



FILE NO: CH137595	COMPANY LARAMIE ENERGY LLC
API NO: 05077103850000	WELL NICHOLS 0994-24-12E
	FIELD VEGA
	COUNTY MESA STATE COLORADO

Ver. 4.10	LOCATION: SHL: 2272' FNL & 2795' FWL BHL: 2465' FSL & 1442' FEL 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	27-Jun-2018
RUN	1
TRIP	1
SERVICE ORDER	US137595
DEPTH DRILLER	7651 FT
DEPTH LOGGER	7492 FT
BOTTOM LOGGED INTERVAL	7492 FT
TOP LOGGED INTERVAL	2163 FT
TIME STARTED	08:30
TIME FINISHED	14:00
OPERATOR RIG TIME	5.5 HOURS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	64 FT
LOGGED CEMENT TOP	3000 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	10 FMIN
MAX. RECORDED TEMP.	222 DEGF
REFERENCE LOG	BAKER HUGHES RAL
REFERENCE LOG DATE	26-Jun-2018
EQUIP. NO.	ML-4269
LOCATION	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: 5744' - 5764'

SJ: 6635' - 6656'

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	1	PCM	8250EA	11902197	FREE
1	1	TEL/CCL	8248ED	10407093	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: Wed Jun 27 15:51:27 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-12E/p354h03.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 2139.500 ft BOTTOM DEPTH: 2789.406 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

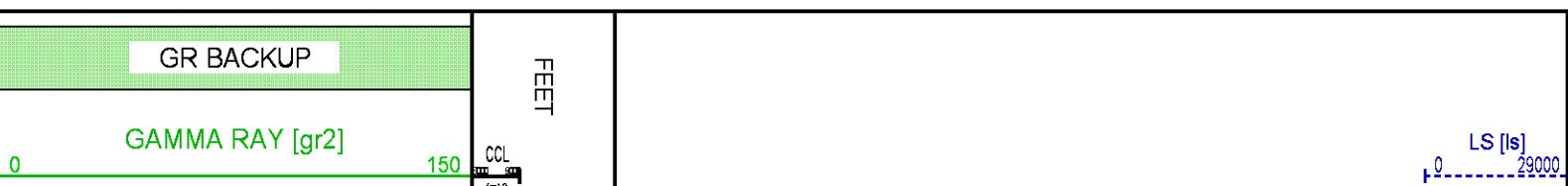
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR2	N/A	GAMMA RAY 2
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC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

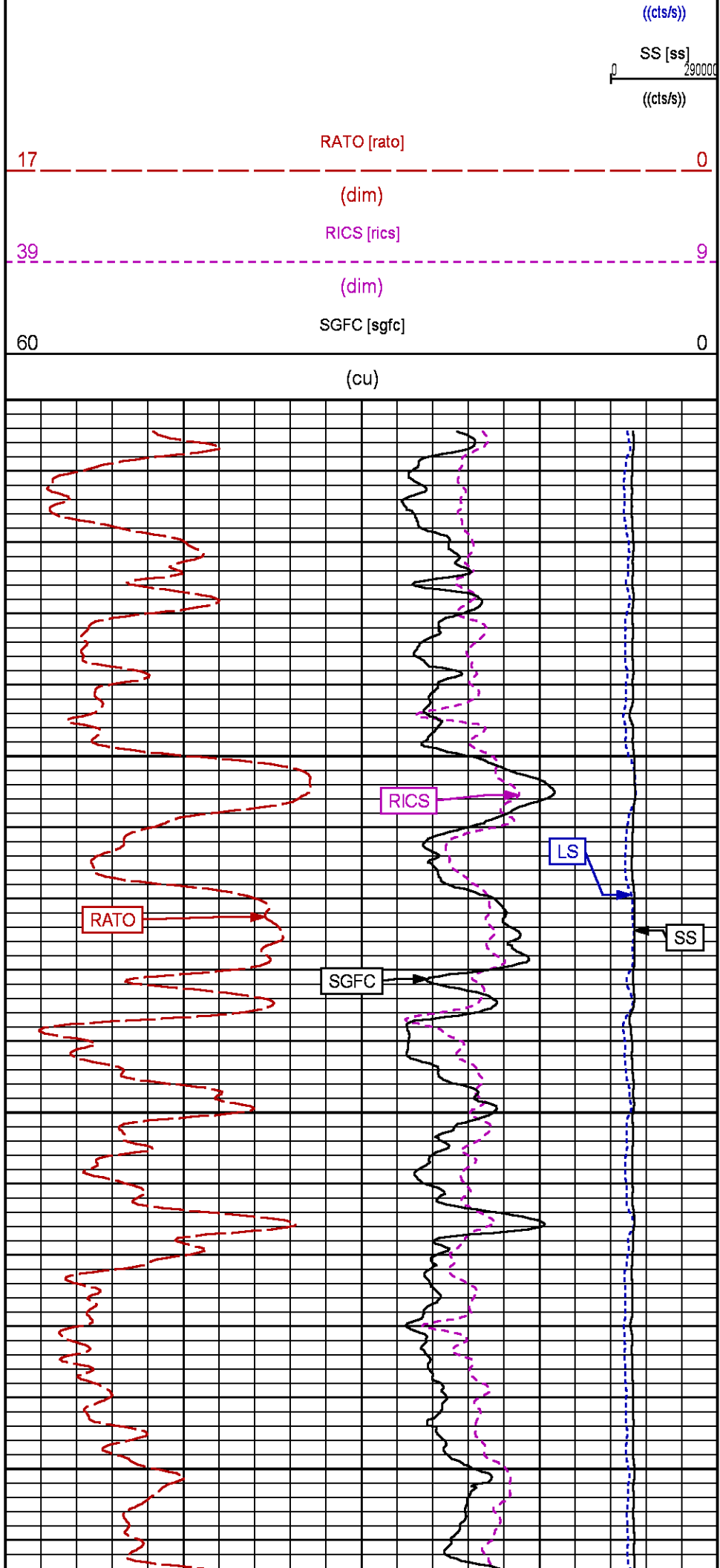
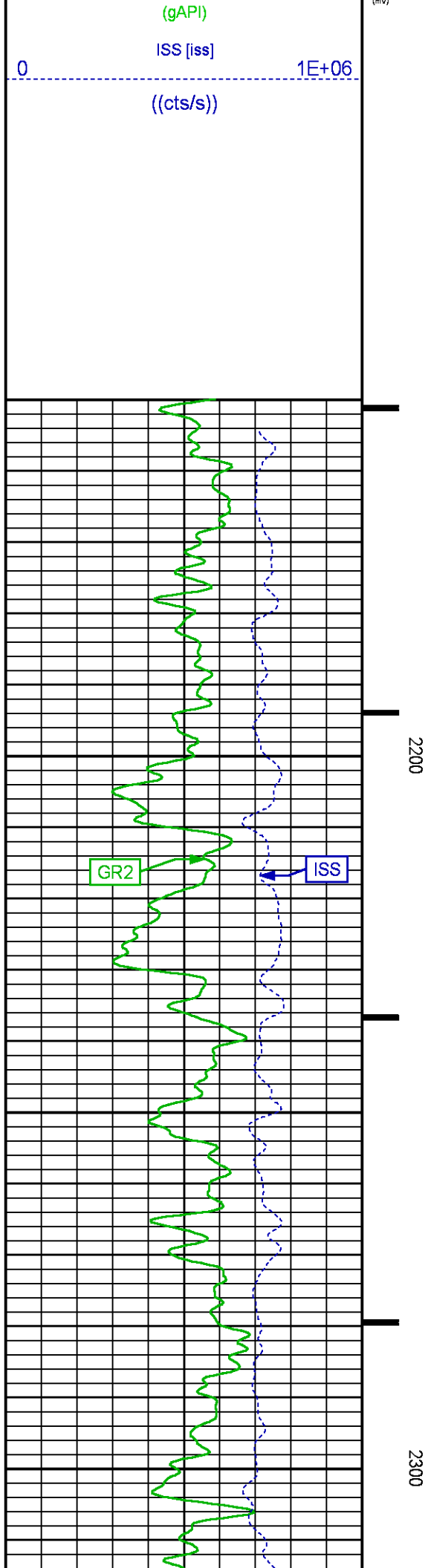
CURVE MEASURE POINT OFFSET

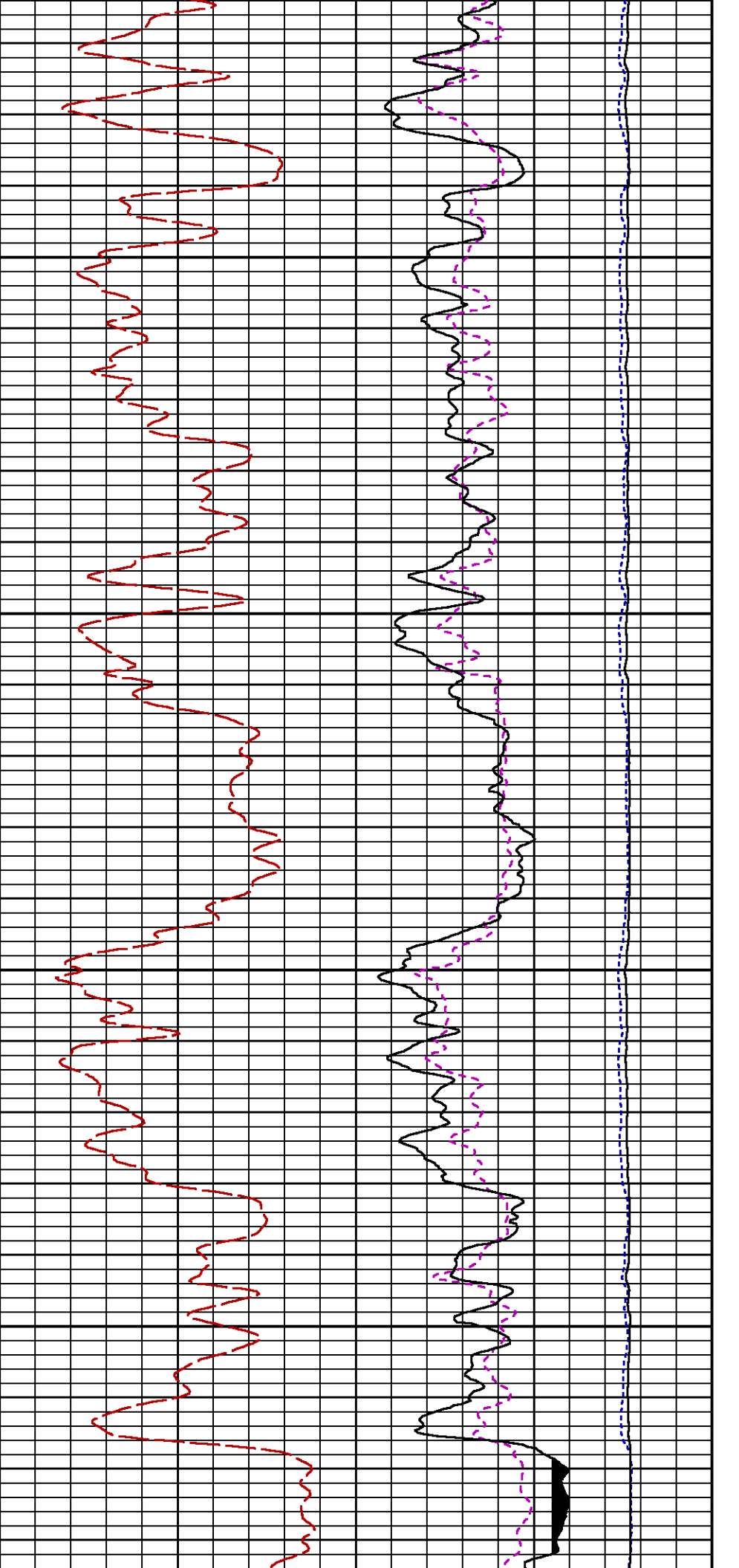
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-21.75	ISS	-9.50	RATO	-9.50	SGFC	-9.50
GR2	-19.25	LS	-9.50	RICS	-9.50	SS	-9.50

Presentation : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-12E/12E_RPM_GS.fvpdf [5"/100' Scale]
 Plot Interval : 2150 - 2770 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-12E/12E_RPM_GS.xtf
 Created On : N/A
 Company : LARAMIE ENERGY LLC
 Well : NICHOLS 0994-24-12E
 Field : VEGA
 File Interval : 2128.75 - 2795.75 Feet
 OCT : p354h

