



Baker Atlas

# RESERVOIR PERFORMANCE MONITOR

File No: CH03983	Company Well	WPX ENERGY FEDERAL RU 331-5
API No: 05045217860000	Field County	RULISON GARFIELD State CO
5 7S 93W RU 23-5 PAD NABORS 576	Location SHL: 225' FNL & 2615' FNL BHL: 509' FNL & 1974' FEL SEC 5 TWP 75 RGE 93W	Other Services BOND LOG
Permanent Datum Log Measured From Drill Measured From	GL KB KB	Elevations KB 7628 ft DF GL 7602 ft

Date	28/DEC/13	
Run	ONE	
Service Order	US625077	
Depth Driller	9981 ft	
Depth Logger	9982 ft	
Bottom Logged Interval	9952 ft	
Top Logged Interval	5897 ft	
Time Started	13:30	
Time Finished	20:00	
Operator Rig Time	6.5 HOURS	
Type of Fluid in Hole	WATER	
Fluid Density	NA	
Salinity	NA	
Fluid Level	78 ft	
Logged Cement Top	NA	
Wellhead Pressure	0 psi	
Maximum Hole Deviation	NA	
Nominal Logging Speed	10 fpm	
Maximum Recorded Temperature	240 degF	
Reference Log	BAKER HUGHES BOND LOG	
Reference Log Date	28/DEC/13	
Equipment No.	4271	GRAND JCT.
Recorded By	NEWELL	
Witnessed By	JEFF DUCY	

- 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	1105 ft
8.75 In	1105 ft	10052 ft

Casing Record				
Size	Weight	Grade	From	To
9.625 In			0 ft	1105 ft
4.5 In	11.6 lbm/ft		0 ft	10052 ft

Remarks

All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 12/28/2013 at the client's request.

The amount of linear shift is 10 feet.

Logged in PNC-3D mode.

BHT = 240 °F

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
2	1	PCM	8250EA	10408796	FREE
2	1	TEL/CCL	8248ED	10590814	FREE
2	1	GR	2812LA	10274385	FREE
2	1	RPM	8281EA	10190984	FREE
2	1	RPM	8283PA	10466231	FREE
2	1	RPM	8281FA	10460082	FREE

*MAIN SECTION*  
*PNC 3-D MODE*

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		5850.500	9974.754
PNC Porosity	Borehole Size	8.750	inch	5850.500	9974.754
PNC Porosity	Casing Size	4.500	inch	5850.500	9974.754
PNC Porosity	Gas Filled	Non Gas Filled		5850.500	9974.754
PNC Porosity	Matrix	Sandstone		5850.500	9974.754

DEPTH OFFSETS  
(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
8248ED	-14.478	FLTM					
8248ED	-12.478	CCL CHV					
2812LA	-9.928	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
		DLOYO	DUN3Q	DUN03	DUN03Q	GR3D	SO3D

8281XA

-0.250

RTXC	RTN13C	RTN23	RTN23C	SD3D	SG3D
SGB3	SGF3	WDTH3	CXSR	IXSR	XSR
RICXR					
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	MM	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	RAT0R	RAT013R
RBORR	RICSR	RINR	RIN13R	RONER	RPORR

SYSTEM

0.000

RTWOR	
TEN	TTEN

Created by : RPM9, v5.3.1.0

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

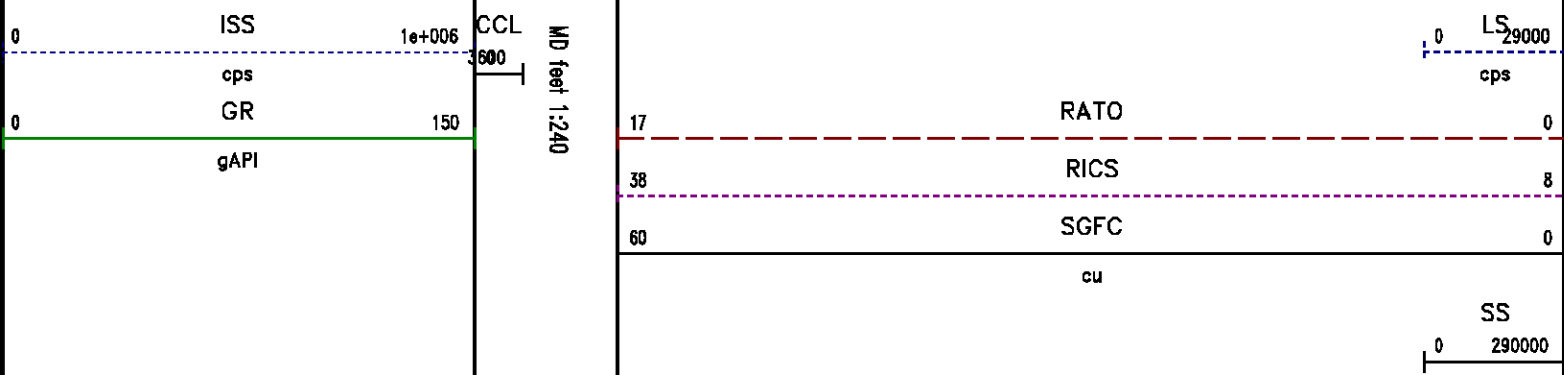
Well : FEDERAL RU 331-5

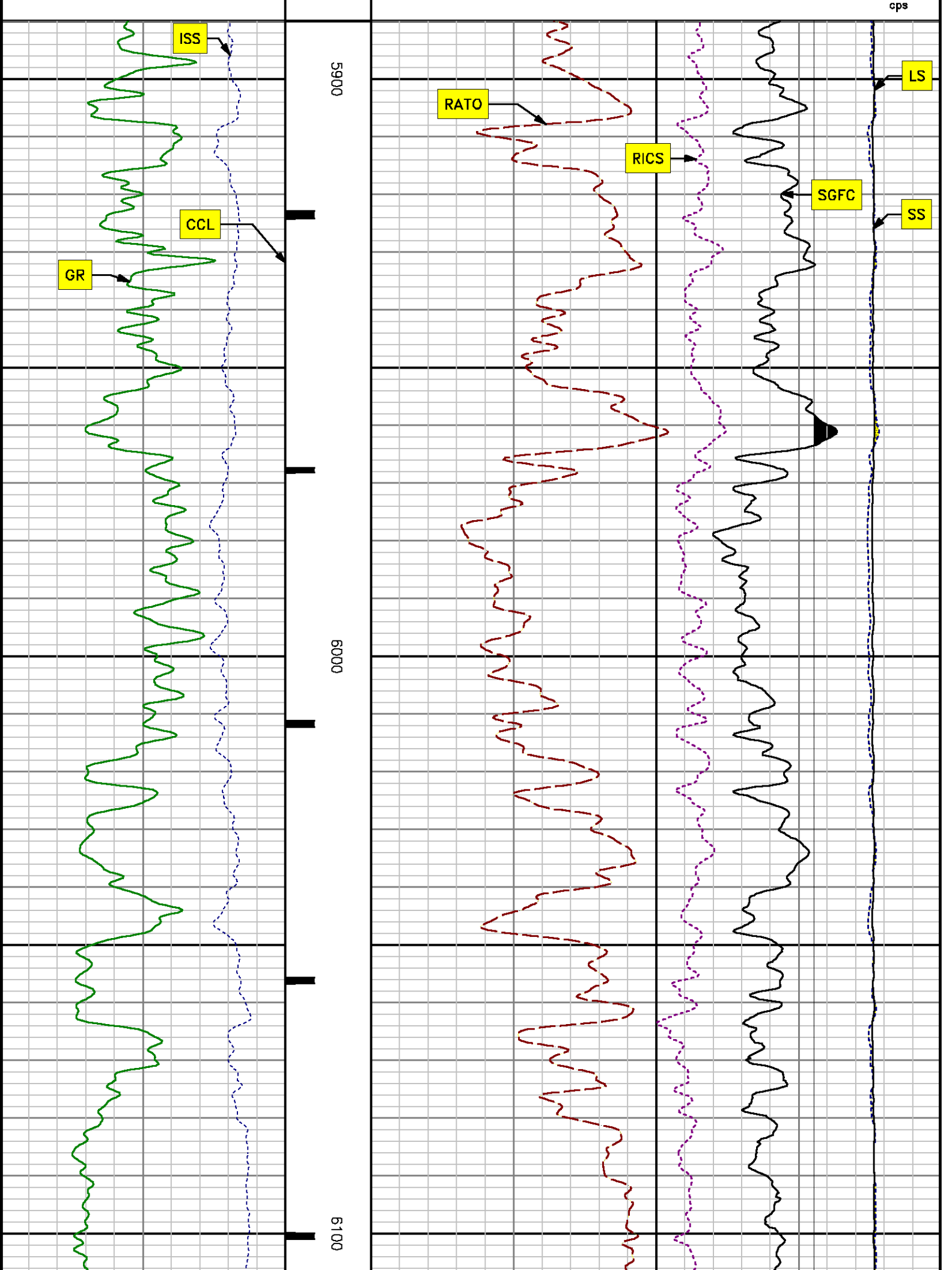
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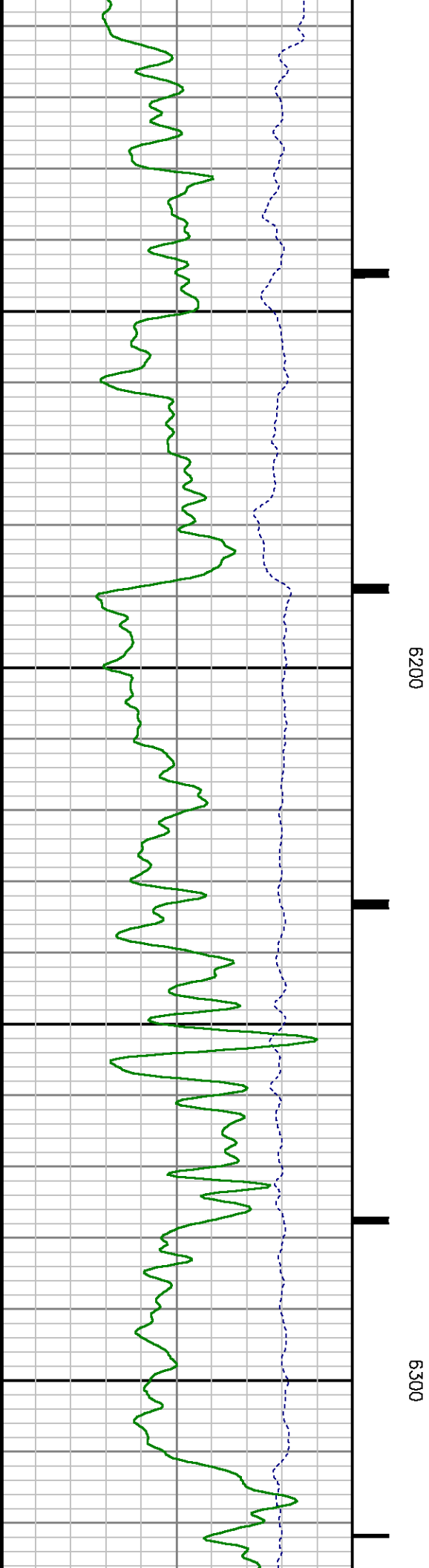
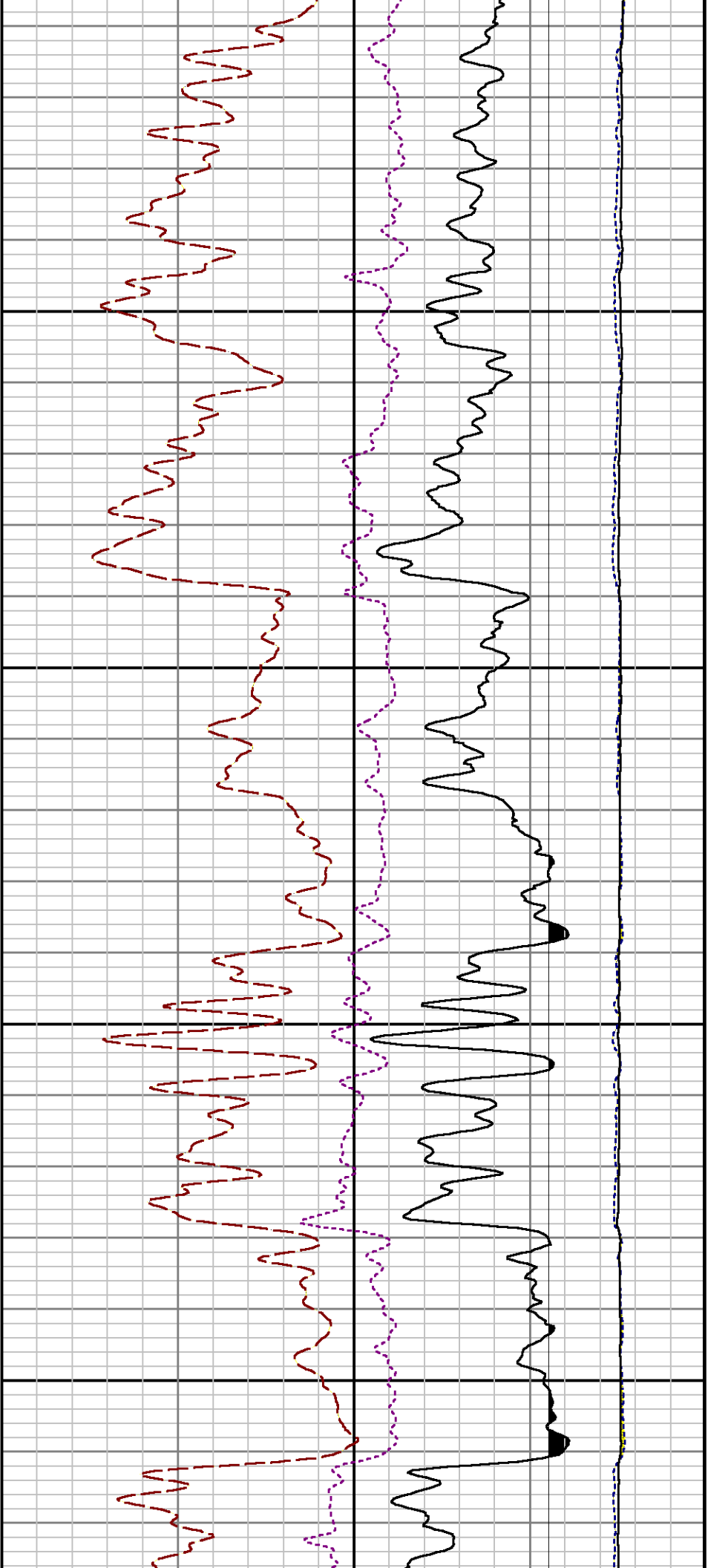
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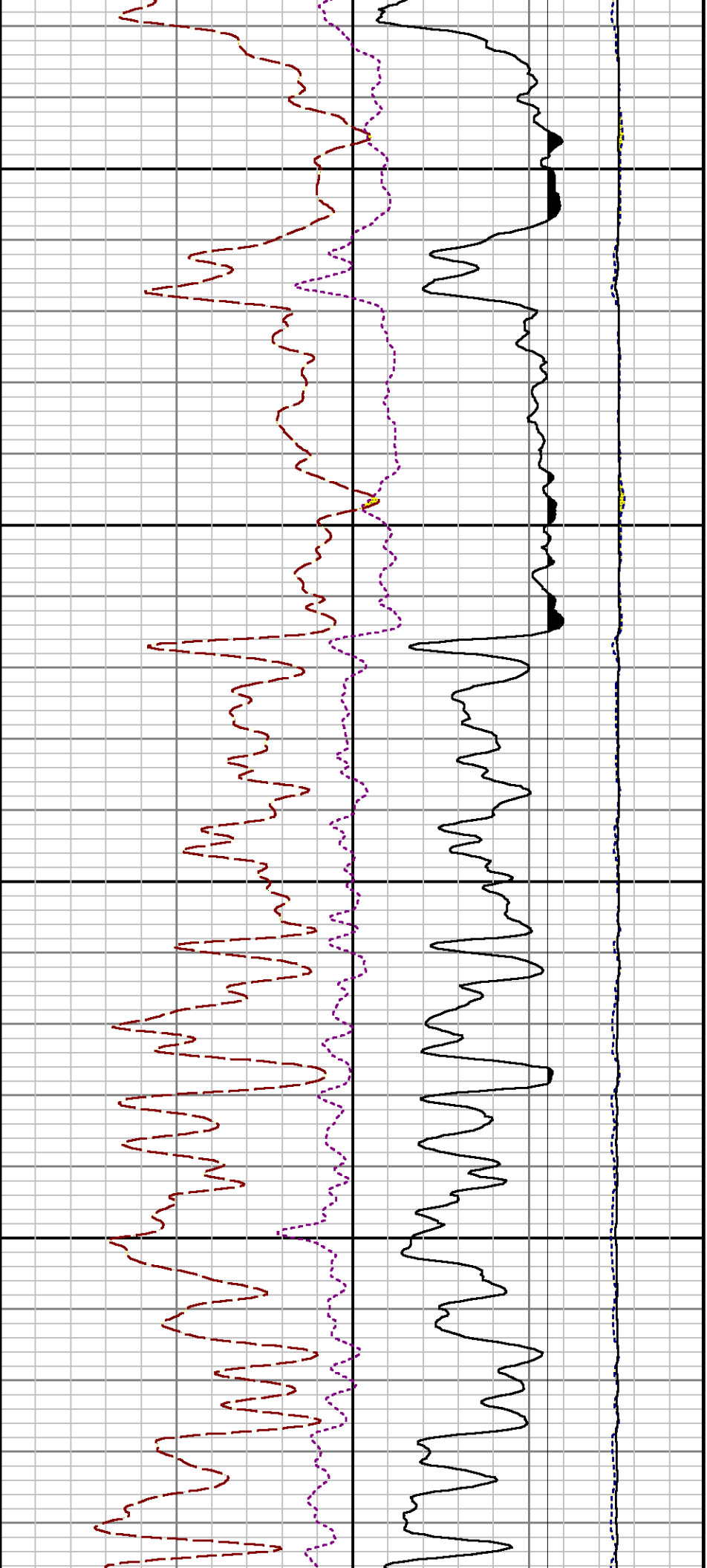
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Created : 12/29/2013 11:04:19 AM



