



Pioneer Energy Services

## Dual Induction Log

API No.

15-135-25639-00-00

Company American Warrior, Inc.

Well Joseph #1-21

Field Chrif

County Ness

State

Kansas

Location

860' FNL & 769' FEL

Sec: 21

Twp: 19 S

Rge: 25 W

Permanent Datum Ground Level  
Log Measured From Kelly Bushing  
Drilling Measured From Kelly Bushing

Elevation  
K.B. 2481  
D.F. 2470  
G.L. 2470

Date

08-01-2013

Run Number

One

Depth Driller

4600

Depth Logger

4602

Bottom Logged Interval

4601

Top Log Interval

200

Casing Driller

8.625 @ 235

Casing Logger

235

Bit Size

7.875

Type Fluid in Hole

Chemical

Salinity, ppm CL

5300

Density / Viscosity

9.3 45

pH / Fluid Loss

9.5 9.6

Source of Sample

Flowline

Rm @ Meas. Temp

0.85 @ 75

Rmf @ Meas. Temp

0.63 @ 75

Rmc @ Meas. Temp

1.14 @ 75

Source of Rmf / Rmc

Charts

Rm @ BHT

0.51 @ 124

Operating Rig Time

4 Hours

Max Rec. Temp. F

124

Equipment Number

91

Location

Hays

Recorded By

Y. Ruiz

Witnessed By

Kevin Timson

<<< 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.

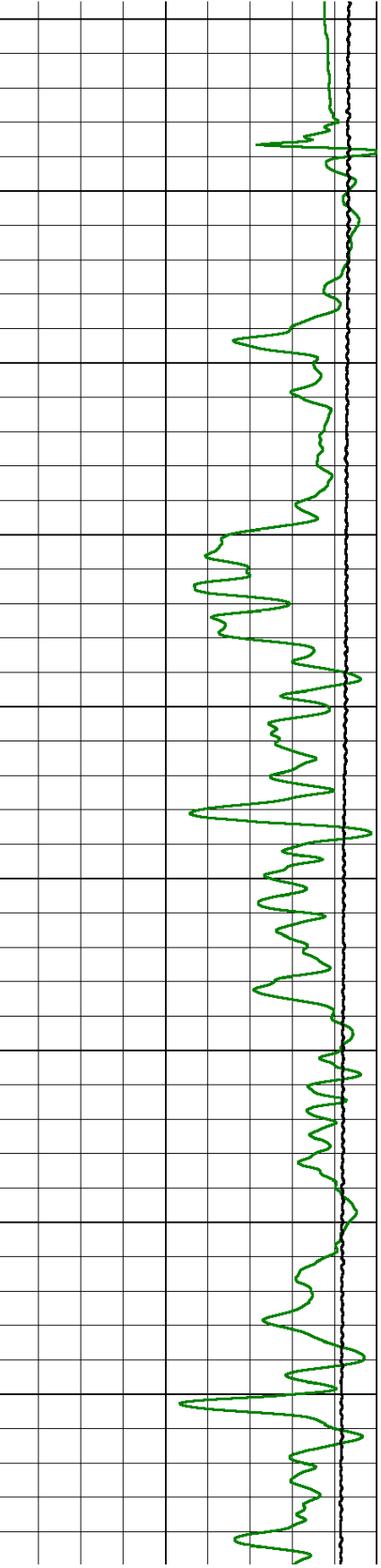
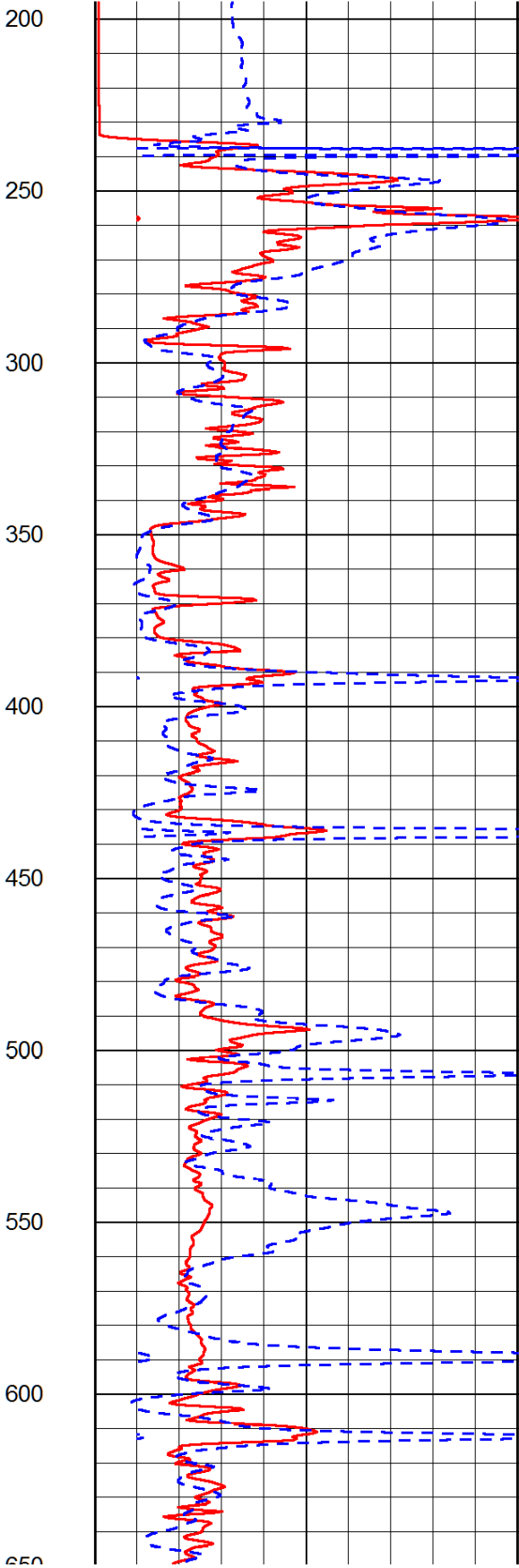
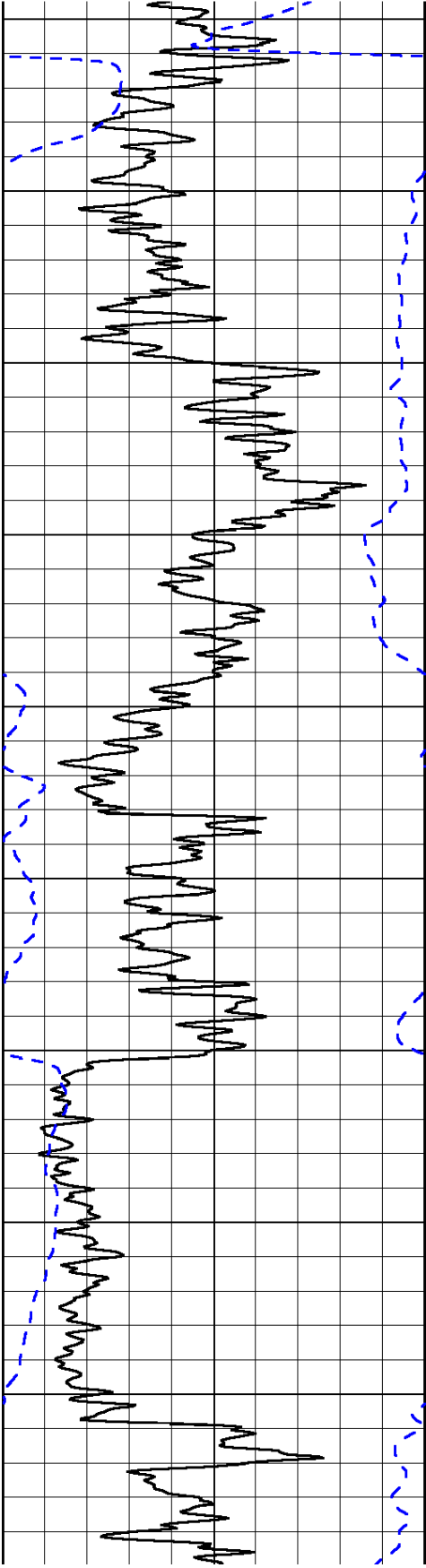
### Comments

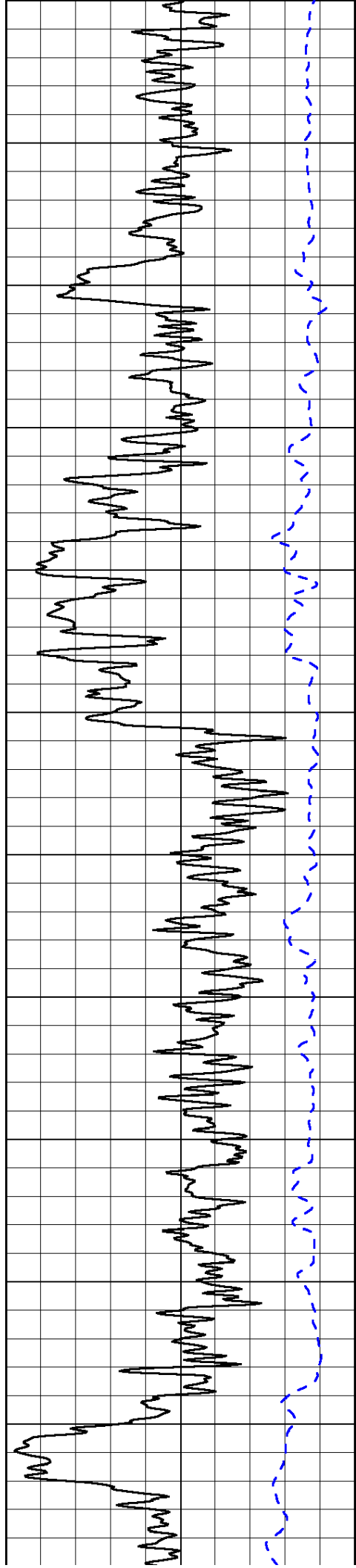
Thank you for using Log-Tech, Inc.  
(785) 625-3858  
  
Ness City,  
West to J Rd, 4 South,  
1 1/2 West to location (stay right at 1st fork and left at 2nd fork)

Database File: amwar\_080113hd.db  
Dataset Pathname: dil/awstck  
Presentation Format: dil2in  
Dataset Creation: Thu Aug 01 12:33:20 2013  
Charted by: Depth in Feet scaled 1:600

