



RESERVOIR PERFORMANCE MONITOR

Baker Atlas

File No: CH070853	Company Well Field County	WPX ENERGY DUGGAN RWF 13-29 RULLISON GARFIELD	State COLORADO
API No: 05045216690000			
29 GS 94W RWF 14-29 NABORS SSD 573	Location SHL: 574' FSL & 572' FWL BHL: 2132' FSL & 723' FWL SEC 29 TWP 6S RGE 94W	Other Services BOND LOG	
Permanent Datum Log Measured From Drill Measured From	G.L. _____ Elevation 5419.2 ft K.B. 26 ft Above P. D. KELLY BUSHING	Elevations KB 5445.2 ft DF GL 5419.2 ft	

Date	20/APR/13	
Run	ONE	
Service Order	533660	
Depth Driller	8135 ft	
Depth Logger	8132 ft	
Bottom Logged Interval	8122 ft	
Top Logged Interval	4210 ft	
Time Started	14:00	
Time Finished	21:00	
Operator Rig Time	7 HRS	
Type of Fluid in Hole	WATER	
Fluid Density	N/A	
Salinity	N/A	
Fluid Level	132 ft	
Logged Cement Top	N/A	
Wellhead Pressure	0 psi	
Maximum Hole Deviation	N/A	
Nominal Logging Speed	10 fpm	
Maximum Recorded Temperature	230 degF	
Reference Log	BAKER HUGHES BOND LOG	
Reference Log Date	19/APR/15	
Equipment No.	6726	ROCK SPRINGS
Recorded By	U. KINSEL	9712
Witnessed By	MR. BOB CADY	GRAND JUNCTION

- 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	1137 ft
8.75 In	0 ft	8198 ft

Casing Record				
Size	Weight	Grade	From	To
9.625 In	N/A	N/A	0 ft	1100 ft
4.5 In	11.6 lbm/ft	1-80	0 ft	8135 ft

Remarks
ALL DATA IN THIS LOG WAS DEPTH SHIFTED TO MATCH A BAKER HUGHES BOND LOG DATED 19 APRIL 2013 AT THE CLIENT'S REQUEST. THE AMOUNT OF LINEAR SHIFT WAS 11 FEET DOWN. DEPTH SHIFTING PROCESS CREATES THE POTENTIAL FOR COLLAR LENGTHS TO VARY FROM OTHER CASED HOLE LOGS WITHOUT A GAMMA RAY REFERENCE. SHORT JOINT: 4890' - 4910' BHT: 230 degF

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	RPM	8281FA	10460082	FREE
1	1	RPM	8281PA	10466231	FREE
1	1	RPM	8281EA	10190984	FREE
1	1	GAMMA RAY	8262XA	10485470	FREE
1	1	TEL/CCL	8248EA	10460262	FREE
1	1	PCM	8250EA	10586851	FREE

MAIN LOG
PNC 3D MODE

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		4186.000	8127.758
PNC Porosity	Borehole Size	8.750	inch	4186.000	8127.758
PNC Porosity	Casing Size	4.500	inch	4186.000	8127.758
PNC Porosity	Gas Filled	Non Gas Filled		4186.000	8127.758
PNC Porosity	Matrix	Sandstone		4186.000	8127.758

DEPTH OFFSETS
(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
8248EA	-15.320	FLTM					
8248EA	-13.320	CCL	CHV				
8262XA	-10.189	GR					
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
		WDT3	WET3	WFT3	WGO3	WGV3	DAT007

		AMB3	AMF3	CHF3	IXSC	IXSN	RAT023
		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	RTW023	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	RAT0	RAT013
		RBOR	RGN1	RICS	RIN	RONE	RPOR
		RTW0	RIN13	RONE13	RTW013	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	HOC	FE2XC	ISSC	RINC
		ISSN	RDEN	WDTH1	RICSC	CSSR	G1R
		G2R	ISSR	SSR	SS2R	RATOR	RAT013R
		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

