



# RESERVOIR PERFORMANCE MONITOR

Baker Atlas

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

CH087677 **Well** **FEDERAL NER 524-32**

API No: **Field** **RULISON**

05045217980000 **County** **GARFIELD** **State** **CO**

## Location

SHL: 146' FNL & 2592' FWL (5 75 93W)

BHL: 495' FSL & 1875' FWL (32 65 93W)

SEC 32 TWP 6S RGE 93W

## Other Services

BOND LOG

32 65 93W  
RU 23-5 PAD  
NABORS 576

Permanent Datum **GL** **Elevation** **7603**

Log Measured From **KB** **26** **Above P. D.**

Drill Measured From **KB** **Elevations** **KB 7629** **DF** **GL 7603**

Date	13/JUL/14	
Run	ONE	
Service Order	US087677	
Depth Driller	10051	
Depth Logger	10014	
Bottom Logged Interval	10004	
Top Logged Interval	5239	
Time Started	18:00	
Time Finished	00:30	
Operator Rig Time	6.5 HOURS	
Type of Fluid in Hole	WATER	
Fluid Density	NA	
Salinity	NA	
Fluid Level	79	
Logged Cement Top	NA	
Wellhead Pressure	0	
Maximum Hole Deviation	NA	
Nominal Logging Speed	10	
Maximum Recorded Temperature	241	
Reference Log	BAKER HUGHES BOND LOG	
Reference Log Date	13/JUL/14	
Equipment No.	4271	GRAND JUNCTION
Recorded By	NEMELL	
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	0	1108
8.75	1108	10103

Casing Record				
Size	Weight	Grade	From	To
9.625			0	1108
4.5	11.6	P-110	0	10103

Remarks
All data on this log is shifted and depth matched using the Gamma Ray curve to the Baker Hughes bond log dated 13/JULY/2014 at the client's request.
The depth matching process creates potential for collar lengths to vary from those recorded on other cased hole wireline units without a Gamma Ray reference.
The amount of linear shift is 3 feet.

BHT = 241 °F

SJ = 6763'-6785'

Equipment Data					
Run	Trip	Tool	Series Number	Serial Number	Position
1	1	PCM	8250EA	10397894	FREE
1	1	TEL/CCL	8248ED	10296408	FREE
1	1	GR	2812LA	10274385	FREE
1	1	RPM	8281EA	10169250	FREE
1	1	RPM	8283PA	10169251	FREE
1	1	RPM	8281FA	10191667	FREE
1	1	TEMP	8255XA	2176973	FREE

MAIN SECTION  
PNC 3-D MODE

SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		5919.910	9010.000
PNC Porosity	Borehole Size	8.750	inch	5919.910	9010.000
PNC Porosity	Casing Size	4.500	inch	5919.910	9010.000
PNC Porosity	Gas Filled	Non Gas Filled		5919.910	9010.000
PNC Porosity	Matrix	Sandstone		5919.910	9010.000
TPS Pressure	Temperature Corr. Source	Fixed (72.00)	degF	5919.910	9010.000
PNC Porosity	Borehole	Cased		9010.000	10008.879
PNC Porosity	Borehole Size	8.750	inch	9010.000	10008.879
PNC Porosity	Casing Size	4.500	inch	9010.000	10008.879
PNC Porosity	Gas Filled	Non Gas Filled		9010.000	10008.879
PNC Porosity	Matrix	Sandstone		9010.000	10008.879
TPS Pressure	Temperature Corr. Source	Fixed (72.00)	degF	9010.000	10008.879

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 WDT3 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 WDT2 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 RDN WDT1 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

