



FILE NO: CH137596	COMPANY LARAMIE ENERGY LLC
API NO: 05077103920000	WELL NICHOLS 0994-24-16E
	FIELD VEGA
	COUNTY MESA STATE COLORADO

Ver. 4.10	LOCATION: SHL: 2287' FNL & 2794' FWL BHL: 1740' FSL & 1439' FEL SEC <u>24</u> TWP <u>9 S</u> RGE <u>94 W</u>	OTHER SERVICES RAL
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PERMANENT DATUM LOG MEASURED FROM DRILL. MEAS. FROM	GL ELEVATION 7212 FT 24 FT ABOVE P.D. KB 7212 FT	ELEVATIONS: KB 7236 FT DF GL 7212 FT
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DATE	03-Jul-2018
RUN	2
TRIP	2
SERVICE ORDER	US137596
DEPTH DRILLER	7661 FT
DEPTH LOGGER	7664 FT
BOTTOM LOGGED INTERVAL	7664 FT
TOP LOGGED INTERVAL	2190 FT
TIME STARTED	08:30
TIME FINISHED	14:00
OPERATOR RIG TIME	5.5 HRS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	50 FT
LOGGED CEMENT TOP	2980 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	15 FMIN
MAX. RECORDED TEMP.	227 DEGF
REFERENCE LOG	BAKER HUGHES RAL
REFERENCE LOG DATE	28-Jun-2018
EQUIP. NO.	ML-4291
LOCATION	GRAND JCT.
RECORDED BY	M. BAUKA
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 2 TRIP 2: *2 OPERATIONS IN WELLBORE*

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

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 5872' - 5892'
SJ: 6785' - 6805'

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
2	2	PCM	8250EA	11855616	FREE
2	2	TEL/CCL	8248ED	10329133	FREE
2	2	GR	2812LA	10384613	FREE
2	2	RPM	8281EA	10294755	FREE
2	2	RPM	8283PA	10066691	FREE
2	2	RPM	8281FA	10066992	FREE
2	2	TEMP	8255XA	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 14:50:21 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994_24_15E/p354h03.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 2181.250 ft BOTTOM DEPTH: 2823.773 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	7.87	in	"	"
	LARGEST CASING OD	4.50	in	"	"
	MATRIX	SANDSTONE		"	"

CURVE DESCRIPTION REPORT

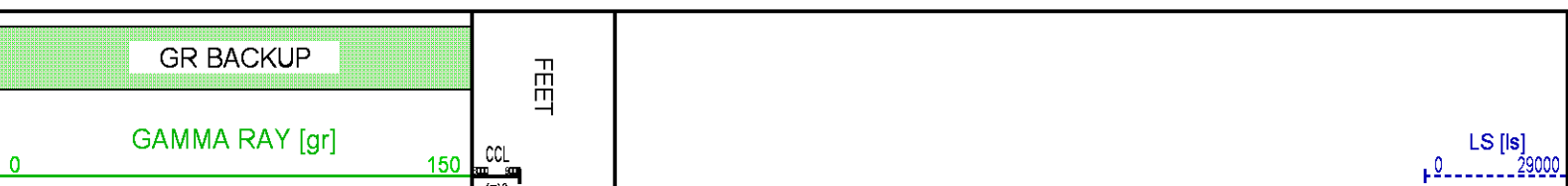
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A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

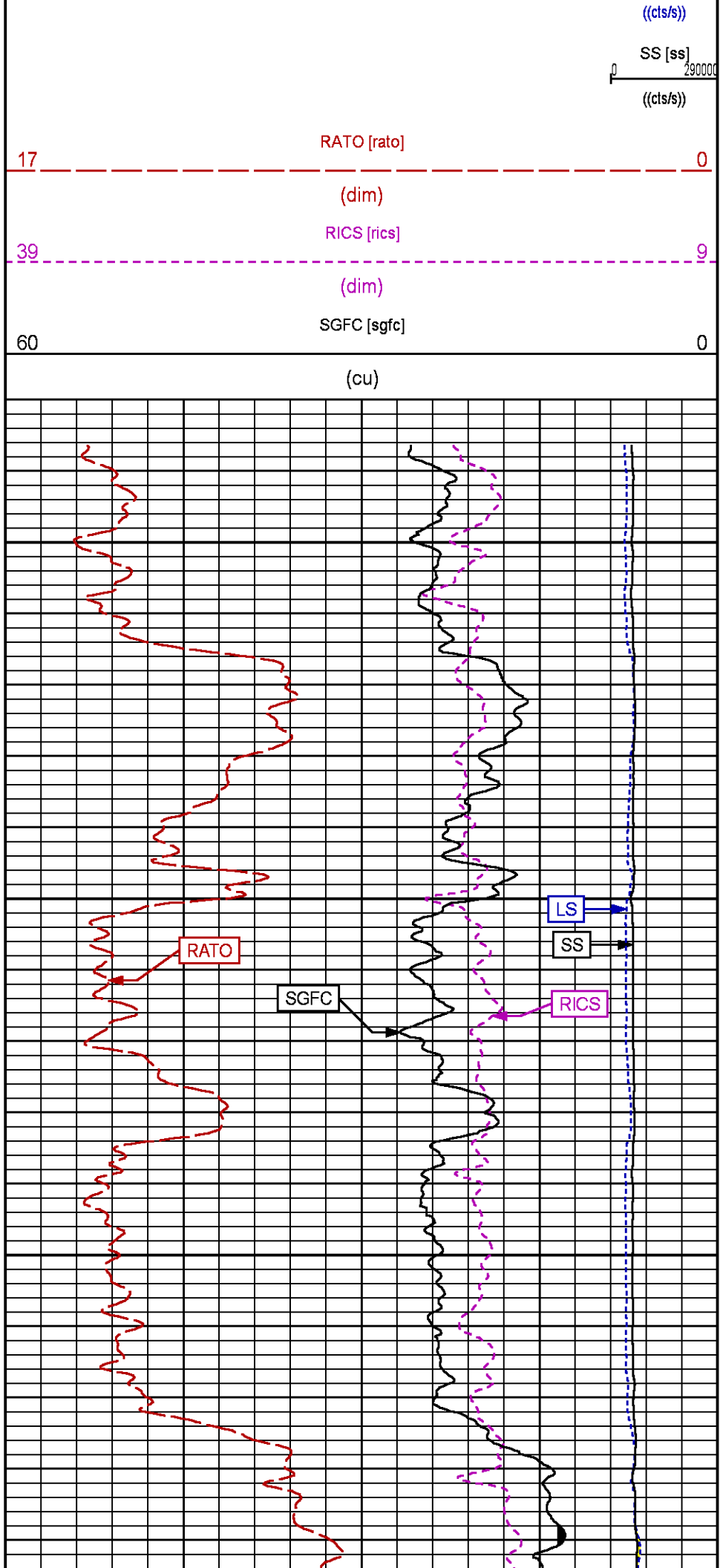
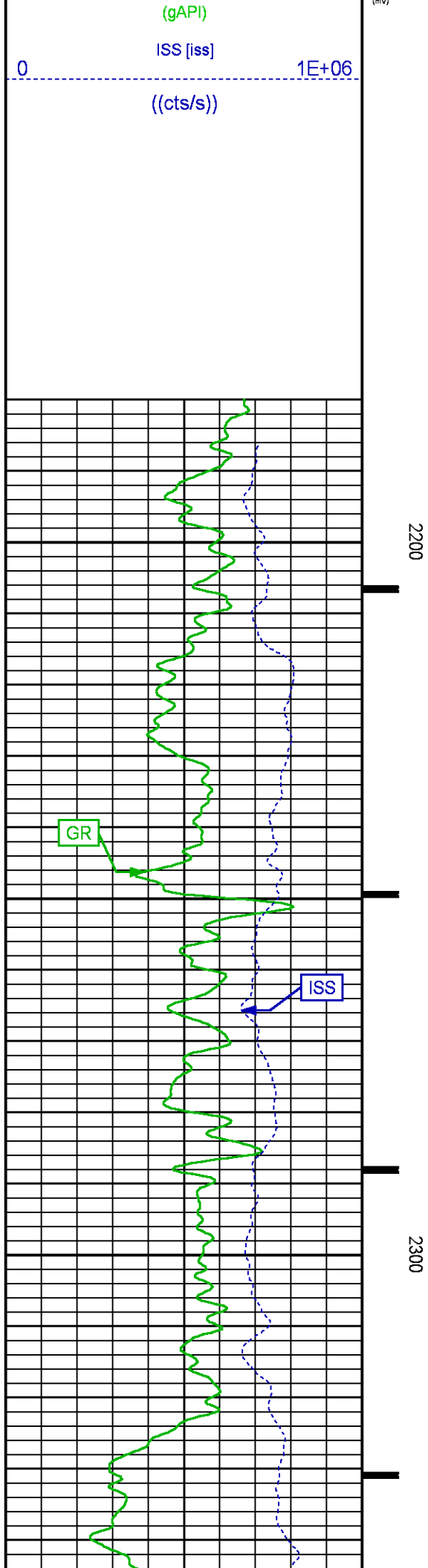
CURVE MEASURE POINT OFFSET

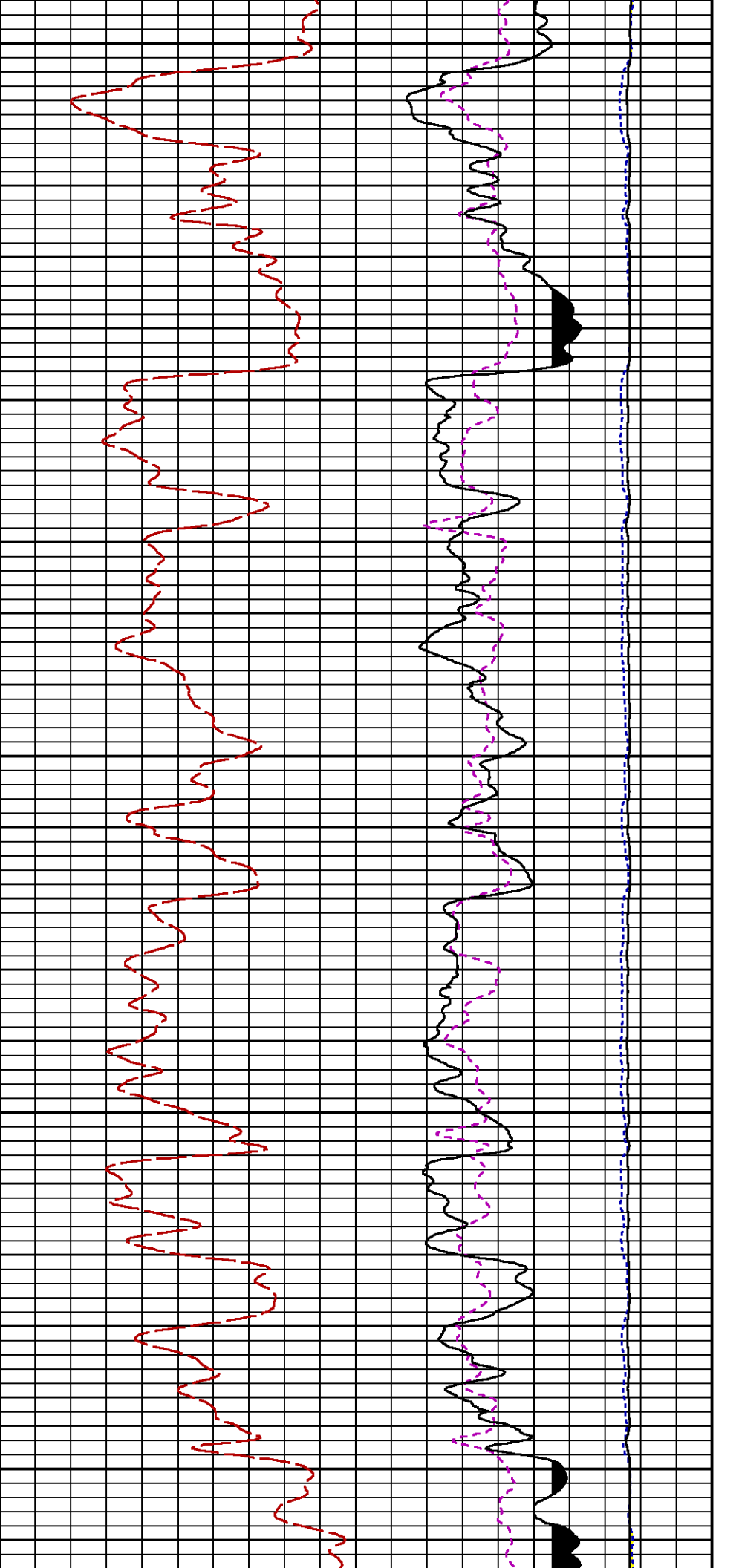
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-25.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-22.75	LS	-12.75	RICS	-12.75	SS	-12.75

Presentation : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_15E/0994_24_15E_RPM_MAIN_GS.fvpdf [5"/100' Scale]
 Plot Interval : 2180 - 2825.25 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_15E/0994_24_15E_RPM_MAIN_GS.xtf
 Created On : N/A
 Company : LARAMIE ENERGY LLC
 Well : NICHOLS 0994-24-15E
 Field : VEGA
 File Interval : 2160.75 - 2825.5 Feet
 OCT : p354h

