



FILE NO:

COMPANY

LARAMIE ENERGY

WELL

PICEANCE FEDERAL 29-20E

FIELD

VEGA

API NO:  
05-077-10363-0000

COUNTY

MESA

STATE COLORADO

Ver. 4.06

LOCATION:

SHL: LAT:39.248633N; LONG:107.788204W  
BHL: LAT:39.243491N; LONG:107.796581W

OTHER SERVICES

SEC 29 TWP 09 S RGE 93 W

PERMANENT DATUM GL ELEVATION 7631 FT  
LOG MEASURED FROM KB 30 FT ABOVE P.D.  
DRILL. MEAS. FROM KBELEVATIONS:  
KB 7661 FT  
DF  
GL 7631 FT

DATE 27-MAY-2017

RUN TRIP

2 1

SERVICE ORDER US123647J

DEPTH DRILLER 8120 FT

DEPTH LOGGER 7932 FT

BOTTOM LOGGED INTERVAL 7932 FT

TOP LOGGED INTERVAL 2660 FT

TIME STARTED 07:00

TIME FINISHED 13:00

OPERATOR RIG TIME 6 HRS

TYPE OF FLUID IN HOLE WATER

FLUID DENSITY NA

FLUID SALINITY NA

FLUID LEVEL 54 FT

LOGGED CEMENT TOP NA

WELLHEAD PRESSURE 0 PSI

MAXIMUM HOLE DEVIATION NA

NOMINAL LOGGING SPEED 15 FMIN

MAX. RECORDED TEMP. 240.9 DEGF

REFERENCE LOG NA

REFERENCE LOG DATE NA

EQUIP. NO. LOCATION HL-6670 WOODWARD

RECORDED BY S.YASSA

WITNESSED BY R.CATES/A.MCCARTHY

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.

## BOREHOLE RECORD

BIT SIZE FROM TO

## CASING RECORD

SIZE WEIGHT GRADE FROM TO  
4.5 IN 11.6 LB/F - 0 FT 8120 FT

## REMARKS

RUN 2 TRIP 1: \*2 OPERATIONS IN WELL\*

\*\*OPERATION 2: CCL/GR/RPM RUN IN COMBINATION\*\*

LOGGED WITH 0 PSI AT THE WELLHEAD

SJ1: 7145'-7123'

SJ2: 6322' - 6300'

CREW: JOE.PENA , S.AKKOUCH

## EQUIPMENT DATA

RUN TRIP TOOL SERIES NO. SERIAL NO. POSITION

2	1	TELEMETRY	8250 EA/8248 ED	1510000/11908681	FREE
2	1	GAMMA RAY	8262 XA	10485470	FREE
2	1	RPM ELEC	8281 EA	10309421	FREE
2	1	RPM	8283 PA/8281 FA	10414345/10401926	FREE
2	1	TEMP	8255 XA	120516	FREE

G-SAND SECTION 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: Sat May 27 14:21:01 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_20E/RPM\_PNC3D03.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 2569.500 ft BOTTOM DEPTH: 3218.500 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	8.75	in	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

CURVE DESCRIPTION REPORT		
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	May 27 13:34:37 2017	CASING COLLAR LOCATOR
F1:GR	May 27 13:34:37 2017	GAMMA RAY
F1:ISS	May 27 13:34:37 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	May 27 13:34:37 2017	LONG SPACE COUNT RATE
F1:RATO	May 27 13:34:37 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	May 27 13:34:37 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	May 27 13:34:37 2017	CORRECTED FORMATION SIGMA
F1:SS	May 27 13:34:37 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\_PICEANCE\_FEDERAL\_29\_20E/rpm\_pnc3d+01-GSAND-29\_20E-5.fvpdf [5"/100' Scale]  
Plot Interval : 2545 - 3210 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_20E/RPM\_GSAND\_20E.xtf  
Created On : May 27 13:34:37 2017  
Company : LARAMIE ENERGY  
Well : PICEANCE 29-20E  
Field : VEGA  
File Interval : 2544.25 - 3218.75 Feet  
OCT : RPM\_PNC3

GR BACKUP

GAMMA RAY [gr]

(gAPI)

ISS [iss]

((cts/s))

FEET

CCL  
(mV)

2600

GR

ISS

RATO [rato]

(dim)

RICS [rics]

(dim)

SGFC [sgfc]

(cu)

LS [ls]

((cts/s))

SS [ss]

((cts/s))

17

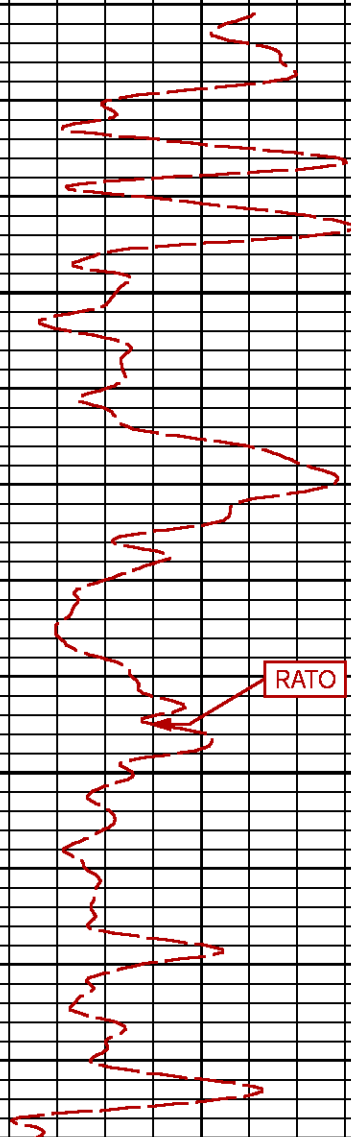
0

39

9

60

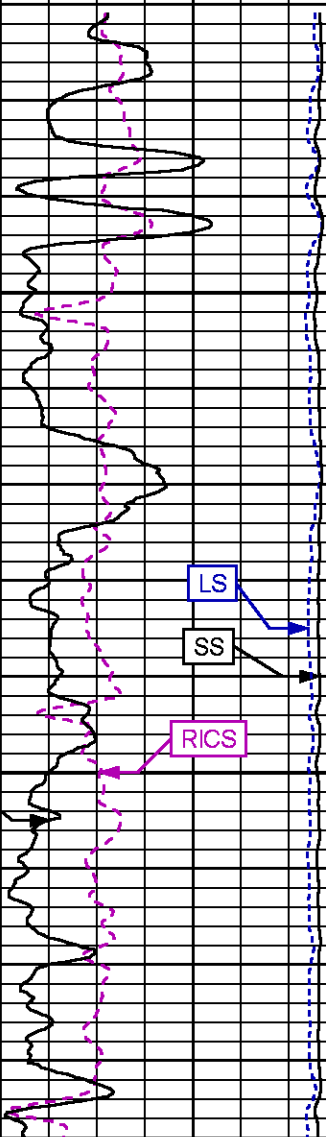
0



RATO

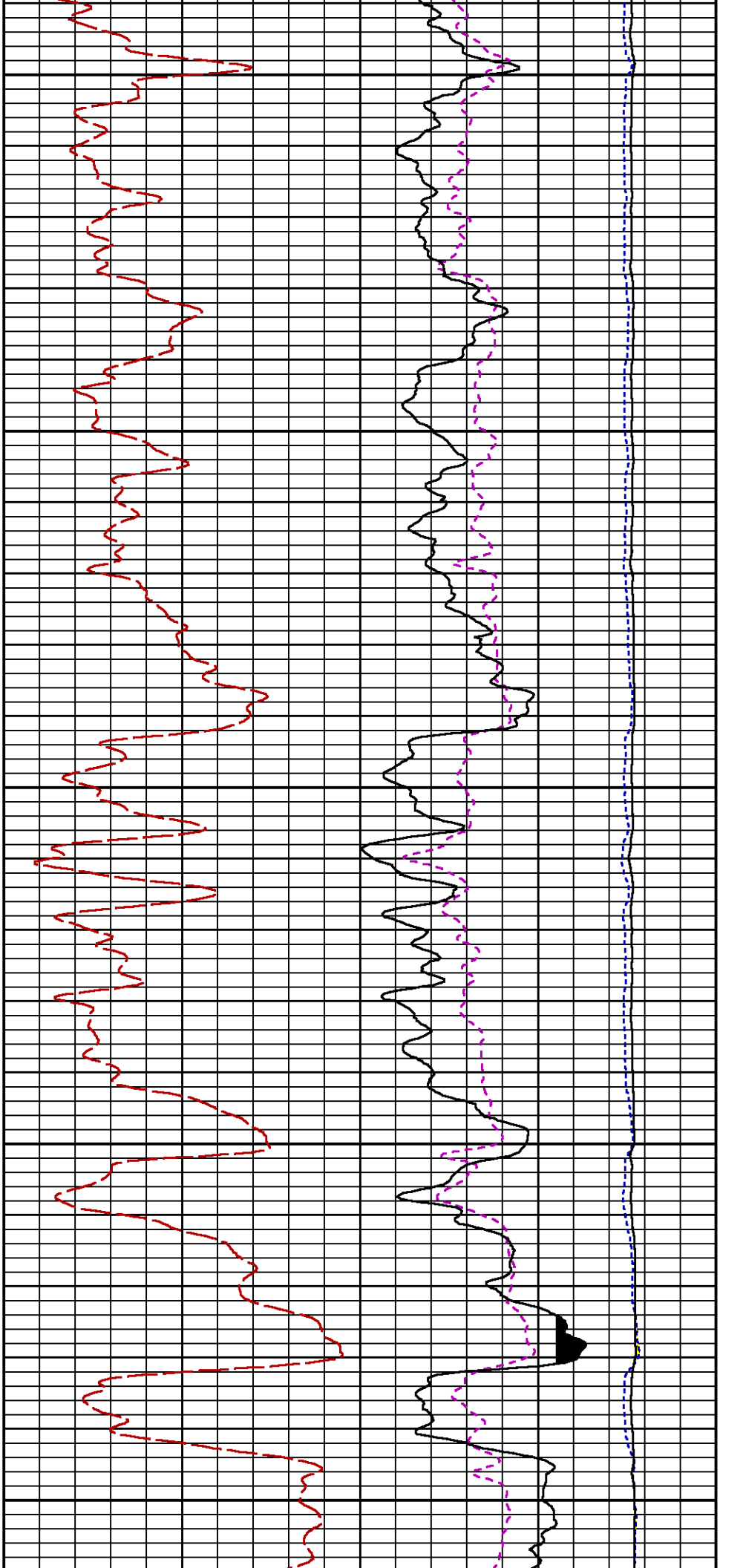
RICS

SGFC



LS

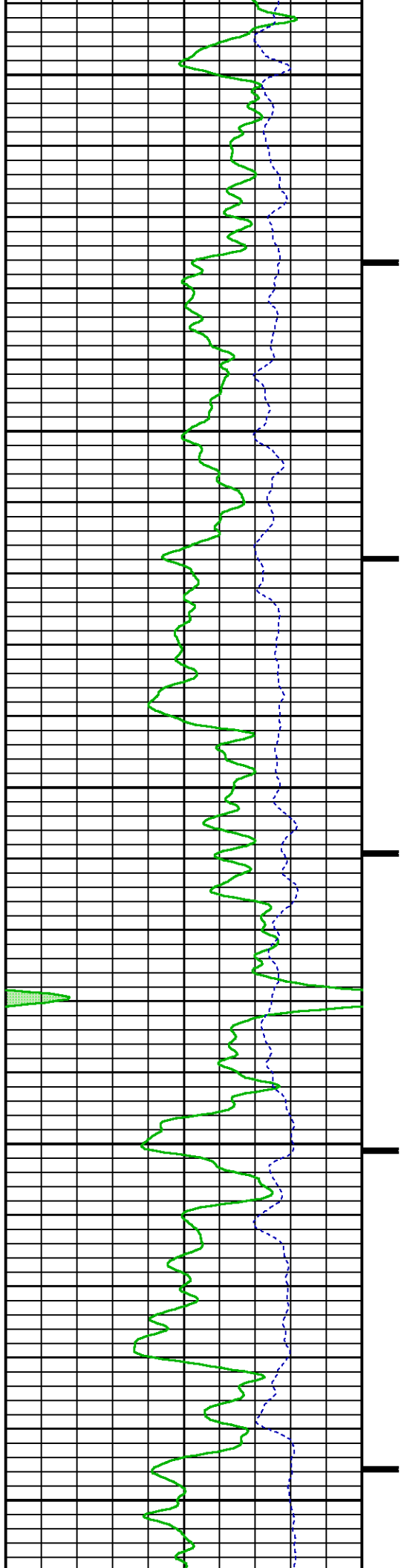
SS

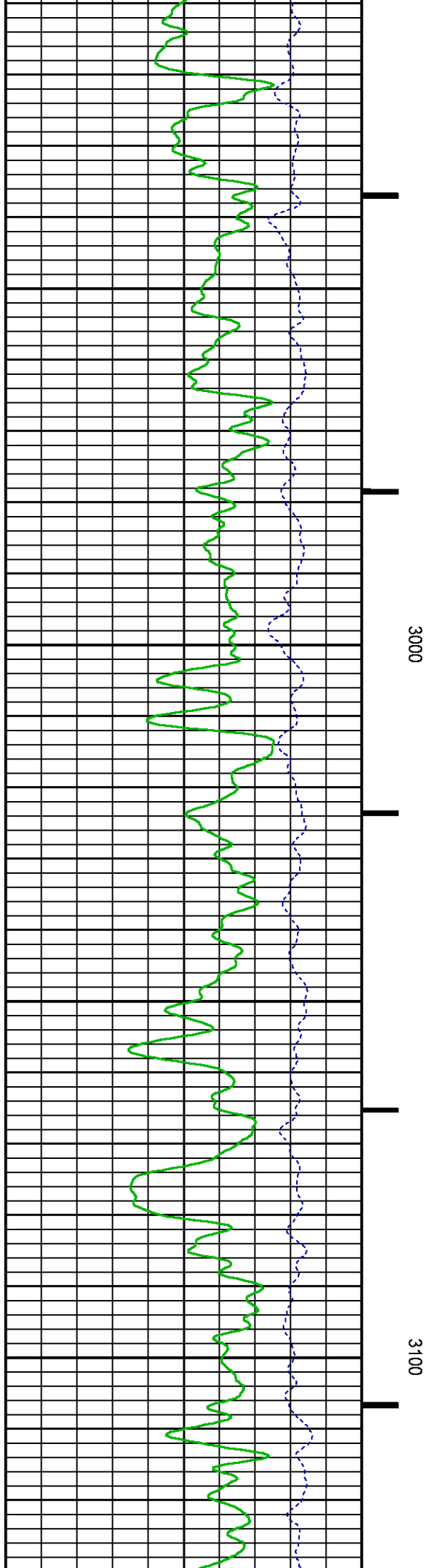
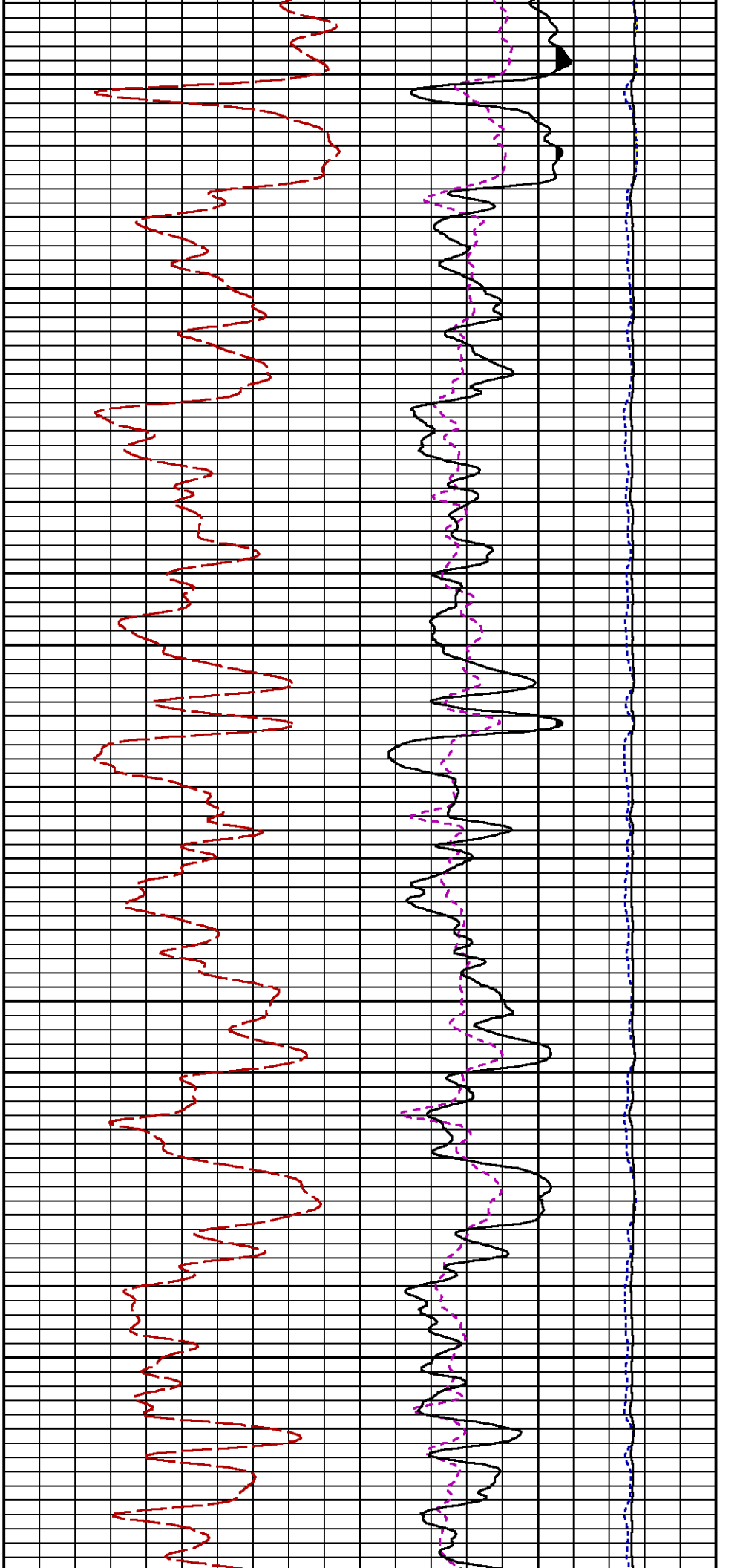