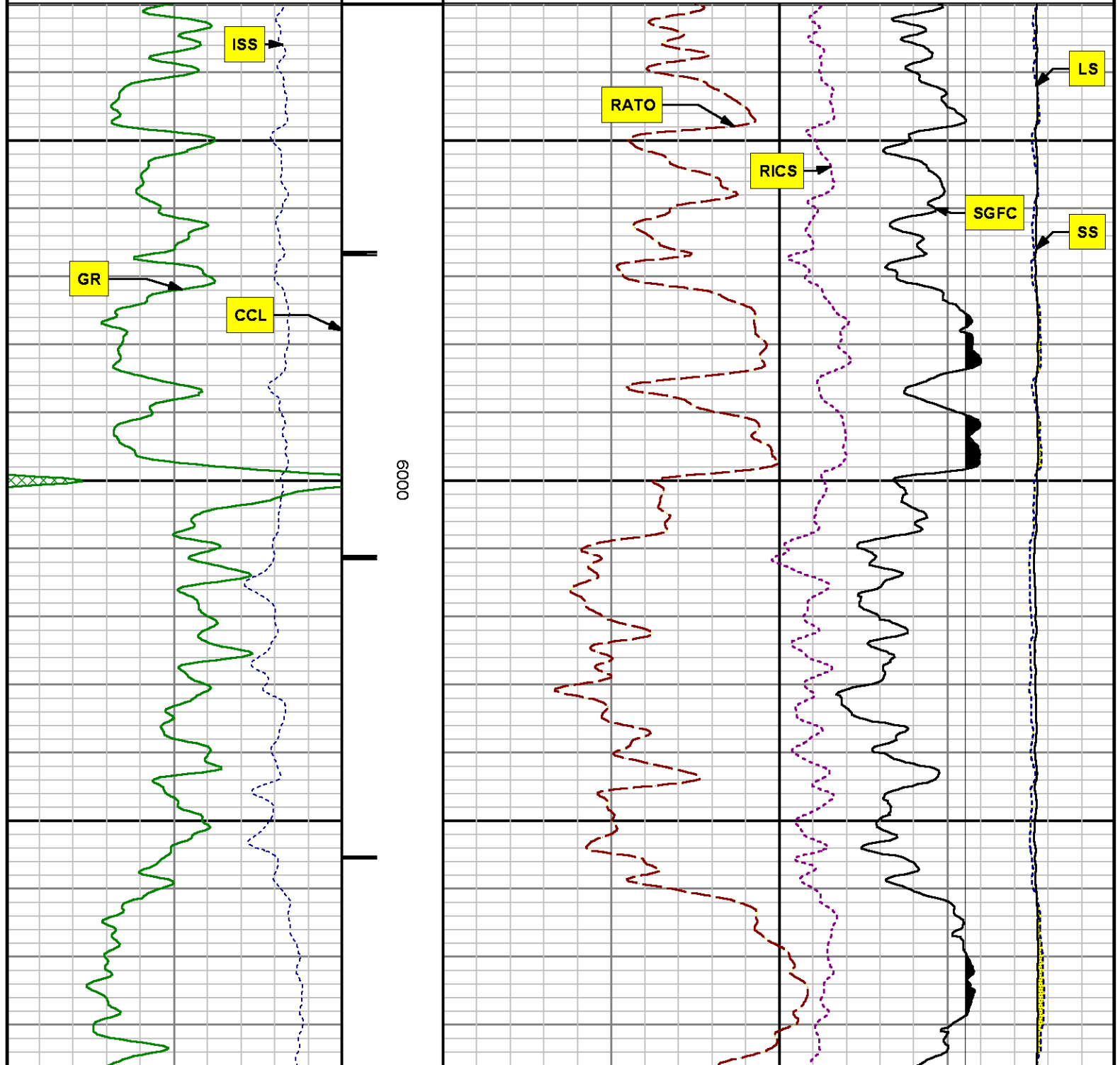
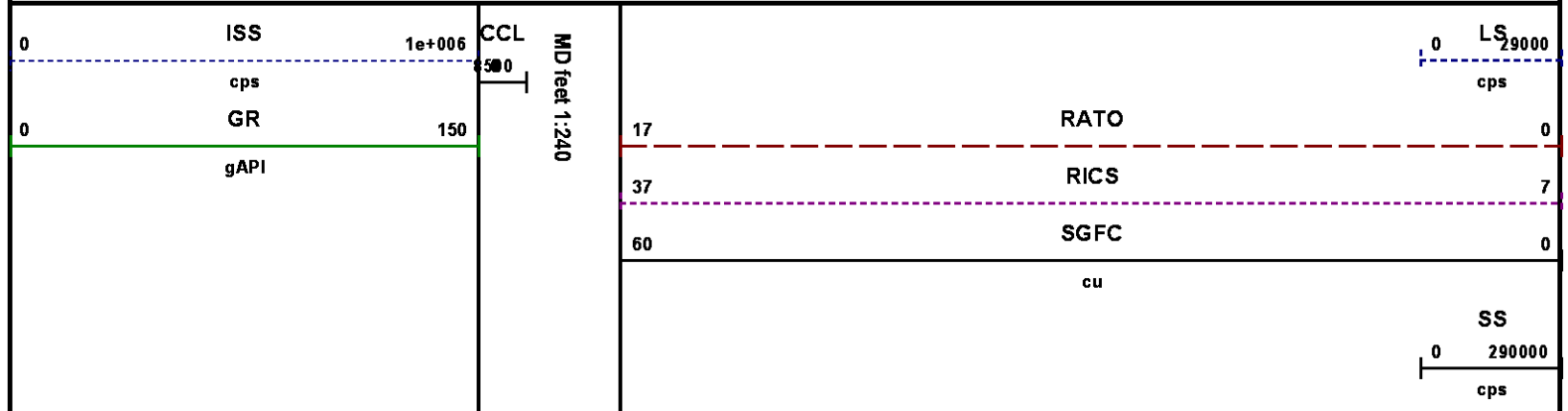
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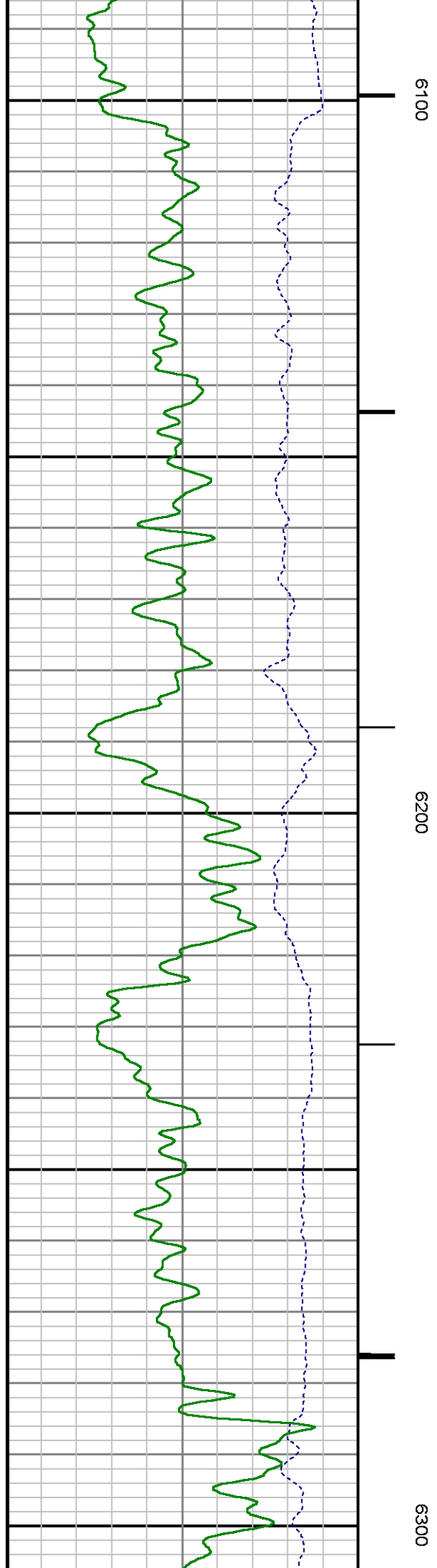
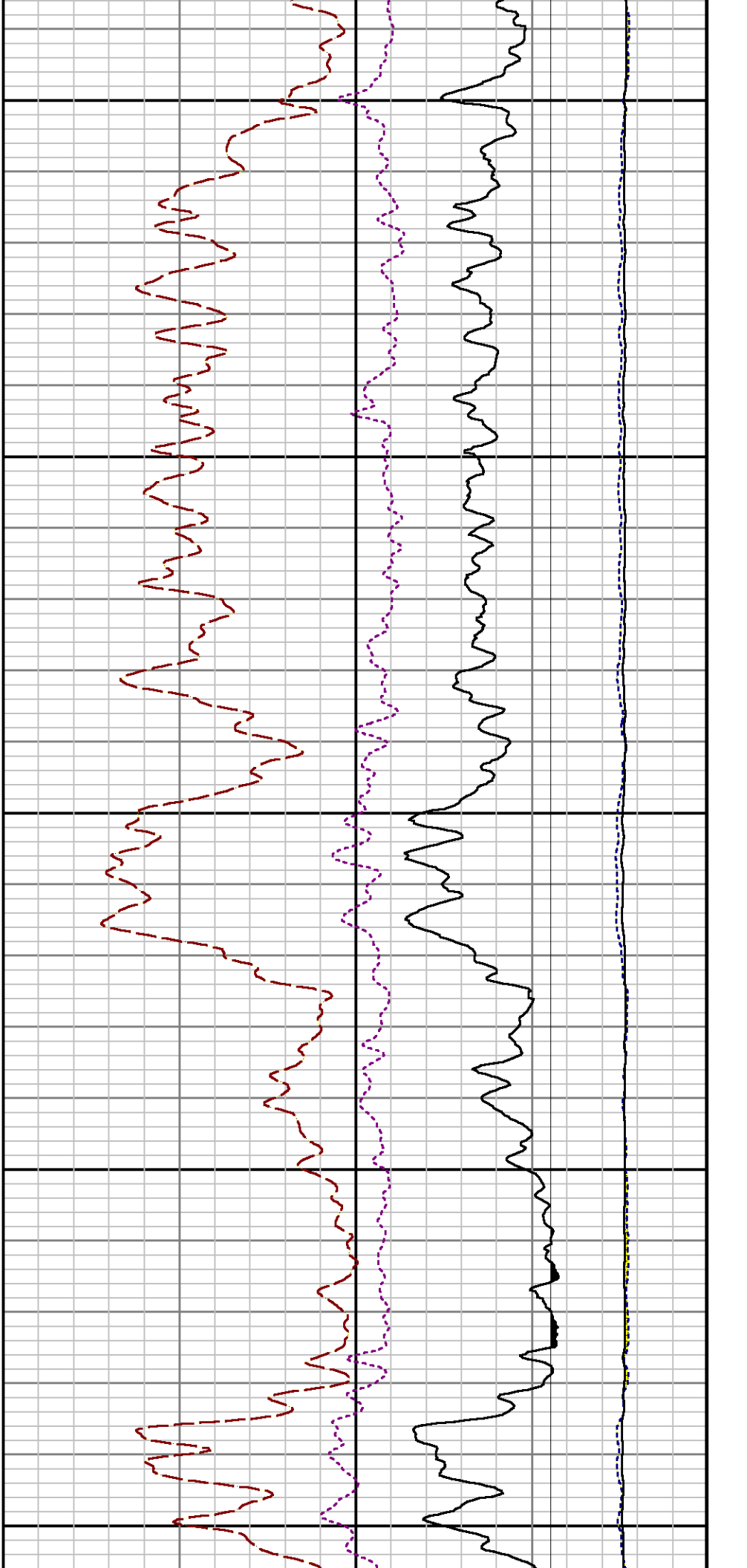
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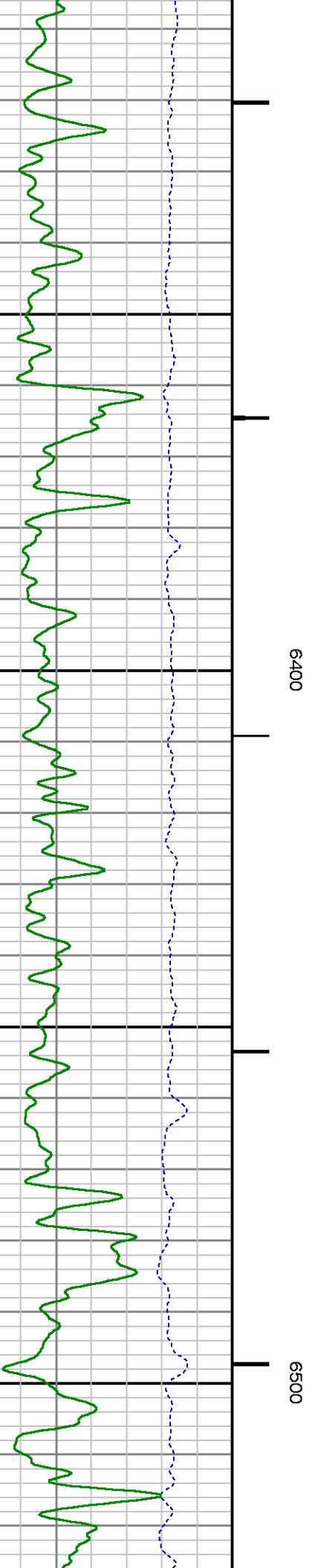
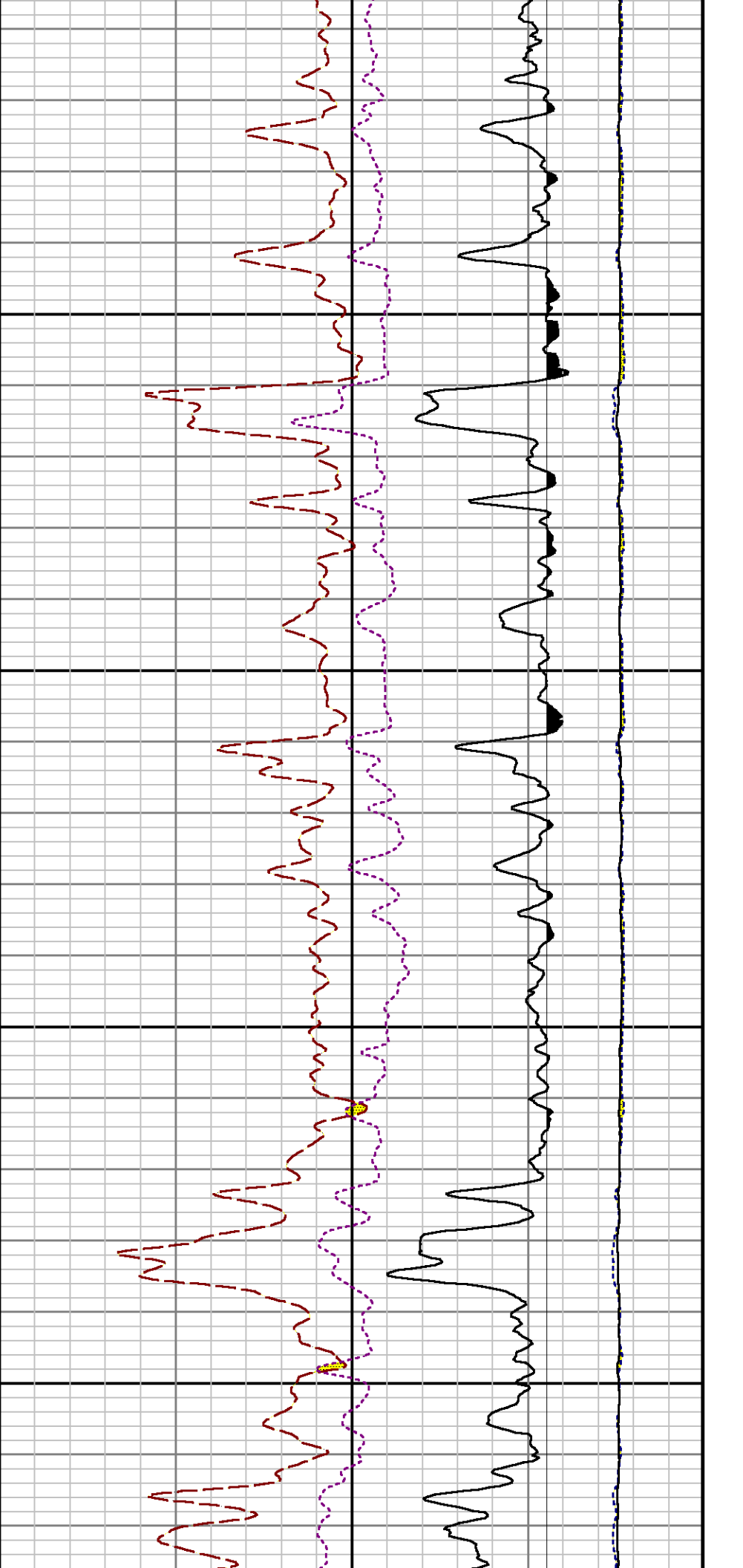
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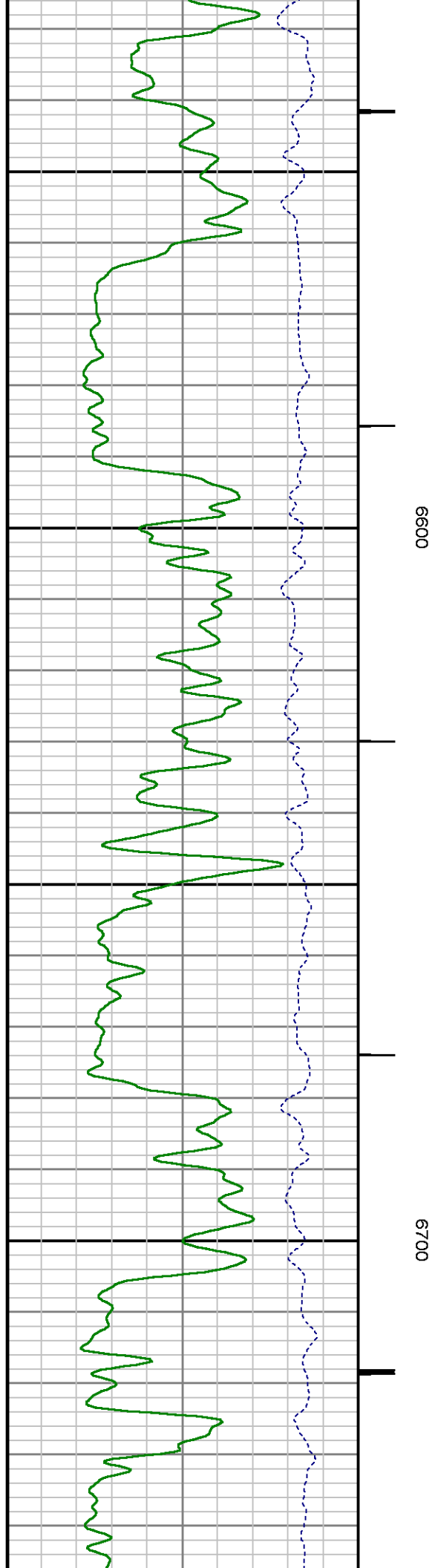
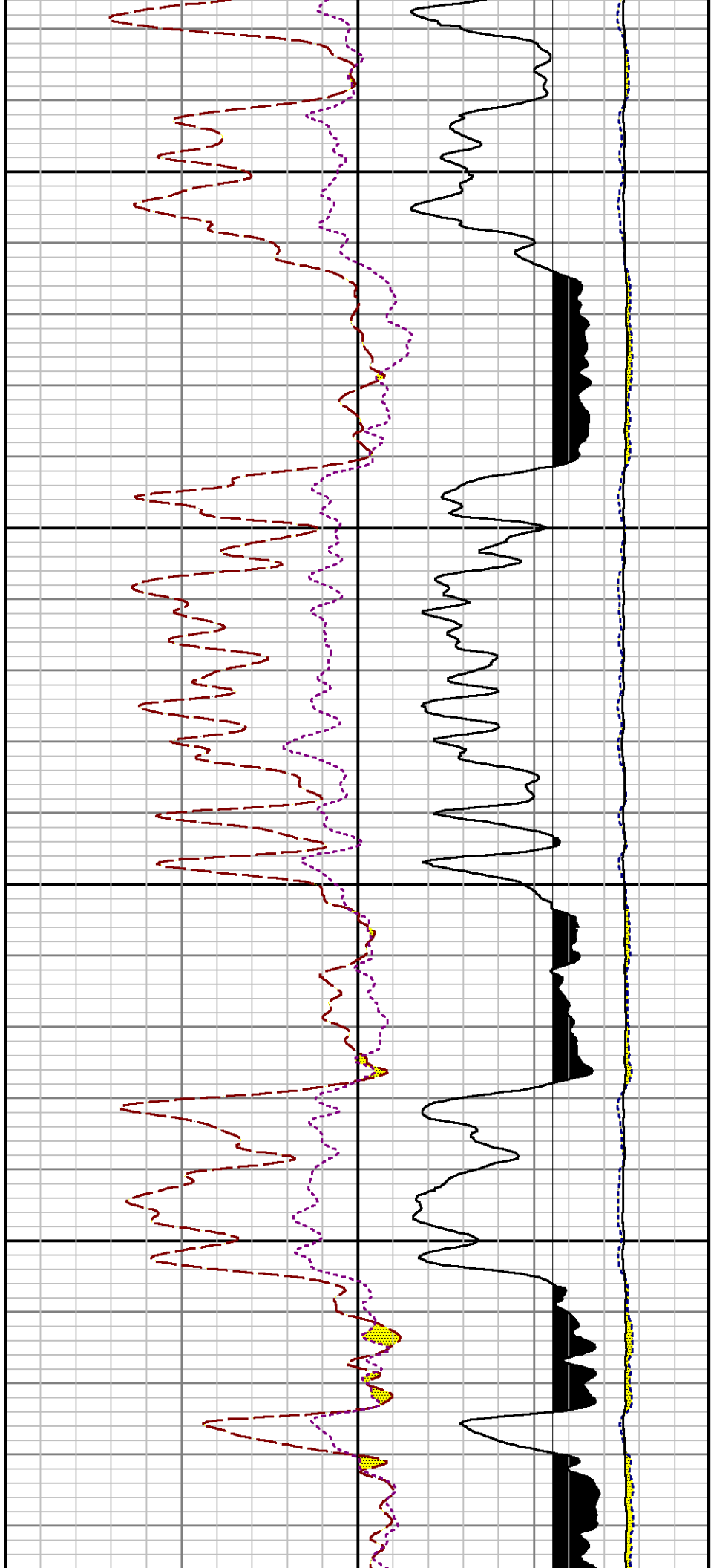
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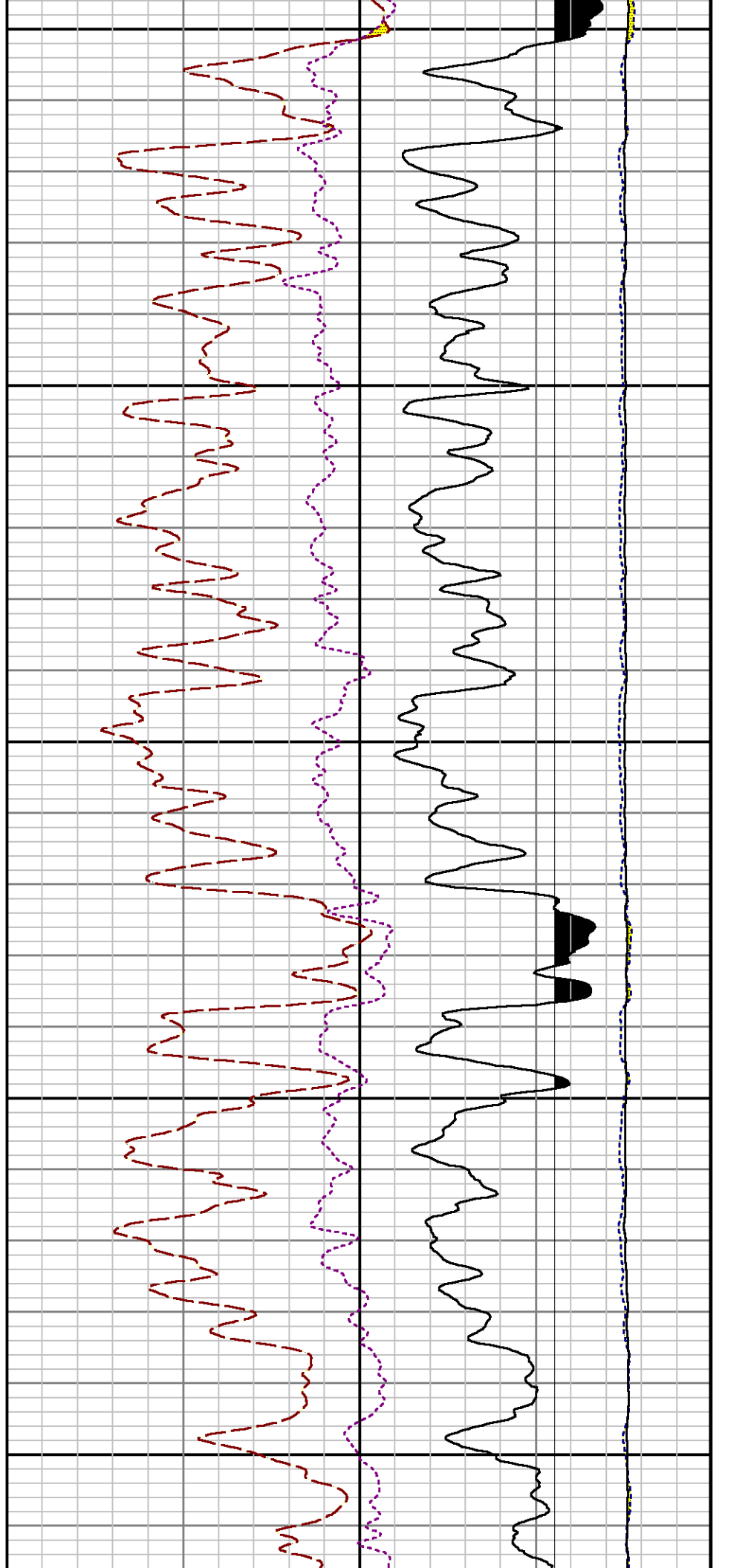
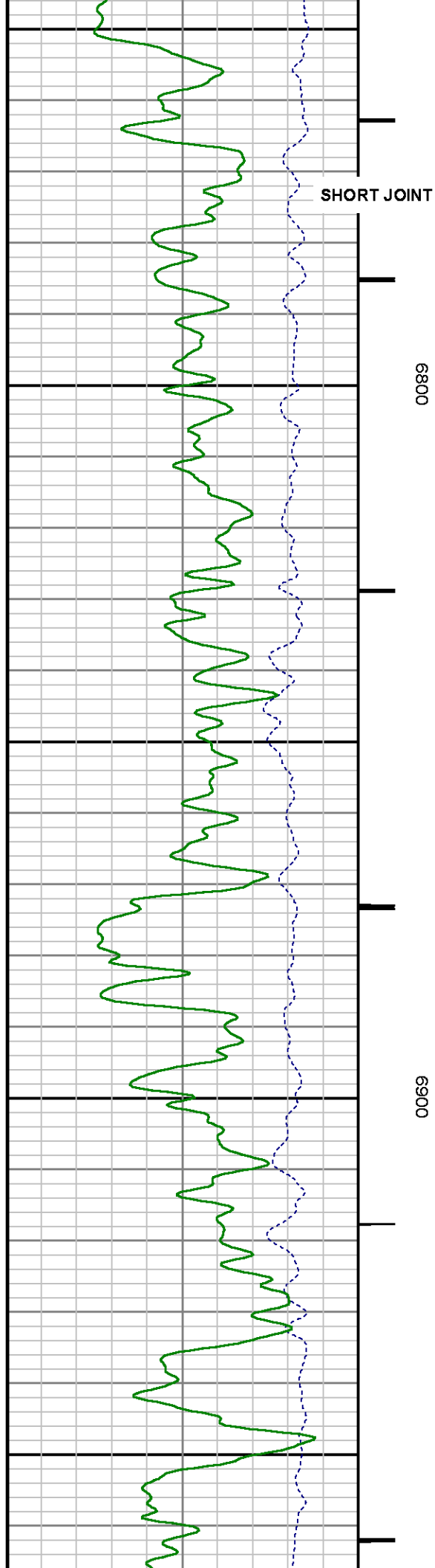
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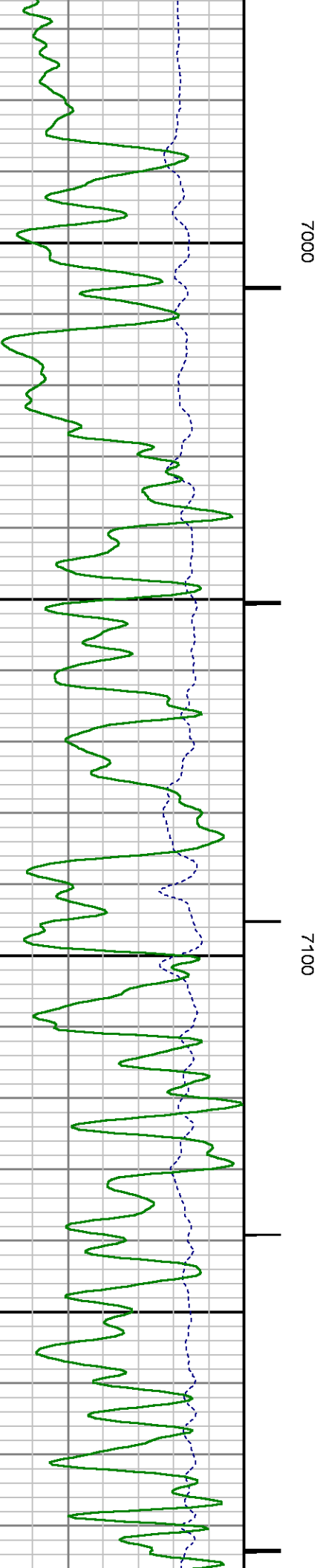
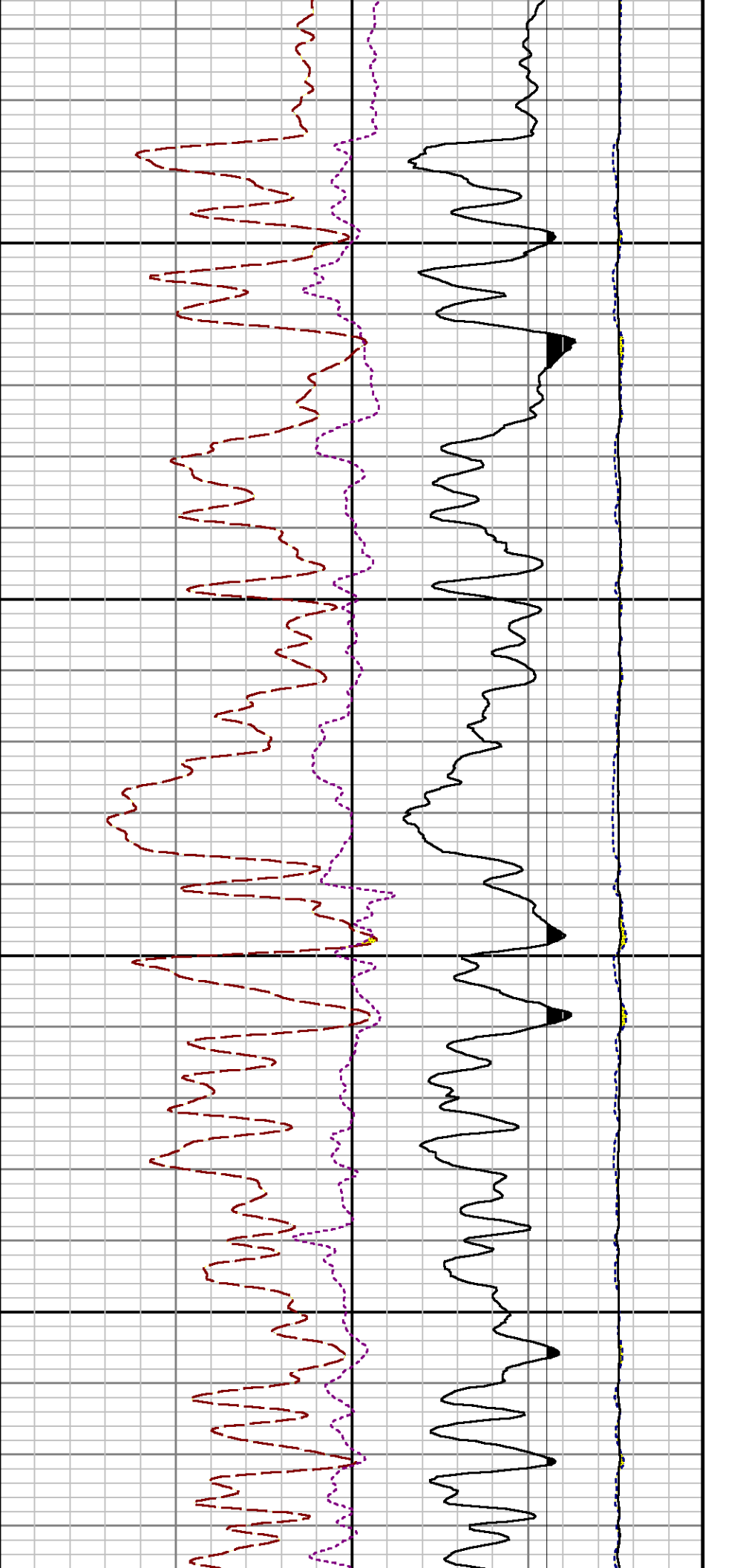


