BAKER HUGHES

RESERVOIR PERFORMANCE MONITOR
PNC 3D

FOLIPS

FILE NO:	COMPANY	LARAMIE ENERGY	
API NO: 05077103700000	WELL	BRUTON 30-02E	
	FIELD	VEGA	
	COUNTY	MESA	STATE COLORADO

Ver. 4.06

LOCATION:
SHL: LAT:39.255232N, LONG:107.806537W
BHL: LAT:39.254394N, LONG:107.806907W
SEC 30 TWP 9S RGE 93W

OTHER SERVICES
RAL

PERMANENT DATUM	GL	ELEVATION	7425 FT
LOG MEASURED FROM	KB	24 FT	ABOVE P.D.
DRILL. MEAS. FROM	KB		

ELEVATIONS:

KB	7449 FT
DF	7448 FT
GL	7425 FT

DATE		06-JUL-2017			
RUN	TRIP	1	2		
SERVICE ORDER		US109818			
DEPTH DRILLER		7609 FT			
DEPTH LOGGER		7522 FT			
BOTTOM LOGGED INTERVAL		7522 FT			
TOP LOGGED INTERVAL		2273 FT			
TIME STARTED		13:00			
TIME FINISHED		19:00			
OPERATOR RIG TIME		6 HRS			
TYPE OF FLUID IN HOLE		WATER			
FLUID DENSITY		9.3 LB/G			
FLUID SALINITY		NA			
FLUID LEVEL		62 FT			
LOGGED CEMENT TOP		NA			
WELLHEAD PRESSURE		0 PSI			
MAXIMUM HOLE DEVIATION		NA			
NOMINAL LOGGING SPEED		15 F/MN			
MAX. RECORDED TEMP.		238.5 DEGF			
REFERENCE LOG		BAKER HUGHES GR/CBL			
REFERENCE LOG DATE		04-JUL-2017			
EQUIP. NO.	LOCATION	HL-6670	WOODWARD		
RECORDED BY		S.YASSA			
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 1 TRIP 2: *2 OPERATION IN WELL*

**OPERATION 2: RPM/GR/CCL **

LOGGED WITH 0 PSI AT THE WELLHEAD

SJ: 6701'-6723'
SJ: 5723'-5745'

CREW: J.PENA, A.STEVEN

EQUIPMENT DATA

RUN	TRIP	TOOL	SERIES NO.	SERIAL NO.	POSITION
1	2	TELEMETRY	8250 EA/8248 ED	10154470/10323398	FREE
1	2	GAMMA RAY	8262 XA	10414345	FREE
1	2	RPM ELEC	8281 EA	10389421	FREE
1	2	RPM	8283 PA/8281 FA	10414345/10401926	FREE
1	2	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: Thu Jul 6 19:43:45 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE:	/dat1a/LARAMIE_BRUTON_30_02E/RPM3D03.prm		
LOGGING MODE:	DEPTH	DIRECTION:	UP
TOP DEPTH:	2265.000 ft	BOTTOM DEPTH:	2904.000 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

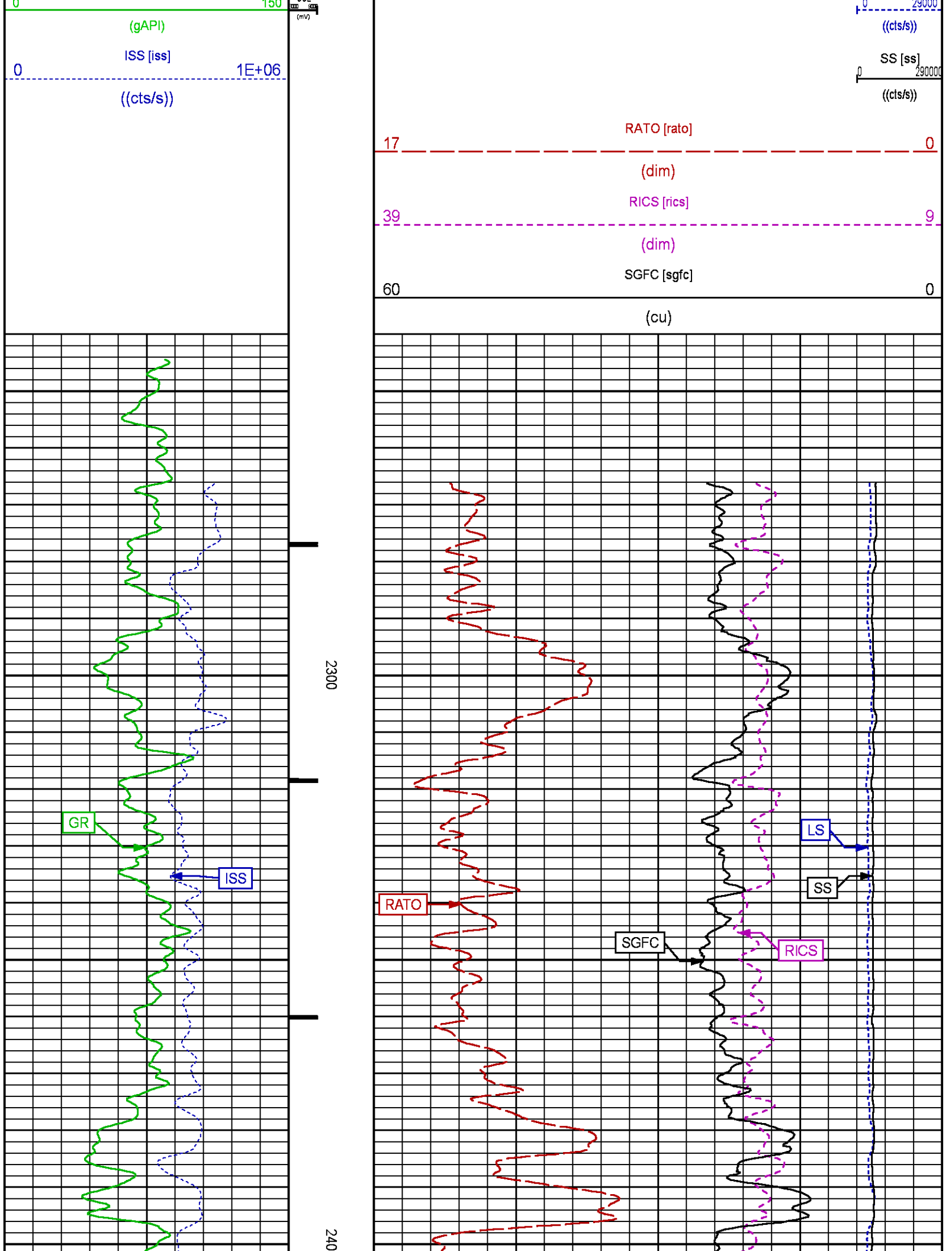
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Jul 6 18:58:08 2017	CASING COLLAR LOCATOR
F1:GR	Jul 6 18:58:08 2017	GAMMA RAY
F1:ISS	Jul 6 18:58:08 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Jul 6 18:58:08 2017	LONG SPACE COUNT RATE
F1:RATO	Jul 6 18:58:08 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Jul 6 18:58:08 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Jul 6 18:58:08 2017	CORRECTED FORMATION SIGMA
F1:SS	Jul 6 18:58:08 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-GSAND_20_02E-5.fvpdf [5"/100' Scale]
Plot Interval : 2240.25 - 2895.25 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE_BRUTON_30_02E/30_2E_RPM_GSAND.xtf
Created On : Jul 6 18:58:08 2017
Company : LARAMIE ENERGY
Well : BRUTON 30-02E
Field : VEGA
File Interval : 2239.5 - 2905.25 Feet
OCT : RPM3D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(dim)
RICS [rics]
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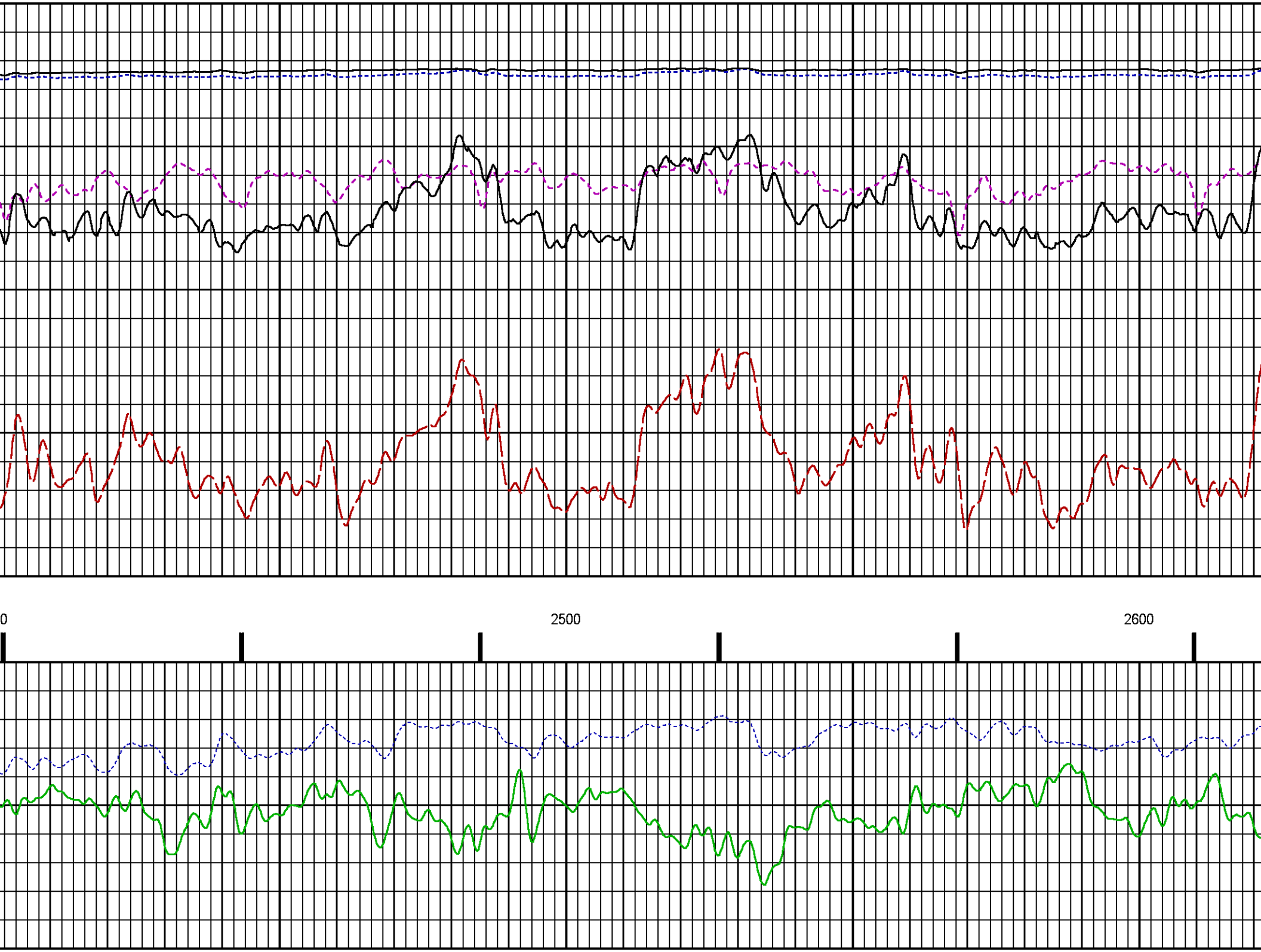
SS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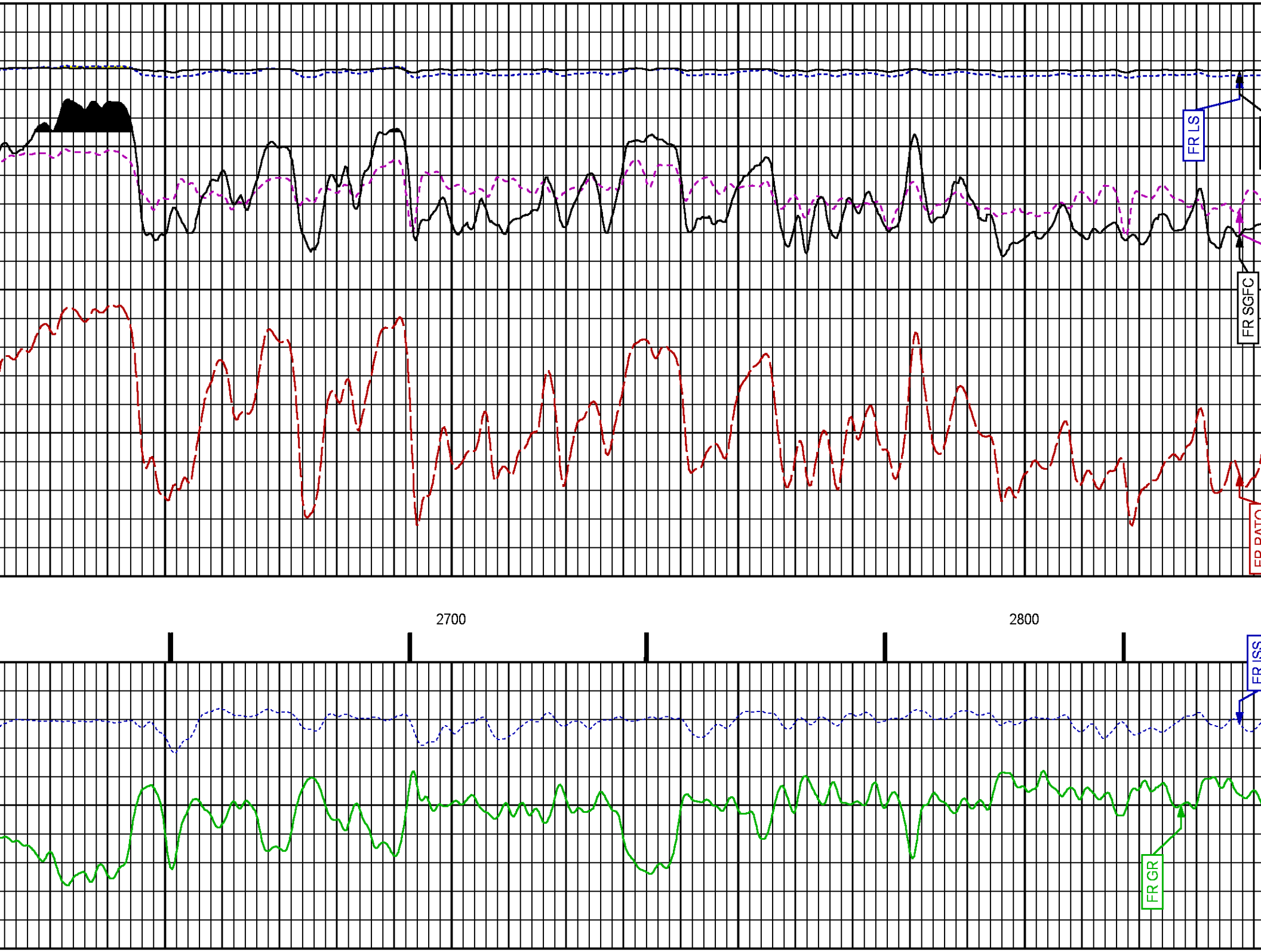
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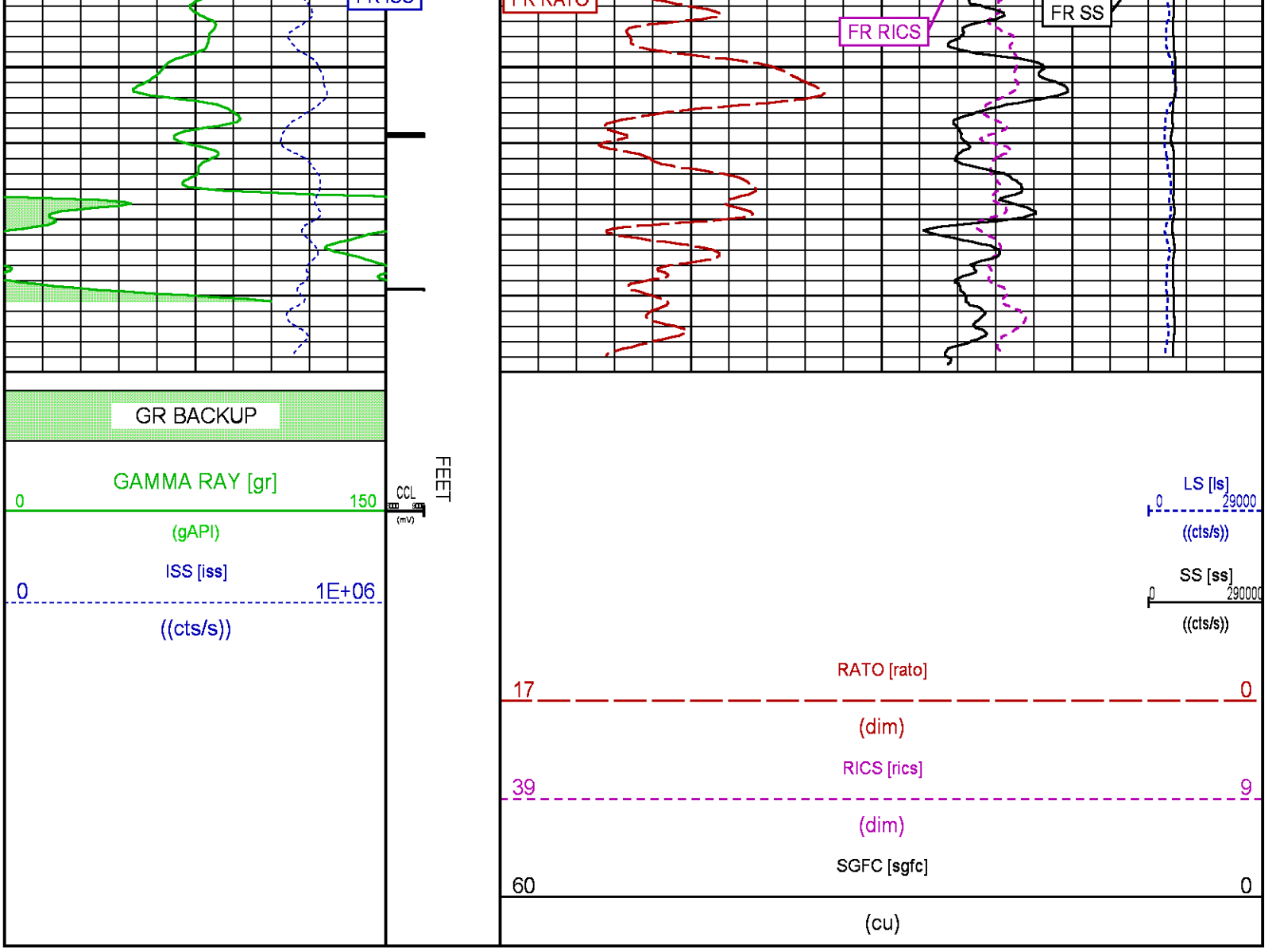
FR GR



