



FILE NO:	COMPANY	LARAMIE ENERGY II LLC
API NO:	WELL	NICHOLS 0994-24-02E
05077104210000	FIELD	VEGA
	COUNTY	MESA
	STATE	COLORADO

Ver. 4.10	LOCATION:	OTHER SERVICES
	SHL 1797 FNL 2783 FEL	RAL
	BHL 348 FNL 1531 FEL	
	SEC 24 TWP 9S RGE 94W	

PERMANENT DATUM	GL	ELEVATION	7137 FT	KB	7161 FT
LOG MEASURED FROM	KB	24 FT	ABOVE P.D.	DF	
DRILL. MEAS. FROM	KB			GL	7137 FT

DATE	11-Mar-2018
RUN	2
TRIP	1
SERVICE ORDER	US132926J
DEPTH DRILLER	7759 FT
DEPTH LOGGER	7704 FT
BOTTOM LOGGED INTERVAL	7694 FT
TOP LOGGED INTERVAL	2429 FT
TIME STARTED	1400
TIME FINISHED	22:00
OPERATOR RIG TIME	LOGGER
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	49 FT
LOGGED CEMENT TOP	2288 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	90 FMIN
MAX. RECORDED TEMP.	236 DEGF
REFERENCE LOG	NA
REFERENCE LOG DATE	11-MAR-2018
EQUIP. NO.	4291
LOCATION	R. ZUNIGA
GRAND JCT	
RECORDED BY	NA
WITNESSED BY	

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 2 TRIP 1: RAL/GR/CCL RUN CENTRALIZED

LOGGED WITH 0 PSI AT WELLHEAD

SJ: 6002-6021  
SJ: 6895-6914

TOP OF CEMENT COULD NOT BE DETERMINED USING AS PER CUSTOMER REQUEST.

CREW: R. ZUNIGA, J. PENA, A. SHAHNOOSHI

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
2	1	TELEMETRY	8250 EA/8248 ED	11745584/10193585	FREE
2	1	GR	8262 XA	10317216	FREE
2	1	RPM ELEC	8281 EA	10387162	FREE
2	1	RPM	8283 PA/8281 FA	10184883/10318654	FREE
2	1	TEMP	8255 XA	11774568	FREE

# G-SAND PNC 3D MODE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017  
Patches: 2

Plotted: Sun Mar 11 22:39:39 2018

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-02E/p353h03.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 2418.369 ft BOTTOM DEPTH: 3063.912 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:GR	N/A	GAMMA RAY
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	-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:LARAMIE\_RPM\_GS.fvpdf [5"/100' Scale]  
Plot Interval : 2402.25 - 3069.5 Feet  
  
Data File 1 : F1 : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-02E/RPM\_GS.xtf  
Created On : N/A  
Company : LARAMIE ENERGY II LLC  
Well : NICHOLS 0994-24-02E  
Field : VEGA  
File Interval : 2401.5 - 3071 Feet  
OCT : p353h

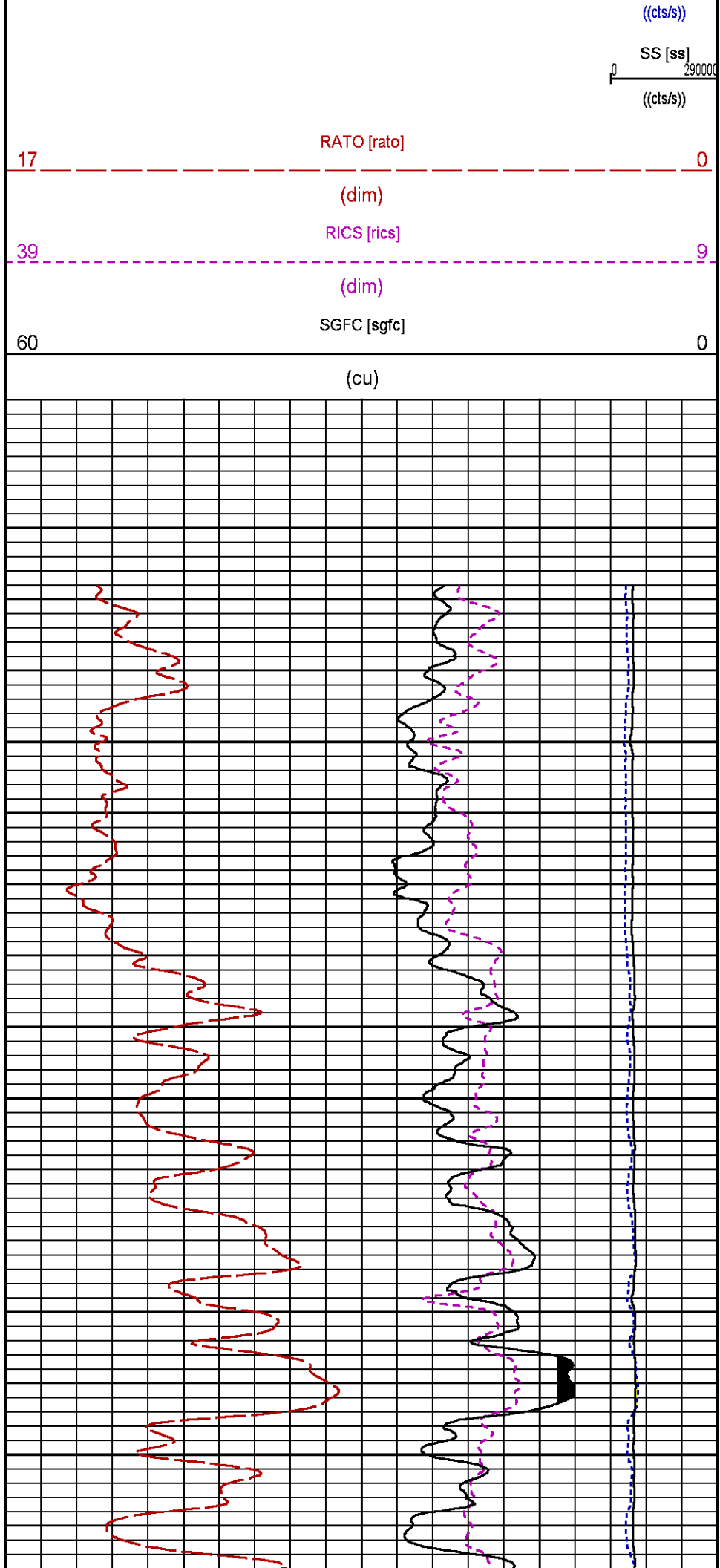
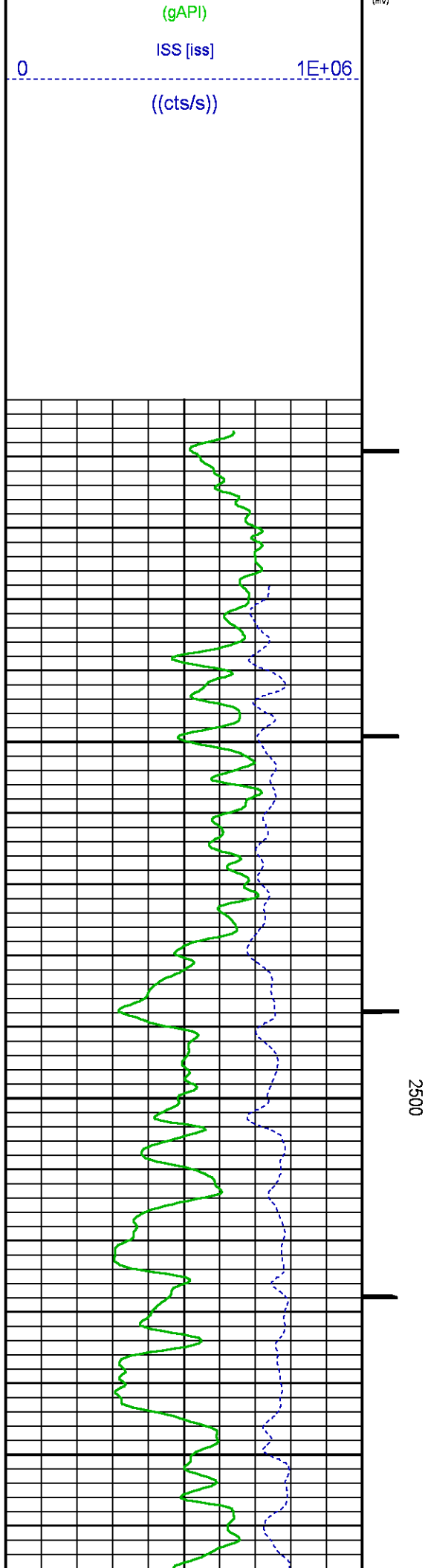
GR BACKUP

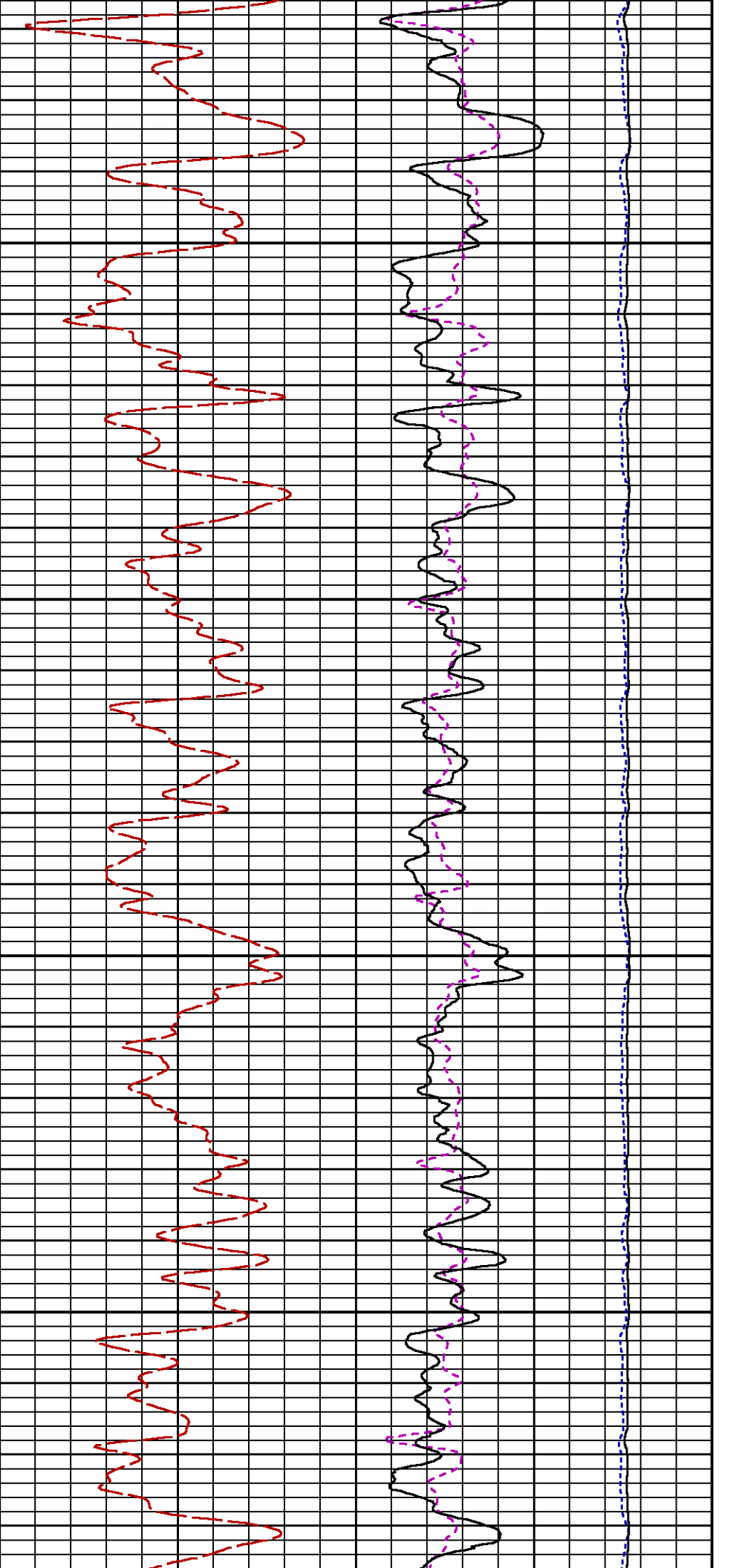
GAMMA RAY [gr]

FEET

LS [ls]