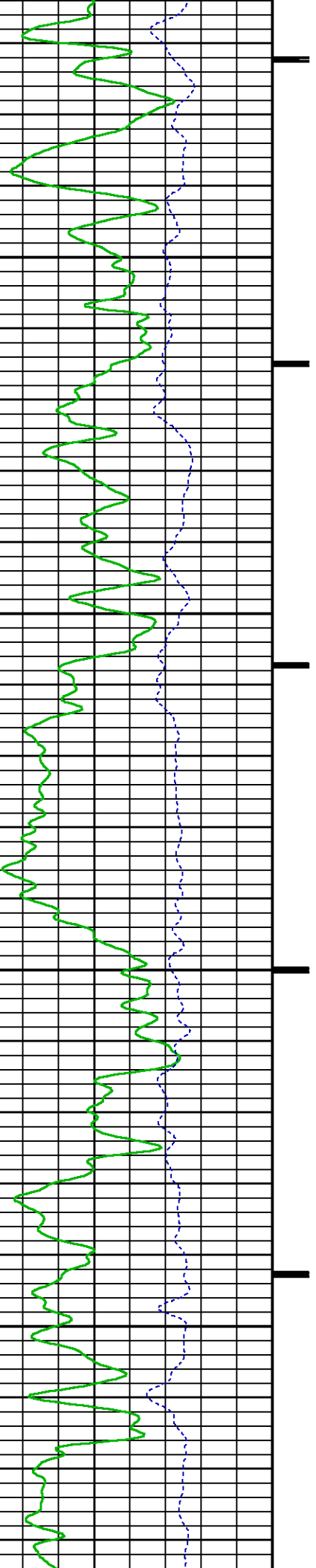


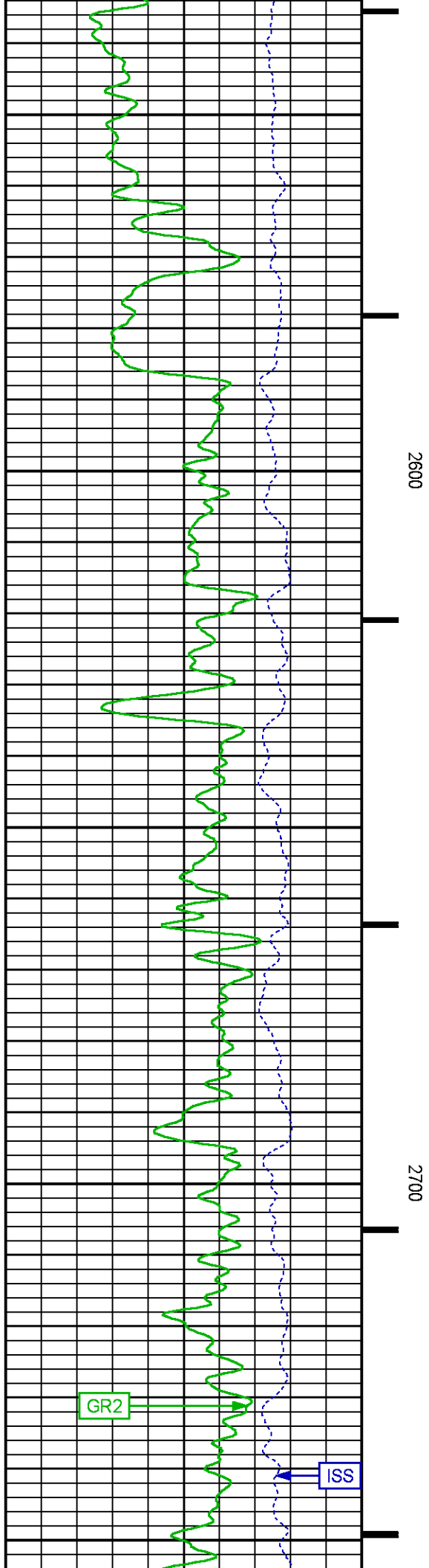
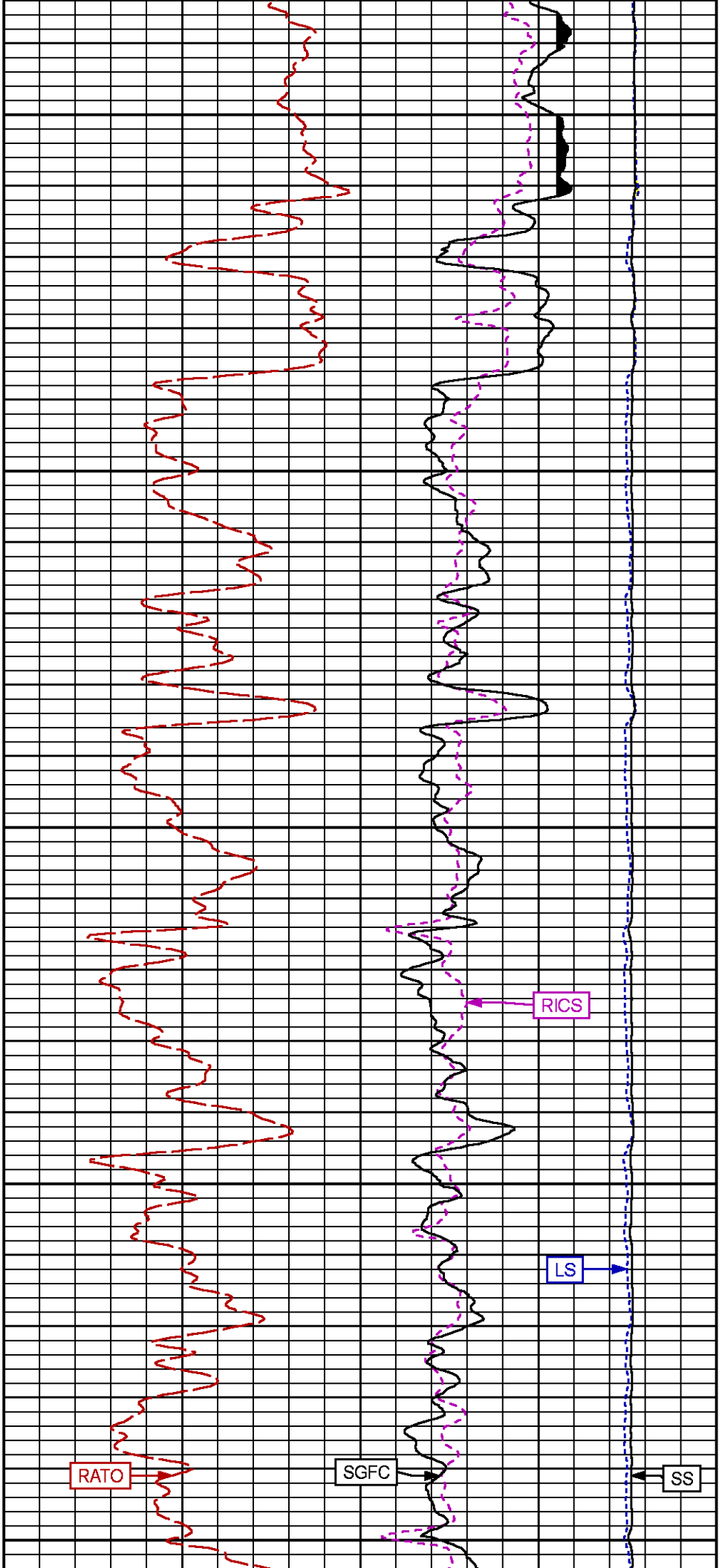


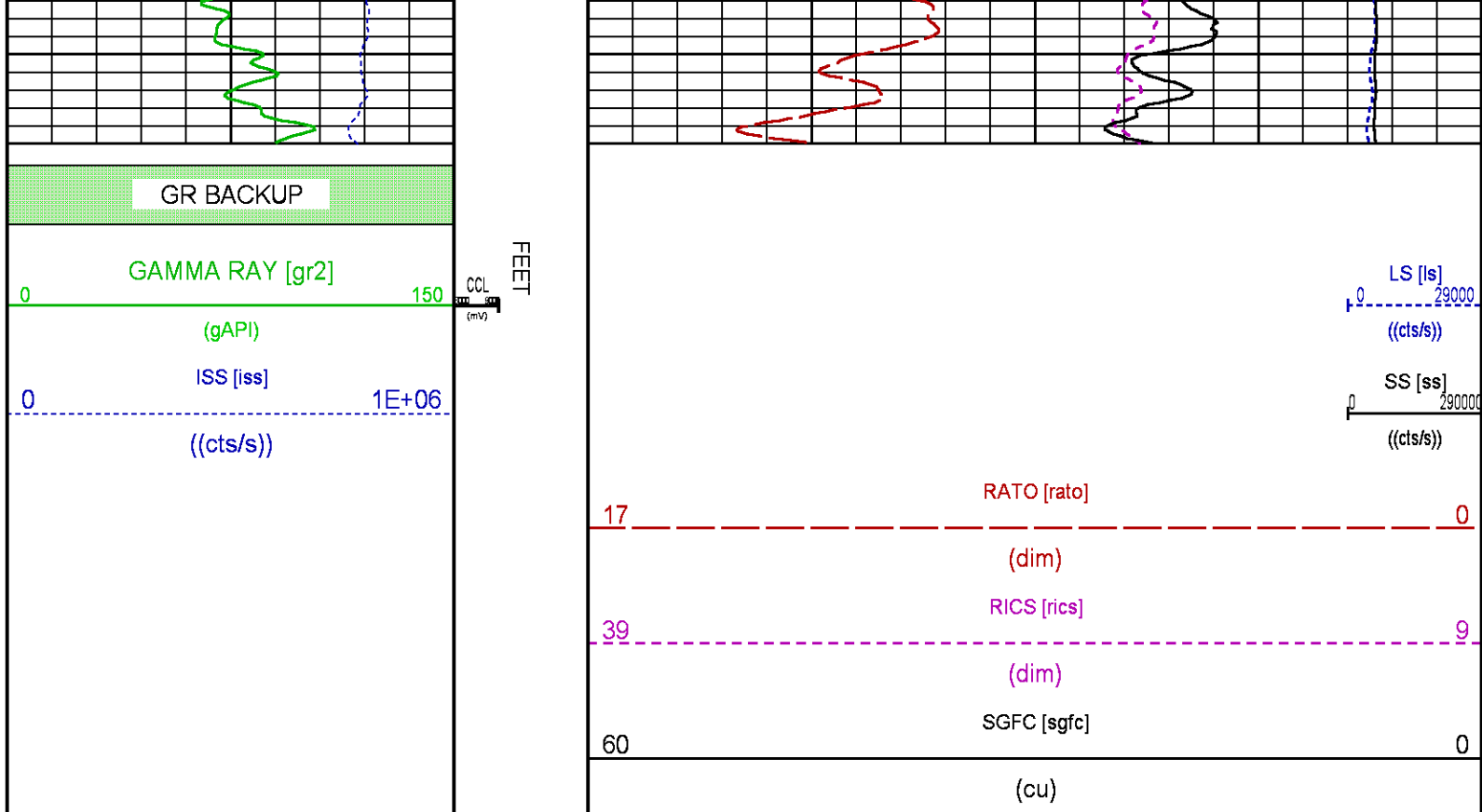


2400

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: Wed Jun 27 15:15:54 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-12E/p354h02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4045.745 ft BOTTOM DEPTH: 7487.189 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

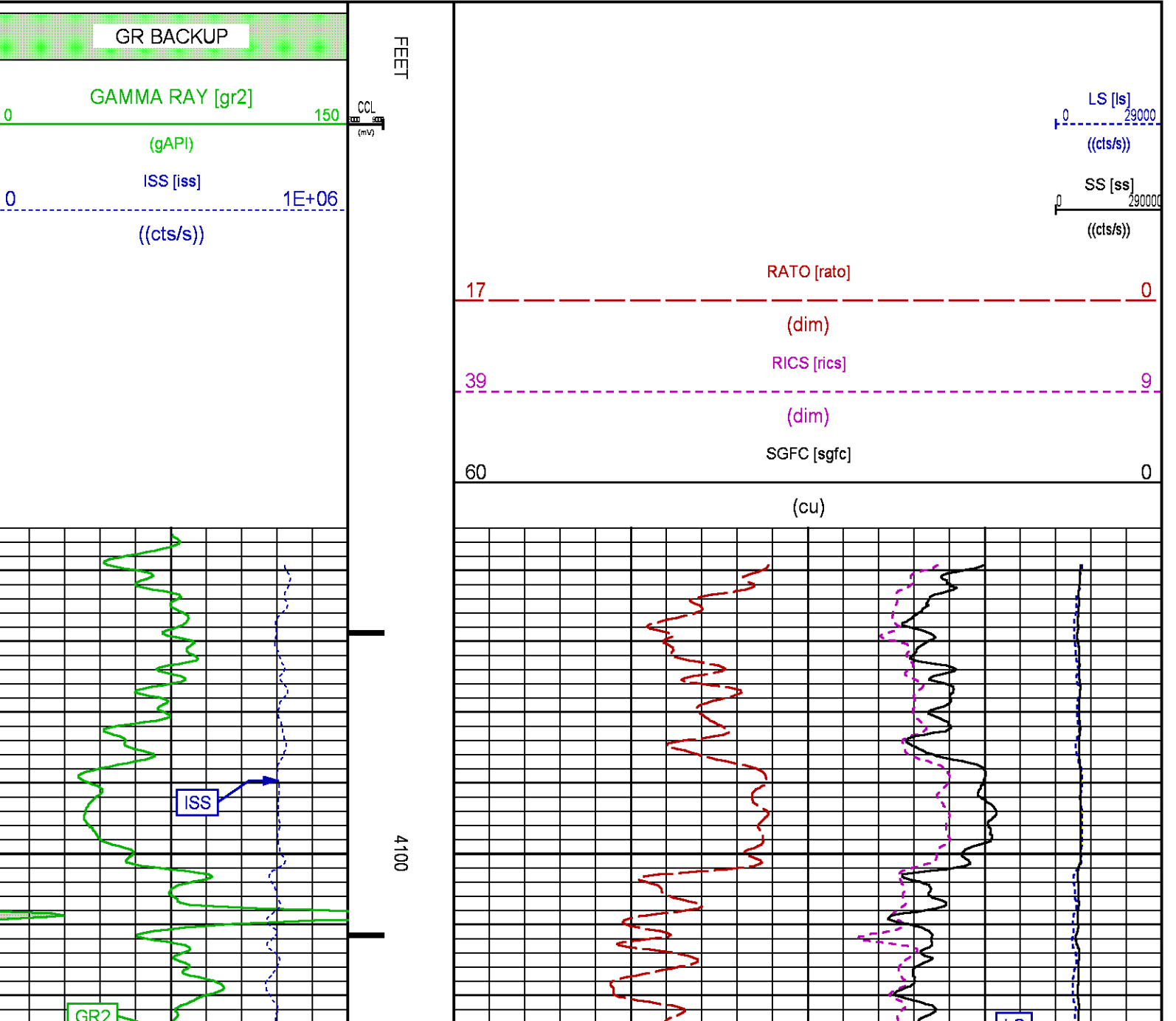
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	-21.75	ISS	-9.50	RATO	-9.50	SGFC	-9.50
GR2	-19.25	LS	-9.50	RICS	-9.50	SS	-9.50

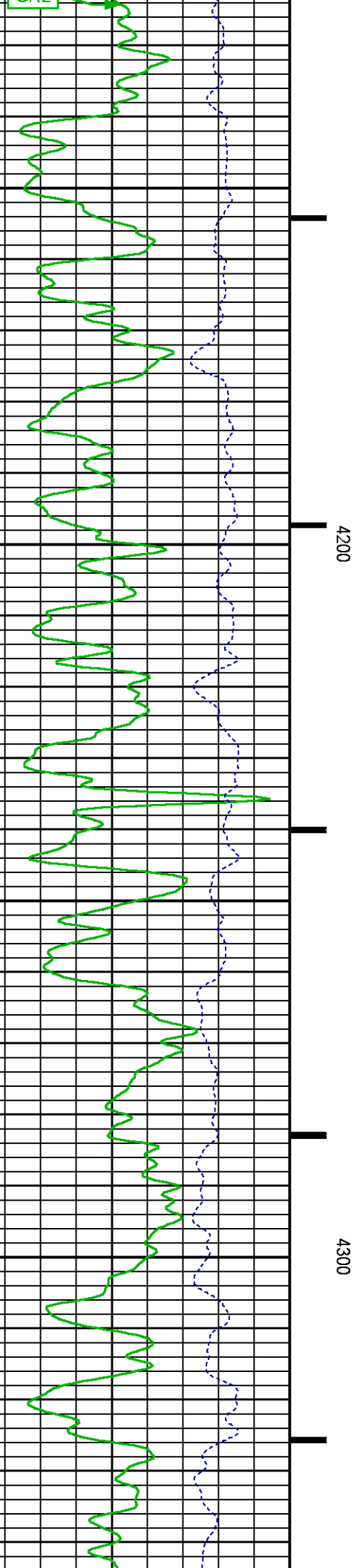
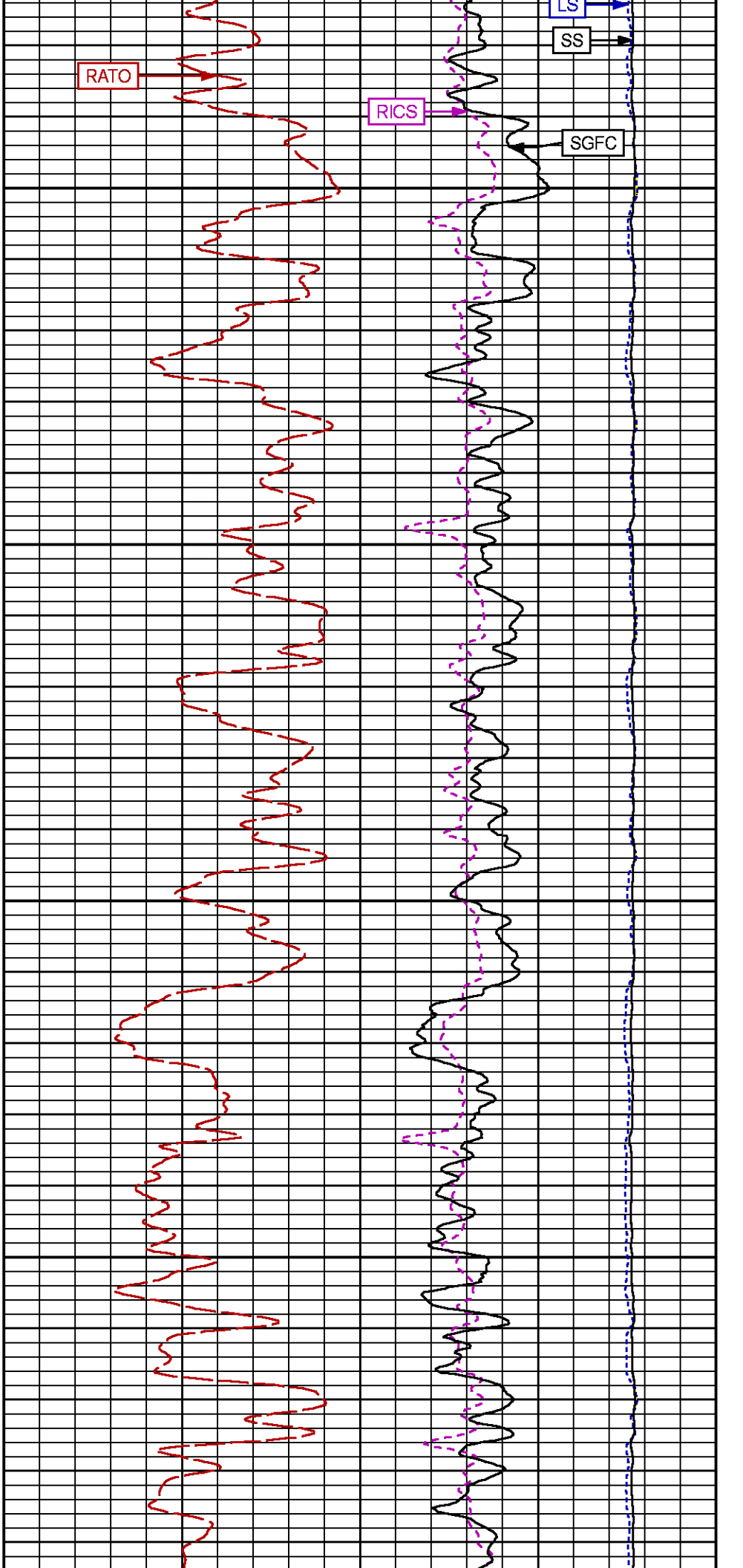
Presentation
Plot Interval