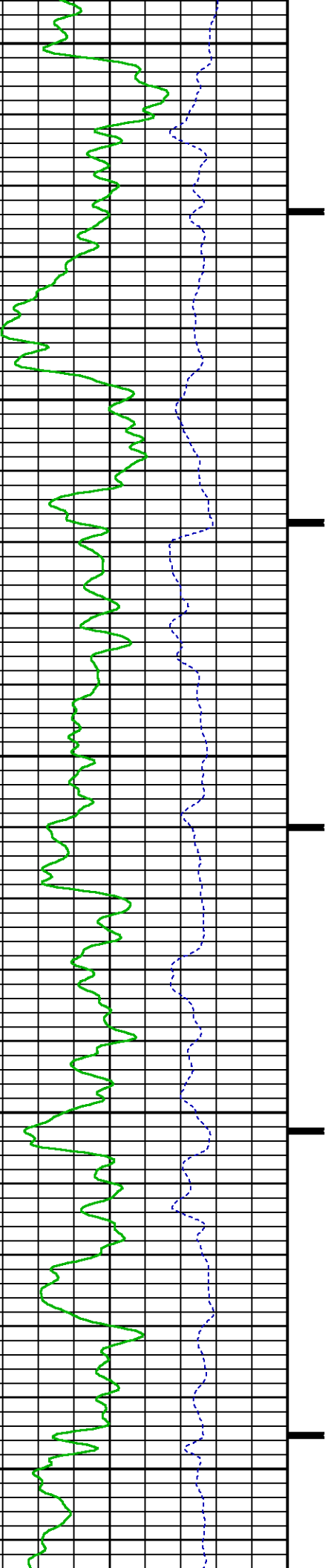


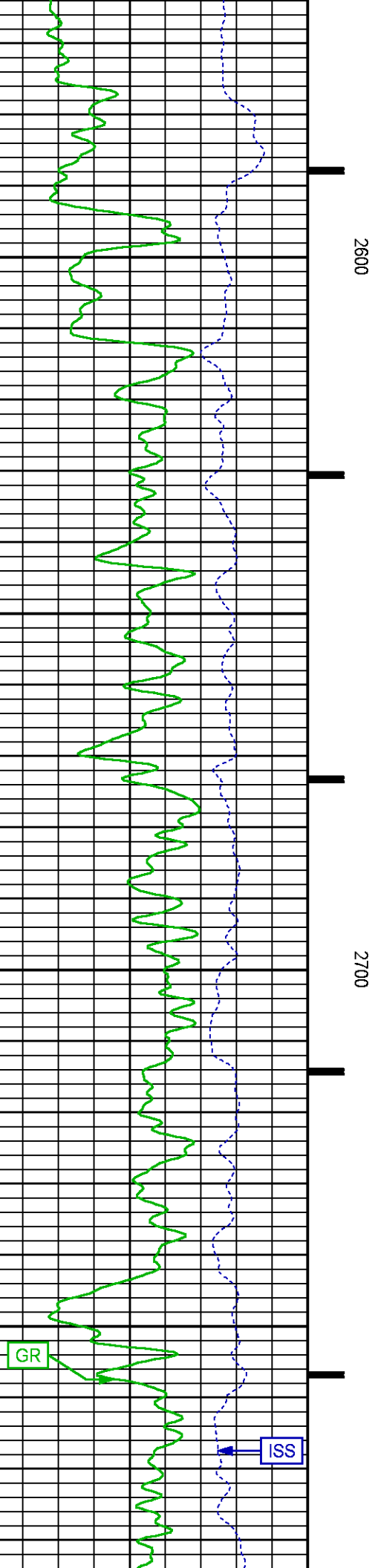
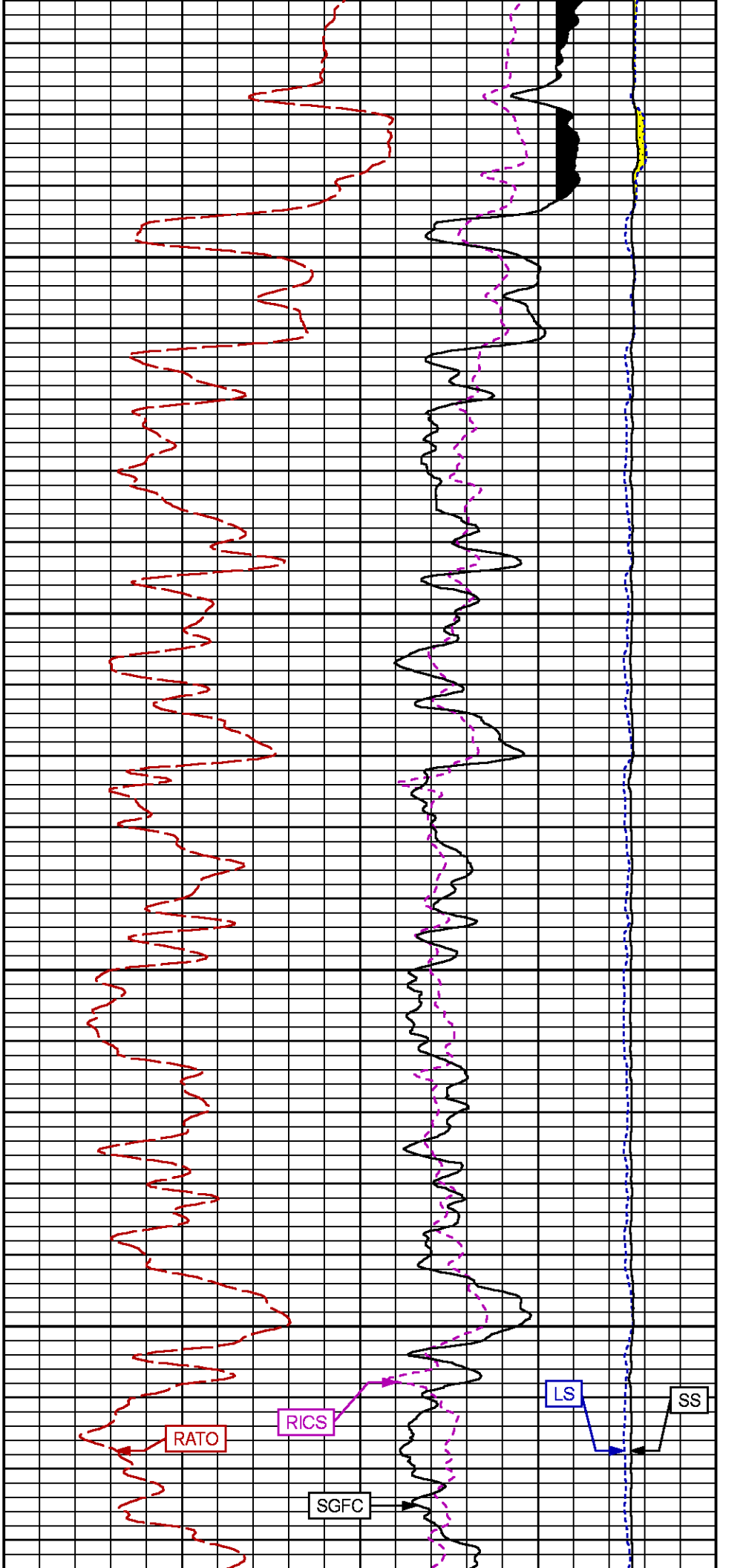


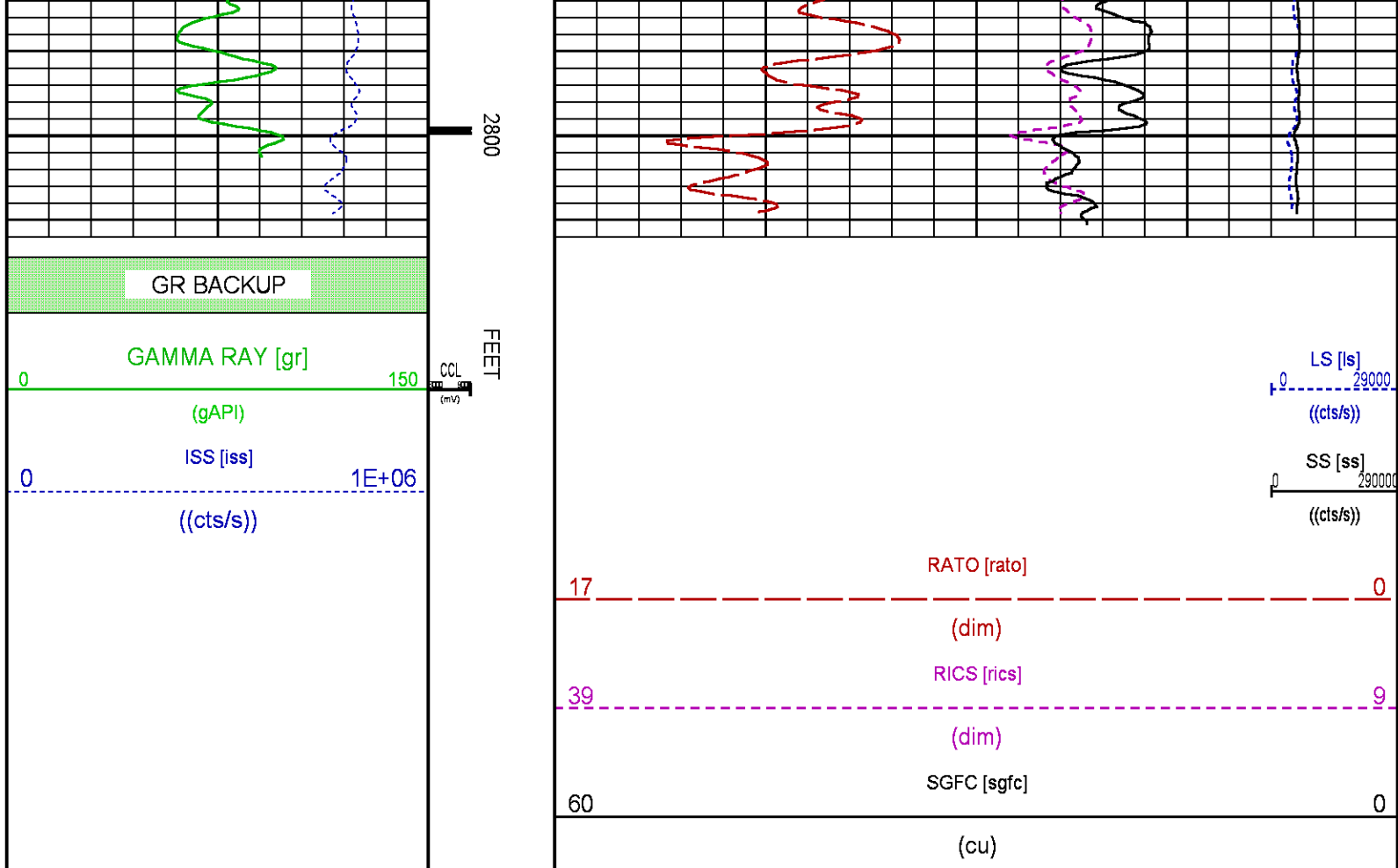


2400

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 14:54:53 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994_24_15E/p354h02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4136.450 ft BOTTOM DEPTH: 7579.463 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	7.87	in	" "
	LARGEST CASING OD	4.50	in	" "
	MATRIX	SANDSTONE		" "

CURVE DESCRIPTION REPORT

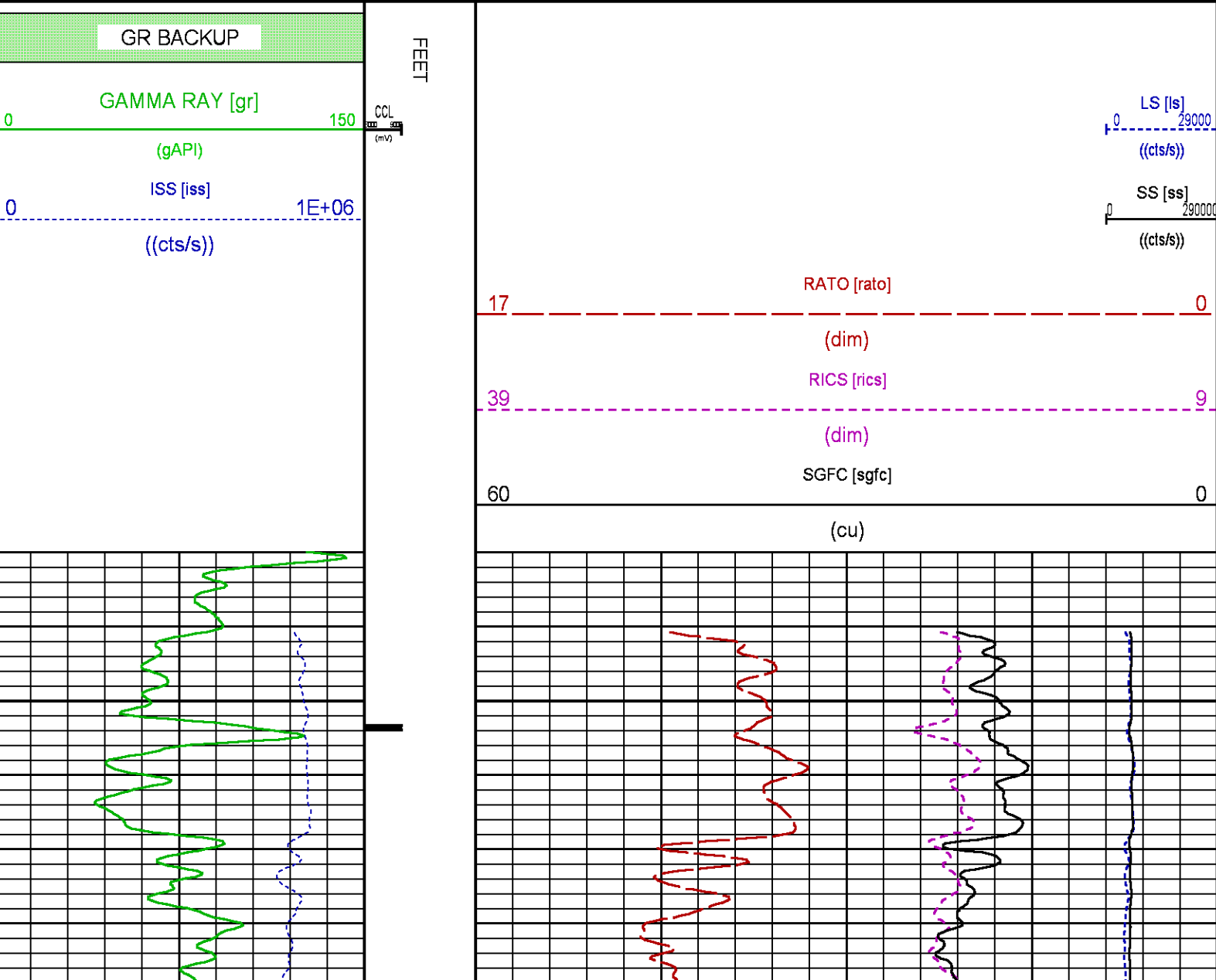
CURVE DESCRIPTION REPORT

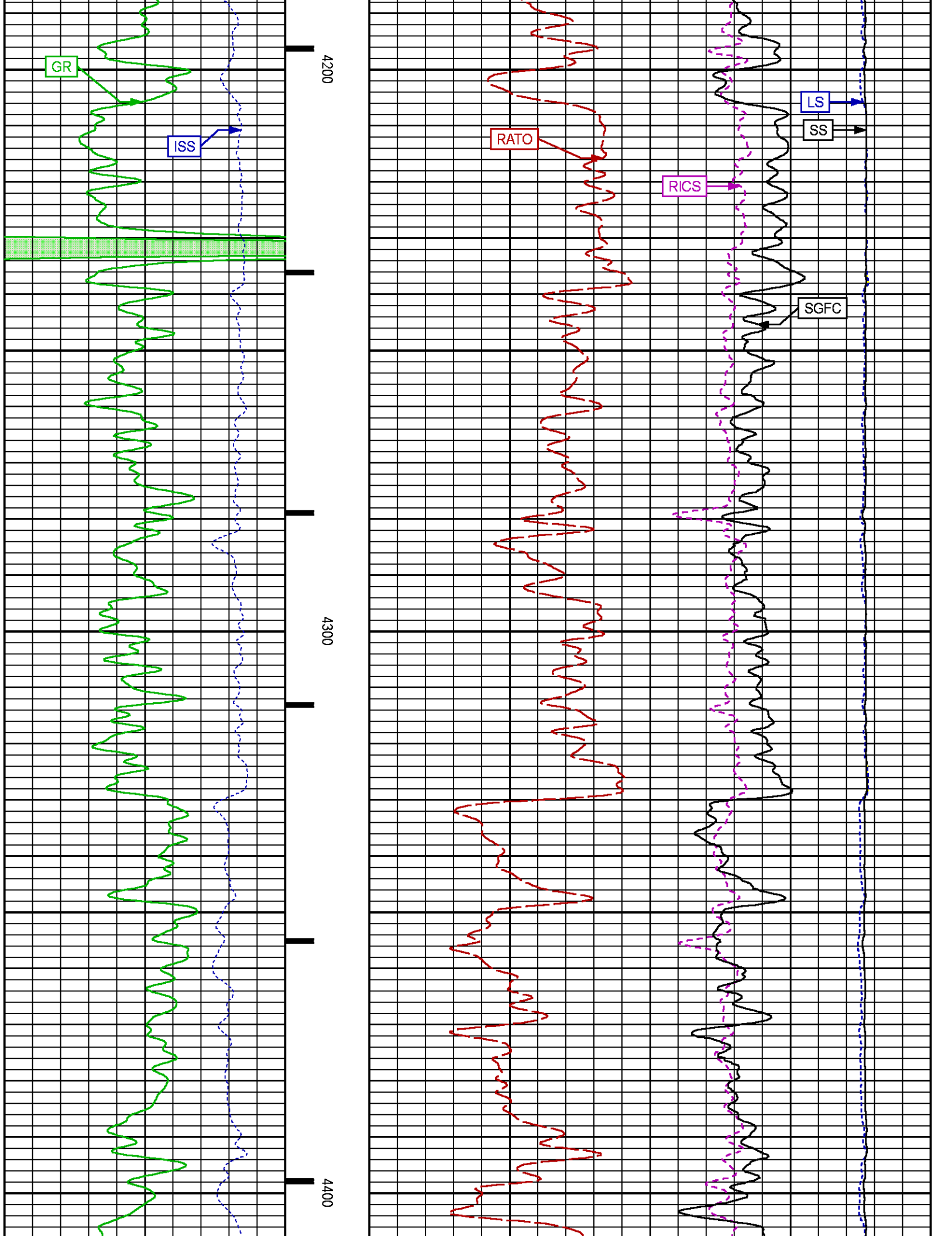
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A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