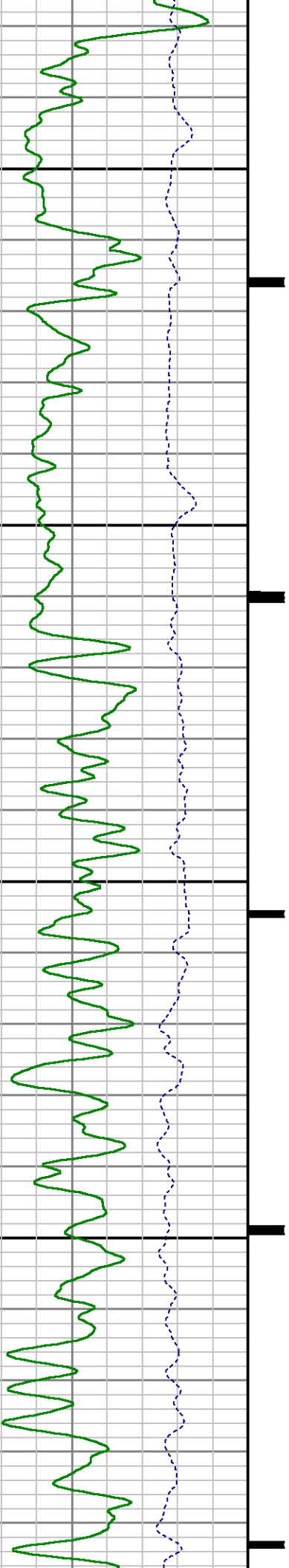


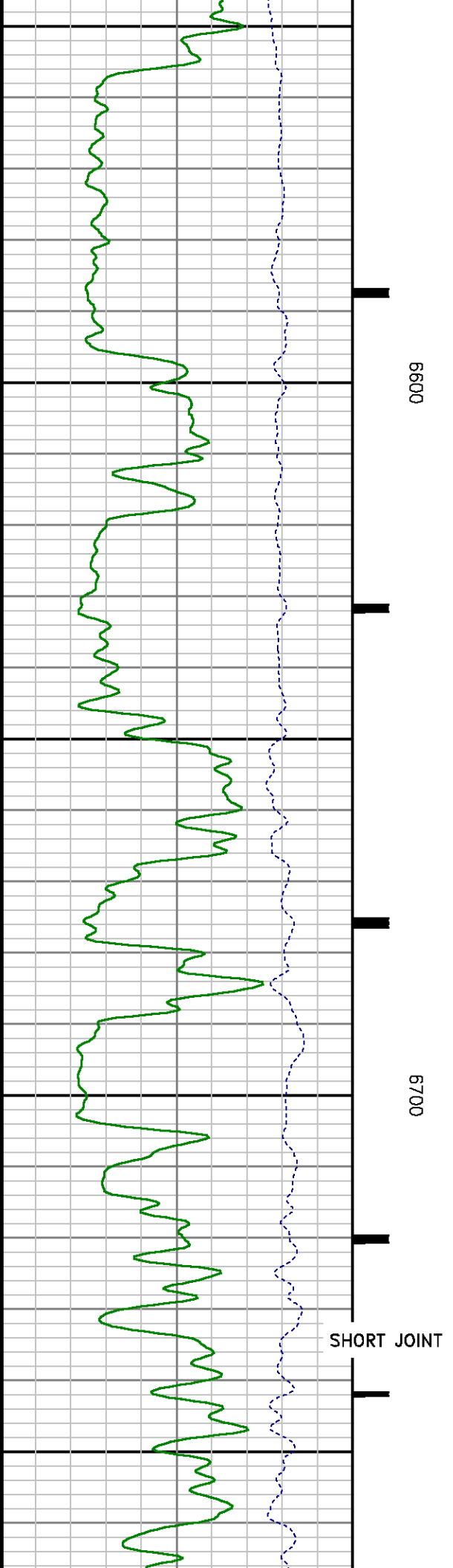
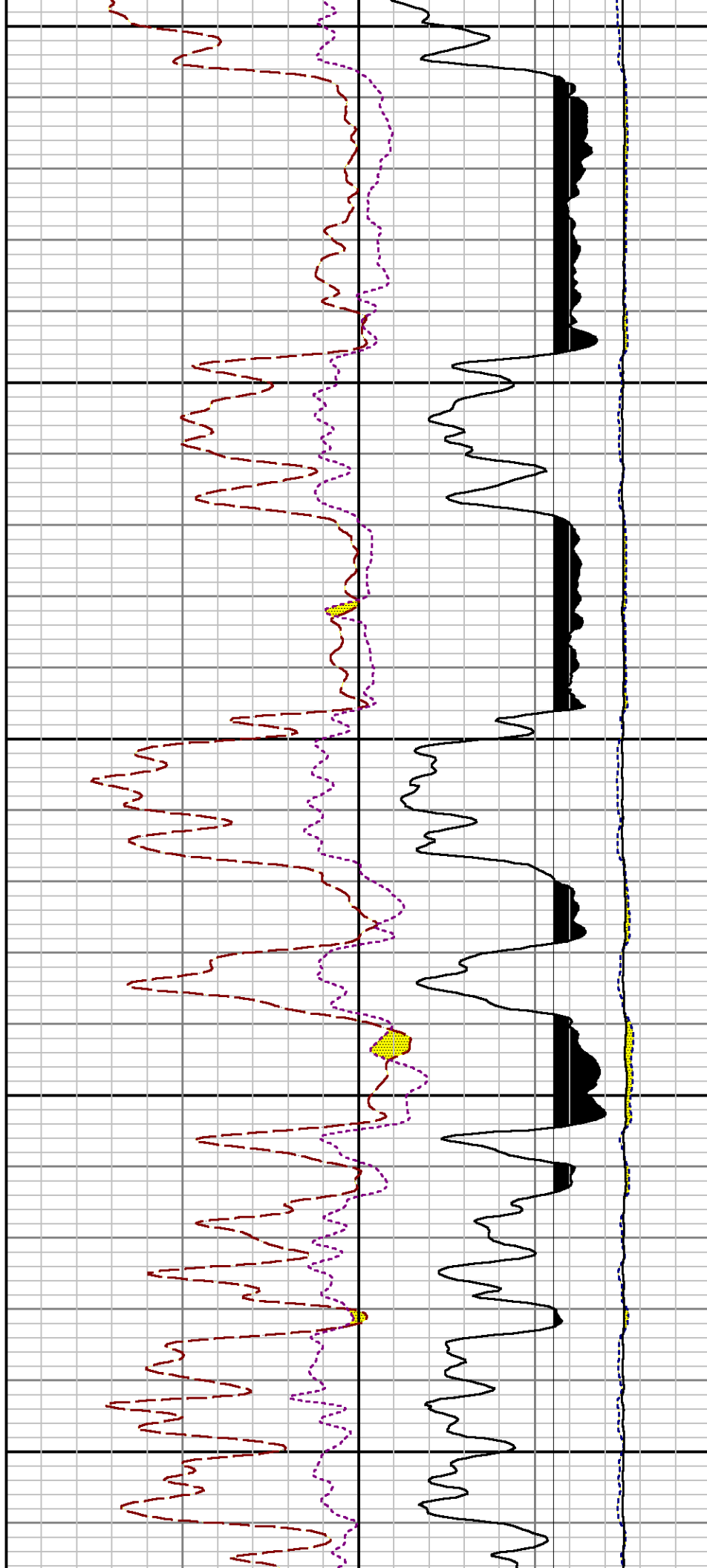


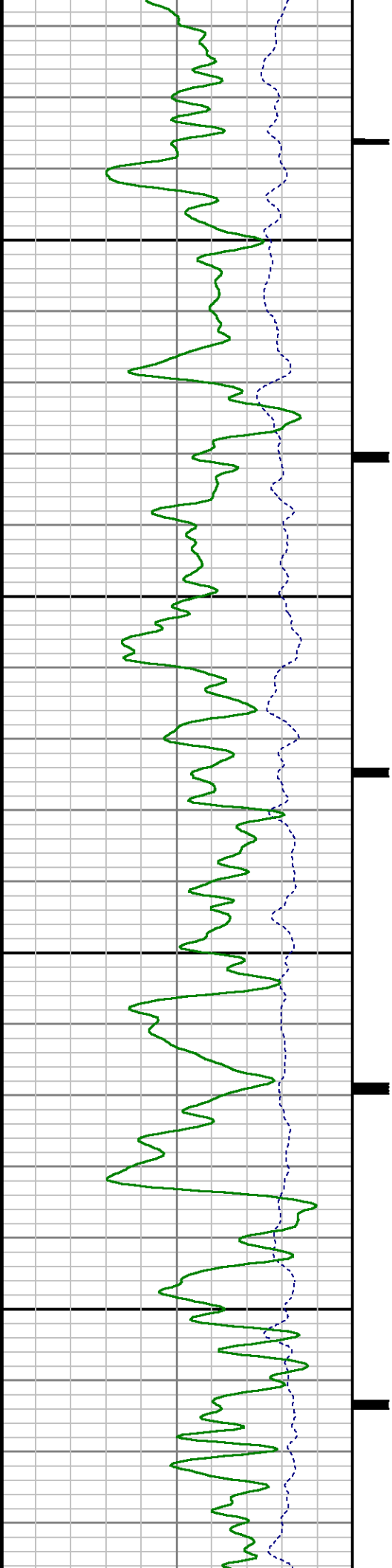


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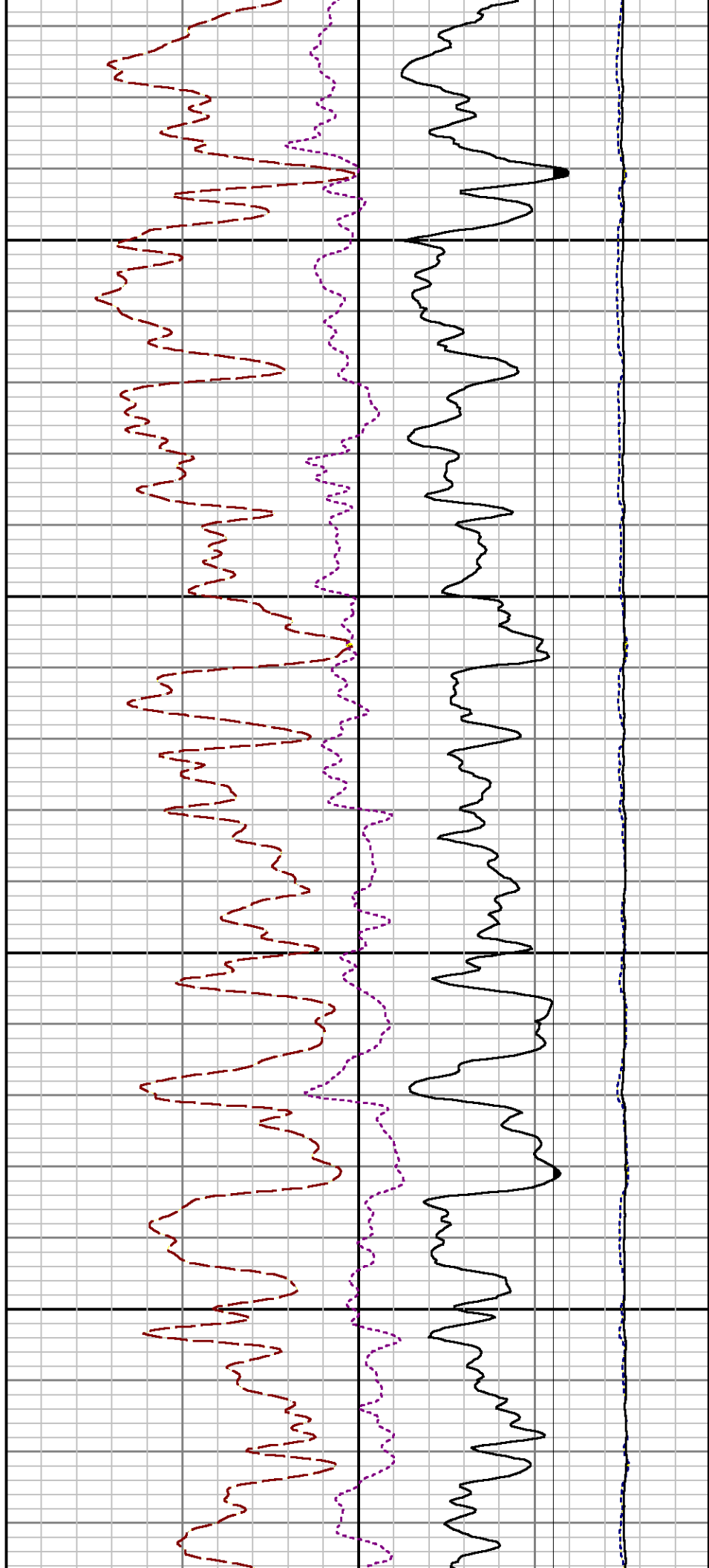