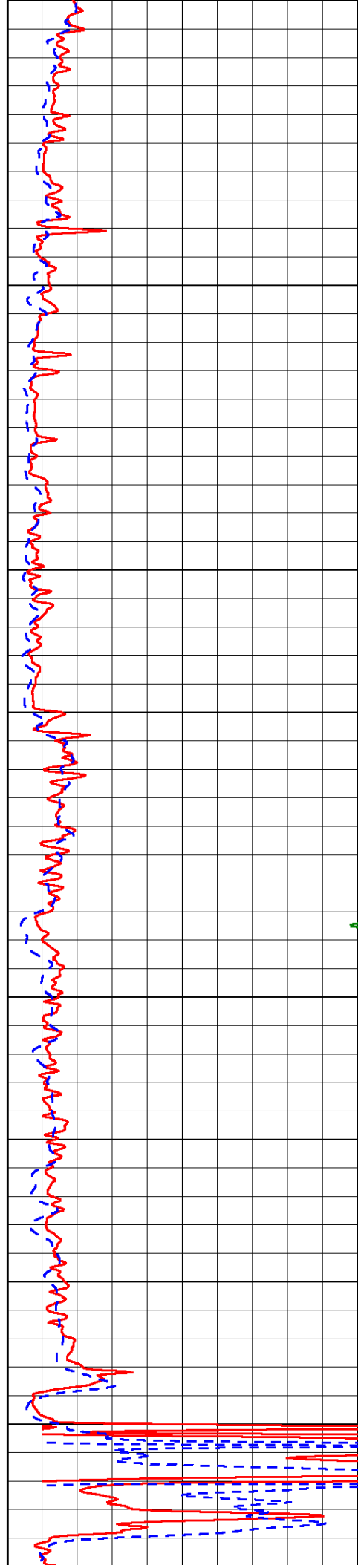
|      |                  |     |
|------|------------------|-----|
| 0    | Gamma Ray (GAPI) | 150 |
| -200 | SP (mV)          | 0   |
|      |                  |     |

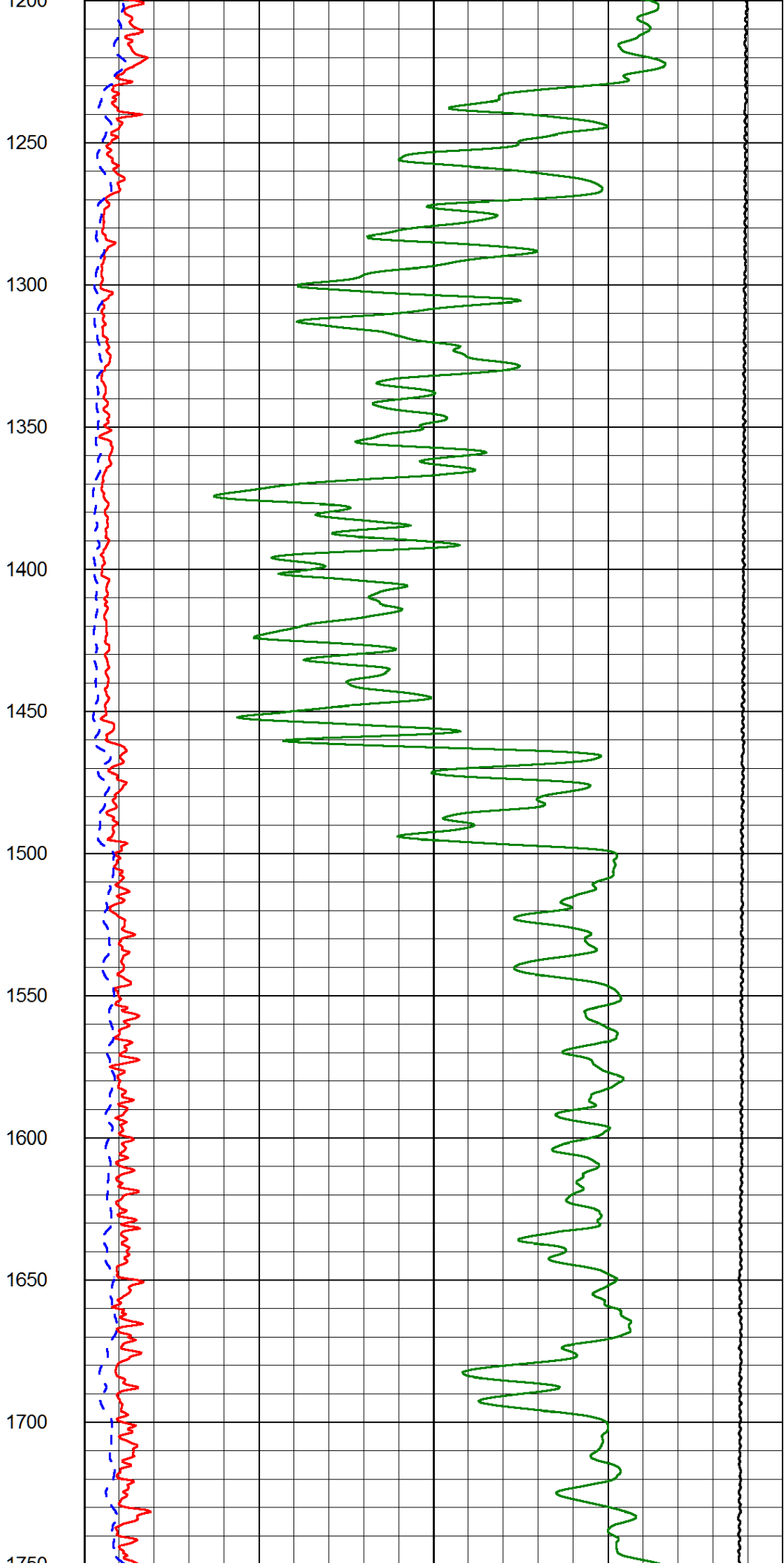
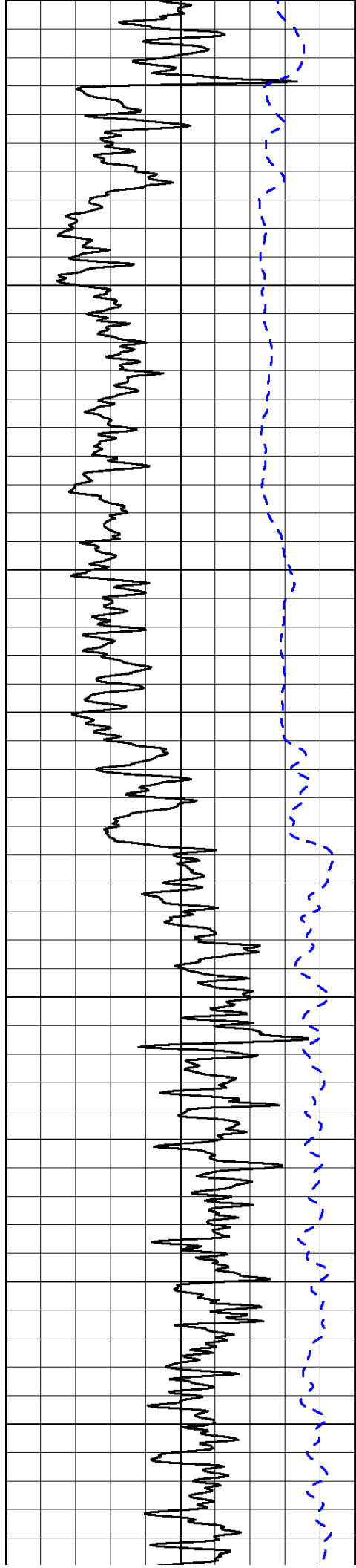
|       |                             |     |
|-------|-----------------------------|-----|
| 0     | Shallow Resistivity (Ohm-m) | 50  |
| 0     | Deep Resistivity (Ohm-m)    | 50  |
| 1000  | Conductivity (Ohm-m)        | 0   |
| 15000 | Line Tension (lb)           | 0   |
|       |                             |     |
|       | Shallow Resistivity         |     |
| 50    | (Ohm-m)                     | 500 |
| 50    | Deep Resistivity (Ohm-m)    | 500 |
|       |                             |     |

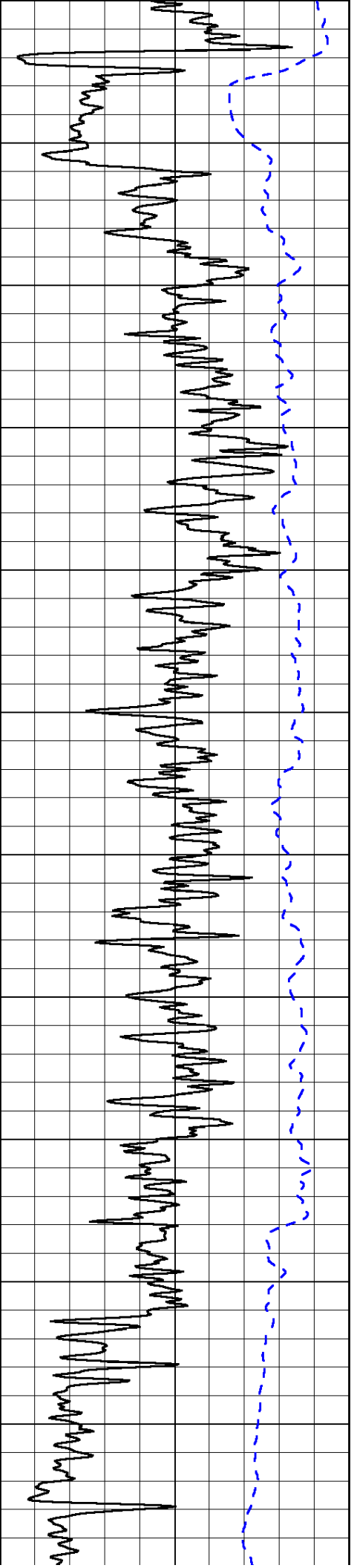
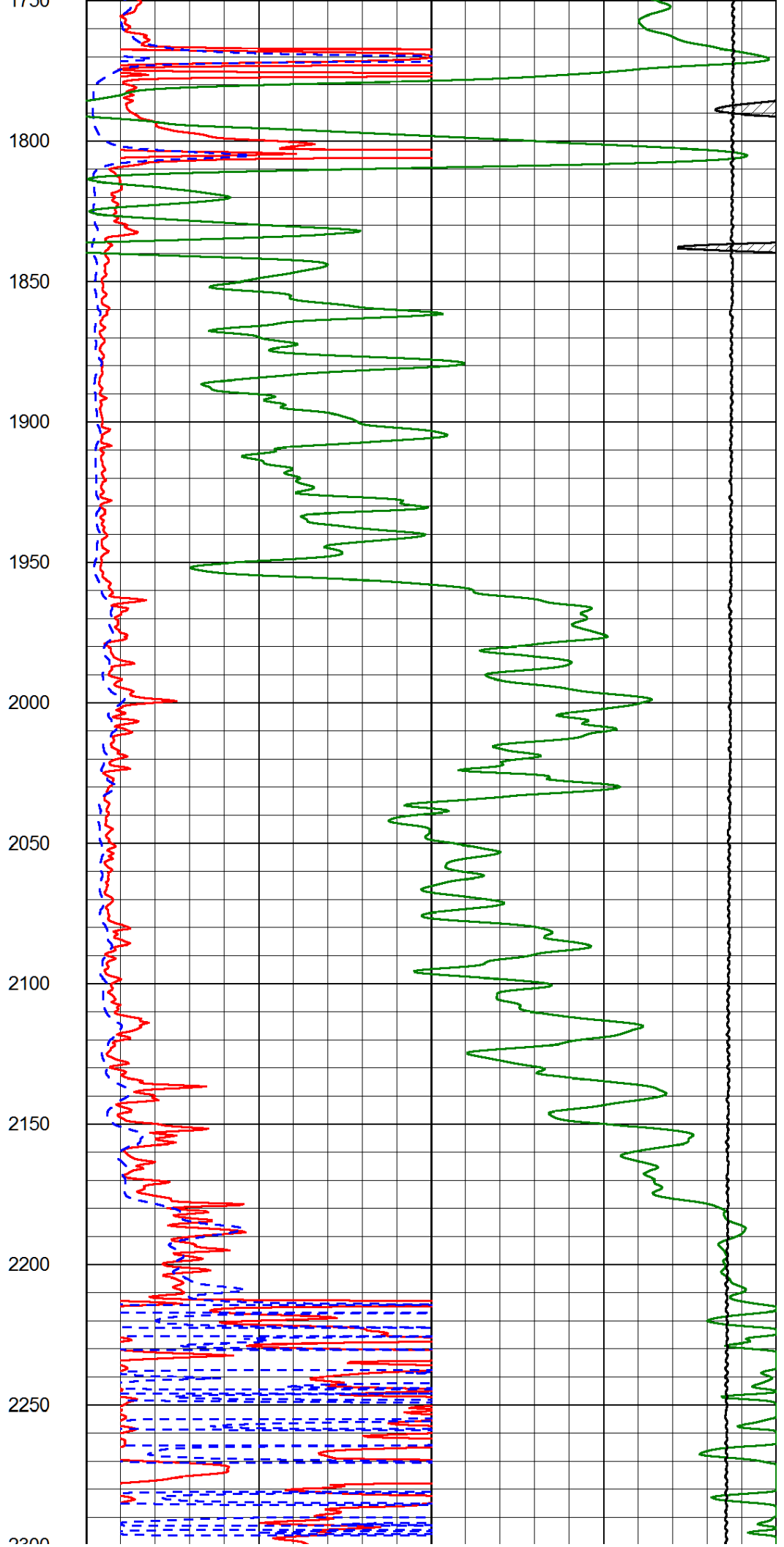


