



Litho Density
Compensated Neutron
Microlog

Company	CRECO Operating, LLC	Company	CRECO Operating, LLC
Well	Holy Cow #1	Well	Holy Cow #1
Field	Enterprise N.E	Field	Enterprise N.E
County	Cowley	County	Cowley
State	Kansas	State	Kansas
Location:	990' FNL & 330' FEL SE NE NE	API #:	15-035-24445
SEC	35	TWP	33 S.
Permanent Datum	G.L.	RGE	3 E
Log Measured From	K.B.	Elevation	1168 ft.
Drilling Measured From	K.B.	10 ft. above perm. datum	
		K.B.	1178 ft.
		D.F.	1177 ft.
		G.L.	1168 ft.
Date	9/15/2011		
Run Number	One		
Depth Driller	3915 ft		
Depth Logger	3908 ft		
Bottom Logged Interval	3892 ft		
Top Log Interval	1900 ft		
Casing Driller	10.75 in @ 338 ft	@	@
Casing Logger	338 ft		
Bit Size	9.5 in	@	@
Type Fluid in Hole	WBM		
Density / Viscosity	8.7 / 70		
pH / Fluid Loss	10.5 / 5		
Source of Sample	Flowline		
Rm @ Meas. Temp	1.0 @ 65 degF	@	@
Rmf @ Meas. Temp	0.8 @ 65 degF	@	@
Rmc @ Meas. Temp	1.3 @ 65 degF	@	@
Source of Rmf / Rmc	Measured		
Rm @ BHT	.63 @ 107 degF	@	@
Time Circulation Stopped	1430		
Time Logger on Bottom	1915		
Maximum Recorded Temperature	107 degF		
Equipment Number	10001		
Location	OKC		
Recorded By	M.Gardner	W.Miller	
Witnessed By	D.Carmen		

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Equipment and Log Data															
Date: 9/15/2011			Service Order: 10214												
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.	10110		Serial No.	10071		Serial No.			Serial No.	10106		
O.D.	3.375 in.		Source No.	129B		Source No.	05		Centralizers			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	3908	338	0	150	30%	-10%	2.71	30%	-10%	LIME				0.2	2000
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

GR, MEL, CNL, LDT, and IAT all ran in combination.
Chlorides reported at 1800 mg/L.
LCM reported at 4%.
Neutron decentralized with bowspring.
Annular borehole volume calculated for 7" casing.

