



Pioneer Energy Services

# Dual Induction Log

15-065-23,965-00-00

API No.	Company	H & C Oil Operating, Inc.
	Well	Griffith Unit No. 2 - 1
	Field	Wildcat
	County	Graham
	State	Kansas
Location	990' FSL & 100' FWL	
Sec: 2	Twp: 8 S	Rge: 22 W
Permanent Datum	Ground Level	Elevation 2139
Log Measured From	Kelly Bushing	8 Ft. Above Perm. Datum
Drilling Measured From	Kelly Bushing	
		Other Services CNL/CDL MEL/BHCS
Date	8/16/2013	Elevation K.B. 2147 D.F. 2139 G.L. 2139

Run Number	One
Depth Driller	3770
Depth Logger	3771
Bottom Logged Interval	3770
Top Log Interval	200
Casing Driller	8.625 @ 220
Casing Logger	220
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity, ppm CL	400
Density / Viscosity	9.0   58
pH / Fluid Loss	10.5   8.0
Source of Sample	Flowline
Rm @ Meas. Temp	.82 @ 72
Rmf @ Meas. Temp	.62 @ 72
Rmc @ Meas. Temp	1.11 @ 72
Source of Rmf / Rmc	Charts
Rm @ BHT	.52 @ 114
Operating Rig Time	5 Hours
Max Rec. Temp. F	114
Equipment Number	108
Location	Hays
Recorded By	D. Martin
Witnessed By	Marc Downing

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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  
 Bogue, KS  
 N to Hwy 24, 3 W to 320 Rd.,  
 1/4 N, E Into

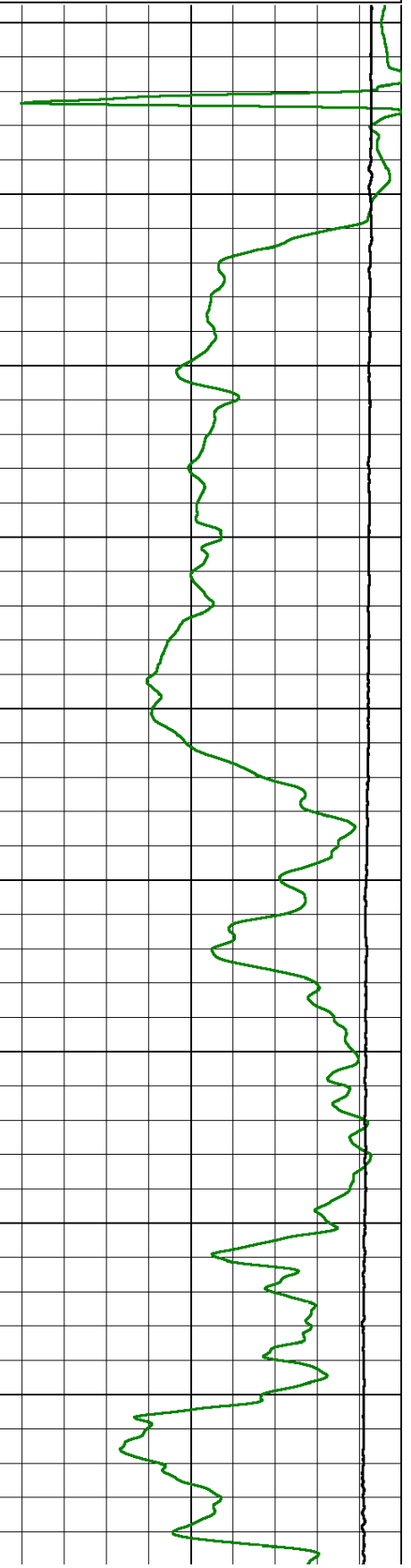
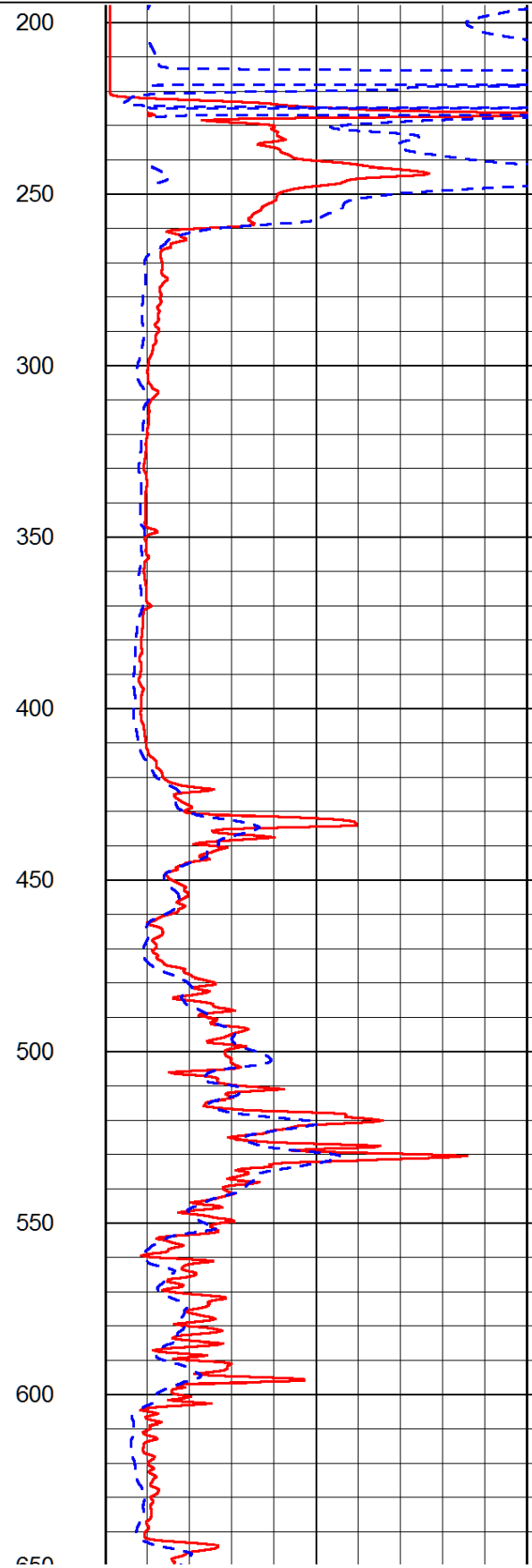
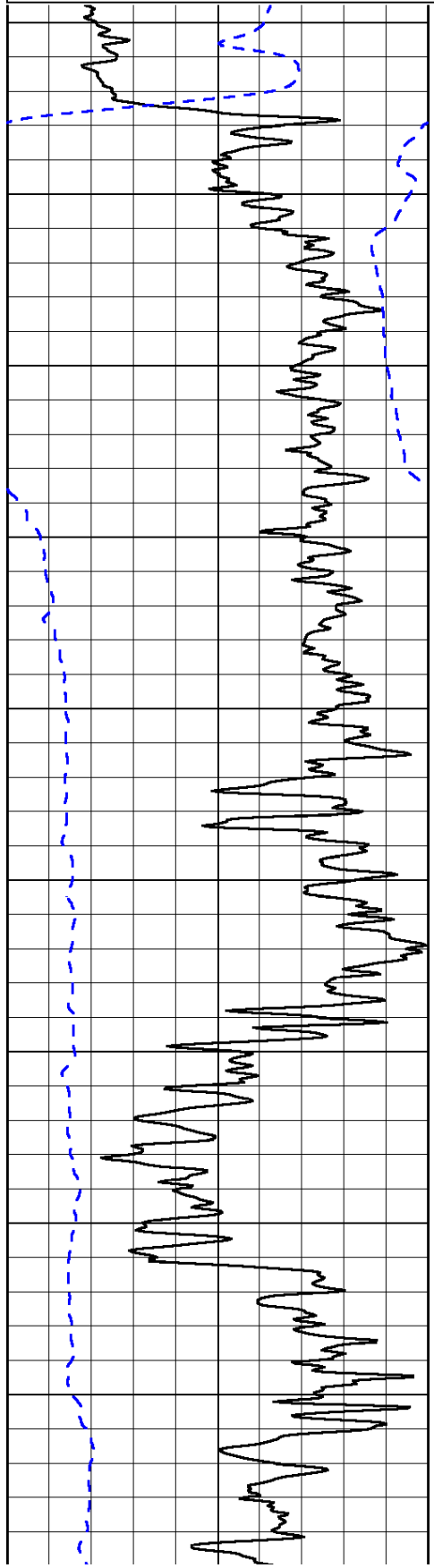
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 Dataset Creation: Fri Aug 16 10:55:21 2013  
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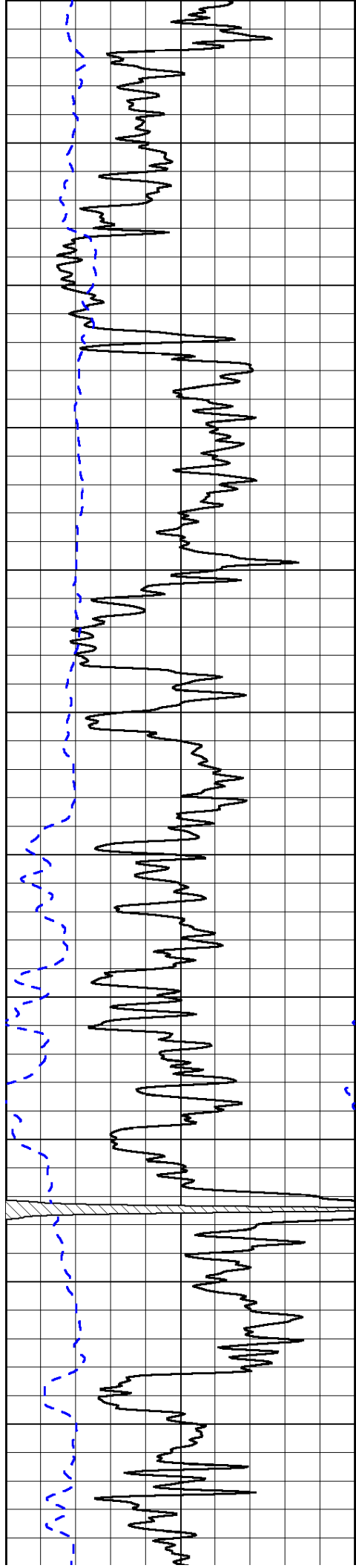
0	Gamma Ray (GAPI)	150
-200	SP (mV)	0

