BAKER HUGHES

Baker Atlas

RESERVOIR PERFORMANCE MONITOR

File No: CH074539	Company	WPX ENERGY	
API No: 05045216630000	Well	DUGGAN RWF 514-29	
	Field	RULISON	
	County	GARFIELD	State COLORADO

29 6S 94W
RWF 14-29 PAD
NABORS 573

Location
SHL: 507' FSL X 602' FWL
BHL: 244' FSL X 728' FWL

SEC 29 TWP 6S RGE 94W

Other Services
BOND LOG

Permanent Datum	GL	Elevation	5415 ft
Log Measured From	KB	26 ft	Above P. D.
Drill Measured From	KELLY BUSHING		

Elevations
KB 5441 ft
DF
GL 5415 ft

Date		11/JUL/13	
Run		ONE	
Service Order		624442	
Depth Driller		7895 ft	
Depth Logger		7833 ft	
Bottom Logged Interval		7833 ft	
Top Logged Interval		3980 ft	
Time Started		0630	
Time Finished		1230	
Operator Rig Time		6 HRS	
Type of Fluid in Hole		WATER	
Fluid Density		NA	
Salinity		NA	
Fluid Level		68 ft	
Logged Cement Top		NA	
Wellhead Pressure		0 psi	
Maximum Hole Deviation		NA	
Nominal Logging Speed		10 fpm	
Maximum Recorded Temperature		233 degF	
Reference Log		BAKER HUGHES BOND LOG	
Reference Log Date		10/JUL/13	
Equipment No.	Location	4271 GRAND JCT	
Recorded By		FLOYD RENEAU	
Witnessed By		ORAN JACOBS	

- FOLD HERE

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
13.5 in	0 ft	1102 ft
8.75 in	1102 ft	7895 ft

Casing Record

Size	Weight	Grade	From	To
9.625 in	32.2 lbm/ft		0 ft	1102 ft
4.6 in	11.6 lbm/ft	I-80	0 ft	7895 ft

Remarks

All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 7/10/2013 at the client's request.

The amount of linear shift is 12 feet.

Logged in PNC-3D mode.

BHT = 233°F

SJ = 4618'-4642'

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	RPM	8281FA	10401926	FREE
1	1	RPM	8281PA	10203151	FREE
1	1	RPM	8281EA	10423671	FREE
1	1	GR	8262XY	10485470	FREE
1	1	TEL/CCL	8248ED	10387150	FREE
1	1	PCM	8250EA	Z166326	FREE

MAIN SECTION
PNC 3-D MODE

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		3979.935	7850.900
PNC Porosity	Borehole Size	8.750	inch	3979.935	7850.900
PNC Porosity	Casing Size	4.500	inch	3979.935	7850.900
PNC Porosity	Gas Filled	Non Gas Filled		3979.935	7850.900
PNC Porosity	Matrix	Sandstone		3979.935	7850.900

DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES
8248ED	-15.320	FLTM
8248ED	-13.320	CCL CHV
8262XY	-10.189	GR4
8281XA	-0.662	HVC3Q0 SEQ3 AMA3 AML3 BKX CXS
		CPT3Q0 CPT3Q2 CPT3Q3 CPT3Q4 ET3 IXS
		MCS3 MCS3Q0 QCAL3 RGN3 RICX SDA3
		SDL3 SGA3 SGL3 STA3 XS ASPEC3
		AMB3 AMF3 CHF3 IXSC IXSN RATO23

		RICXC RIN13C RIN23 RIN23C SD3D SG3D SGB3 SGF3 WDTH3 CXSR IXSR XSR RICXR
8281XA	-0.250	HVC2Q0 SEQ2 AMA2 AMB2 AMF2 AML2 BKL CHF2 CLS CPT2Q0 CPT2Q2 CPT2Q3 CPT2Q4 ET2 ILS LS MCS2 MCS2Q0 QCAL2 RGN2 RICL RONE23 RTWO23 SDA2 SDL2 SGA2 SGB2 SGF2 SGK2 SGL2 STA2 ASPEC2 ILSC ILSN WDTH2 RICLC CLSR ILSR LSR RICLR
8281XA	0.000	CPRS HVC1Q0 MV SEQ SEQ1 AMA1 AMB1 AME1 AMF1 AML1 BKS CHF1 CSS CORB CORF CPT1Q0 CPT1Q2 CPT1Q2A CPT1Q2B CPT1Q2C CPT1Q3 CPT1Q4 CPT1Q5 ET1 G1 G2 GE1S GE2S ISS MCS1 MCS1Q0 QA1 QCAL1 QM1 RATO RATO13 RBOR RGN1 RICS RIN RONE RPOR RTWO RIN13 RONE13 RTWO13 SALB SC1 SDA1 SDL1 SGA1 SGB1 SGBC SGE1 SGF1 SGFC SGK1 SGL1 SS SS2 STA1 PD1S PD2S PD3S MD1S MD2S MD3S DG1S DG2S DG3S PD1M PD2M PD3M MD1M MD2M MD3M DG1M DG2M DG3M MVS MA MVM FILV IAM TA PVM PVS IAS SSTAT QPD1 QPD2 QPD3 QMD1 QMD2 QMD3 QDG1 QDG2 QDG3 QMA QTA QFILV QMV QPV QIA DERR DCNT QPK1 QSA1 PKS1 ASPEC1 H0C FE2XC ISSC RINC ISSN RDEN WDTH1 RICSC CSSR G1R G2R ISSR SSR SS2R RATOR RATO13R RBORR RICSR RINR RIN13R RONER RPORR RTWOR
SYSTEM	0.000	TEN TTEN

Created by : RPM9, v5.3.1.0
Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY
Well : DUGGAN RWF 514-29
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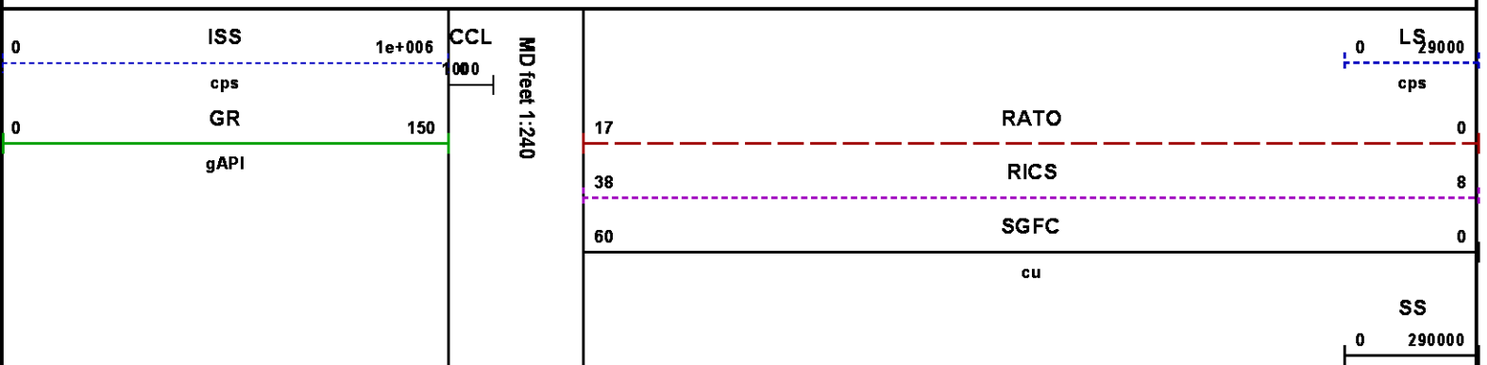

