



RESERVOIR PERFORMANCE MONITOR

FILE NO: CH136073	COMPANY LARAMIE ENERGY LLC
API NO: 05077103830000	WELL NICHOLS FEDERAL 0994-24-20E
	FIELD VEGA
	COUNTY MESA STATE COLORADO

Ver. 4.10	LOCATION: SHL: 2324' FNL & 2790' FWL BHL: 462' FSL & 1430' 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	25-Jun-2018
RUN	2
TRIP	2
SERVICE ORDER	US136073
DEPTH DRILLER	8032 FT
DEPTH LOGGER	7966 FT
BOTTOM LOGGED INTERVAL	7966 FT
TOP LOGGED INTERVAL	2330 FT
TIME STARTED	14:30
TIME FINISHED	20:30
OPERATOR RIG TIME	6 HRS
TYPE OF FLUID IN HOLE	WATER
FLUID DENSITY	NA
FLUID SALINITY	NA
FLUID LEVEL	52 FT
LOGGED CEMENT TOP	1570 FT
WELLHEAD PRESSURE	0 PSI
MAXIMUM HOLE DEVIATION	NA
NOMINAL LOGGING SPEED	15 FMIN
MAX. RECORDED TEMP.	226 DEGF
REFERENCE LOG	BAKER HUGHES RAL
REFERENCE LOG DATE	24-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: 6220' - 6240'
SJ: 7098' - 7118'

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
2	2	PCM	8250EA	11908682	FREE
2	2	TEL/CCL	8248ED	10460262	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: Mon Jun 25 21:58:52 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_FED_0994_24_20E/p354h04.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2324.750 ft BOTTOM DEPTH: 3001.210 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_FED_0994_24_20E/0994_24_20E_RPM_MAIN_GS.fvpdf [5"/100' Scale]
Plot Interval : 2320 - 3009 Feet

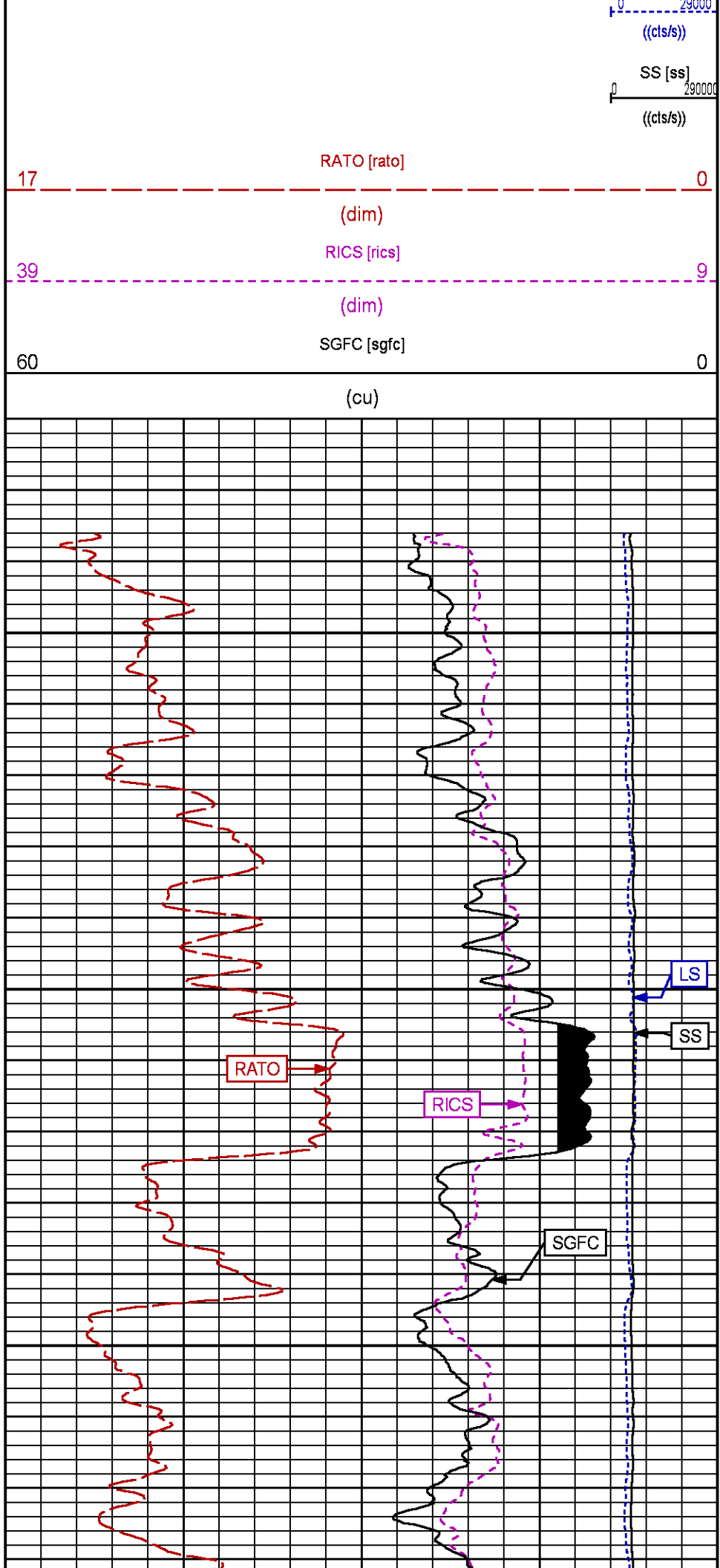
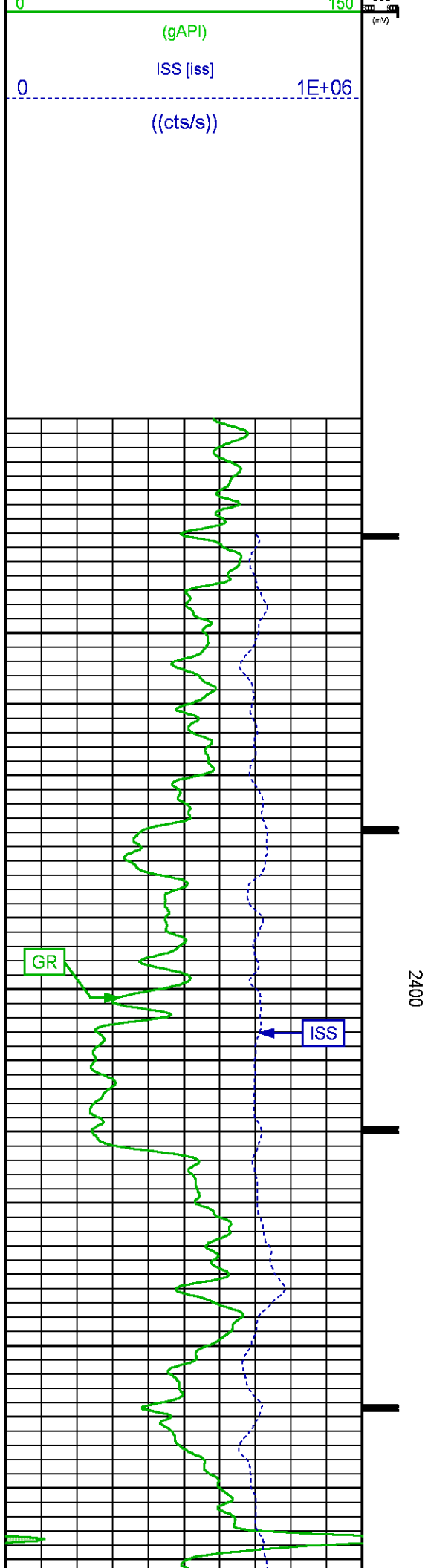
Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_FED_0994_24_20E/0994_24_20E_RPM_MAIN_GS.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : NICHOLS FED 0994-24-20E
Field : VEGA
File Interval : 2310.5 - 3009.25 Feet
OCT : p354h

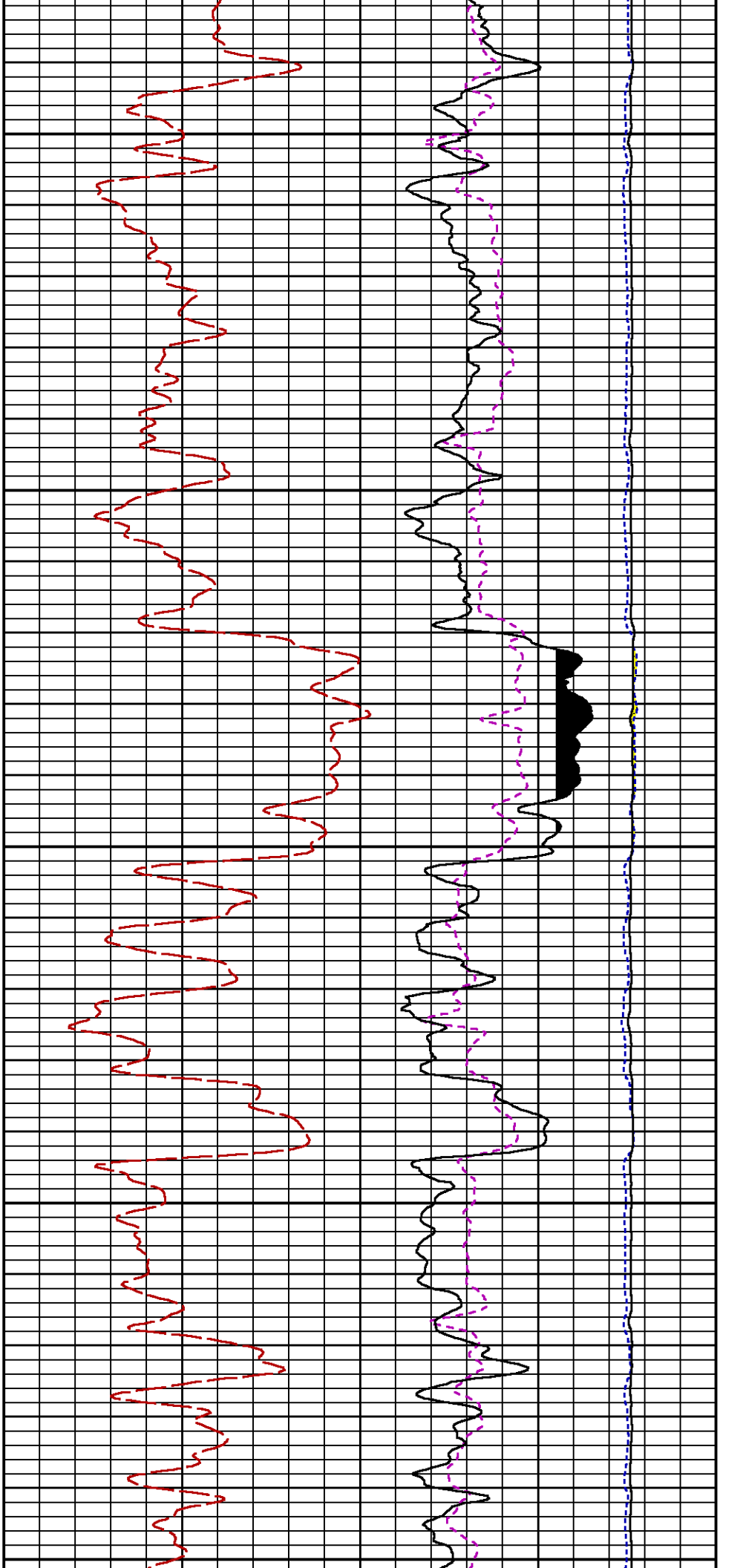
GR BACKUP

GAMMA RAY [gr]

FEET

LS [ls]

