HALLIBURTON

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY EOG RESOURCES
WELL CYNTHIA 35 #1
FIELD HUGOTON FIELD
COUNTY STEVENS STATE KANSAS

COMPANY EOG RESOURCES
WELL CYNTHIA 35 #1
FIELD HUGOTON FIELD
COUNTY STEVENS
STATE KANSAS

API No. 15189226230000
Location LAT: 37.18 N & LONG: 101.31 W
660' FNL & 330' FEL

Sect. 35 Twp. 31S Rge. 39W

Other Services:
ISAT
ACRT
ML

Permanent Datum	GL		Elev. 3183.0 ft	Elev.: K.B.	3195.0 ft
Log measured from	KB	,	12.0 ft above perm. Datum	D.F.	3194.0 ft
Drilling measured from	KB			G.L.	3183.0 ft

Date		10-Dec-07 20:03					
Run No.		ONE					
Depth - Driller		6180.0 ft					
Depth - Logger		6178.0 ft					
Bottom - Logged Interval		6170					
Top - Logged Interval		3100					
Casing - Driller		8.625 in	@ 1673.0 ft	@		@	
Casing - Logger		1669.0 ft					
Bit Size		7.875 in		@		@	
Type Fluid in Hole		WATER BASED MUD					
Density	Viscosity	9.2 ppg	45.00 s/qt				
PH	Fluid Loss	9.60 pH	7.4 cptm				
Source of Sample		MUD PIT					
Rm @ Meas. Temperature		1.10 ohmm	@ 68.00 degF	@		@	
Rmf @ Meas. Temperature		1.20 ohmm	@ 75.00 degF	@		@	
Rmc @ Meas. Temperature		0.90 ohmm	@ 75.00 degF	@		@	
Source Rmf	Rmc	CHART	CHART				
Rm @ BHT		0.59 ohmm	@ 132.0 degF	@		@	
Time Since Circulation		5.0 hr					
Time on Bottom		10-Dec-07 21:09					
Max. Rec. Temperature		132.0 degF	@ 6178.0 ft	@		@	
Equipment	Location	10549590	PV OK				
Recorded By		STONE					
Witnessed By		MR. SHULTZ					

Fold here

Service Ticket No.: 5532215 API Serial No.: 15189226230000 PGM Version: WL INSITE R2.0 (Build 19)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE

RESISTIVITY SCALE CHANGES

	Sample No.	Type Log	Depth	Scale Up Hole	Scale Down Hole
Date					
Depth-Driller					
Type Fluid in Hole					
Density / Viscosity					
Ph / Fluid Loss					
Source of Sample					
Rm @ Meas. Temp	@				
Rmf @ Meas. Temp.	@				
Rmc @ Meas. Temp.	@				
Source Rmf / Rmc					
Rm @ BHT	@				
Rmf @ BHT	@				
Rmc @ BHT	@				

RESISTIVITY EQUIPMENT DATA

	Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other
Rm @ Meas. Temp	@				
Rmf @ Meas. Temp.	@	ACRT- 4562	N/A	1.5" S.O.	N/A
Rmc @ Meas. Temp.	@				
Source Rmf / Rmc					
Rm @ BHT	@				
Rmf @ BHT	@				
Rmc @ BHT	@				

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	11005603	Serial No.	P001	Serial No.	I42M02P76	Serial No.	11019642
Model No.	GTET	Model No.	ISAT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625	No. of Cent.	2	Diameter	4.5	Diameter	3.625
Detector Model No.	A102	Spacing	0.5	Log Type	GAM-GAM	Log Type	DSN-DSN
Type	SCINTILLATION			Source Type	Cs-137	Source Type	Am241Be
Length	8"	LSA [Y/N]	Y	Serial No.	24520B	Serial No.	DSN-381
Distance to Source	10.25'	FWDA [Y/N]	Y	Strength	1.5 Ci	Strength	15 Ci

LOGGING DATA

GENERAL				GAMMA		ACOUSTIC			DENSITY			NEUTRON		
Run	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
No.	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	TD	CSG	REC	0	150	30	-10	47.6	30	-10	LIME	30	-10	LIME
									2	3	2.71			

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@

Remarks:

ANNULAR HOLE VOLUME CALCULATED FOR 5.5 INCH AND 4.5 INCH CASING

CHLORIDES 800 ppm

DENSITY AND DRHO AFFECTED BY BOREHOLE CONDITIONS.

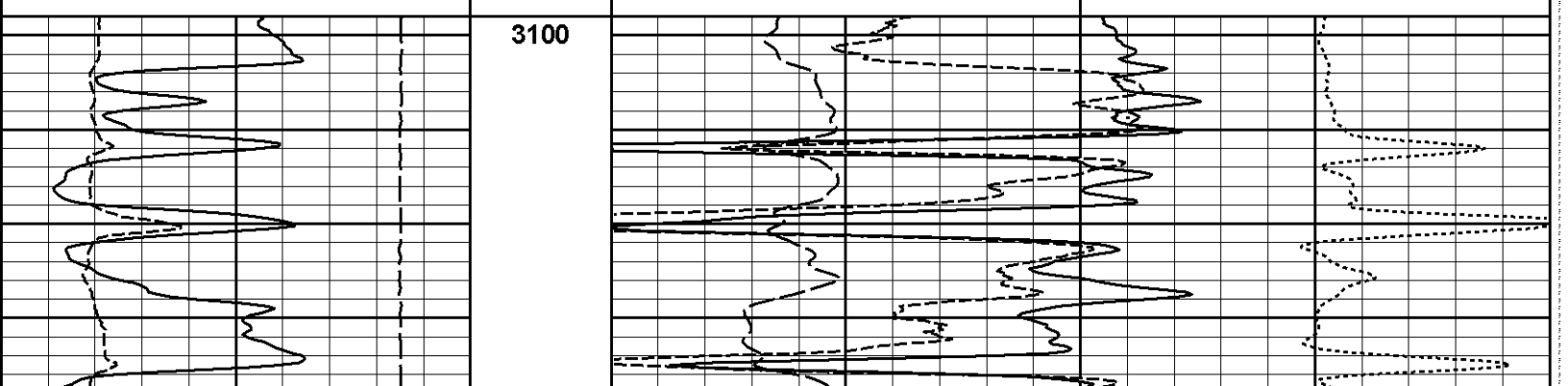
CREW: F. OLGUIN, M. PRINCE

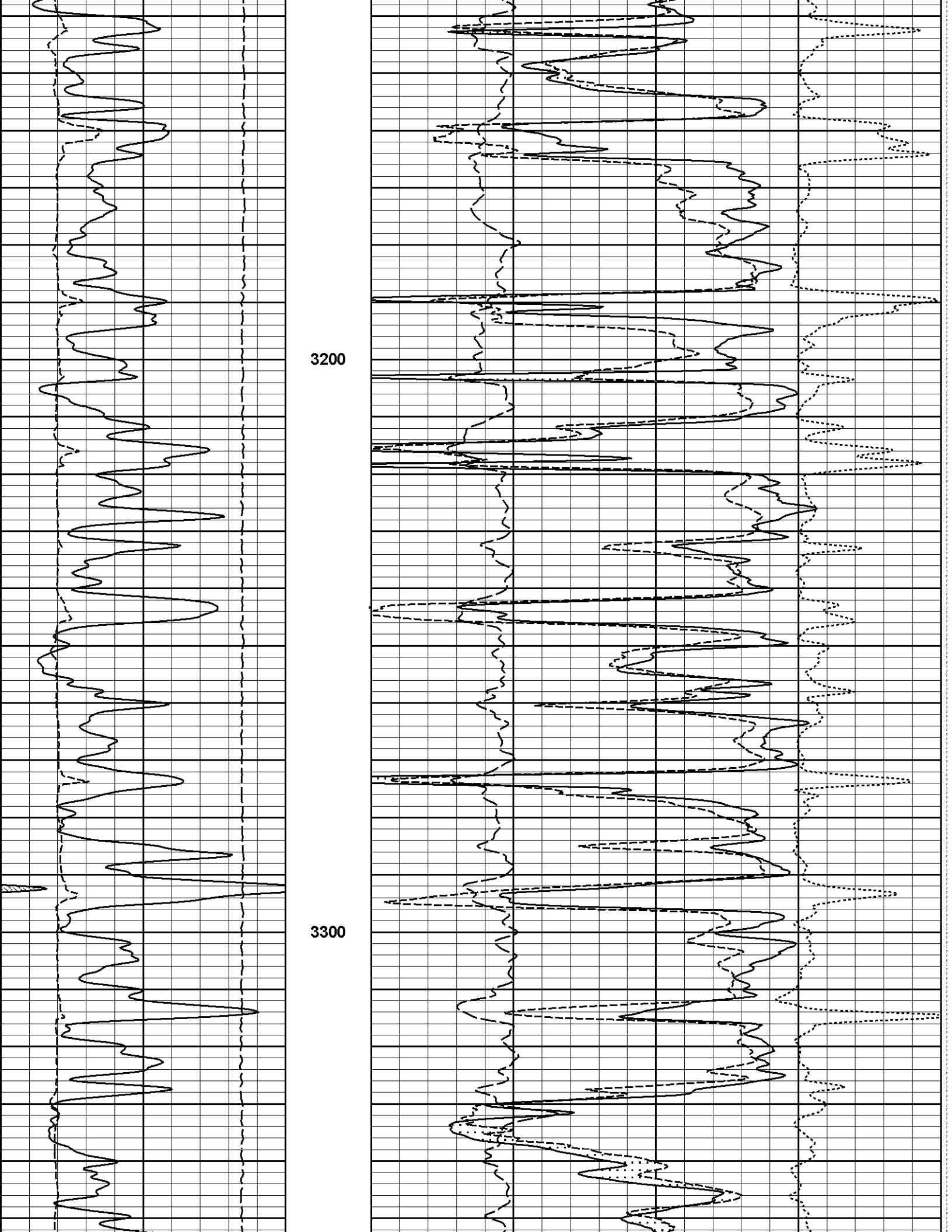
HALLIBURTON

Plot Time: 11-Dec-07 15:44:17
Plot Range: 3098 ft to 6182 ft
Data: CYNTHIA_35_1\Well Based*
Plot File: \\PROOnm\PoroMicro_Stone

5 INCH MAIN LOG

0 Gamma API 150		30 Neutron Porosity -10
api		percent
6 Caliper 16		30 DensityPorosity -10
inches		percent
15K Tens 0	0 Tension Pull 0	0 Pe 10 / -0.25 DensityCorr 0.25
pounds		gram per cc

