



**Casedhole
Solutions**

DUAL INDUCTION LOG

Company	SHELBY RESOURCES, LLC.		
Well	FROETSCHNER #1-3		
Field	WILDCAT		
County	PAWNEE	State	KANSAS
Location:	APL # : 15-145-21813-0000 SW - SE - NE - SE 1619' FSL & 403' FEL		Other Services CDL/CNL MEL/SONIC
Permanent Datum	GROUND LEVEL	Elevation	2020
Log Measured From	KELLY BUSHING 11' A.G.L.		
Drilling Measured From	KELLY BUSHING		
Date	11/23/15		
Run Number	ONE		
Depth Driller	4155		
Depth Logger	4156		
Bottom Logged Interval	4154		
Top Log Interval	00		
Casing Driller	8 5/8"@1061'		
Casing Logger	1061		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5,400 PPM	
Density / Viscosity	9.5/56		
pH / Fluid Loss	9.0/9.2		
Source of Sample	FLOWLINE		
Rim @ Meas. Temp	.800@70F		
Rmf @ Meas. Temp	.600@70F		
Rmc @ Meas. Temp	.960@70F		
Source of Rmf / Rmc	MEASUREMENT		
Rim @ BHT	.479@117F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	12:45 A.M.		
Maximum Recorded Temperature	117F		
Equipment Number	22339		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	CHARLIE STURDAVANT		

<<< 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 C & J ENERGY (CASED HOLE SOLUTIONS) HAYS, KANSAS (785) 628-6395
DIRECTIONS
LARNED, KS., (MAIN ST. & HWY 56) 1 1/2 S.W. ON HWY 56 TO "RD. L", 3 1/2 DUE WEST TO "160TH
RD.", 1N., 1/2E., 1 S. & E. INTO



**Casedhole
Solutions**

MAIN SECTION

Database File: 30675ddn.db
Dataset Pathname: pass3.3
Presentation Format: dil2
Dataset Creation: Mon Nov 23 02:14:43 2015 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-100	SP (mV)	100
0	RWA (Ohm-m)	1

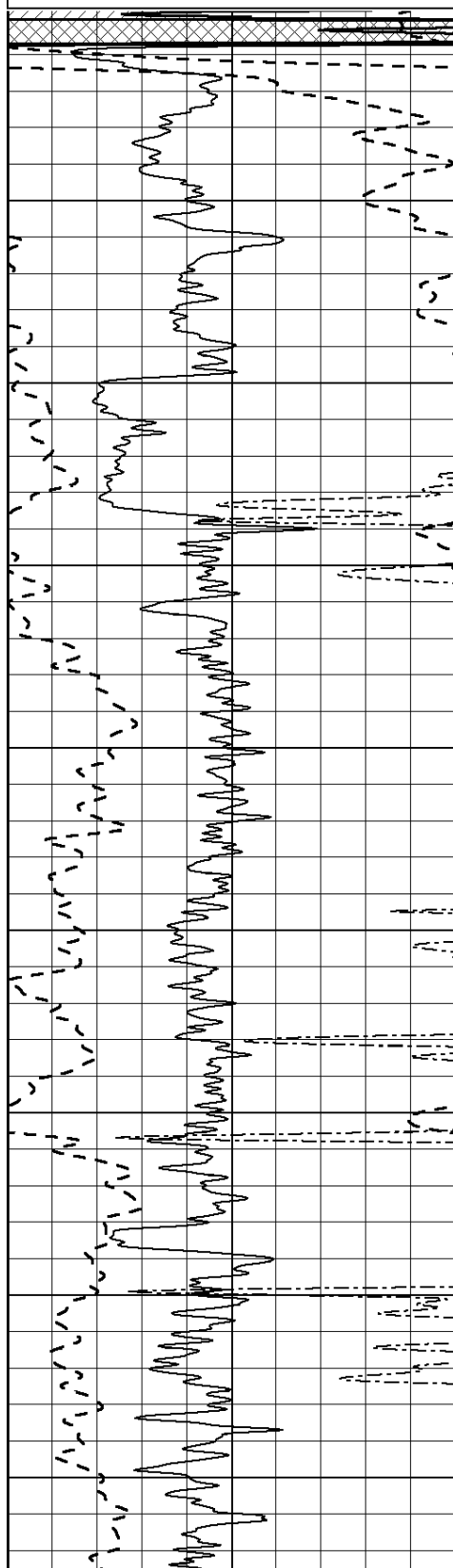
0	RLL3 (Ohm-m)	50
---	--------------	----

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

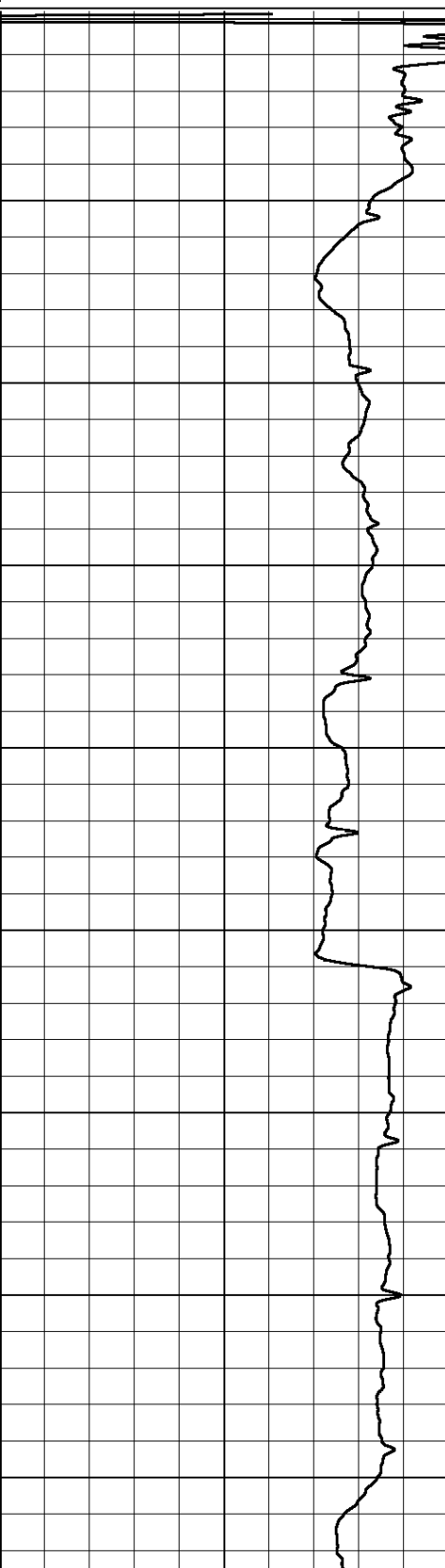
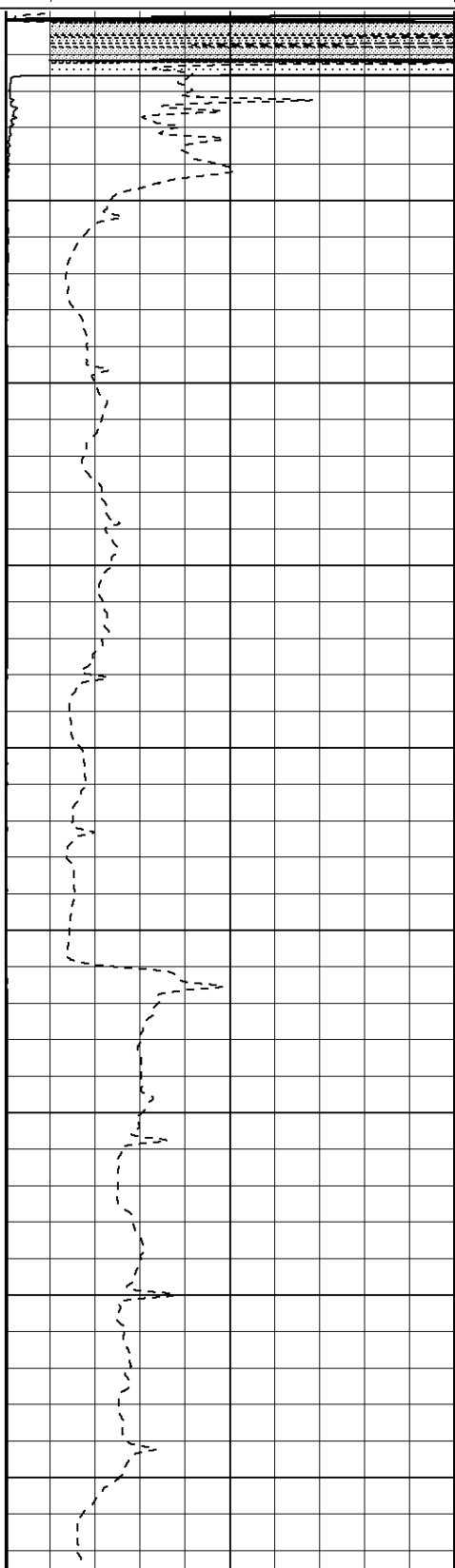
1000	CILD (mmho/m)	0
------	---------------	---

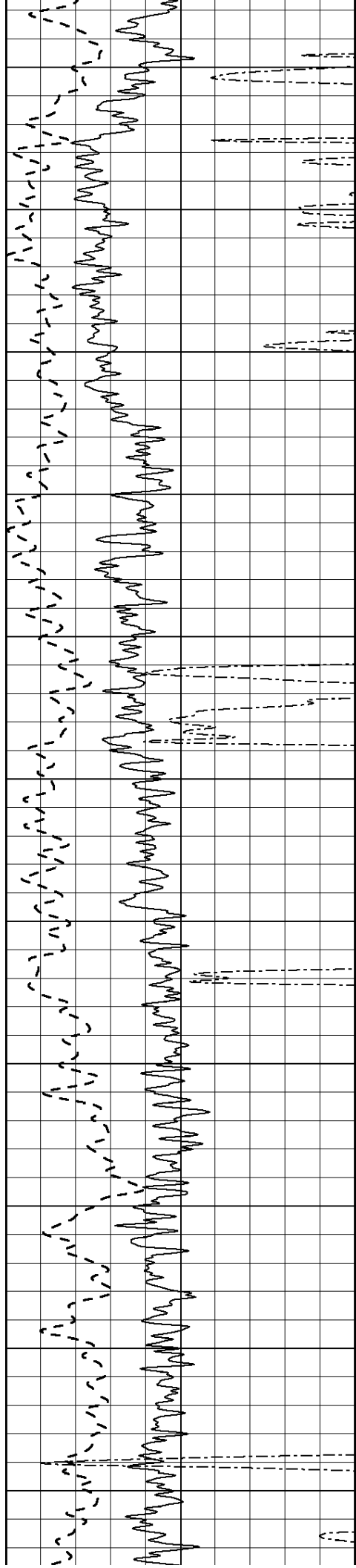
50	RILD X10 (Ohm-m)	500
----	------------------	-----