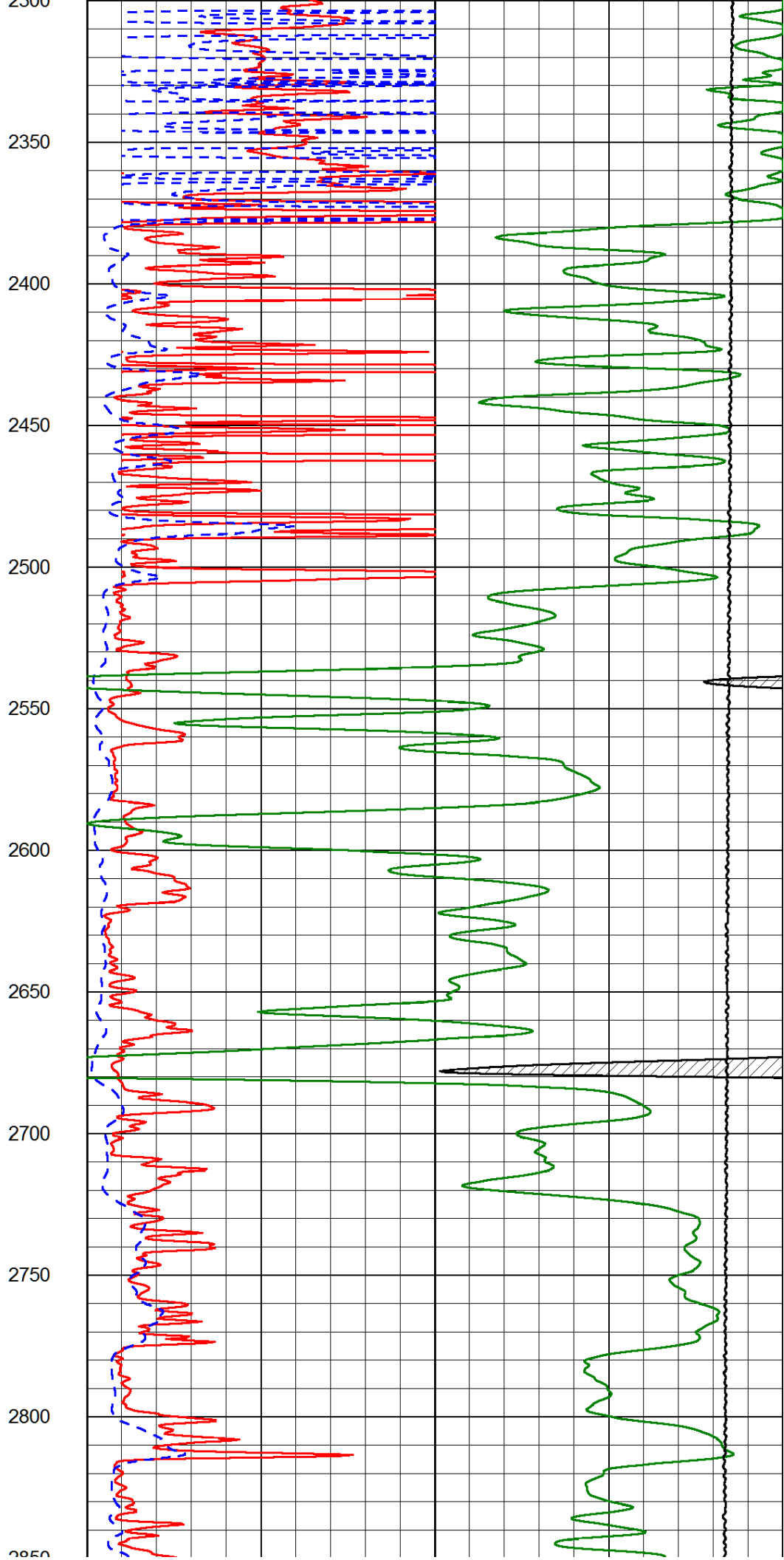
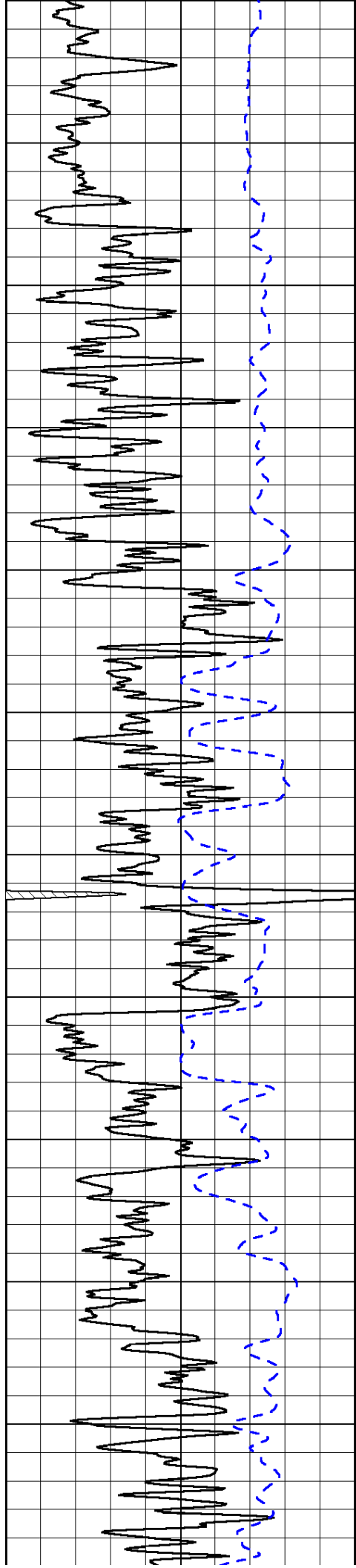