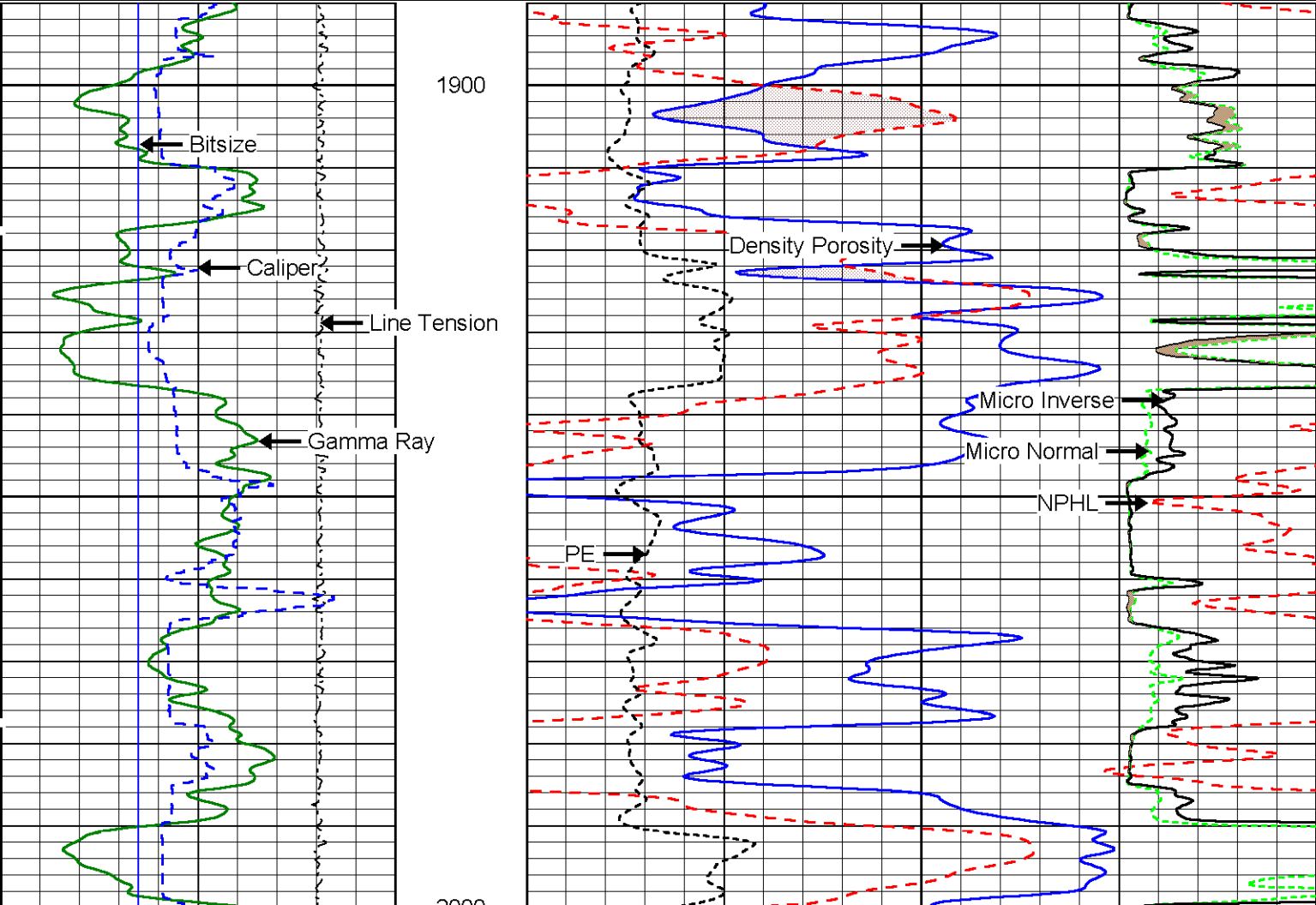
YOUR CREW TODAY: P.Murphy, K.Patton
THANK YOU FOR CHOOSING ALLIED WIRELINE. OKLAHOMA CITY, OK. (405) 445-7135.



Main Pass

Database File: holy_cow_1.db
Dataset Pathname: Main
Presentation Format: alimed
Dataset Creation: Thu Sep 15 21:00:44 2011 by Calc Sondex V7.03
Charted by: Depth in Feet scaled 1:240