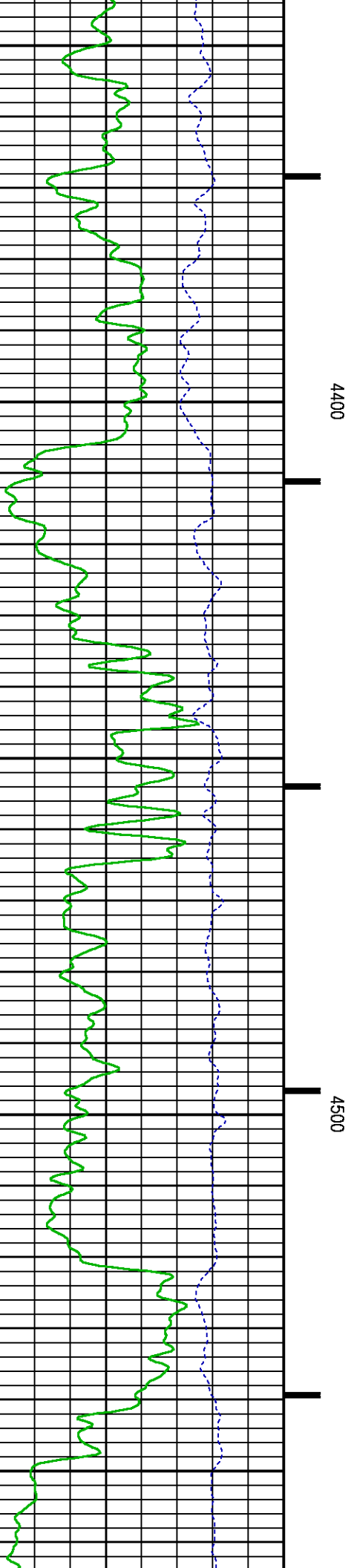
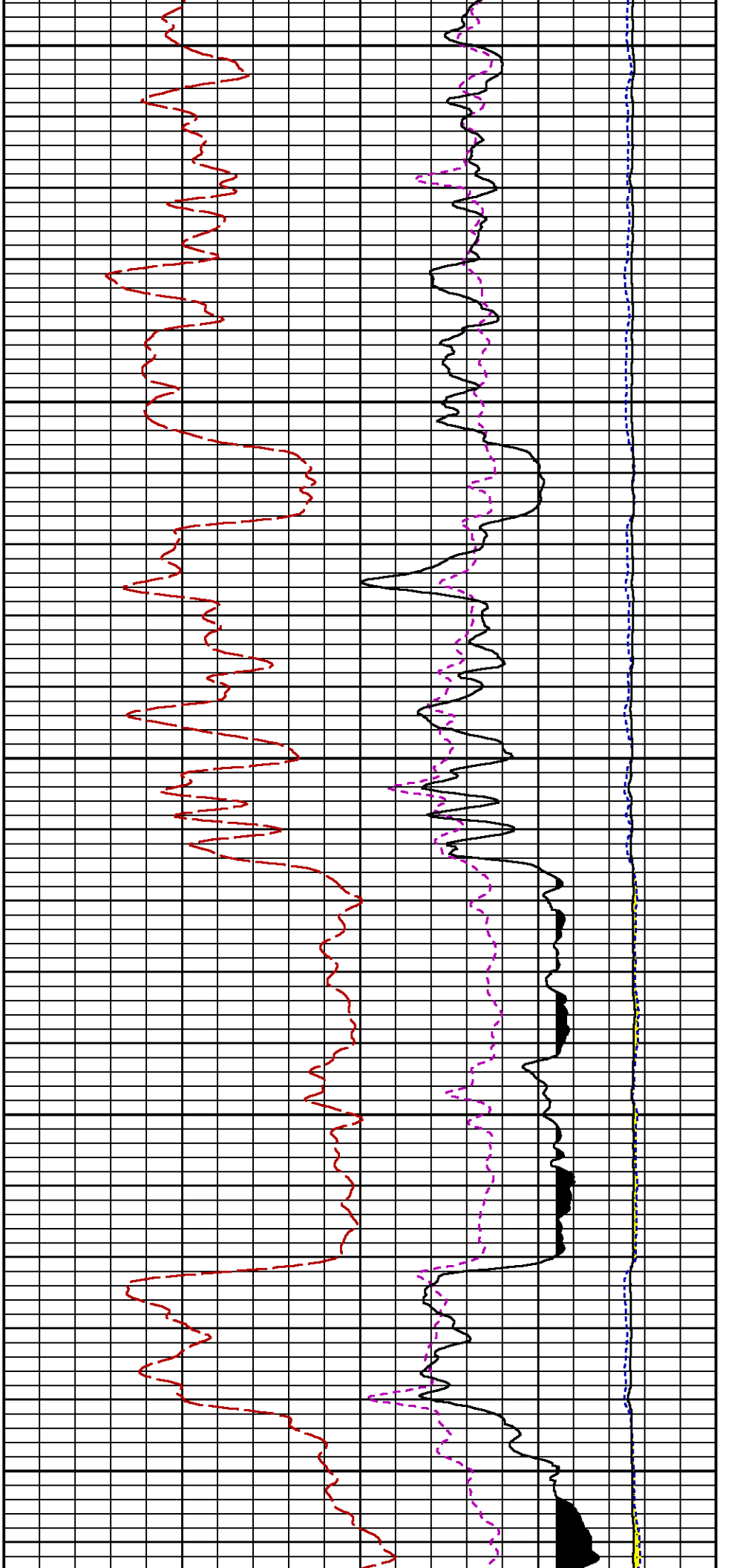
: SysA:/dat1a/LARAMIE_NICHOLS_0994-24-12E/12E_RPM_WF.fvpdf [5"/100' Scale]
: 4055 - 7492.5 Feet

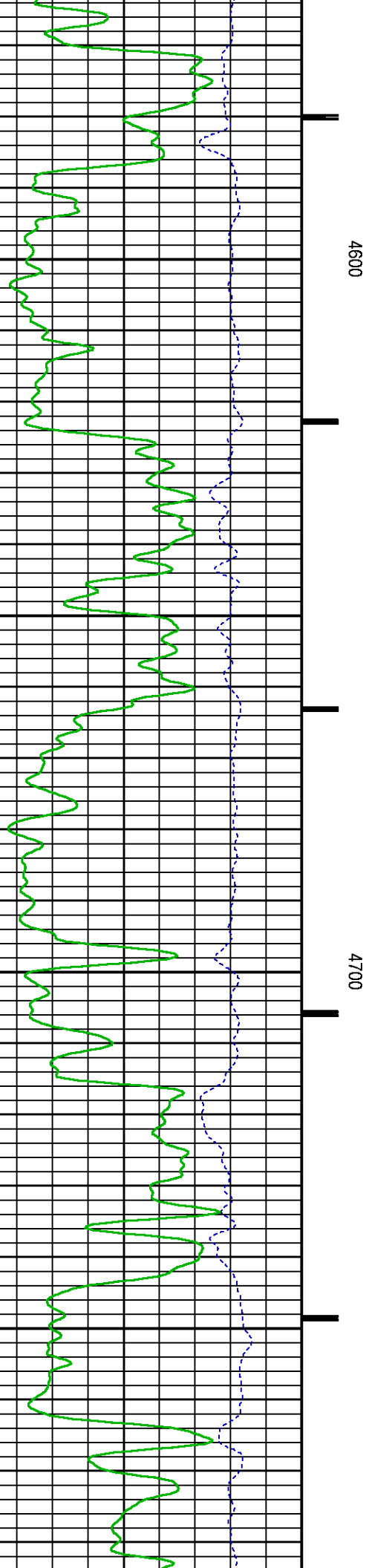
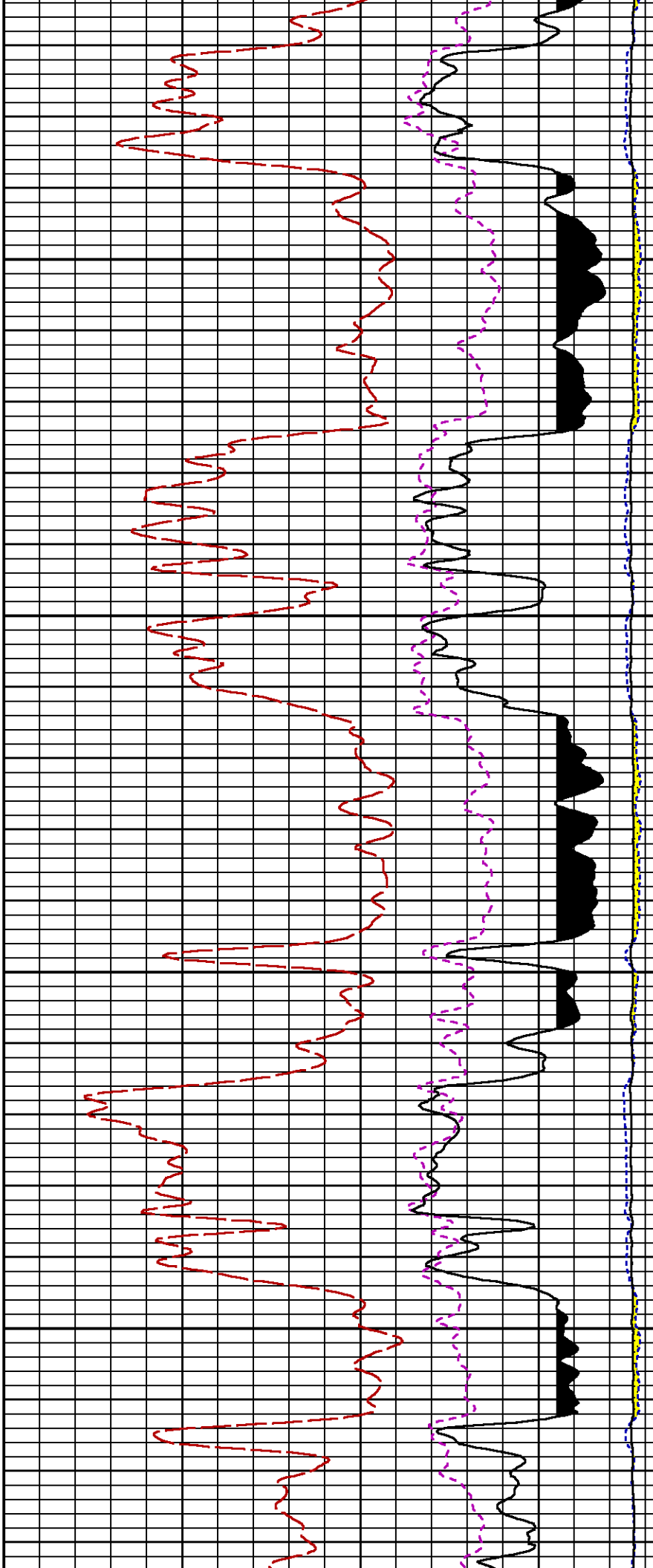
Data File 1
Created On
Company
Well
Field
File Interval
OCT

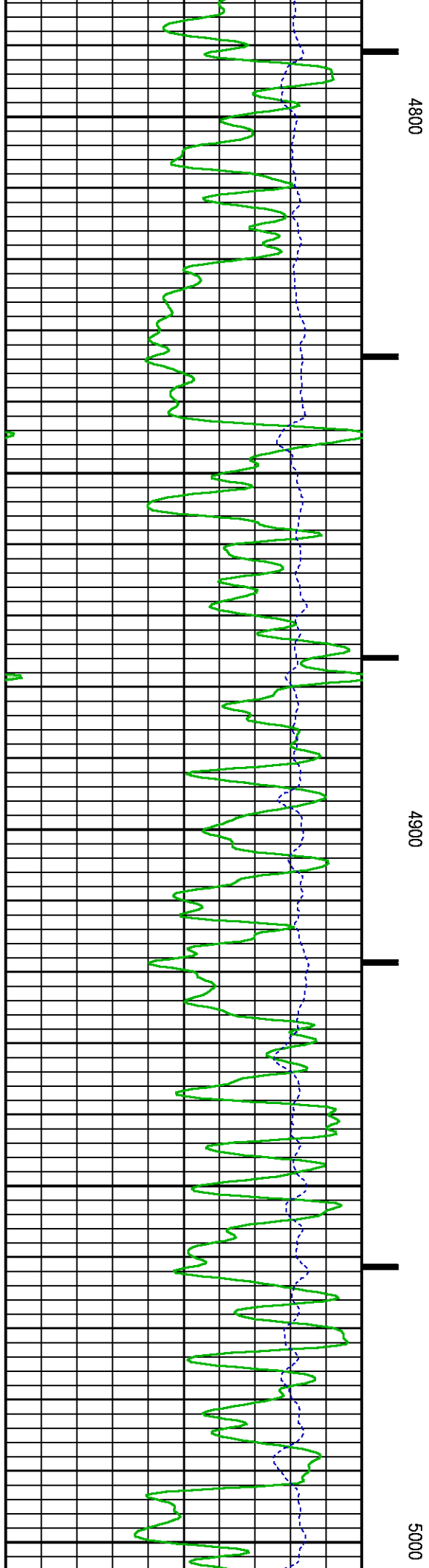
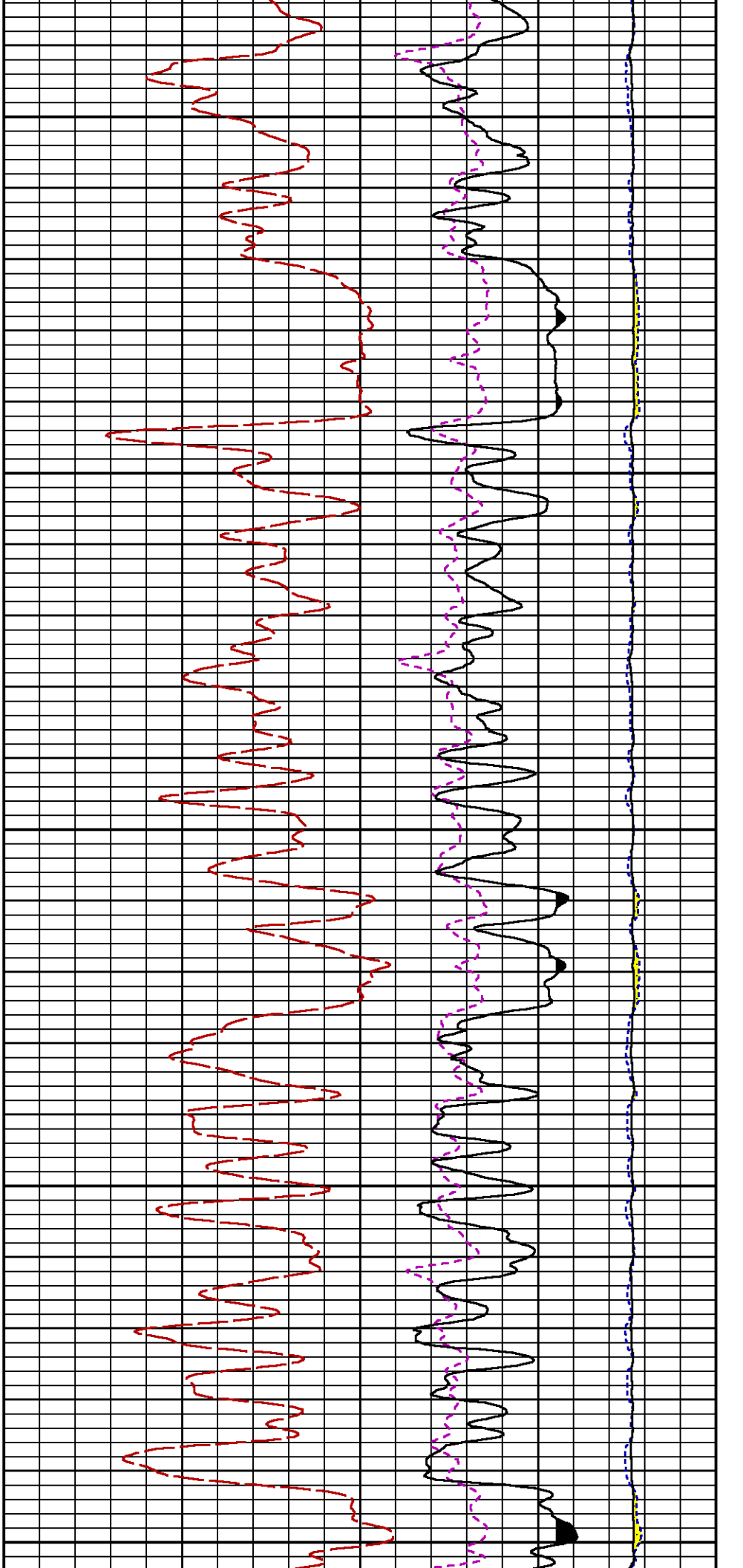
: F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-12E/12E_RPM_WF.xtf
: N/A
: LARAMIE ENERGY LLC
: NICHOLS 0994-24-12E
: VEGA
: 4033.5 - 7492.75 Feet
: p354h