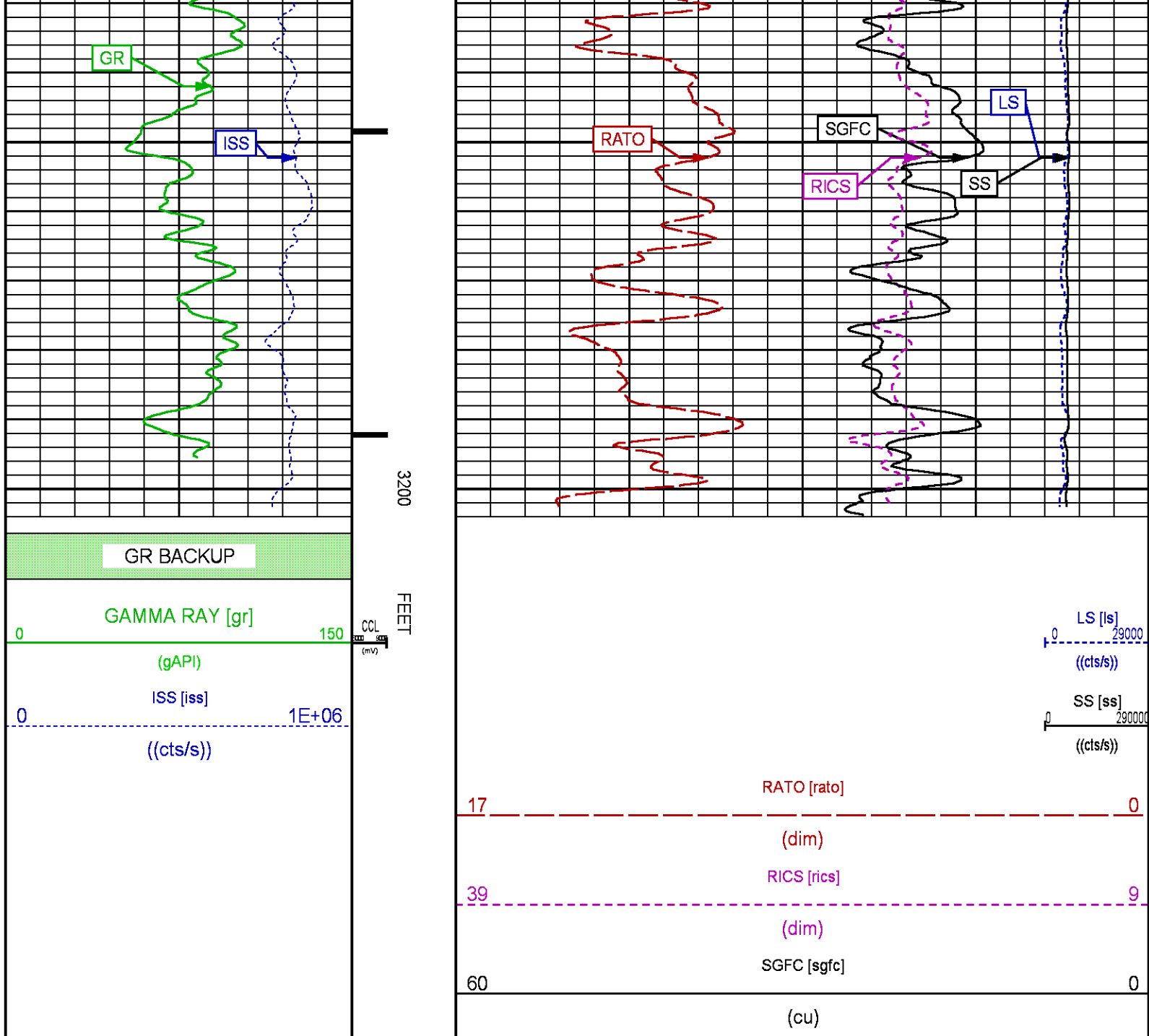
2700

2800

2900







## MAIN 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: Sat May 27 13:52:24 2017

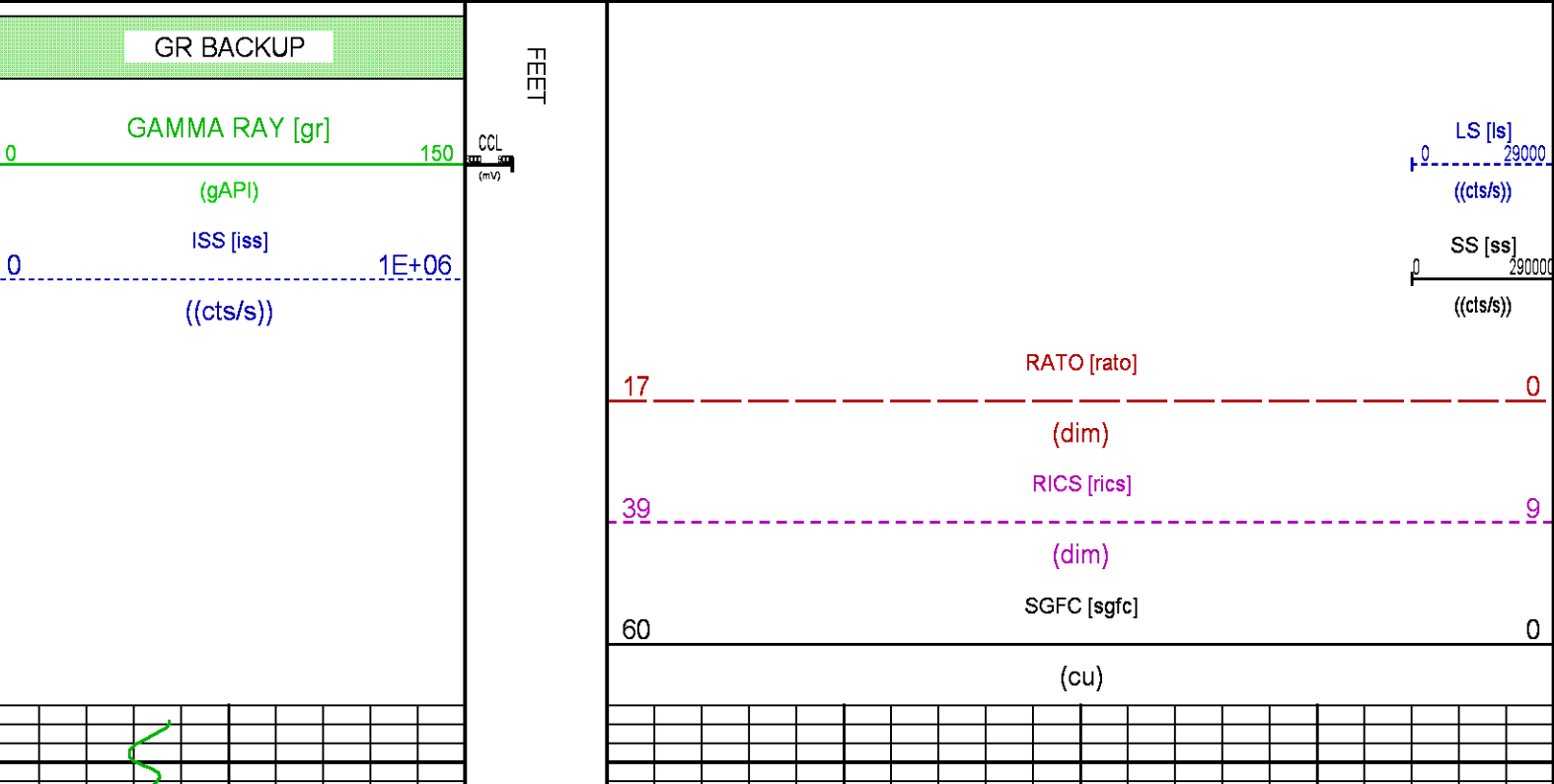
## PARAMETER AND FILTER SUMMARY REPORT

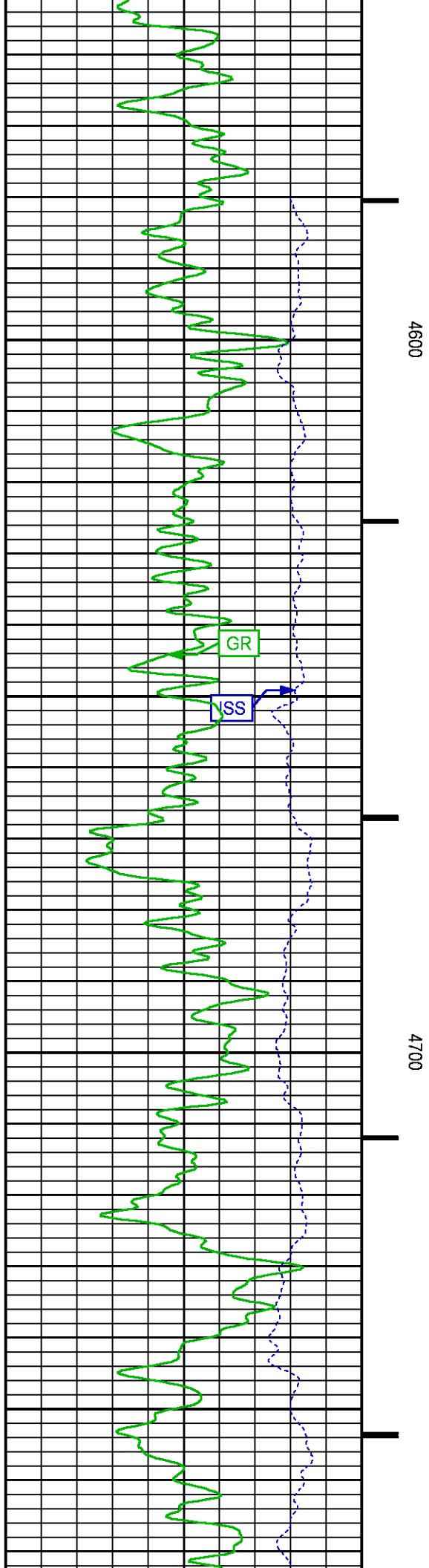
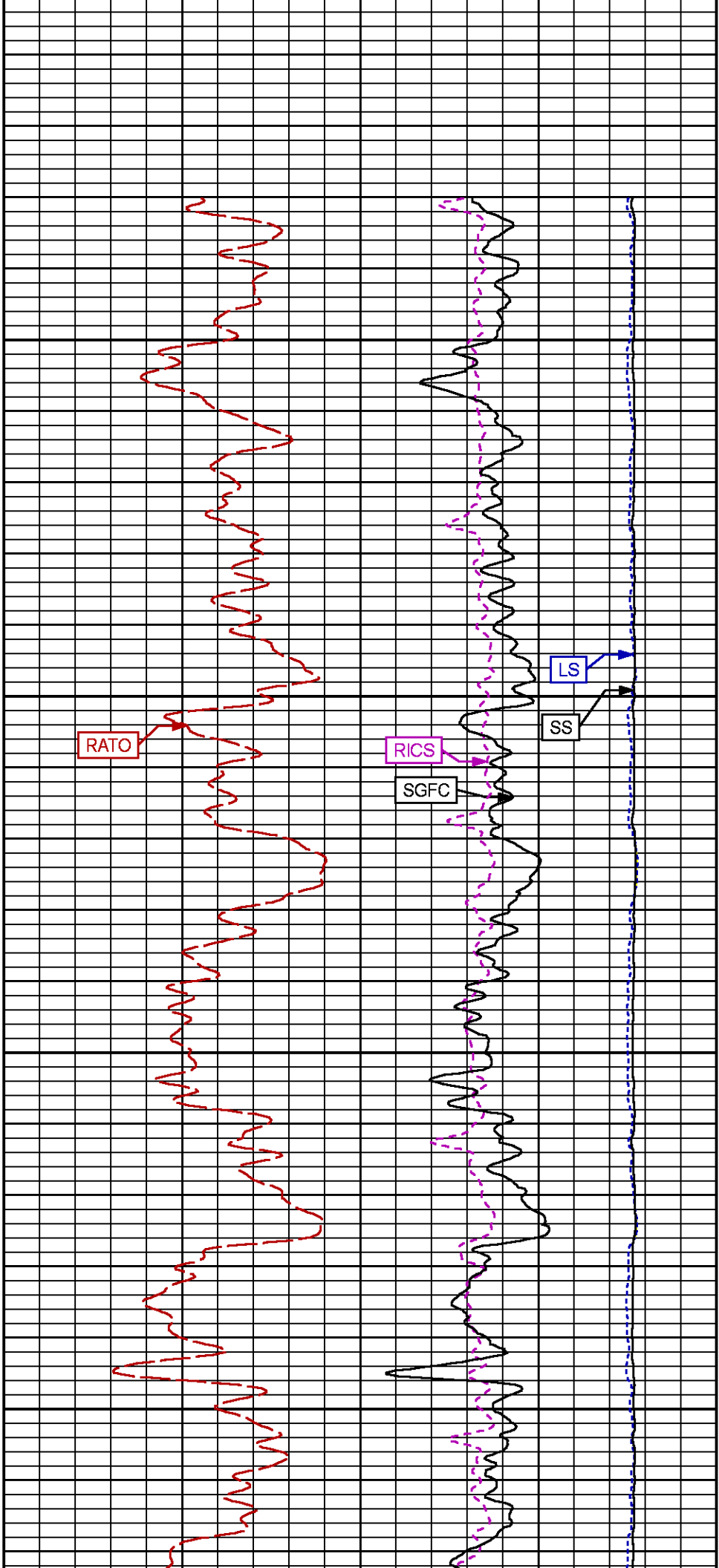
File: /dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_20E/RPM\_PNC3D02.prm  
LOGGING MODE: DEPTH  
TOP DEPTH: 4579.500 ft  
DIRECTION: UP  
BOTTOM DEPTH: 7949.500 ft

