Tucker WIRELINE SERVICES

COMPENSATED NEUTRON

PEL DENSITY LOG

Company BRAMWELL PETROLEUM, INC.
Well KOHMAN #14
Field SPIVEY-GRABS-BASIL
County KINGMAN
State KANSAS
Country USA
API No. 15-095-22251-00-00

File No : TUL-57679
Company : BRAMWELL PETROLEUM, INC.
Well : KOHMAN #14
Field : SPIVEY-GRABS-BASIL
County : KINGMAN
State : KANSAS
Country : USA
API No : 15-095-22251-00-00

Location :
2570' FNL & 1390' FEL
E 1/2

LSD : **Sect :** 07 **Twp :** 30S **Rge :** 07W

Permanent Datum:	GL	**Elevations:**		**Services:**	
Drilling Measured From:	KB	**KB**	1498.00 Ft	CNT	PIT
Log Measured From:	KB	**DF**	1497.00 Ft	LDT	
Above Permanent Datum:	10.00 Ft	**GL**	1488.00 Ft	MLT	

Date	04-02-2012			
Run Number	1			
Depth--Driller	4234.0 Ft			
Depth--Logger	4234.0 Ft			
First Reading	4201.0 Ft			
Last Reading	3200.0 Ft			
Casing--Driller	213.0 Ft			
Casing--Logger	214.0 Ft			
Bit Size	7.875 In			
Casing Size	8.625 In			
Hole Fluid Type	WBM			
Density	9.0 LBS/GAL			
Fluid Loss	8.0 CC			
PH/Viscosity	11.0	48.0 SEC		
Sample Source	MEASURED			
RM@Measured Temp.	1.500 @ 80 F			
RMF@Measured Temp	1.270 @ 80 F			
RMC@Measured Temp.	1.720 @ 80 F			
Source RMF/RMC	CALCULATED	CALCULATED		
RM@BHT	1.020 @ 1000 F			
Time Circulation Stopped				
Max Recorded Temp.	120 F			
Equipment/Base	123	TULSA		
Recorded By	R. FRANKLIN			
Witnessed By	D. BRAMWELL, D.BRAMWELL			

The customer is hereby warned that by providing the log data herein, T. W. S., does not agree to provide any interpretation of log data, conversion of log data to physical rock parameters or recommendations. T. W. S. does not guarantee or warrant either expressly or impliedly, the accuracy of any interpretation of log data, conversion of log data to physical rock parameters or recommendations which may be given by T. W. S. personnel. Any interpretation, conversion or recommendation is not part of the consideration for the agreement between the parties and is not part of any part of the charge by T. W. S. for its services. Any user of the log data is warned that said user is not entitled to rely on interpretations, conversions or recommendations as aforesaid.

Bitsize Intervals

Size (In)	Bottom (Ft)
7.875	4234.00

Casing Strings

Size (In)	Weight (Lbs)	Bottom (Ft)
8.625	32.00	213.00

Run Number	1		
Date	04-02-2012		
Date/Time On Bottom	04-02-2012 15:00		
Depth to Fluid	0.0	Ft	
Salinity	0.000	PPM	
RMF@BHT	0.870 @ 1000 F		
RMC@BHT	1.180 @ 1000 F		

Run Number 1

Comments

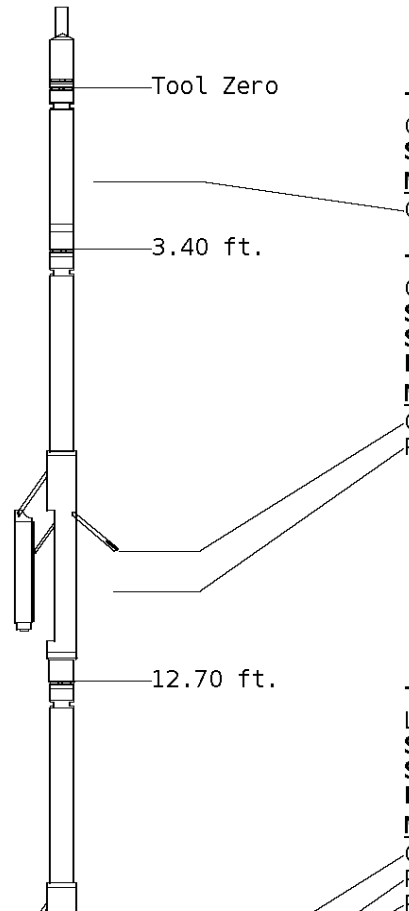
ALL PRESENTATIONS AS PER CUSTOMER REQUEST.
GRT, CNT, LDT, MLT, AND PIT RUN IN COMBINATION.
CALIPERS ORIENTED ON X-Y AXIS.
2.71 G/CC USED TO CALCULATED POROSITY.
ANNULAR HOLE VOLUME CALCULATED UISING 4.50" PRODUCTION CASING.
PHIN IS CALIPER CORRECETD.
DETAIL PRESENTED FROM TD TO 3200'.

GRT: GRP. GRX
CNT: PHIN, CLCNIN, PHXN,
LDT: PORL, PXRL, LCORN, LCORNX, PECLN, PECLNX, LDENN, LDENNX, PORLLS, CLLDIN.
MLT: NOR_RF, INV_RF, MSCLPIN.
PIT: ILD, ILM, SPU, SFLAEC.

OPERATORS:
J. THOMAS
N. LOYD

Tool String Schematic

Total Tool Length - 53.57 **ft.**
Maximum Outside diameter - 6.00 **in.**
Net Weight in Air - 943.00 **lbs.**



Tool: GRT-B **Length:** 3.40 **ft.** **O.D.** 3.60 **in.**
Gamma Ray Controller
Sonde ID :GRT-BC-41

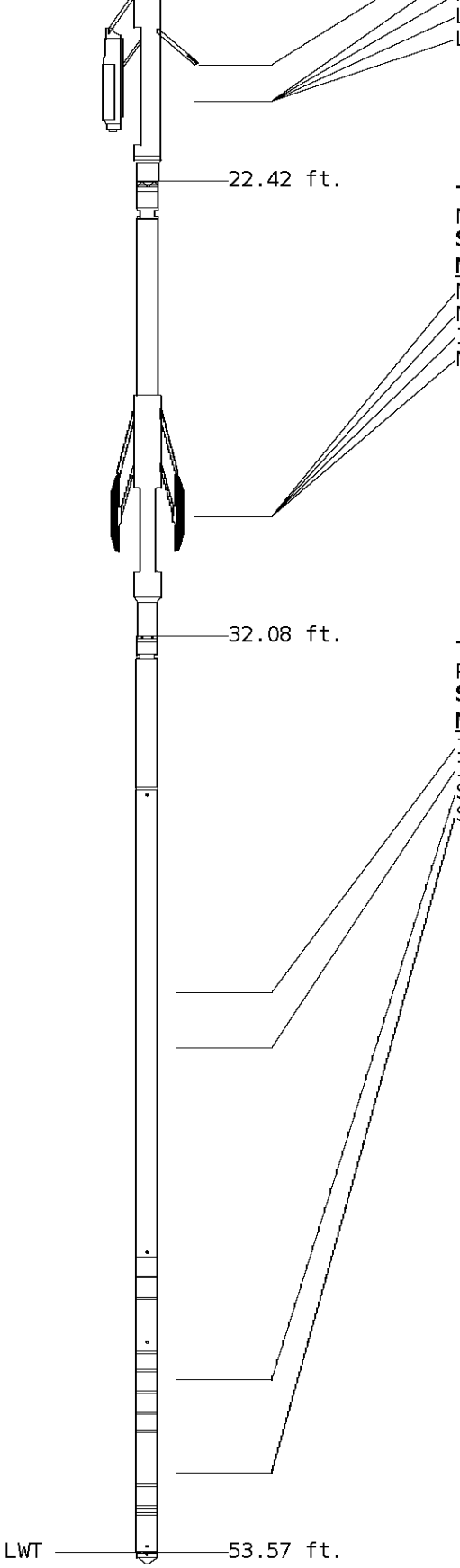
Measure Point	Tool Offset	Stack Offset	Bottom Offset
GRP	2.00	2.00	51.57

Tool: CNT-AA **Length:** 9.30 **ft.** **O.D.** 4.36 **in.**
Compensated Neutron A Pad on NDT-A
Sonde ID :NDT-BD-123
Source ID :N-1046
Pad ID :CNP-AA-024

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLCN	6.00	9.40	44.17
PHIN	6.80	10.20	43.37

Tool: LDT-DF **Length:** 9.72 **ft.** **O.D.** 4.80 **in.**
Litho Density D Pad on NDT-F
Sonde ID :PDT-GA-466
Source ID :2991GW
Pad ID :LDP-DA-067

Measure Point	Tool Offset	Stack Offset	Bottom Offset
CLLD	6.42	19.12	34.45
PEL	7.42	20.12	33.45
PES	7.82	20.52	33.05



Measure Point	Tool Offset	Stack Offset	Bottom Offset
LDEN	7.62	20.32	33.25
LCOR	7.62	20.32	33.25

Tool: MST-DA **Length:** 9.66 **ft.** **O.D.** 6.00 **in.**
Micro Spherically Focused (IC)
Sonde ID :MLT-DA-21

Measure Point	Tool Offset	Stack Offset	Bottom Offset
MSFL	7.60	30.02	23.55
MSCLP	7.60	30.02	23.55
INV	7.60	30.02	23.55
NOR	7.60	30.02	23.55

Tool: PIT-CA **Length:** 21.49 **ft.** **O.D.** 3.62 **in.**
Phased Dual Induction w/ RM & D
Sonde ID :PIT-AC-022

Measure Point	Tool Offset	Stack Offset	Bottom Offset
ILD	8.92	41.00	12.56
ILM	10.10	42.18	11.39
SFLU	17.49	49.57	4.00
SP	20.60	52.68	0.88

Well File: BRA_KOH_14_APR_2_MSTK **Scale:** 1:240
Segment: V1.D1.S6 MAIN **Acquired:** 2012-04/02 15:06 3.2.0-10367
Reference: 0 **Processed:** 2012-04/02 16:31 3.2.0-10367

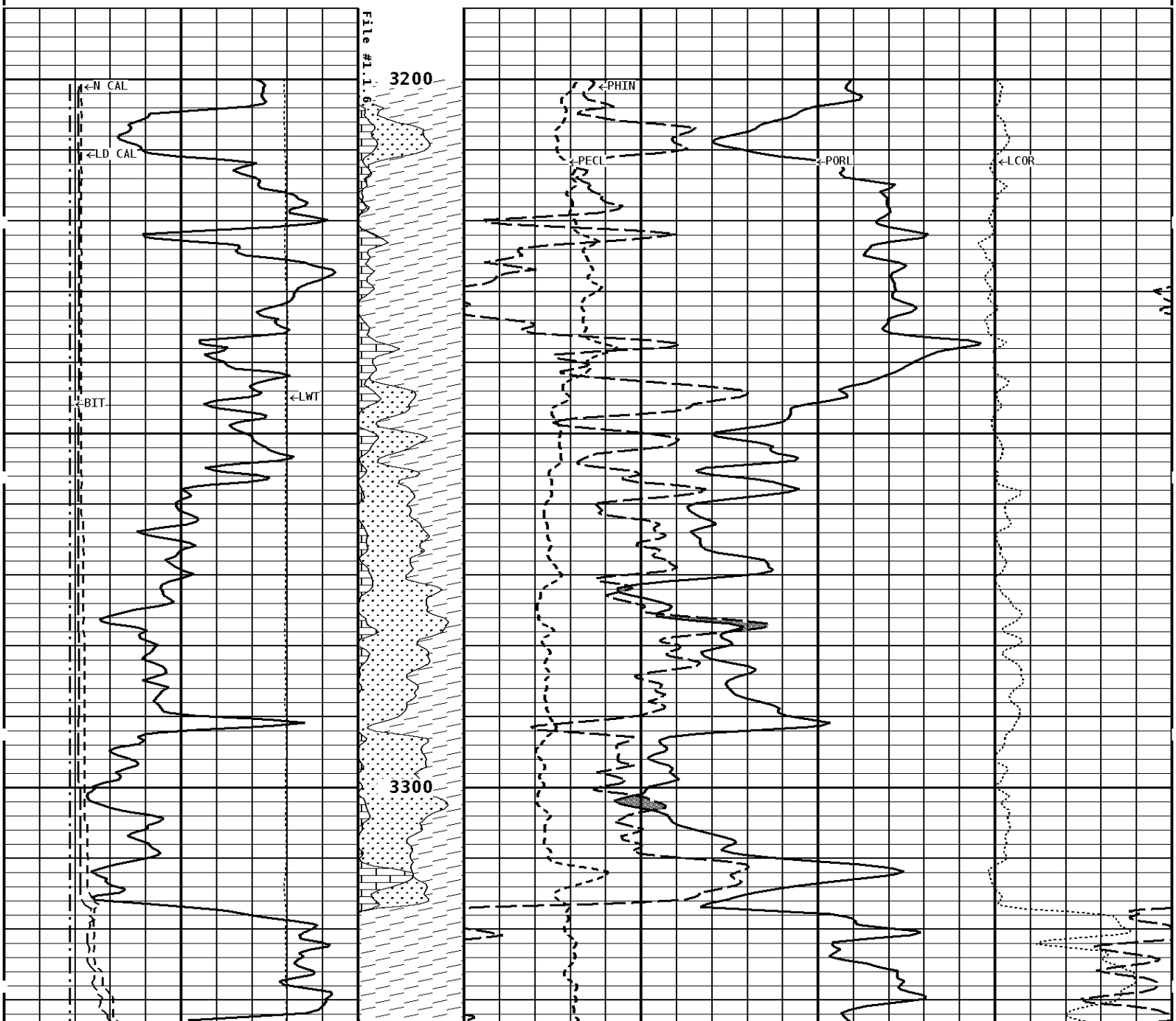
TENSION
LBS

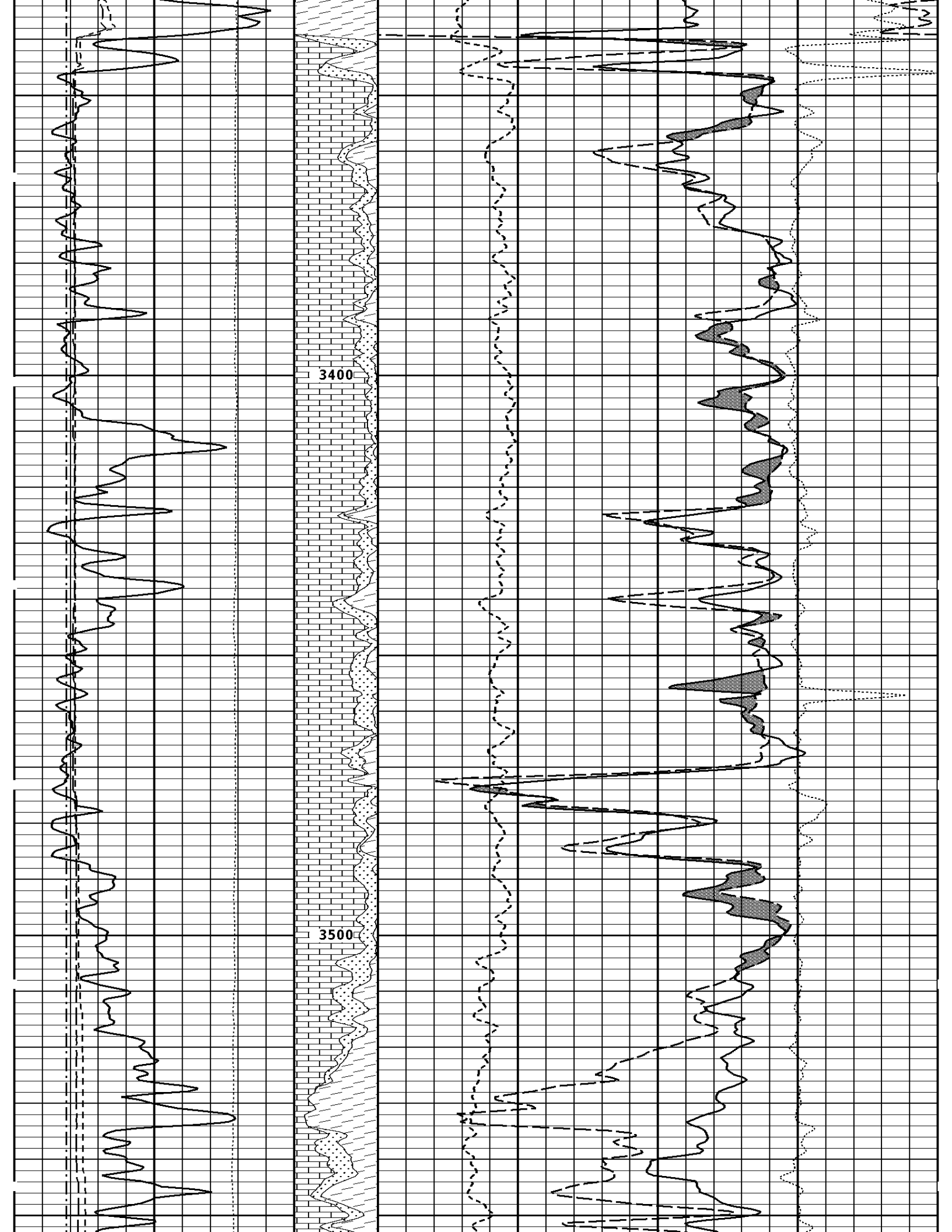
10000 **0**

BIT SIZE
INCHES (IN)

6 16			
DENSITY (X) CALIPER INCHES (IN) 16 26 6 16	Volume Quartz	PE CROSS-SECTION BARNS/ELECTRON 0 10	DENSITY CORRECTION G/CC -0.25 0.25
NEUTRON (Y) CALIPER INCHES (IN) 16 26 6 16	Volume Calcite	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX) 70 30 30 -10 -10 -50	
GAMMA RAY API UNITS 150 300 0 150	Volume Dolo/Shale	DENSITY POROSITY PERCENT (2.71 g/cc) 70 30 30 -10 -10 -50	

