



FILE NO: COMPANY LARAMIE ENERGY

WELL GUNDERSON BCU 20-07E

API NO: FIELD VEGA

05077103570000 COUNTY MESA STATE COLORADO

Ver. 4.06 LOCATION: OTHER SERVICES

SHL: LAT:39.266783N; LONG:107.795281W

BHL: LAT:39.265114N; LONG:107.788397W

SEC 20 TWP 9S RGE 93W

PERMANENT DATUM GL ELEVATION 7144 FT

LOG MEASURED FROM KB 30 FT ABOVE P.D.

DRILL. MEAS. FROM KB ELEVATIONS: KB 7176 FT DF 7176 FT GL 7146 FT

DATE 27-AUG-2017

RUN 2 TRIP 1

SERVICE ORDER US126642

DEPTH DRILLER 7909 FT

DEPTH LOGGER 7847 FT

BOTTOM LOGGED INTERVAL 7847 FT

TOP LOGGED INTERVAL 2296 FT

TIME STARTED 21:00

TIME FINISHED 3:00

OPERATOR RIG TIME 6 HOURS

TYPE OF FLUID IN HOLE WATER

FLUID DENSITY NA

FLUID SALINITY NA

FLUID LEVEL 53 FT

LOGGED CEMENT TOP 1569 FT

WELLHEAD PRESSURE 0 PSI

MAXIMUM HOLE DEVIATION NA

NOMINAL LOGGING SPEED 15 FMN

MAX. RECORDED TEMP. 245 DEGF

REFERENCE LOG BAKER HUGHES RAL

REFERENCE LOG DATE 26-AUG-2017

EQUIP. NO. LOCATION HL-6670 WOODWARD

RECORDED BY LSINICKI

WITNESSED BY MR. CHUCK MALLARY

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: *2 OPERATIONS IN WELL*

OPERATION 2: RPM/GR/CCL/TEMP RUN IN COMBINATION

LOGGED WITH 0 PSI ON WELLHEAD

SJ: 5991' - 6010'

SJ: 6993' - 7011'

CREW: G.SUAREZ, J.PENA

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
2	1	TELEMETRY	8250EA/8248EA	10185091/10323398	FREE
2	1	GAMMA RAY	8262XA	10485470	FREE
2	1	RPM	8281EA	10387162	FREE
2	1	RPM	8283PA	10184883	FREE
2	1	RPM	8281FA	10315572	FREE
2	1	TEMP	8255XA	120516	FREE

G-SAND PNC-3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013

Updates: 1 Patches: 9

Plotted: Sun Aug 27 03:52:43 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_GUNDERSON_20_07E/RPM3D03.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 2273.250 ft BOTTOM DEPTH: 2956.000 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	"	"
	CASING SIZE	4.50	in	"	"
	MATRIX	SANDSTONE		"	"
	CORRECTION BUFFER	11		"	"

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Aug 27 03:05:49 2017	CASING COLLAR LOCATOR
F1:GR	Aug 27 03:05:49 2017	GAMMA RAY
F1:ISS	Aug 27 03:05:49 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Aug 27 03:05:49 2017	LONG SPACE COUNT RATE
F1:RATO	Aug 27 03:05:49 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Aug 27 03:05:49 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Aug 27 03:05:49 2017	CORRECTED FORMATION SIGMA
F1:SS	Aug 27 03:05:49 2017	SHORT SPACE COUNT RATE

CURVE MEASURE POINT OFFSET

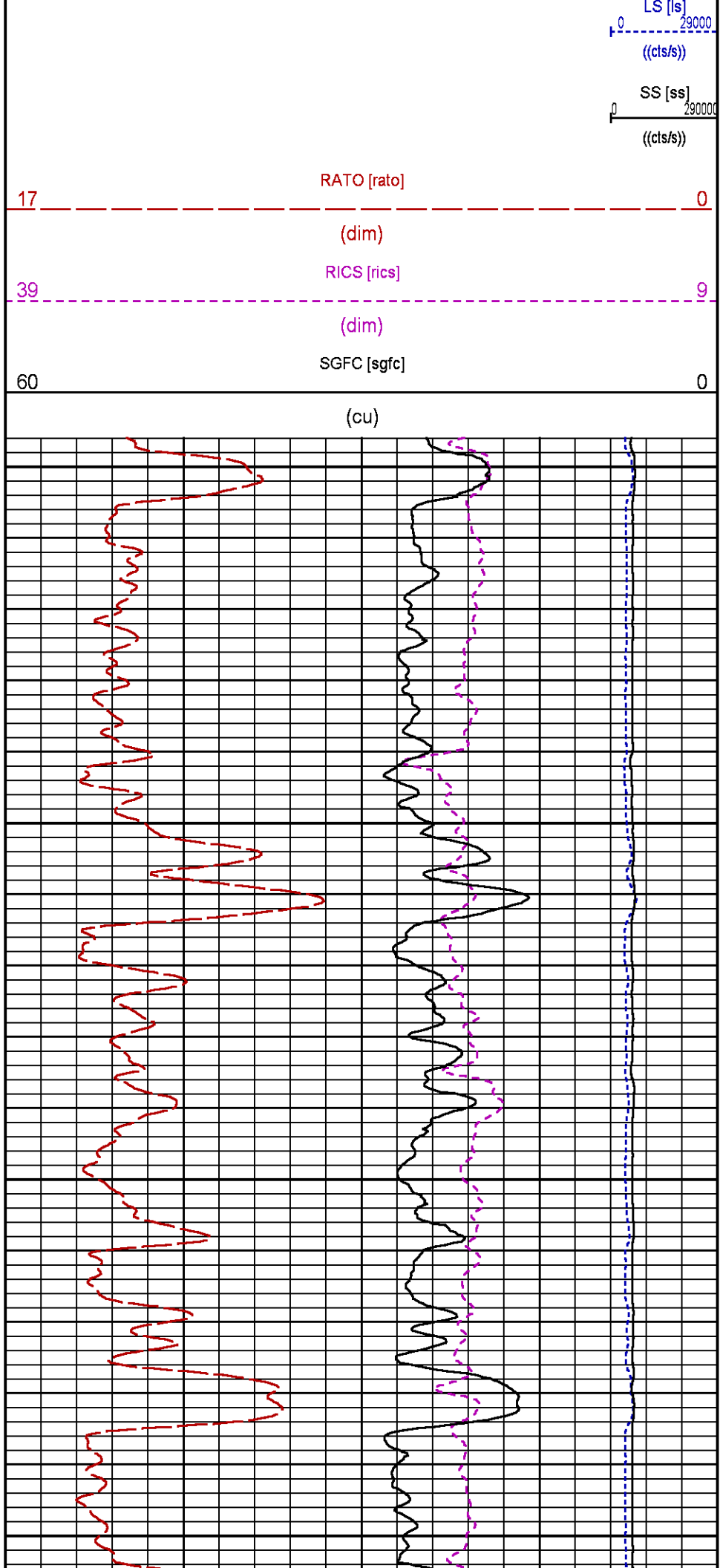
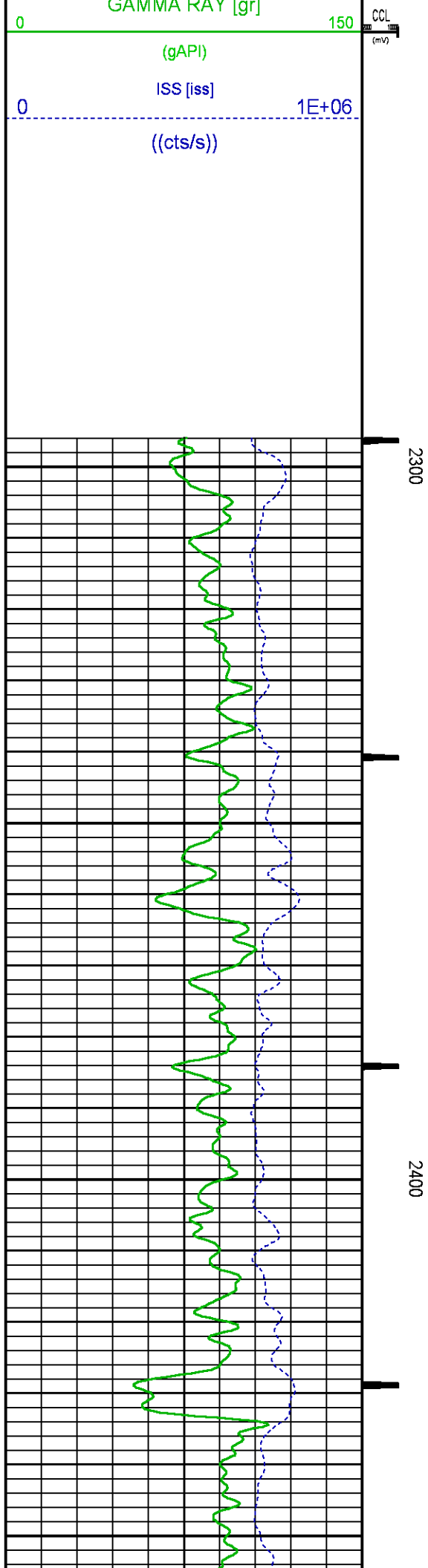
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	26.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	23.00	LS	12.75	RICS	12.75	SS	12.75

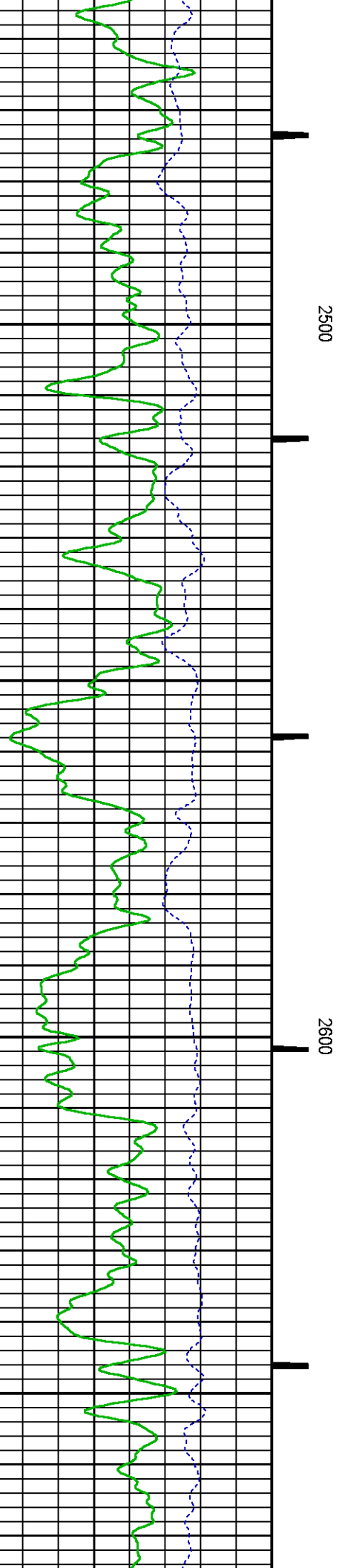
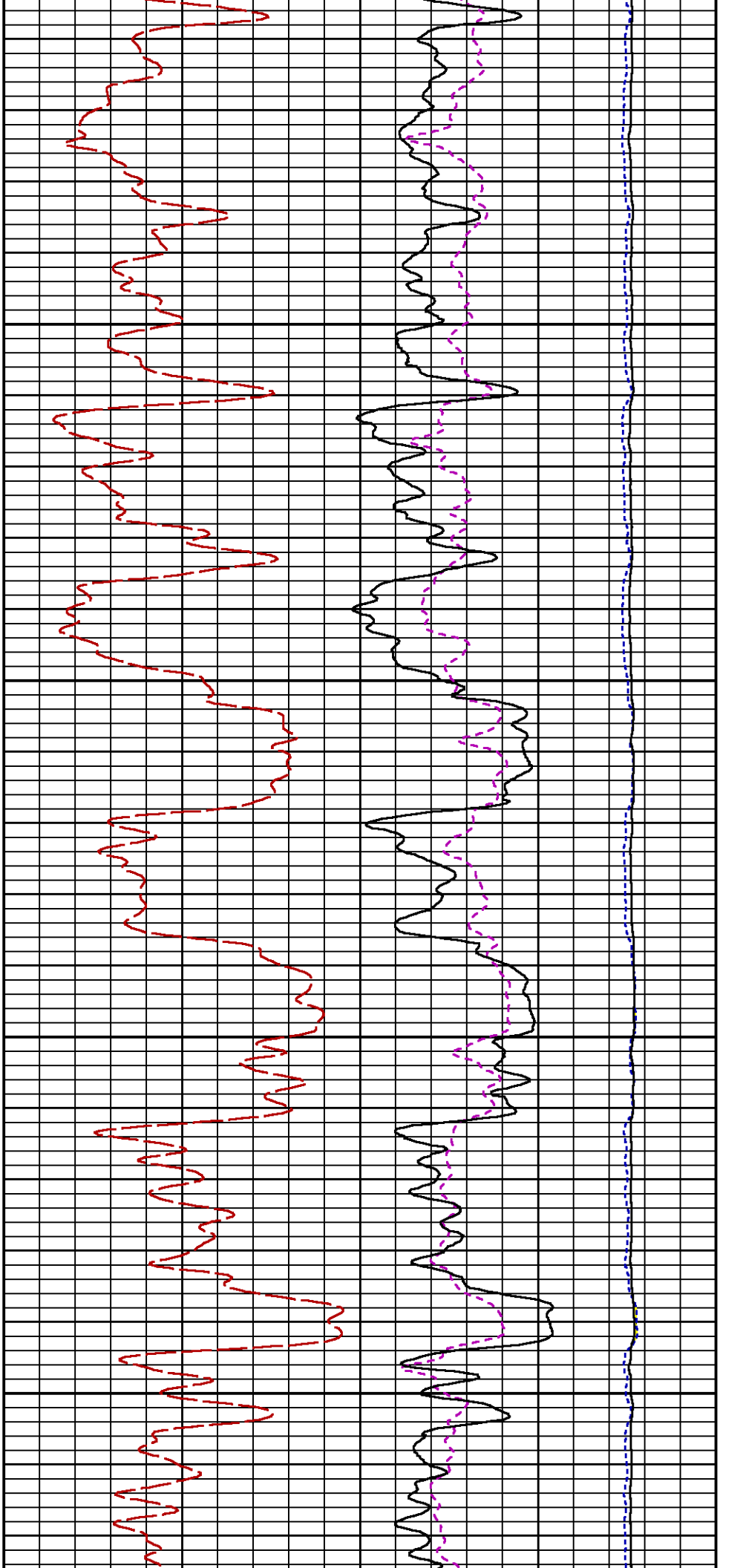
Presentation : cpu100:/dat1a/LARAMIE_GUNDERSON_20_07E/GUNDERSON_20_07E_RPM_GSAND.fvpdf [5"/100' Scale]
Plot Interval : 2296 - 2896 Feet

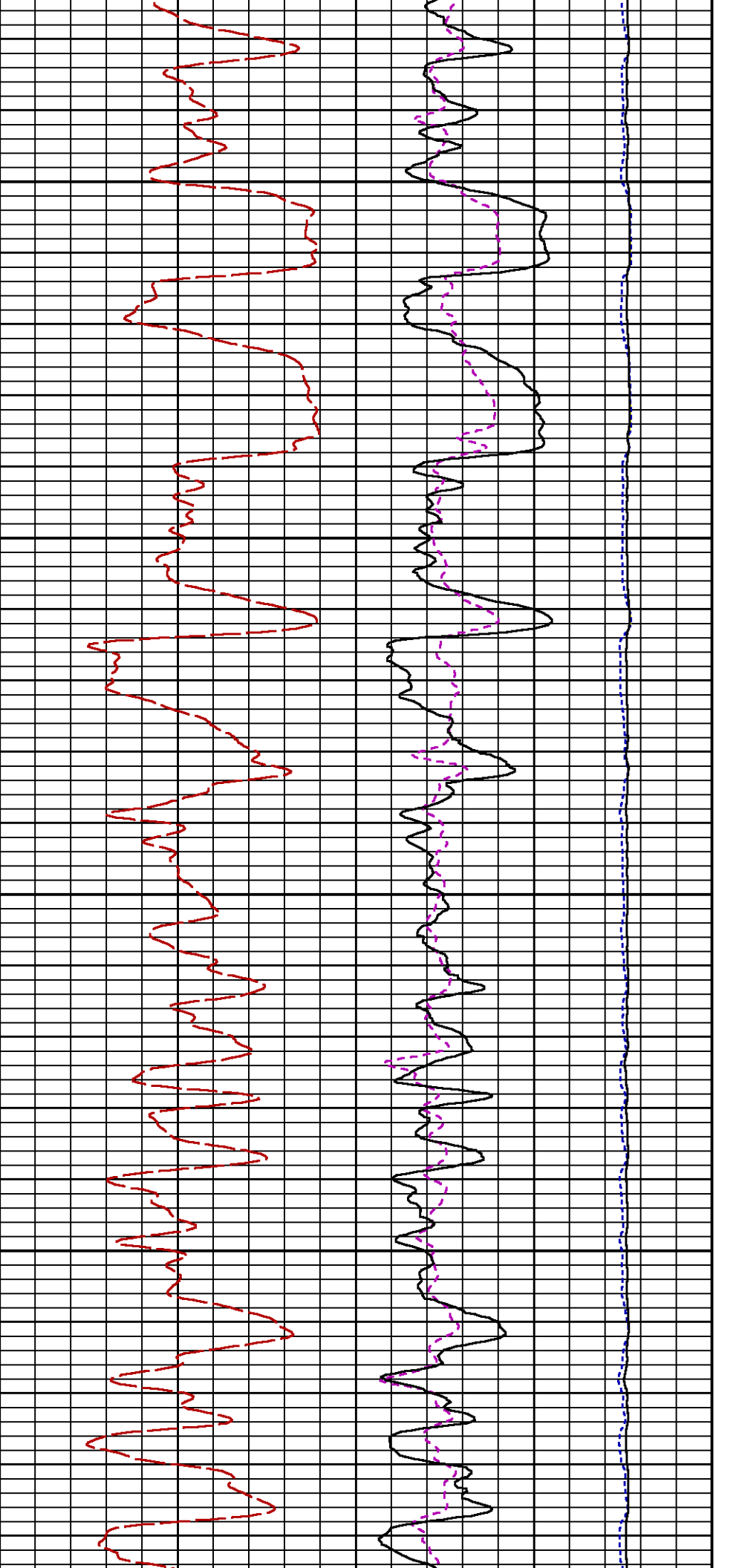
Data File 1 : F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_07E/RPM3D03_GSAND.xtf
Created On : Aug 27 03:05:49 2017
Company : LARAMIE ENERGY
Well : GUNDERSON BCU 20-07E
Field : VEGA
File Interval : 2255.25 - 2963.75 Feet
OCT : RPM3D

