



Pioneer Energy Services

# Dual Induction Log

API No. 15-189-22,832-00-00

Company **Palmer Oil, Inc.**  
 Well **Willis No.23-7**  
 Field **Willis**  
 County **Stevens** State **Kansas**

Location **2250' FSL & 2300' FEL**

Sec: **23** Twp: **32S** Rge: **37W**

Other Services  
 CNL/CDL  
 MEL

Elevation  
 K.B. 3117  
 D.F. 3104  
 G.L. 3104

|                        |               |                          |
|------------------------|---------------|--------------------------|
| Permanent Datum        | Ground Level  | Elevation 3104           |
| Log Measured From      | Kelly Bushing | 13 Ft. Above Perm. Datum |
| Drilling Measured From | Kelly Bushing |                          |
| Date                   | 2/13/2014     |                          |
| Run Number             | One           |                          |
| Depth Driller          | 6500          |                          |
| Depth Logger           | 6506          |                          |
| Bottom Logged Interval | 6505          |                          |
| Top Log Interval       | 1700          |                          |
| Casing Driller         | 8.625 @ 1740  |                          |
| Casing Logger          | 1737          |                          |
| Bit Size               | 7.875         |                          |
| Type Fluid in Hole     | Chemical      |                          |
| Salinity,ppm CL        | 2,100         |                          |
| Density / Viscosity    | 9.35   57     |                          |
| pH / Fluid Loss        | 9.5   8.8     |                          |
| Source of Sample       | Flowline      |                          |
| Rm @ Meas. Temp        | .65 @ 47      |                          |
| Rmf @ Meas. Temp       | .49 @ 47      |                          |
| Rmc @ Meas. Temp       | .88 @ 47      |                          |
| Source of Rmf / Rmc    | Charts        |                          |
| Rm @ BHT               | .22 @ 141     |                          |
| Operating Rig Time     | 3 Hours       |                          |
| Max Rec. Temp. F       | 141           |                          |
| Equipment Number       | 17            |                          |
| Location               | Hays          |                          |
| Recorded By            | C. Desaire    |                          |
| Witnessed By           | Wyatt Urban   |                          |

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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

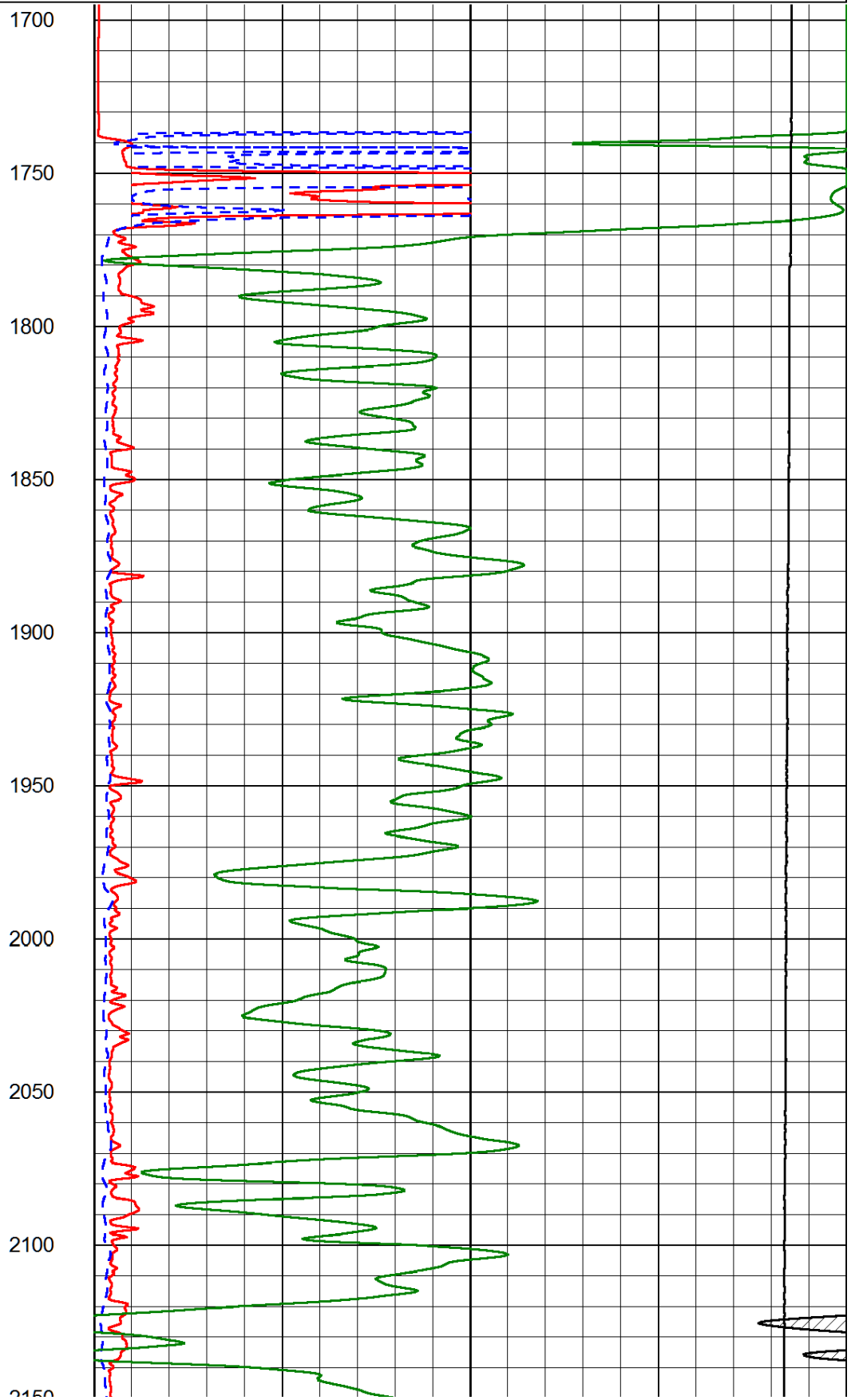
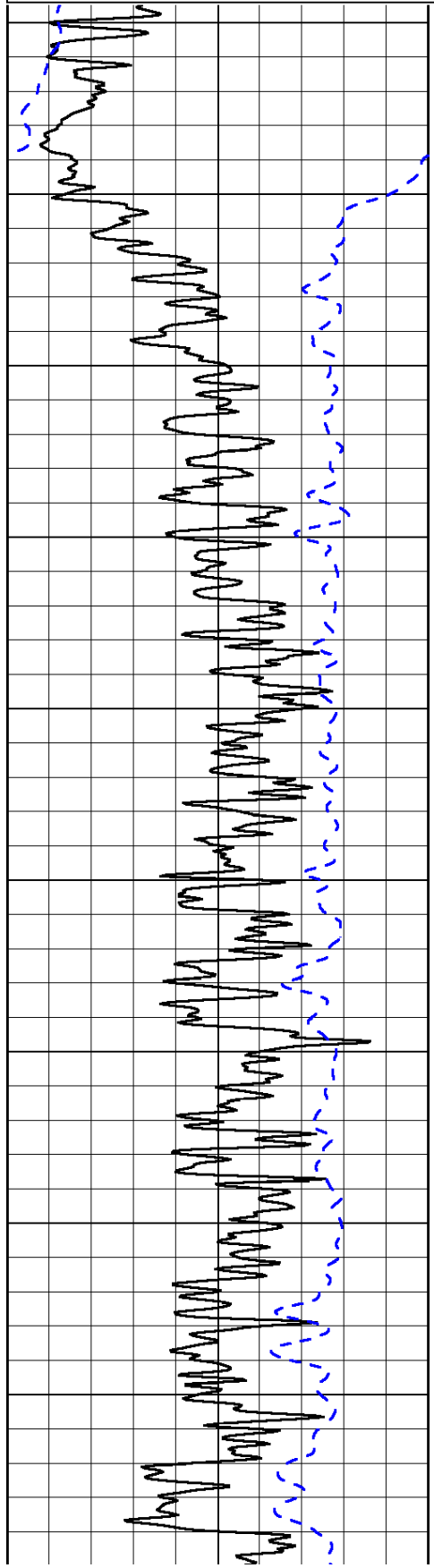
Moscow KS, S to U Rd, 2 W,  
 1/2 S between tank batt., N Into

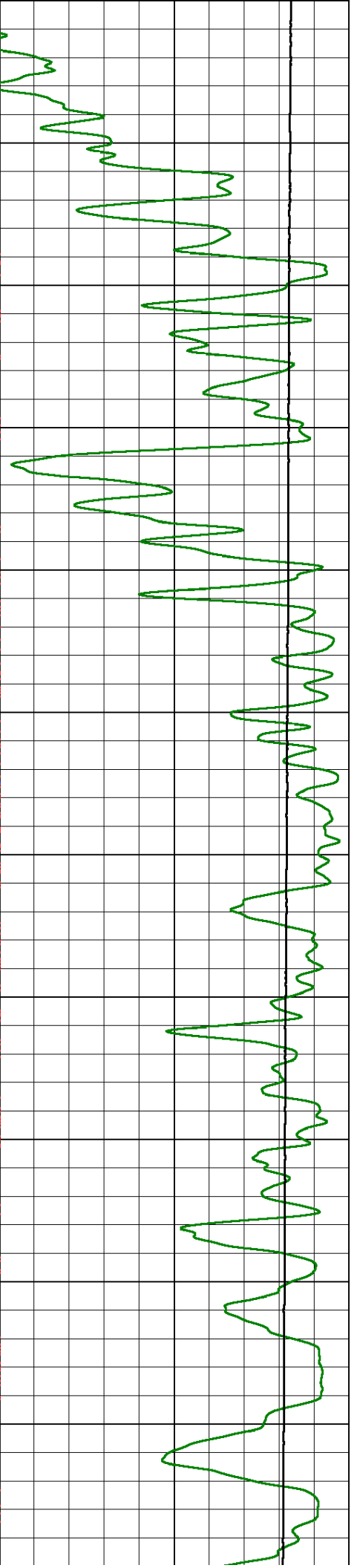
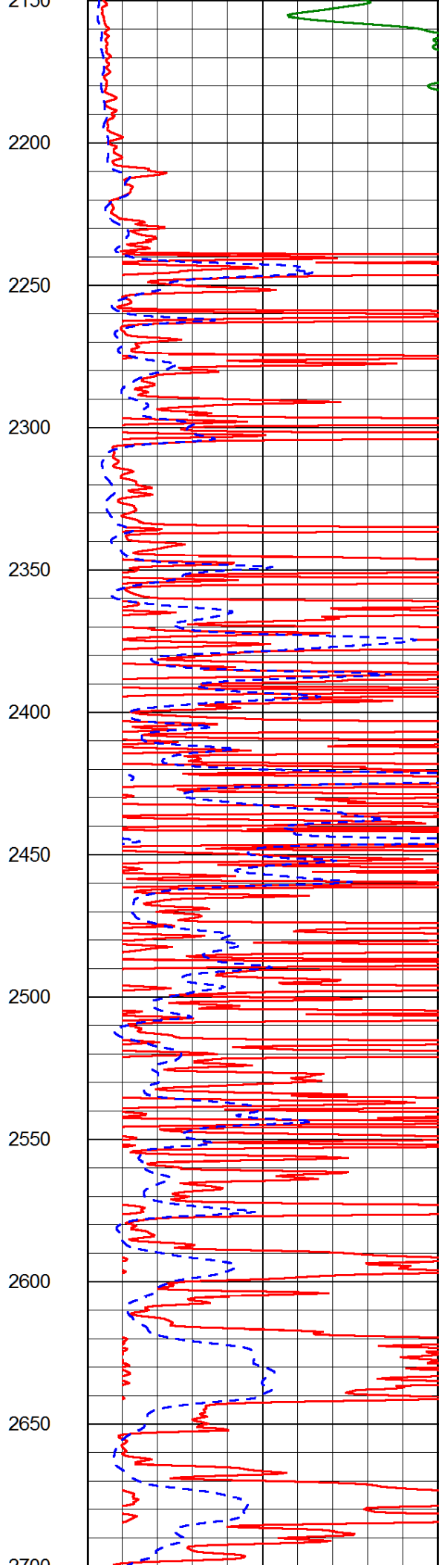
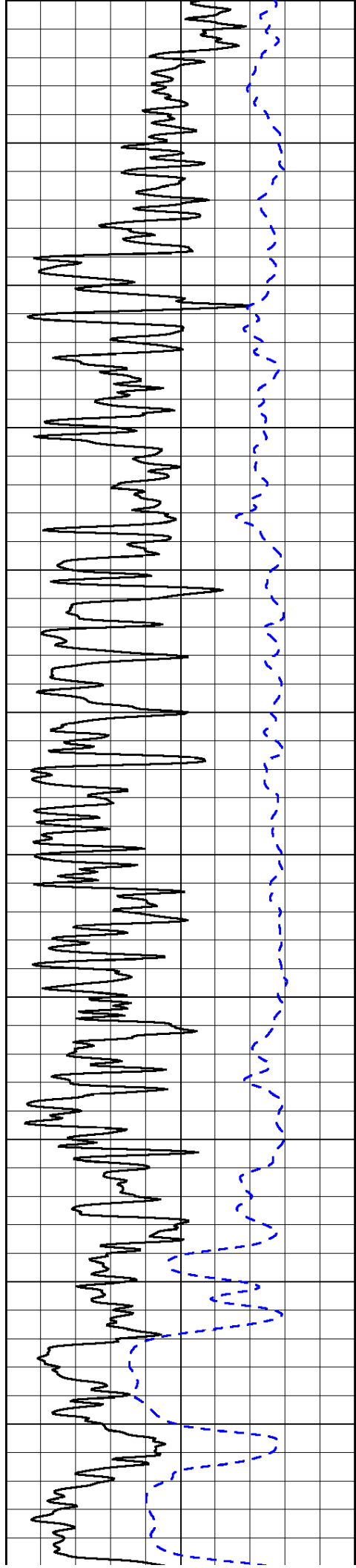
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|------|------------------|-----|
| 0    | Gamma Ray (GAPI) | 150 |
| -200 | SP (mV)          | 0   |

