BAKER HUGHES

Baker Atlas

RESERVOIR PERFORMANCE MONITOR

File No: CH074538	Company	WPX ENERGY	
API No: 05045216580000	Well	DUGGAN RWF 24-29	
	Field	RULISON	
	County	GARFIELD	State COLORADO

29 6S 94W

RWF 14-29 PAD

NABORS 573

Location

SHL: 511' FSL X 611' FWL

BHL: 294' FSL X 2216' FWL (SESW)

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	14/JUL/13		
Run	ONE		
Service Order	624446		
Depth Driller	8057 ft		
Depth Logger	8044 ft		
Bottom Logged Interval	8044 ft		
Top Logged Interval	4250 ft		
Time Started	1230		
Time Finished	1800		
Operator Rig Time	5.5 HRS		
Type of Fluid in Hole	WATER		
Fluid Density	NA		
Salinity	NA		
Fluid Level	380 ft		
Logged Cement Top	NA		
Wellhead Pressure	0 psi		
Maximum Hole Deviation	NA		
Nominal Logging Speed	10 fpm		
Maximum Recorded Temperature	228 degF		
Reference Log	BAKER HUGHES		
Reference Log Date	14/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	1139 ft
8.75 in	1139 ft	8057 ft

Casing Record

Size	Weight	Grade	From	To
9.625 in	32.2 lbm/ft		0 ft	1139 ft
4.6 in	11.6 lbm/ft	I-80	0 ft	8057 ft

Remarks

All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 7/14/2013 at the client's request.

The amount of linear shift is 12 feet.

Logged in PNC-3D mode.

BHT = 228°F

SJ = 4404'-4428'

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	RPM	8281FA	10307727	FREE
1	1	RPM	8281PA	10585555	FREE
1	1	RPM	8281EA	10303640	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		4239.968	8052.875
PNC Porosity	Borehole Size	8.750	inch	4239.968	8052.875
PNC Porosity	Casing Size	4.500	inch	4239.968	8052.875
PNC Porosity	Gas Filled	Non Gas Filled		4239.968	8052.875
PNC Porosity	Matrix	Sandstone		4239.968	8052.875

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 : WPXENERGY
Well : DUGGAN RWF 24-29
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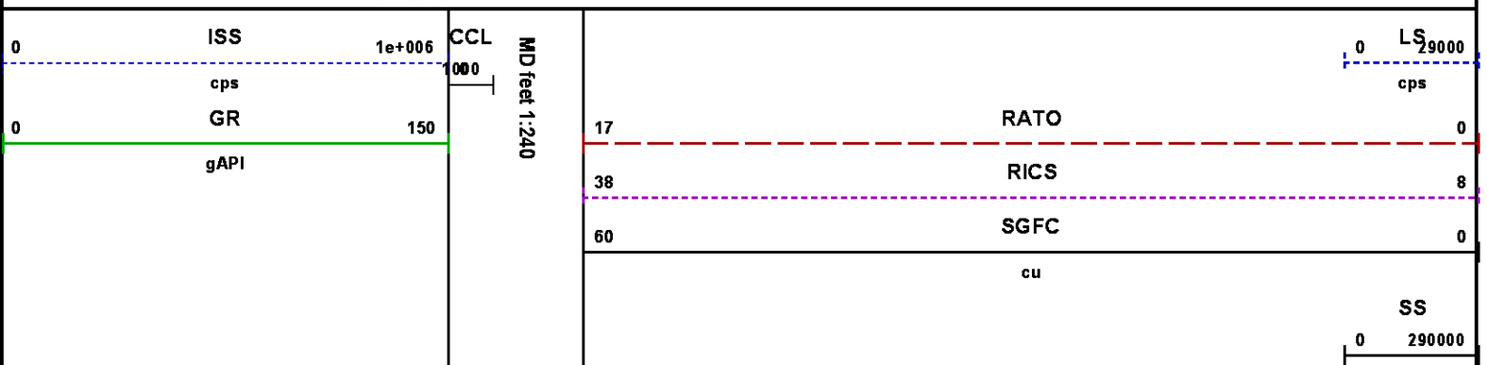