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: Thu Jul 6 19:04:55 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_BRUTON_30_02E/RPM3D02.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 4021.500 ft BOTTOM DEPTH: 7524.435 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

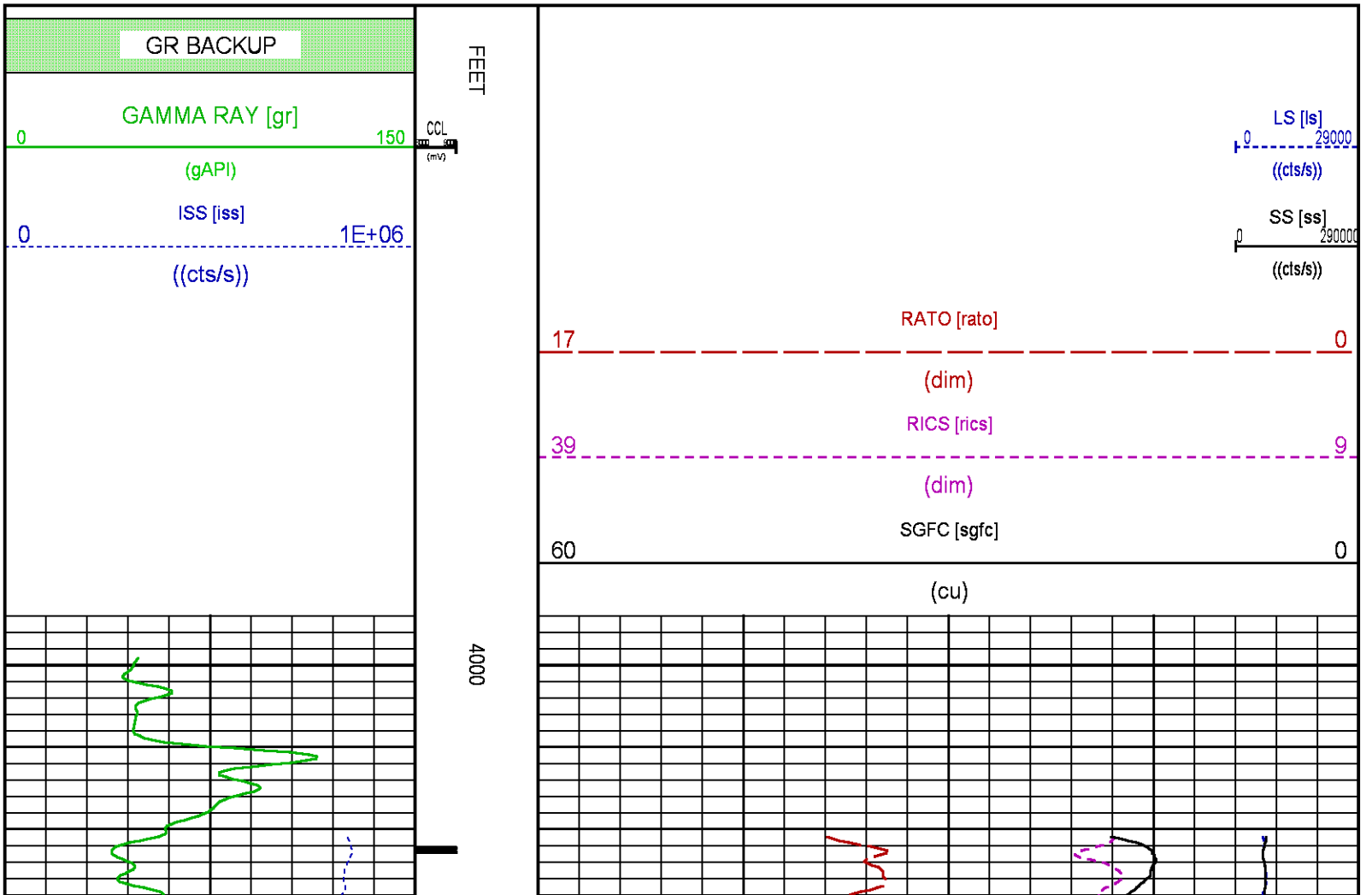
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Jul 6 15:14:32 2017	CASING COLLAR LOCATOR
F1:GR	Jul 6 15:14:32 2017	GAMMA RAY
F1:ISS	Jul 6 15:14:32 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Jul 6 15:14:32 2017	LONG SPACE COUNT RATE
F1:RATO	Jul 6 15:14:32 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Jul 6 15:14:32 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Jul 6 15:14:32 2017	CORRECTED FORMATION SIGMA
F1:SS	Jul 6 15:14:32 2017	SHORT SPACE COUNT RATE

