The Perforators LLC

DUAL INDUCTION LOG

Company	Blackhawk Production Co.
Well	Frank C, Sanders #13
Field	Toulon
County	Ellis
State	Kansas

Company Blackhawk Production Co.

Well Frank C, Sanders #13

Field Toulon

County Ellis State Kansas

Location: API # : 15 051 26227

400' FNL & 1809' FWL

SEC 10 TWP 14s RGE 17W

Other Services: ML, CDNL, BCS

Permanent Datum: Ground Level — Elevation 2003'

Log Measured From: KB 8' AGL

Drilling Measured From: KB

Elevation: K.B. 2011', D.F. 2010', G.L. 2003'

Date	11-25-11		
Run Number	One		
Depth Driller	3548'		
Depth Logger	3545'		
Bottom Logged Interval	3543'		
Top Log Interval	1250'		
Casing Driller	1031'		
Casing Logger	1031'		
Bit Size	7 7/8"		
Type Fluid in Hole	Chemical		
Density / Viscosity	9.1/50		
pH / Fluid Loss	10.0/8.0		
Source of Sample	Pit		
Rm @ Meas. Temp	.4@70deg		
Rmf @ Meas. Temp	.3@70deg		
Rmc @ Meas. Temp	.64@70deg		
Source of Rmf / Rmc	Calculated		
Rm @ BHT	.28@113deg		
Time Circulation Stopped	12:30 a.m.		
Time Logger on Bottom	2:15 a.m.		
Maximum Recorded Temperature	113		
Equipment Number	T045		
Location	Hays		
Recorded By	L. Smith		
Witnessed By	Mr. Tony Richardson		

<<< Fold Here >>>

Comments

Thank you for using The Perforators LLC
Hays, KS 785-621-4604

Old 40 E, N 1 mi on 310 Ave, E 1/4, S into.

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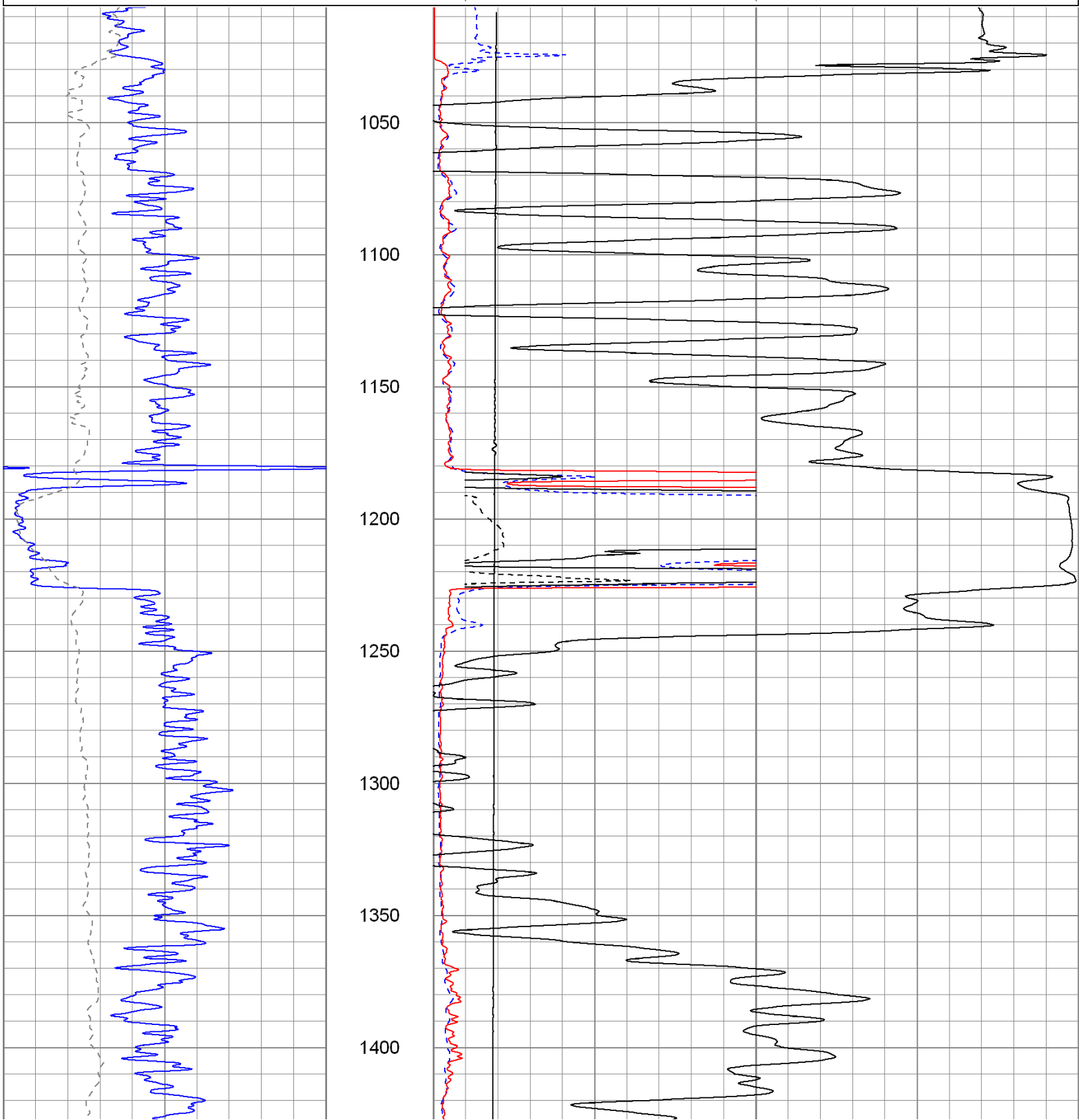
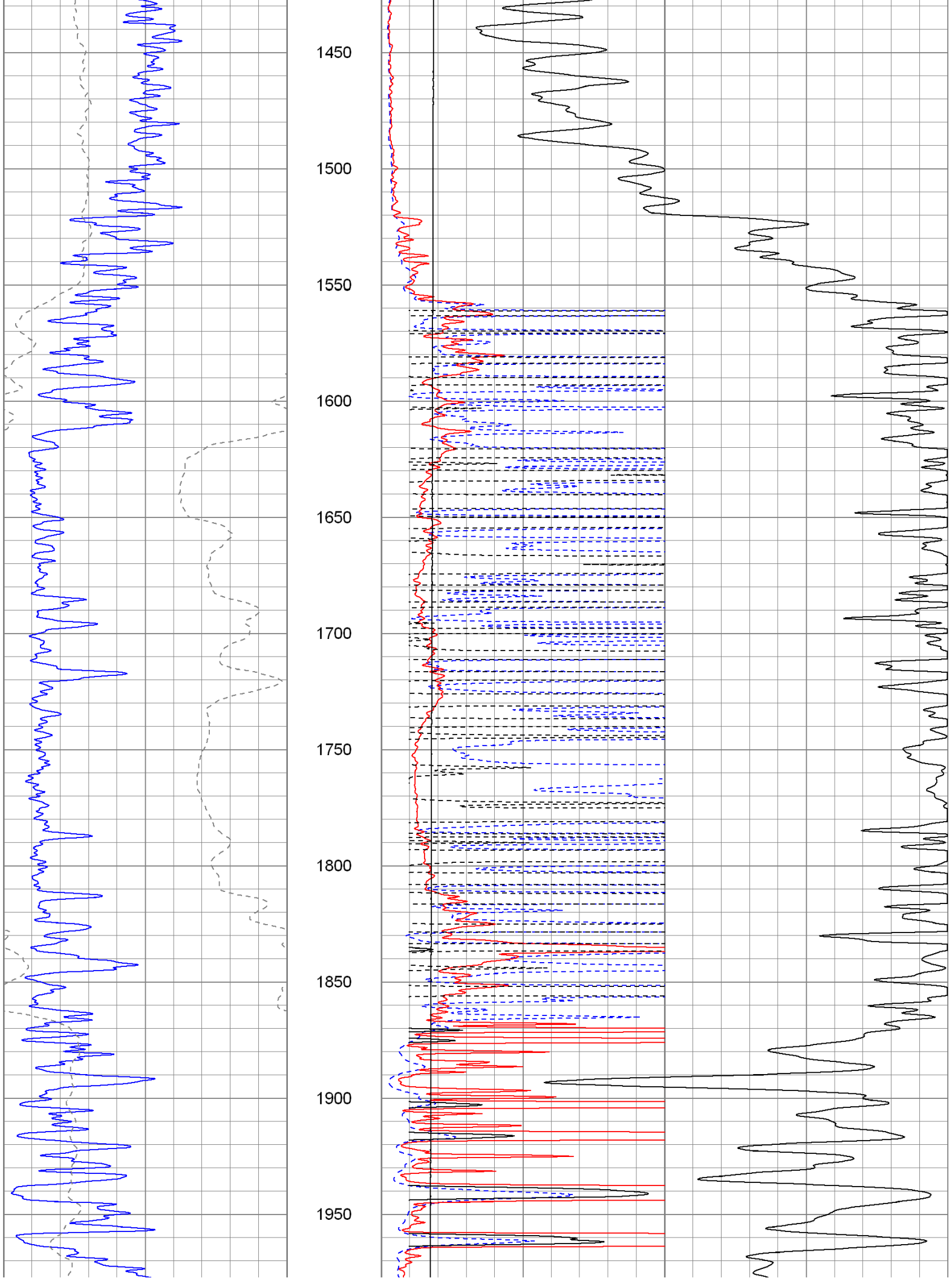
Main Pass

