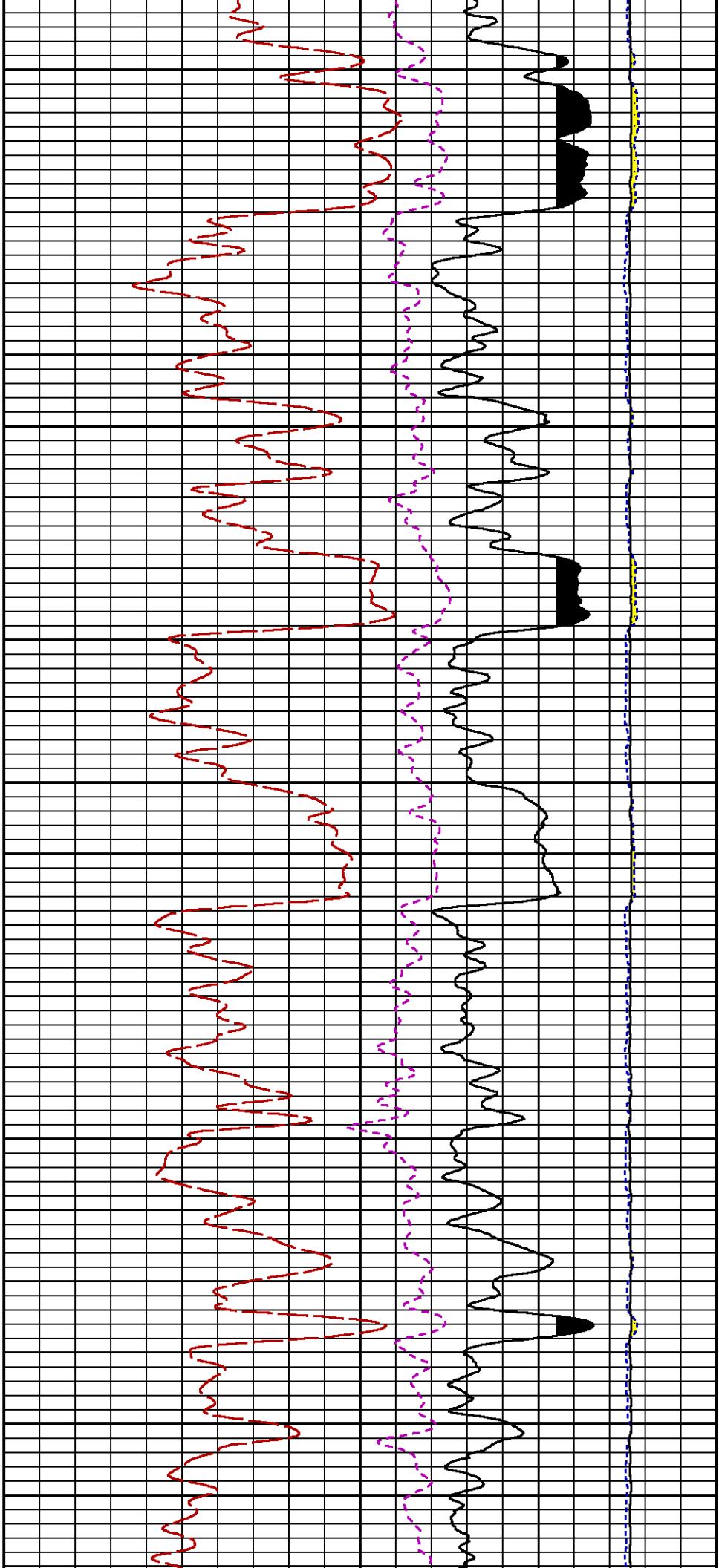


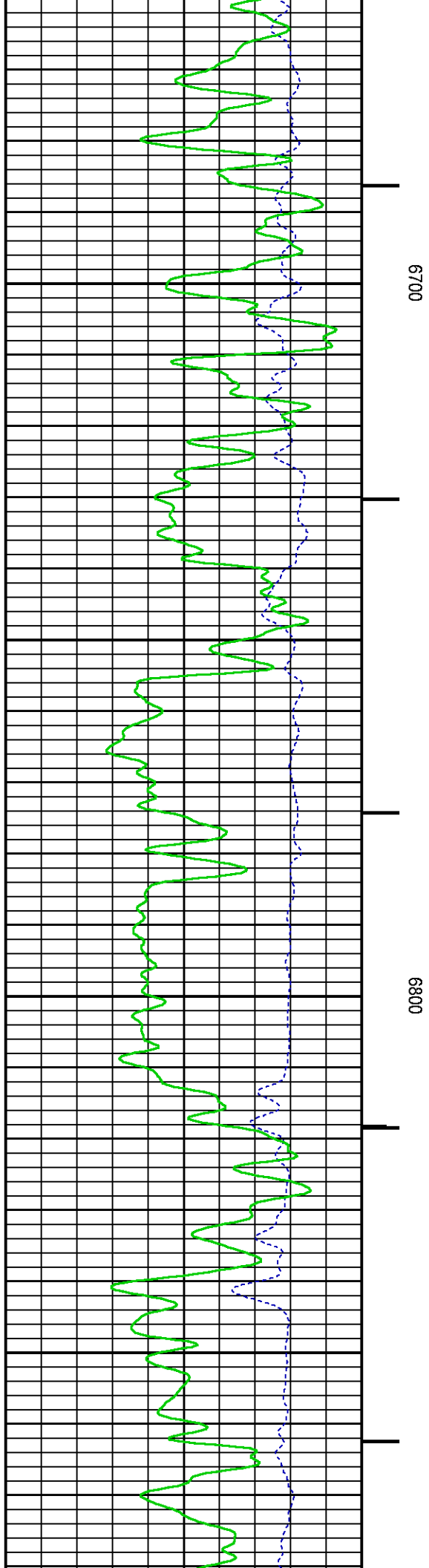