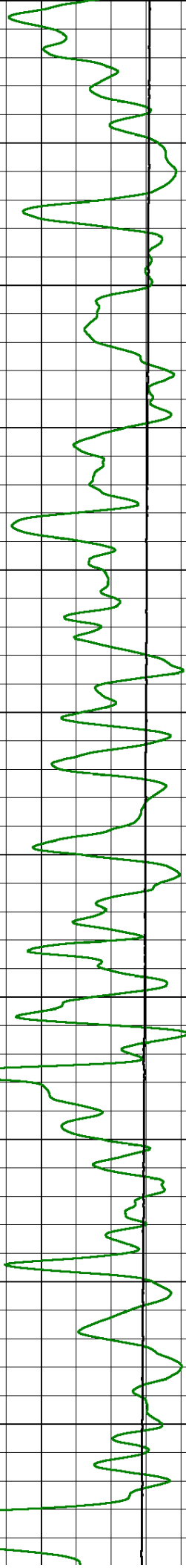
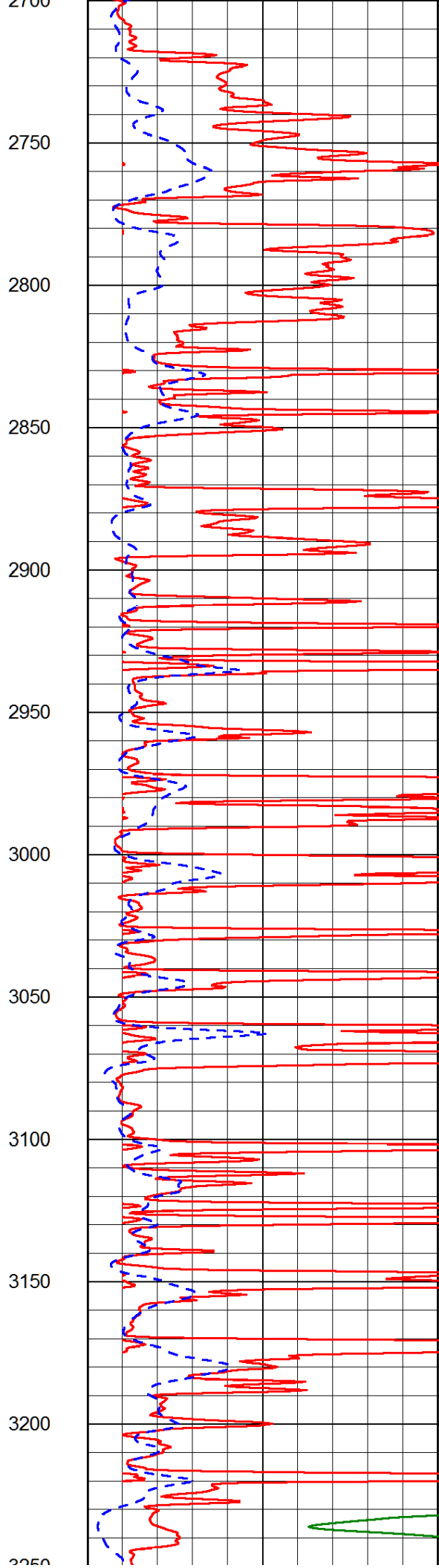
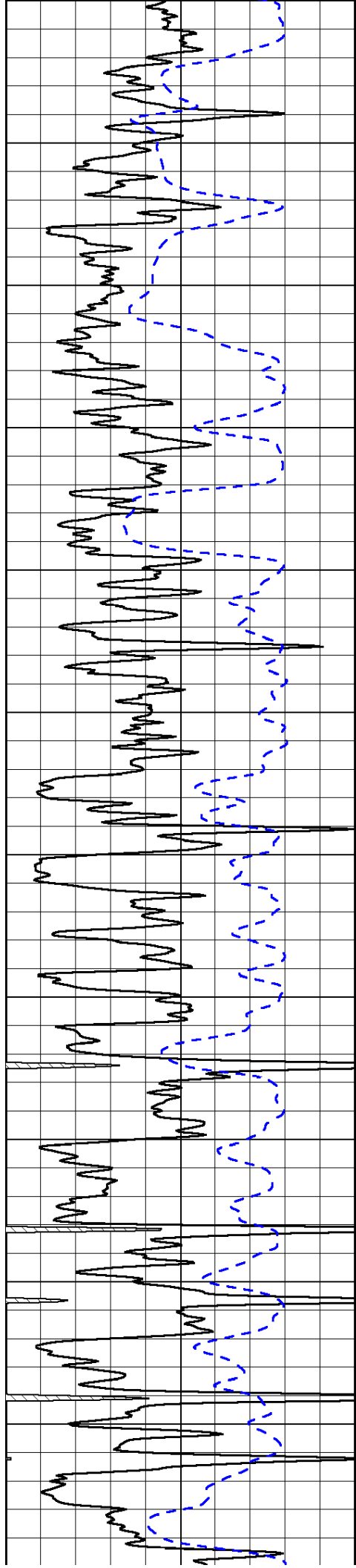
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|---|-----------------------------|----|
| 0 | Shallow Resistivity (Ohm-m) | 50 |
| 0 | Deep Resistivity (Ohm-m)    | 50 |

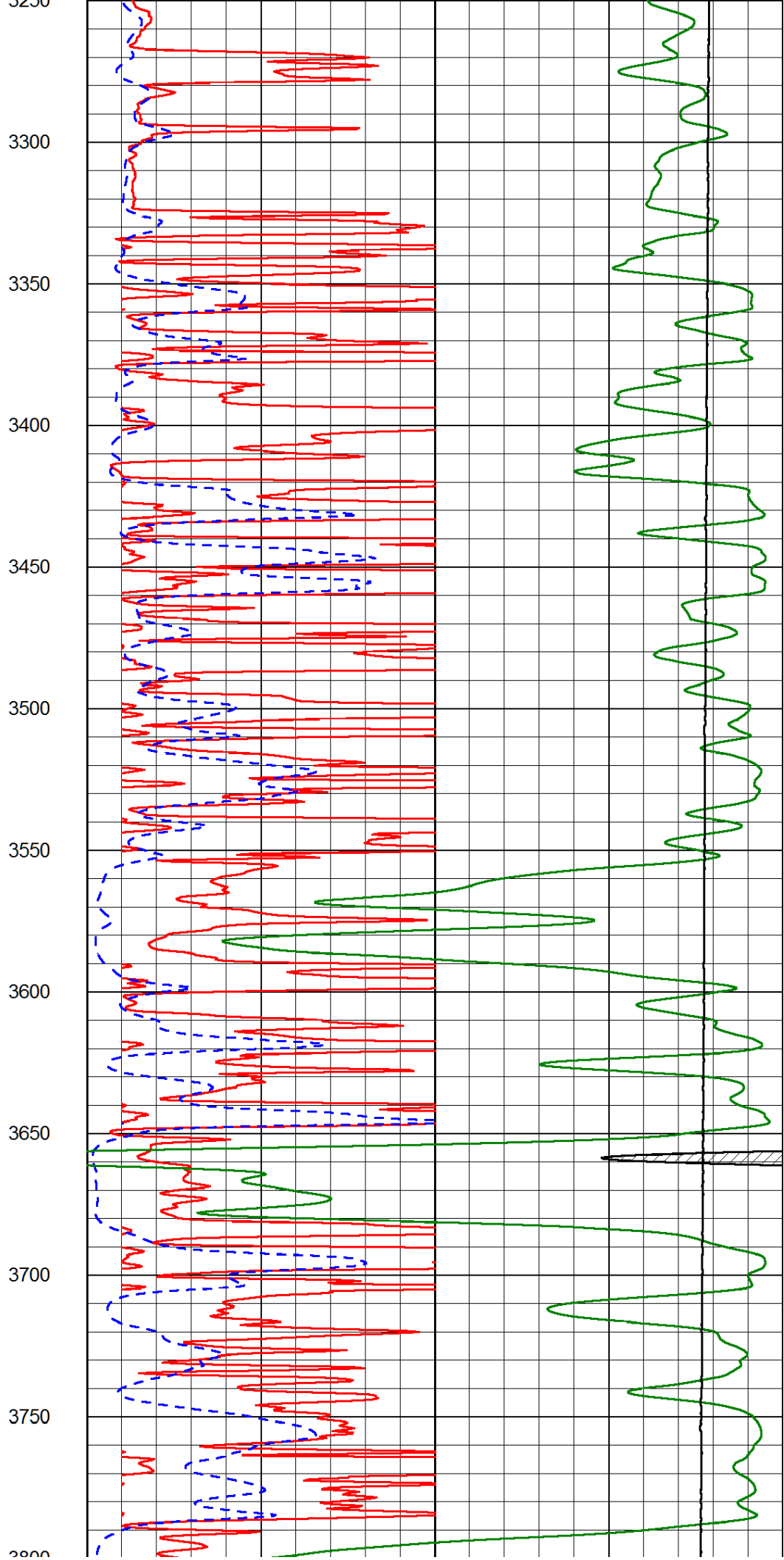
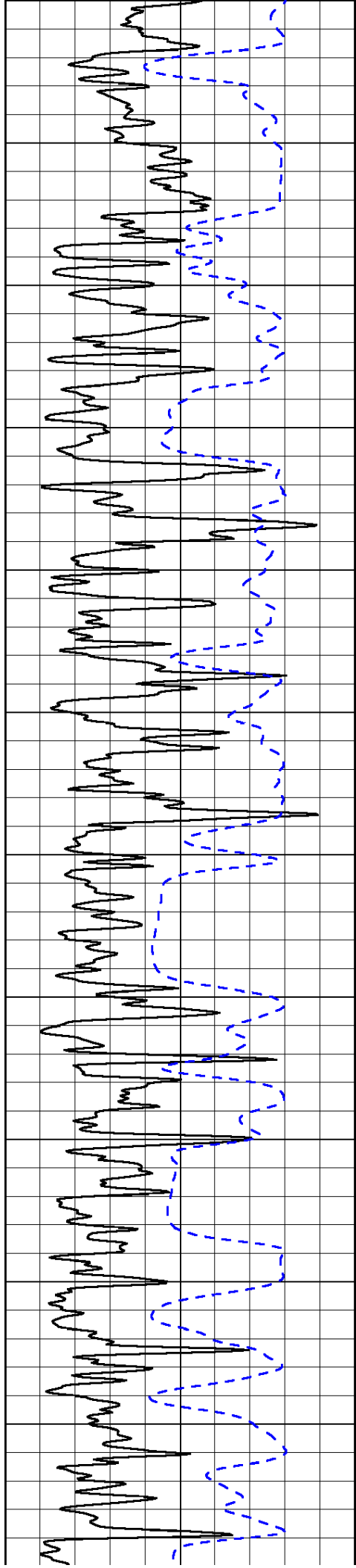
|       |                      |   |
|-------|----------------------|---|
| 1000  | Conductivity (Ohm-m) | 0 |
| 15000 | Line Tension (lb)    | 0 |