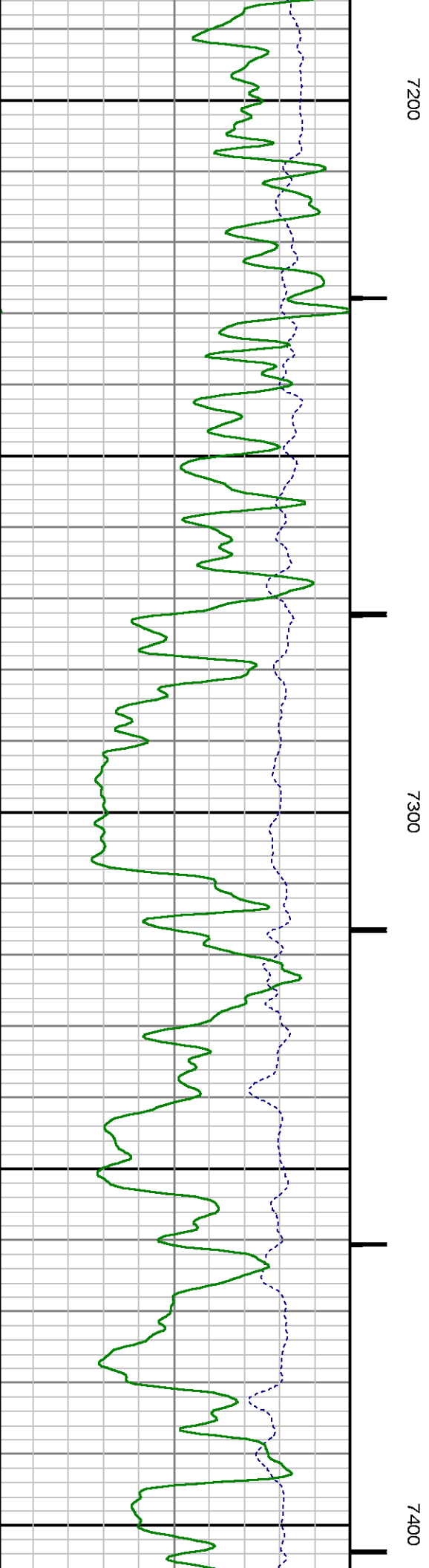
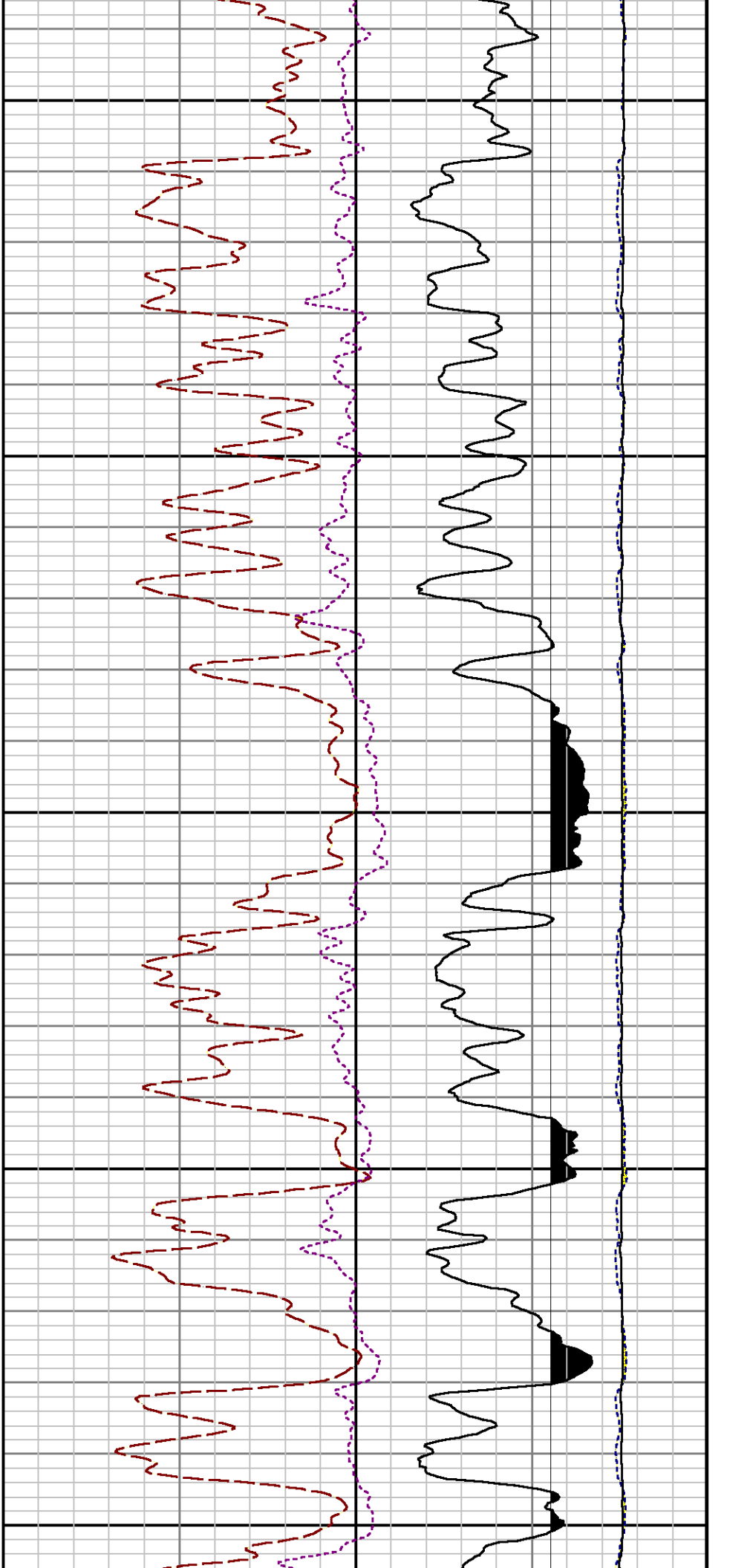


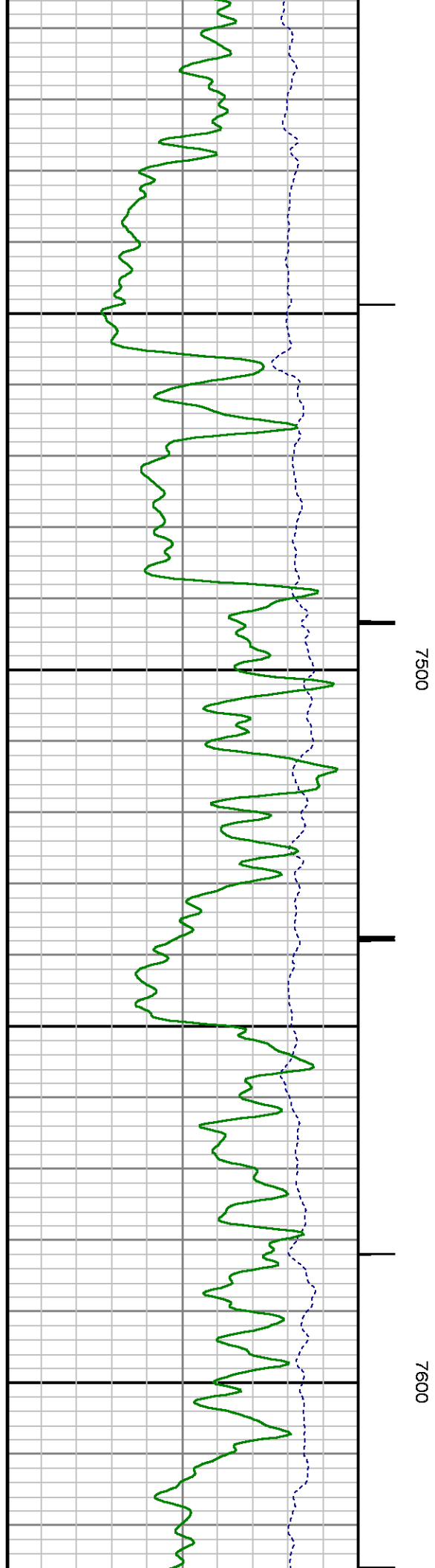
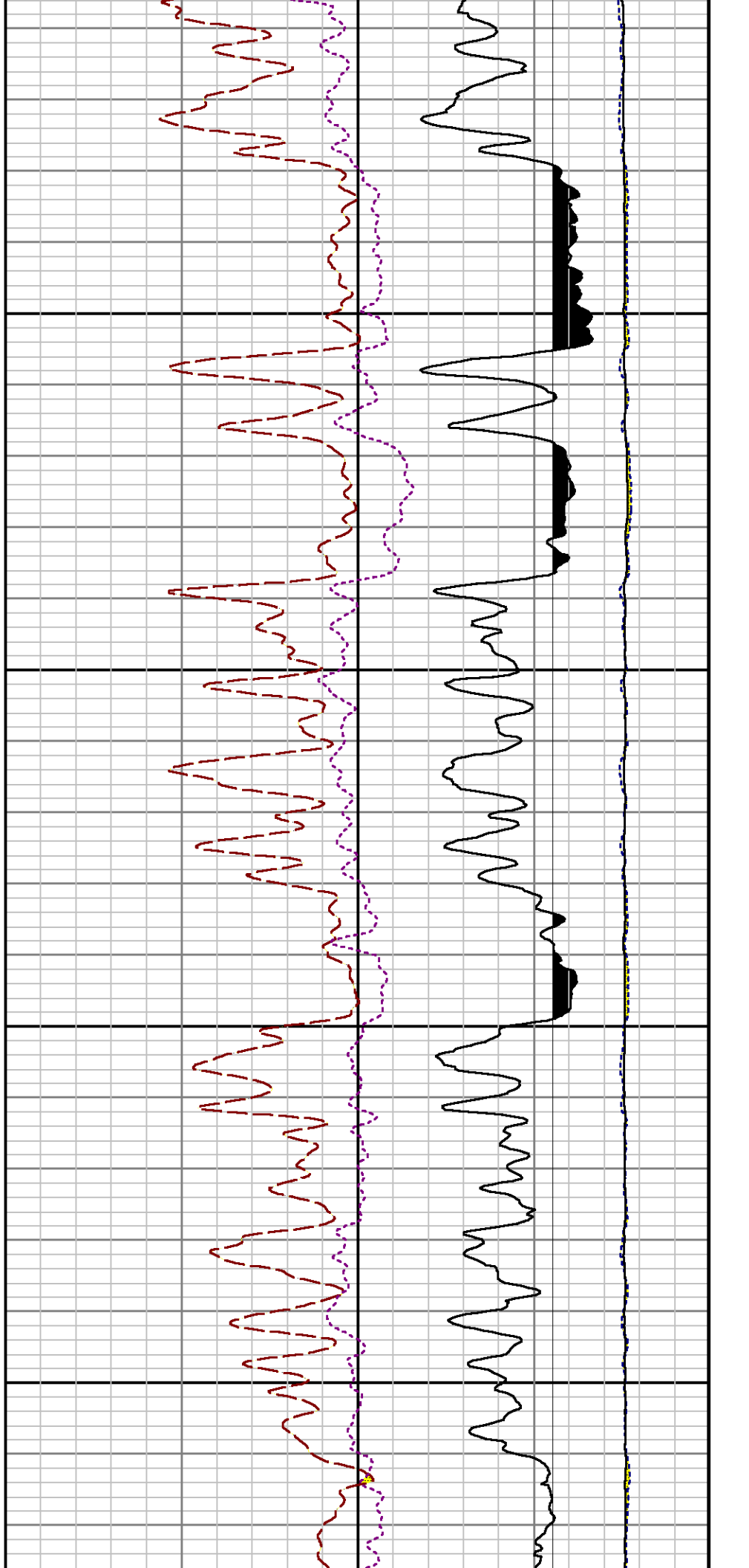