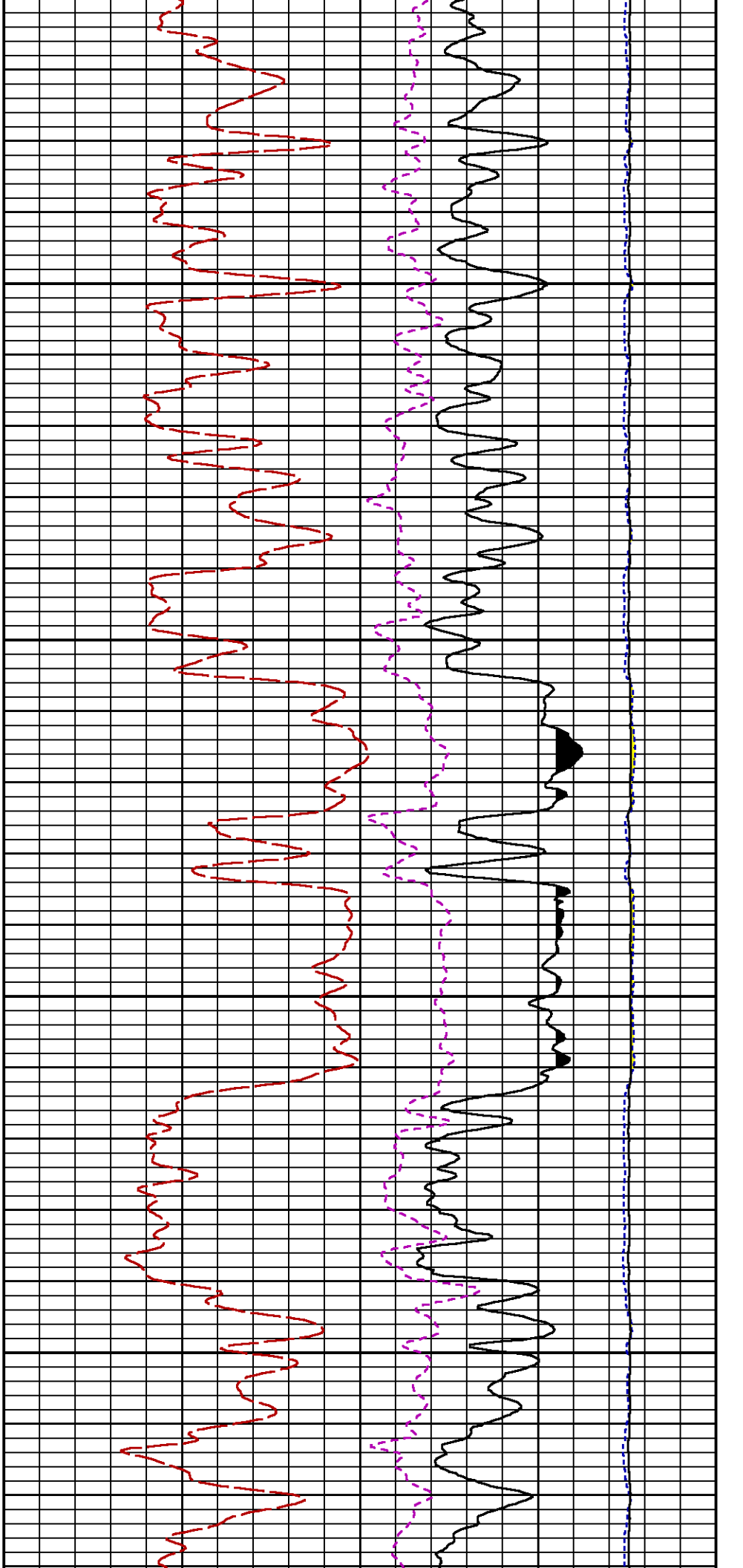