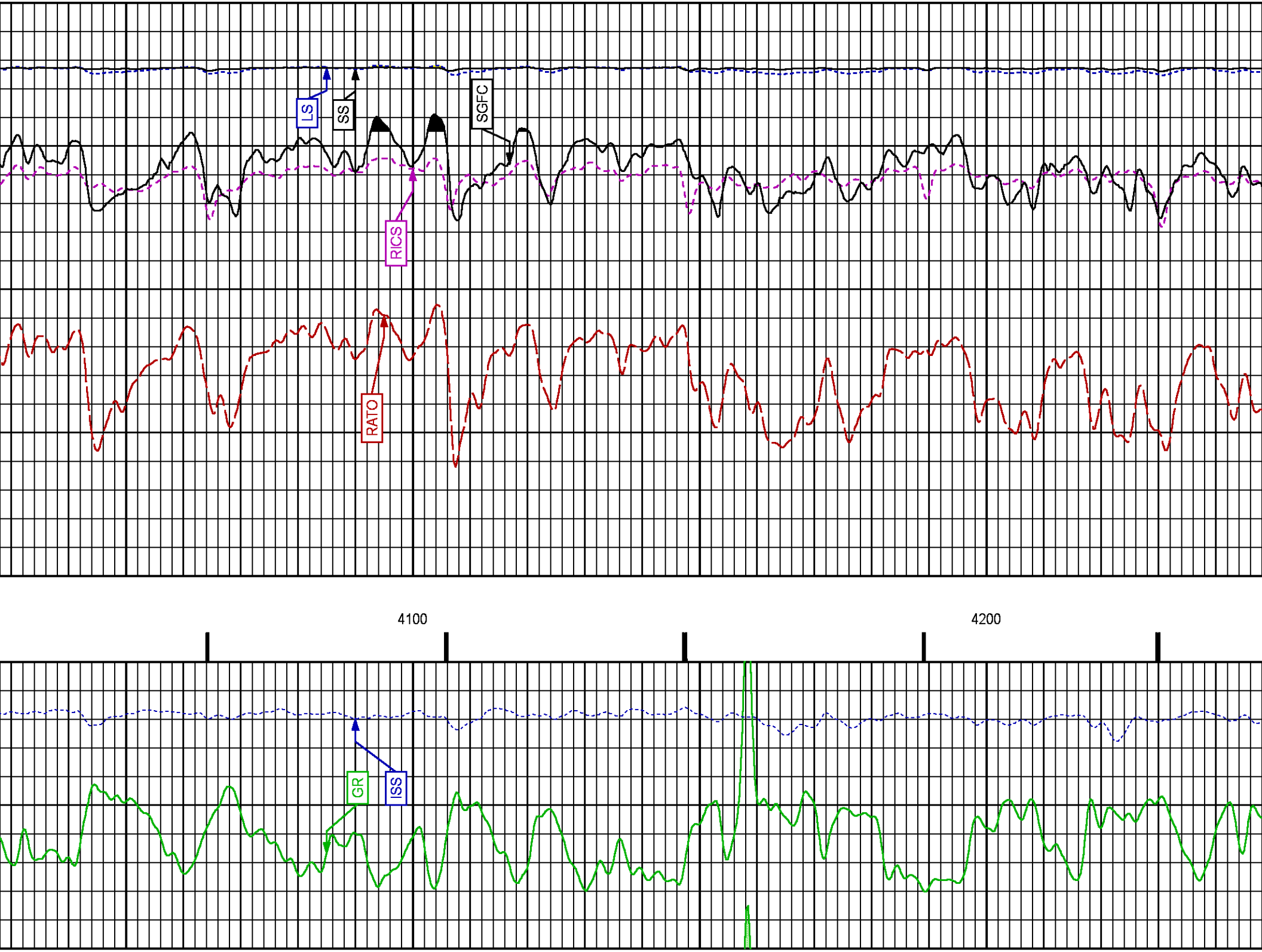
CURVE MEASURE POINT OFFSET

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_30_02E_MN-5.fvpdf [5"/100' Scale]
Plot Interval : 3995 - 7530 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE_BRUTON_30_02E/30_2E_RPM_MN.xtf
Created On : Jul 6 15:14:32 2017
Company : LARAMIE ENERGY
Well : BRUTON 30-02E
Field : VEGA
File Interval : 3994.25 - 7521.25 Feet
OCT : RPM3D