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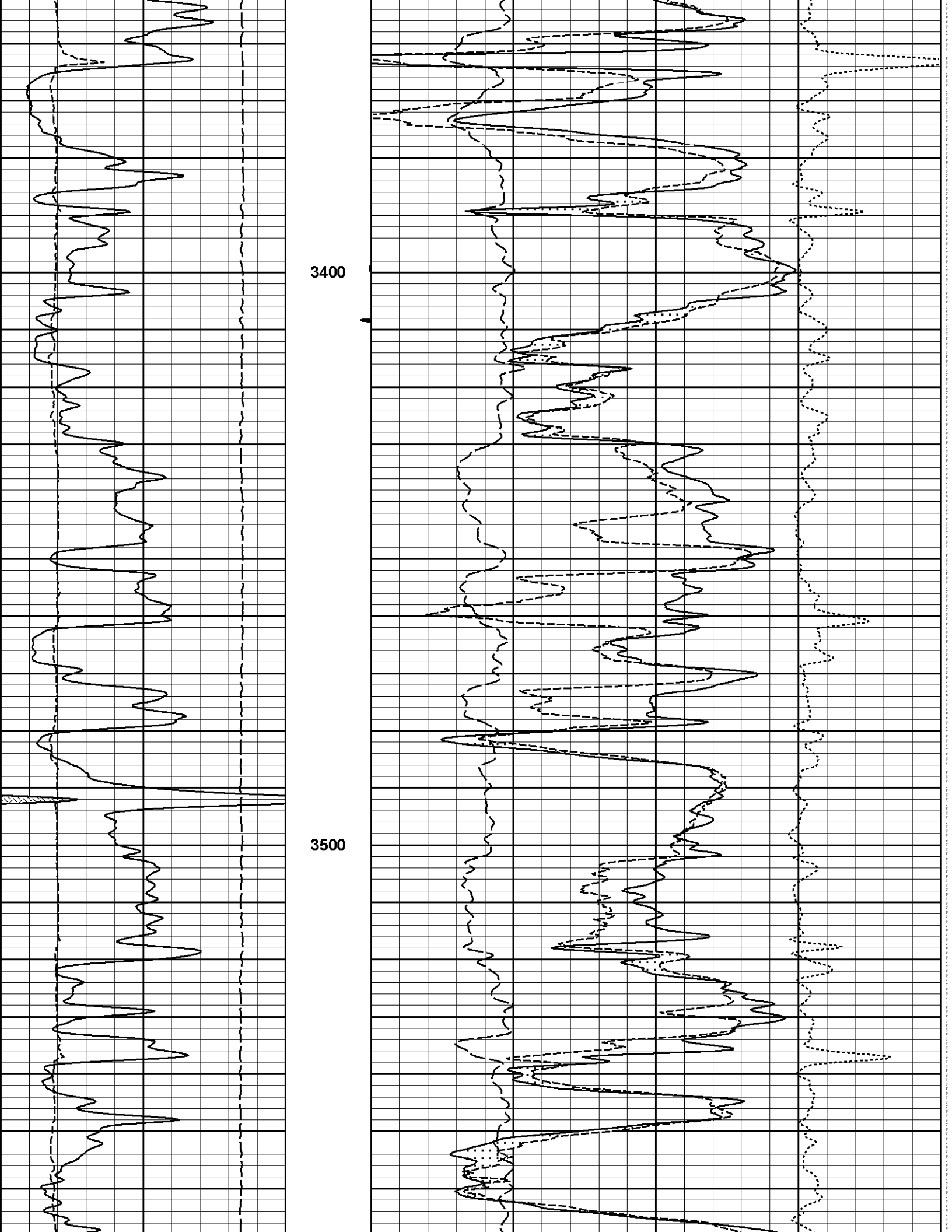
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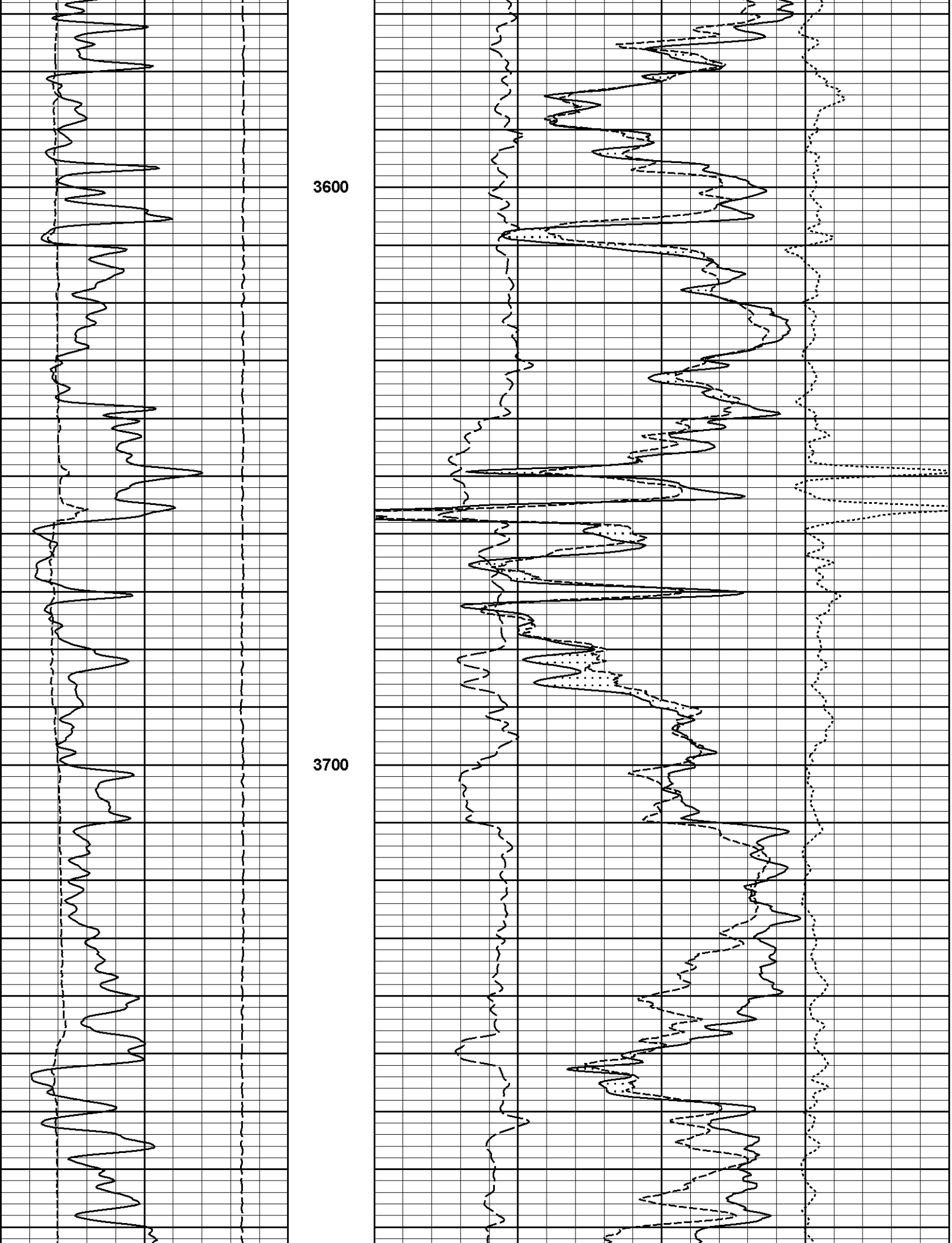
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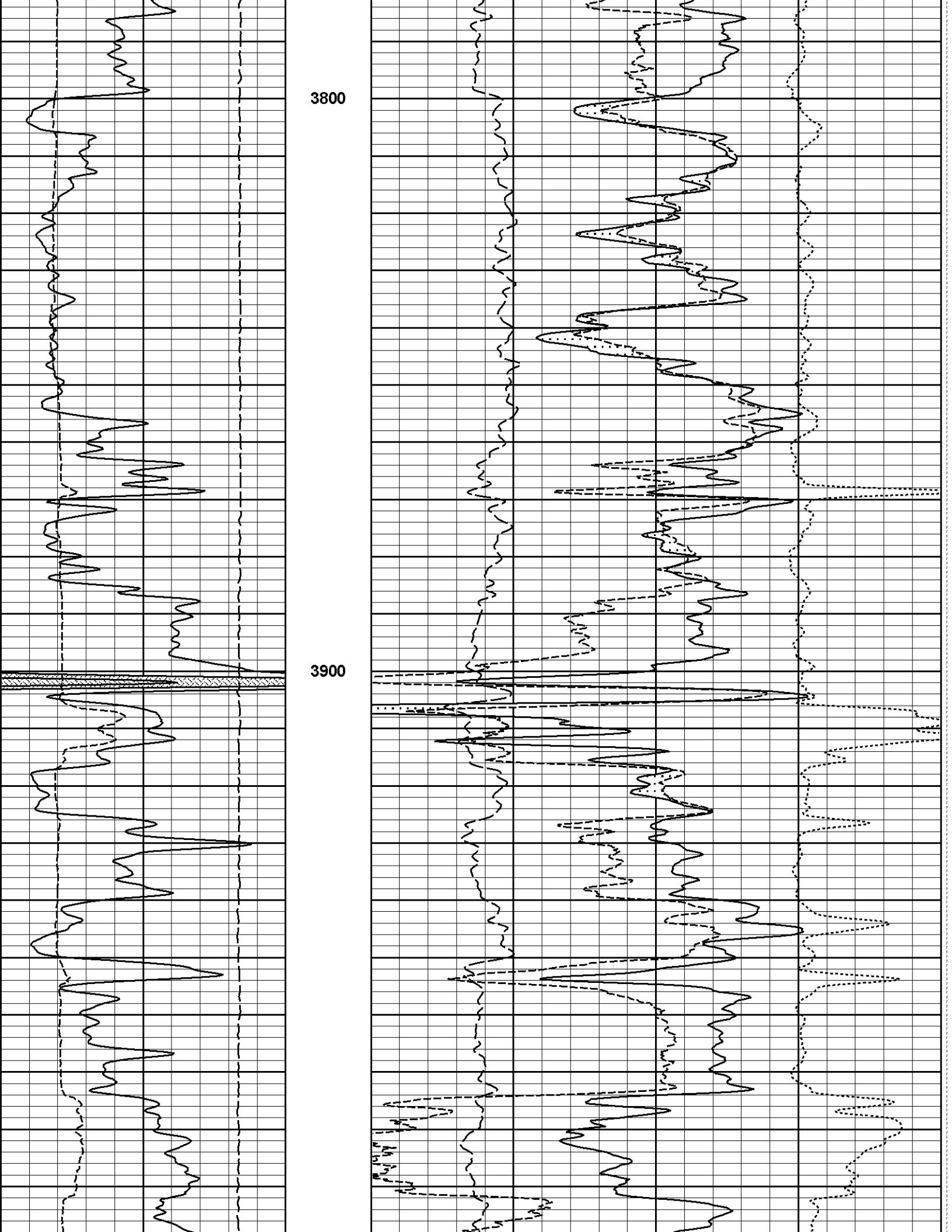
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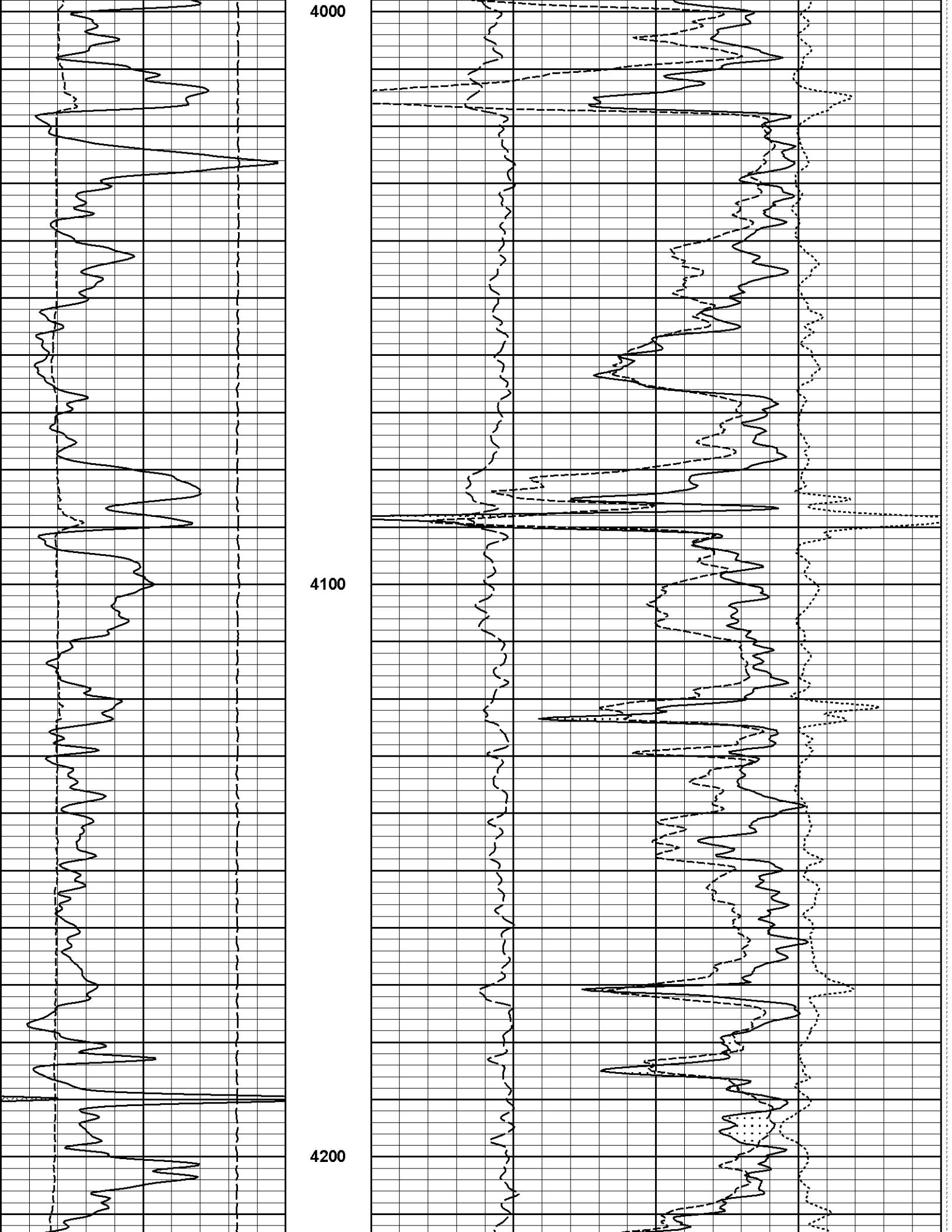
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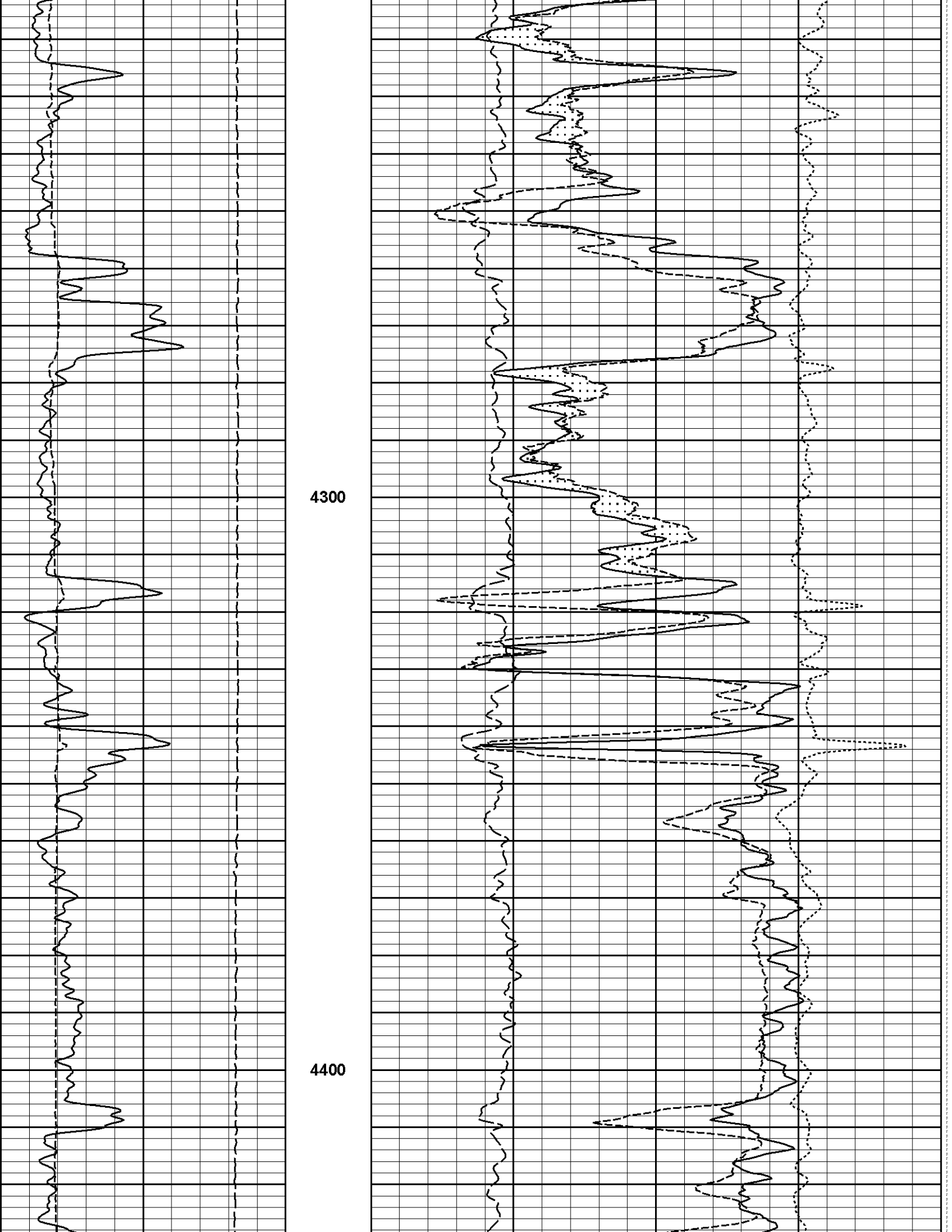
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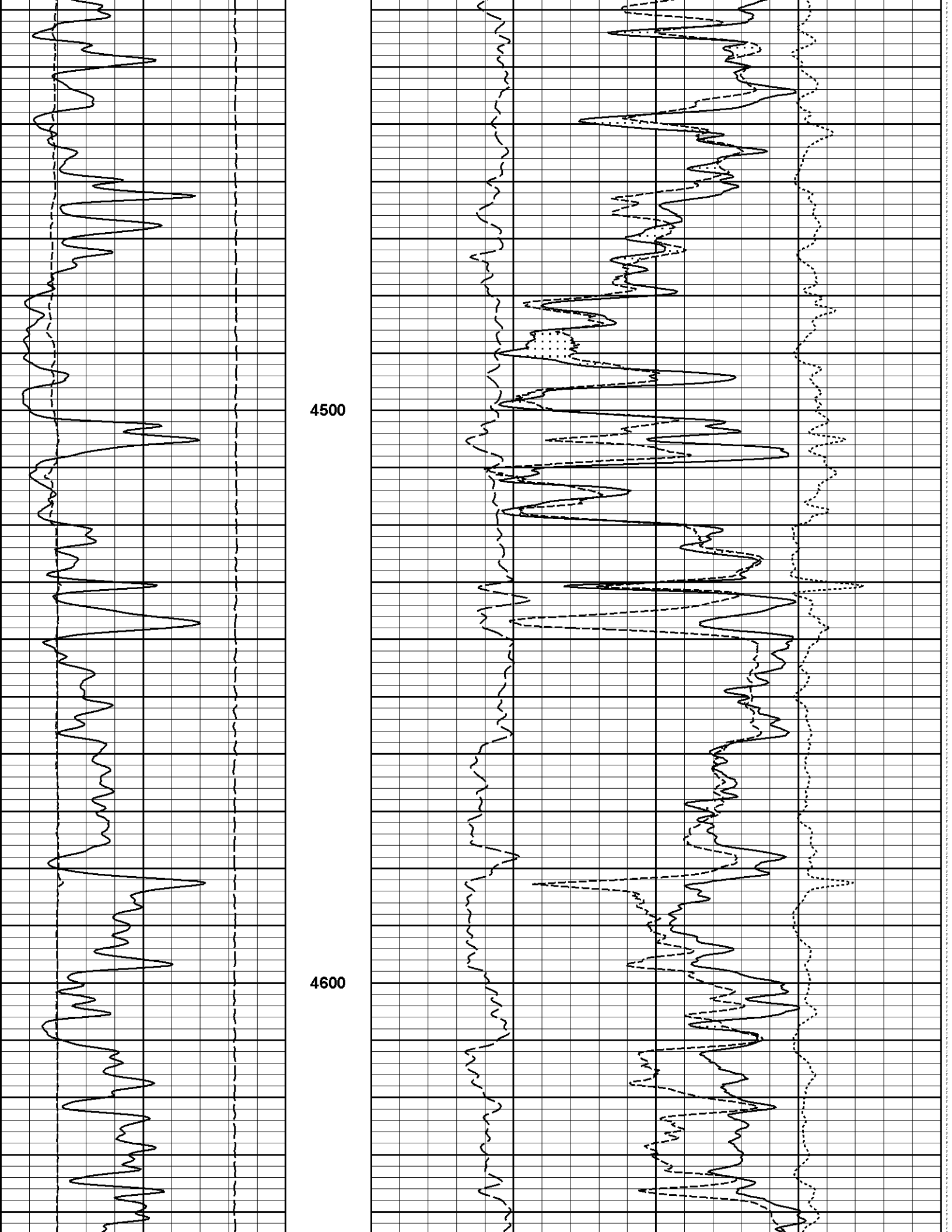
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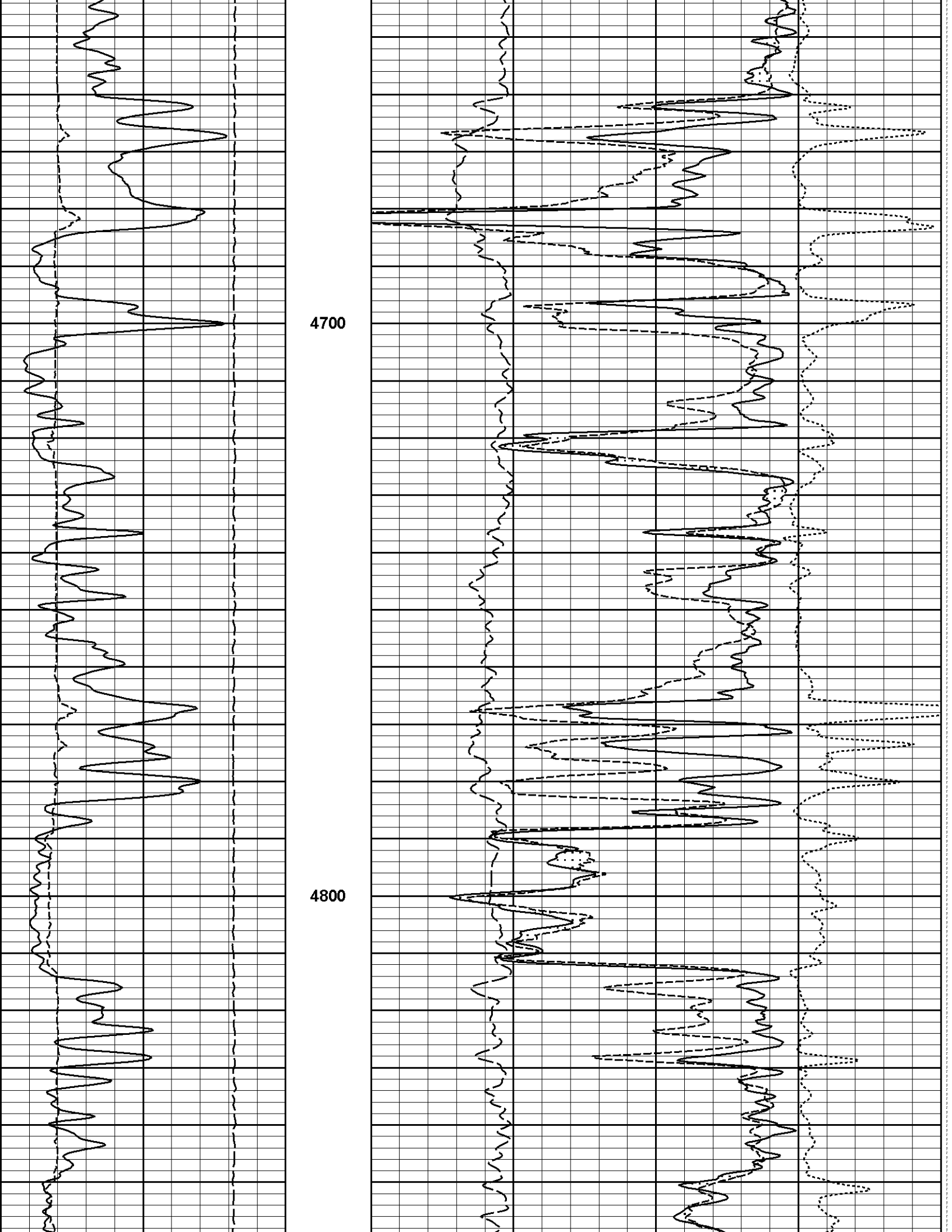
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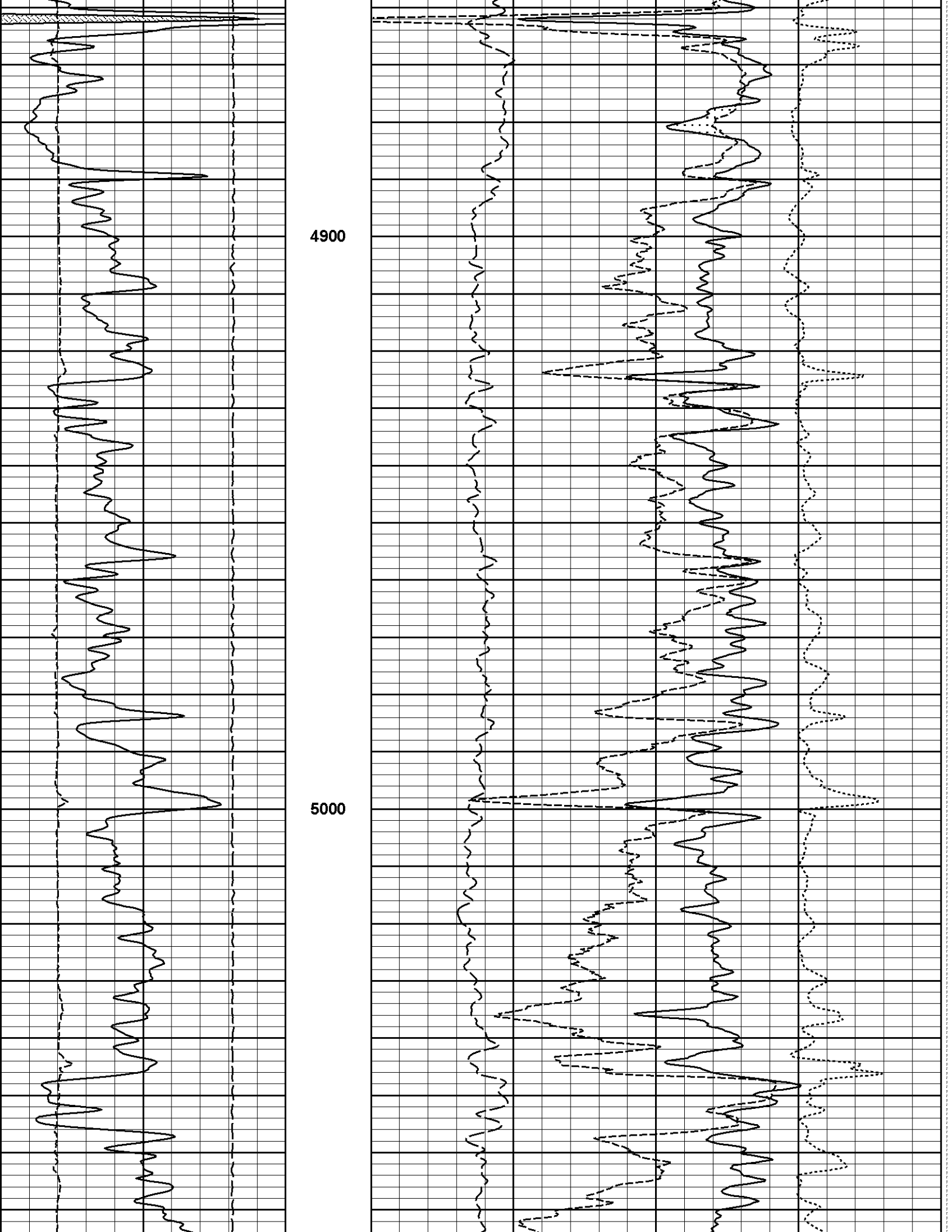
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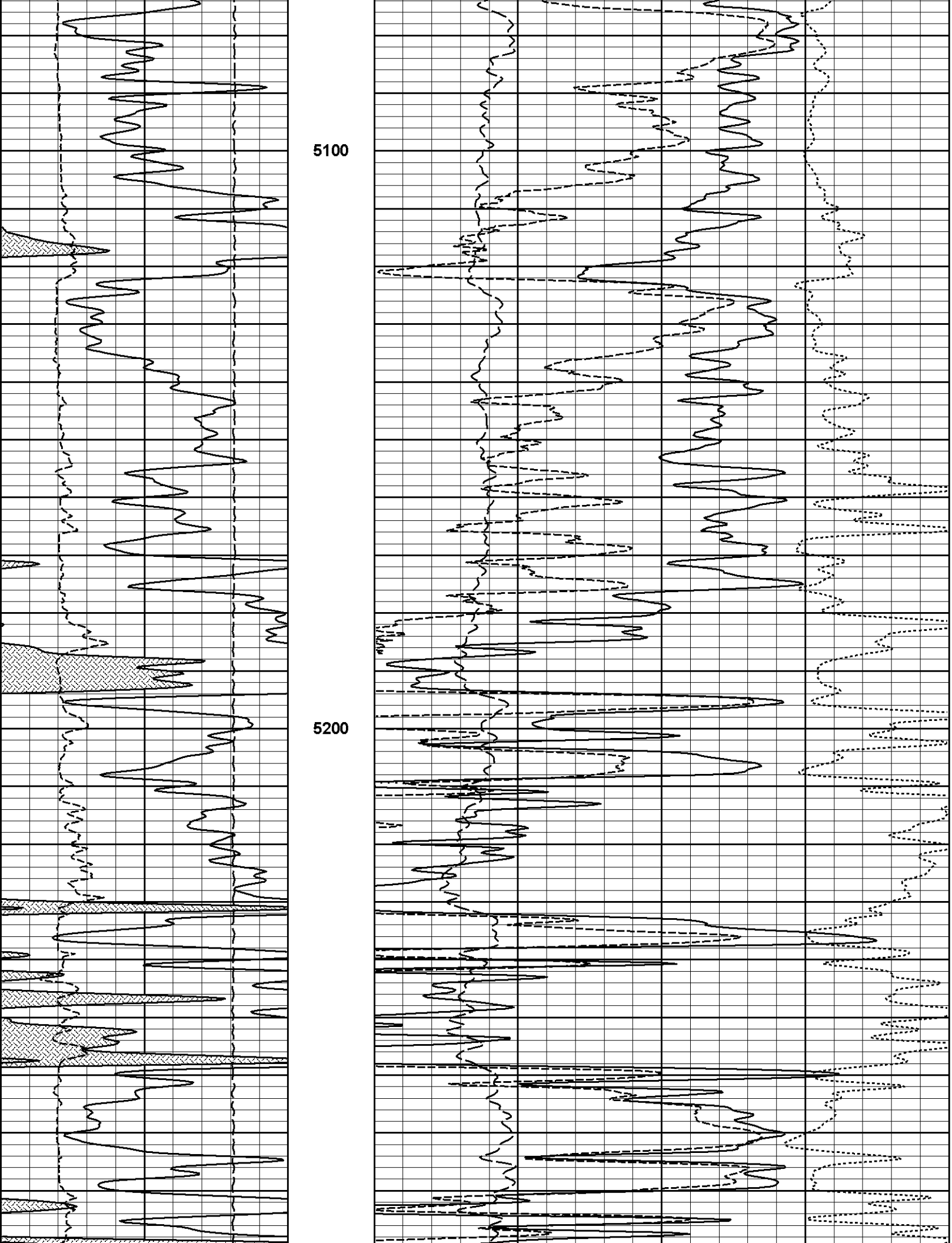
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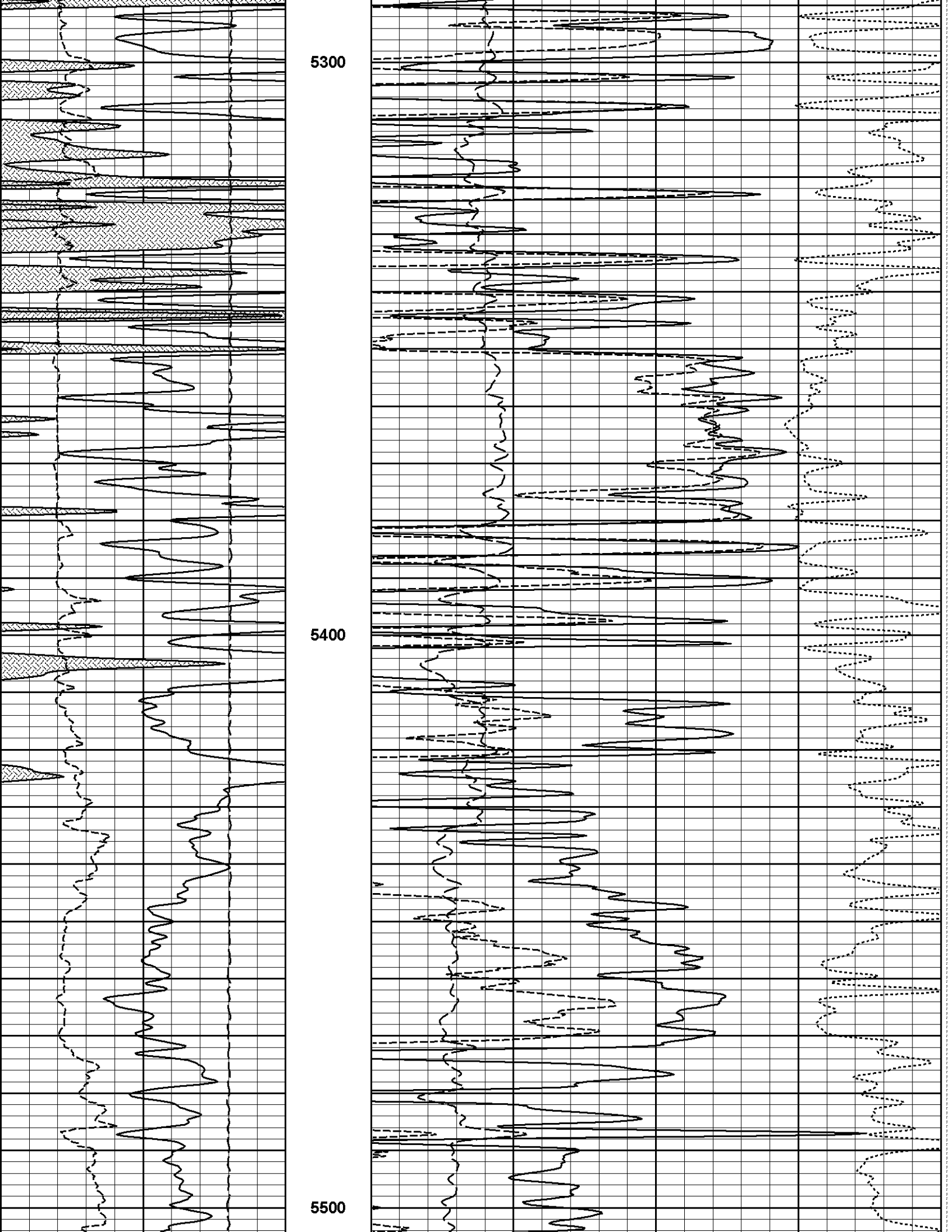
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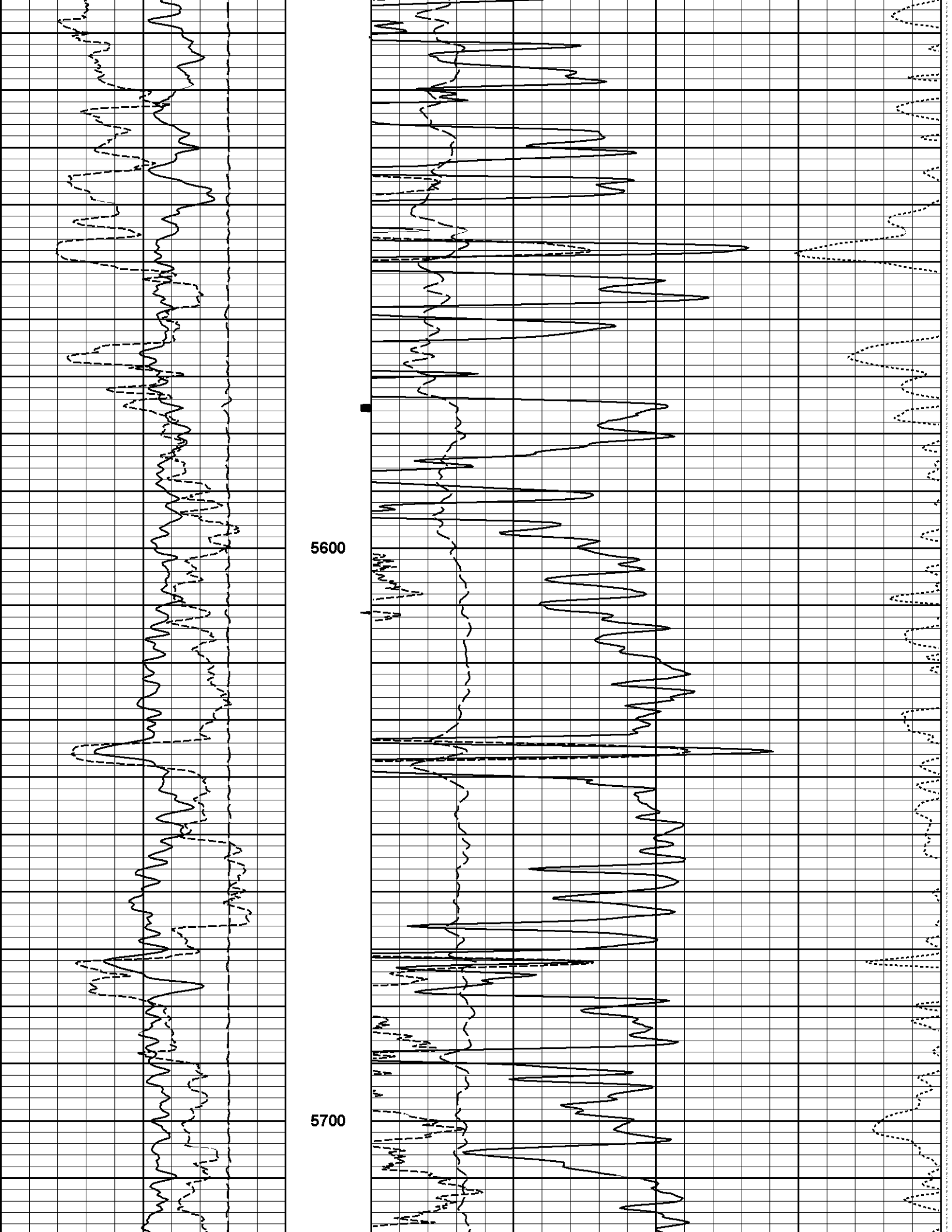
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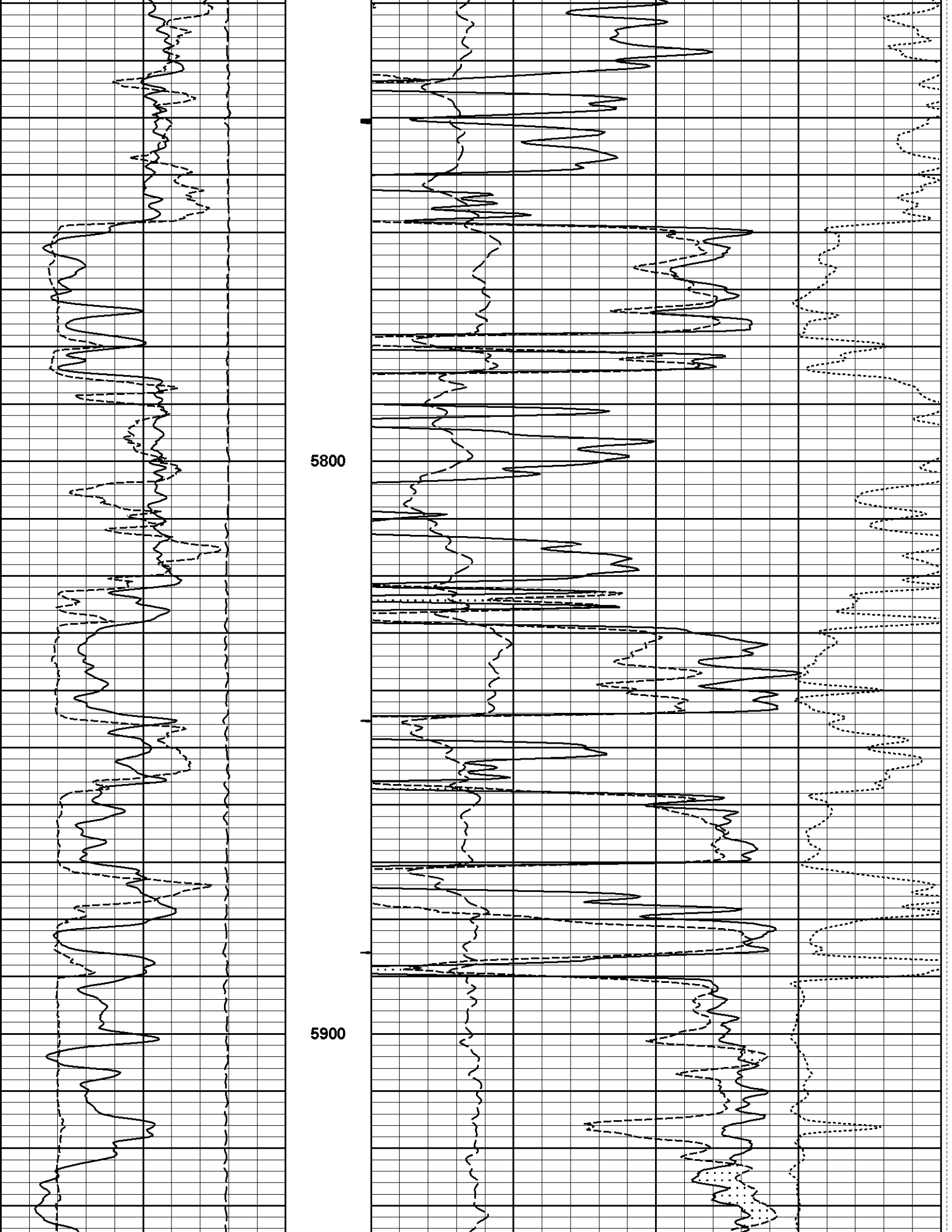
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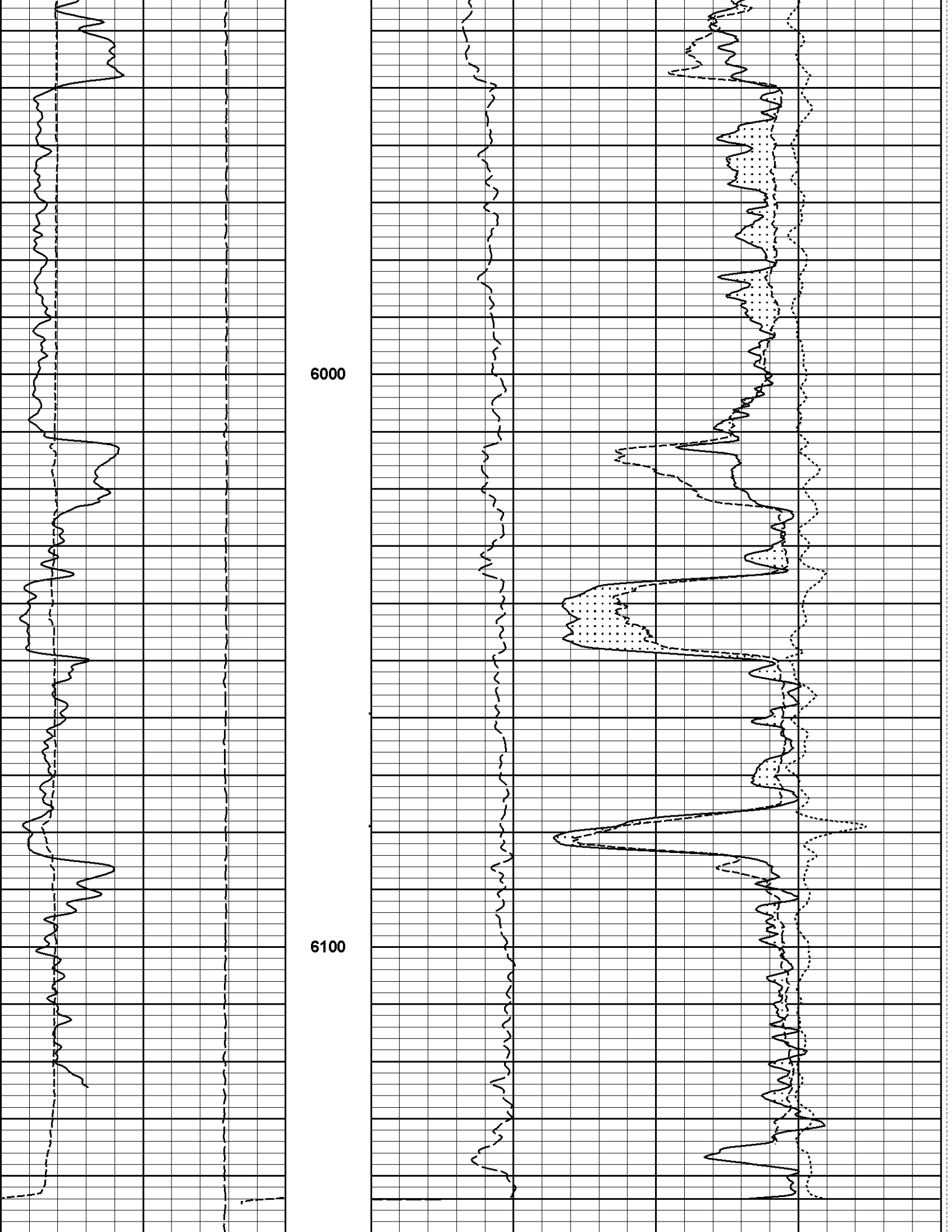
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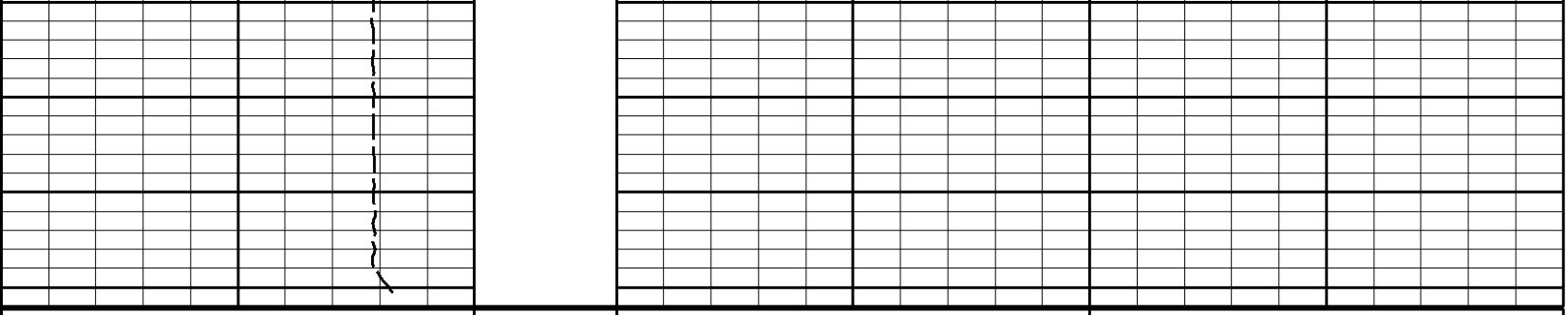