GR BACKUP

FEET

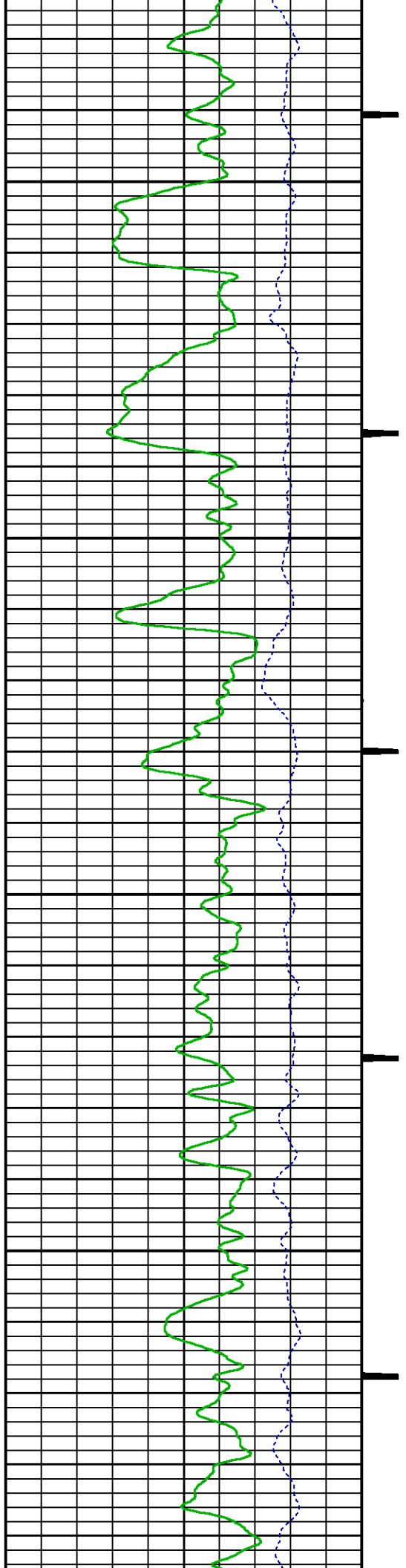


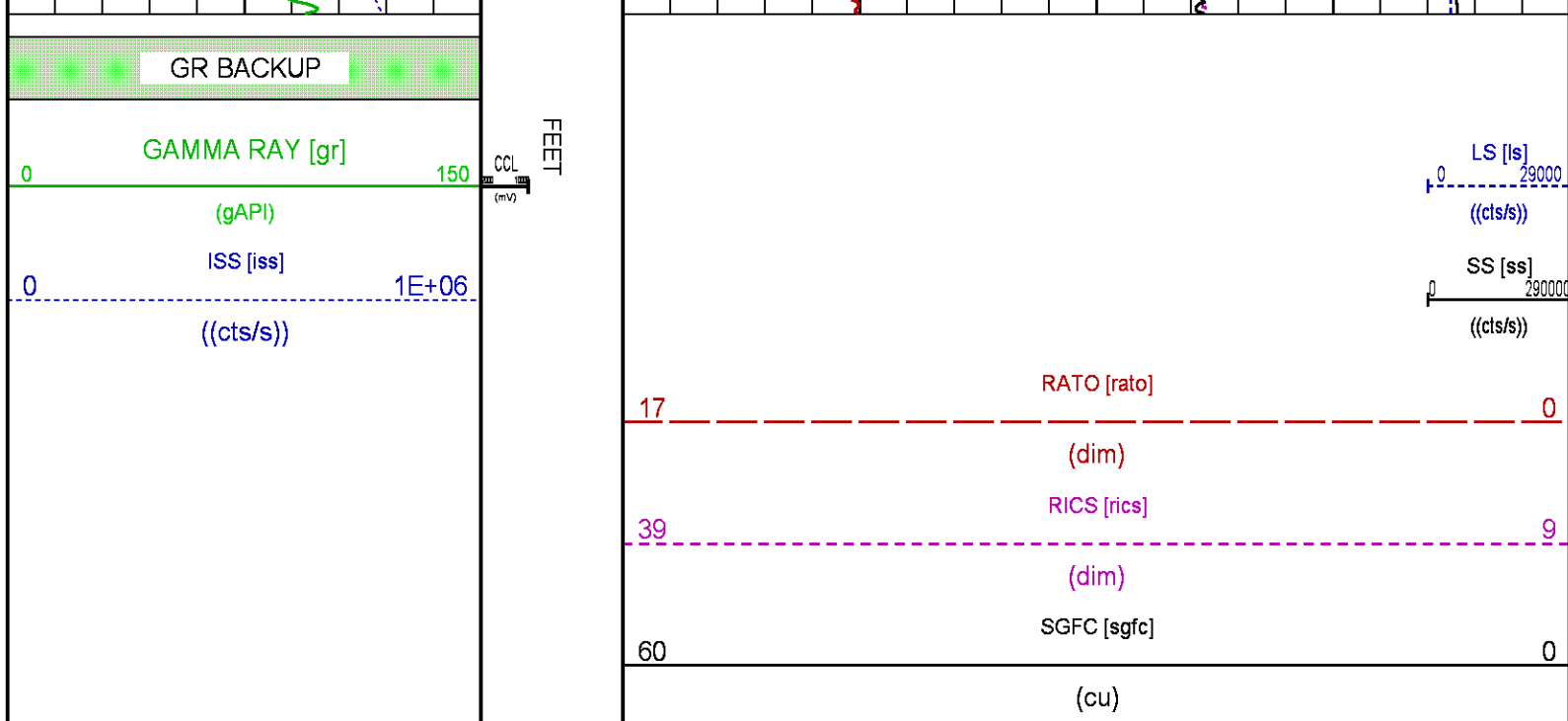




2700

2800





MAIN PASS PNC-3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013
 Updates: 1 Patches: 9

Plotted: Sun Aug 27 02:59:12 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_GUNDERSON_20_07E/RPM3D02.prm
 LOGGING MODE: DEPTH DIRECTION: UP
 TOP DEPTH: 4129.250 ft BOTTOM DEPTH: 7862.302 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	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

CURVE DESCRIPTION REPORT

CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Aug 27 02:55:21 2017	CASING COLLAR LOCATOR
F1:GR	Aug 27 02:55:40 2017	GAMMA RAY
F1:ISS	Aug 27 02:55:40 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Aug 27 02:55:40 2017	LONG SPACE COUNT RATE
F1:RATO	Aug 27 02:55:46 2017	SHORT/LONG SPACE COUNT RATE RATIO

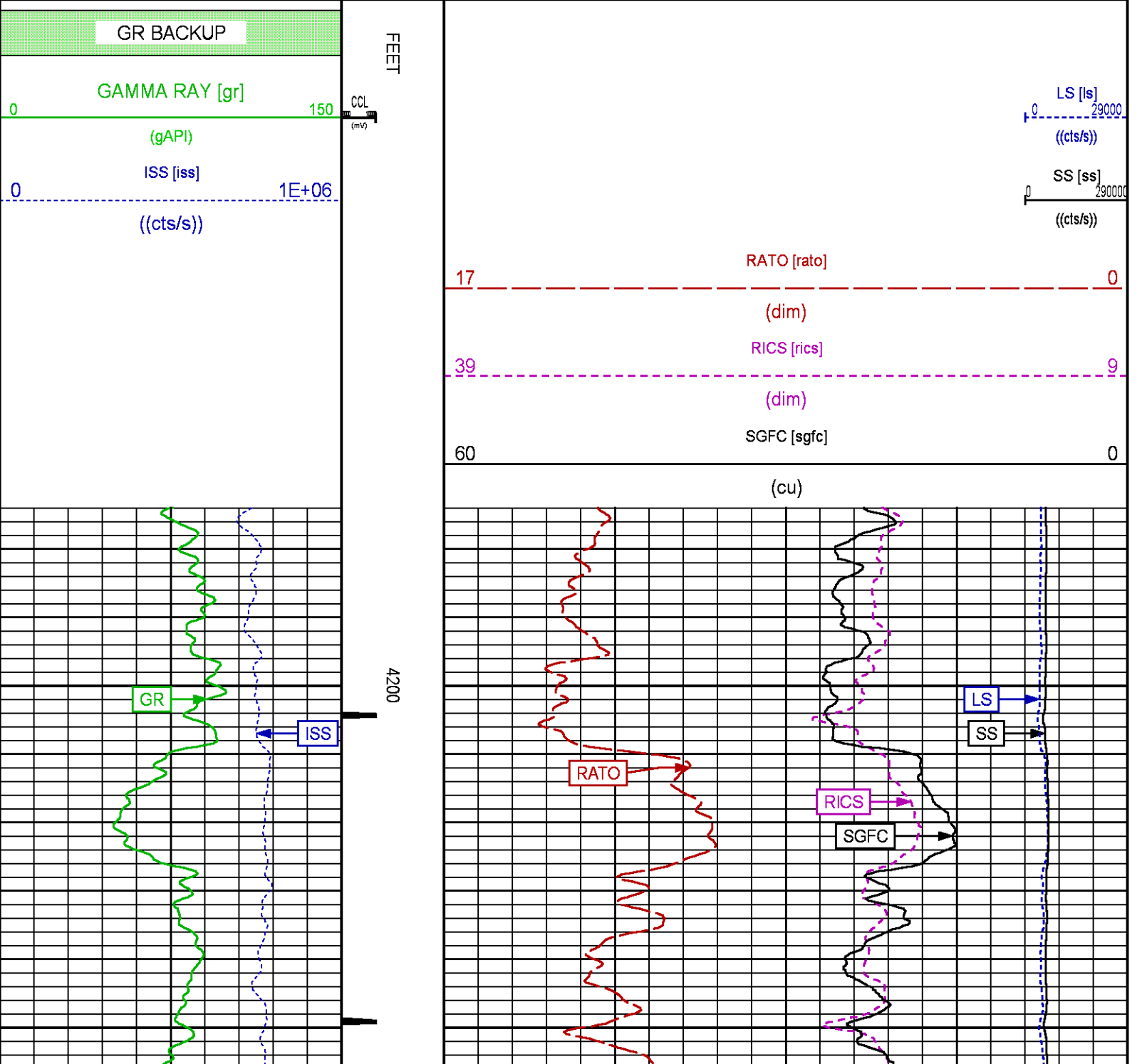
CURVE MEASURE POINT OFFSET							
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	26.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	23.00	LS	12.75	RICS	12.75	SS	12.75

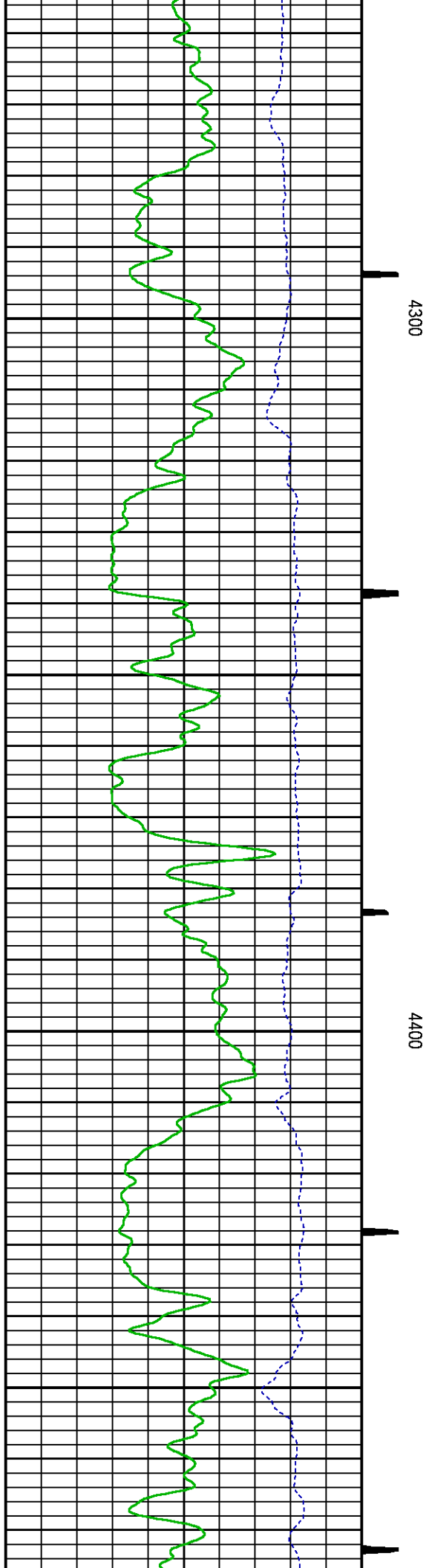
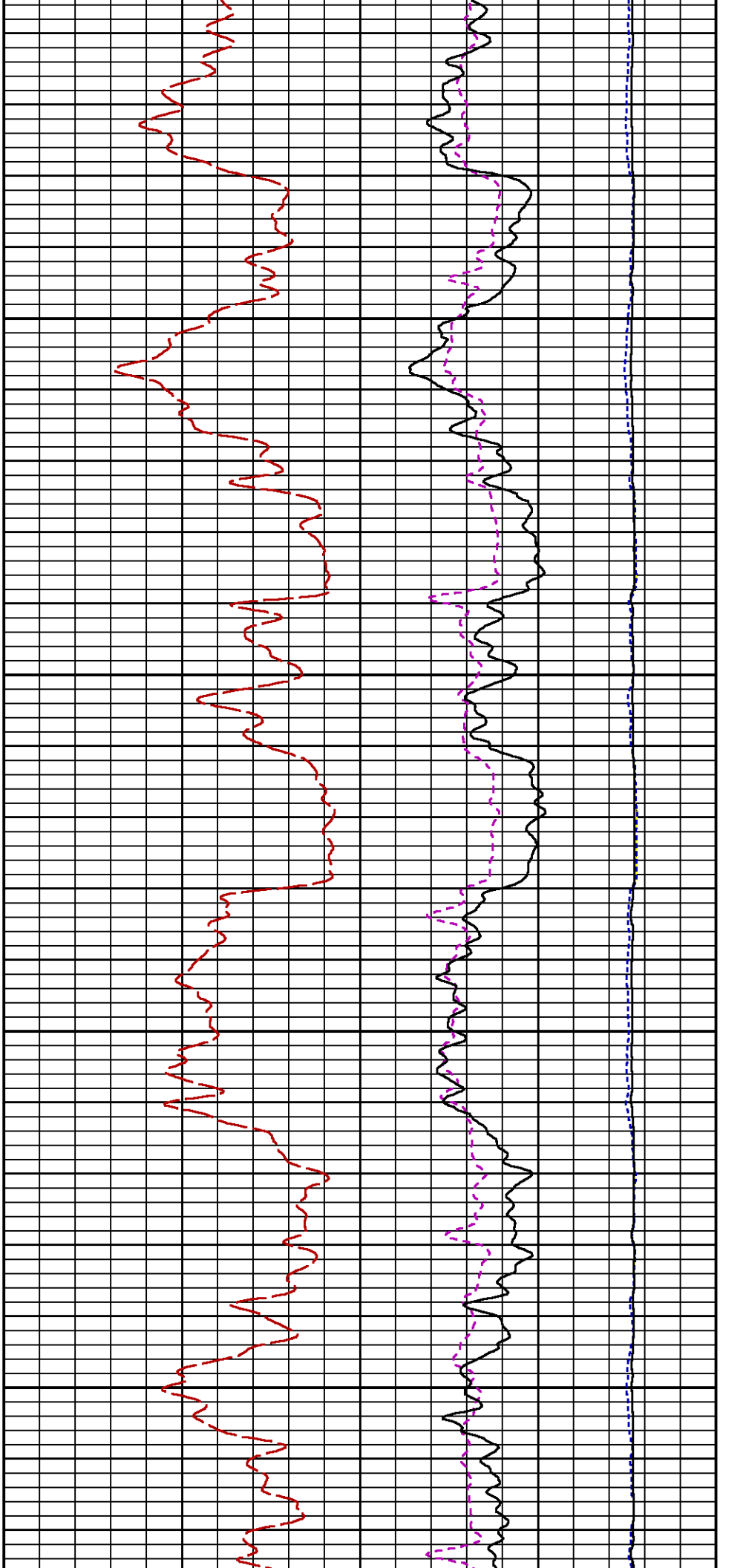
Presentation
Plot Interval