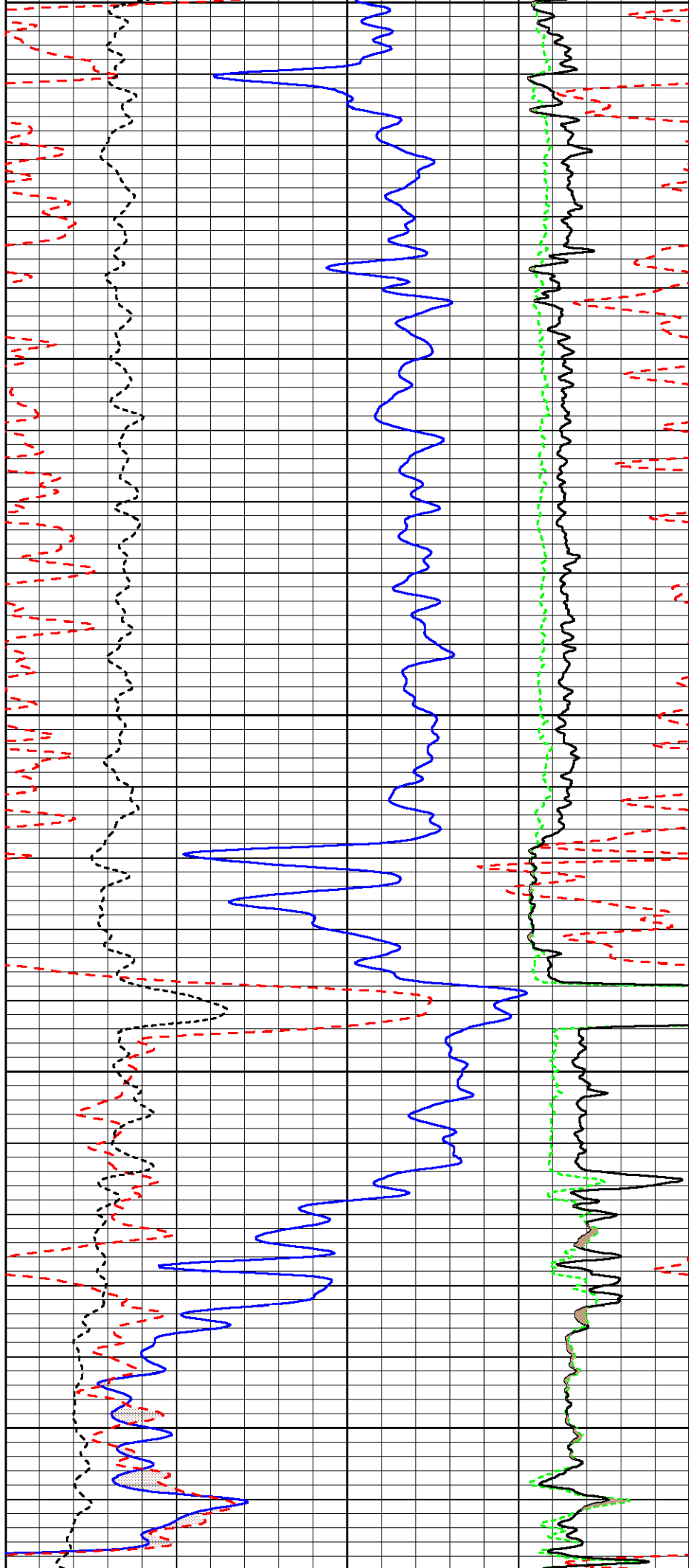
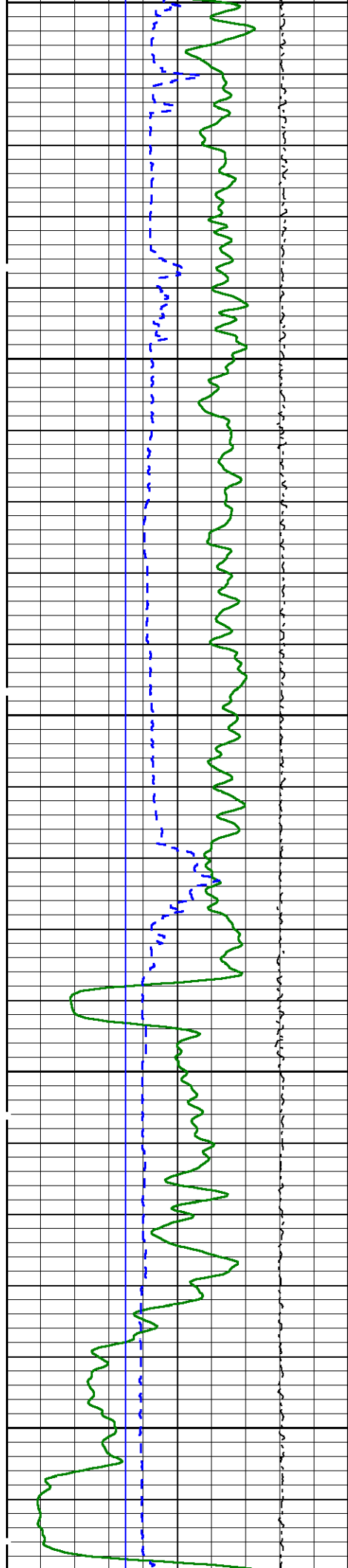
10000	Line Tension (lb)	0	30	Density Porosity (pu)	-10
0	Gamma Ray (GAPI)	150	30	Neutron Porosity (pu)	-10
6	Caliper (in)	16	0	PE	10
6	Bitsize (in)	16			
					Micro Normal
					0 (Ohm-m) 20
					Micro Inverse
					0 (Ohm-m) 20