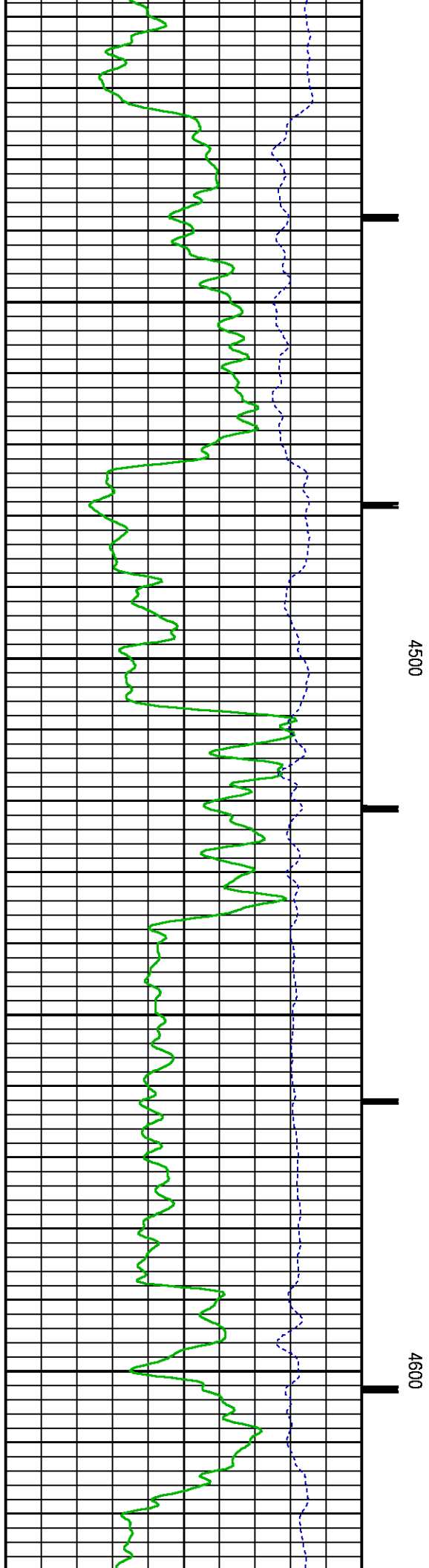
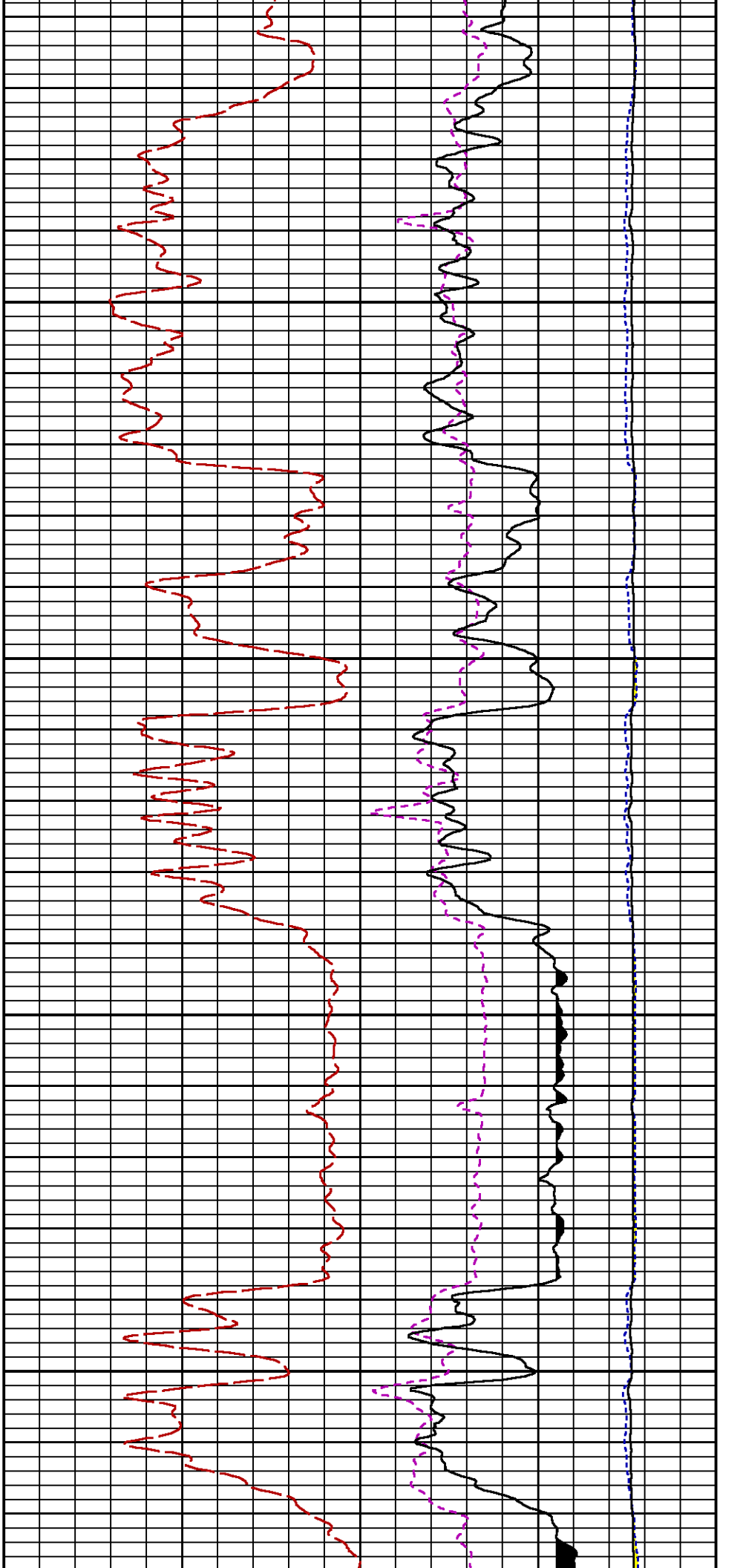
CURVE MEASURE POINT OFFSET

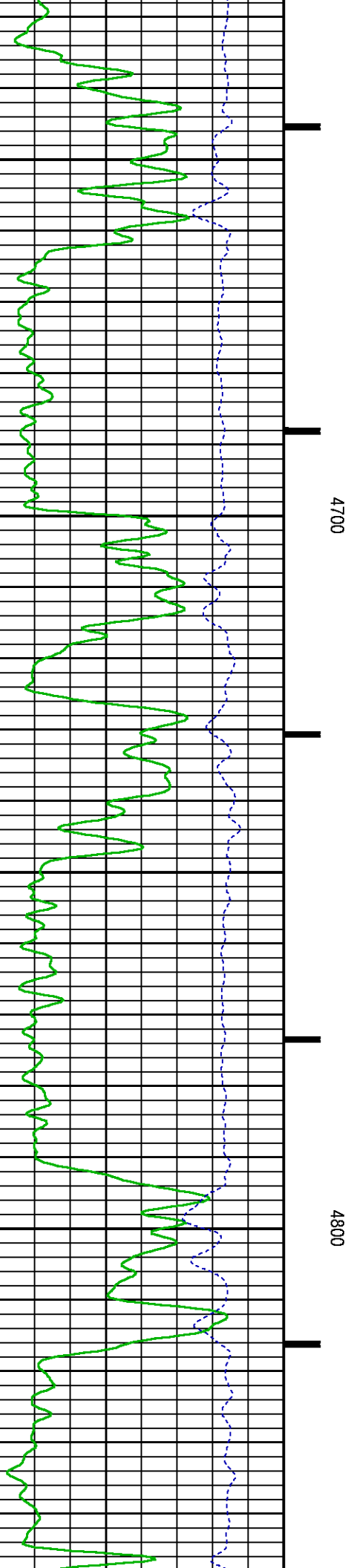
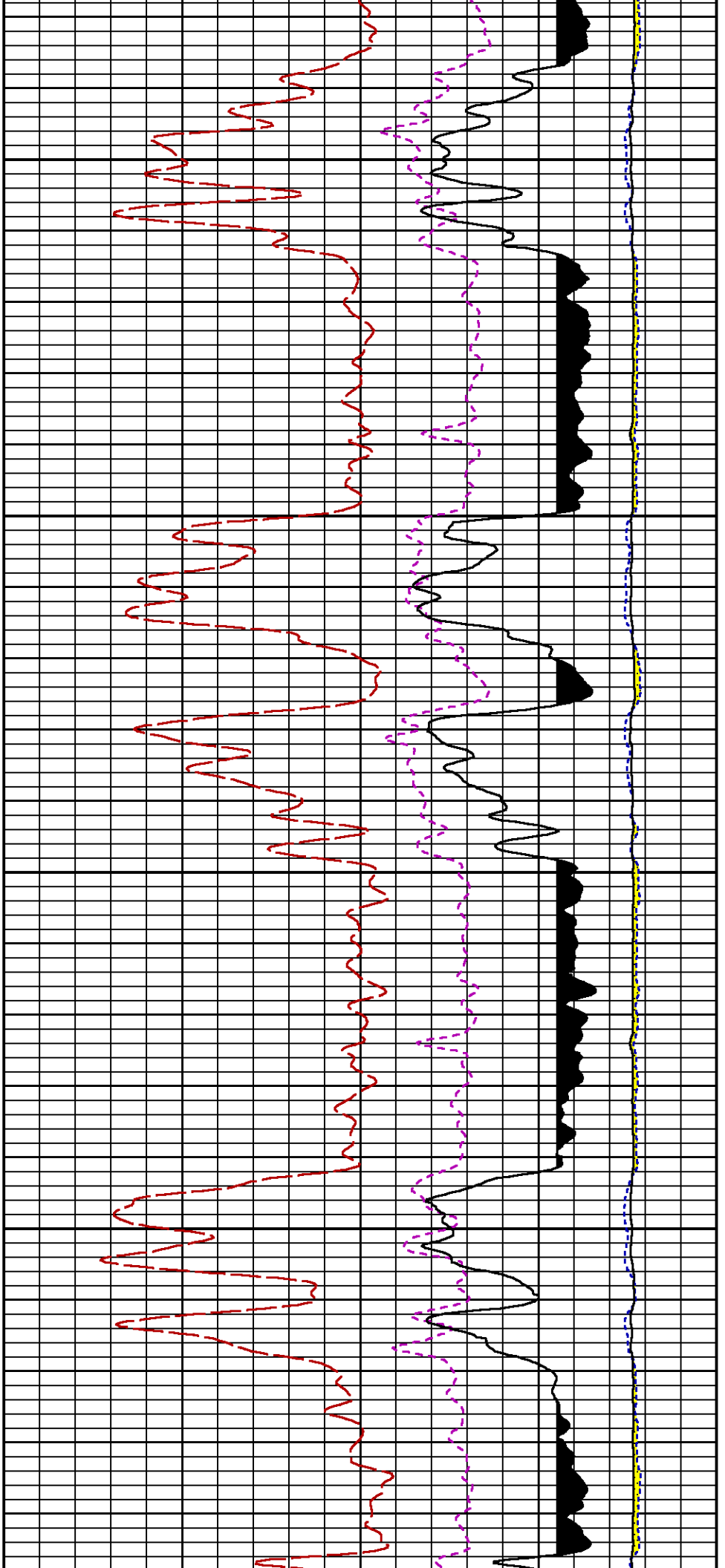
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-25.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-22.75	LS	-12.75	RICS	-12.75	SS	-12.75

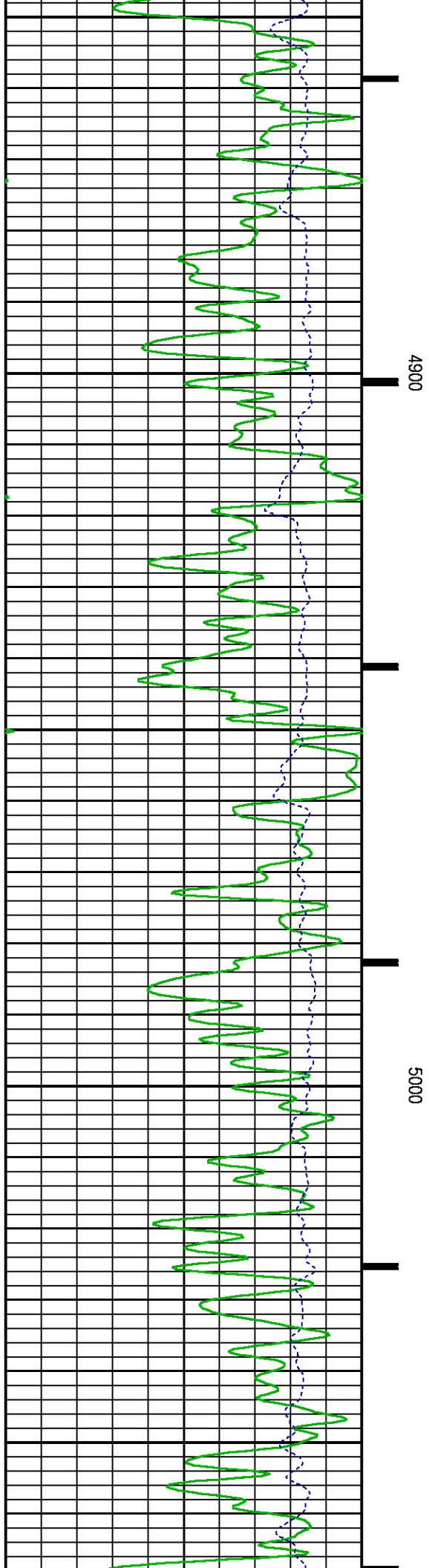
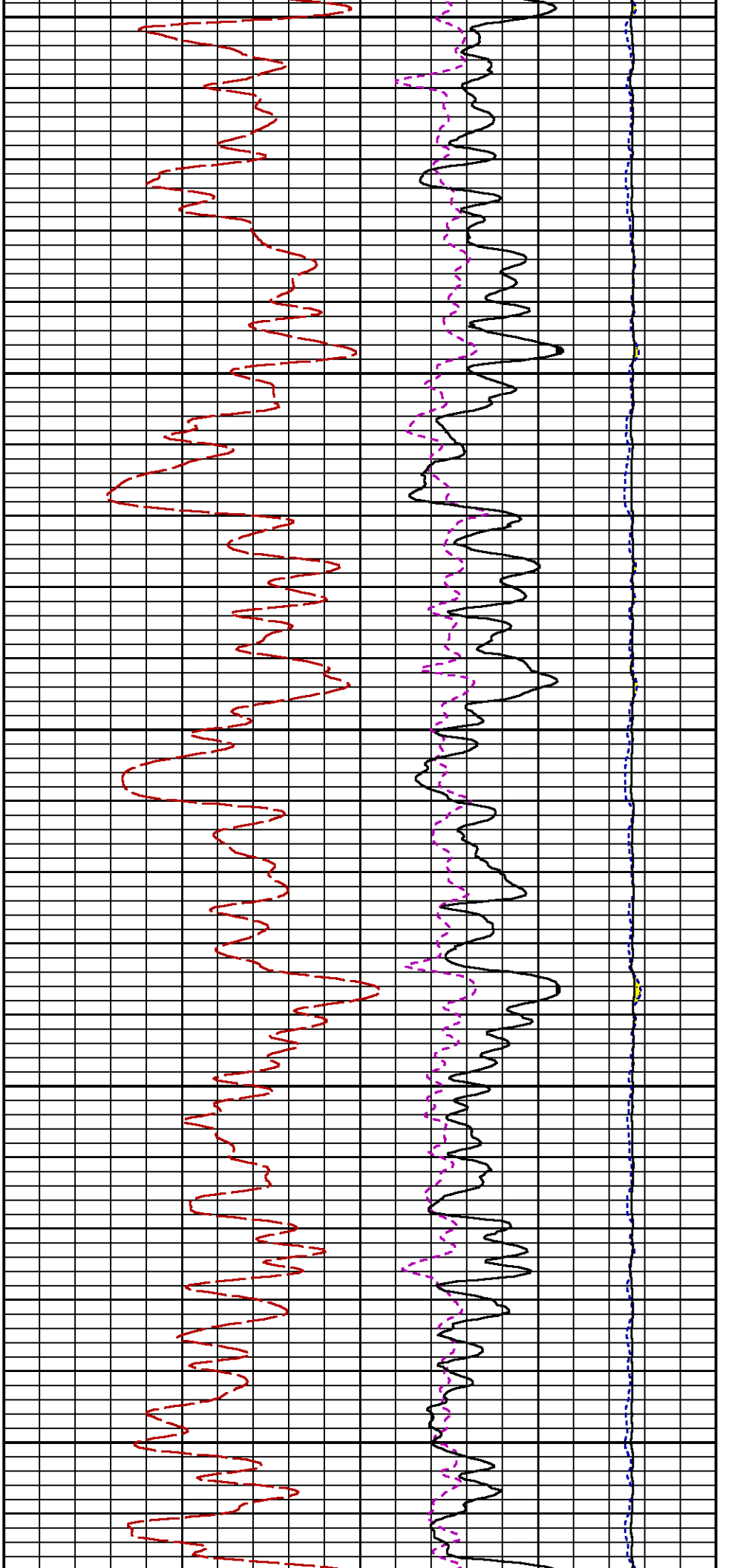
Presentation	: SysA:/dat1a/LARAMIE_NICHOLS_0994_24_15E/0994_24_15E_RPM_MAIN_WF.fvpdf [5"/100' Scale]
Plot Interval	: 4130 - 7581 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_15E/0994_24_15E_RPM_MAIN_WF.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: NICHOLS 0994-24-15E
Field	: VEGA
File Interval	: 4115 - 7578.75 Feet
OCT	: p354h

