



# RESERVOIR PERFORMANCE MONITOR

Baker Atlas

File No: **Company** **WPX ENERGY**

CH087284 **Well** **FEDERAL RGU 442-24-198**

API No: **Field** **SULPHUR CREEK**

05103120840000 **County** **RIO BLANCO** **State** **COLORADO**

## Location

SHL: 2156' FSL & 1700' FEL

BHL: 2237' FNL & 647' FEL (SENE)

SEC 24 TWP 1S RGE 98W

## Other Services

BOND LOG

Permanent Datum **GL** **Elevation** **6596 ft**

Log Measured From **KB** **21 ft** **Above P. D.**

Drill Measured From **KELLY BUSHING** **Elevations** **KB 6617 ft** **DF** **GL 6596 ft**

Date	06/JUL/14	
Run	ONE	
Service Order	US087286J	
Depth Driller	12868 ft	
Depth Logger	12812 ft	
Bottom Logged Interval	12792 ft	
Top Logged Interval	21 ft	
Time Started	1730	
Time Finished	0130	
Operator Rig Time	8 HRS	
Type of Fluid in Hole	WATER	
Fluid Density	NA	
Salinity	NA	
Fluid Level	87 ft	
Logged Cement Top	NA	
Wellhead Pressure	0 psi	
Maximum Hole Deviation	NA	
Nominal Logging Speed	66 fpm	
Maximum Recorded Temperature	288 degF	
Reference Log	NONE	
Reference Log Date	NA	
Equipment No.	4271	GRAND JCT
Recorded By	FLOYD RENEAU	
Witnessed By	WAYNE MARGOTTE	

- 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
30 in	21 ft	80 ft
14.73/13.5	80 ft	3914 ft
8.75/7.875	3914 ft	12868 ft

Casing Record				
Size	Weight	Grade	From	To
18 in			21 ft	80 ft
9.625 in			21 ft	3914 ft
4.5 in	11.6 lbm/ft	P-110	21 ft	12868 ft

## Remarks

All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 7/6/2014 at the client's request.

The amount of linear shift is 12 feet.

Logged in PNC-3D mode.

BHT = 280°F

MAX TEMP = 288°F @ 12,769'

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	TEMP	8255XA	Z1769731	FREE
1	1	RPM	8281FA	10460082	FREE
1	1	RPM	8281PA	10205151	FREE
1	1	RPM	8281EA	10273848	FREE
1	1	GR	2812LA	10274385	FREE
1	1	TEL/CCL	8248ED	10450262	FREE
1	1	PCM	8250EA	10586851	FREE

MAIN SECTION  
PNC 3-D MODE

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		7278.970	12824.156
PNC Porosity	Borehole Size	8.750	inch	7278.970	12824.156
PNC Porosity	Casing Size	4.500	inch	7278.970	12824.156
PNC Porosity	Gas Filled	Non Gas Filled		7278.970	12824.156
PNC Porosity	Matrix	Sandstone		7278.970	12824.156
TPS Pressure	Temperature Corr. Source	Fixed (72.00)	degF	7278.970	12824.156

DEPTH OFFSETS  
(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES					
8248ED	-26.519	FLTM					
8248ED	-24.519	CCL	CHV				
2812LA	-21.969	GR					
8281XA	-12.702	HVC3Q0	SEQ3	AMA3	AML3	BKX	CXS
		CPT3Q0	CPT3Q2	CPT3Q3	CPT3Q4	ET3	IXS
		WSS	WSS2	SRMS	SRMS2	TRMS	TRMS2

8281XA -12.291

8281XA -12.041

8255XA -0.792

8255XA -0.775

8255XA 0.000

SYSTEM 0.000

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 WDT3 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 RTWO23 SDA2  
SDL2 SGA2 SGB2 SGF2 SGK2 SGL2  
STA2 ASPEC2 ILSC ILSN WDT2 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 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 WDT1 RICSC CSSR G1R  
G2R ISSR SSR SS2R RATOR RATO13R  
RBORR RICSR RINR RIN13R RONER RPORR  
RTWOR  
PTFS PTMS  
SPF1 SPFQ TSCP TSDP  
DTEM TEMP TNF  
TEN TTEN

Created by : RPM9, v5.3.1.0

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

Well : FEDERAL RGU 442-24-198

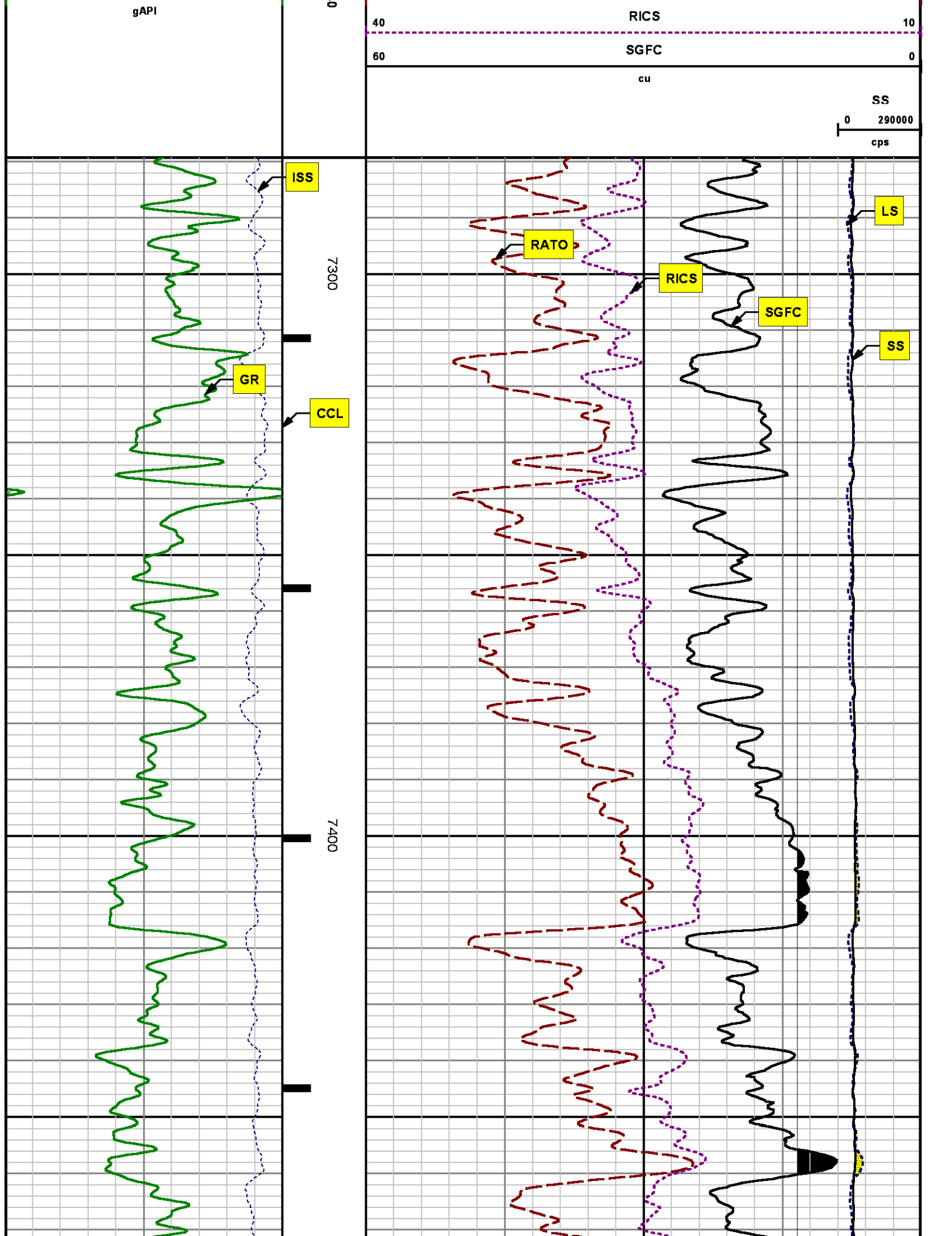
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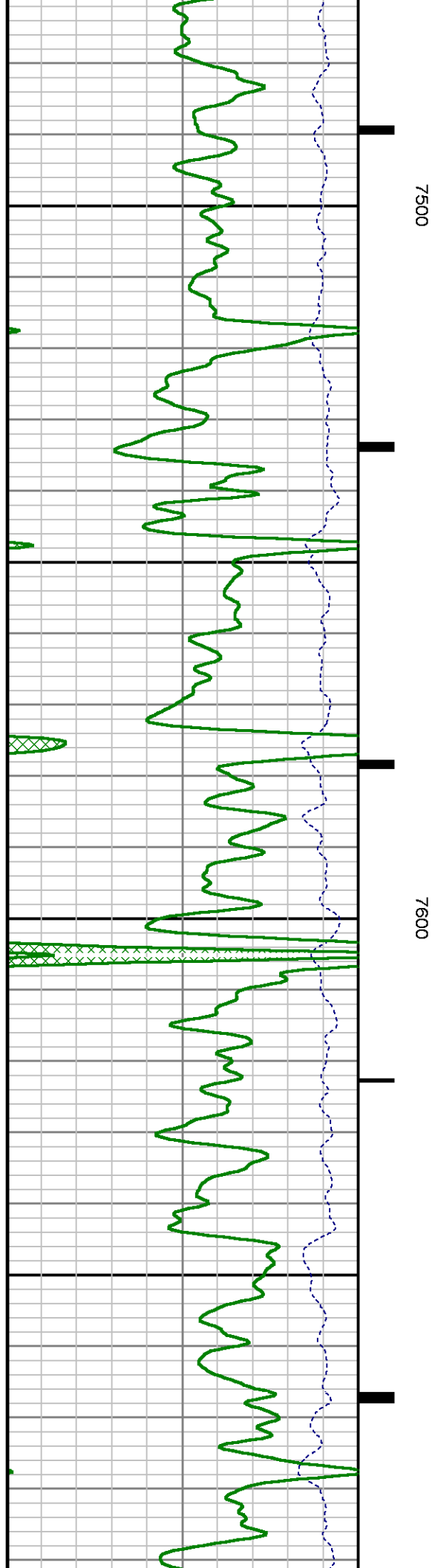
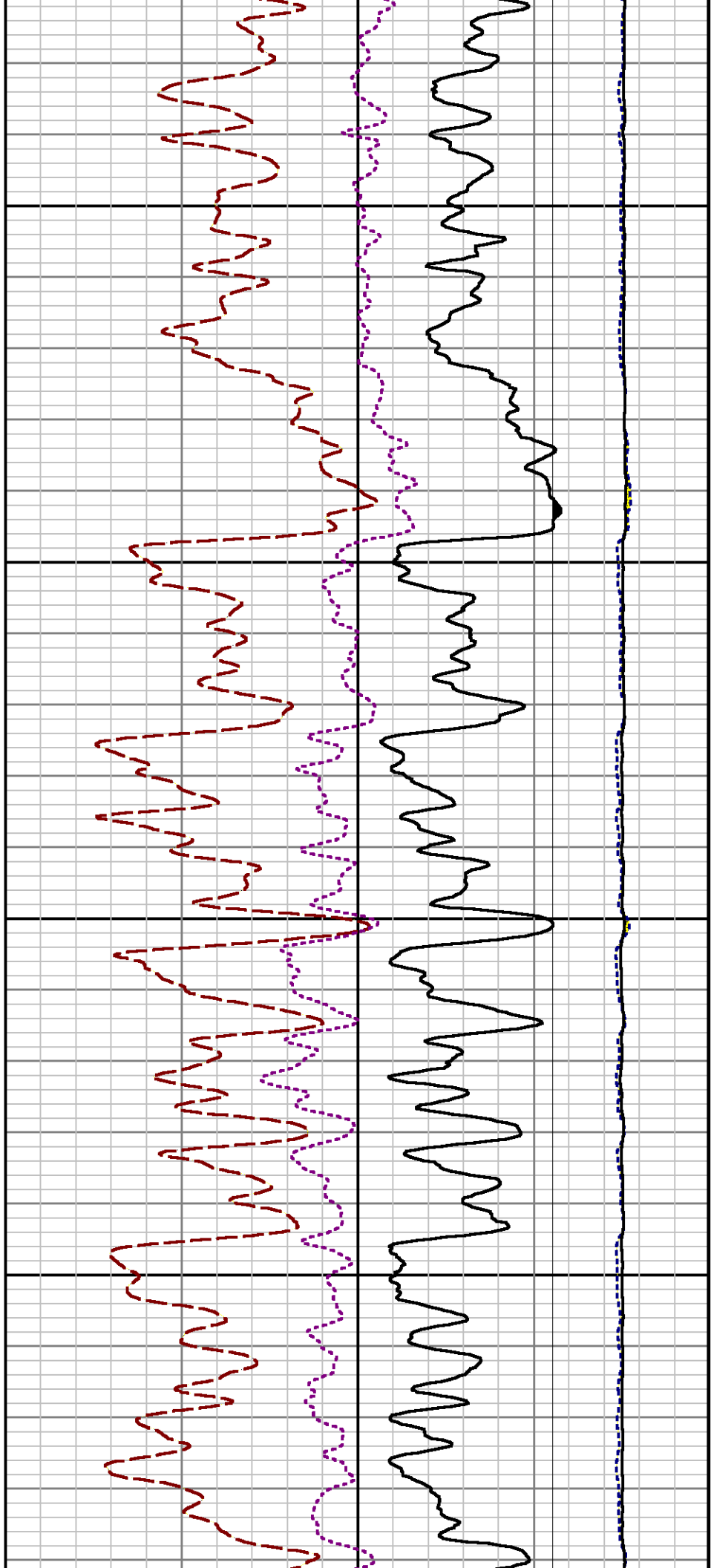
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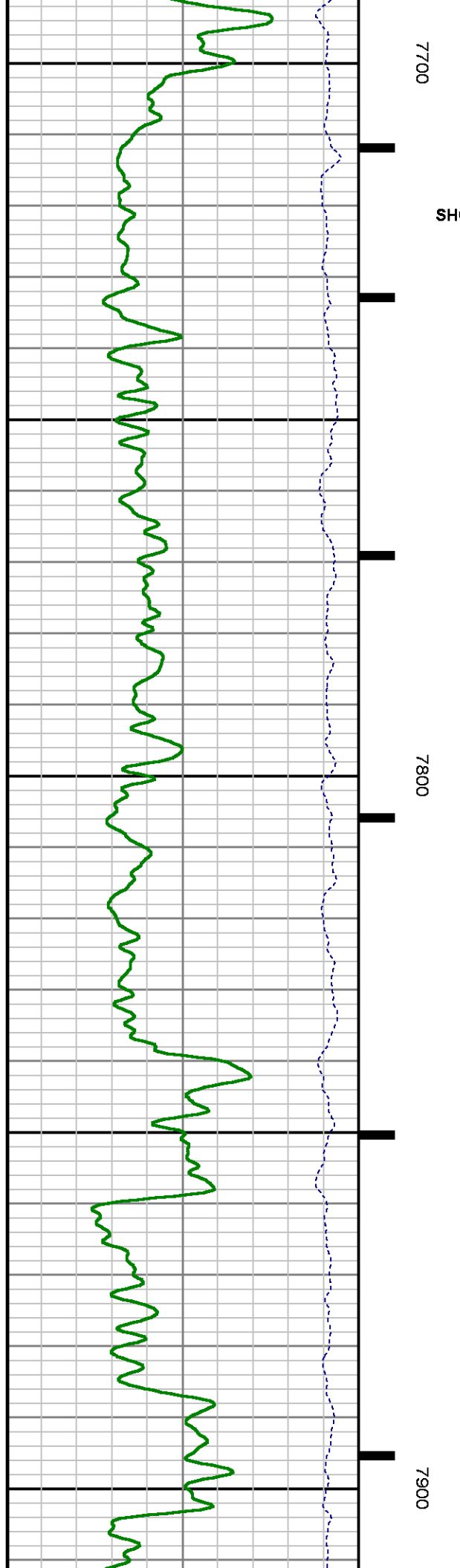
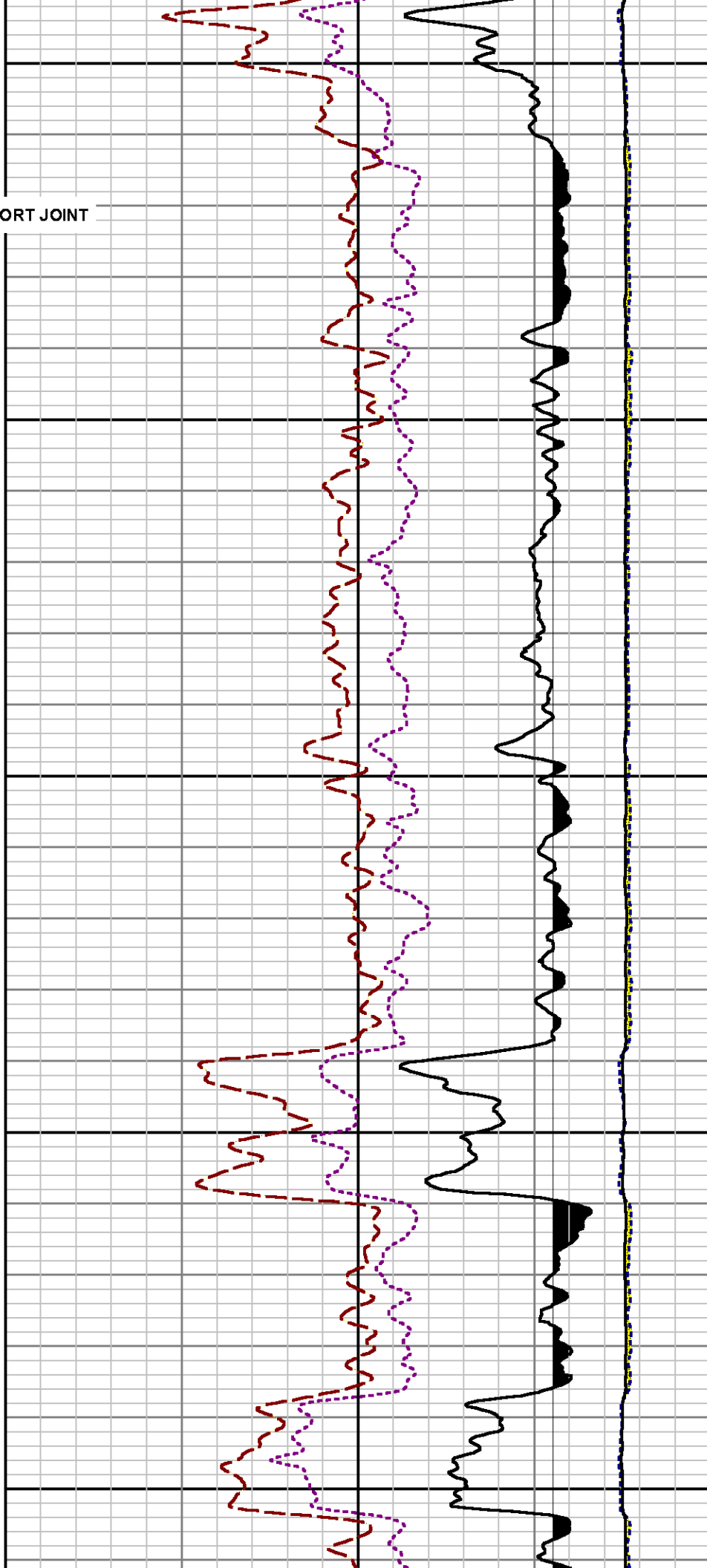
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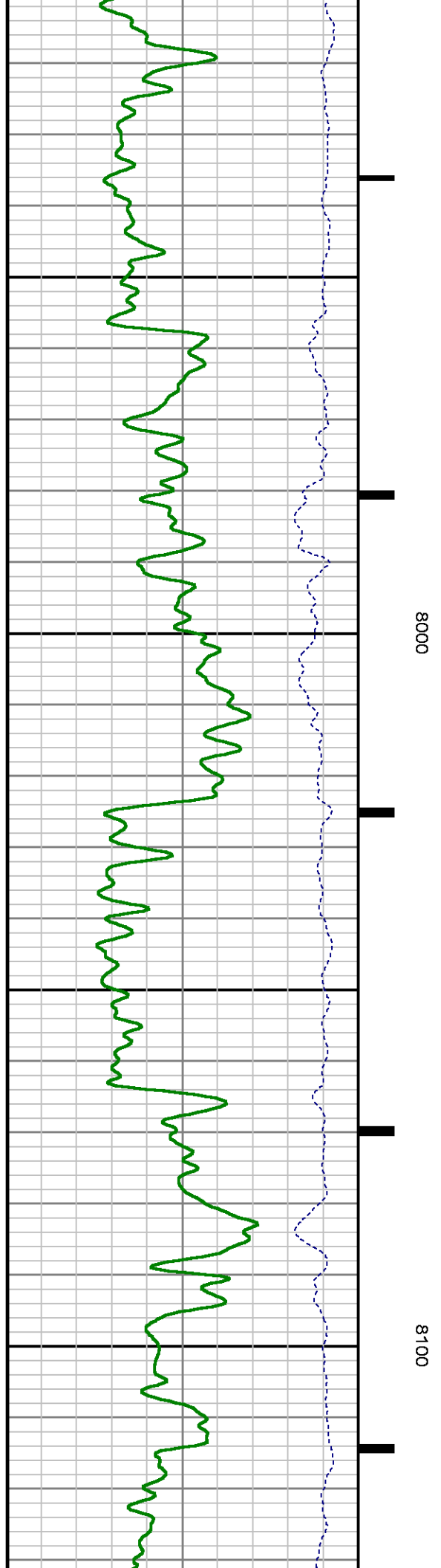
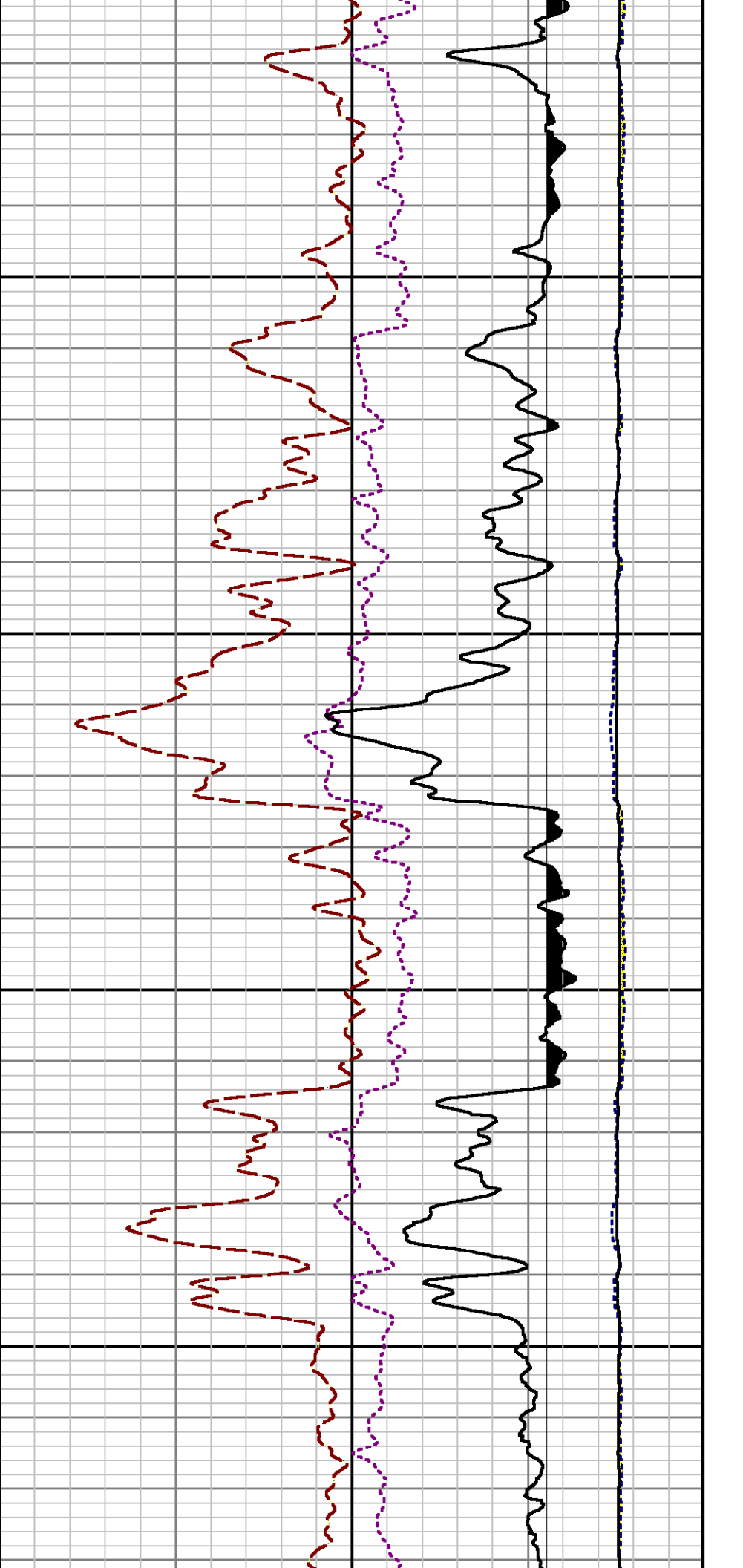
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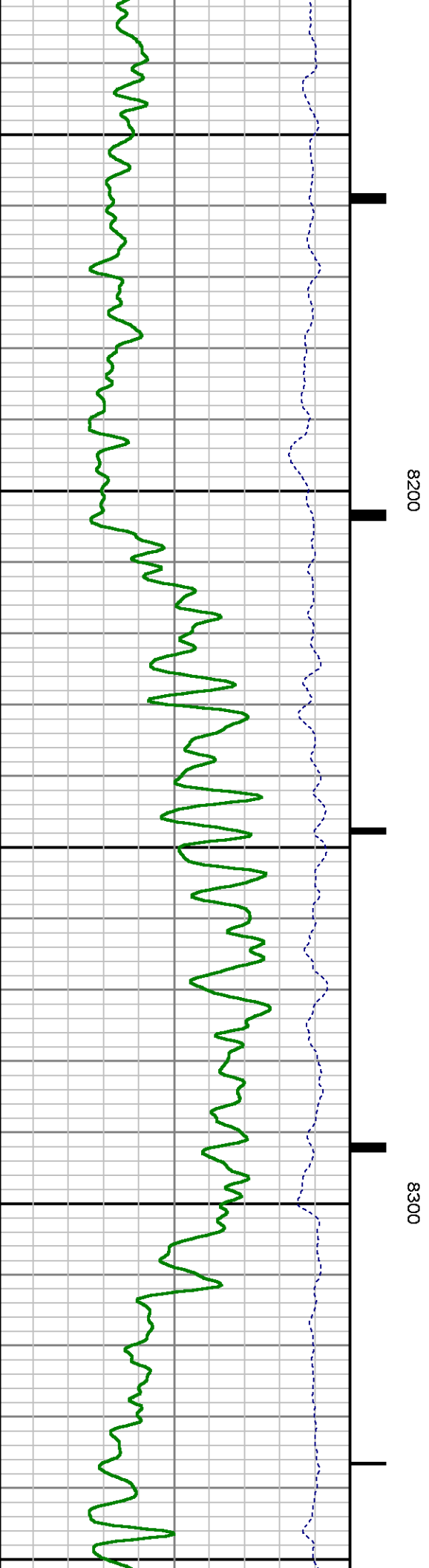
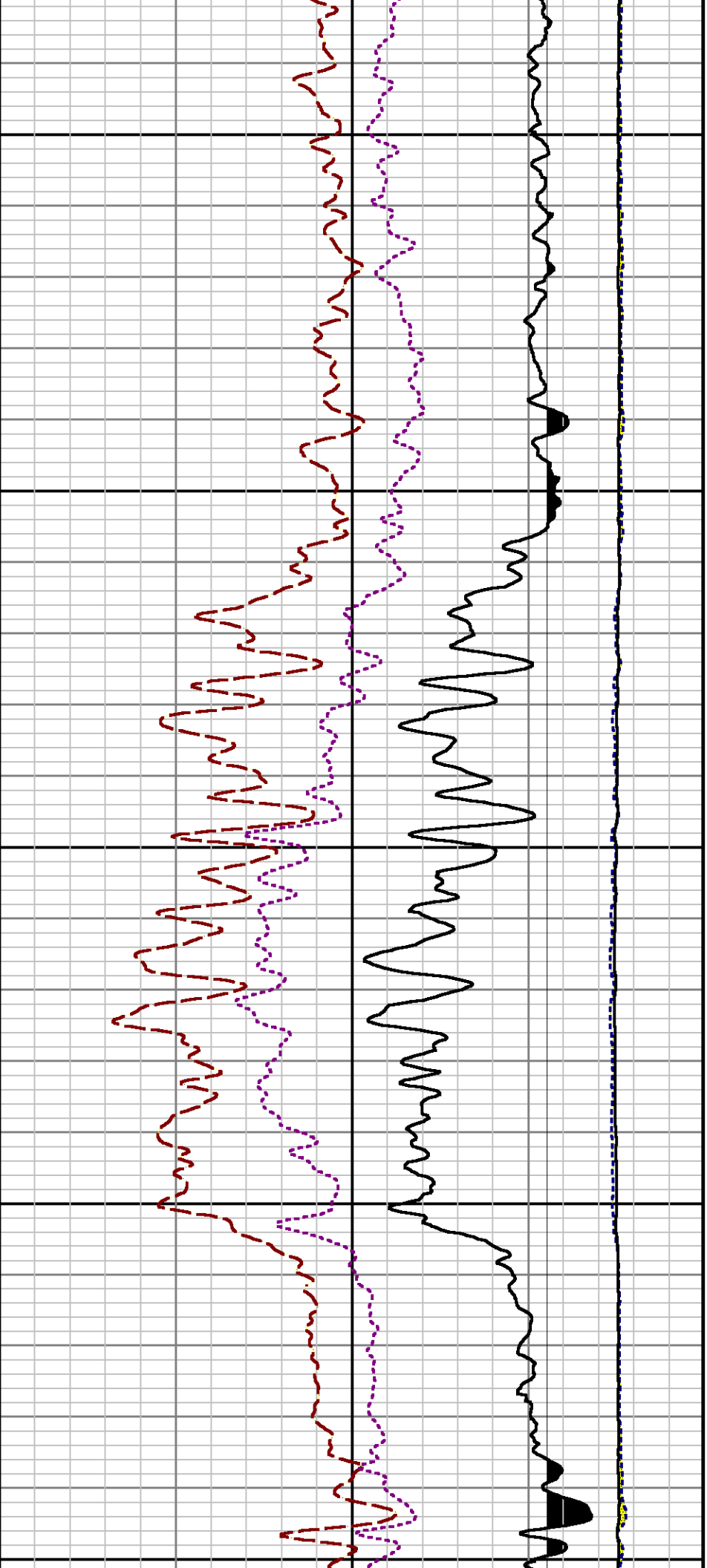




