



**Litho Density
Compensated Neutron
Microlog**

Company Reeder Operating, LLC
Well Robert D. Gray 1-20H
Field N/A
County Comanche
State KS

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Well Robert D. Gray 1-20H
Field N/A
County Comanche
State KS

Location:
150' FSL & 225' FWL
X=1796120, Y=208863
SEC 20 TWP 32S RGE 17W
Permanent Datum GL Elevation 2018 ft.
Log Measured From KB , 17 ft. above perm. datum
Drilling Measured From KB
Other Services
GRT, MEL
MAS, LDT
CNL, IAT
Elevation
K.B. 2035 ft.
D.F. 2035 ft.
G.L. 2018 ft.

Date	11/14/2011
Run Number	ONE
Depth Driller	5735
Depth Logger	5412
Bottom Logged Interval	5408
Top Log Interval	796
Casing Driller	9.625 @ 8'10
Casing Logger	796
Bit Size	8.75 @
Type Fluid in Hole	WBM @
Density / Viscosity	9.1 / 68
pH / Fluid Loss	10.6 / 4.7
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.7 @ 89
Rmt @ Meas. Temp	.52 @ 89
Rmc @ Meas. Temp	1.0 @ 89
Source of Rmf / Rmc	MEASURED
Rm @ BHT	.52 @ 121
Time Circulation Stopped	0600
Time Logger on Bottom	1115
Maximum Recorded Temperature	121
Equipment Number	11008
Location	OKC
Recorded By	W. MILLER
Witnessed By	K. BLALOCK
	C. HUMPHREYS
	G. WENTE

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Equipment and Log Data

Date: 11/14/2011 Service Order: 10225

Gamma		Density		Neutron		Sonic		IAT	
Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE	Run No.	ONE
Serial No.	10047	Serial No.	10112	Serial No.	10071	Serial No.	10037LS	Serial No.	10107
O.D.	3.375 in.	Source No.	50129B	Source No.	66005B	Centralizers	TWO	Standoffs	2 @ 1.5
		O.D.	4.5 in.	O.D.	3.375 in.	O.D.	3.375 in.	O.D.	3.875 in.

Logging Pass Data

General			Gamma		Density			Neutron			Sonic			IAT	
			Scales		Scales			Scales			Scales			Scales	
Run	Depths		Left	Right	Left	Right	Matrix	Left	Right	Matrix	Left	Right	Matrix	Left	Right
ONE	5398	796	0	150							30%	-10%	47.6	0.2	2000
TWO	5412	4300	0	150	30%	-10%	2.71	30%	-10%	LIME					

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

PASS ONE: GRT, MAS, IAT
PASS TWO: GRT, MEL, CNL, LDT
THIS IS THE FIRST RUN IN THE WELL.
CNL DECENTRALIZED WITH BOWSPRING
CHLORIDES REPORTED AT 9500 MG/L

NO LCM REPORTED.
 KOP AT 4923
 WELL DEVIATED 90.45° AT TD

YOUR CREW TODAY: K. PATTON, D. GOSEY
 THANK YOU FOR CHOOSING ALLIED WIRELINE. OKLAHOMA CITY, OK. (405) 445-7135.

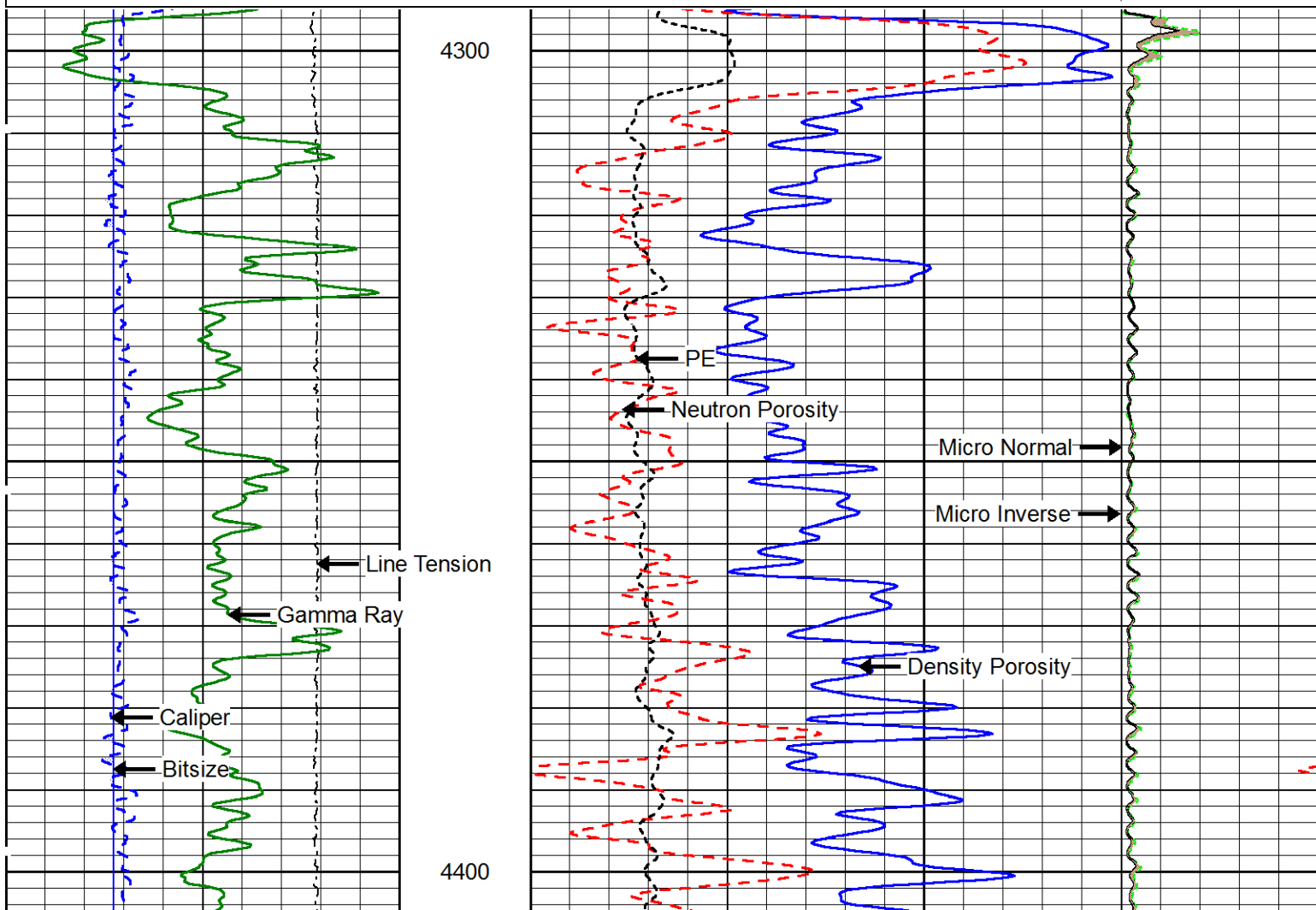


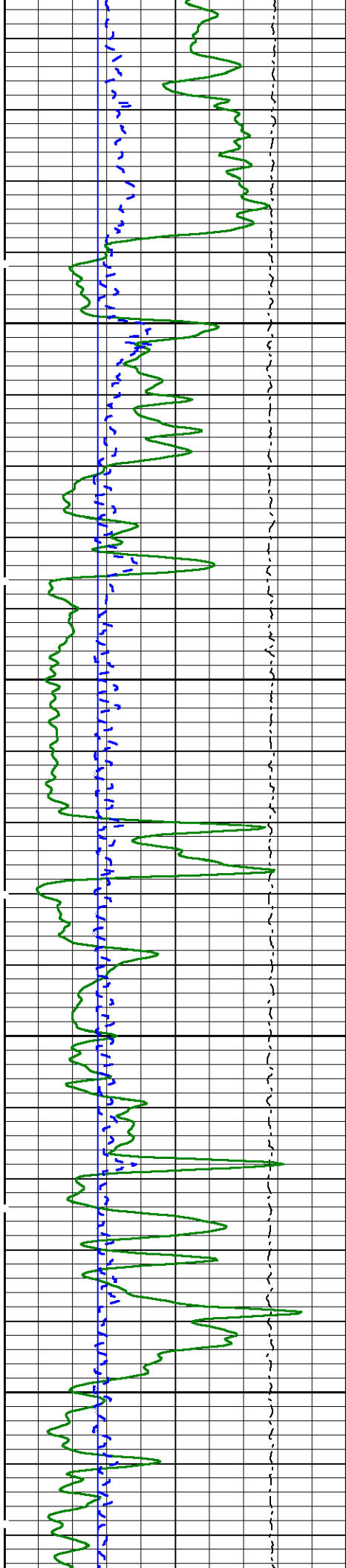
Main Pass

Database File: rbtgry20_1h.db
 Dataset Pathname: pass9
 Presentation Format: alimed
 Dataset Creation: Mon Nov 14 16:40:21 2011 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

10000	Line Tension (lb)	0
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
6	Bitsize (in)	16

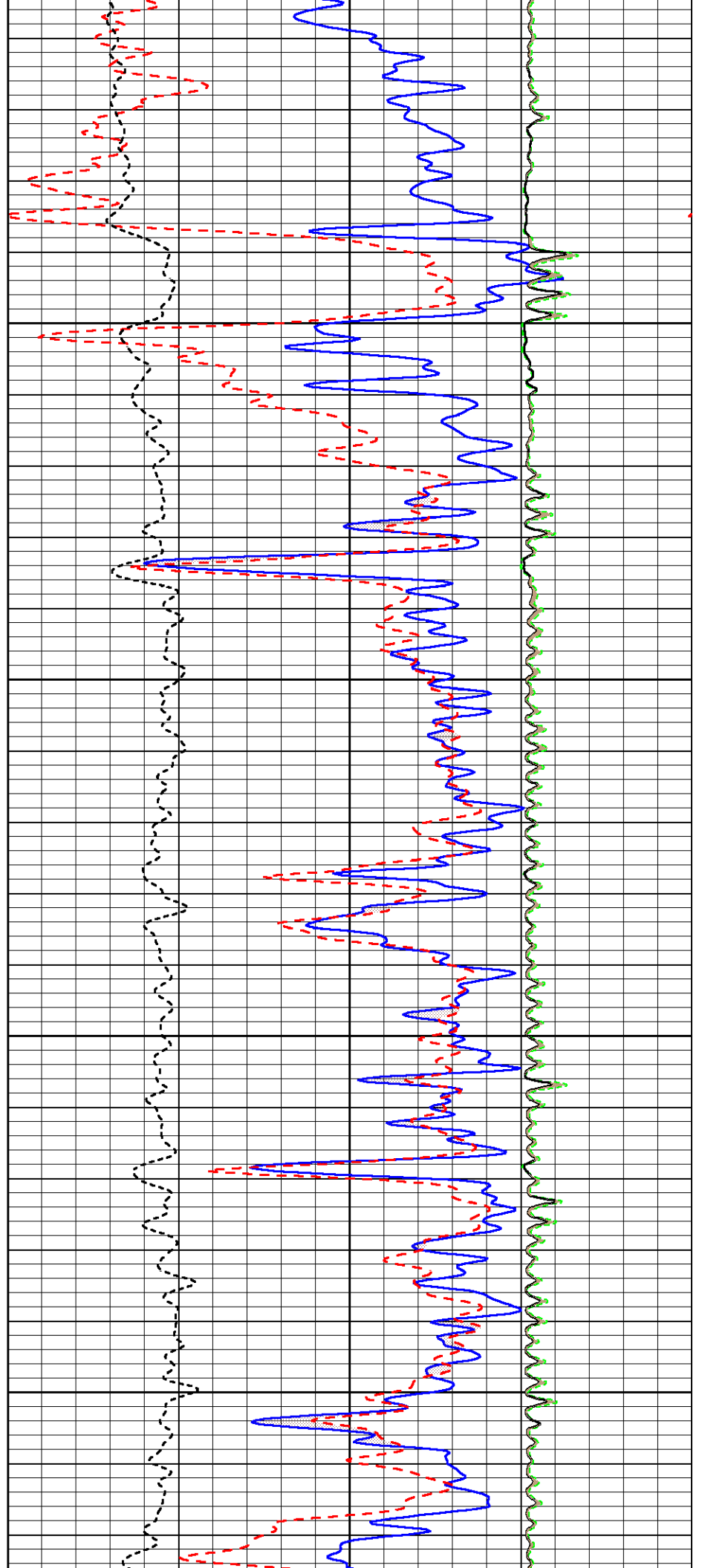
30	Density Porosity (pu)	-10
30	Neutron Porosity (pu)	-10
0	PE	10
0	Micro Normal (Ohm-m)	20
0	Micro Inverse (Ohm-m)	20