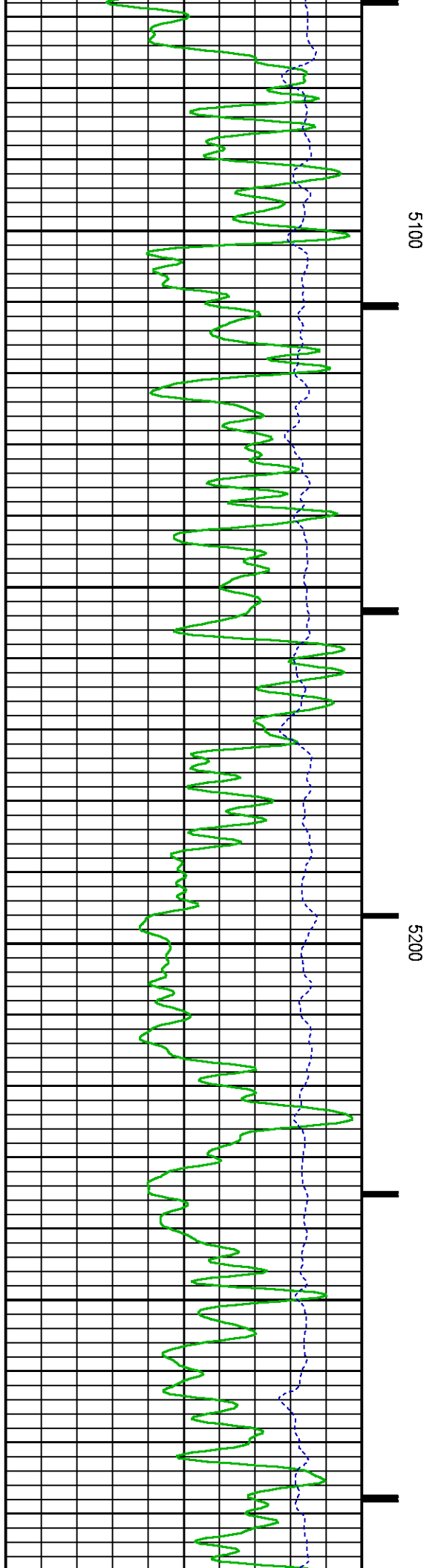
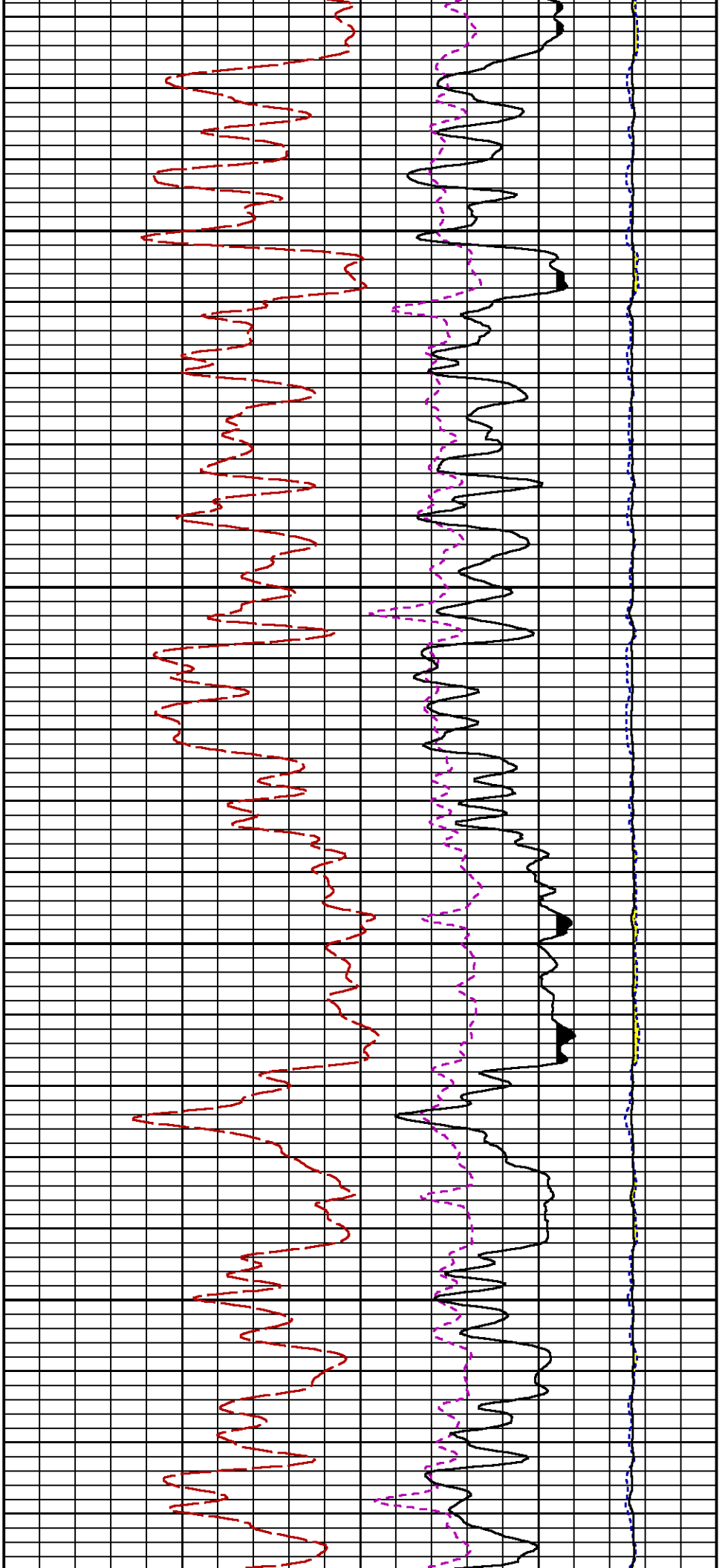


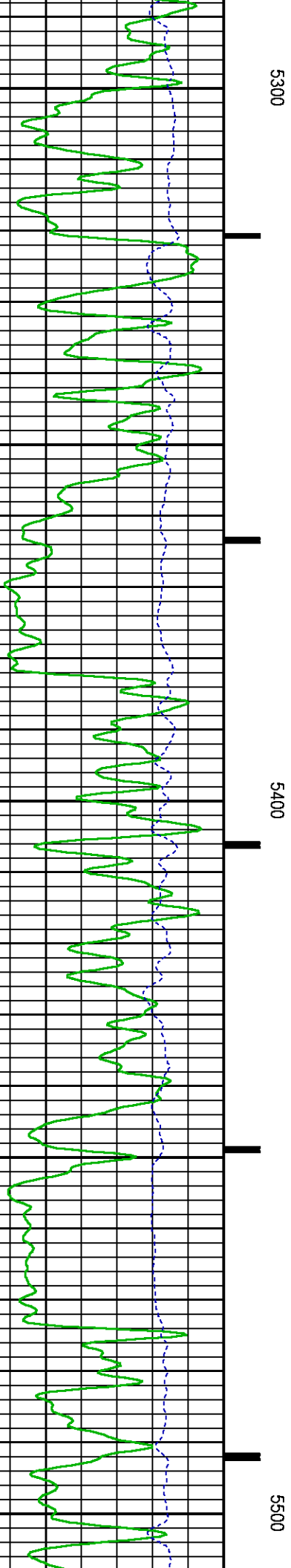
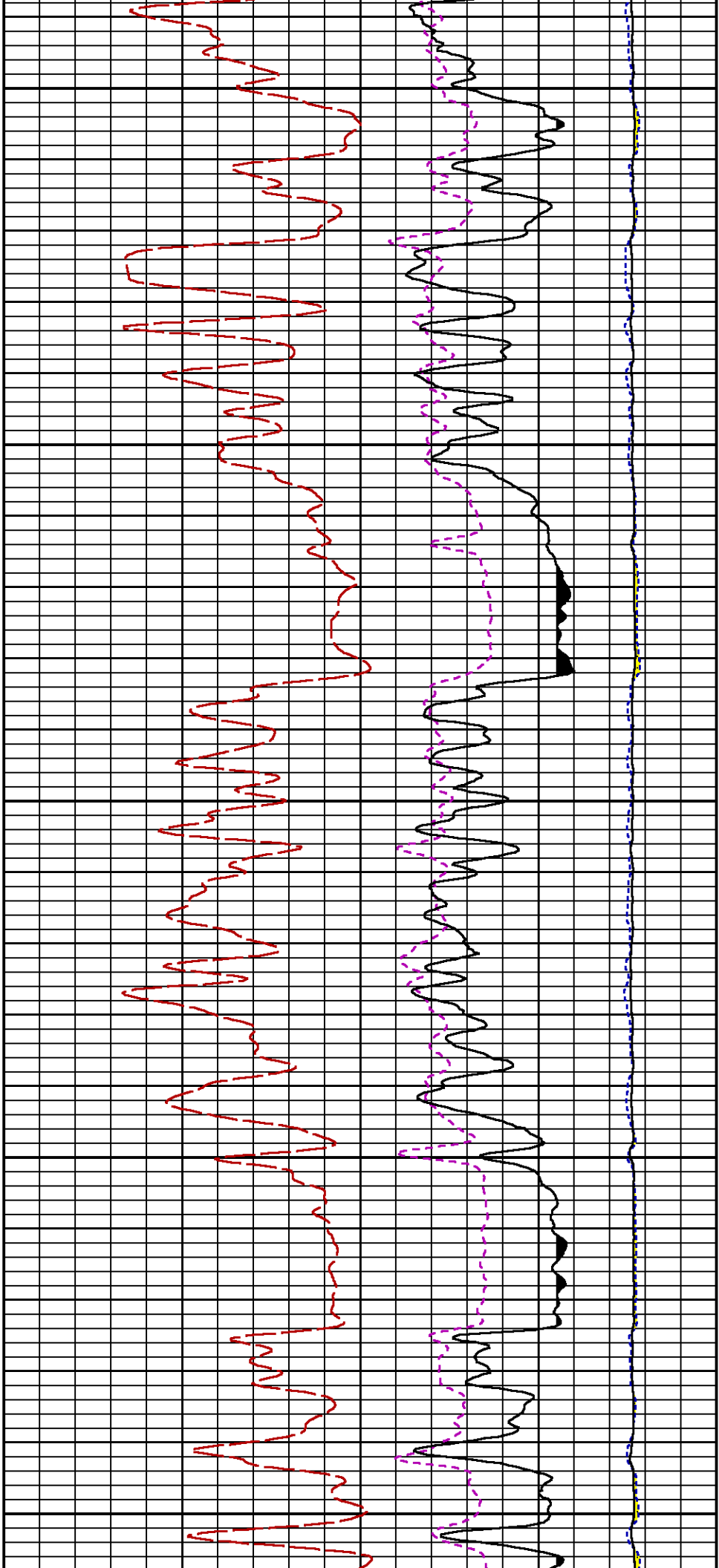


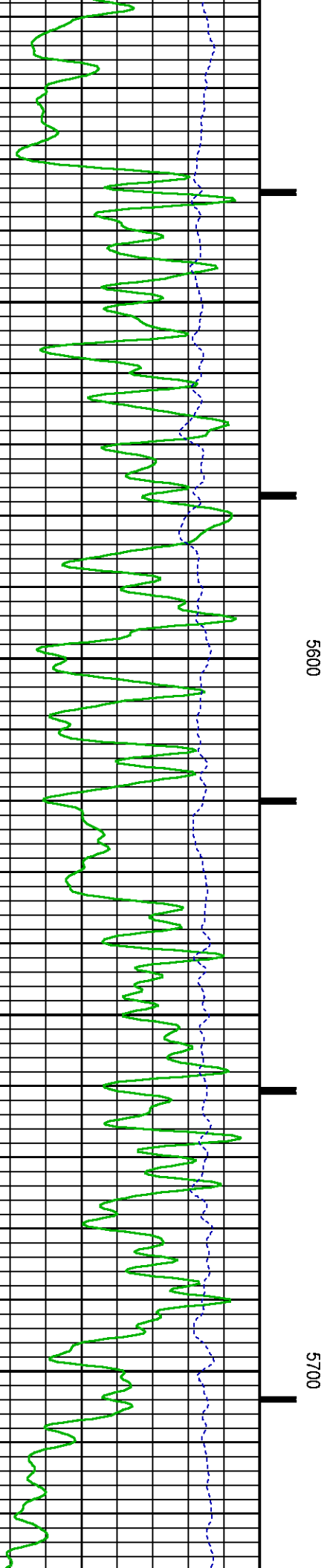
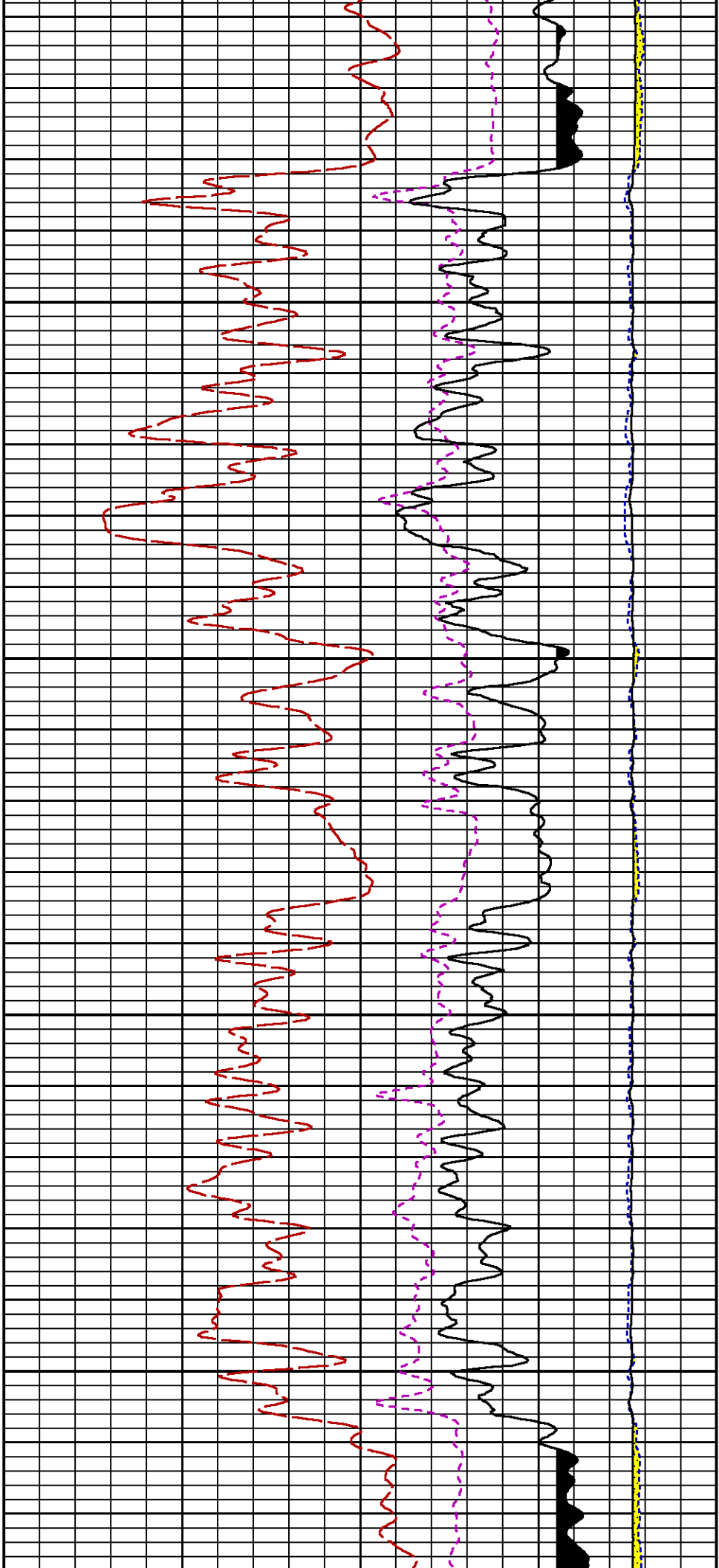