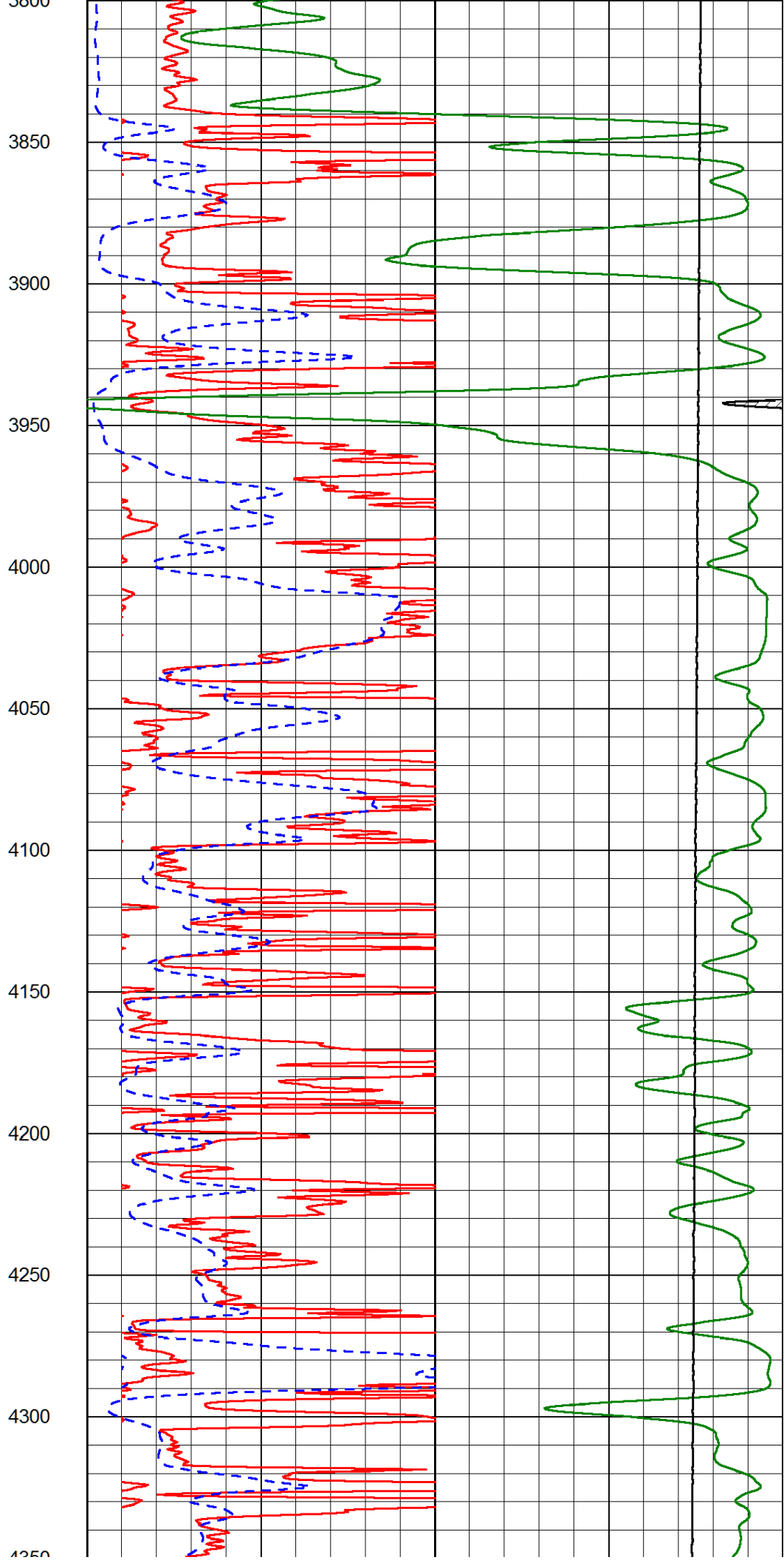
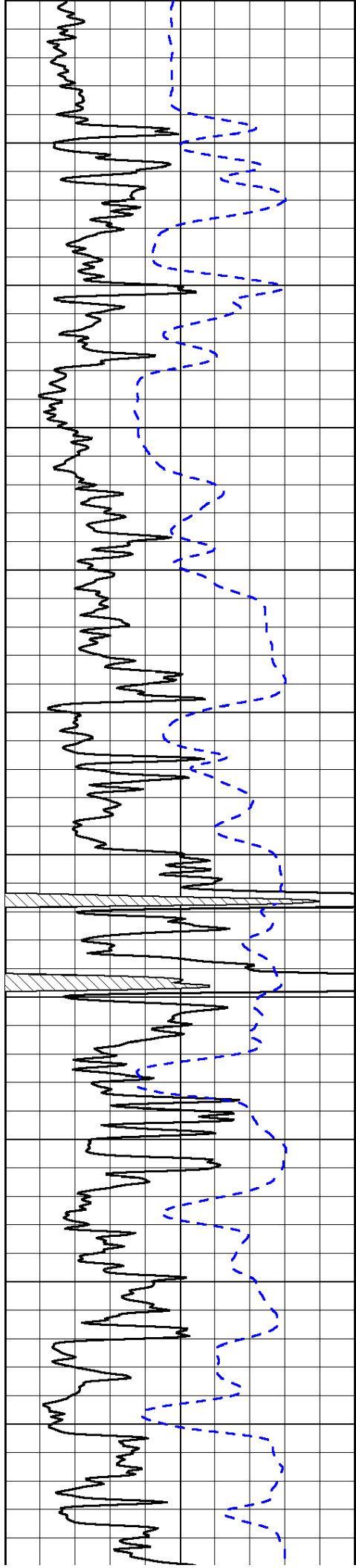
|                     |                          |     |
|---------------------|--------------------------|-----|
| Shallow Resistivity |                          |     |
| 50                  | (Ohm-m)                  | 500 |
| 50                  | Deep Resistivity (Ohm-m) | 500 |

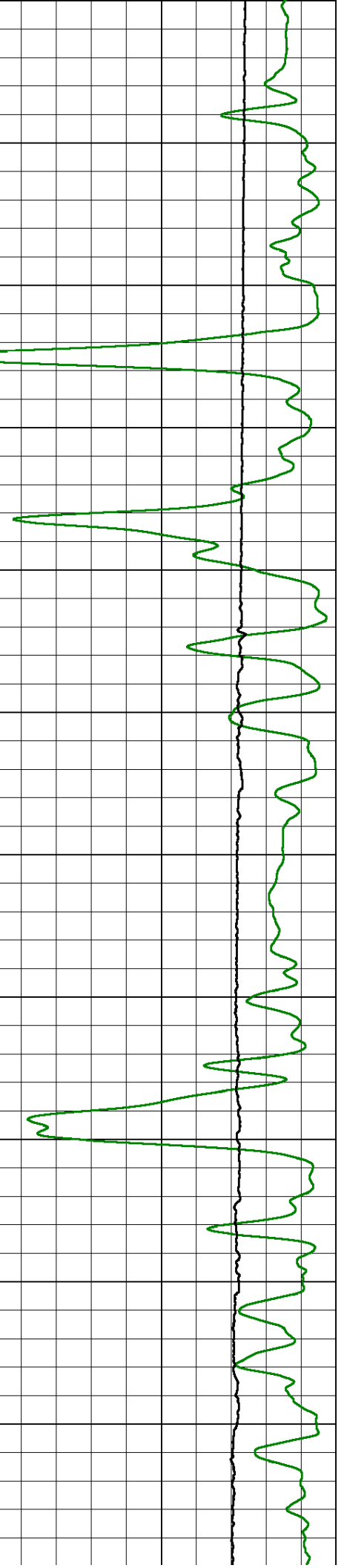
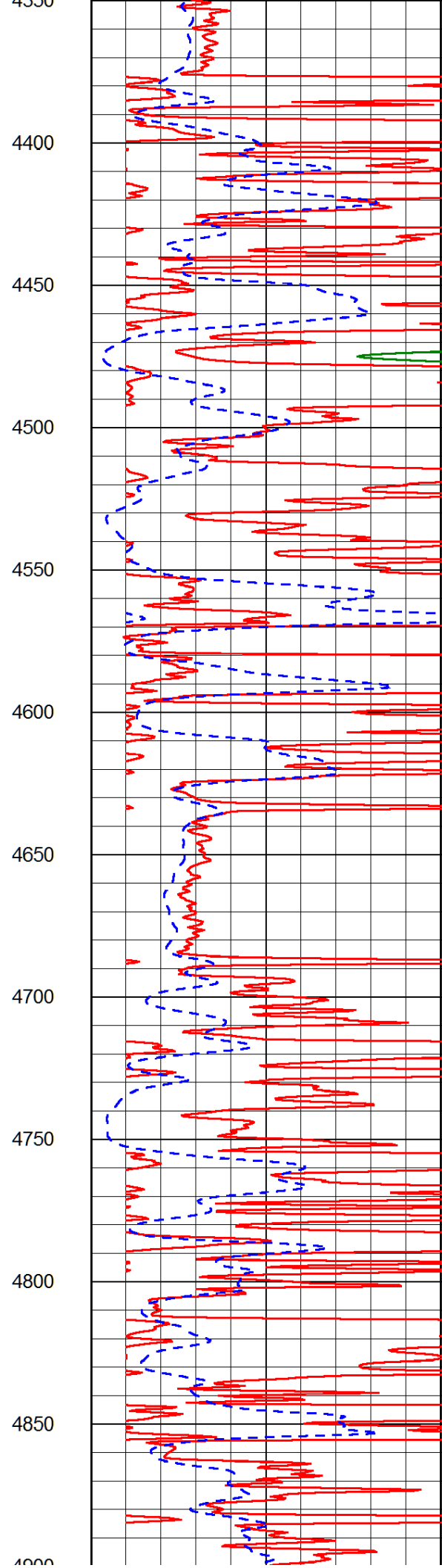
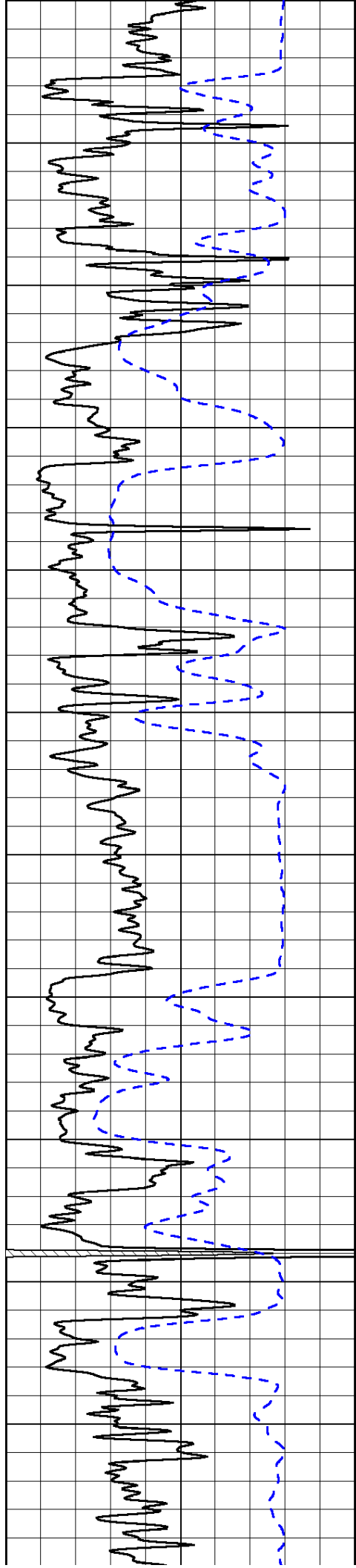


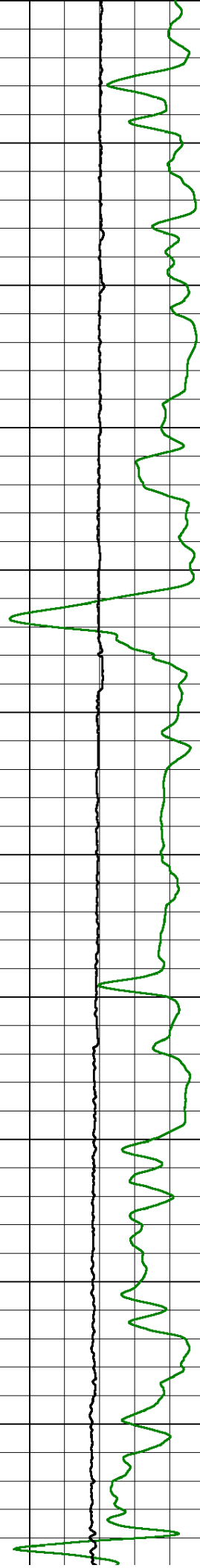
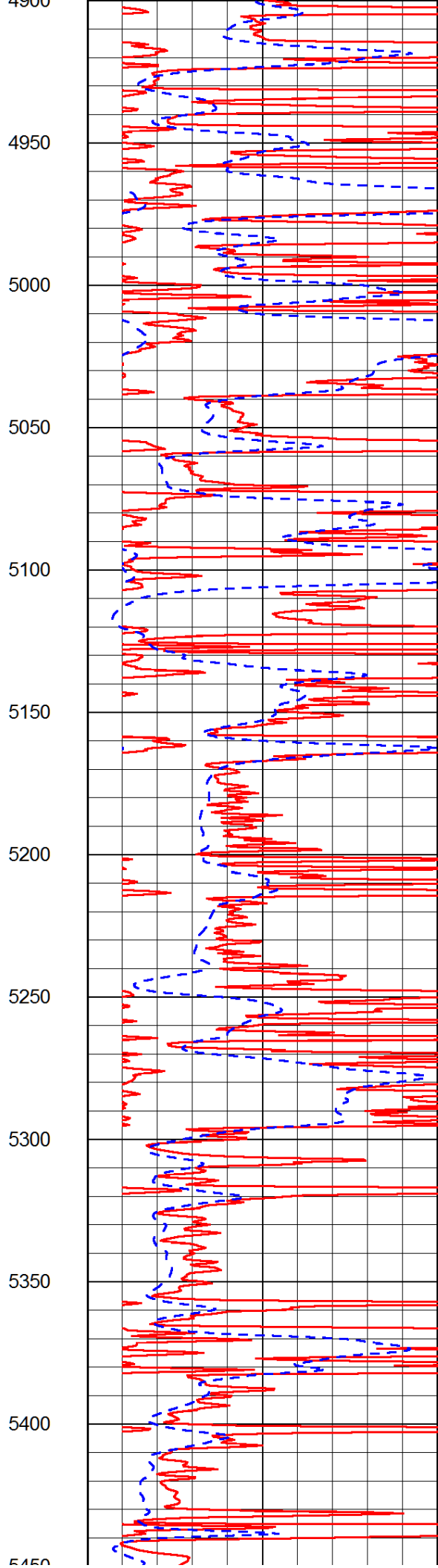
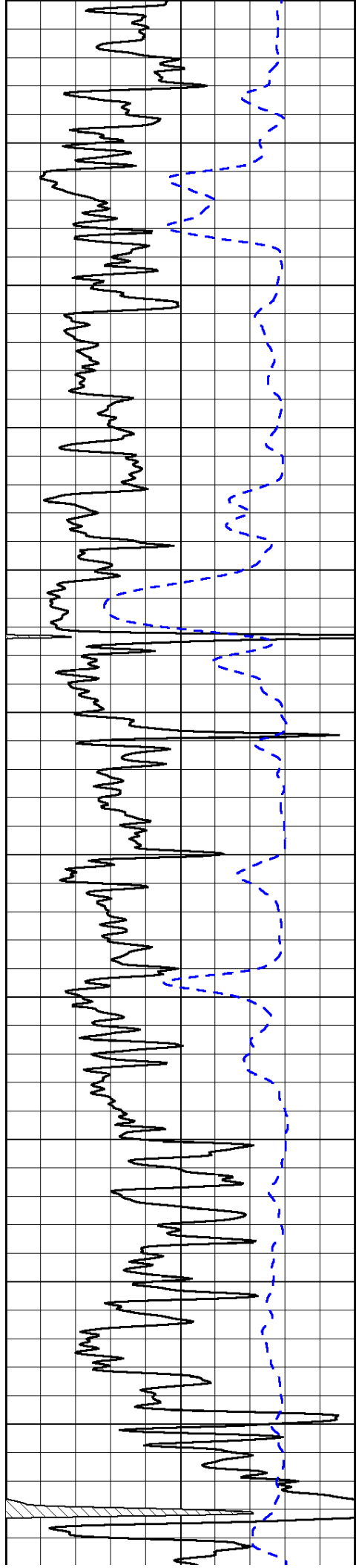