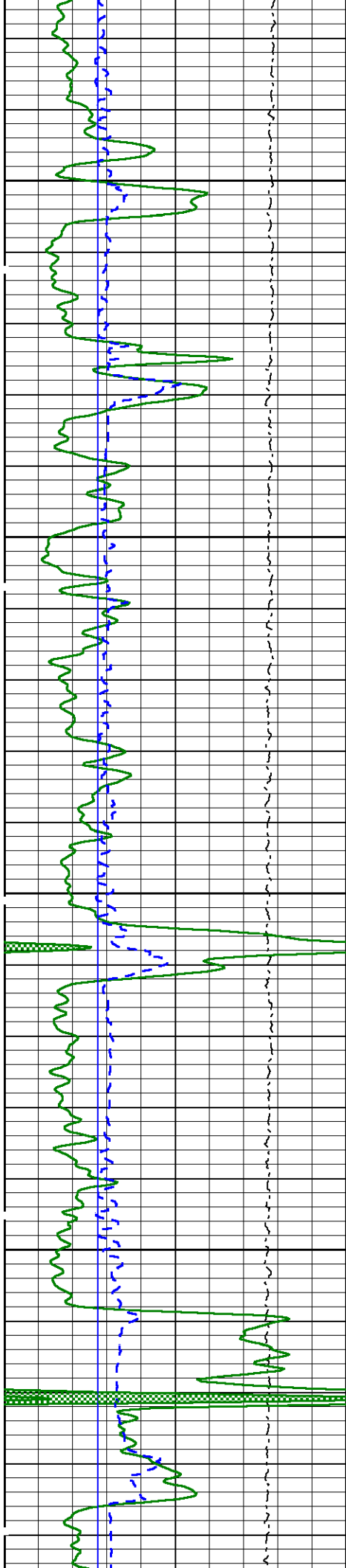




4500

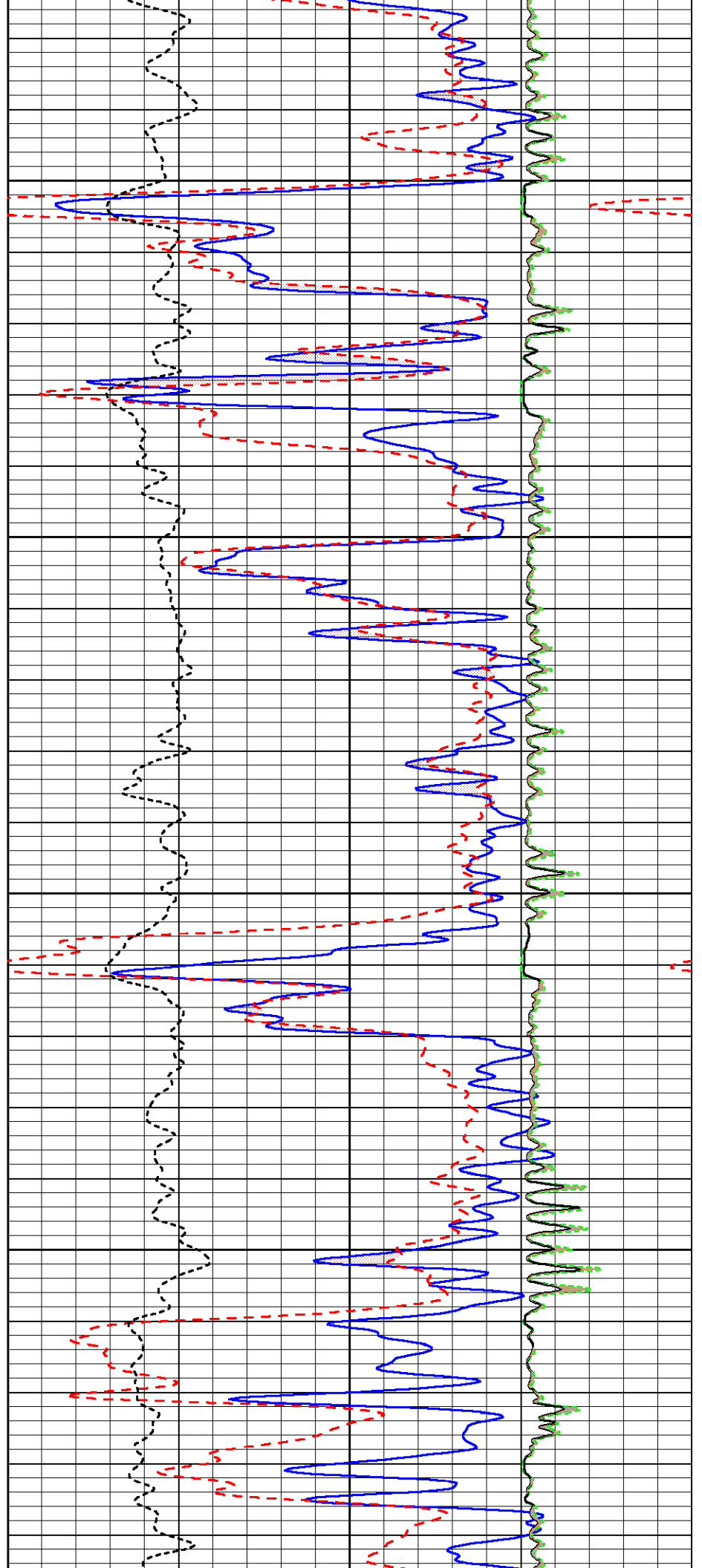
4600

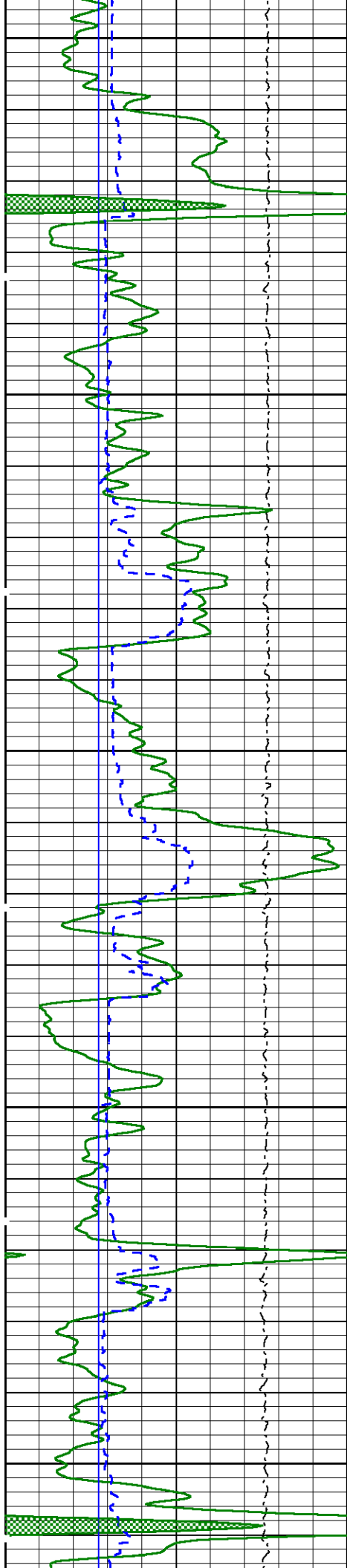




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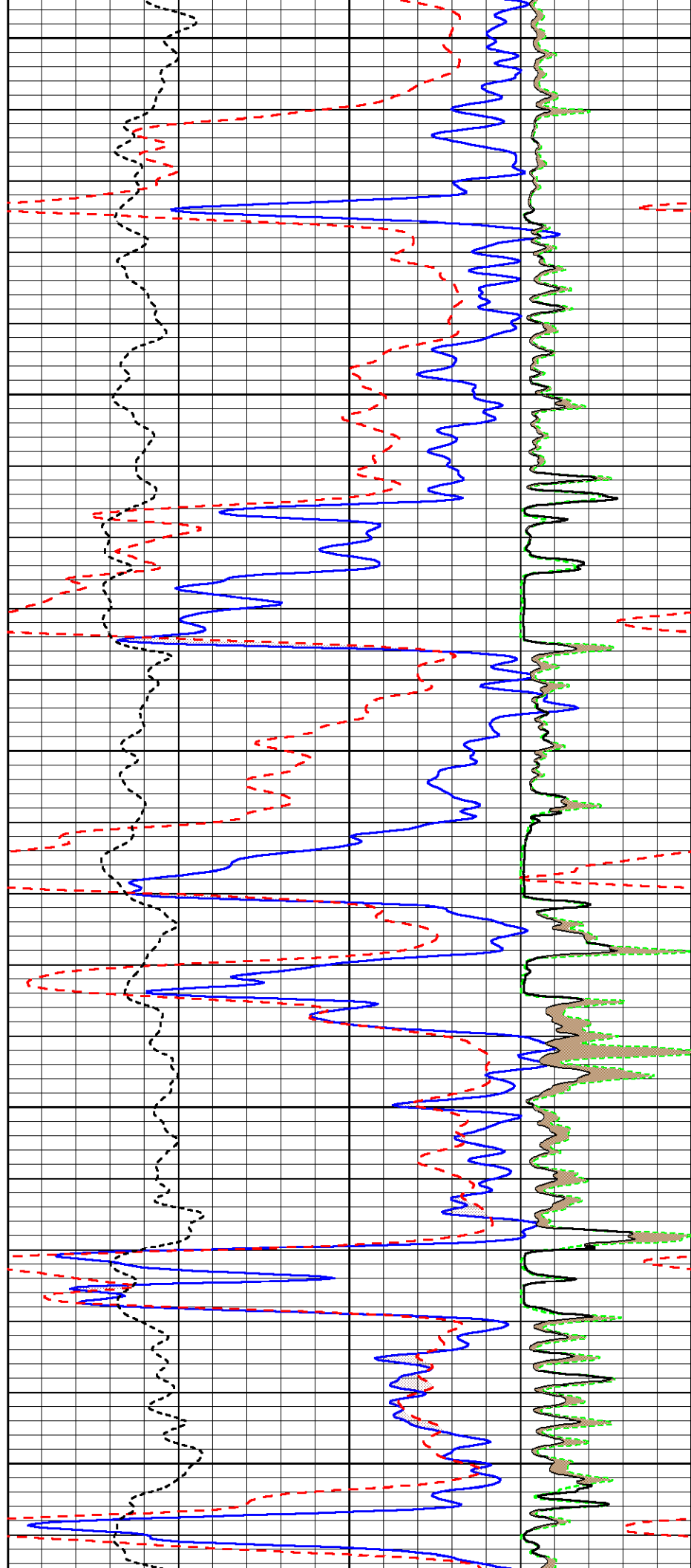
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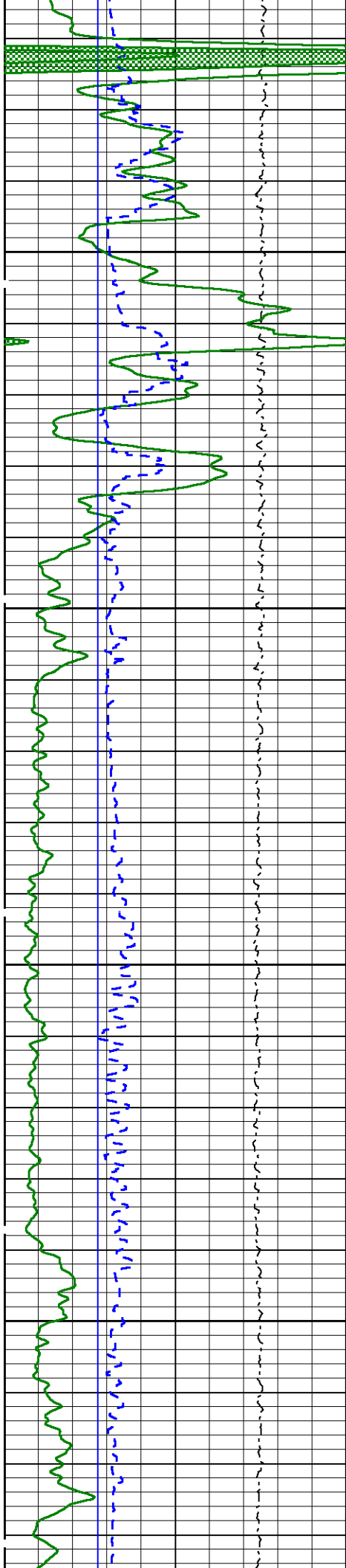




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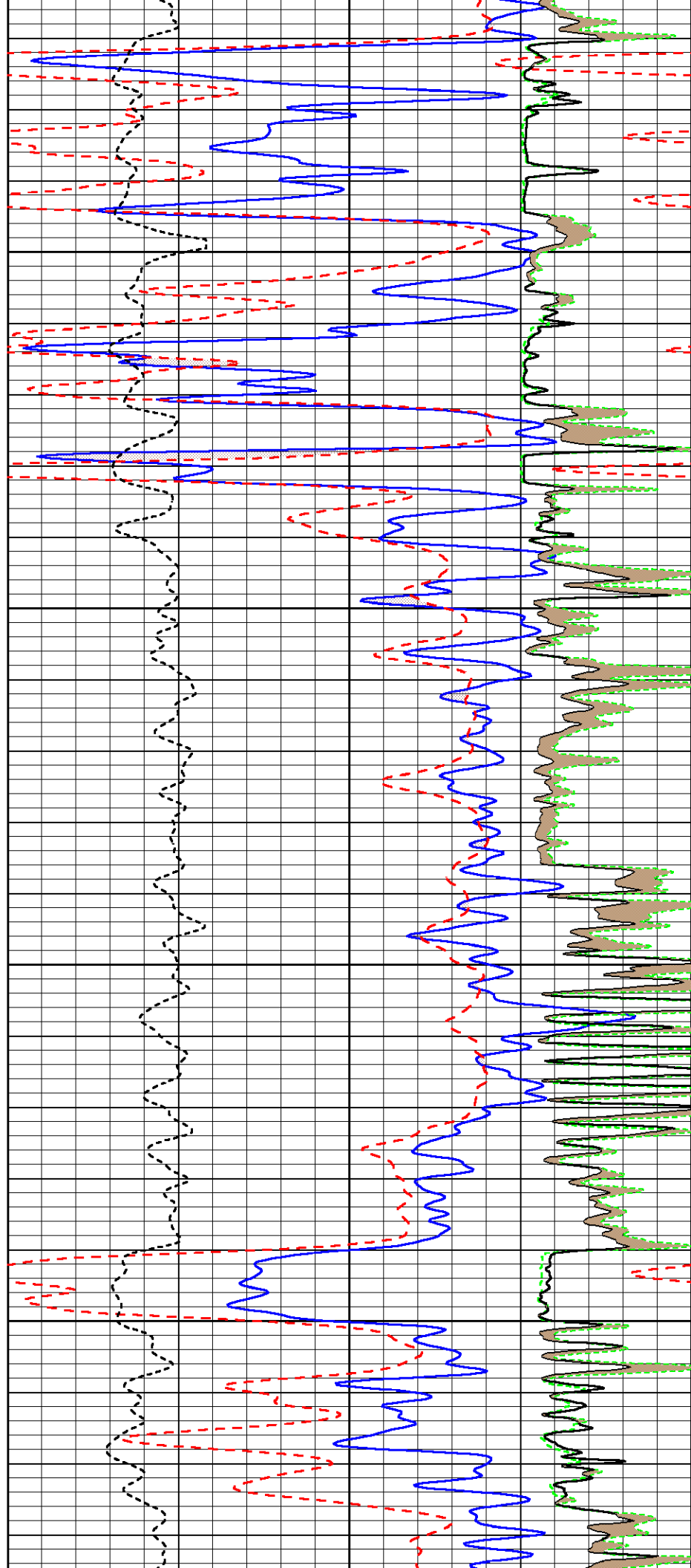
5000