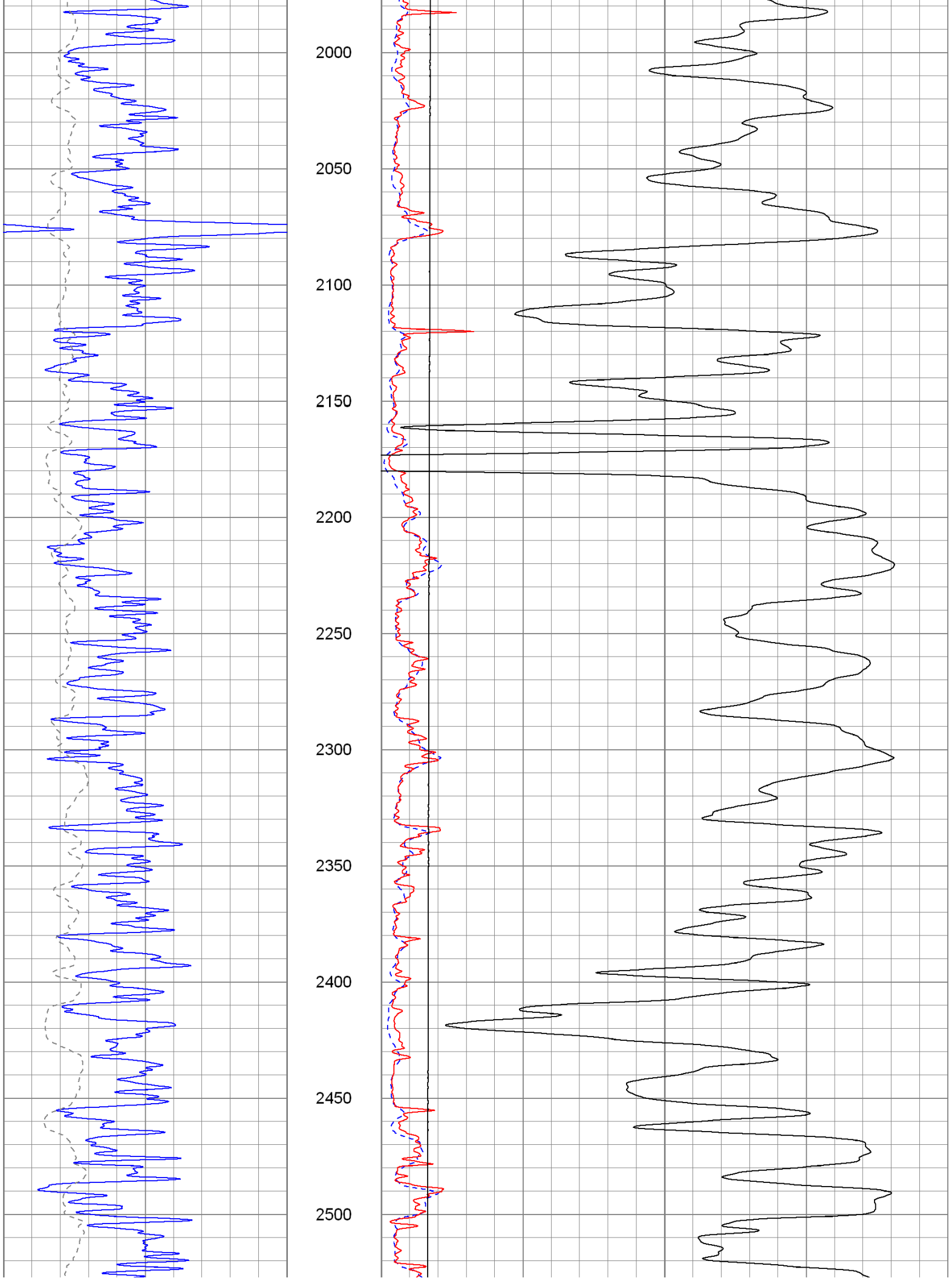
Database File:	bhfrankcsanders#13oh.db
Dataset Pathname:	pass2.2
Presentation Format:	kdillin2
Dataset Creation:	Fri Nov 25 04:46:30 2011 by Calc Open-Cased 100827
Charted by:	Depth in Feet scaled 1:600