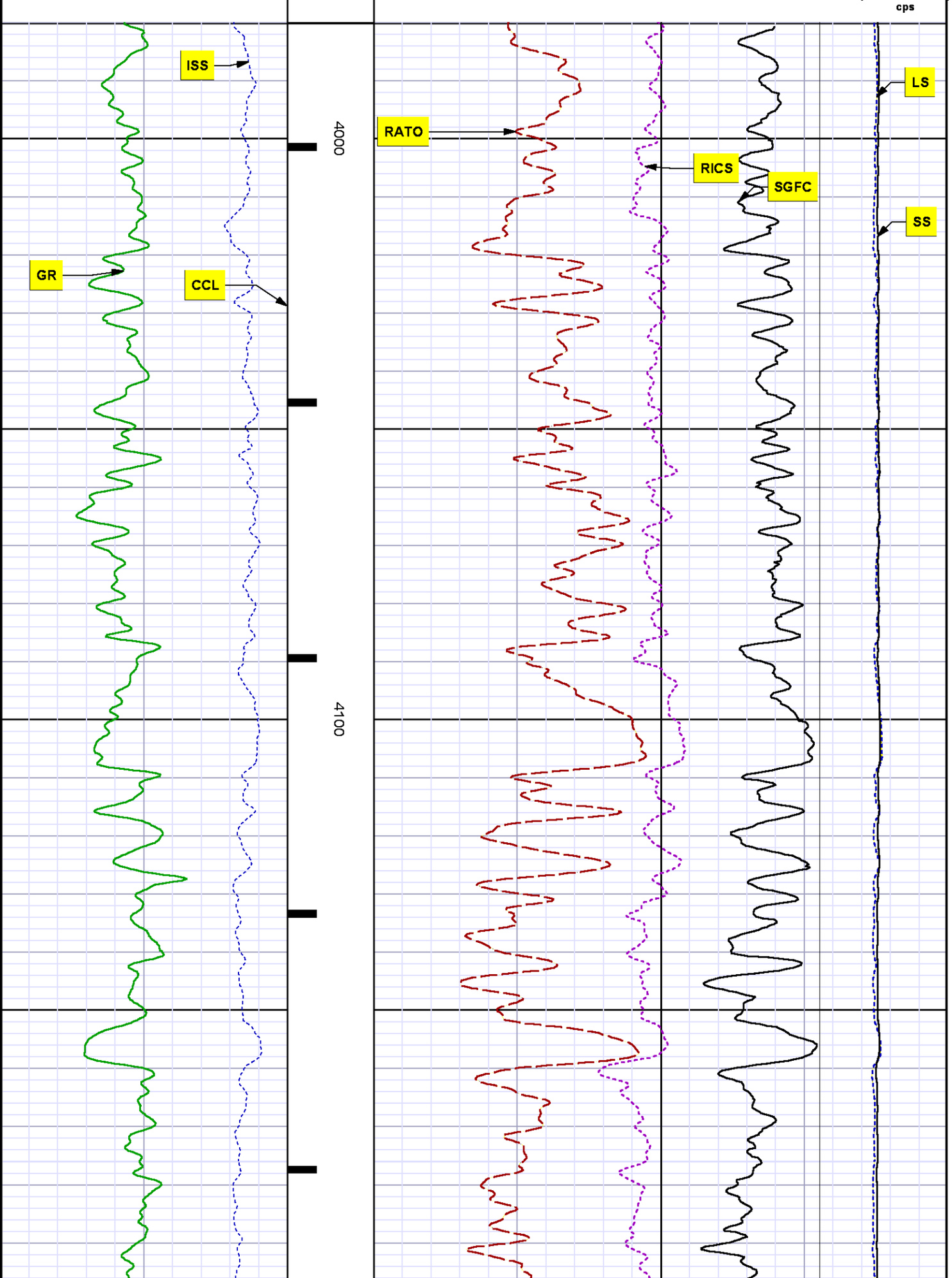
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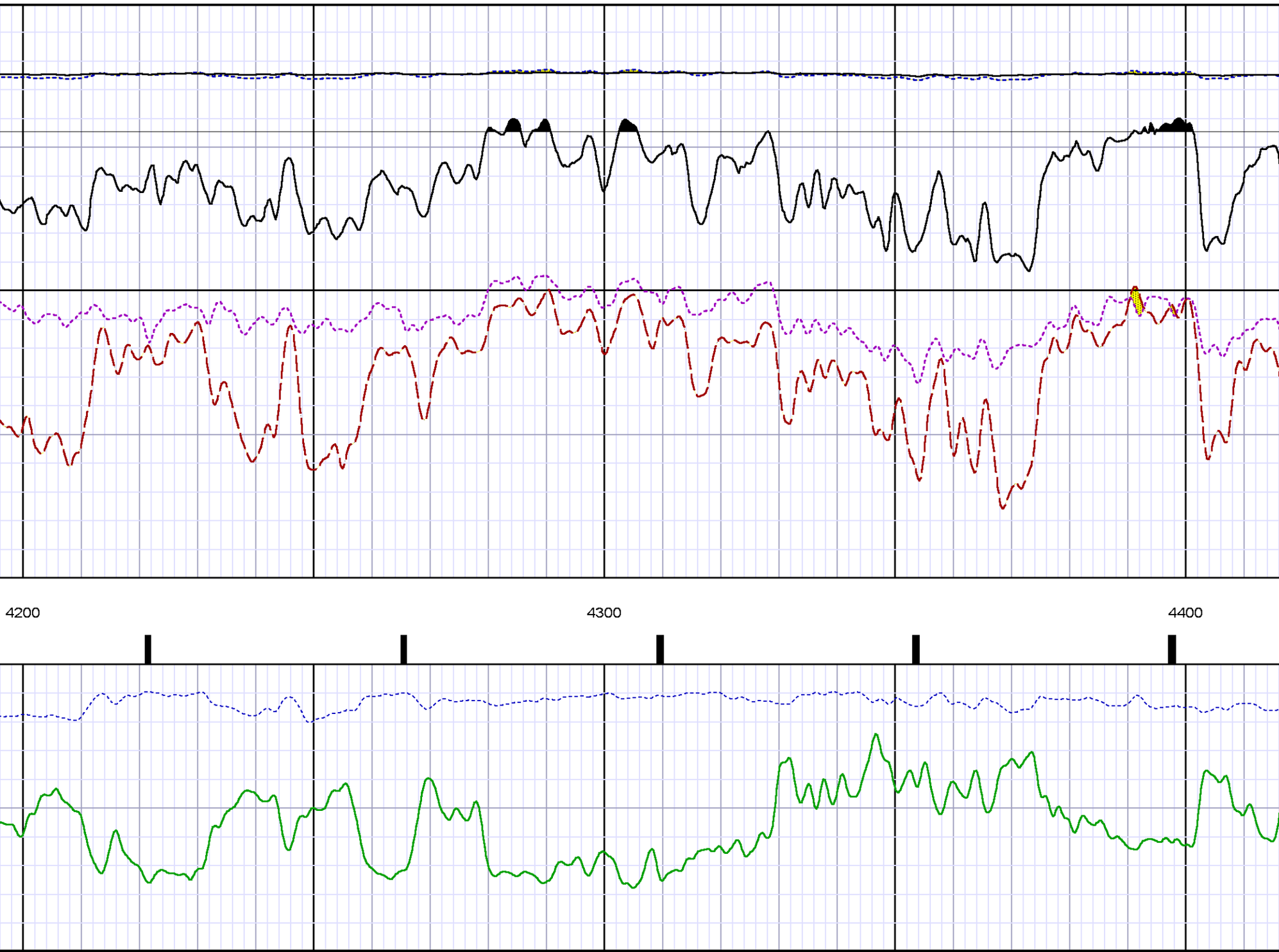
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