HALLIBURTON

COMPANY	SANDRIDGE ENERGY
WELL	NANCY 3507 1-10
FIELD/BLOCK	WALDRON
COUNTY	HARPER
STATE	KANSAS

SPECTRAL DENSITY DUAL SPACED NEUTRON LOG

COMPANY **SANDRIDGE ENERGY**
WELL **NANCY 3507 1-10**
FIELD/BLOCK **WALDRON**
COUNTY **HARPER** STATE **KANSAS**

API No. 15-077-21945-00-00
Location (SHL) 500' FNL & 330' FWL

Other Services:
MICROLOG
ACRT
CSNG
XRMI
MRIL
WSTT

Sect. 10 Twp. 35S Rge. 7W

Permanent Datum	GL	Elev. 1301.0 ft	Elev.: K.B. 1312.0 ft
Log measured from	KB	11.0 ft above perm. Datum	D.F. 1311.0 ft
Drilling measured from	KB		G.L. 1301.0 ft

Date	19-Jul-13		
Run No.	ONE		
Depth - Driller	5365.00 ft		
Depth - Logger	5352.0 ft		
Bottom - Logged Interval	5264.0 ft		
Top - Logged Interval	835.0 ft		
Casing - Driller	8.625 in @ 850.0 ft	@	@
Casing - Logger	835.0 ft		
Bit Size	7.875 in	@	@
Type Fluid in Hole	WATER BASED MUD		
Density / Viscosity	9.7 ppg / 45.00 s/qt		
PH / Fluid Loss	10.00 pH / 5.2 cptm		
Source of Sample	MUD PIT		
Rm @ Meas. Temperature	0.500 ohmm @ 75.00 degF	@	@
Rmf @ Meas. Temperature	0.39 ohmm @ 75.00 degF	@	@
Rmc @ Meas. Temperature	0.670 ohmm @ 75.00 degF	@	@
Source Rmf / Rmc	MEASURED / MEASURED		
Rm @ BHT	0.28 ohmm @ 137.0 degF	@	@
Time Since Circulation	5.0 hr		
Time on Bottom	19-Jul-13 18:36		
Max. Rec. Temperature	137.0 degF @ 5352.0 ft	@	@
Equipment / Location	11230668 / LIBERAL		
Recorded By	J. BOLLOM		
Witnessed By	T. MILLS		

Fold here

Service Ticket No.: 900597574 API Serial No.: 15-077-21945-00-00 PGM Version: WL INSITE R3.8.4 (Build 5)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE					
Date	Sample No.				
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 SCALE CHANGES			
Type Log	Depth	Scale Up Hole	Scale Down Hole

RESISTIVITY EQUIPMENT DATA				
Run No.	Tool Type & No.	Pad Type	Tool Pos.	Other

EQUIPMENT DATA

GAMMA		ACOUSTIC		DENSITY		NEUTRON	
Run No.	ONE	Run No.		Run No.	ONE	Run No.	ONE
Serial No.	10811258	Serial No.		Serial No.	10673760	Serial No.	10755066
Model No.	GTET	Model No.		Model No.	SDLT-I	Model No.	DSNT-I
Diameter	3.625"	No. of Cent.		Diameter	4.5"	Diameter	3.625"
Detector Model No.	T-102	Spacing		Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS137	Source Type	AM241BE
Length	8'	LSA [Y/N]		Serial No.	5168GW	Serial No.	DSN-436
Distance to Source	18'	FWDA [Y/N]		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	5352	835	REC	0	150				30	-10	2.71	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation @	KOP @

Remarks: ANNULAR HOLE VOLUME CALCULATED FOR 5.5-INCH CASING

CHLORIDES REPORTEDE AT 9,800 MG/L

GTET-CSNG-DSNT-SDLT-XRMI-WAVE-ACRT RUN IN COMBINATION

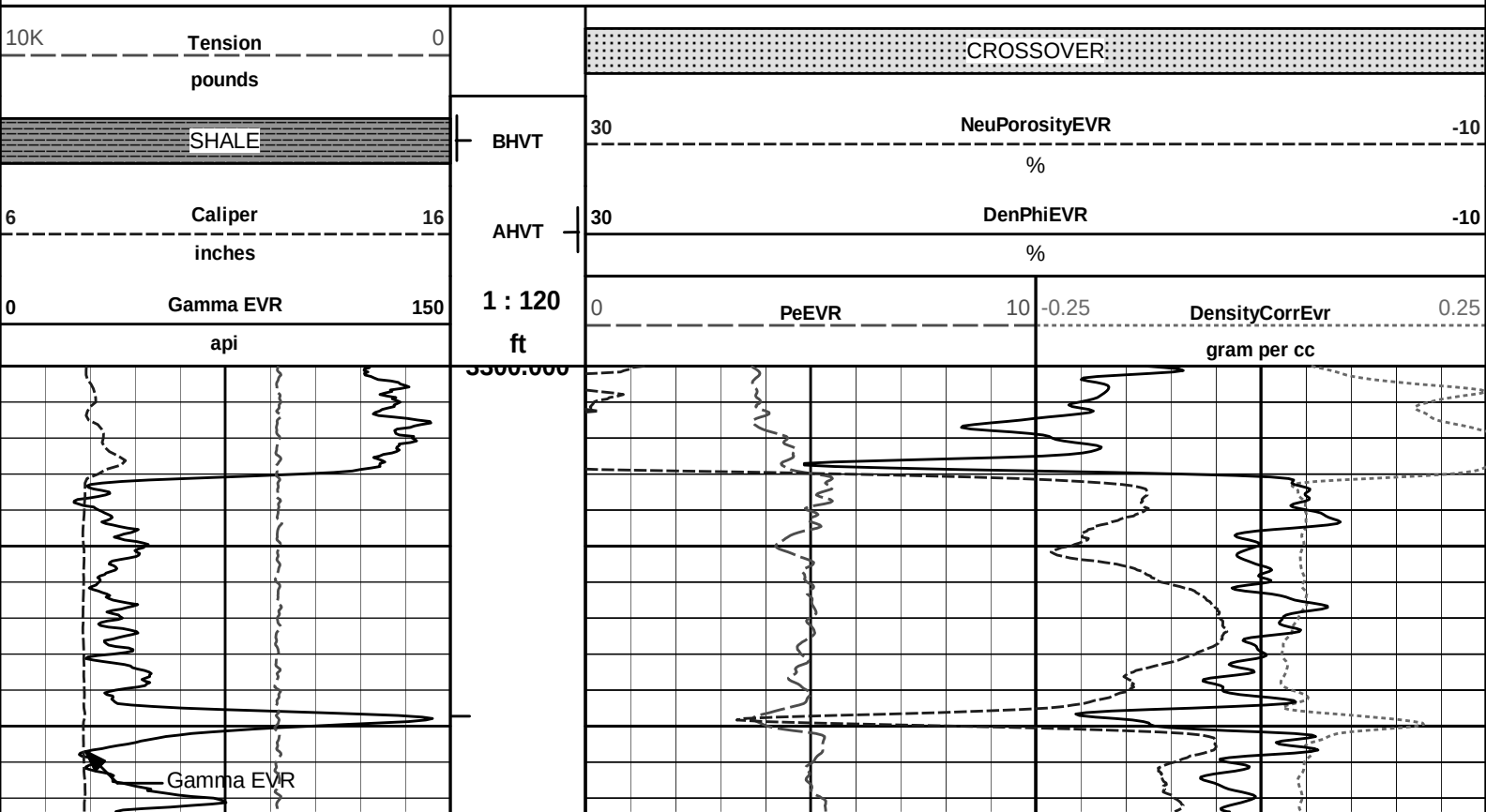
TODAY'S CREW: B. TERRELL & M. LONDON

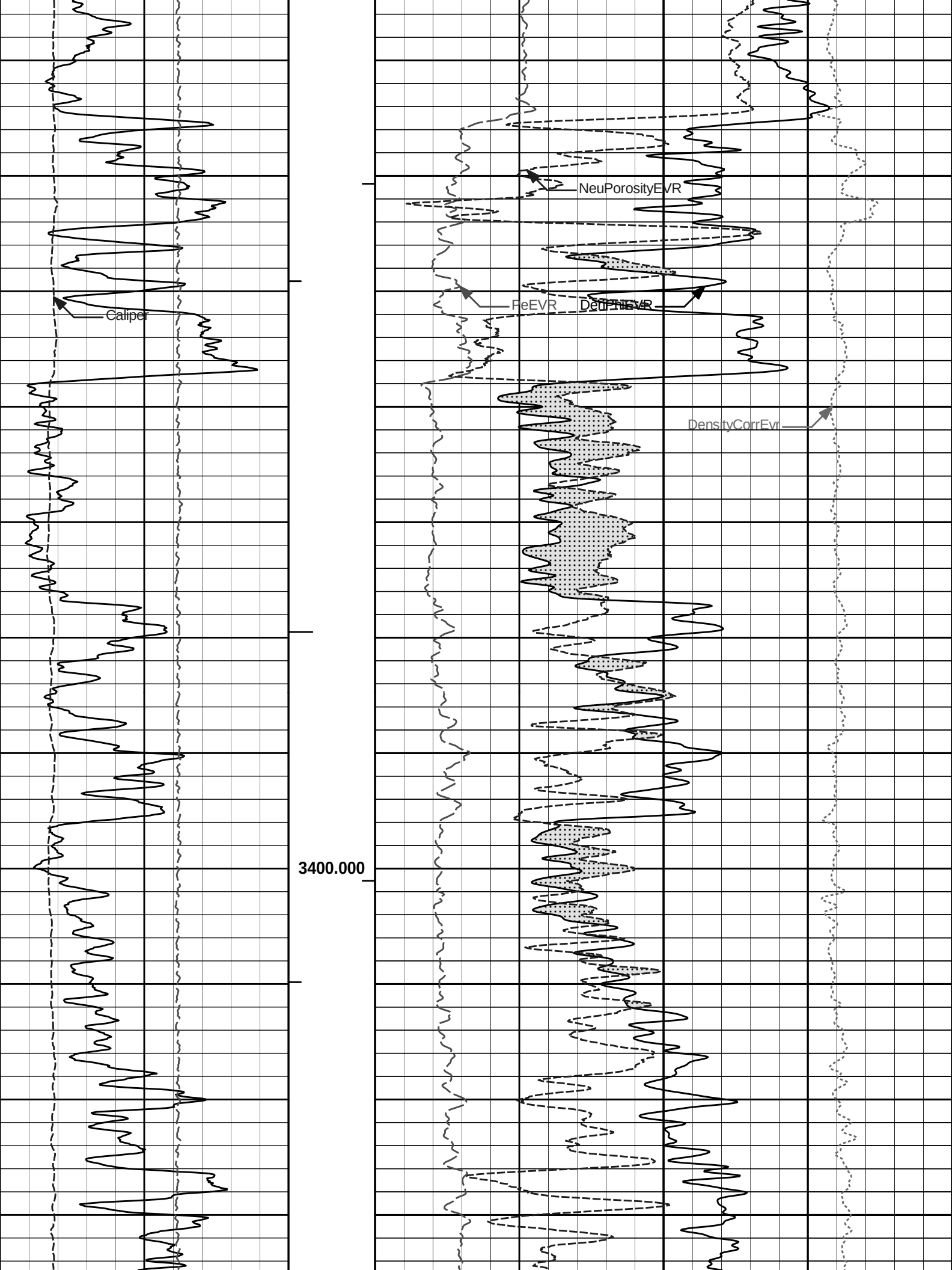
THANK YOU FOR CHOOSING HALLIBURTON ENERGY SERVICES LIBERAL, KS. 620-624-8123

HALLIBURTON

Plot Time: 19-Jul-13 23:21:51
Plot Range: 3300 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\DETAIL*
Plot File: \\PORO\Poro_IQ_EVR_LIB

MAIN PASS 10" = 100'

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PeEVR
DensityCorrEvr
Caliper
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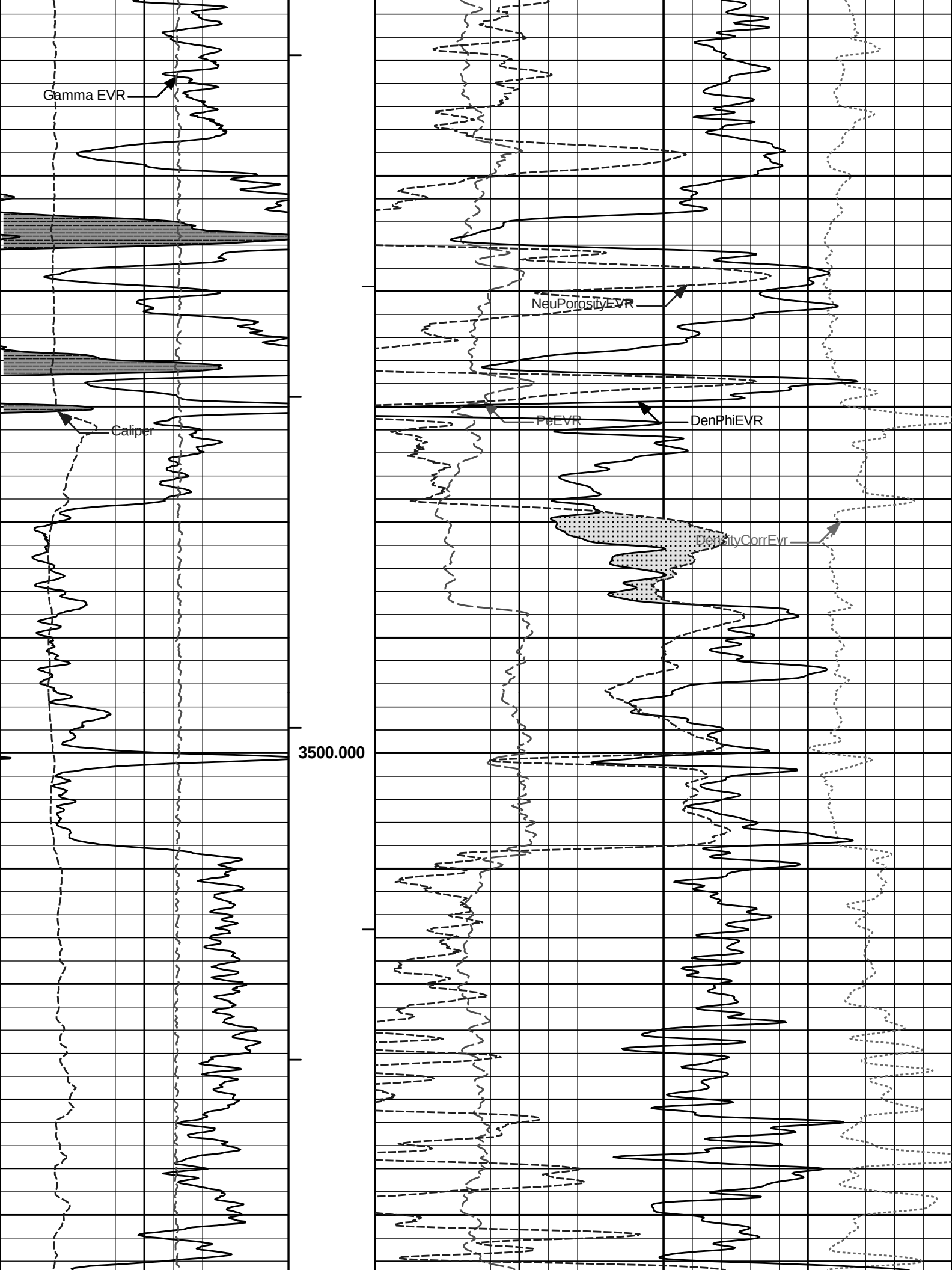
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Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr
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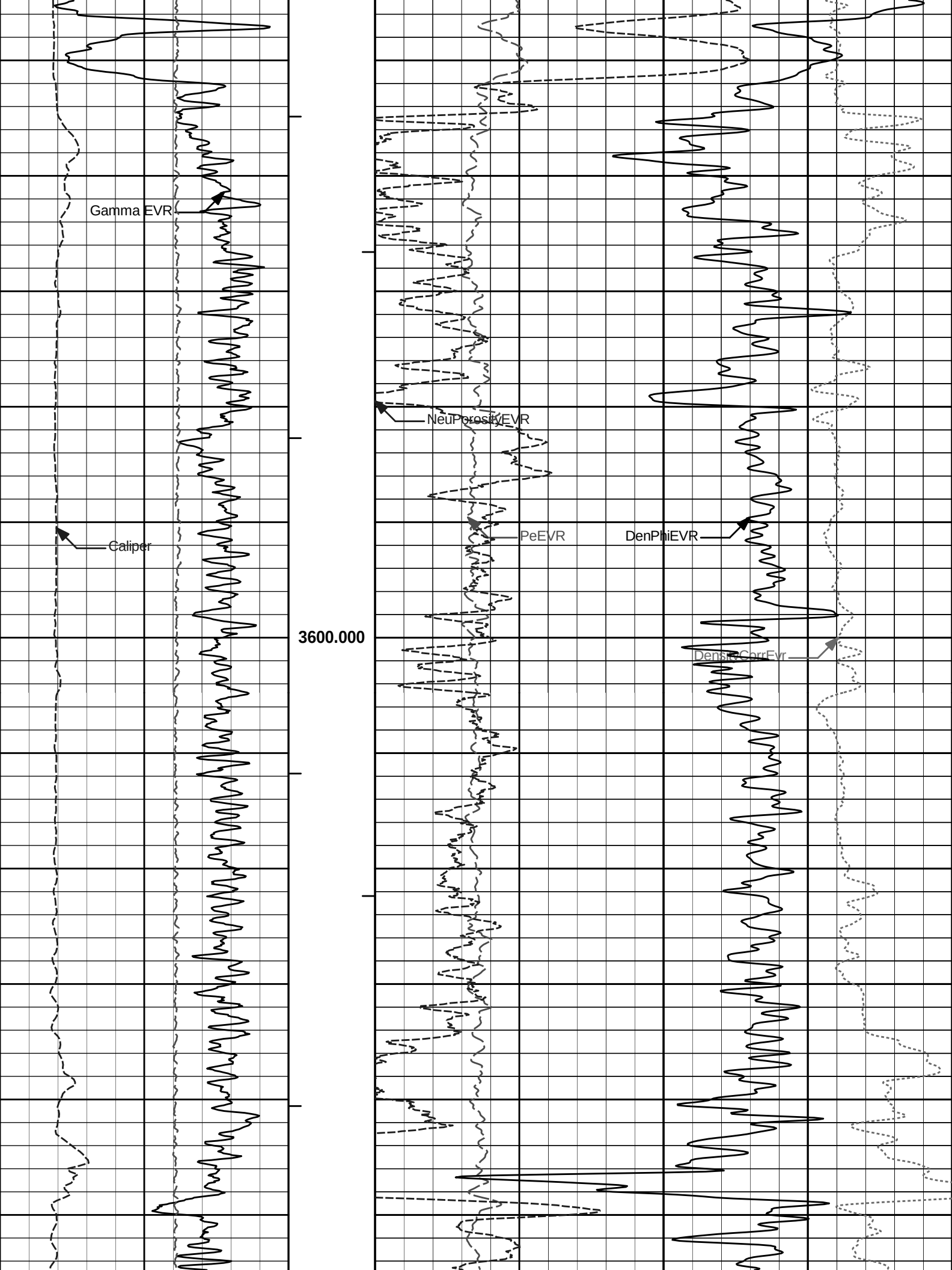
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Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr
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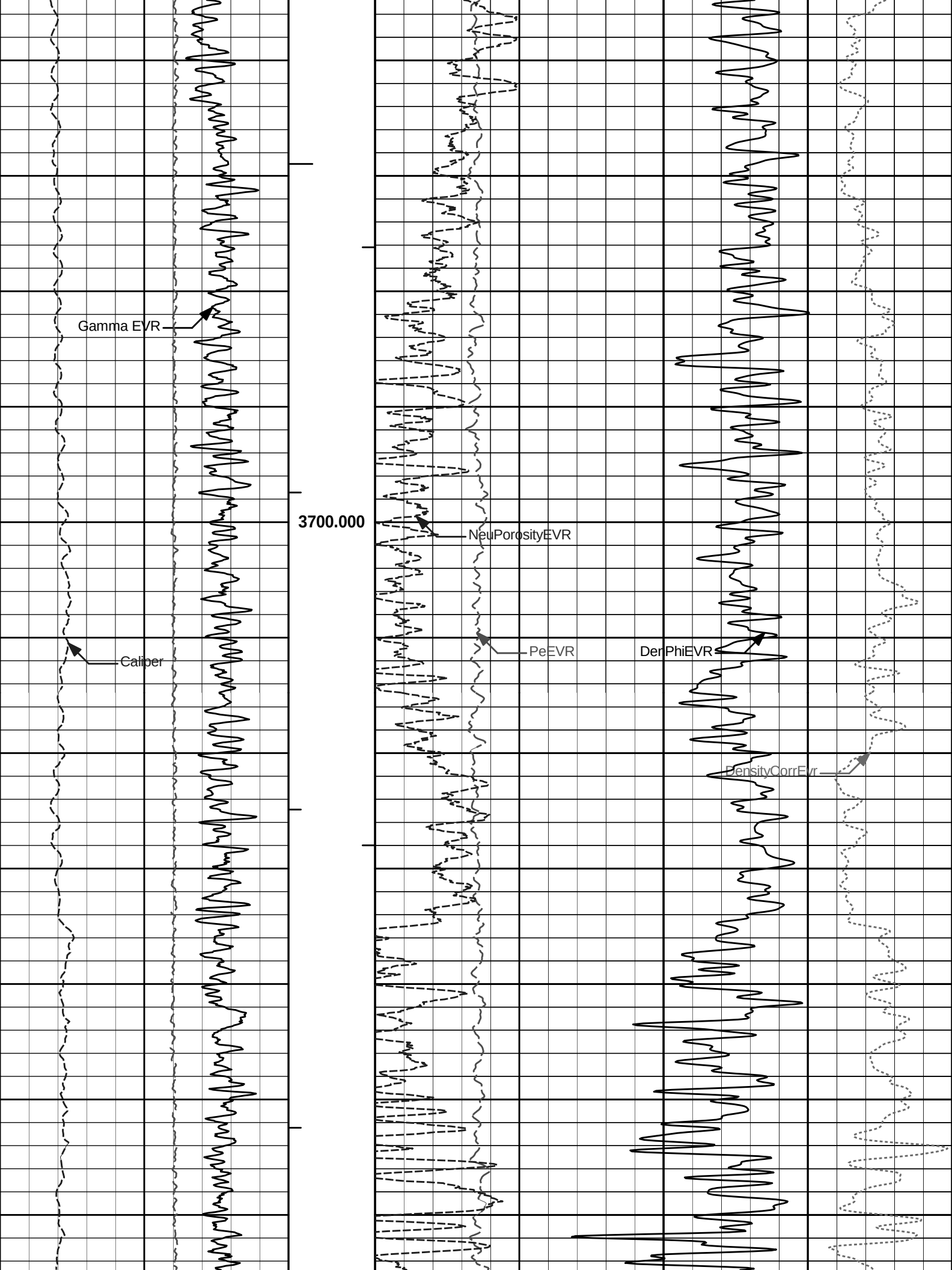
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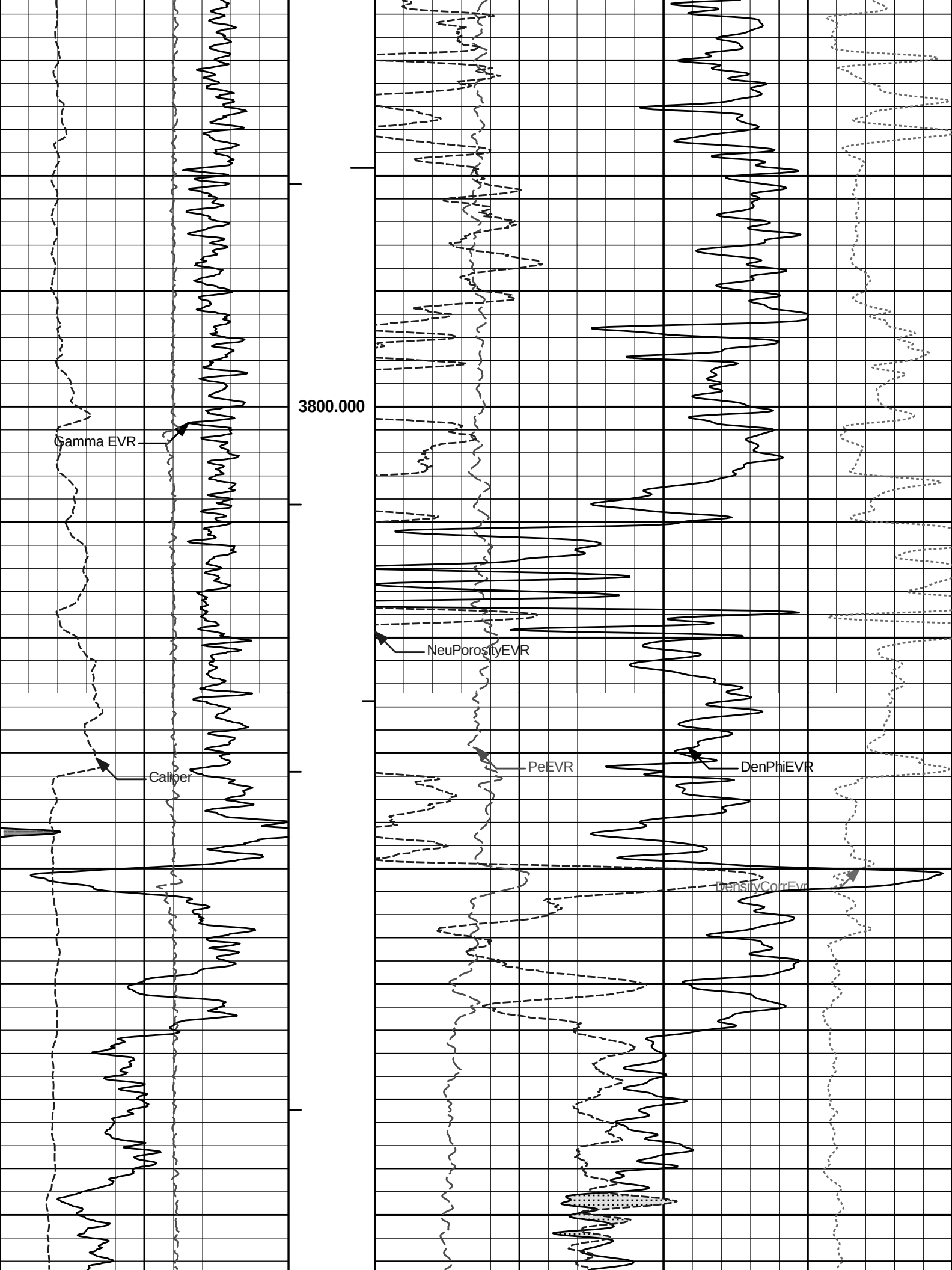
NeuPorosityEVR
Caliper
PeEVR
DenPhiEVR
DensityCorrEvr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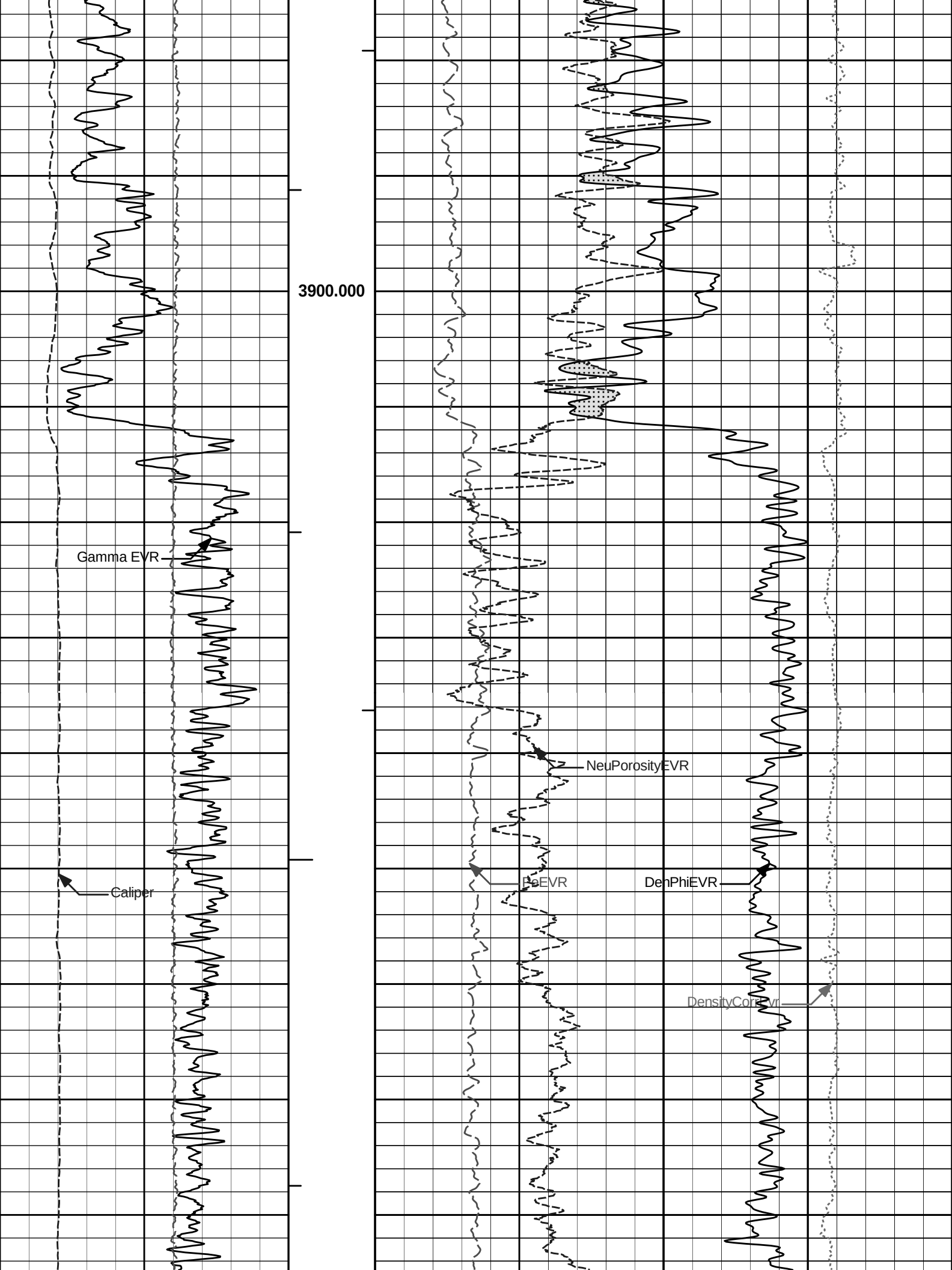
Gamma EVR
Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr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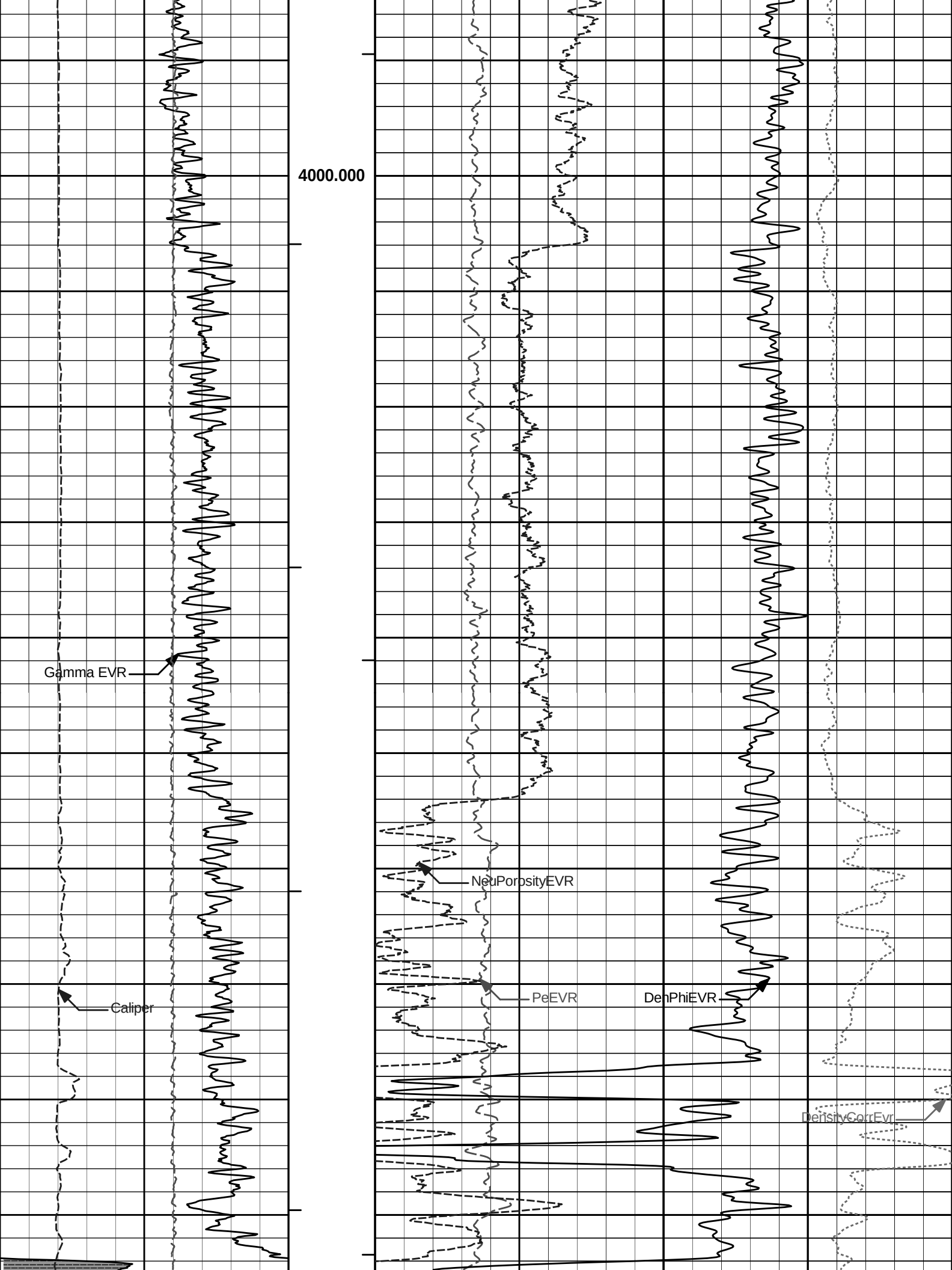
Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr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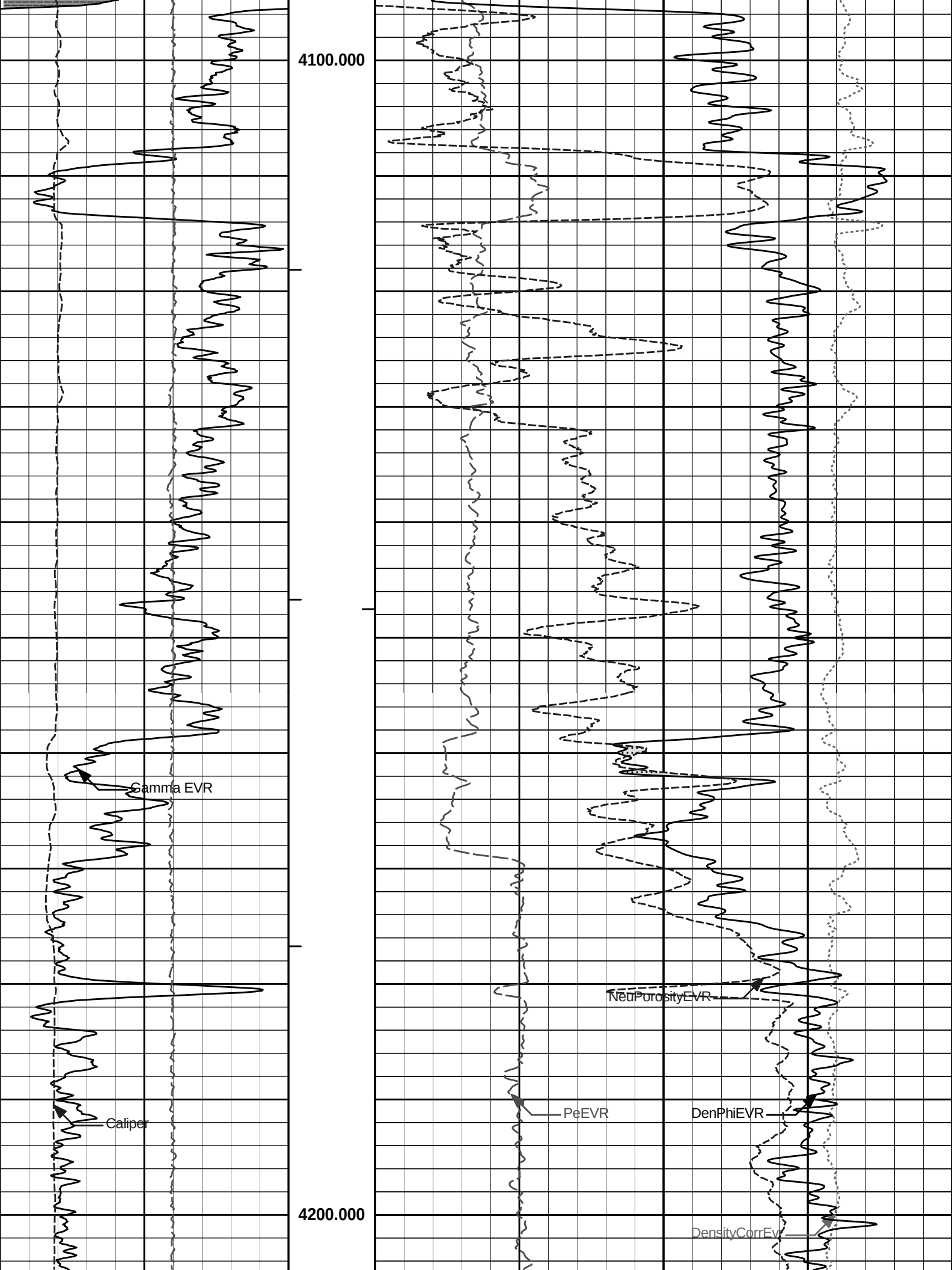
Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr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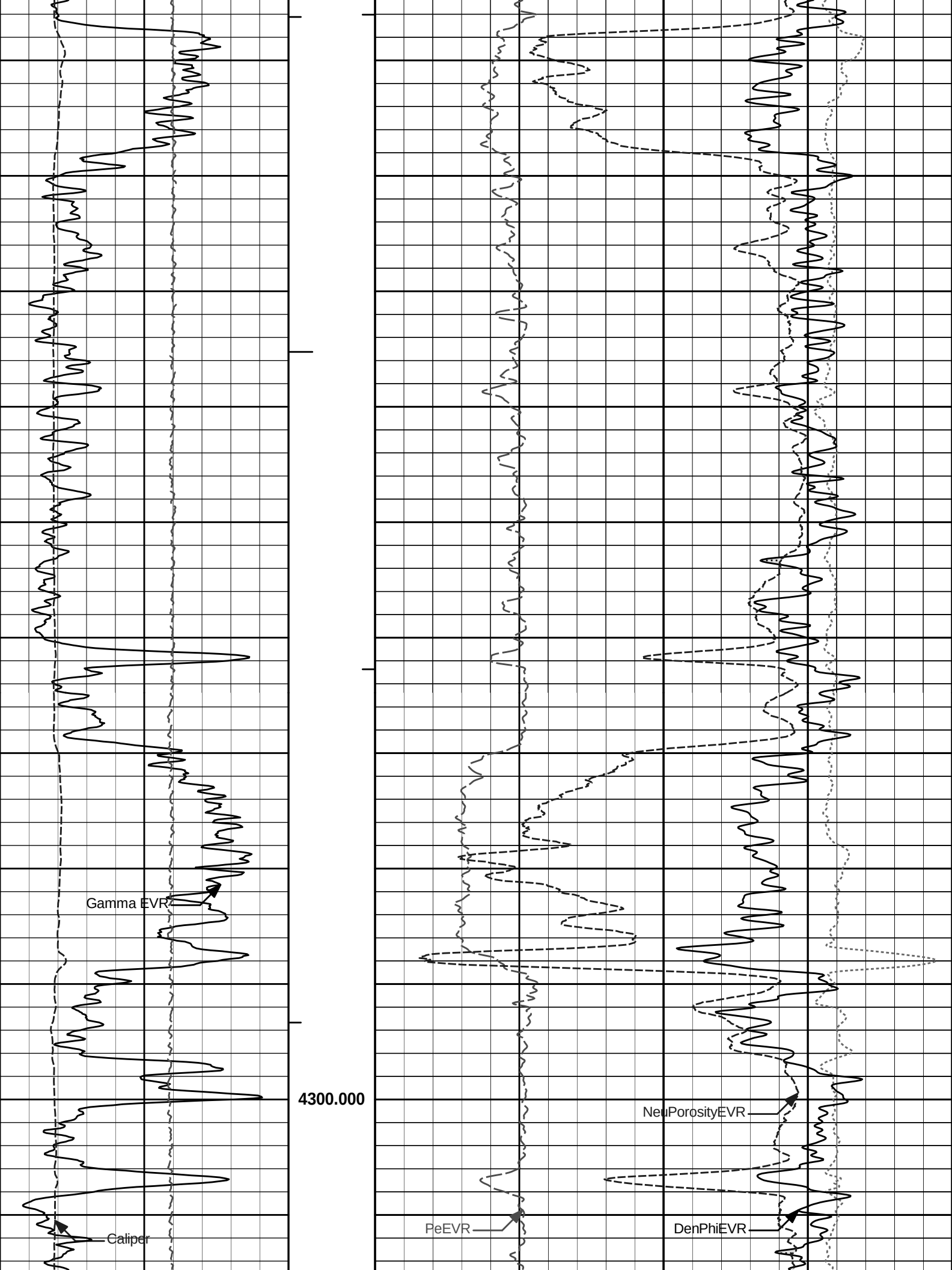
Gamma EVR
Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
4200.000
DensityCorrEvr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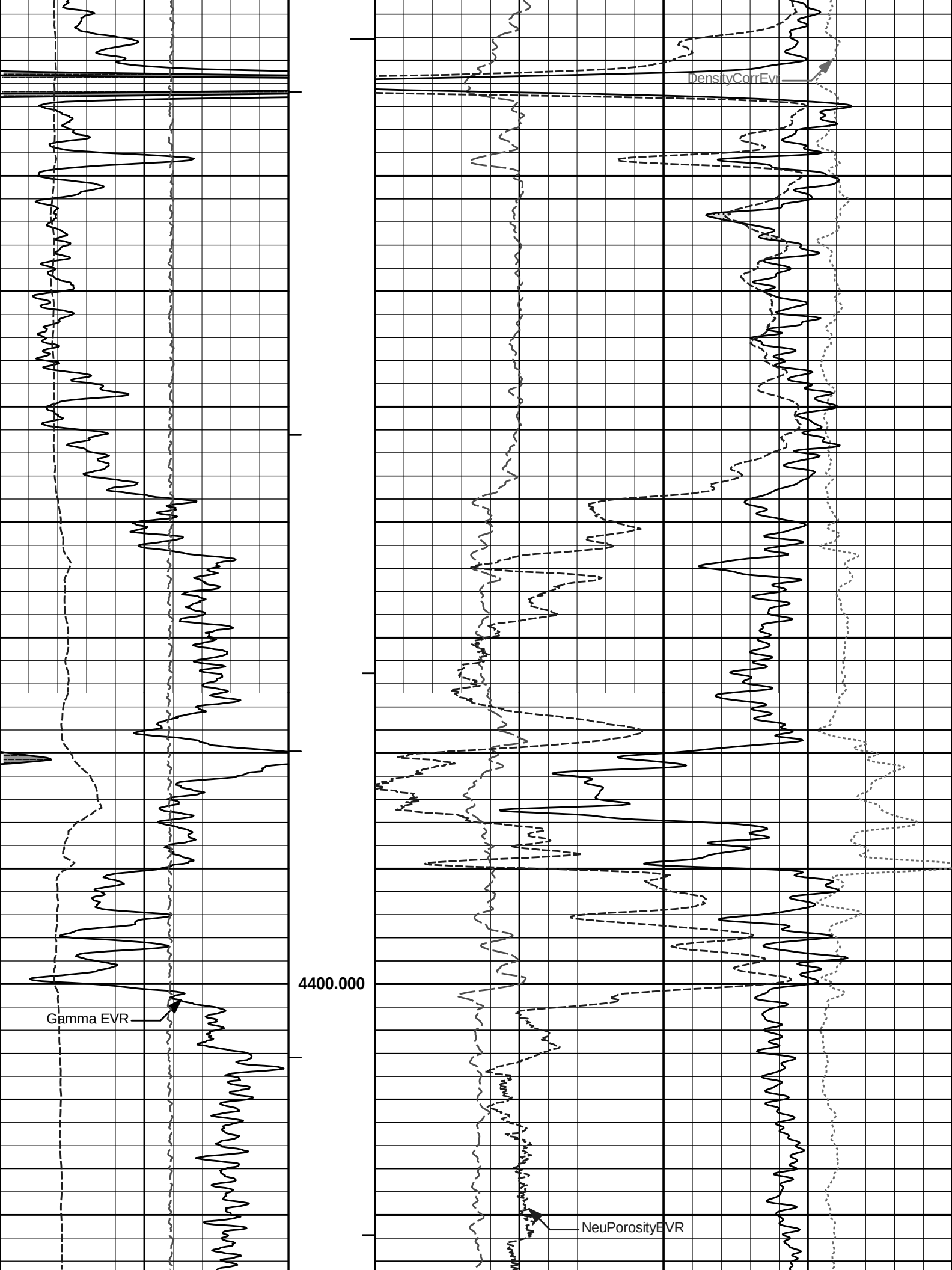
Caliper
PeEVR
NeuPorosityEVR
DenPhiEVR