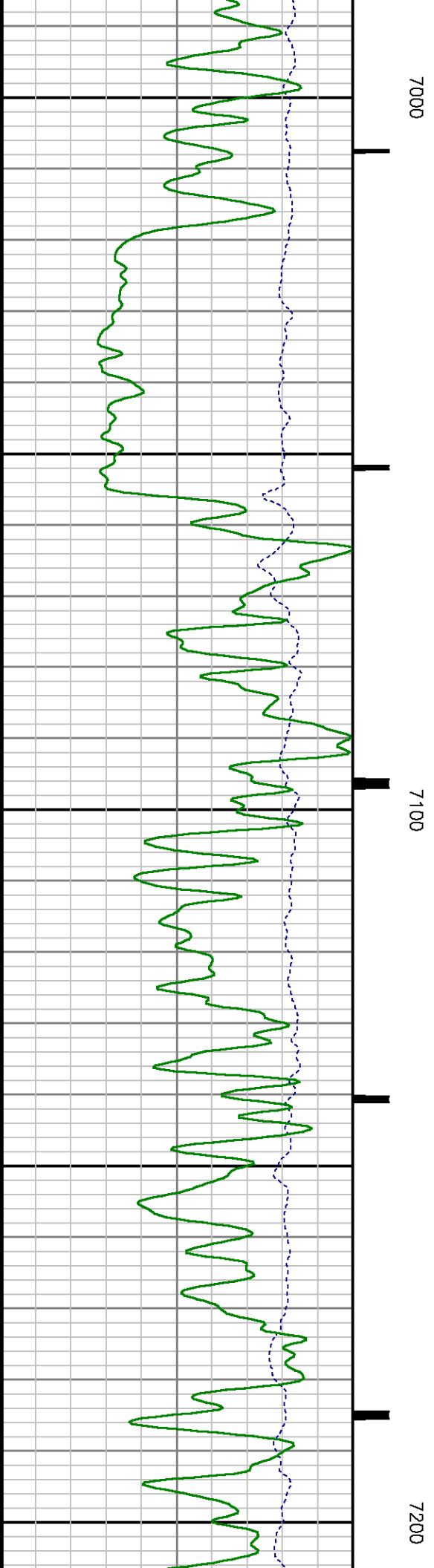
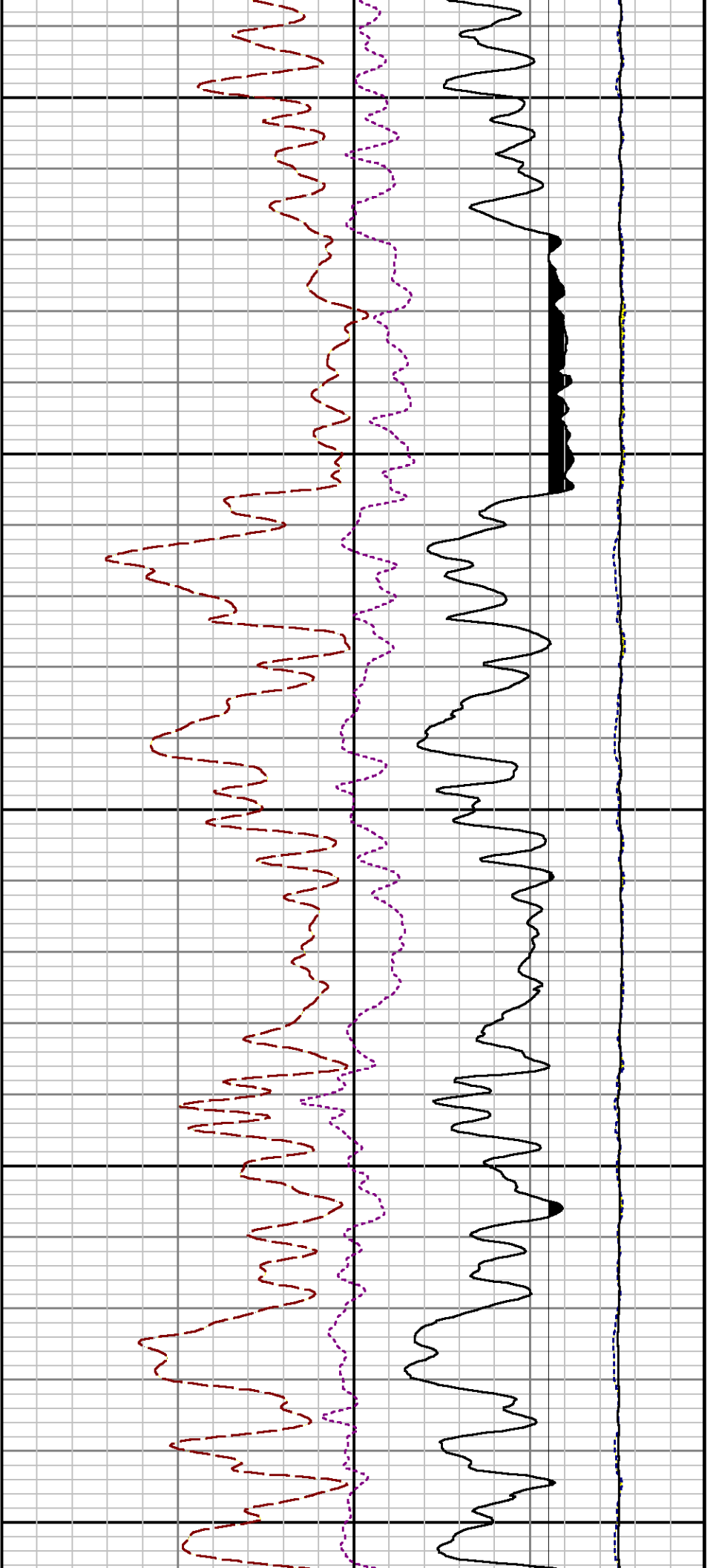