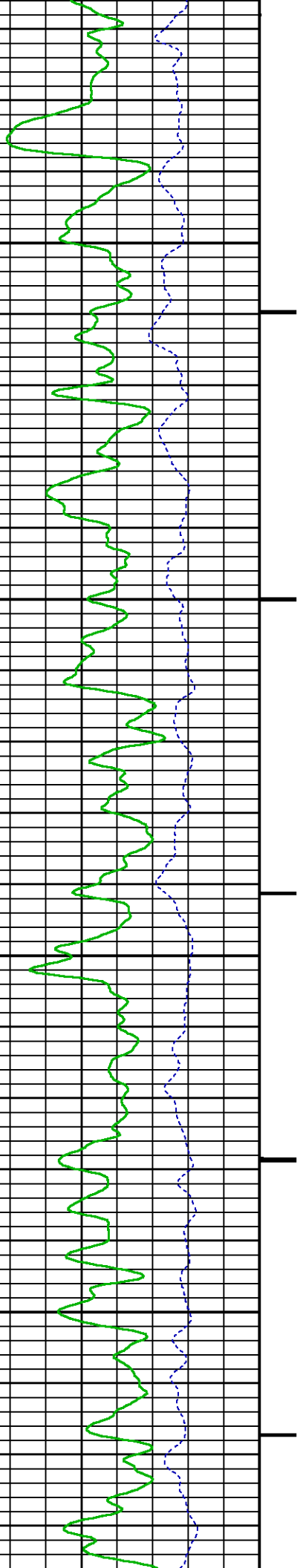
29000

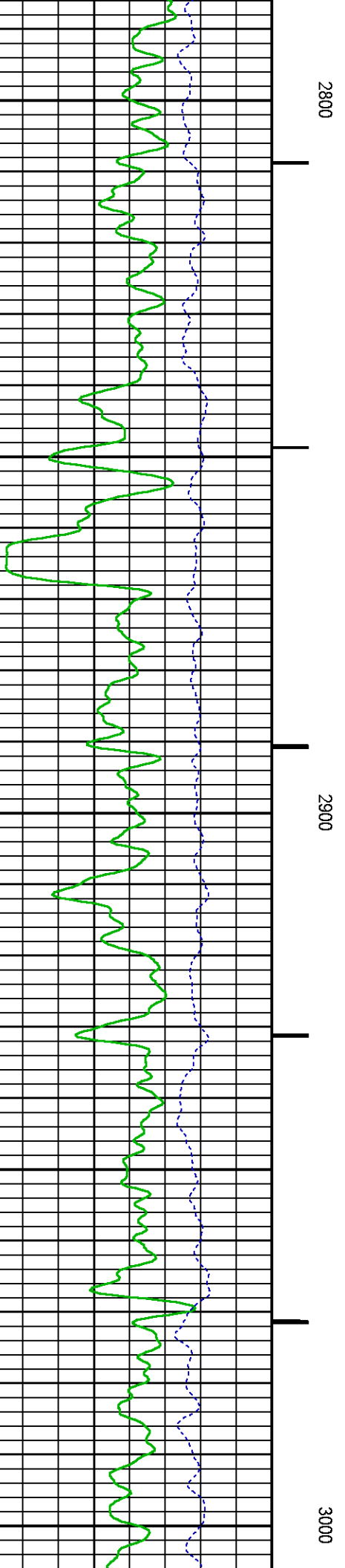
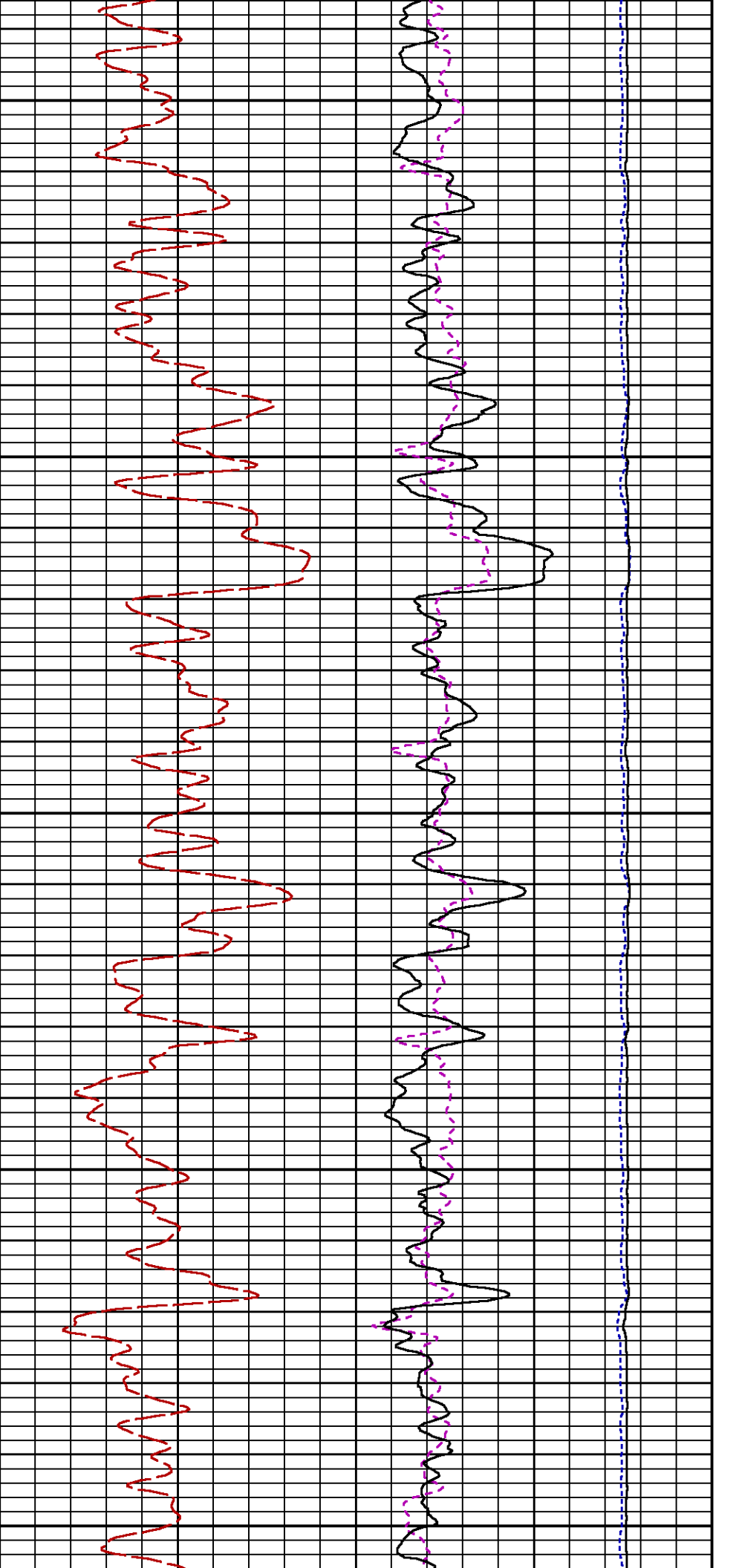


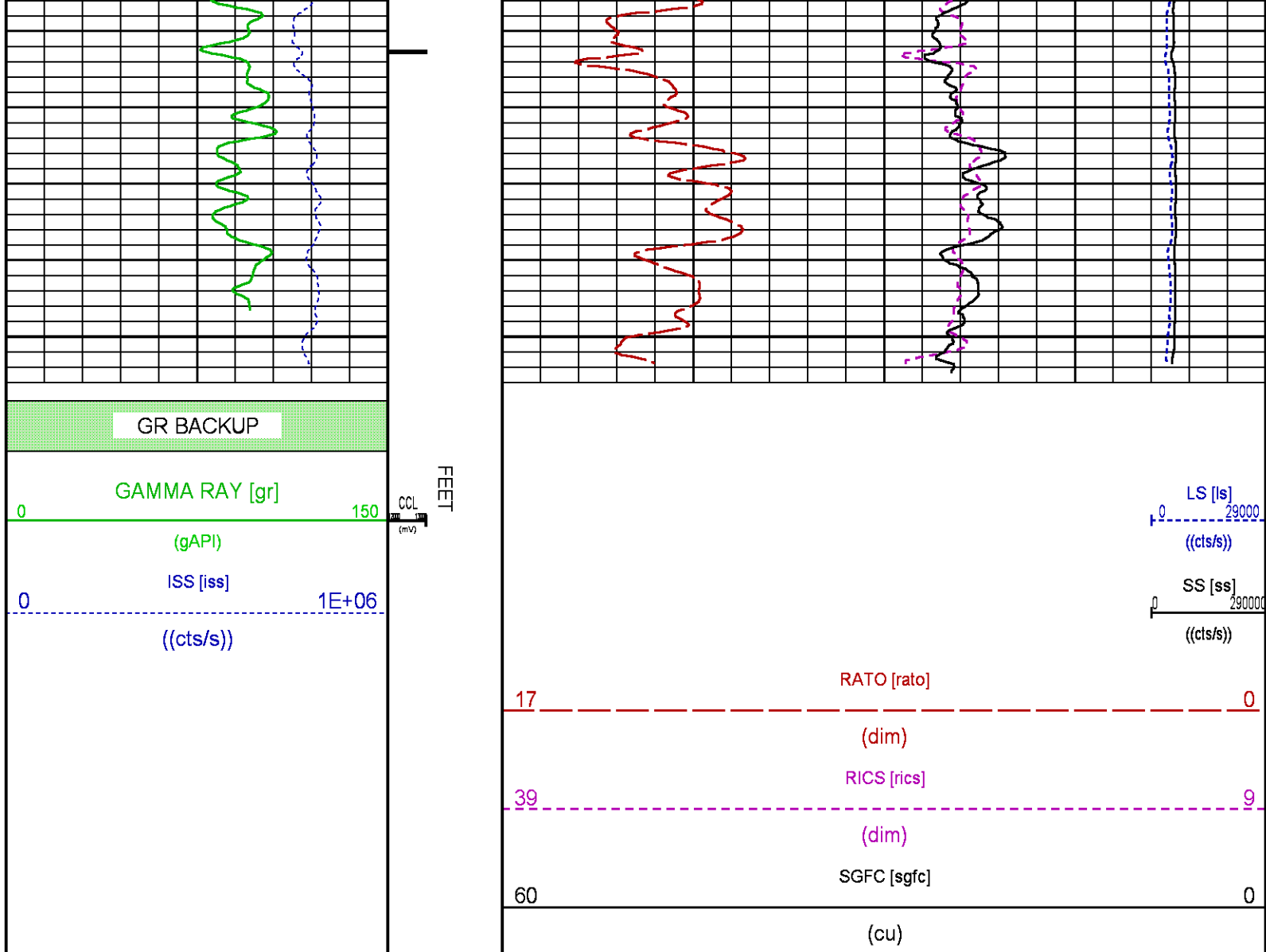


2600

2700







## WILLIAMS FORK PNC 3D MODE

ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017  
Patches: 2

Plotted: Sun Mar 11 22:40:50 2018

### PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-02E/p353h02.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 4331.500 ft BOTTOM DEPTH: 7706.544 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)
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PNC Parameters	BOREHOLE CONTENTS	FLUID	TOP	BOTTOM
	OPEN/CASED HOLE	CASED HOLE	"	"
	BOREHOLE SIZE	7.88	"	"
	LARGEST CASING OD	4.50	"	"
	MATRIX	SANDSTONE	"	"

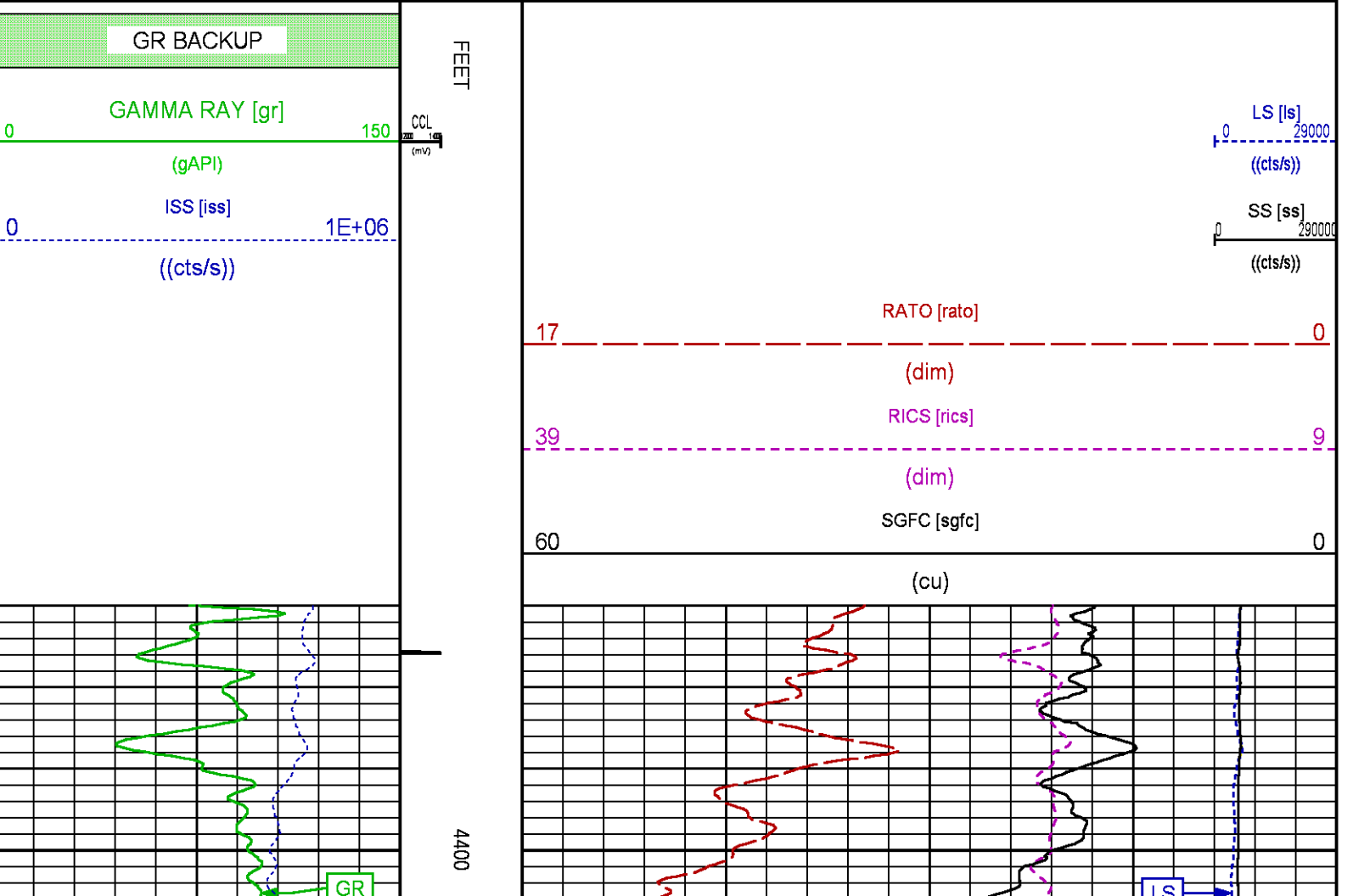
CURVE DESCRIPTION REPORT

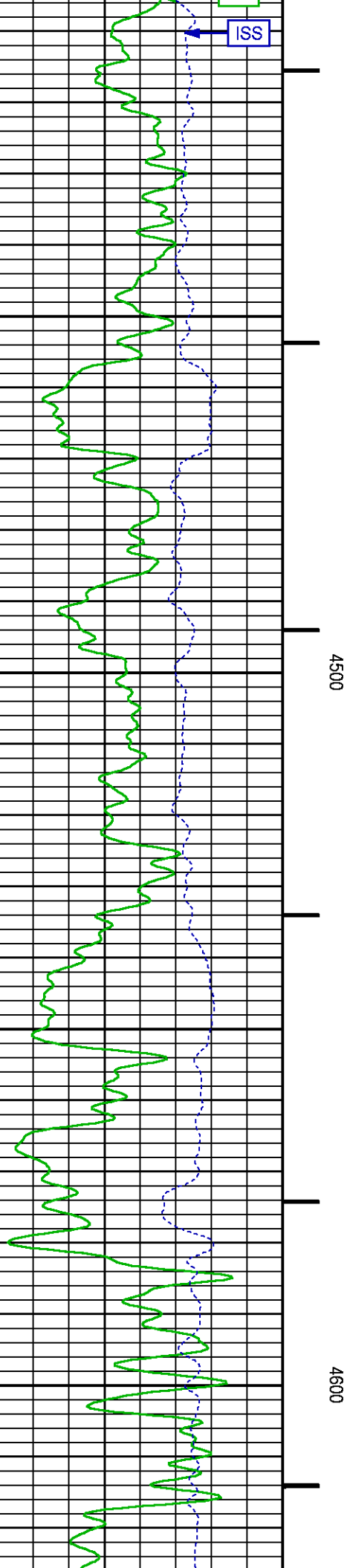
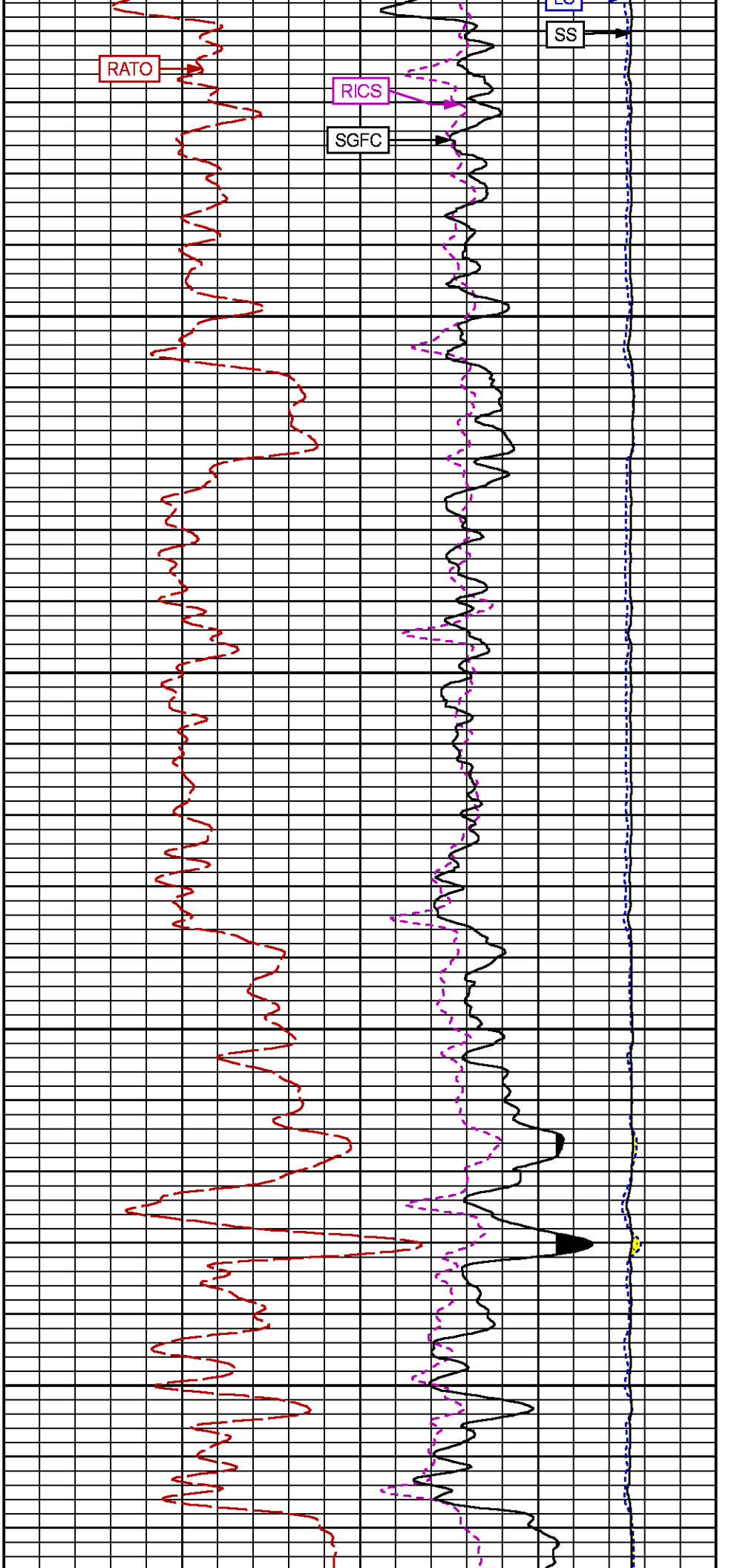
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A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