1:240 MAIN SECTION

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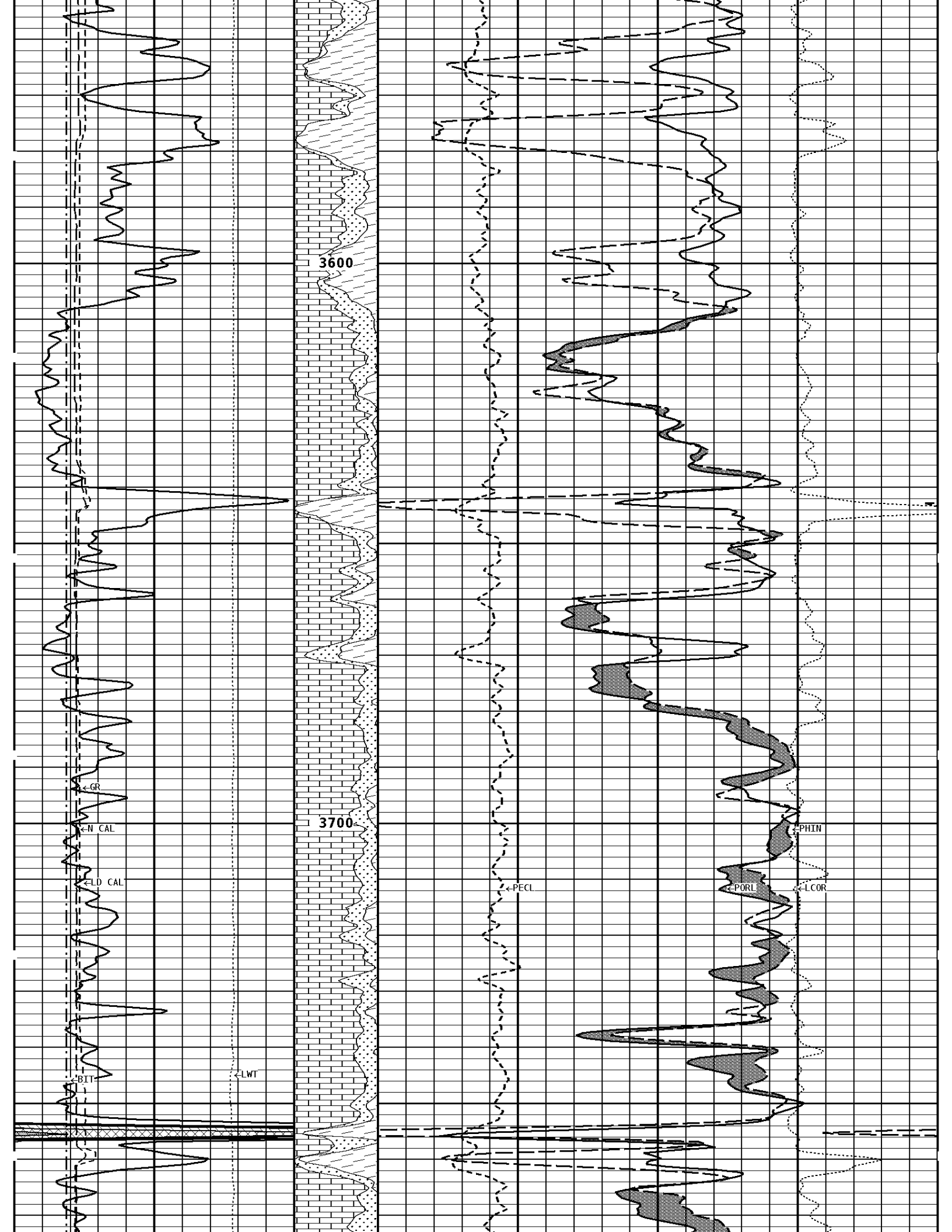
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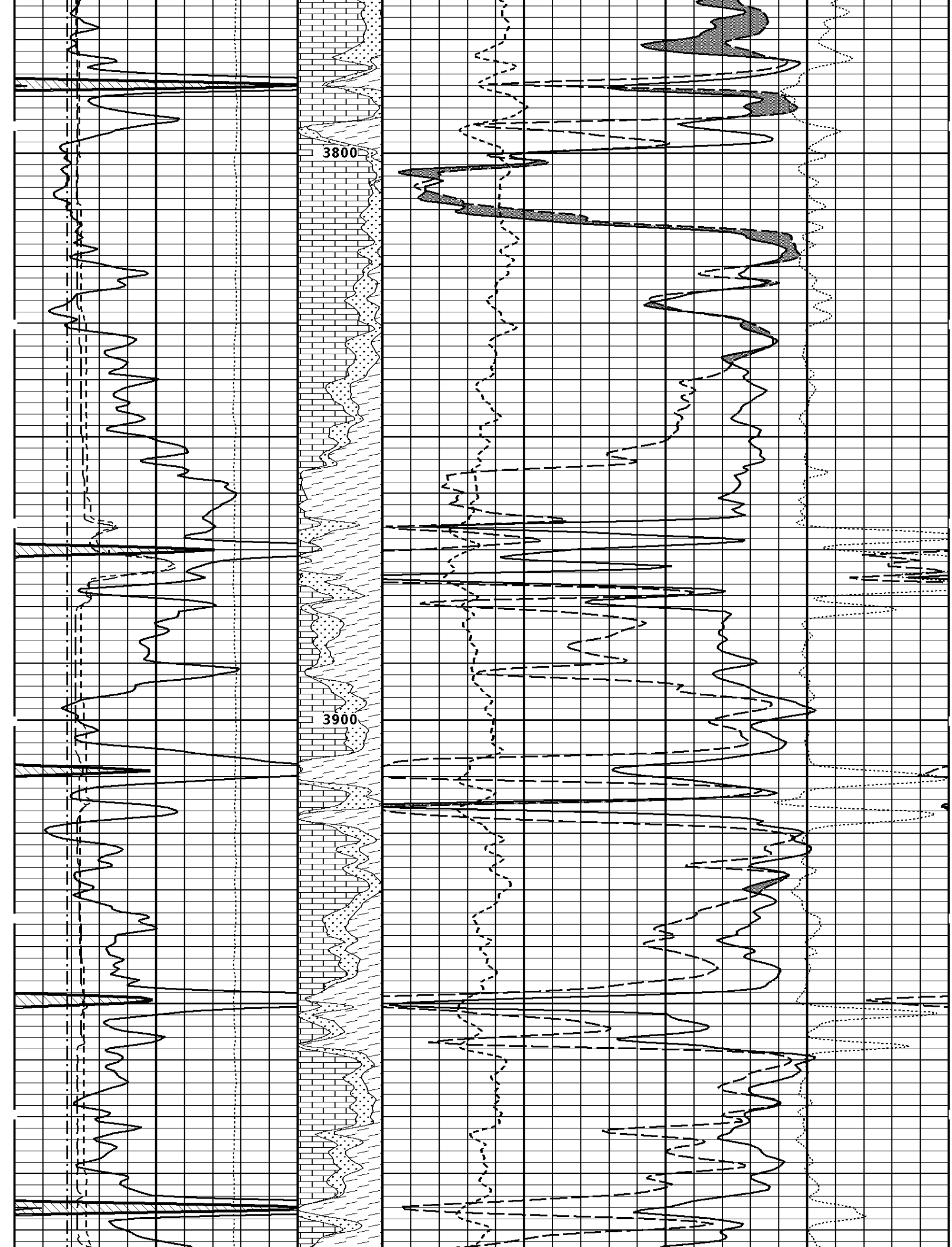
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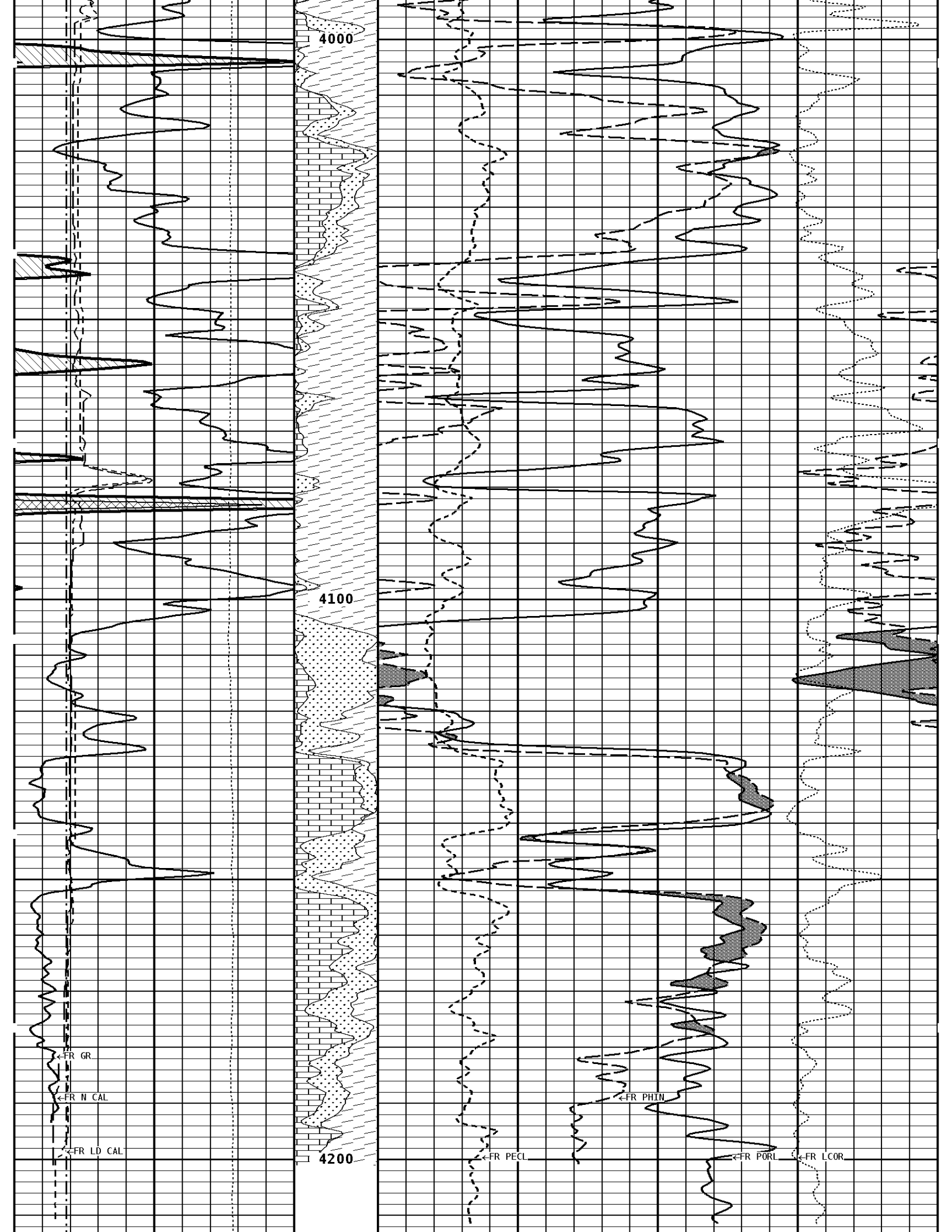
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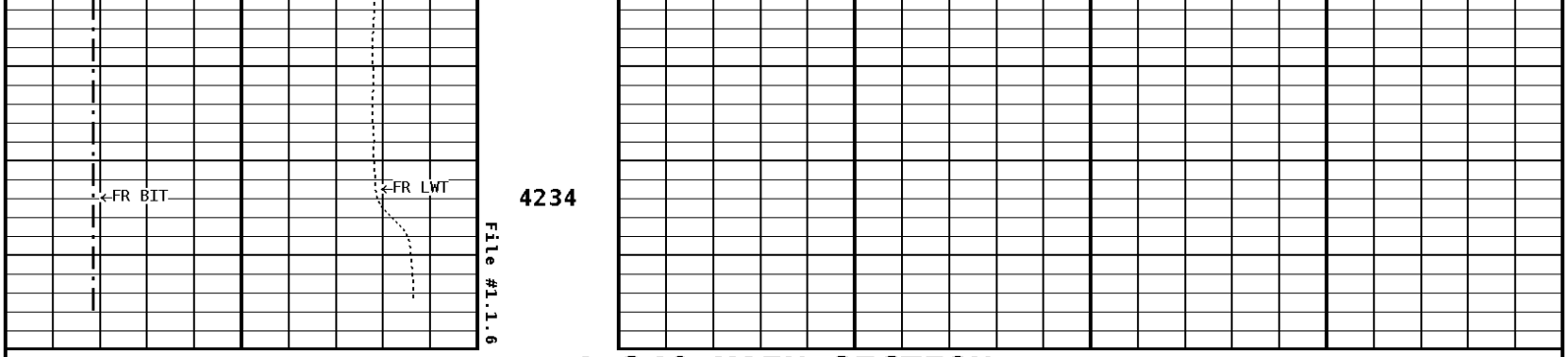


1:240 MAIN SECTION

GAMMA RAY API UNITS	Volume Dolo/Shale	DENSITY POROSITY PERCENT (2.71 g/cc)
150 300		70 30
0 150		30 -10
		-10 -50

NEUTRON (Y) CALIPER INCHES (IN)	Volume Calcite	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)
16 26		70 30
6 16		30 -10
		-10 -50

DENSITY (X) CALIPER INCHES (IN)	Volume Quartz	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
16 26			
6 16		0 10	-0.25 0.25

BIT SIZE INCHES (IN)
6 16

TENSION LBS
10000 0

*** Borehole Zone Factors ***

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	4.500	in
Casing Correction (PHI N)	Disable	

Well File: BRA_KOH_14_APR_2_MSTK **Scale:** 1:240
Segment: V1.D1.S5 REPEAT **Acquired:** 2012-04/02 14:52 3.2.0-10367
Reference: 0 **Processed:** 2012-04/02 16:31 3.2.0-10367

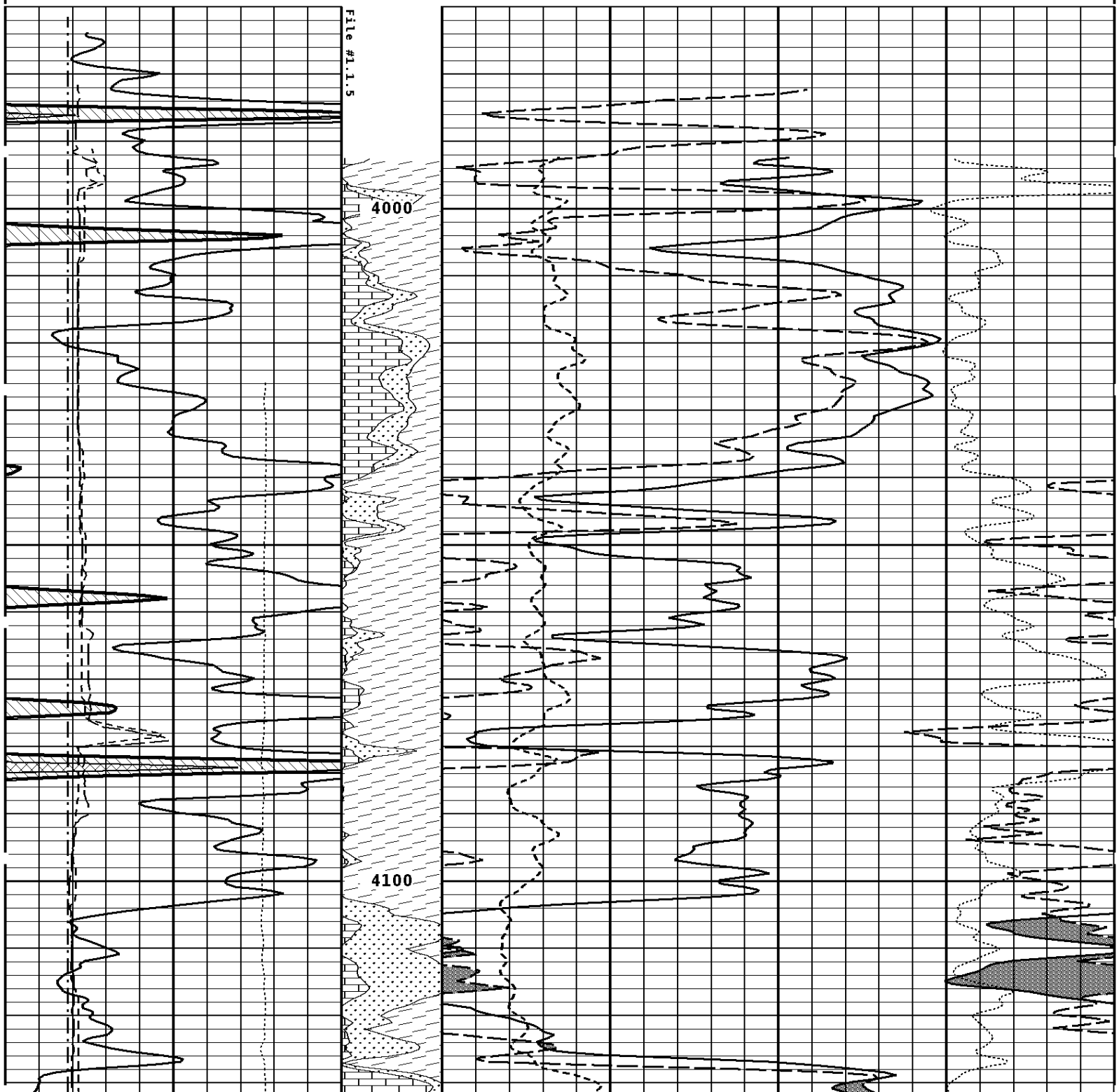
TENSION LBS
10000 0

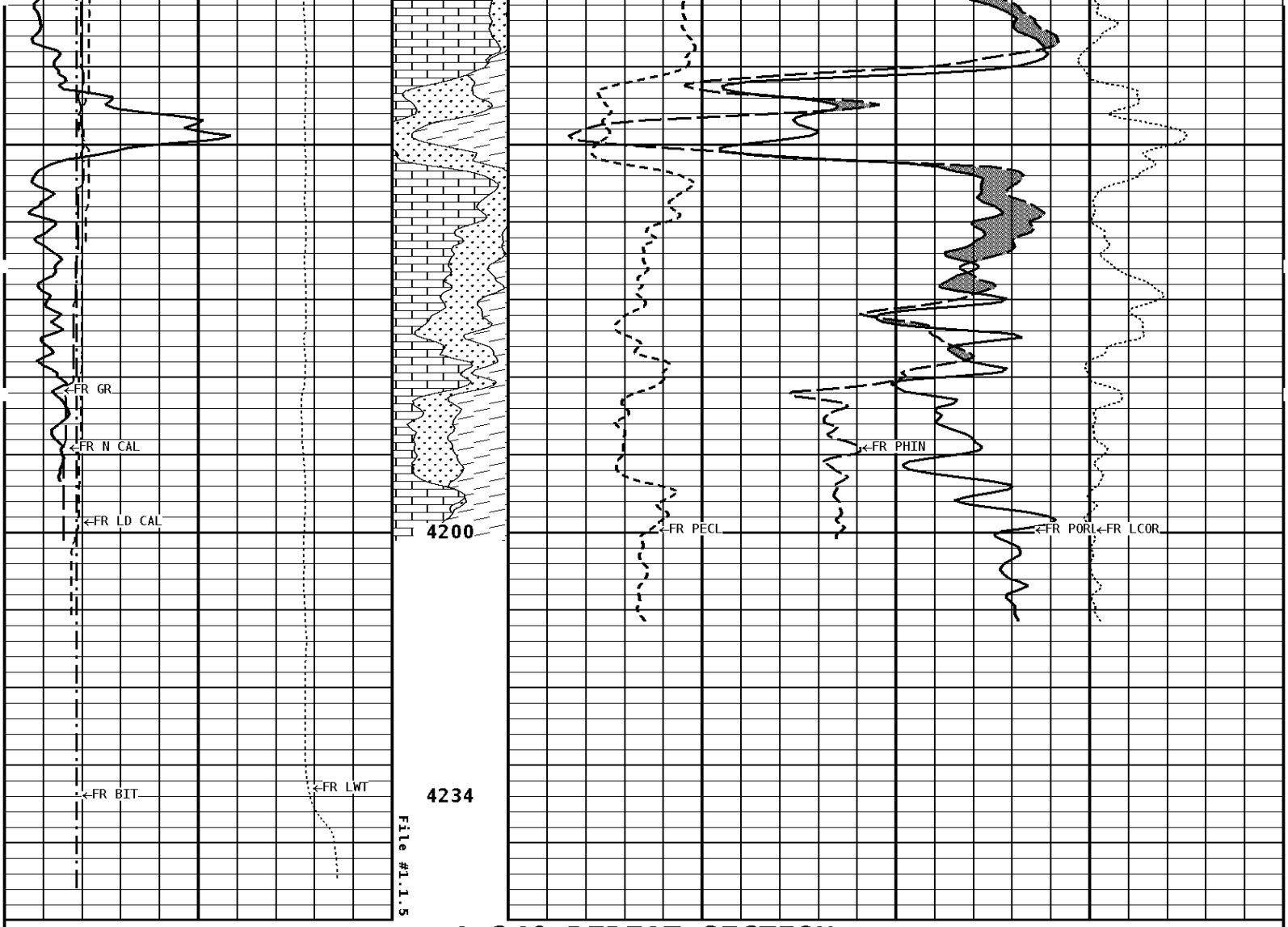
BIT SIZE INCHES (IN)
6 16

DENSITY (X) CALIPER INCHES (IN)	Volume Quartz	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
16 26			
6 16		0 10	-0.25 0.25

NEUTRON (Y) CALIPER INCHES (IN)	Volume Calcite	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)
16 — 26		70 — 30
6 — 16		30 — -10
		-10 — -50
GAMMA RAY API UNITS	**Volume Dolo/Shale**	**DENSITY POROSITY PERCENT (2.71 g/cc)**
150 — 300		70 — 30
0 — 150		30 — -10
		-10 — -50