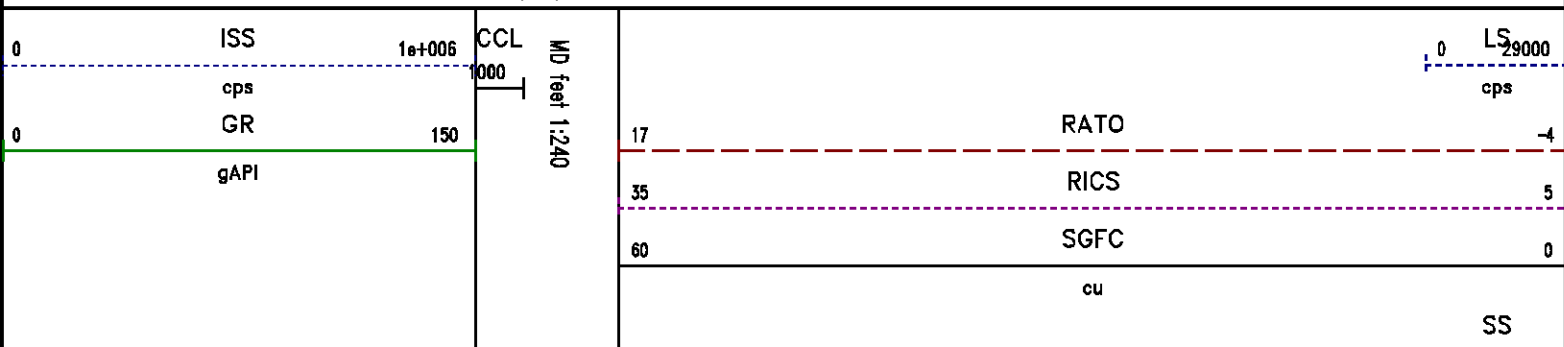
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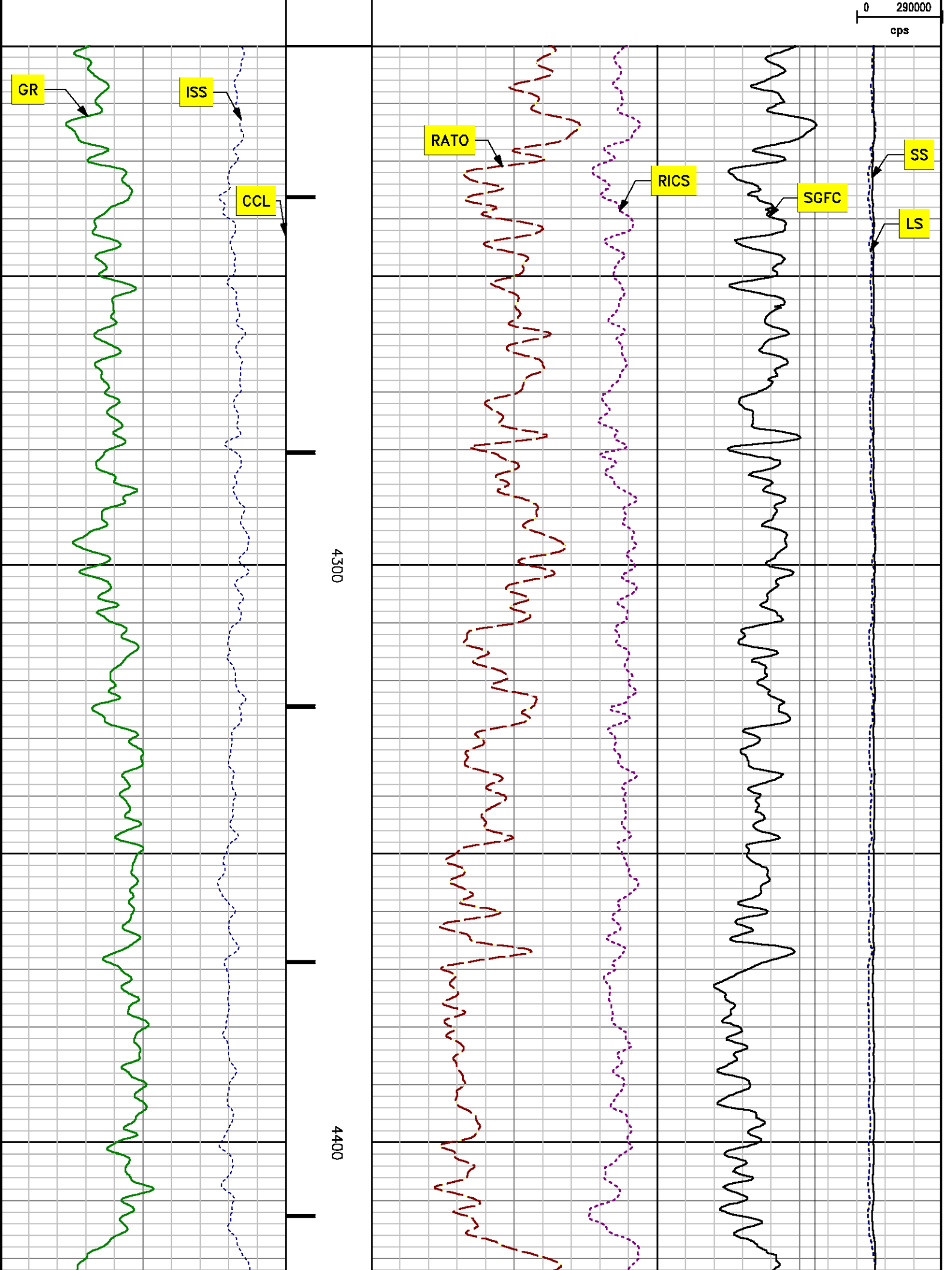
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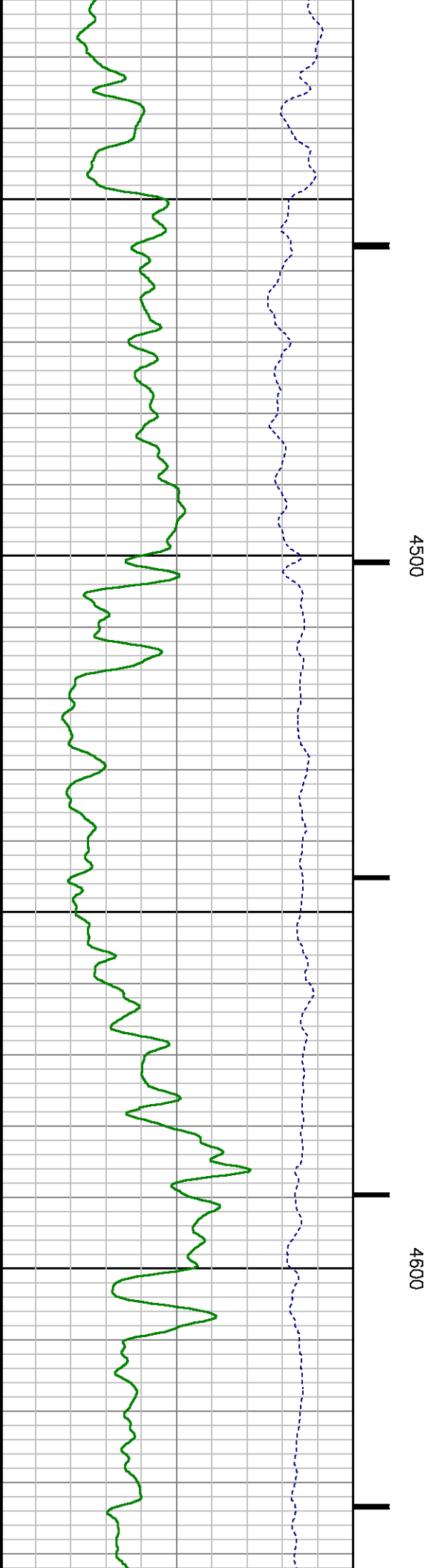
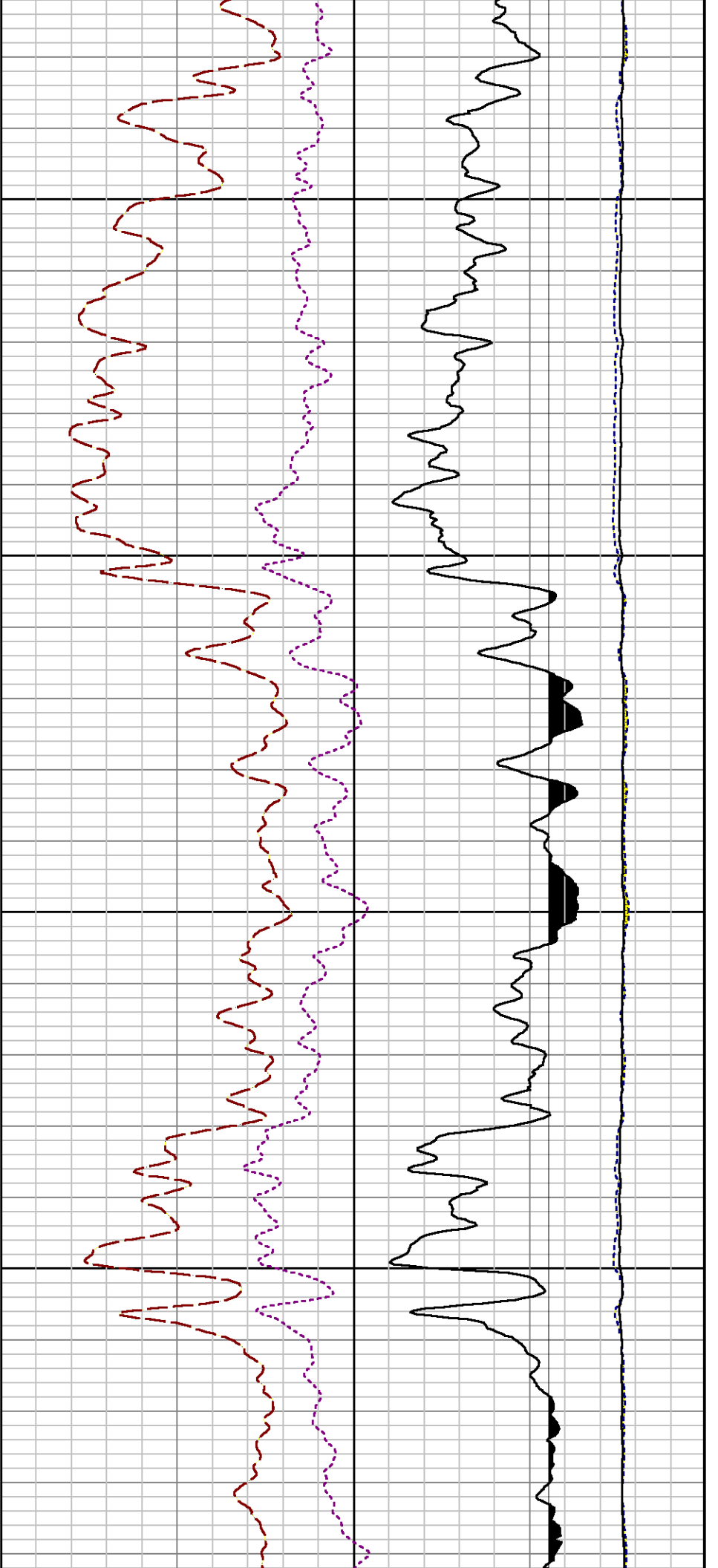
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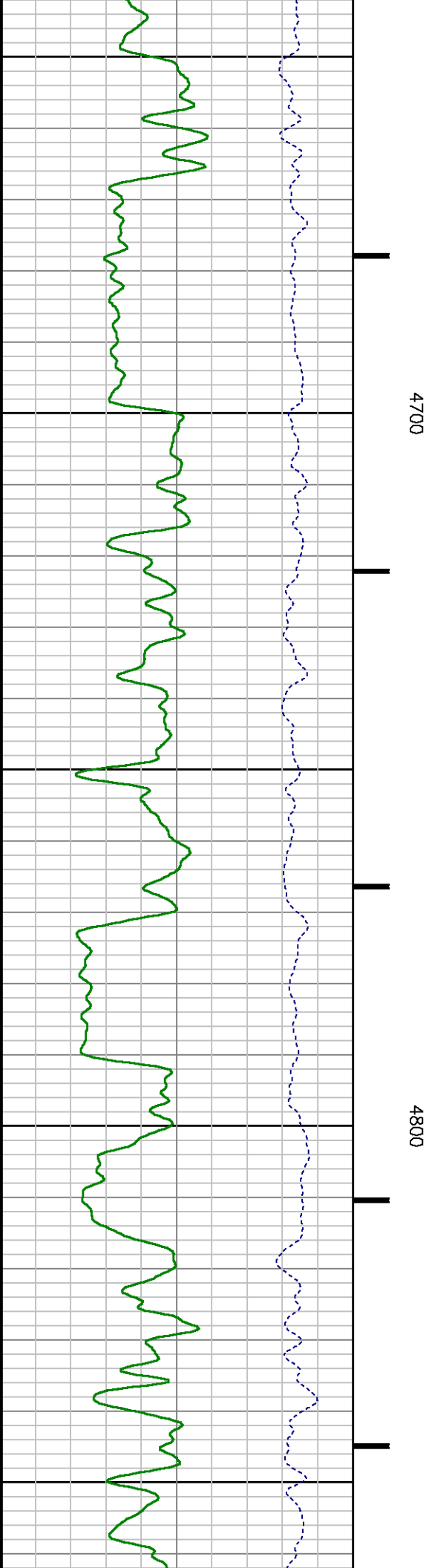
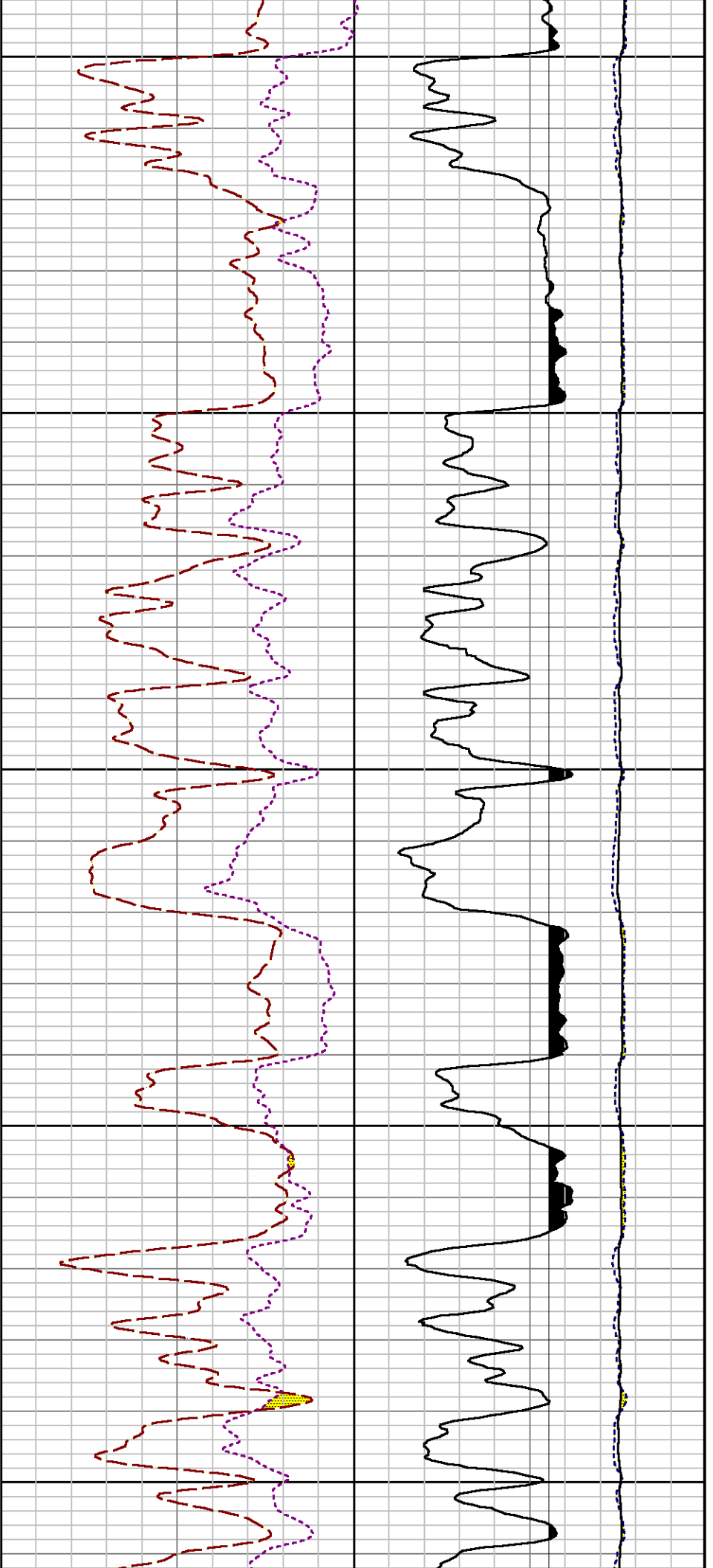
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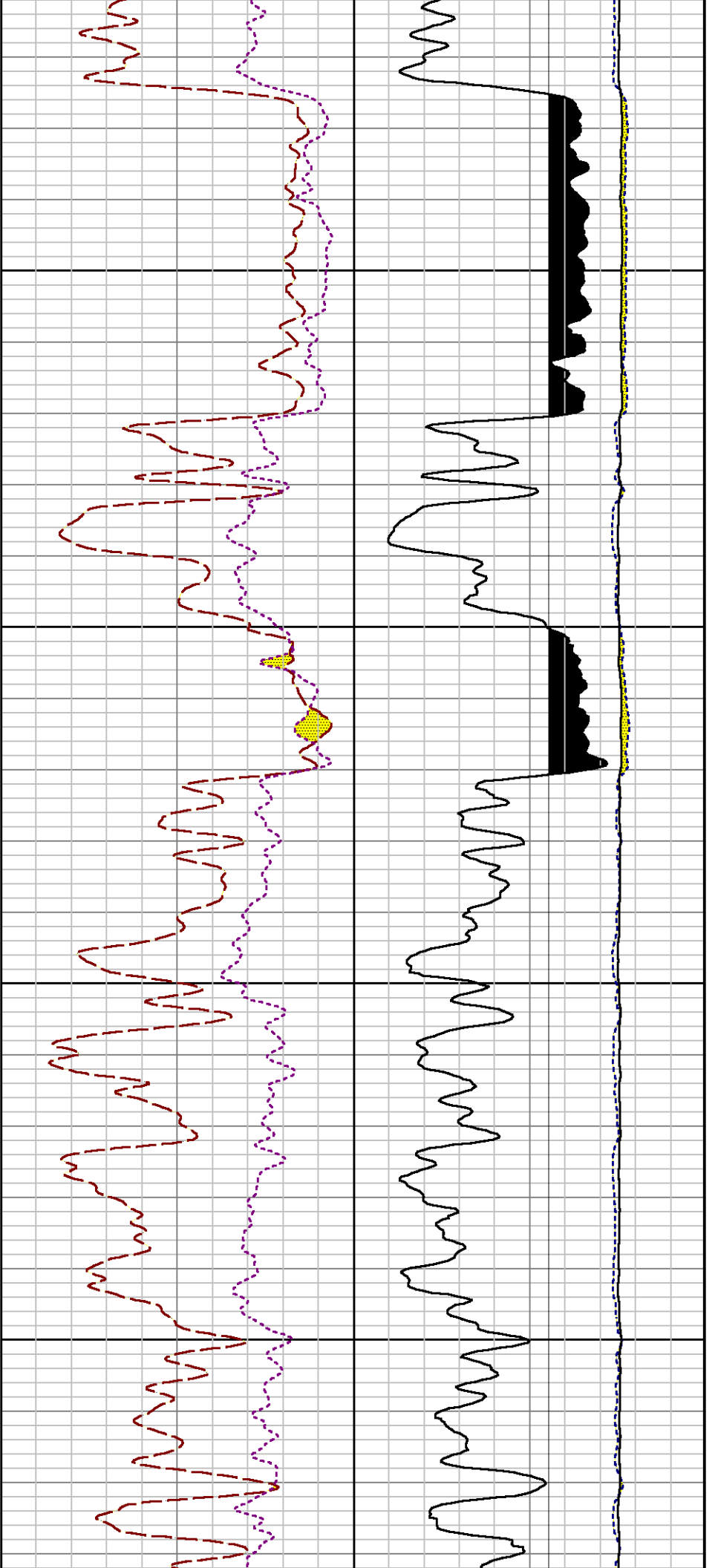
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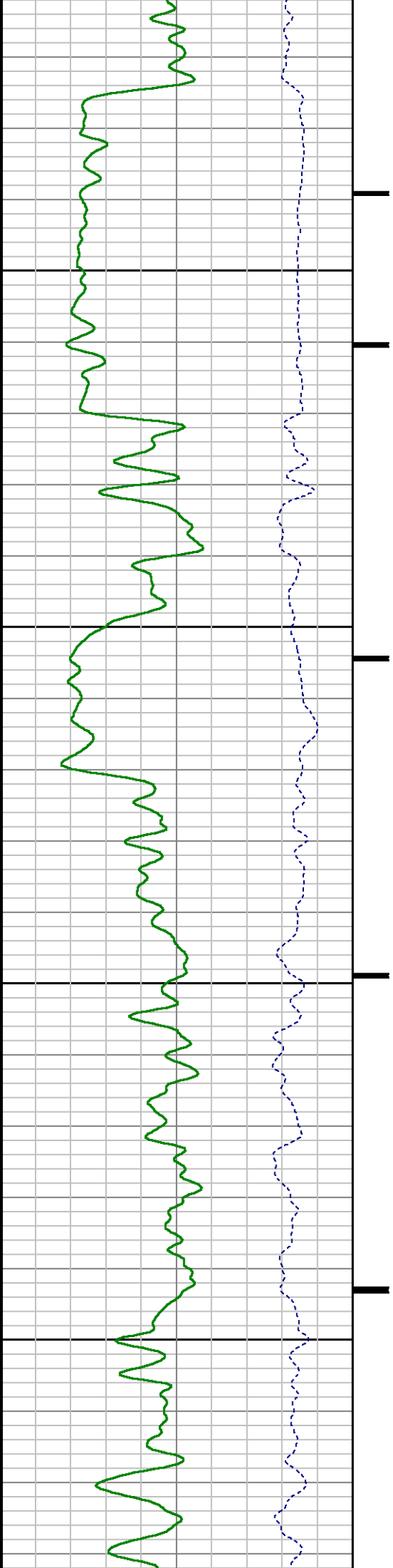