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

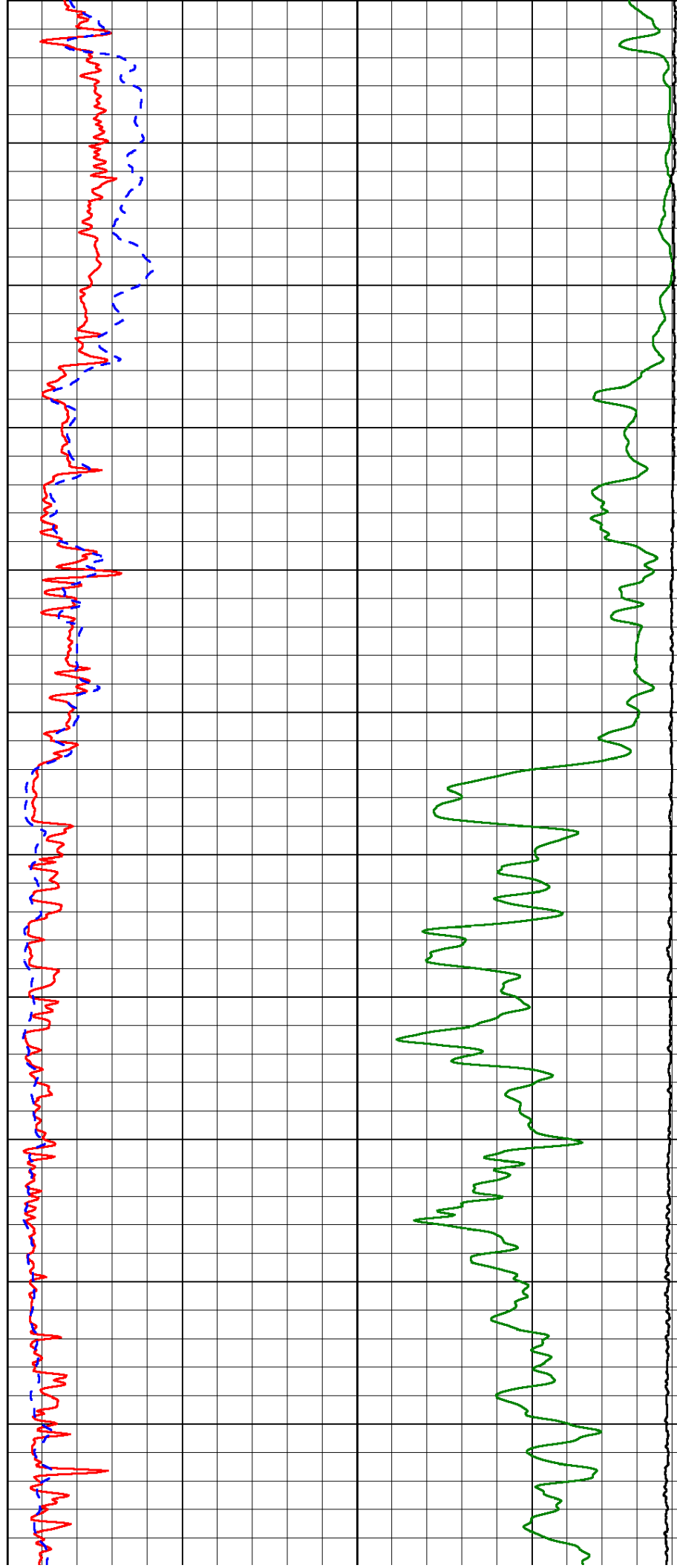
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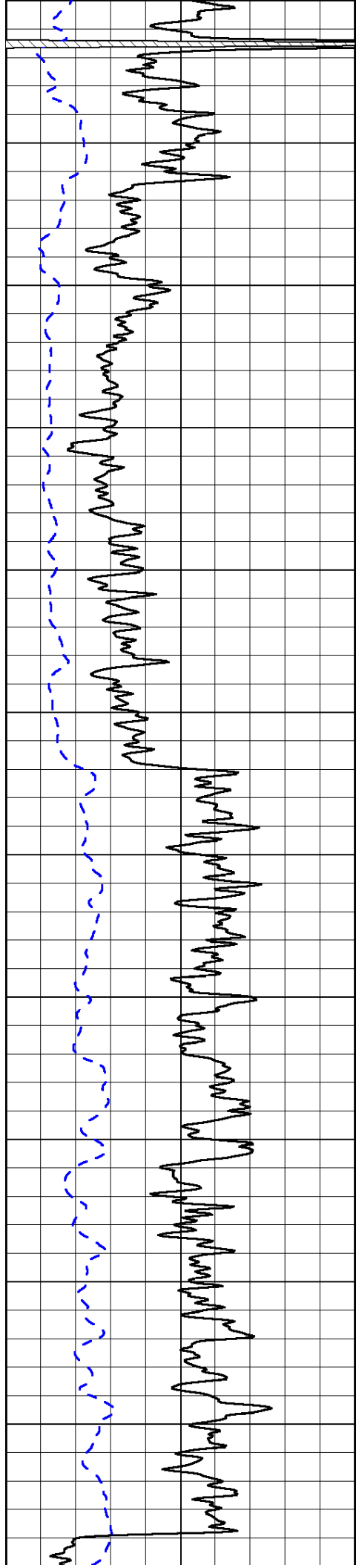
Shallow Resistivity		
50	(Ohm-m)	500
50	Deep Resistivity (Ohm-m)	500



