



Pioneer Energy Services

# Dual Induction Log

15-047-21,629-00-00

API No.

Company **Toto Energy, LLC**

Well **Norwegian Wood No.1**

Field **Wil**

County **Edwards** State **Kansas**

Location **660' FSL & 660' FWL**

Sec: **15** Twp: **26S** Rge: **16W**

Permanent Datum **Ground Level** Elevation **2097**

Log Measured From **Kelly Bushing** 10 Ft. Above Perm. Datum

Drilling Measured From **Kelly Bushing**

Other Services  
CNL/CDL  
MEL  
Elevation  
K.B. 2107  
D.F. 2097  
G.L. 2097

Date	1/13/14	
Run Number	One	
Depth Driller	4700	
Depth Logger	4698	
Bottom Logged Interval	4697	
Top Log Interval	350	
Casing Driller	8.625 @ 368	
Casing Logger	366	
Bit Size	7.875	
Type Fluid in Hole	Chemical	
Salinity, ppm CL	5.000	
Density / Viscosity	9.2   43	
pH / Fluid Loss	10.5   9.2	
Source of Sample	Flowline	
Rm @ Meas. Temp	.50 @ 52	
Rmf @ Meas. Temp	.38 @ 52	
Rmc @ Meas. Temp	.58 @ 52	
Source of Rmf / Rmc	Charts	
Rm @ BHT	.21 @ 123	
Operating Rig Time	4 Hours	
Max Rec. Temp. F	123	
Equipment Number	17	
Location	Hays	
Recorded By	J. Henrickson	
Witnessed By	Harley Sayles	

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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 Log-Tech, Inc.  
(785) 625-3858

Belpre Kansas  
South to T, 1/2 West, 2 South, 2 1/2 East, South Into(South to Tree Row then West)

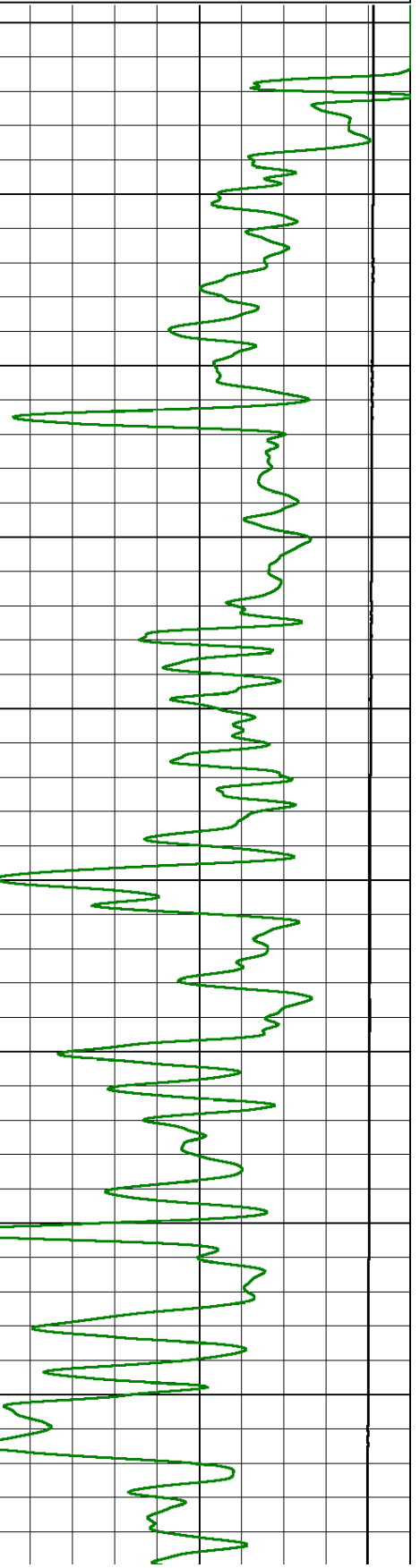
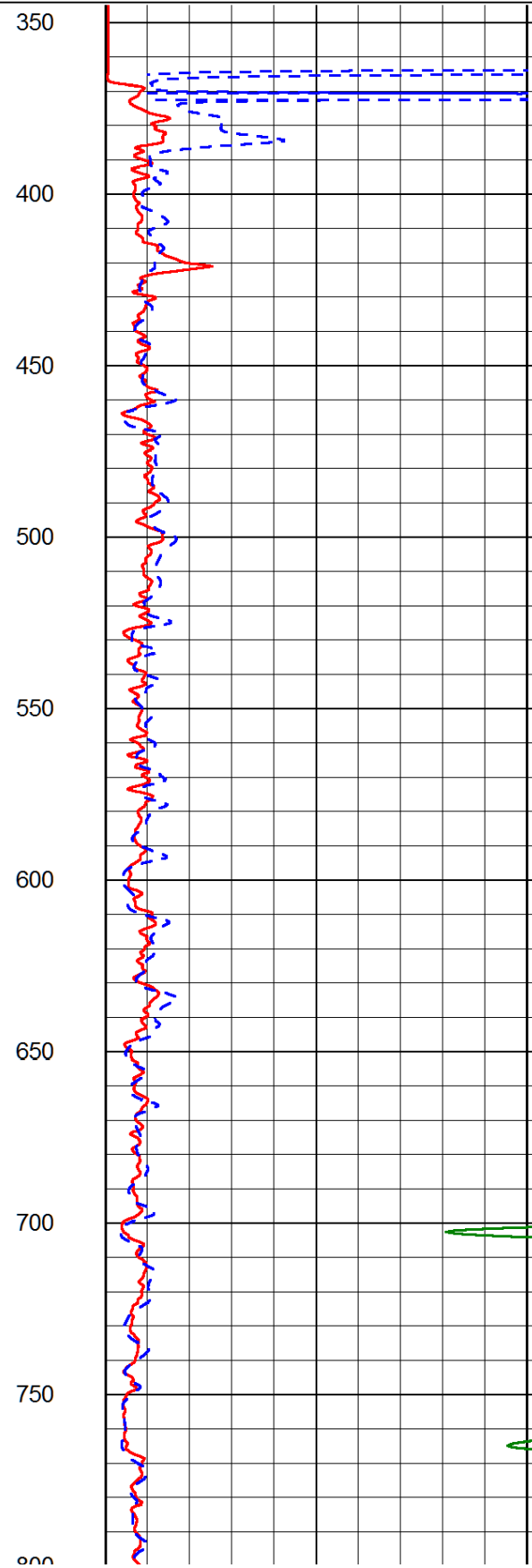
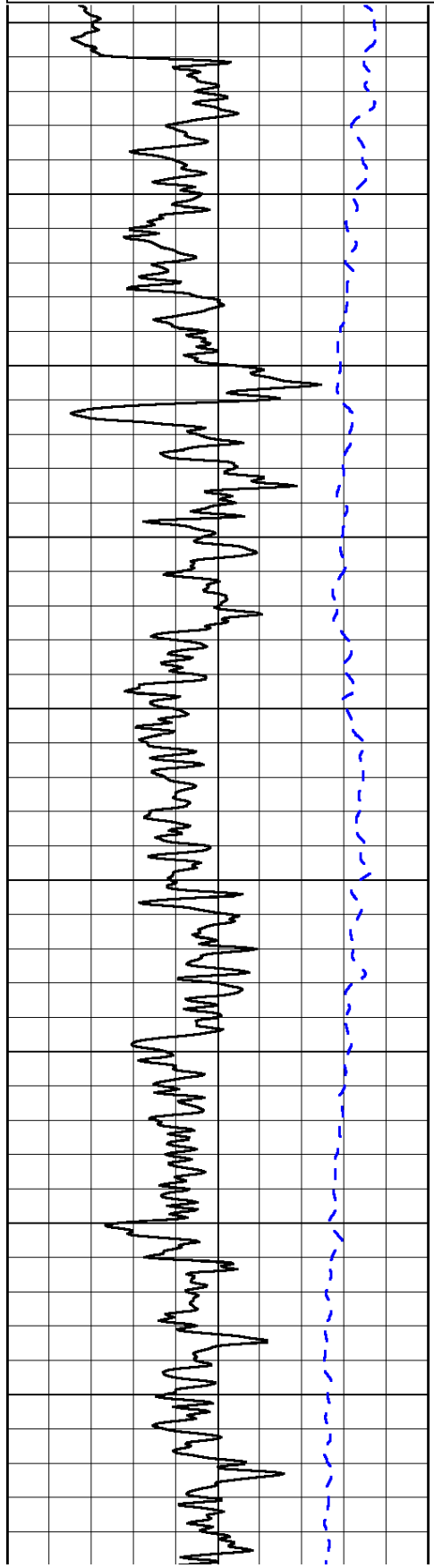
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 Dataset Pathname: DIL/totostk  
 Presentation Format: dil2in  
 Dataset Creation: Mon Jan 13 16:14:16 2014  
 Charted by: Depth in Feet scaled 1:600

