



Pioneer Energy Services

Dual Induction Log

API No.	15-065-23,959-00-00		
Company	Cobalt Energy, LLC		
Well	SD Unit 'A' No. 1 - 19		
Field	Allodium East		
County	Graham	State	Kansas
Location	836' FSL & 2599' FEL		
Sec: 19	Twp: 6 S	Rge: 25 W	Other Services CNL/CDL MEL
Permanent Datum	Ground Level	Elevation 2597	Elevation
Log Measured From	Kelly Bushing	5 Ft. Above Perm. Datum	K.B. 2602
Drilling Measured From	Kelly Bushing		D.F. 2597
			G.L. 2597

Date	8/16/2013
Run Number	One
Depth Driller	3925
Depth Logger	3925
Bottom Logged Interval	3924
Top Log Interval	300
Casing Driller	8.625 @ 345
Casing Logger	345
Bit Size	7.875
Type Fluid in Hole	Chemical
Salinity,ppm CL	900
Density / Viscosity	9.3 53
pH / Fluid Loss	10.0 6.8
Source of Sample	Flowline
Rm @ Meas. Temp	.32 @ 76
Rmf @ Meas. Temp	.24 @ 76
Rmc @ Meas. Temp	.43 @ 76
Source of Rmf / Rmc	Charts
Rm @ BHT	.21 @ 115
Operating Rig Time	4 1/2 Hours
Max Rec. Temp. F	115
Equipment Number	108
Location	Hays
Recorded By	D. Martin
Witnessed By	Paul Gunzelman

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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.

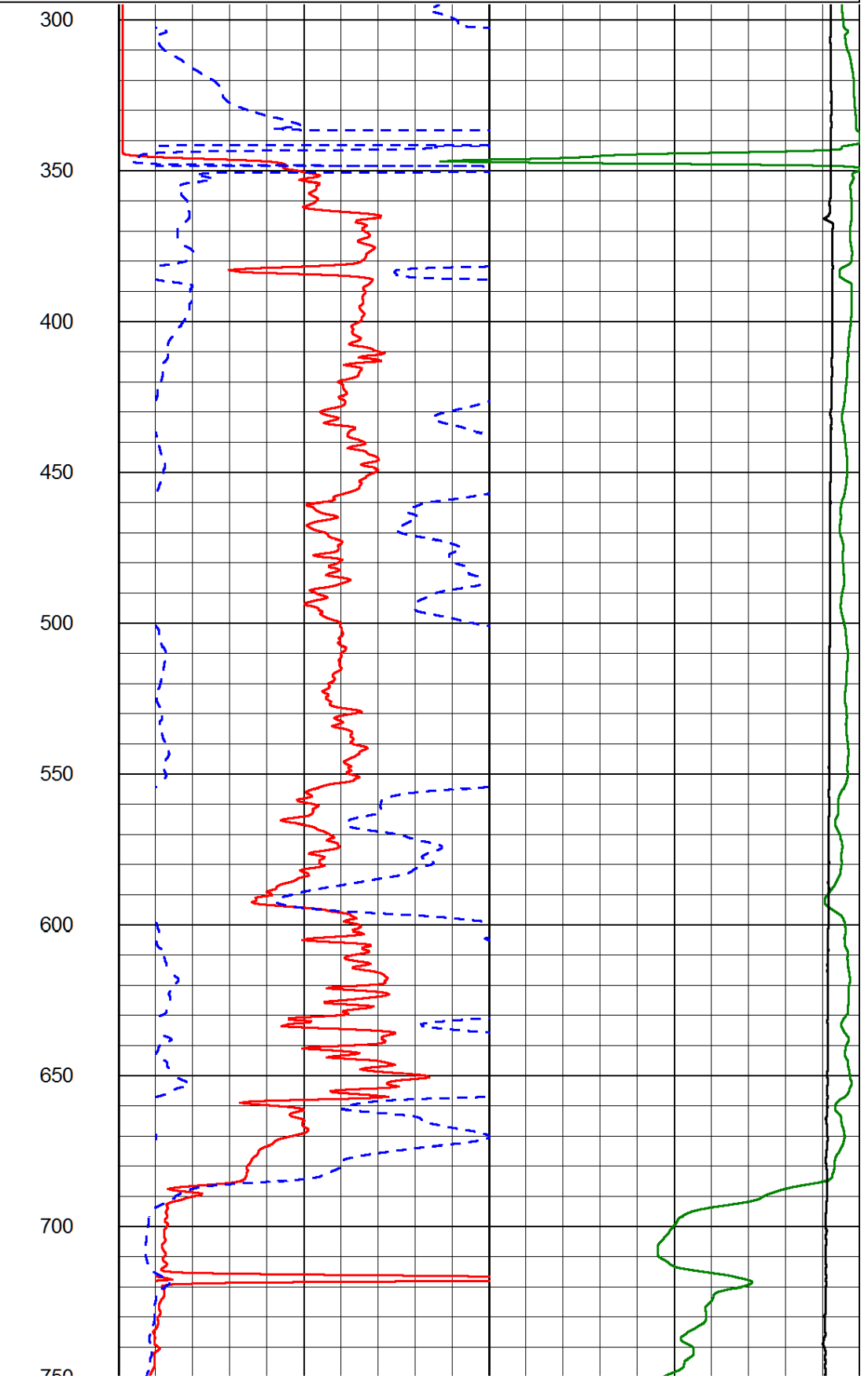
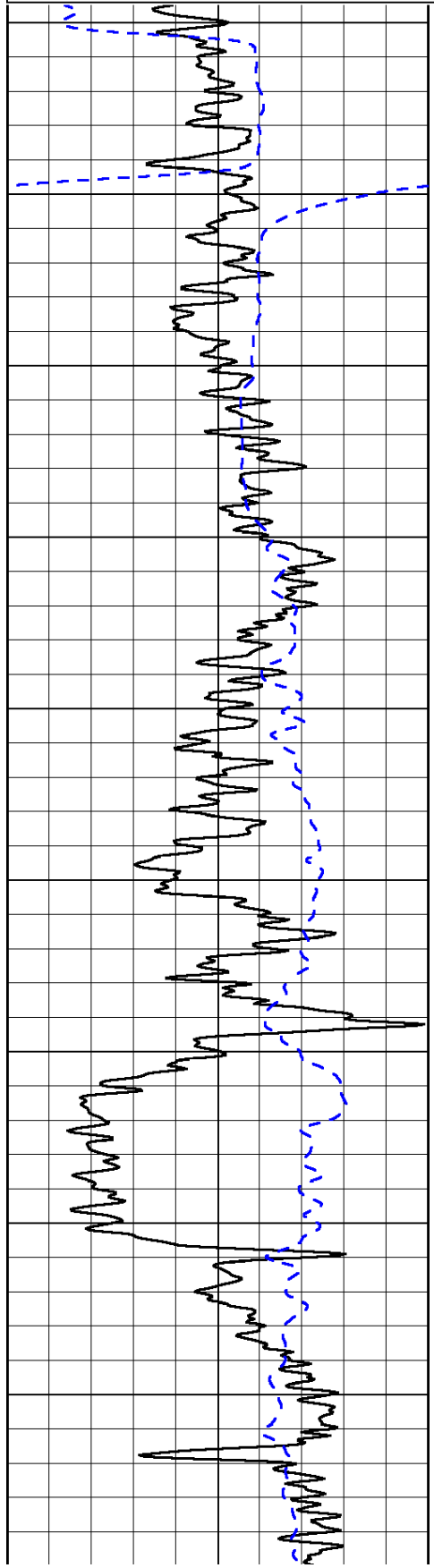
Comments

