PIONEER

Pioneer Energy Services

# Microresistivity Log

API No. 15-065-24,022-00-00

Company Cobalt Energy, LLC.

Well KT Unit "A" #1-18

Field High Hill Northwest

County Graham State Kansas

Location 864' FNL & 1290' FEL

Sec: 18 Twp: 10S Rge: 24W

Other Services
CNL/CDL
DIL

Permanent Datum Ground Level Elevation 2456
Log Measured From Kelly Bushing 9 Ft. Above Perm. Datum
Drilling Measured From Kelly Bushing

Elevation
K.B. 2465
D.F.
G.L. 2456

| | | | |
|---|---|---|---|
| Date | 4/9/2014 | | |
| Run Number | Two | | |
| Depth Driller | 4050 | | |
| Depth Logger | 4049 | | |
| Bottom Logged Interval | 4048 | | |
| Top Log Interval | 3600 | | |
| Casing Driller | 8.625 @ 221 | | |
| Casing Logger | 222 | | |
| Bit Size | 7.875 | | |
| Type Fluid in Hole | Chemical | | |
| Salinity,ppm CL | 1700 | | |
| Density / Viscosity | 9.1 57 | | |
| pH / Fluid Loss | 10.5 6.0 | | |
| Source of Sample | Flowline | | |
| Rm @ Meas. Temp | 0.50 @ 80 | | |
| Rmf @ Meas. Temp | 0.38 @ 80 | | |
| Rmc @ Meas. Temp | 0.68 @ 80 | | |
| Source of Rmf / Rmc | Charts | | |
| Rm @ BHT | 0.34 @ 117 | | |
| Operating Rig Time | 4 Hours | | |
| Max. Rec. Temp. F | 117 | | |
| Equipment Number | 108 | | |
| Location | Hays | | |
| Recorded By | D.Kerr | | |
| Witnessed By | Corey Baker | | |

<<< Fold Here >>>

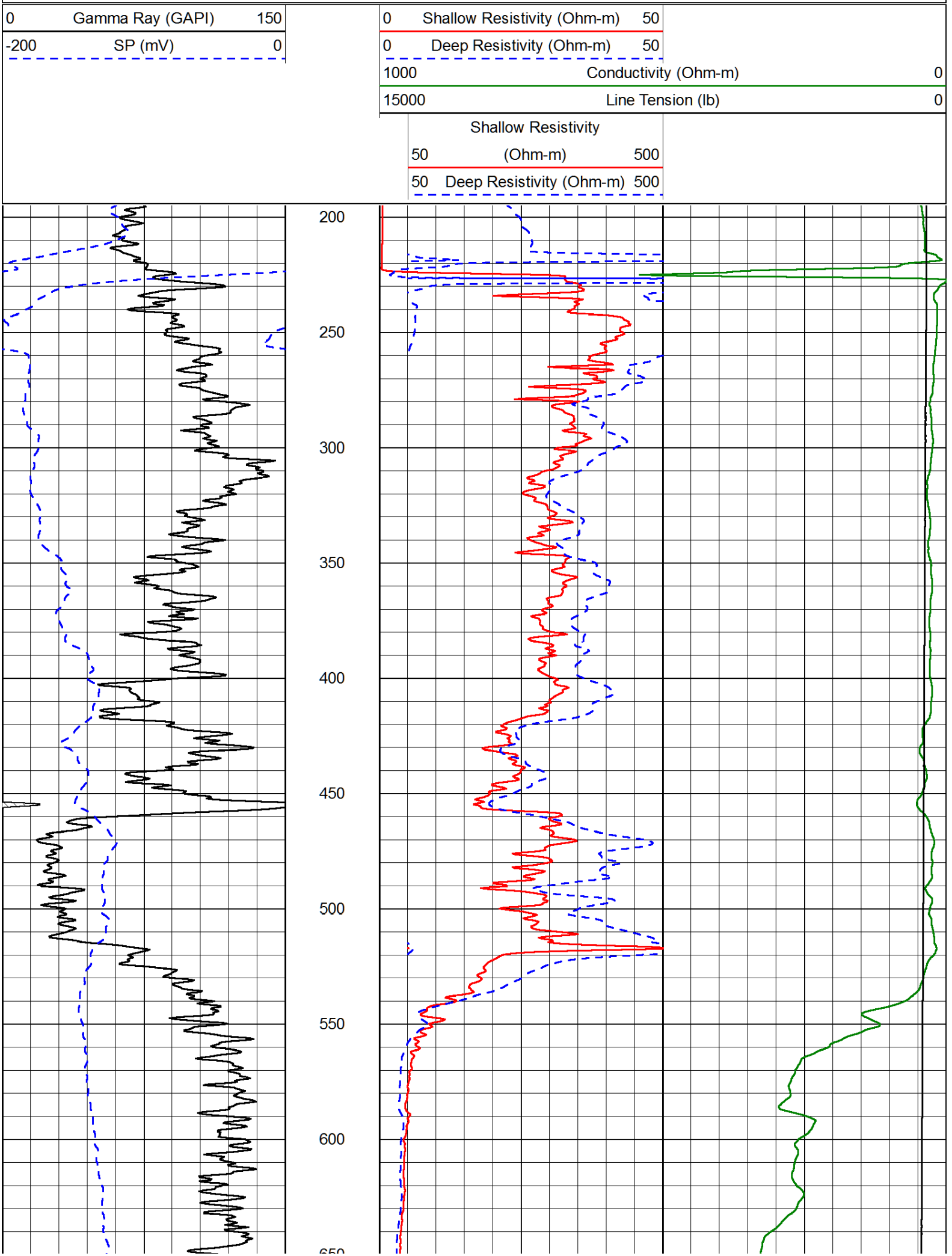
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