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



0
50
100
150
200
250
300
350
400





450

500

550

600

650

700

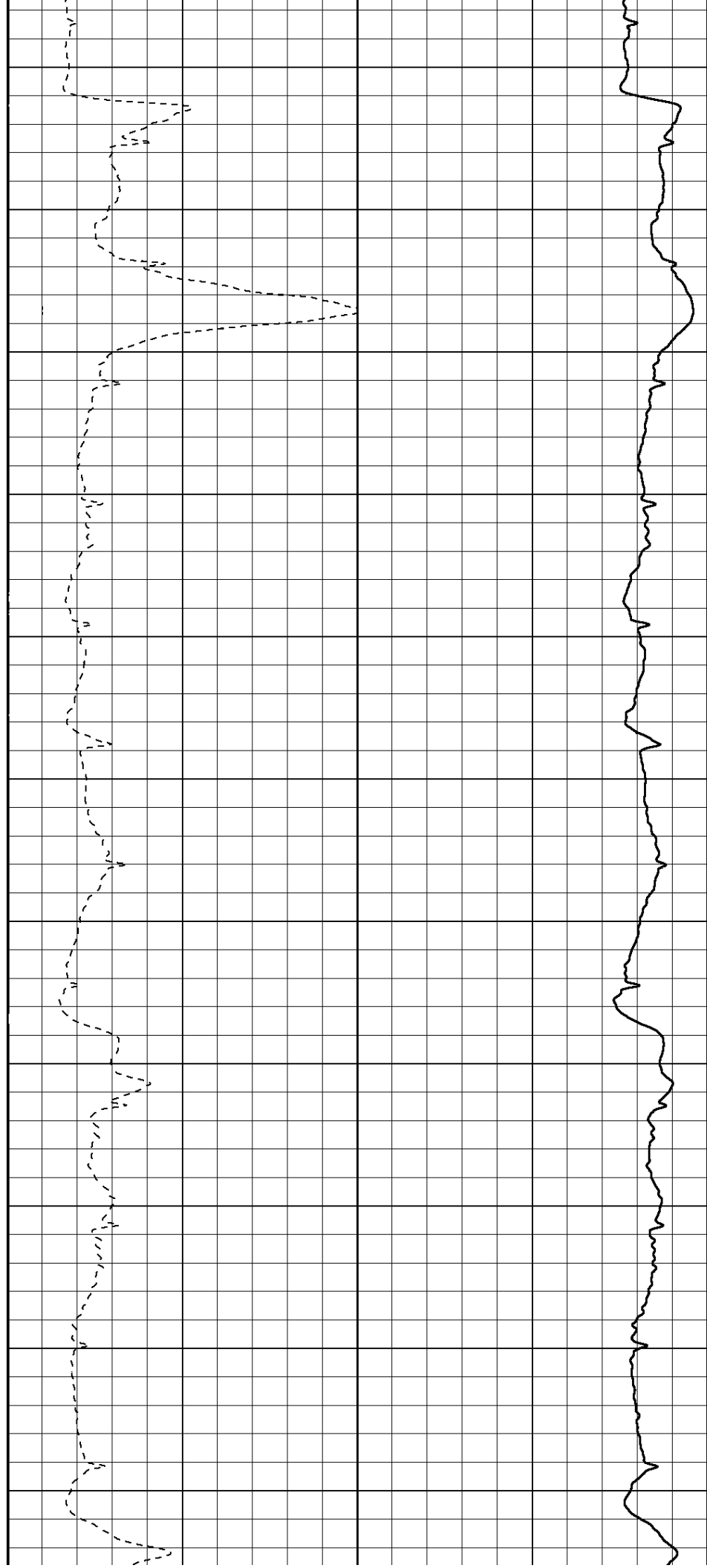
750

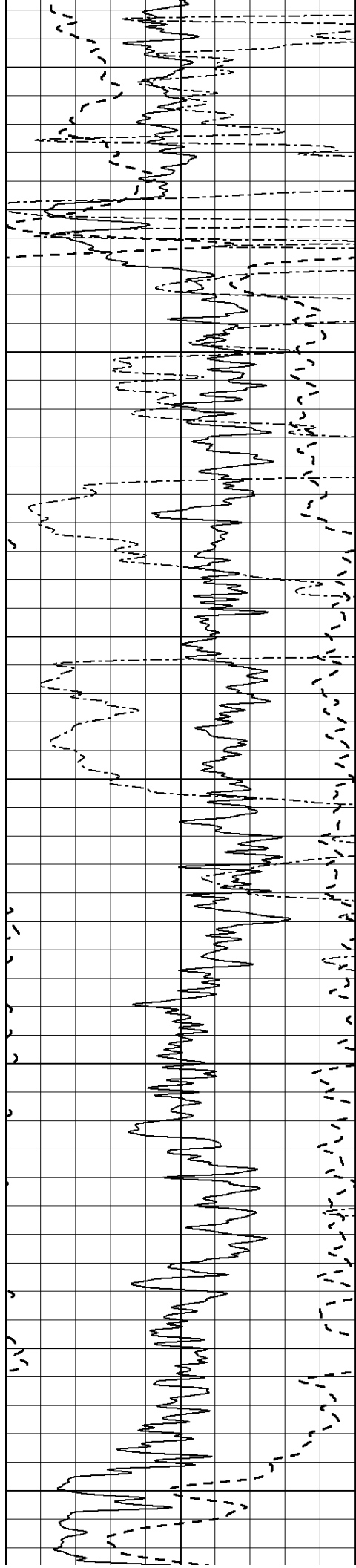
800

850

900

950





1000

1050

1100

1150

1200

1250

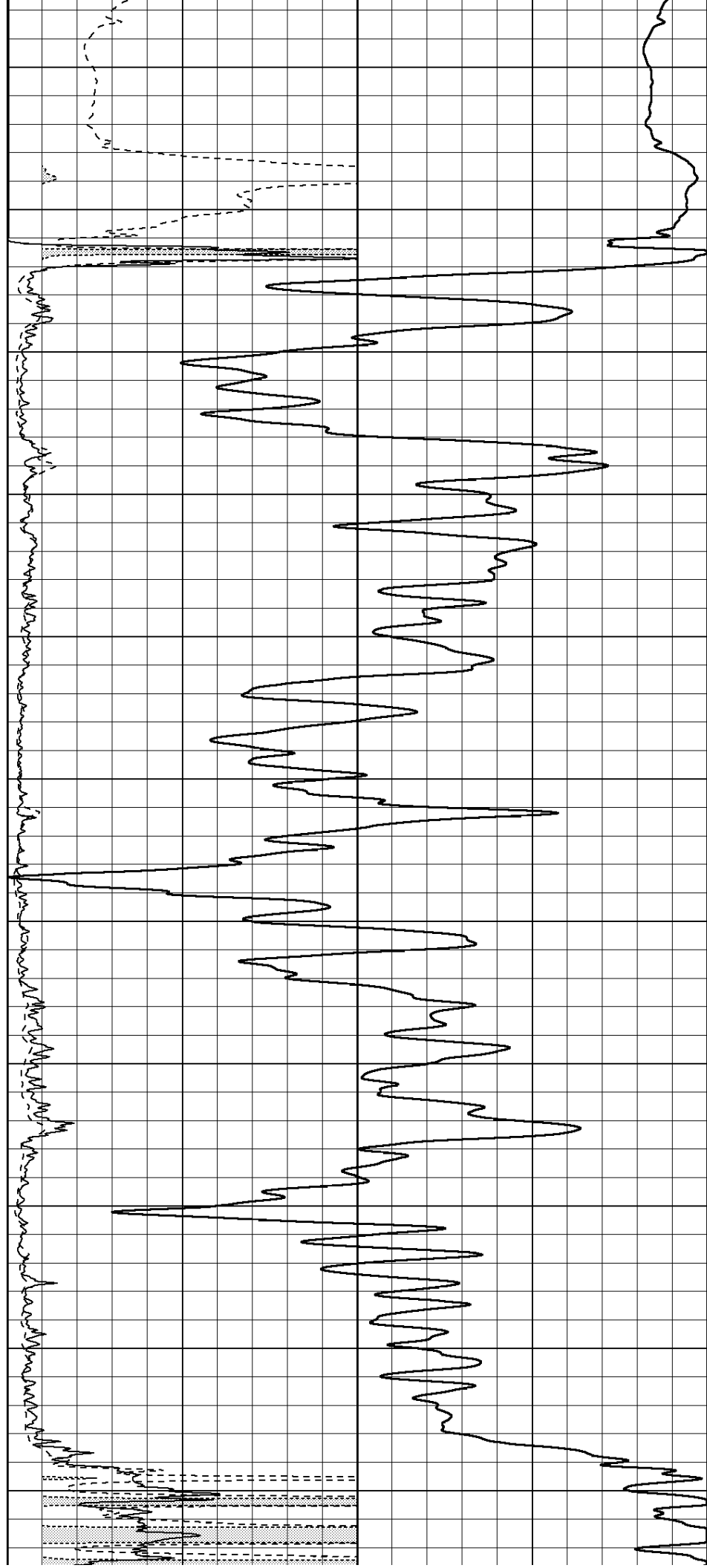
1300

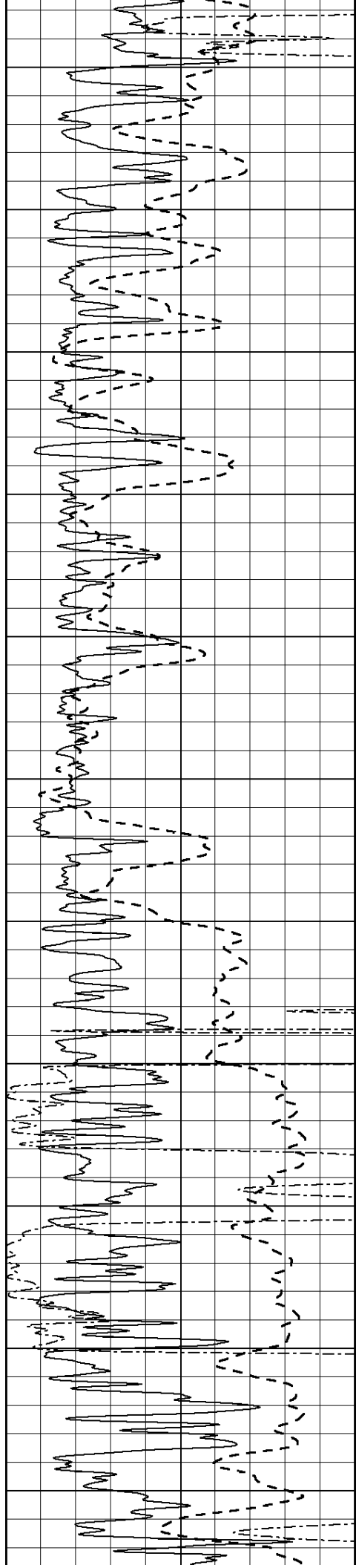
1350

1400

1450

1500





1550

1600

1650

1700

1750

1800

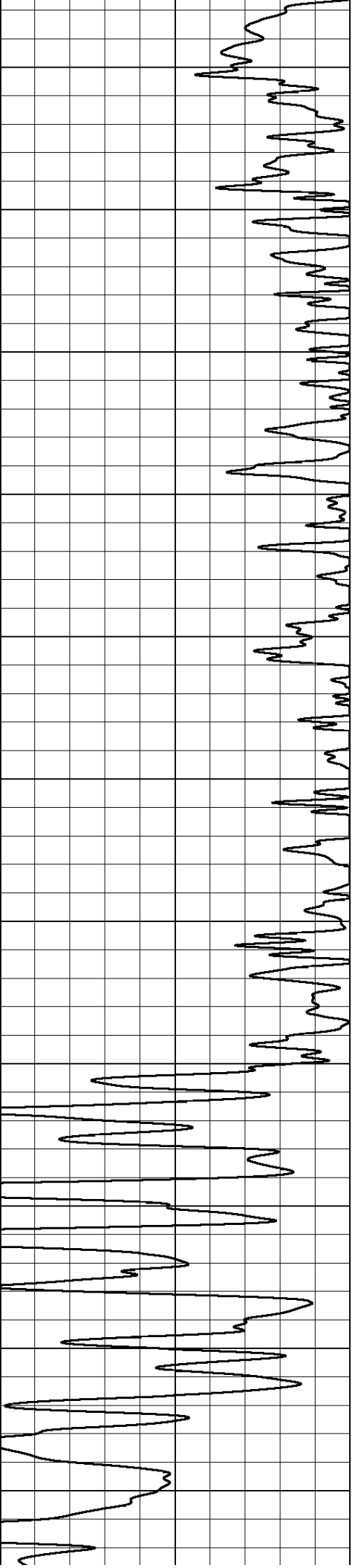
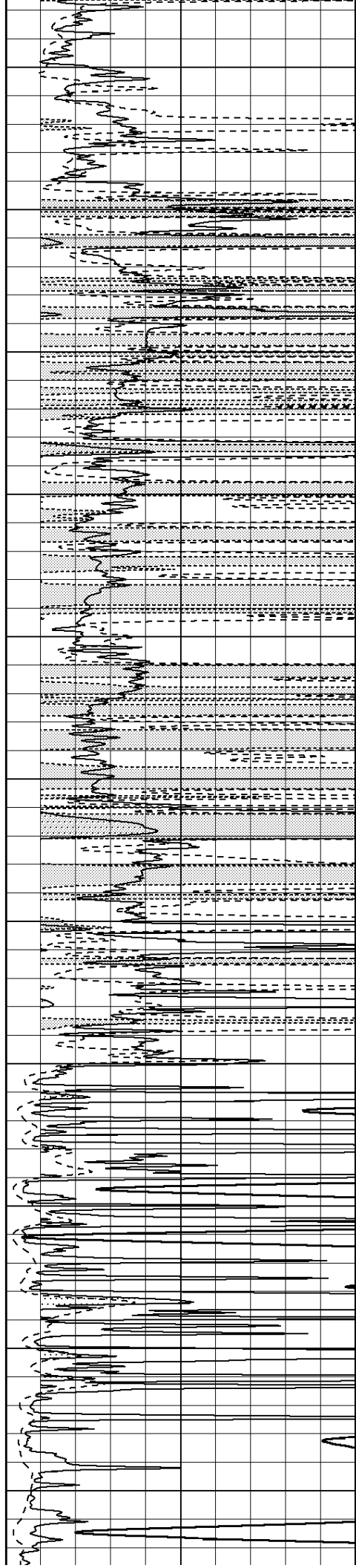
1850