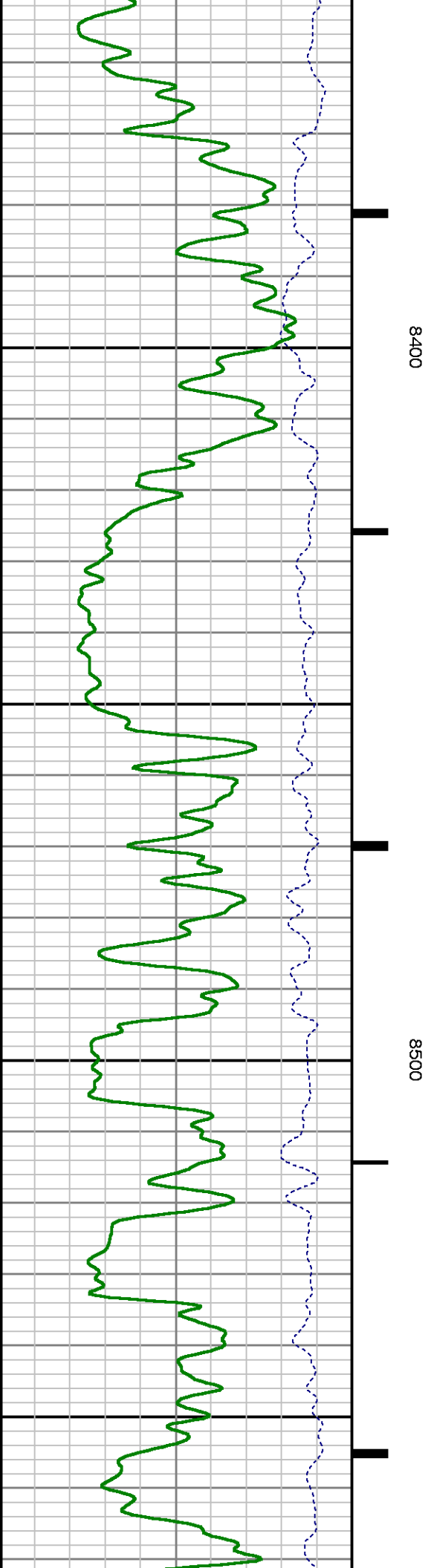
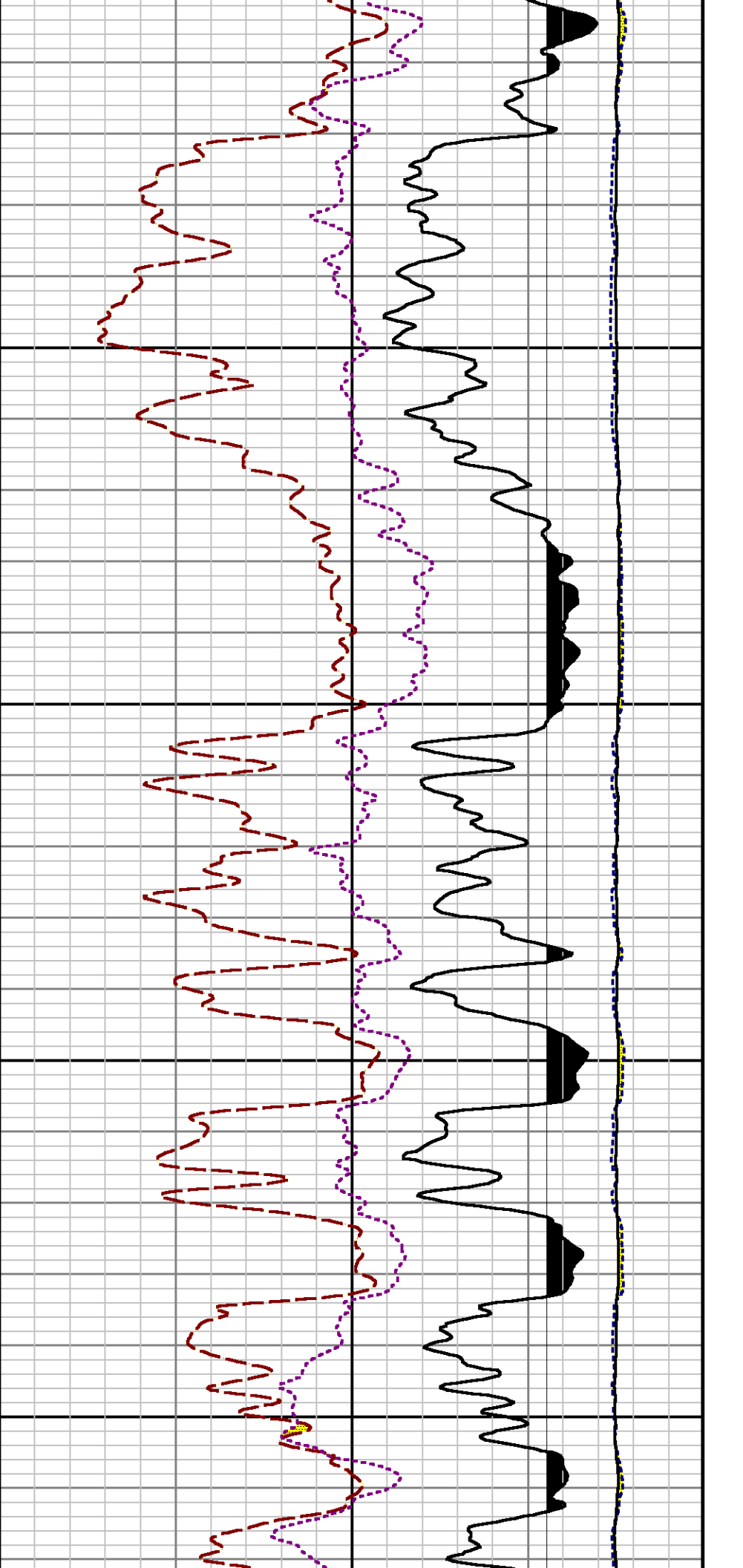


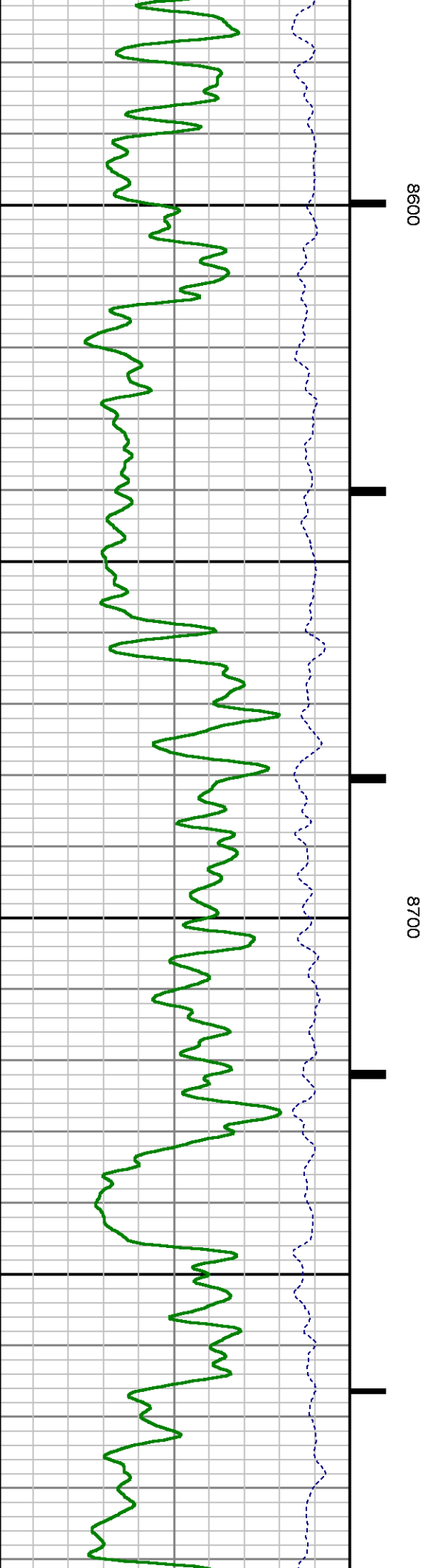
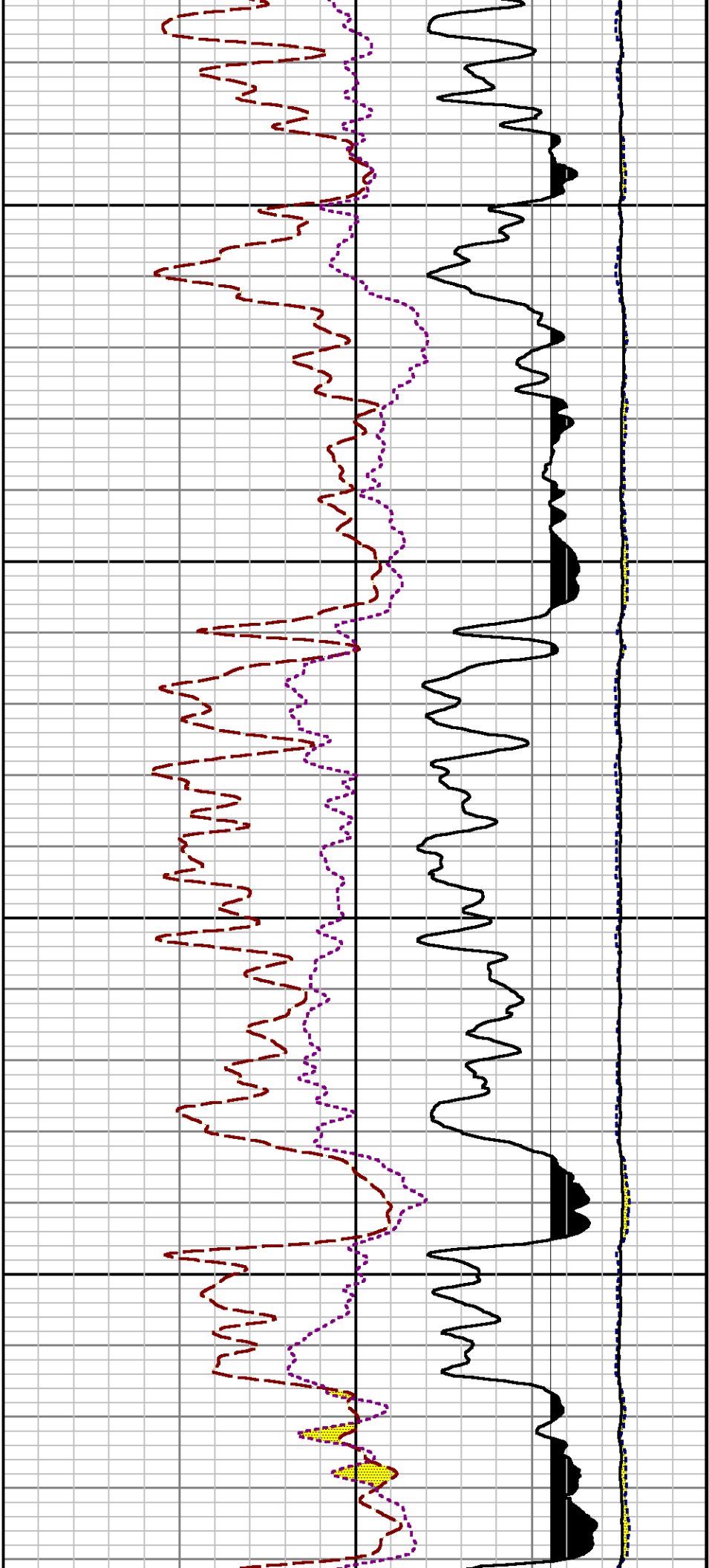