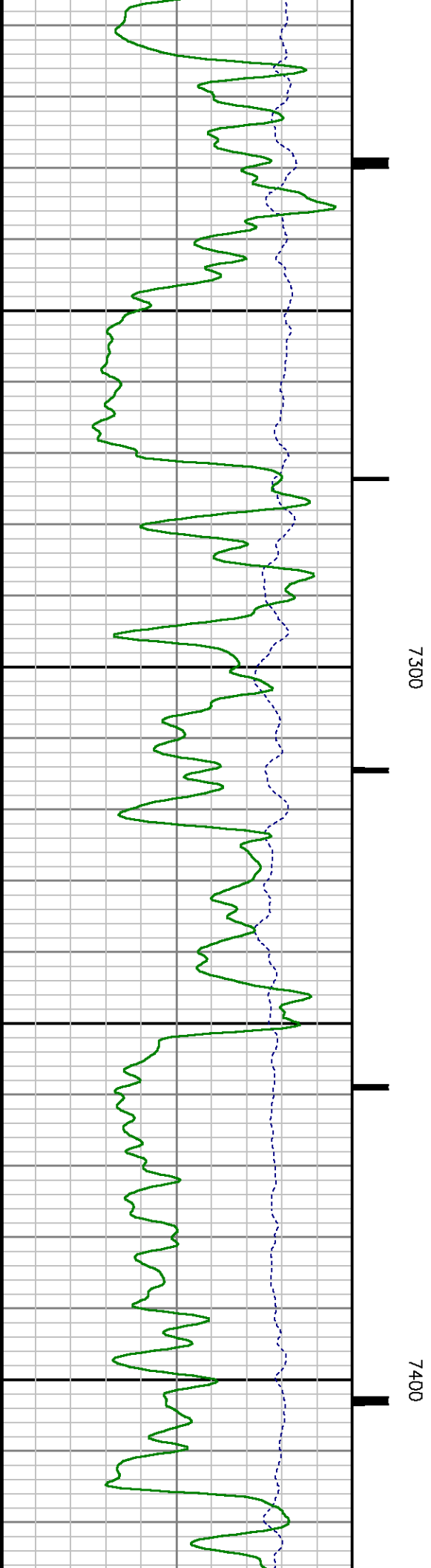
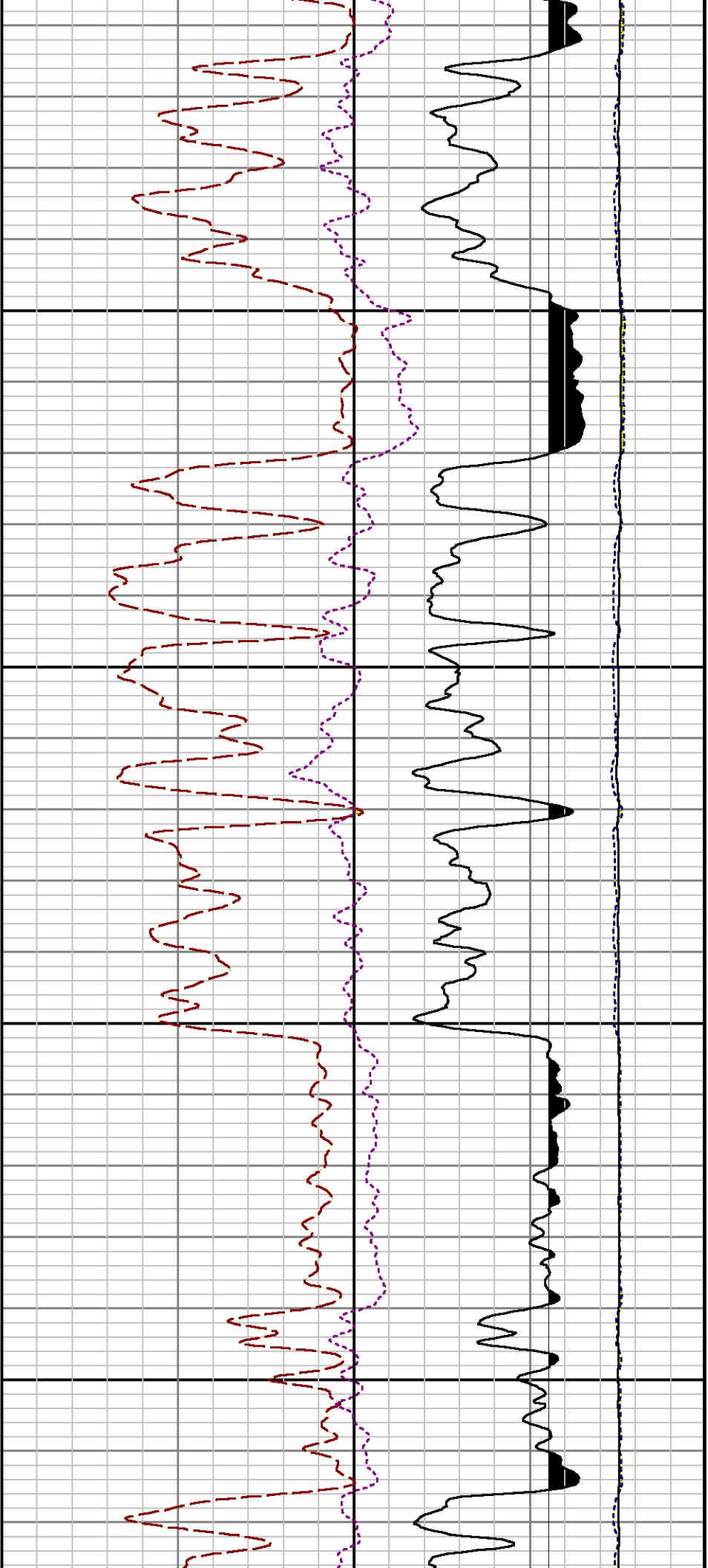
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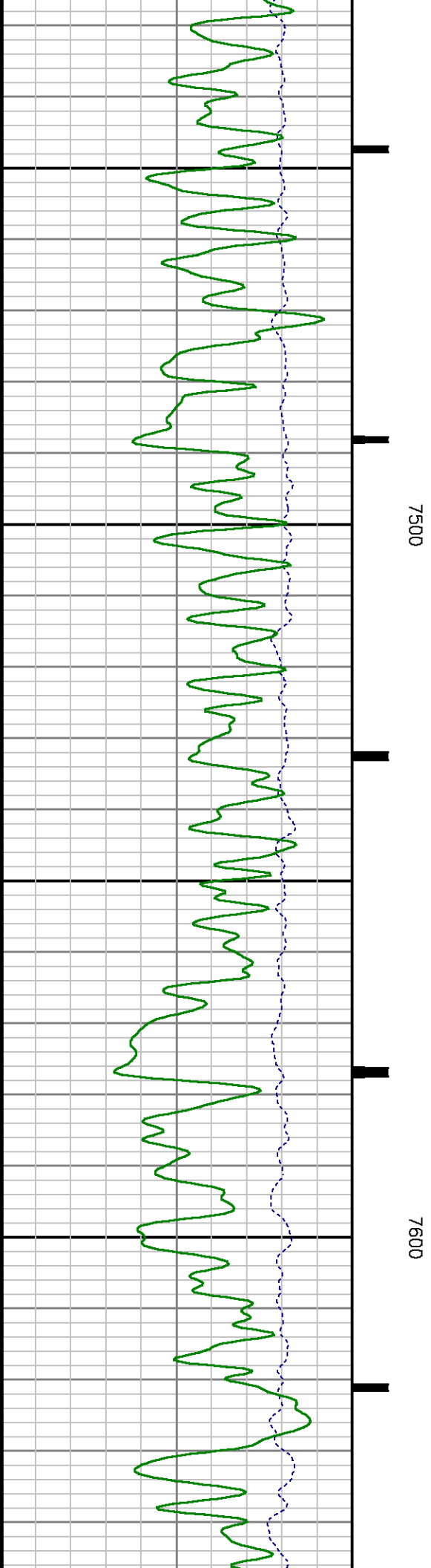
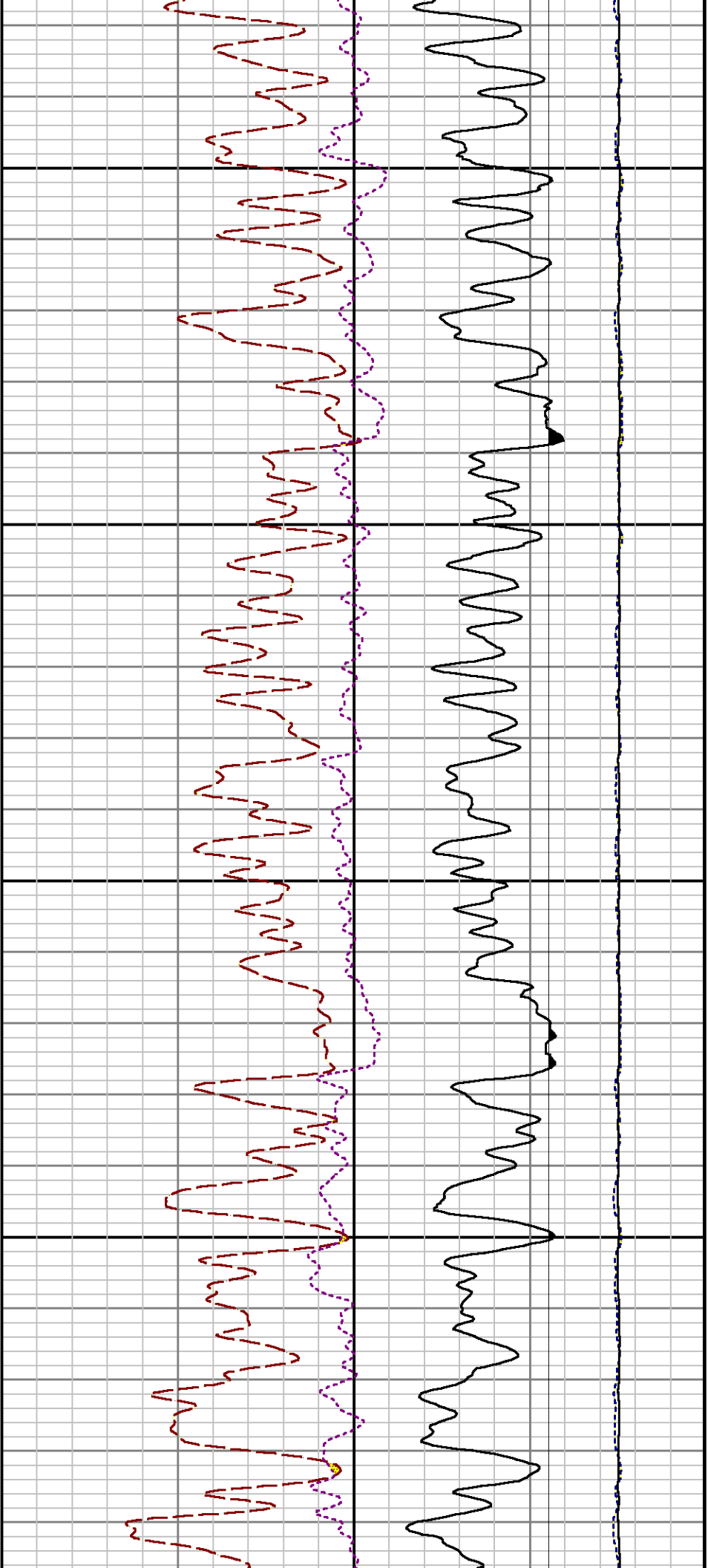
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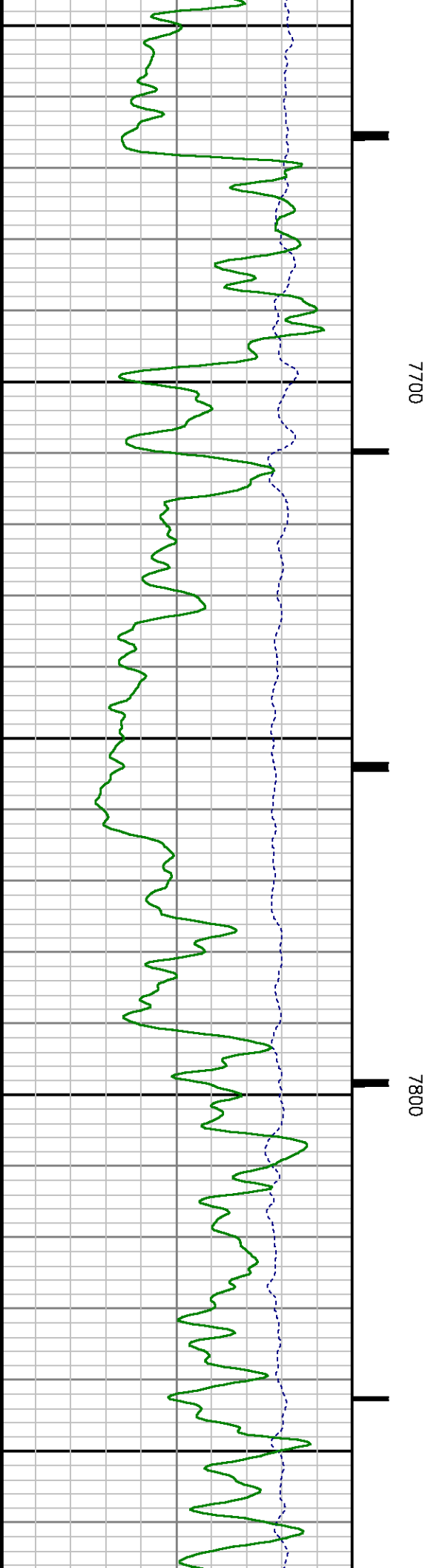
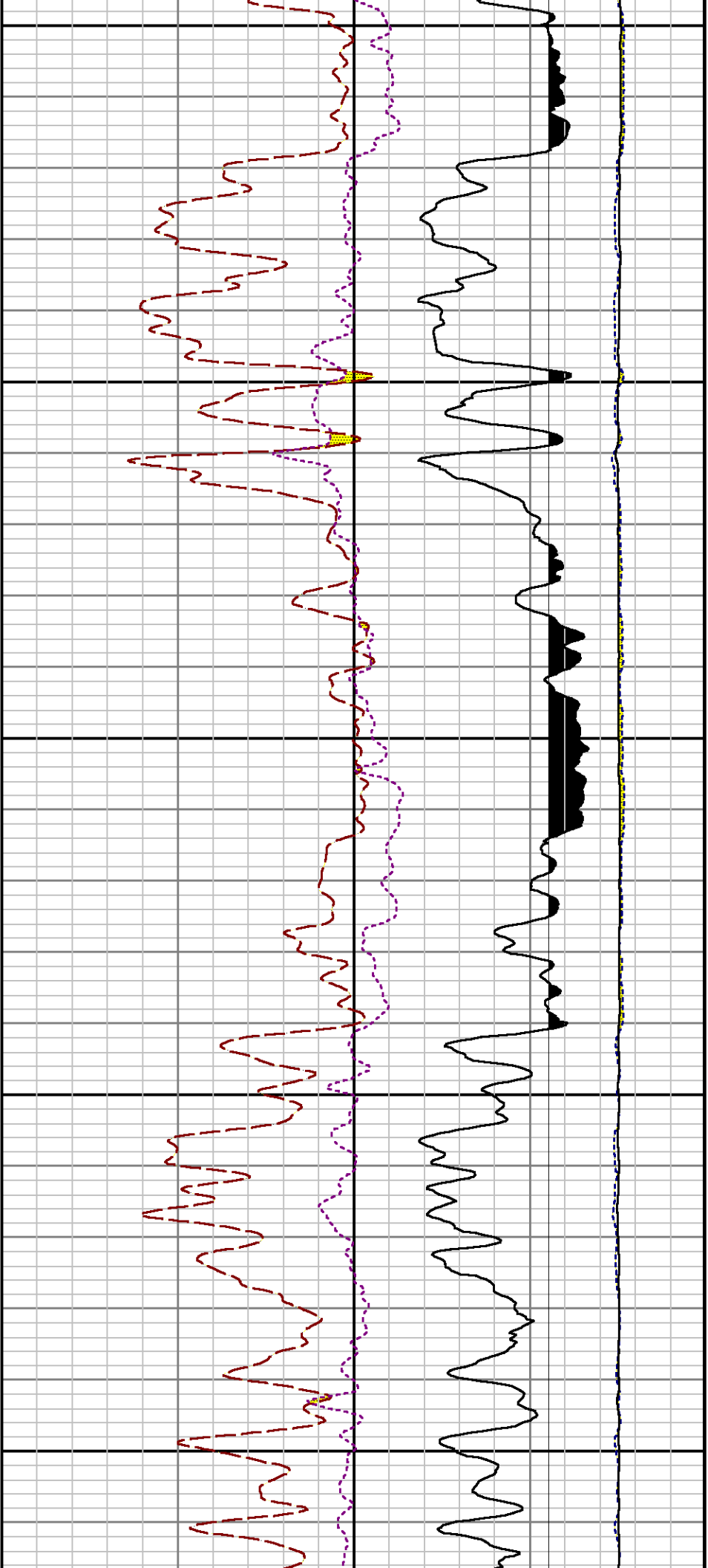


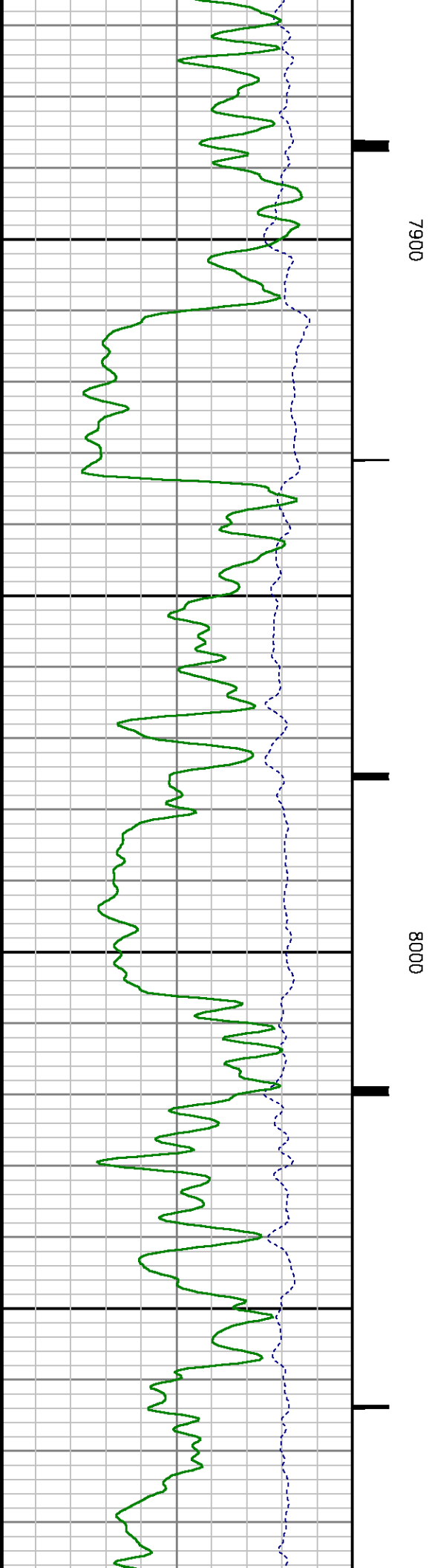
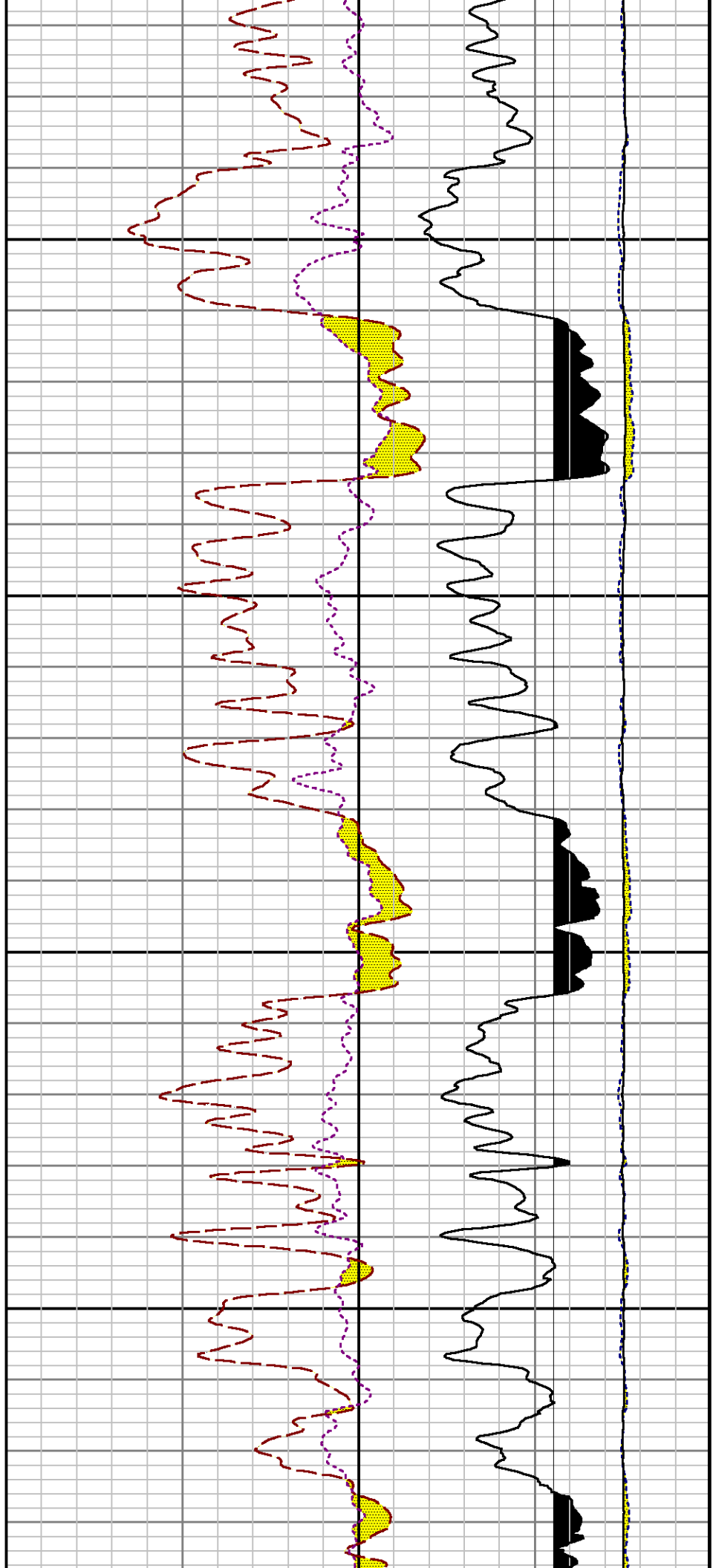