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SGFC
RICS
RATO
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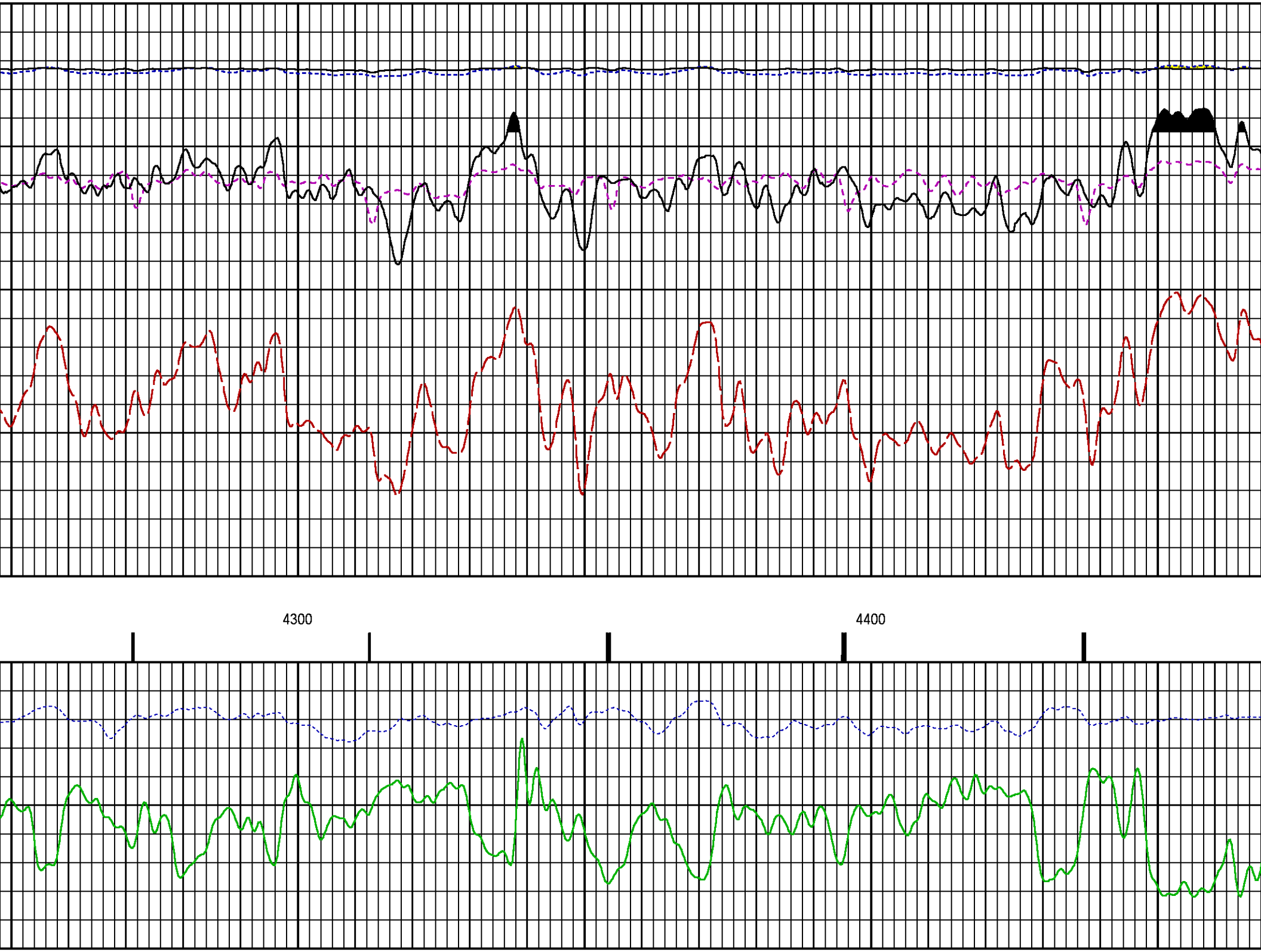
4200
GR
ISS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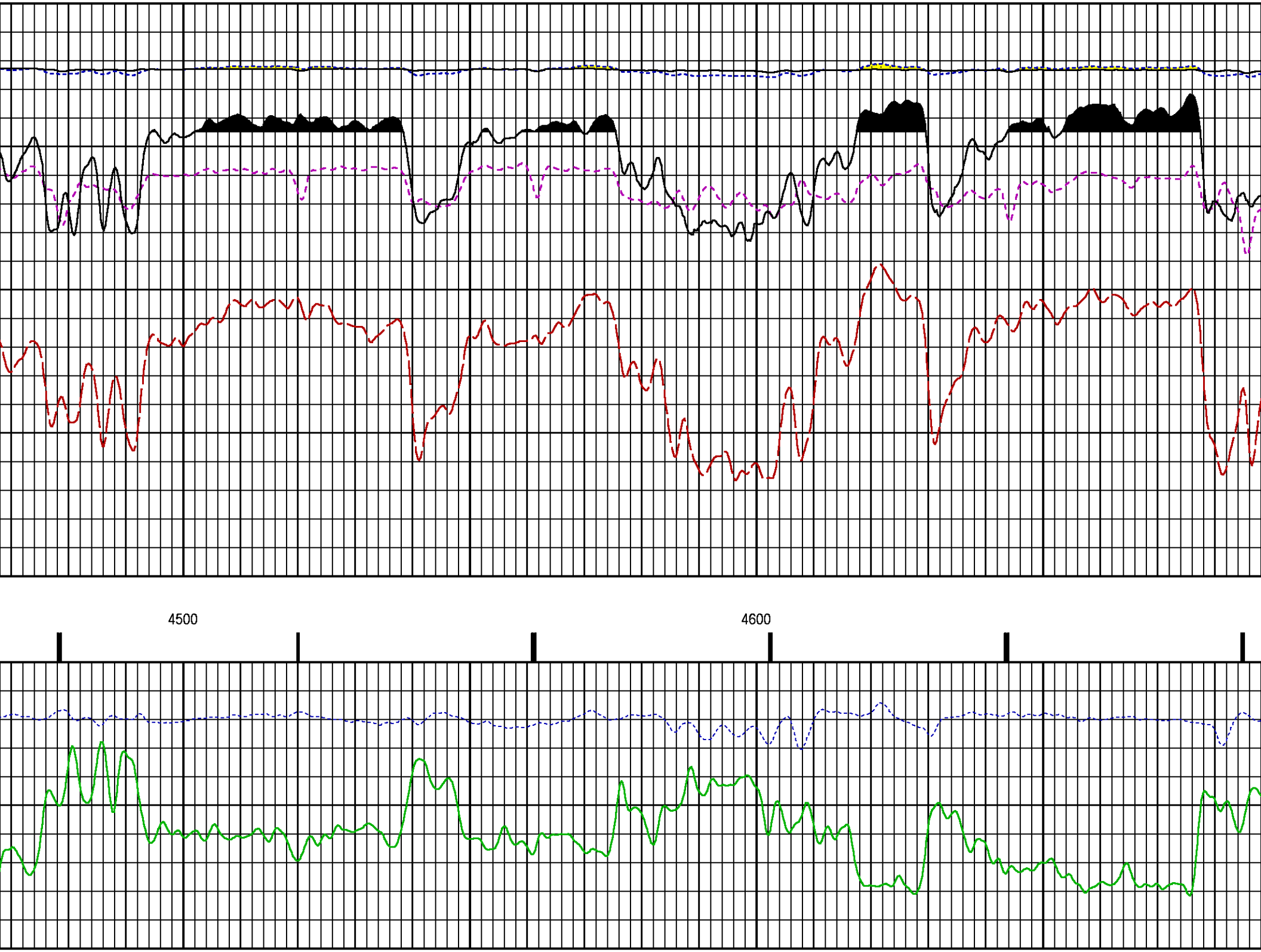
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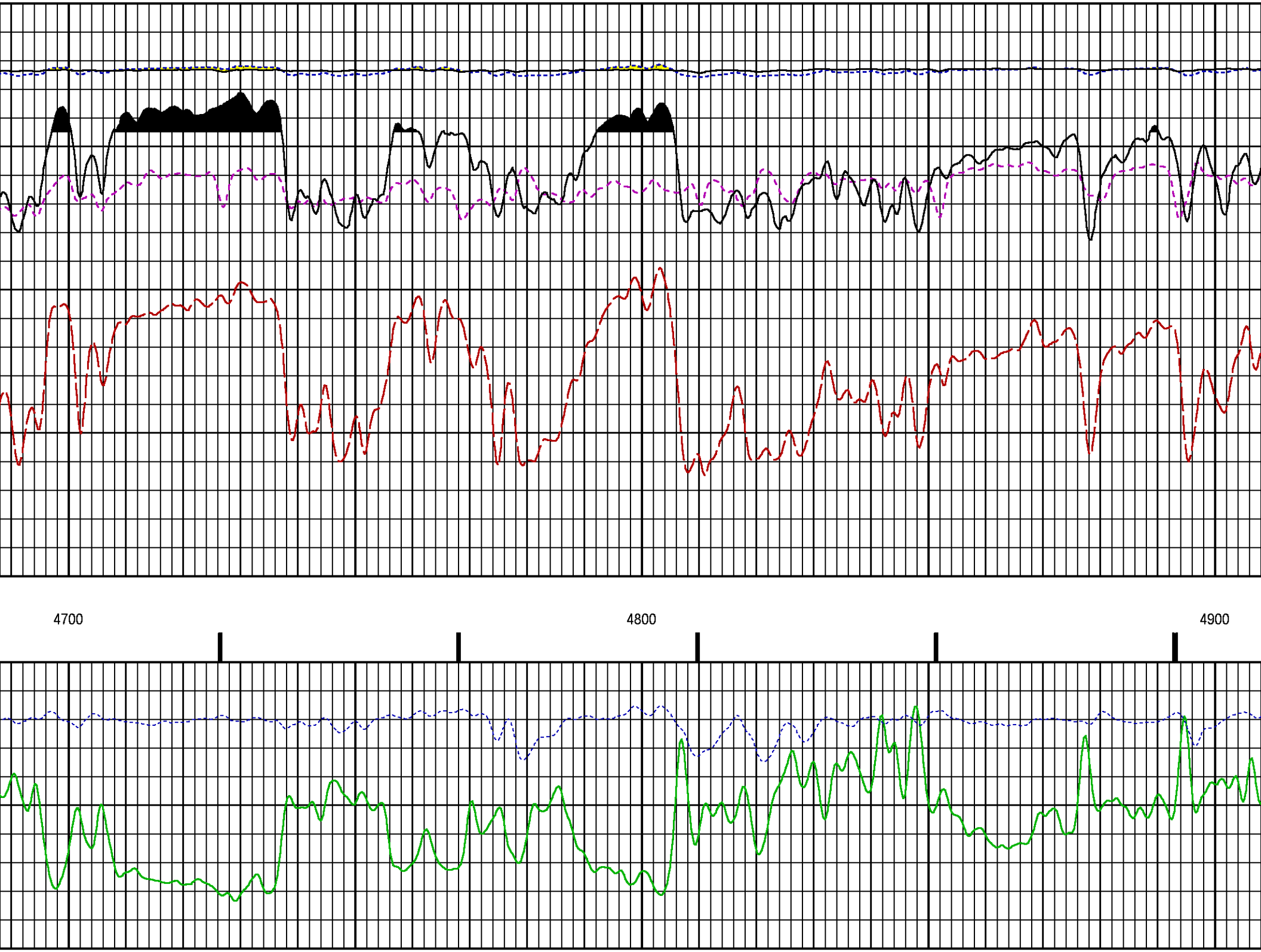
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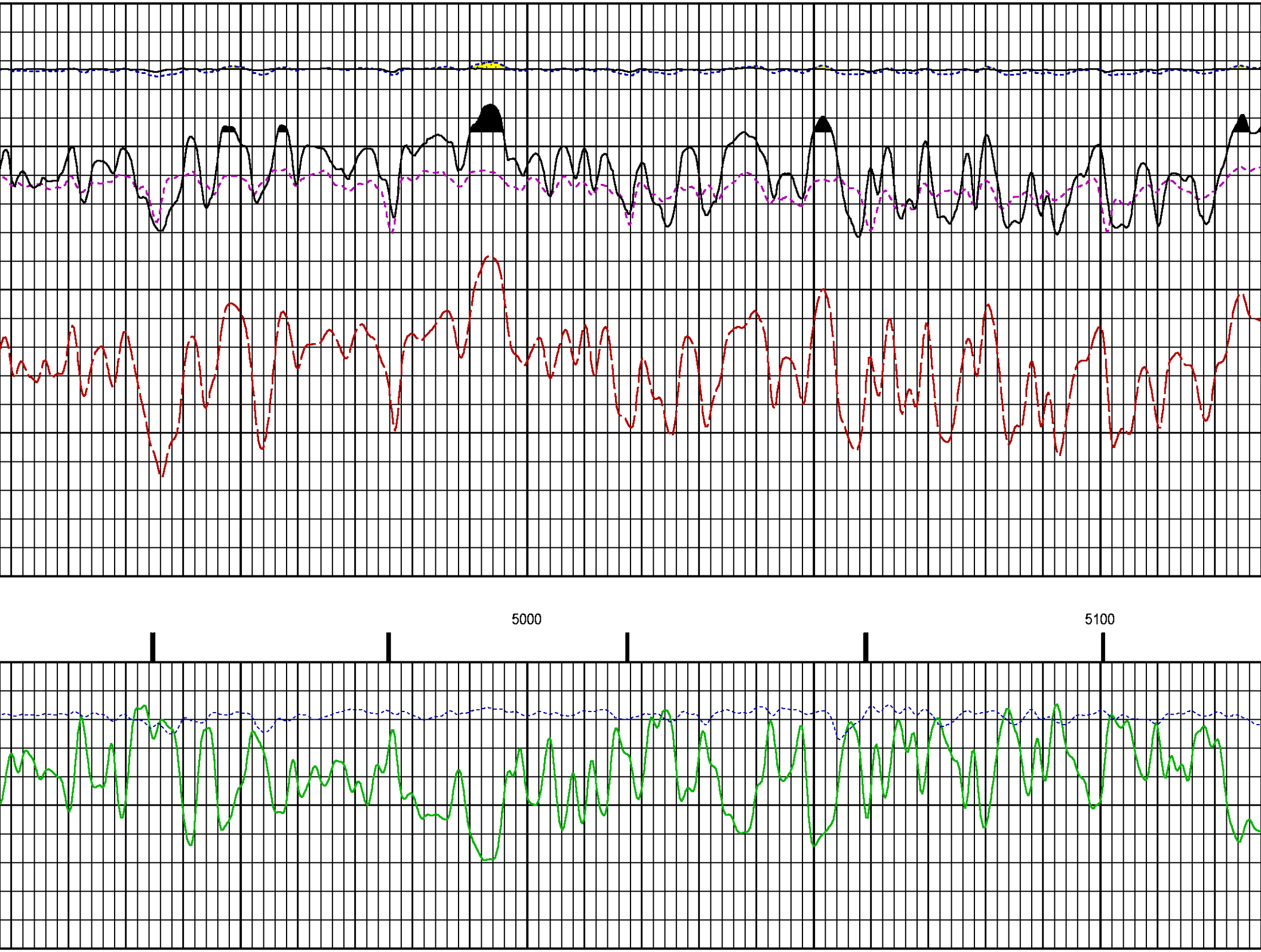
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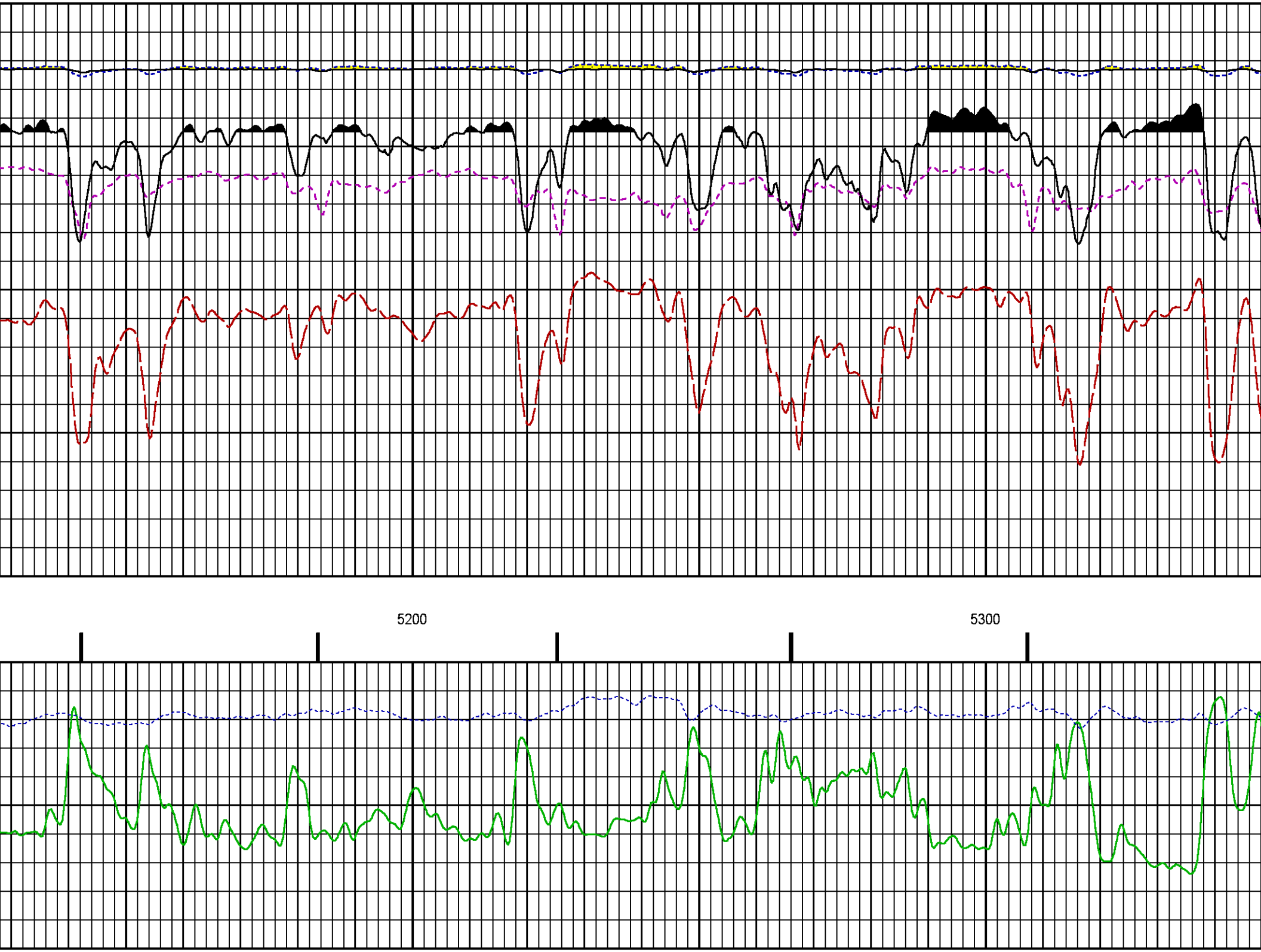