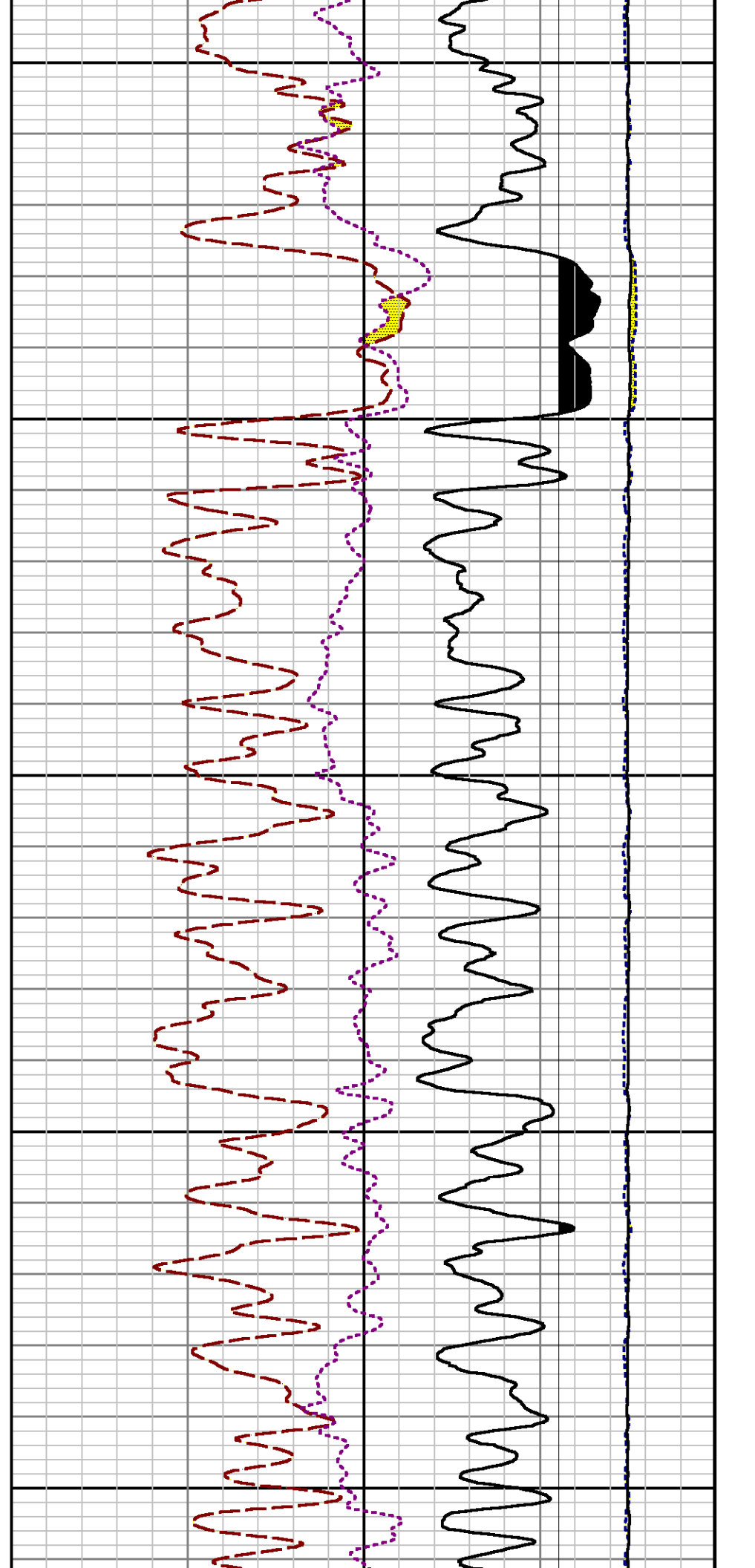
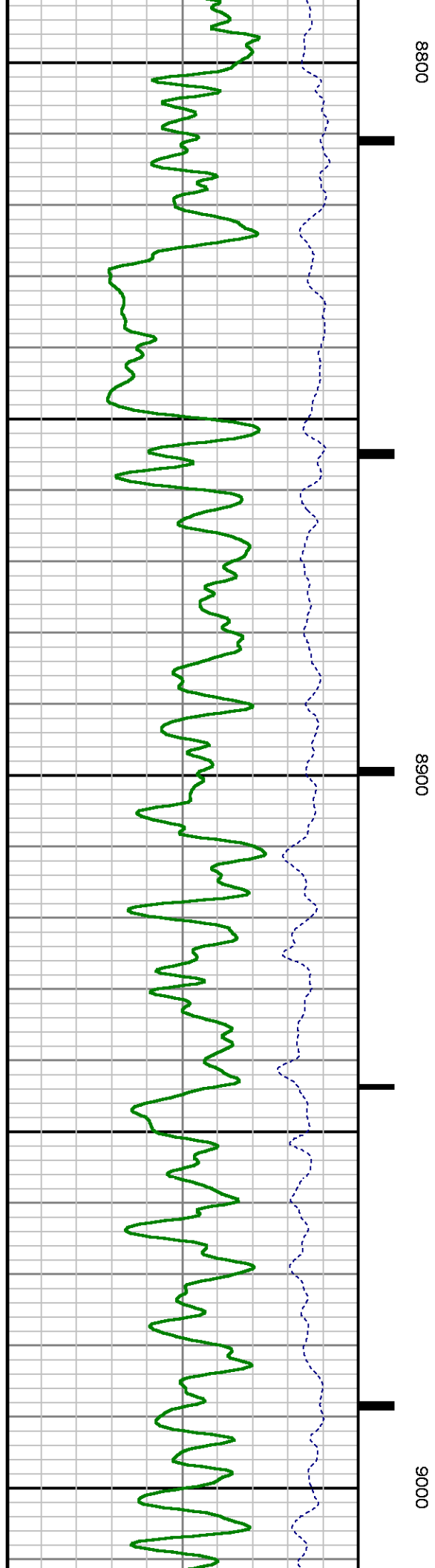


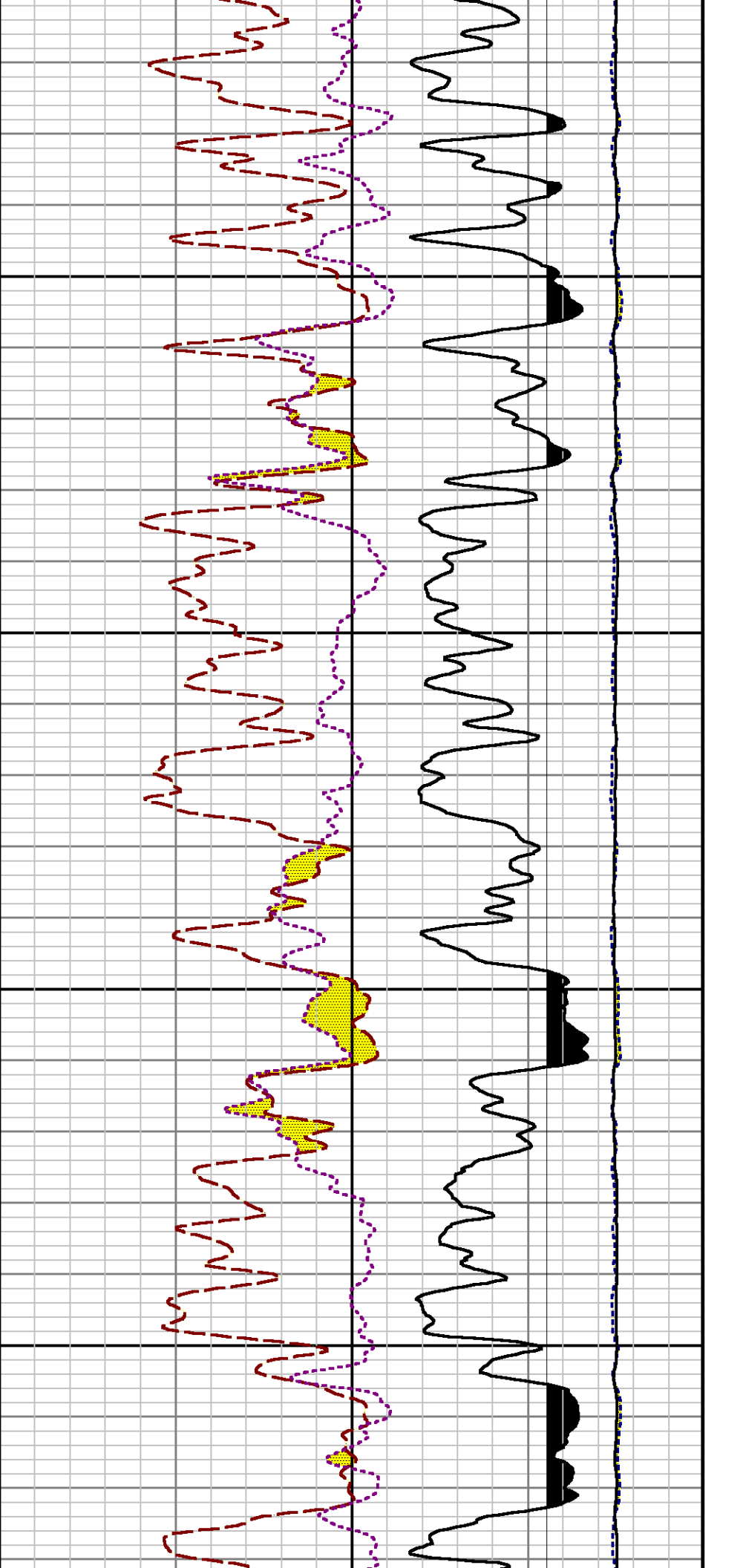






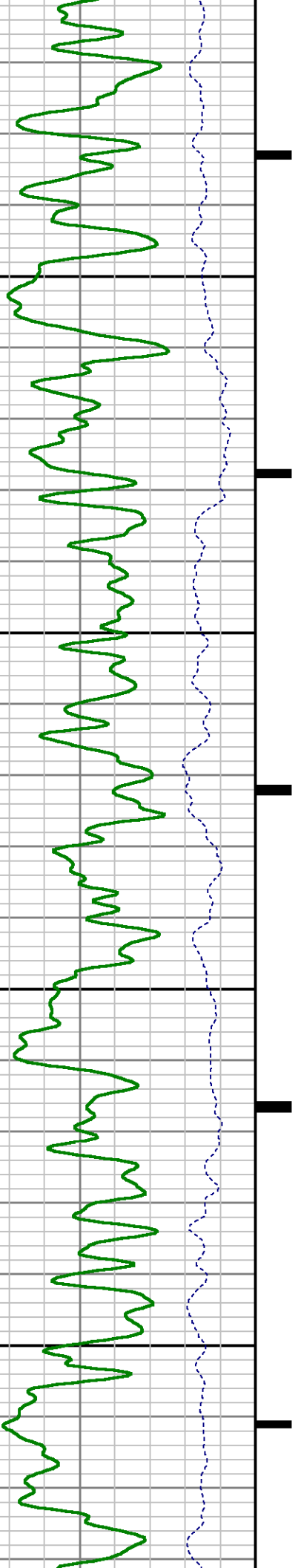


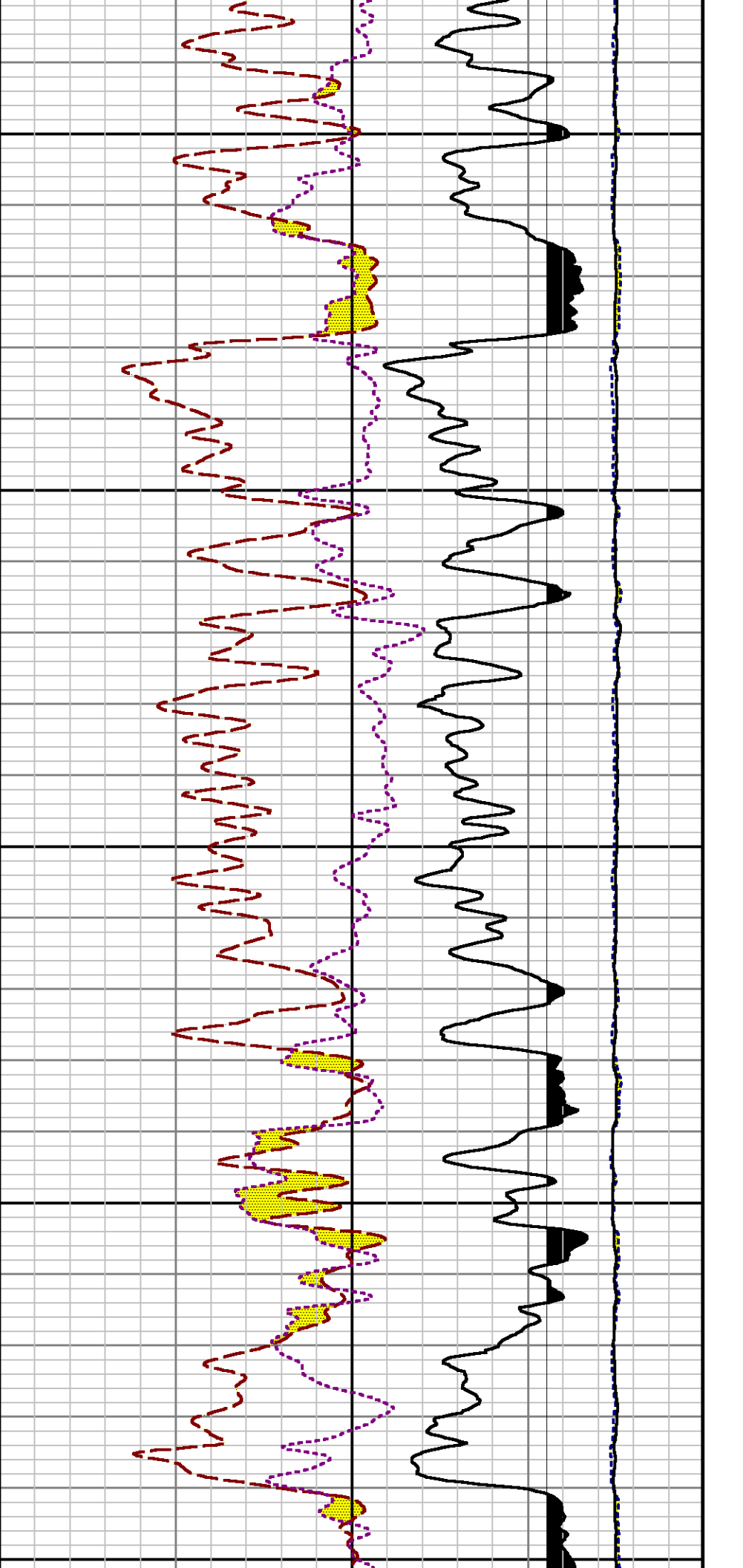




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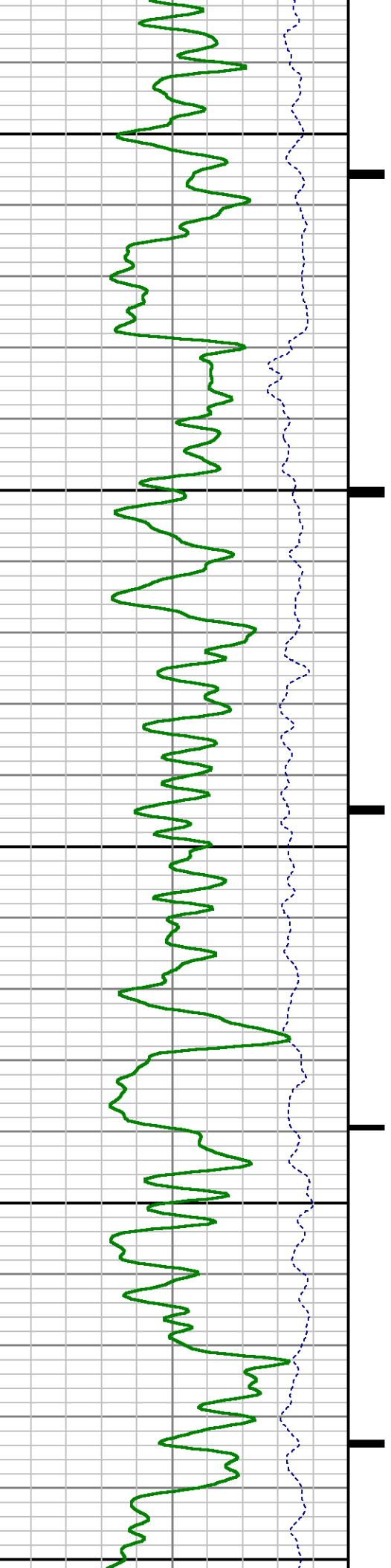
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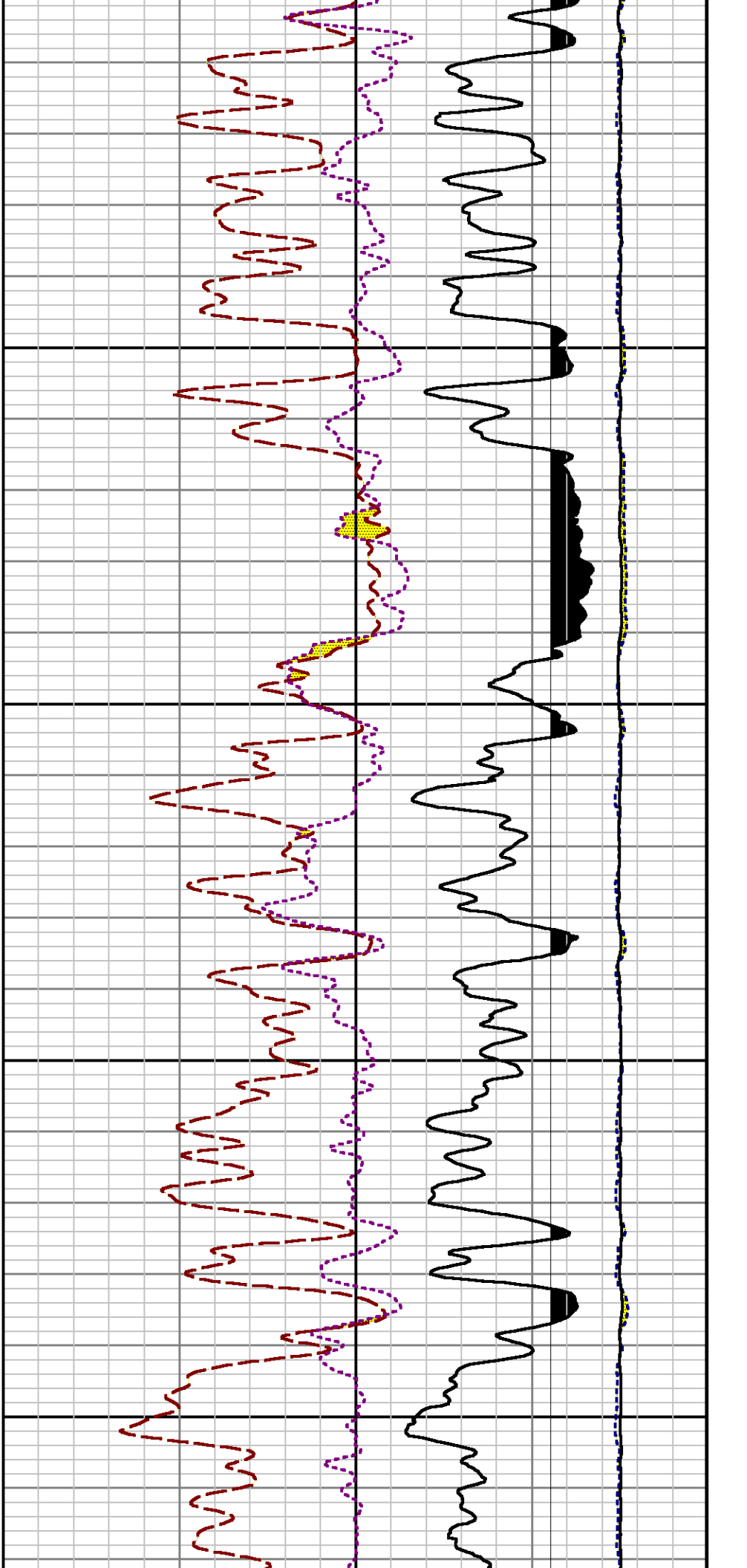
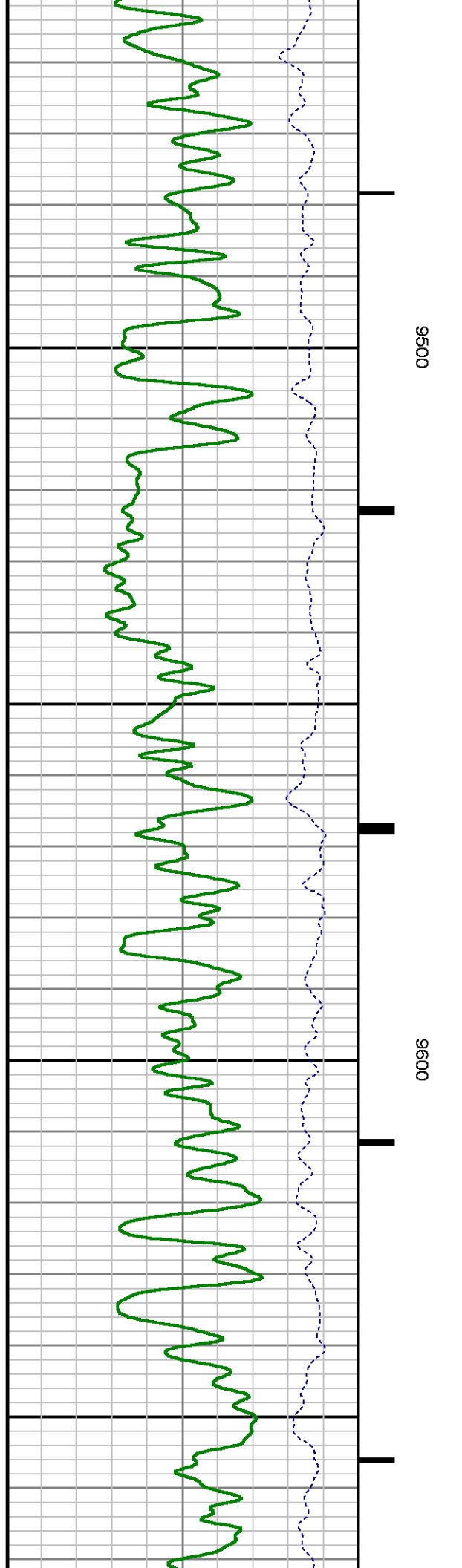