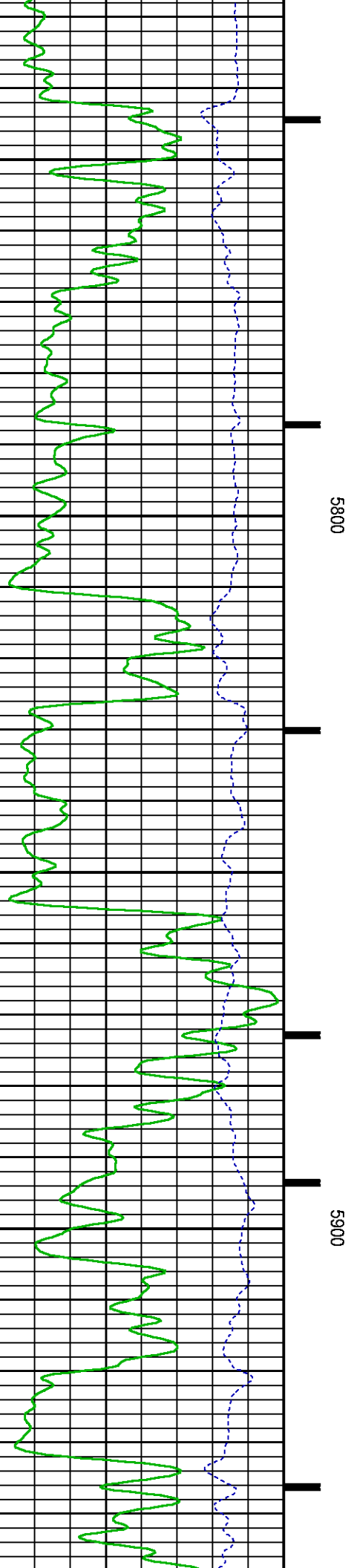
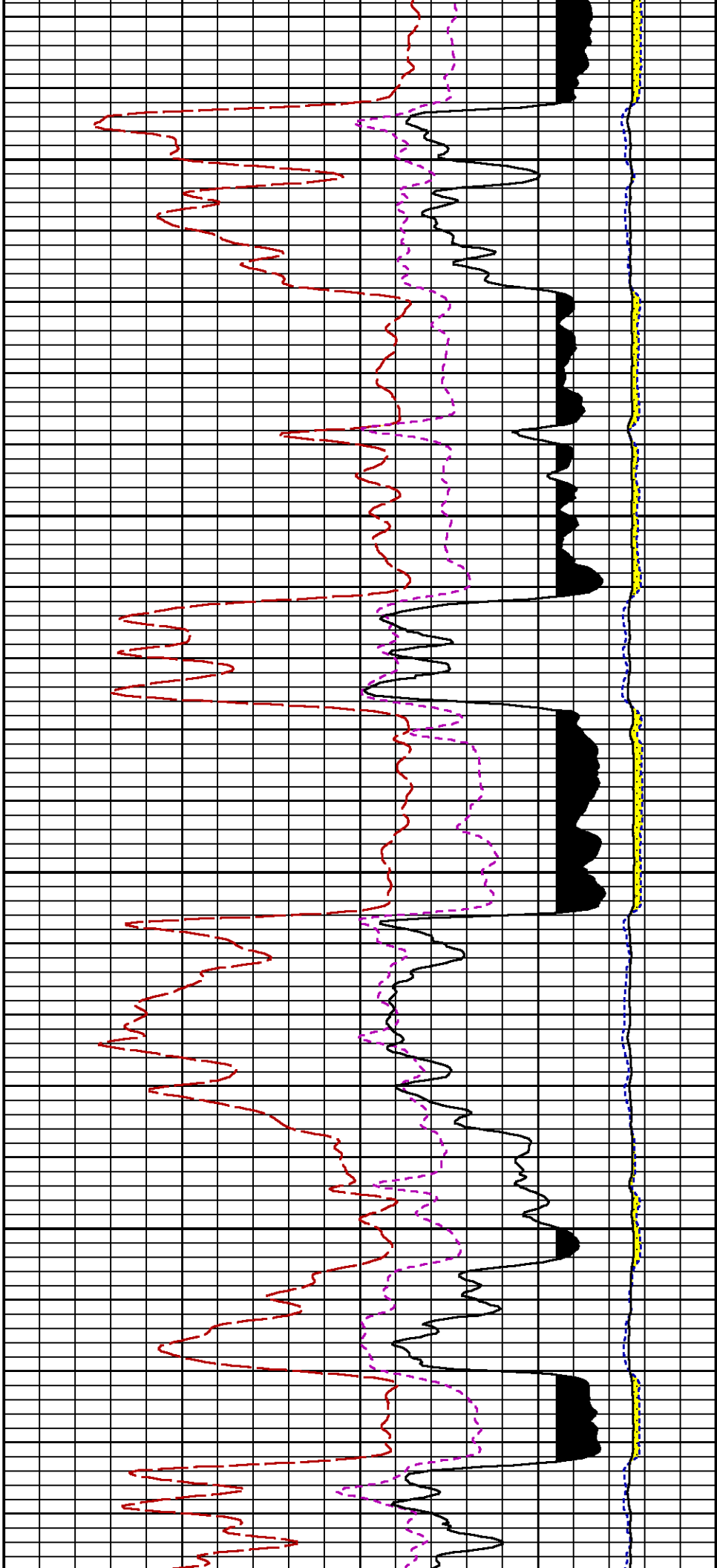


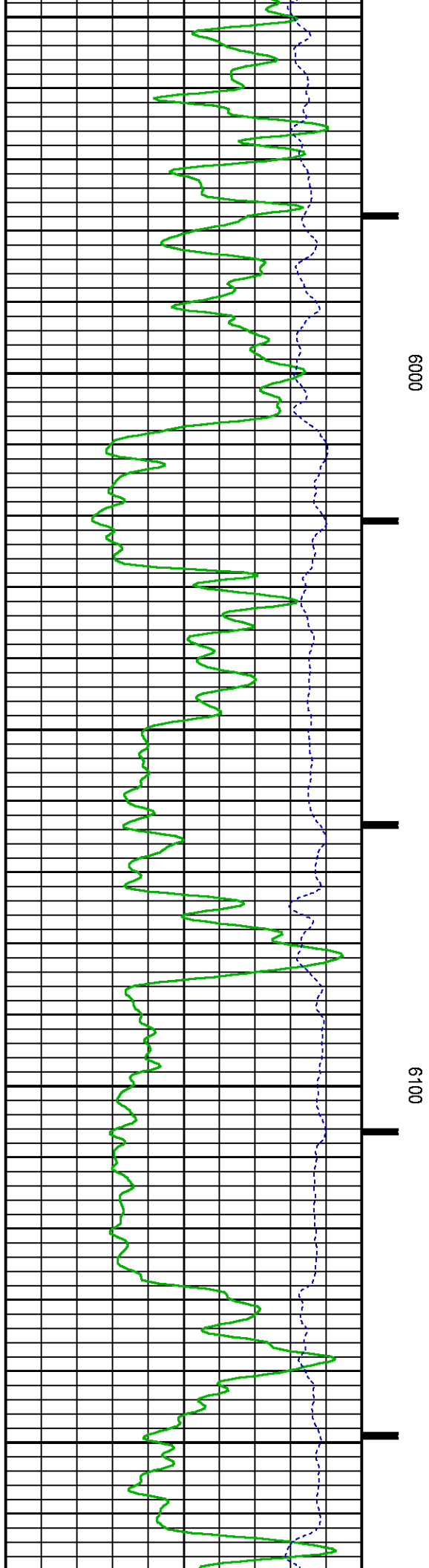
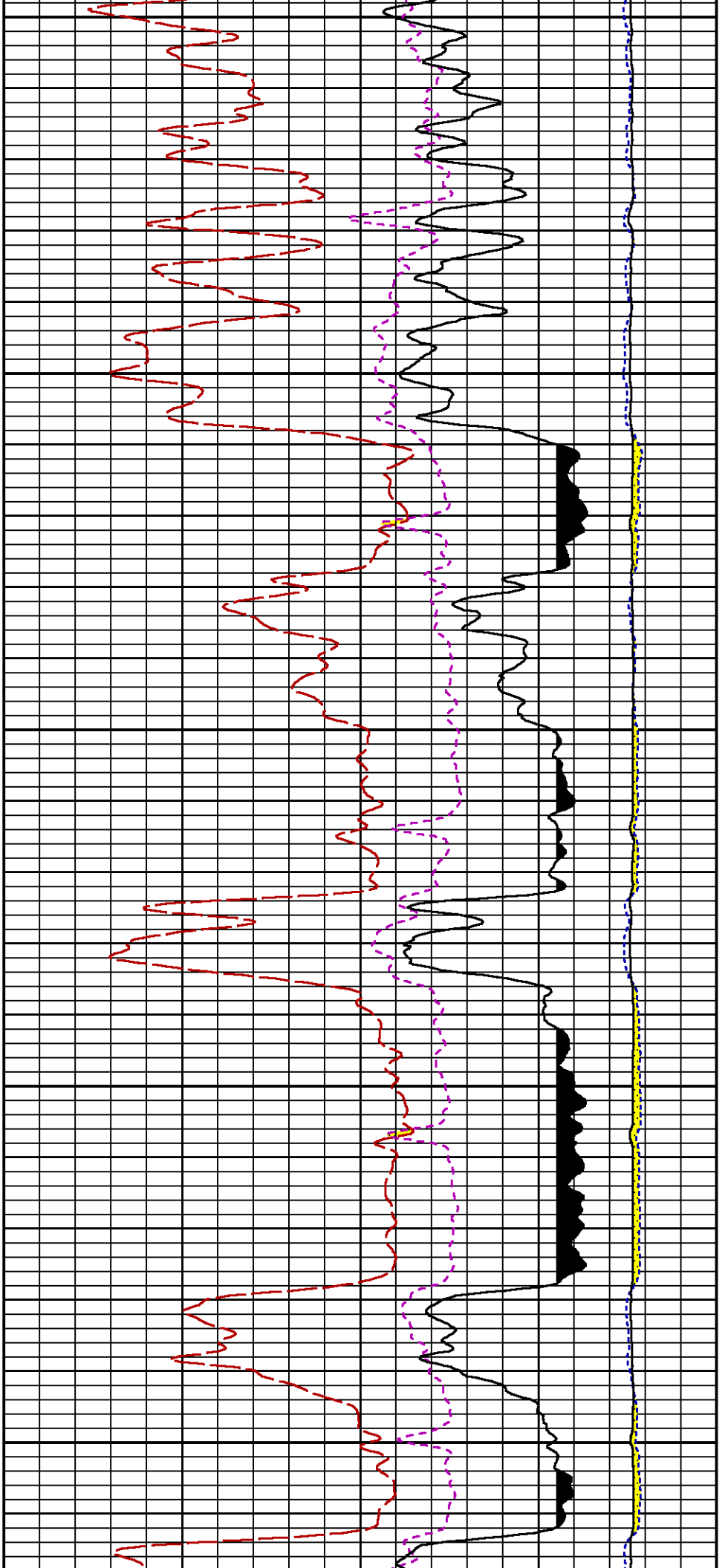


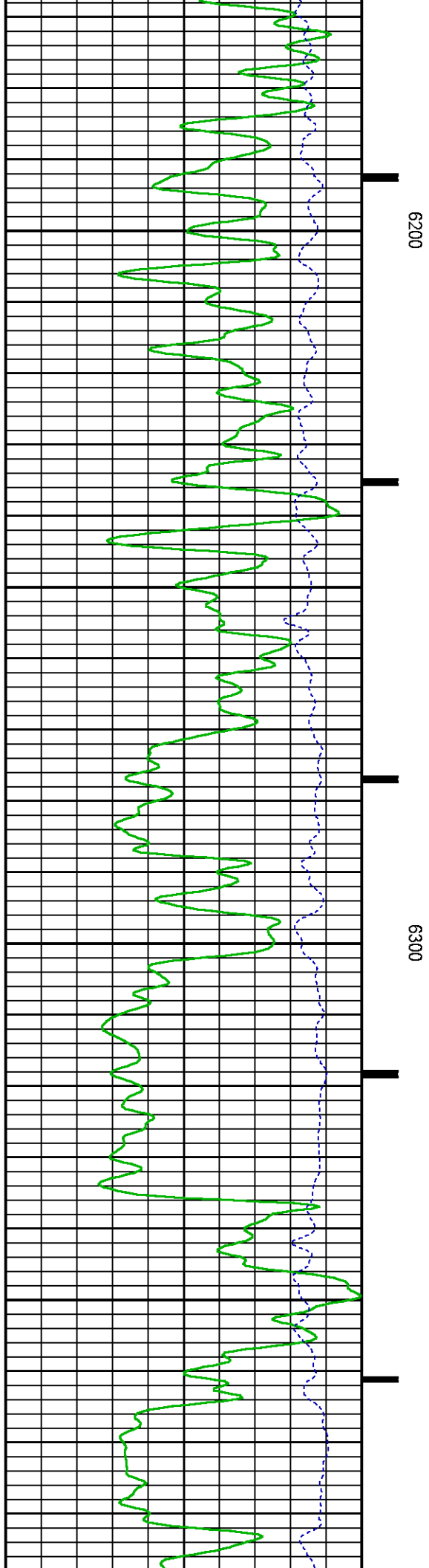
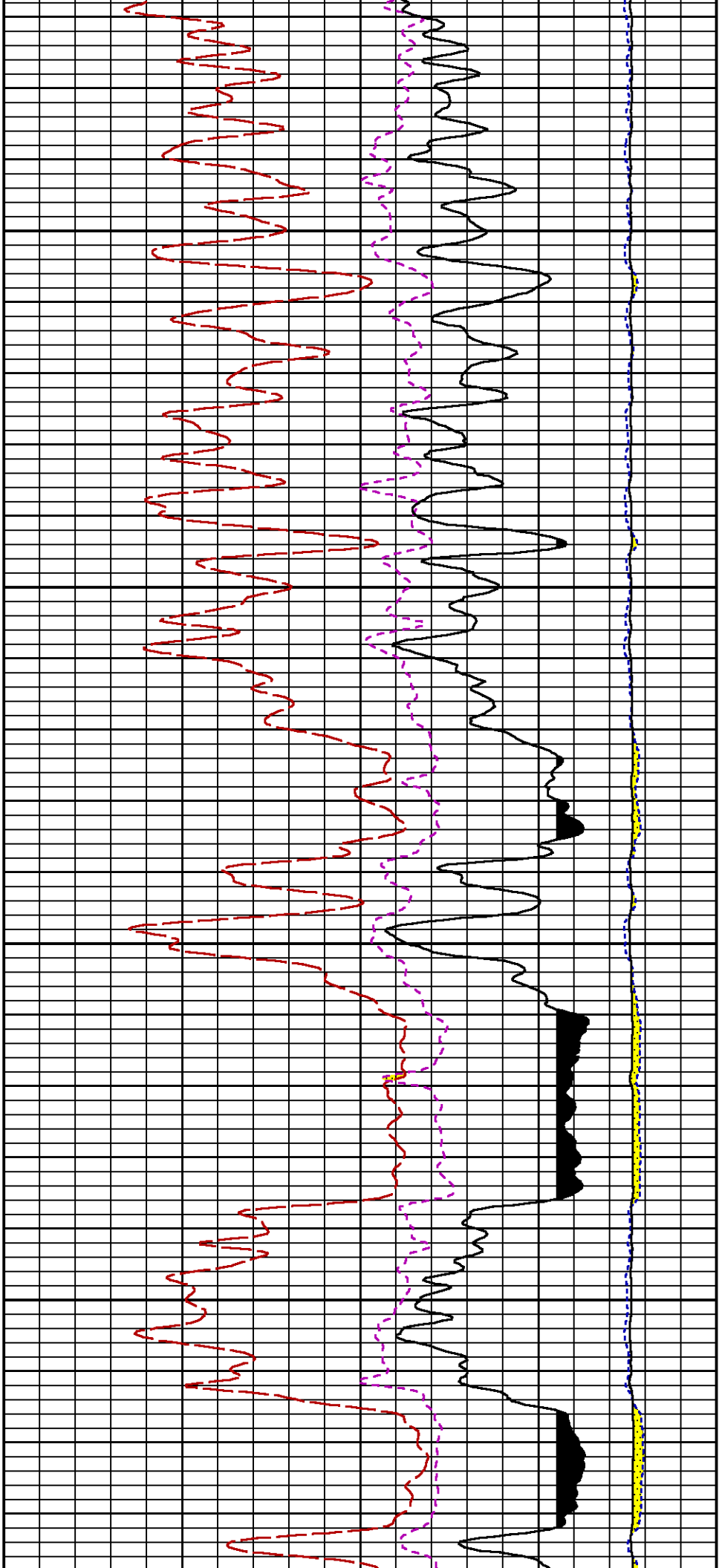


