



DUAL INDUCTION LOG

Company ROYAL ENERGY, INC.
 Well PRAEGER #4R
 Field PRAEGER
 County STAFFORD
 State KANSAS

Company ROYAL ENERGY, INC.
 Well PRAEGER #4R
 Field PRAEGER
 County STAFFORD State KANSAS

Location: API # : 15-185-24008-00-00
 2310' FSL & 1320' FEL
 SEC 36 TWP 24S RGE 15W
 Permanent Datum GROUND LEVEL Elevation 2006
 Log Measured From KELLY BUSHING 10' A.G.L.
 Drilling Measured From KELLY BUSHING
 Other Services CD/CNL/MEI SONIC
 Elevation K.B. 2018 D.F. 2014 G.L. 2006

Date	01/26/18		
Run Number	ONE		
Depth Driller	4575		
Depth Logger	4580		
Bottom Logged Interval	4578		
Top Log Interval	00		
Casing Driller	8 5/8" @ 353		
Casing Logger	353		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 12300 PPM	
Density / Viscosity	9.0/44		
pH / Fluid Loss	10.0/12.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.50@56		
Rmt @ Meas. Temp	.38@56		
Rmc @ Meas. Temp	.60@56		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	23@121		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	///		
Maximum Recorded Temperature	121F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	GUS PFANENSTIEL		
Witnessed By	ELI FELTS		

<<< Fold Here >>>

All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, damages, or expenses incurred or sustained by anyone resulting from any interpretation made by any of our officers, agents or employees. These interpretations are also subject to our general terms and conditions set out in our current Price Schedule.

Comments

THANK YOU FOR USING ELI WIRELINE, HAYS, KS. (785) 628-6395

DIRECTIONS
 EAST OF MACKSVILLE 3 MILES,
 SOUTH 2 3/4 MILES, WEST INTO.



MAIN PASS

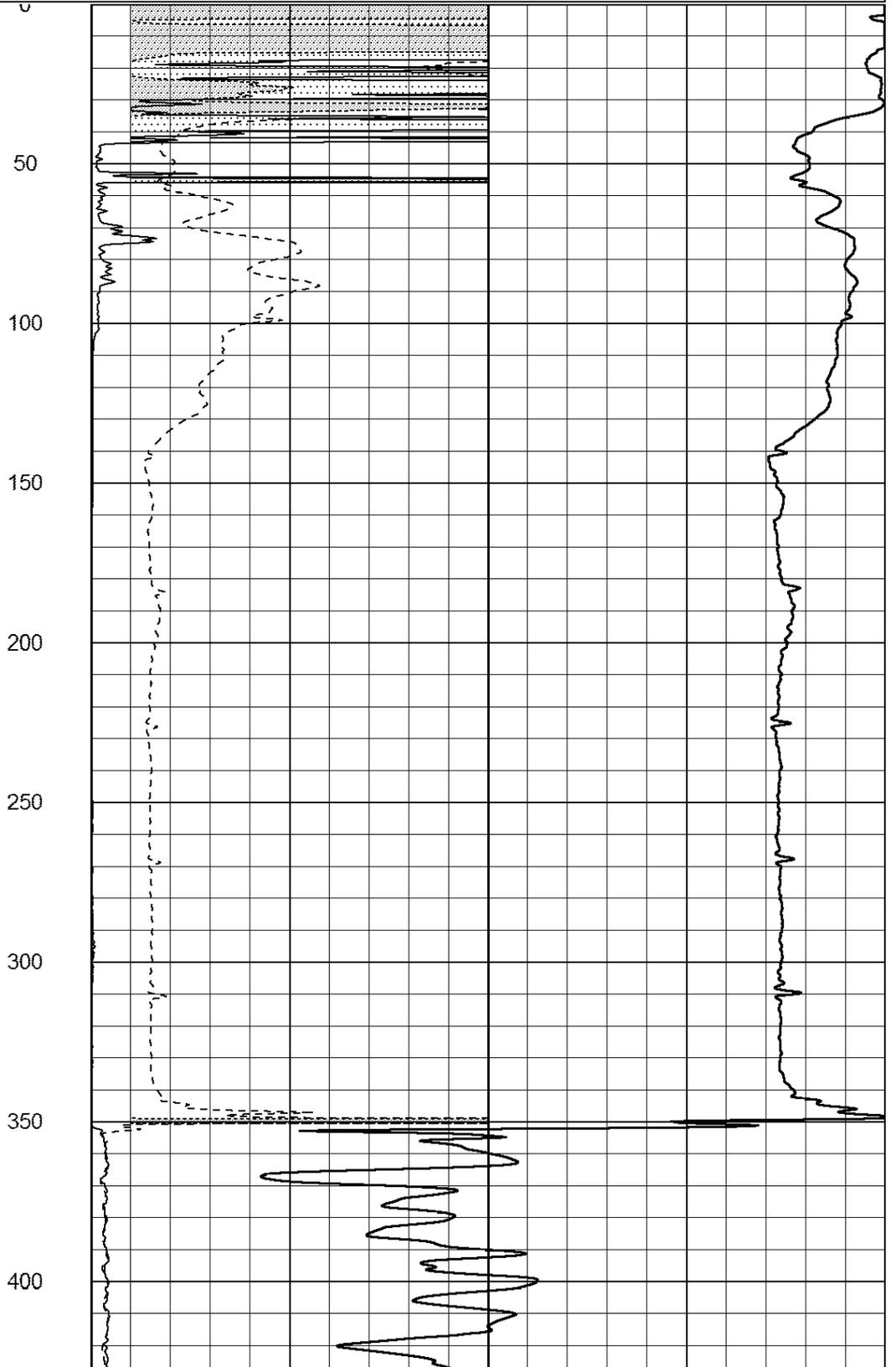
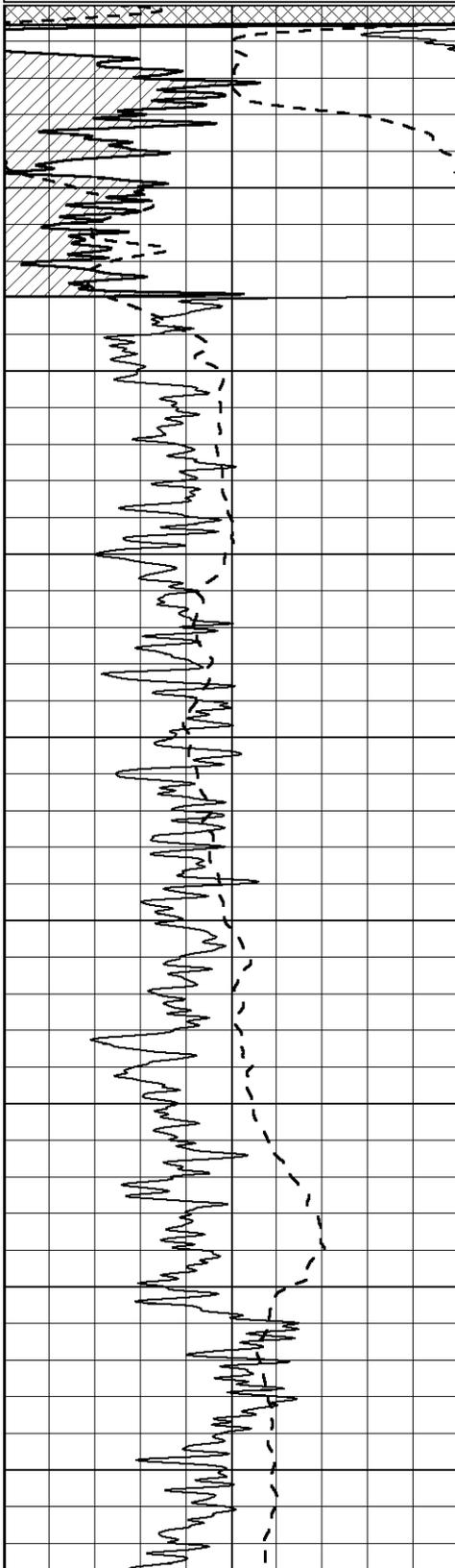
Database File: 2403ddn.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil2
 Dataset Creation: Fri Jan 26 11:06:26 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

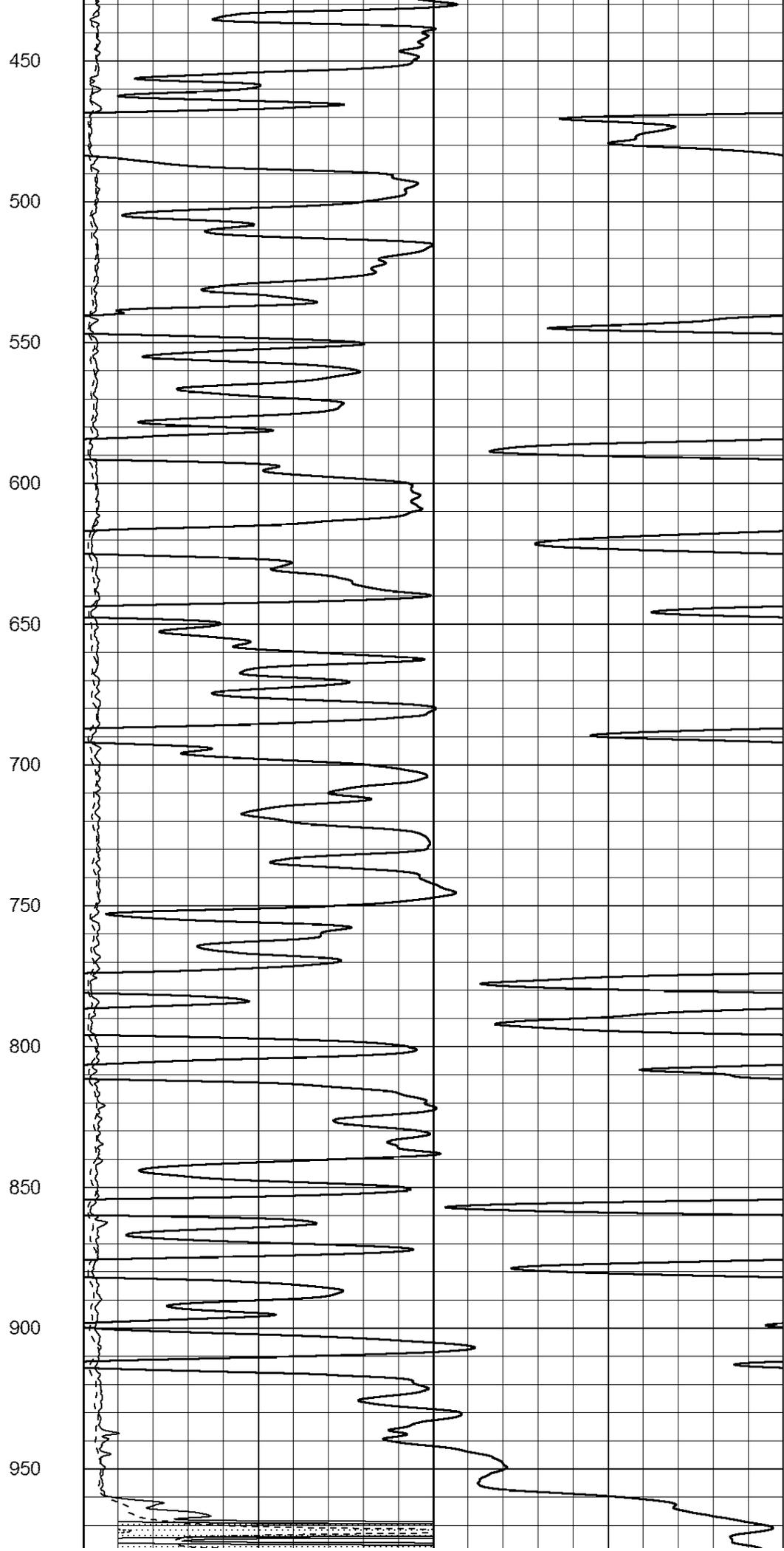
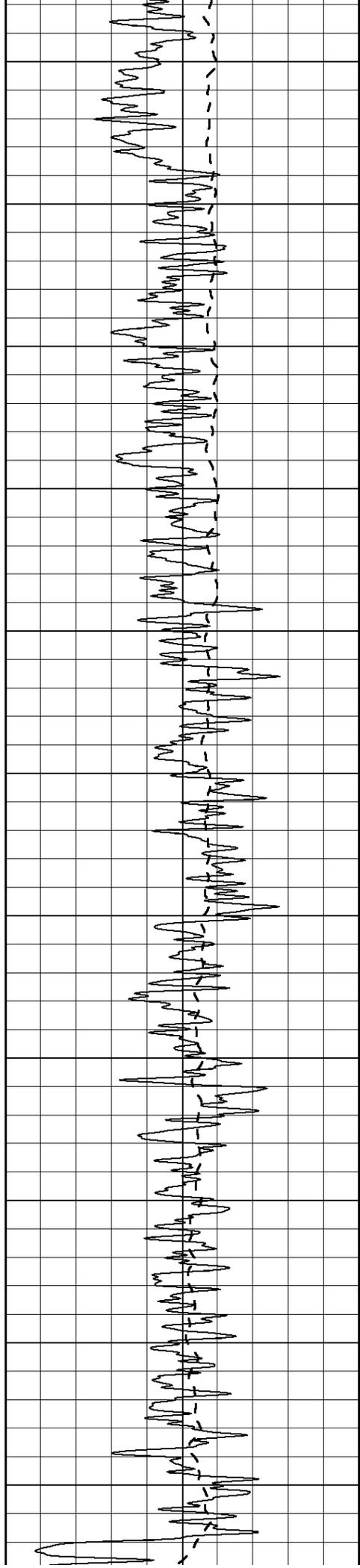
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