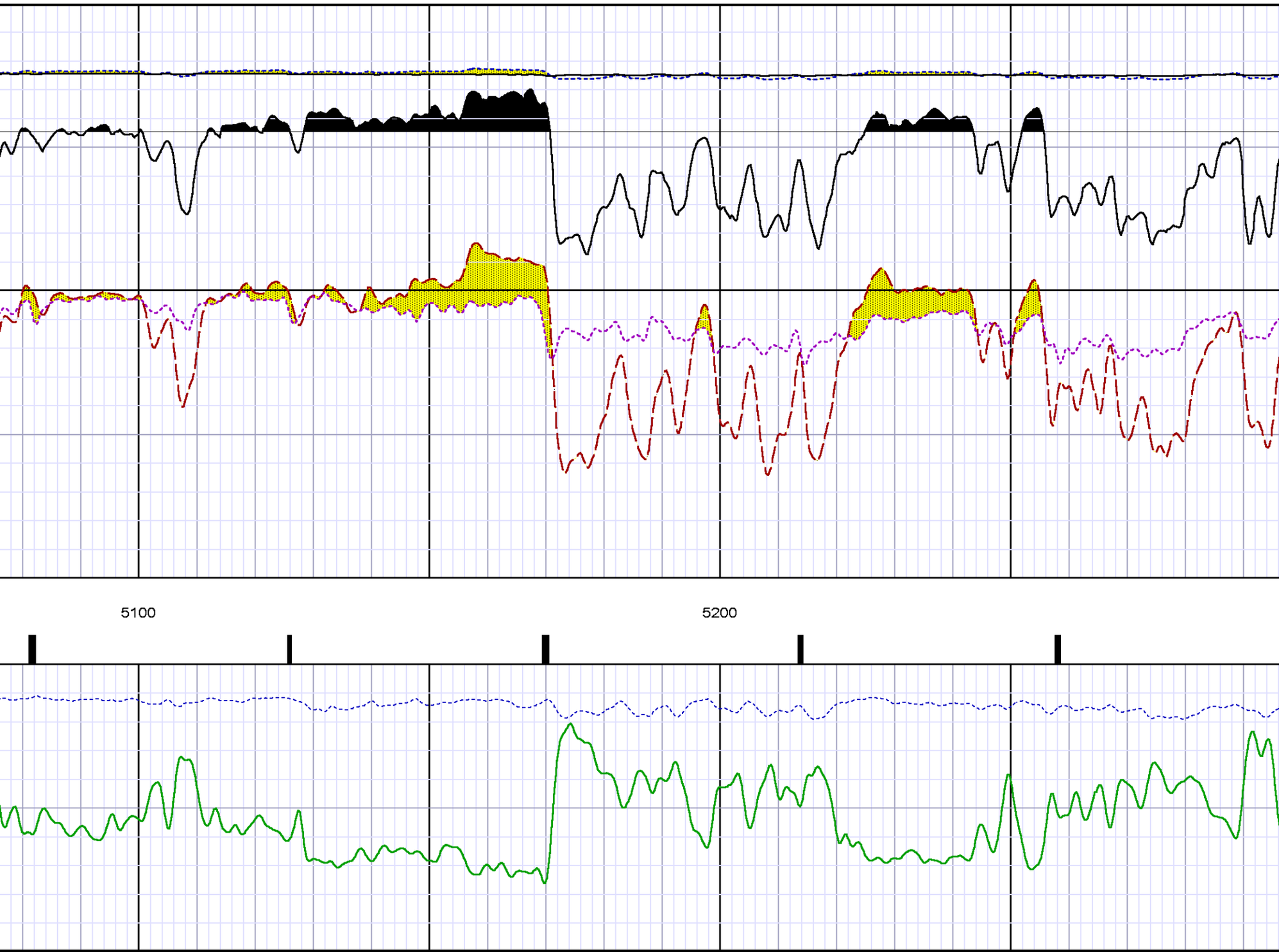
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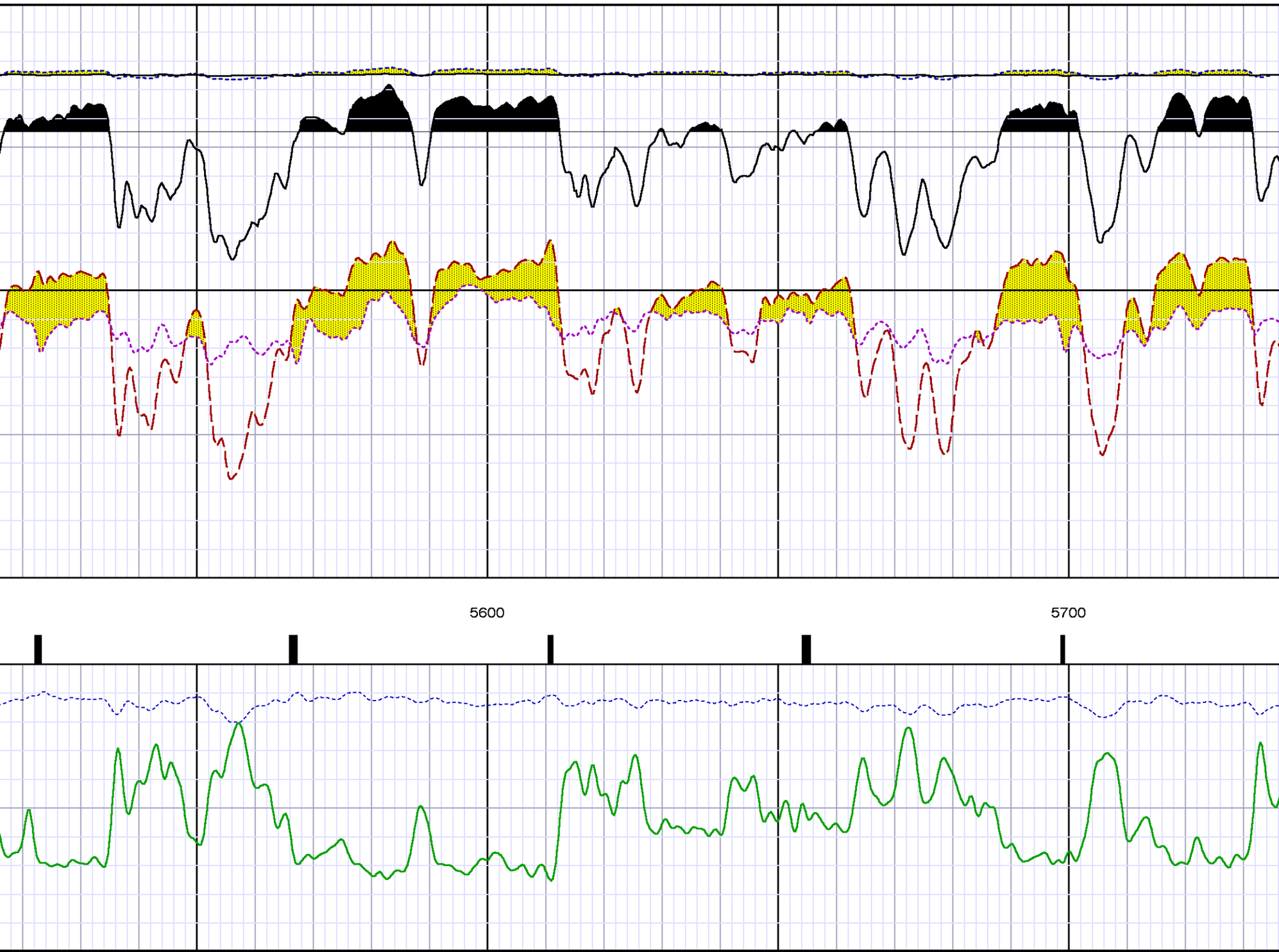
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