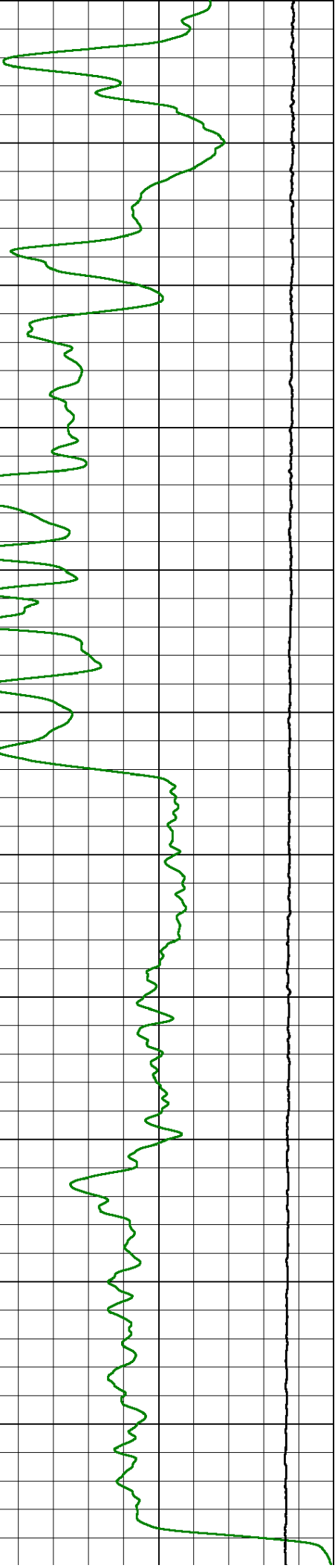
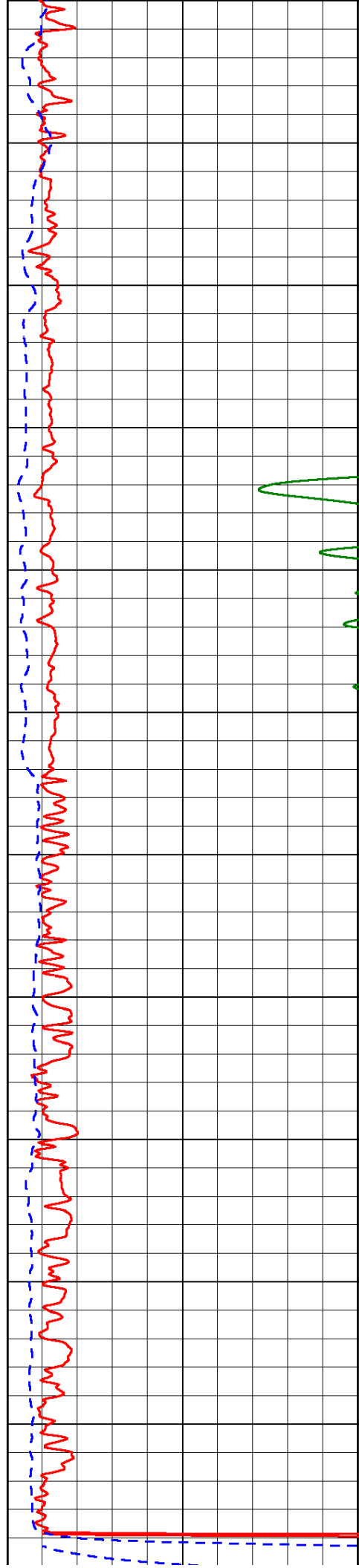


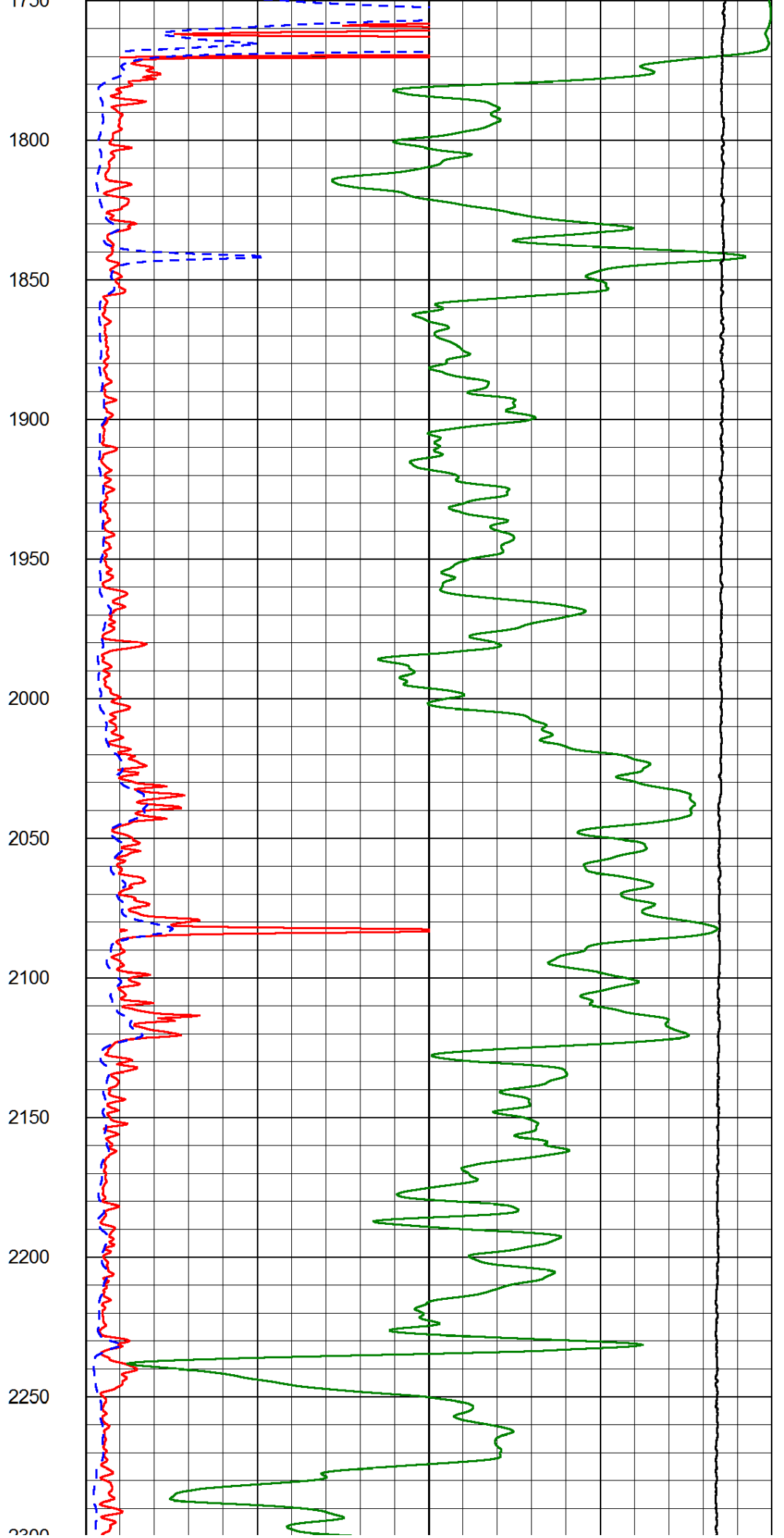
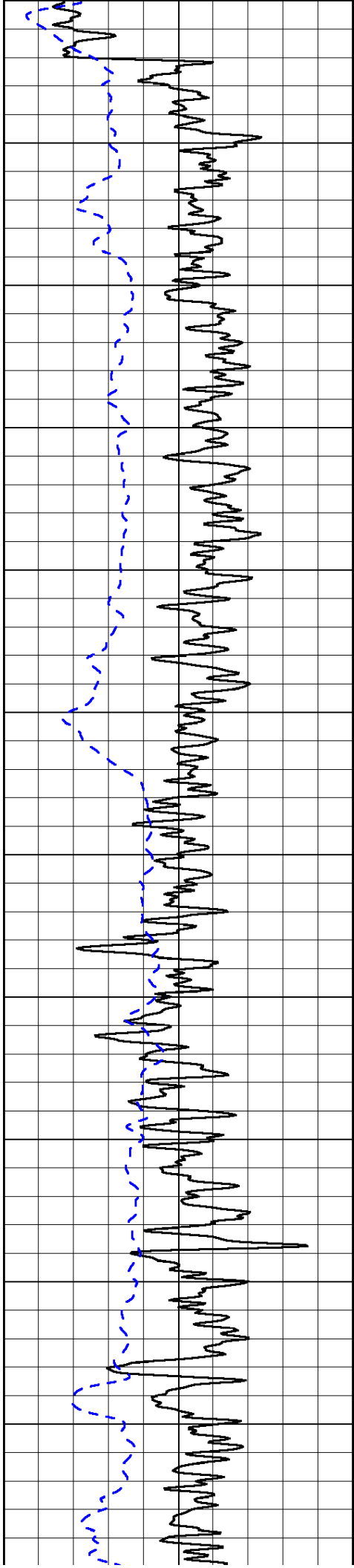
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700  
750  
800  
850  
900  
950  
1000  
1050  
1100  
1150  
1200