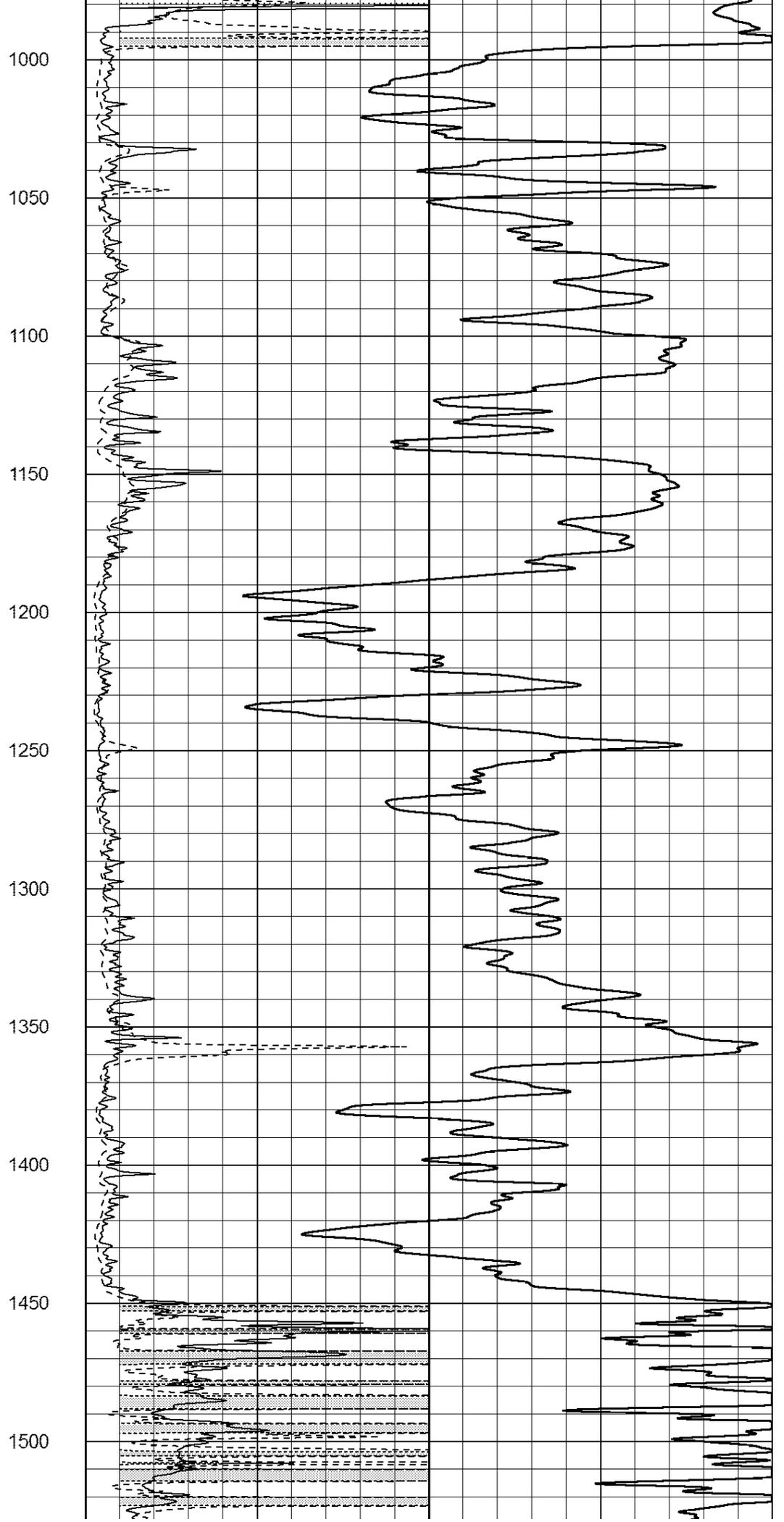
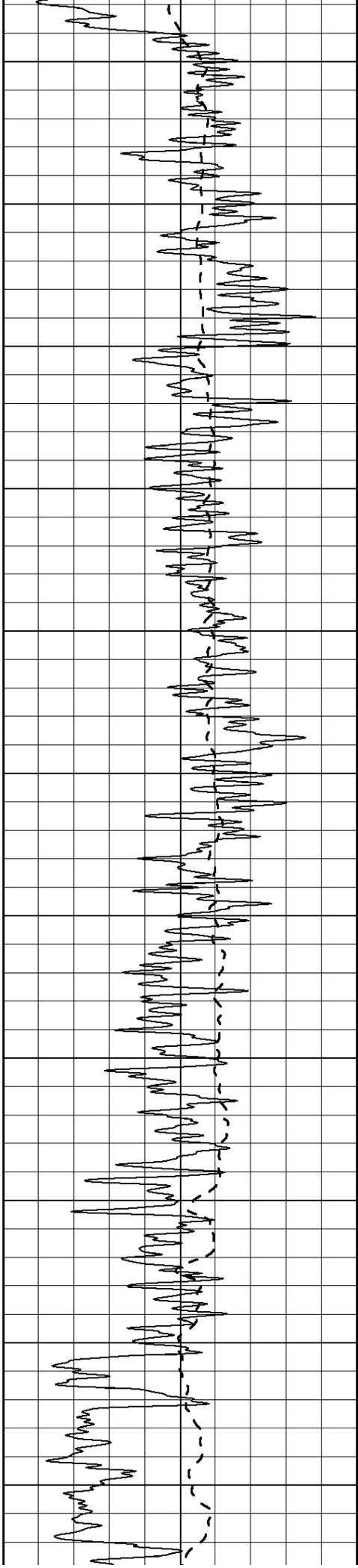
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

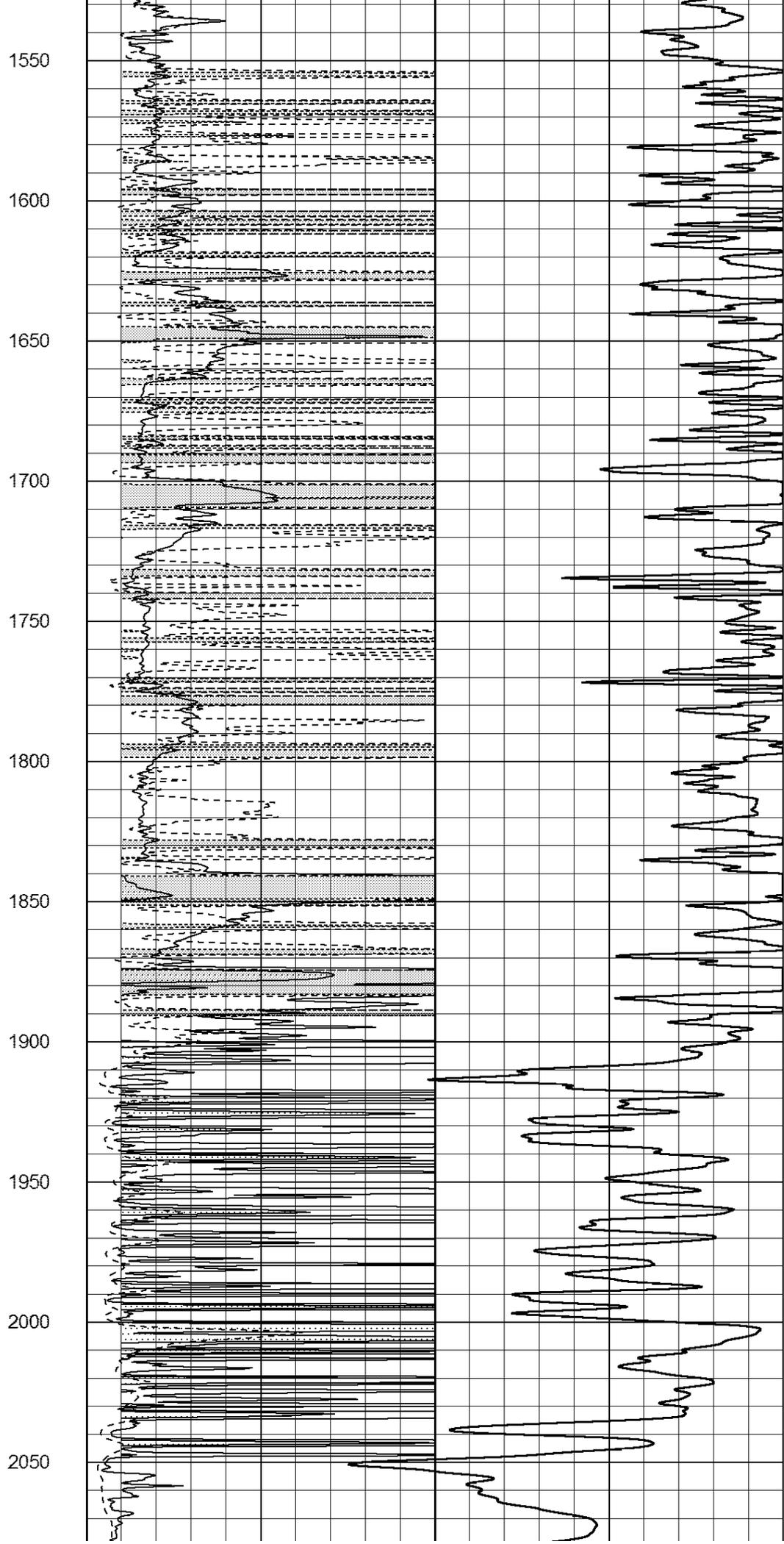
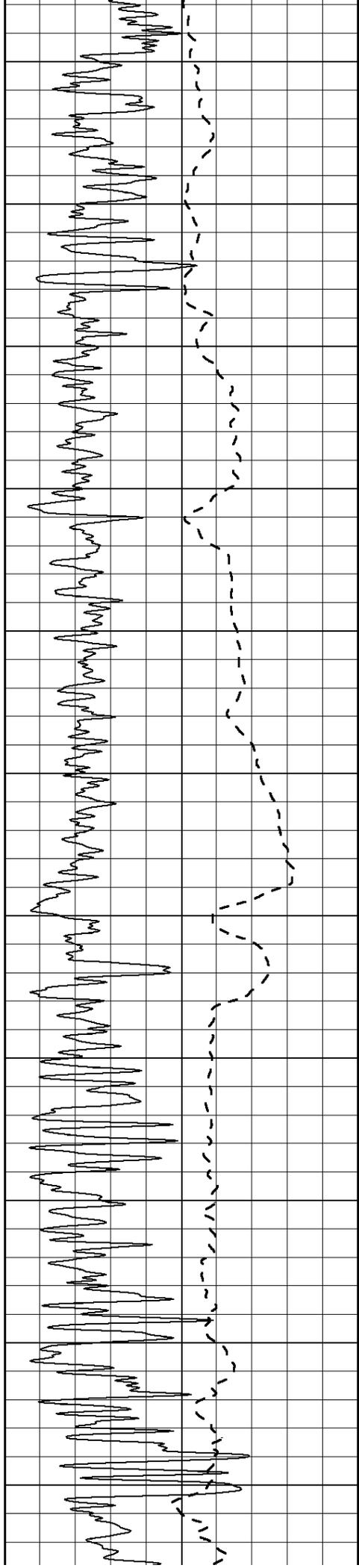
1000	CILD (mmho/m)	0
------	---------------	---

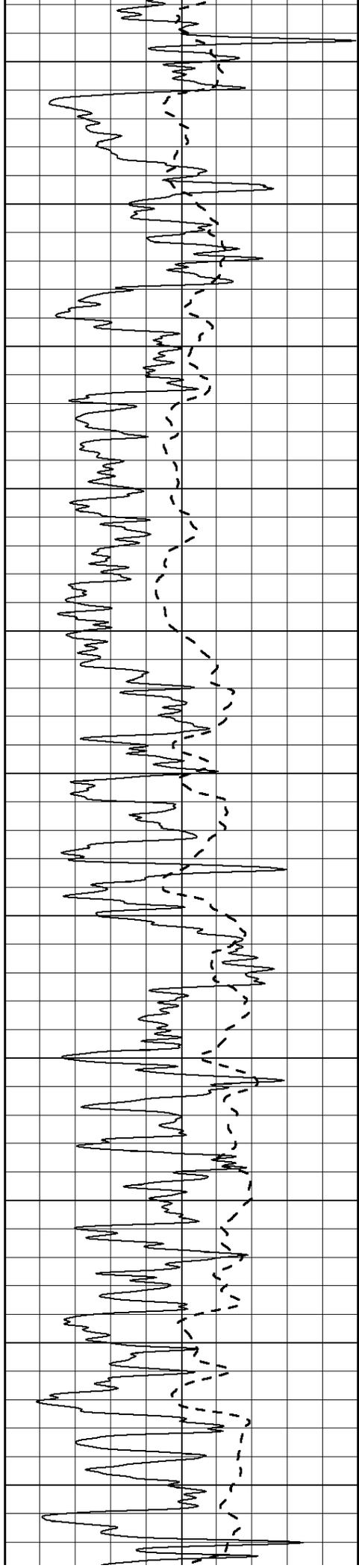
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500