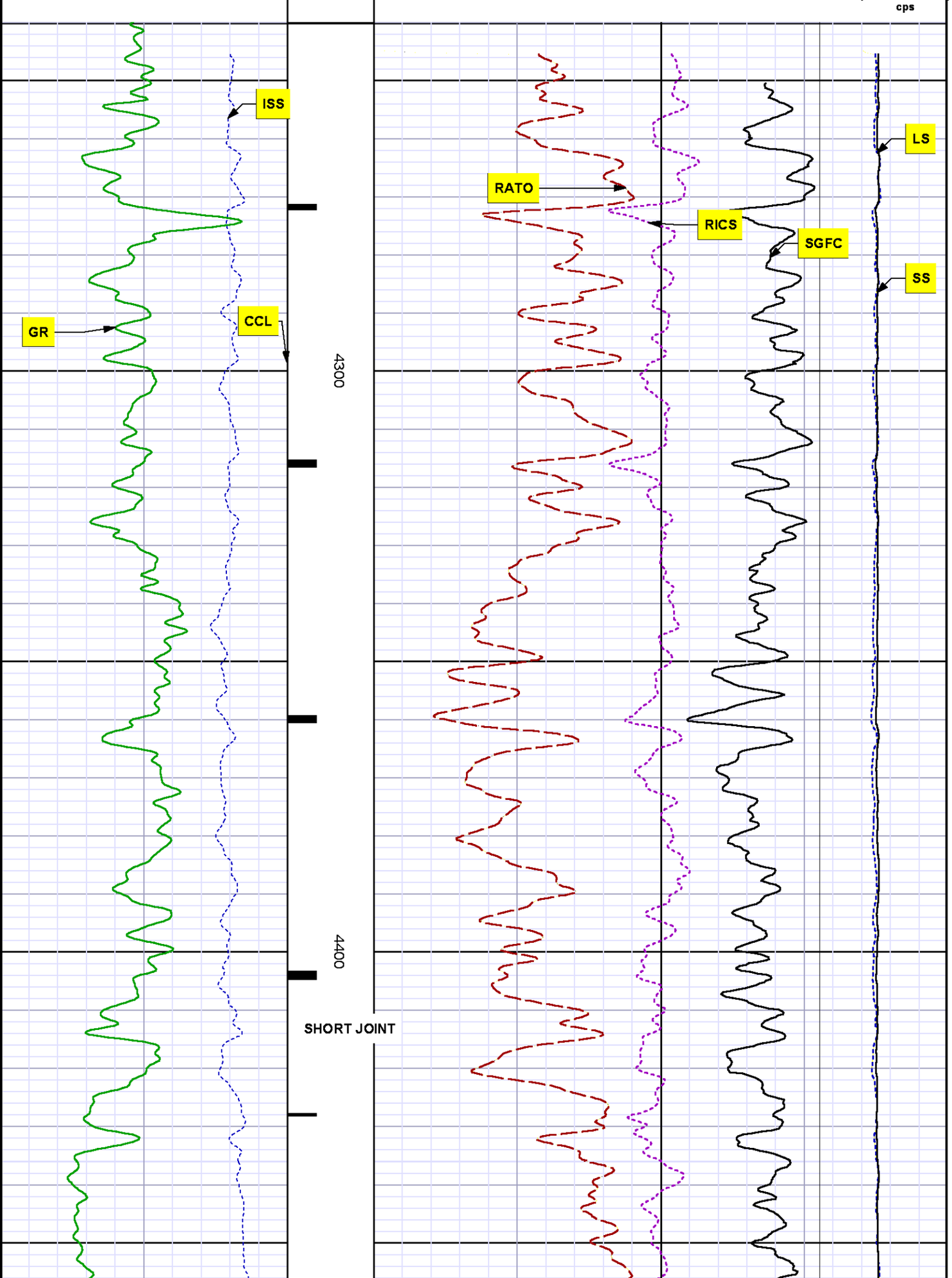
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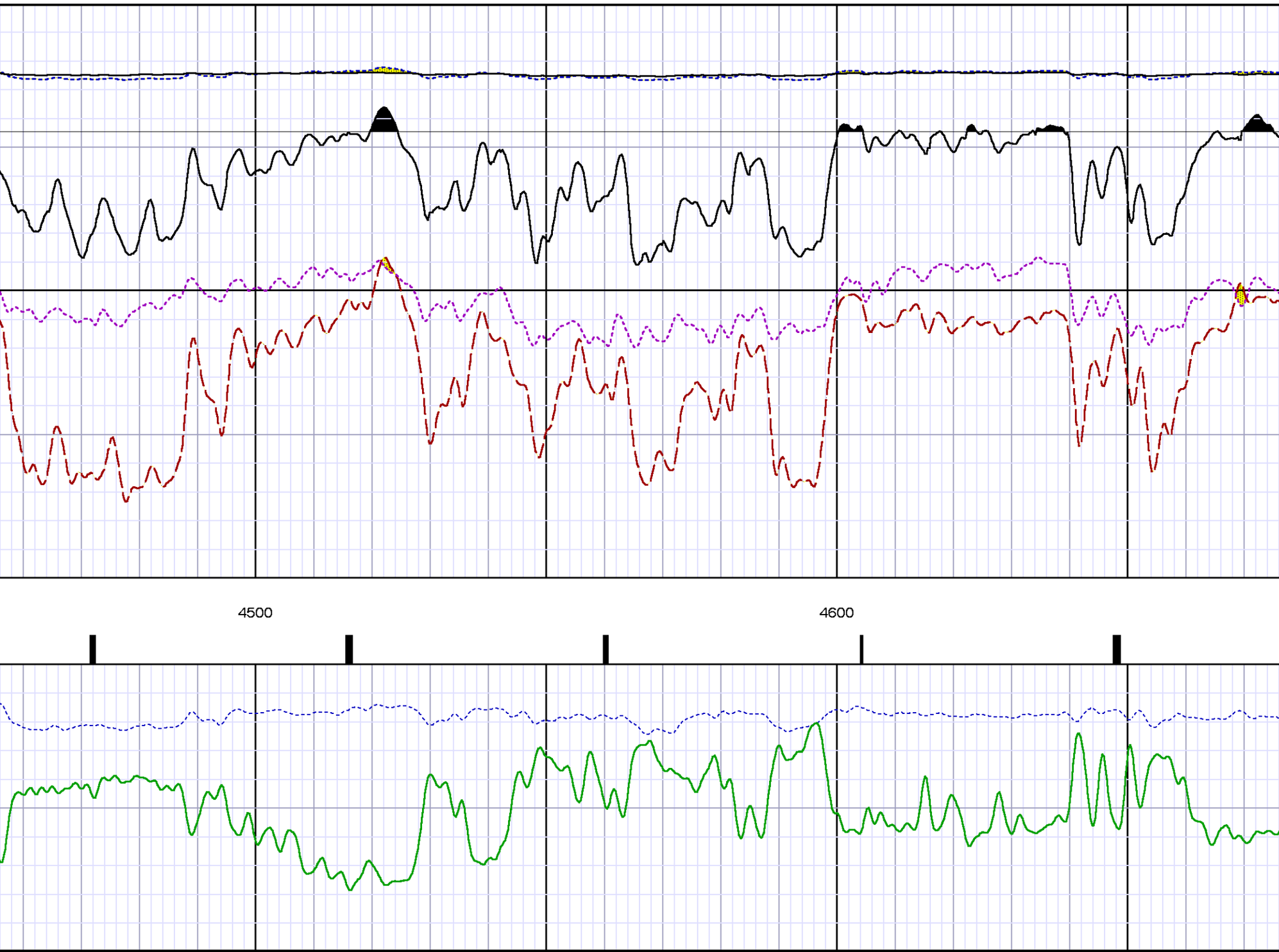