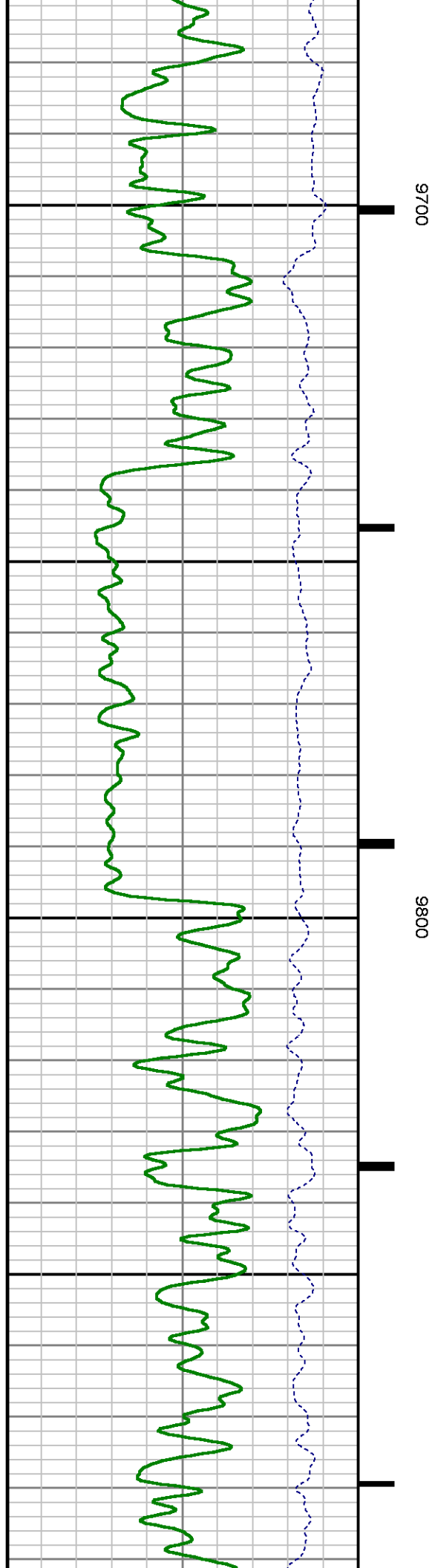
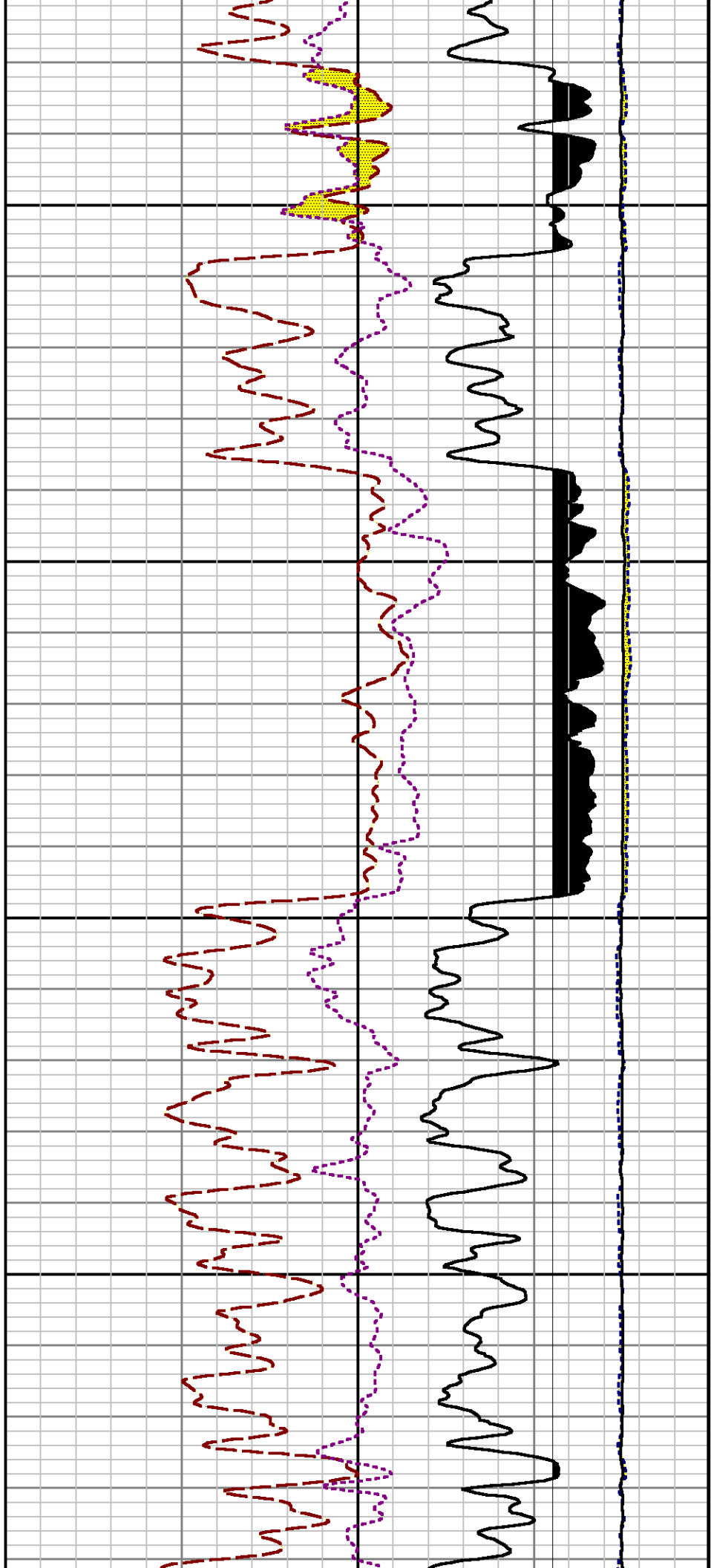


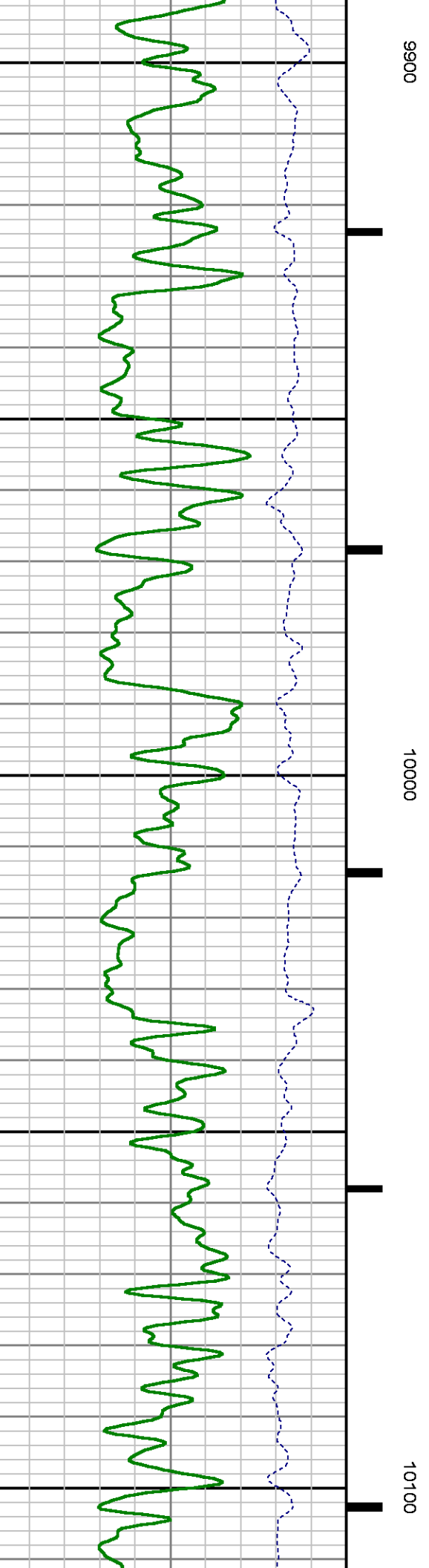
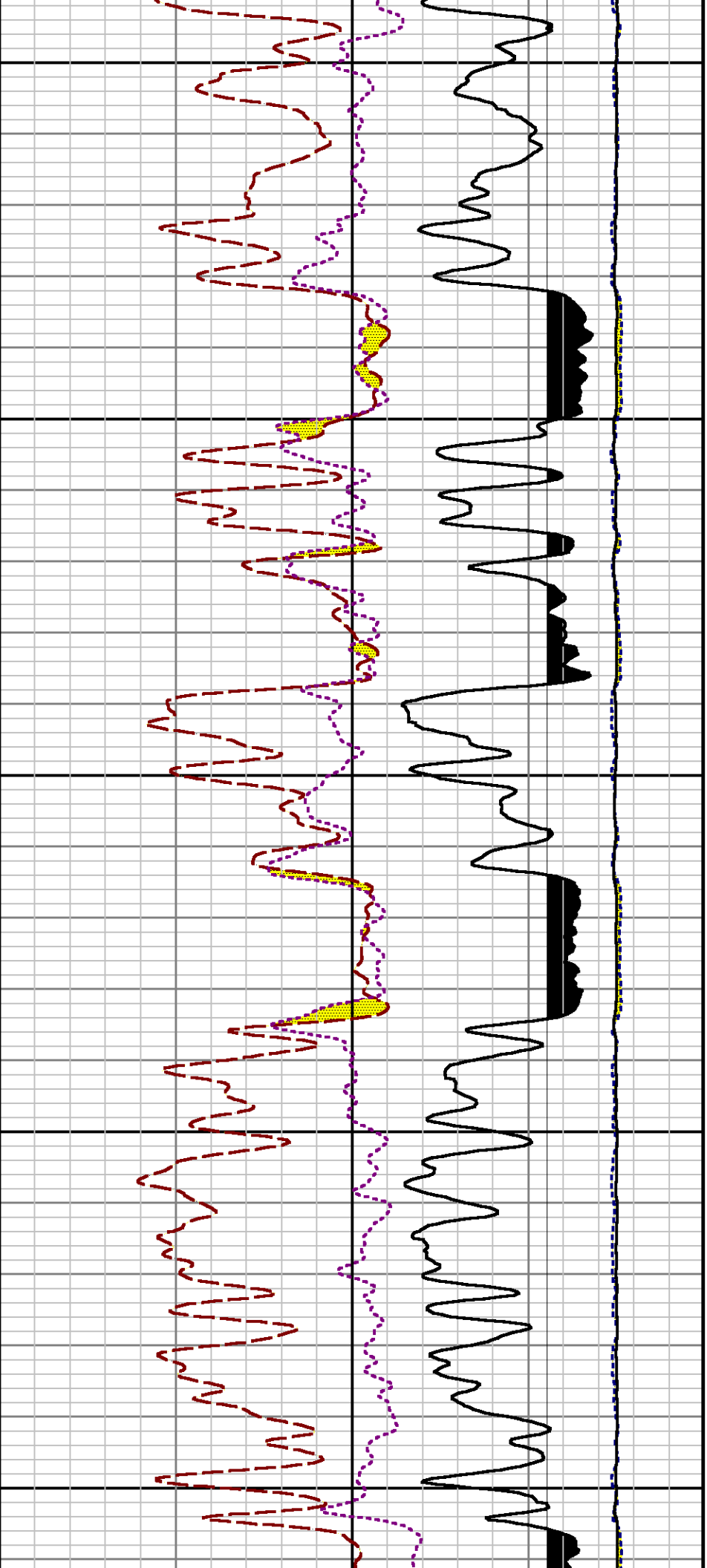
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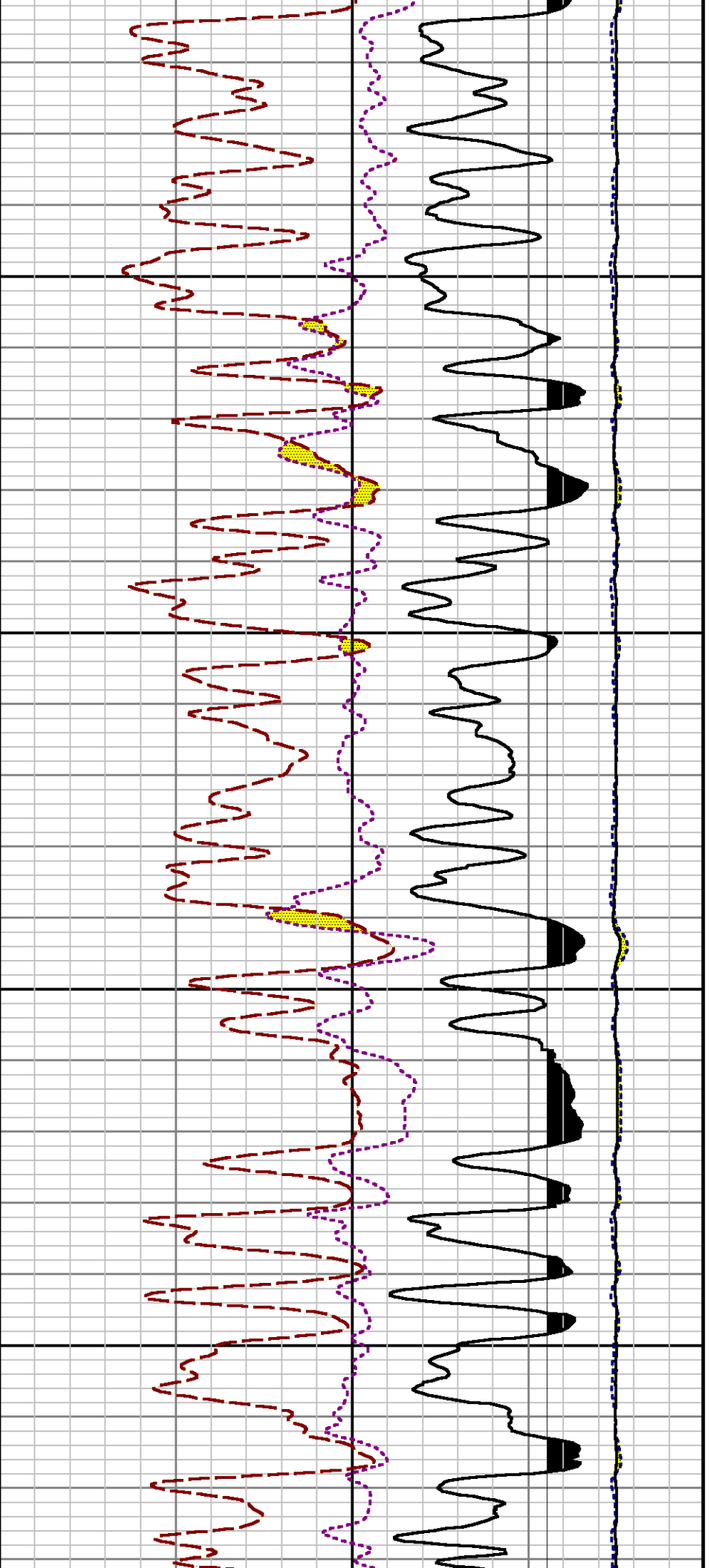






