WIRELINE LOGGING SOLUTIONS

Induction Array Log

Company	Ramshorn Resources, LLC.
Well	Degeer #03-01
Field	Degeer
County	Barber
State	Kansas

Company Ramshorn Resources, LLC.
Well Degeer #03-01
Field Degeer
County Barber State Kansas

Location: 1345' FSL & 2018' FEL SW NE SE
API #: 15-007-24377

SEC 03 TWP 33S RGE 15W

Permanent Datum G.L. Elevation 1975 ft.
Log Measured From K.B. , 12 ft. above perm. datum
Drilling Measured From K.B.

Other Services
CNL / LDT
MEL

Elevation
K.B. 1987 ft.
D.F. 1986 ft.
G.L. 1975 ft.

Date	24-Feb-2021		
Run Number	One		
Depth Driller	5575'		
Depth Logger	5568'		
Bottom Logged Interval	5560'		
Top Log Interval	25'		
Casing Driller	13 3/8" @ 223'	@	@
Casing Logger	222'		
Bit Size	7 7/8"	@	@
Type Fluid in Hole	WBM		
Density / Viscosity	9.25 / 59		
pH / Fluid Loss	11.0 / 7.6		
Source of Sample	Flowline		
Rm @ Meas. Temp	1.26 @ 75°F	@	@
Rmf @ Meas. Temp	0.94 @ 75°F	@	@
Rmc @ Meas. Temp	1.57 @ 75°F	@	@
Source of Rmf / Rmc	Calculated		
Rm @ BHT	0.81 @ 120°F	@	@
Time Circulation Stopped	13:15		
Time Logger on Bottom	17:42		
Maximum Recorded Temperature	120°F		
Equipment Number	11008		
Location	OKC, OK.		
Recorded By	H. Garcia		
Witnessed By	Mr. JD Dubwig		

<<< Fold Here >>>

Equipment and Log Data

Service Order: T8-210224

Gamma		Density		Neutron		Sonic		IAT/DLL	
Run No.	One	Run No.	One	Run No.	One	Run No.	One	Run No.	One
Serial No.	049	Serial No.	110	Serial No.	071	Serial No.	NA	Serial No.	110
O.D.	3.375 in.	Source No.	70997B	Source No.	1414NC	Centralizers	NA	Standoffs	2 @ 0.5"
		O.D.	4.5 in.	O.D.	3.375 in.	O.D.	3.375 in.	O.D	3.875 in.

Logging Pass Data

General			Gamma		Density			Neutron			Sonic			IAT/DLL	
			Scales		Scales			Scales			Scales			Scales	
Run	Depths		Left	Right	Left	Right	Matrix	Left	Right	Matrix	Left	Right	Matrix	Left	Right
One	25'	TD	0	150	0.3	-.10	2.71 g/cc	0.3	-0.10	Lime	NA	NA	NA	0.2	2000

Comments

Toolstring ran as per diagram.
Density is presented on a 2.71g/cc Matrix, Neutron is presented on a Limestone Matrix
Chlorides: 3500 ppm
LCM: 3 lb/bbl
Annular volume calculated using 5.5" casing.

Washouts and borehole rugosity affect data quality repeatability.
Rig: Duke Drlg. #1

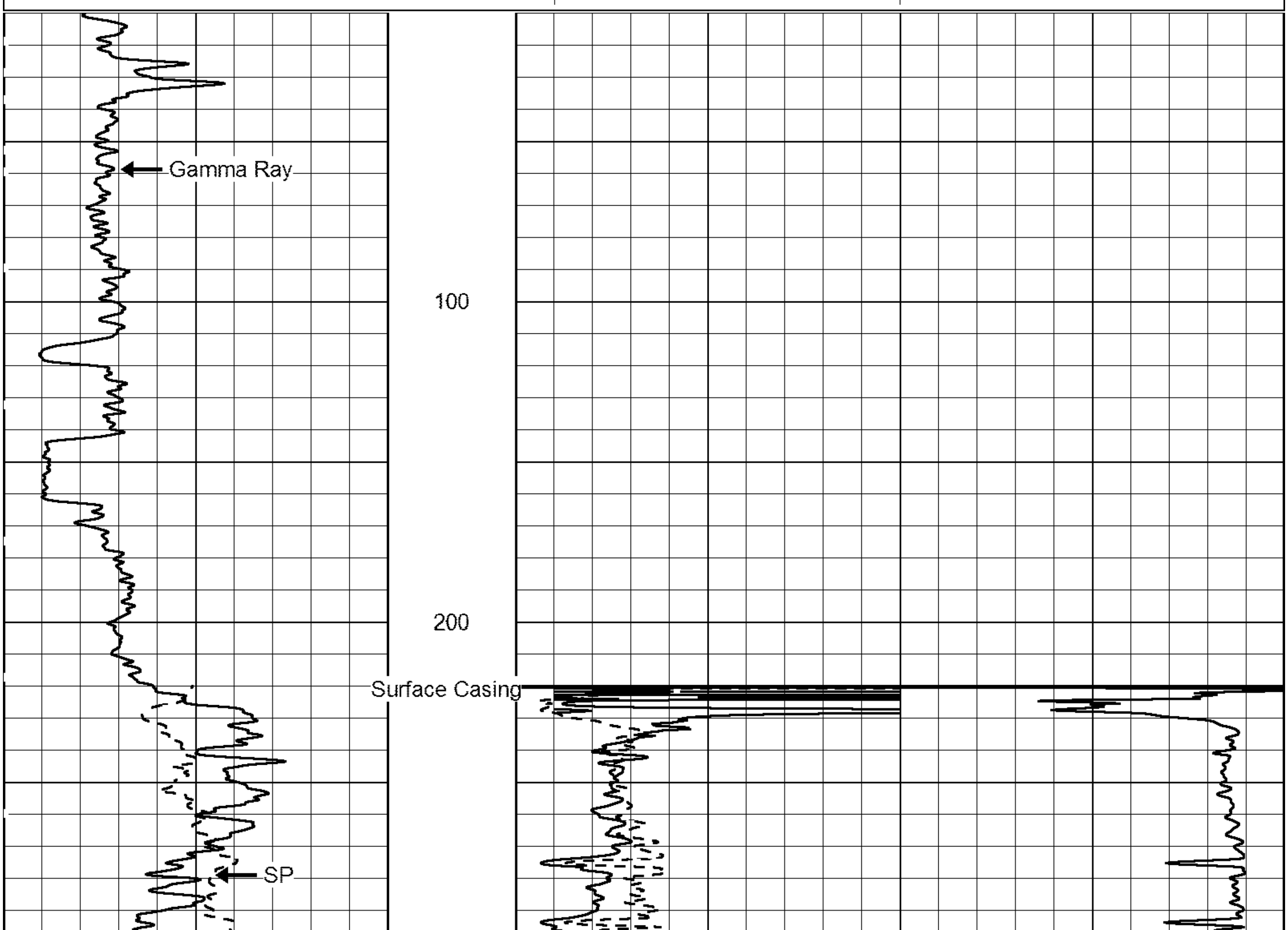
YOUR CREW TODAY: J. Bennett / J. Willis / J. Wood
THANK YOU FOR CHOOSING WIRELINE LOGGING SOLUTIONS. OKLAHOMA CITY, OK. (405) 445-7135.

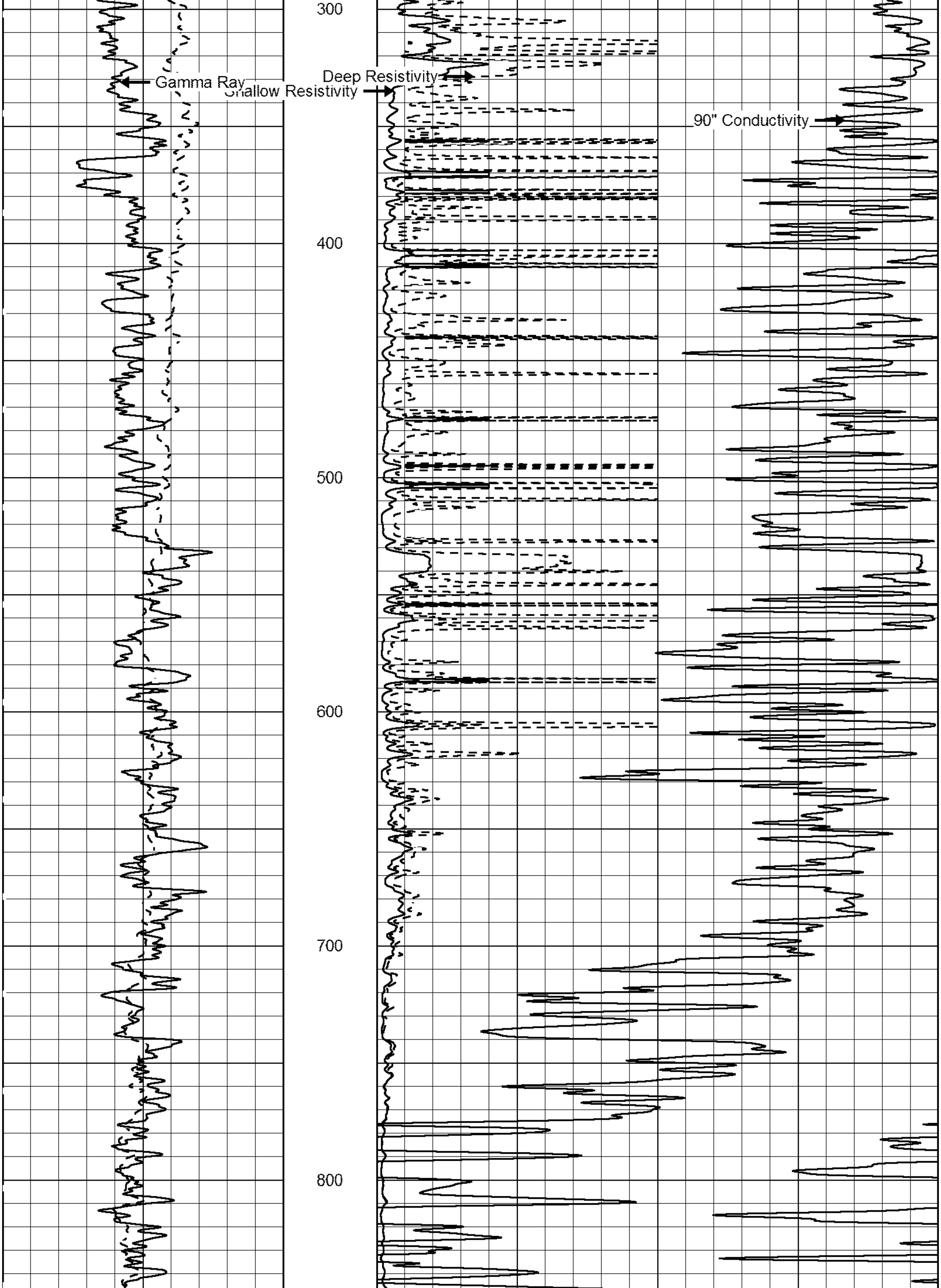
WIRELINE LOGGING SOLUTIONS

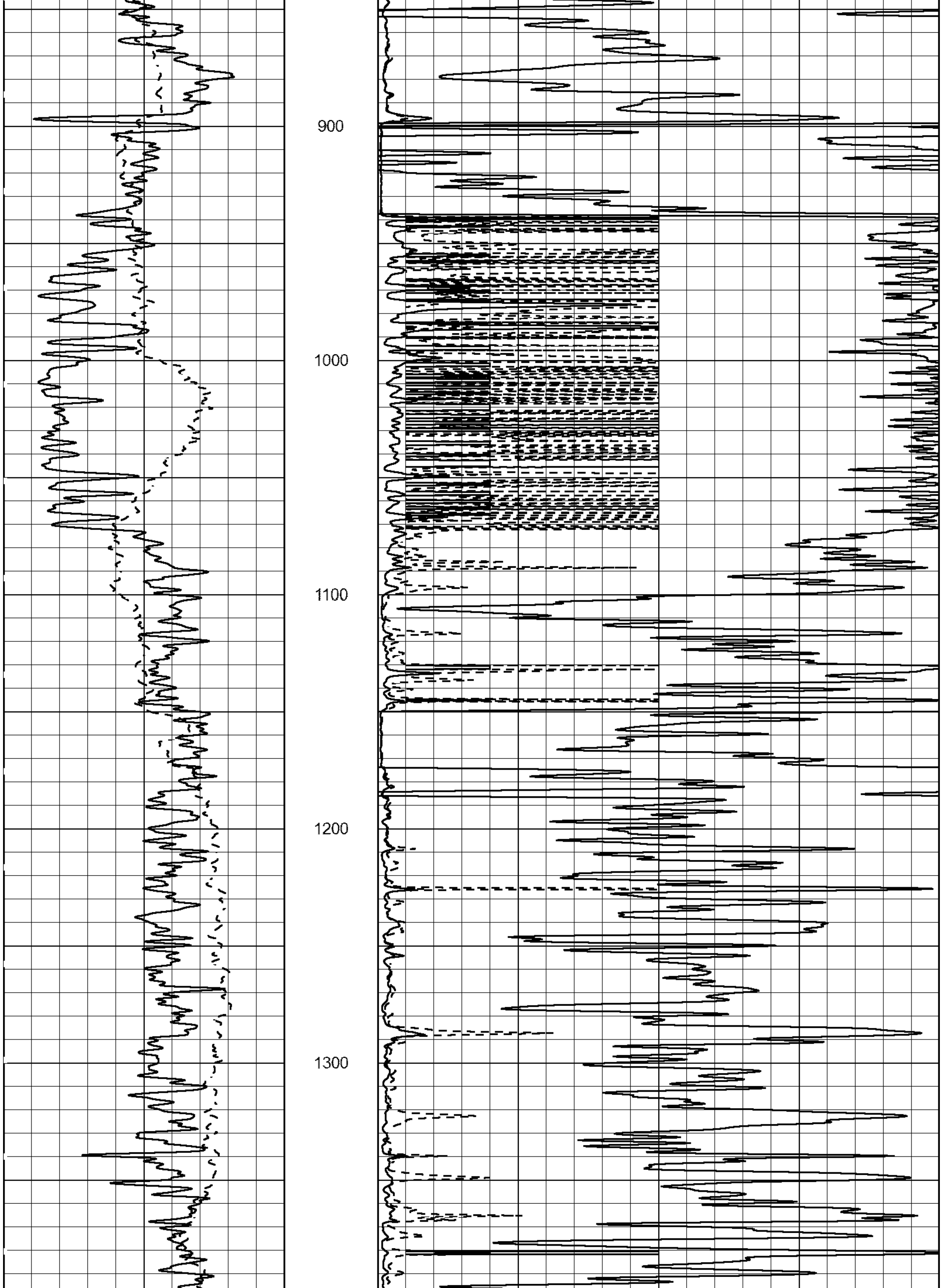
Main Pass

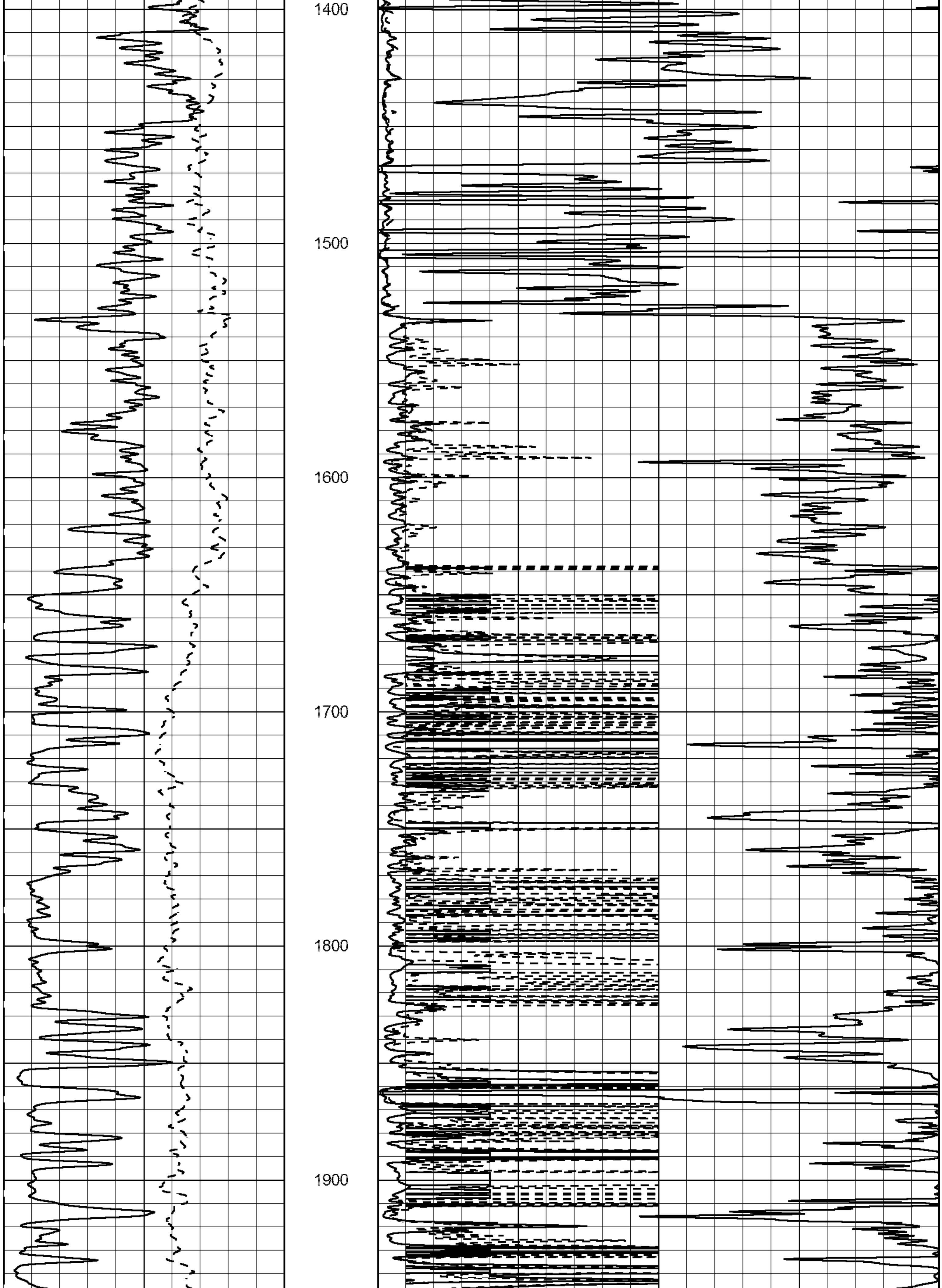
Database File	ramshorn-degreer #03-01.db
Dataset Pathname	pass4.1
Presentation Format	OKC-AC~2
Dataset Creation	Wed Feb 24 20:33:18 2021
Charted by	Depth in Feet scaled 1:600

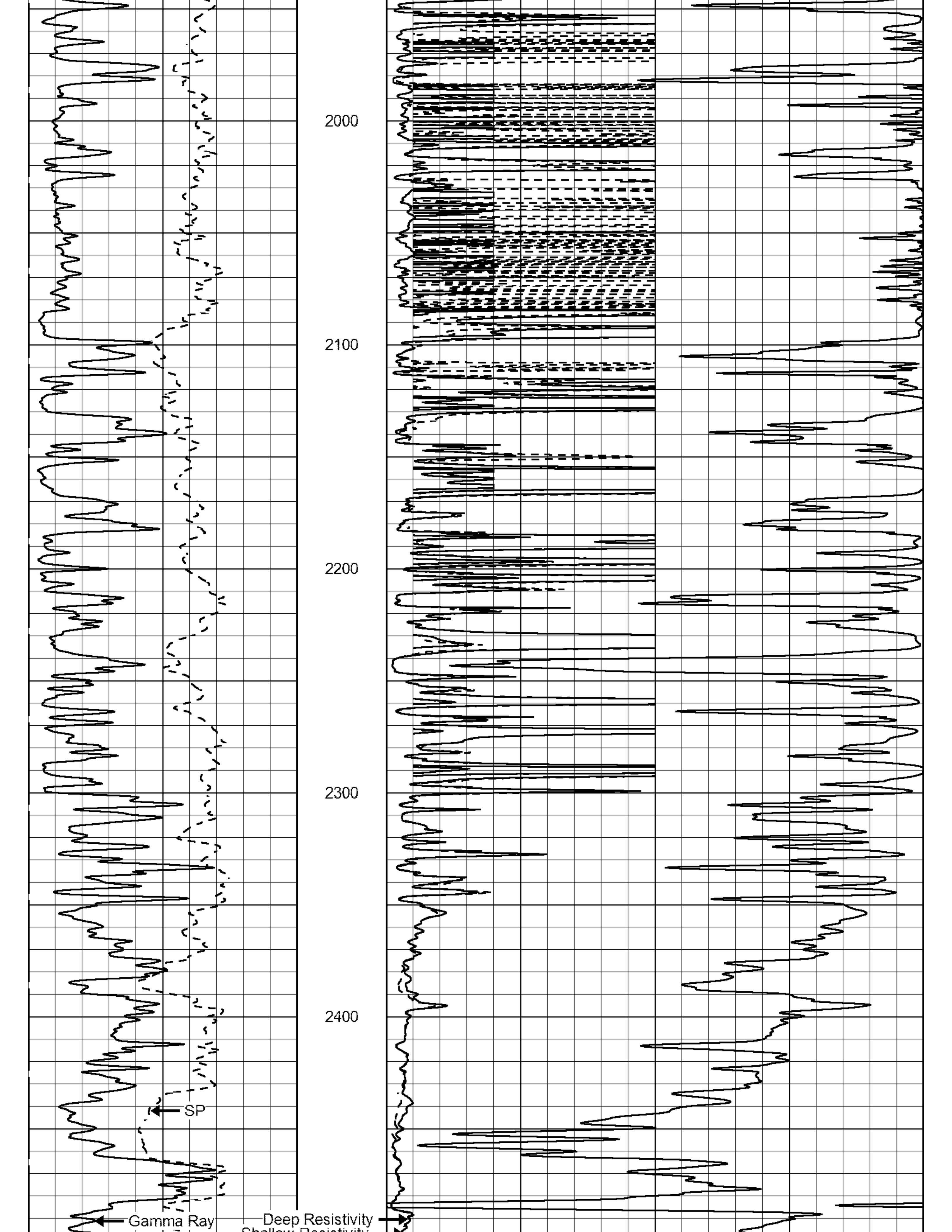
0 Gamma Ray (GAPI) 150		1000 90" Conductivity (mmho/m) 0
SP (mV)		0 Shallow Resistivity (Ohm-m) 50
		0 Deep Resistivity (Ohm-m) 50
		50 Deep 500
		50 Shallow 500