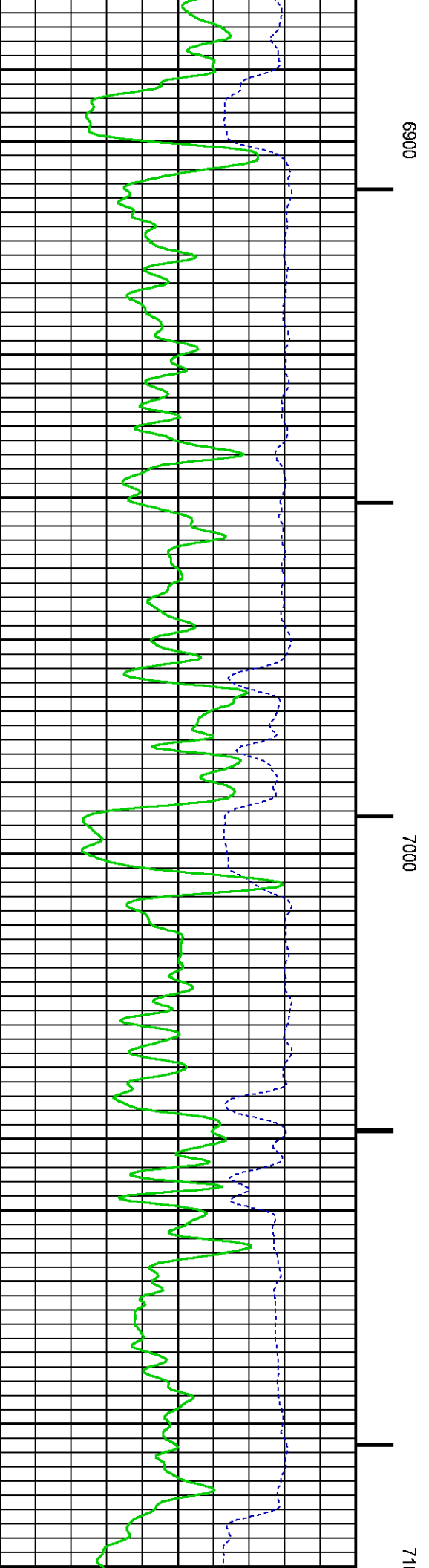
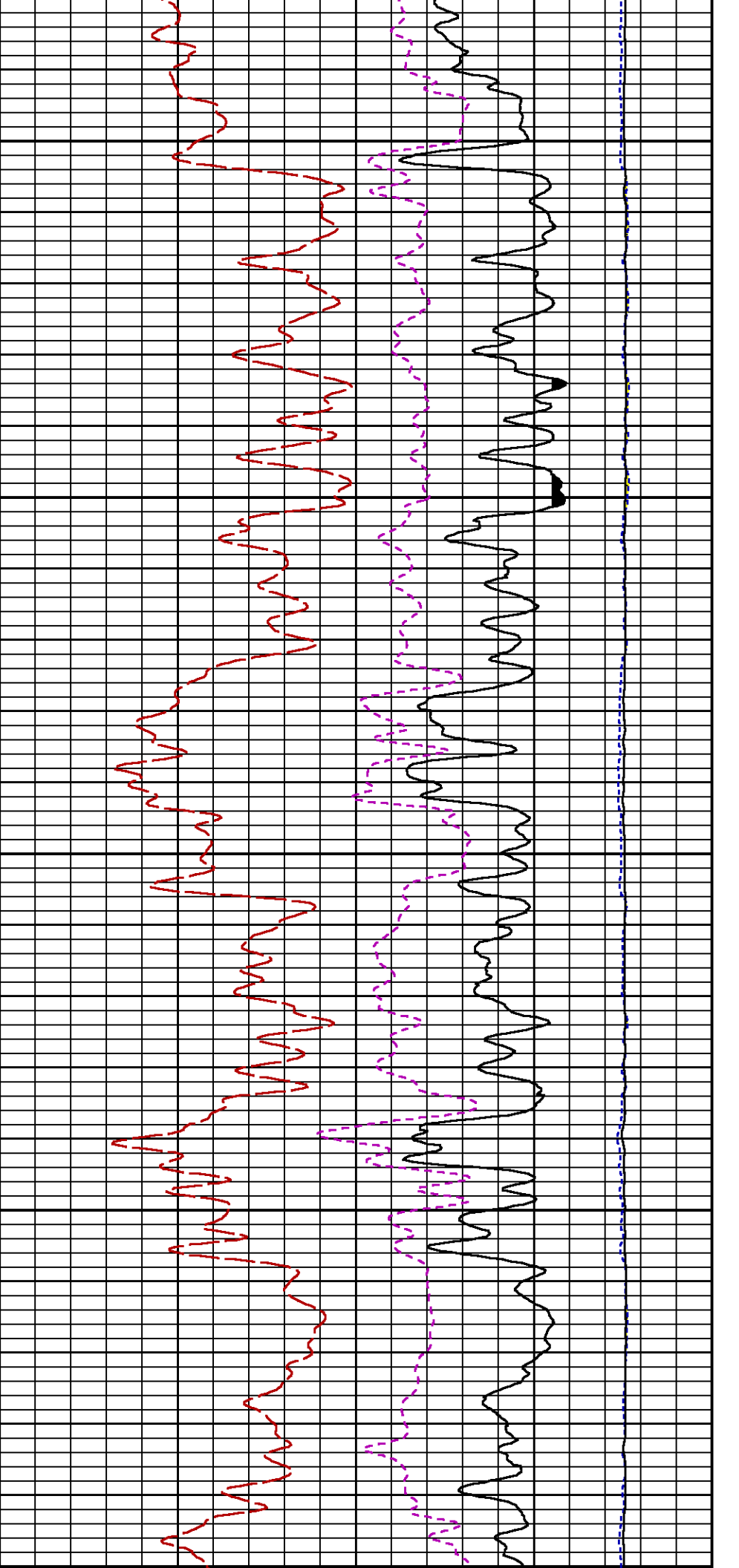