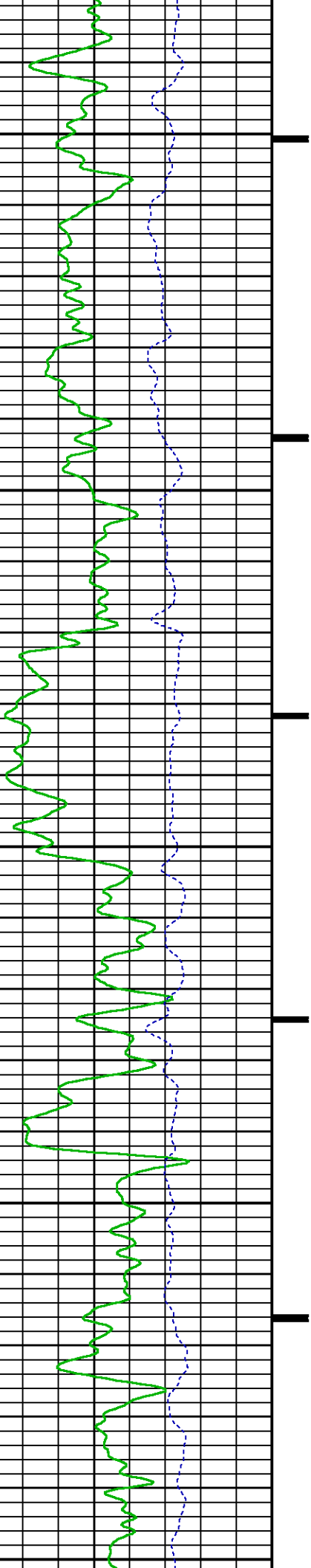


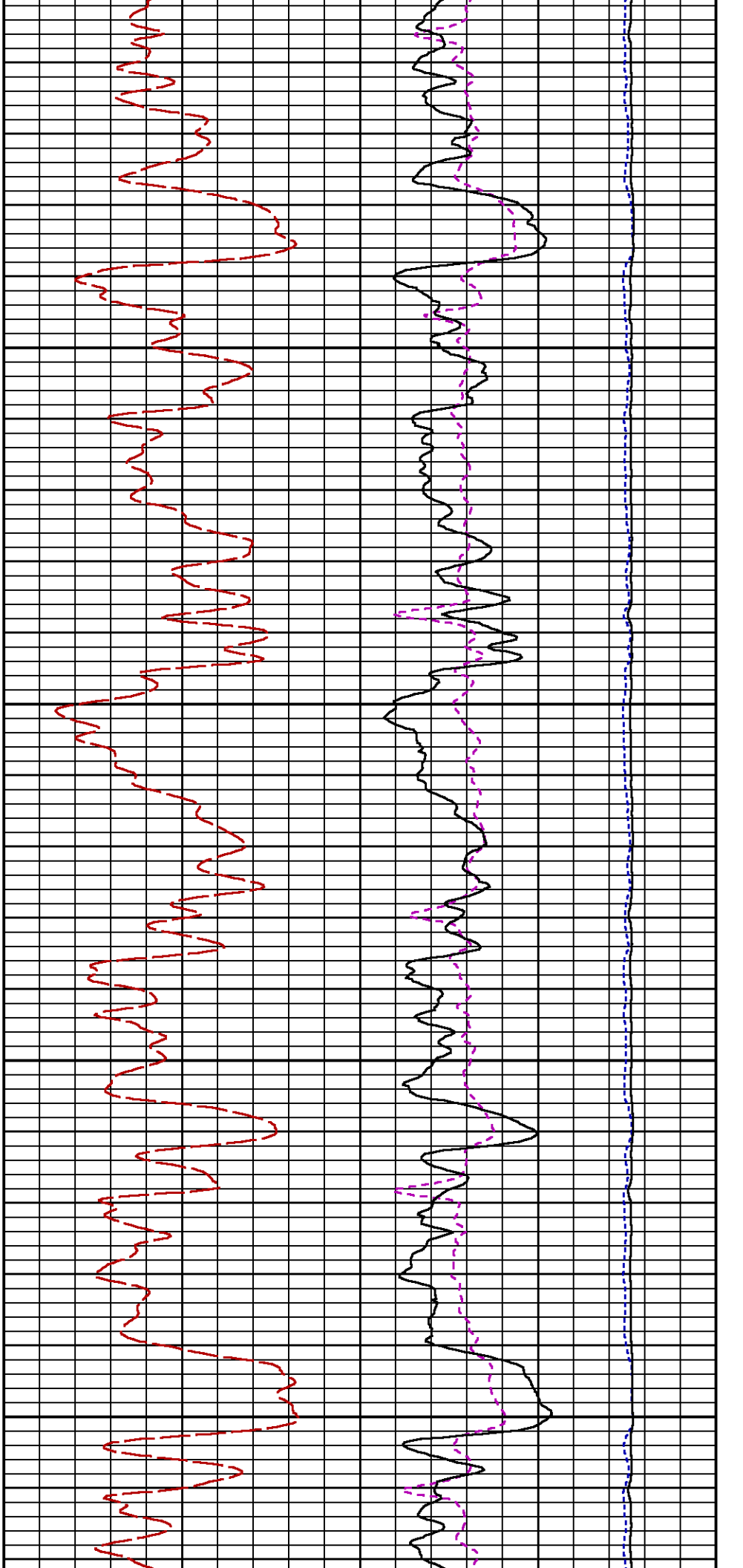


2500

2600

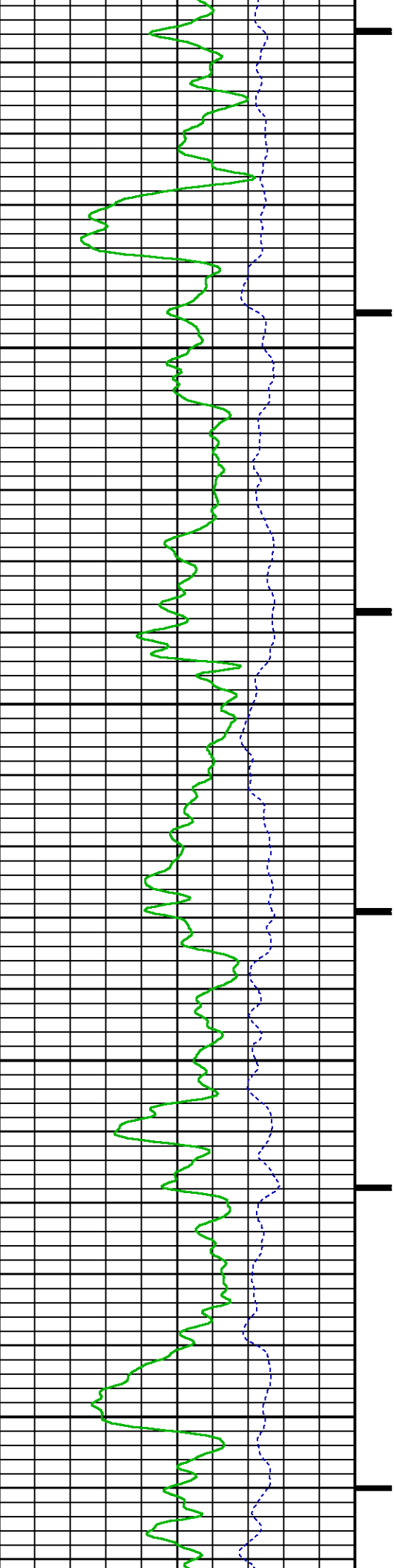
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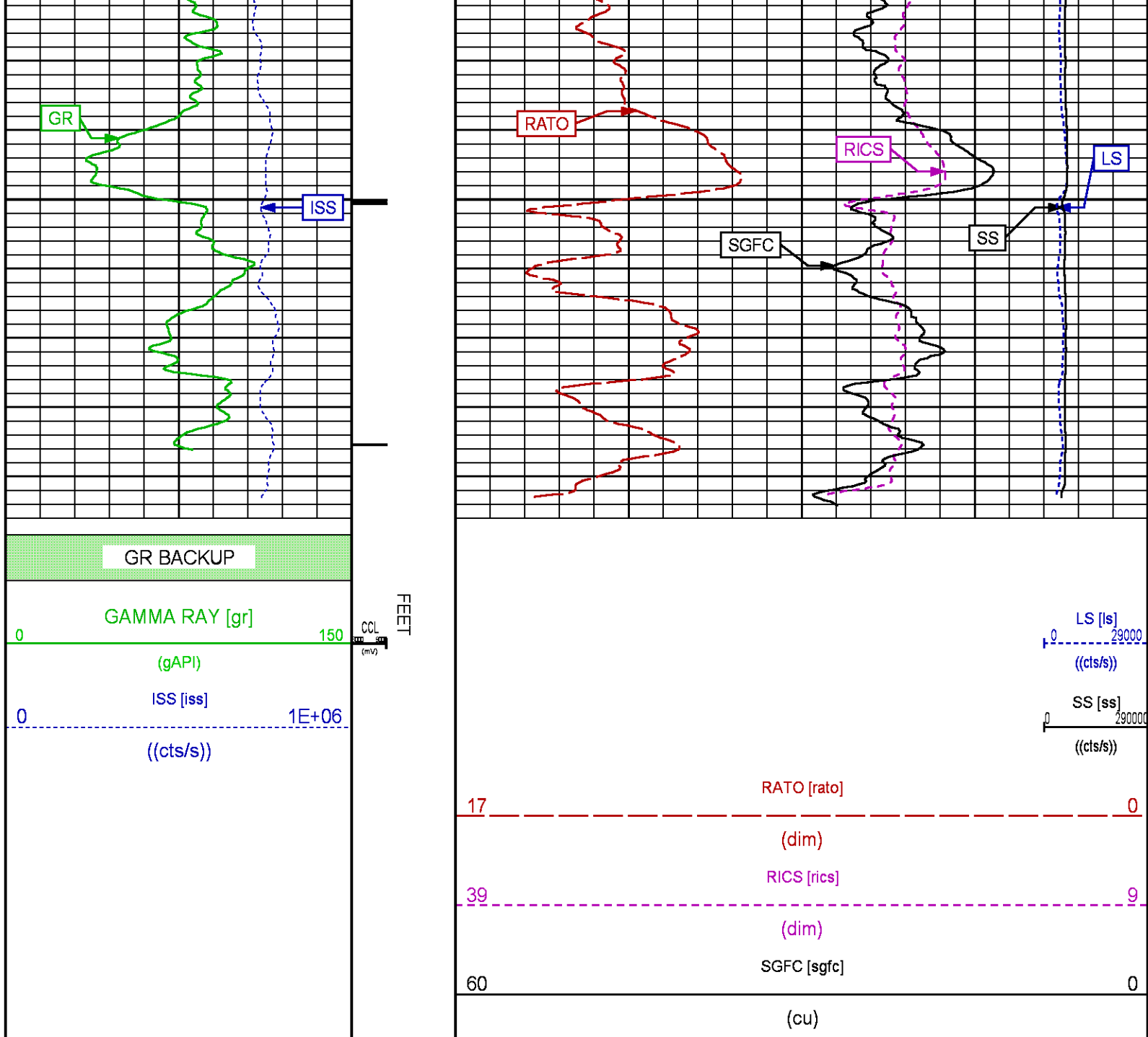




0 2800

2900





RPM MAIN PASS WILLIAMS FORK

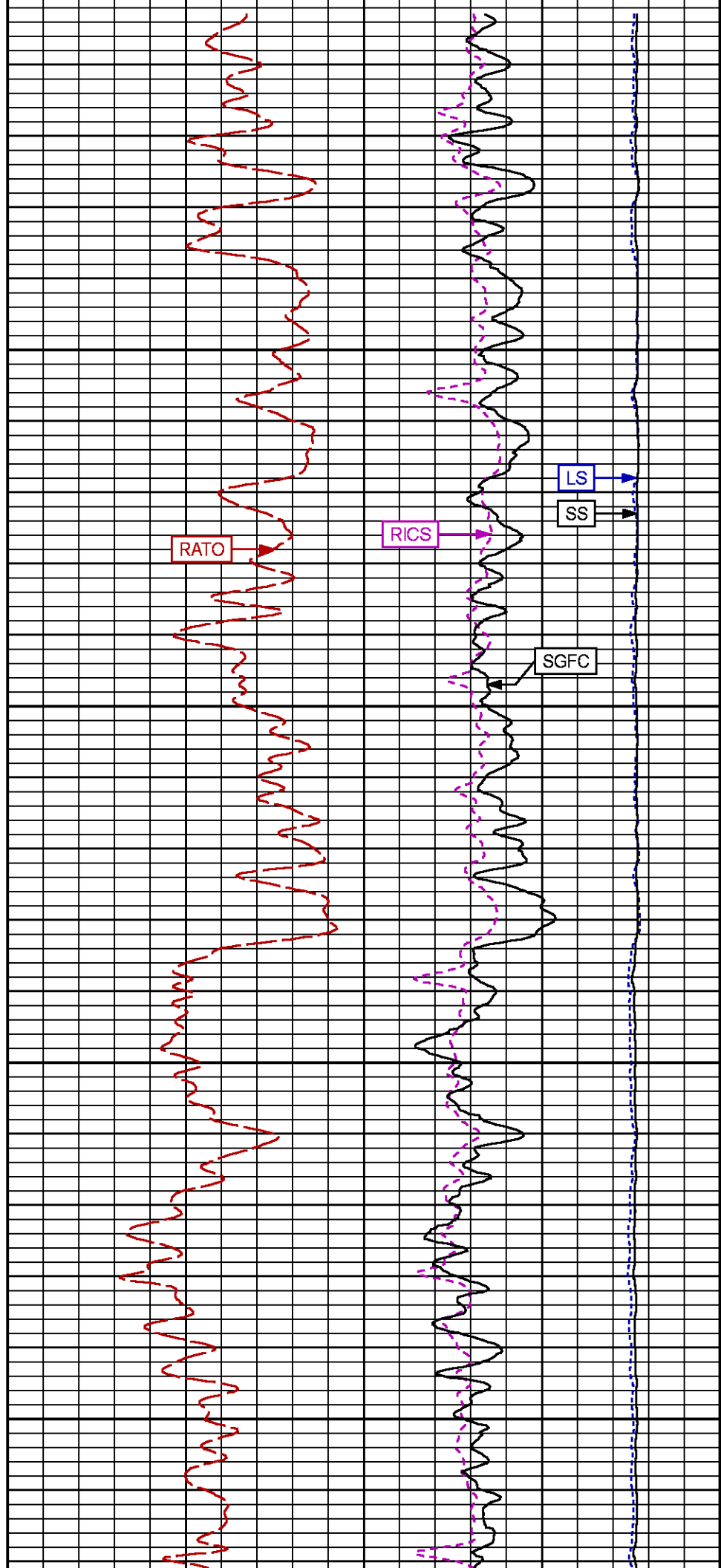
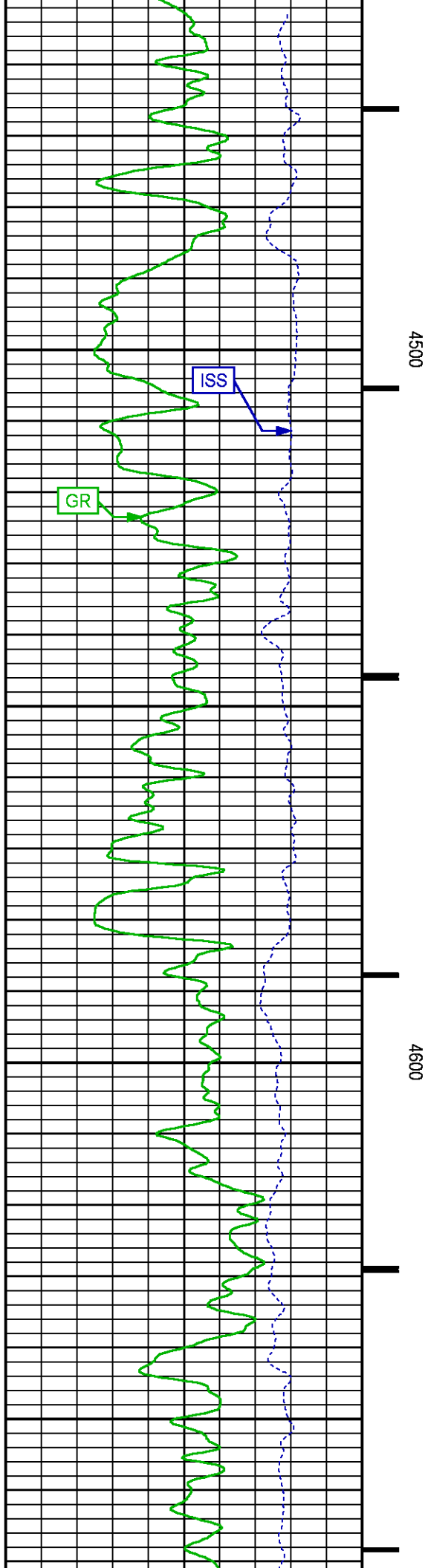
ECLIPS 7.0i ECLIPS General Release Rel 7.0i Thu Jun 08 20:36:10 CDT 2017

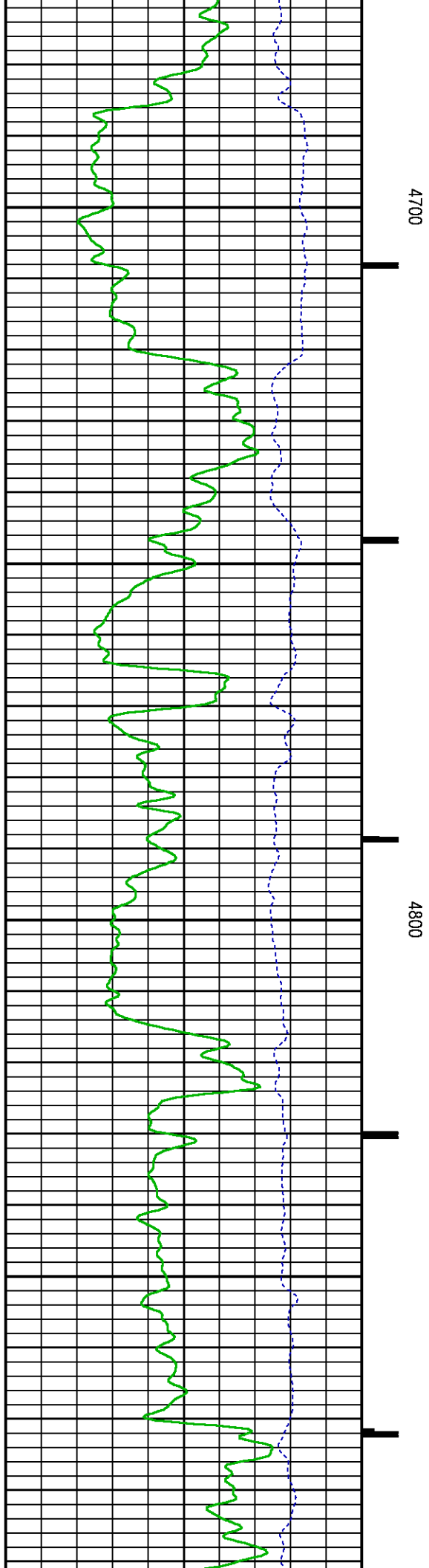
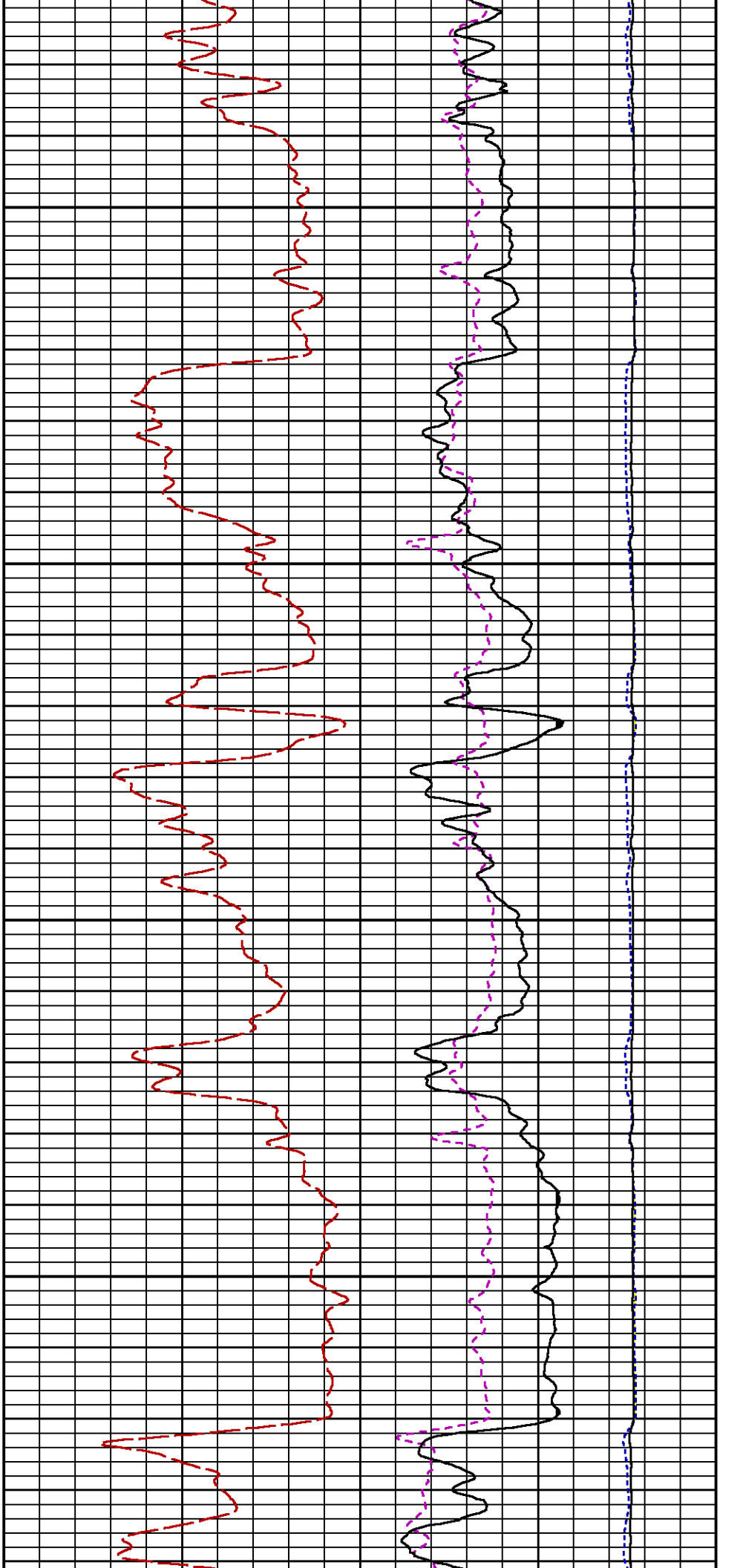
Patches: 4