DensityCorrEvr
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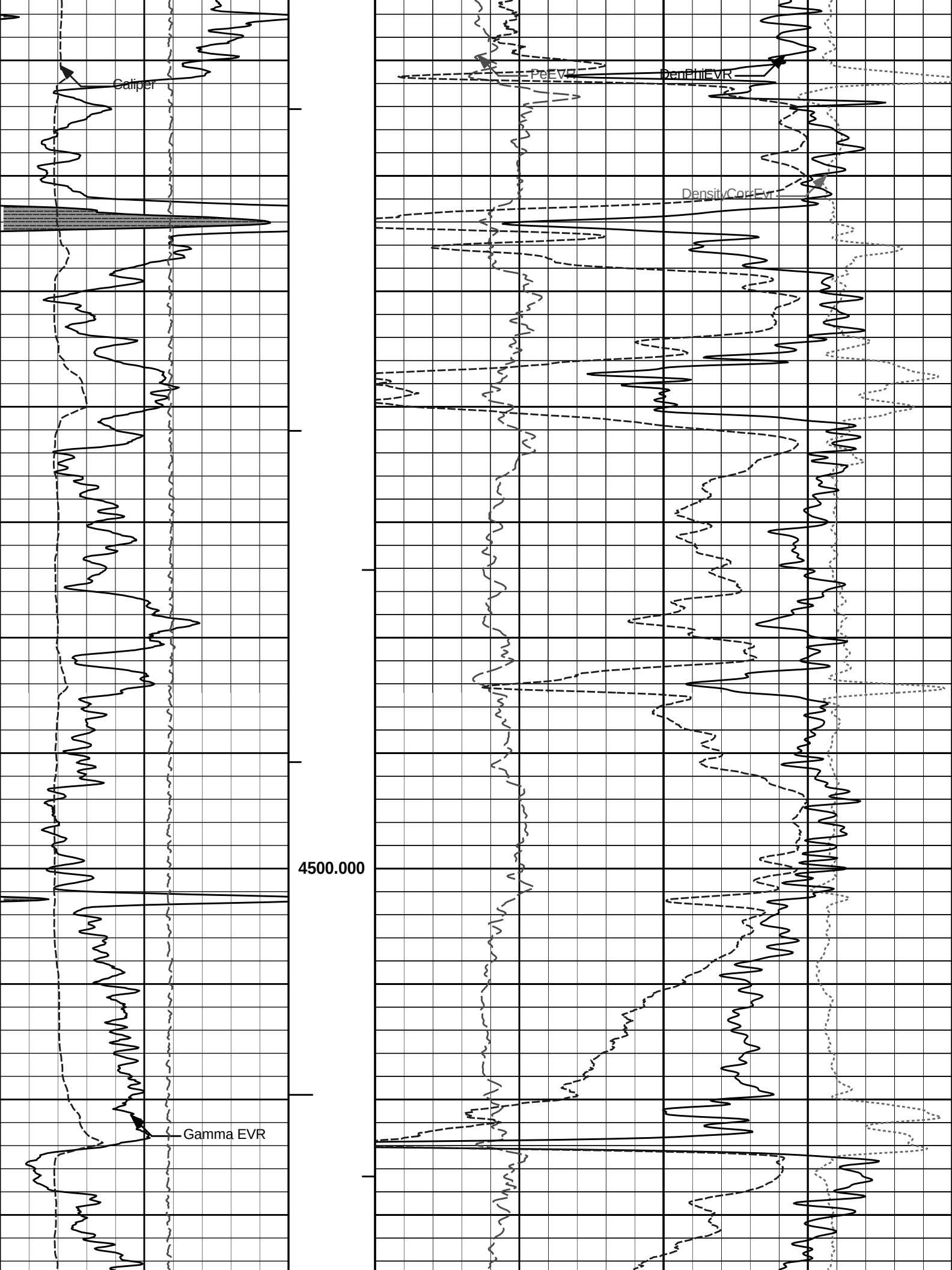
Gamma EVR
NeuPorosityEVR


Caliper
PeEVR
DenPhiEVR
DensityCorrEvr
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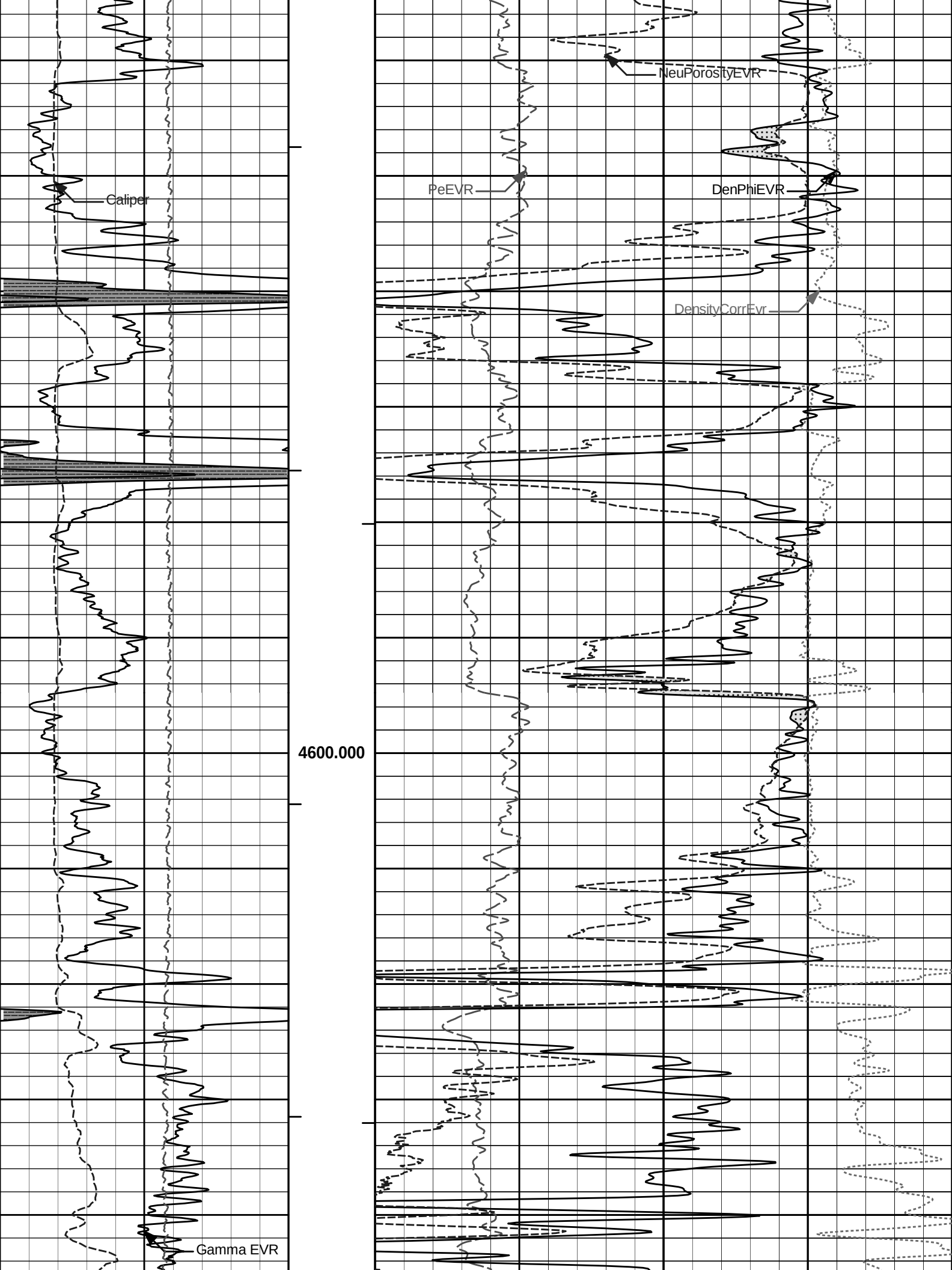
Gamma EVR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PeEVR
DenPhiEVR
Caliper
DensityCorrEvr
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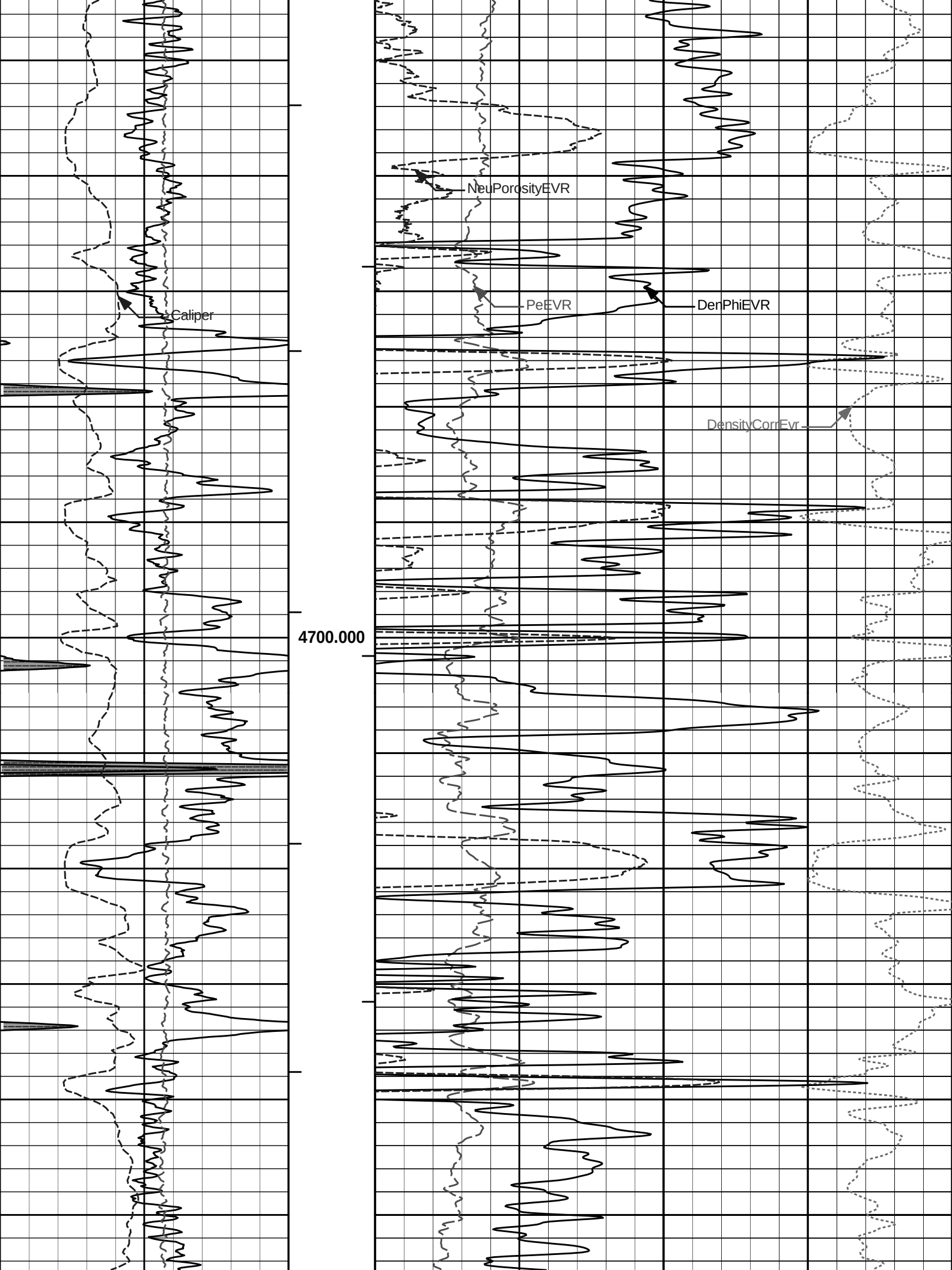
Gamma EVR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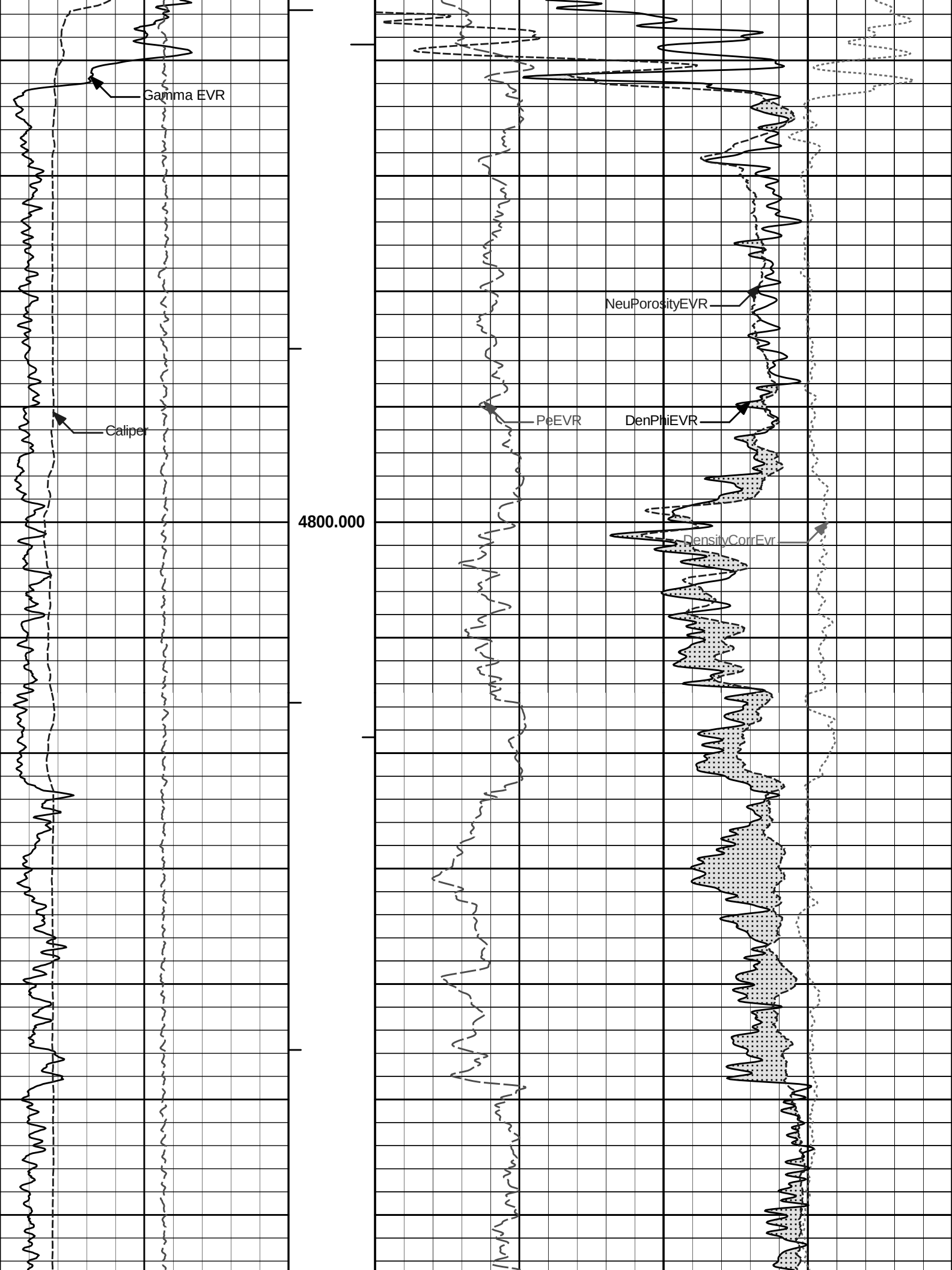
PeEVR
DenPhiEVR
Caliper
DensityCorrEvr
4700.000


Gamma EVR
Caliper
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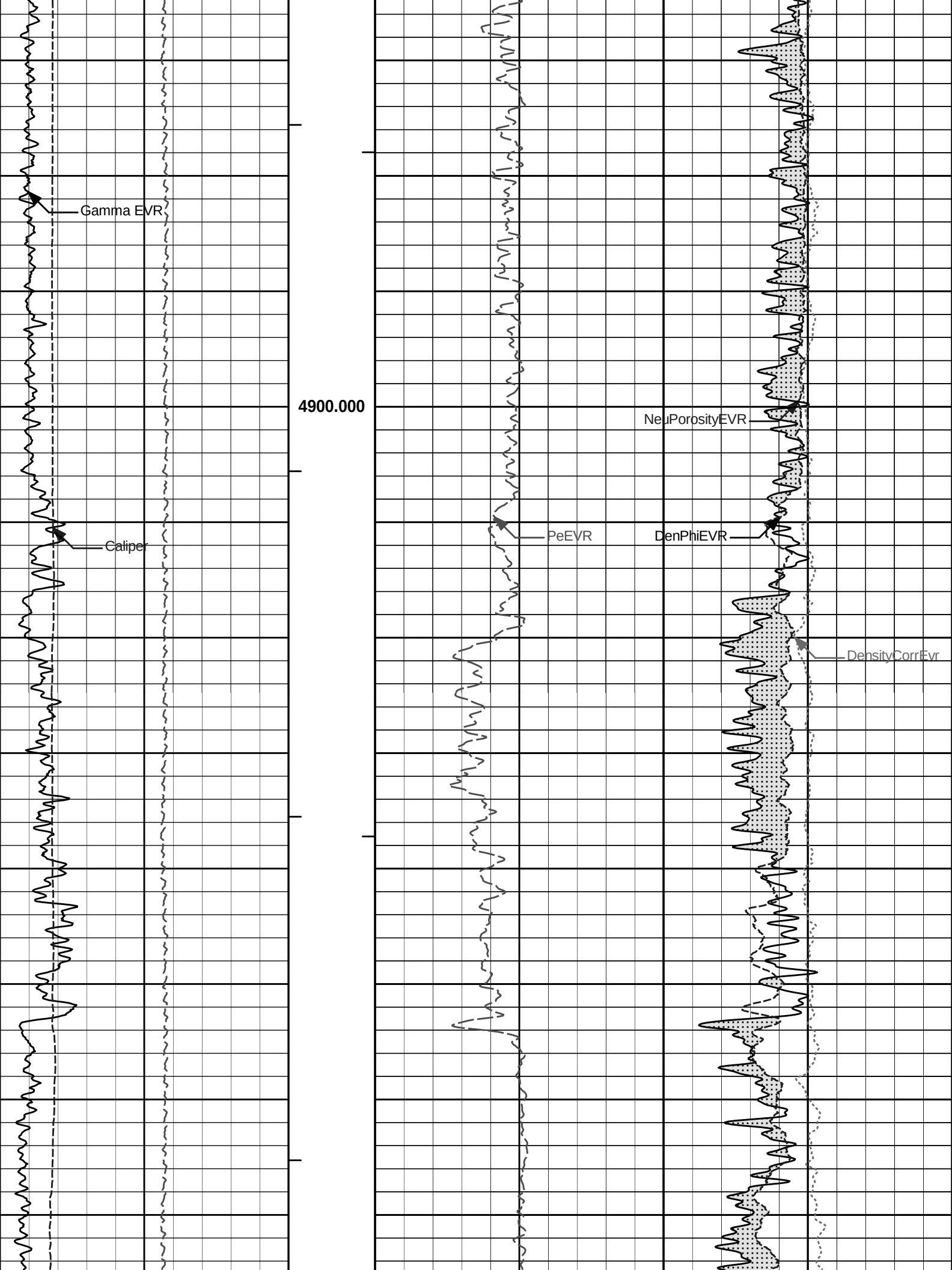
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr


Gamma EVR
Caliper
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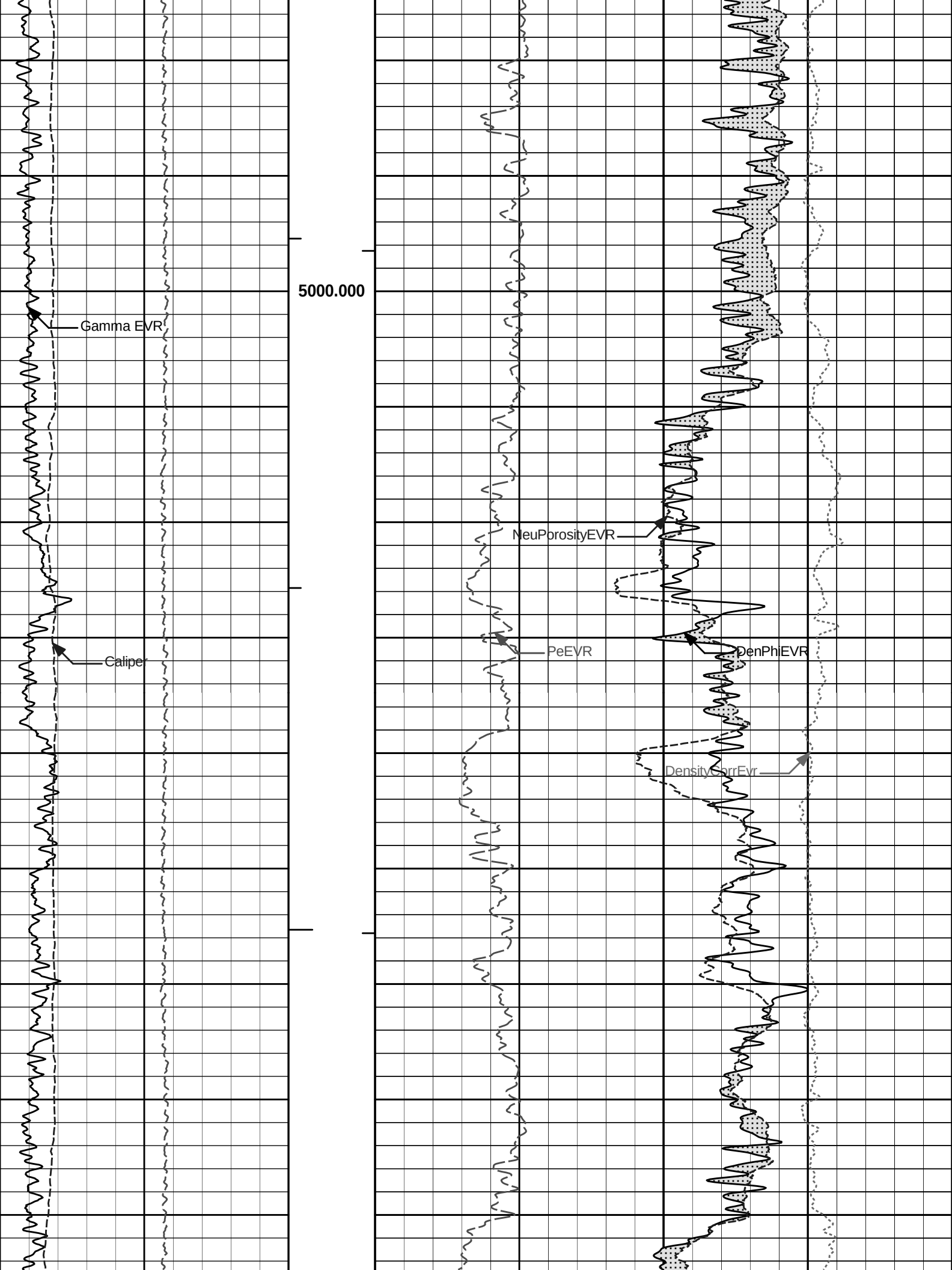
PeEVR
NeuPorosityEVR
DenPhiEVR
DensityCorrEvr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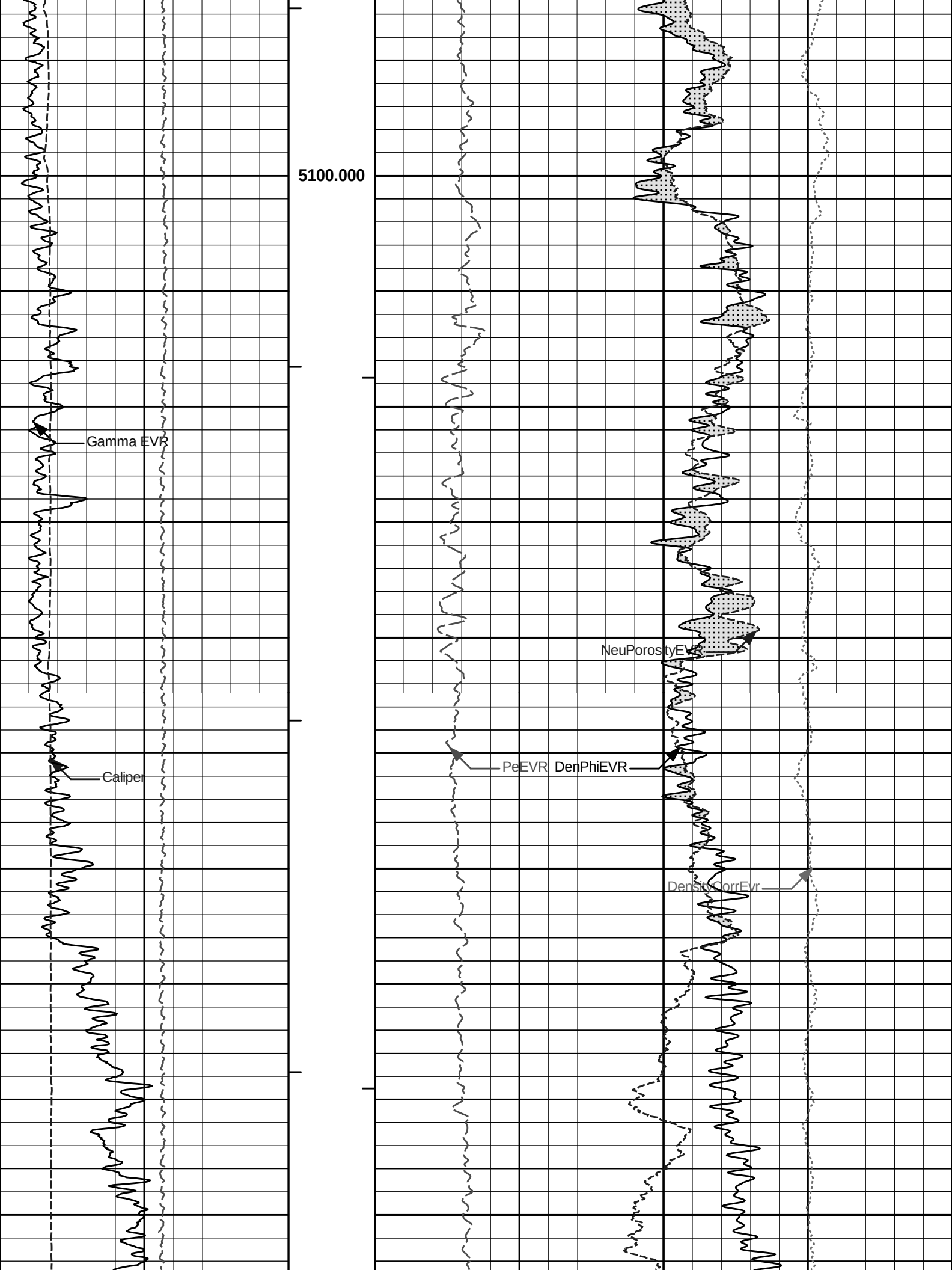
Gamma EVR
Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr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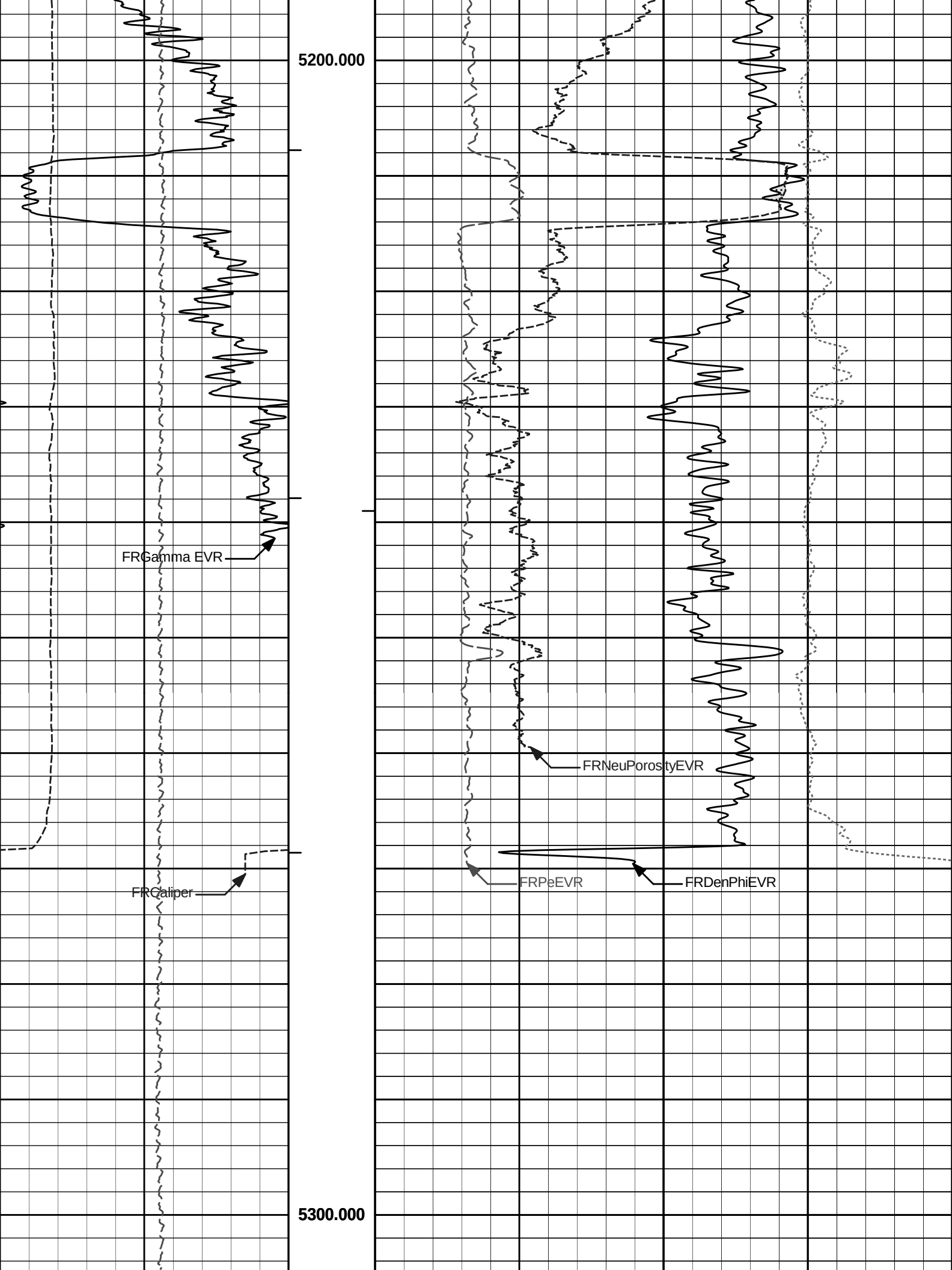
Gamma EVR
Caliper
NeuPorosityEVR
PeEVR
DenPhiEVR
DensityCorrEvr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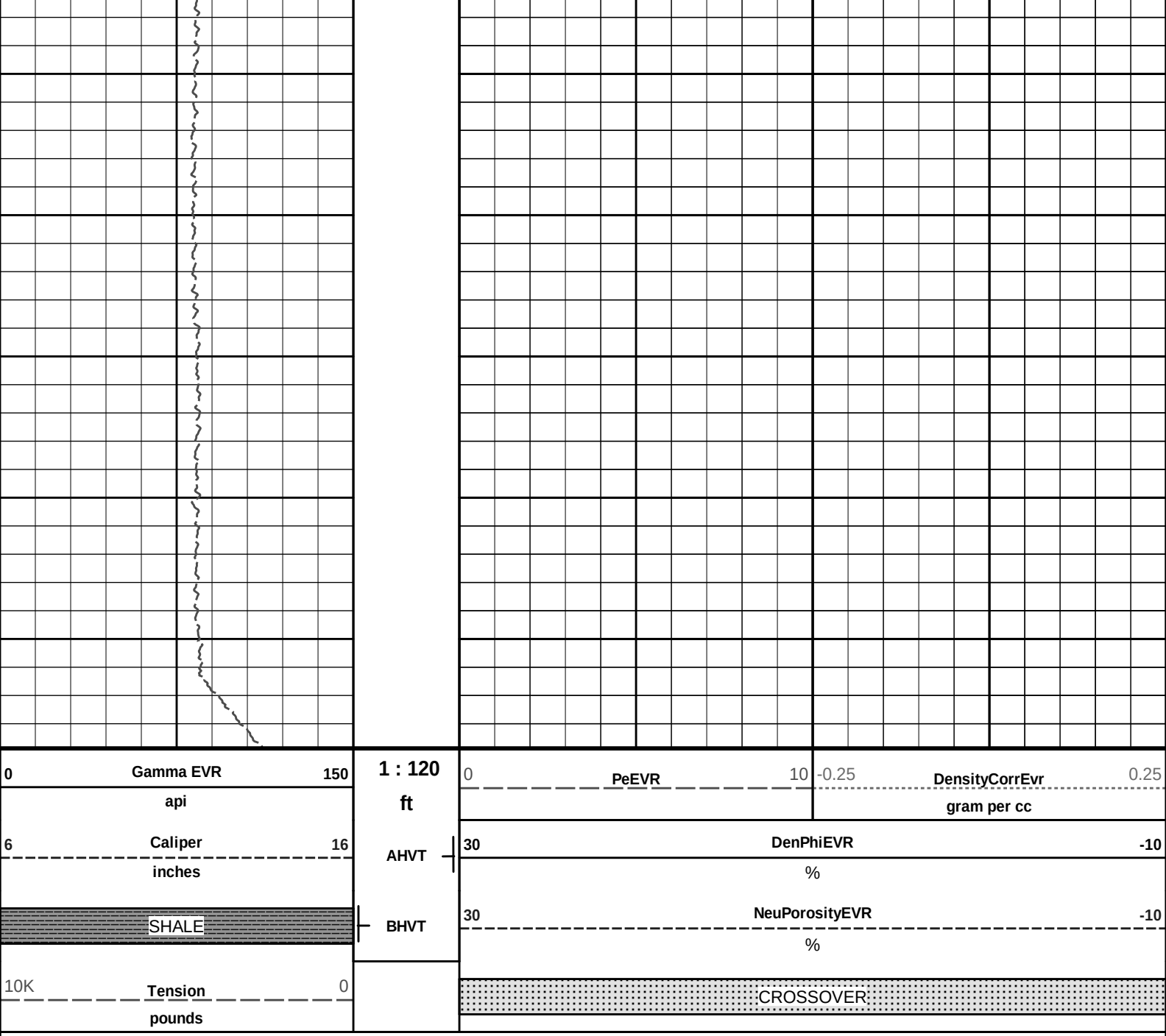
FRNeuPorosityEVR
FRPeEVR
FRDenPhiEVR
FRCaliper
5300.000



HALLIBURTON

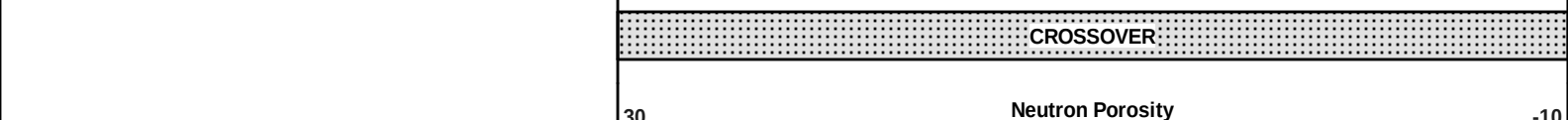
Plot Time: 19-Jul-13 23:22:42
Plot Range: 3300 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\DETAIL*
Plot File: \\PORO\Poro_IQ_EVR_LIB

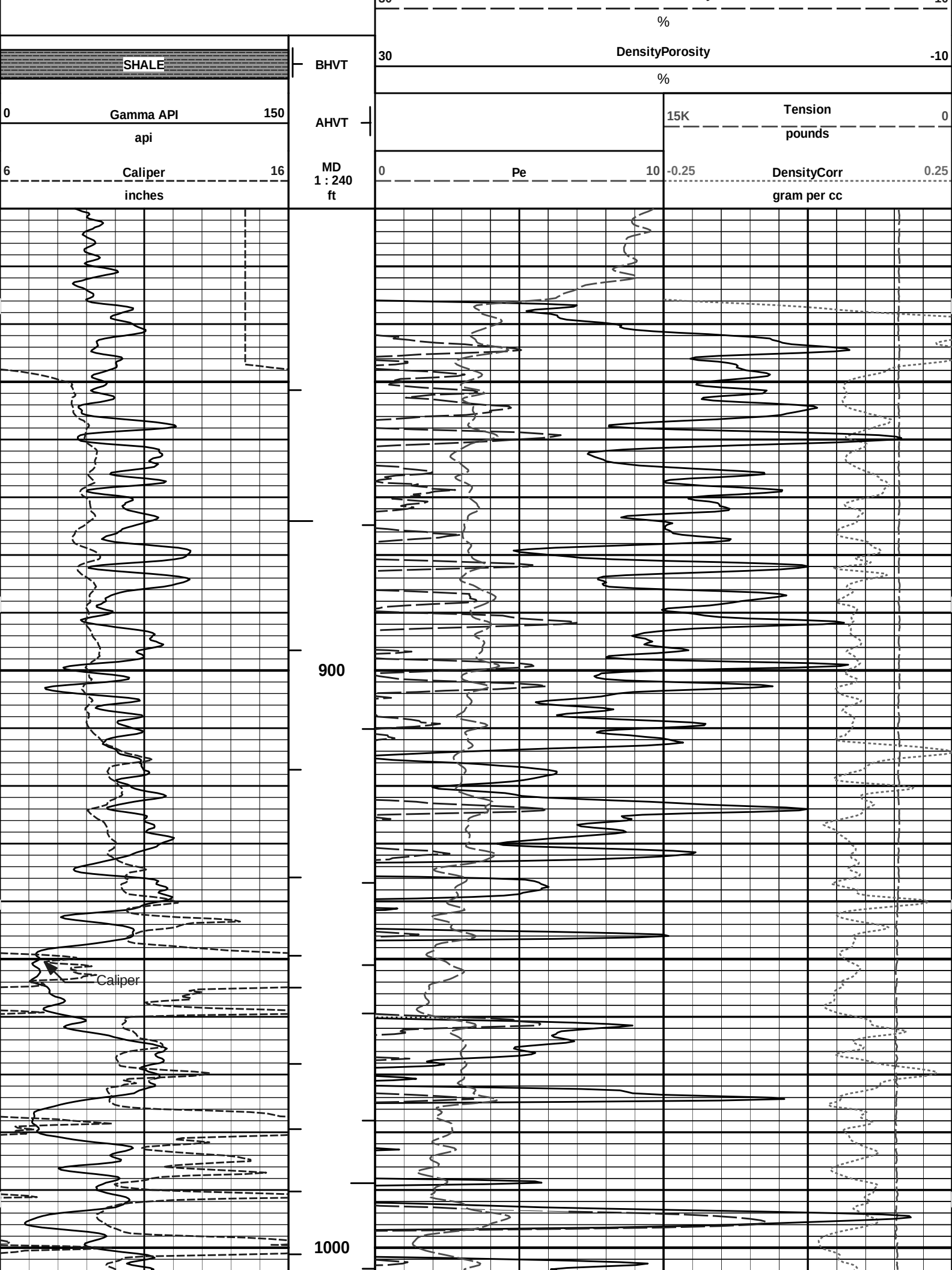
MAIN PASS 10" = 100'

HALLIBURTON

Plot Time: 19-Jul-13 23:22:43
Plot Range: 820 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\CASING\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