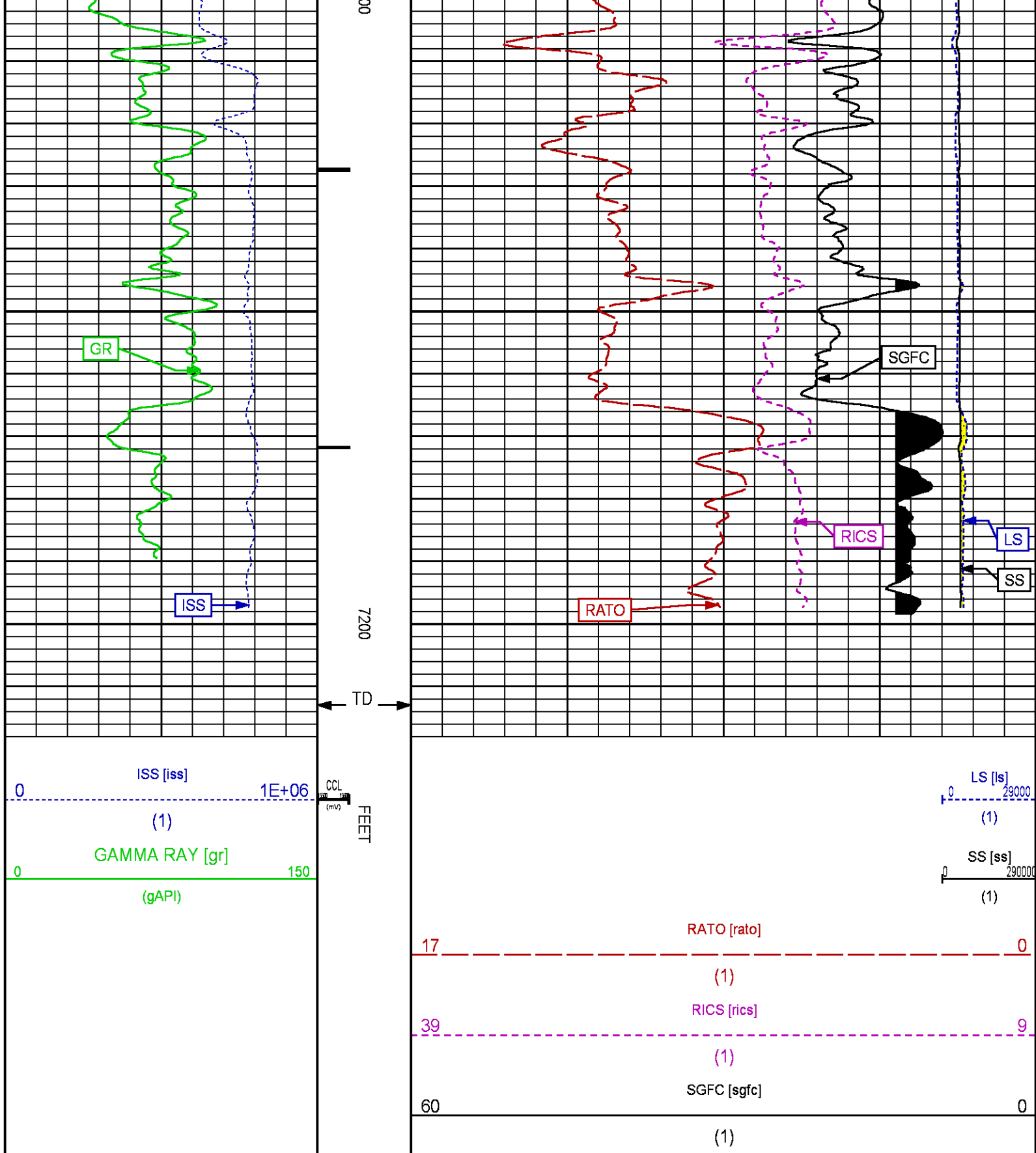












REPEAT SECTION PNC-3D MODE

Plotted: Thu Nov 20 10:02:30 2014

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/CH092541/n354h01.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 6370.500 ft BOTTOM DEPTH: 6707.508 ft