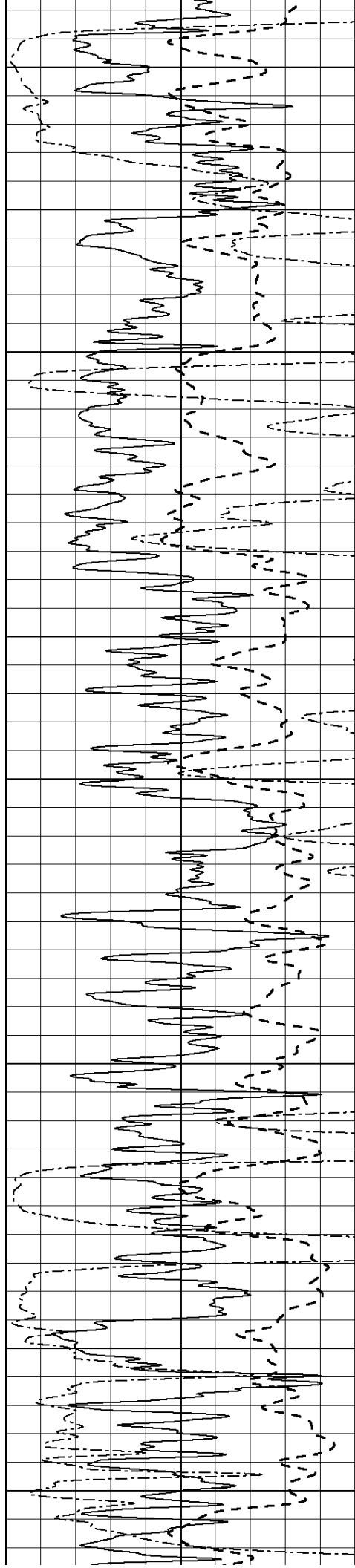
1900

1950

2000

2050





2100

2150

2200

2250

2300

2350

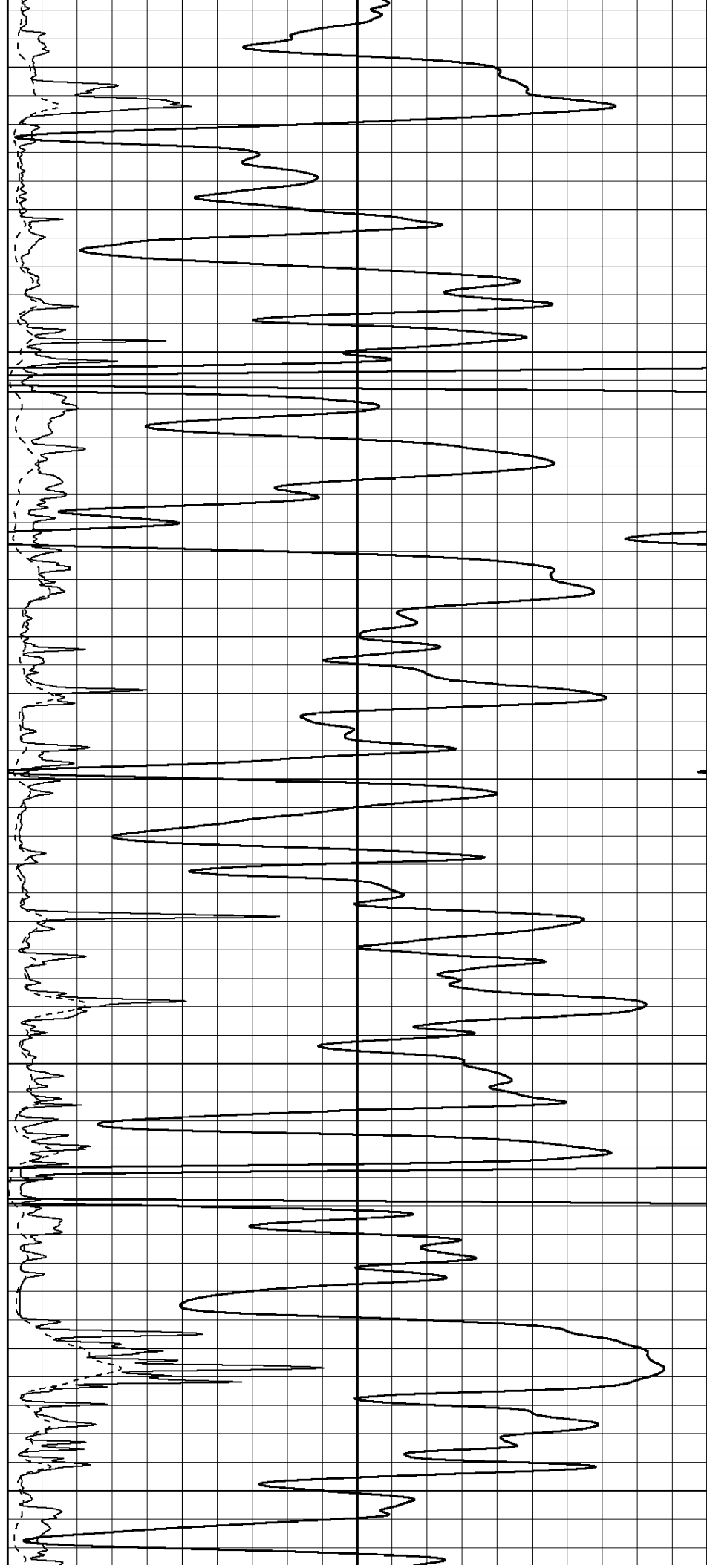
2400

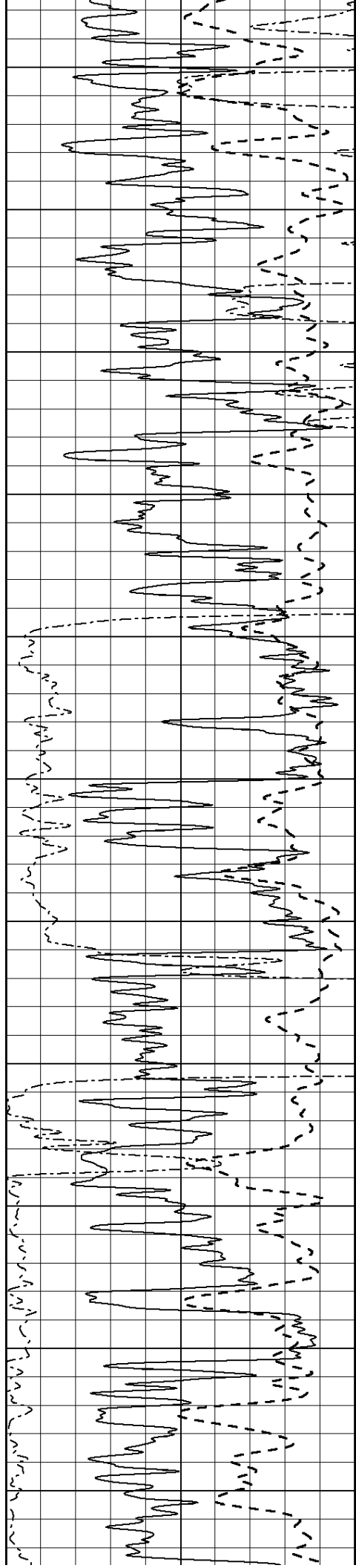
2450

2500

2550

2600





2650

2700

2750

2800

2850

2900

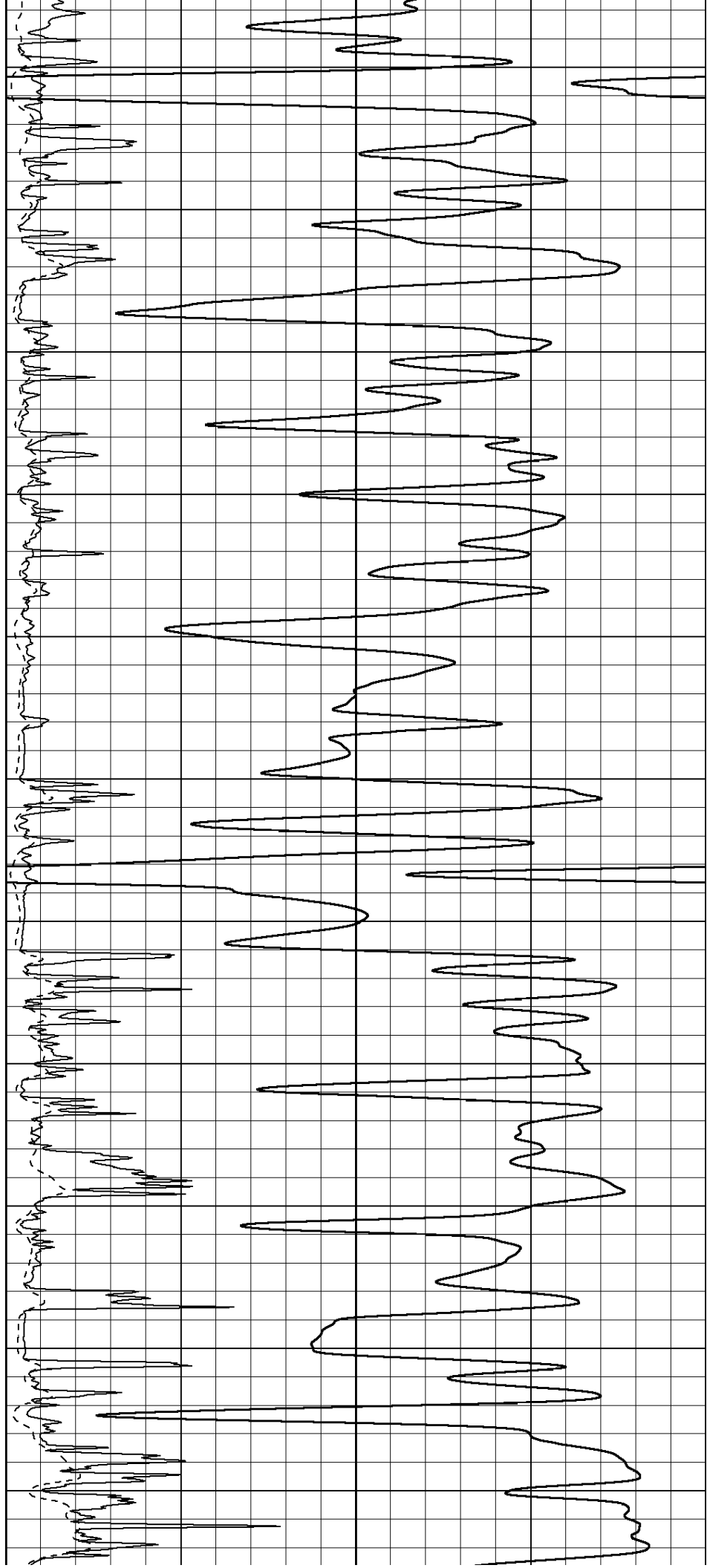
2950

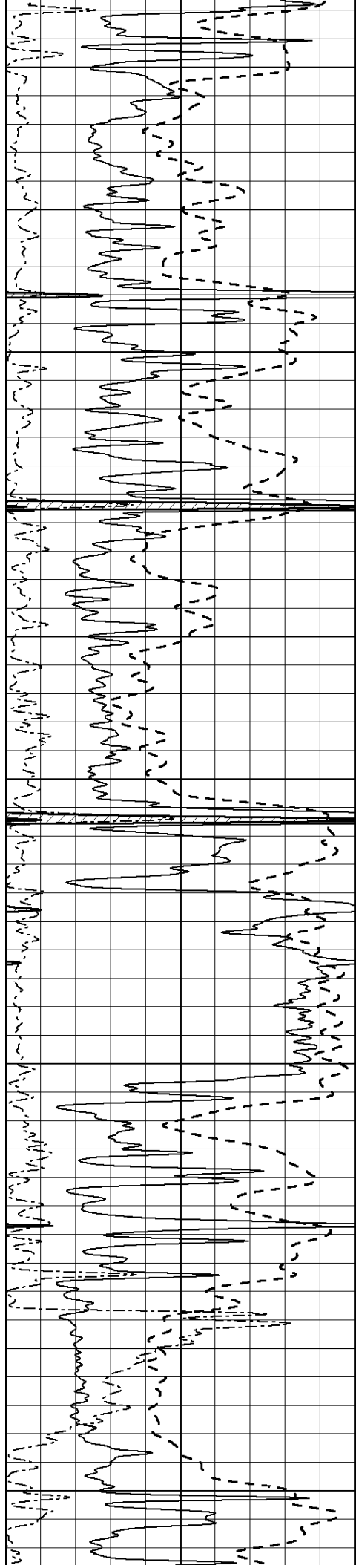
3000

3050

3100

3150





3200

3250

3300

3350

3400

3450

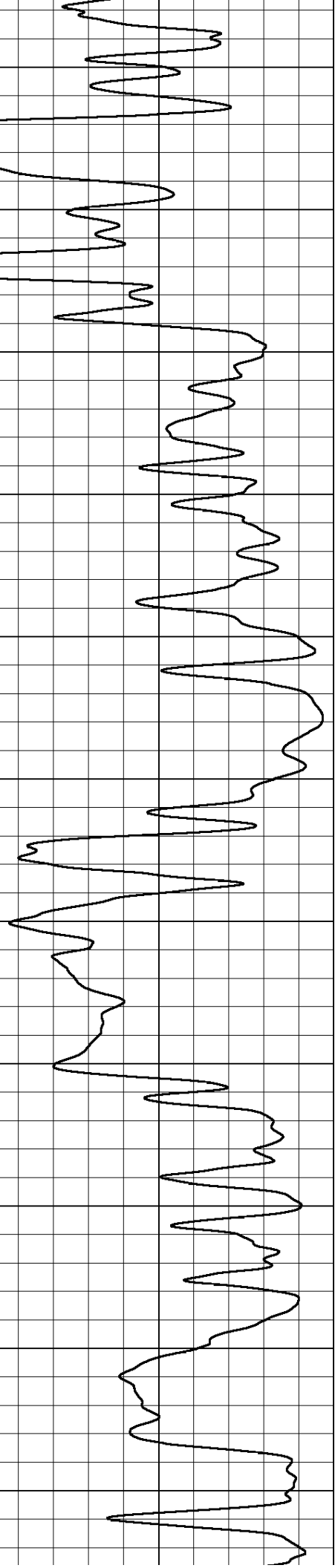
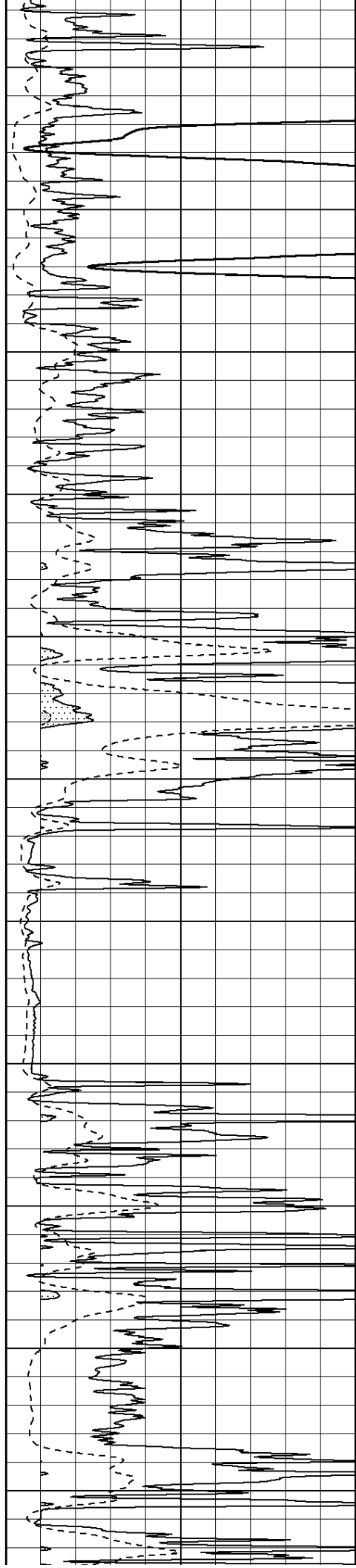
3500