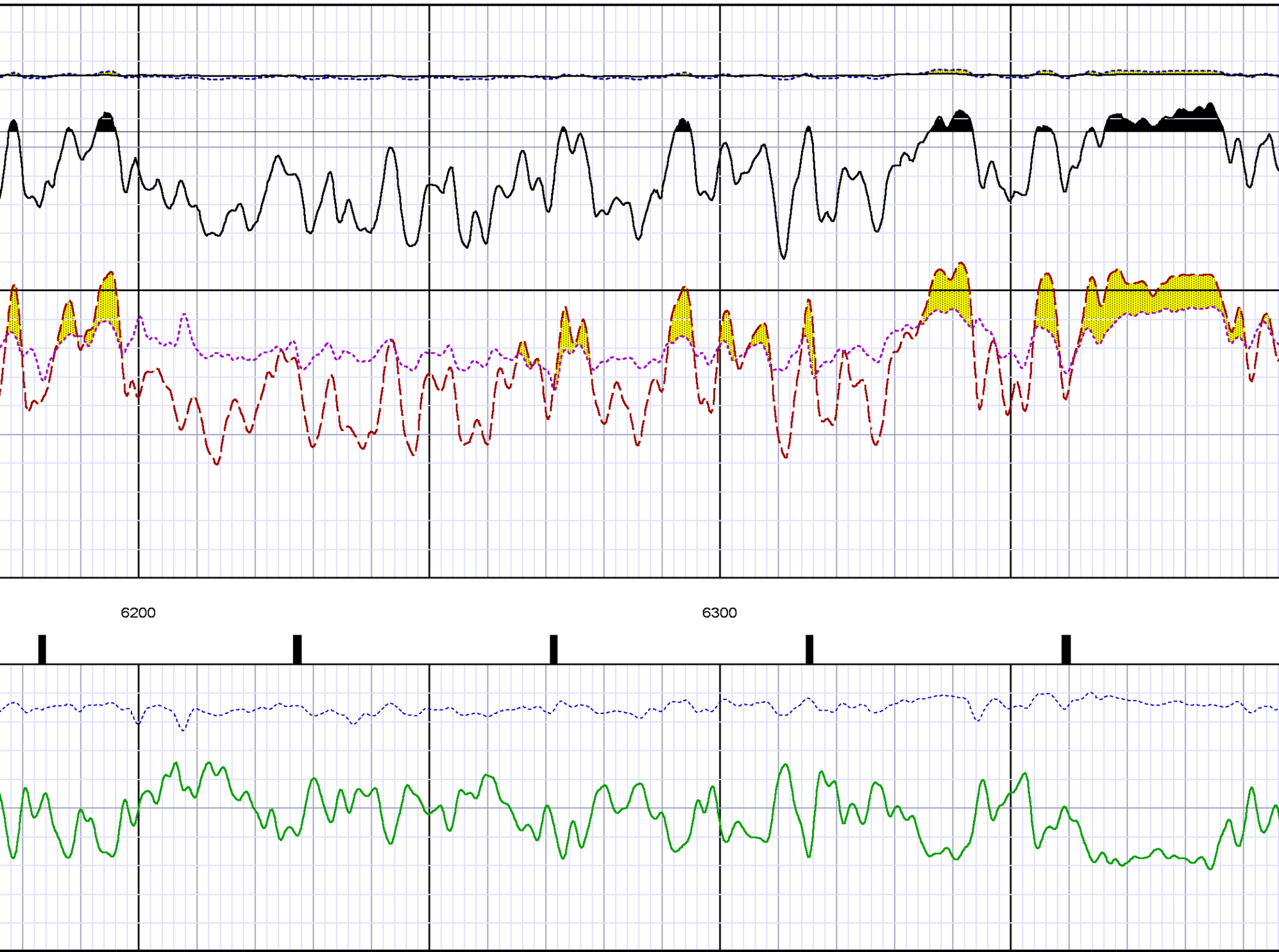
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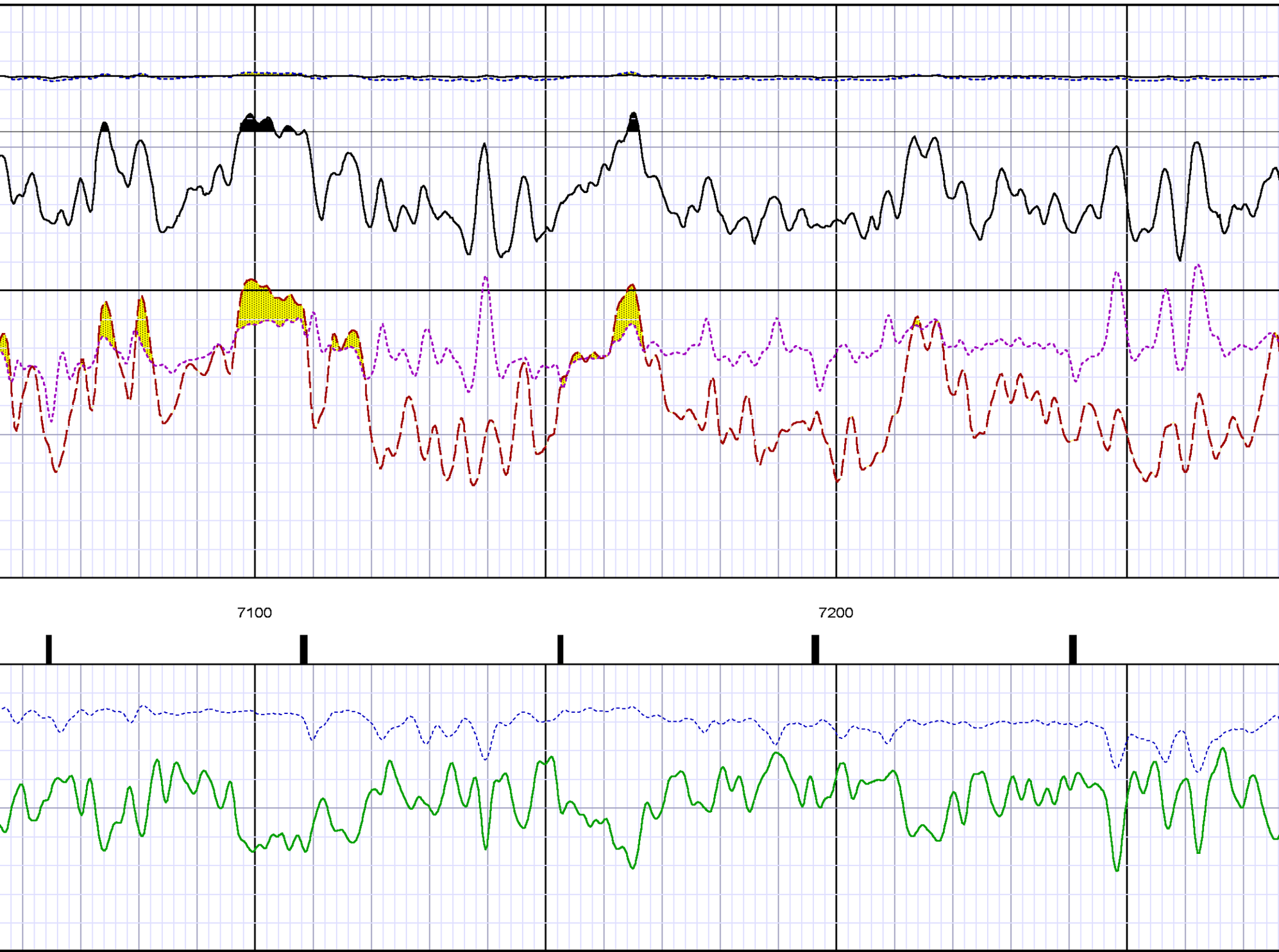