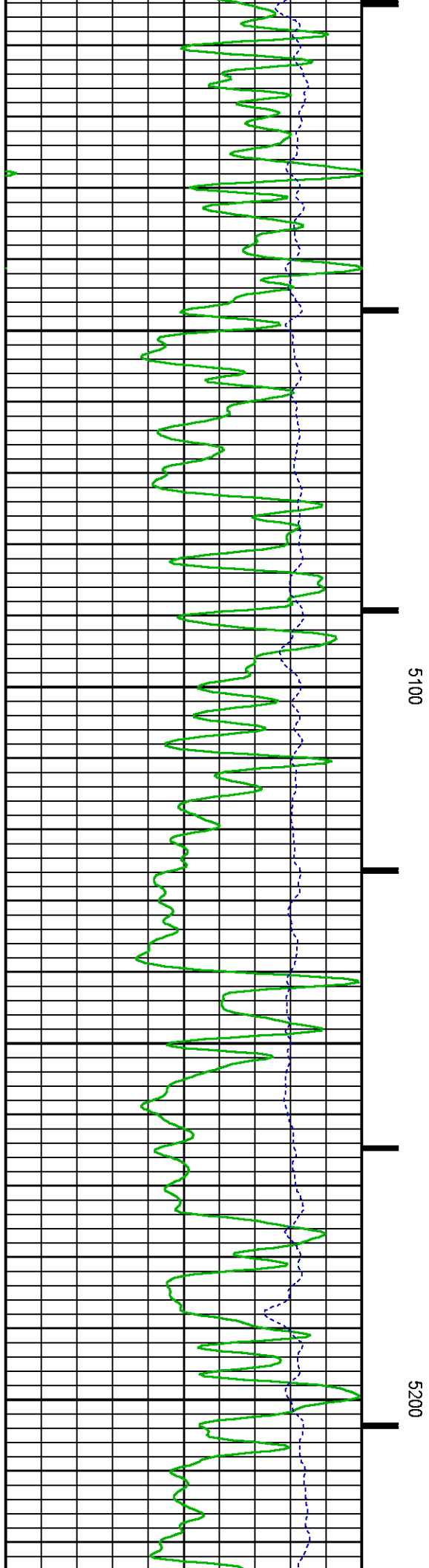
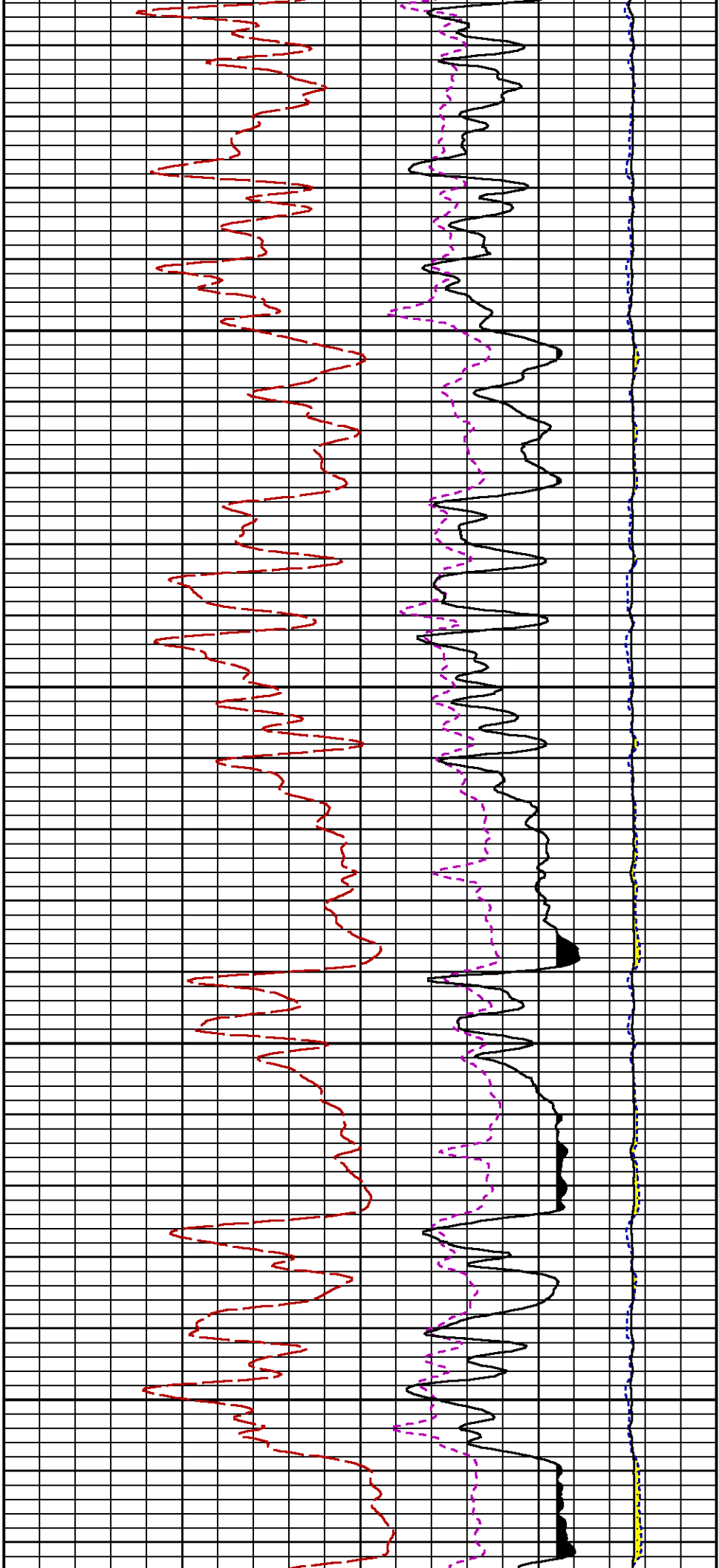


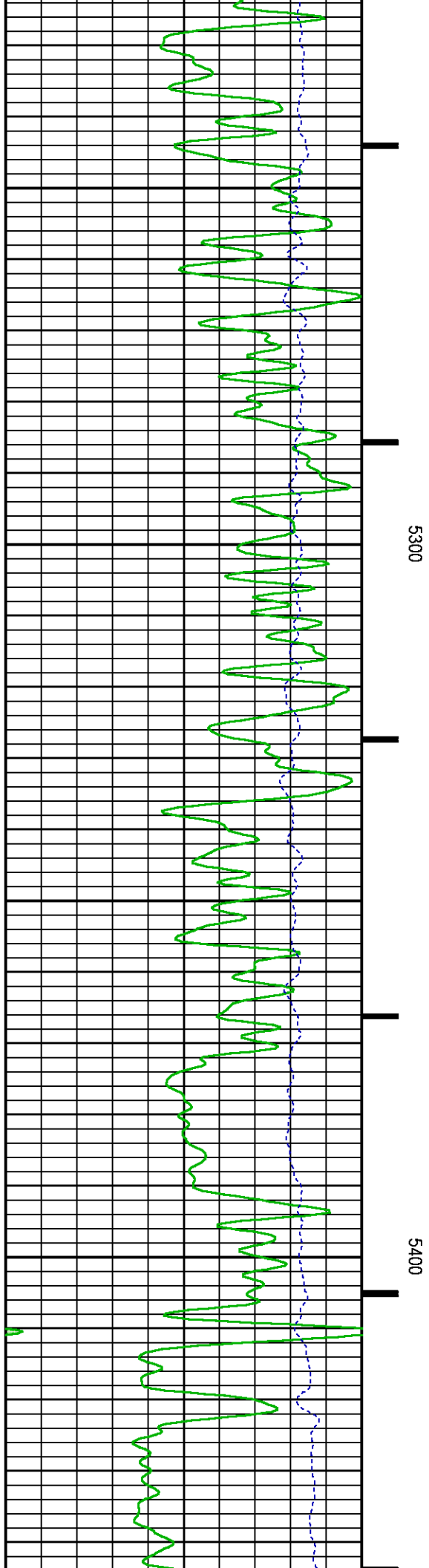
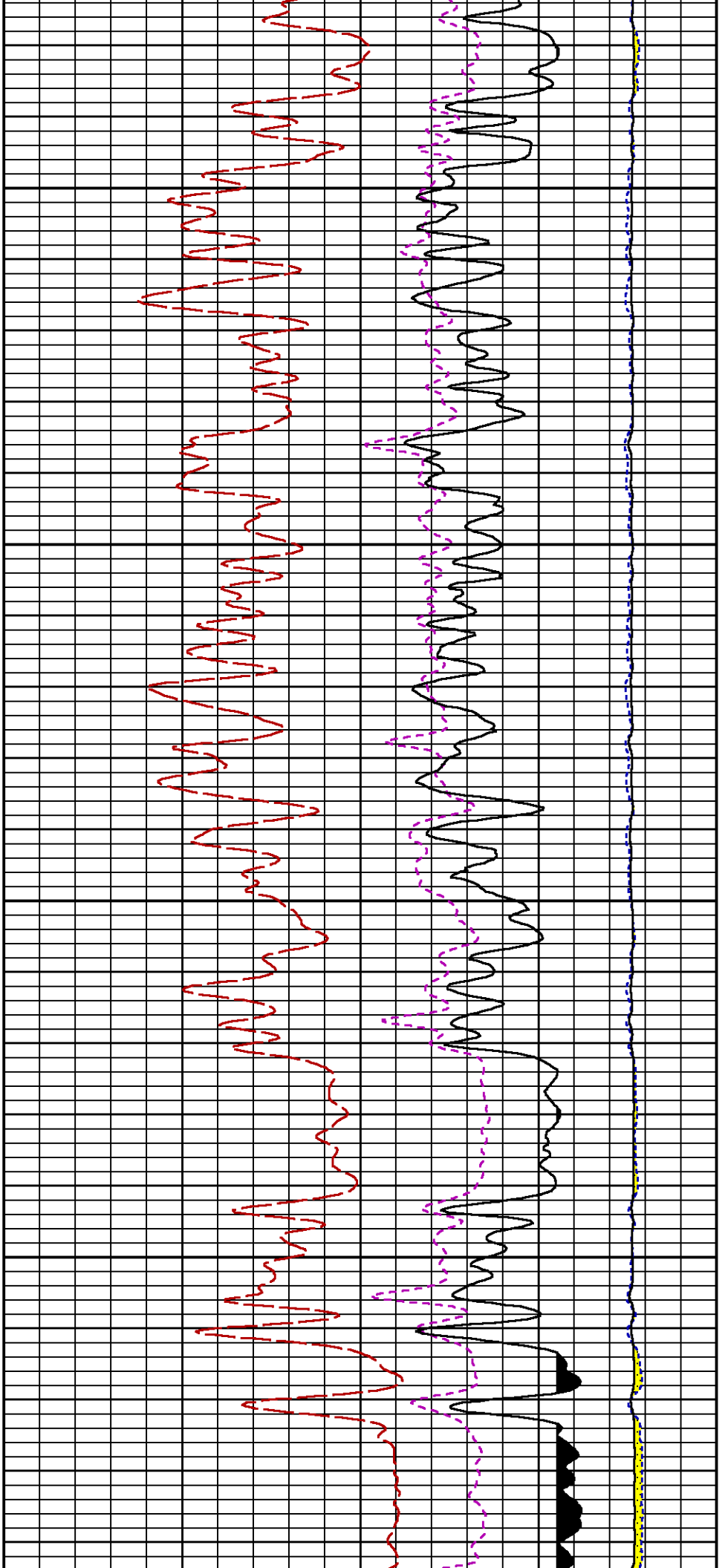