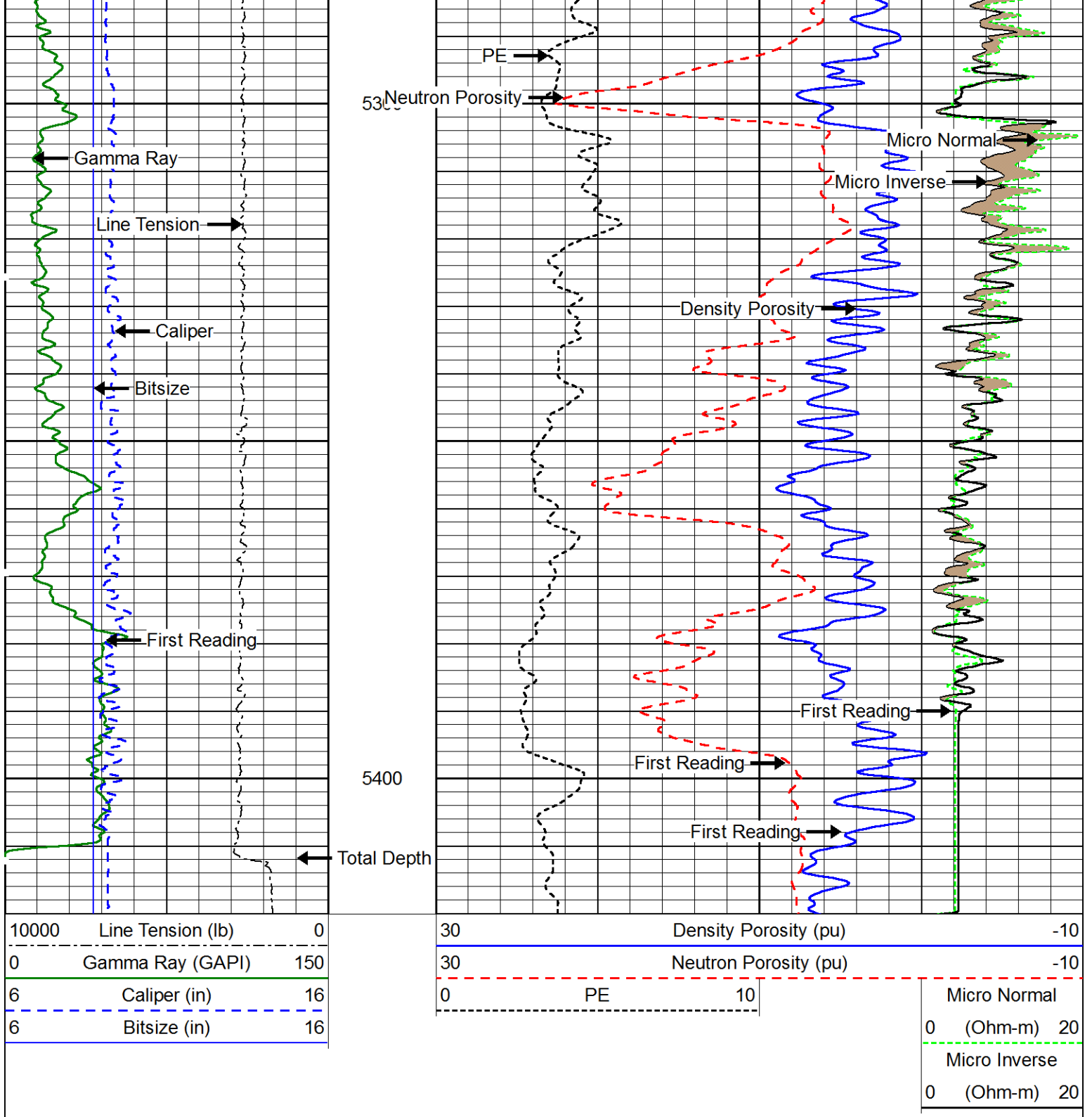




5100

5200





Repeat Pass

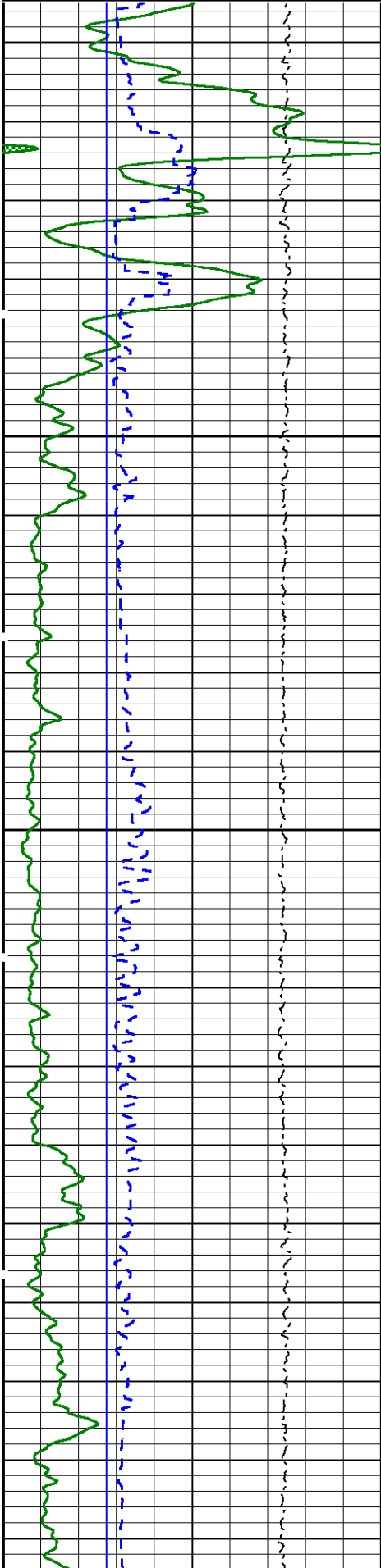
Database File: rbtgry20_1h.db
 Dataset Pathname: pass8
 Presentation Format: alimed
 Dataset Creation: Mon Nov 14 16:21:12 2011 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

10000	Line Tension (lb)	0	30	Density Porosity (pu)	-10
0	Gamma Ray (GAPI)	150	30	Neutron Porosity (pu)	-10

6	Caliper (in)	16
6	Bitsize (in)	16

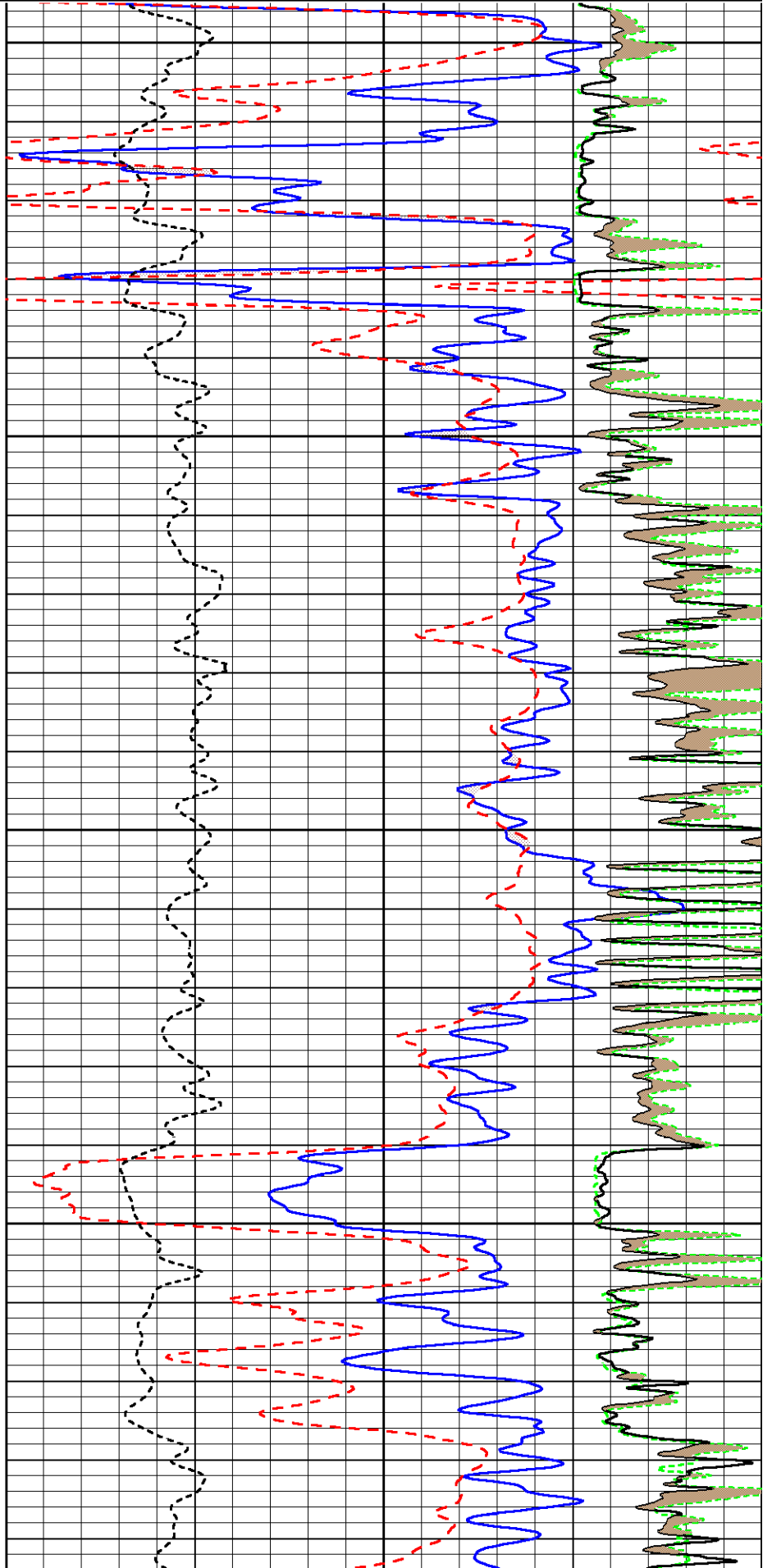
0	PE	10
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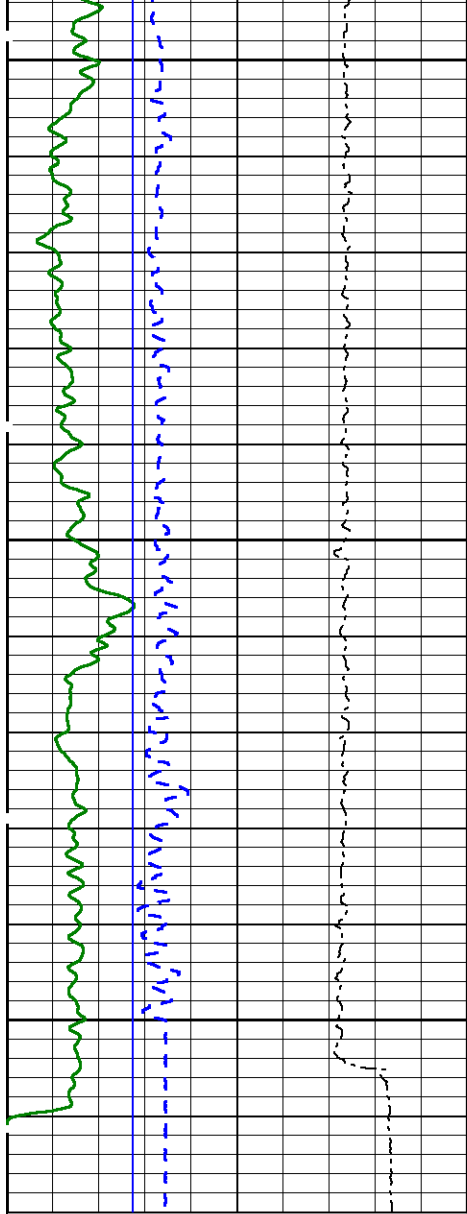
	Micro Normal	
0	(Ohm-m)	20
	Micro Inverse	
0	(Ohm-m)	20