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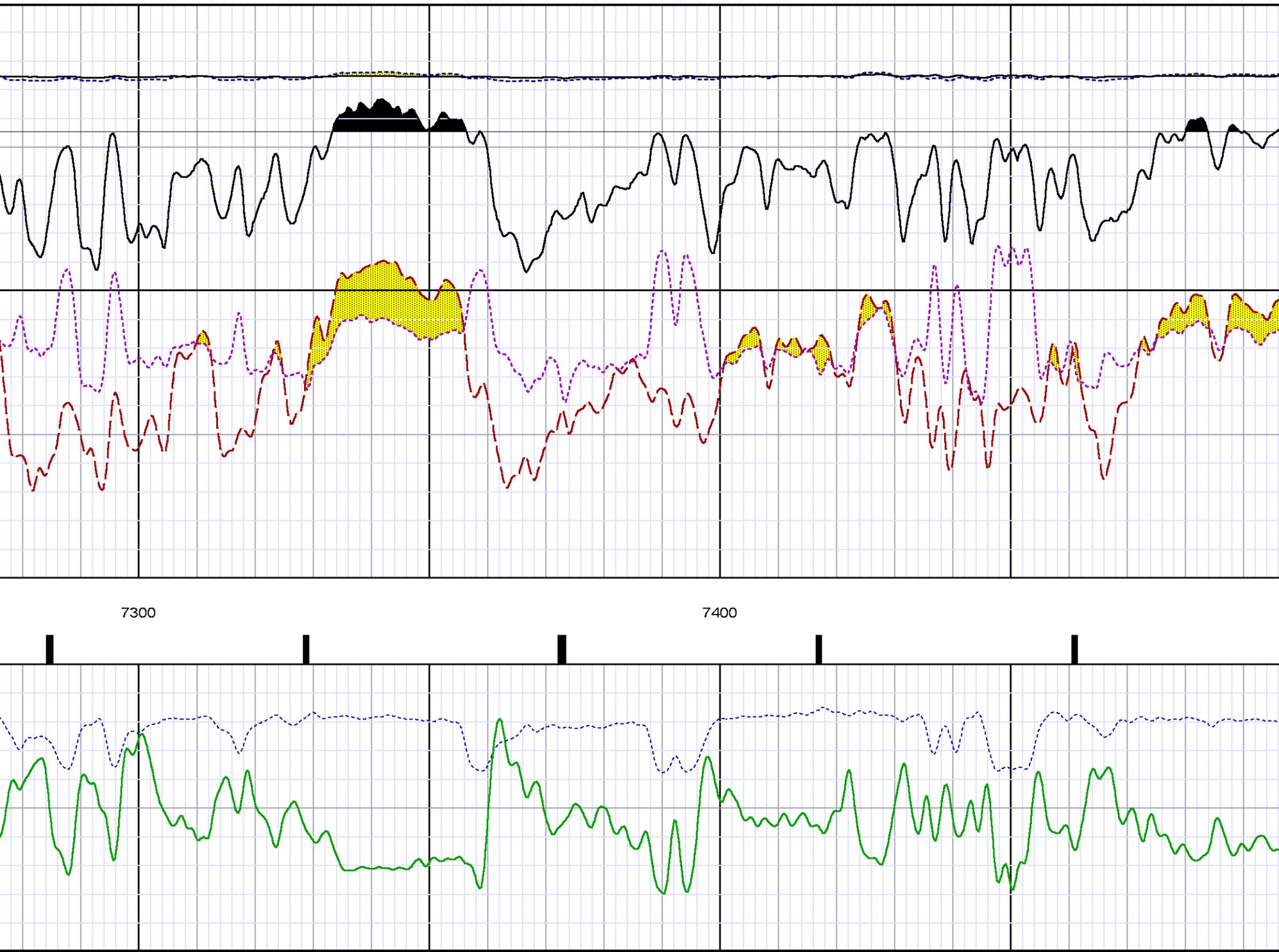
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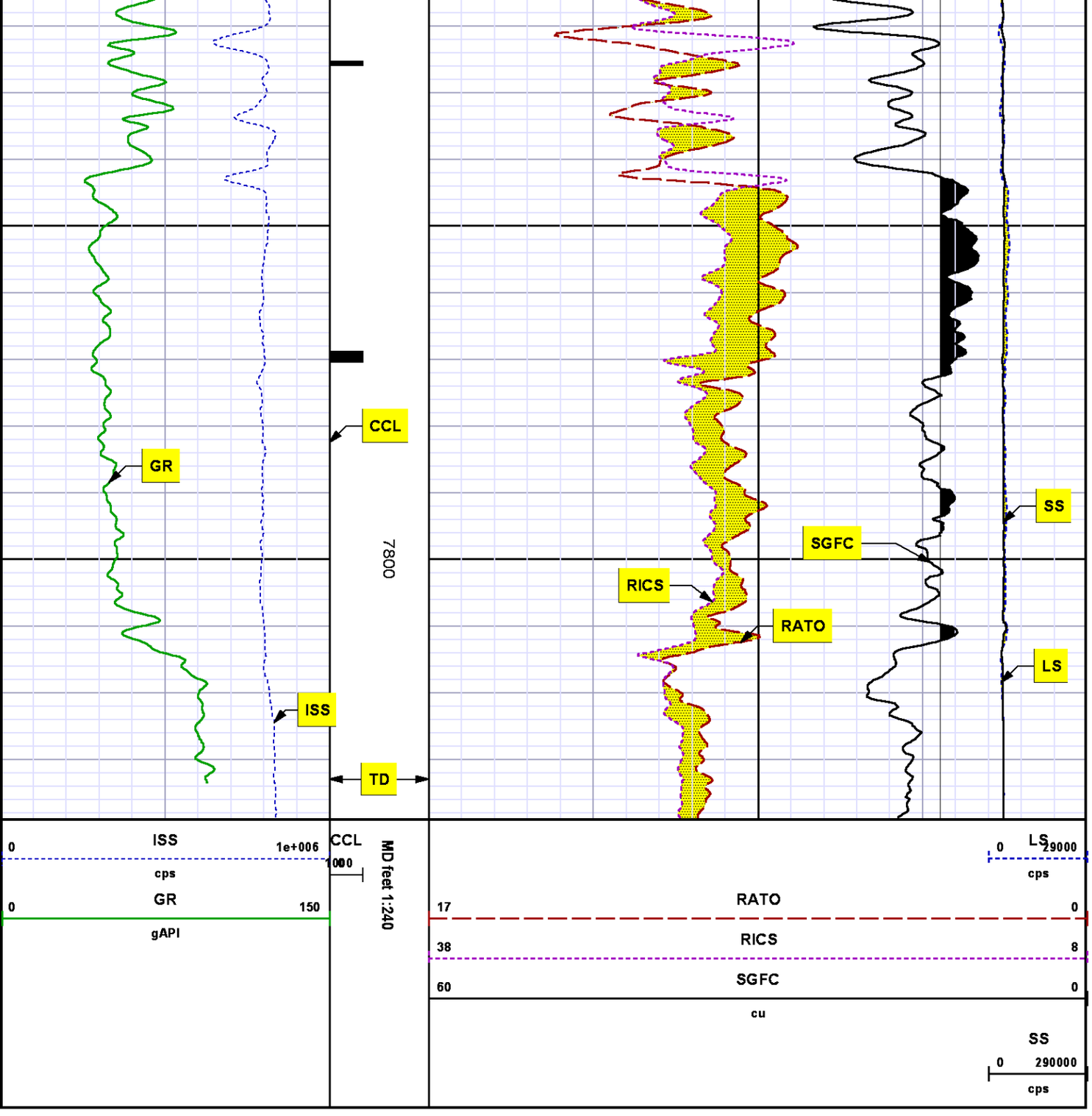