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

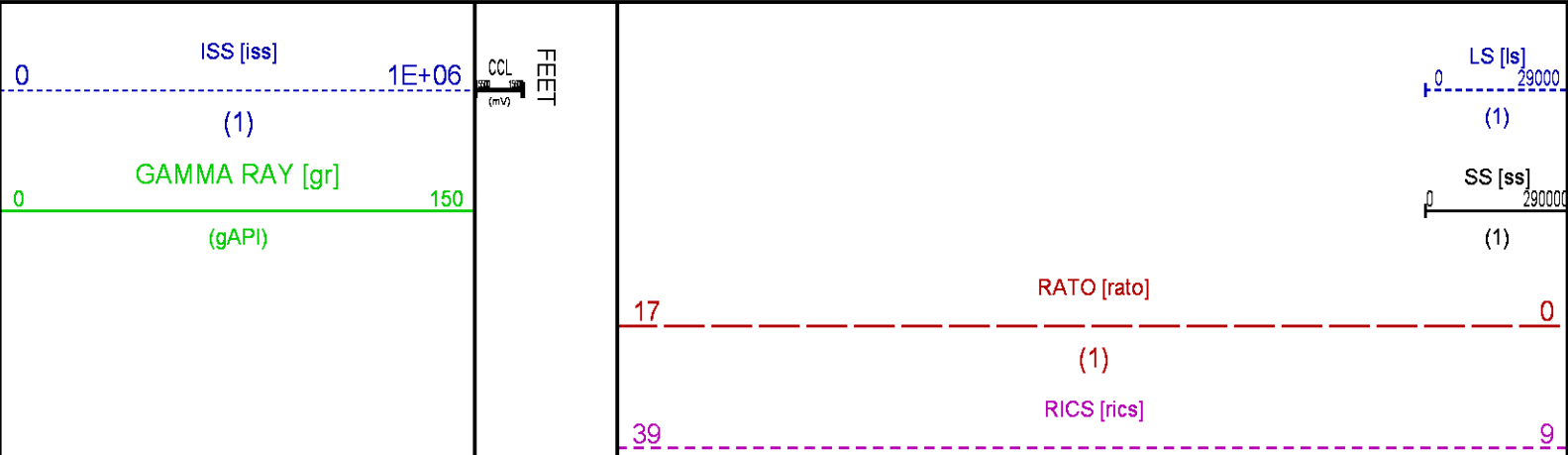
RPM PROCESSING				
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP BOTTOM
	OPEN/CASED HOLE	CASED HOLE		" "
	BOREHOLE SIZE	8.75	in	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