15K	Tens	0	10 Tension Pull 0	0	Pe	10	-0.25 DensityCorr 0.25
	pounds						gram per cc
6	Caliper	16		30	DensityPorosity	-10	
	inches				percent		
0	Gamma API	150		30	Neutron Porosity	-10	
	api				percent		

HALLIBURTON

Plot Time: 11-Dec-07 15:44:19
Plot Range: 3098 ft to 6182 ft
Data: CYNTHIA_35_1\Well Based*\
Plot File: \\PROOnm\PoroMicro_Stone

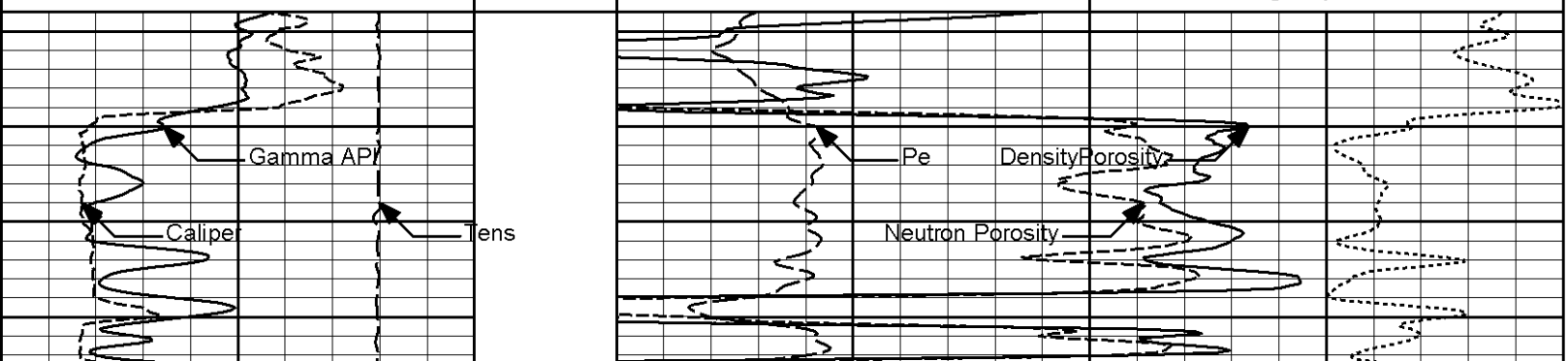
5 INCH MAIN LOG

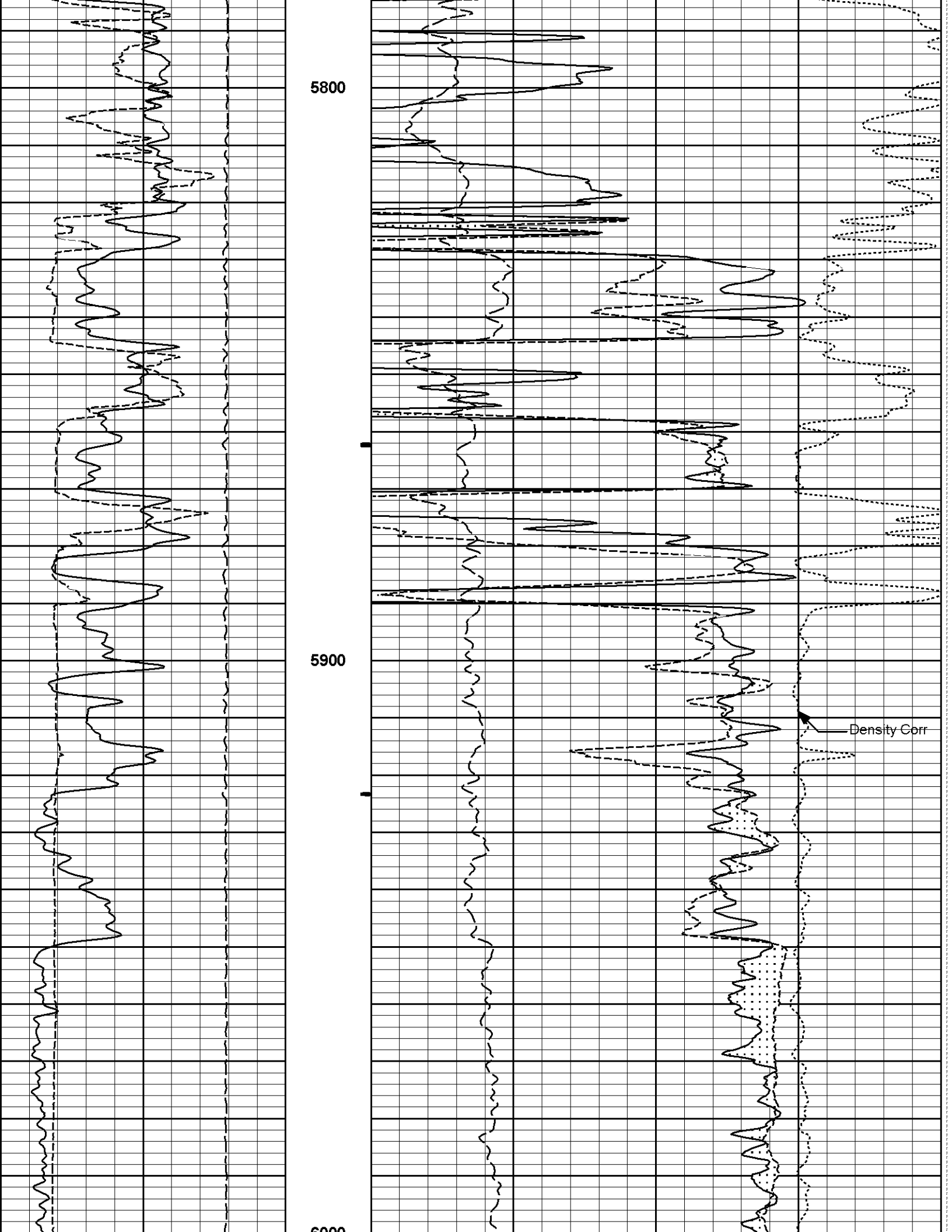
HALLIBURTON

Plot Time: 11-Dec-07 15:44:20
Plot Range: 5748 ft to 6186 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-002\
Plot File: \\PROOnm\PORO 5 RPT

5 INCH REPEAT

0	Gamma API	150		30	Neutron Porosity	-10	
	api				percent		
6	Caliper	16		30	DensityPorosity	-10	
	inches				percent		
15K	Tens	0	10 Tension Pull 0	0	Pe	10	-0.25 Density Corr 0.25
	pounds						gram per cc

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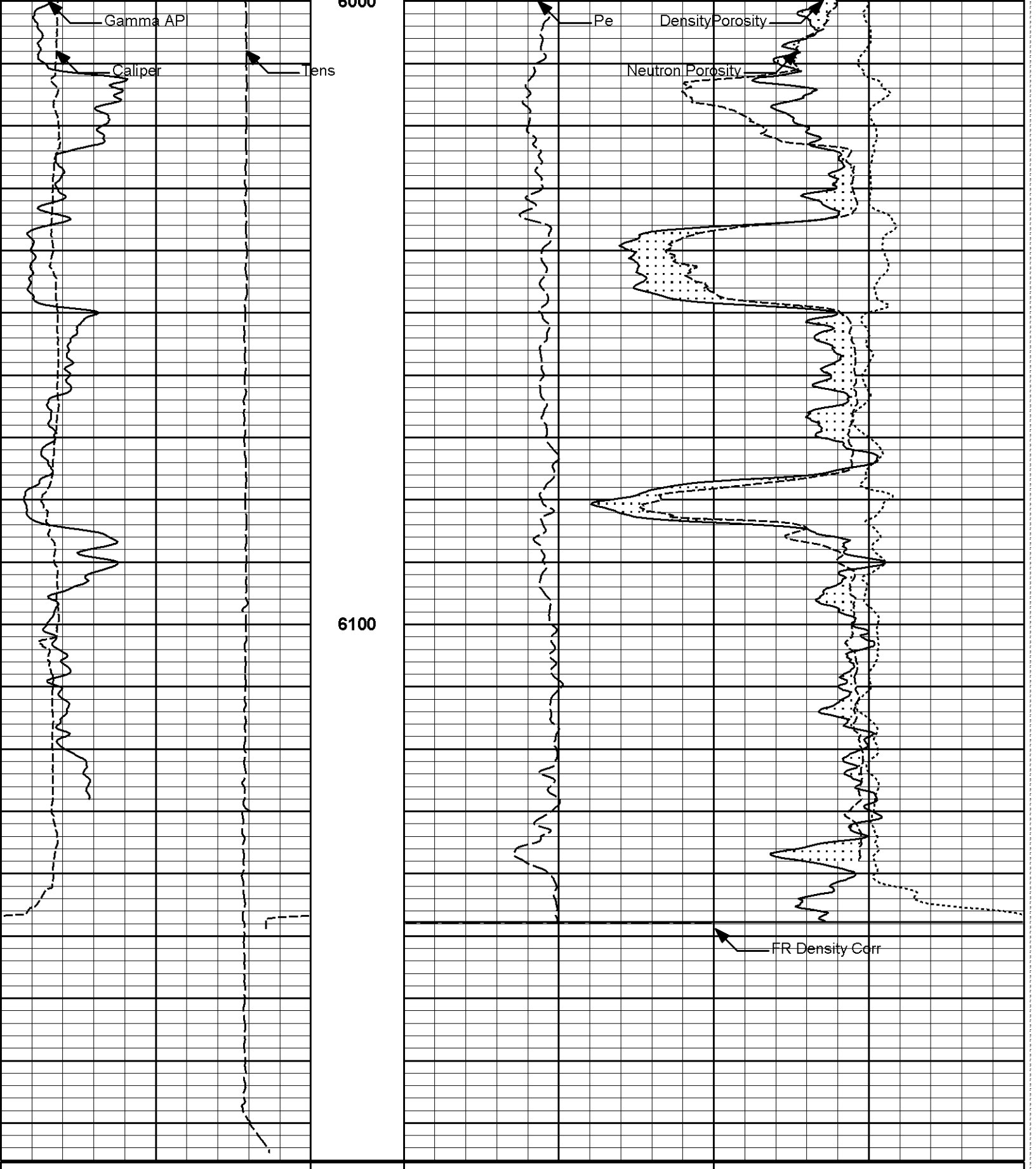
Density Corr



15K	Tens	0	Tension Pull	0	0	Pe	10	-0.25	Density Corr	0.25
	pounds								gram per cc	
6	Caliper	16			30	DensityPorosity	-10			
	inches					percent				
0	Gamma API	150			30	Neutron Porosity	-10			
	api					percent				

HALLIBURTON

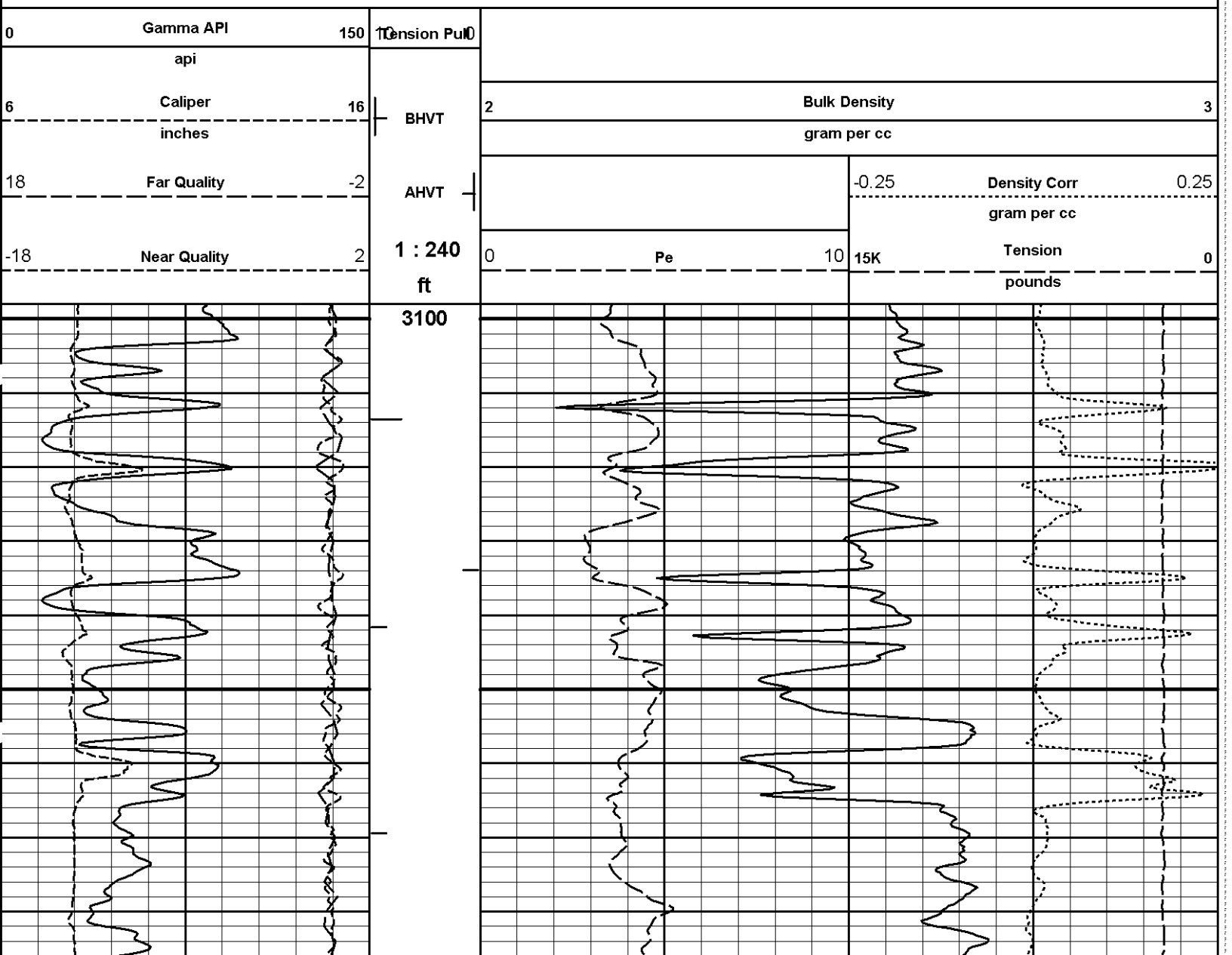
Plot Time: 11-Dec-07 15:44:21
Plot Range: 5748 ft to 6186 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-002\
Plot File: \\PROOnm\PORO 5 RPT

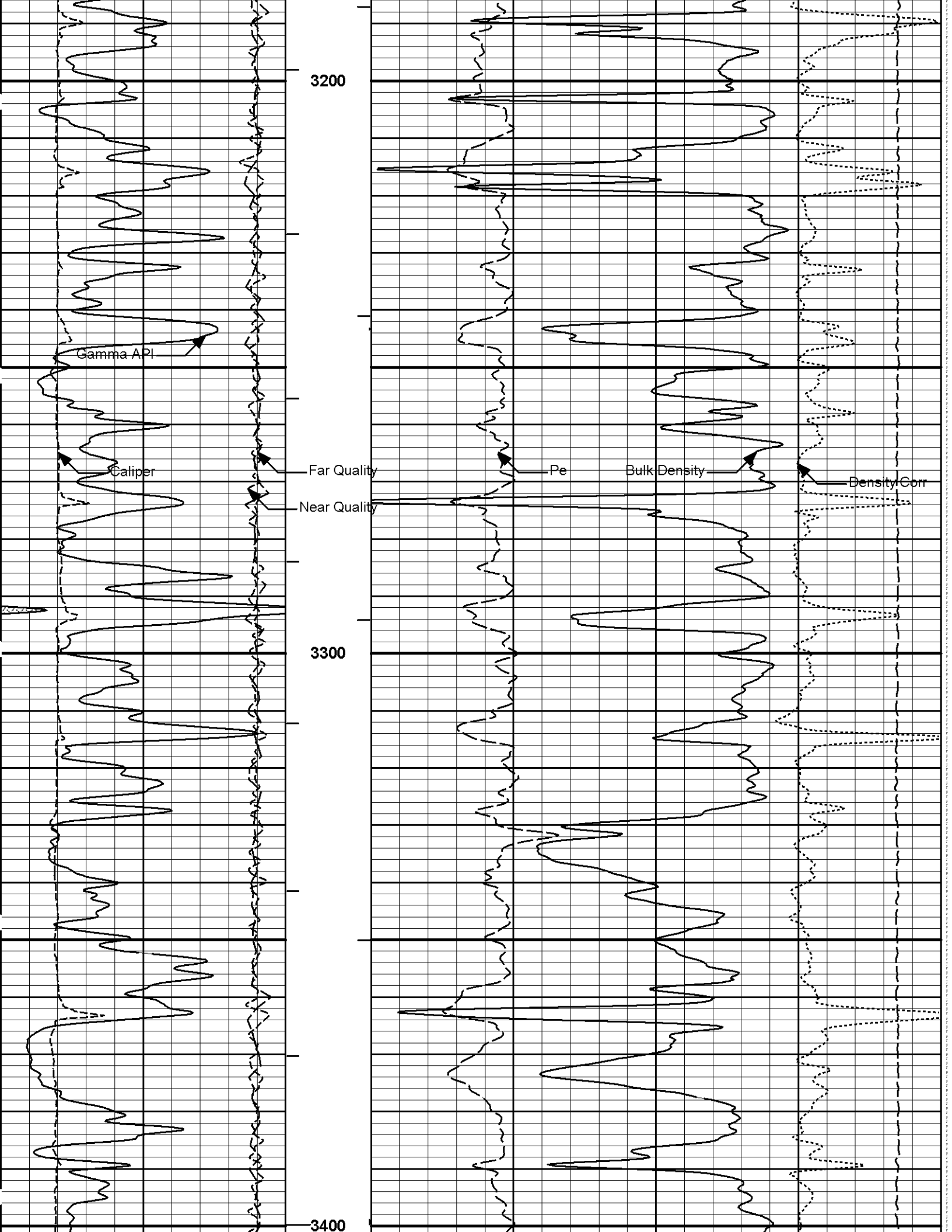
5 INCH REPEAT

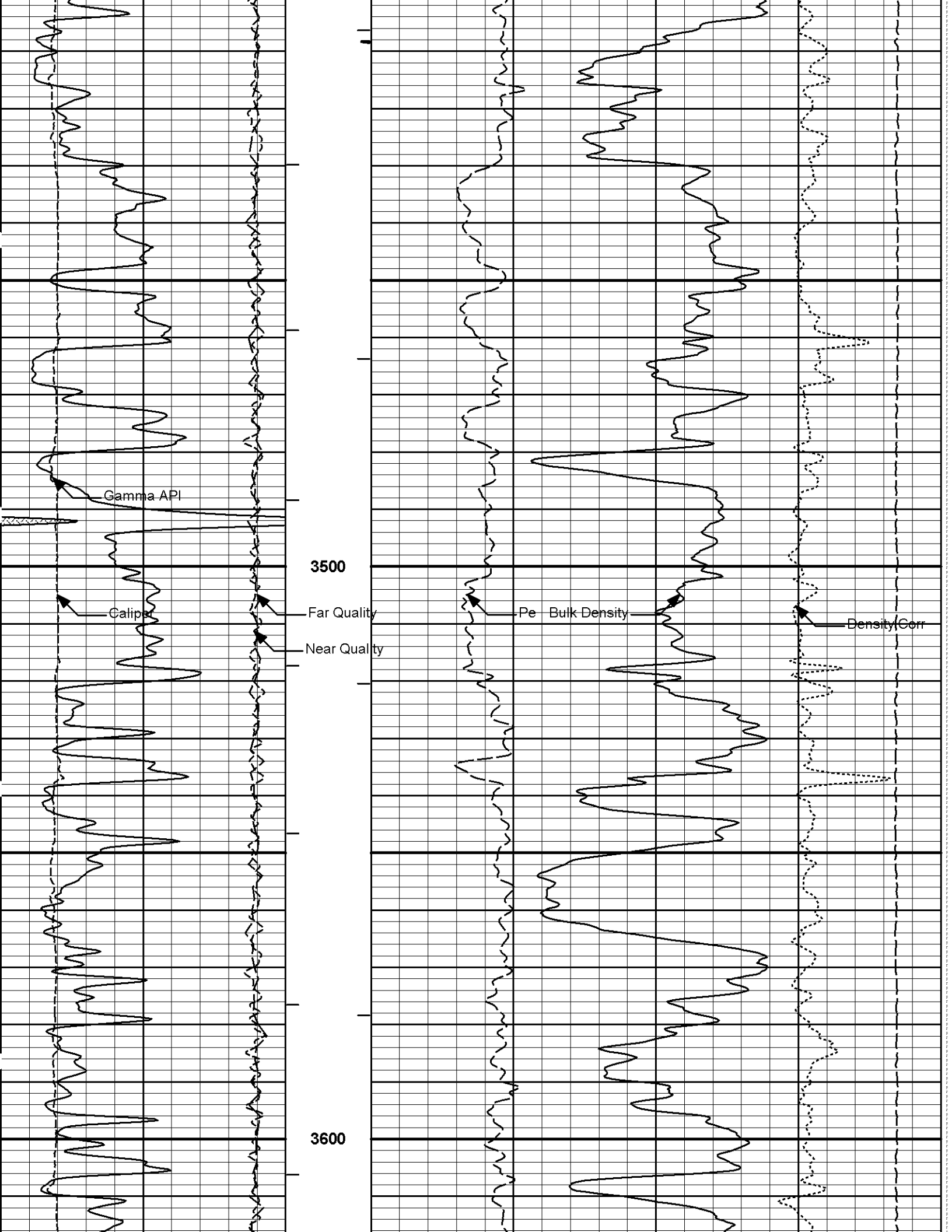
HALLIBURTON

Plot Time: 11-Dec-07 15:44:21
Plot Range: 3098 ft to 6182 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-003.01\
Plot File: \\PROOnm\Bulk_5inch_IQ_main