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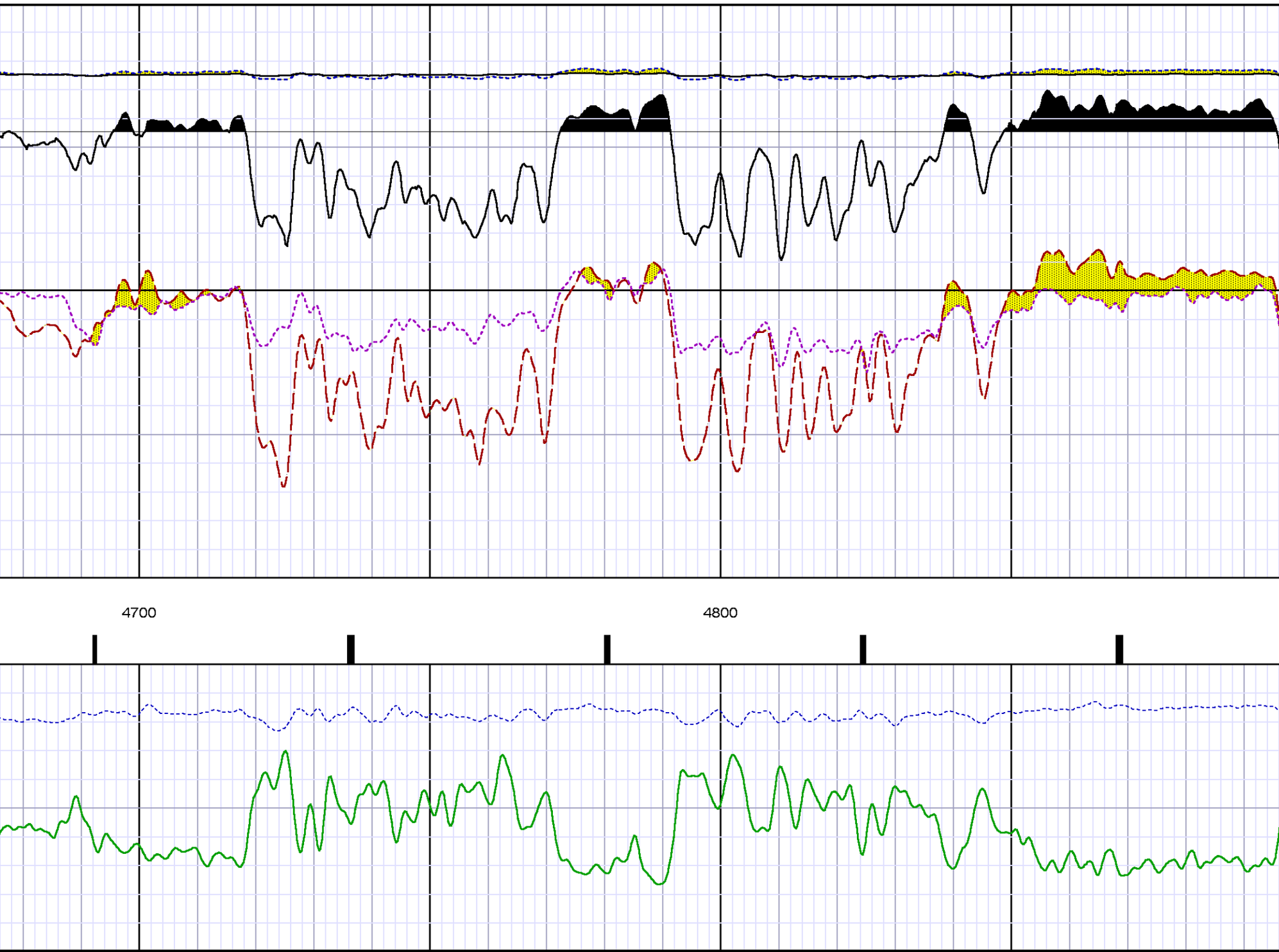