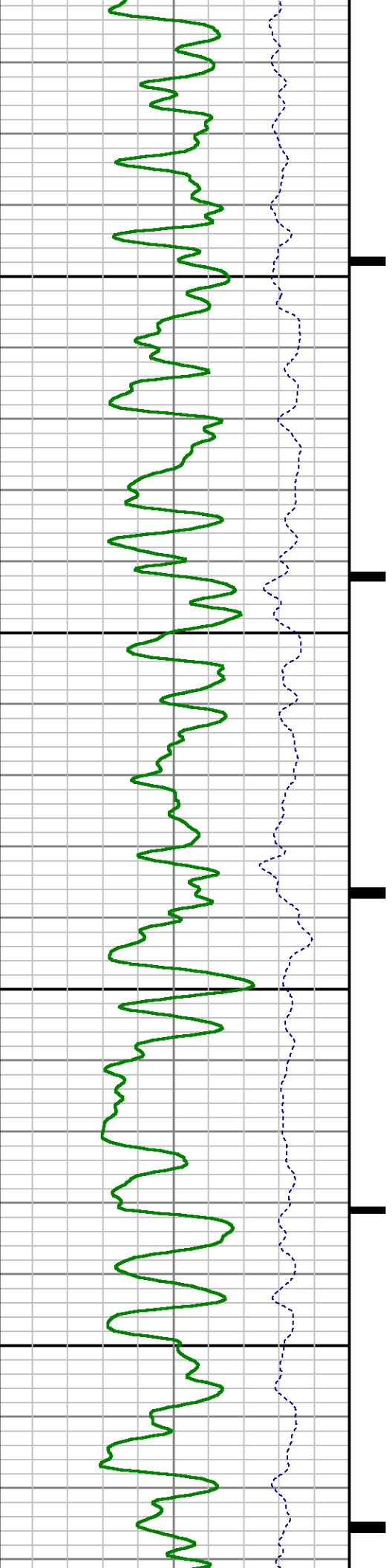


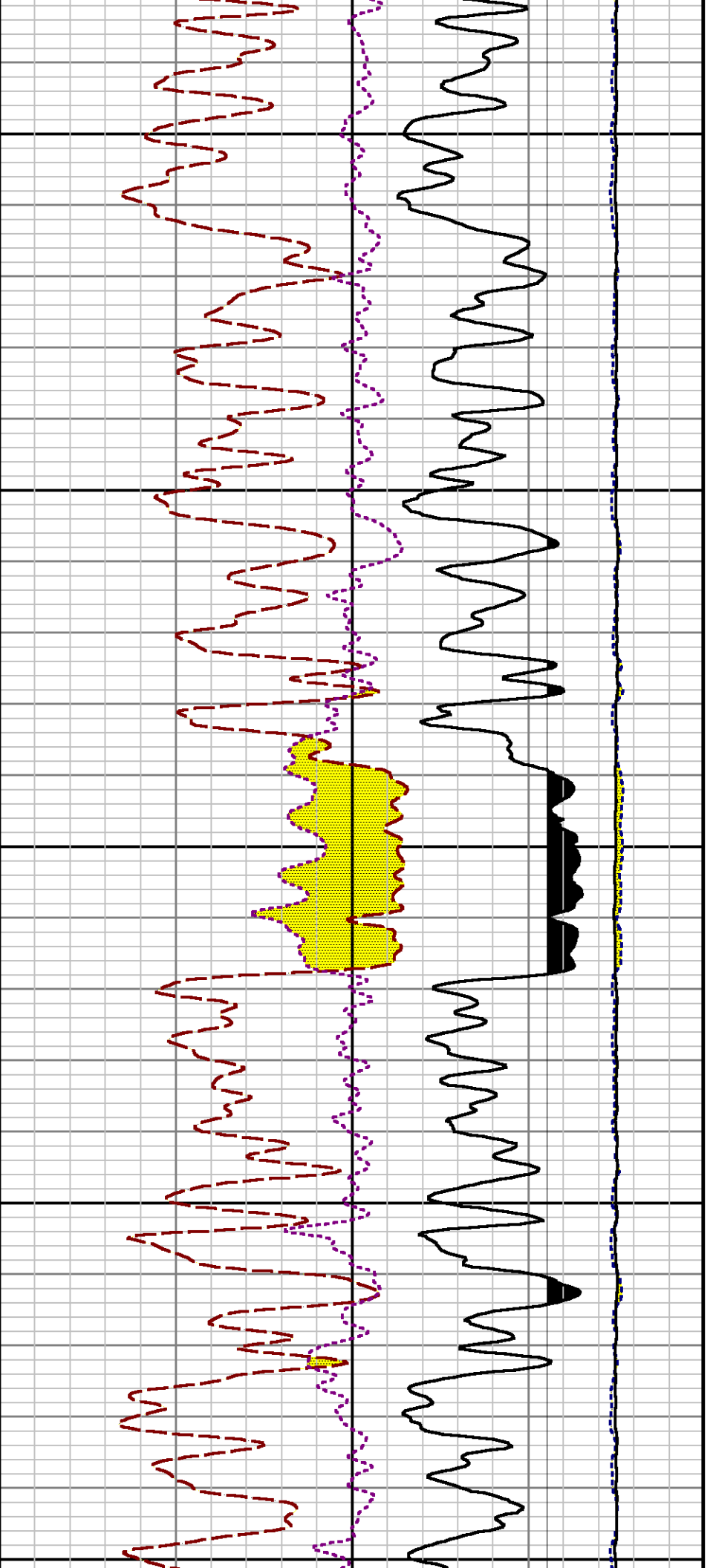




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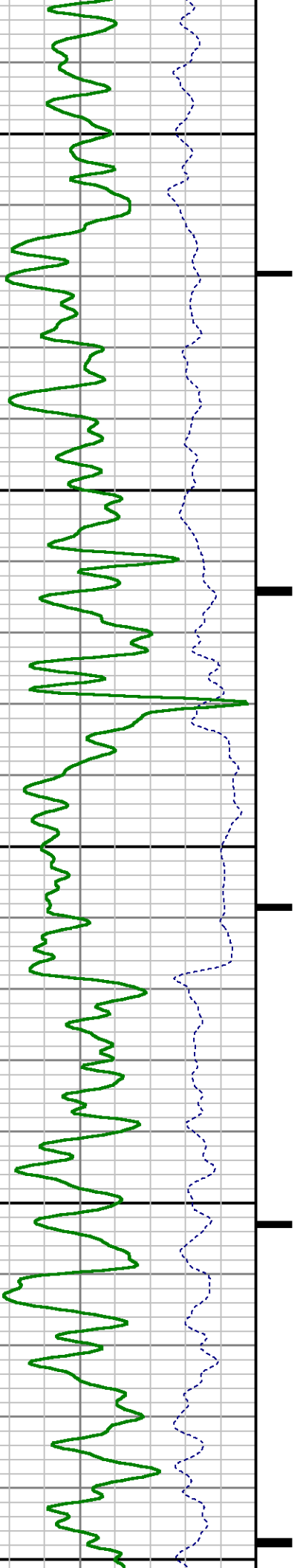
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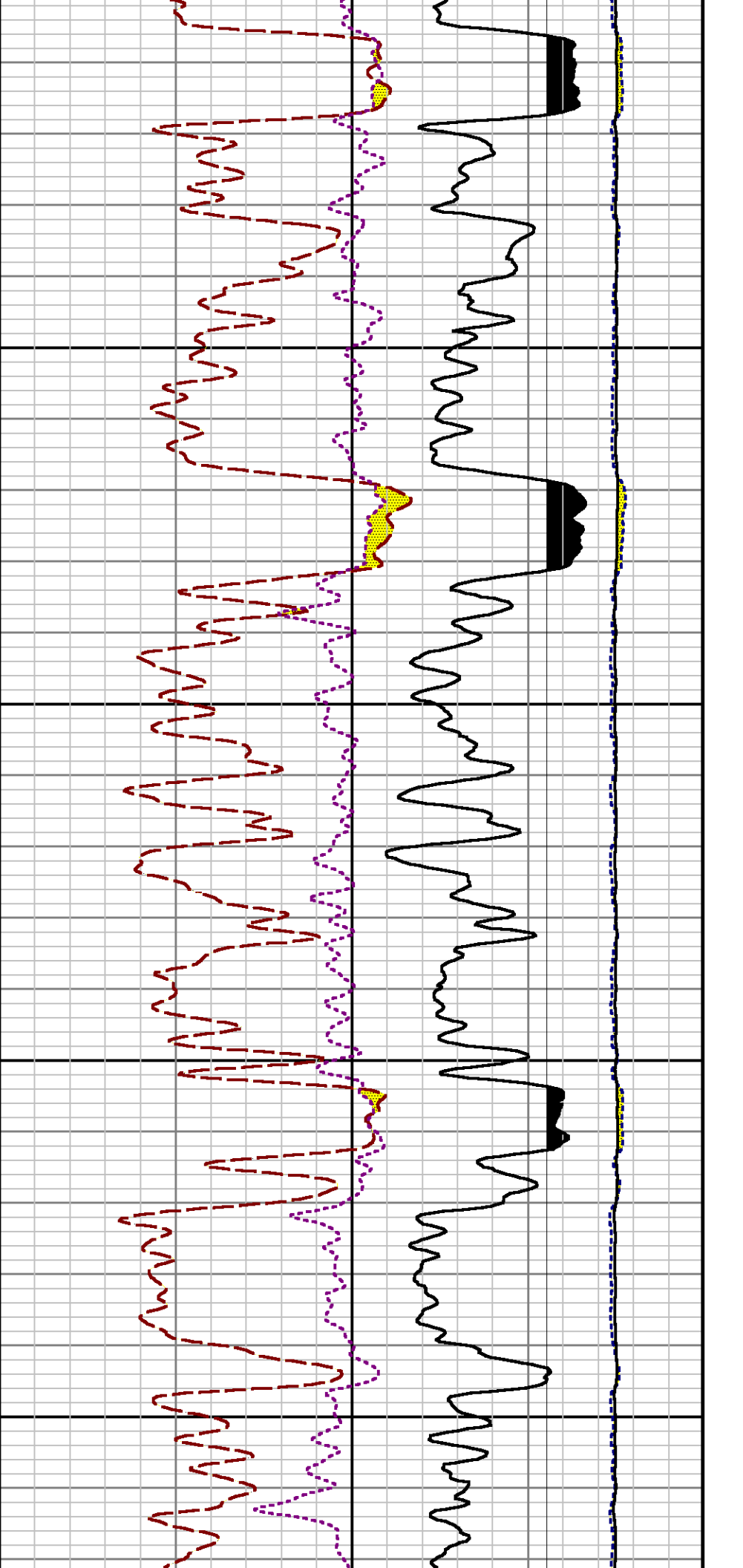




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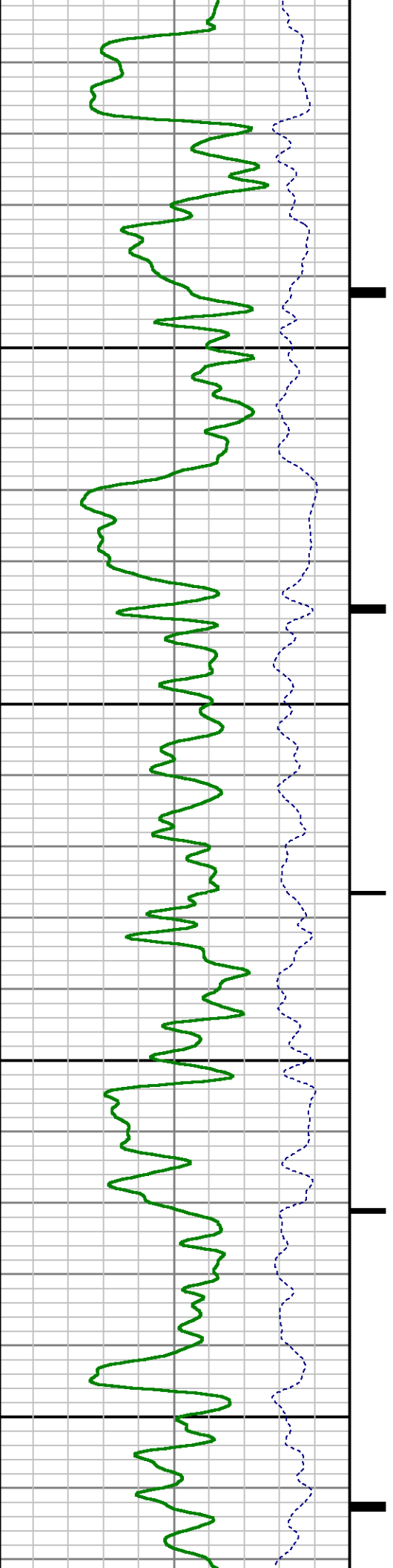
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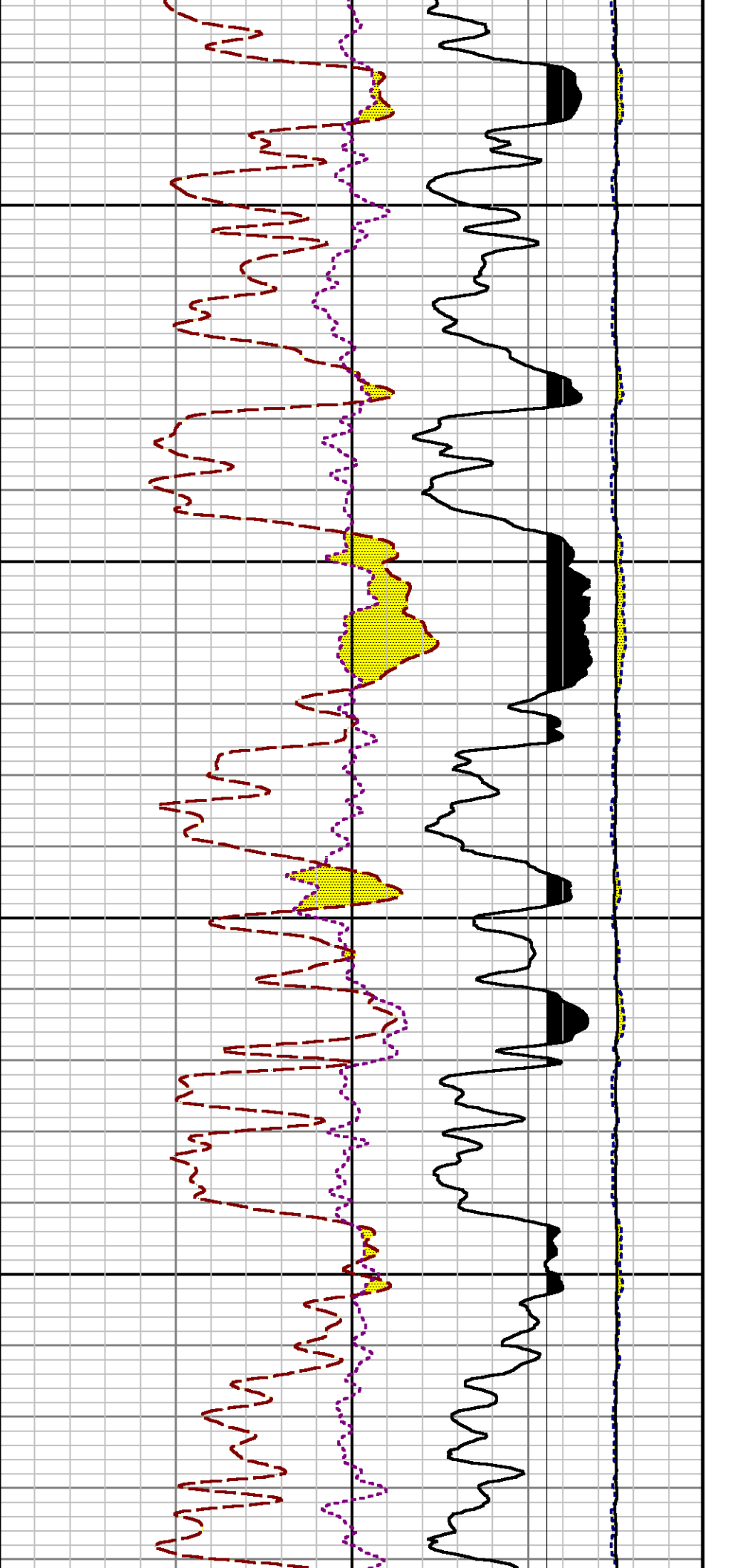




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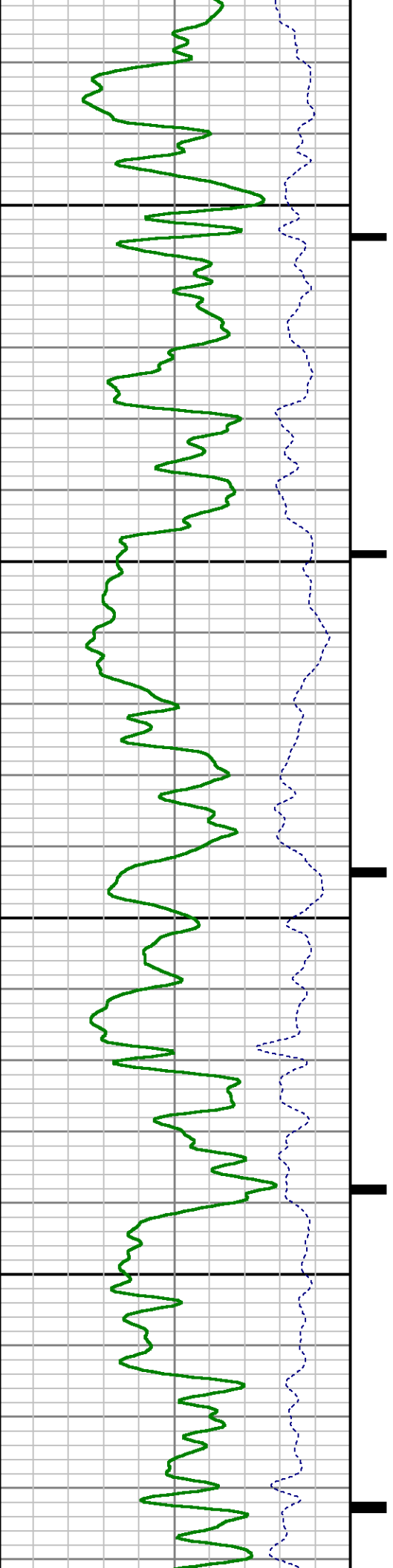
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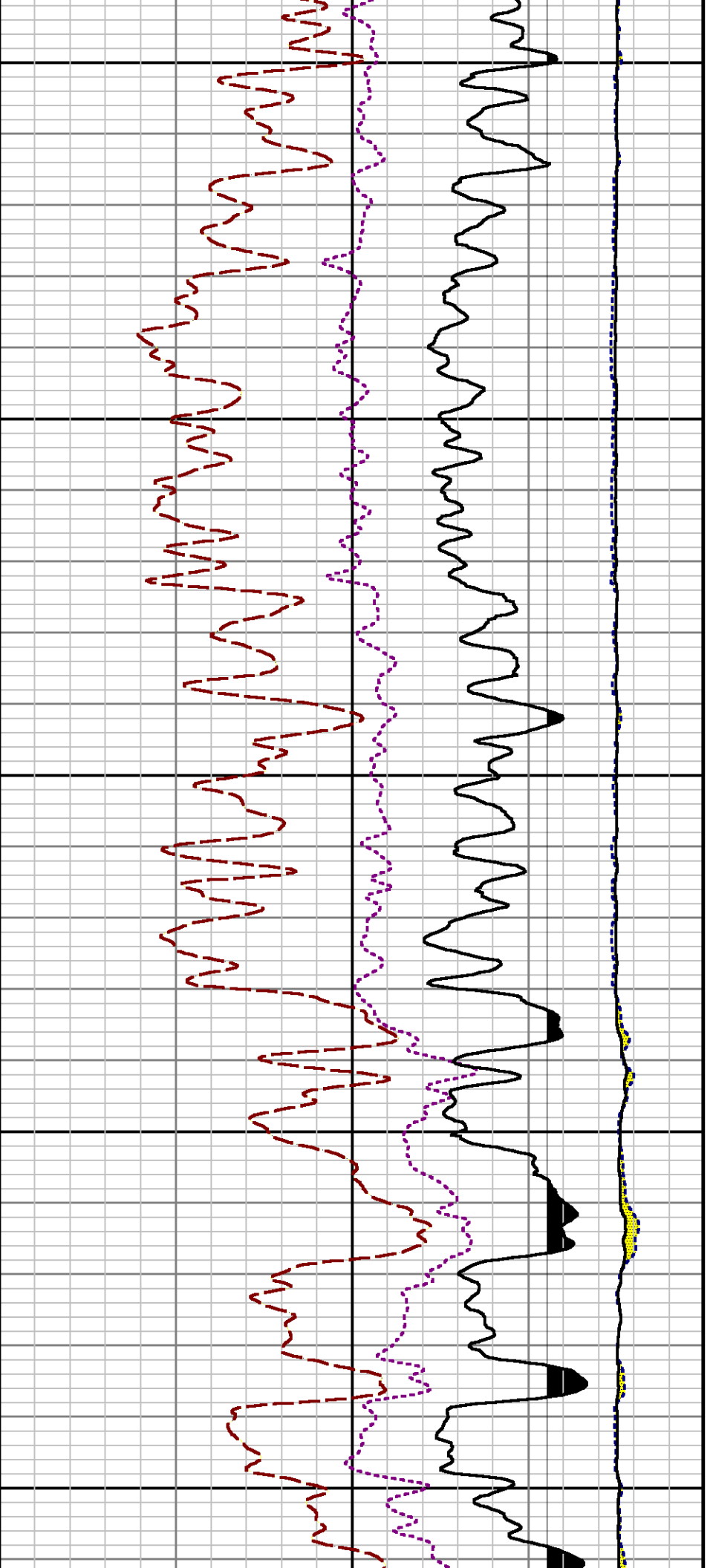




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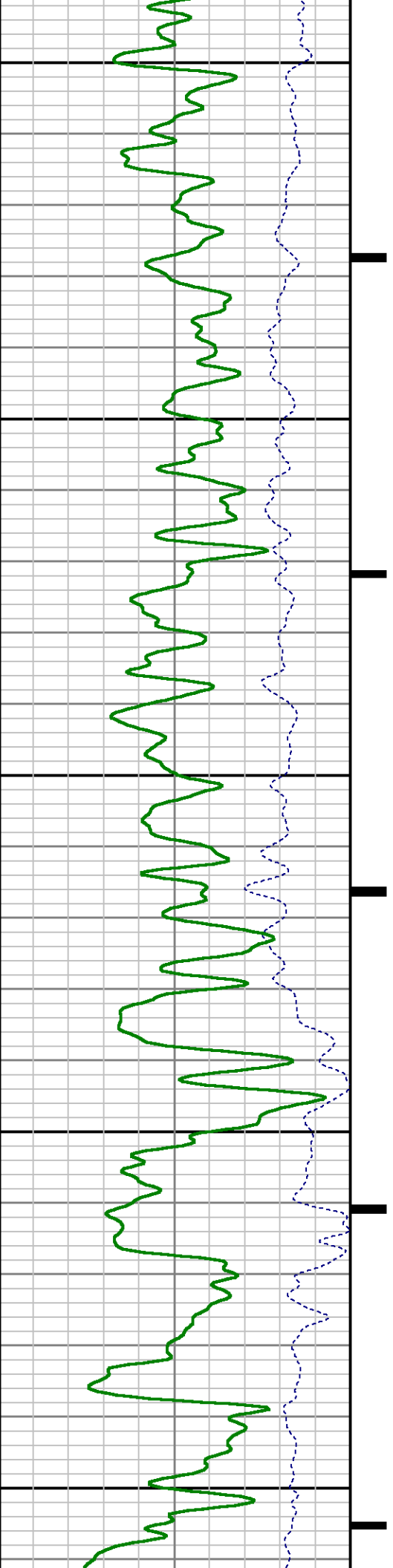