2100

2150

2200

2250

2300

2350

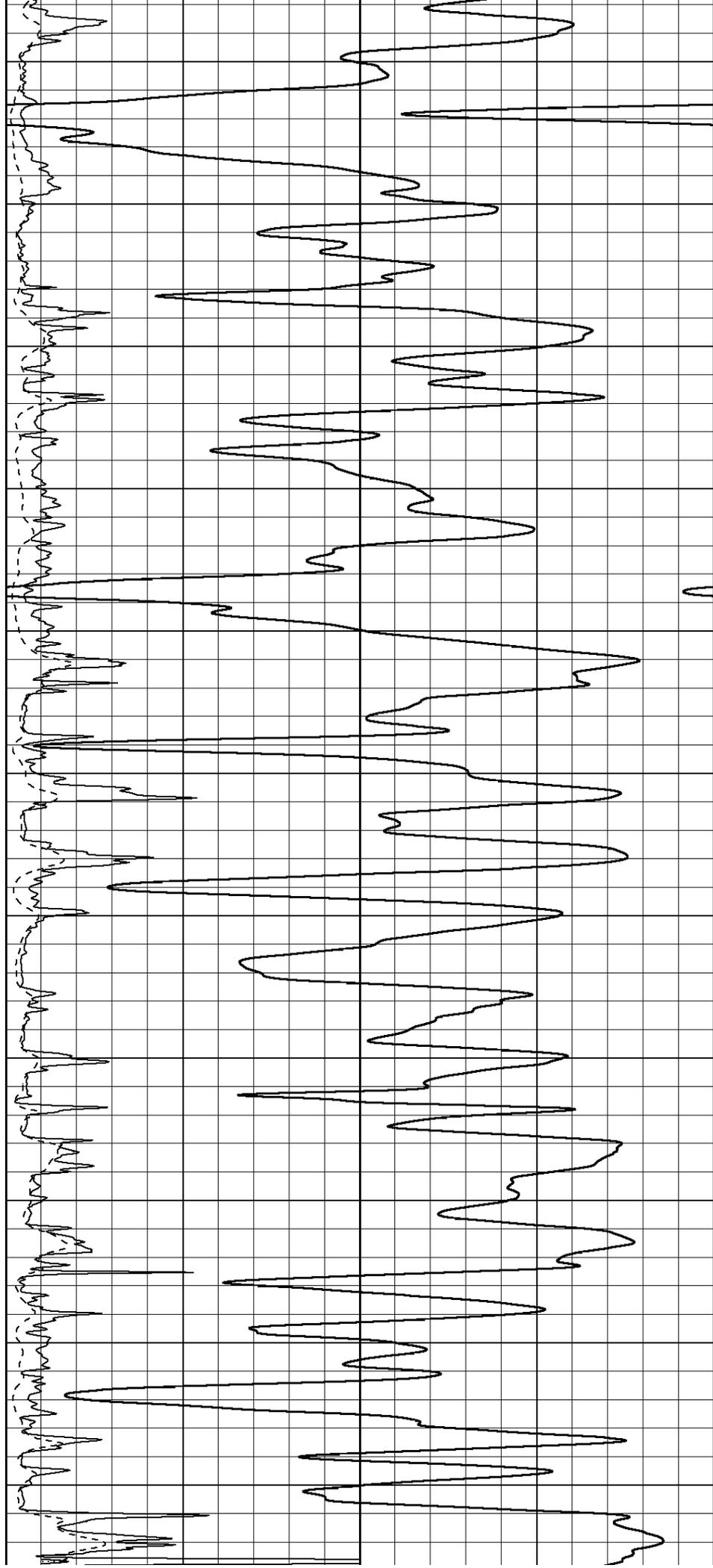
2400

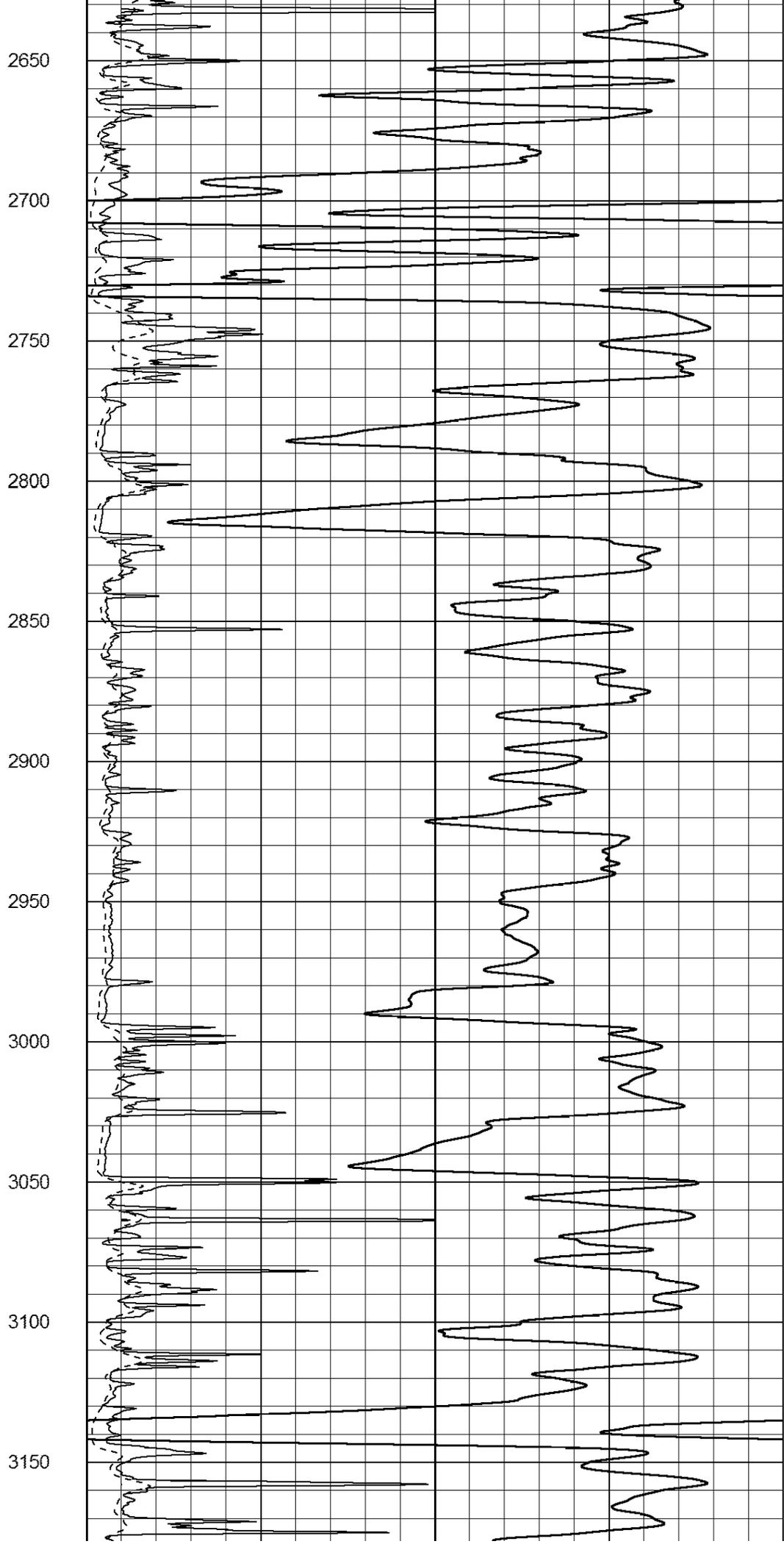
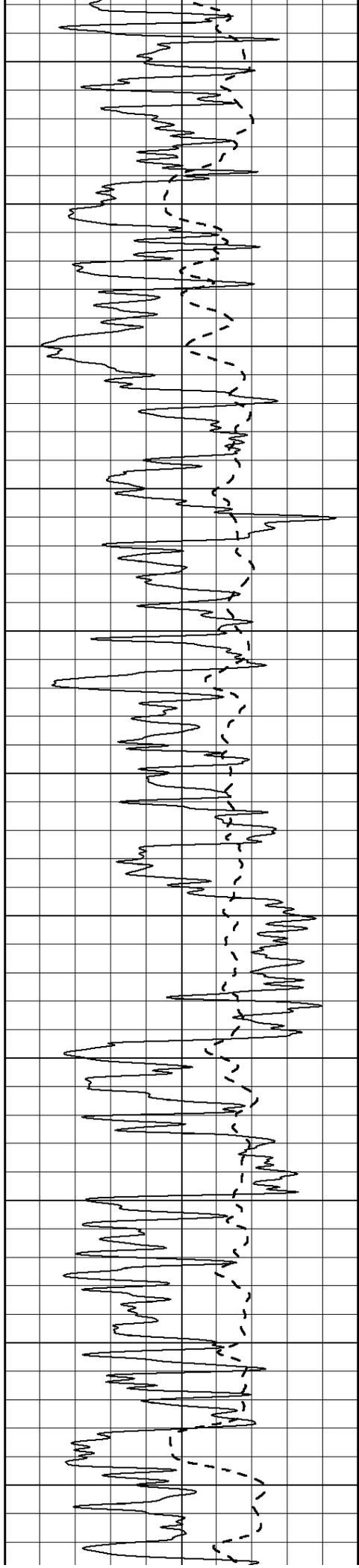
2450

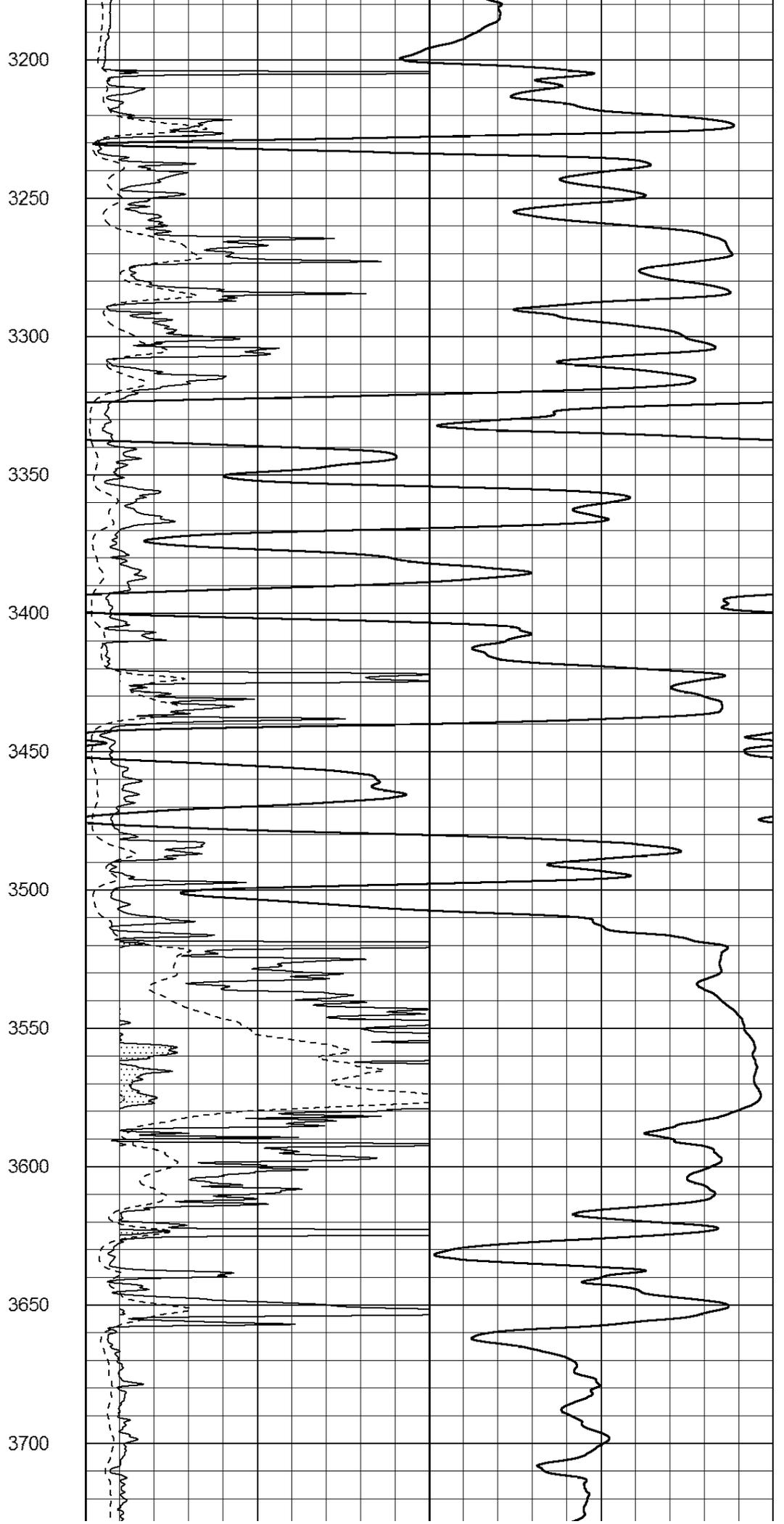
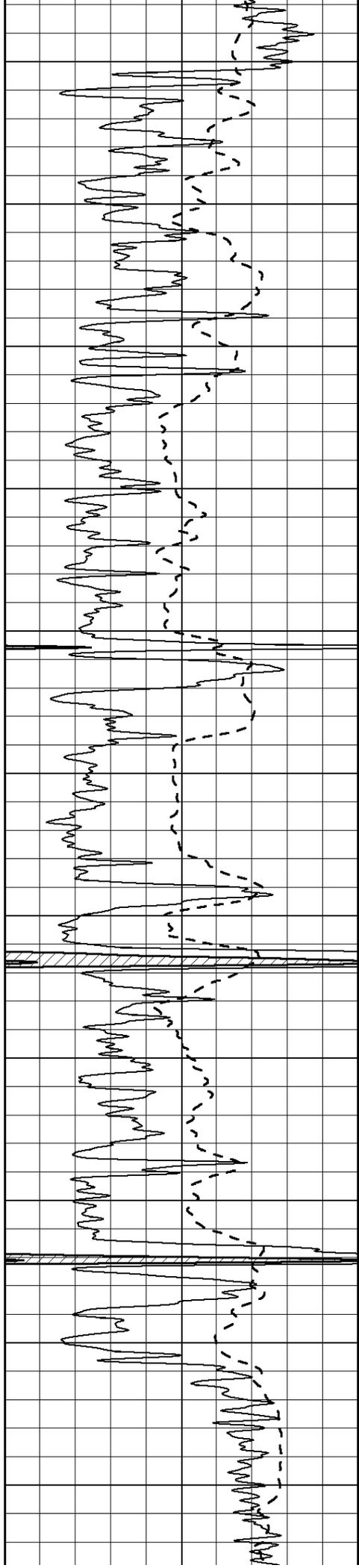
2500

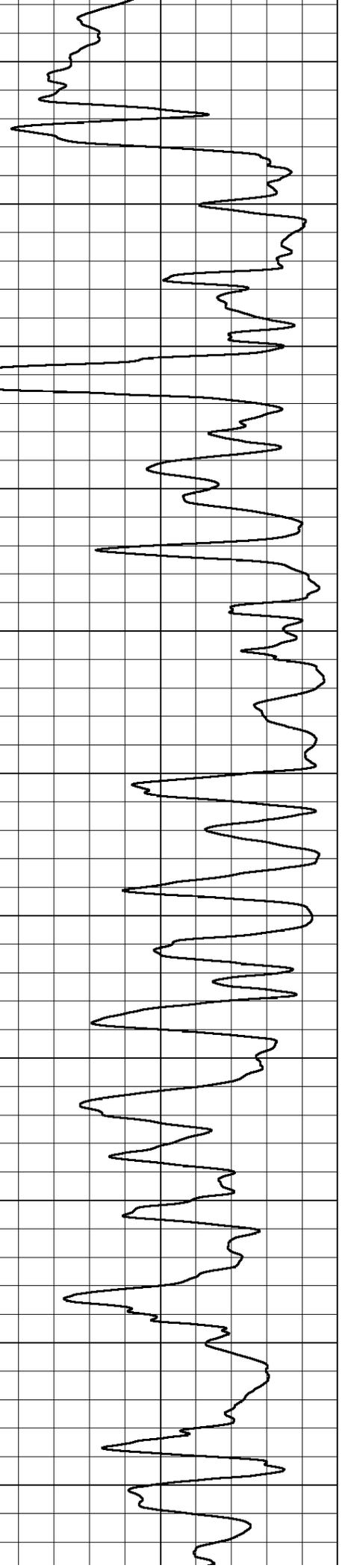
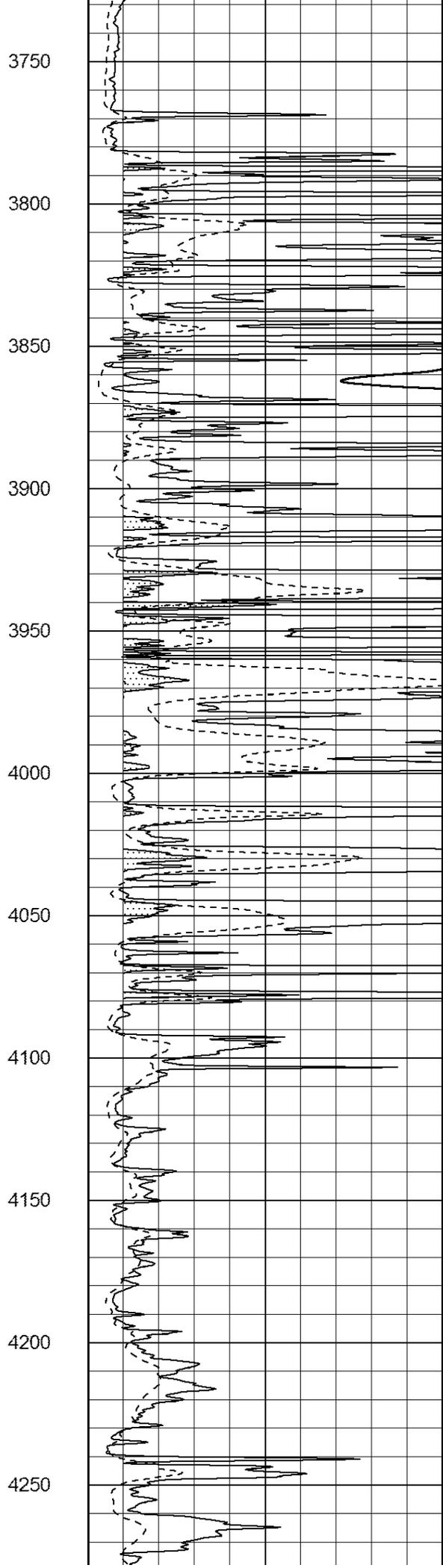
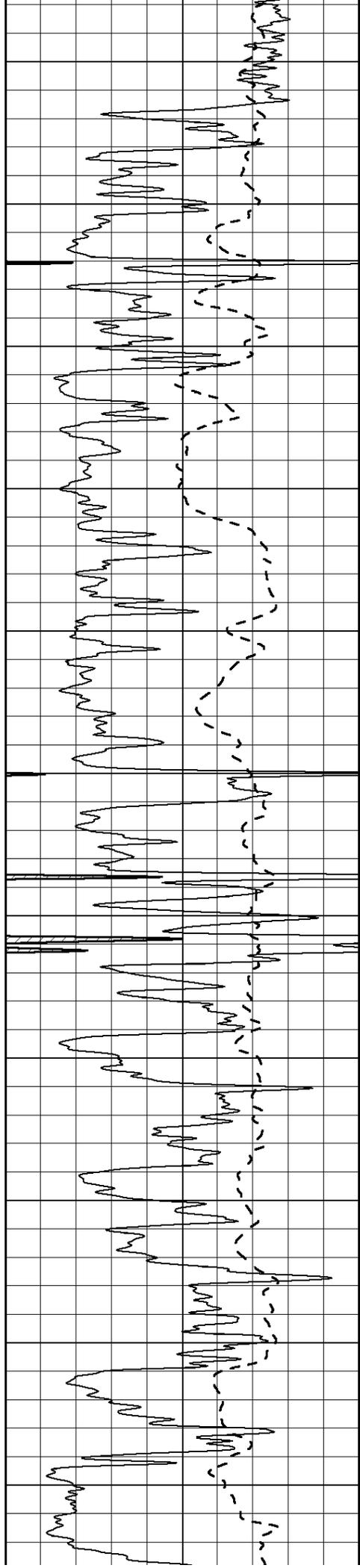
2550