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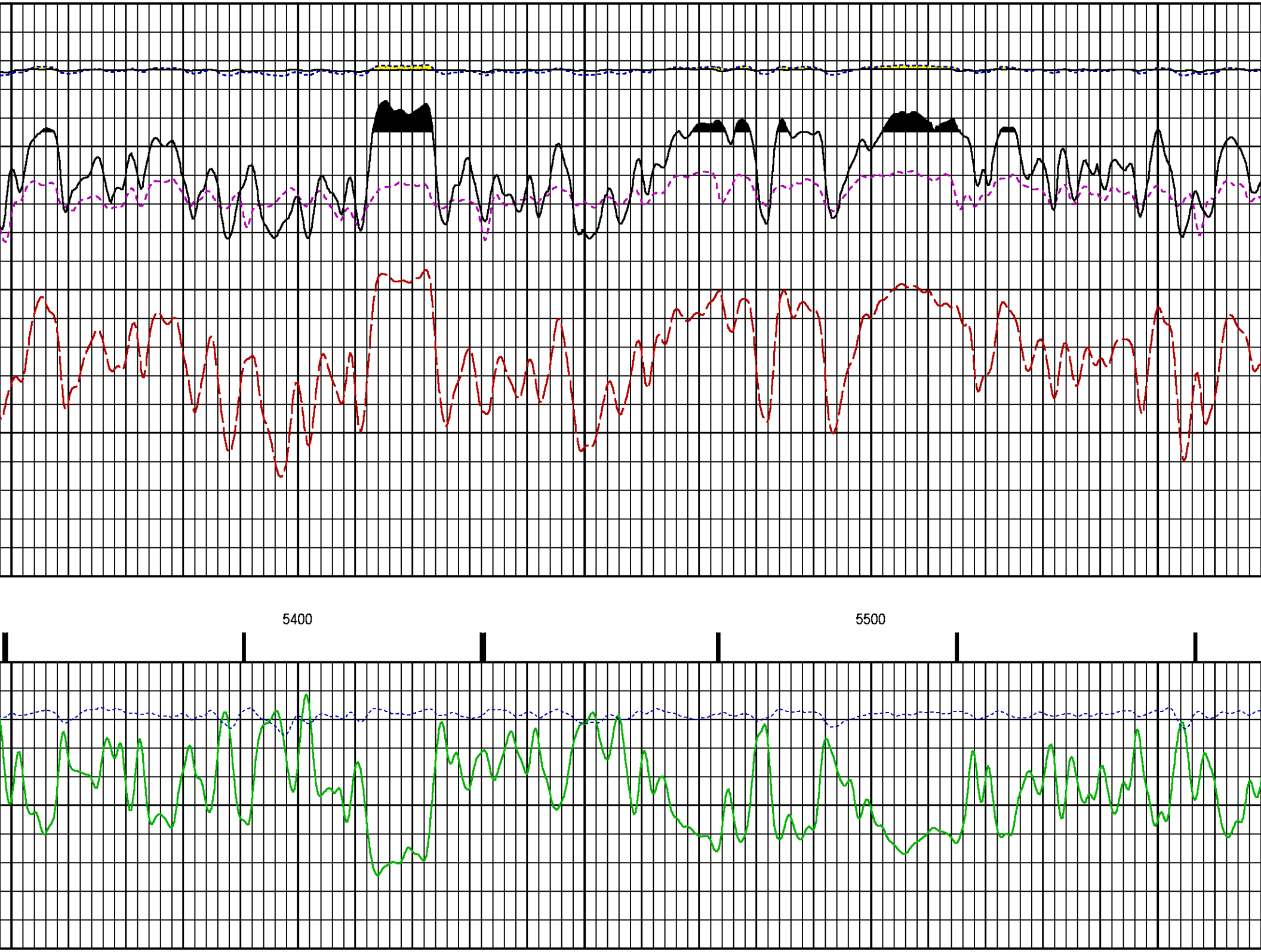
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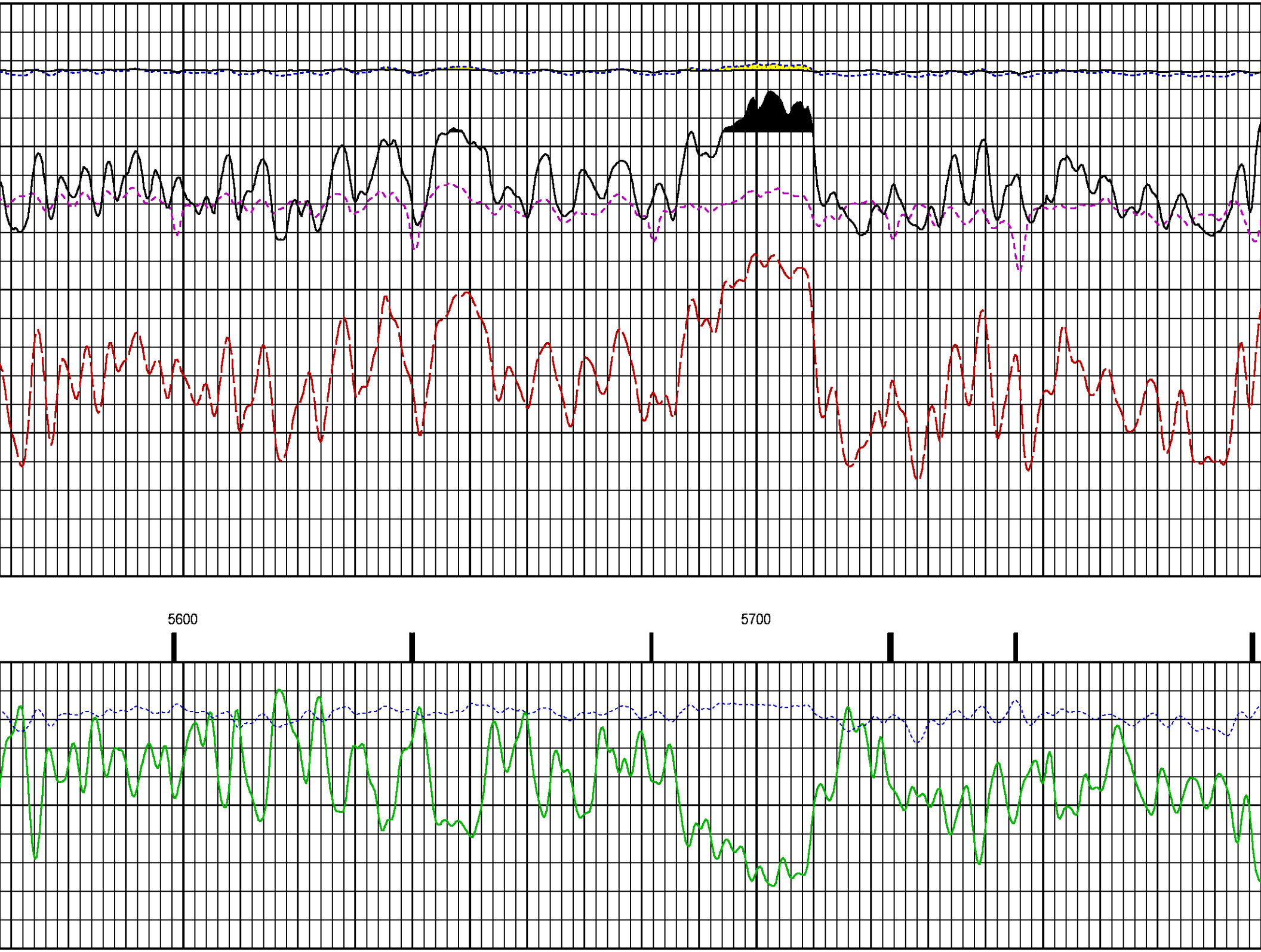
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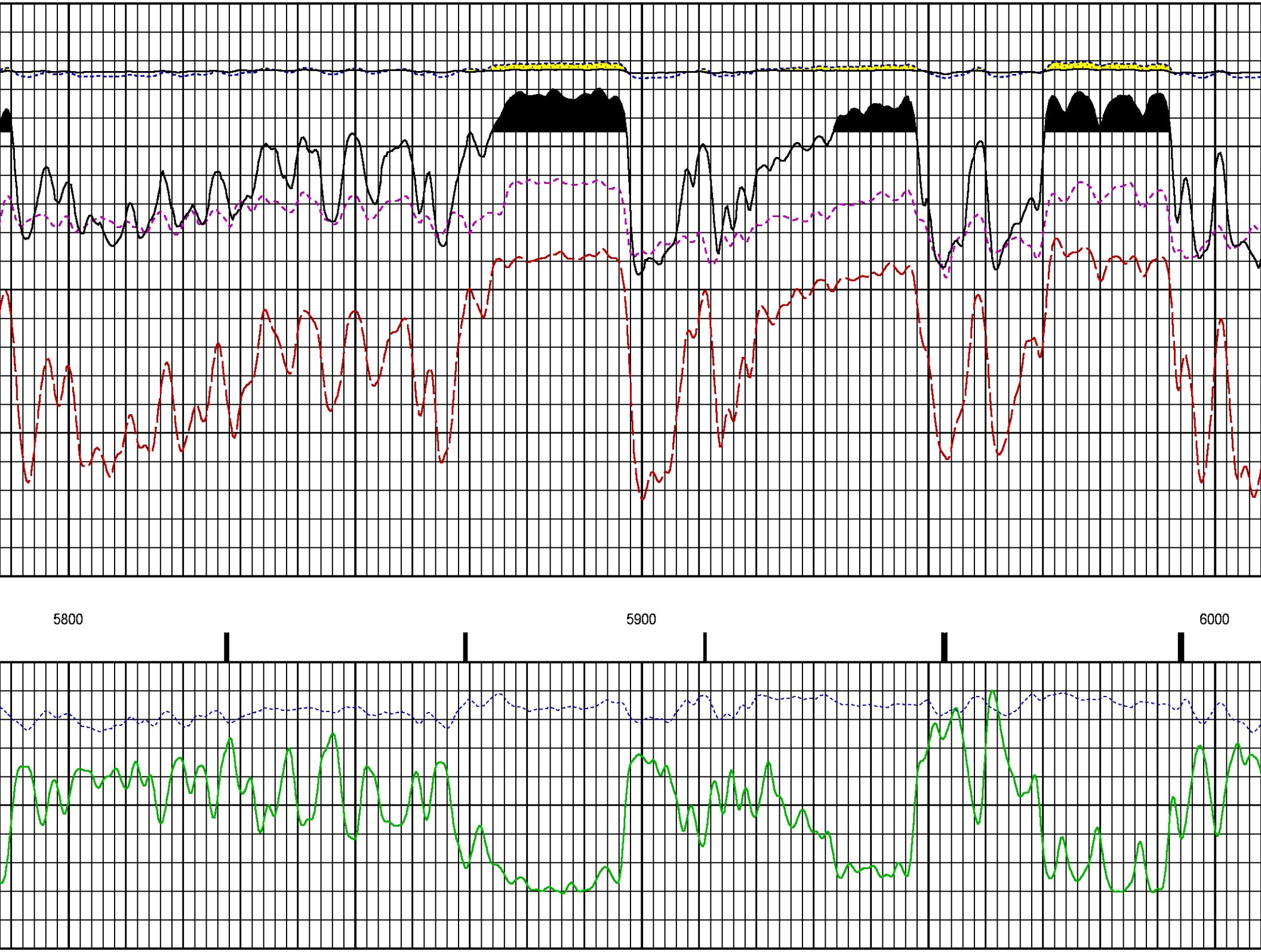
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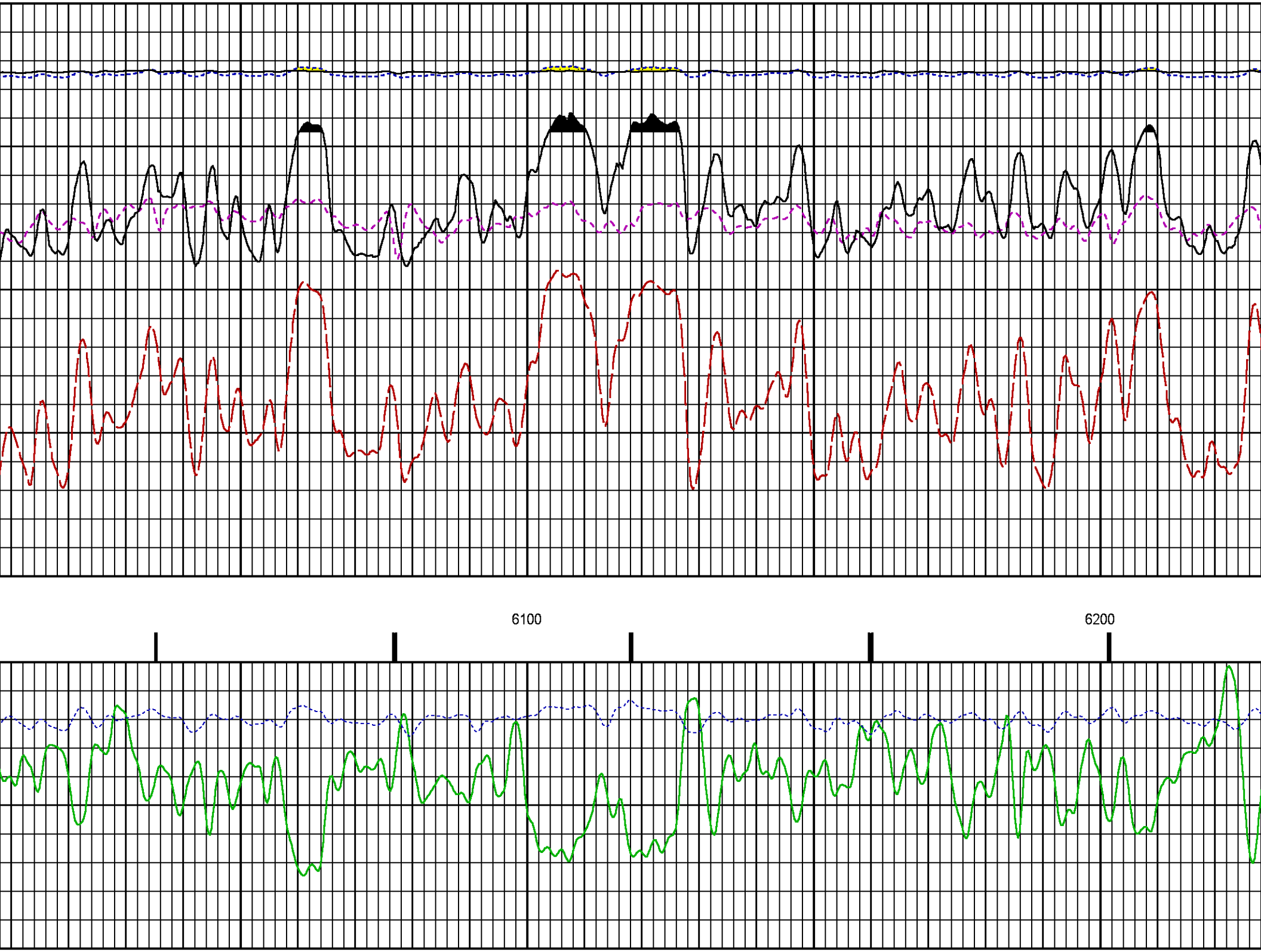
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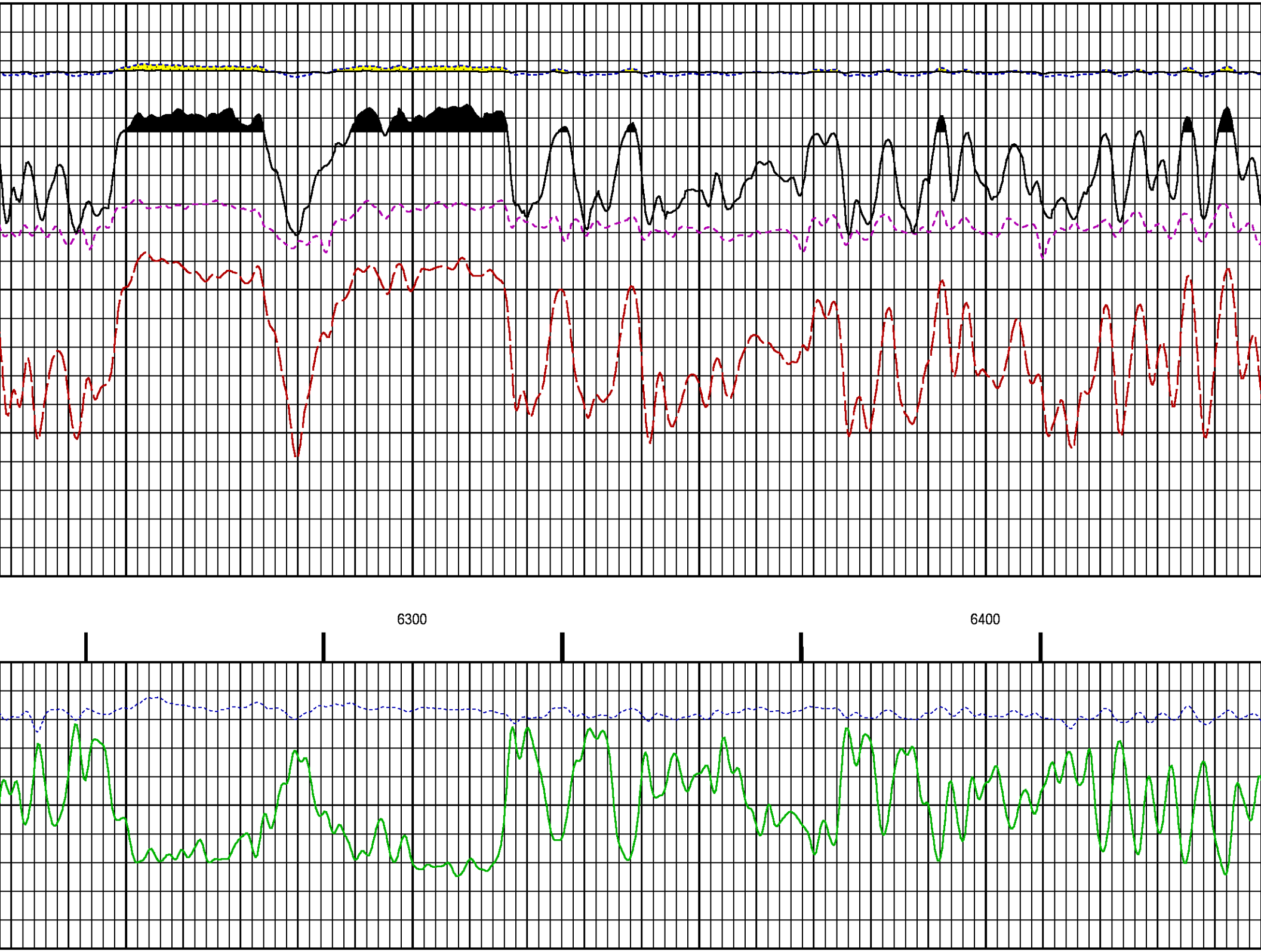
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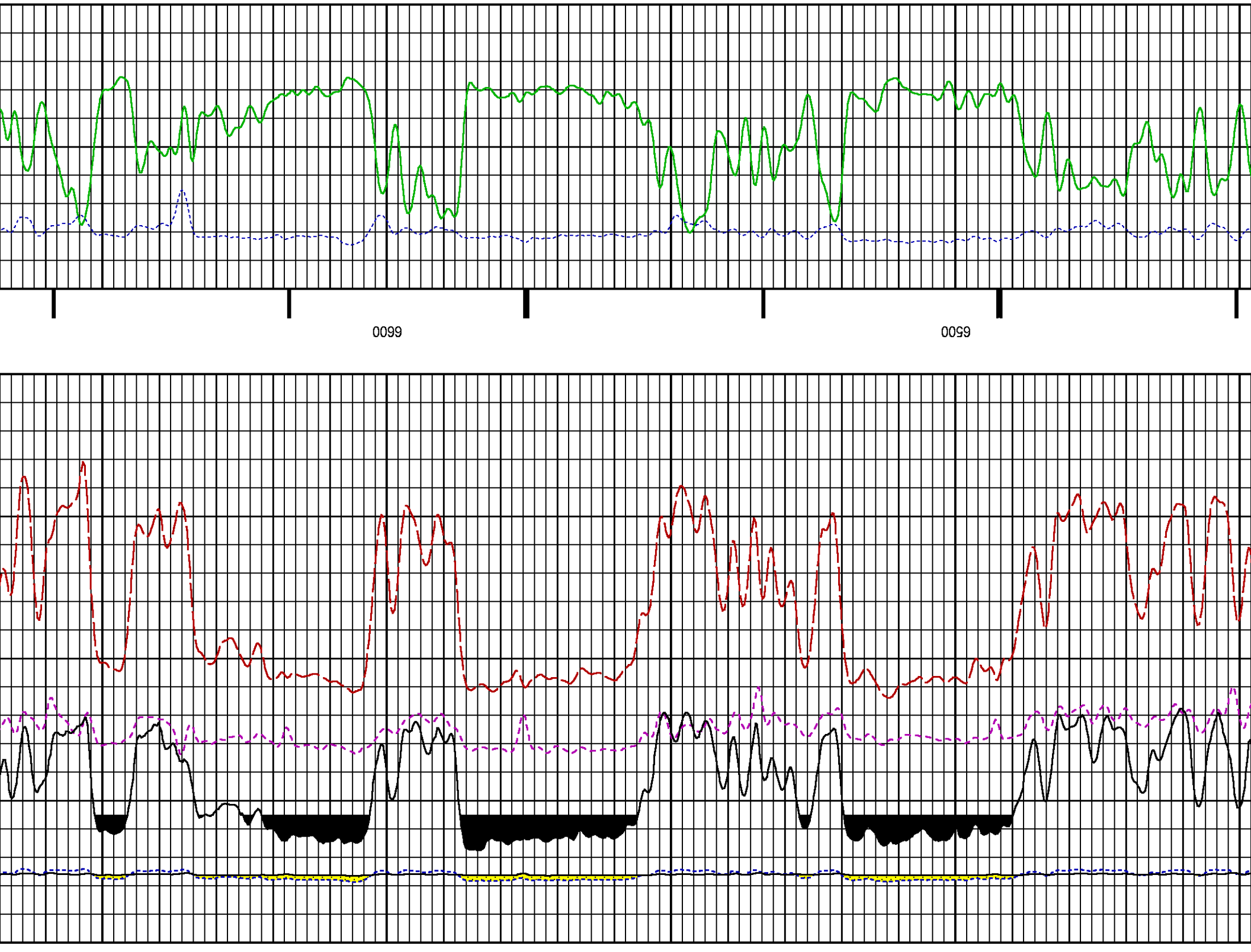