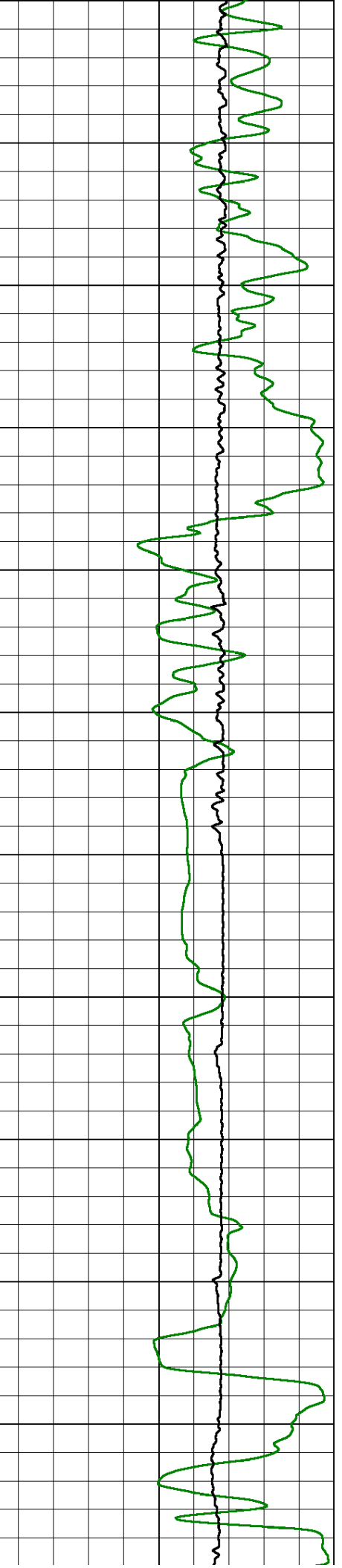
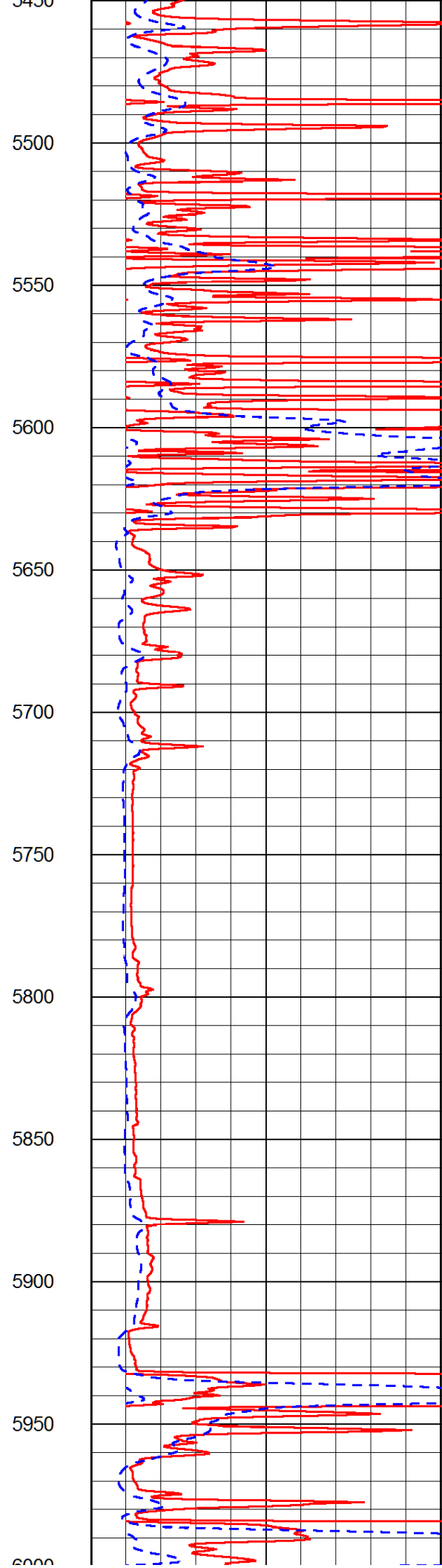
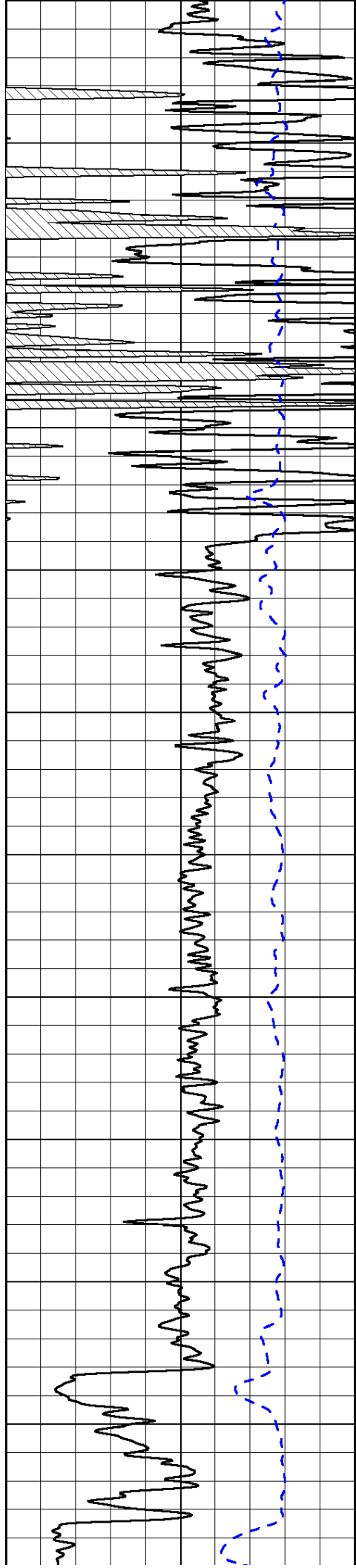


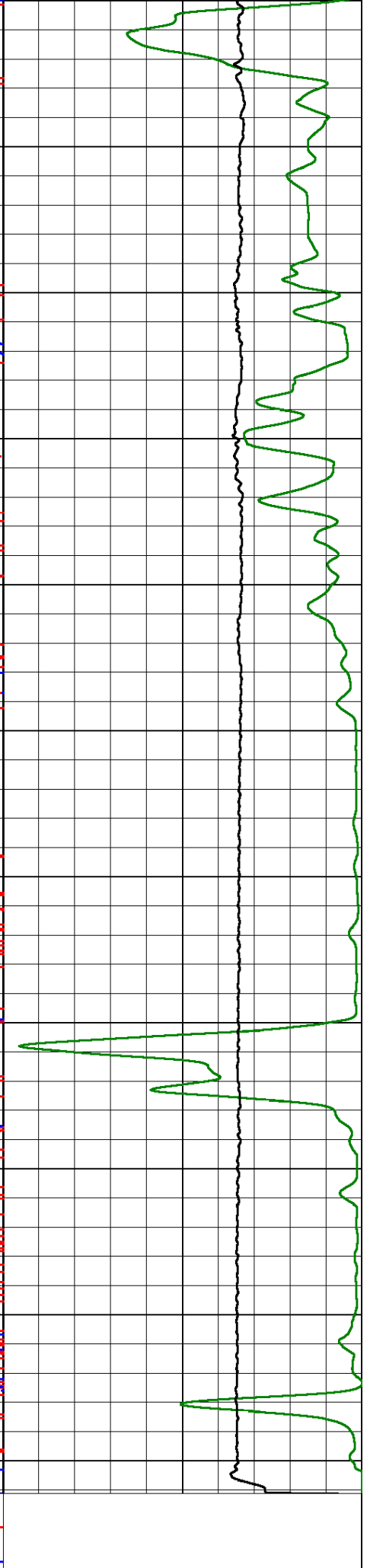
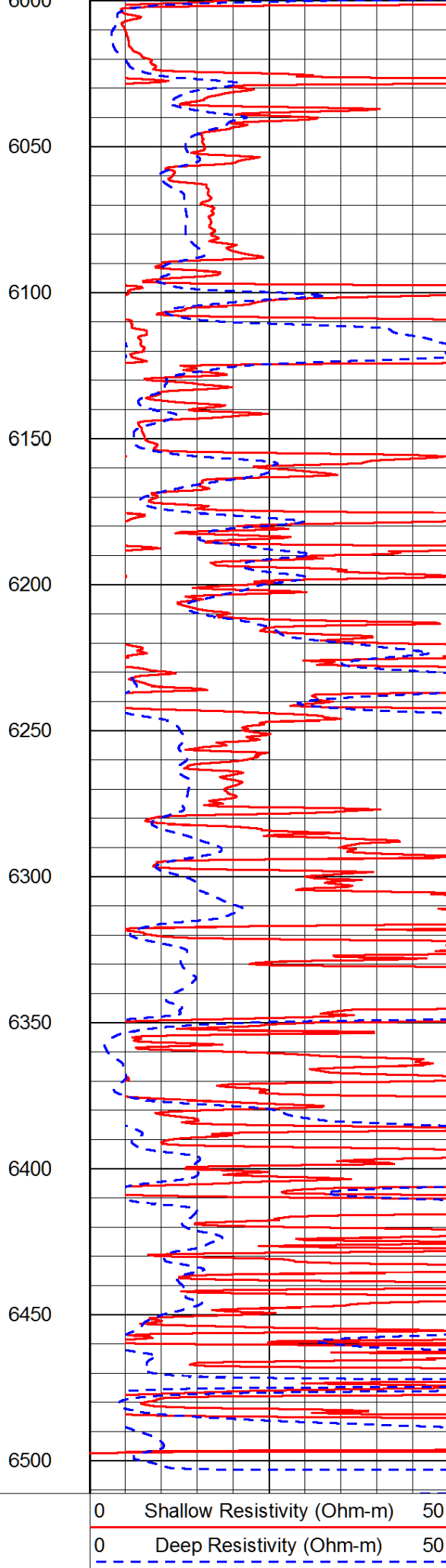
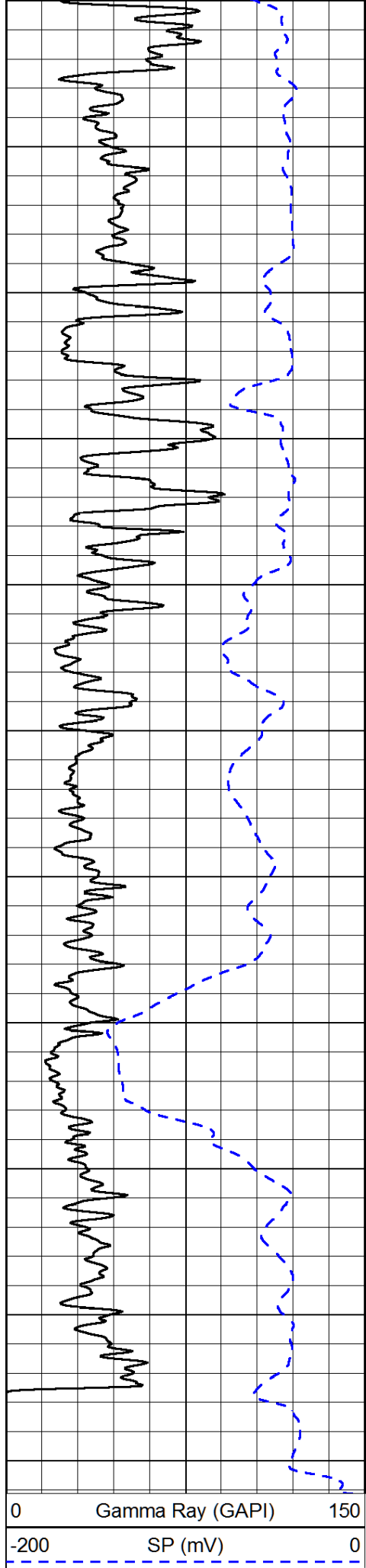