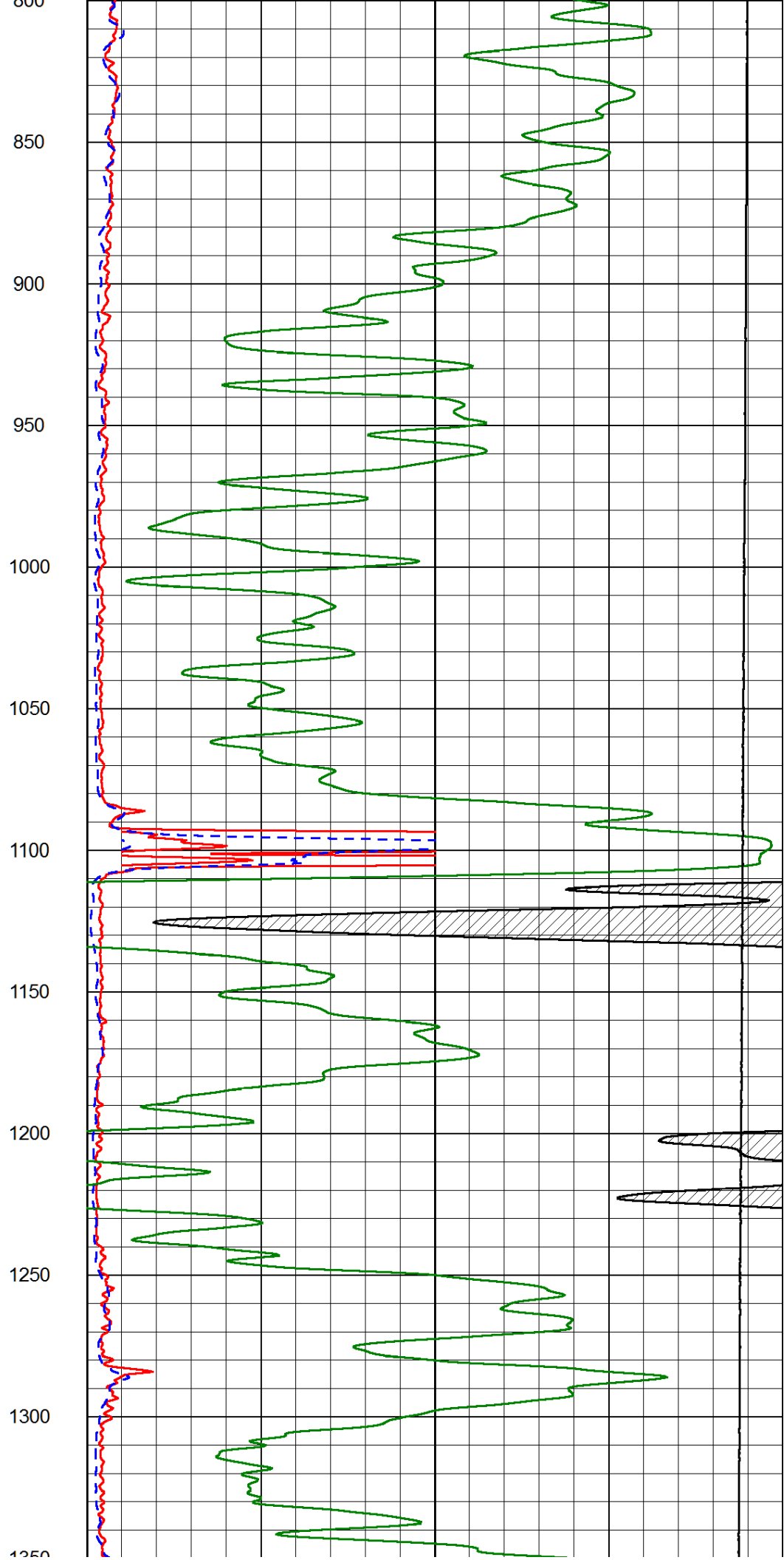
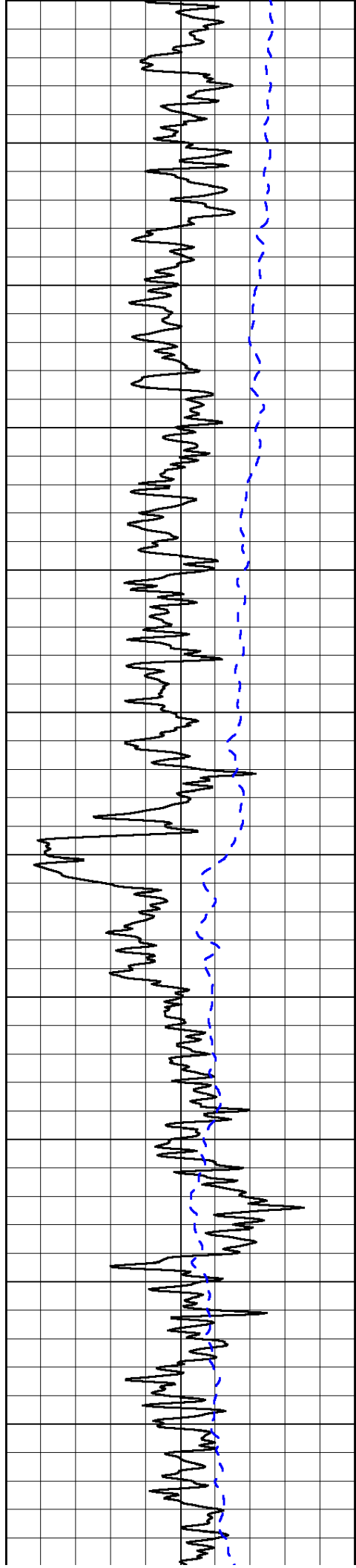
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-200	SP (mV)	0

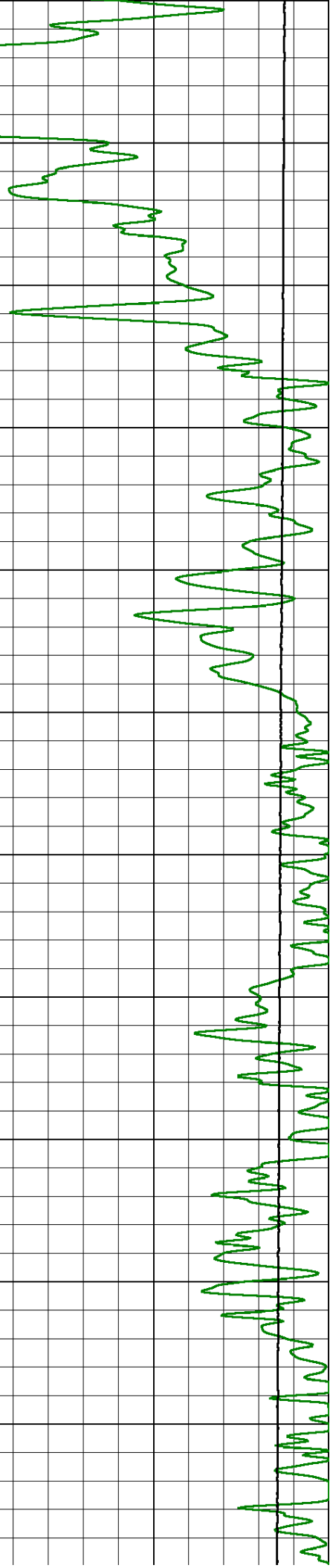
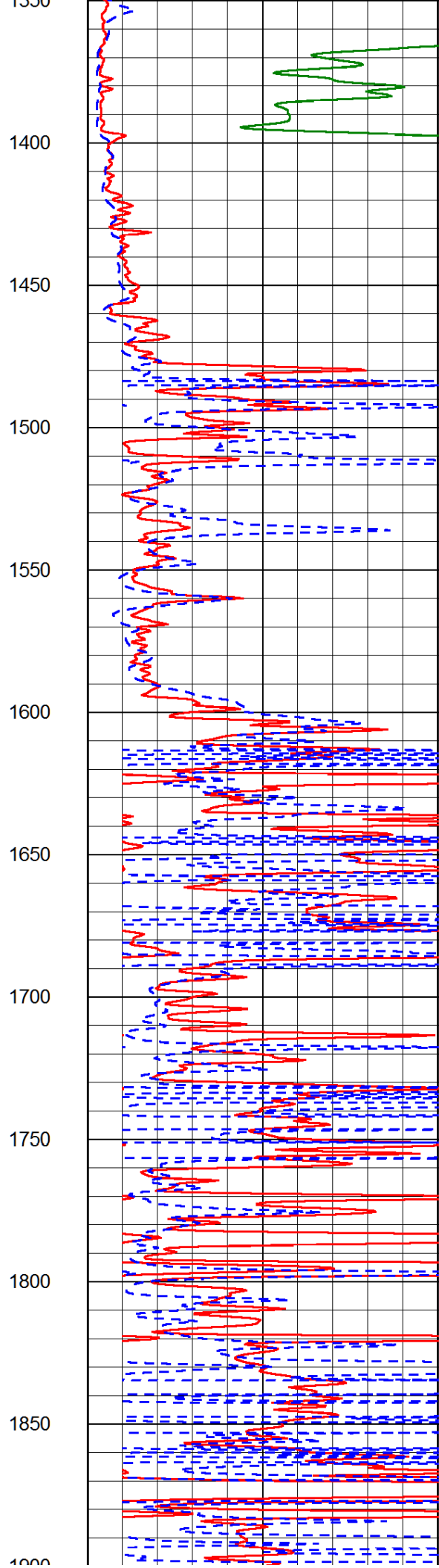
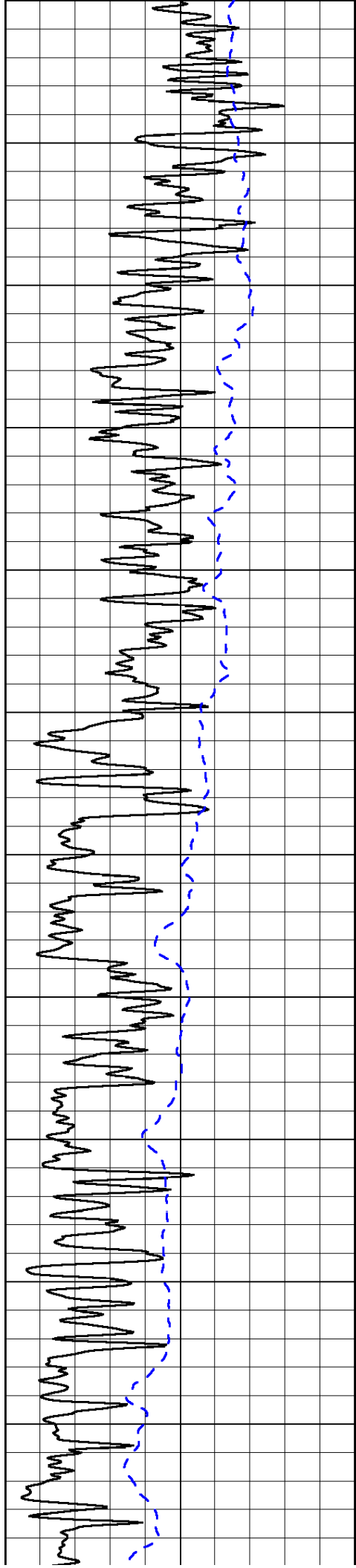
0	Shallow Resistivity (Ohm-m)	50
0	Deep Resistivity (Ohm-m)	50