5 INCH MAIN LOG




3200
Gamma API
Caliper
Far Quality
Near Quality
Pe
Bulk Density
DensityCorr
3300
3400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Far Quality
Near Quality
Pe
Bulk Density
Density Corr
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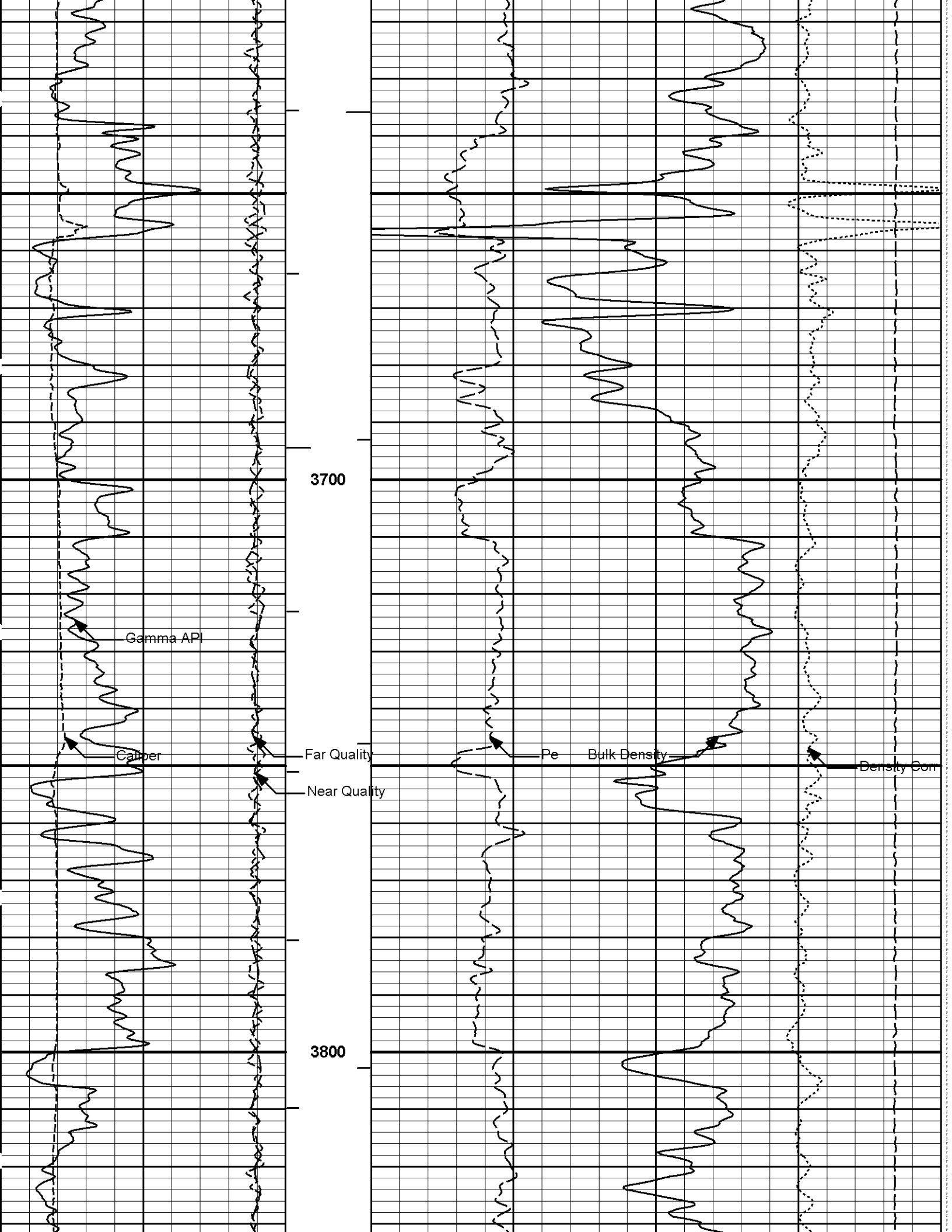
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Caliper
Far Quality
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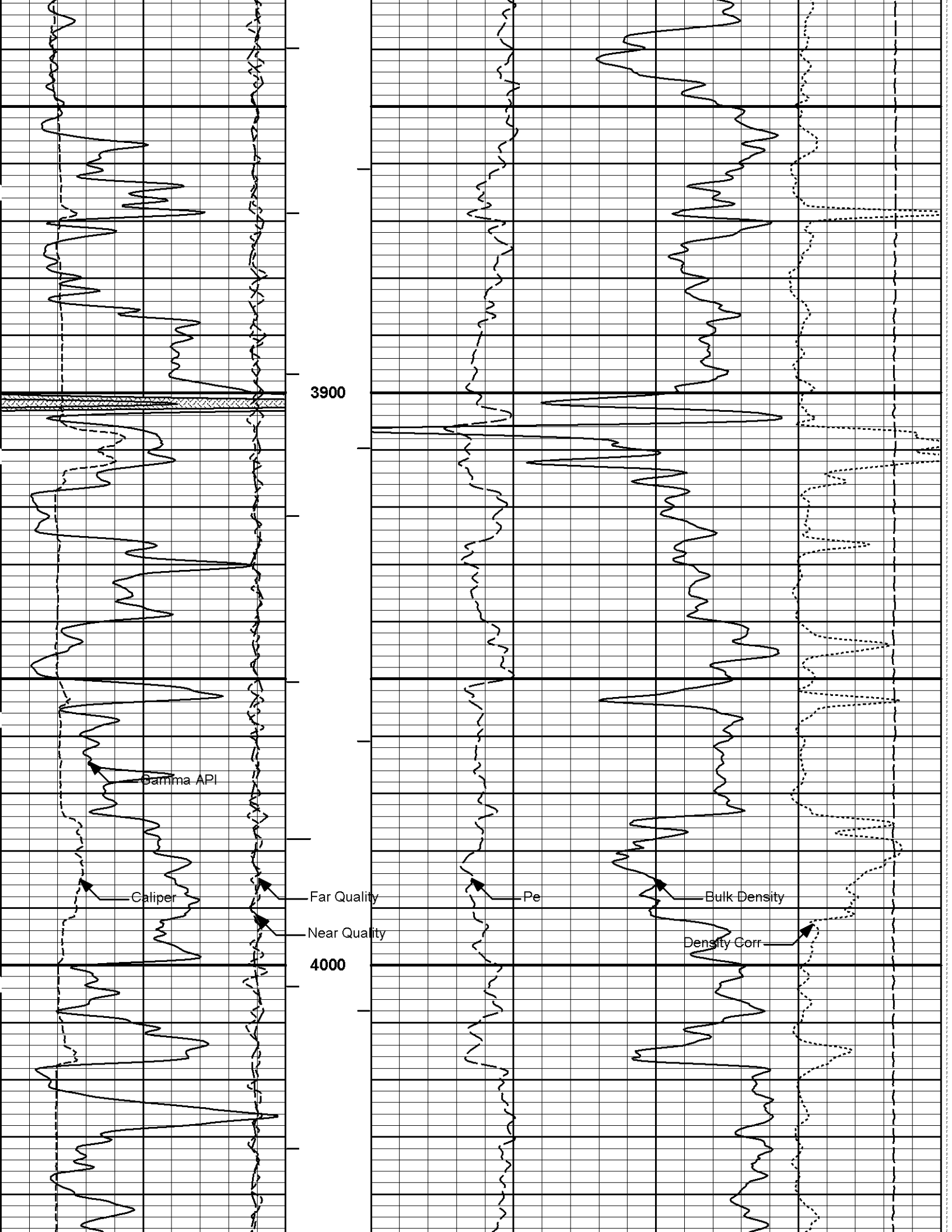
Pe
Bulk Density
Density Corr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Caliper
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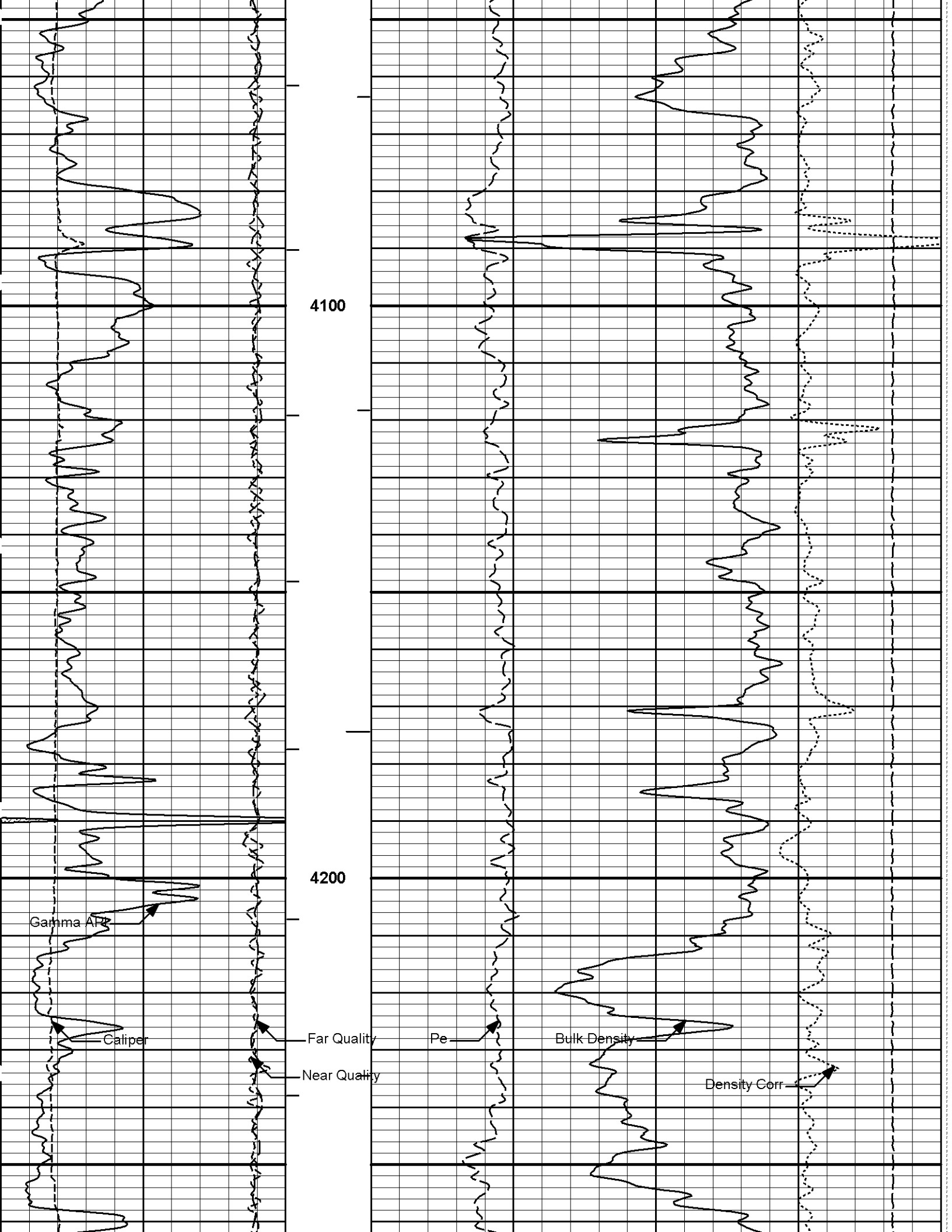
Near Quality
Pe
Bulk Density
Density Corr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Caliper
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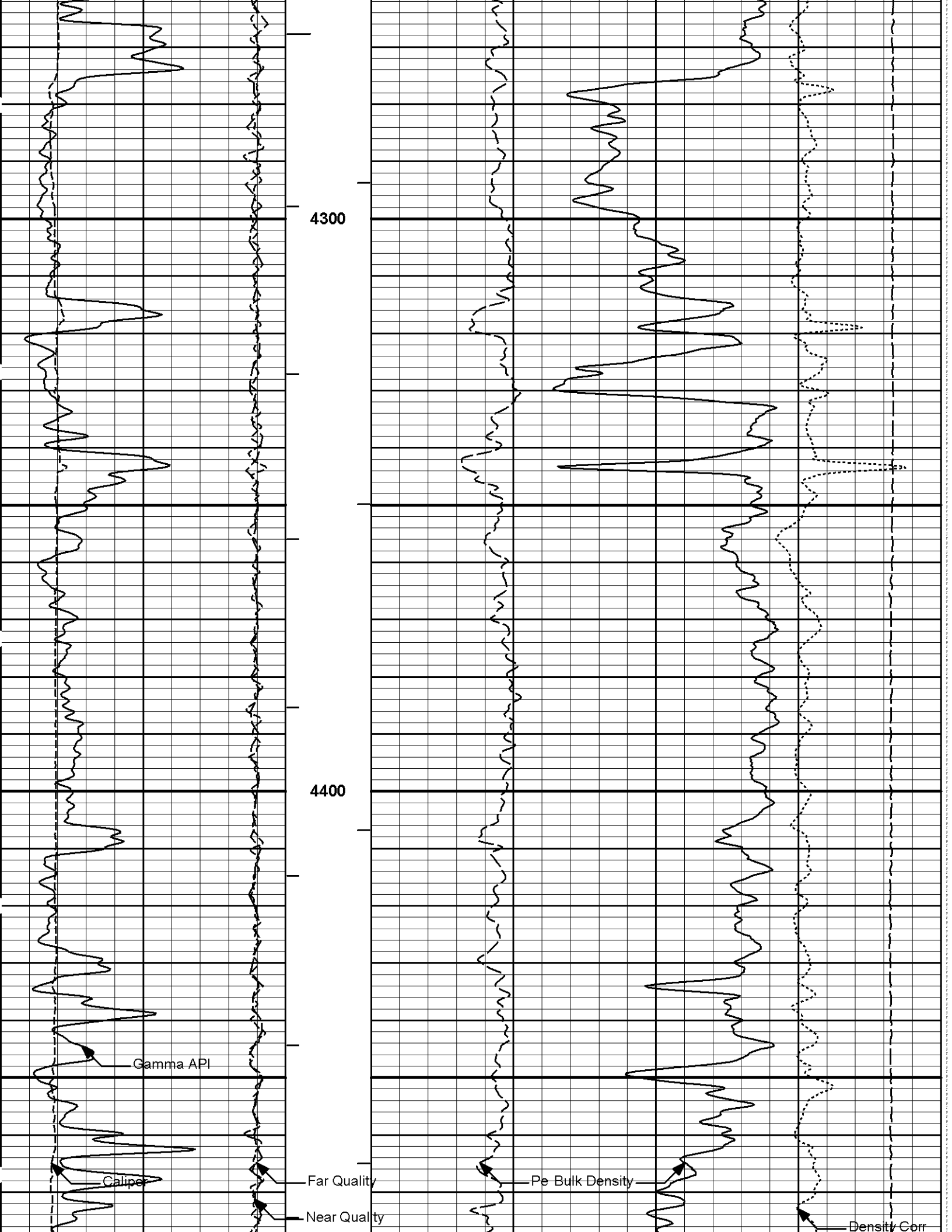
Near Quality
Pe
Bulk Density
Density Corr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Caliper
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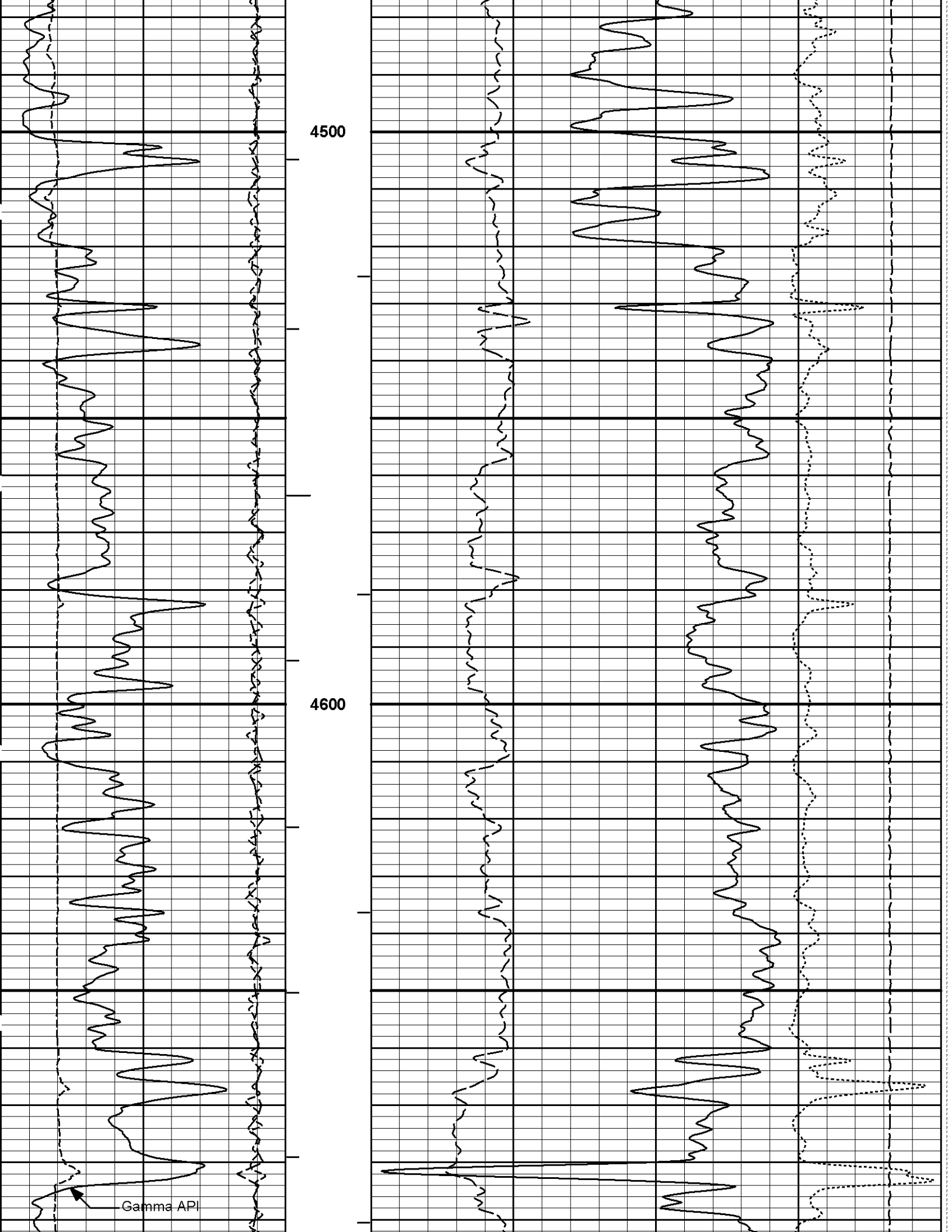
Pe Bulk Density
Density Corr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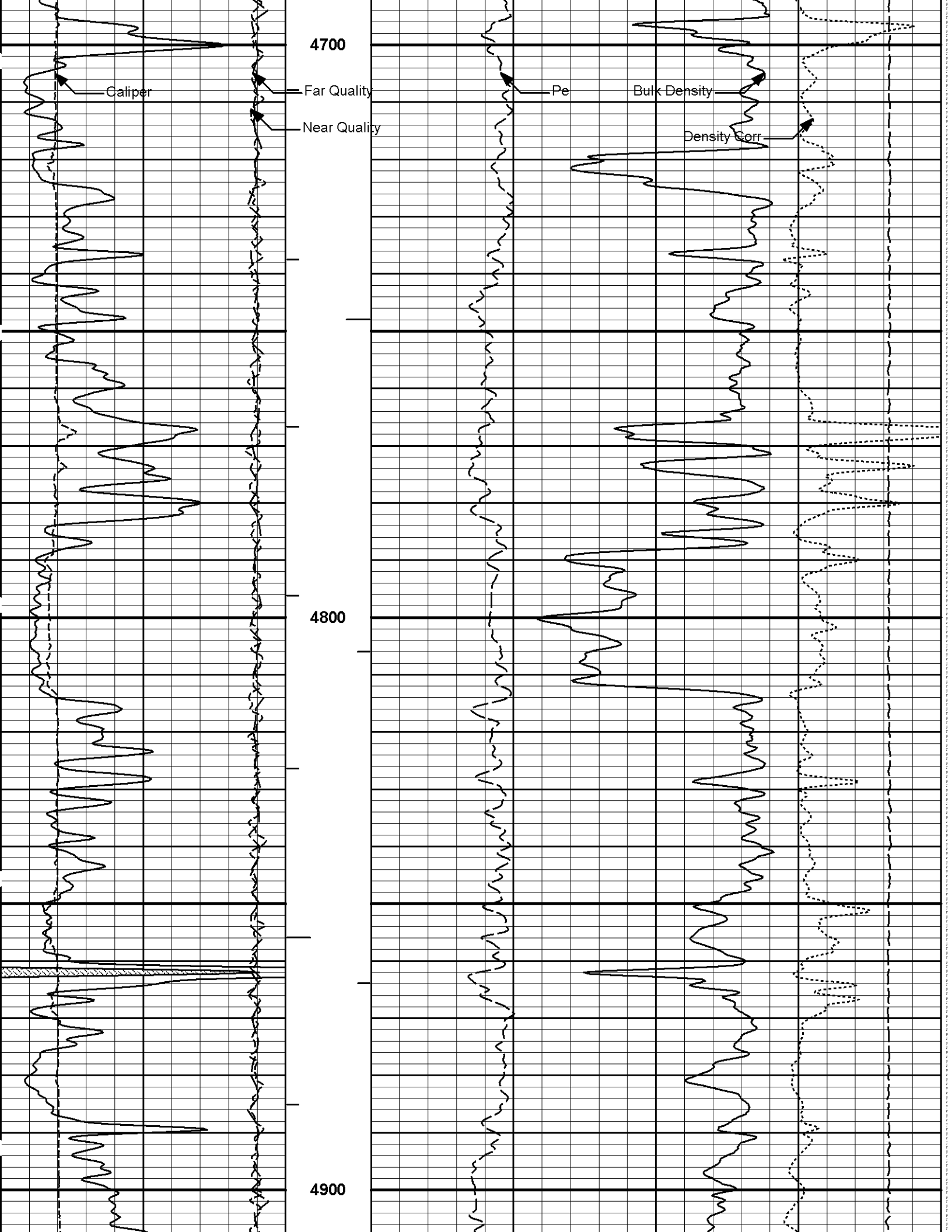
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Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
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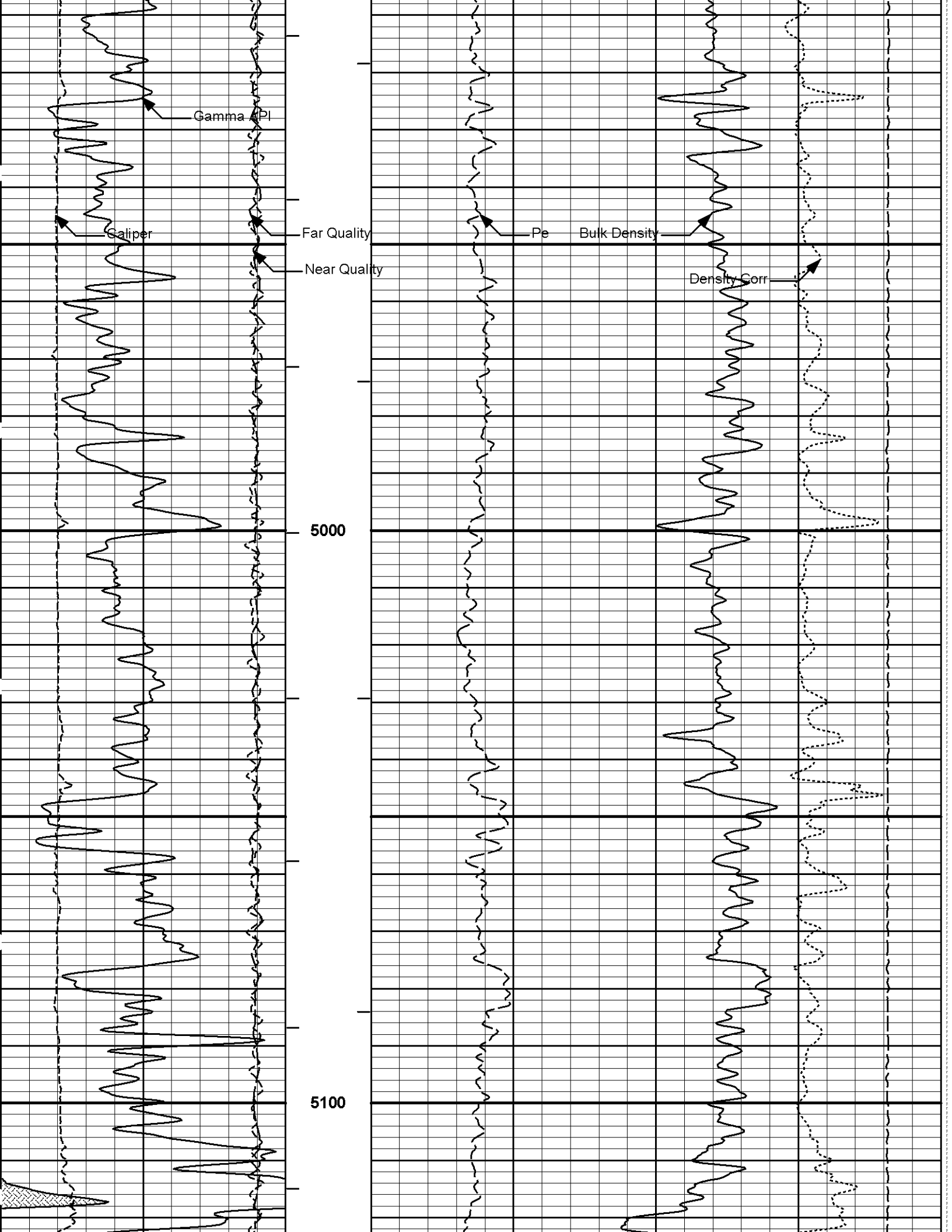
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Bulk Density
Density Corr
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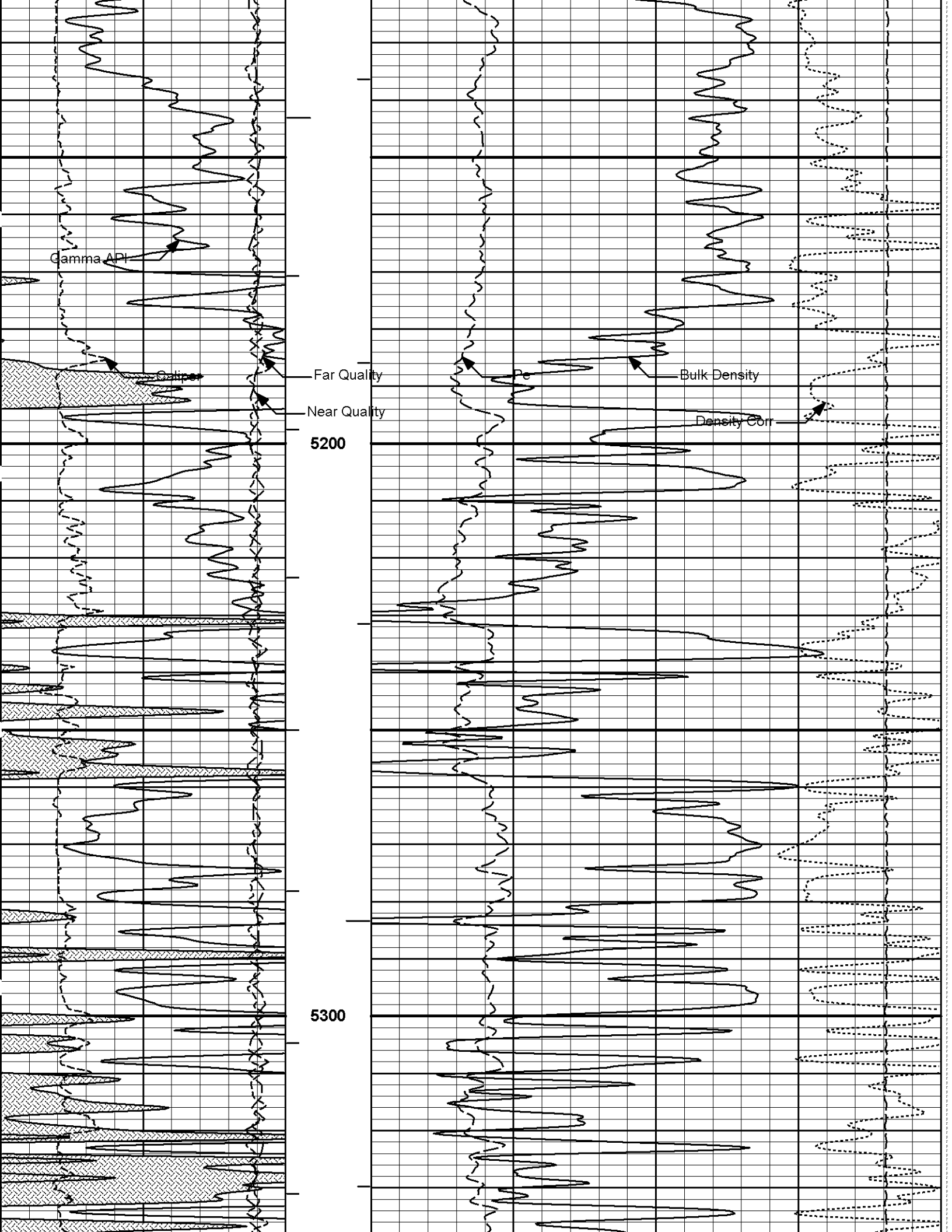
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Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
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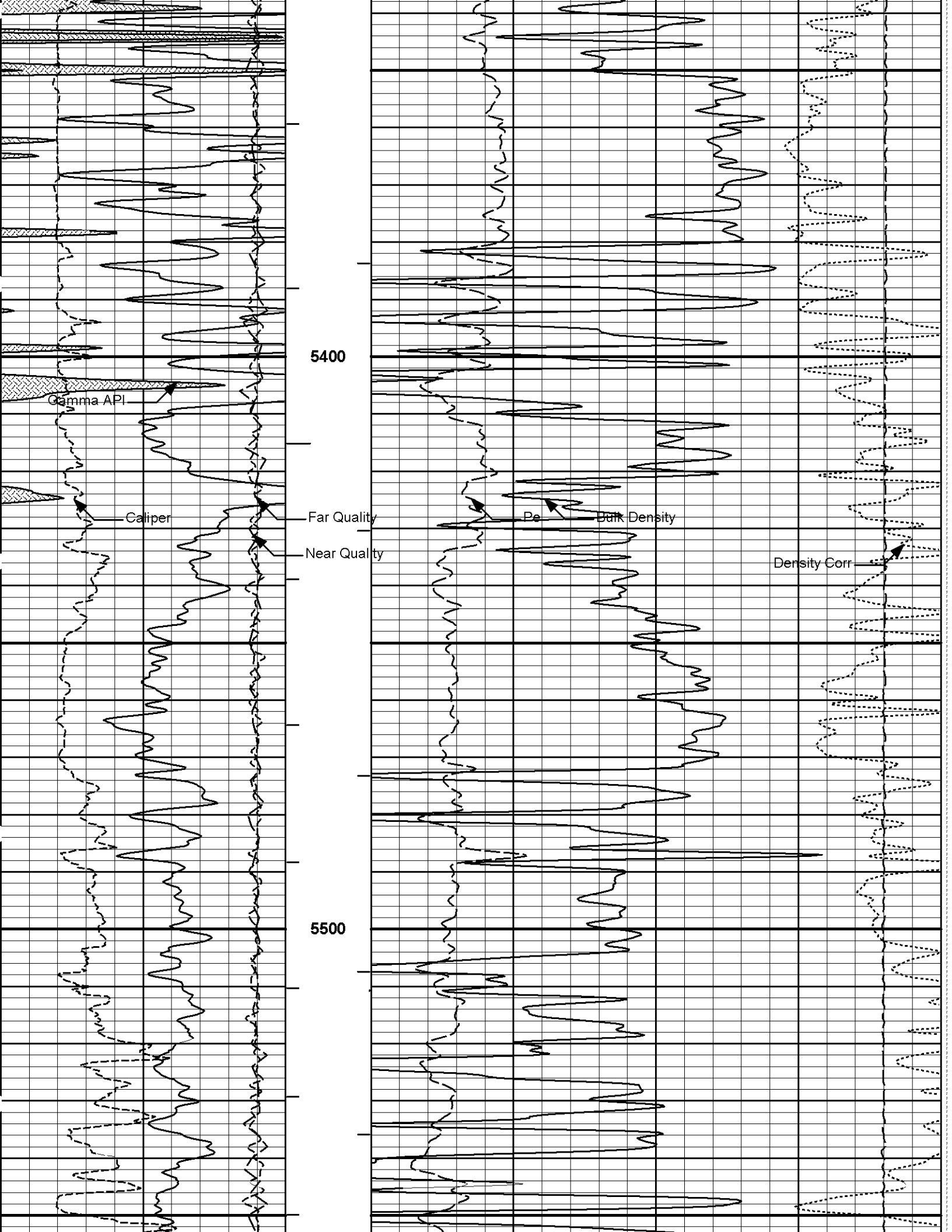
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Gamma API
Caliper
Far Quality
Near Quality
Pe
Bulk Density
Density Corr
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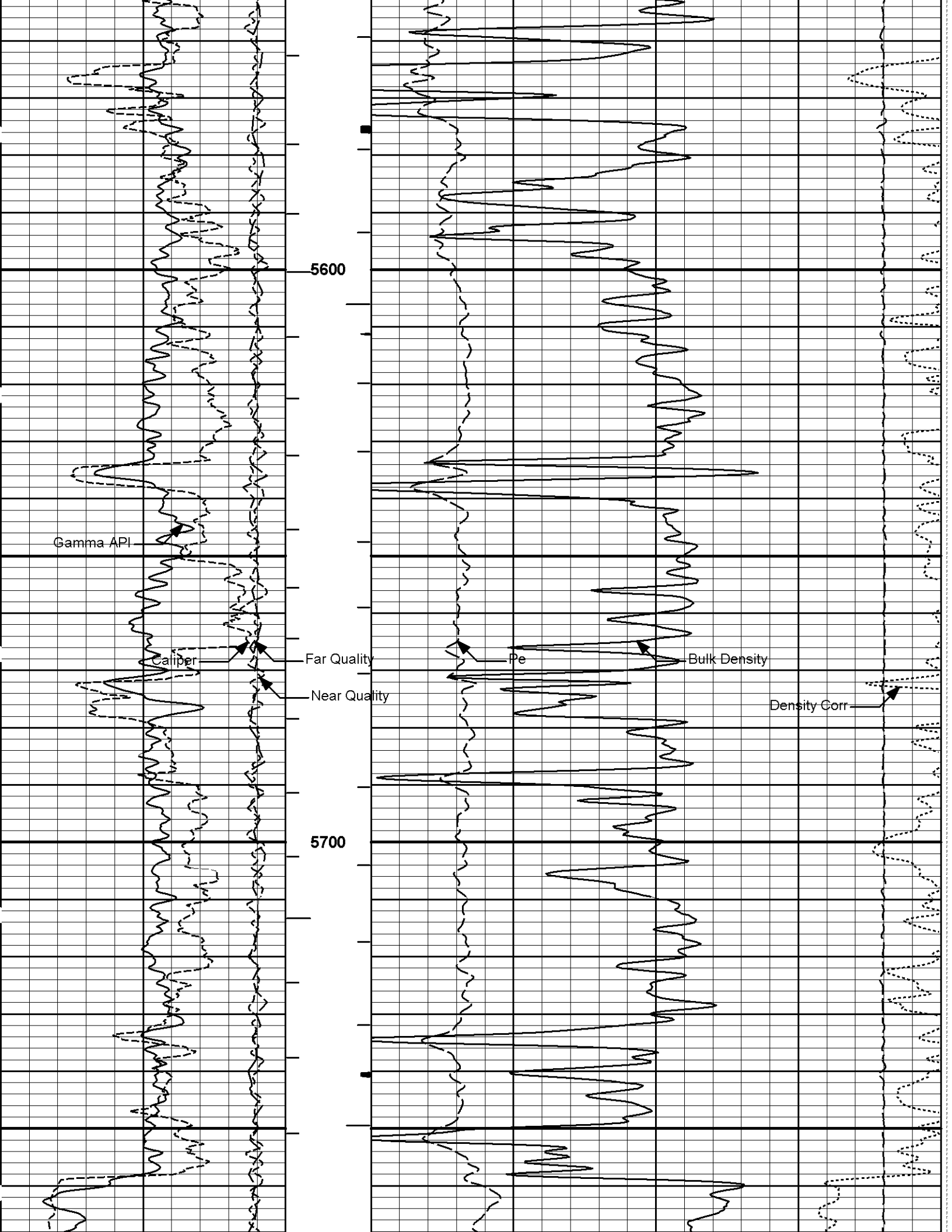
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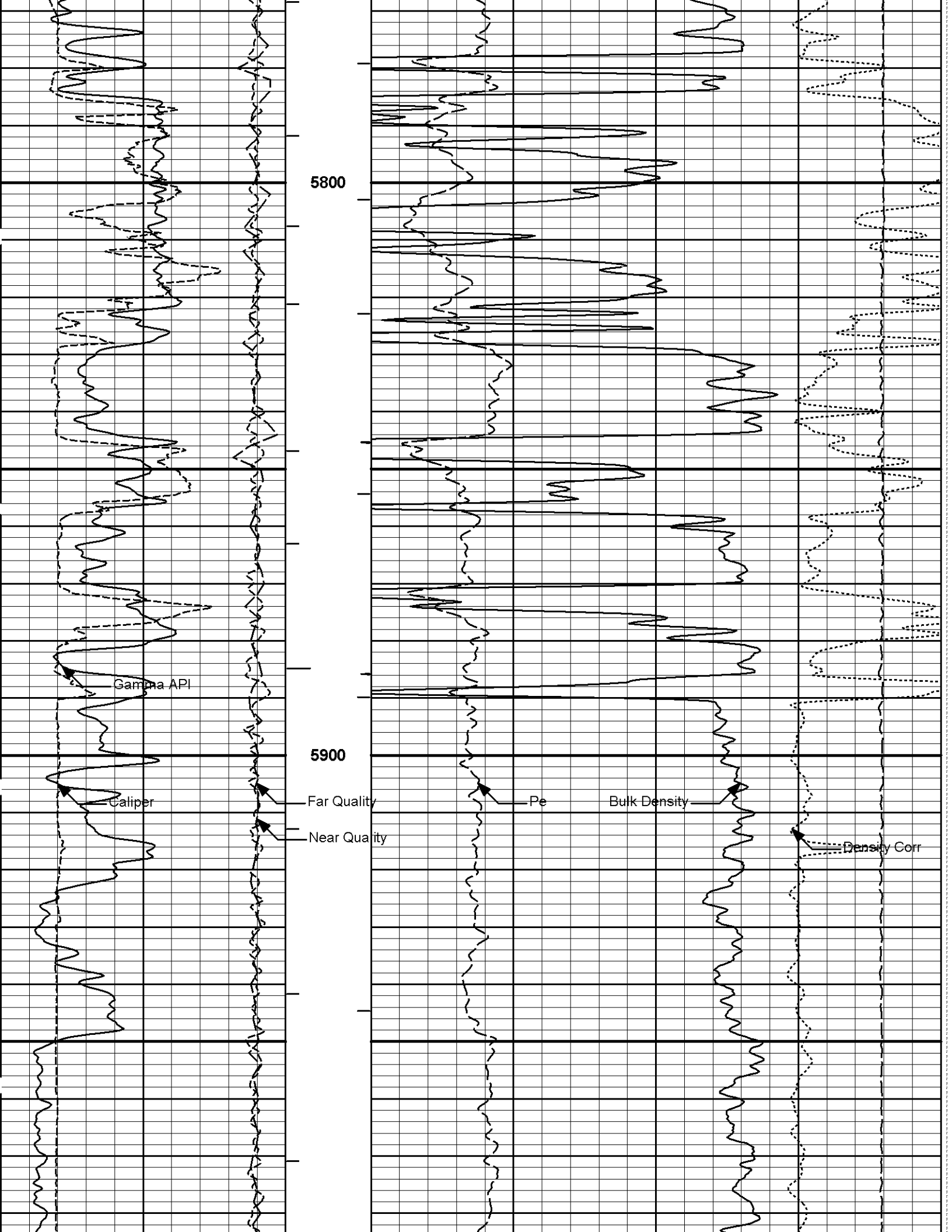
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Caliper
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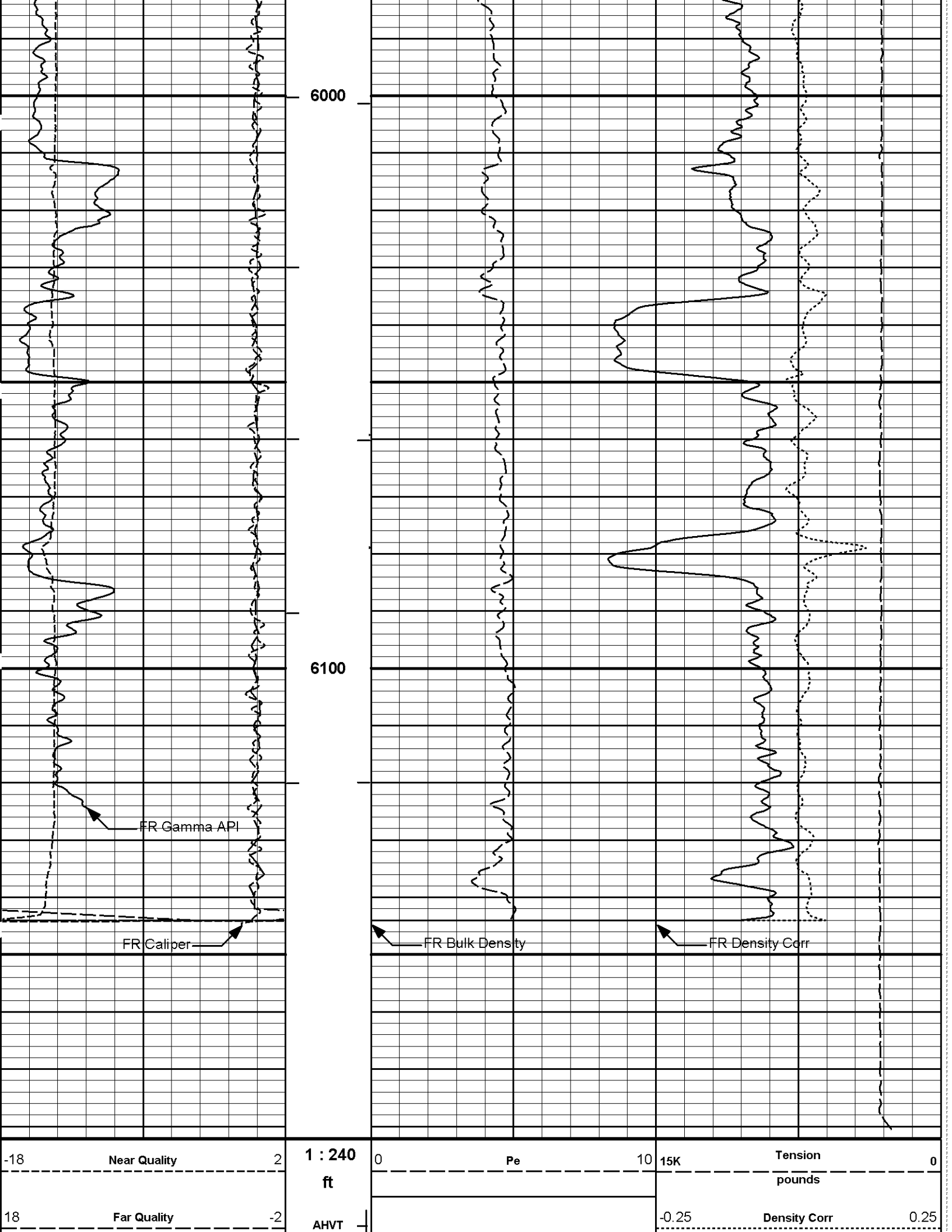
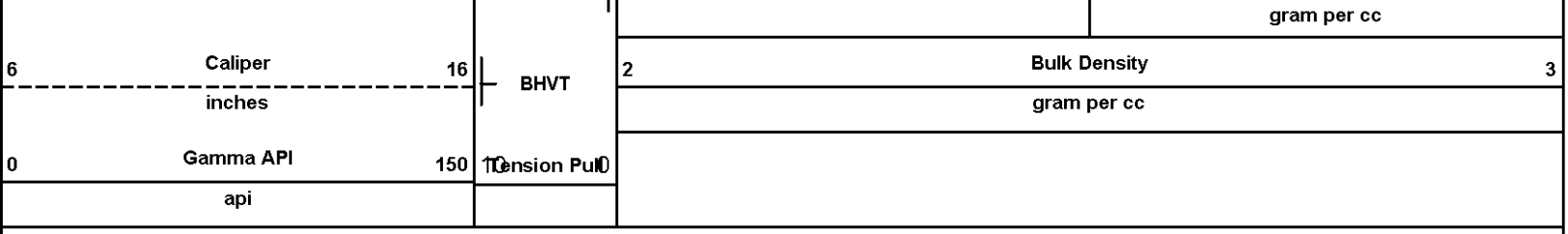
Bulk Density
Density Corr