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

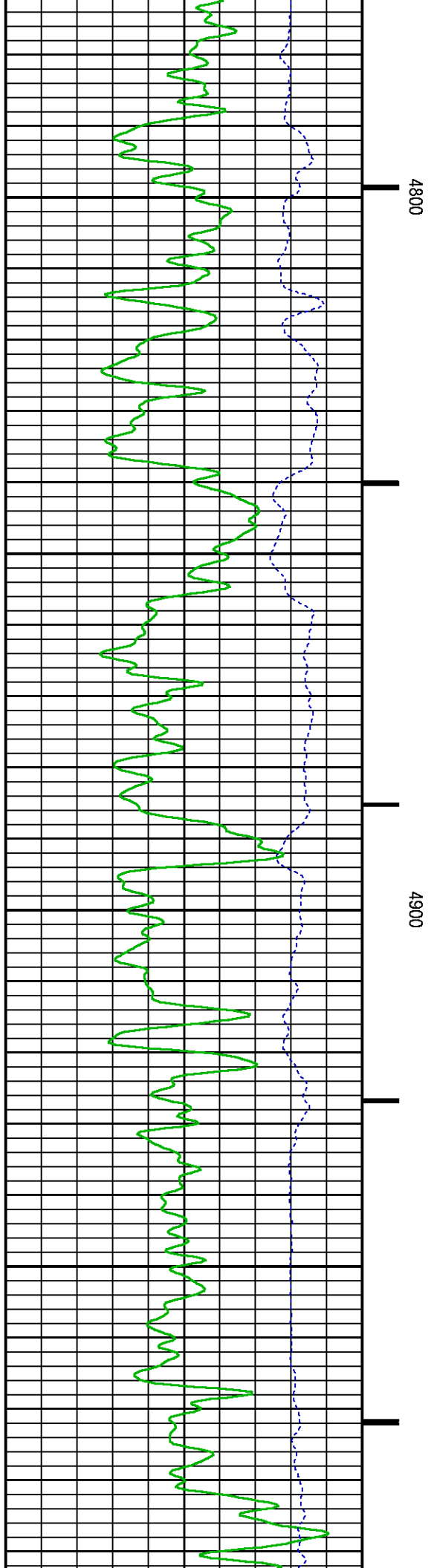
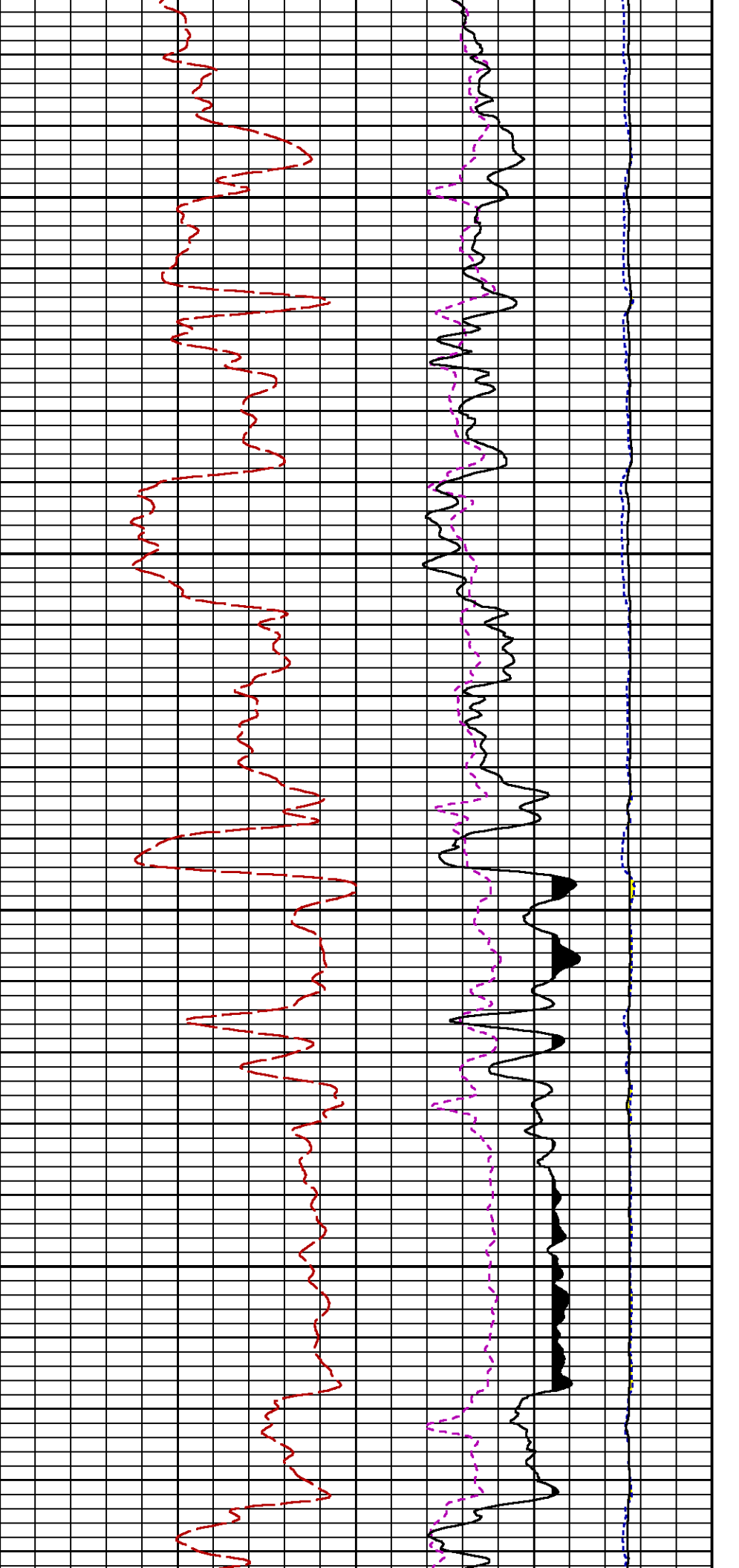
CURVE DESCRIPTION REPORT		
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	May 27 09:49:17 2017	CASING COLLAR LOCATOR
F1:GR	May 27 09:49:17 2017	GAMMA RAY
F1:ISS	May 27 09:49:17 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	May 27 09:49:17 2017	LONG SPACE COUNT RATE
F1:RATO	May 27 09:49:17 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	May 27 09:49:17 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	May 27 09:49:17 2017	CORRECTED FORMATION SIGMA
F1:SS	May 27 09:49:17 2017	SHORT SPACE COUNT RATE

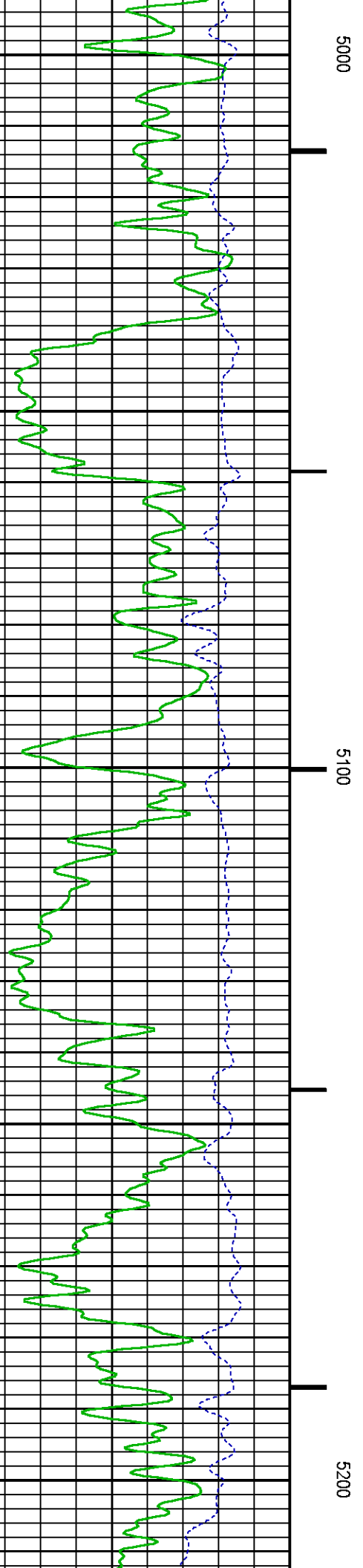
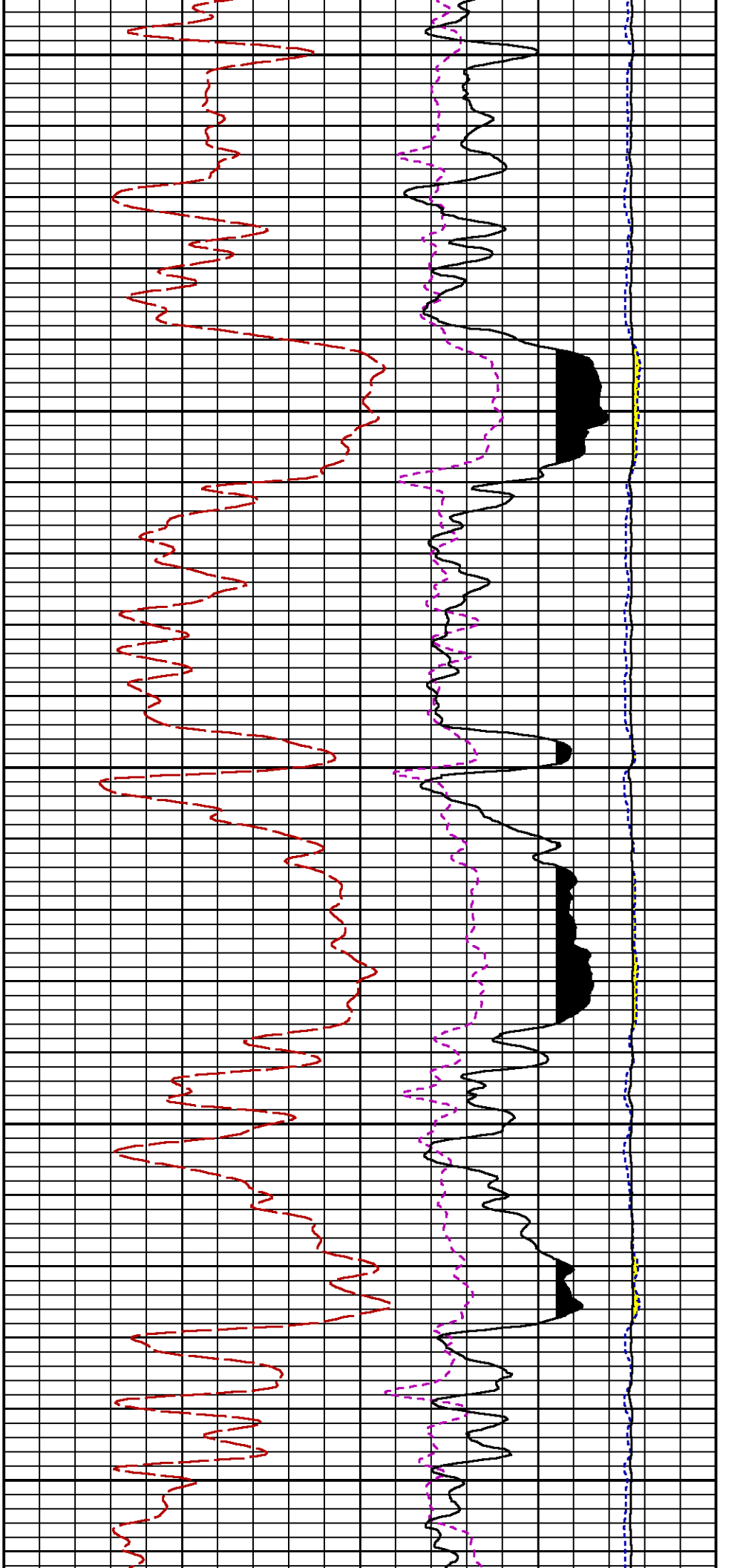
Presentation	: cpu100:rpm_pnc3d+01-MAIN-29_20E_5.fvpdf [5"/100' Scale]
Plot Interval	: 4554.25 - 7940.5 Feet
Data File 1	: F1 : cpu100:/dat1a/LARAMIE_PICEANCE_FEDERAL_29_20E/RPM_MAIN_20E.xtf
Created On	: May 27 09:49:17 2017
Company	: LARAMIE ENERGY
Well	: PICEANCE 29-20E
Field	: VEGA
File Interval	: 4553.5 - 7949.25 Feet
OCT	: RPM_PNC3

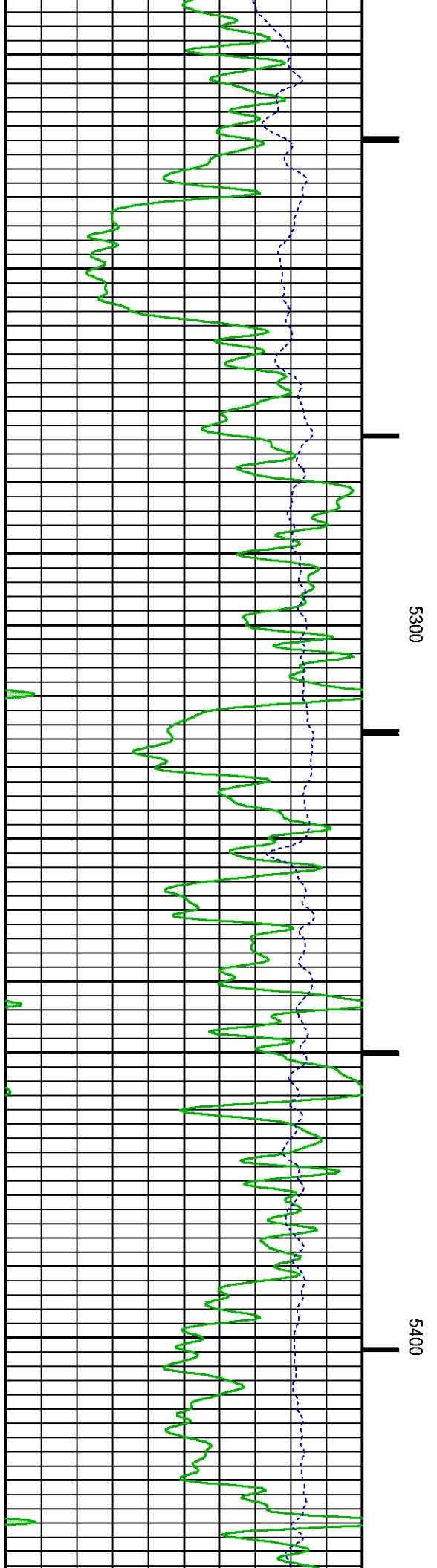
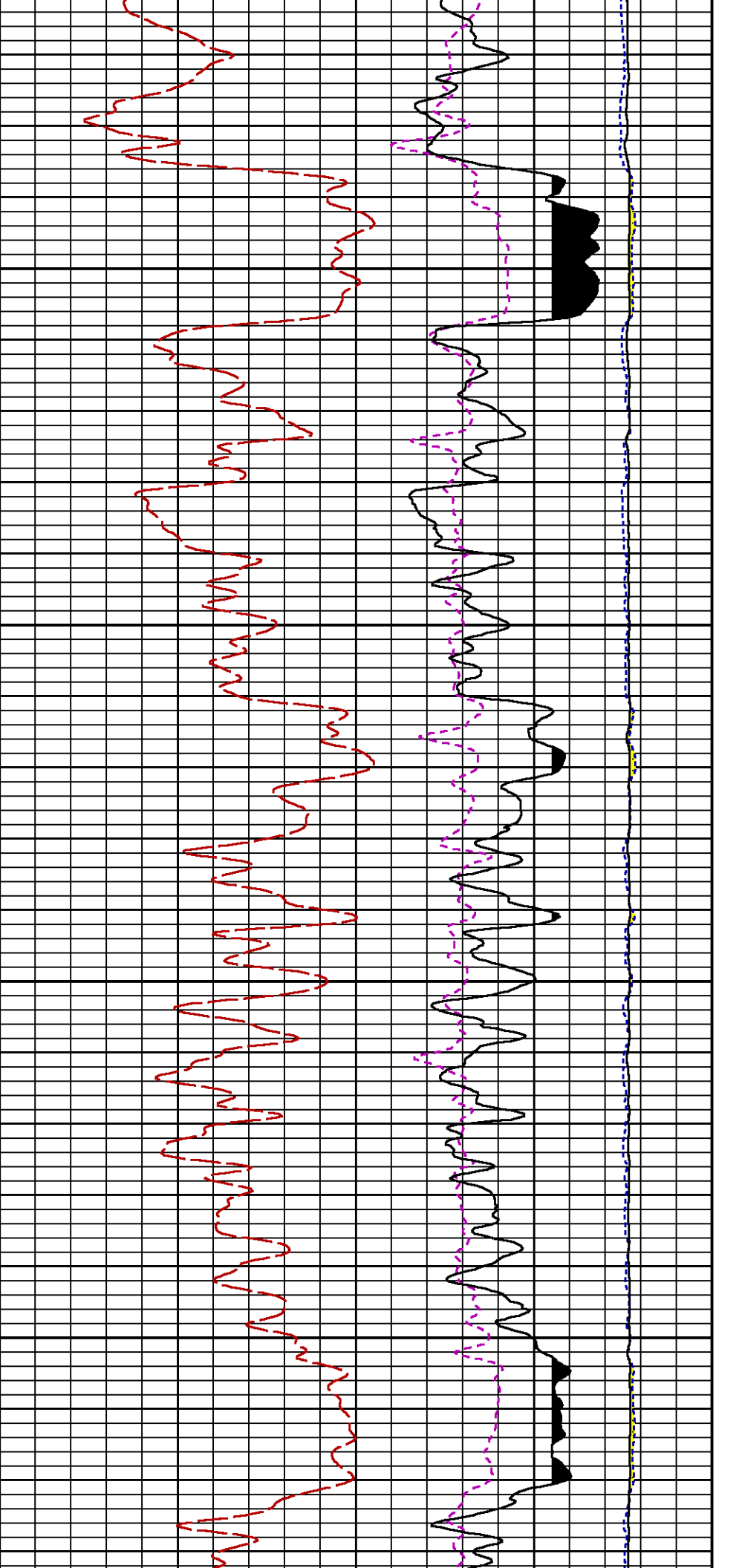