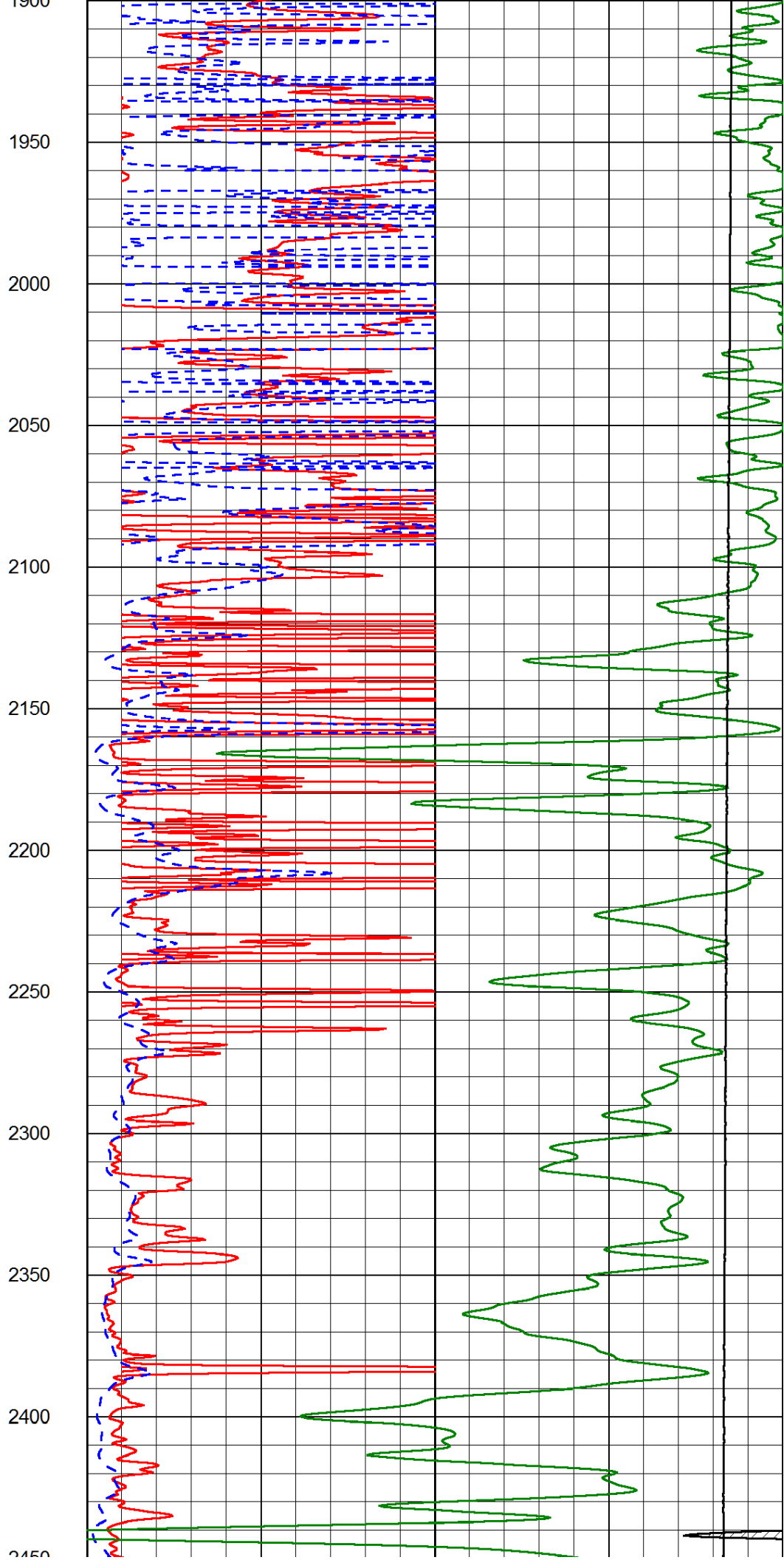
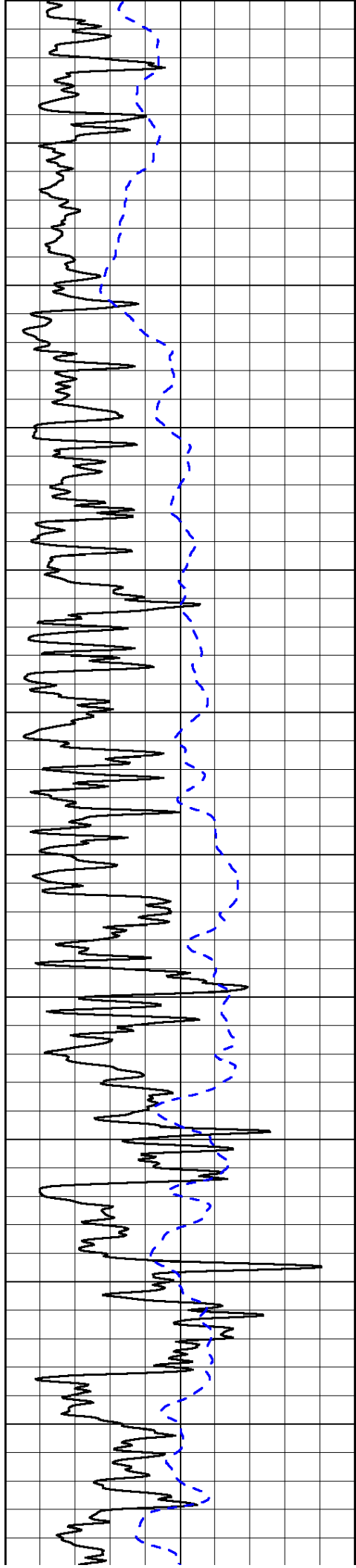
1000	Conductivity (Ohm-m)	0
15000	Line Tension (lb)	0

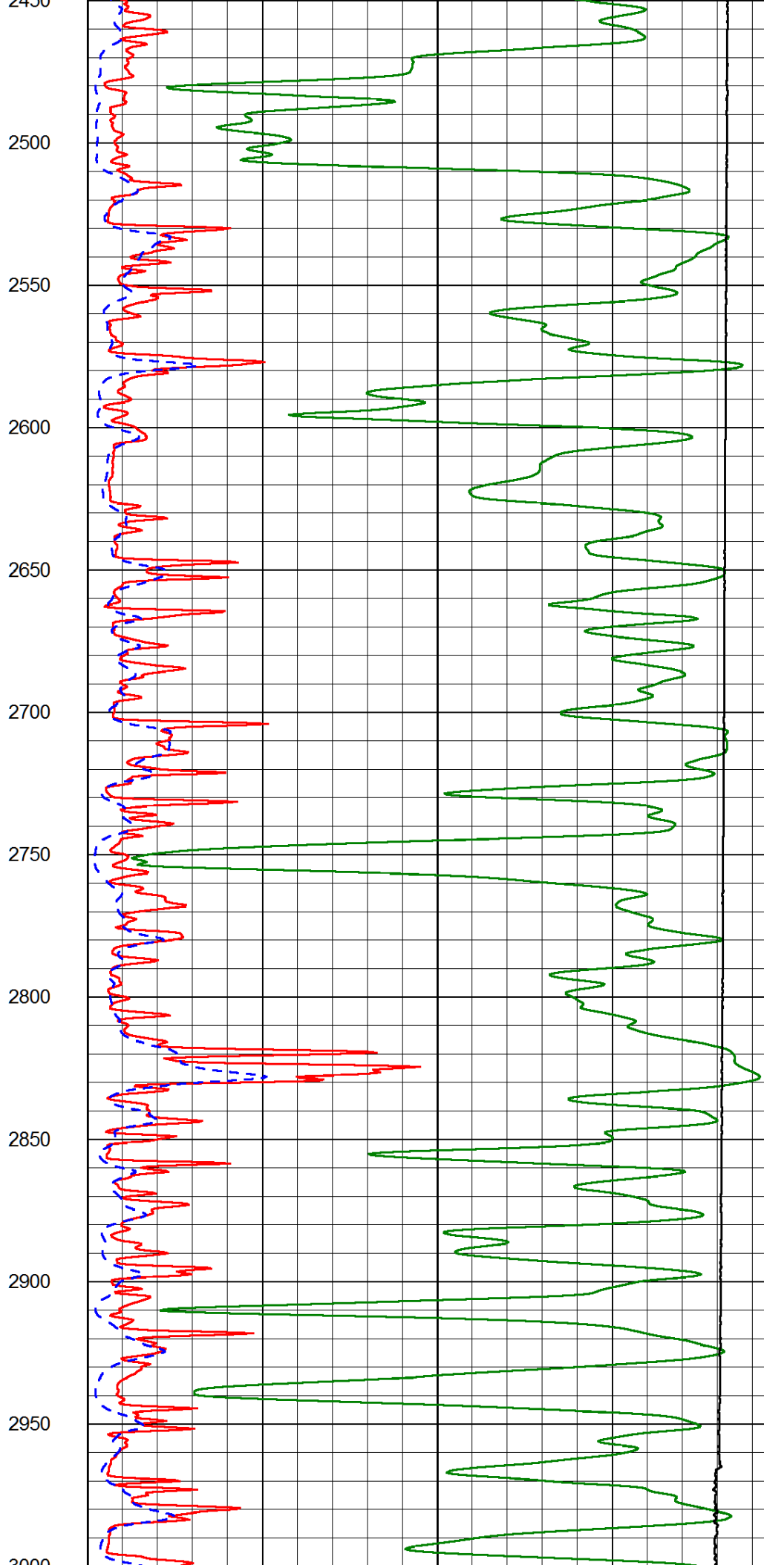
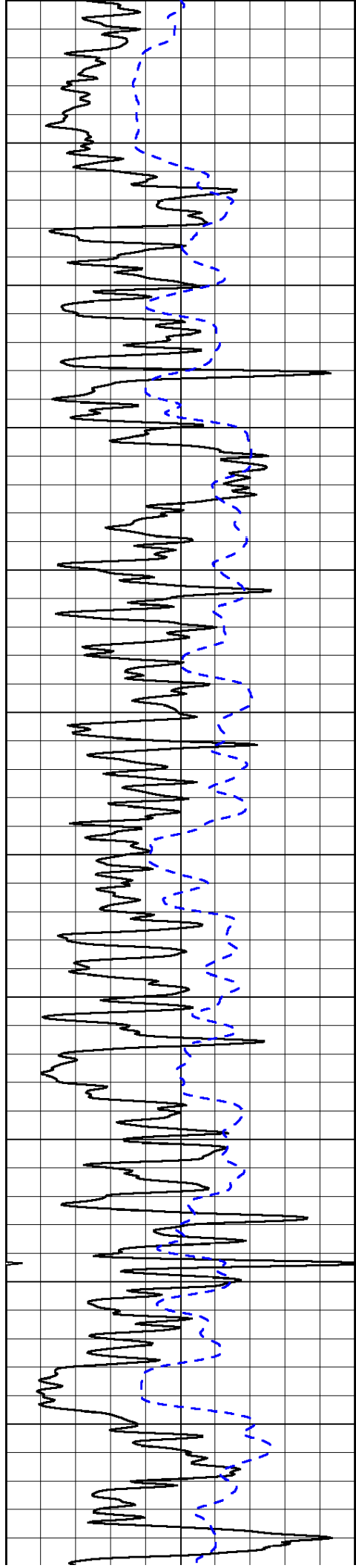
Shallow Resistivity		
50	(Ohm-m)	500
50	Deep Resistivity (Ohm-m)	500