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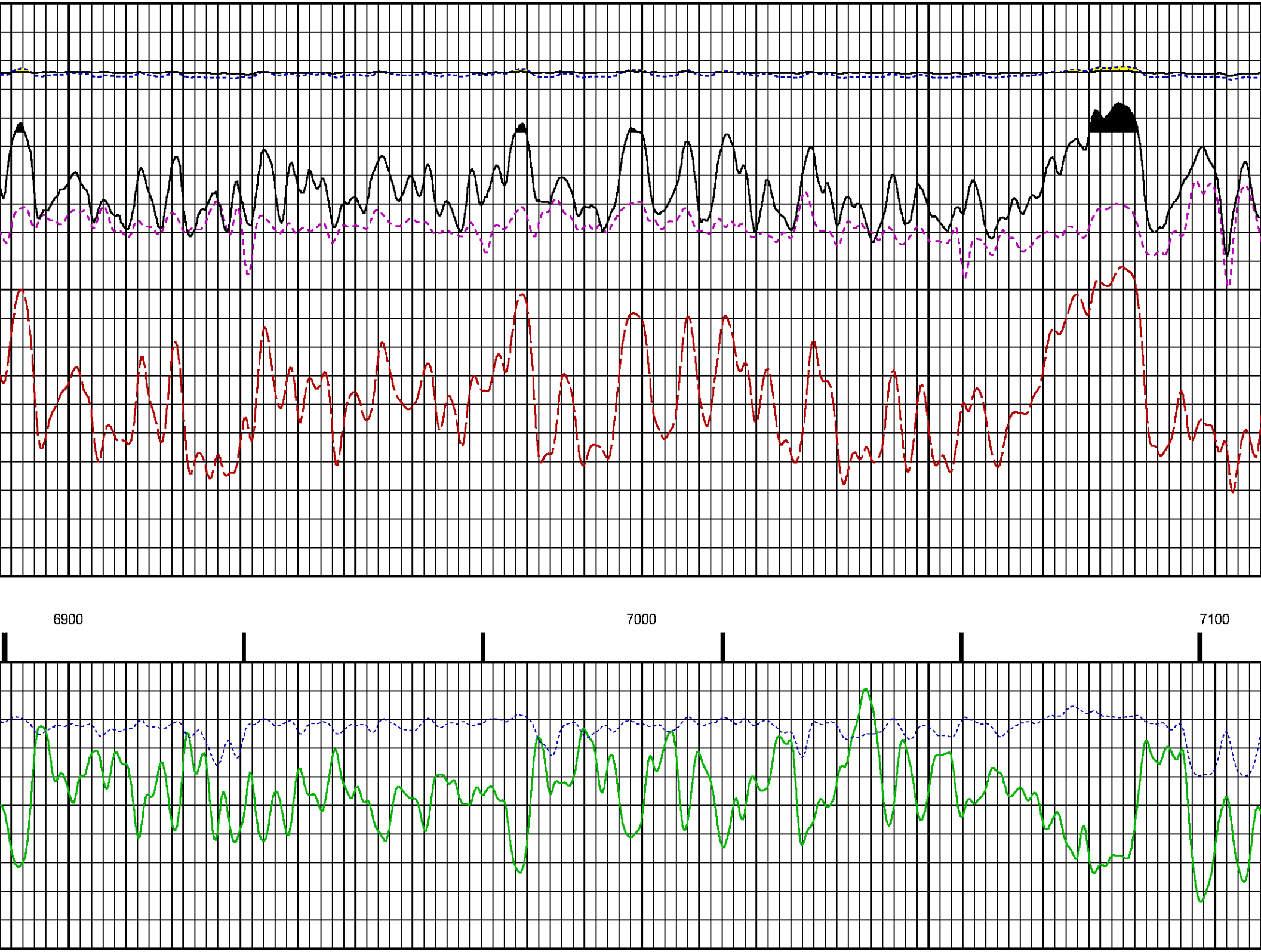
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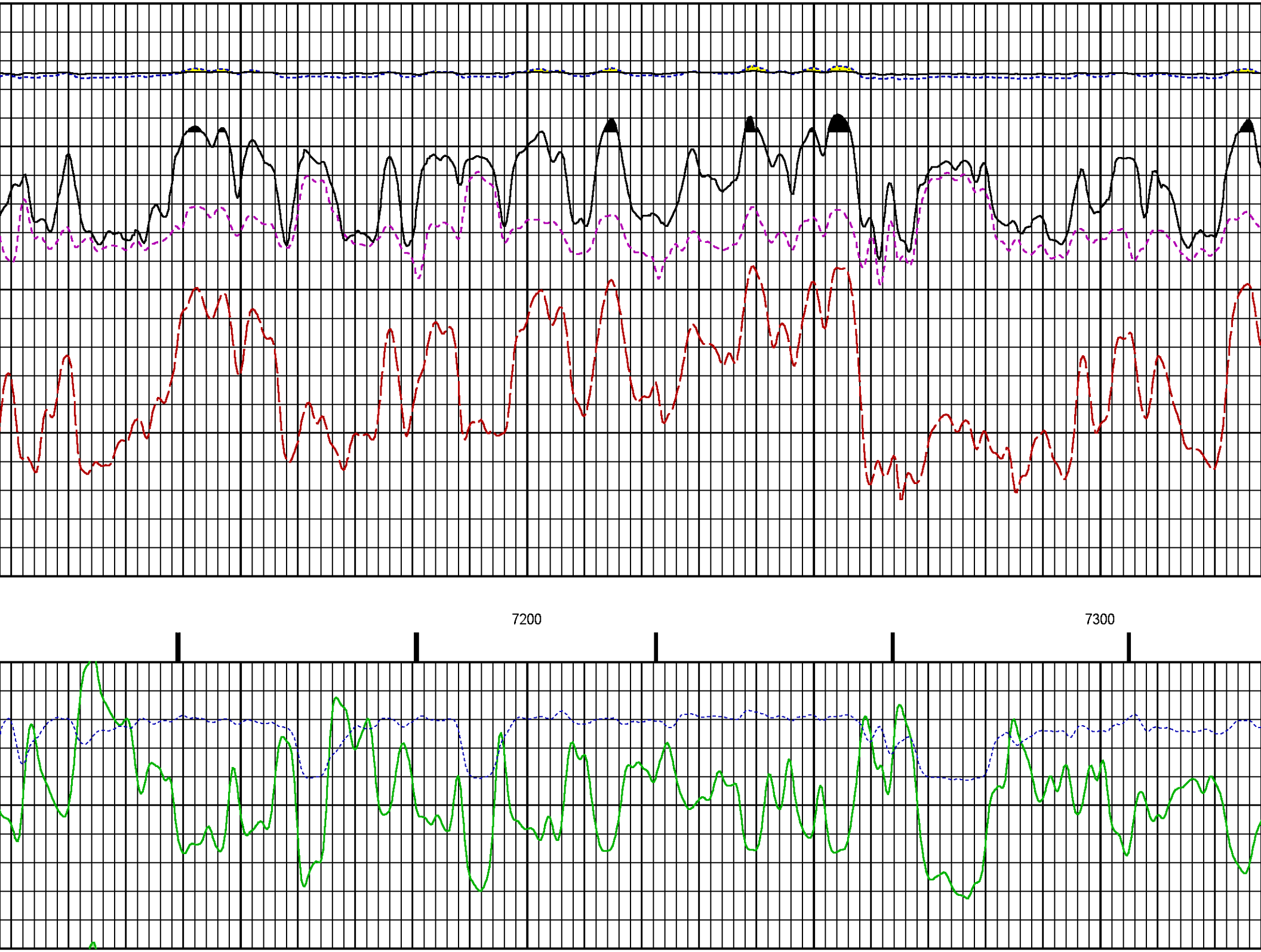
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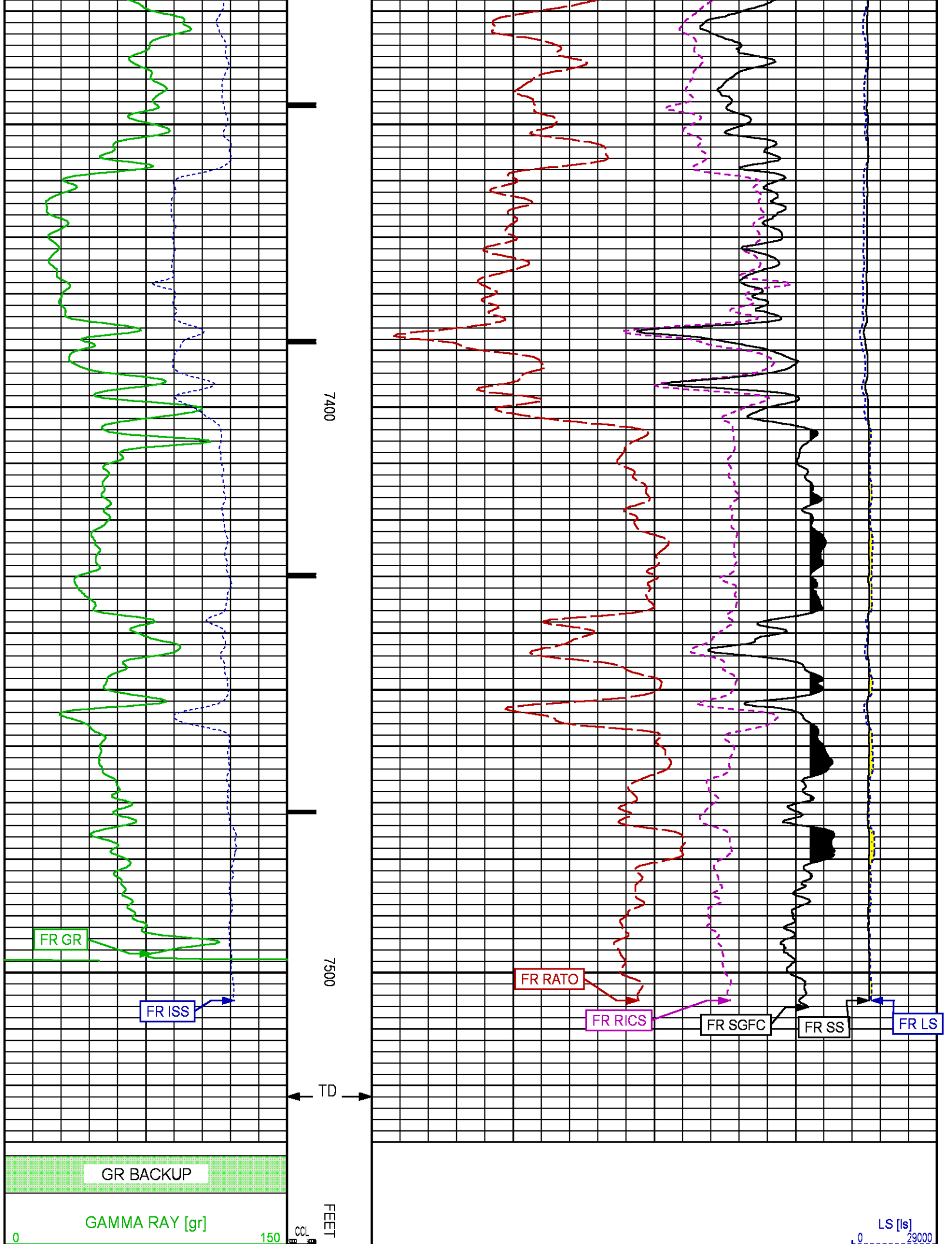
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TD
FR RATO
FR RICS
FR SGFC
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FR LS
GR BACKUP
GAMMA RAY [gr]
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CCL
FEET
LS [ls]
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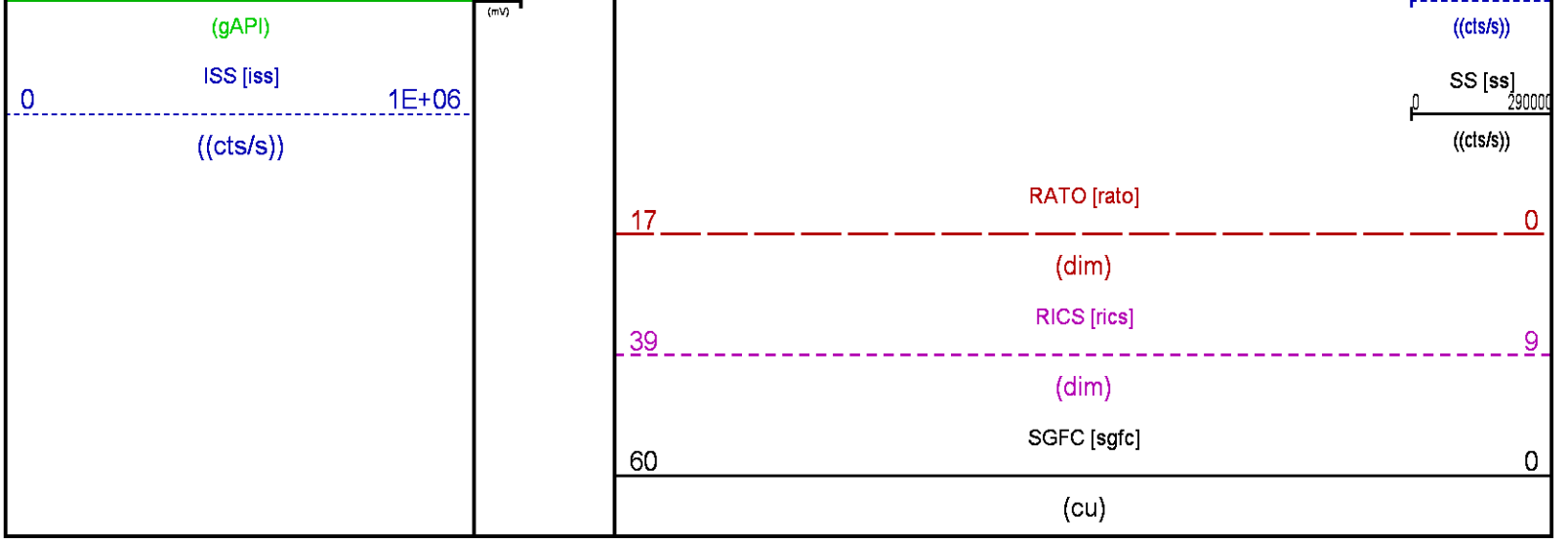
29000