6000
6100
FR Gamma API
FR Caliper
FR Bulk Density
FR Density Corr
-18
Near Quality
2
18
Far Quality
-2
1 : 240
ft
AHVT
0
Pe
10
15K
Tension
pounds
0
-0.25
Density Corr
0.25



HALLIBURTON

Plot Time: 11-Dec-07 15:44:26
Plot Range: 3098 ft to 6182 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-003.01\
Plot File: \\PROOnm\Bulk_5inch_IQ_main

5 INCH MAIN LOG

HALLIBURTON

Plot Time: 11-Dec-07 15:44:26
Plot Range: 5748 ft to 6186 ft
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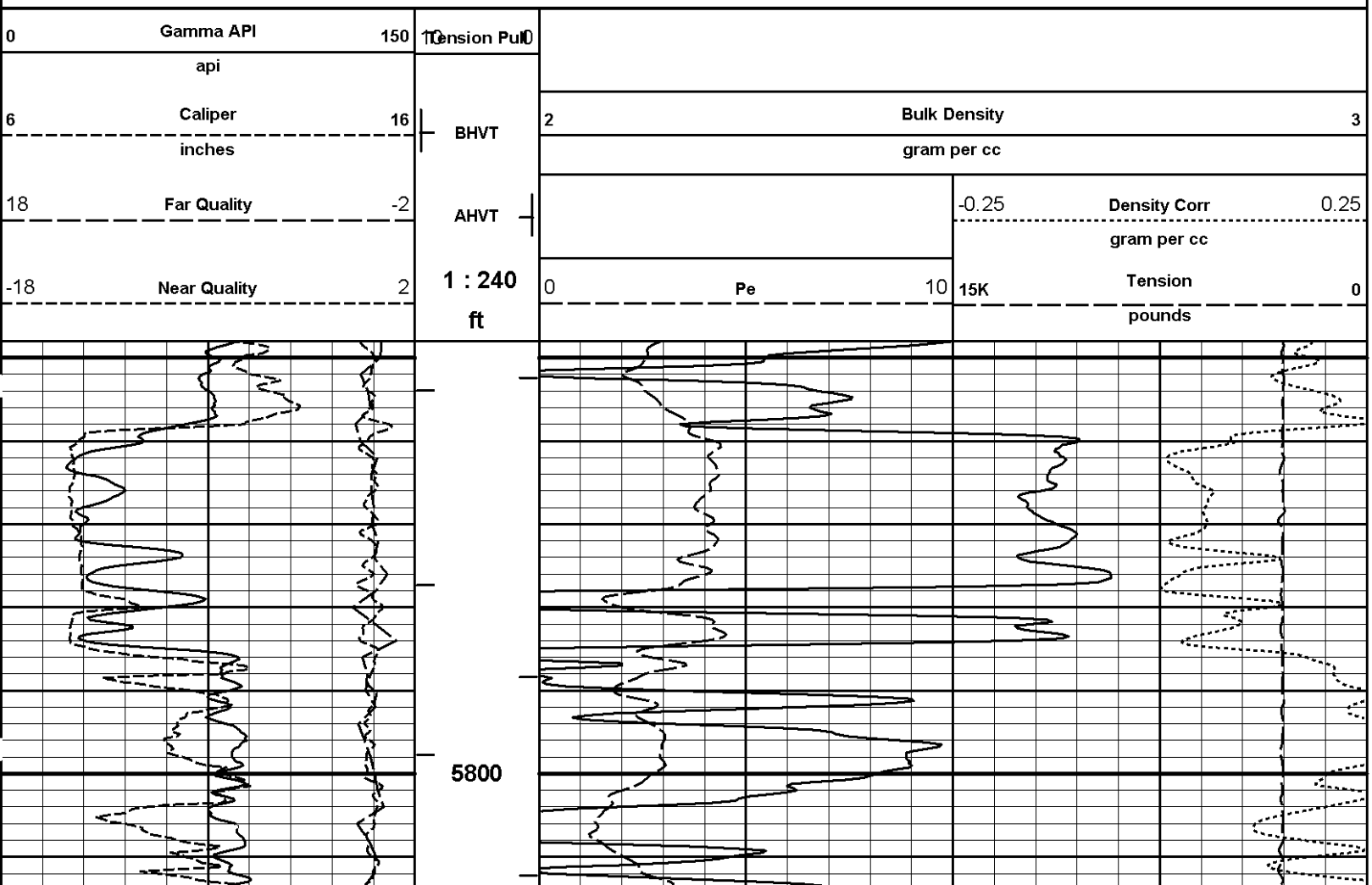
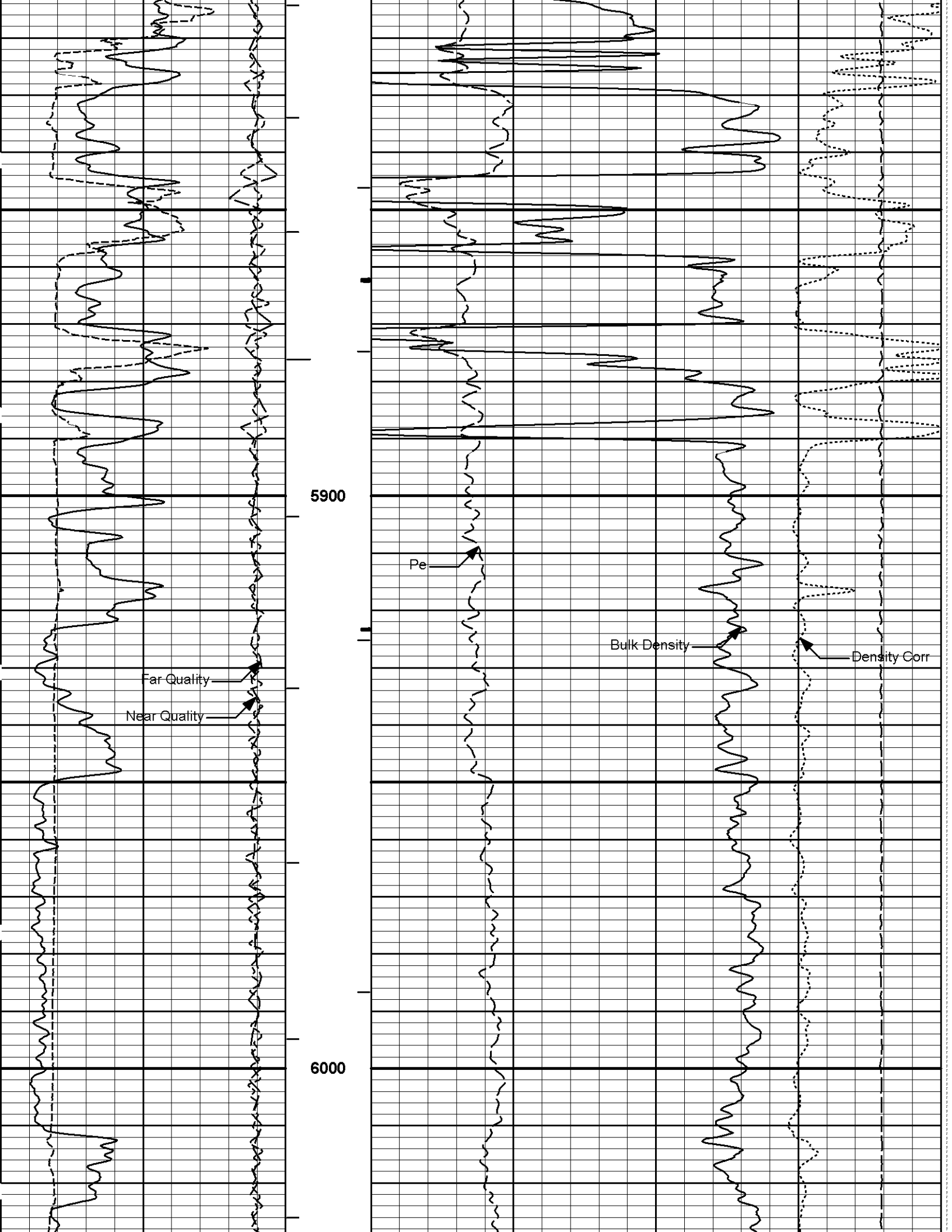
5 INCH REPEAT PASS

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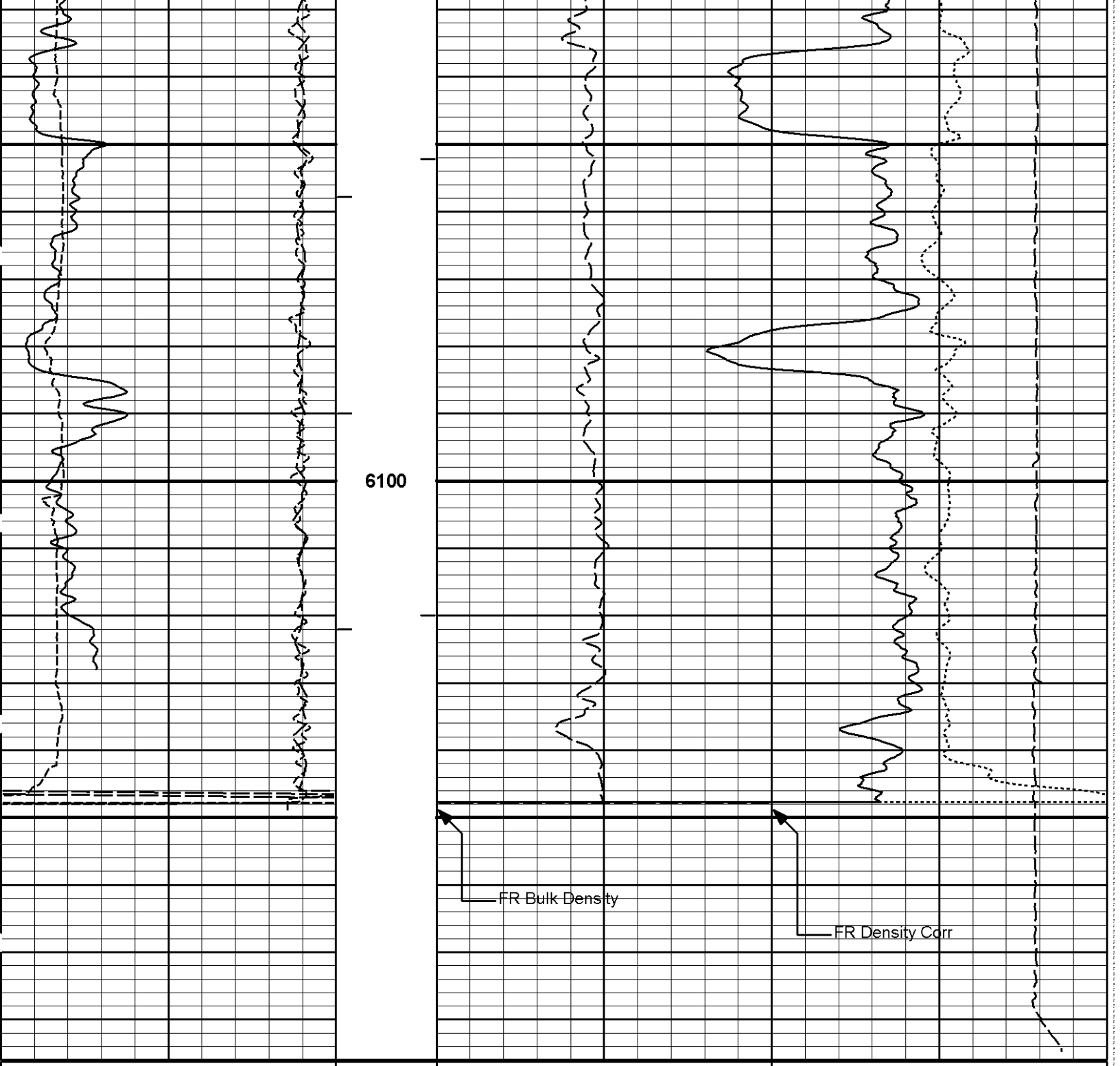
Pe
Bulk Density
Density Corr
Far Quality
Near Quality



-18 Near Quality 2	1 : 240 ft	0 Pe 10	15K Tension 0	pounds
18 Far Quality -2	AHVT		-0.25 Density Corr 0.25	gram per cc
6 Caliper 16	BHVT	2 Bulk Density 3		gram per cc
0 Gamma API 150	Tension Pull 0			
api				

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Plot Time: 11-Dec-07 15:44:28
Plot Range: 5748 ft to 6186 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-002\
Plot File: \\PROOnm\Bulk_5inch_IQ_rpt

5 INCH REPEAT PASS

HALLIBURTON

PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDWT	Borehole Fluid Weight	9.200	ppg
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	SHARED	OBM	Oil Based Mud System?	No	
	SHARED	CSD	Logging Interval is Cased?	No	
	SHARED	ICOD	AHV Casing OD	5.500	in
	SHARED	ST	Surface Temperature	75.0	degF
	SHARED	TD	Total Well Depth	6180.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	Rwa / CrossPlot	XPOK	Process Crossplot?	Yes	
	Rwa / CrossPlot	FCHO	Select Source of F	Automatic	
	Rwa / CrossPlot	AFAC	Archie A factor	0.6200	
	Rwa / CrossPlot	MFAC	Archie M factor	2.1500	
	Rwa / CrossPlot	RMFR	Rmf Reference	0.10	ohmm
	Rwa / CrossPlot	TMFR	Rmf Ref Temp	75.00	degF
	Rwa / CrossPlot	RWA	Resistivity of Formation Water	0.05	ohmm
	GTET	GROK	Process Gamma Ray?	Yes	
	GTET	GRSO	Gamma Tool Standoff	0.000	in
	GTET	GEOK	Process Gamma Ray EVR?	No	
	DSNT	DNOK	Process DSN?	Yes	
	DSNT	DEOK	Process DSN EVR?	No	
	DSNT	NLIT	Neutron Lithology	Limestone	
	DSNT	DNSO	DSN Standoff - 0.25 in (6.35 mm) Recommended	0.250	in
	DSNT	DNTP	Temperature Correction Type	None	
	DSNT	DPRS	DSN Pressure Correction Type	None	
	DSNT	SHCO	View More Correction Options	No	
	DSNT	UTVD	Use TVD for Gradient Corrections?	No	
	DSNT		Logging Horizontal Water Tank?	No	
	SDLT	DNOK	Process Density?	Yes	
	SDLT	DNOK	Process Density EVR?	No	
	SDLT	AD	Is Hole Air Drilled?	No	
	SDLT	CB	Use Calibration Blocks?	No	
	SDLT	SPVT	SDLT Pad Temperature Valid?	Yes	
	SDLT	DTWN	Disable temperature warning	No	
	SDLT	MDTP	Weighted Mud Correction Type?	None	

SDLT	DMA	Formation Density Matrix	2.710	g/cc
SDLT	DFL	Formation Density Fluid	1.000	g/cc
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT	MLOK	Process MicroLog Outputs?	Yes	
ISAT	ISOK	Compute ISAT Results?	Yes	
ISAT	ISFL	ISAT Semblance Filter Range	17 - 30 KHz	
ISAT	SEMS	Semblance Sensitivity	Standard	
ISAT	DTFL	Delta -T Fluid	189.00	uspf
ISAT	DTMT	Delta -T Matrix Type	User define	
ISAT	DTMA	Delta -T Matrix	47.60	uspf
ISAT	DTSH	Delta -T Shale	100.00	uspf
ACRt	RTOK	Process ACRt?	Yes	
ACRt	CIND	Casing Indicator Enabled?	Yes	
ACRt	RECE	Relative Caliper Error	0	%
ACRt	MNSO	Minimum Tool Standoff	1.50	in
ACRt	RMC	Use RM Calculated for BHC?	No	
ACRt	LTNM	Acrt Lateral Normalization	None	
ACRt	UTC	Use Temperature Correction	Yes	
ACRt	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
ACRt	TPOS	Tool Position	Standoff	
ACRt	BHCM	Borehole Compensation Type	Conventional	
ACRt	RMIN	Minimum Resistivity for MAP	0.20	ohmm
ACRt	RMIN	Maximum Resistivity for MAP	200.00	ohmm

BOTTOM

Data: CYNTHIA_35_1\0002 RED QUAD\003 10-Dec-07 22:17 Up @6181.8f **Date: 10-Dec-07 22:51:16**

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CALIBRATION REPORT

SURFACE TENSION SHOP CALIBRATION

Tool Name: Depth Panel - PROT01 **Reference Calibration Date:** 10-Jun-07 23:10:25

Engineer: GUTHMUELLER **Calibration Date:** 30-Aug-07 03:28:11

Software Version: WL INSITE R2.0 (Build 5) **Calibration Version:** 1

SURFACE TENSION LOAD CELL

Measurement	Load Cell Value	Measurement	Calibrated	Units
Low	417.04	171.53	0.00	lbs
High	1357.13	6935.92	6750.00	lbs

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 11005603 **Reference Calibration Date:** 07-Nov-07 16:05:29

Engineer: STONE **Calibration Date:** 08-Dec-07 12:25:14

Software Version: WL INSITE R2.0 (Build 19) **Calibration Version:** 1

Calibrator Source S/N: 117

Calibrator API Reference:220.00 api

Measurement	Measured	Calibrated	Units
Background	49.1	50.9	api
Background + Calibrator	261.7	270.9	api
Calibrator	221.7	220.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name:	**GTET - 11005603**	**Reference Calibration Date:**	**08-Dec-07 12:25:14**
Engineer:	**STONE**	**Calibration Date:**	**09-Dec-07 19:46:03**
Software Version:	**WL INSITE R2.0 (Build 19)**	**Calibration Version:**	**1**

Calibrator Source S/N: 117

Calibrator API Reference:220.00 api

Field Verification	Shop	Field	Units
Background	50.9	45.7	api
Background + Calibrator	270.9	262.7	api
Calibrator	220.0	217.0	api

Shop	Field	Difference	Tolerance
220.0	217.0	3.0	+/- 9.0

ACCELEROMETER SHOP CALIBRATION

Tool Name:	**GTET - 11005603**	**Reference Calibration Date:**	**08-Nov-07 14:27:31**
Engineer:	**KNEPPER**	**Calibration Date:**	**08-Nov-07 14:29:14**
Software Version:	**WL INSITE R2.0 (Build 12)**	**Calibration Version:**	**1**

Horizontal-1 Telemetry	Horizontal-2 Telemetry	Vertical Telemetry	Units
-123.00	-148.18	-16327.27	cnts

Coefficient	Coefficient Value	Tolerance
Gain	-0.000062	-0.0010 - 0.0010
Offset	-0.008	-----