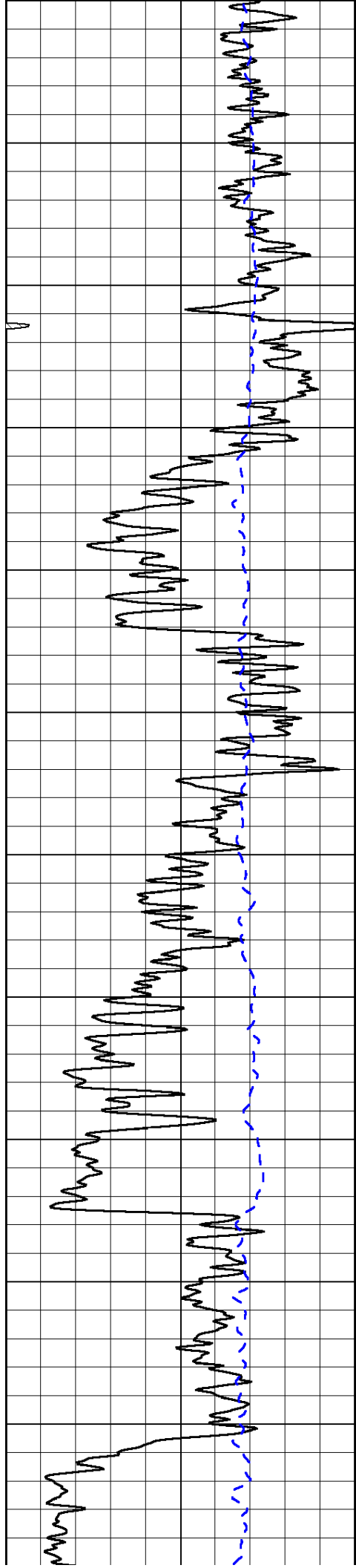
Thank you for using Log-Tech, Inc.
 (785) 625-3858
 Hill City, KS
 17 W to 100 Rd.(Co. Line), 11 N to 110N Rd.(AA Rd.),
 1/4 E, N Into

Database File: cobalt_sdunita_1-19hd.db
 Dataset Pathname: dil/cobstk
 Presentation Format: dil2in
 Dataset Creation: Sat Aug 17 01:01:28 2013
 Charted by: Depth in Feet scaled 1:600

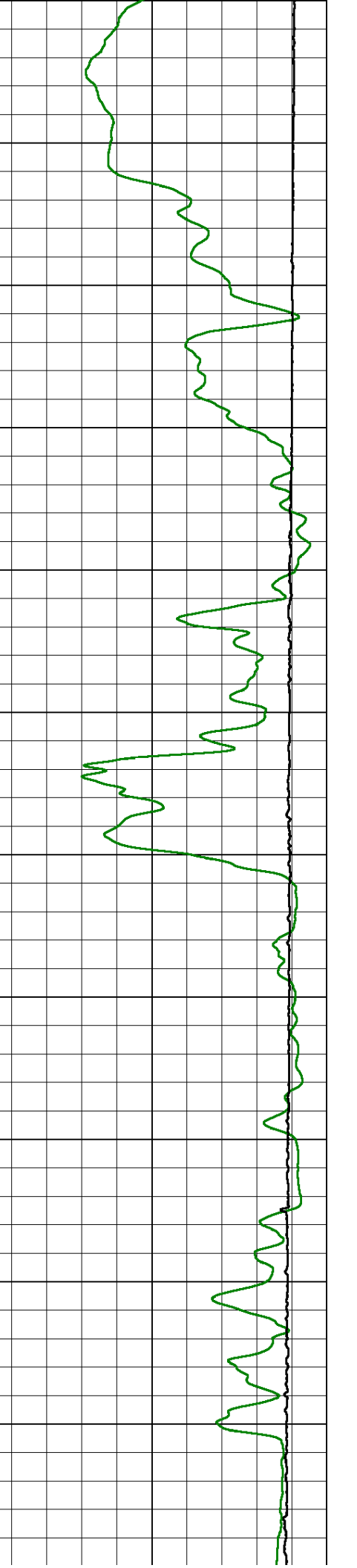
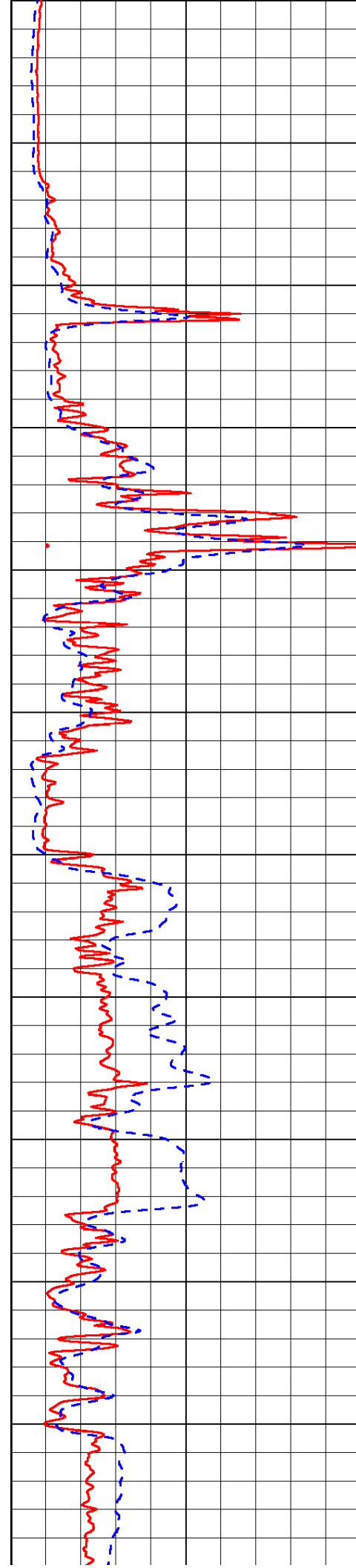
0	Gamma Ray (GAPI)	150
-200	SP (mV)	0