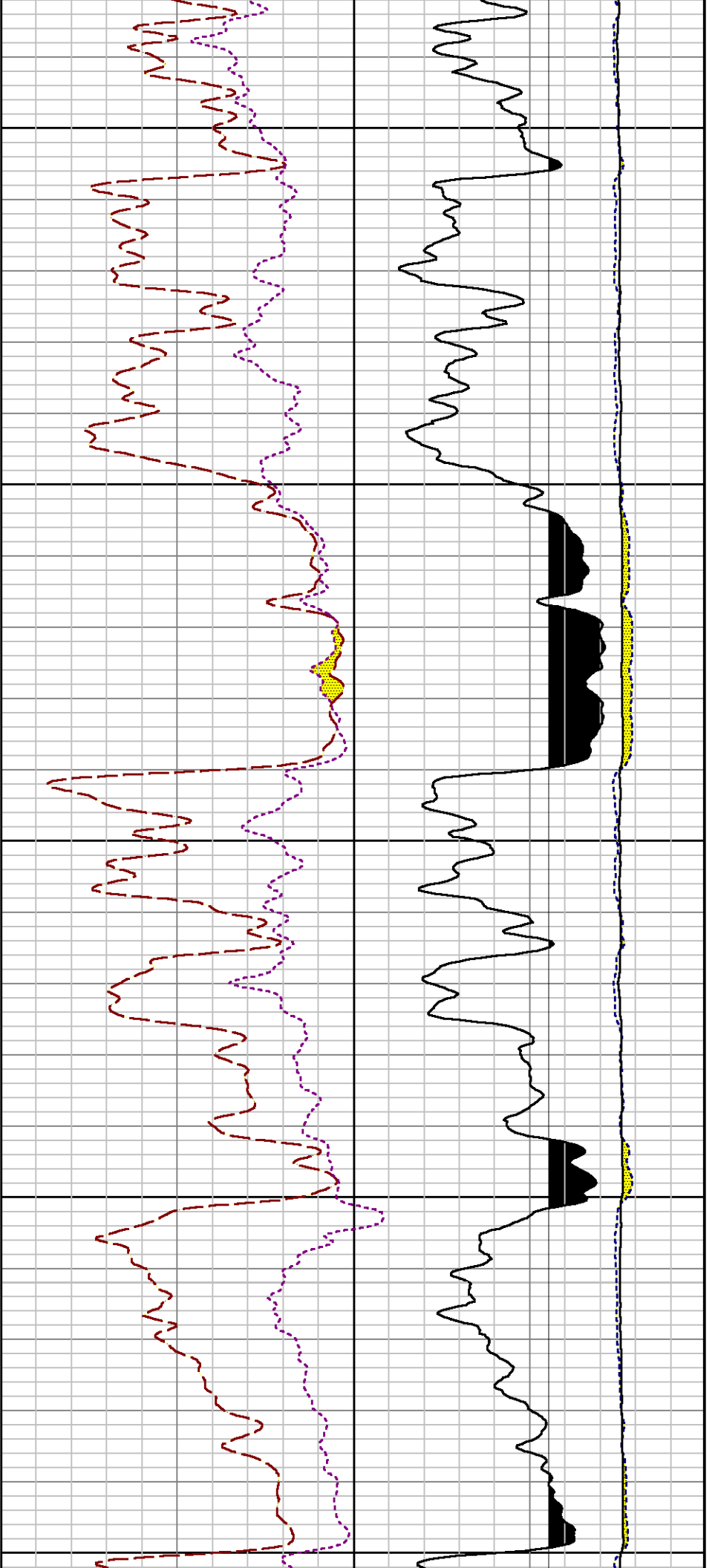




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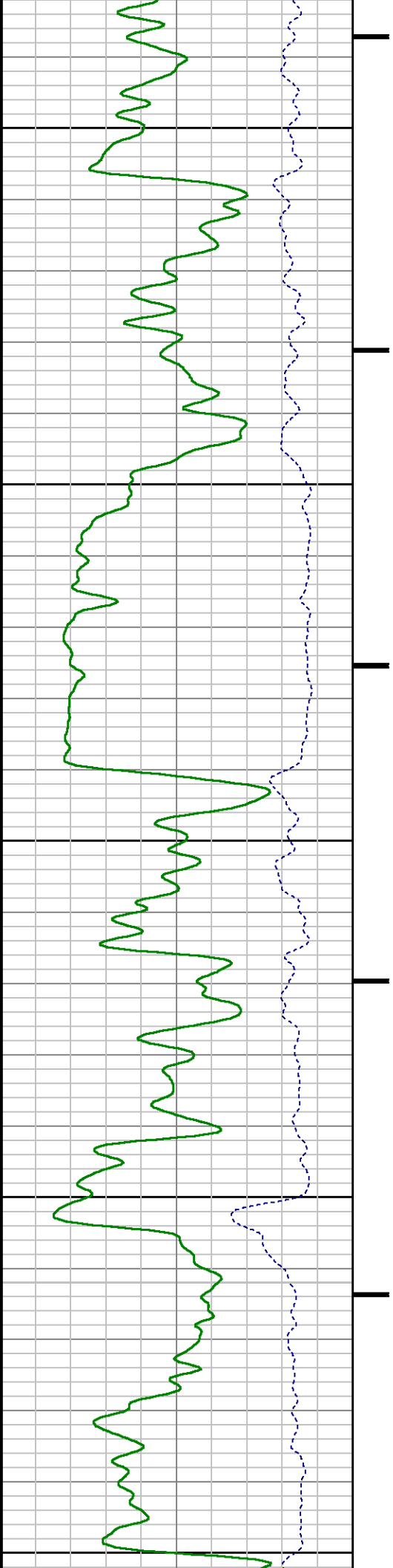


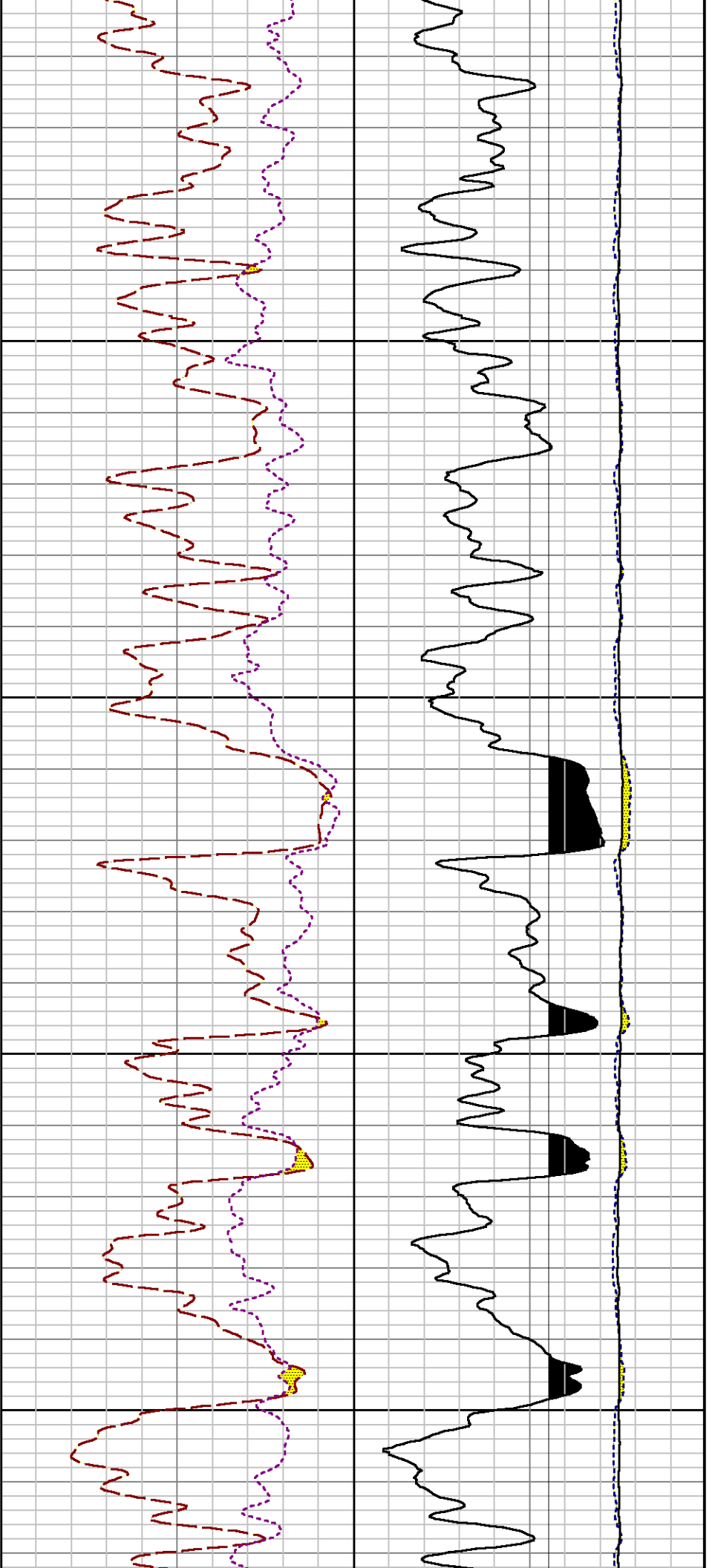


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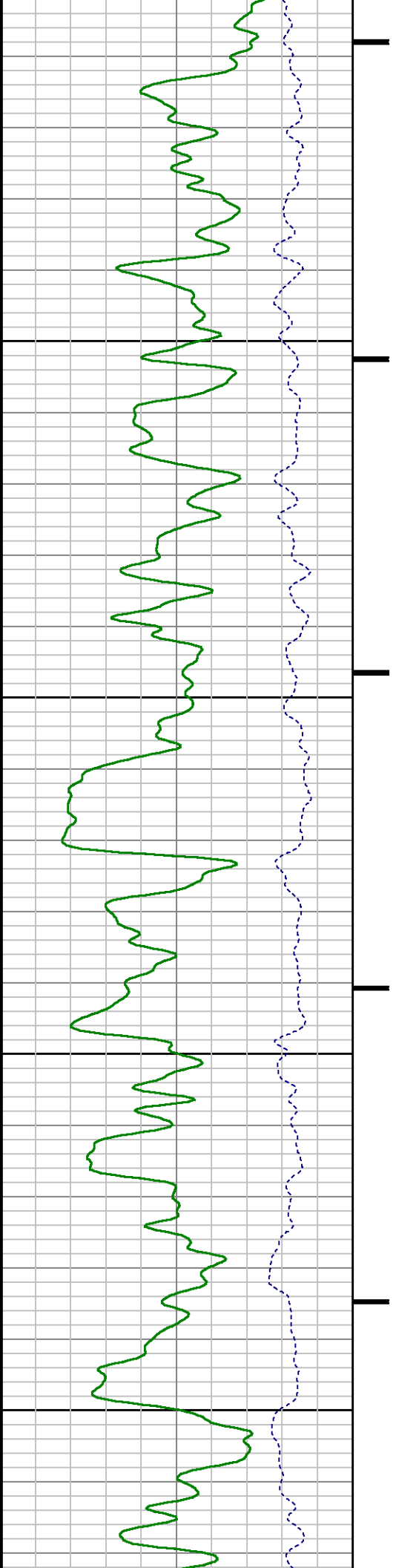
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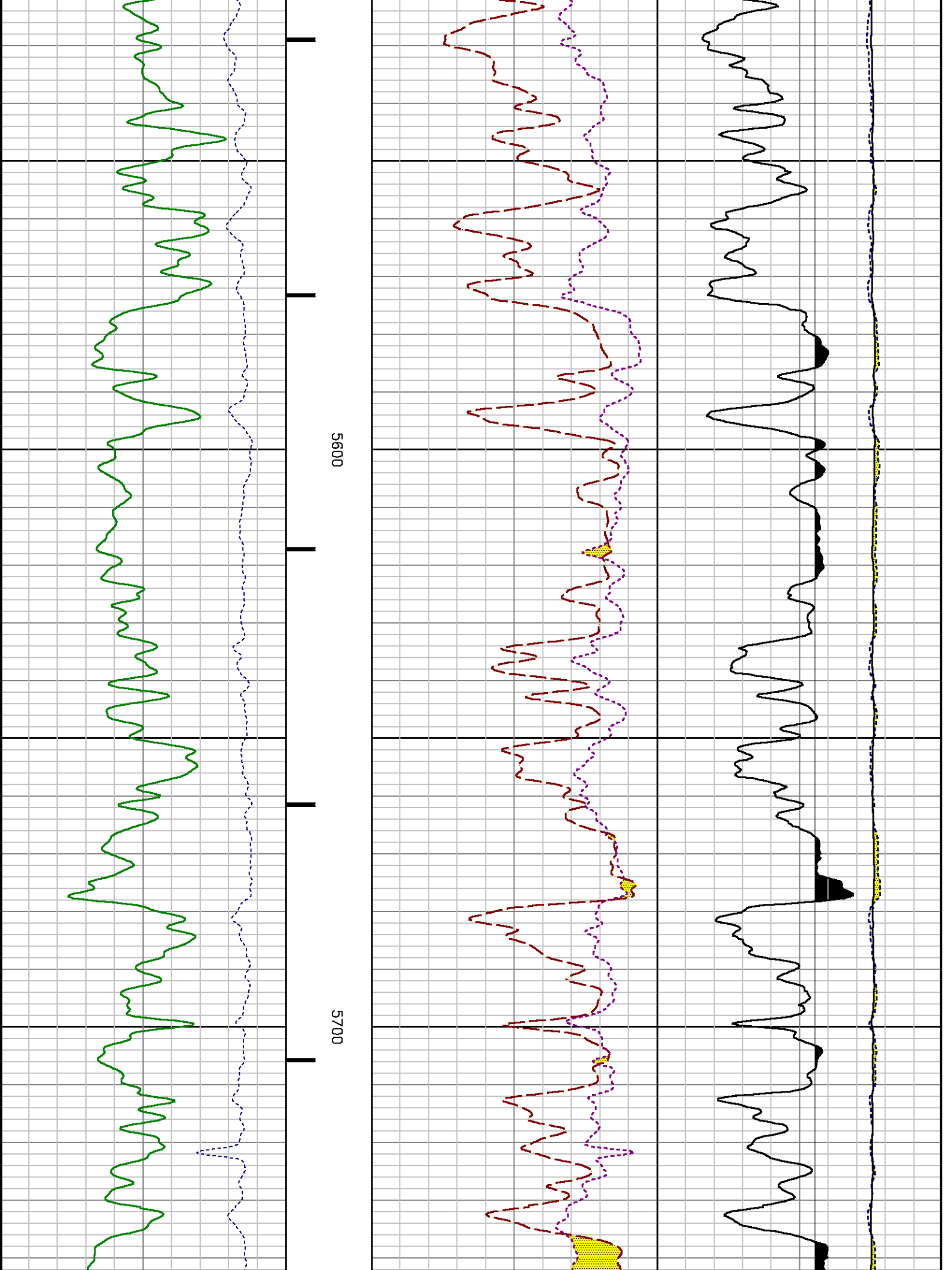