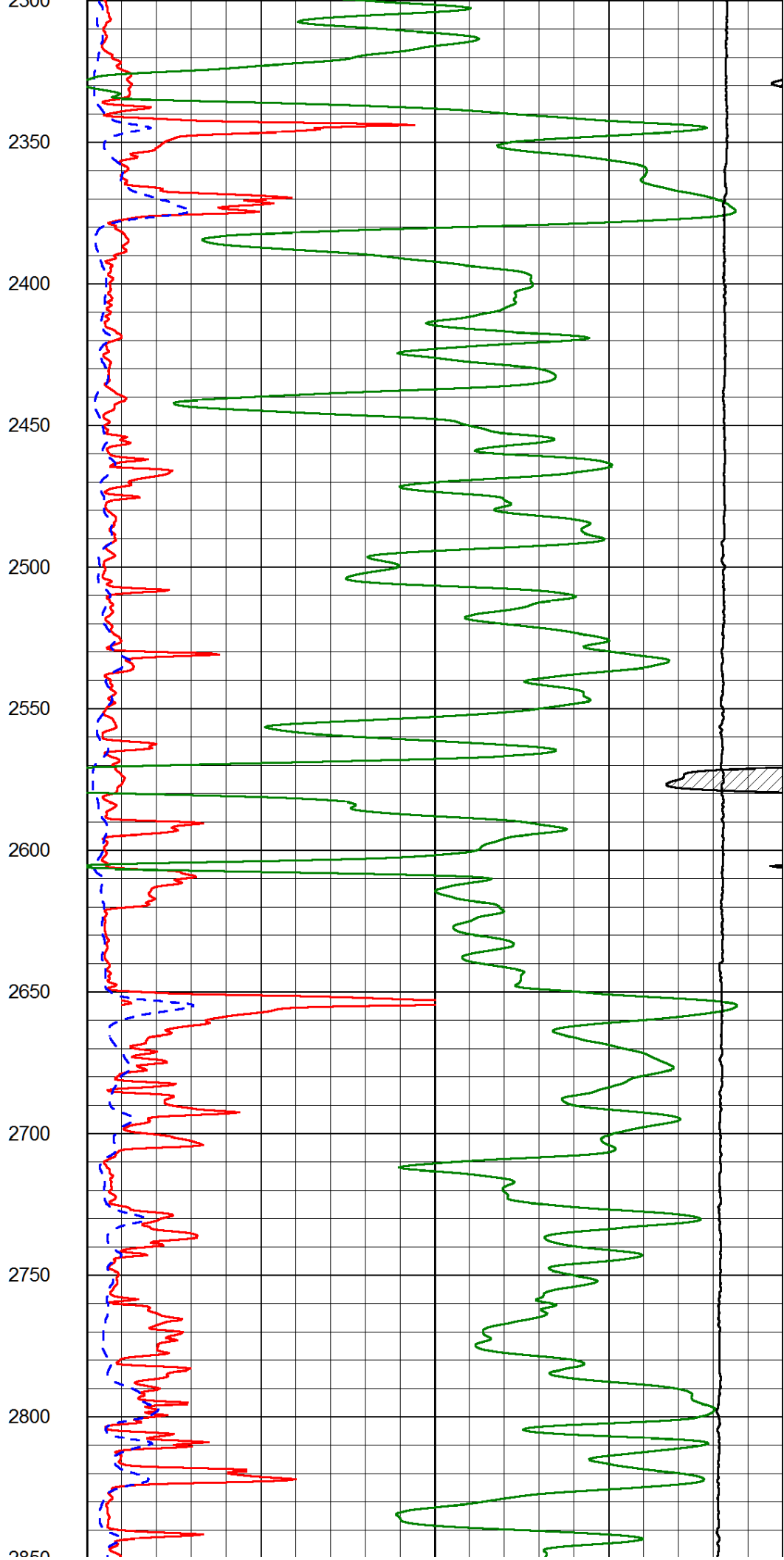
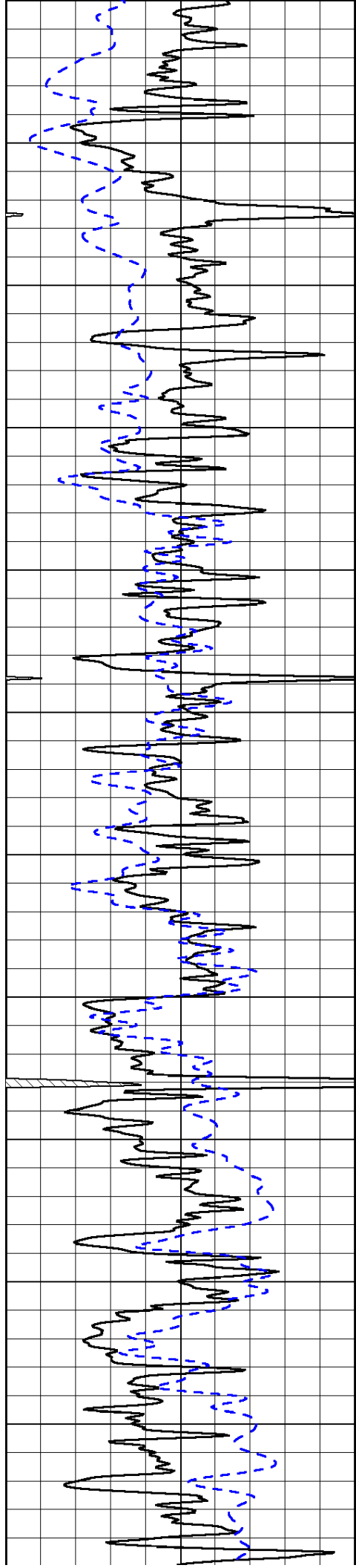


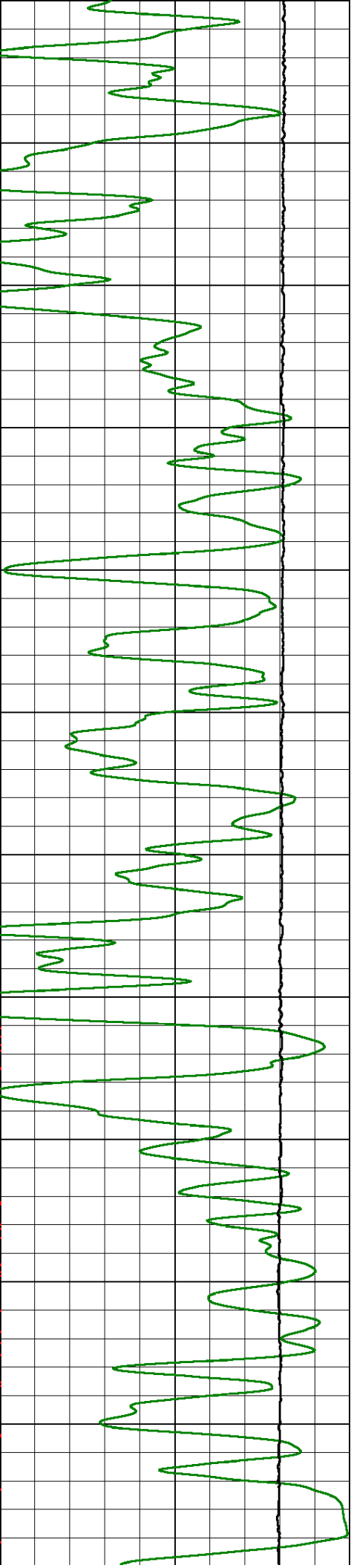
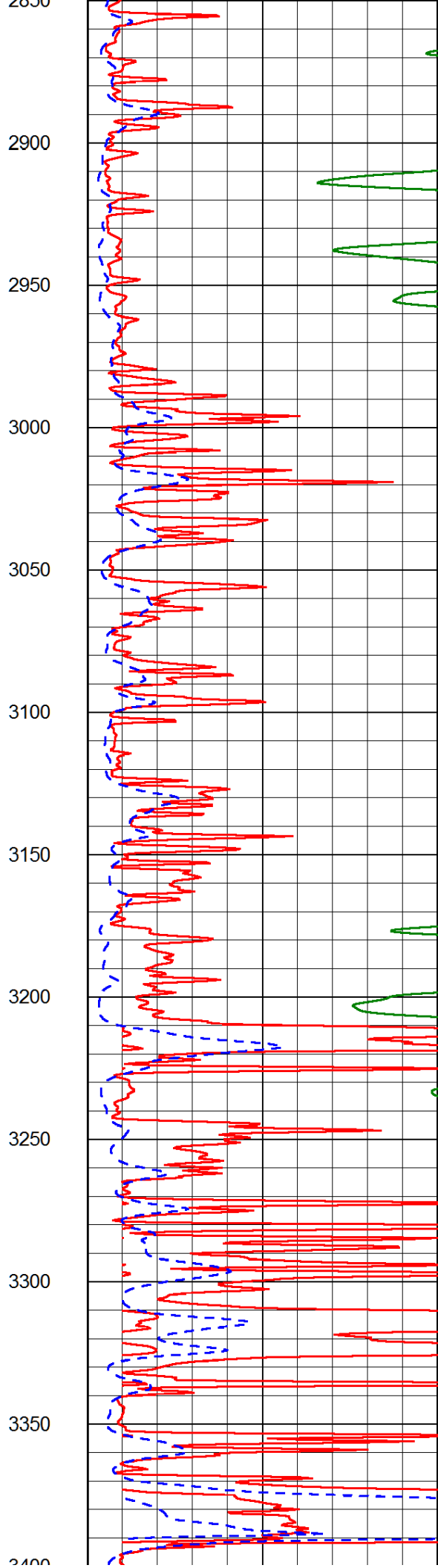
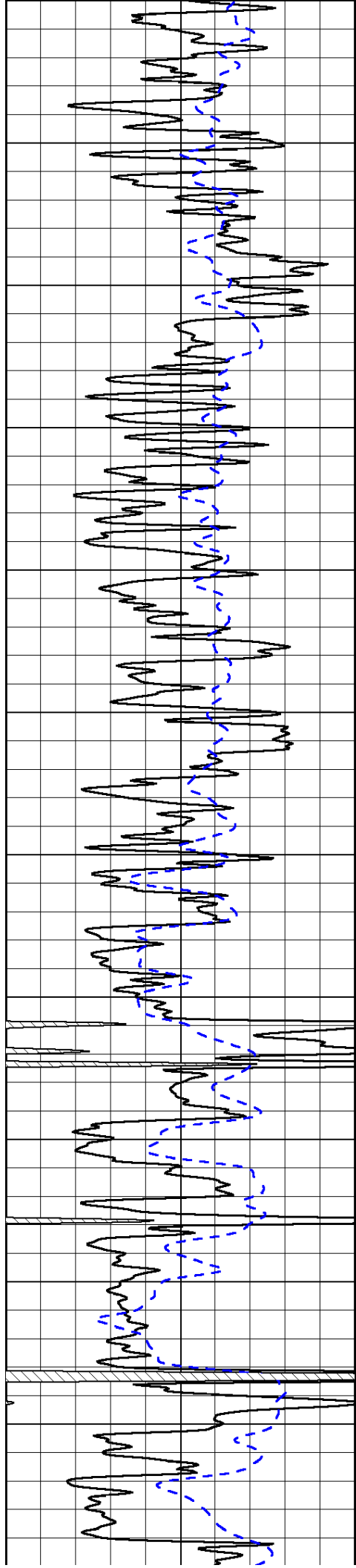