REPEAT 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: Thu Jul 6 15:14:34 2017

PARAMETER AND FILTER SUMMARY REPORT

FILE: /dat1a/LARAMIE_BRUTON_30_02E/RPM3D01.prm
LOGGING MODE: DEPTH DIRECTION: UP
TOP DEPTH: 7088.750 ft BOTTOM DEPTH: 7308.000 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

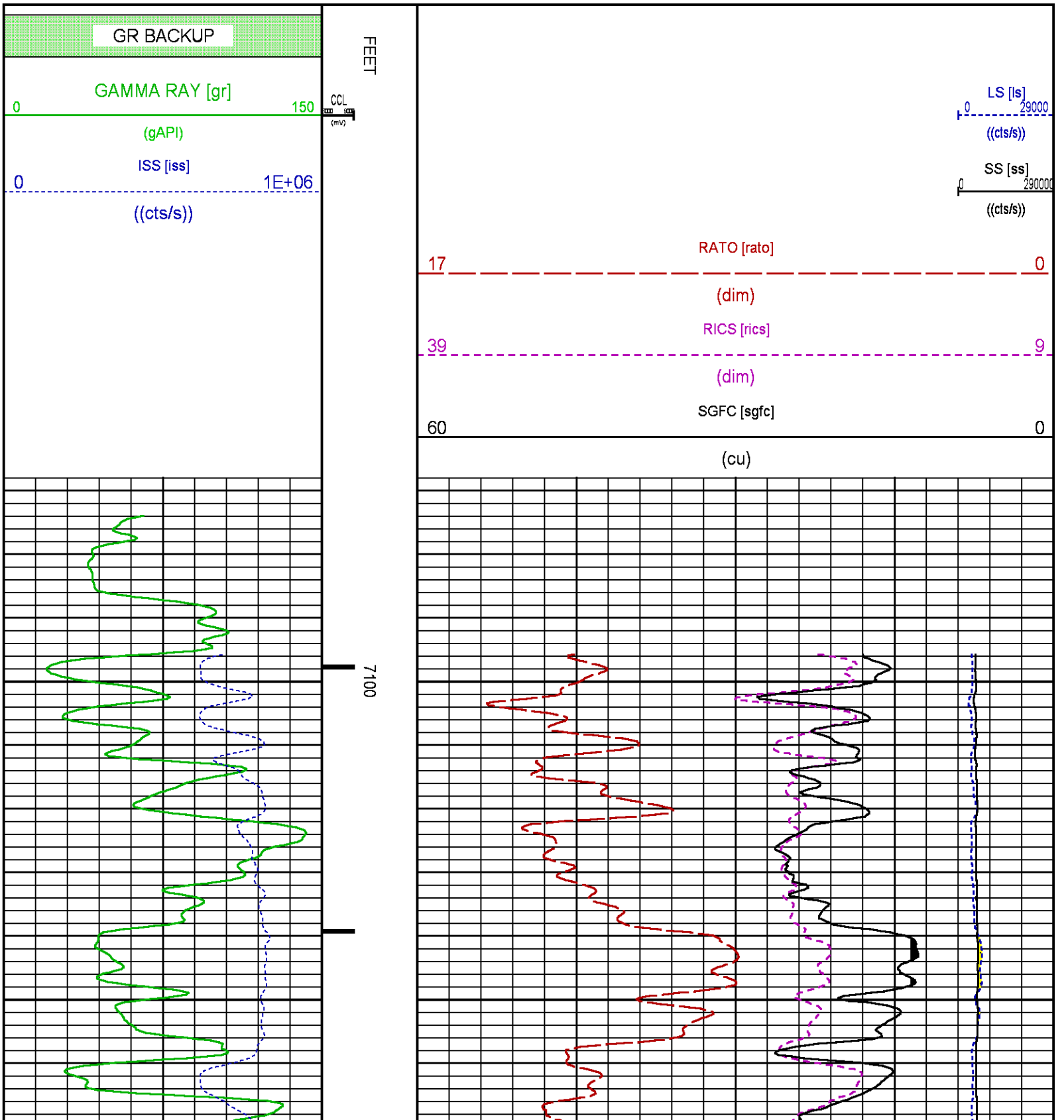
CURVE NAME	CREATION DATE	CURVE DESCRIPTION
F1:CCL	Jul 6 14:57:04 2017	CASING COLLAR LOCATOR
F1:GR	Jul 6 14:57:04 2017	GAMMA RAY
F1:ISS	Jul 6 14:57:04 2017	INELASTIC SHORT SPACE COUNT RATE
F1:LS	Jul 6 14:57:04 2017	LONG SPACE COUNT RATE
F1:RATO	Jul 6 14:57:04 2017	SHORT/LONG SPACE COUNT RATE RATIO
F1:RICS	Jul 6 14:57:04 2017	SHORT SPACE INELASTIC TO CAPTURE COUNT RATE RATIO (ISS/CSS)
F1:SGFC	Jul 6 14:57:04 2017	CORRECTED FORMATION SIGMA
F1:SS	Jul 6 14:57:04 2017	SHORT SPACE COUNT RATE