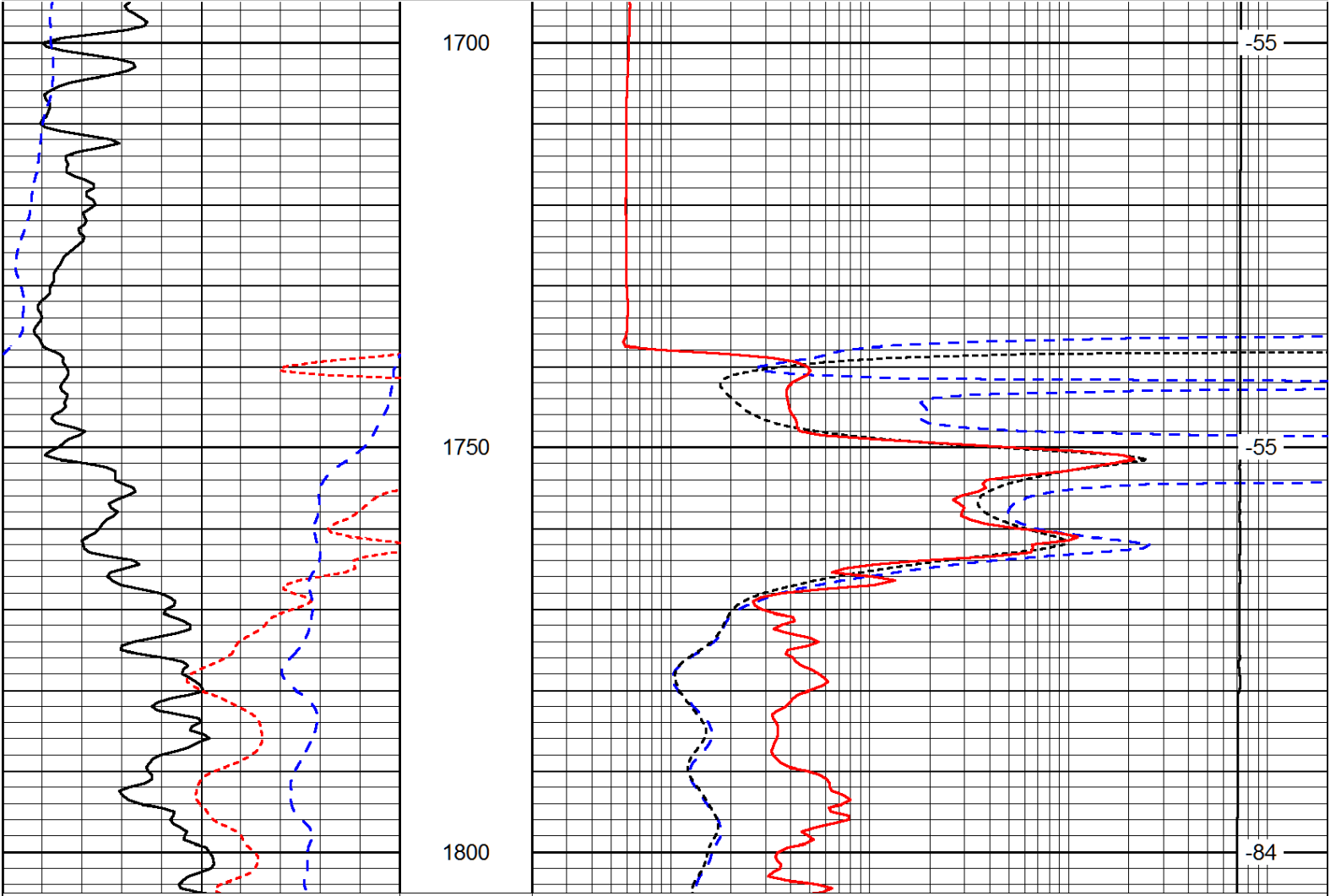




|                     |                          |     |
|---------------------|--------------------------|-----|
| 15000               | Line Tension (lb)        | 0   |
| Shallow Resistivity |                          |     |
| 50                  | (Ohm-m)                  | 500 |
| 50           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

Database File: palmhd.db  
 Dataset Pathname: dil/palmstk  
 Presentation Format: dil  
 Dataset Creation: Thu Feb 13 02:37:18 2014  
 Charted by: Depth in Feet scaled 1:240

|      |                  |     |       |                             |               |
|------|------------------|-----|-------|-----------------------------|---------------|
| 0    | Gamma Ray (GAPI) | 150 | 0.2   | Deep Resistivity (Ohm-m)    | 2000          |
| -160 | RXO/RT           | 40  | 0.2   | Medium Resistivity (Ohm-m)  | 2000          |
| -200 | SP (mV)          | 0   | 0.2   | Shallow Resistivity (Ohm-m) | 2000          |
|      |                  |     | 10000 | Line Tension (lb)           | 0             |
|      |                  |     |       |                             | LSPD (ft/min) |



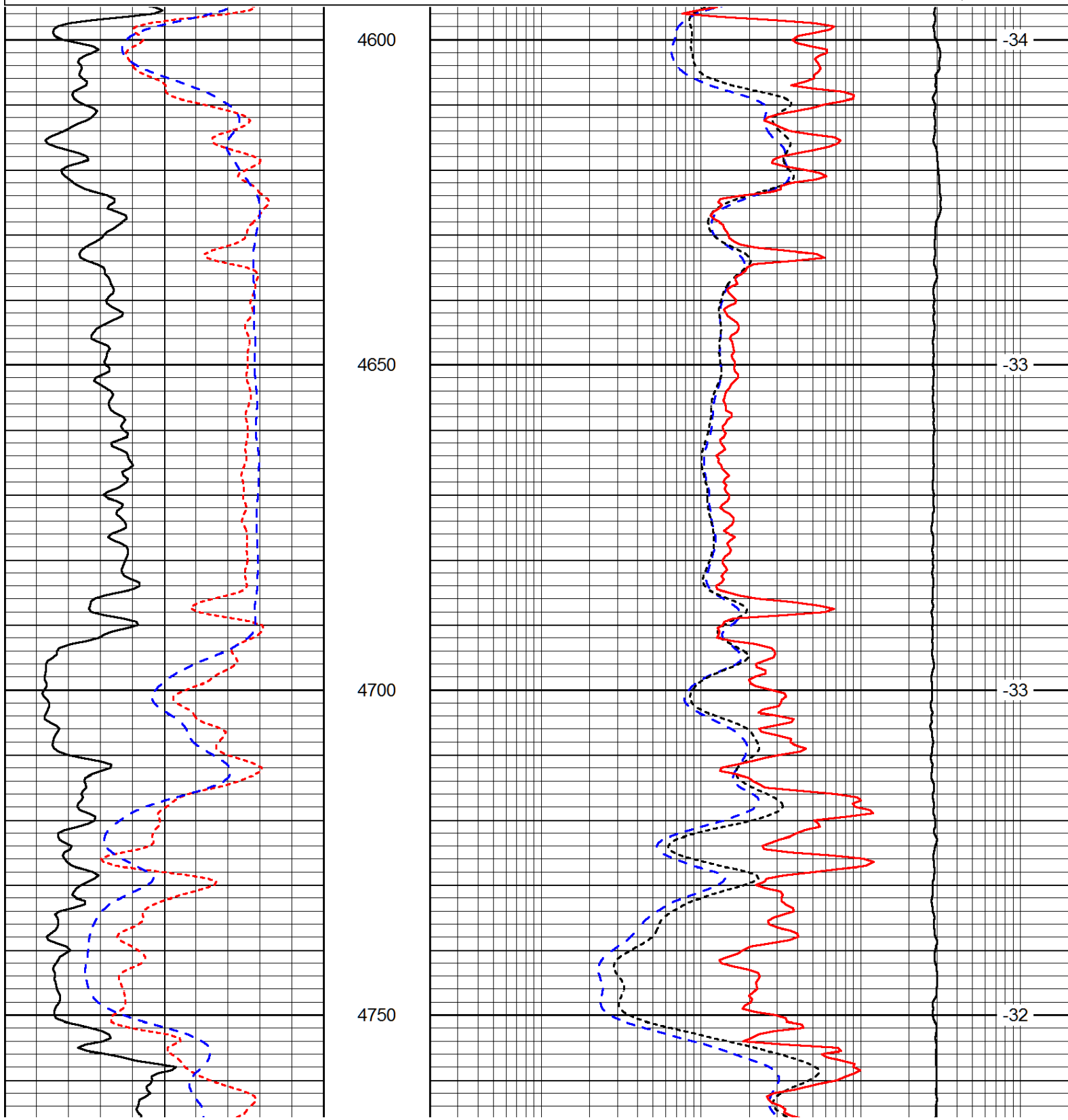
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|------|------------------|-----|-------|-----------------------------|---------------|
| 0    | Gamma Ray (GAPI) | 150 | 0.2   | Deep Resistivity (Ohm-m)    | 2000          |
| -160 | RXO/RT           | 40  | 0.2   | Medium Resistivity (Ohm-m)  | 2000          |
| -200 | SP (mV)          | 0   | 0.2   | Shallow Resistivity (Ohm-m) | 2000          |
|      |                  |     | 10000 | Line Tension (lb)           | 0             |
|      |                  |     |       |                             | LSPD (ft/min) |

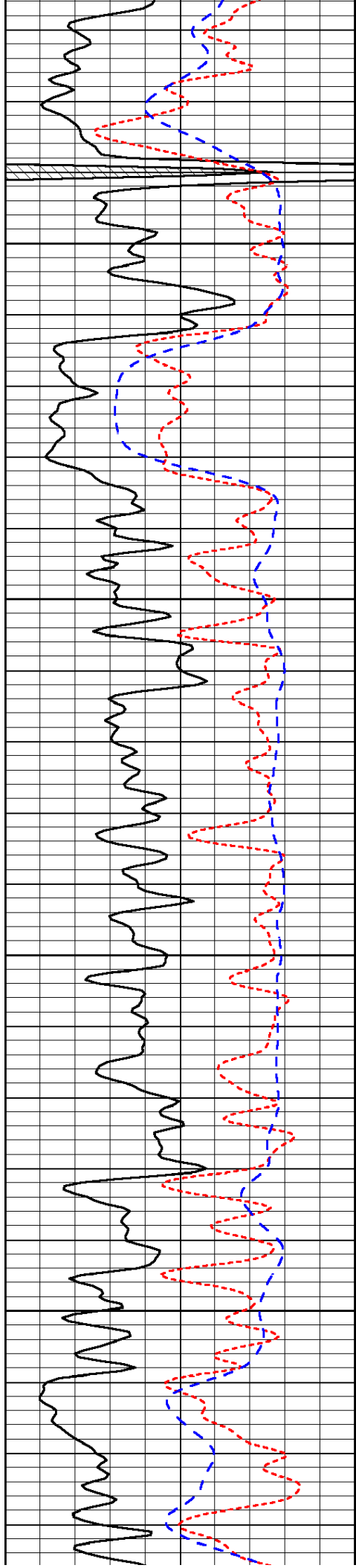
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|      |                  |     |
|------|------------------|-----|
| 0    | Gamma Ray (GAPI) | 150 |
| -160 | RXO/RT           | 40  |
| -200 | SP (mV)          | 0   |

|       |                             |      |
|-------|-----------------------------|------|
| 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)