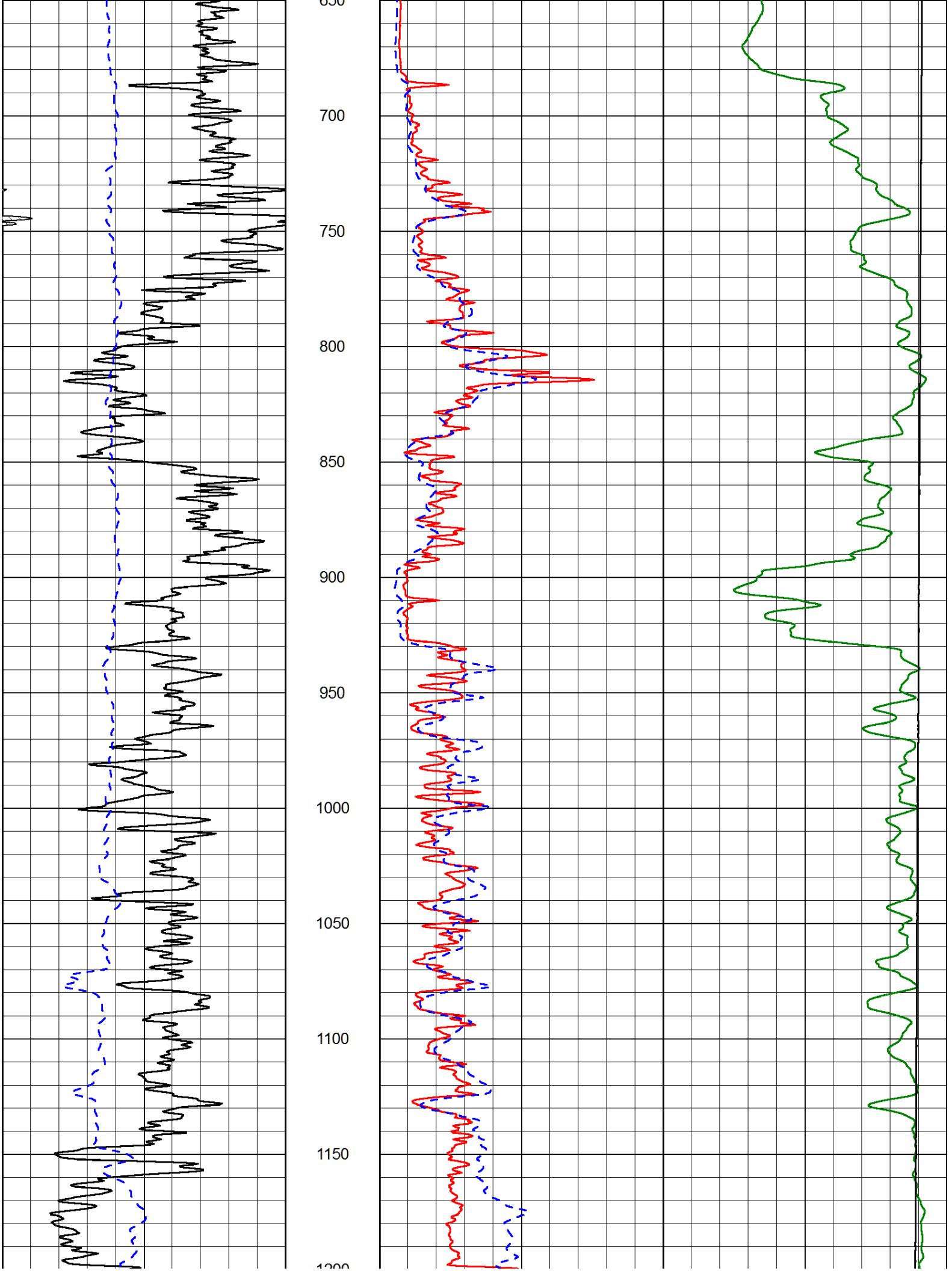
## Comments

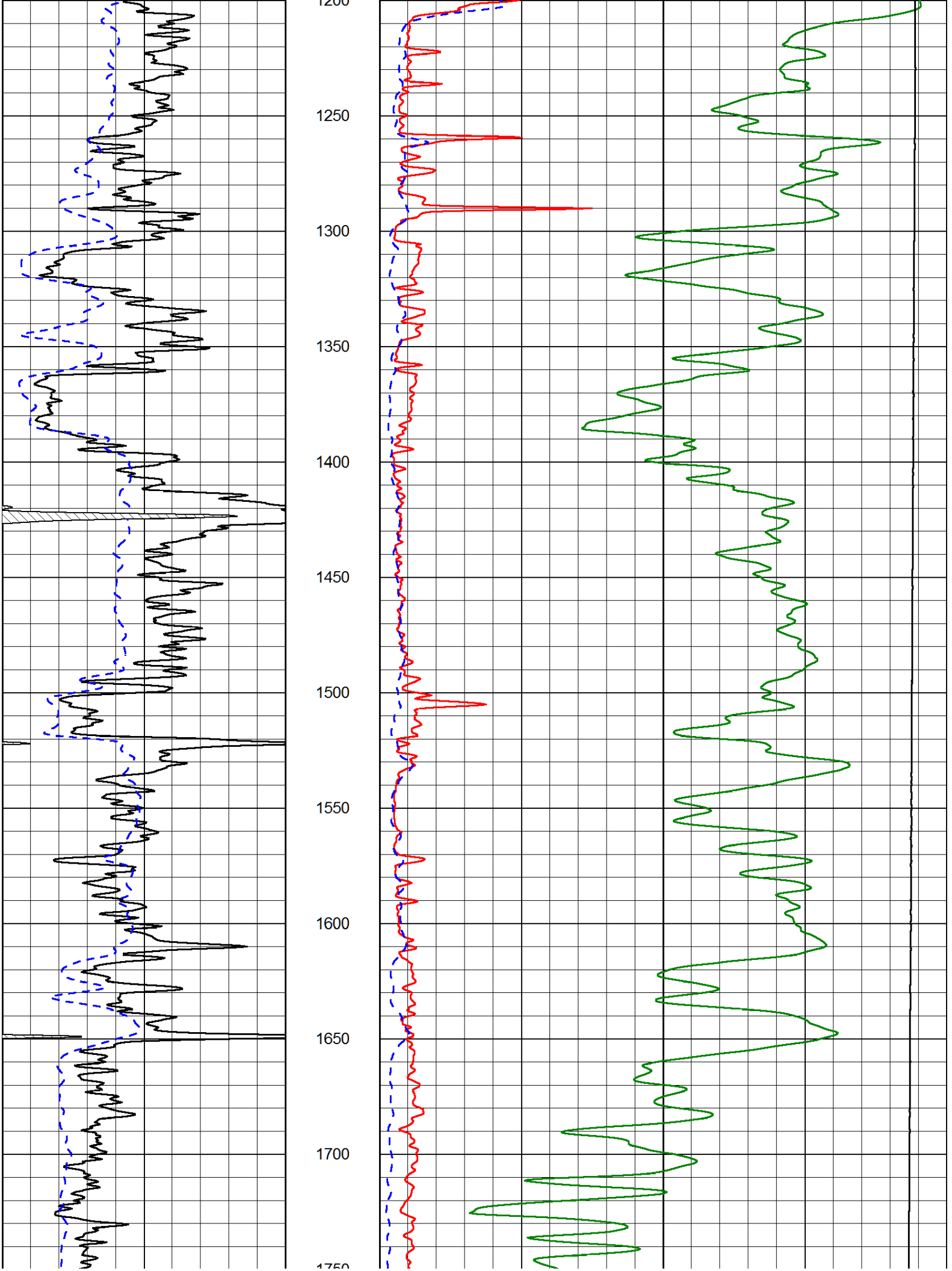
Thank you for using Log-Tech, Inc.
(785) 625-3858