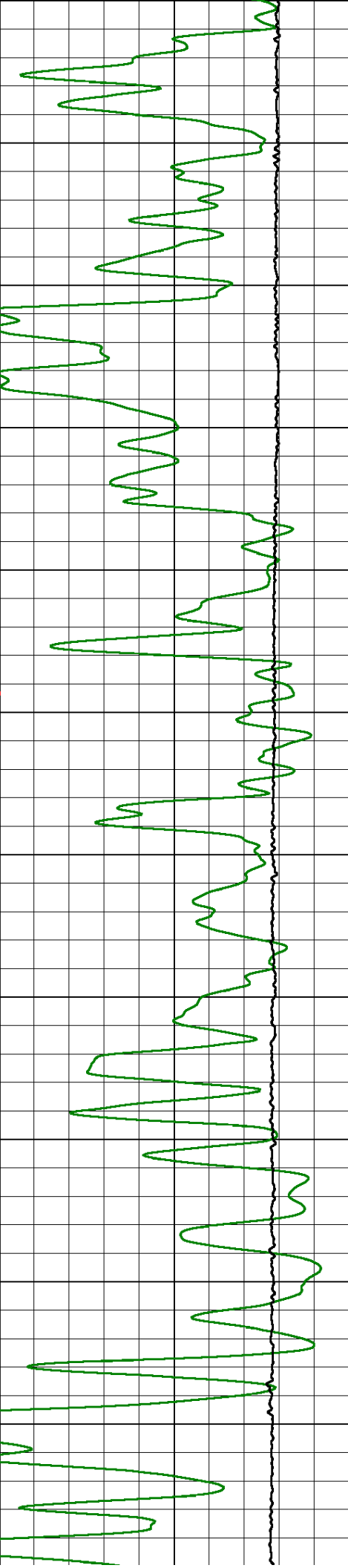
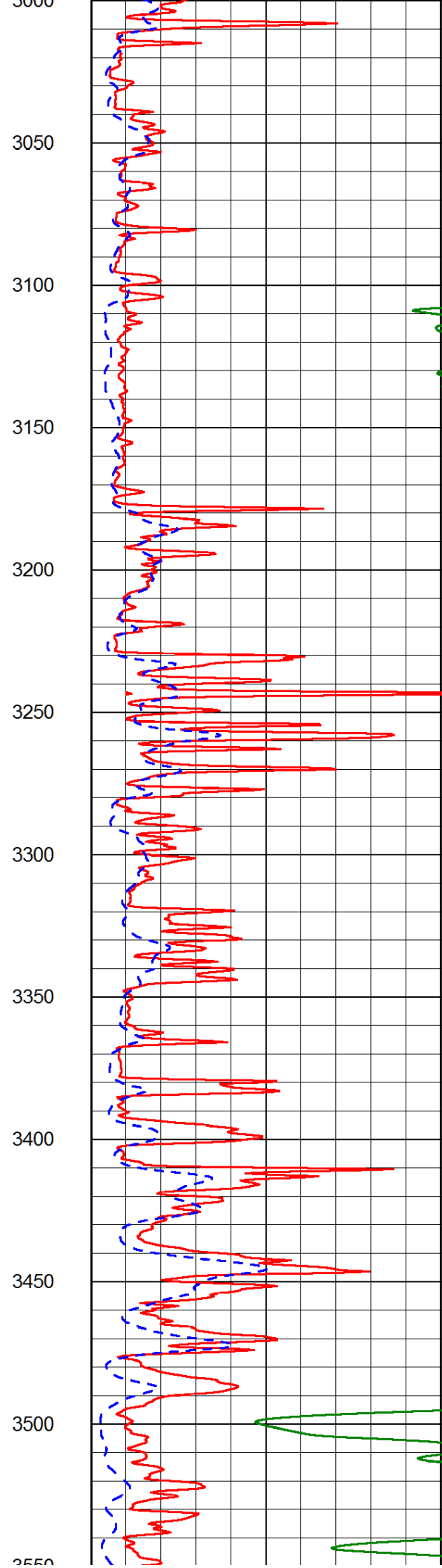
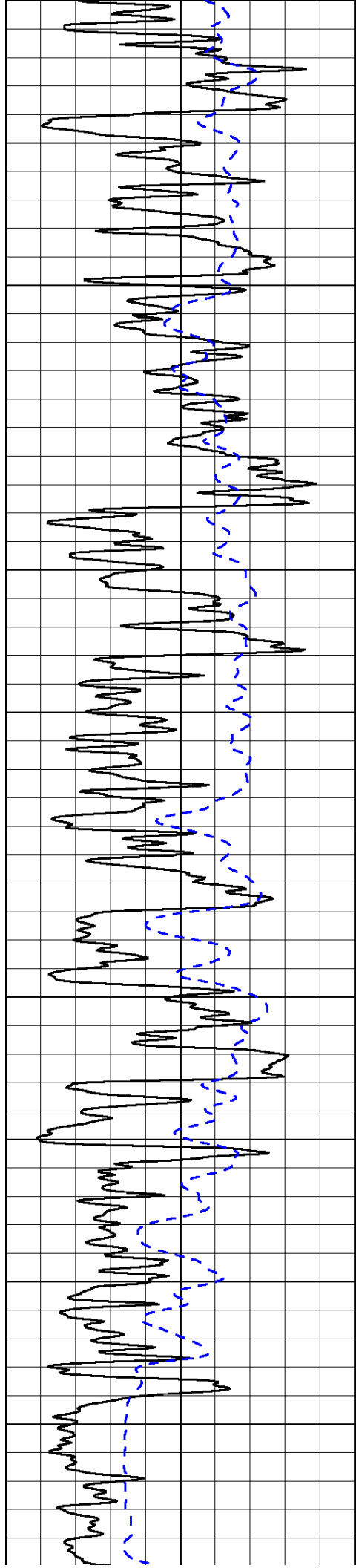


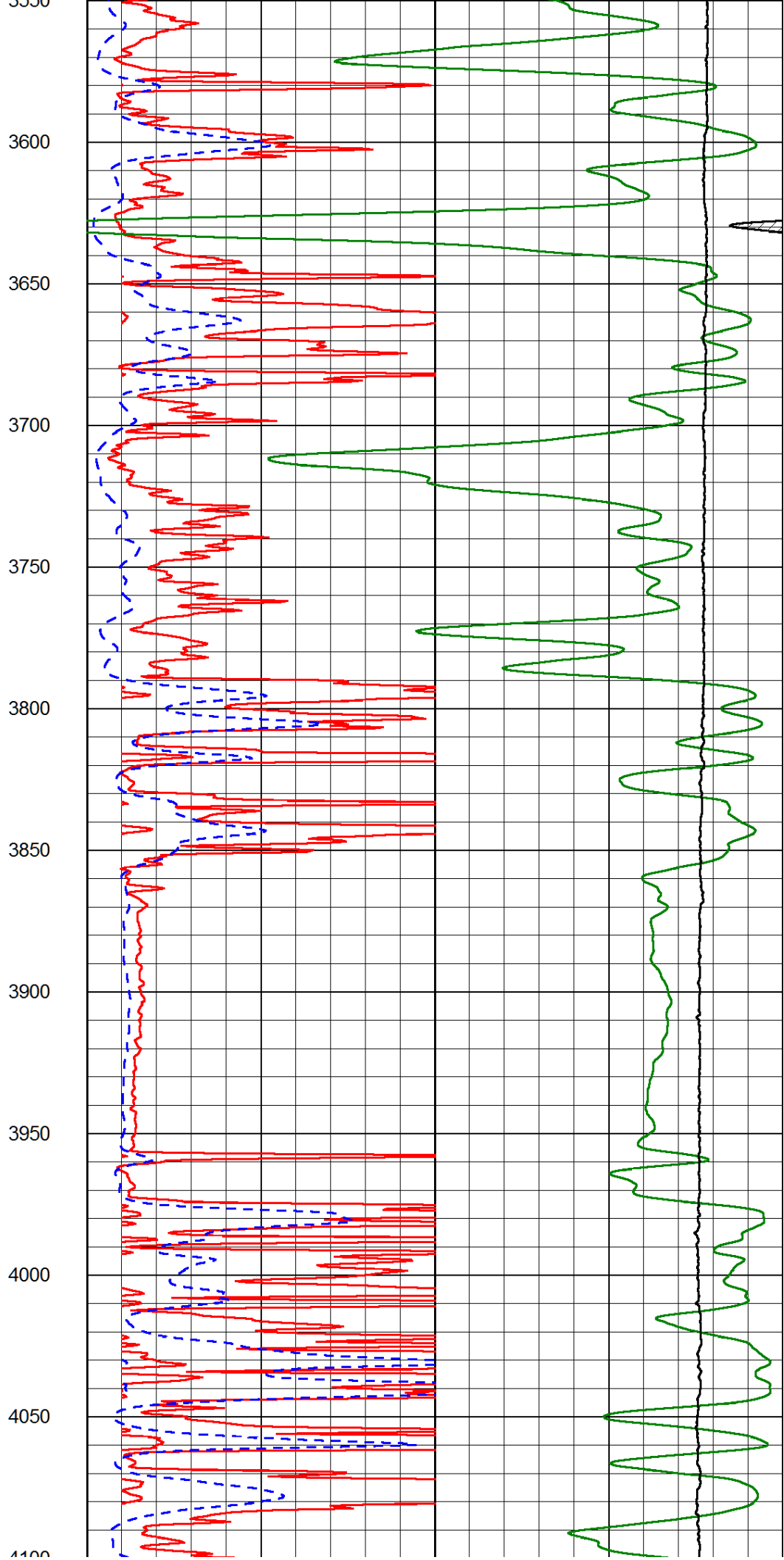
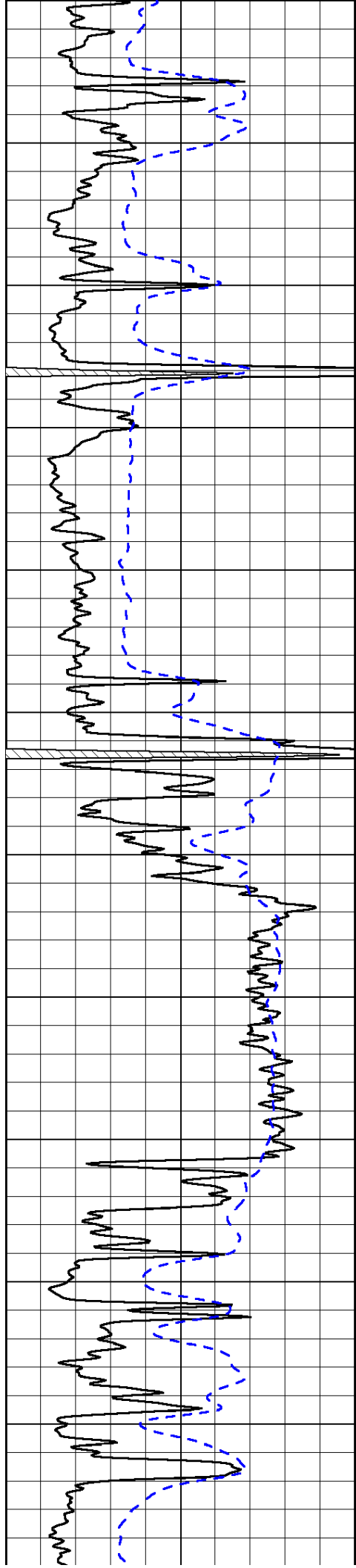