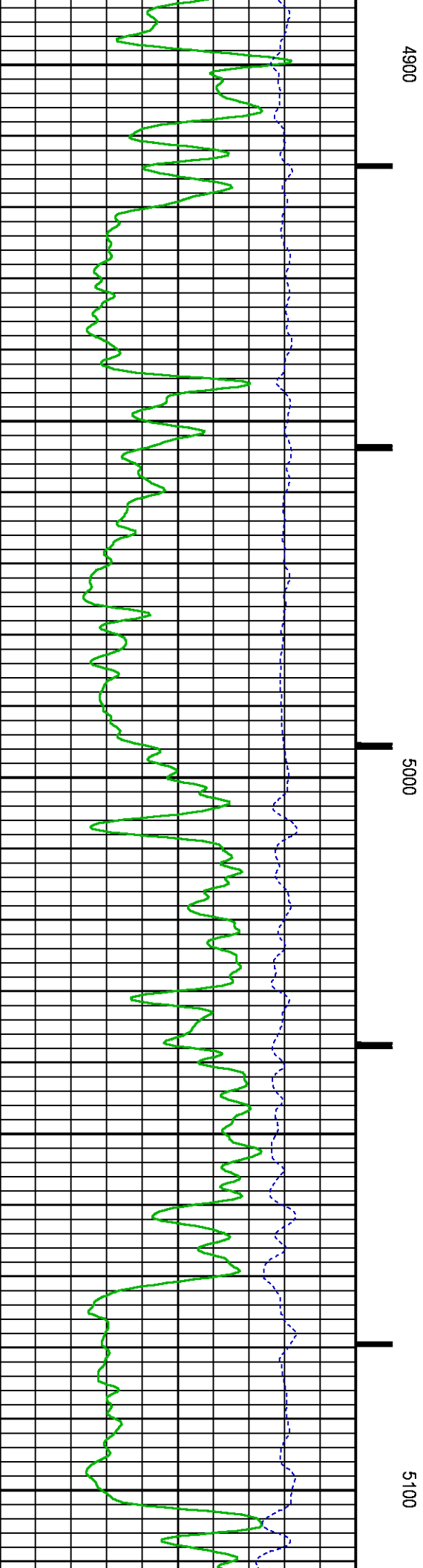
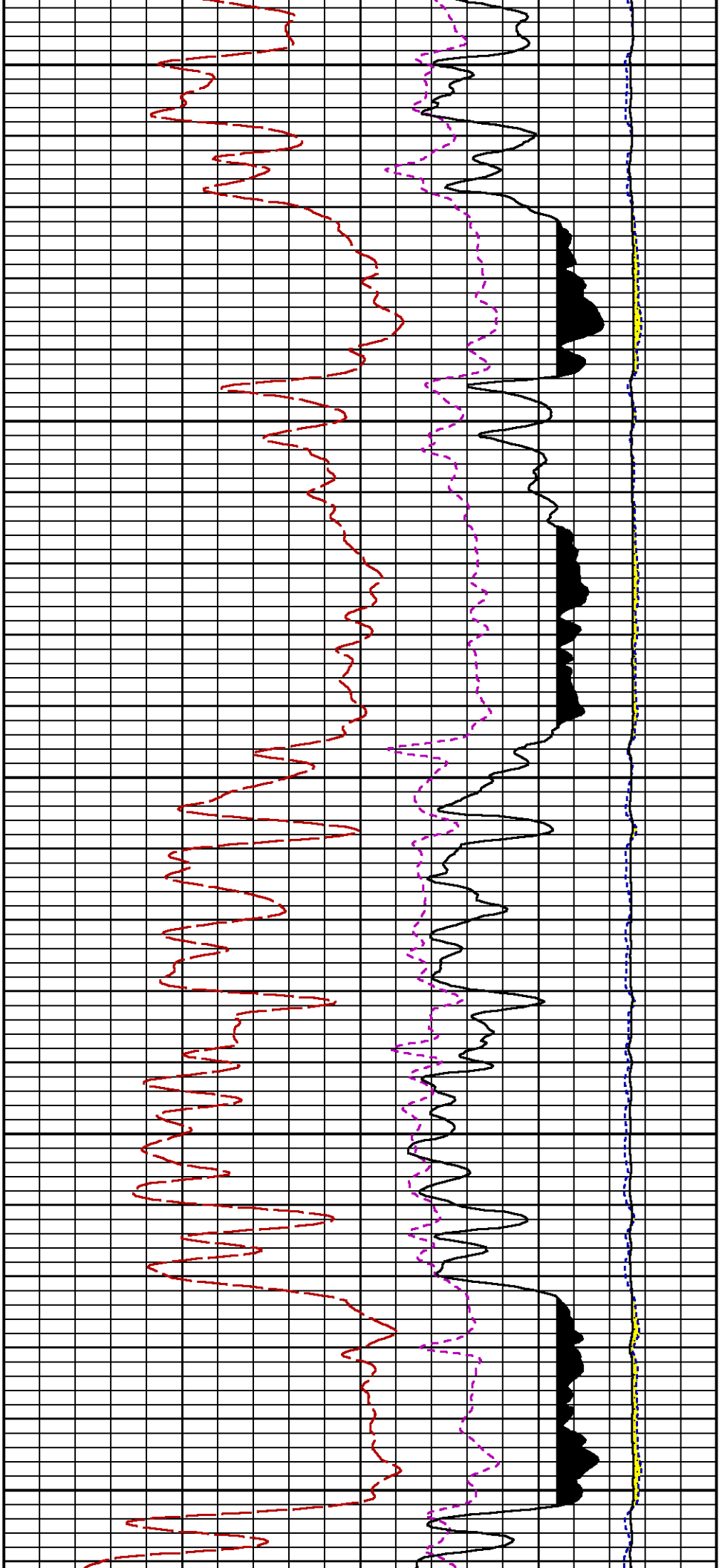
Plotted: Mon Jun 25 21:24:59 2018

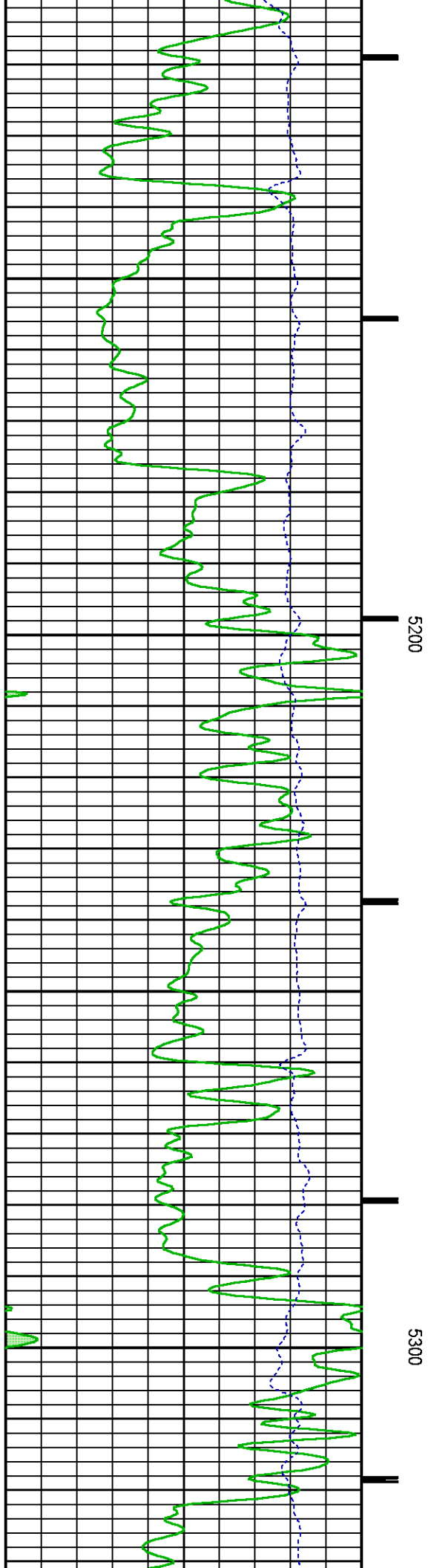
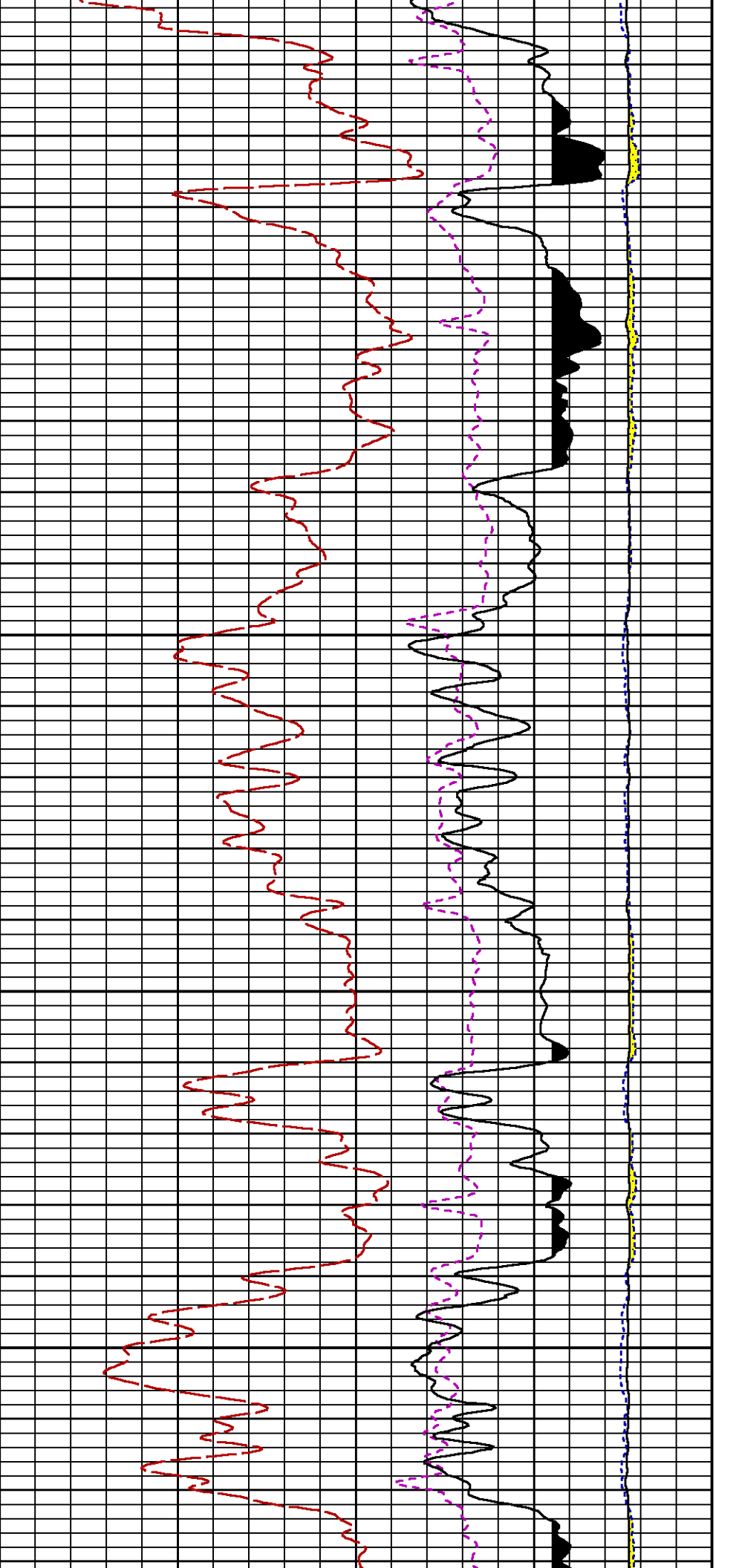
PARAMETER AND FILTER SUMMARY REPORT

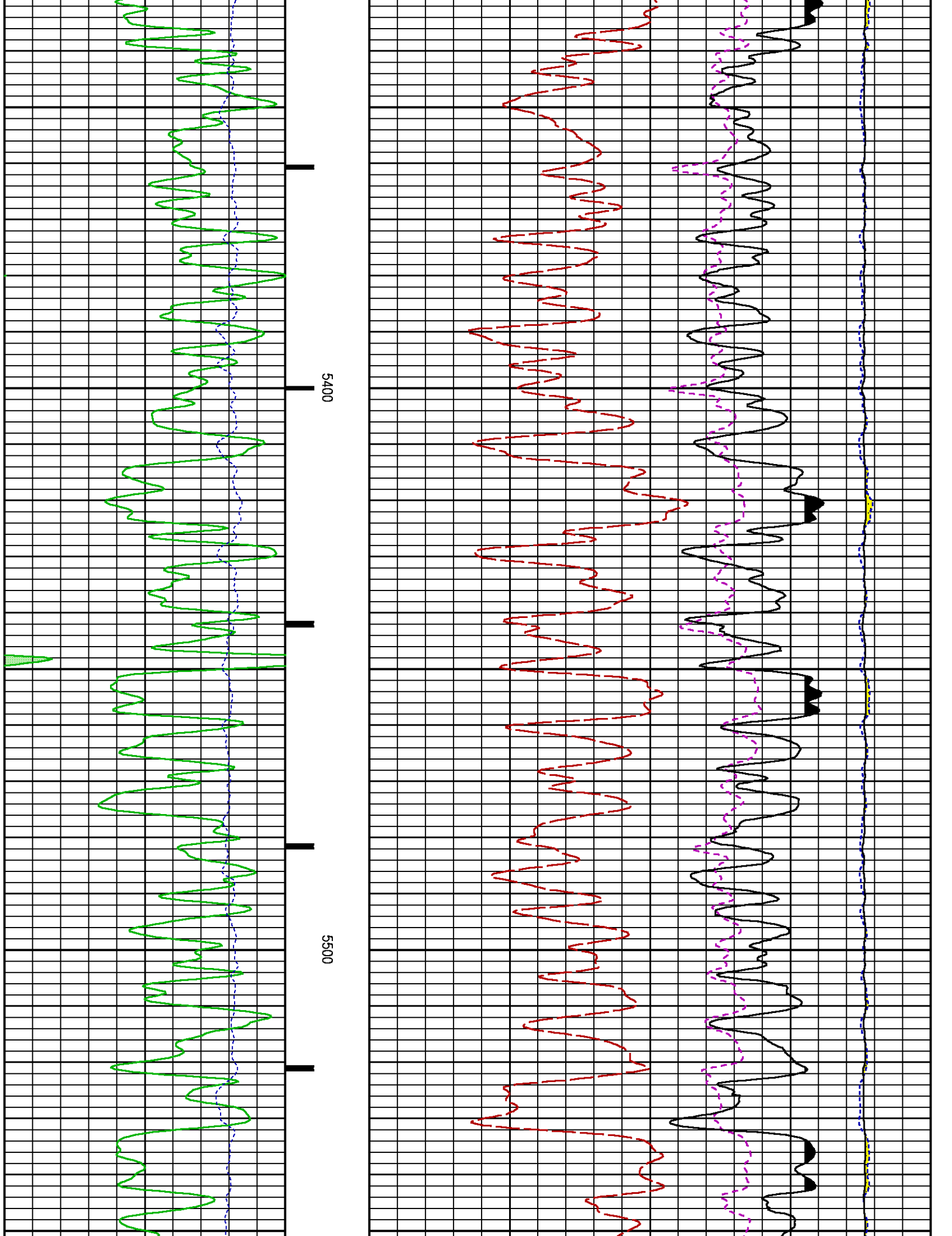
FILE: /dat1a/LARAMIE_NICHOLS_FED_0994_24_20E/p354h03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4441.875 ft BOTTOM DEPTH: 8052.027 ft