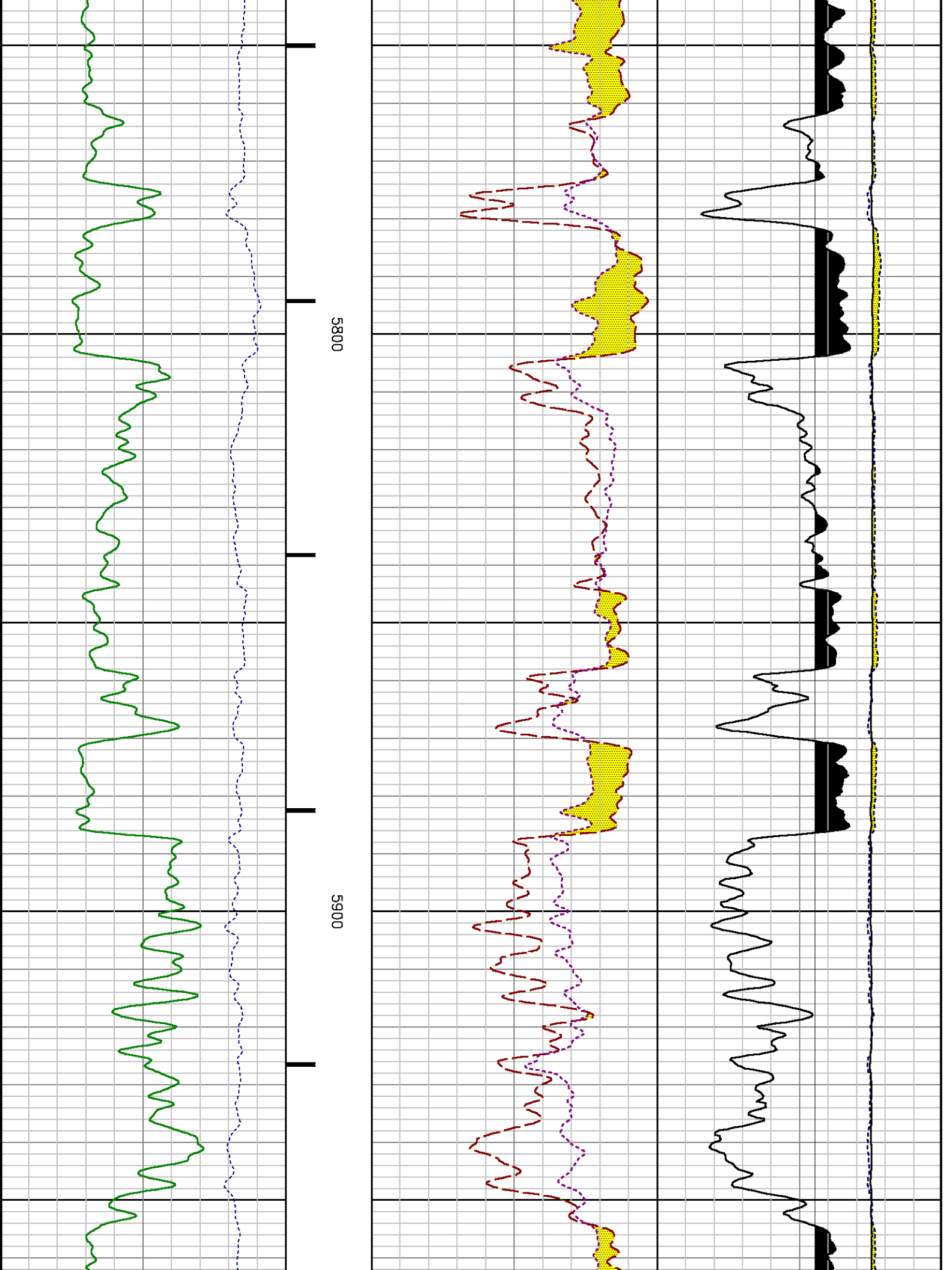


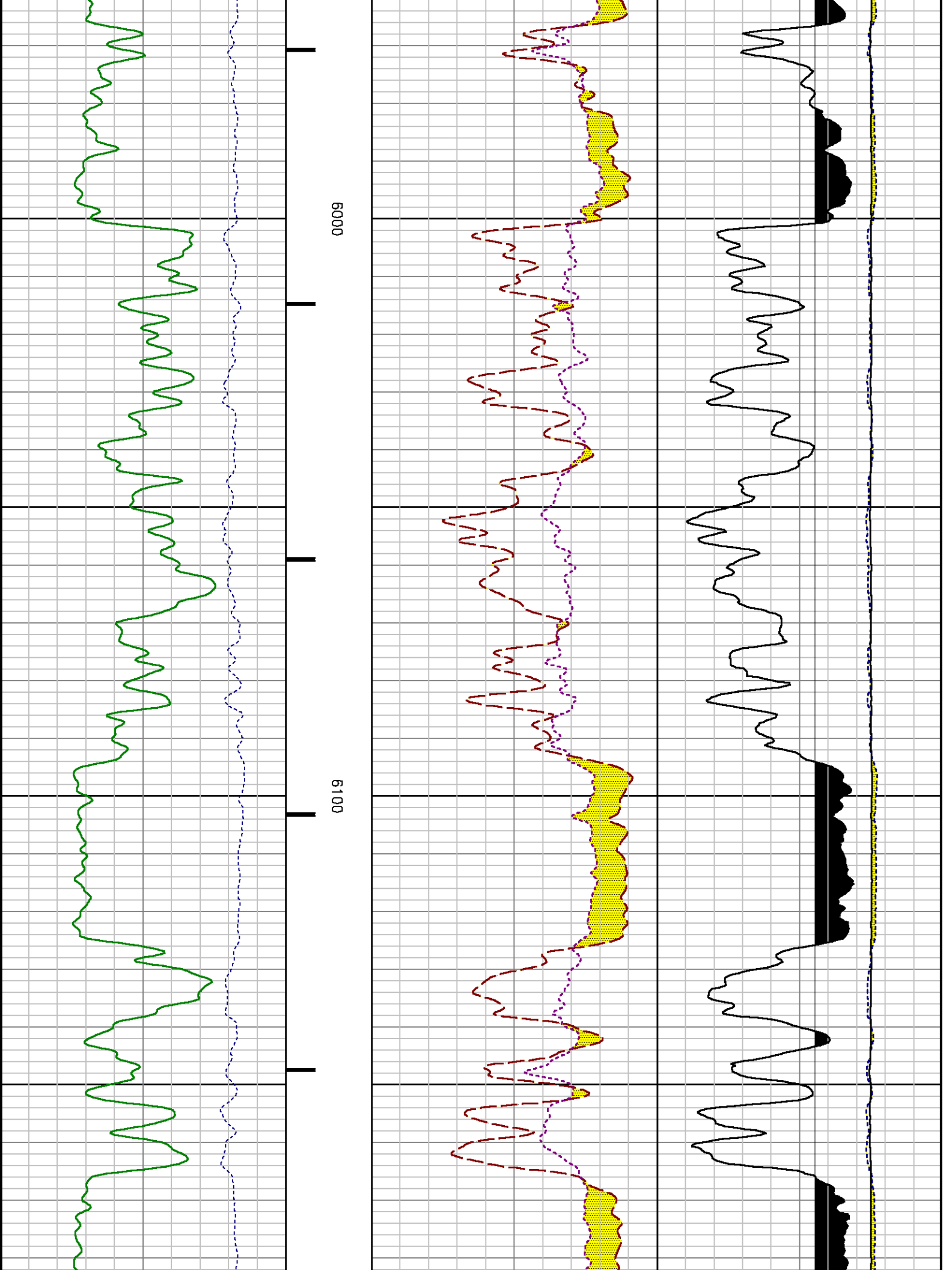
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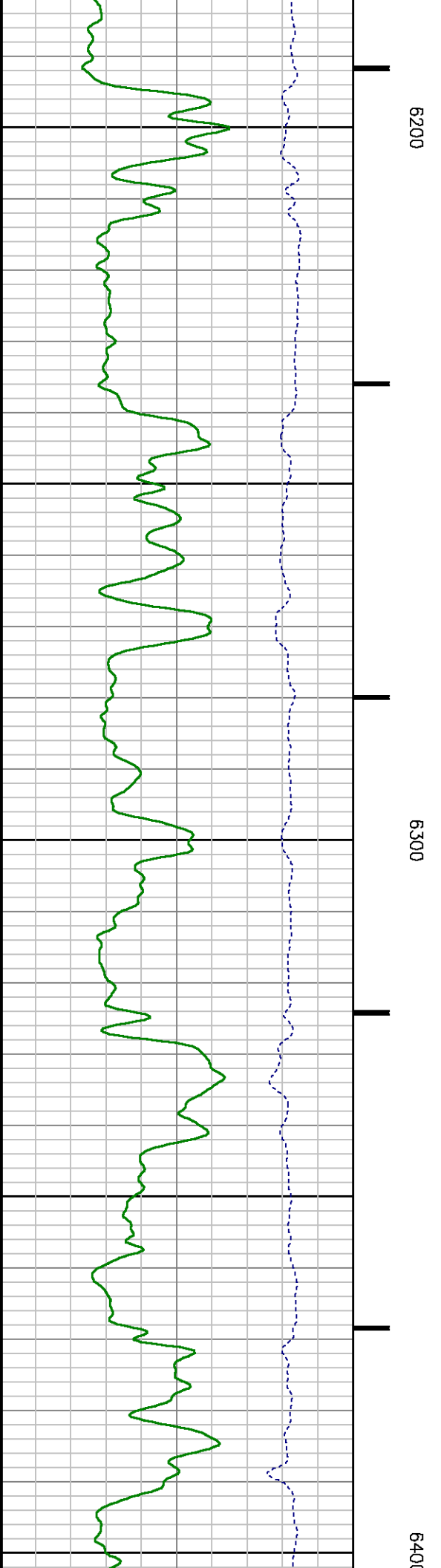
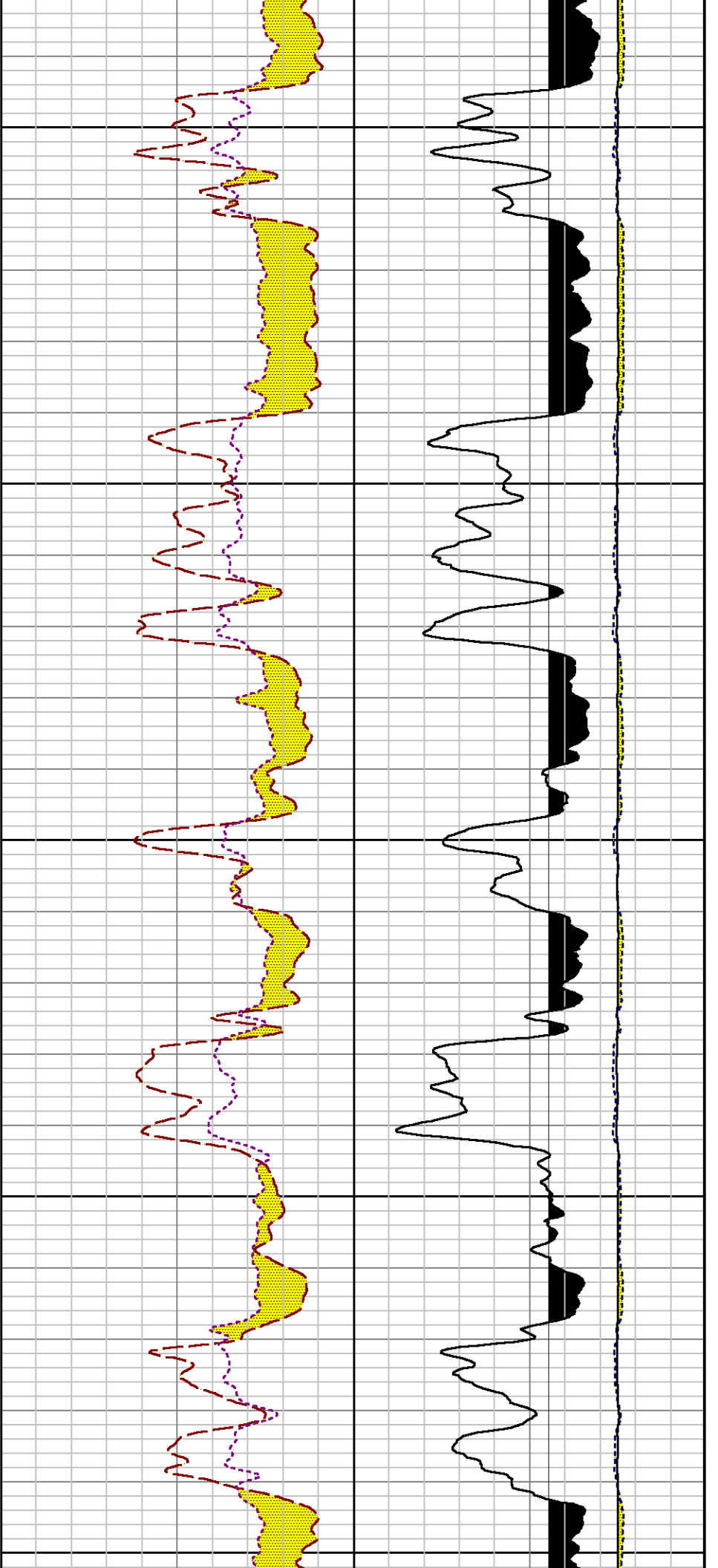
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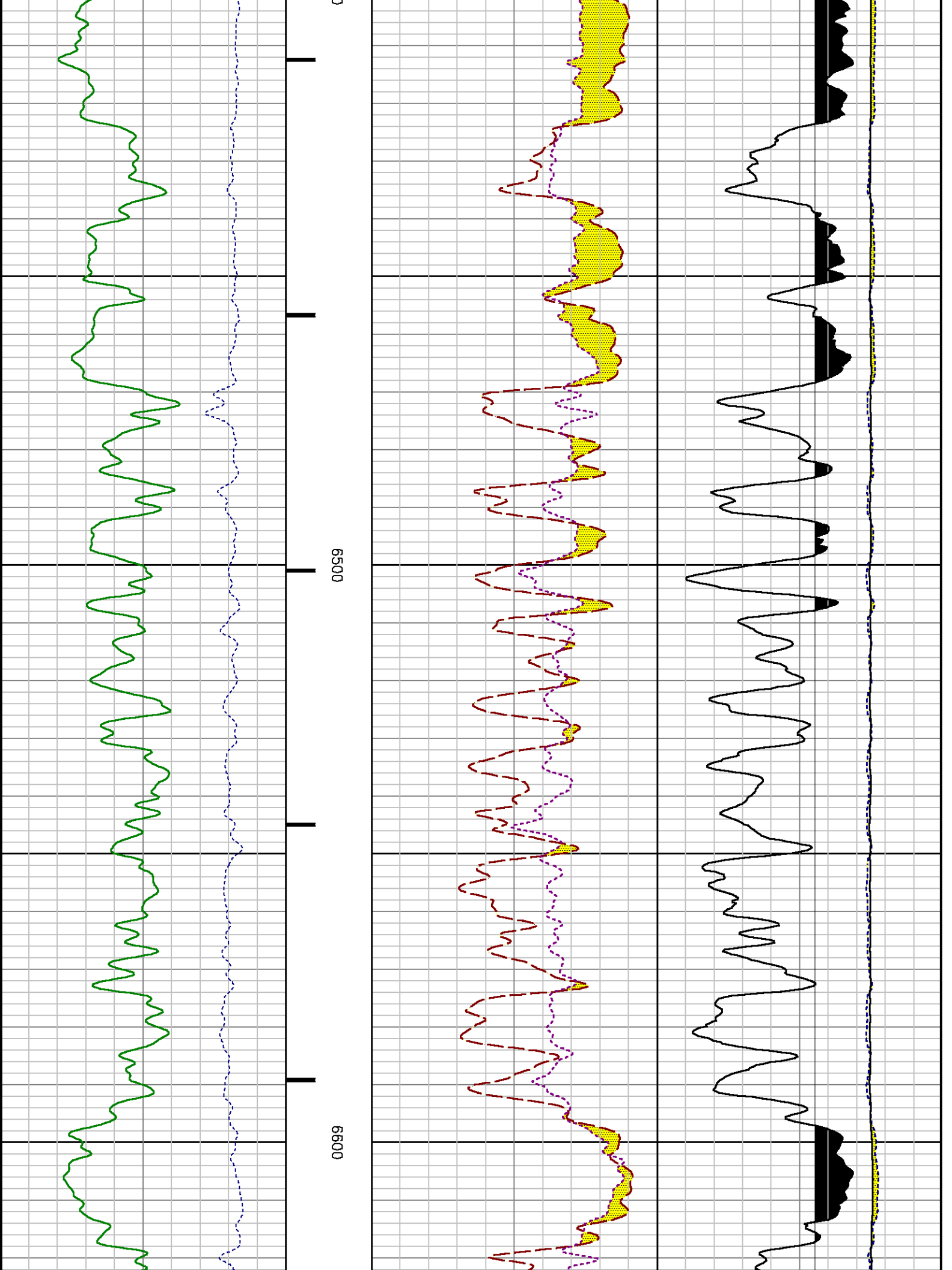