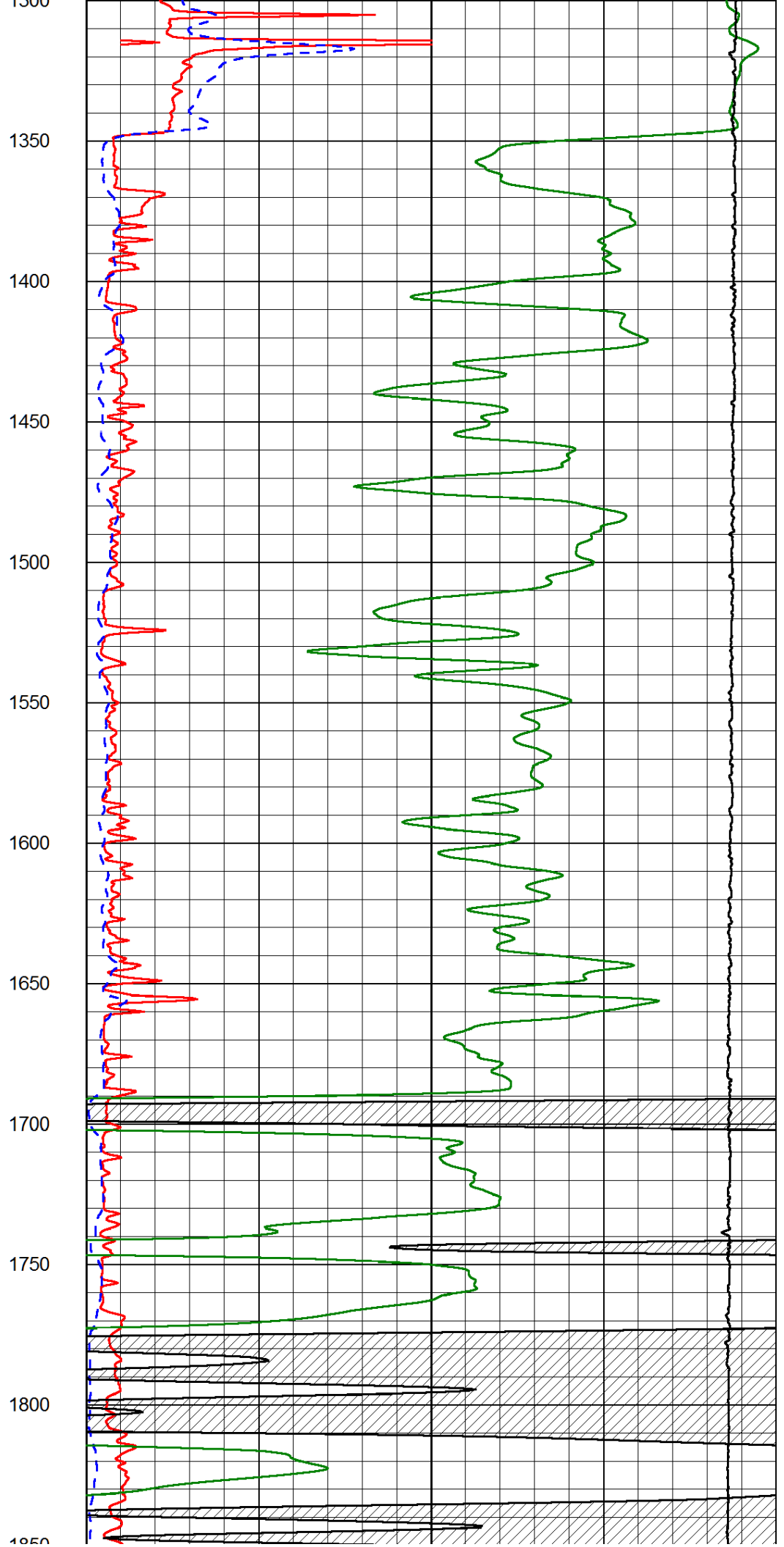
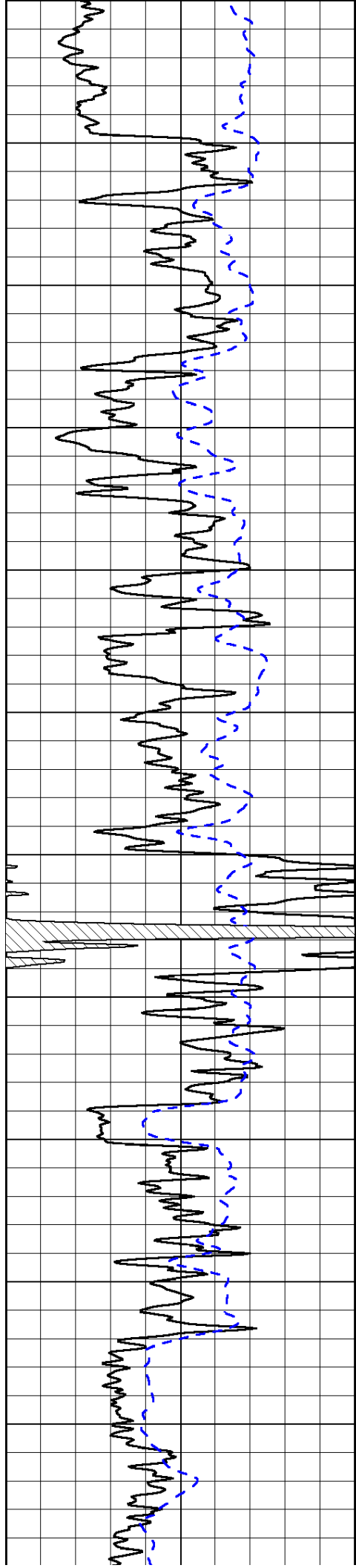
0	Shallow Resistivity (Ohm-m)	50
0	Deep Resistivity (Ohm-m)	50
1000	Conductivity (Ohm-m)	0
15000	Line Tension (lb)	0
50	Shallow Resistivity (Ohm-m)	500
50	Deep Resistivity (Ohm-m)	500

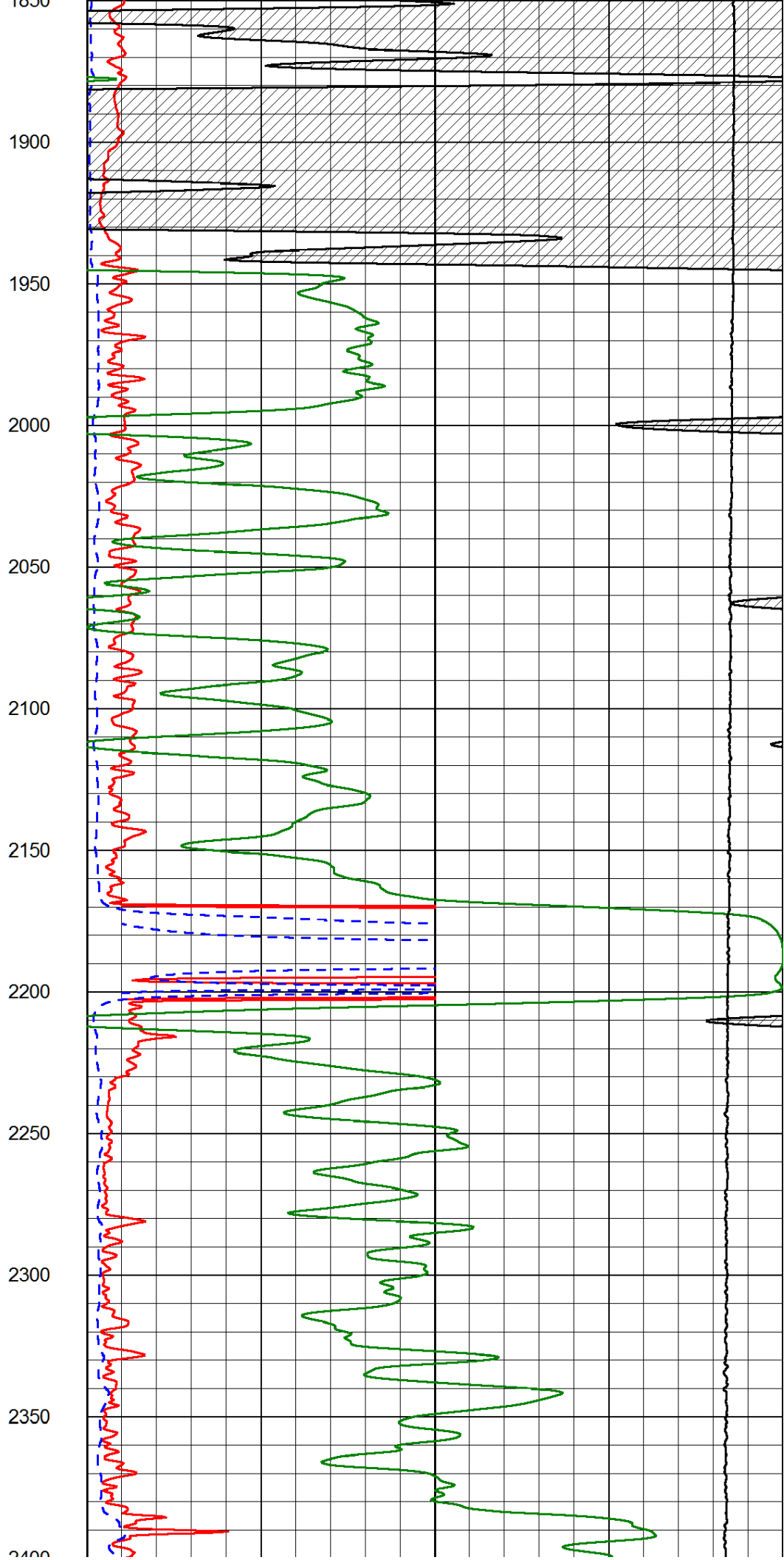
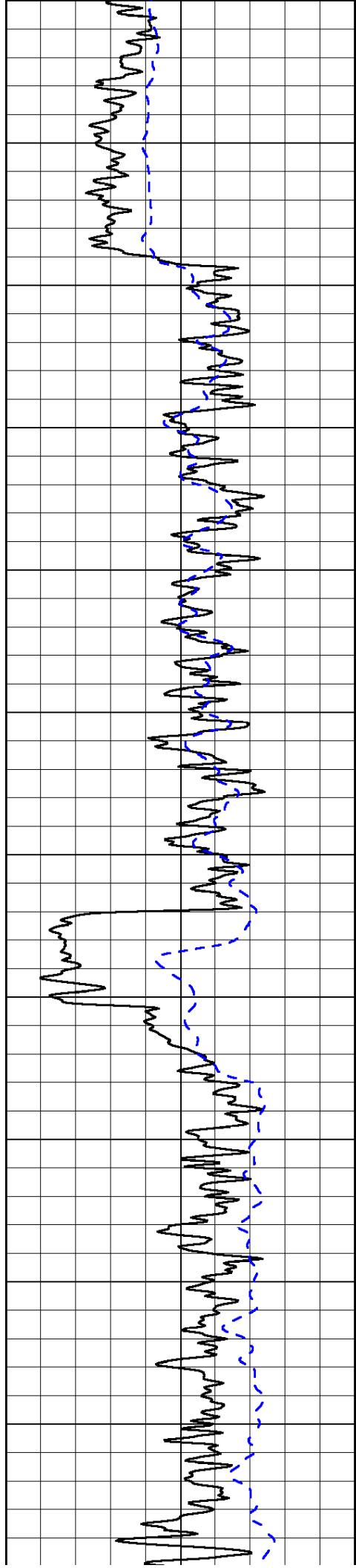