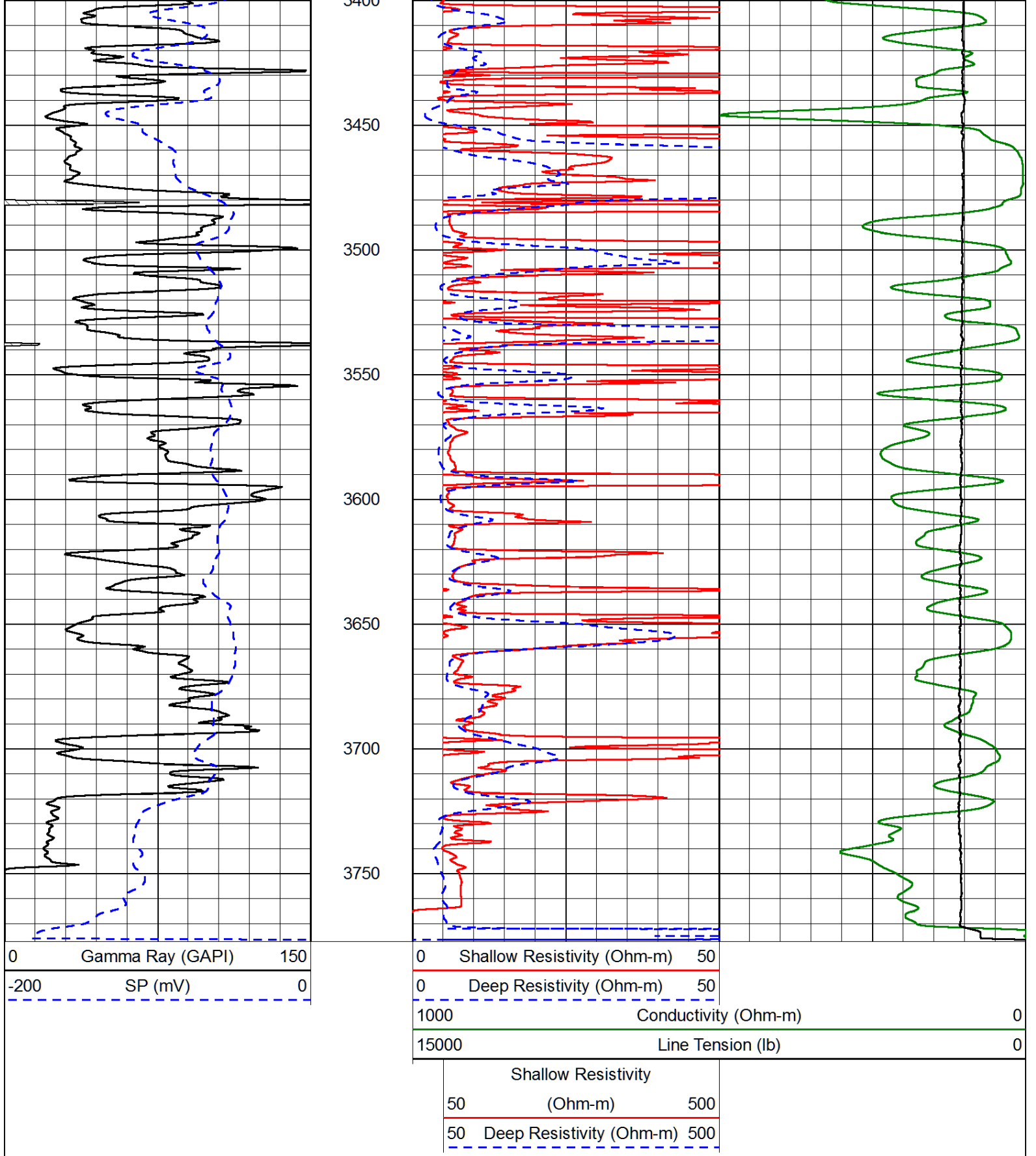
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1700  
1750



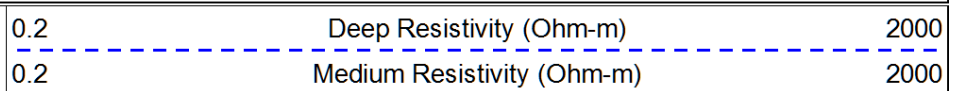
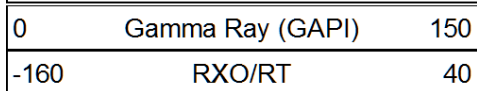








Database File: h&c\_griffithunit\_2-1hd.db  
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 Presentation Format: dil  
 Dataset Creation: Fri Aug 16 10:55:21 2013  
 Charted by: Depth in Feet scaled 1:240