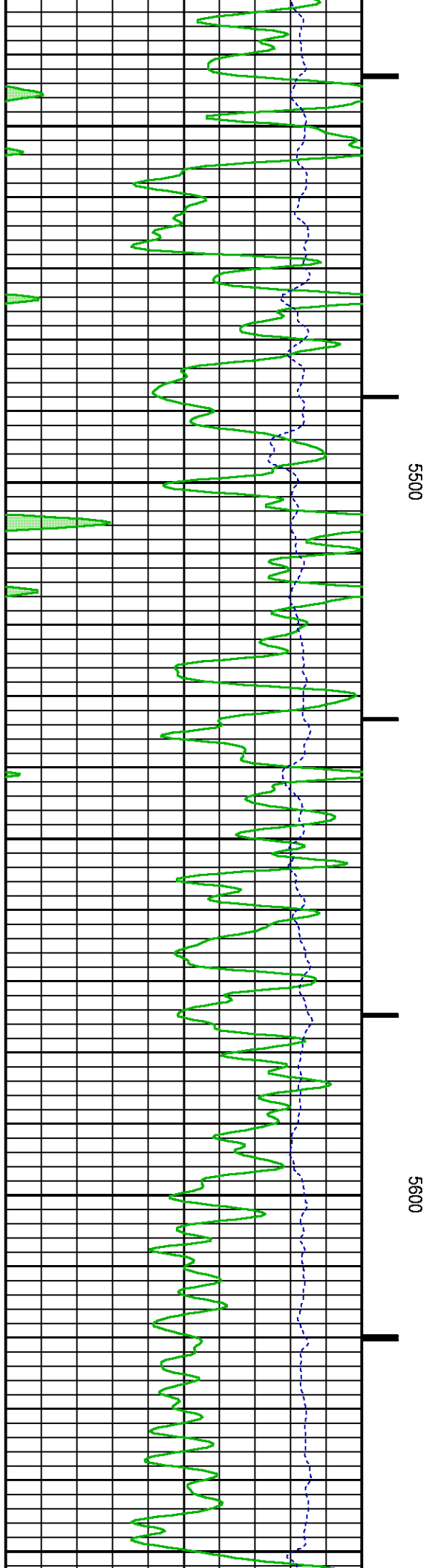
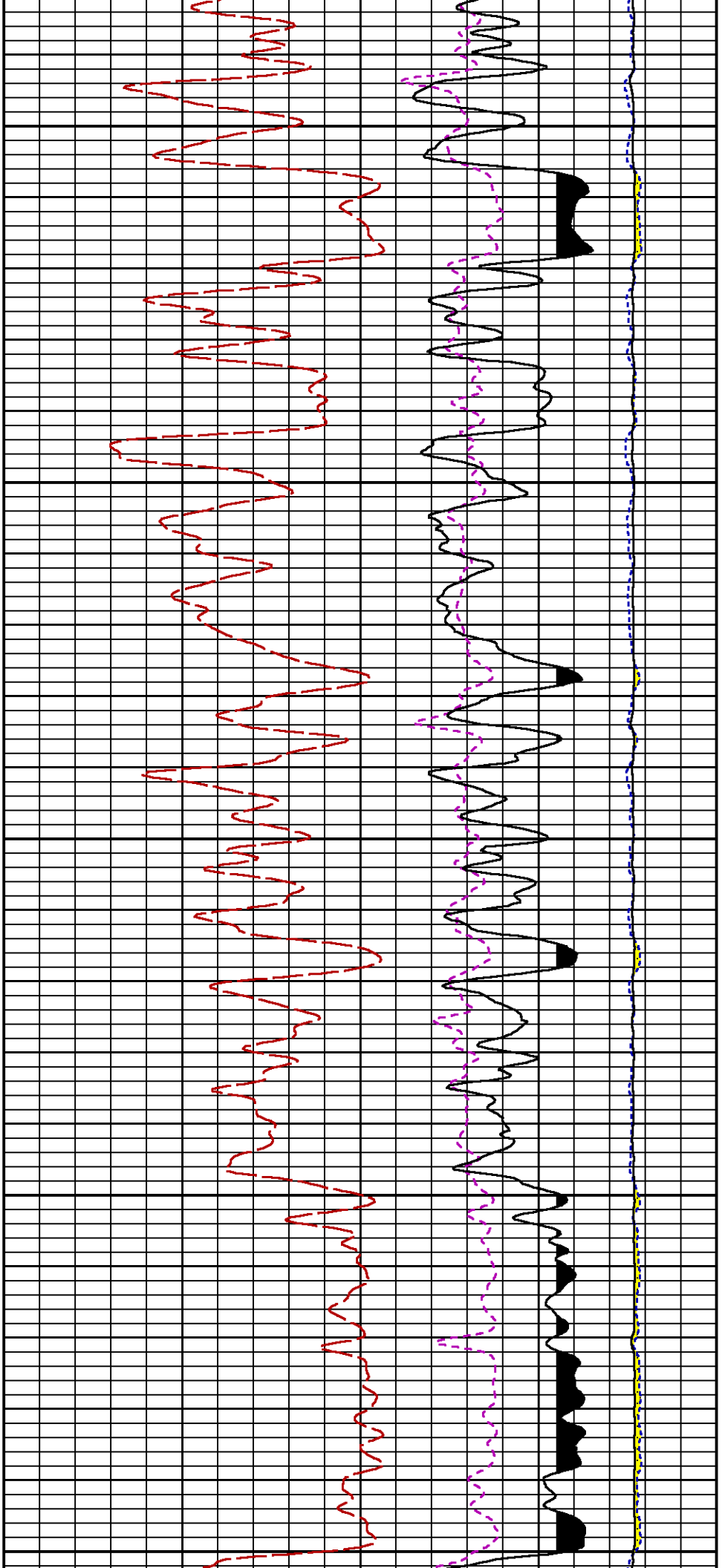


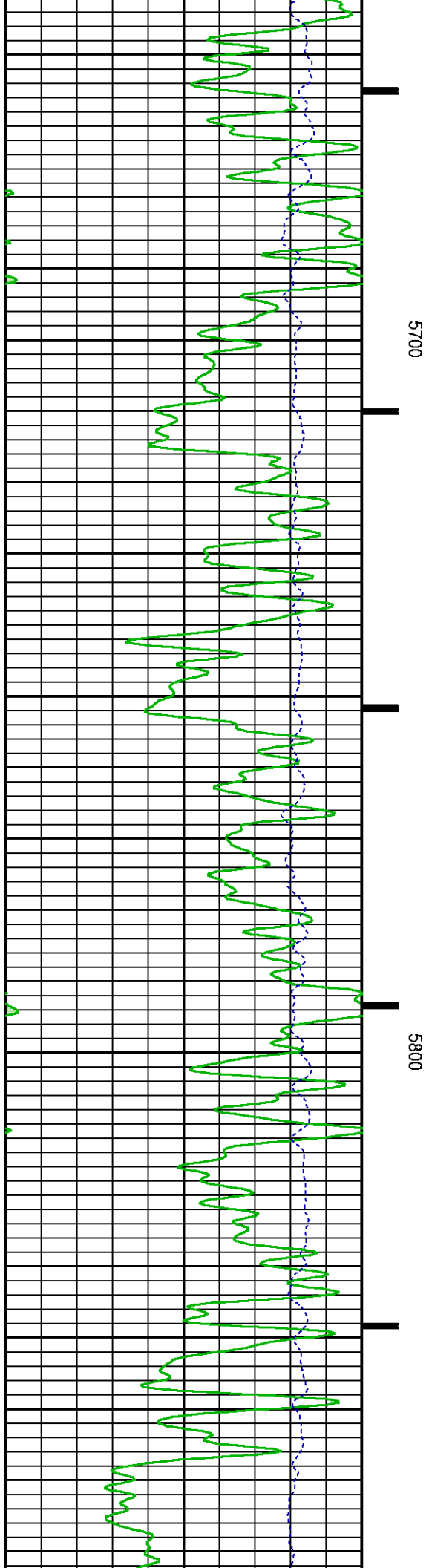
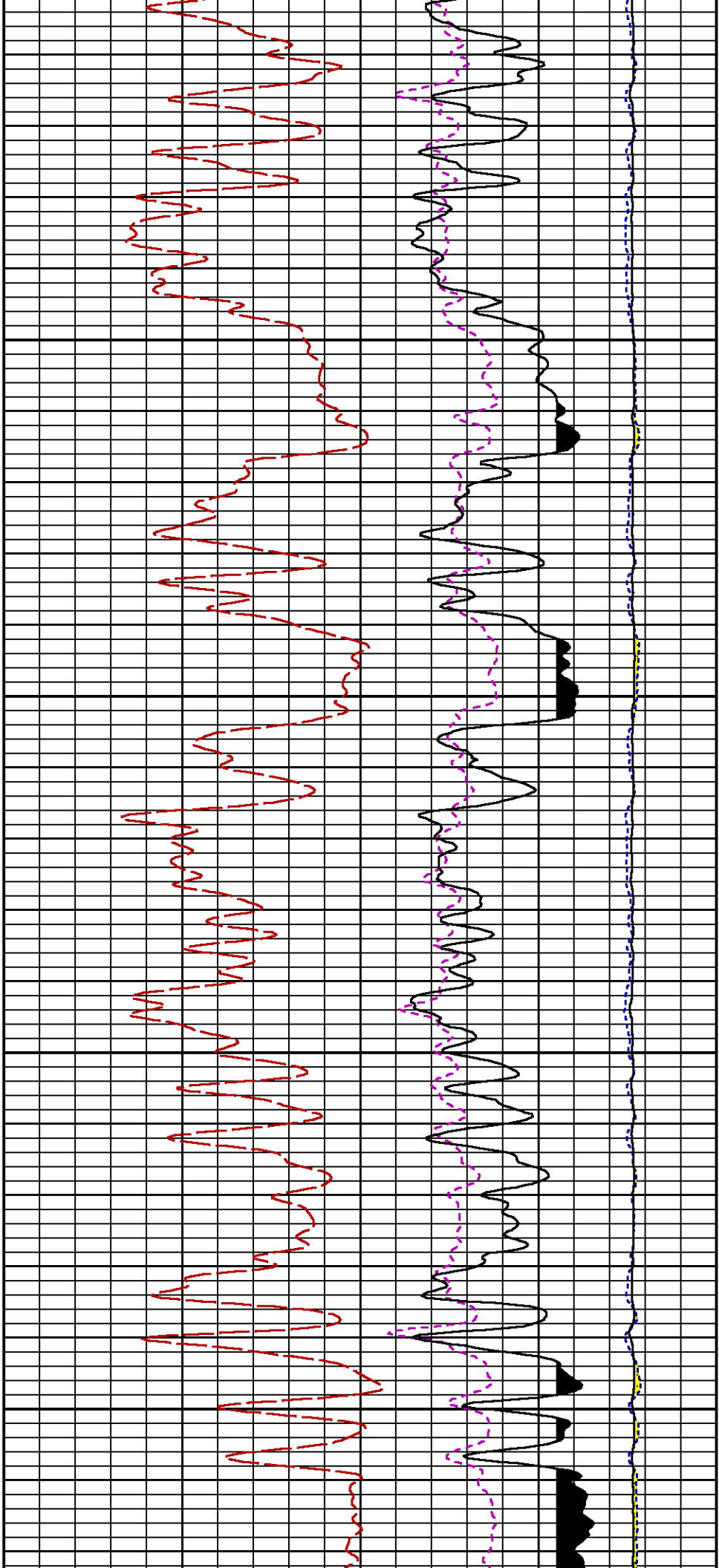