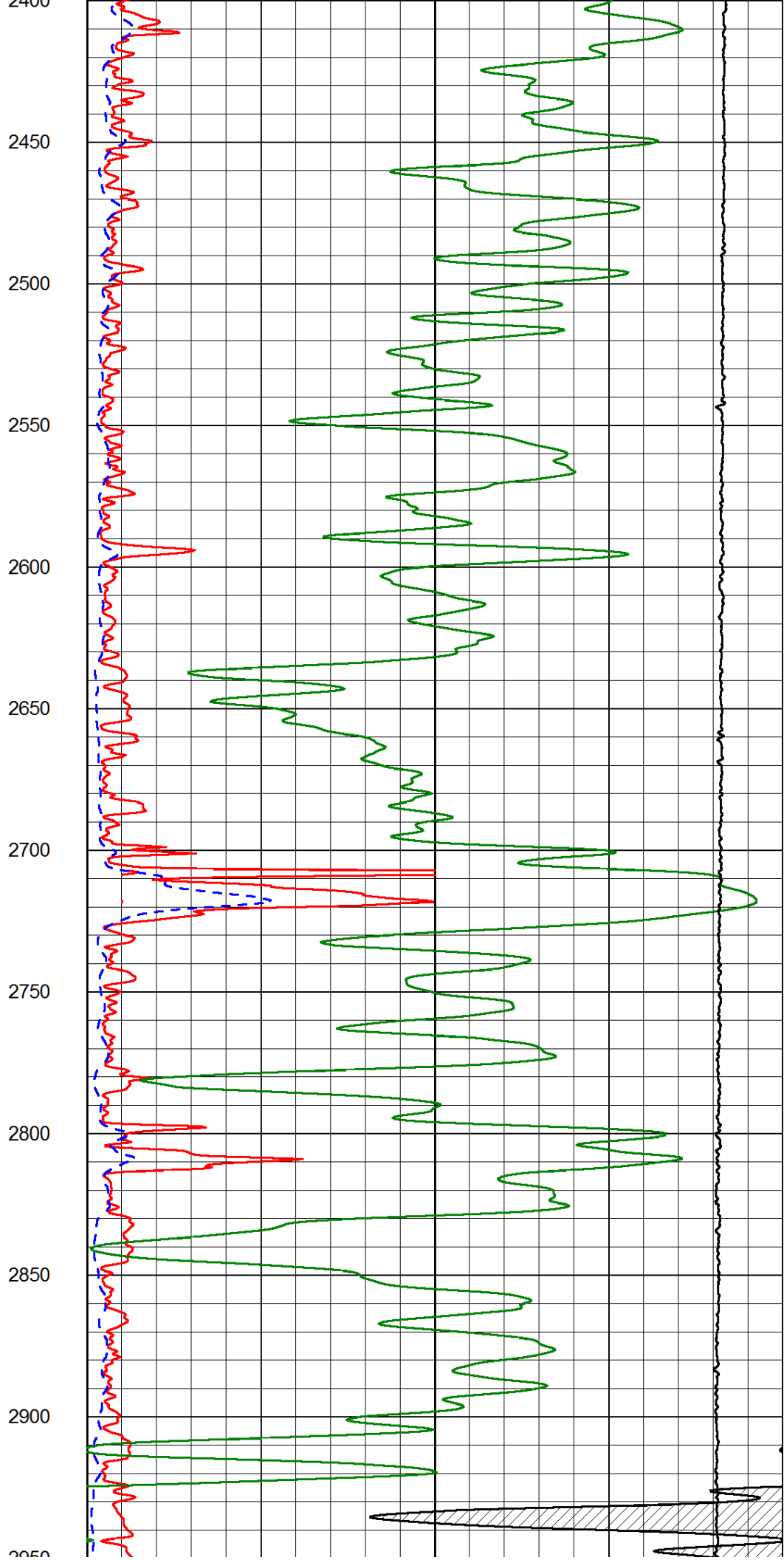
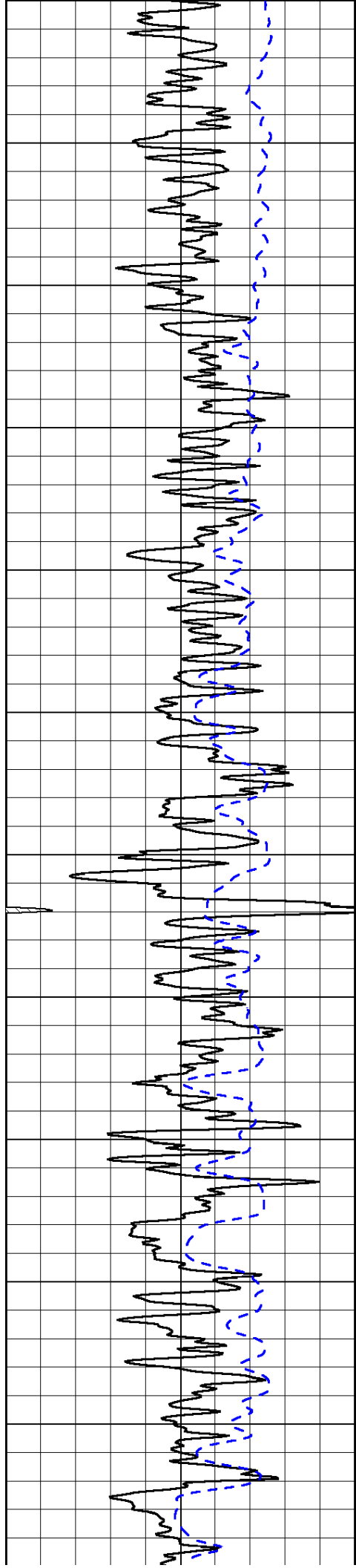