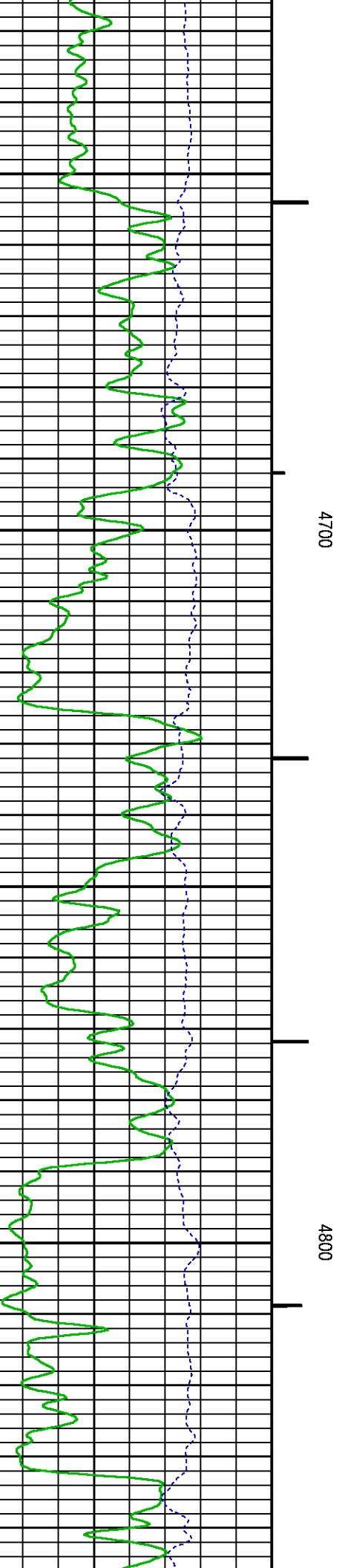
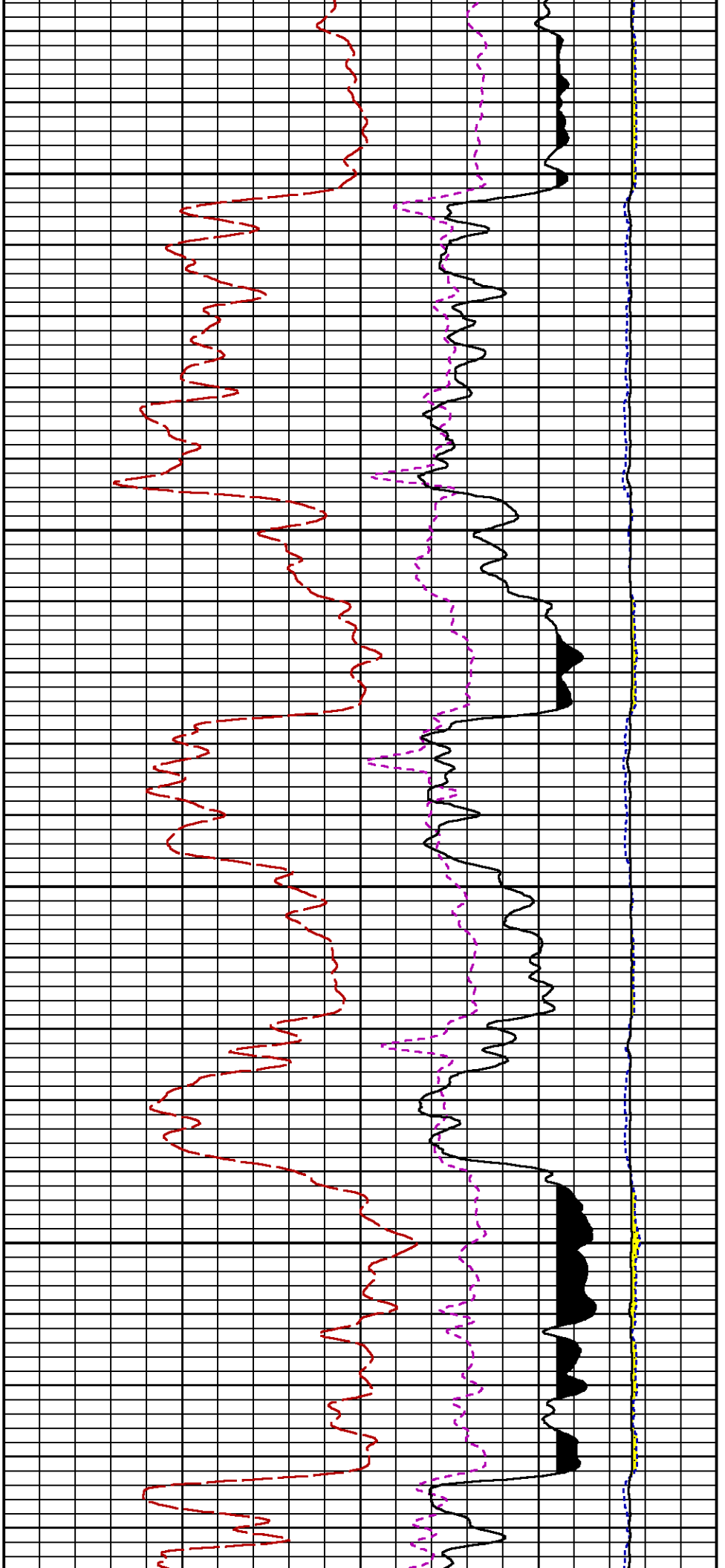
CURVE MEASURE POINT OFFSET

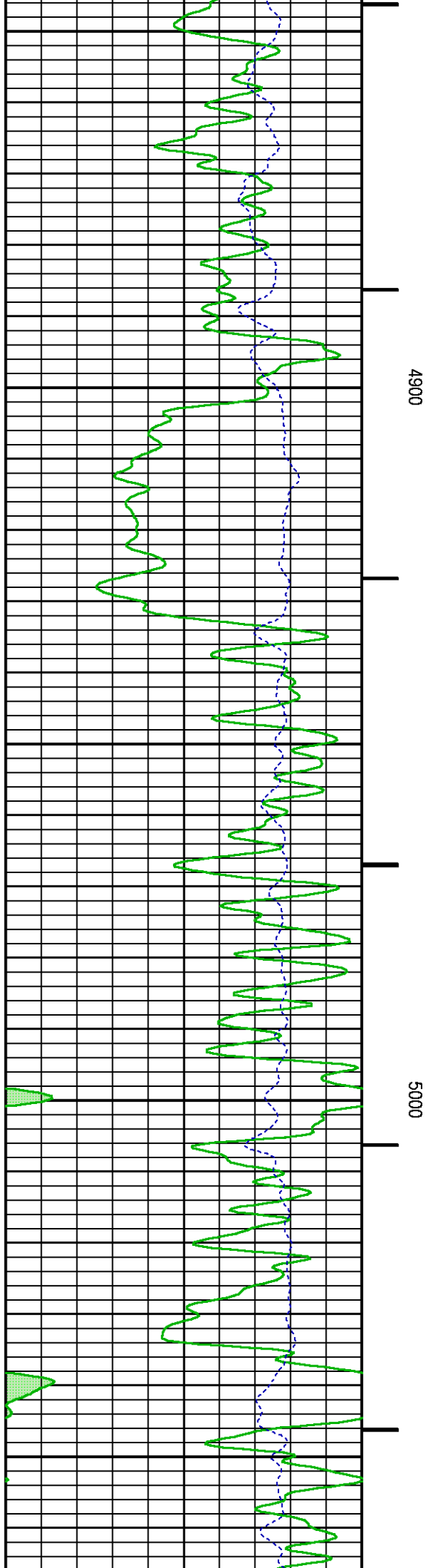
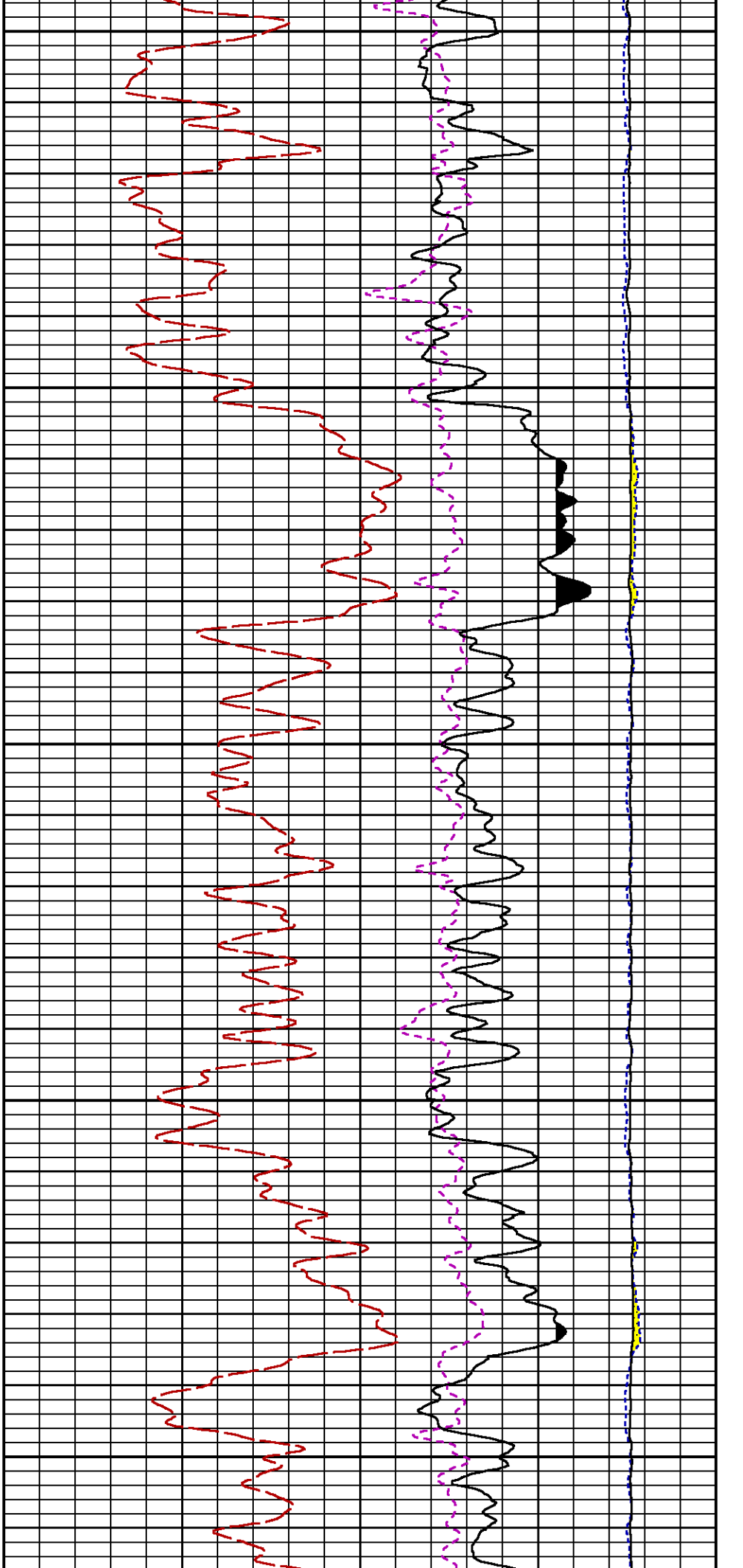
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75	SS	-12.75

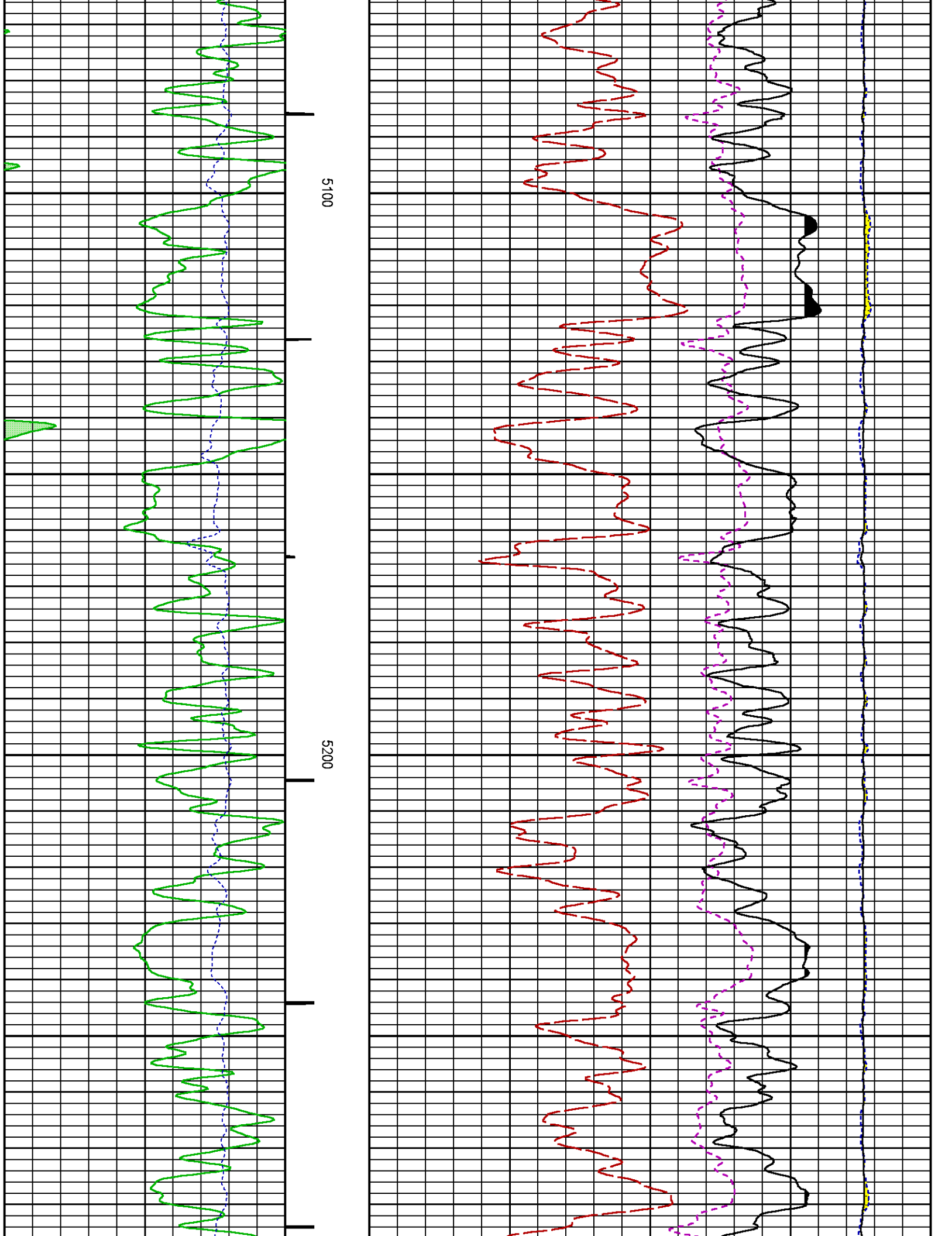
Presentation	: SysA:/dat1a/LARAMIE_NICHOLS_0994-24-02E/LARAMIE_RPM_WF.fvpdf [5"/100' Scale]
Plot Interval	: 4370 - 7703.25 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-02E/RPM_WILLIAMS_FORK_MAIN.xtf
Created On	: N/A
Company	: LARAMIE ENERGY II LLC
Well	: NICHOLS 0994-24-02E
Field	: VEGA
File Interval	: 4315.25 - 7703.25 Feet
OCT	: p353h