5100

5200

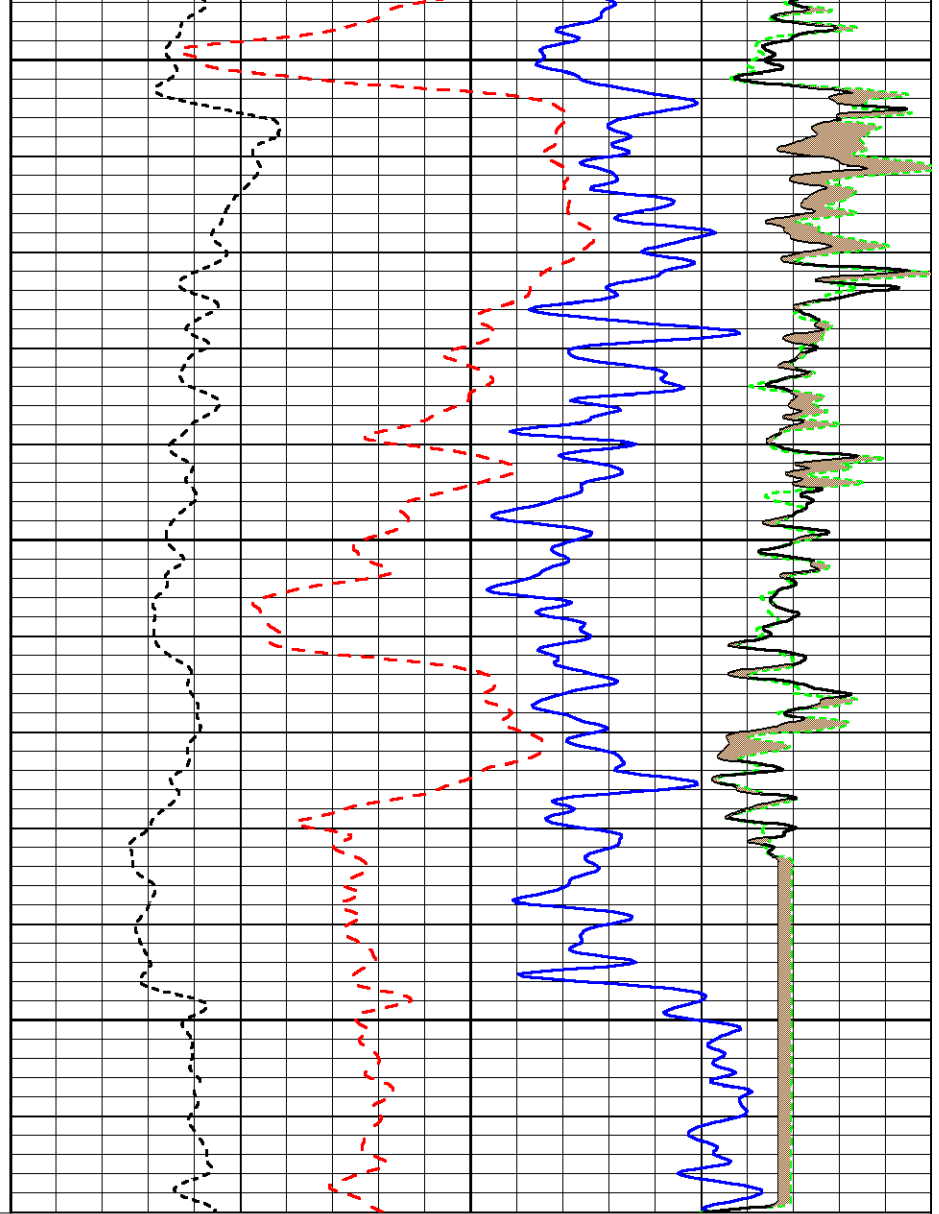




5300

5400

10000	Line Tension (lb)	0
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
6	Bitsize (in)	16



30	Density Porosity (pu)	-10
30	Neutron Porosity (pu)	-10
0	PE	10

	Micro Normal	
0	(Ohm-m)	20
	Micro Inverse	
0	(Ohm-m)	20

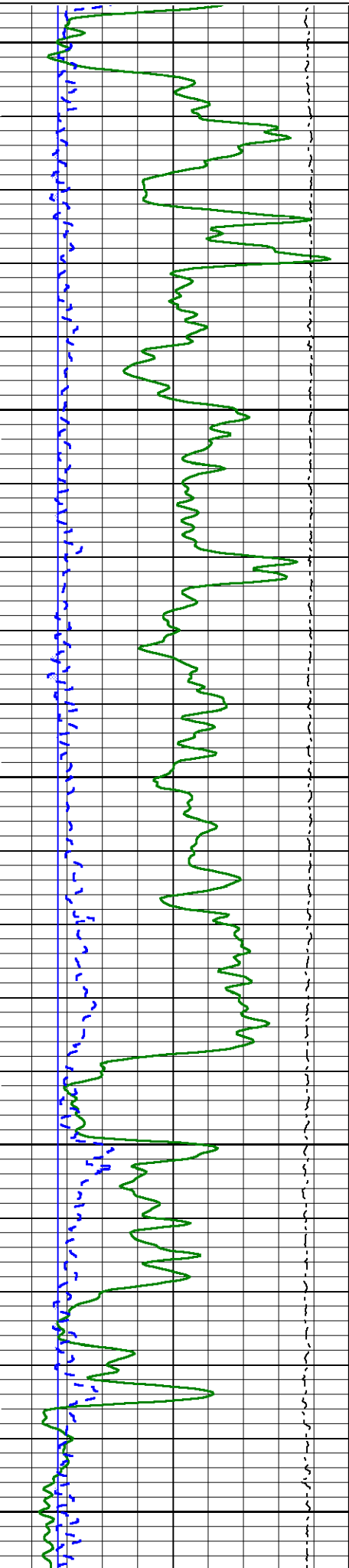


Main Pass

Database File: rbtgry20_1h.db
 Dataset Pathname: pass9
 Presentation Format: abulk
 Dataset Creation: Mon Nov 14 16:40:21 2011 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

7	Bitsize (in)	17
0	Gamma Ray (GAPI)	150
7	Caliper (in)	17
11000	Line Tension (lb)	1000

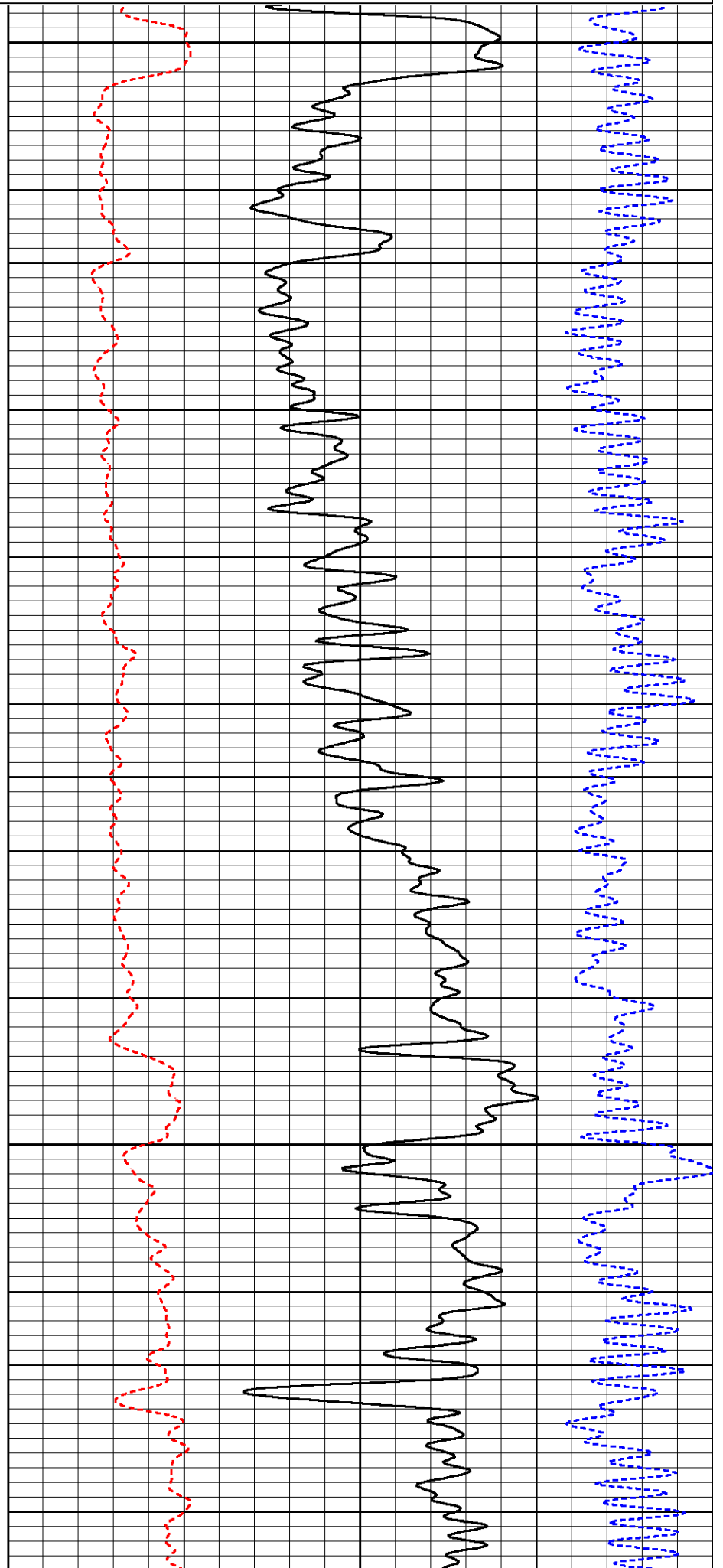
0	PE	10	-0.25	Density Correction (g/cc)	0.25
2	Bulk Density (g/cc)		3		