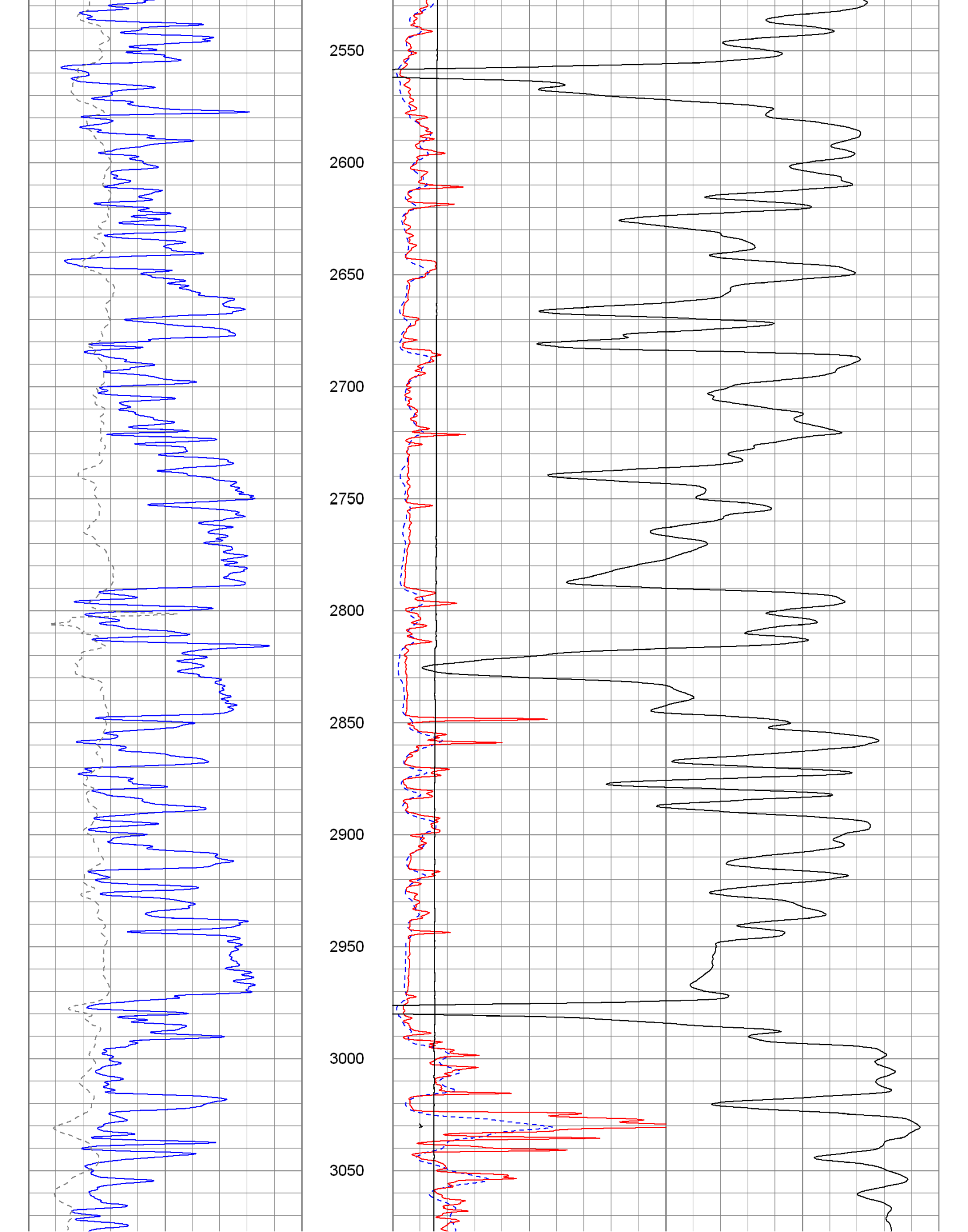
0	GR (GAPI)	150
-200	SP (mV)	0

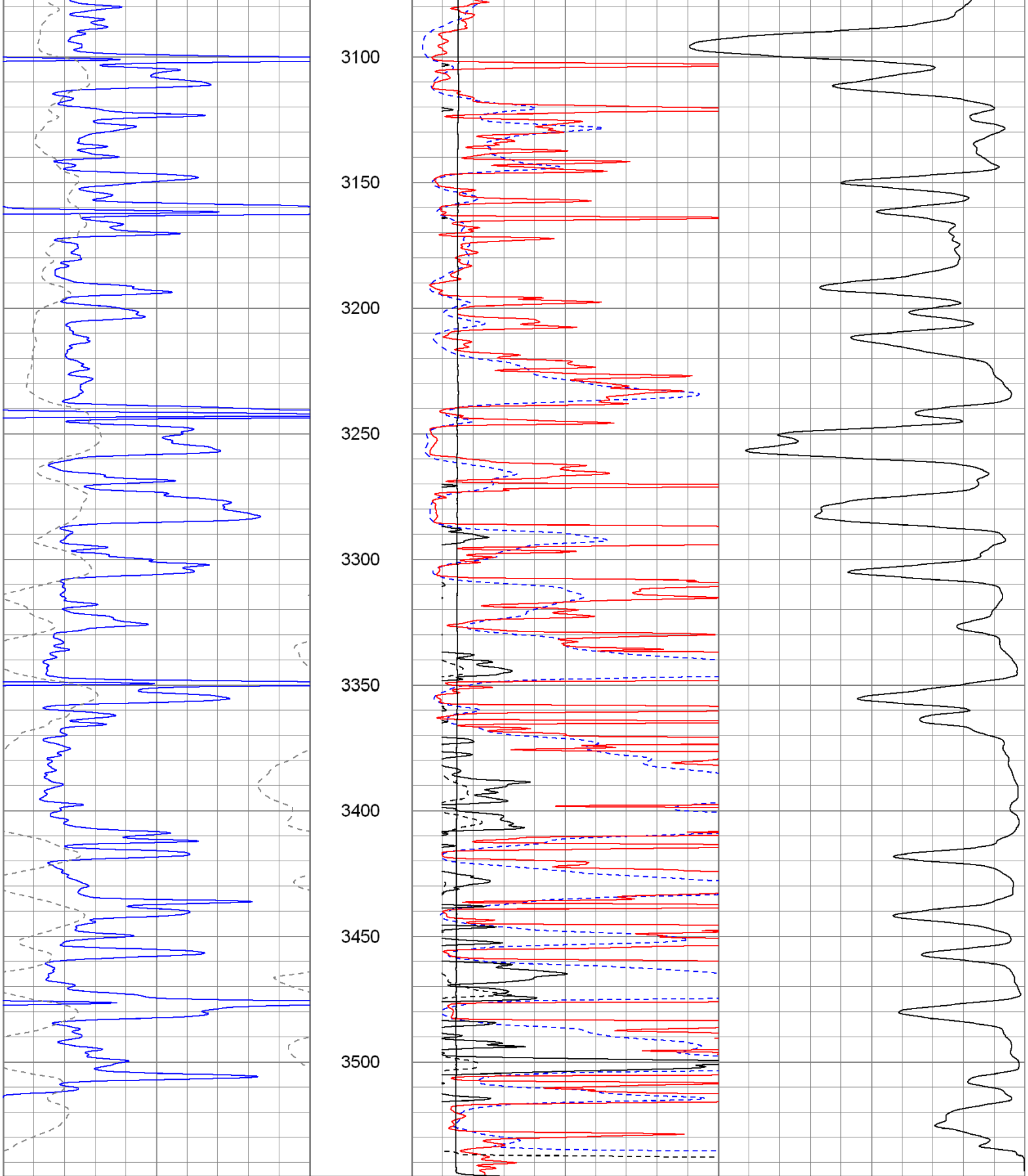
0	RILD (Ohm-m)	50
0	RLL3 (Ohm-m)	50
1000	CILD (mmho/m)	0
10000	LTEN (lb)	0
50	RILD x 10 (Ohm-m)	500
50	RLL3 x 10 (Ohm-m)	500