CURVE DESCRIPTION REPORT		
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Nov 19 18:29:31 2014	CASING COLLAR LOCATOR
F1:GR	Nov 19 18:29:31 2014	GAMMA RAY
F1:ISS	Nov 19 18:29:31 2014	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Nov 19 18:29:31 2014	LONG SPACE COUNT RATE
F1:RATO	Nov 19 18:29:31 2014	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Nov 19 18:29:31 2014	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Nov 19 18:29:31 2014	CORRECTED FORMATION SIGMA
F1:SS	Nov 19 18:29:31 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 : HL6670:/dat1a/CH092541/43RPM\_REPEAT.fvpdf [5"/100' Scale]  
Plot Interval : 6380 - 6680 Feet

Data File 1 : F1 : HL6670:/dat1a/CH092541/43RPM\_REPEAT.xtf  
Created On : Nov 19 18:29:31 2014  
Company : WPX ENERGY  
Well : GM 43-12  
Field : GRAND VALLEY  
File Interval : 6343.25 - 6700 Feet  
OCT : n354h



60

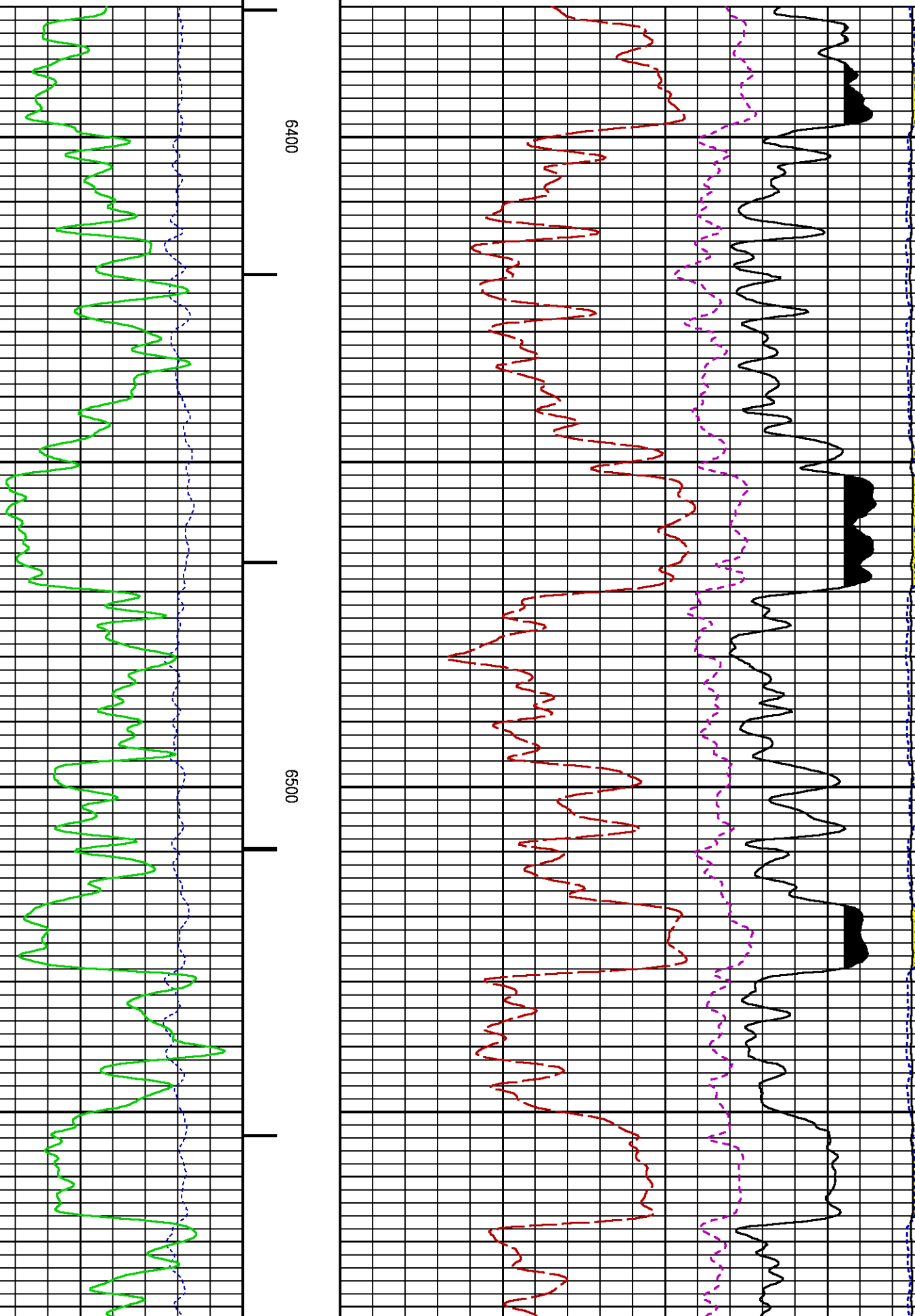
SGFC [sgfc]