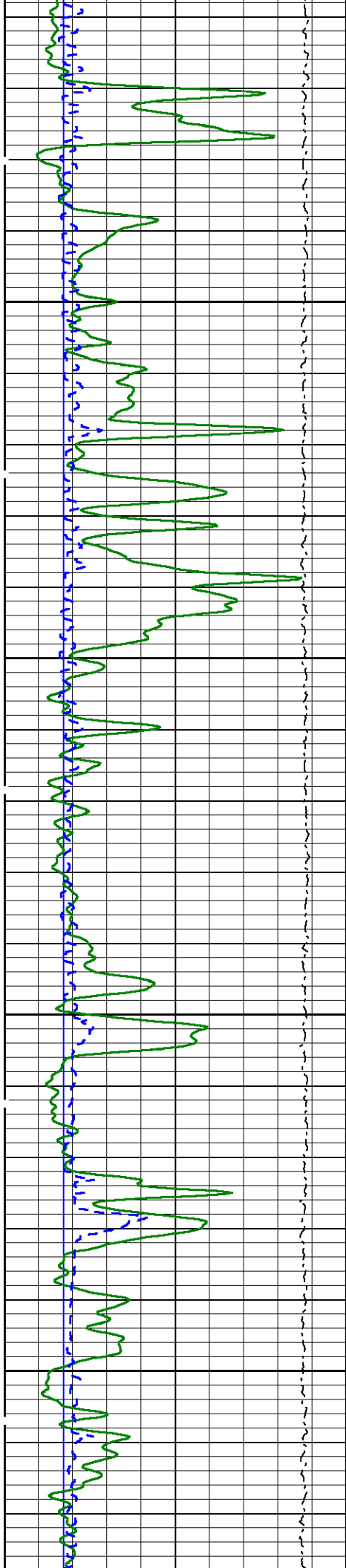


4300

4400

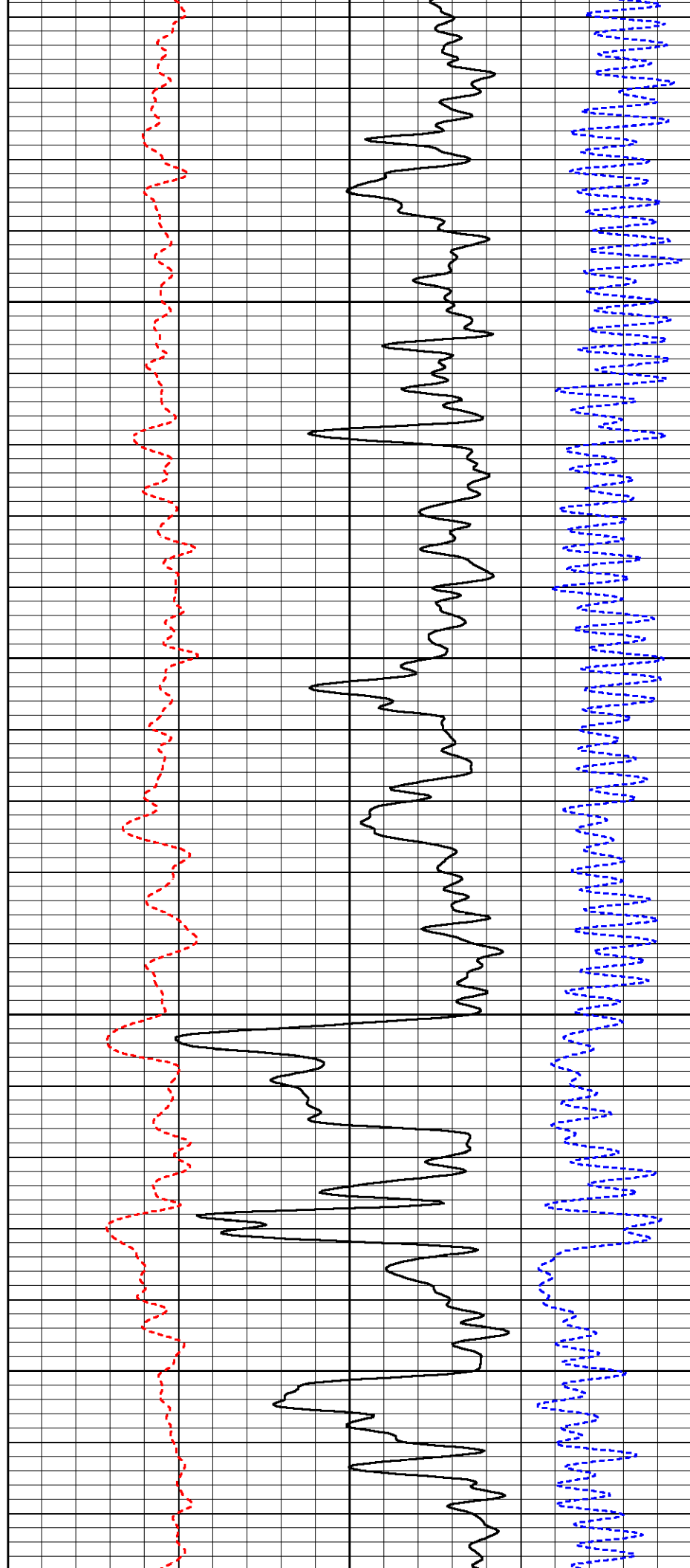
4500

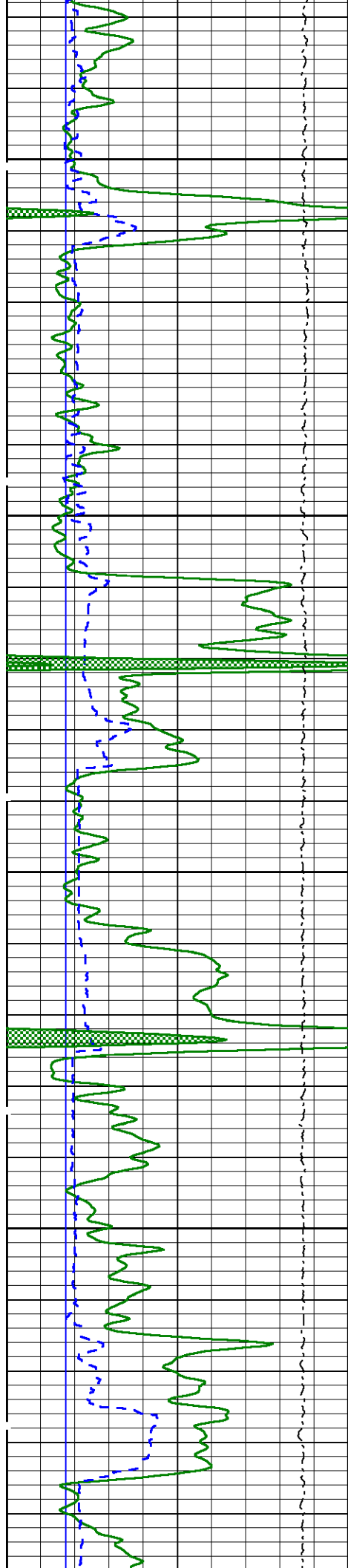




4600

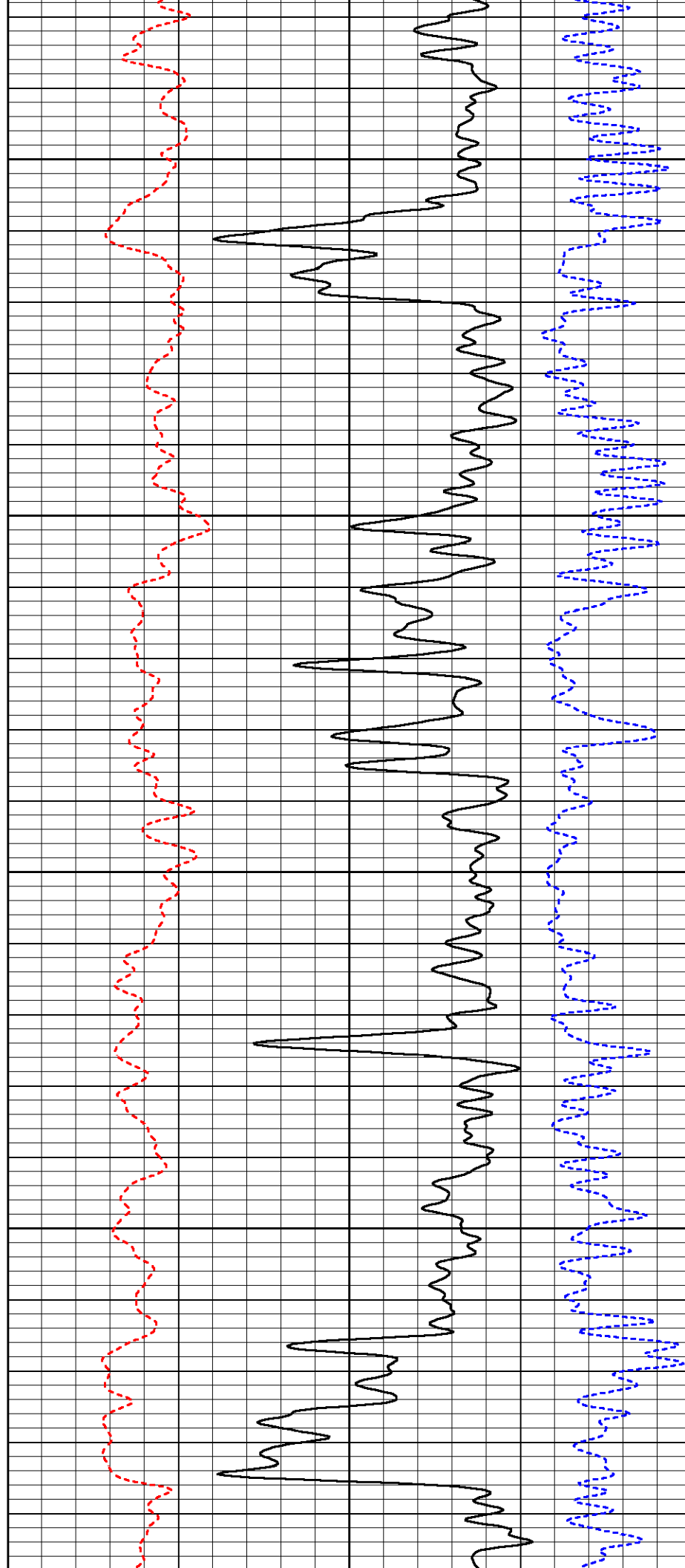
4700

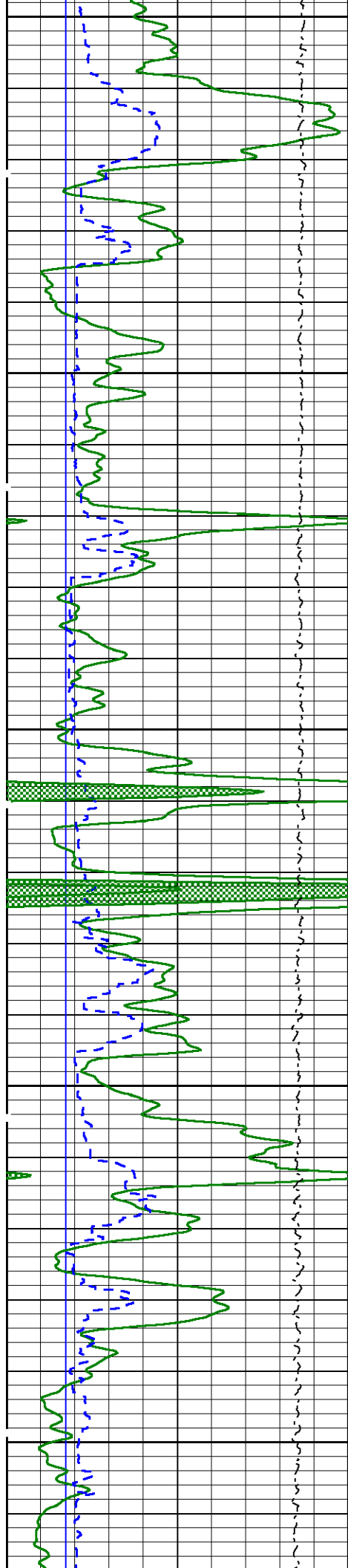




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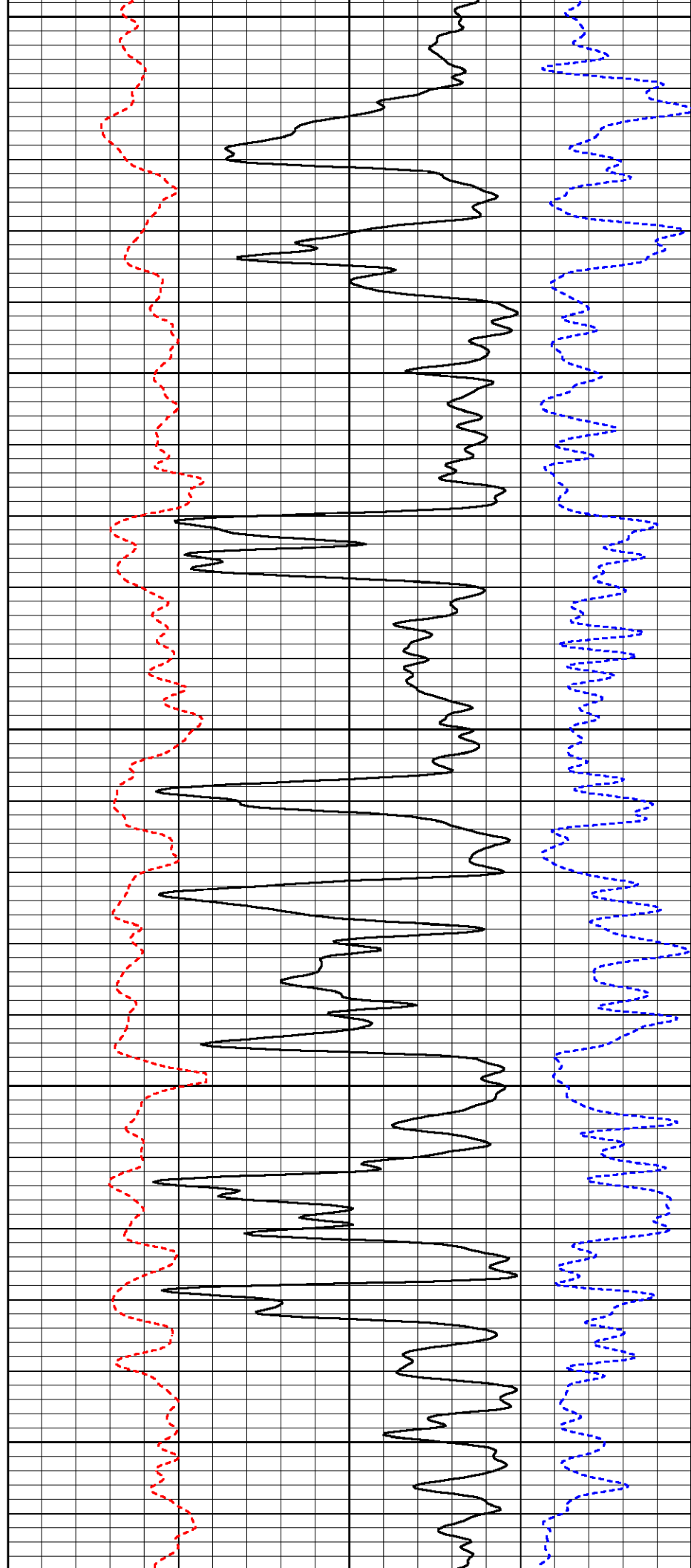
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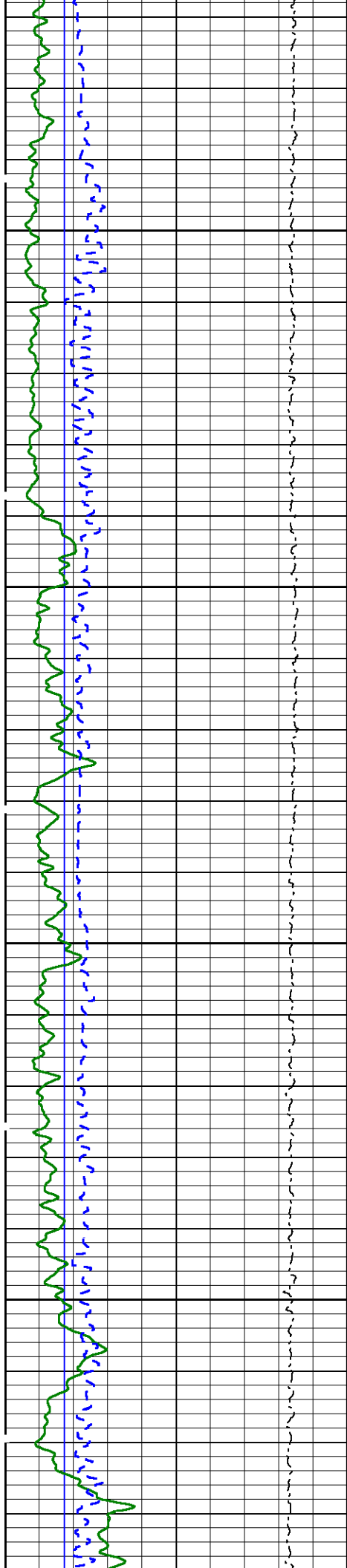




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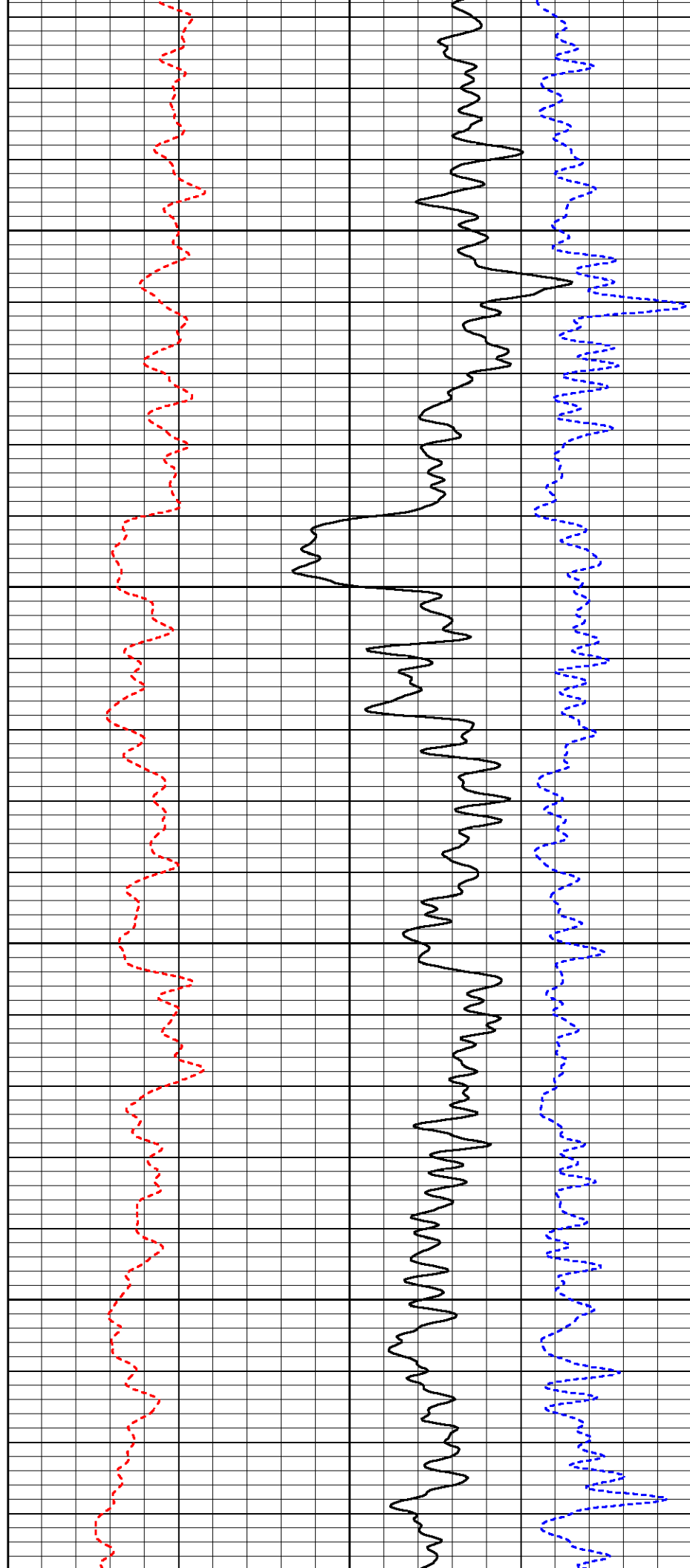
5100