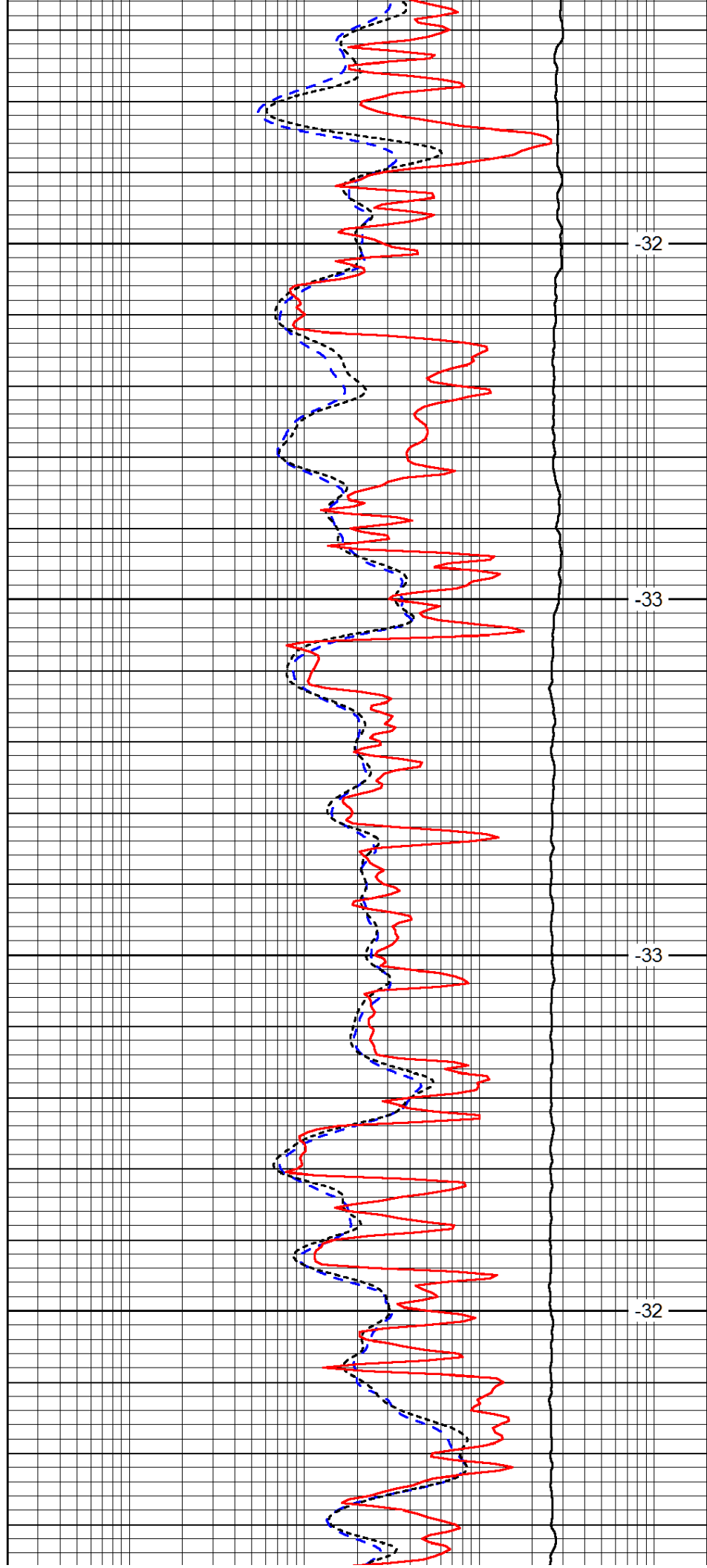


4800

4850

4900

4950

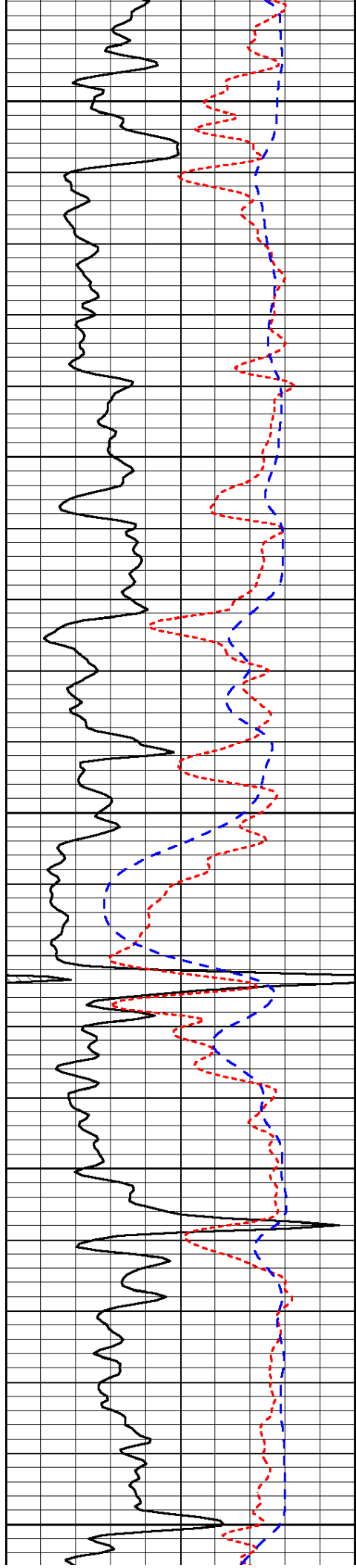


-32

-33

-33

-32



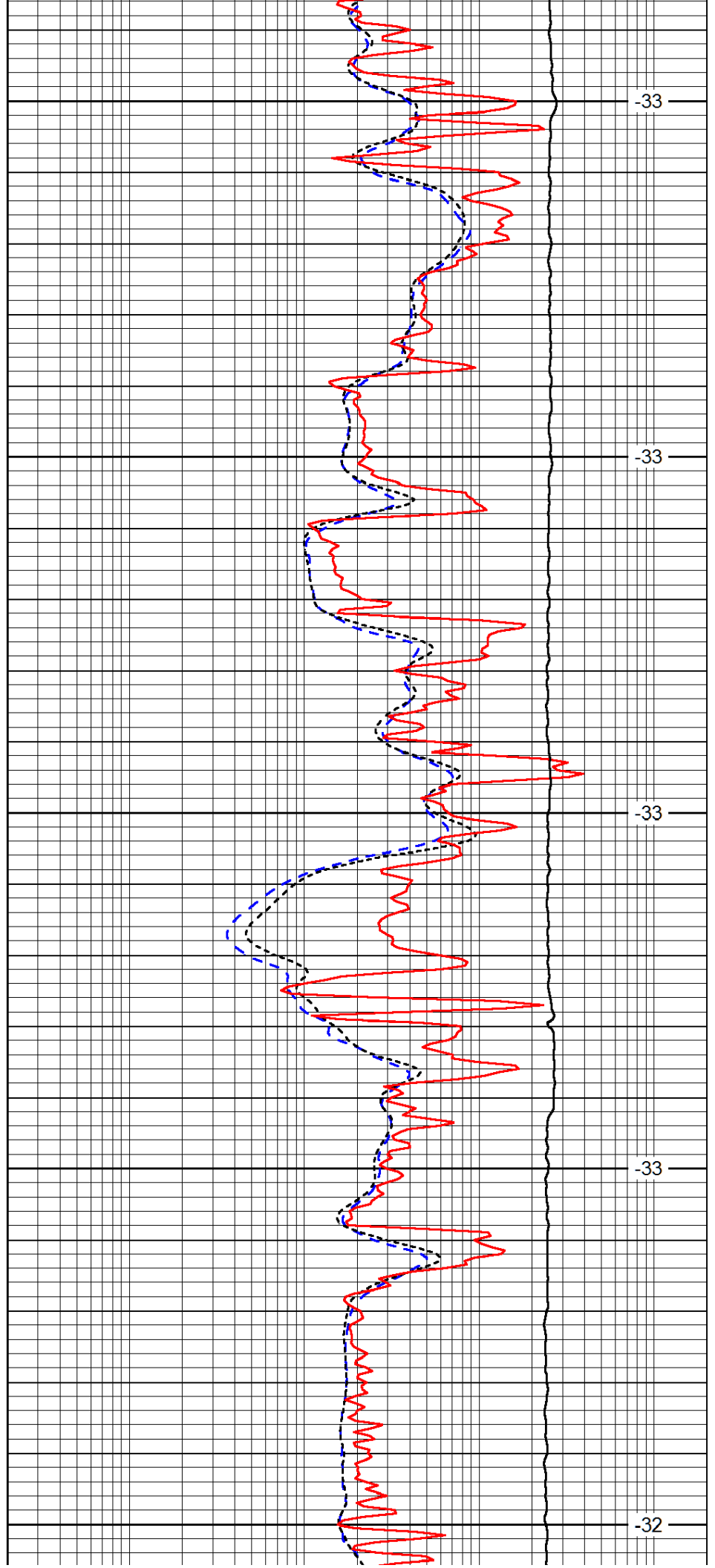
5000

5050

5100

5150

5200



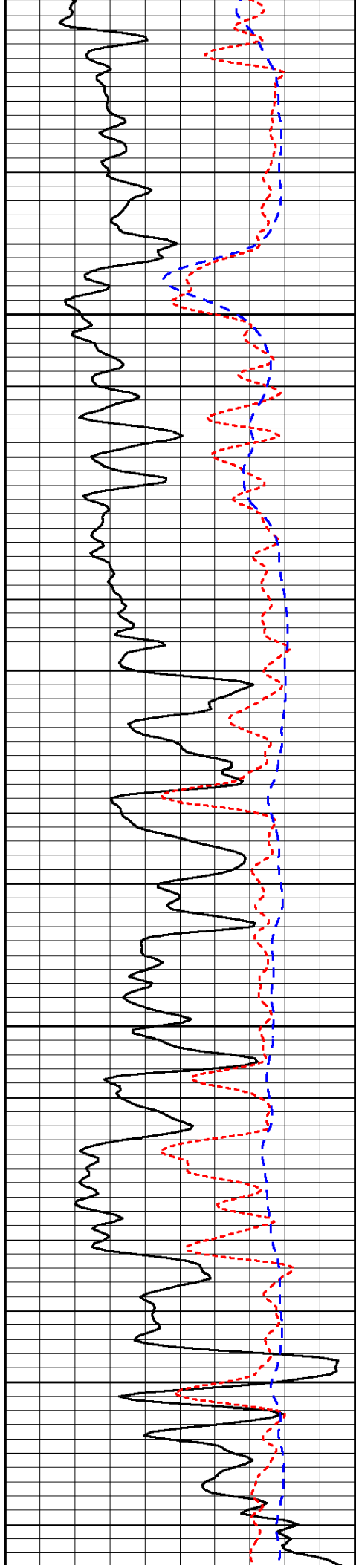
-33

-33

-33

-33

-32

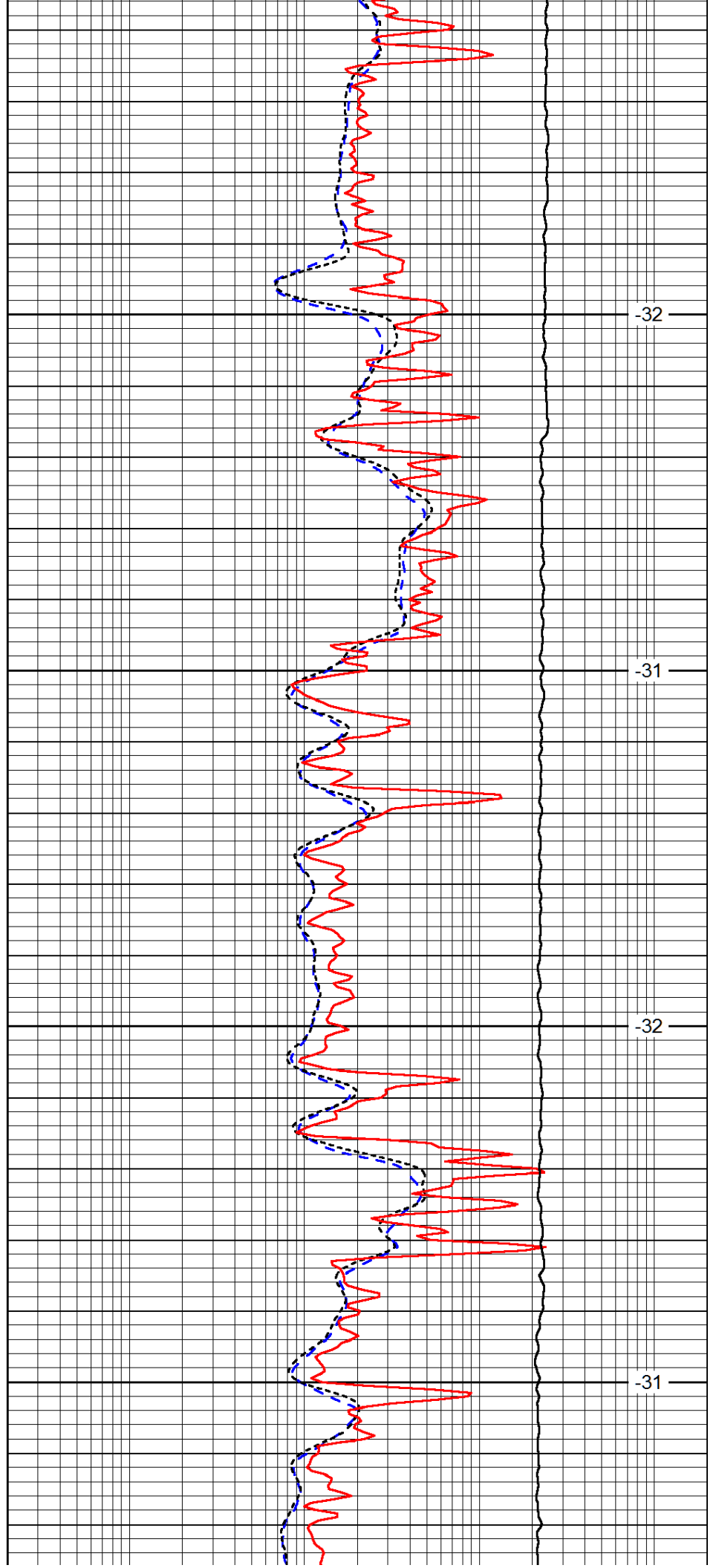


5250

5300

5350

5400

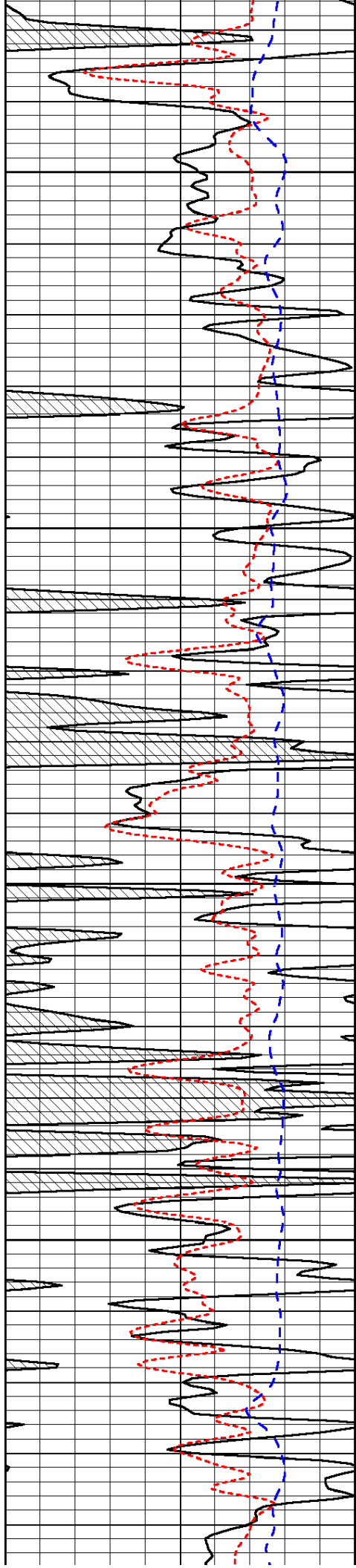