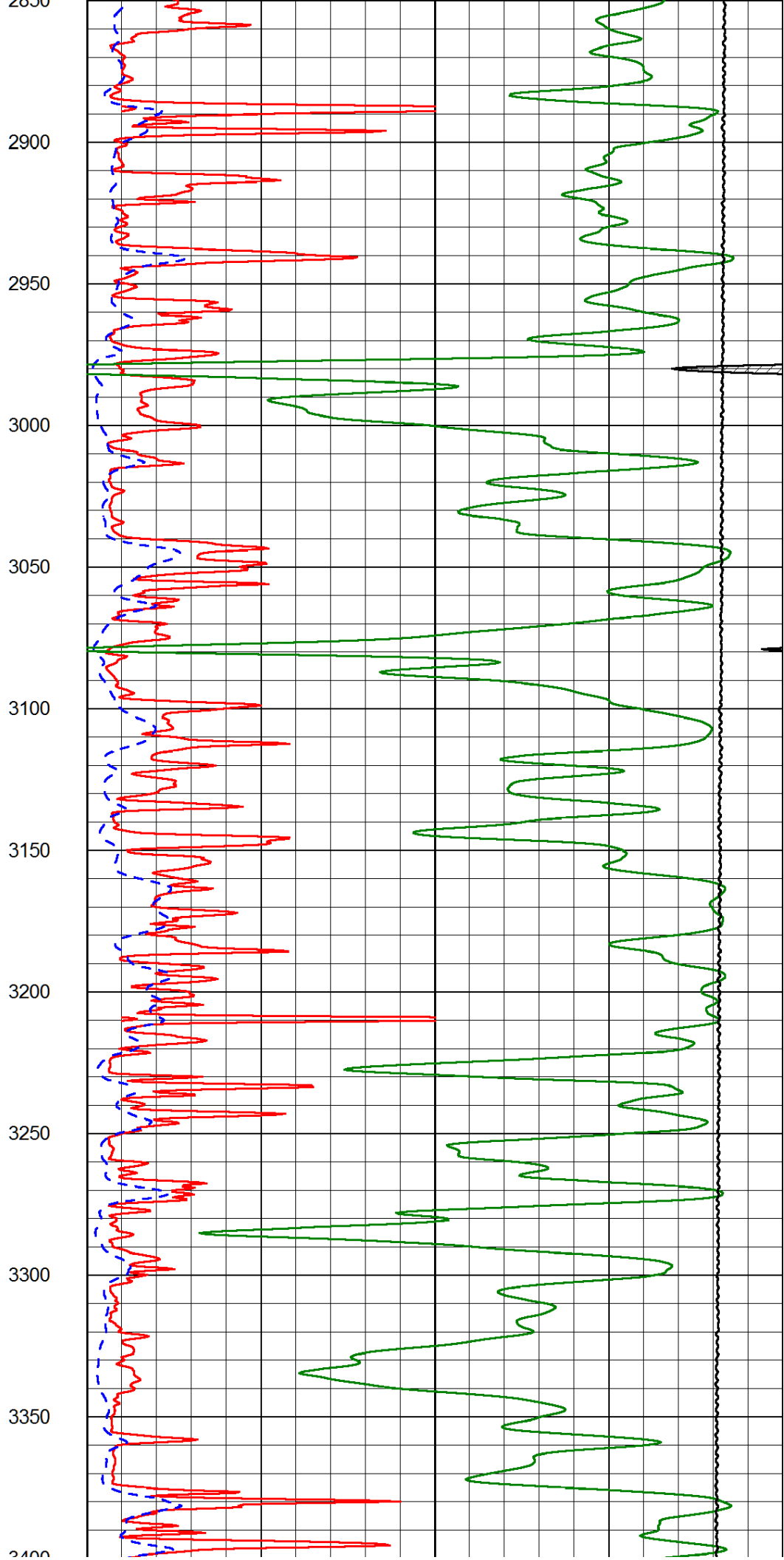
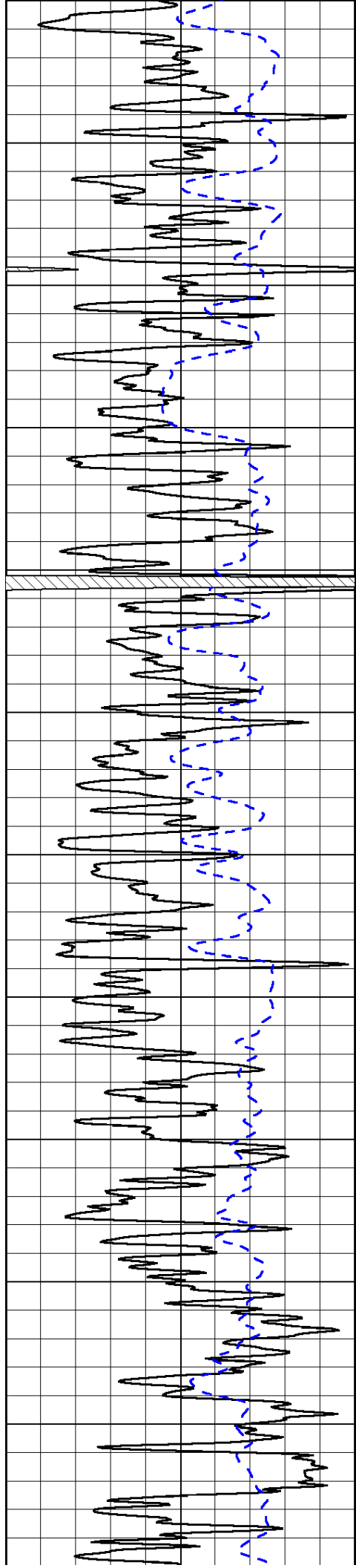
650  
700  
750  
800  
850  
900  
950  
1000  
1050  
1100  
1150  
1200

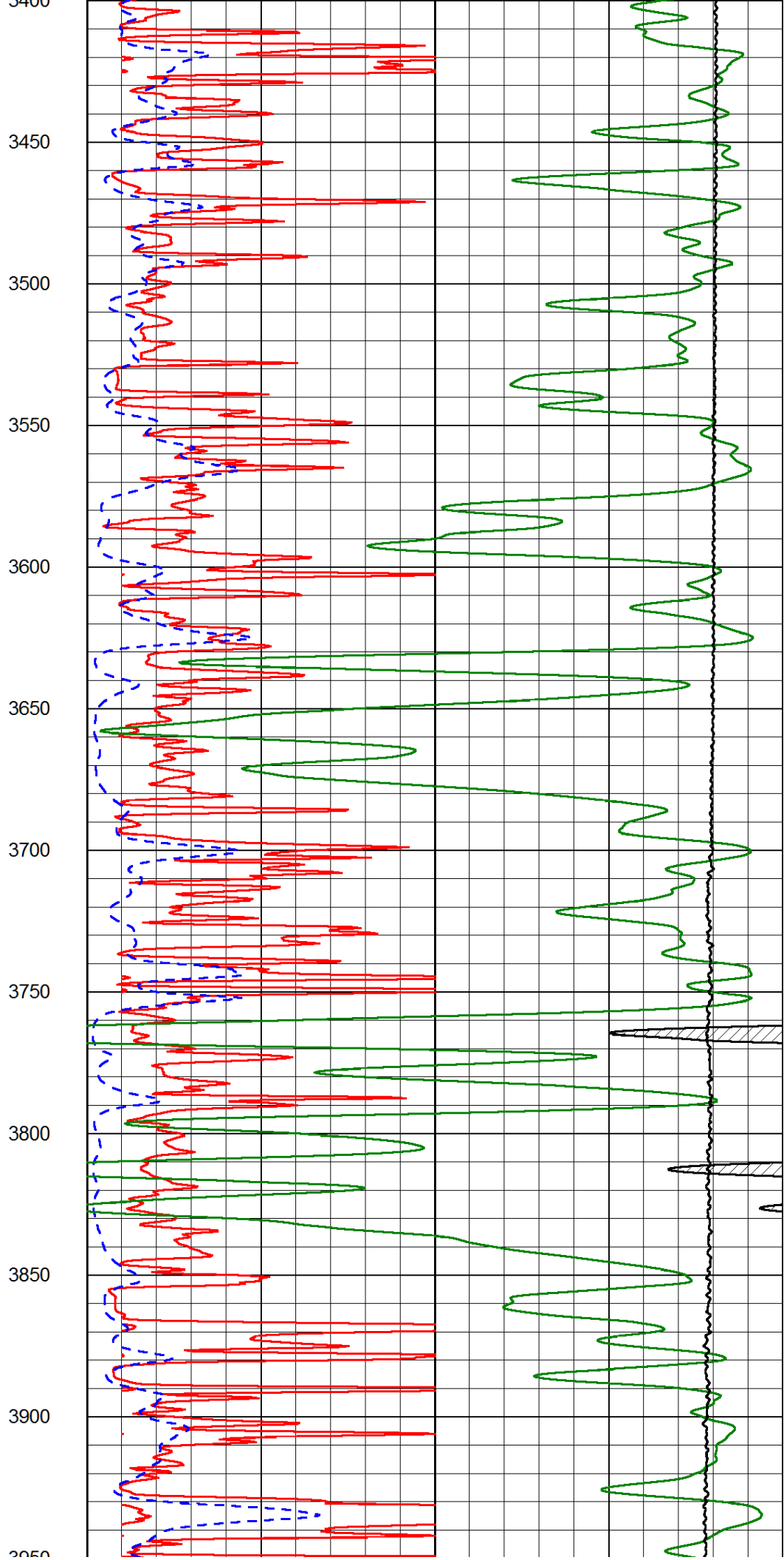
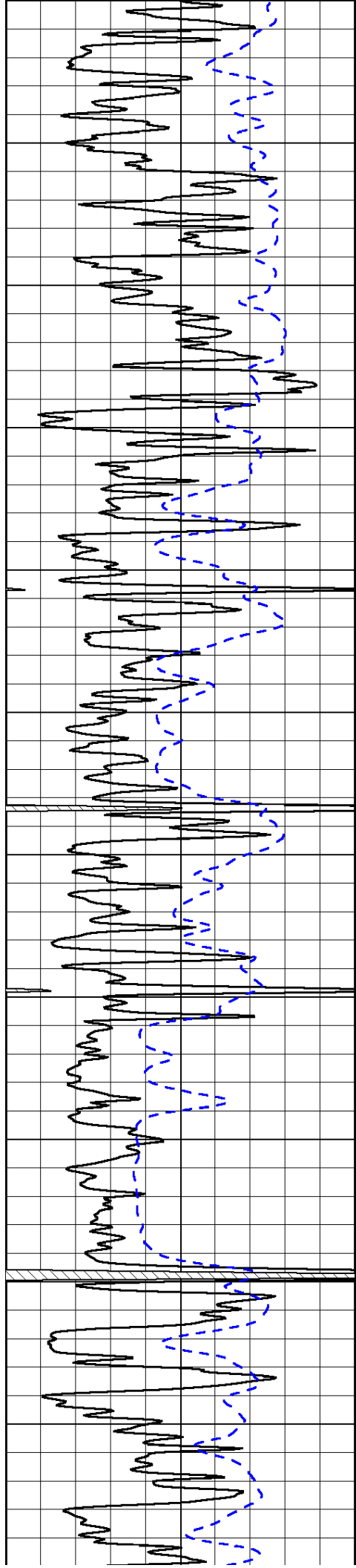