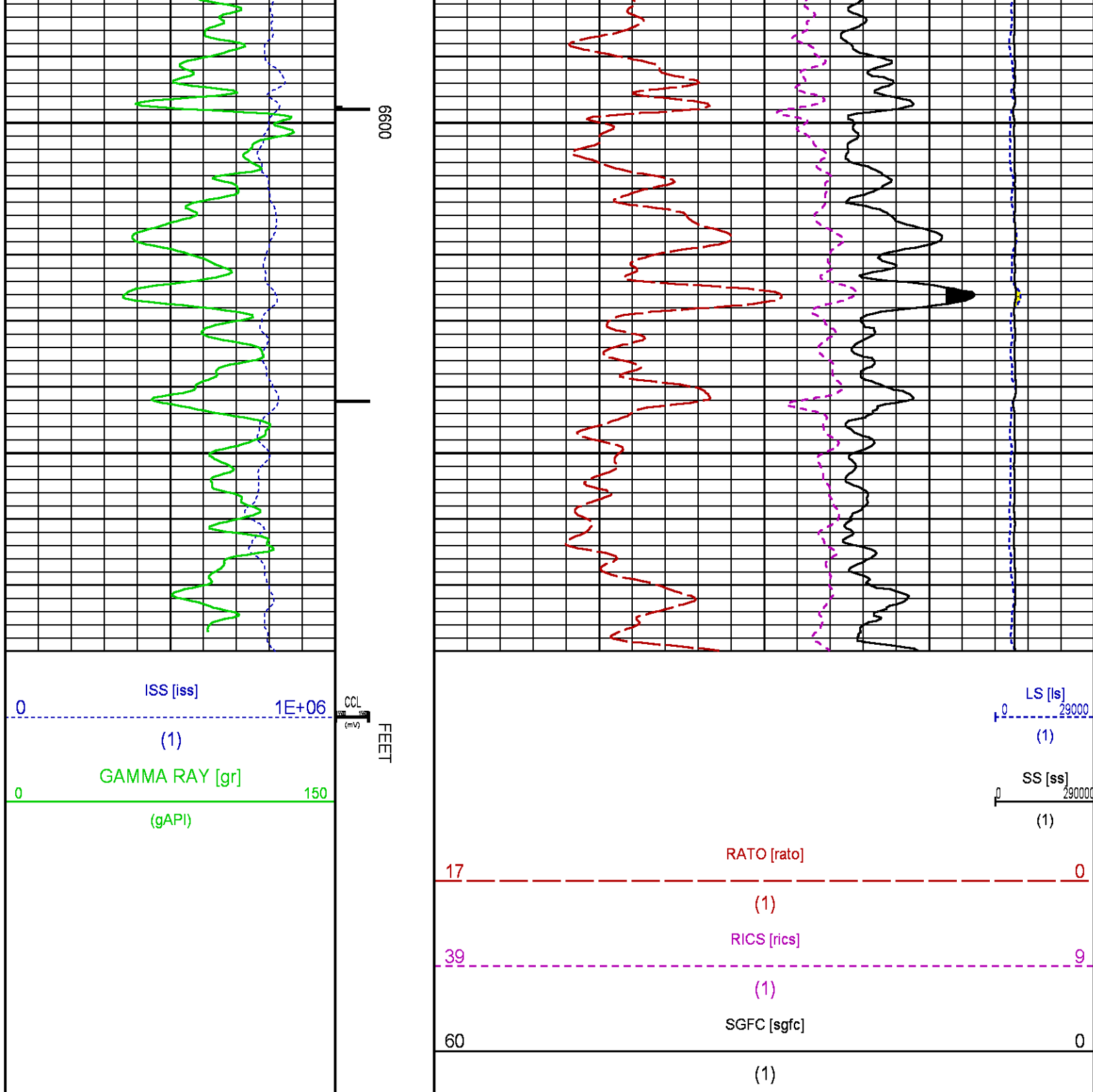
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(1)