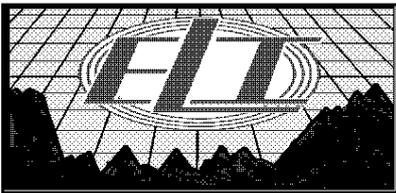
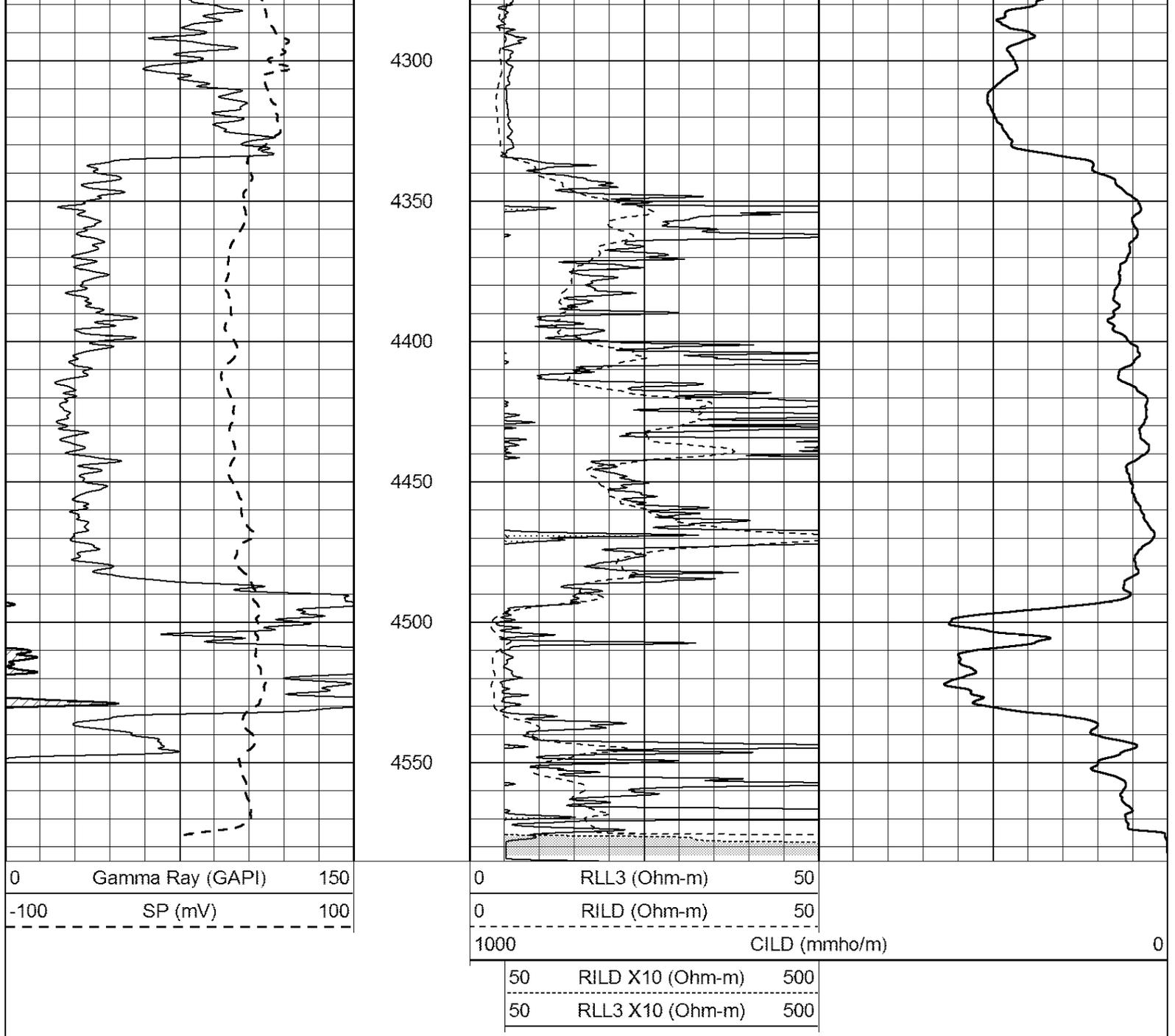
2600









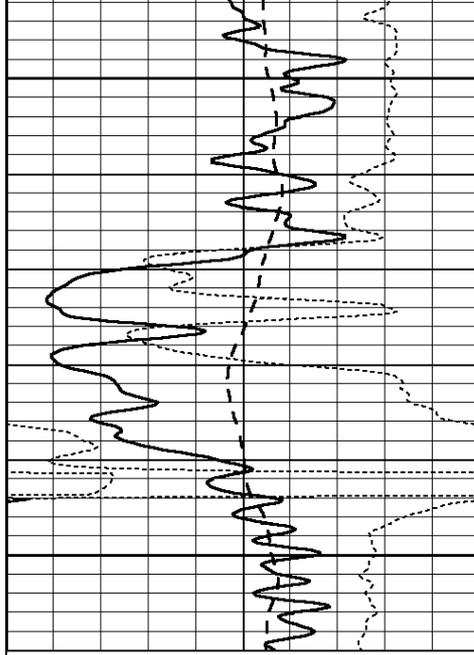


MAIN PASS

Database File: 2403ddn.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Fri Jan 26 11:06:26 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

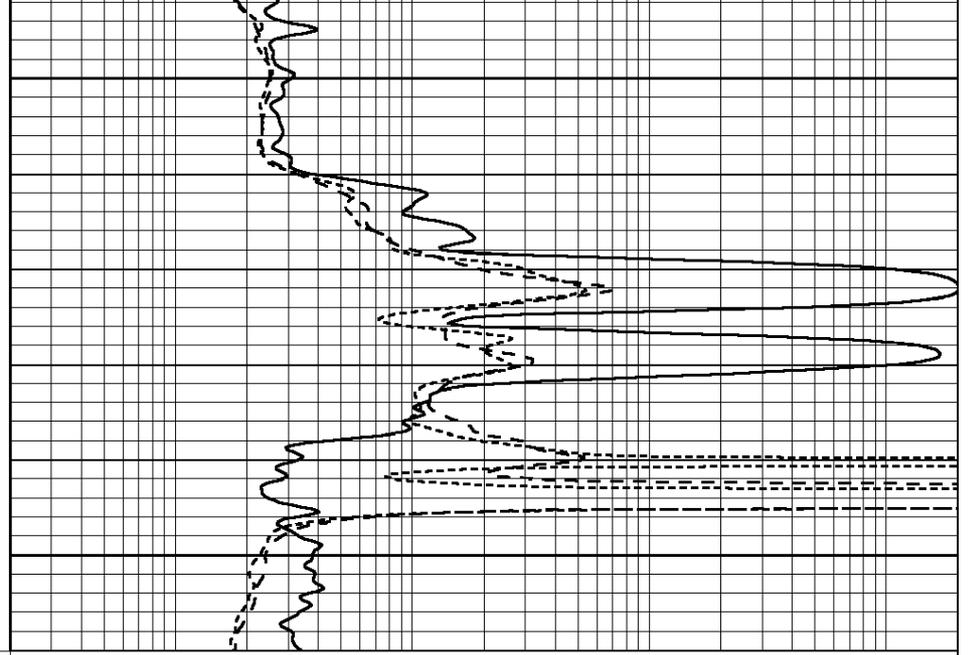
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

950

1000



0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

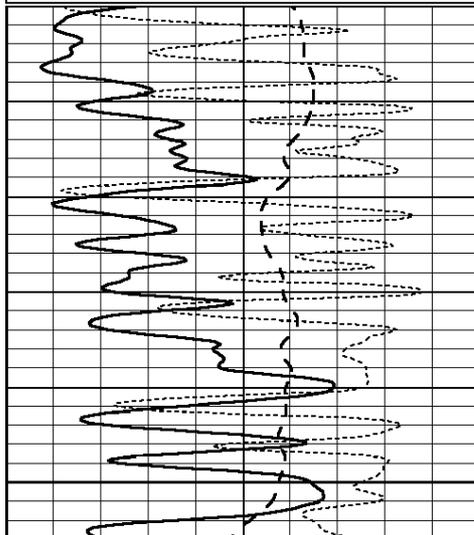


MAIN PASS

Database File: 2403ddn.db
 Dataset Pathname: pass3.1
 Presentation Format: _dil
 Dataset Creation: Fri Jan 26 11:06:26 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

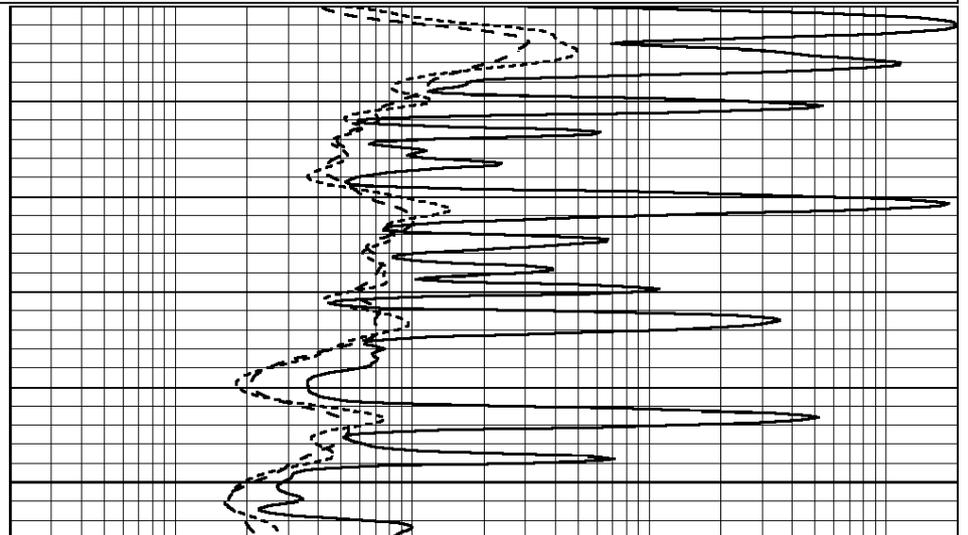
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

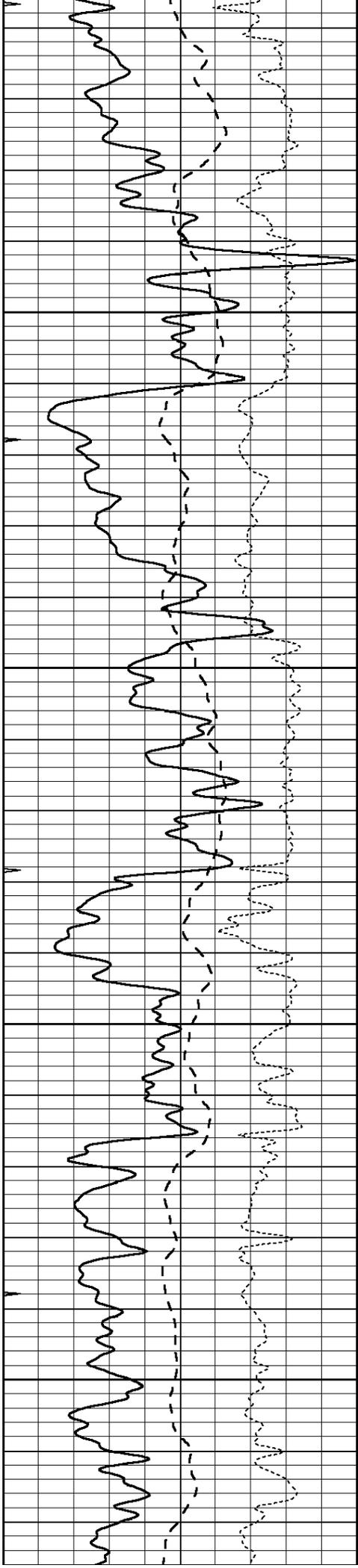
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