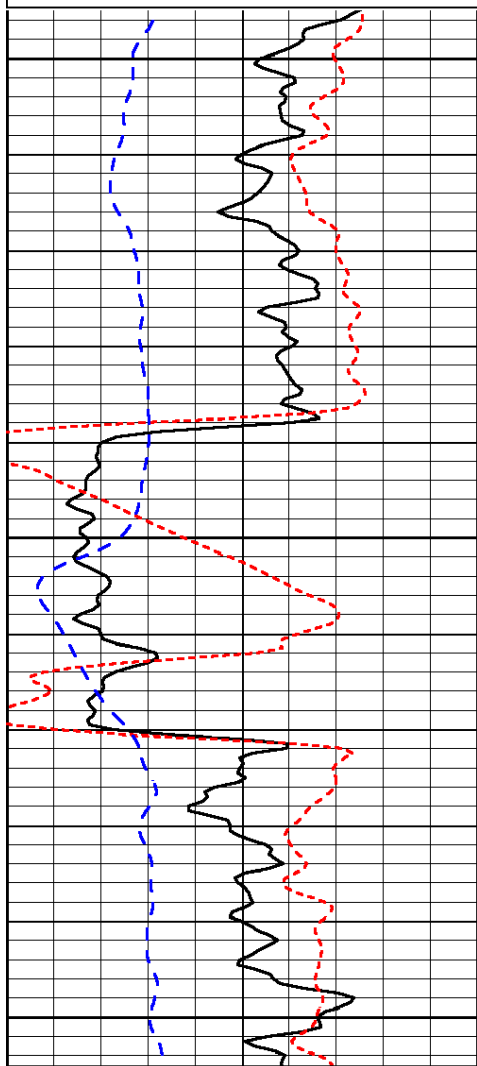


-200 SP (mV) 0

0.2 Shallow Resistivity (Ohm-m) 2000

10000 Line Tension (lb) 0

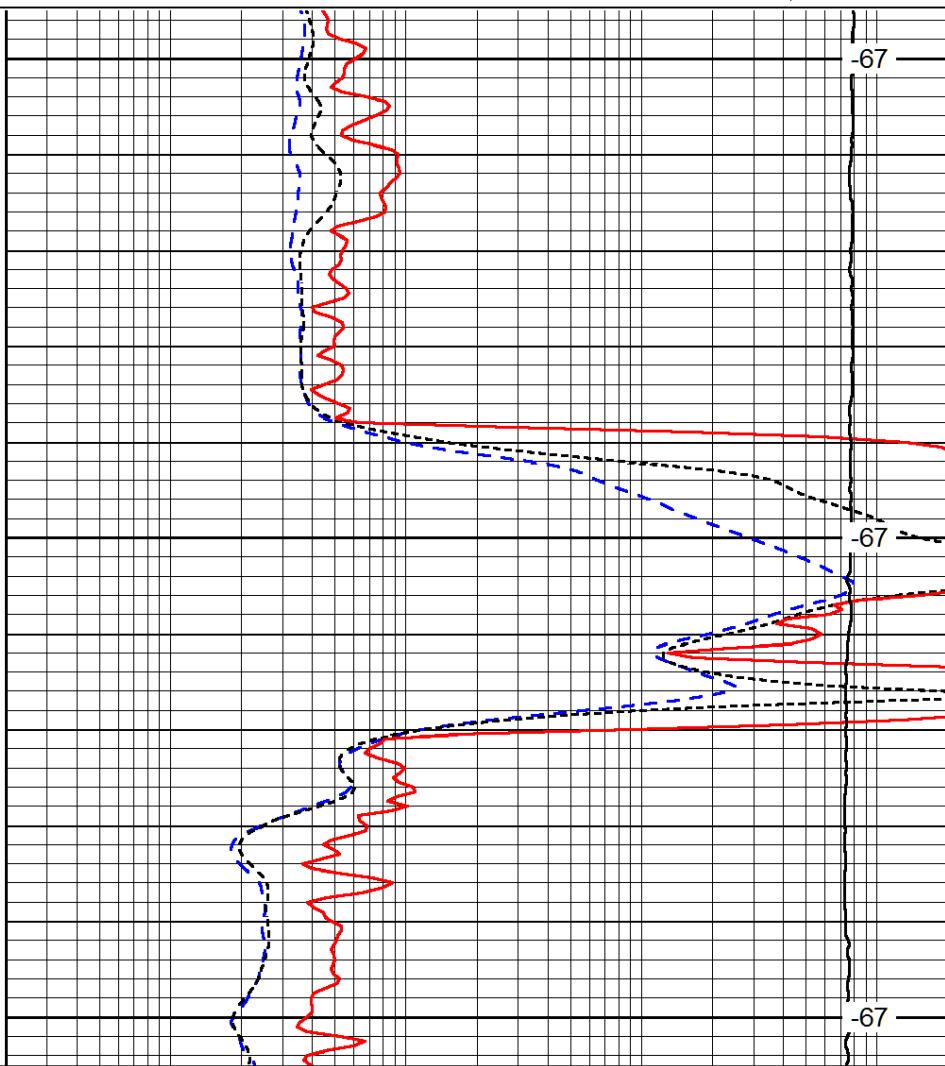
LSPD  
(ft/min)



1700

1750

1800



-67

-67

-67

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)

Database File: h&c\_griffithunit\_2-1hd.db  
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0 Gamma Ray (GAPI) 150

-160 RXO/RT 40

-200 SP (mV) 0

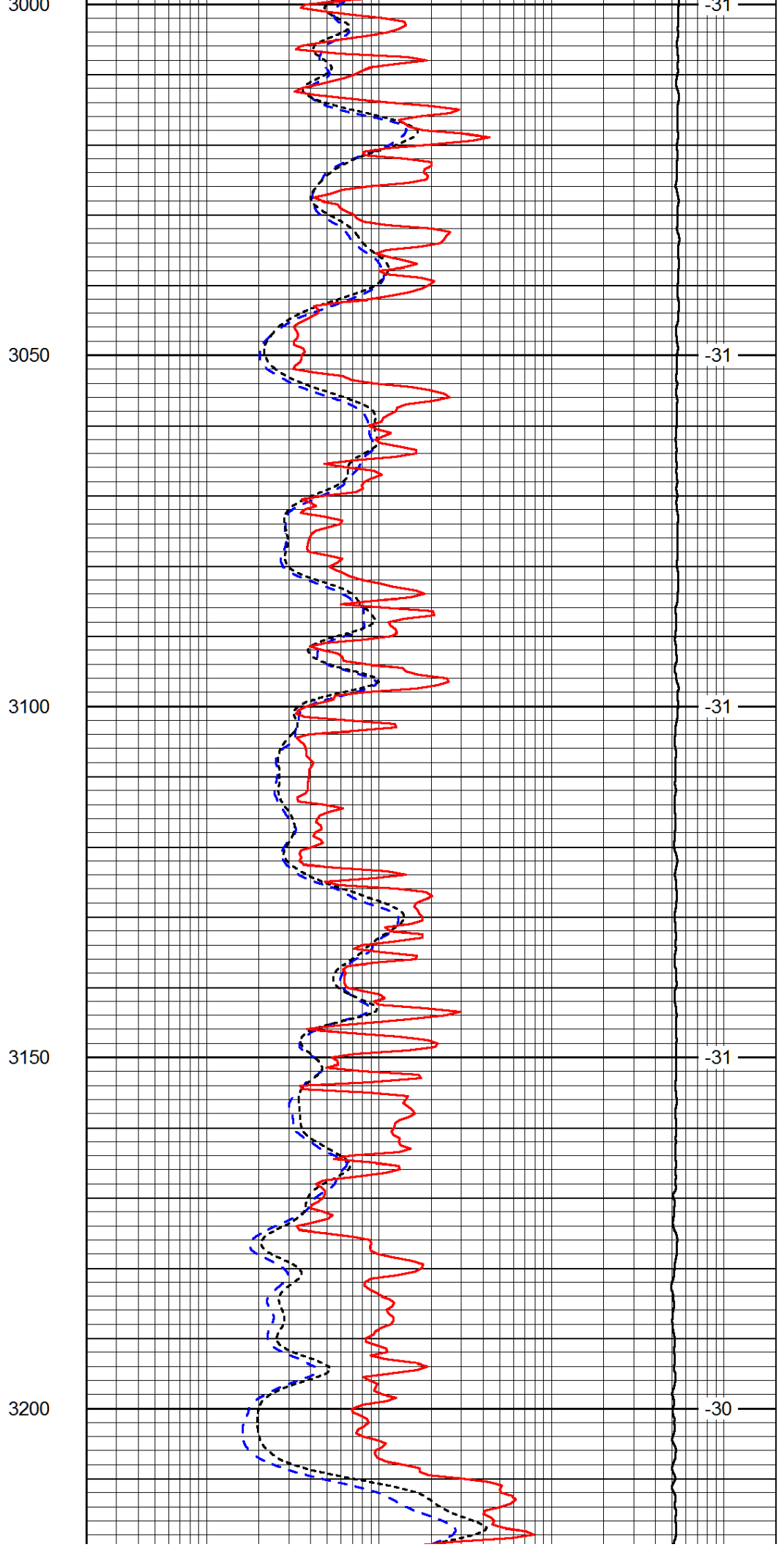
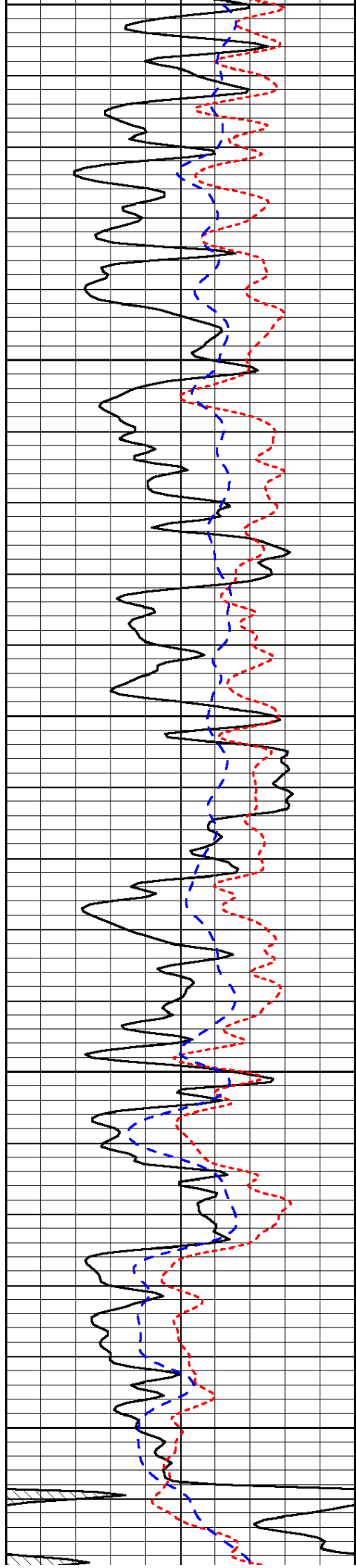
0.2 Deep Resistivity (Ohm-m) 2000