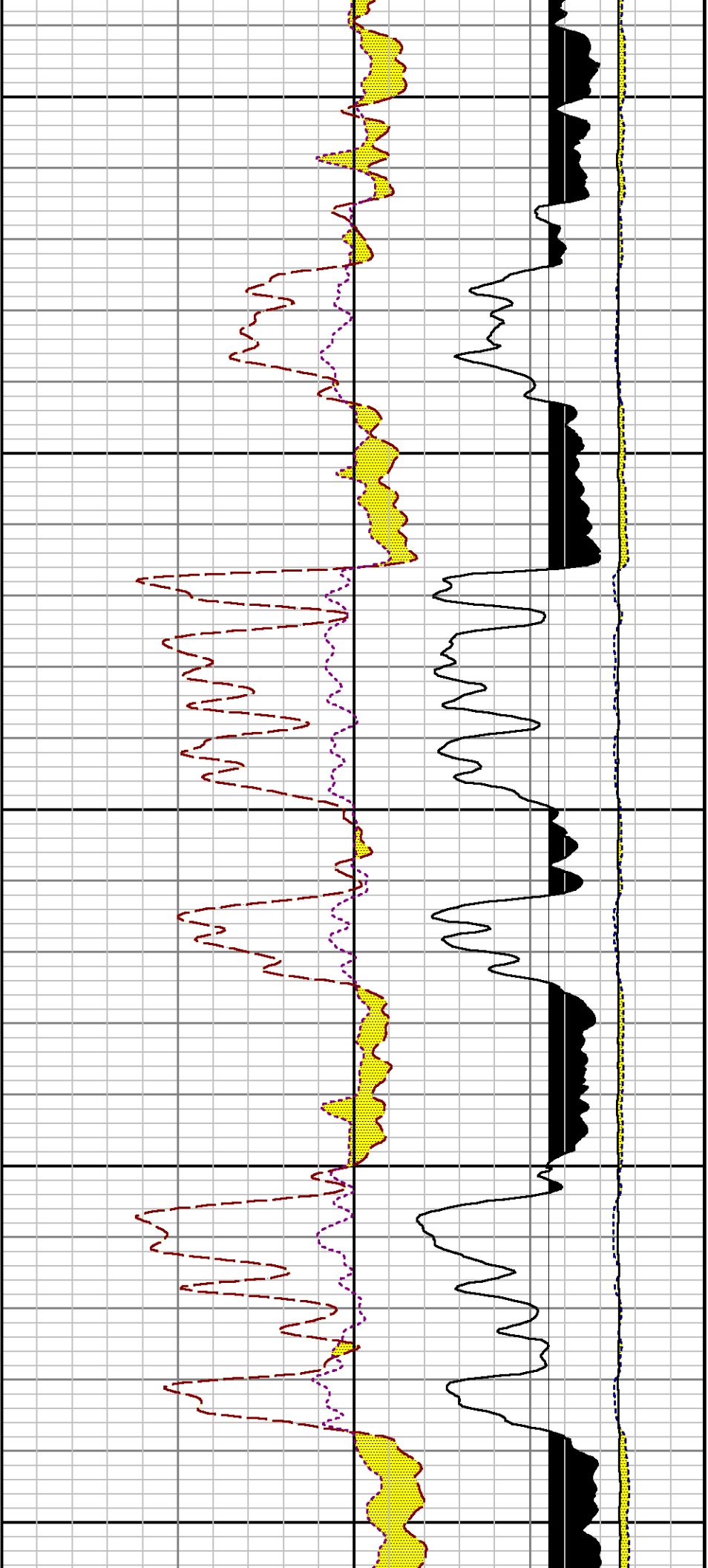








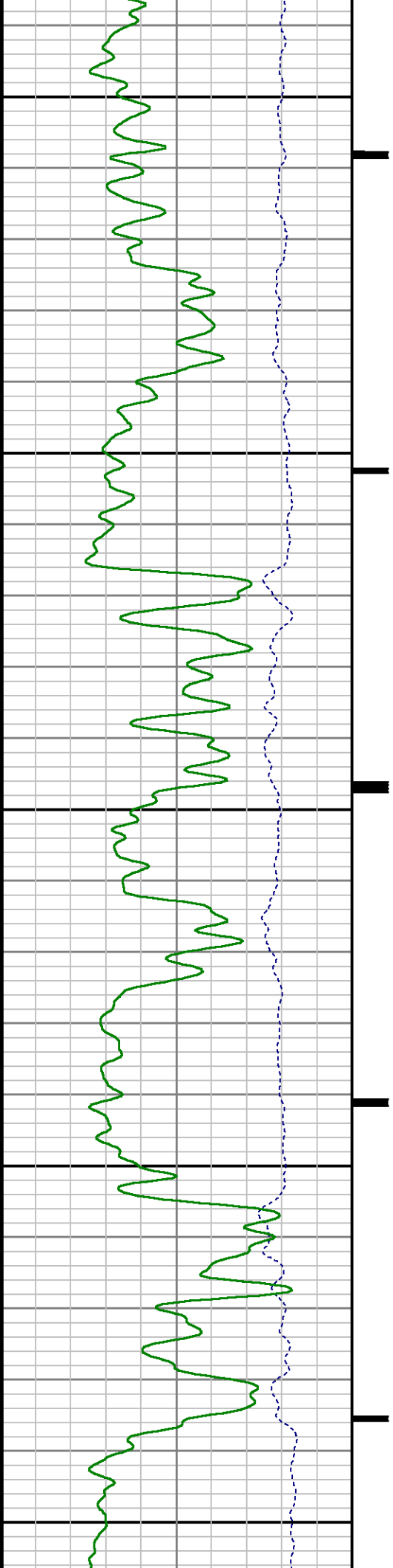


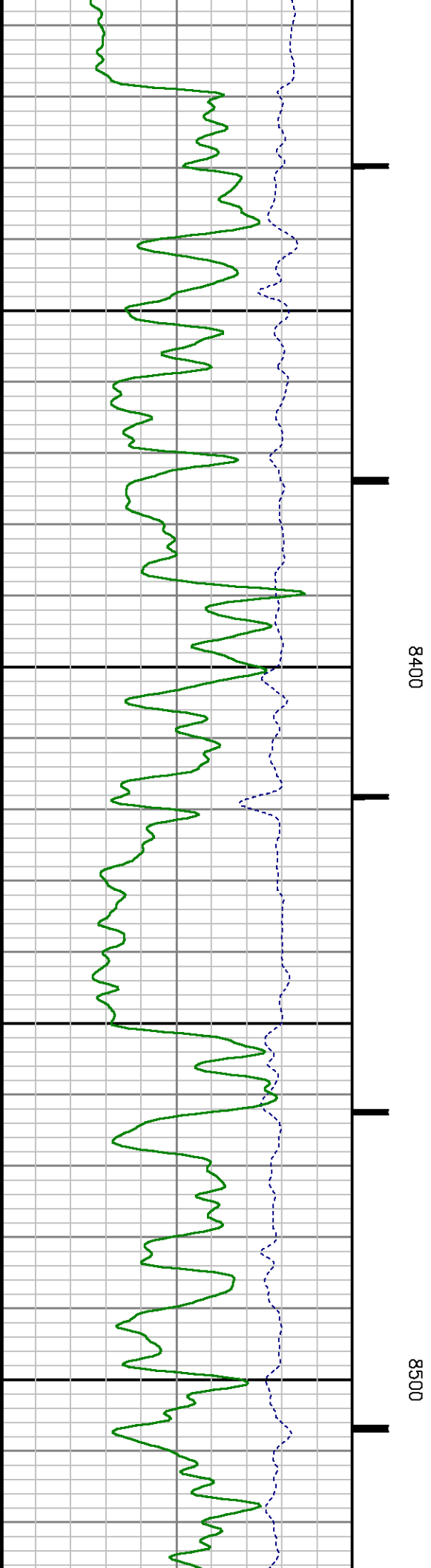
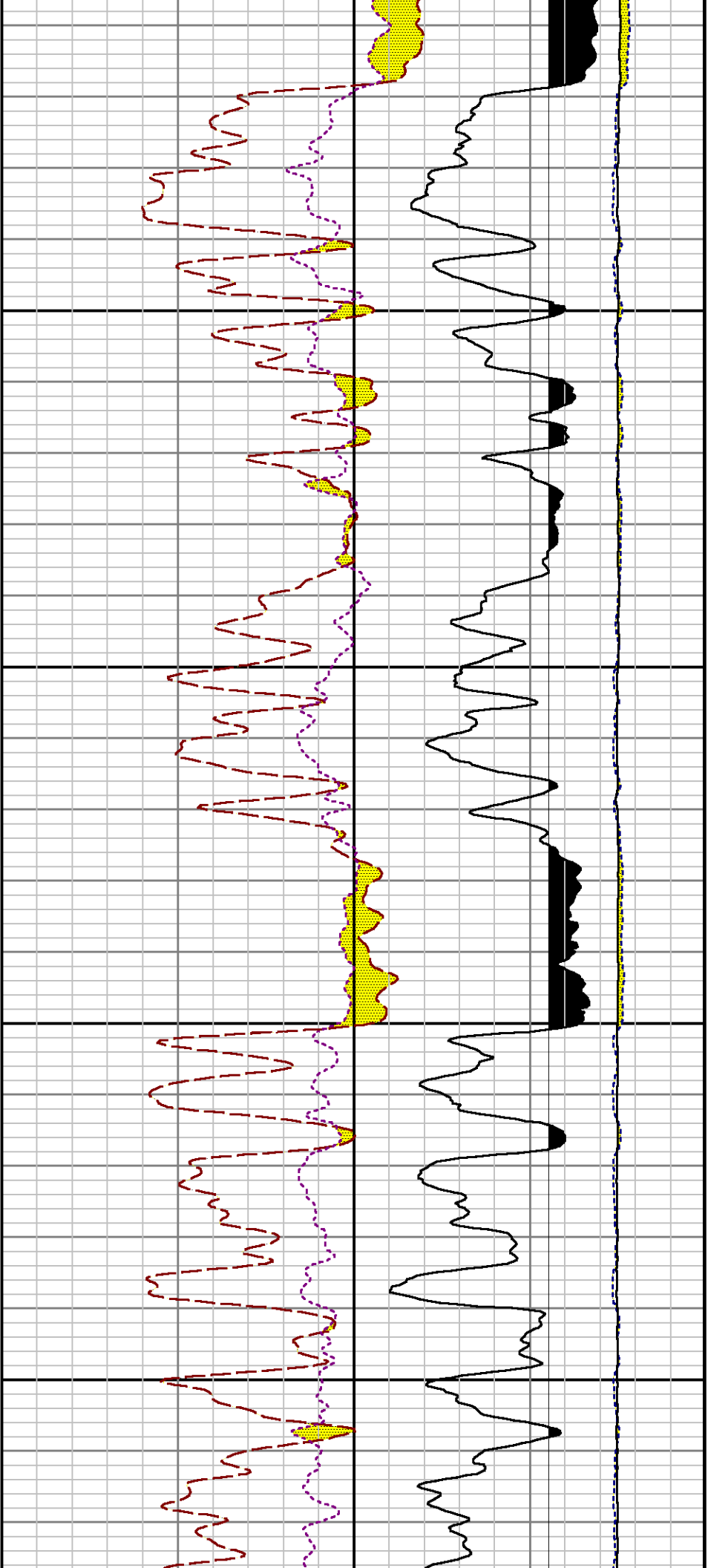


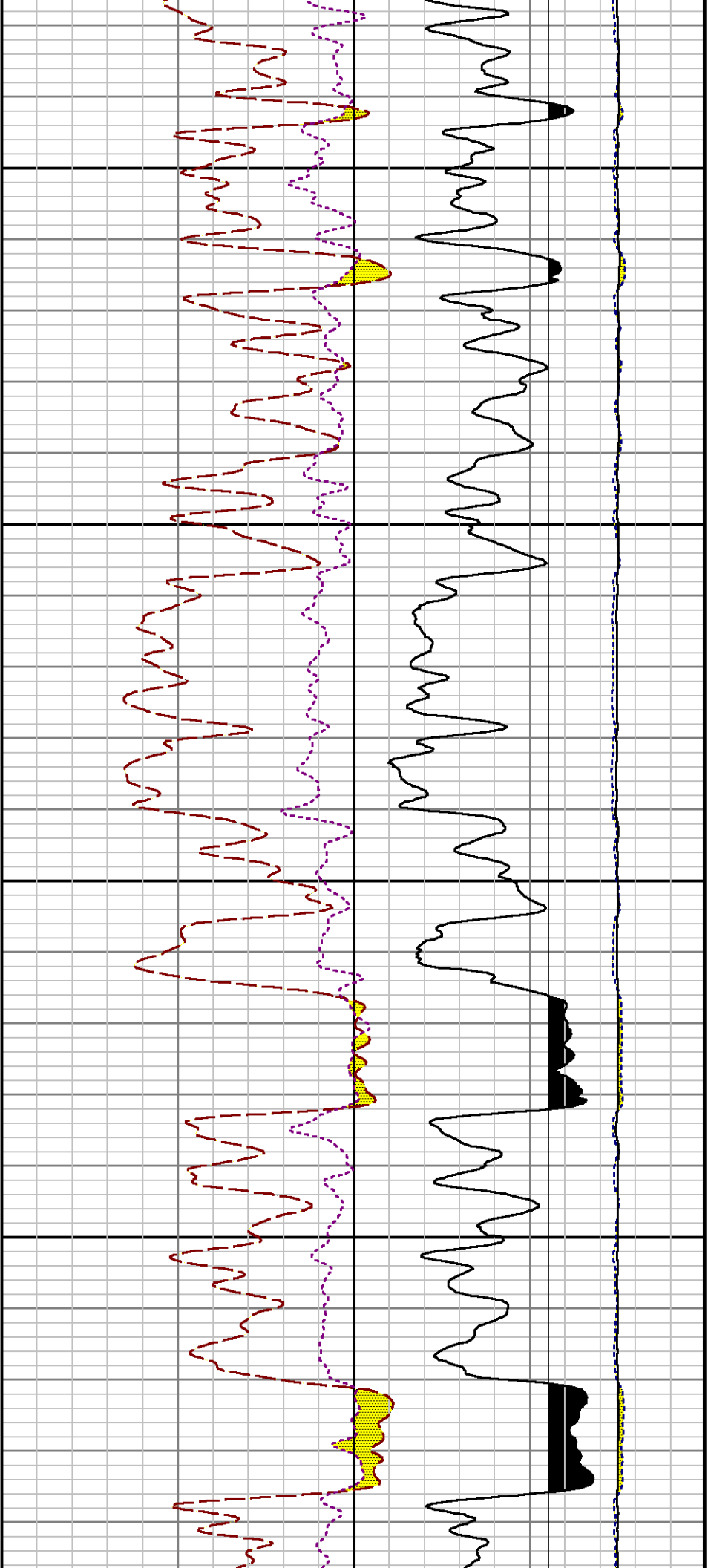
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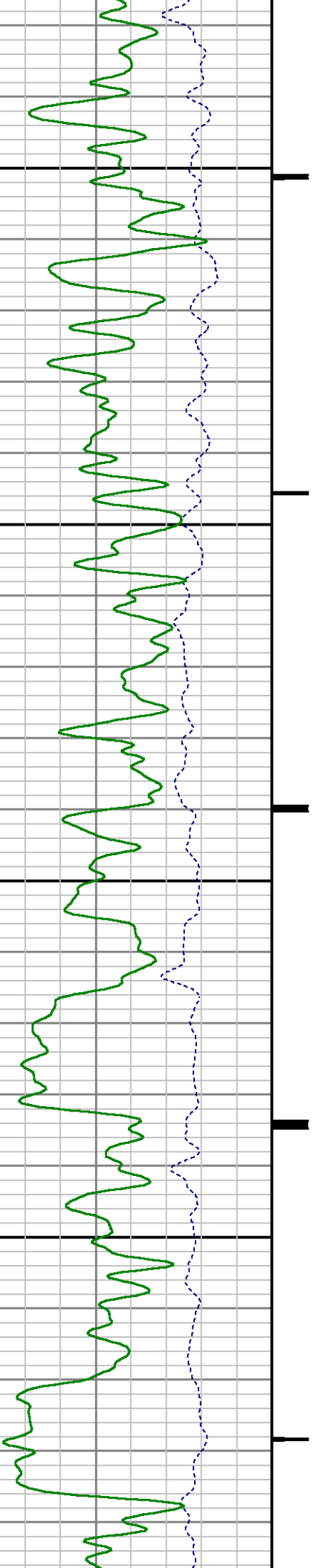