REPEAT SECTION
PNC 3-D MODE

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		6938.120	7250.120
PNC Porosity	Borehole Size	8.750	inch	6938.120	7250.120
PNC Porosity	Casing Size	4.500	inch	6938.120	7250.120
PNC Porosity	Gas Filled	Non Gas Filled		6938.120	7250.120
PNC Porosity	Matrix	Sandstone		6938.120	7250.120

DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES
8248ED	-15.320	FLTM
8248ED	-13.320	CCL CHV
8262XY	-10.189	GR4
8281XA	-0.662	HVC3Q0 SEQ3 AMA3 AML3 BKX CXS CPT3Q0 CPT3Q2 CPT3Q3 CPT3Q4 ET3 IXS MCS3 MCS3Q0 QCAL3 RGN3 RICX SDA3 SDL3 SGA3 SGL3 STA3 XS ASPEC3 AMB3 AMF3 CHF3 IXSC IXSN RATO23 RICXC RIN13C RIN23 RIN23C SD3D SG3D SGB3 SGF3 WDTH3 CXSR IXSR XSR RICXR
8281XA	-0.250	HVC2Q0 SEQ2 AMA2 AMB2 AMF2 AML2 BKL CHF2 CLS CPT2Q0 CPT2Q2 CPT2Q3 CPT2Q4 ET2 ILS LS MCS2 MCS2Q0 QCAL2 RGN2 RICL RONE23 RTWO23 SDA2 SDL2 SGA2 SGB2 SGF2 SGK2 SGL2 STA2 ASPEC2 ILSC ILSN WDTH2 RICLC CLSR ILSR LSR RICLR
8281XA	0.000	CPRS HVC1Q0 MV SEQ SEQ1 AMA1 AMB1 AME1 AMF1 AML1 BKS CHF1 CSS CORB CORF CPT1Q0 CPT1Q2 CPT1Q2A CPT1Q2B CPT1Q2C CPT1Q3 CPT1Q4 CPT1Q5 ET1 G1 G2 GE1S GE2S ISS MCS1 MCS1Q0 QA1 QCAL1 QM1 RATO RATO13 RBOR RGN1 RICS RIN RONE RPOR RTWO RIN13 RONE13 RTWO13 SALB SC1 SDA1 SDL1 SGA1 SGB1 SGBC SGE1 SGF1 SGFC SGK1 SGL1 SS SS2 STA1 PD1S PD2S PD3S MD1S MD2S MD3S DG1S DG2S DG3S PD1M PD2M PD3M MD1M MD2M MD3M DG1M DG2M DG3M MVS MA MVM FILV IAM TA PVM PVS IAS SSTAT QPD1 QPD2 QPD3 QMD1 QMD2 QMD3 QDG1 QDG2 QDG3 QMA QTA QFILV QMV

		QDG2 QDG3 QMA QTA QFILV QMV
		QPV QIA DERR DCNT QPK1 QSA1
		PKS1 ASPEC1 H0C FE2XC ISSC RINC
		ISSN RDEN WDTH1 RICSC CSSR G1R
		G2R ISSR SSR SS2R RATOR RATO13R
		RBORR RICSR RINR RIN13R RONER RPORR
		RTWOR
SYSTEM	0.000	TEN TTEN