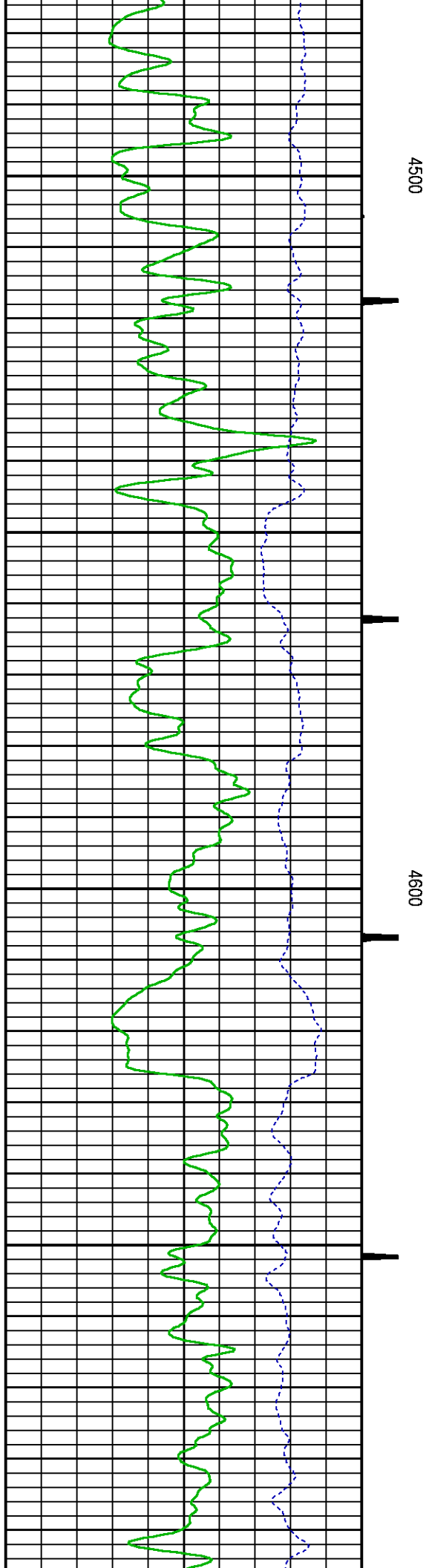
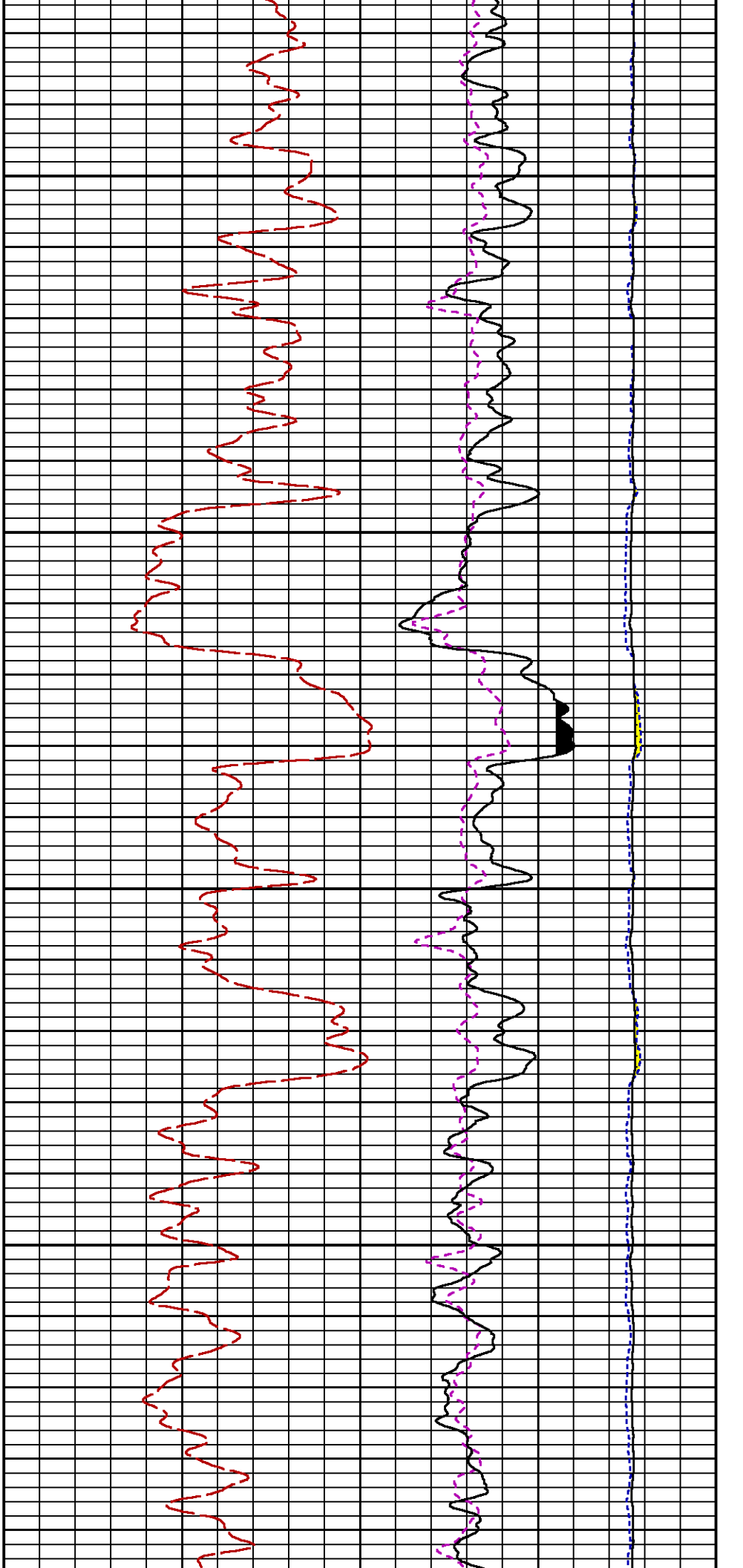
: cpu100:/dat1a/LARAMIE_GUNDERSON_20_07E/GUNDERSON_20_07E_RPM_MAIN.fvpdf [5"/100' Scale]
: 4174 - 7857.5 Feet

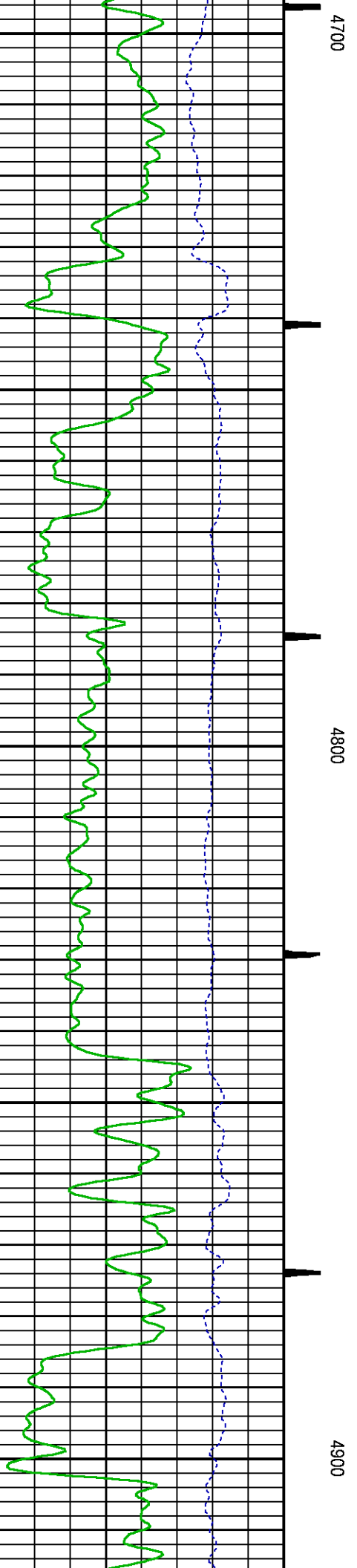
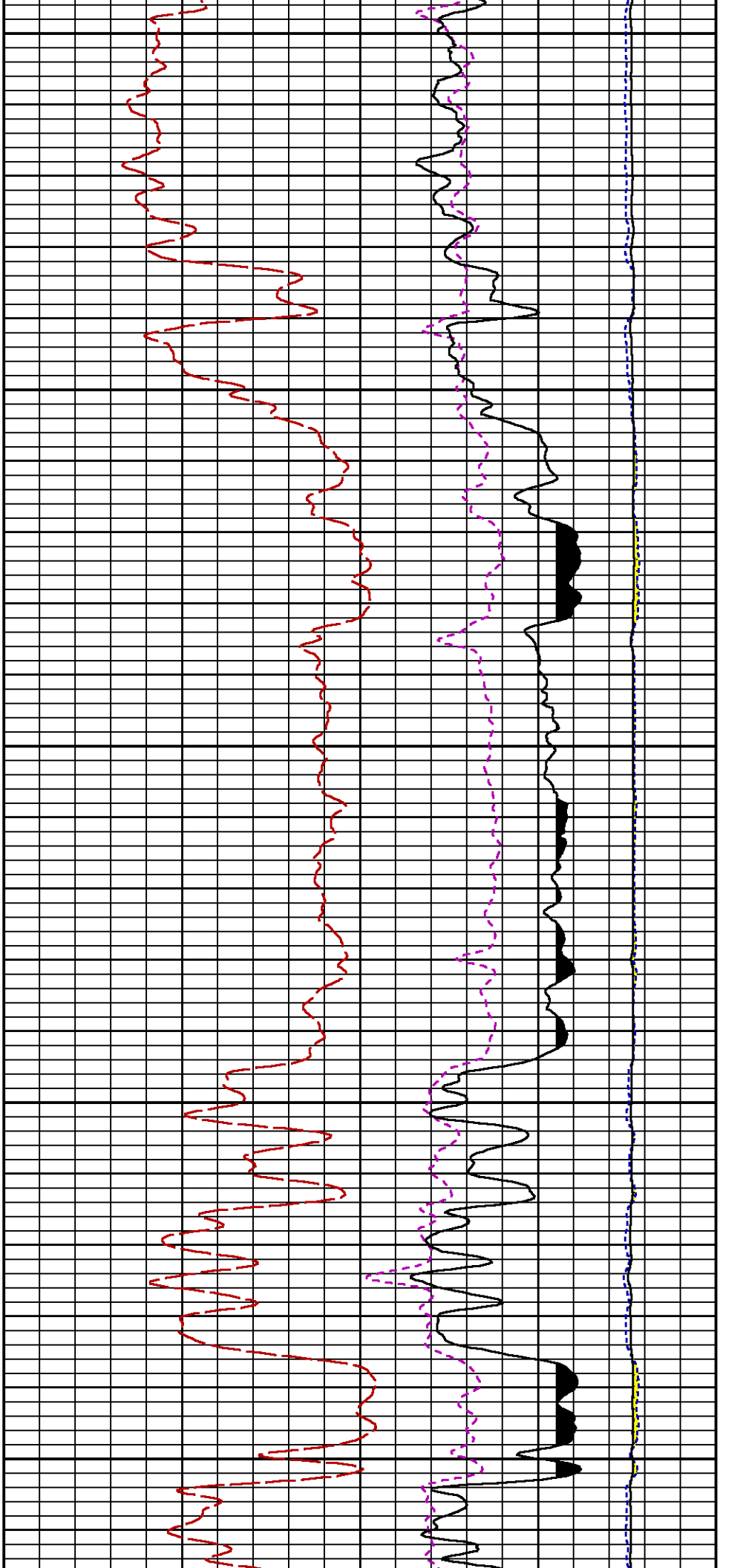
Data File 1
Created On
Company
Well
Field
File Interval
OCT

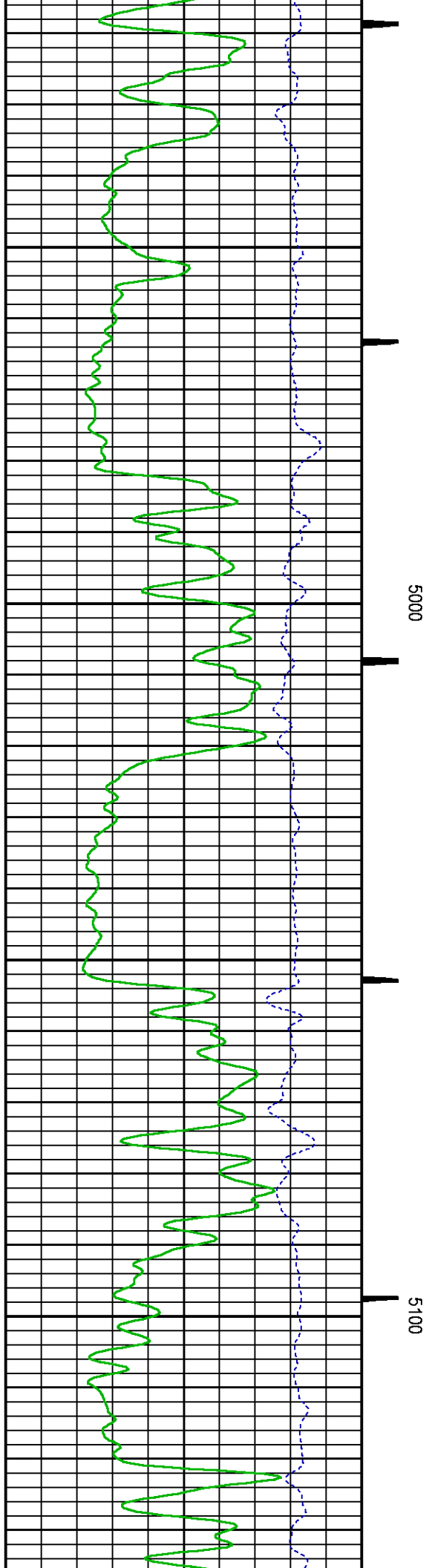
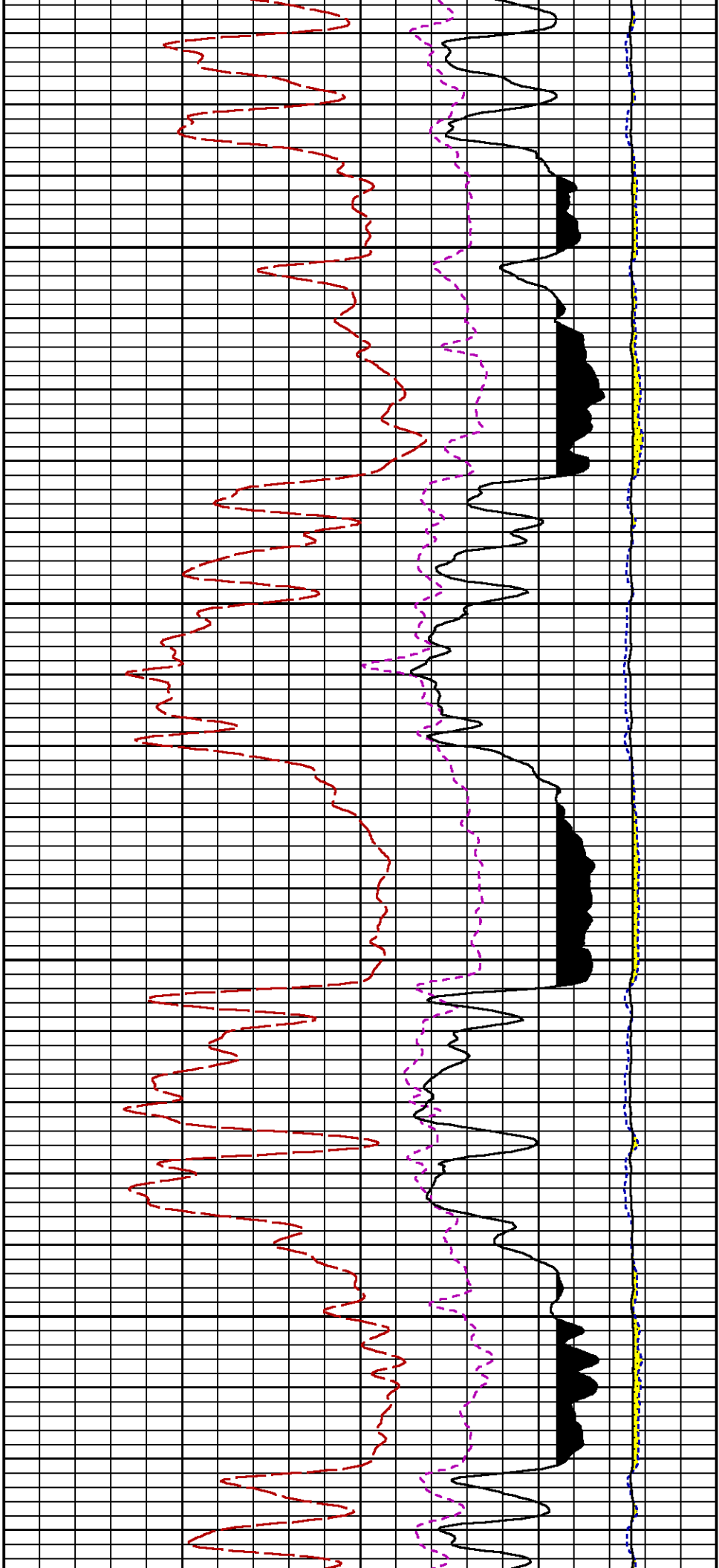
: F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_07E/RPM3D02_MAIN.xtf
: Aug 27 02:55:15 2017
: LARAMIE ENERGY
: GUNDERSON BCU 20-07E
: VEGA
: 4111.25 - 7866.25 Feet
: RPM3D