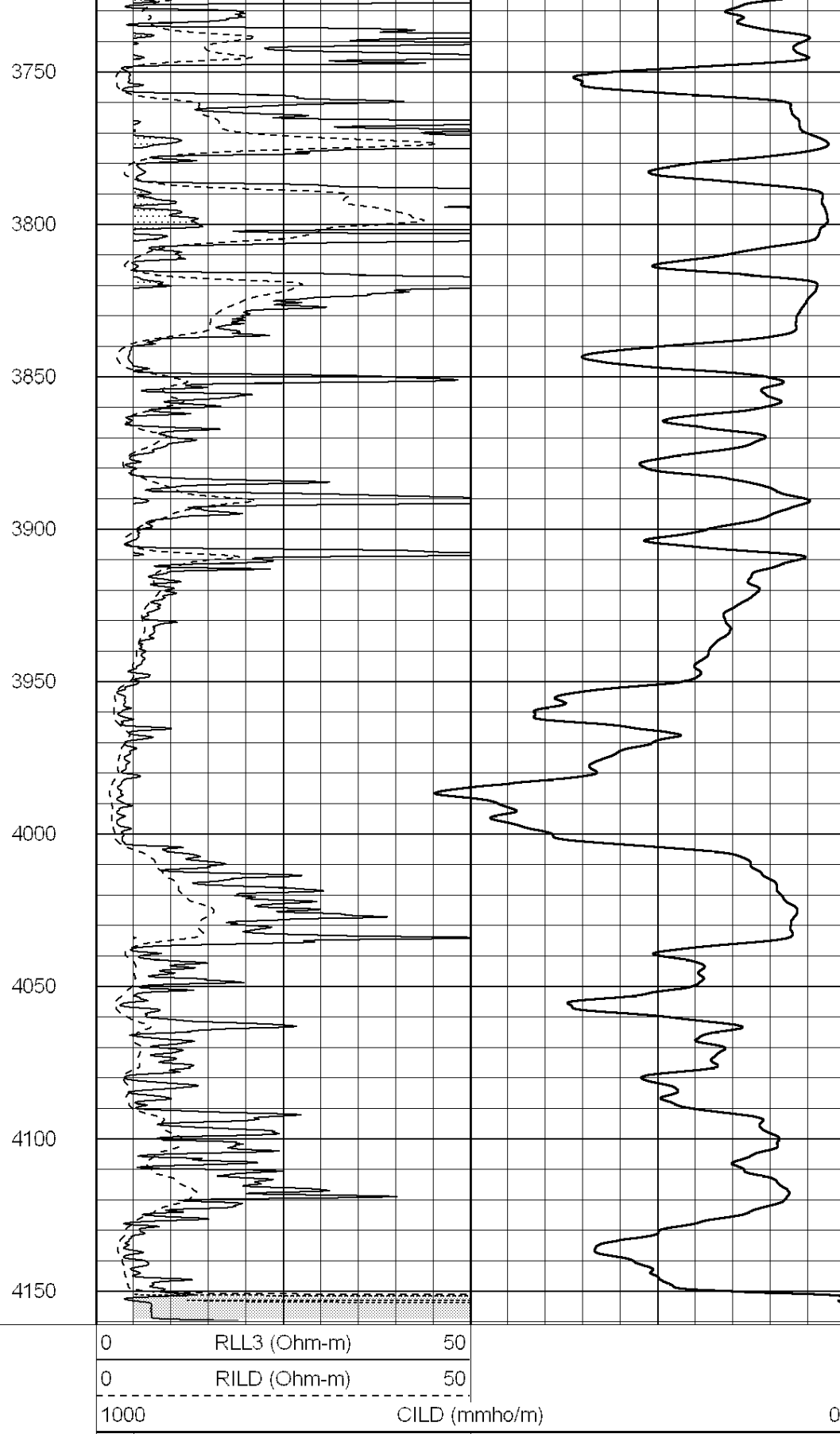
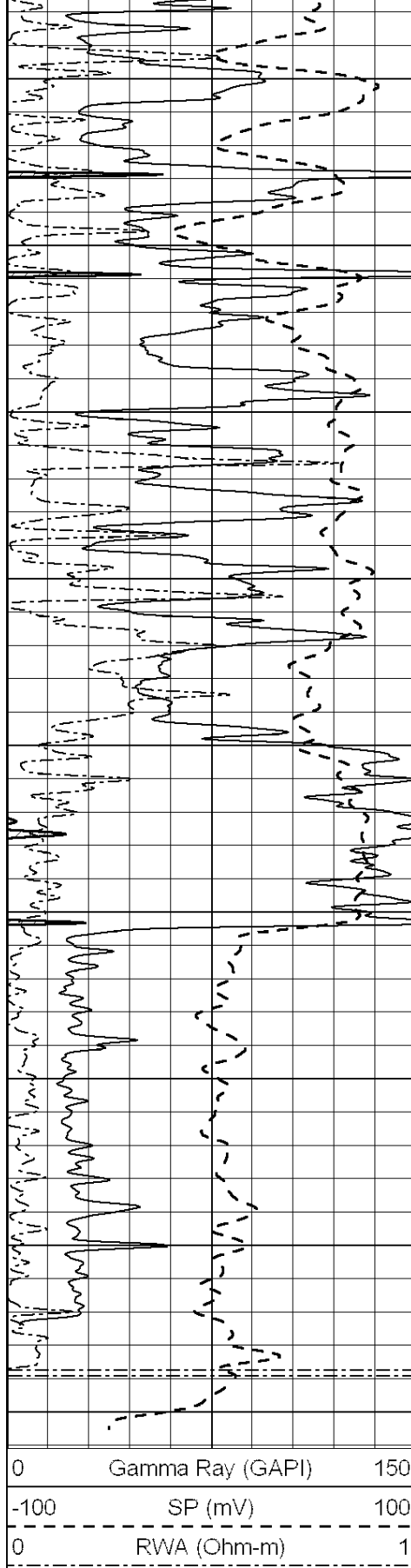
3550

3600

3650

3700





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



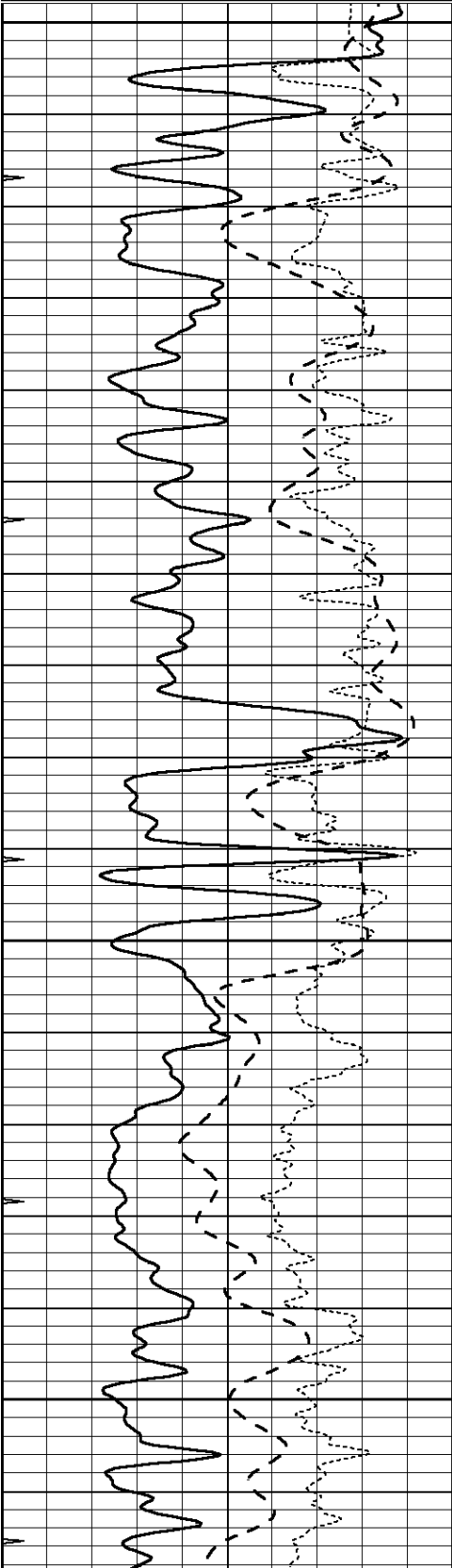
**Casedhole
Solutions**

MAIN SECTION

Database File: 30675ddn.db
Dataset Pathname: pass3.3
Presentation Format: _dil
Dataset Creation: Mon Nov 23 02:14:43 2015 by Calc SOC 120430
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