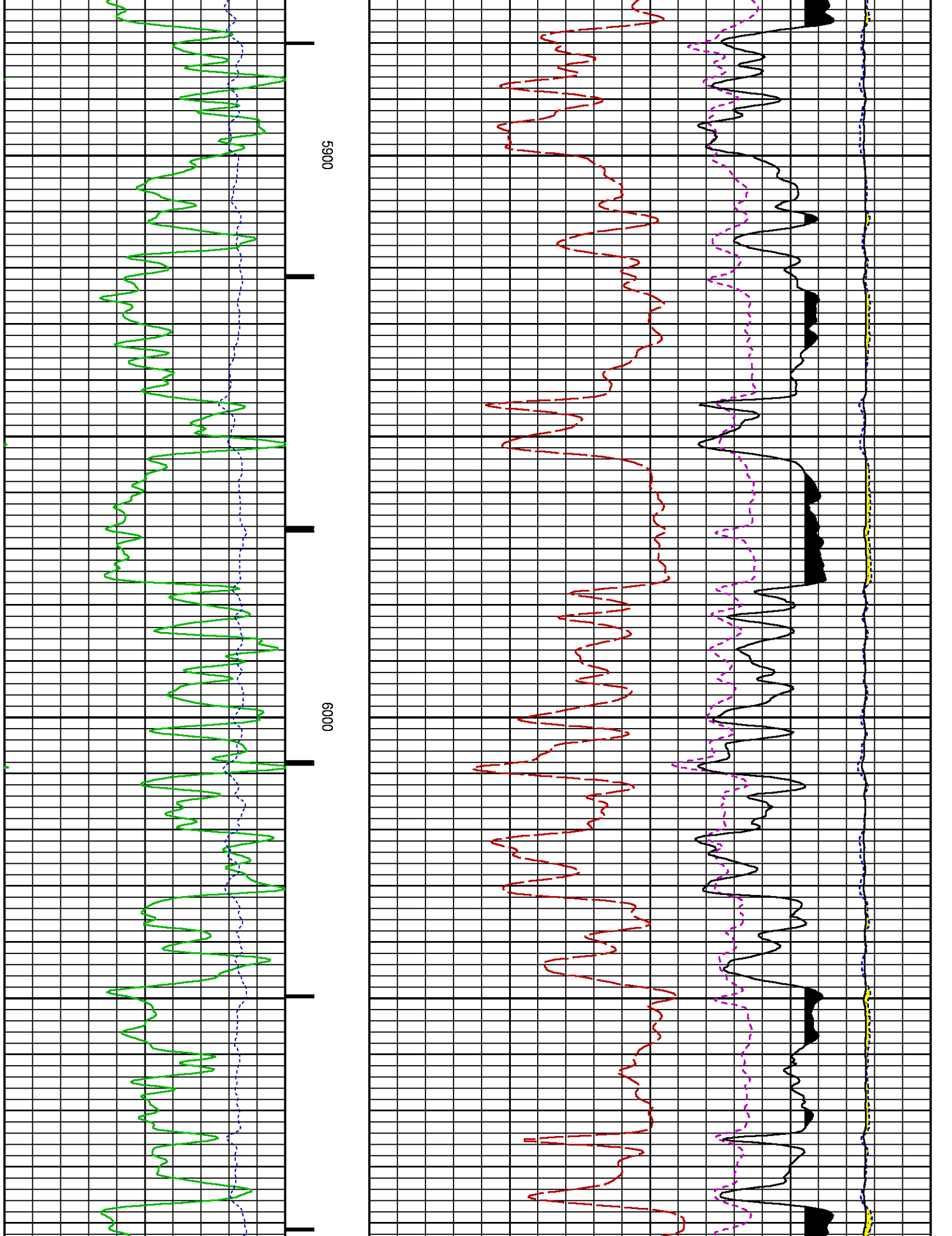


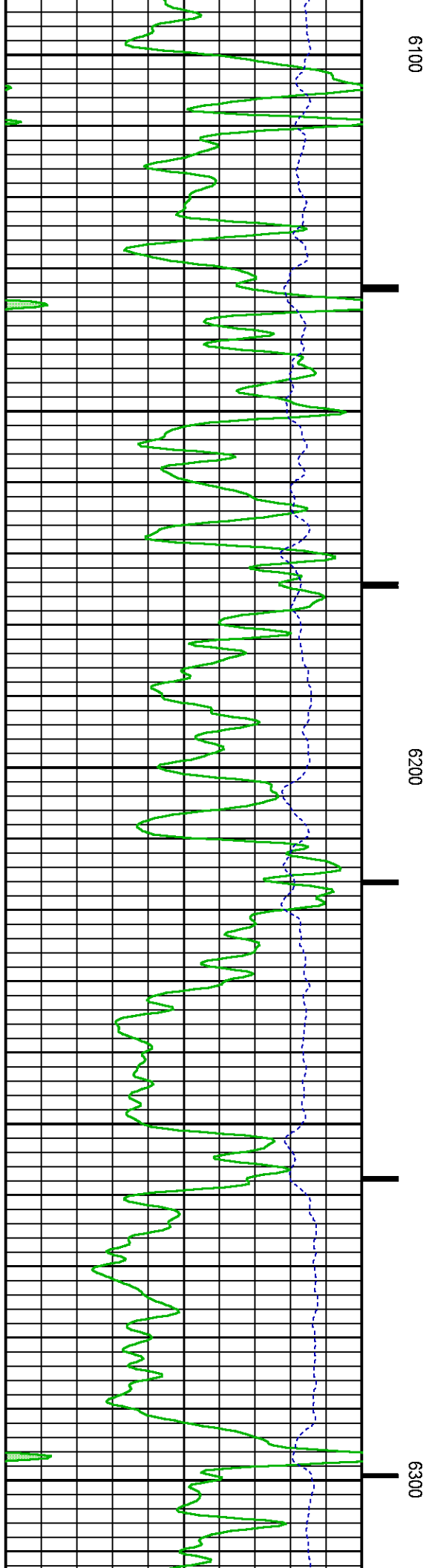
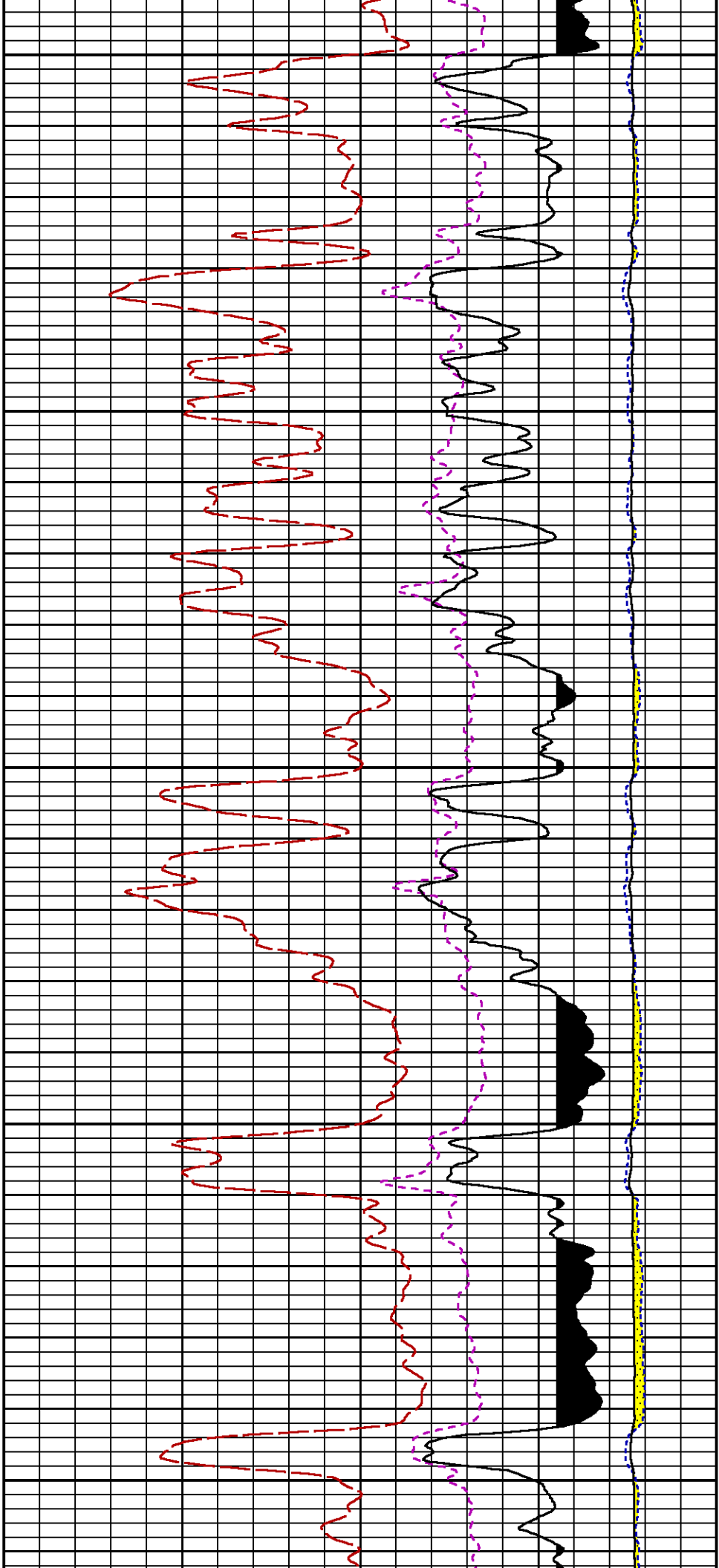


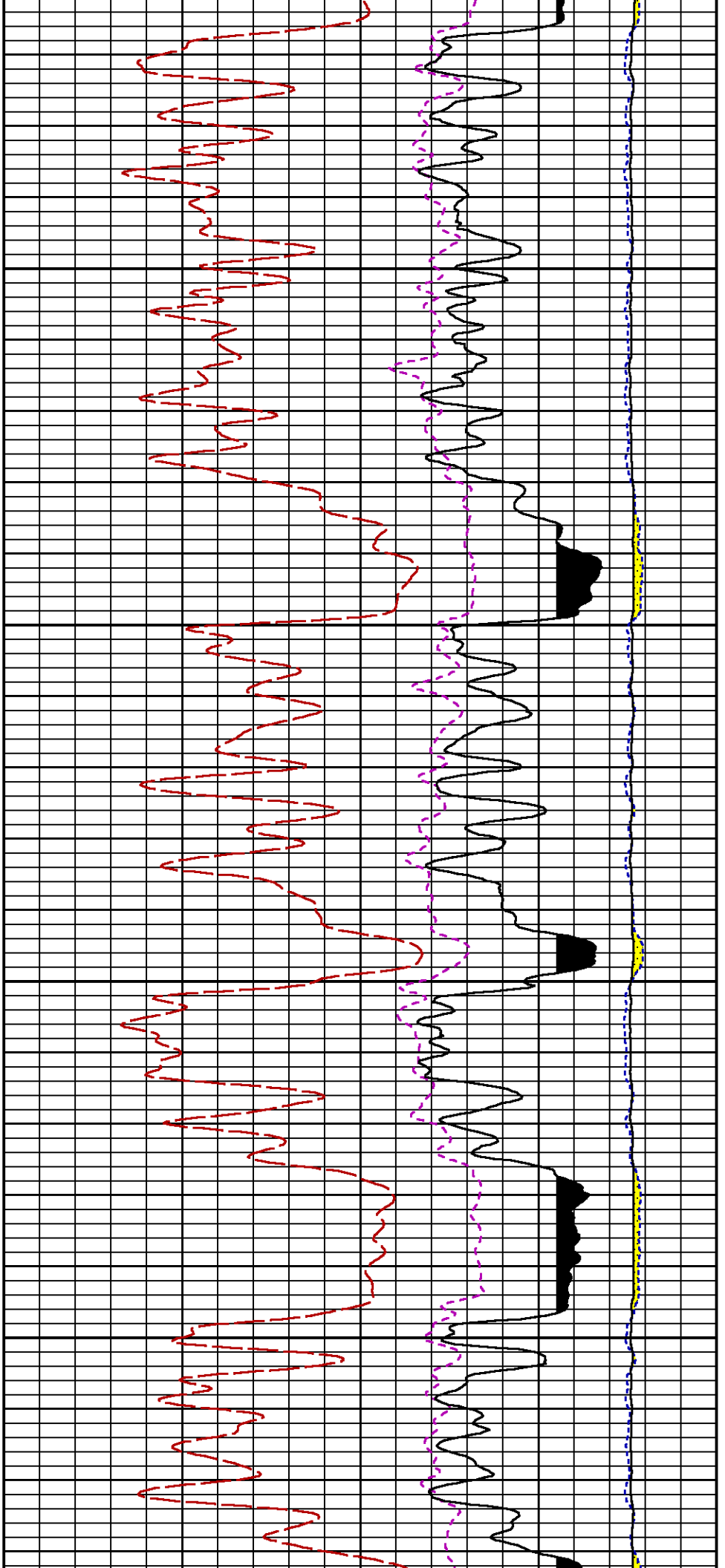






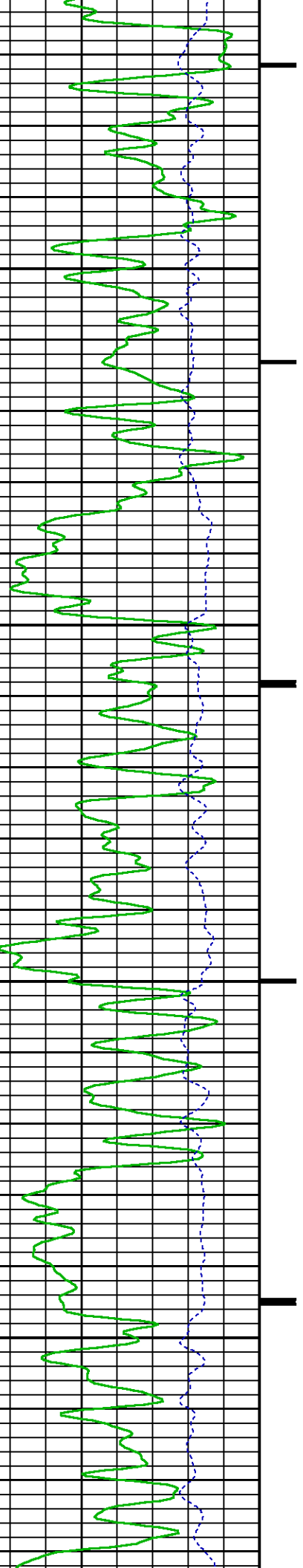




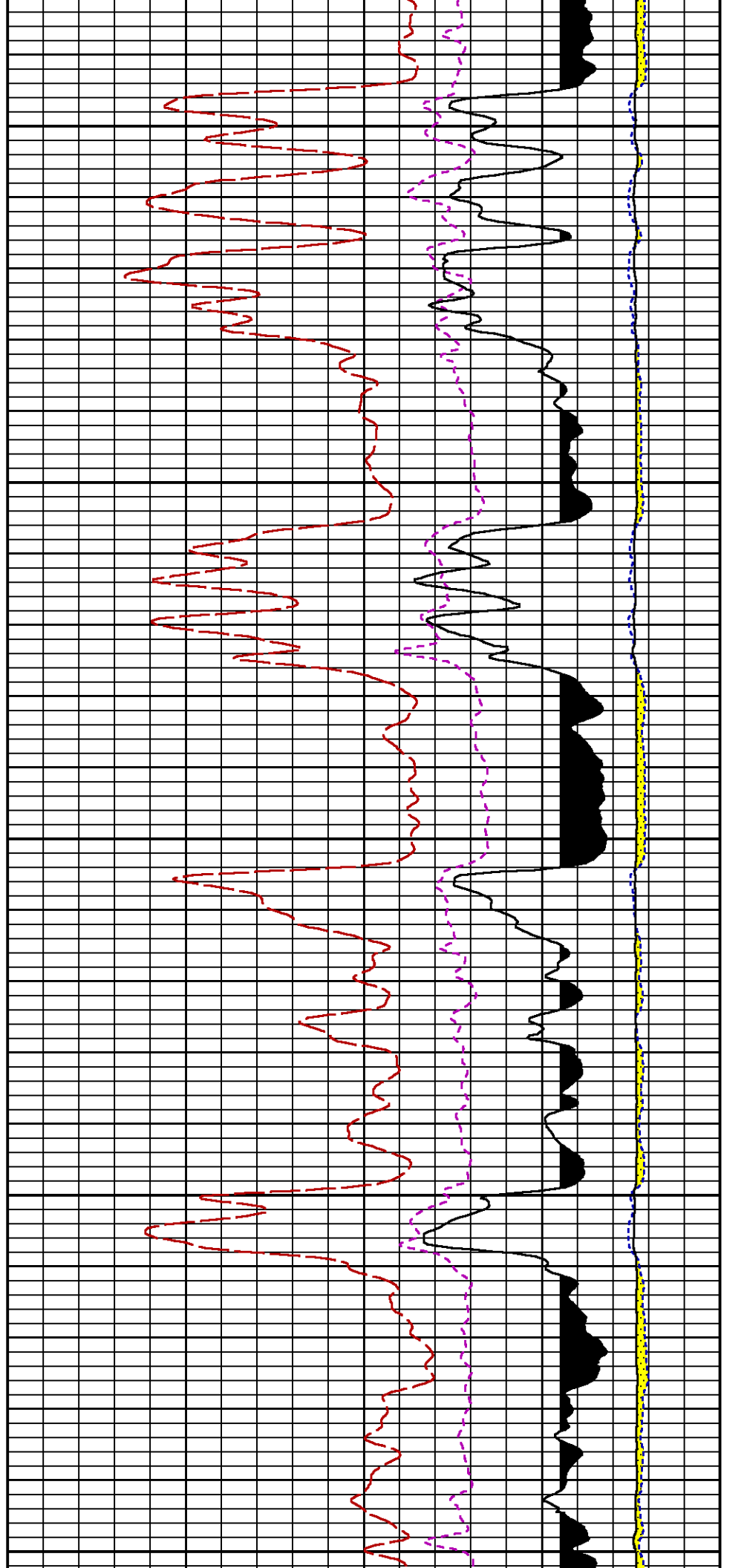
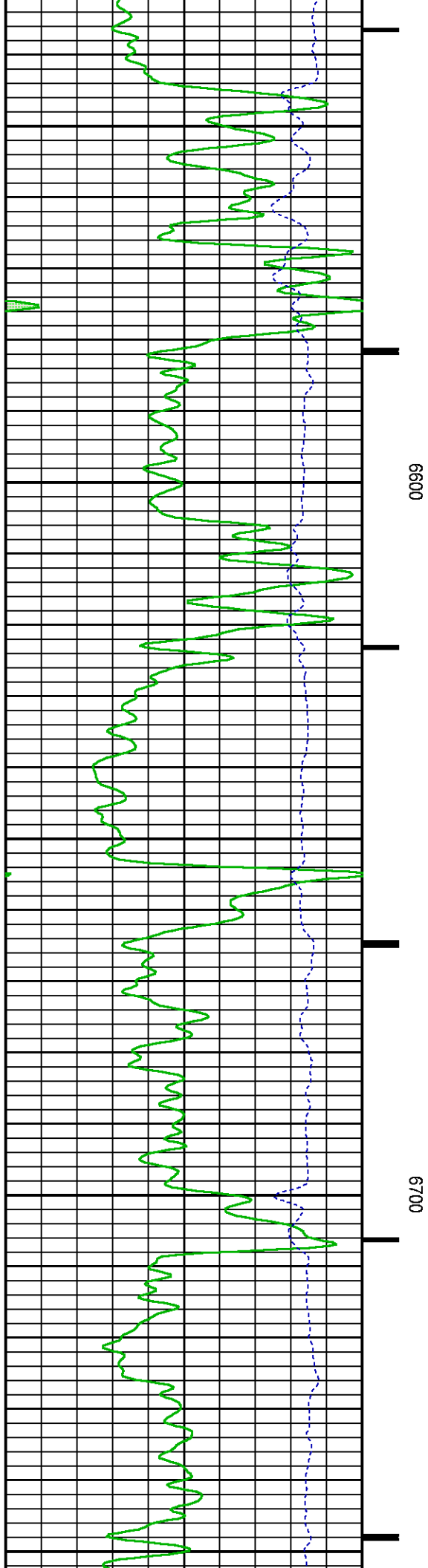