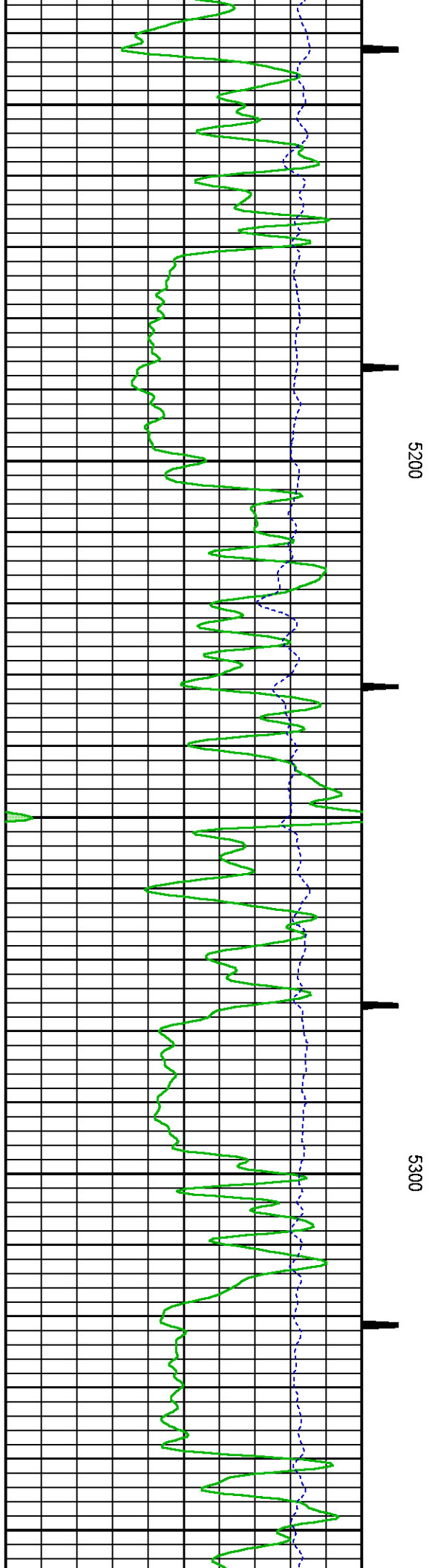
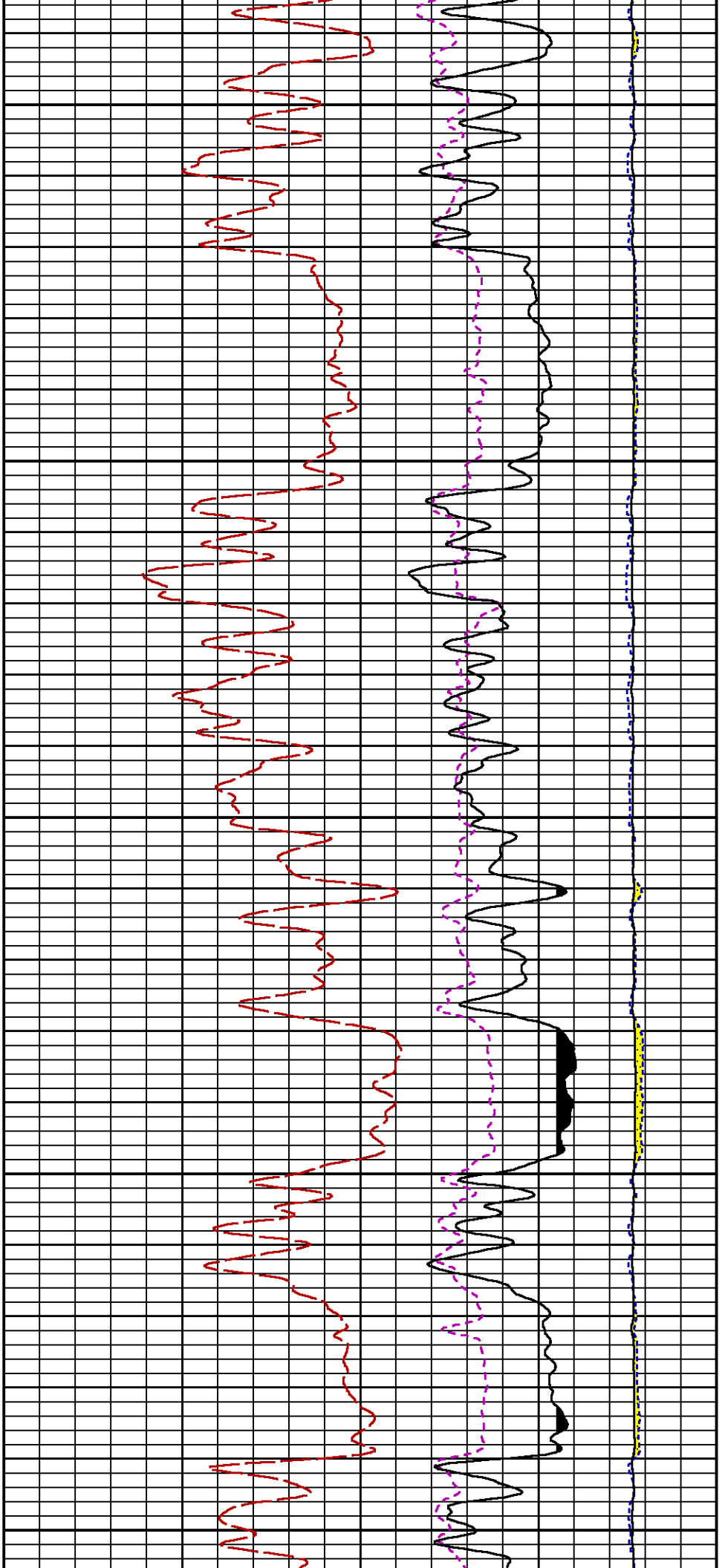


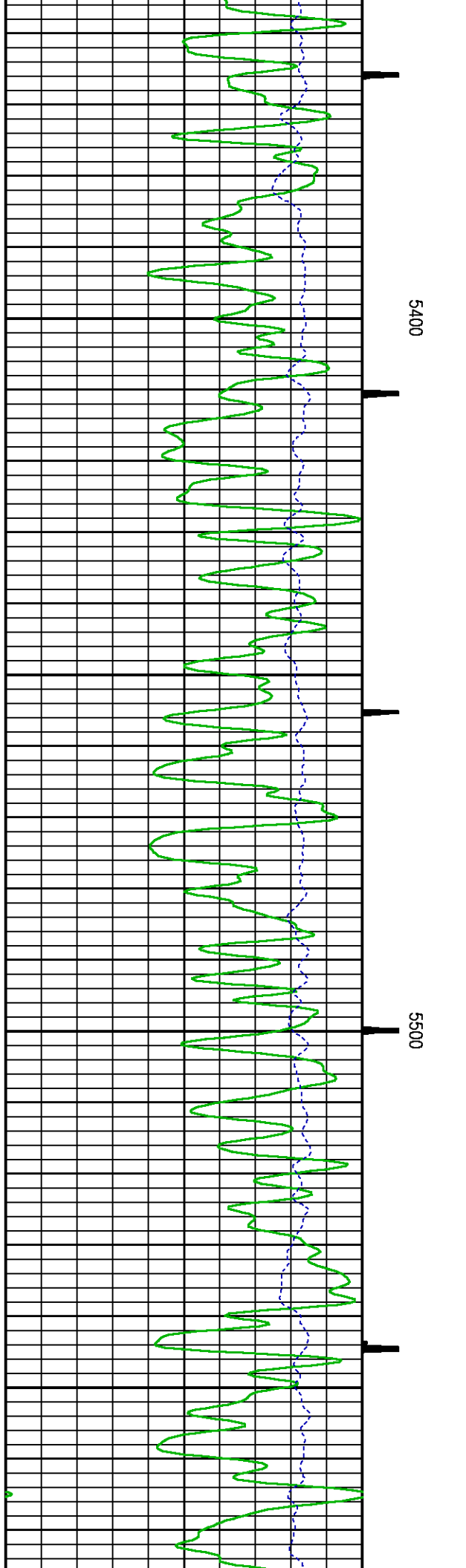
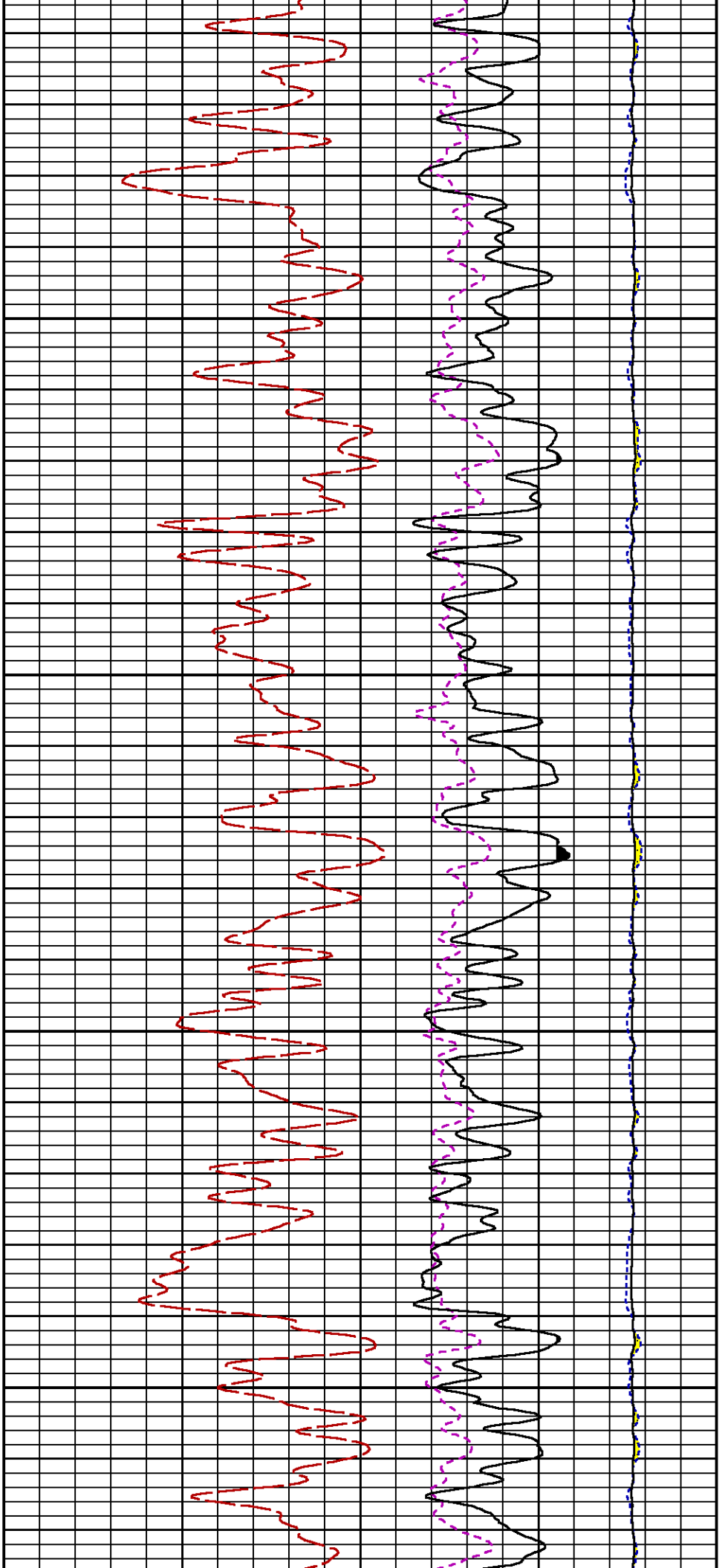


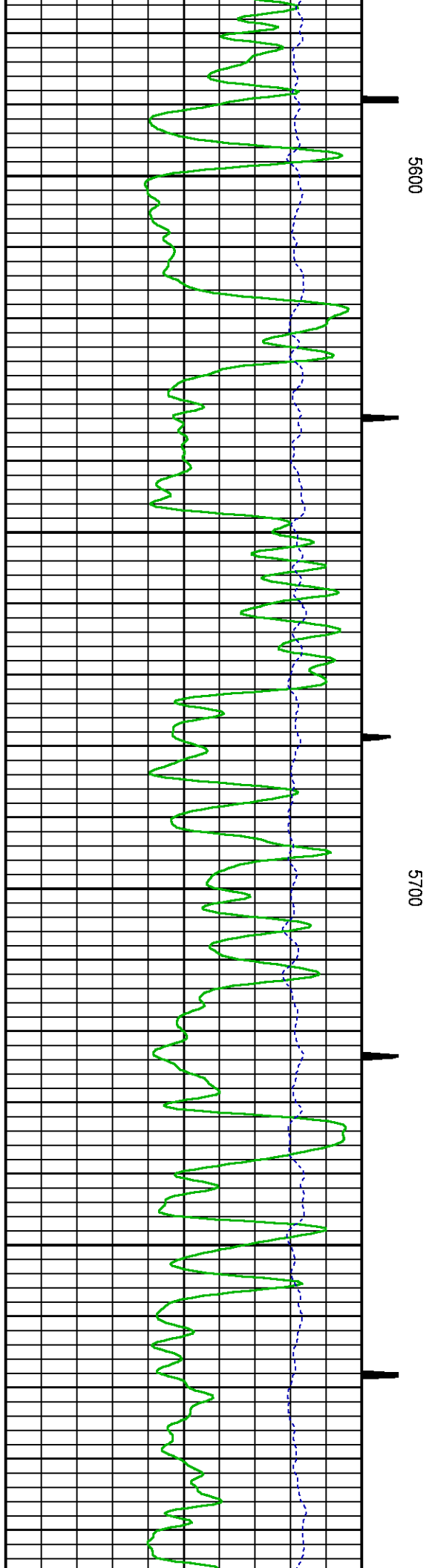
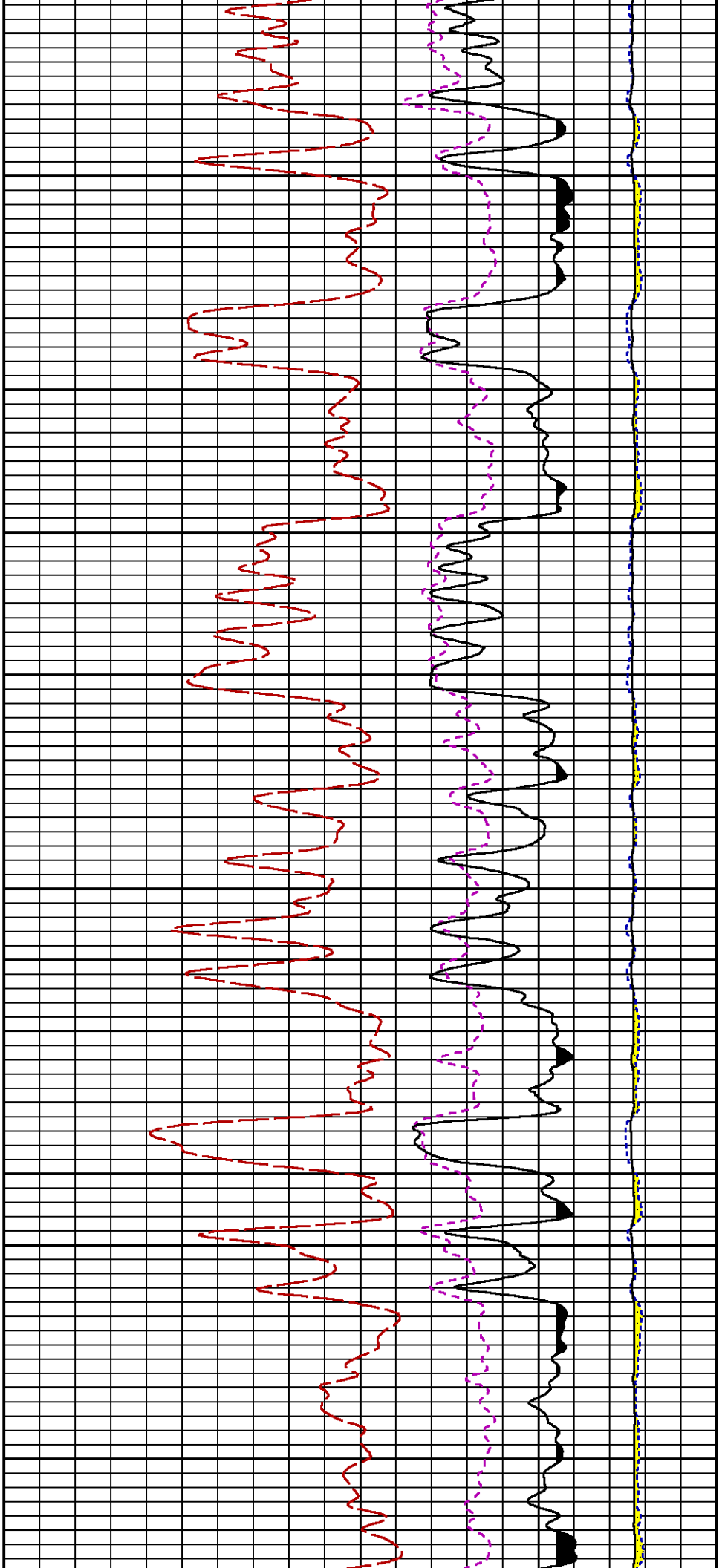