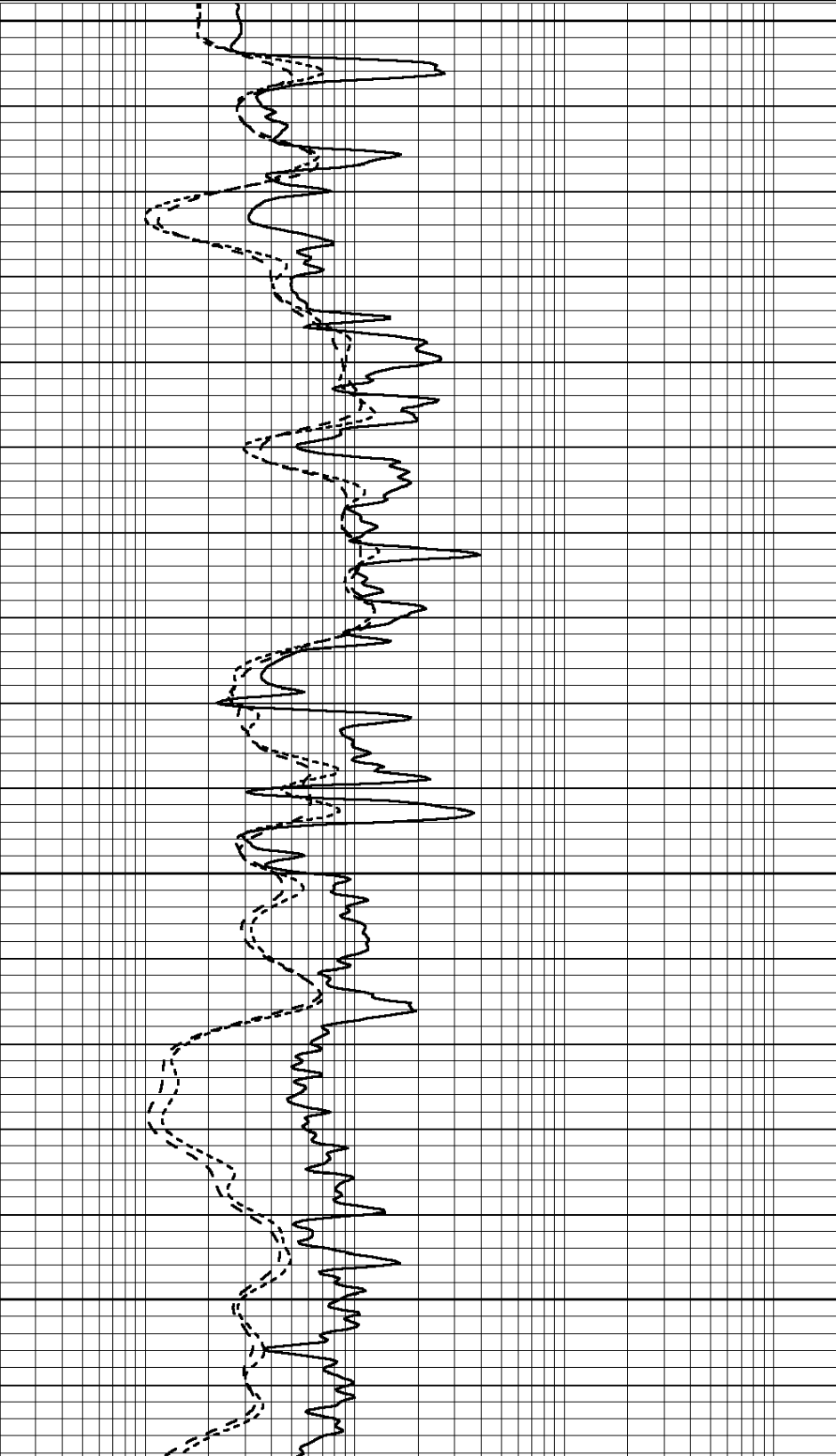


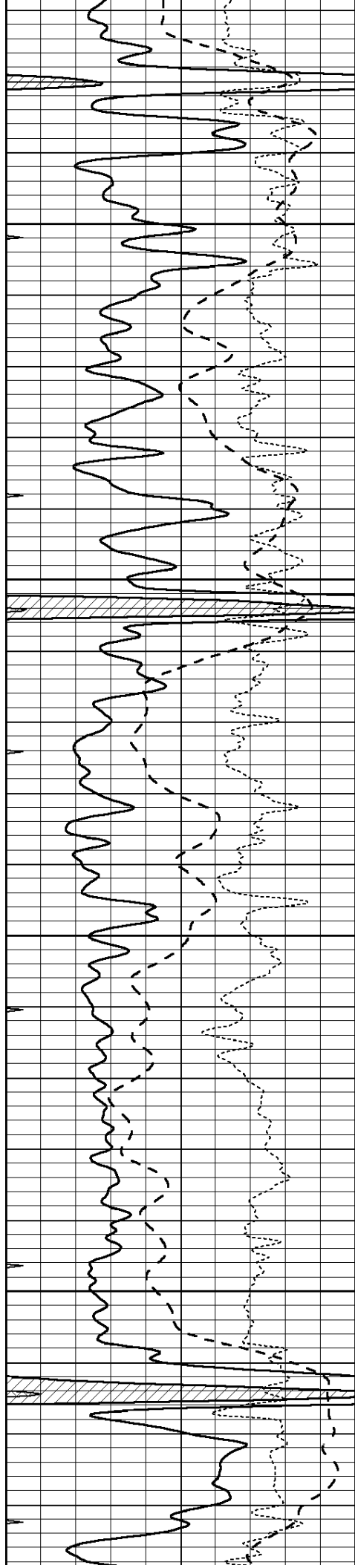
3100

3150

3200

3250



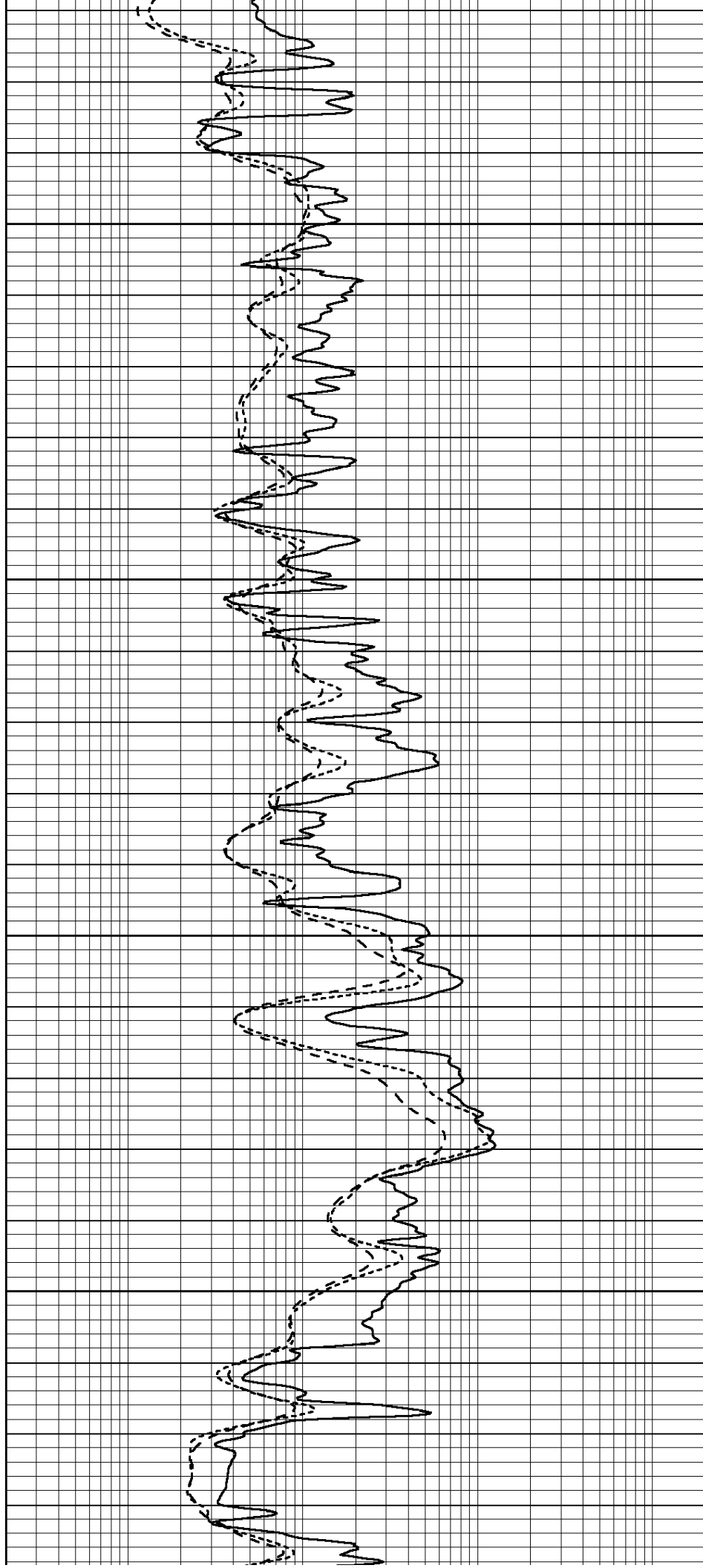


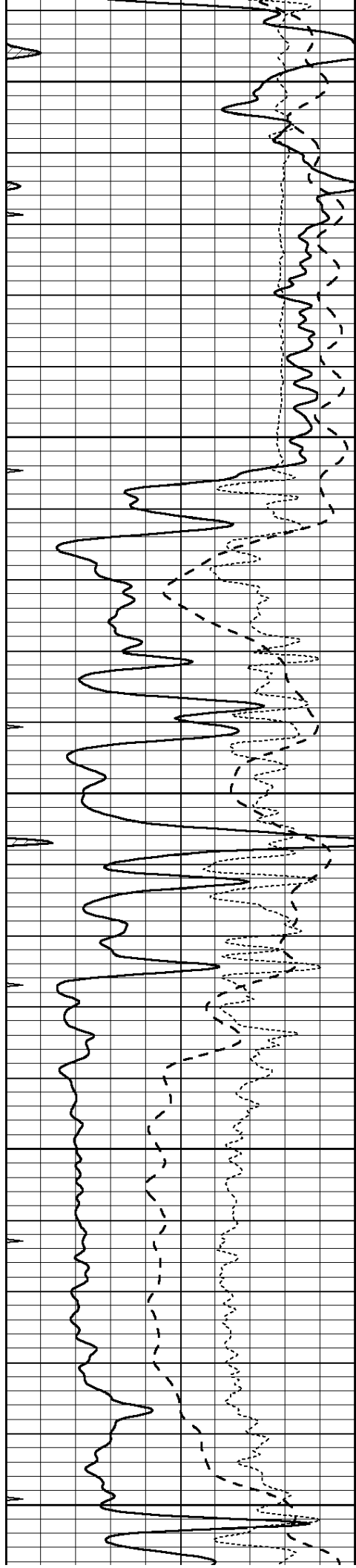
3300

3350

3400

3450





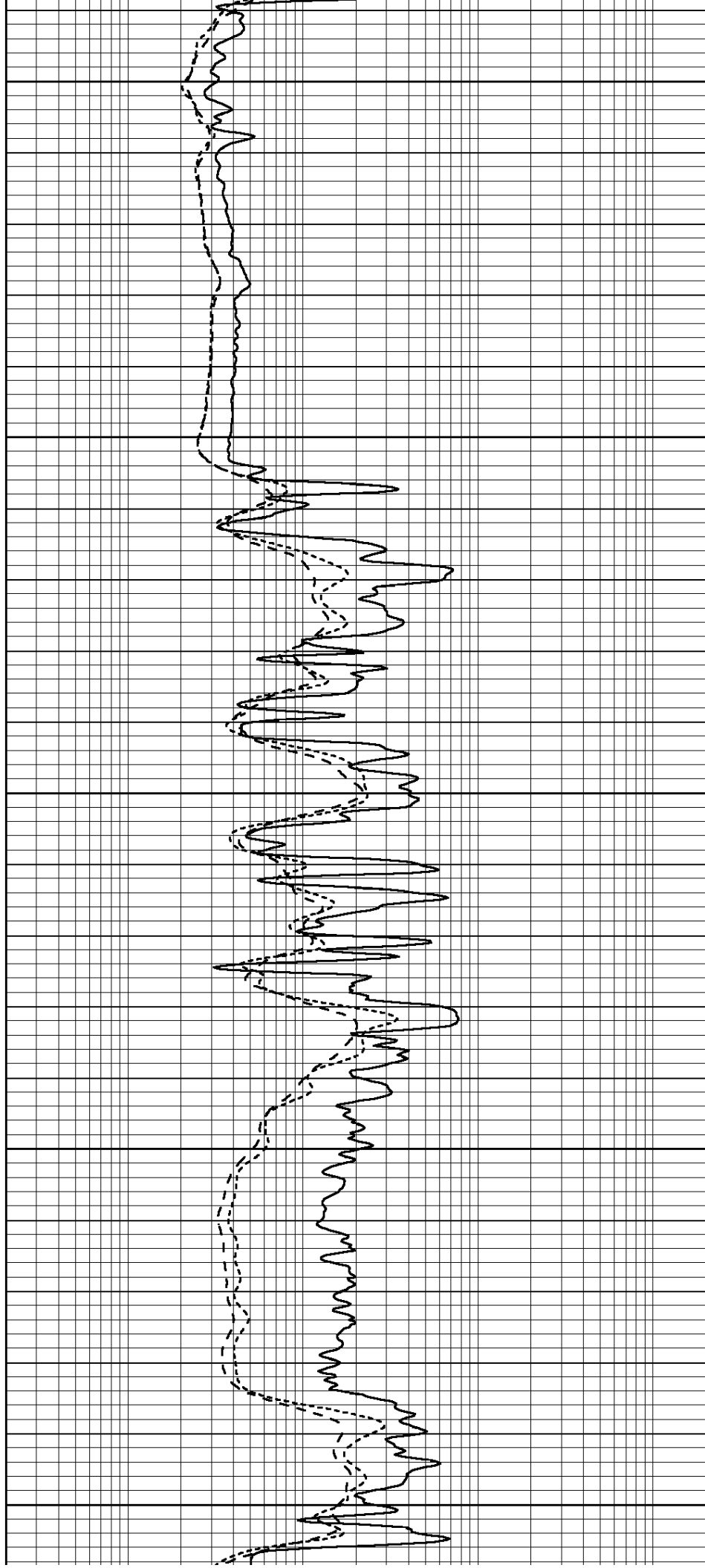