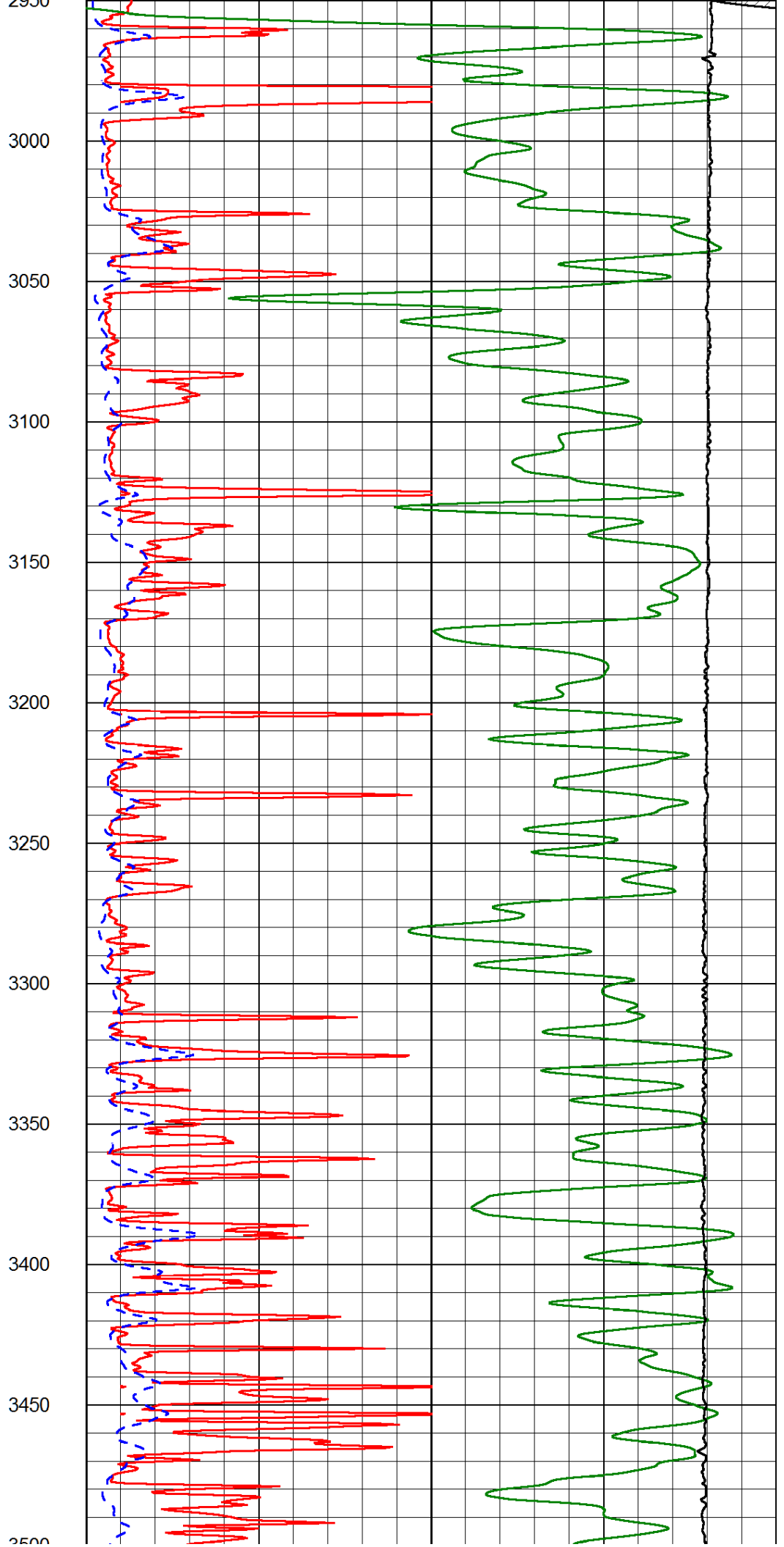
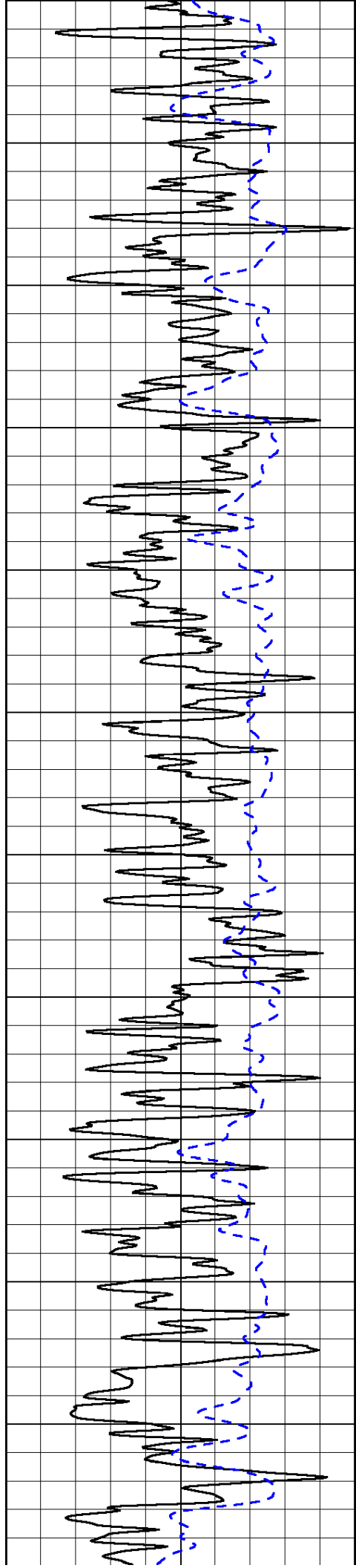
750
800
850
900
950
1000
1050
1100
1150
1200
1250
1300