1:240 REPEAT SECTION





1:240 REPEAT SECTION

GAMMA RAY API UNITS	Volume Dolo/Shale	DENSITY POROSITY PERCENT (2.71 g/cc)
150 300		70 30
0 150		30 -10
		-10 -50

NEUTRON (Y) CALIPER INCHES (IN)	Volume Calcite	NEUTRON POROSITY PERCENT (LIMESTONE MATRIX)
16 26		70 30
6 16		30 -10
		-10 -50

DENSITY (X) CALIPER INCHES (IN)	Volume Quartz	PE CROSS-SECTION BARNS/ELECTRON	DENSITY CORRECTION G/CC
16 26			
6 16		0 10	-0.25 0.25

BIT SIZE INCHES (IN)
6 16

TENSION LBS
10000 0

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	4.500	in
Casing Correction (PHI N)	Disable	

Well File: BRA_KOH_14_APR_2_MSTK
Segment: V1.D1.S6 MAIN
Reference: 0

Scale: 1:48
Acquired: 2012-04/02 15:06 3.2.0-10367
Processed: 2012-04/02 16:31 3.2.0-10367

TENSION
LBS
10000 — 0

BIT SIZE
INCHES (IN)
6 — 16

DENSITY (X) CALIPER
INCHES (IN)
16 — 26
6 — 16

NEUTRON (Y) CALIPER
INCHES (IN)
16 — 26
6 — 16

GAMMA RAY
API UNITS
150 — 300
0 — 150

PE CROSS-SECTION
BARNS/ELECTRON
0 — 10

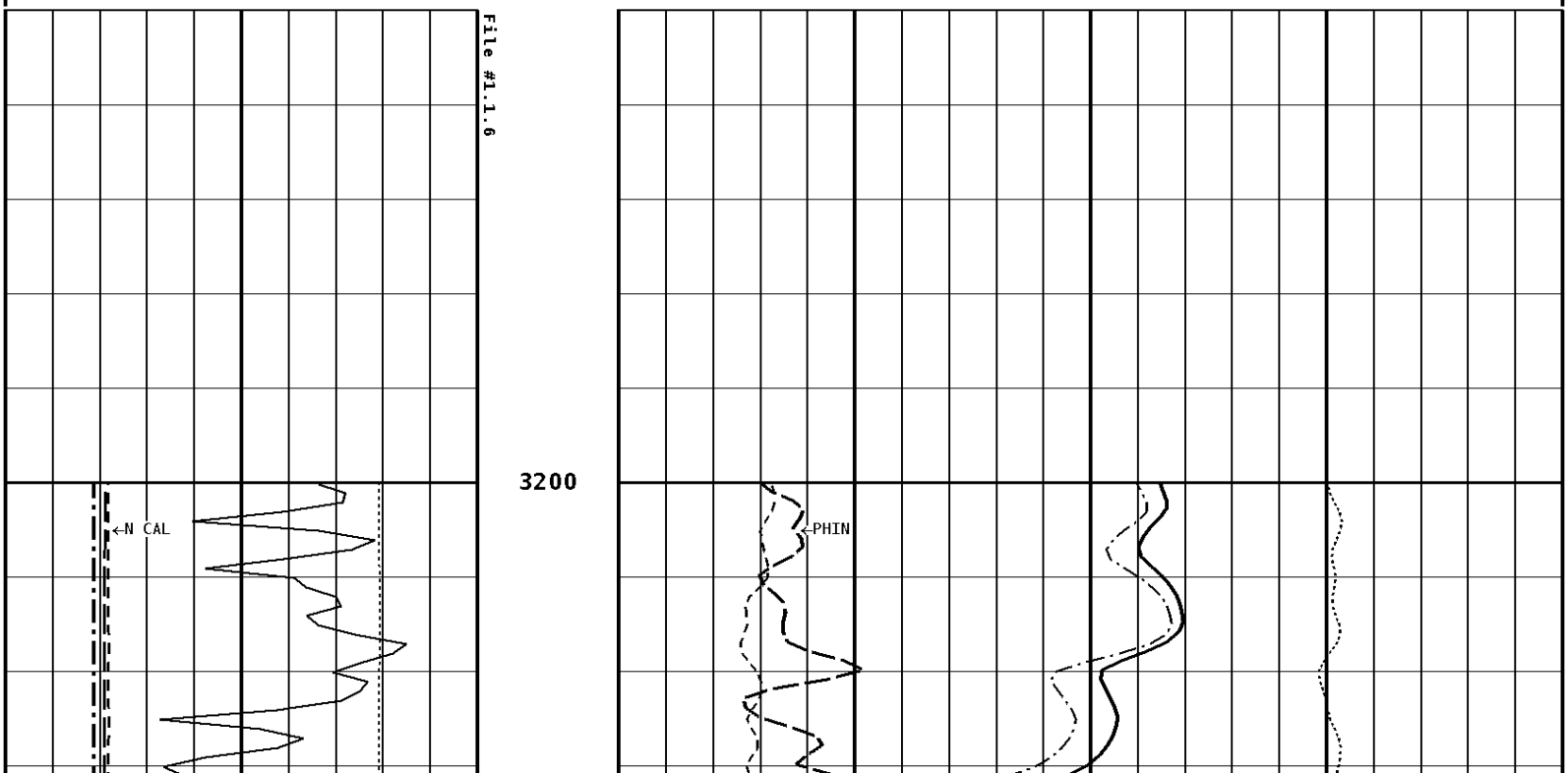
DENSITY CORRECTION
G/CC
-0.25 — 0.25

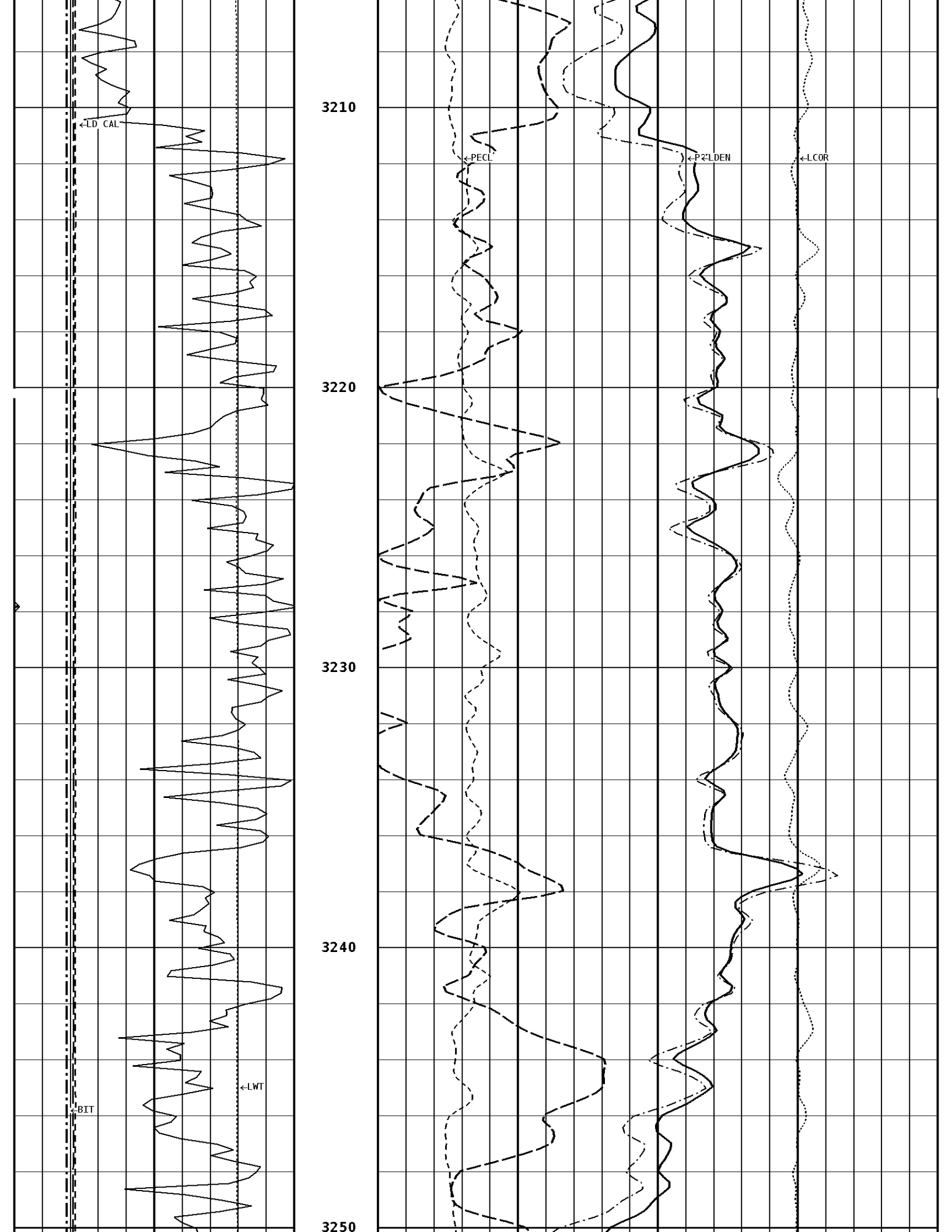
COMPENSATED BULK DENSITY
G/CC
3.0 — 4.0
2.0 — 3.0
1.0 — 2.0