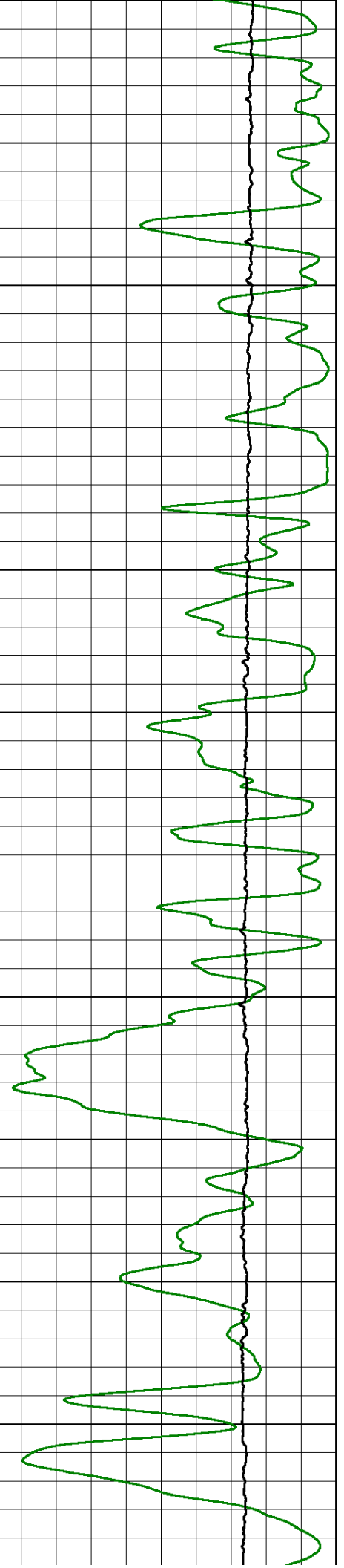
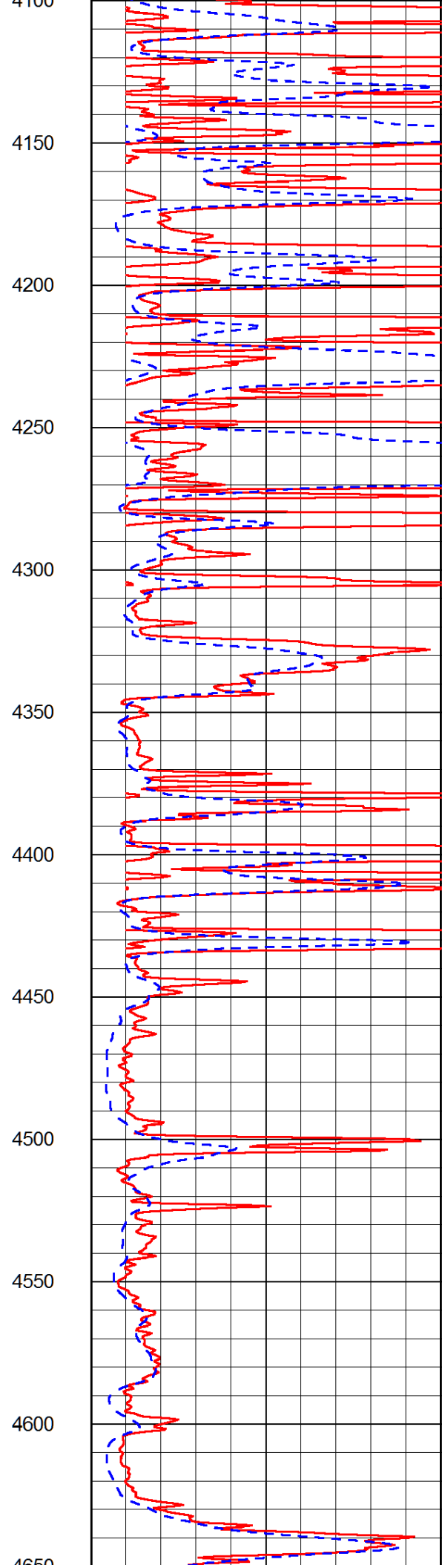
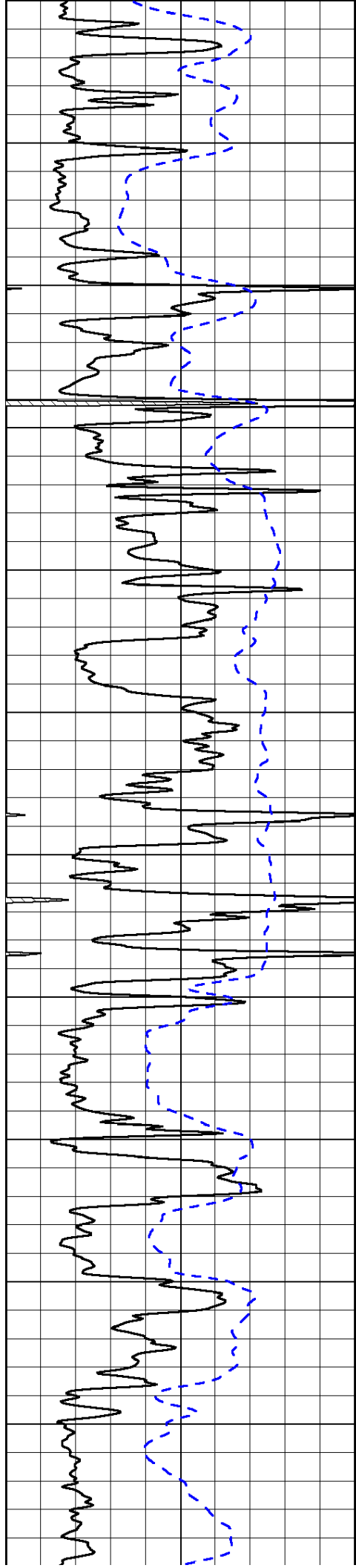


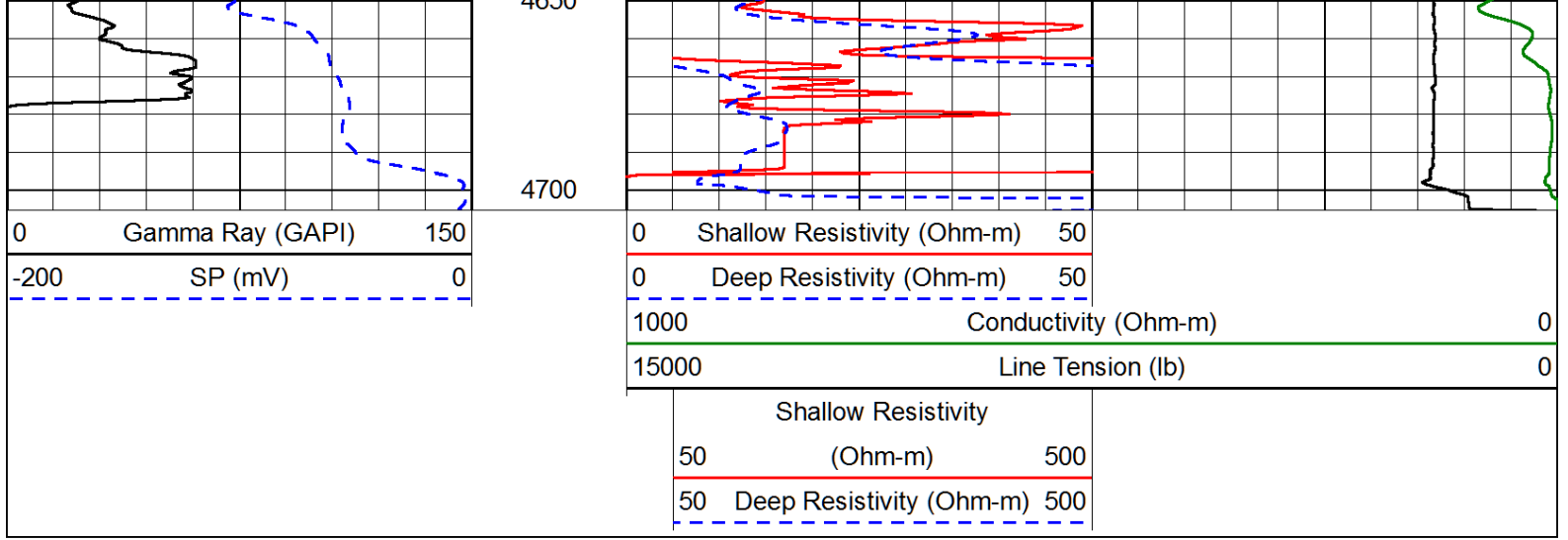




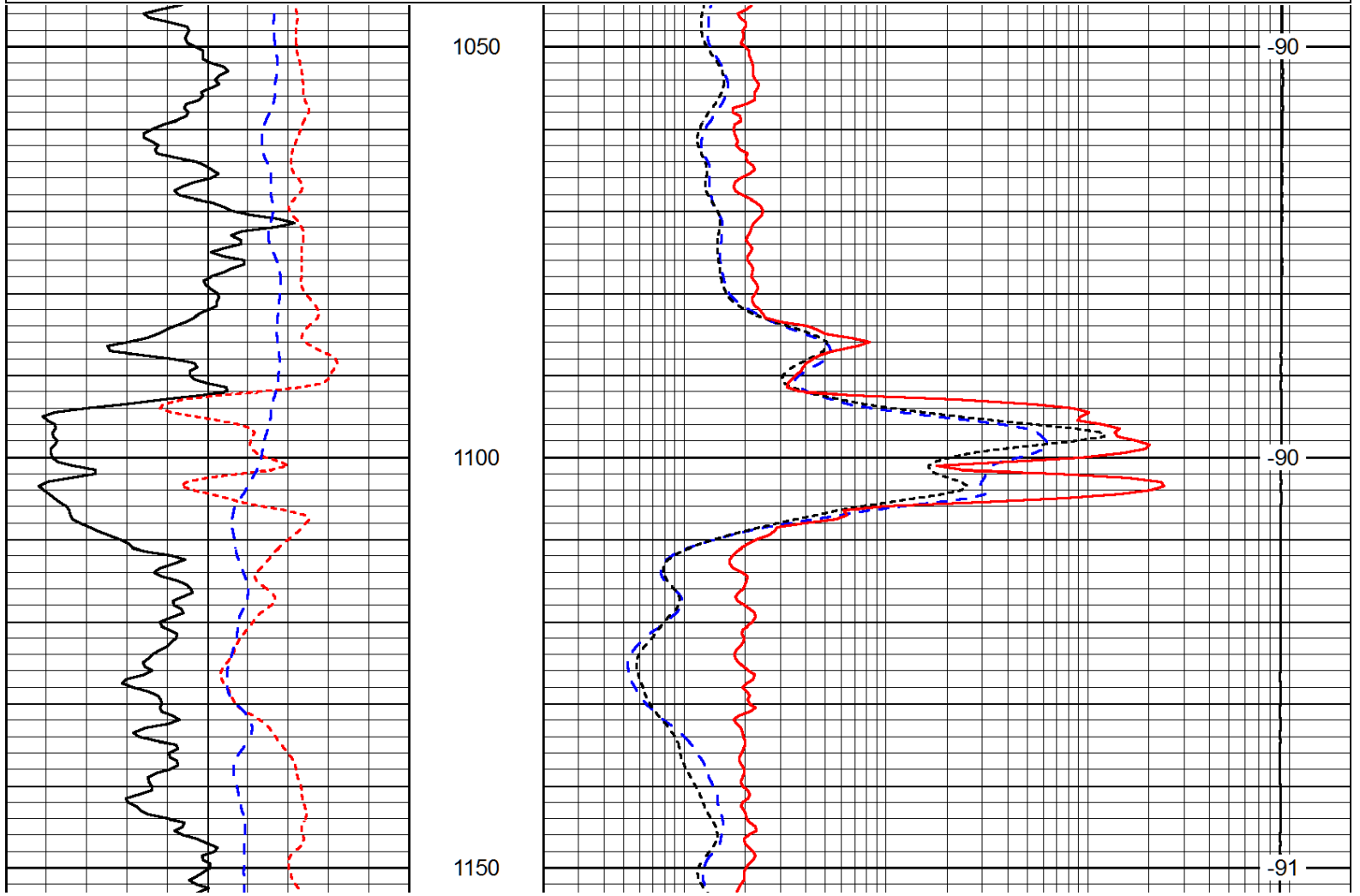
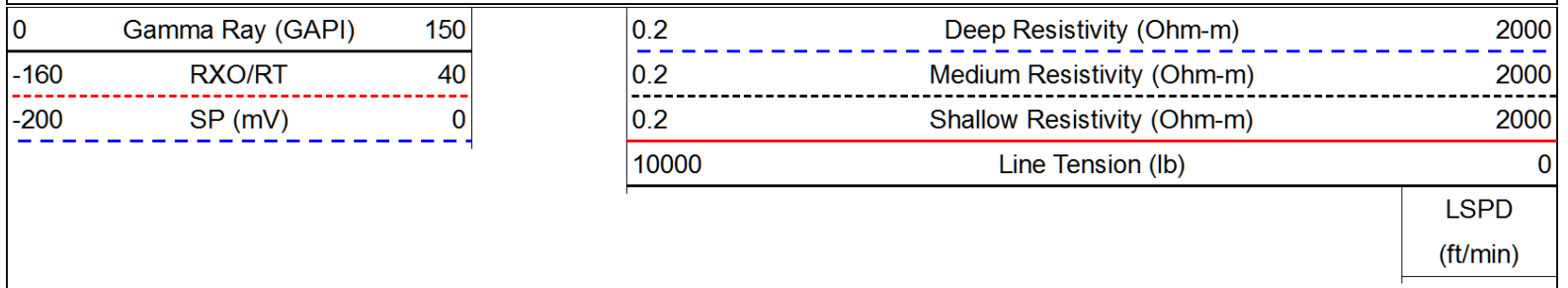