3500

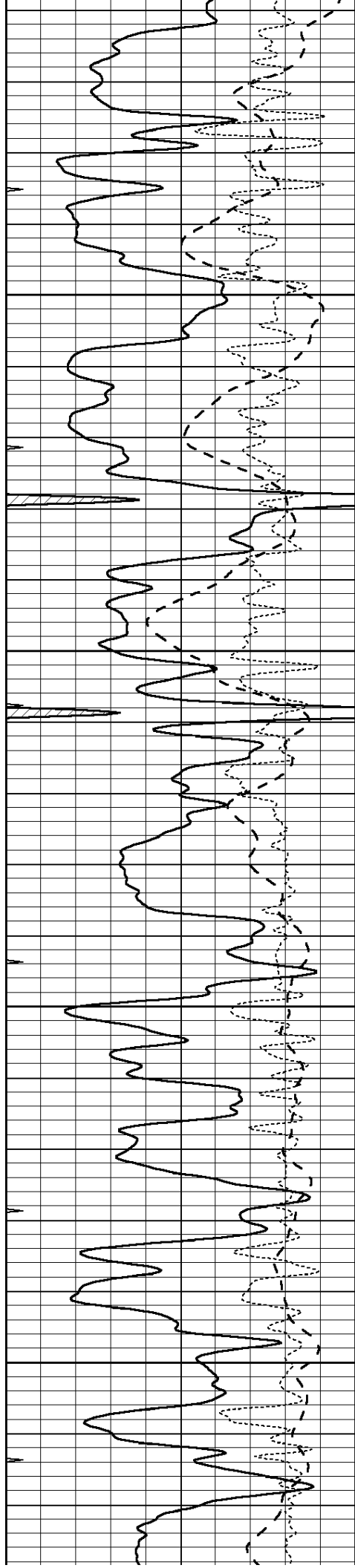
3550

3600

3650

3700



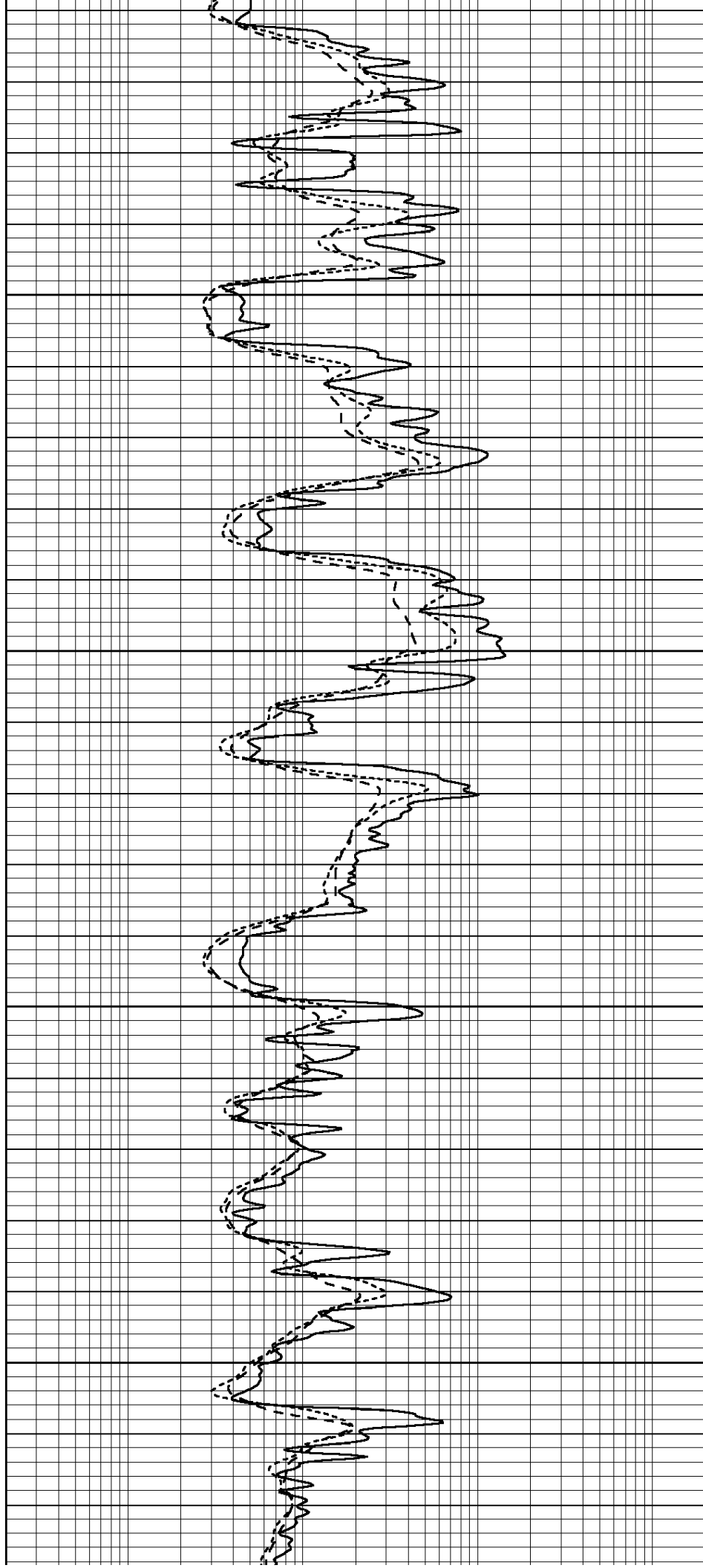


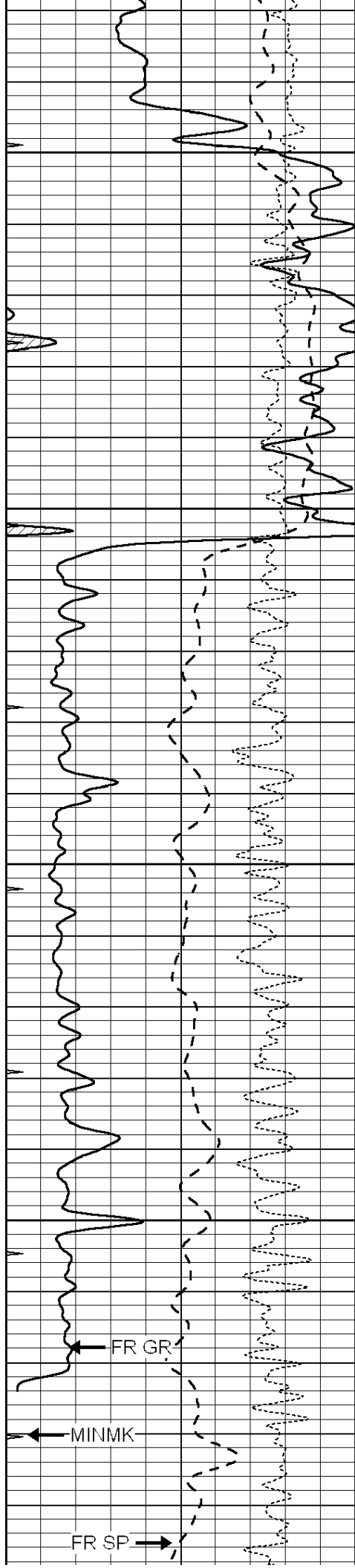
3750

3800

3850

3900



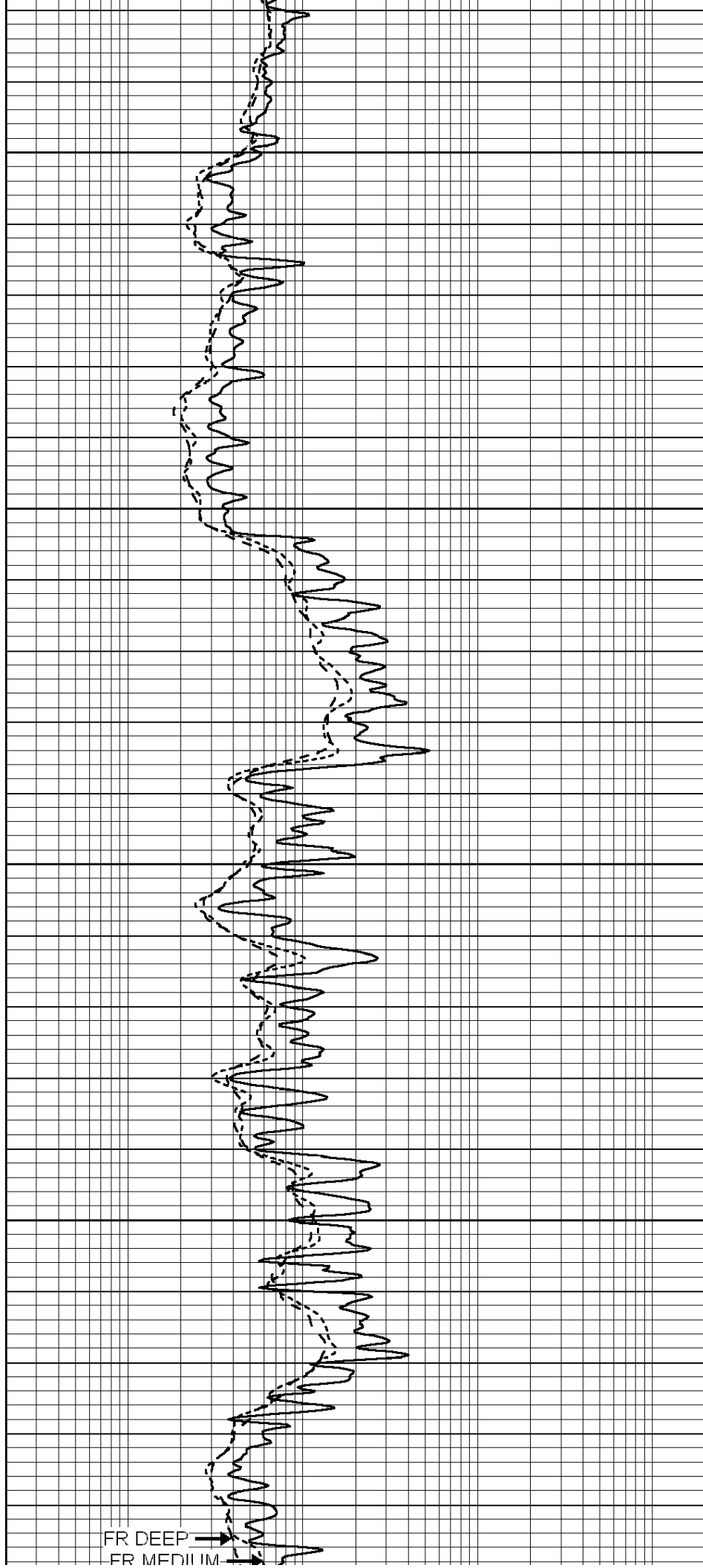


3950

4000