Created by : RPM9, v5.3.1.0
Plotted by : PlotMgr, v5.4.504

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Well : DUGGAN RWF 514-29
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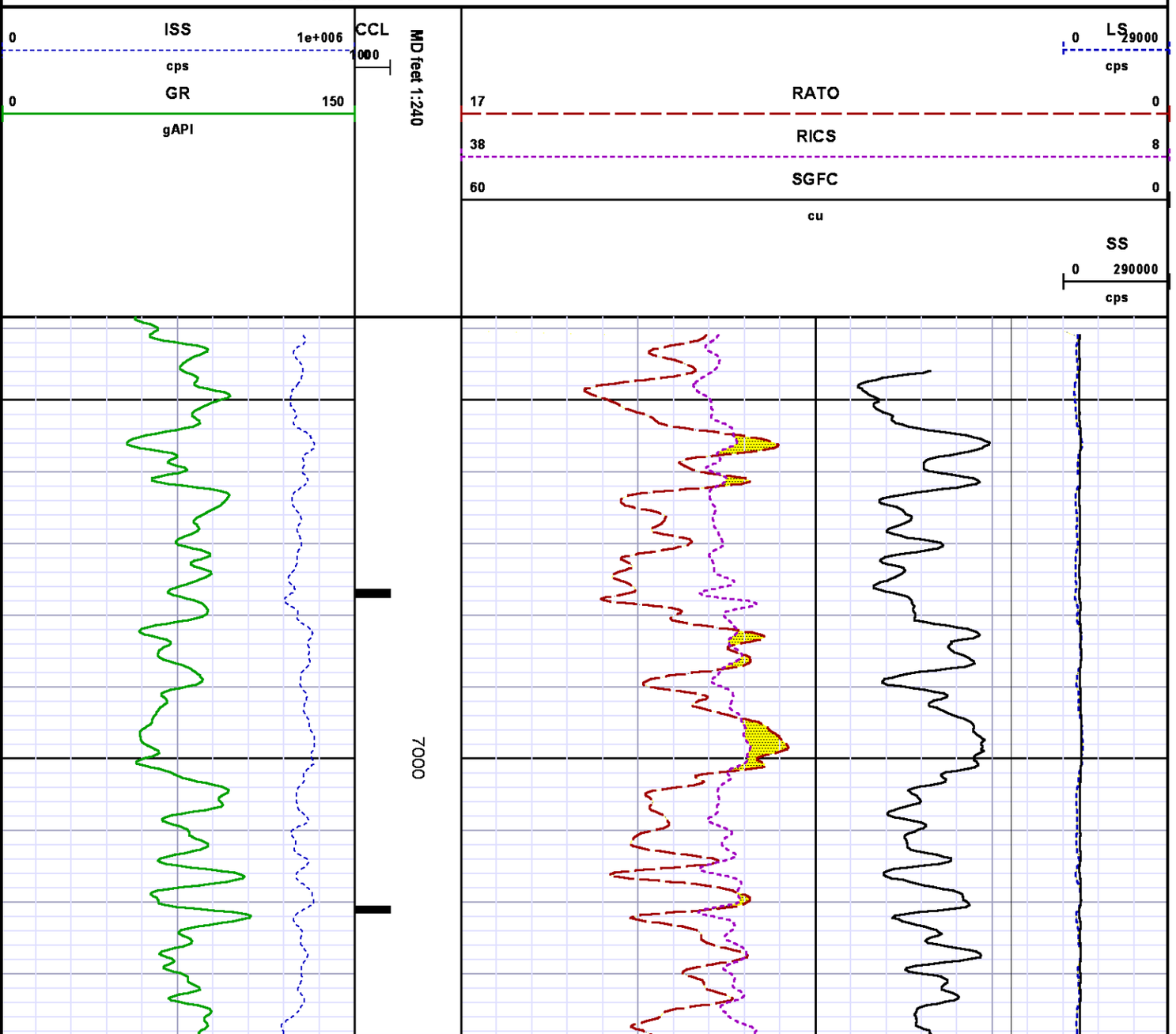

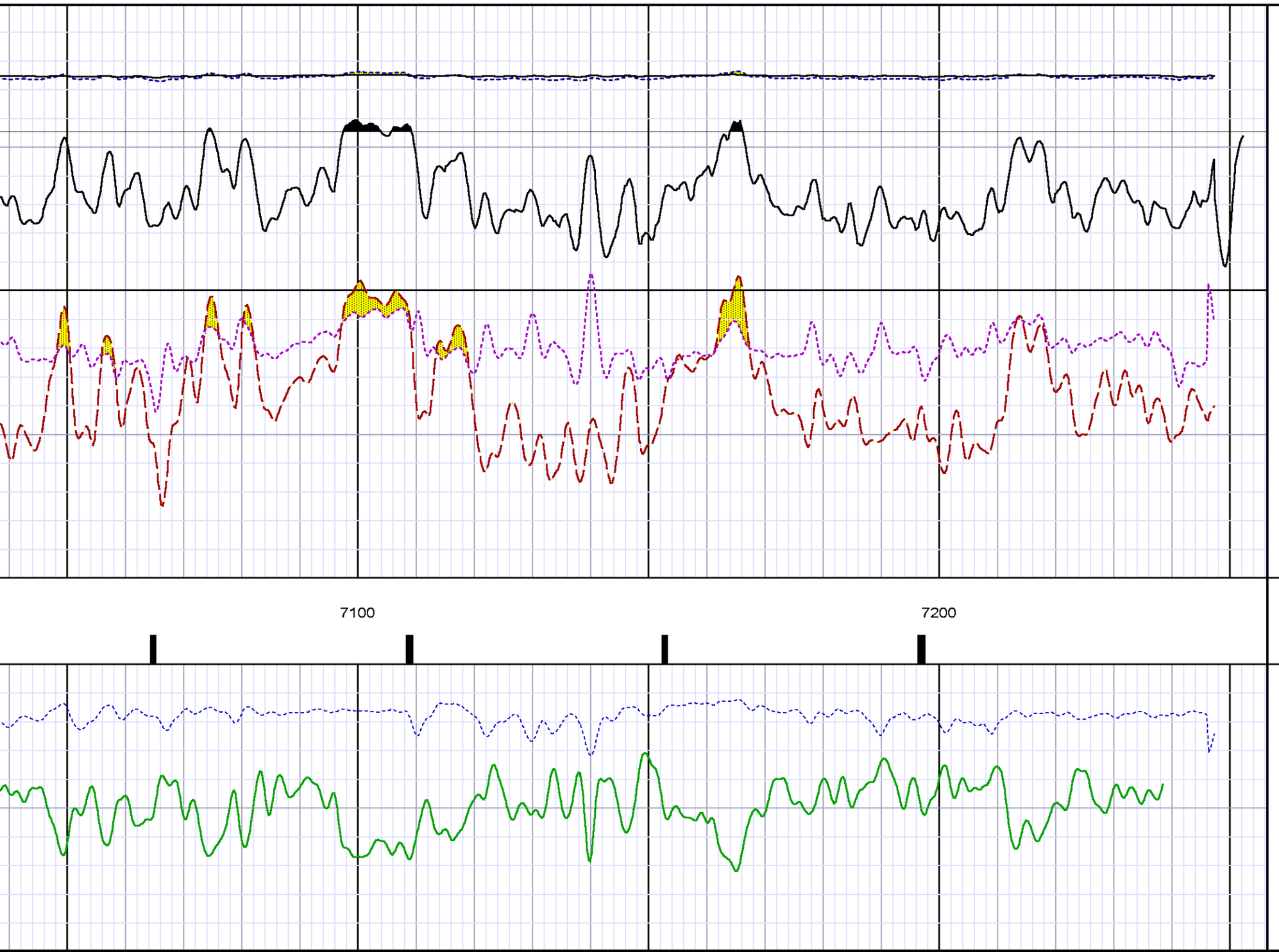
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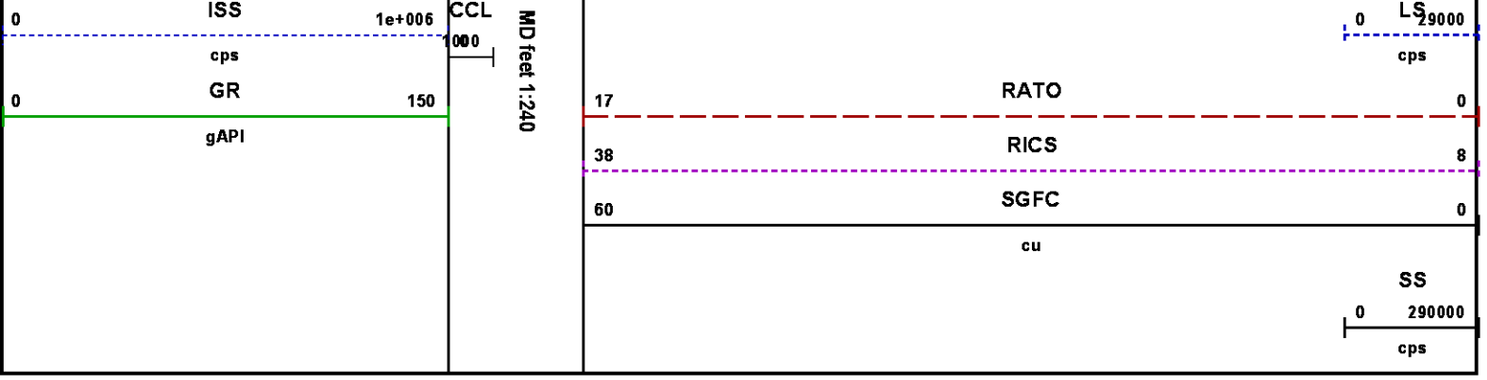