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 Dataset Pathname: DIL/totostk  
 Presentation Format: dil  
 Dataset Creation: Mon Jan 13 16:14:16 2014  
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0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

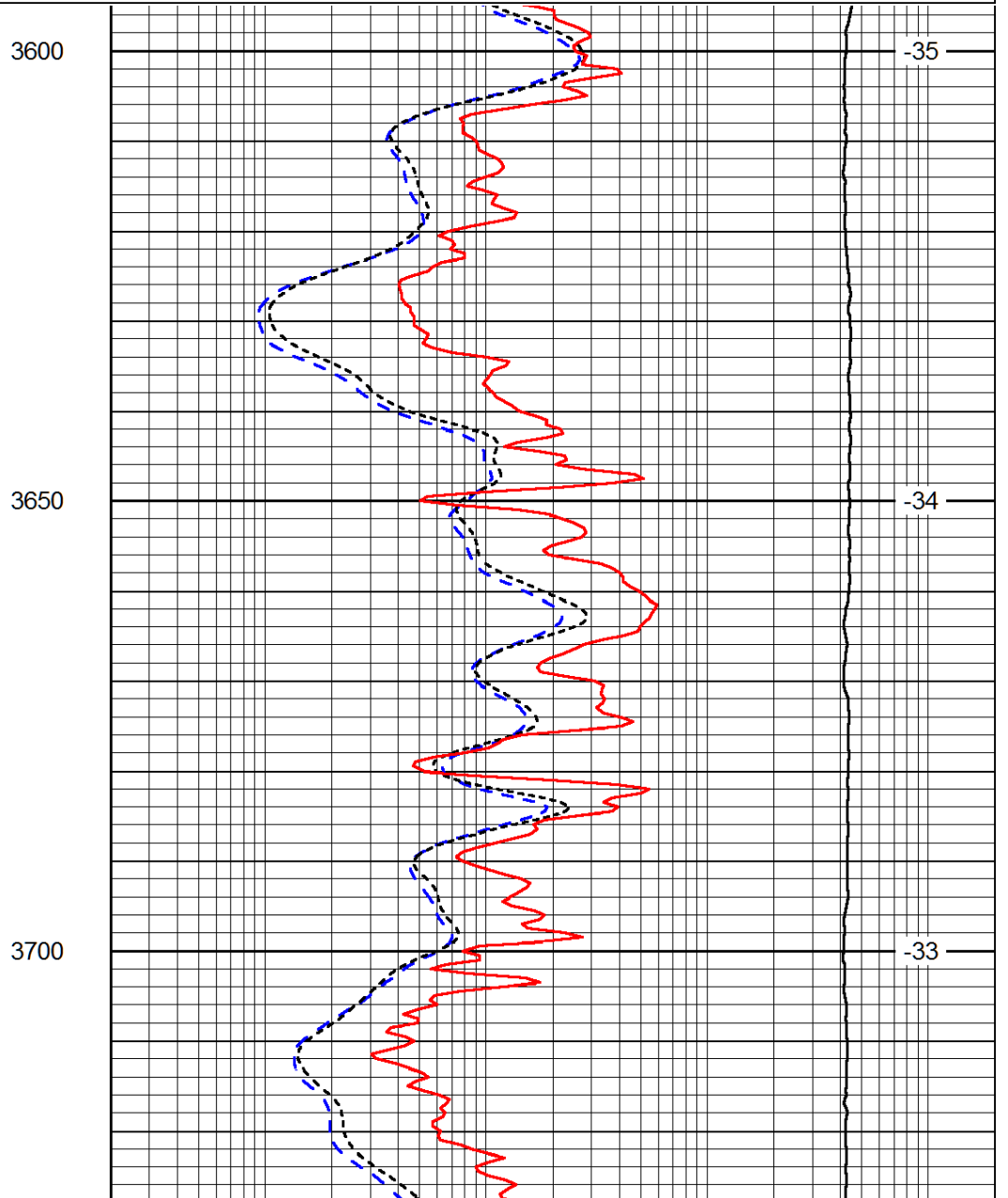
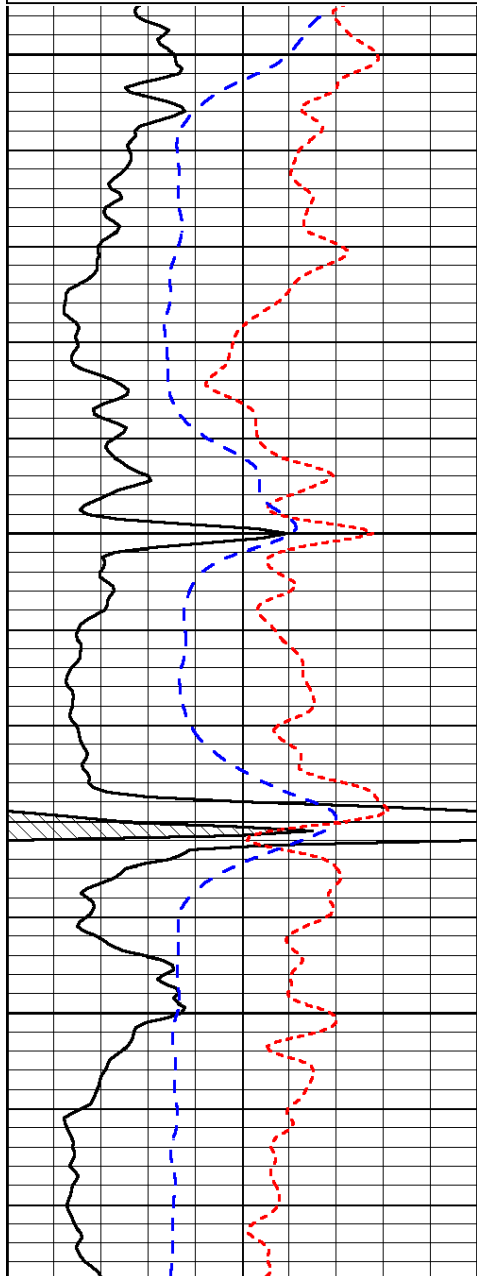
LSPD  
(ft/min)

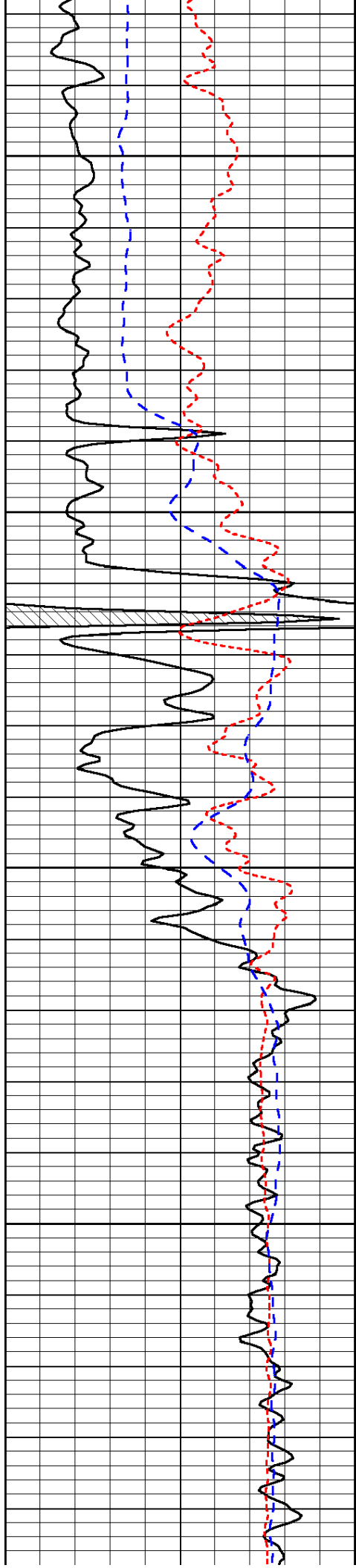
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10000	Line Tension (lb)	0

LSPD  
(ft/min)