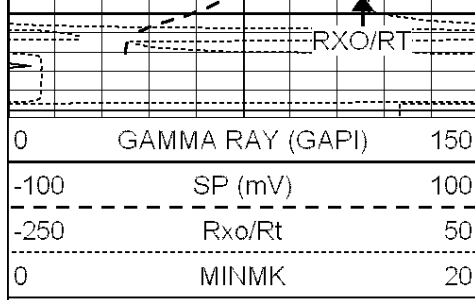
4050

4100

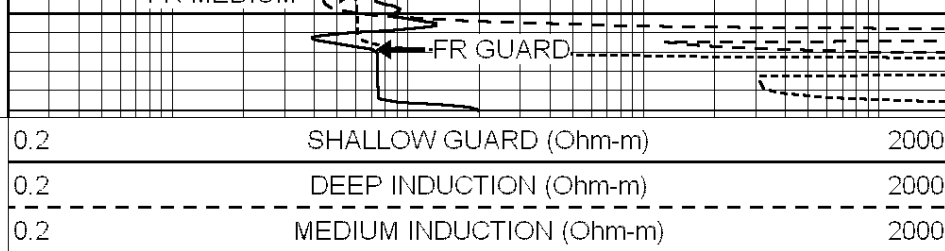


FR DEEP

FR MEDII IM



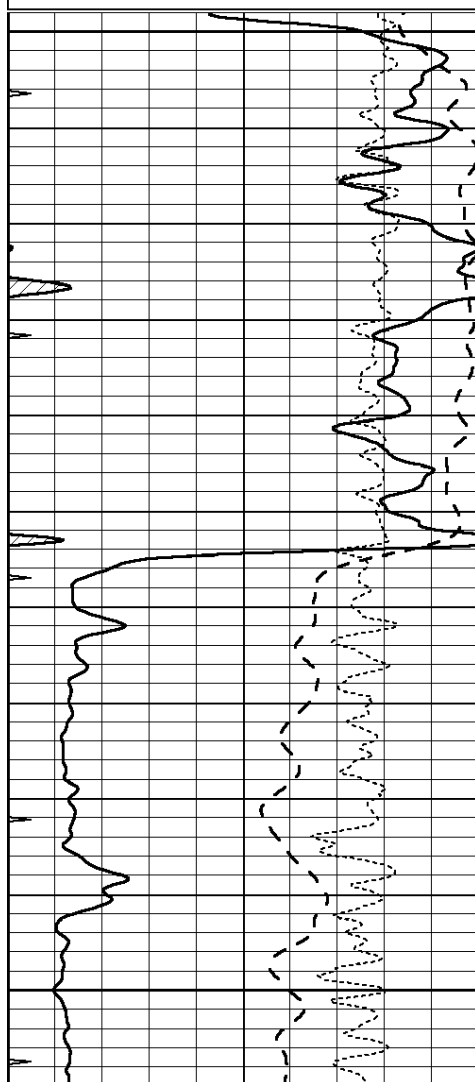
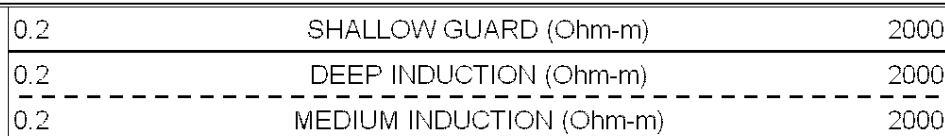
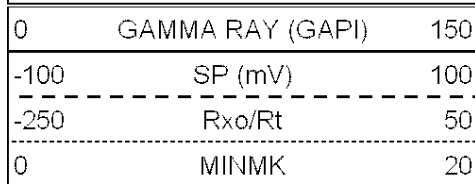
4150
LTD 4156