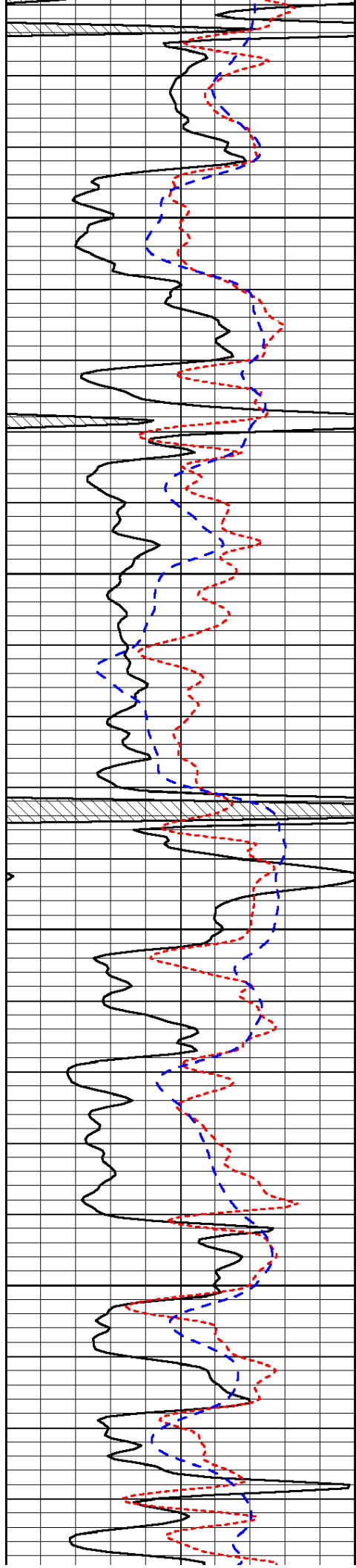
0.2 Medium Resistivity (Ohm-m) 2000

0.2 Shallow Resistivity (Ohm-m) 2000

10000 Line Tension (lb) 0

LSPD  
(ft/min)