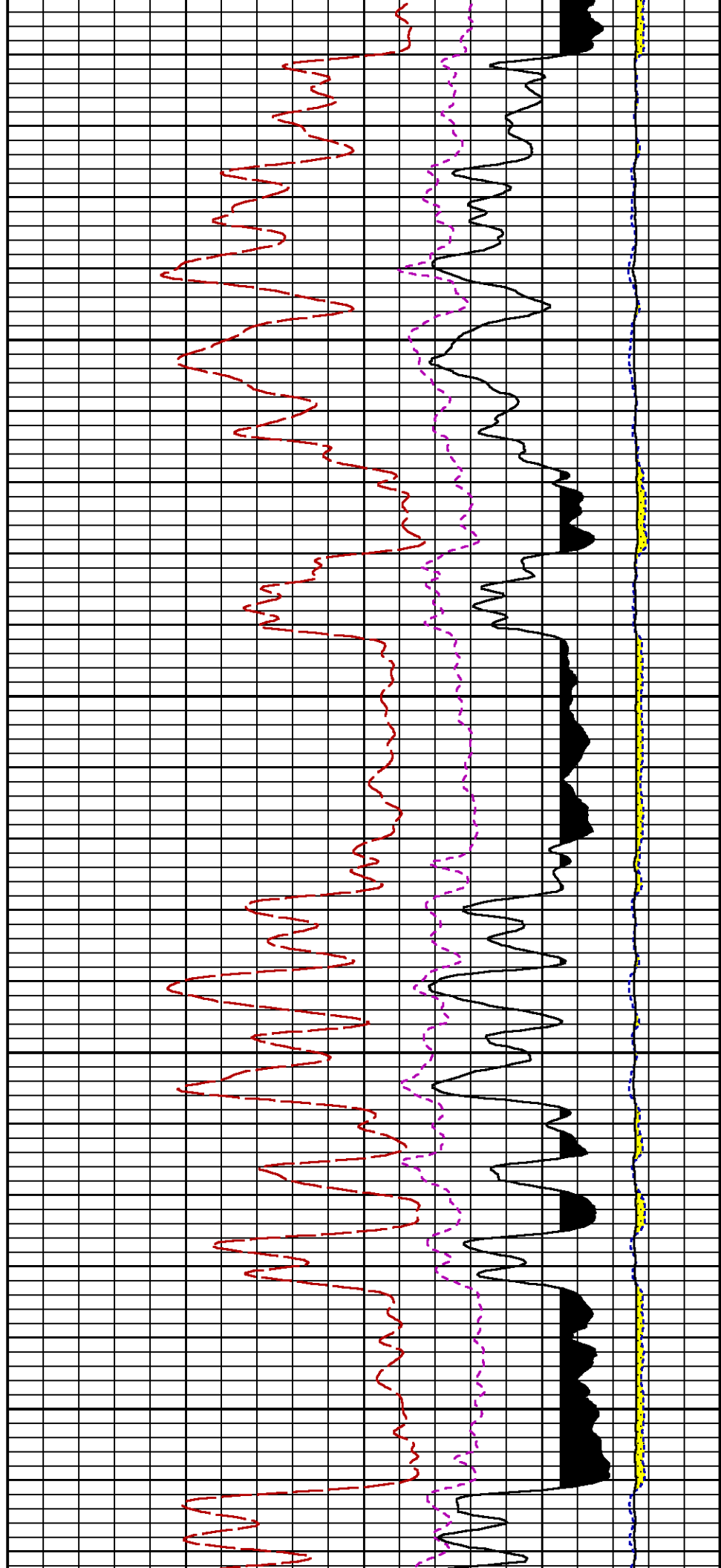
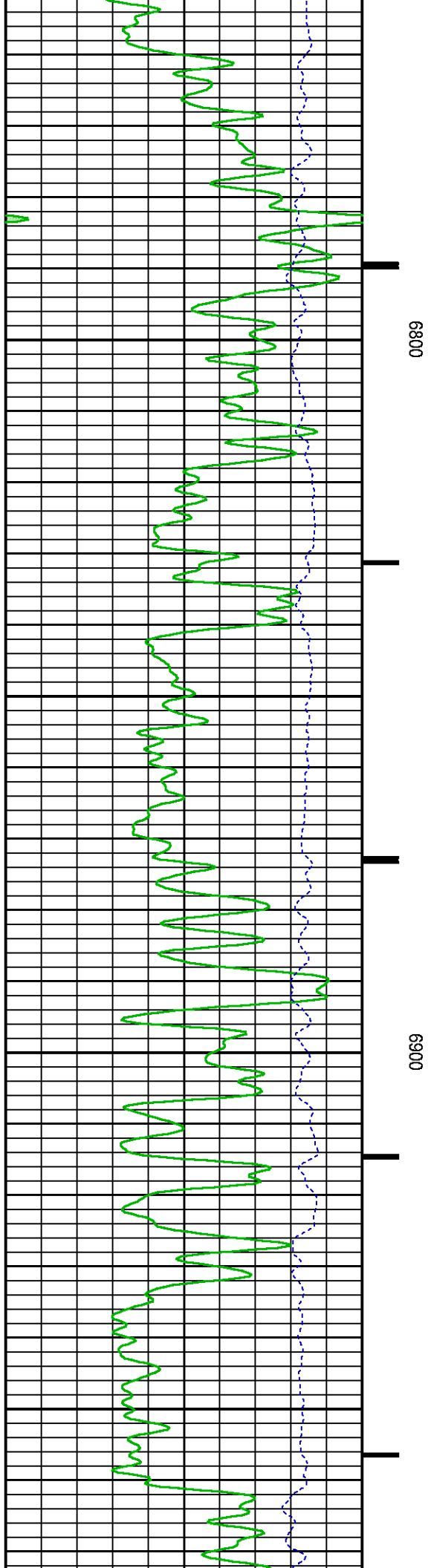
6400

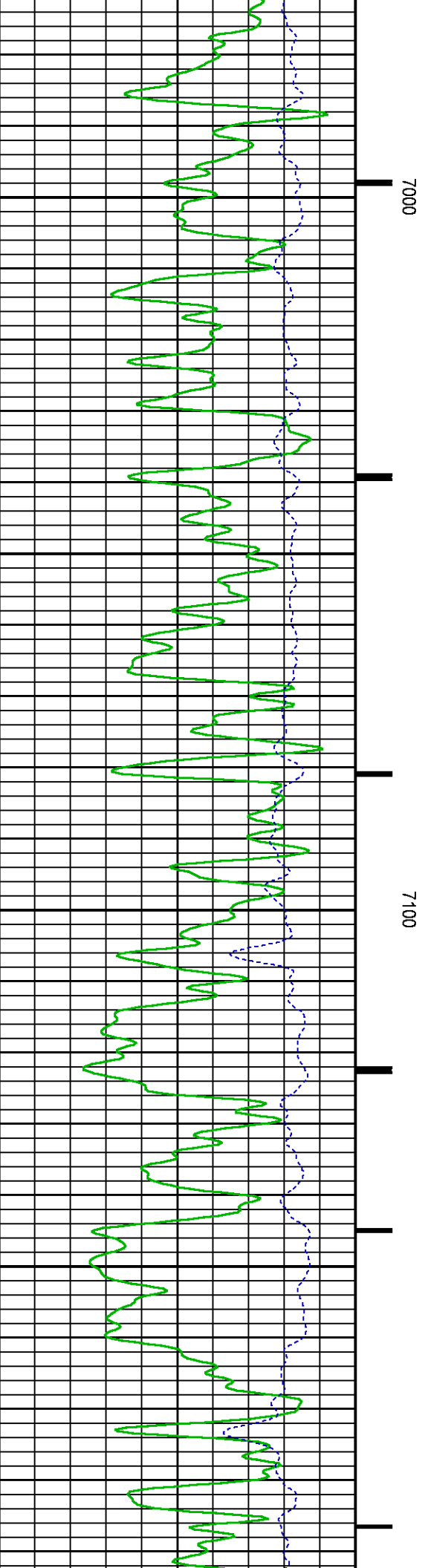
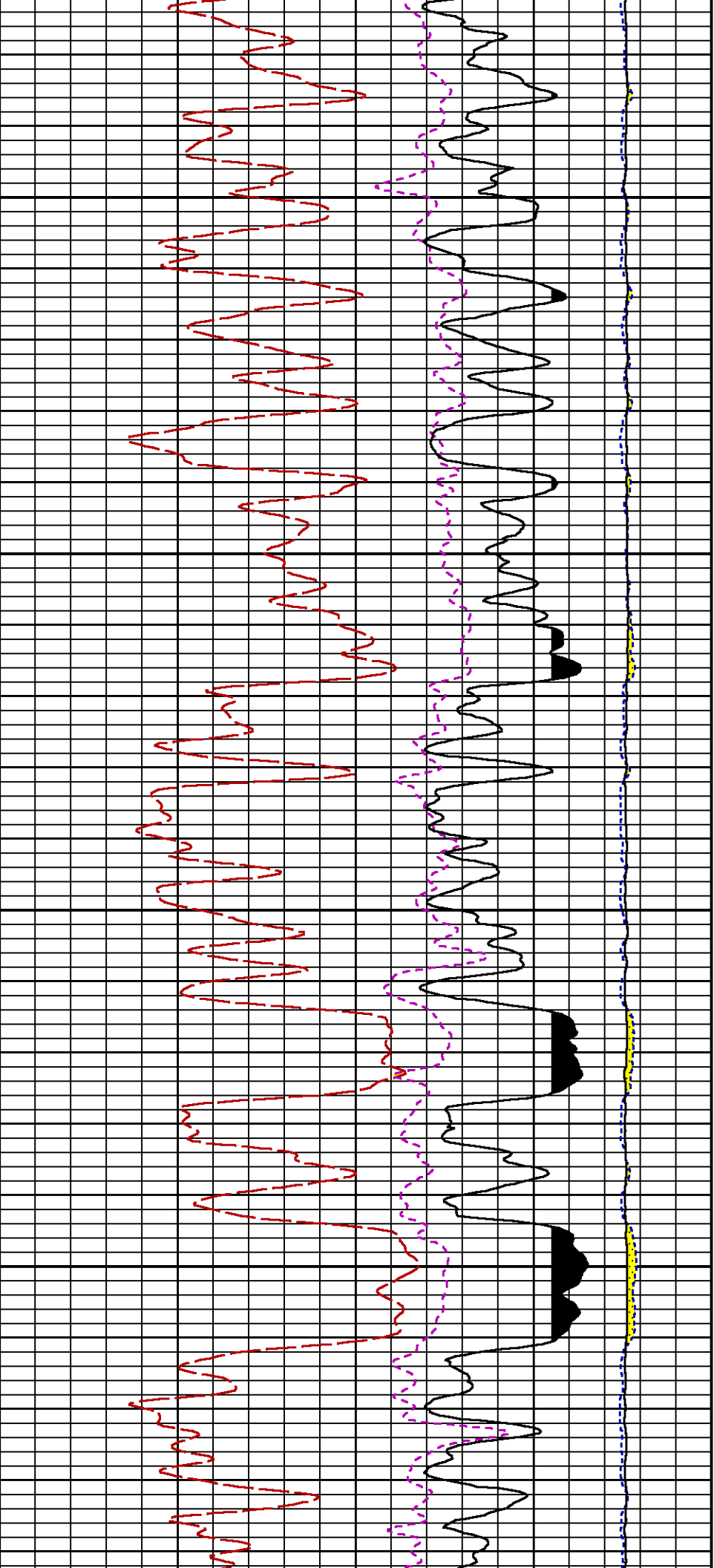
6500

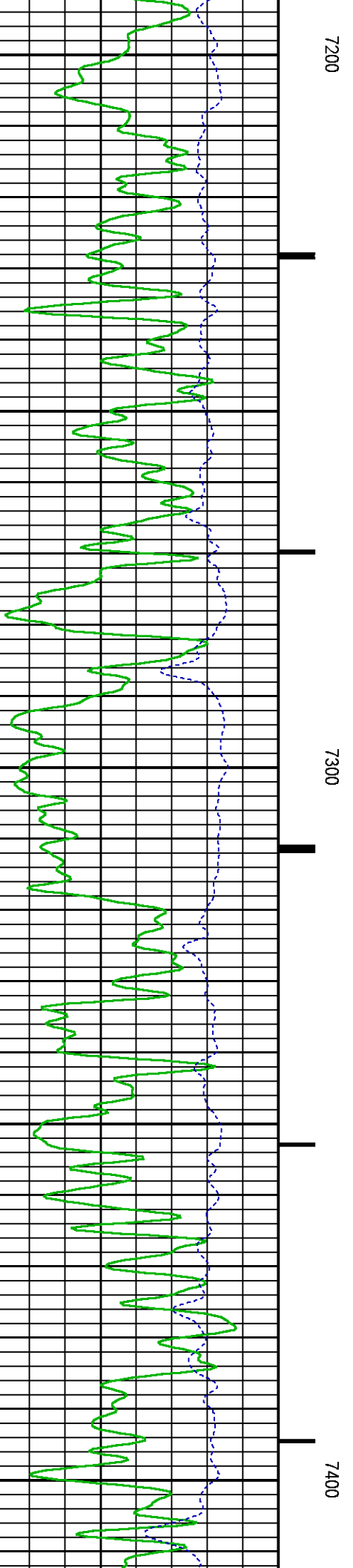
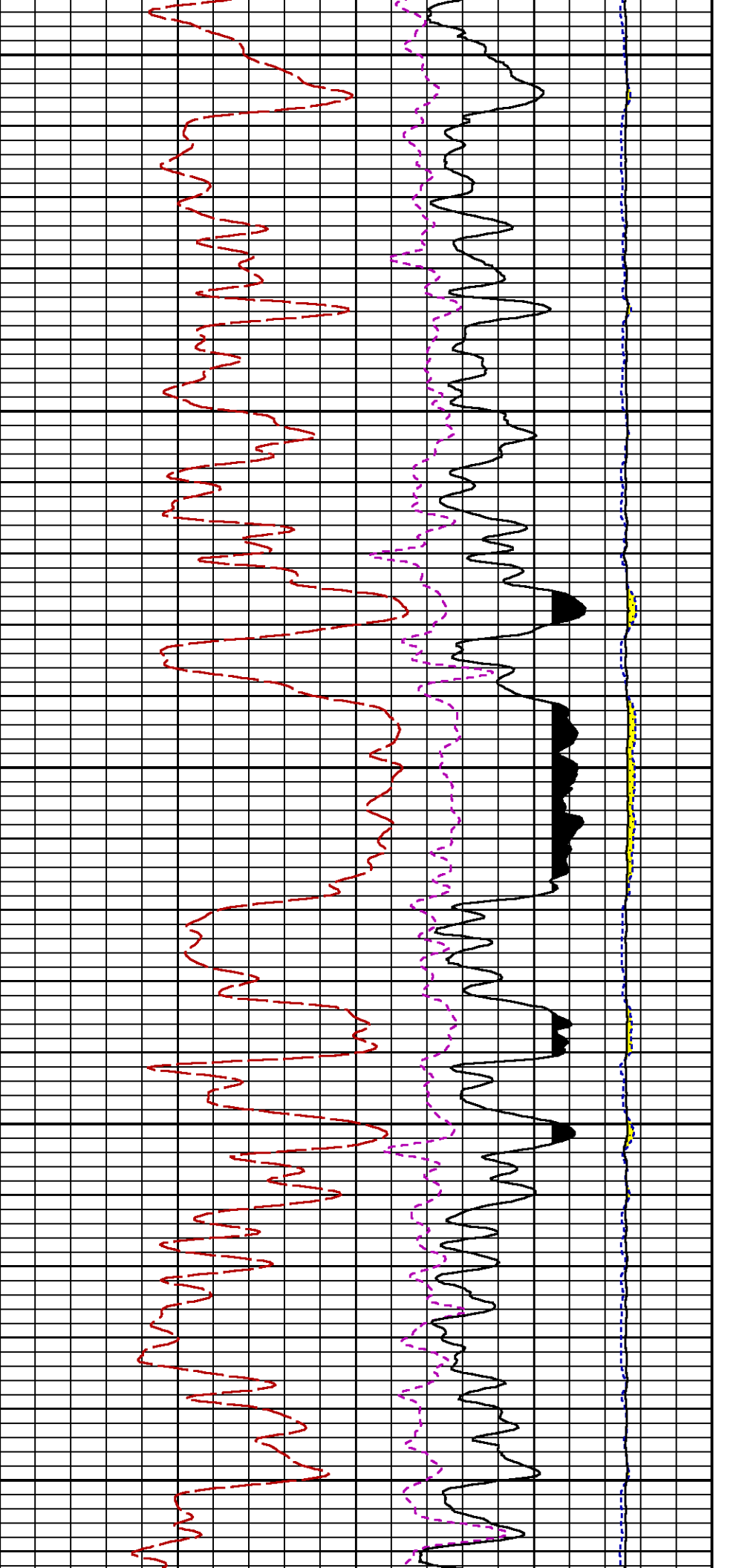