5 INCH MAIN LOG




%
30
DensityPorosity
-10
%
SHALE
BHVT
0
Gamma API
150
AHVT
15K
Tension
0
api
pounds
6
Caliper
16
MD
1 : 240
ft
0
Pe
10
-0.25
DensityCorr
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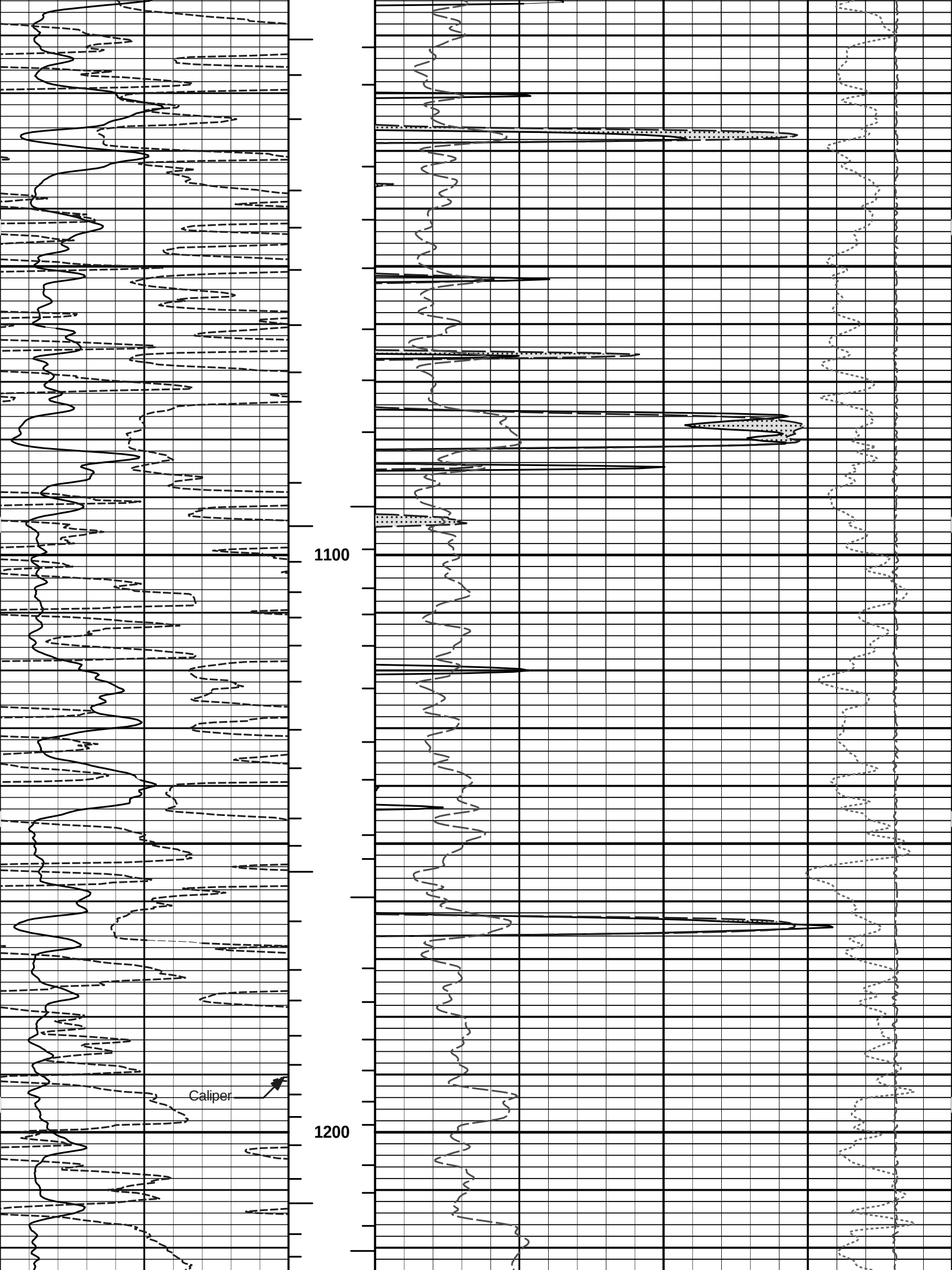
inches
gram per cc
900
Caliper
1000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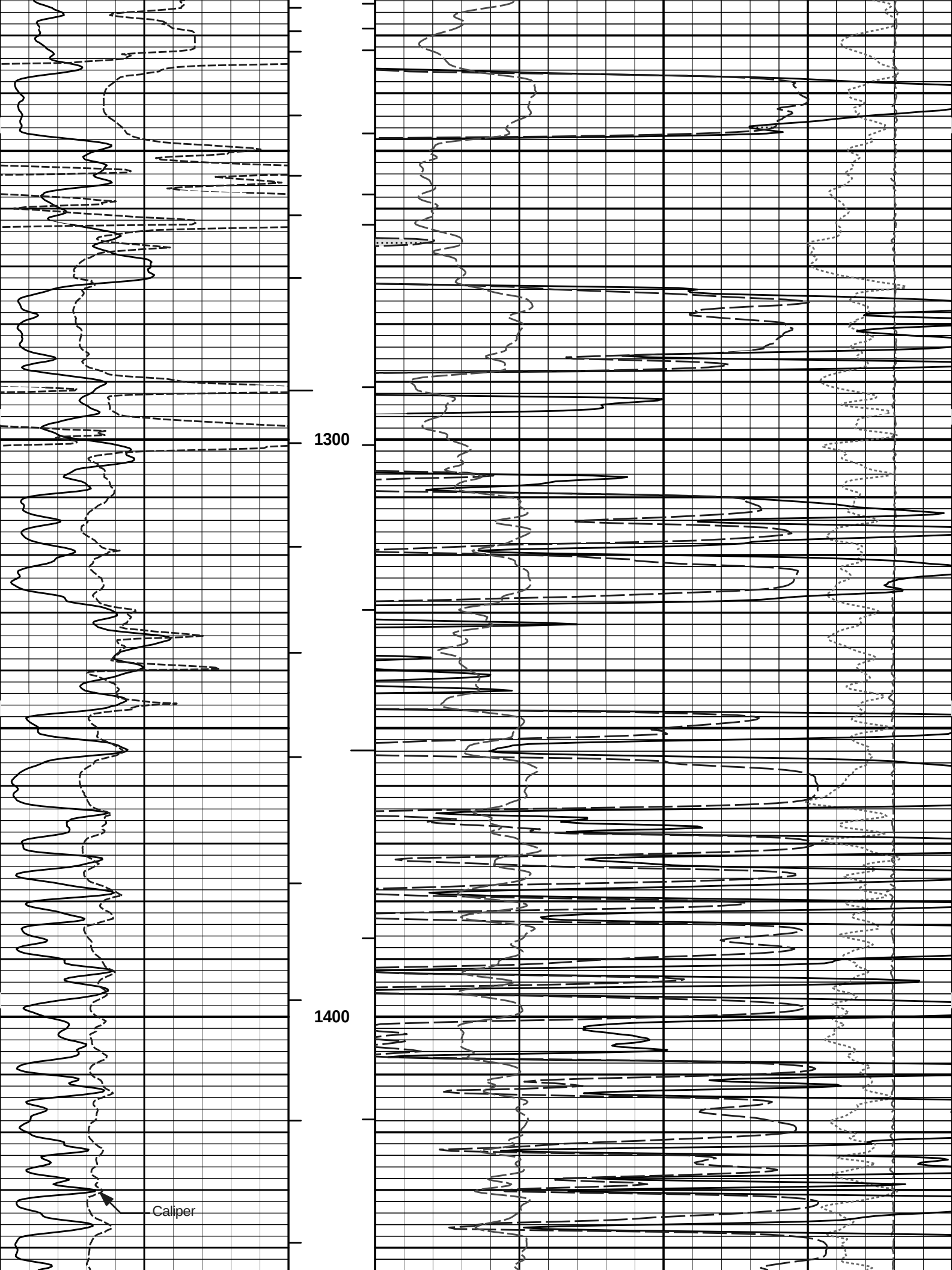
Caliper
1200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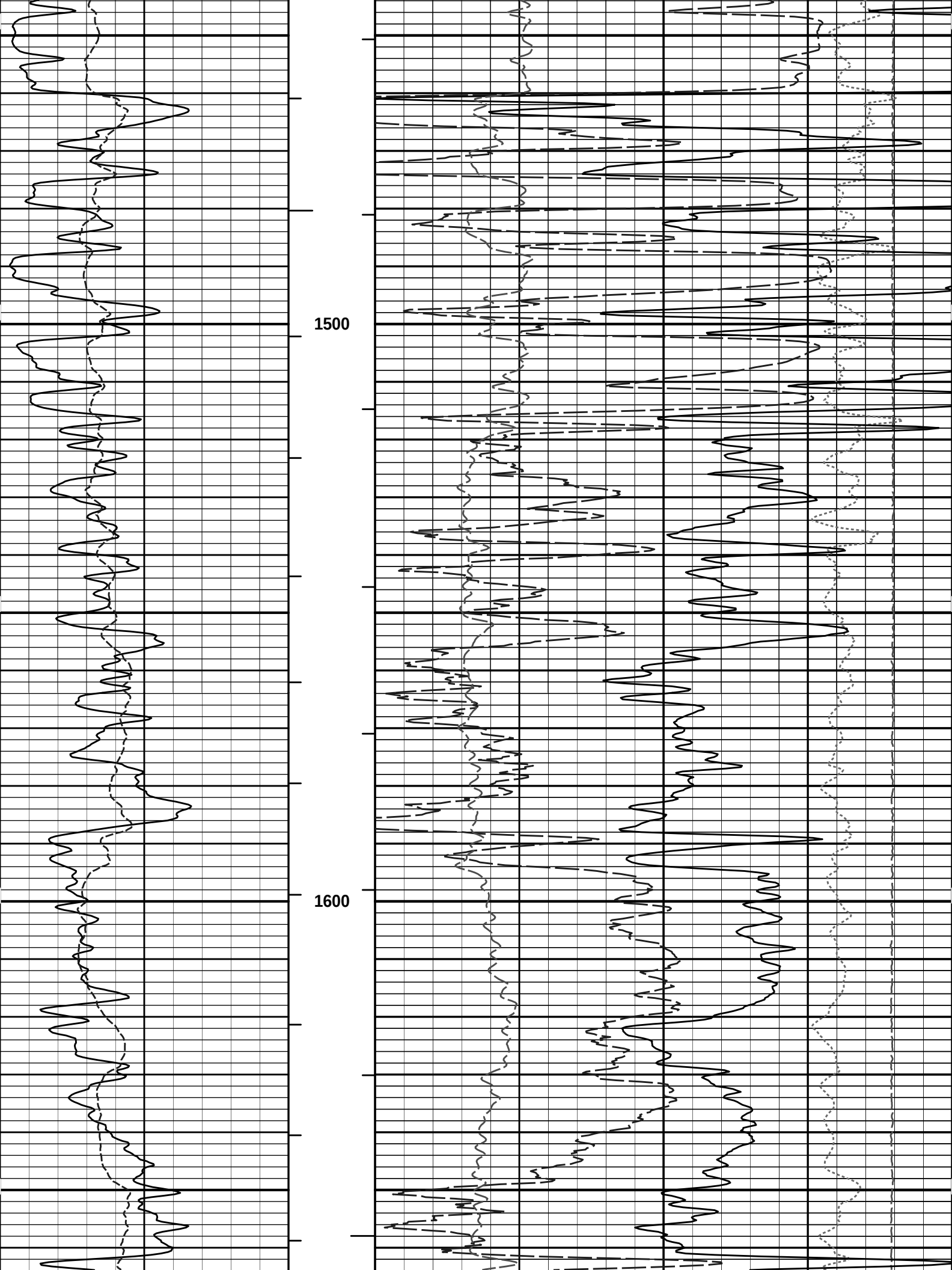
1400
Caliper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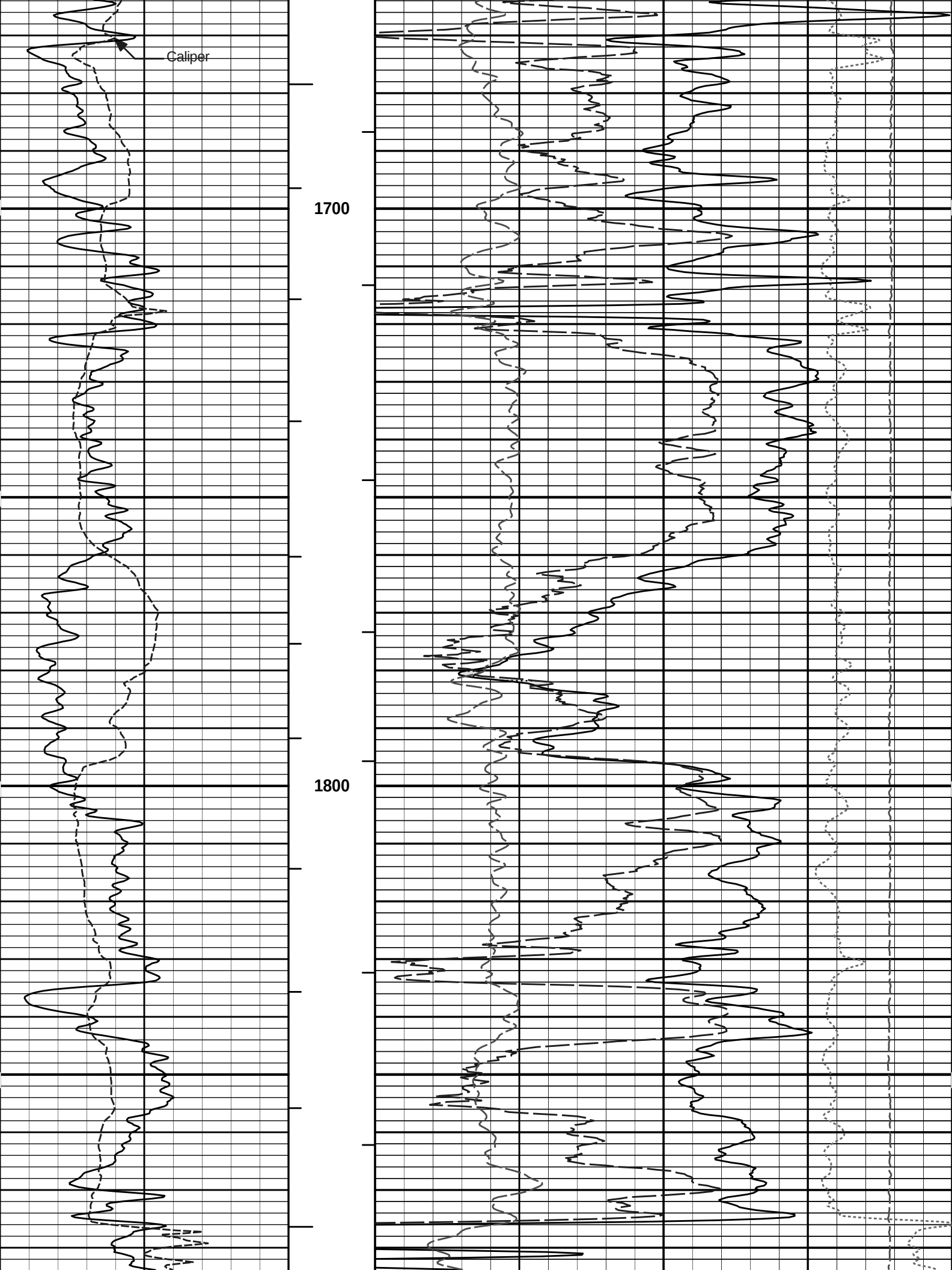
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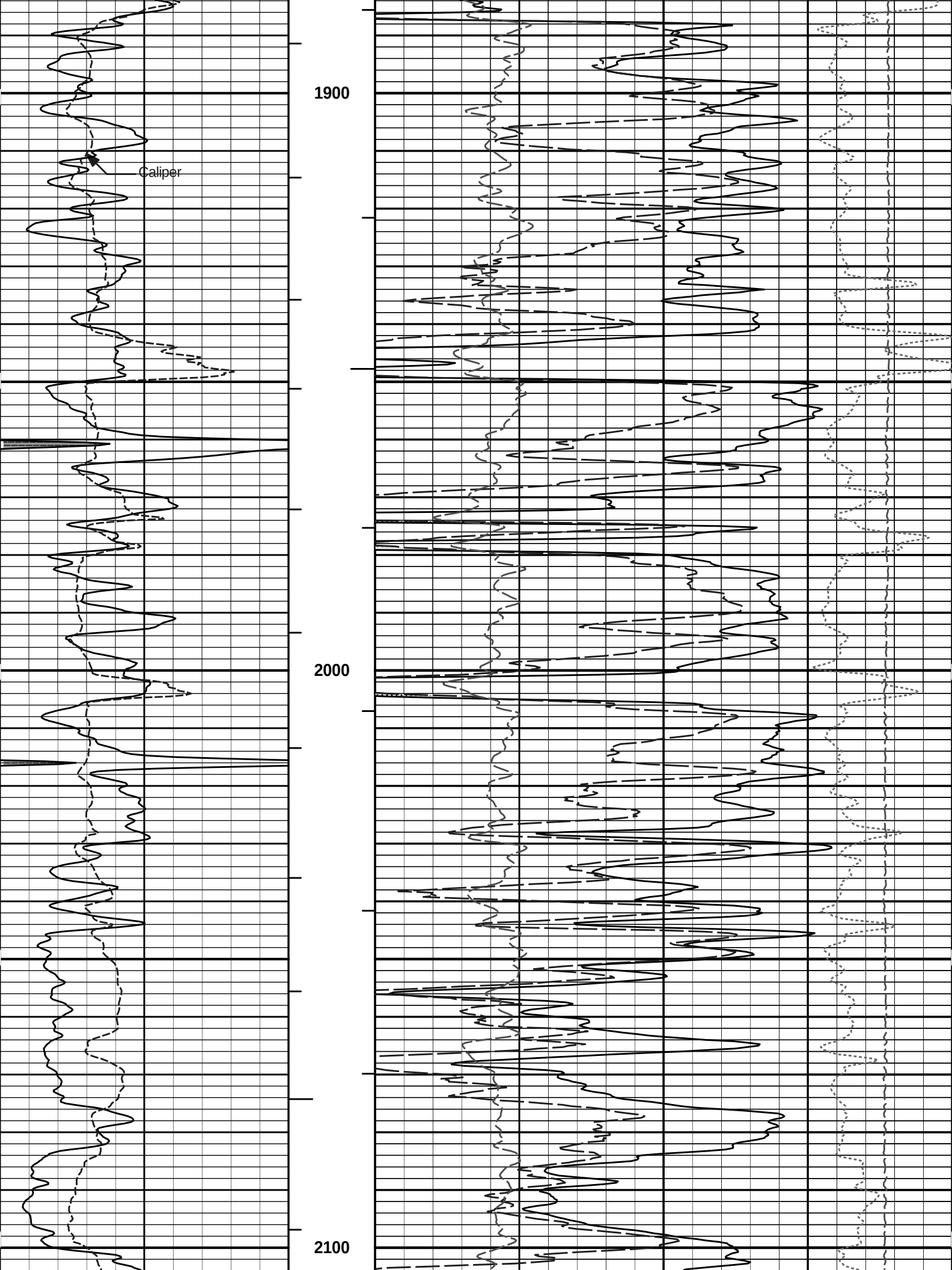
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Caliper
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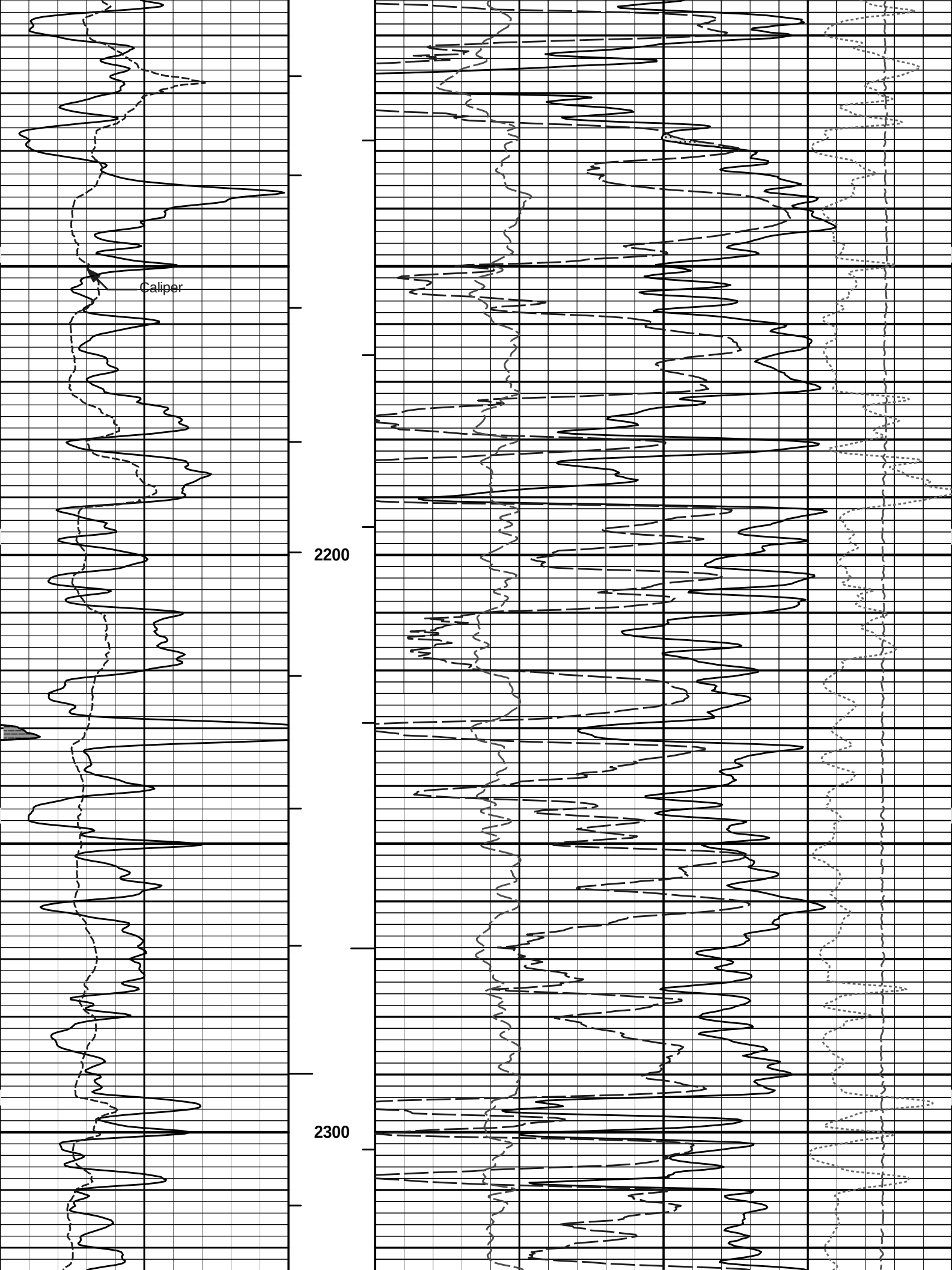
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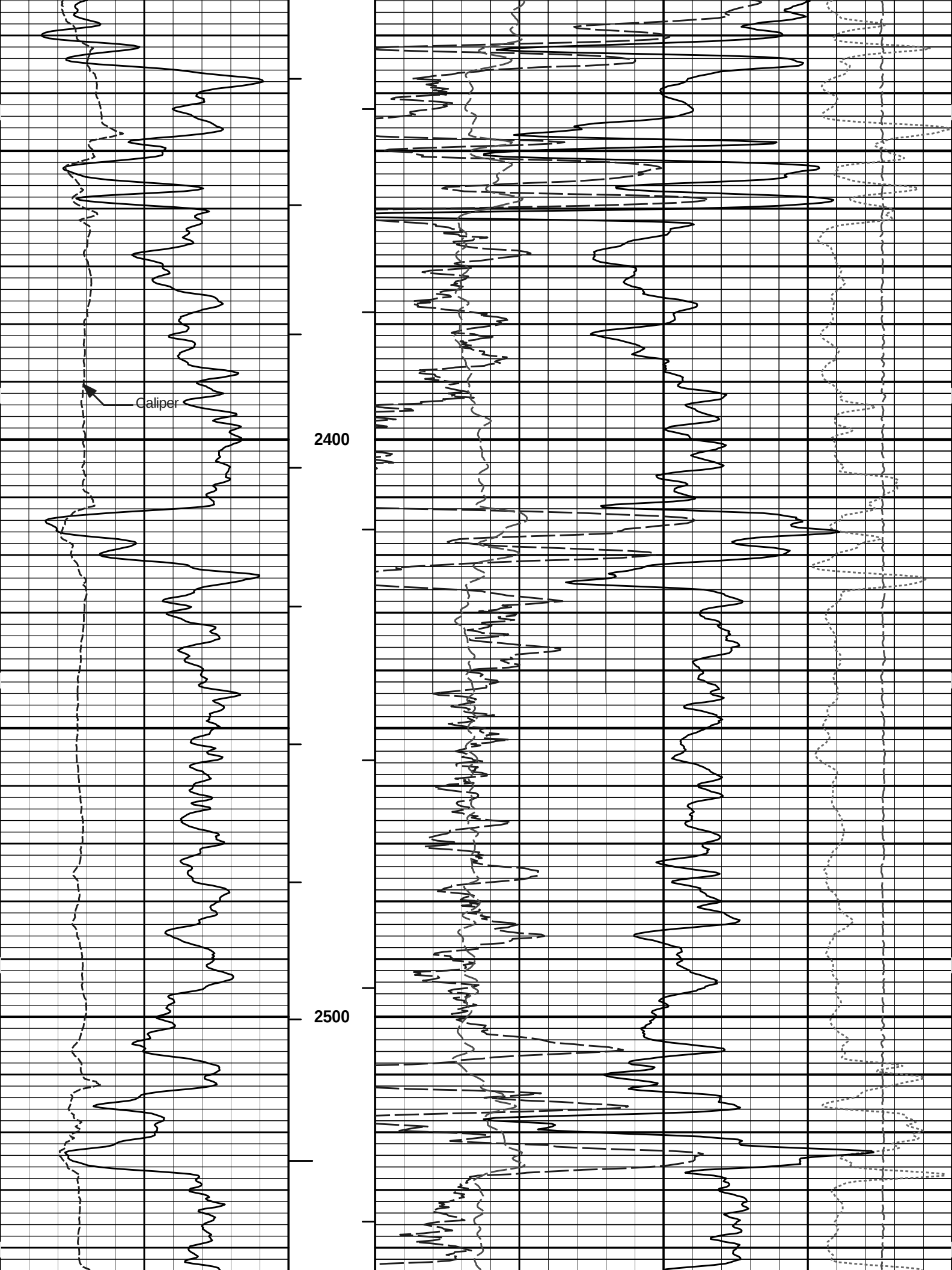
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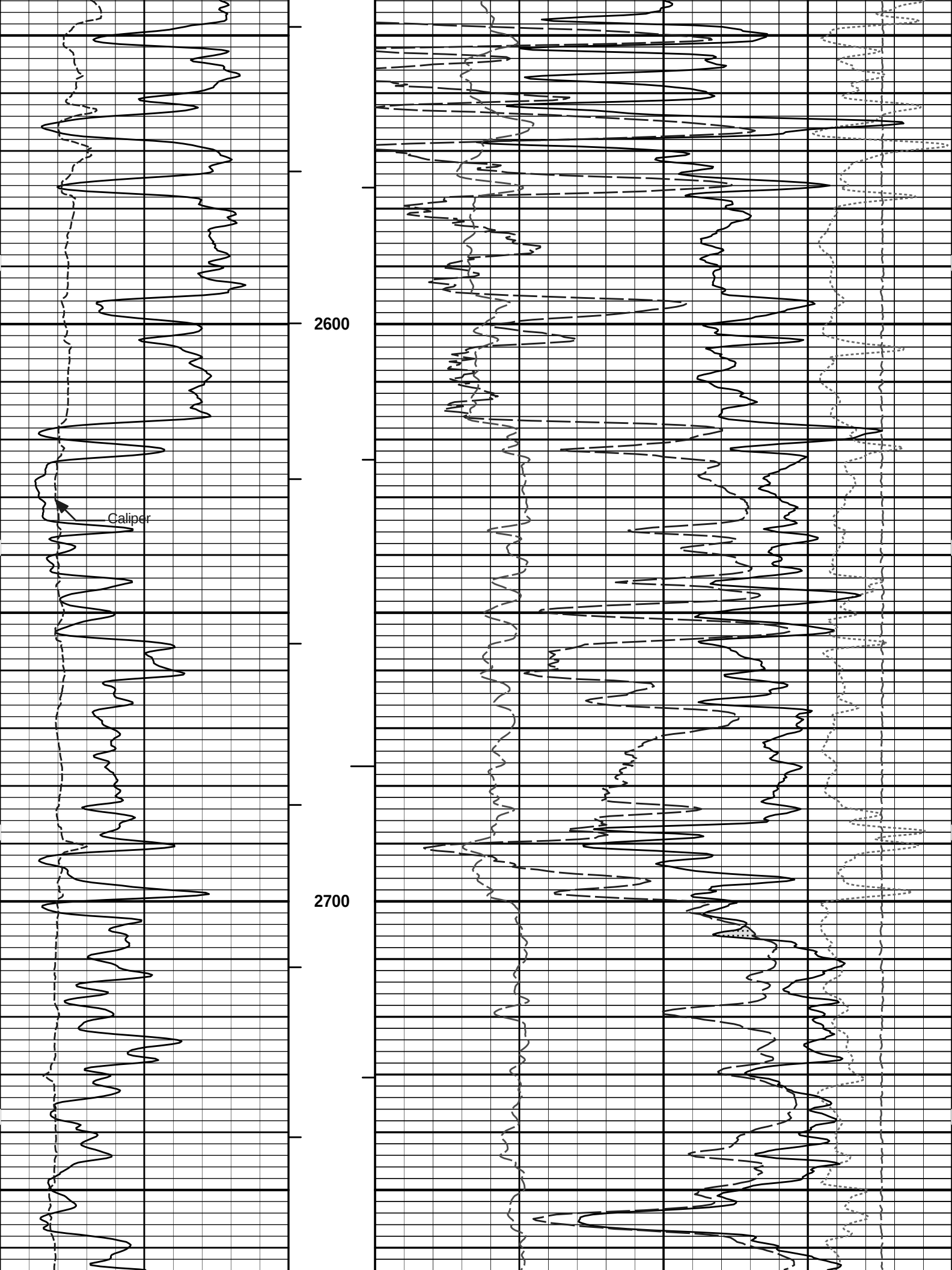
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Caliper
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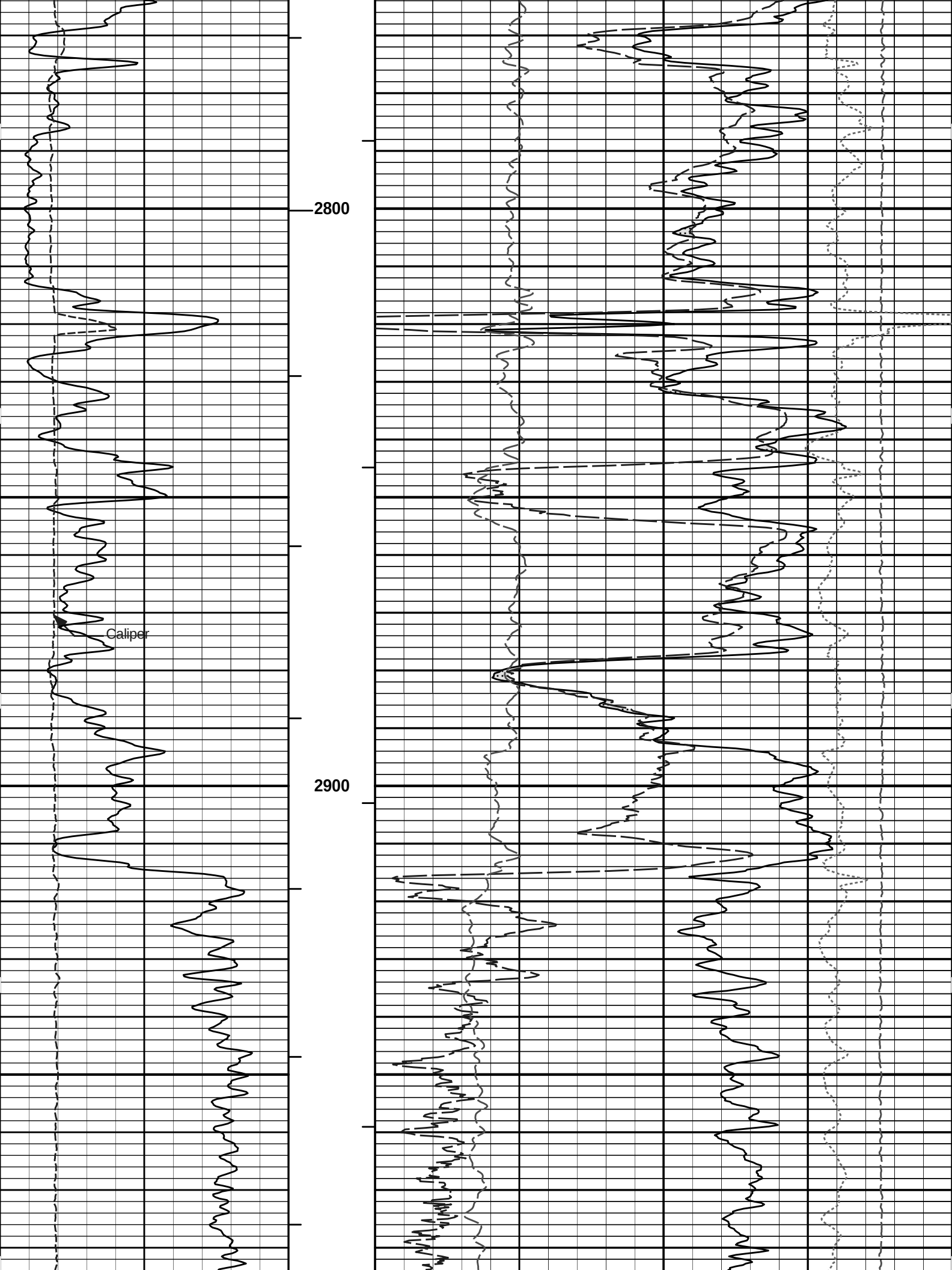
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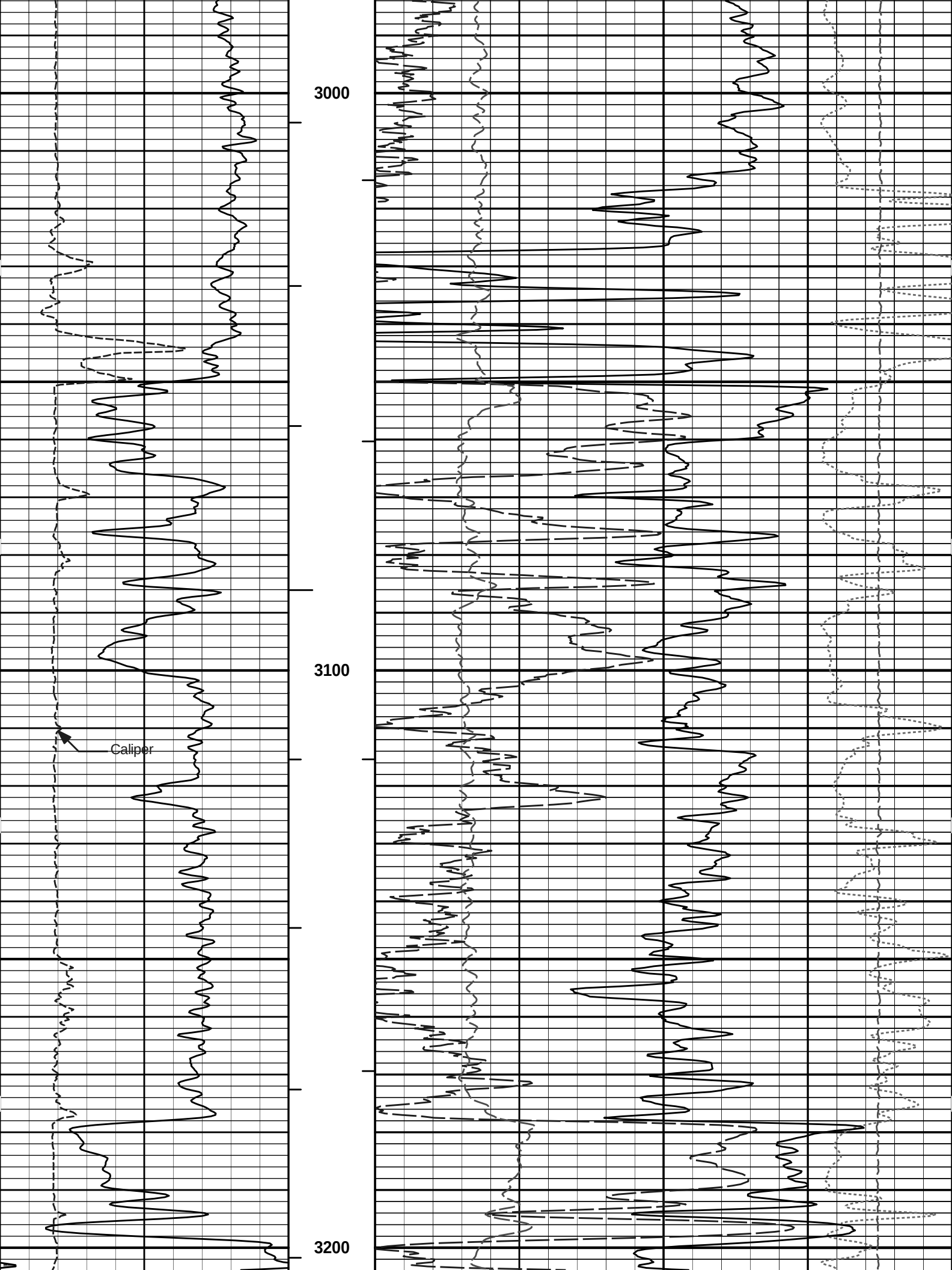
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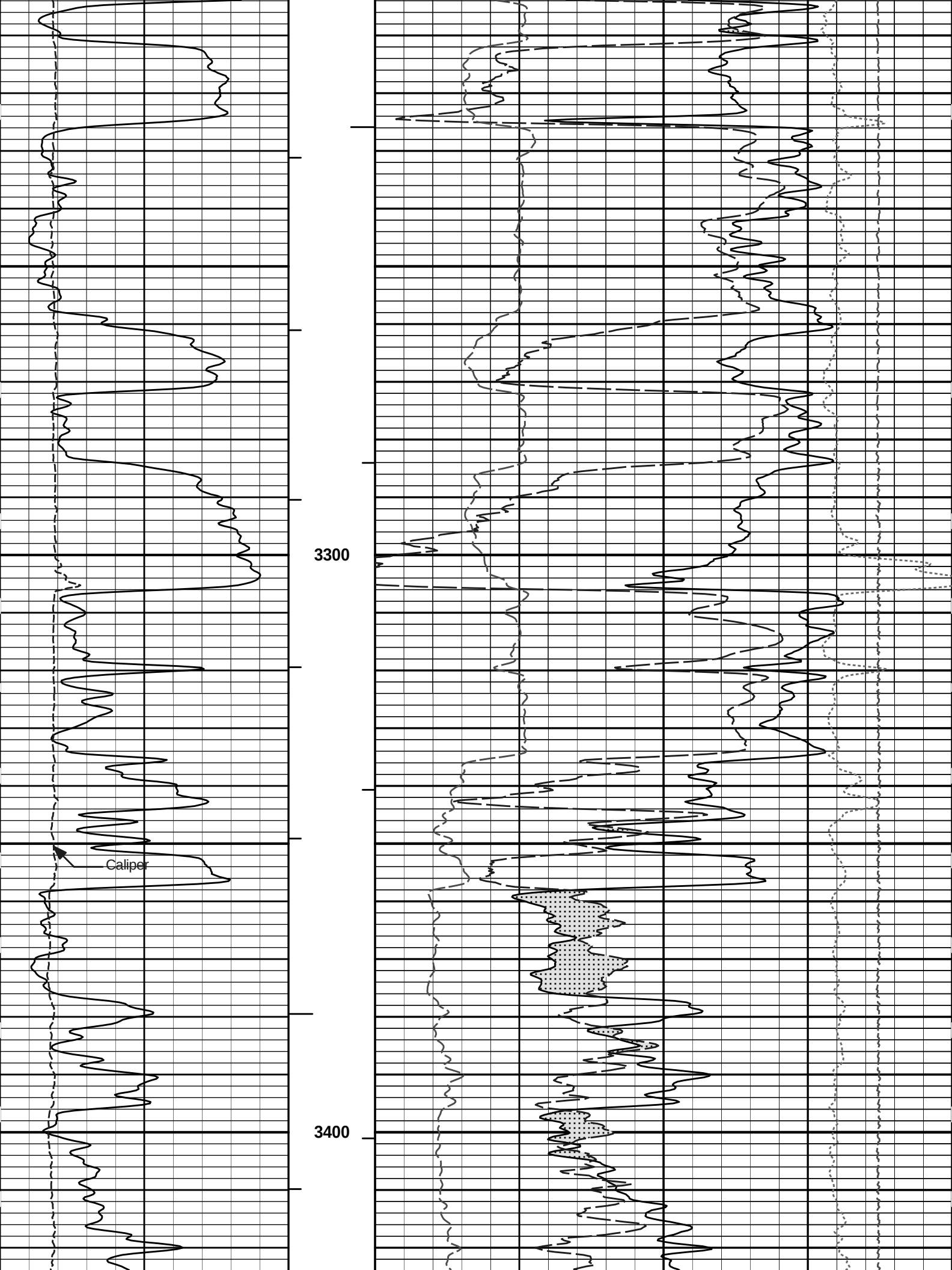
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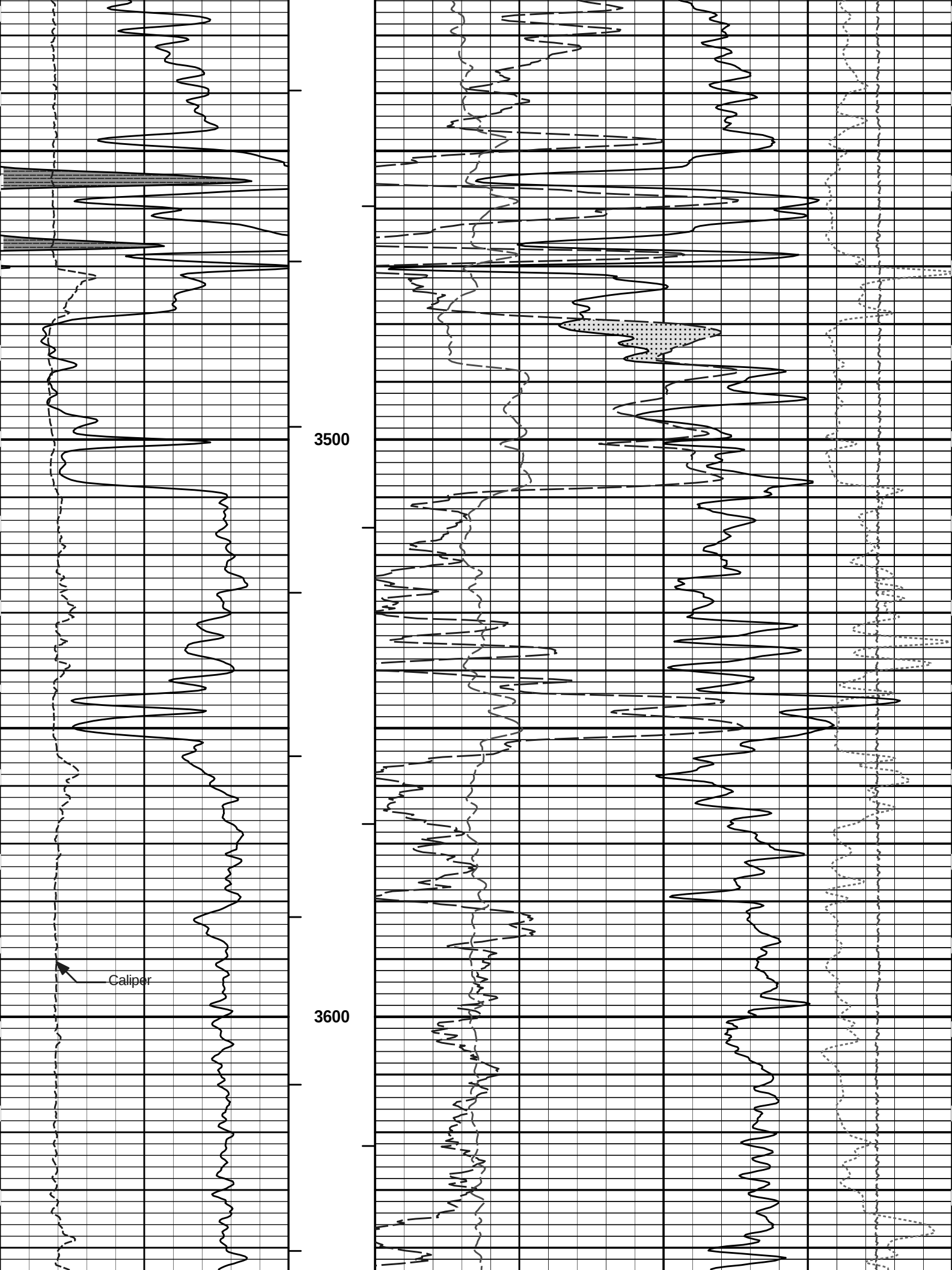
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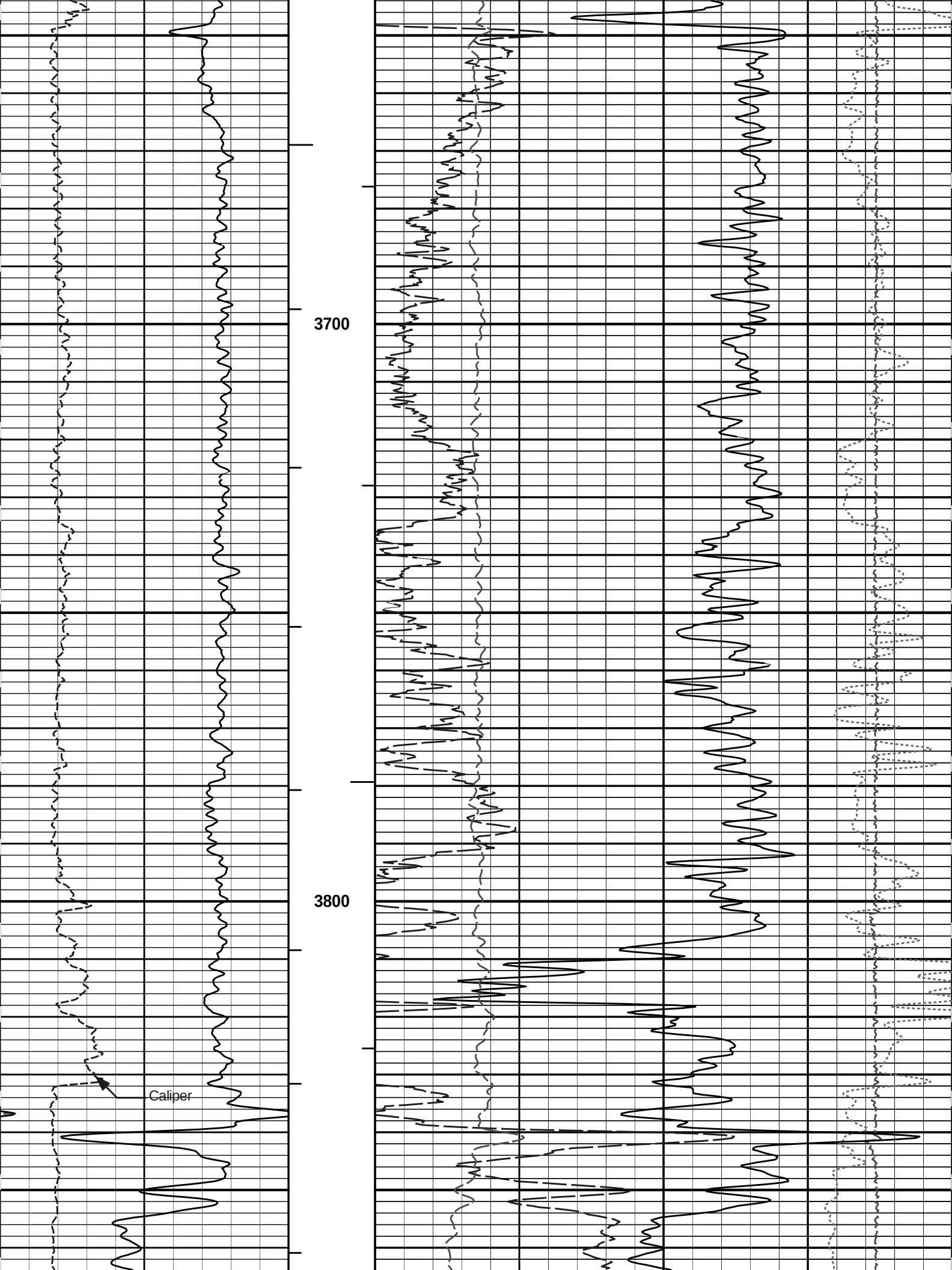
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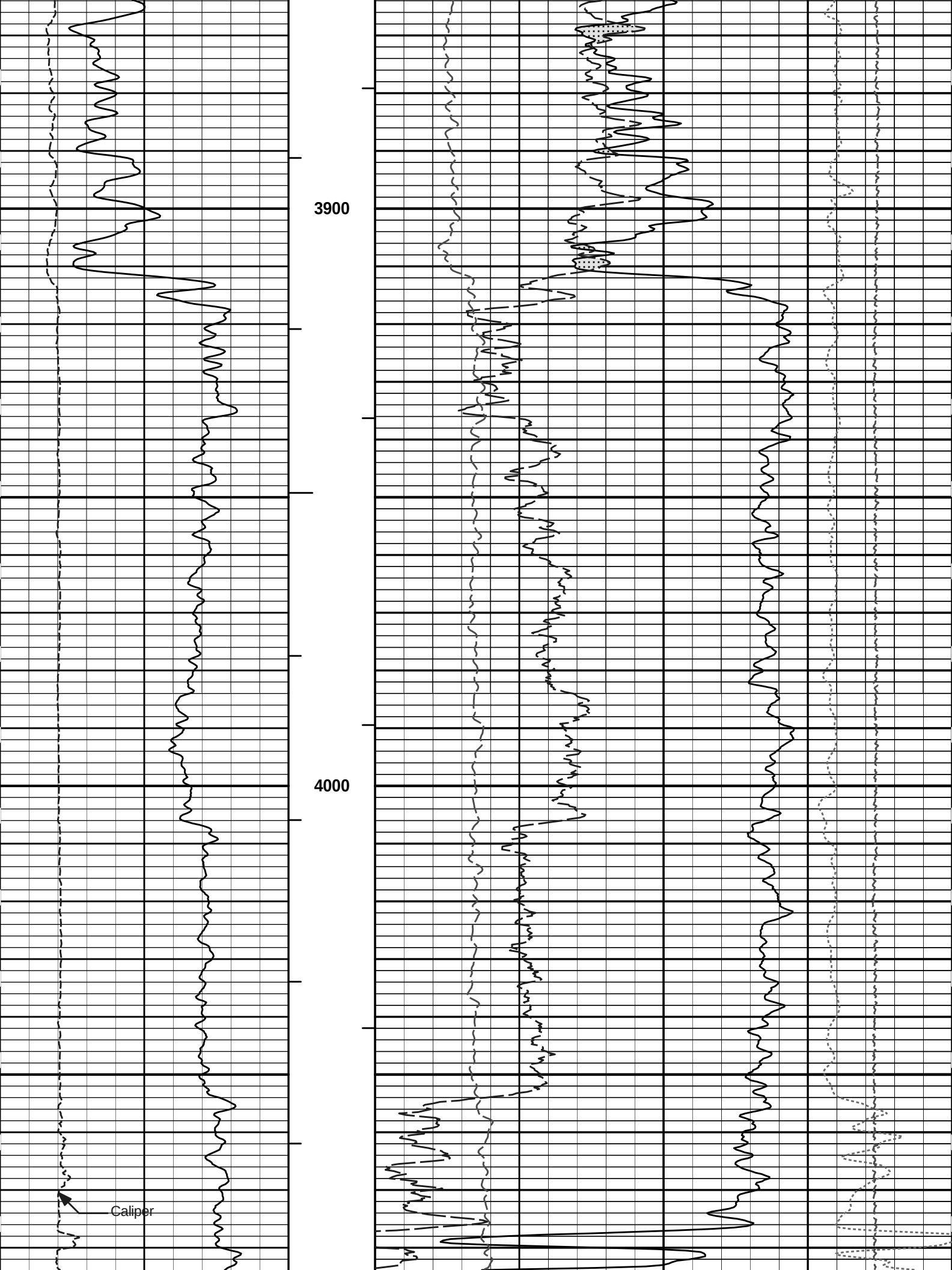
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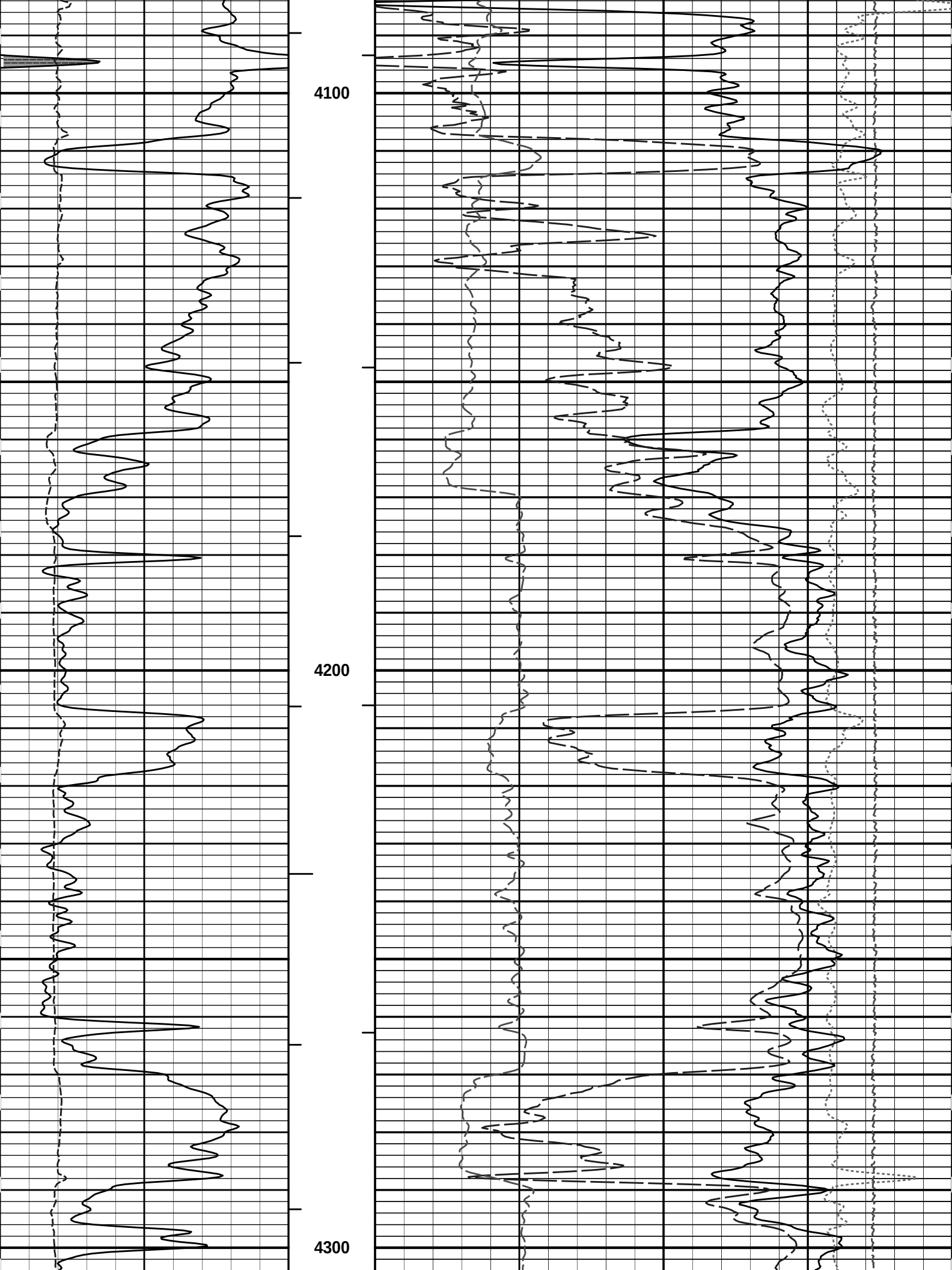
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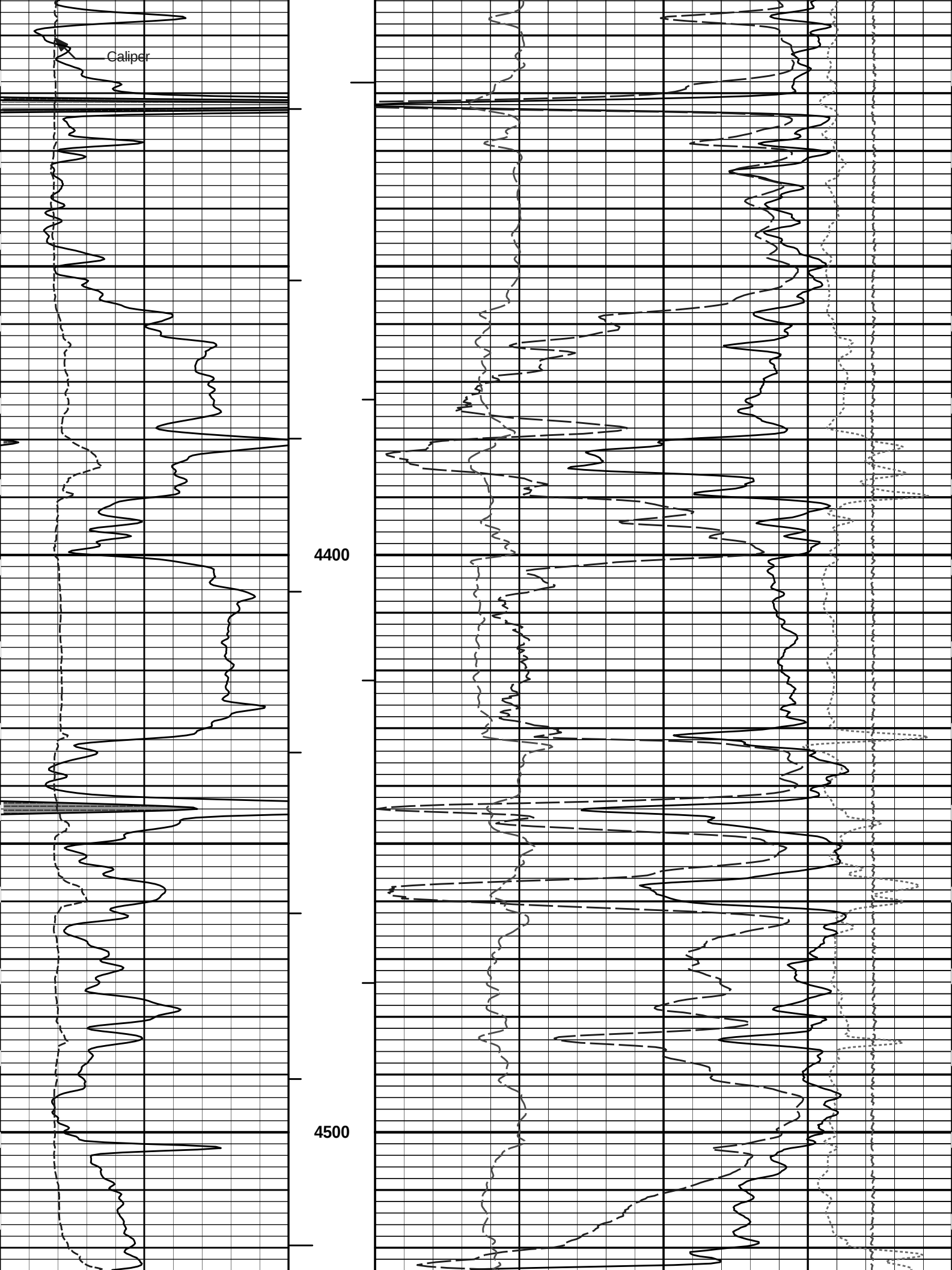
4200
4300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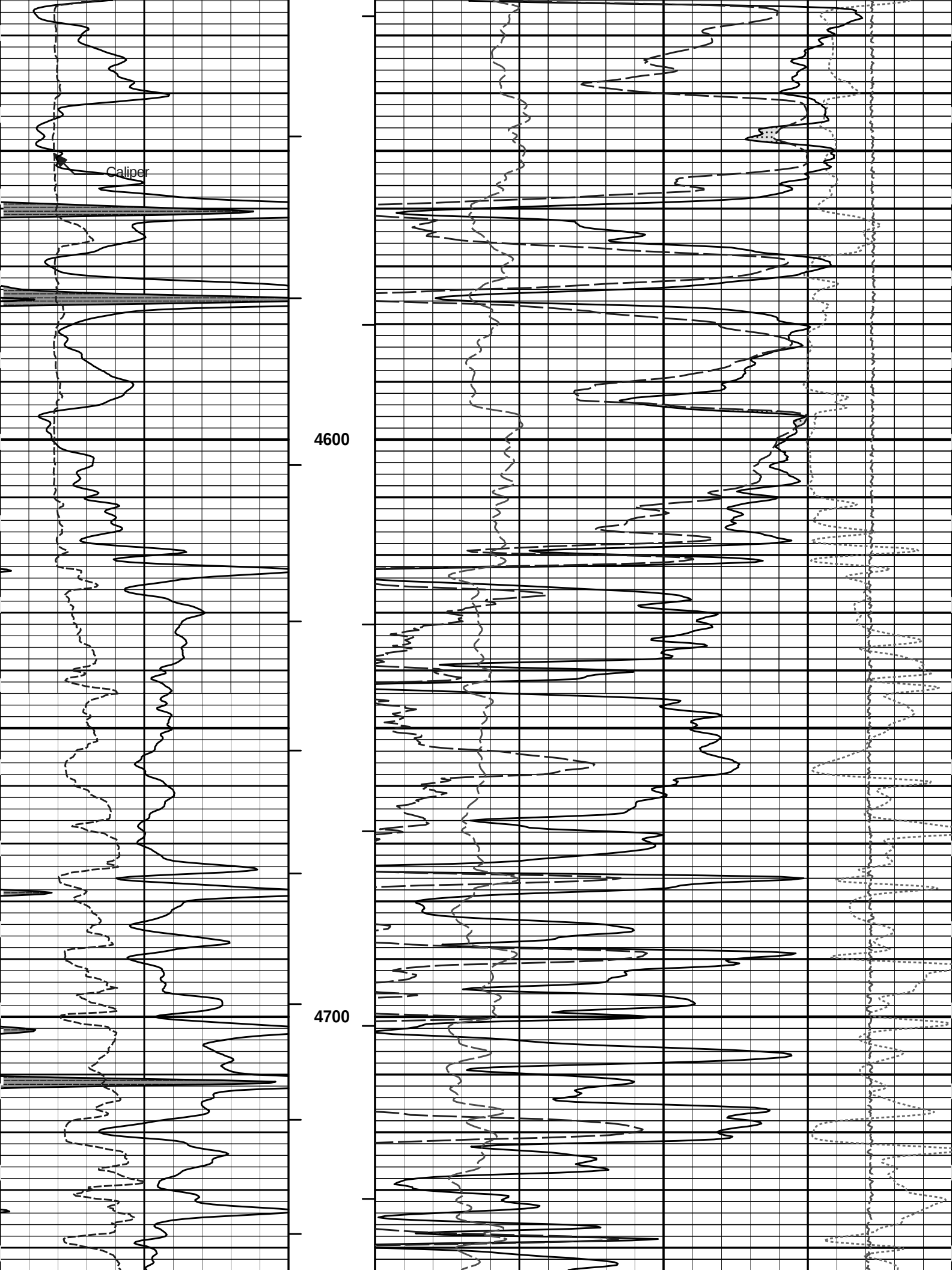
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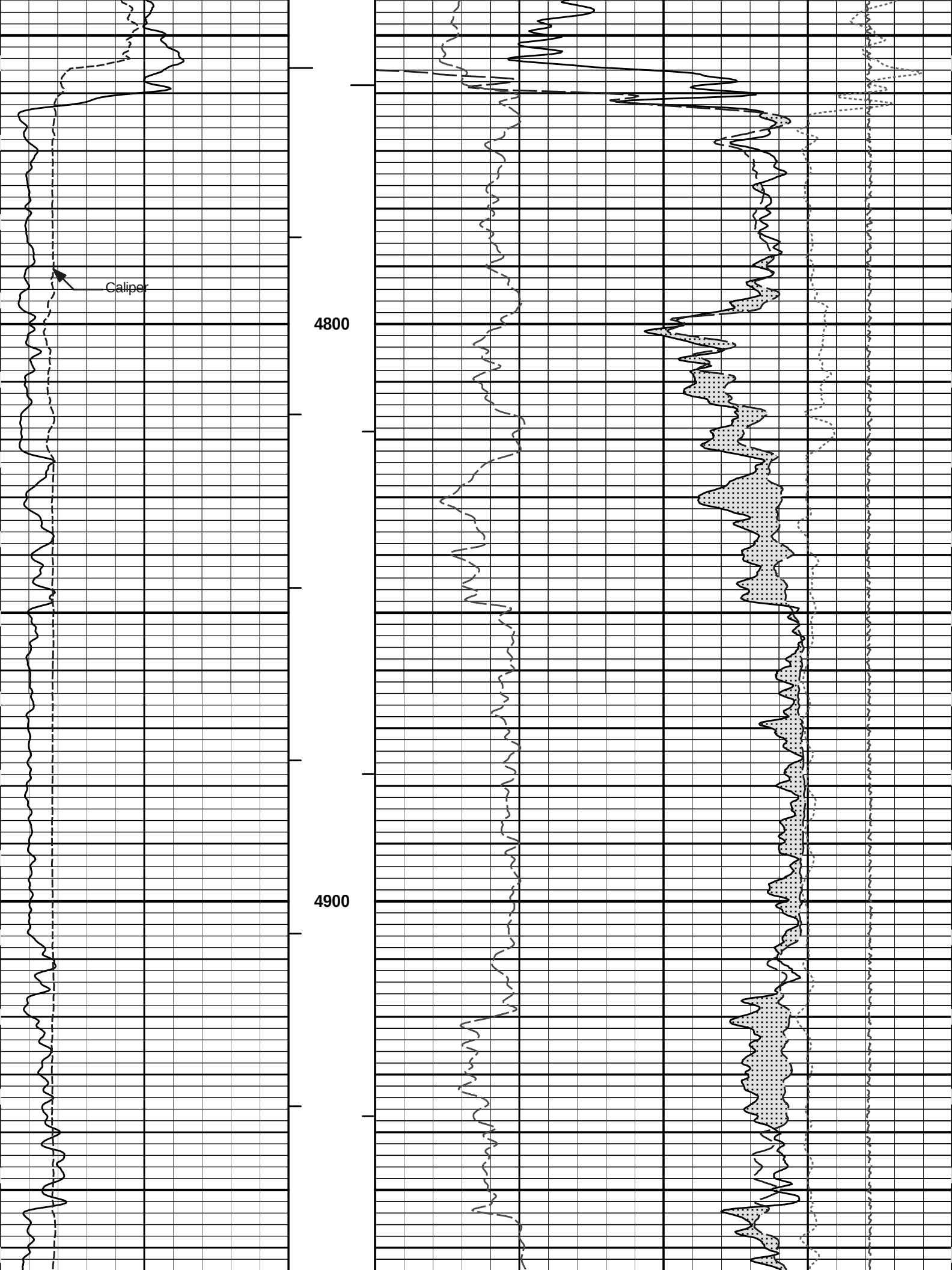
Caliper
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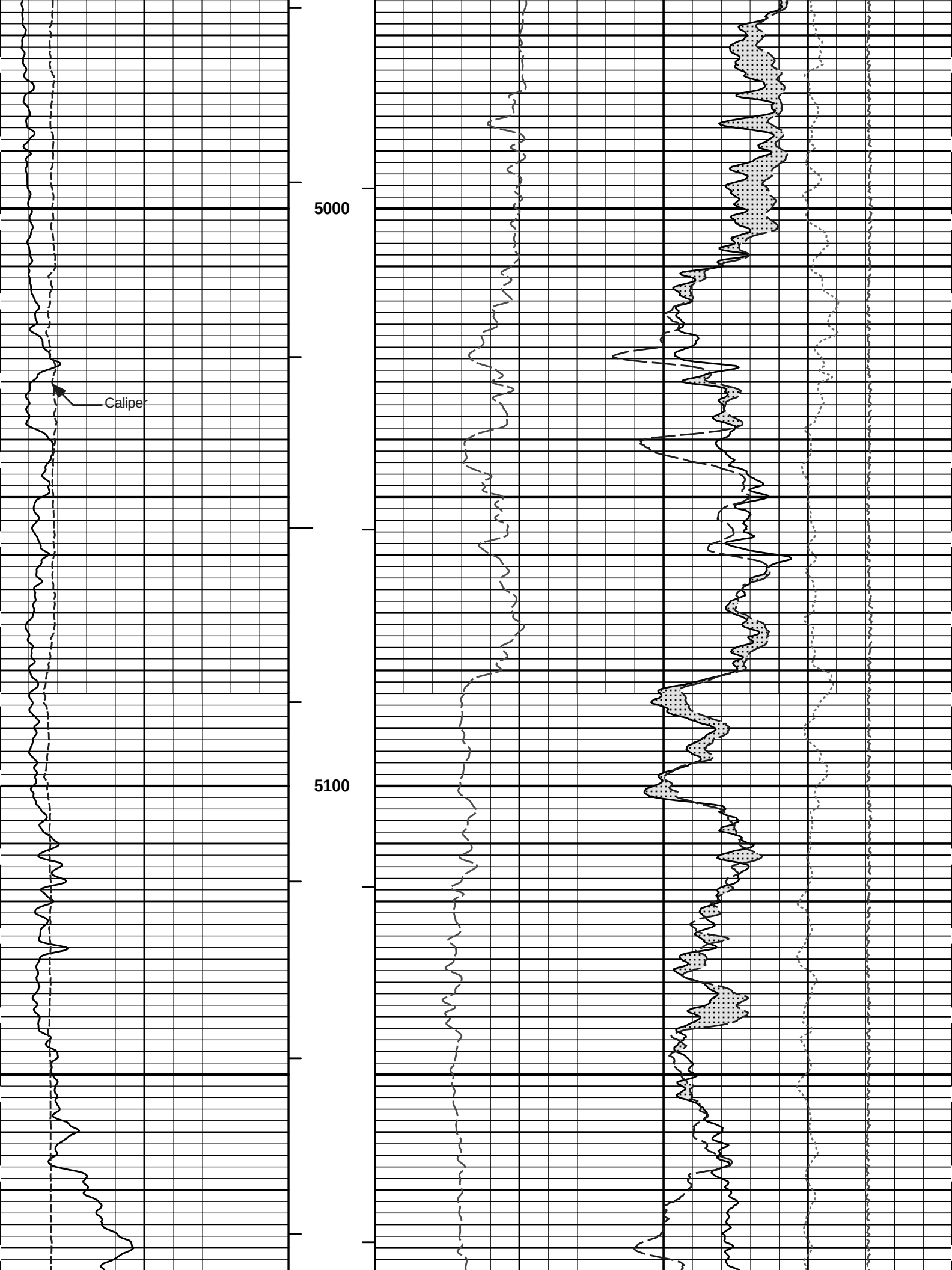
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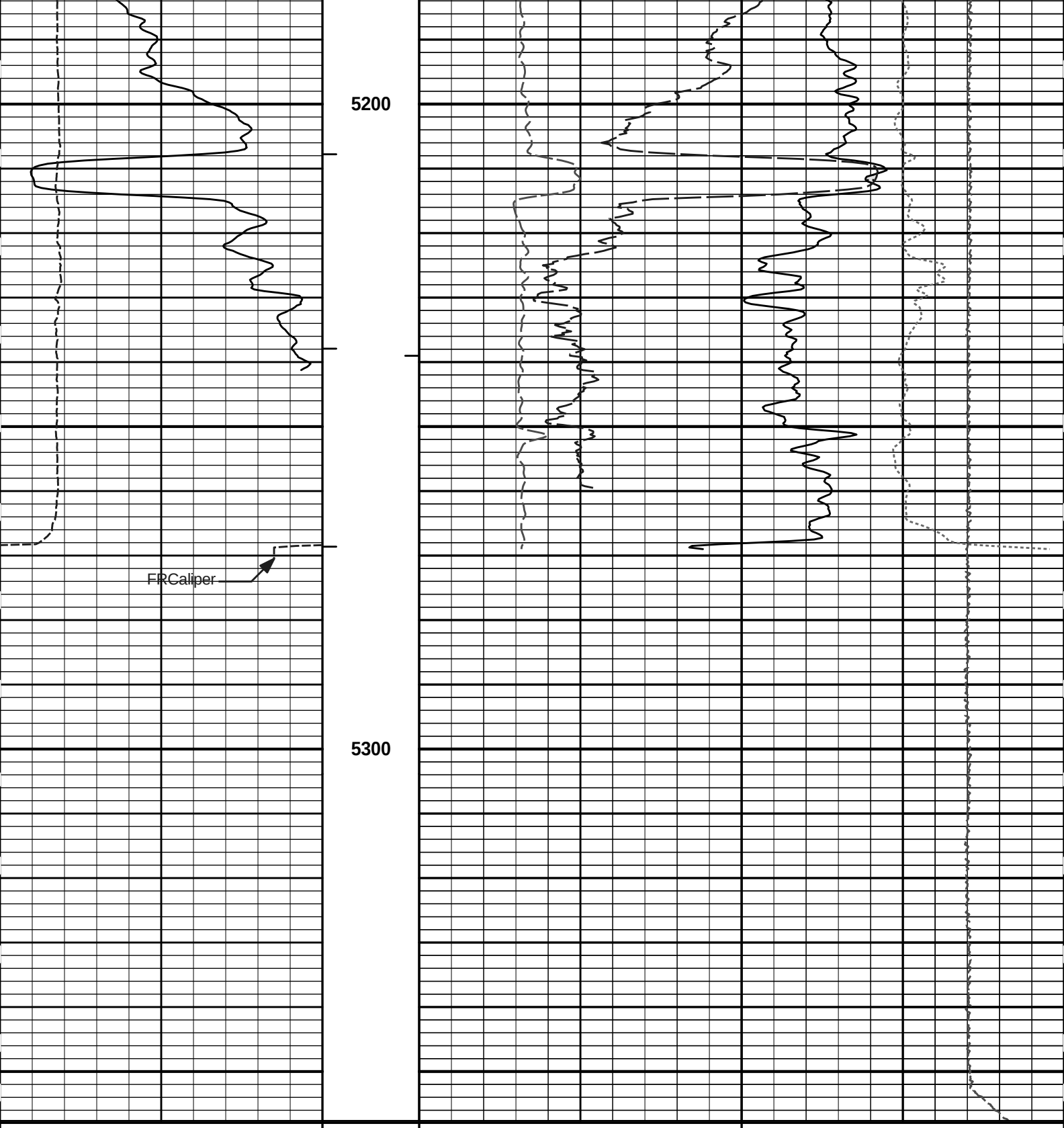
Caliper