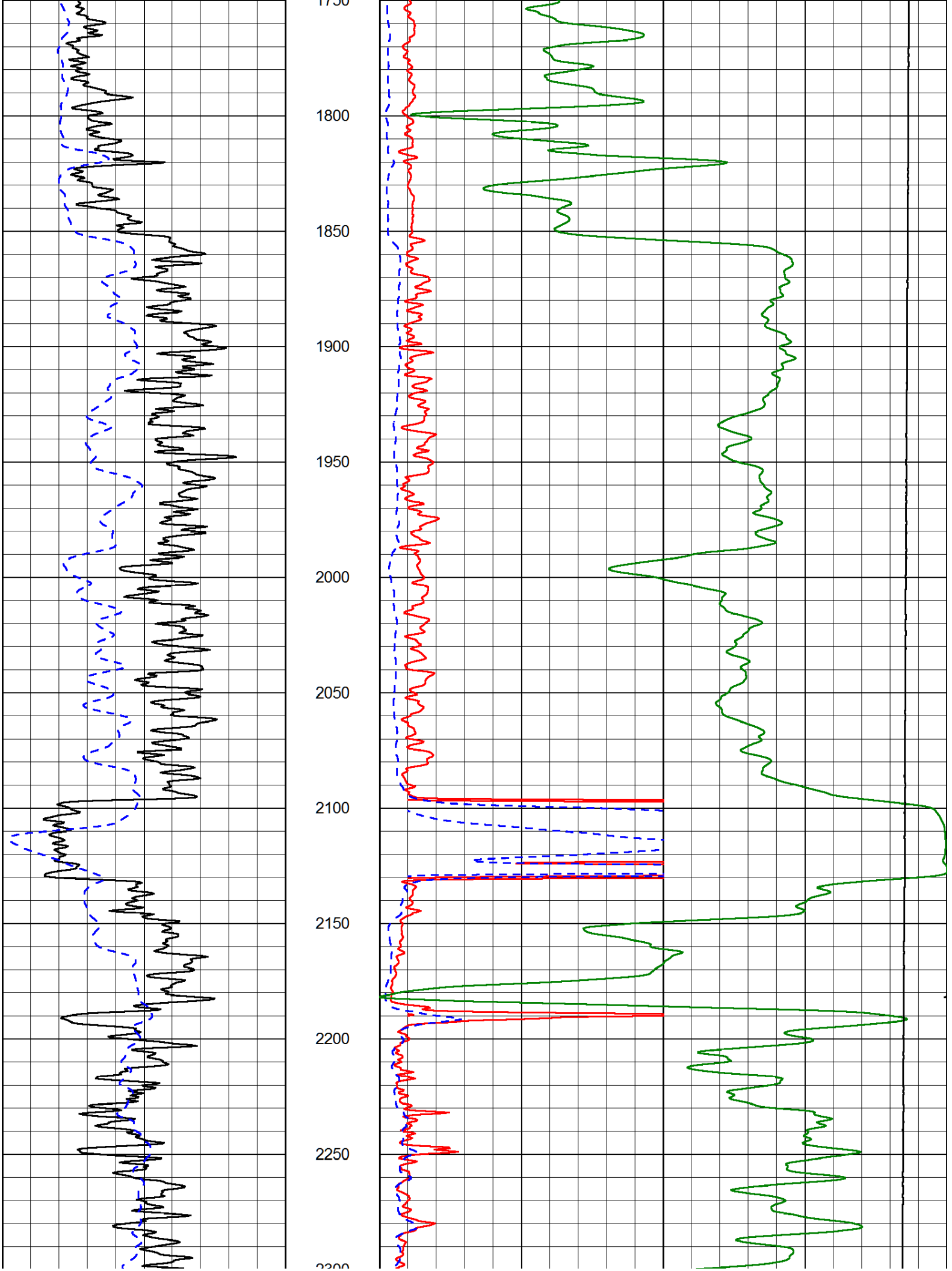
Wakeeny KS, 10 North to C RD,
6 West, 2 North, 3 1/2 West, South Into