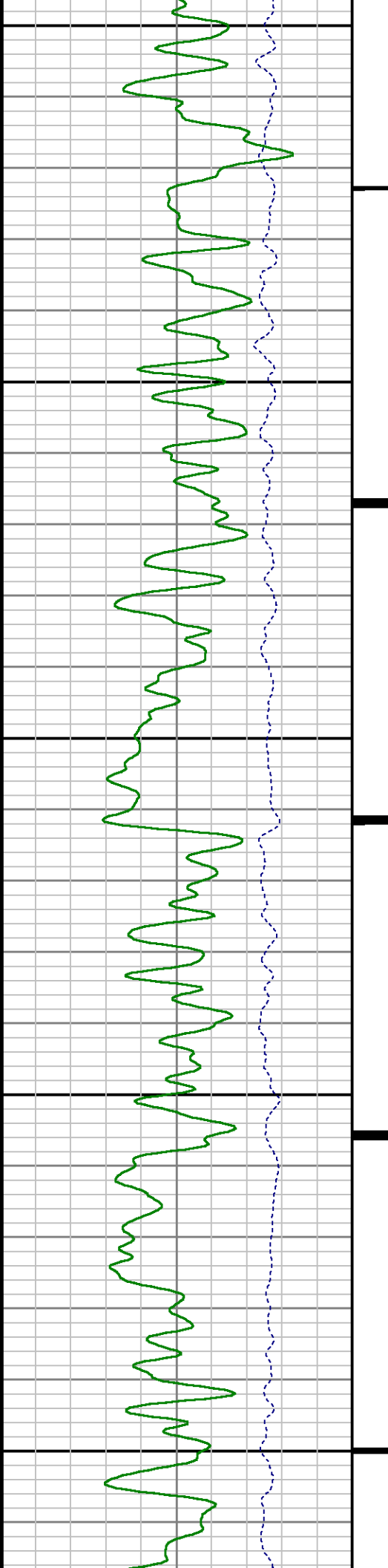


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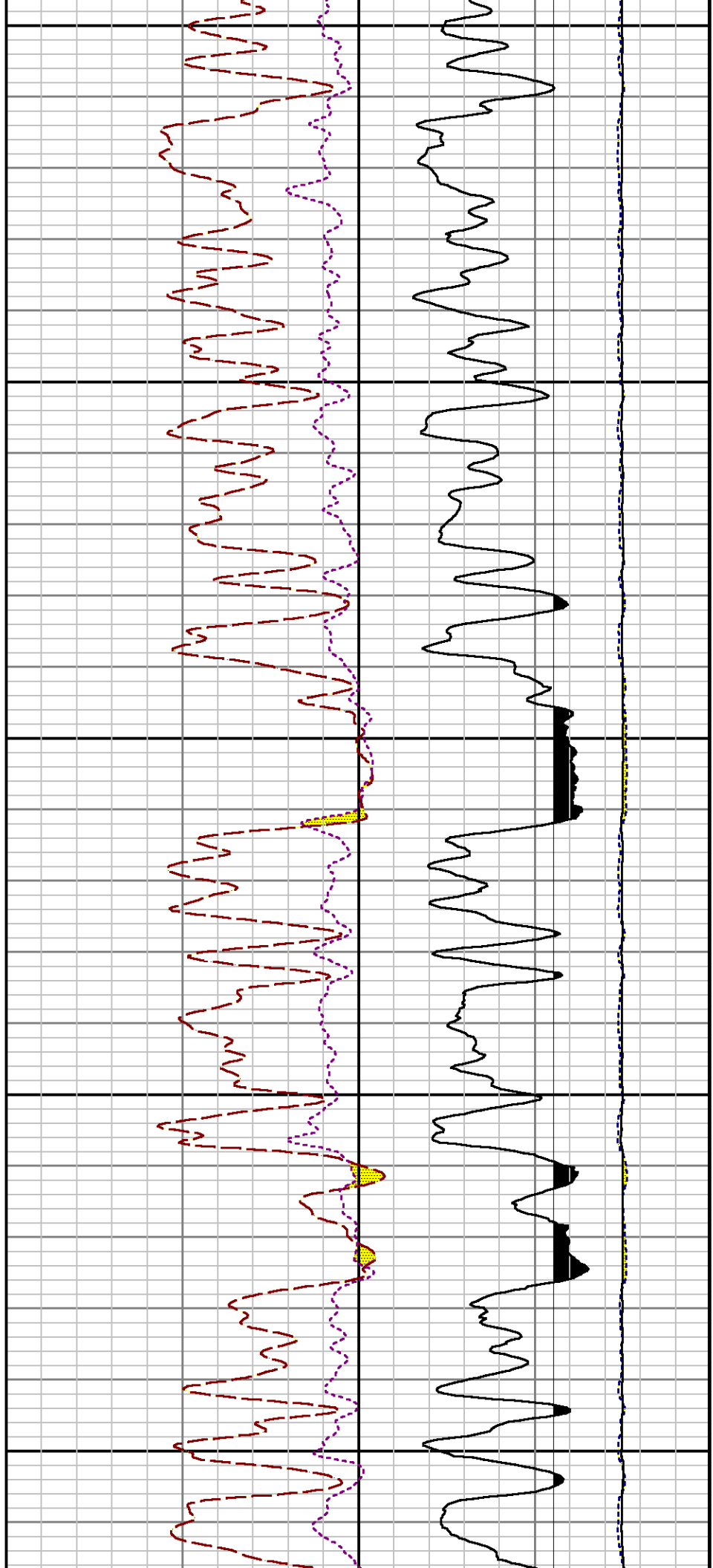