1450
1500
1550
1600
1650
1700
1750
1800
1850
1900
1950


2000
2050
2100
2150
2200
2250
2300
2350
2400
2450
2500


2550
2600
2650
2700
2750
2800
2850
2900
2950
3000
3050

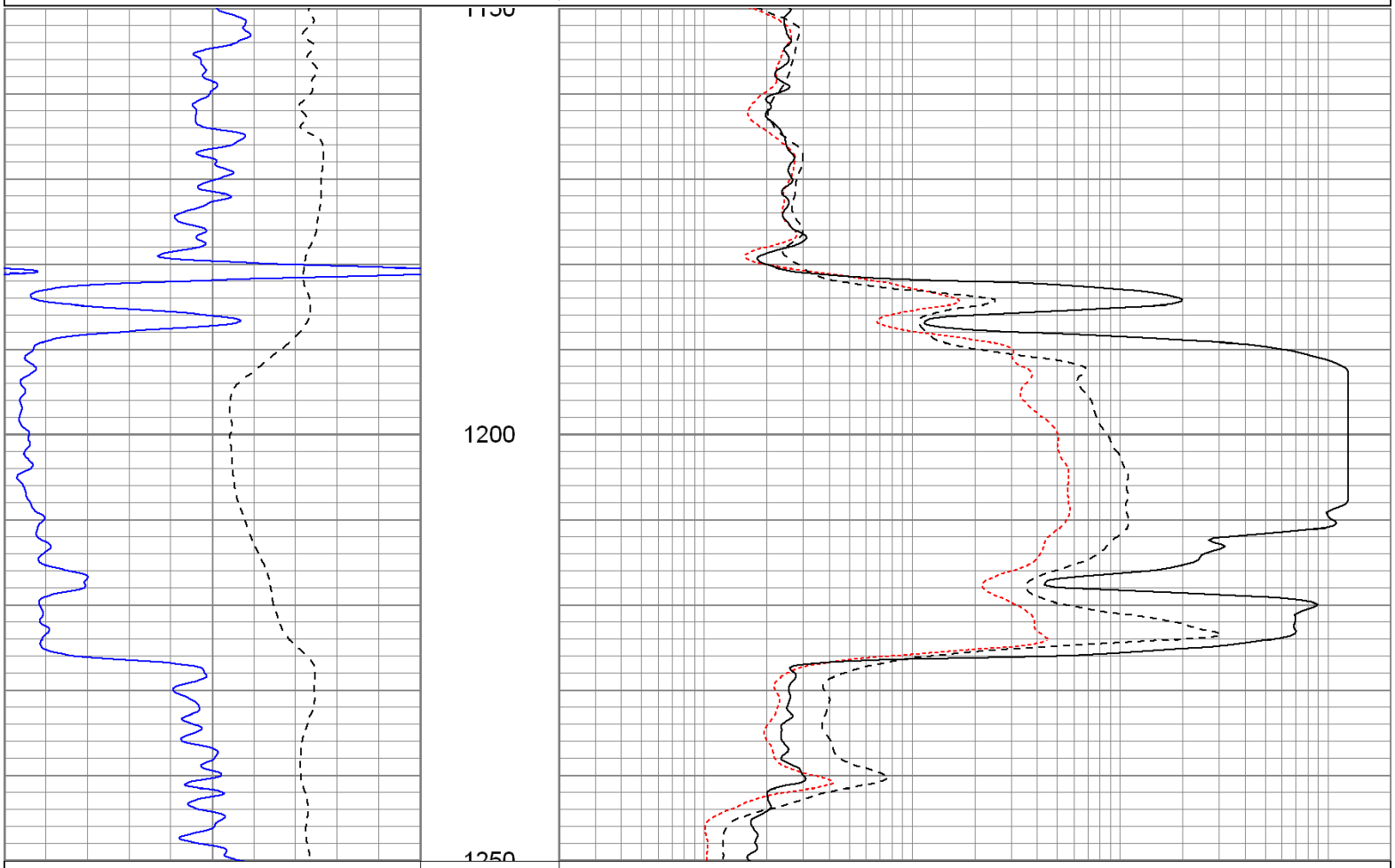

3100
3150
3200
3250
3300
3350
3400
3450
3500
0 GR (GAPI) 150
-200 SP (mV) 0
0 RILD (Ohm-m) 50
0 RLL3 (Ohm-m) 50
1000 CILD (mmho/m) 0
10000 LTEN (lb) 0
50 RILD x 10 (Ohm-m) 500
50 RLL3 x 10 (Ohm-m) 500

Main Pass

Database File:	bhfrankcsanders#13oh.db
Dataset Pathname:	pass2.2
Presentation Format:	kdil
Dataset Creation:	Fri Nov 25 04:46:30 2011 by Calc Open-Cased 100827
Charted by:	Depth in Feet scaled 1:240