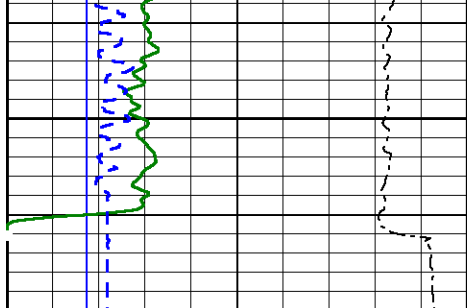




5200

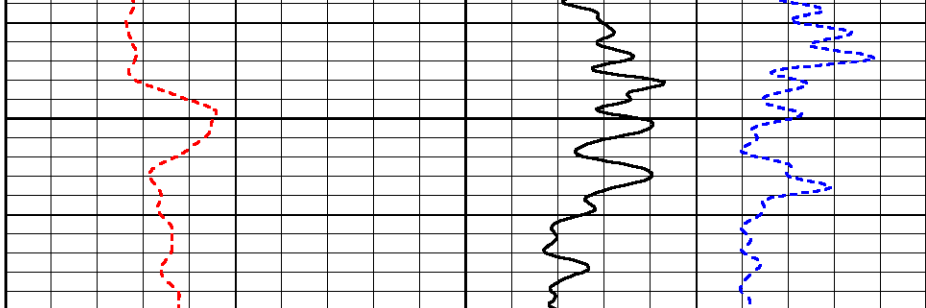
5300





5400

7	Bitsize (in)	17
0	Gamma Ray (GAPI)	150
7	Caliper (in)	17
11000	Line Tension (lb)	1000



0	PE	10	-0.25	Density Correction (g/cc)	0.25
2	Bulk Density (g/cc)				3

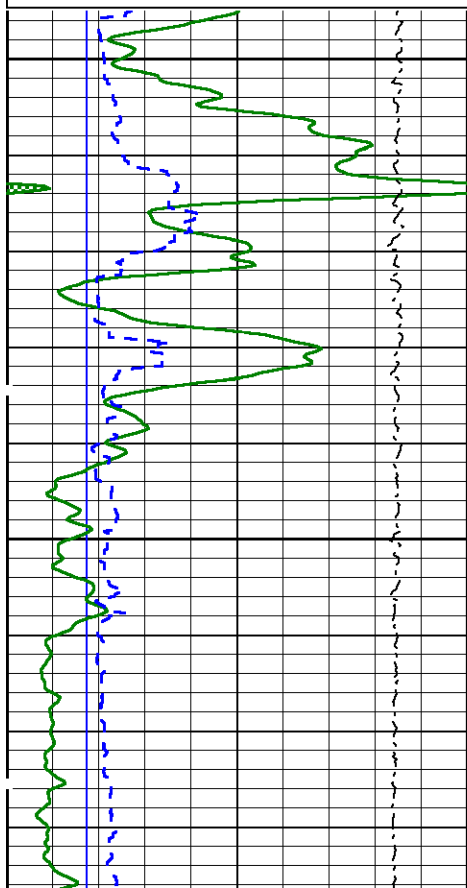


Repeat Pass

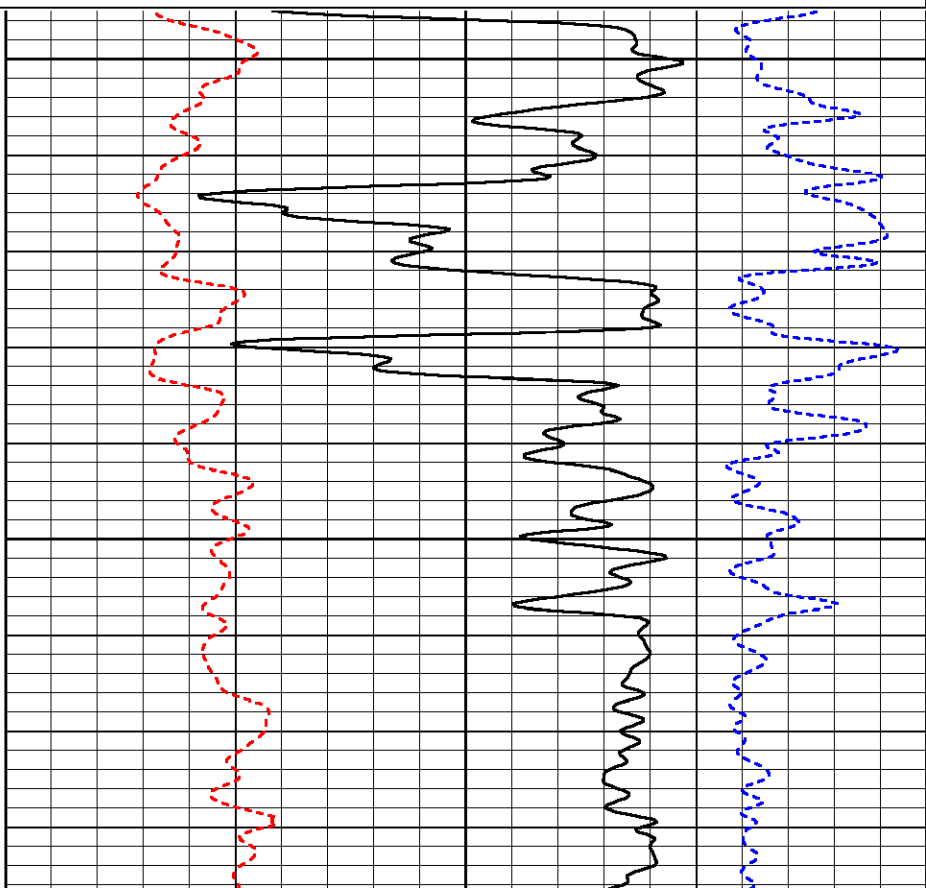
Database File: rbtgry20_1h.db
 Dataset Pathname: pass8
 Presentation Format: abulk
 Dataset Creation: Mon Nov 14 16:21:12 2011 by Log Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

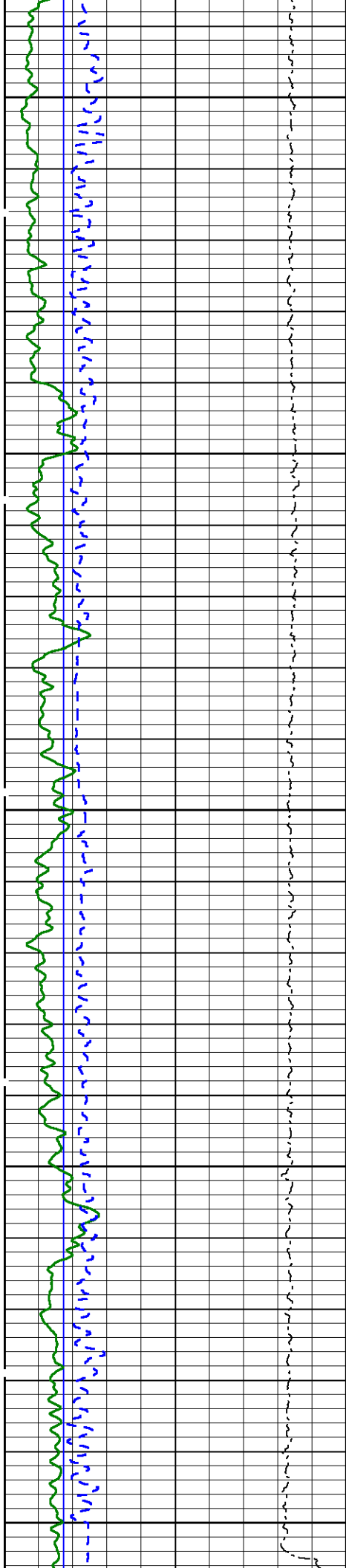
7	Bitsize (in)	17
0	Gamma Ray (GAPI)	150
7	Caliper (in)	17
11000	Line Tension (lb)	1000

0	PE	10	-0.25	Density Correction (g/cc)	0.25
2	Bulk Density (g/cc)				3



5100

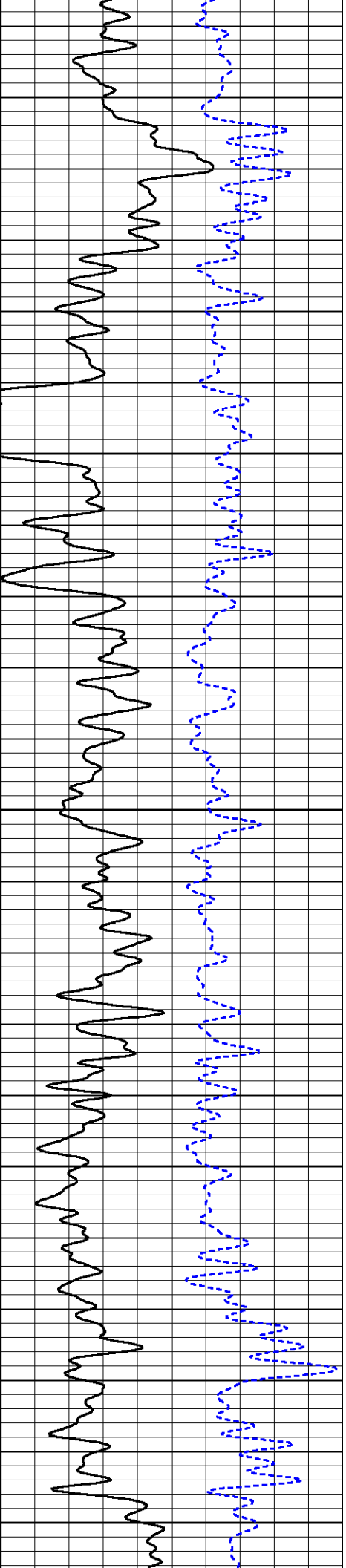
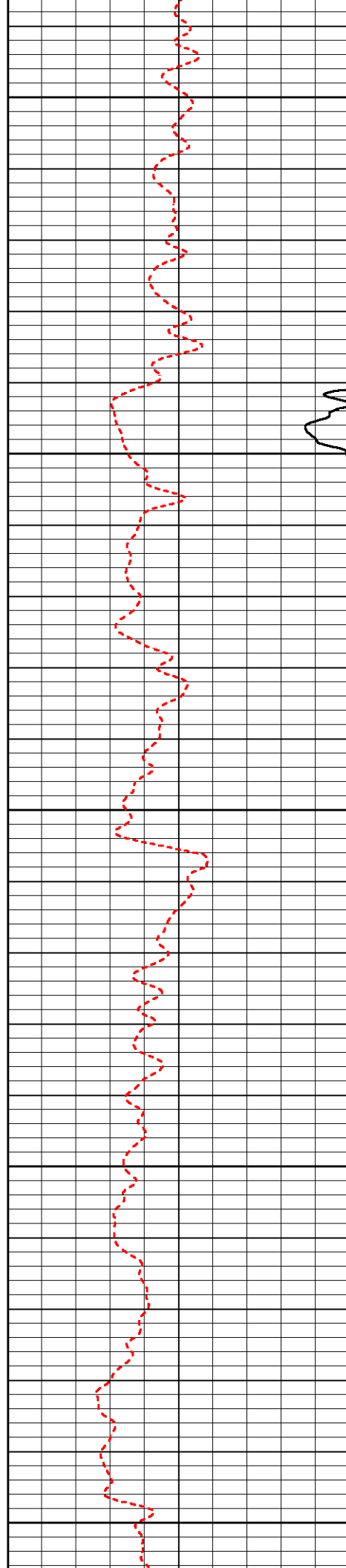




5200

5300

5400



7	Bitsize (in)	17
0	Gamma Ray (GAPI)	150
7	Caliper (in)	17
11000	Line Tension (lb)	1000

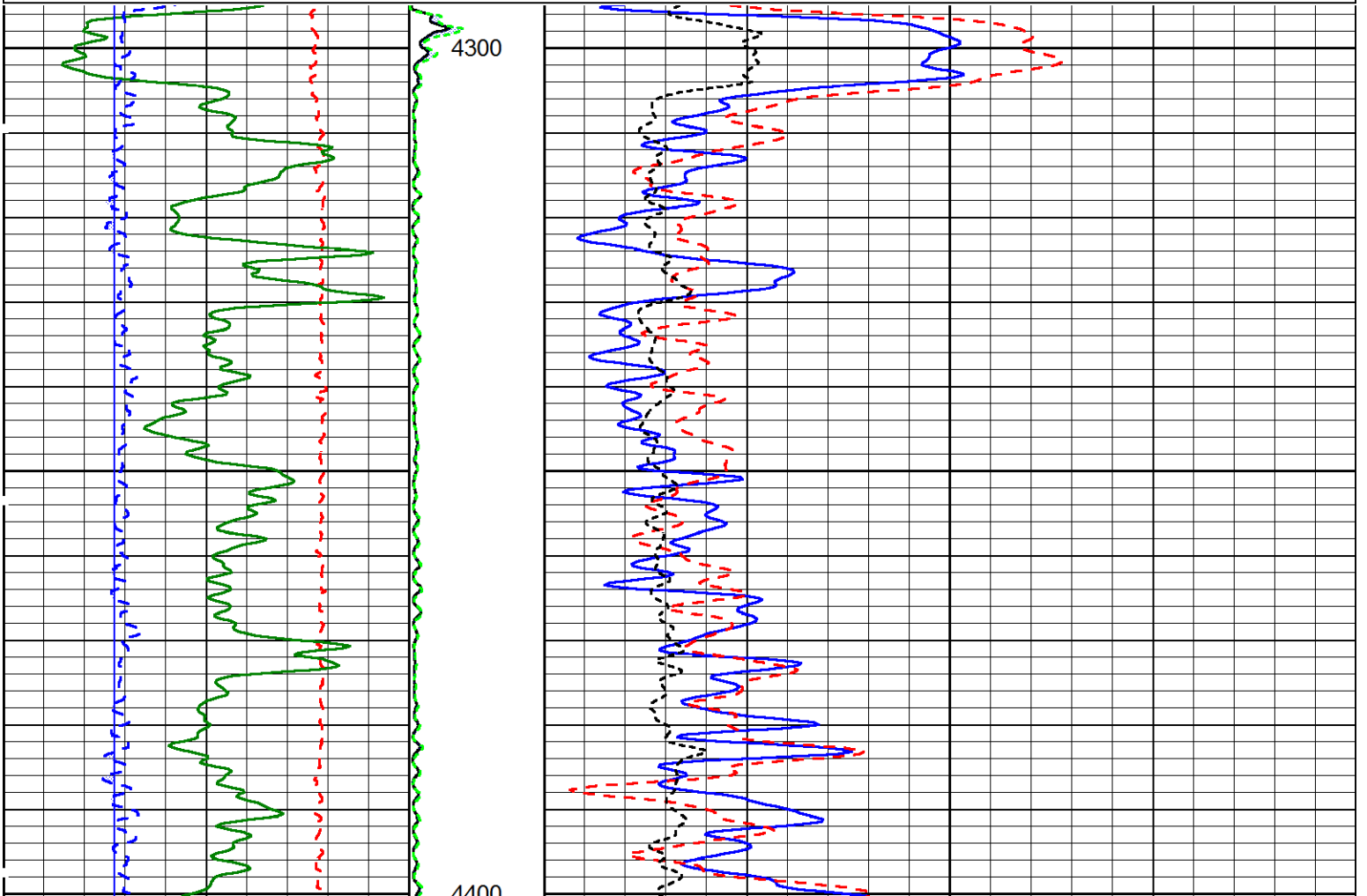
0	PE	10	-0.25	Density Correction (g/cc)	0.25
2	Bulk Density (g/cc)		3		