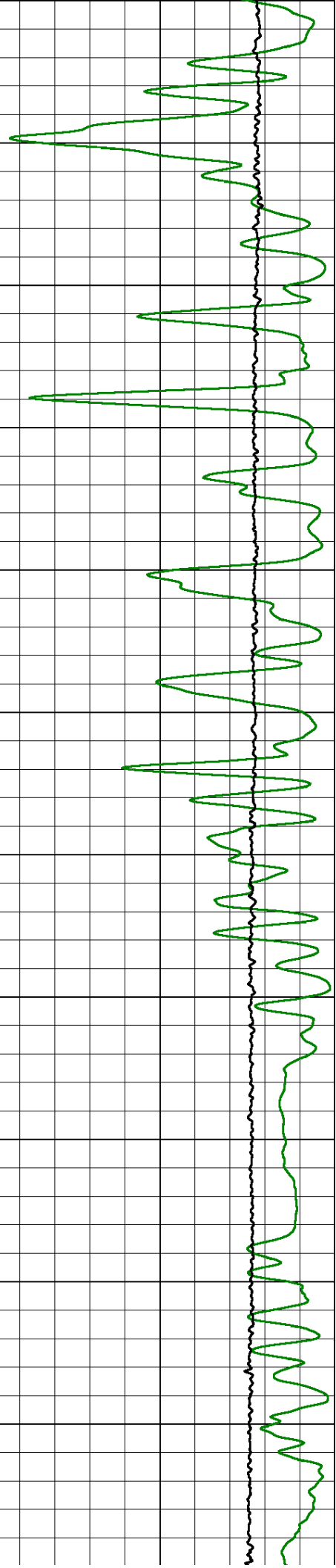
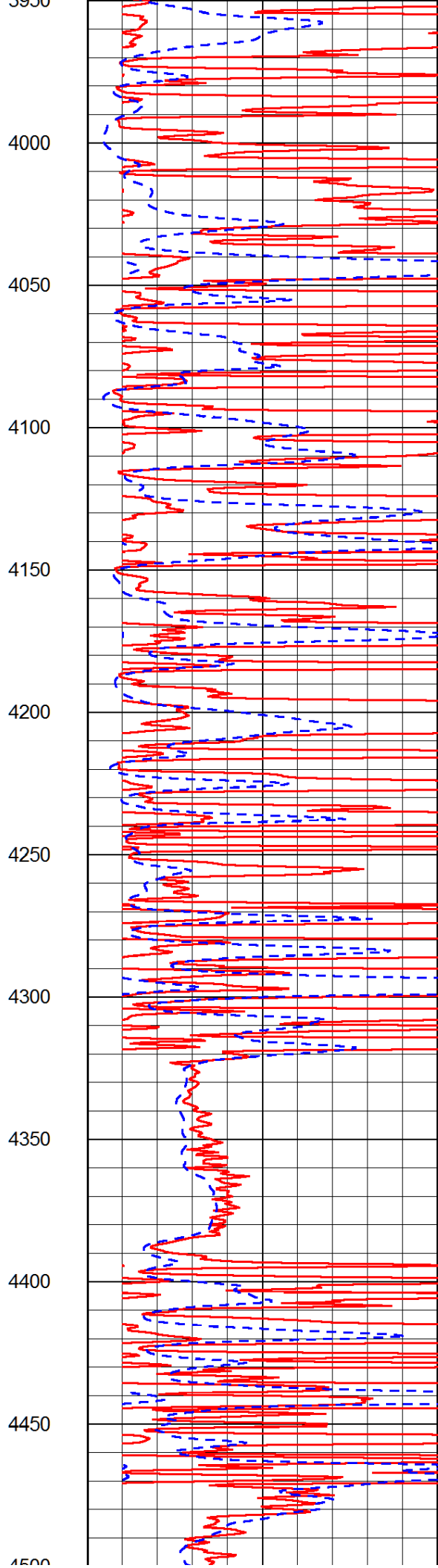
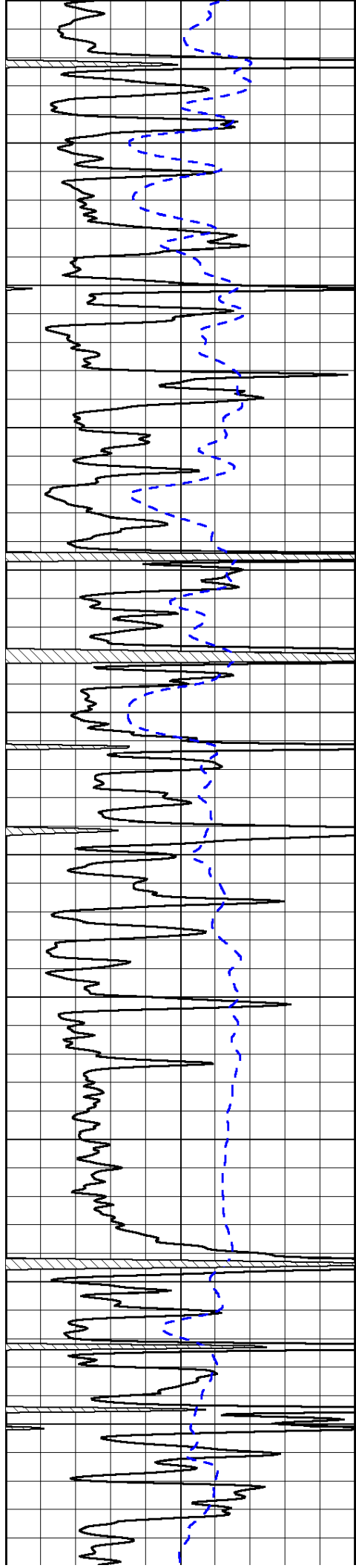


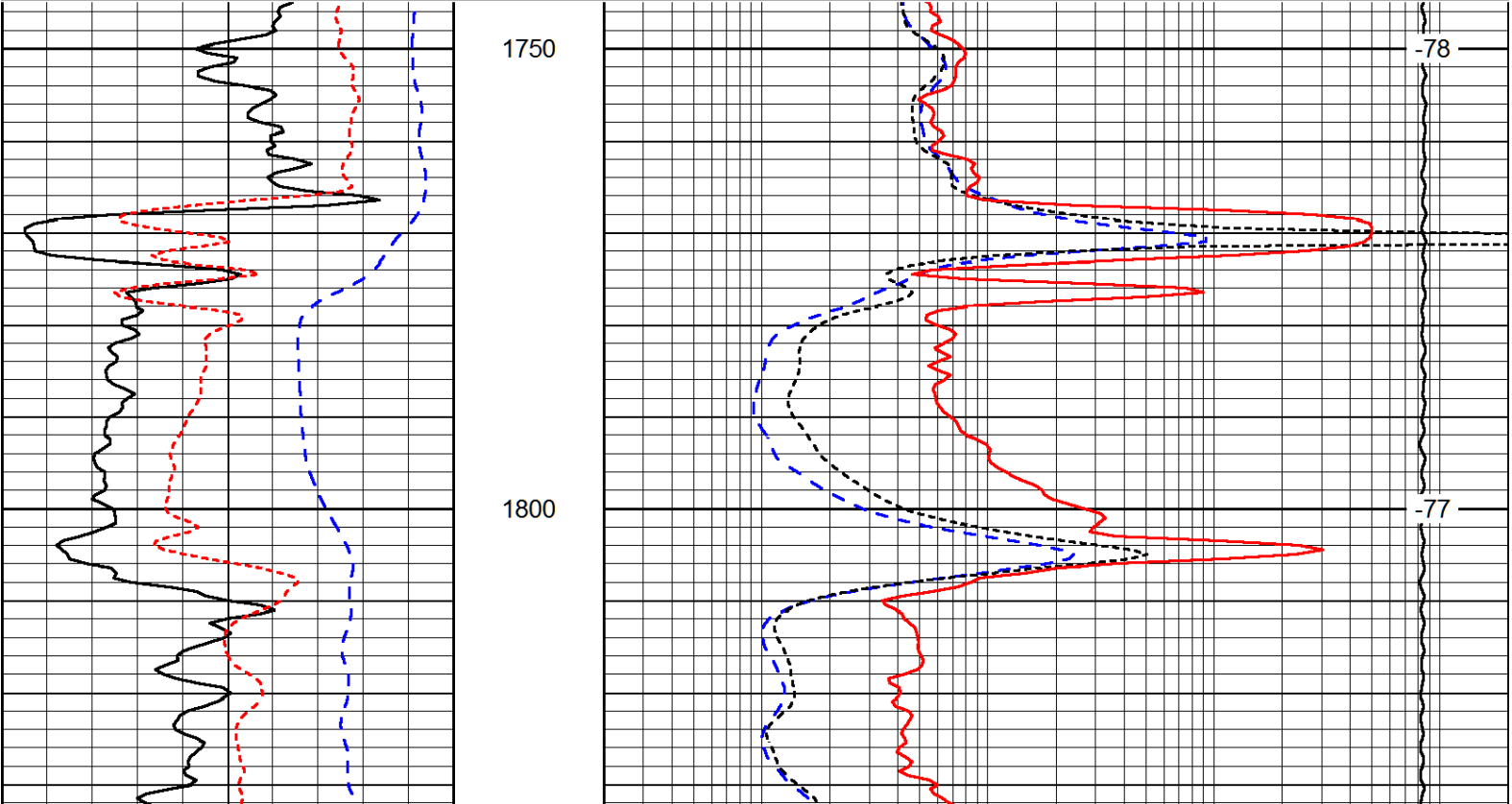
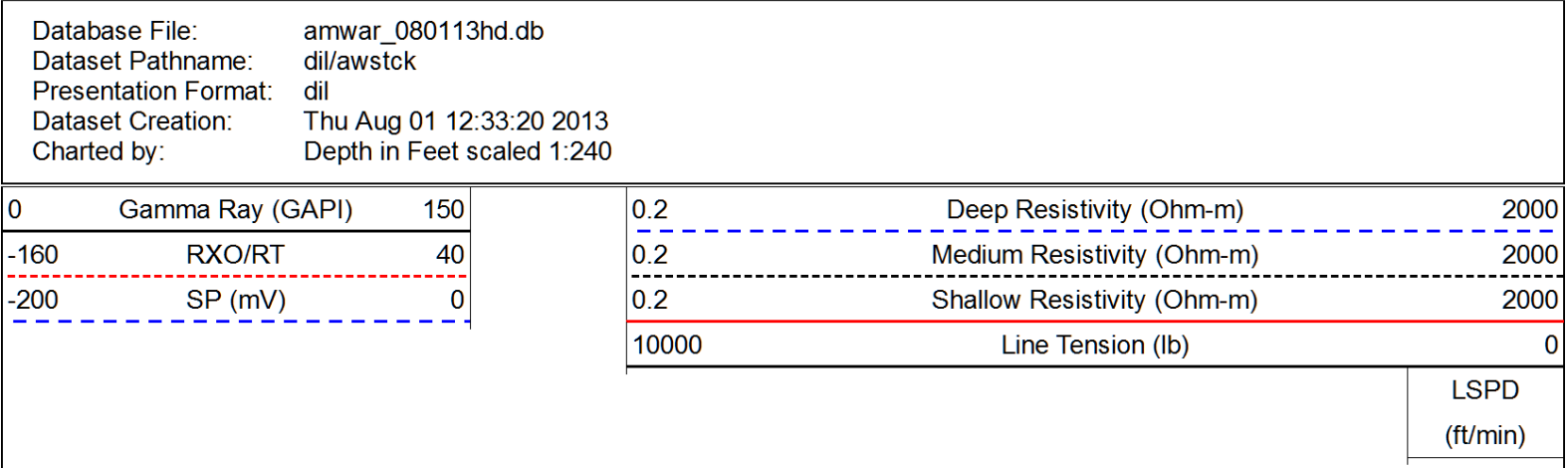
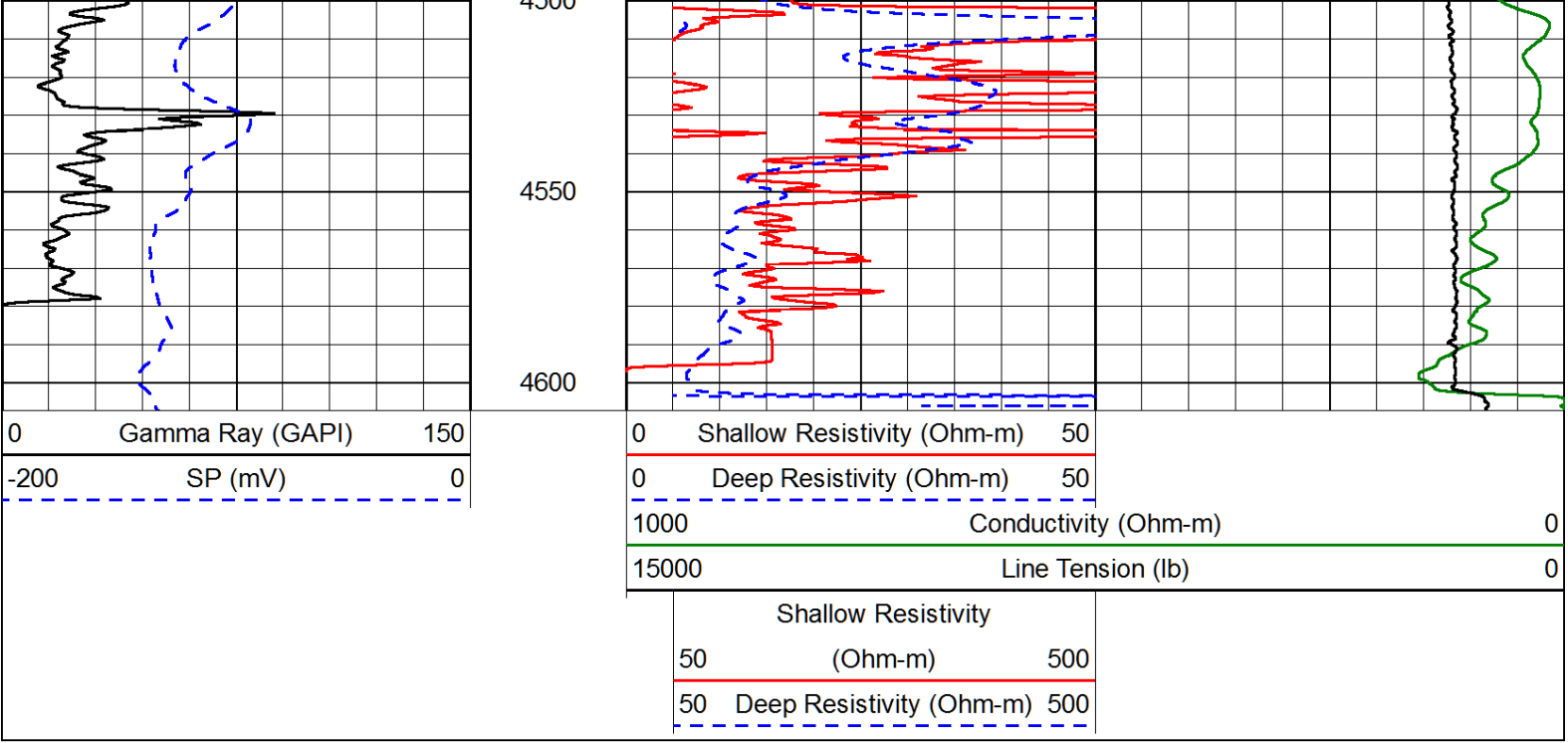