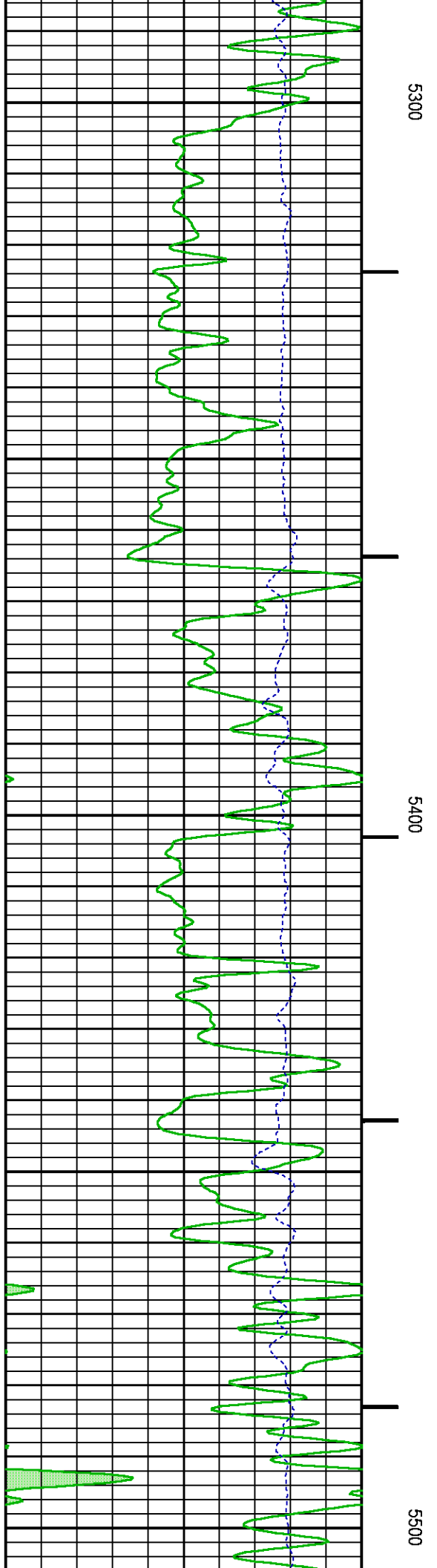
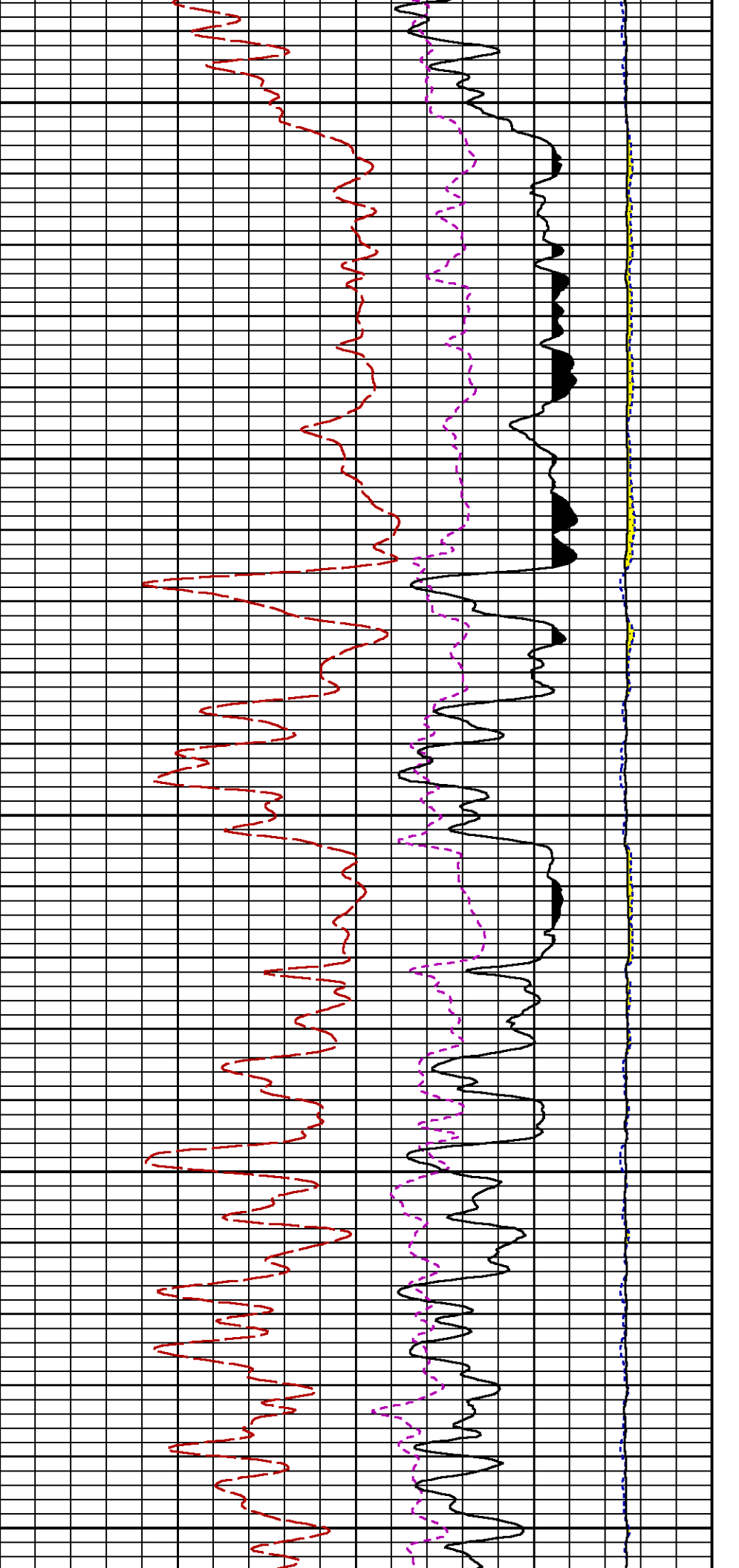


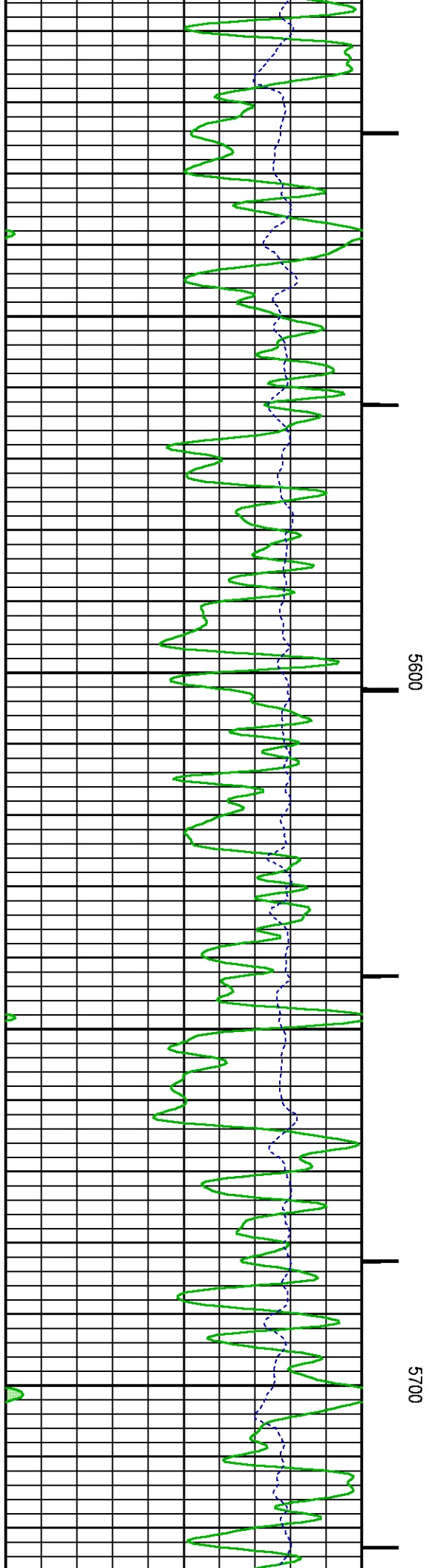
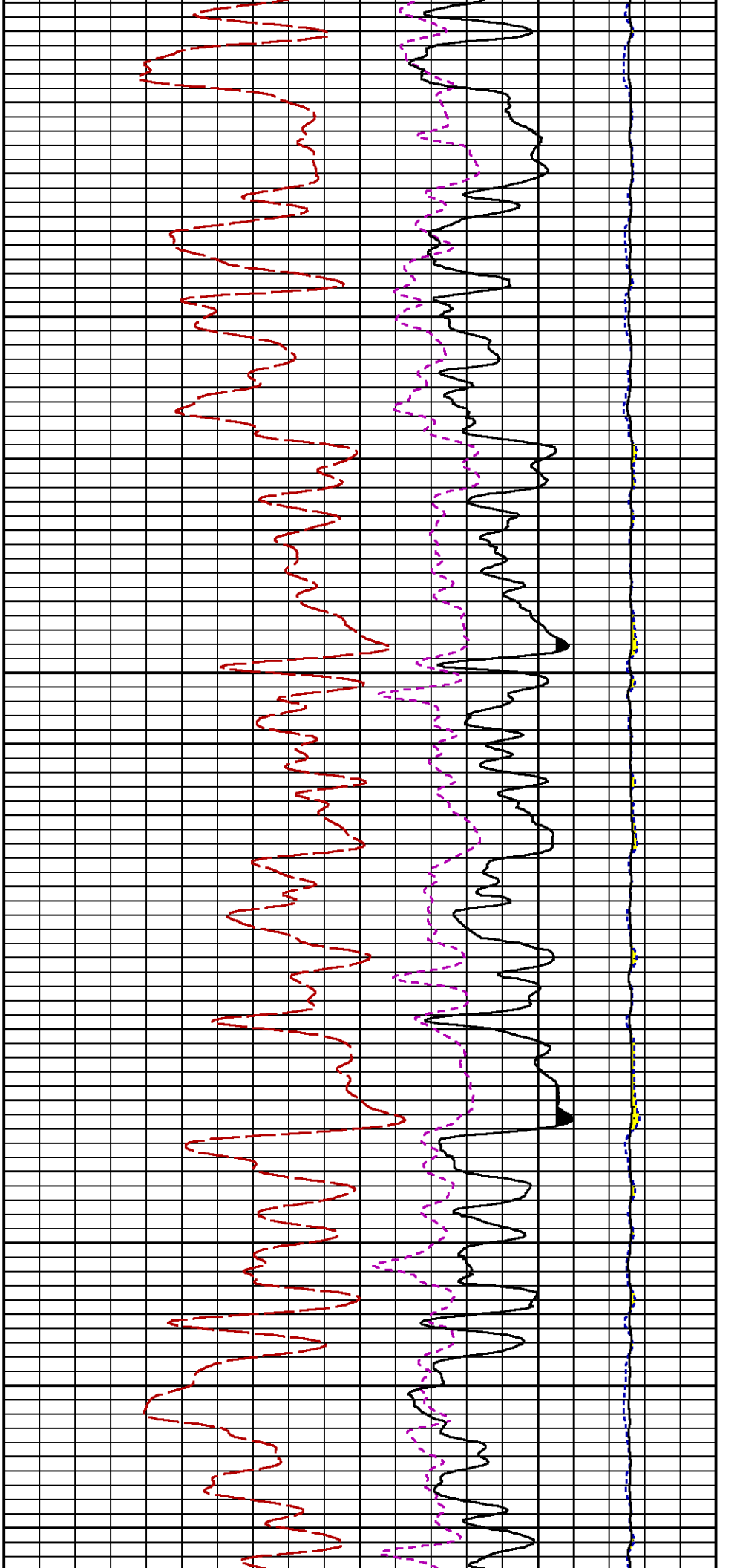