6 Caliper 16	MD 1 : 240 ft	0 Pe 10
inches		
0 Gamma API 150	AHVT	15K Tension 0
api		pounds
SHALE	BHVT	30 DensityPorosity -10
		%
		30 Neutron Porosity -10
		%
		CROSSOVER

-0.25 DensityCorr 0.25
gram per cc

HALLIBURTON

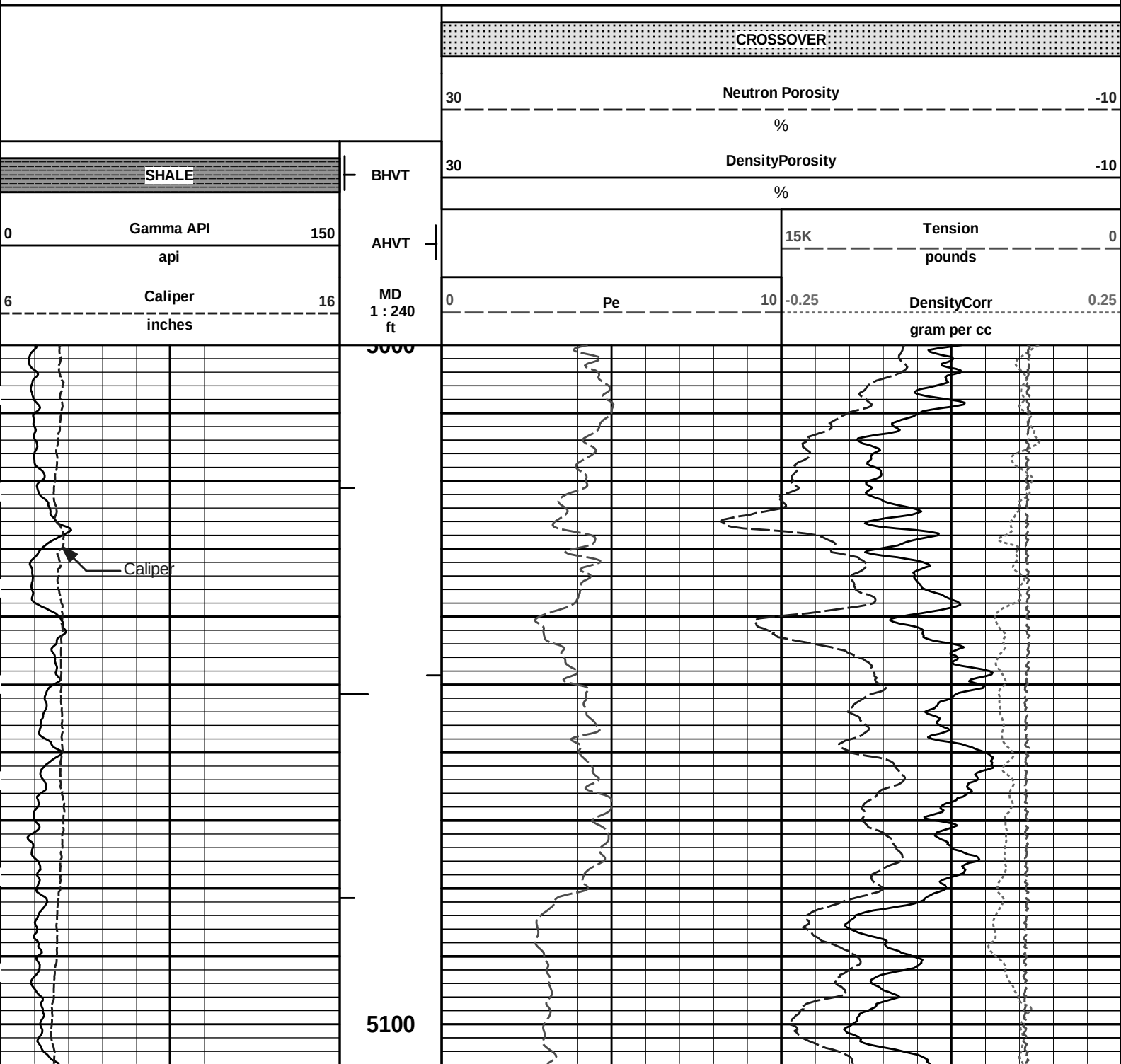
Plot Time: 19-Jul-13 23:23:00
Plot Range: 820 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\CASING\
Plot File: \\PORO\Poro_IQ_5_MAIN_LIB

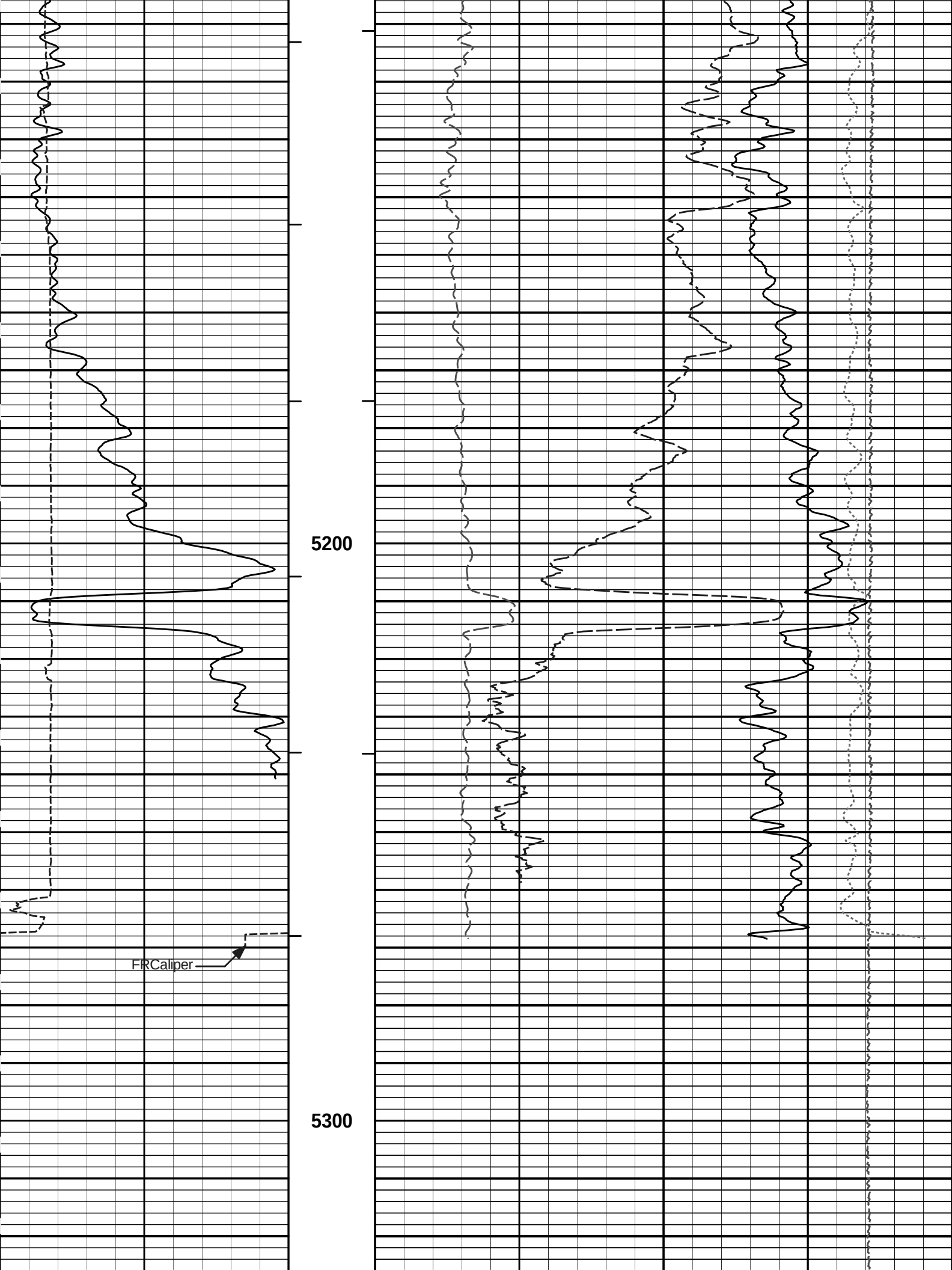
5 INCH MAIN LOG

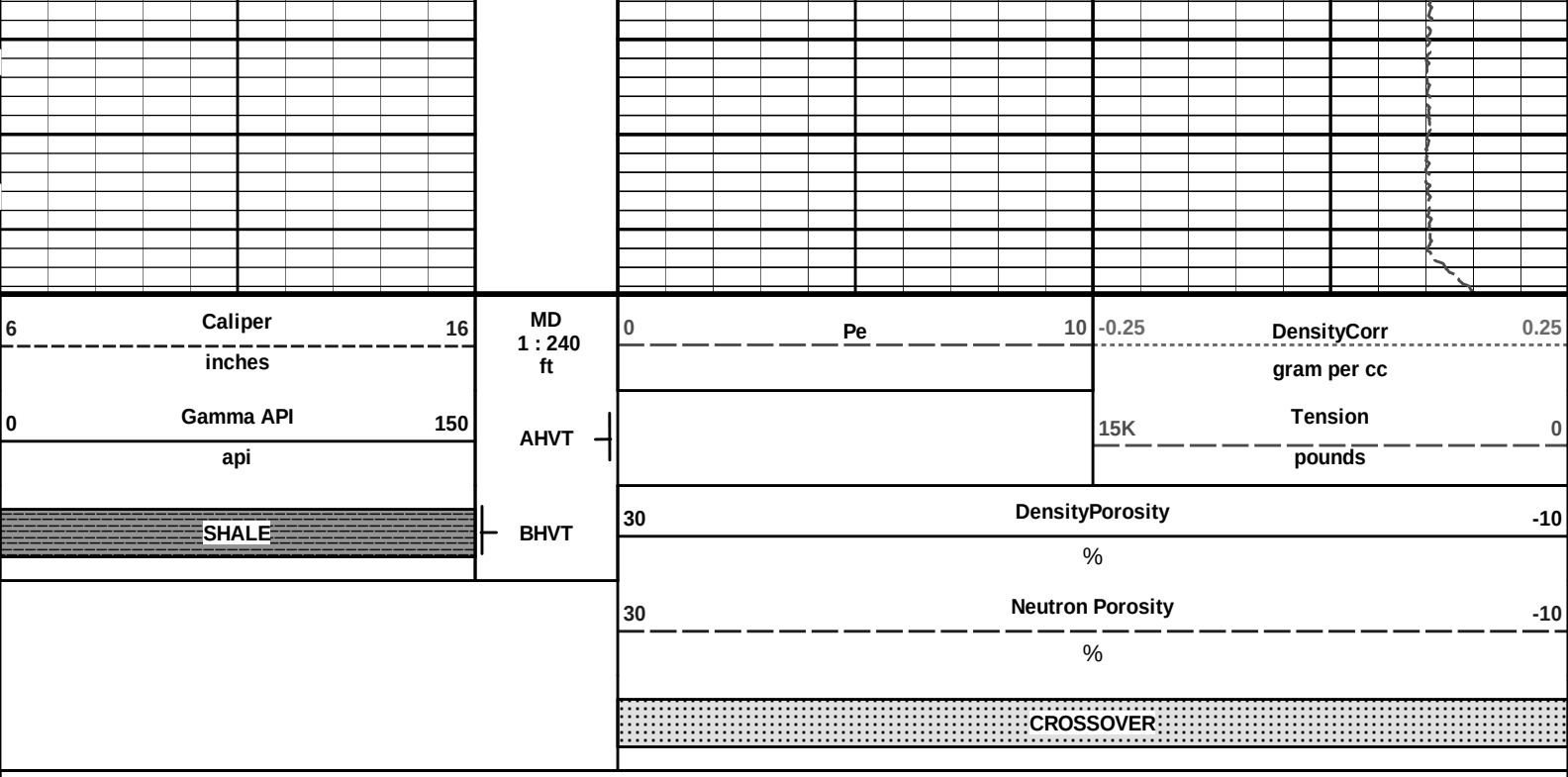
HALLIBURTON

Plot Time: 19-Jul-13 23:23:01
Plot Range: 5000 ft to 5356.67 ft
Data: NANCY_3507_1-10\Well Based\REPEAT\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