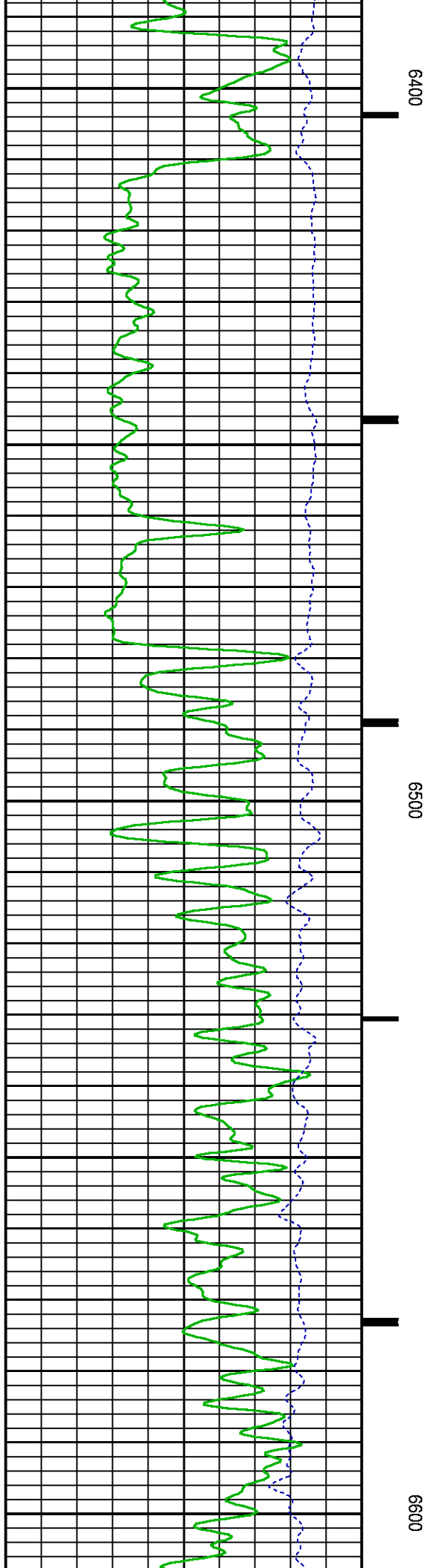
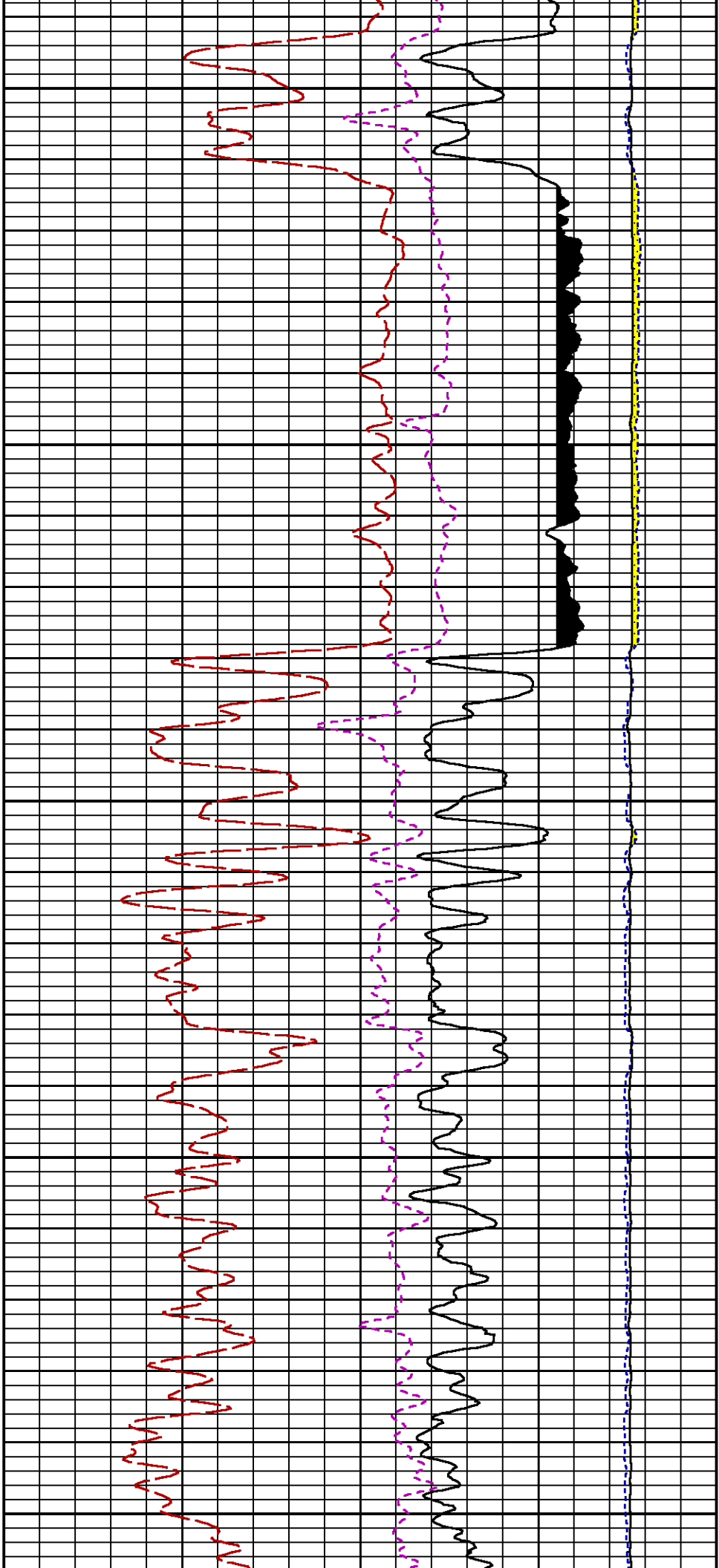


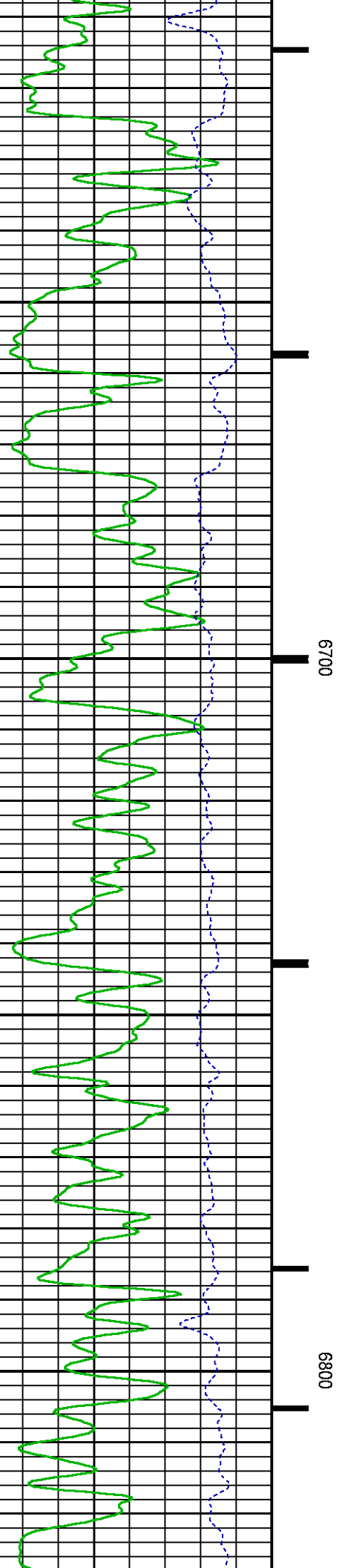
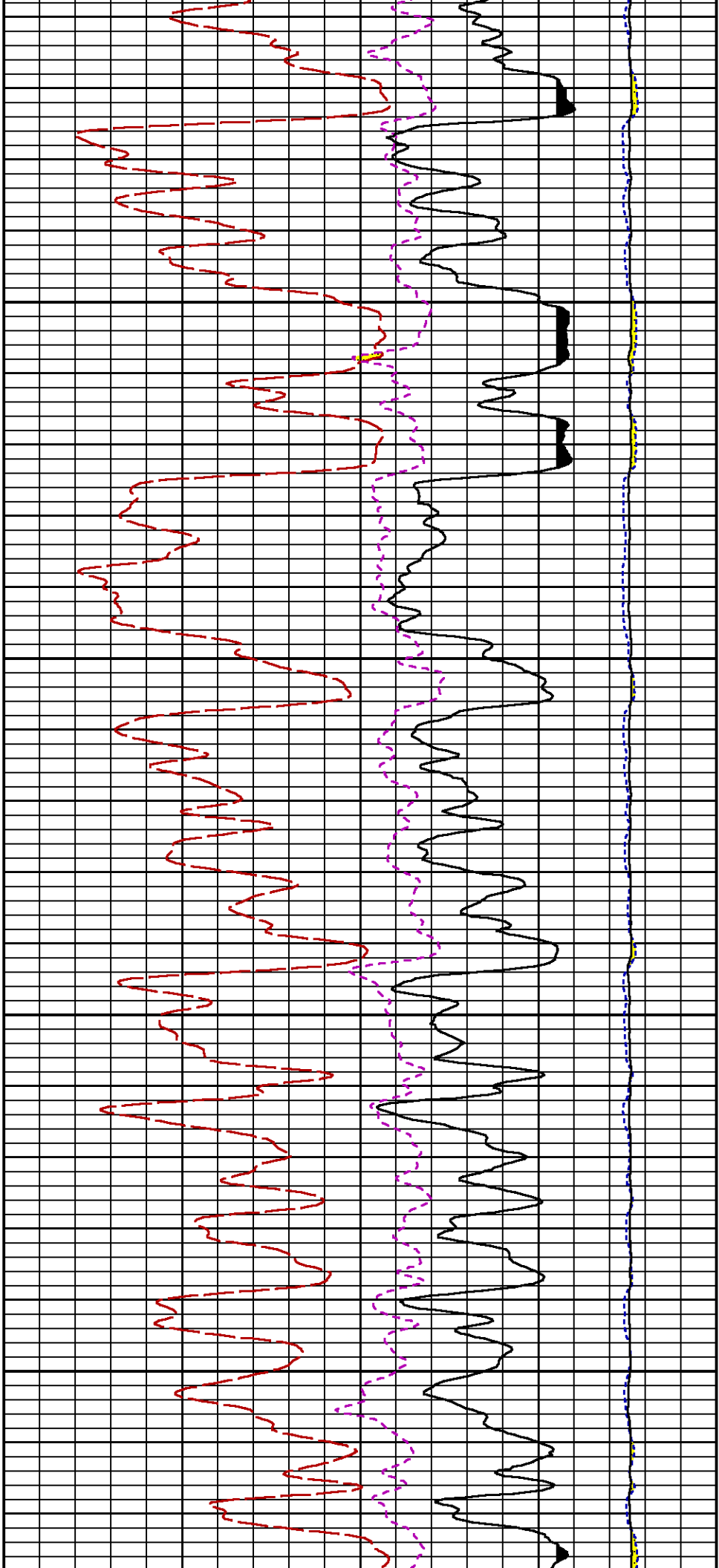


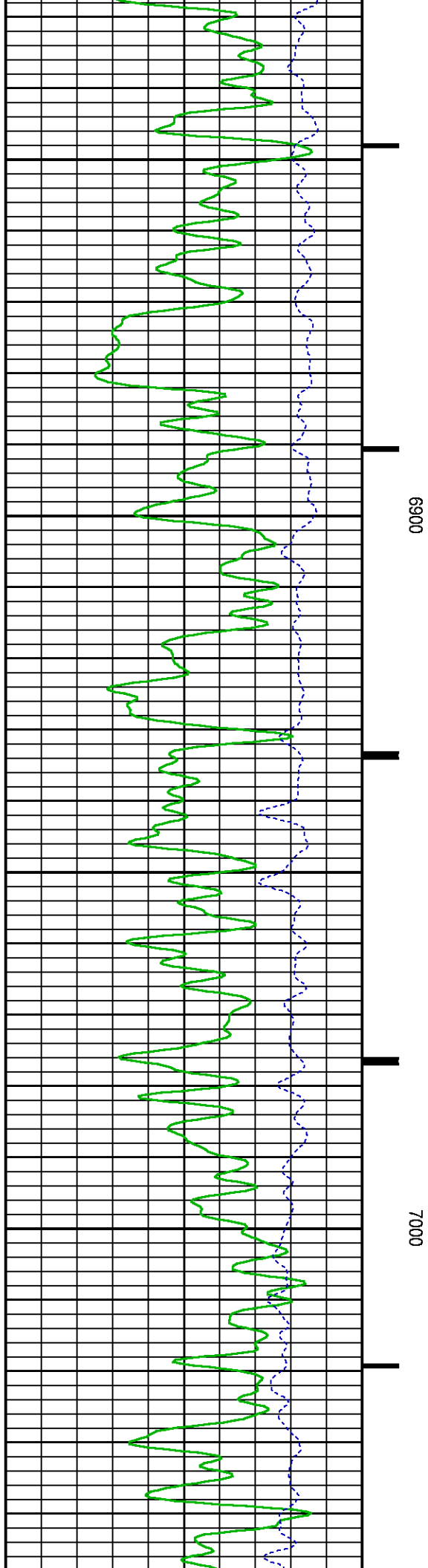
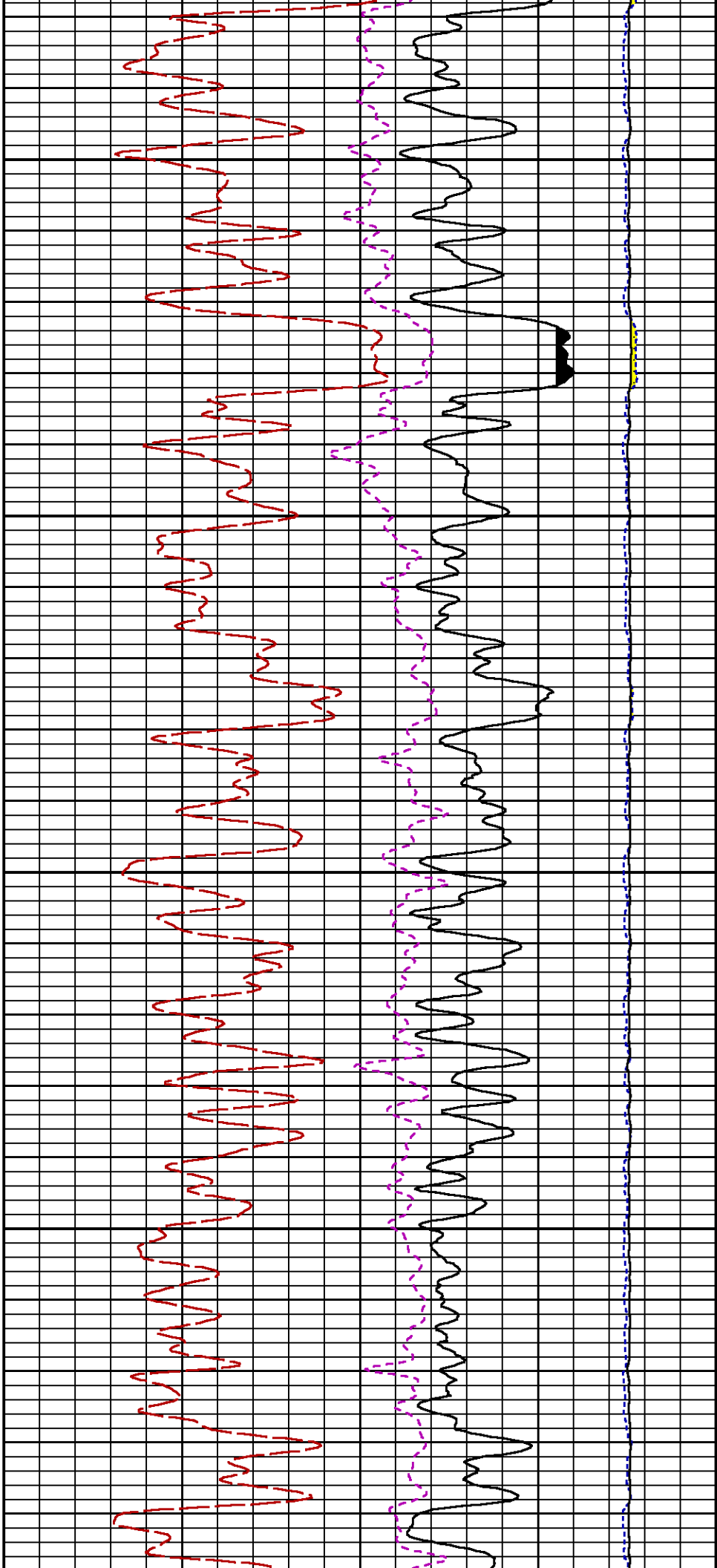