2000

2050



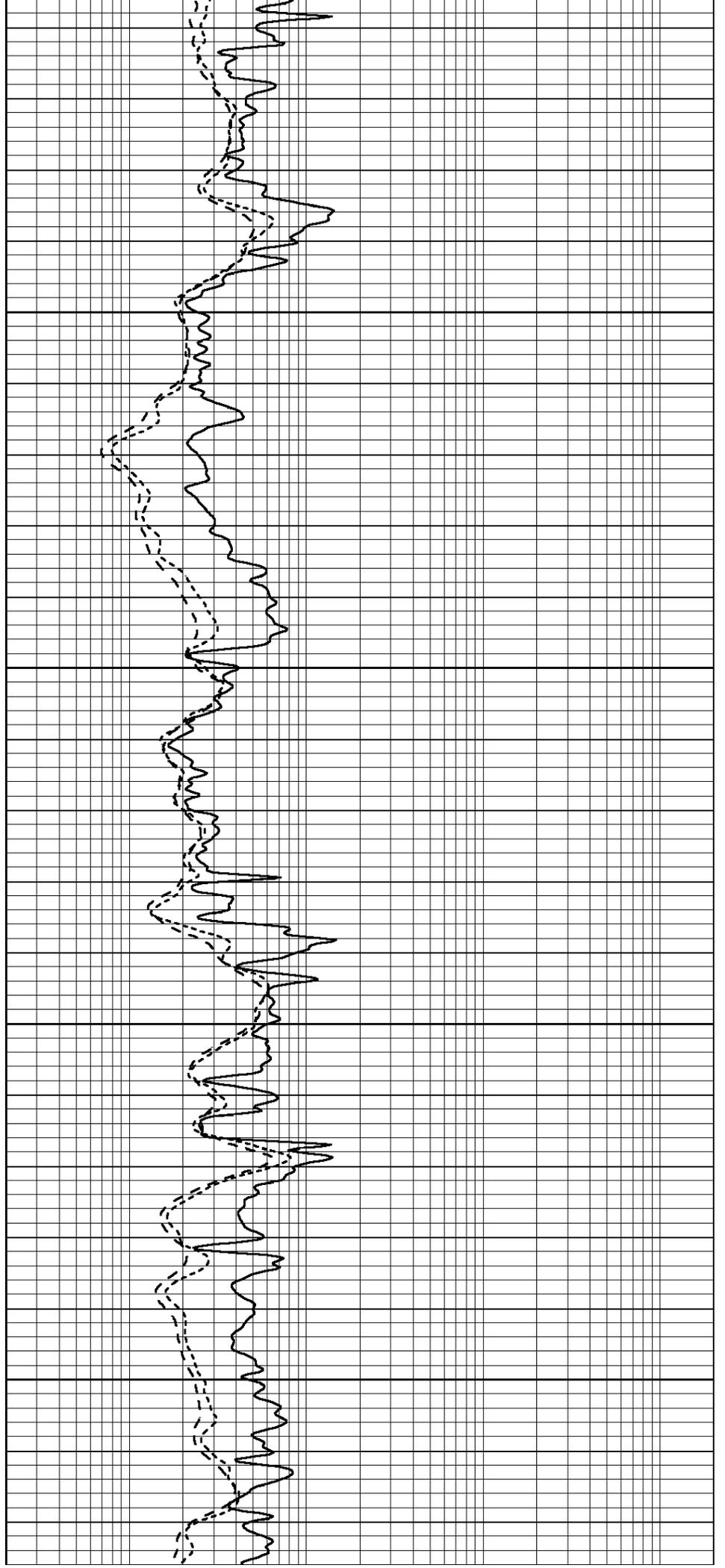


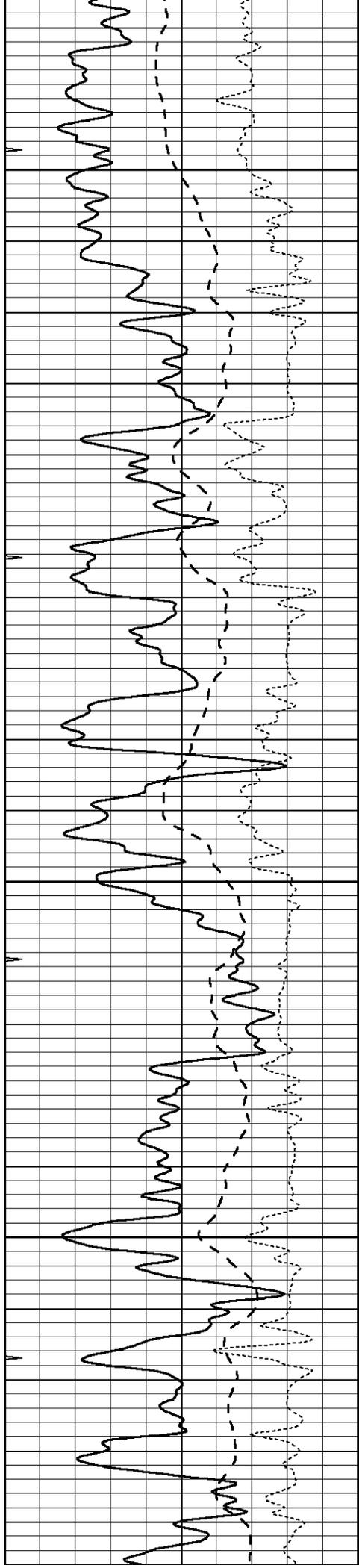
2100

2150

2200

2250



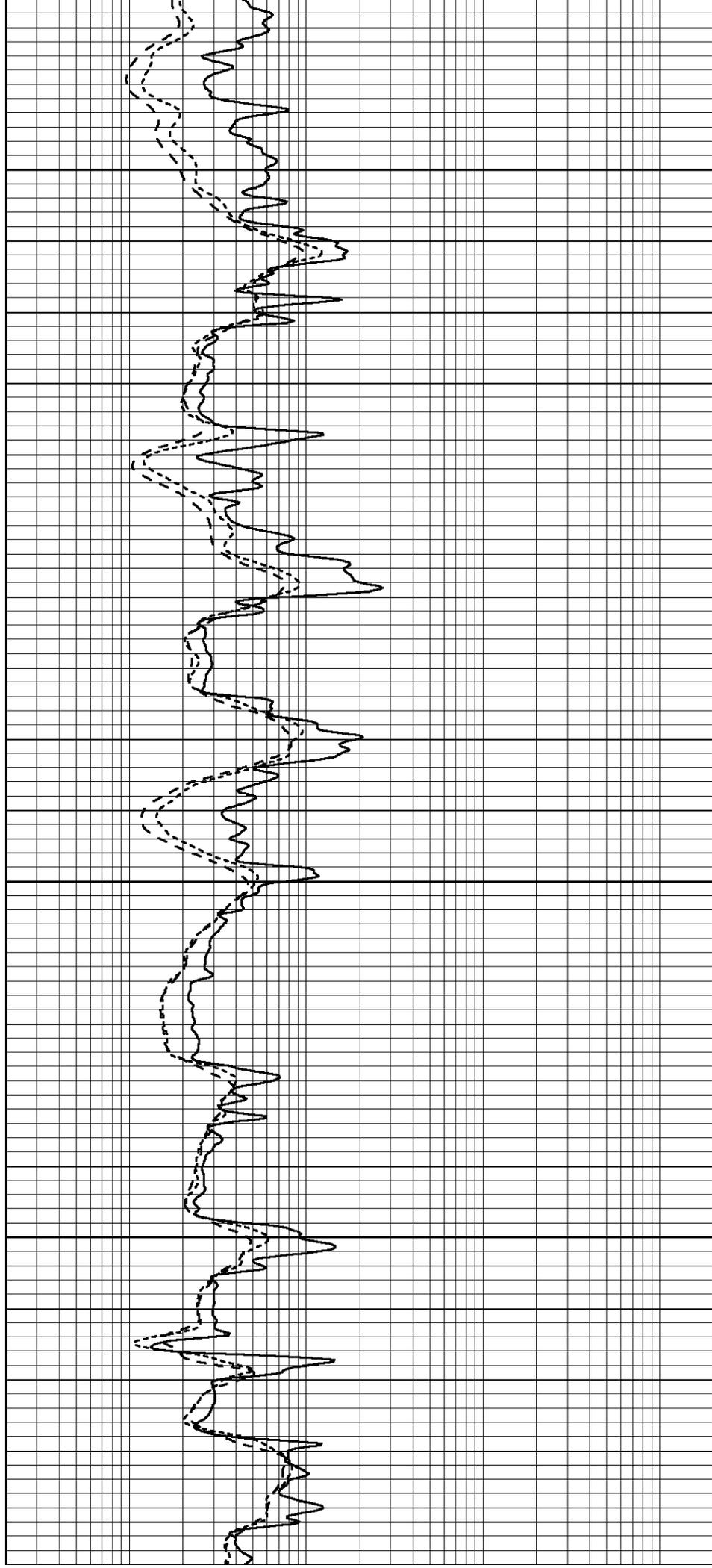


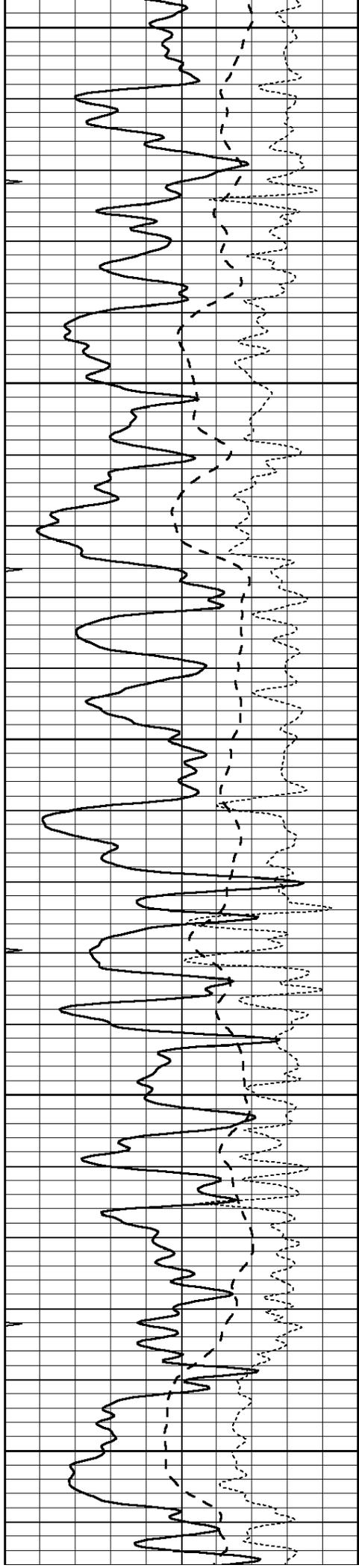
2300

2350

2400

2450





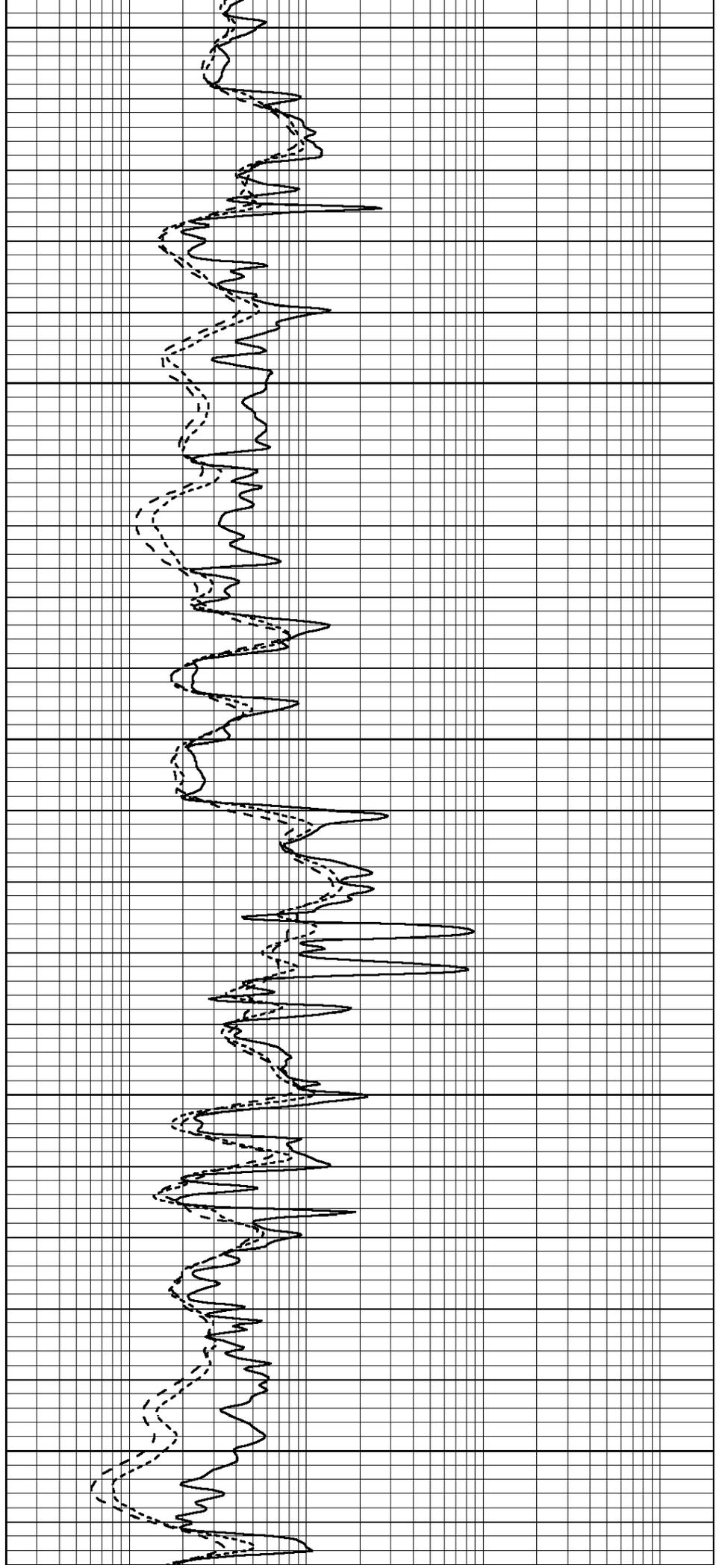
2500

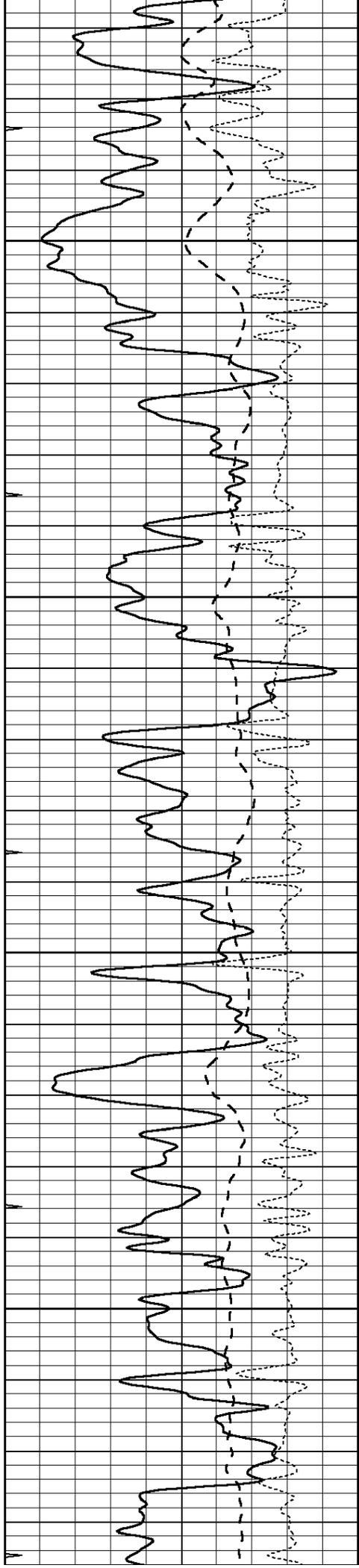
2550

2600

2650

2700



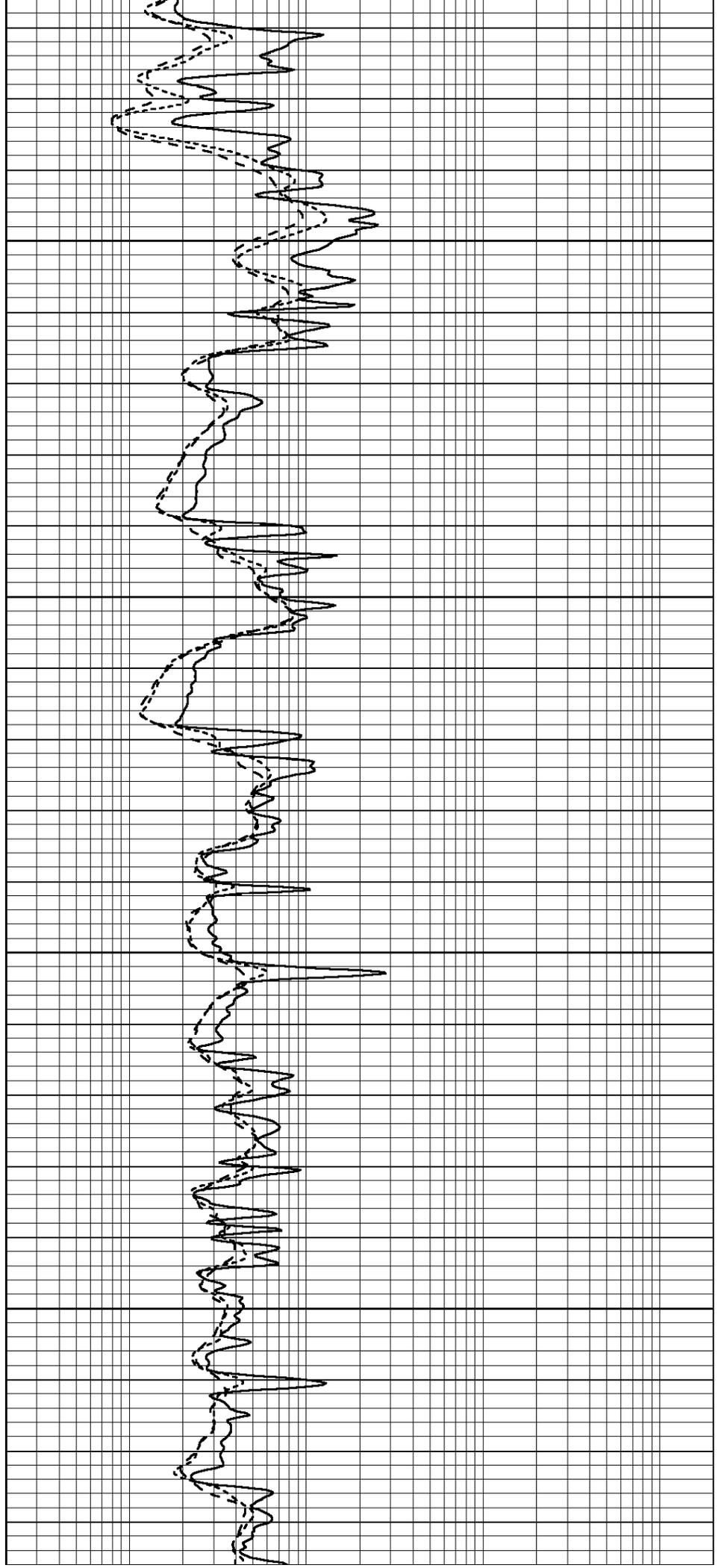


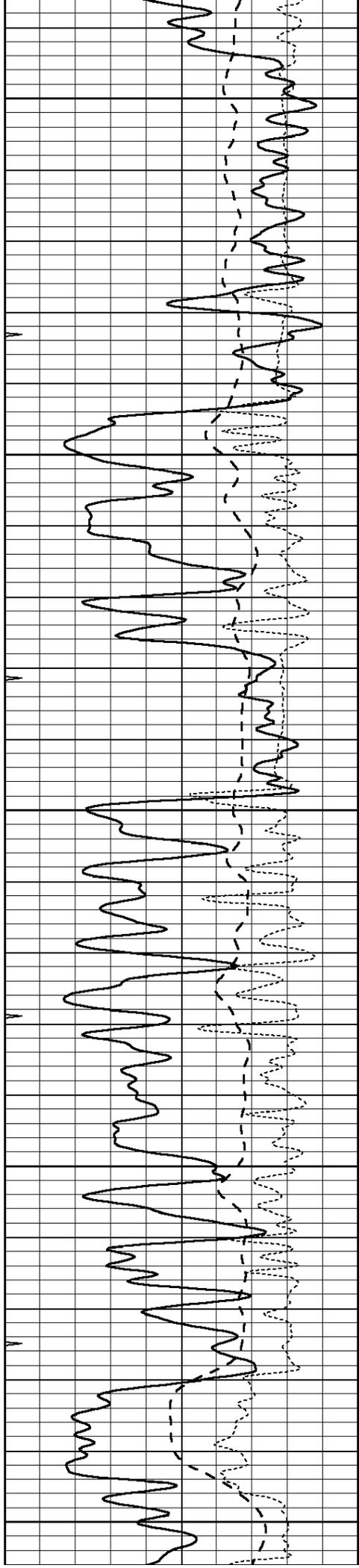
2750

2800

2850

2900





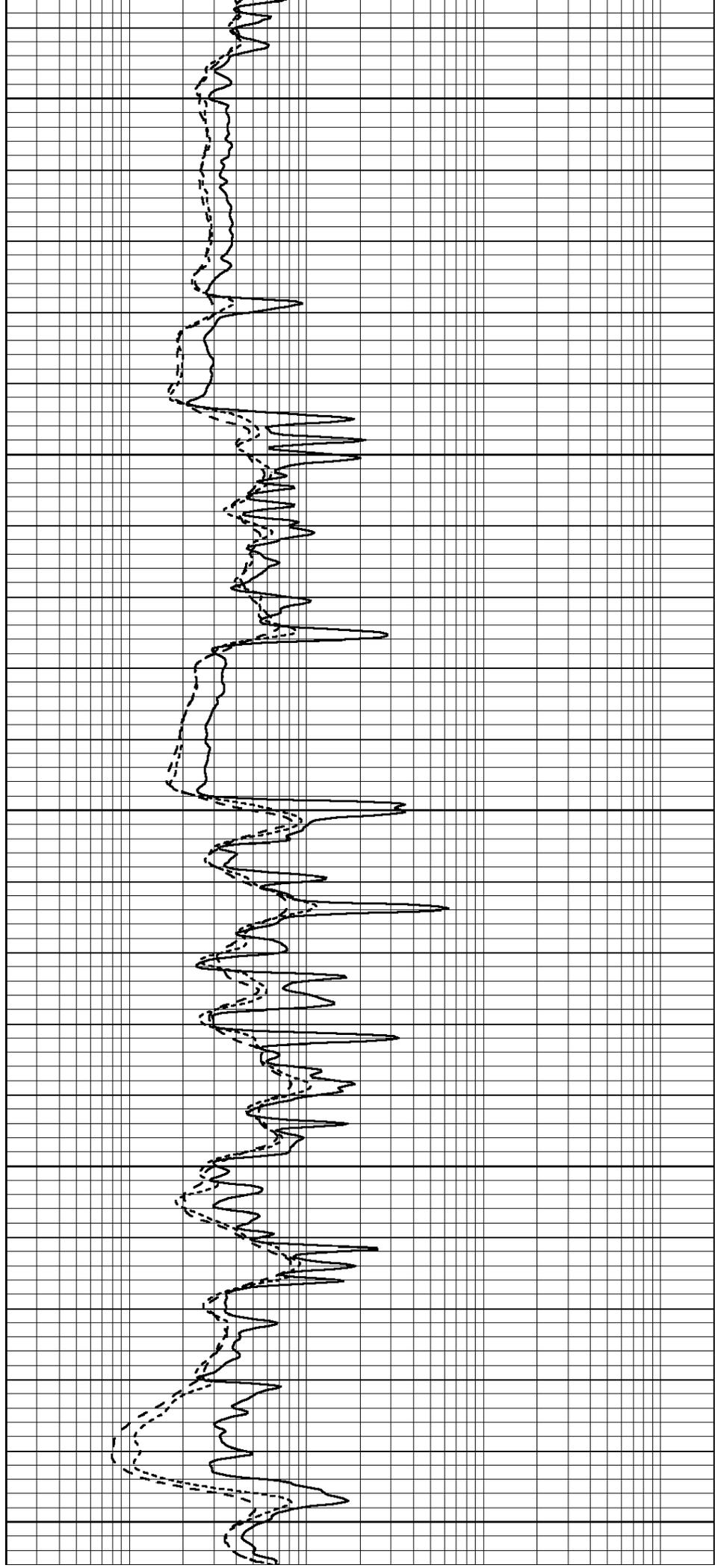
2950

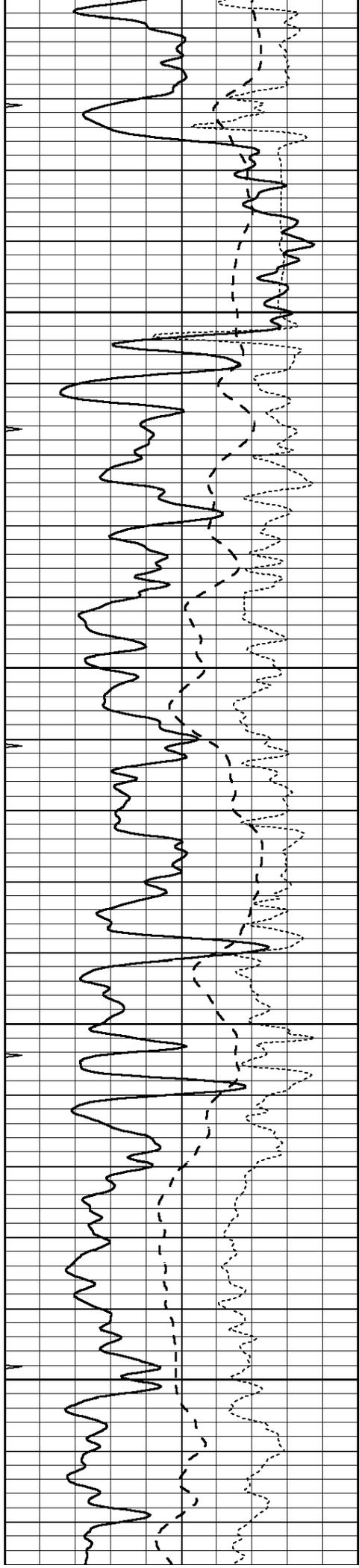
3000

3050

3100

3150



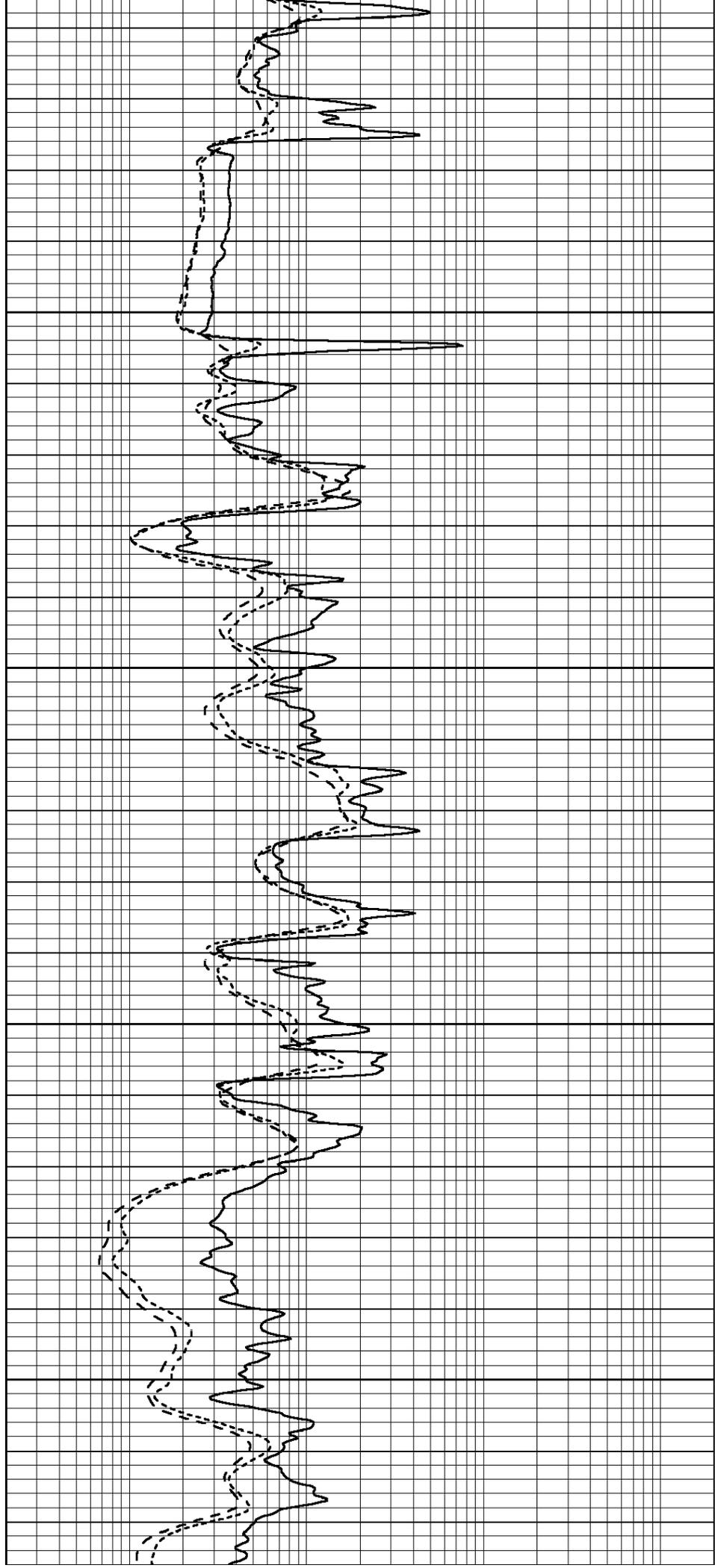


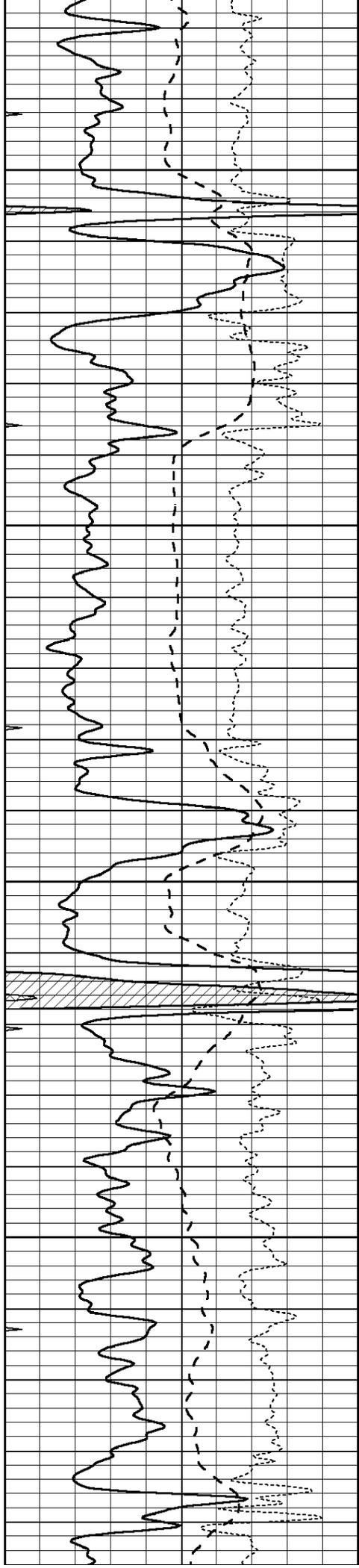
3200

3250

3300

3350



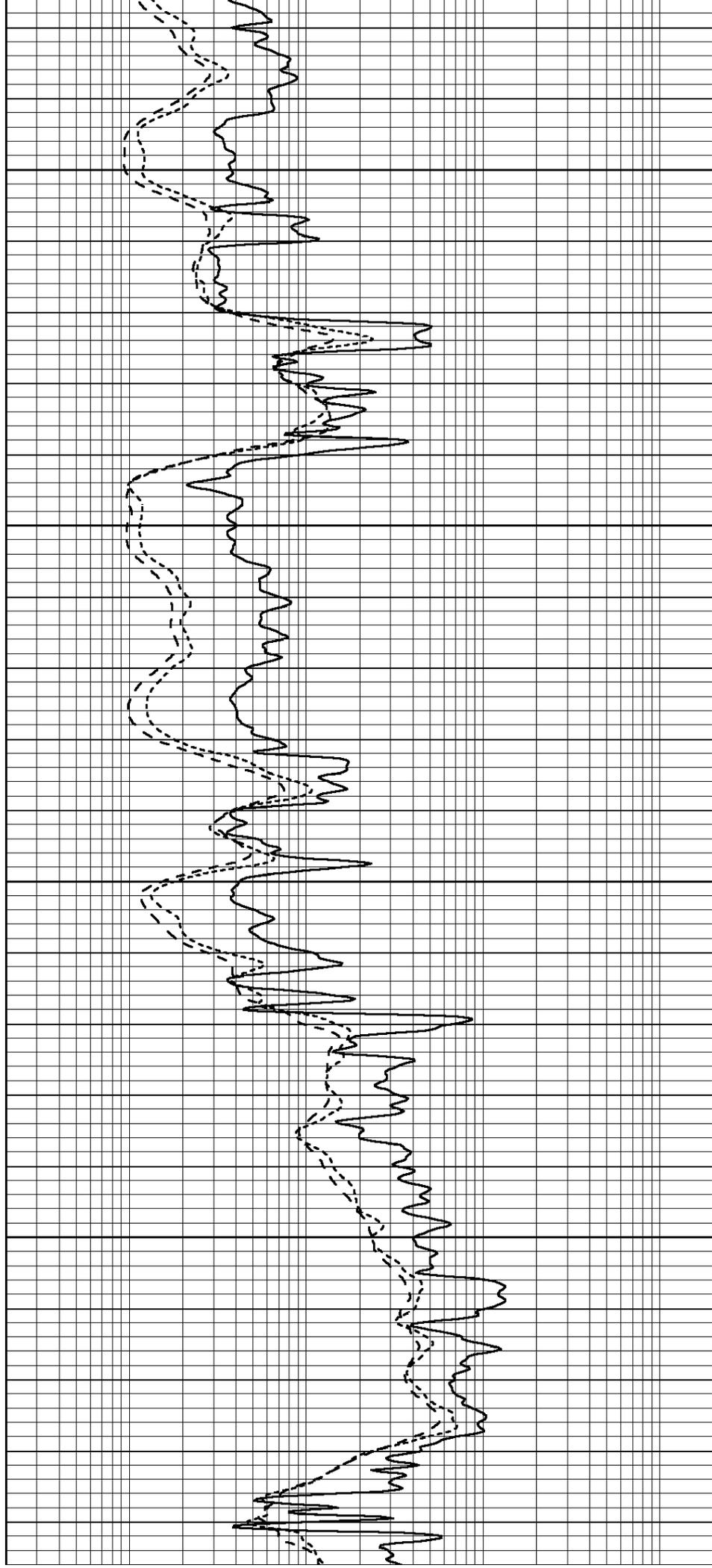


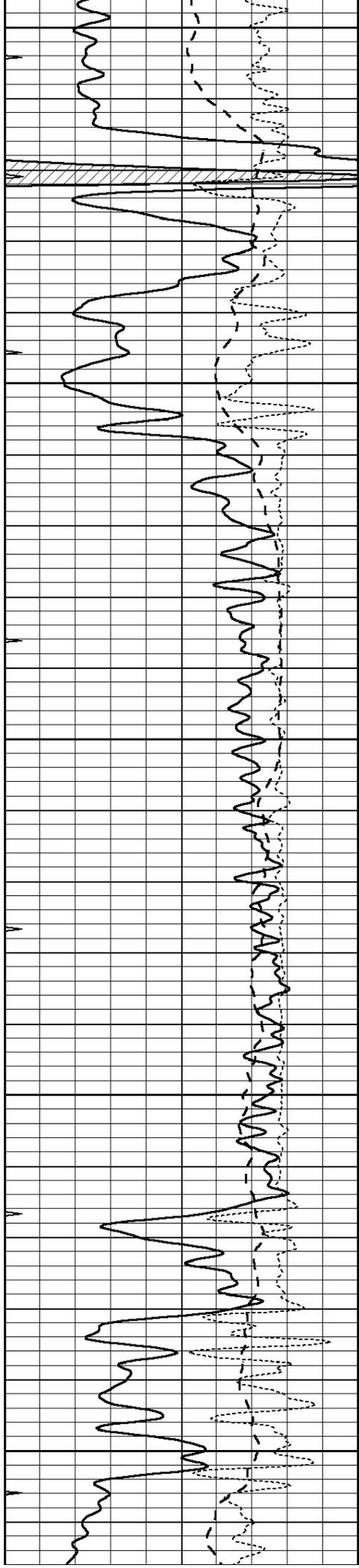
3400

3450

3500

3550





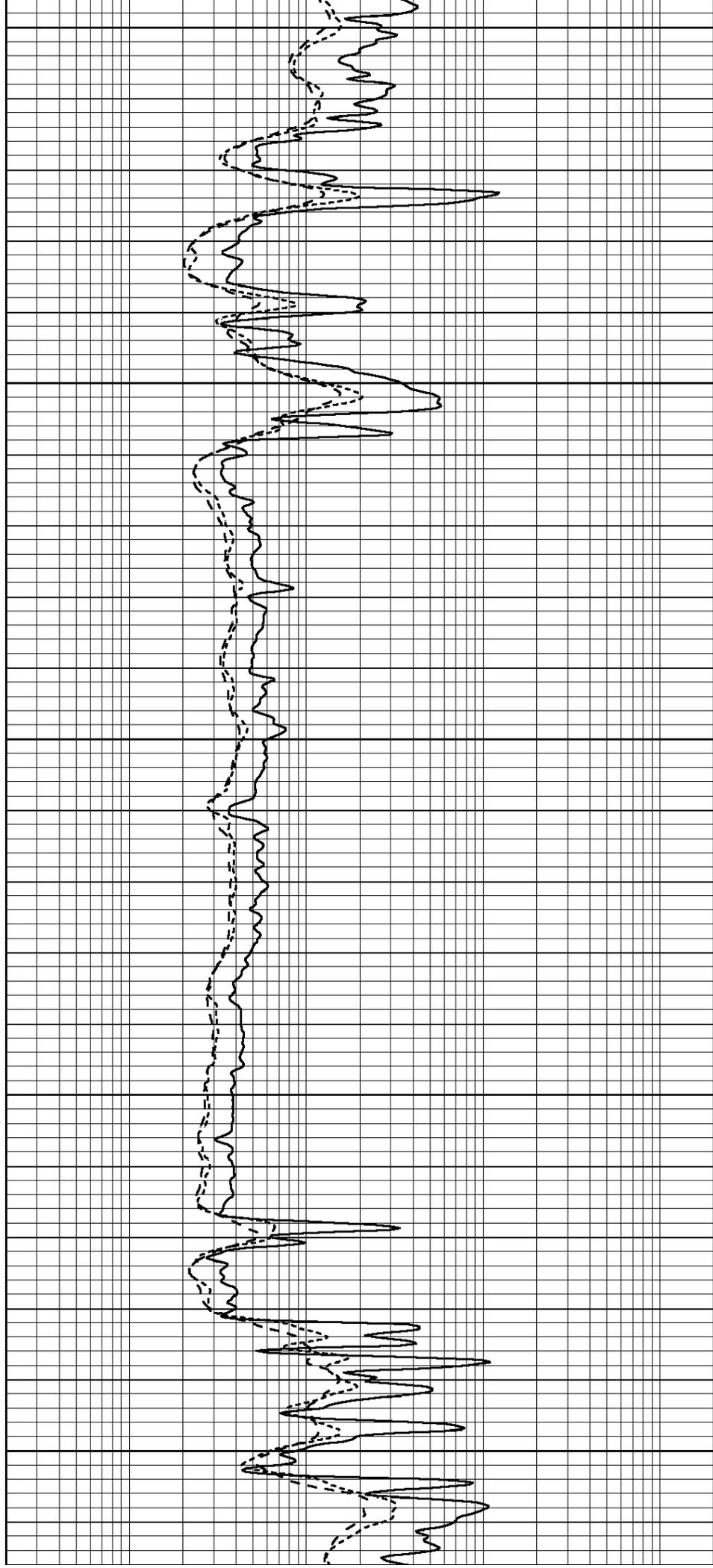
3600

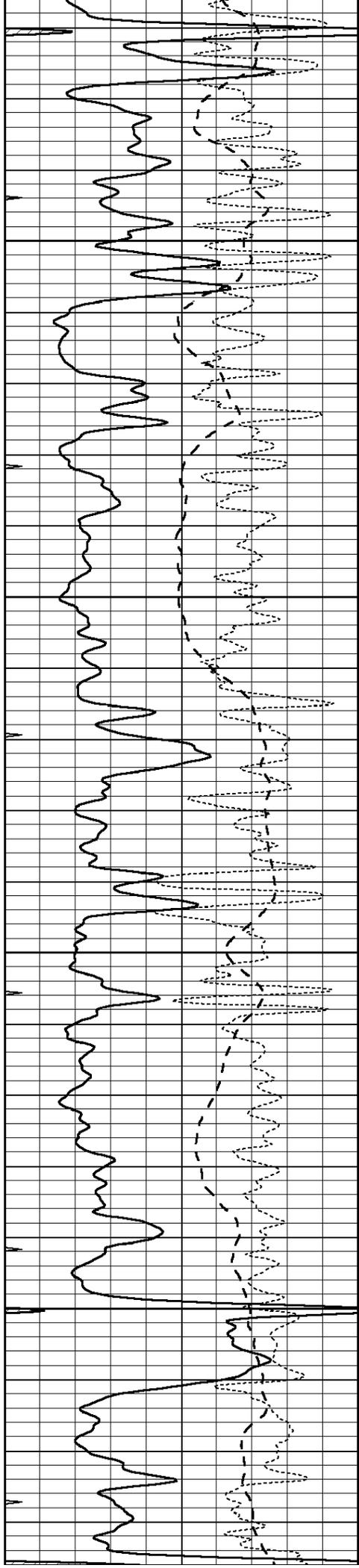
3650

3700

3750

3800



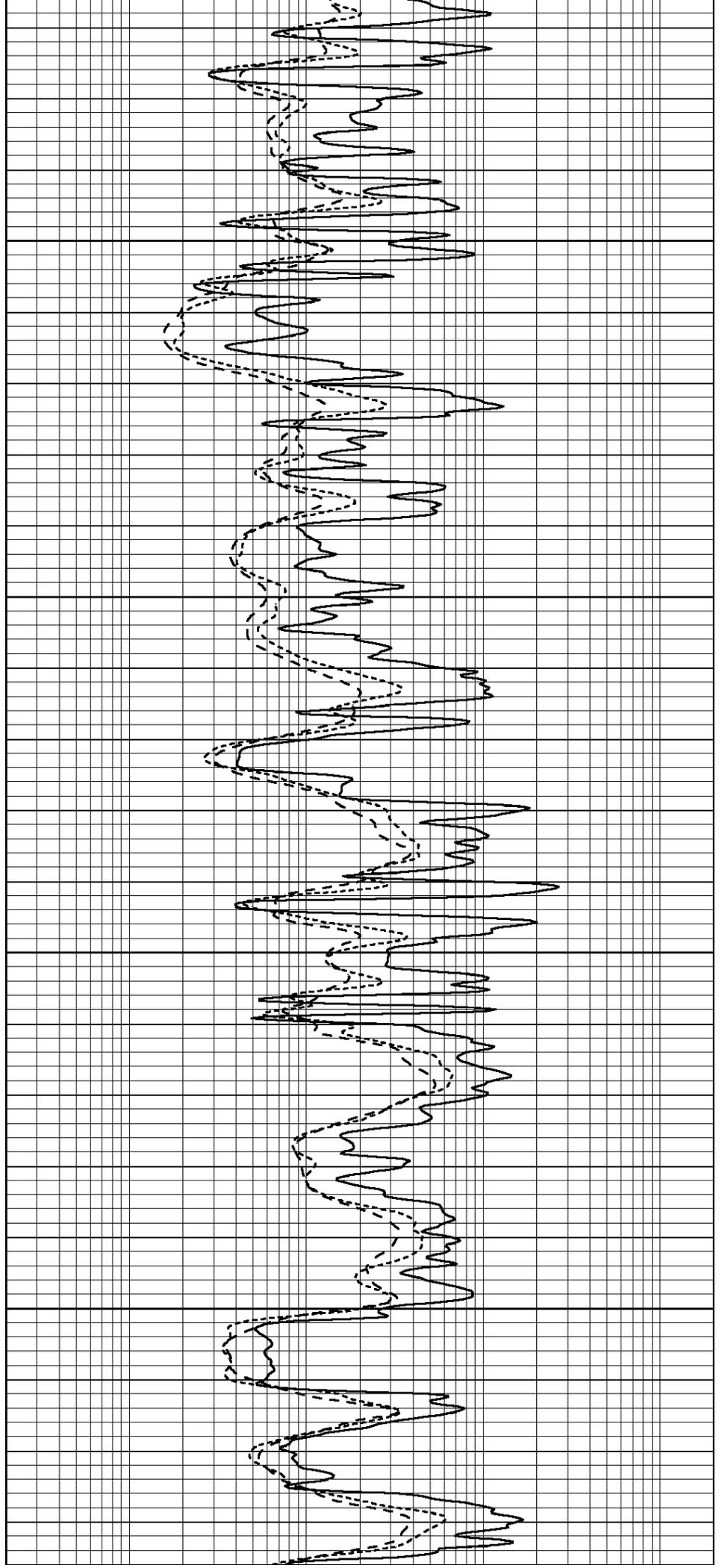


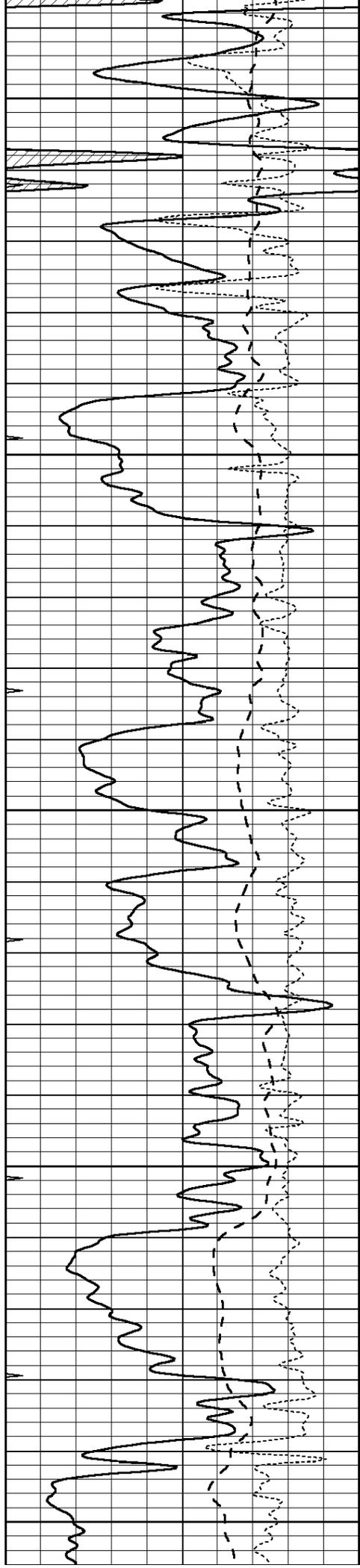