0	GR (GAPI)	150
-100	SP (mV)	100

0.2	RILM (Ohm-m)	2000
0.2	RILD (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000



0	GR (GAPI)	150
-100	SP (mV)	100

0.2	RILM (Ohm-m)	2000
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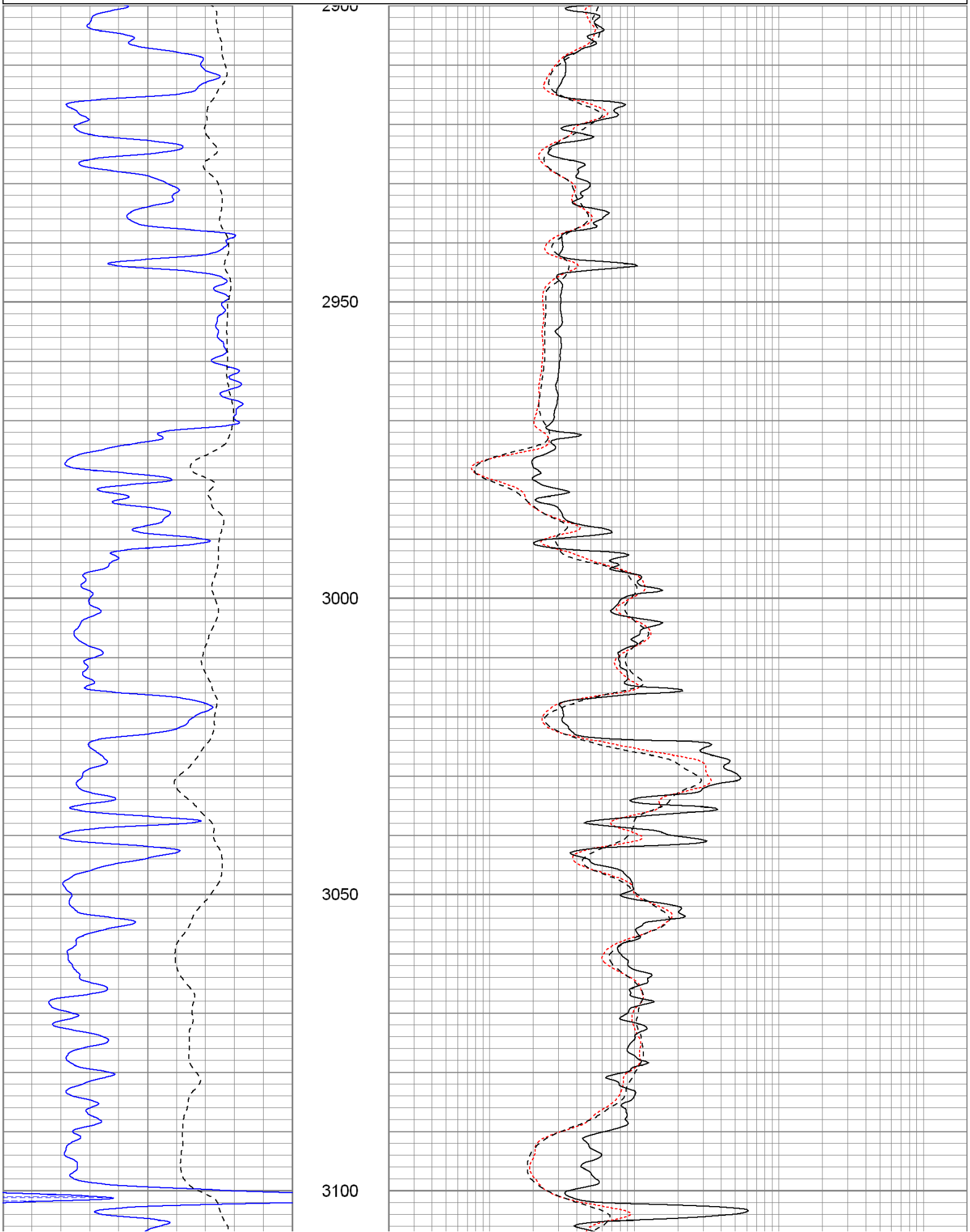
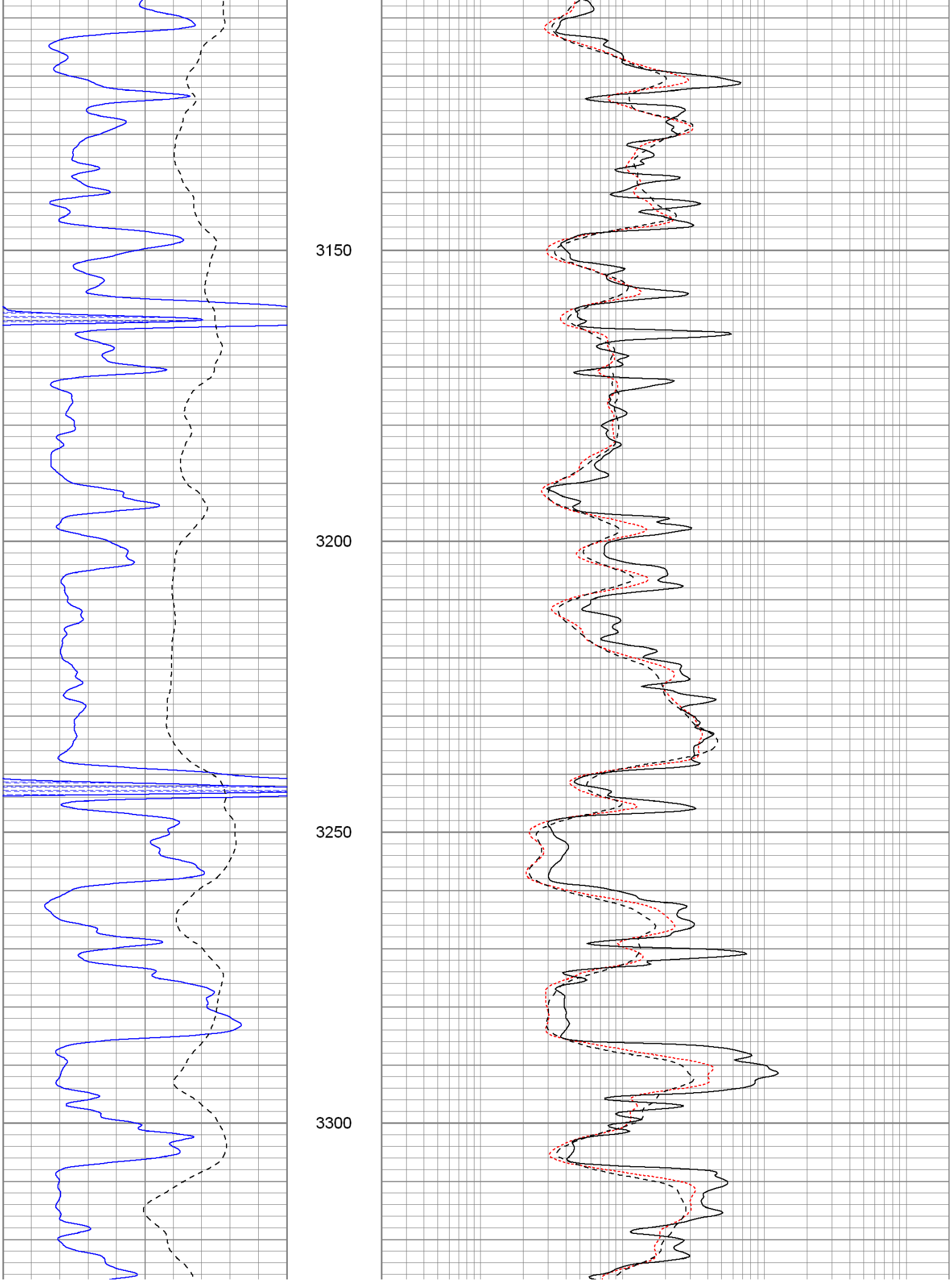
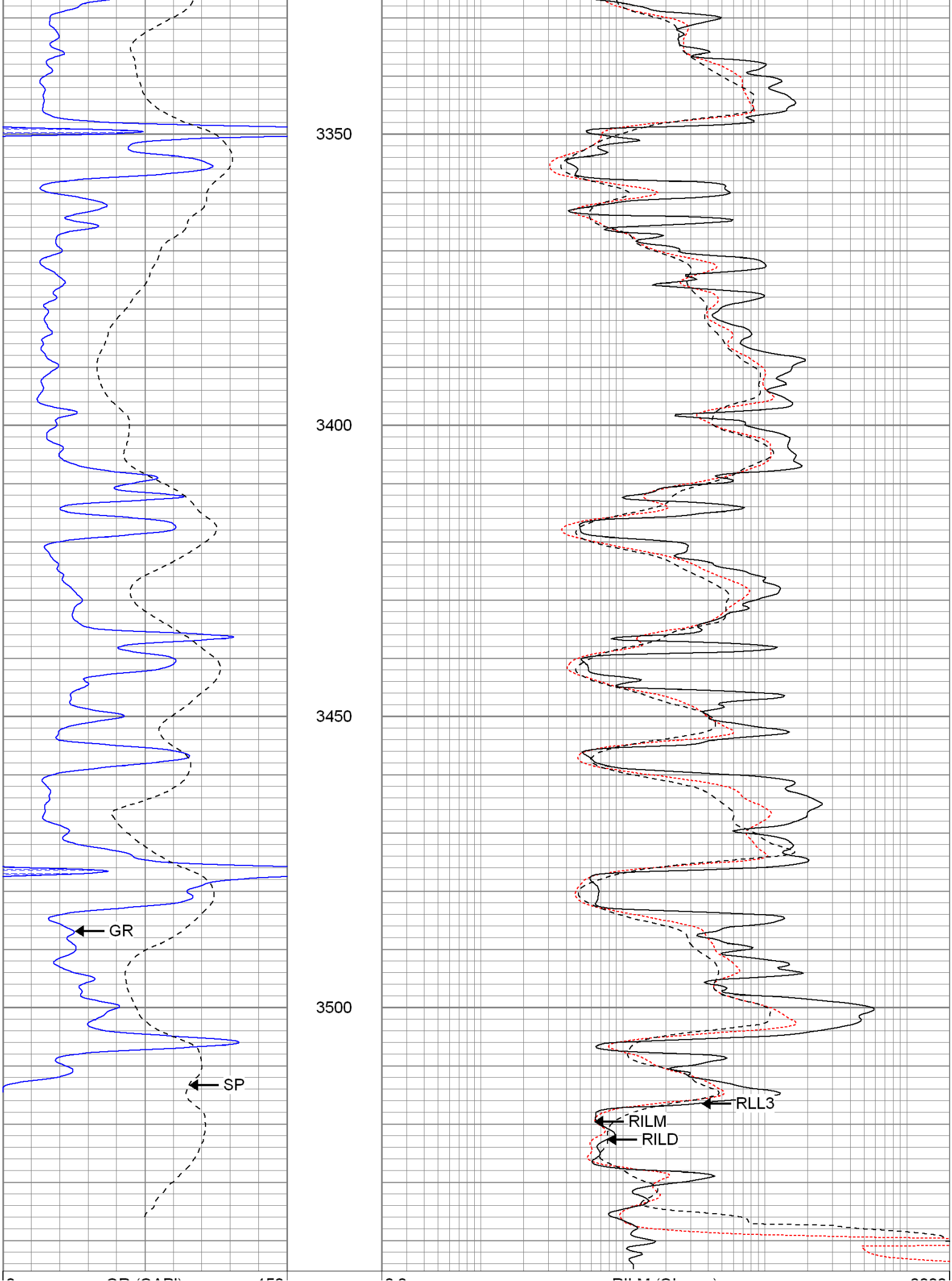