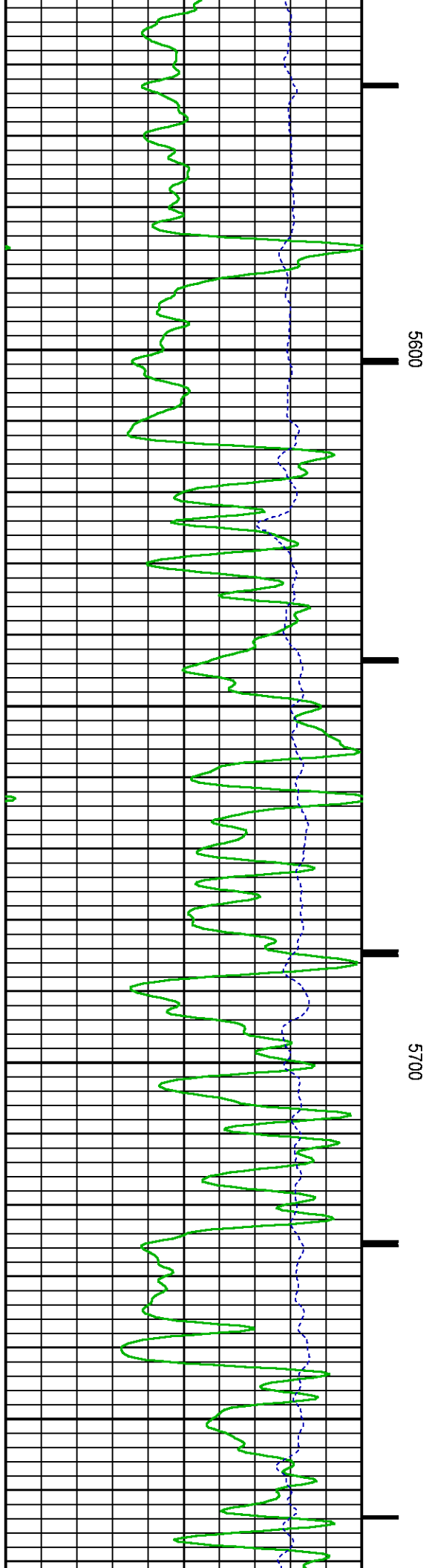
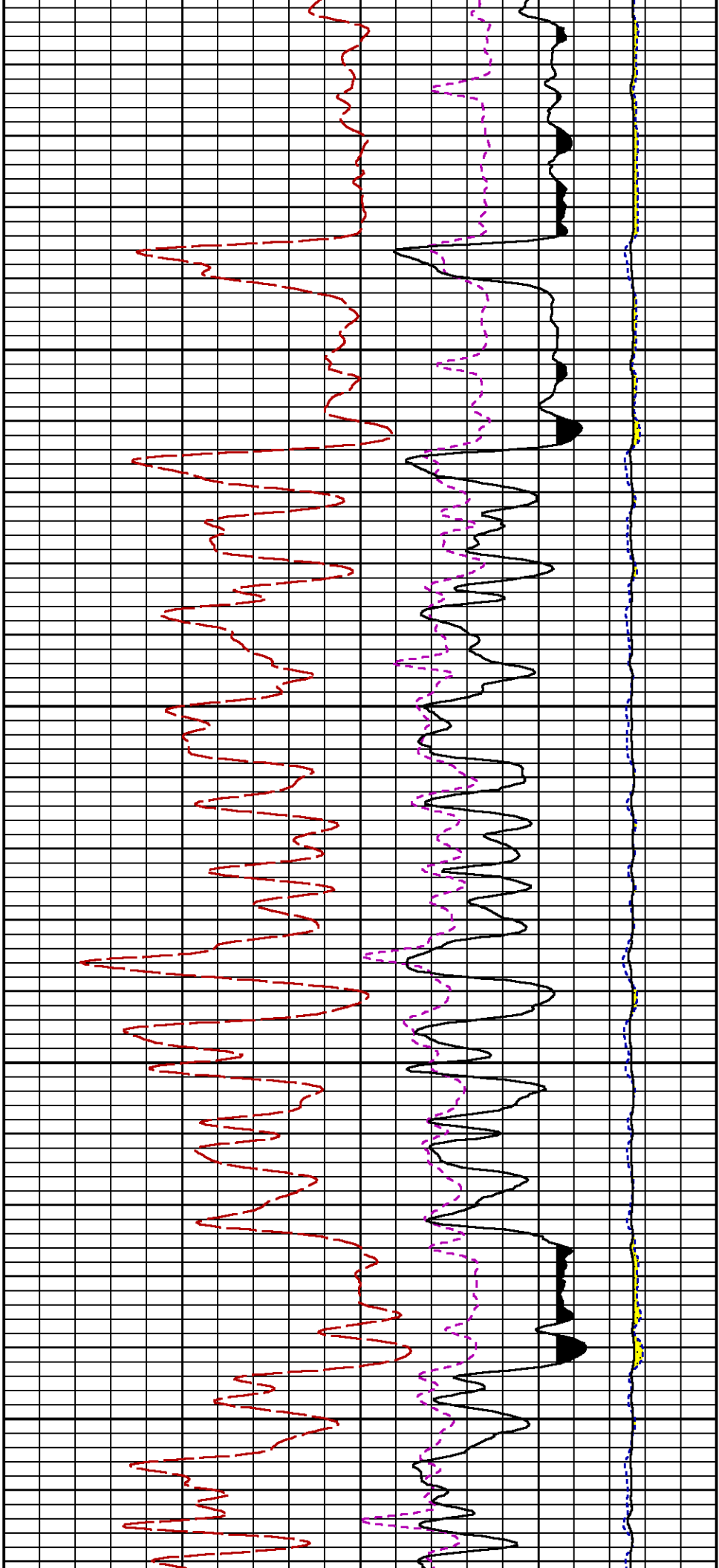


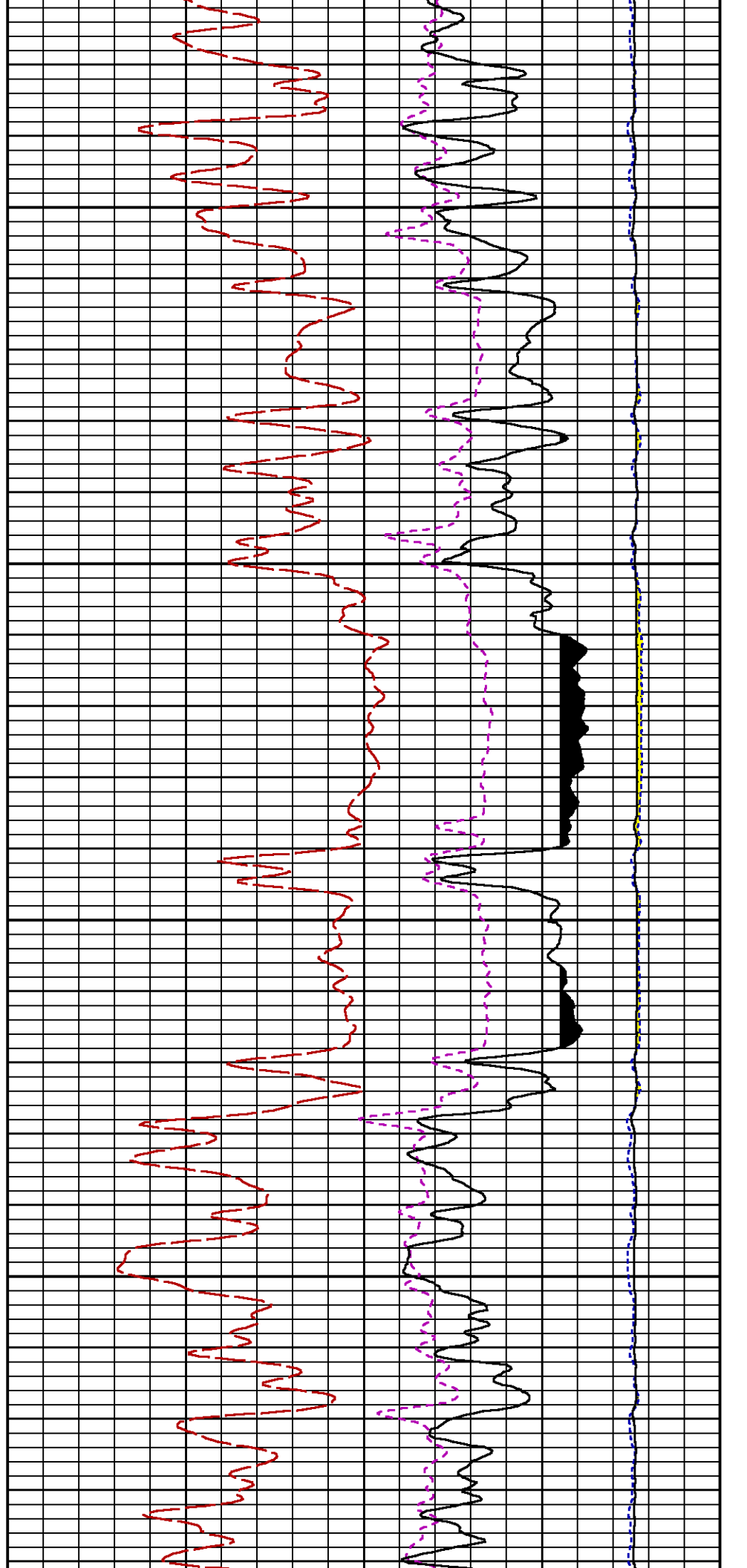
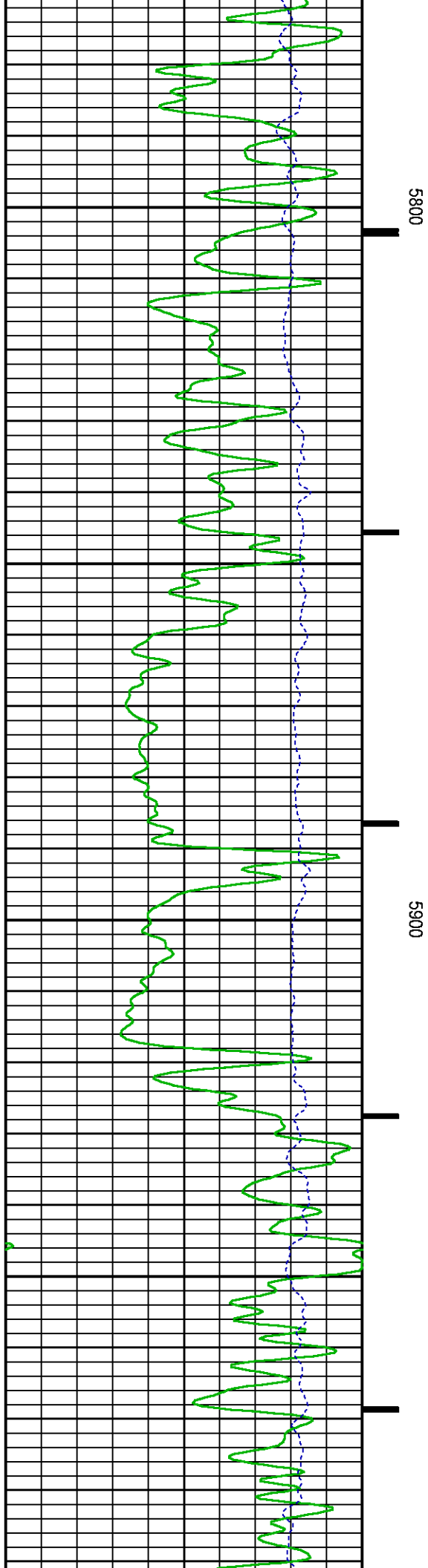


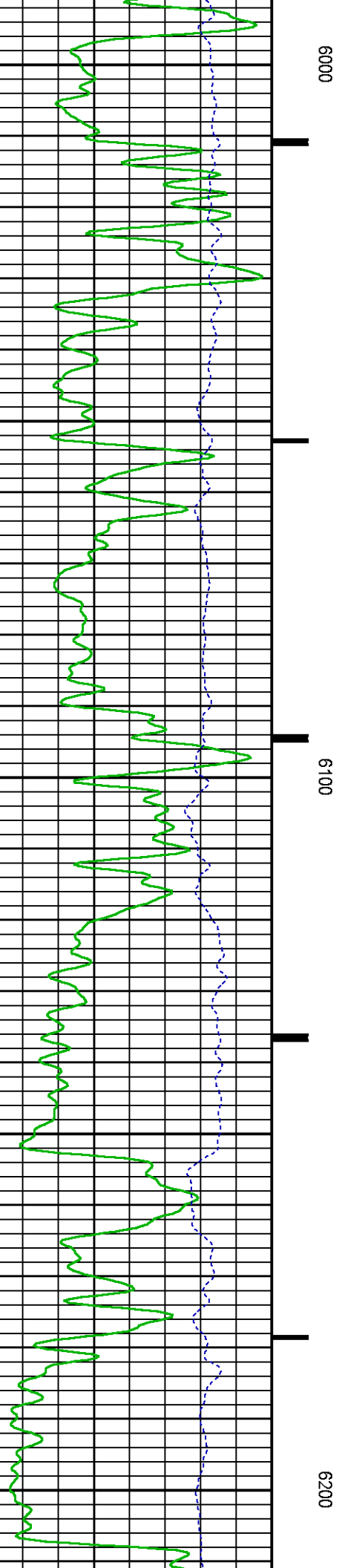
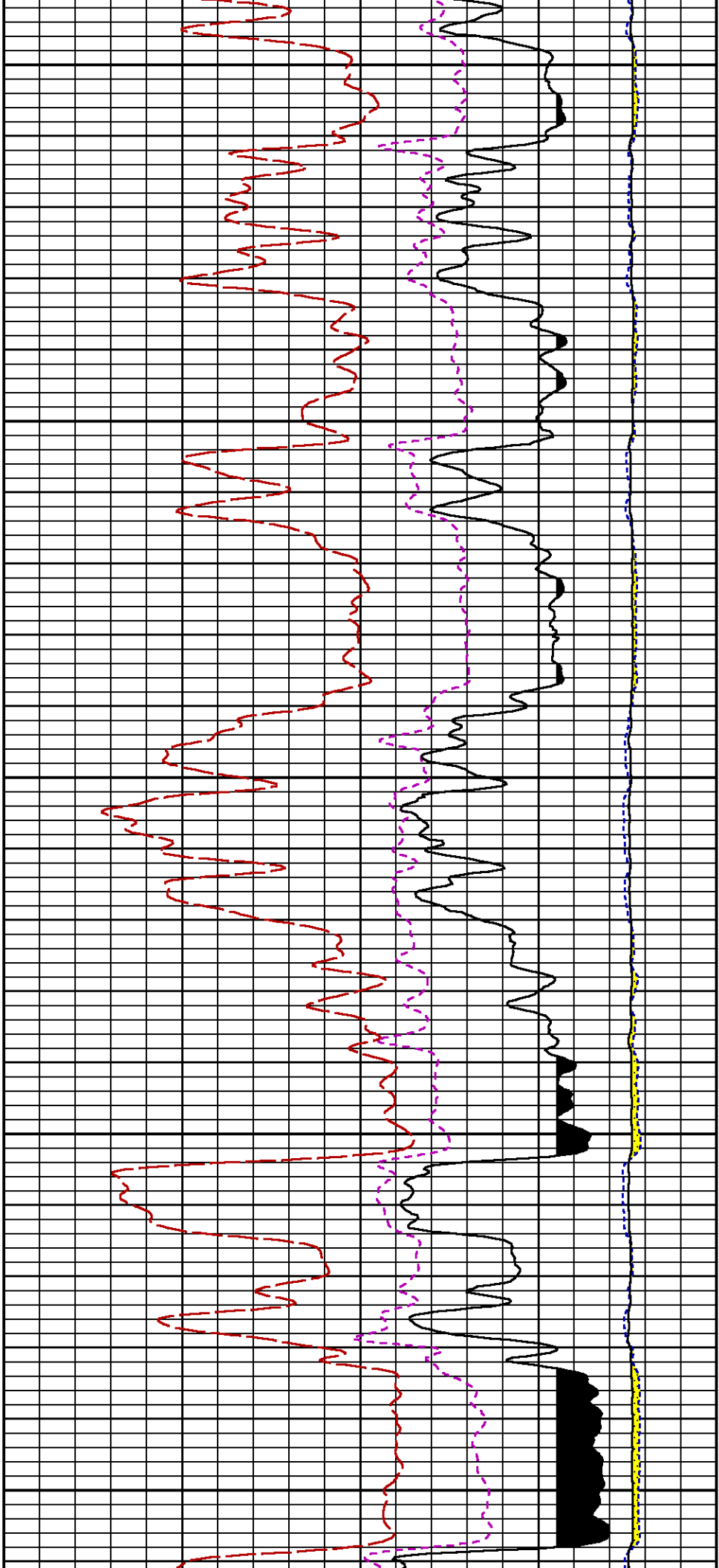