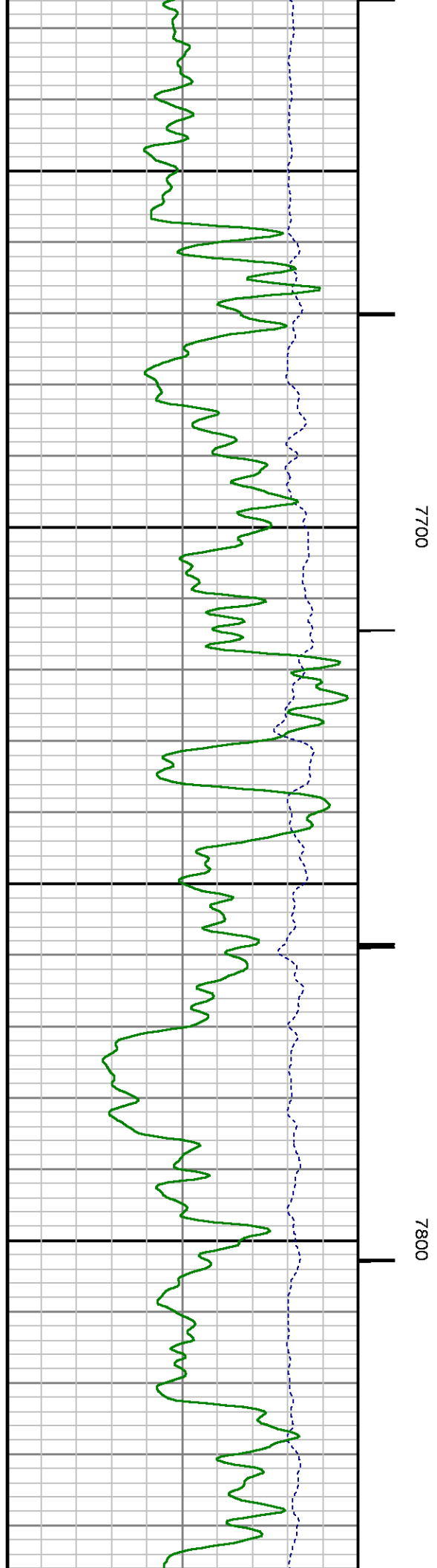
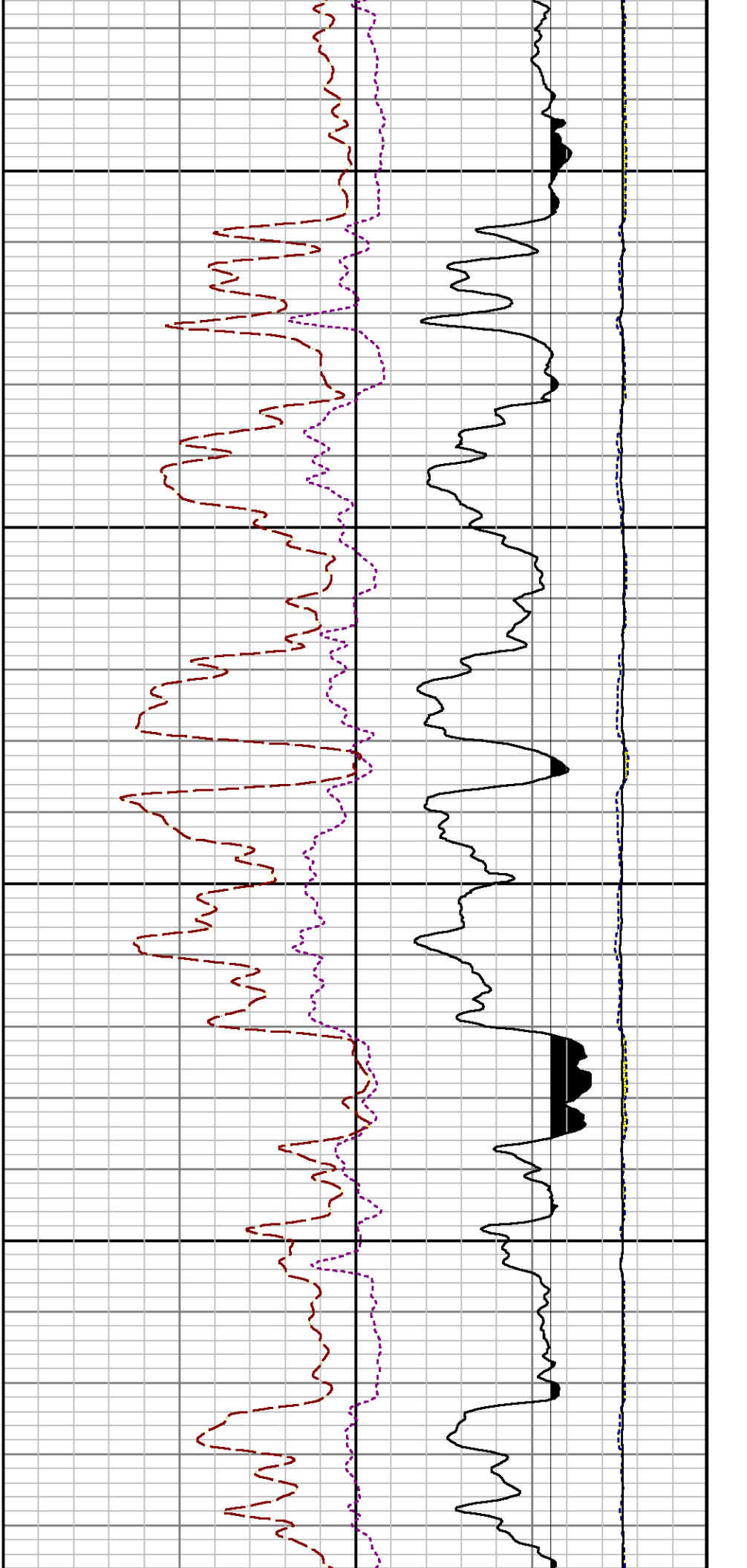


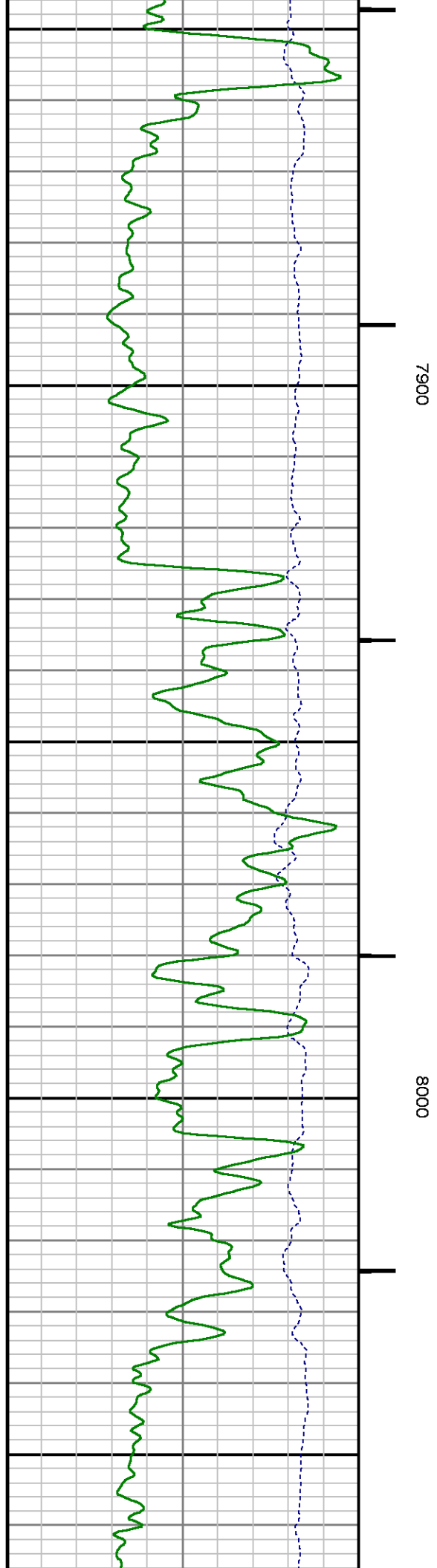
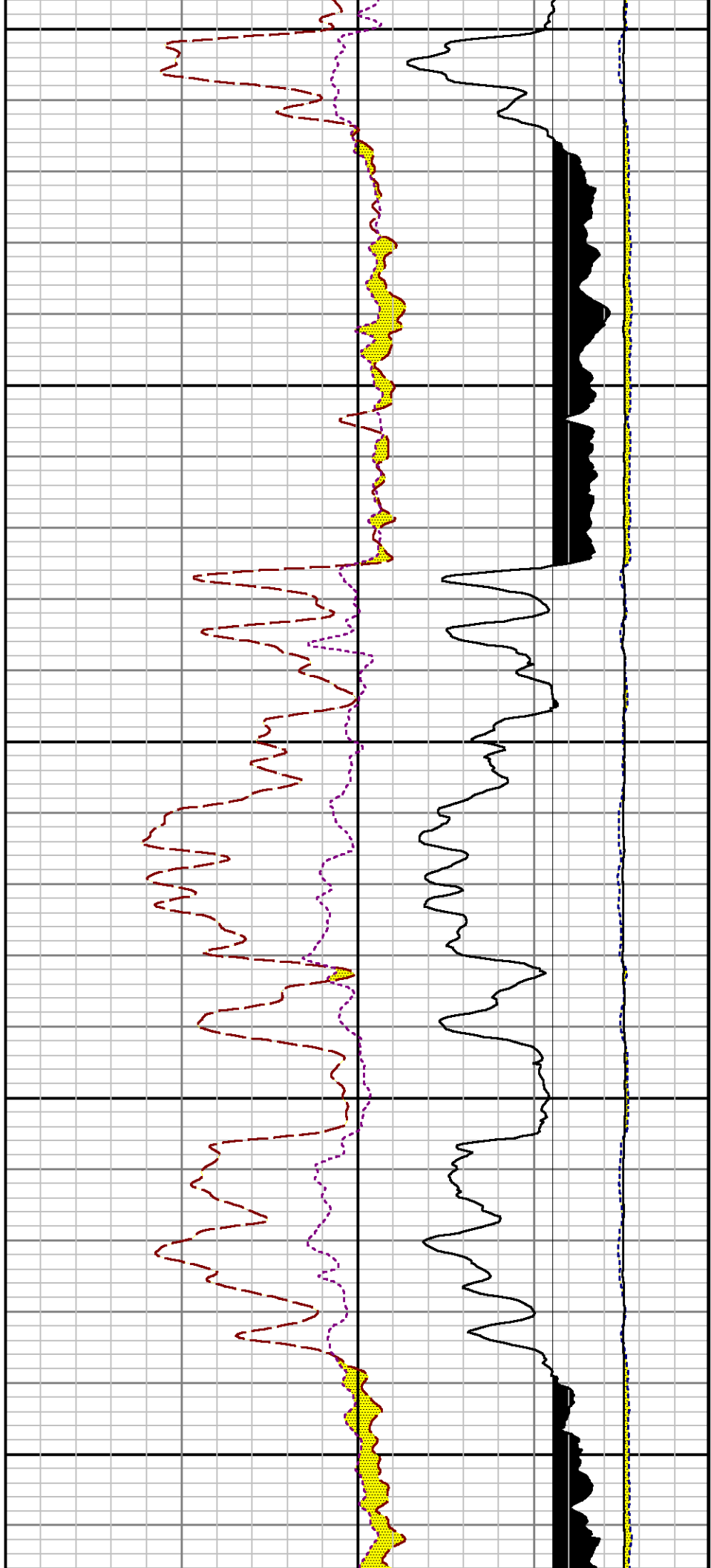