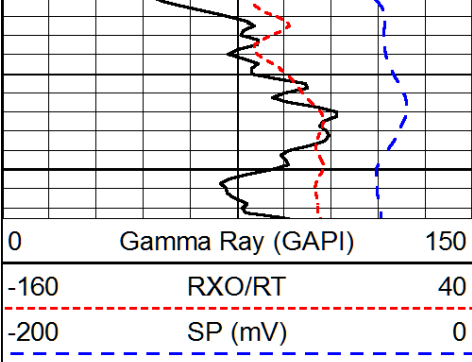




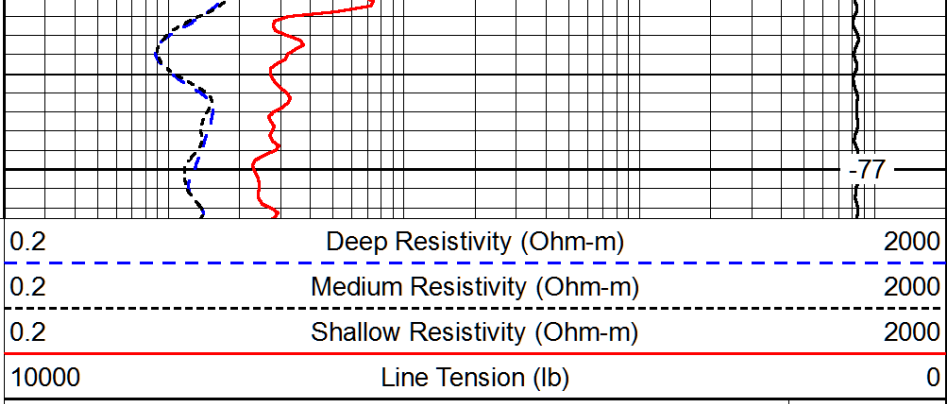






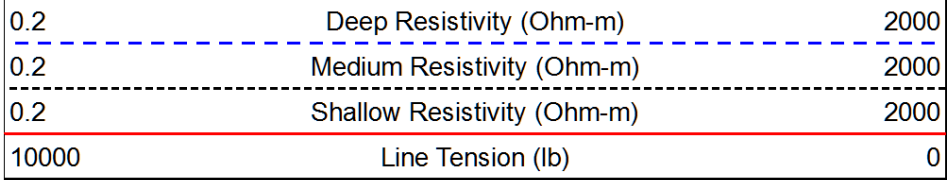
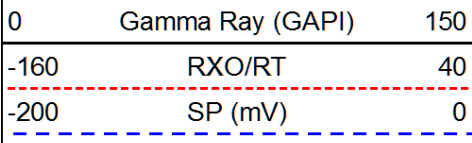


1850

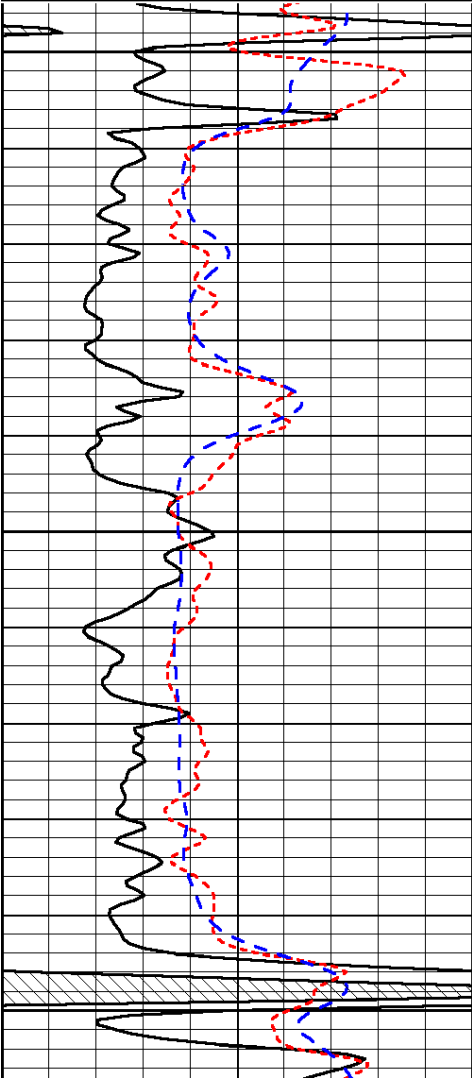


LSPD  
(ft/min)

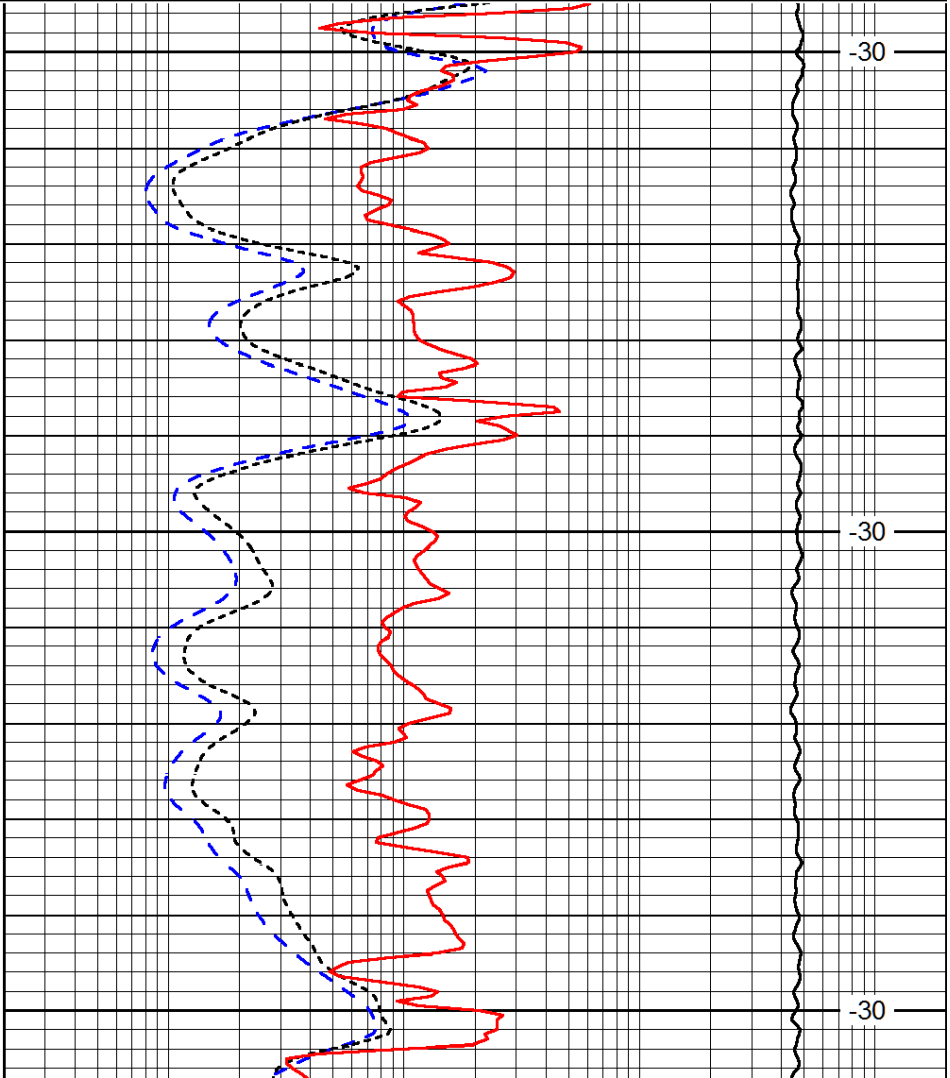
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Dataset Pathname: dil/awstck  
Presentation Format: dil  
Dataset Creation: Thu Aug 01 12:33:20 2013  
Charted by: Depth in Feet scaled 1:240