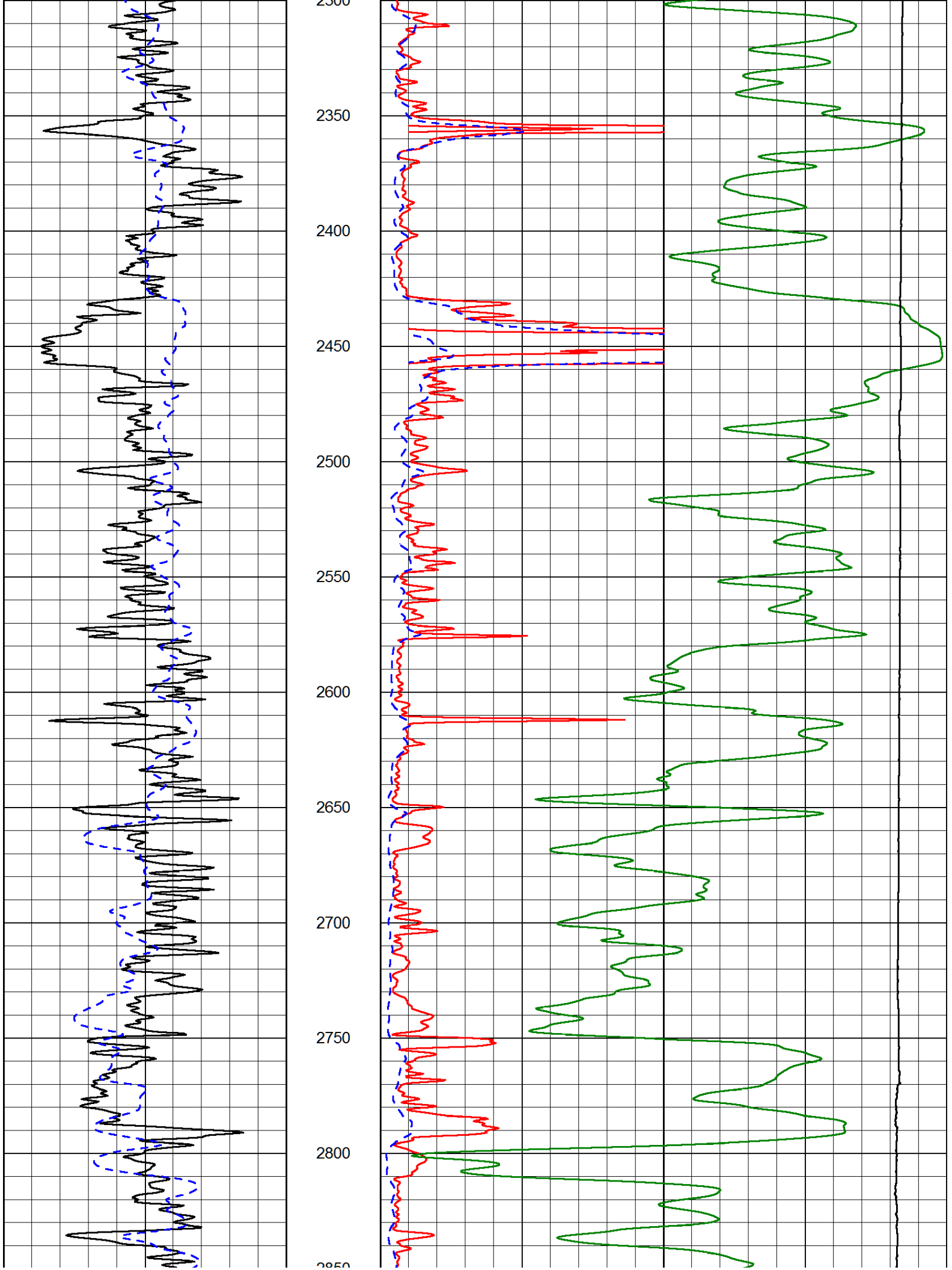
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Presentation Format: dil2in
Dataset Creation: Wed Apr 09 15:08:35 2014
Charted by: Depth in Feet scaled 1:600

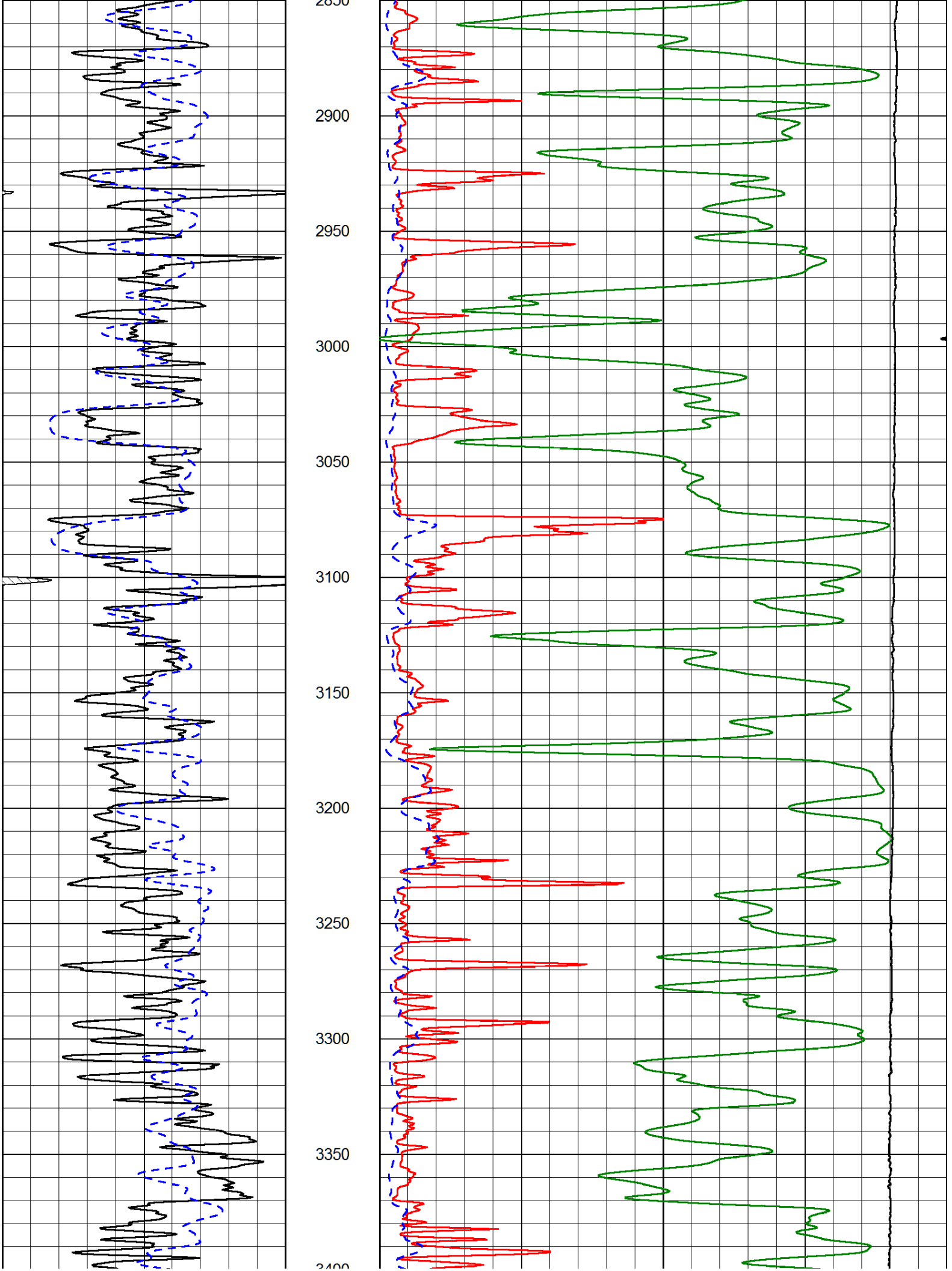

0 Gamma Ray (GAPI) 150
-200 SP (mV) 0
0 Shallow Resistivity (Ohm-m) 50
0 Deep Resistivity (Ohm-m) 50
1000 Conductivity (Ohm-m) 0
15000 Line Tension (lb) 0
Shallow Resistivity
50 (Ohm-m) 500
50 Deep Resistivity (Ohm-m) 500
200
250
300
350
400
450
500
550
600
650