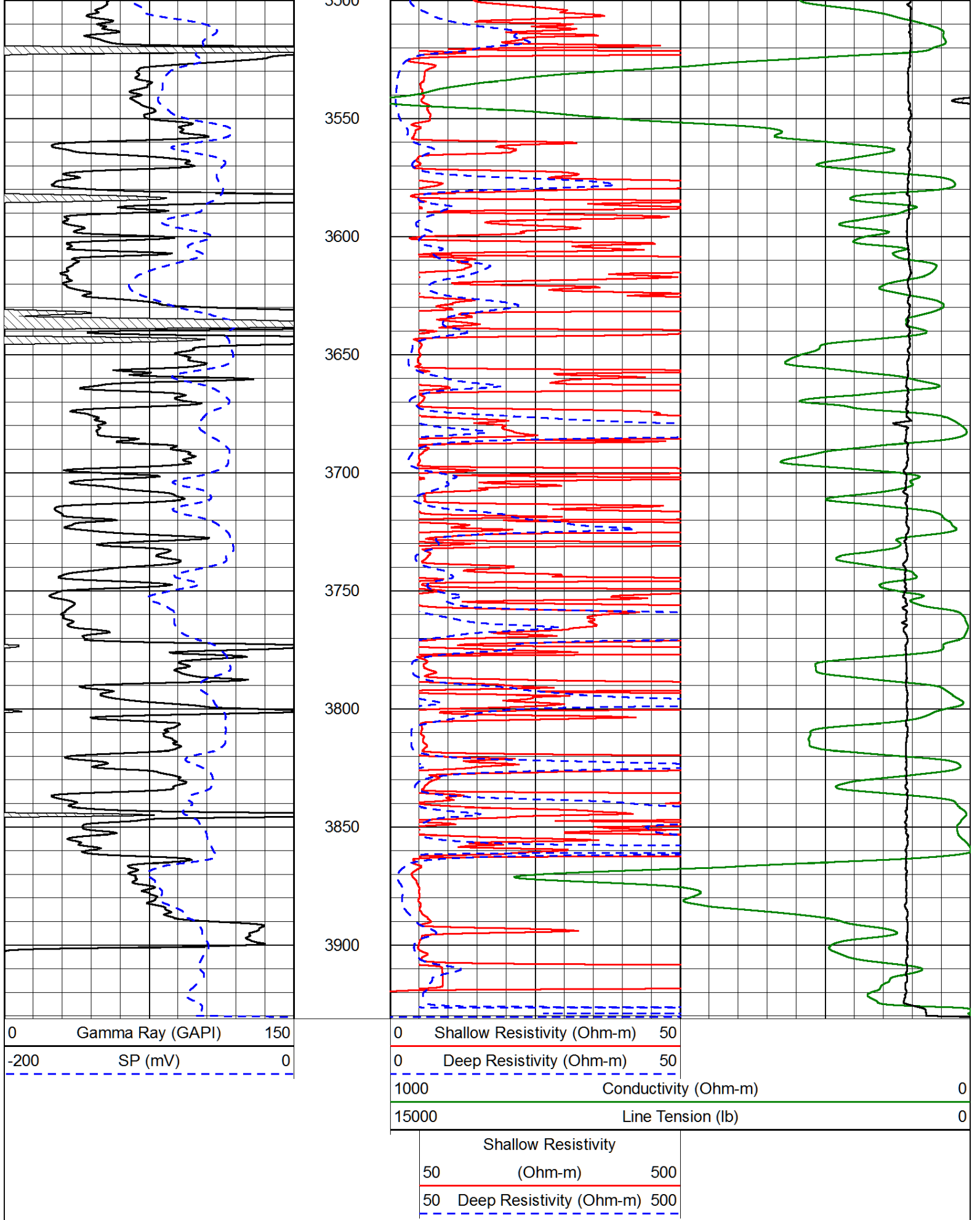










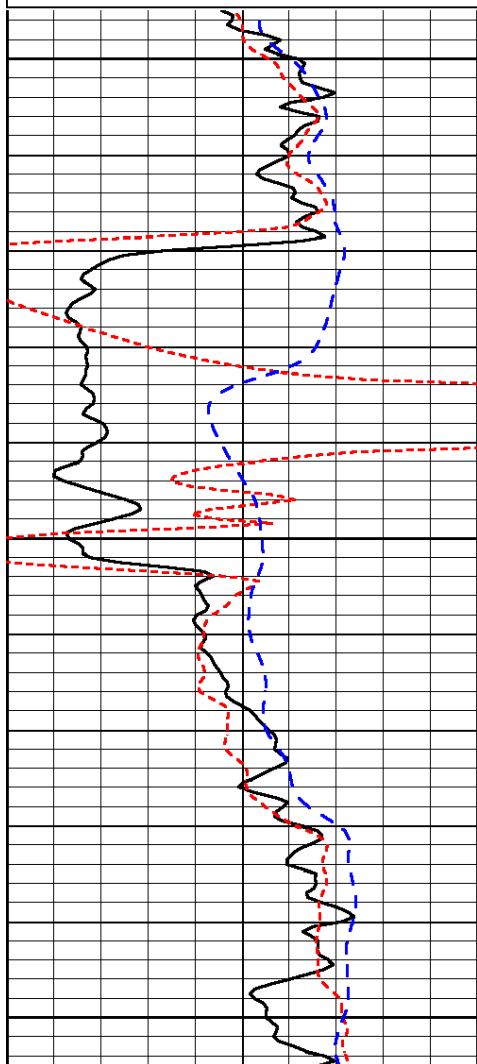


Presentation Format: dil
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 Charted by: Depth in Feet scaled 1:240

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

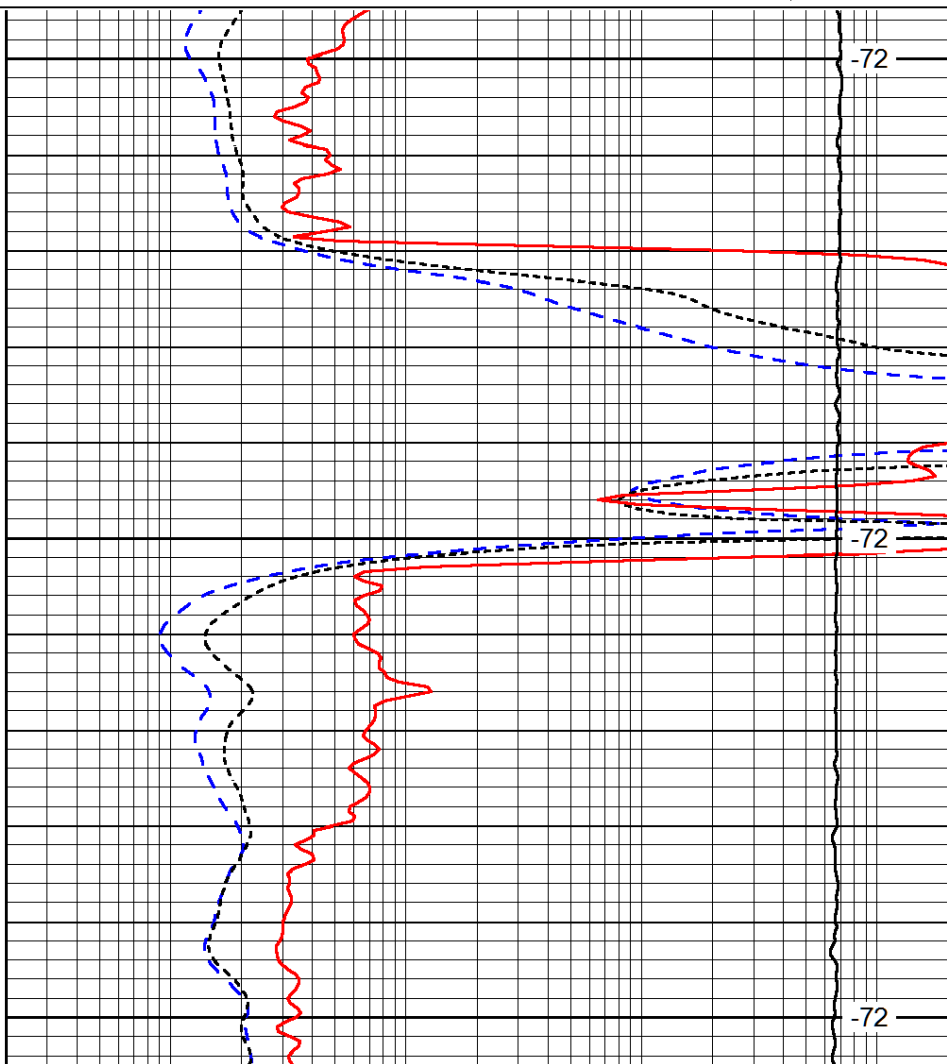
LSPD
(ft/min)



2150

2200

2250



-72

-72

-72

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-160	RXO/RT	40
-200	SP (mV)	0

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

LSPD
(ft/min)

Database File: cobalt_sdunita_1-19hd.db
 Dataset Pathname: dil/cobstk
 Presentation Format: dil
 Dataset Creation: Sat Aug 17 01:01:28 2013
 Charted by: Depth in Feet scaled 1:240

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

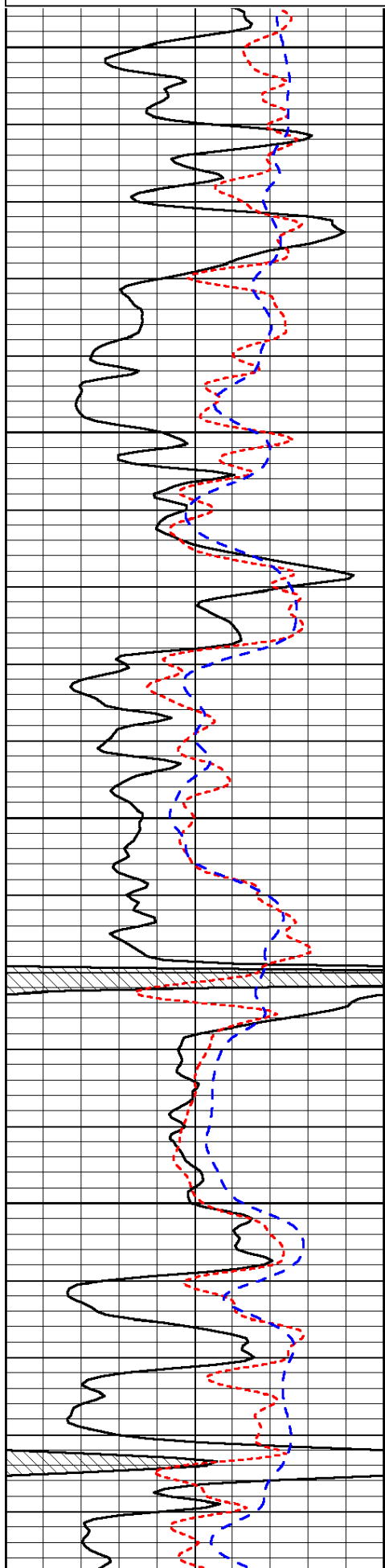
0.2	Deep Resistivity (Ohm-m)	2000
0.2	Medium Resistivity (Ohm-m)	2000
0.2	Shallow Resistivity (Ohm-m)	2000