LSPD  
(ft/min)



3750



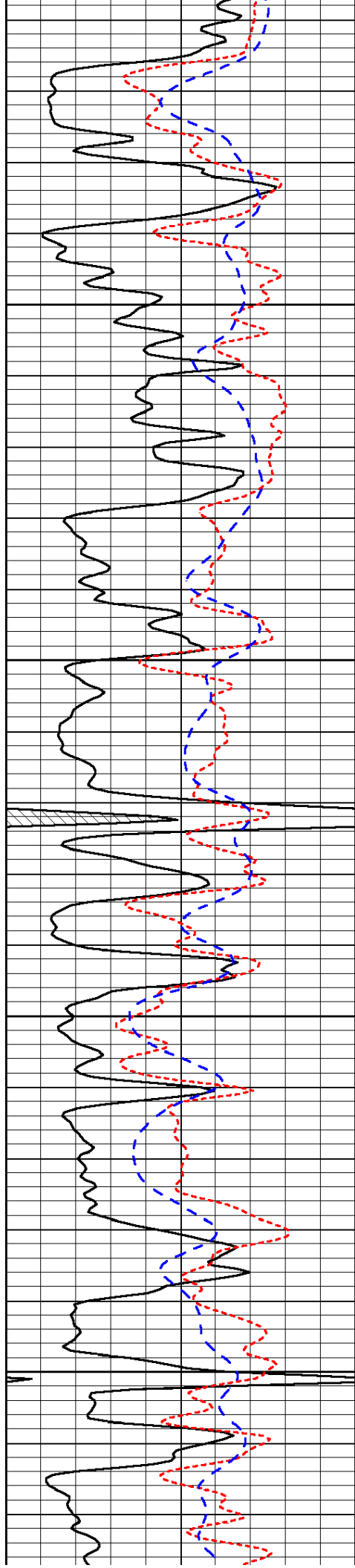
3800

3850

-30

-30

-30

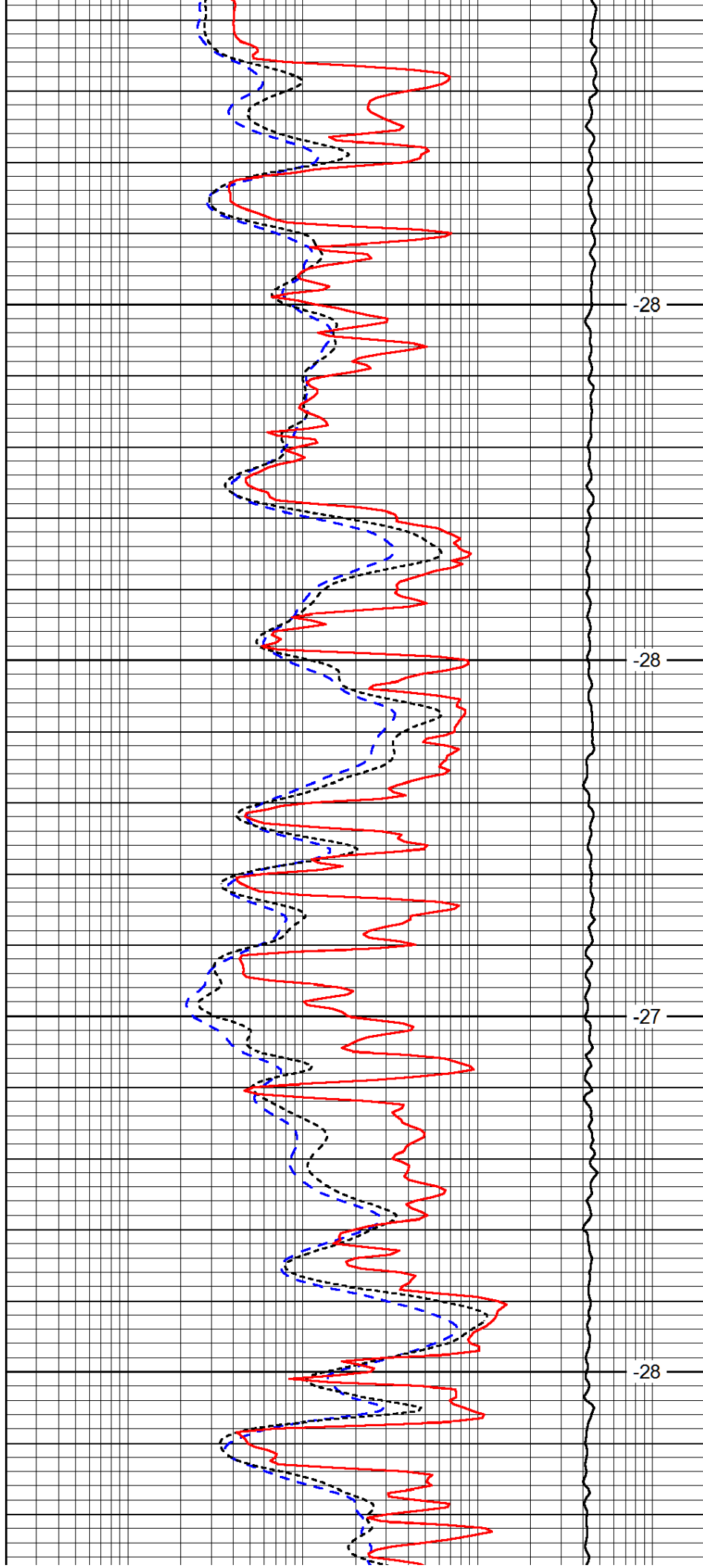


3900

3950

4000

4050

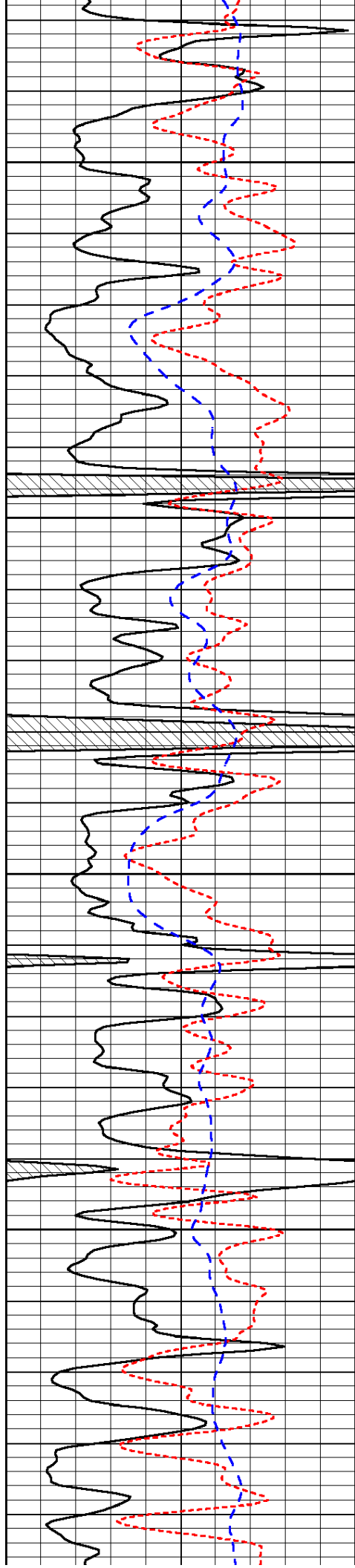


-28

-28

-27

-28

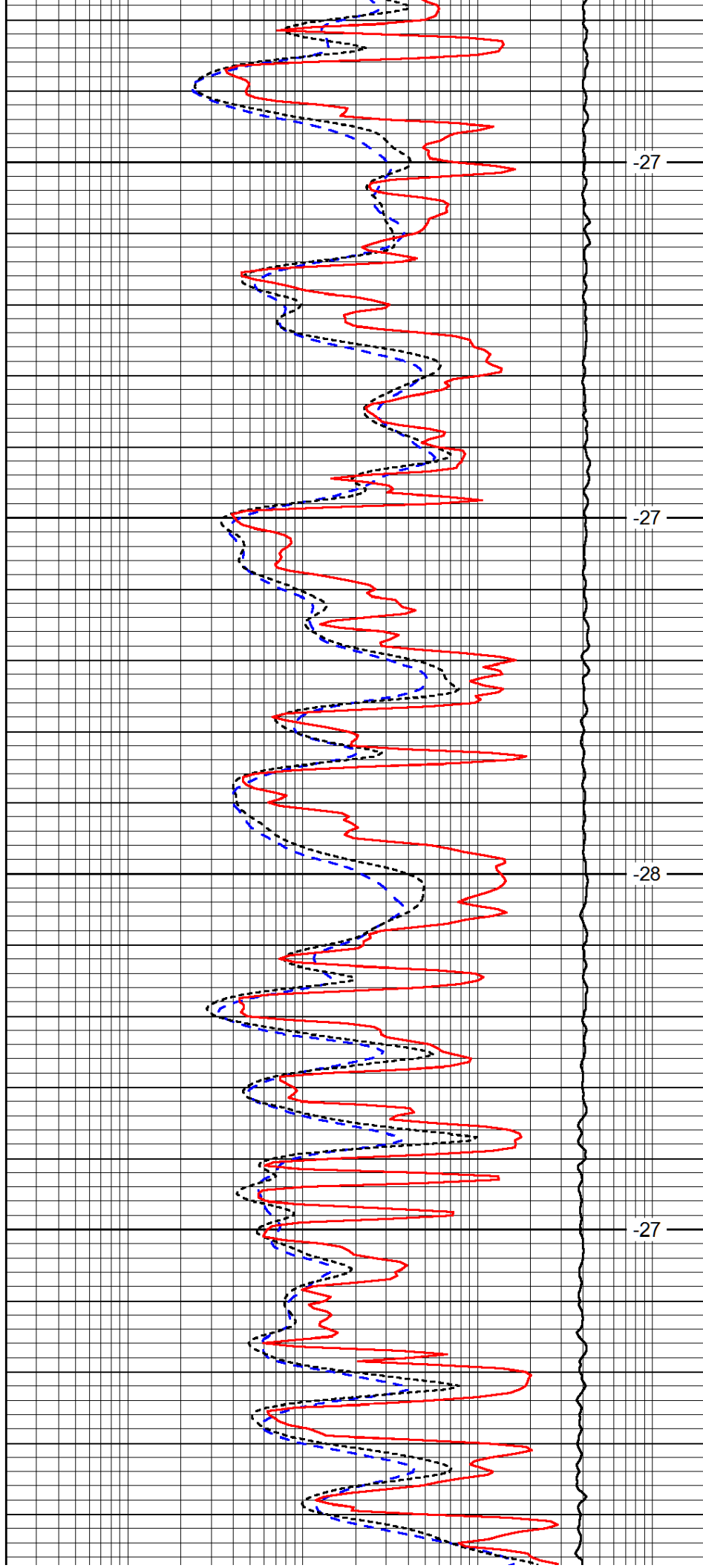


4100

4150

4200

4250

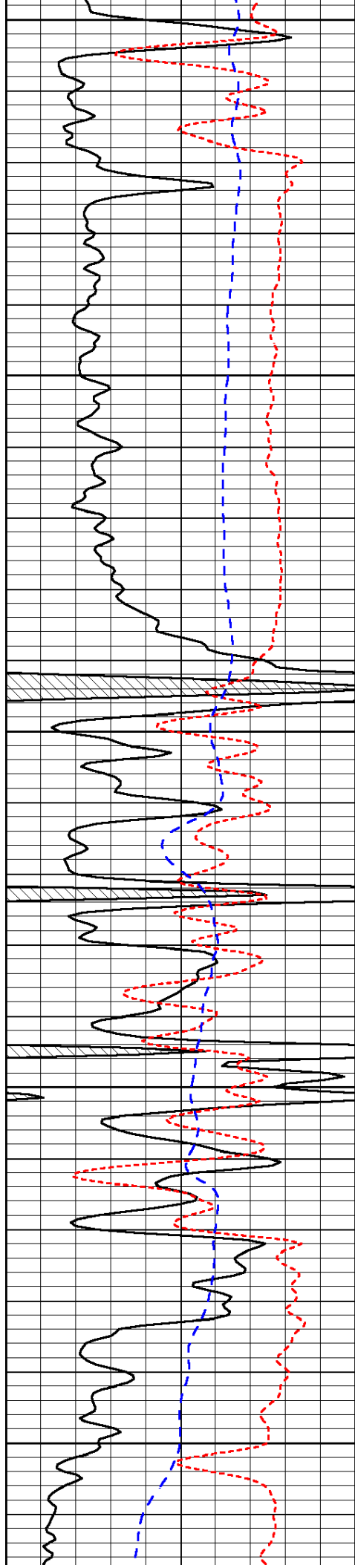