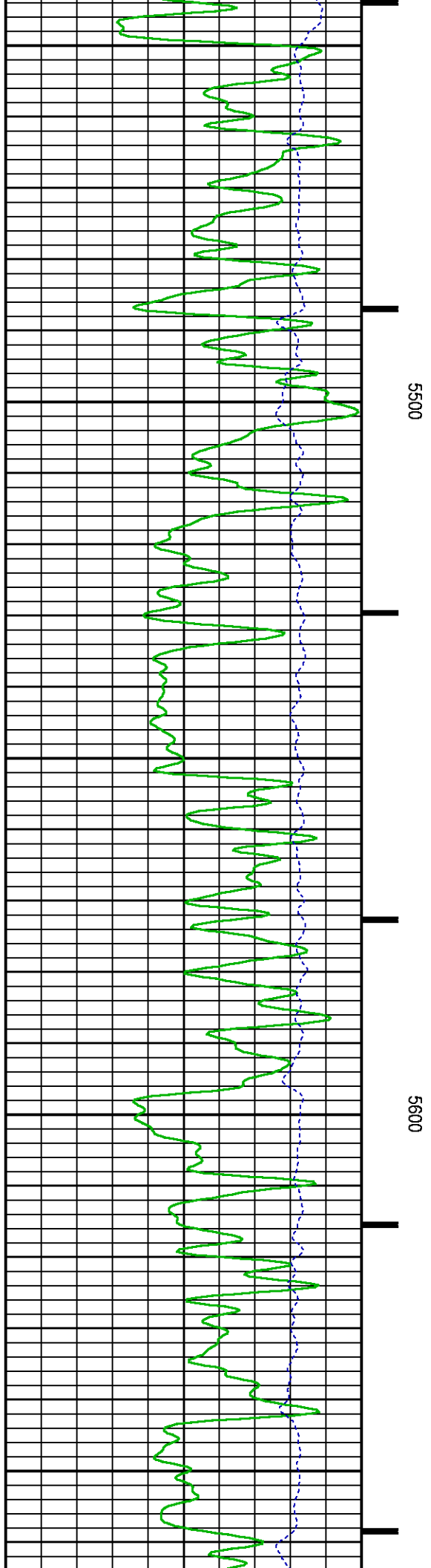
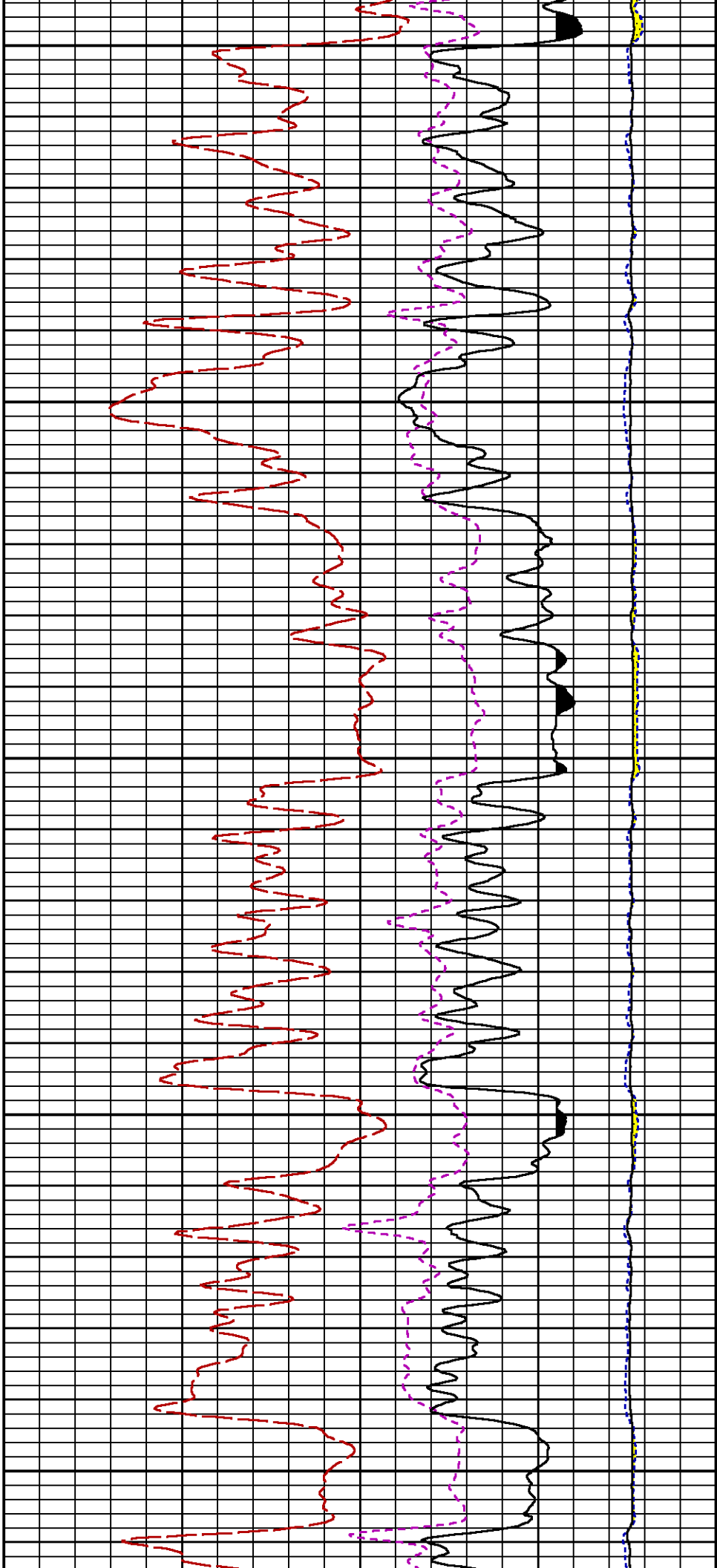


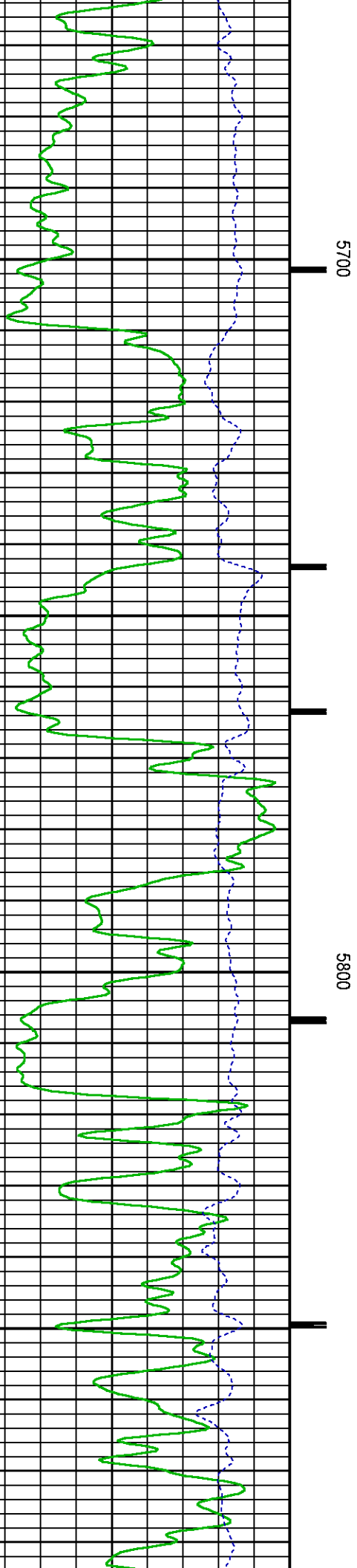
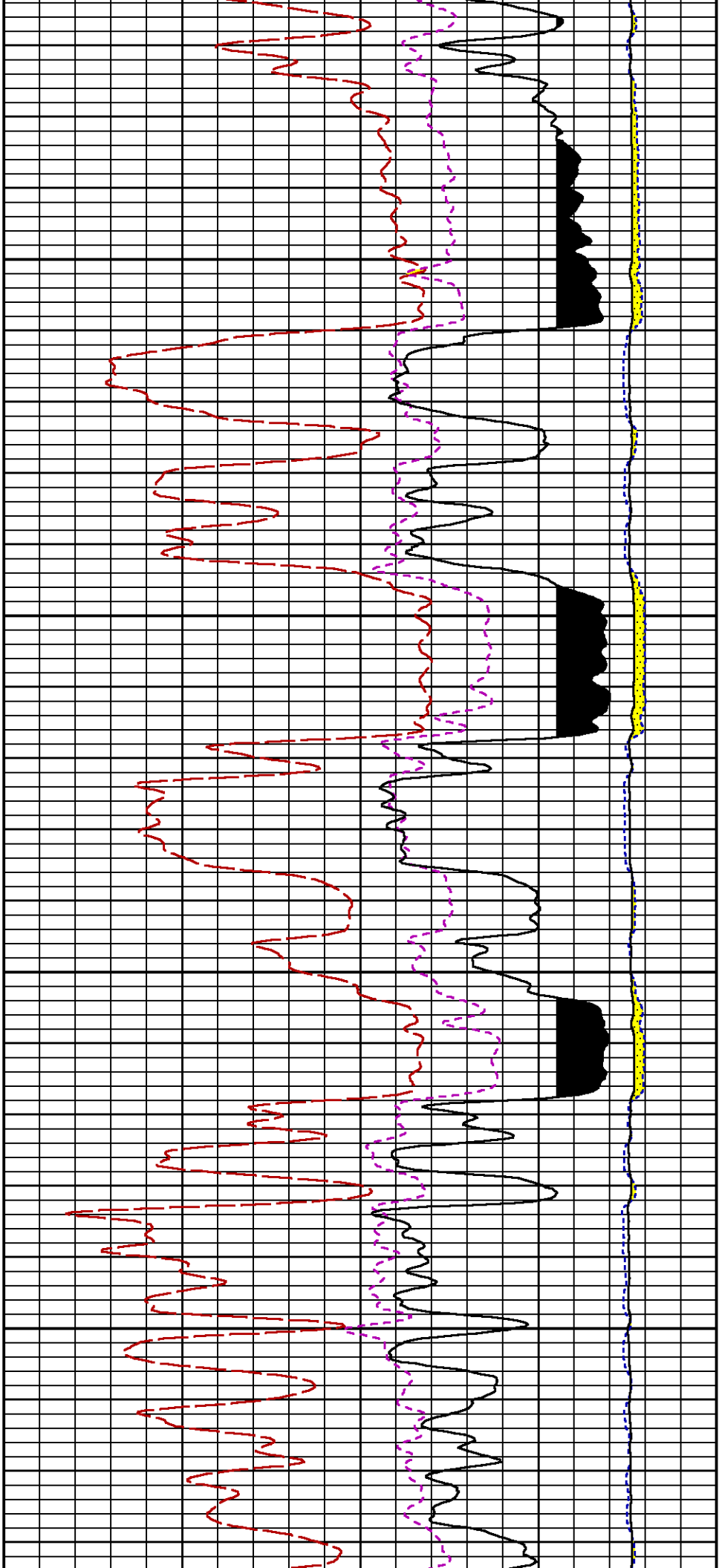


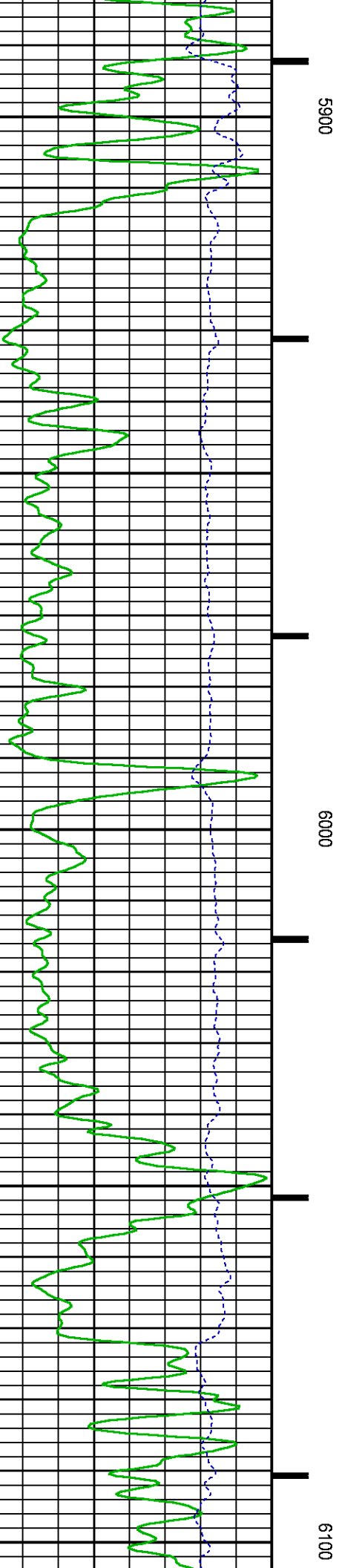
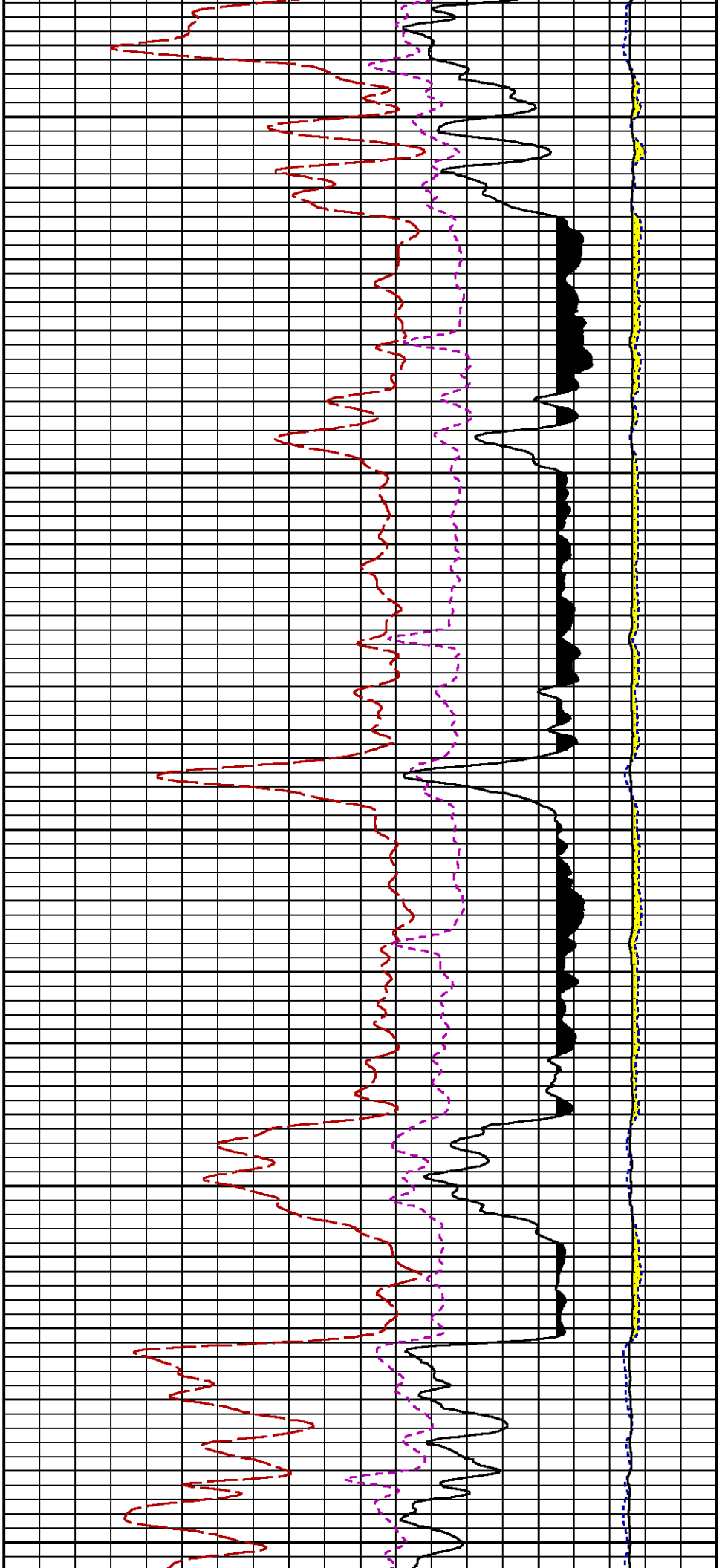