10000

Line Tension (lb)

0

LSPD
(ft/min)

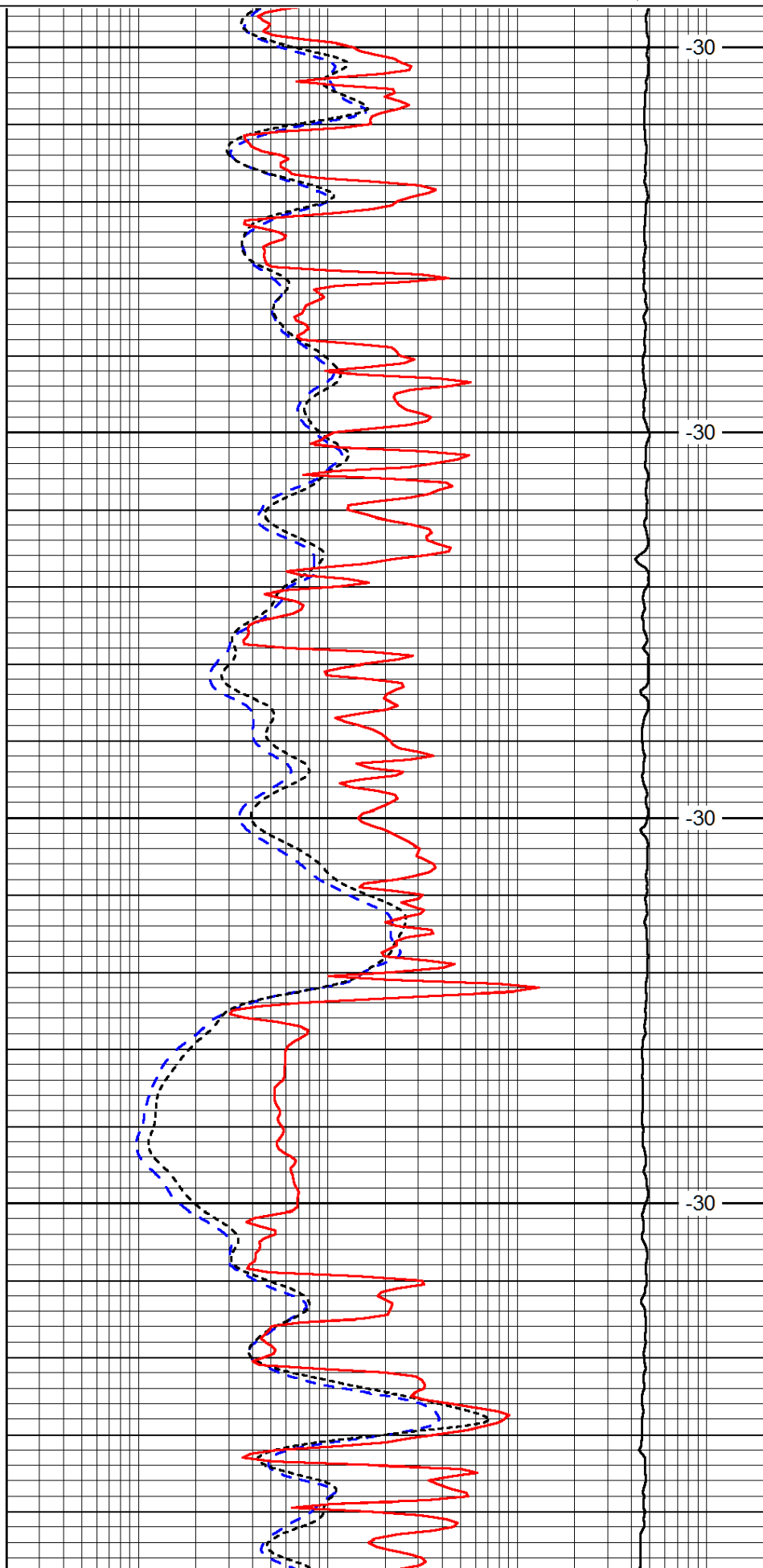


3400

3450

3500

3550

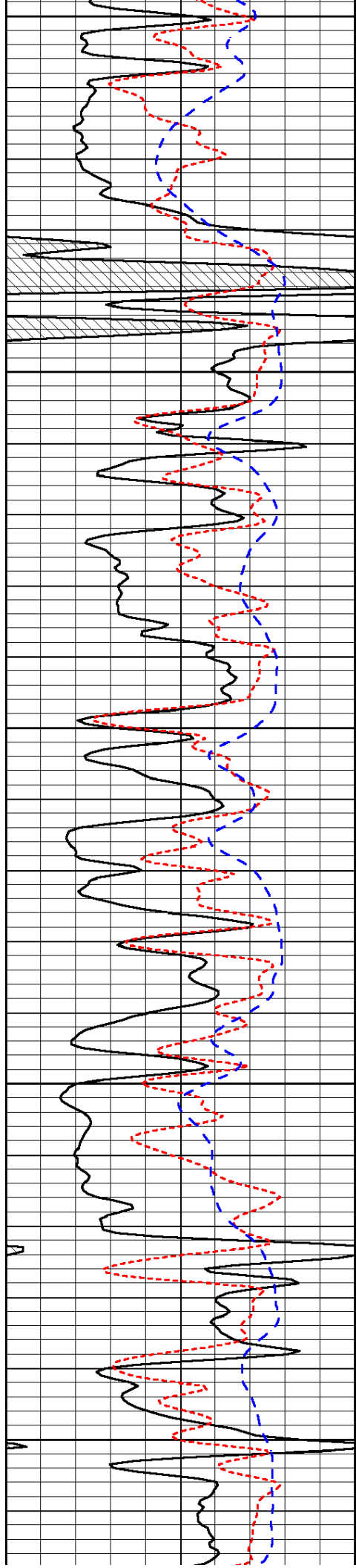


-30

-30

-30

-30



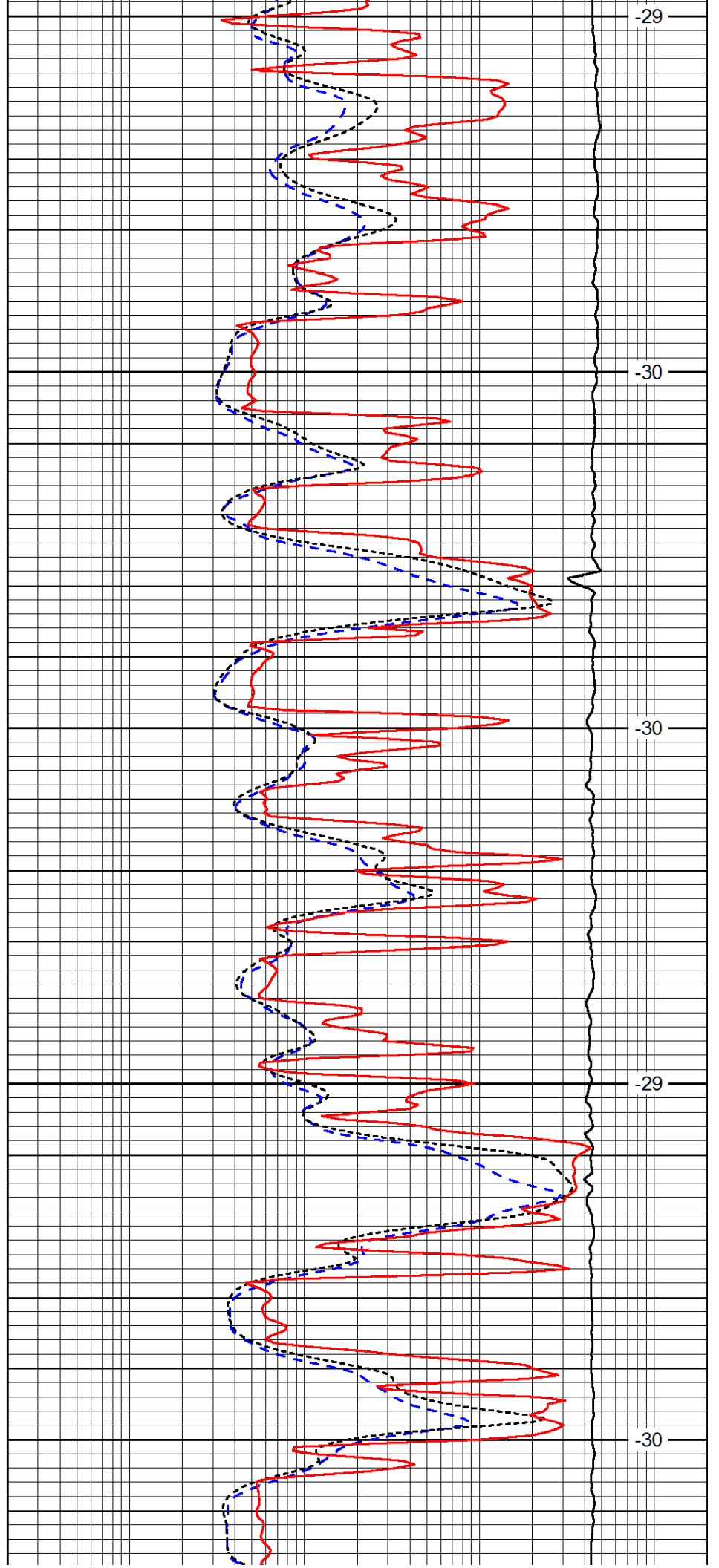
3600

3650

3700

3750