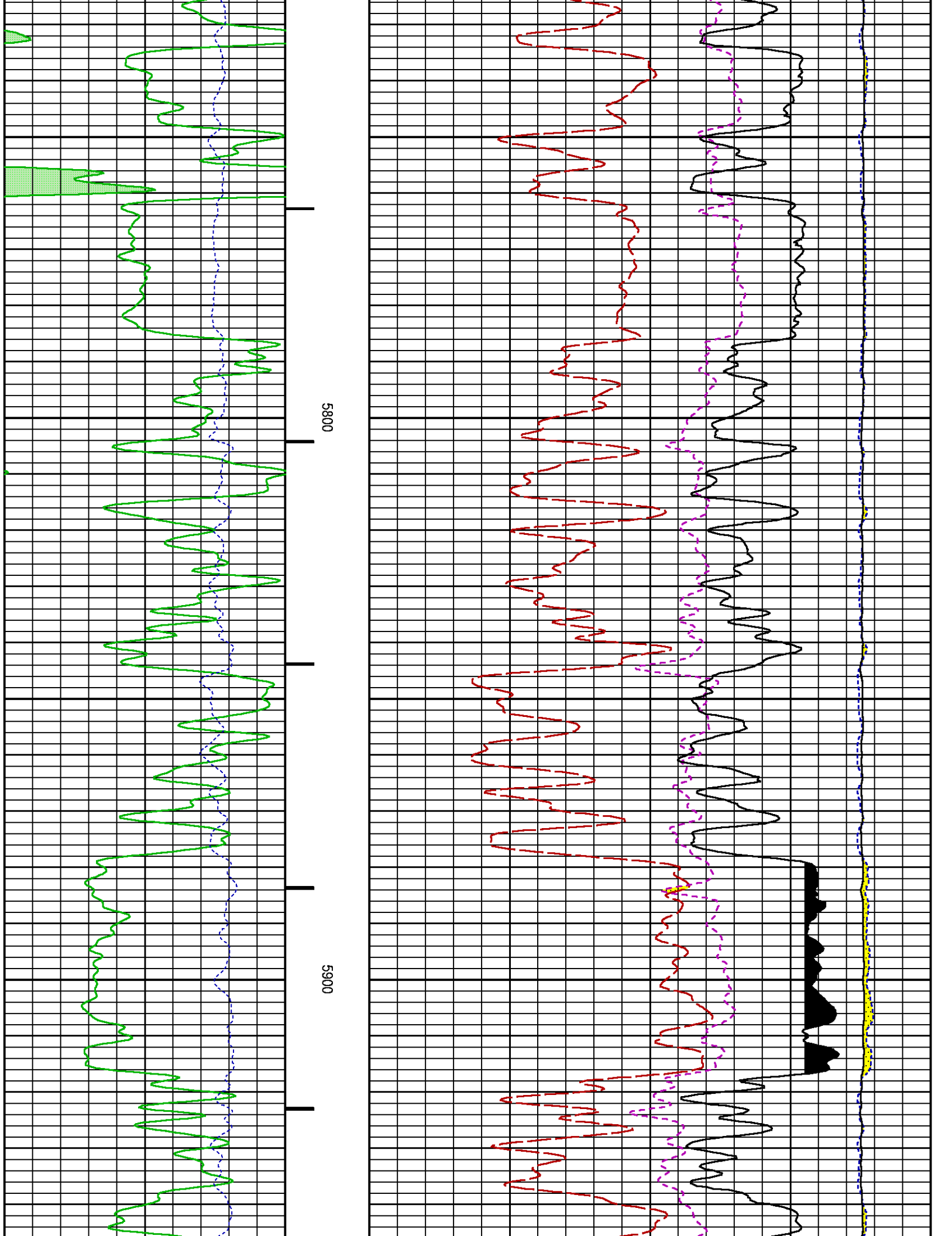


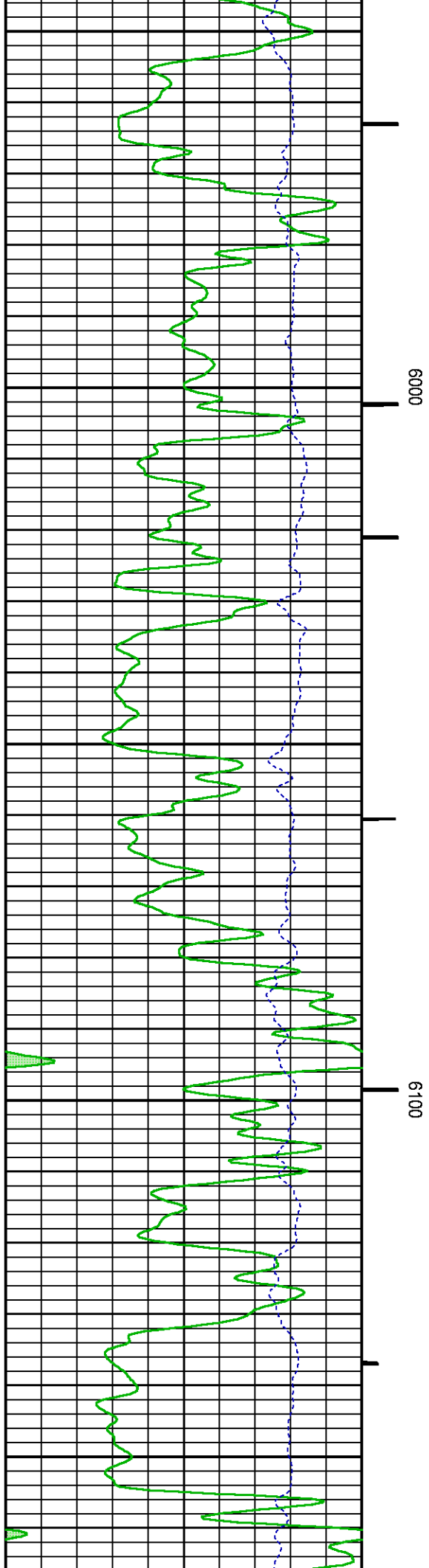
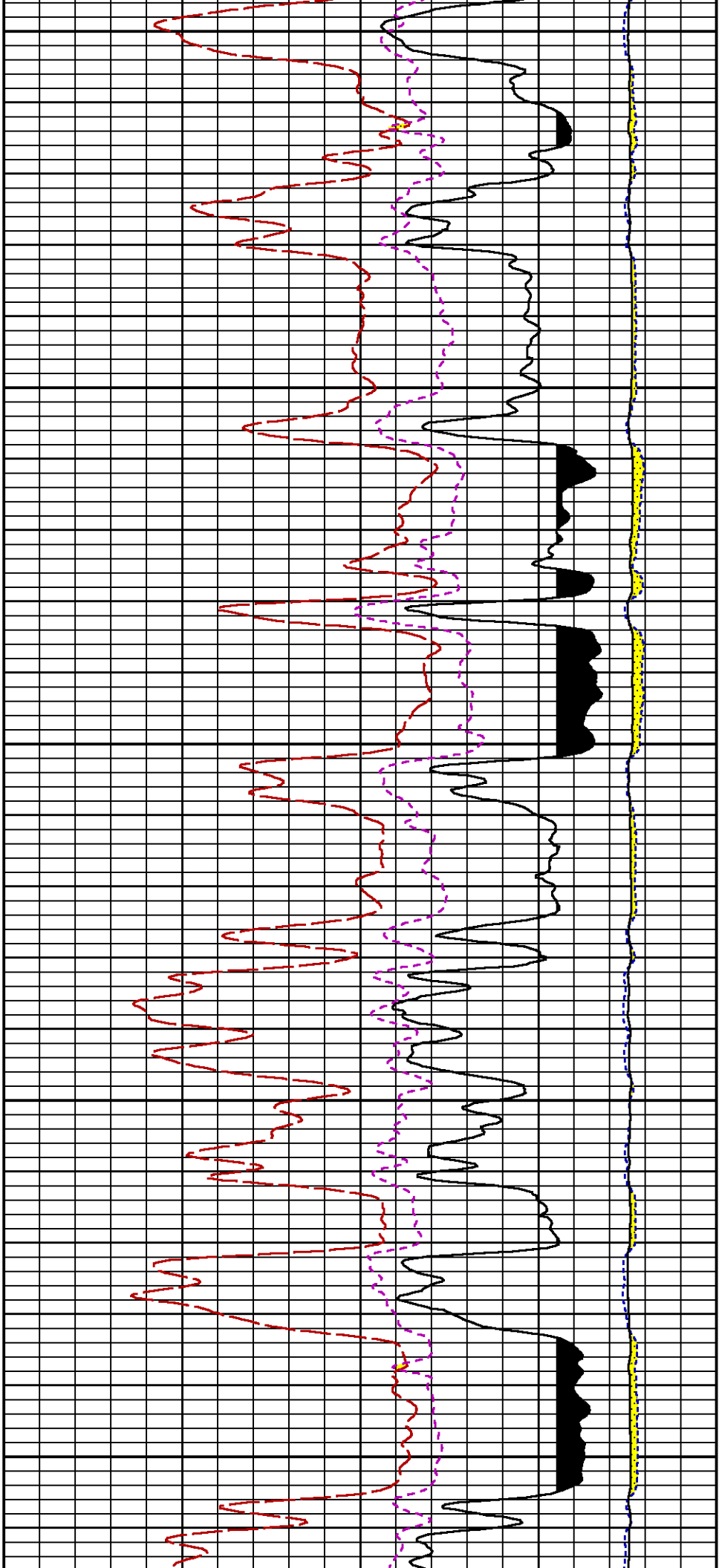


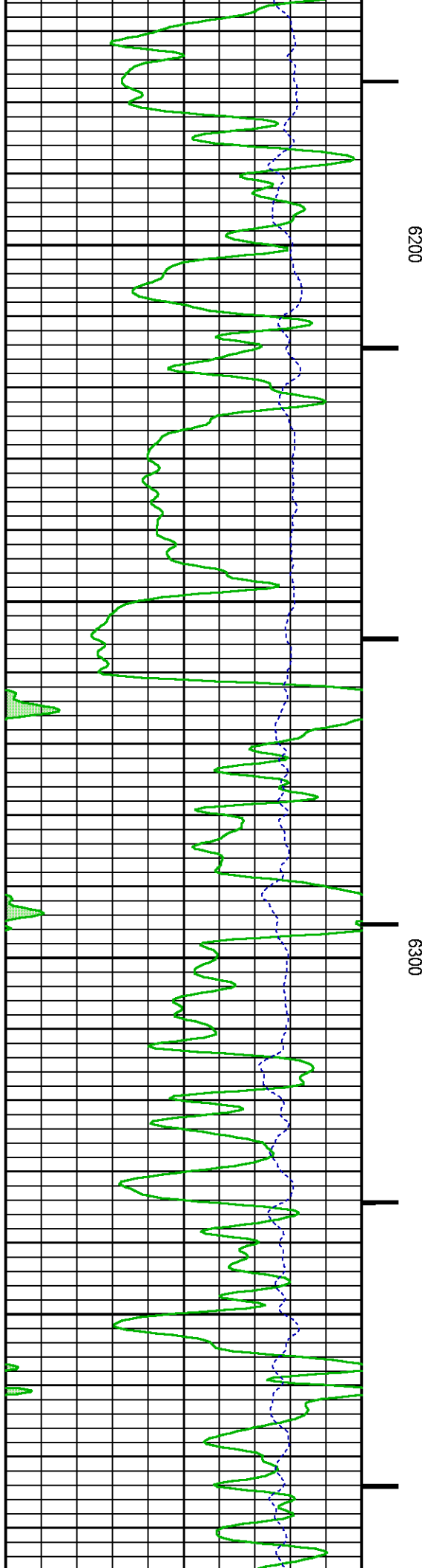
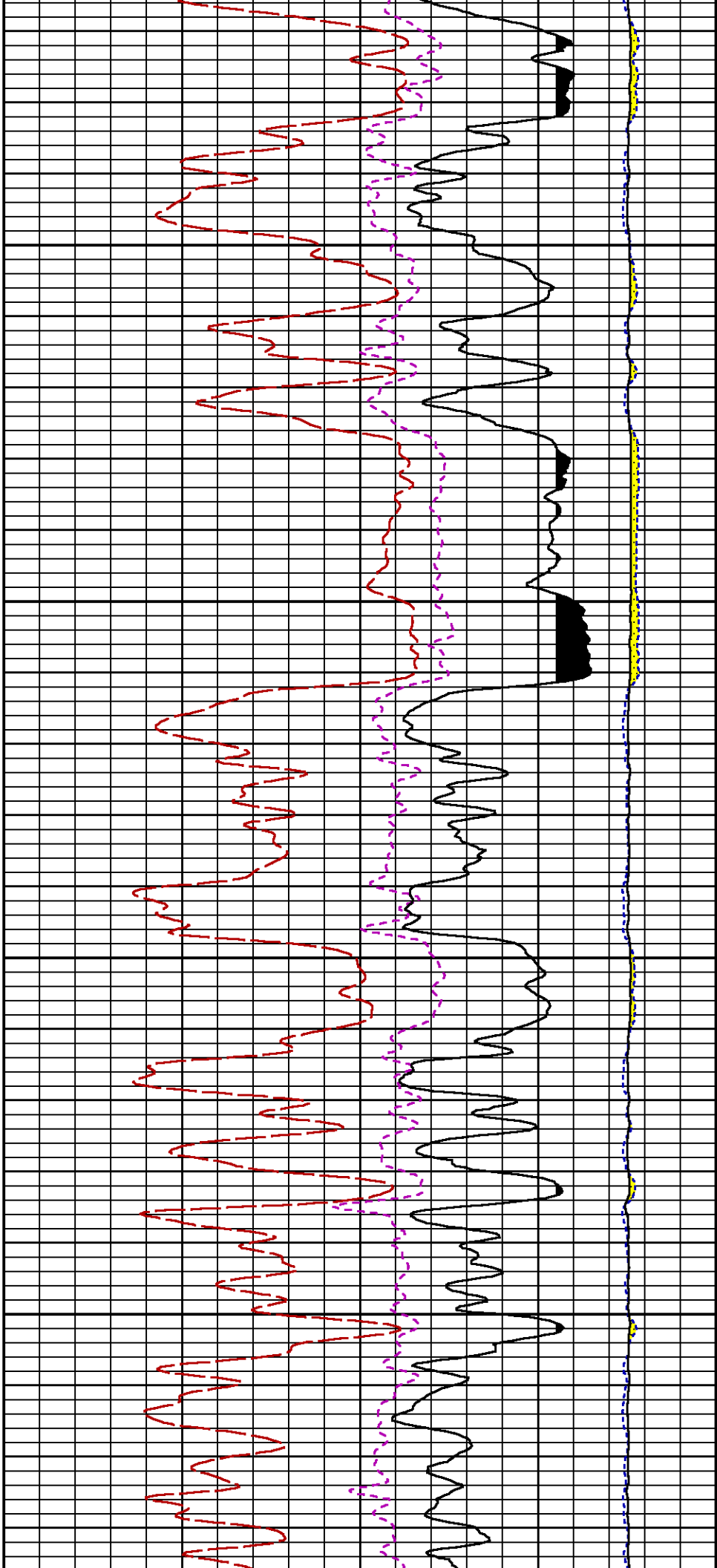


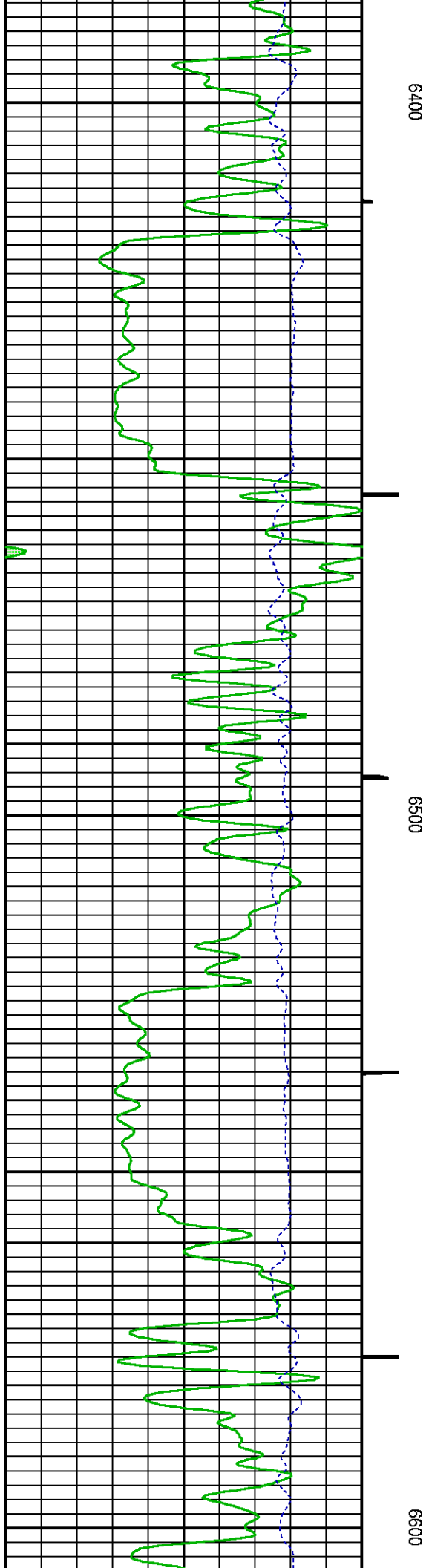
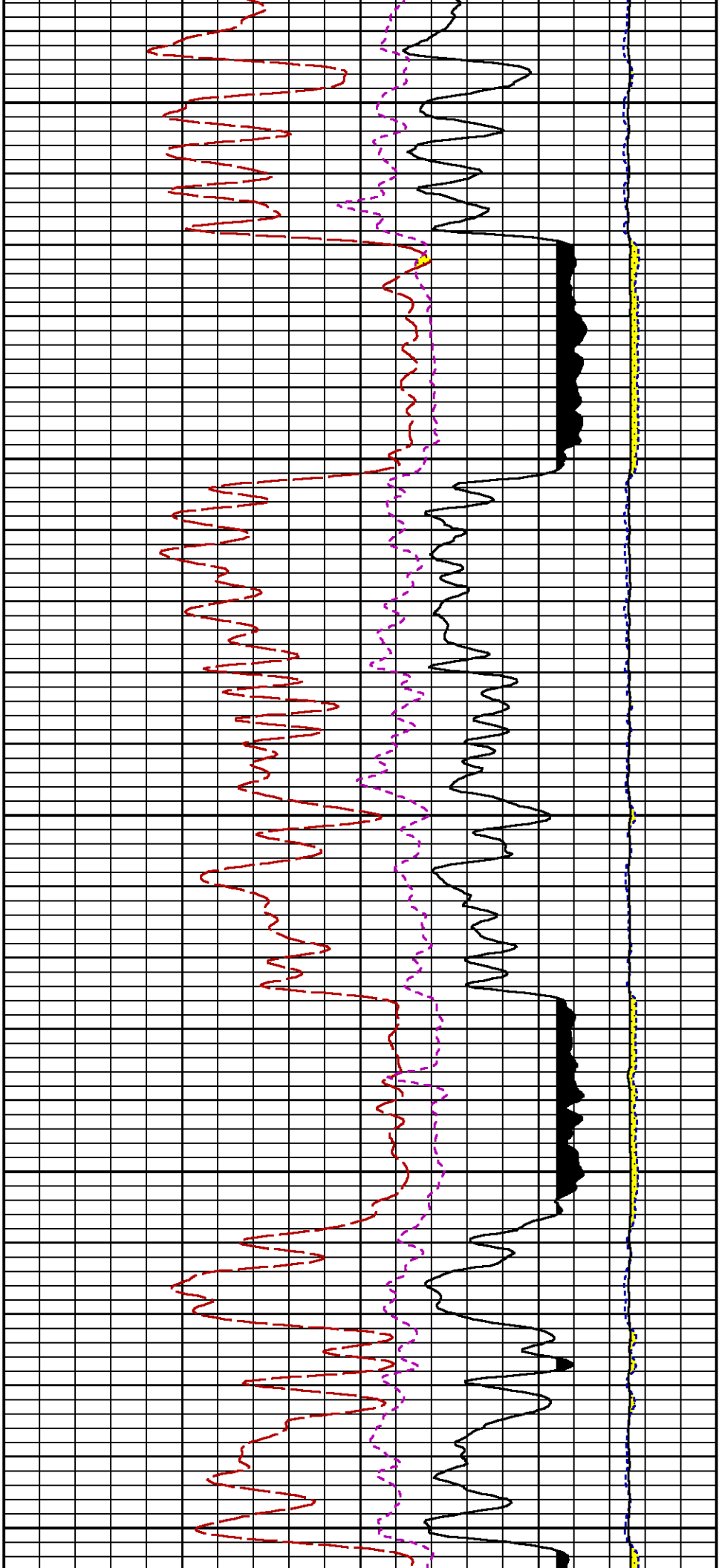