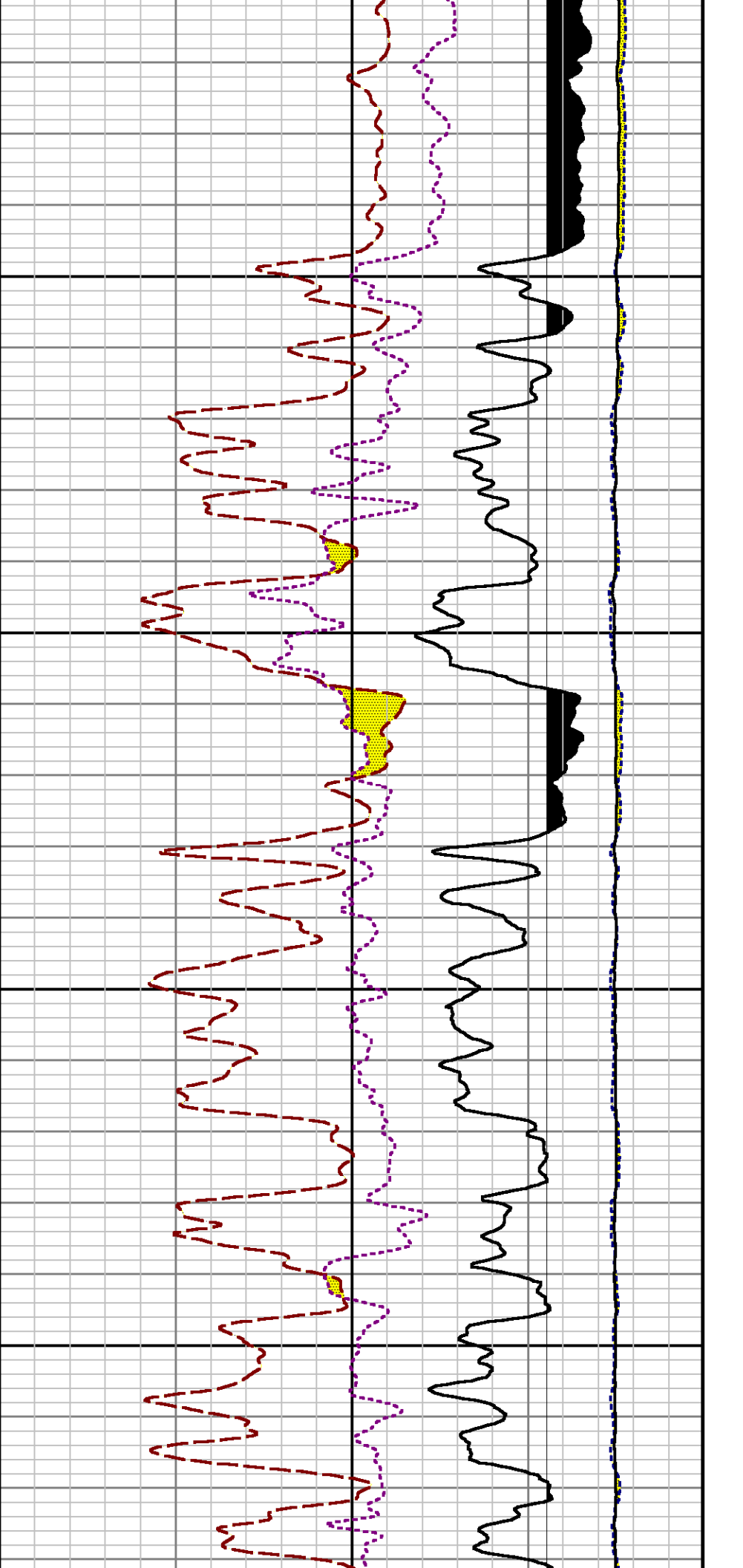


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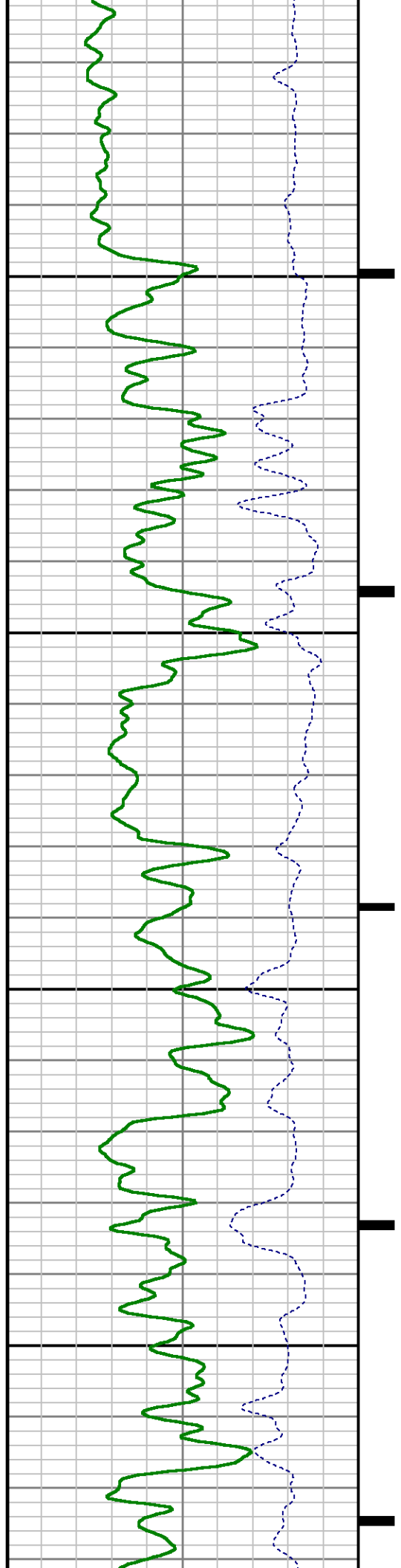
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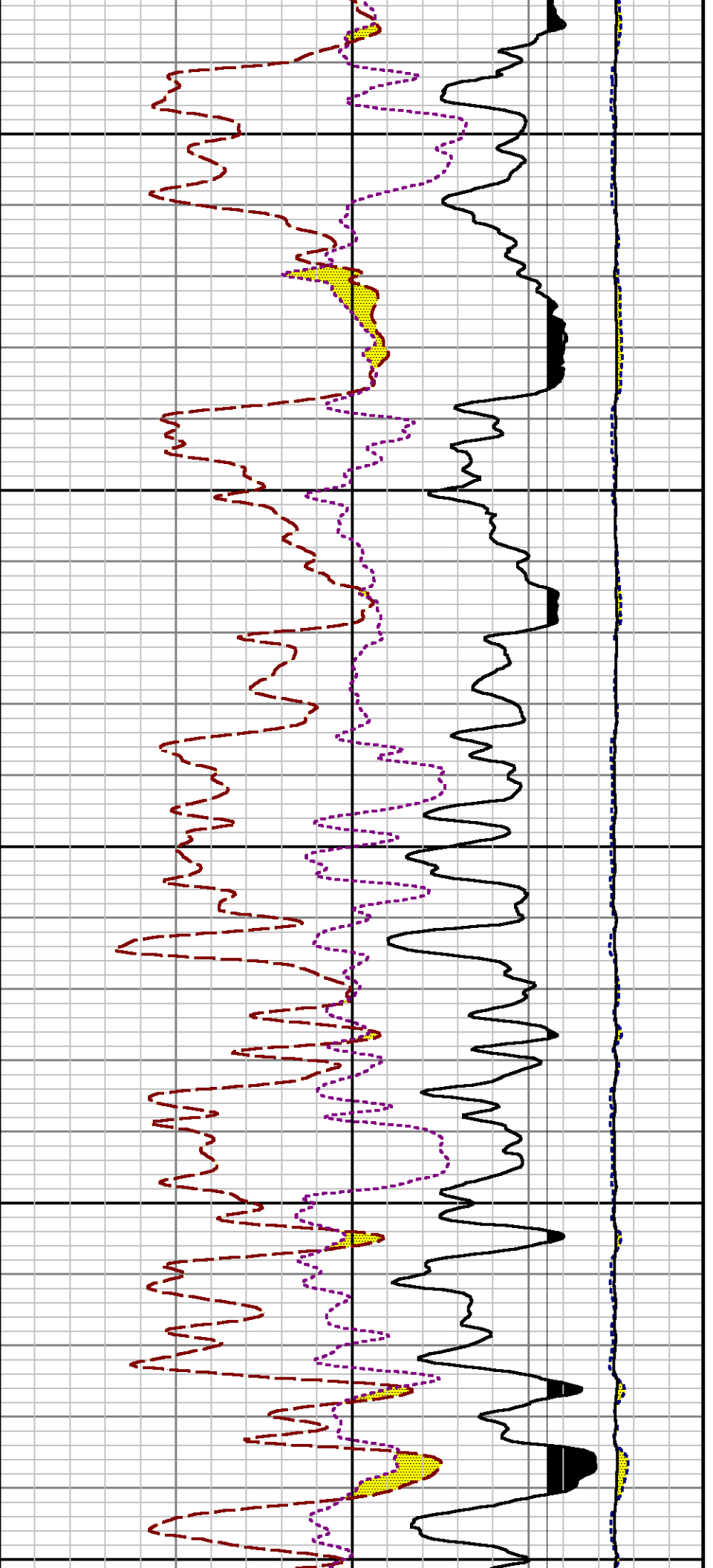




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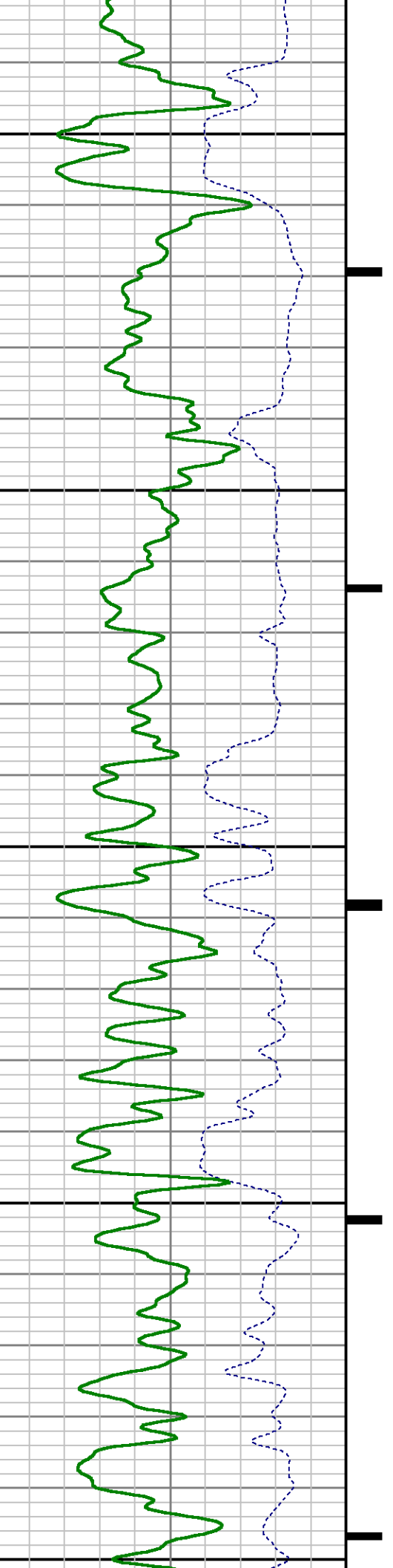
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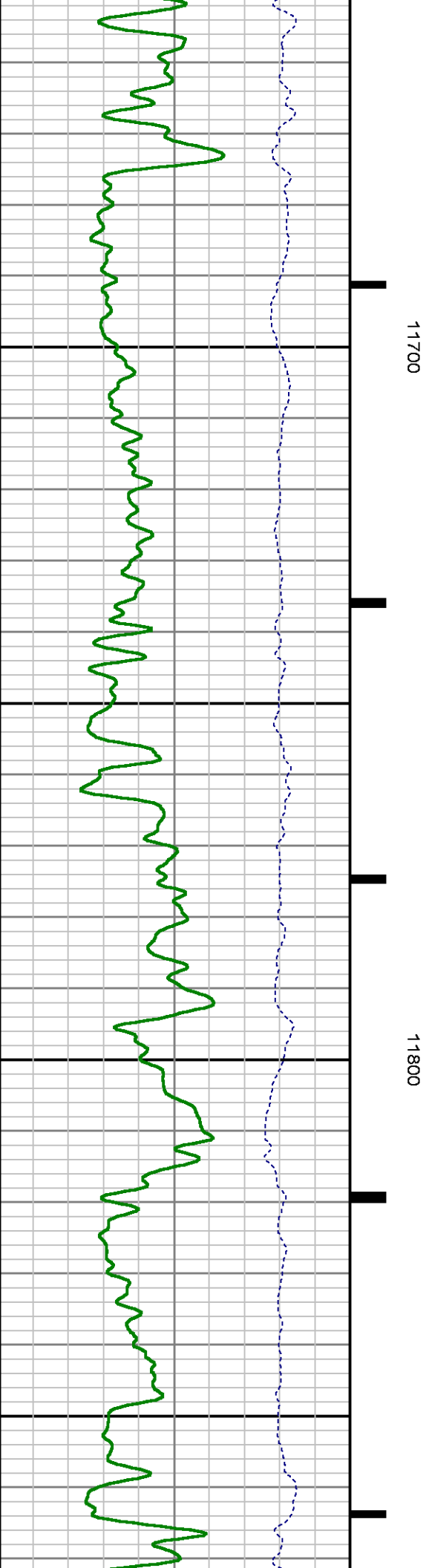
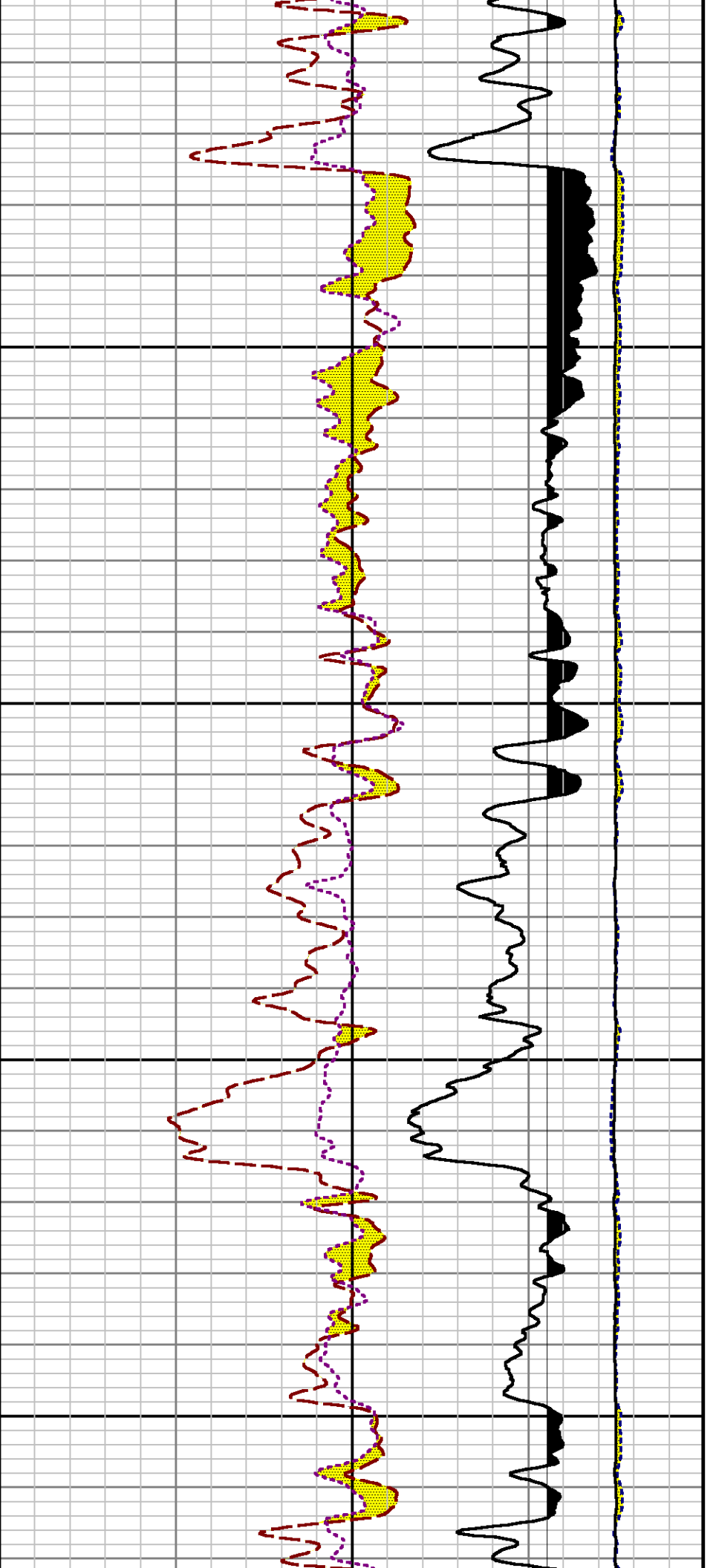