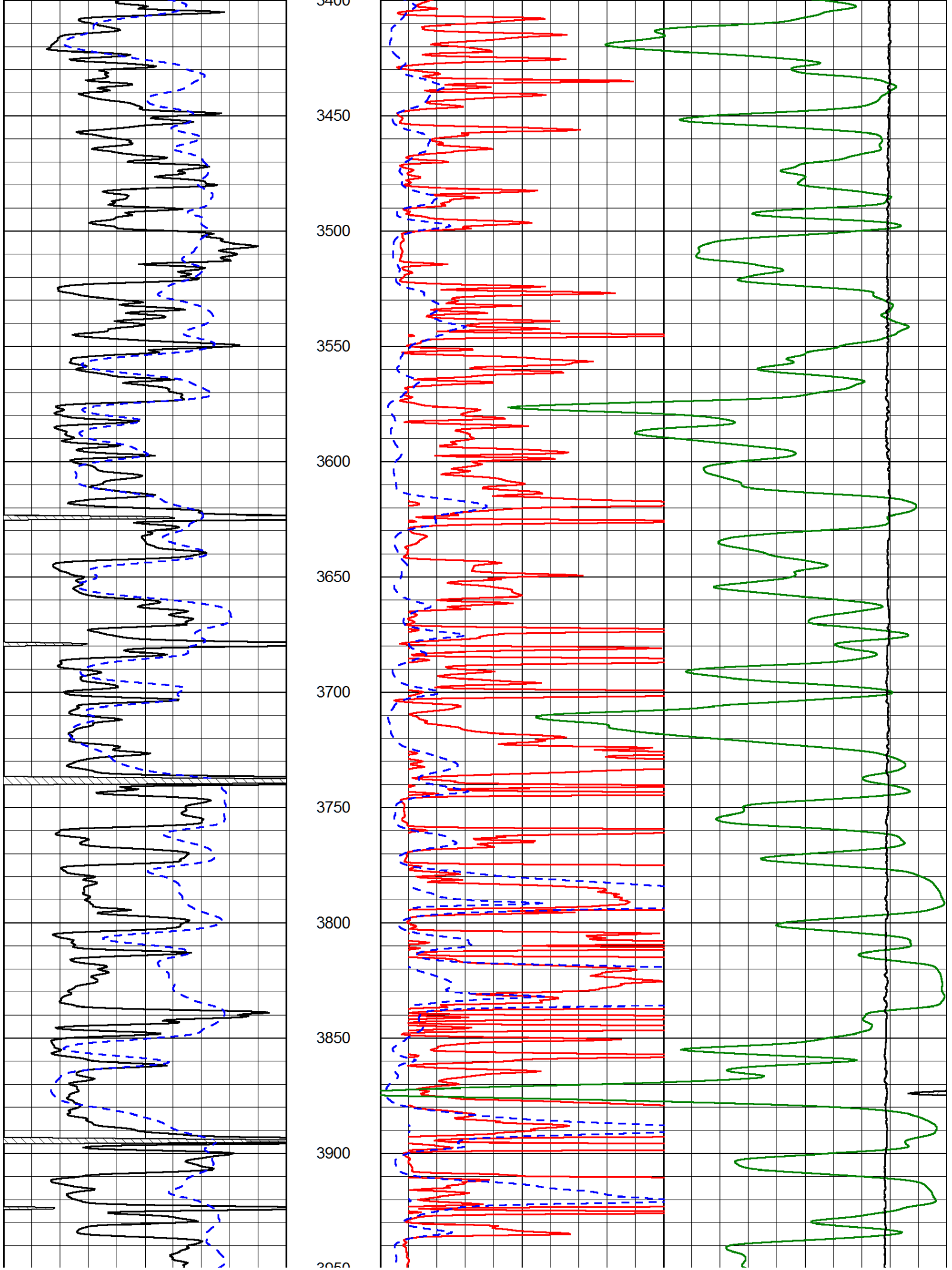

650
700
750
800
850
900
950
1000
1050
1100
1150

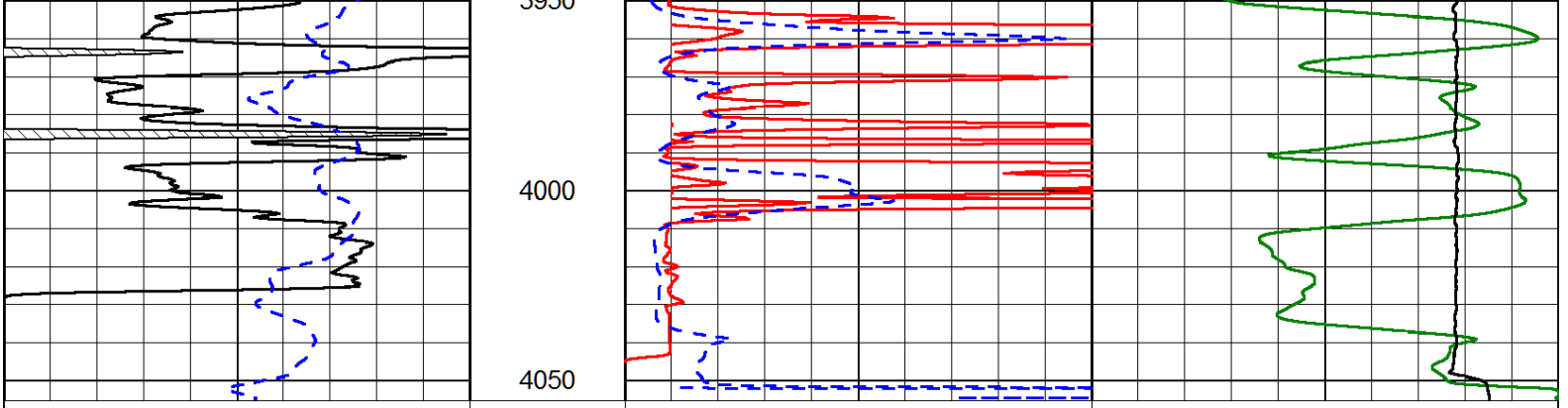

1200
1250
1300
1350
1400
1450
1500
1550
1600
1650
1700
1750


1750
1800
1850
1900
1950
2000
2050
2100
2150
2200
2250
2300

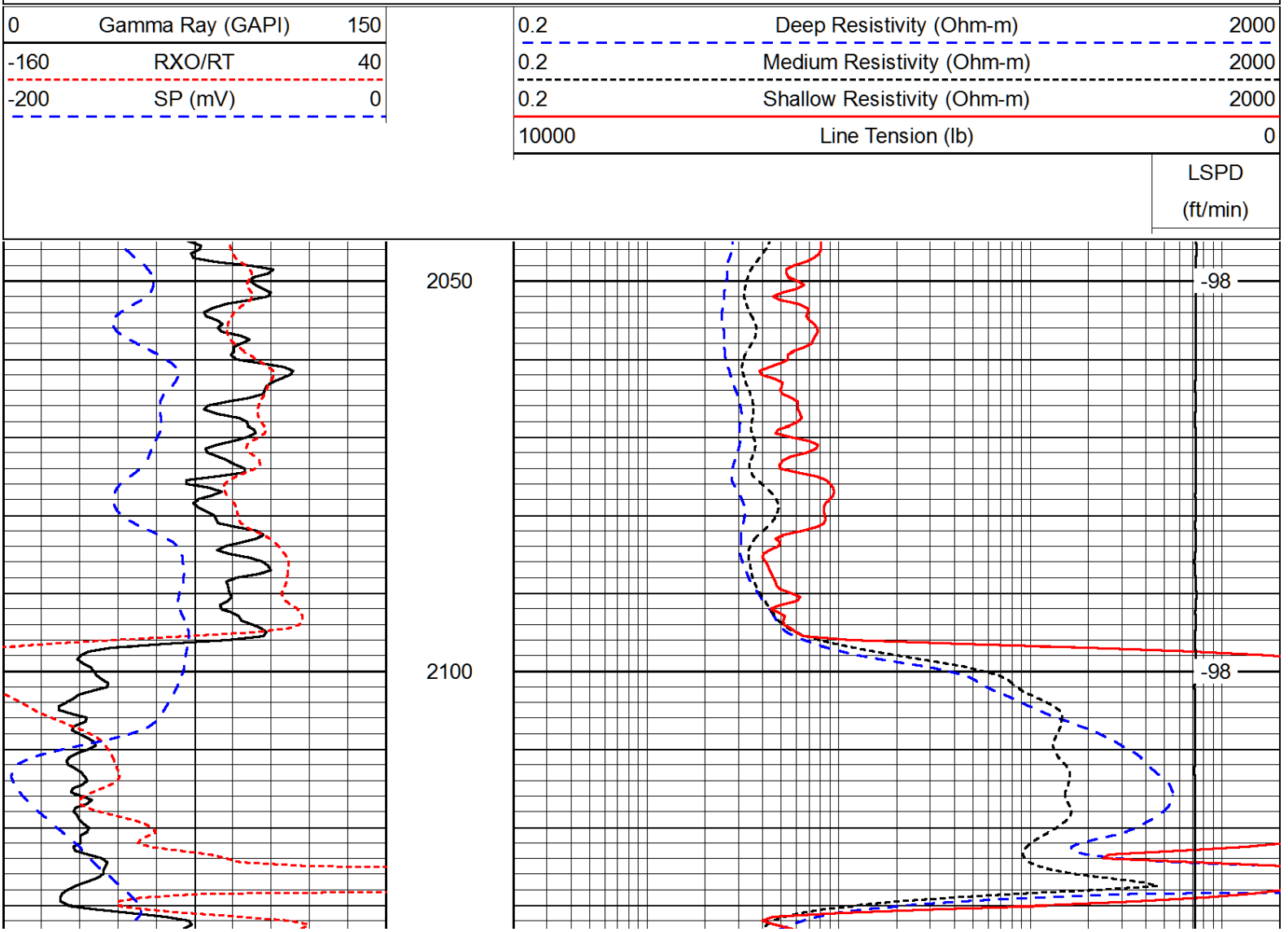

2300
2350
2400
2450
2500
2550
2600
2650
2700
2750
2800