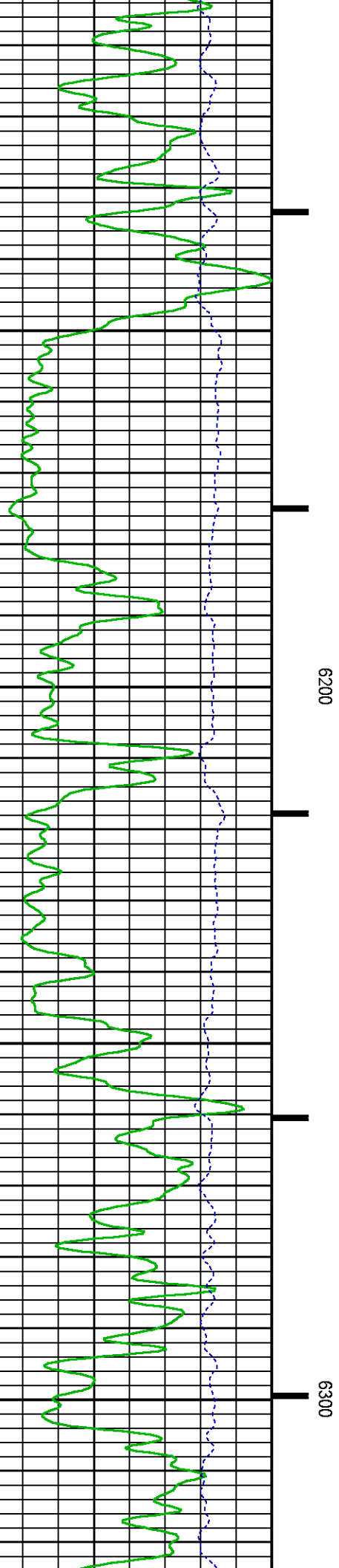
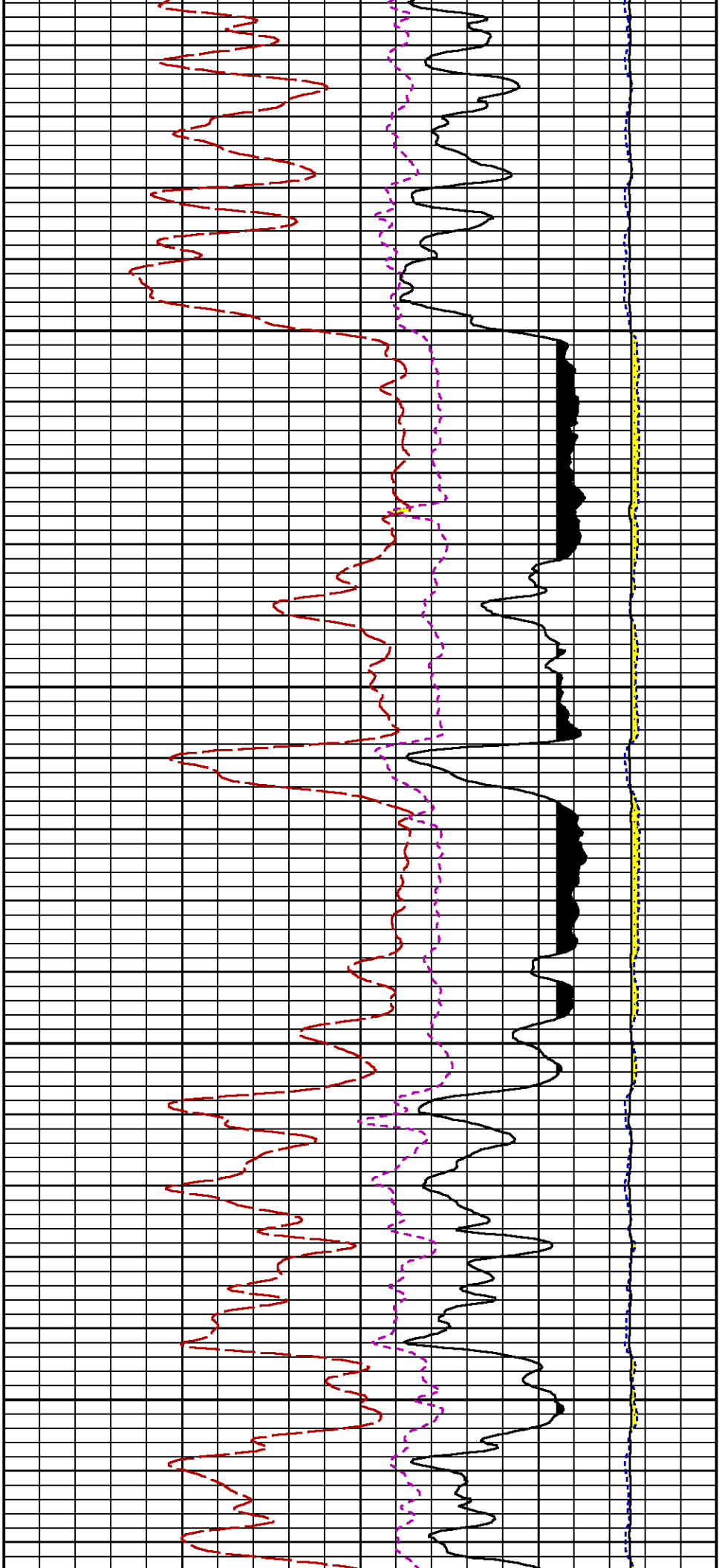


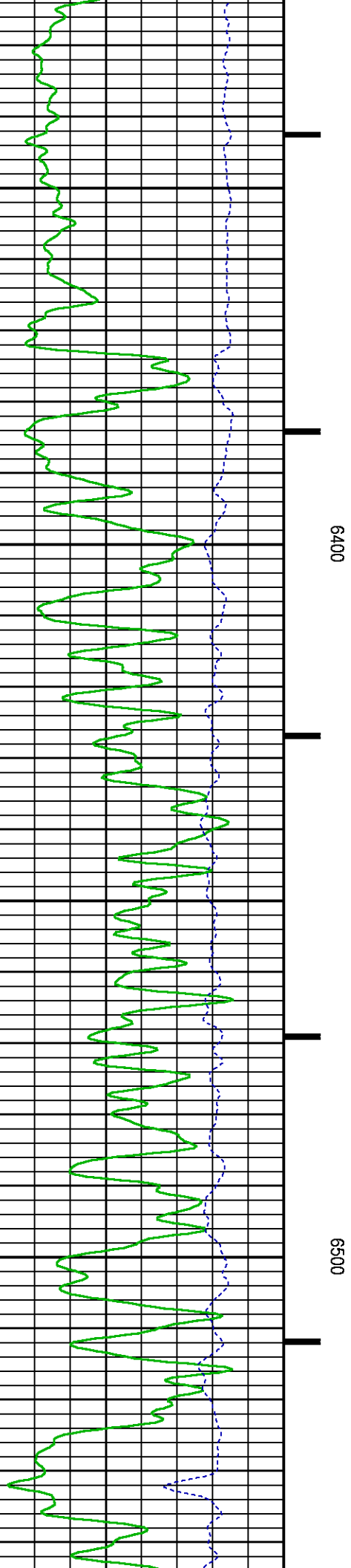
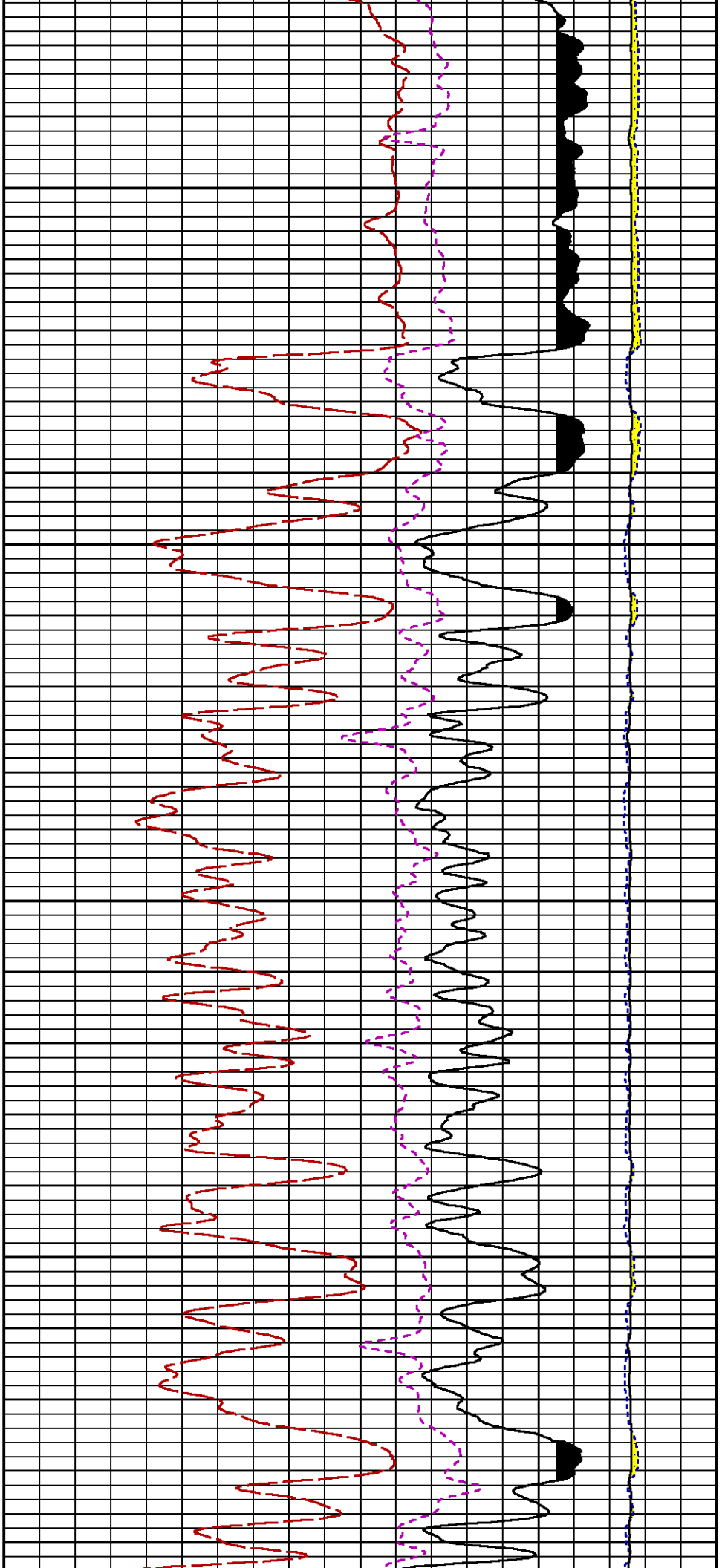


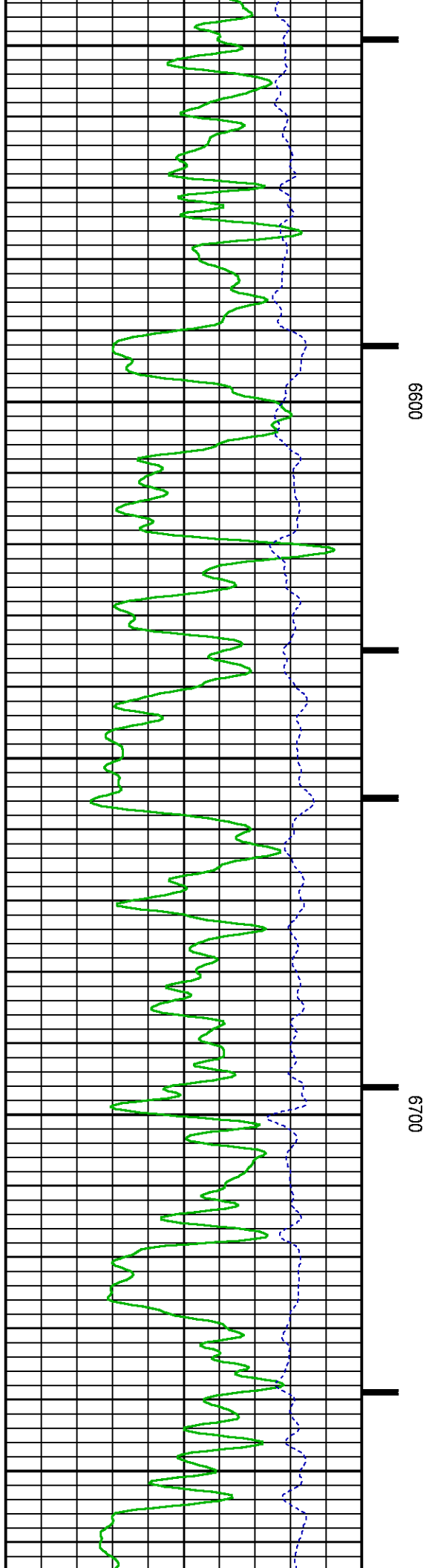
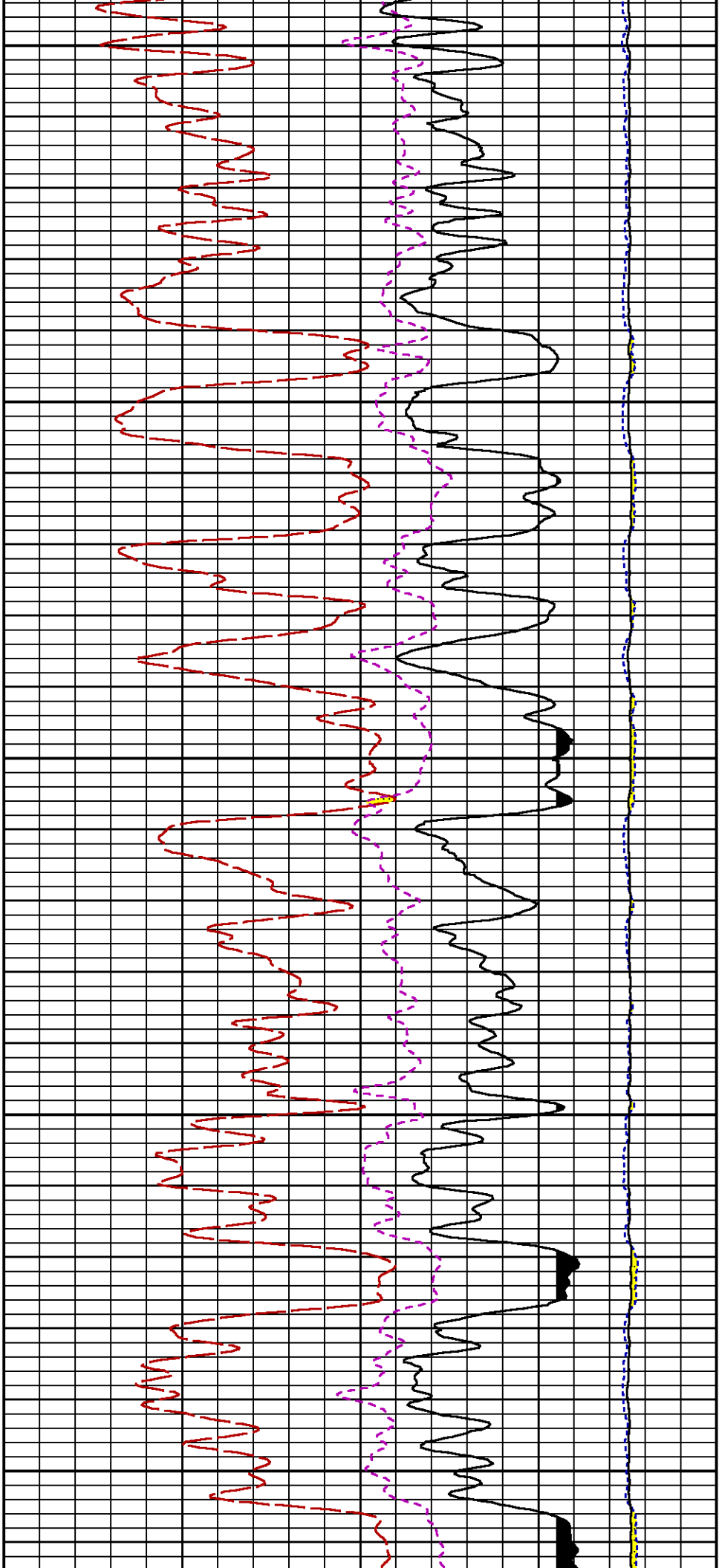