-32

-31

-32

-31

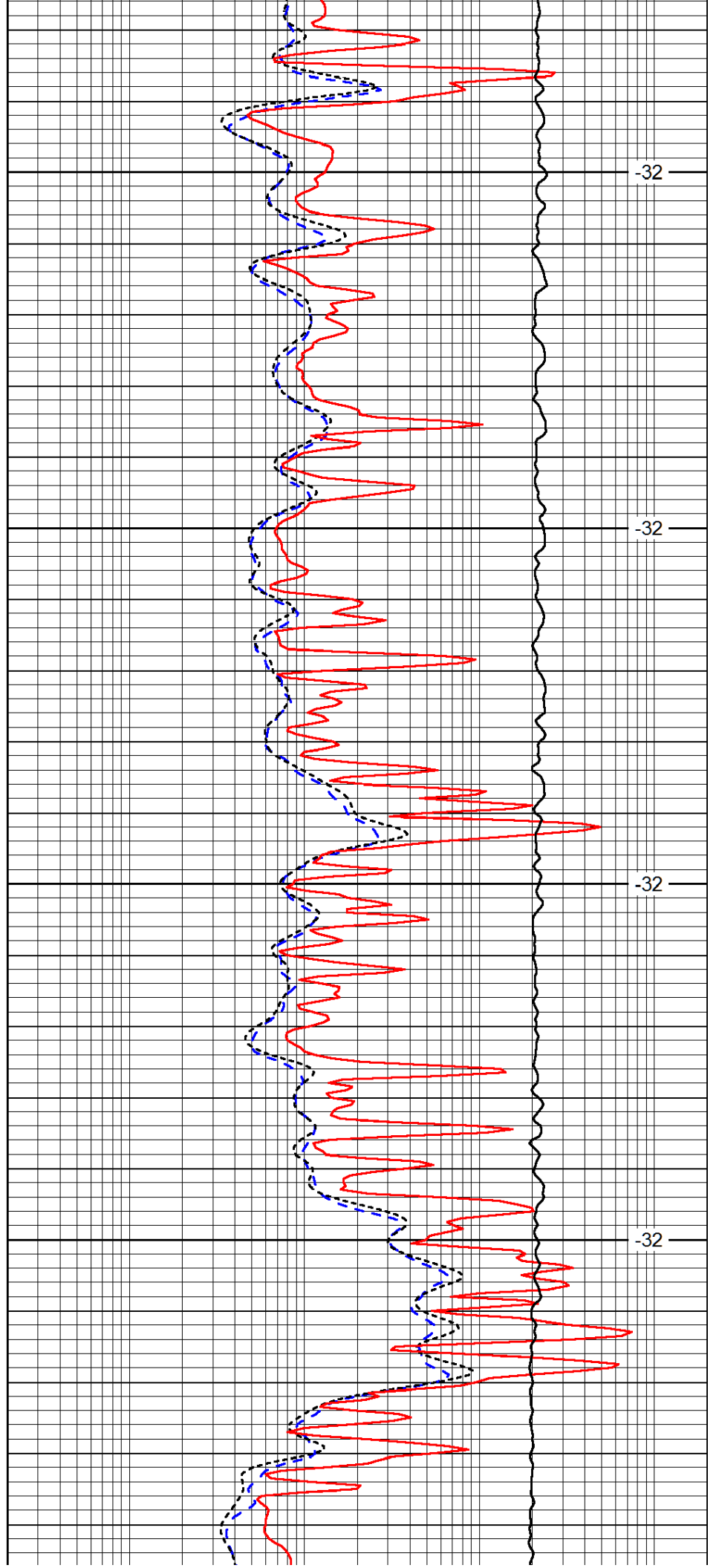


5450

5500

5550

5600

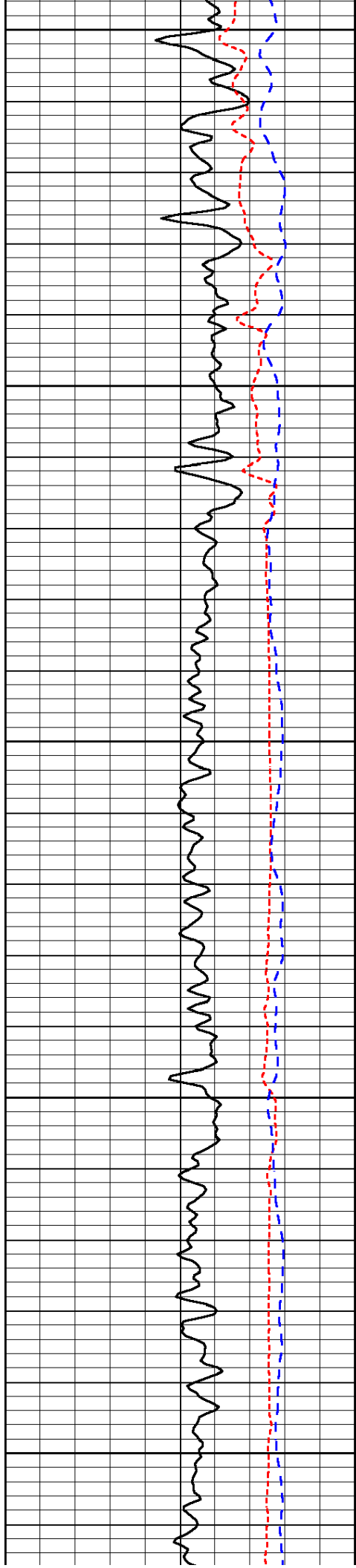


-32

-32

-32

-32



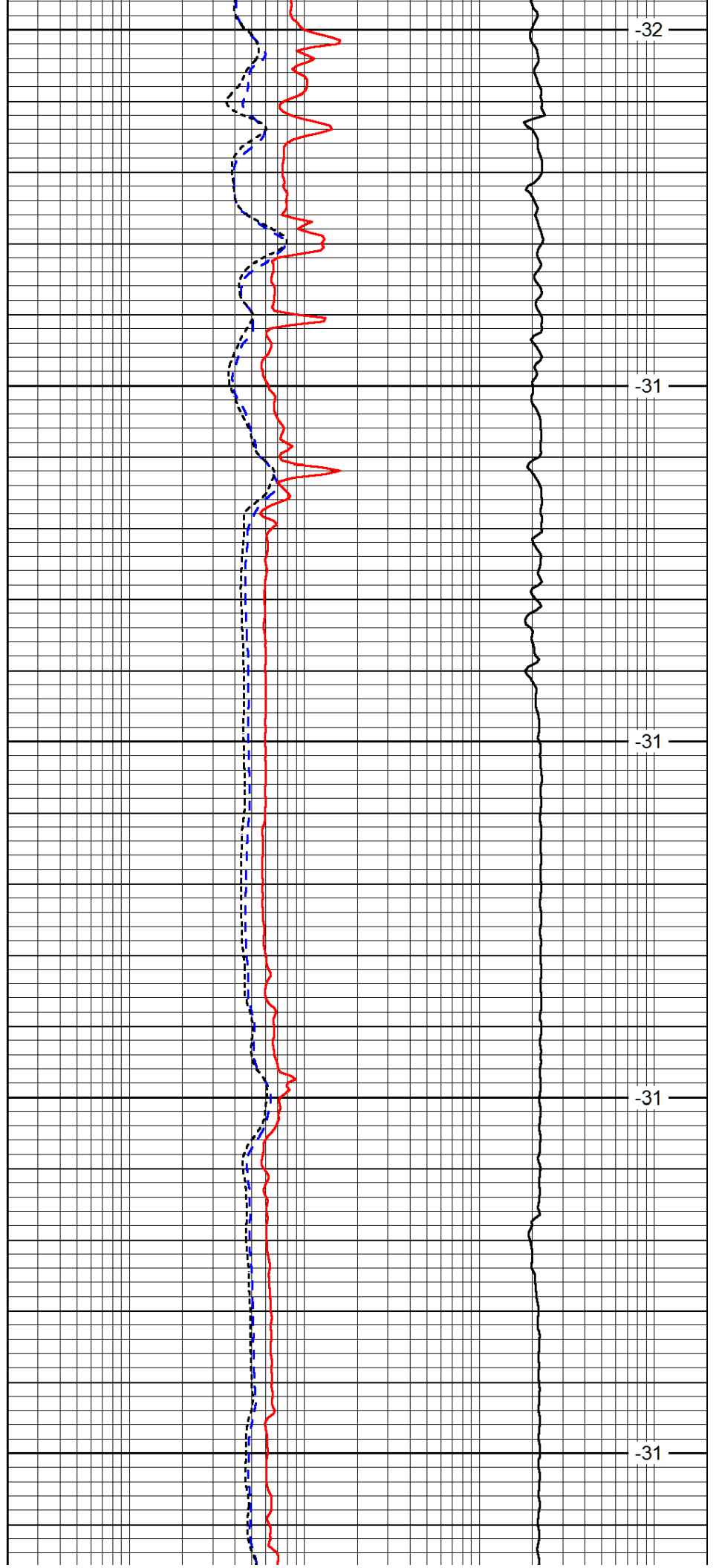
5650

5700

5750

5800

5850



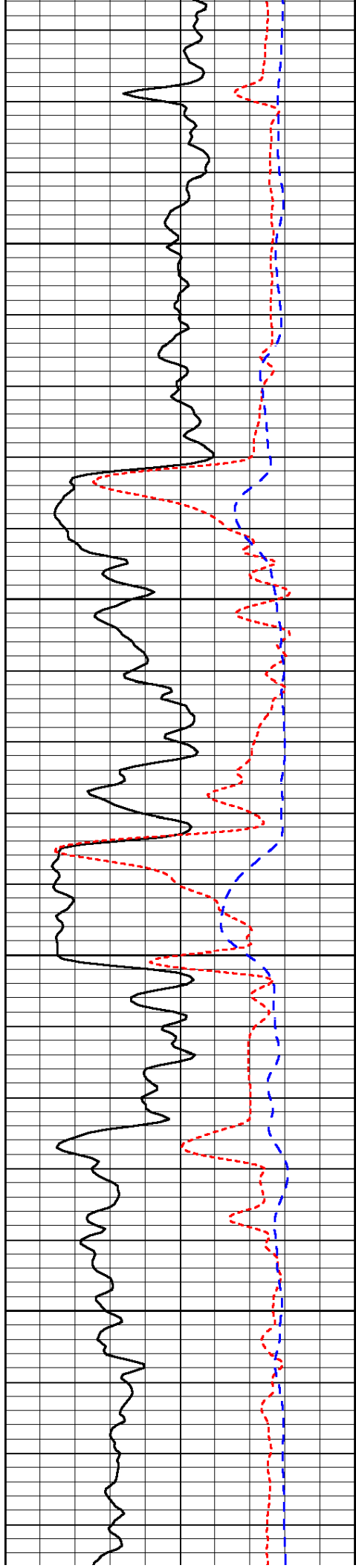
-32

-31

-31

-31

-31

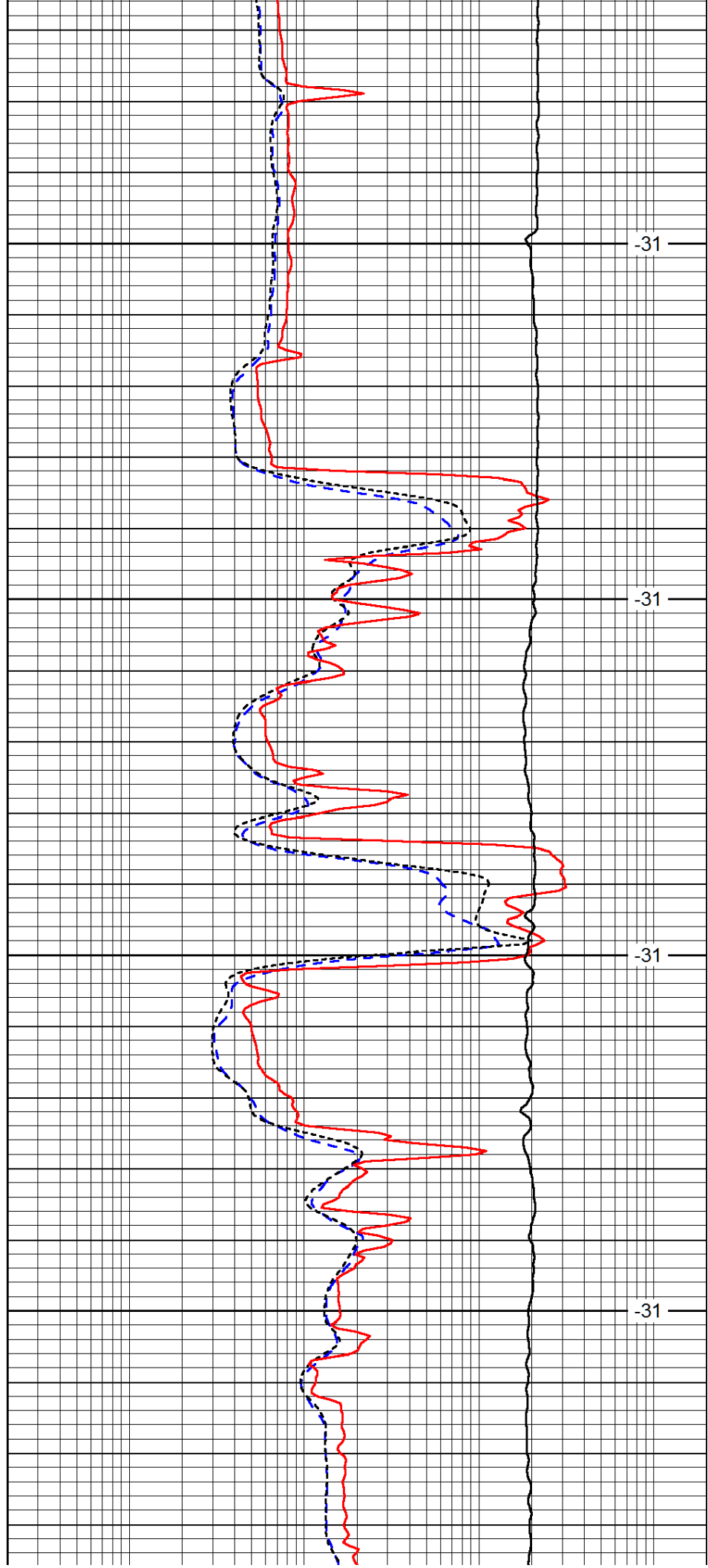


5900

5950

6000

6050