6400

6500





## CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/CH092541/n354h.tp1

### GR PRIMARY CALIBRATION SUMMARY

TOOL #: 2812LA 11701636

DATE/TIME PERFORMED: Wed Nov 12 13:41:56 2014

UNIT #: 3880TA HL6670

CALB JIG #: 4702NK WA-612

BACKGROUND CALIBRATION GR DIE MULT BACKGROUND CALIBRATION CALIBRATION

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	GR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (gAPI)
GR	59.84	276.27	216.4	0.970	58.07	268.07	210

### GR PRIMARY VERIFICATION SUMMARY

TOOL #: 2812LA 11701636

DATE/TIME PERFORMED: Wed Nov 12 13:44:33 2014

UNIT #: 3880TA HL6670

VERI JIG #: 4702NK WA-612

	BACKGROUND (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (gAPI)
GR	56.98	275.16	0.970	55.29	266.99	211.70
						200.00 220.00

### GR BEFORE LOG VERIFICATION SUMMARY

NOT DONE

### GR AFTER LOG VERIFICATION SUMMARY

NOT DONE

### RPM\_PNC\_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10160383

DATE/TIME PERFORMED: Wed Nov 12 12:22:40 2014

UNIT: 3880TA HL6670

CALIBRATOR: 2437XB 112674

SOURCE: 8281AA 11765055

HOURS: 8281AA 36

	ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	799301	125	2276	2258	2216	100	7	0.9764
Interpolated	1300000	148	2255	2251	2211			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	799301	6536	1023	136	26.07	0.15	24.33	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	799301	171372	25970	89191	31734	8236	53881	13187
Fit Quality %		0.646	0.555	0.505	0.529	0.631	0.451	0.602

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	799301	1.43	4.66	30.79	14.84	10.83	3.85	4.09
		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 %		0.058	0.340	0.278	0.287	0.114	0.083	0.098
Reduced	1373098	1.43	4.65	30.73	14.80	10.82	3.85	4.08
		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 11774568

DATE/TIME PERFORMED: Wed May 14 12:39:45 2014

UNIT #: 3880TA HL6670

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Temp	-9.274653E+00	1.055639E-01	2.143764E-06	-2.782846E-10

# INSTRUMENT CONFIGURATION

Source File: /dat1a/CH092545/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

## SONDEX GAMMA RAY

Diameter : 1.69"  
Length : 2.17'  
Weight : 10 lbs  
Series : 2812LA  
Mnemonic : GR  
Measure Point: 0.62': 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"



	COMPANY	WPX ENERGY		FILE NO:	
	WELL	GM 43-12			CH092541
	FIELD	GRAND VALLEY		API NO:	
	COUNTY	GARFIELD	STATE	COLORADO	05045224640000
	LOCATION:	SHL: 1205' FNL & 1941' FWL BHL: 2396' FSL & 1191' FEL		ELEVATIONS:	12 7S 96W GM 21-12 PAD NABORS 573
		SEC 12	TWP 7S	RGE 96W	KB 5151 FT DF GL 5125 FT
		DATE			19-Nov-2014