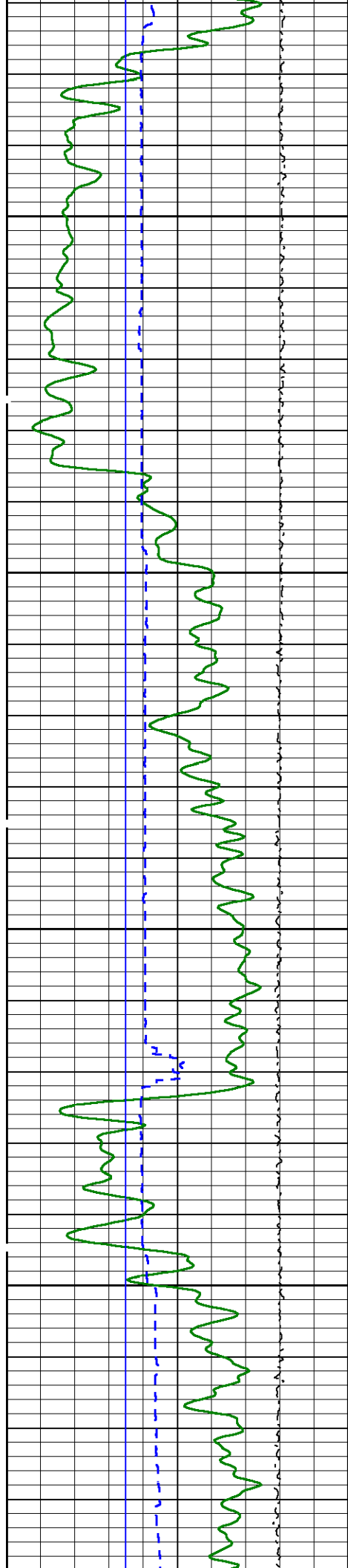


2000

2100