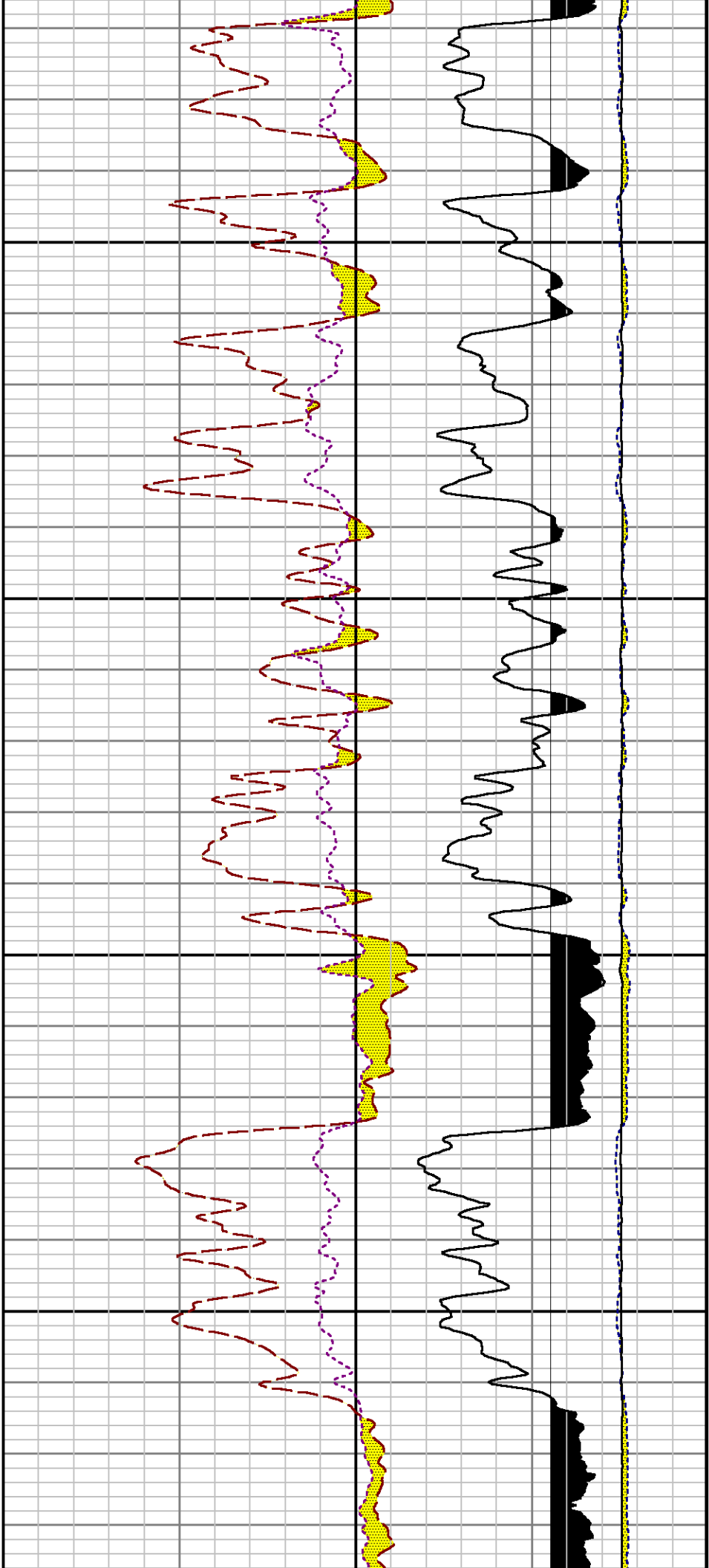






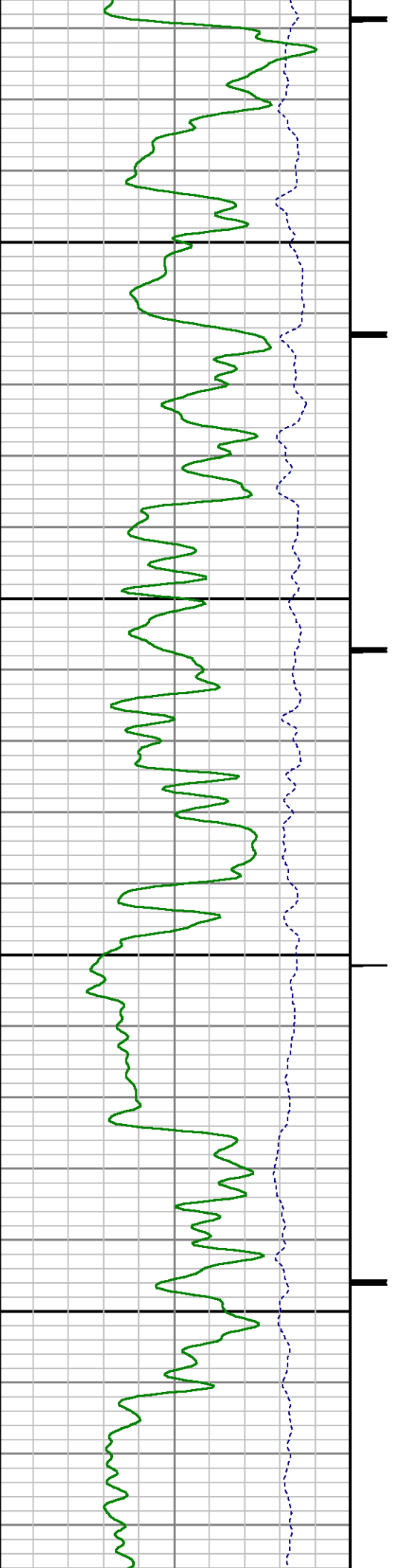


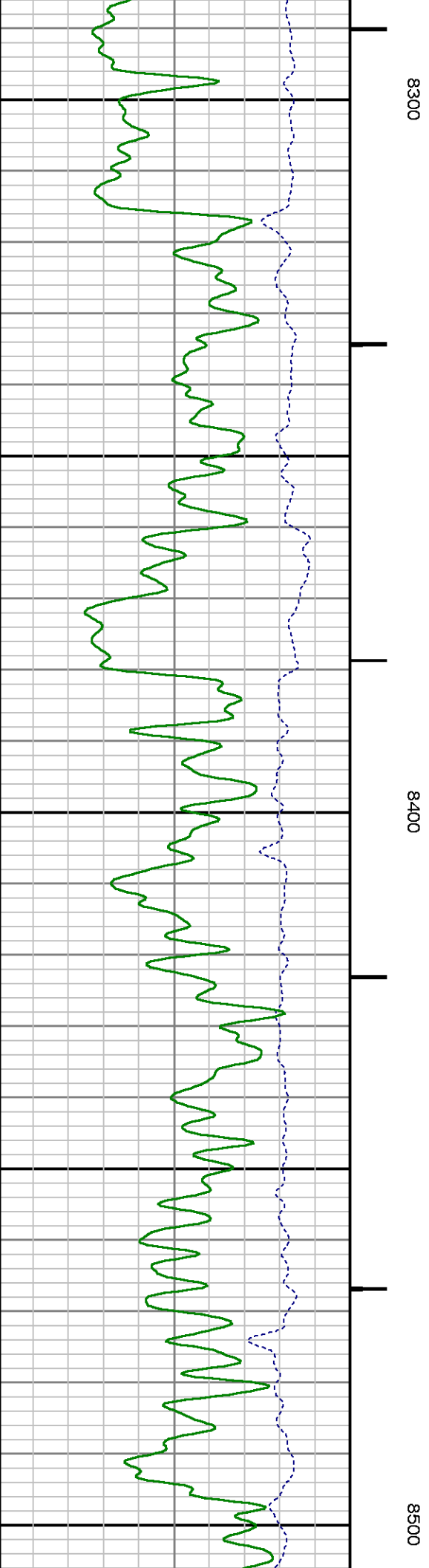
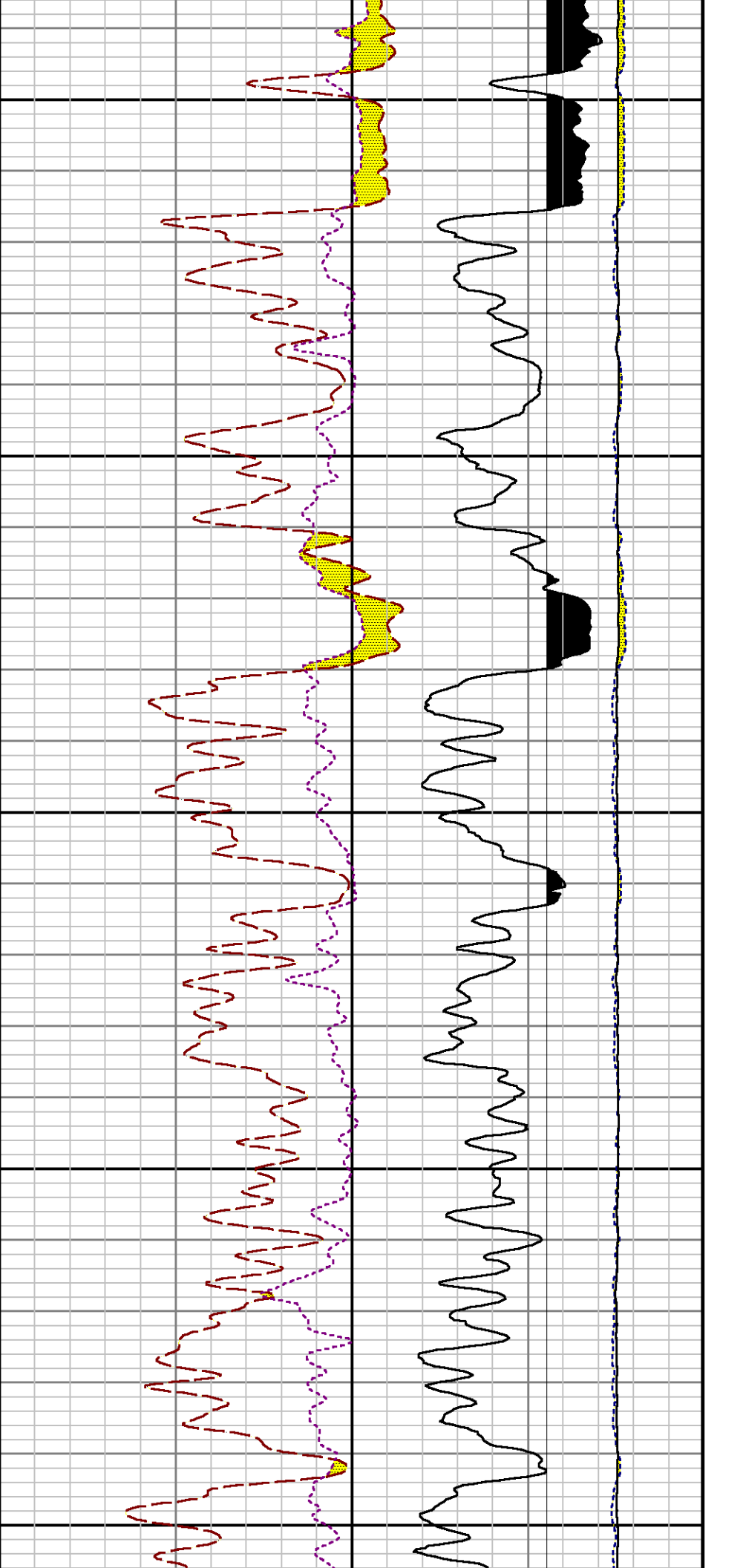


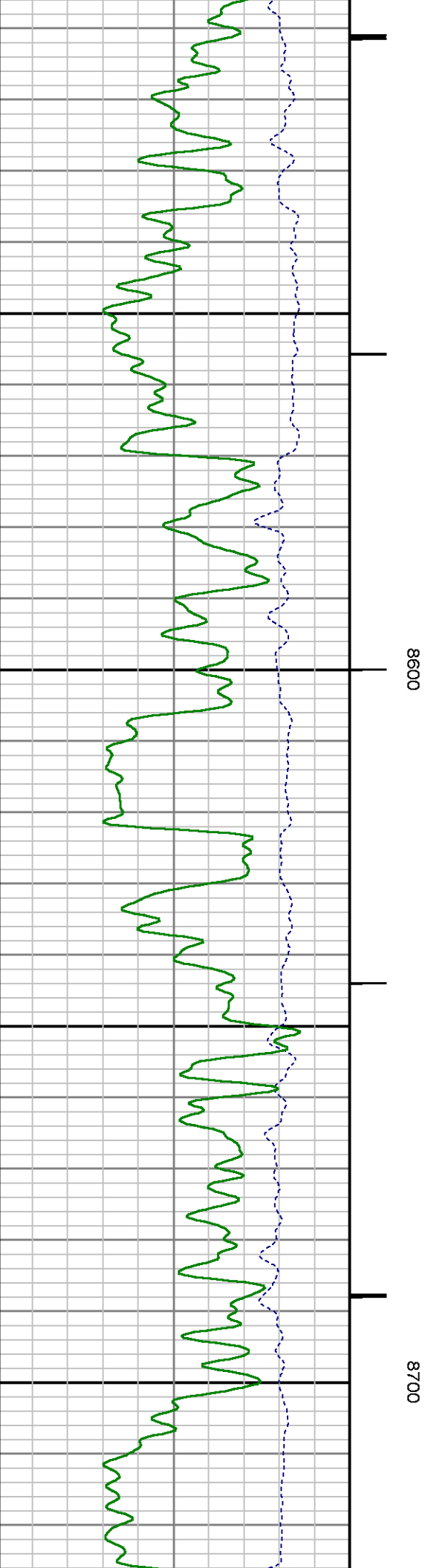
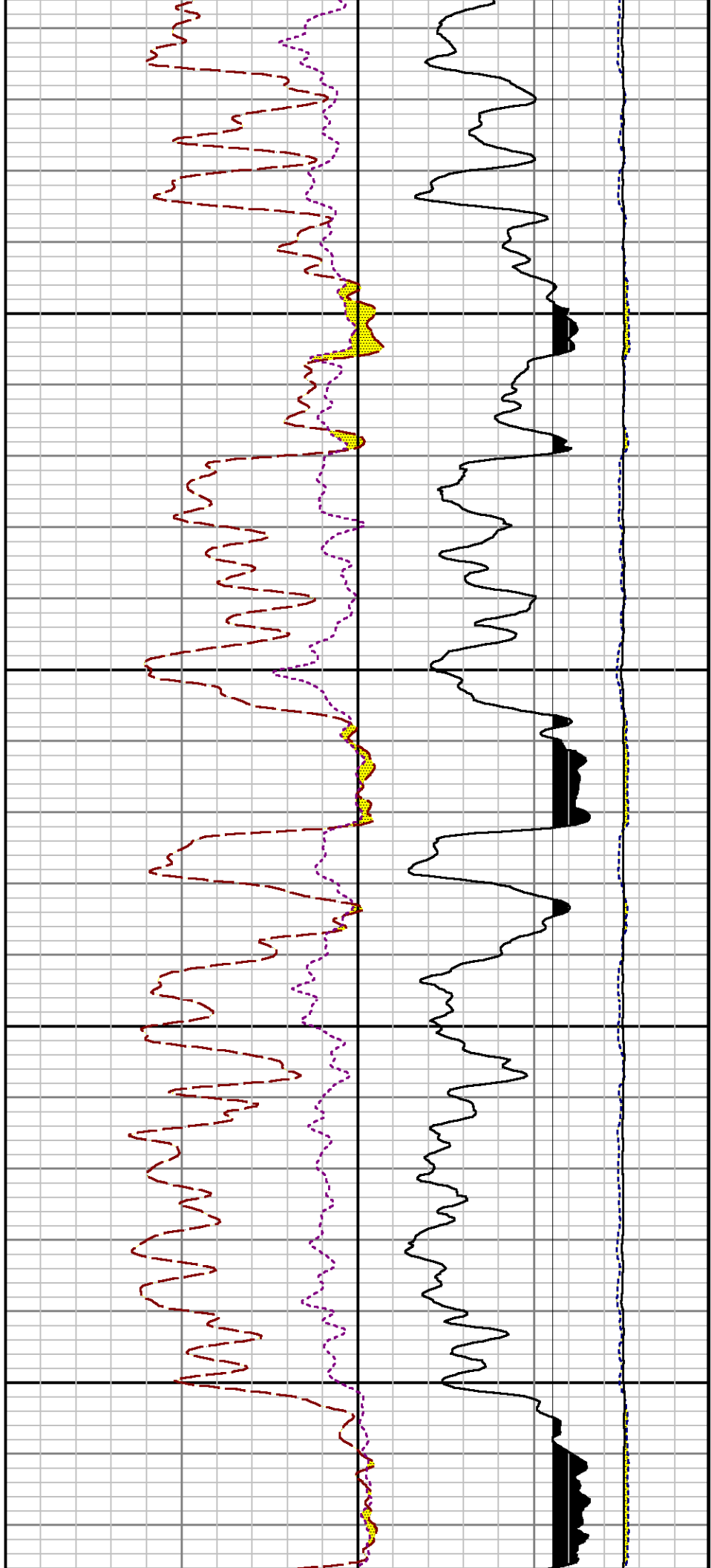