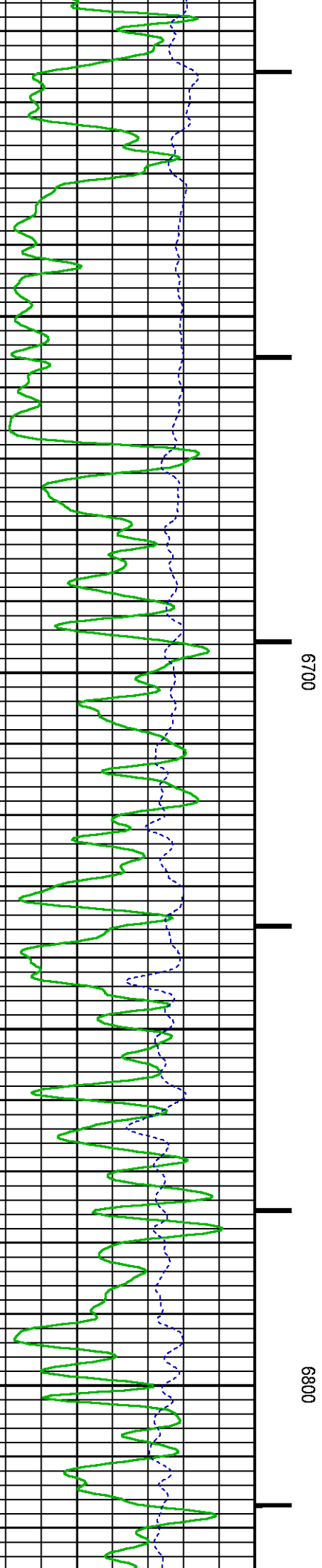
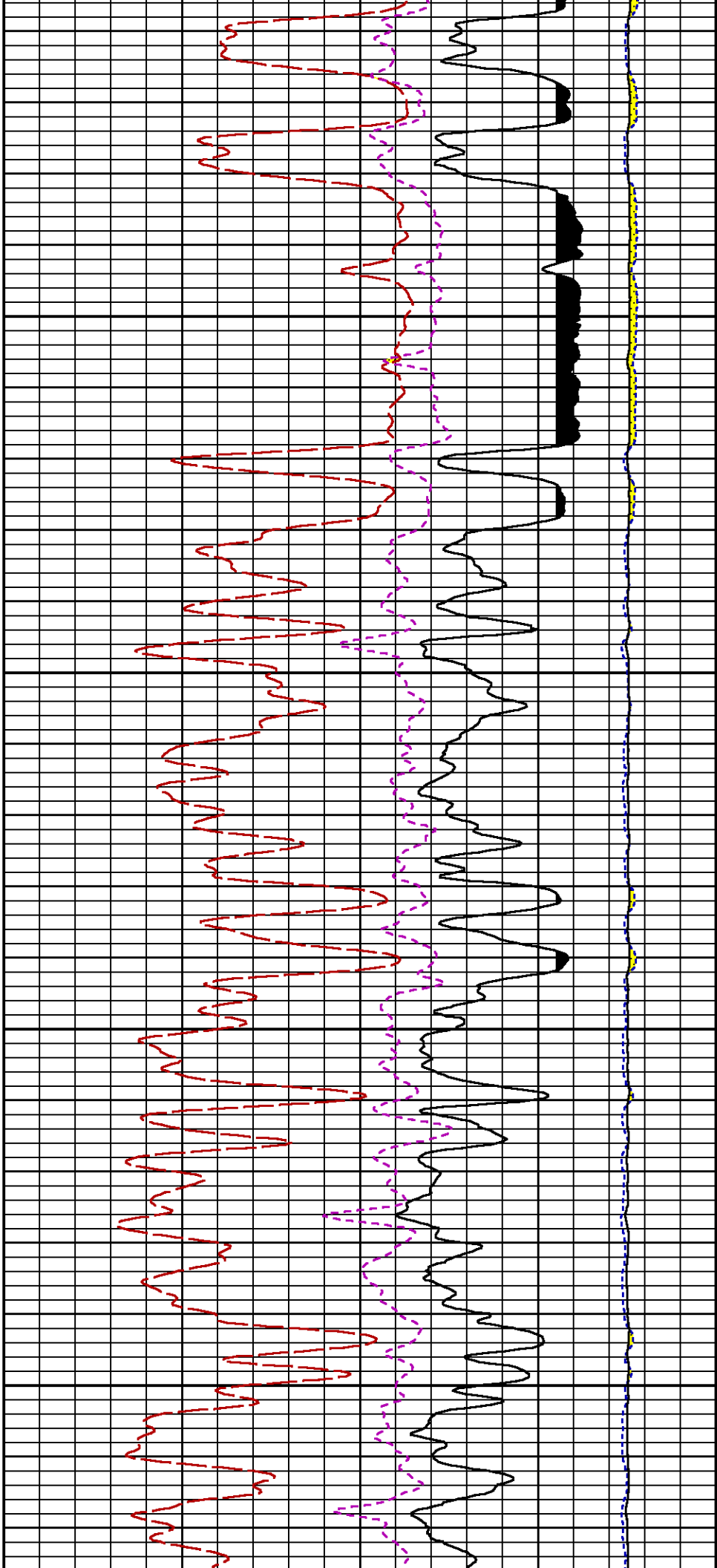


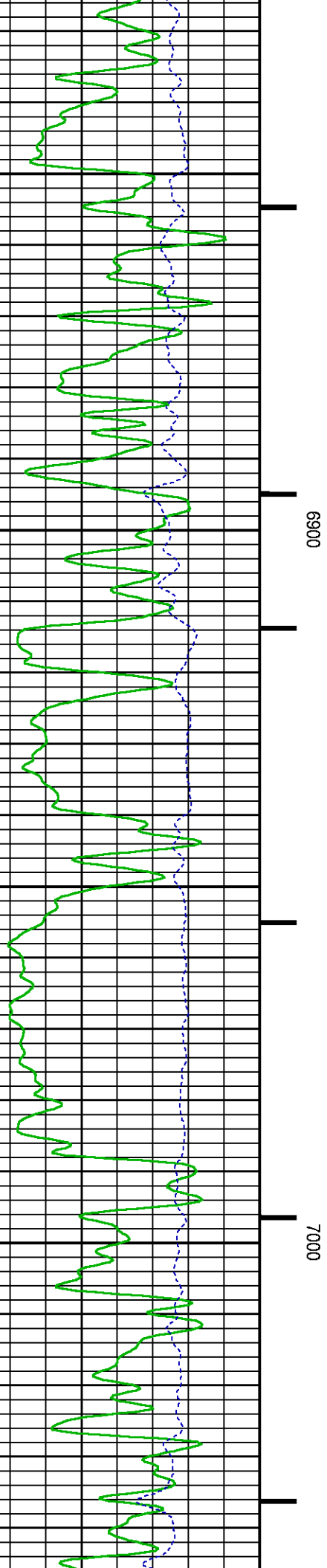
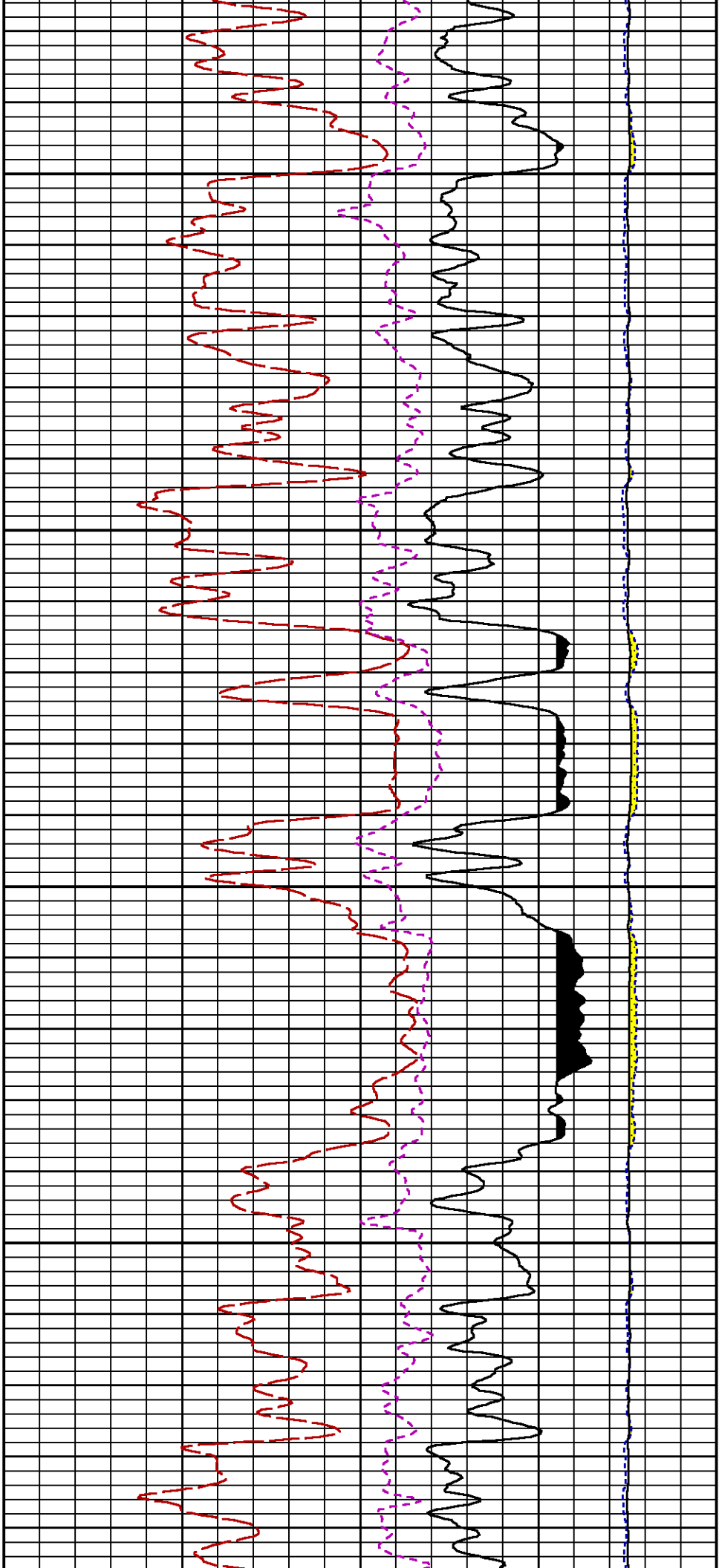


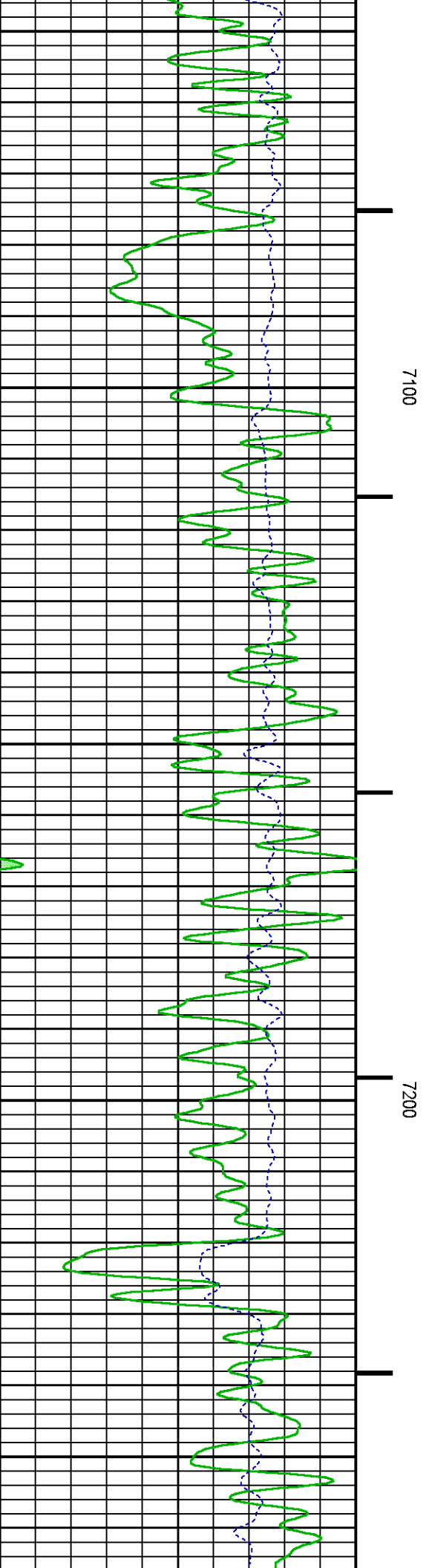
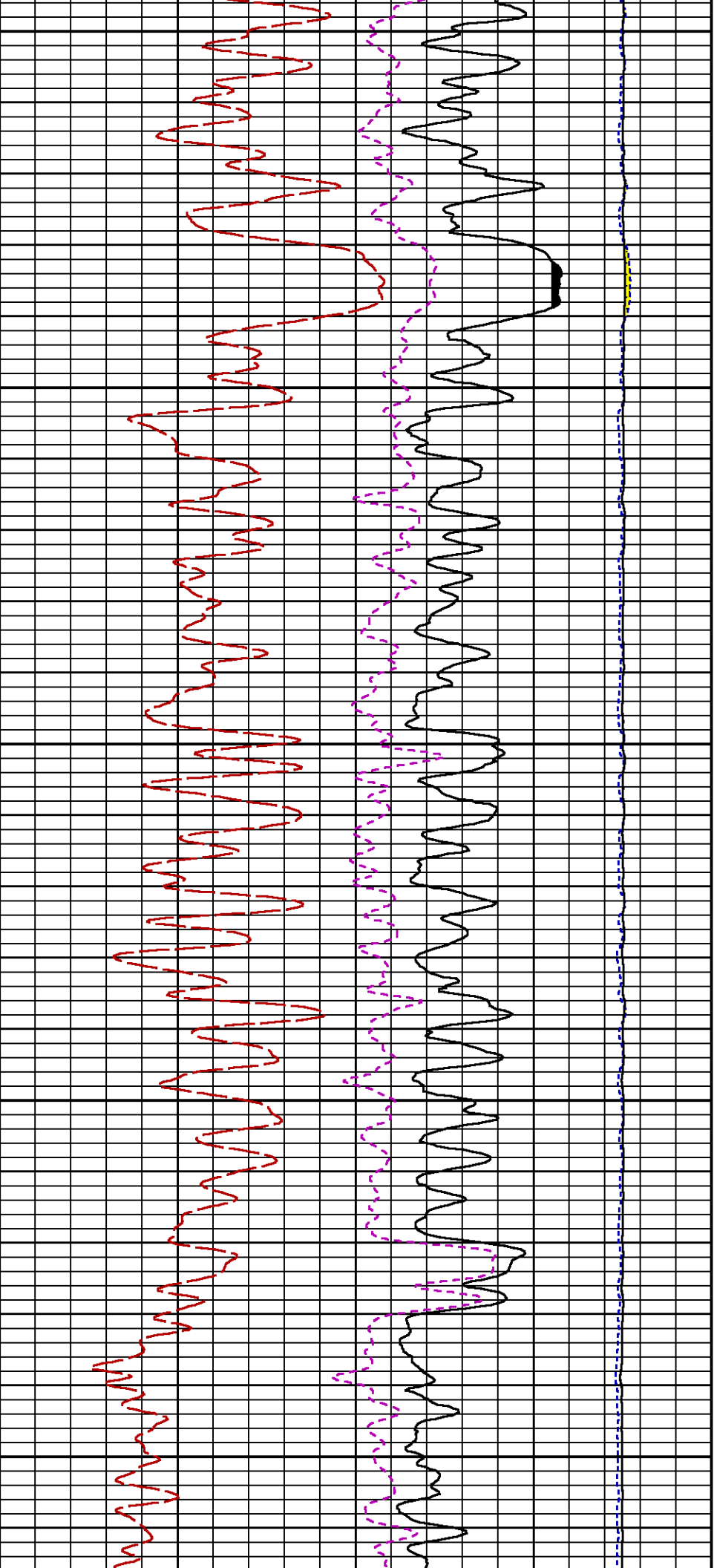