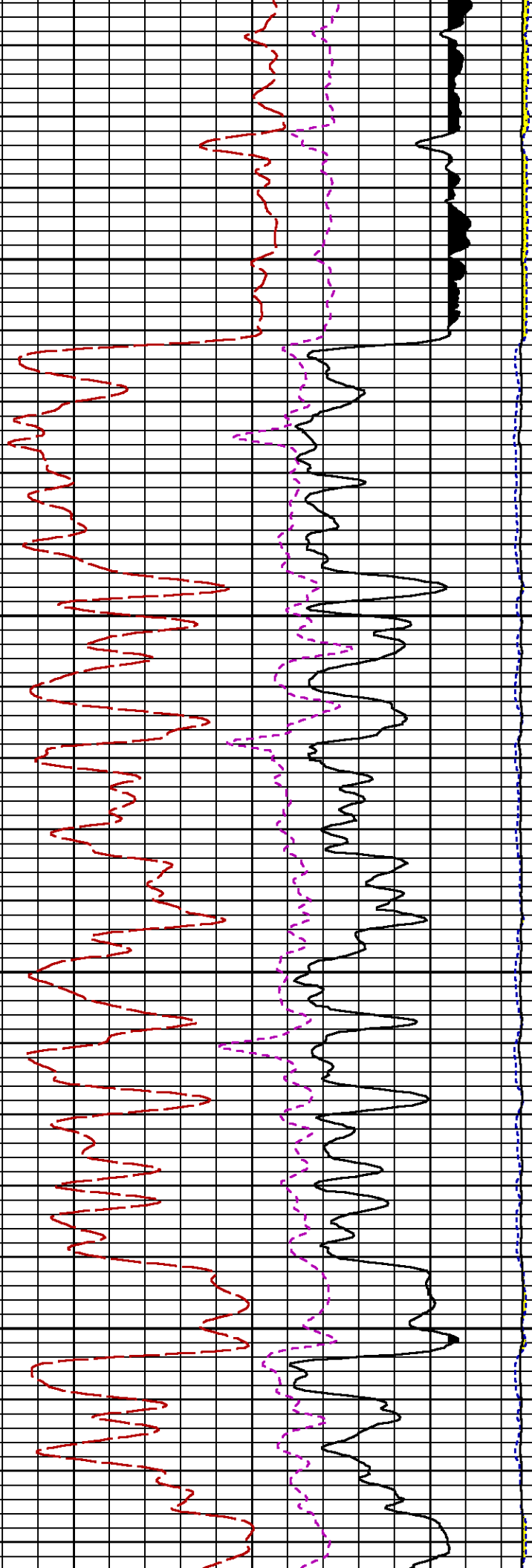
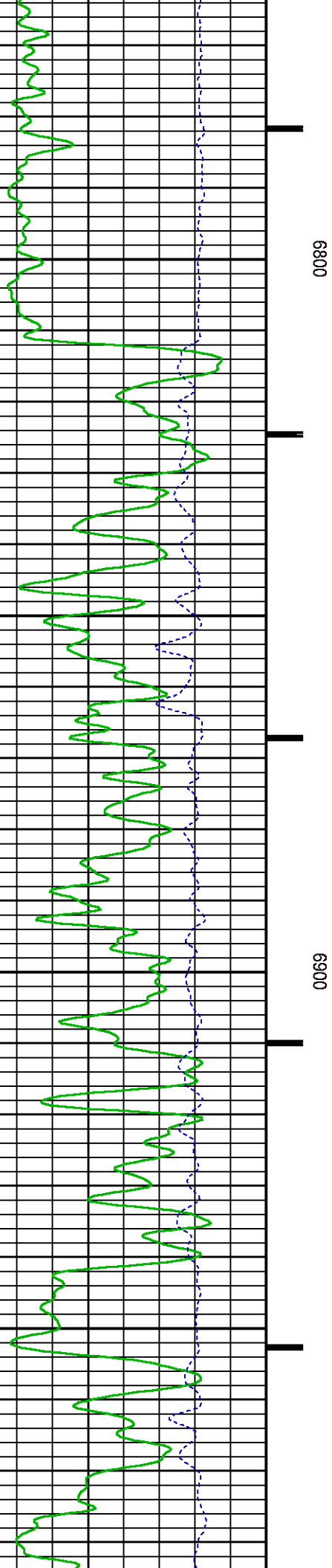


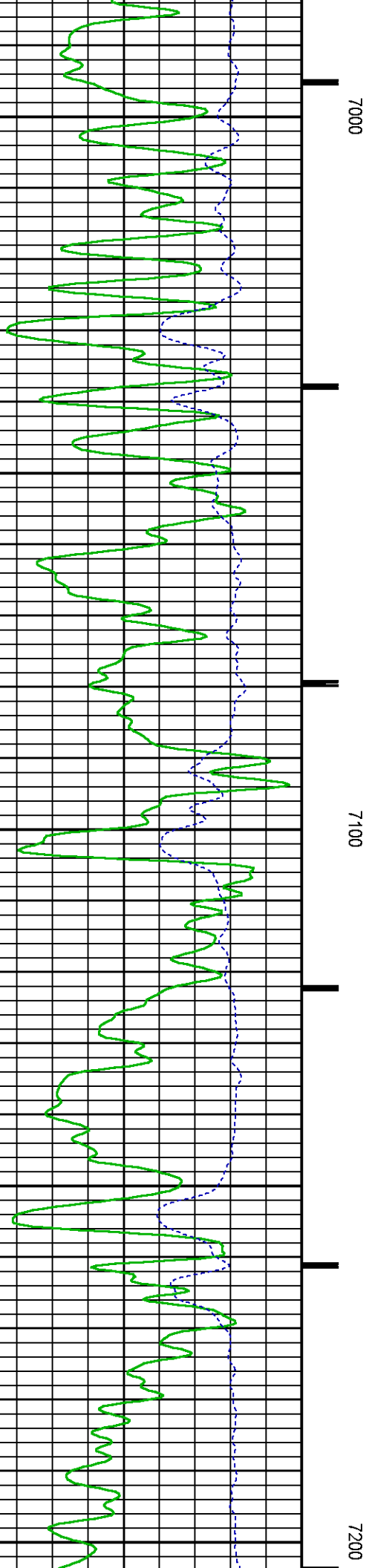
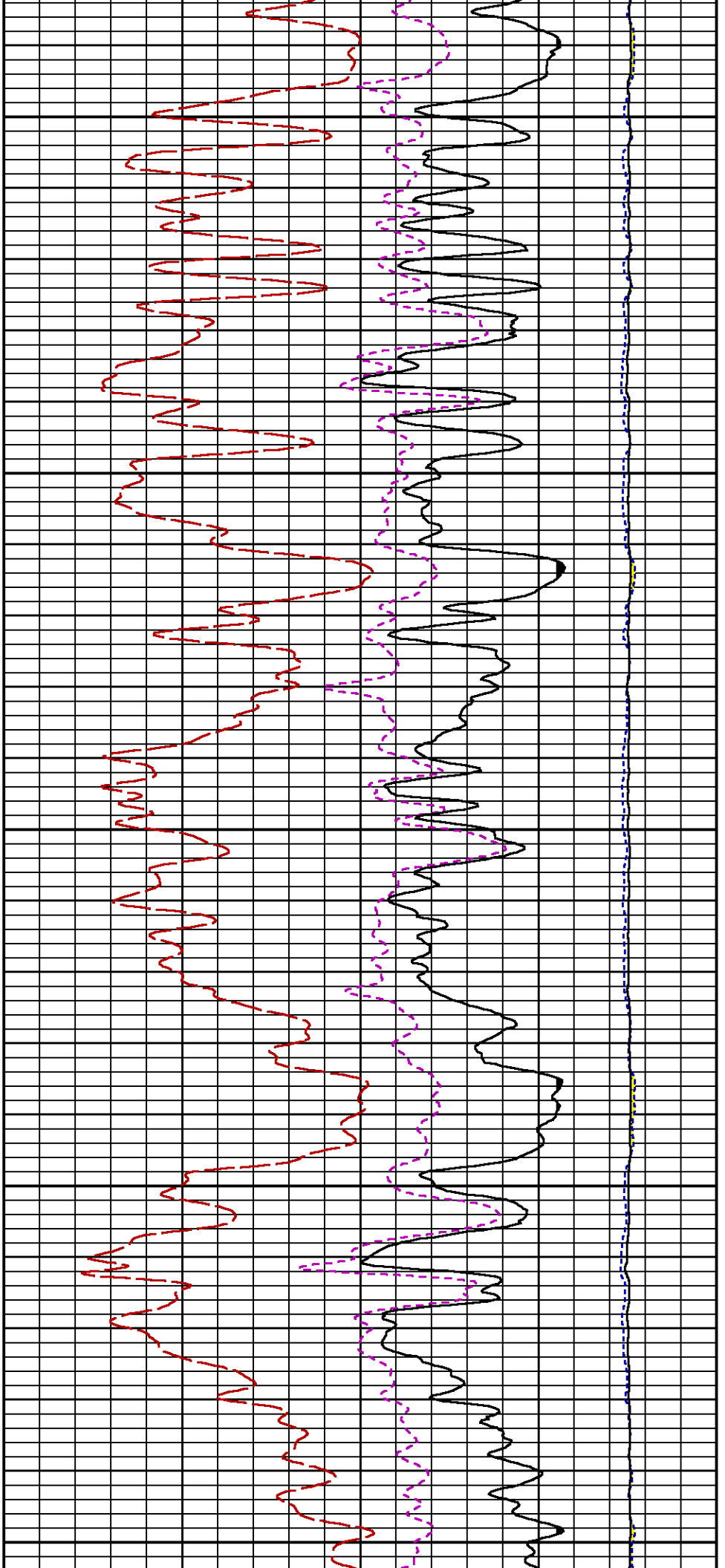


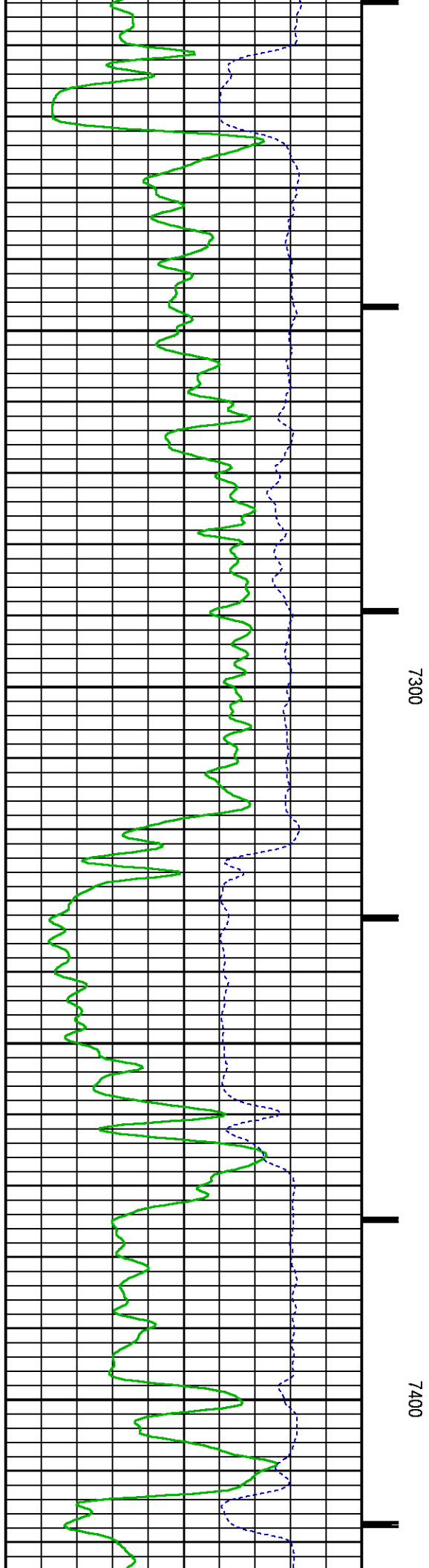
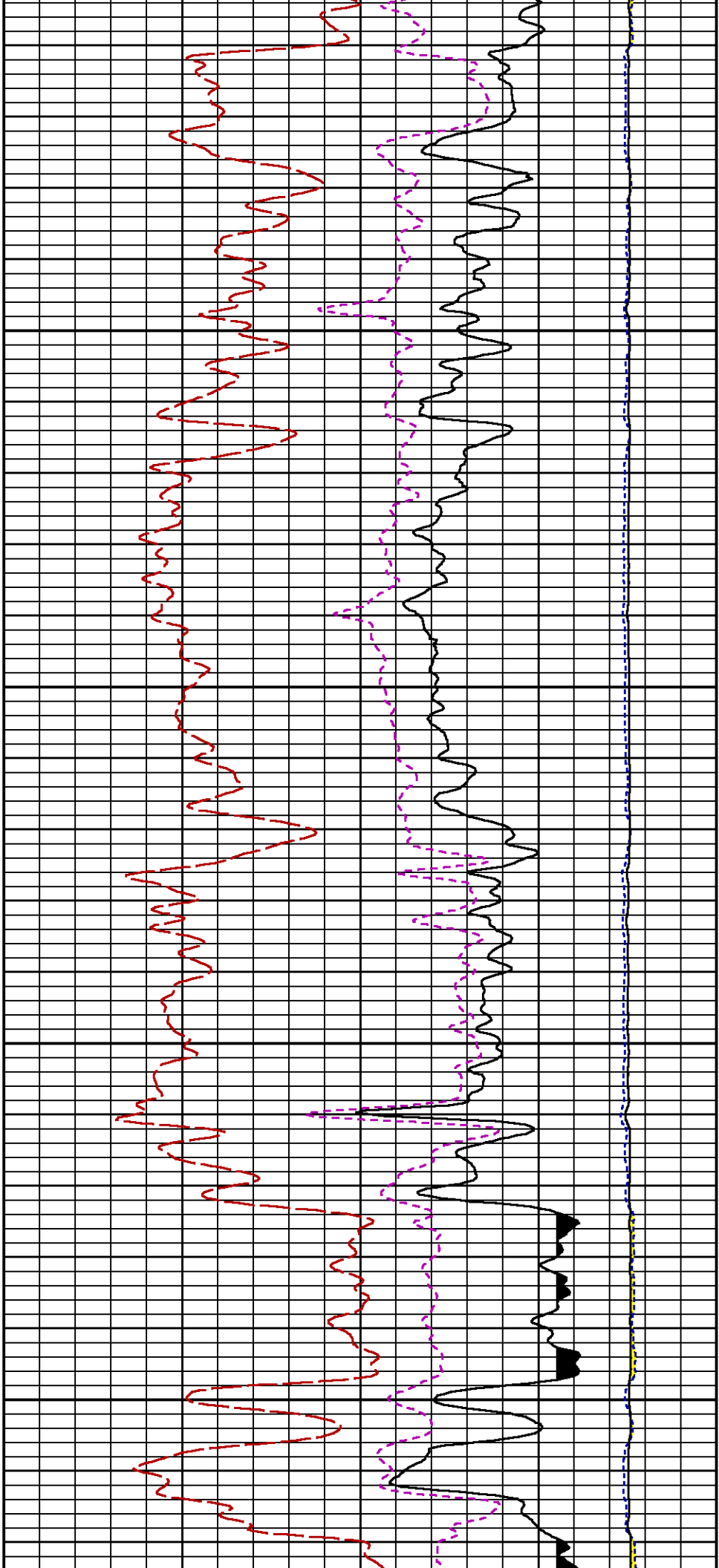