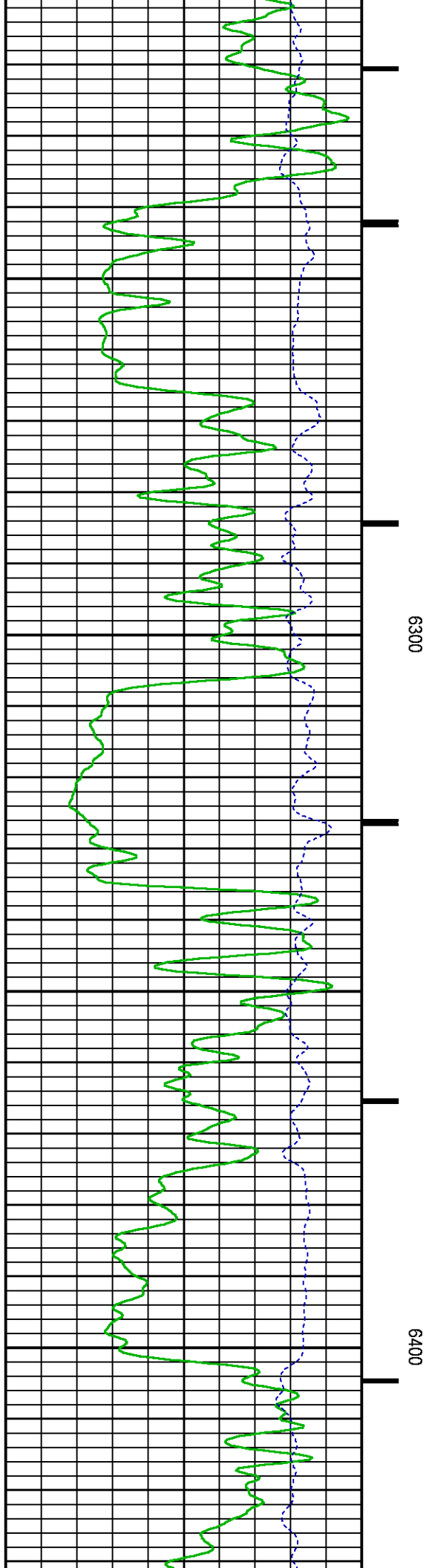
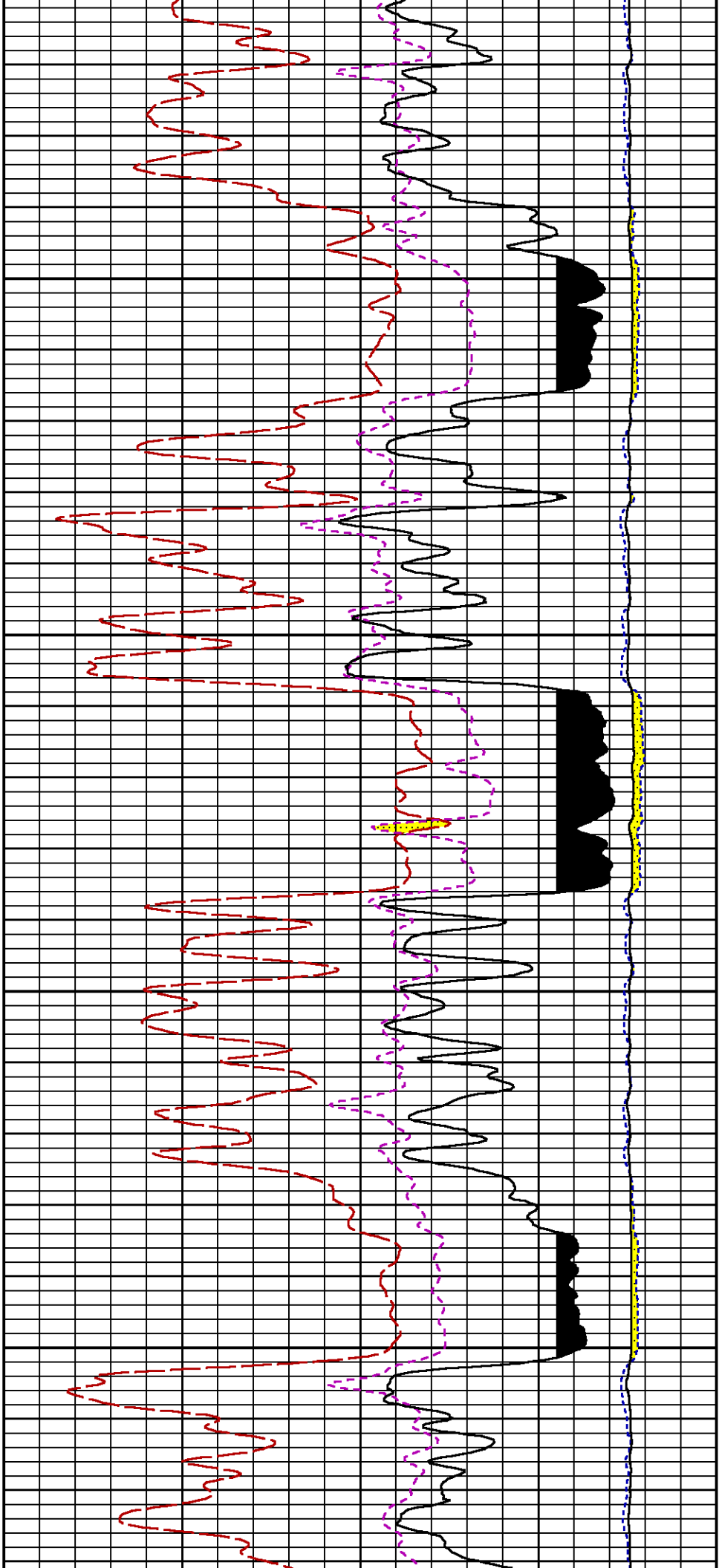


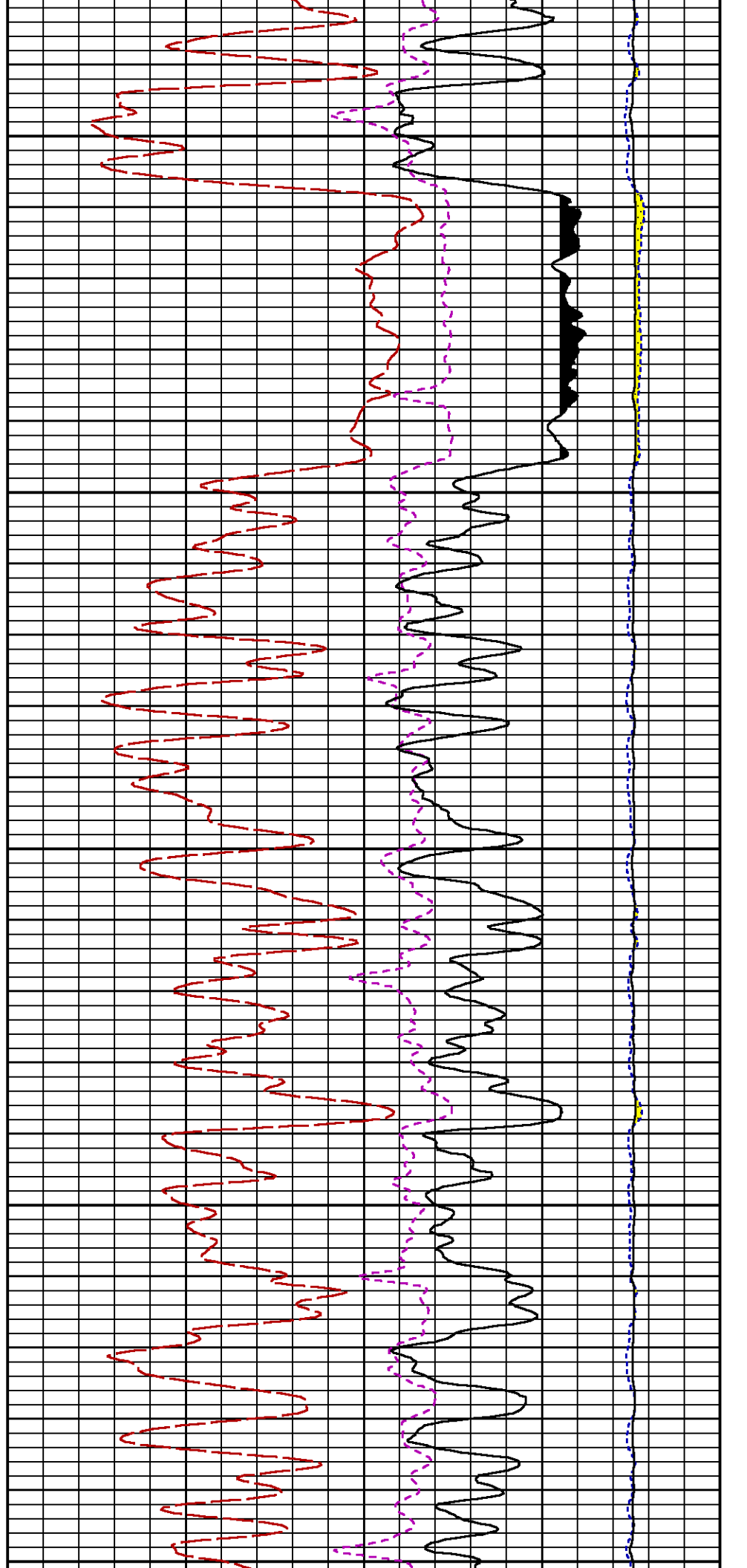
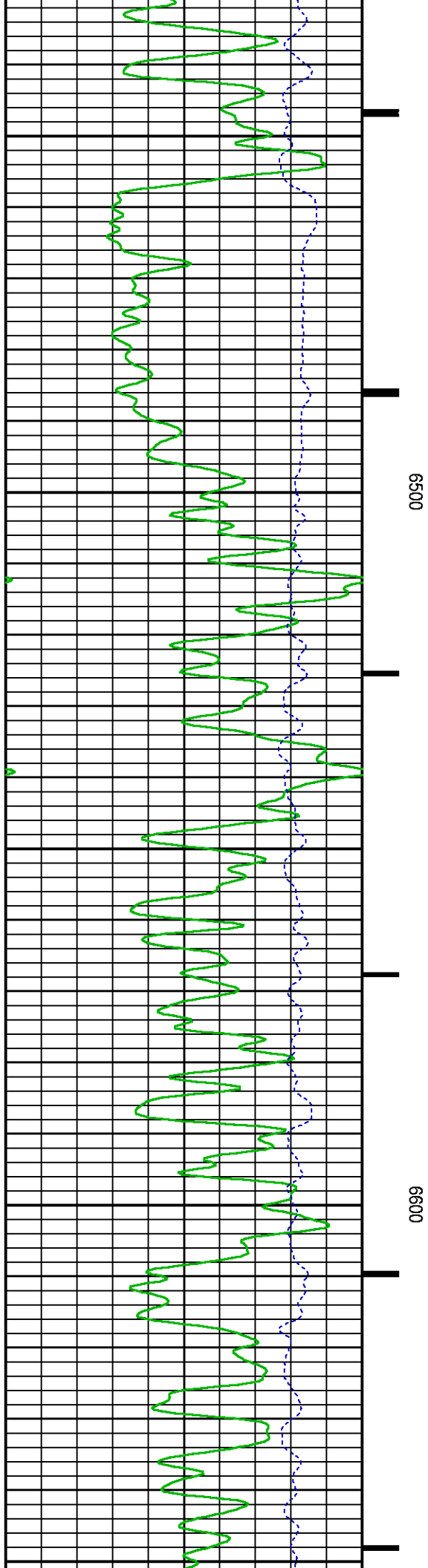