2850

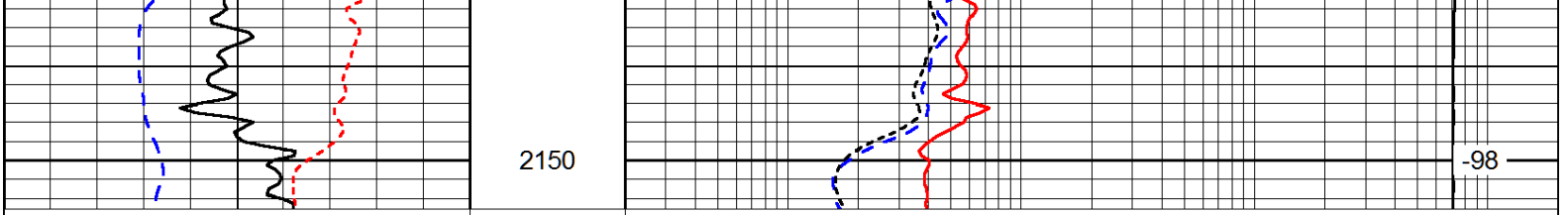

2850
2900
2950
3000
3050
3100
3150
3200
3250
3300
3350
3400


3400
3450
3500
3550
3600
3650
3700
3750
3800
3850
3900
3950




Database File: cobalt_ktunit_a_1_18hd.db
Dataset Pathname: DIL/cobstk
Presentation Format: dil
Dataset Creation: Wed Apr 09 15:08:35 2014
Charted by: Depth in Feet scaled 1:240