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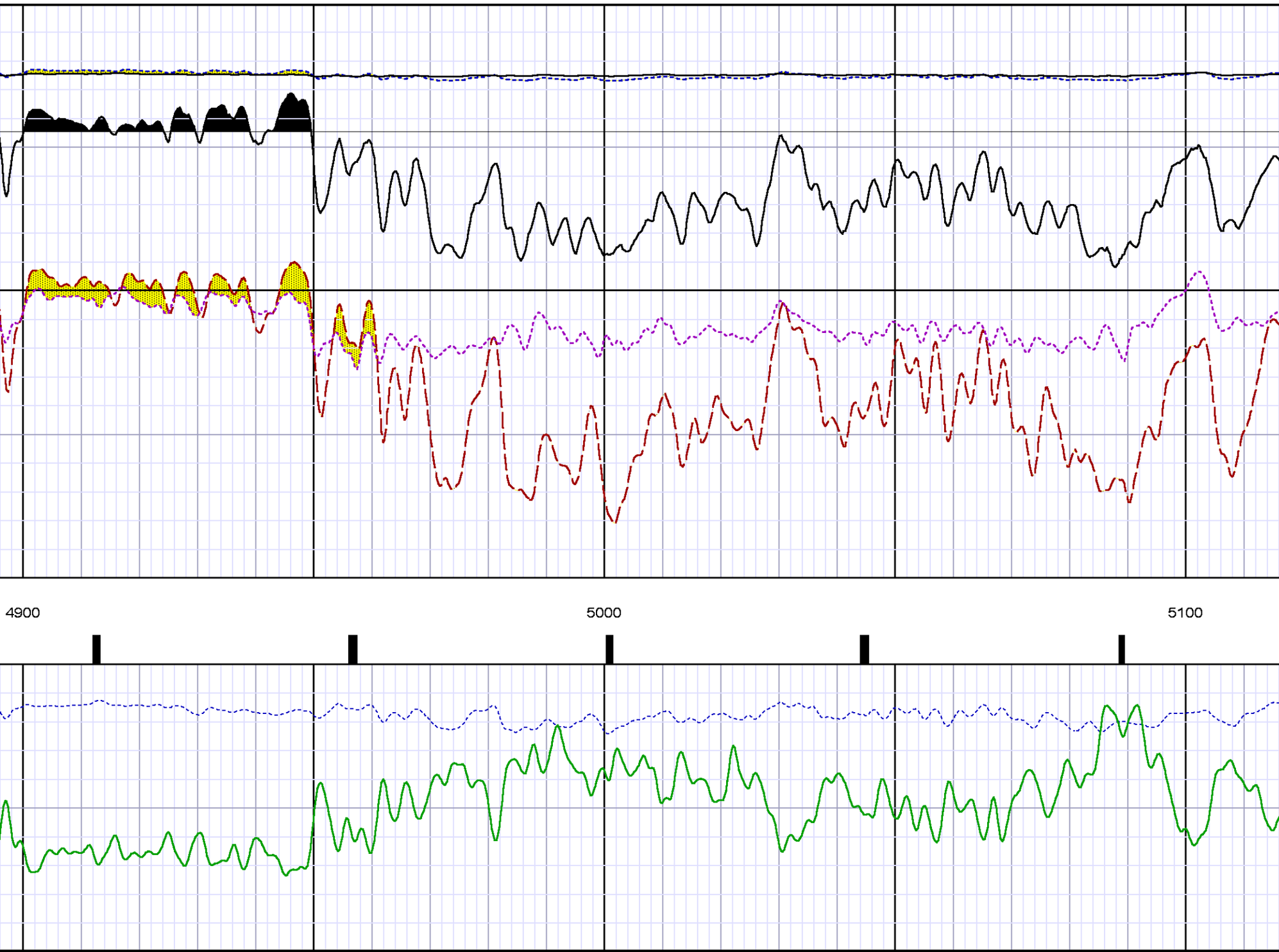
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