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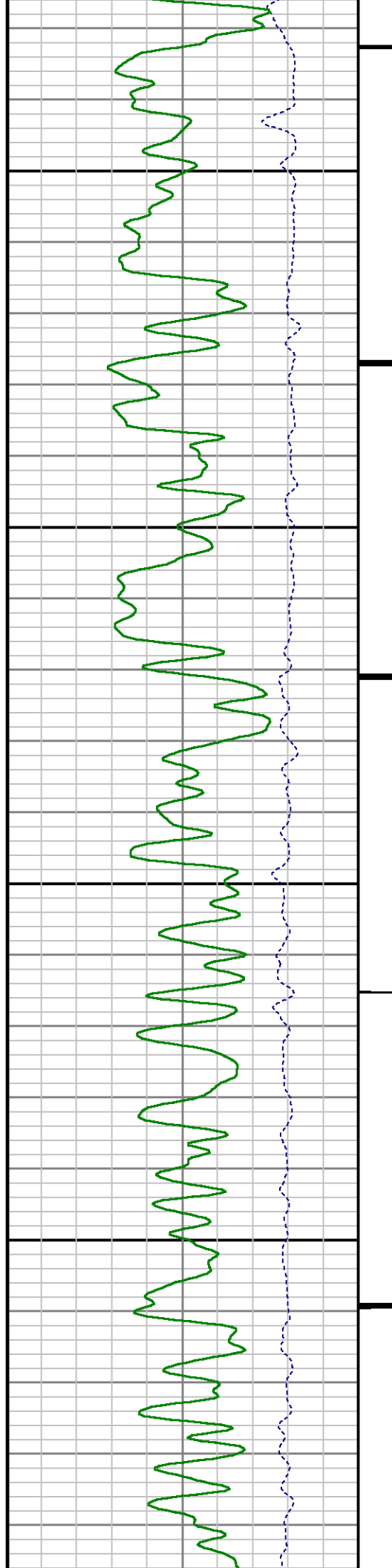
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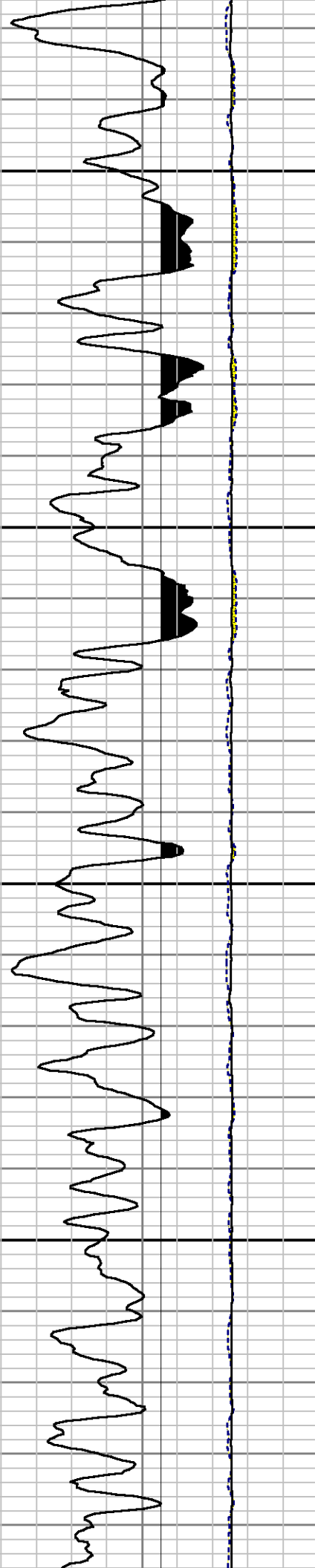
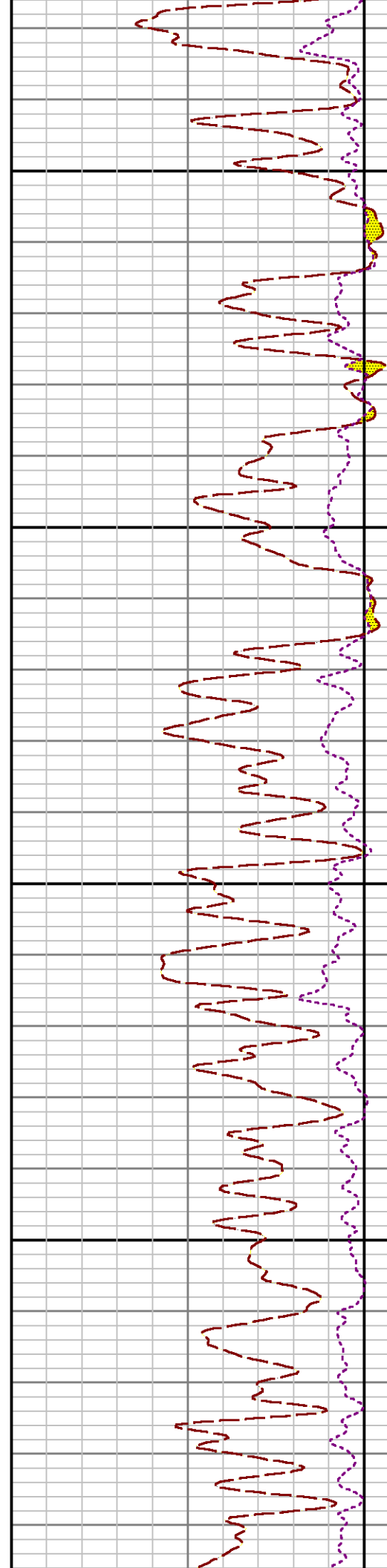


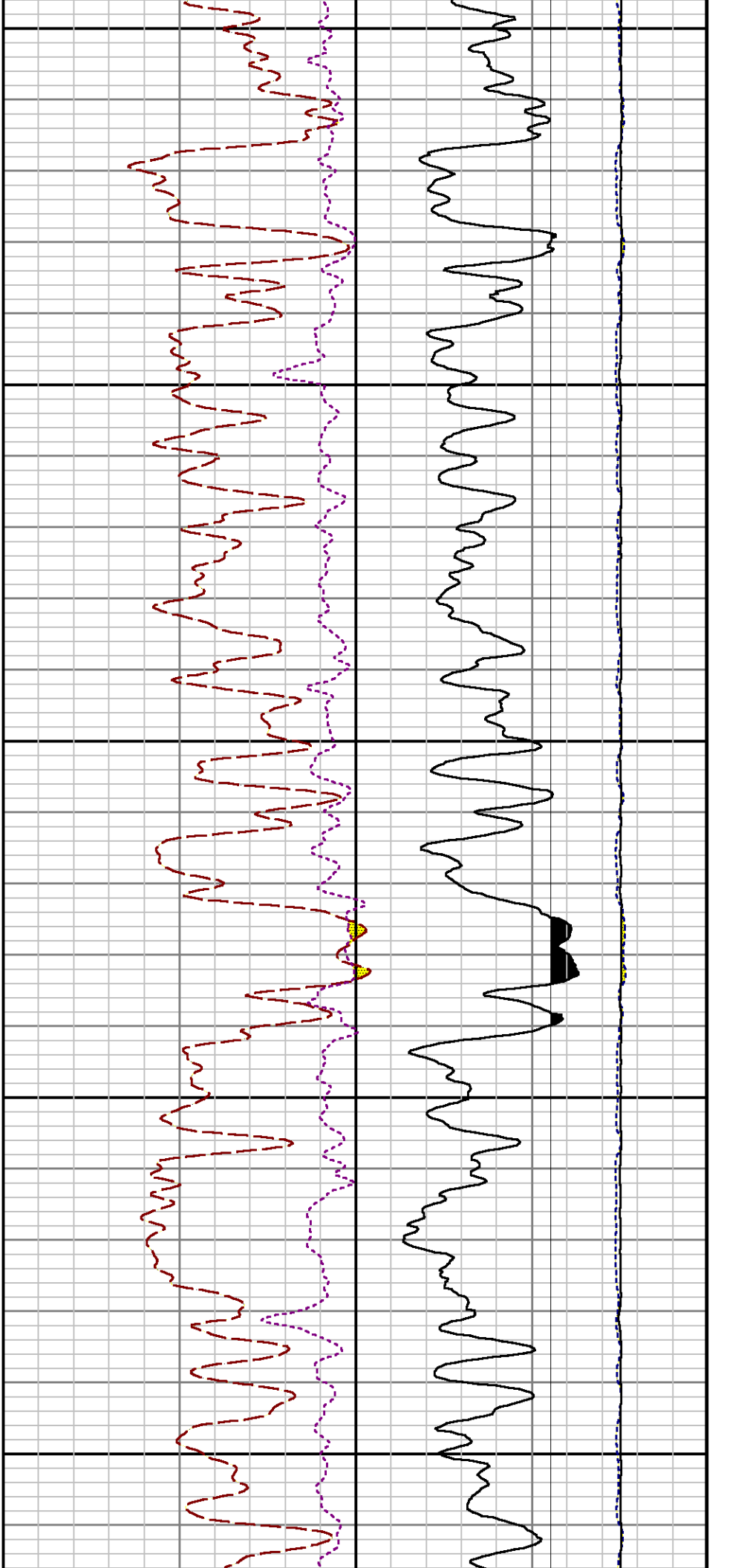




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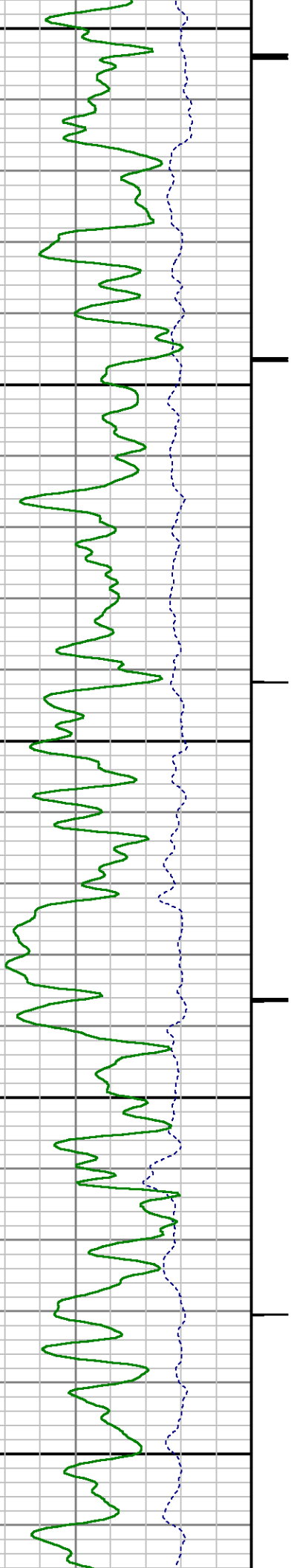
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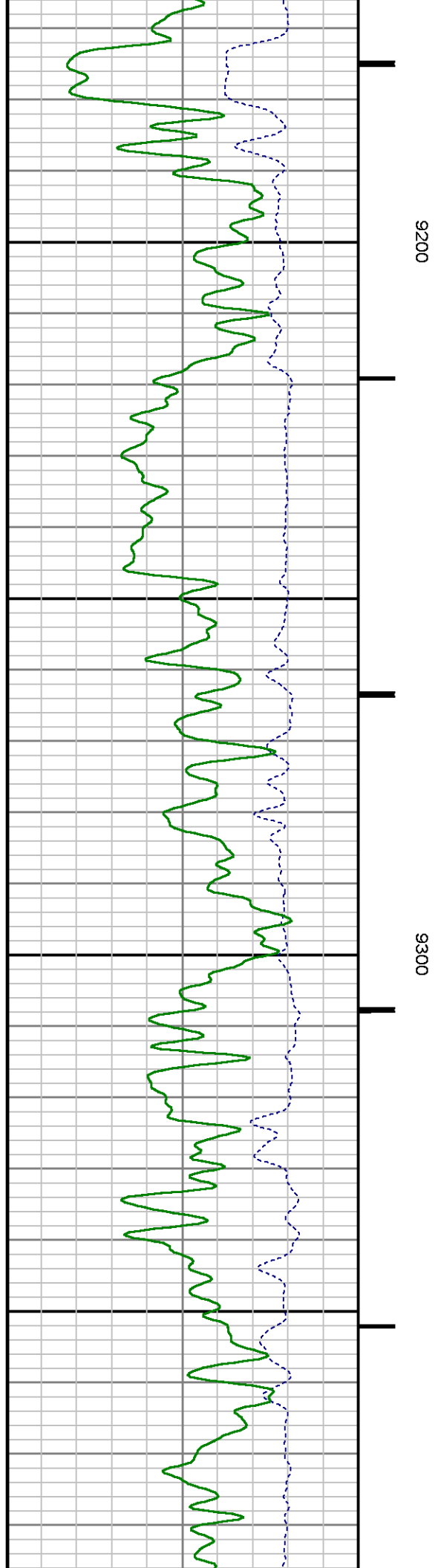
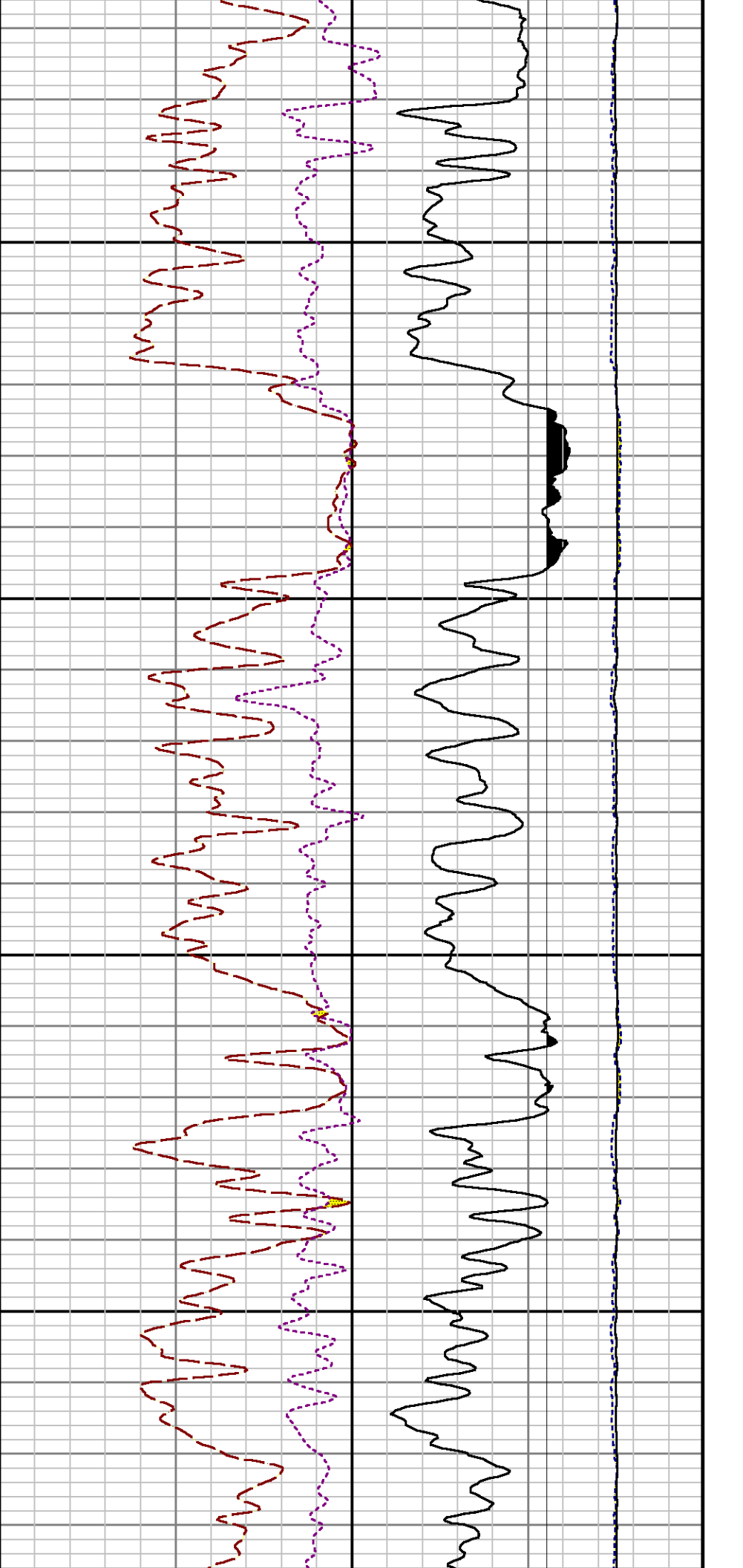