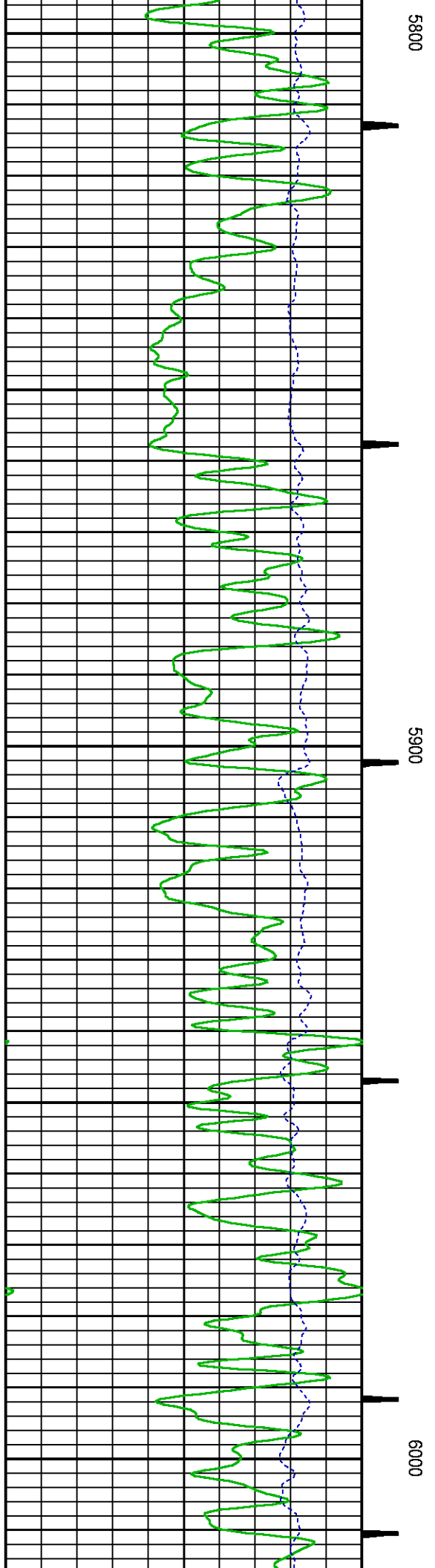
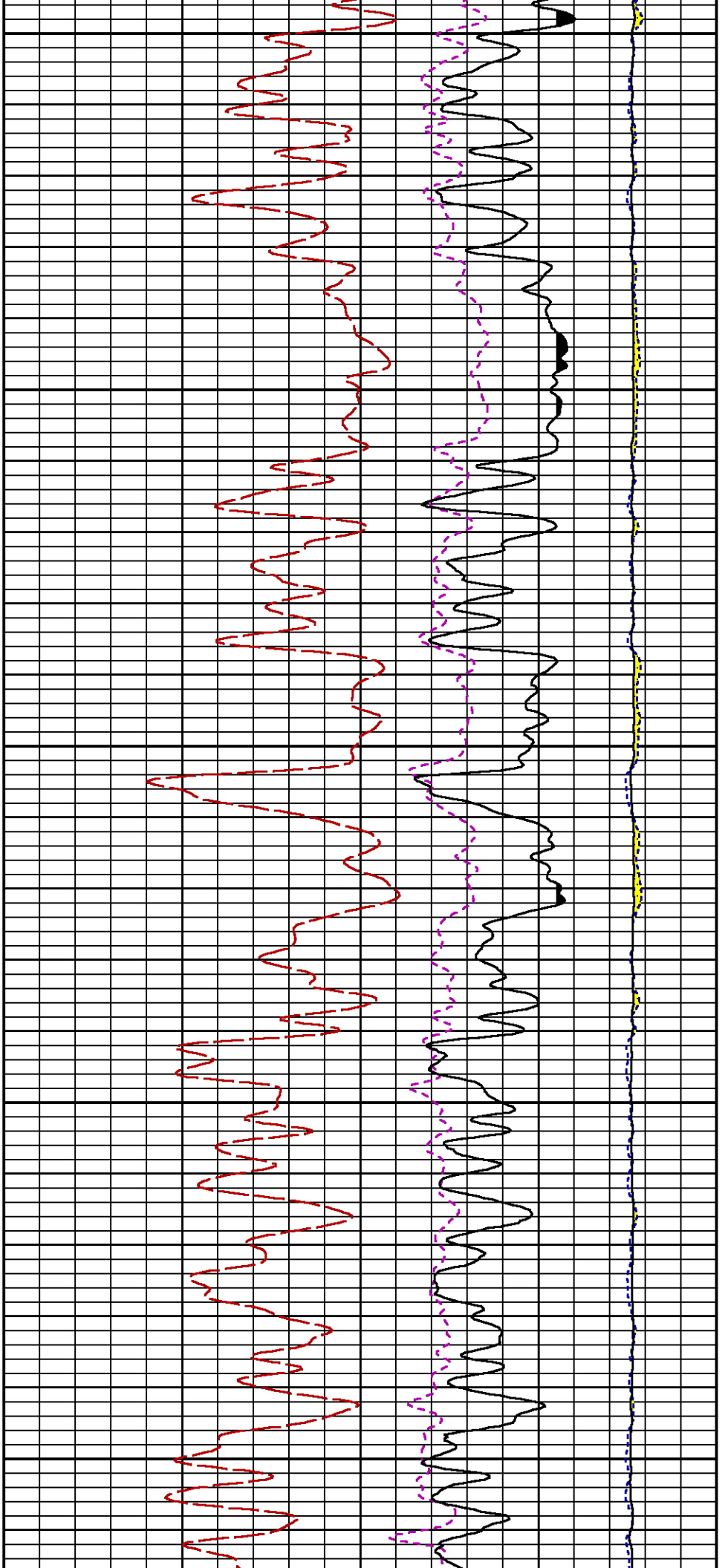


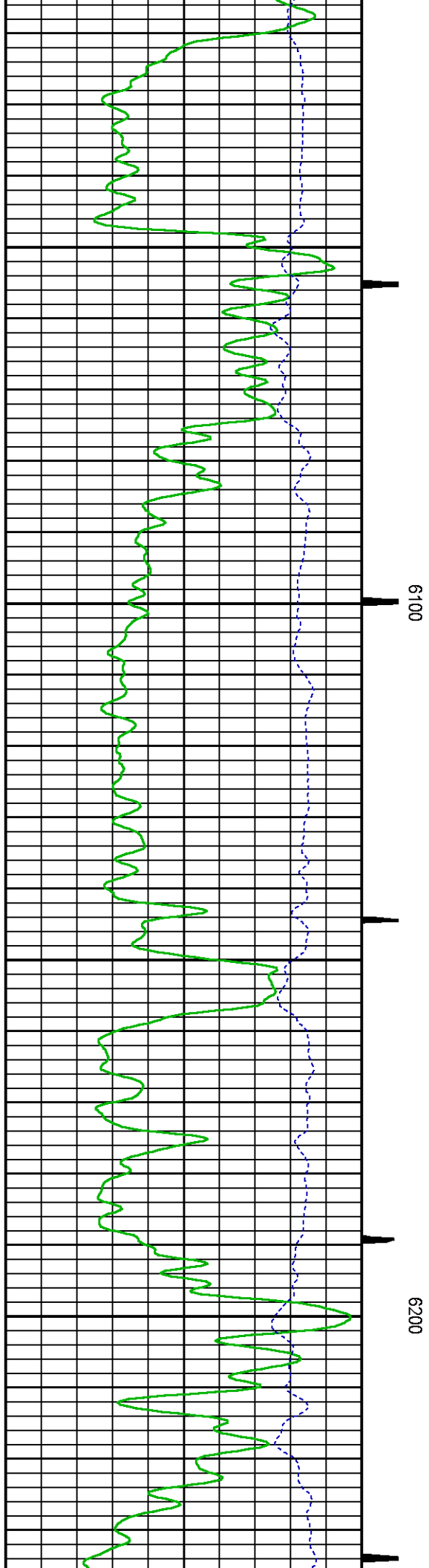
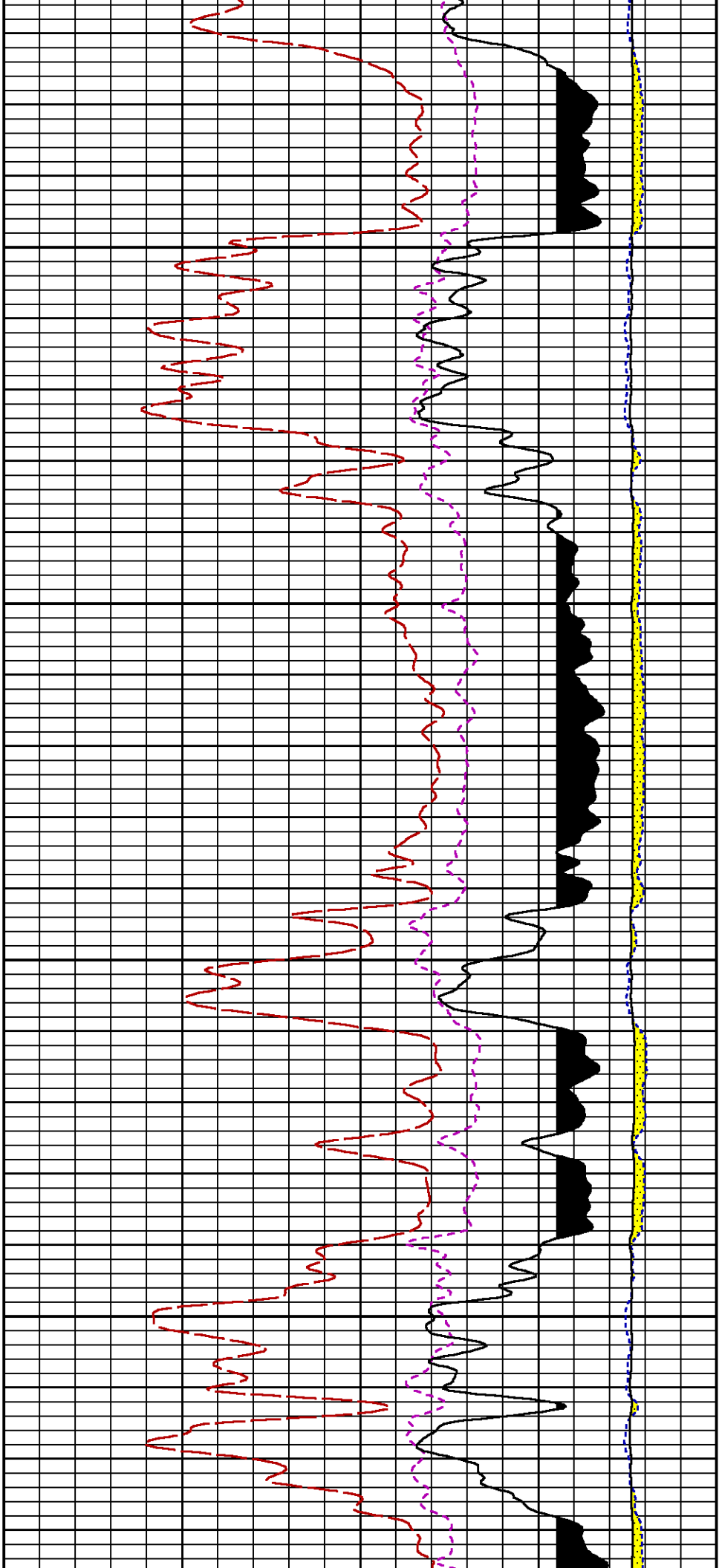