3850

3900

3950

4000





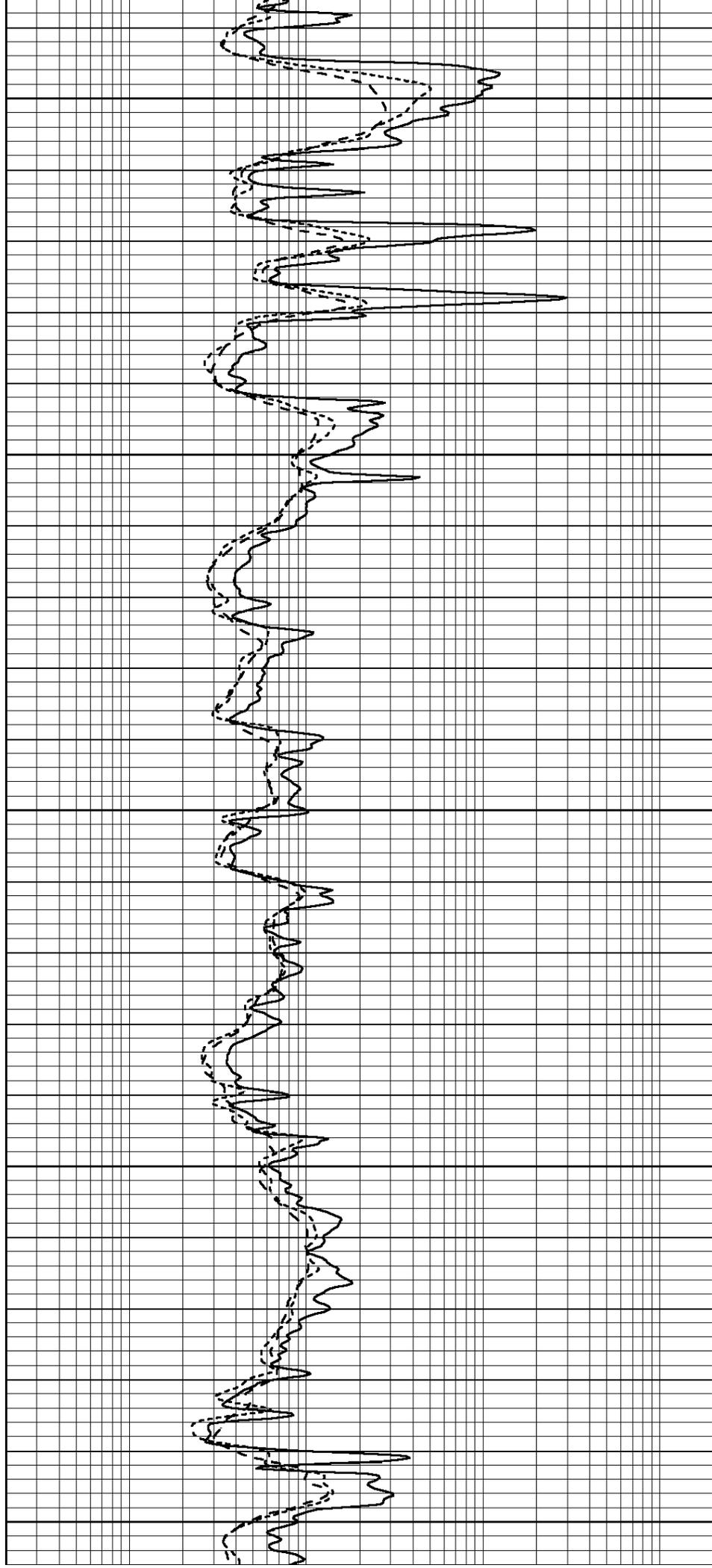
4050

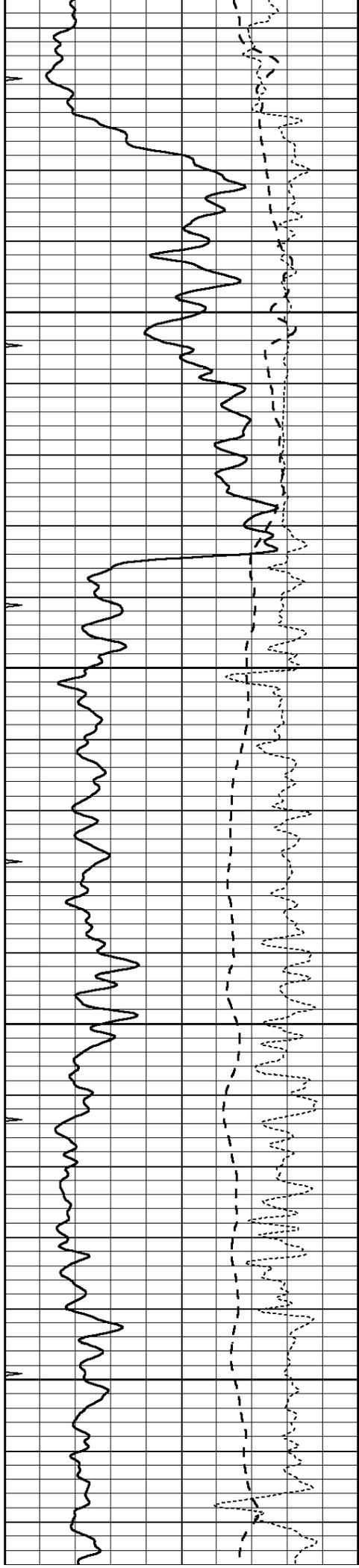
4100

4150

4200

4250



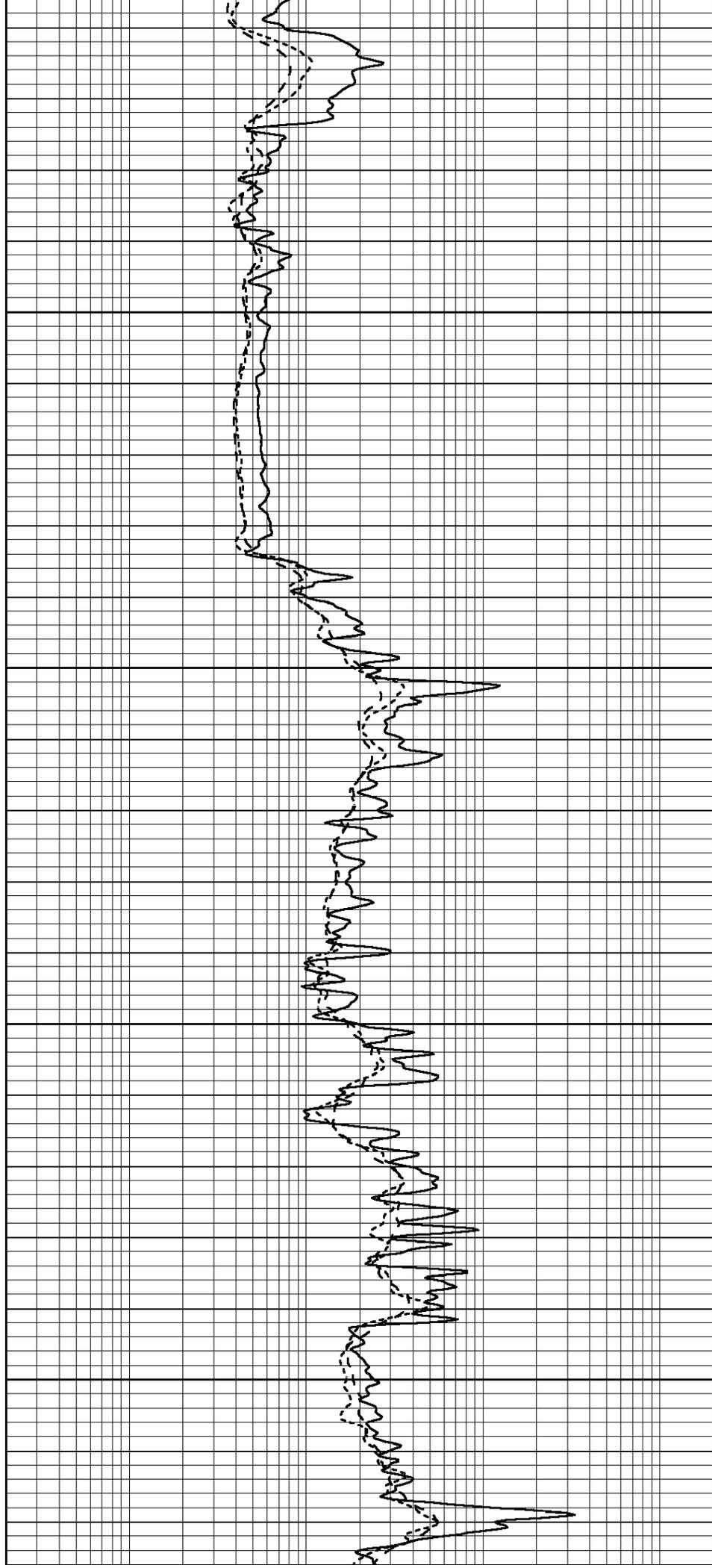


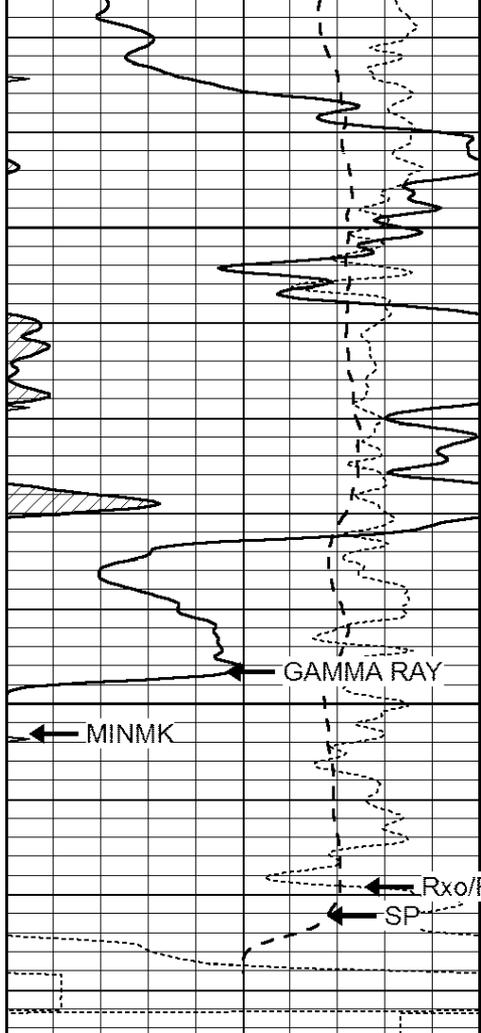
4300

4350

4400

4450



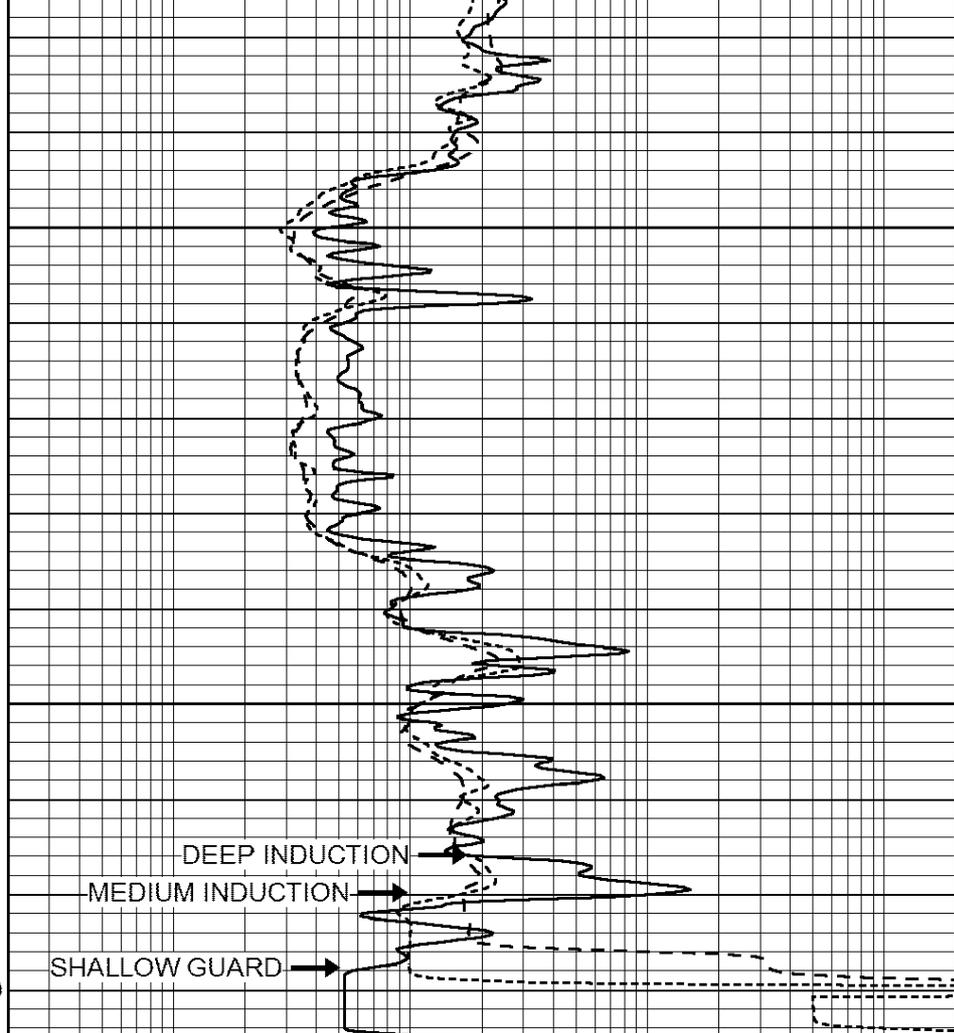


4500

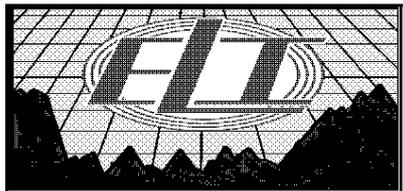
4550

LTD 4580

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20



0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

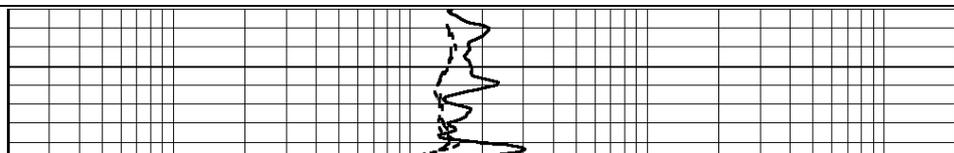
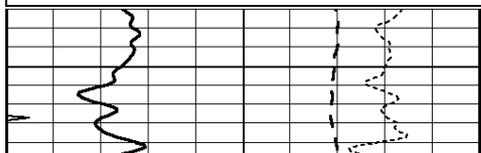


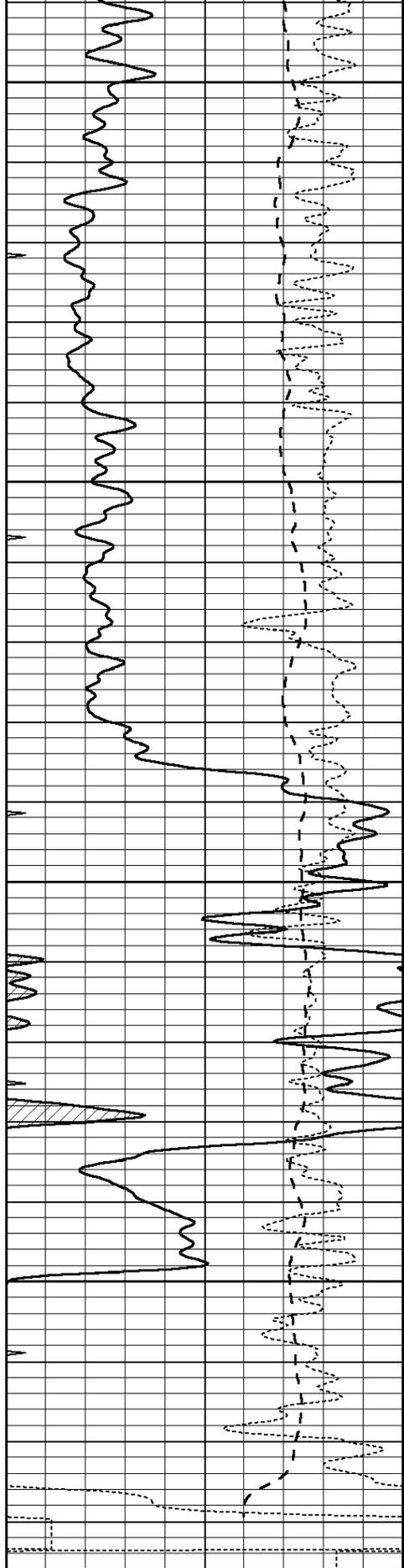
REPEAT SECTION

Database File: 2403ddn.db
 Dataset Pathname: pass2.1
 Presentation Format: _dil
 Dataset Creation: Fri Jan 26 11:12:23 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000





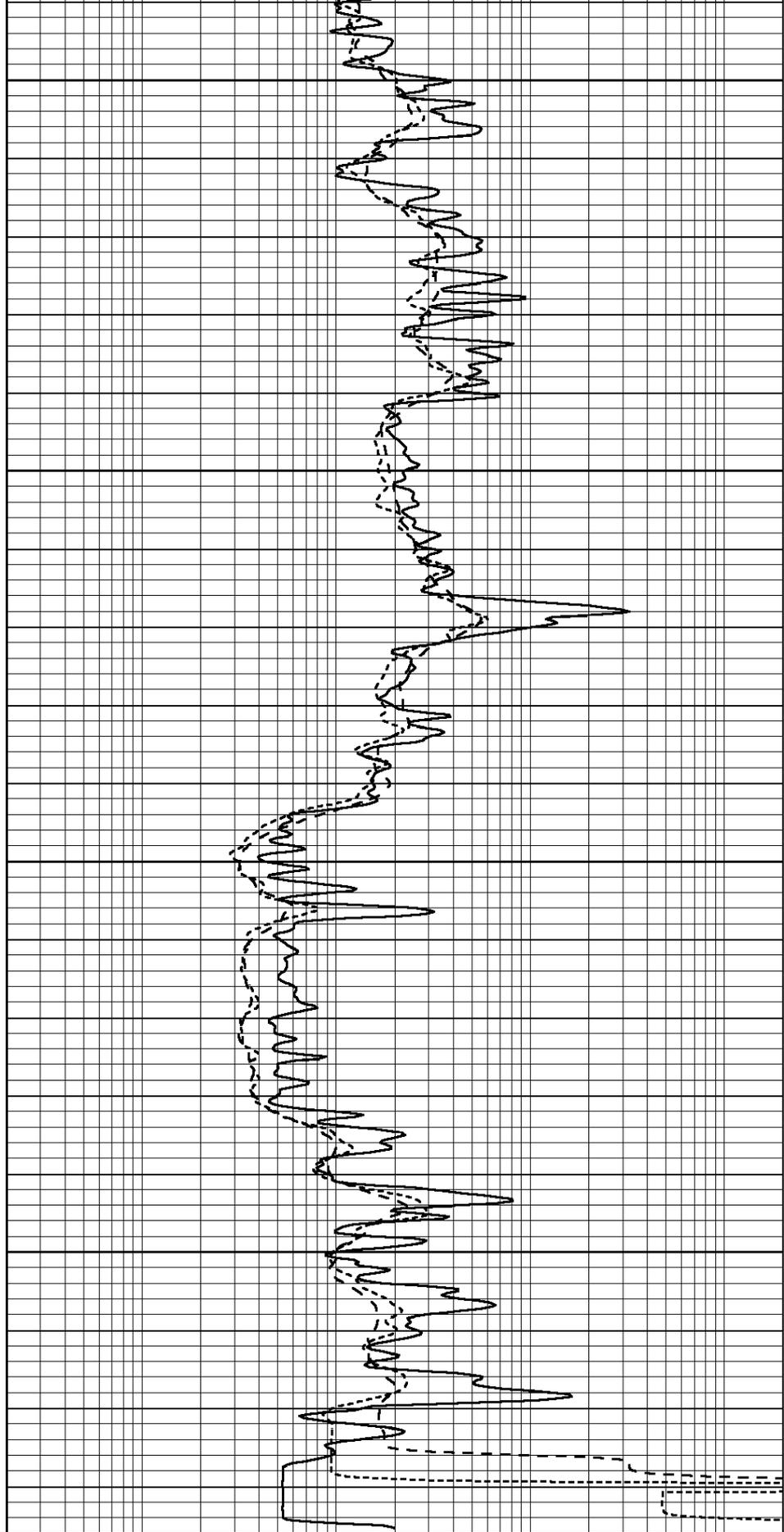
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

4400

4450

4500

4550



0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