DENSITY POROSITY
PERCENT
70 — 30
30 — -10
-10 — -50

NEUTRON POROSITY
PERCENT
30 — -10

1:48 HIGH RESOLUTION

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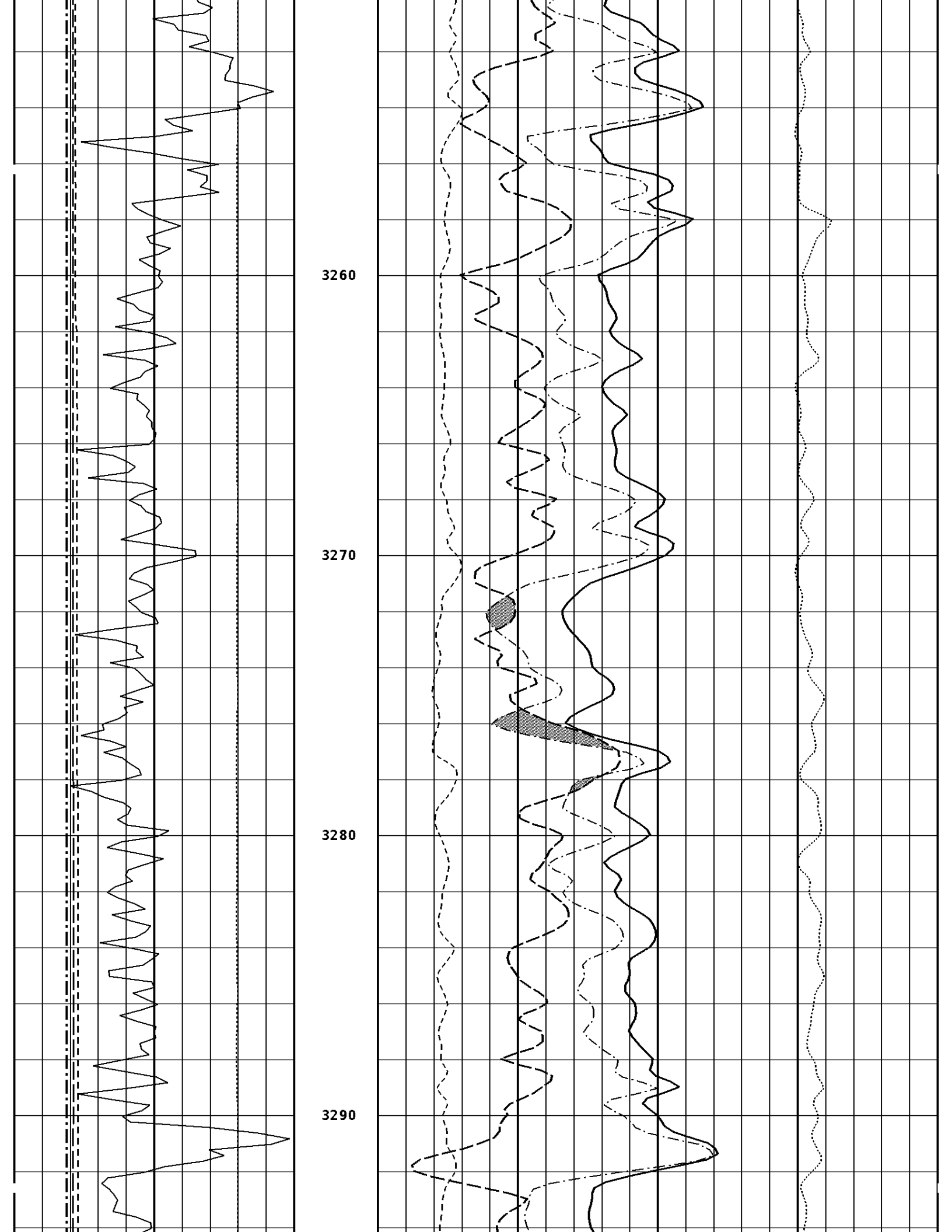
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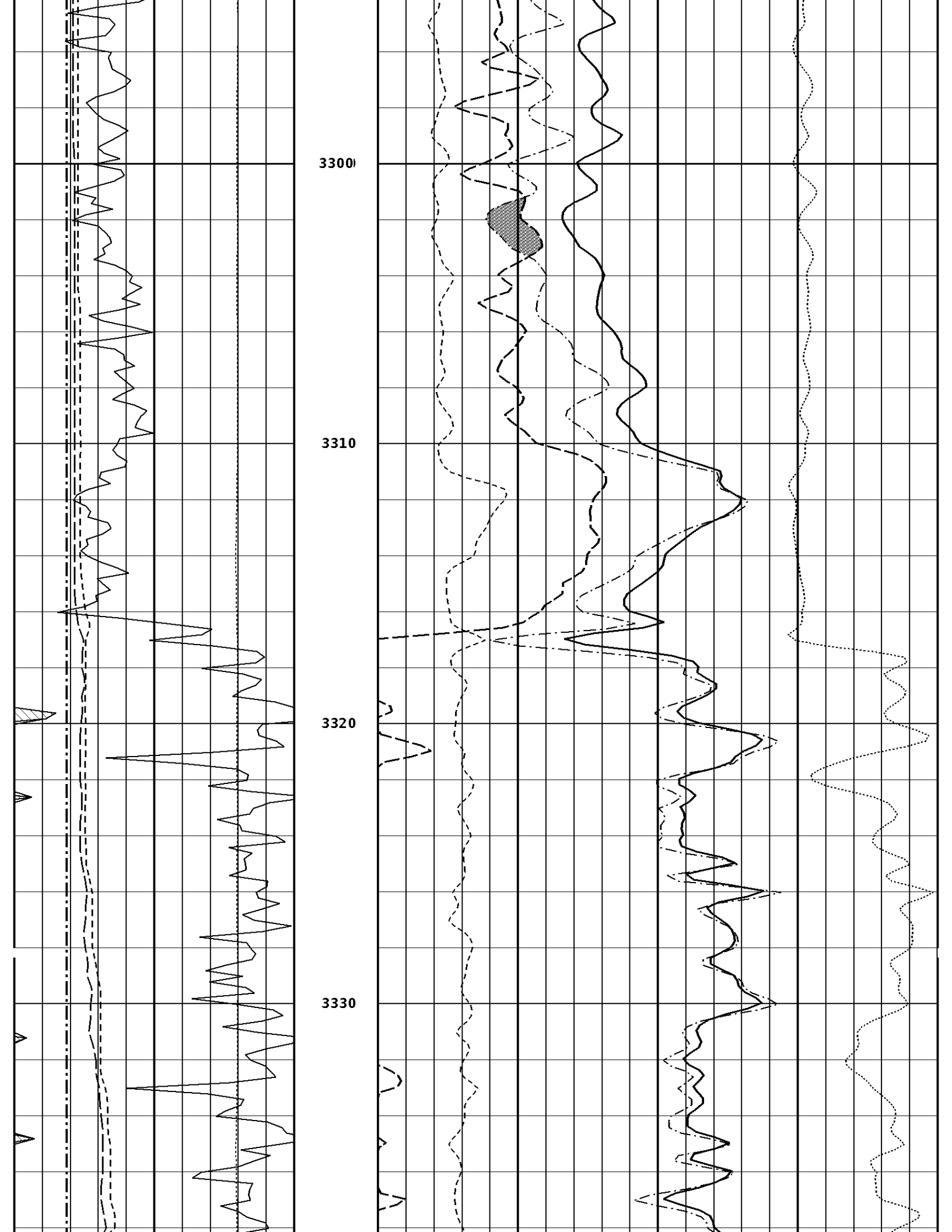
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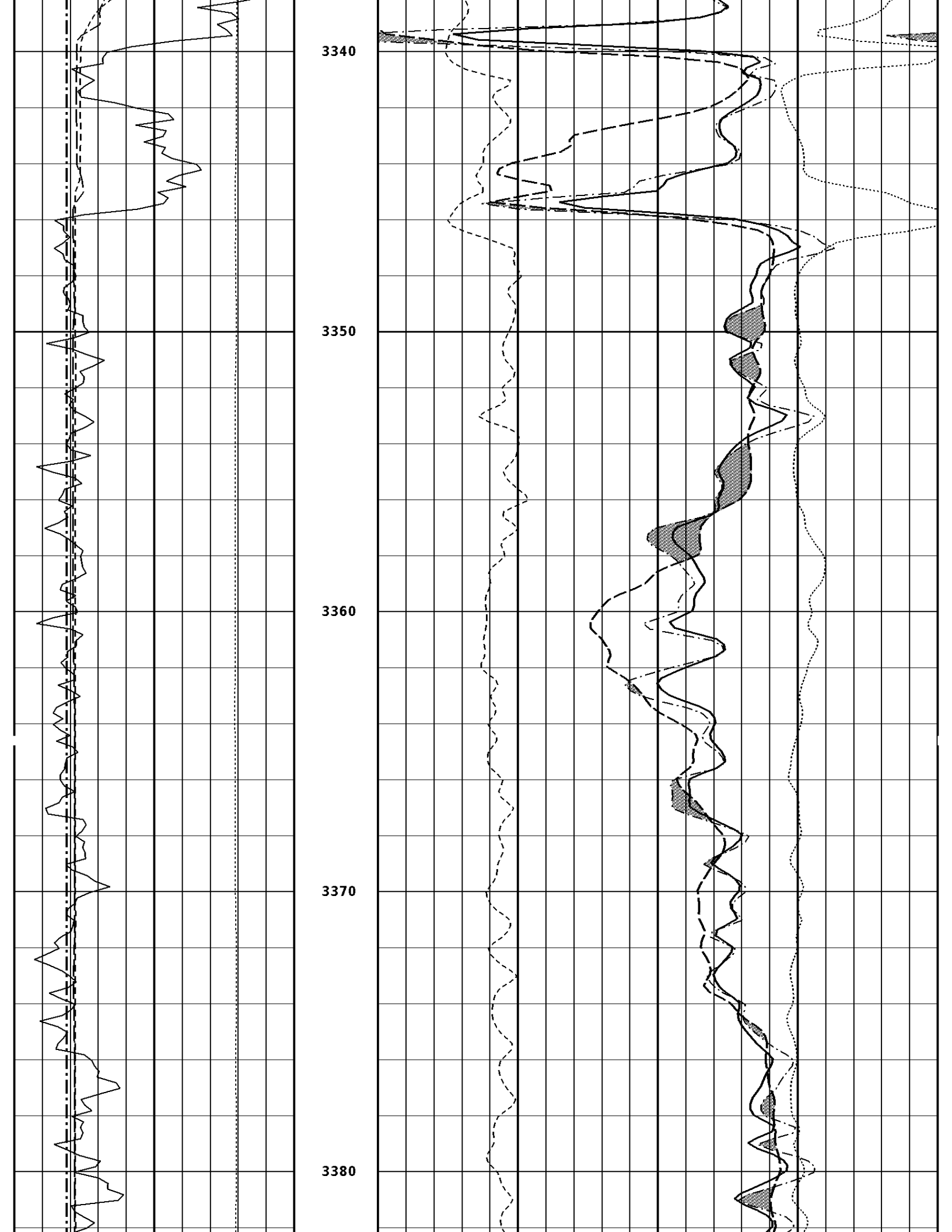
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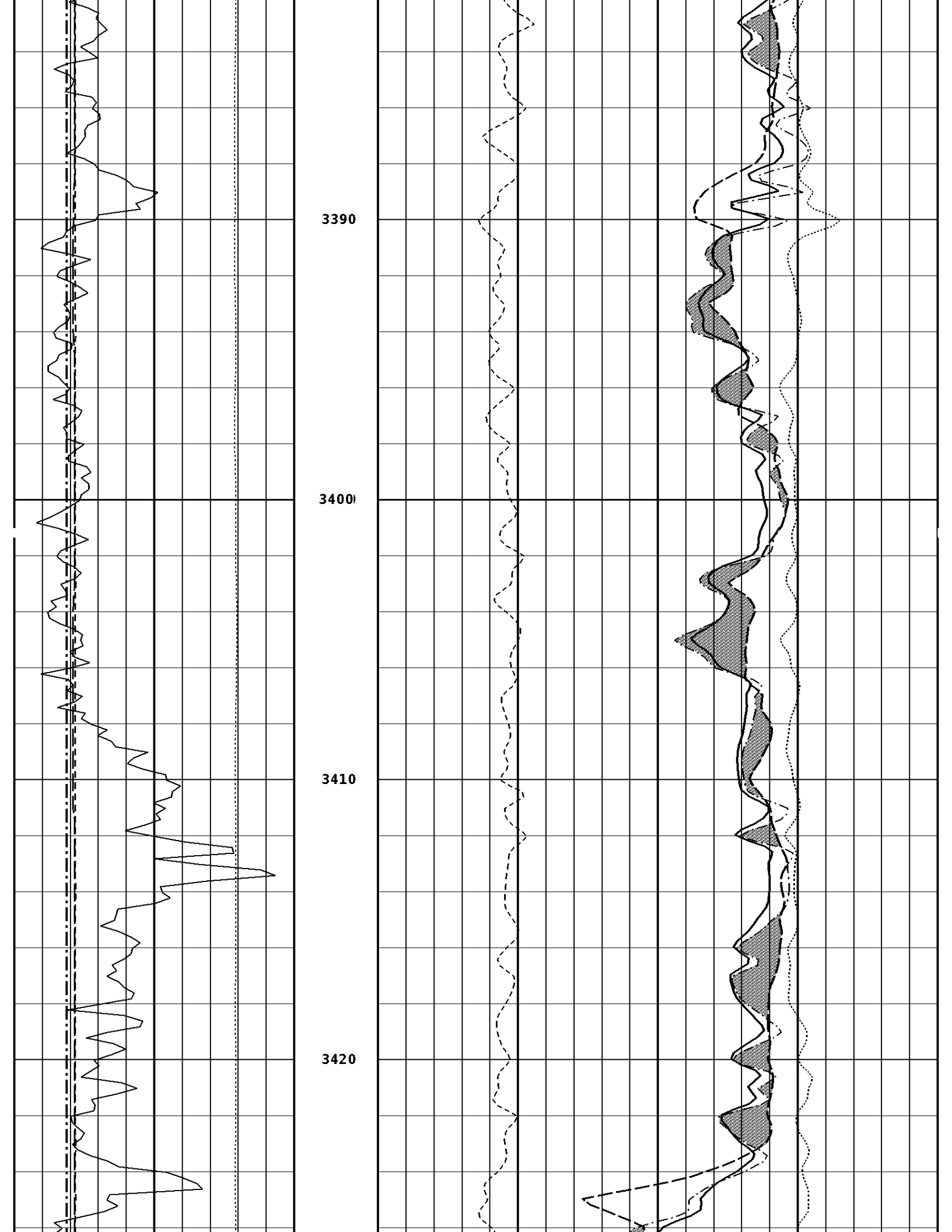
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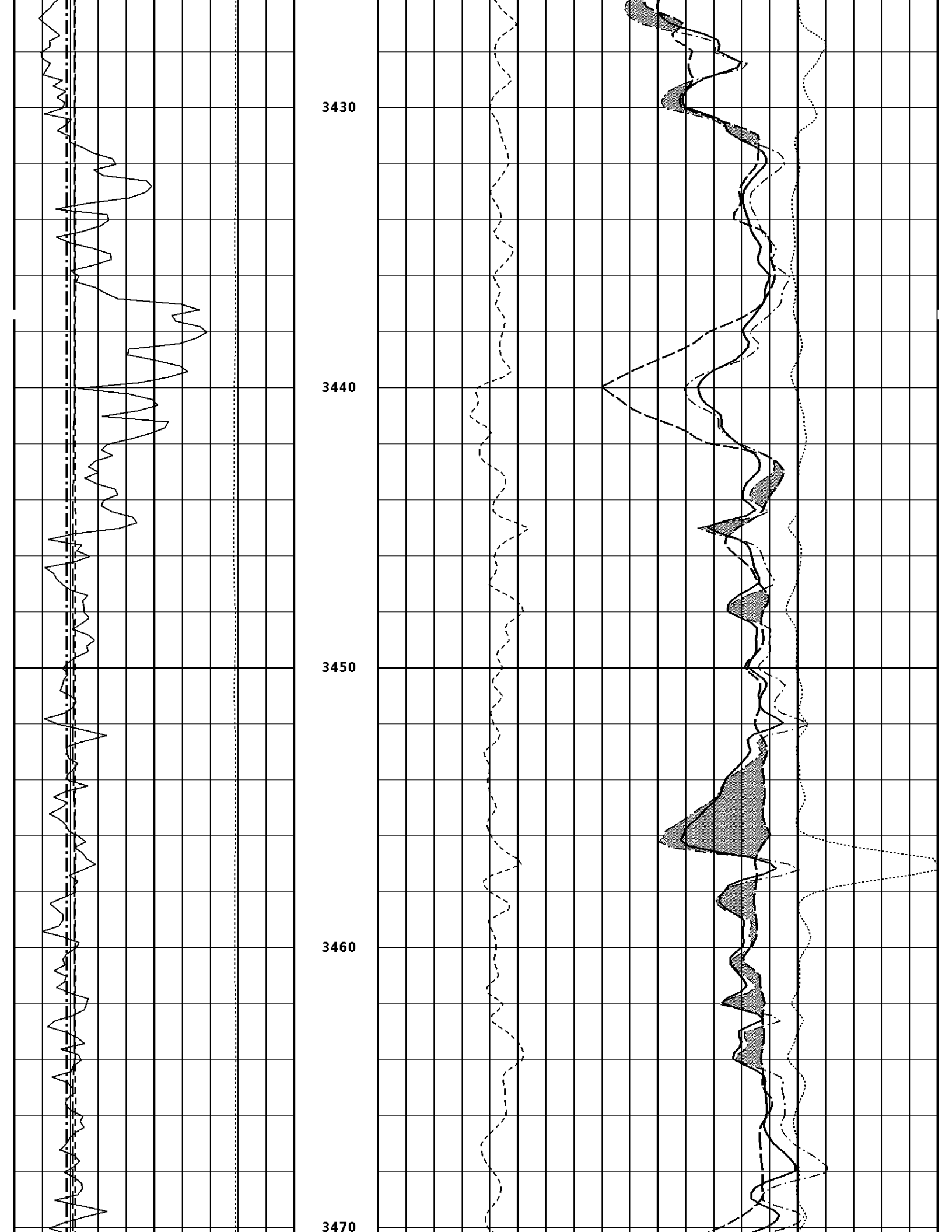
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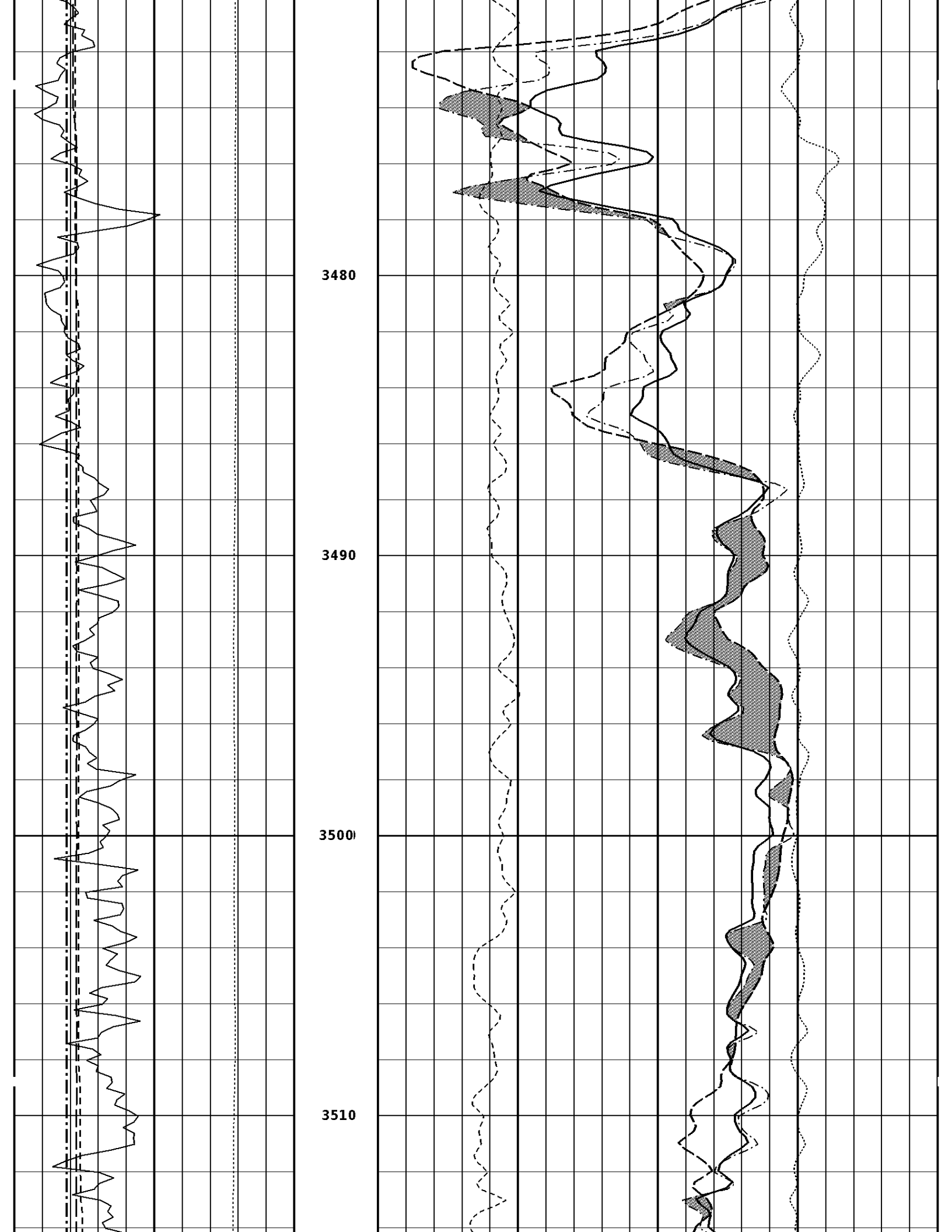