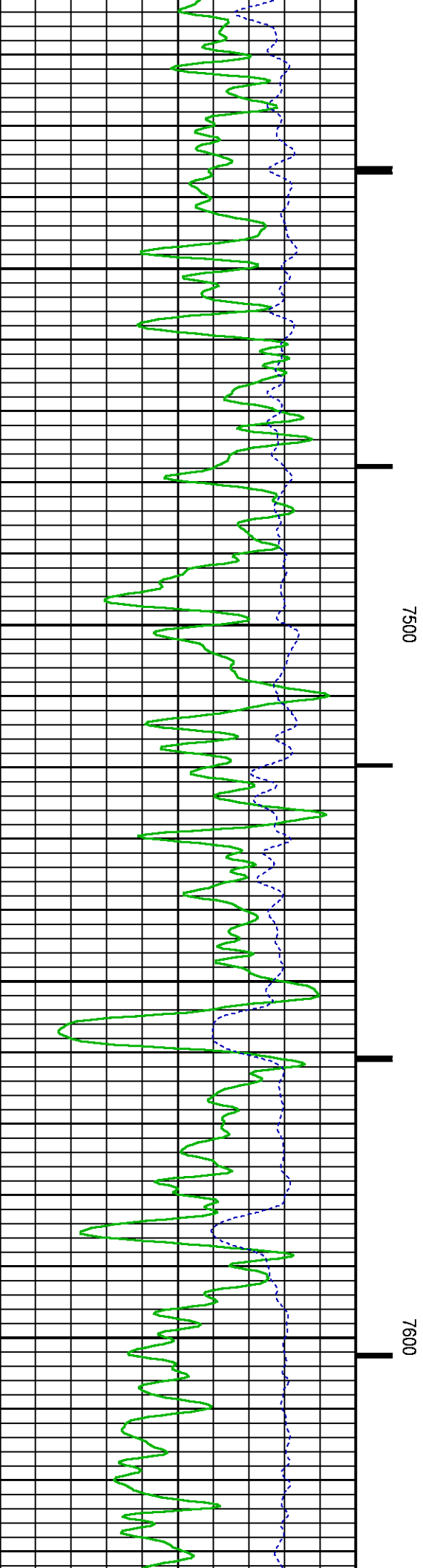
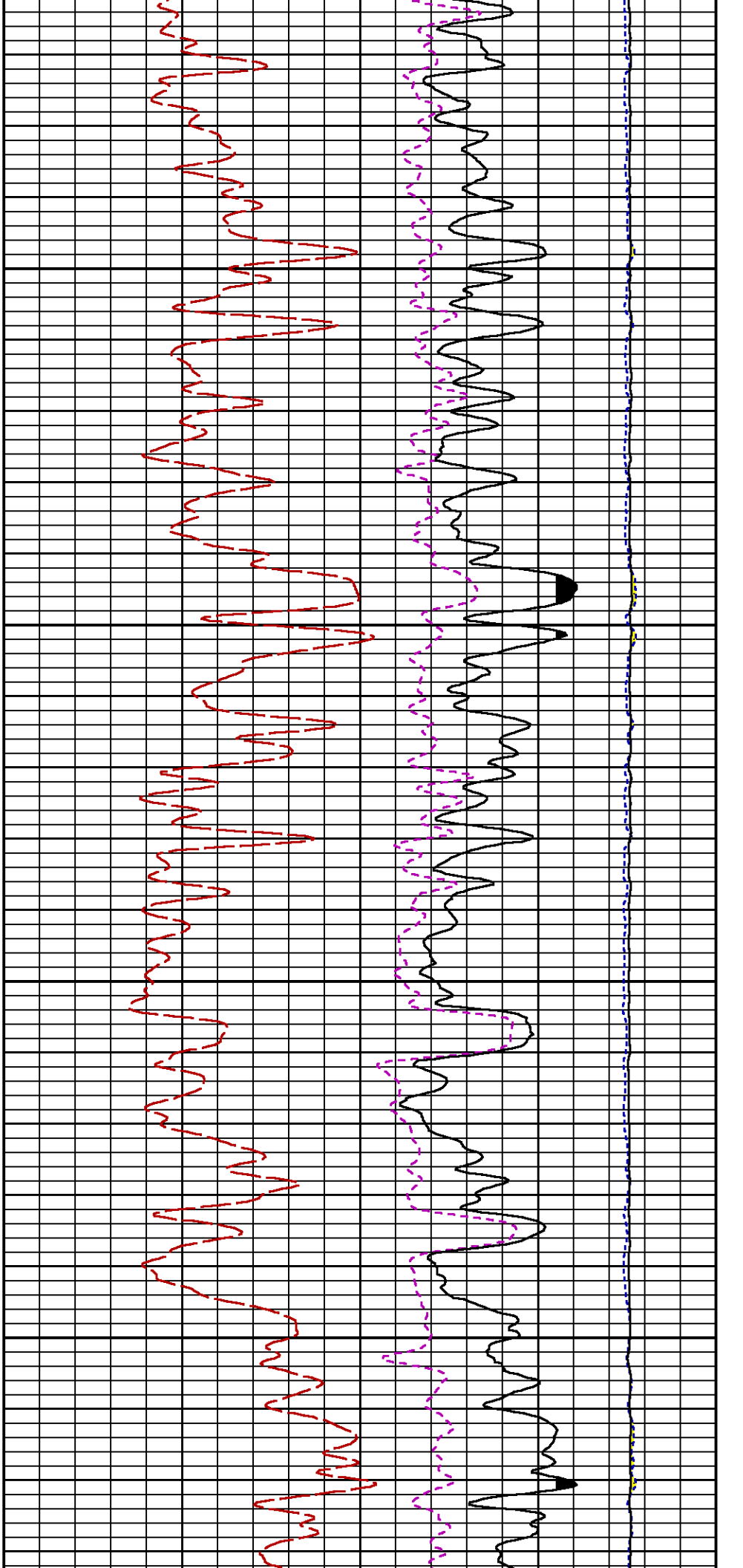


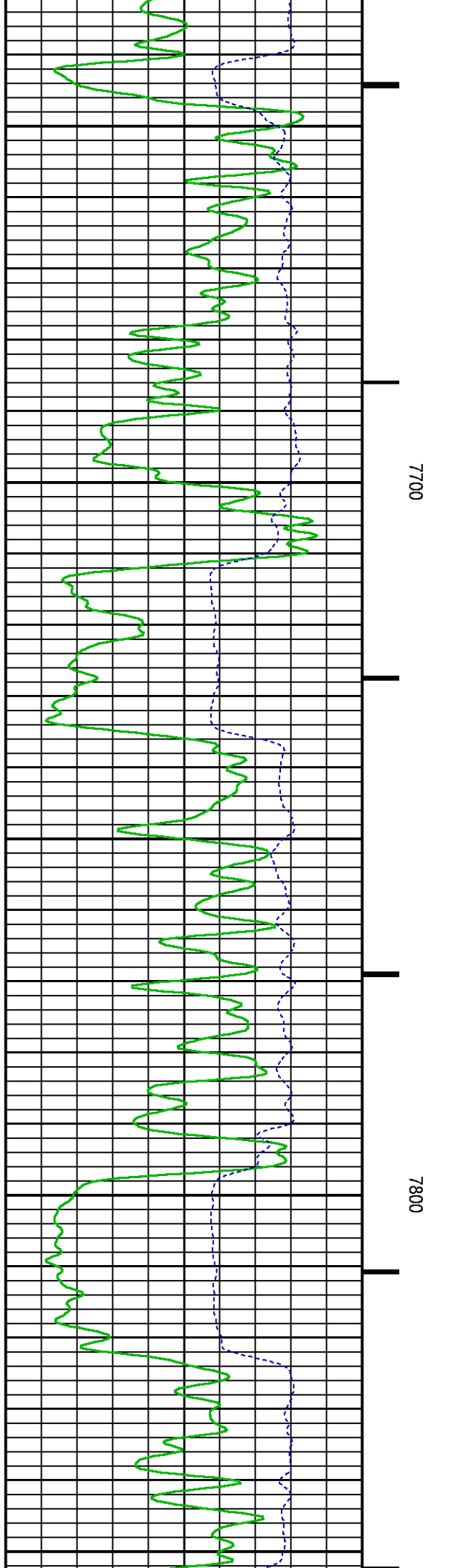
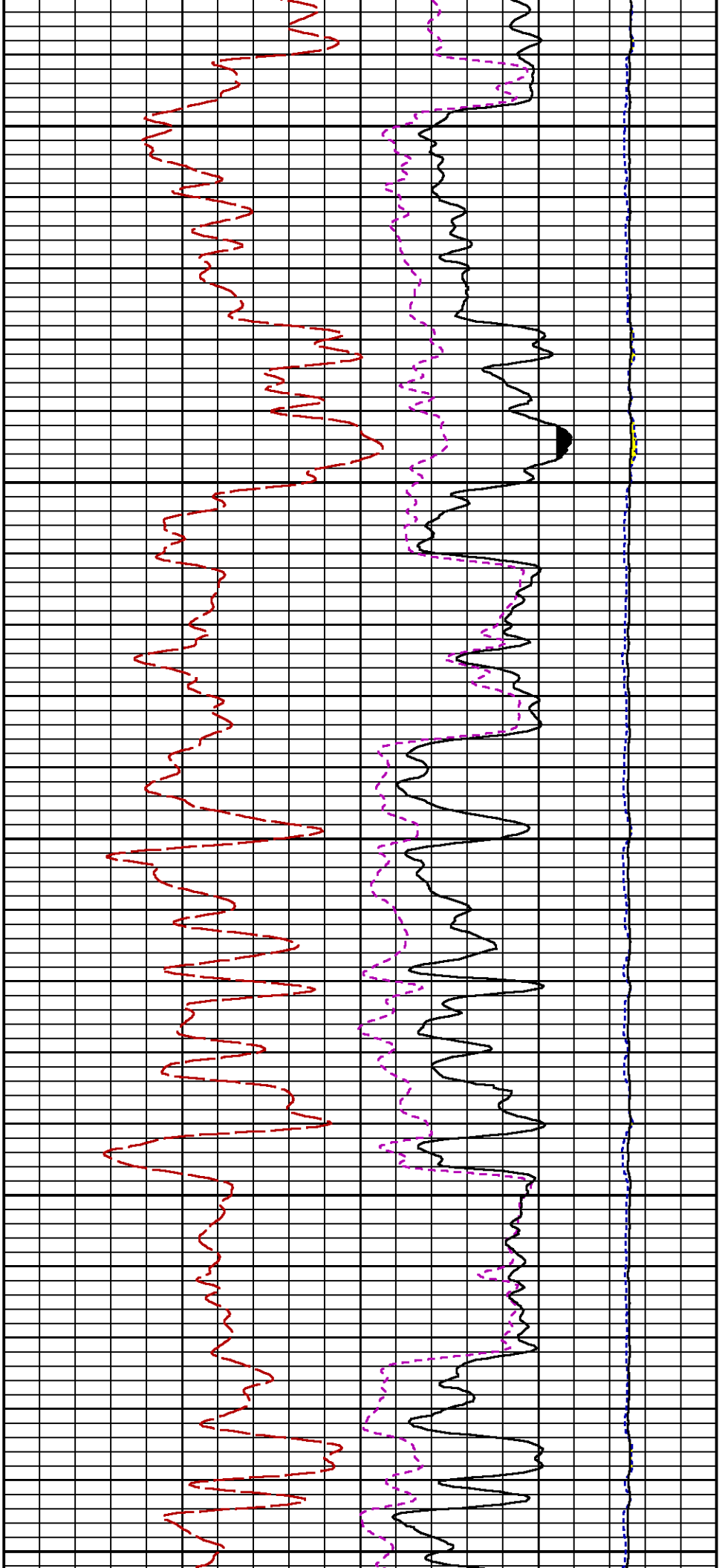


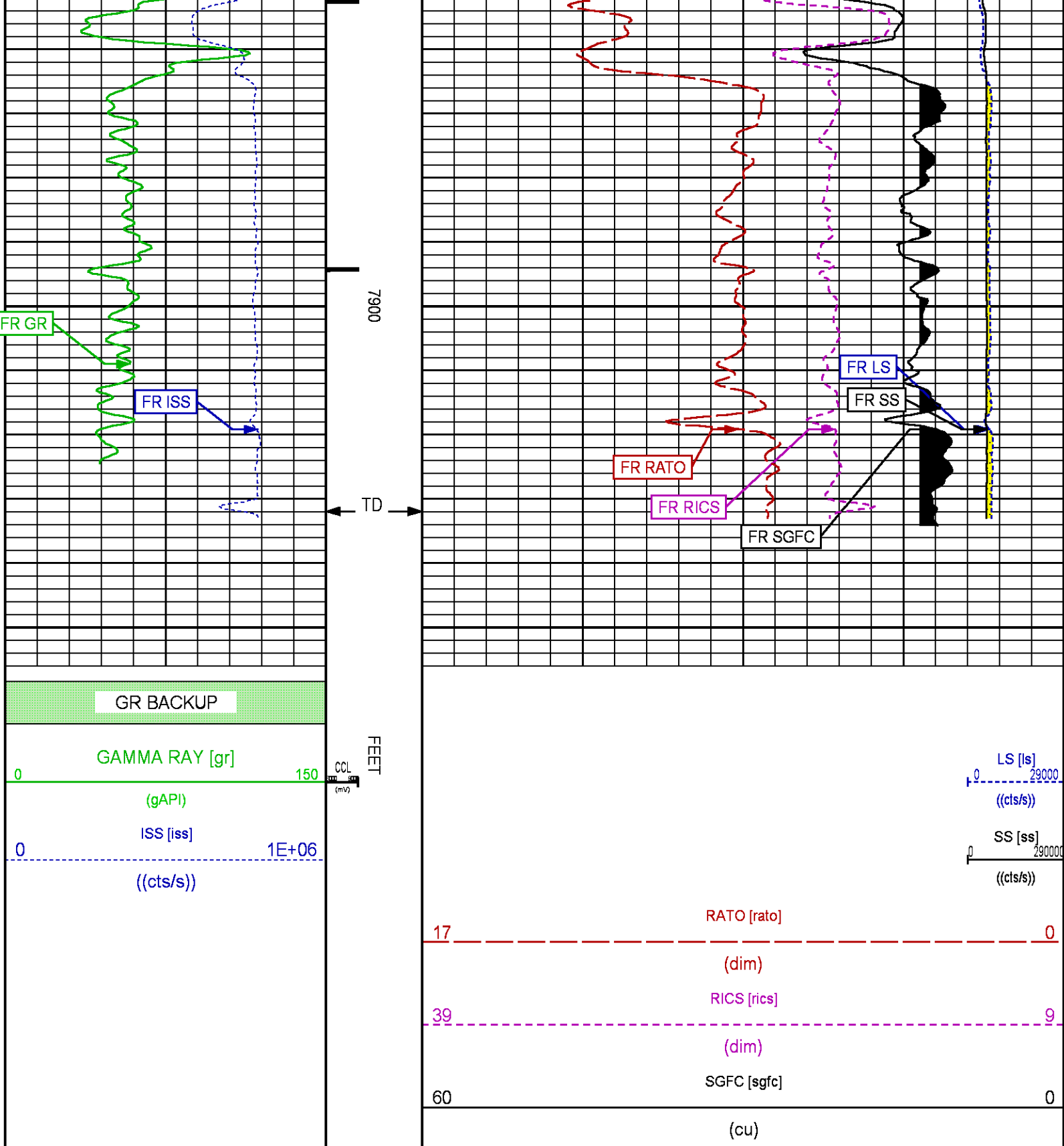












REPEAT PNC 3D MODE

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_20E/RPM\_PNC3D01.prm  
LOGGING MODE: DEPTH DIRECTION: UP  
TOP DEPTH: 7291.000 ft BOTTOM DEPTH: 7513.000 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	8.75	in	" "
	CASING SIZE	4.50	in	" "
	MATRIX	SANDSTONE		" "
	CORRECTION BUFFER	11		" "

CURVE DESCRIPTION REPORT

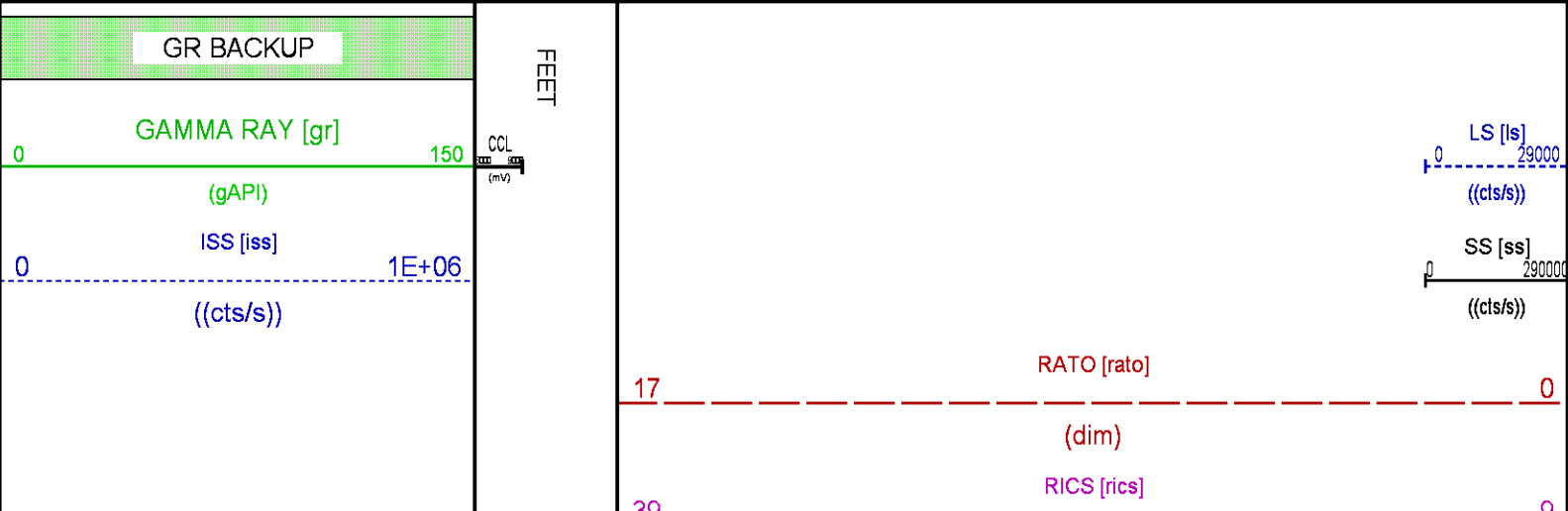
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	May 27 09:03:15 2017	CASING COLLAR LOCATOR
F1:GR	May 27 09:03:15 2017	GAMMA RAY
F1:ISS	May 27 09:03:15 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	May 27 09:03:15 2017	LONG SPACE COUNT RATE
F1:RATO	May 27 09:03:15 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	May 27 09:03:15 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	May 27 09:03:15 2017	CORRECTED FORMATION SIGMA
F1:SS	May 27 09:03:15 2017	SHORT SPACE COUNT RATE