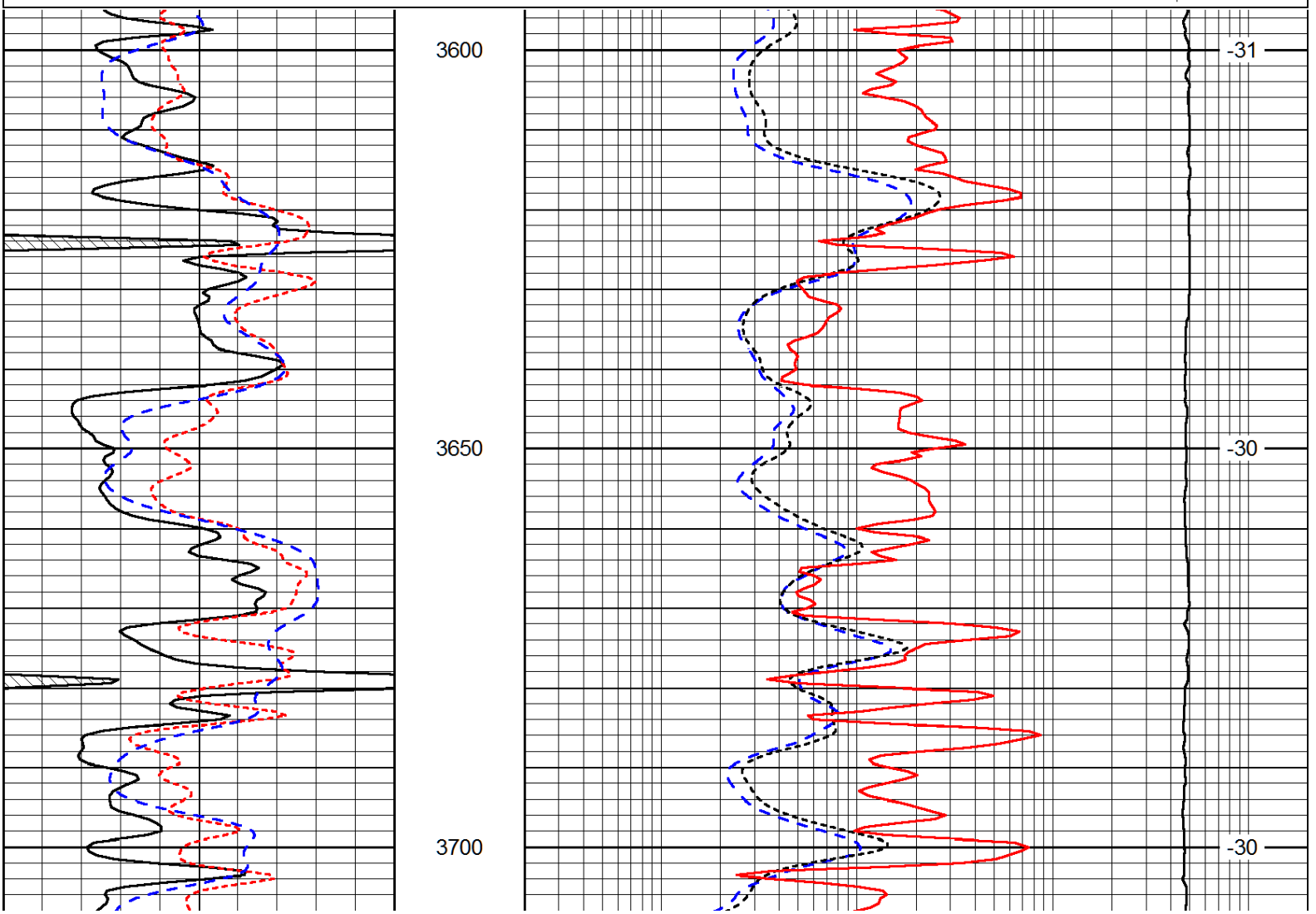

| | | |
|---|---|---|
| 0 | Gamma Ray (GAPI) | 150 |
| -160 | RXO/RT | 40 |
| -200 | SP (mV) | 0 |