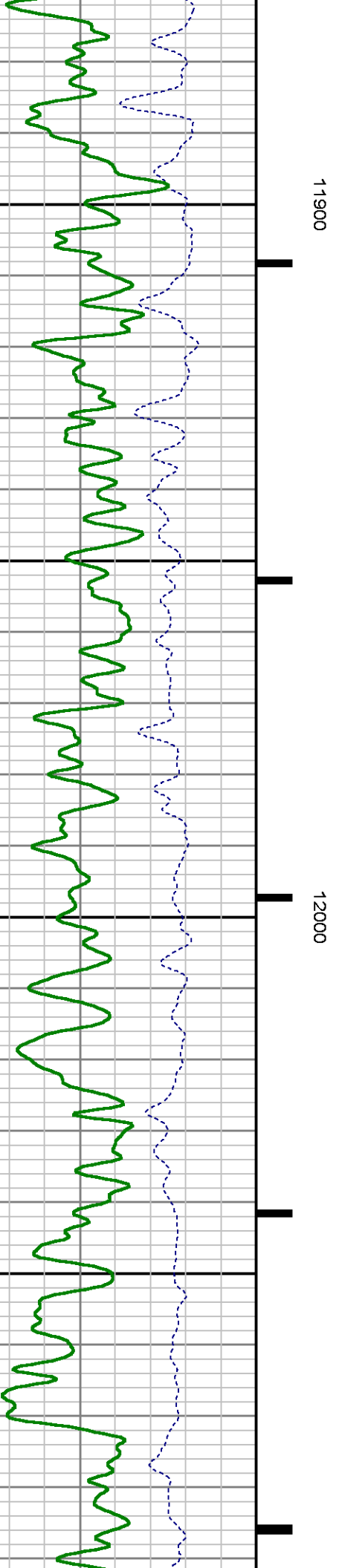
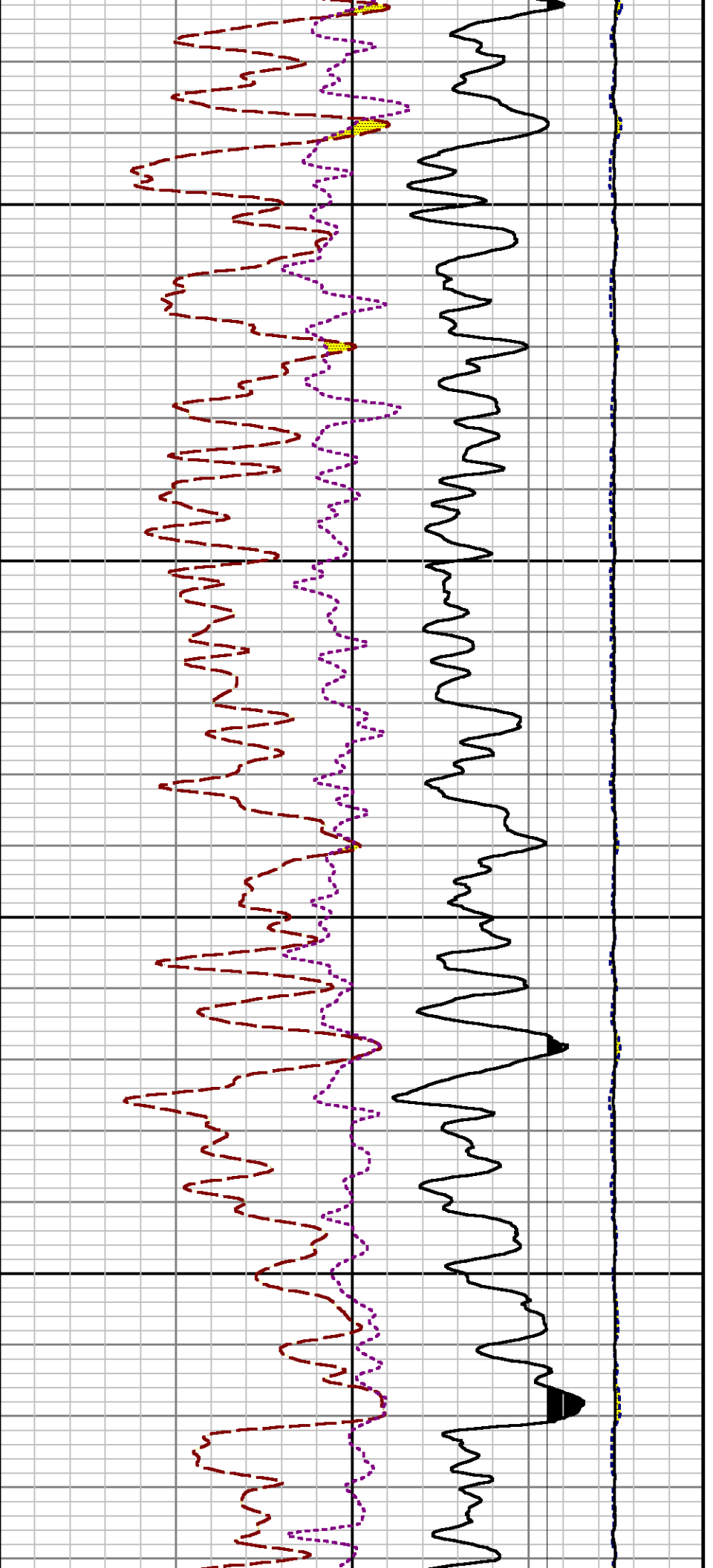
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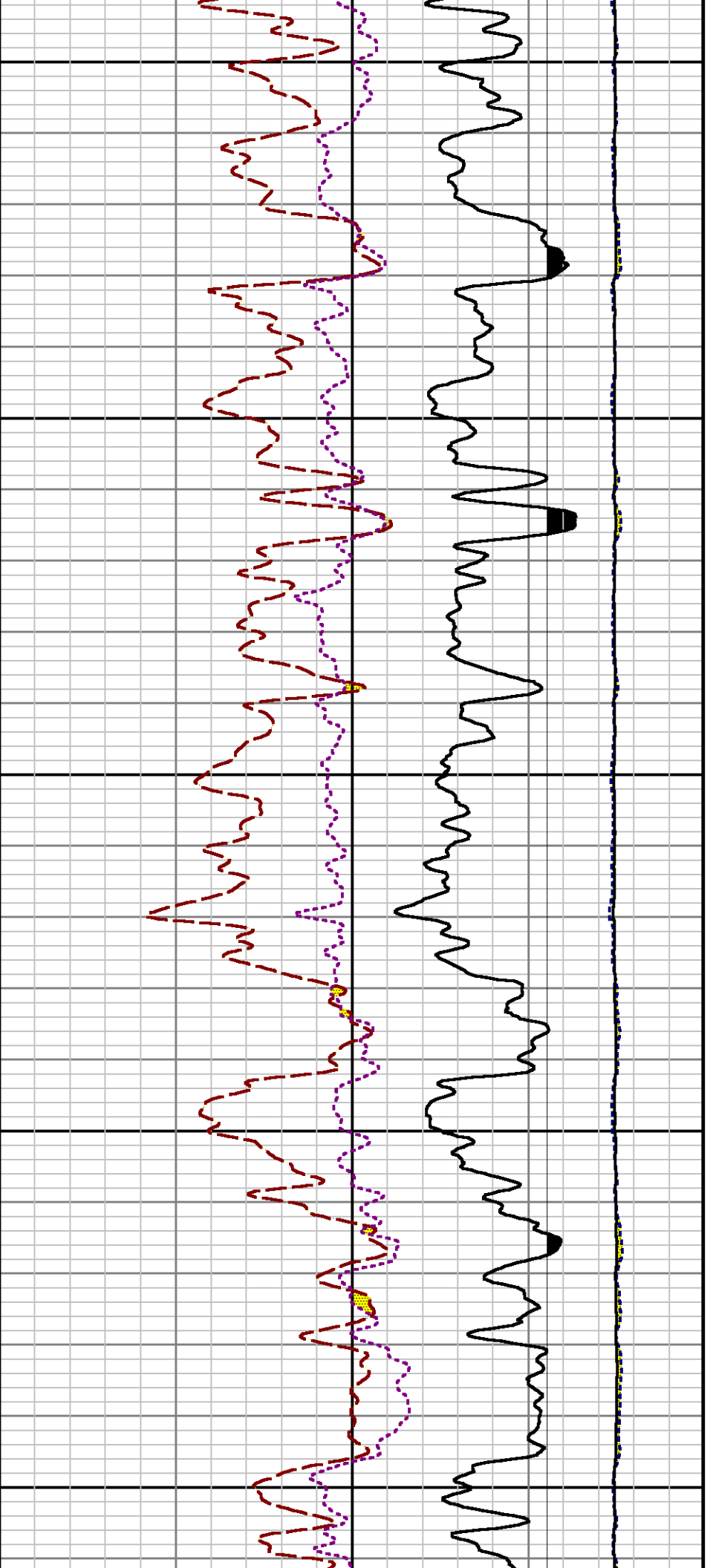
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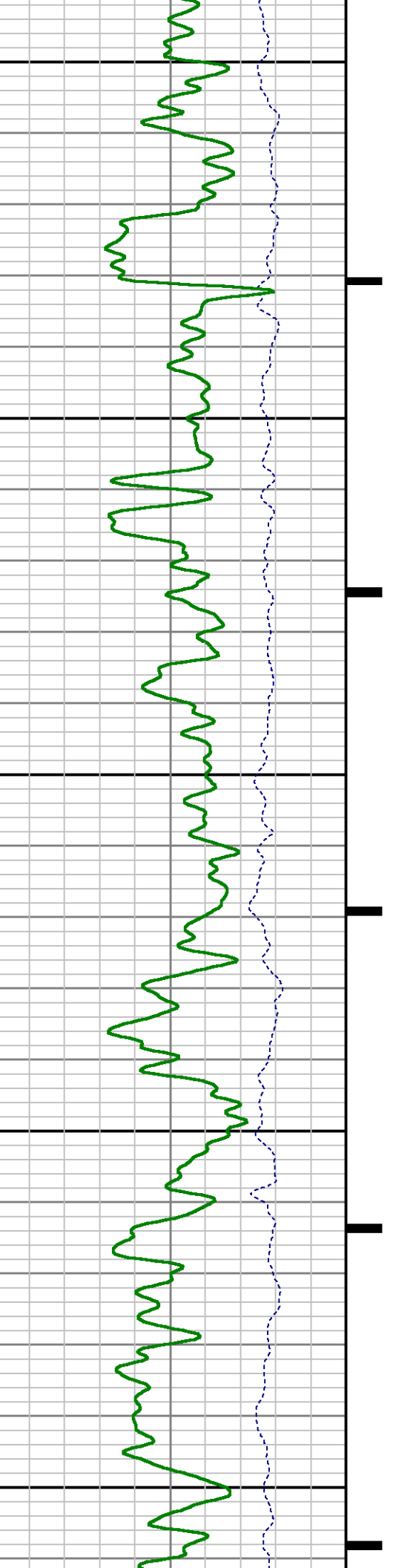


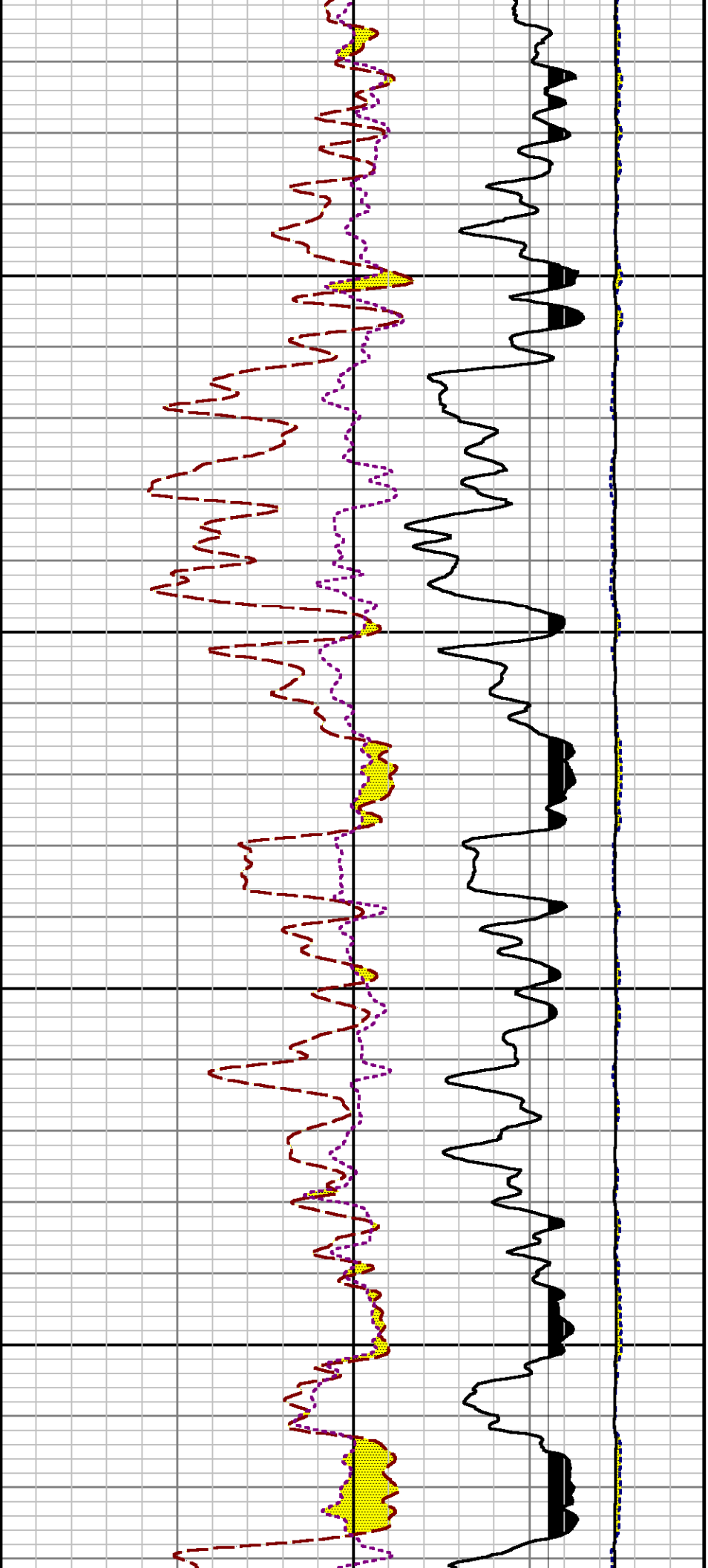


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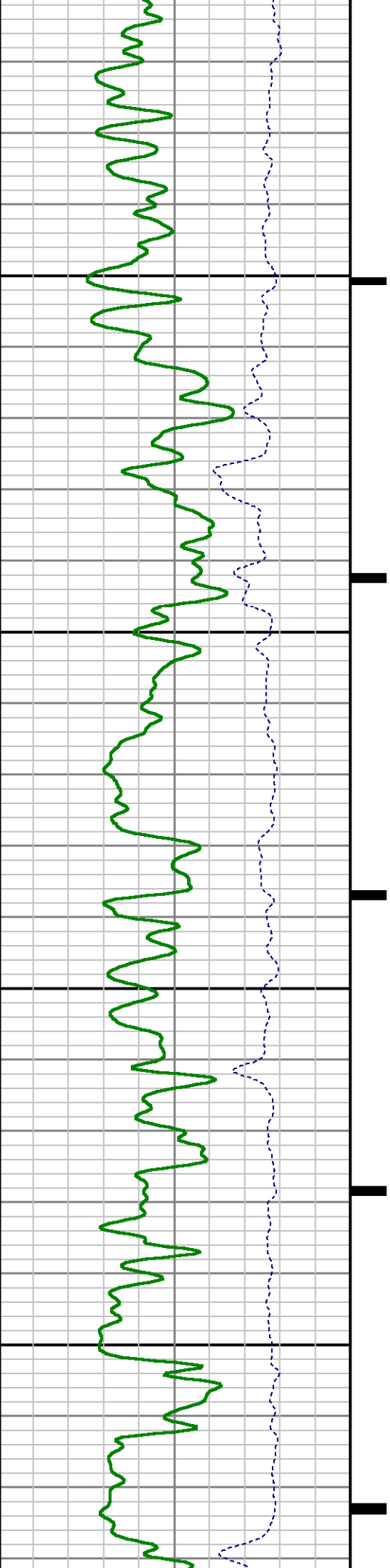
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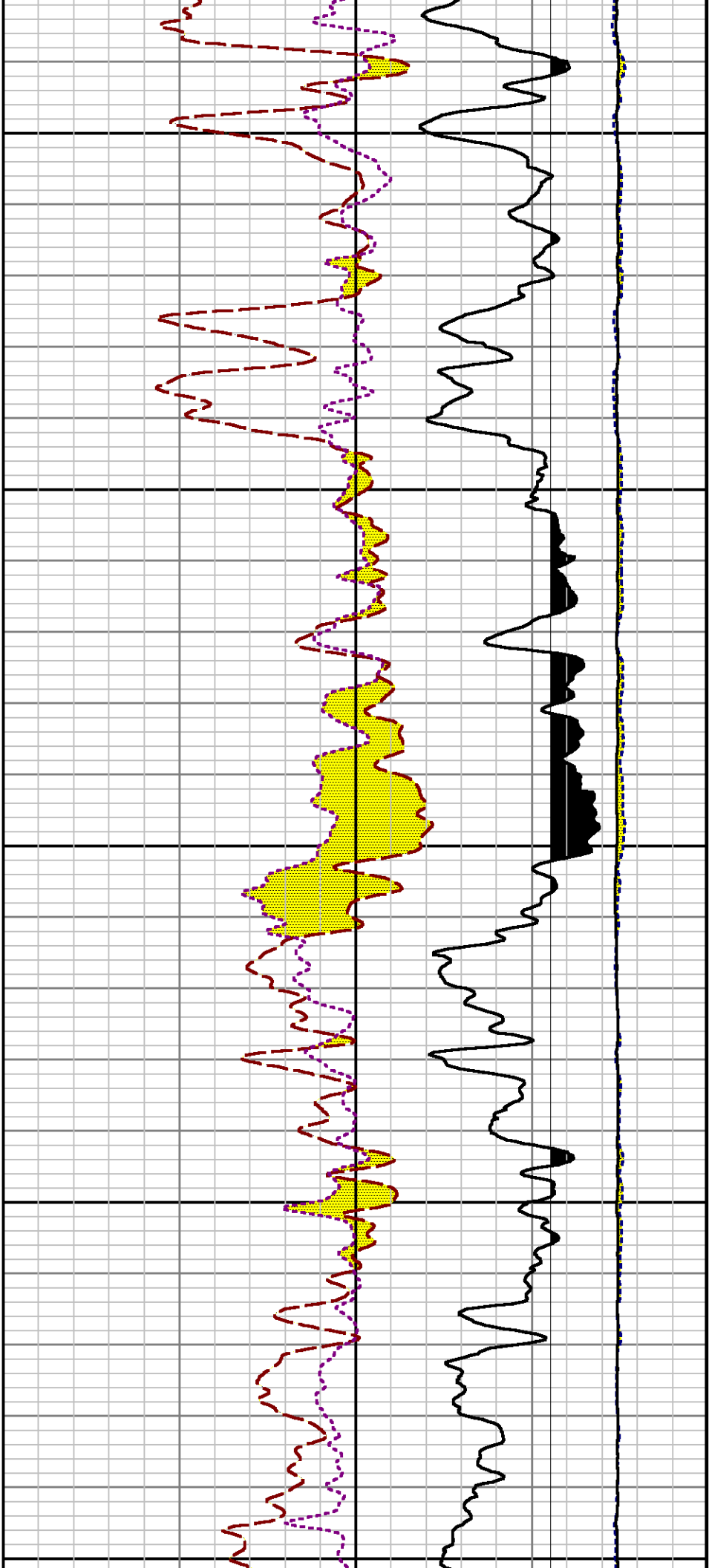




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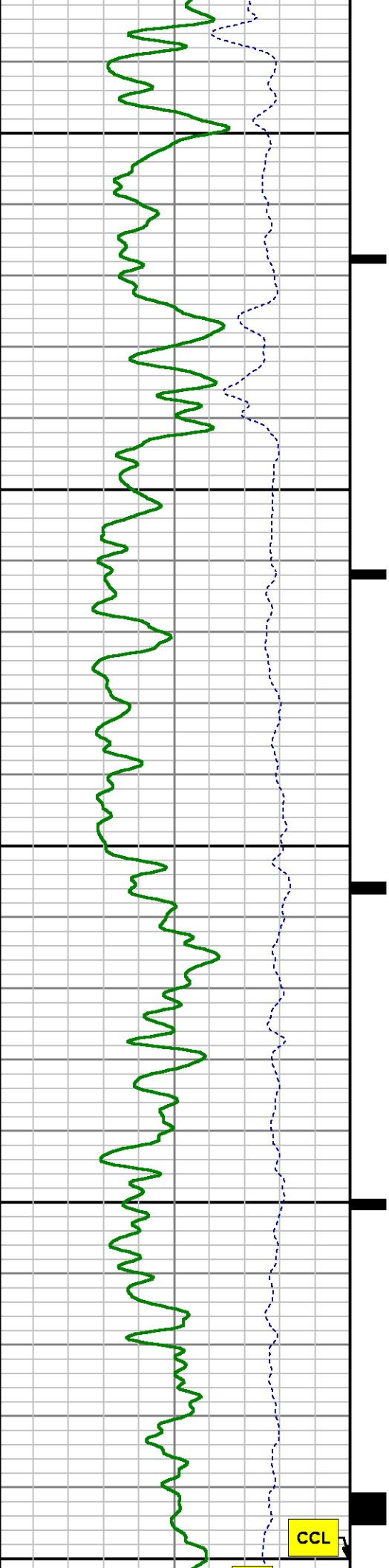