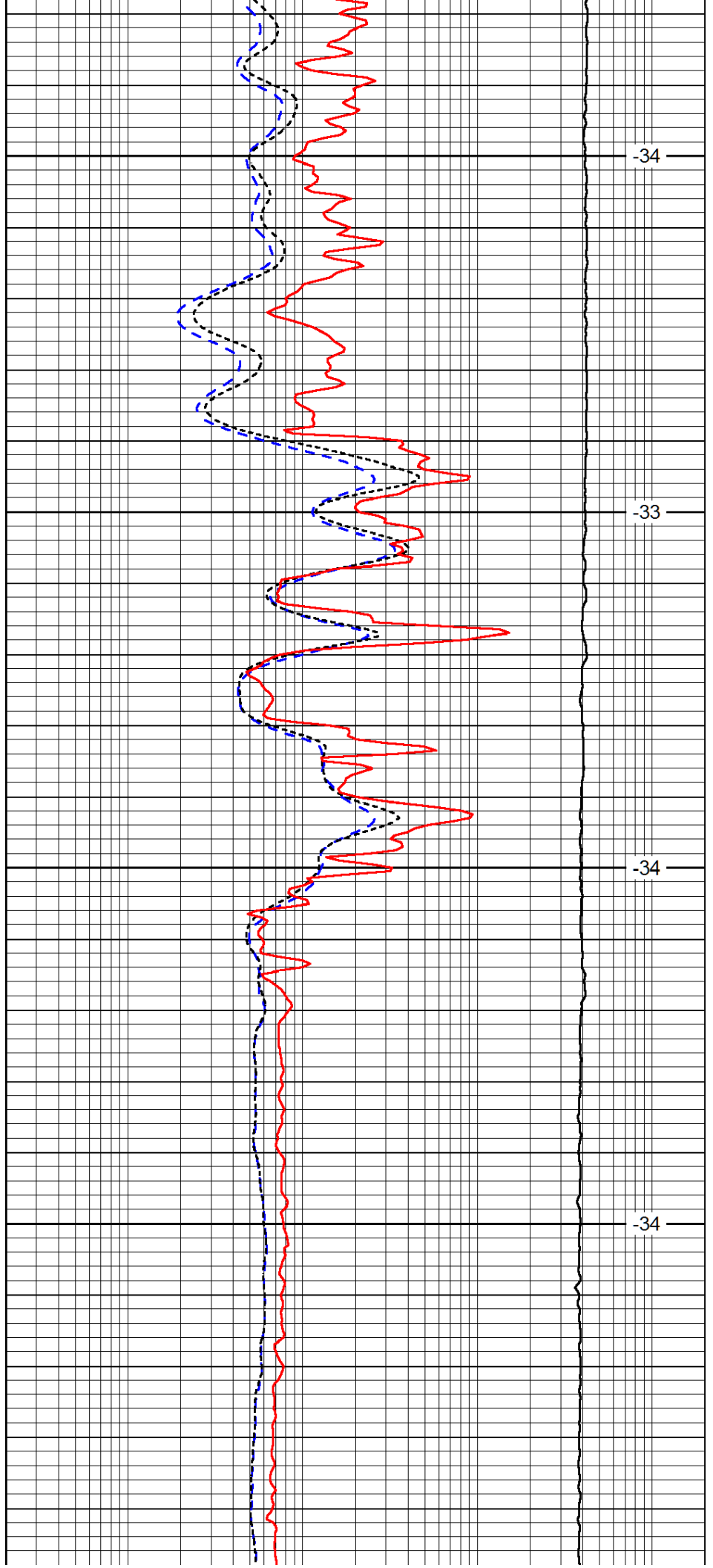


3750

3800

3850

3900

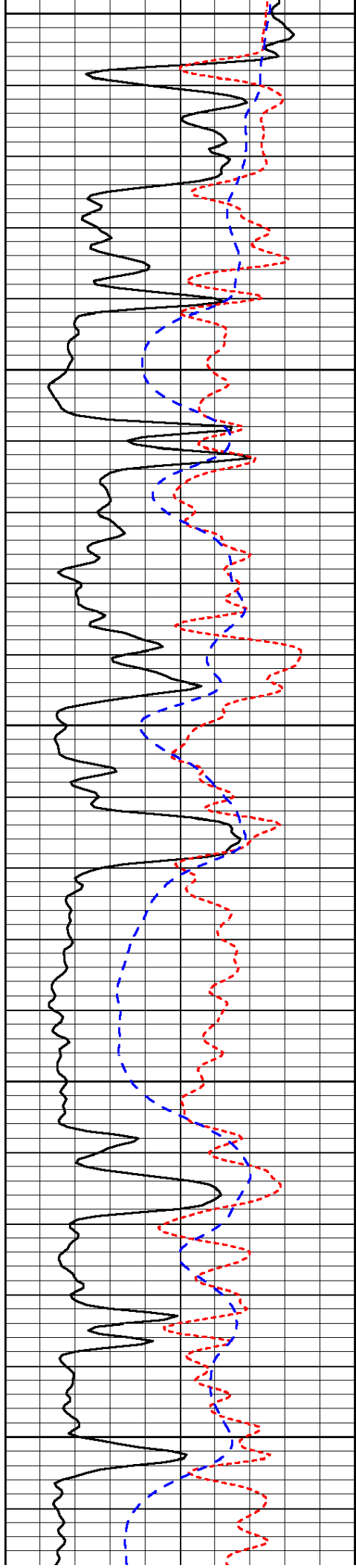


-34

-33

-34

-34



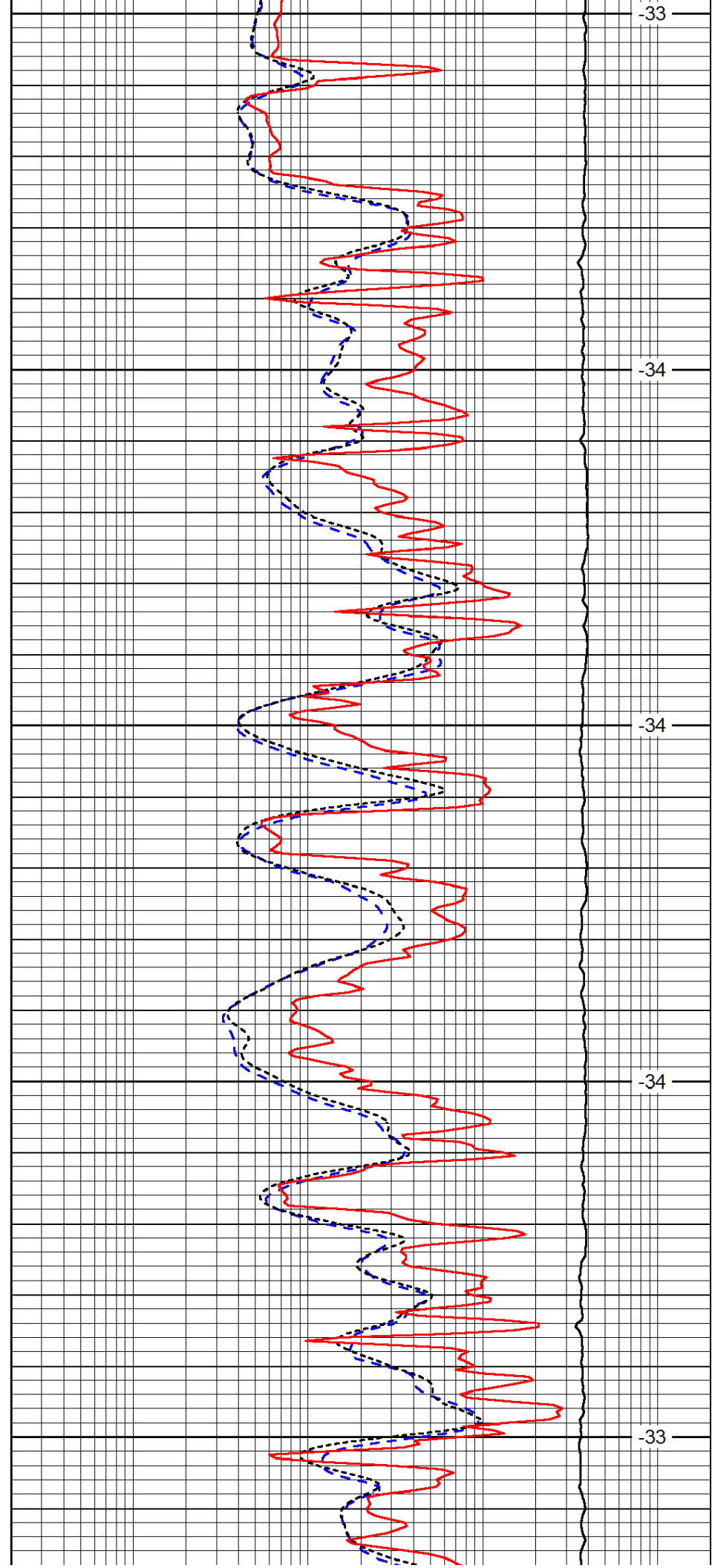
3950

4000

4050

4100

4150



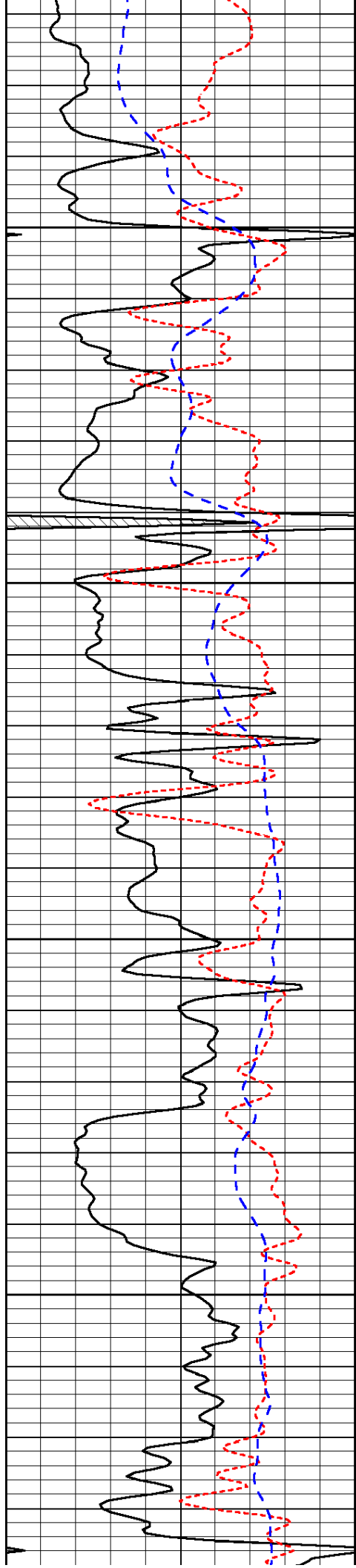
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-34