3150
3200
3250
3300


3350
3400
3450
3500
GR
SP
RLL3
RILM
RILD

0	GR (GAPI)	150
-100	SP (mV)	100

0.2	RILM (Ohm-m)	2000
0.2	RILD (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000

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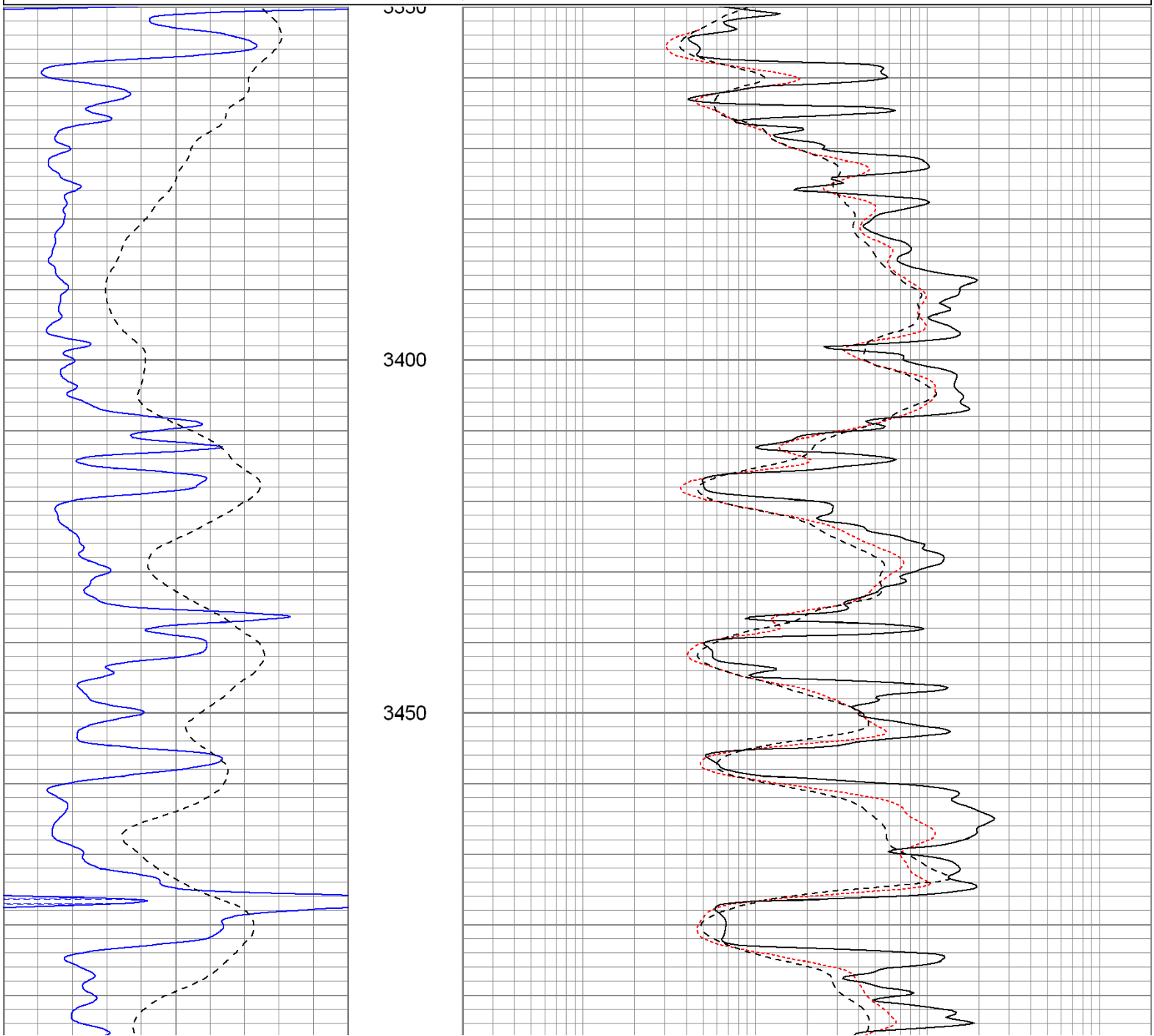
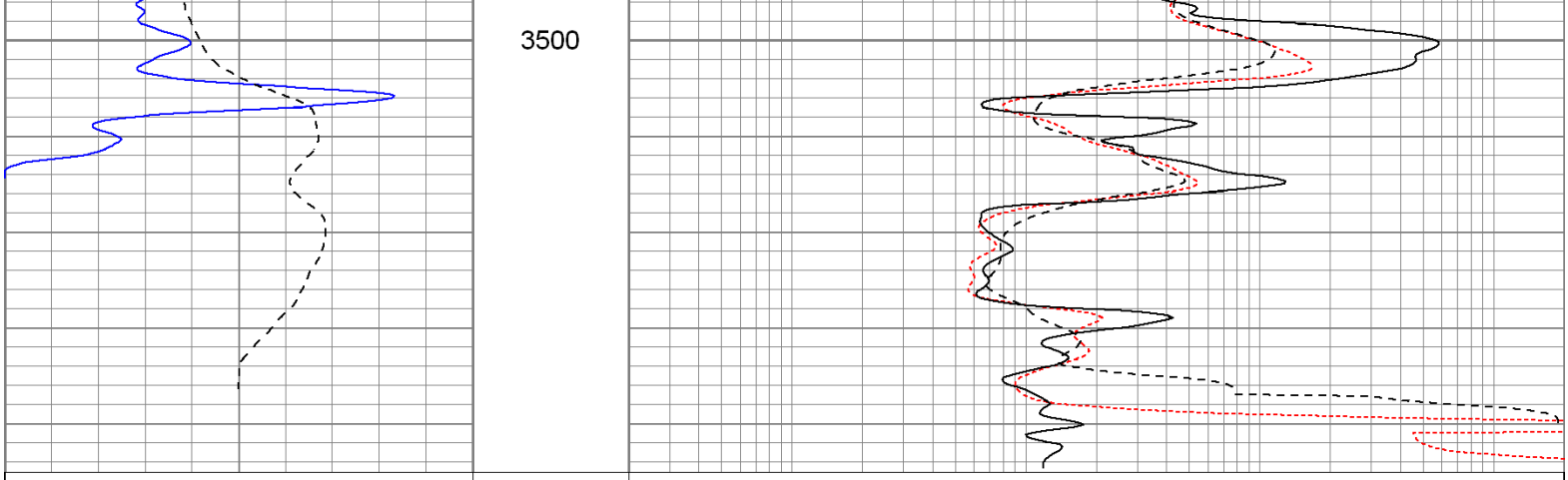
Repeat Pass