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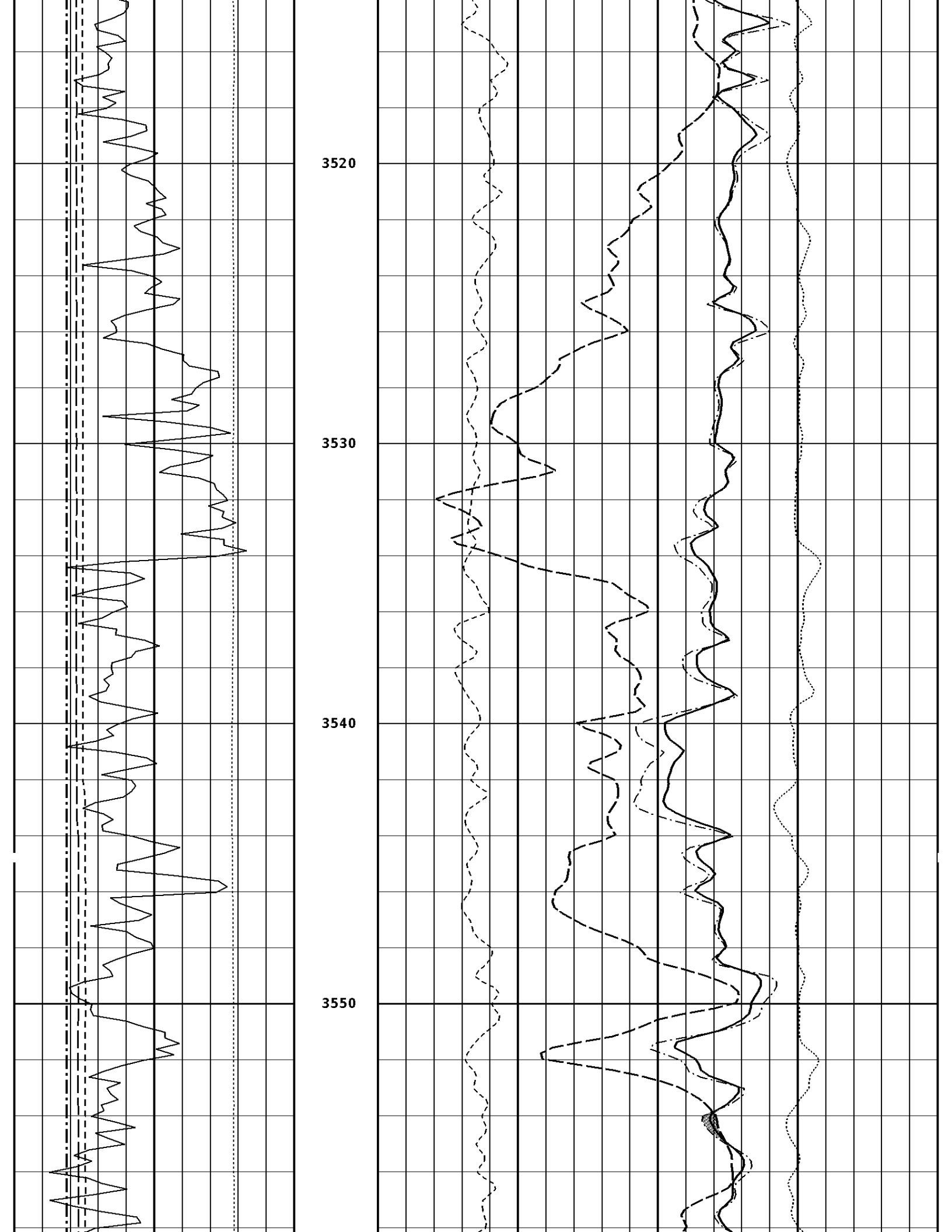
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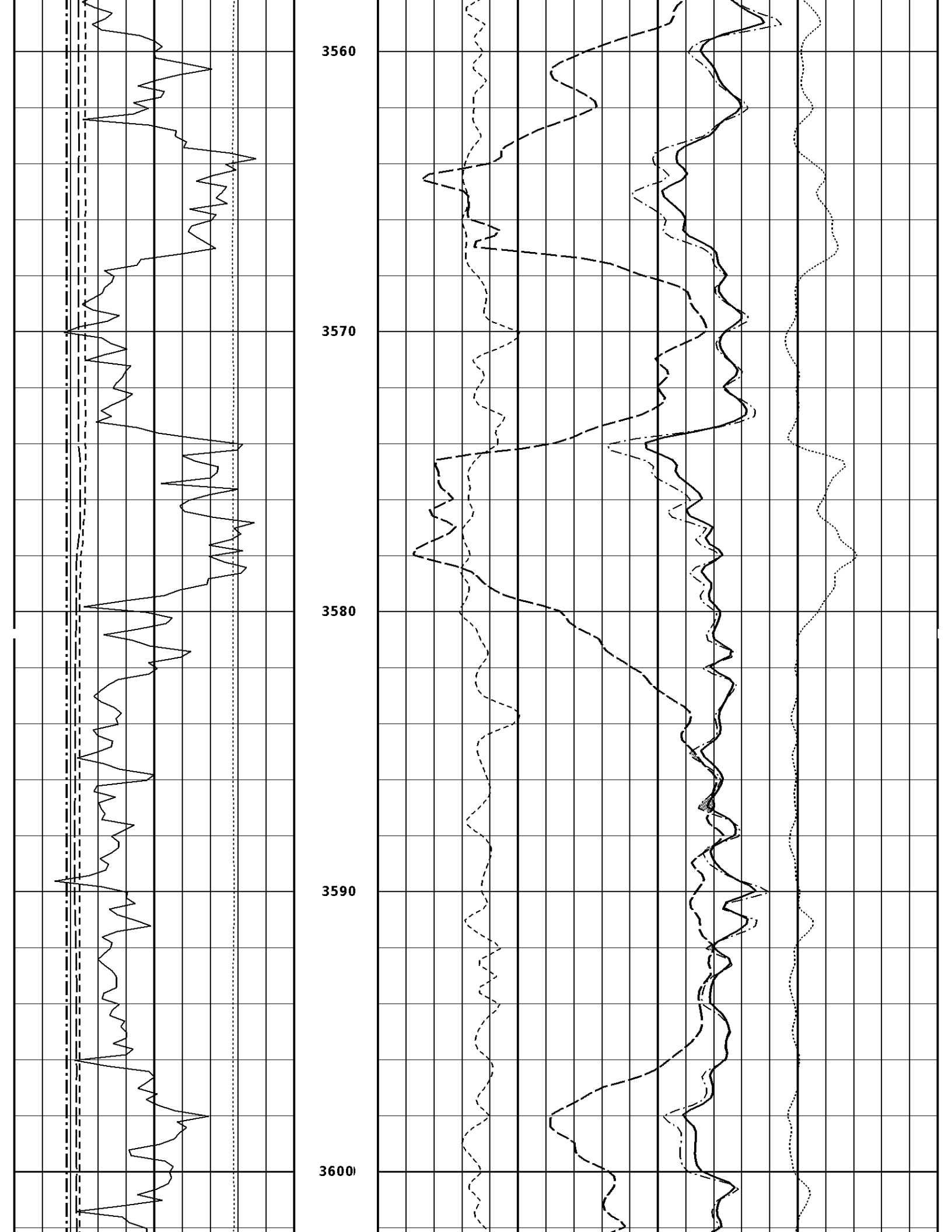
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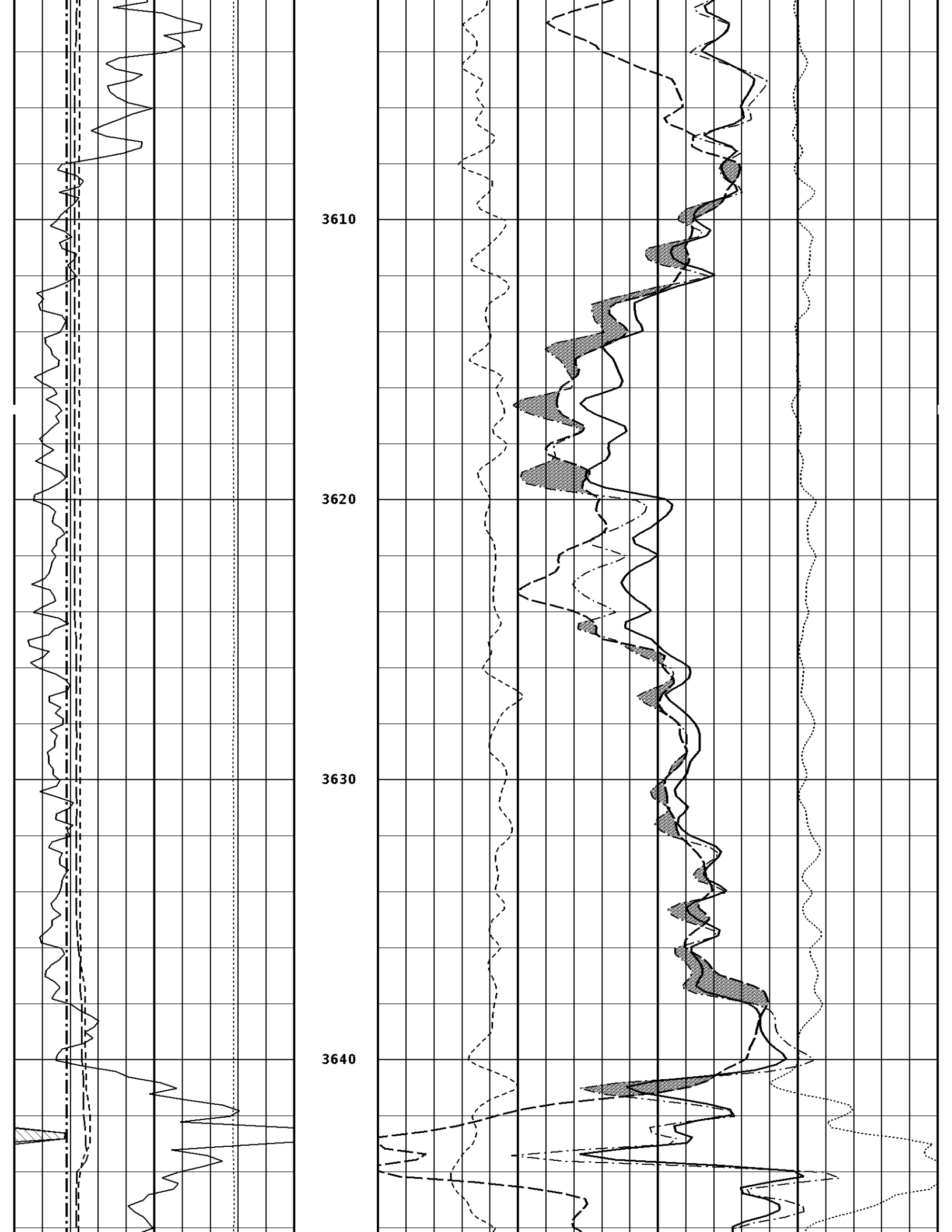
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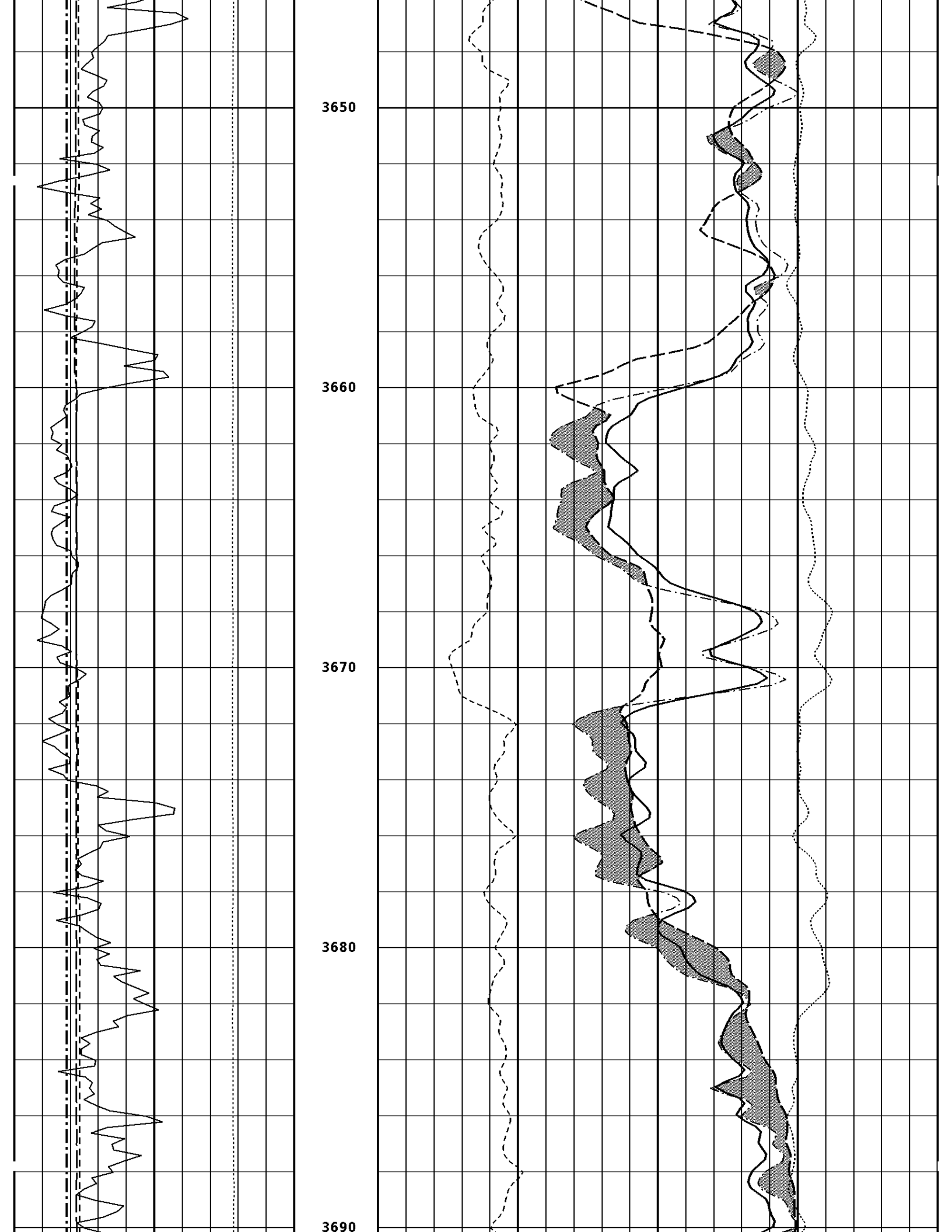
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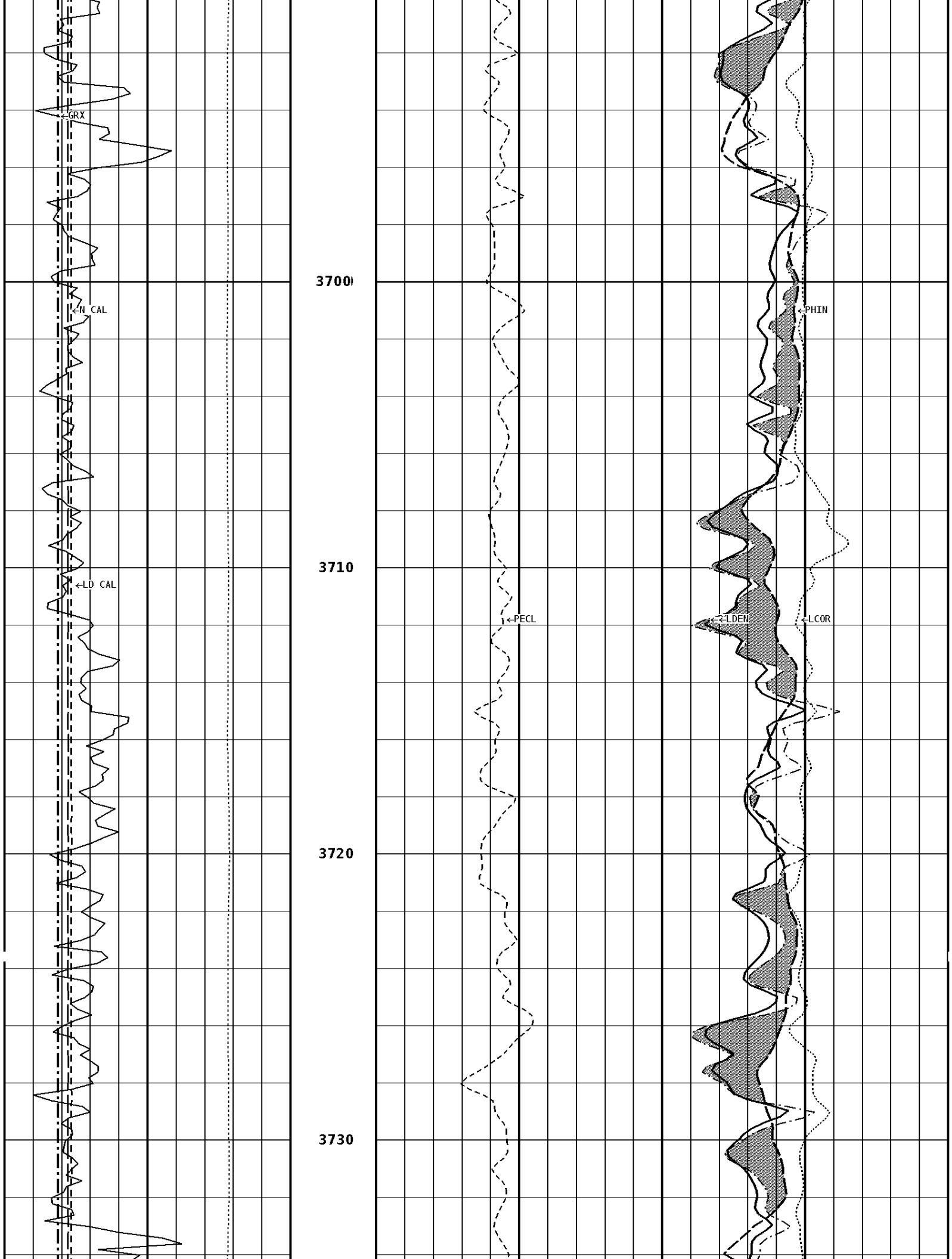
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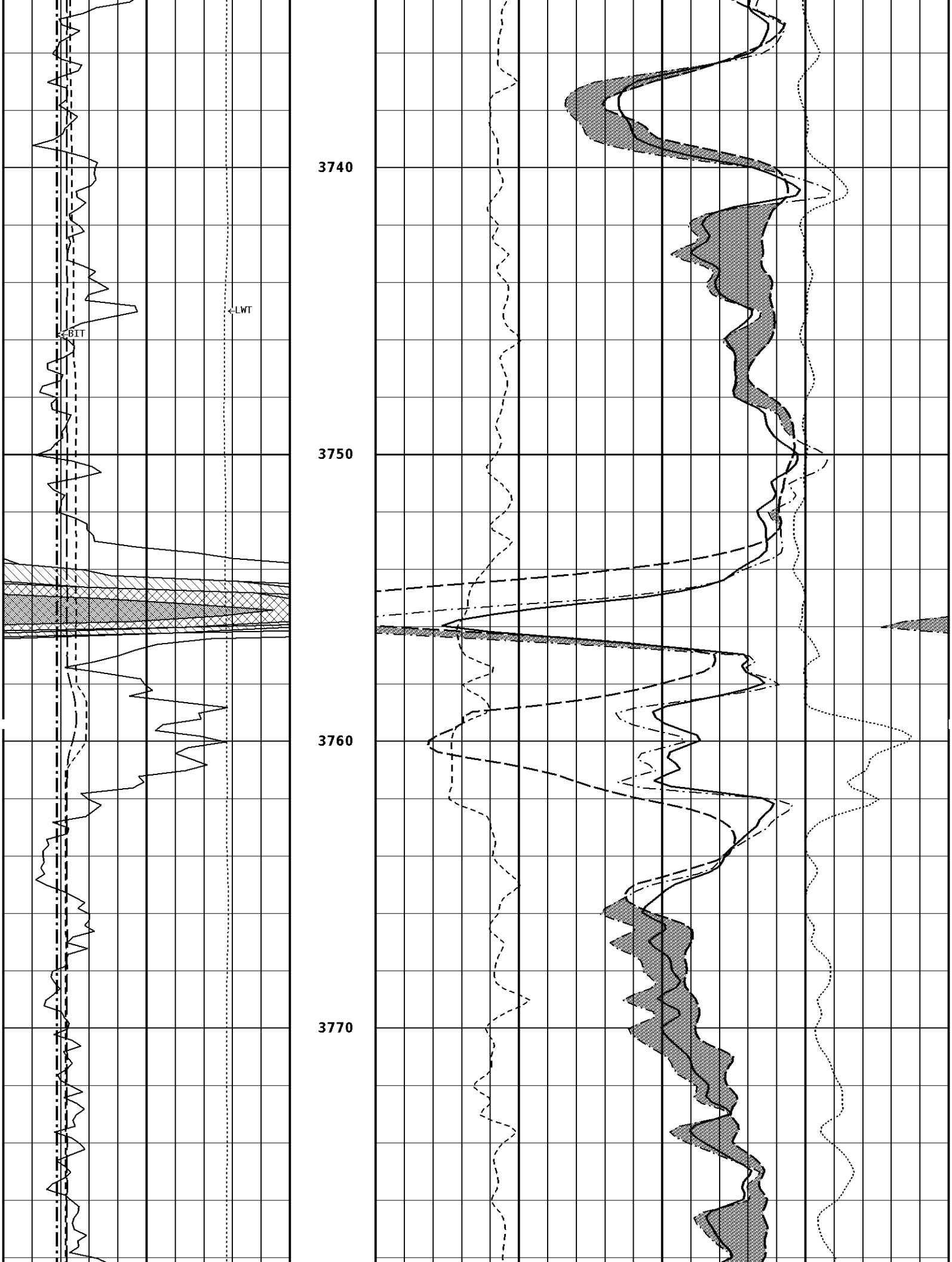
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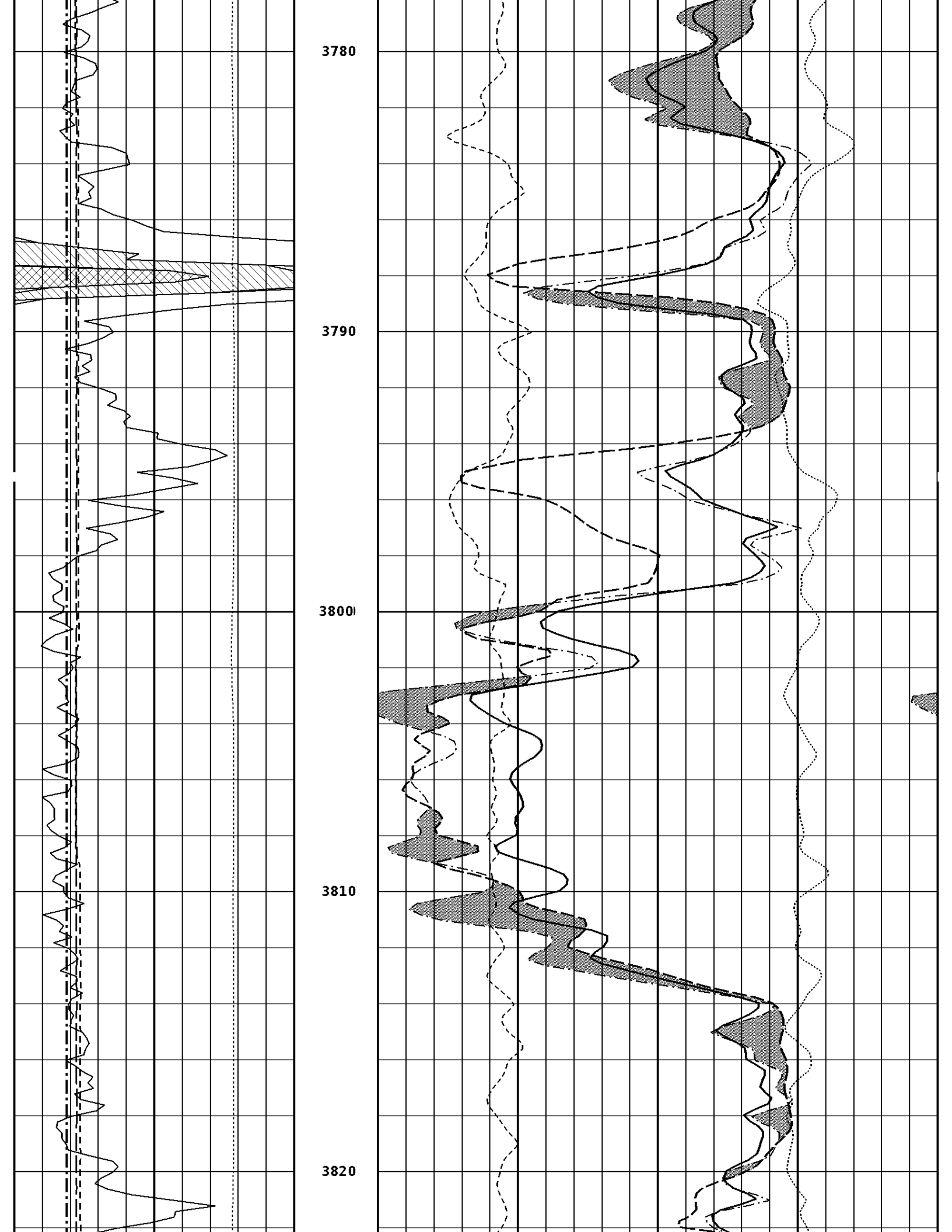
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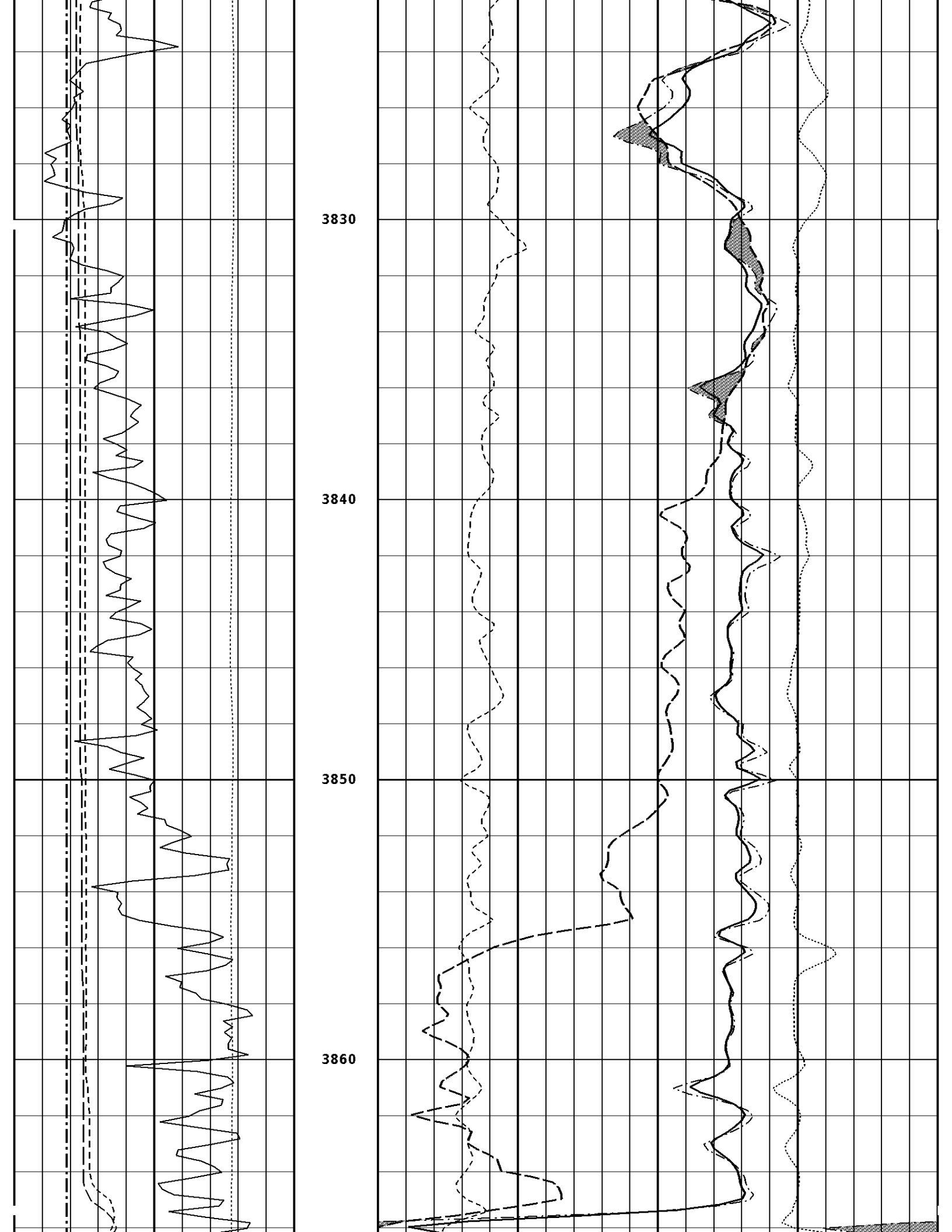