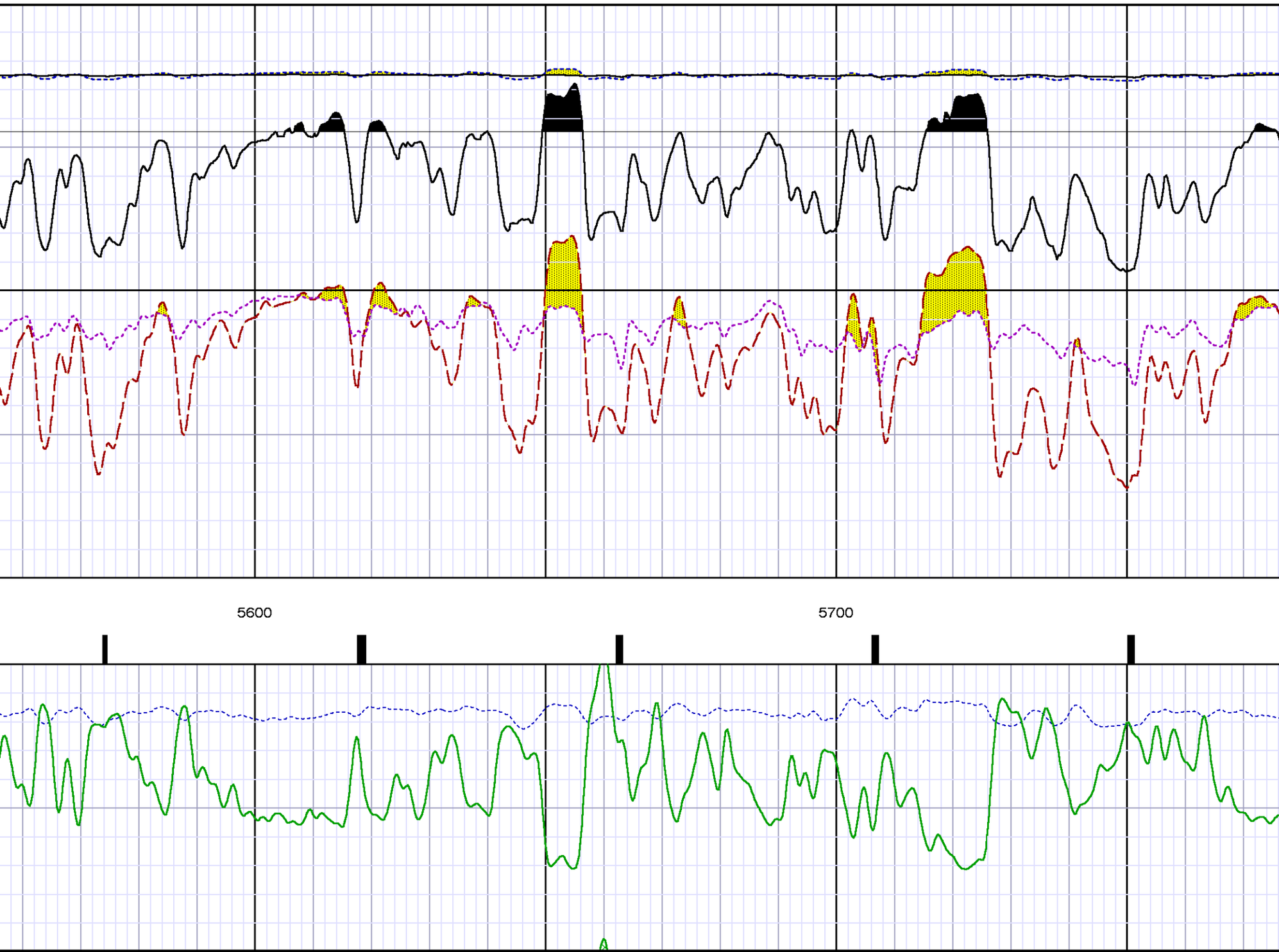
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