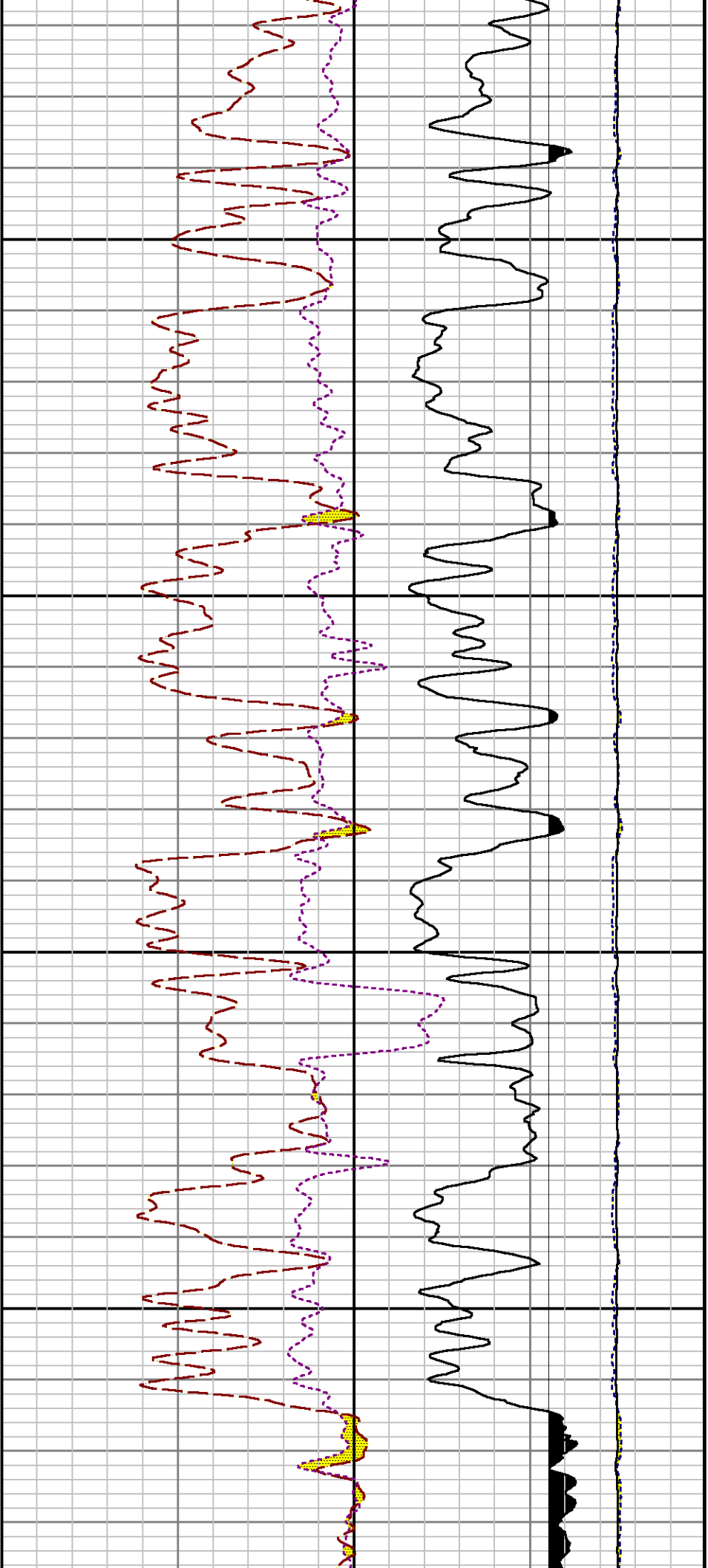




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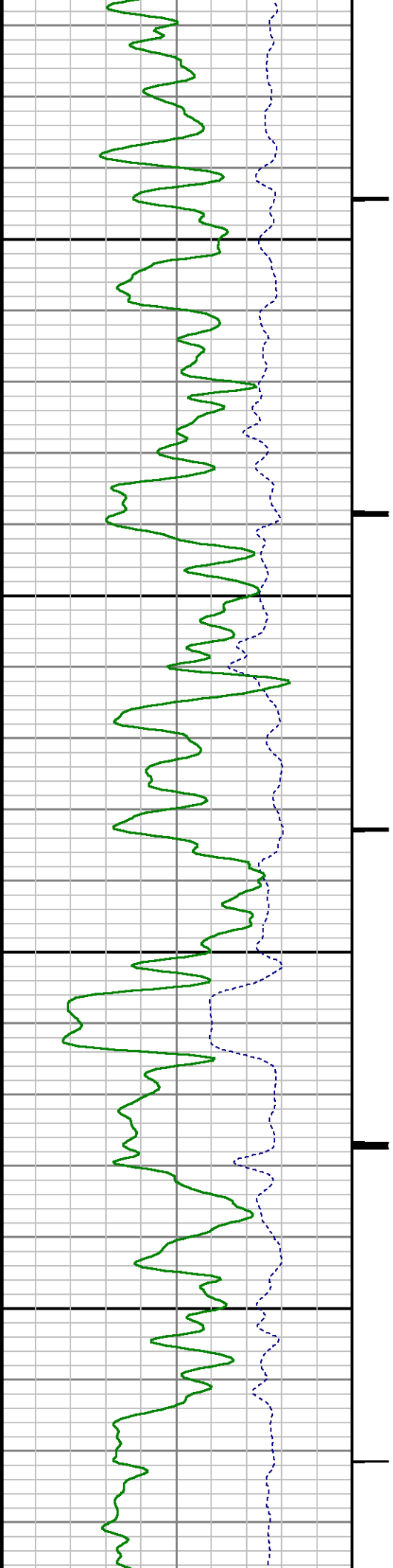
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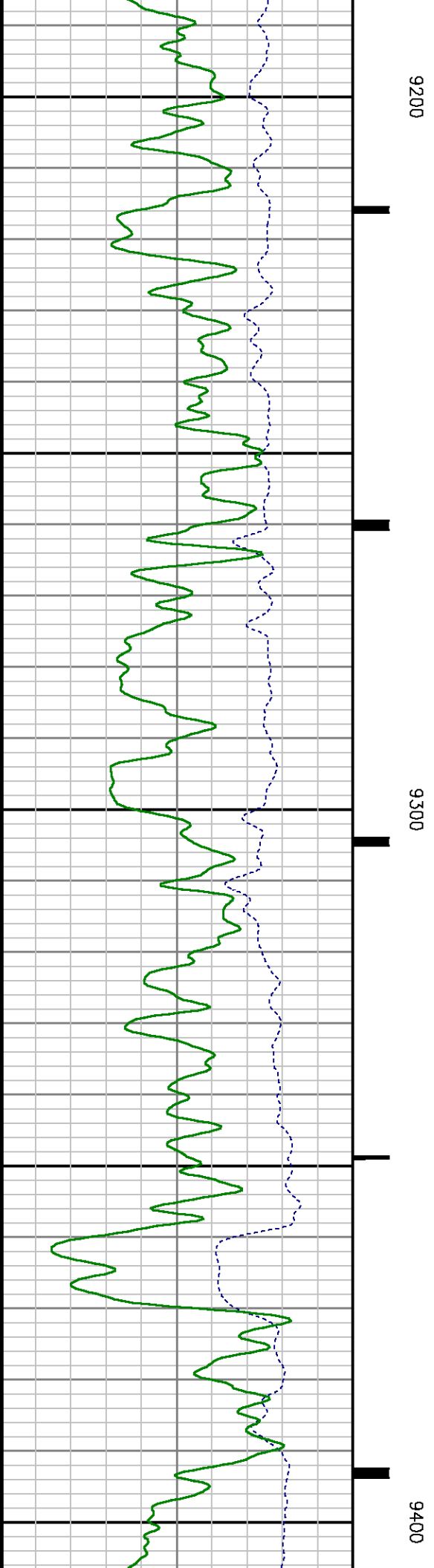
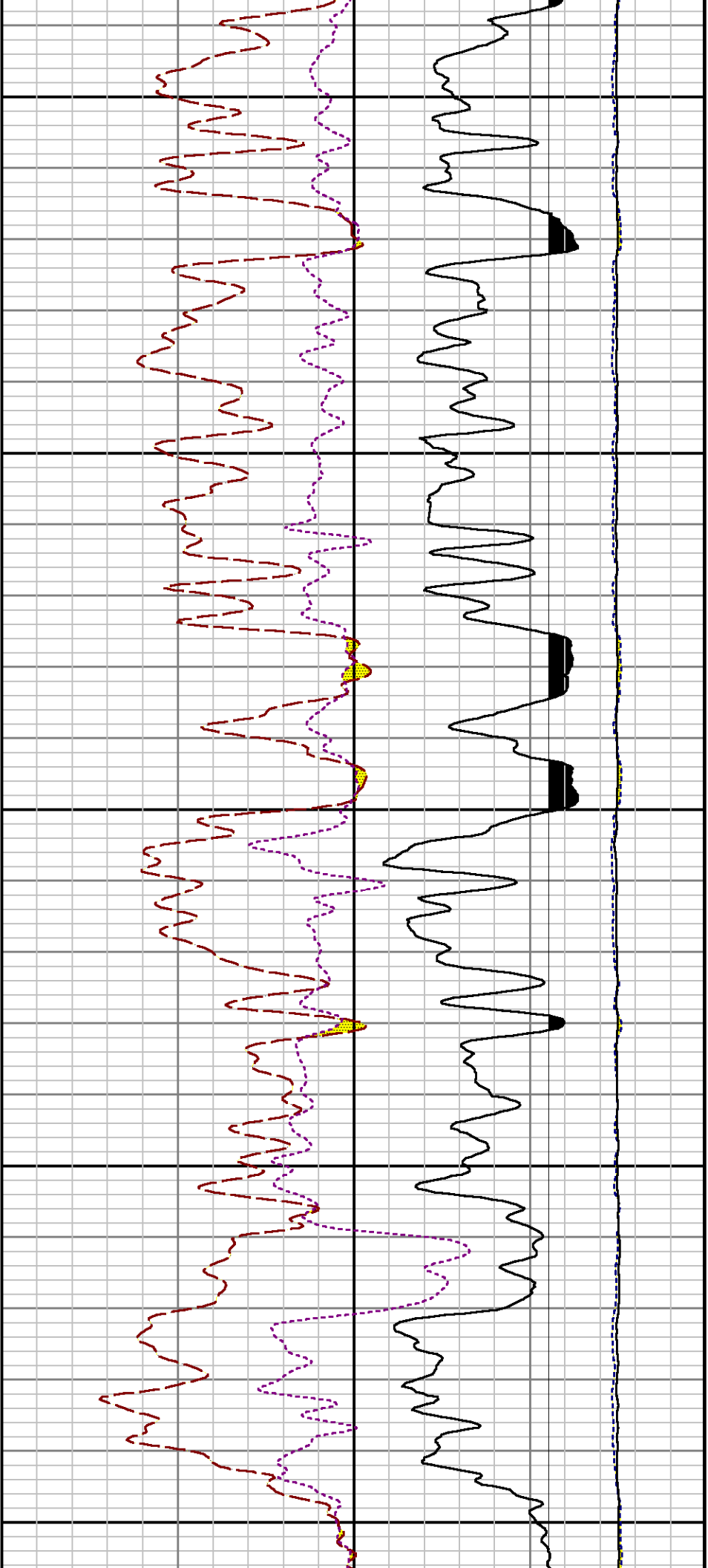


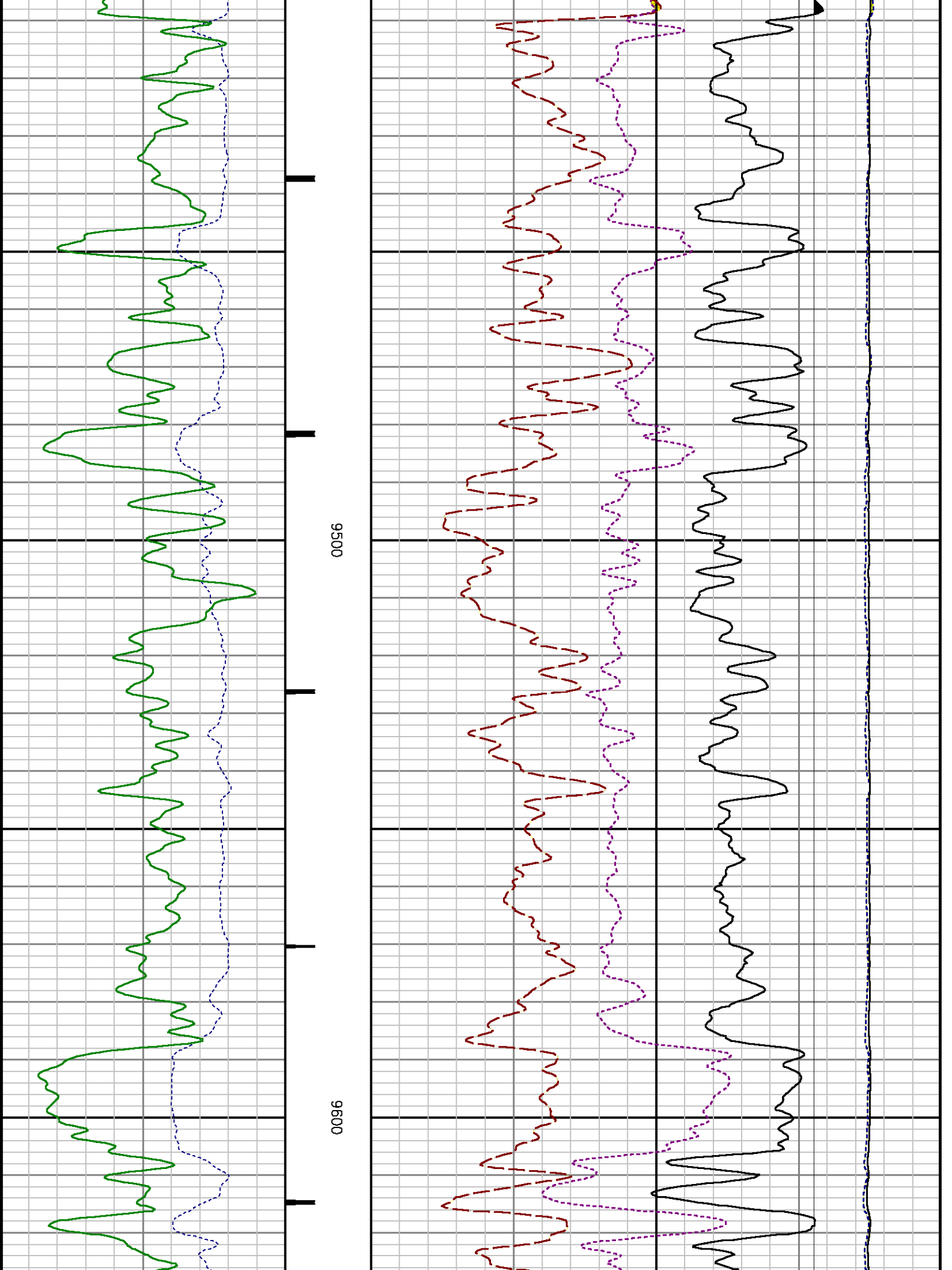


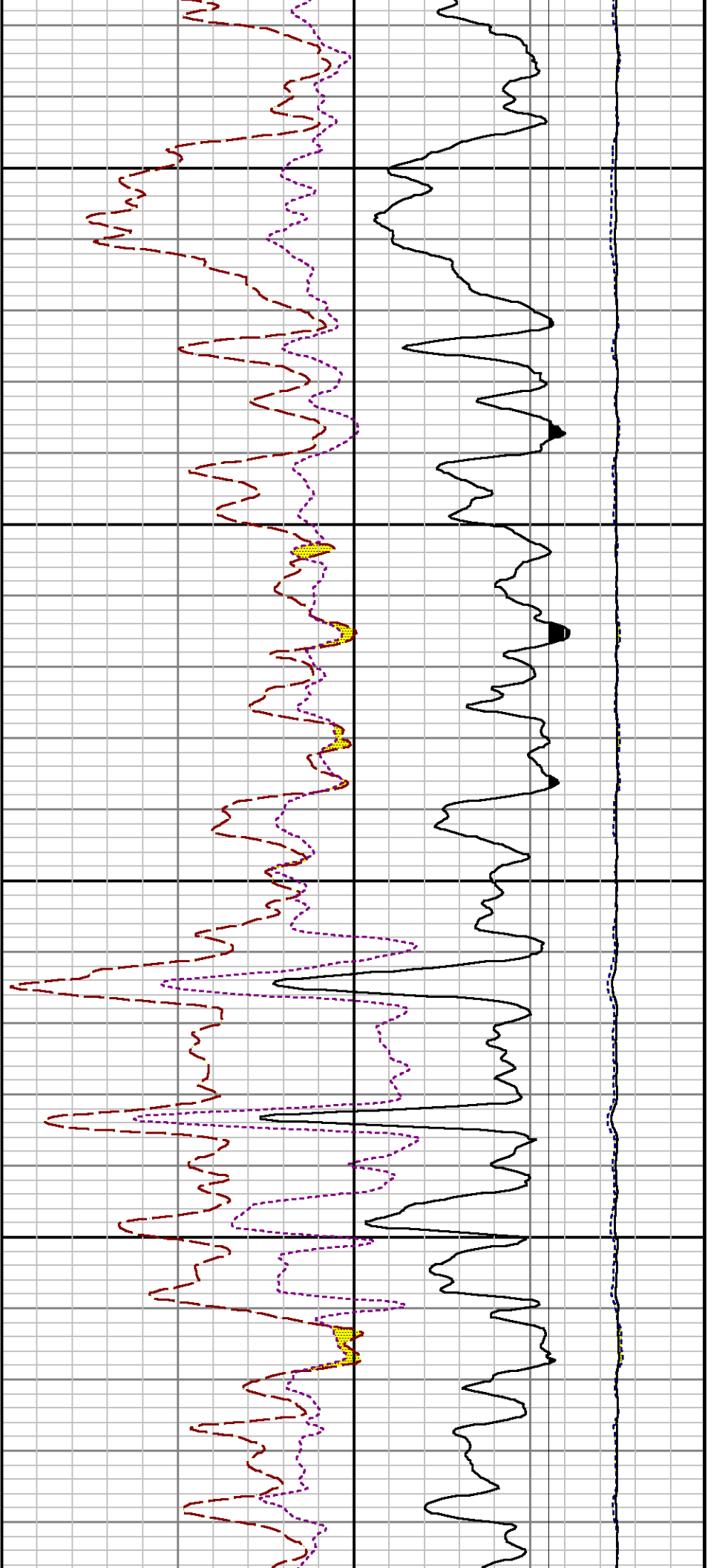
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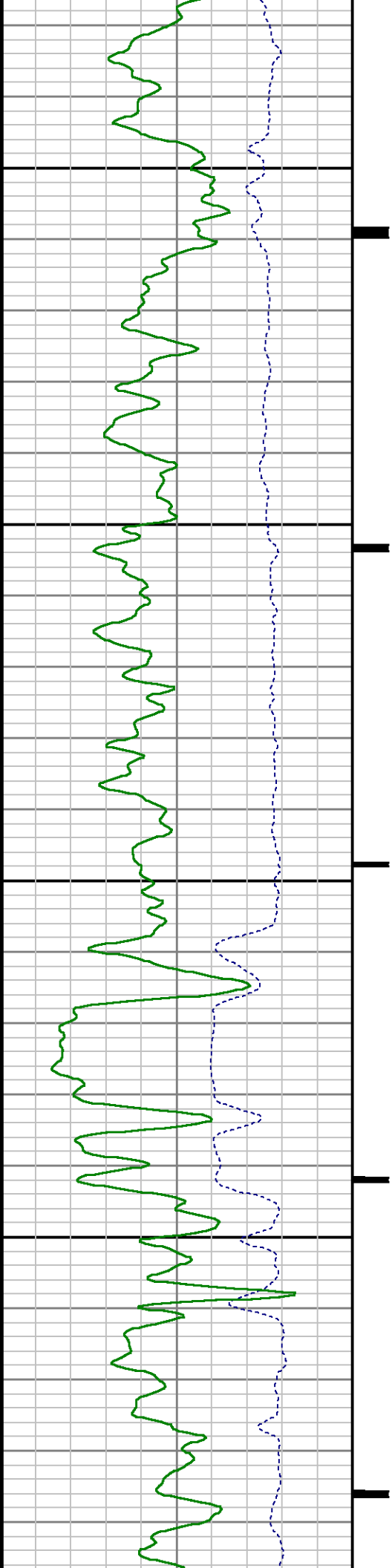