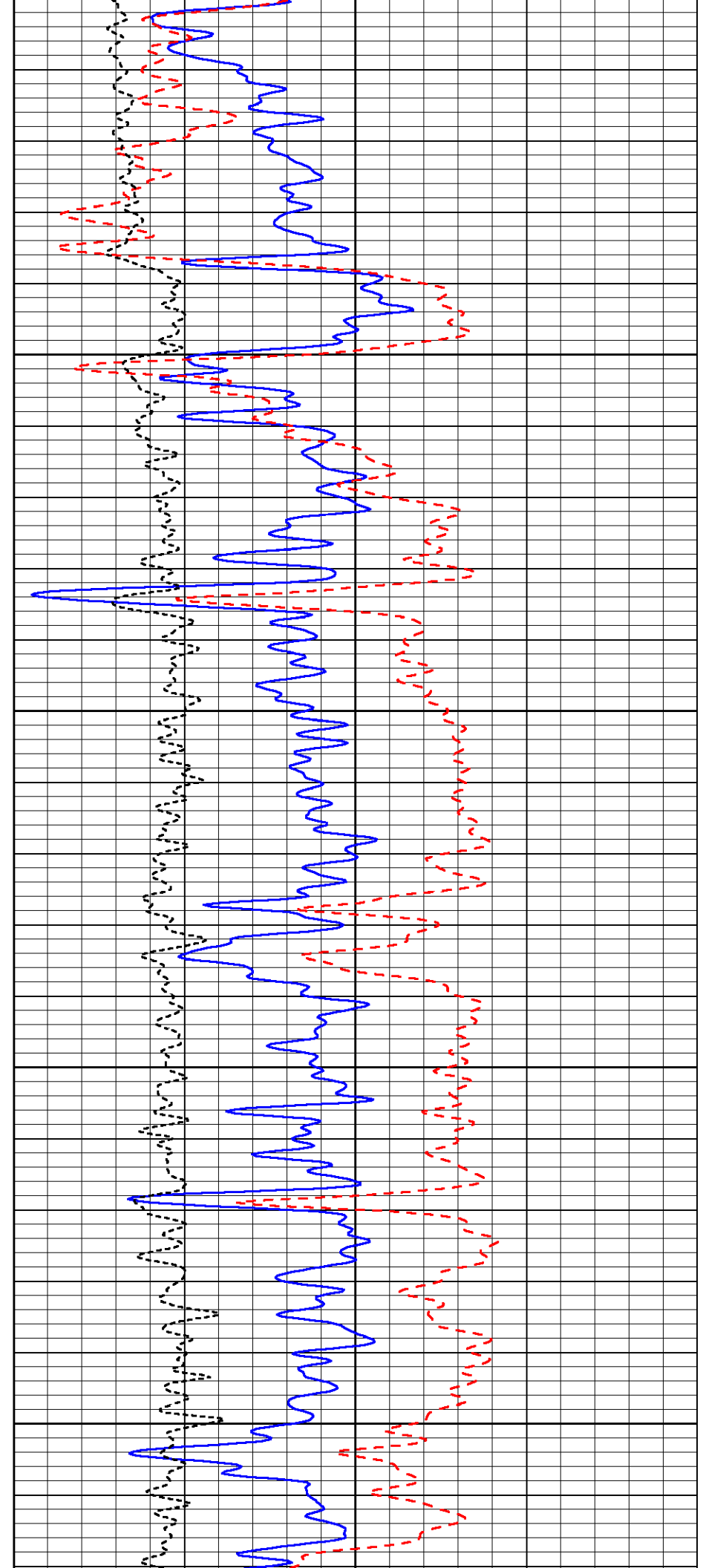
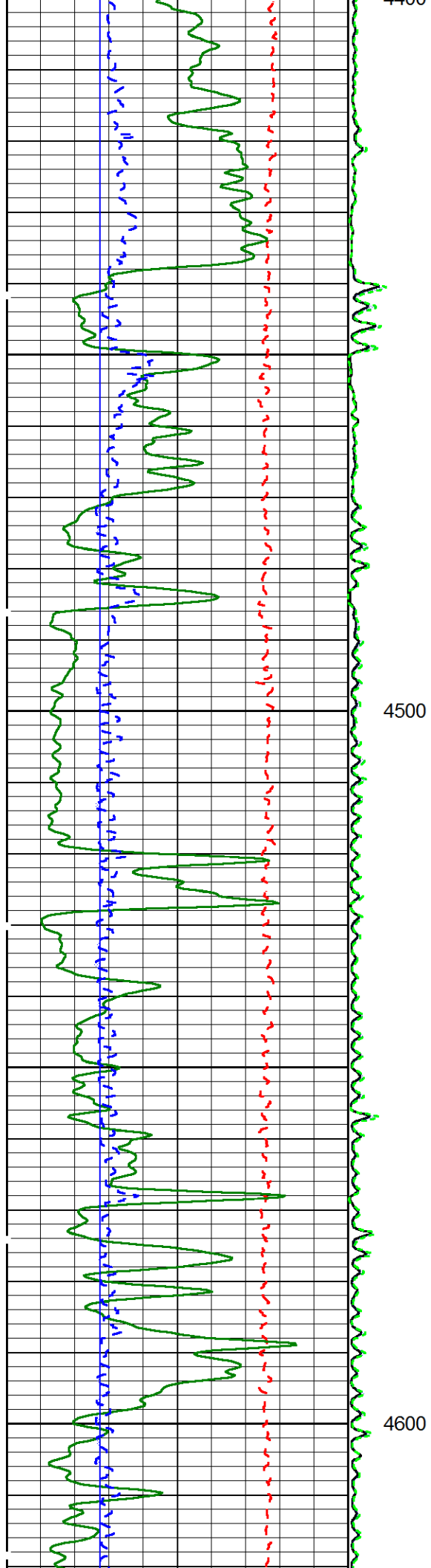


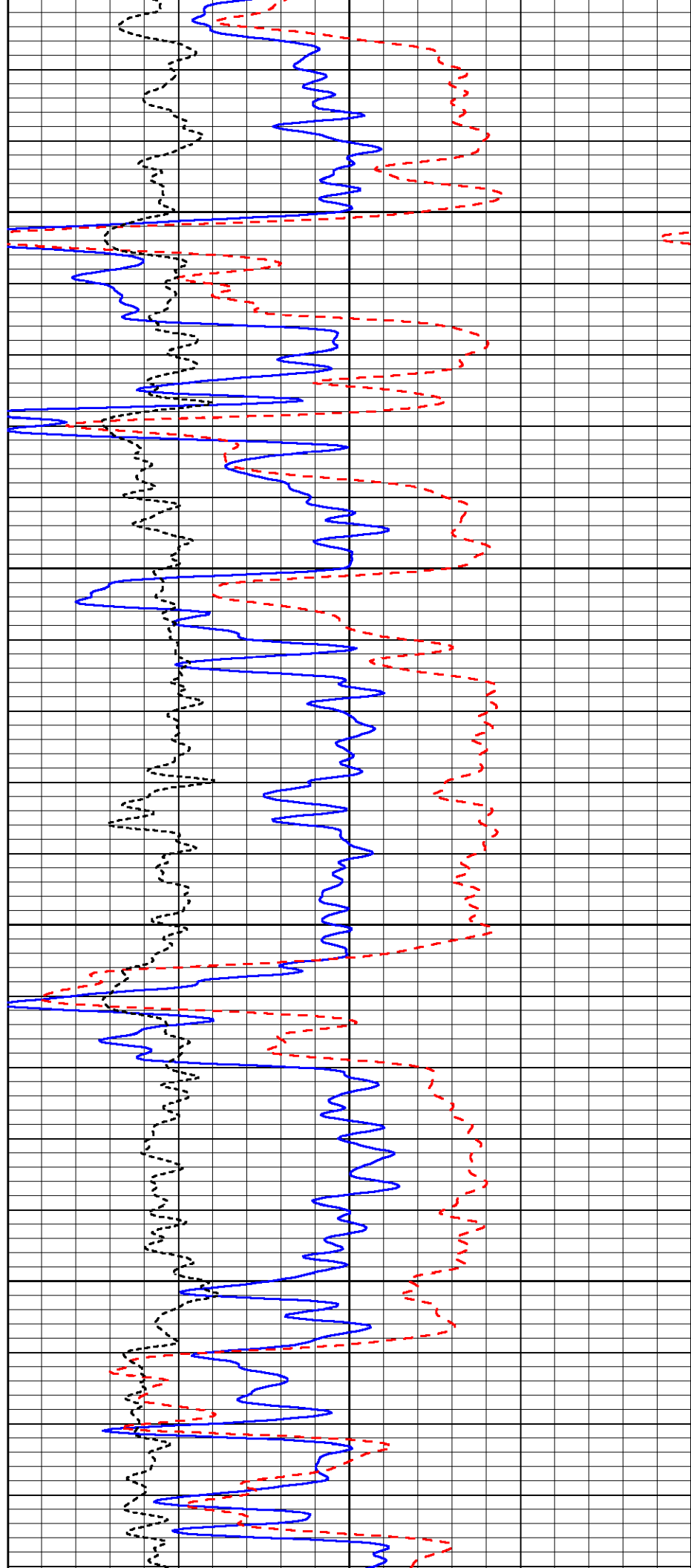
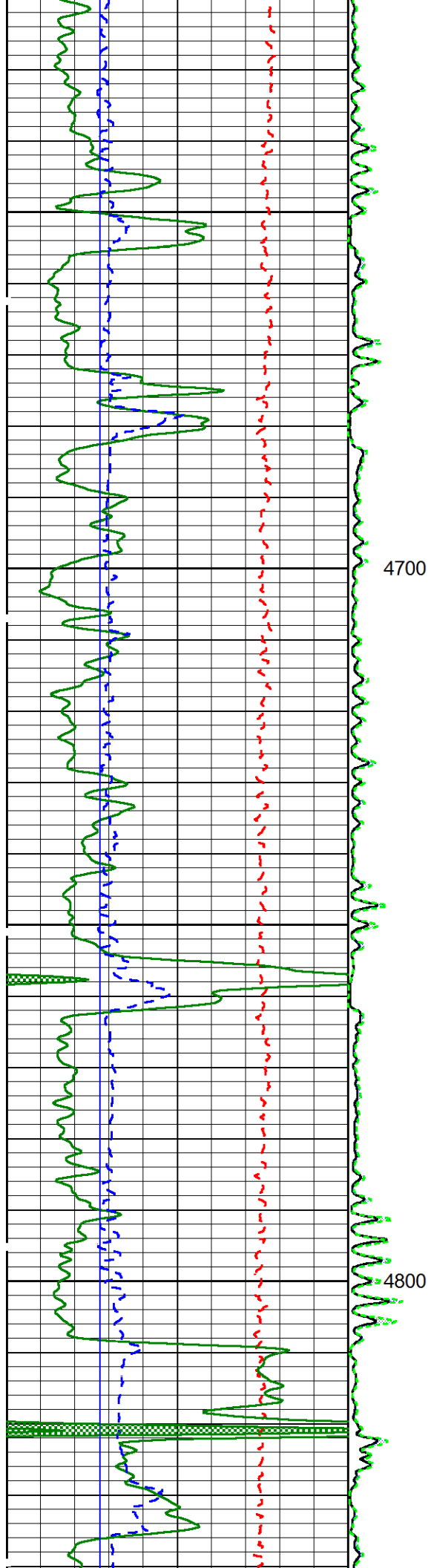
Main Pass Dolomite 2.83

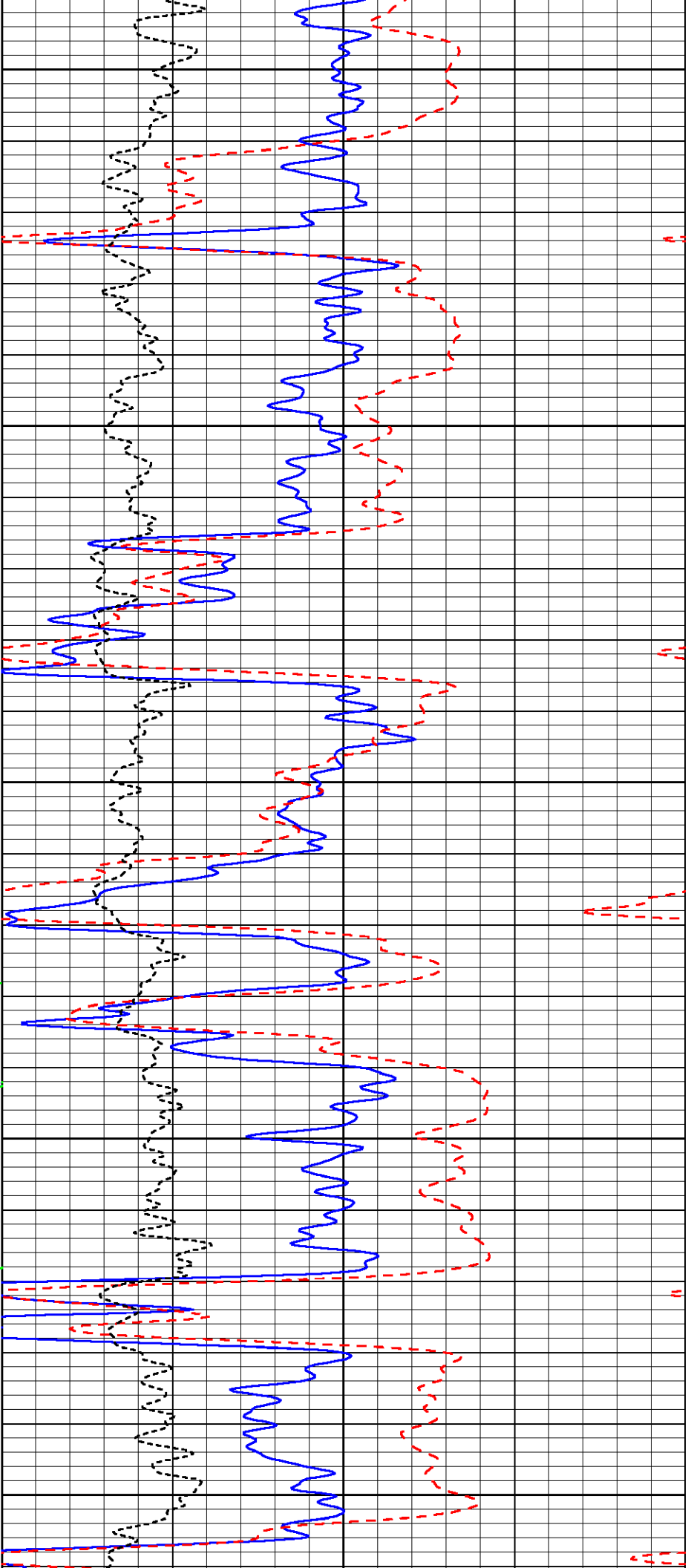
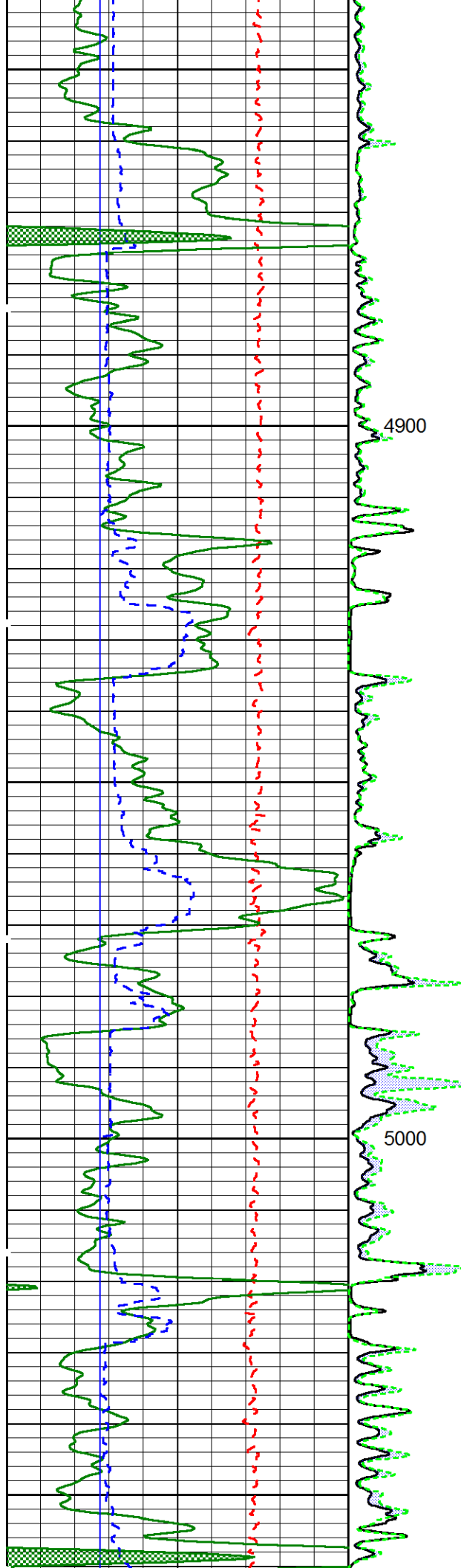
Database File: reeder5689.db
 Dataset Pathname: DoloPass
 Presentation Format: ALIMED~2
 Dataset Creation: Tue Nov 15 15:18:16 2011 by Calc Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