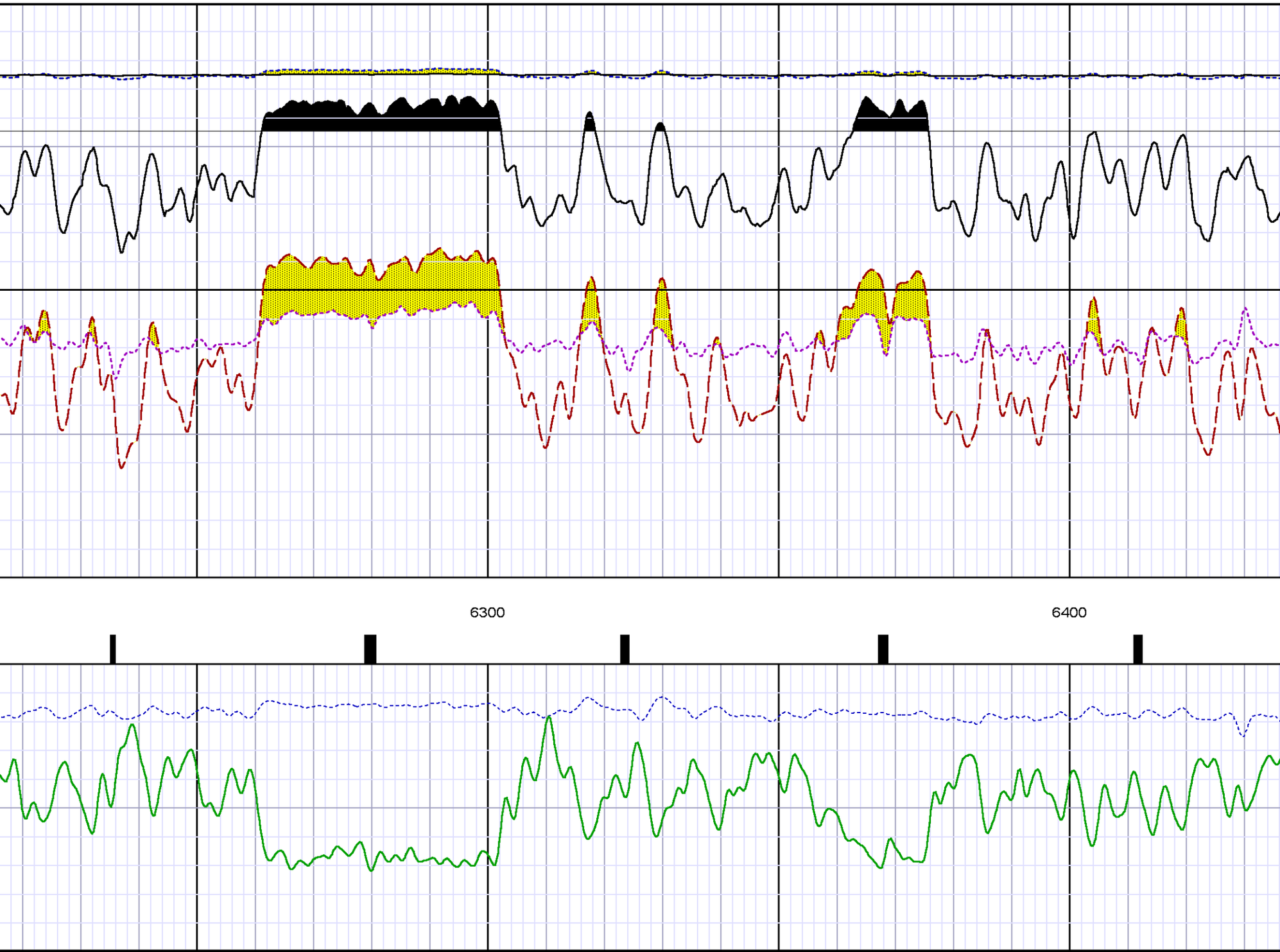
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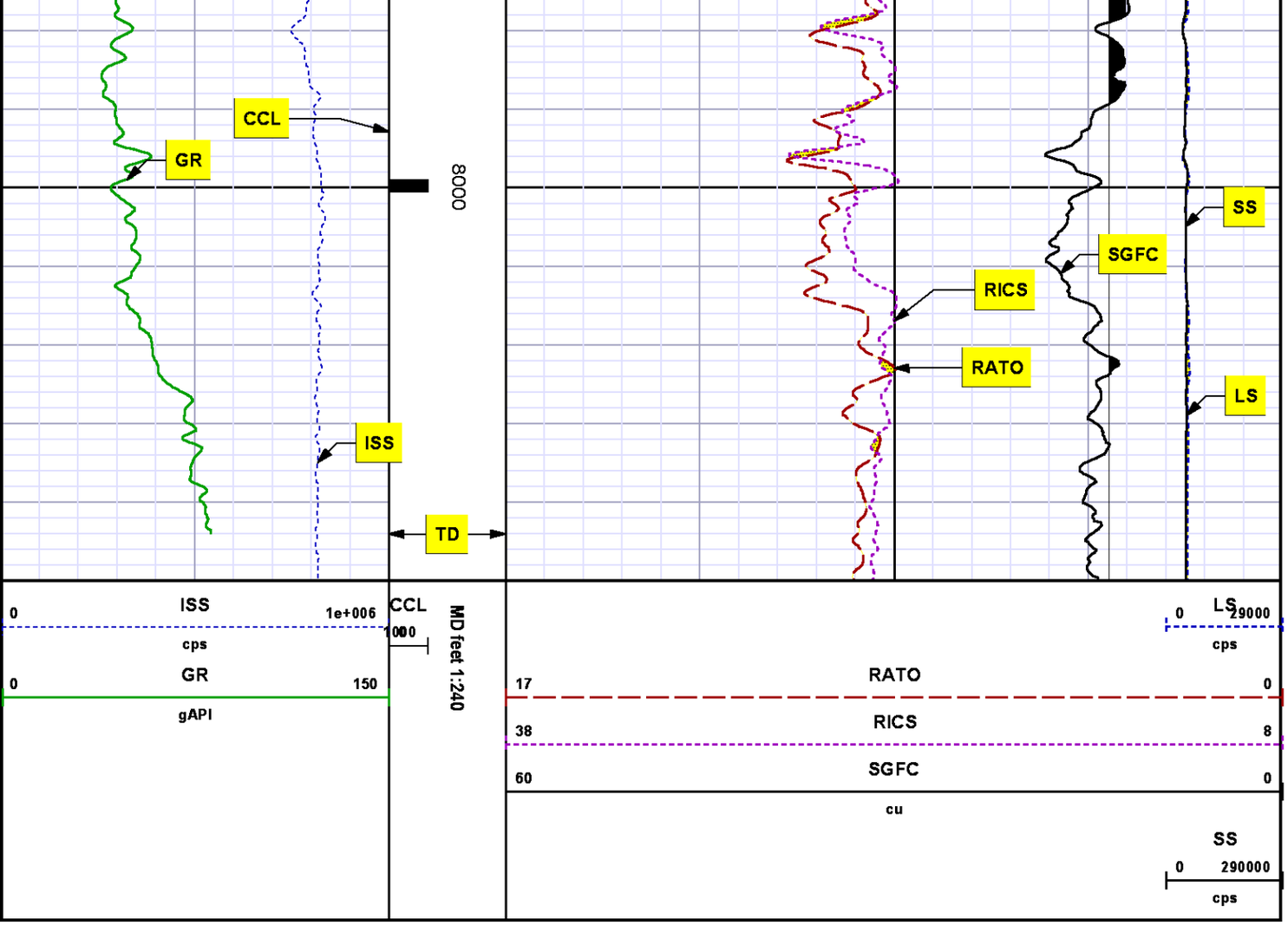