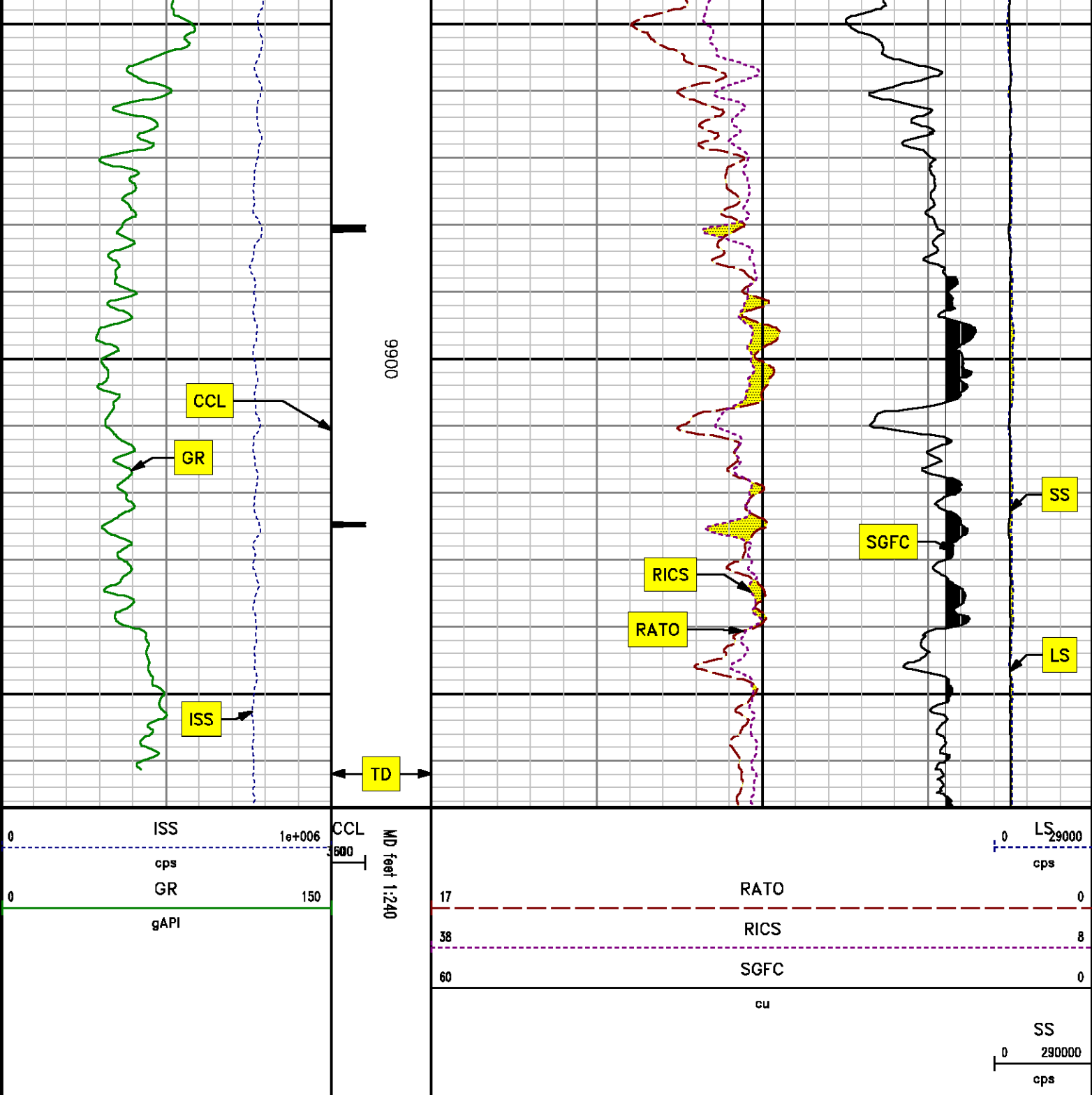




9700

9800





**REPEAT SECTION**  
**PNC 3-D MODE**

## SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		9087.460	9417.495
PNC Porosity	Borehole Size	8.750	inch	9087.460	9417.495
PNC Porosity	Casing Size	4.500	inch	9087.460	9417.495
PNC Porosity	Gas Filled	Non Gas Filled		9087.460	9417.495
PNC Porosity	Matrix	Sandstone		9087.460	9417.495

## DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
8248ED	-14.478	FLTM					
8248ED	-12.478	CCL	CHV				
2812LA	-9.928	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	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	QF1LV	QMV

QPV	Q1A	DERR	DCNT	QPK1	QSA1
PKS1	ASPEC1	HOC	FE2XC	ISSC	RINC
ISSN	RDEN	WDTH1	RICSC	CSSR	G1R
G2R	ISSR	SSR	SS2R	RATOR	RATO13R
RBORR	RICSR	RINR	RIN13R	RONER	RPORR
RTWOR					
TEN	TTEN				

SYSTEM

0.000

Created by : RPM9, v5.3.1.0

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

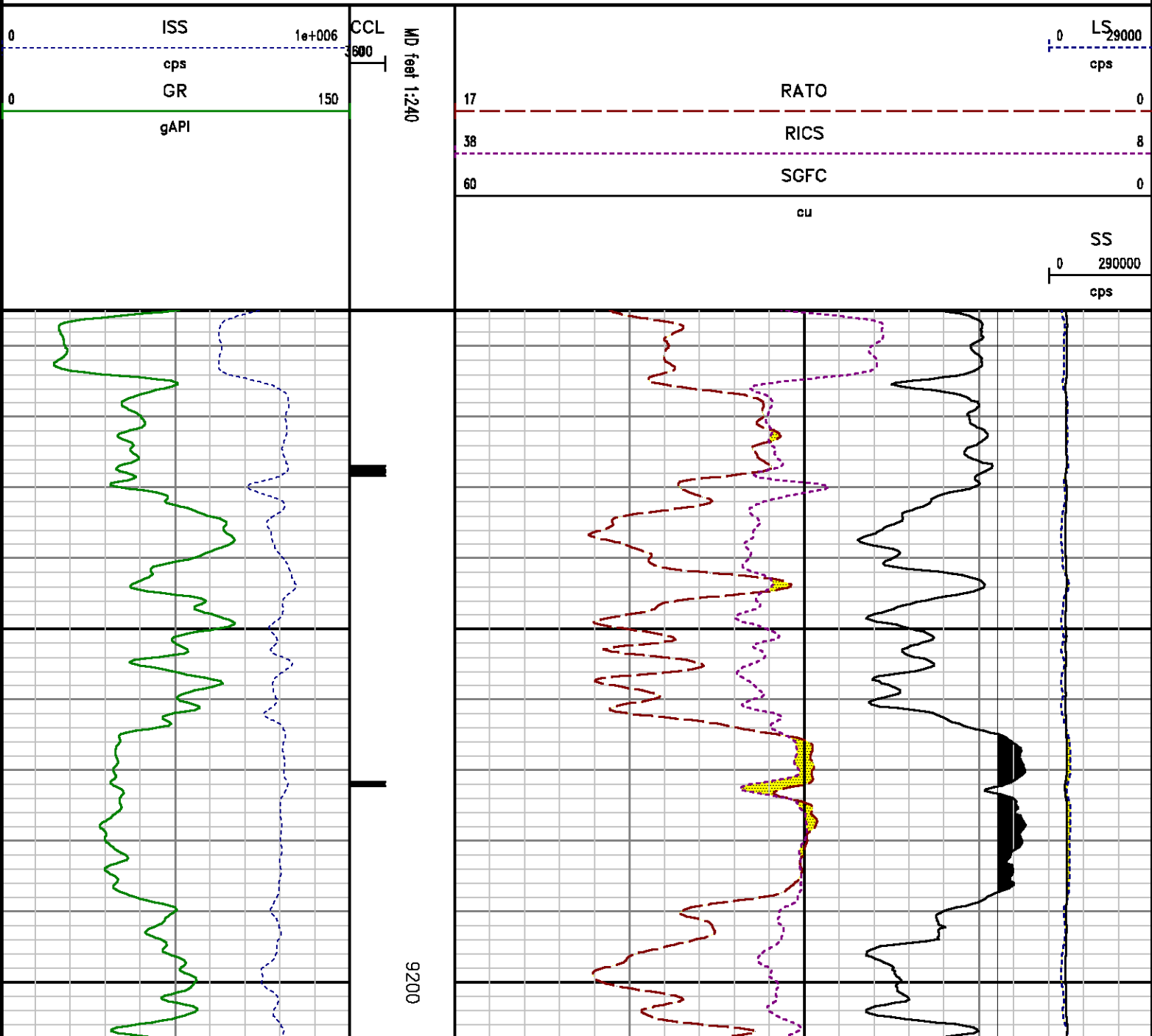
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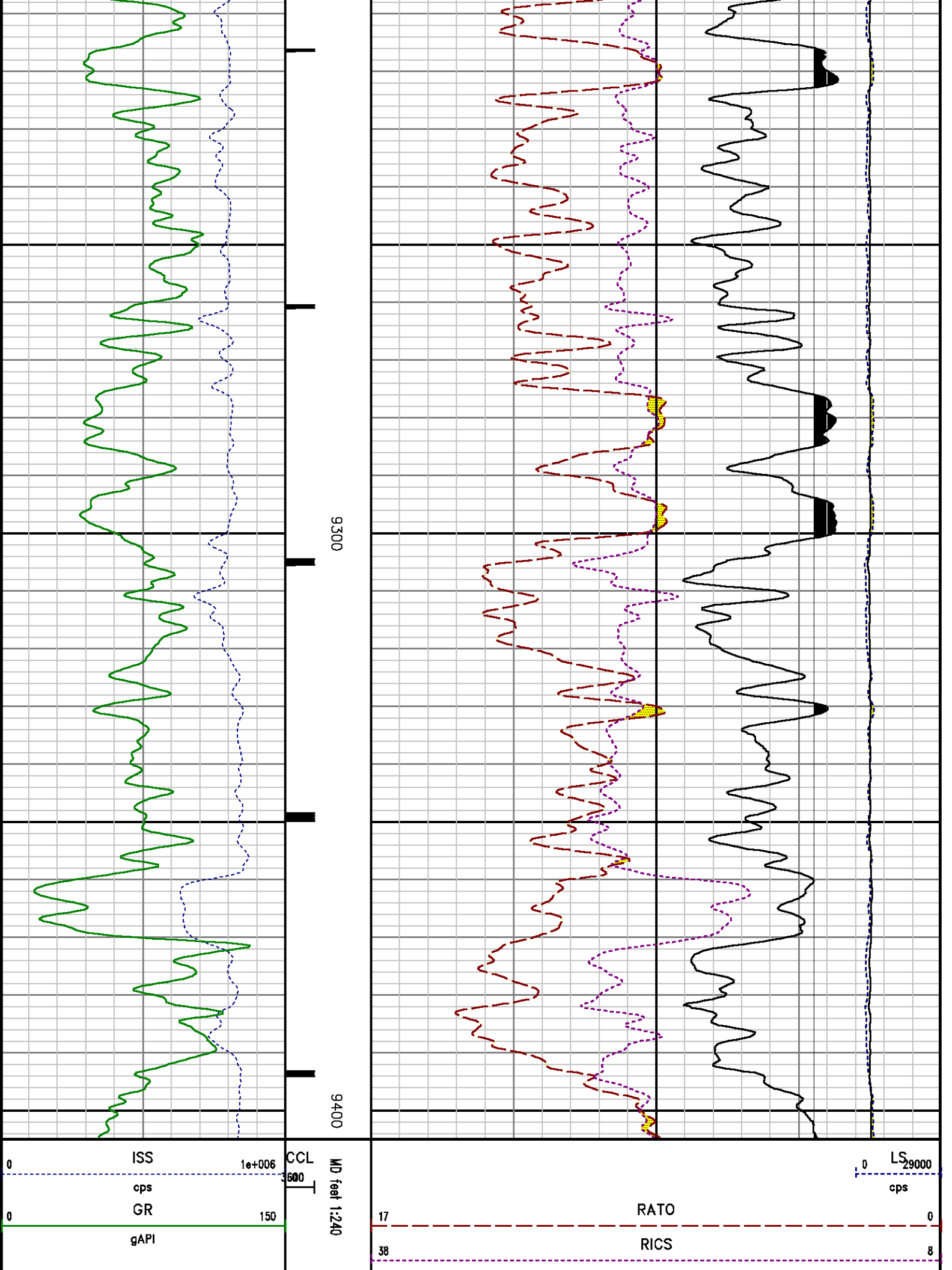
Mode : PlotMgr 5.4.504

Interval : 9105.00 - 9405.00 feet UP

Created : 12/28/2013 2:20:37 PM







		60	SGFC	0
			cu	
				SS
				0 290000
				cps

# CALIBRATION SUMMARY

PNC

Calibration File: C:\case\calver\PNC\23112.cal

## PNC 3D CALIBRATION SUMMARY

DATE/TIME PERFORMED: Thu Dec 12 10:41:14 2013 TOOL SERIES: 8281XA ASSET: 231 SEQ: 12

Calibrator #

2437XB 112674

Source #

8281AA 11724361

	ISS	Mtr Vlt (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	811900	120.00	2267.00	2286.00	2288.00	99.68	7.00	0.9602
Interpolated	1300000	142.37	2244.93	2279.67	2285.27			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	811900	7055.65	1066.31	144.49	25.87	0.14	24.13	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	811900	172191.48	26448.88	91491.49	32544.21	8342.89	55348.96	13362.00
Fit Quality %		1.37	1.57	1.11	1.12	1.50	0.98	1.52

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	811900	1.43	4.72	30.70	14.67	10.97	3.90	4.14
		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 %		0.00	0.03	0.11	0.19	0.26	0.26	0.28
Reduced	1392104	1.43	4.73	30.86	14.73	10.98	3.90	4.14
		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\38512.cal

## CALIBRATION SUMMARY

DATE/TIME PERFORMED:	Thu Dec 12 11:59:28 2013	TOOL SERIES:	2812LA	ASSET:	385	SEQ:	12
Calibrator #	Background	Calibrator On	Multiplicative	Background	Calibrator On	Differential	
	[cps]	[cps]		[api]	[api]	[api]	
S2K WA-612	64.62	298.40	0.898	58.05	268.05	210.00	

Verification File: C:\case\calver\GR\38512.VP

## PRIMARY VERIFICATION

DATE/TIME PERFORMED:	Thu Dec 12 12:07:31 2013	TOOL SERIES:	2812LA	ASSET:	385	SEQ:	12
Calibrator #	Background	Calibrator On	Multiplicative	Background	Calibrator On	Differential	
	[cps]	[cps]		[api]	[api]	[api]	
S2K WA-612	64.02	300.02	0.898	57.51	269.51	212.00	

# 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

#### SONDEX GAMMA RAY

Series	2812LA
Mnemonic	SNDX
Diameter	1.69"

	29.93'
CCL MP	21.84'
MP	19.40'

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

XLS DETECTOR 12.78'

LS DETECTOR 9.80'  
SS DETECTOR 9.58'

0.00'

Total Length: 29.93'  
Total Weight: Not Available  
Max Diameter: 0' 1.70"



Company	WPX ENERGY		
Well	FEDERAL RU 331-5		
Field	RULISON		
County	GARFIELD	State	CO

File No:	CH80983
API No:	05045217880000

#### Location

SHL: 225' FNL & 2615' FWL  
BHL: 509' FNL & 1974' FEL

#### Elevations

KB 7628 ft  
DF  
GL 7602 ft

5 7S 93W  
RU 23-5 PAD  
NABORS 576

SEC 5 TWP 7S RGE 93W

CASE

Baker Atlas