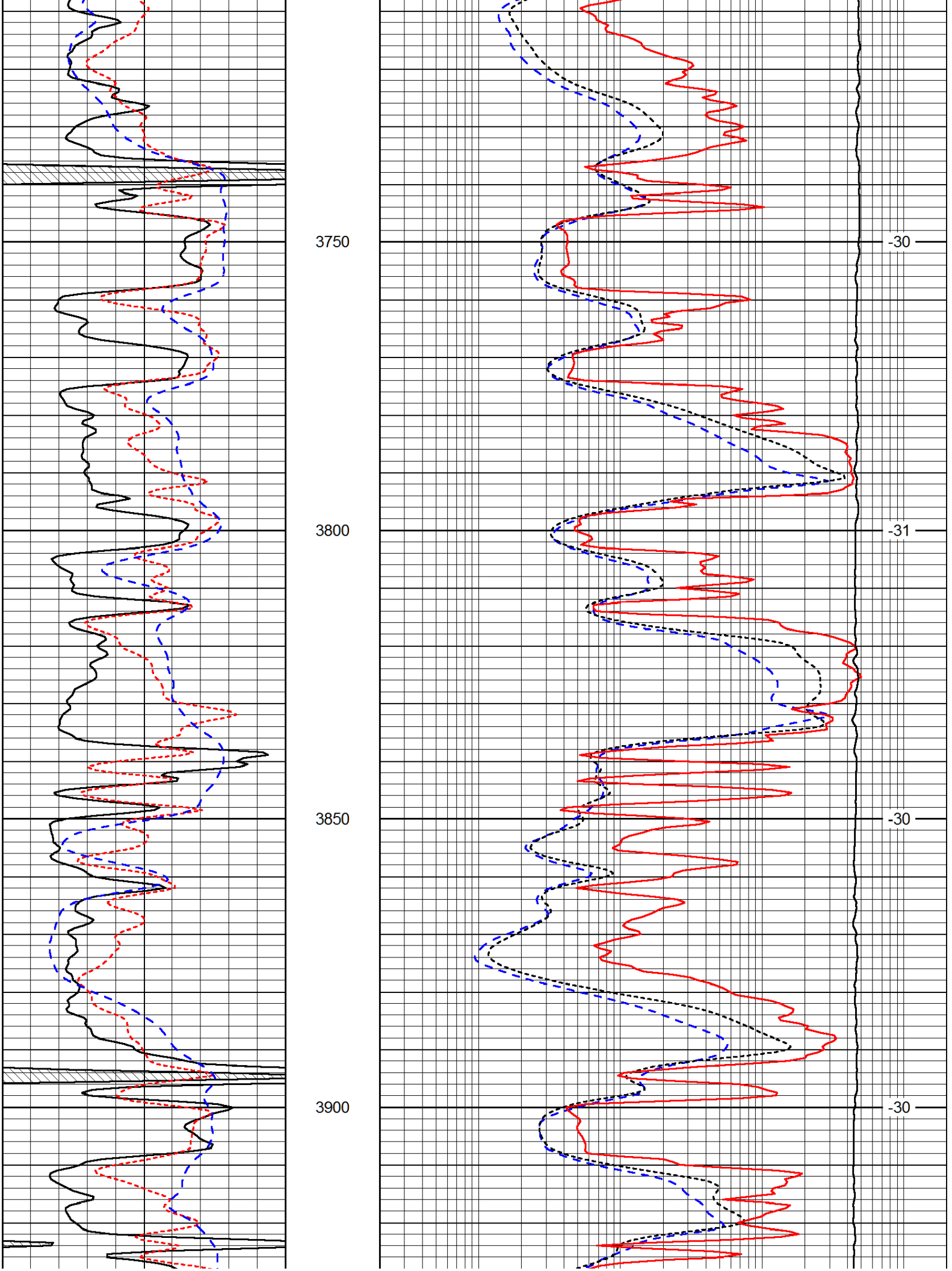
| | | |
|---|---|---|
| 0.2 | Deep Resistivity (Ohm-m) | 2000 |
| 0.2 | Medium Resistivity (Ohm-m) | 2000 |
| 0.2 | Shallow Resistivity (Ohm-m) | 2000 |
| 10000 | Line Tension (lb) | 0 |
| | LSPD (ft/min) | |

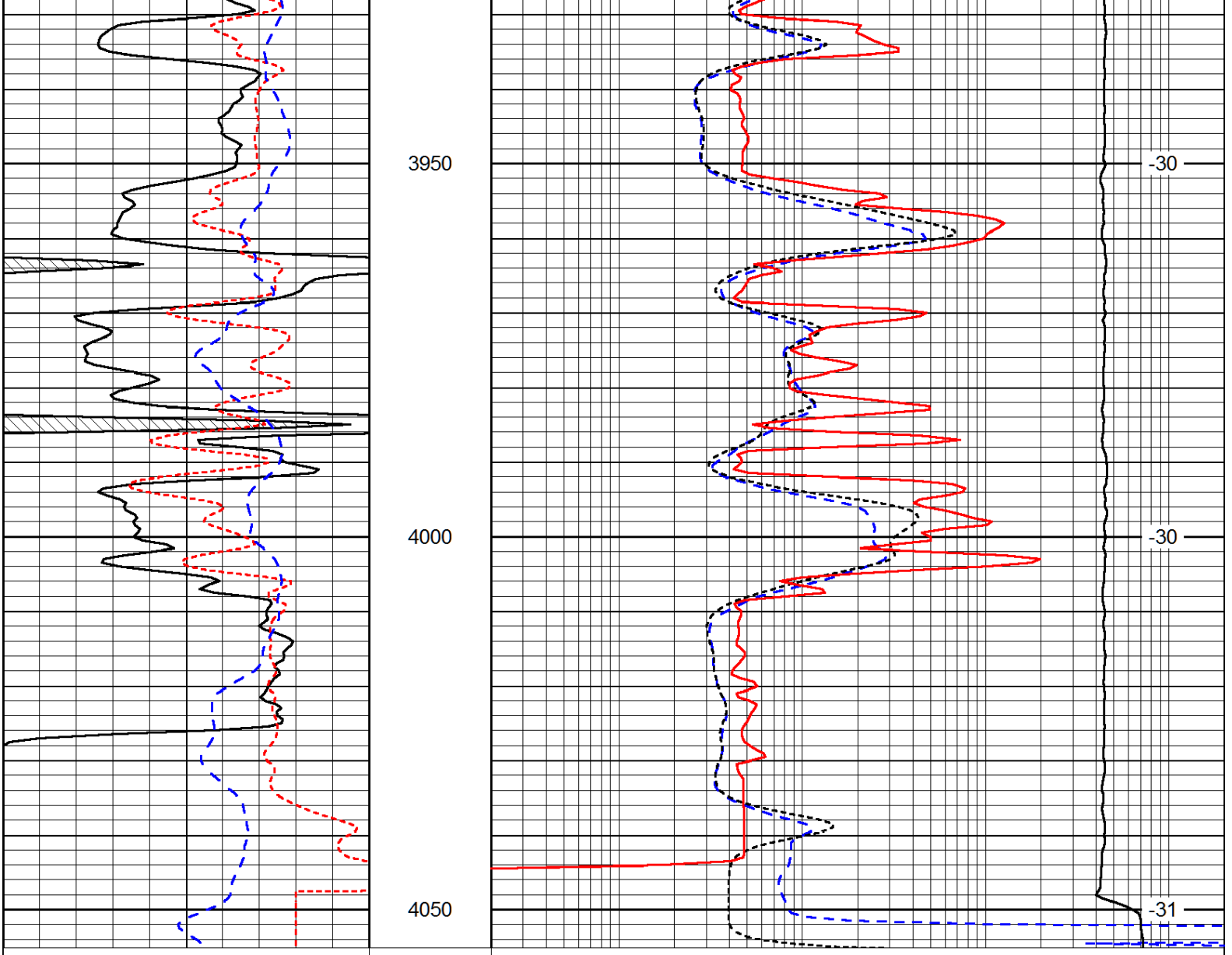
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|---|---|
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| Dataset Pathname: | DIL/cobstk |
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| Dataset Creation: | Wed Apr 09 15:08:35 2014 |
| Charted by: | Depth in Feet scaled 1:240 |

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




3750
3800
3850
3900
-30
-31
-30
-30




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