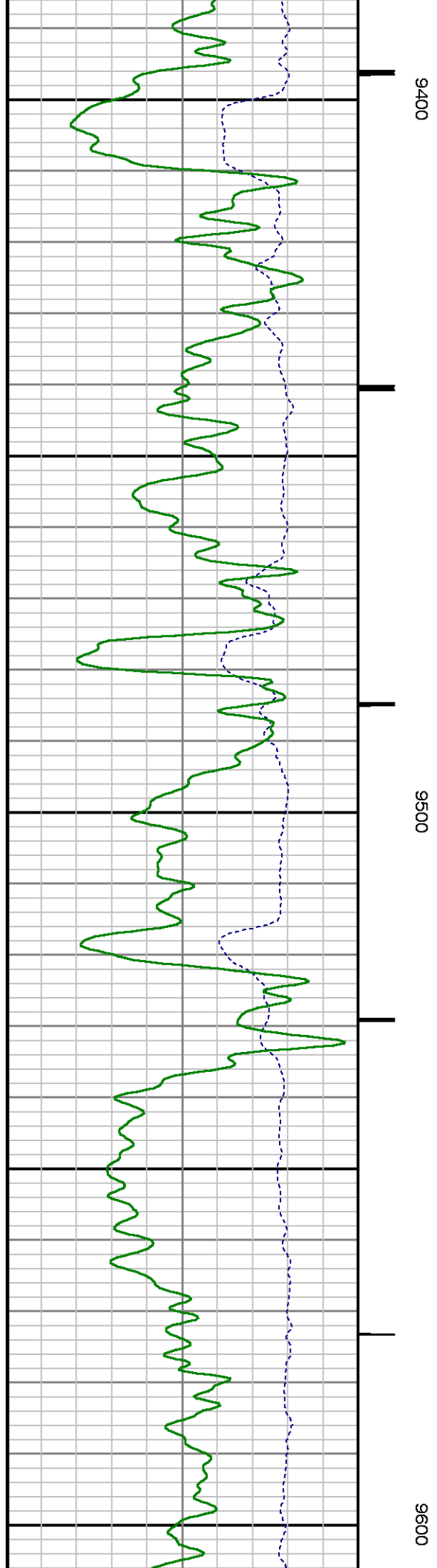
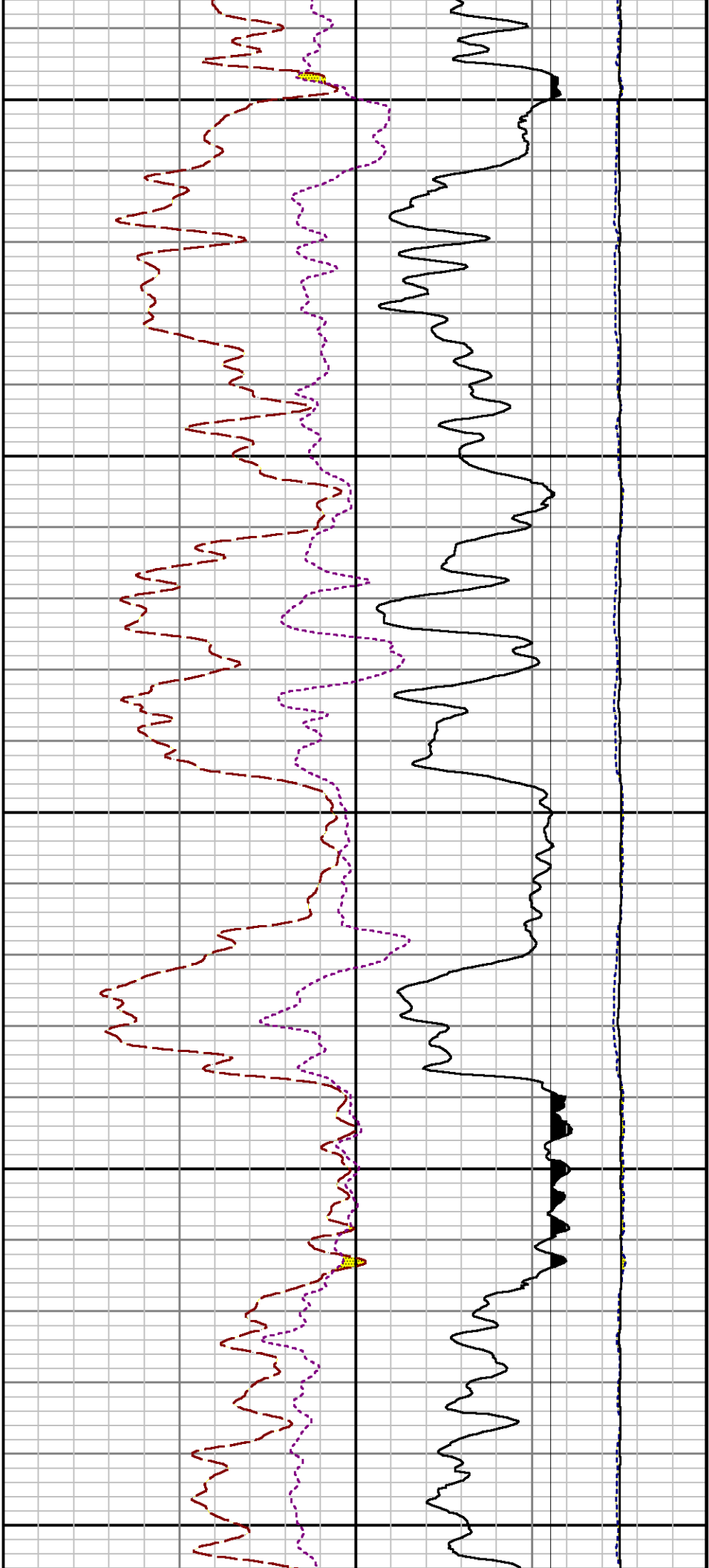


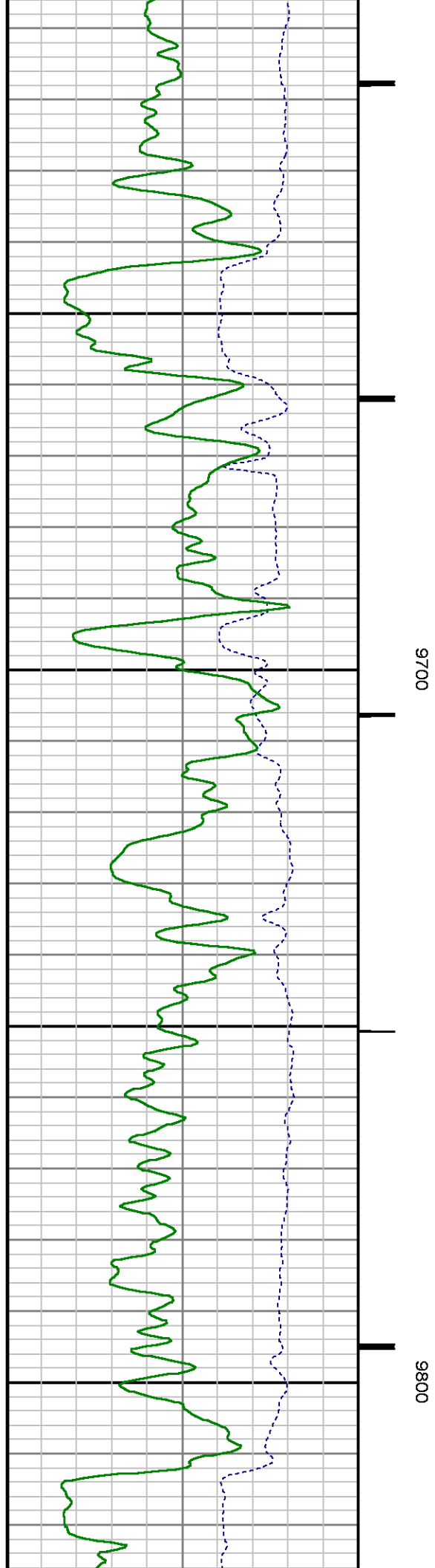
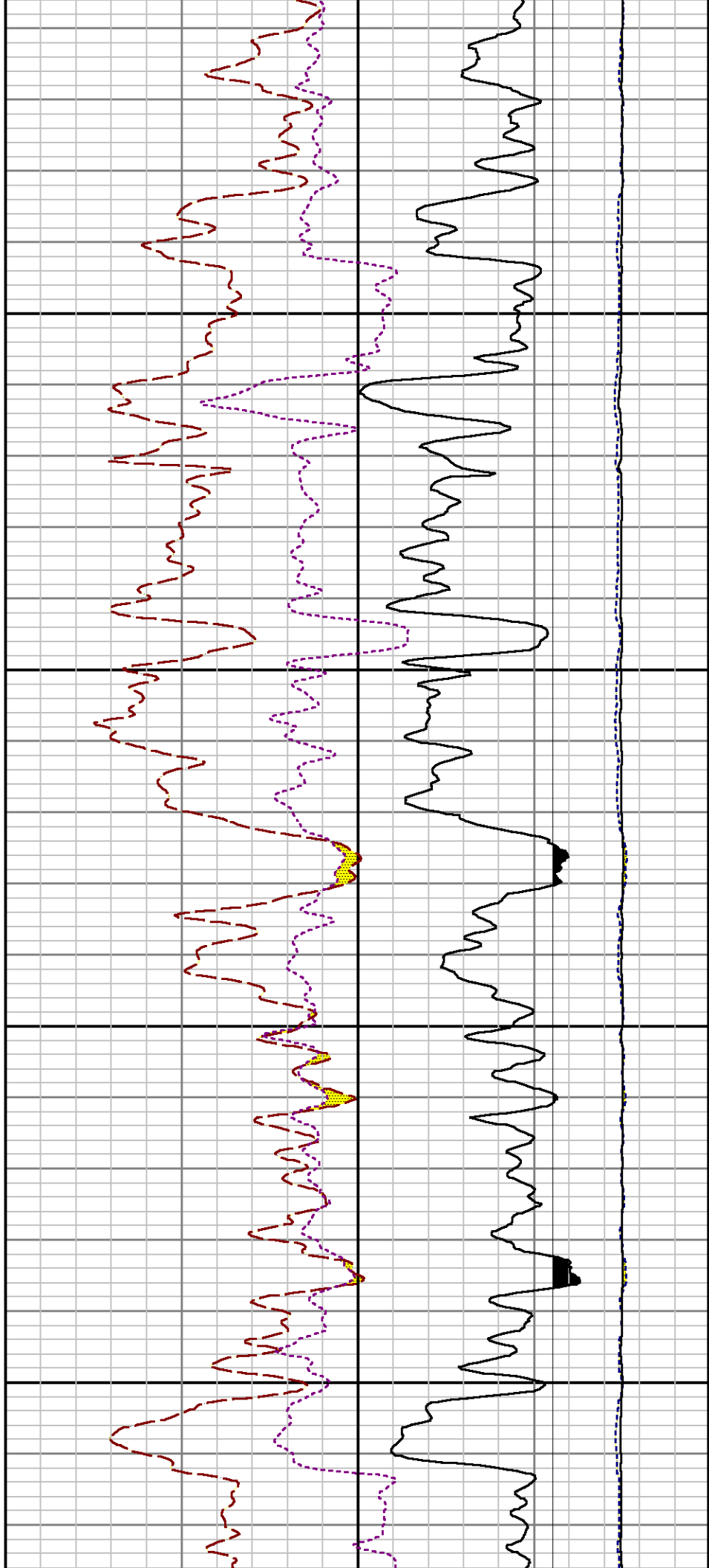
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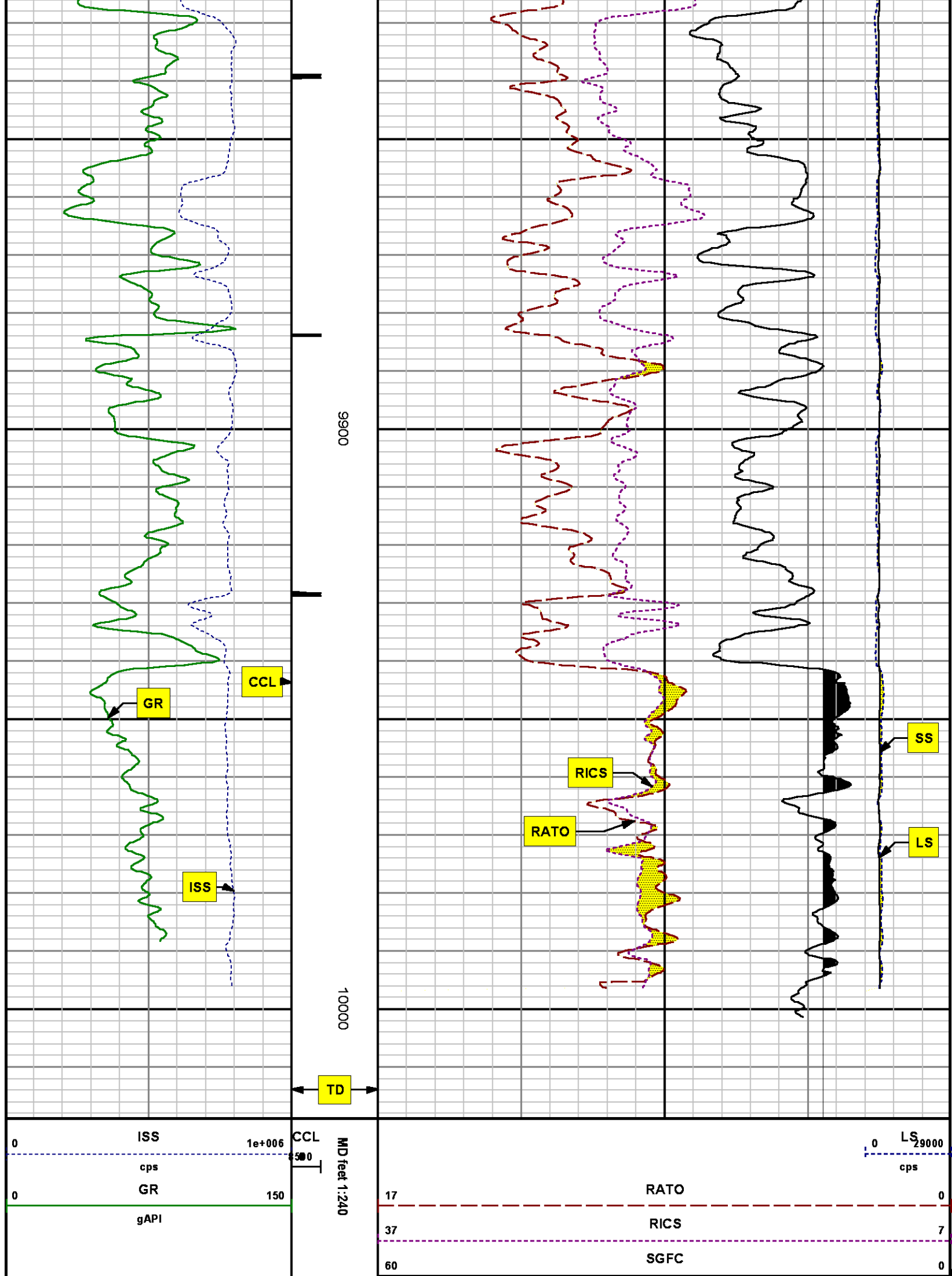
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# REPEAT SECTION PNC 3-D MODE

## SPL PROCESSING

MEASUREMENT TYPE	PARAMETER	VALUE	UNITS	TOP	BOTTOM
PNC Porosity	Borehole	Cased		9172.430	9501.680
PNC Porosity	Borehole Size	8.750	inch	9172.430	9501.680
PNC Porosity	Casing Size	4.500	inch	9172.430	9501.680
PNC Porosity	Gas Filled	Non Gas Filled		9172.430	9501.680
PNC Porosity	Matrix	Sandstone		9172.430	9501.680
TPS Pressure	Temperature Corr. Source	Fixed (72.00)	degF	9172.430	9501.680

## 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 WDTH3 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

8281XA

-12.041

STA2 ASPEC2 ILSC ILSN WDH2 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 WDH1 RICSC CSSR G1R  
 G2R ISSR SSR SS2R RATOR RATO13R  
 RBORR RICSR RINR RIN13R RONE13R 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