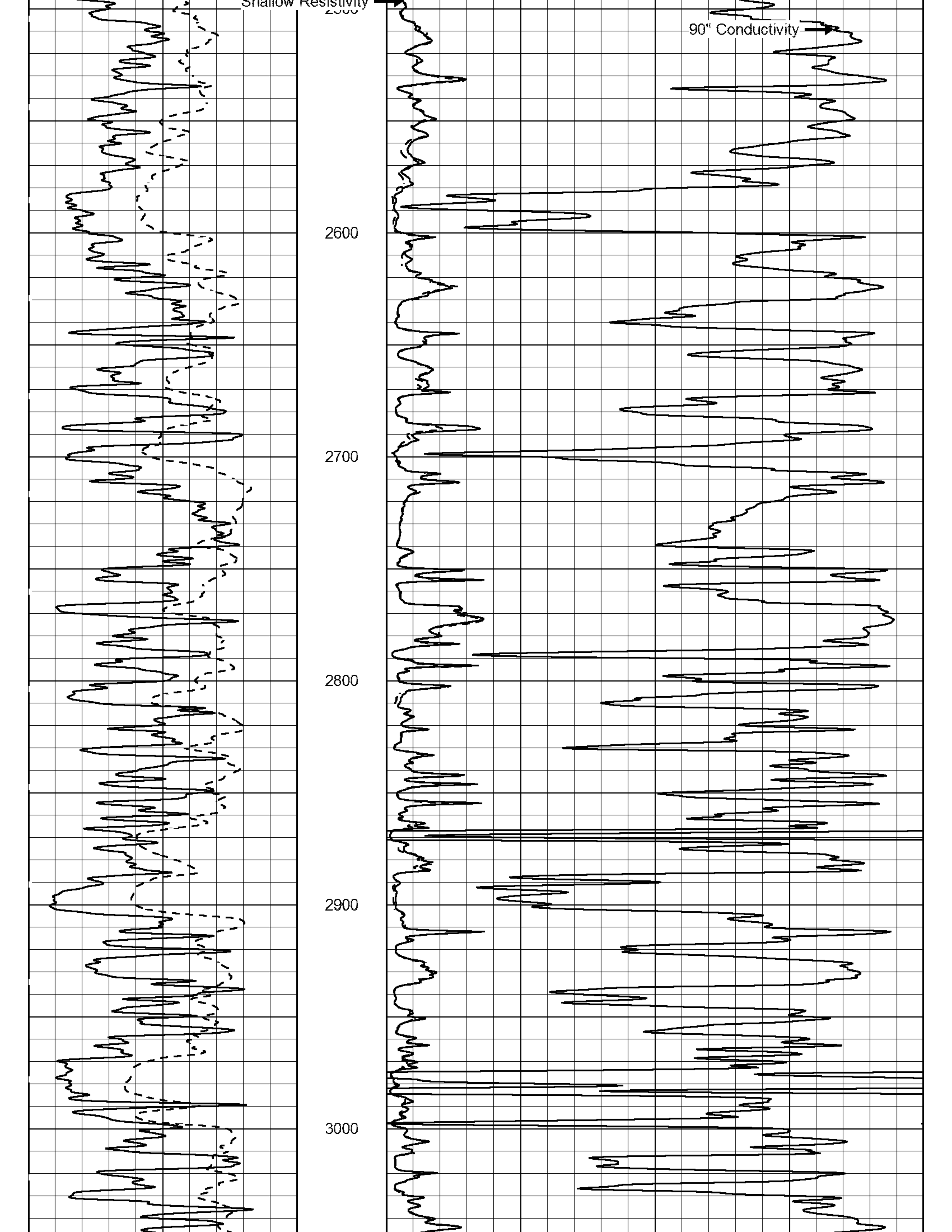


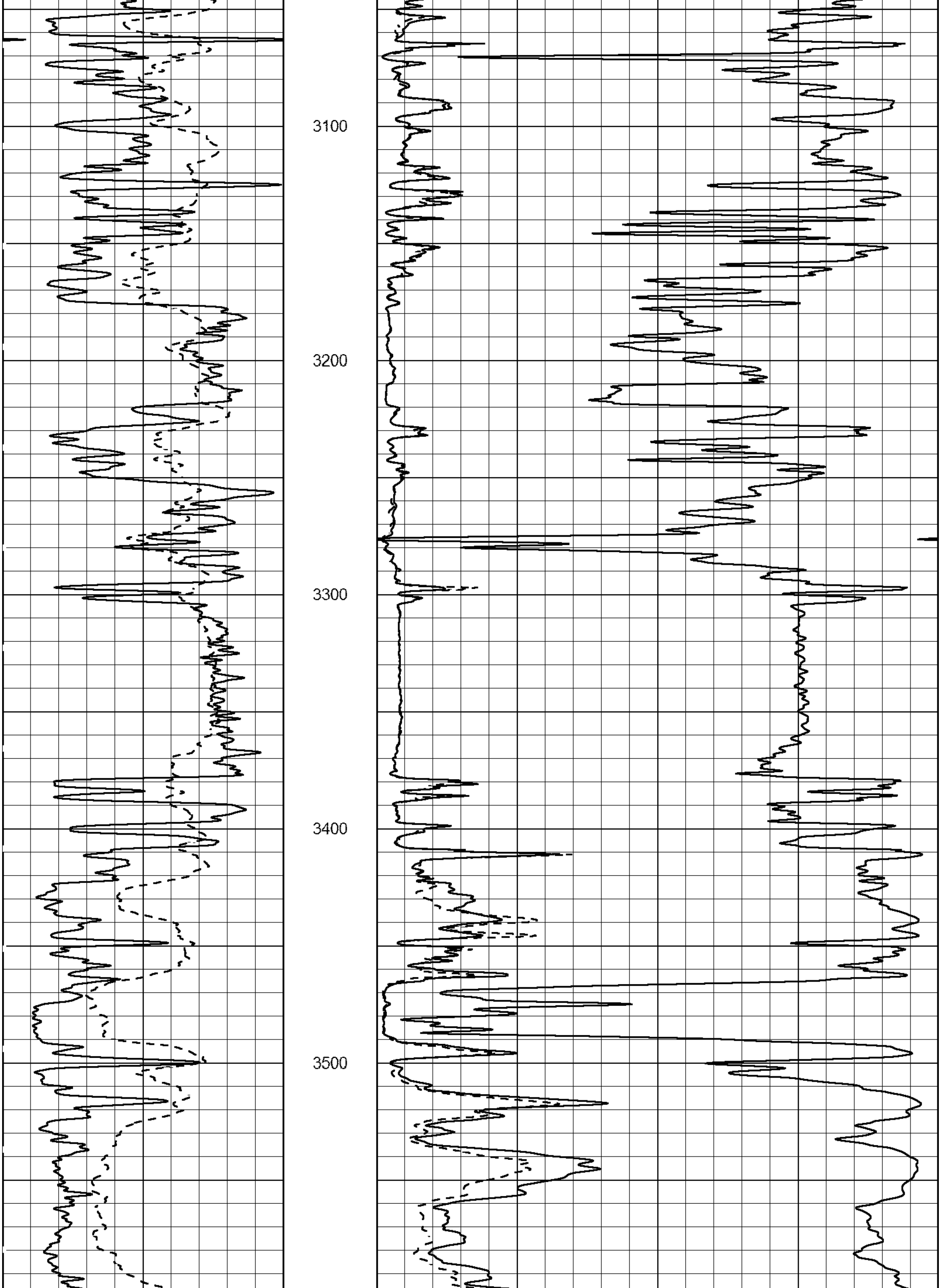

300
Gamma Ray
Deep Resistivity
Shallow Resistivity
90" Conductivity
400
500
600
700
800

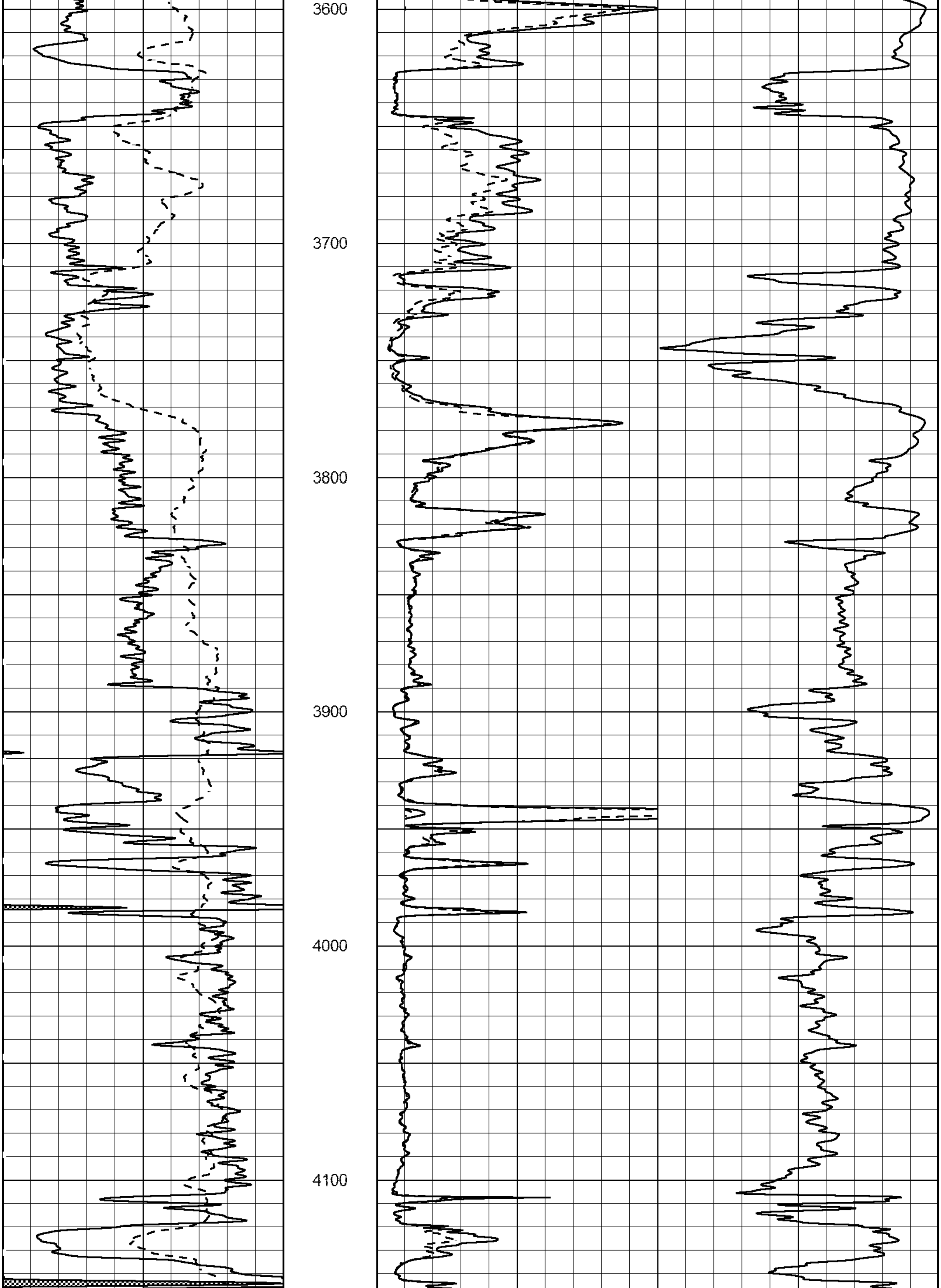

900
1000
1100
1200
1300


1400
1500
1600
1700
1800
1900

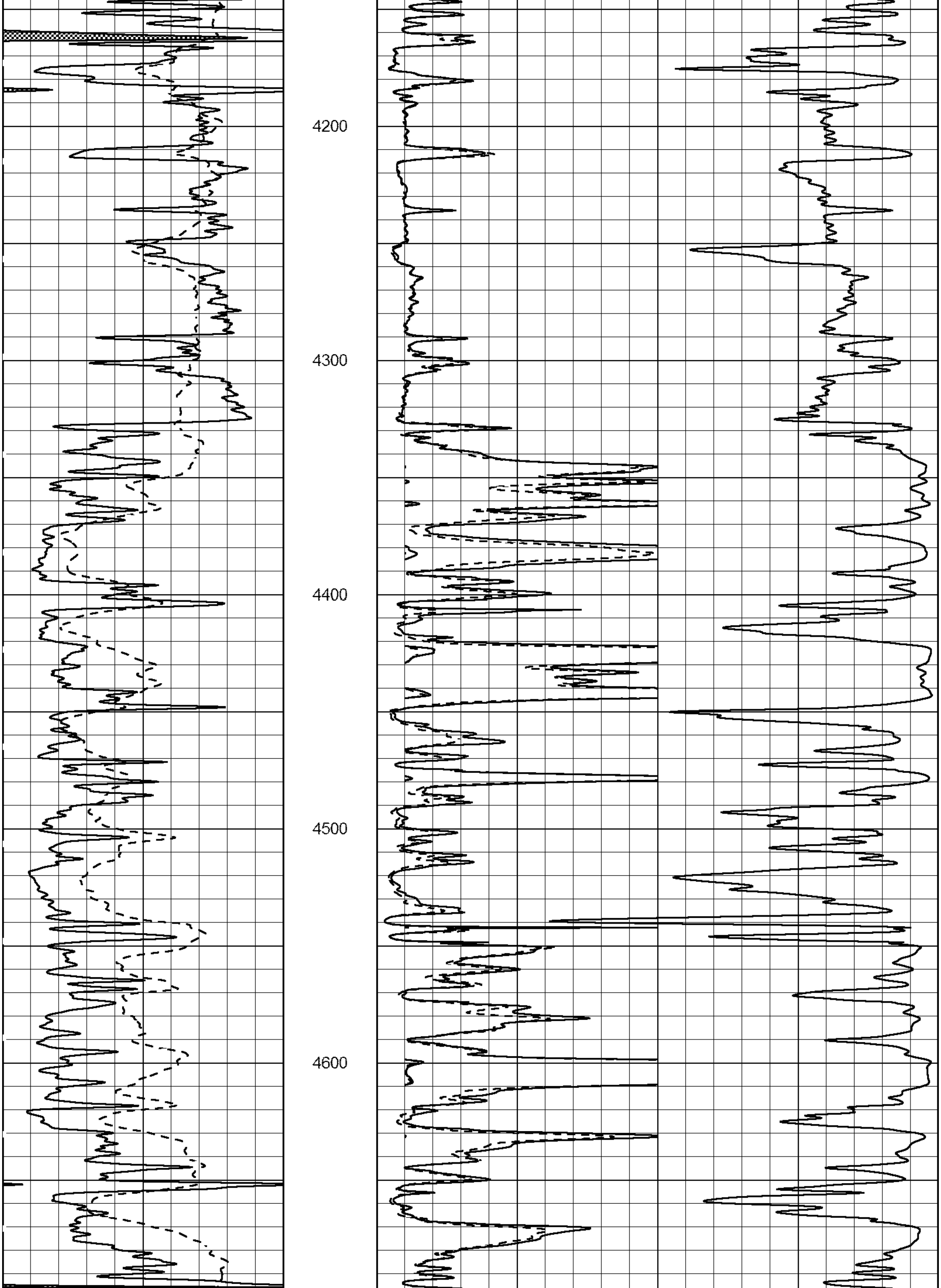

2000
2100
2200
2300
2400
SP
Gamma Ray
Deep Resistivity

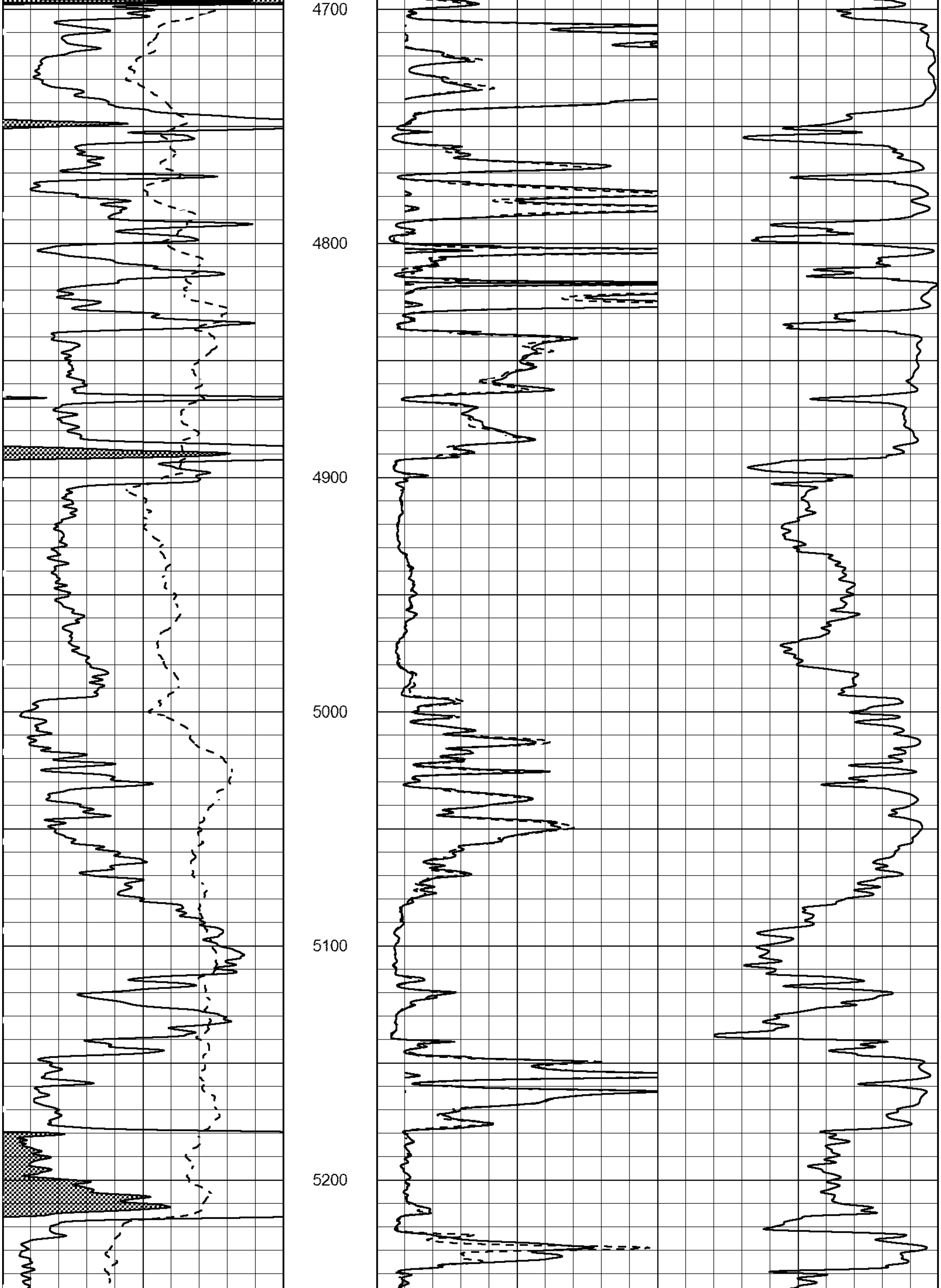

Shallow Resistivity
90" Conductivity
2600
2700
2800
2900
3000

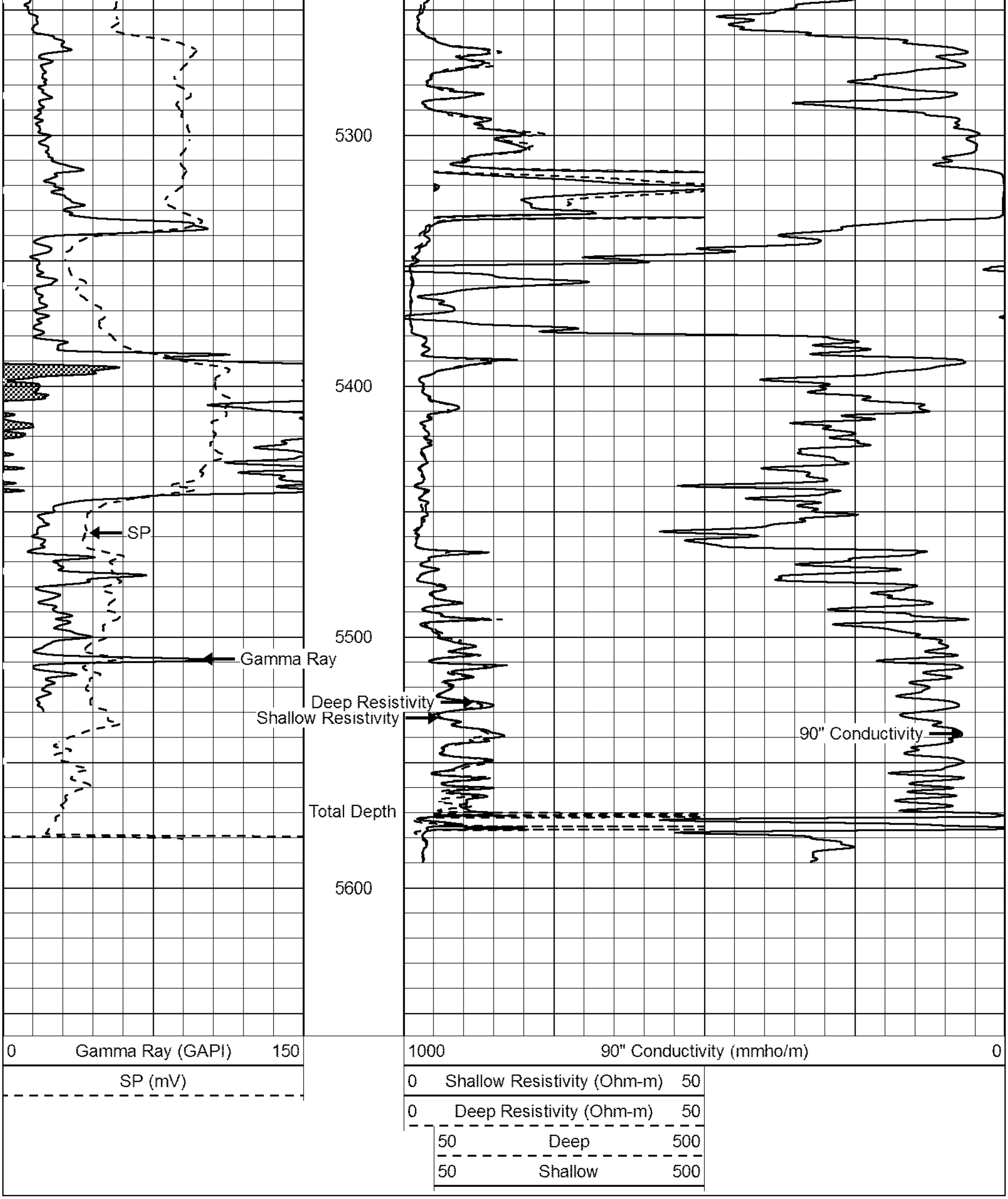

3100
3200
3300
3400
3500



3600
3700
3800
3900
4000
4100


4200
4300
4400
4500
4600


4700
4800
4900
5000
5100
5200



WIRELINE LOGGING SOLUTIONS

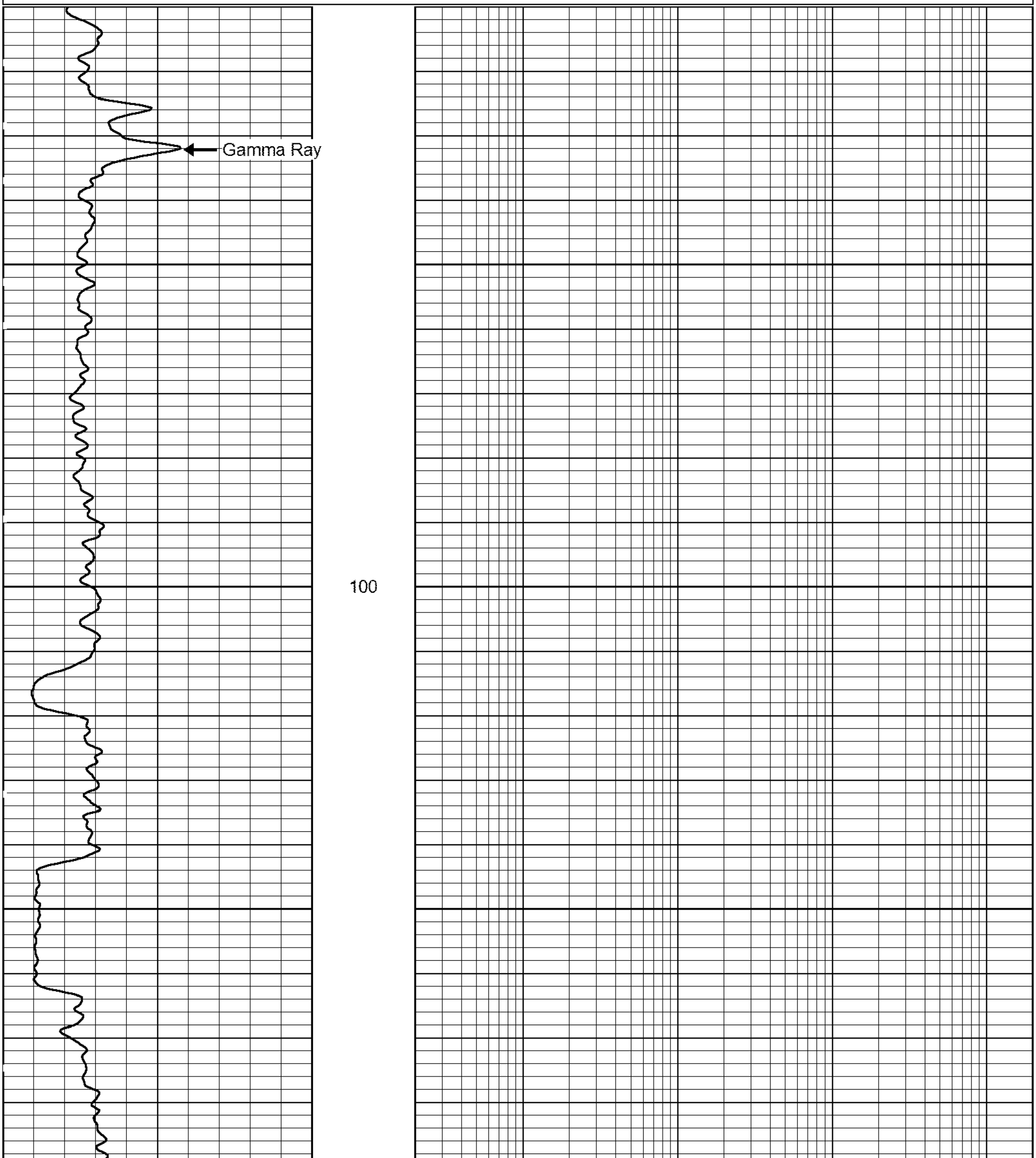
Main Pass