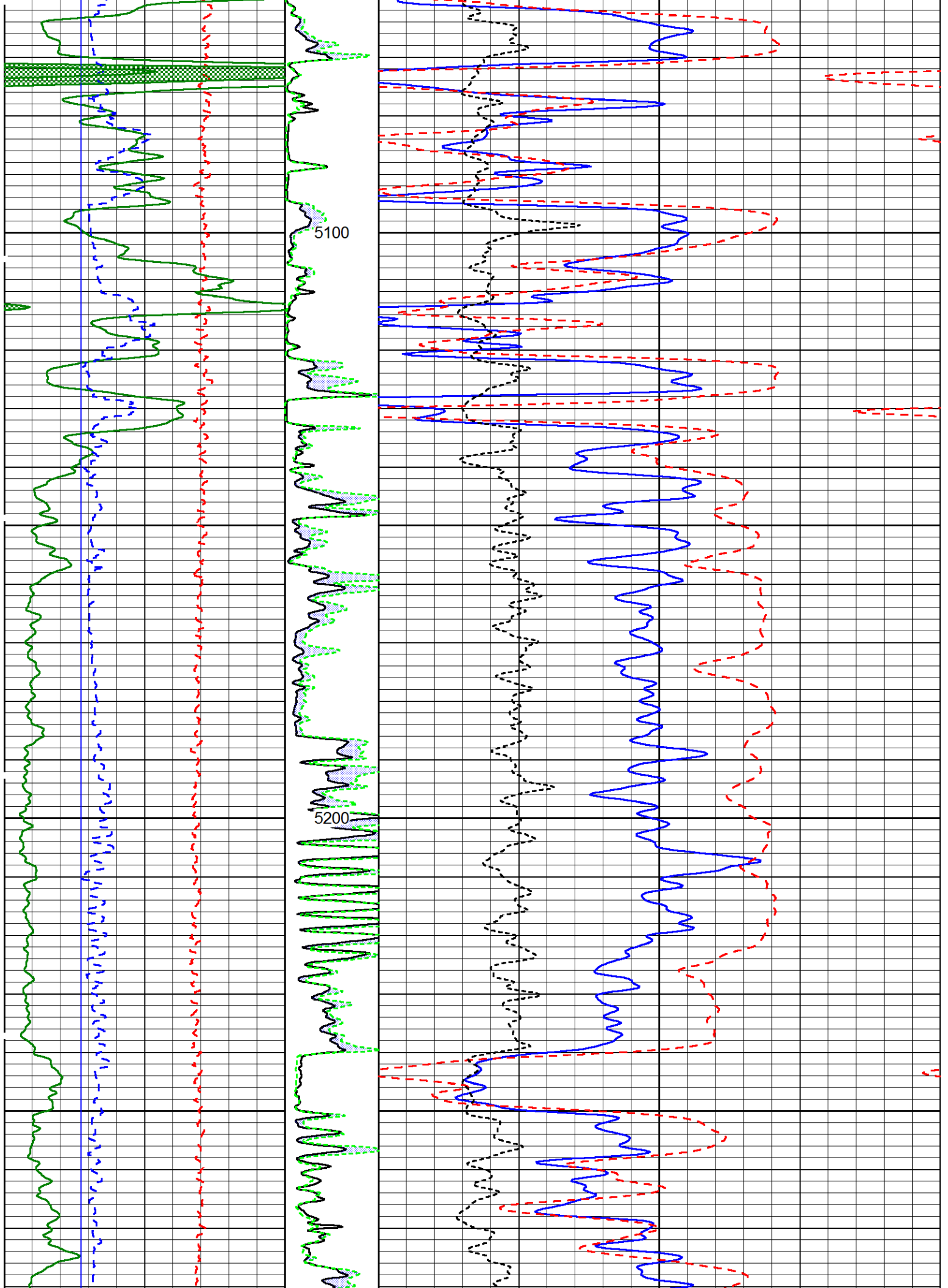
6000	TENSION (lb)	1000	INV	30	DENSITY POROSITY (pu)	-10
0	GAMMA RAY (GAPI)	150	(Ohm-m)	30	NEUTRON POROSITY (pu)	-10
6	CALIPER (in)	16	0 20	0	PE	10
6	BITSIZE (in)	16	NORM			
			(Ohm-m)			
			0 20			

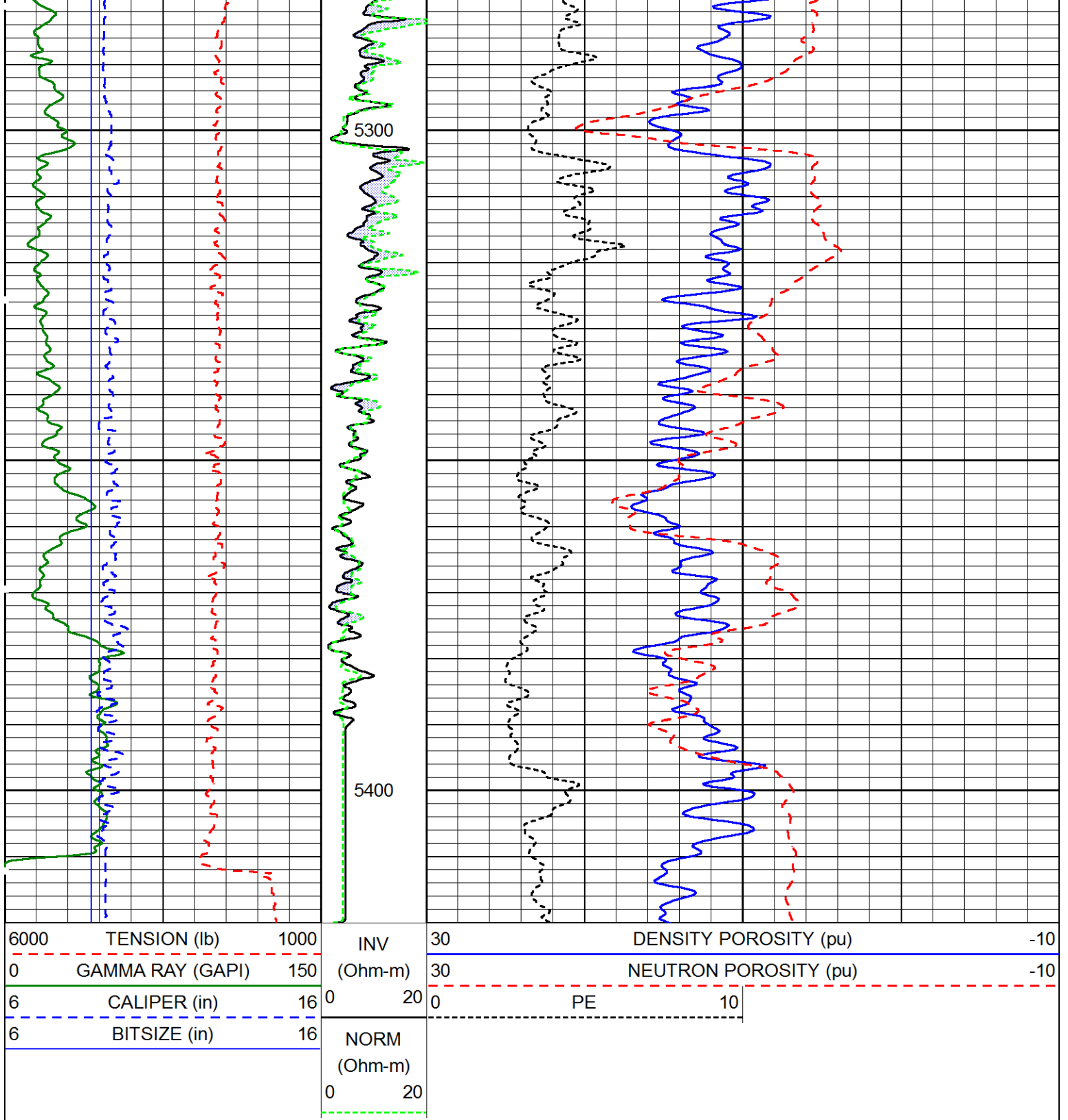












Calibration Report

Database File: rbtgry20_1h.db
 Dataset Pathname: pass9
 Dataset Creation: Mon Nov 14 16:40:21 2011 by Log Sondex V7.03

Litho Density Tool Calibration Report

Serial Number: B10112S50129B
 Tool Model: 002

Caliper Calibration Performed: Tue Oct 25 10:38:12 2011

Diameter	Reading
0.000	1050.100

Small Ring:	6.000	in	1353.100	cps
Large Ring:	13.000	in	2087.400	cps
Gain:	0.0095			
Offset:	-6.8990			

Master Calibration Performed:	Tue Oct 18 12:21:29 2011
Source Number:	50129B
Medium:	Water
Al Block Density:	2.6010 g/cc

	Background	Al Block	Al Block + Fe	
SS1	803.5	4547.1	3821.9	cps
SS2	2278.2	31708.1	26792.5	cps
SSTOTAL	5326.7	50570.0	42374.6	cps
LITH	114.2	542.6	328.8	cps
LL	219.3	913.1	792.9	cps
LU	641.6	1220.2	1129.1	cps
LS	860.9	2133.2	1922.0	cps
LSTOTAL	1628.3	5157.3	4174.8	cps
SSHV	1443.4	1445.0	1446.6	V
LSHV	1399.6	1400.1	1400.8	V
SSFF	0.001	0.009	-0.002	
LSFF	-0.009	0.017	0.008	

Before Survey Verification Performed:	Sun Nov 13 13:41:21 2011
After Survey Verification Performed:	

	Master Background	Before Survey Background	After Survey Background	
SS1	803.5	803.0		cps
SS2	2278.2	2277.8		cps
SSTOTAL	5326.7	5311.9		cps
LITH	114.2	115.2		cps
LL	219.3	222.6		cps
LU	641.6	642.4		cps
LS	860.9	865.0		cps
LSTOTAL	1628.3	1629.3		cps
SSHV	1443.4	608.1		V
LSHV	1399.6	528.4		V
SSFF	0.001	0.011		
LSFF	-0.009	0.006		

Tool Module Parameters

Software Version:	2.5.1.0
Borehole Size Source:	CALI
Pad Type:	2

Compensated Neutron Tool Calibration Report

Serial Number:	C10071
Tool Model:	009

Master Calibration Performed:	Mon Nov 07 10:06:19 2011	
Source Number:	66005	
Short Spacing Counts:	4887.06	cps
Long Spacing Counts:	191.33	cps
High Voltage:	1364.02	V

Target Ratio: 27.2000
 Ratio: 25.5423
 K-Factor: 1.0649

Before Survey Verification Performed: Sun Nov 13 13:46:51 2011
 After Survey Verification Performed:

Verifier Number: 6689

Verifier Values	Master Cal	Before Survey	After Survey
Short Spacing Counts:	244.90	247.67	cps
Long Spacing Counts:	273.76	281.10	cps
High Voltage:	1363.99	1364.05	V
Ratio:	0.8946	0.8811	

Tool Module Parameters

Software Version: 1.4.1.0
 Borehole Size Source: CALI
 Clip Crossplot Porosity: YES

Micro Electric Log Calibration Report

Serial Number: 000001
 Tool Model: 001

Caliper Calibration Performed: Sat Jun 11 15:43:46 2011

	Diameter		Reading 1	Reading 2
Small Ring:	3.000	in	1340.000	1319.100
Large Ring:	6.500	in	1384.600	1441.400
Gain:			0.0785	0.0286
Offset:			-102.1570	-34.7502

Pad Calibration

	Inverse	Normal
Gain:	1.0000	1.0000
Offset:	0.0000	-0.5000

Gamma Ray Calibration Report

Serial Number: C10047
 Tool Model: 001

Performed: Sun Nov 13 13:26:12 2011

Calibrator Value:	147.0	GAPI
Background Reading:	71.3	cps
Calibrator Reading:	522.8	cps
Sensitivity:	0.3255	GAPI/cps

Log Variables

Database: C:\Warrior\Data\rbtgry20_1h.db
 Dataset: field/well/run1/pass9

Top - Bottom

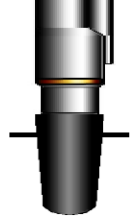
FRMSALIN kppm 0	MUDSALIN kppm 0	DEVI ° 0	SRFTEMP degF 68	SO in 0.25	DE-CENT Yes	CASED? No	CASEWGHT lb/ft 26
AIR_HOLE?	MudWgt lb/gal	FLUIDDEN g/cc	MATRXDEN g/cc	MAXAMPL mV	MINAMPL mV	MINATTN db/ft	COMPACT

No	9.1	1	2.71	0	1	0.8	1
SVFLUID usec/ft 189	SVMATRIX usec/ft 47.6	SPSHIFT mV 10	CASEOD in 7	PERFS 0	TDEPTH ft 5735	BOTTEMP degF 121	BOREID in 8.75

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)
GR	31.60		CHD-001 (000004) Cable Head	2.19	3.38	35.00
			XTU-008 (C10087) Crossover Ultrawire Toolbus to Ultralink	2.08	3.38	47.00
			GRT-001 (C10047) Gamma Ray Tool	3.22	3.38	69.00
MEL	21.61		MEL-001 (000001) Micro Electric Log	9.17	3.38	190.00
			KJT-001 (000002) Knuckle Joint	2.86	3.38	72.00
			CNLSC CNSSC	13.94 13.44	CNL-009 (C10071) Compensated Neutron Logging Tool	5.27
LDT-002 (B10112S50129B) Litho Density Tool	9.75				4.50	310.00

LDT

3.78



BN-HF (000003)
Holefinder

1.94

3.88

8.00

Dataset: rbtgry20_1h.db: field/well/run1/pass9
Total Length: 36.48 ft
Total Weight: 856.00 lb
O.D. 4.50 in