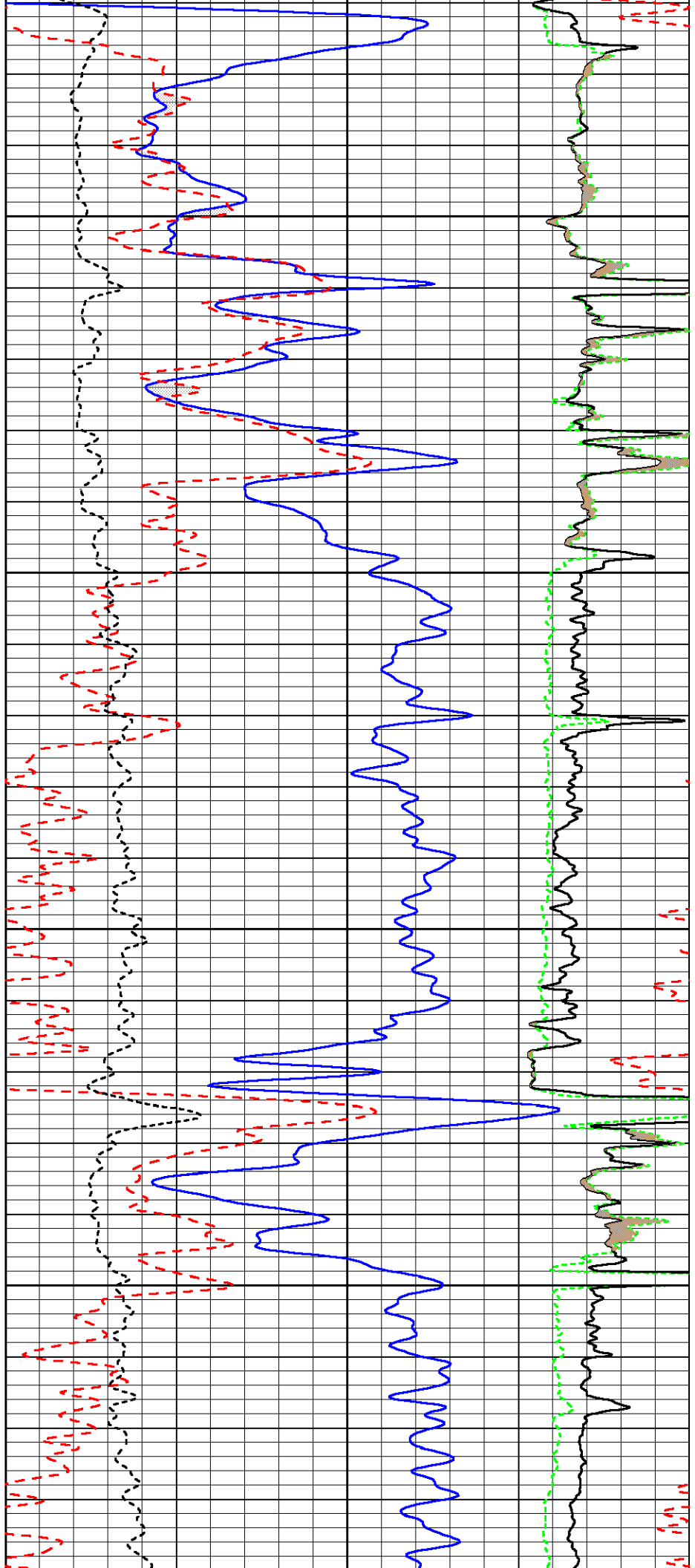
2200

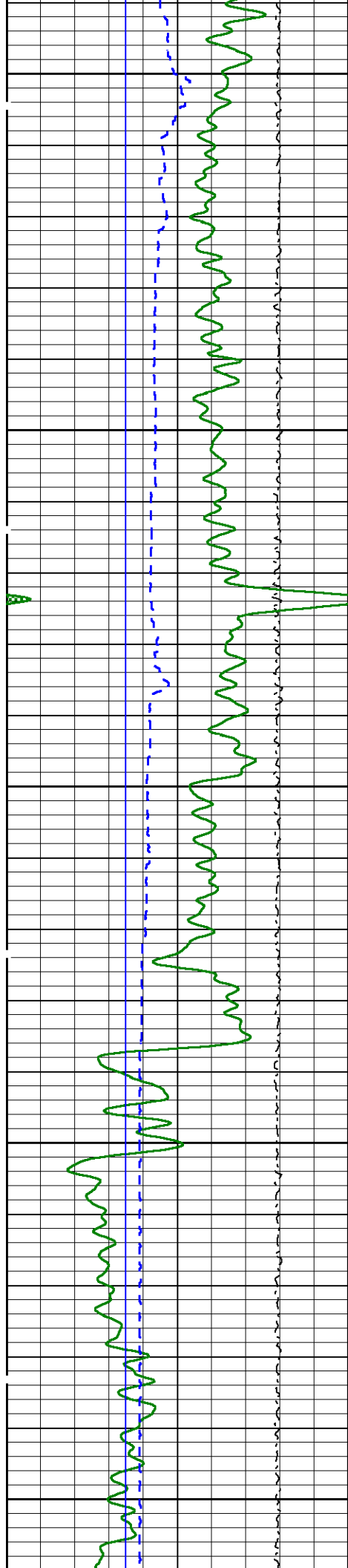