REPEAT SECTION




5200
5300
FRCaliper



HALLIBURTON

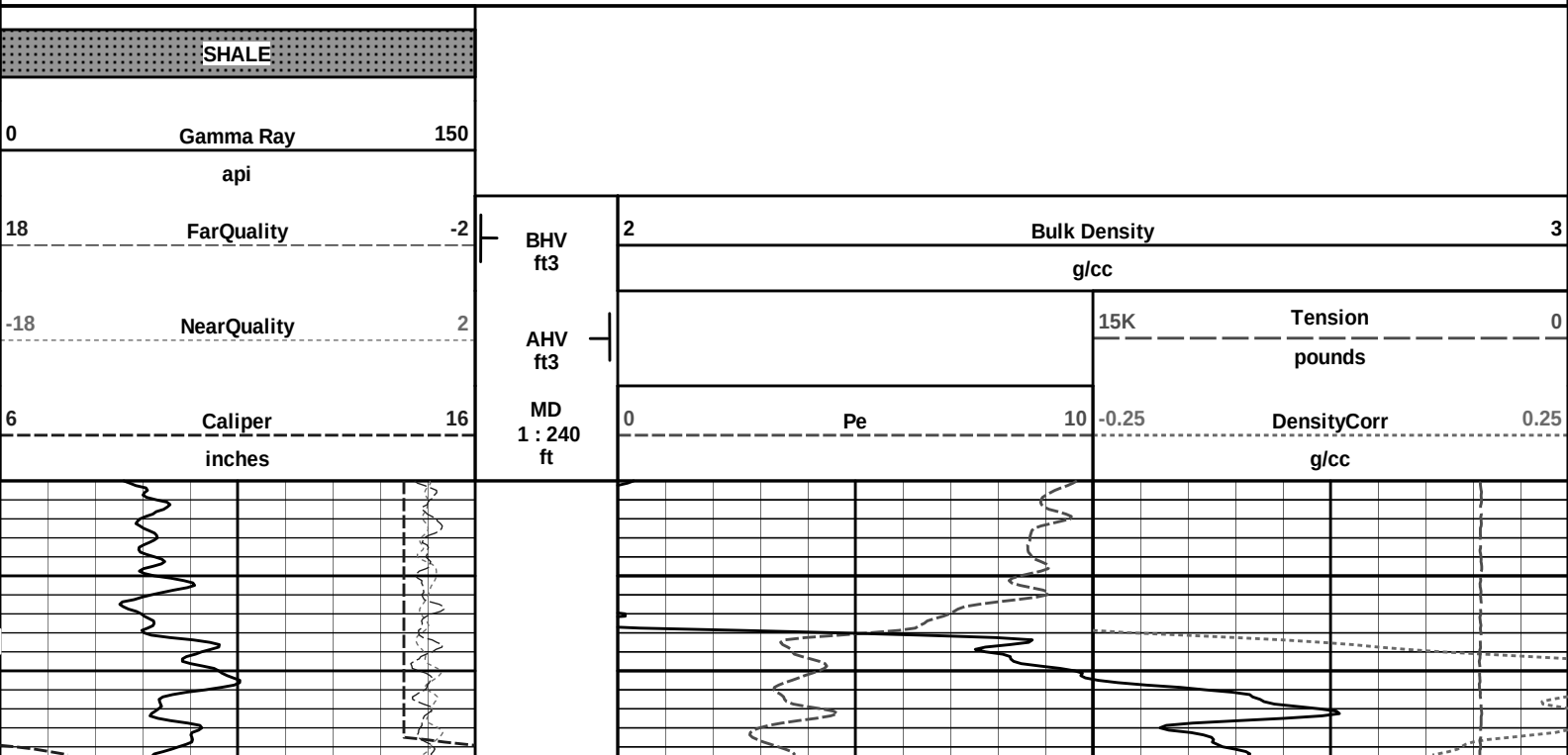
Plot Time: 19-Jul-13 23:23:05
Plot Range: 5000 ft to 5356.67 ft
Data: NANCY_3507_1-10\Well Based\REPEAT\
Plot File: \\PORO\Poro_IQ_5_REP_LIB

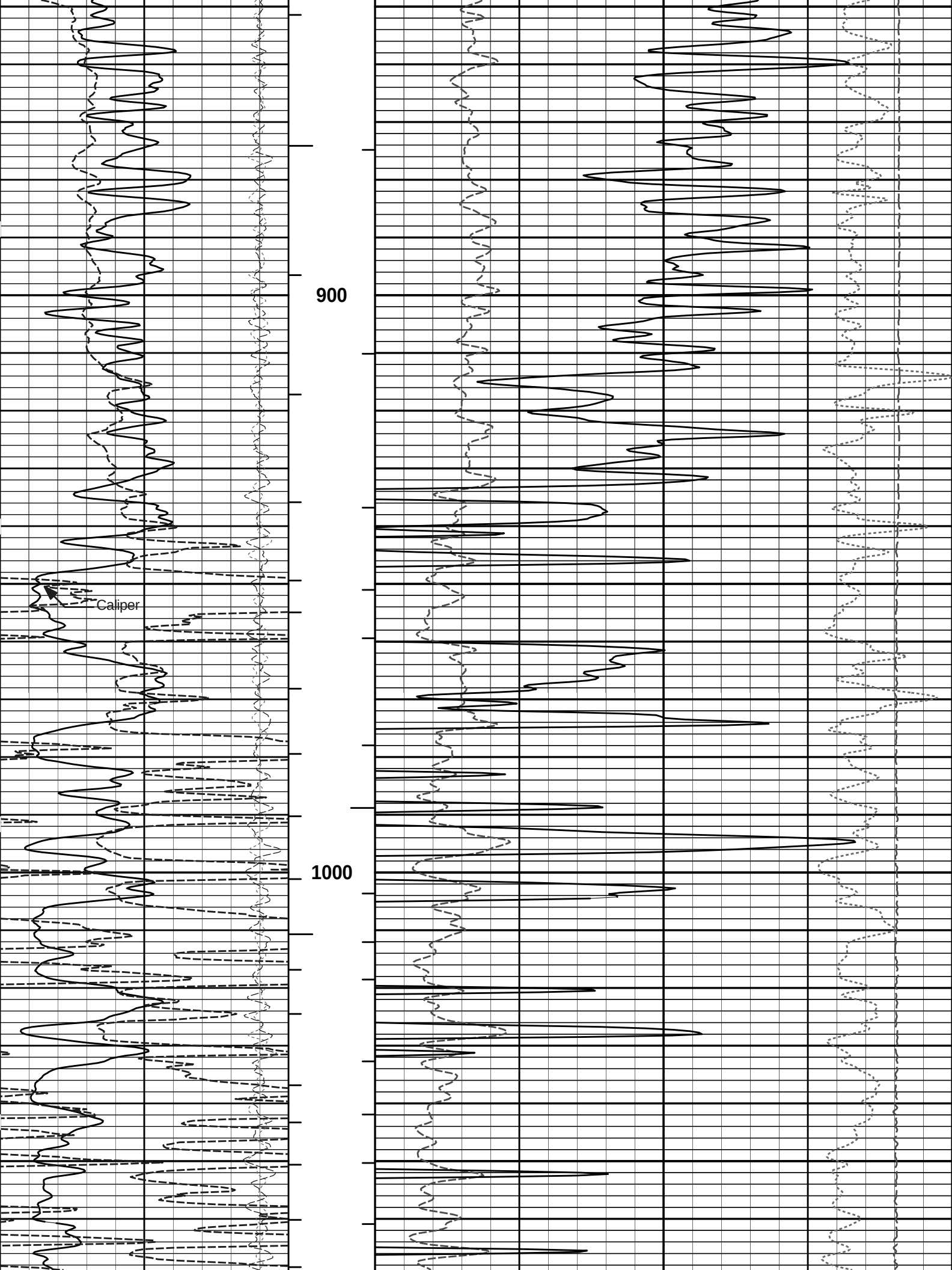
REPEAT SECTION

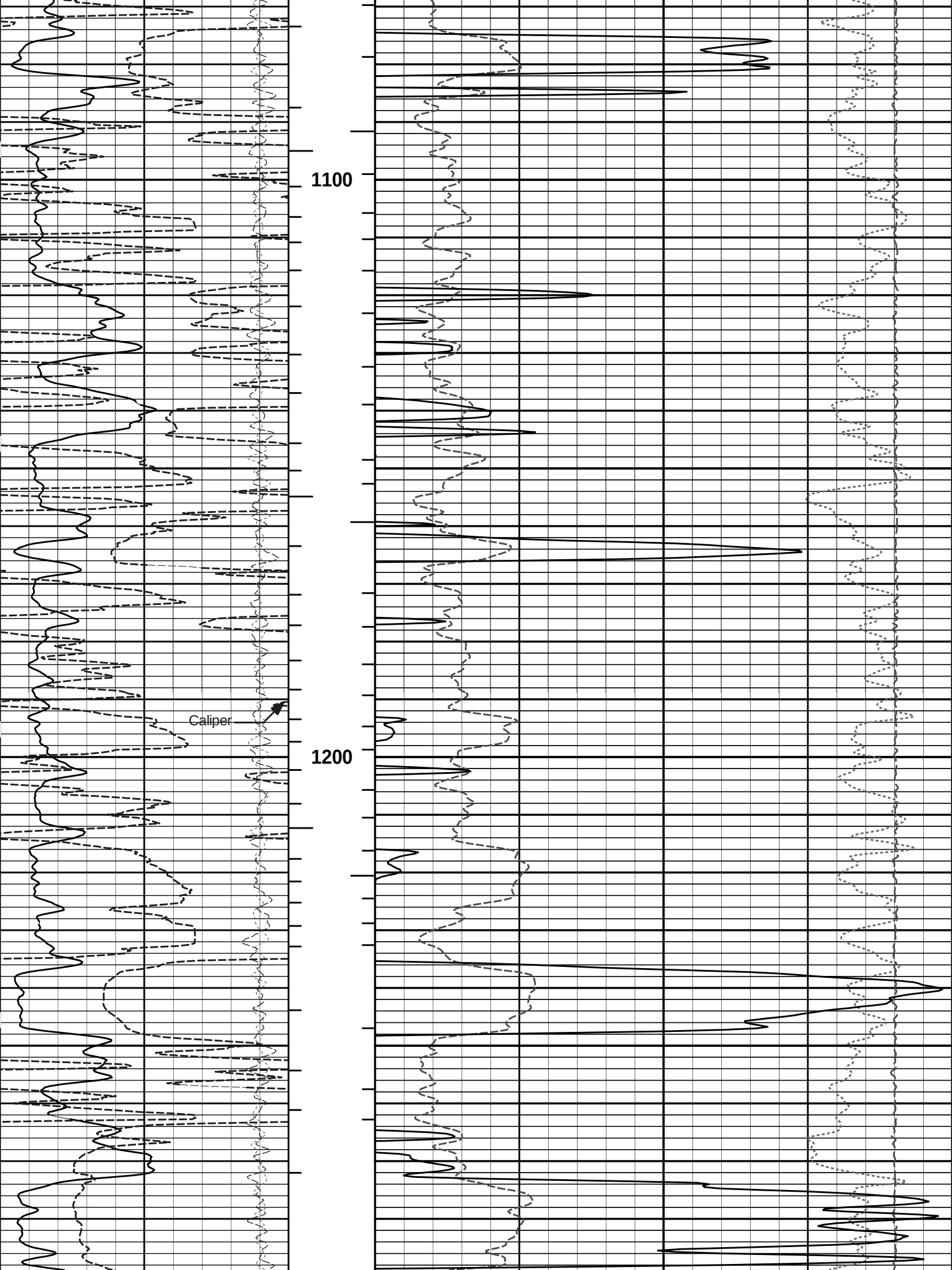
HALLIBURTON

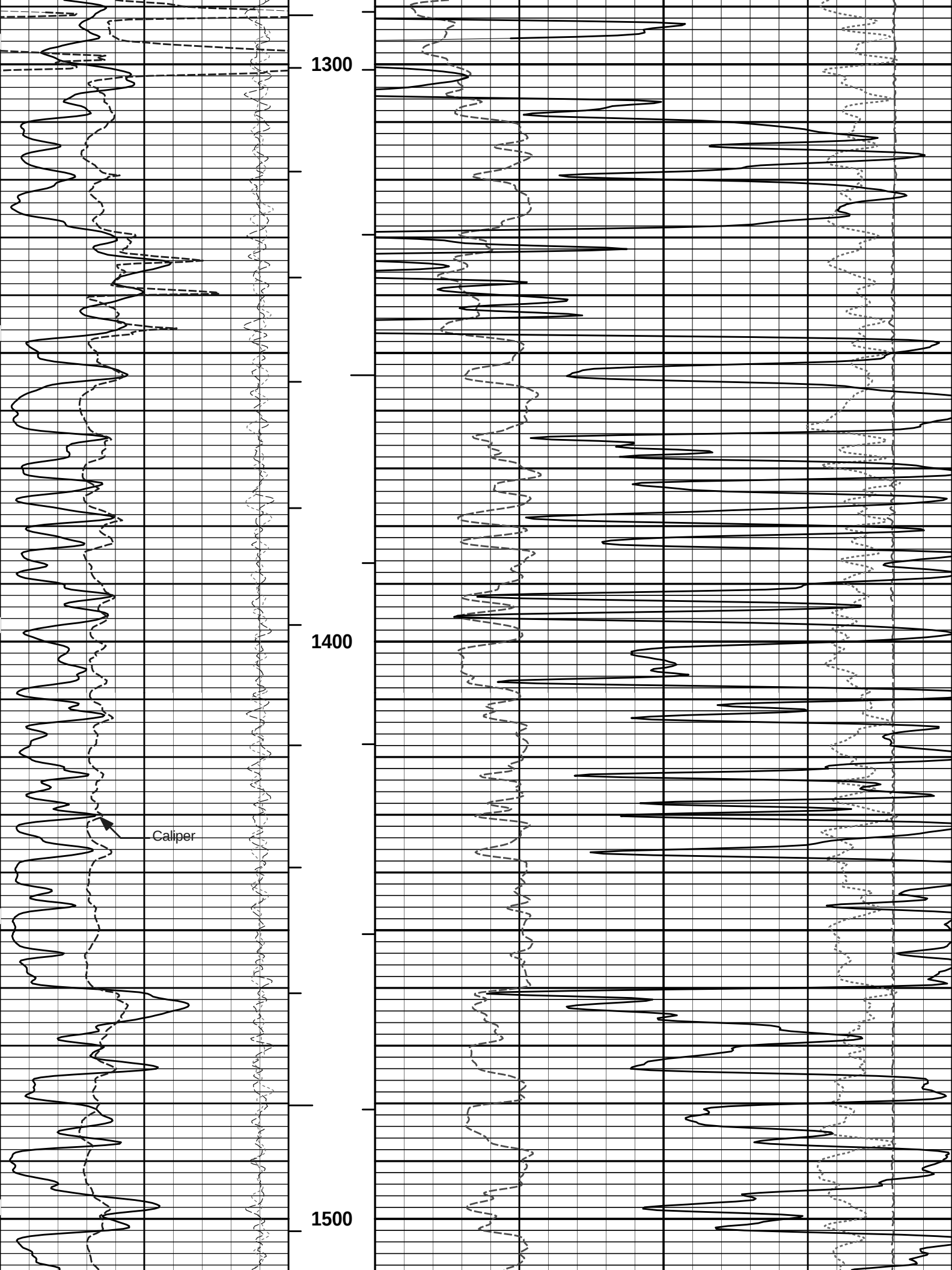
Plot Time: 19-Jul-13 23:23:05
Plot Range: 820 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\CASING\
Plot File: \\-LOCAL-\NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\PORO\BULKD_5_MAIN_LIB