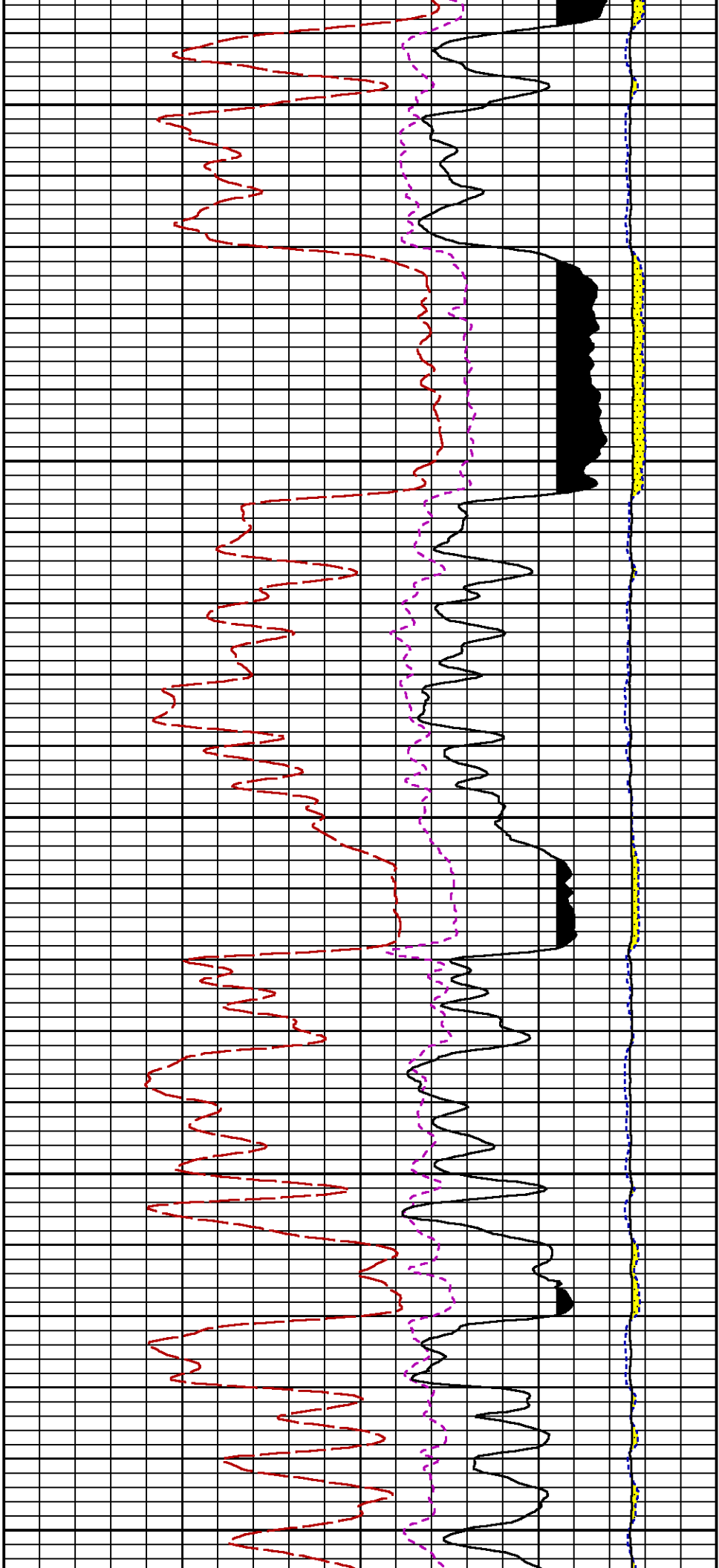






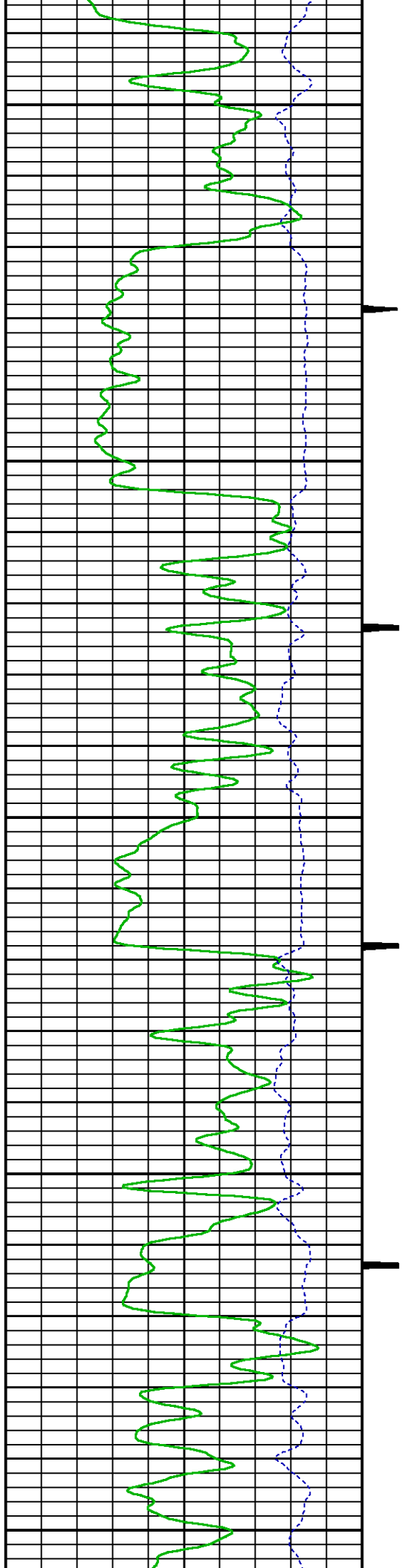


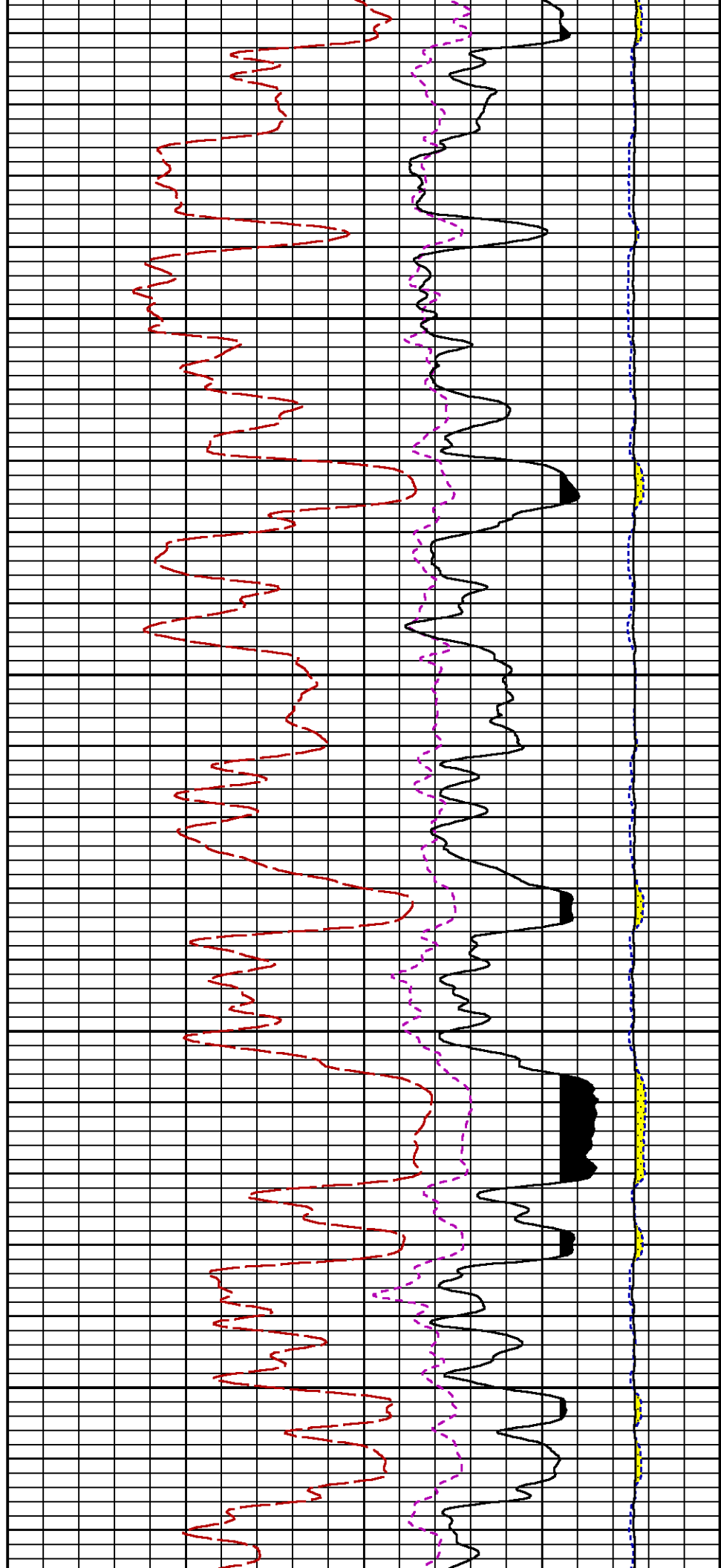
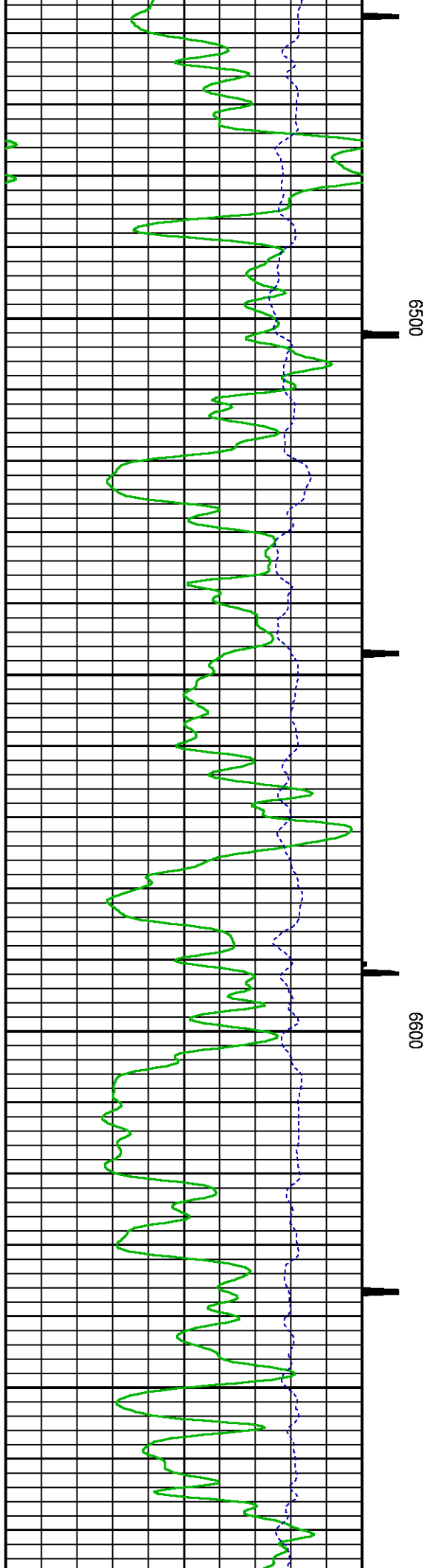


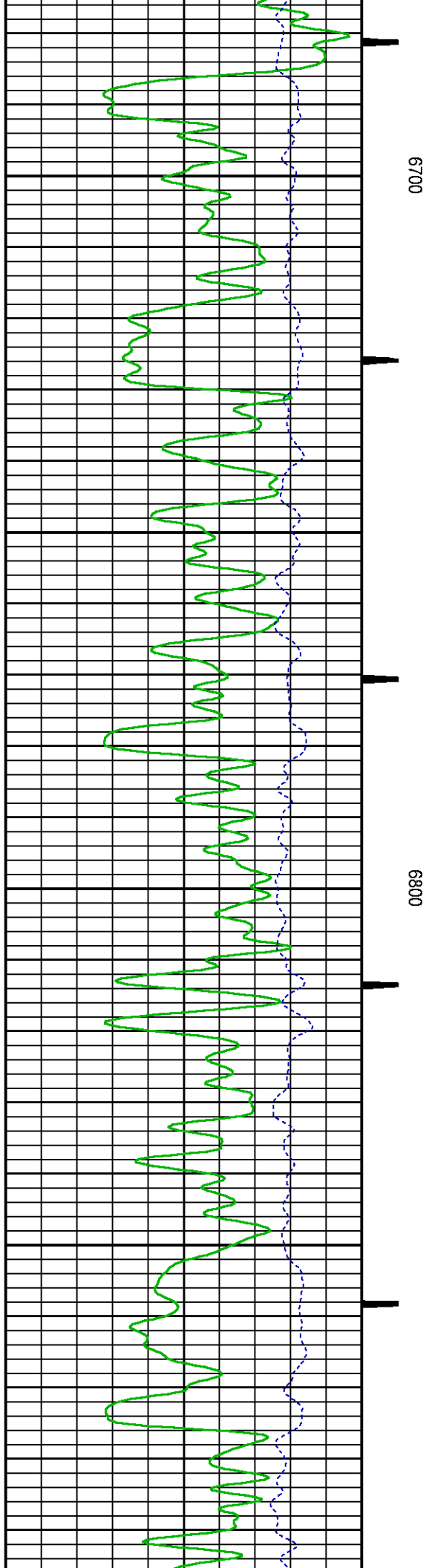
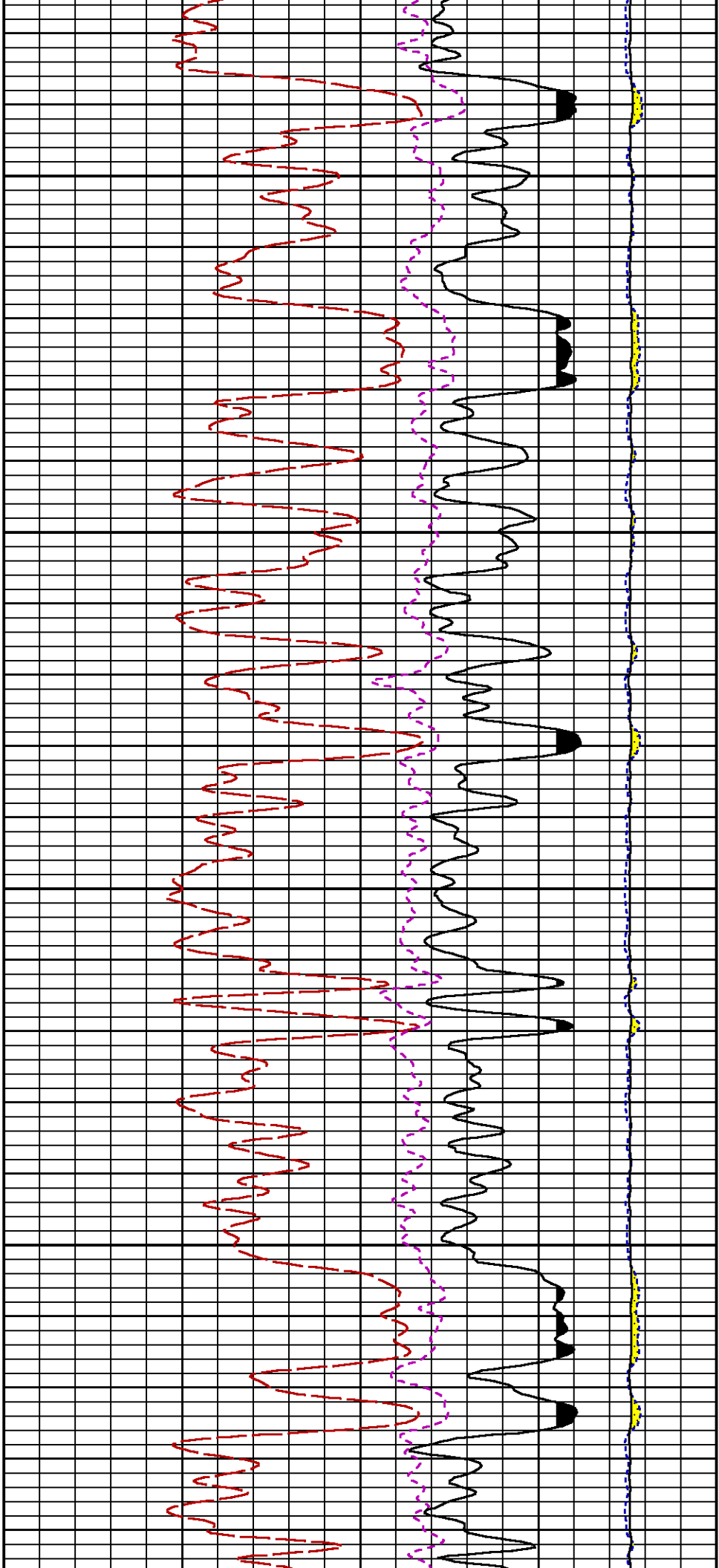


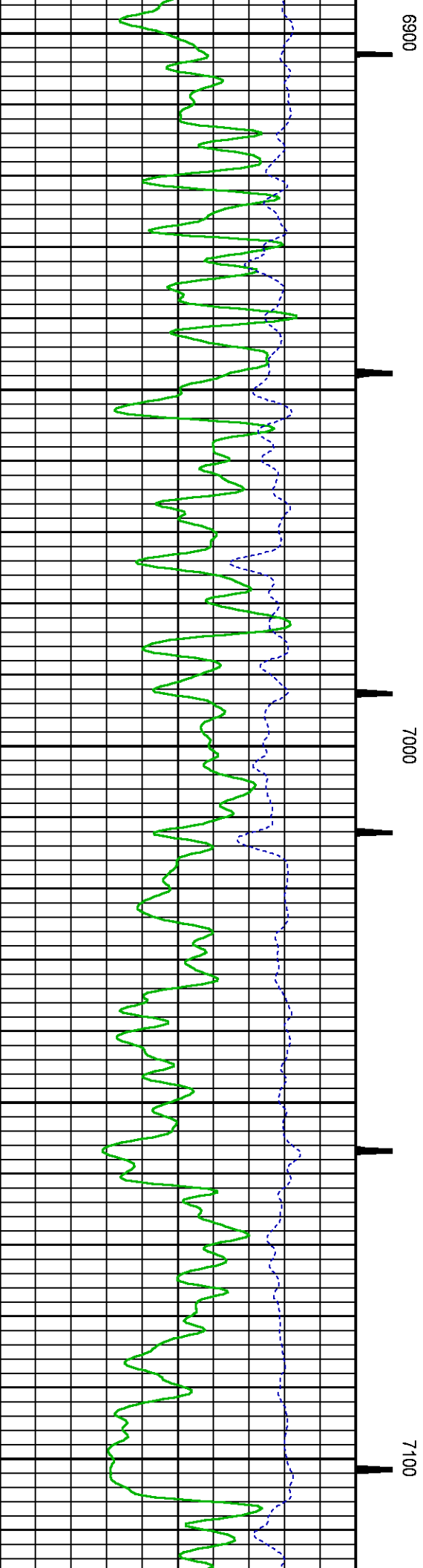
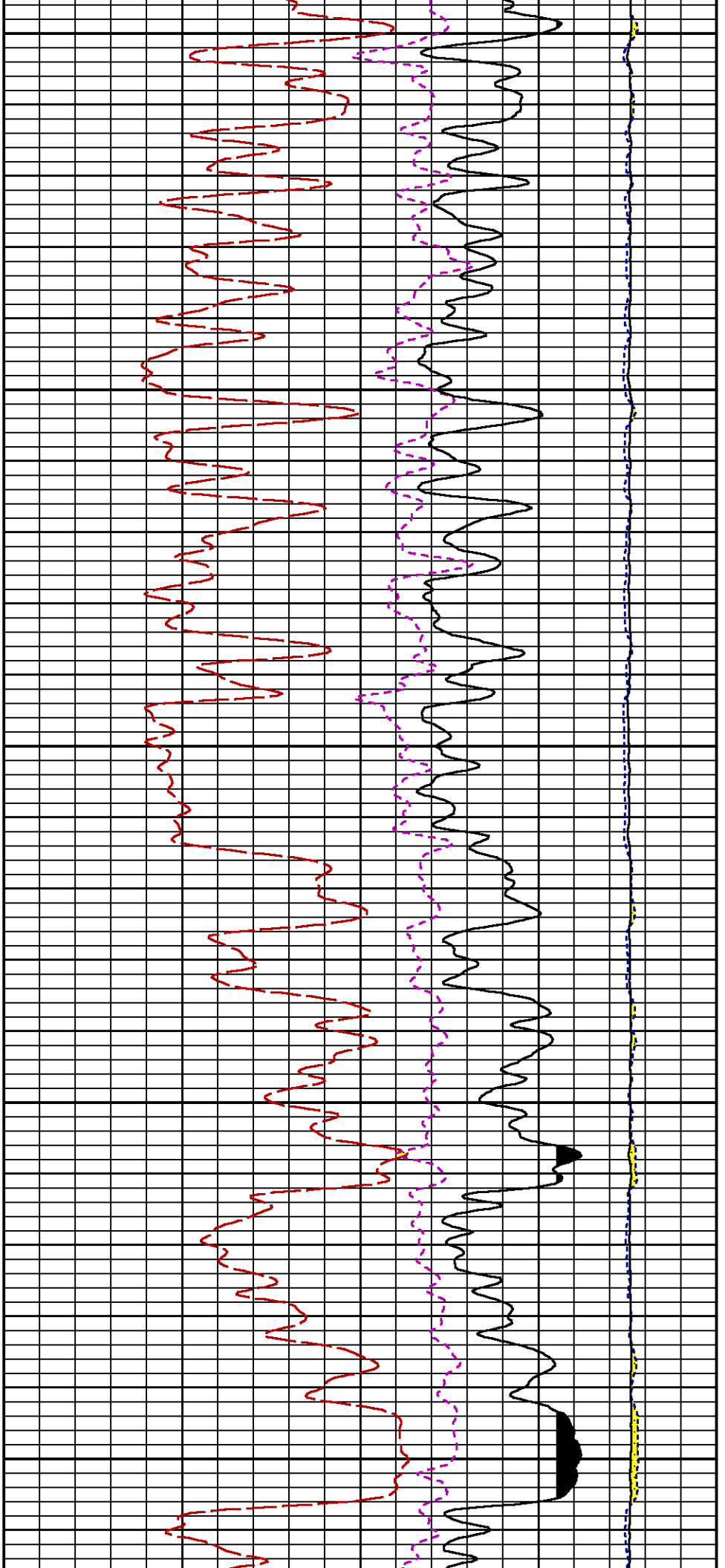
6300