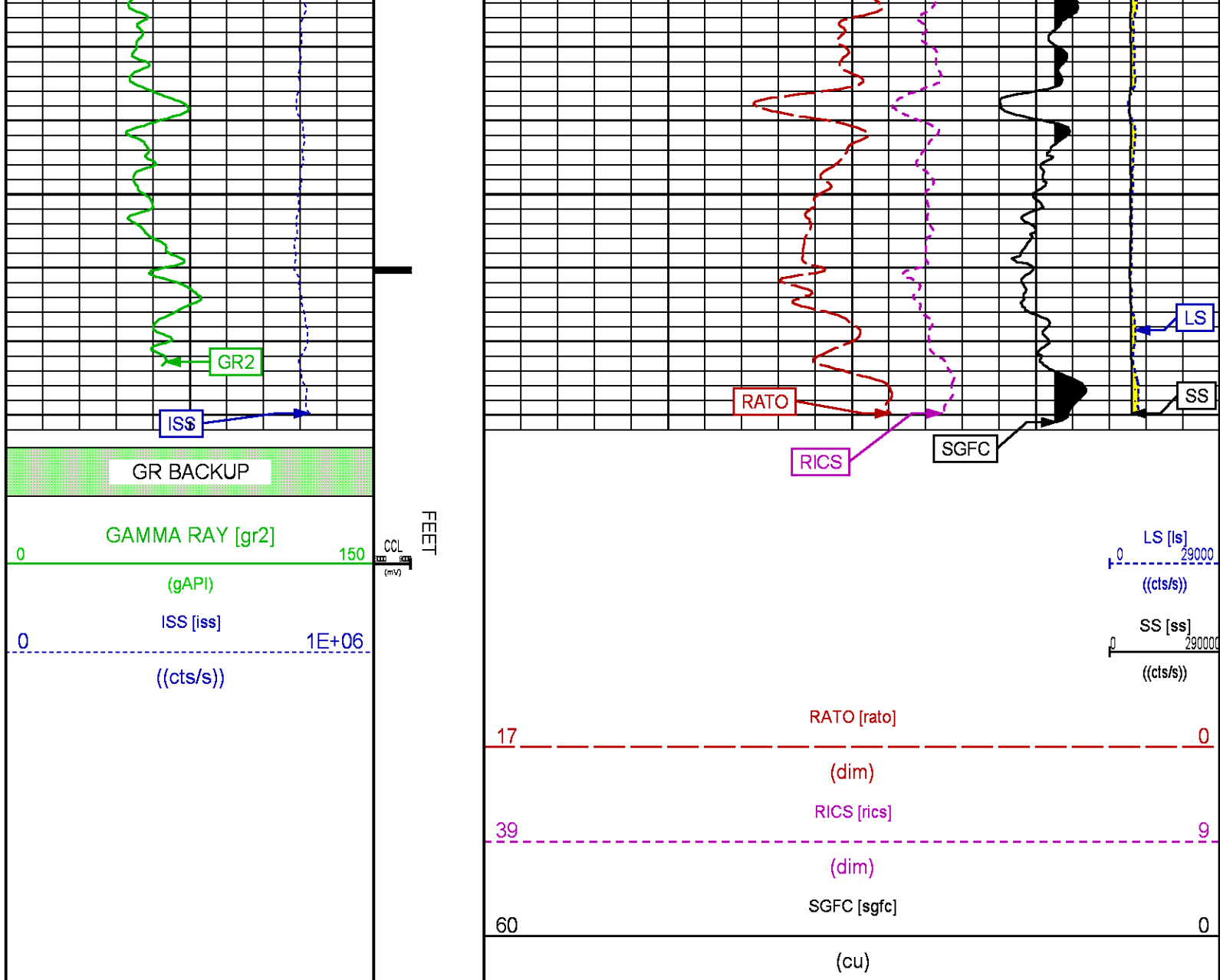












REPEAT PASS

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

Plotted: Wed Jun 27 15:13:21 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_0994-24-12E/p354h01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 5162.853 ft BOTTOM DEPTH: 5393.939 ft

SYMMETRIC FILTER

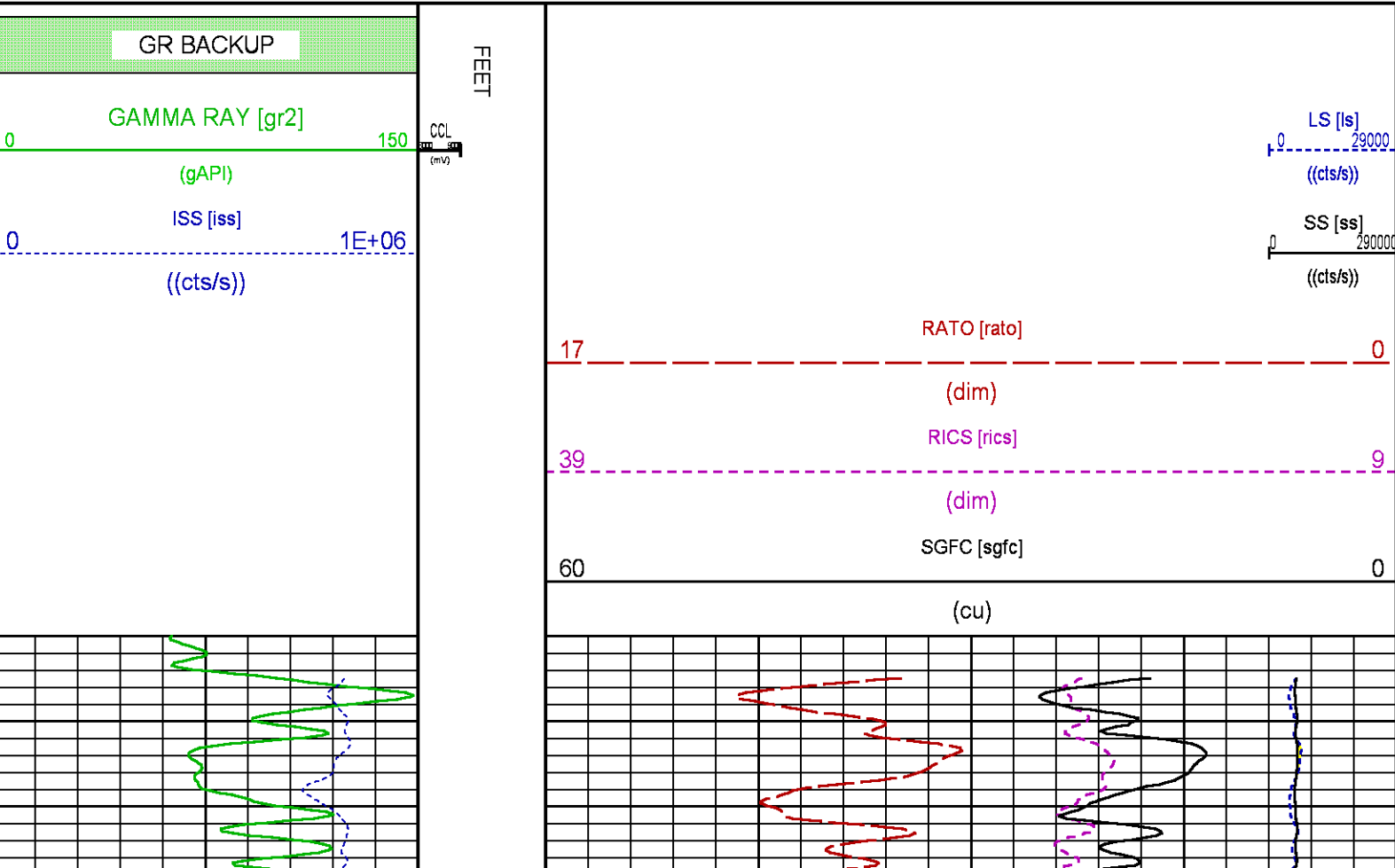
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)
GR	FILTER ()	medium (1)		TOP BOTTOM

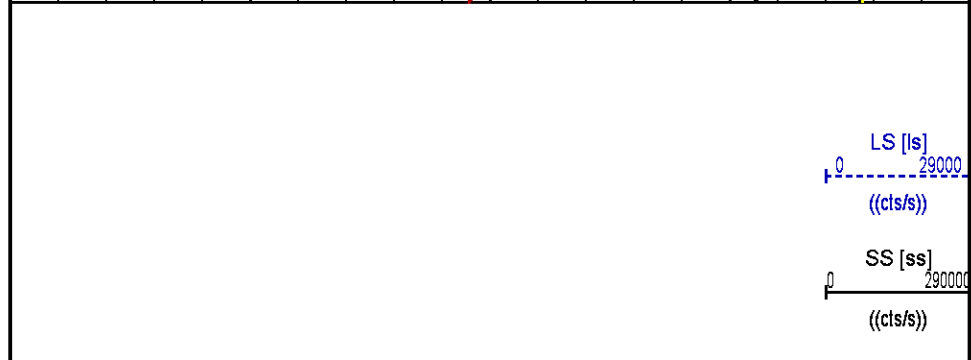
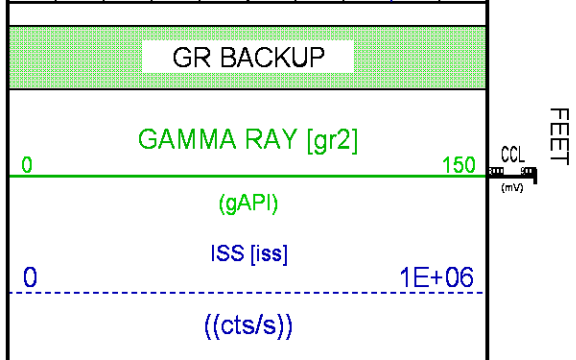
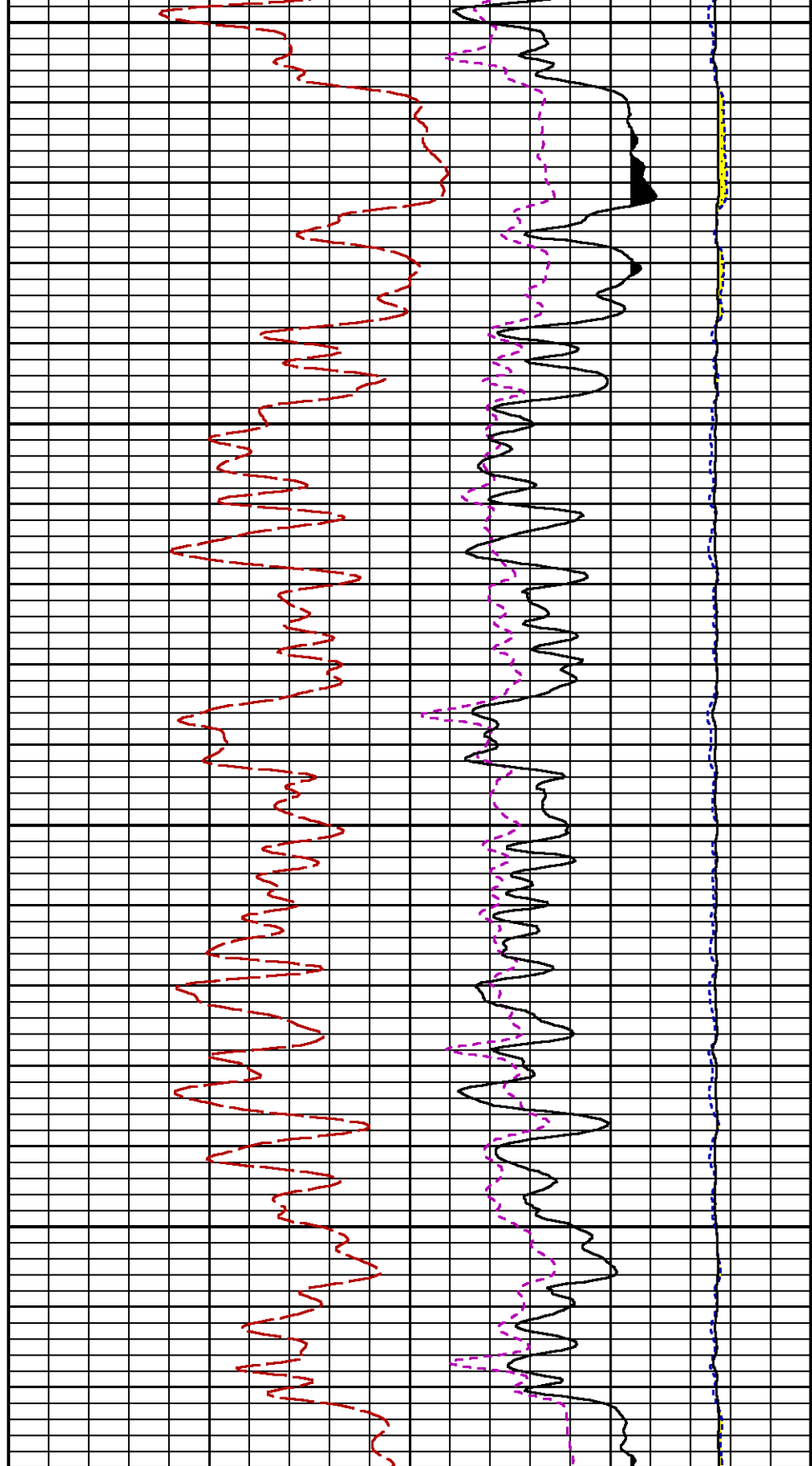
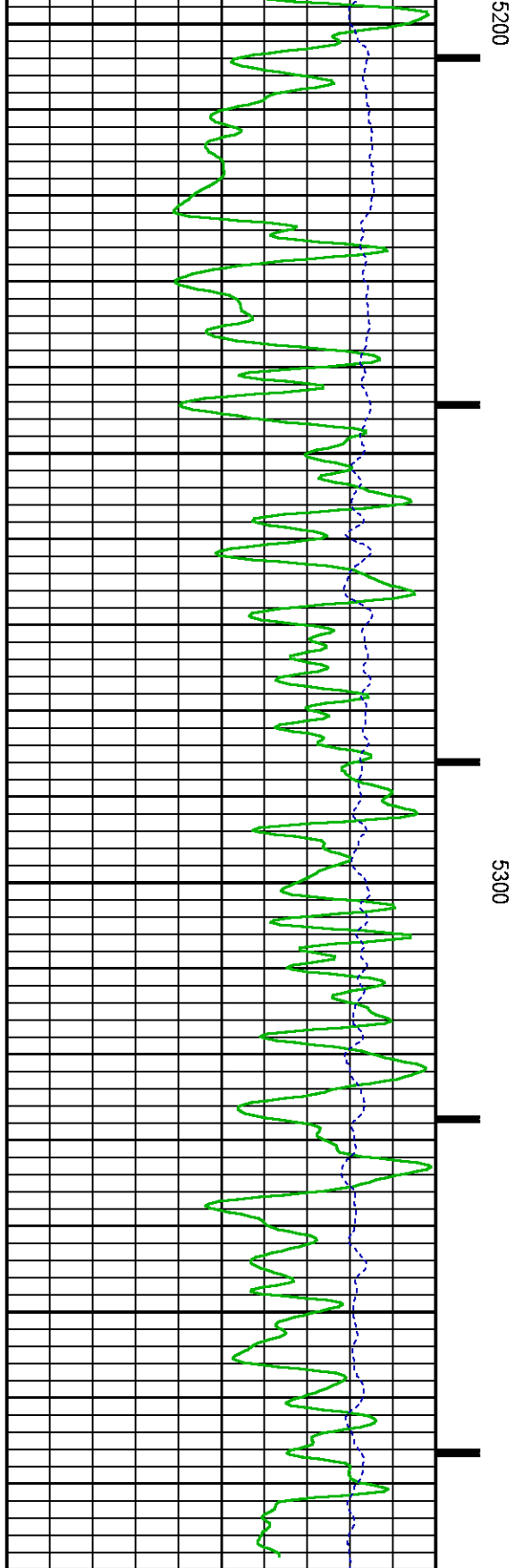
MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	INTERVAL (ft)	
PNC Parameters	BOREHOLE CONTENTS	FLUID		TOP	BOTTOM
	OPEN/CASED HOLE	CASED HOLE		"	"
	BOREHOLE SIZE	7.88	in	"	"
	LARGEST CASING OD	4.50	in	"	"
	MATRIX	SANDSTONE		"	"

CURVE 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	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

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_0994-24-12E/12_RPM_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : NICHOLS 0994-24-12E
Field : VEGA
File Interval : 5149.25 - 5398 Feet
OCT : p354h





		RATO [rato]	0
17		(dim)	
		RICS [rics]	9
39		(dim)	
		SGFC [sgfc]	0
60		(cu)	

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_NICHOLS_0994-24-12E/p354h.tp1

GR PRIMARY CALIBRATION 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 Vlt (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
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ISS	RBOR	RIN	RIN13	RICS	RATO	RTWO	RONE
-----	------	-----	-------	------	------	------	------

Raw Data

802814

1.44

4.61

28.00

15.26

10.38

3.70

3.94

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

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_GUNDERSON_0994-14-17E/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

GAMMA RAY, 1 11/16"

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

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

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

33.24'

CCL MP 25.19'

GR MP 22.64'

XLS MP 13.58'

LS MP 13.16'

SS MP 12.91'

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'

**BAKER
HUGHES**
a GE company



COMPANY

LARAMIE ENERGY LLC

WELL

NICHOLS 0994-24-12E

FIELD

VEGA

COUNTY

MESA

STATE COLORADO

FILE NO:

CH137595

API NO:

05077103850000

LOCATION:

SHL: 2272' FNL & 2795' FWL

BHL: 2465' FSL & 1442' FEL

ELEVATIONS:

KB 7236 FT

DF

GL 7212 FT

SEC **24**

TWP **9S**

RGE **94W**

DATE

27-Jun-2018