Orientation	Measured	Calibrated
Horizontal	0.01	-0.00
Vertical	1.00	1.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name:	**DSNT - 11019642**	**Reference Calibration Date:**	**09-Nov-07 10:10:08**
Engineer:	**STONE**	**Calibration Date:**	**07-Dec-07 12:02:39**
Software Version:	**WL INSITE R2.0 (Build 19)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-381

Tank Serial Number: 56.1

Reference value assigned to Tank: 56.100

Snow Block S/N: 11057

Calibration Tank Water Temperature: 65.00 degF

Min. Tool Housing Outside Diameter: 3.625 in

CALIBRATION CONSTANTS

Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.993	0.990	0.900 - 1.100

WATER TANK SUMMARY (Horizontal Water Tank)

Measurement	Current Reading (Previous Coef.)	Calibrated (New Coef.)	Change	Control Limit On Change
Porosity (decp):	0.2368	0.2358	0.0010	+/- 0.0020
Calibrated Ratio:	10.59	10.56	0.033	+/- 0.050

VERIFIER

Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0817	0.02000 - 0.09000

PASS/FAIL SUMMARY

Background Check:	Passed
Gain-Range Check:	Passed
Snow-Block Check:	Passed

DUAL SPACED NEUTRON FIELD CALIBRATION

Tool Name:	**DSNT - 11019642**	**Reference Calibration Date:**	**07-Dec-07 12:02:39**
Engineer:	**STONE**	**Calibration Date:**	**09-Dec-07 20:09:03**
Software Version:	**WL INSITE R2.0 (Build 19)**	**Calibration Version:**	**1**

Logging Source S/N: DSN-381

Snow Block S/N: 11057

NEUTRON FIELD-CHECK SUMMARY

	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0817	0.0780	-0.0037	+/- 0.0150

PASS/FAIL SUMMARY

Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name:	**SDLT - I42M02P76**	**Reference Calibration Date:**	**08-Nov-07 14:00:18**
Engineer:	**GUTHMUELLER**	**Calibration Date:**	**07-Dec-07 10:33:32**
Software Version:	**WL INSITE R2.0 (Build 19)**	**Calibration Version:**	**1**

Logging Source S/N: 24520B

Aluminum Block S/N: 63074 Density: 2.589g/cc

Magnesium Block S/N: 63386 Density: 1.683g/cc

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	0.9919	1.0063	0.90 - 1.10
Near Dens Gain	0.9804	0.9988	0.90 - 1.10
Near Peak Gain	0.9748	0.9985	0.90 - 1.10
Near Lith Gain	0.9645	0.9906	0.90 - 1.10
Far Bar Gain	1.0015	1.0017	0.90 - 1.10
Far Dens Gain	0.9899	0.9905	0.90 - 1.10
Far Peak Gain	0.9835	0.9846	0.90 - 1.10
Far Lith Gain	0.9684	0.9702	0.90 - 1.10
Near Bar Offset	0.1188	-0.0131	NONE
Near Dens Offset	0.1958	0.0358	NONE
Near Peak Offset	0.2235	0.0266	NONE
Near Lith Offset	0.2736	0.0664	NONE
Far Bar Offset	-0.0096	-0.0135	NONE
Far Dens Offset	0.0817	0.0833	NONE
Far Peak Offset	0.1140	0.1176	NONE

Far Lith Offset	0.2234	0.2274	NONE
Near Bar Background	1056.31	1051.28	700 - 1450
Near Dens Background	345.98	346.76	230 - 480
Near Peak Background	149.00	147.10	100 - 210
Near Lith Background	184.57	183.75	125 - 260
Far Bar Background	623.62	620.30	450 - 900
Far Dens Background	244.24	241.25	175 - 345
Far Peak Background	97.00	96.70	70 - 140
Far Lith Background	100.71	101.06	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.682	1.683	0.001	+/- 0.015
Pe	2.675	2.594	-0.081	+/- 0.150
ALUMINUM				
Density (g/cc)	2.590	2.589	-0.001	+/- 0.01500
Pe	3.195	3.140	-0.055	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	-0.0007	+/- 0.0110	-0.0002	+/- 0.0140
Magnesium Block	-0.0006	+/- 0.0110	-0.0035	+/- 0.0140
Aluminum Block	-0.0001	+/- 0.0110	0.0005	+/- 0.0140
Resolution	9.12	6.00 - 11.50	9.08	6.00 - 11.50
Internal Verifier(B+D+P+L)	1729	1200 - 2700	1059	800 - 1700

PASS/FAIL SUMMARY

Background Quality Check:	Passed
Background Range Check:	Passed
Background Resolution Check:	Passed
Background Verification Check:	Passed
Magnesium Quality Check:	Passed
Aluminum Quality Check:	Passed
Gains Check:	Passed
Changes in Calibration Blocks:	Passed

SPECTRAL DENSITY FIELD CHECK

Tool Name:	**SDLT - I42M02P76**	**Reference Calibration Date:**	**07-Dec-07 10:33:32**
Engineer:	**STONE**	**Calibration Date:**	**09-Dec-07 19:42:28**
Software Version:	**WL INSITE R2.0 (Build 19)**	**Calibration Version:**	**1**

Aluminum Block S/N: 63074 Density: 2.589g/cc

Magnesium Block S/N: 63386 Density: 1.683g/cc

Pad Temperature: 73.4 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-

Near (B+D+P+L) cps	1728.894	1730.856	1.962	16.681
Far (B+D+P+L) cps	1059.308	1067.293	7.985	17.274
Near Resolution	9.12	9.34	0.220	0.50
Far Resolution	9.78	9.08	0.700	1.00

PASS/FAIL SUMMARY

Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

MICRO LOG SHOP CALIBRATION

Tool Name: SDLT - I42M02P76 **Reference Calibration Date:** 07-Dec-07 11:13:03

Engineer: STONE **Calibration Date:** 07-Dec-07 11:14:29

Software Version: WL INSITE R2.0 (Build 19) **Calibration Version:** 1

CALIBRATION COEFFICIENT SUMMARY

Measurement	Micro Log Normal		Micro Log Lateral		
	Measured	Calibrated	Measured	Calibrated	Units
Tool Zero	-0.07	-0.07	-0.01	-0.01	ohmm
Calibration Point #1	-0.00	0.00	0.00	0.00	ohmm
Calibration Point #2	20.00	20.00	20.01	20.00	ohmm
Internal Reference	19.94	19.94	20.01	20.00	ohmm

Measurement	Micro Log Normal Tool Value	Micro Log Lateral Tool Value	Units
Tool Zero	-2.66	-1.87	V
Calibration Point #1	15.68	2.68	V
Calibration Point #2	5304.63	6867.99	V
Internal Reference	5288.51	6866.86	V

MICRO LOG FIELD CHECK

Tool Name: SDLT - I42M02P76 **Reference Calibration Date:** 07-Dec-07 11:14:29

Engineer: STONE **Calibration Date:** 09-Dec-07 19:47:14

Software Version: WL INSITE R2.0 (Build 19) **Calibration Version:** 1

Measurement	Micro Log Normal		Micro Log Lateral		
	Shop	Field	Shop	Field	Units
Tool Zero	-0.07	-0.06	-0.01	0.00	ohmm
Internal Reference	19.94	19.81	20.00	19.86	ohmm

Summary

Signal	Shop	Field	Difference	Tolerence
Microlog Normal	19.94	19.81	0.130	+/- 0.80
Microlog Lateral	20.00	19.86	0.140	+/- 0.80

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - I42M02P76 **Reference Calibration Date:** 07-Dec-07 11:03:14

Engineer: STONE **Calibration Date:** 07-Dec-07 11:09:58

Software Version: WL INSITE R2.0 (Build 19) **Calibration Version:** 1

CALIBRATION COEFFICIENTS

Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-1363.23	-1085.61	-7000.00 - -1000.00

Pad Gain	0.0003997	0.0003812	0.000200 - 0.000600
Arm Offset	-474.49	-595.73	-5000.00 - 3000.00
Arm Gain	0.0005178	0.0005071	0.000300 - 0.000700
Arm Power	-0.000006137	-0.000005574	-0.000010 - 0.000010

The ring diameter is computed from: DIAMETER = PAD EXTENSION + ARM EXTENSION + TOOL DIAMETER

Tool Diameter: 4.50 in

CALIBRATION RINGS

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.99	2.00	0.0100	+/- 0.200
Medium Ring (in)	3.82	3.75	-0.0700	+/- 0.200
RING DIAMETER:				
Small Ring (in)	6.49	6.50	0.0100	+/- 0.200
Medium Ring (in)	8.26	8.25	-0.0100	+/- 0.200
Large Ring (in)	15.00	15.00	0.0000	+/- 0.200

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed
Ring-Measurement Check:	Passed

PASS/FAIL SUMMARY

Calibration-Coefficients Range Check:	Passed

SDLT CALIPER FIELD CALIBRATION

Tool Name:	**SDLT - I42M02P76**	**Reference Calibration Date:**	**07-Dec-07 11:09:58**
Engineer:	**STONE**	**Calibration Date:**	**09-Dec-07 19:58:56**
Software Version:	**WL INSITE R2.0 (Build 19)**	**Calibration Version:**	**1**

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.68	-0.07	+/- 0.10
Ring Diameter	8.25	8.21	-0.04	+/- 0.15

PASS/FAIL SUMMARY

Pad Extension Check:	Passed
Diameter Check:	Passed

BCAS FIELD CASING CHECK

Tool Name:	**ISAT - P001**	**Calibration Date:**	**09-Dec-07 01:10:22**
Engineer:	**STONE**		
Software Version:	**WL INSITE R2.0 (Build 19)**	**Calibration Version:**	**1**

Pre-Log Check	Check Depth	Shop	Field	Difference	Tolerance	Units
Delta-T Compensated	175.50	57.00	57.87	-0.8700	1.00	uspf

ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

Tool Name:	**ACRt - 90144562-e973-s170**	**Reference Calibration Date:**	**13-Nov-07 10:53:41**
Engineer:	**HOFKAMP**	**Calibration Date:**	**13-Nov-07 11:02:00**
Software Version:	**WL INSITE R2.0 (Build 12)**	**Calibration Version:**	**1**

TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper

	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	0.9403	1.05	0.95	0.9386	1.05	0.95	0.9318	1.05
A2 (50")	0.95	0.9409	1.05	0.95	0.9405	1.05	0.95	0.9376	1.05
A3 (29")	0.95	0.9399	1.05	0.95	0.9396	1.05	0.95	0.9382	1.05
A4 (17")	0.95	1.0118	1.05	0.95	1.0120	1.05	0.95	1.0091	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.0055	1.05	0.95	1.0024	1.05
A6 (6")	N/A	N/A	N/A	0.95	0.9931	1.05	0.95	0.9889	1.05

TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-3	-1.982	-1	-6	-4.740	-2	-6	-5.107	-2
A2 (50")	-6	-4.428	-2	-6	-3.996	-2	-6	-4.955	-2
A3 (29")	-27	-20.511	-9	-9	-5.512	-3	-9	-3.935	-3
A4 (17")	-180	-114.061	-60	-45	-34.475	-15	-39	-25.735	-13
A5 (10")	N/A	N/A	N/A	-150	-100.780	-50	-90	-45.279	-30
A6 (6")	N/A	N/A	N/A	175	306.183	525	90	154.412	270

TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.75	0.9042	1.4
36K	1.0	1.3735	2.4
72K	1.25	1.5565	2.5

R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohmm)	Upper (ohm-m)
Mud Cell	0.95	0.999	1.05

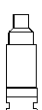
CALIBRATION SUMMARY

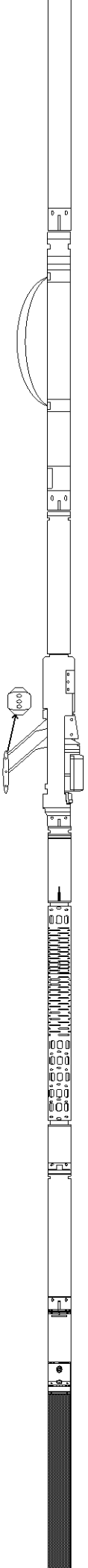
Sensor	Shop	Field	Post	Difference	Tolerance	Units
Depth Panel-PROT01						
Tension Zero	0.00	----------	----------	0.00	----------	lbs
Tension Cal	6750.00	----------	----------	0.00	----------	lbs
GTET-11005603						
Gamma Ray Calibrator	220.0	217.0	----------	3.0	+/- 9.0	api
AccZ Horizontal	-0.00	----------	----------	0.00	----------	g
AccZ Vertical	1.00	----------	----------	0.00	----------	g
DSNT-11019642						
Snow-Block Porosity	0.0817	0.0780	----------	0.0037	+/- -.--	decp
SDLT-I42M02P76						
Near(B+D+P+L)	1728.894	1730.856	----------	-1.962	+/- -----	cps
Far(B+D+P+L)	1059.308	1067.293	----------	-7.985	+/- -----	cps
CALIPER RING 1	8.25	8.21	----------	0.04	+/- xxxx	in

Data: CYNTHIA_35_1\0001 RED QUAD\IDLE **Date: 09-Dec-07 20:16:27**

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	OD/Sensors	Diagram	Sensors	Tool Length	Accumulated Length
CH-PROT01 **30.00 lbs**	**O.D. = 3.63 in**			**1.92 ft**	**64.00 ft** **62.08 ft**



GTET-11005603
165.00 lbs

O.D. = 3.63 in

8.46 ft

GammaRay @ 56.08 ft

53.62 ft

DSNT-11019642
174.00 lbs

O.D. = 3.63 in

9.69 ft

DSN Far @ 46.68 ft

DSN Near @ 45.93 ft

43.93 ft

SDLT-I42M02P76
360.00 lbs

O.D. = 4.50 in

O.D. = 4.75 in

10.81 ft

SDL Microlog @ 36.12 ft

SDL Caliper @ 35.94 ft

SDL @ 35.93 ft

33.12 ft

ISAT-P001
278.00 lbs

O.D. = 3.63 in

11.79 ft

Receiver Array @ 24.45 ft

21.33 ft

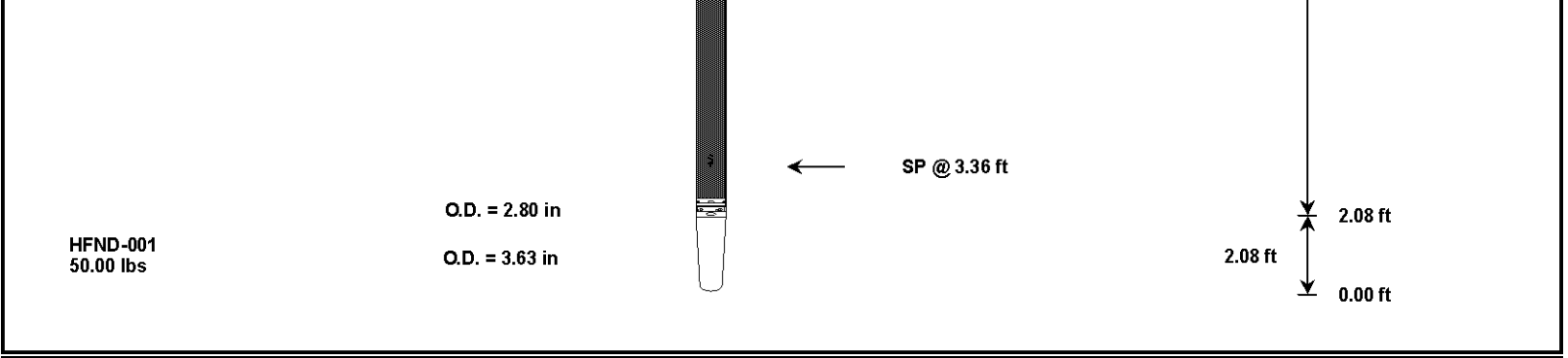
Mud Resistivity @ 14.94 ft

ACRt-90144562-e973-s170
250.00 lbs

O.D. = 3.63 in

19.25 ft

ACRt @ 10.96 ft



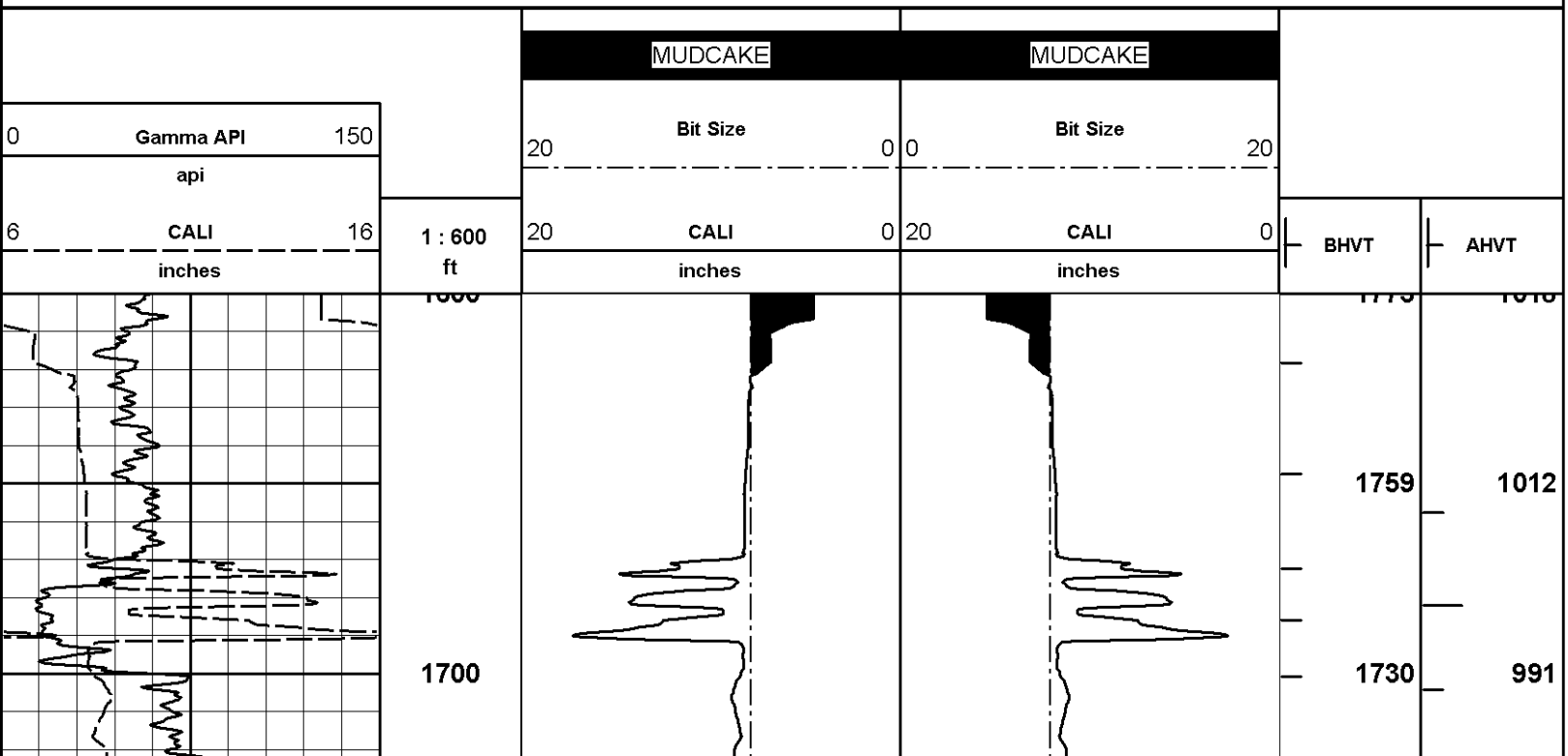
Tool Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Length Accumulation (ft)	Max Logging Speed (fpm)
CH	Cable Head	PROT01	30.00	1.92	62.08	300.00
GTET	GTET	11005603	165.00	8.46	53.62	60.00
DSNT	DSNT	11019642	174.00	9.69	43.93	60.00
SDLT	SDLT	I42M02P76	360.00	10.81	33.12	60.00
ISAT	ISAT	P001	278.00	11.79	21.33	60.00
ACRt	ACRt	90144562-e973-s170	250.00	19.25	2.08	300.00
HFND	Hole Finder	001	50.00	2.08	0.00	300.00
Total			**1,307.00**	**64.00**		**60.00**

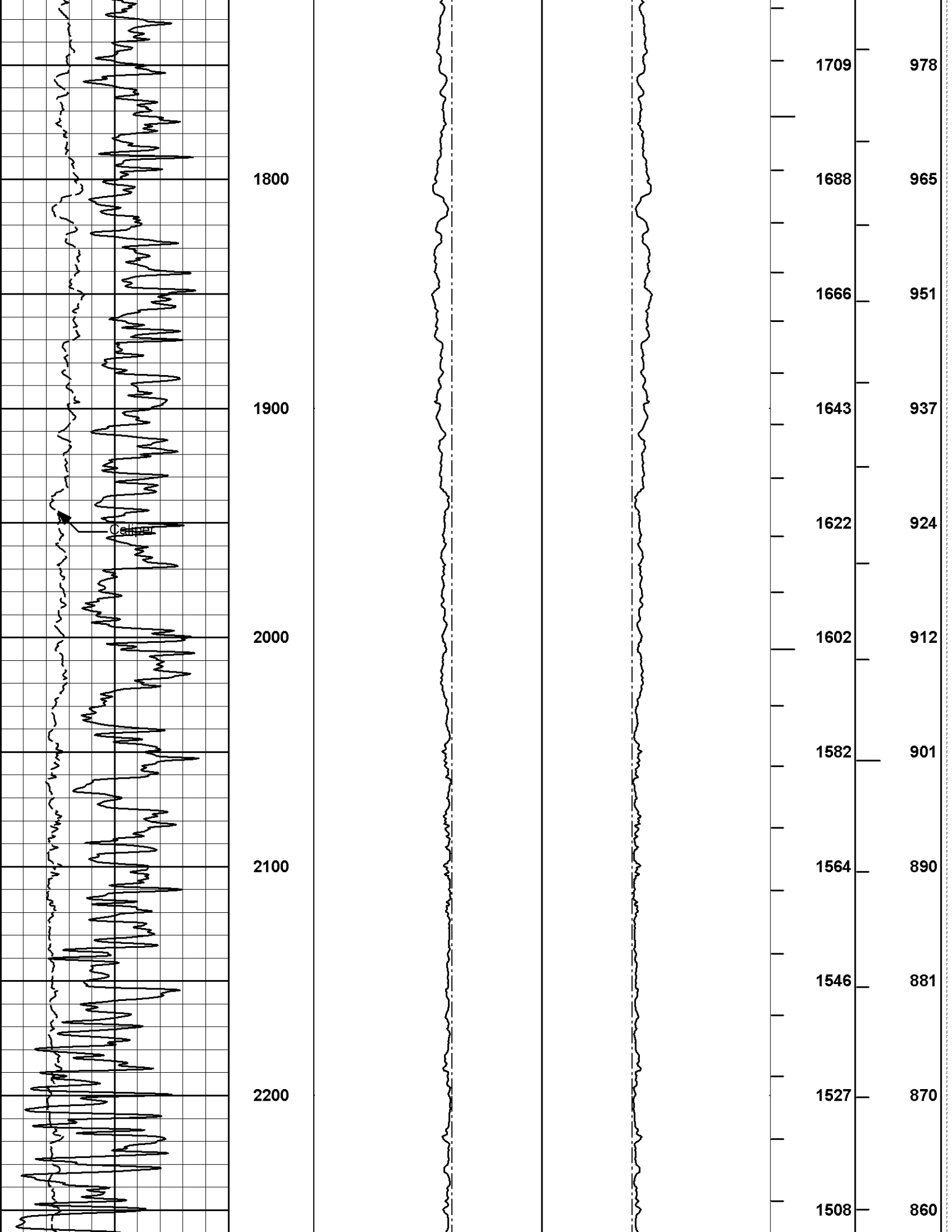
Data: CYNTHIA_35_1\0002 RED QUAD\IDLE **Date: 10-Dec-07 20:21:57**

HALLIBURTON

Plot Time: 11-Dec-07 15:44:29
Plot Range: 1600 ft to 6190 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-003.01
Plot File: \\-LOCAL-\CYNTHIA_35_1\0001 RED QUAD\POROnm\AHV_IQ_5.5