-34

-34

-33

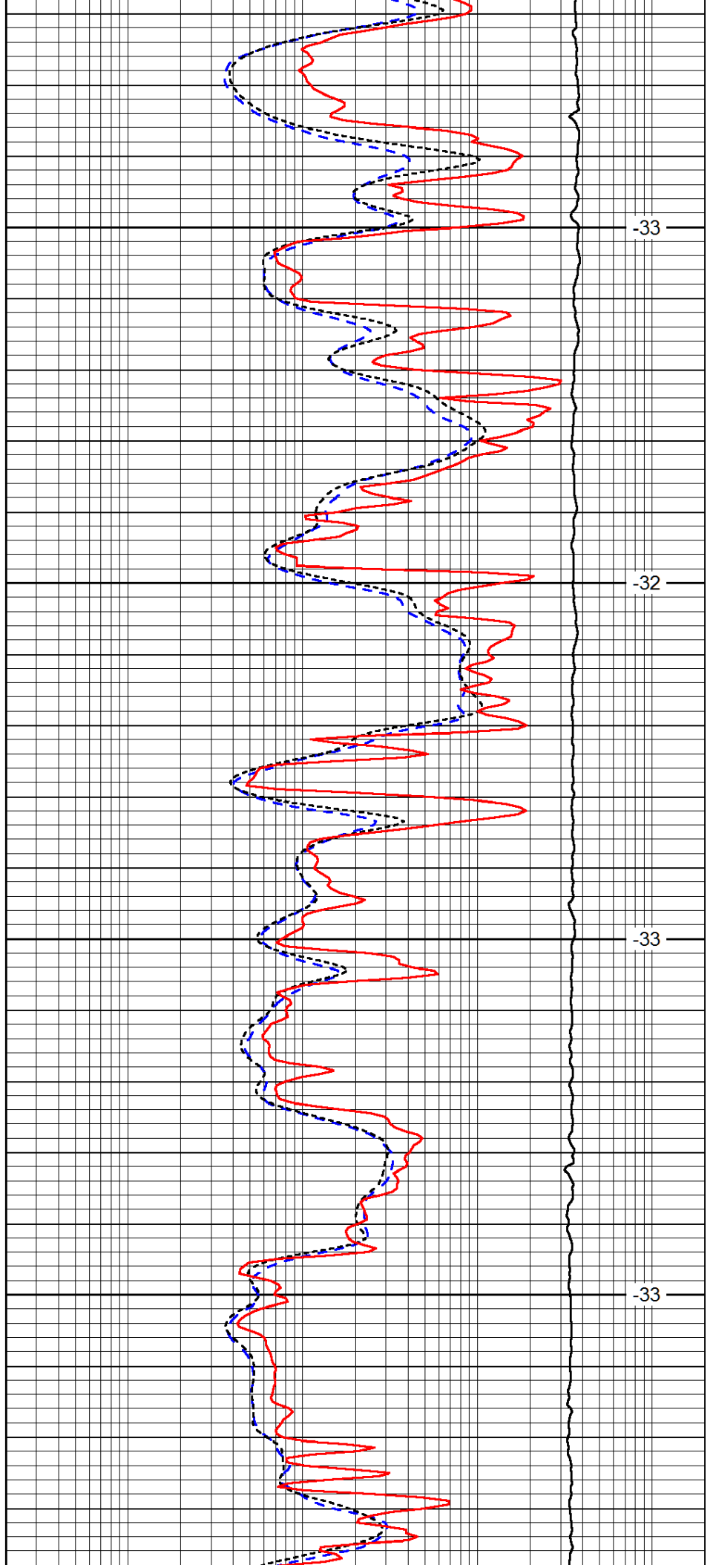


4200

4250

4300

4350

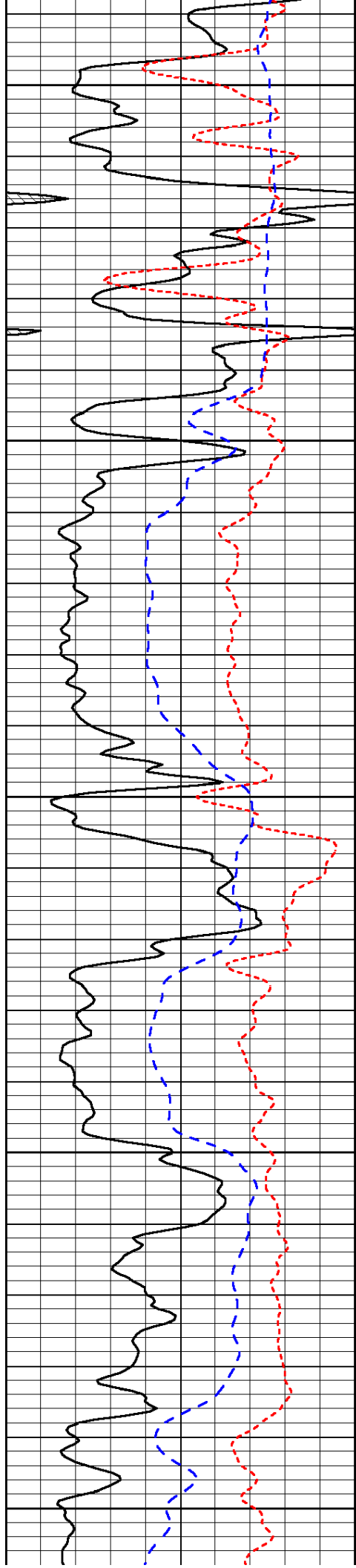


-33

-32

-33

-33



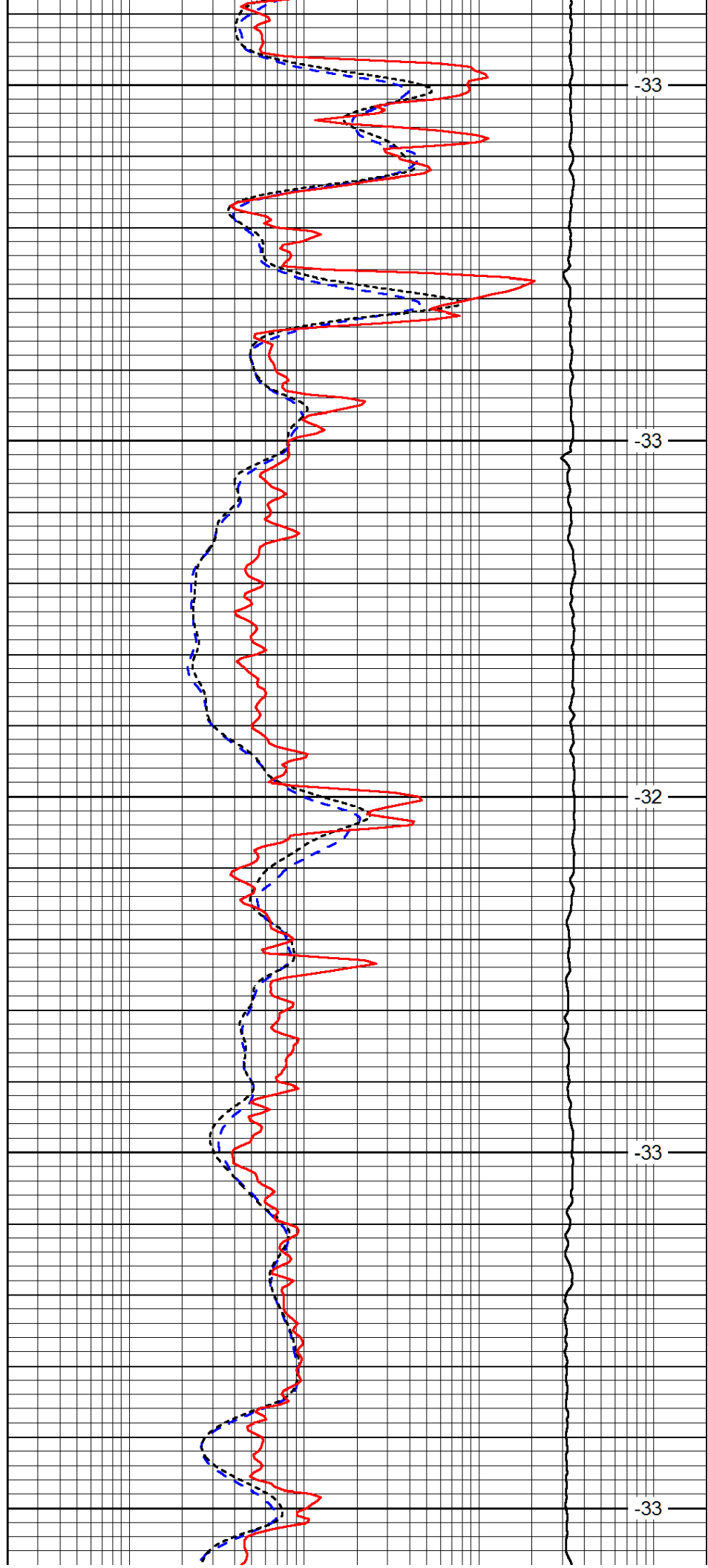
4400

4450

4500

4550

4600



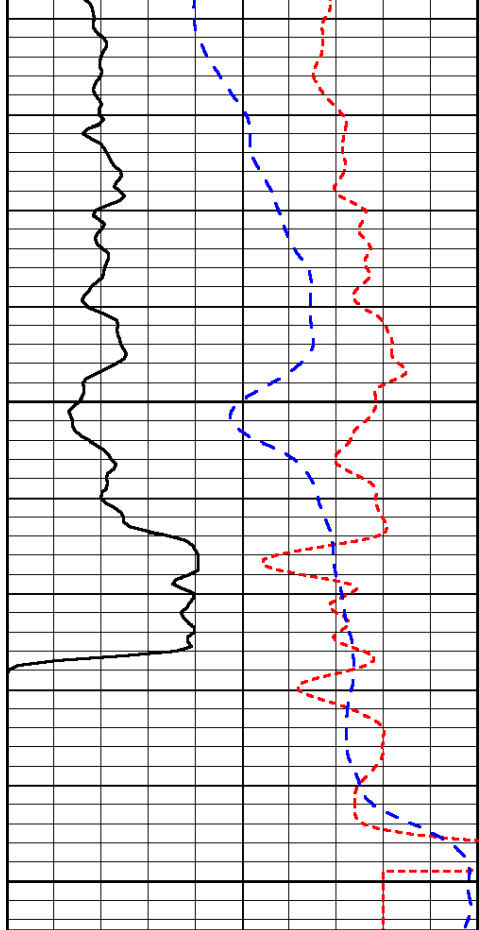
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-33

-32

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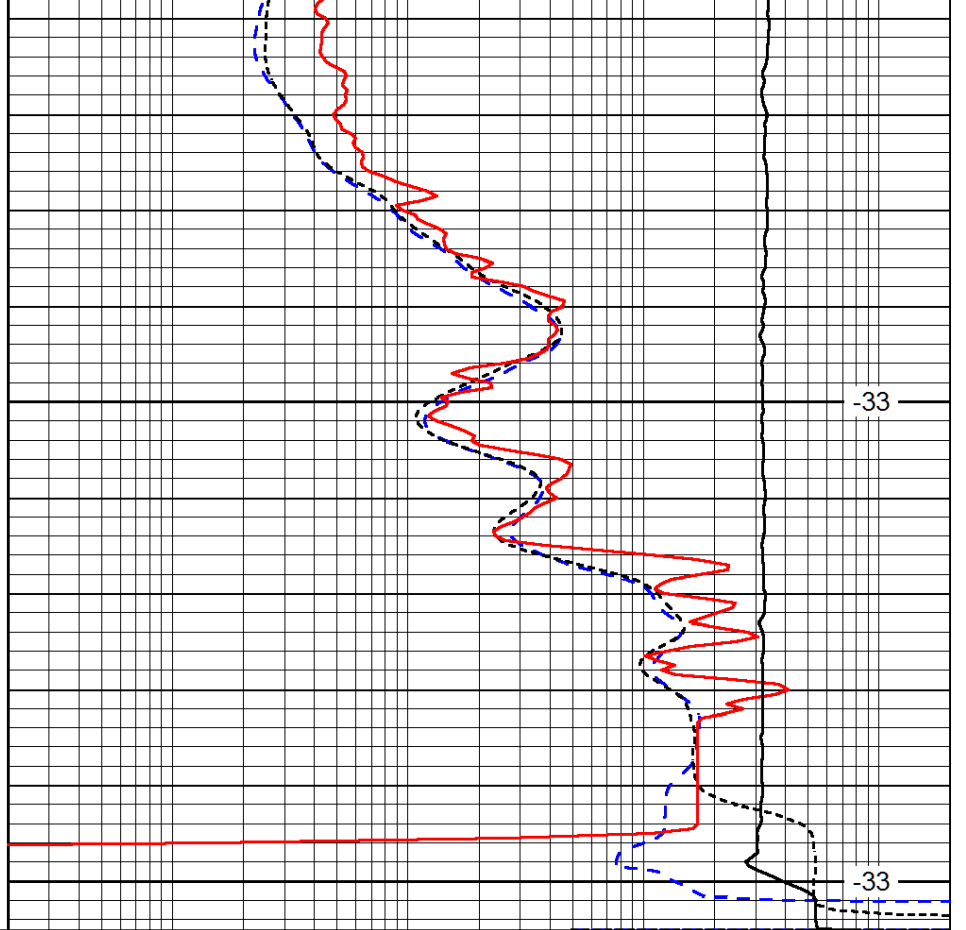
-33



4650

4700

0	Gamma Ray (GAPI)	150
-160	RXO/RT	40
-200	SP (mV)	0



-33

-33

0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000
10000	Line Tension (lb)	0

LSPD  
(ft/min)