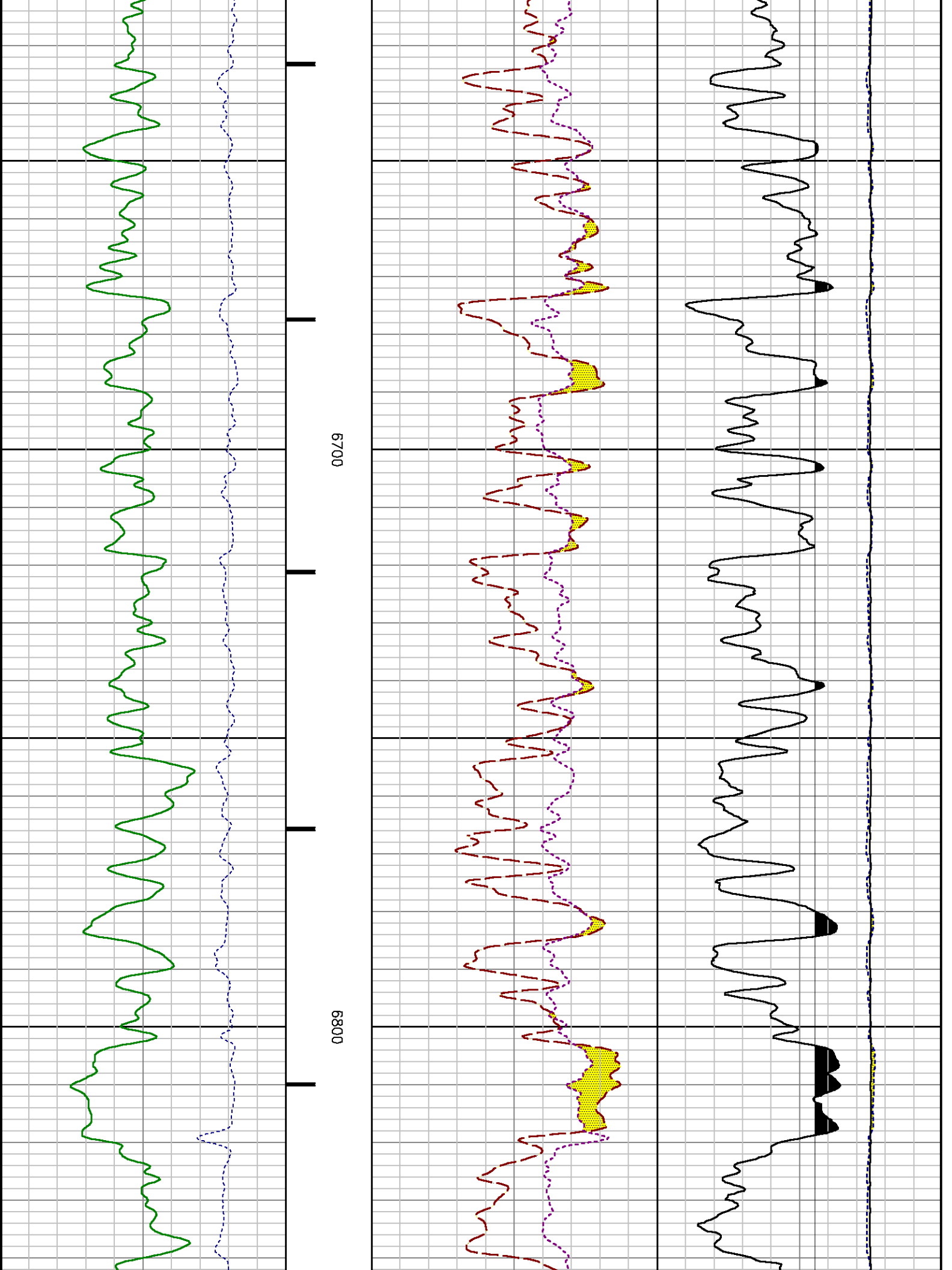


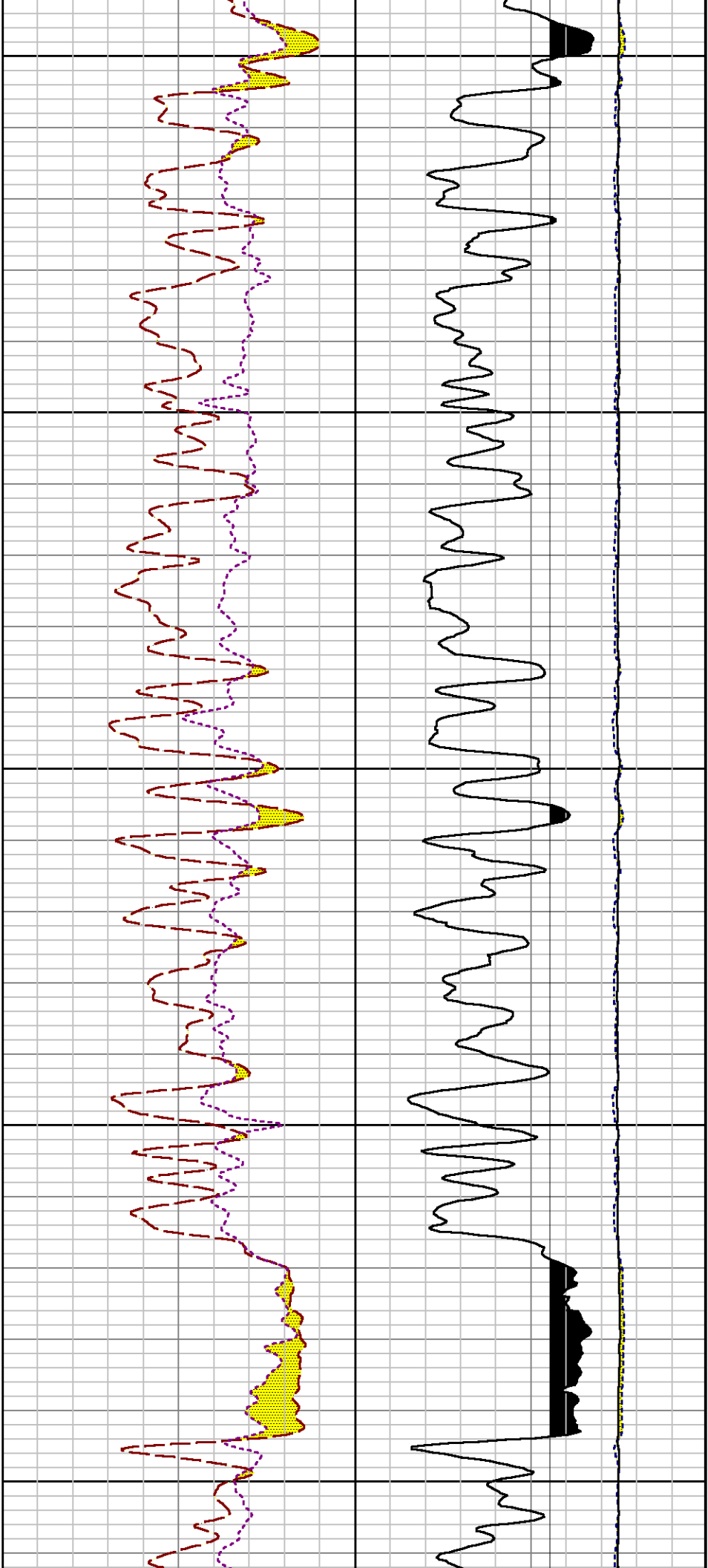






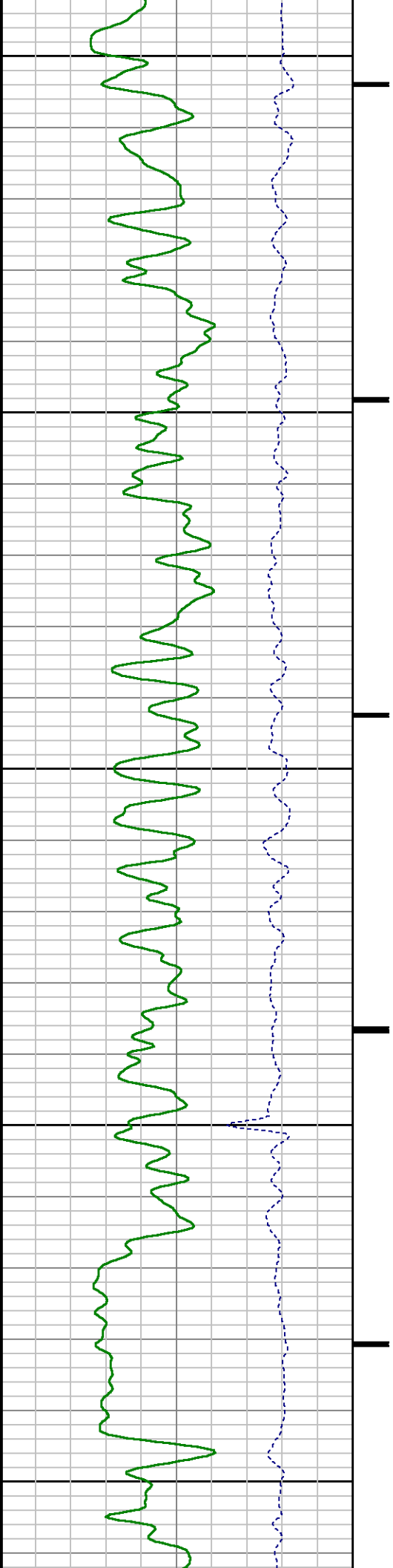


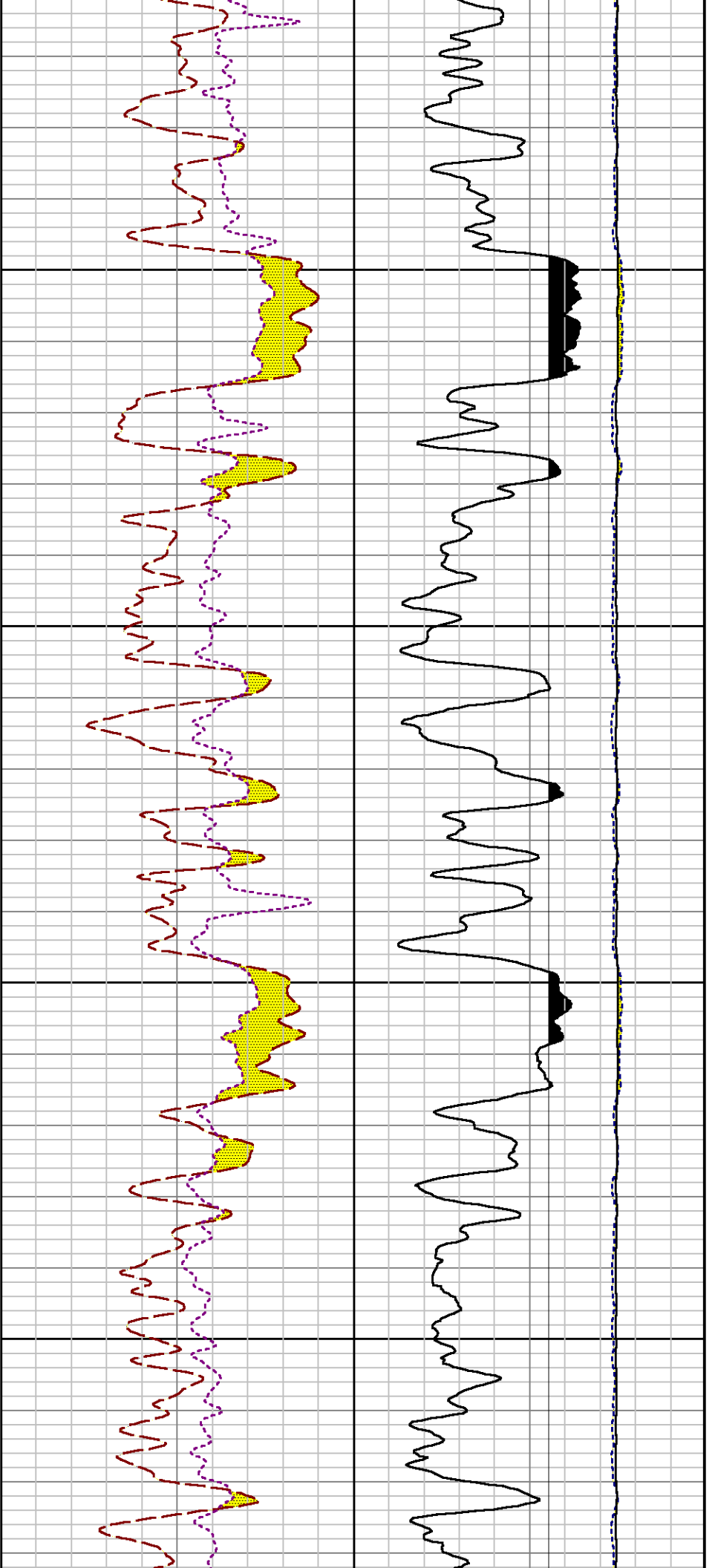




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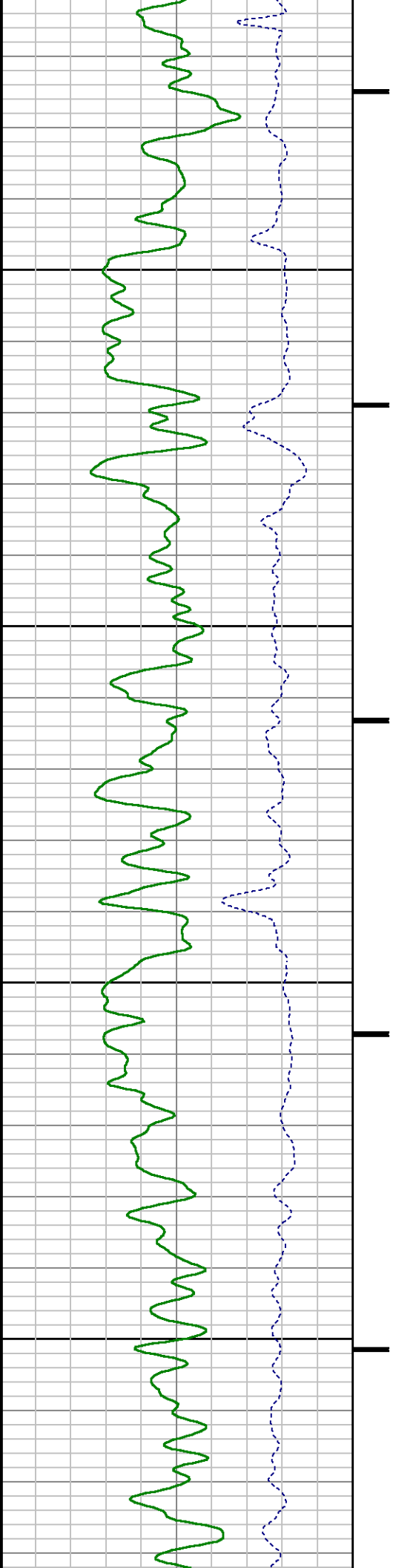