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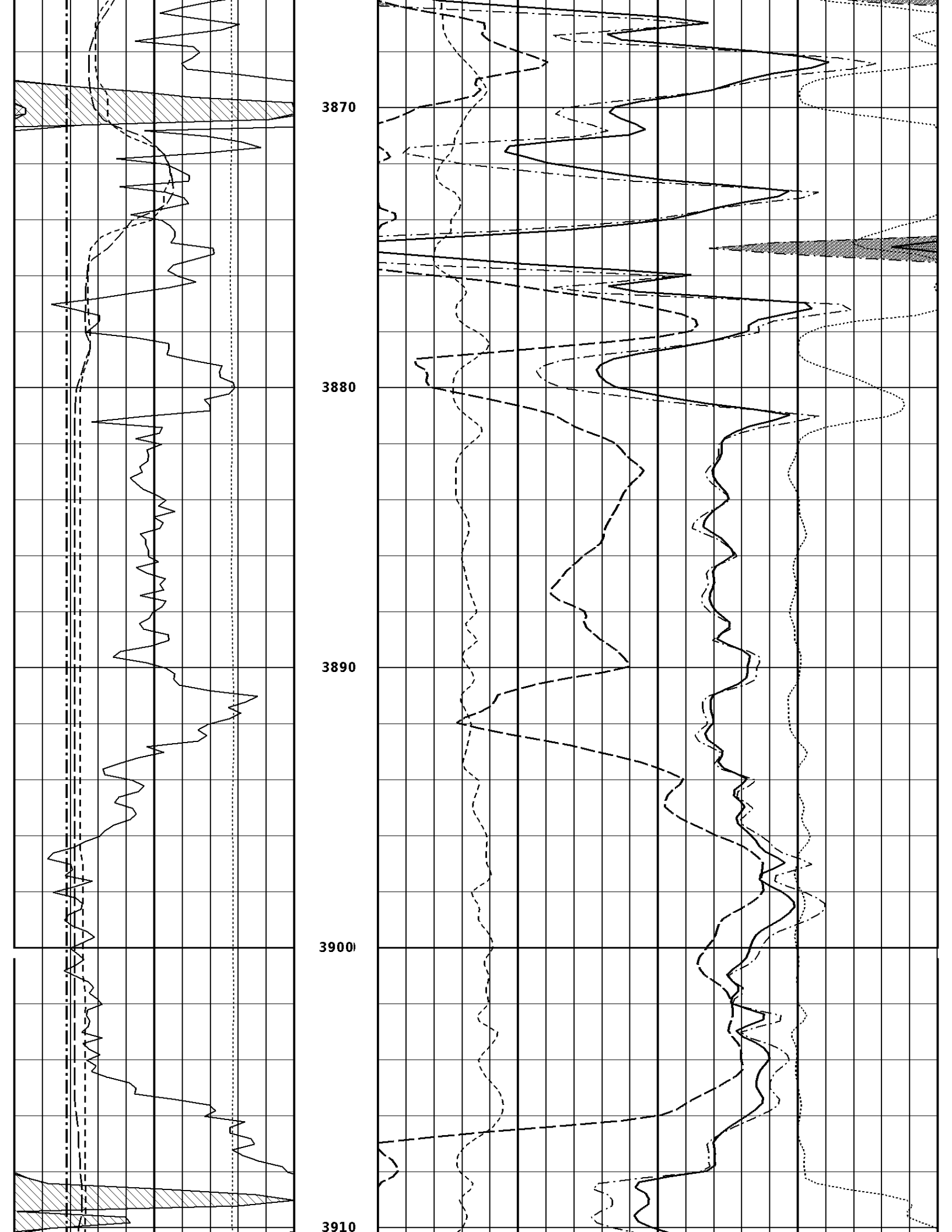
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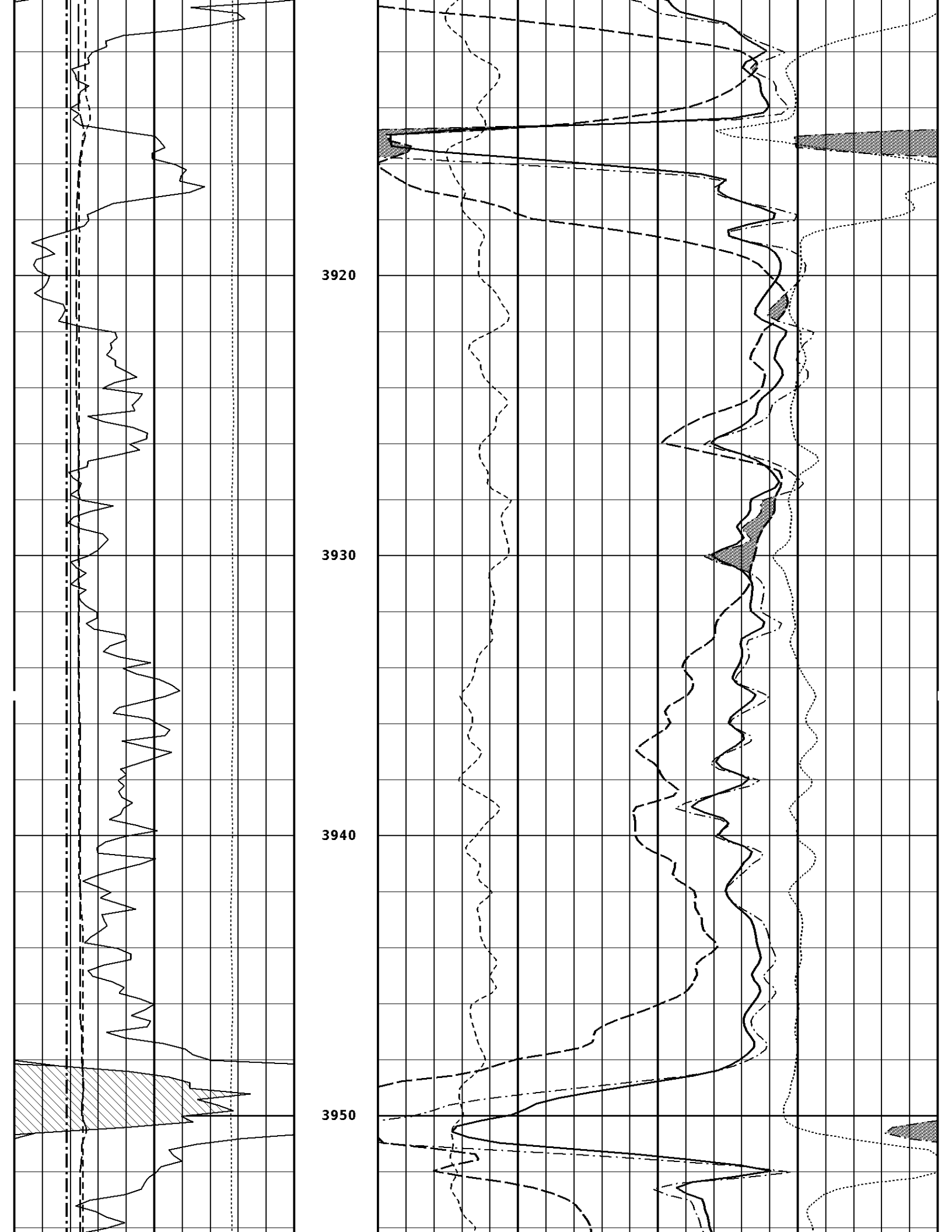
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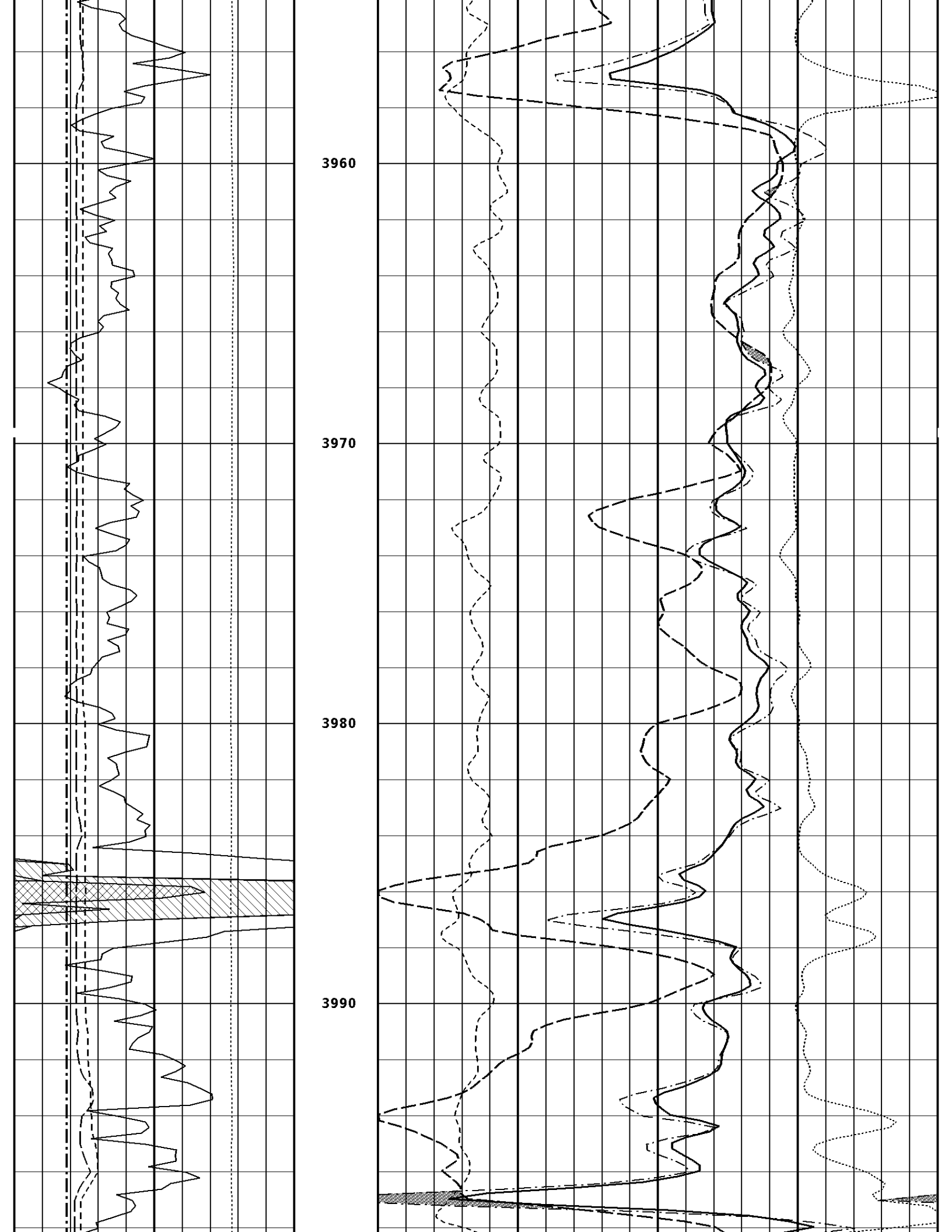
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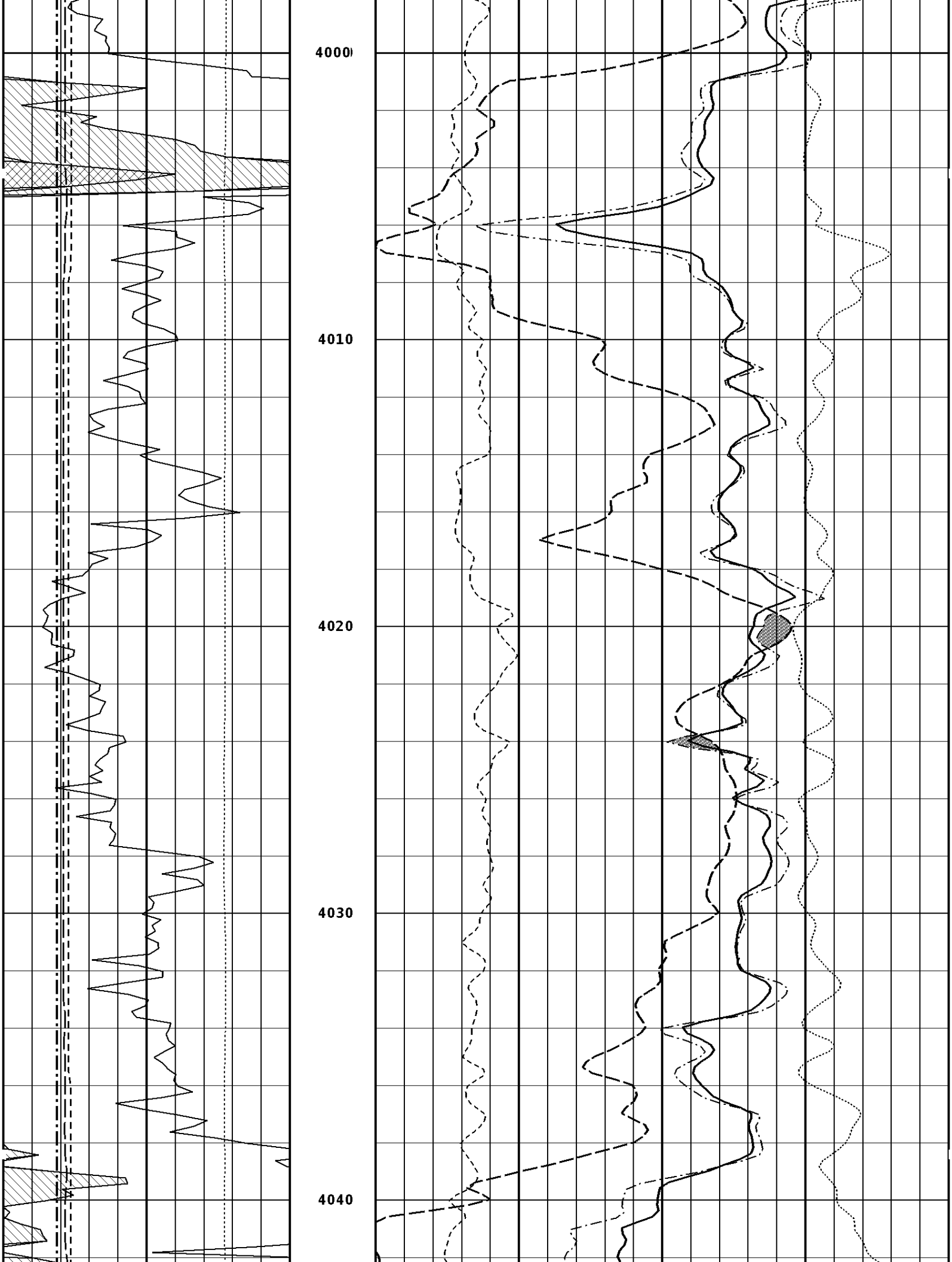
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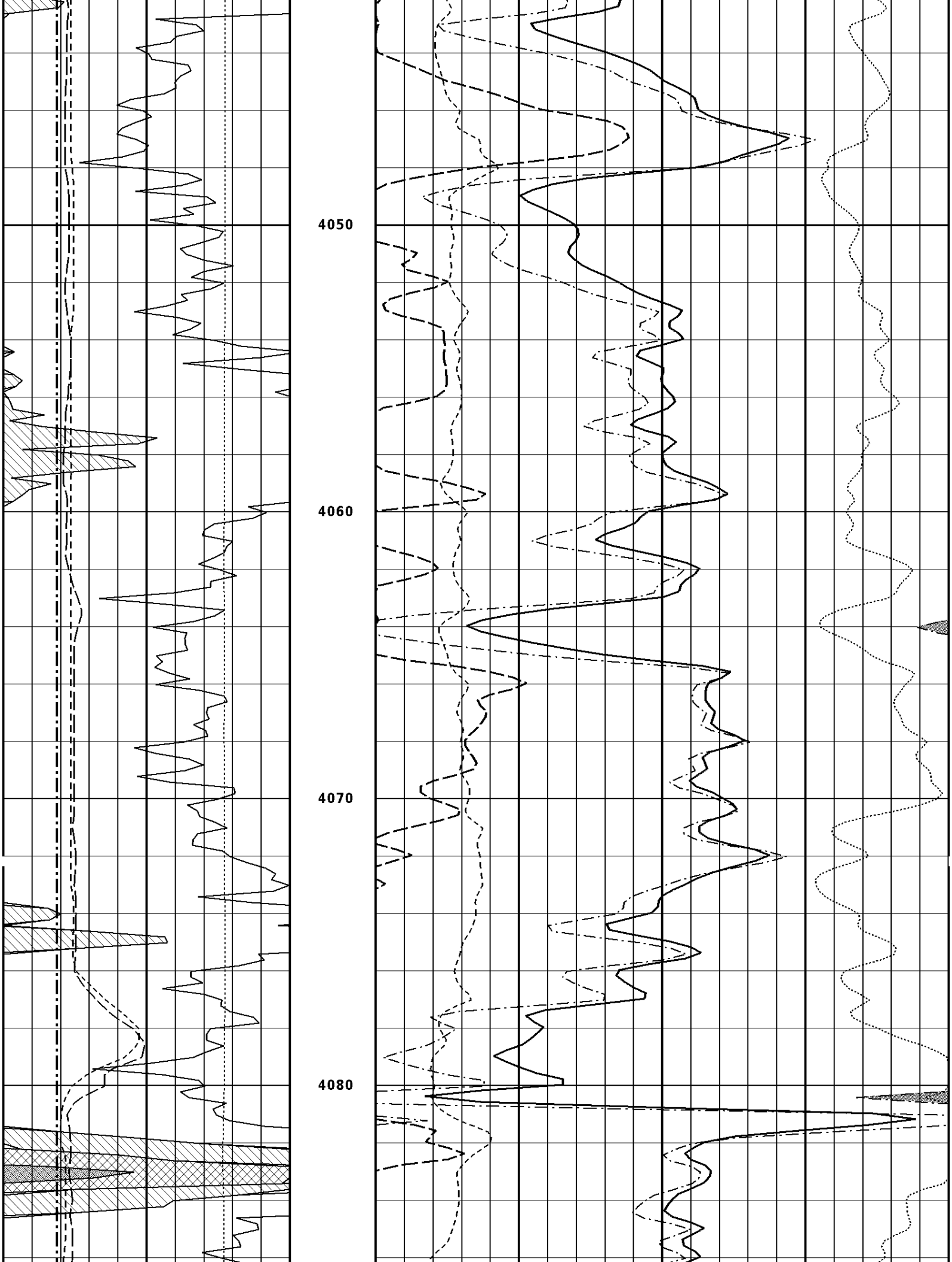
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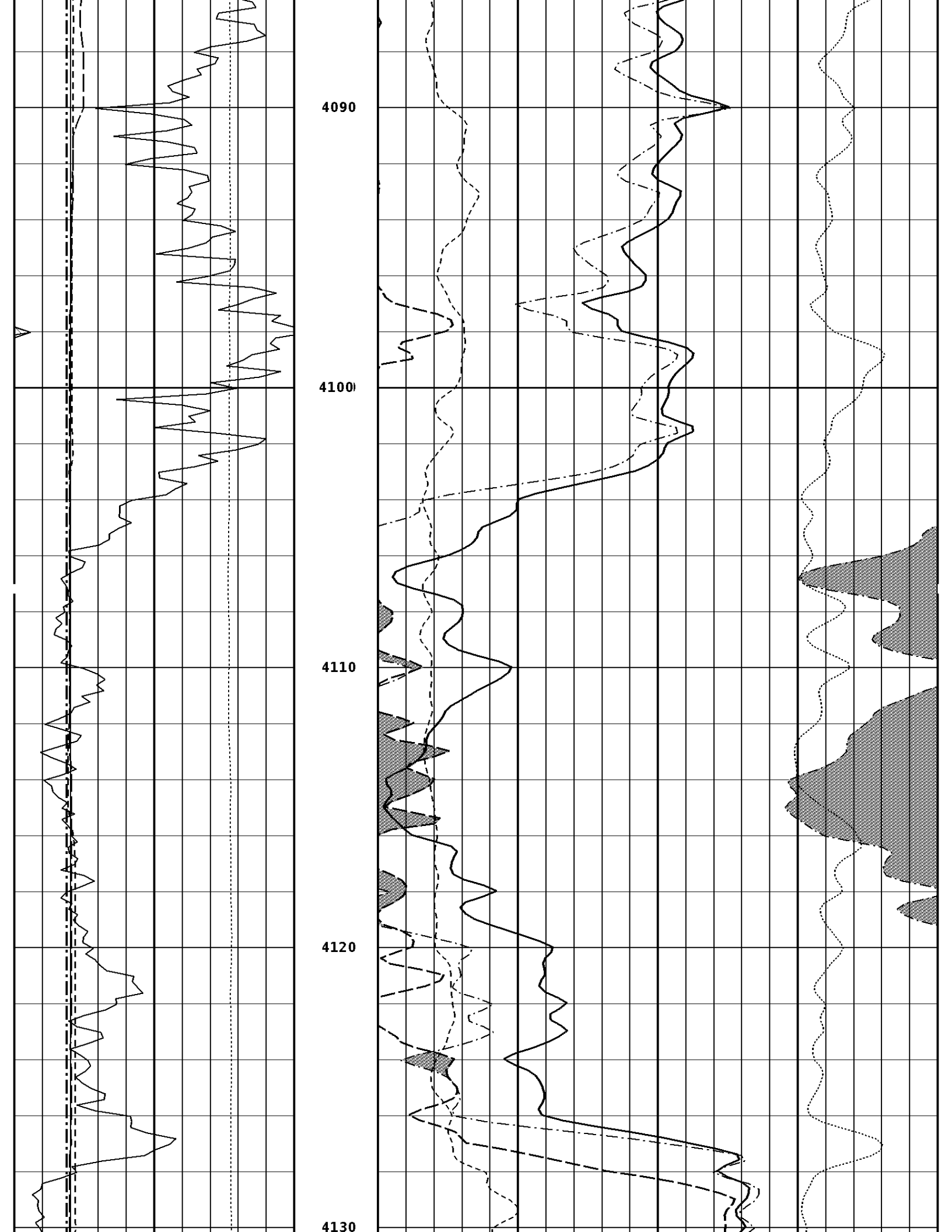
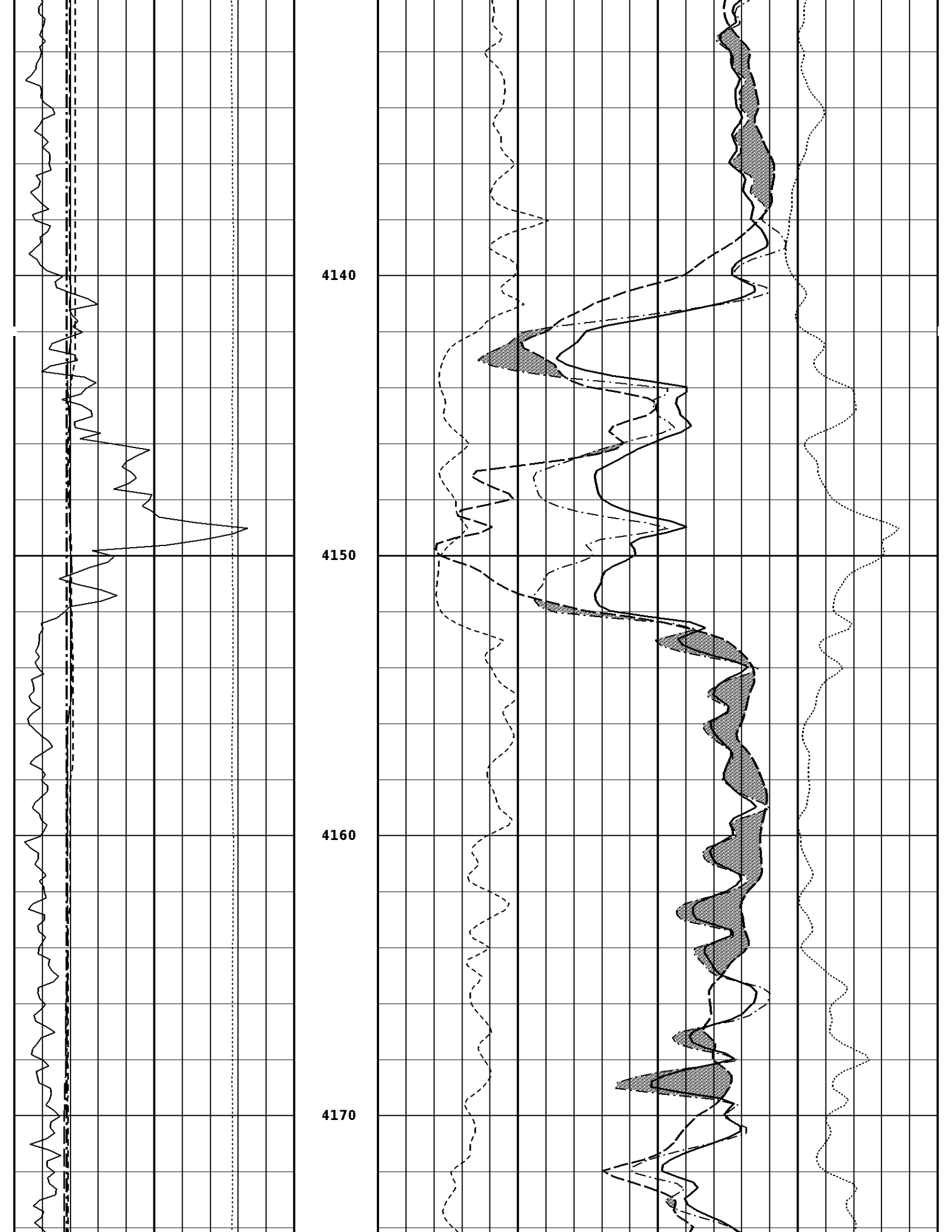
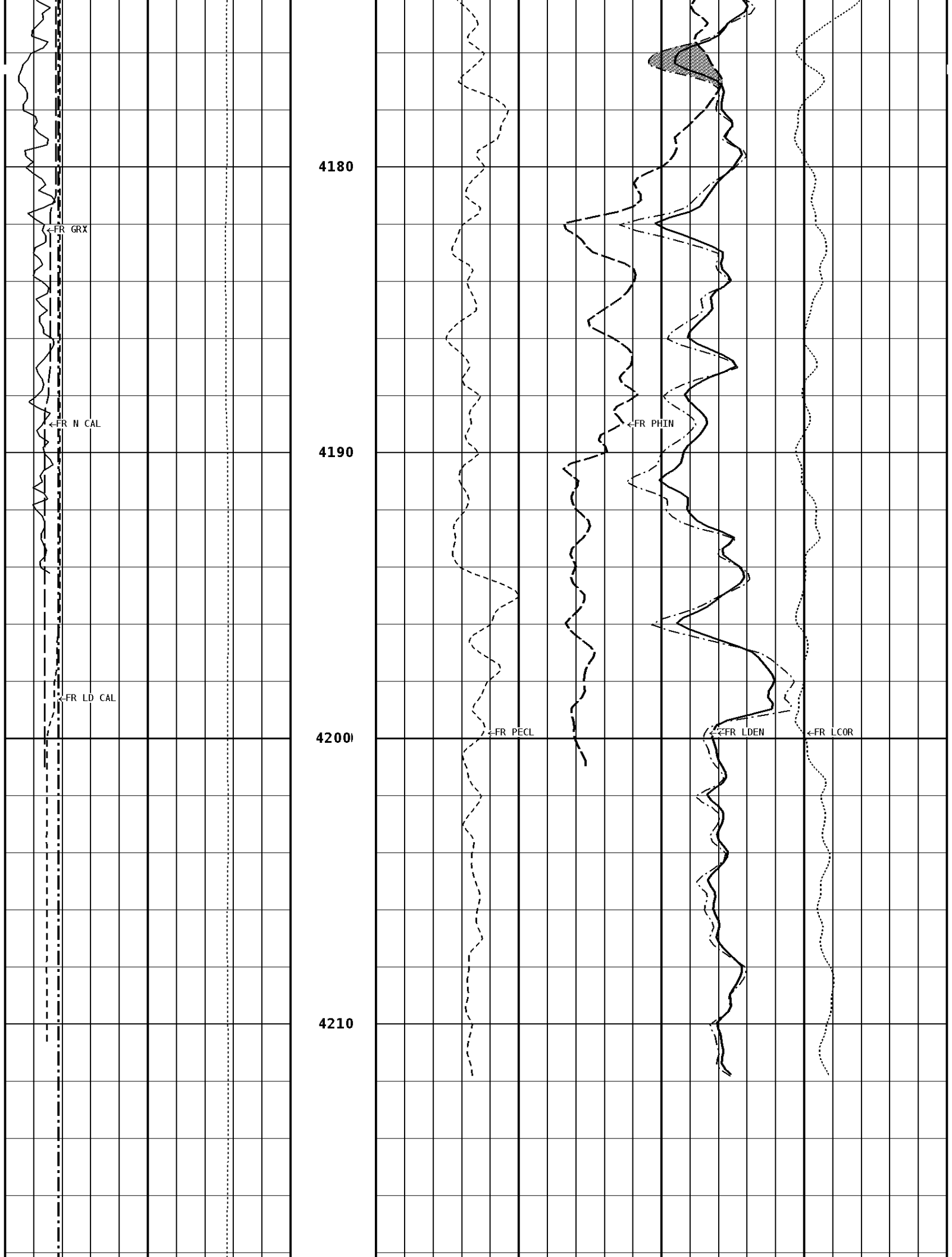
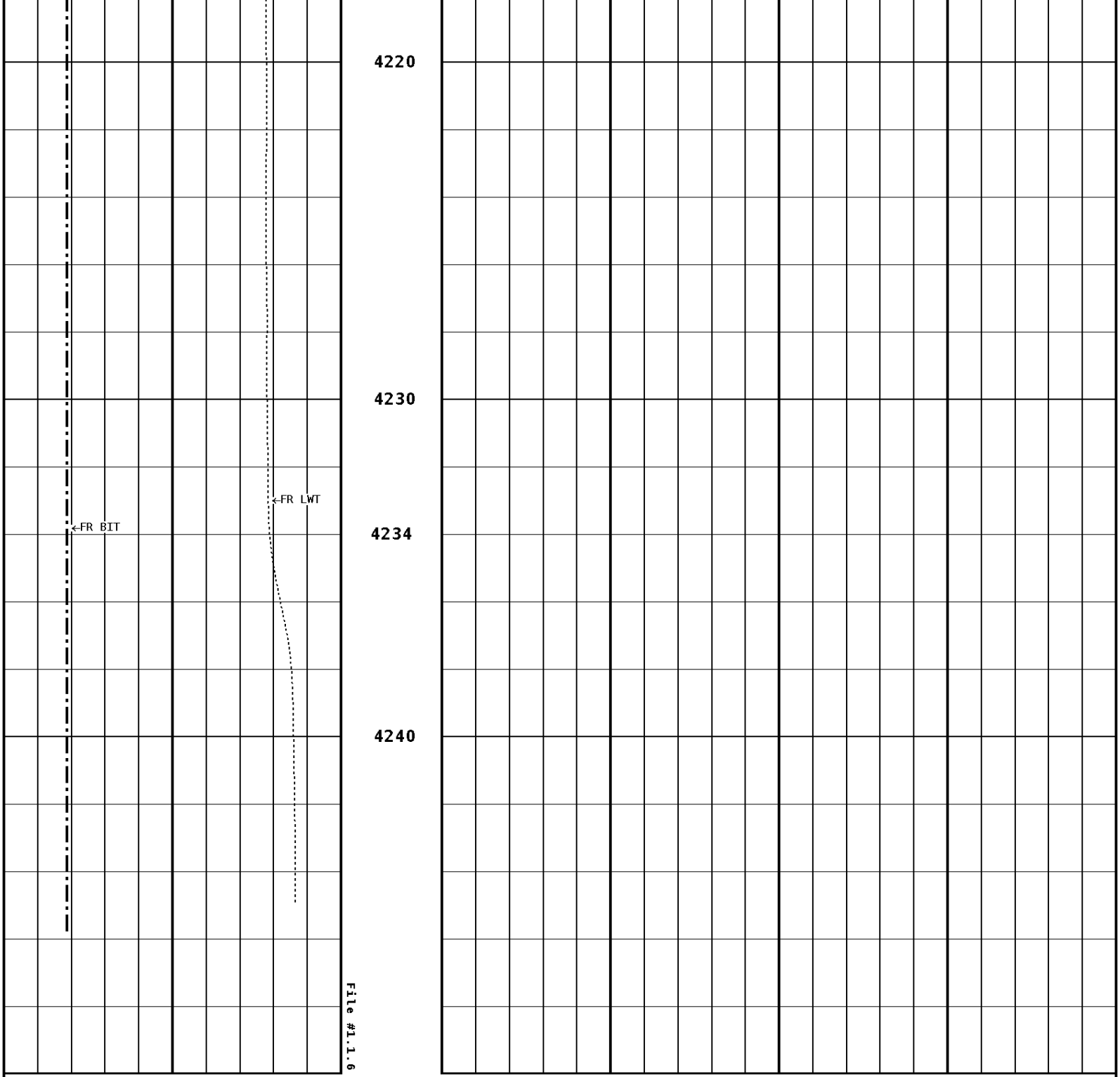