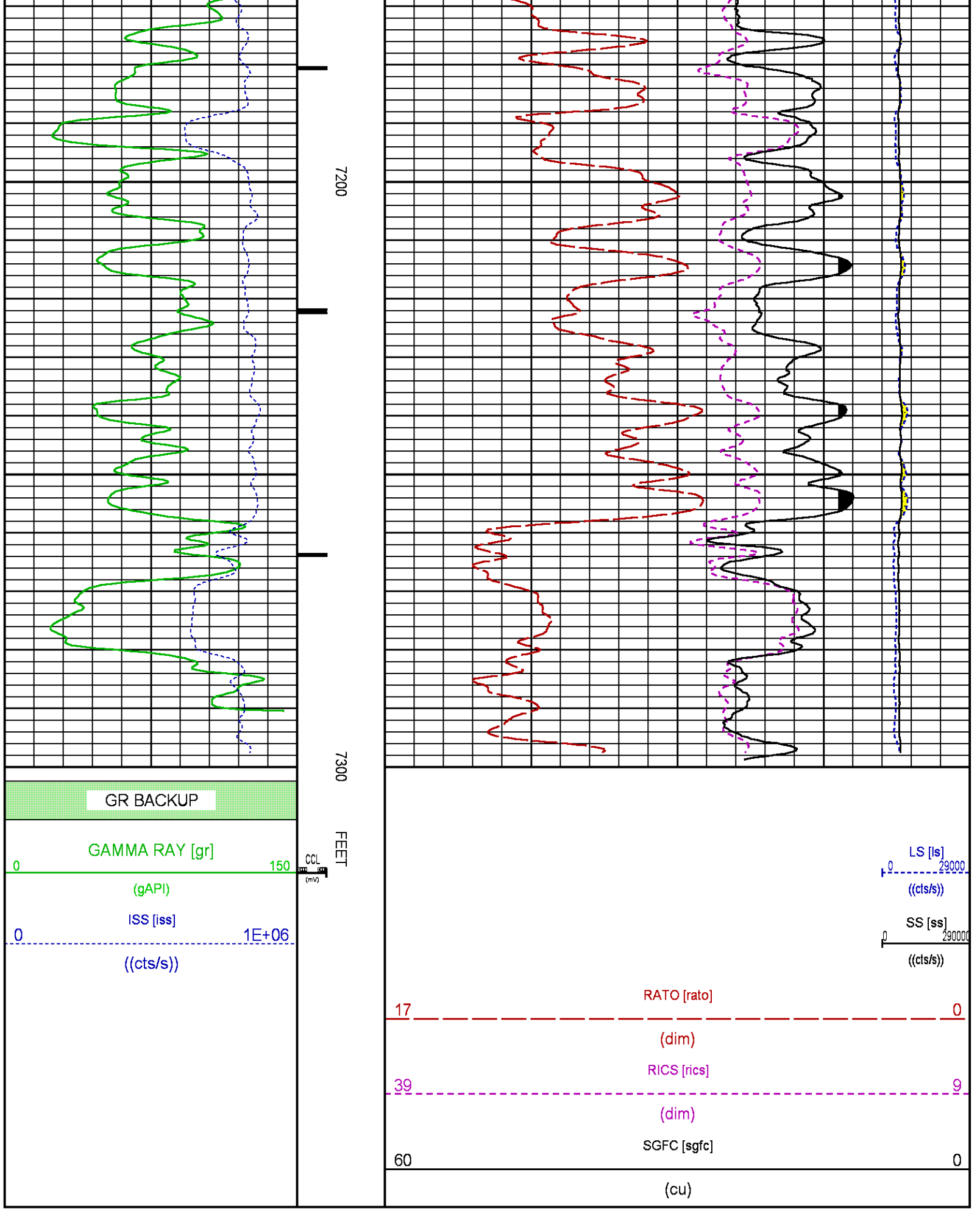
CURVE MEASURE POINT OFFSET

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_30_02E_REP-5.fvpdf [5"/100' Scale]
Plot Interval : 7069.75 - 7305 Feet

Data File 1 : F1 : cpu100:/dat1a/LARAMIE_BRUTON_30_02E/30_02E_RPM_RPT.xtf
Created On : Jul 6 14:57:04 2017
Company : LARAMIE ENERGY
Well : BRUTON 30-02E
Field : VEGA
File Interval : 7069 - 7313.75 Feet
OCT : RPM3D

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GAMMA RAY [gr]
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CCL
(mV)
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((cts/s))
LS [ls]
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((cts/s))
SS [ss]
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290000
((cts/s))
RATO [rato]
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0
(dim)
RICS [rics]
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9
(dim)
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0
(cu)

CALIBRATION / VERIFICATION SUMMARY

Source File: /dat1a/LARAMIE_BRUTON_30_02E/RPM3D.tp1

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 (cts/s)	CALBRTR ON (cts/s)	CR DIFF (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	CALBRTR (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 (cts/s)	CALBRTR ON (cts/s)	MULT	BACKGROUND (gAPI)	CALBRTR ON (gAPI)	DIFF. (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 10414345 DATE/TIME PERFORMED: Tue Jan 17 16:42:57 2017

UNIT: 3882ML ML4352 CALIBRATOR: 2437XB 120052 SOURCE: 8281AA 10160601 HOURS: 8281AA 434

	ISS	Mtr Vlts (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			

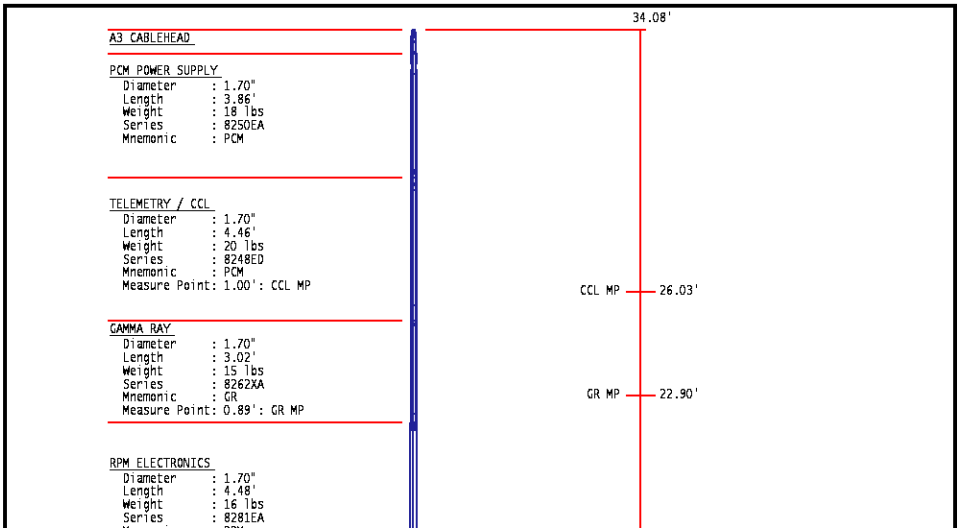
	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	804960	8856	1380	183	26.33 (25.35 – 26.40)	0.14 (0.00 – 0.20)	24.37 (23.60 – 24.80)	0.31 (0.00 – 0.40)

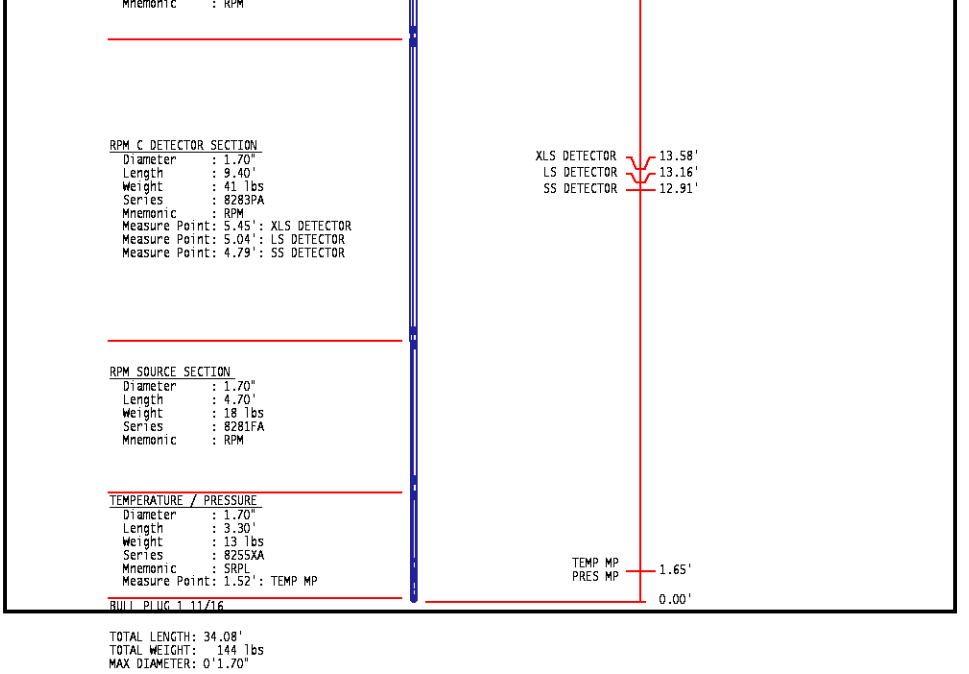
	ISS	ILS	IXS	SS	SS2	LS	CSS	CLS
Raw Data	804960	178738	27937	96894	34373	8975	58559	14423
Fit Quality %		1.070	1.179	1.032	1.045	1.208	0.910	1.204

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	804960	1.43 (1.42 – 1.45)	4.50 (3.55 – 5.52)	28.82 (22.20 – 32.70)	13.75 (10.99 – 16.34)	10.80 (10.06 – 11.10)	3.83 (3.57 – 3.96)	4.06 (3.76 – 4.22)
Fit Quality %		0.089	0.129	0.161	0.220	0.140	0.141	0.129
Reduced	1379928	1.43 (1.42 – 1.45)	4.51 (4.33 – 5.52)	28.90 (27.60 – 32.70)	13.76 (13.70 – 16.34)	10.82 (10.06 – 11.10)	3.84 (3.57 – 3.96)	4.07 (3.76 – 4.22)

INSTRUMENT CONFIGURATION

Source File: /dat1a/LARAMIE_BRUTON_30_02E/RPM_PNC3D~.tdg





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

BAKER HUGHES	COMPANY	LARAMIE ENERGY	FILE NO:
	WELL	BRUTON 30-02E	
	FIELD	VEGA	API NO:
	COUNTY	MESA — STATE COLORADO	05077103700000
	LOCATION:	ELEVATIONS:	
	SHL: LAT:39.255232N, LONG:107.806537W	KB 7449 FT	
	BHL: LAT:39.254394N, LONG:107.806907W	DF 7448 FT	
	SEC 30 TWP 9S RGE 93W	GL 7425 FT	
		DATE 06-JUL-2017	