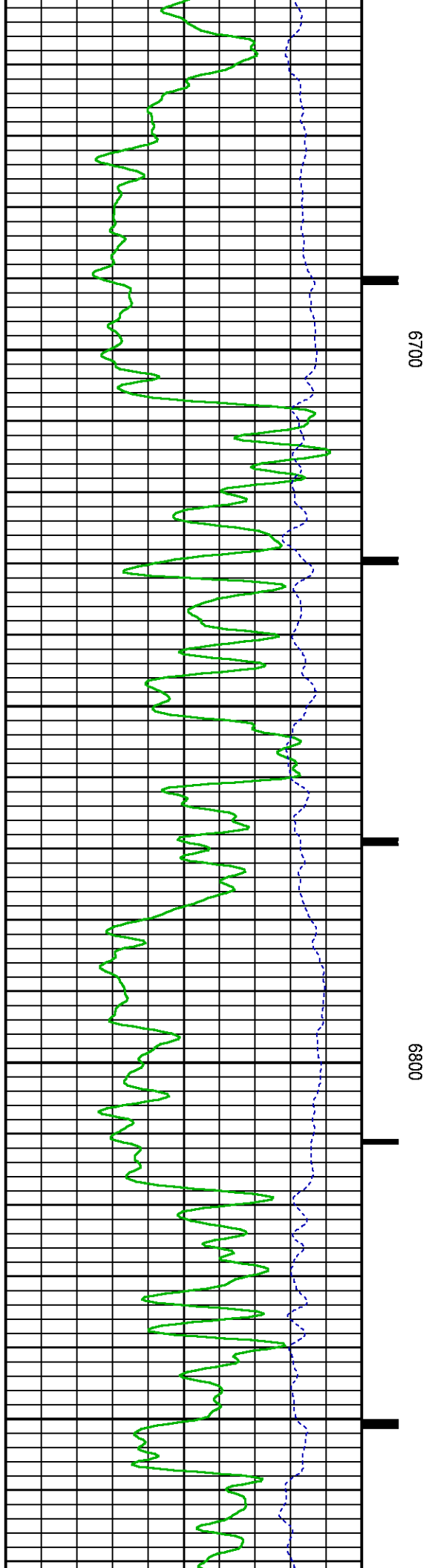
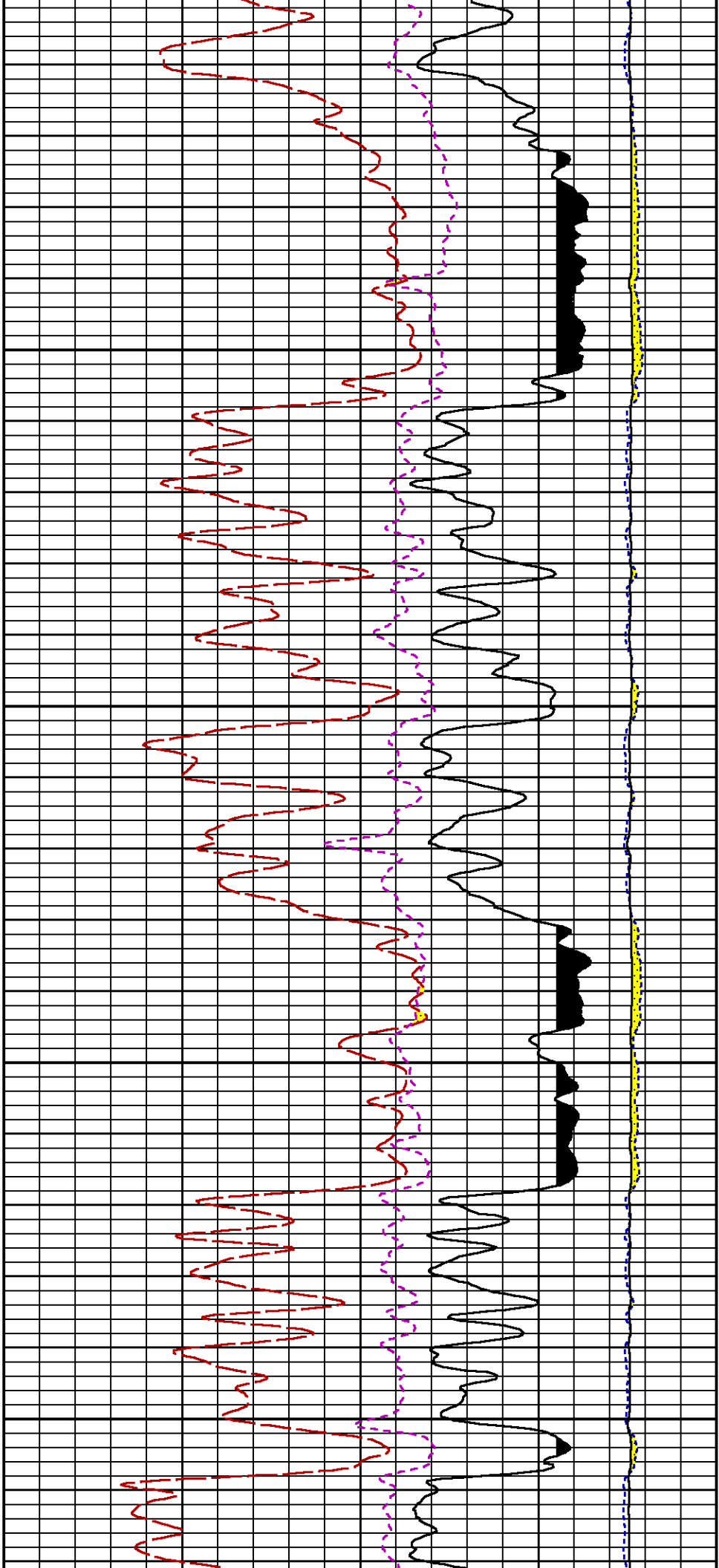


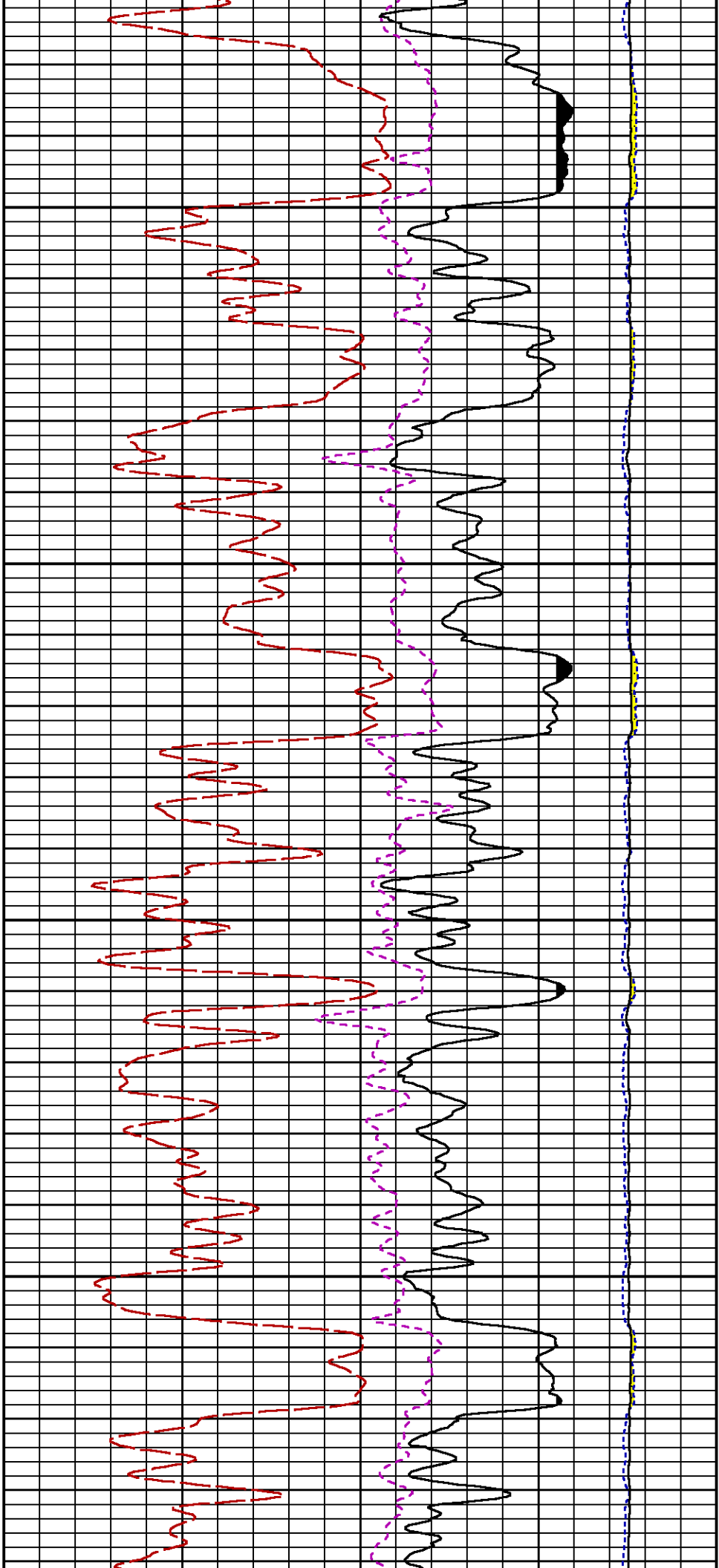






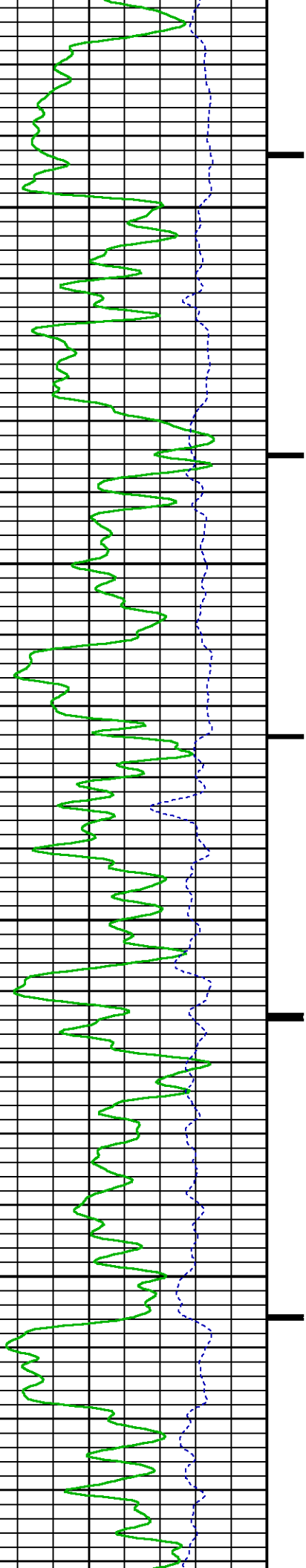


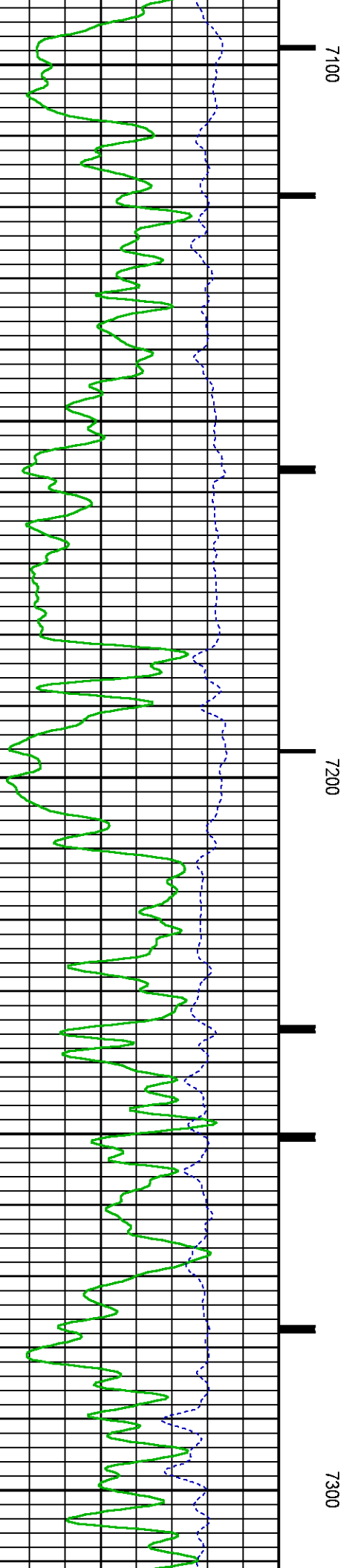
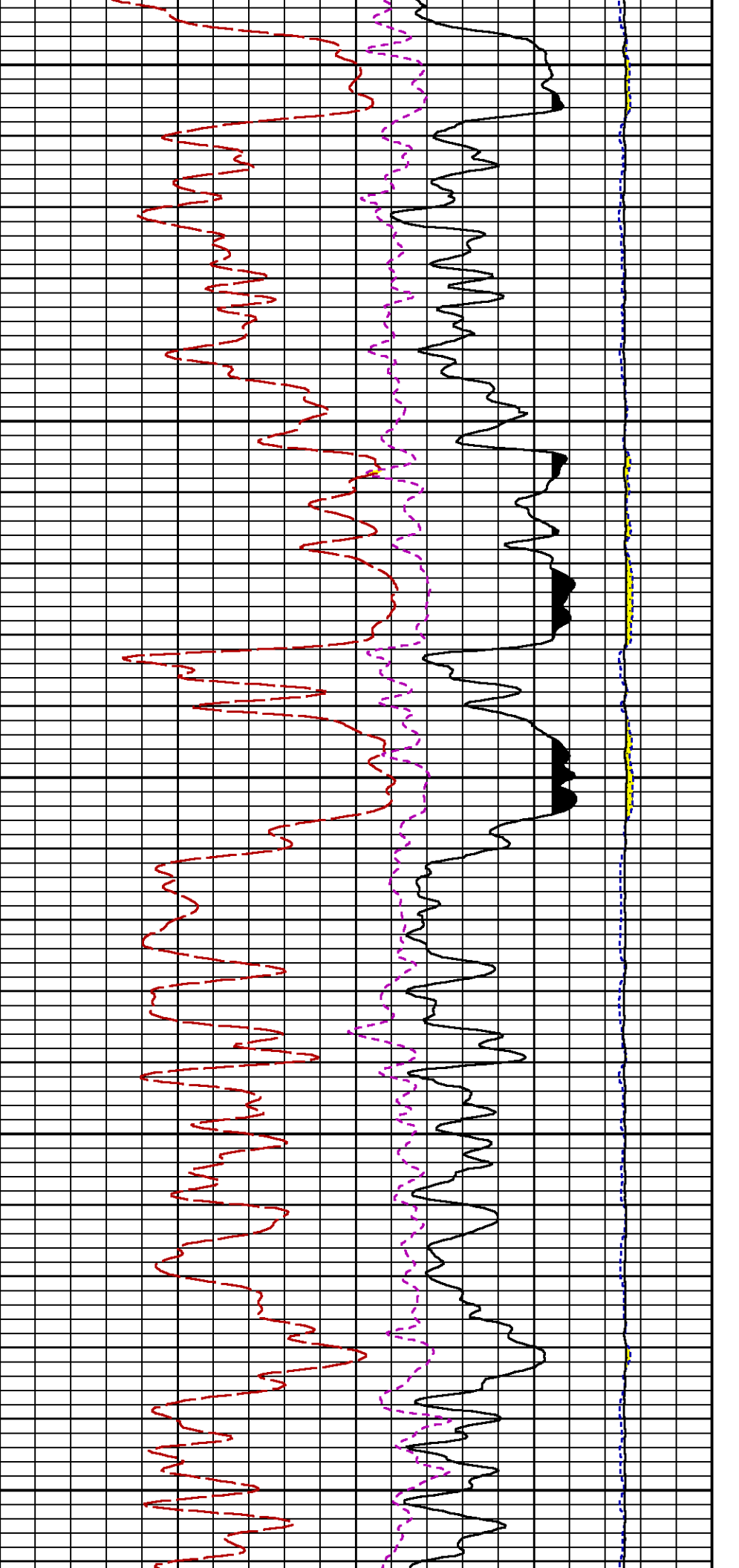