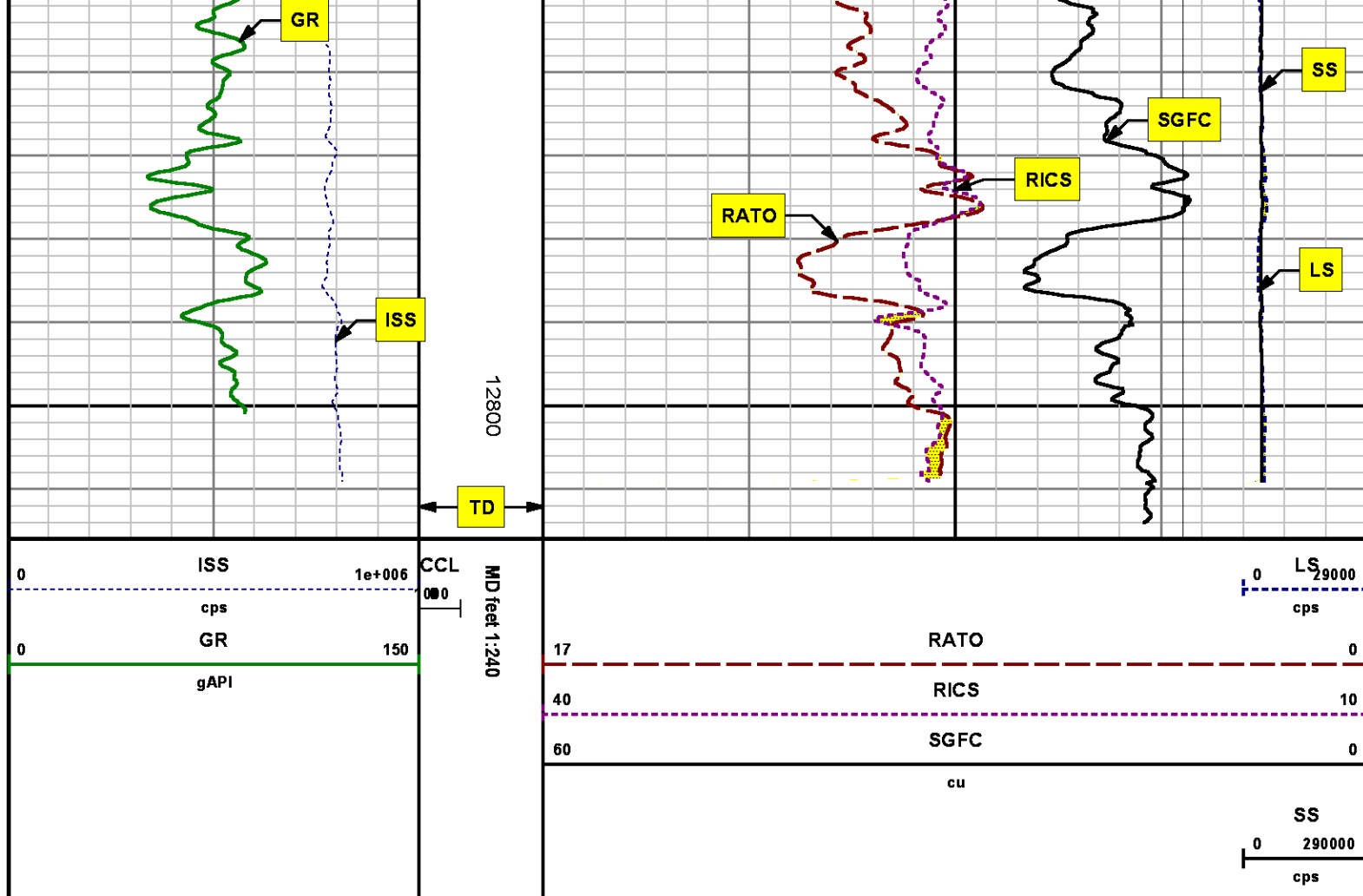


12600

12700

CCL





*REPEAT SECTION  
PNC 3-D MODE*

### SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		11898.850	12242.350
PNC Porosity	Borehole Size	8.750	inch	11898.850	12242.350
PNC Porosity	Casing Size	4.500	inch	11898.850	12242.350
PNC Porosity	Gas Filled	Non Gas Filled		11898.850	12242.350
PNC Porosity	Matrix	Sandstone		11898.850	12242.350
TPS Pressure	Temperature Corr. Source	Fixed (72.00)	degF	11898.850	12242.350

## DEPTH OFFSETS

(for Acquired Curves)

SERIES	DEPTH OFFSET	ACQUIRED CURVES
8248ED	-26.519	FLTM
8248ED	-24.519	CCL CHV
2812LA	-21.969	GR
8281XA	-12.702	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 WIDTH3 CXSR IXSR XSR RICXR
8281XA	-12.291	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 WIDTH2 RICLC CLSR ILSR LSR RICLR
8281XA	-12.041	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 WIDTH1 RICSC CSSR G1R G2R ISSR SSR SS2R RATOR RATO13R RBORR RICSR RINR RIN13R RONE RPORR RTWOR
8255XA	-0.792	PTFS PTMS
8255XA	-0.775	SPF1 SPFQ TSCP TSDP
8255XA	0.000	DTEM TEMP TNF
SYSTEM	0.000	TEN TTEN

Created by : RPM9, v5.3.1.0

Plotted by : PlotMgr, v5.4.504

Company : WPX ENERGY

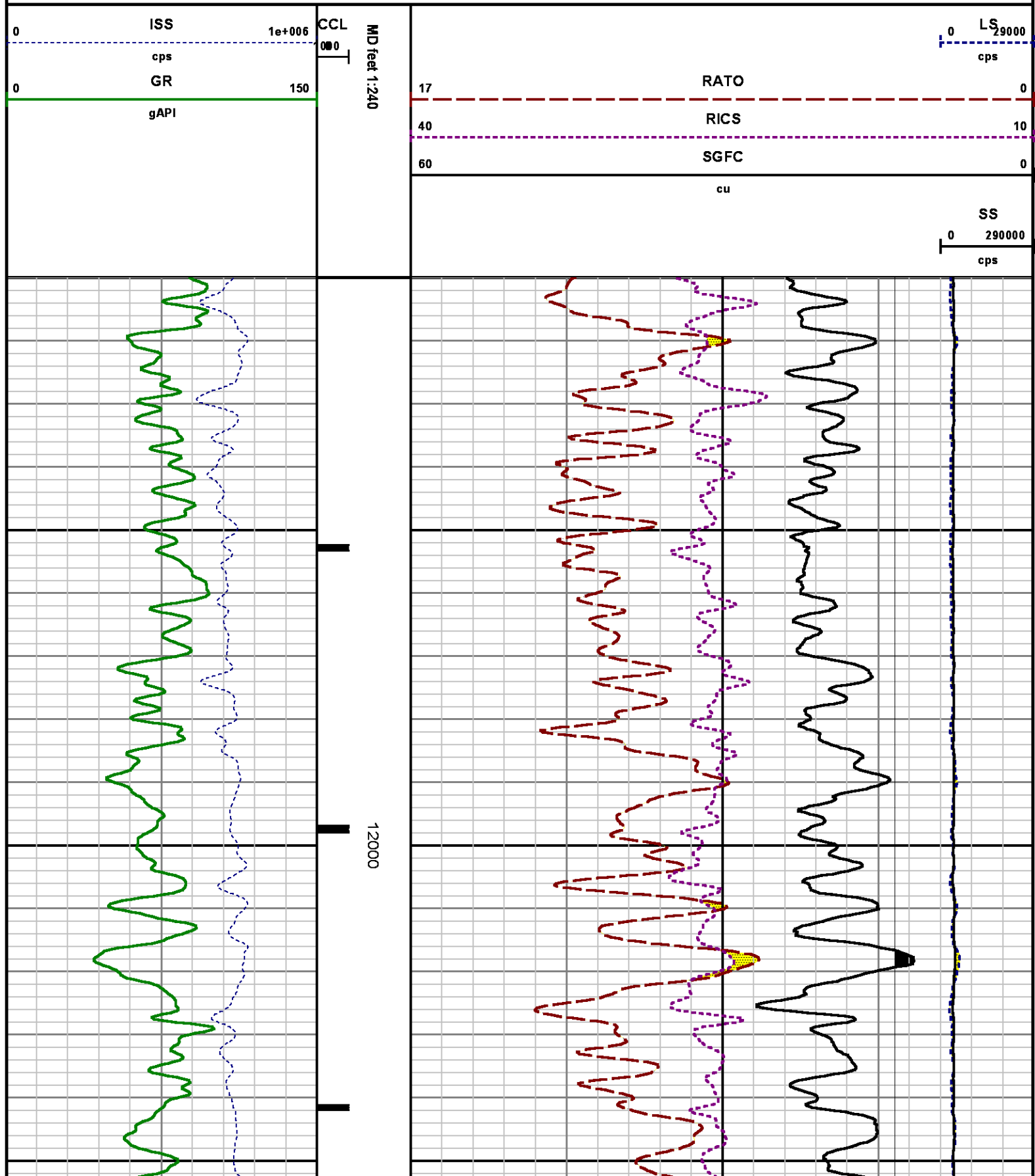
Well : FEDERAL RGU 442-24-198

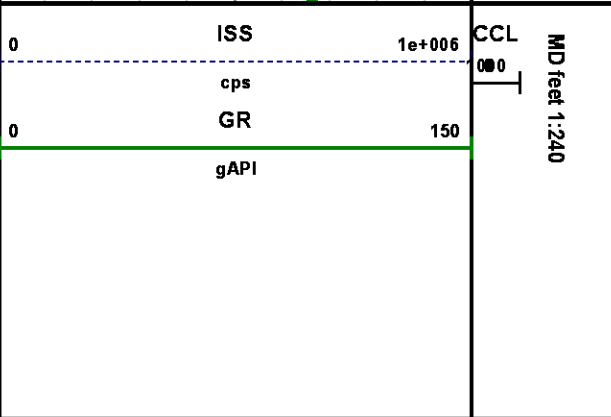
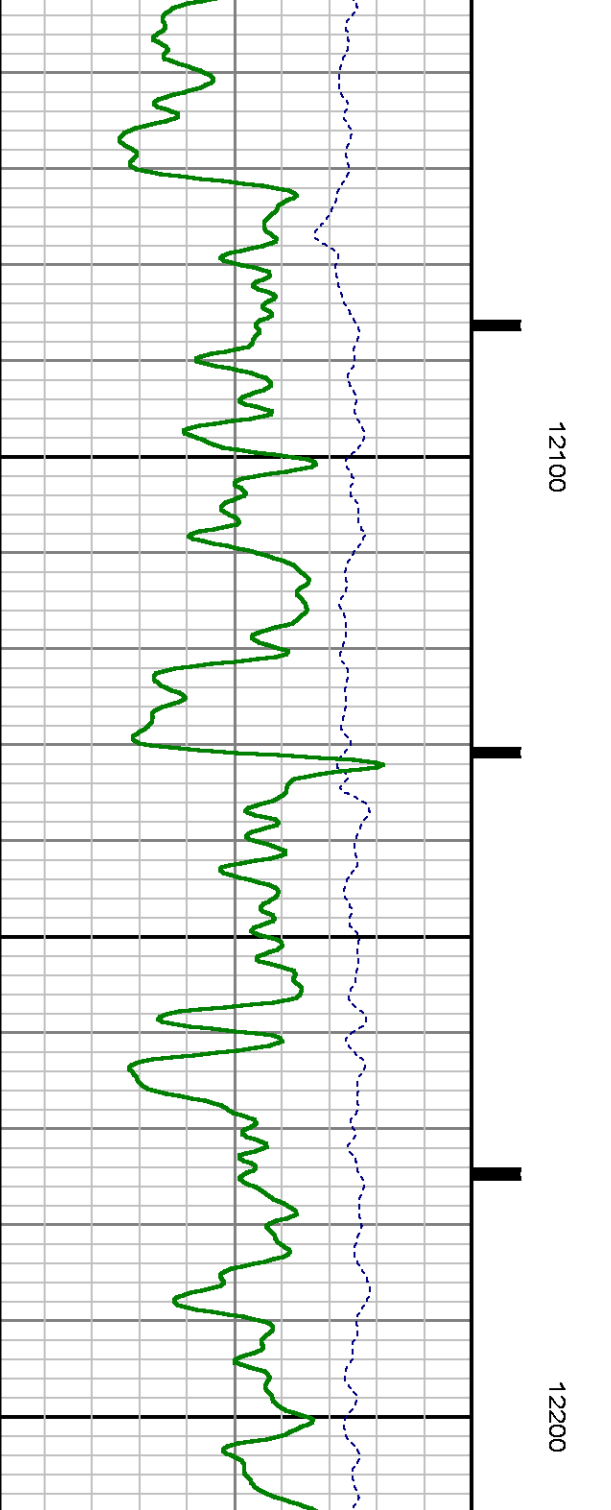
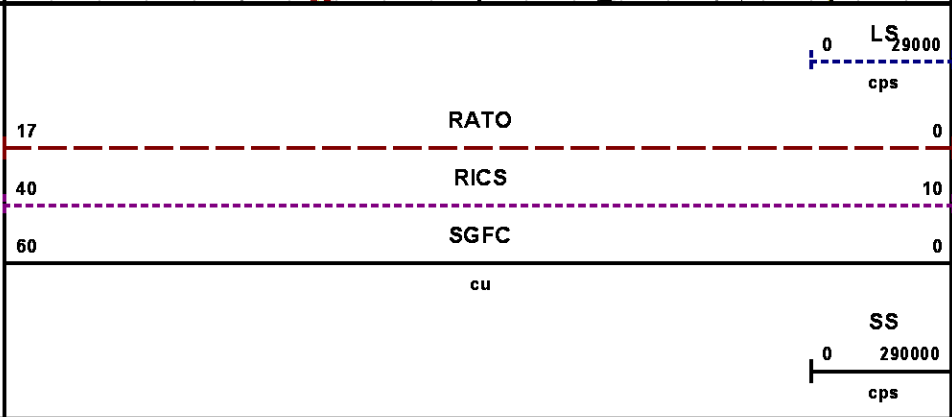
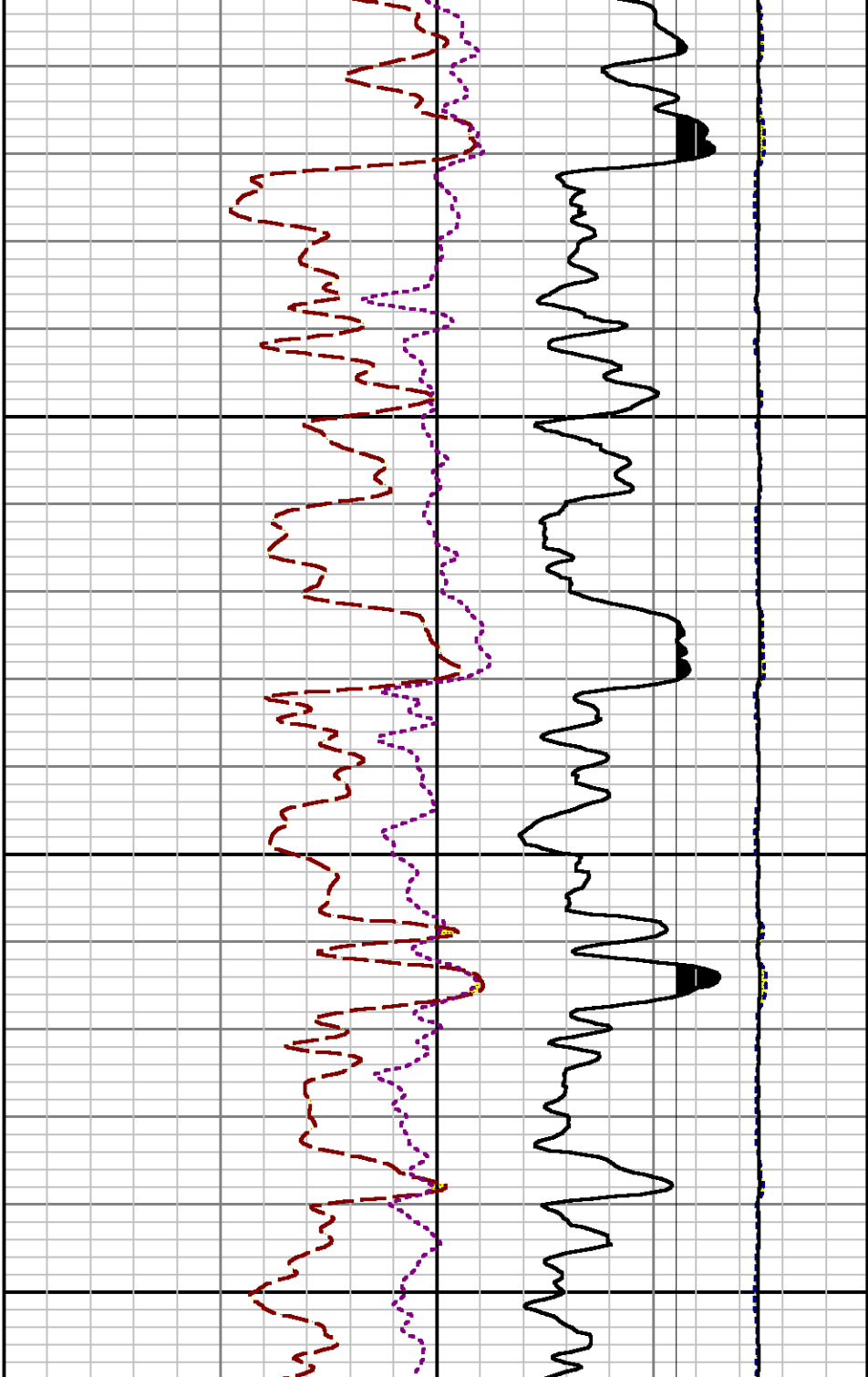
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Mode : PlotMgr 5.4.504

Interval : 11910.00 - 12210.00 feet UP

Created : 7/6/2014 6:19:21 PM





12100

12200

MD feet 1:240

ISS

1e+006

cps

GR

150

gAPI

RATO

RICS

SGFC

cu

LS

29000

cps

SS

290000

cps



# CALIBRATION SUMMARY

## GAMMA RAY

Calibration File: C:\case\calver\GR\38530.cal

### CALIBRATION SUMMARY

DATE/TIME PERFORMED: Mon Jun 30 08:38:51 2014 TOOL SERIES: 2812LA ASSET: 385 SEQ: 30

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA-612	42.56	269.00	0.927	39.47	249.47	210.00

Verification File: C:\case\calver\GR\38530.VP

### PRIMARY VERIFICATION

DATE/TIME PERFORMED: Mon Jun 30 08:42:33 2014 TOOL SERIES: 2812LA ASSET: 385 SEQ: 30

Calibrator #	Background [cps]	Calibrator On [cps]	Multiplicative	Background [api]	Calibrator On [api]	Differential [api]
S2K WA-612	41.56	270.56	0.927	38.54	250.91	212.37

## PNC

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

### PNC 3D CALIBRATION SUMMARY

DATE/TIME PERFORMED: Fri Jun 06 14:55:38 2014 TOOL SERIES: 8281XA ASSET: 151 SEQ: JU

Calibrator #

GJ SHOP

Source #

8281AA 11803641

	ISS	Mtr Vits (V)	SS Gain	LS Gain	XLS Gain	EA Temp (degF)	Sync Delay (usec)	RCAL
Raw Data	803672	120.00	2268.00	2356.00	2439.00	113.00	7.00	0.9675
Interpolated	1300000	139.07	2252.43	2347.52	2423.43			

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	803672	5897.36	921.53	133.62	25.74	0.14	24.21	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	803672	159048.34	24583.94	84285.95	30037.95	7763.17	51080.38	12387.14

Raw Data	803672	1.42	1.45	24.83	5.52	32.69	10.99	16.34	13.70	16.34	10.06	11.10	3.57	3.95	3.76	4.22
Fit Quality %		0.39	0.46	0.50	0.50	0.38	0.49	0.38								

	ISS	RBOR		RIN		RIN13		RICS		RATO		RTWO		RONE	
				ISS/ILS		ISS/IXS		ISS/CSS		SS/LS		SS2/LS		CSS/CLS	
Raw Data	803672	1.44		5.05		32.69		15.73		10.86		3.87		4.12	
		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 %		0.06		0.15		0.16		0.07		0.12		0.14		0.13	
Reduced	1379407	1.44		5.06		32.64		15.73		10.86		3.87		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

## TEMPERATURE

Calibration File: C:\case\calver\TEMP\17697324.cal

### CALIBRATION SUMMARY

DATE/TIME PERFORMED: 02 JUNE 2014 TOOL SERIES: 8255XA ASSET: 176973 SEQ: 24

	T(0)	T(1)	T(2)	T(3)	T(4)	T(5)
Coefficients	-1.889935e+001	1.004280e-001	1.215976e-006	-1.293045e-010	0.000000e+000	0.000000e+000

## TOOL DIAGRAM

### OTA SHORT CABLE HEAD

#### PCM POWER SUPPLY

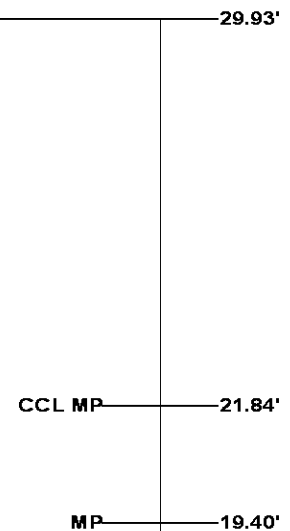
Series 8250EA  
Mnemonic PCM  
Diameter 1.70"  
Weight 18.00 lb  
Length 3.86'  
Temp Rating 350.00 °F

#### 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"



**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"**



Baker Atlas

CASE

Company	WPX ENERGY		
Well	FEDERAL RGU 442-24-198		
Field	SULPHUR CREEK		
County	RIO BLANCO	State	COLORADO

**Location**

SHL: 2156' FSL & 1700' FEL  
BHL: 2237' FNL & 647' FEL (SENE)

SEC 24 TWP 1S RGE 98W

**Elevations**

KB 6617 ft  
DF  
GL 6596 ft

**File No:**

CH087284

**API No:**

05103120840000

24 1S 98W

RGU 33-24-198 PAD

CYCLONE 29