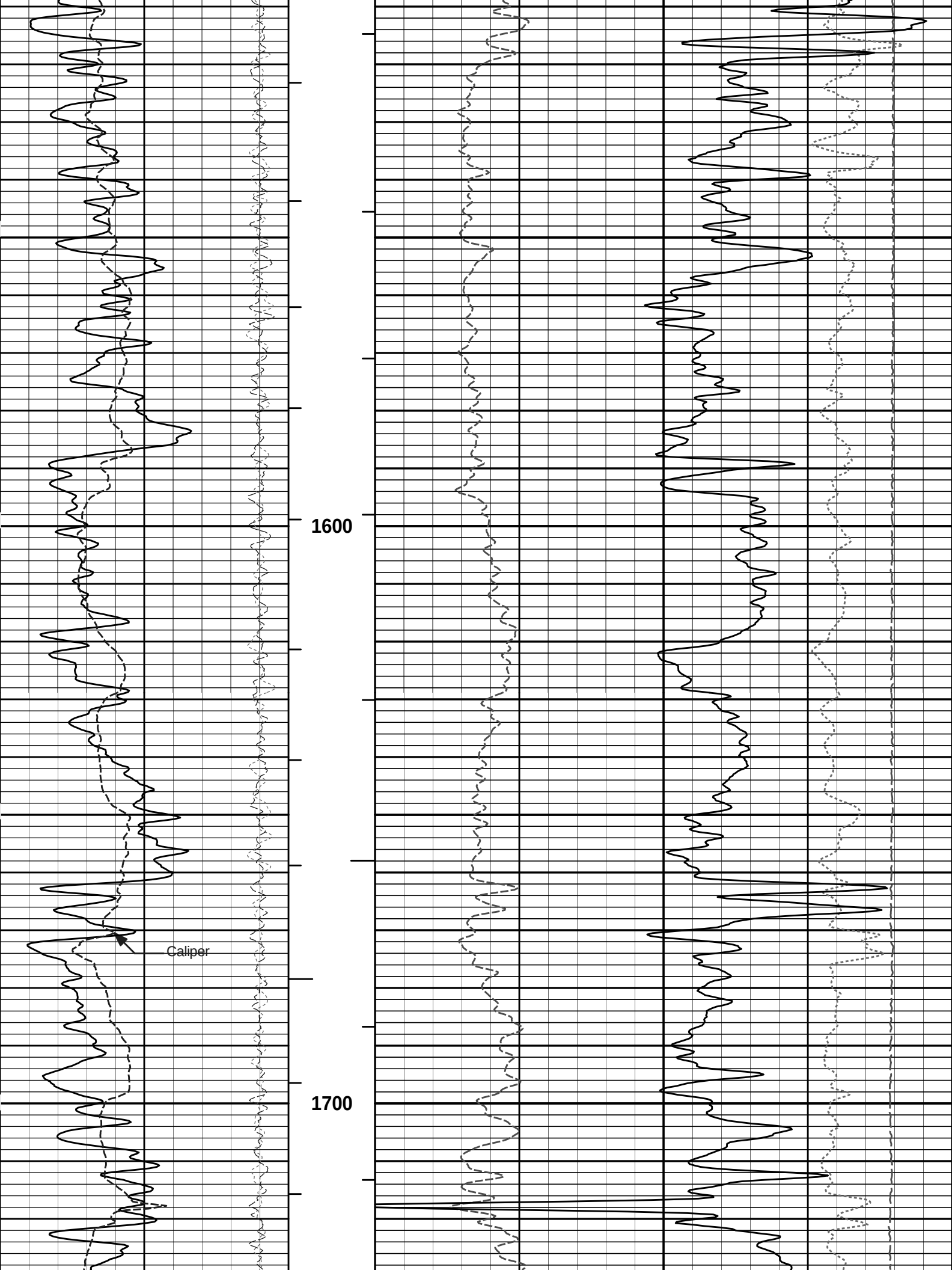
5 INCH MAIN LOG

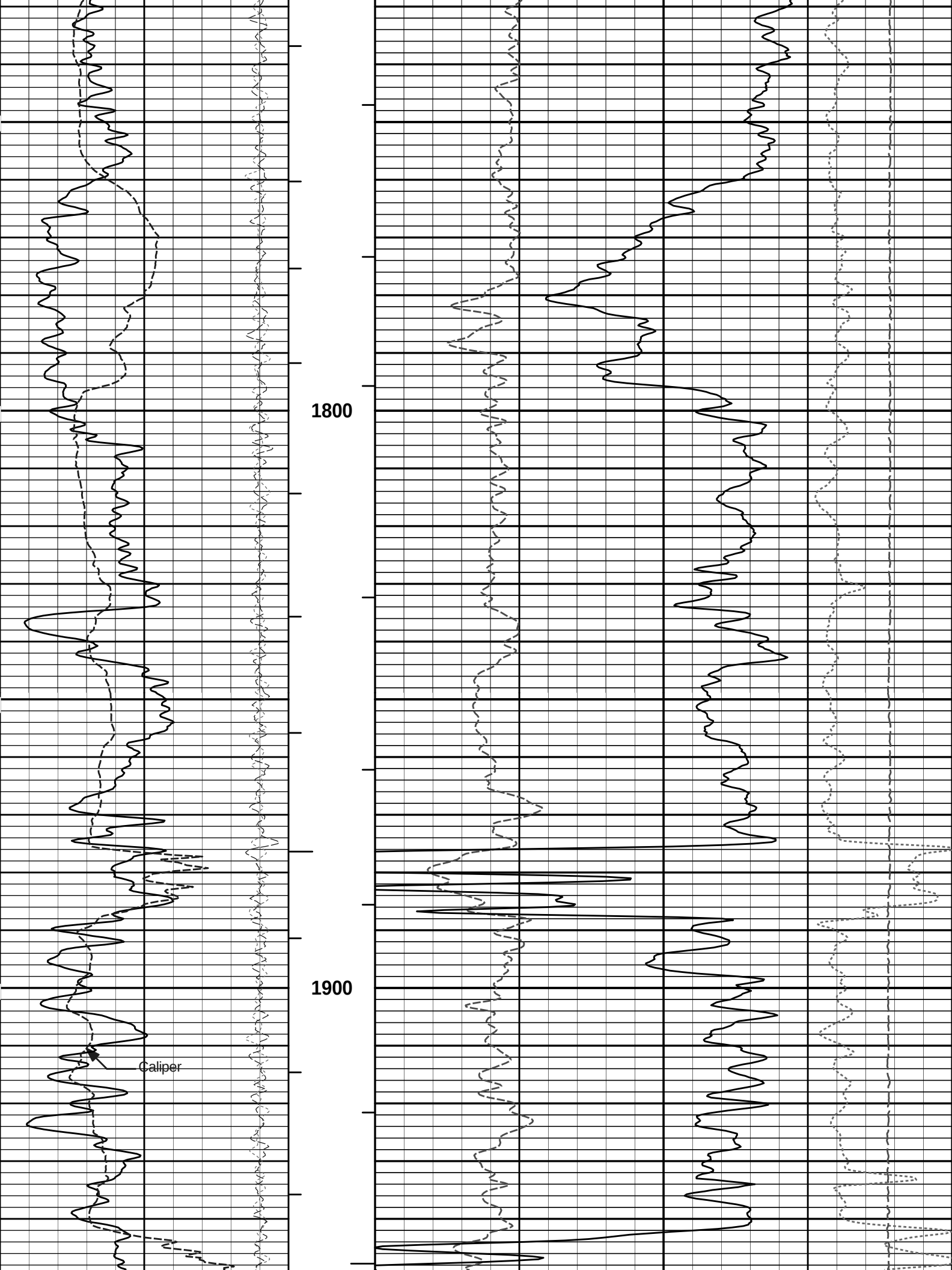


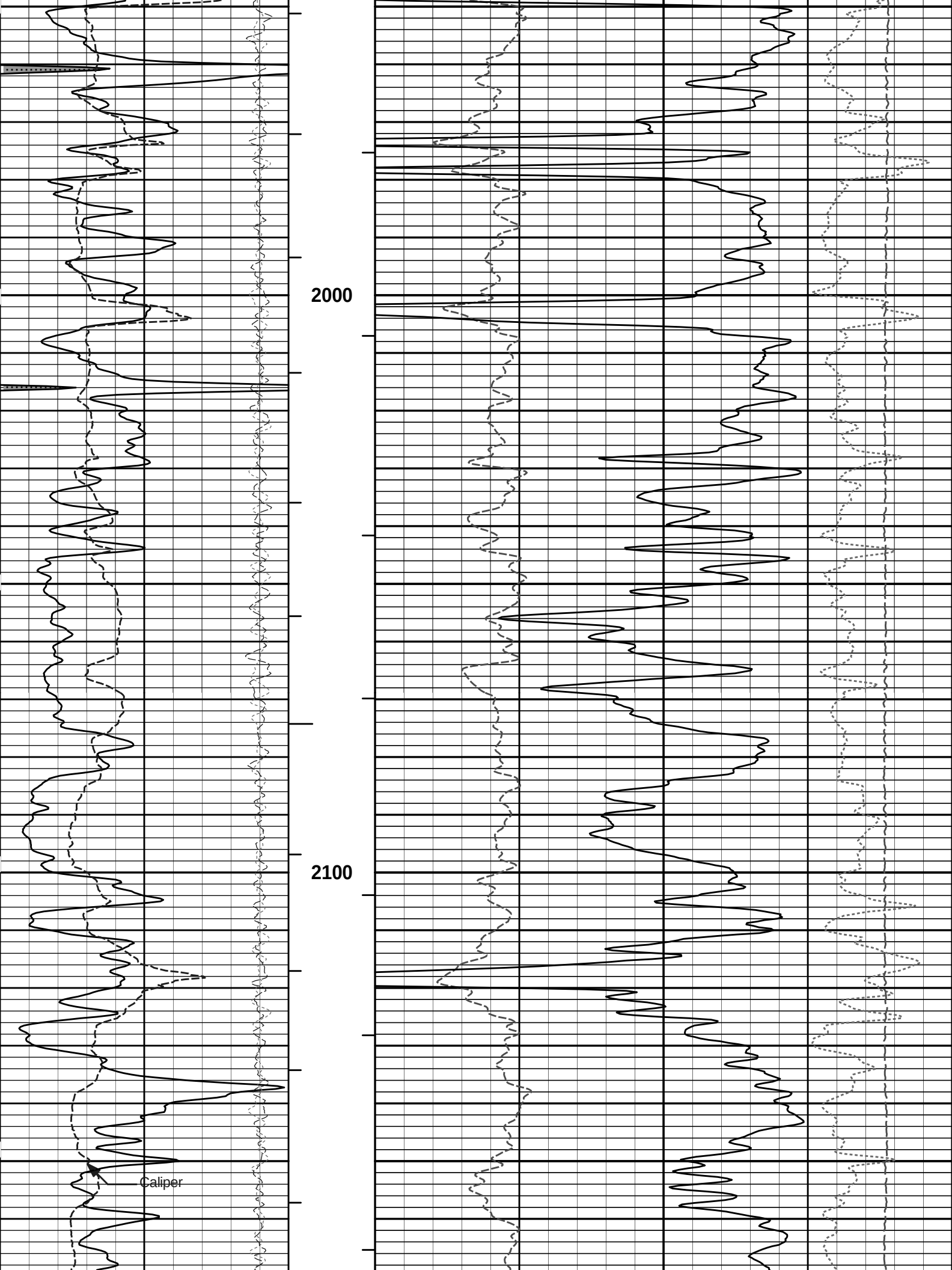

900
1000
Caliper

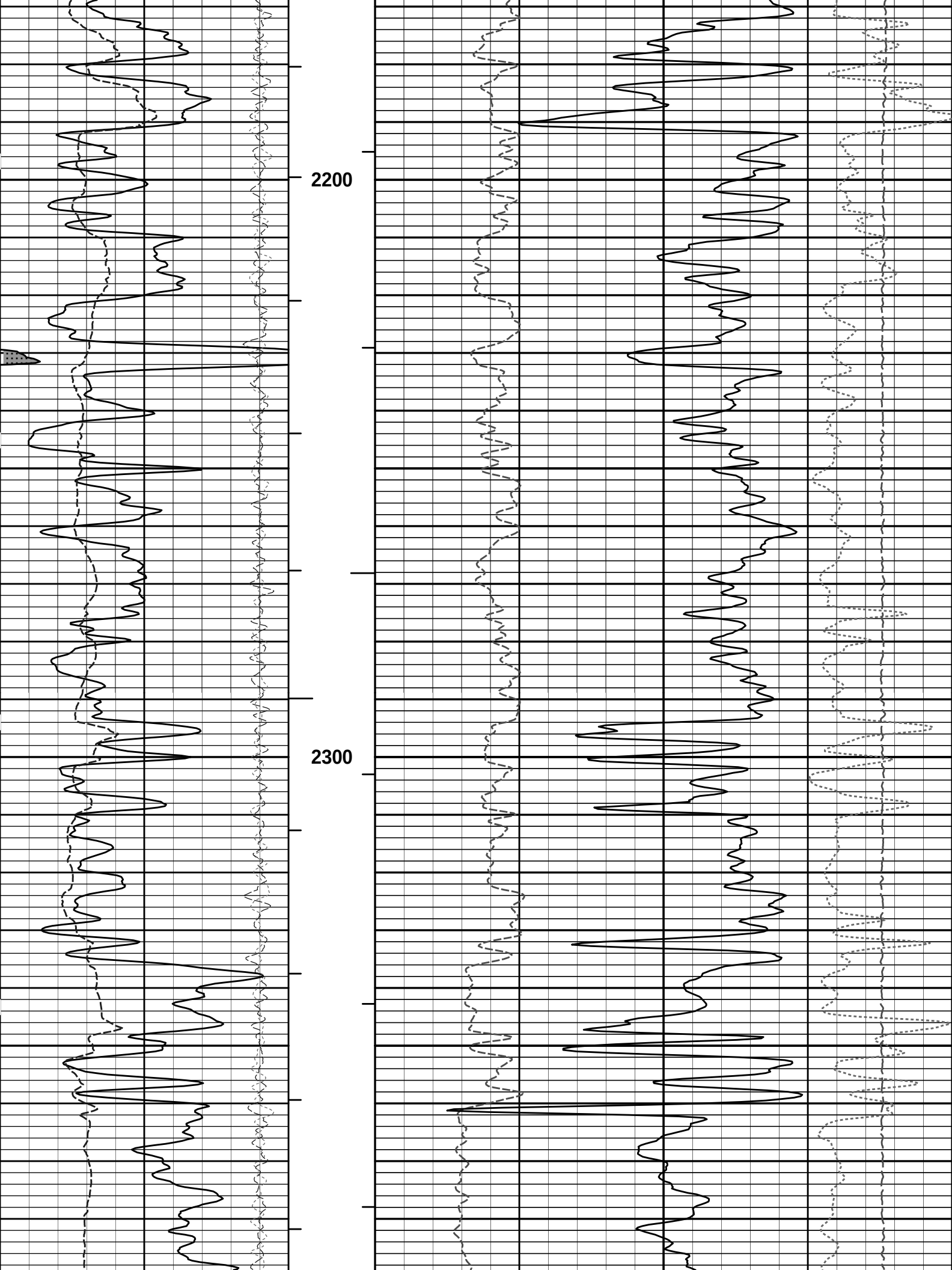

1100
Caliper
1200

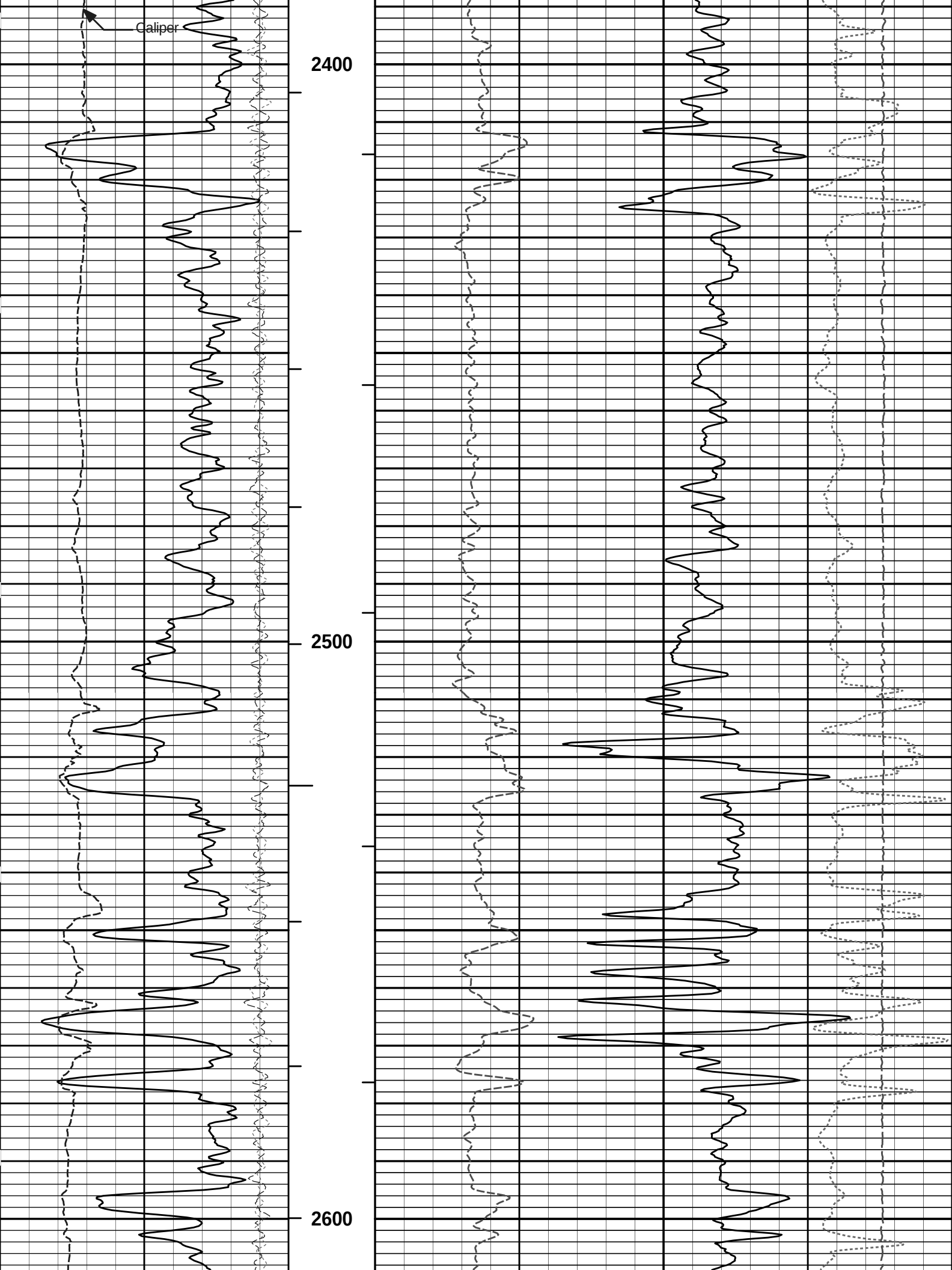

1300
1400
1500
Caliper

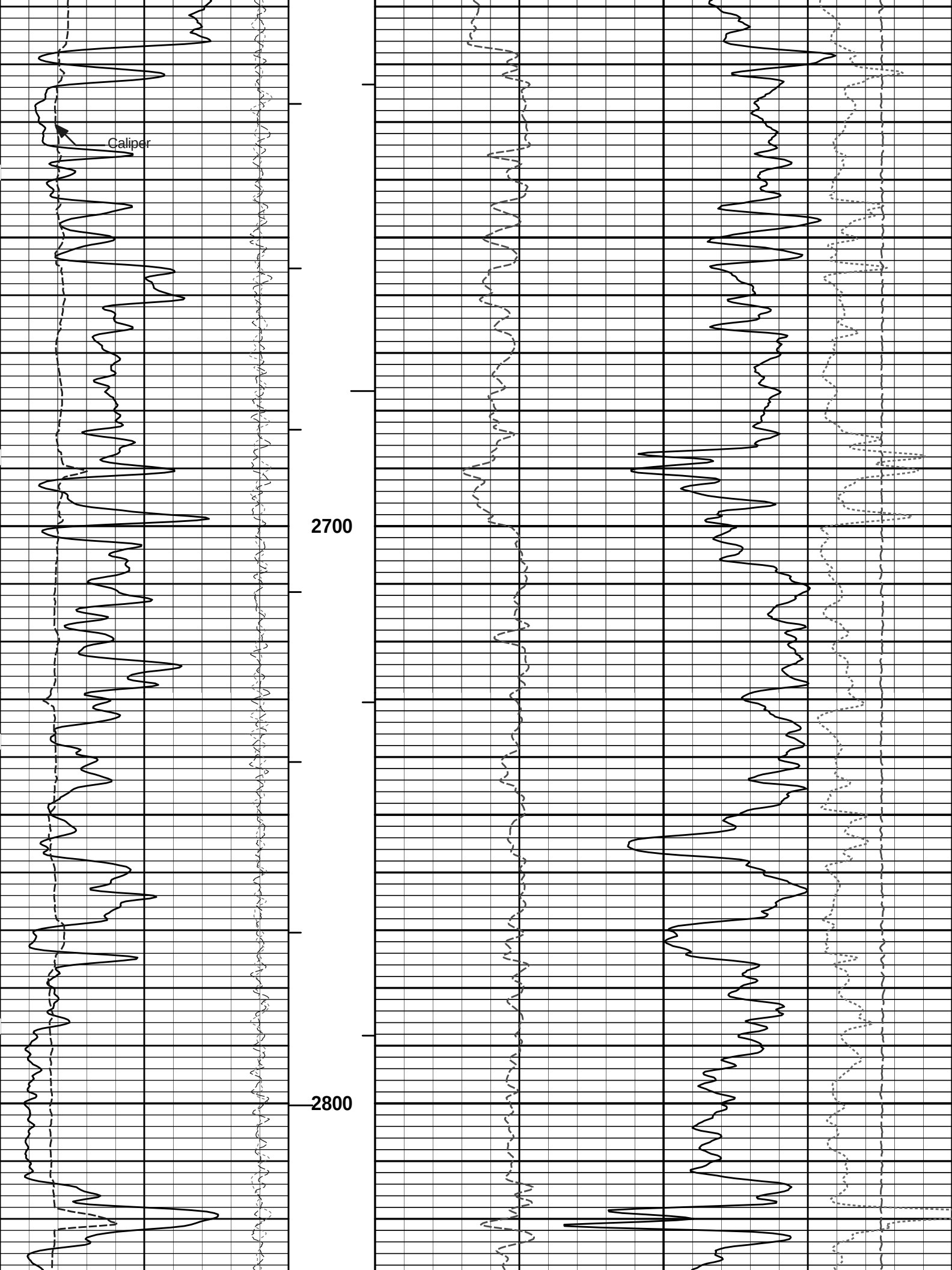

1600
1700
Caliper

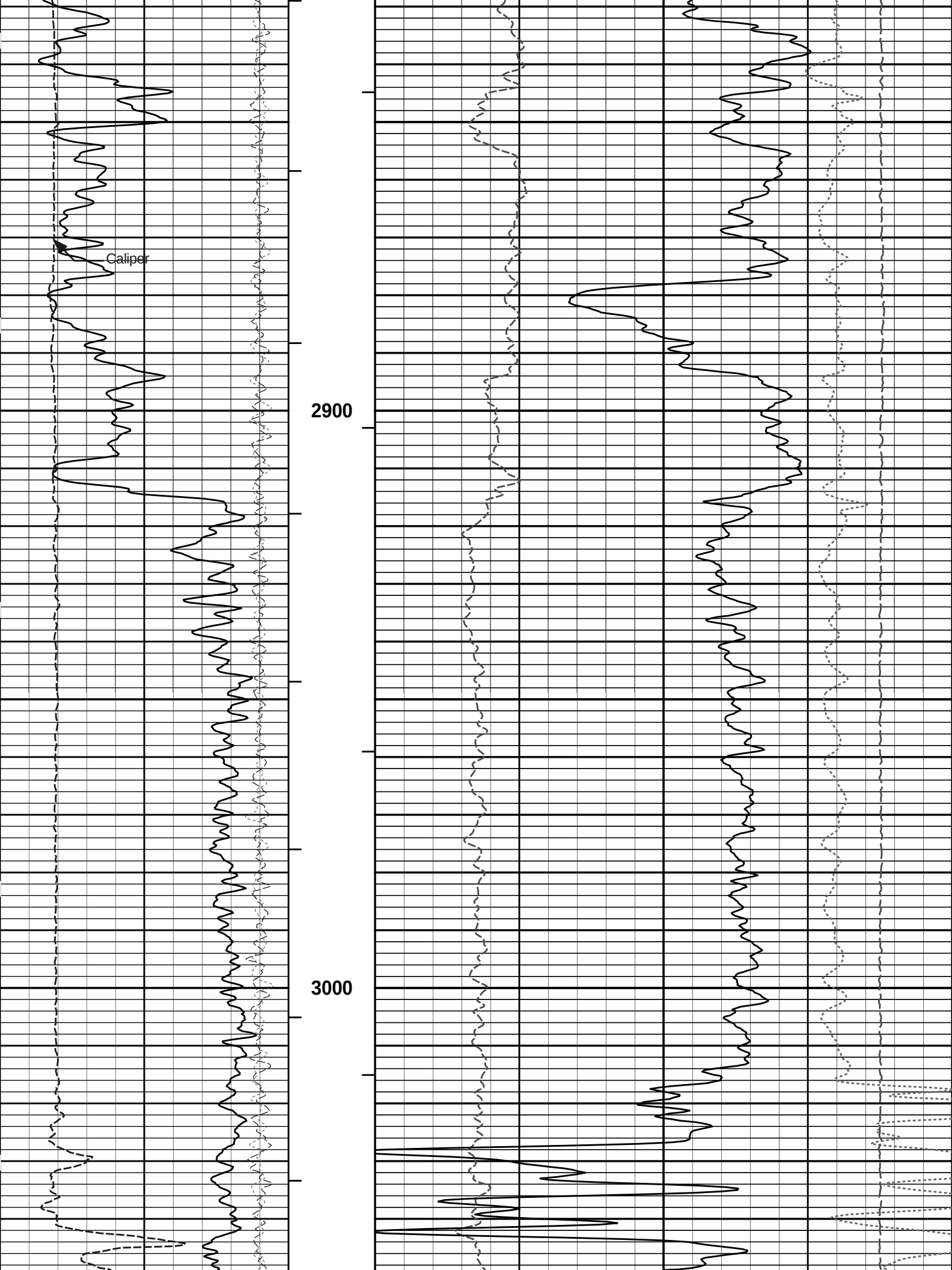

1800
1900
Caliper

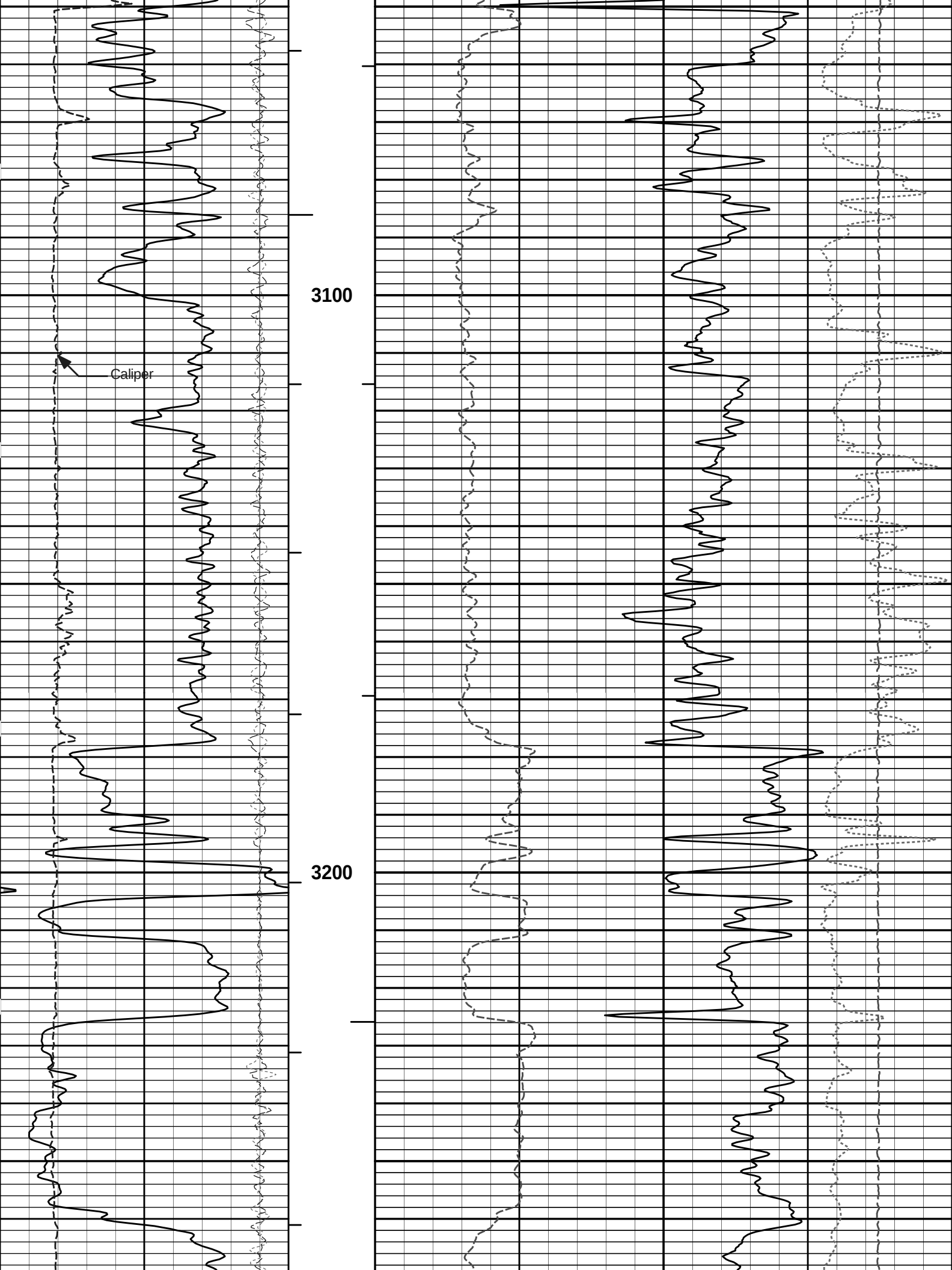

2000
2100
Caliper

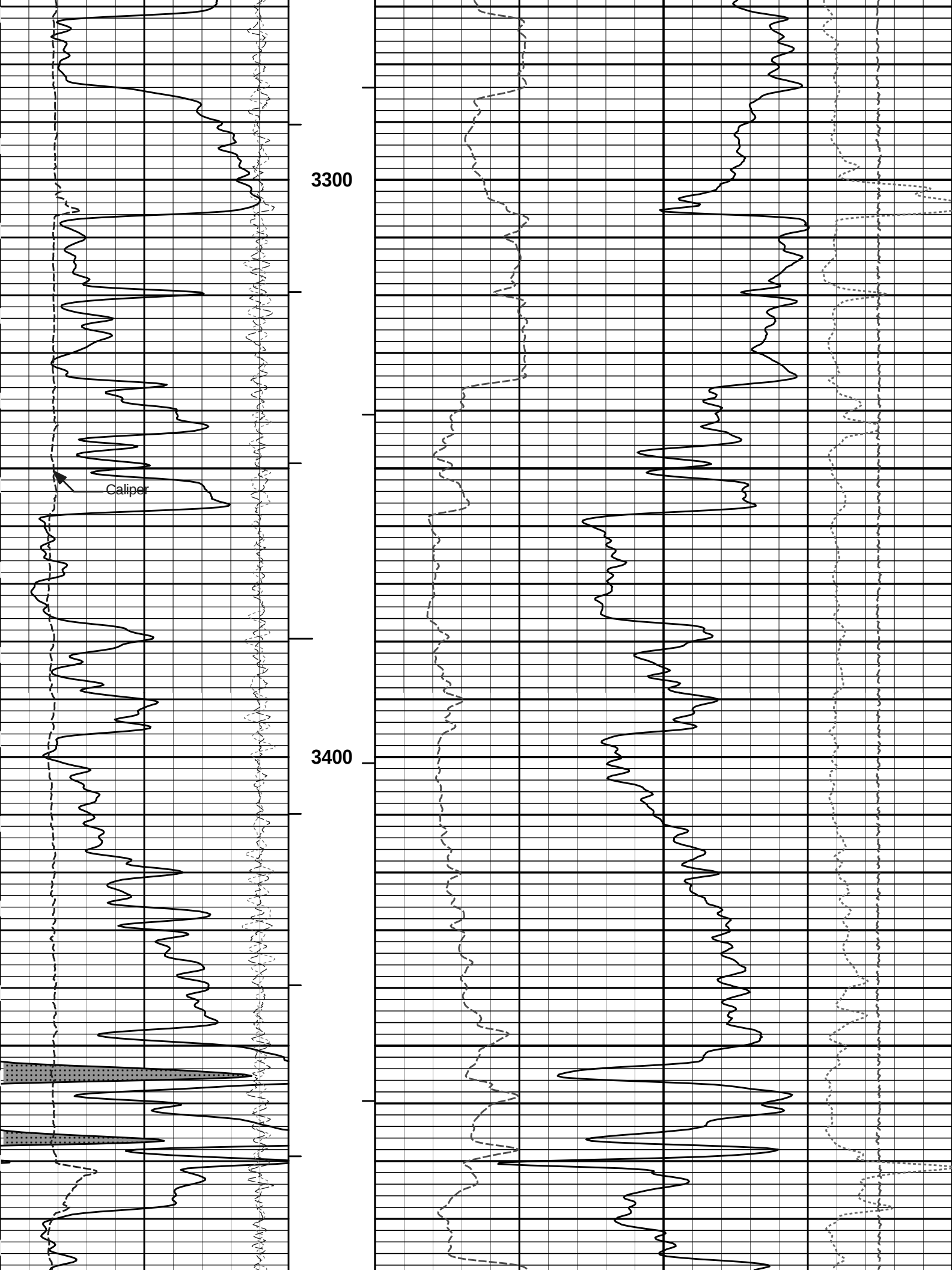

2200
2300

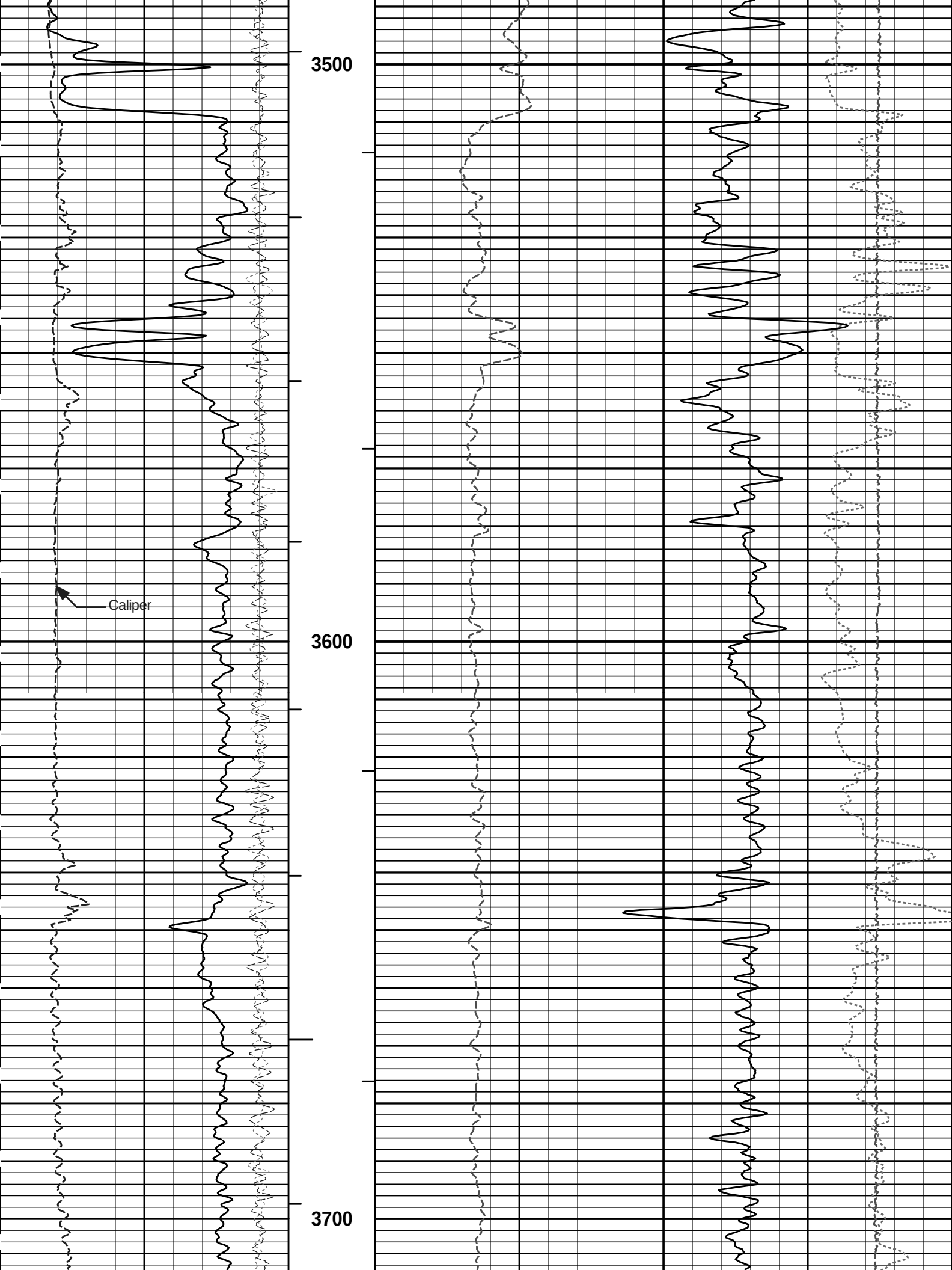

Caliper
2400
2500
2600

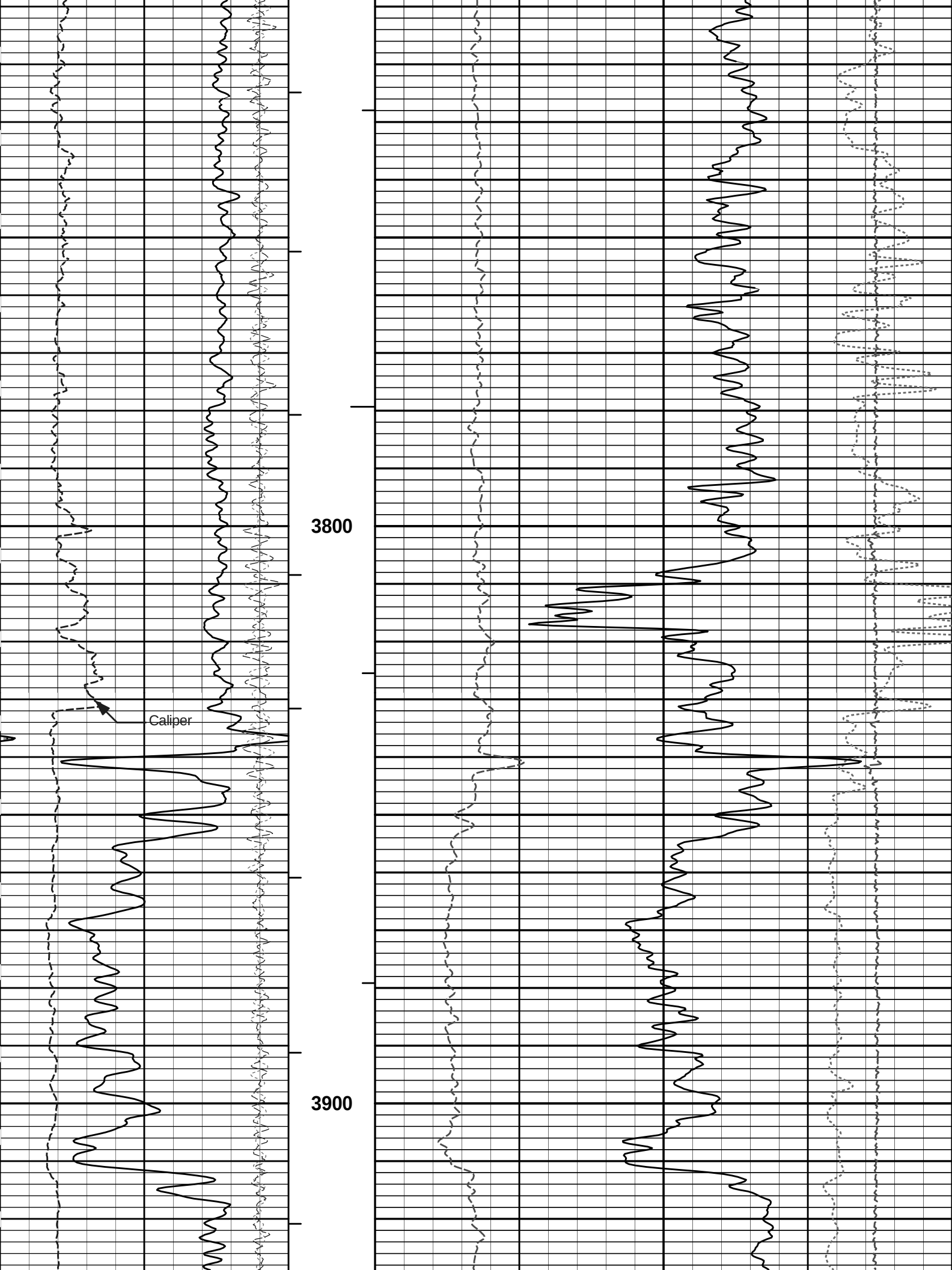

Caliper
2700
2800

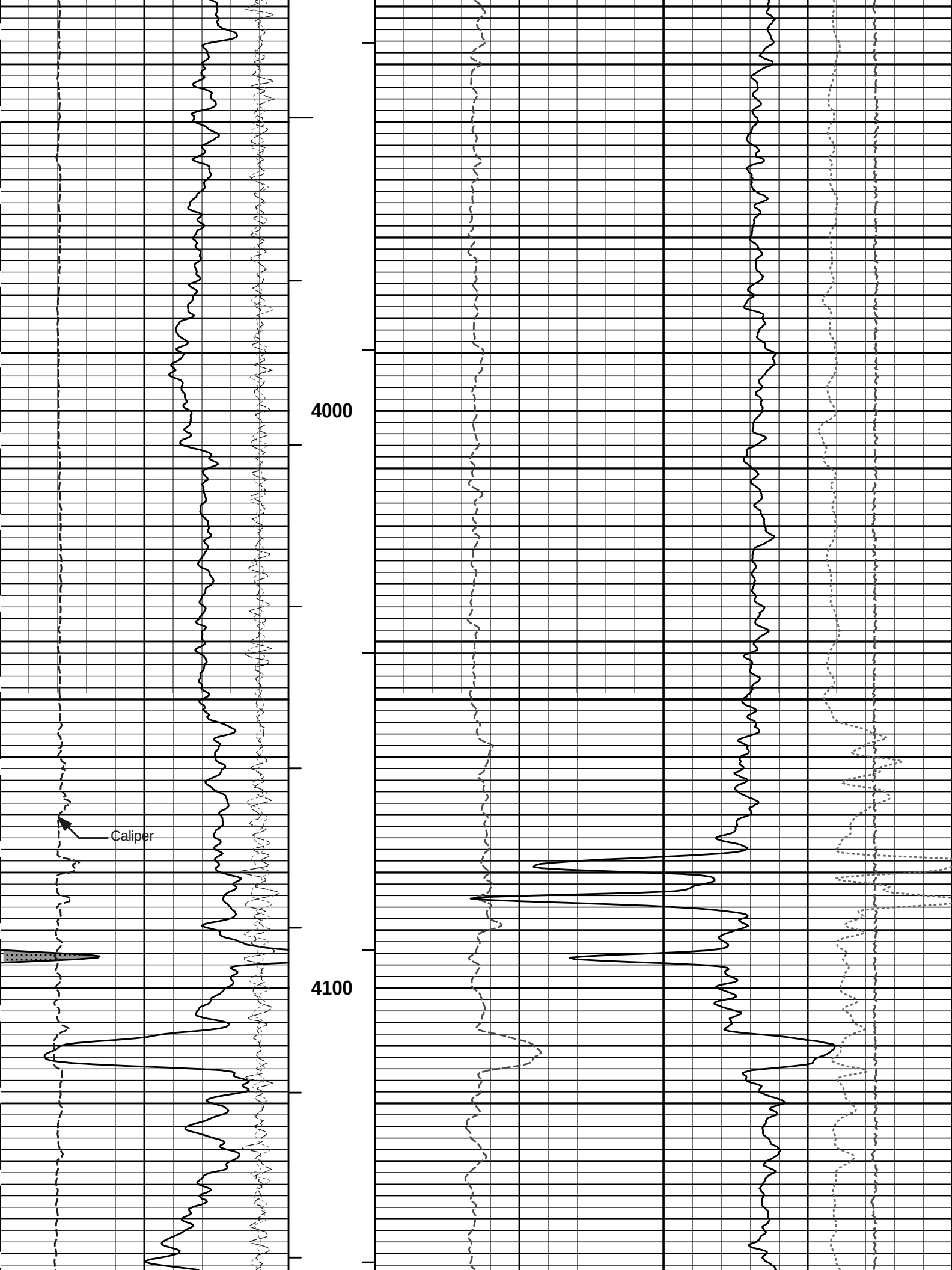

Caliper
2900
3000

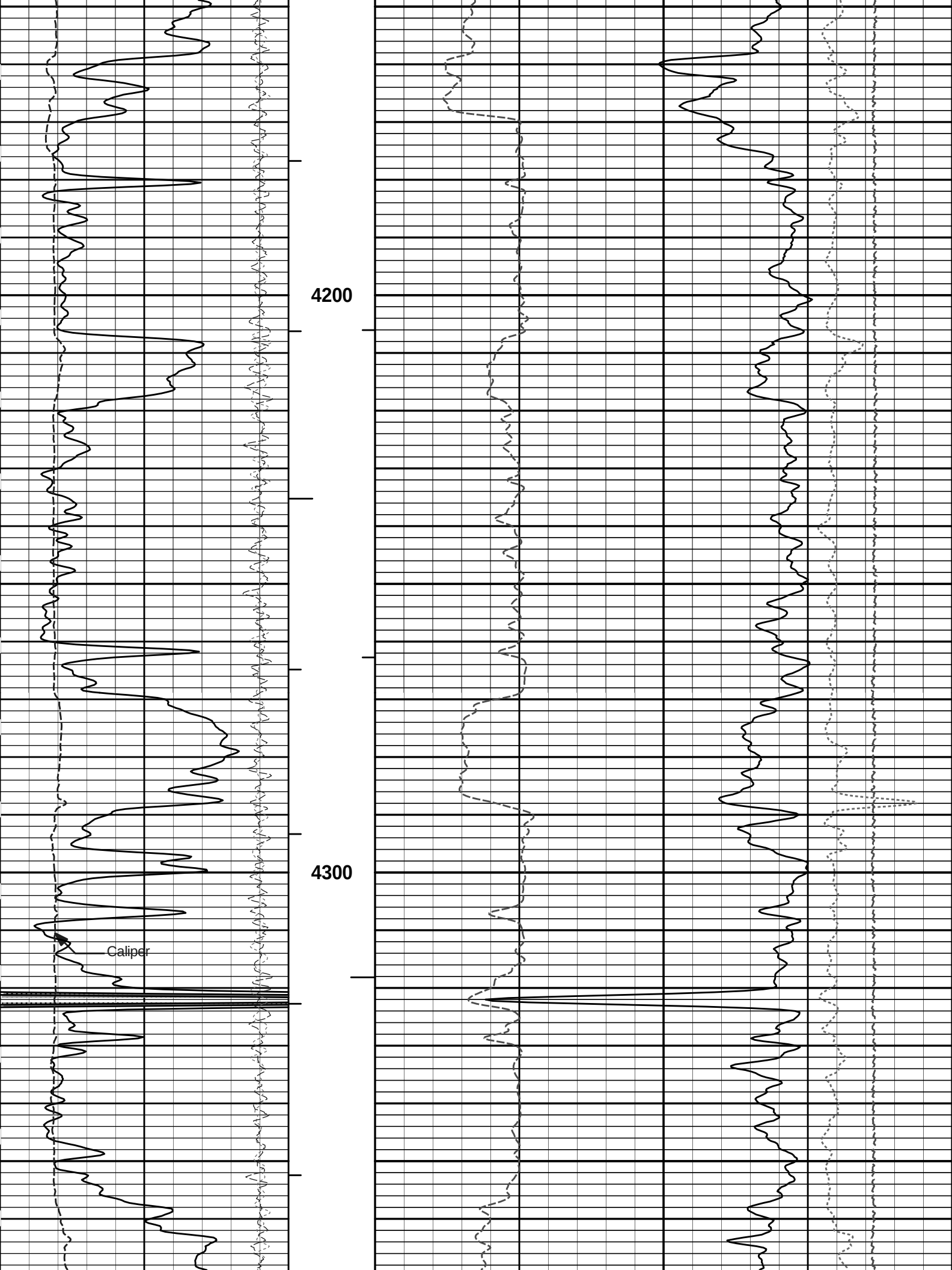

3100
Caliper
3200

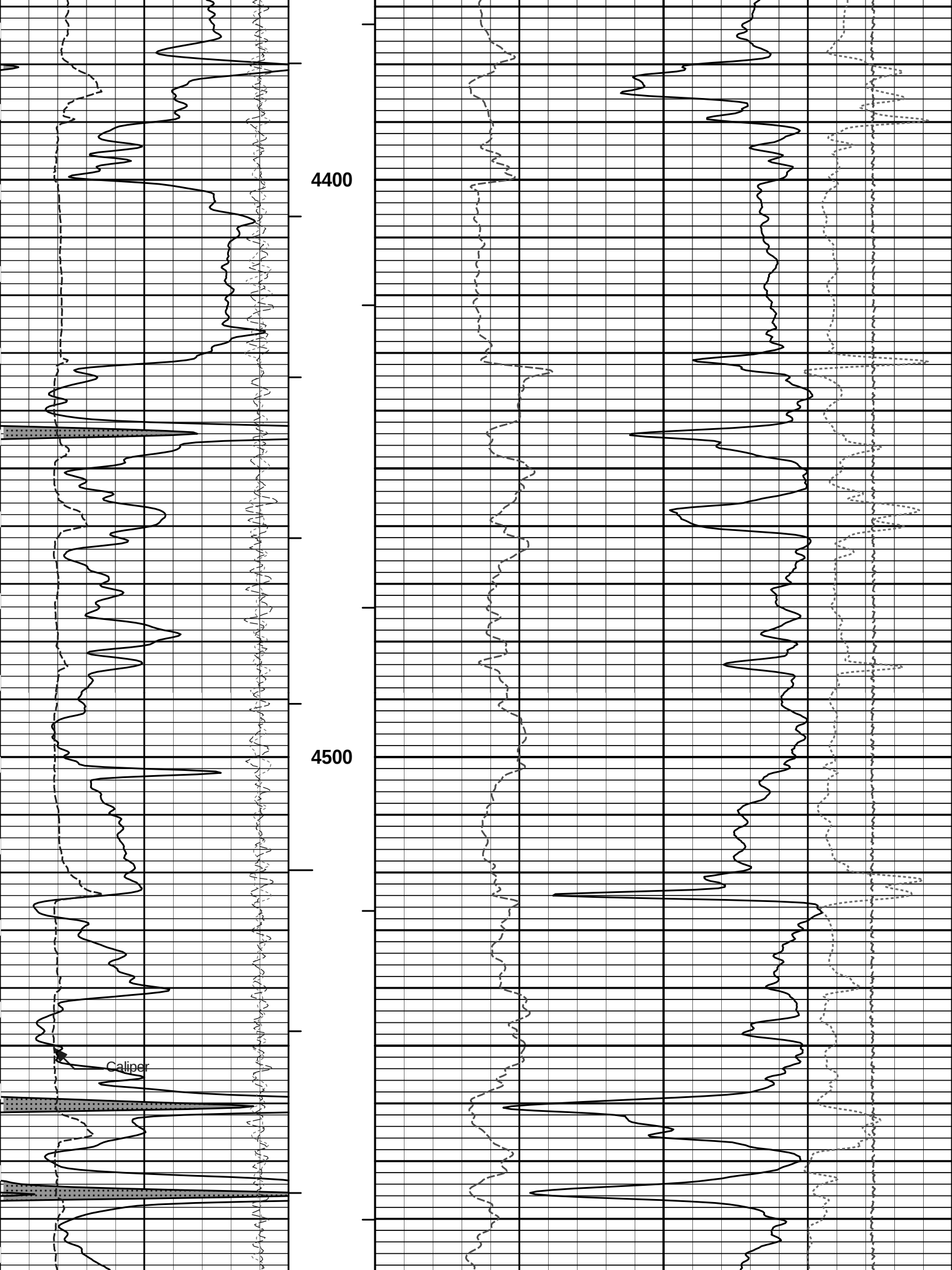

3300
3400
Caliper

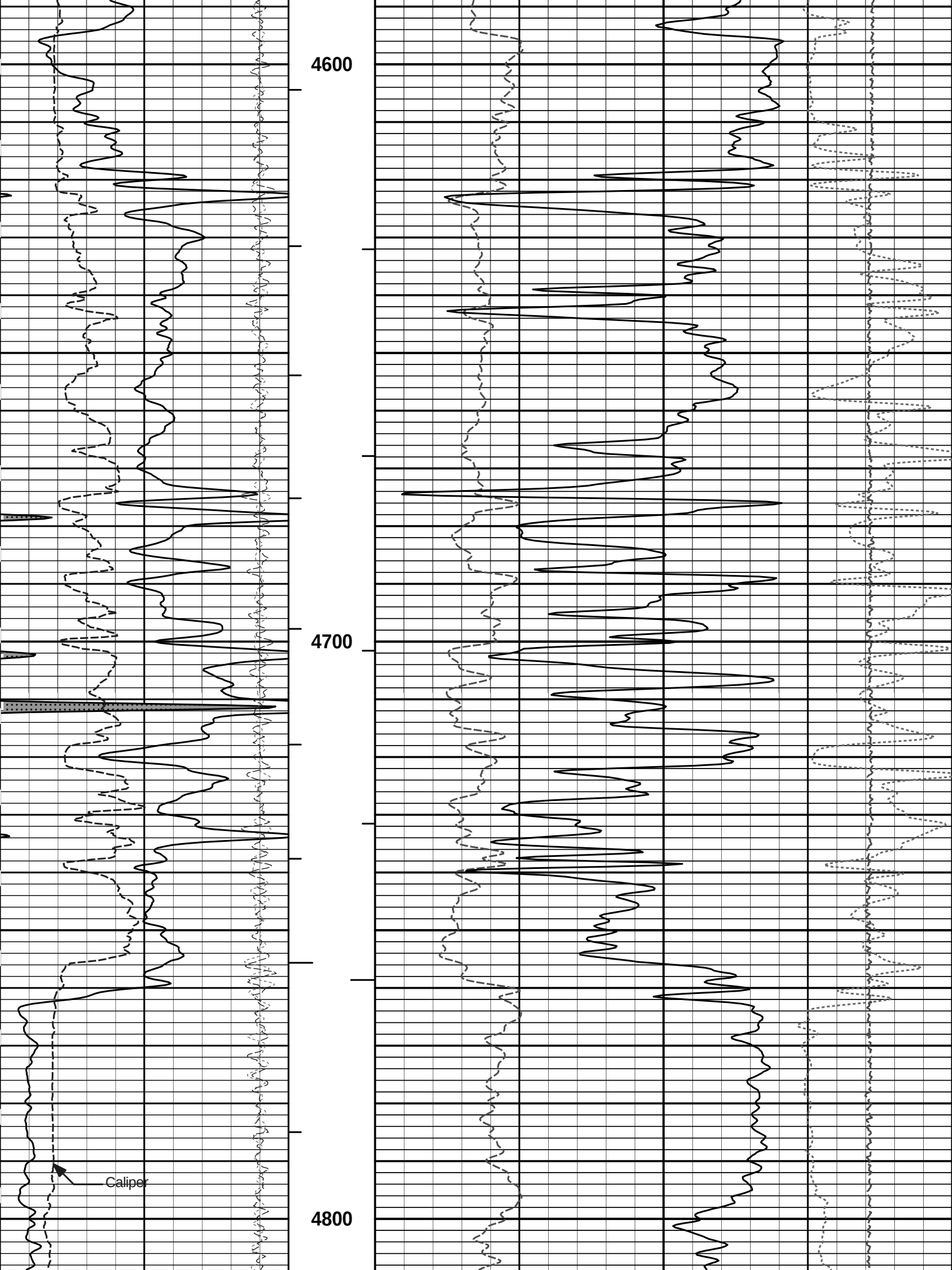

3500
3600
3700
Caliper

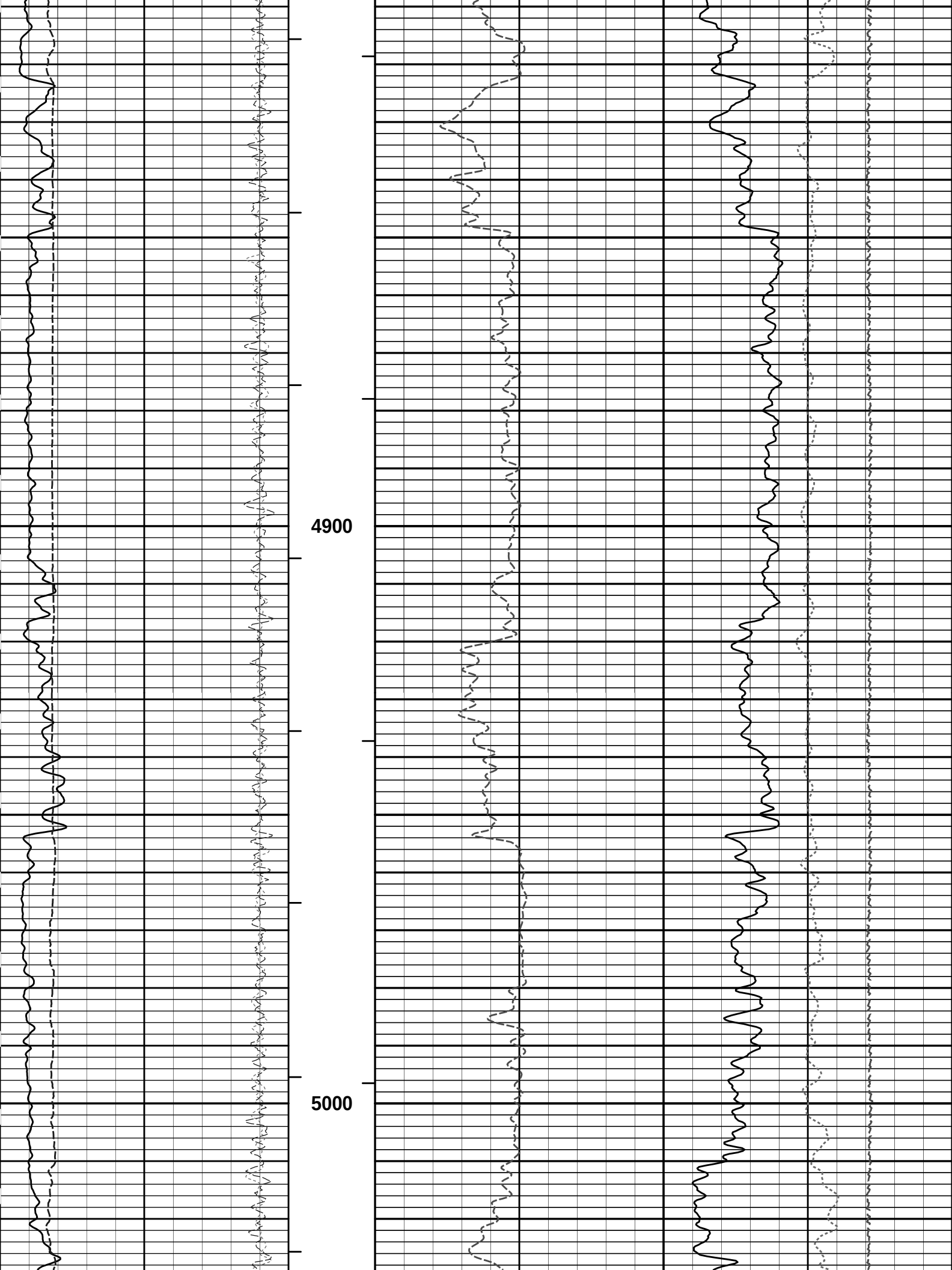

3800
3900
Caliper

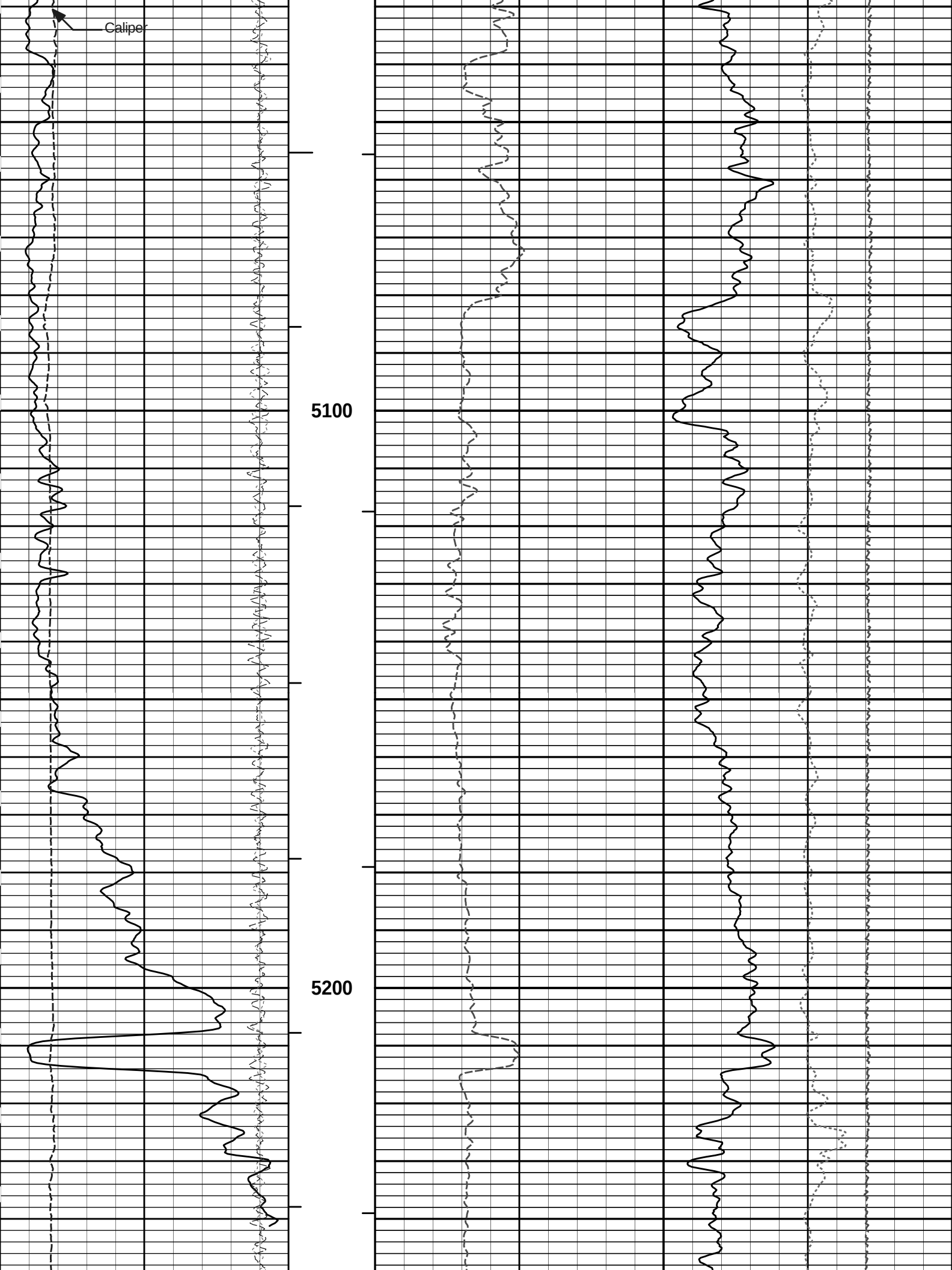

4000
4100
Caliper

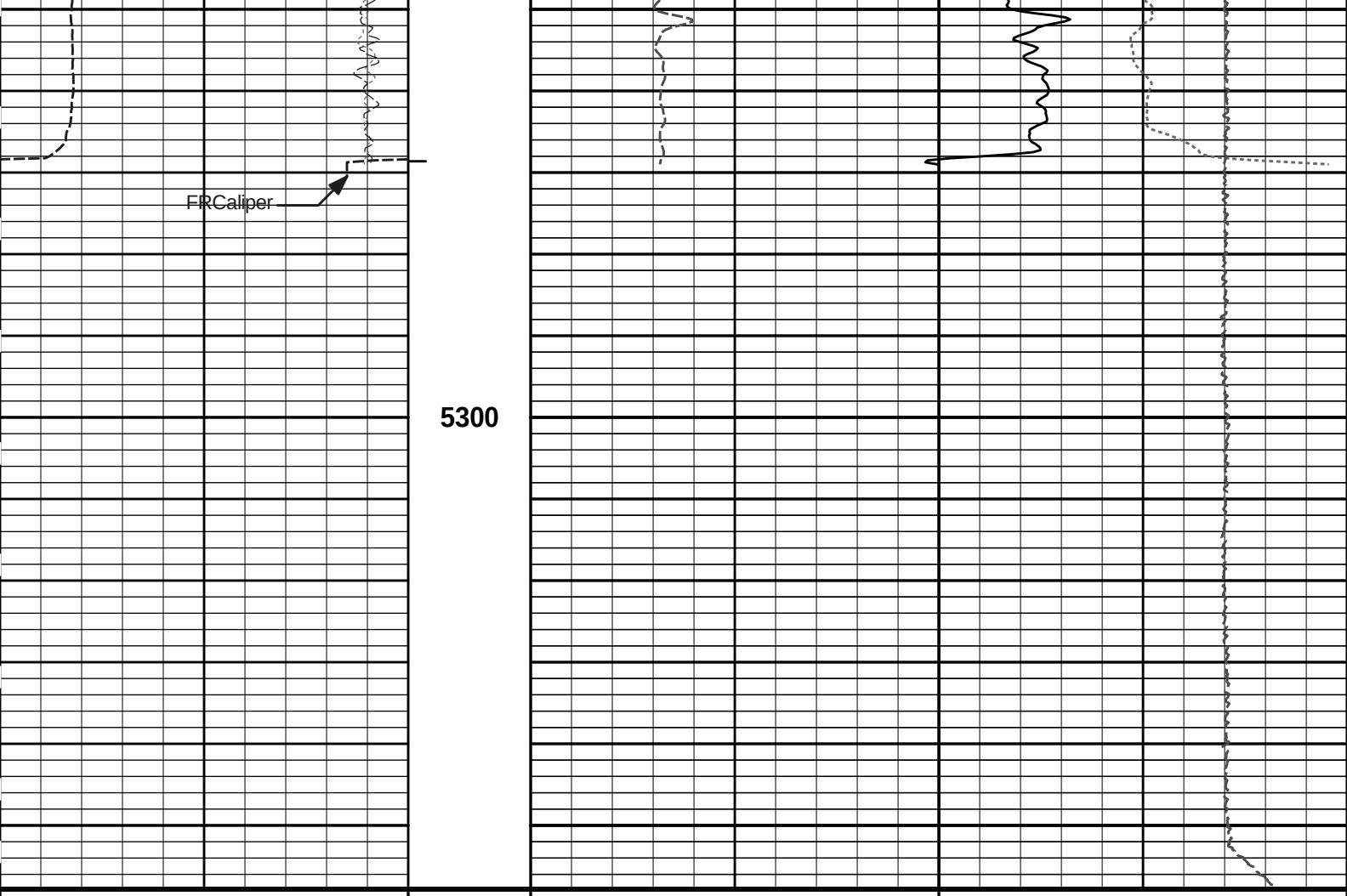

4200
4300
Caliper


4400
4500
Caliper


4600
4700
4800
Caliper


4900
5000


Caliper
5100
5200



6 Caliper 16	MD 1 : 240 ft	0 Pe 10 / -0.25 DensityCorr 0.25
inches		g/cc
-18 NearQuality 2	AHV ft3	15K Tension 0
		pounds
18 FarQuality -2	BHV ft3	2 Bulk Density 3
		g/cc
0 Gamma Ray 150		
api		
SHALE		