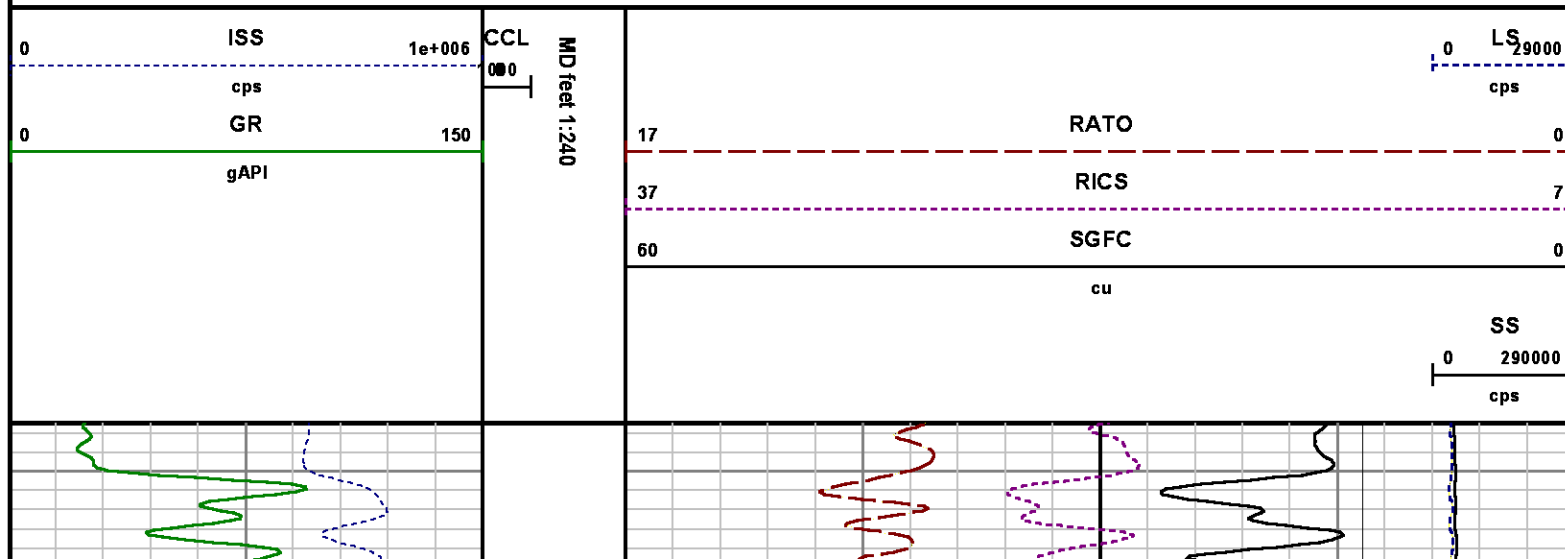
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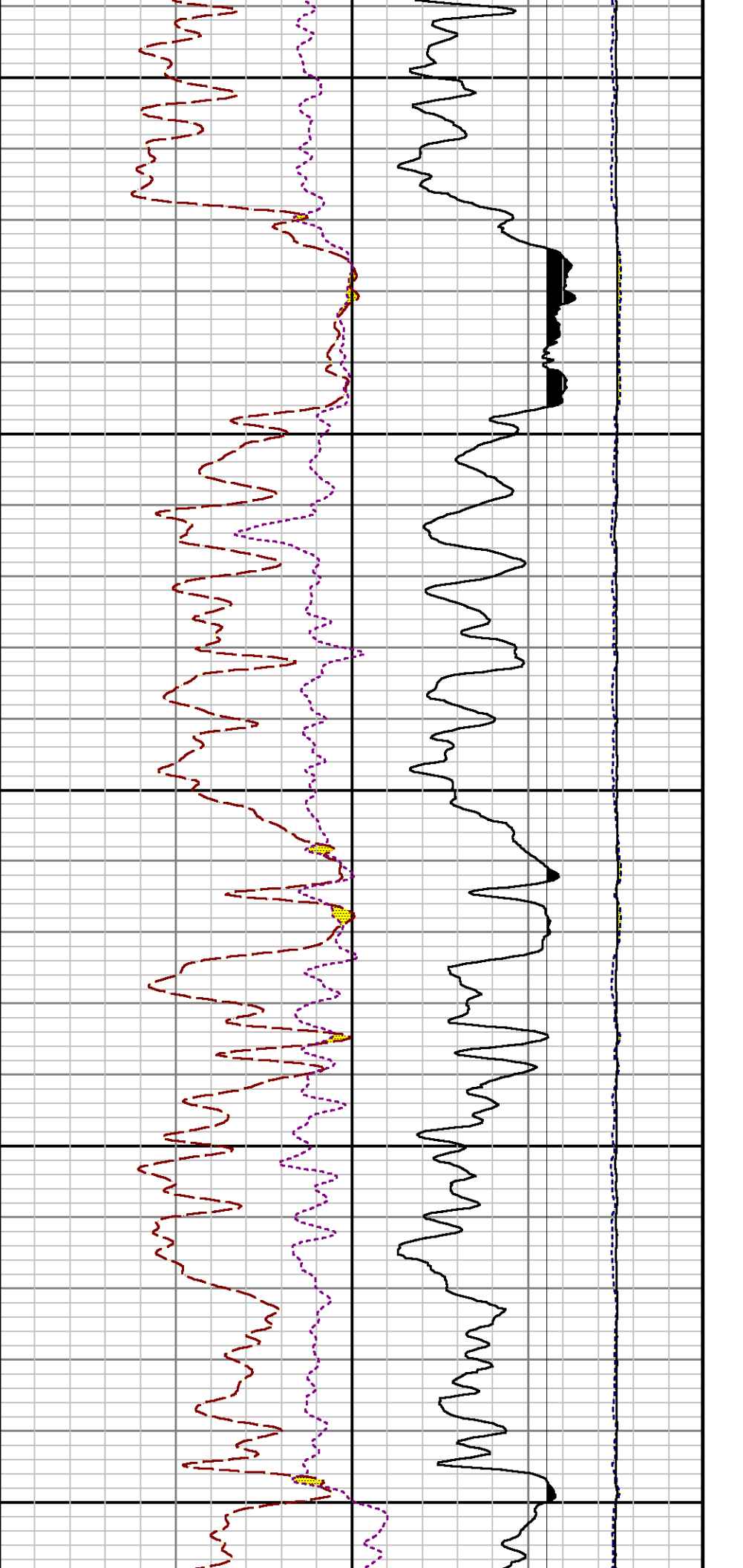
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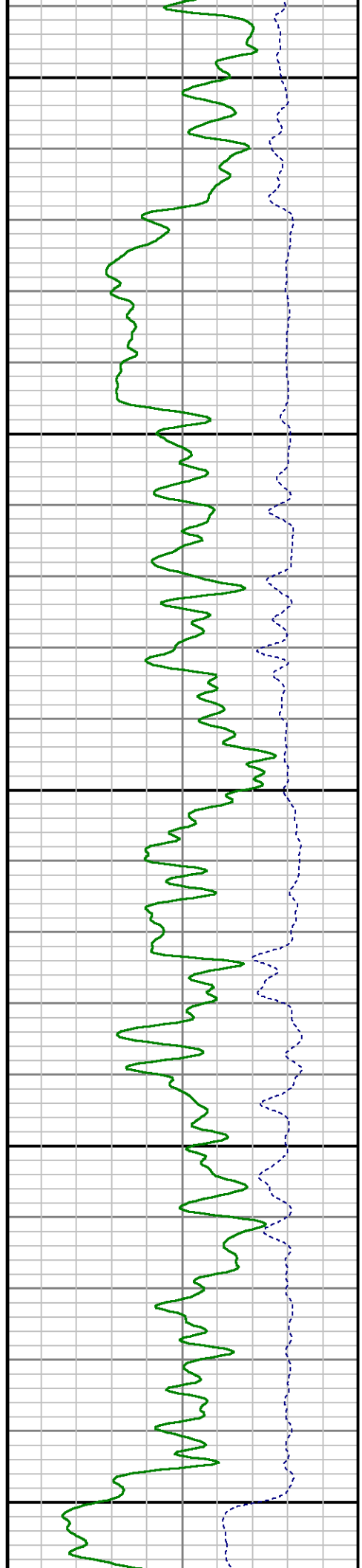


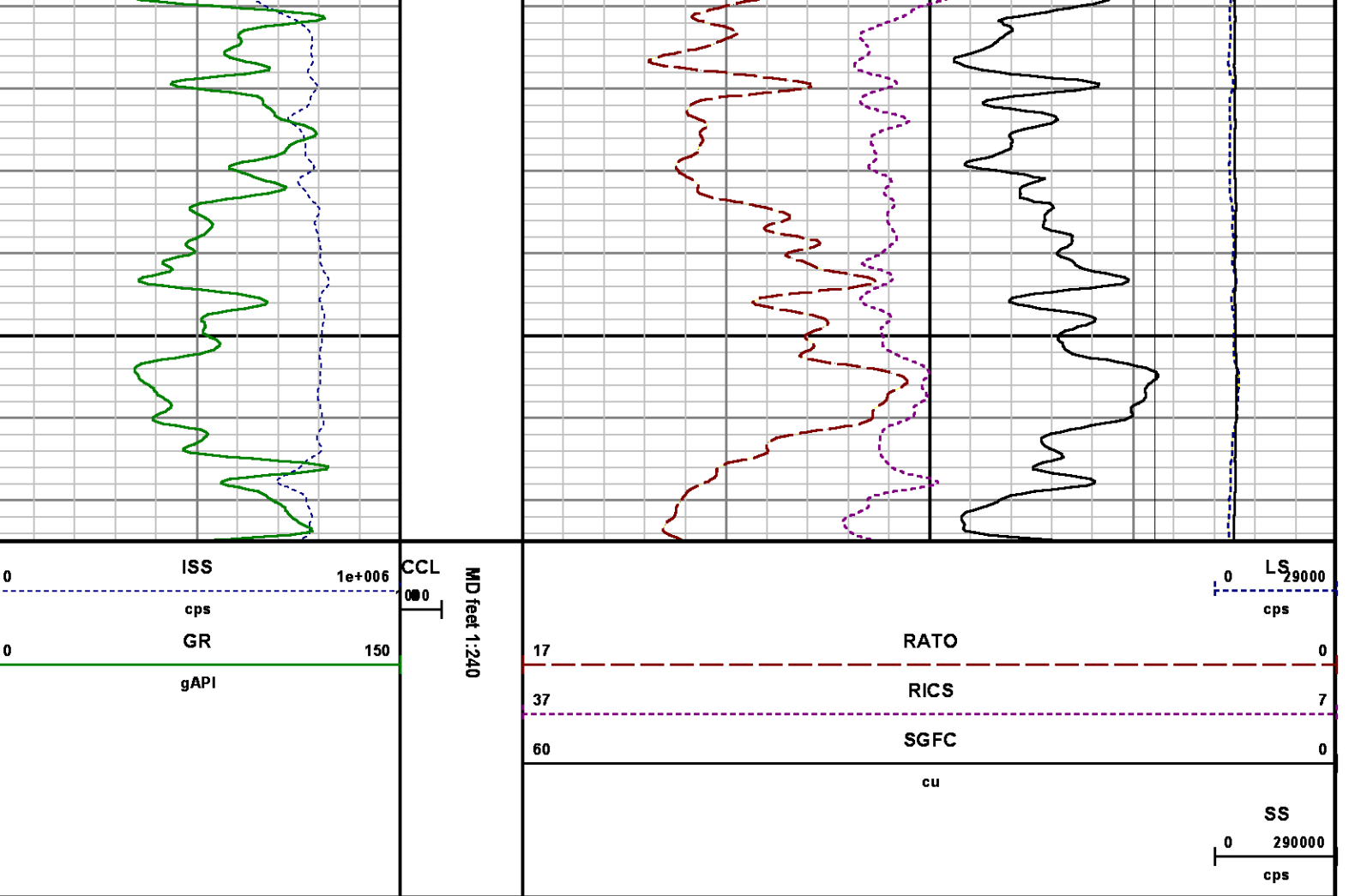


9200

9300

9400





CALIBRATION SUMMARY

PNC

Calibration File: C:\case\calver\PNC\25126.cal

PNC 3D CALIBRATION SUMMARY																	
DATE/TIME PERFORMED:		Thu Jun 26 10:34:29 2014			TOOL SERIES:		8281XA		ASSET:		251		SEQ:		26		
Calibrator #										Source #							
2437XB 112674										8281AA 10220684							
ISS		Mtr VIts (V)		SS Gain		LS Gain		XLS Gain		EA Temp (degF)		Sync Delay (usec)		RCAL			
Raw Data		808104		121.00		2304.00		2298.00		2316.00		252.94		7.00		0.9838	
Interpolated		1300000		140.62		2287.61		2288.89		2310.03							

	ISS	BKS	BKL	BKX	SGA1	SDA1	SGA2	SDA2
Raw Data	808104	7675.62	1280.04	159.97	25.73	0.14	24.27	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	808104	167031.69	26349.41	87906.17	31316.05	8210.99	53315.01	13125.35
Fit Quality %		0.36	0.30	0.50	0.47	0.32	0.47	0.30

	ISS	RBOR	RIN ISS/ILS	RIN13 ISS/IXS	RICS ISS/CSS	RATO SS/LS	RTWO SS2/LS	RONE CSS/CLS
Raw Data	808104	1.43	4.84	30.67	15.16	10.71	3.81	4.06
		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	0.20	0.23	0.14	0.08	0.08	0.10
Reduced	1388893	1.43	4.84	30.68	15.18	10.70	3.81	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\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

## TEMPERATURE

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

### CALIBRATION SUMMARY

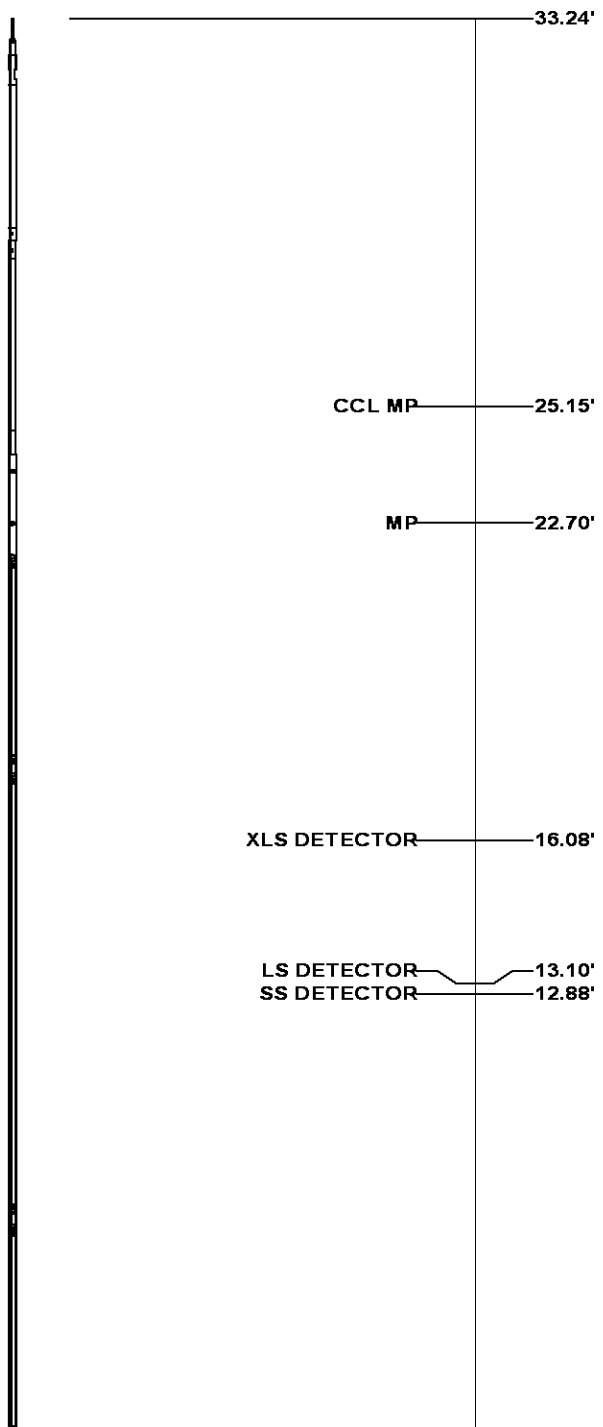
DATE/TIME PERFORMED: Mon Jun 30 08:42:33 2014 TOOL SERIES: 2812LA ASSET: 385 SEQ: 30

	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

<b>OTA SHORT CABLE HEAD</b>	
<b>PCM POWER SUPPLY</b>	
Series	8250EA
Mnemonic	PCM
Diameter	1.70"
Weight	18.00 lb
Length	3.86'
Temp Rating	350.00 °F
<b>TELEMETRY / CCL</b>	
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
<b>SONDEX GAMMA RAY</b>	
Series	2812LA
Mnemonic	SNDX
Diameter	1.69"


<b>RESERVOIR PERFORMANCE MONITOR</b>	
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



TEMPERATURE / PRESSURE	
Series	8255XA
Mnemonic	SRPL
Diameter	1.70"
Weight	13.00 lb
Length	3.30'

PRES MP		1.61'
		0.00'

**Total Length: 33.24'**  
**Total Weight: Not Available**  
**Max Diameter: 0' 1.70"**

<div>  <div> <div>BAKER</div> <div>HUGHES</div> </div> </div> <div> <div>Baker Atlas</div> <div>CASE</div> </div>	Company	WPX ENERGY		File No:	
	Well	FEDERAL NER 524-32		CH087677	
	Field	RULISON		API No:	
	County	GARFIELD	State	CO	05045217980000
Location		Elevations			
SHL: 146' FNL & 2592' FWL (5 7S 93W)		KB 7629		32 6S 93W	
BHL: 495' FSL & 1875' FWL (32 6S 93W)		DF		RU 23-5 PAD	
		GL 7603		NABORS 576	
SEC 32		TWP 6S	RGE 93W		