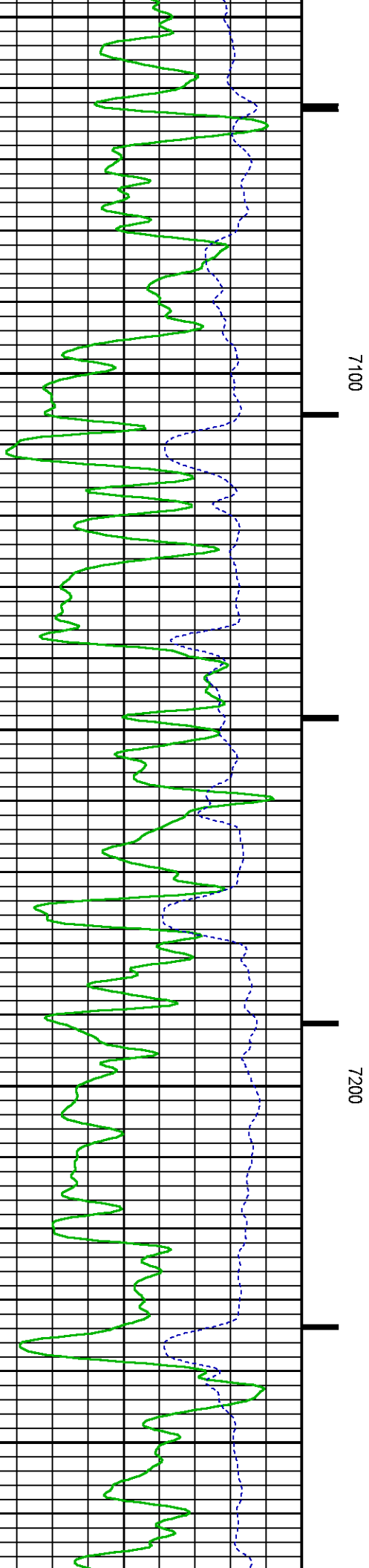
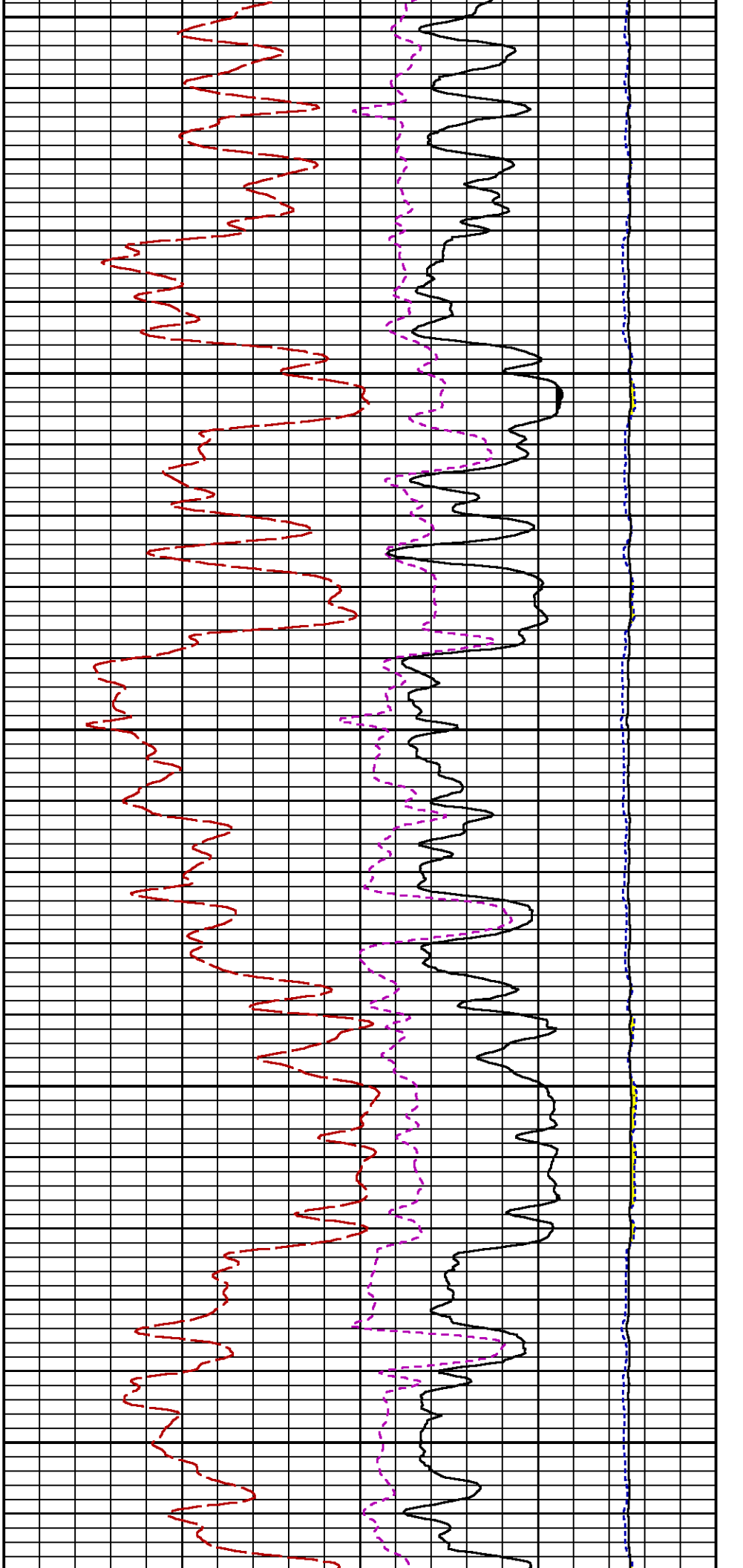


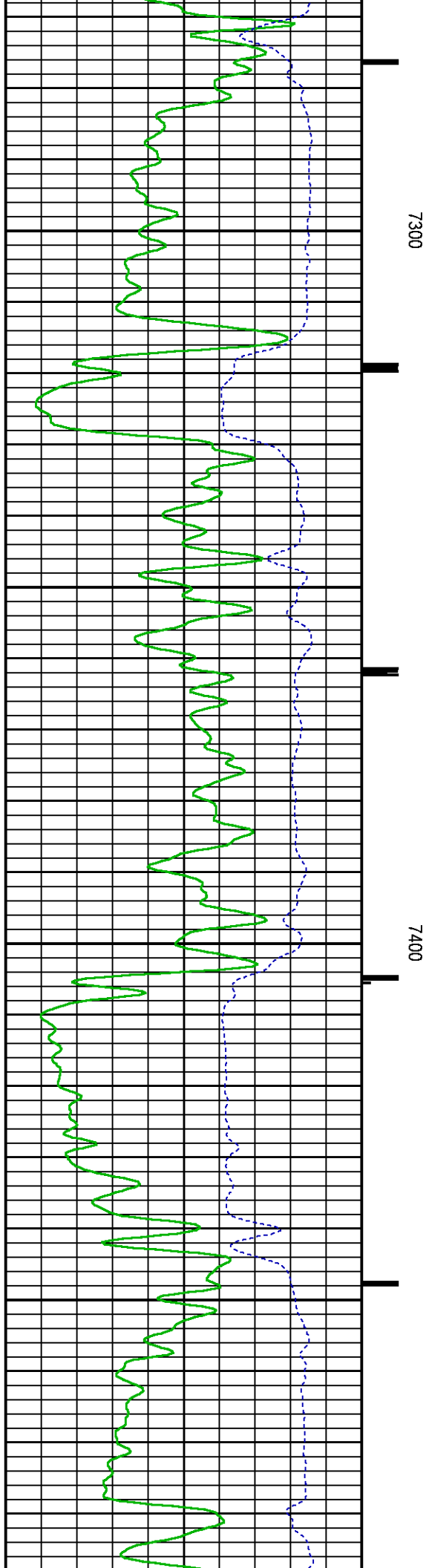
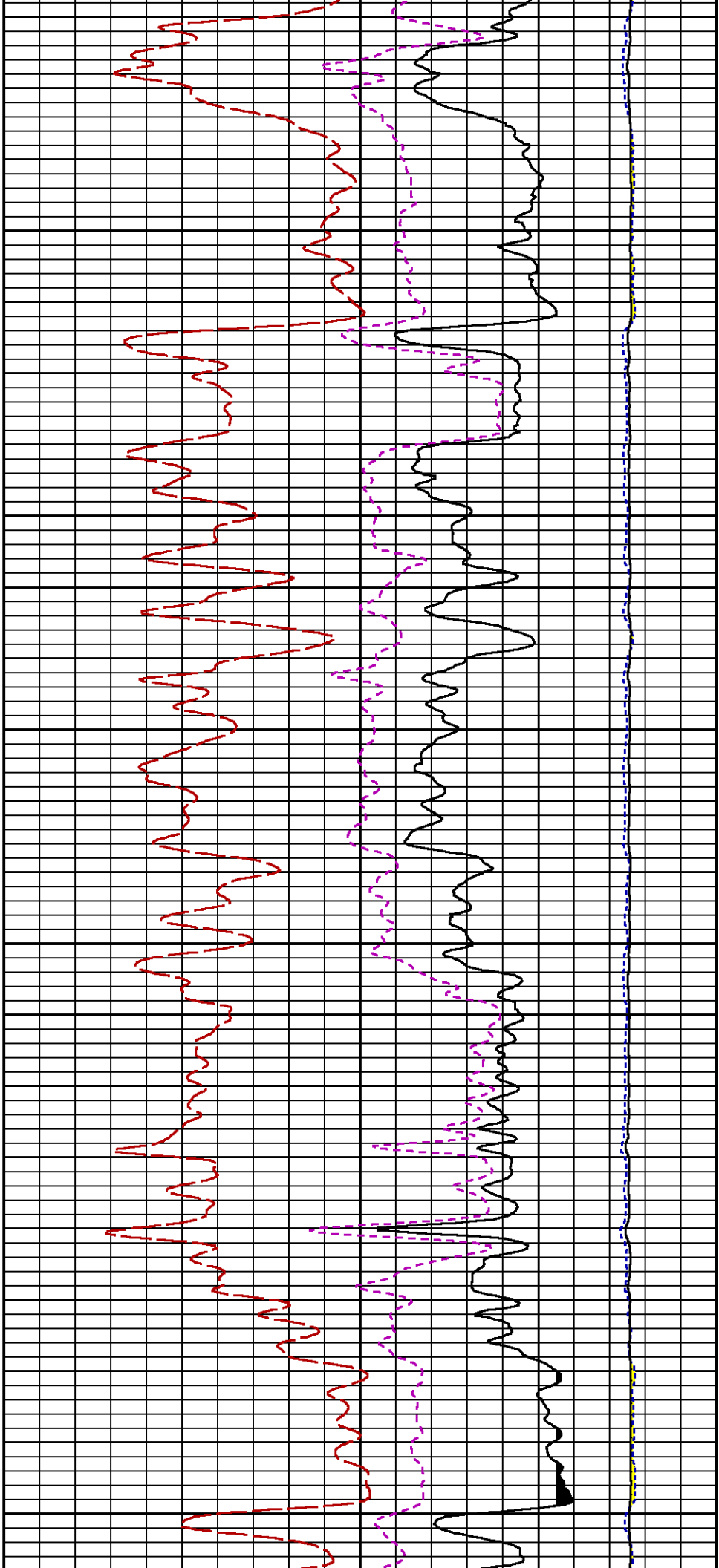


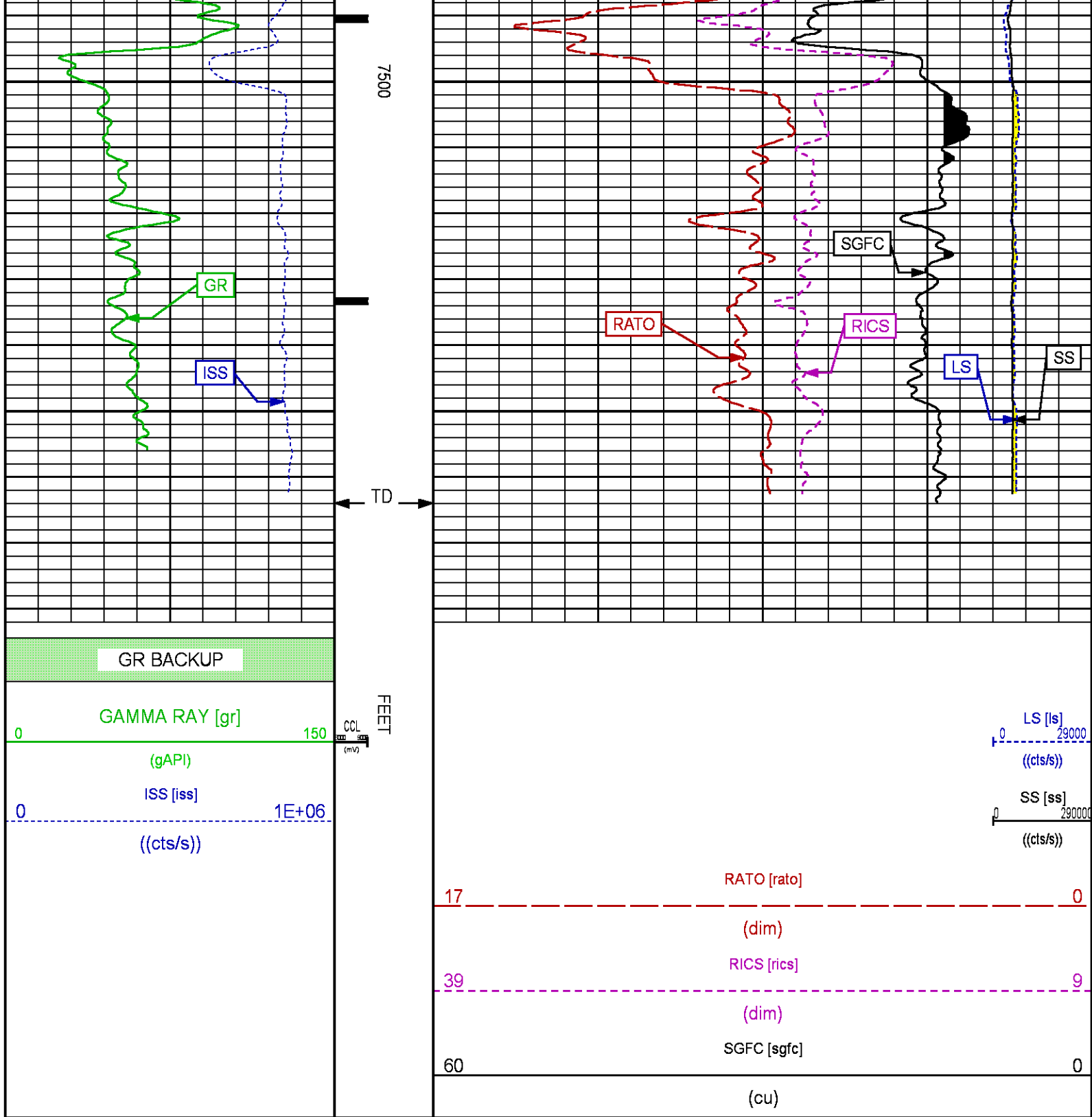












REPEAT PASS

PARAMETER AND FILTER SUMMARY REPORT

FILE:	/dat1a/LARAMIE_NICHOLS_0994_24_15E/p354h01.prm		
LOGGING MODE:	DEPTH	DIRECTION:	UP
TOP DEPTH:	4633.250 ft	BOTTOM DEPTH:	4876.205 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	7.87	in	"	"
	LARGEST CASING OD	4.50	in	"	"
	MATRIX	SANDSTONE		"	"

CURVE DESCRIPTION REPORT

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	-25.00	ISS	-12.75	RATO	-12.75	SGFC	-12.75
GR	-22.75	LS	-12.75	RICS	-12.75	SS	-12.75