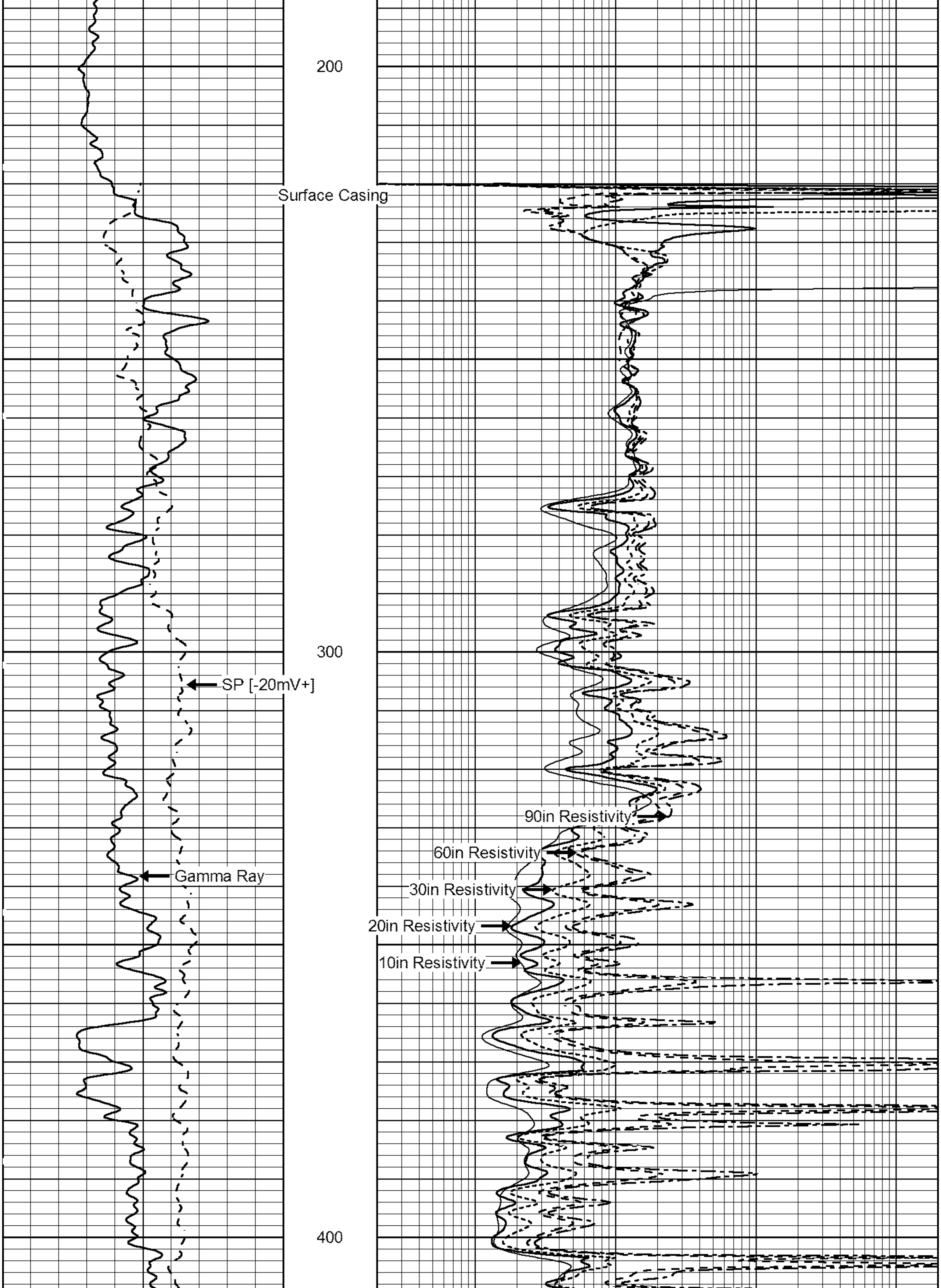
Database File ramshorn-degreer #03-01.db

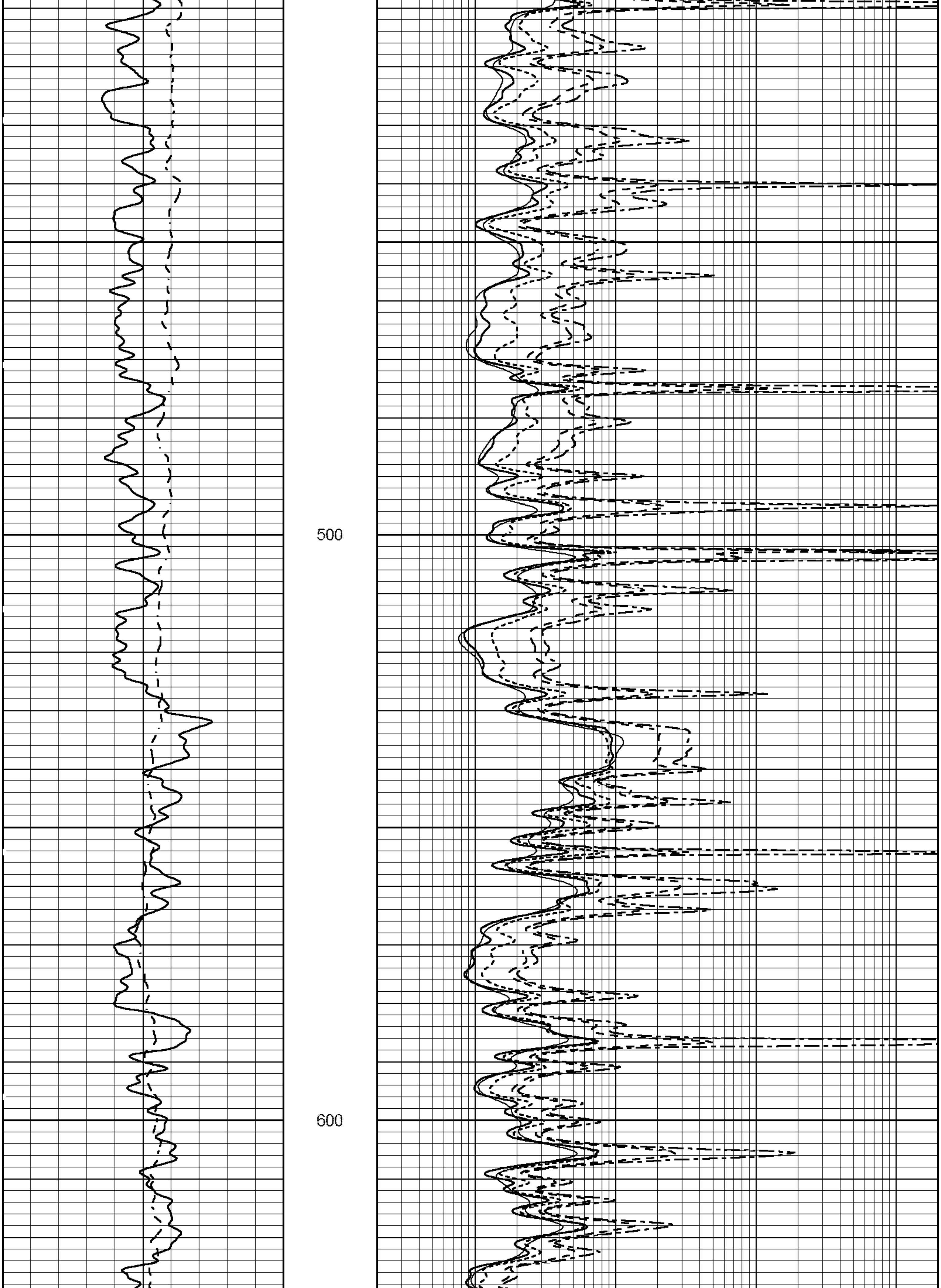
Dataset Pathname	pass4.1
Presentation Format	OKC-AI~2
Dataset Creation	Wed Feb 24 20:33:18 2021
Charted by	Depth in Feet scaled 1:240

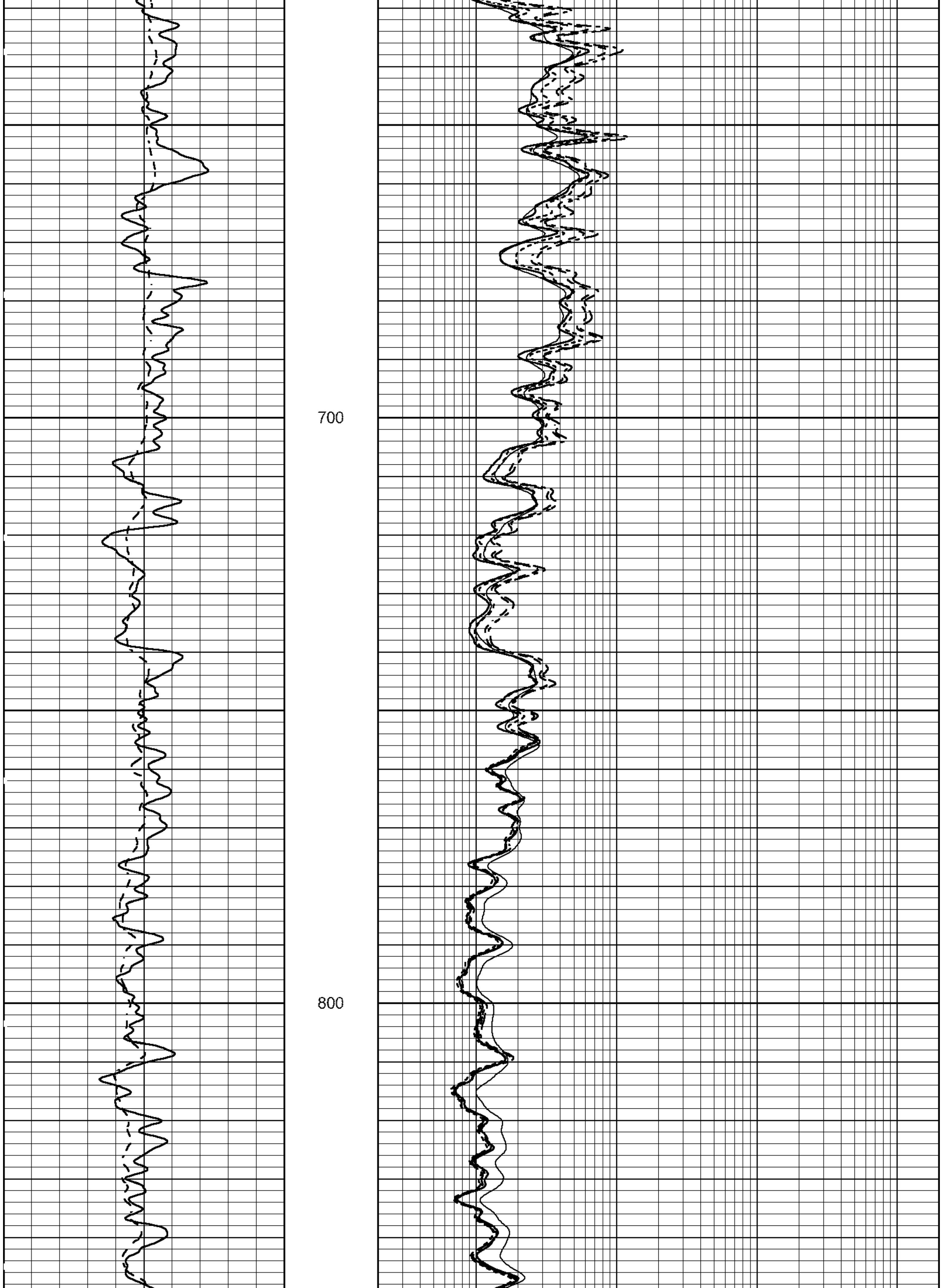
0	Gamma Ray (GAPI)	150
	SP [-20mV+]	

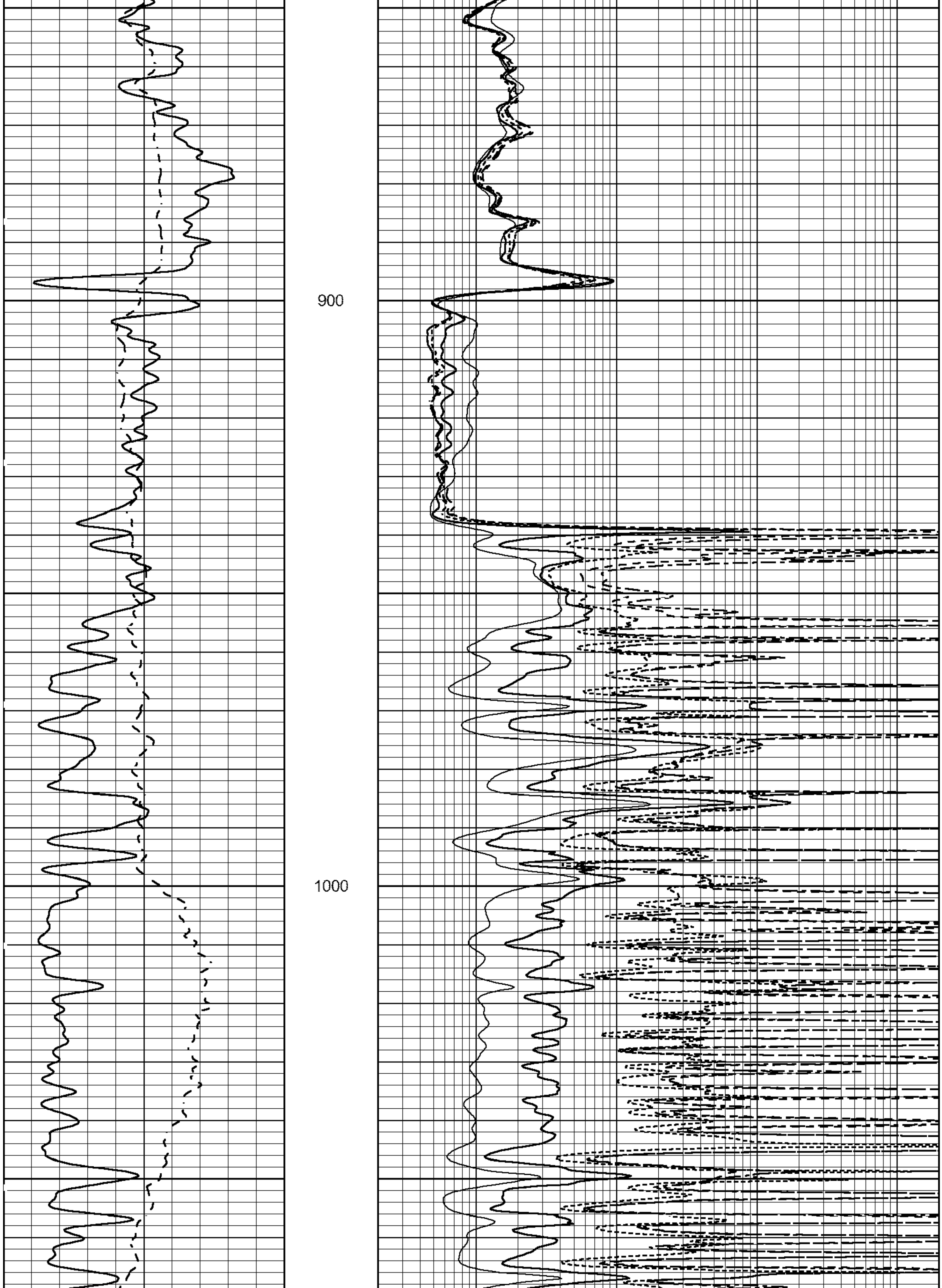
0.2	20in Resistivity (Ohm-m)	2000
0.2	30in Resistivity (Ohm-m)	2000
0.2	60in Resistivity (Ohm-m)	2000
0.2	90in Resistivity (Ohm-m)	2000
0.2	10in Resistivity (Ohm-m)	2000

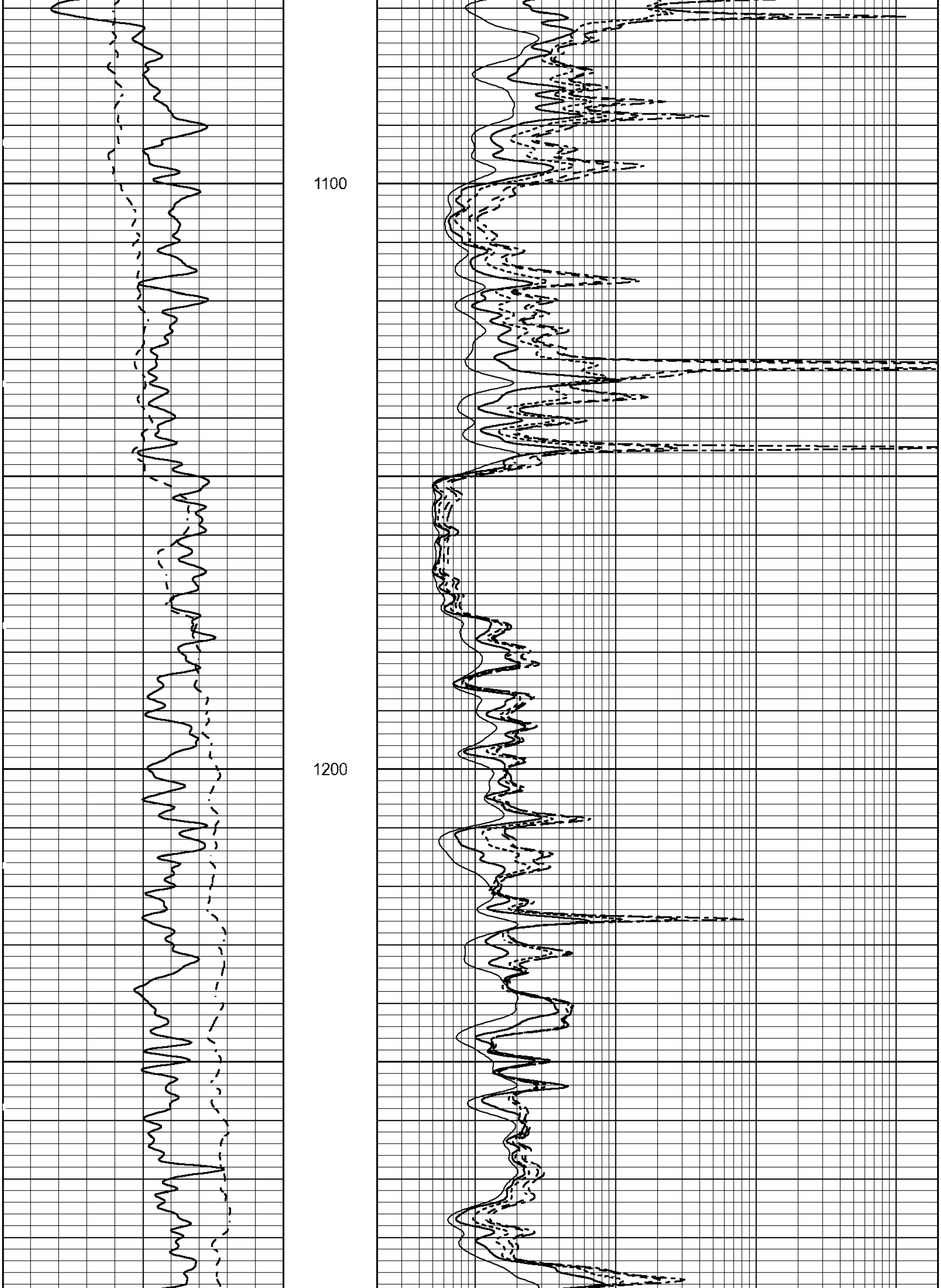



200
Surface Casing
300
SP [-20mV+]
Gamma Ray
90in Resistivity
60in Resistivity
30in Resistivity
20in Resistivity
10in Resistivity
400

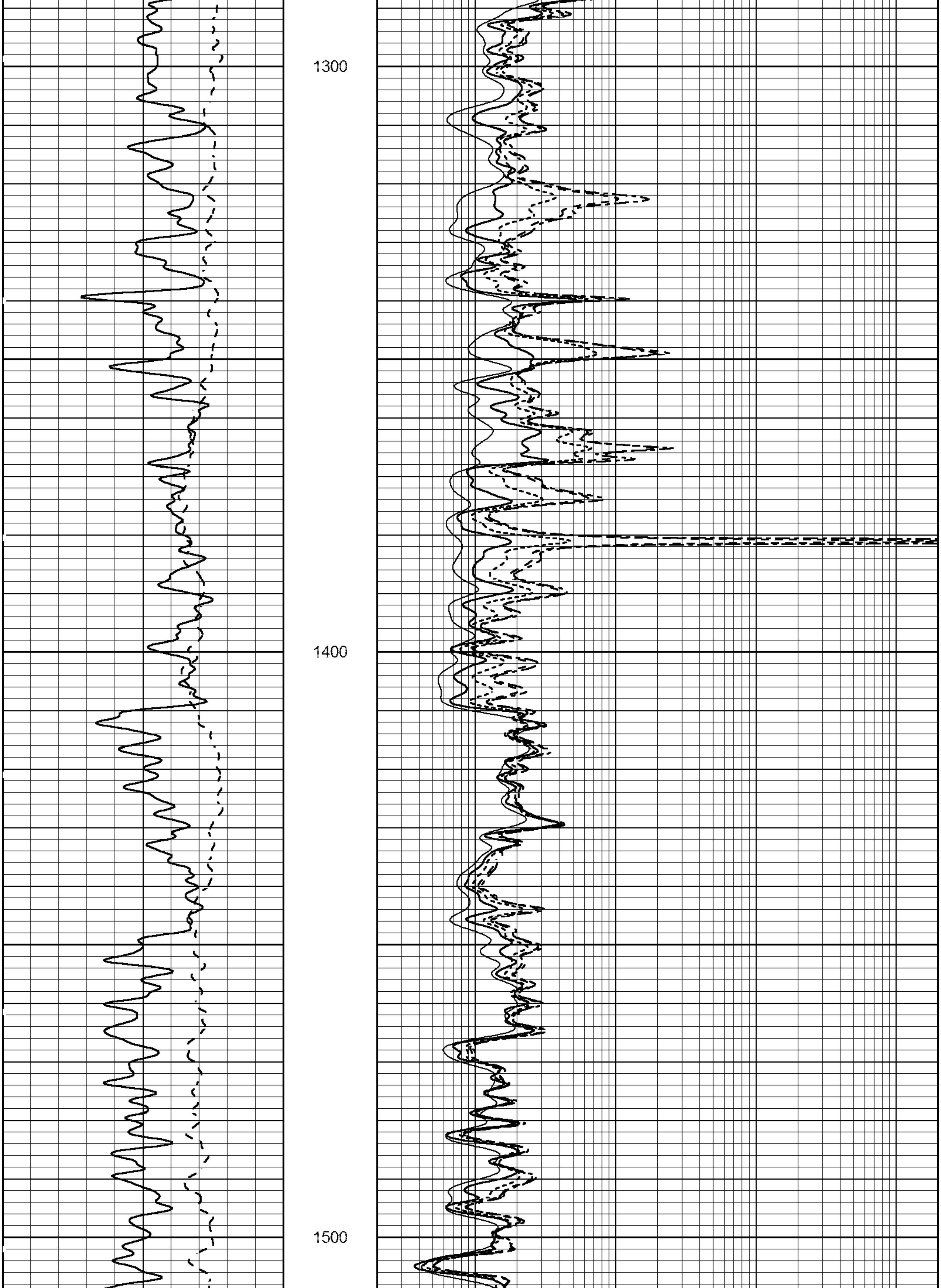

500
600

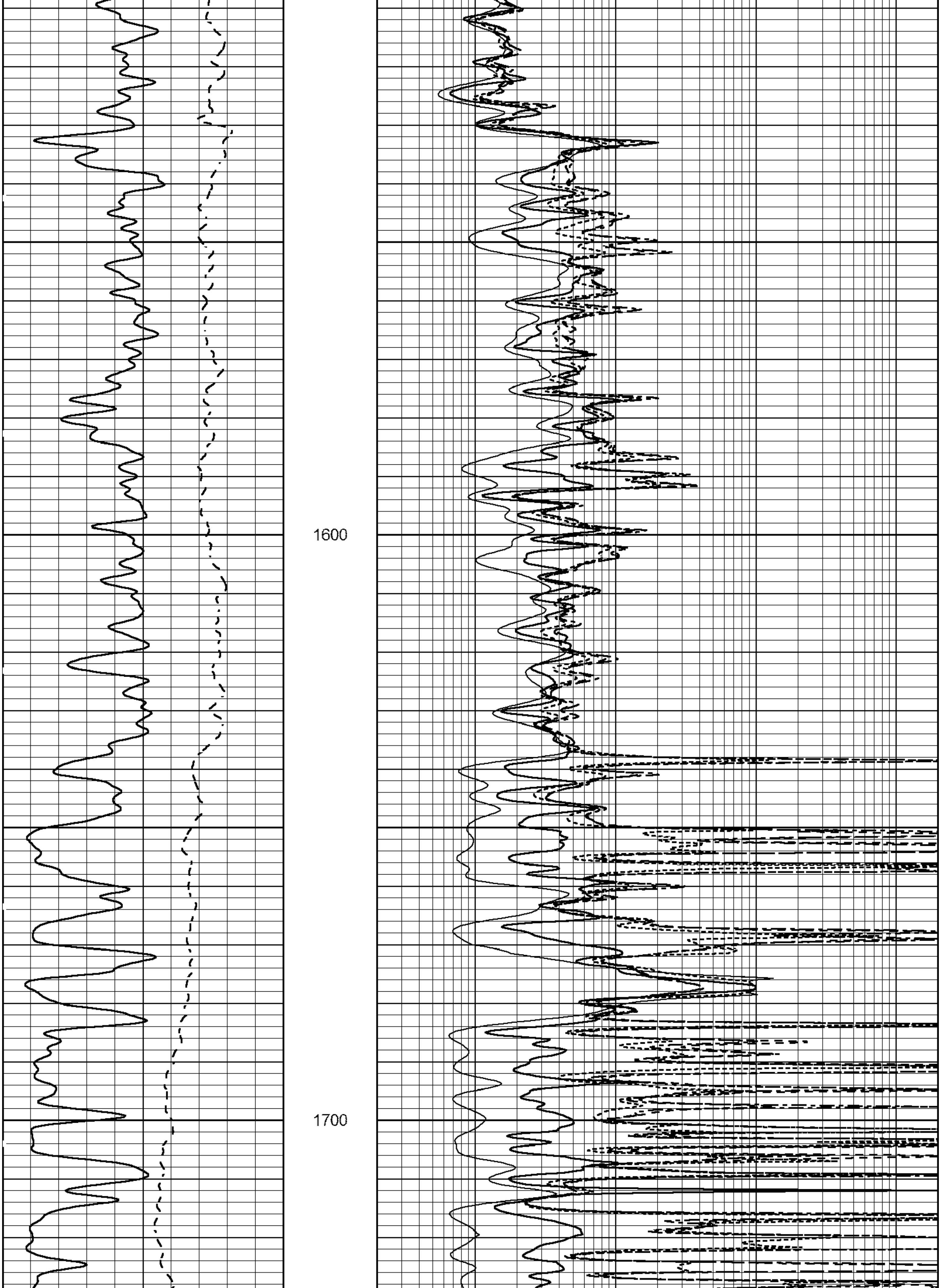

700
800

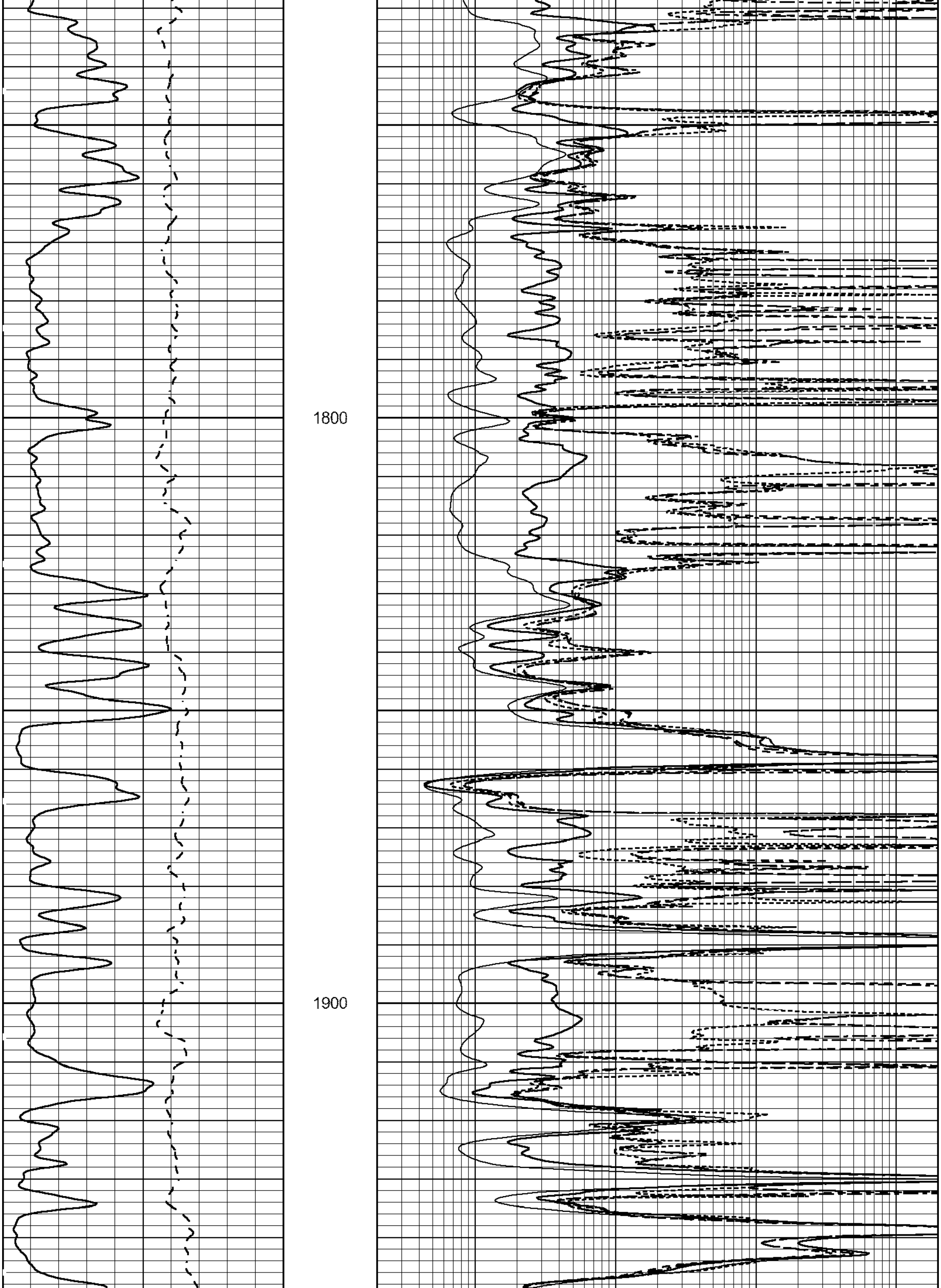

900
1000

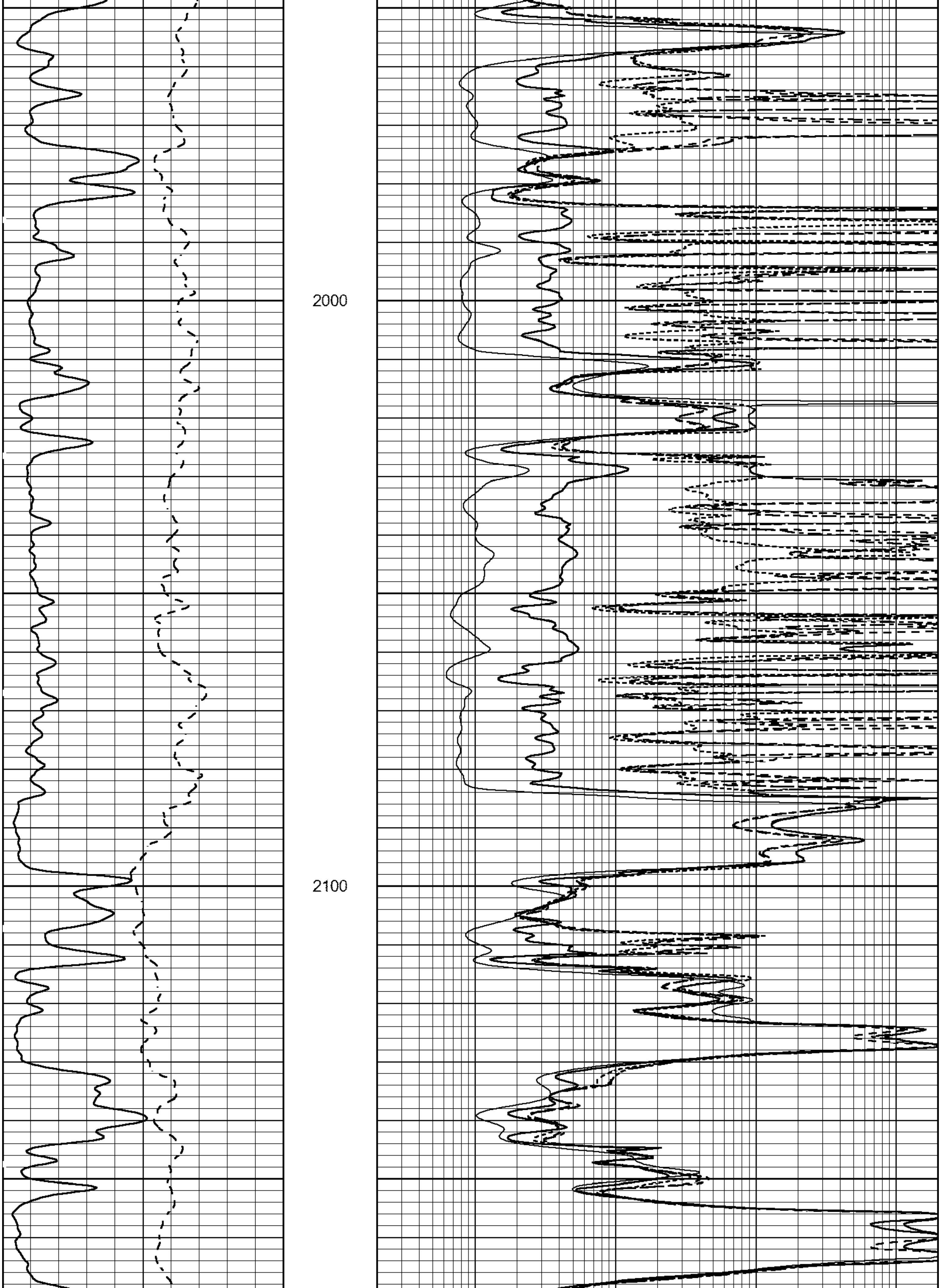


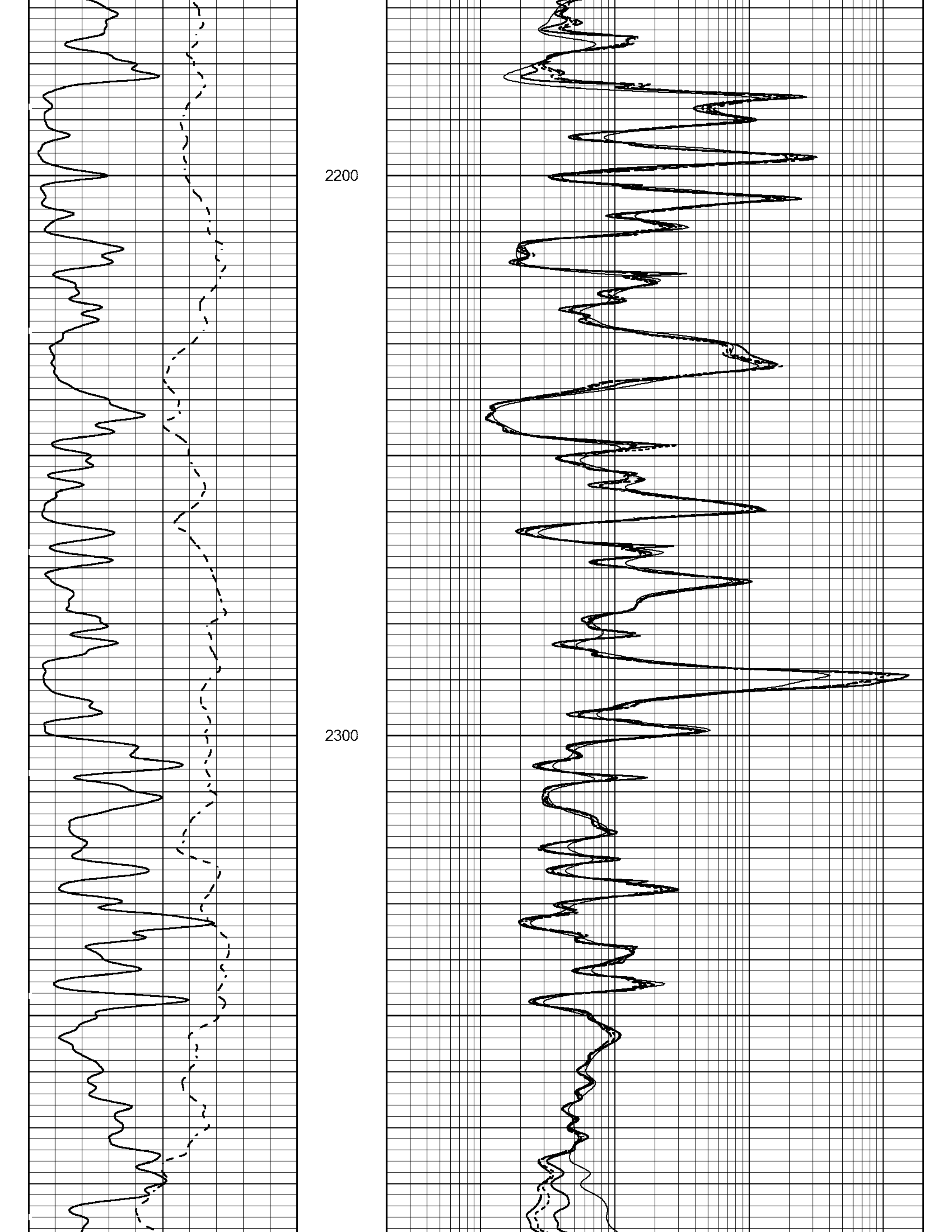
1100
1200

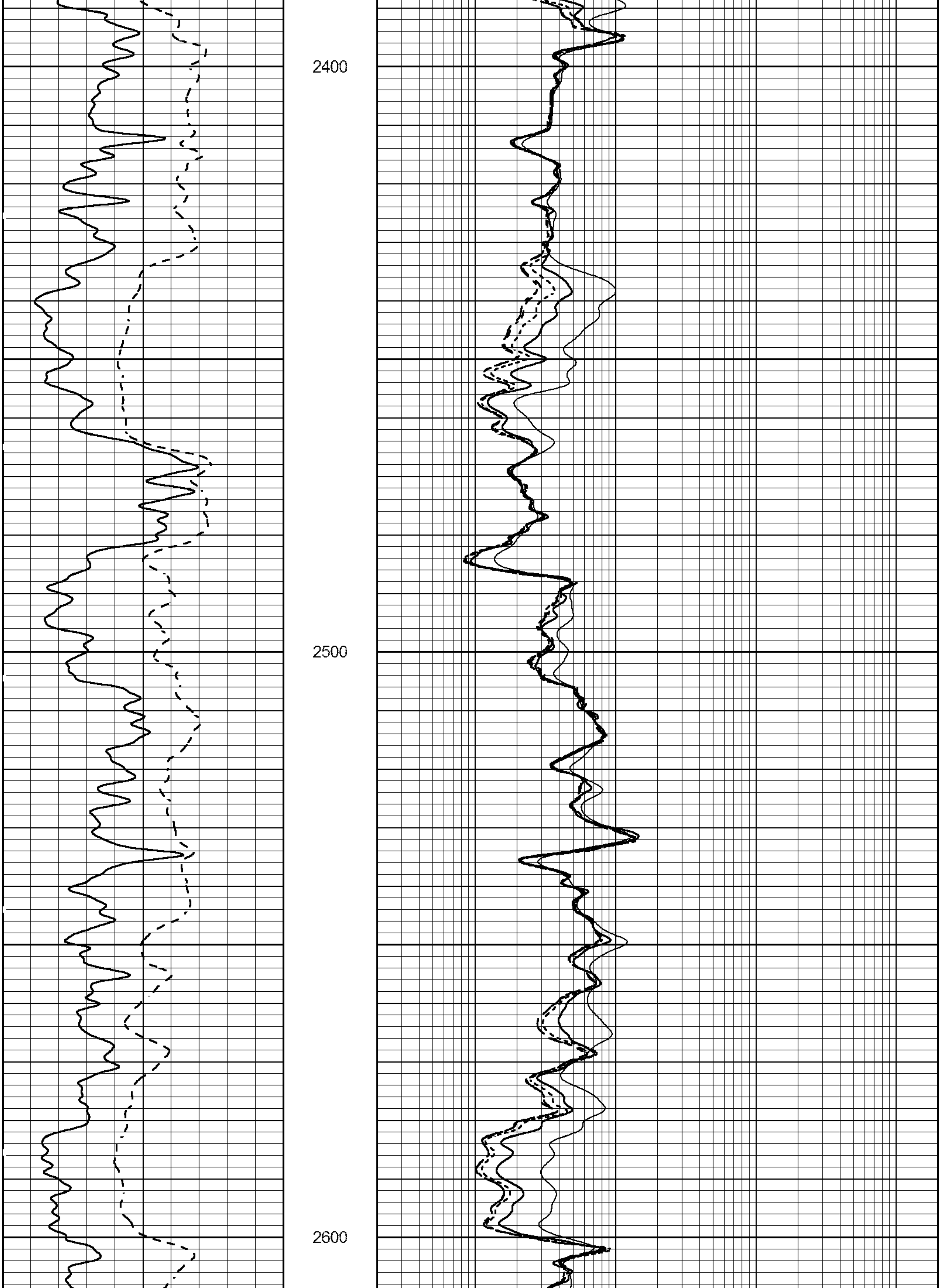

1300
1400
1500

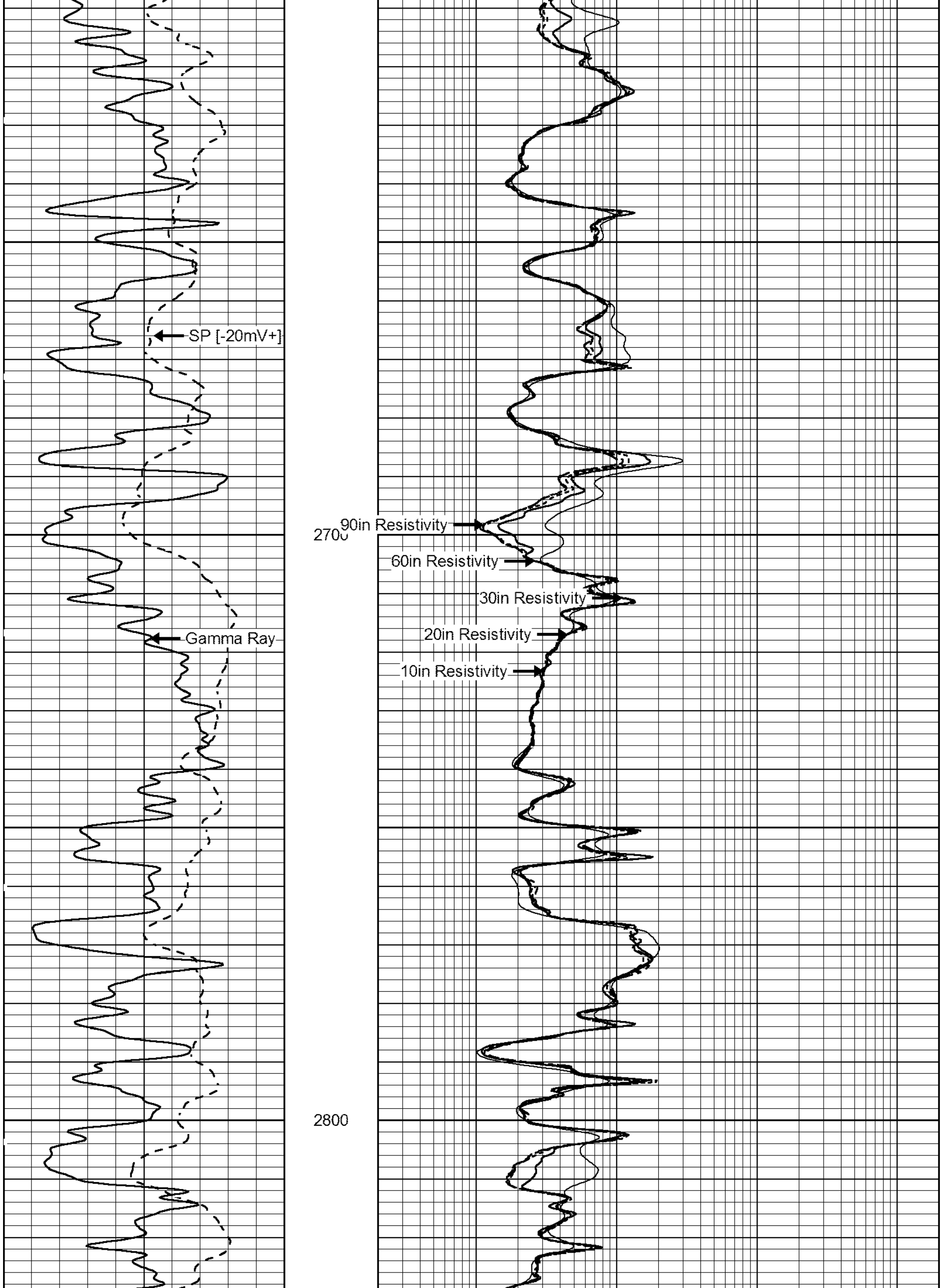

1600
1700

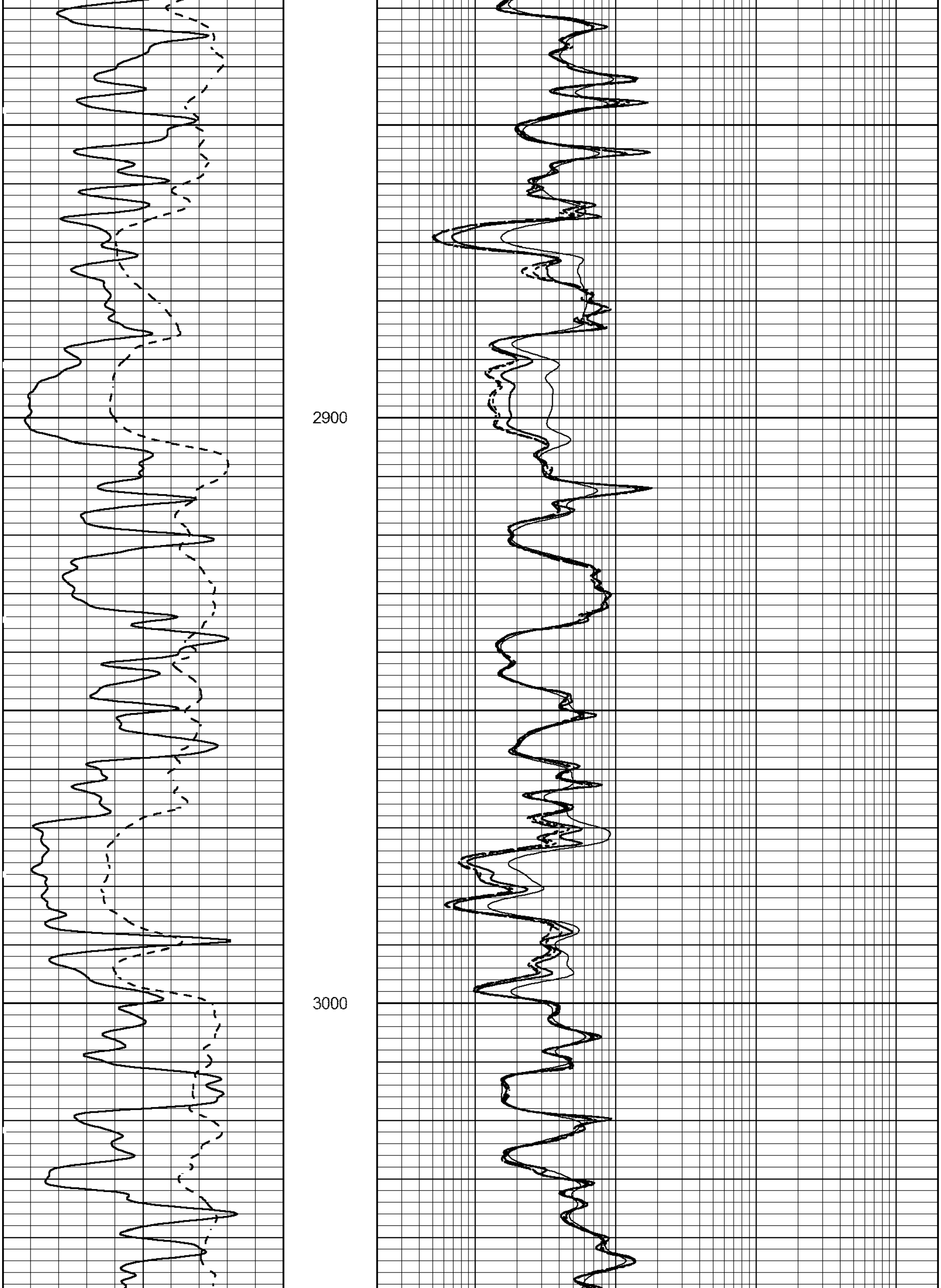

1800
1900

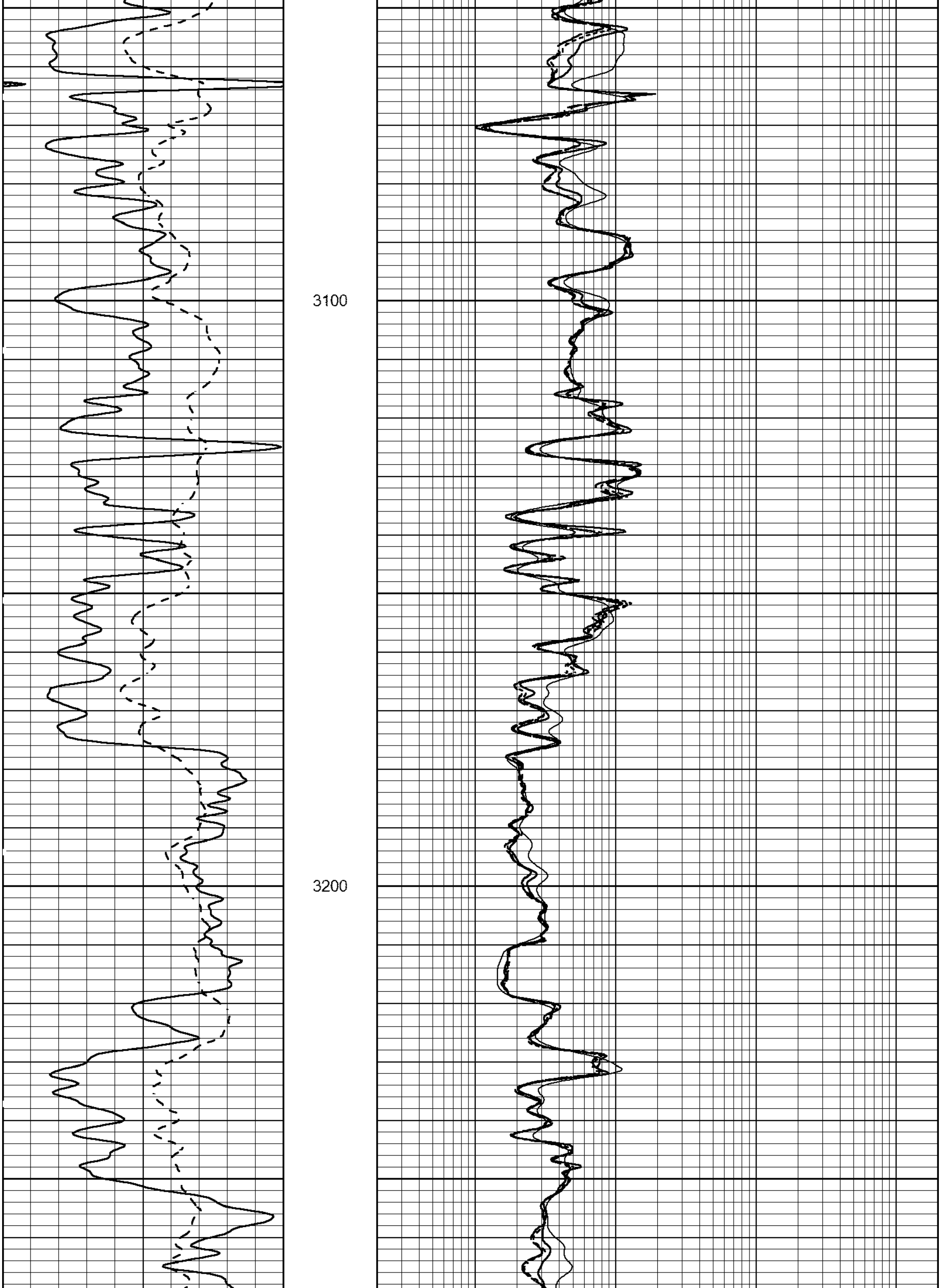

2000
2100

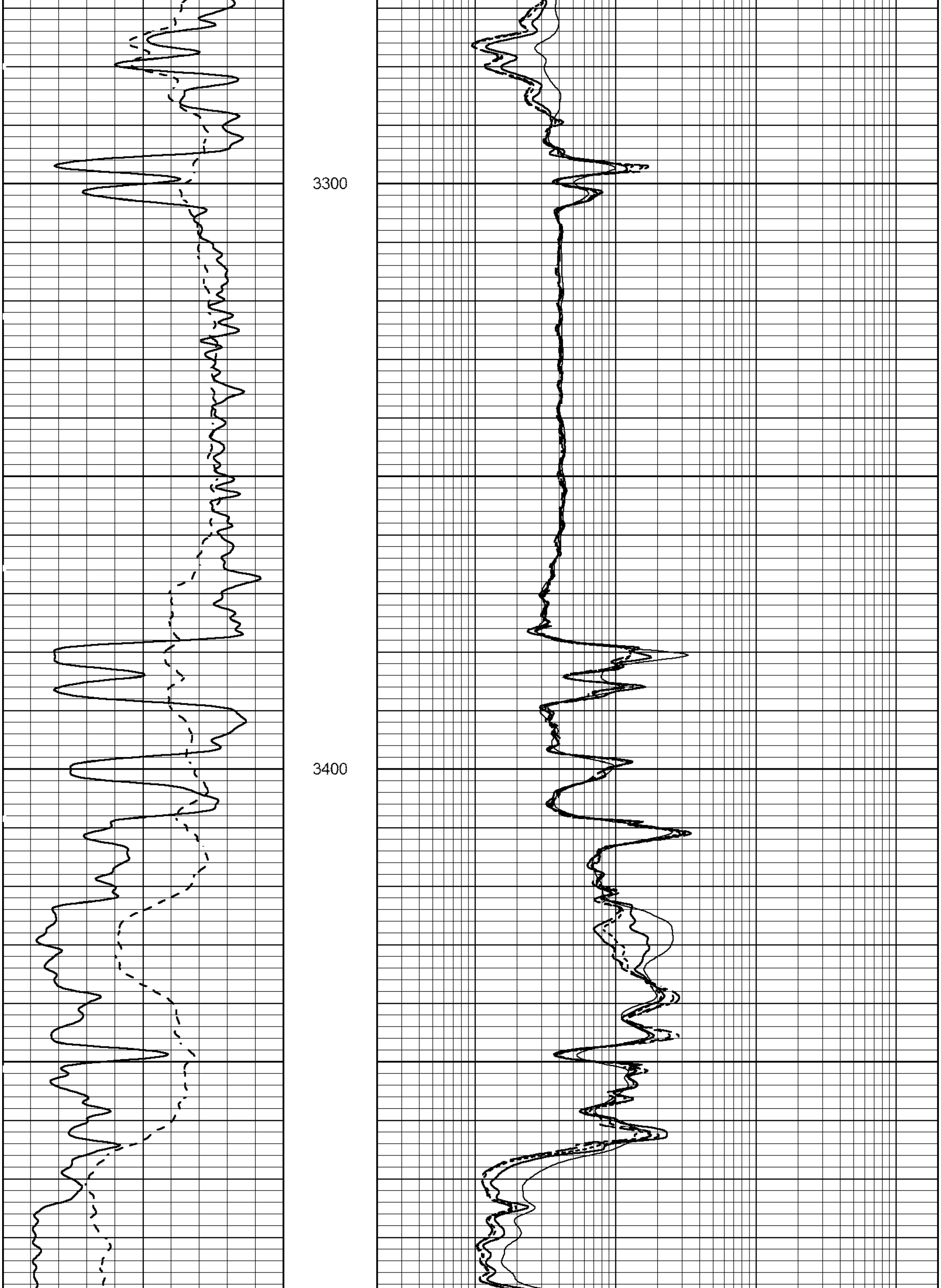

2200
2300

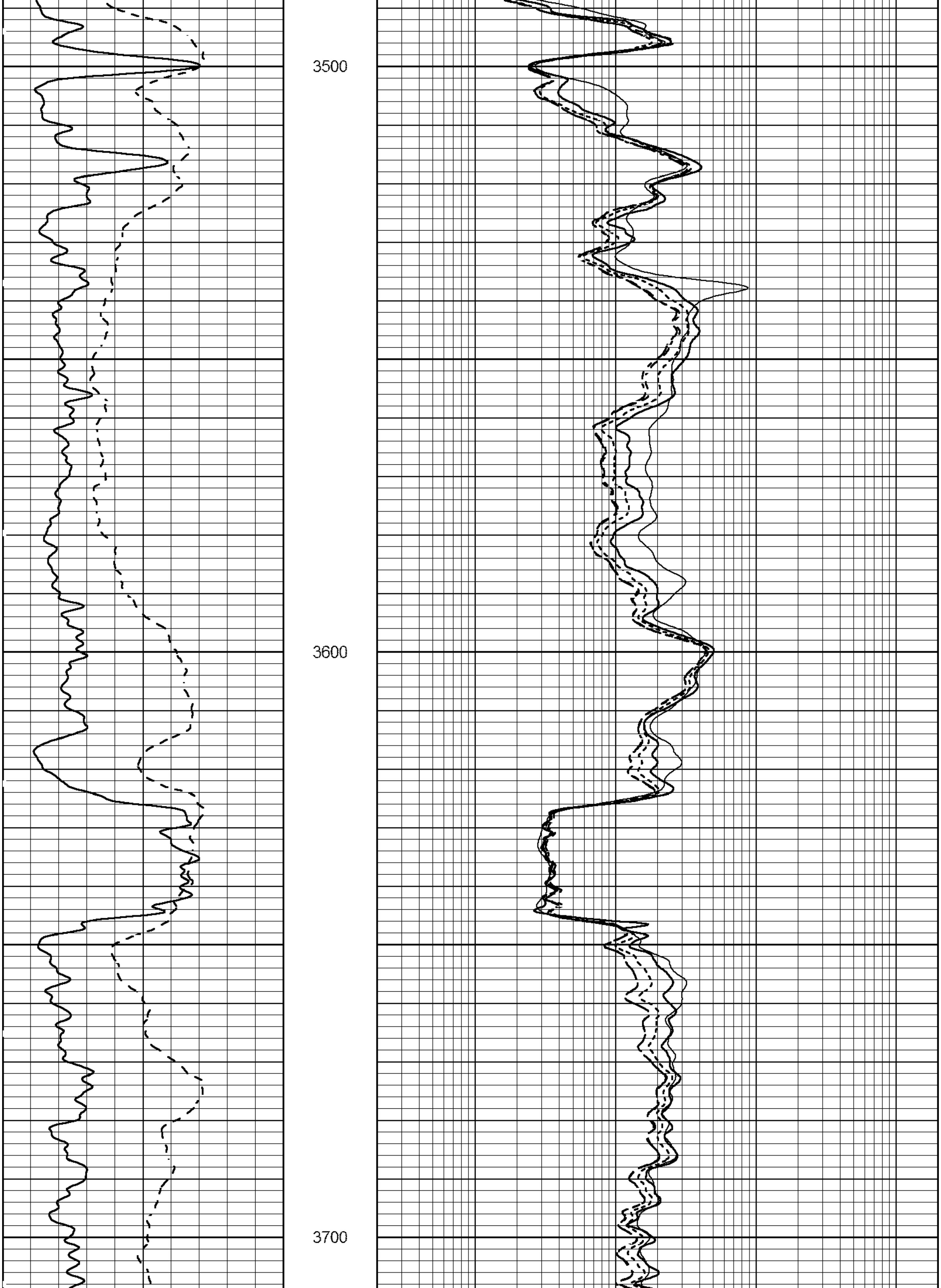

2400
2500
2600

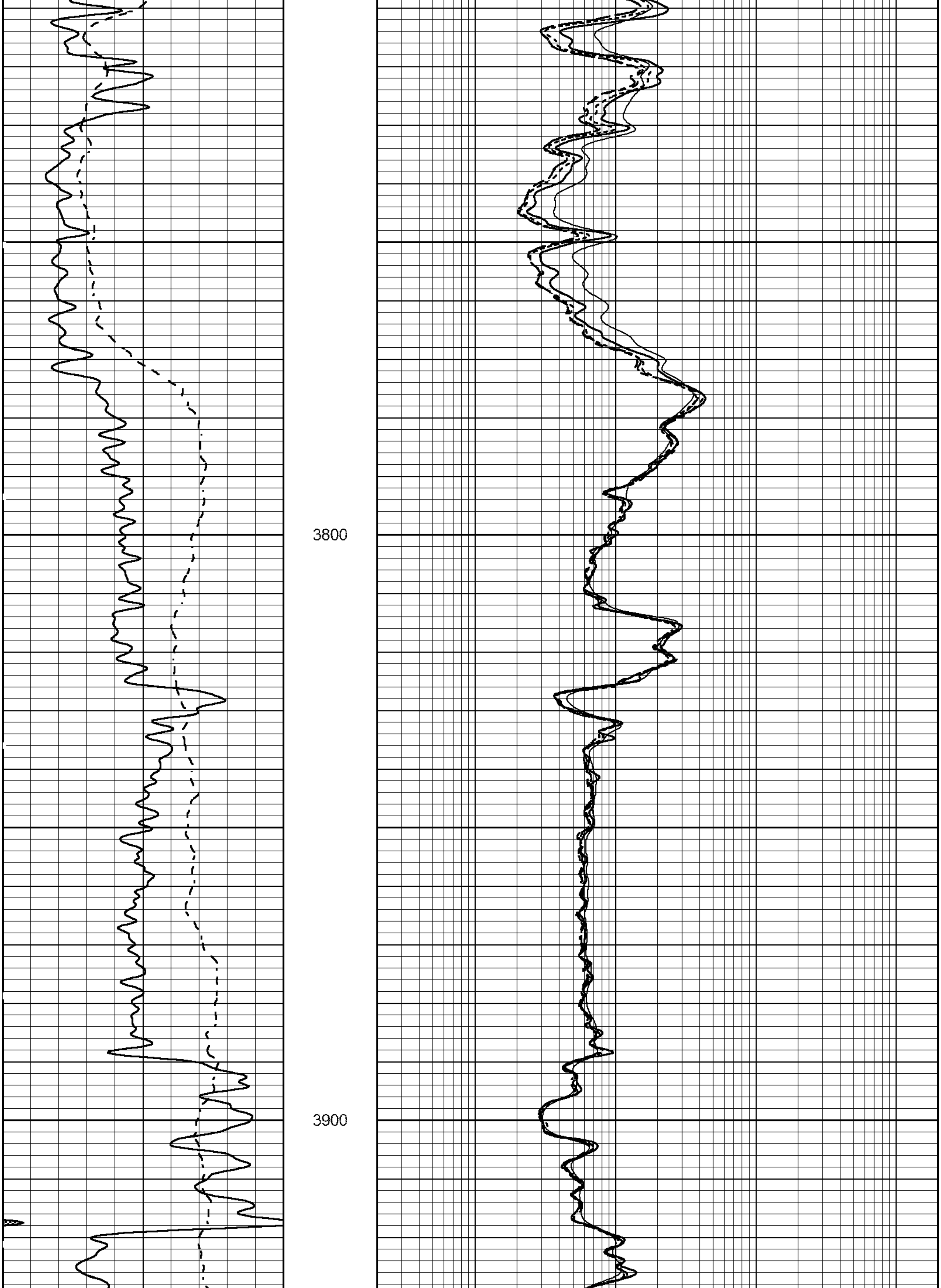

SP [-20mV+]
Gamma Ray
2700
2800
90in Resistivity
60in Resistivity
30in Resistivity
20in Resistivity
10in Resistivity

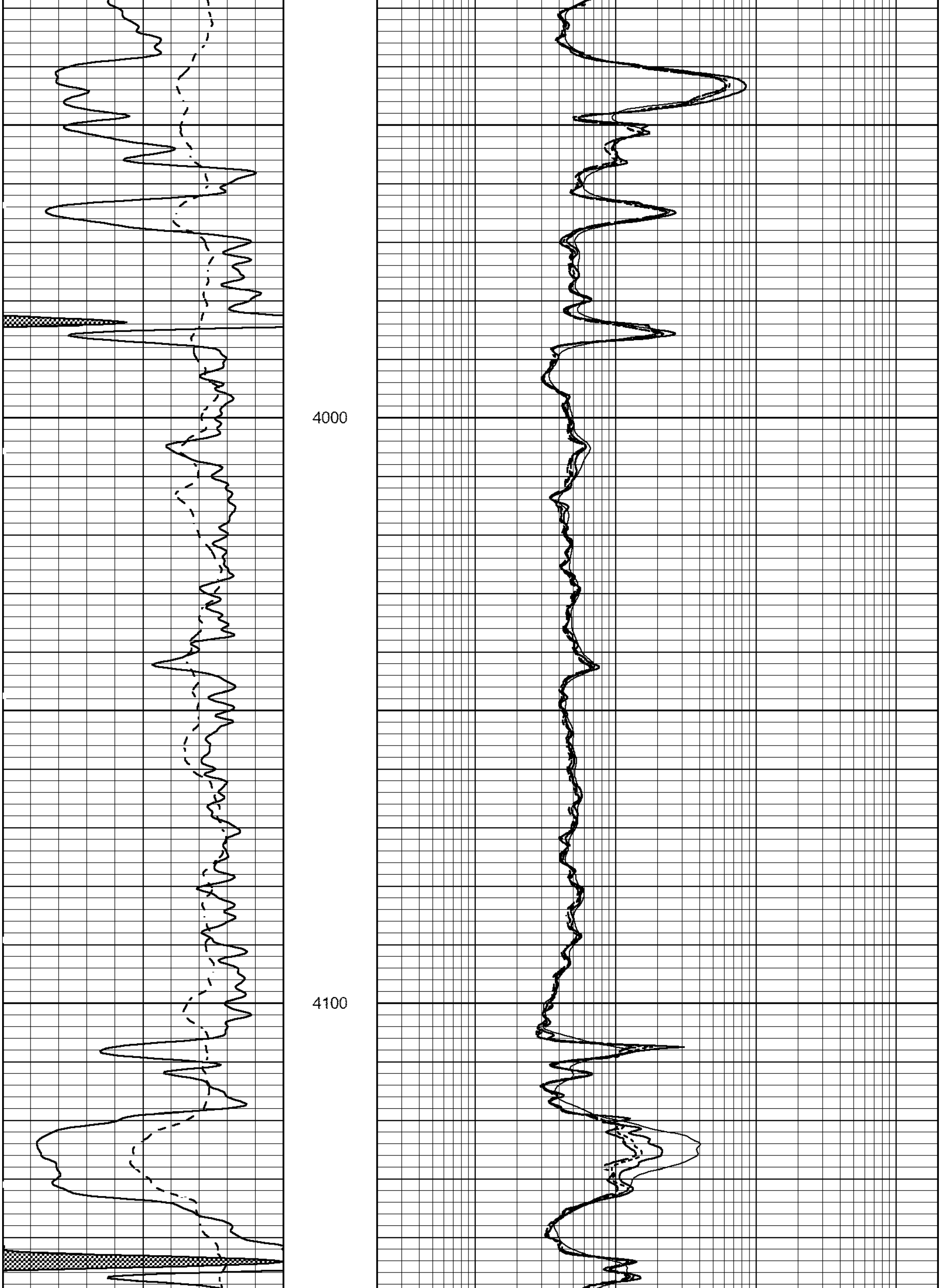

2900
3000

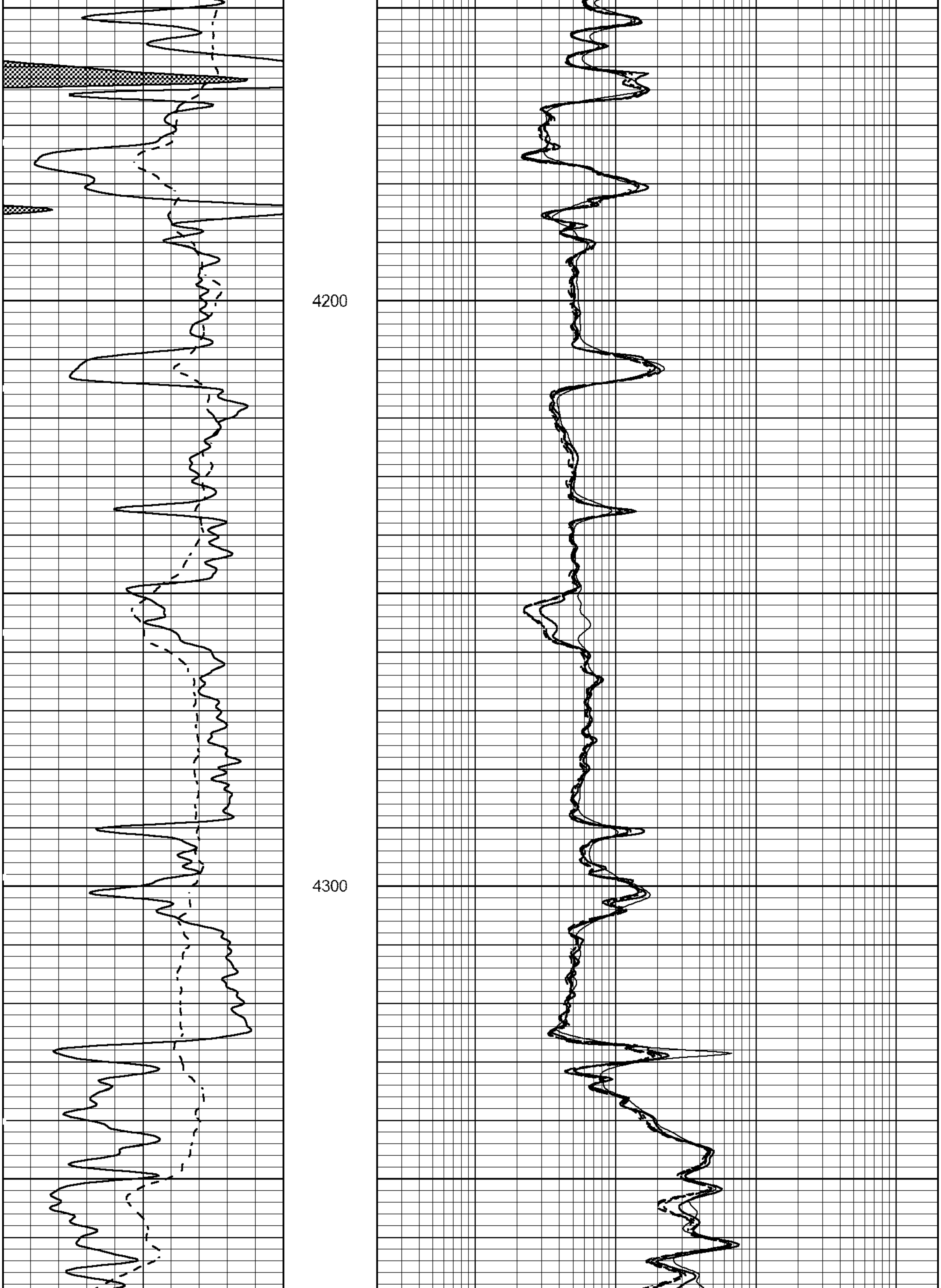

3100
3200

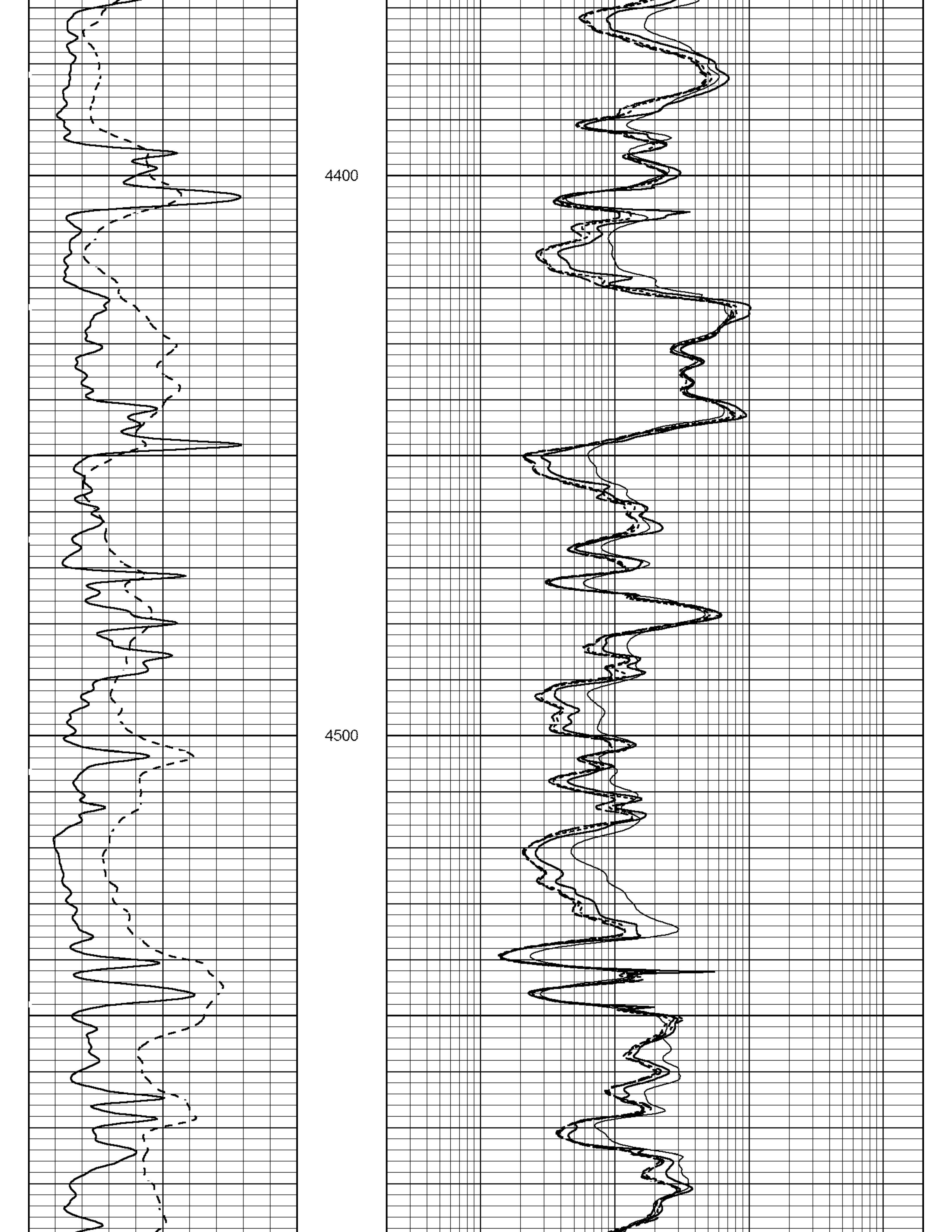

3300
3400

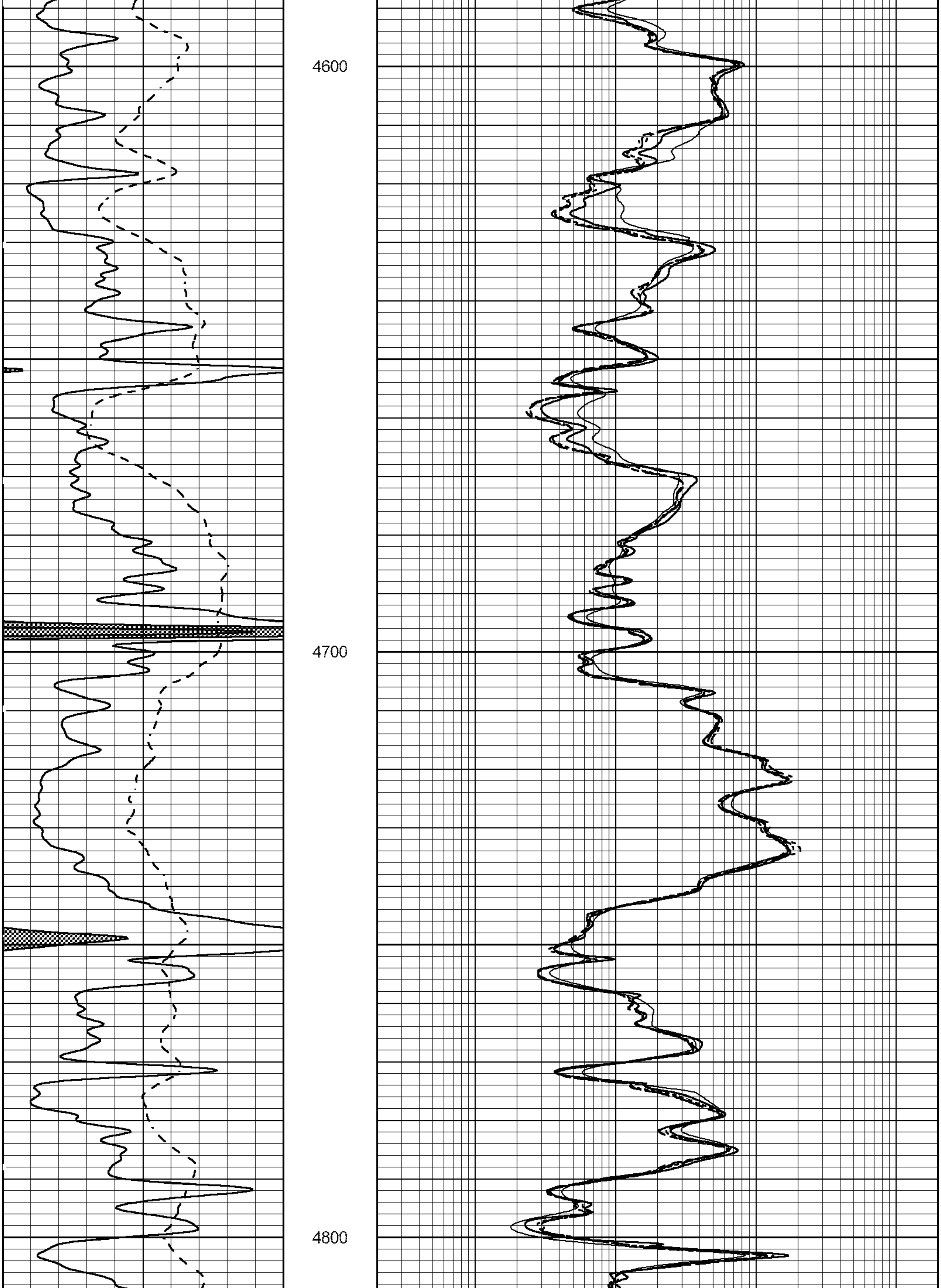

3500
3600
3700

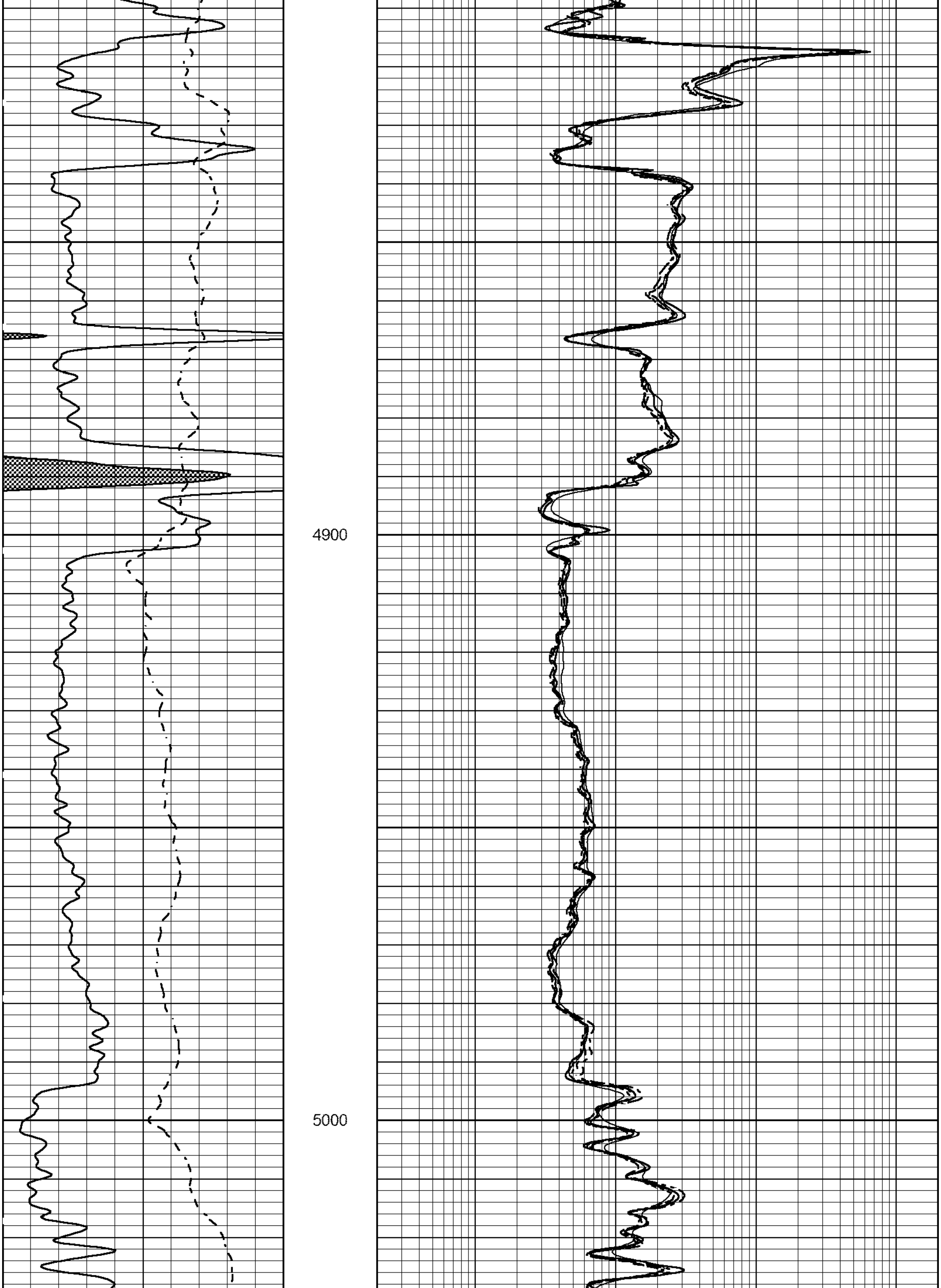

3800
3900

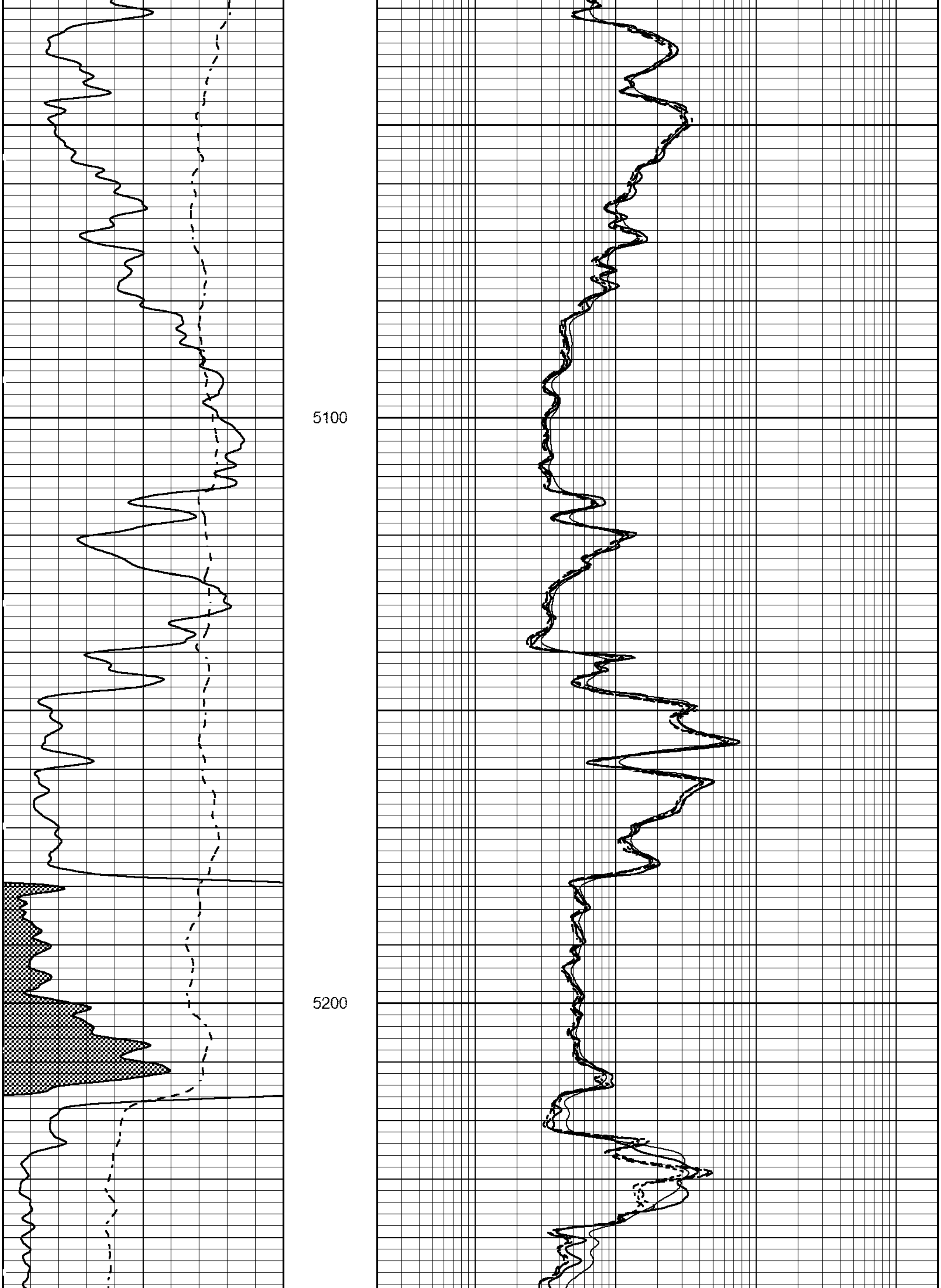

4000
4100

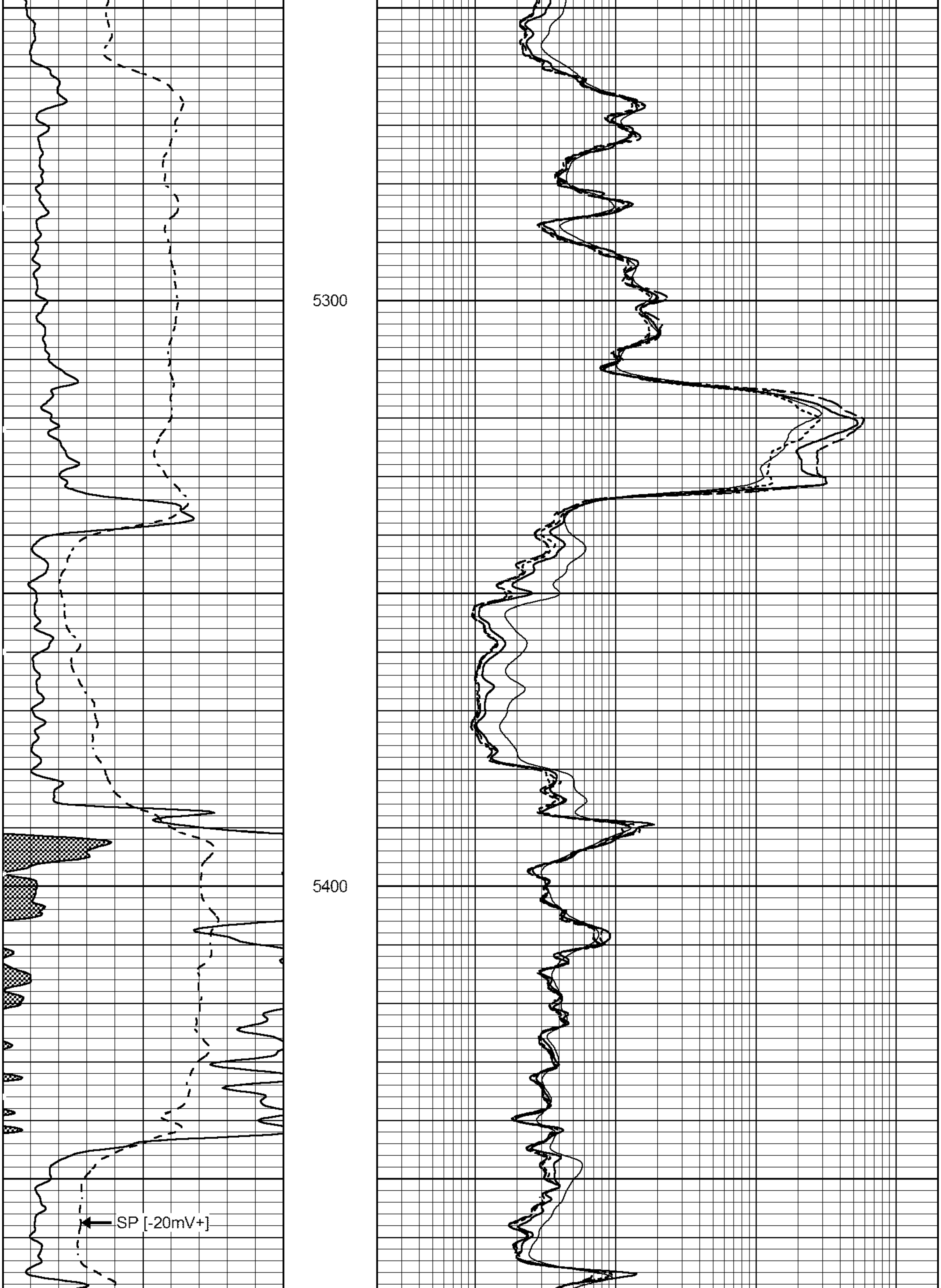

4200
4300

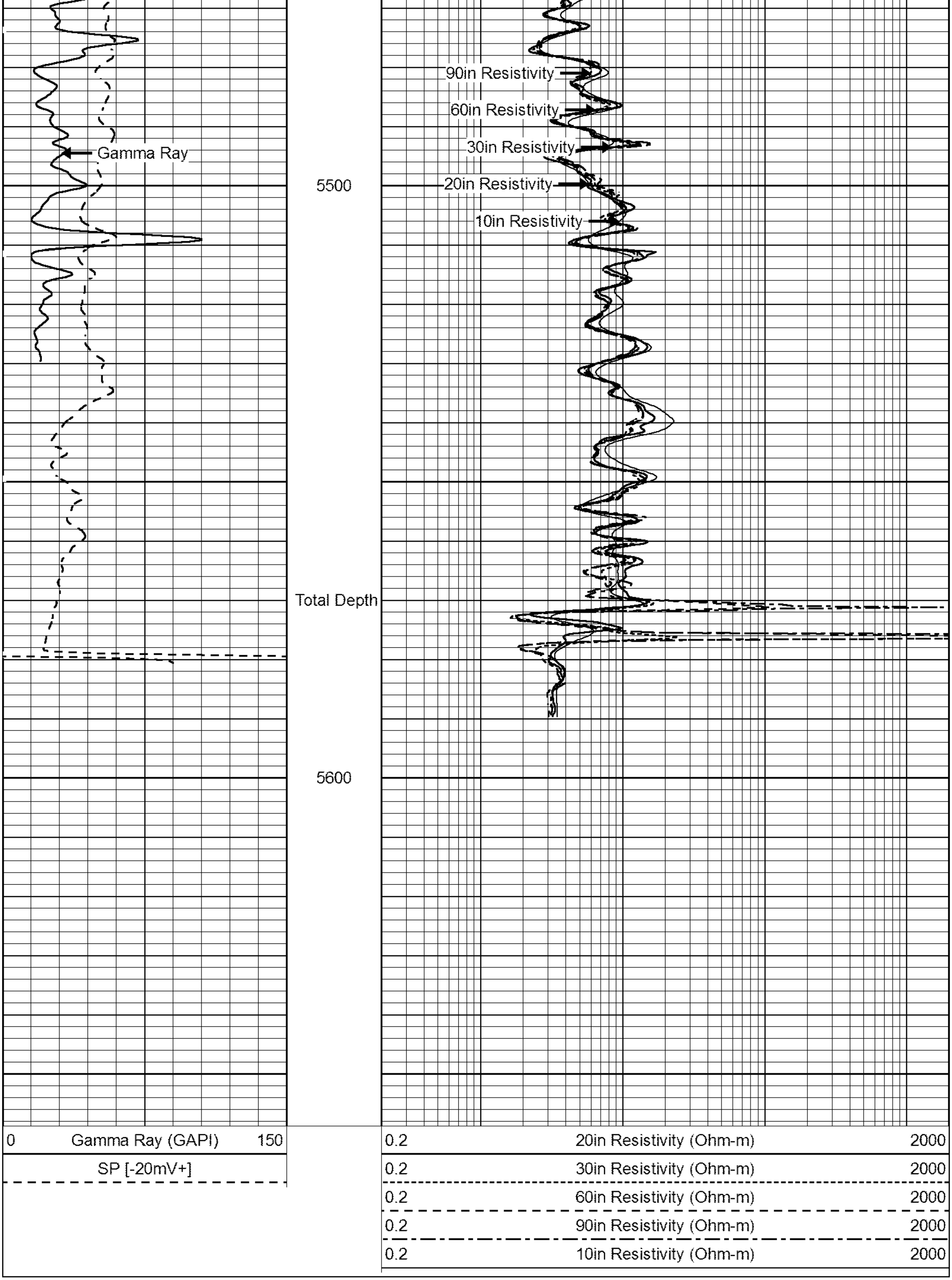

4400
4500


4600
4700
4800


4900
5000


5100
5200


5300
5400
SP [-20mV+]


Gamma Ray
90in Resistivity
60in Resistivity
30in Resistivity
20in Resistivity
10in Resistivity
5500
Total Depth
5600
0
Gamma Ray (GAPI)
150
SP [-20mV+]
0.2
20in Resistivity (Ohm-m)
2000
0.2
30in Resistivity (Ohm-m)
2000
0.2
60in Resistivity (Ohm-m)
2000
0.2
90in Resistivity (Ohm-m)
2000
0.2
10in Resistivity (Ohm-m)
2000

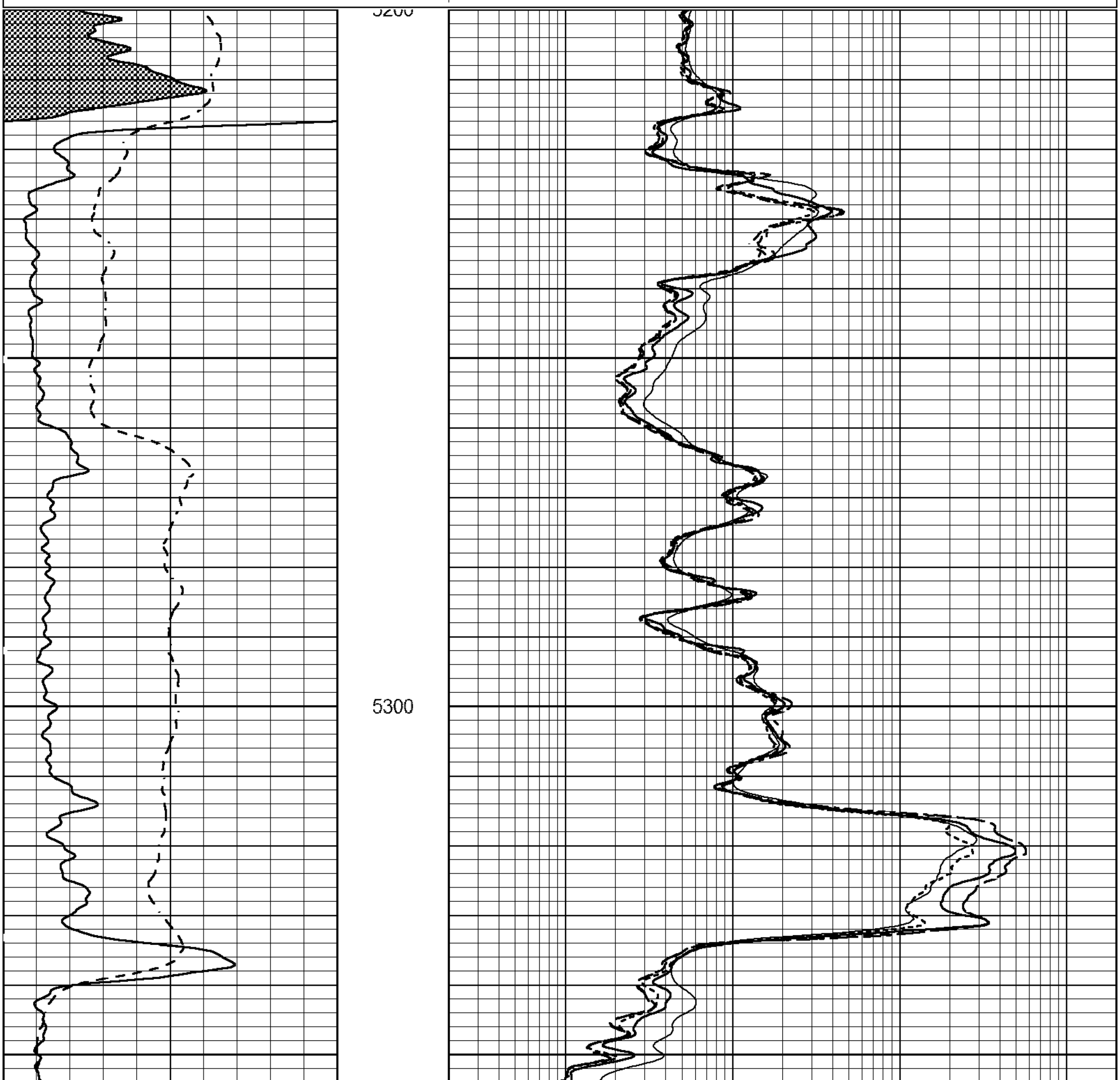
WIRELINE LOGGING SOLUTIONS

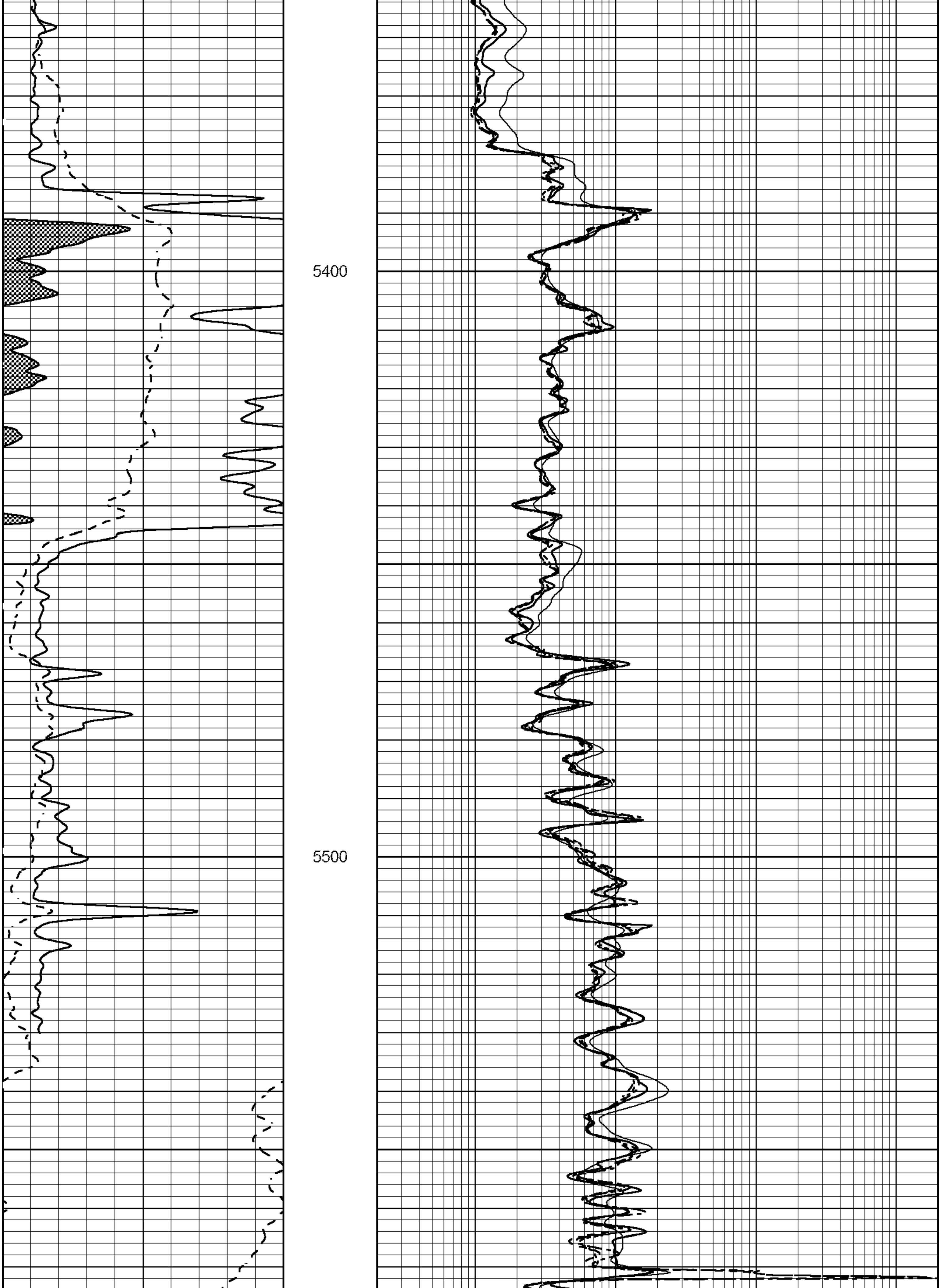
Repeat Pass

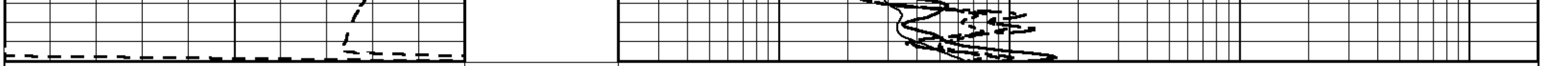
Database File	ramshorn-degreer #03-01.db
Dataset Pathname	pass3
Presentation Format	OKC-AI~2
Dataset Creation	Wed Feb 24 17:42:28 2021 by Log Sondex
Charted by	Depth in Feet scaled 1:240

Track 1		
0	Gamma Ray (GAPI)	150
	SP [-20mV+]	

Track 2		
0.2	20in Resistivity (Ohm-m)	2000
0.2	30in Resistivity (Ohm-m)	2000
0.2	60in Resistivity (Ohm-m)	2000
0.2	90in Resistivity (Ohm-m)	2000
0.2	10in Resistivity (Ohm-m)	2000




5400
5500



0	Gamma Ray (GAPI)	150
	SP [-20mV+]	

0.2	20in Resistivity (Ohm-m)	2000
0.2	30in Resistivity (Ohm-m)	2000
0.2	60in Resistivity (Ohm-m)	2000
0.2	90in Resistivity (Ohm-m)	2000
0.2	10in Resistivity (Ohm-m)	2000

Log Variables

DatabaseC:\Sondex\Sondex Warrior\Data\ramshorn-degreer #03-01.db
Dataset field/well/run1/pass4/_vars_

Top - 223.00 ft

AIR_HOLE?	BOREID in	BOTTEMP degF	CASED?	CASEOD in	CASETHCK in	CASEWGHT lb/ft	DE-CENT
No	17.5	117	Yes	13.375	0.33	48	Yes
DEVI deg	**FLUIDDEN g/cc**	**FRMSALIN kppm**	**MATRXDEN g/cc**	**MUDSALIN kppm**	**MudWgt lb/gal**	**NPORSEL**	**PERFS**
0	1	75	2.71	0	9.25	Limestone	No
SO in	**SPSHIFT mV**	**SRFTEMP degF**	**TDEPTH ft**				
0.25	0	55	223				

223.00 ft - Bottom

AIR_HOLE?	**BOREID in**	BOTTEMP degF	**CASED?**	**CASEOD in**	**CASETHCK in**	**CASEWGHT lb/ft**	DE-CENT
No	**7.875**	117	**No**	**5.5**	**0.275**	**15.5**	Yes
DEVI deg	FLUIDDEN g/cc	FRMSALIN kppm	MATRXDEN g/cc	MUDSALIN kppm	MudWgt lb/gal	NPORSEL	PERFS
0	1	75	2.71	0	9.25	Limestone	No
SO in	SPSHIFT mV	SRFTEMP degF	**TDEPTH ft**				
0.25	0	55	**5575**				

Calibration Report

Database File ramshorn-degreer #03-01.db
Dataset Pathname pass4
Dataset Creation Wed Feb 24 17:59:40 2021 by Log Sondex

Induction Array Tool Calibration Report

Serial Number: B10110
Tool Model: 002

Master Calibration Performed: Fri Mar 08 09:16:00 2019
Temperature: 51.2 degF

Sonde Error:

Array	1	2	3	4	5	6	7	
Real	188.1	-11.7	-39.0	-14.9	-1.9	2.0	3.2	mmho/m
Imaginary	-13.9	8.5	-5.4	-11.7	-20.7	-2.4	5.6	mmho/m

Loop Gain:

Array	1	2	3	4	5	6	7	
Loop (real)	537.7	678.5	1295.3	1294.1	1144.8	712.8	404.8	mmho/m

Loop (real)	537.7	678.5	1295.3	1394.1	1144.8	712.8	404.8	mmho/m
Loop (imaginary)	73.3	92.5	389.8	419.5	344.5	214.5	121.8	mmho/m
Real	758.2	735.6	1253.6	1381.7	1164.3	742.4	424.4	mmho/m
Imaginary	60.0	109.2	384.4	412.6	330.6	220.8	134.7	mmho/m
Gain (real)	0.943	0.908	1.002	0.998	0.982	0.963	0.961	
Gain (imaginary)	0.992	0.918	1.000	0.989	0.981	0.961	0.943	

Before Survey Verification Performed:	Wed May 01 12:44:49 2019
Sonde 1 Temperature:	77.2 degF
Sonde 2 Temperature:	78.2 degF
Array 1 Temperature:	78.3 degF

Array	1	2	3	4	5	6	7
TxIR	-0.0	-0.0	0.1	0.1	0.1	0.1	0.1
TxIX	-0.0	-0.0	-0.2	-0.2	-0.2	-0.2	-0.2
Tx Magnitude	0.0	0.0	0.2	0.2	0.2	0.2	0.2
Gain	105.5	108.5	133.4	132.5	135.0	100.3	144.2
RxCR	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0
RxCX	0.1	0.1	0.2	0.2	0.3	0.1	0.0
RxC Magnitude	0.1	0.1	0.2	0.2	0.3	0.1	0.0

Tool Module Parameters

Software Version:	8.0.0.5
Borehole Size Source:	CALI
Mud Resistivity Source:	MUDRES
Mud Resistivity At Surface:	N/A
Mud Resistivity Surface Temperature:	N/A
Borehole Corrections:	Automatic
Minimum Standoff:	0.4 in

Litho Density Tool Calibration Report

Serial Number:	B10110S70997B
Tool Model:	B10110

Caliper Calibration Performed: Tue Feb 02 14:40:37 2021

	Diameter		Reading	
Small Ring:	9.000	in	1715.000	cps
Large Ring:	13.000	in	2057.300	cps

Gain: 0.0117
Offset: -11.0409

Master Calibration Performed:	Tue Feb 02 12:18:09 2021
Source Number:	S70997B
Medium:	Water
Al Block Density:	2.6018 g/cc

	Background	Al Block	Al Block + Fe	
SS1	707.5	3845.9	3472.6	cps
SS2	1994.5	26739.6	24096.4	cps
SSTOTAL	4674.1	42688.5	38119.1	cps
LITH	88.1	439.9	284.5	cps
LL	176.9	756.0	706.0	cps
LU	498.0	988.6	954.2	cps
LS	675.0	1744.6	1660.1	cps
LSTOTAL	1268.0	4214.7	3625.5	cps
SSHV	1468.8	1467.6	1468.8	V
LSHV	1303.0	1302.9	1303.8	V
SSFF	-0.001	0.003	0.005	
LSFF	-0.002	0.006	0.007	

Before Survey Verification Performed:	Tue Feb 02 13:53:54 2021
After Survey Verification Performed:	Tue Feb 02 13:55:12 2021

	Master Background	Before Survey Background	After Survey Background	
SS1	707.5	708.9	707.6	cps
SS2	1994.5	1998.7	1990.6	cps
SSTOTAL	4674.1	4669.3	4663.2	cps
LITH	88.1	89.3	87.6	cps
LL	176.9	176.1	174.0	cps
LU	498.0	502.3	501.1	cps
LS	675.0	678.4	675.0	cps
LSTOTAL	1268.0	1270.1	1270.2	cps
SSHV	1468.8	1470.6	1470.5	V
LSHV	1303.0	1304.3	1304.3	V
SSFF	-0.001	-0.001	-0.007	
LSFF	-0.002	0.001	0.005	

Tool Module Parameters

Software Version:	8.0.0.8
Pad Type:	2
Borehole Size Source:	CALI
Barite Mud:	No

Compensated Neutron Tool Calibration Report

Serial Number:	C10071S1414NC
Tool Model:	009

Master Calibration Performed:	Mon Feb 01 12:45:55 2021	
Source Number:	1414NC	
Short Spacing Counts:	5589.60	cps
Long Spacing Counts:	204.18	cps
High Voltage:	1364.02	V
Target Ratio:	27.2000	
Ratio:	27.3756	
K-Factor:	0.9936	

Before Survey Verification Performed:	Mon Feb 01 12:55:39 2021
After Survey Verification Performed:	Mon Feb 01 12:56:51 2021
Verifier Number:	6489

Verifier Values	Master Cal	Before Survey	After Survey	
Short Spacing Counts:	256.51	262.05	257.59	cps
Long Spacing Counts:	295.89	298.76	296.97	cps
High Voltage:	1364.00	1364.00	1364.00	V
Ratio:	0.8669	0.8771	0.8674	

Tool Module Parameters

Software Version:	8.0.0.6
Borehole Size Source:	CALI
Clip Crossplot Porosity:	YES

Lithology Identification Parameters:

	Calcite	Quartz	Dolomite	
Uma:	13.77	4.79	9.03	barns/cc
RHOma:	2.71	2.65	2.88	g/cc

Micro Electric Log Calibration Report

Micro-Electric Log Calibration Report

Serial Number:	10021240
Tool Model:	003

Caliper Calibration Performed: Mon Nov 13 12:40:50 2017

	Pad Arm Radius		Pad Arm Reading	Backup Arm Radius		Backup Arm Reading
Small Jig:	9.000	in	1847.200	9.000	in	1677.000
Large Jig:	13.000	in	2371.600	13.000	in	2315.300
Gain:			0.0076			0.0063
Offset:			-5.0900			-1.5092

Pad Calibration

	Inverse	Normal
Gain:	0.7600	0.9700
Offset:	0.0000	0.0000

Tool Module Parameters

Software Version: 8.0.0.6

Gamma Ray Calibration Report

Serial Number:	C10049
Tool Model:	001

Performed: Mon Feb 01 10:45:24 2021

Calibrator Value:	156.0	GAPI
Background Reading:	75.6	cps
Calibrator Reading:	494.0	cps
Sensitivity:	0.3729	GAPI/cps

Tool Module Parameters

Software Version: 8.0.0.5

Borehole Fluid Resistivity Calibration Report

Serial Number:	P004
Tool Model:	002

Master Calibration Performed: Mon Dec 05 18:05:39 2011

Resistivity Polynomial Equation:

$$0.1429x^3 - 0.4495x^2 + 1.2097x - 0.2854$$

Temperature Calibration:

Reference		Reading	
71.60	degF	559.80	bits
167.00	degF	659.50	bits

Tool Module Parameters

Software Version: 8.0.0.2

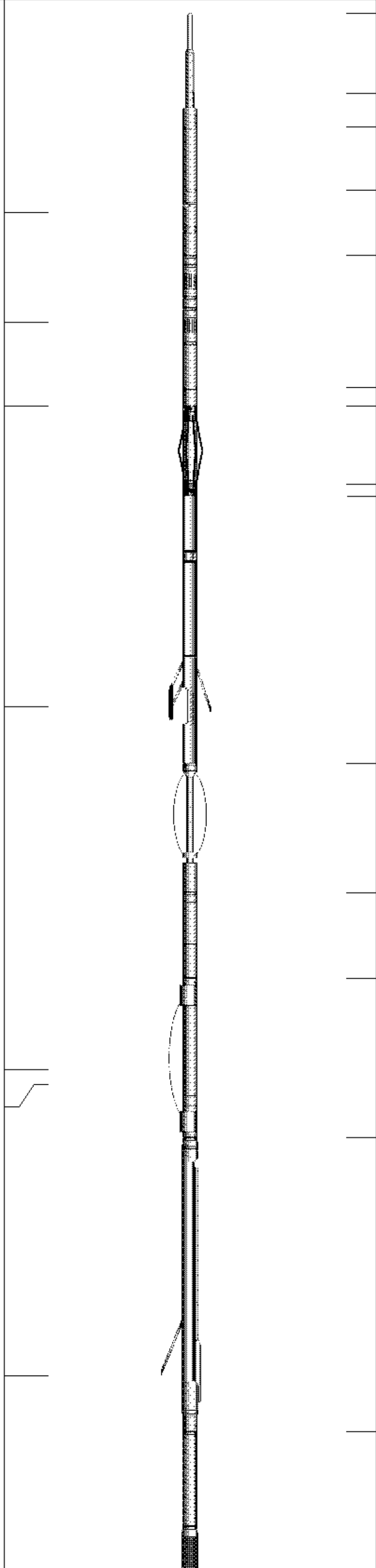
Head Tension Unit Calibration Report

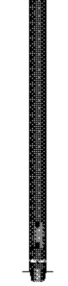
Serial Number:	00001
Tool Model:	011

Performed: Mon Mar 04 10:52:43 2013

Point #	Reference		Reading	
1	-19894.000	lb	8957.860	cps
2	-15010.000	lb	13965.100	cps
3	-9998.000	lb	19079.100	cps
4	-5007.000	lb	24133.000	cps
5	-1009.000	lb	28232.100	cps
6	1017.000	lb	30185.400	cps
7	5040.000	lb	34439.700	cps
8	9970.000	lb	39346.900	cps
9	14955.000	lb	44466.000	cps
10	19770.000	lb	49397.800	cps

Sensor	Offset (ft)	Schematic	Description	Length (ft)	O.D. (in)	Weight (lb
			CHD-WFT (WFT01) Weatherford Cable Head	2.67	2.25	15.00
			X-Over-WFT (0001) Weatherford X-Over	1.13	3.38	5.00
			XTU-008 (C10067) Crossover Ultrawire Toolbus to Ultralink	2.08	3.38	47.00
HTEN	54.05		HTU-011 (00001) Head Tension Unit	2.18	3.38	55.00
BFR	50.41		BFR-002 (P004) Borehole Fluid Resistivity Tool	4.39	3.38	94.00
GR	47.64					
			GRT-001 (C10049) Gamma Ray Tool	3.22	3.38	69.00
			Overbody-Over-cen (1) Overbody Centralizer	3.00	3.38	10.00
			MEL-003 (10021240) Micro Electric Log	9.27	3.38	209.00
MEL	37.67					
			CEN-001 (C10025) Inline OH Springbow Centraliser	4.27	3.38	66.00
			KJT-001 (10010515) Knuckle Joint	2.86	3.38	72.00
CNLSC	25.59		CNL-009 (C10071S1414NC) Compensated Neutron Logging Tool	5.28	3.38	100.00
CNSSC	25.09					
			LDT-B10110 (B10110S70997B) Litho Density Tool	9.75	4.50	310.00
LDT	15.44					



IAT	8.44		IAT-002 (B10110) Induction Array Tool	13.22	3.88	196.00
SP	0.43		Shorty-Short Short Hole Finder	0.38	3.88	6.00

Dataset: ramshorn-degreer #03-01.db: field/well/run1/pass4
Total length: 60.69 ft
Total weight: 1254.00 lb
O.D.: 4.50 in

WIRELINE LOGGING SOLUTIONS

Company	Ramshorn Resources, LLC.
Well	Degeer #03-01
Field	Degeer
County	Barber
State	Kansas
Country	USA

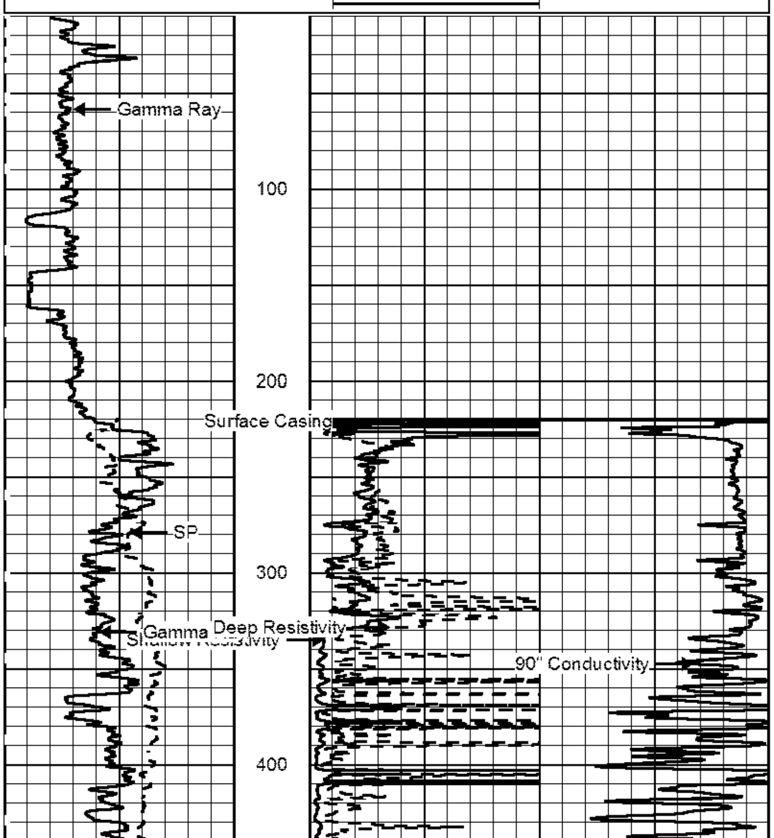
WIRELINE LOGGING SOLUTIONS

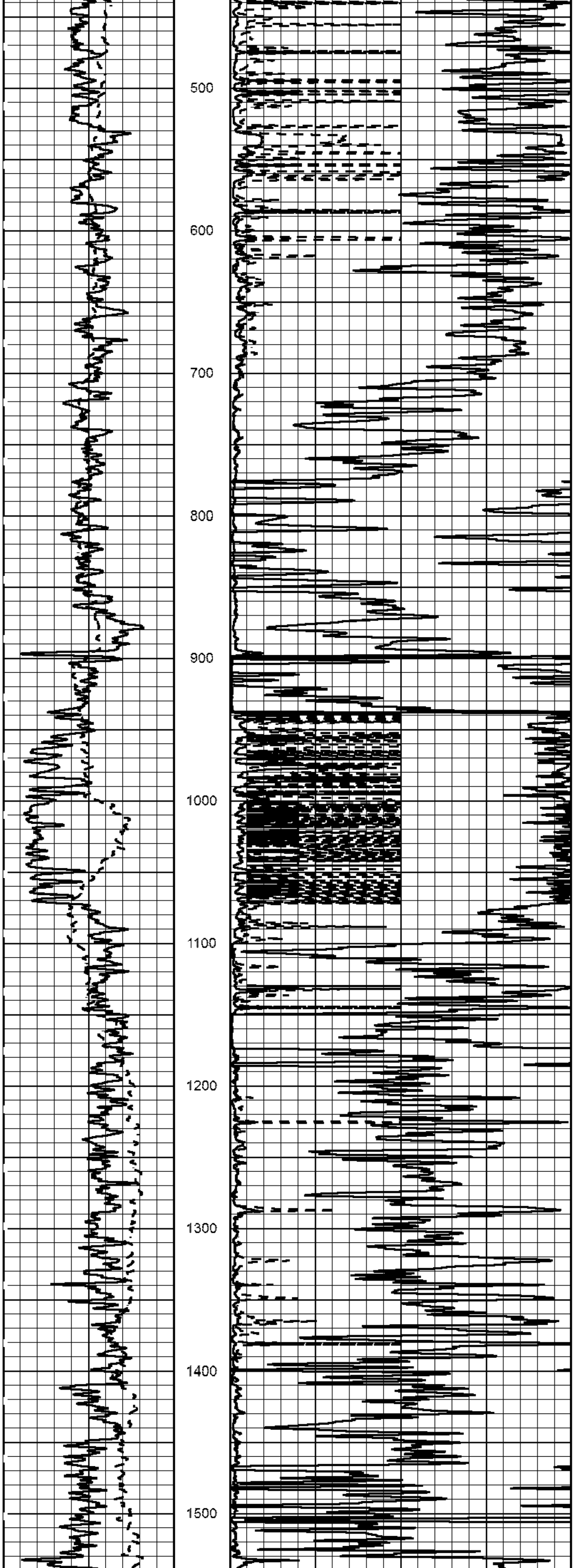
Main Pass

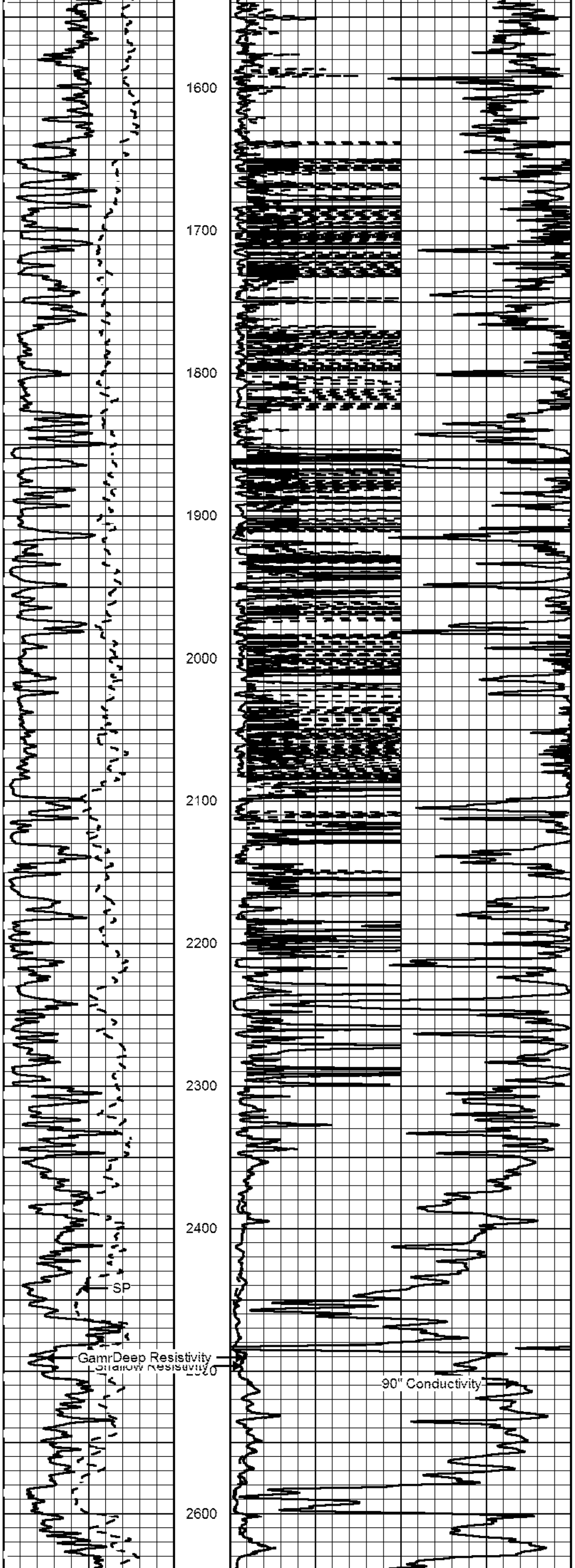
Database File	ramshorn-degreer #03-01.db
Dataset Pathname	pass4.1
Presentation Format	OKC-AC~2
Dataset Creation	Wed Feb 24 20:33:18 2021
Charted by	Depth in Feet scaled 1:1200

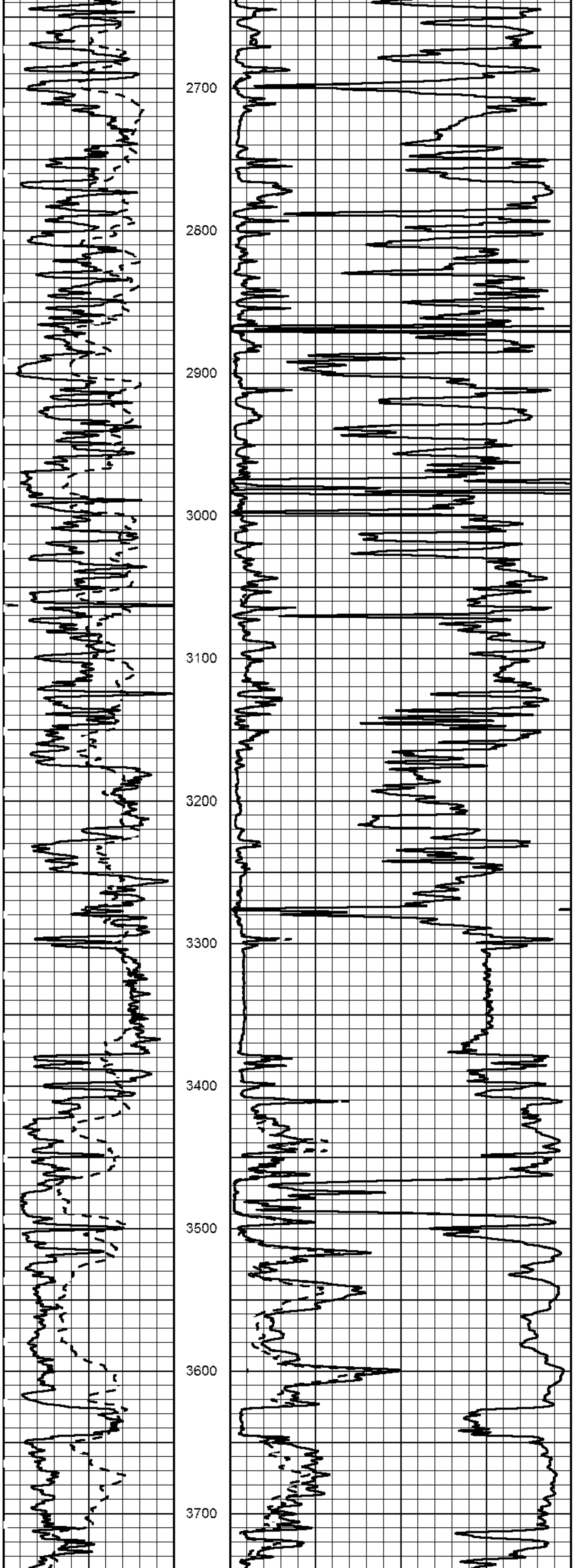
Gamma Ray
0 (GAPI) 150
SP (mV)

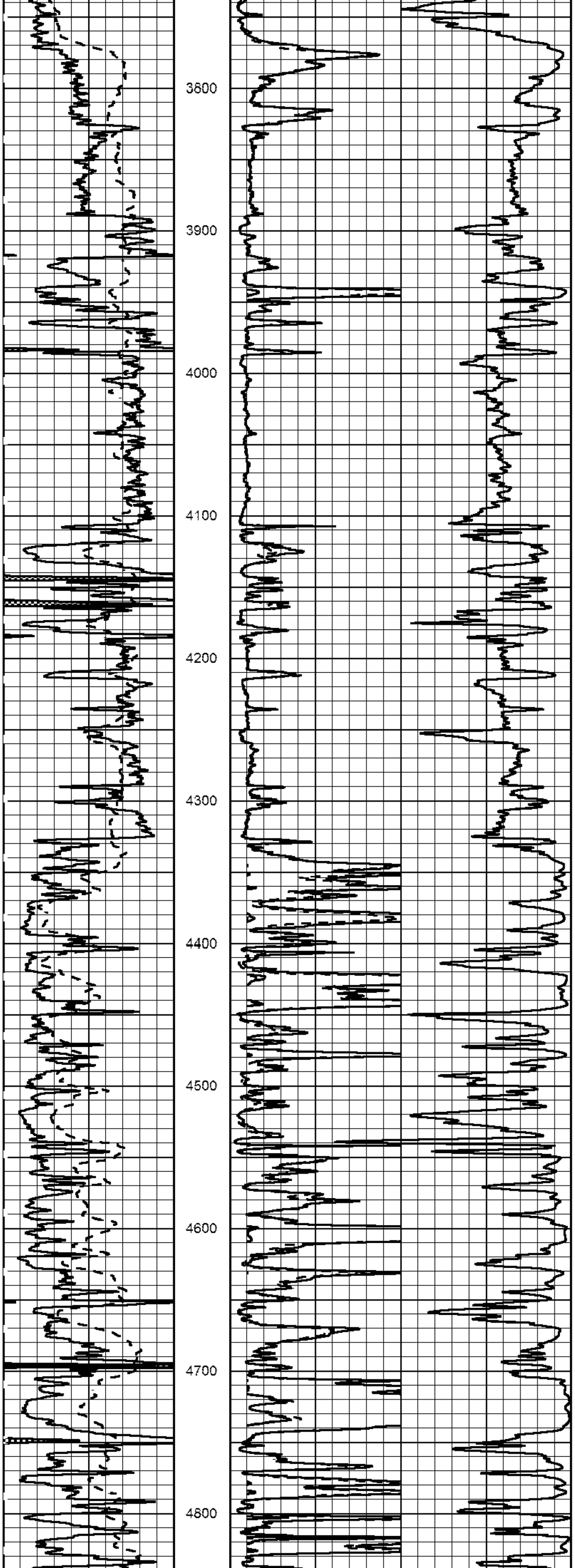
1000 90" Conductivity (mmho/m) 0
Shallow Resistivity
0 (Ohm-m) 50
Deep Resistivity
0 (Ohm-m) 50
50 Deep 500
50 Shallow 500

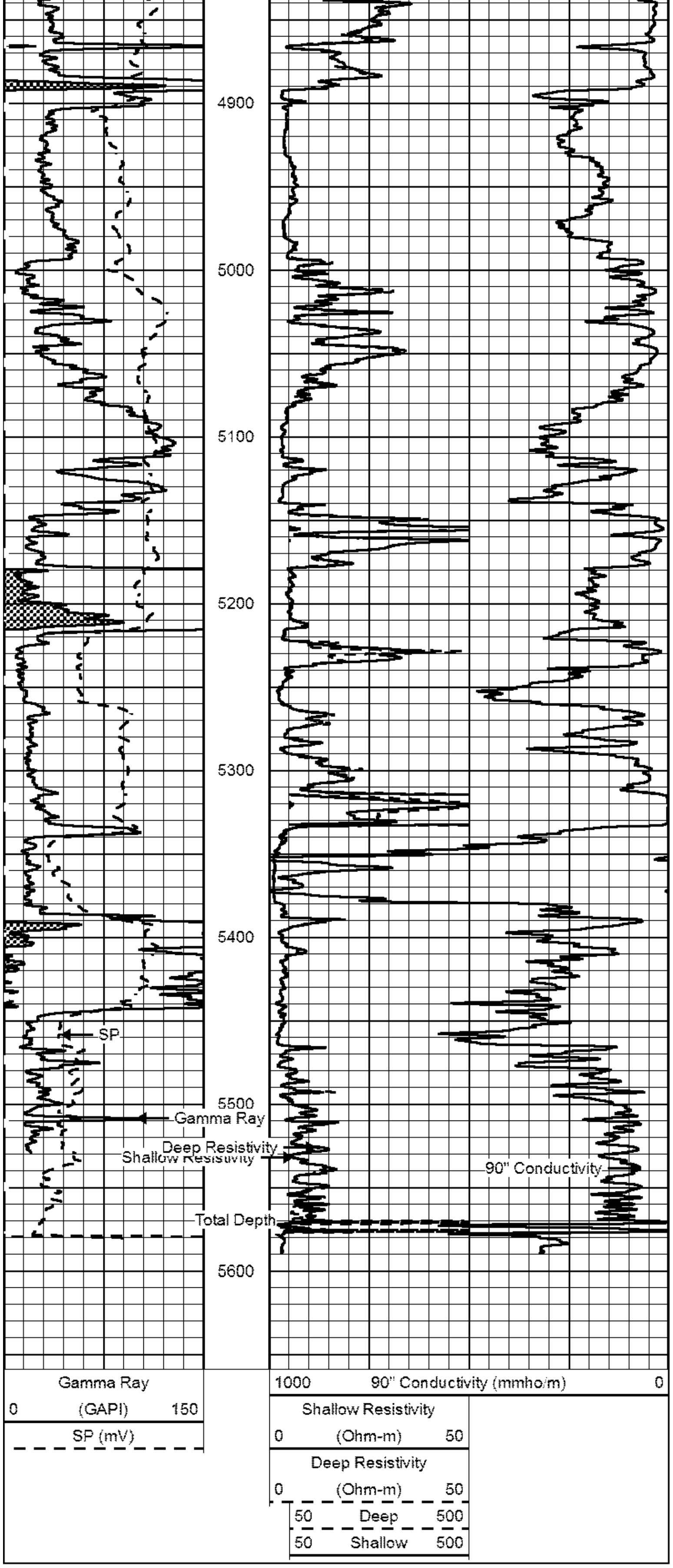



500
600
700
800
900
1000
1100
1200
1300
1400
1500


1600
1700
1800
1900
2000
2100
2200
2300
2400
SP
GamrDeep Resistivity
Shallow Resistivity
90" Conductivity
2600


2700
2800
2900
3000
3100
3200
3300
3400
3500
3600
3700


3600
3900
4000
4100
4200
4300
4400
4500
4600
4700
4800


4900
5000
5100
5200
5300
5400
5500
5600
SP
Gamma Ray
Deep Resistivity
Shallow Resistivity
90" Conductivity
Total Depth
Gamma Ray
0 (GAPI) 150
SP (mV)
1000 90" Conductivity (mmho/m) 0
Shallow Resistivity
0 (Ohm-m) 50
Deep Resistivity
0 (Ohm-m) 50
50 Deep 500
50 Shallow 500