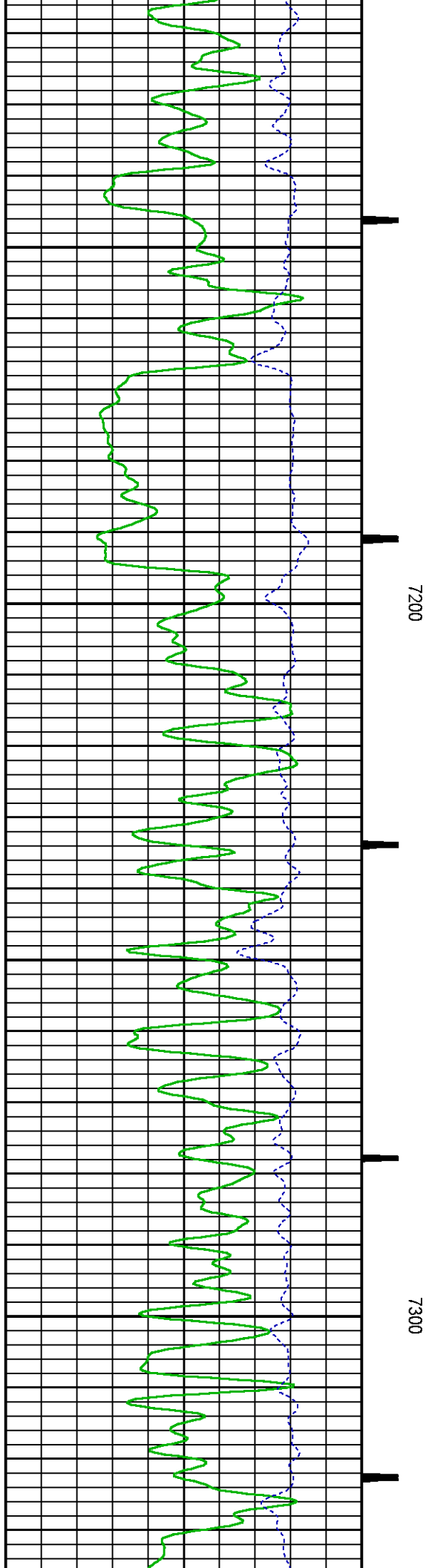
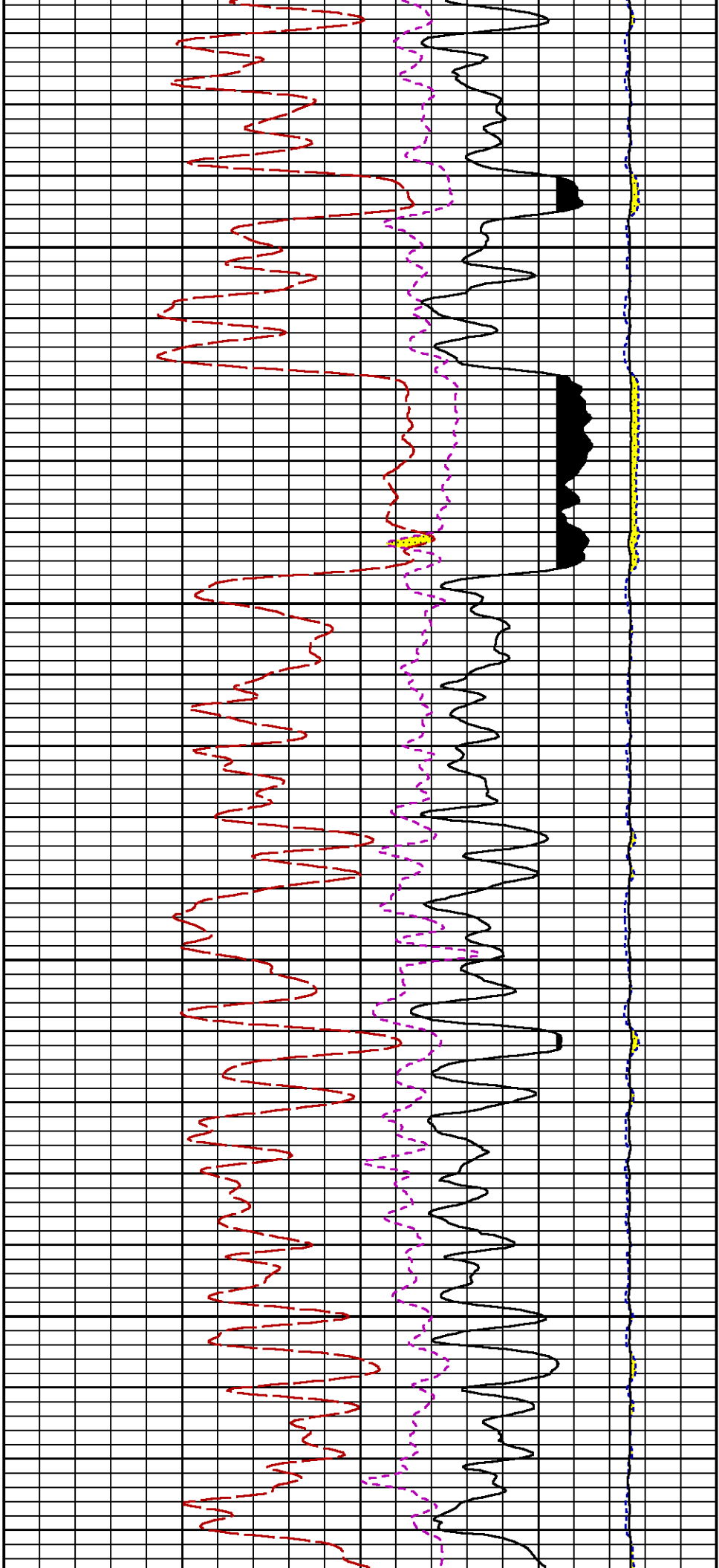
6400

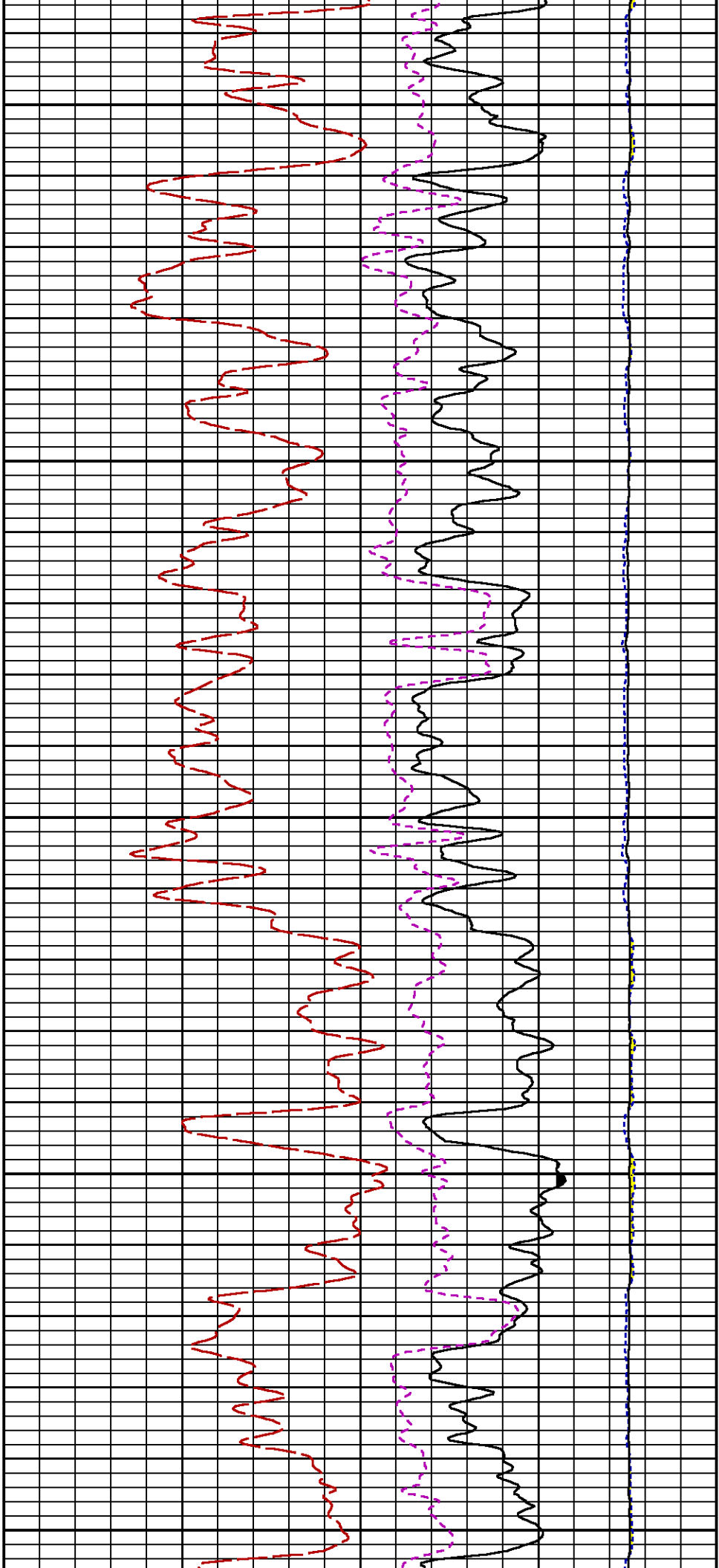






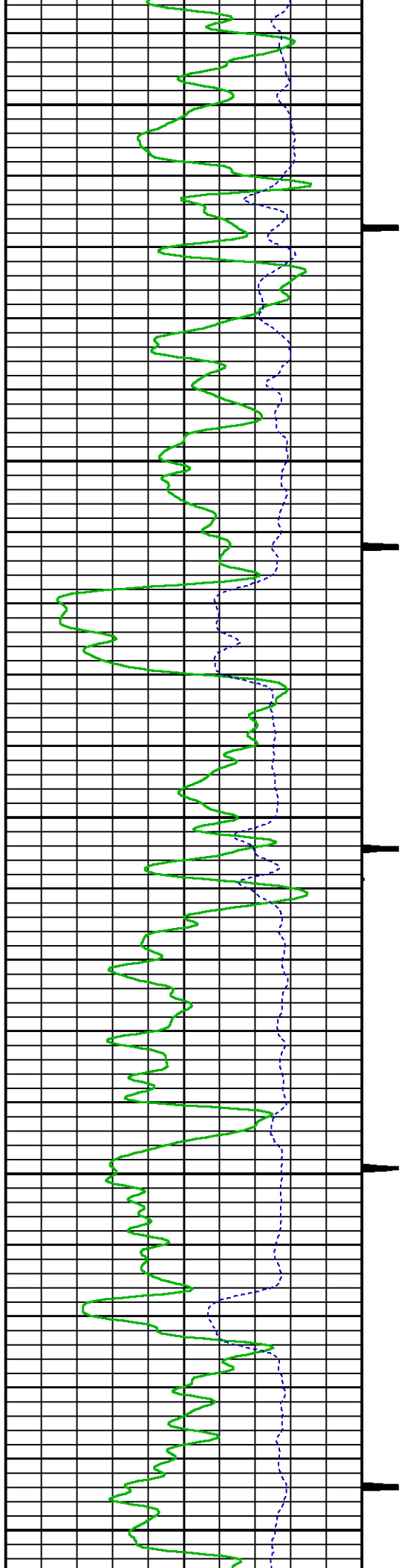


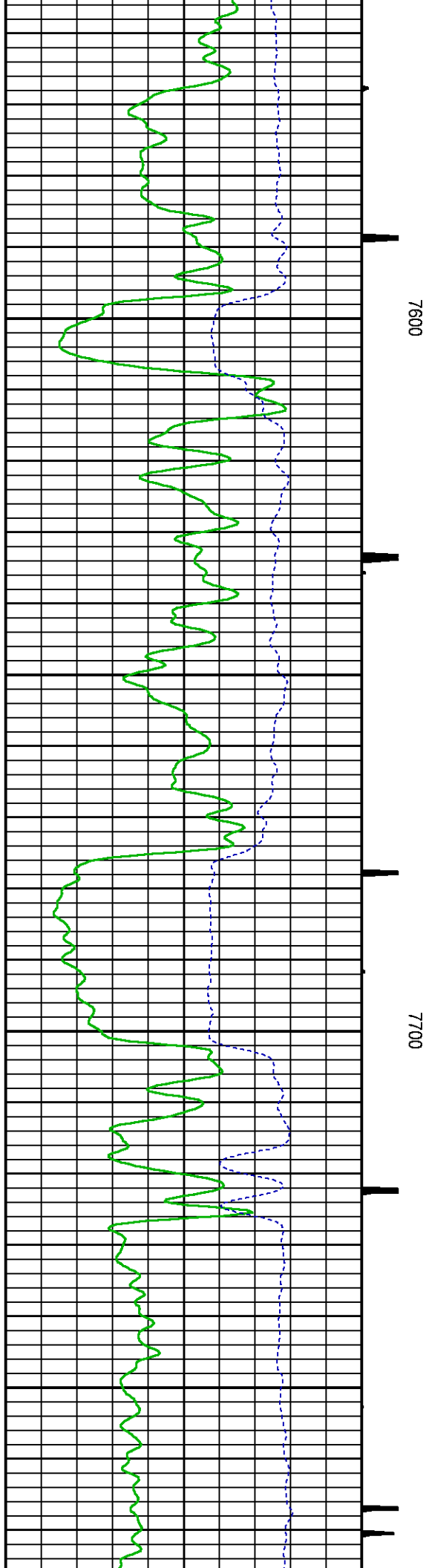
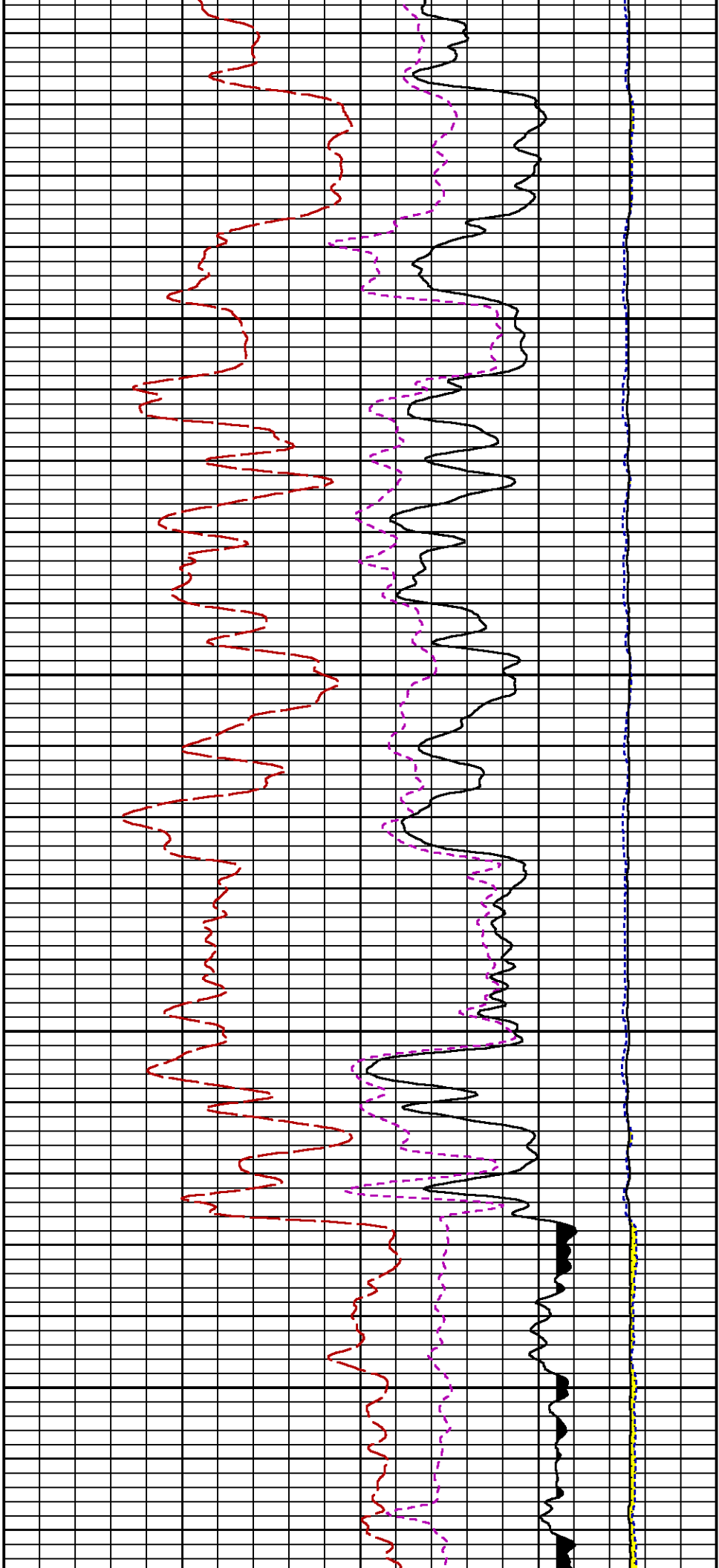