CURVE MEASURE POINT OFFSET

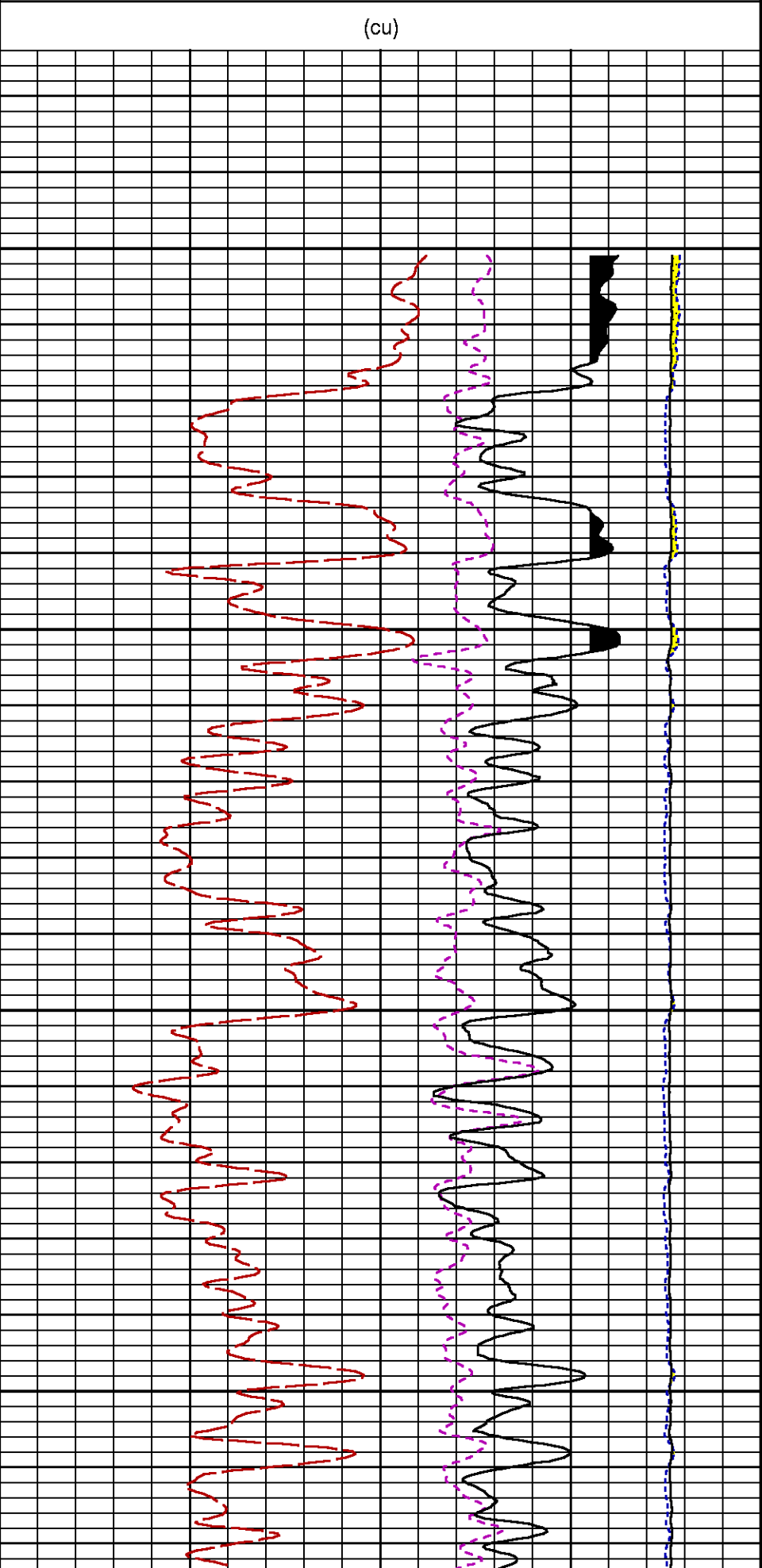
CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)	CURVE	OFFSET (ft)
CCL	26.00	ISS	12.75	RATO	12.75	SGFC	12.75
GR	23.00	LS	12.75	RICS	12.75	SS	12.75

Presentation : cpu100:rpm\_pnc3d+01-REPEAT-29\_20E\_5.fvpdf [5"/100' Scale]  
Plot Interval : 7275 - 7513 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE\_PICEANCE\_FEDERAL\_29\_20E/RPM\_REPT\_20E.xtf  
Created On : May 27 09:03:15 2017  
Company : LARAMIE ENERGY  
Well : PICEANCE 29-20E  
Field : VEGA  
File Interval : 7274.25 - 7521.75 Feet  
OCT : RPM\_PNC3

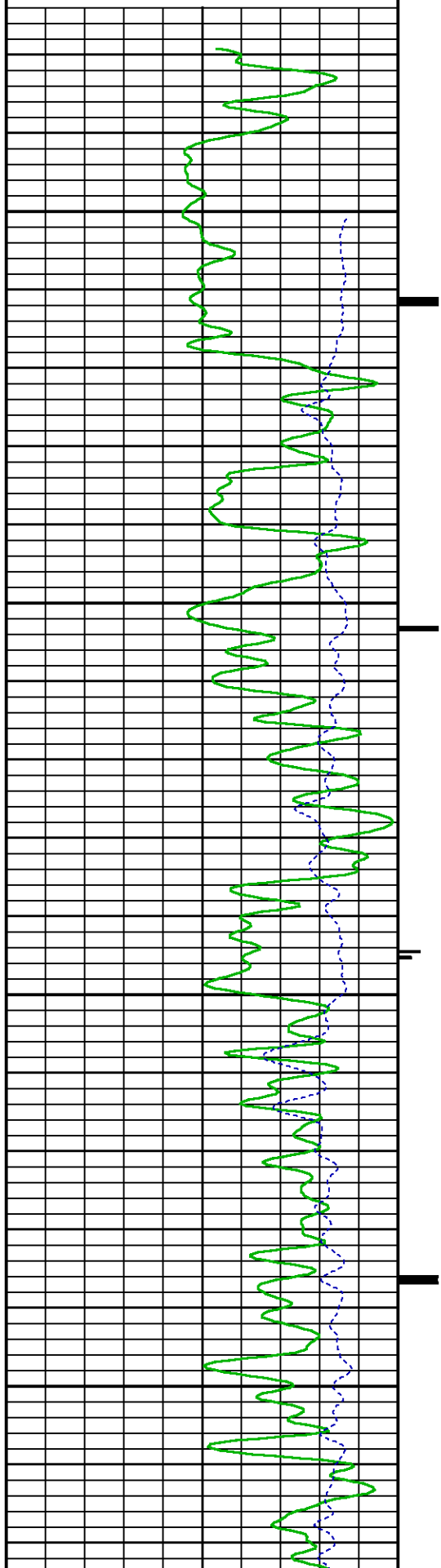


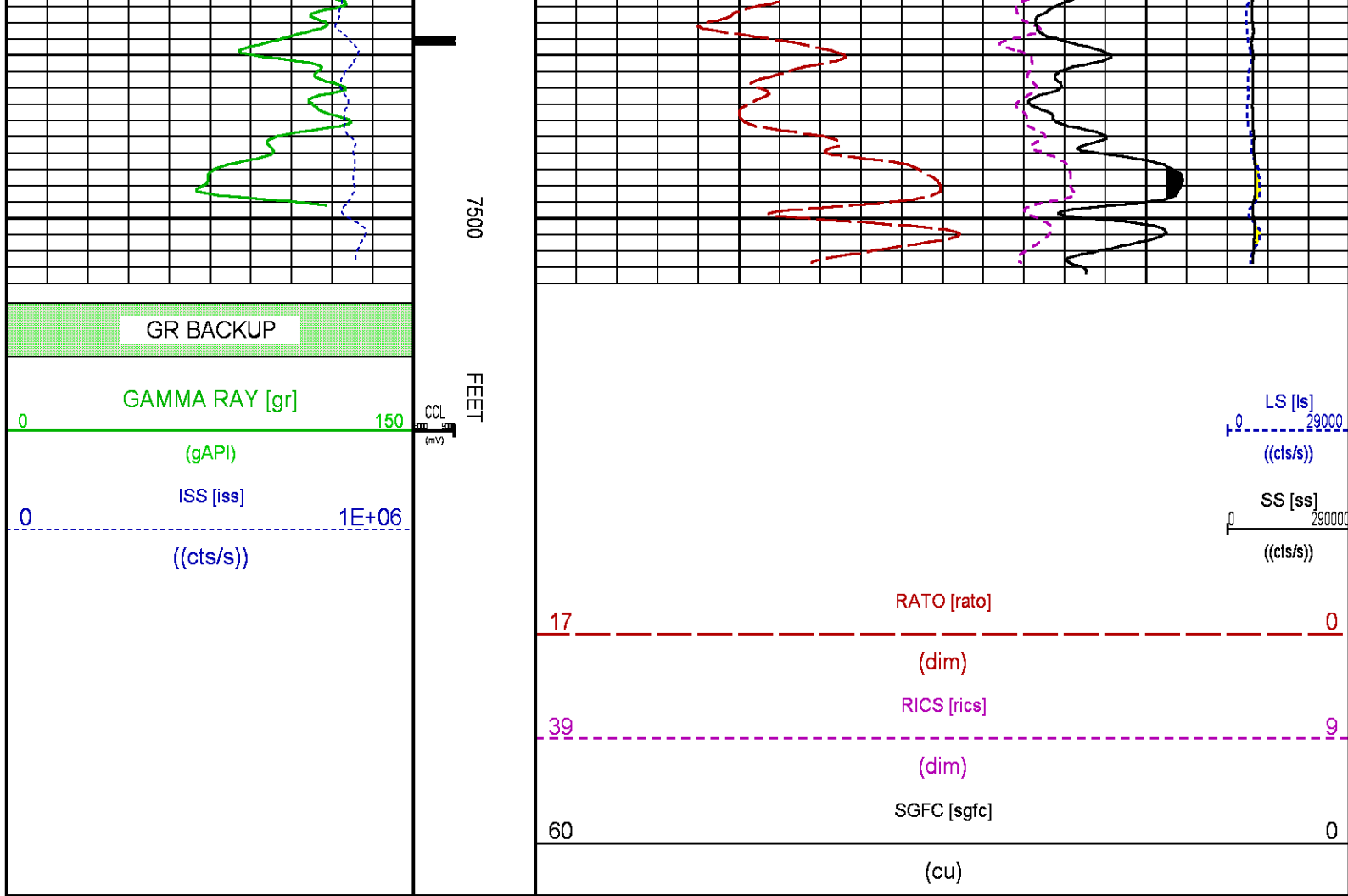




7300

7400





### CALIBRATION / VERIFICATION SUMMARY

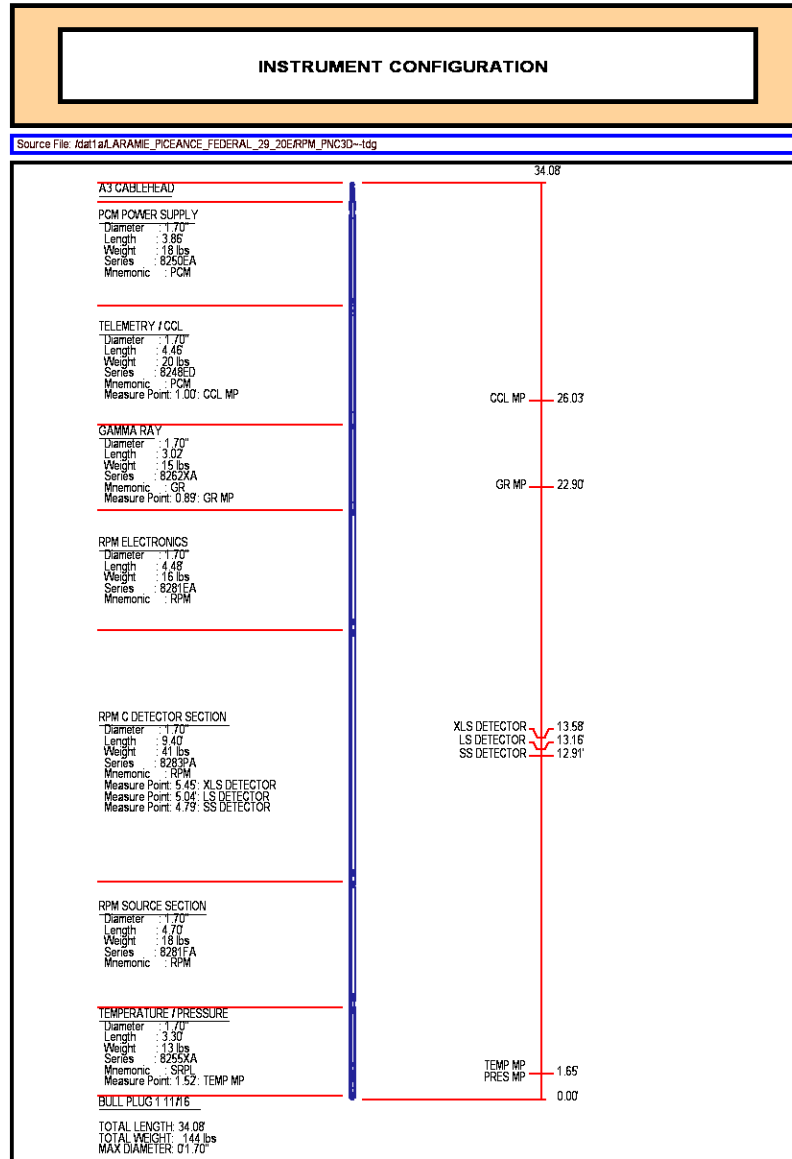
Source File: Dat1a1.ARAMIS\_PCEANCE\_FEDERAL\_29\_20EAPM\_PNC3D1p1


GR PRIMARY CALIBRATION SUMMARY									
TOOL #:		8262XA10317216		DATE/TIME PERFORMED:		Wed Nov 30 15:09:27 2016			
UNIT #:		3880TAHL6670		CALB JIG #:		4702NKDA_228			
		BACKGROUND (cts/s)	CALBTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBTR ON (gAPI)	CALBTR (gAPI)	
GR		68.62	385.56	316.9	0.584	40.06	225.06	185	

GR PRIMARY VERIFICATION SUMMARY									
TOOL #:		8262XA10317216		DATE/TIME PERFORMED:		Wed Nov 30 15:11:34 2016			
UNIT #:		3880TAHL6670		VERI JIG #:		4702NKDA_228			
		BACKGROUND (cts/s)	CALBTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBTR ON (gAPI)	DIFF. (gAPI)		
GR		68.11	388.98	0.584	39.76	227.05	187.30		
							(185.00) (186.00)		

RPM_PNC_3D PRIMARY CALIBRATION SUMMARY									
TOOL:		8283PA10414345		DATE/TIME PERFORMED:		Tue Jan 17 16:42:57 2017			
UNIT:		3882MLML4352		CALIBRATOR:		2437XB120052		SOURCE:	
								HOURS:	
		ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (uSec)	RCAL
Raw Data		804960	126	2324	2294	2282	87	10.0	0.9825
Interpolated		1300000	152	2301	2285	2279			
		ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2

Raw Data	804960	8856	1380	183	26.33	0.14	24.37	0.31
					26.36	26.40	10.00	0.00
					29.90	24.90	0.00	0.40
	ISS	ILS	IXS	SS	SS2	LS	CSS	CLS
Raw Data	804960	178738	27937	96894	34373	8975	58559	14423
Fit Quality %		1.070	1.179	1.032	1.045	1.208	0.910	1.204
	ISS	RBOR	RIN	RIN13	RICS	RATO	RTWO	RONE
			ISS/ALS	ISS/XS	ISS/CSS	SS/LS	SS2/LS	CSS/CLS
Raw Data	804960	1.43	4.50	28.82	13.75	10.80	3.83	4.06
		1.42	1.45	7.50	5.50	22.00	30.70	10.90
						16.34	10.06	11.10
						3.59	3.96	3.76
								4.20
Fit Quality %		0.089	0.129	0.161	0.220	0.140	0.141	0.129
Reduced	1379928	1.43	4.51	28.90	13.76	10.82	3.84	4.07
		1.42	1.45	7.50	5.50	22.00	30.70	10.90
						16.34	10.06	11.10
						3.59	3.96	3.76
								4.20



	<b>COMPANY</b> <u>LARAMIE ENERGY</u> <b>WELL</b> <u>PICEANCE FEDERAL 29-20E</u> <b>FIELD</b> <u>VEGA</u> <b>COUNTY</b> <u>MESA</u> <b>STATE</b> <u>COLORADO</u>	<b>FILE NO:</b> _____  <b>API NO:</b> <u>05-077-10363-0000</u>	
	<b>LOCATION:</b> SHL: LAT:39.248633N; LONG:107.788204W BHL: LAT:39.243491N; LONG:107.796581W	<b>ELEVATIONS:</b> KB 7561 FT DF GL 7531 FT	
	<b>SEC</b> <u>29</u> <b>TWP</b> <u>09 S</u> <b>RGE</b> <u>93 W</u>	<b>DATE</b> <u>27-MAY-2017</u>	