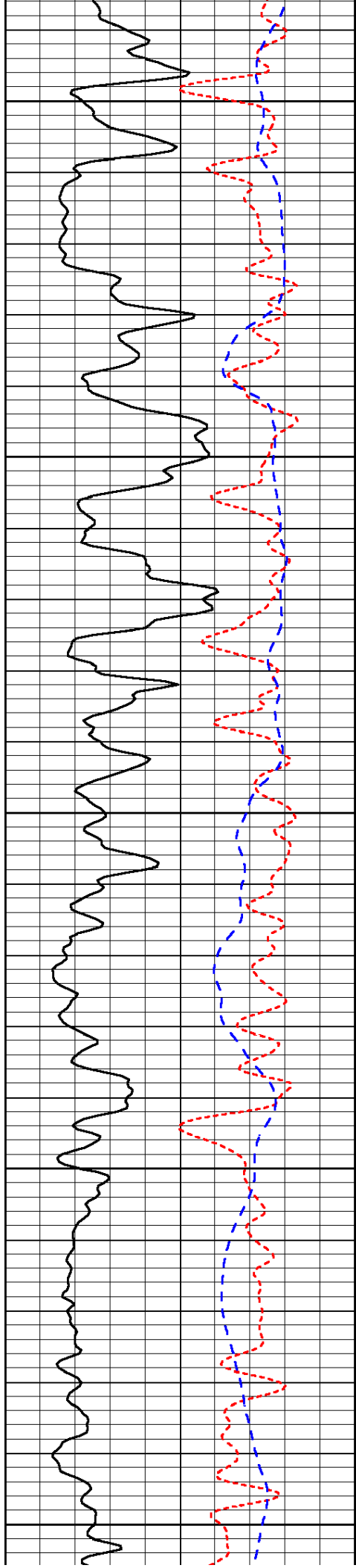


-31

-31

-31

-31



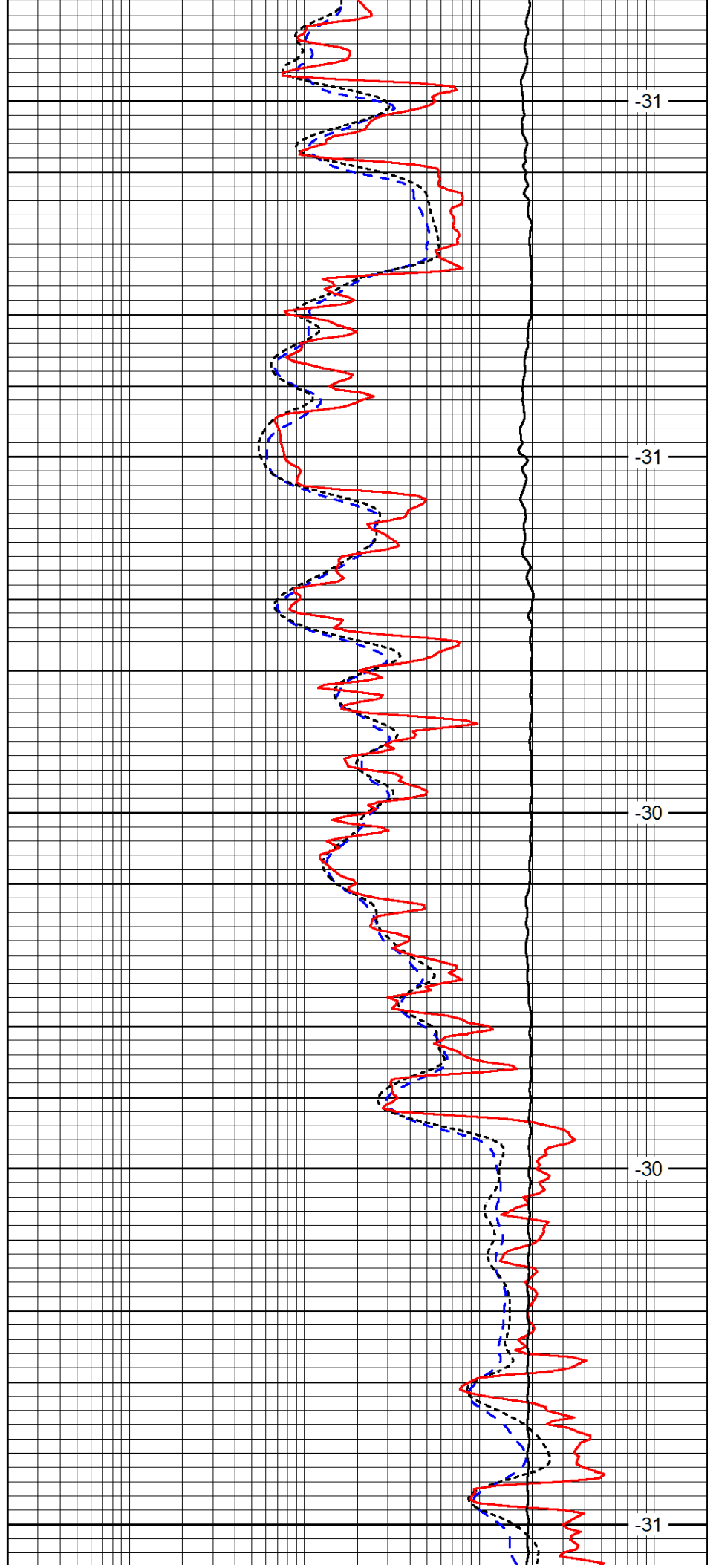
6100

6150

6200

6250

6300



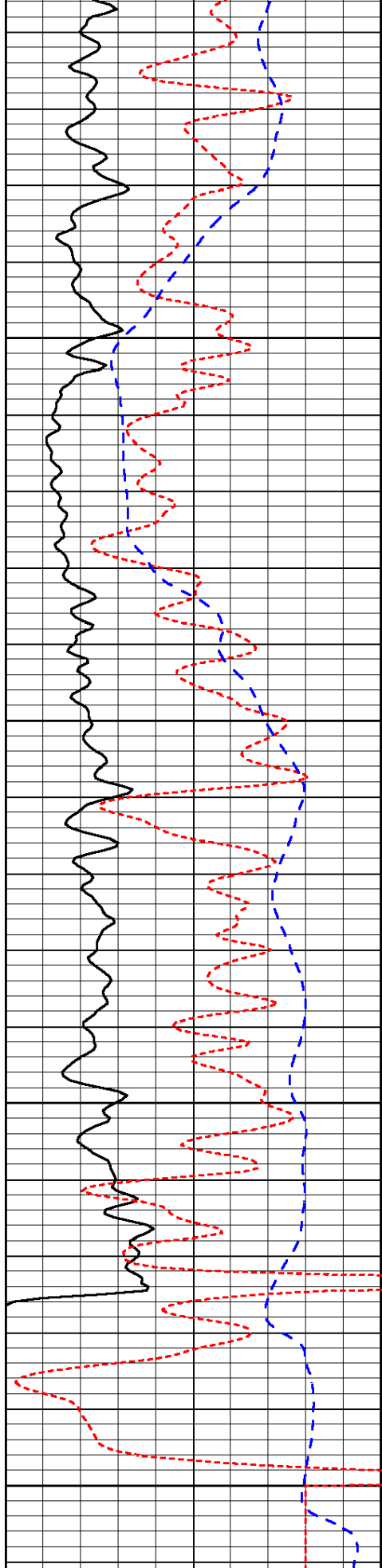
-31

-31

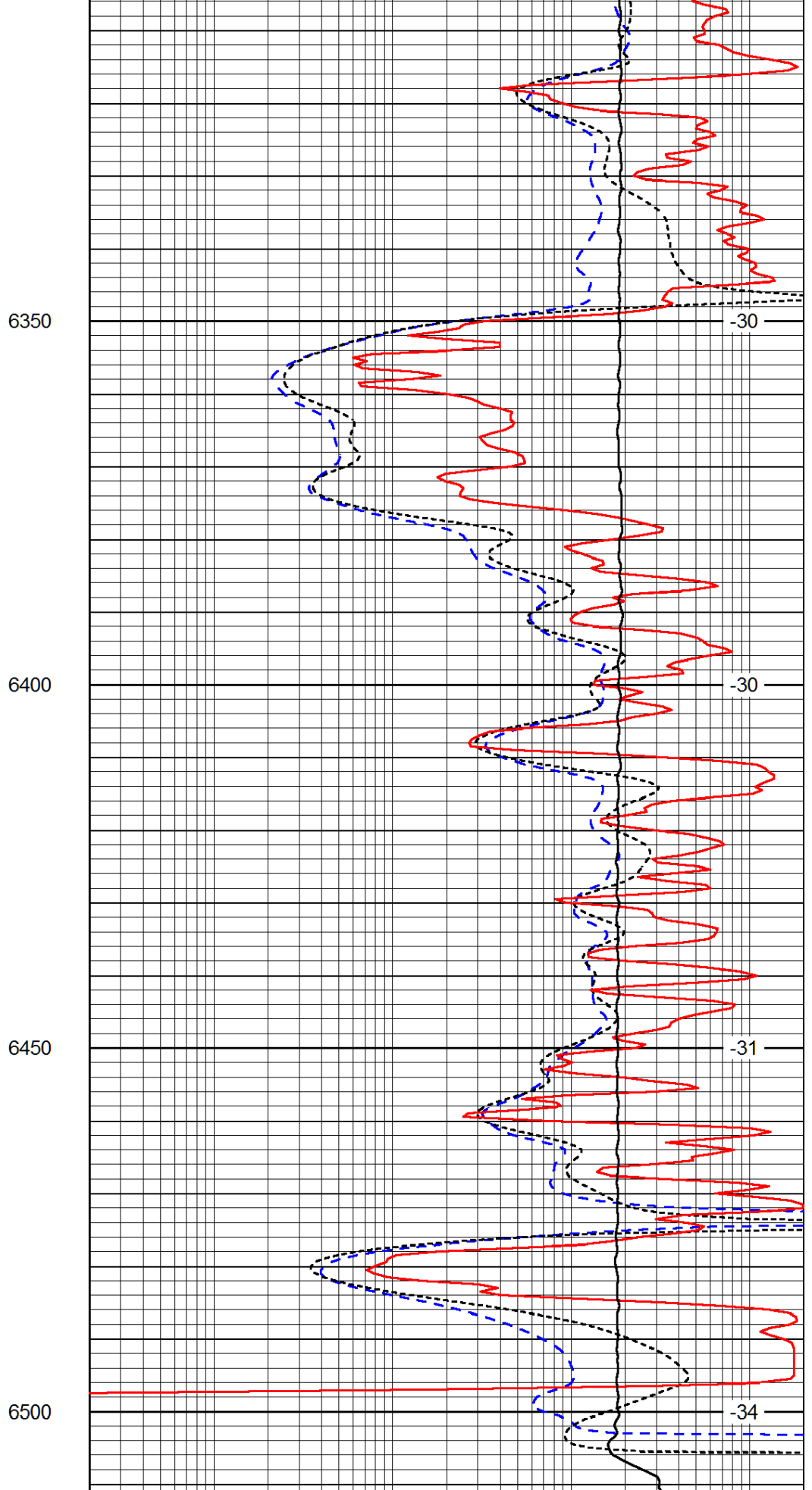
-30

-30

-31



|      |                  |     |
|------|------------------|-----|
| 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)