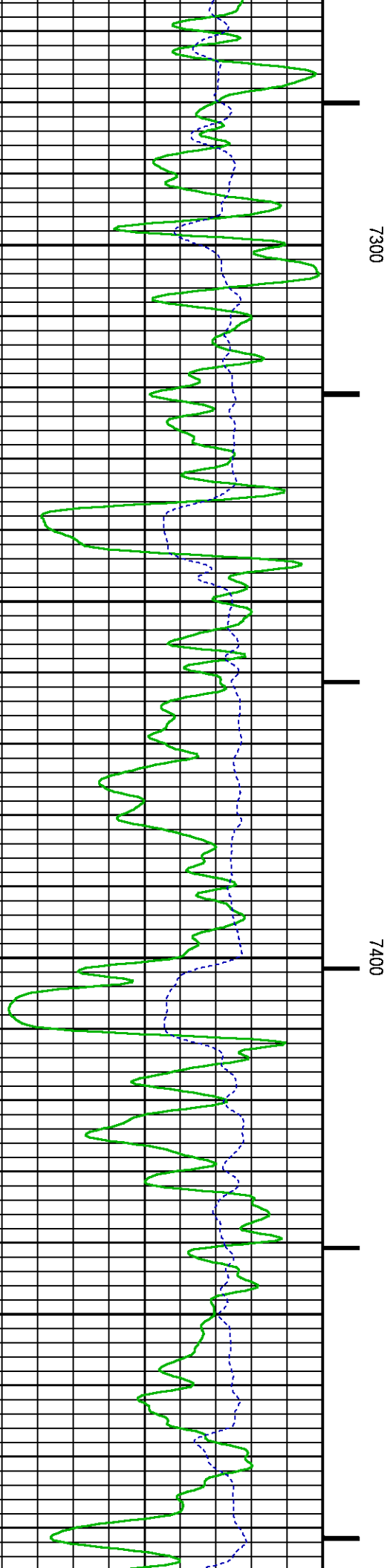
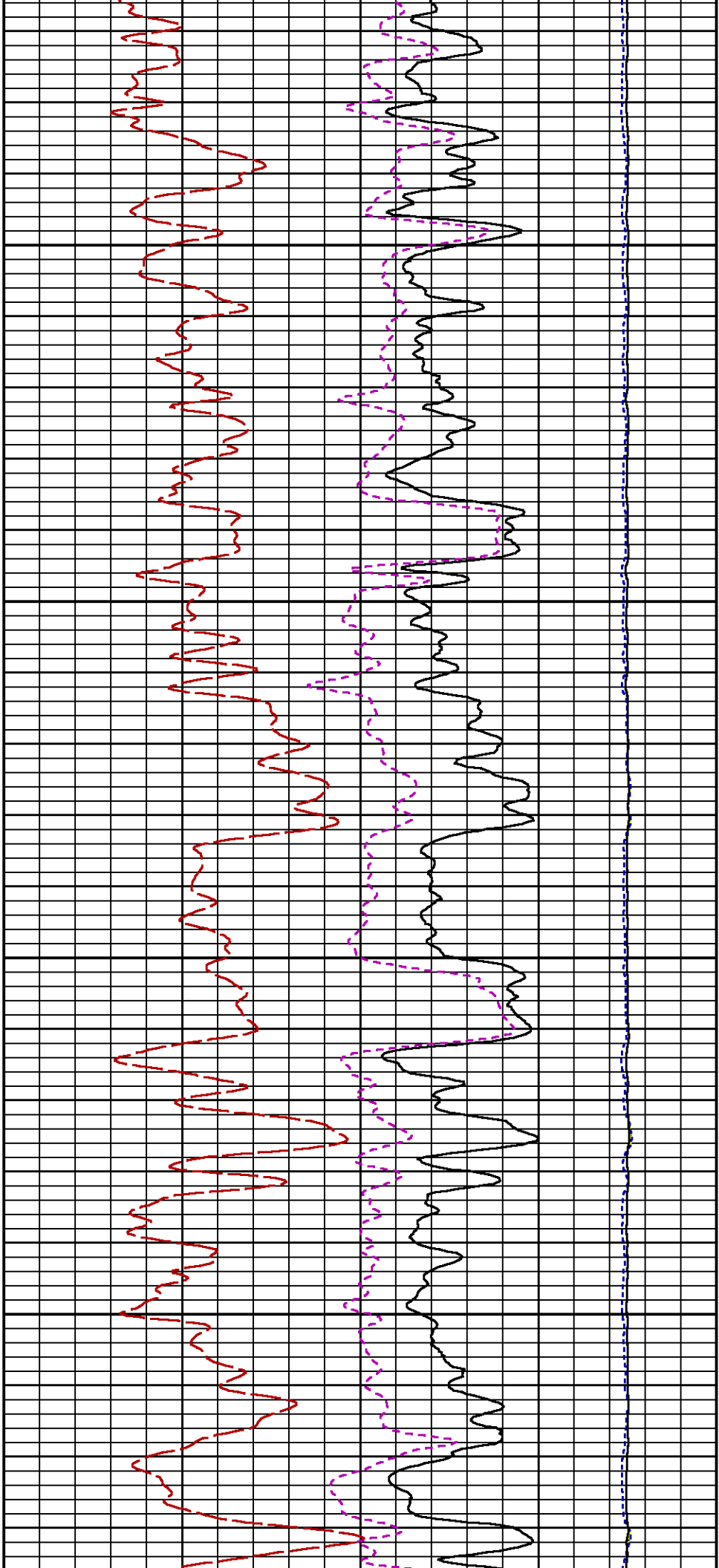












7500

7600

GR

ISS

GR BACKUP

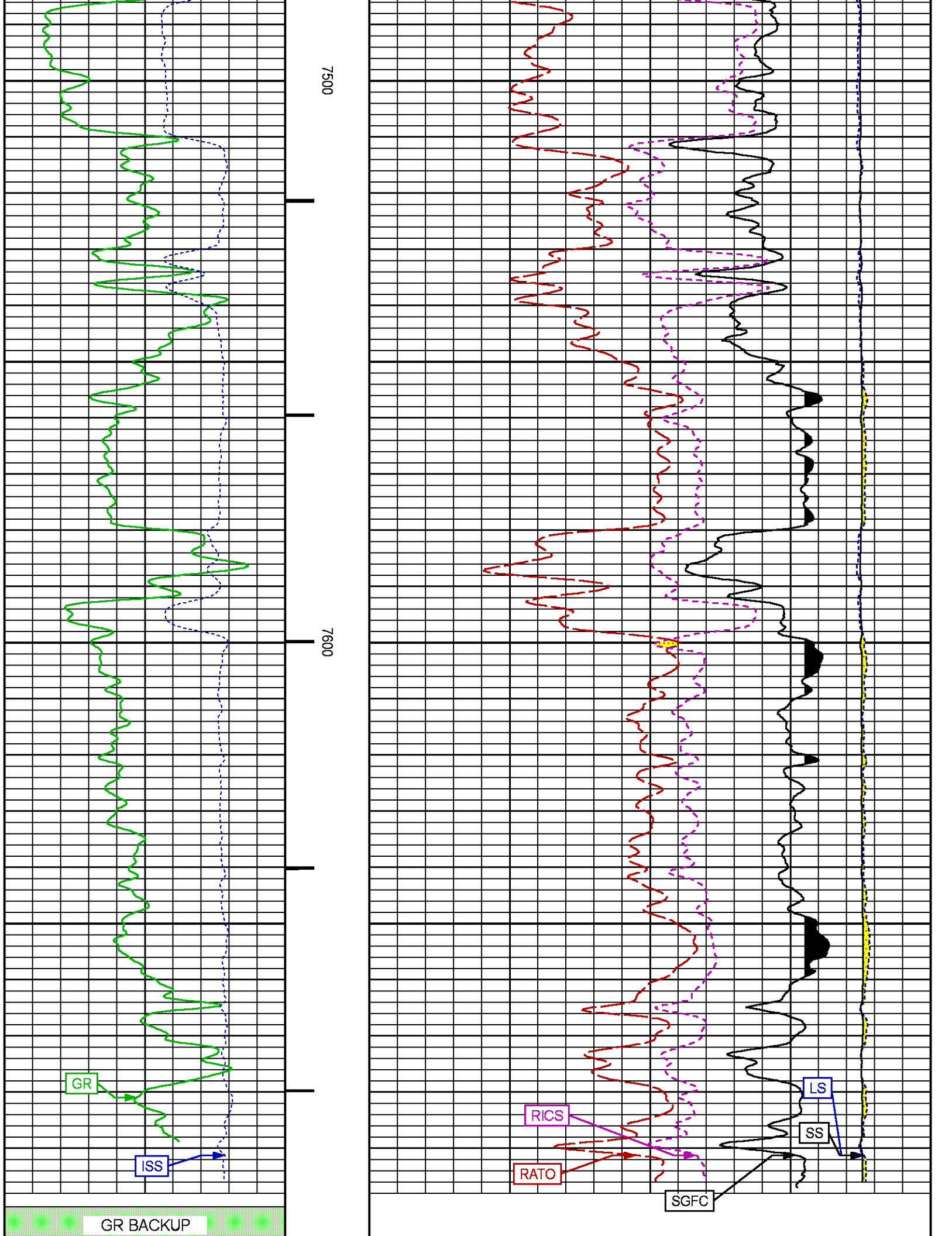
RICS

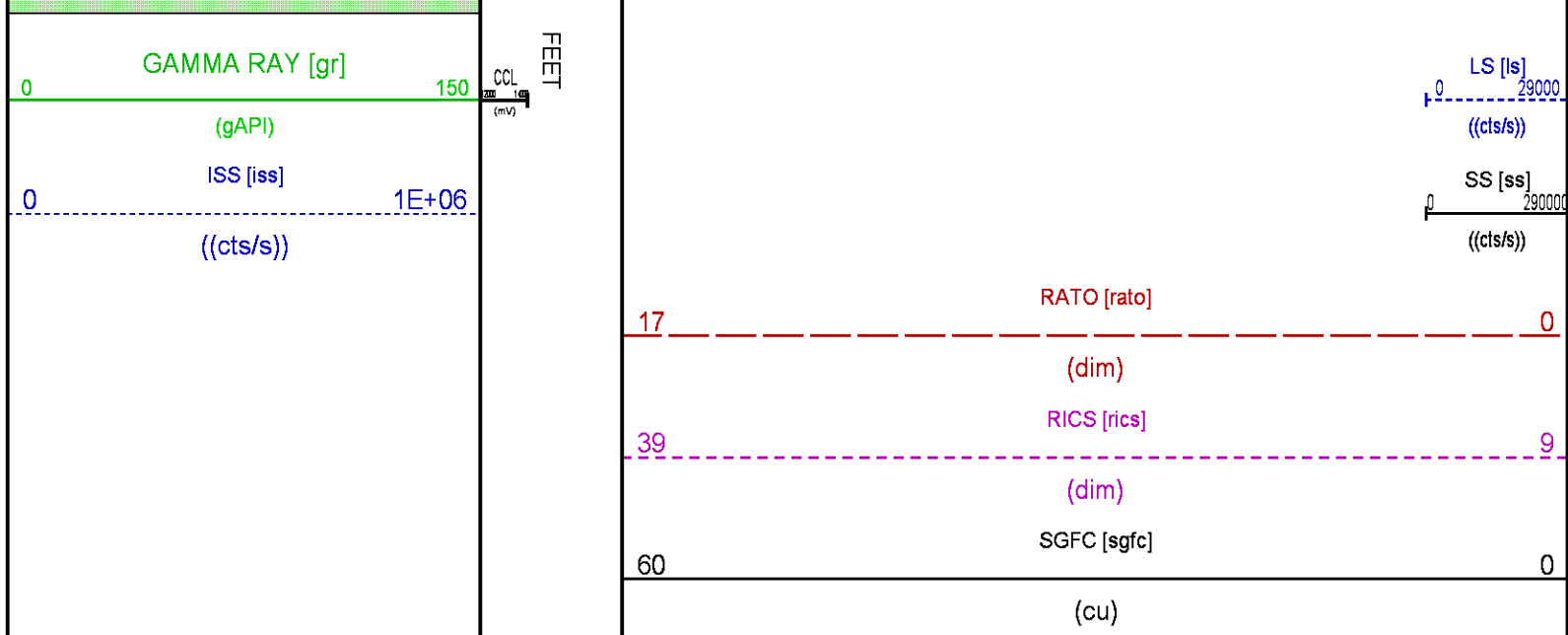
RATO

SGFC

LS

SS





REPEAT PASS PNC 3D MODE

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

Patches: 2

Plotted: Sun Mar 11 22:07:00 2018

## PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_NICHOLS\_0994-24-02E/p353h01.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 4718.870 ft BOTTOM DEPTH: 5062.667 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

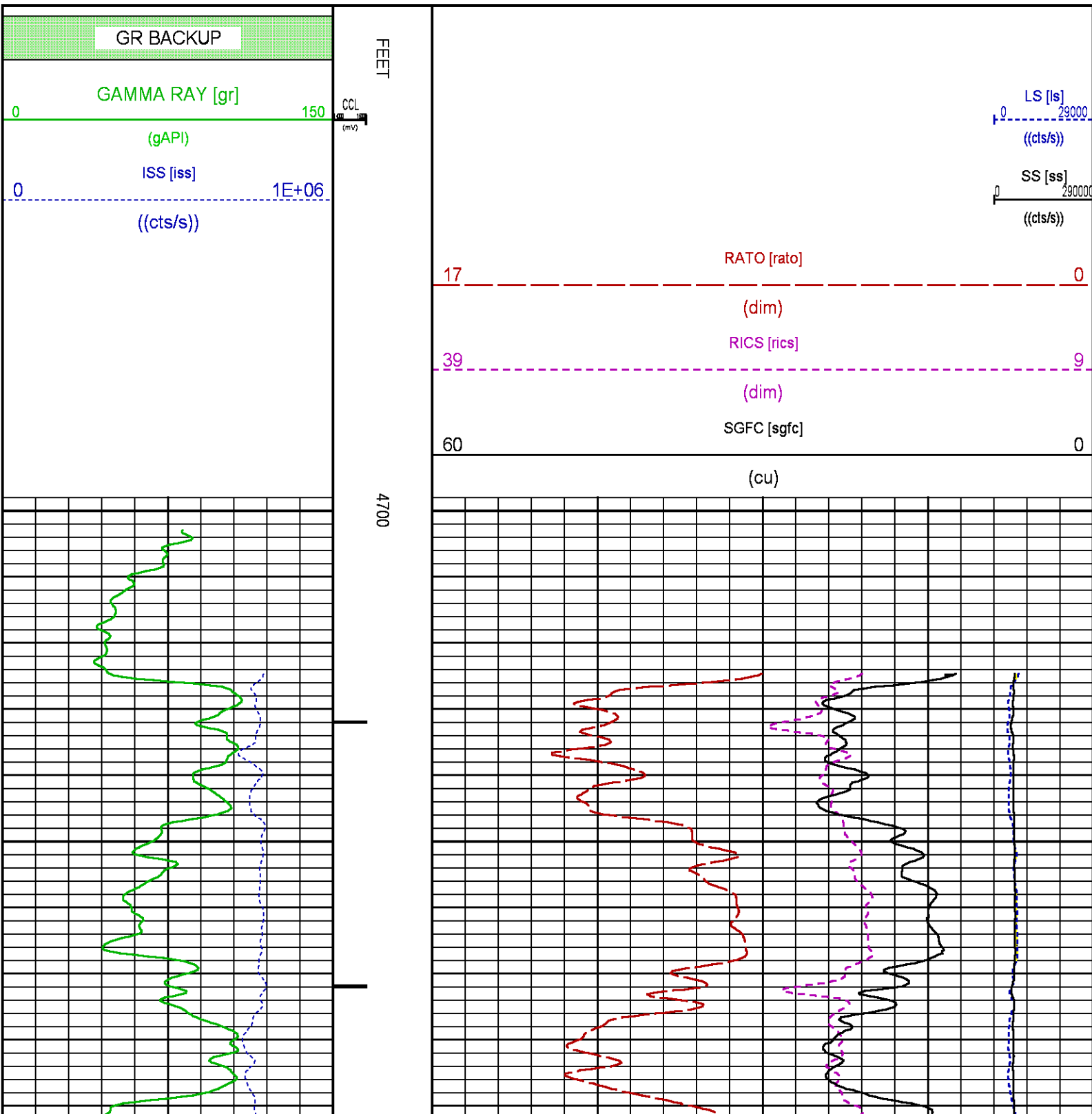
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A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