REPEAT SECTION
PNC 3-D MODE

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		7209.750	7512.750
PNC Porosity	Borehole Size	8.750	inch	7209.750	7512.750
PNC Porosity	Casing Size	4.500	inch	7209.750	7512.750
PNC Porosity	Gas Filled	Non Gas Filled		7209.750	7512.750
PNC Porosity	Matrix	Sandstone		7209.750	7512.750

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

Plotted by : PlotMgr, v5.4.504

Company : WPXENERGY

Well : DUGGAN RWF 24-29

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Mode : PlotMgr 5.4.504

Interval : 7210.00 - 7510.00 feet UP

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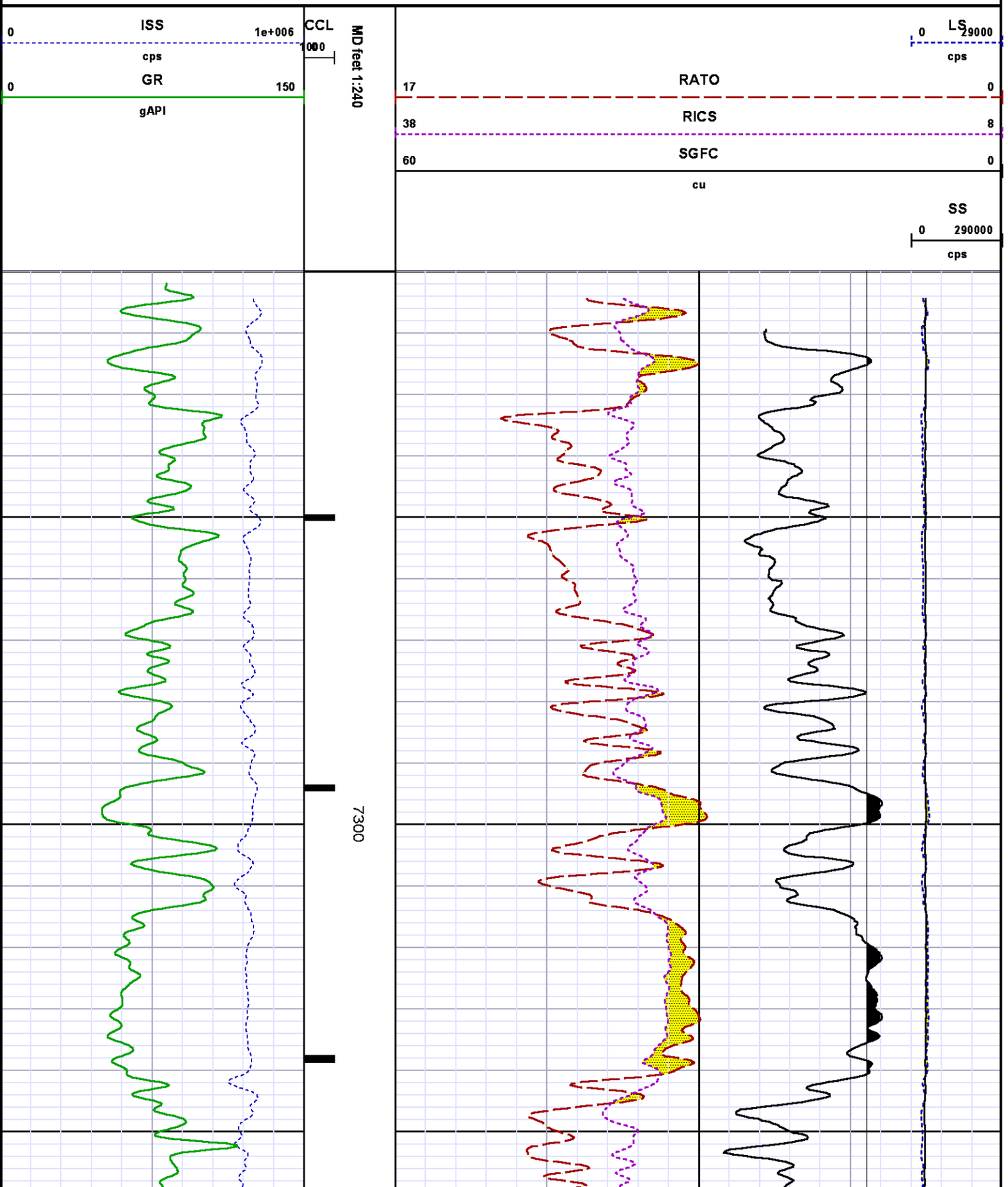
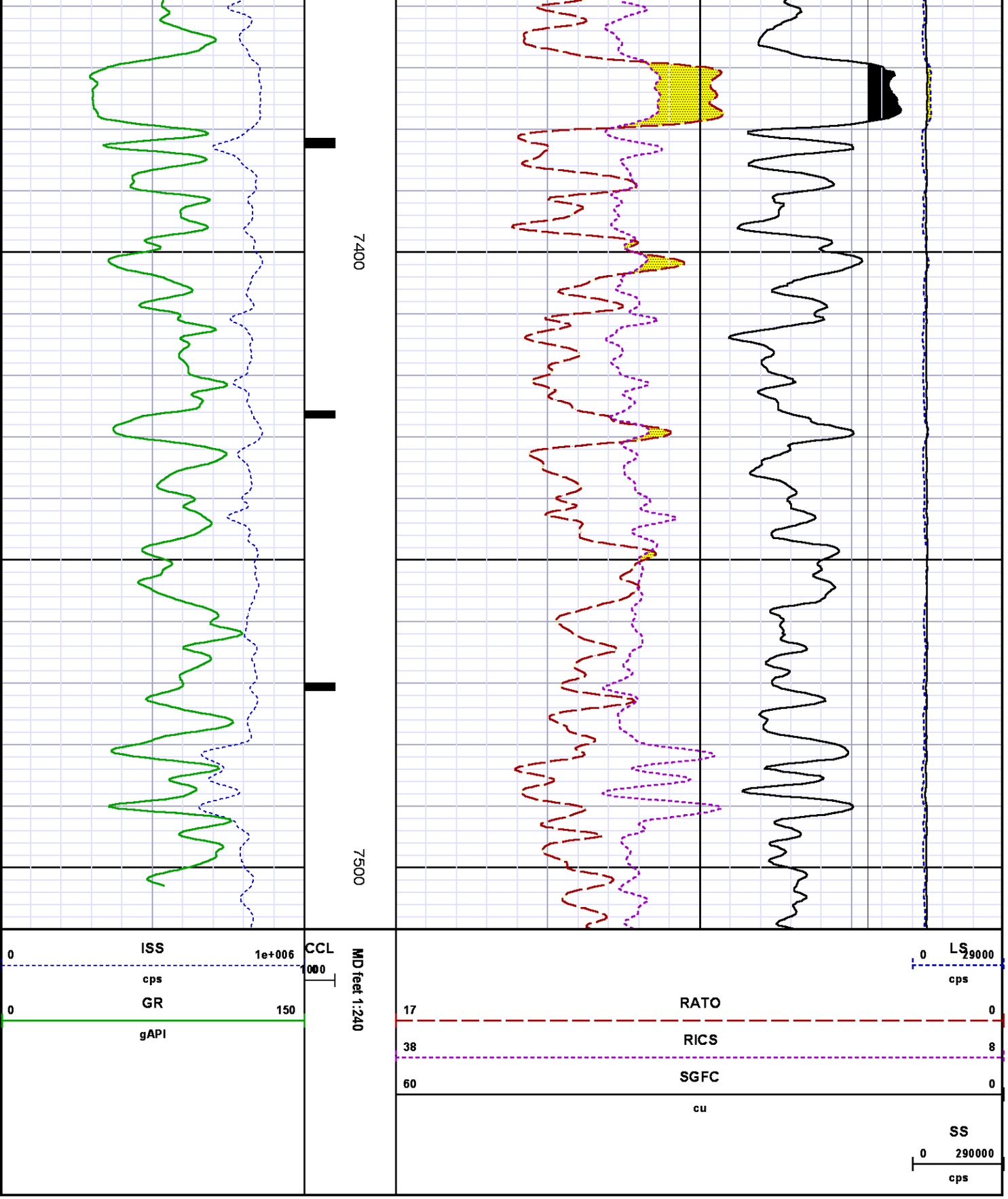