AHV PLOT CALCULATED FOR 5.5" CASING

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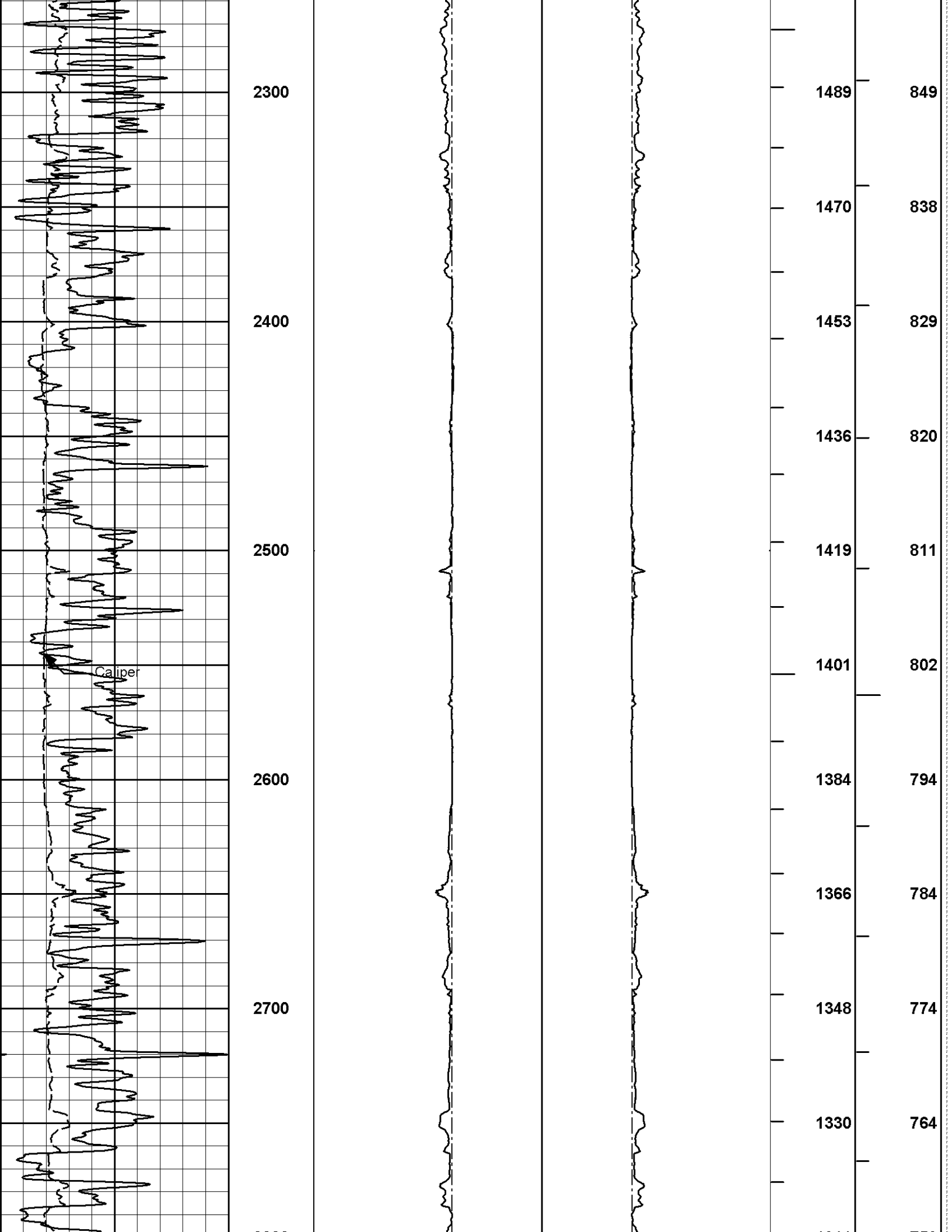
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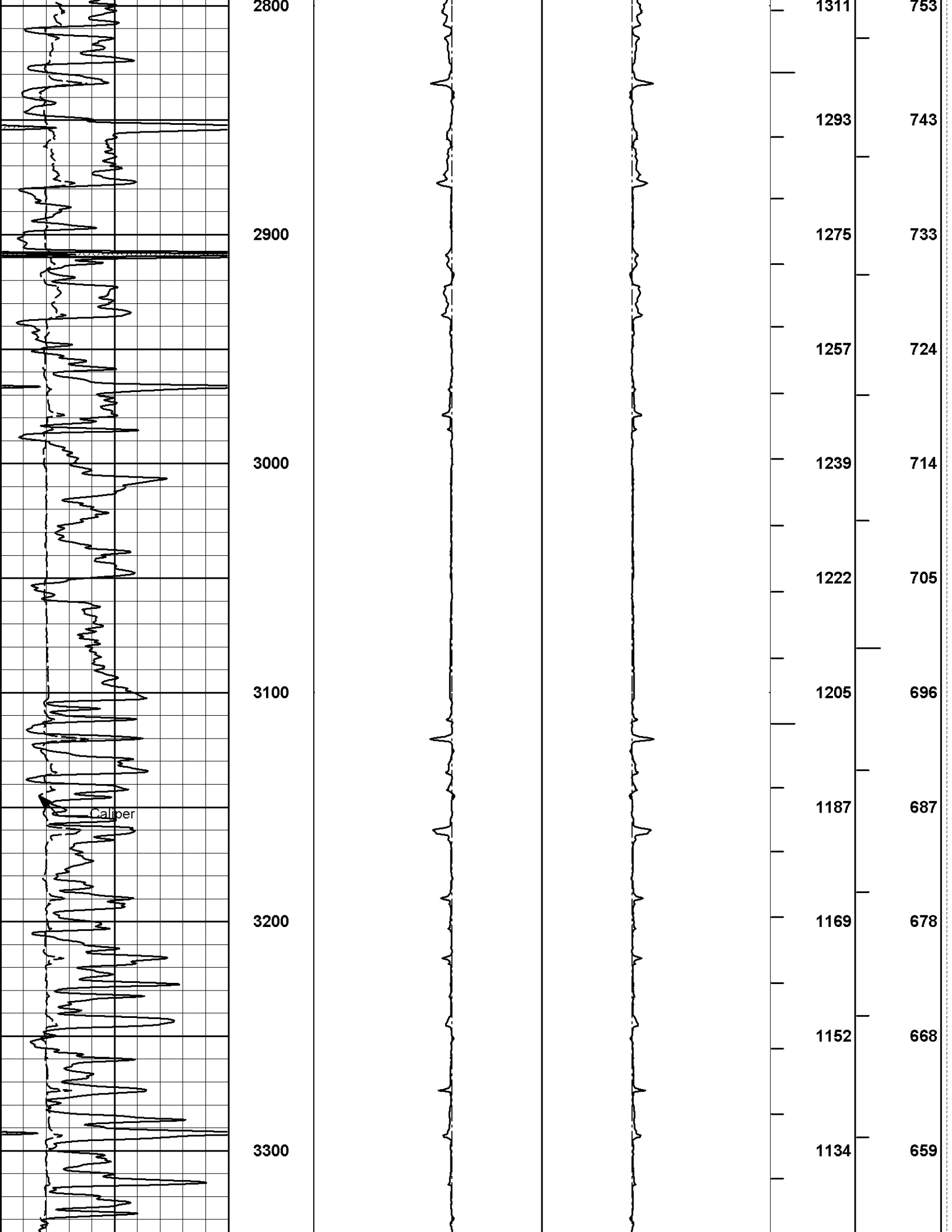
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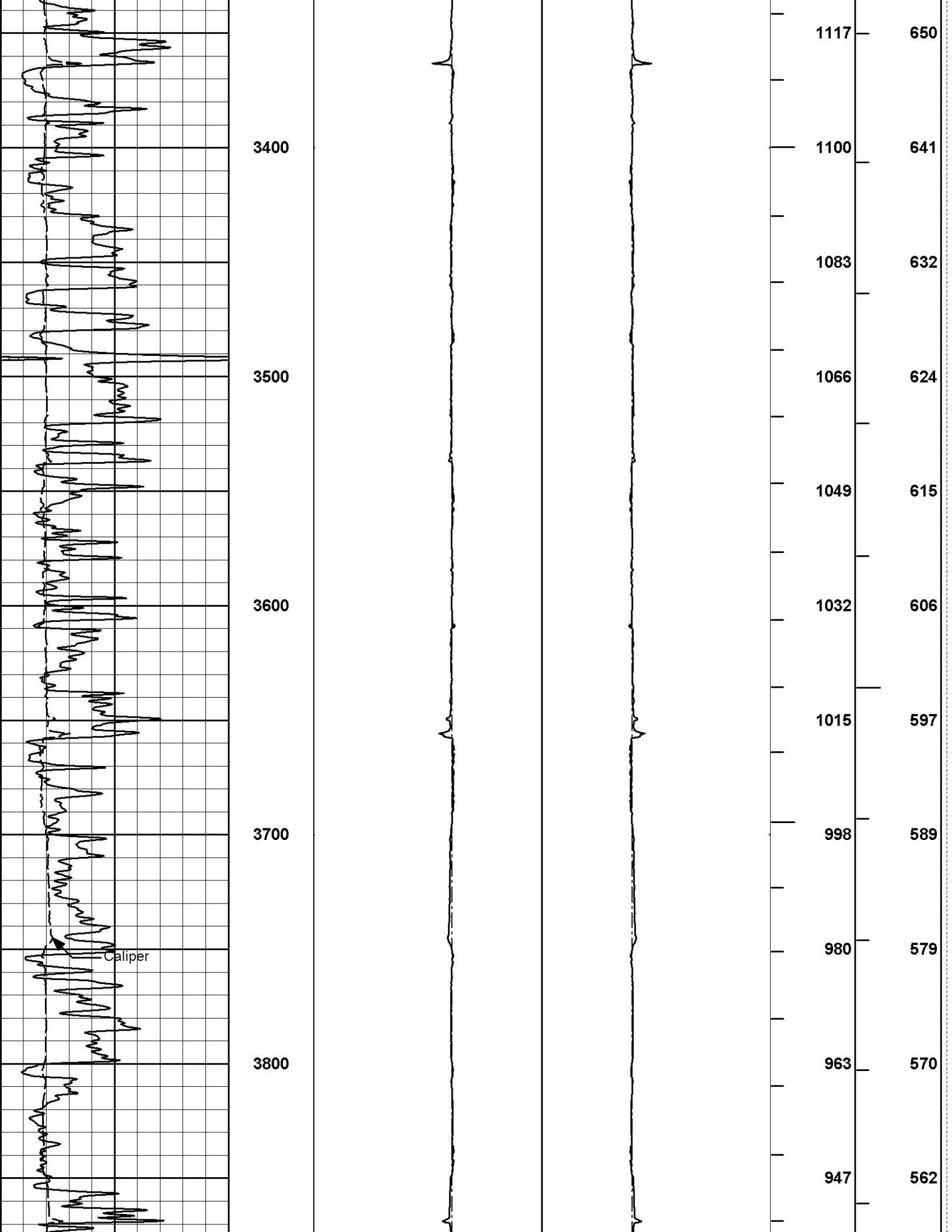
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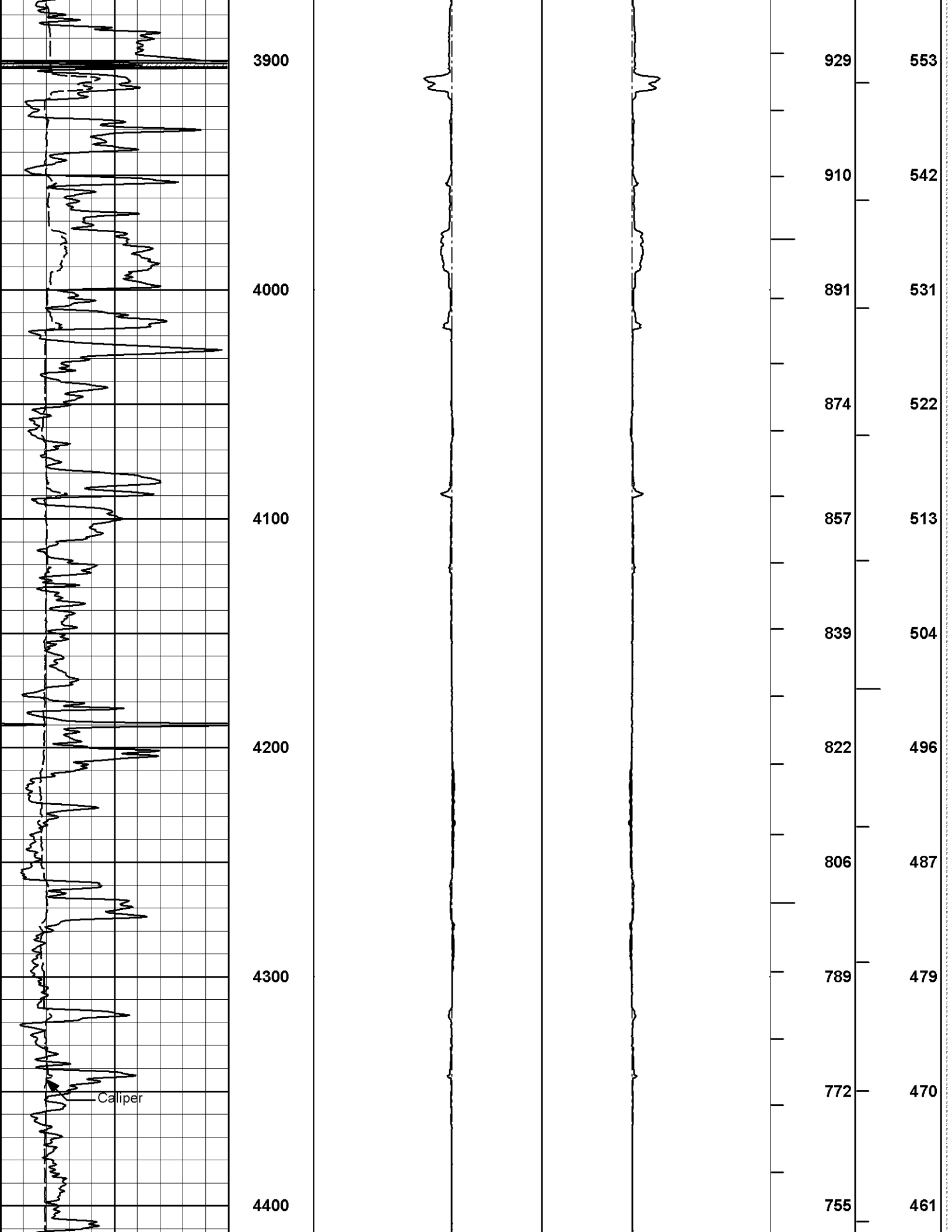
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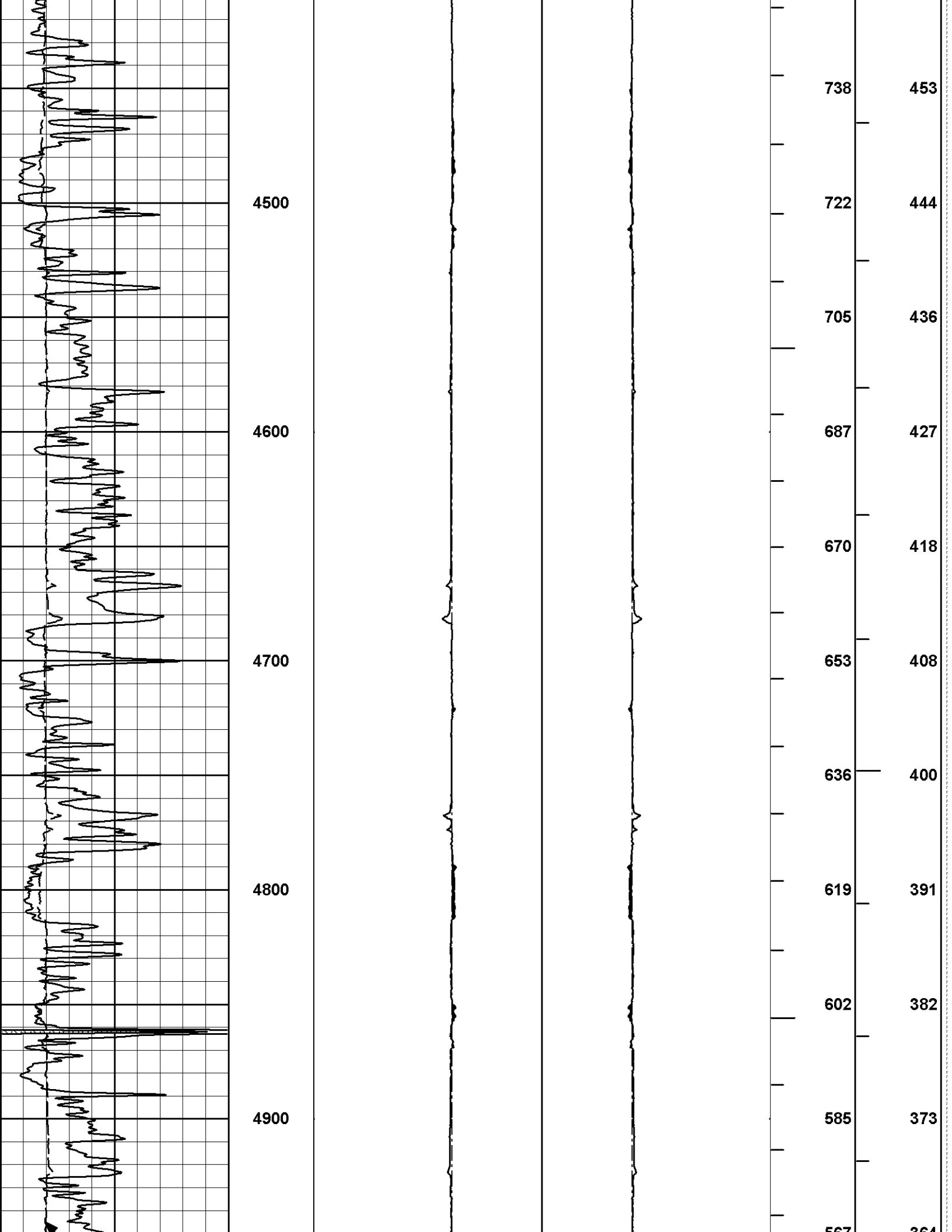
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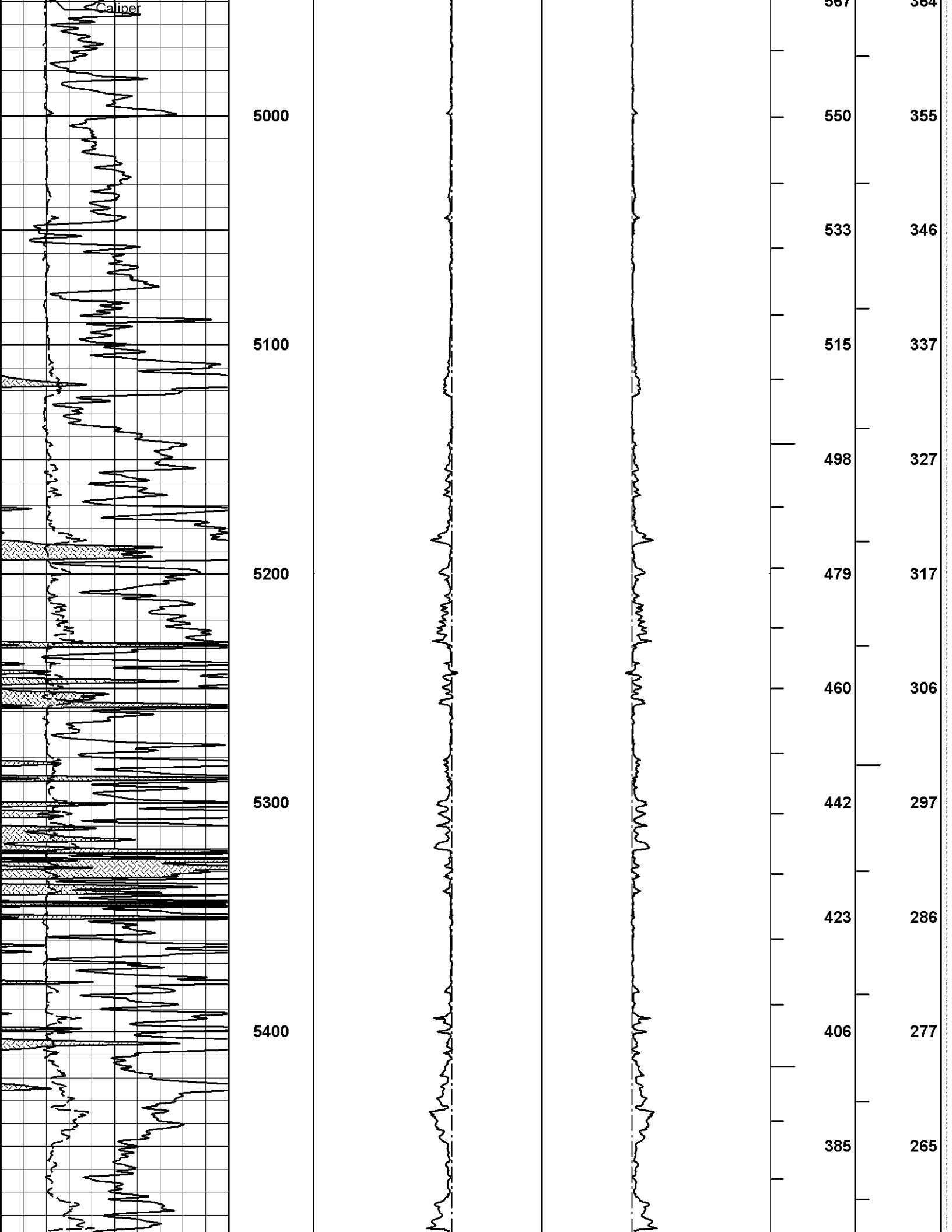
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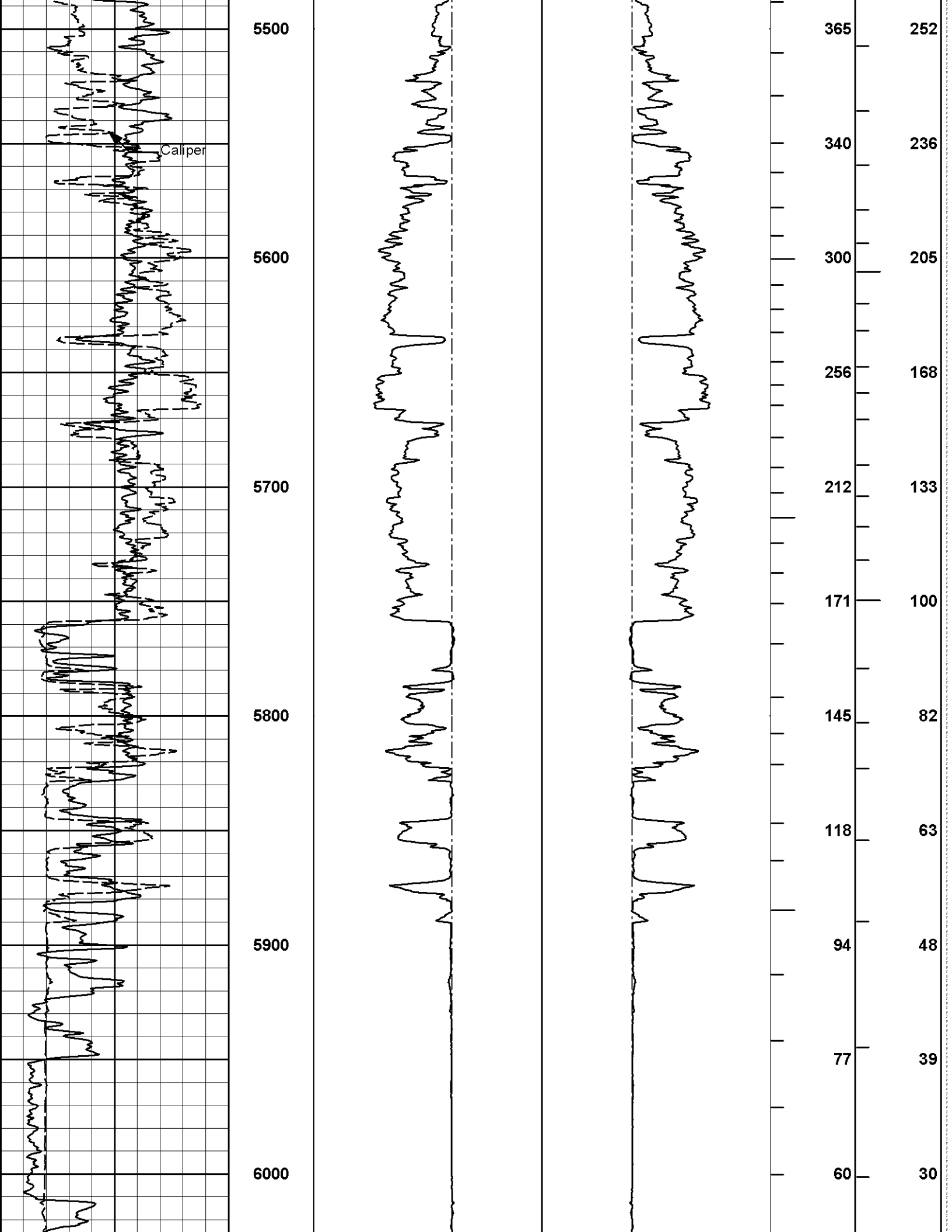
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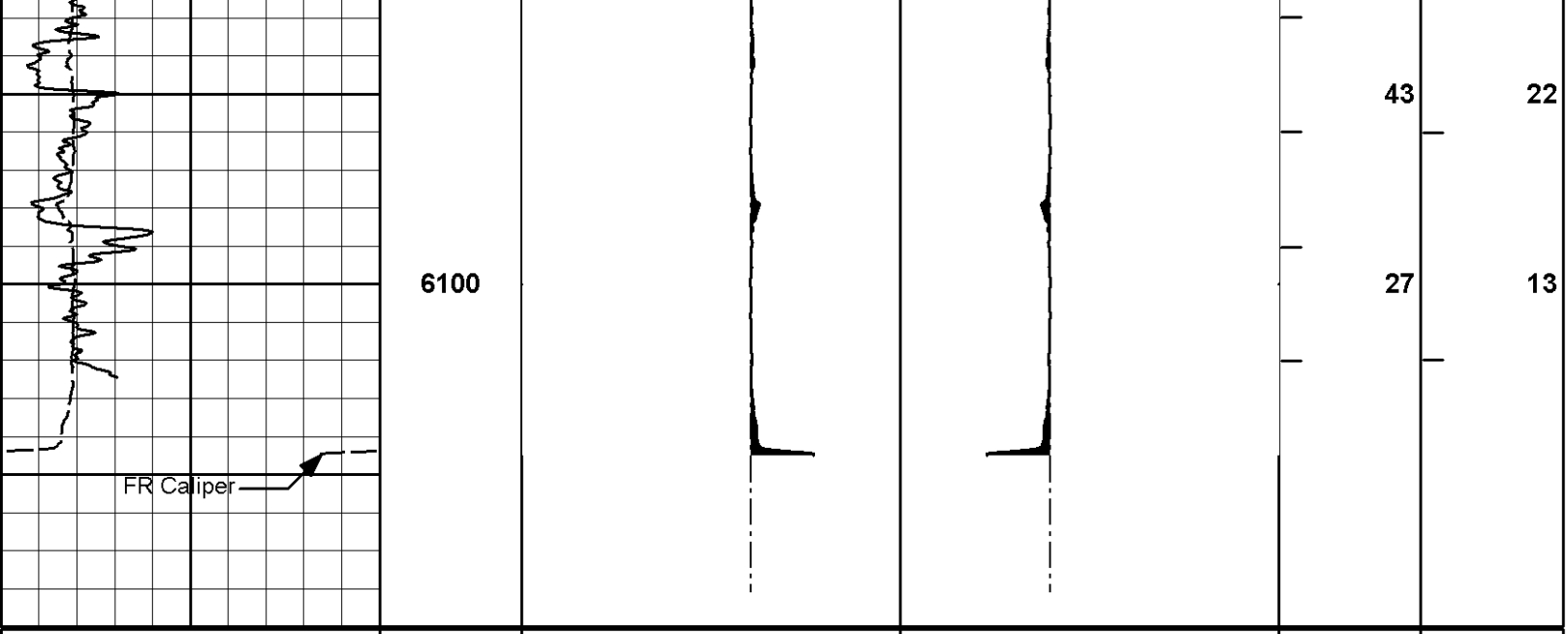

6 CALI 16 inches		20 CALI 0 inches	20 CALI 0 inches		BHVT	AHVT
0 Gamma API 150 api	1 : 600 ft	20 Bit Size 0	0 Bit Size 20			
		MUDCAKE	MUDCAKE			

HALLIBURTON

Plot Time: 11-Dec-07 15:44:32
Plot Range: 1600 ft to 6190 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-003.01\
Plot File: \\-LOCAL-\CYNTHIA_35_1\0001 RED QUAD\PORONm\AHV_IQ_5.5

AHV PLOT CALCULATED FOR 5.5" CASING

HALLIBURTON

Plot Time: 11-Dec-07 15:44:32
Plot Range: 1600 ft to 6190 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-003.03\
Plot File: \\-LOCAL-\CYNTHIA_35_1\0001 RED QUAD\PORONm\AHV_IQ_4.5