4090
4100
4110
4120
4130


4140
4150
4160
4170


4180
4190
4200
4210
←FR GRX
←FR N CAL
←FR LD CAL
←FR PHIN
←FR PECL
←FR LDEN
←FR LCOR



1:48 HIGH RESOLUTION

GAMMA RAY API UNITS 150 0 300 150	NEUTRON POROSITY PERCENT 30 -10
NEUTRON (Y) CALIPER INCHES (IN) 16 6 26 16	DENSITY POROSITY PERCENT 70 30 30 -10 -10 -50
DENSITY (X) CALIPER INCHES (IN) 16 26	COMPENSATED BULK DENSITY G/CC 3.0 4.0

6	16

BIT SIZE INCHES (IN)

6	16

TENSION LBS

10000	0

2.0	3.0
1.0	2.0

PE CROSS-SECTION BARNS/ELECTRON		DENSITY CORRECTION G/CC	
0	10	-0.25	0.25

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Fluid Density	1.00	g/cc
Drill Bit Size	7.875	in
Casing Diameter	4.500	in
Casing Thickness	0.250	in
Casing Correction (PHI N)	Disable	

Well File: BRA_KOH_14_APR_2_MSTK **Scale:** 1:240
Segment: V1.D1.S6 MAIN **Acquired:** 2012-04/02 15:06 3.2.0-10367
Reference: 0 **Processed:** 2012-04/02 16:31 3.2.0-10367

TENSION LBS

10000	0

BIT SIZE INCHES (IN)

6	16

DENSITY (X) CALIPER INCHES (IN)

16	26
6	16

NEUTRON (Y) CALIPER INCHES (IN)

16	26
6	16

GAMMA RAY API UNITS

150	300
0	150

-BHV AHV-
CU.FT

PE CROSS-SECTION BARNS/ELECTRON		DENSITY CORRECTION G/CC	
0	10	-0.25	0.25

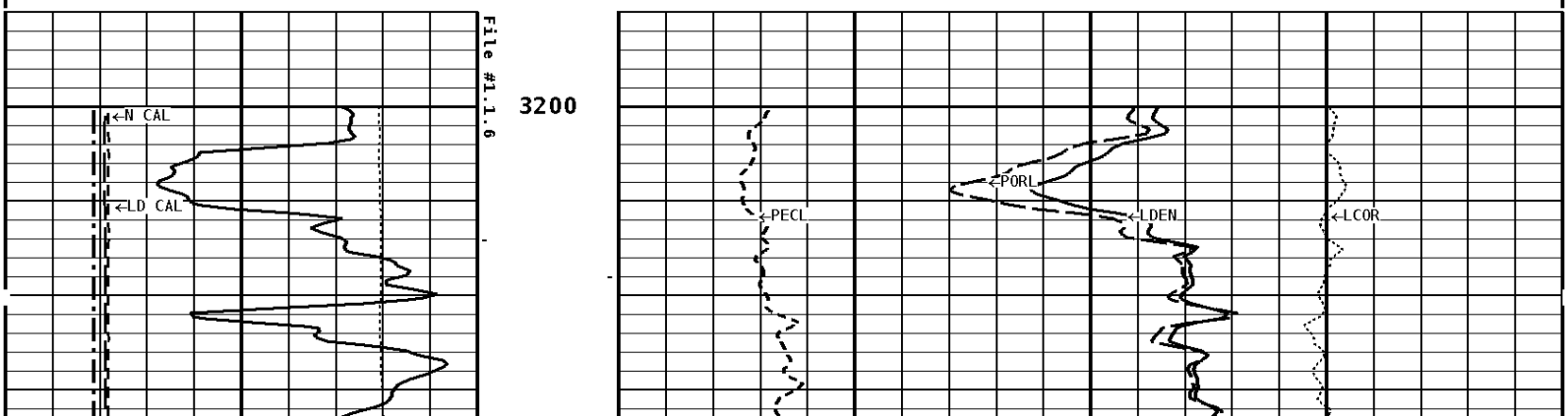
DENSITY POROSITY PERCENT (2.71 g/cc)