HALLIBURTON

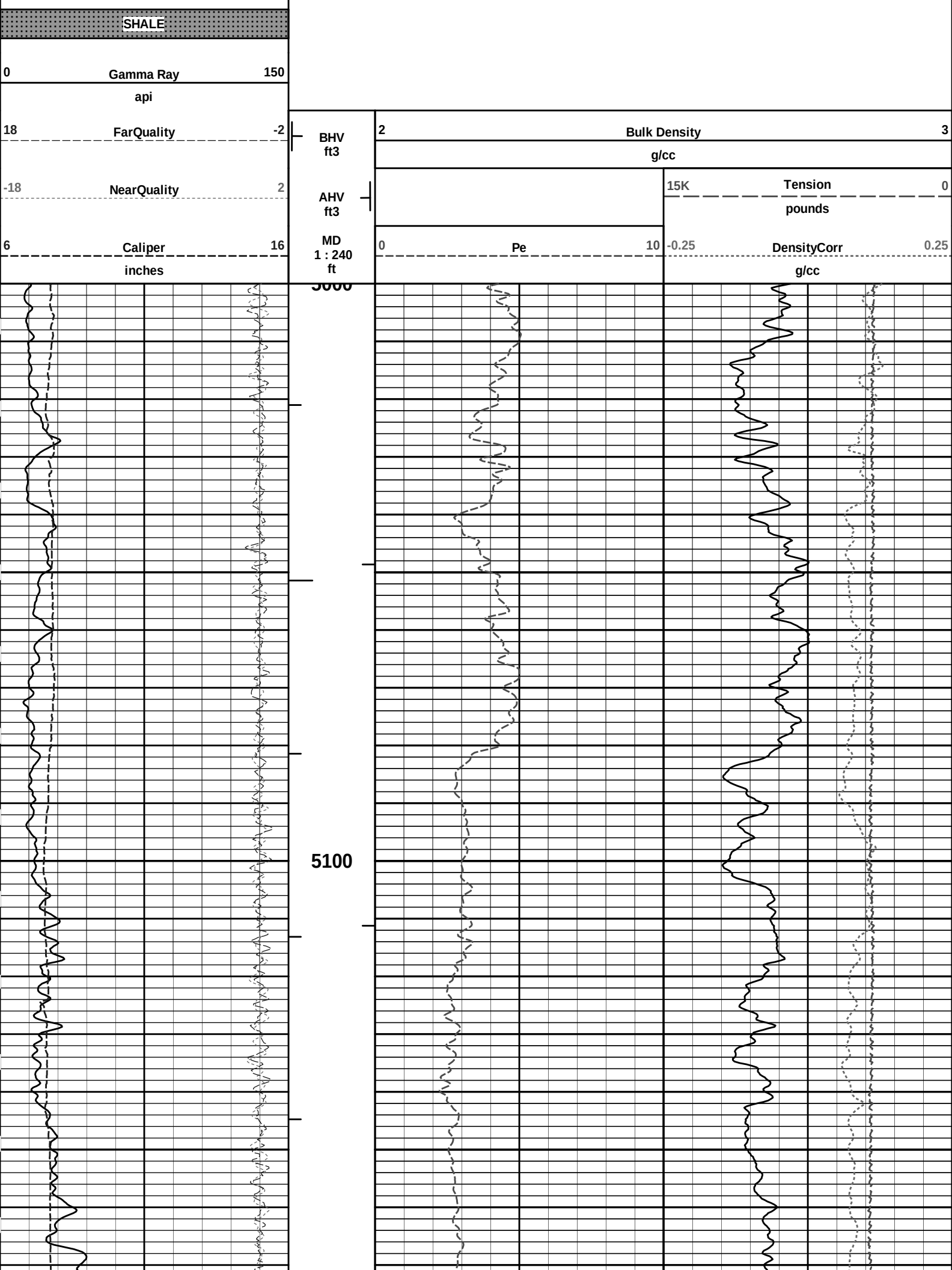
Plot Time: 19-Jul-13 23:23:19
Plot Range: 820 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\CASING\
Plot File: \\-LOCAL-\NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\PORO\BULKD_5_MAIN_LIB

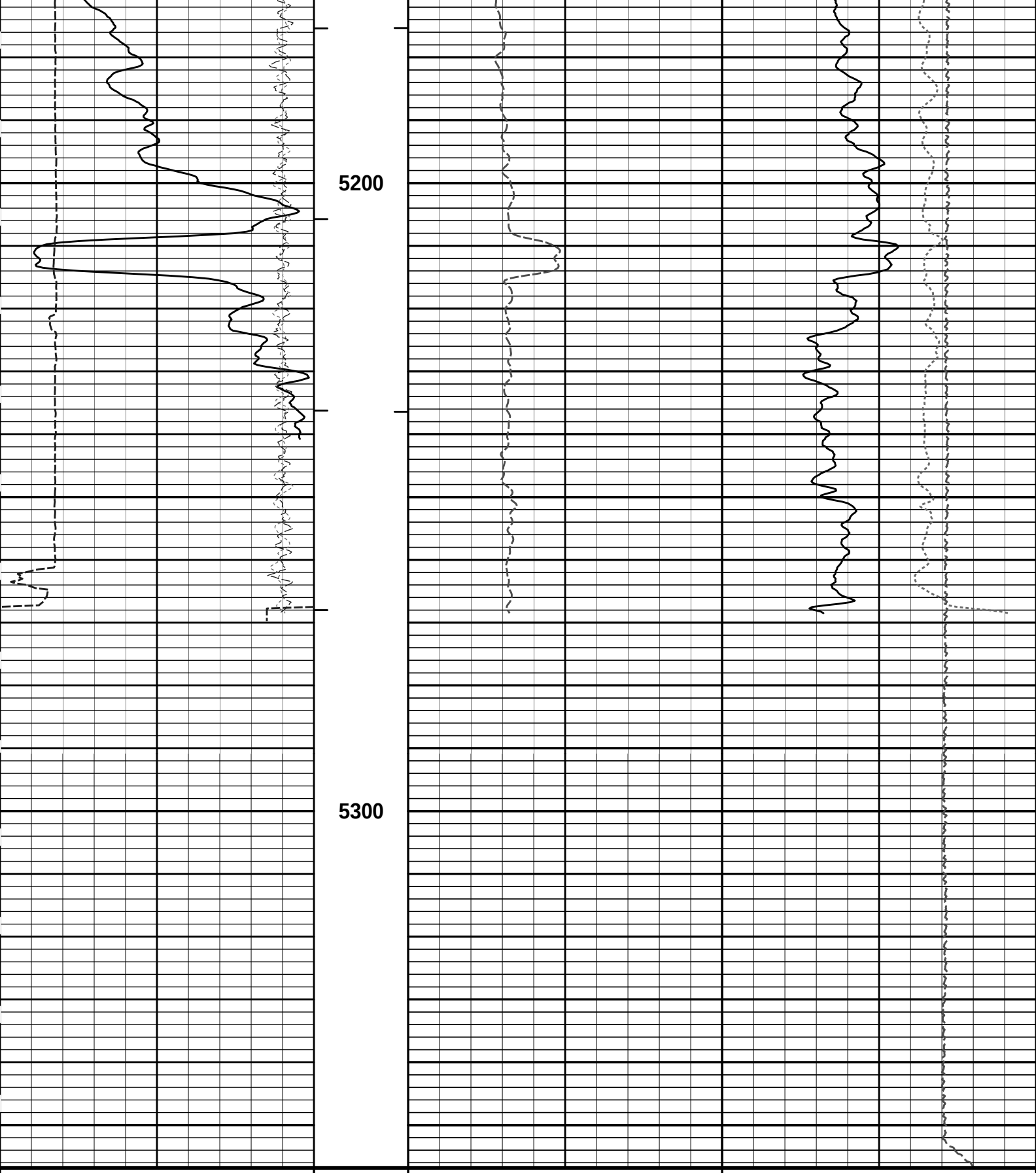
5 INCH MAIN LOG

HALLIBURTON

Plot Time: 19-Jul-13 23:23:20
Plot Range: 5000 ft to 5356.67 ft
Data: NANCY_3507_1-10\Well Based\REPEAT\
Plot File: \\-LOCAL-\NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\PORO\BULKD_5_REP_LIB

REPEAT SECTION


SHALE
0
Gamma Ray
150
api
18
FarQuality
-2
-18
NearQuality
2
6
Caliper
16
inches
BHV
ft3
AHV
ft3
MD
1 : 240
ft
2
Bulk Density
3
g/cc
15K
Tension
0
pounds
0
Pe
10
-0.25
DensityCorr
0.25
g/cc
5000
5100



6 Caliper 16 inches	MD 1 : 240 ft	0 Pe 10	-0.25 DensityCorr 0.25 g/cc	
-18 NearQuality 2	AHV ft3		15K Tension 0 pounds	
18 FarQuality -2	BHV ft3	2 Bulk Density 3 g/cc		
0 Gamma Ray 150				

Gamma Ray	150
api	
SHALE	

HALLIBURTON

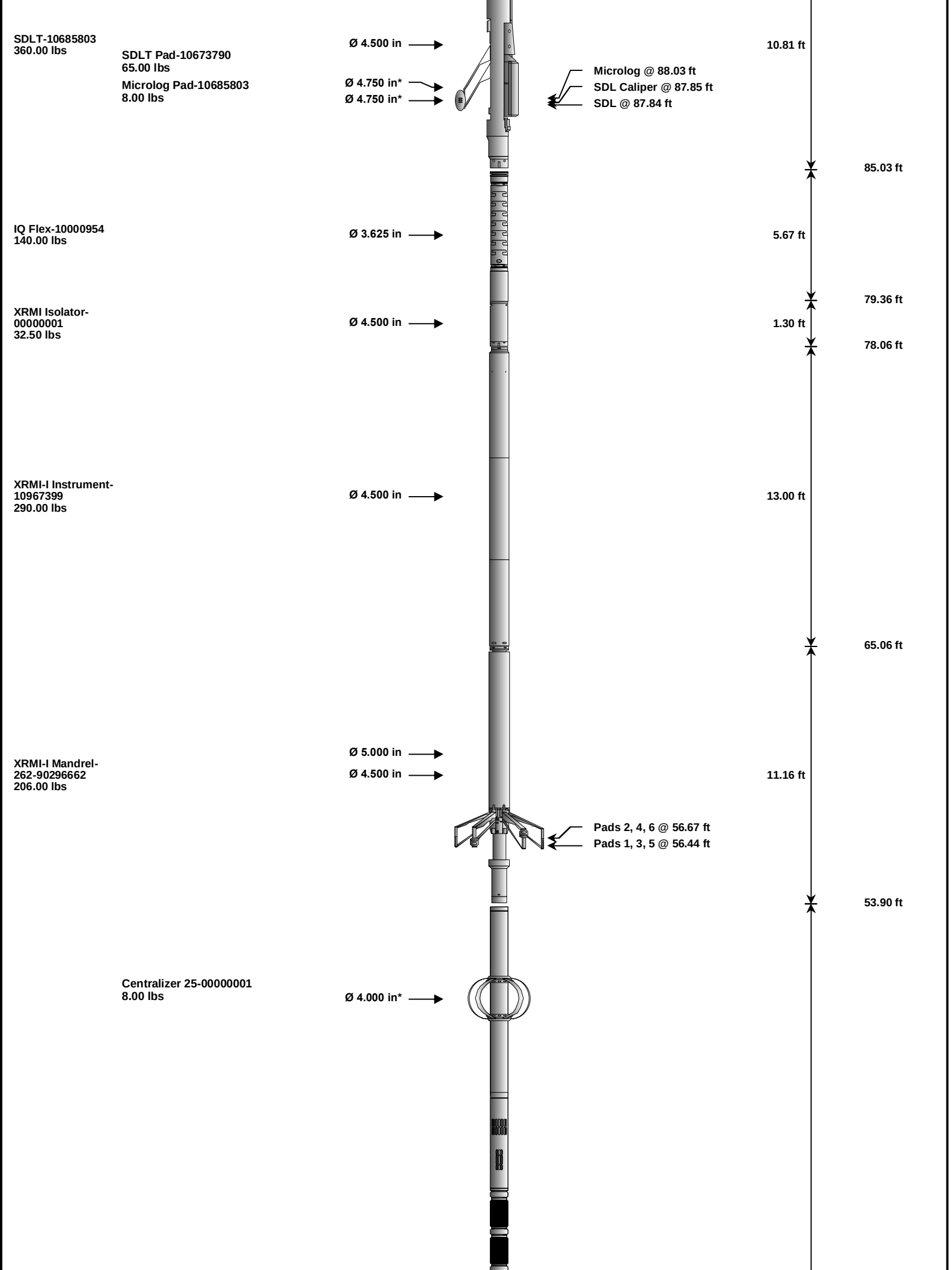
Plot Time: 19-Jul-13 23:23:23
Plot Range: 5000 ft to 5356.67 ft
Data: NANCY_3507_1-10\Well Based\REPEAT\
Plot File: \\-LOCAL-\NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\PORO\BULKD_5_REP_LIB

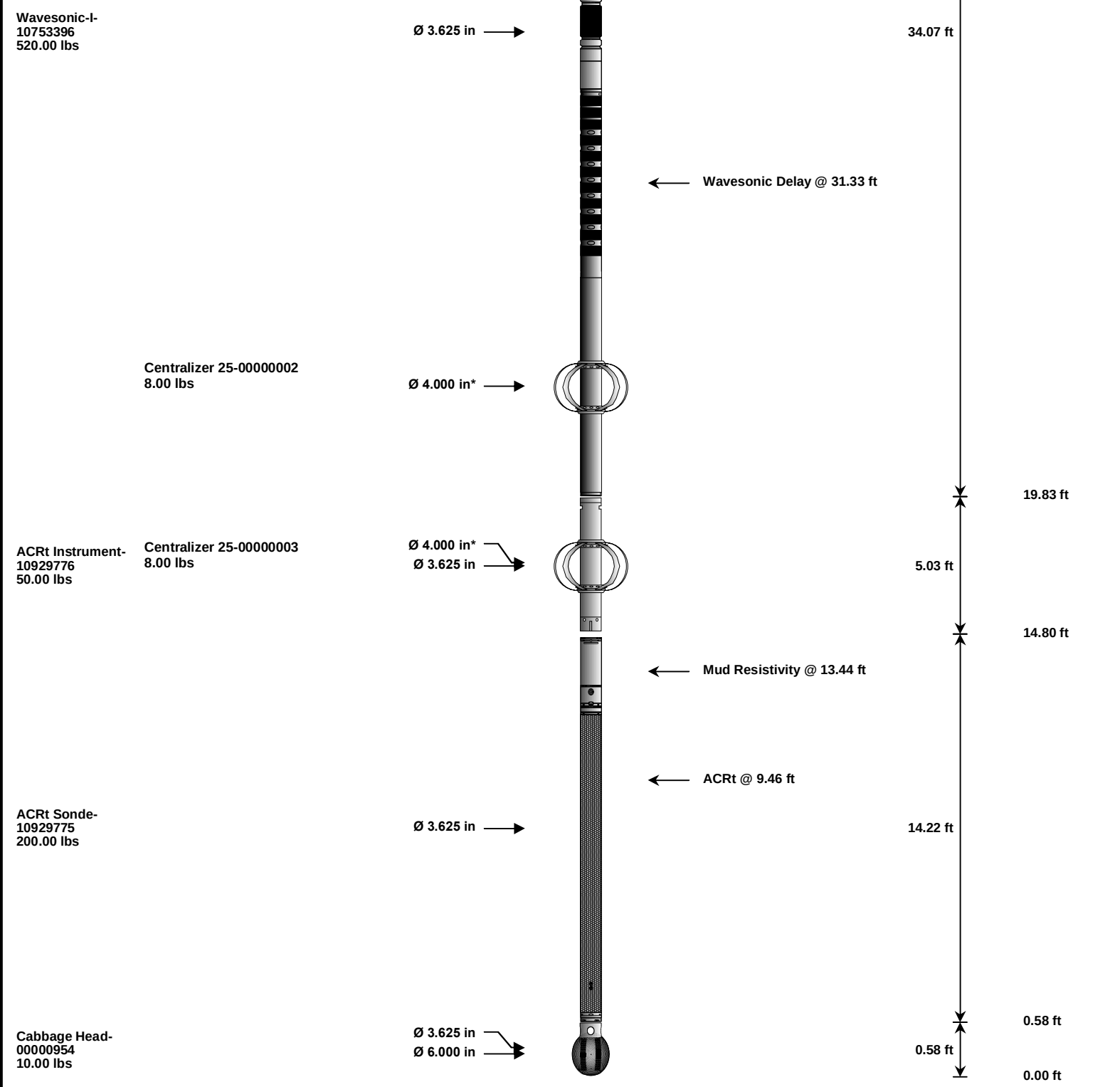
REPEAT SECTION

HALLIBURTON

TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
						128.99 ft
CH_HOS-954 37.50 lbs		Ø 2.750 in →		← Temperature @ 127.96 ft	3.03 ft	
						125.96 ft
SP Sub-12345678 60.00 lbs		Ø 3.625 in →		← SP @ 124.18 ft	3.74 ft	
						122.22 ft
GTET-10811258 165.00 lbs		Ø 3.625 in →		← GammaRay @ 116.16 ft	8.52 ft	
						113.70 ft
CSNG-10736164 114.00 lbs		Ø 3.625 in →		← CSNG @ 108.07 ft	8.17 ft	
						105.53 ft
DSNT-10755066 174.00 lbs	DSN Decentralizer-10755066 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 98.60 ft ← DSN Near @ 97.85 ft	9.69 ft	
						95.85 ft


SDLT-10685803
360.00 lbs
SDLT Pad-10673790
65.00 lbs
Microlog Pad-10685803
8.00 lbs
Ø 4.500 in
Ø 4.750 in*
Ø 4.750 in*
Microlog @ 88.03 ft
SDL Caliper @ 87.85 ft
SDL @ 87.84 ft
10.81 ft
85.03 ft
IQ Flex-10000954
140.00 lbs
Ø 3.625 in
5.67 ft
79.36 ft
XRMI Isolator-
00000001
32.50 lbs
Ø 4.500 in
1.30 ft
78.06 ft
XRMI-I Instrument-
10967399
290.00 lbs
Ø 4.500 in
13.00 ft
65.06 ft
Ø 5.000 in
XRMI-I Mandrel-
262-90296662
206.00 lbs
Ø 4.500 in
11.16 ft
Pads 2, 4, 6 @ 56.67 ft
Pads 1, 3, 5 @ 56.44 ft
53.90 ft
Centralizer 25-00000001
8.00 lbs
Ø 4.000 in*



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)		Accumulated Length (ft)	Max.Log. Speed (fpm)
CH_HOS	Hostile Cable Head with Load Cell	954	37.50	3.03		125.96	300.00
SP	SP Sub	12345678	60.00	3.74		122.22	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52		113.70	60.00
CSNG	Compensated Spectral Natural Gamma	10736164	114.00	8.17		105.53	15.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69		95.85	60.00
DCNT	DSN Decentralizer	10755066	6.60	5.13	*	99.18	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81		85.03	60.00
SDLP	Density Insite Pad	10673790	65.00	2.55	*	87.24	60.00
MICP	Microlog Pad	10685803	8.00	1.00	*	87.53	60.00
IQF	IQ Flex tool	10000954	140.00	5.67		79.36	300.00
	Isolator for the XRMI tool	00000001	32.50	1.30		78.06	300.00
XRMI	XRMI Navigation - Insite	10967399	290.00	13.00		65.06	30.00
XRMI-I	XRMI Imager - Insite	262-90296662	206.00	11.16		53.90	30.00
WSTT	WaveSonic Insite	10753396	520.00	34.07		19.83	30.00
OBCEN	Centralizer - 25 in. Overbody	00000002	8.00	2.08	*	22.85	300.00
OBCEN	Centralizer - 25 in. Overbody	00000001	8.00	2.08	*	48.74	300.00

ACRt	Array Compensated True Resistivity Instrument Section	10929776	50.00	5.03		14.80	300.00
OBCEN	Centralizer - 25 in. Overbody	00000003	8.00	2.08	*	16.29	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22		0.58	300.00
CBHD	Cabbage Head	00000954	10.00	0.58		0.00	300.00
Total			**2,462.60**	**128.99**			

* Not included in Total Length and Length Accumulation.

Data: NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\IDLE **Date: 19-Jul-13 17:07:14**

HALLIBURTON

CALIBRATION REPORT

NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 05-Jun-13 10:17:04

Engineer: S. INGERSOLL **Calibration Date:** 01-Jul-13 12:19:31

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Measurement	Measured	Calibrated	Units
Background	35.8	34.7	api
Background + Calibrator	274.6	266.7	api
Calibrator	238.8	232.0	api

NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10811258 **Reference Calibration Date:** 01-Jul-13 12:19:31

Engineer: J. BOLLOM **Calibration Date:** 17-Jul-13 10:53:59

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Calibrator Source S/N: TB-185

Calibrator API Reference:228.00 api

Equivalent Calibrator API Reference:232.0 api

Field Verification	Shop	Field	Units
Background	34.7	41.7	api
Background + Calibrator	266.7	268.2	api
Calibrator	232.0	226.6	api

Shop	Field	Difference	Tolerance
232.0	226.6	5.4	+/- 9.00

DUAL SPACED NEUTRON SHOP CALIBRATION

Tool Name: DSNT - 10755066 **Reference Calibration Date:** 19-May-13 13:08:19

Engineer: S. INGERSOLL **Calibration Date:** 01-Jul-13 16:27:31

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Logging Source S/N: DSN-436

Tank Serial Number: 105060

Reference value assigned to Tank: 51.680

Snow Block S/N: 08910

Calibration Tank Water Temperature: 62 degF

Min. Tool Housing Outside Diameter: 3.620 in

CALIBRATION CONSTANTS			
Measurement	Prev. Value	New Value	Control Limit On New Value
Gain:	0.953	0.952	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):	0.2110	0.2106	0.0003	+/- 0.0020
Calibrated Ratio:	9.73	9.72	0.011	+/- 0.050

VERIFIER		
Measurement	Value	Control Limit
Snow-Block Porosity (decp):	0.0662	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 - 10755066 **Reference Calibration Date:** 01-Jul-13 16:27:31

Engineer: J. BOLLOM **Calibration Date:** 17-Jul-13 11:02:02

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Logging Source S/N: DSN-436

Snow Block S/N: 08910

NEUTRON FIELD-CHECK SUMMARY				
	Shop	Field	Difference	Control Limit On Change
Snow-Block Porosity (decp):	0.0662	0.0642	-0.0019	+/- 0.0150

PASS/FAIL SUMMARY	
Block Change Check:	Passed
Snow Block Stat Check:	Passed
Temperature Check:	Passed

DENSITY CALIPER SHOP CALIBRATION

Tool Name: SDLT - 10685803 **Reference Calibration Date:** 20-Jun-13 16:09:36

Engineer: S. INGERSOLL **Calibration Date:** 01-Jul-13 15:30:20

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Host Tool Name: DSNT - 10755066

CALIBRATION COEFFICIENTS			
Measurement	Previous Value	New Value	Control Limit On New Value
Pad Offset	-4578.27	-4092.36	-7000.00 - -1000.00
Pad Gain	0.0003895	0.0003815	0.000200 - 0.000600
Arm Offset	-2279.74	-2703.47	-5000.00 - 3000.00
Arm Gain	0.0004915	0.0005069	0.000300 - 0.000700
Arm Power	-0.000003324	-0.000004137	-0.000010000 - 0.000010000

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

Tool Diameter: 4.50 in

CALIBRATION RINGS				
	Current Reading	Calibrated		Control Limit On

Measurement	Current Reading (Previous Coeff.)	Calibrated (New Coeff.)	Change	Control Limit On New Value
PAD EXTENSION:				
Small Ring (in)	1.85	2.00	0.15	+/- 0.20
Medium Ring (in)	3.64	3.75	0.11	+/- 0.20
RING DIAMETER:				
Small Ring (in)	6.47	6.50	0.03	+/- 0.20
Medium Ring (in)	8.18	8.25	0.07	+/- 0.20
Large Ring (in)	14.88	15.00	0.12	+/- 0.20

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 - 10685803
Reference Calibration Date: 01-Jul-13 15:30:20
Engineer: J. BOLLOM
Calibration Date: 17-Jul-13 10:55:28
Software Version: WL INSITE R3.8.4 (Build 5)
Calibration Version: 1

MEASURED CALIPER VALUES

Measurement	Shop	Field	Change	Control Limit On New Value
Pad Extension	3.75	3.78	0.03	+/- 0.10
Ring Diameter	8.25	8.27	0.02	+/- 0.15

PASS/FAIL SUMMARY	
Pad Extension Check:	Passed
Diameter Check:	Passed

SPECTRAL DENSITY SHOP CALIBRATION

Tool Name: SDLT Pad - 10673790
Reference Calibration Date: 18-May-13 21:41:33
Engineer: S. INGERSOLL
Calibration Date: 01-Jul-13 12:50:36
Software Version: WL INSITE R3.8.4 (Build 5)
Calibration Version: 1

Logging Source S/N: 5073GW

Aluminum Block S/N: LIBERAL ALUMINUM	Density: 2.598g/cc	Pe: 3.170
Magnesium Block S/N: LIBERAL MAG BLOCK	Density: 1.684g/cc	Pe: 2.598

DENSITY CALIBRATION SUMMARY

Measurement	Previous Value	New Value	Control Limit
Near Bar Gain	1.0467	1.0402	0.90 - 1.10
Near Dens Gain	1.0386	1.0308	0.90 - 1.10
Near Peak Gain	1.0598	1.0600	0.90 - 1.10
Near Lith Gain	1.0491	1.0179	0.90 - 1.10
Far Bar Gain	1.0107	1.0098	0.90 - 1.10
Far Dens Gain	0.9993	0.9981	0.90 - 1.10
Far Peak Gain	0.9920	0.9920	0.90 - 1.10
Far Lith Gain	0.9604	0.9603	0.90 - 1.10
Near Bar Offset	-0.1729	-0.1107	NONE
Near Dens Offset	-0.0887	-0.0193	NONE
Near Peak Offset	-0.2382	-0.2385	NONE
Near Lith Offset	-0.1653	0.0962	NONE

Far Bar Offset	0.0790	0.0820	NONE
Far Dens Offset	0.1500	0.1581	NONE
Far Peak Offset	0.1726	0.1658	NONE
Far Lith Offset	0.3450	0.3403	NONE

Near Bar Background	864.83	861.54	700 - 1450
Near Dens Background	283.75	282.76	230 - 480
Near Peak Background	124.36	123.64	100 - 210
Near Lith Background	152.79	154.08	125 - 260
Far Bar Background	576.79	576.20	450 - 900
Far Dens Background	226.46	226.25	175 - 345
Far Peak Background	90.61	89.12	70 - 140
Far Lith Background	93.93	93.55	75 - 145

CALIBRATION BLOCK SUMMARY

Measurement	Current Reading (Previous Coef)	Calibrated (New Coef)	Change	Control Limit On Change
MAGNESIUM				
Density (g/cc)	1.679	1.684	0.005	+/- 0.015
Pe	2.554	2.562	0.008	+/- 0.150
ALUMINUM				
Density (g/cc)	2.591	2.598	0.007	+/- 0.01500
Pe	3.154	3.131	-0.023	+/- 0.150

TOOL SUMMARY

Measurement	Near Detector		Far Detector	
	Value	Control Limits	Value	Control Limits
QUALITY				
Background	0.0002	+/- 0.0110	-0.0002	+/- 0.0140
Magnesium Block	-0.0001	+/- 0.0110	0.0009	+/- 0.0140
Aluminum Block	0.0002	+/- 0.0110	0.0013	+/- 0.0140
Resolution	8.58	6.00 - 11.50	8.79	6.00 - 11.50
Internal Verifier(B+D+P+L)	1422	1200 - 2700	985	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 Pad - 10673790 **Reference Calibration Date:** 01-Jul-13 12:50:36

Engineer: J. BOLLOM **Calibration Date:** 17-Jul-13 10:53:04

Software Version: WL INSITE R3.8.4 (Build 5) **Calibration Version:** 1

Pad Temperature: 75.2 degF

DENSITY FIELD CALIBRATION SUMMARY

Measurement	Shop	Field	Change	Control Limit +/-

Near (B+D+P+L) cps	1422.026	1419.391	-2.635	15.221
Far (B+D+P+L) cps	985.123	983.676	-1.447	16.837
Near Resolution	8.58	8.66	0.080	0.50
Far Resolution	8.79	8.95	0.160	1.00

PASS/FAIL SUMMARY	
Bkg Quality Check:	Passed
Bkg Resolution Check:	Passed
Bkg Verification Check:	Passed

CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
GTET-10811258						
Gamma Ray Calibrator	232.0	226.6	----------	5.4	+/- 9.00	api
DSNT-10755066						
Snow-Block Porosity	0.0662	0.0642	----------	0.0020	+/- 0.0150	decp
SDLT-10685803						
Pad Extension	3.75	3.78	----------	-0.03	+/-0.10	in
Ring Diameter	8.25	8.27	----------	-0.02	+/-0.15	in
SDLT Pad-10673790						
Near(B+D+P+L)	1422.026	1419.391	----------	2.635	+/-15.221	cps
Far(B+D+P+L)	985.123	983.676	----------	1.447	+/-16.837	cps

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PARAMETERS REPORT

Depth (ft)	Tool Name	Mnemonic	Description	Value	Units
TOP					
	GTET	GEOK	Process Gamma Ray EVR?	No	
	DSNT	DEOK	Process DSN EVR?	No	
	SDLT Pad	DNOK	Process Density EVR?	No	
3200.00					
	SHARED	BS	Bit Size	7.875	in
	SHARED	UBS	Use Bit Size instead of Caliper for all applications.	No	
	SHARED	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.700	ppg
	SHARED	WAGT	Weighting Agent	Natural	
	SHARED	BSAL	Borehole salinity	0.00	ppm
	SHARED	FSAL	Formation Salinity NaCl	0.00	ppm
	SHARED	KPCT	Percent K in Mud by Weight?	0.00	%
	SHARED	RMUD	Mud Resistivity	2.000	ohmm
	SHARED	TRM	Temperature of Mud	75.0	degF
	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	5365.00	ft
	SHARED	BHT	Bottom Hole Temperature	200.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	XRMI-I Instrument	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	XRMI-I Instrument	
	SHARED	TEMM	Temperature Master Tool	NONE	
	SHARED	BHSM	Borehole Size Master Tool	NONE	

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
Rwa / CrossPlot	ADP	Use Air Porosity to calculate CrossplotPhi	No	
GTET	GROK	Process Gamma Ray?	Yes	
GTET	GRSO	Gamma Tool Standoff	0.000	in
GTET	GEOK	Process Gamma Ray EVR?	Yes	
GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
CSNG	CGOK	Process CSNG Data?	Yes	
CSNG	CENT	Is Tool Centralized?	No	
CSNG	GBOK	Gamma Enviromental Corrections?	Yes	
CSNG	BARF	Barite Correction Factor	1.00	
CSNG	ORDG	Use Fixed Gain	No	
CSNG	ORDO	Use Fixed Offset	No	
CSNG	ORDR	Use Fixed Resolution Degradation Factor	No	
DSNT	DNOK	Process DSN?	Yes	
DSNT	DEOK	Process DSN EVR?	Yes	
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	LHWT	Logging Horizontal Water Tank?	No	
SDLT	CLOK	Process Caliper Outputs?	Yes	
SDLT Pad	DNOK	Process Density?	Yes	
SDLT Pad	DNOK	Process Density EVR?	Yes	
SDLT Pad	CB	Logging Calibration Blocks?	No	
SDLT Pad	SPVT	SDLT Pad Temperature Valid?	Yes	
SDLT Pad	DTWN	Disable temperature warning	No	
SDLT Pad	DMA	Formation Density Matrix	2.710	g/cc
SDLT Pad	DFL	Formation Density Fluid	1.000	g/cc
Microlog Pad	MLOK	Process MicroLog Outputs?	Yes	
XRMI-I Instrument	WRTI	Survey Writing Interval	30	ft
XRMI-I Instrument	SOPT	Smoothing Option	None	
XRMI-I Mandrel	DIMG	Process XRMI?	Yes	
XRMI-I Mandrel	ROTI	Rotate Image (N-E-S-W-N)?	Yes	
XRMI-I Mandrel	AGN	Use Button Auto Gain?	Yes	
XRMI-I Mandrel	BCLR	Button Auto Gain Color	127	
XRMI-I Mandrel	BFIL	Button Auto Gain Filter	0.020	
XRMI-I Mandrel	BGAN	Button Gain Value	0.001	
XRMI-I Mandrel	BOFF	Button Offset	0	
XRMI-I Mandrel	DIPE	Process Dipmeter Calculations?	Yes	
XRMI-I Mandrel	BHCS	Process Borehole Corrections?	Yes	
XRMI-I Mandrel	CLOK	Process Caliper Outputs?	Yes	
XRMI-I Mandrel	CMAX	Caliper Maximum Limit	100.0	in

	XRMI-I Mandrel	CMIN	Caliper Mimimum Limit	3.5	in
	XRMI-I Mandrel	NAVS	Navigation Source Tool	XRMI-I Instrument	
	XRMI-I Mandrel	BHVC	Radius type for borehole volume calcuations	Elliptical	
	Wavesonic-I	WSOK	Process WSTT?	Yes	
	Wavesonic-I	AFIL	Adaptive Filtering?	No	
	Wavesonic-I	PINT	Process 1 Sample and Skip	0	
	Wavesonic-I	PROM	Process Mode: M=1,MX=2,MY=3,MXY=4	4	
	Wavesonic-I	DTSH	Delta -T Shale	100.00	uspf
	Wavesonic-I	DTMT	Delta -T Matrix Type	User define	
	Wavesonic-I	DTMA	Delta -T Matrix	47.60	uspf
	Wavesonic-I	DTFL	Delta -T Fluid	189.00	uspf
	Wavesonic-I	RHOM	Matrix Density	2.7100	g/cc
	Wavesonic-I	RHOF	Fluid Density	1.0000	g/cc
	Wavesonic-I	SMTH	Semblance Threshold	0.25	
	Wavesonic-I	VPVS	VPVS Ratio for Porosity	1.40	
	Wavesonic-I	APEQ	Acoustic Porosity Equation	Wylie	
	Wavesonic-I	NAVS	Navigation Source Tool	XRMI-I Instrument	
	ACRt Sonde	RTOK	Process ACRt?	Yes	
	ACRt Sonde	MNSO	Minimum Tool Standoff	1.50	in
	ACRt Sonde	TCS1	Temperature Correction Source	FP Lwr & FP Upr	
	ACRt Sonde	TPOS	Tool Position	Free Hanging	
	ACRt Sonde	RMOP	Rmud Source	Mud Cell	
	ACRt Sonde	RMIN	Minimum Resistivity for MAP	0.20	ohmm
	ACRt Sonde	RMIN	Maximum Resistivity for MAP	200.00	ohmm
	ACRt Sonde	THQY	Threshold Quality	0.50	
	ACRt Sonde	MRFX	Fixed mud resistivity	2000	ohmm
BOTTOM					

Data: NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\IDLE **Date: 19-Jul-13 17:08:18**

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INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
	Depth Panel			
TENS	Tension	0.00	NO	
	CH_HOS			
DHTN	DownholeTension	0.00	BLK	0.000
	SP Sub			
PLTC	Plot Control Mask	124.18	NO	
SP	Spontaneous Potential	124.18	BLK	1.250
SPR	Raw Spontaneous Potential	124.18	NO	
SPO	Spontaneous Potential Offset	124.18	NO	
	GTET			
TPUL	Tension Pull	116.16	NO	
GR	Natural Gamma Ray API	116.16	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	116.16	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	116.16	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	

CSNG				
TPUL	Tension Pull	108.07	NO	
STAT	Status	108.07	NO	
FRMC	Tool Frame Count	108.07	BLK	0.250
TFRM	Total Frames	108.07	NO	
LSPD	Line Speed	108.07	BLK	0.250
CTIM	Accumulation time for sample	108.07	BLK	0.250
NOIS	Spectral Noise	108.07	BLK	0.250
STAB	Stabilizer Voltage in mv	108.07	BLK	0.250
STBP	Stabilizer 60 KEV Peak	108.07	BLK	0.250
AMER	Americium	108.07	BLK	0.250
FTMP	Flask PCB Temperature	108.07	BLK	0.250
SPEL	Low Energy Spectrum	108.07	BLK	0.250
SPEH	High Energy Spectrum	108.07	BLK	0.250
SSP	Stabilization Energy Spectrum	108.07	BLK	0.250
CSPC	CSNG Lo Hi Spectrum Data	108.07	NO	
DSNT				
TPUL	Tension Pull	97.75	NO	
RNDS	Near Detector Telemetry Counts	97.85	BLK	1.417
RFDS	Far Detector Telemetry Counts	98.60	TRI	0.583
DNTT	DSN Tool Temperature	97.85	NO	
DSNS	DSN Tool Status	97.75	NO	
ERND	Near Detector Telemetry Counts EVR	97.85	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	98.60	BLK	0.000
ENTM	DSN Tool Temperature EVR	97.85	NO	
SDLT				
TPUL	Tension Pull	87.85	NO	
PCAL	Pad Caliper	87.85	TRI	0.250
ACAL	Arm Caliper	87.85	TRI	0.250
XRMI-I Mandrel				
TPUL	Tension Pull	56.67	NO	
PAD1	XRMI Pad 1 values	56.44	NO	
PAD2	XRMI Pad 2 values	56.44	NO	
PAD3	XRMI Pad 3 values	56.44	NO	
PAD4	XRMI Pad 4 values	56.44	NO	
PAD5	XRMI Pad 5 values	56.44	NO	
PAD6	XRMI Pad 6 values	56.44	NO	
OD1	EMI Odd Button Values Pad 1	56.44	NO	
OD2	EMI Odd Button Values Pad 2	56.67	NO	
OD3	EMI Odd Button Values Pad 3	56.44	NO	
OD4	EMI Odd Button Values Pad 4	56.67	NO	
OD5	EMI Odd Button Values Pad 5	56.44	NO	
OD6	EMI Odd Button Values Pad 6	56.67	NO	
EV1	EMI Even Button Values Pad 1	56.46	NO	
EV2	EMI Even Button Values Pad 2	56.64	NO	
EV3	EMI Even Button Values Pad 3	56.46	NO	
EV4	EMI Even Button Values Pad 4	56.64	NO	
EV5	EMI Even Button Values Pad 5	56.46	NO	
EV6	EMI Even Button Values Pad 6	56.64	NO	
ITMP	Instrument Temperature	53.90	NO	
EMIM	Tool Mode	53.90	NO	
HAZI	Hole Azimuth	56.19	NO	
HAZI	Hole Azimuth - Down Delay	56.69	NO	

HAZI	Hole Azimuth - Down Delay	56.69	NO	
ZACC	Accelerometer Z	56.44	NO	
TPUL	Tension Pull	56.67	NO	
FIR1	Current Button R - Pad 1	56.44	NO	
FIR2	Current Button R - Pad 2	56.67	NO	
FIR3	Current Button R - Pad 3	56.44	NO	
FIR4	Current Button R - Pad 4	56.67	NO	
FIR5	Current Button R - Pad 5	56.44	NO	
FIR6	Current Button R - Pad 6	56.67	NO	
FIX1	Current Button X - Pad 1	56.44	NO	
FIX2	Current Button X - Pad 2	56.67	NO	
FIX3	Current Button X - Pad 3	56.44	NO	
FIX4	Current Button X - Pad 4	56.67	NO	
FIX5	Current Button X - Pad 5	56.44	NO	
FIX6	Current Button X - Pad 6	56.67	NO	
SIR1	Current Slow Button R - Pad 1	56.44	BLK	3.000
SIR2	Current Slow Button R - Pad 2	56.67	BLK	3.000
SIR3	Current Slow Button R - Pad 3	56.44	BLK	3.000
SIR4	Current Slow Button R - Pad 4	56.67	BLK	3.000
SIR5	Current Slow Button R - Pad 5	56.44	BLK	3.000
SIR6	Current Slow Button R - Pad 6	56.67	BLK	3.000
SIX1	Current Slow Button X - Pad 1	56.44	BLK	3.000
SIX2	Current Slow Button X - Pad 2	56.67	BLK	3.000
SIX3	Current Slow Button X - Pad 3	56.44	BLK	3.000
SIX4	Current Slow Button X - Pad 4	56.67	BLK	3.000
SIX5	Current Slow Button X - Pad 5	56.44	BLK	3.000
SIX6	Current Slow Button X - Pad 6	56.67	BLK	3.000
EMMR	Phasor Voltage - Real Part	56.44	NO	
EMMX	Phasor Voltage - Imaginary Part	56.44	NO	
PADV	Pad Voltage	53.90	BLK	0.250
ITMP	Instrument Temperature	53.90	BLK	0.000
CON1	Conductivity Pad 1	56.44	BLK	3.000
CON2	Conductivity Pad 2	56.67	BLK	3.000
CON3	Conductivity Pad 3	56.44	BLK	3.000
CON4	Conductivity Pad 4	56.67	BLK	3.000
CON5	Conductivity Pad 5	56.44	BLK	3.000
CON6	Conductivity Pad 6	56.67	BLK	3.000
UIR2	Current Button R No Delay - Pad 2	56.44	NO	
UIR4	Current Button R No Delay - Pad 4	56.44	NO	
UIR6	Current Button R No Delay - Pad 6	56.44	NO	
UIX2	Current Button X No Delay - Pad 2	56.44	NO	
UIX4	Current Button X No Delay - Pad 4	56.44	NO	
UIX6	Current Button X No Delay - Pad 6	56.44	NO	
TPUL	Tension Pull	56.67	NO	
ARM1	Caliper 1 measurement	56.44	BLK	0.000
ARM2	Caliper 2 measurement	56.44	BLK	0.000
ARM3	Caliper 3 measurement	56.44	BLK	0.000
ARM4	Caliper 4 measurement	56.44	BLK	0.000
ARM5	Caliper 5 measurement	56.44	BLK	0.000
ARM6	Caliper 6 measurement	56.44	BLK	0.000
MOTV	Motor Voltage Monitor 1	56.44	BLK	0.000
PRES	Caliper percentage of total compression of the spring	53.90	BLK	0.000
HAZI	Hole Azimuth	56.44	NO	
RB	Relative Bearing	56.44	NO	
AZI1	PAD1 Azimuth	56.44	NO	
DEVI	Inclination	56.44	NO	

DEVI	Inclination	56.44	NO

Wavesonic-I			
TPUL	Tension Pull	31.33	NO
DPSX	Dipole Source X Structurel	19.83	NO
DPSY	Dipole Source Y Structurel	19.83	NO
DPSM	Monopole Source Structure	19.83	NO
WVST	Wavesonic Compressed Data	31.33	NO
TPUL	Tension Pull	31.33	NO
XMS1	Wave Sonic Status Word 1	19.83	NO
XMS2	Wave Sonic Status Word 2	19.83	NO
XMS1	Wave Sonic XMITStatus Word 1	19.83	NO
XMS1	Wave Sonic XMITStatus Word 2	19.83	NO
F1HA	Dipole 1 HV After	19.83	NO
F1HB	Dipole 1 HV Before	19.83	NO
F2HA	Dipole 2 HV After	19.83	NO
F2HB	Dipole 2 HV Before	19.83	NO
F3HA	Monopole HV After	19.83	NO
F3HB	Monopole HV Before	19.83	NO
INVT	Input Voltage	19.83	NO
5VOL	5 Volts	19.83	NO
MI5A	Minus 5 Volts Analog	19.83	NO
ITMP	Instrument Temperature	19.83	NO
PL5A	Plus 5 Volts Analog	19.83	NO
5VD	Plus 5 Volts Digital	19.83	NO
TCUR	Tool Current	19.83	NO
SUPV	Supply Voltage	19.83	NO
PRVT	Preregulated voltage	19.83	NO
PRVT	Pre-regulated voltage Xmter	19.83	NO
TEMP	Temperature	19.83	NO
ACQN	Acquisition Number	19.83	NO
XDP	Delay Reference	31.33	NO
MITM	MIT Mode	31.33	NO
VERS	Version	19.83	NO
D1CT	Dipole 1 Compressed Word Count	31.33	NO
D2CT	Dipole 2 Compressed Word Count	31.33	NO
MCNT	Monopole Compressed Word Count	31.33	NO
SEQN	Sequence Number	19.83	NO
FREV	Firmware Revision	19.83	NO
MSMP	Monopole Sample Rate	19.83	NO
MSMP	Dipole Sample Rate	19.83	NO
MFWF	Monopole Firing Waveform	19.83	NO
MFRQ	Monopole Frequency	19.83	NO
MDLY	Monopole Delay	19.83	NO
DXWF	Dipole X Firing Waveform	19.83	NO
XFRQ	Dipole X Frequency	19.83	NO
XDLY	Dipole X Delay	19.83	NO
DYWF	Dipole Y Firing Waveform	19.83	NO
YFRQ	Dipole Y Frequency	19.83	NO
YDLY	Dipole Y Delay	19.83	NO
DPSX	Dipole Source X Structurel	19.83	NO
DPSY	Dipole Source Y Structurel	19.83	NO
DPSM	Monopole Source Structure	19.83	NO
WVST	Wavesonic Compressed Data	31.33	NO
AUTM	Auto Mode	19.83	NO
SONM	tool mode for sonic - 0 for normal or 3 for calibration	19.83	NO