CALIBRATION SUMMARY

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\555J9.cal

PNC 3D CALIBRATION SUMMARY

DATE/TIME PERFORMED: Sat Jun 29 11:15:36 2013 TOOL SERIES: 8281XA ASSET: 555 SEQ: J9

Calibrator #	Source #
SHOP BARREL	8281AA 11765054

	ISS	Mtr Vlts (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	815913	123.00	2318.00	2260.00	2219.00	110.72	7.00	0.9868
Interpolated	1300000	141.64	2300.79	2255.03	2213.14			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	815913	6549.55	1056.56	151.17	25.85	0.14	24.31	0.28
					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	815913	172283.19	26558.95	89565.24	31886.25	8365.85	54216.74	13379.10
Fit Quality %		0.43	0.21	0.63	0.61	0.37	0.59	0.34

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	815913	1.43	4.74	30.72	15.05	10.71	3.81	4.05
		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 %		0.07	0.30	0.35	0.12	0.20	0.20	0.20
Reduced	1390134	1.43	4.76	30.80	15.11	10.70	3.81	4.05
		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

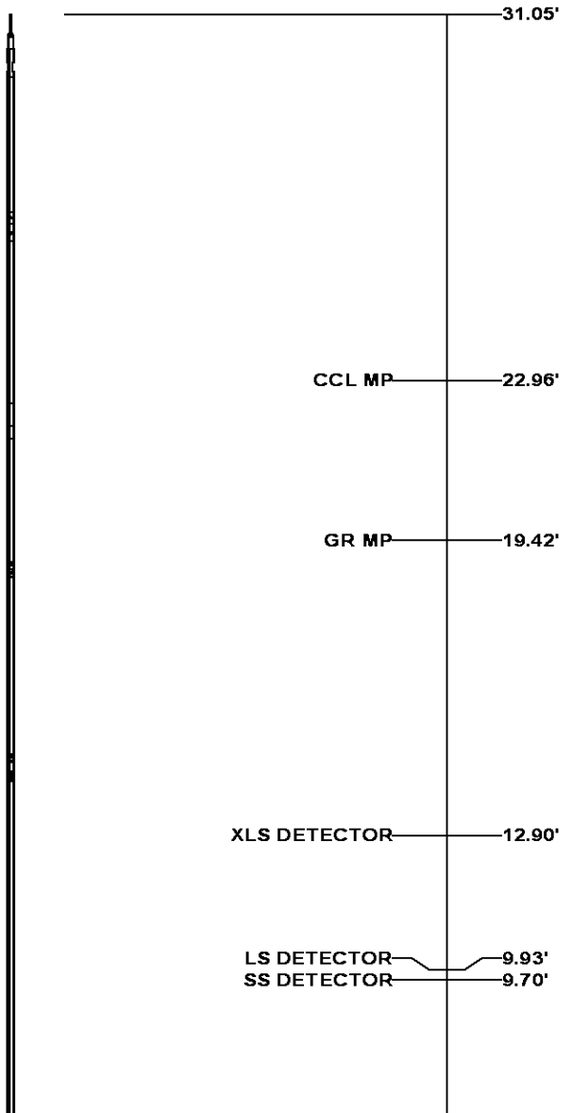
Series	8248EA
Mnemonic	PCM
Diameter	1.70"
Weight	20.00 lb
Length	4.46'
Measure Point	1.00' CCL MP
Temp Rating	350.00 °F
Press Rating	15000.00 PSI

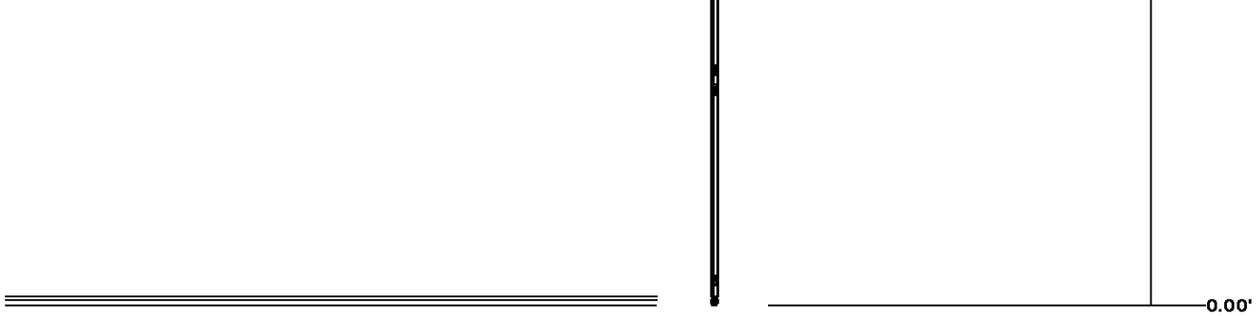
GAMMA RAY

Series	8262XA
Mnemonic	GR
Diameter	1.70"
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 Well: DUGGAN RWF 24-29 Field: RULISON County: GARFIELD State: COLORADO		File No: CH074538 API No: 05045216580000
	Location SHL: 511' FSL X 611' FWL BHL: 294' FSL X 2216' FWL (SESW) SEC 29 TWP 6S RGE 94W	Elevations KB 5441 ft DF GL 5415 ft	29 6S 94W RWF 14-29 PAD NABORS 573