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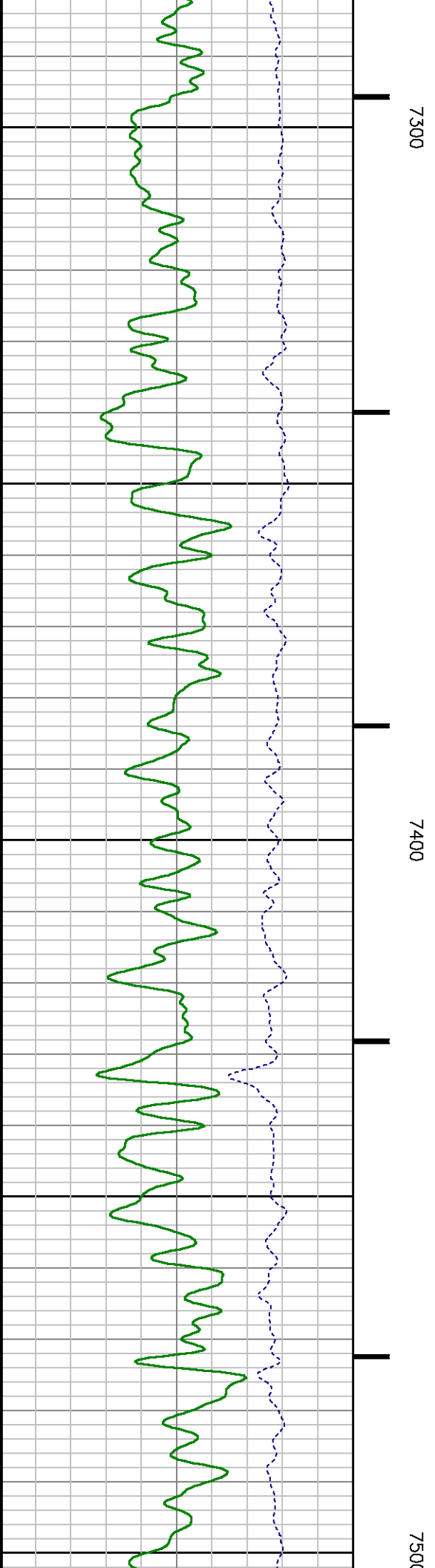
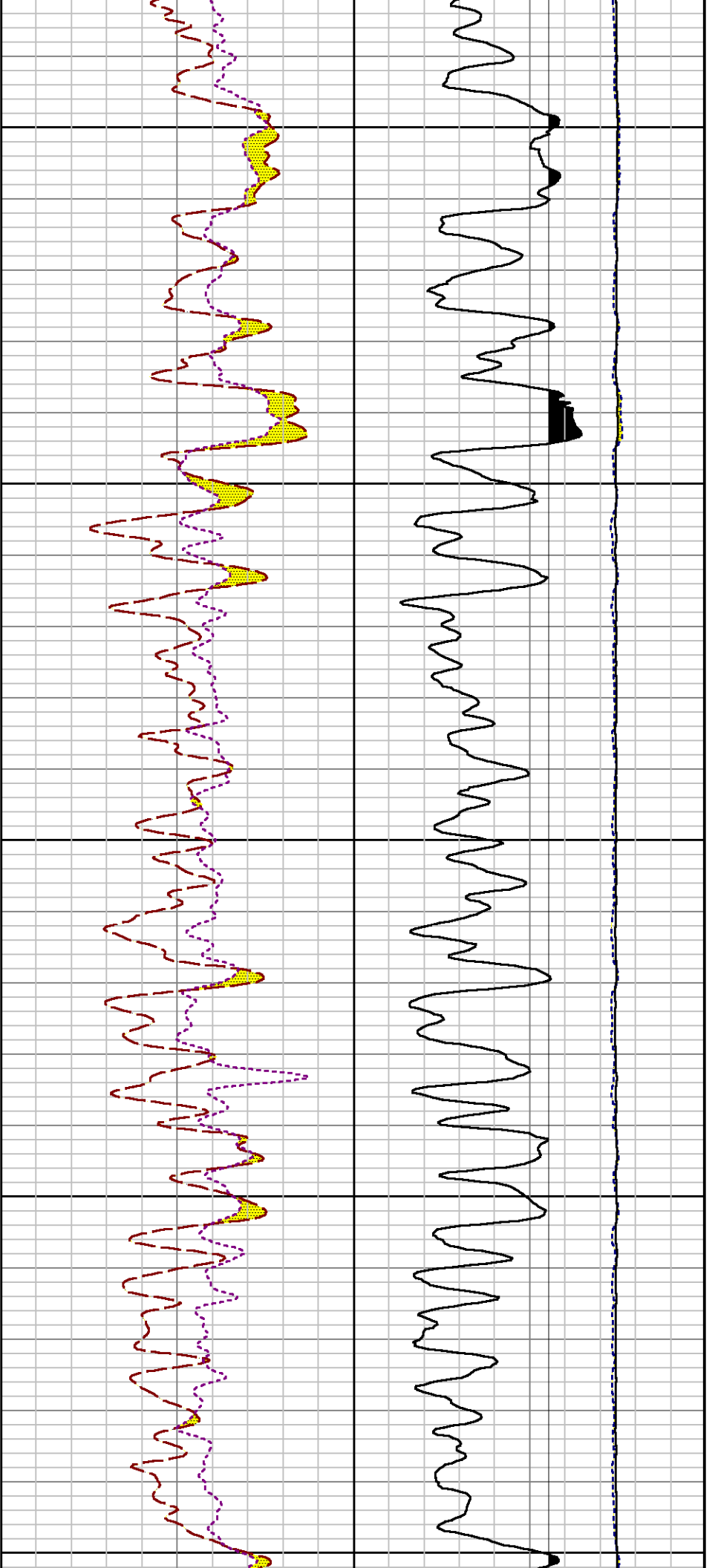


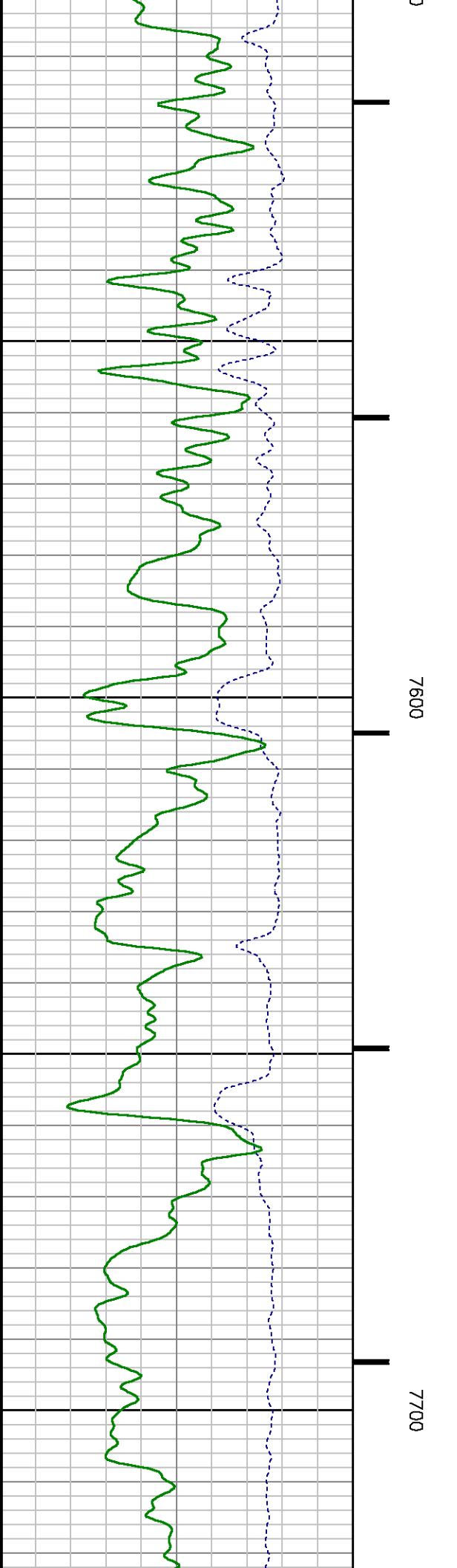
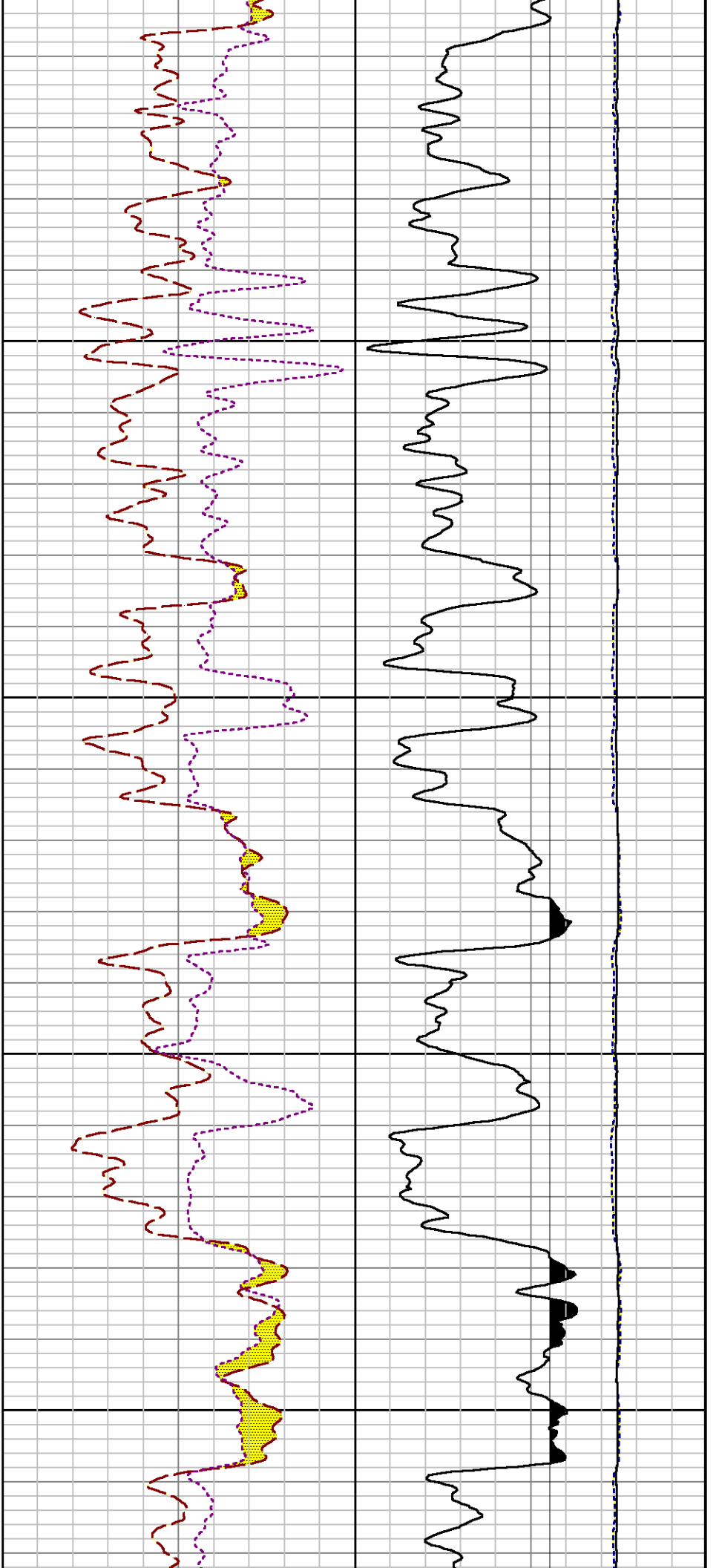