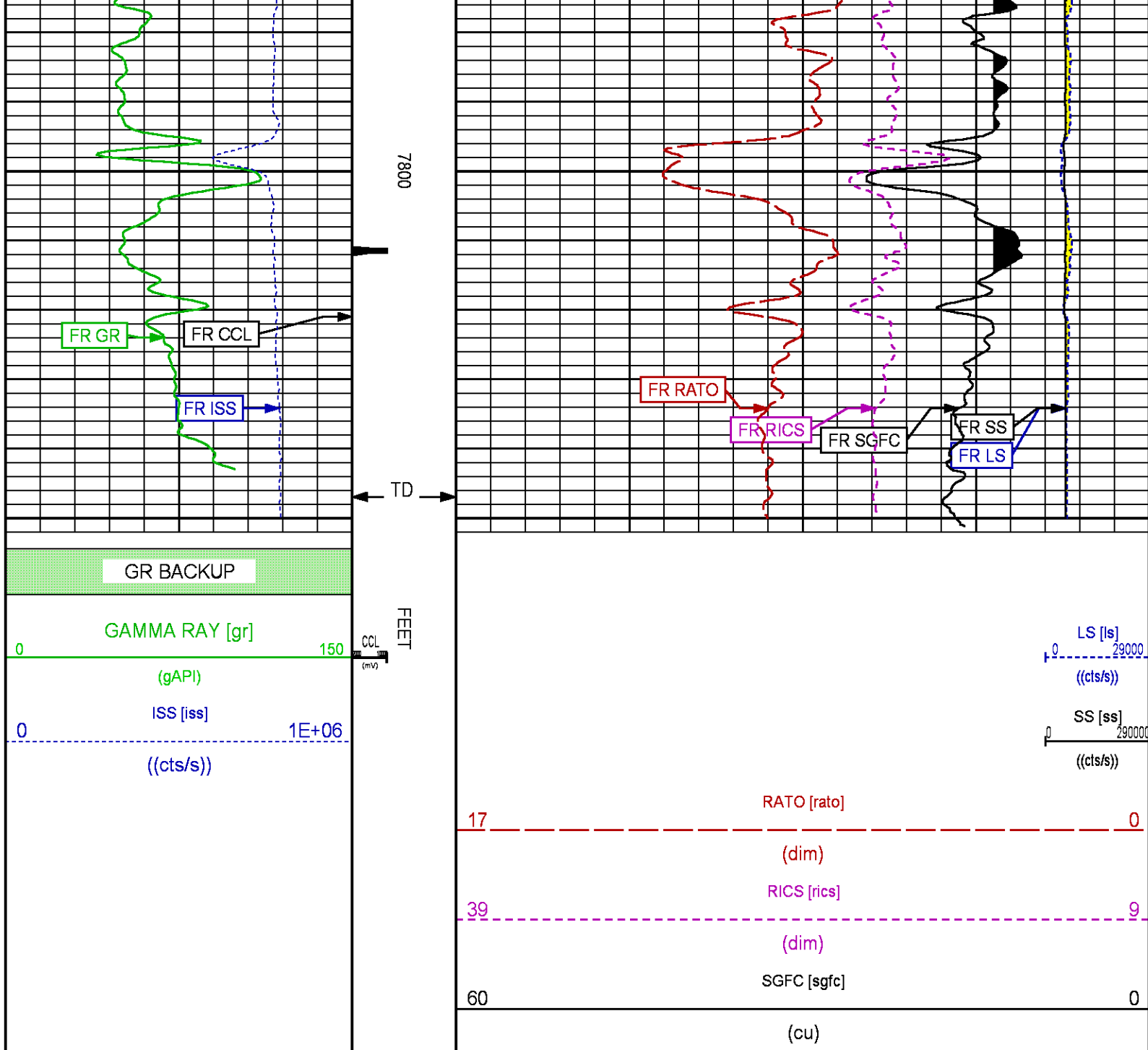


7400

7500







REPEAT PASS PNC-3D MODE

ECLIPS 6.2i ECLIPS General Release Rel 6.2i Wed Jun 12 12:21:40 CDT 2013

Updates: 1 Patches: 9

Plotted: Sun Aug 27 02:59:40 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_GUNDERSON_20_07E/RPM3D01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4520.000 ft BOTTOM DEPTH: 4802.709 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
	OPEN/CASED HOLE	CASED HOLE		BOTTOM
	BOREHOLE SIZE	7.88	in	"
	CASING SIZE	4.50	in	"
	MATRIX	SANDSTONE		"
	CORRECTION BUFFER	11		"

CURVE DESCRIPTION REPORT

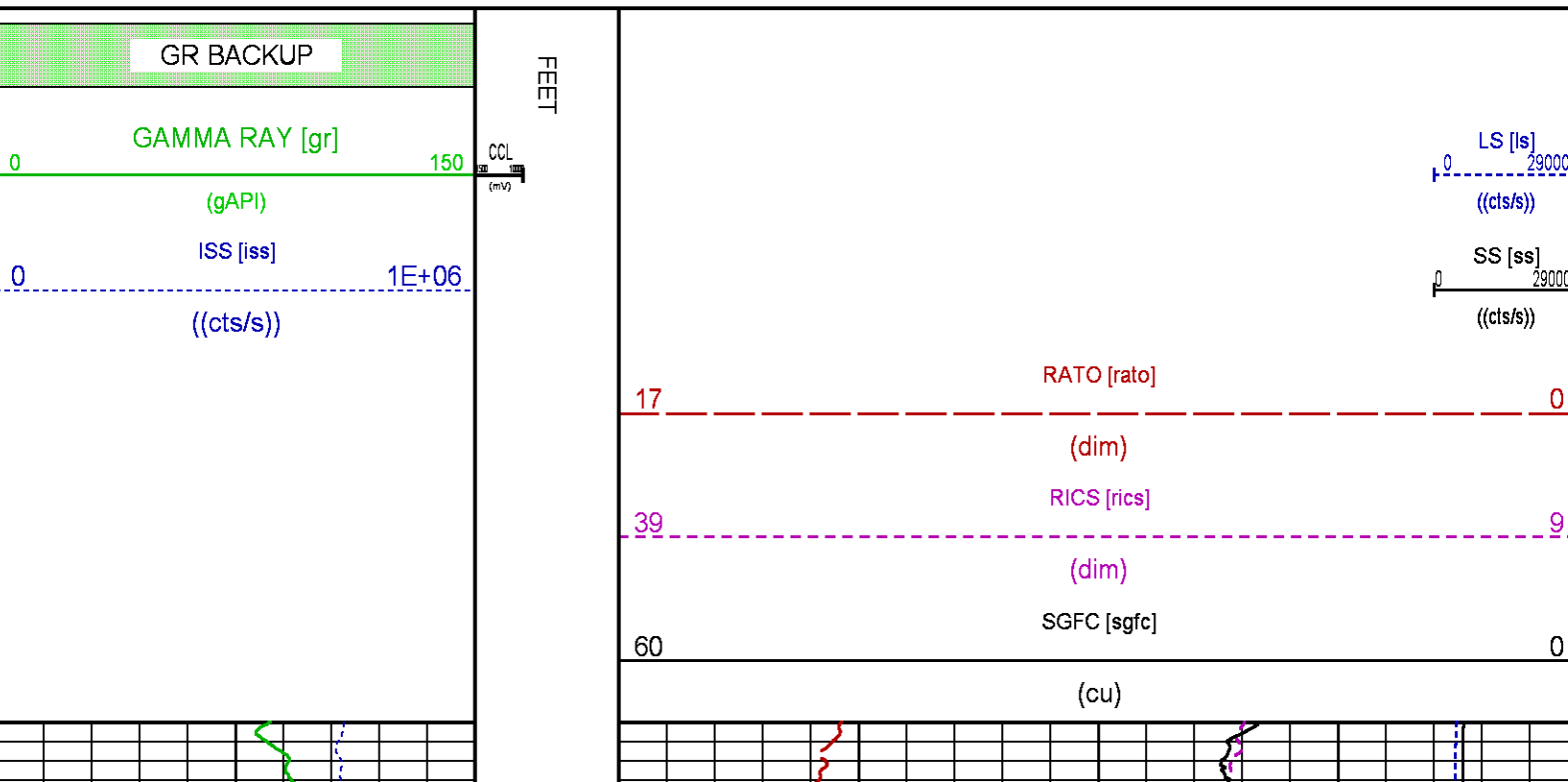
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Aug 26 22:16:59 2017	CASING COLLAR LOCATOR
F1:GR	Aug 26 22:16:59 2017	GAMMA RAY
F1:ISS	Aug 26 22:16:59 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Aug 26 22:16:59 2017	LONG SPACE COUNT RATE
F1:RATO	Aug 26 22:16:59 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Aug 26 22:16:59 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Aug 26 22:16:59 2017	CORRECTED FORMATION SIGMA
F1:SS	Aug 26 22:16:59 2017	SHORT SPACE COUNT RATE

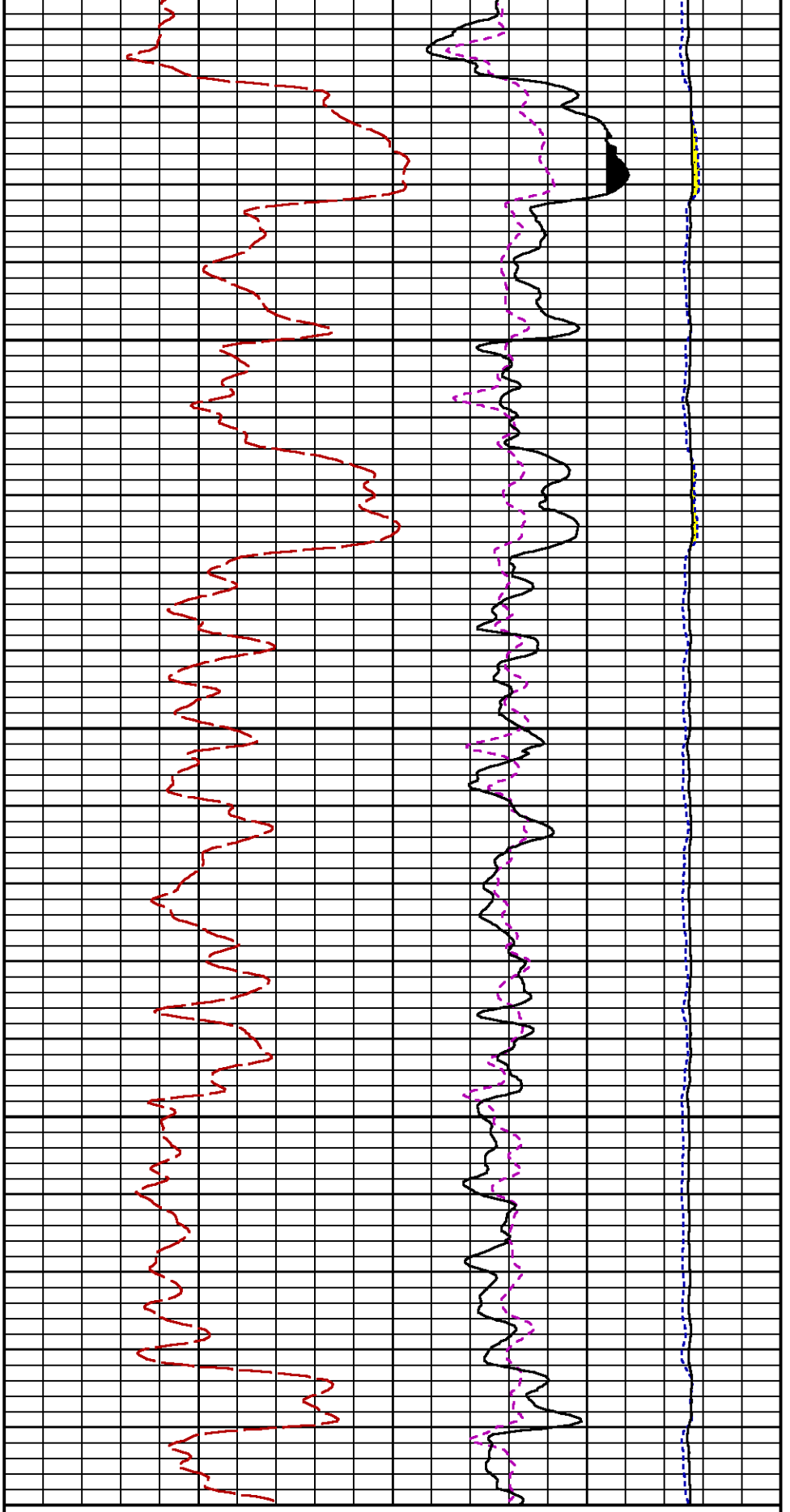
CURVE MEASURE POINT OFFSET

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 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_07E/GUNDERSON_20_07E_RPM_REPEAT.fvpdf [5"/100" Scale]
Plot Interval : 4550 - 4750 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE_GUNDERSON_20_07E/RPM3D01_REPEAT.xtf
Created On : Aug 26 22:16:59 2017
Company : LARAMIE ENERGY
Well : GUNDERSON BCU 20-07E
Field : VEGA
File Interval : 4495.5 - 4801 Feet
OCT : RPM3D



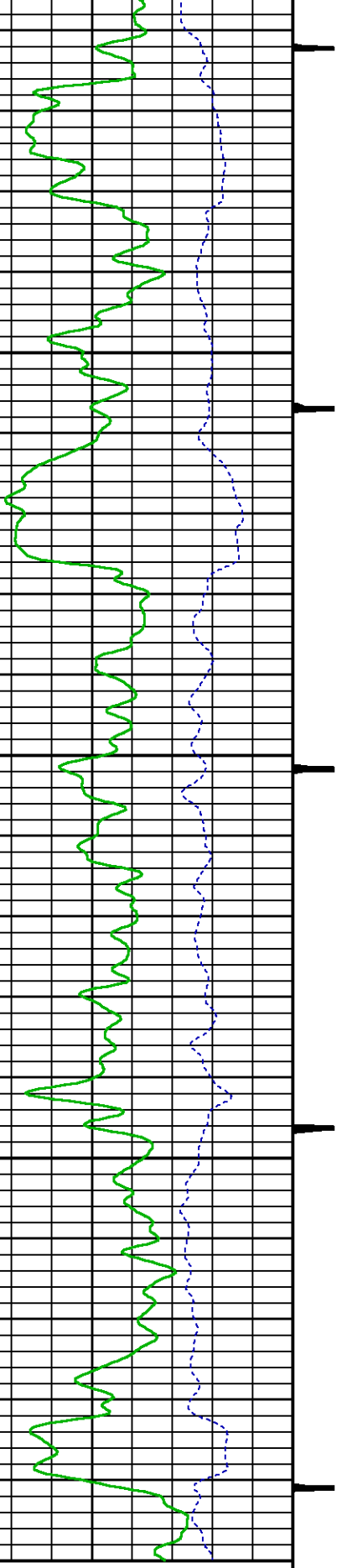


LS [ls]
0 29000
(cts/s)

4600

4700

FEET



GR BACKUP

GAMMA RAY [gr]

0 150

(gAPI)

ISS [iss]

CCL
(mV)

0	ISS [iss]	1E+06			SS [ss]	290000
	((cts/s))				((cts/s))	
			17	RATO [rato]		0
				(dim)		
			39	RICS [rics]		9
				(dim)		
			60	SGFC [sgfc]		0
				(cu)		

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_GUNDERSON_20_07E/RPM3D.lp1

GR PRIMARY CALIBRATION SUMMARY

TOOL #:		8262XA 10485470		DATE/TIME PERFORMED:		Tue Jan 17 13:32:11 2017									
		UNIT #:		3882ML 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		63.76		399.13		335.4		0.552		35.17		220.17		185	

GR PRIMARY VERIFICATION SUMMARY

TOOL #:	8262XA 10485470			DATE/TIME PERFORMED:	Tue Jan 17 13:34:45 2017		
	UNIT #: 3882ML ML4352			VERI JIG #: 4702NK DA_228			
	BACKGROUND	CALBRTR ON	MULT	BACKGROUND	CALBRTR ON	DIFF.	
	(cts/s)	(cts/s)		(gAPI)	(gAPI)	(gAPI)	
GR	63.44	394.18	0.552	35.00	217.44	182.44	
						175.00 195.00	

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY

TOOL: 8283PA 10184883

DATE/TIME PERFORMED: Thu Jul 13 15:06:49 2017

UNIT: 3882TD HL6728

CALIBRATOR: 2437XB 120057

SOURCE: 8281AA 10160595

HOURS: 8281AA 228

	ISS	Mtr VIts (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	807240	123	2232	2259	2285	137	9.0	0.9874
Interpolated	1300000	146	2216	2251	2283			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	807240	6543	1352	236	25.88	0.15	24.03	0.34
					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	807240	164687	25336	86104	30690	8086	52299	12945

Fit Quality %

0.492

0.443

0.487

0.490

0.506

0.462

0.494

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	807240	1.44	4.90	31.88	15.44	10.65	3.80	4.04
	1.42	1.45	3.55	5.52	22.20	32.70	10.99	16.34
Fit Quality %	0.052	0.128	0.117	0.144	0.021	0.011	0.031	
Reduced	1232260	1.44	4.91	31.91	15.45	10.65	3.80	4.04
	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 120516

DATE/TIME PERFORMED: Mon Jul 11 10:30:57 2016

UNIT #: 3880TA HL6670

	T(0)	T(1)	T(2)	T(3)
Corr Coeff for Temp	-1.840167E+01	1.009373E-01	3.960064E-06	-4.985002E-10

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_GUNDERSON_20_07E/RPM-tdg

A3 CABLEHEAD

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

34.08'

CCL MP 26.03'

GR MP 22.90'

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

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 1.65'
 PRES MP

BULL PLUG 1 11/16

0.00'

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

	COMPANY <u>LARAMIE ENERGY</u>		FILE NO: _____
	WELL <u>GUNDERSON BCU 20-07E</u>		API NO: _____
	FIELD <u>VEGA</u>	STATE <u>COLORADO</u>	<u>05077103570000</u>
	COUNTY <u>MESA</u>		
LOCATION: SHL: LAT:39.266783N;LONG:107.795281W BHL: LAT:39.265114N;LONG:107.788397W SEC <u>20</u> TWP <u>9S</u> RGE <u>93W</u>		ELEVATIONS: KB 7176 FT DF 7176 FT GL 7146 FT	
		DATE <u>27-AUG-2017</u>	