3800



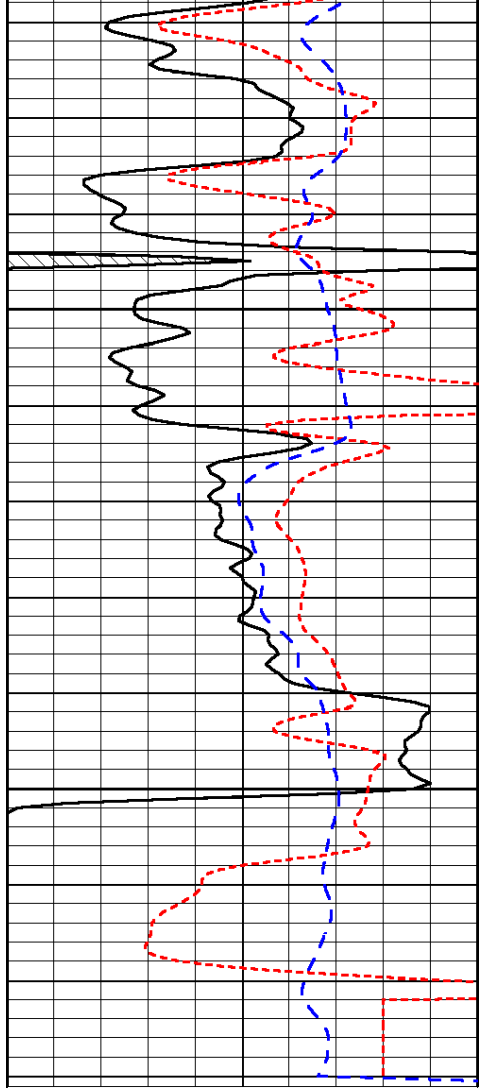
-29

-30

-30

-29

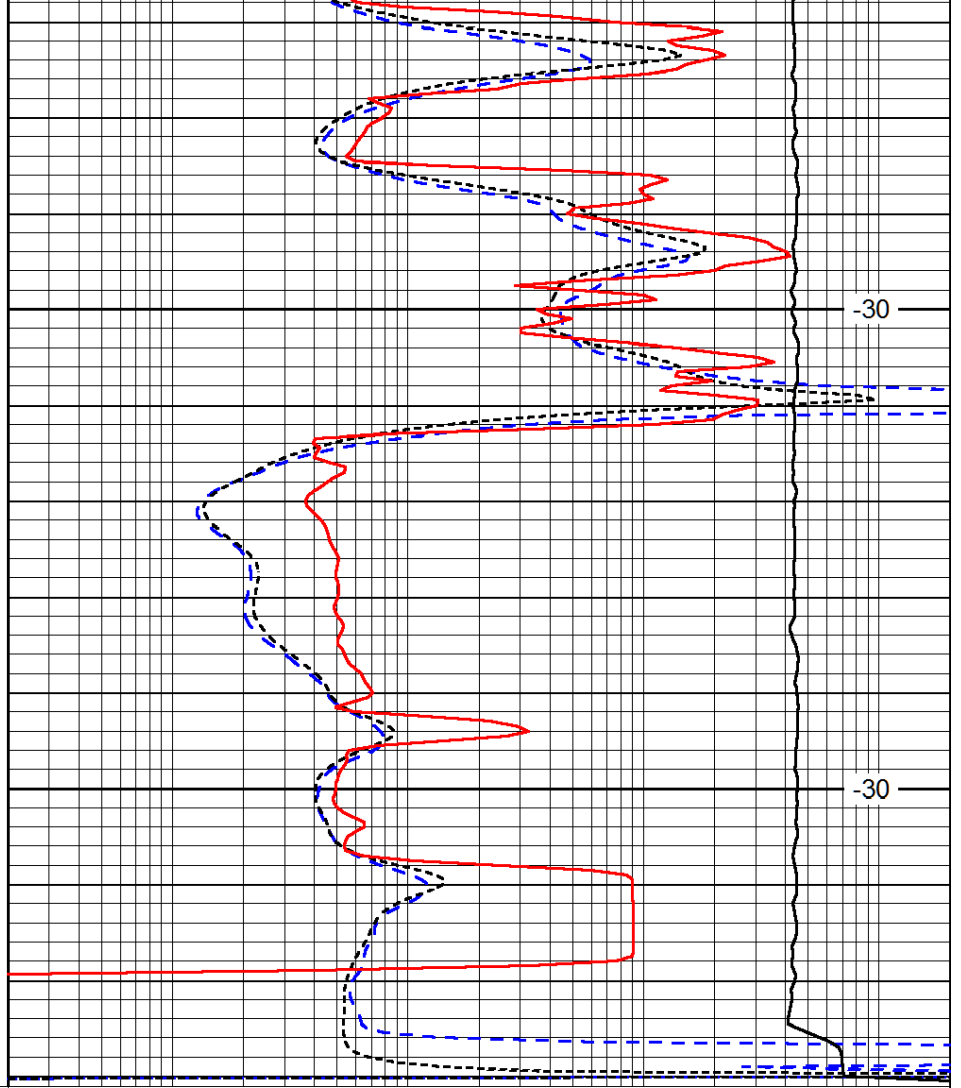
-30



3850

3900

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



-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)