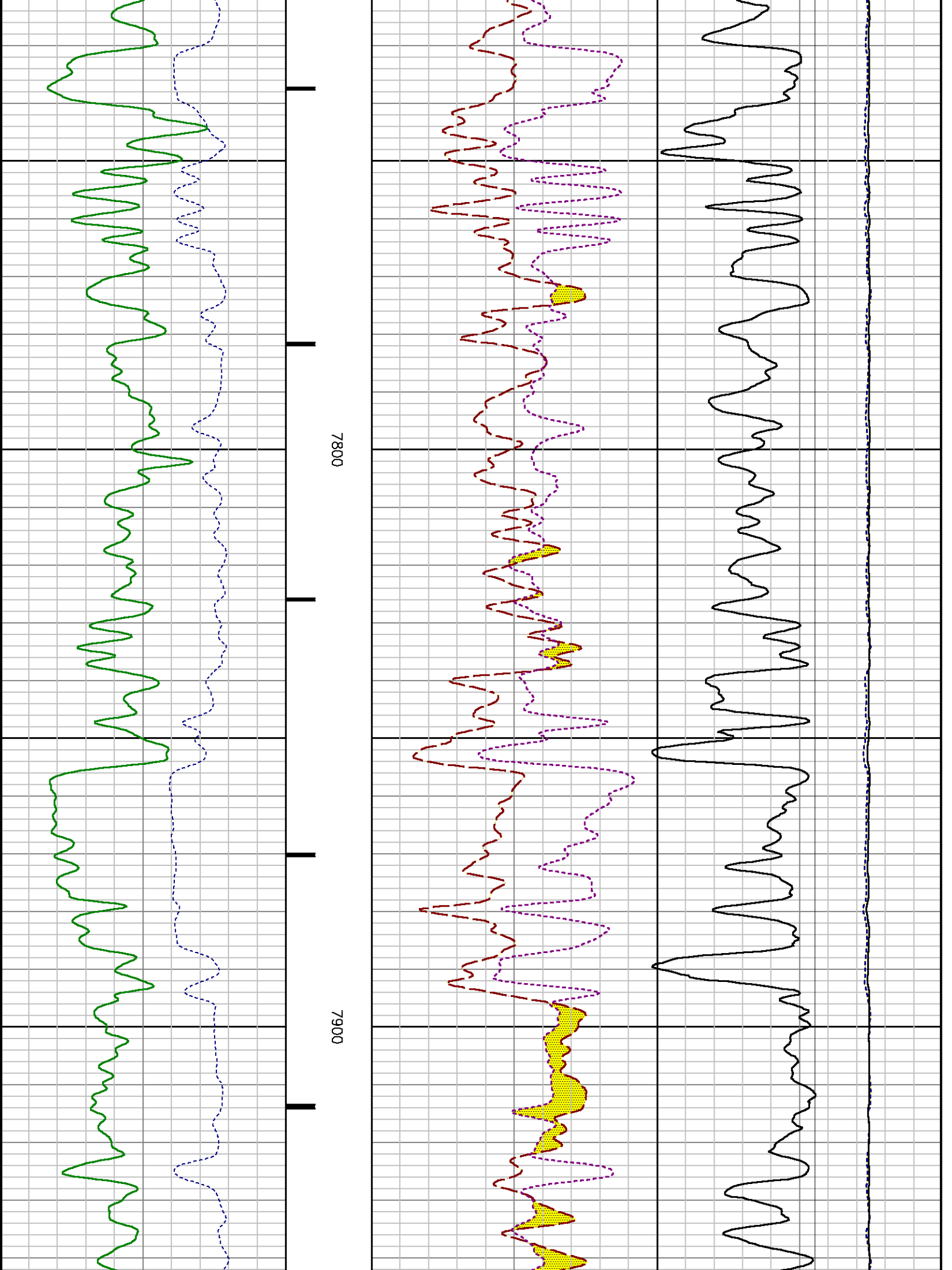
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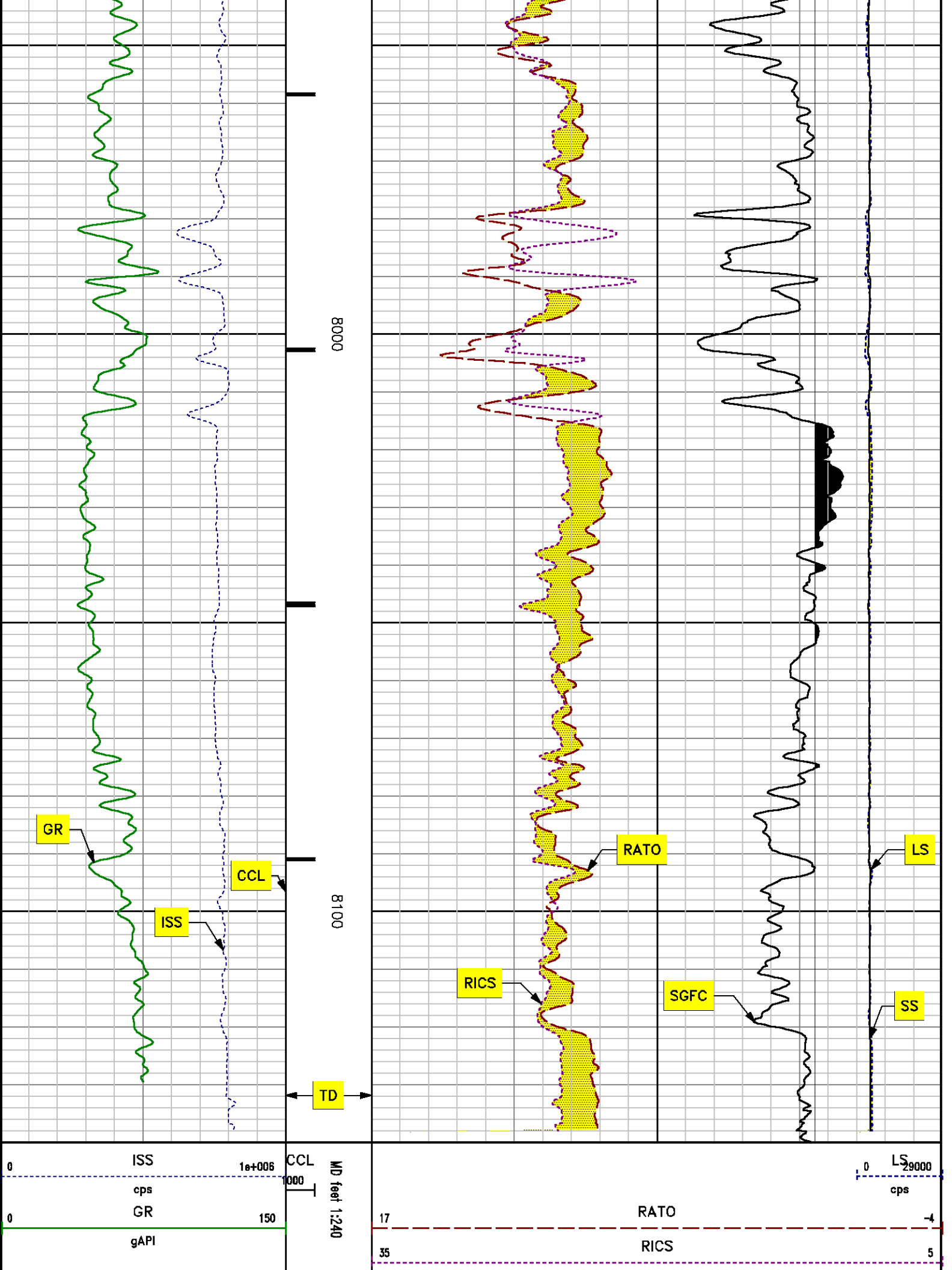


Diagram of a SGFC (Signal Generation and Frequency Control) block. The block is labeled "SGFC" at the top. It has two inputs: "cu" (Control Unit) and "SS" (Signal Source). The output is labeled "cps" (Counts Per Second). The diagram shows a signal path from the inputs through a series of components, including a counter and a frequency divider, to the output.

REPEAT LOG
PNC 3D MODE

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		7249.750	7589.625
PNC Porosity	Borehole Size	8.750	inch	7249.750	7589.625
PNC Porosity	Casing Size	4.500	inch	7249.750	7589.625
PNC Porosity	Gas Filled	Non Gas Filled		7249.750	7589.625
PNC Porosity	Matrix	Sandstone		7249.750	7589.625

DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
8248EA	-15.320	FLTM					
8248EA	-13.320	CCL	CHV				
8262XA	-10.189	GR					
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	RAT023
		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	RTW023	SDA2
		SDL2	SGA2	SGB2	SGF2	SGK2	SGI2

8281XA

0.000

STA2	ASPEC2	ILSC	ILSN	WDTH2	RICLC
CLSR	ILSR	LSR	RICLR		
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	RAT0	RAT013
RBOR	RGN1	RICS	RIN	RONE	RPOR
RTW0	RIN13	RONE13	RTW013	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	HOC	FE2XC	ISSC	RINC
ISSN	RDEN	WDTH1	RICSC	CSSR	G1R
G2R	ISSR	SSR	SS2R	RATOR	RAT013R
RBORR	RICSR	RINR	RIN13R	RONER	RPORR
RTWOR					
TEN	TEN				