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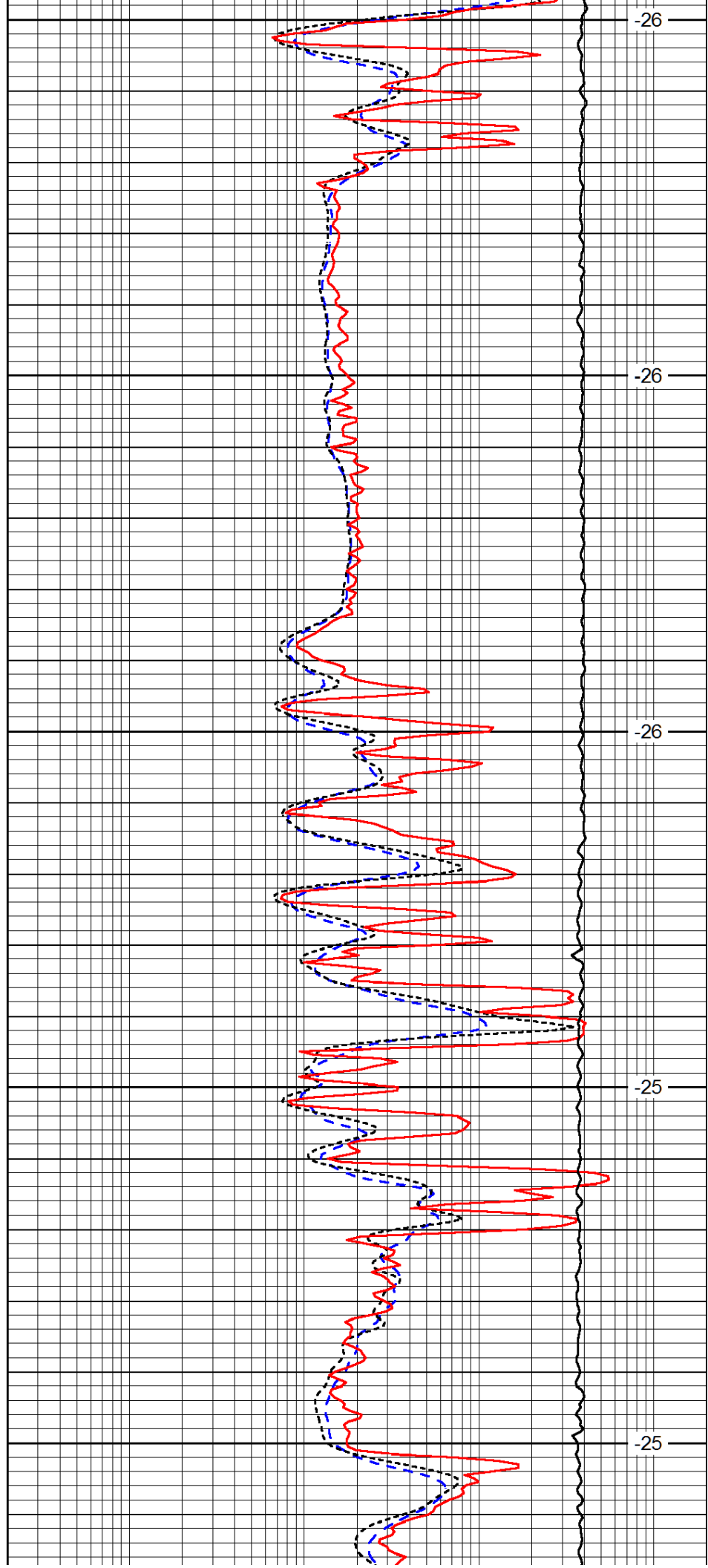
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4350

4400

4450

4500



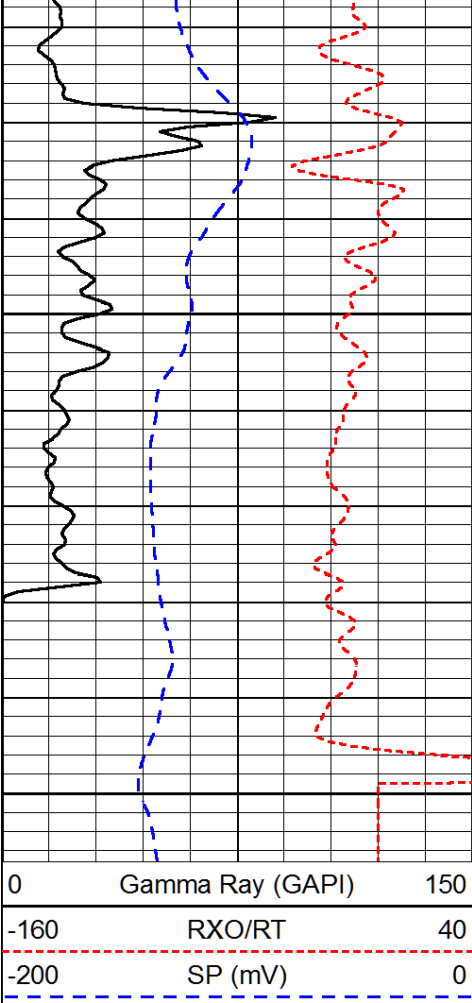
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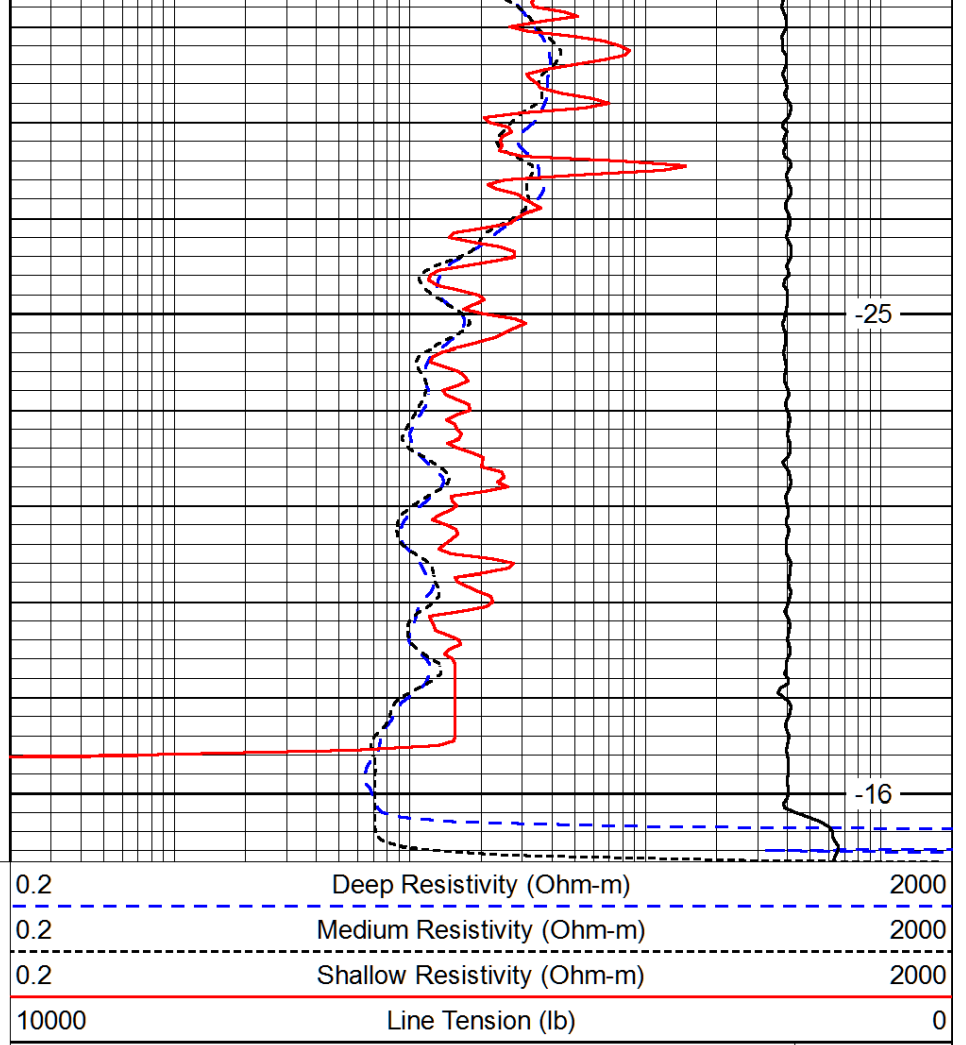
-25

-25



4550

4600



-25

-16

LSPD  
(ft/min)