AHV PLOT CALCULATED FOR 4.5" CASING

		MUDCAKE	MUDCAKE			
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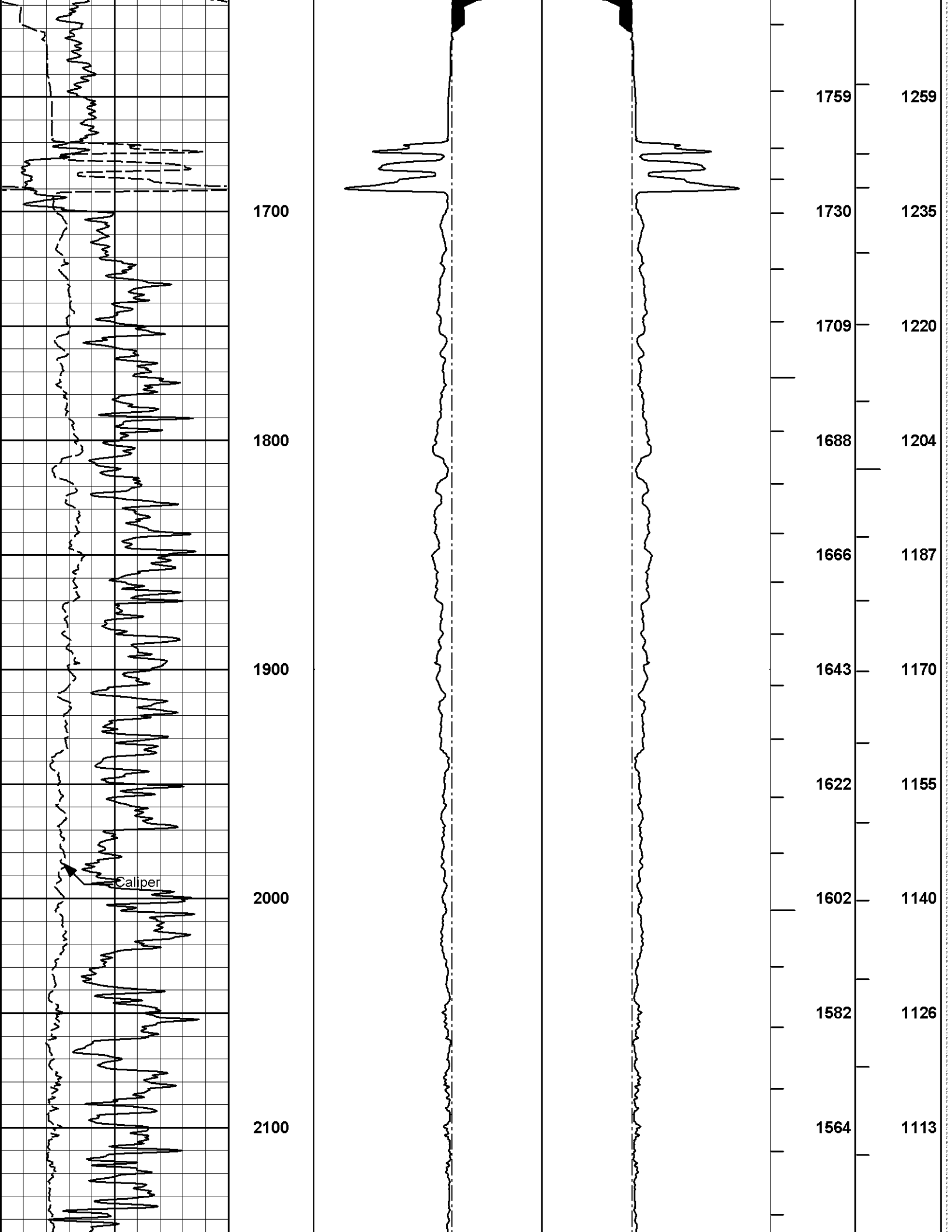
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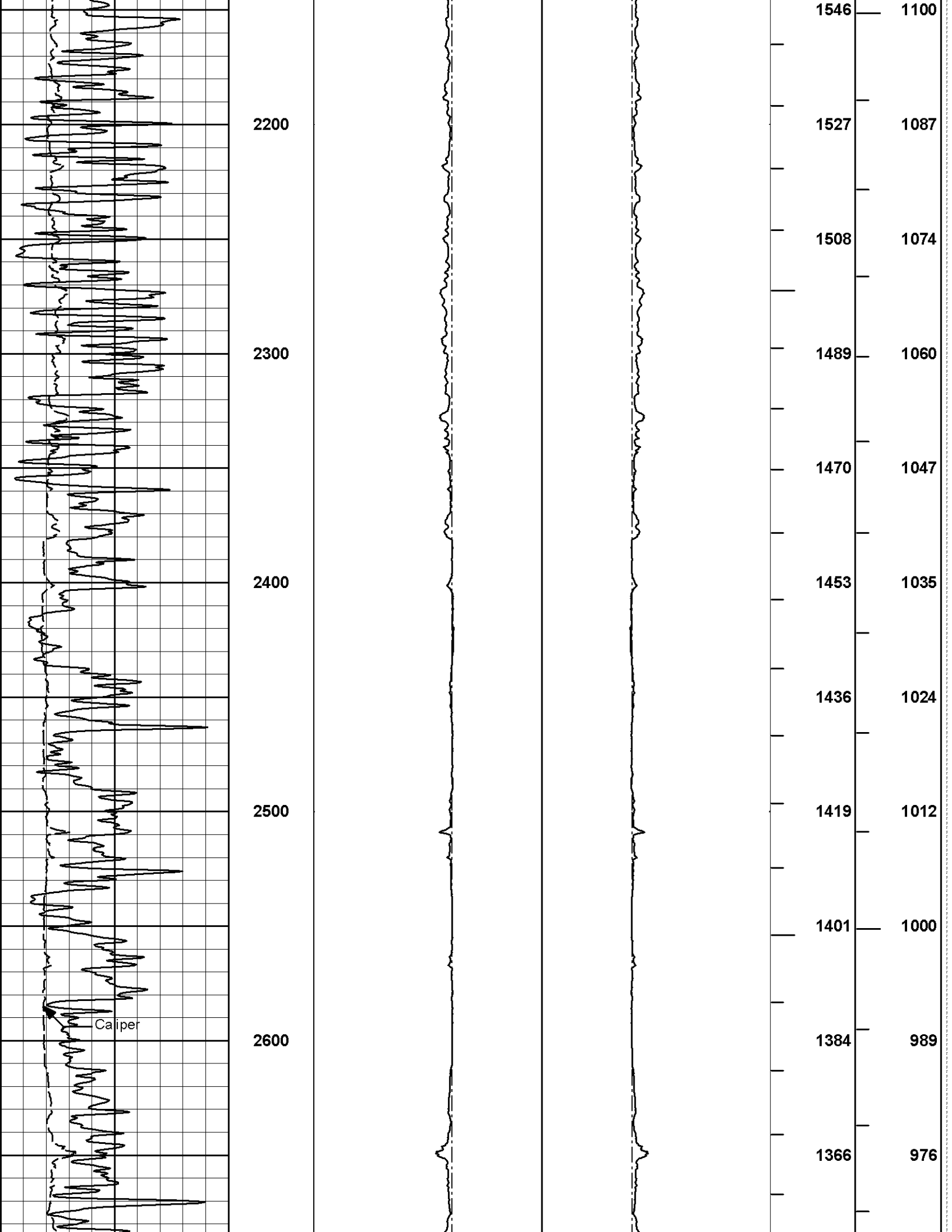
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Caliper
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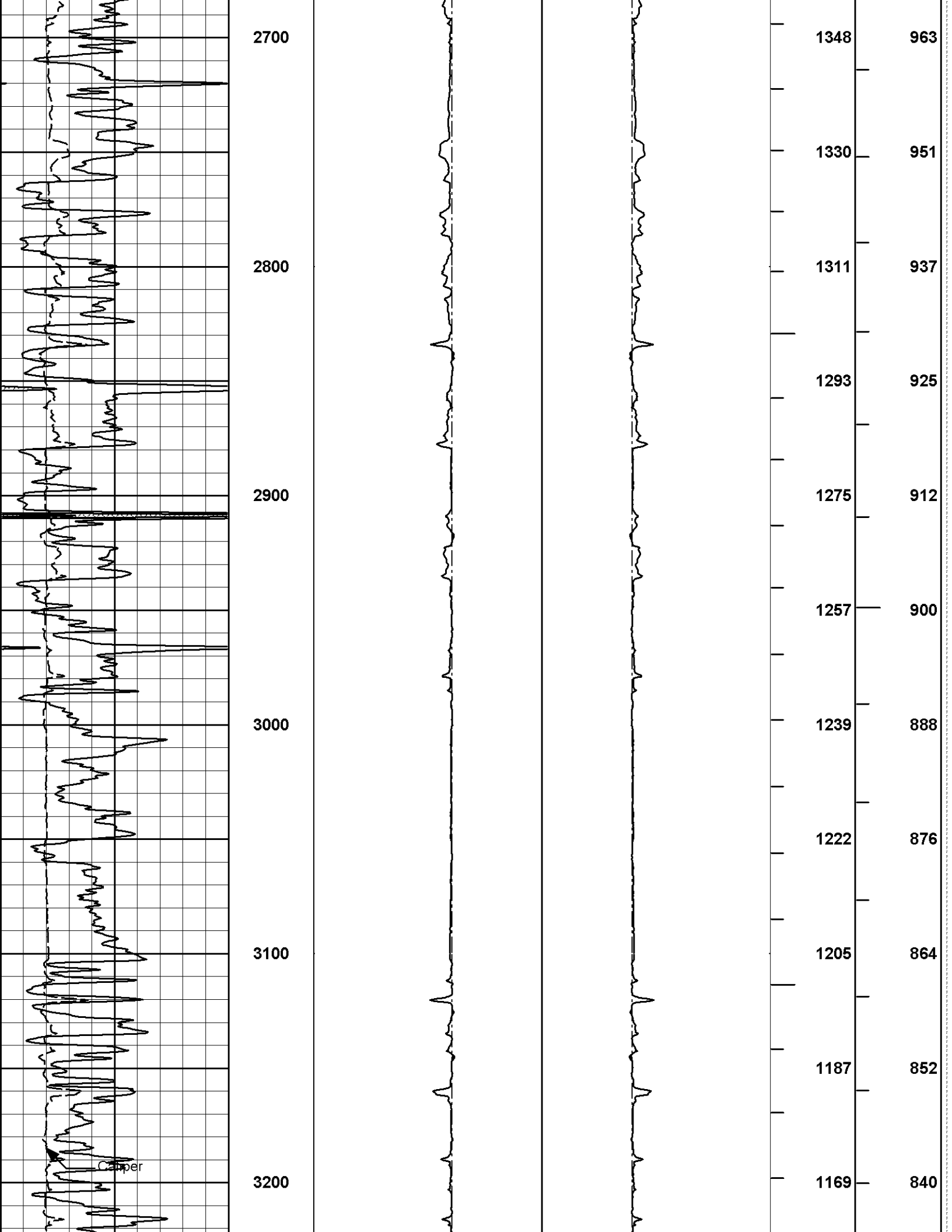
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2800
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3000
3100
3200
Caliper
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1293
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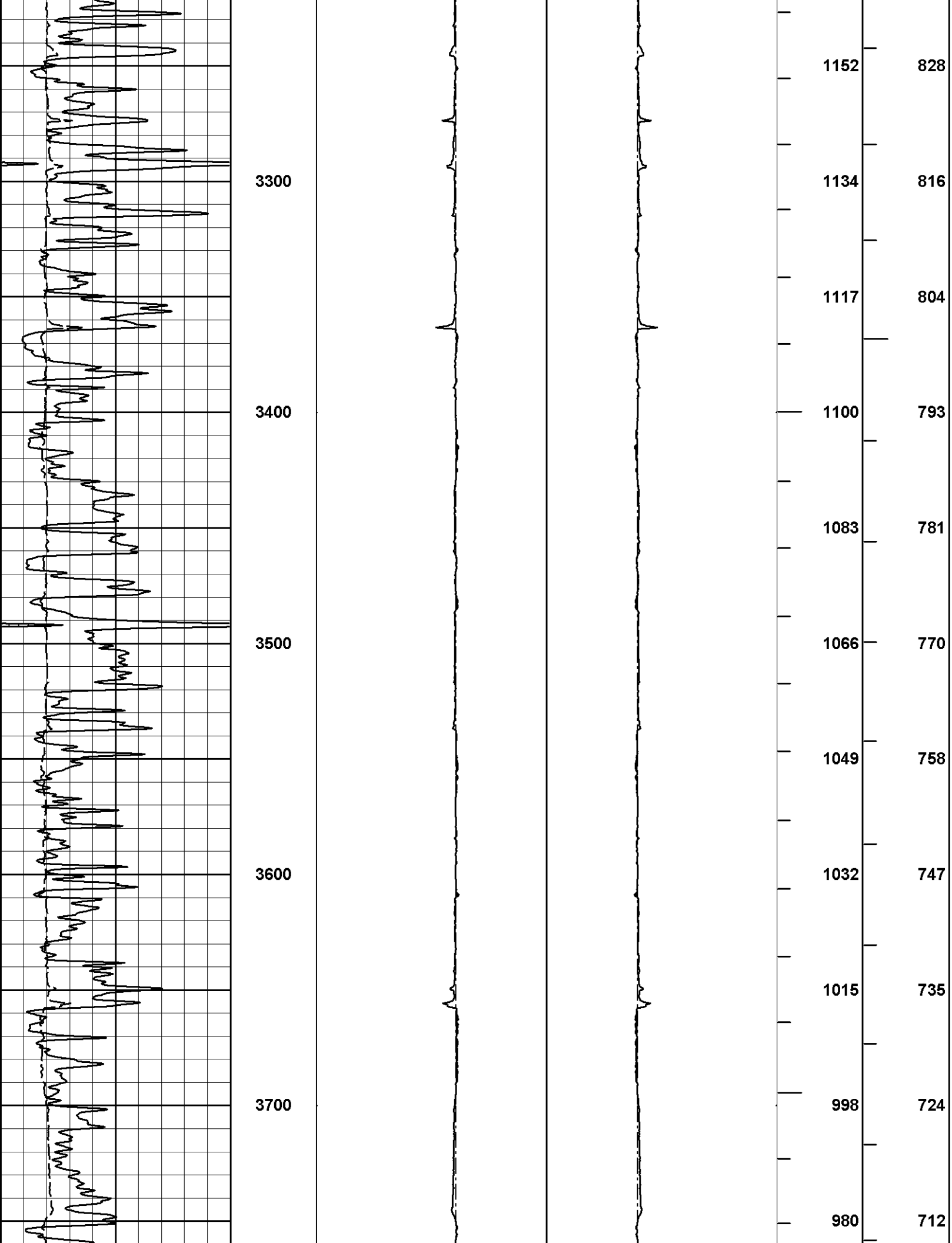
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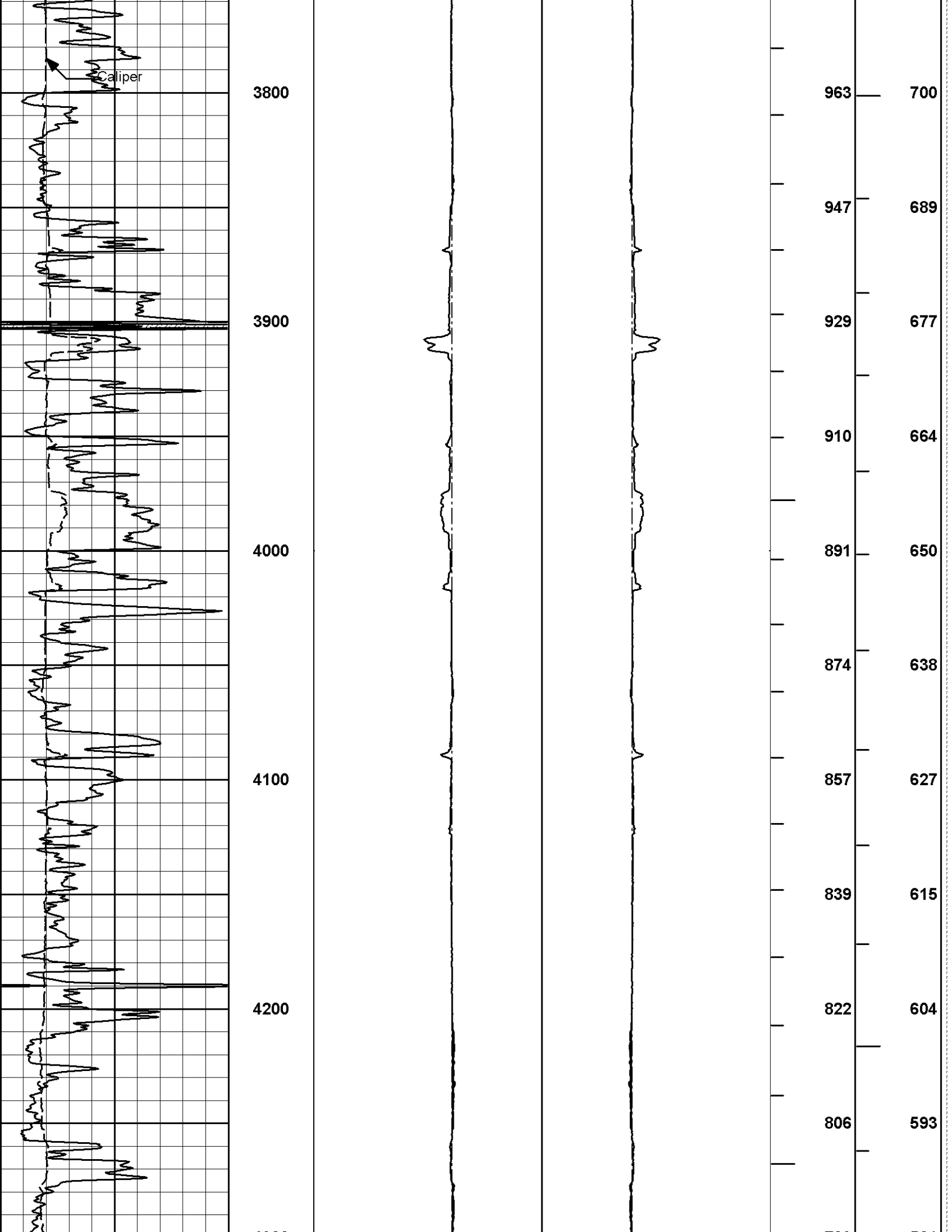
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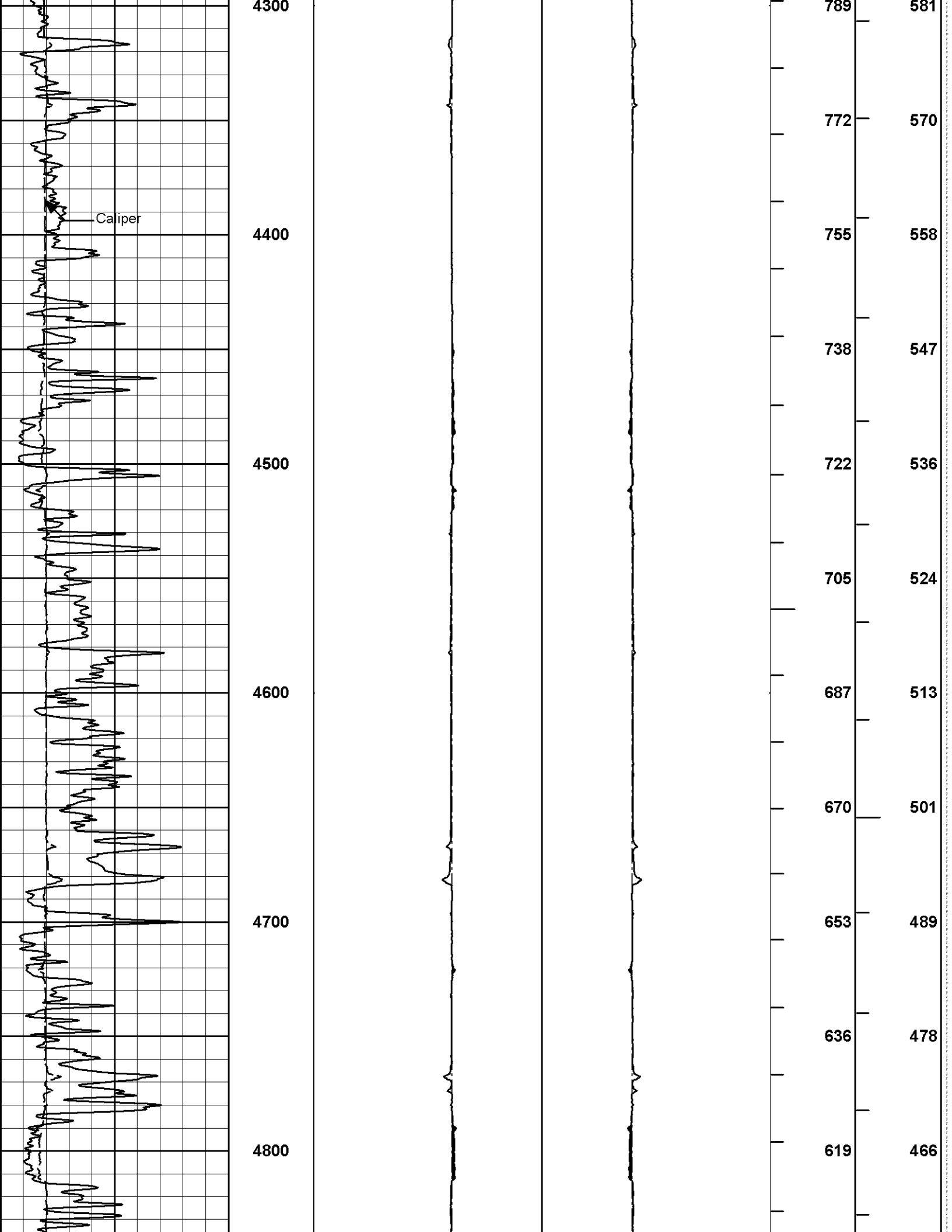
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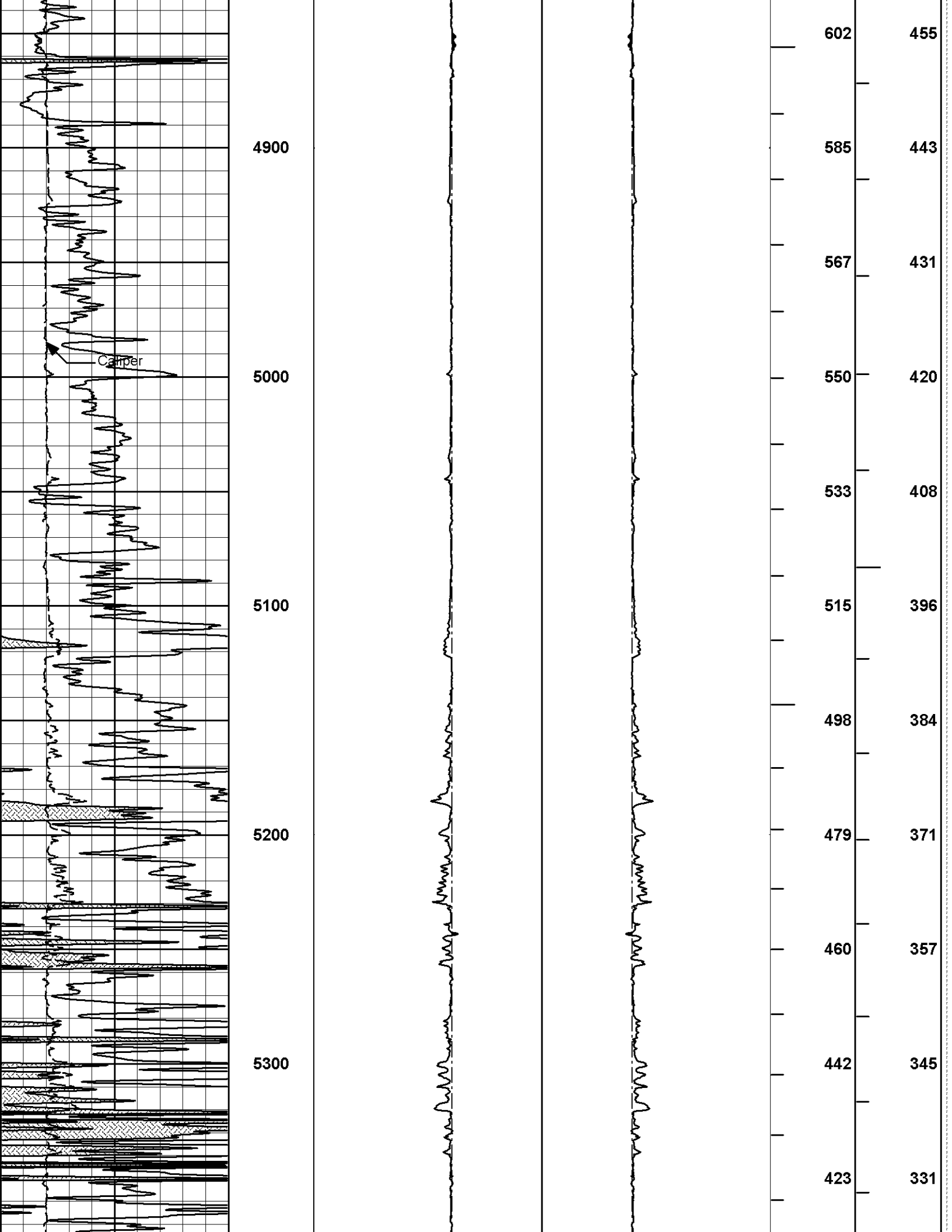
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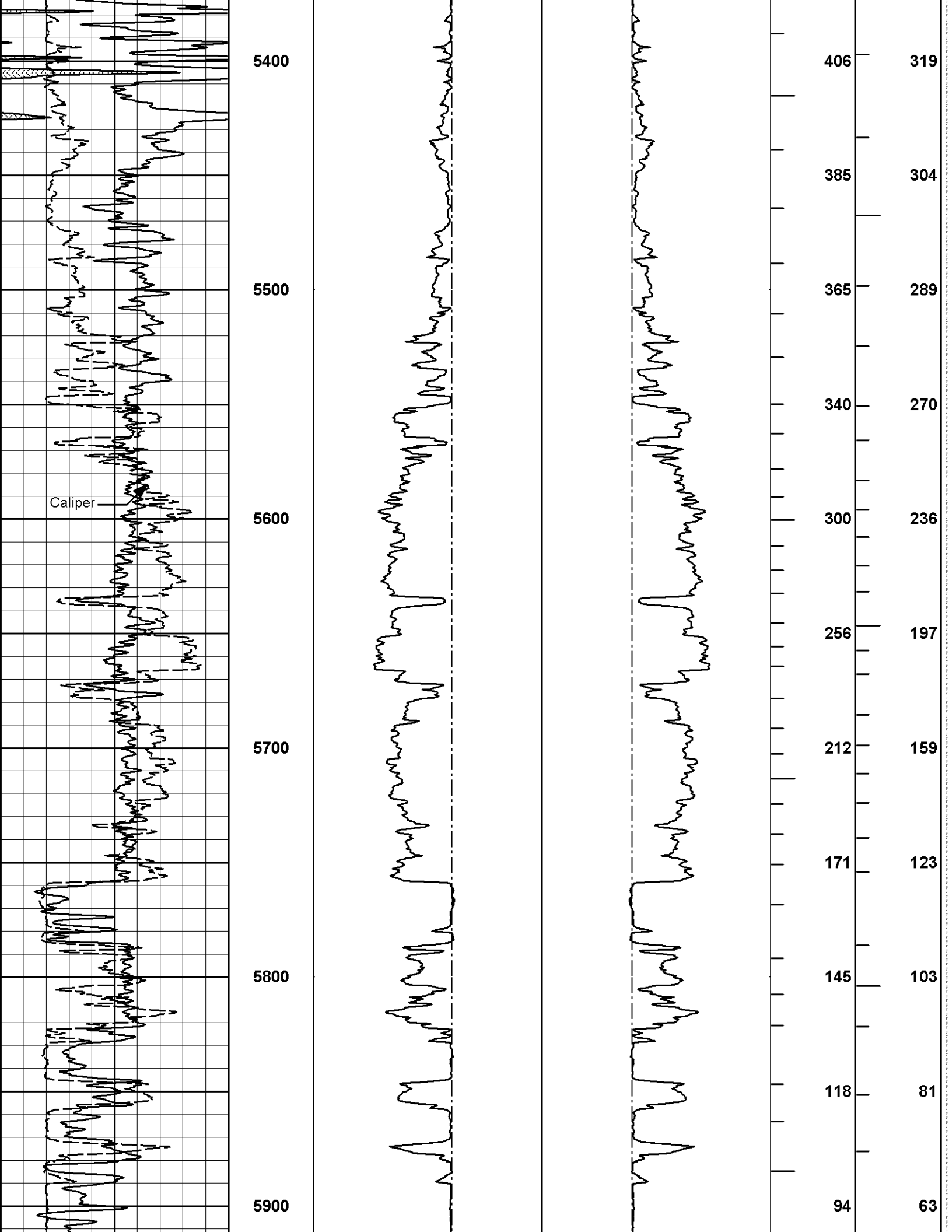
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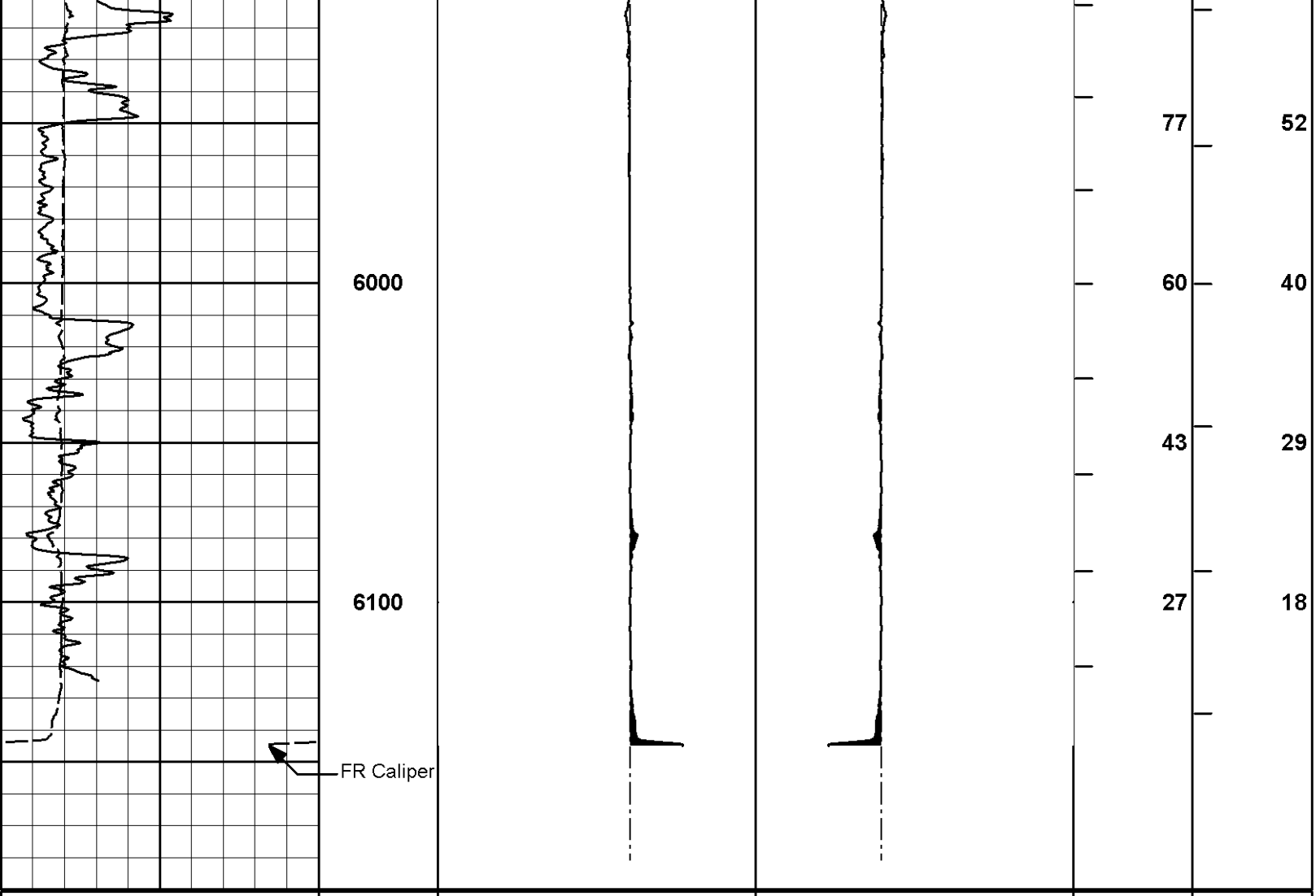

6 CALI 16	1 : 600 ft	20 CALI 0	20 CALI 0	BHVT	AHVT
inches		inches	inches		
0 Gamma API 150		Bit Size 20 0	Bit Size 0 20		
api		MUDCAKE	MUDCAKE		

HALLIBURTON

Plot Time: 11-Dec-07 15:44:35
Plot Range: 1600 ft to 6190 ft
Data: CYNTHIA_35_1\Well Based\DAQ-0002-003.03\
Plot File: \\-LOCAL-\CYNTHIA_35_1\0001 RED QUAD\PORONm\AHV_IQ_4.5

AHV PLOT CALCULATED FOR 4.5" CASING

COMPANY	EOG RESOURCES		
WELL	CYNTHIA 35 #1		
FIELD	HUGOTON FIELD		
COUNTY	STEVENS	STATE	KANSAS

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG