

# HALLIBURTON

## ARRAY COMPENSATED TRUE RESISTIVITY LOG

COMPANY	OXY USA INC.		
WELL	WIGGAINS 12-11		
FIELD/BLOCK	GOOCH		
COUNTY	STEVENS		
STATE	KANSAS		
COMPANY	OXY USA INC.	WELL	WIGGAINS 12-11
FIELD/BLOCK	GOOCH	COUNTY	STEVENS
COUNTY	STEVENS	STATE	KANSAS
API No.	15189227880000		
Location	(SHL) 330 FSL & 330' FEL		
Sect.	12	Twp.	35S
Rge.	36W		
Other Services:	DSN/SDL MICROLOG BSAT ACRT		
Permanent Datum	GL	Elev.	3012.0 ft
Log measured from	KB	D.F.	3026.0 ft
Drilling measured from	KB	G.L.	3012.0 ft

Date	17-Feb-13		
Run No.	ONE		
Depth - Driller	6850.00 ft		
Depth - Logger	6824.0 ft		
Bottom - Logged Interval	6814		
Top - Logged Interval	1816		
Casing - Driller	8.625 in @ 1819.0 ft		
Casing - Logger	1816.0 ft @		
Bit Size	7.875 in @		
Type Fluid in Hole	WATER BASED		
Density	9.2 ppg	48.00 s/qt	
PH	9.00 pH	7.6 cp/m	
Source of Sample	MUD PIT		
Rm @ Meas. Temperature	1.670 ohmm	@ 60.00 degF	@
Rmf @ Meas. Temperature	1.40 ohmm	@ 60.00 degF	@
Rmc @ Meas. Temperature	1.900 ohmm	@ 60.00 degF	@
Source Rmf	Rmc	MEASURED	MEASURED
Rm @ BHT	0.68 ohmm	@ 157.0 degF	@
Time Since Circulation	24.5 hr		
Time on Bottom	17-Feb-13 07:09		
Max. Rec. Temperature	157.0 degF	@ 6824.0 ft	@
Equipment	Location	10782954	LIBERAL
Recorded By	S. INGERSOLL		
Witnessed By	C. WYLLIE		
	AUSTIN GARNIER		

Fold here

Service Ticket No.: 900213985      API Serial No.: 15189227880000      PGM Version: WL INSITE R3.8.4 (Build 5)

CHANGE IN MUD TYPE OR ADDITIONAL SAMPLE				RESISTIVITY SCALE CHANGES			
Date	Sample No.			Type Log	Depth	Scale Up Hole	Scale Down Hole
Depth-Driller							
Type Fluid in Hole							
Density	Viscosity						
Ph	Fluid Loss						
Source of Sample				RESISTIVITY EQUIPMENT DATA			
Rm @ Meas. Temp	@		@	Run No.	Tool Type & No.	Pad Type	Tool Pos.
Rmf @ Meas. Temp.	@		@	ONE	ACRT	N/A	CENT.
Rmc @ Meas. Temp.	@		@		10929775		
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.	102811258	Serial No.	10747684	Serial No.	10685803	Serial No.	10755066
Model No.	GTET	Model No.	BSAT	Model No.	SDLT	Model No.	DSNT
Diameter	3.625"	No. of Cent.	2	Diameter	5.3"	Diameter	3.625"
Detector Model No.	GTET	Spacing	.5'	Log Type	GAM-GAM	Log Type	NEU-NEU
Type	SCINT			Source Type	CS-137	Source Type	AM-241BE
Length	8"	LSA [Y/N]		Serial No.	5073GW	Serial No.	DSN-436
Distance to Source	N/A	FWDA [Y/N]		Strength	1.5 CI	Strength	15 CI

### LOGGING DATA

GENERAL			GAMMA		ACOUSTIC		DENSITY			NEUTRON				
Run No.	Depth		Speed	Scale		Scale		Matrix	Scale		Matrix	Scale		Matrix
	From	To	ft/min	L	R	L	R		L	R		L	R	
ONE	6824	1816	REC	0	150	30	-10	47.6 us/ft	30	-10	2.71 gm/cc	30	-10	LIME

DIRECTIONAL INFORMATION

Maximum Deviation	@	KOP	@
-------------------	---	-----	---

Remarks: ANNULAR HOLE VOLUME CACLULATED FOR 5.5 INCH CASING.

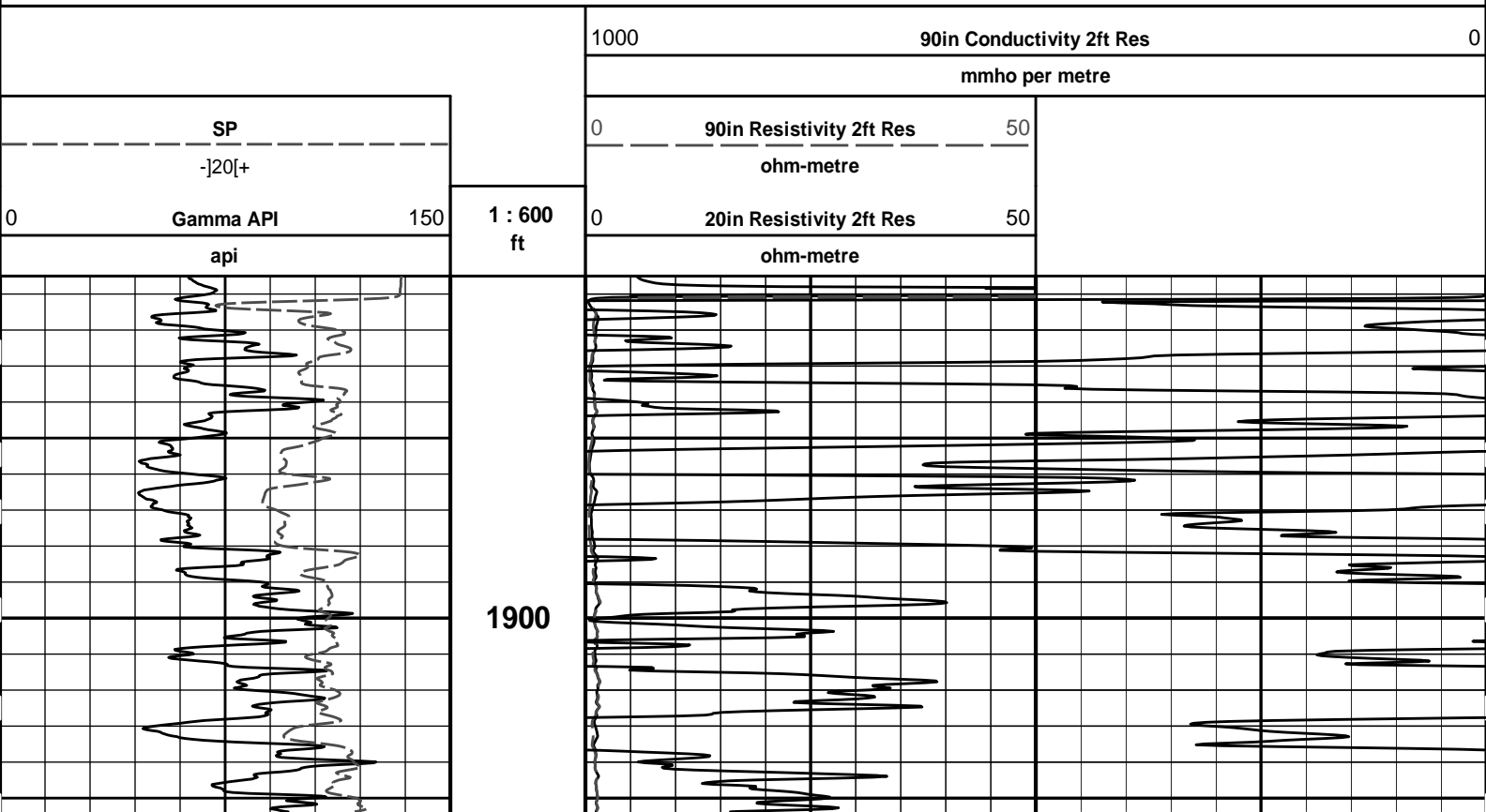
HALLIBURTON DOES NOT GUARANTEE THE ACCURACY OF ANY INTERPRETATION OF THE LOG DATA, CONVERSION OF LOG DATA TO PHYSICAL ROCK PARAMETERS OR RECOMMENDATIONS WHICH MAY BE GIVEN BY HALLIBURTON PERSONNEL OR WHICH APPEAR ON THE LOG OR IN ANY OTHER FORM. ANY USER OF SUCH DATA, INTERPRETATIONS, CONVERSIONS, OR RECOMMENDATIONS AGREES THAT HALLIBURTON IS NOT RESPONSIBLE EXCEPT WHERE DUE TO GROSS NEGLIGENCE OR WILLFUL MISCONDUCT, FOR ANY LOSS, DAMAGES, OR EXPENSES RESULTING FROM THE USE THEREOF.

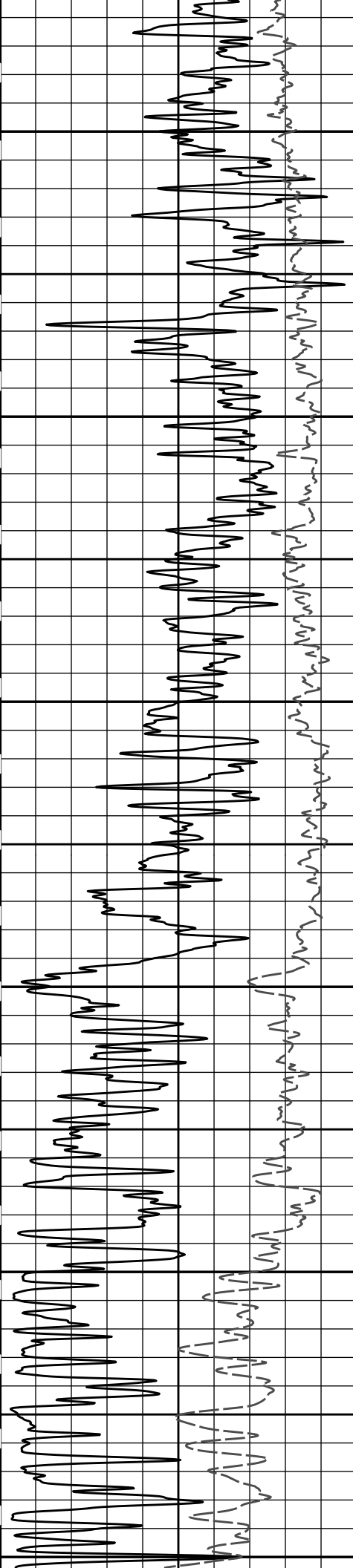
HALLIBURTON



Plot Time: 17-Feb-13 11:30:28  
 Plot Range: 1805 ft to 6829.33 ft  
 Data: WIGGAINS\_12-11\Well Based\WIGGAINS\_CASING\_PASS\  
 Plot File: \\-LOCAL-WIGGAINS\_12-11\Well Based\ACRT\ACRT\_2\_lib

## 2 INCH MAIN LOG





2000

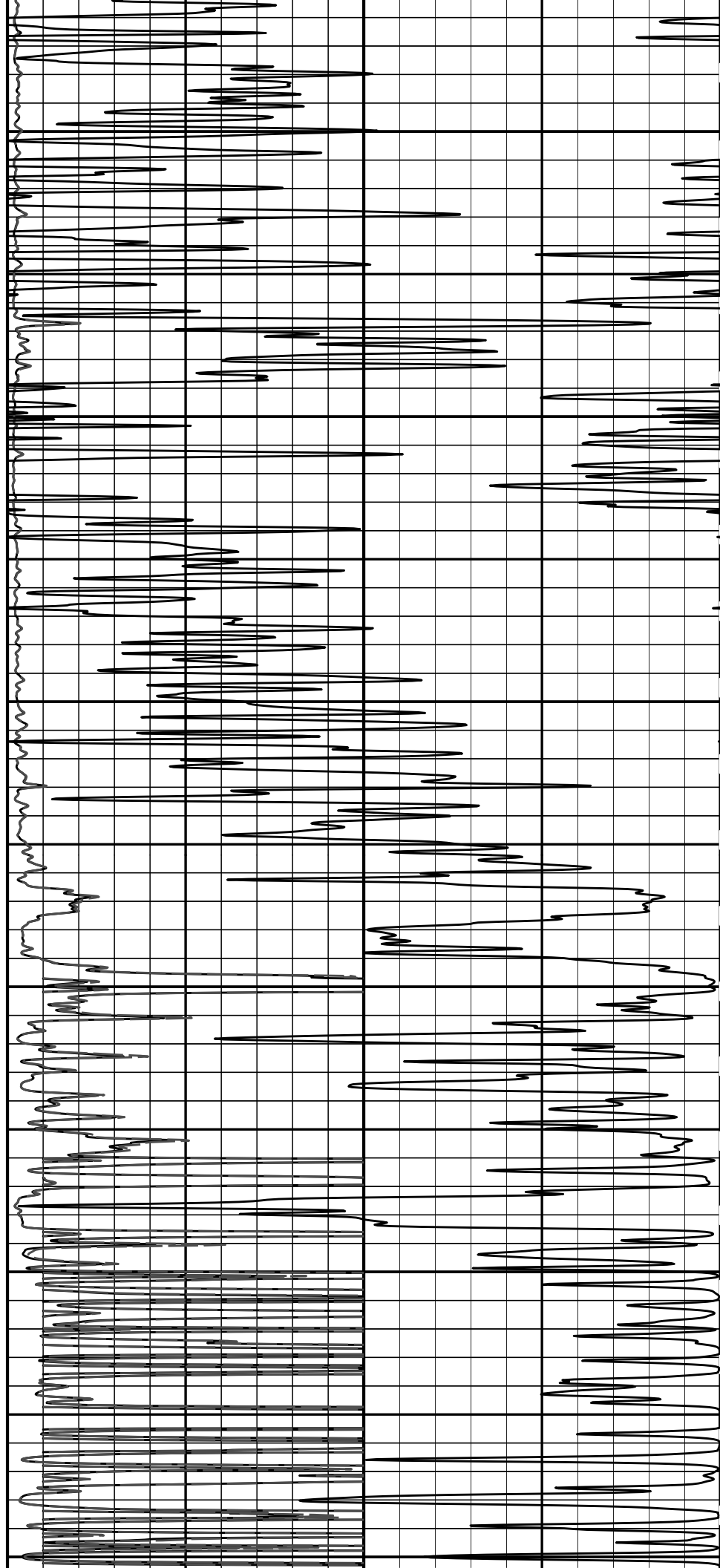
2100

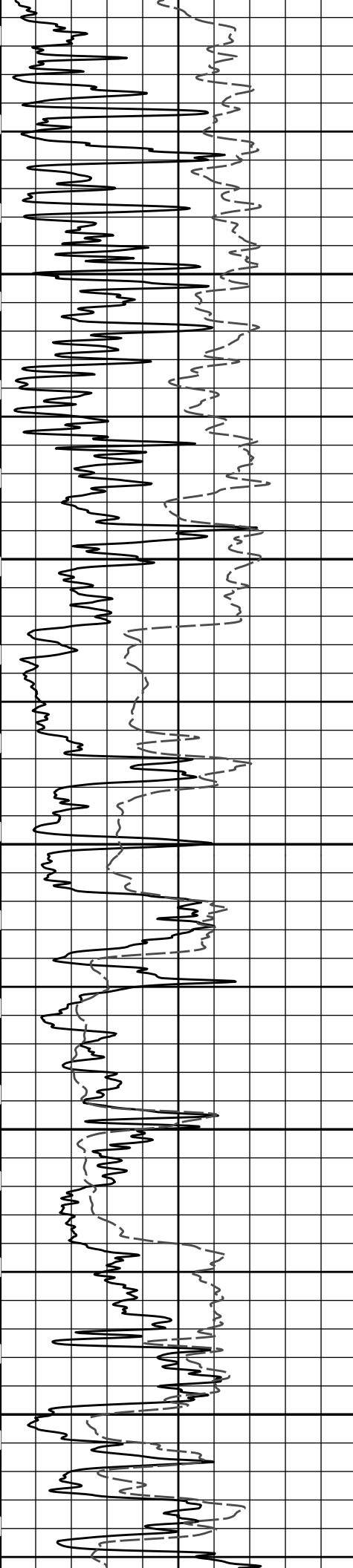
2200

2300

2400

2500





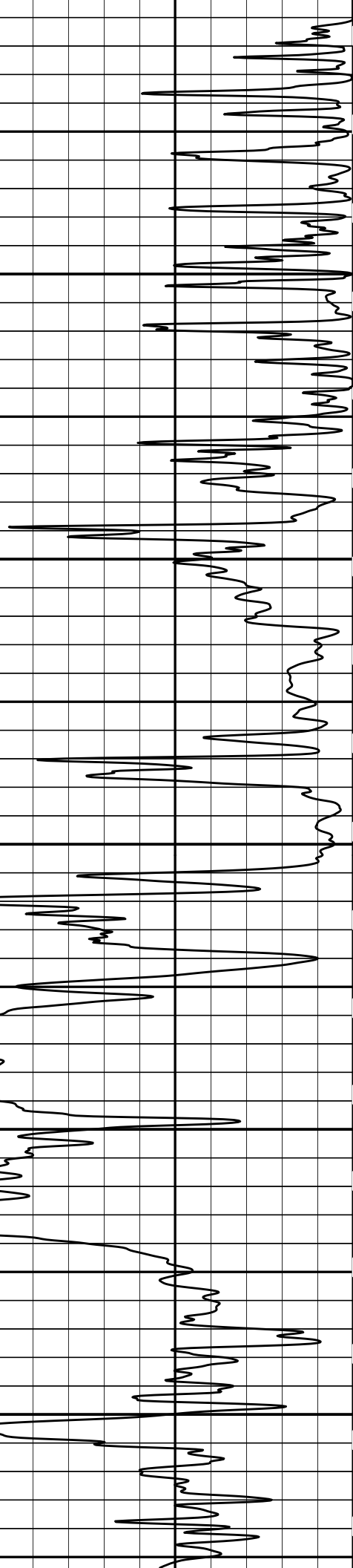
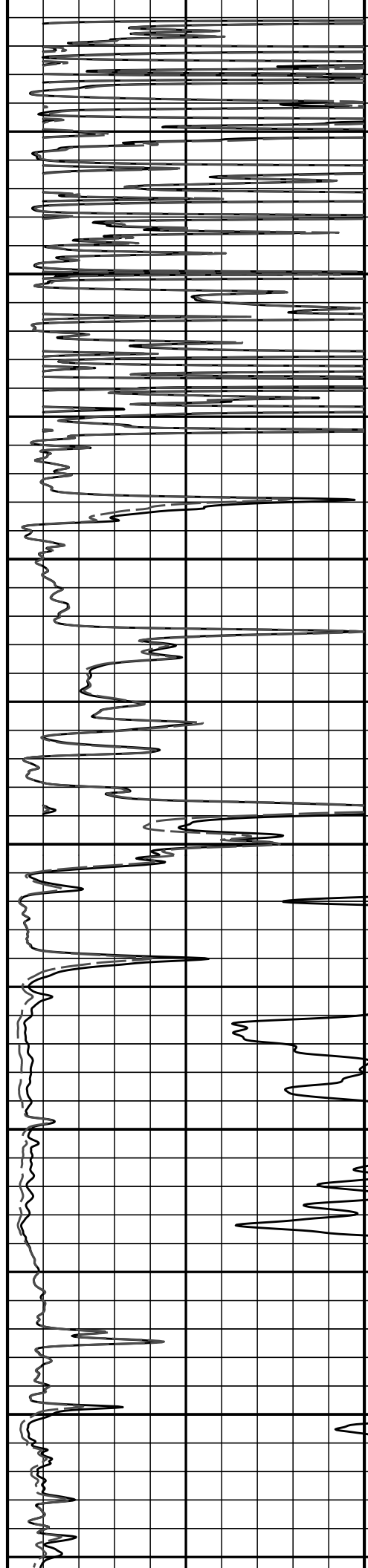
2600

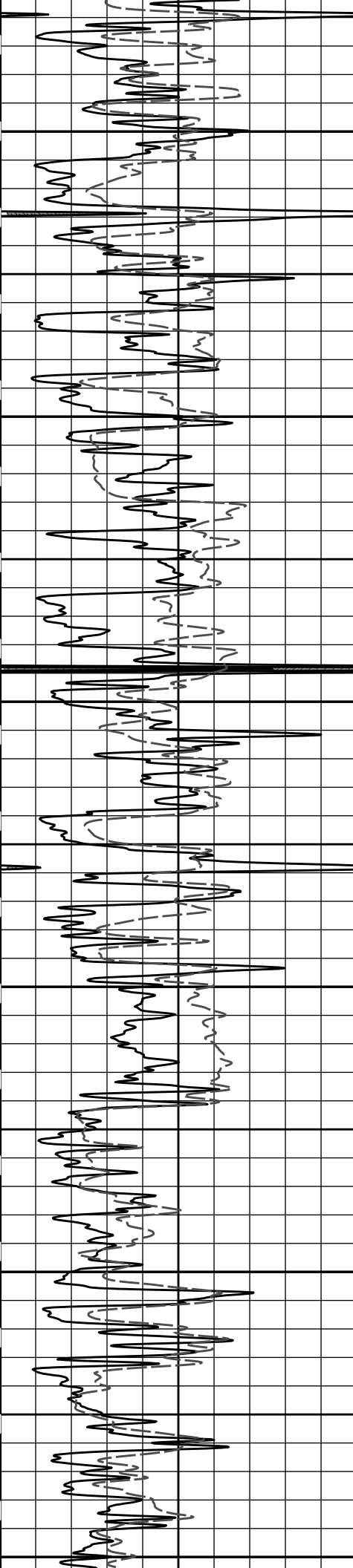
2700

2800

2900

3000





3100

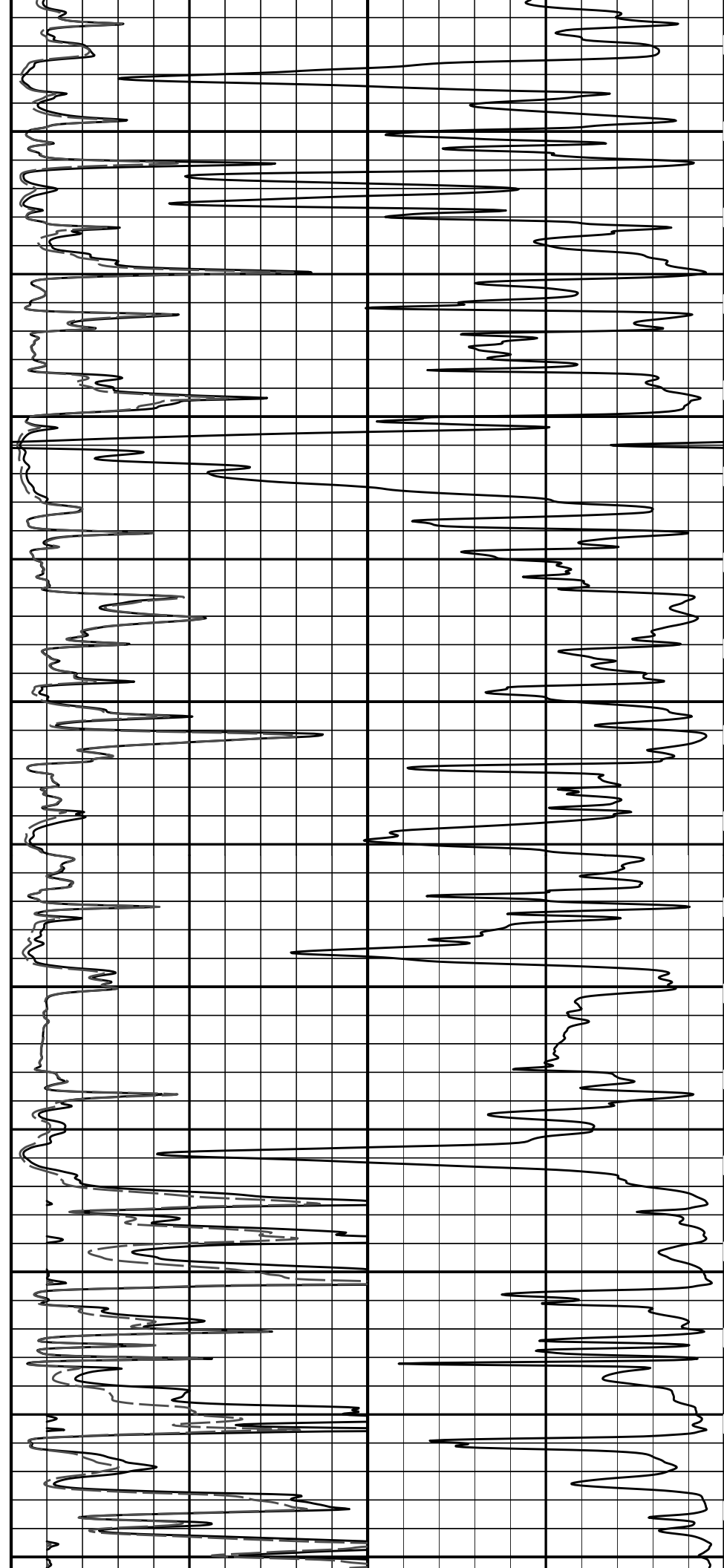
3200

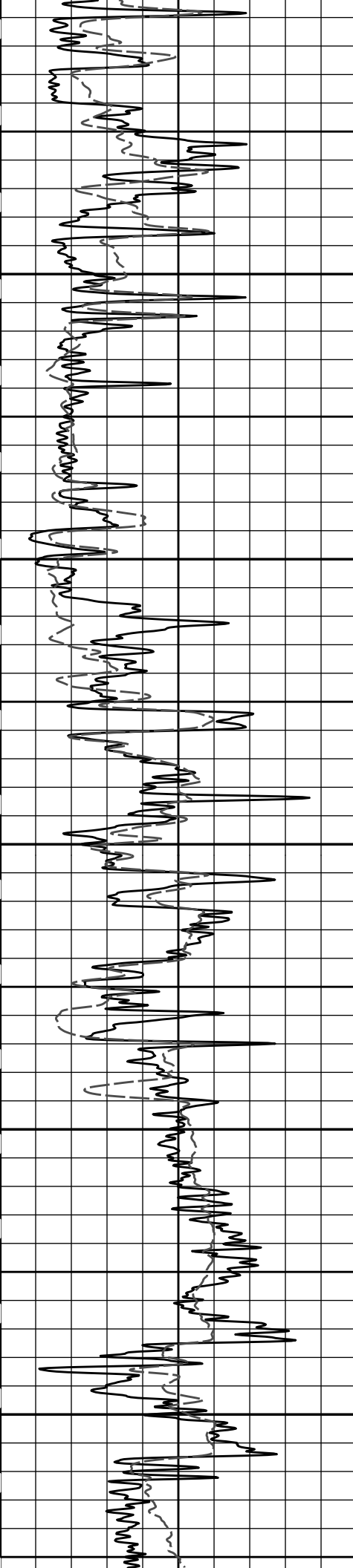
3300

3400

3500

3600





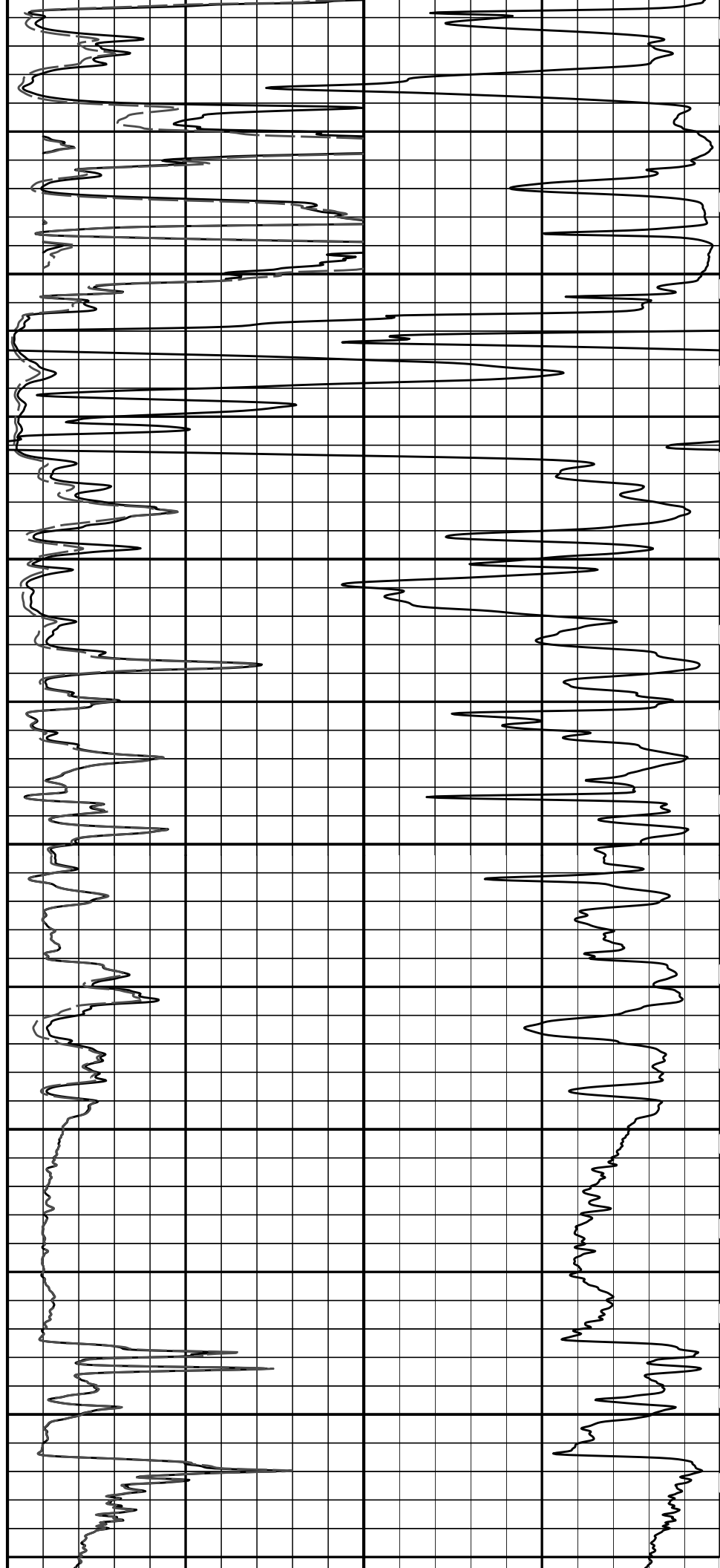
3700

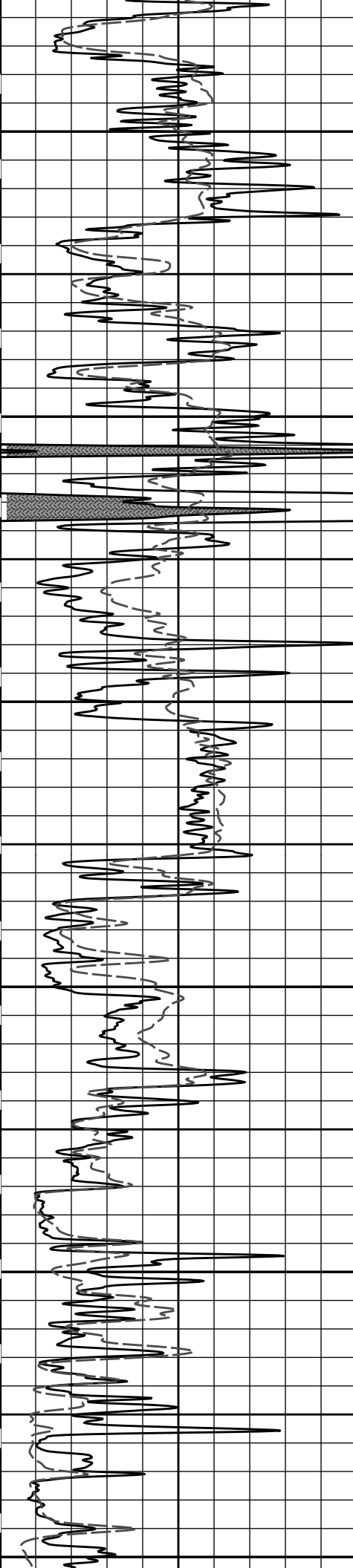
3800

3900

4000

4100





4200

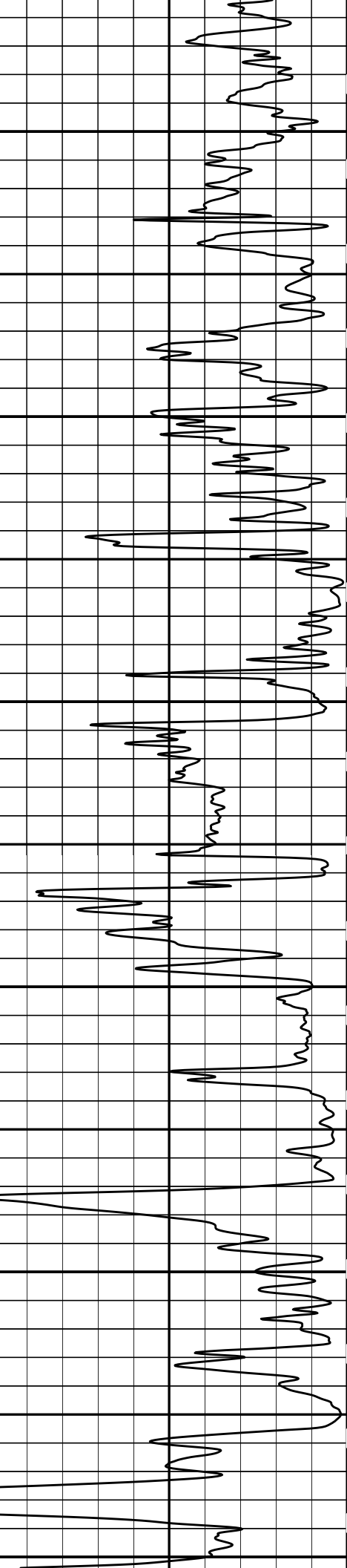
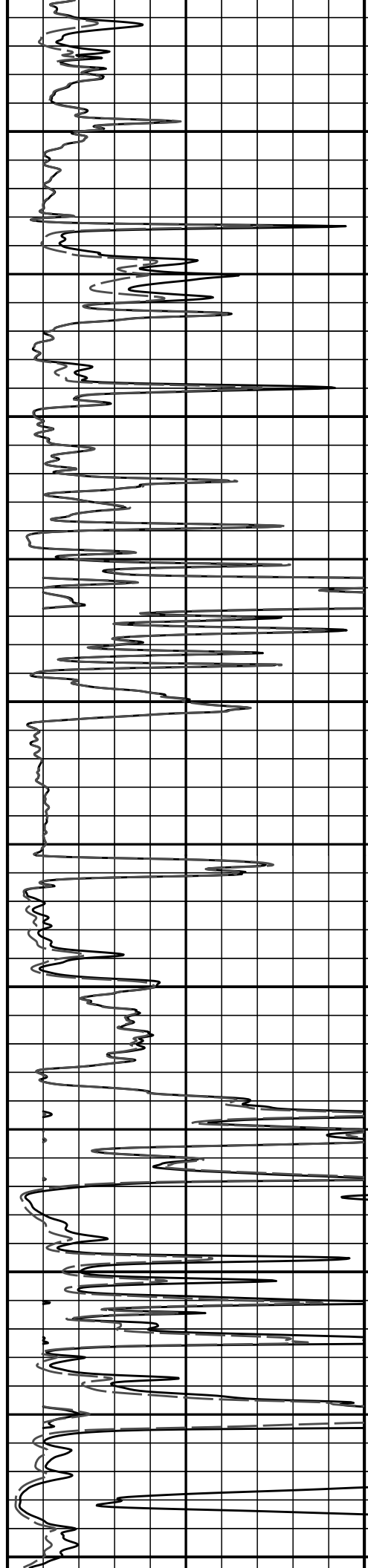
4300

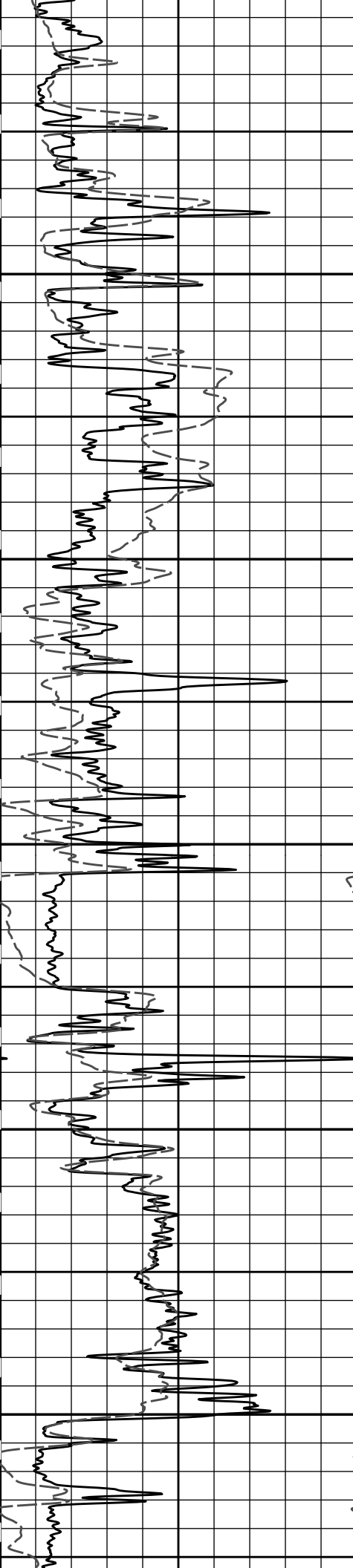
4400

4500

4600

4700





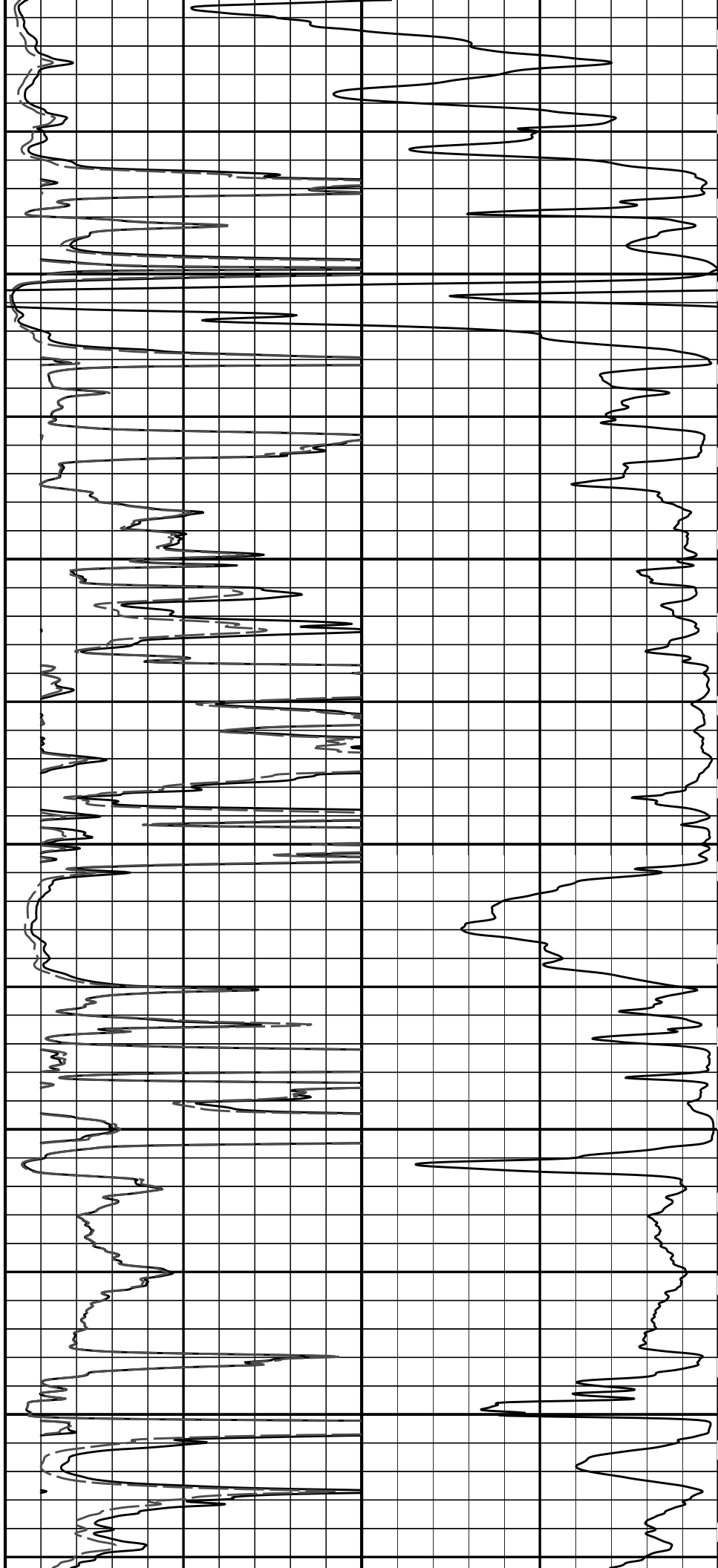
4800

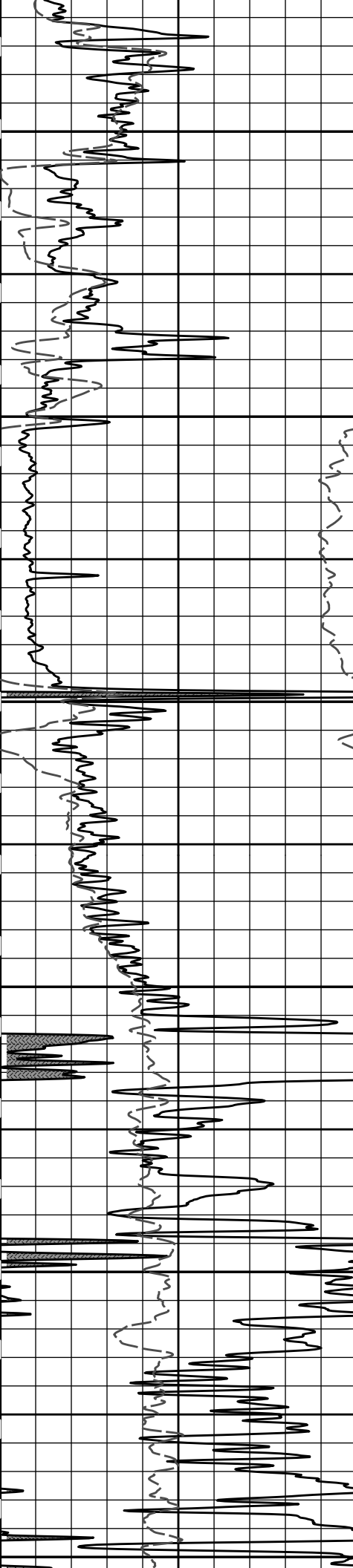
4900

5000

5100

5200





5300

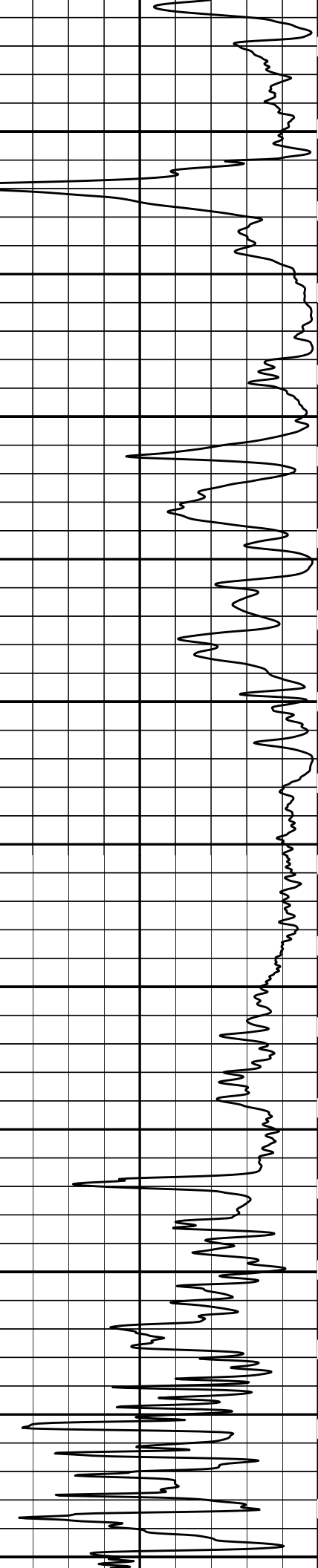
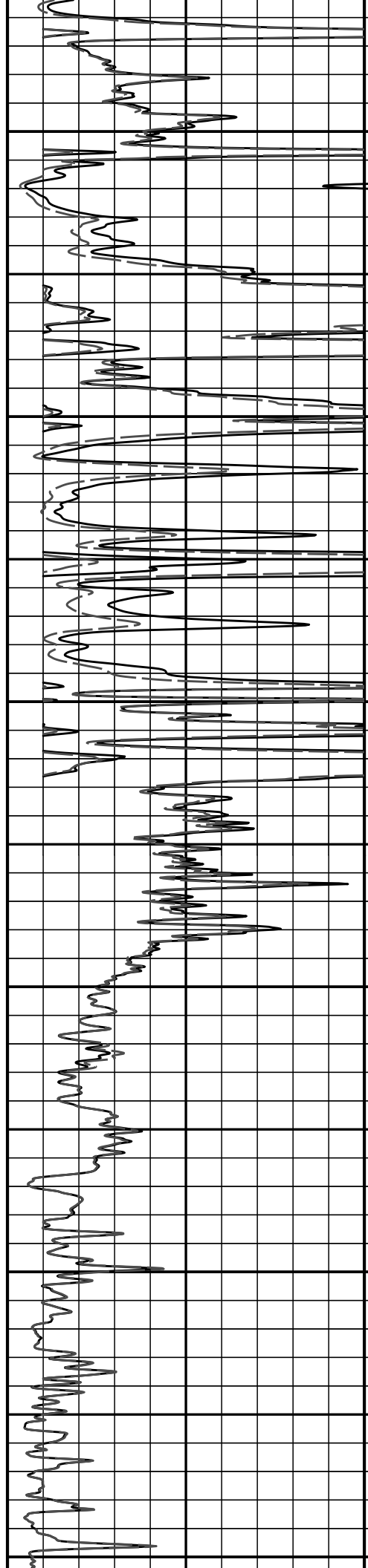
5400

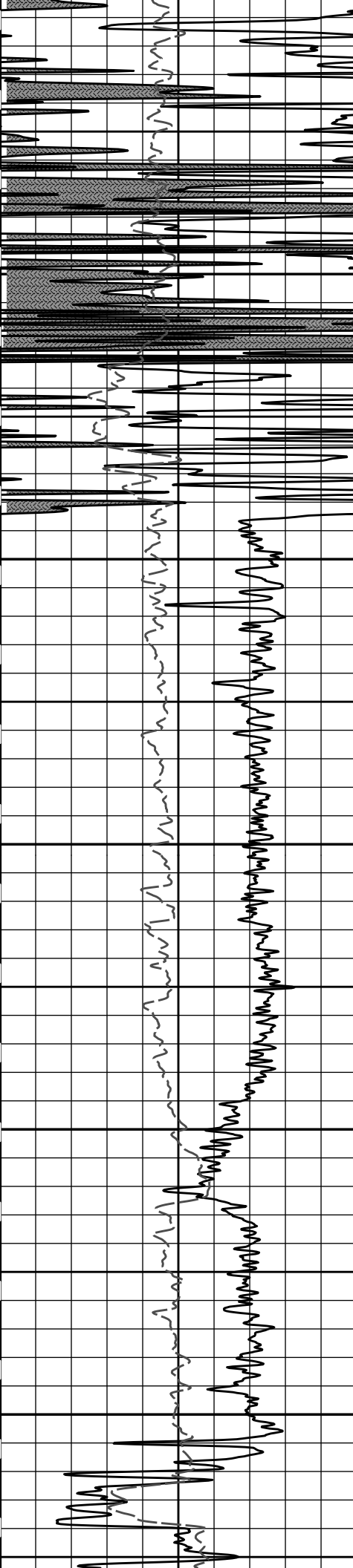
5500

5600

5700

5800





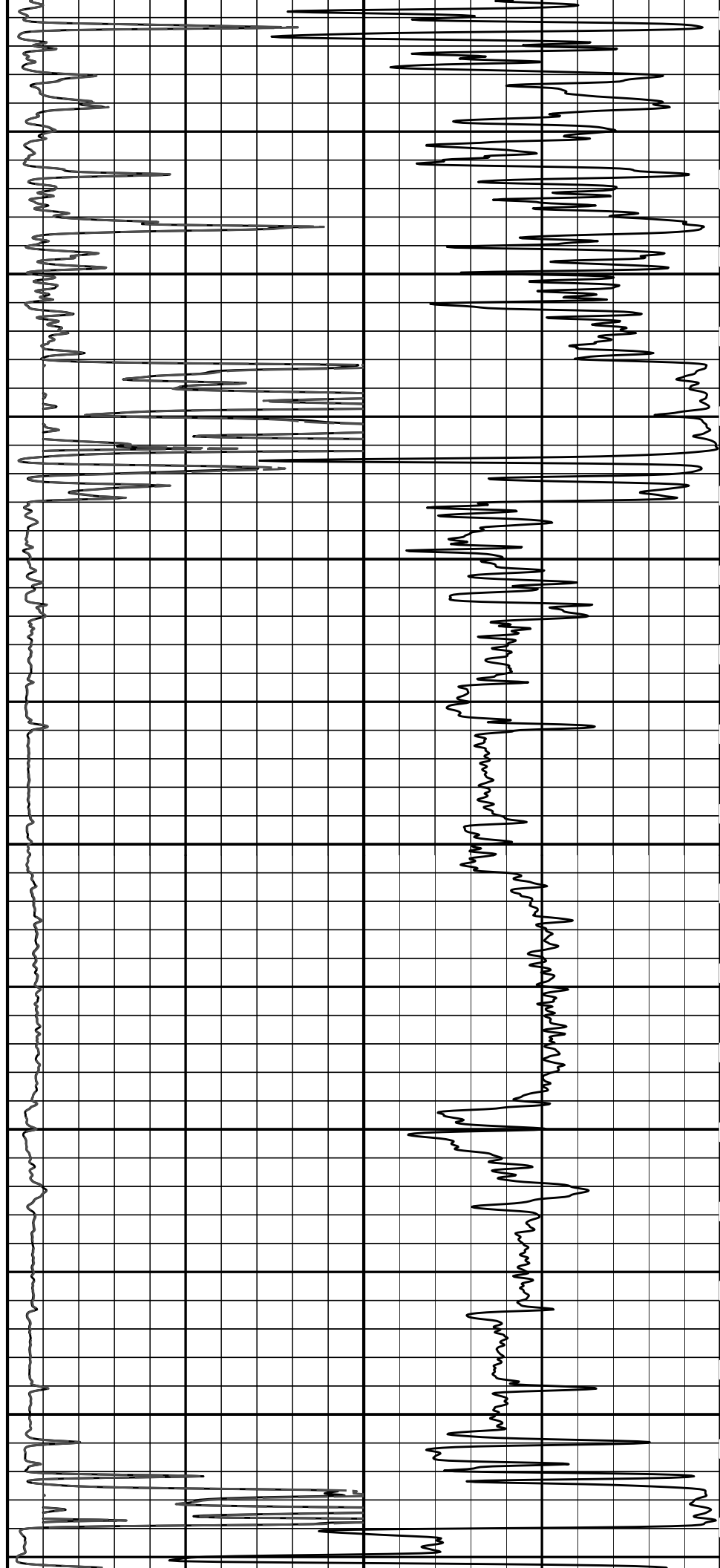
5900

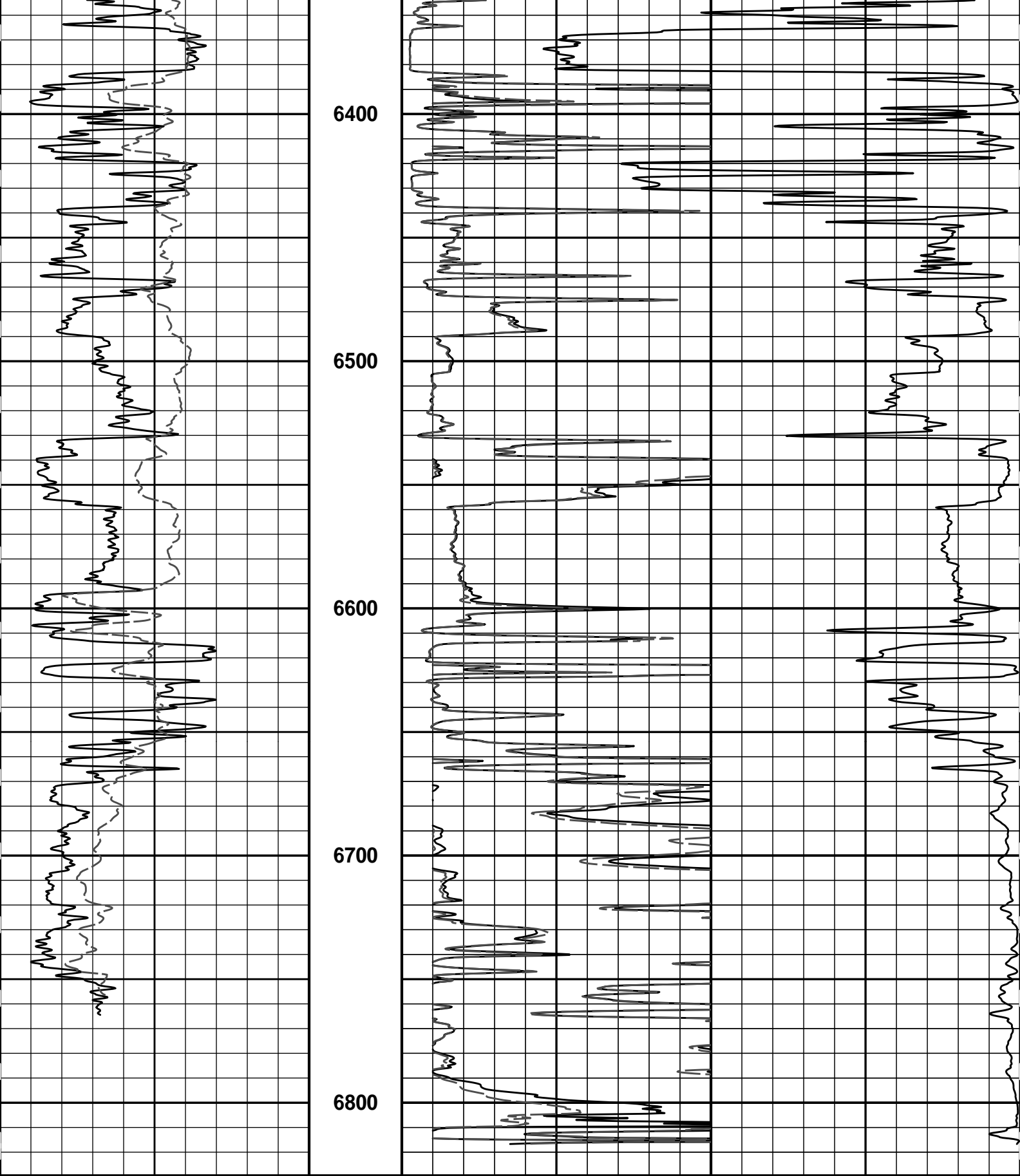
6000

6100

6200

6300





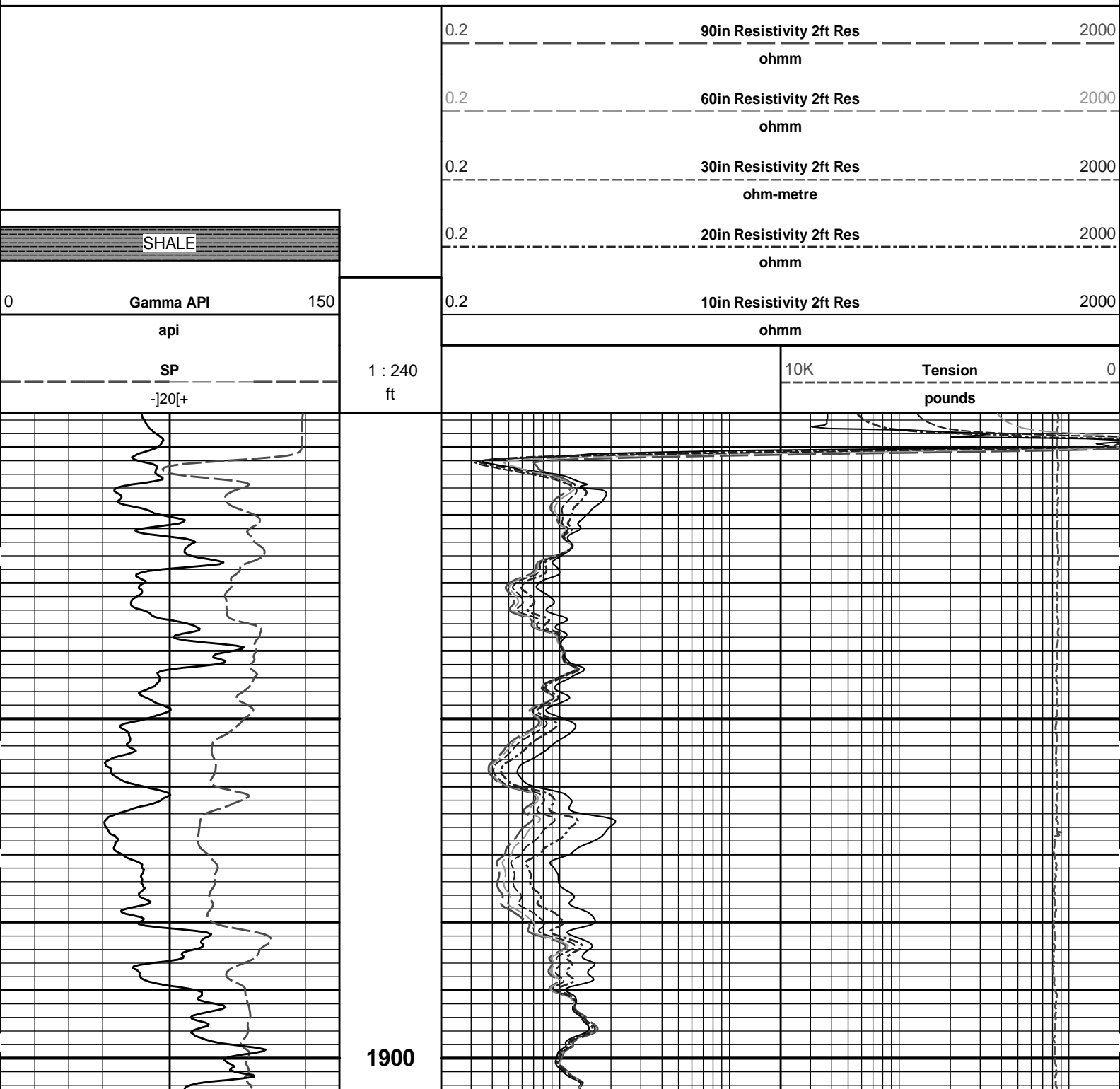
0	Gamma API	150
	api	
	SP	
	- 20 +	

1 : 600	ft	
0	20in Resistivity 2ft Res	50
	ohm-metre	
0	90in Resistivity 2ft Res	50
	ohm-metre	

1000	90in Conductivity 2ft Res	0
	mmho per metre	

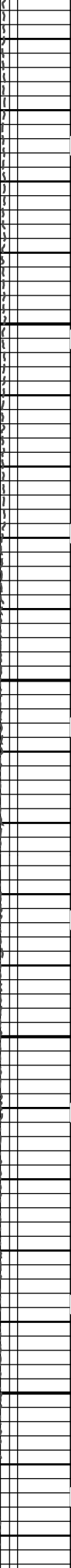
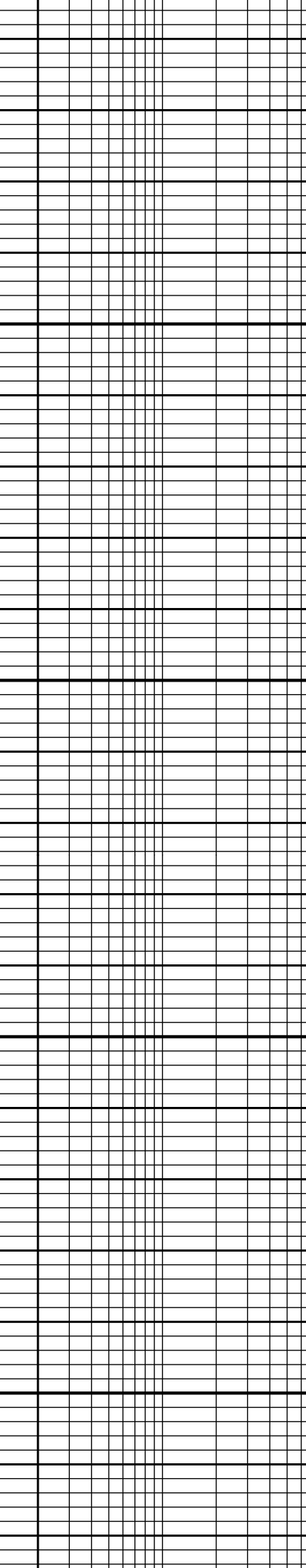
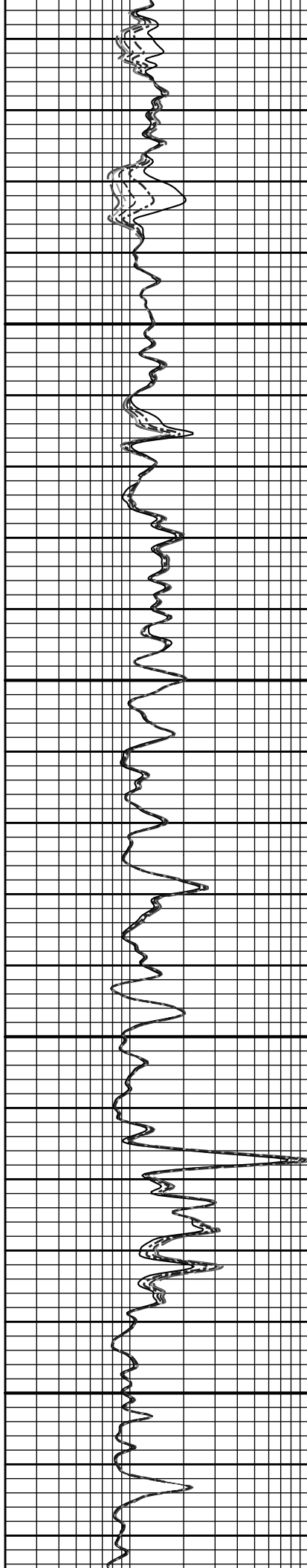
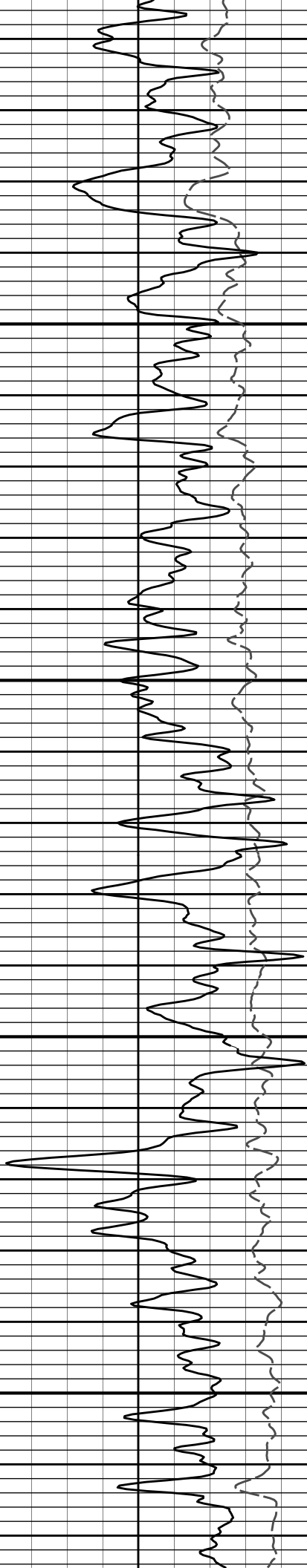
### 2 INCH MAIN LOG

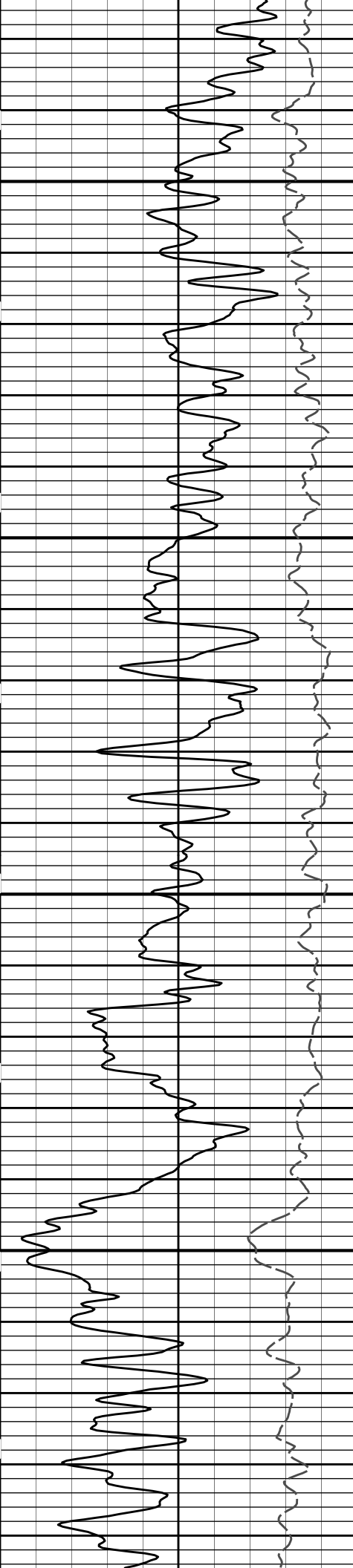
### 5 INCH MAIN LOG



2000

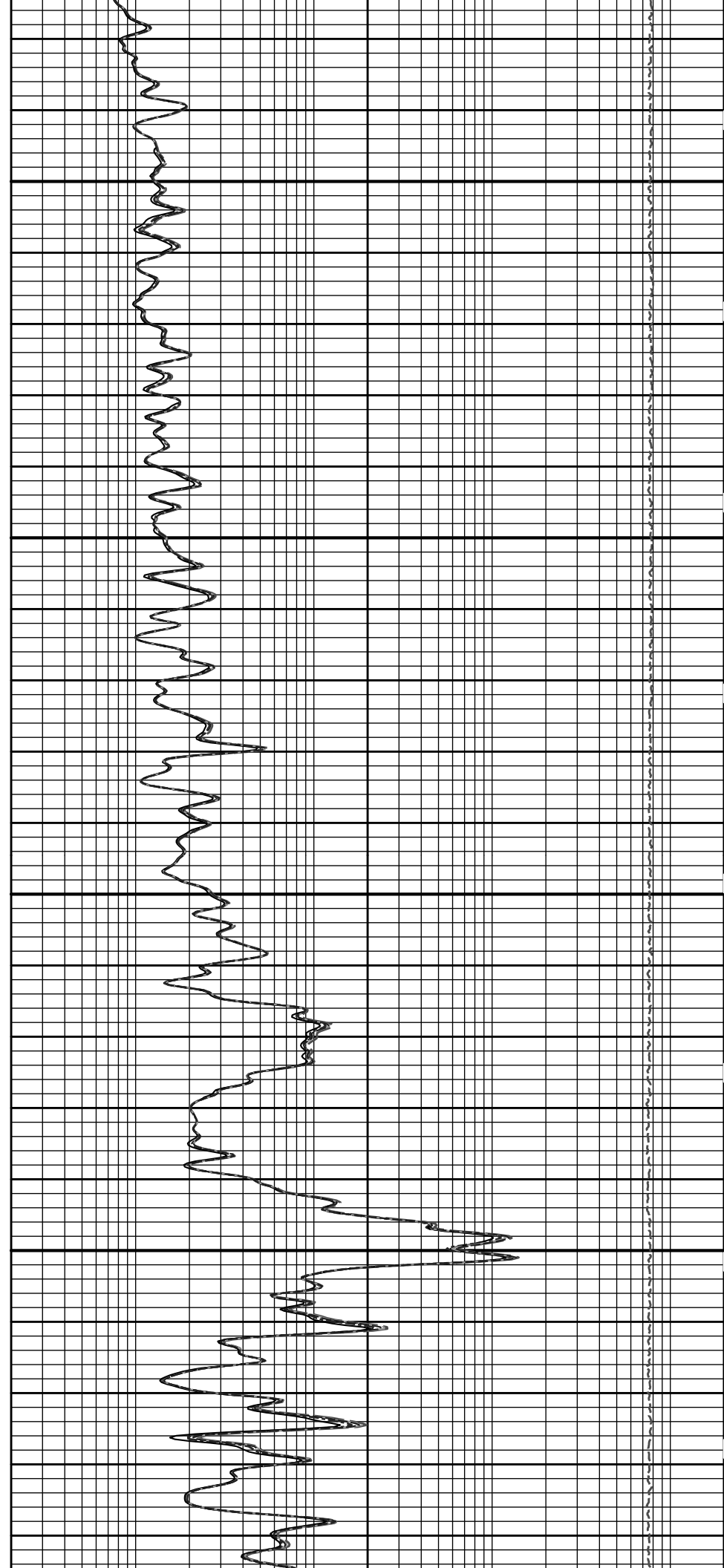
2100

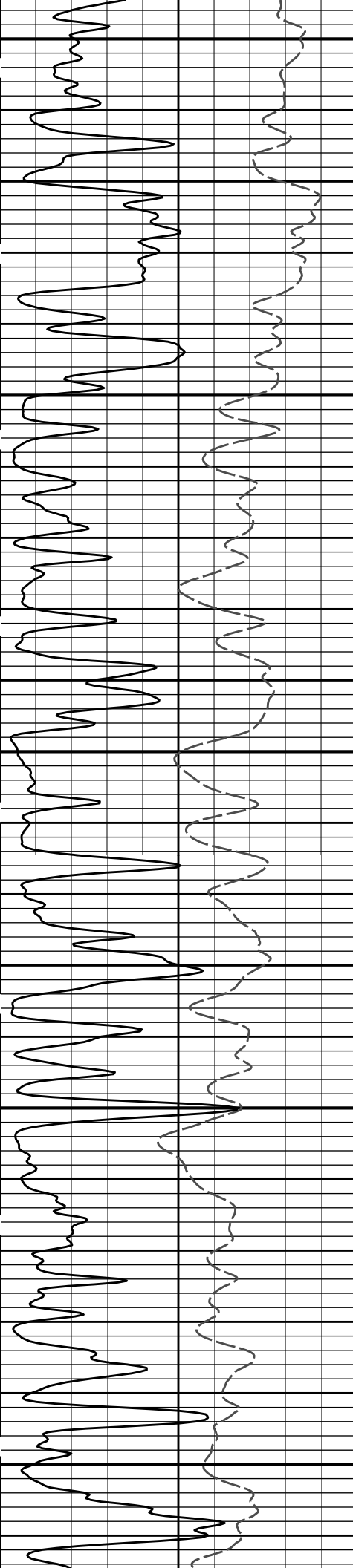




2200

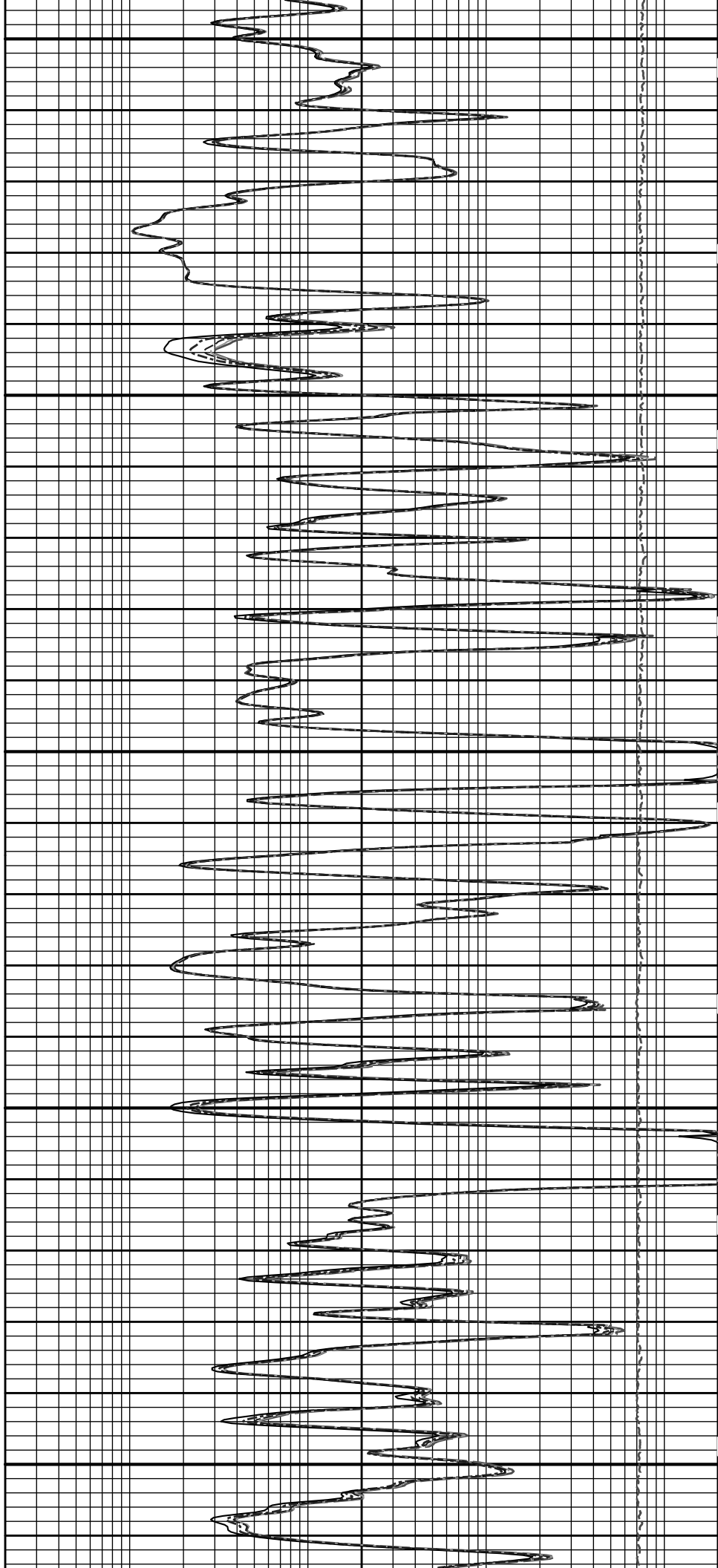
2300

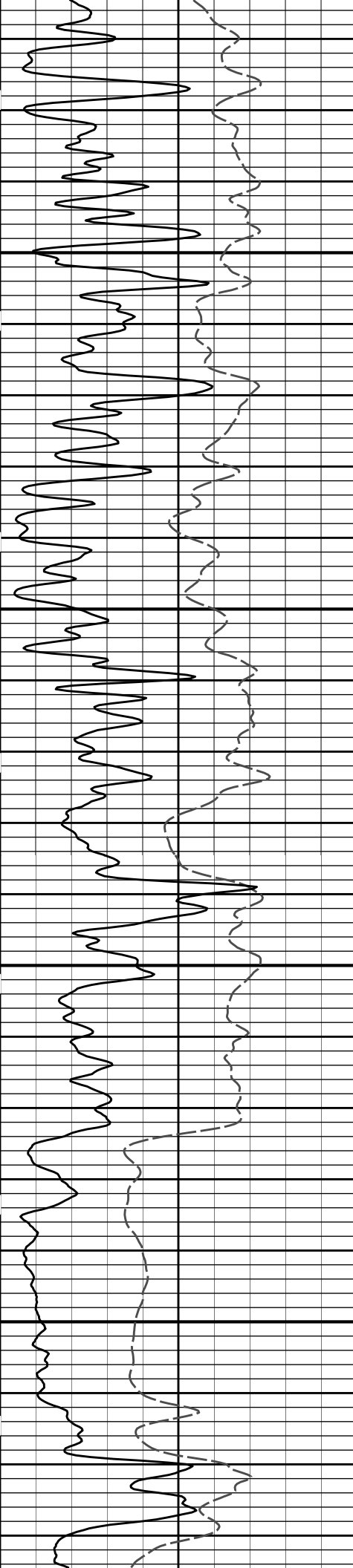




2400

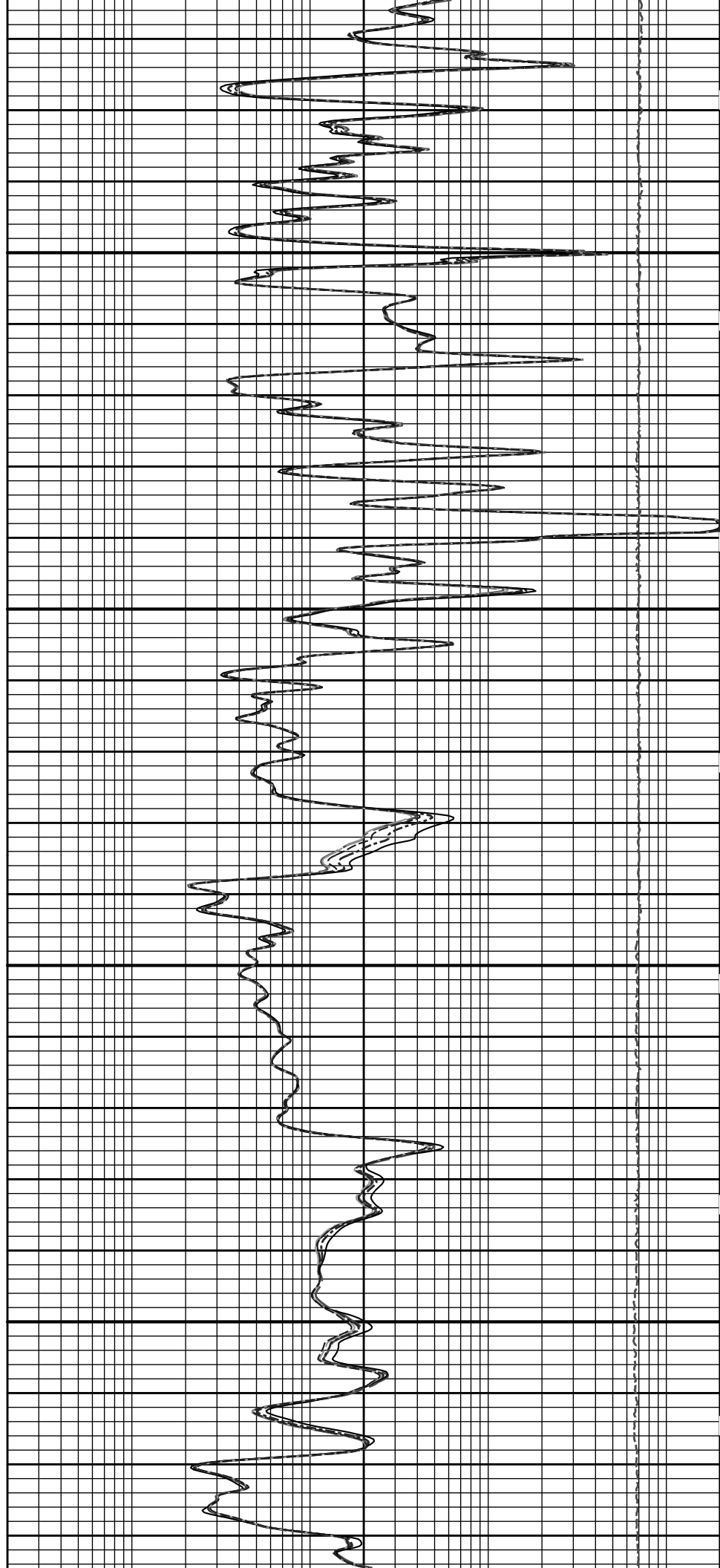
2500

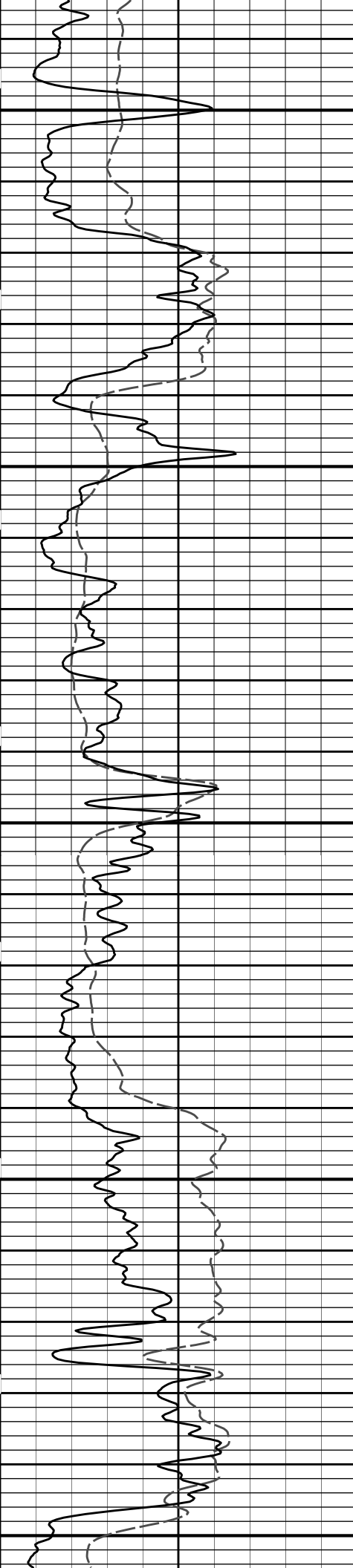




2600

2700

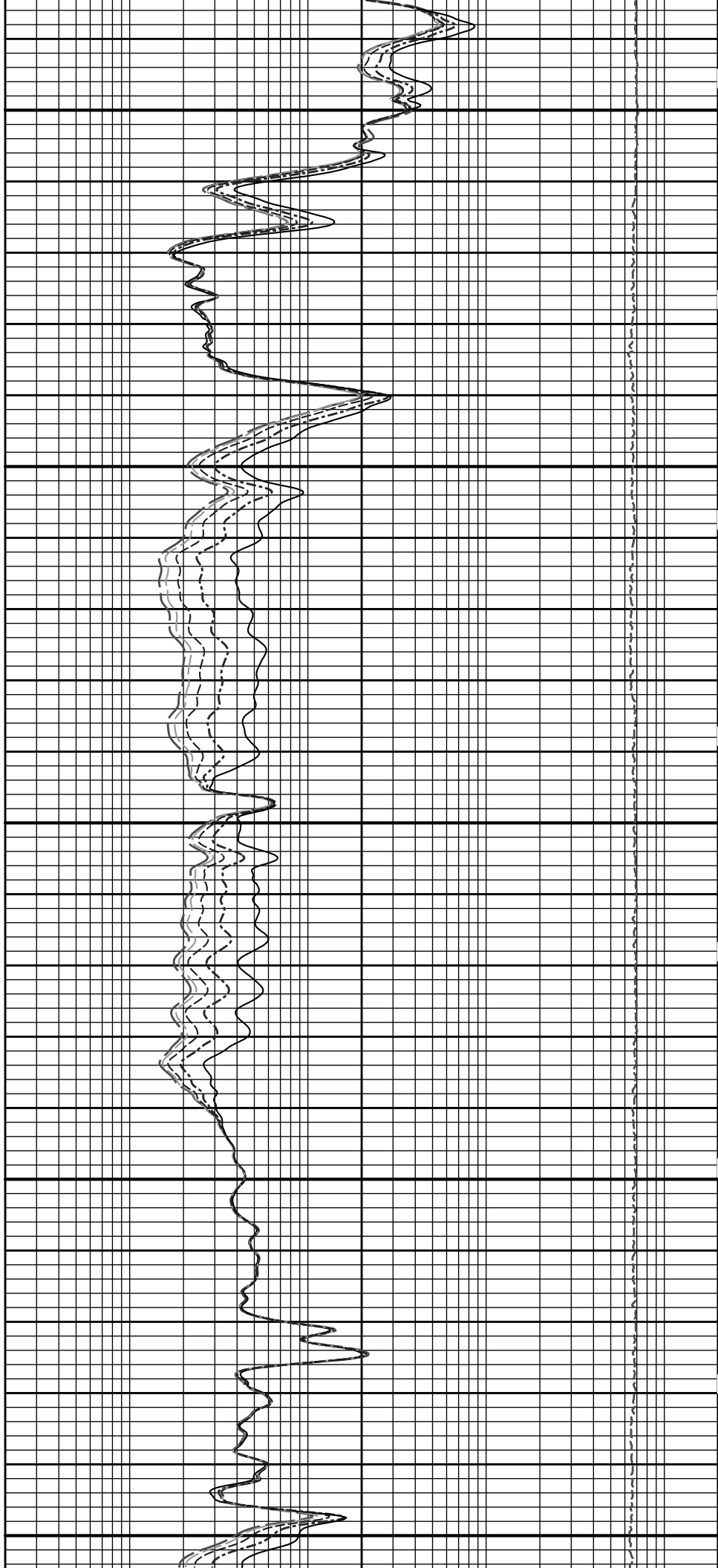


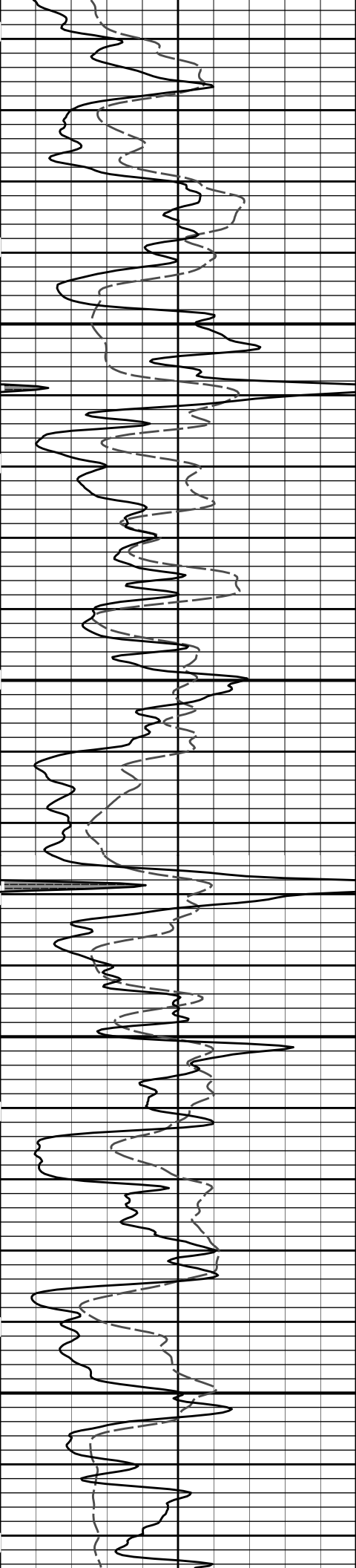


2800

2900

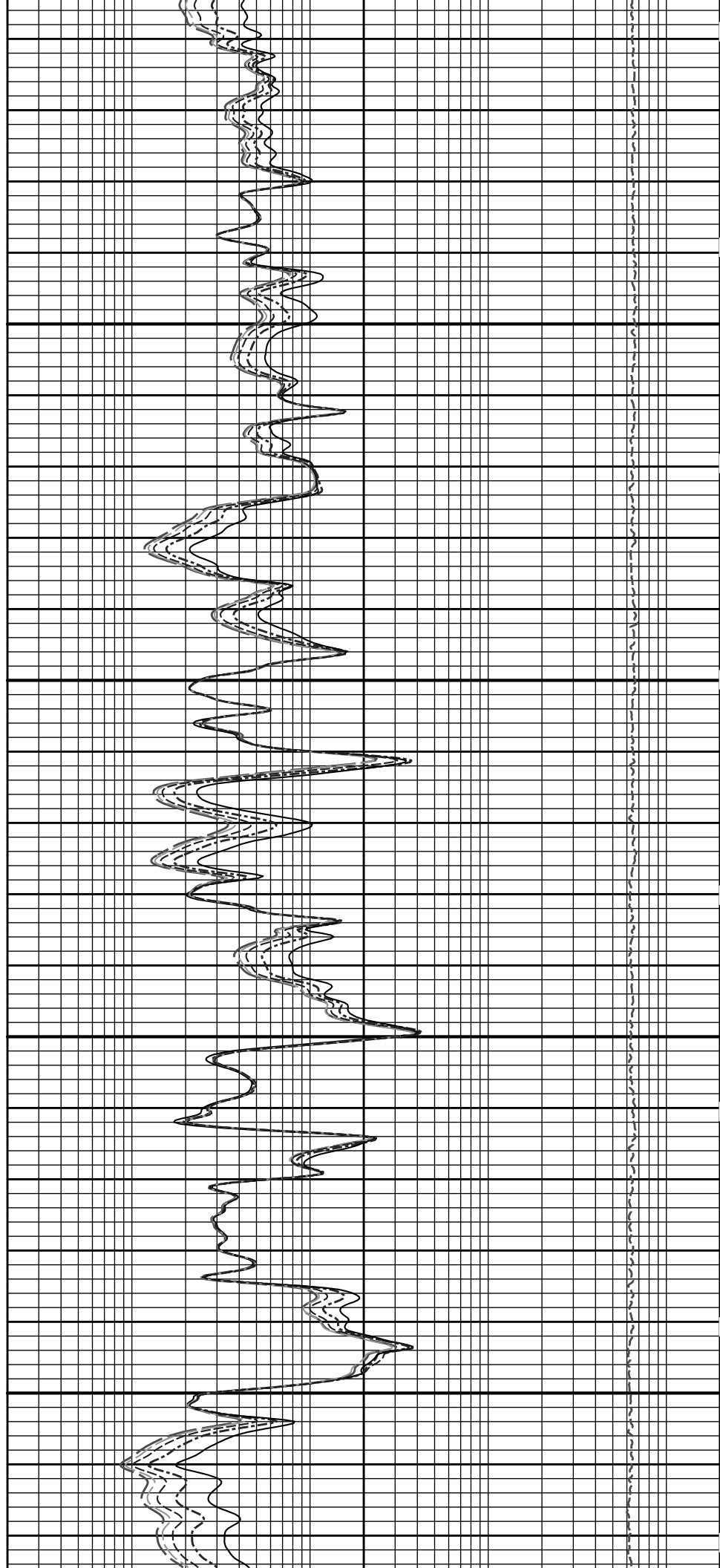
3000

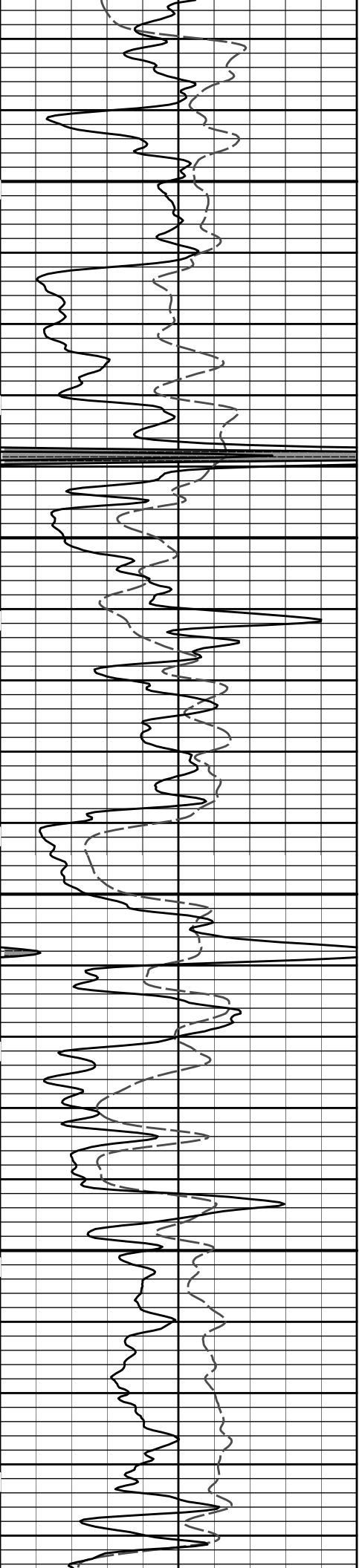




3100

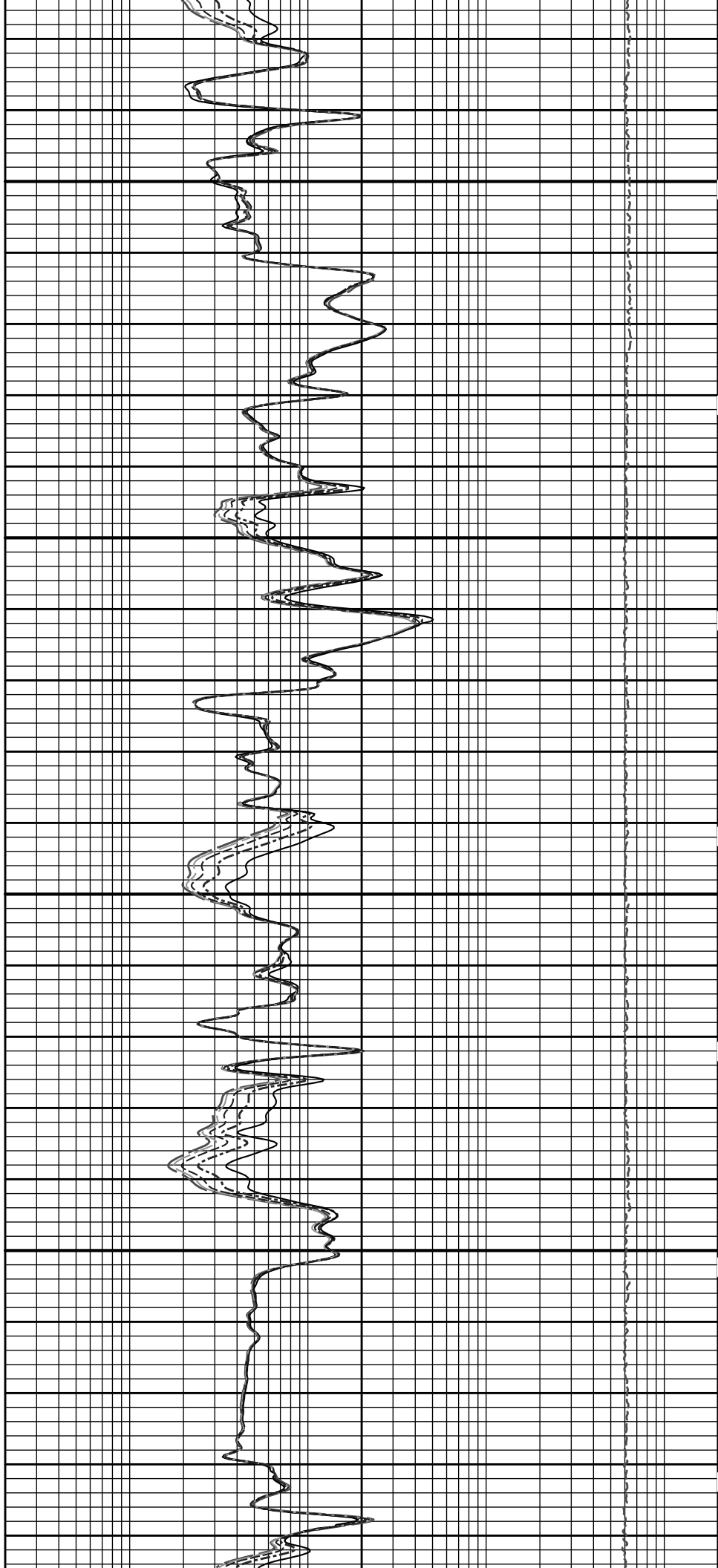
3200

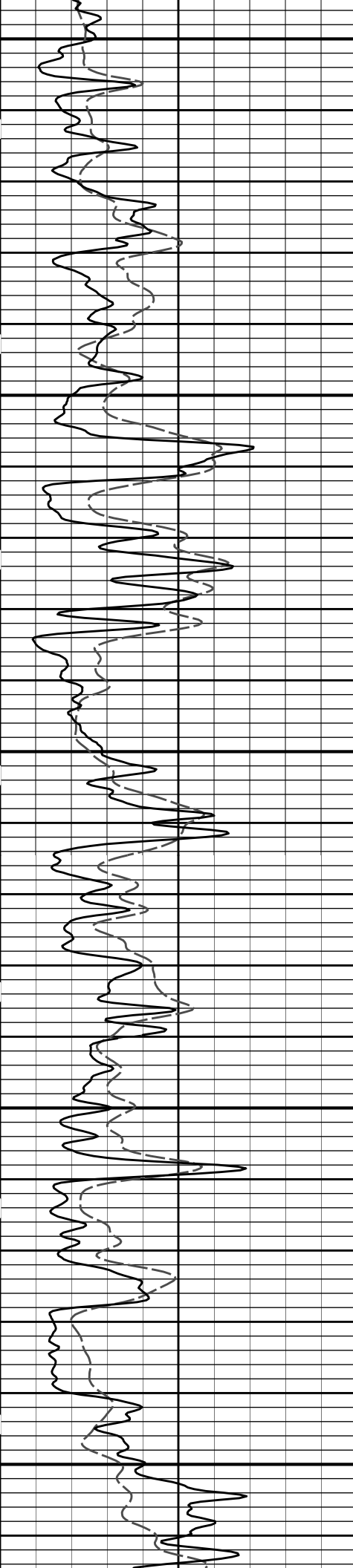




3300

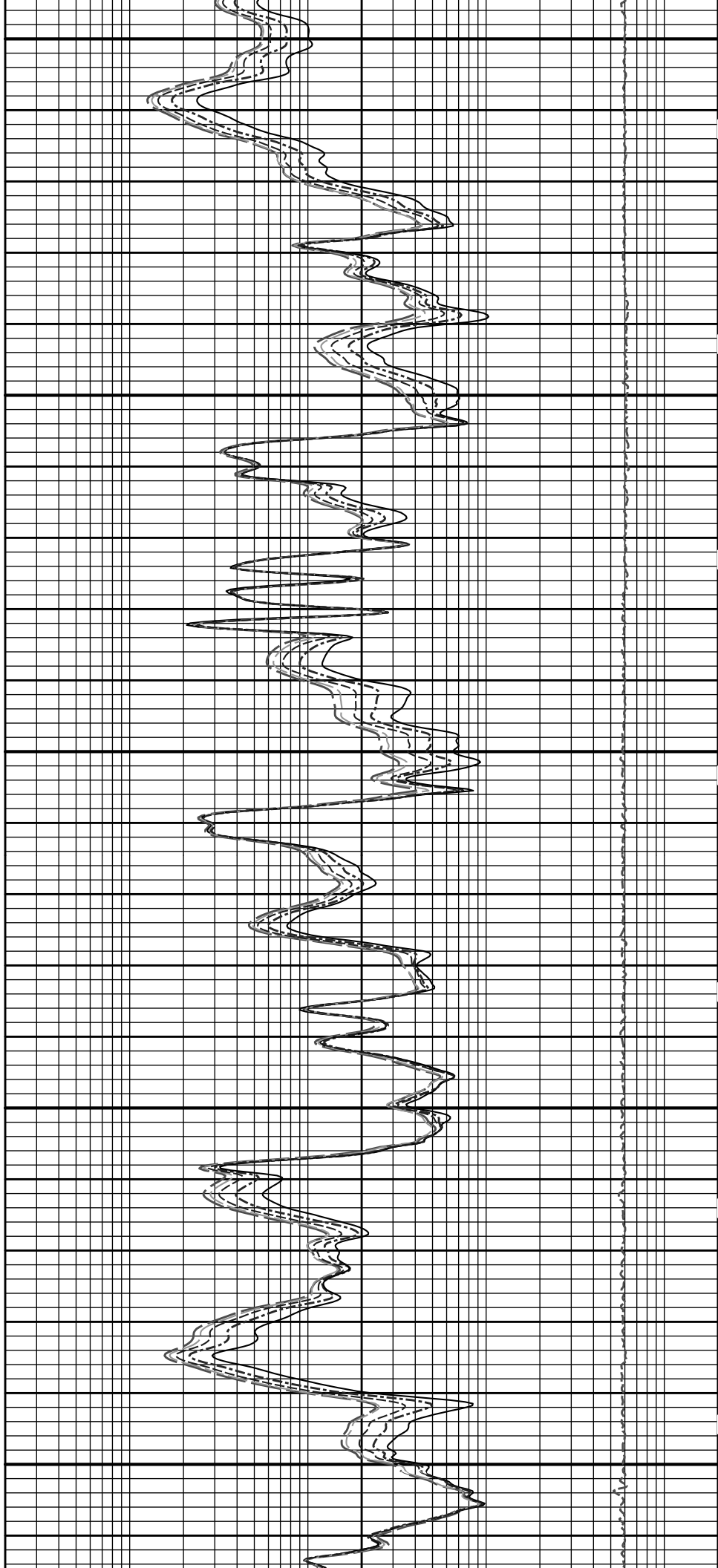
3400

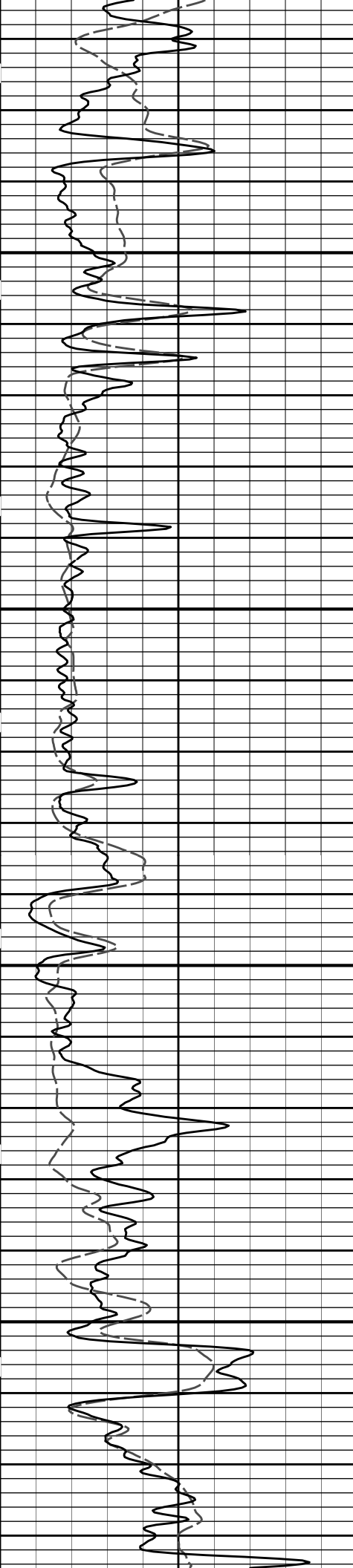




3500

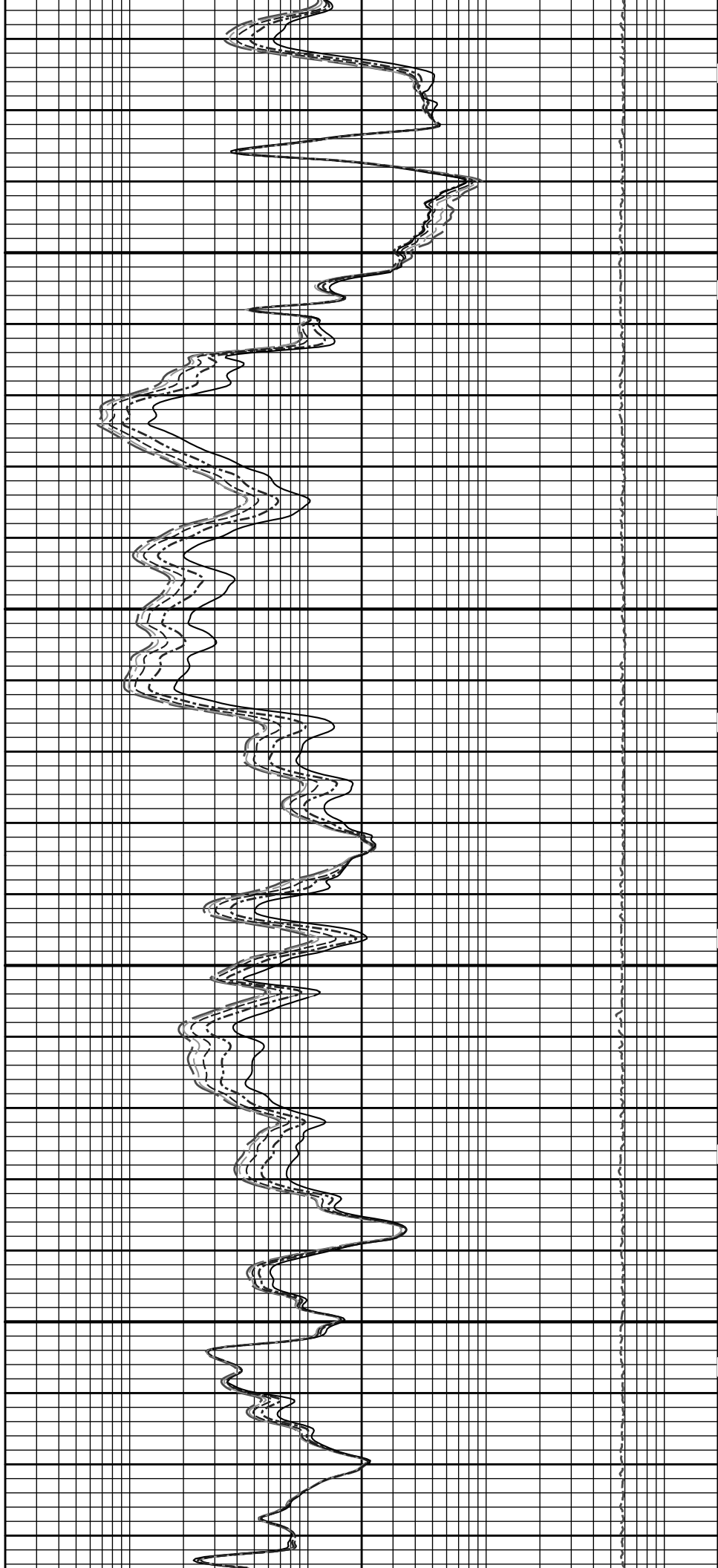
3600

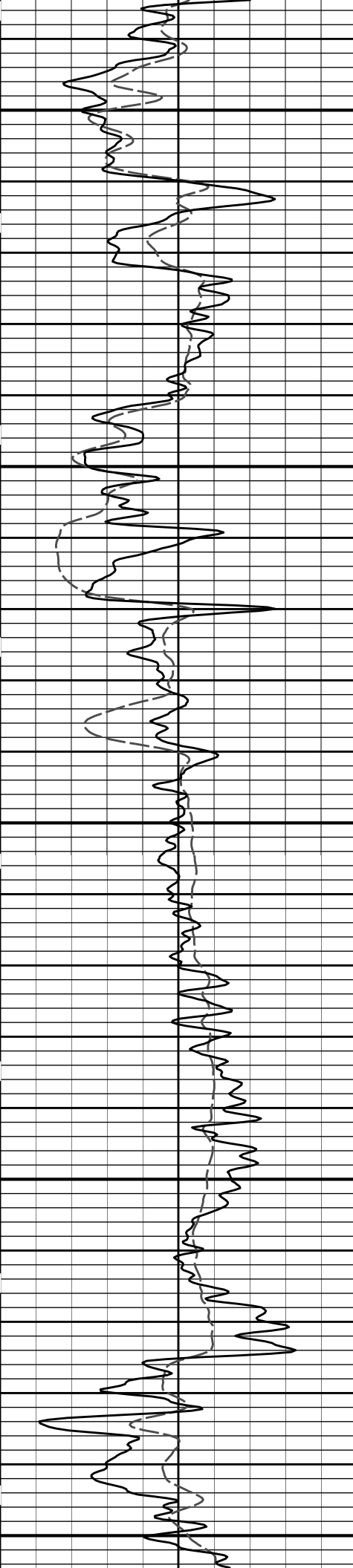




3700

3800

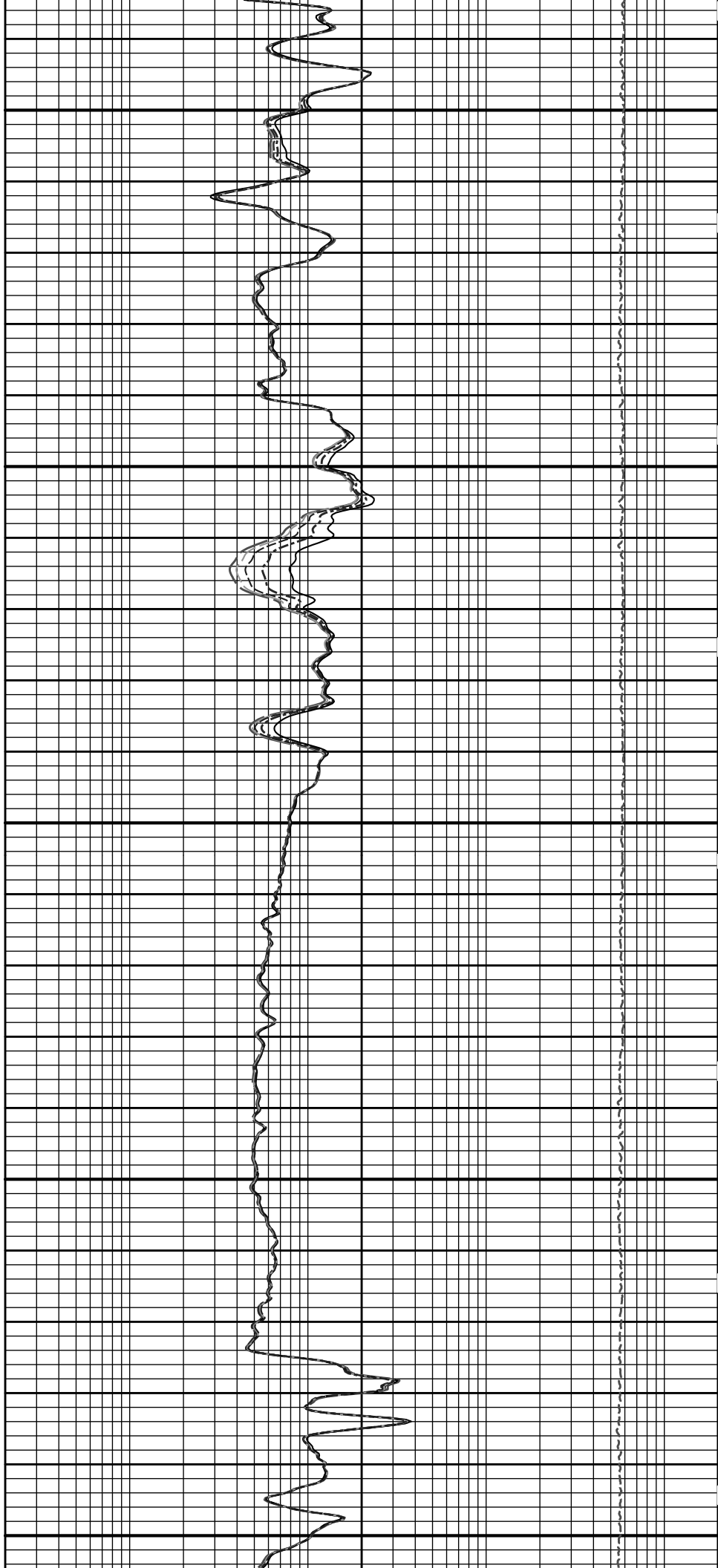


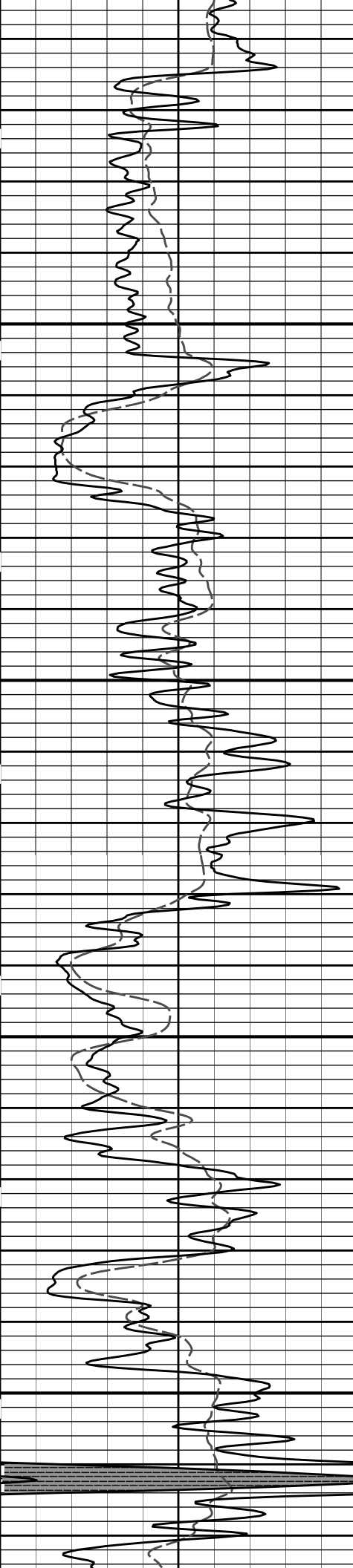


3900

4000

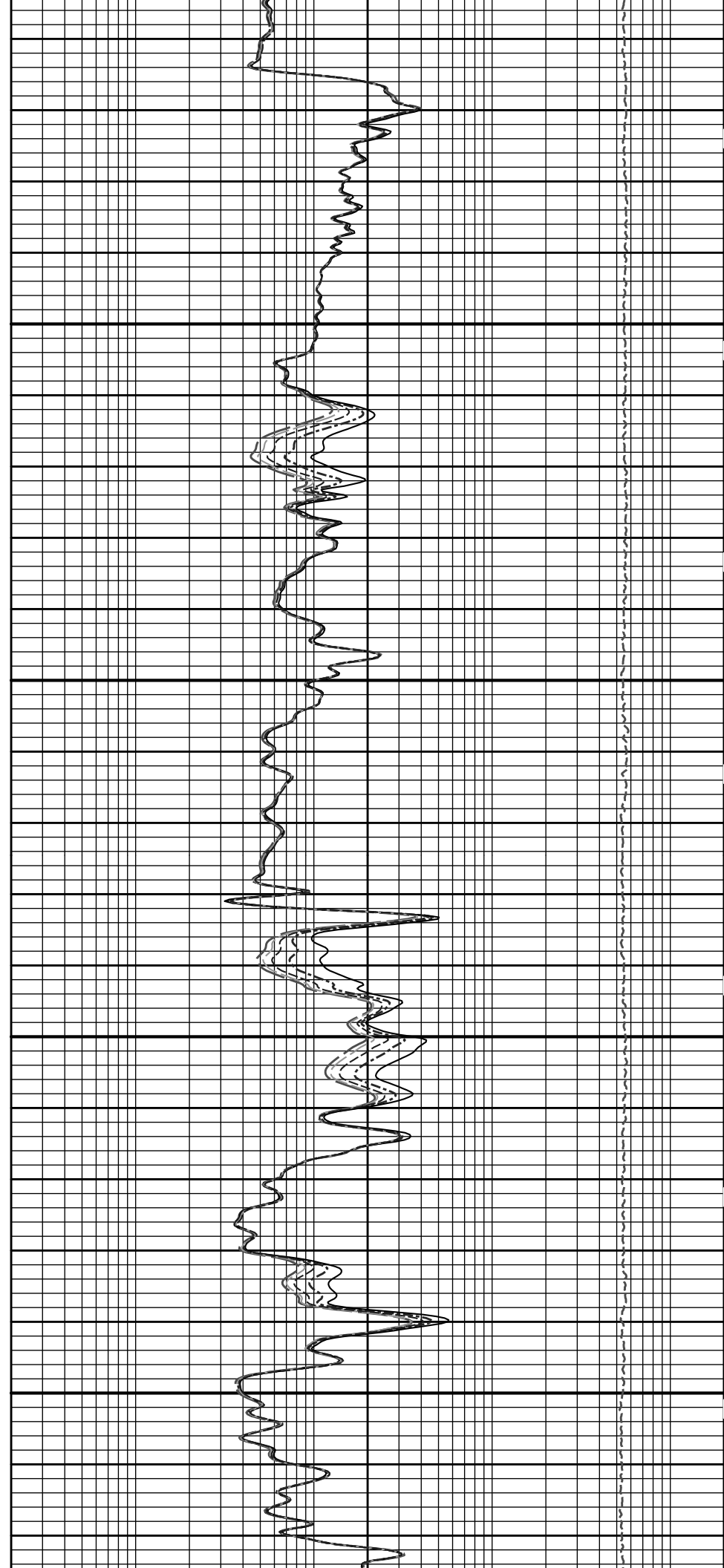
4100

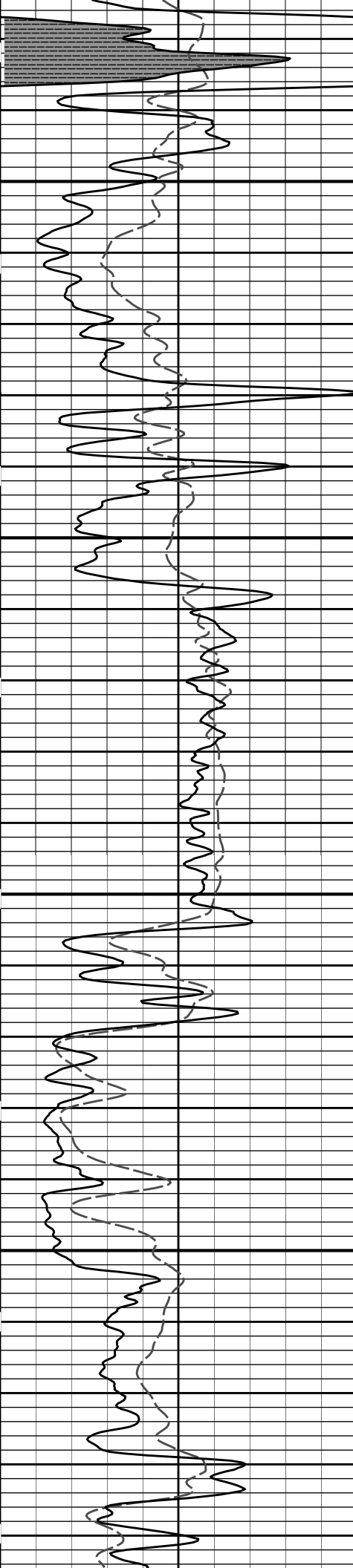




4200

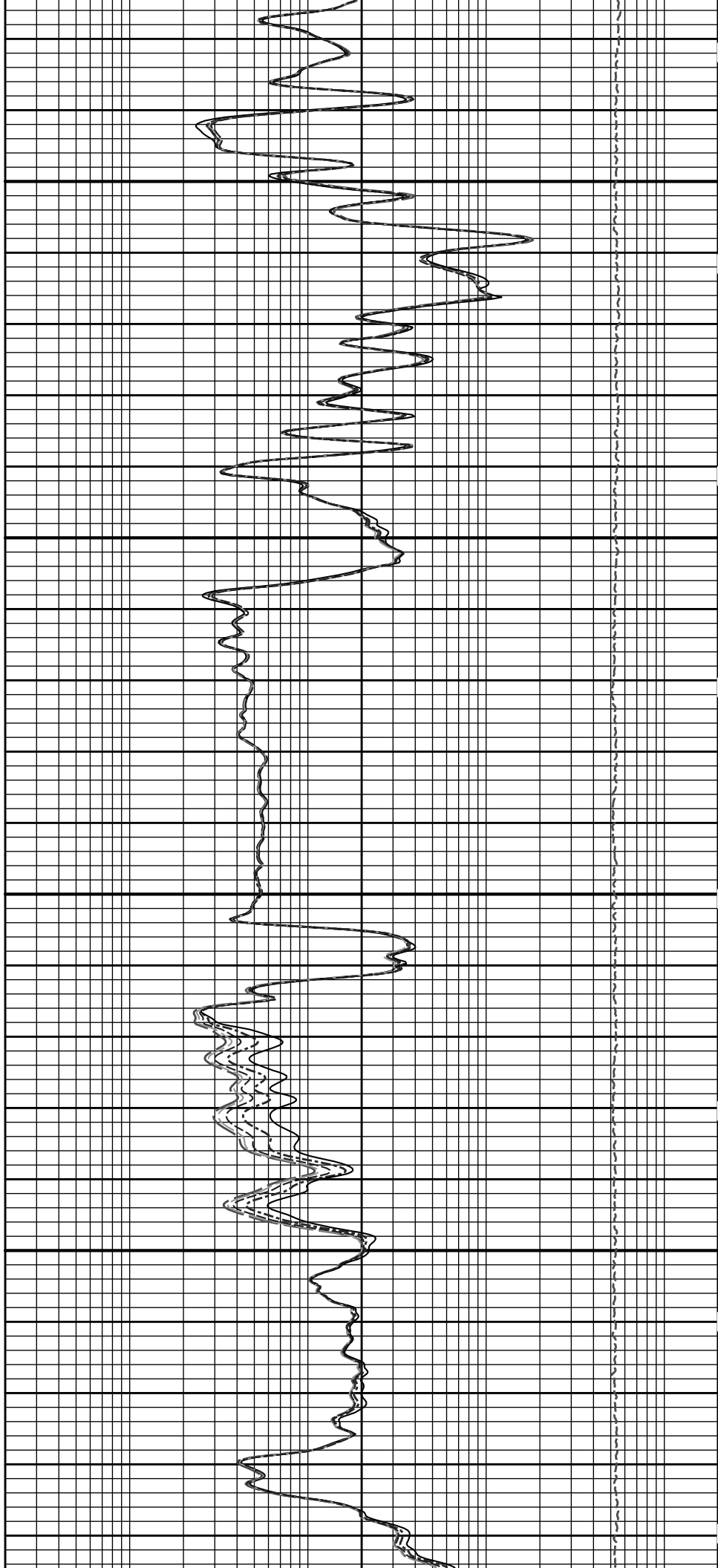
4300

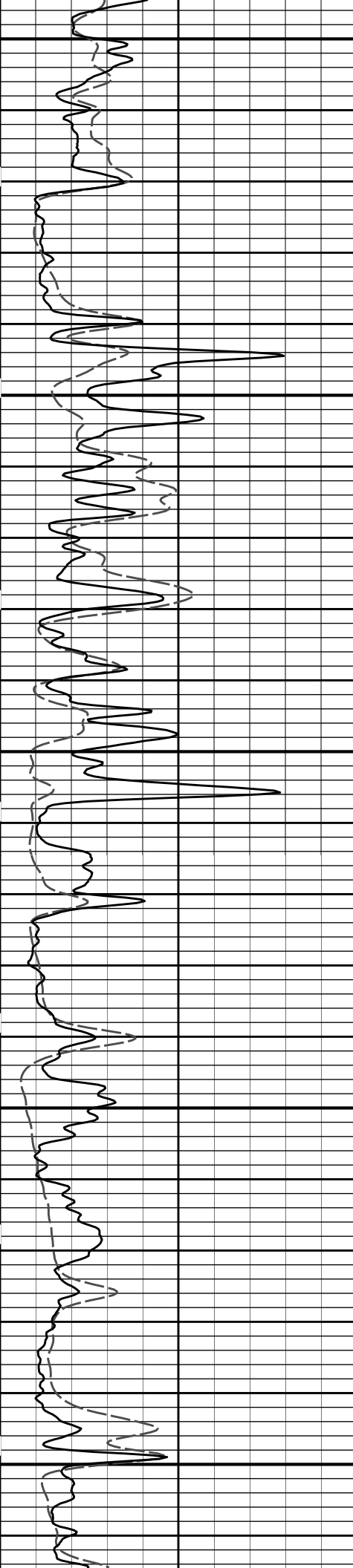




4400

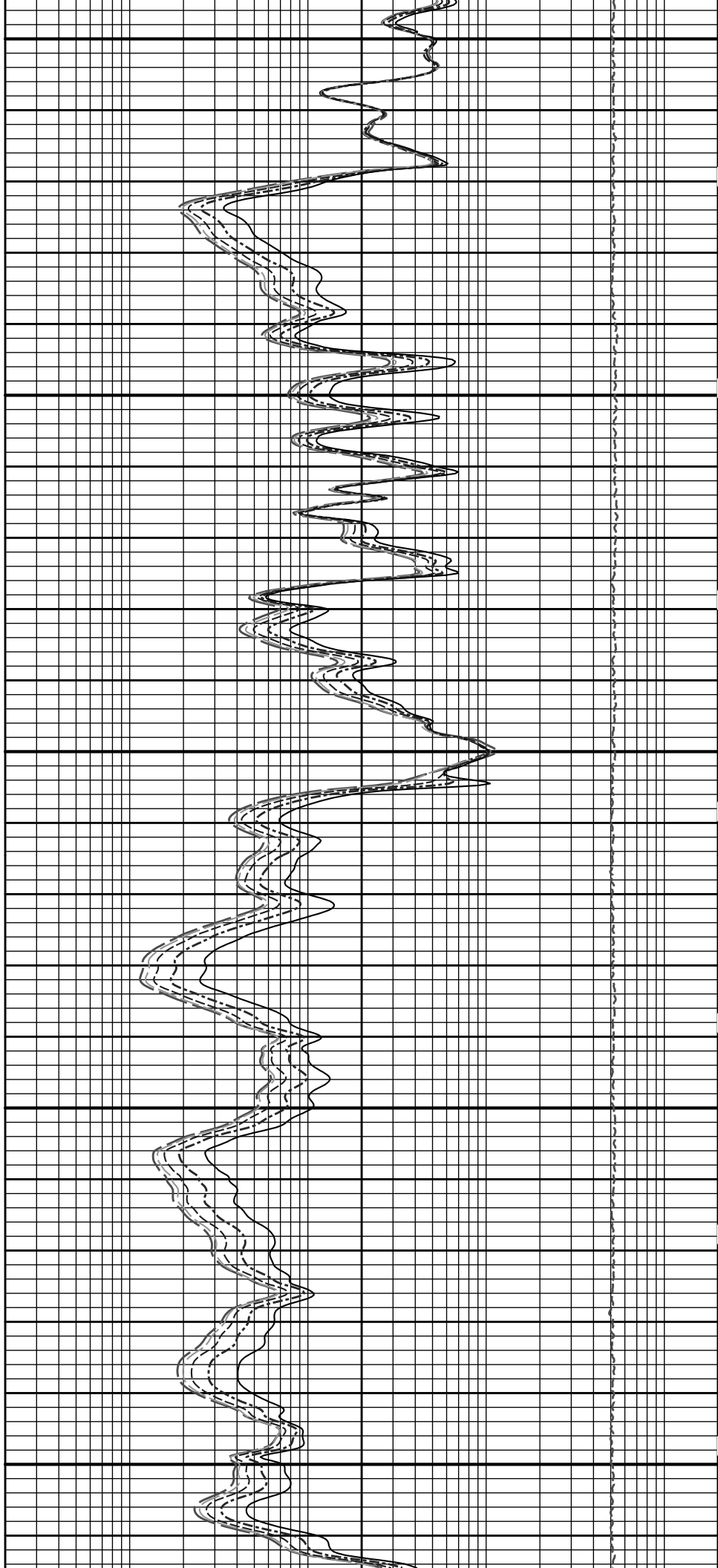
4500

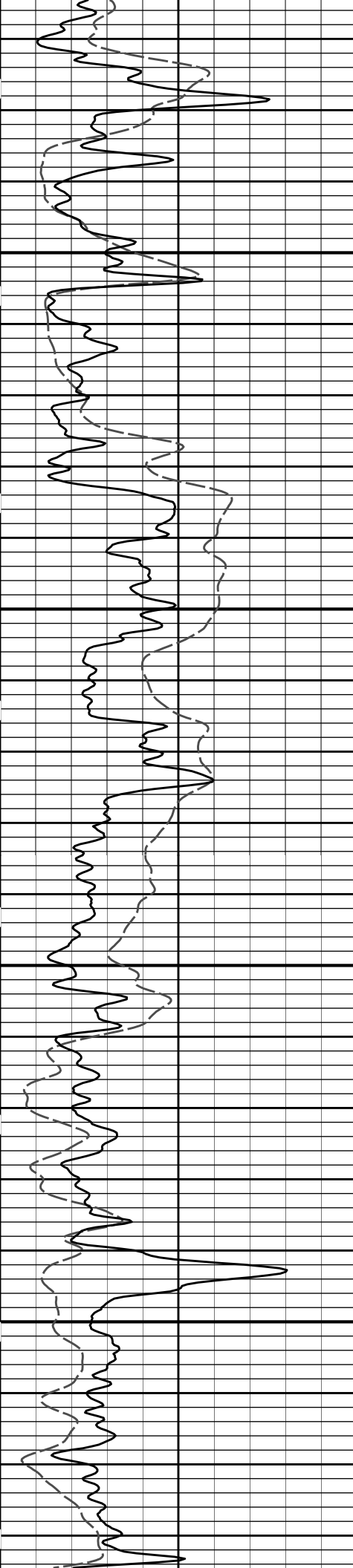




4600

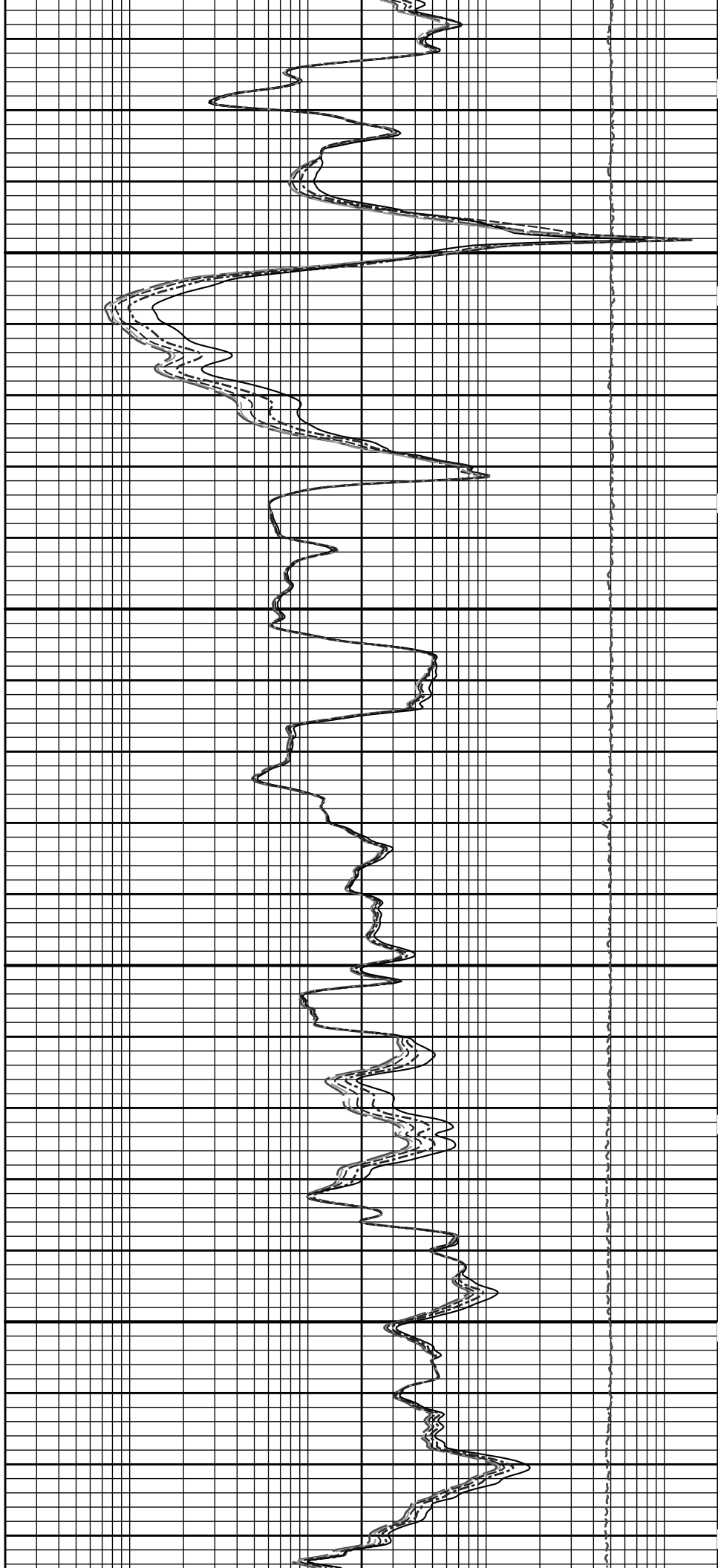
4700

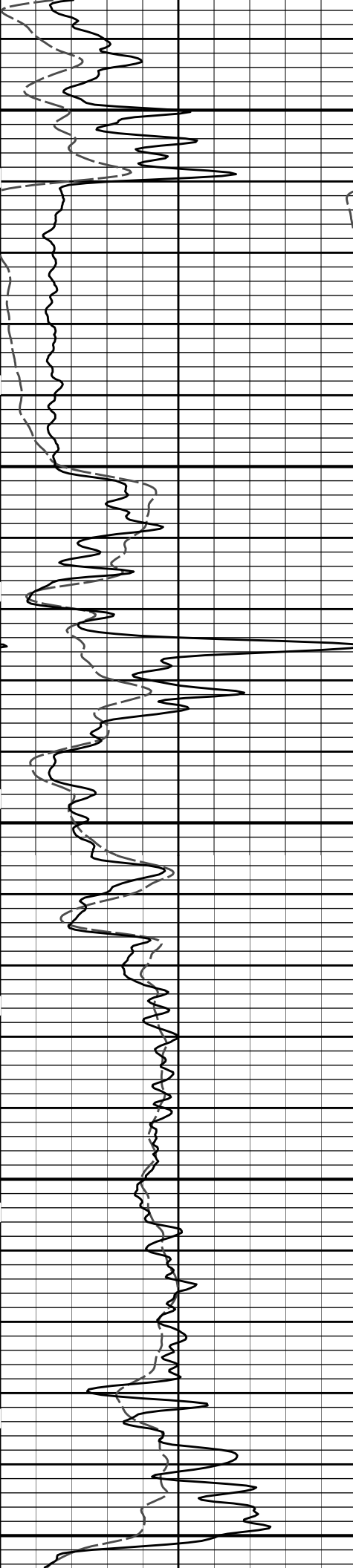




4800

4900

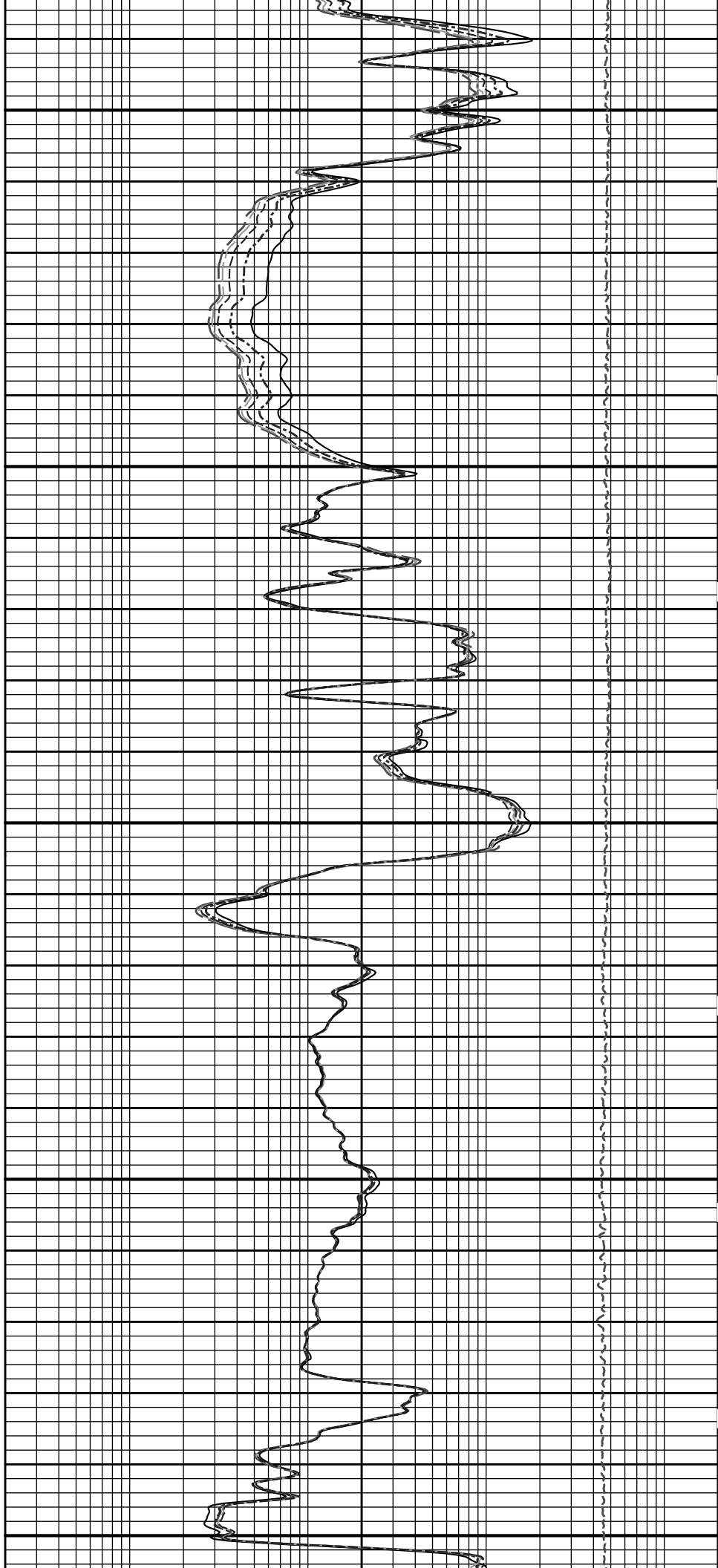


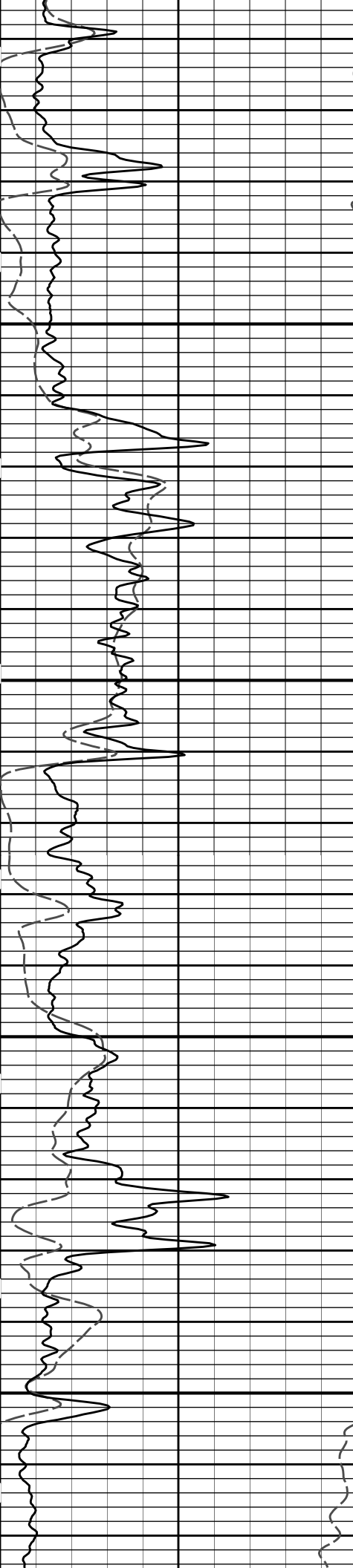


5000

5100

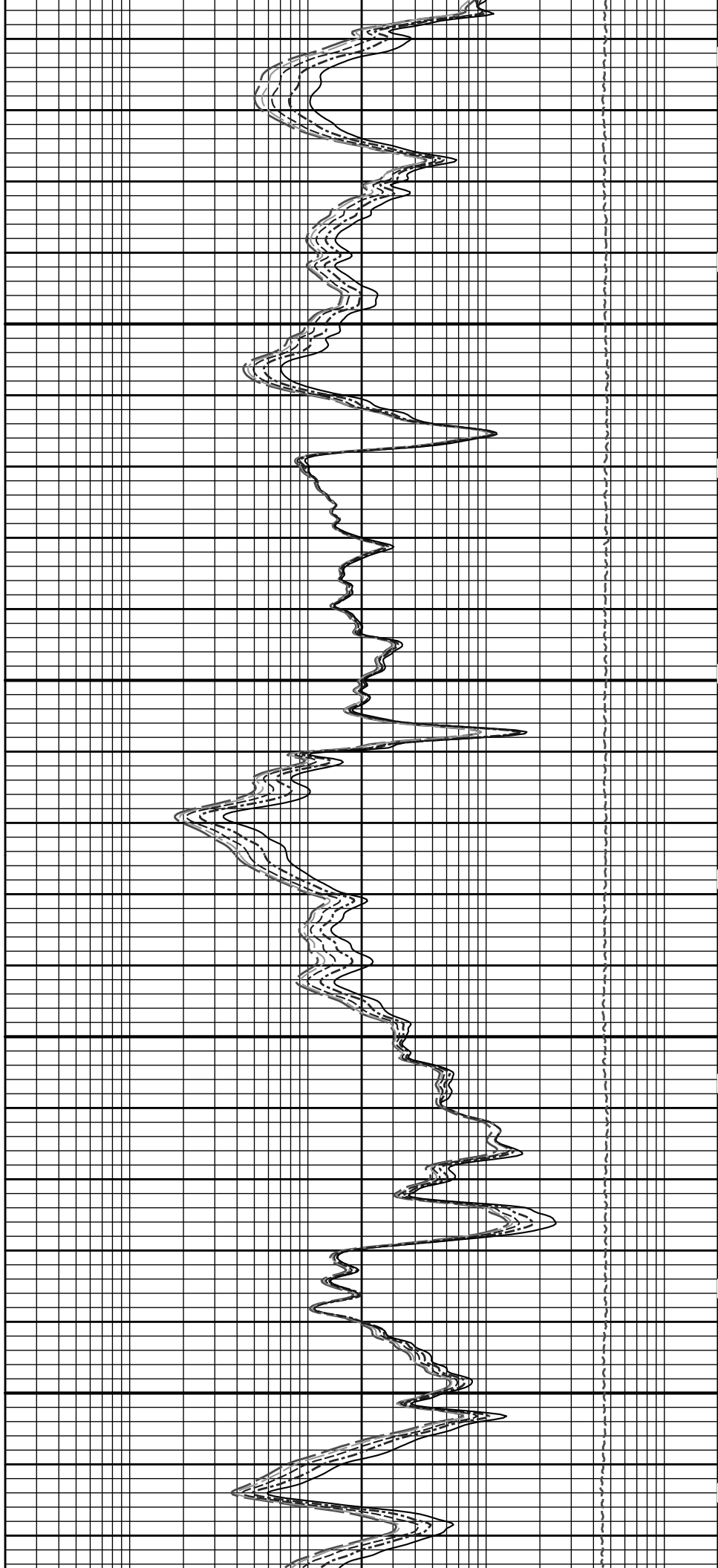
5200

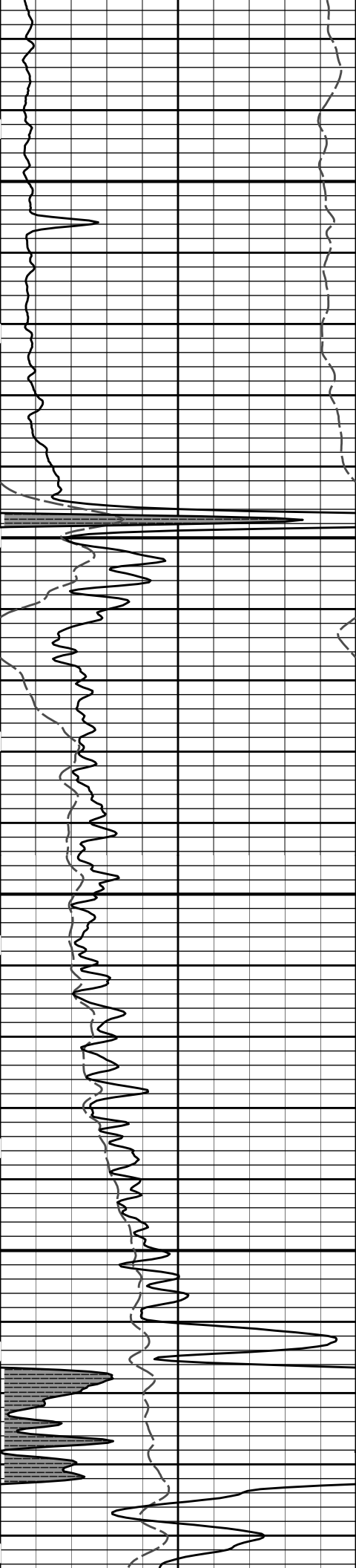




5300

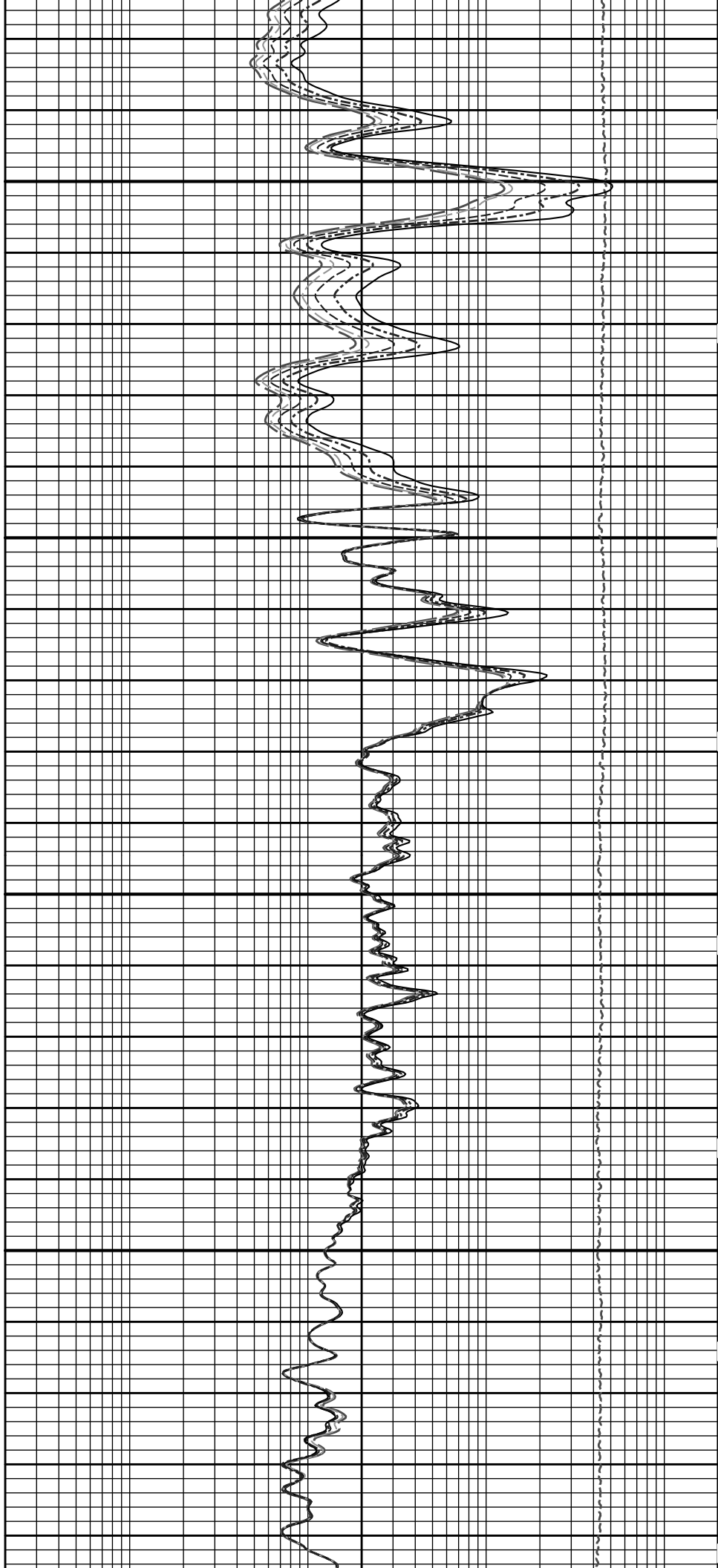
5400

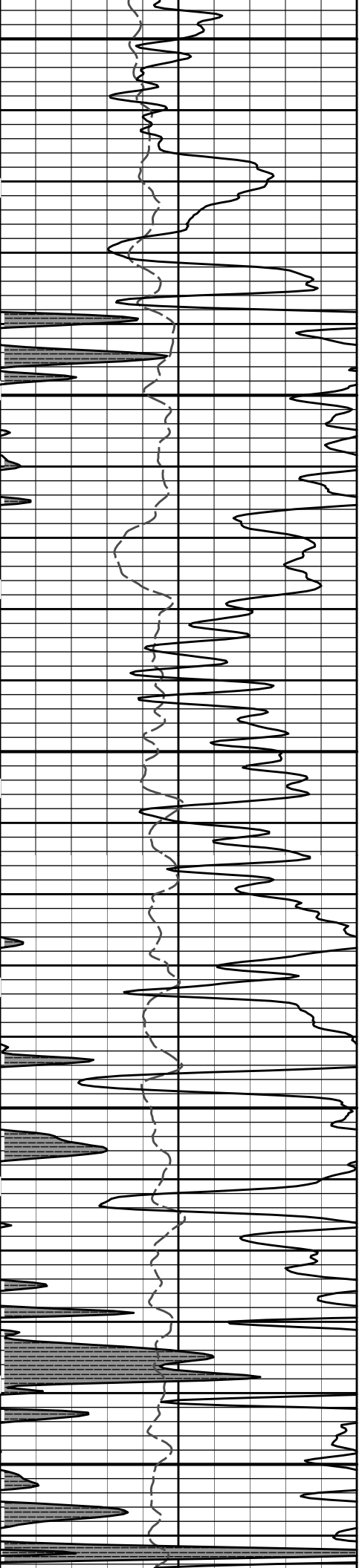




5500

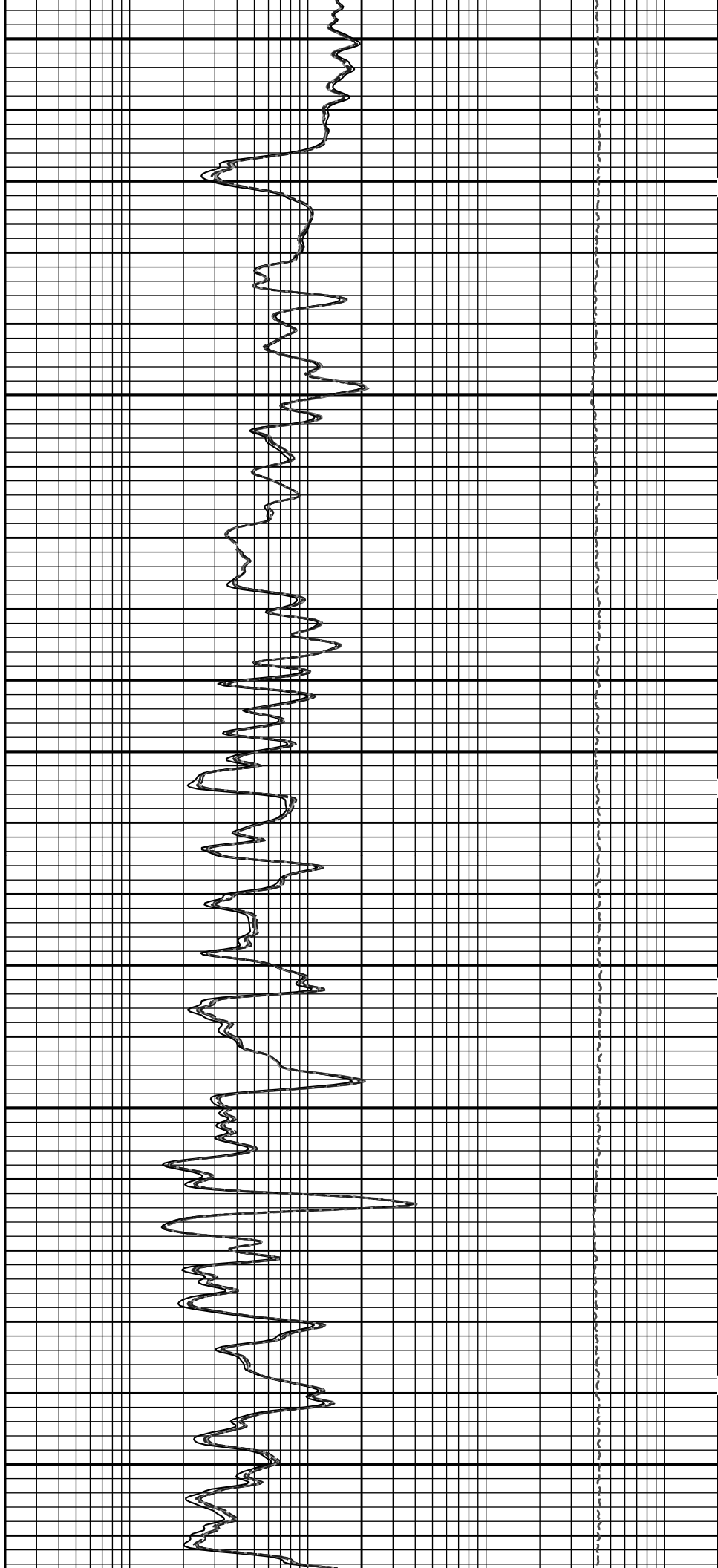
5600

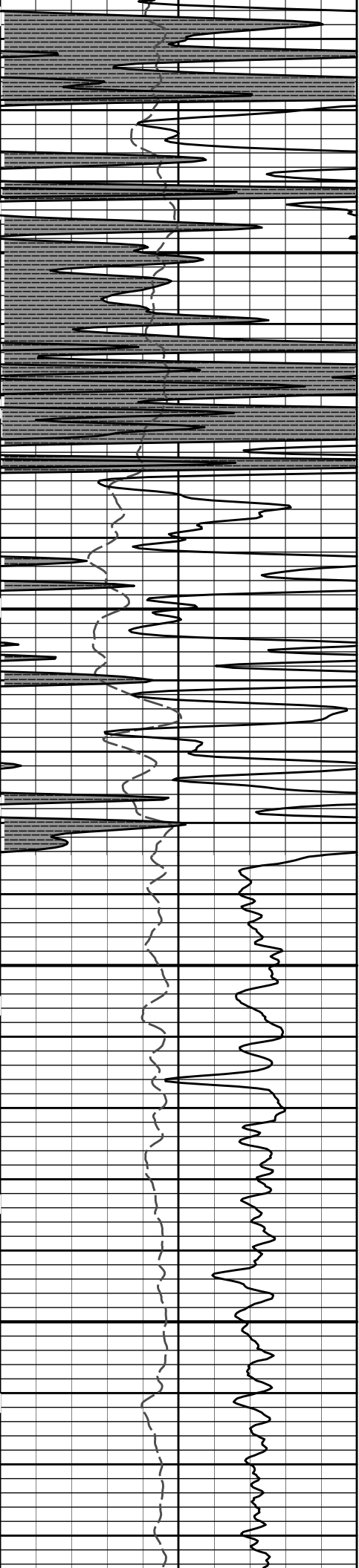




5700

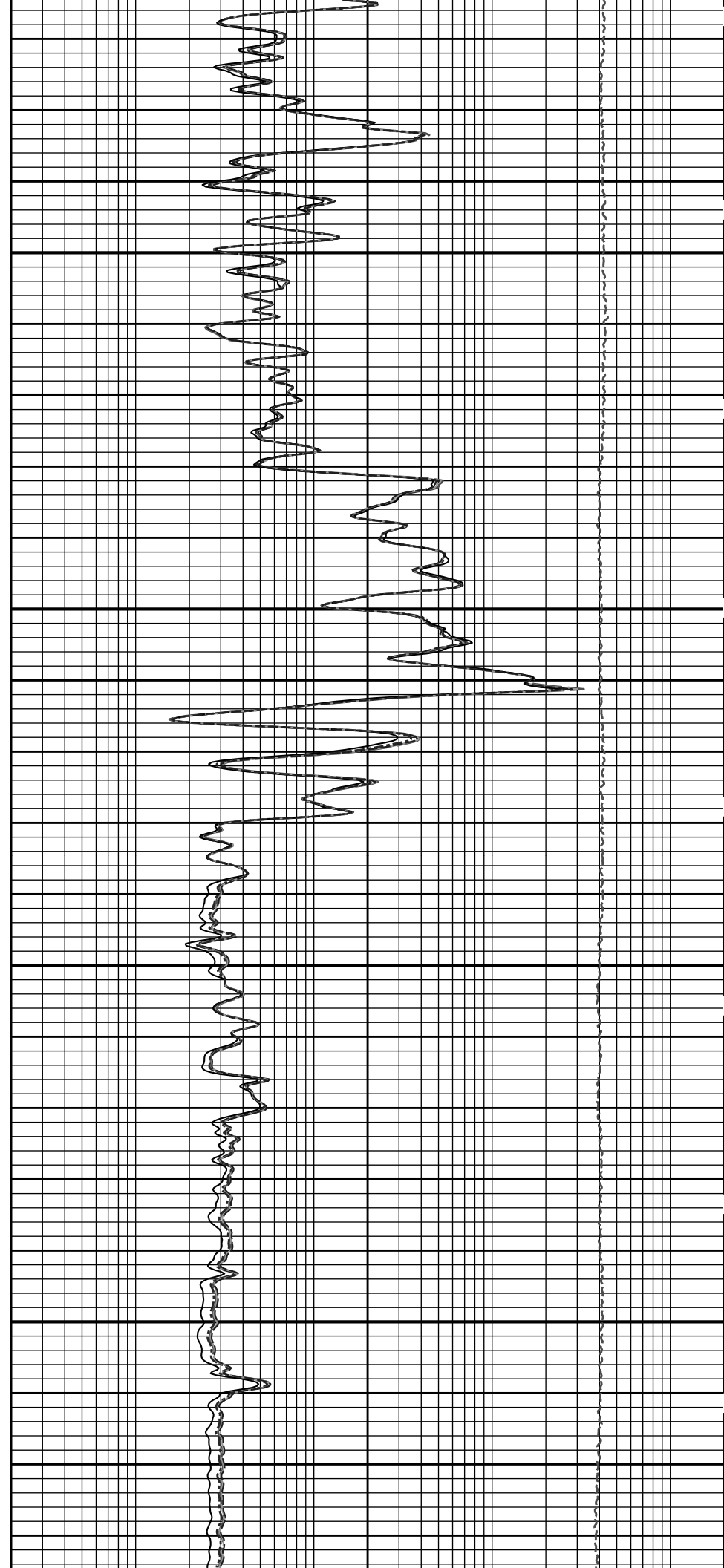
5800





5900

6000

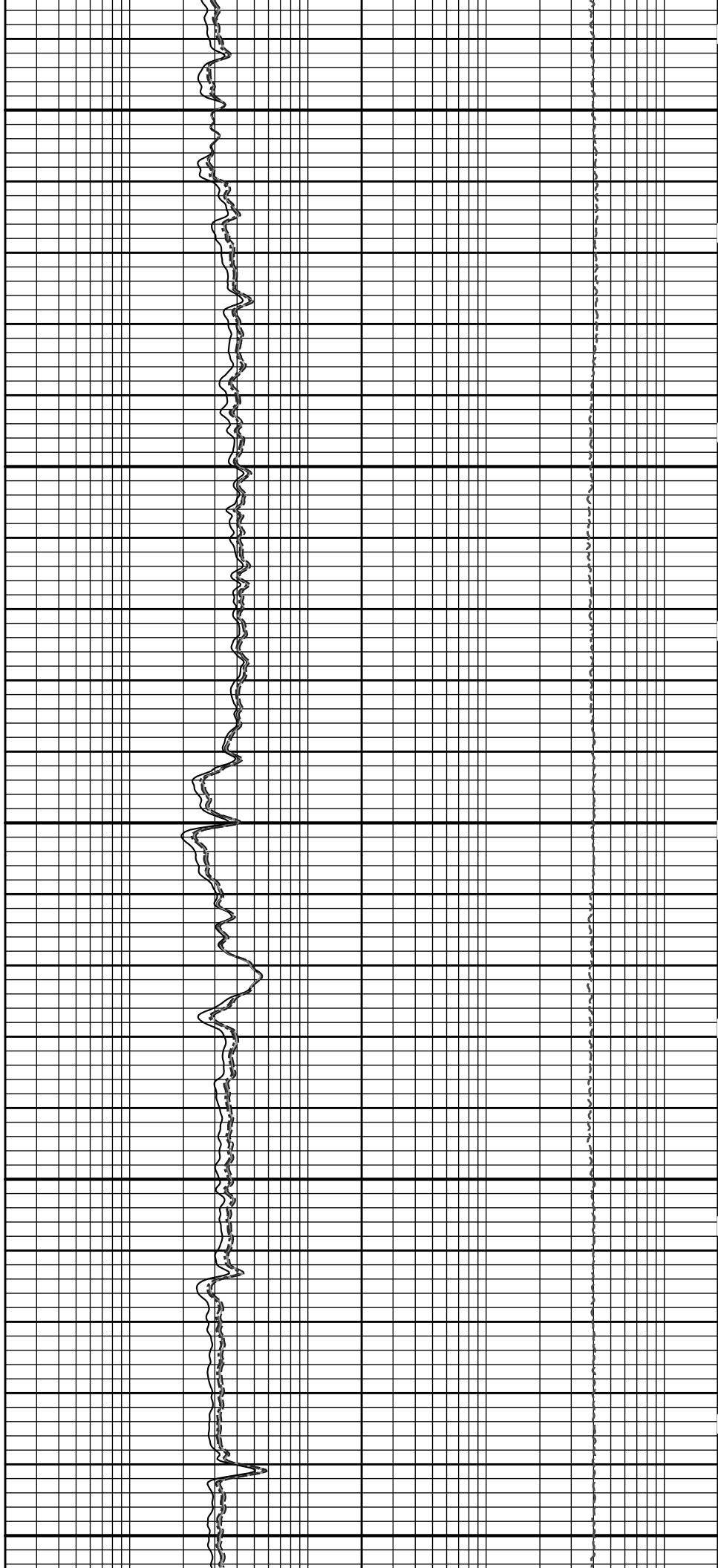


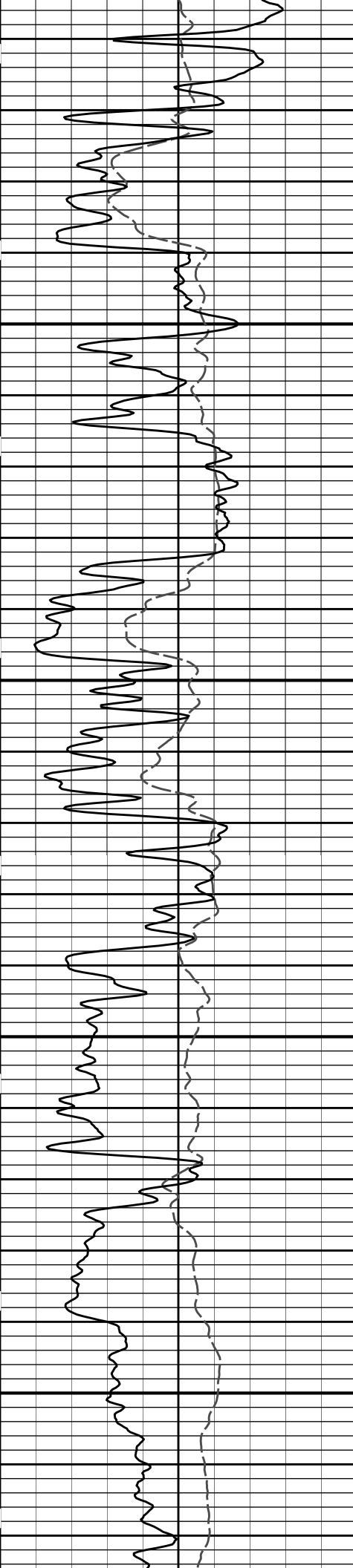


6100

6200

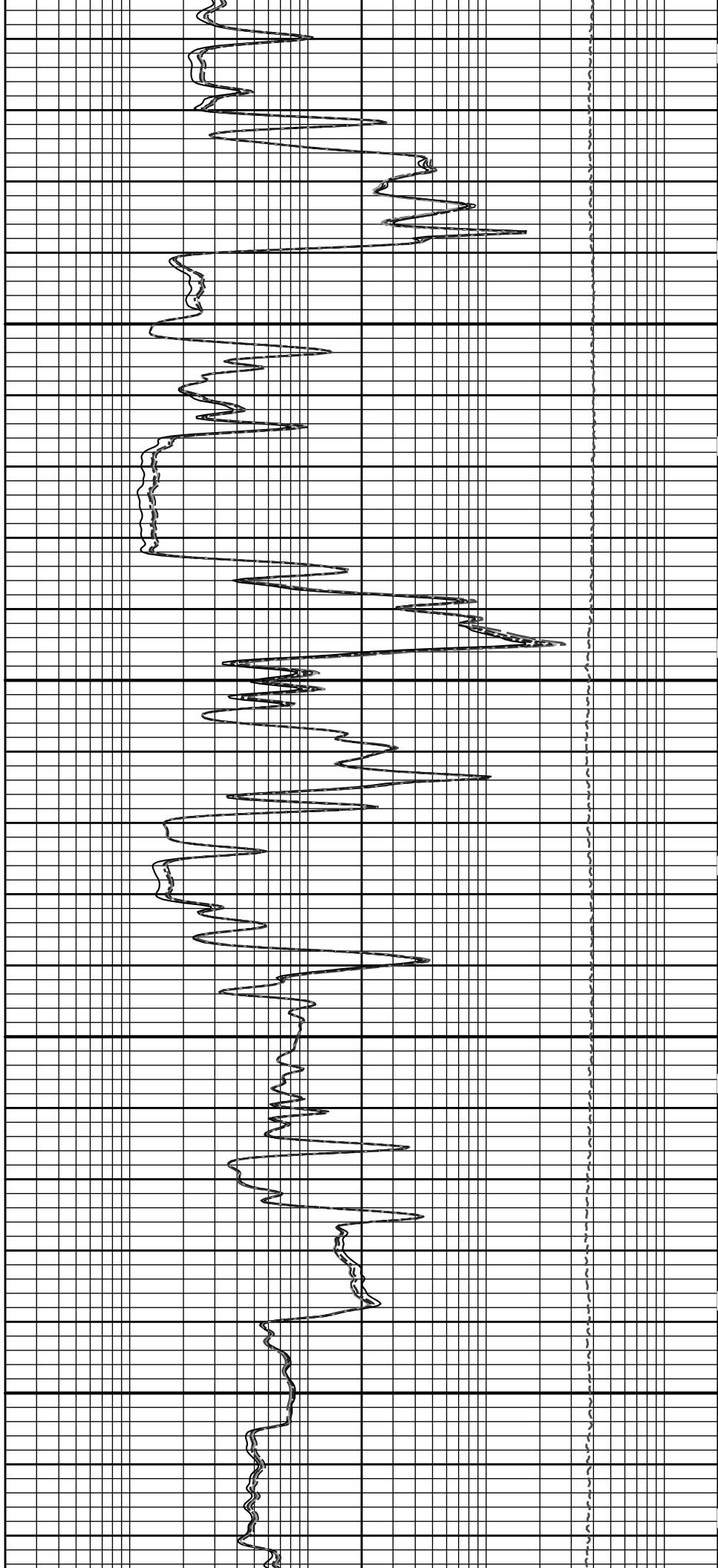
6300

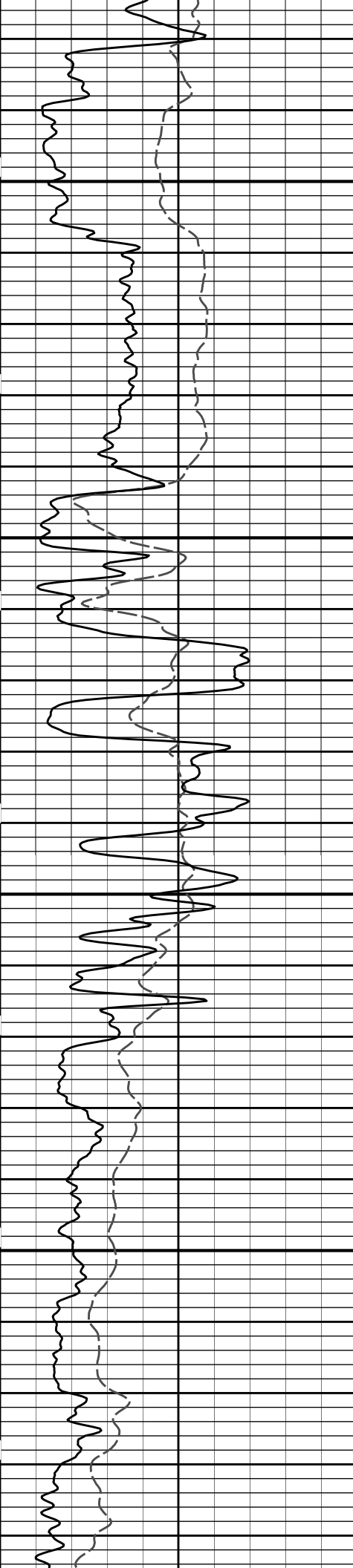




6400

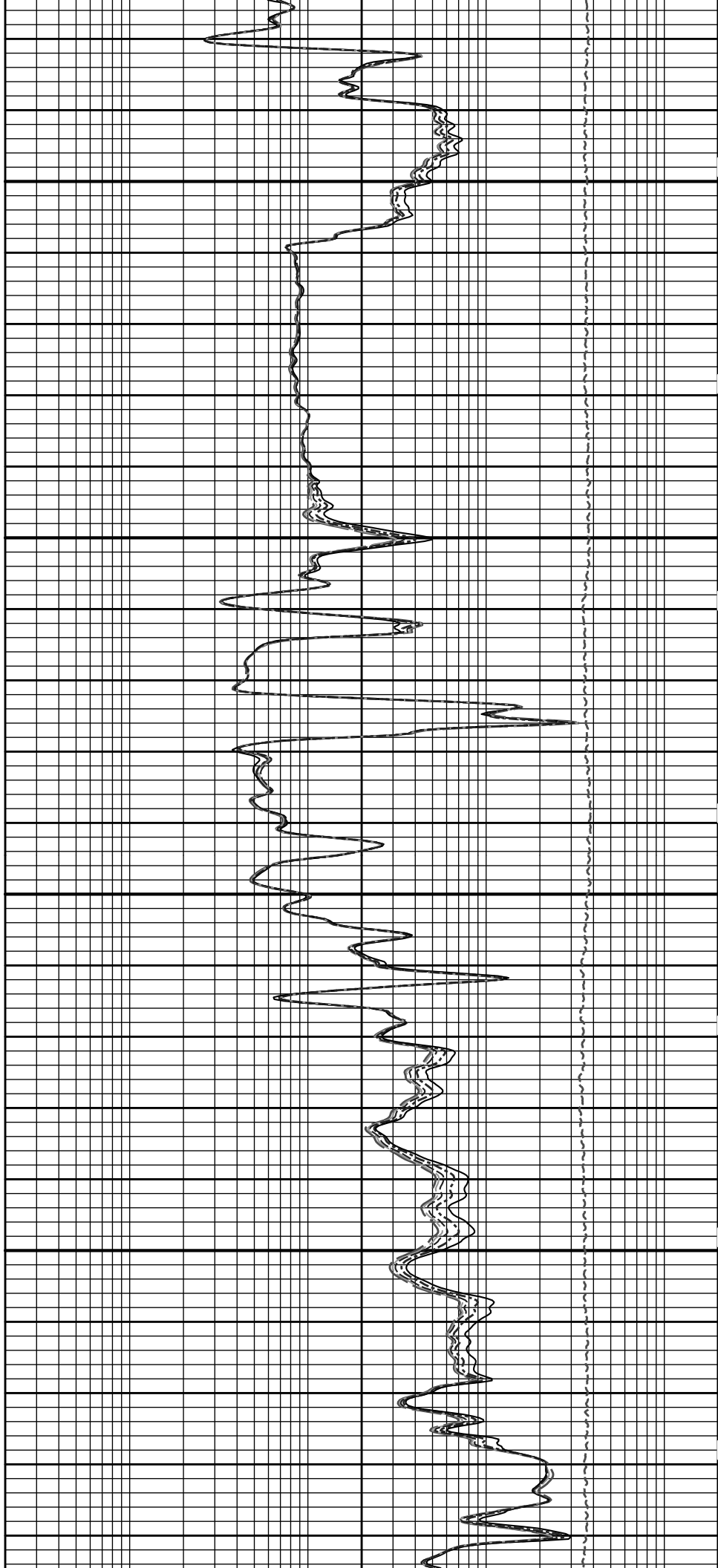
6500

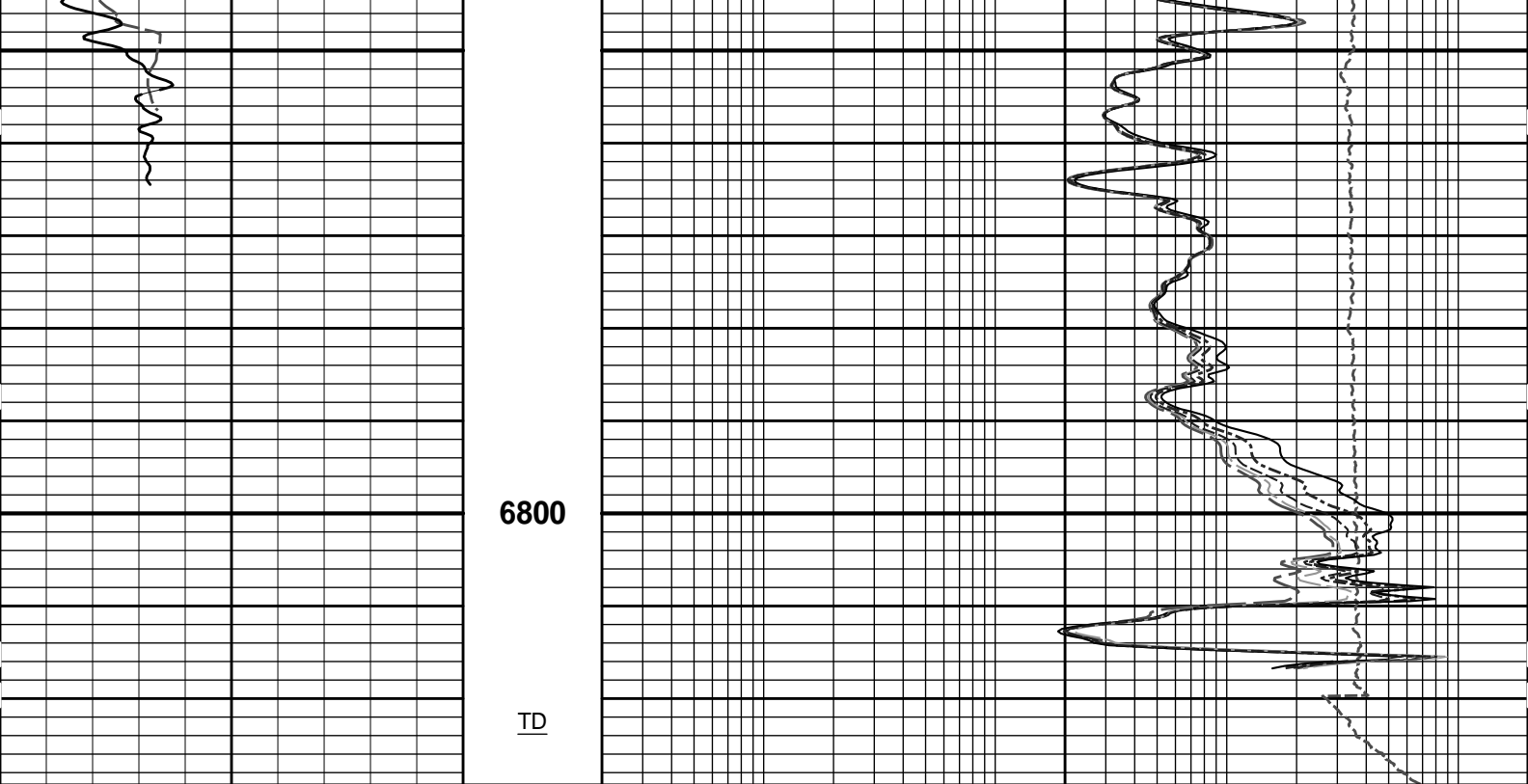




6600

6700





SP -]20[+	1 : 240 ft	10K	Tension	0
Gamma API			pounds	
0		0.2	10in Resistivity 2ft Res	2000
api			ohmm	
SHALE		0.2	20in Resistivity 2ft Res	2000
			ohmm	
		0.2	30in Resistivity 2ft Res	2000
			ohm-metre	
		0.2	60in Resistivity 2ft Res	2000
			ohmm	
		0.2	90in Resistivity 2ft Res	2000
			ohmm	

**HALLIBURTON**

Plot Time: 17-Feb-13 11:30:39  
 Plot Range: 1805 ft to 6829.33 ft  
 Data: WIGGAINS\_12-11\Well Based\WIGGAINS\_CASING\_PASS\  
 Plot File: \\-LOCAL-WIGGAINS\_12-11\Well Based\ACRT\ACRT\_5\_main\_lib

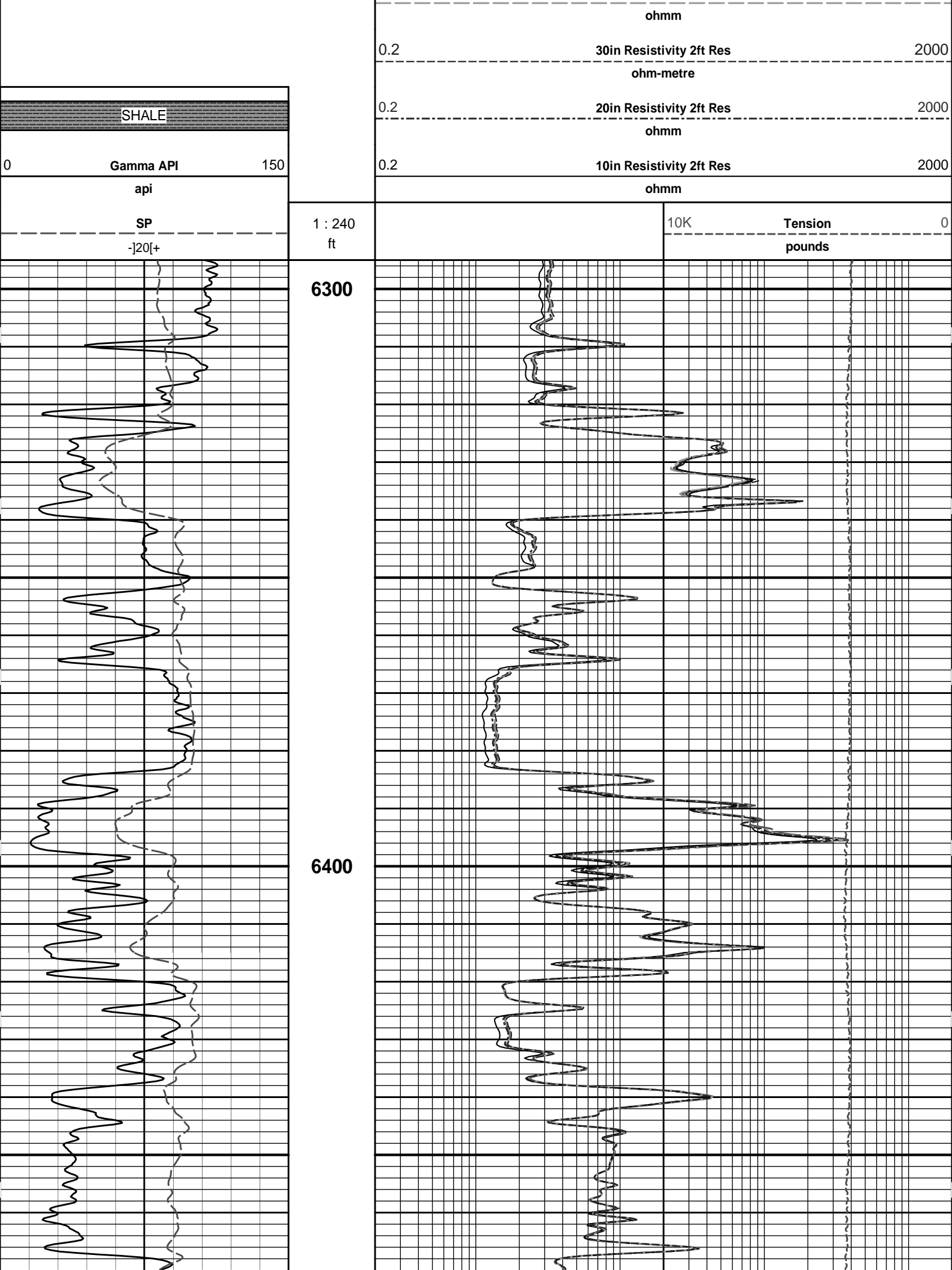
## 5 INCH MAIN LOG

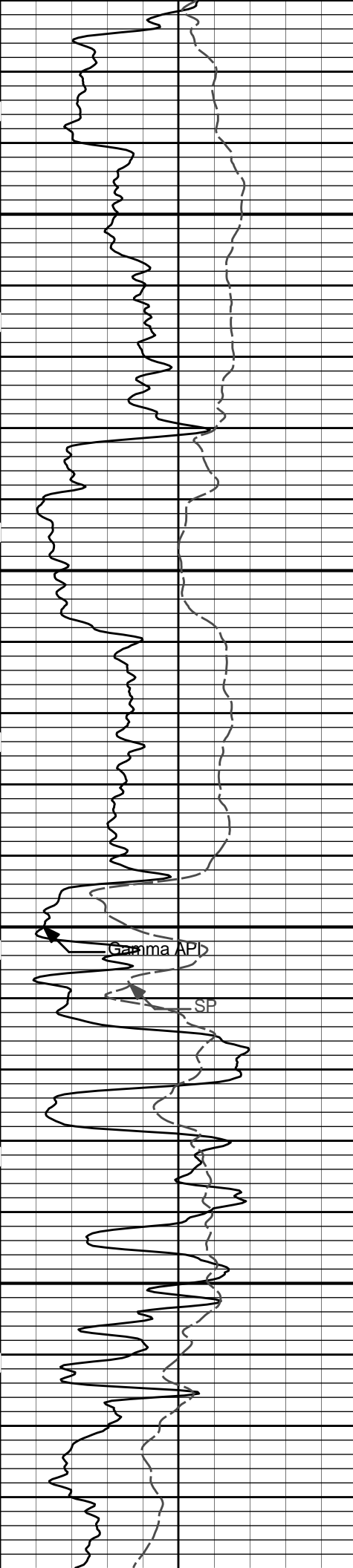
**HALLIBURTON**

Plot Time: 17-Feb-13 11:30:39  
 Plot Range: 6295 ft to 6831.58 ft  
 Data: WIGGAINS\_12-11\Well Based\WIGGAINS\_REPEAT\  
 Plot File: \\-LOCAL-WIGGAINS\_12-11\Well Based\ACRT\ACRT\_5\_repeat\_lib

## REPEAT SECTION

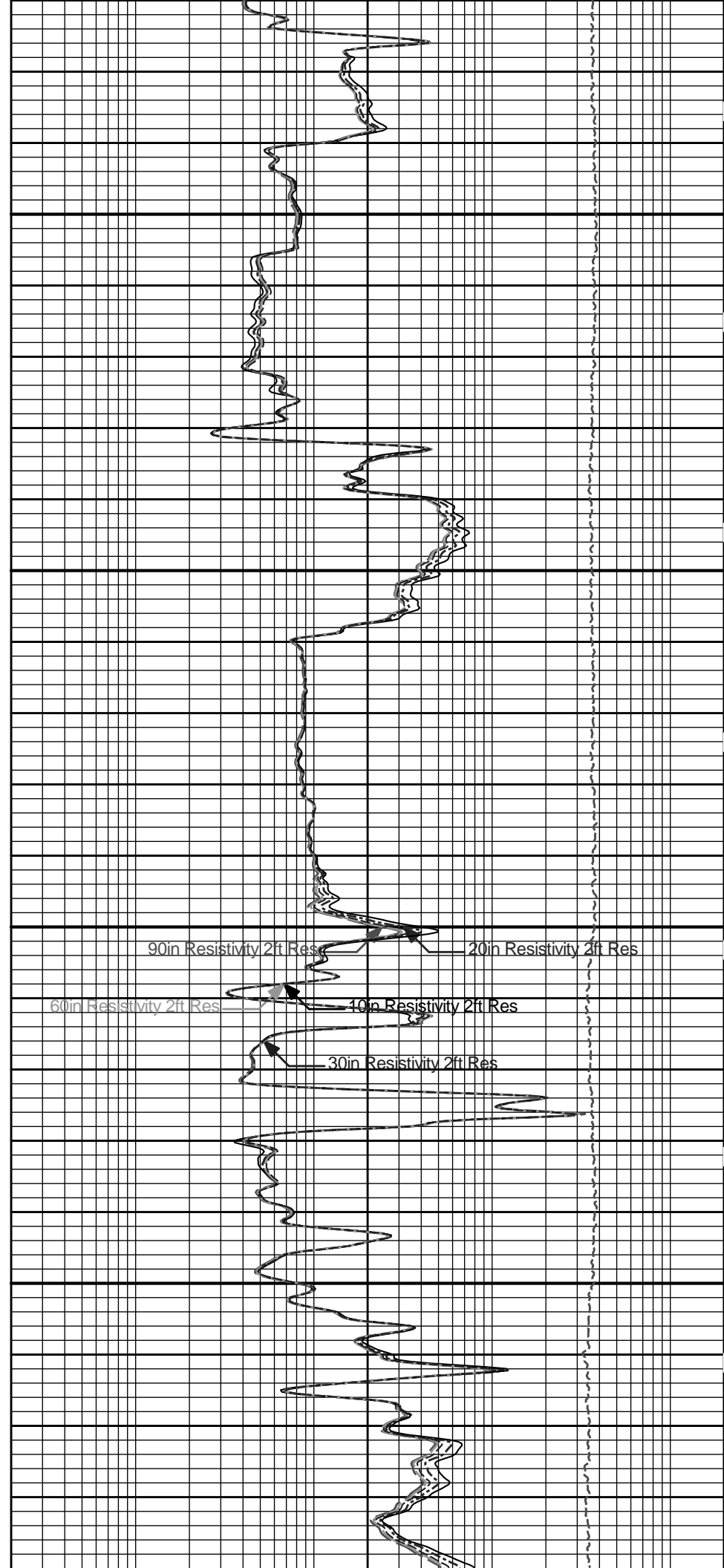
0.2	90in Resistivity 2ft Res	2000
	ohmm	
0.2	60in Resistivity 2ft Res	2000





6500

6600



Gamma API

SP

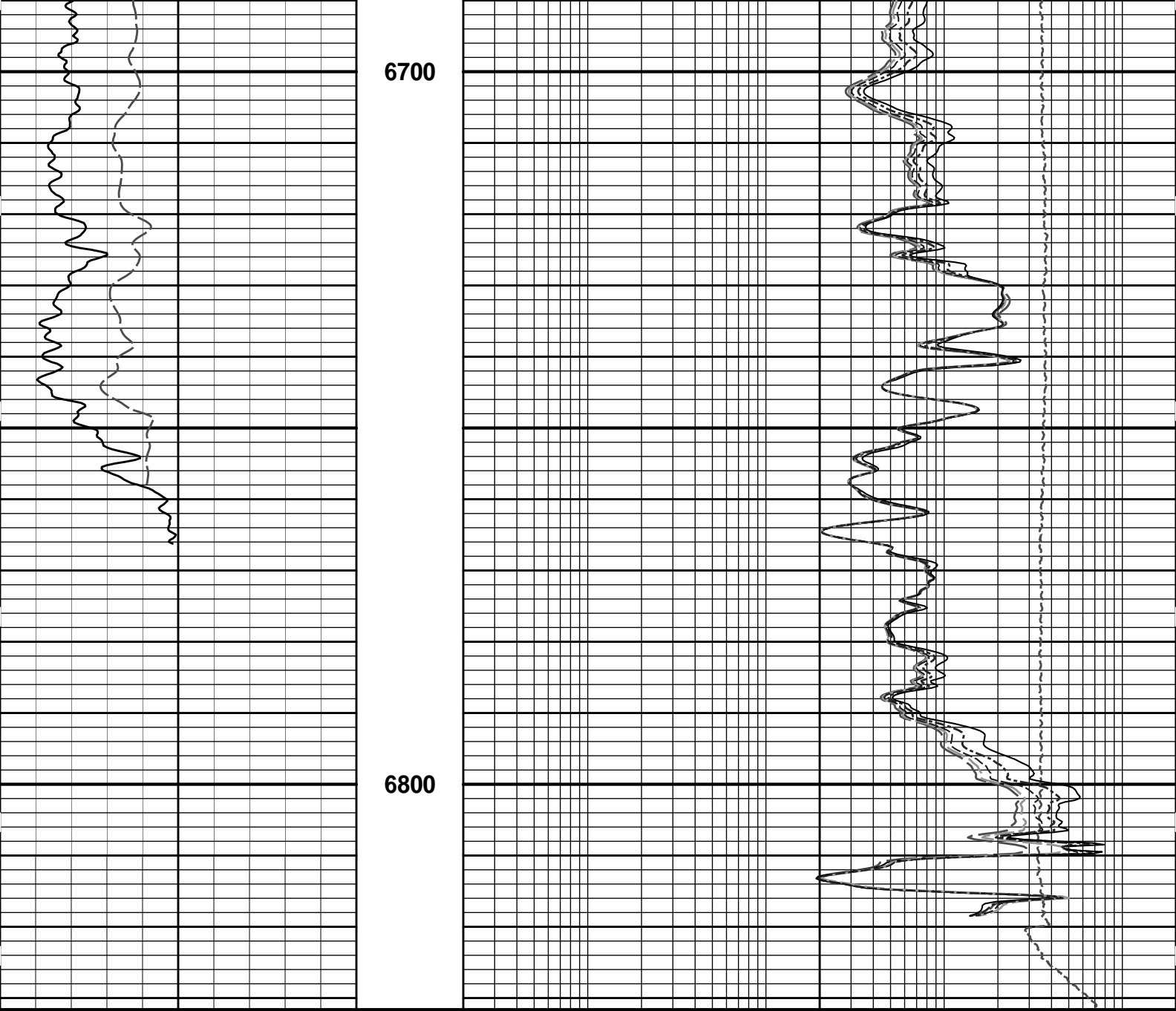
90in Resistivity 2ft Res

20in Resistivity 2ft Res

60in Resistivity 2ft Res

40in Resistivity 2ft Res

30in Resistivity 2ft Res



SP -]20[+	1 : 240 ft	10K	Tension pounds	0
0 Gamma API api		0.2	10in Resistivity 2ft Res ohmm	2000
SHALE		0.2	20in Resistivity 2ft Res ohmm	2000
		0.2	30in Resistivity 2ft Res ohm-metre	2000
		0.2	60in Resistivity 2ft Res ohmm	2000
		0.2	90in Resistivity 2ft Res ohmm	2000

**HALLIBURTON**

Plot Time: 17-Feb-13 11:30:44  
 Plot Range: 6295 ft to 6831.58 ft  
 Data: WIGGAINS\_12-11\Well Based\WIGGAINS\_REPEAT  
 Plot File: \\-LOCAL-WIGGAINS\_12-11\Well Based\ACRT\ACRT\_5\_repeat\_lib

# REPEAT SECTION

**HALLIBURTON**

## TOOL STRING DIAGRAM REPORT

Description	Overbody Description	O.D.	Diagram	Sensors @ Delays	Length	Accumulated Length
Cable Head- PROT01 30.00 lbs		Ø 3.625 in →			1.92 ft	75.71 ft
SP Sub-11441709 60.00 lbs		Ø 3.625 in →		← SP @ 72.01 ft	3.74 ft	73.79 ft
GTET-10811258 165.00 lbs		Ø 3.625 in →		← GammaRay @ 63.99 ft	8.52 ft	70.05 ft
DSNT-10755066 174.00 lbs	DSN Decentralizer- 10735145 6.60 lbs	Ø 5.000 in* → Ø 3.625 in →		← DSN Far @ 54.59 ft ← DSN Near @ 53.84 ft	9.69 ft	61.53 ft
SDLT-10685803 360.00 lbs	SDLT Pad-10714945 65.00 lbs Microlog Pad-10685803 8.00 lbs	Ø 4.500 in → Ø 4.750 in* → Ø 4.750 in* →		Microlog @ 44.03 ft SDL Caliper @ 43.84 ft SDL @ 43.83 ft	10.81 ft	51.84 ft
Flex Joint-10989947 140.00 lbs		Ø 3.625 in →			5.67 ft	41.03 ft
Centralizer 25-002 8.00 lbs		Ø 4.000 in* →				35.36 ft

BSAT-10747684  
300.00 lbs

Ø 3.625 in →

← Sonic Receivers @ 26.84 ft

15.77 ft

ACRt Instrument-  
I776  
50.00 lbs

Centralizer 25-001  
8.00 lbs

Ø 4.000 in\*  
Ø 3.625 in →

19.58 ft

5.03 ft

ACRt Sonde-  
10929775  
200.00 lbs

Ø 3.625 in →

← Mud Resistivity @ 13.19 ft

14.55 ft

← ACRt @ 9.21 ft

14.22 ft

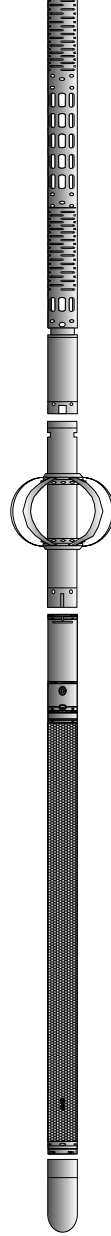
Bull Nose-001  
5.00 lbs

Ø 2.750 in →

0.33 ft

0.33 ft

0.00 ft



Mnemonic	Tool Name	Serial Number	Weight (lbs)	Length (ft)	Accumulated Length (ft)	Max. Log. Speed (fpm)
CH	Standard OH Cable Head	PROT01	30.00	1.92	73.79	300.00
SP	SP Sub	11441709	60.00	3.74	70.05	300.00
GTET	Gamma Telemetry Tool	10811258	165.00	8.52	61.53	60.00
DSNT	Dual Spaced Neutron	10755066	174.00	9.69	51.84	60.00
DCNT	DSN Decentralizer	10735145	6.60	5.13	55.17	300.00
SDLT	Spectral Density Tool	10685803	360.00	10.81	41.03	60.00
MICP	Microlog Pad	10685803	8.00	1.00	43.53	60.00
SDLP	Density Insite Pad	10714945	65.00	2.55	43.24	60.00
FLEX	Flex Joint	10989947	140.00	5.67	35.36	300.00
BSAT	Borehole Sonic Array Tool	10747684	300.00	15.77	19.58	60.00
OBCEN	Centralizer - 25 in. Overbody	002	8.00	2.08	32.52	300.00
ACRt	Array Compensated True Resistivity Instrument Section	I776	50.00	5.03	14.55	300.00
OBCEN	Centralizer - 25 in. Overbody	001	8.00	2.08	16.10	300.00
ACRt	Array Compensated True Resistivity Sonde Section	10929775	200.00	14.22	0.33	300.00
BLNS	Bull Nose	001	5.00	0.33	0.00	300.00

**Total** 1,579.60    75.71

\* Not included in Total Length and Length Accumulation.

Data: WIGGAINS\_12-11\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-BN\IDLE Date: 17-Feb-13 03:51:57

# 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	MDBS	Mud Base	Water	
	SHARED	MDWT	Borehole Fluid Weight	9.200	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	1.000	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	6850.00	ft
	SHARED	BHT	Bottom Hole Temperature	140.0	degF
	SHARED	SVTM	Navigation and Survey Master Tool	NONE	
	SHARED	AZTM	High Res Z Accelerometer Master Tool	GTET	
	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?	No	
	GTET	TPOS	Tool Position for Gamma Ray Tools.	Eccentered	
	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	LHWT	Logging Horizontal Water Tank?	No	
	SDLT	CLOK	Process Caliper Outputs?	Yes	
	SDLT Pad	DNOK	Process Density?	Yes	
	SDLT Pad	DNOK	Process Density EVR?	No	
	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	
BSAT	MBOK	Compute BCAS Results?	Yes	
BSAT	FLLO	Frequency Filter Low Pass Value?	5000	Hz
BSAT	FLHI	Frequency Filter High Pass Value?	27000	Hz
BSAT	DTFL	Delta -T Fluid	189.00	uspf
BSAT	DTMT	Delta -T Matrix Type	User define	
BSAT	DTMA	Delta -T Matrix	47.60	uspf
BSAT	DTSH	Delta -T Shale	100.00	uspf
BSAT	SPEQ	Acoustic Porosity Equation	Wylie	
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: WIGGAINS\_12-11\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-BN005 17-Feb-13 07:09 Up @6829.8f

Date: 17-Feb-13 08:00:12

**HALLIBURTON**

## CALIBRATION REPORT

### NATURAL GAMMA RAY TOOL SHOP CALIBRATION

Tool Name: GTET - 10811258

Reference Calibration Date: 31-Dec-12 23:10:29

Engineer: T. HYDE

Calibration Date: 03-Feb-13 11:19:35

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	49.5	50.6	api
Background + Calibrator	276.4	282.6	api
Calibrator	226.9	232.0	api

### NATURAL GAMMA RAY TOOL FIELD CALIBRATION

Tool Name: GTET - 10811258

Reference Calibration Date: 03-Feb-13 11:19:35

Engineer: S. INGERSOLL

Calibration Date: 17-Feb-13 04:12:27

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	50.6	23.7	api
Background + Calibrator	282.6	254.2	api
Calibrator	232.0	230.4	api

Shop	Field	Difference	Tolerance
------	-------	------------	-----------

Shop	Field	Difference	Tolerance
232.0	230.4	1.6	+/- 9.00

### ARRAY COMPENSATED TRUE RESISTIVITY SHOP CALIBRATION

<b>Tool Name:</b> ACRt Sonde - 10929775	<b>Reference Calibration Date:</b> 19-Dec-12 11:12:24
<b>Engineer:</b> S. INGERSOLL	<b>Calibration Date:</b> 31-Jan-13 12:41:09
<b>Software Version:</b> WL INSITE R3.8.4 (Build 5)	<b>Calibration Version:</b> 1
<b>Host Tool Name:</b> ACRt Instrument - I776	

#### TYPICAL GAIN RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A2 (50")	0.95	1.03	1.05	0.95	1.03	1.05	0.95	1.03	1.05
A3 (29")	0.95	1.00	1.05	0.95	1.01	1.05	0.95	1.00	1.05
A4 (17")	0.95	1.01	1.05	0.95	1.01	1.05	0.95	1.01	1.05
A5 (10")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	1.00	1.05
A6 (6")	N/A	N/A	N/A	0.95	1.00	1.05	0.95	1.00	1.05

#### TYPICAL SONDE OFFSET RANGE

Subarray	R12KHz			R36KHz			R72KHz		
	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper	Lower	(mmho/m)	Upper
A1 (80")	-5	-2.01	2	-6	-4.61	-2	-8	-4.71	-2
A2 (50")	-7	-2.79	0	-7	-4.26	0	-7	-4.49	0
A3 (29")	-27	-14.67	-9	-9	-4.60	-3	-7	-2.92	-1
A4 (17")	-180	-102.99	-60	-45	-32.37	-15	-39	-25.41	-13
A5 (10")	N/A	N/A	N/A	-150	-116.69	-50	-80	-54.47	-10
A6 (6")	N/A	N/A	N/A	175	276.16	525	90	138.08	270

#### TRANSMITTER CURRENT GAIN

Signal	Lower	R	Upper
12K	0.6	0.84	1.3
36K	1.0	1.17	2.0
72K	1.0	1.46	2.0

#### R-MUD VERIFICATION

Signal	Lower (ohm-m)	Measured (ohm-m)	Upper (ohm-m)
Mud Cell	0.95	0.99	1.05

#### PASS/FAIL SUMMARY

GAIN RANGE CHK	PASS
SONDE OFFSET RANGE CHK	PASS
Tx CURRENT GAIN	PASS
Rmud VERIFICATION	PASS

TOOL OK TO LOG

#### CALIBRATION SUMMARY

Sensor	Shop	Field	Post	Difference	Tolerance	Units
<b>GTET-10811258</b>						
Gamma Ray Calibrator	232.0	230.4	-----	1.6	+/- 9.00	api
<b>ACRt Sonde-10929775</b>						
Mud Cell	0.99	-----	-----	0.00	-----	ohm-m

## INPUTS, DELAYS AND FILTERS TABLE

Mnemonic	Input Description	Delay (ft)	Filter Type	Filter Length (ft)
<b>Depth Panel</b>				
TENS	Tension	0.00	NO	
<b>SP Sub</b>				
PLTC	Plot Control Mask	72.01	NO	
SP	Spontaneous Potential	72.01	BLK	1.250
SPR	Raw Spontaneous Potential	72.01	NO	
SPO	Spontaneous Potential Offset	72.01	NO	
<b>GTET</b>				
TPUL	Tension Pull	63.99	NO	
GR	Natural Gamma Ray API	63.99	TRI	1.750
GRU	Unfiltered Natural Gamma Ray API	63.99	NO	
EGR	Natural Gamma Ray API with Enhanced Vertical Resolution	63.99	W	1.416 , 0.750
ACCZ	Accelerometer Z	0.00	BLK	0.083
DEVI	Inclination	0.00	NO	
<b>DSNT</b>				
TPUL	Tension Pull	53.74	NO	
RNDS	Near Detector Telemetry Counts	53.84	BLK	1.417
RFDS	Far Detector Telemetry Counts	54.59	TRI	0.583
DNTT	DSN Tool Temperature	53.84	NO	
DSNS	DSN Tool Status	53.74	NO	
ERNR	Near Detector Telemetry Counts EVR	53.84	BLK	0.000
ERFD	Far Detector Telemetry Counts EVR	54.59	BLK	0.000
ENTM	DSN Tool Temperature EVR	53.84	NO	
<b>SDLT</b>				
TPUL	Tension Pull	43.84	NO	
PCAL	Pad Caliper	43.84	TRI	0.250
ACAL	Arm Caliper	43.84	TRI	0.250
<b>BSAT</b>				
TPUL	Tension Pull	26.84	NO	
STAT	Status	26.84	NO	
DLYT	Delay Time	26.84	NO	
SI	Sample Interval	26.84	NO	
TXRX	Raw Telemetry 10 Receivers	26.84	NO	
FRMC	Tool Frame Count	26.84	NO	
GMOD	Gain processing mode	19.58	NO	
<b>ACRt Sonde</b>				
TPUL	Tension Pull	2.73	NO	
F1R1	ACRT 12KHz - 80in R value	8.98	BLK	0.000
F1X1	ACRT 12KHz - 80in X value	8.98	BLK	0.000
F1R2	ACRT 12KHz - 50in R value	6.48	BLK	0.000
F1X2	ACRT 12KHz - 50in X value	6.48	BLK	0.000
F1R3	ACRT 12KHz - 29in R value	4.98	BLK	0.000
F1X3	ACRT 12KHz - 29in X value	4.98	BLK	0.000
F1R4	ACRT 12KHz - 17in R value	3.98	BLK	0.000
F1X4	ACRT 12KHz - 17in X value	3.98	BLK	0.000

F1X4	ACRT 12KHz - 17in X value	3.48	BLK	0.000
F1R5	ACRT 12KHz - 10in R value	3.48	BLK	0.000
F1X5	ACRT 12KHz - 10in X value	3.48	BLK	0.000
F1R6	ACRT 12KHz - 6in R value	3.23	BLK	0.000
F1X6	ACRT 12KHz - 6in X value	3.23	BLK	0.000
F2R1	ACRT 36KHz - 80in R value	8.98	BLK	0.000
F2X1	ACRT 36KHz - 80in X value	8.98	BLK	0.000
F2R2	ACRT 36KHz - 50in R value	6.48	BLK	0.000
F2X2	ACRT 36KHz - 50in X value	6.48	BLK	0.000
F2R3	ACRT 36KHz - 29in R value	4.98	BLK	0.000
F2X3	ACRT 36KHz - 29in X value	4.98	BLK	0.000
F2R4	ACRT 36KHz - 17in R value	3.98	BLK	0.000
F2X4	ACRT 36KHz - 17in X value	3.98	BLK	0.000
F2R5	ACRT 36KHz - 10in R value	3.48	BLK	0.000
F2X5	ACRT 36KHz - 10in X value	3.48	BLK	0.000
F2R6	ACRT 36KHz - 6in R value	3.23	BLK	0.000
F2X6	ACRT 36KHz - 6in X value	3.23	BLK	0.000
F3R1	ACRT 72KHz - 80in R value	8.98	BLK	0.000
F3X1	ACRT 72KHz - 80in X value	8.98	BLK	0.000
F3R2	ACRT 72KHz - 50in R value	6.48	BLK	0.000
F3X2	ACRT 72KHz - 50in X value	6.48	BLK	0.000
F3R3	ACRT 72KHz - 29in R value	4.98	BLK	0.000
F3X3	ACRT 72KHz - 29in X value	4.98	BLK	0.000
F3R4	ACRT 72KHz - 17in R value	3.98	BLK	0.000
F3X4	ACRT 72KHz - 17in X value	3.98	BLK	0.000
F3R5	ACRT 72KHz - 10in R value	3.48	BLK	0.000
F3X5	ACRT 72KHz - 10in X value	3.48	BLK	0.000
F3R6	ACRT 72KHz - 6in R value	3.23	BLK	0.000
F3X6	ACRT 72KHz - 6in X value	3.23	BLK	0.000
RMUD	Mud Resistivity	12.52	BLK	0.000
F1RT	Transmitter Current Raw 12K X Receiver	2.73	BLK	0.000
F1XT	Transmitter Reference 12 KHz Imaginary Signal	2.73	BLK	0.000
F2RT	Transmitter Reference 36 KHz Real Signal	2.73	BLK	0.000
F2XT	Transmitter Reference 36 KHz Imaginary Signal	2.73	BLK	0.000
F3RT	Transmitter Reference 72 KHz Real Signal	2.73	BLK	0.000
F3XT	Transmitter Reference 72 KHz Imaginary Signal	2.73	BLK	0.000
TFPU	Upper Feedpipe Temperature Calculated	2.73	BLK	0.000
TFPL	Lower Feedpipe Temperature Calculated	2.73	BLK	0.000
ITMP	Instrument Temperature	2.73	BLK	0.000
TCVA	Temperature Correction Values Loop Off	2.73	NO	
TIDV	Instrument Temperature Derivative	2.73	NO	
TUDV	Upper Temperature Derivative	2.73	NO	
TLDV	Lower Temperature Derivative	2.73	NO	
TRBD	Receiver Board Temperature	2.73	NO	
<b>SDLT Pad</b>				
TPUL	Tension Pull	43.83	NO	
NAB	Near Above	43.66	BLK	0.920
NHI	Near Cesium High	43.66	BLK	0.920
NLO	Near Cesium Low	43.66	BLK	0.920
NVA	Near Valley	43.66	BLK	0.920
NBA	Near Barite	43.66	BLK	0.920
NDE	Near Density	43.66	BLK	0.920
NPK	Near Peak	43.66	BLK	0.920
NLI	Near Lithology	43.66	BLK	0.920
NBAU	Near Barite Unfiltered	43.66	BLK	0.250

NLIU	Near Lithology Unfiltered	43.66	BLK	0.250
FAB	Far Above	44.01	BLK	0.250
FHI	Far Cesium High	44.01	BLK	0.250
FLO	Far Cesium Low	44.01	BLK	0.250
FVA	Far Valley	44.01	BLK	0.250
FBA	Far Barite	44.01	BLK	0.250
FDE	Far Density	44.01	BLK	0.250
FPK	Far Peak	44.01	BLK	0.250
FLI	Far Lithology	44.01	BLK	0.250
PTMP	Pad Temperature	43.84	BLK	0.920
NHV	Near Detector High Voltage	43.24	NO	
FHV	Far Detector High Voltage	43.24	NO	
ITMP	Instrument Temperature	43.24	NO	
DDHV	Detector High Voltage	43.24	NO	

**Microlog Pad**

TPUL	Tension Pull	44.03	NO	
MINV	Microlog Lateral	44.03	BLK	0.750
MNOR	Microlog Normal	44.03	BLK	0.750

Data: WIGGAINS\_12-11\0001 SP-GTET-DSNT-SDLT-FLEX-BSAT-ACRT-BN005 17-Feb-13 07:09 Up @6829.8f

Date: 17-Feb-13 07:56:20

**HALLIBURTON**  
 Plot Time: 17-Feb-13 11:30:44  
 Plot Range: 1805 ft to 6816.75 ft  
 Data: WIGGAINS\_12-11\Well Based\WIGGAINS\_CASING\_PASS\  
 Plot File: \\-LOCAL-WIGGAINS\_12-11\Well Based\ACRT\ACRT\_1\_lib

# 1 INCH MAIN LOG