Database File: bhfrankcsanders#13oh.db
Dataset Pathname: pass1.2
Presentation Format: kdil
Dataset Creation: Fri Nov 25 04:47:59 2011 by Calc Open-Cased 100827
Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	150
-100	SP (mV)	100

0.2	RILM (Ohm-m)	2000
0.2	RILD (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000





Calibration Report

Database File: bhfrankcsanders#13oh.db
Dataset Pathname: pass1
Dataset Creation: Fri Nov 25 03:16:35 2011 by Log Open-Cased 100827

Dual Induction Calibration Report

Serial-Model:	080522-Probe
Surface Cal Performed:	Wed Nov 02 06:37:29 2011
Downhole Cal Performed:	Wed Nov 02 06:37:32 2011
After Survey Verification Performed:	Wed Nov 02 06:37:34 2011

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.000	0.638	V	0.000	400.000	mmho/m	626.857	0.275
Medium	0.001	0.741	V	0.000	464.000	mmho/m	626.953	-0.823
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.000	0.638	V	0.000	400.000	mmho/m	627.013	-0.291
Medium	0.001	0.741	V	0.000	464.000	mmho/m	627.190	-0.915

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.096	400.608	mmho/m	0.566	400.467	mmho/m	0.998	0.471
Medium	-0.069	464.142	mmho/m	0.092	463.916	mmho/m	0.999	0.161
LL3		7.358	V		750.000	Ohm-m		
		0.001	V		12.000	Ohm-m		
		-7.218	V		3745.000	mmho-m		

Compensated Density Calibration Report

Serial-Model:	2501DHT-DHT
Source / Verifier:	/
Master Calibration Performed:	Fri Nov 25 03:14:50 2011

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.750	g/cc	744.27	293.58	cps

Magnesium	1.730	g/cc	744.27	293.38	cps
Aluminum	2.680	g/cc	138.48	189.15	cps

Spine Angle = 75.35 Density/Spine Ratio = 0.535

	Size		Reading
Small Ring	7.90	in	6064.22
Large Ring	14.00	in	10296.80

Gamma Ray Calibration Report

Serial Number:	2000	
Tool Model:	P2000	
Performed:	Sun Oct 23 08:45:30 2011	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.2200	GAPI/cps

Neutron Calibration Report

Serial Number:	5108	
Tool Model:	PROBE	
Performed:	Wed Oct 19 06:16:06 2011	
Calibrator Value:	1	NAPI
Calibrator Reading:	1	cps
Sensitivity:	1	NAPI/cps

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
			None	0.75	1.50	5.00
NEU	37.96		NEU-PROBE (5108) Probe	4.92	3.63	85.00
GR	32.57		GR-P2000 (2000)	3.67	3.25	40.00
			CDL-DHT (2501DHT) Digital High Temp CDL Tool	9.69	4.00	201.00
LSD	23.78					
DCAL	23.49					
SSD	23.24					
HEADVOLT	21.47					
CILD	10.60		DIL-Probe (080522) Probe Dual Induction	21.47	4.00	345.00
SP	10.60					
CILM	6.89					
RLL3	1.70					

Dataset:	bhfrankcsanders#13oh.db: field/well/run1/pass1
Total Length:	40.49 ft
Total Weight:	676.00 lb
O.D.	4.00 in