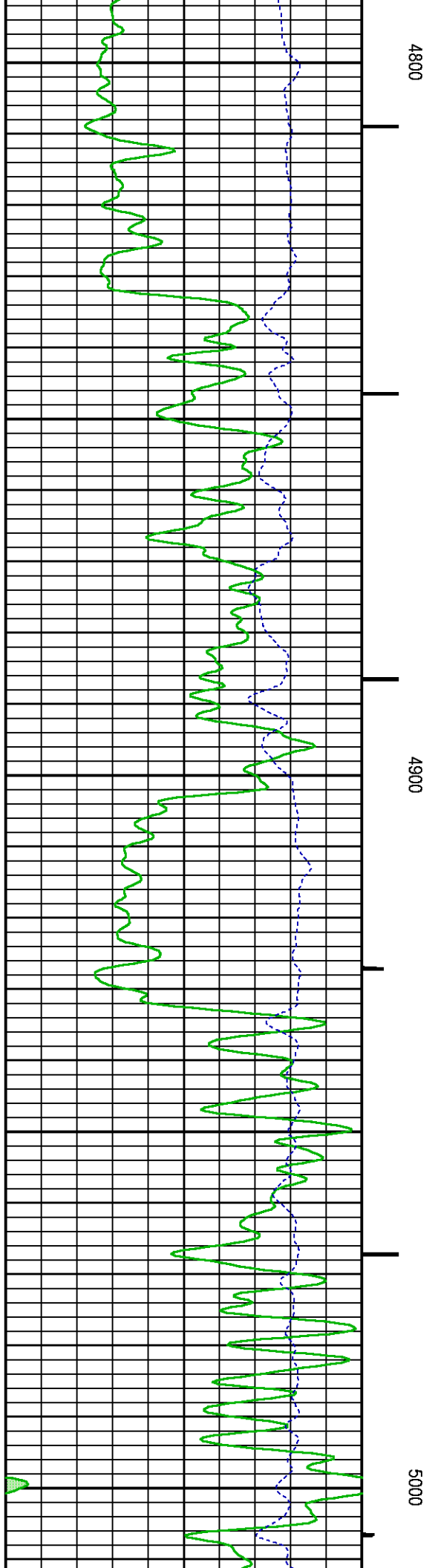
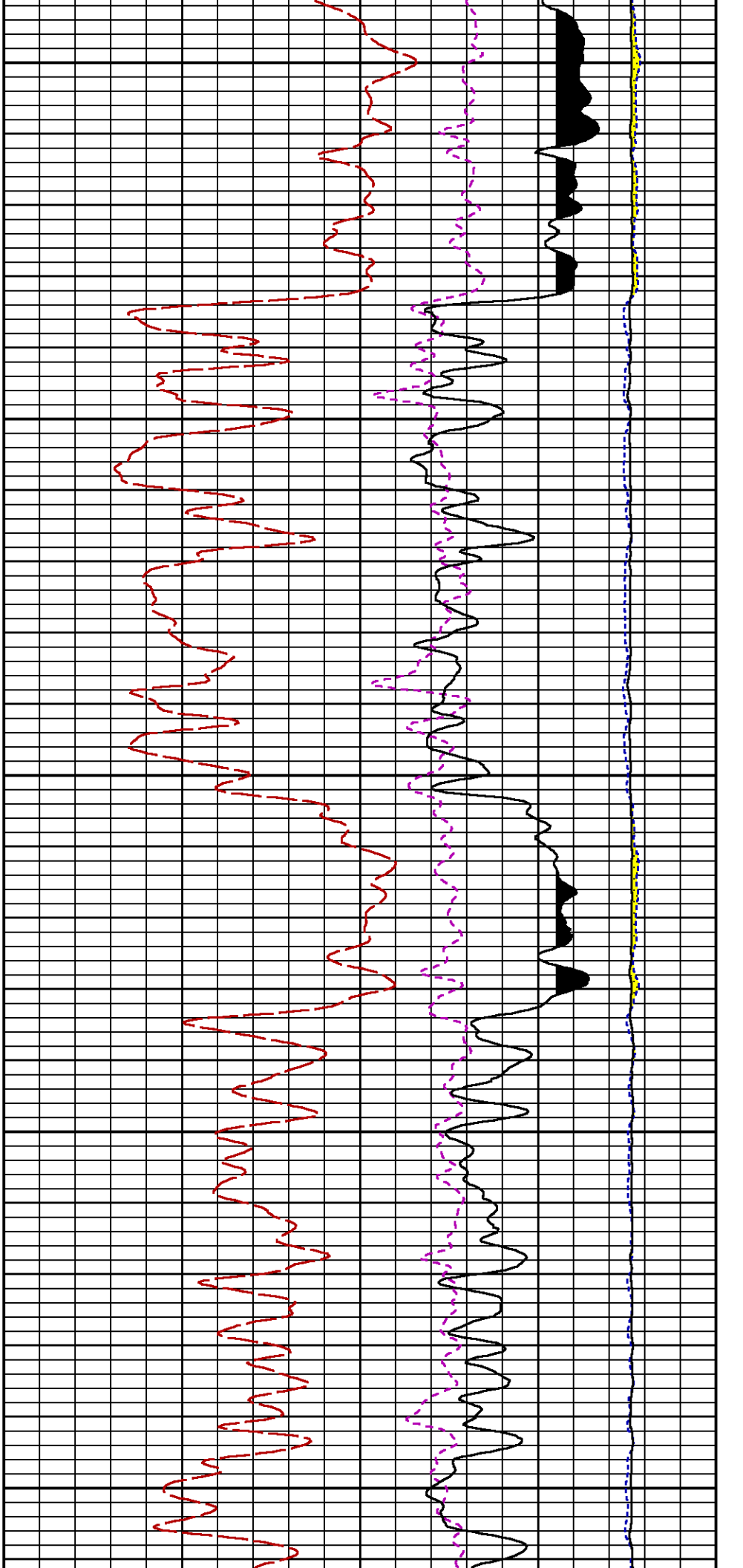
# CURVE MEASURE POINT OFFSET

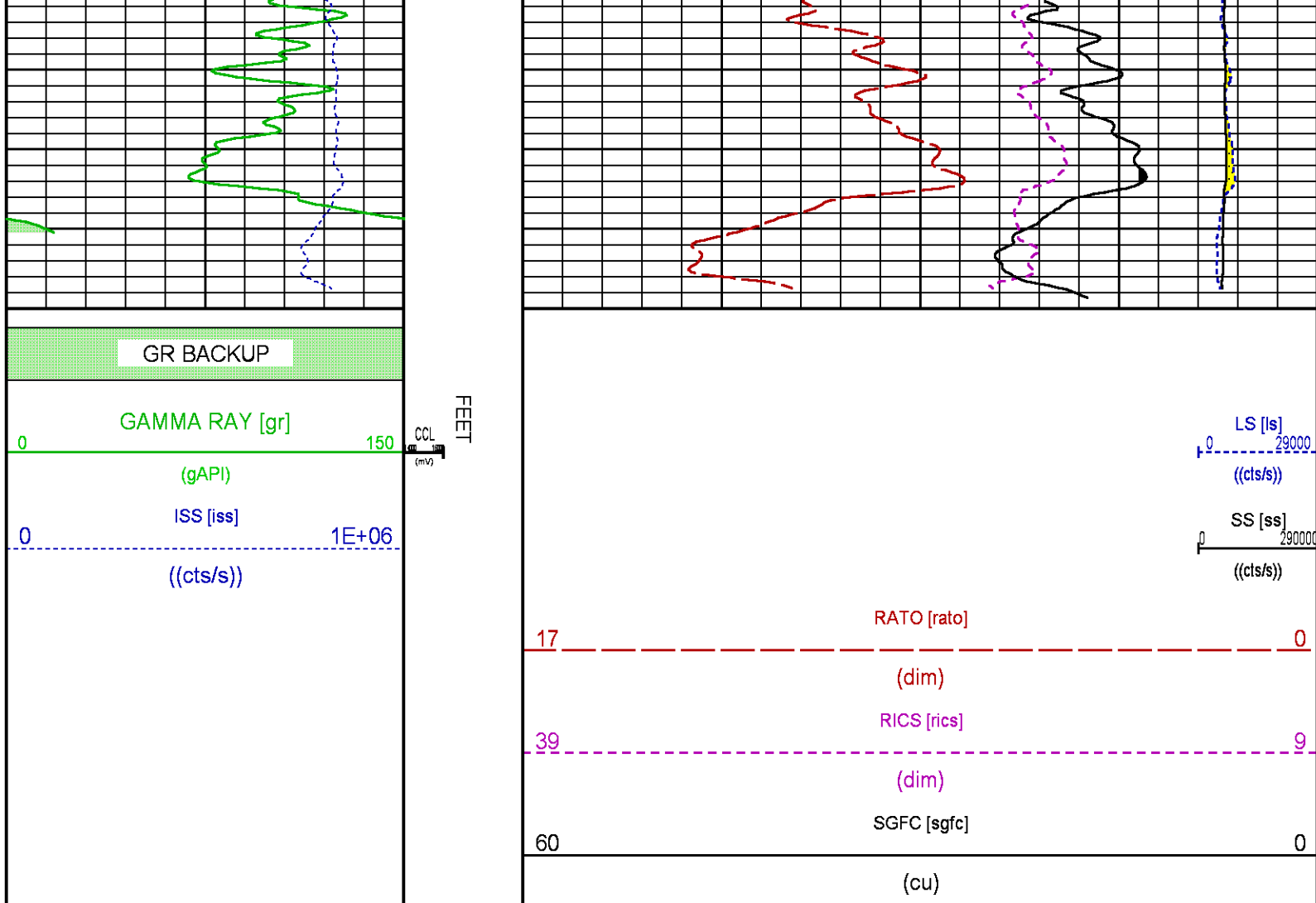
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-26.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-23.00	LS	-12.75	RICS	-12.75	SS	-12.75

**Presentation** : SysA:LARAMIE\_RPMRPT.fvpdf [5"/100" Scale]  
**Plot Interval** : 4698.75 - 5055 Feet

**Data File 1** : F1 : SysA:/dat1a/LARAMIE\_NICHOLS\_0994-24-02E/RPM\_REPEAT.xtf  
**Created On** : N/A  
**Company** : LARAMIE ENERGY II LLC  
**Well** : NICHOLS 0994-24-02E  
**Field** : VEGA  
**File Interval** : 4698.75 - 5055 Feet  
**OCT** : p353h







## CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE\_NICHOLS\_0994-24-02E/p353h.tp1

### GR PRIMARY CALIBRATION SUMMARY

TOOL #:		8262XA 10317216		DATE/TIME PERFORMED:		Sat Jan 20 08:55:31 2018	
UNIT #:		4352 ML4352		CALB JIG #:		4702NK DA_228	
	BACKGROUND	CALBRTR ON	CR DIFF	MULT	BACKGROUND	CALBRTR ON	CALBRTR
	(cts/s)	(cts/s)	(cts/s)		(gAPI)	(gAPI)	(gAPI)
GR	58.42	336.96	278.5	0.664	38.80	223.80	185

### GR PRIMARY VERIFICATION SUMMARY

TOOL #:		8262XA 10317216		DATE/TIME PERFORMED:		Sat Jan 20 08:58:00 2018	
UNIT #:		4352 ML4352		VERI JIG #:		4702NK DA_228	
GR	BACKGROUND	CALBRTR ON	MULT	BACKGROUND	CALBRTR ON	DIFF.	
	(cts/s)	(cts/s)		(gAPI)	(gAPI)	(gAPI)	
	59.02	336.93	0.664	39.20	223.79	184.59	
						175.00	195.00

### RPM\_PNC\_3D PRIMARY CALIBRATION SUMMARY

TOOL:	8283PA 10184883	DATE/TIME PERFORMED:	Thu Dec 28 16:06:32 2017				
UNIT:	5752YD 111111	CALIBRATOR:	2427YB 112674	SOURCE:	8281AA 10160505	HOURS:	8281AA 405

UNIT: 5753XD 11111 CALIBRATOR: 2457XB 112674 SOURCE: 8281AA 10160393 HOURS: 8281AA 493

	ISS	Mtr VIts (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	801542	129	2259	2283	2296	101	7.5	0.9861
Interpolated	1300000	153	2239	2269	2287			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	801542	7010	1133	147	26.10	0.15	24.22	0.32
					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	801542	173203	26774	88480	31440	8243	53586	13246
Fit Quality %		0.758	0.949	0.821	0.831	0.824	0.790	0.824

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	801542	1.43	4.63	29.95	14.96	10.74	3.82	4.05
		1.42 1.46	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 %		0.055	0.140	0.158	0.082	0.013	0.026	0.049
Reduced	1392301	1.43	4.62	30.03	14.96	10.74	3.81	4.04
		1.42 1.46	4.39 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: Sat Feb 24 08:44:02 2018

UNIT #: 5753XD 111111

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Temp	-1.089847E+01	1.064572E-01	3.162229E-07	5.808012E-11

### TPSITEEMP PRIMARY CALIBRATION SUMMARY

TOOL #: 8255XA 11774568

DATE/TIME PERFORMED: Thu May 7 07:52:05 2015

UNIT #: 3880TA HL6670

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Ptfes	-1.089847E+01	1.064572E-01	3.162229E-07	5.808012E-11

### TPSPRES PRIMARY CALIBRATION SUMMARY

GAUGE #: 8255XA 11774568

DATE/TIME PERFORMED: Thu May 7 08:08:15 2015

UNIT #: 3880TA HL6670

	Temp	G	H	I	J
0		5.757116E+05	2.756916E+02	2.333345E-04	-6.169285E-09
1		-8.476257E+01	3.280890E-02	-2.151323E-06	8.959875E-11
2		6.895835E-01	-2.638656E-04	9.921076E-09	-4.102106E-13
3		-1.434187E-03	5.654808E-07	-1.414922E-11	5.870839E-16
4		1.408894E-16	7.548284E-20	2.001050E-24	-7.758373E-29
Coef Test	350.0	5.690279E+05	2.790962E+02	8.905545E-05	1.107021E-10

# INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE\_NICHOLS\_0994-24-02E/p353h~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"  
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

34.08'

CCL MP 26.03'

GR MP 22.90'

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  
 PRES MP

1.65'

## BULL PLUG 1 11/16

0.00'

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

**BAKER  
HUGHES**  
a GE company



COMPANY

LARAMIE ENERGY II LLC

WELL

NICHOLS 0994-24-02E

FIELD

VEGA

COUNTY

MESA

STATE COLORADO

FILE NO:

API NO:

05077104210000

LOCATION:

SHL 1797 FNL 2783 FEL

BHL 348 FNL 1531 FEL

ELEVATIONS:

KB 7161 FT

DF

GL 7137 FT

SEC 24 TWP 9S RGE 94W

DATE 11-Mar-2018