MSL	Monopole Lower Travel Time	31.33	NO
MSH	Monopole Upper Travel Time	31.33	NO
MLFC	Monopole-1 Lower Filter Bandpass Frequency Cut-off	19.83	NO
MUFC	Monopole-1 Upper Filter Bandpass Frequency Cut-off	19.83	NO
DLTT	Dipole Lower Travel Time	19.83	NO
DUTT	Dipole Upper Travel Time	19.83	NO
DLFC	Dipole Lower Filter Bandpass Frequency Cut-off	19.83	NO
DUFC	Dipole Upper Filter Bandpass Frequency Cut-off	19.83	NO
MUTE	WaveSonic Mute/Enable Channels and Sides map	19.83	NO
MUTS	Mute/Enable Sides	19.83	NO
WSRB	Relative Bearing	31.33	NO
WSAZ	WSX Azimuth Pad 1	31.33	NO
TPUL	Tension Pull	31.33	NO
WMP	Summed array of Monopole for SIDES - A,B,C,D	31.33	NO
WXX	Dipole X for SIDES - A-C	31.33	NO
WYY	Dipole Y for SIDES - B-D	31.33	NO
WXY	Dipole X for SIDES - B-D	31.33	NO
WYX	Dipole Y for SIDES - A-C	31.33	NO
TPUL	Tension Pull	31.33	NO
WMA	Monopole Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO
WMB	Monopole Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO
WMC	Monopole Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO
WMD	Monopole Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO
WXA	Dipole X Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO
WXB	Dipole X Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO
WXC	Dipole X Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO
WXD	Dipole X Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO
WYA	Dipole Y Waveform Side A - Channel 1 to Channel 8 Receivers	31.33	NO
WYB	Dipole Y Waveform Side B - Channel 1 to Channel 8 Receivers	31.33	NO
WYC	Dipole Y Waveform Side C - Channel 1 to Channel 8 Receivers	31.33	NO
WYD	Dipole Y Waveform Side D - Channel 1 to Channel 8 Receivers	31.33	NO
GAR1	Gain Side A Receiver 1	19.83	NO
GAR2	Gain Side A Receiver 2	19.83	NO
GAR3	Gain Side A Receiver 3	19.83	NO
GAR4	Gain Side A Receiver 4	19.83	NO
GAR5	Gain Side A Receiver 5	19.83	NO
GAR6	Gain Side A Receiver 6	19.83	NO
GAR7	Gain Side A Receiver 7	19.83	NO
GAR8	Gain Side A Receiver 8	19.83	NO
GBR1	Gain Side B Receiver 1	19.83	NO
GBR2	Gain Side B Receiver 2	19.83	NO
GBR3	Gain Side B Receiver 3	19.83	NO
GBR4	Gain Side B Receiver 4	19.83	NO
GBR5	Gain Side B Receiver 5	19.83	NO
GBR6	Gain Side B Receiver 6	19.83	NO
GBR7	Gain Side B Receiver 7	19.83	NO
GBR8	Gain Side B Receiver 8	19.83	NO
GCR1	Gain Side C Receiver 1	19.83	NO
GCR2	Gain Side C Receiver 2	19.83	NO

GCR3	Gain Side C Receiver 3	19.83	NO	
GCR4	Gain Side C Receiver 4	19.83	NO	
GCR5	Gain Side C Receiver 5	19.83	NO	
GCR6	Gain Side C Receiver 6	19.83	NO	
GCR7	Gain Side C Receiver 7	19.83	NO	
GCR8	Gain Side C Receiver 8	19.83	NO	
GDR1	Gain Side D Receiver 1	19.83	NO	
GDR2	Gain Side D Receiver 2	19.83	NO	
GDR3	Gain Side D Receiver 3	19.83	NO	
GDR4	Gain Side D Receiver 4	19.83	NO	
GDR5	Gain Side D Receiver 5	19.83	NO	
GDR6	Gain Side D Receiver 6	19.83	NO	
GDR7	Gain Side D Receiver 7	19.83	NO	
GDR8	Gain Side D Receiver 8	19.83	NO	
	ACRt Sonde			
TPUL	Tension Pull	2.97	NO	
F1R1	ACRT 12KHz - 80in R value	9.22	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	9.22	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.72	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.72	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	5.22	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	5.22	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	4.22	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	4.22	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.72	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.72	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.47	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.47	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	9.22	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	9.22	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.72	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.72	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	5.22	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	5.22	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	4.22	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	4.22	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.72	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.72	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.47	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.47	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	9.22	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	9.22	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.72	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.72	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	5.22	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	5.22	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	4.22	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	4.22	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.72	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.72	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.47	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.47	BLK	0.000
RMUD	Mud Resistivity	12.76	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.97	BLK	0.000

F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.97	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.97	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.97	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.97	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.97	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.97	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.97	BLK	0.000
ITMP	Instrument Temperature	2.97	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.97	NO	
TIDV	Instrument Temperature Derivative	2.97	NO	
TUDV	Upper Temperature Derivative	2.97	NO	
TLDV	Lower Temperature Derivative	2.97	NO	
TRBD	Receiver Board Temperature	2.97	NO	

SDLT Pad

TPUL	Tension Pull	87.84	NO	
NAB	Near Above	87.66	BLK	0.920
NHI	Near Cesium High	87.66	BLK	0.920
NLO	Near Cesium Low	87.66	BLK	0.920
NVA	Near Valley	87.66	BLK	0.920
NBA	Near Barite	87.66	BLK	0.920
NDE	Near Density	87.66	BLK	0.920
NPK	Near Peak	87.66	BLK	0.920
NLI	Near Lithology	87.66	BLK	0.920
NBAU	Near Barite Unfiltered	87.66	BLK	0.250
NLIU	Near Lithology Unfiltered	87.66	BLK	0.250
FAB	Far Above	88.01	BLK	0.250
FHI	Far Cesium High	88.01	BLK	0.250
FLO	Far Cesium Low	88.01	BLK	0.250
FVA	Far Valley	88.01	BLK	0.250
FBA	Far Barite	88.01	BLK	0.250
FDE	Far Density	88.01	BLK	0.250
FPK	Far Peak	88.01	BLK	0.250
FLI	Far Lithology	88.01	BLK	0.250
PTMP	Pad Temperature	87.85	BLK	0.920
NHV	Near Detector High Voltage	87.24	NO	
FHV	Far Detector High Voltage	87.24	NO	
ITMP	Instrument Temperature	87.24	NO	
DDHV	Detector High Voltage	87.24	NO	

Microlog Pad

TPUL	Tension Pull	88.03	NO	
MINV	Microlog Lateral	88.03	BLK	0.750
MNOR	Microlog Normal	88.03	BLK	0.750

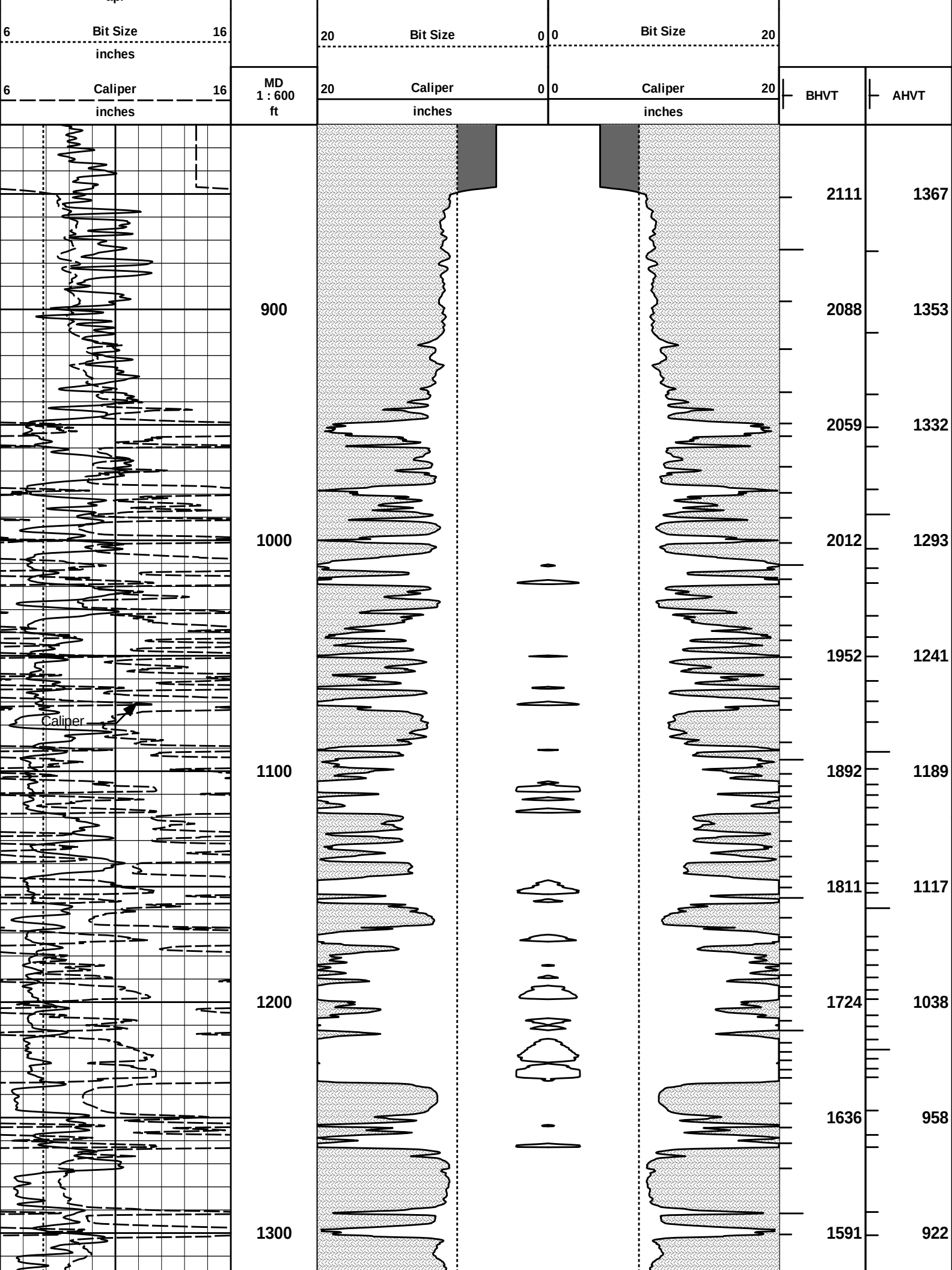
Data: NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\IDLE **Date: 19-Jul-13 17:07:56**

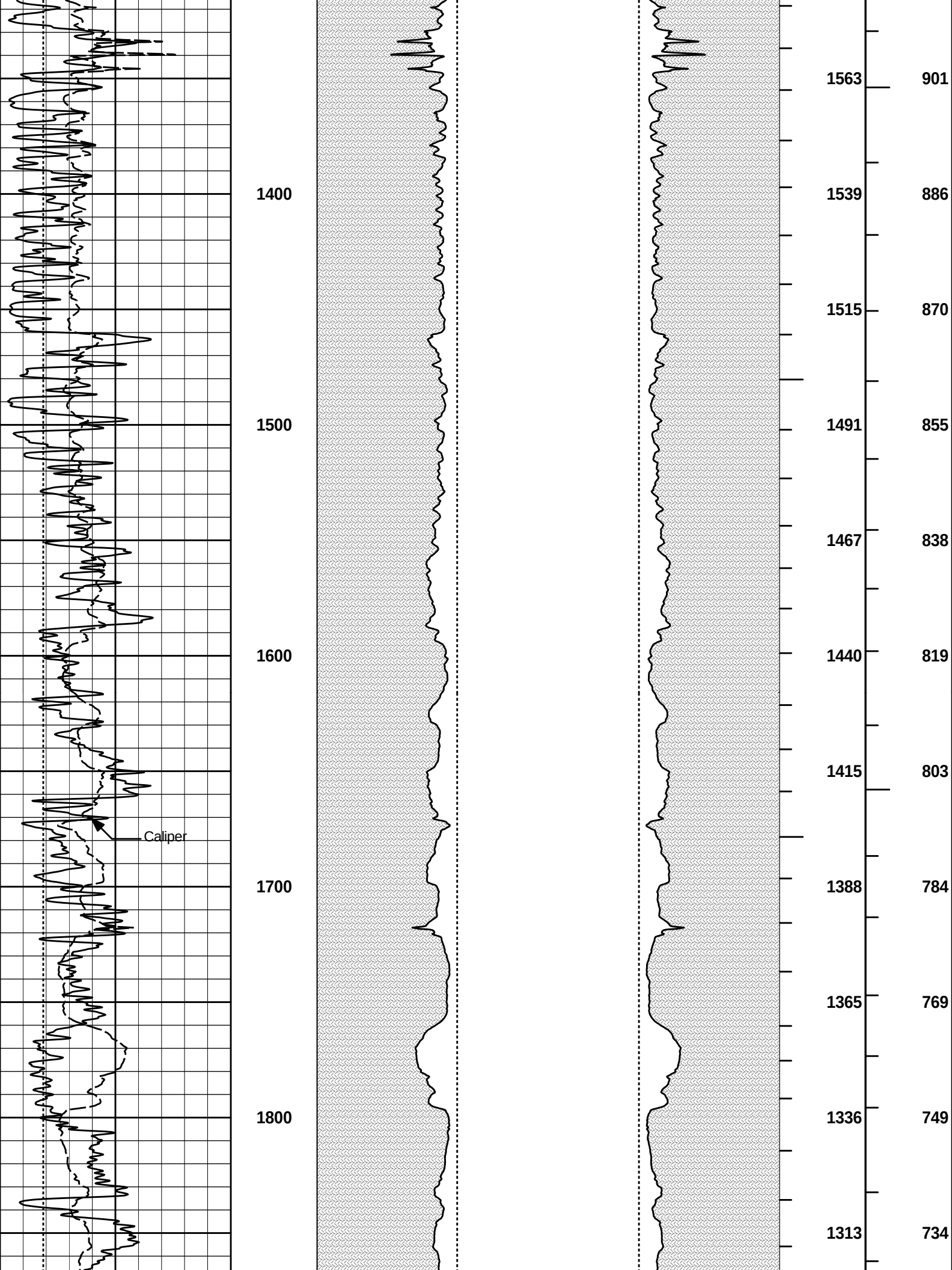
HALLIBURTON

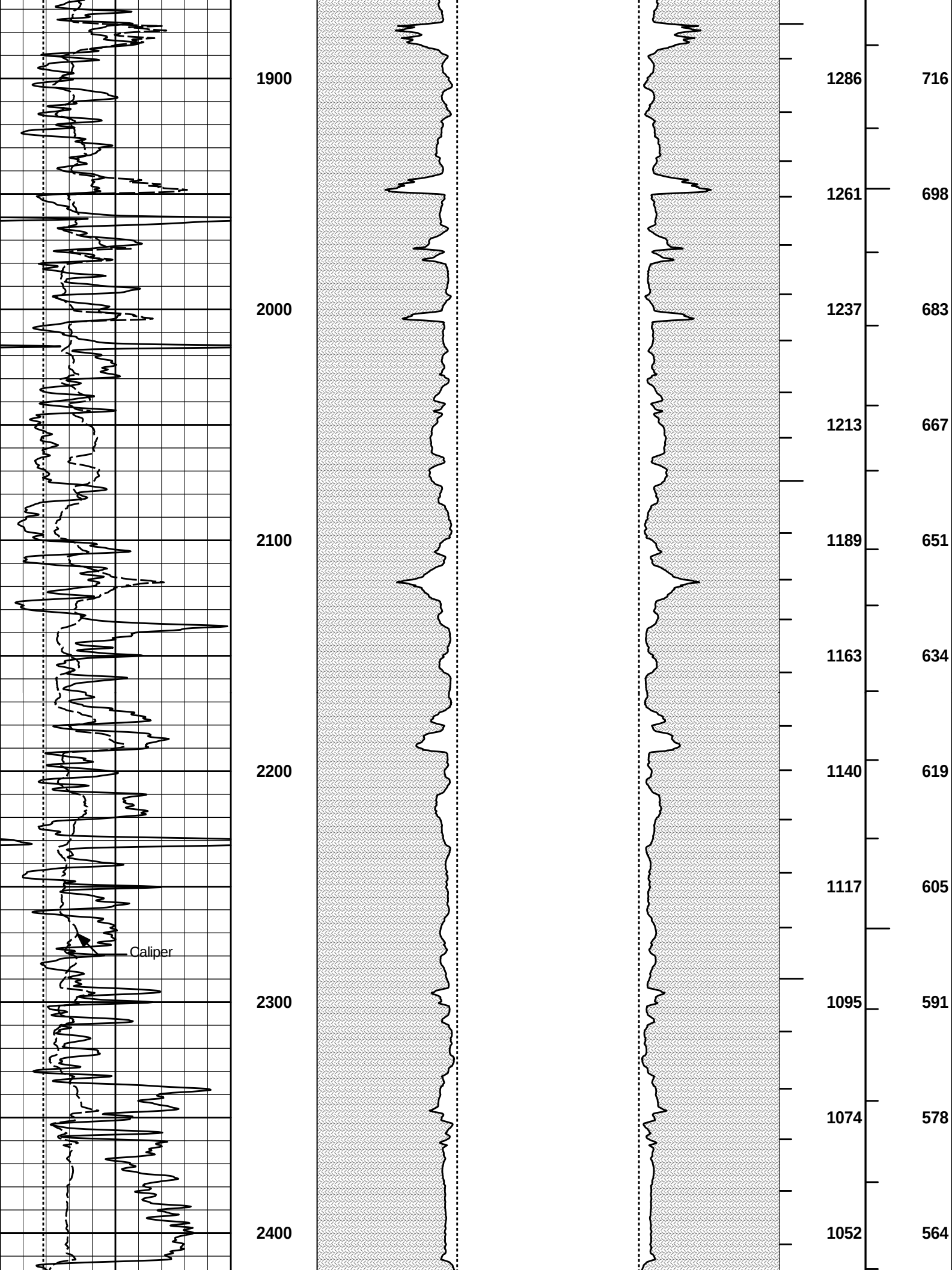
Plot Time: 19-Jul-13 23:23:25
Plot Range: 820 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\CASING
Plot File: \\-LOCAL-\NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

0 Gamma API 150		MUDCAKE	MUDCAKE
api			


6
Bit Size
16
inches
6
Caliper
16
inches
MD
1 : 600
ft
20
Bit Size
0
20
Caliper
0
inches
0
Bit Size
20
0
Caliper
20
inches
BHVT
AHVT
Caliper
900
1000
1100
1200
1300
2111
1367
2088
1353
2059
1332
2012
1293
1952
1241
1892
1189
1811
1117
1724
1038
1636
958
1591
922


1400
1500
1600
1700
1800
Caliper
1563
1539
1515
1491
1467
1440
1415
1388
1365
1336
1313
901
886
870
855
838
819
803
784
769
749
734


1900
2000
2100
2200
2300
2400
Caliper
1286
1261
1237
1213
1189
1163
1140
1117
1095
1074
1052
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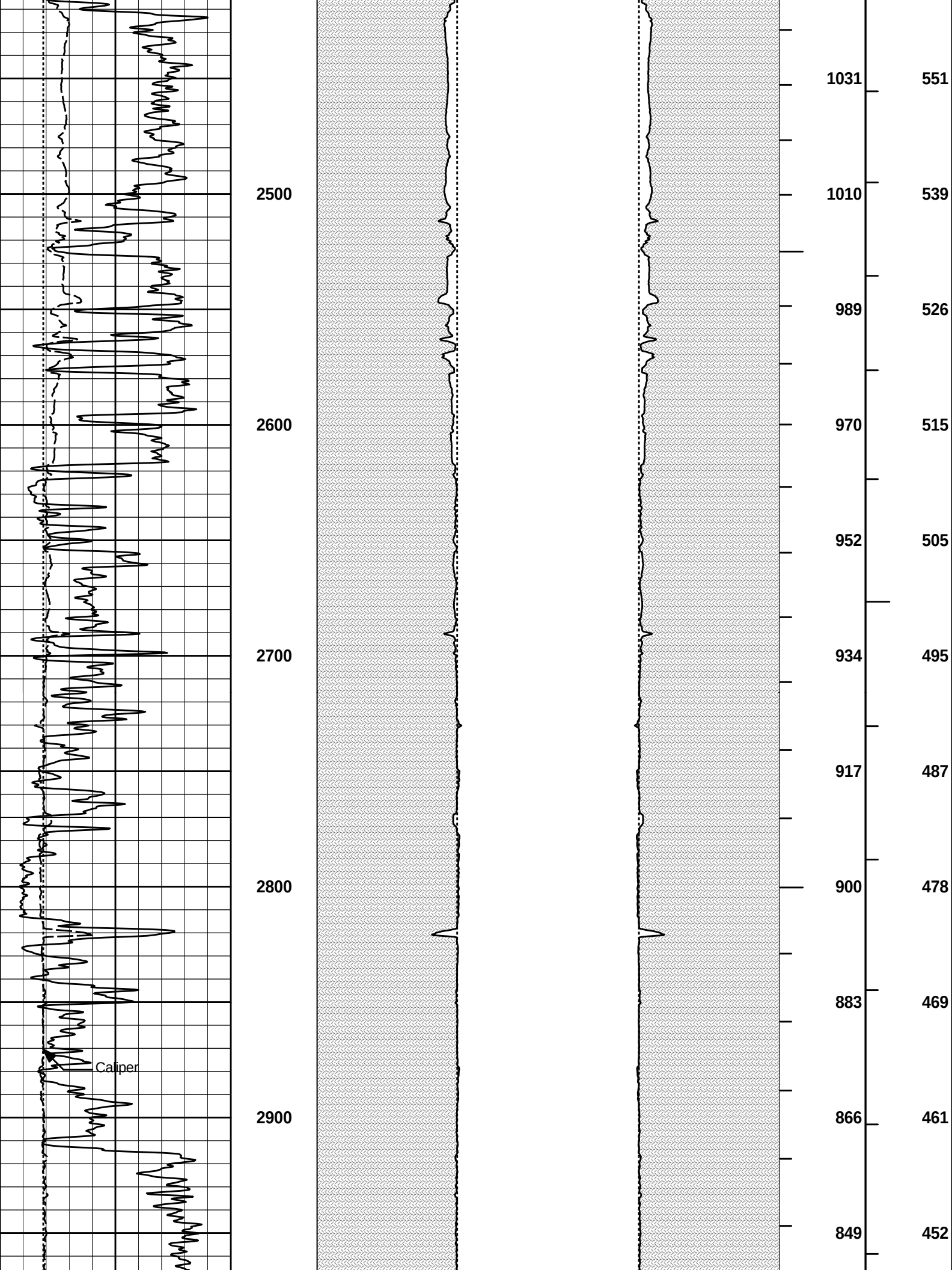
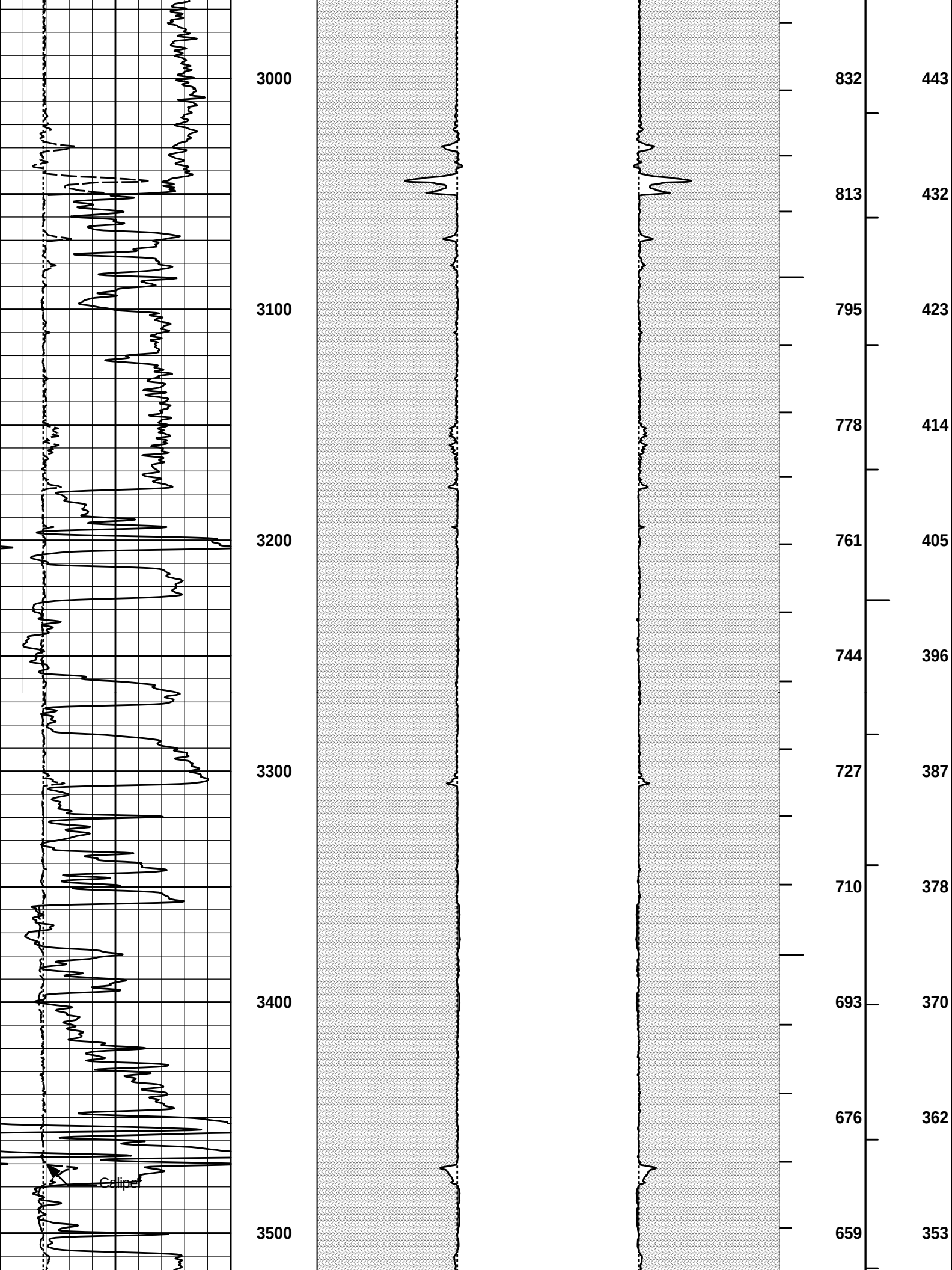
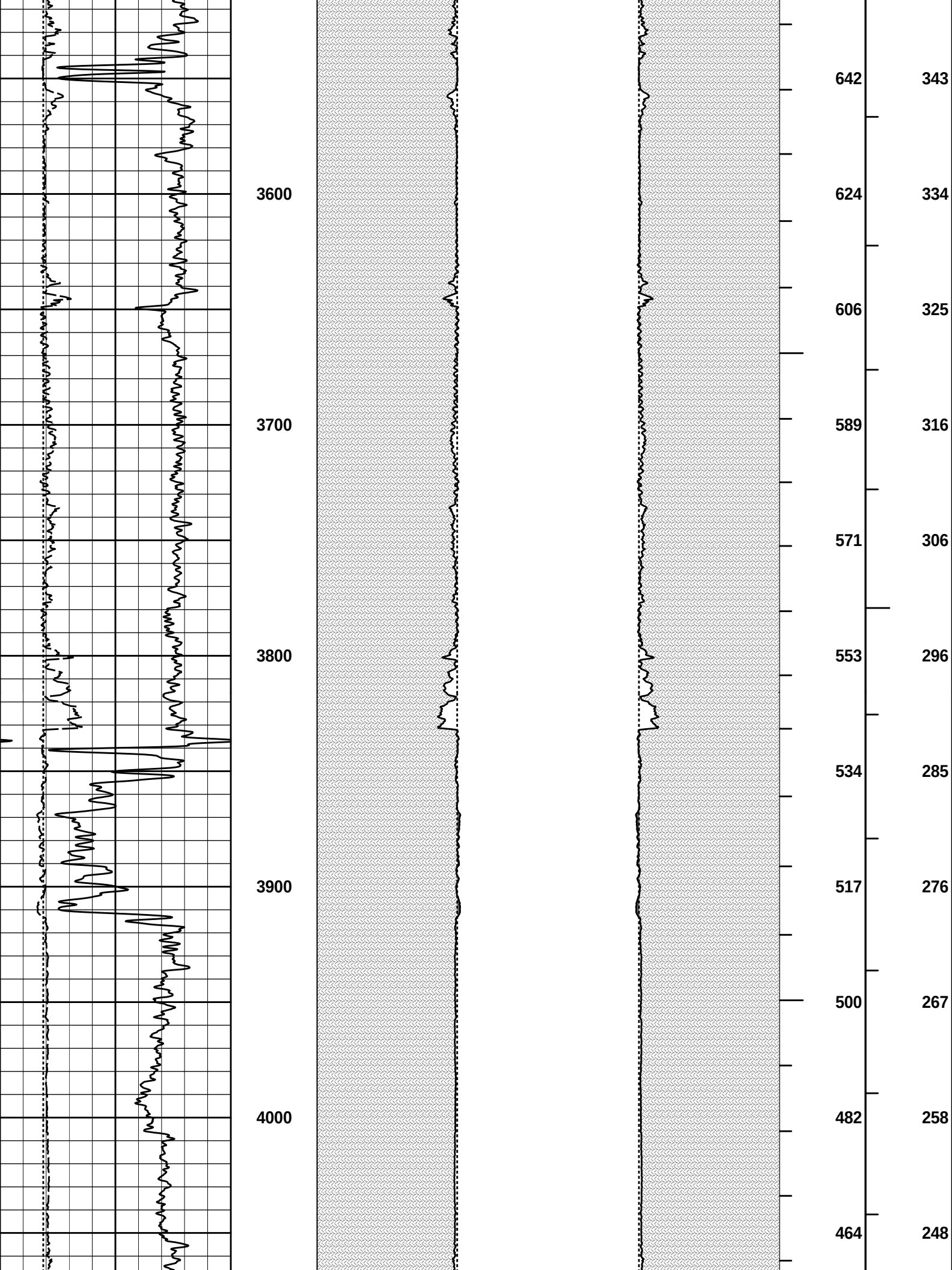
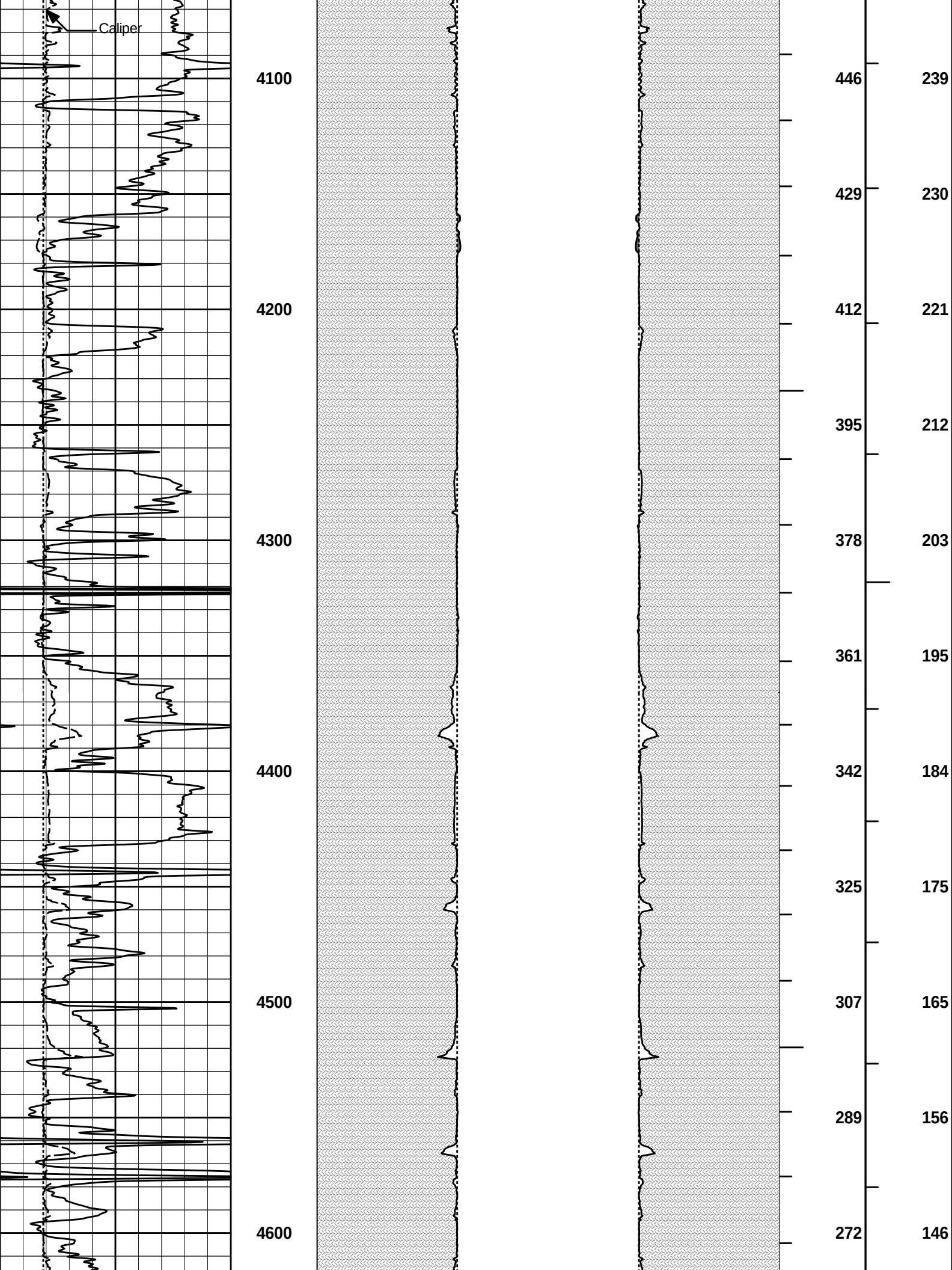
698
683
667
651
634
619
605
591
578
564


2500
2600
2700
2800
2900
Caliper
1031
1010
989
970
952
934
917
900
883
866
849
551
539
526
515
505
495
487
478
469
461
452


3000
3100
3200
3300
3400
3500
Caliper
832
813
795
778
761
744
727
710
693
676
659
443
432
423
414
405
396
387
378
370
362
353


3600
3700
3800
3900
4000
642
624
606
589
571
553
534
517
500
482
464
343
334
325
316
306
296
285
276
267
258
248


Caliper
4100
4200
4300
4400
4500
4600
446
429
412
395
378
361
342
325
307
289
272
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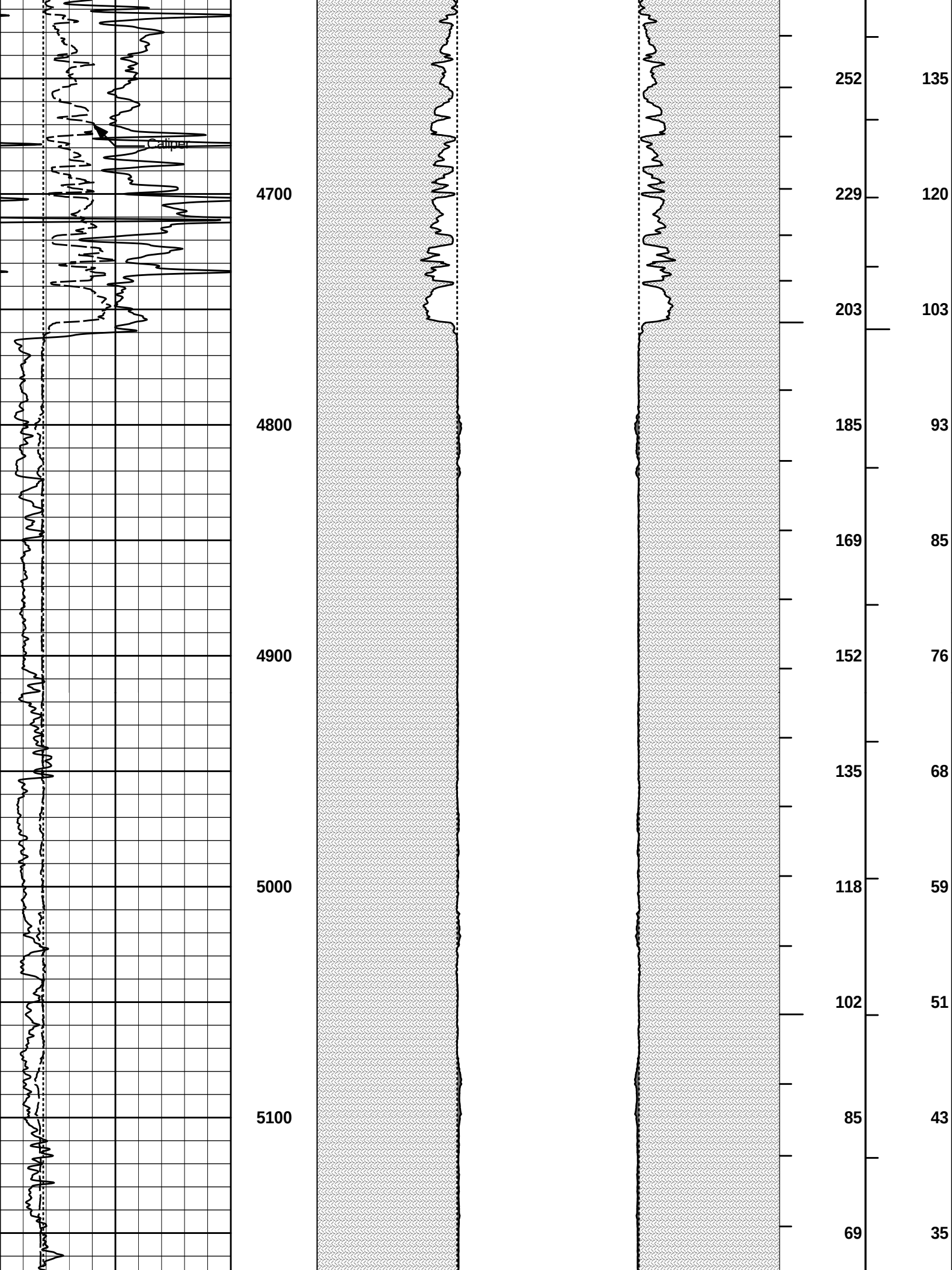
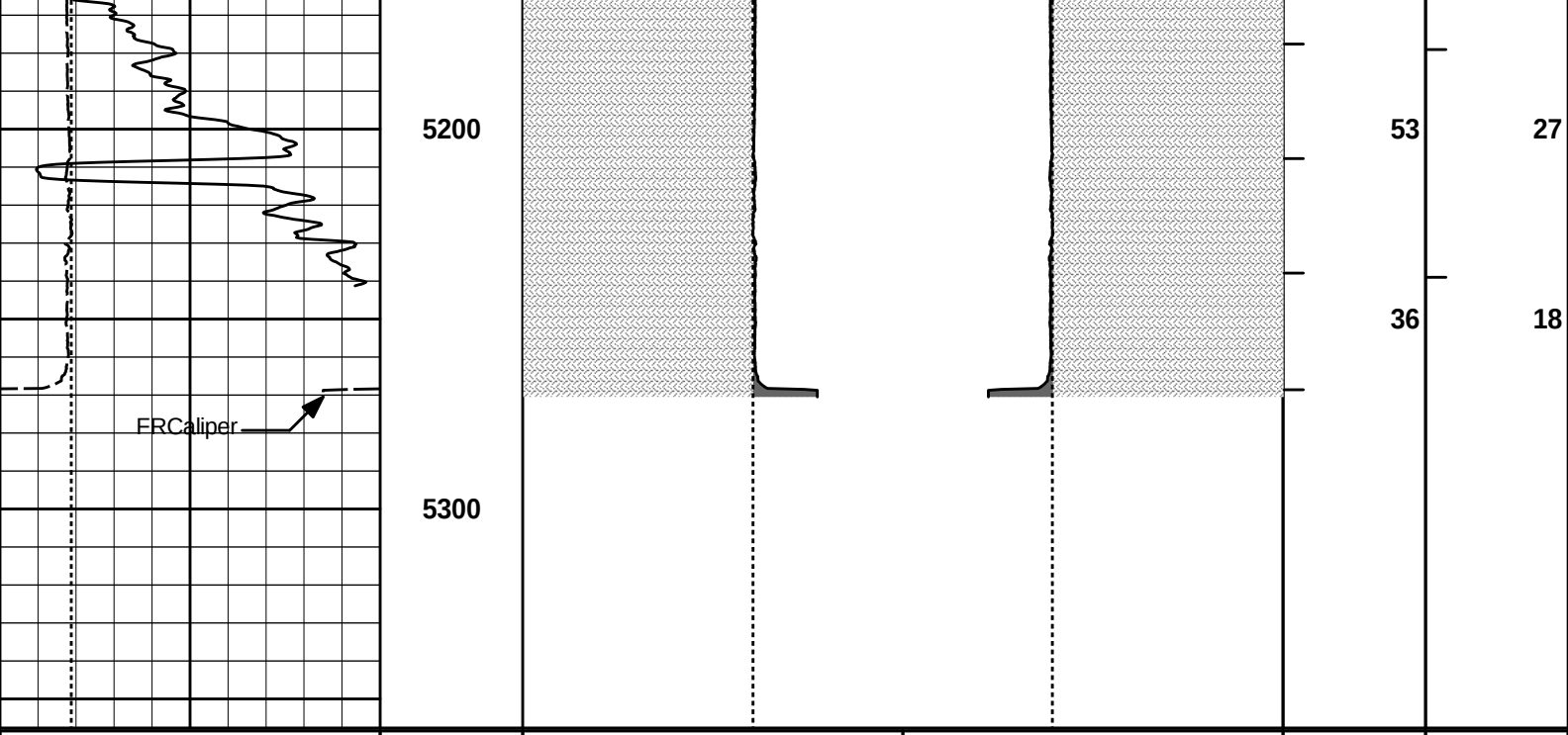
230
221
212
203
195
184
175
165
156
146


Caliper
4700
4800
4900
5000
5100
252
229
203
185
169
152
135
118
102
85
69
135
120
103
93
85
76
68
59
51
43
35



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

HALLIBURTON

Plot Time: 19-Jul-13 23:23:51
Plot Range: 820 ft to 5357.67 ft
Data: NANCY_3507_1-10\Well Based\CASING\
Plot File: \\-LOCAL-\NANCY_3507_1-10\0001 SP-GTET-CSNG-DSN-SDL-FLEX-XRMI-WAVE-ACRT-CH\PORO\AHV_2_IQ_LIB

ANNULAR HOLE VOLUME PLOT

COMPANY	**SANDRIDGE ENERGY**		
WELL	**NANCY 3507 1-10**		
FIELD	**WALDRON**		
COUNTY	**HARPER**	STATE	**KANSAS**

HALLIBURTON

SPECTRAL DENSITY
DUAL SPACED NEUTRON
LOG