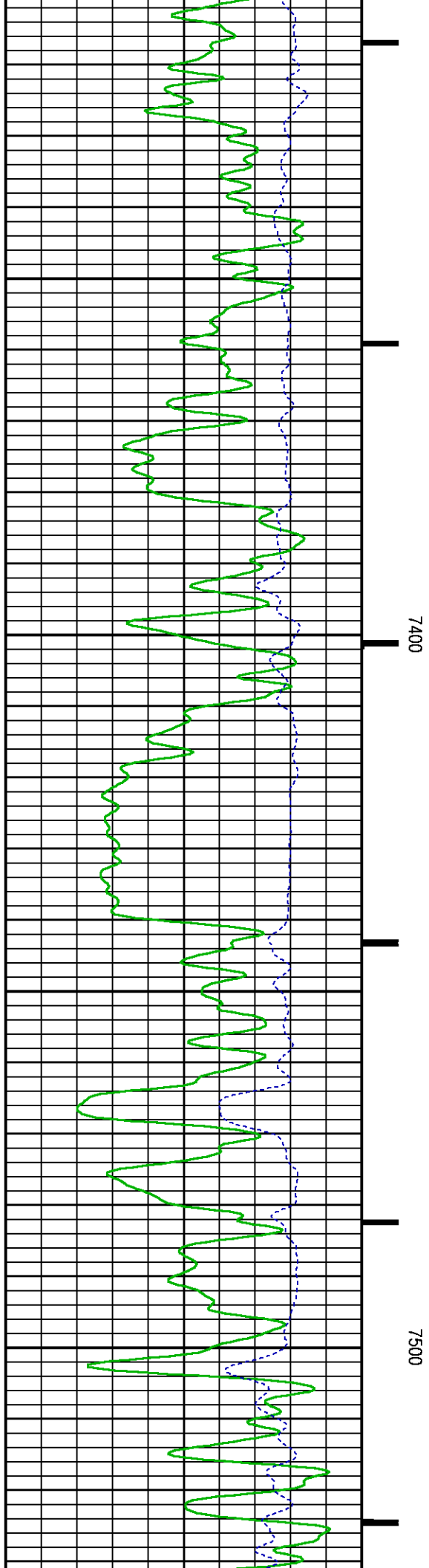
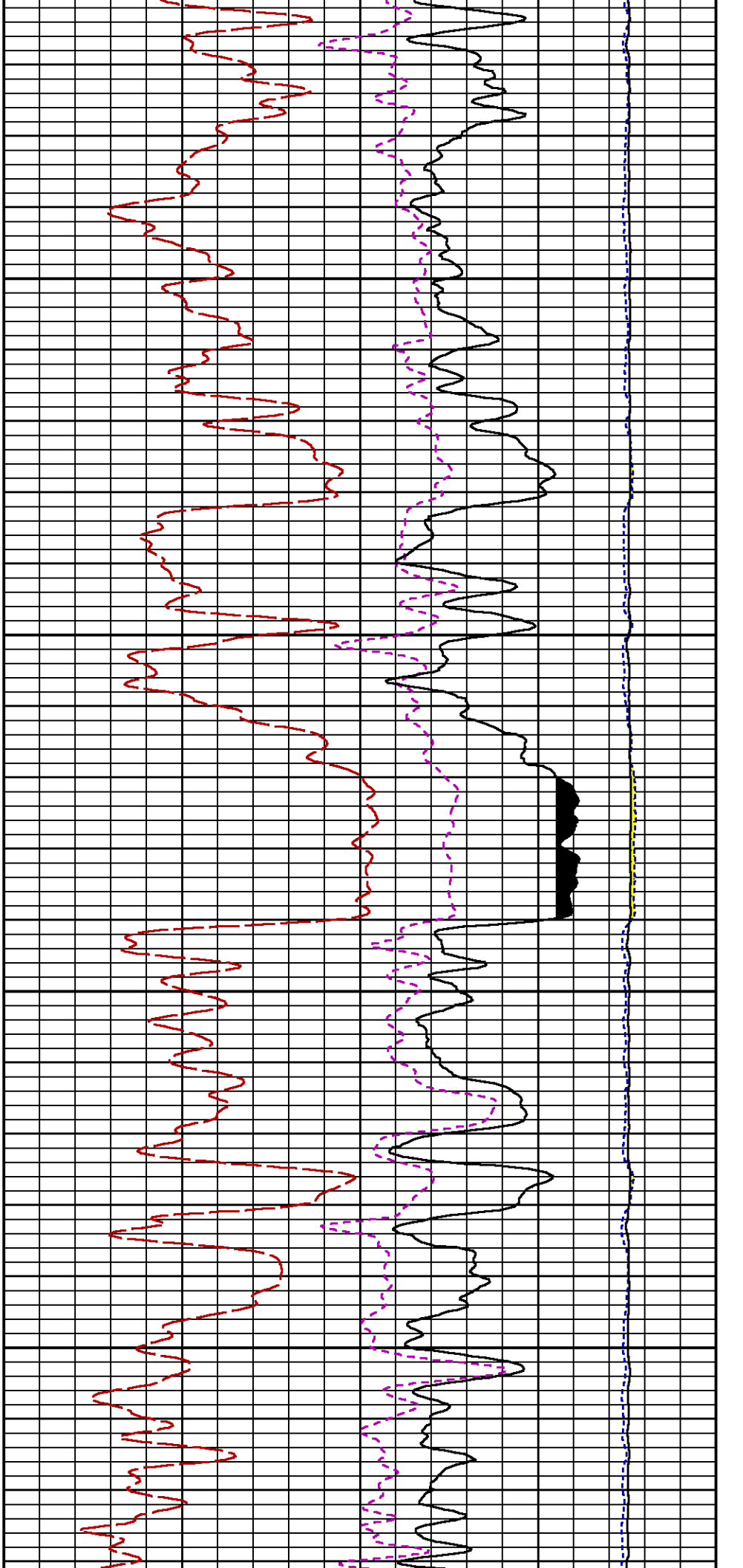


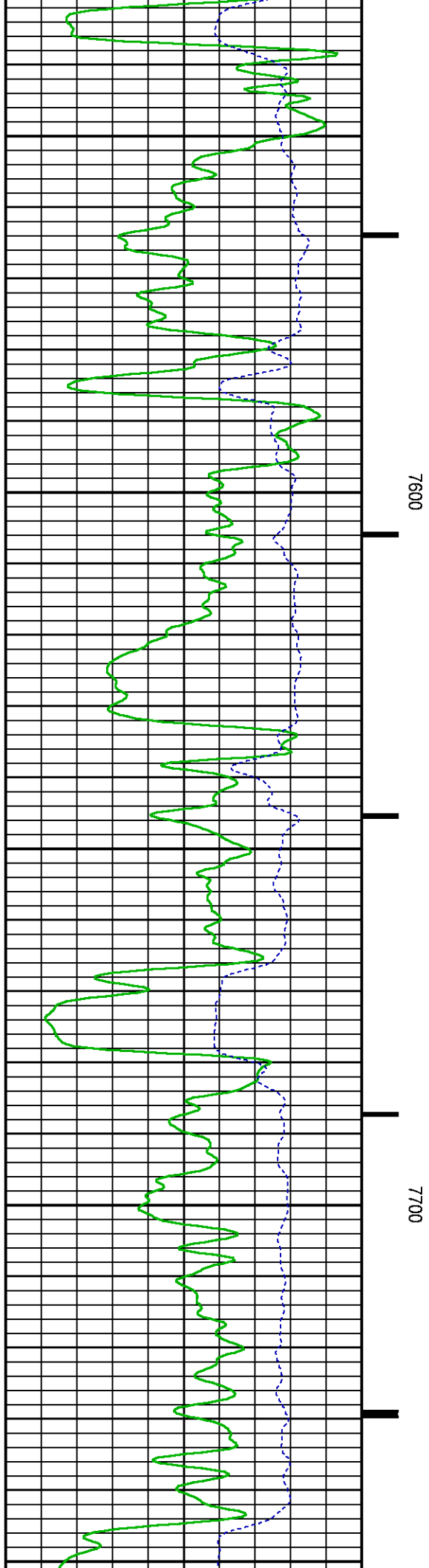
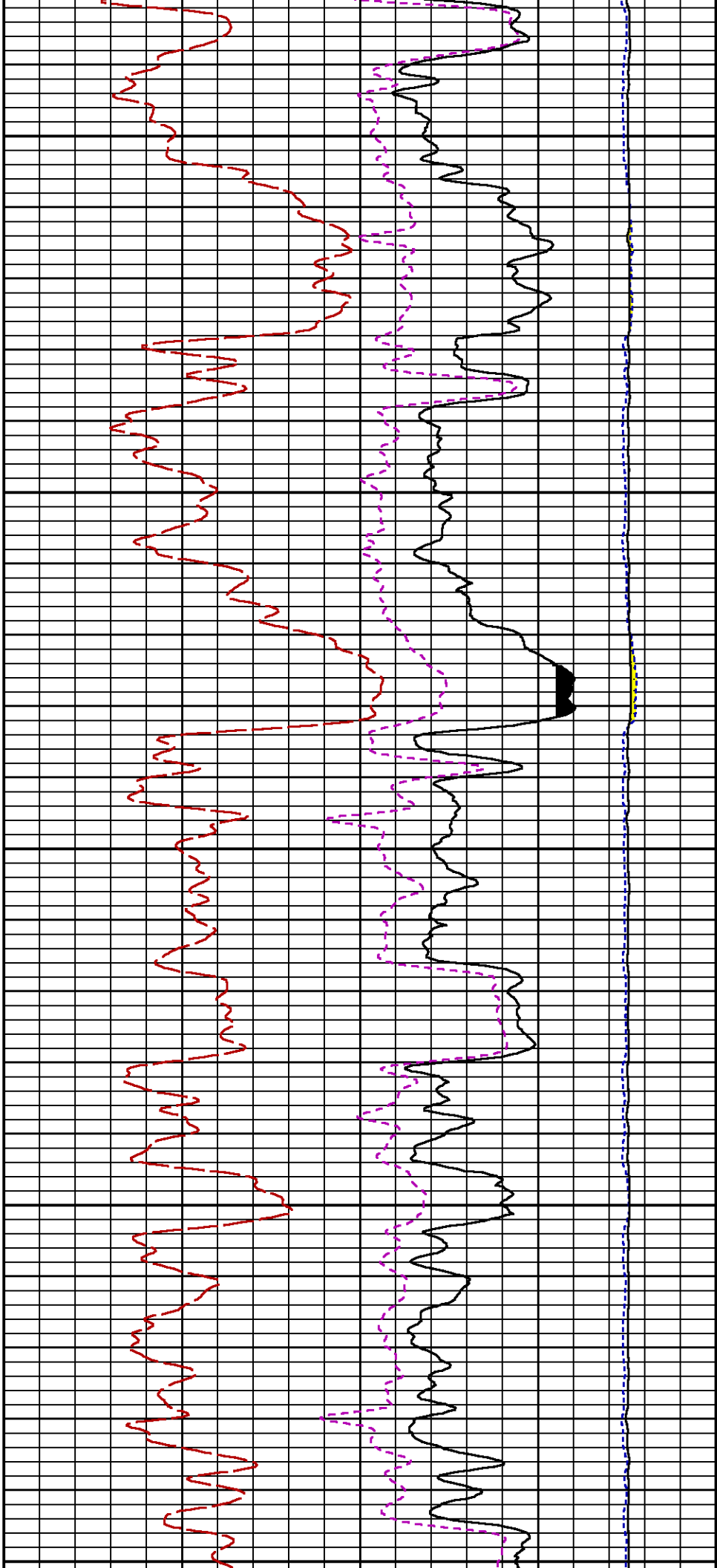
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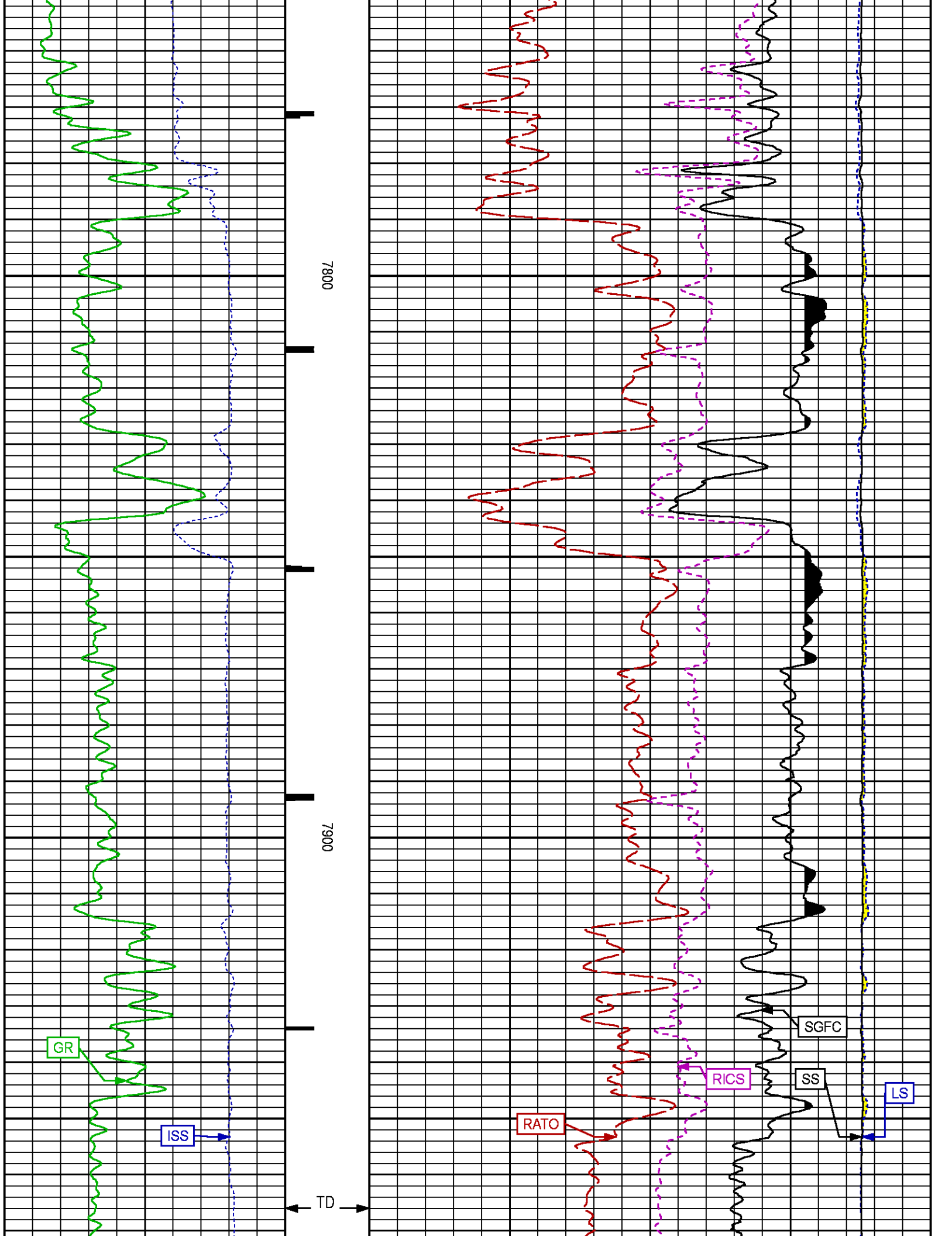
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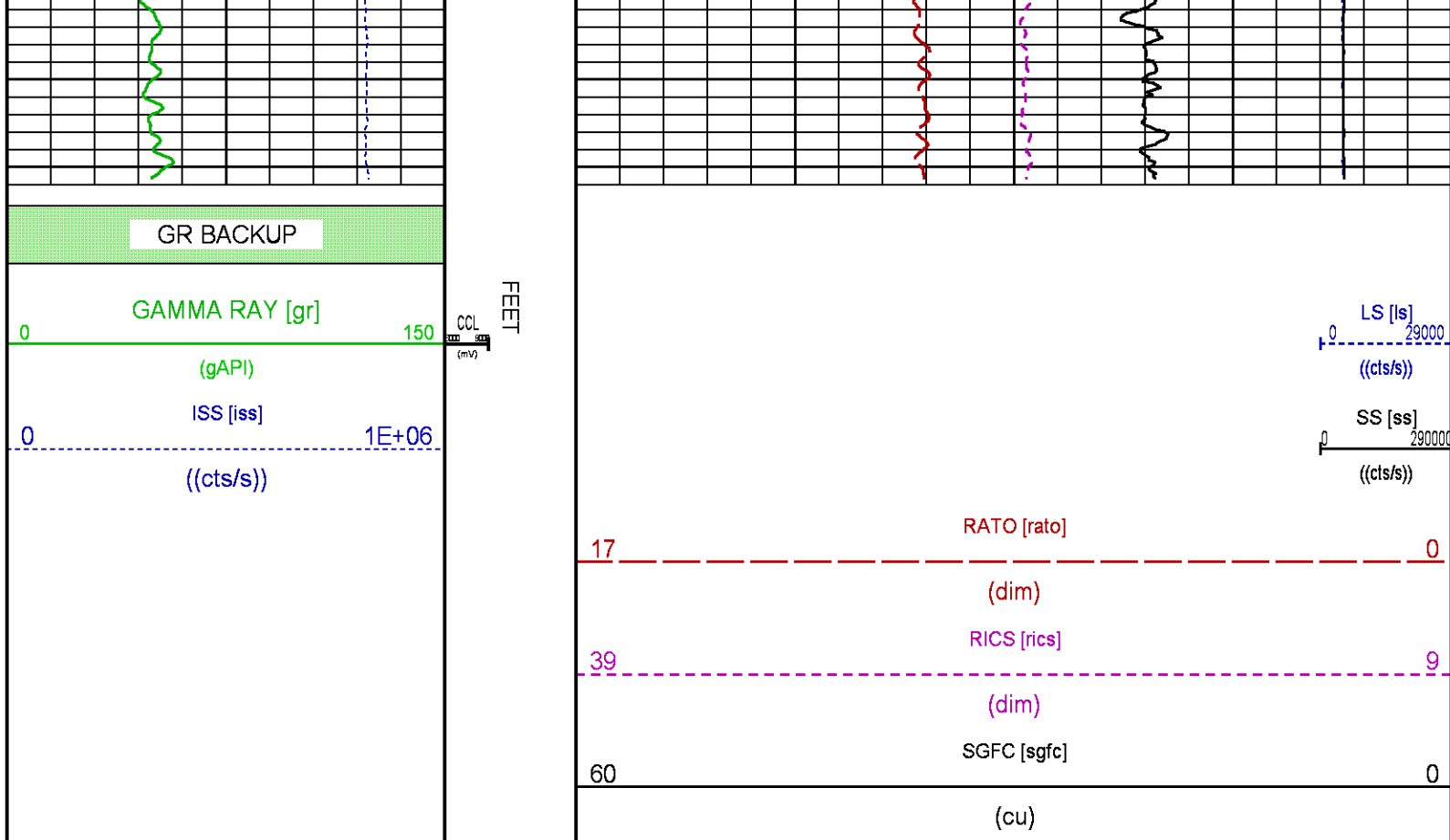












REPEAT PASS

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

Plotted: Mon Jun 25 18:27:31 2018

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_NICHOLS_FED_0994_24_20E/p354h02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4940.000 ft BOTTOM DEPTH: 5205.924 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

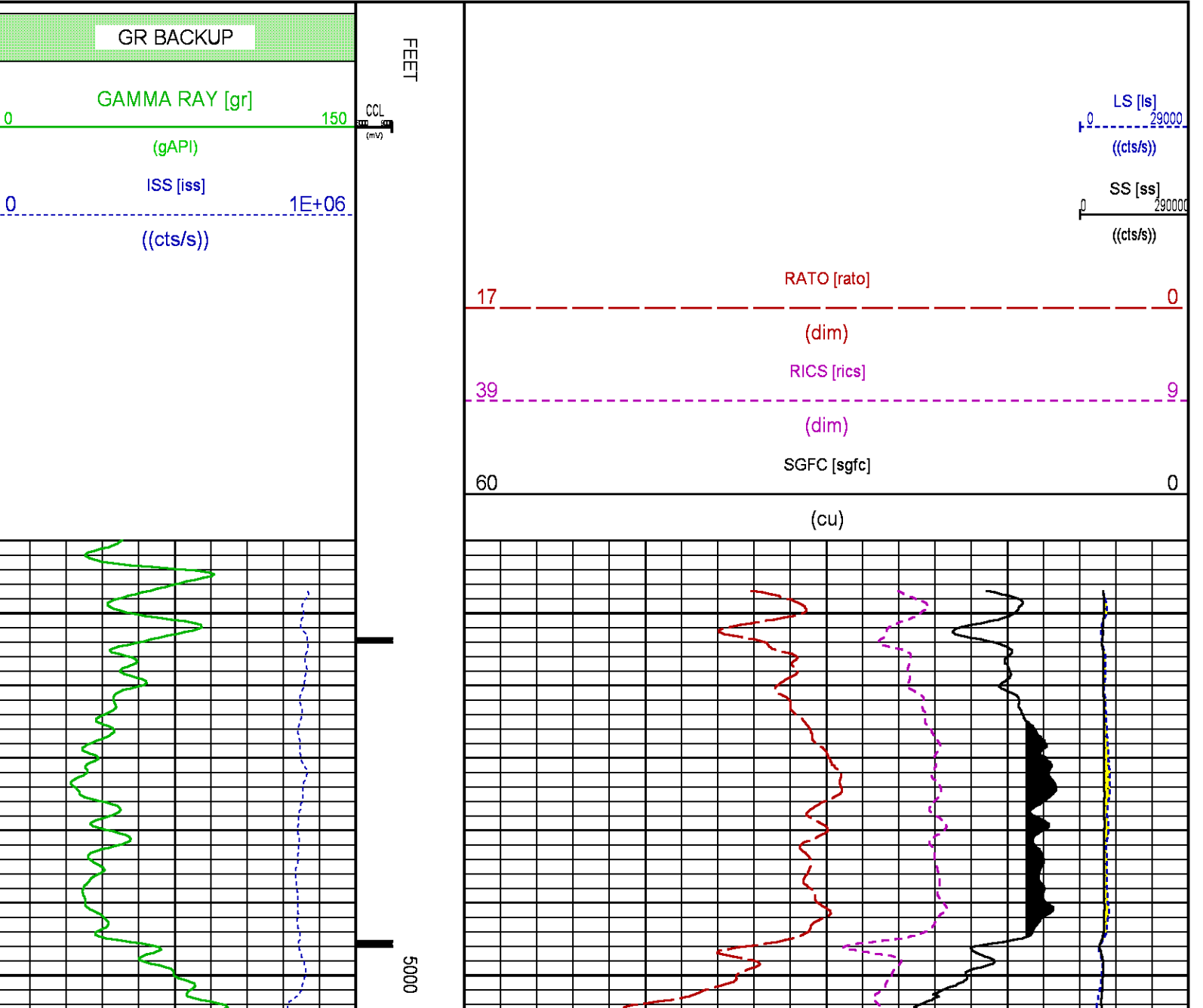
F1:CCL	N/A	CASING COLLAR LOCATOR
F1:GR	N/A	GAMMA RAY
F1:ISS	N/A	INELASTIC SHORT SPACE COUNT RATE
F1:LS	N/A	LONG SPACE COUNT RATE
F1:RATO	N/A	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	N/A	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	N/A	BOREHOLE AND DIFFUSION CORRECTED SIGMA
F1:SS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

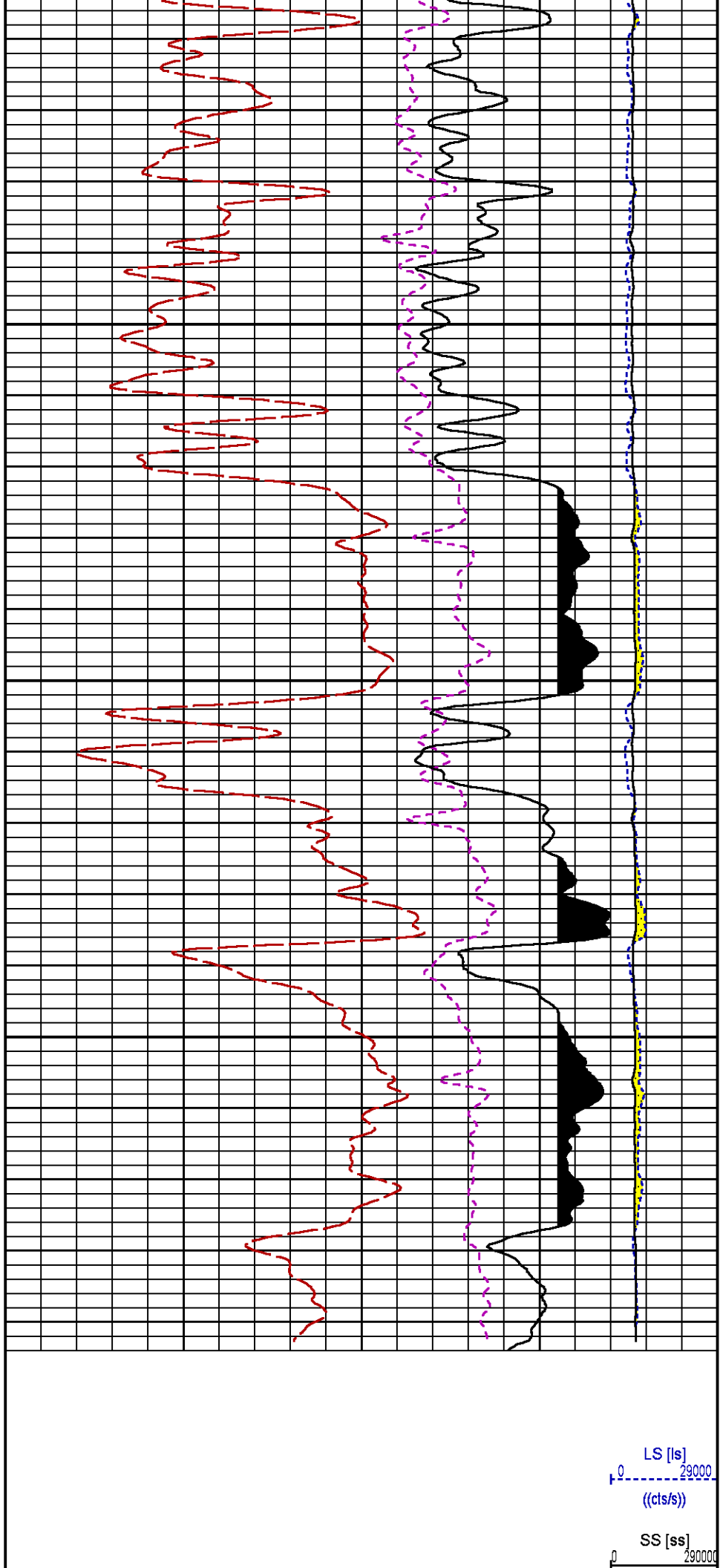
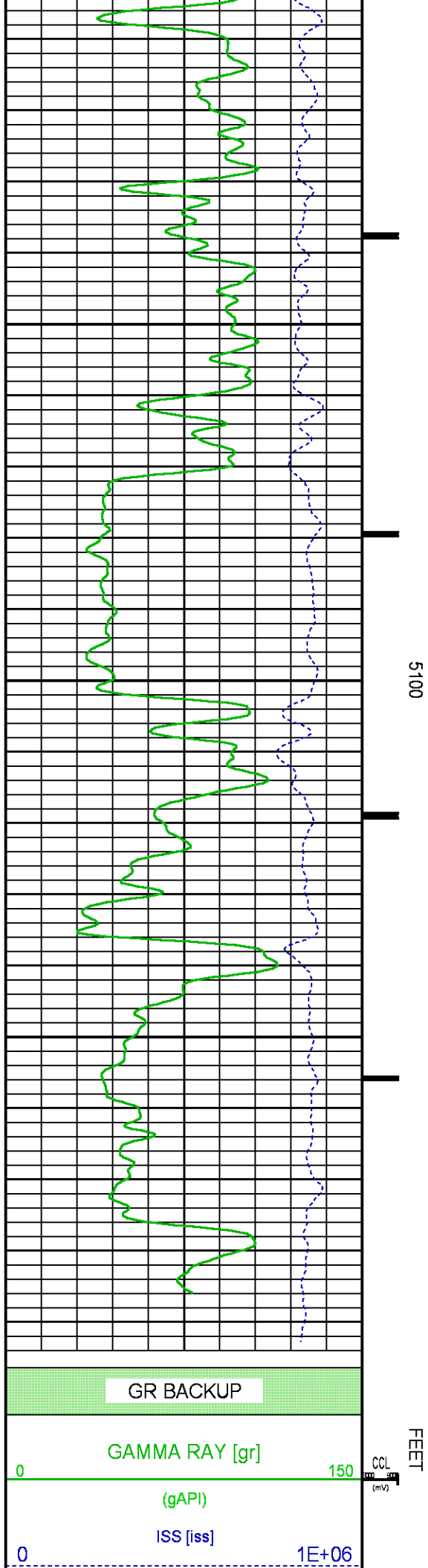
CURVE MEASURE POINT OFFSET

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_FED_0994_24_20E/0994_24_20E_RPM_REPEAT.fvpdf [5"/100' Scale]
Plot Interval : 4940 - 5208.75 Feet

Data File 1 : F1 : SysA:/dat1a/LARAMIE_NICHOLS_FED_0994_24_20E/0994_24_20E_RPM_REPEAT.xtf
Created On : N/A
Company : LARAMIE ENERGY LLC
Well : NICHOLS FED 0994-24-20E
Field : VEGA
File Interval : 4921.25 - 5209 Feet
OCT : p354h





((cts/s))

((cts/s))

RATO [rato]

17

0

(dim)

RICS [rics]

39

9

(dim)

SGFC [sgfc]

60

0

(cu)

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_NICHOLS_FED_0994_24_20E/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 (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	794247	124	2139	2383	2237	120	8.0	1.0374
Interpolated	1300000	145	2128	2374	2232			

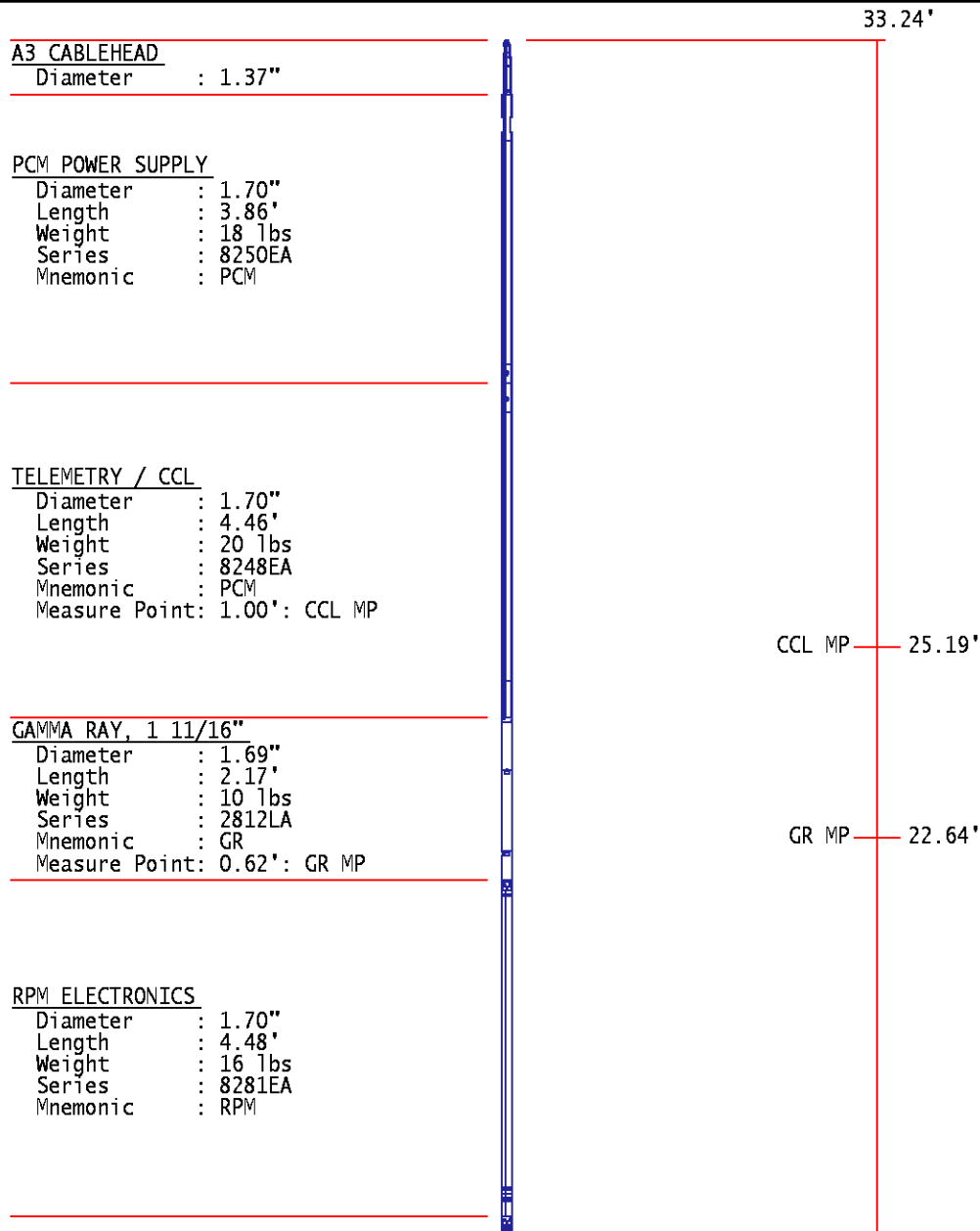
	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	794247	6835	1065	142	25.87	0.15	24.10	0.32
					25.35 26.40	0.00 0.20	23.60 24.80	0.00 0.40

	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	10.99 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_FED_0994_24_20E/p354h~GR_SONDEX.tdg



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

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

0.00'

**COMPANY****LARAMIE ENERGY LLC****WELL****NICHOLS FEDERAL 0994-24-20E****FIELD****VEGA****COUNTY****MESA****STATE****COLORADO****FILE NO:****CH136073****API NO:****05077103830000****LOCATION:**

SHL: 2324' FNL & 2790' FWL

BHL: 462' FSL & 1430' FEL

ELEVATIONS:

KB 7236 FT

DF

GL 7212 FT

SEC **24**TWP **9 S**RGE **94 W**

DATE

25-Jun-2018