SYSTEM

0.000

Created by : RPM9, v5.3.1.0

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

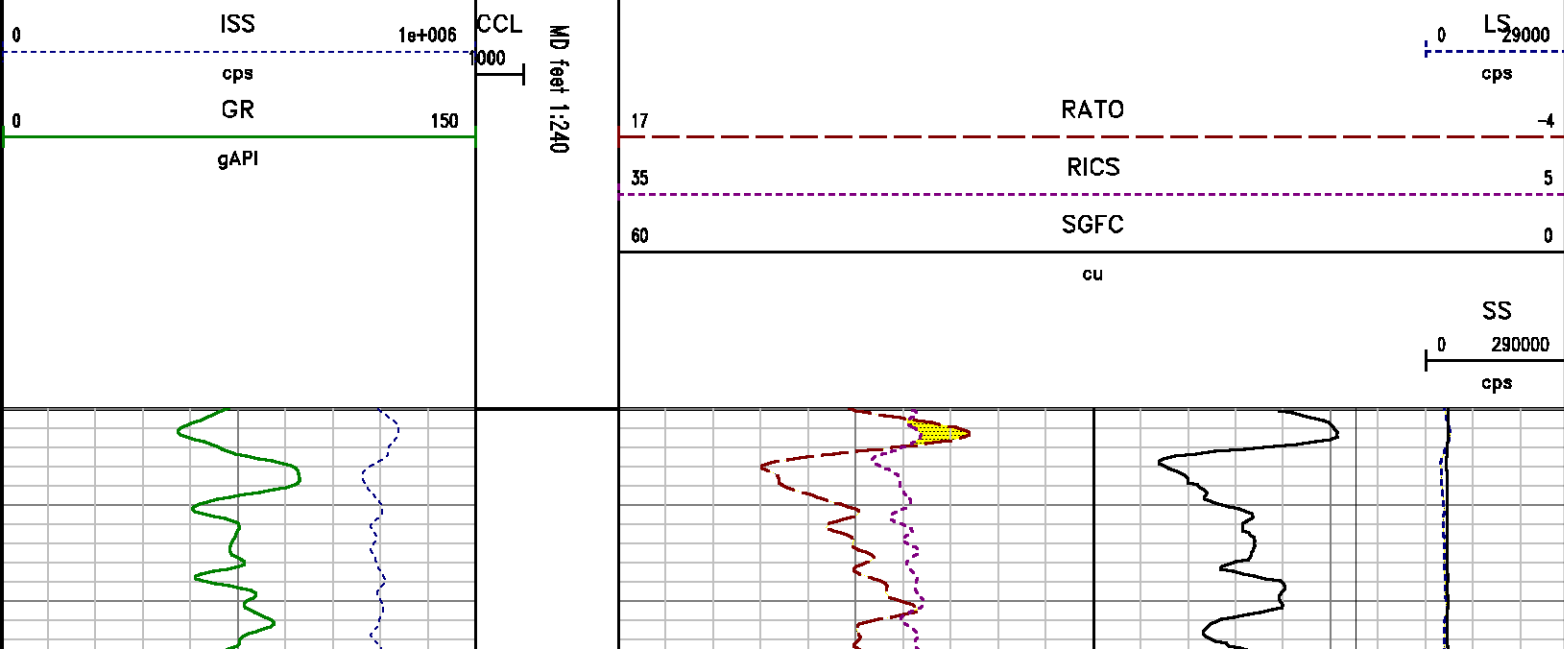
Well : DUGGAN RWF 13-29

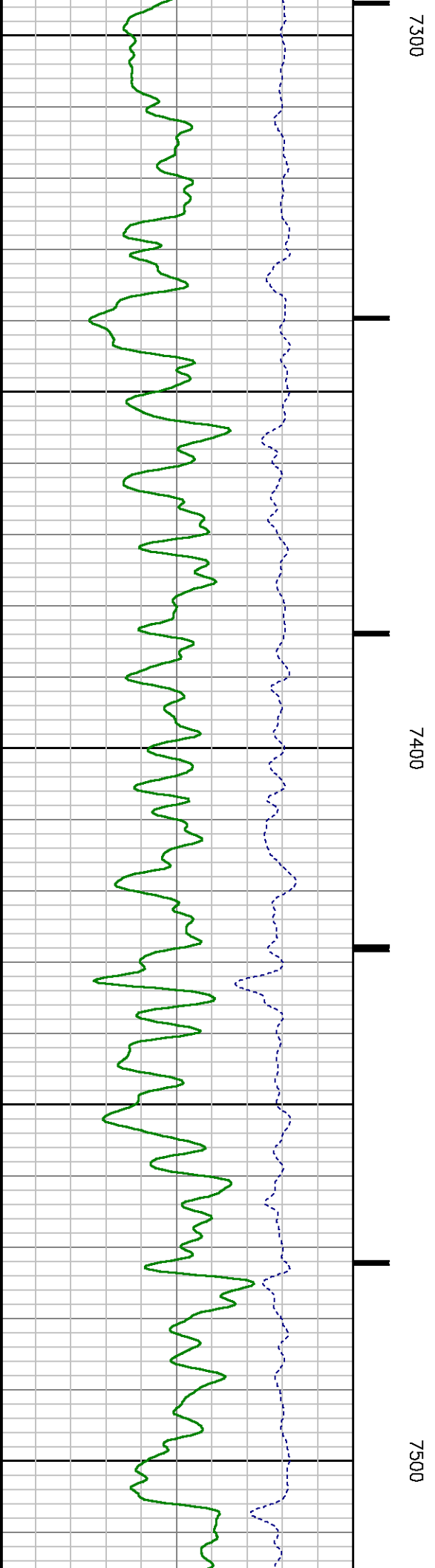
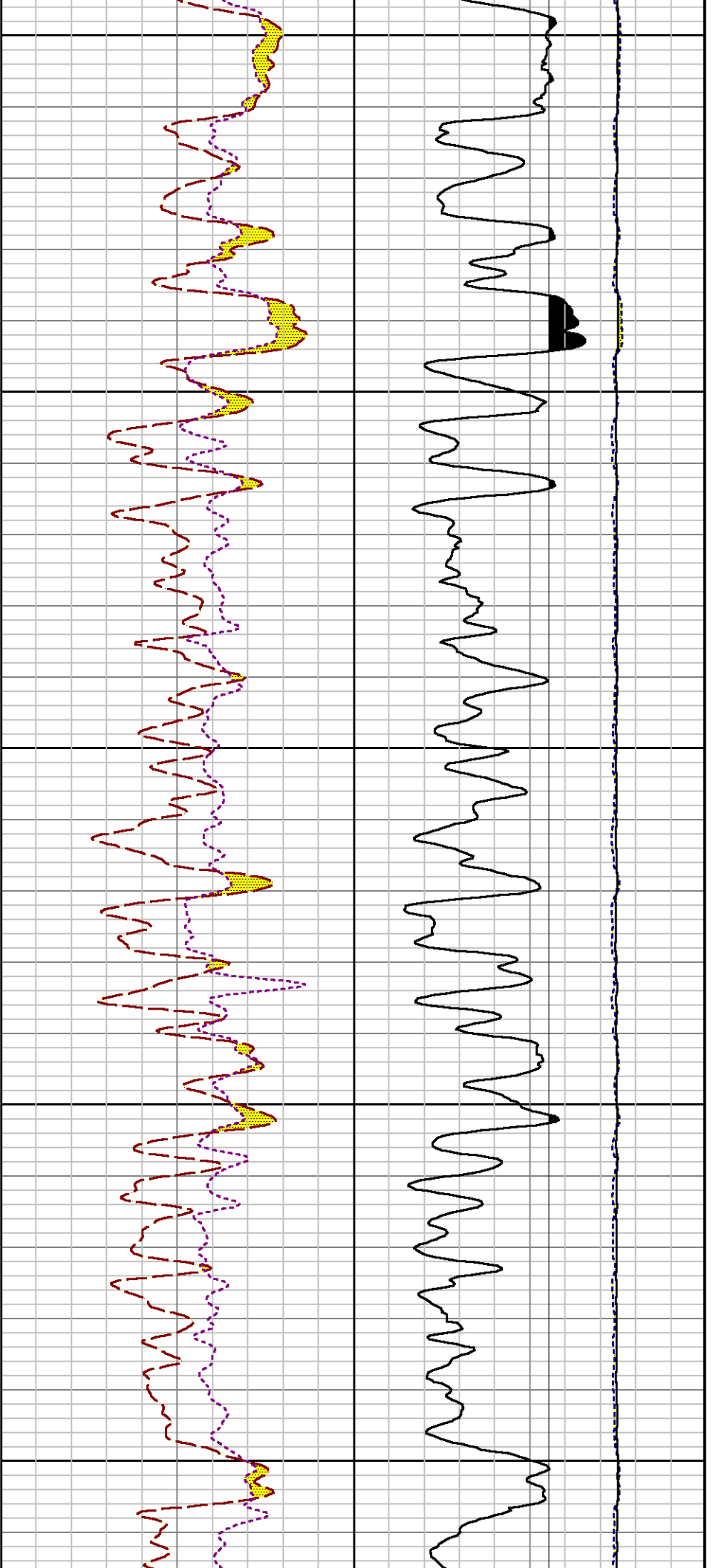
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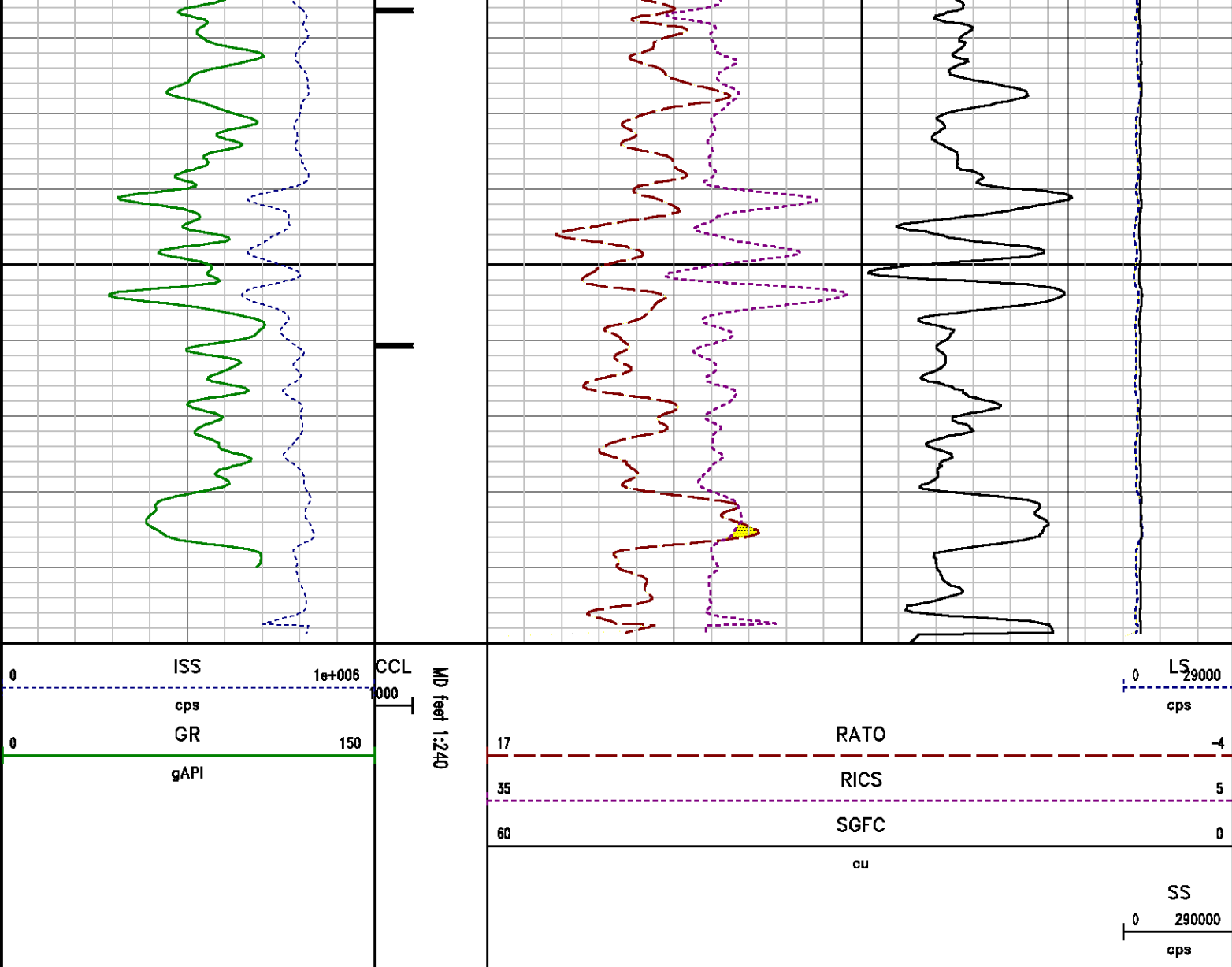
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Interval : 7270.00 - 7600.00 feet UP

Created : 4/20/2013 2:45:10 PM







CALIBRATION SUMMARY

PNC

Calibration File: C:\case\calver\PNC\231M2.cal

PNC 3D CALIBRATION SUMMARY

DATE/TIME PERFORMED: Fri Mar 22 10:48:29 2013 TOOL SERIES: 8281XA ASSET: 231 SEQ: M2

Calibrator #

SHOP BARREL

Source #

8281AA 11803641

	ISS	Mtr Vltz (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	826383	124.00	2249.00	2274.00	2286.00	104.54	7.00	0.9830
Interpolated	1300000	145.57	2232.56	2267.68	2281.45			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	826383	7094.60	1107.08	154.93	25.82	0.14	24.28	0.27
					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	826383	179986.97	27945.22	93909.05	33462.17	8727.88	56763.43	13961.05
Fit Quality %		0.77	0.73	0.82	0.82	0.68	0.77	0.78

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	826383	1.43	4.59	29.57	14.56	10.76	3.83	4.07
		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	0.16	0.28	0.18	0.17	0.19	0.18
Reduced	1394640	1.43	4.63	29.89	14.69	10.73	3.82	4.06
		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

GAMMA RAY

Calibration File: C:\case\calver\GR\470A9.cal

CALIBRATION SUMMARY

DATE/TIME PERFORMED: Tue Apr 09 11:37:16 2013 TOOL SERIES: 8262XA ASSET: 470 SEQ: A9

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
SHOP JIG	100.96	407.00	0.588	59.38	239.38	180.00

Verification File: C:\case\calver\GR\470A9.VP

PRIMARY VERIFICATION

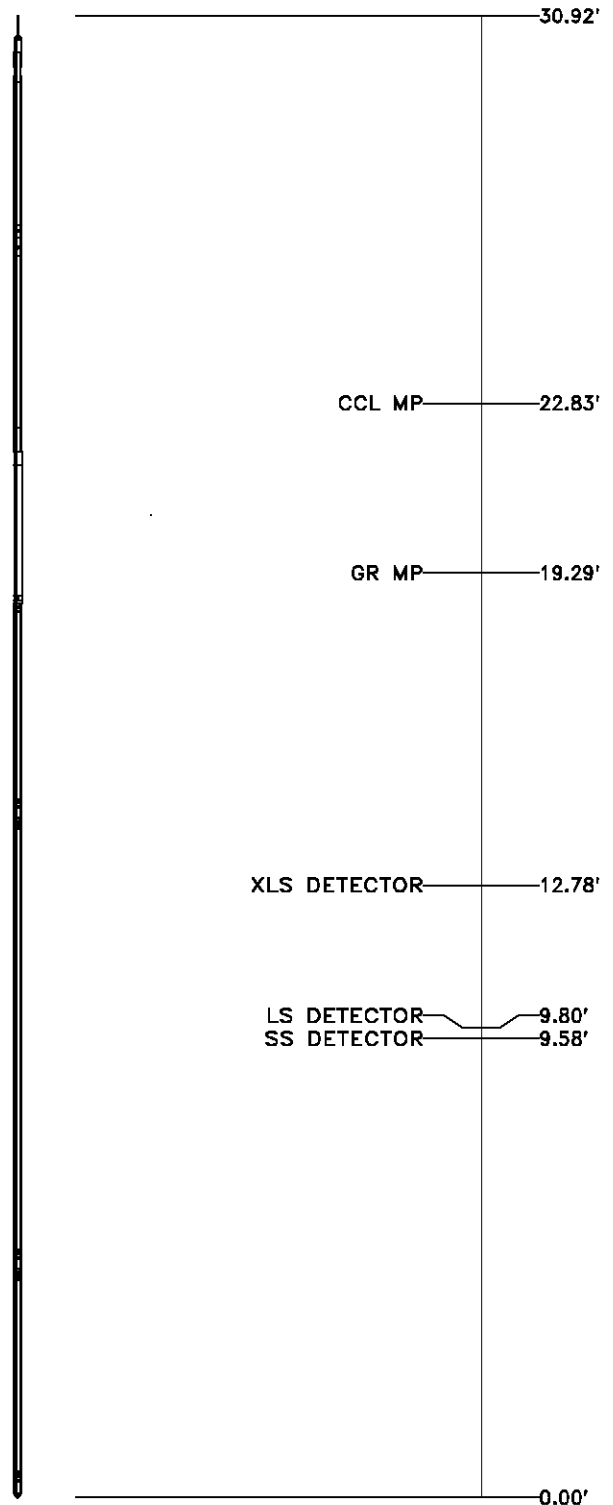
DATE/TIME PERFORMED: Tue Apr 09 11:41:01 2013 TOOL SERIES: 8262XA ASSET: 470 SEQ: A9

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SHOP JIG	100.09	406.36	0.588	58.87	239.00	180.13

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: 30.92'
 Total Weight: Not Available
 Max Diameter: 0' 1.70"



Baker Atlas



Company	WPX ENERGY		File No:	CH070853
Well	DUGGAN RWF 13-29		API No:	05045216680000
Field	RULISON			
County	GARFIELD	State	COLORADO	
Location			Elevations	
SHL: 574' FSL & 572' FWL			KB	5445.2 ft
BHL: 2132' FSL & 723' FWL			DF	
			GL	5419.2 ft
SEC	29	TWP	6S	RGE 94W