CALIBRATION SUMMARY

GAMMA RAY (GR4)

Calibration File: C:\case\calver\GR\470J8.cal

CALIBRATION SUMMARY

DATE/TIME PERFORMED: Tue Jun 18 16:07:26 2013 **TOOL SERIES:** 8262XY **ASSET:** 470 **SEQ:** J8

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
SHOP JIG	81.13	423.93	0.525	42.60	222.60	180.00

Verification File: C:\case\calver\GR\470J8.VP

PRIMARY VERIFICATION

DATE/TIME PERFORMED: Tue Jun 18 16:10:33 2013 **TOOL SERIES:** 8262XY **ASSET:** 470 **SEQ:** J8

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
SHOP JIG	78.56	423.58	0.525	41.25	222.42	181.17

PNC

Calibration File: C:\case\calver\PNC\151J9.cal

PNC 3D CALIBRATION SUMMARY

DATE/TIME PERFORMED: Sat Jun 29 09:46:29 2013 **TOOL SERIES:** 8281XA **ASSET:** 151 **SEQ:** J9

Calibrator #	Source #
SHOP BARREL	8281AA 11765055

	ISS	Mtr Vlts (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	809458	133.00	2254.00	2358.00	2438.00	110.42	7.00	0.9675
Interpolated	1300000	156.07	2241.00	2355.15	2423.24			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	809458	6105.41	962.05	139.69	25.72	0.14	24.24	0.29
					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	809458	162583.86	25372.11	86054.02	30687.02	7894.27	52192.65	12628.70
Fit Quality %		0.35	0.41	0.56	0.61	0.44	0.59	0.47

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	809458	1.44	4.98	31.90	15.51	10.90	3.89	4.13
		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 %		0.11	0.24	0.14	0.07	0.10	0.13	0.12
Reduced	1405821	1.44	4.98	31.96	15.53	10.89	3.88	4.13
		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

TOOL DIAGRAM

OTA SHORT CABLE HEAD

PCM POWER SUPPLY

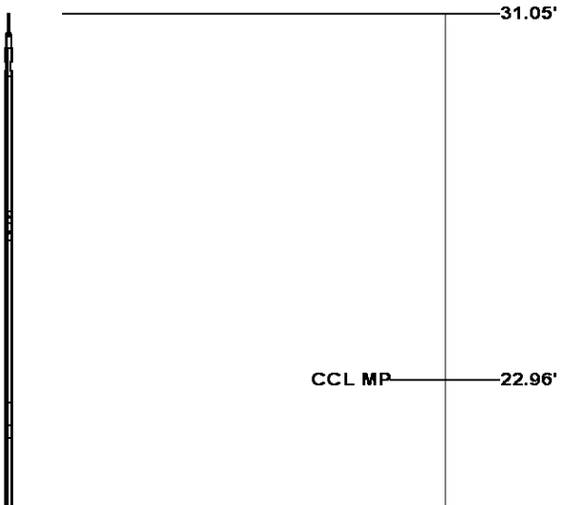
Series	8250EA
Mnemonic	PCM
Diameter	1.70"
Weight	18.00 lb
Length	3.86'
Temp Rating	350.00 °F

TELEMETRY / CCL

Series	8248EA
Mnemonic	PCM
Diameter	1.70"
Weight	20.00 lb
Length	4.46'
Measure Point	1.00' CCL MP
Temp Rating	350.00 °F
Press Rating	15000.00 PSI

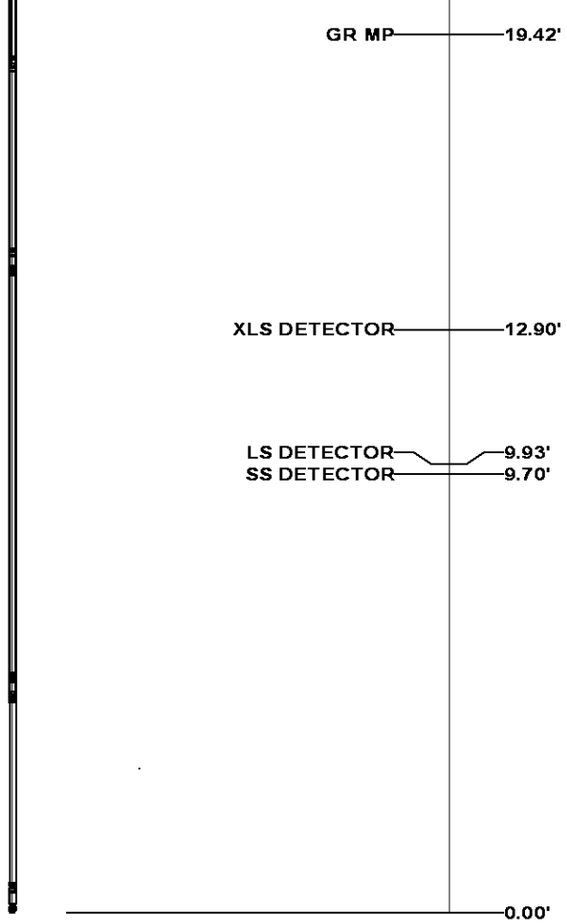
GAMMA RAY

Series	8262XA
Mnemonic	GR
Diameter	1.70"



Diameter	1.70
Weight	15.00 lb
Length	3.17'

RESERVOIR PERFORMANCE MONITOR	
Series	8281XA
Mnemonic	RPM
Diameter	1.70"
Weight	75.00 lb
Length	18.58'
Measure Point	9.49' SS DETECTOR
Measure Point	9.72' LS DETECTOR
Measure Point	12.69' XLS DETECTOR
Temp Rating	350.00 °F
Press Rating	20000.00 PSI



Total Length: 31.05'
Total Weight: Not Available
Max Diameter: 0' 1.70"

BAKER HUGHES

Baker Atlas

CASE

Company	WPX ENERGY		File No:
Well	DUGGAN RWF 514-29		CH074539
Field	RULISON		API No:
County	GARFIELD	State COLORADO	05045216630000

Location	Elevations	
SHL: 507' FSL X 602' FWL	KB 5441 ft	29 6S 94W
BHL: 244' FSL X 728' FWL	DF	RWF 14-29 PAD
	GL 5415 ft	NABORS 573
SEC 29 TWP 6S RGE 94W		