Presentation	: SysA:/dat1a/LARAMIE_NICHOLS_0994_24_15E/0994_24_15E_RPM_REPEAT.fvpdf [5"/100' Scale]
Plot Interval	: 4630 - 4872.5 Feet
Data File 1	: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994_24_15E/0994_24_15E_RPM_REPEAT.xtf
Created On	: N/A
Company	: LARAMIE ENERGY LLC
Well	: NICHOLS 0994-24-15E
Field	: VEGA
File Interval	: 4609.25 - 4872.75 Feet
OCT	: p354h

[illegible]

GR BACKUP

GAMMA RAY [gr]

(gAPI)

ISS [iss]

0 1E+06

((cts/s))

Date	Description	Amount
1/1/2018	10000	10000
2/1/2018	20000	20000
3/1/2018	30000	30000
4/1/2018	40000	40000
5/1/2018	50000	50000
6/1/2018	60000	60000
7/1/2018	70000	70000
8/1/2018	80000	80000
9/1/2018	90000	90000
10/1/2018	100000	100000
11/1/2018	110000	110000

CCCL
(mV)

Diagram illustrating the relationship between different units and dimensions:

- Vertical axis (right side):
 - LS [ls] (top)
 - SS [ss] (middle)
 - ((cts/s)) (bottom)
- Horizontal dashed lines (left side):
 - RATO [rato] (dim) (red line, associated with 17 and 0)
 - RICS [rics] (dim) (purple line, associated with 39 and 9)
 - SGFC [sgfc] (bottom)

0 29000
((cts/s))

SS [ss]

290000
((cts/s))

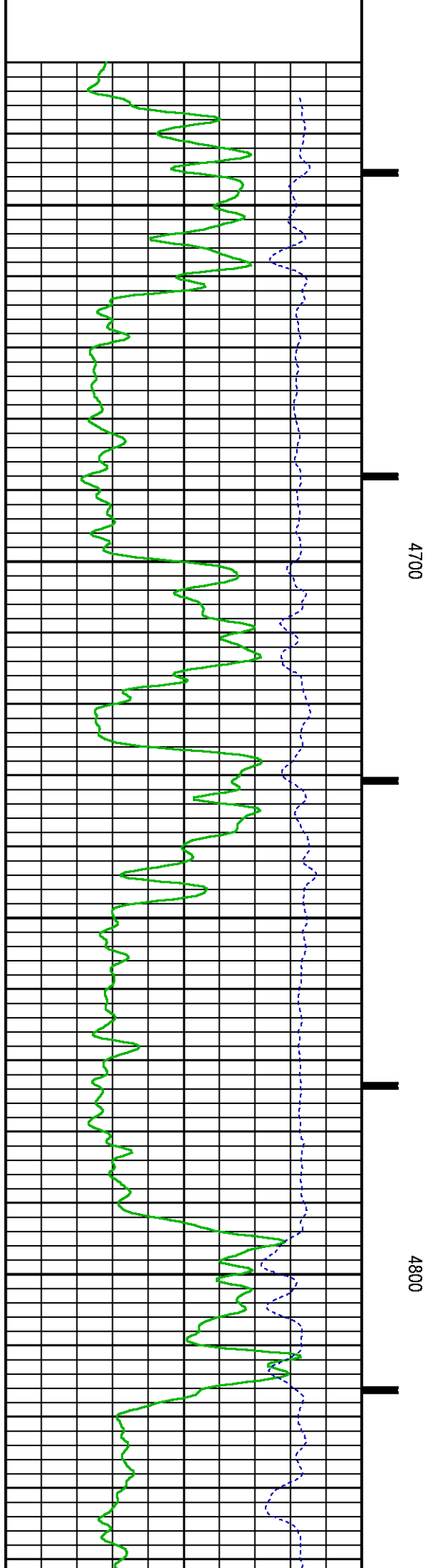
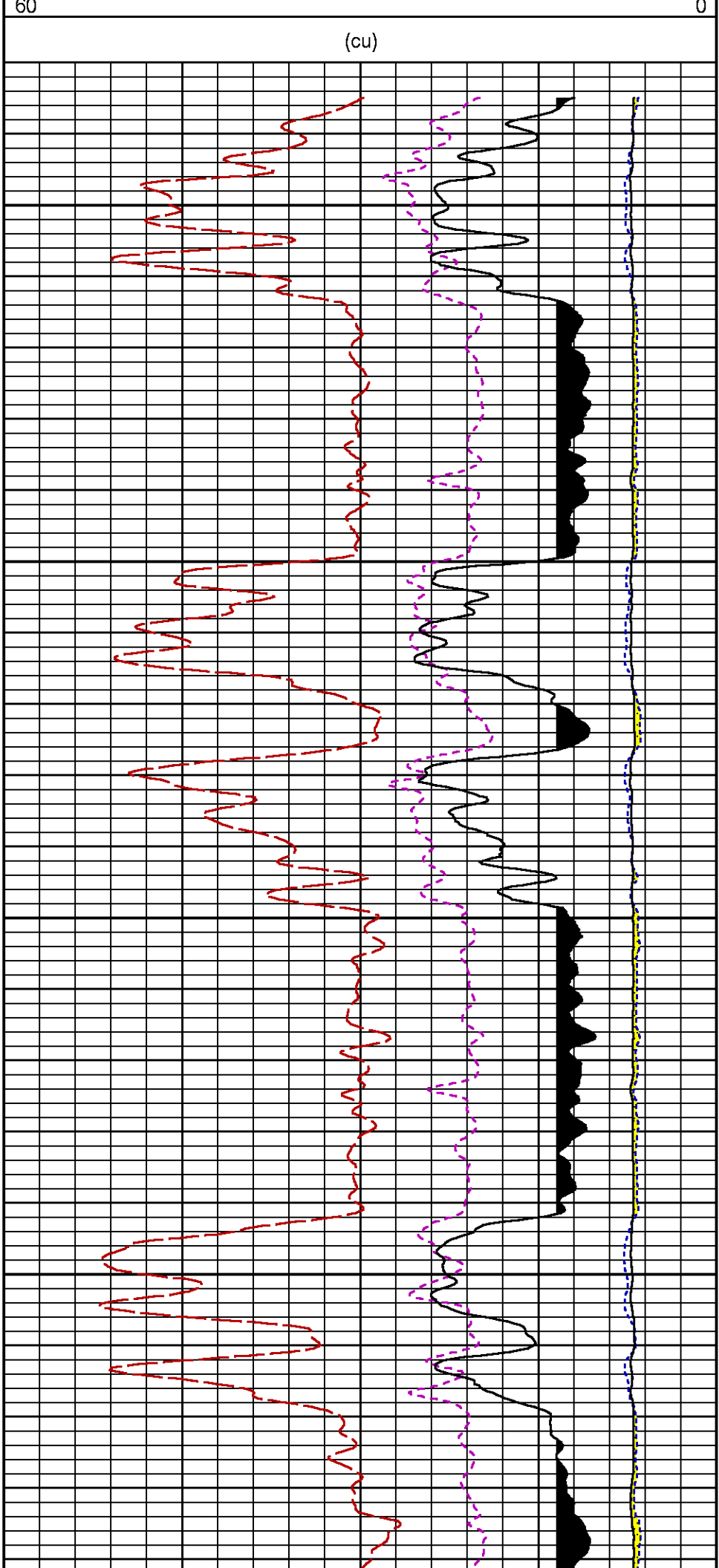
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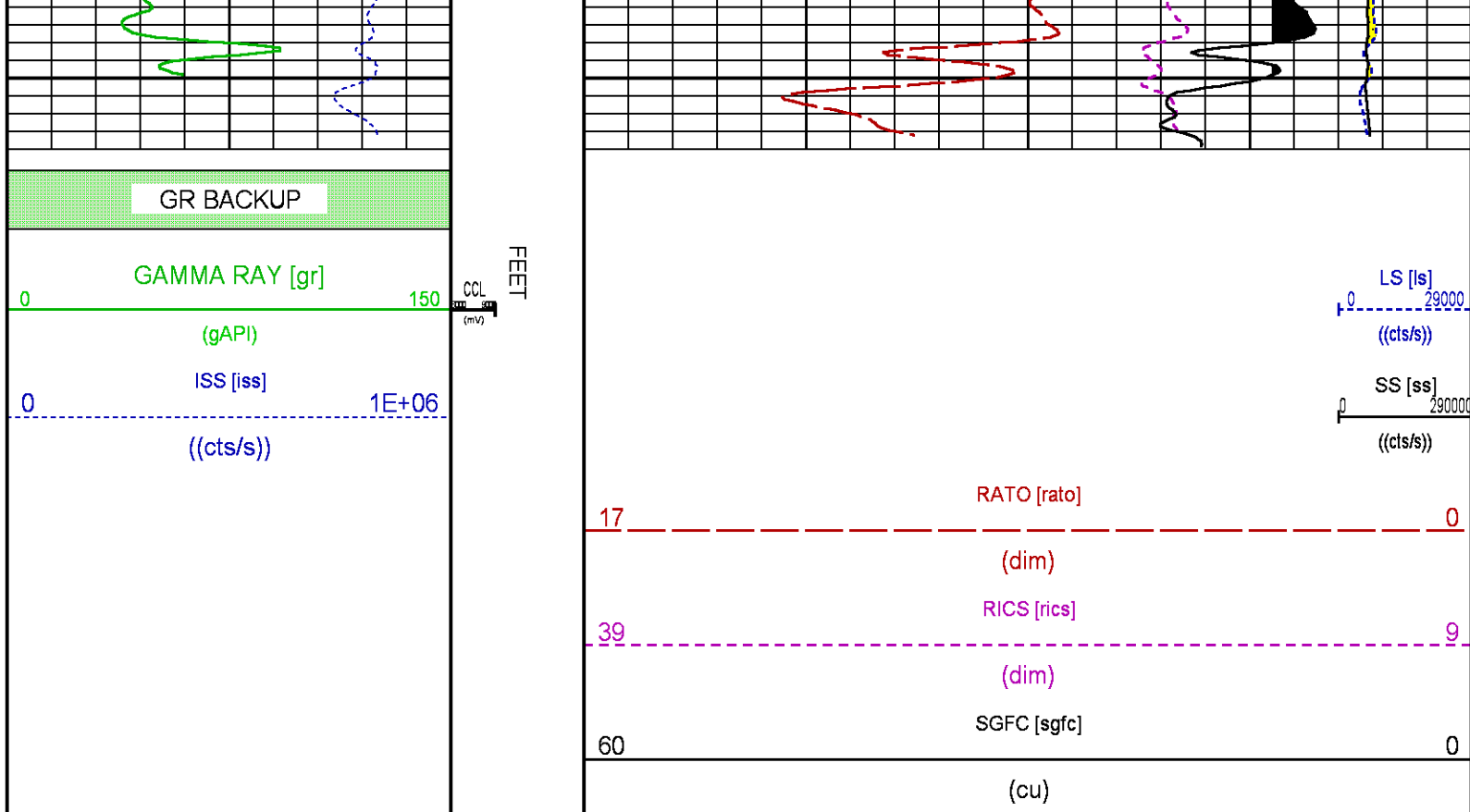
(dim)

39 RICS [rics] 9

(dim)

SGFC [sgfc]	
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CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_NICHOLS_0994_24_15E/p354h.tp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #: 2812LA 10384613

DATE/TIME PERFORMED: Fri May 11 07:48:58 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	63.60	272.31	208.7	1.006	63.99	273.99	210

GR PRIMARY VERIFICATION SUMMARY

TOOL #: 2812LA 10384613

DATE/TIME PERFORMED: Fri May 11 07:52:37 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	61.64	278.96	1.006	62.03	280.68	218.65
						200.00 220.00

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10066991

DATE/TIME PERFORMED: Mon May 7 15:09:32 2018

UNIT: 5753XD 111111

CALIBRATOR: 2437XB 112674

SOURCE: 8281AA 10430258

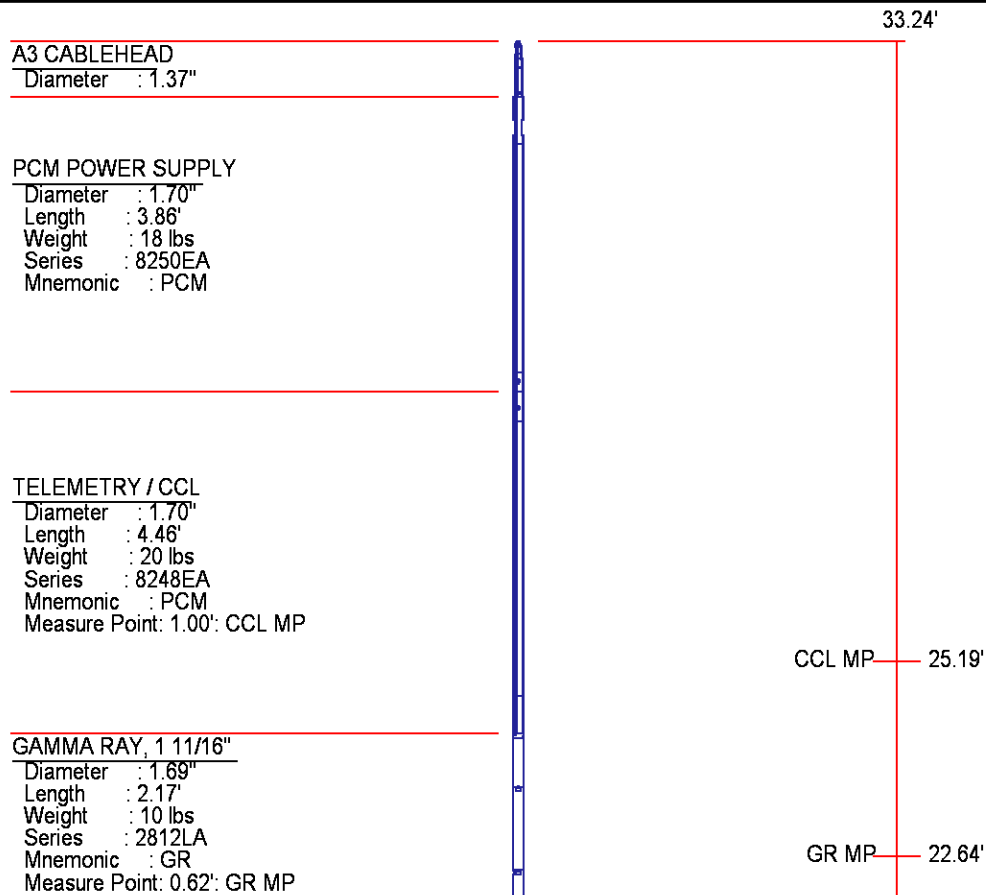
HOURS: 8281AA 88

ISS Mtr Vits SS Gain LS Gain XLS Gain FA Temp Sync Delay RCAL

	ISS	WV	SS Gain	LS Gain	XS Gain	LS Temp	Syns Delay	RONE
	(V)					(degF)	(usec)	
Raw Data	794247	124	2139	2383	2237	120	8.0	1.0374
Interpolated	1300000	145	2128	2374	2232			
	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	794247	6835	1065	142	25.87	0.15	24.10	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	794247	178007	27088	88699	31638	8729	53712	13968
Fit Quality %		0.926	0.946	0.726	0.765	0.956	0.682	0.966
	ISS	RBOR	RIN	RIN13	RICS	RATO	RTWO	RONE
			ISS/ILS	ISS/IXS	ISS/CSS	SS/LS	SS2/LS	CSS/CLS
Raw Data	794247	1.43	4.46	29.33	14.79	10.16	3.63	3.85
		1.42 1.45	3.55 5.52	22.20 32.70	10.89 16.34	10.06 11.10	3.57 3.95	3.76 4.22
Fit Quality %		0.119	0.323	0.318	0.028	0.337	0.297	0.353
Reduced	1412538	1.43	4.47	29.36	14.77	10.20	3.64	3.86
		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_NICHOLS_0994_24_15E/p354h~GR_SONDEX-tdg



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

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



COMPANY
WELL
FIELD
COUNTY

LARAMIE ENERGY LLC
NICHOLS 0994-24-15E
VEGA
MESA

STATE **COLORADO**

FILE NO:

CH137596

API NO:

05077103920000

LOCATION:

SHL: 2287' FNL & 2794' FWL

ELEVATIONS:

KB 7236 FT





BHL: 1740' FSL & 1439' FEL

DF

GL 7212 FT

SEC 24

TWP 9 S

RGE 94 W

DATE

03-Jul-2018