Calibration Report

Database File: 2403ddn.db
 Dataset Pathname: pass2.1
 Dataset Creation: Fri Jan 26 11:12:23 2018 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Mon Aug 21 11:58:18 2017
 Downhole Cal Performed: Mon Aug 21 11:58:21 2017
 After Survey Verification Performed: Mon Aug 21 11:58:23 2017

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-12.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000
LL3		7.500	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		3800.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
LL3		1.000	Ohm-m		1.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		
		1.000	mmho-m		1.000	mmho-m		

Litho Density Calibration Report
 Serial: 006 Model: PRB

Master Calibration

Performed Wed Mar 12 14:26:38 2014

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1296.6	7199.0	2625.4	7833.2	cps
Window 2	1218.8	5956.6	2257.8	6372.0	cps
Window 3	926.7	2990.0	1318.7	3107.7	cps
Window 4	314.3	319.6	320.3	326.2	cps
Long Space	0.0	4737.9	1039.0	5153.3	cps
Short Space	1.3	1655.6	1074.2	1728.4	cps
Rho		1.7100	2.5960	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	

Rib Angle	: 44.1	Rib Slope	: 0.969	Density/Spine Ratio	: 0.562
Spine Angle	: 74.1	Spine Slope	: 3.507	Spine Intercept	: -17.5

Before Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

Compensated Neutron Calibration Report

Serial Number: 6I
Tool Model: G

CALIBRATION

Detector	Readings	Target	Normalization
Short Space	1.00 cps	1.00 cps	1.0000
Long Space	1.00 cps	1.00 cps	1.0000

PRE-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	
3)	Short Space	cps		
	Long Space	cps	pu	

POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space	cps		
	Long Space	cps	pu	pu
2)	Short Space	cps		
	Long Space	cps	pu	pu
3)	Short Space	cps		
	Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	GR6	
Tool Model:	OPEN	
Performed:	Mon Aug 21 11:59:01 2017	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.5500	GAPI/cps