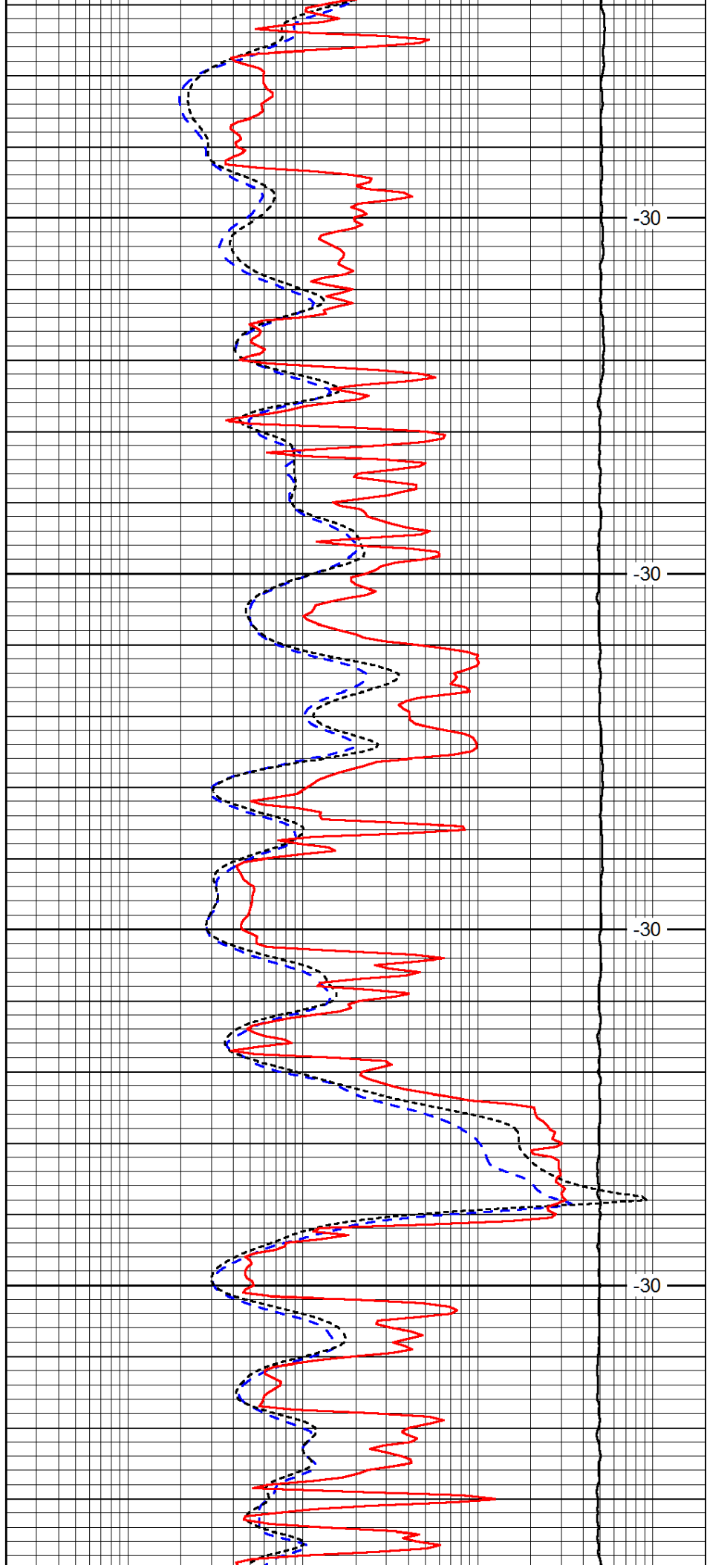


3250

3300

3350

3400

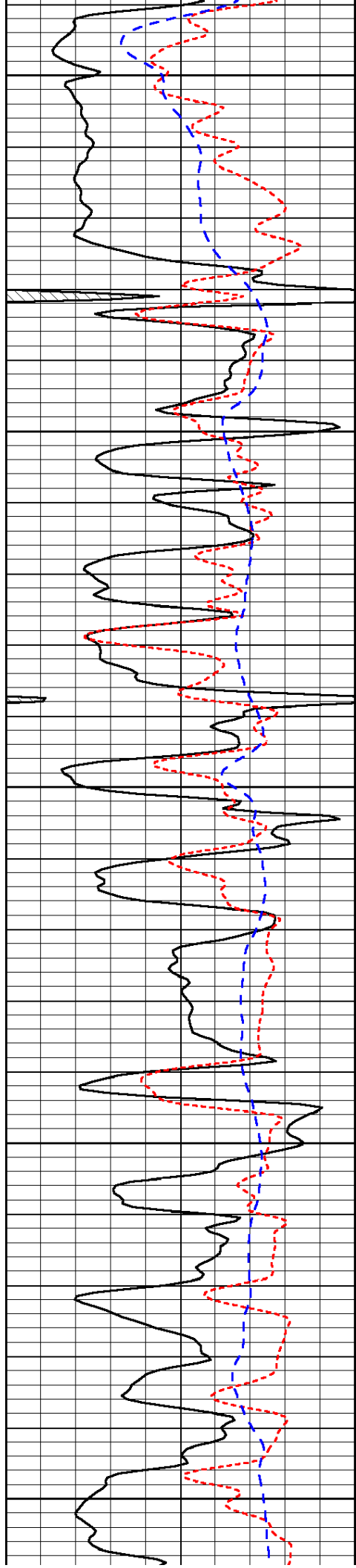


-30

-30

-30

-30



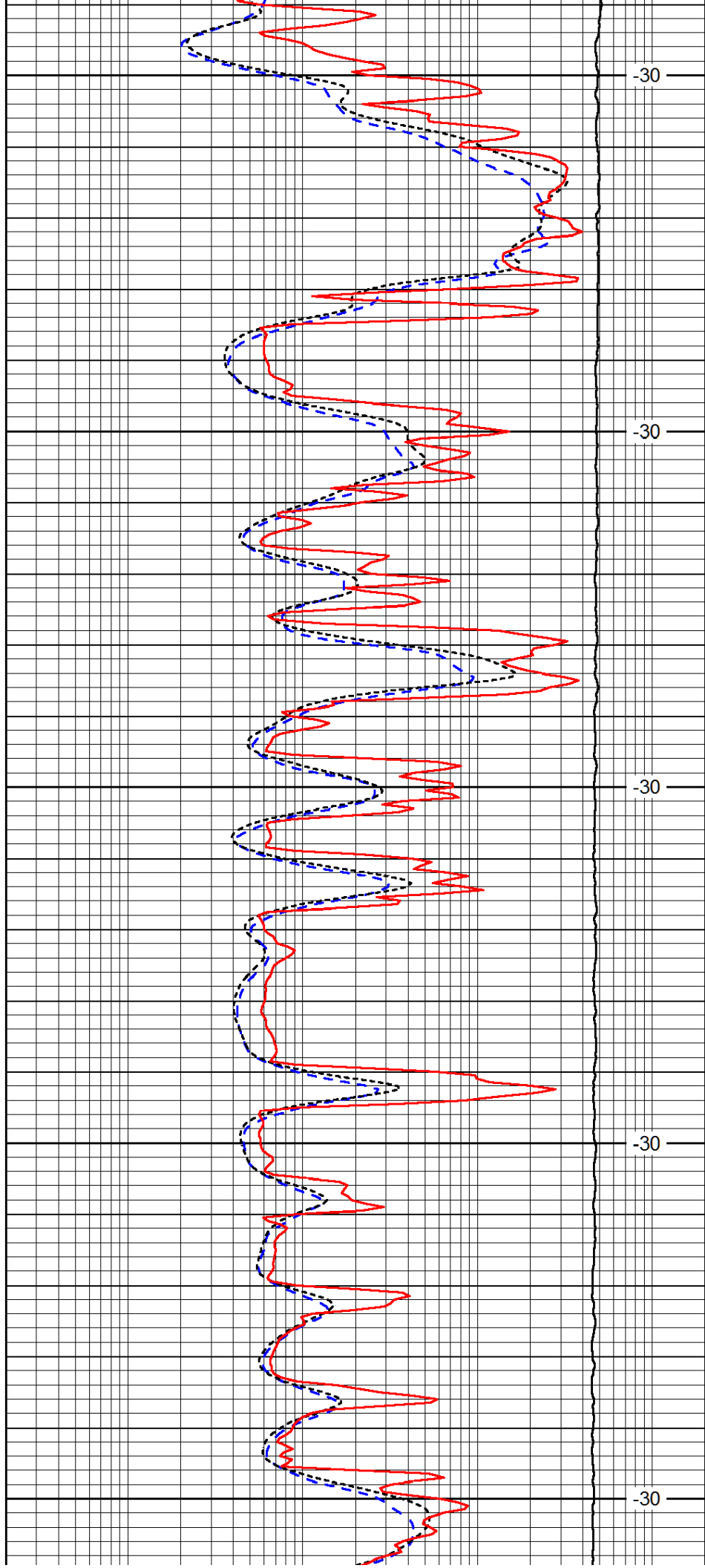
3450

3500

3550

3600

3650



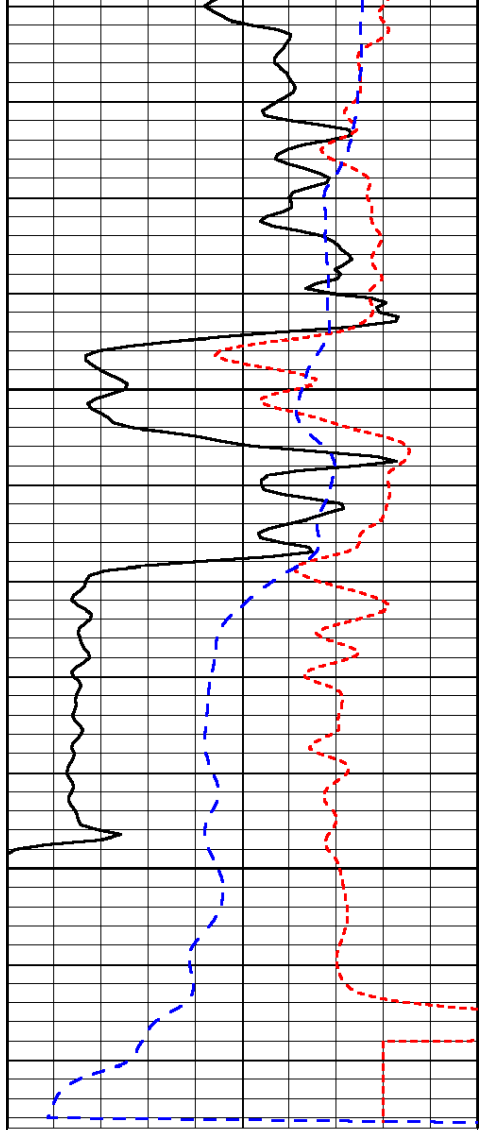
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-30

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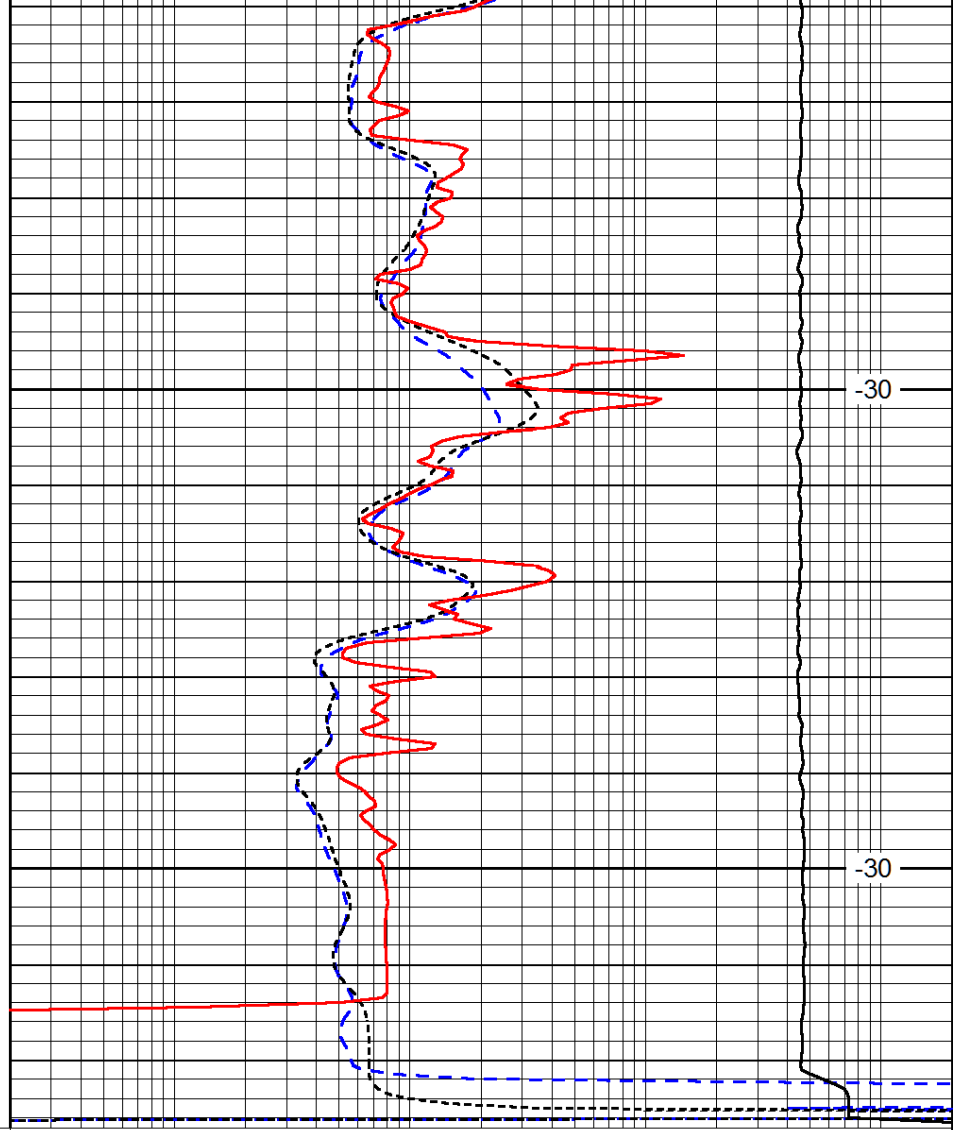
-30



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

3700

3750



-30

-30

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)