**Casedhole
Solutions**

REPEAT SECTION

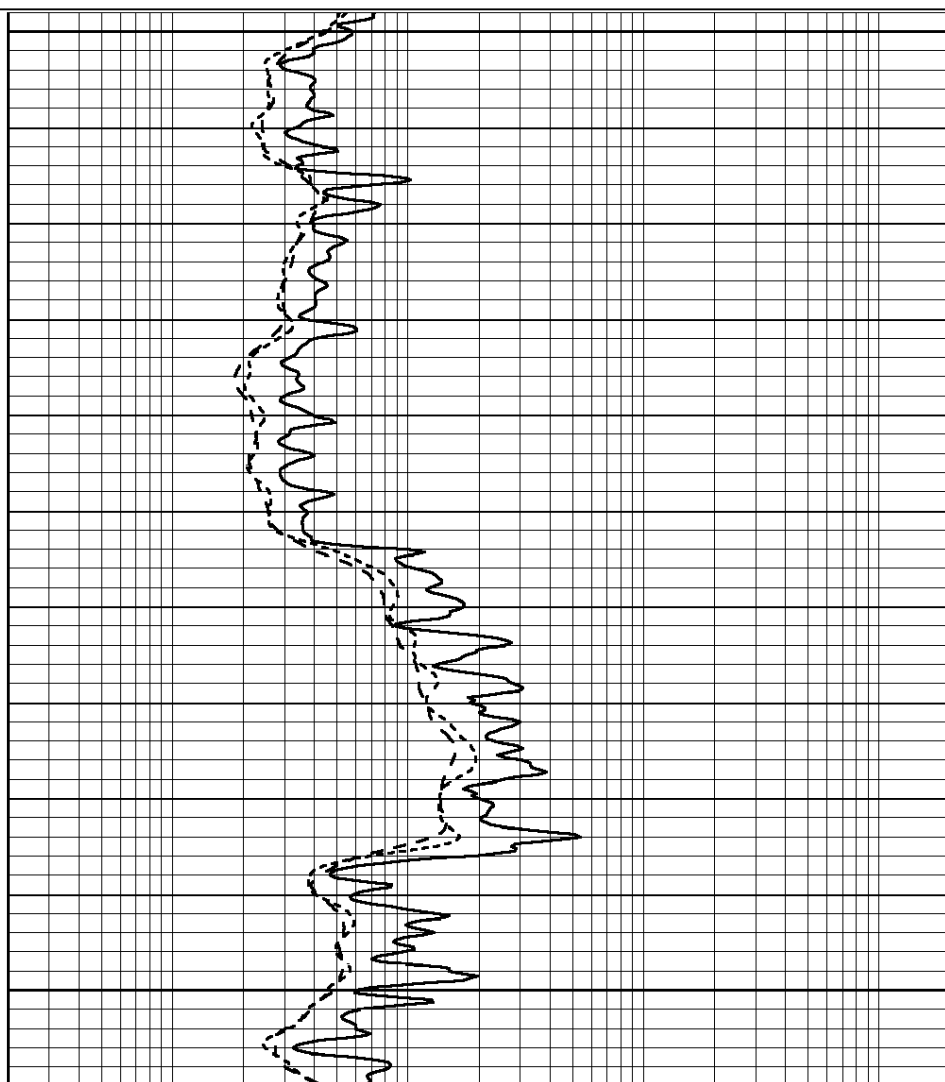
Database File: 30675ddn.db
Dataset Pathname: pass2.9
Presentation Format: _dil
Dataset Creation: Mon Nov 23 01:35:44 2015 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

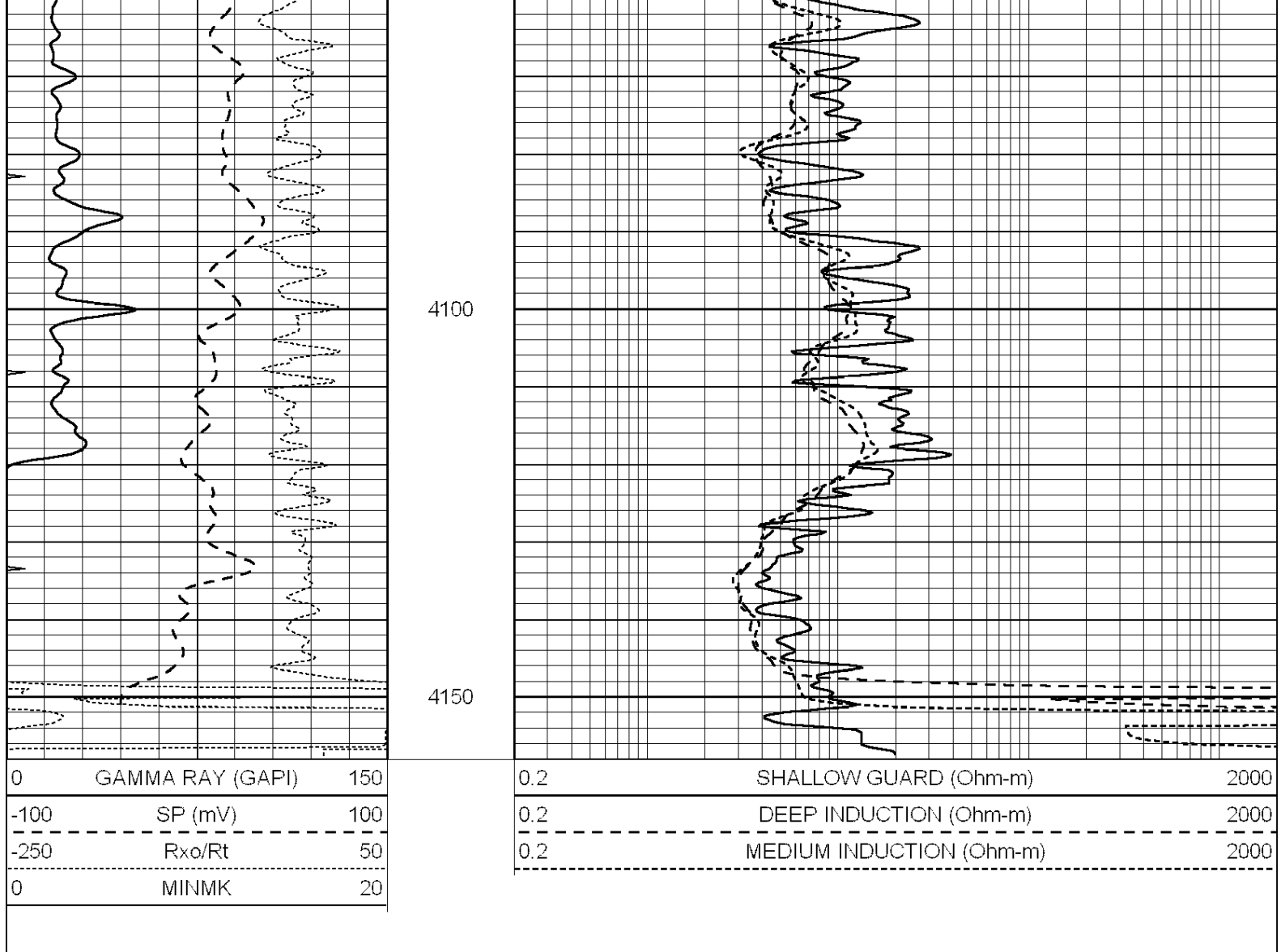


3950

4000

4050





Calibration Report										
Database File:	30675ddn.db									
Dataset Pathname:	pass3.3									
Dataset Creation:	Mon Nov 23 02:14:43 2015 by Calc SOC 120430									
Dual Induction Calibration Report										
Serial-Model:		PROBE9-DILG								
Surface Cal Performed:		Thu Oct 01 20:21:25 2015								
Downhole Cal Performed:		Mon Jul 28 12:02:56 2008								
After Survey Verification Performed:		Mon Jul 28 12:02:56 2008								
Surface Calibration										
		Readings					References		Results	
Loop:	Air	Loop		Air	Loop		m	b		
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	670.000	-16.000		
Medium	0.039	0.728	V	0.000	464.000	mmho/m	685.000	-28.000		
Internal:	Zero	Cal		Zero	Cal		m	b		
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256		
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102		
Downhole Calibration										
		Readings					References		Results	
	Zero	Cal		Zero	Cal		m	b		

	Zero	Cal		Zero	Cal		m	b
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		4000.000	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: 004N Model: PRB								

Master Calibration					Performed Fri May 30 11:01:00 2014			
	Background	Magnesium	Aluminum	Sandstone				
Window 1	1378.8	10804.6	3492.0	12453.4				cps
Window 2	1262.4	9313.5	3076.7	10594.7				cps
Window 3	1077.6	5668.7	2076.0	6314.8				cps
Window 4	306.4	313.0	306.4	315.6				cps
Long Space	0.0	8051.0	1814.3	9332.3				cps
Short Space	1.9	1706.1	1146.0	1707.6				cps
Rho		1.7100	2.5900	1.3800				g/cc
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 45.0	Rib Slope	: 1.002	Density/Spine Ratio				: 0.571
Spine Angle	: 75.0	Spine Slope	: 3.745	Spine Intercept				: -18.9

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:	070808
Tool Model:	Probe

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number:	070558
Tool Model:	OPEN_GR
Performed:	Mon Nov 23 01:41:31 2015

Calibrator Value:	1.0	GAPI
-------------------	-----	------

Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps

Sensitivity:	0.2800	GAPI/cps
--------------	--------	----------