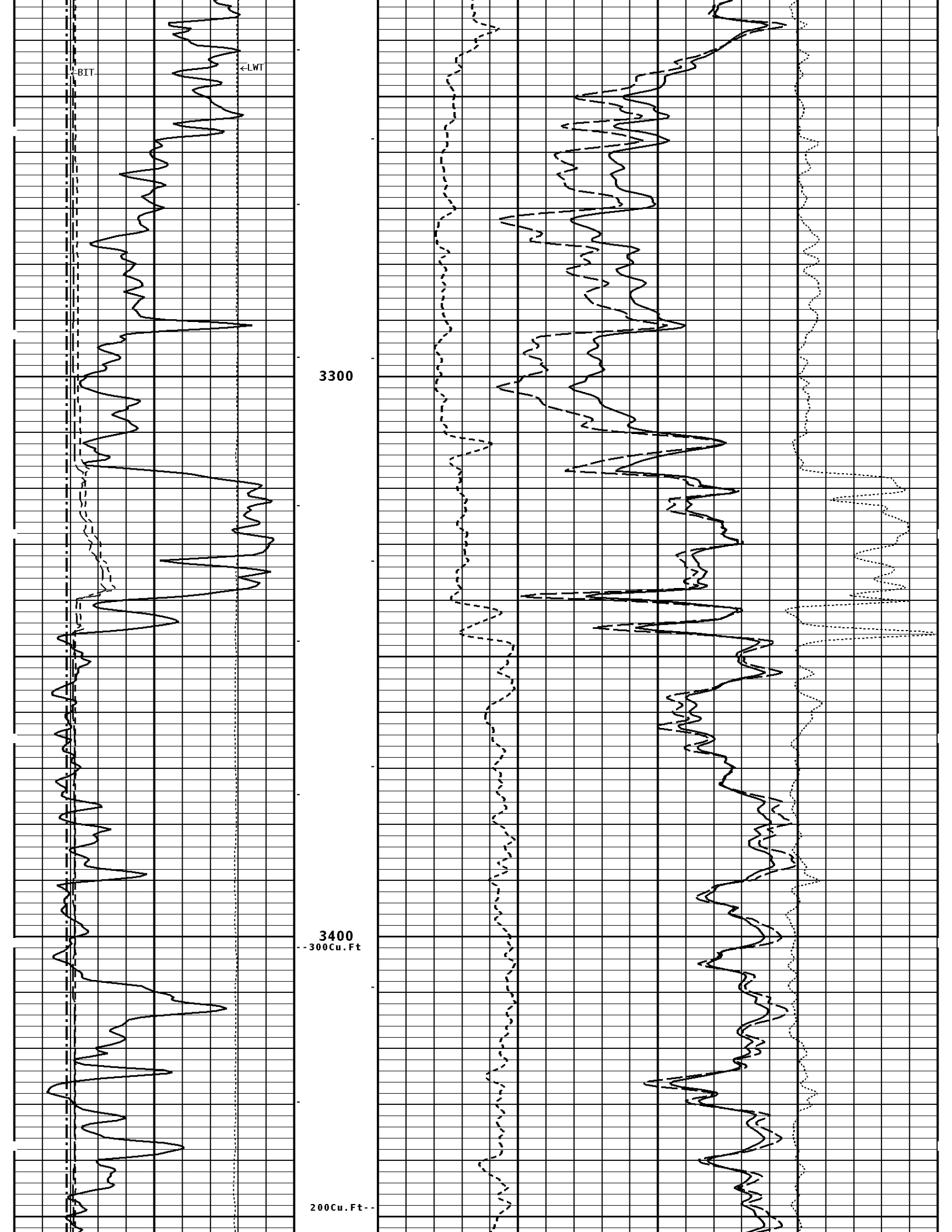
70	30
30	-10
-10	-50

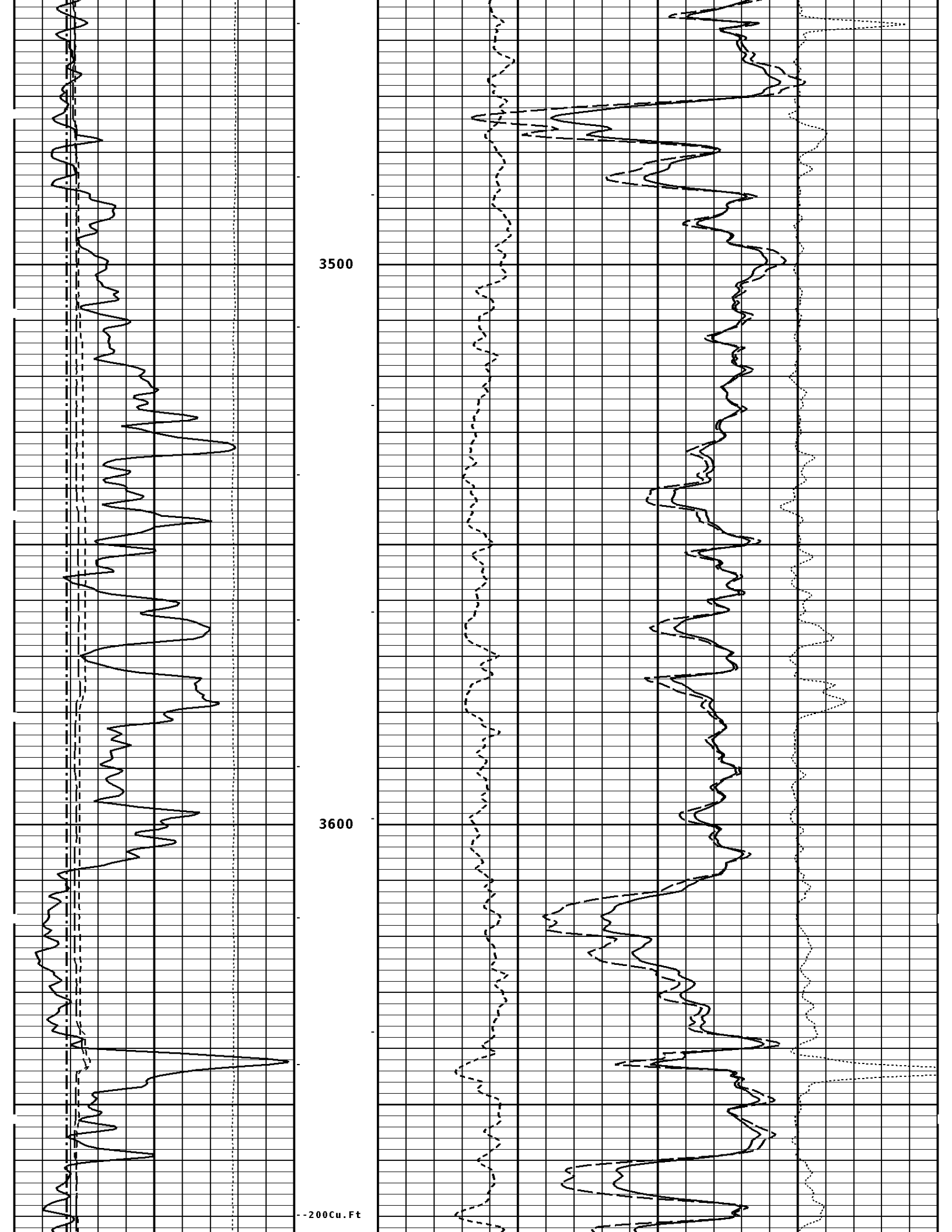
COMPENSATED BULK DENSITY G/CC

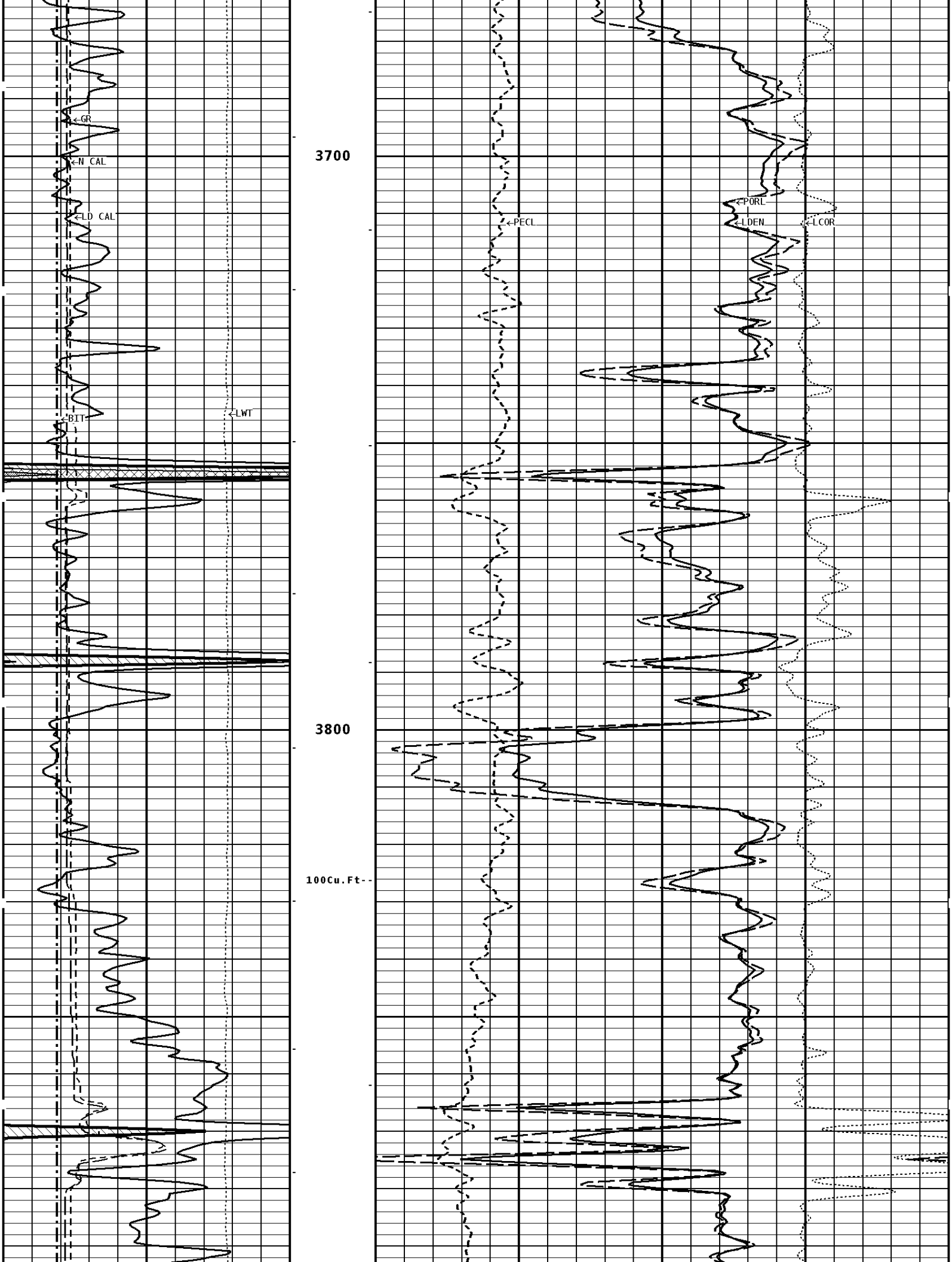
3.0	4.0
2.0	3.0
1.0	2.0

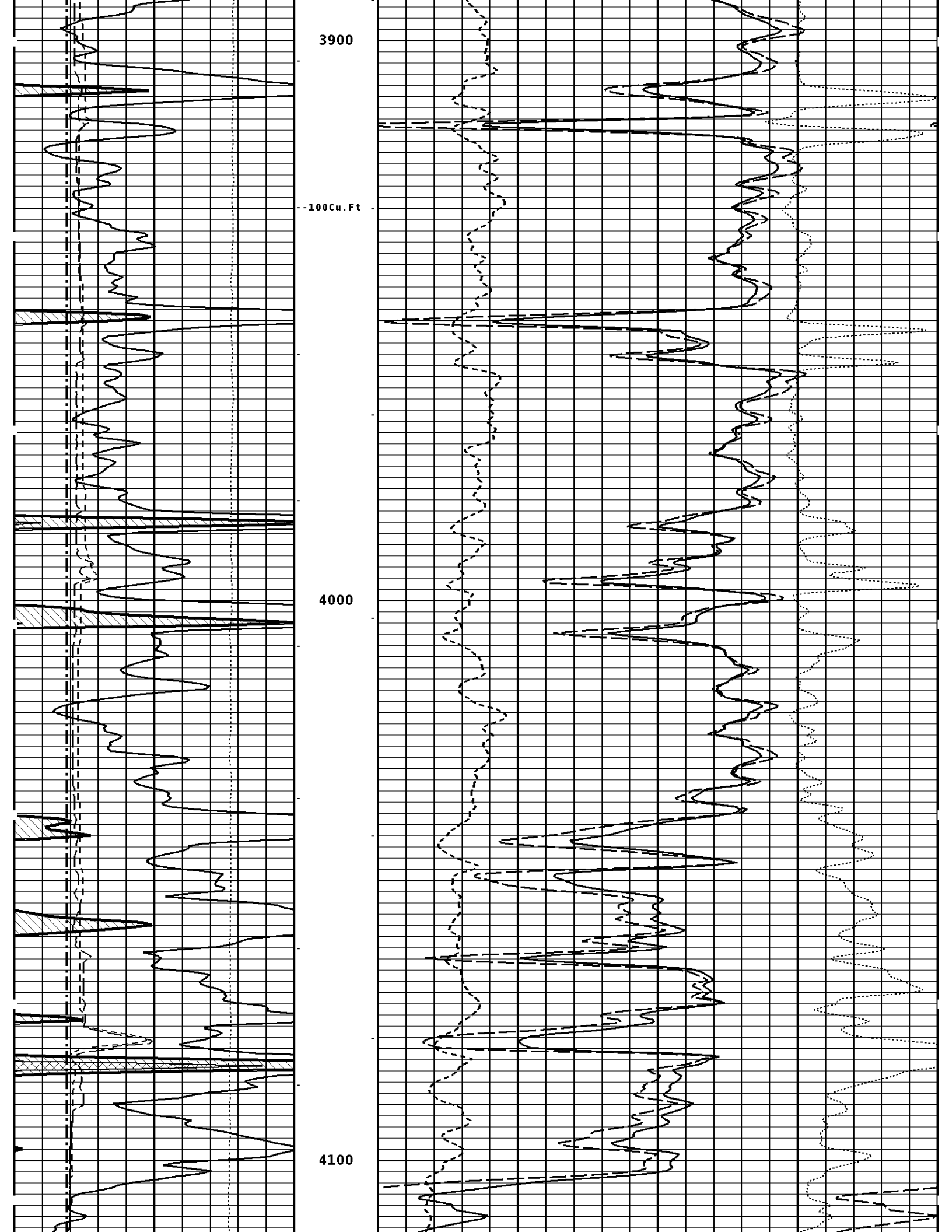
1:240 MAIN SECTION
BULK DENSITY

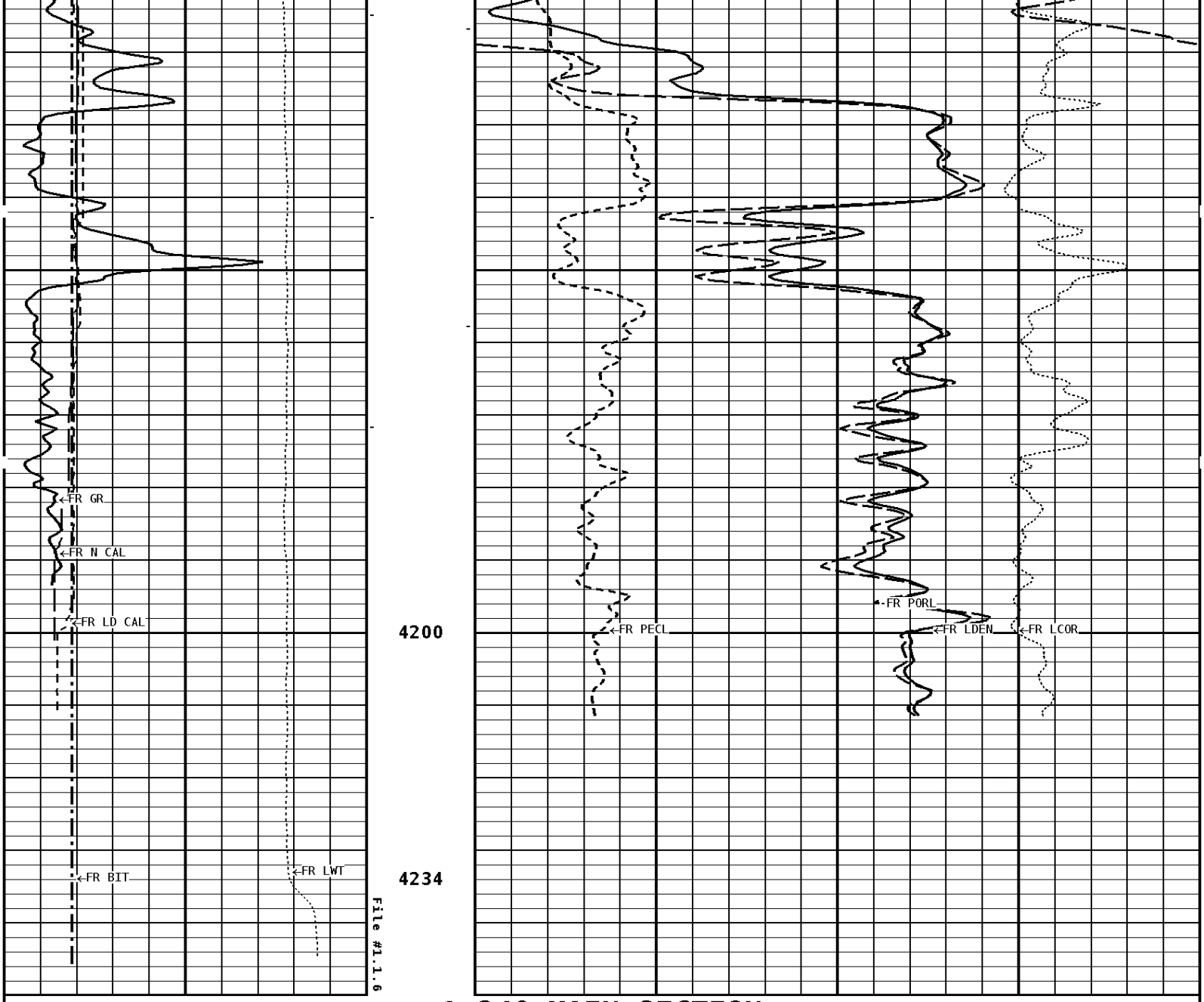



BIT
LWT
3300
3400
300Cu.Ft
200Cu.Ft


3500
3600
--200Cu.Ft


GR
N CAL
LD CAL
BIT
LWT
3700
PECL
PORL
LDEN
LCOR
3800
100Cu.Ft--


3900
100Cu.Ft
4000
4100



1:240 MAIN SECTION
BULK DENSITY

GAMMA RAY API UNITS	-BHV AHV- CU.FT	COMPENSATED BULK DENSITY G/CC
150 300 0 150		3.0 4.0 2.0 3.0 1.0 2.0
NEUTRON (Y) CALIPER INCHES (IN)		**DENSITY POROSITY PERCENT (2.71 g/cc)**
16 26 6 16		70 30 30 -10 -10 -50
DENSITY (X) CALIPER INCHES (IN)		**PE CROSS-SECTION BARNS/ELECTRON** / **DENSITY CORRECTION G/CC**
16 26 6 16		0 10 / -0.25 0.25
BIT SIZE INCHES (IN)		
6 16		

TENSION LBS	
10000	0

* Borehole Zone Factors *

Zone 1 99999.0 to 0.0 Feet

Matrix Density	2.71	g/cc
Fluid Density	1.00	g/cc
Formation Matrix	Limestone	
Drill Bit Size	7.875	in
Casing Diameter	4.500	in
Casing Correction (PHI N)	Disable	

* Calibration Summary *

Shop Calibration GRT-B

Performed : 04-APR-2011 Time : 19:28
Sensor Suite : GR-GR5 ID : GRT-BC-41

	Measured Background	Measured Jig	Units	Calibrated Jig	Units
GR	46	346	CPS	175	GRAPI

Shop Calibration CNT-AA

Performed : 26-JAN-2012 Time : 10:38
Sensor Suite : CALI-BCN ID : NDT-BD-123

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	6.5	11.5	6.0	12.0	IN.

Performed : 25-Jan-2012 Time : 10:27
Sensor Suite : BHC NEUT ID : CNP-AA-024
Source ID : N-1046

	Tank Measured	Tank Calibrated	Verification Jig	Units
N/F	3.8832	3.6893	3.7187	
Porosity	23.6	20.5	20.9	%

Shop Calibration LDT-DF

Performed : 26-OCT-2011 Time : 09:52
Sensor Suite : CALI-LTH ID : PDT-GA-466

	Jig - Measured Ring#1	Jig - Measured Ring#2	Jig - Calibrated Ring#1	Jig - Calibrated Ring#2	Units
CL # 1	8.6	11.9	6.0	12.0	IN.

Performed : 25-Jan-2012 Time : 11:26
Sensor Suite : BHCPELNG ID : LDP-DA-067
Source ID : 2991GW

Short Space

	BKGD	Al	Mg	Al+Fe	Units
LSW1	65	1156	1881	748	CPS
LSW2	71	1352	2166	967	CPS
LSW3	259	3083	4989	2607	CPS
LSW4	316	2838	4180	2501	CPS
LSW5	39	70	79	66	CPS
LSW6	73	80	78	79	CPS
LSW7	54	57	58	56	CPS
LSW8	7	9	11	9	CPS
QS	0.148	0.172	0.149	0.168	
PES			2.778	5.967	
SSDN		2.600	1.680		G/CC

Long Space

	BKGD	Al	Mg	Al+Fe	Units
LLW1	93	1346	5490	813	CPS
LLW2	104	2407	9385	1742	CPS
LLW3	401	4286	16345	3711	CPS
LLW4	515	2008	6544	1816	CPS
LLW5	57	68	133	67	CPS
LLW6	171	164	159	169	CPS

LLW7	108	104	99	103	CPS
LLW8	3	6	18	6	CPS
QL	0.227	0.223	0.231	0.240	
PEL			2.697	5.458	
LSDN		2.600	1.680		G/CC