2300

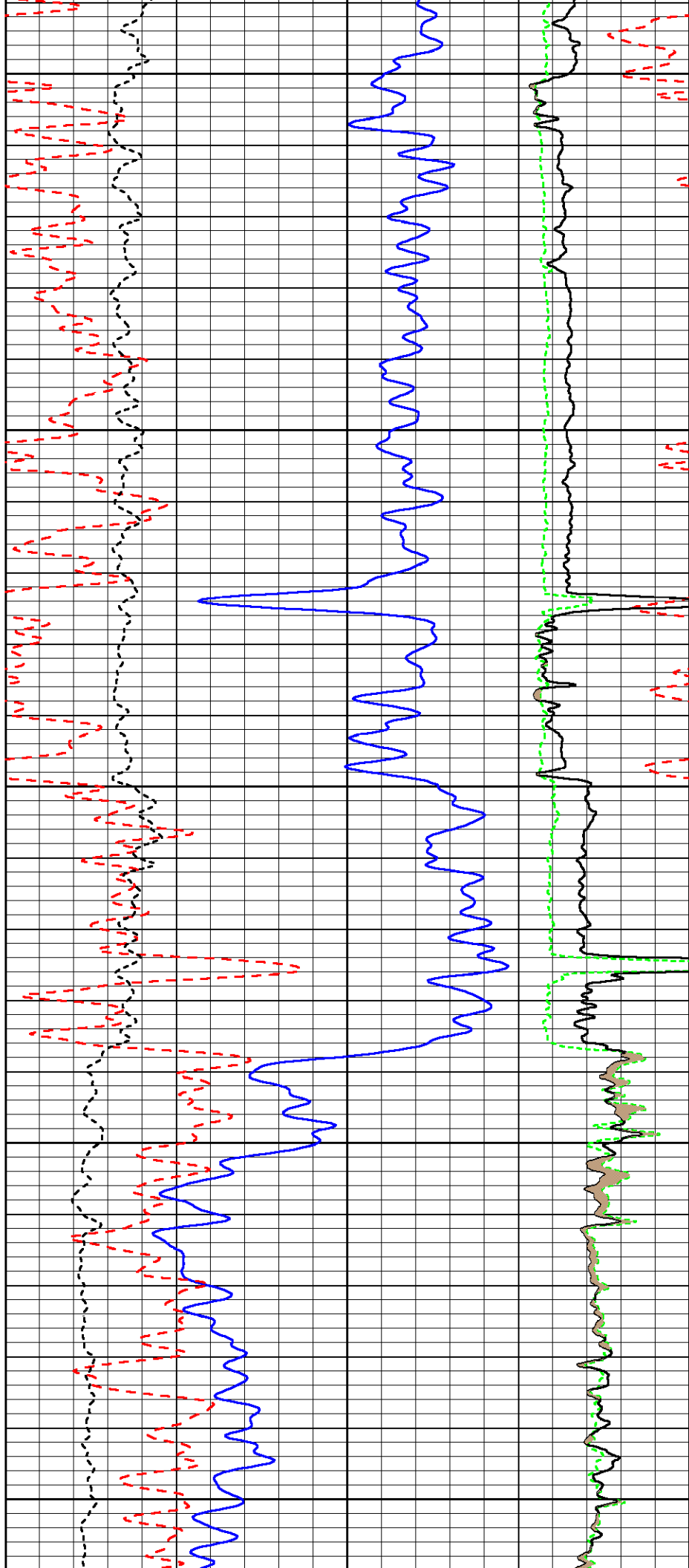
2400

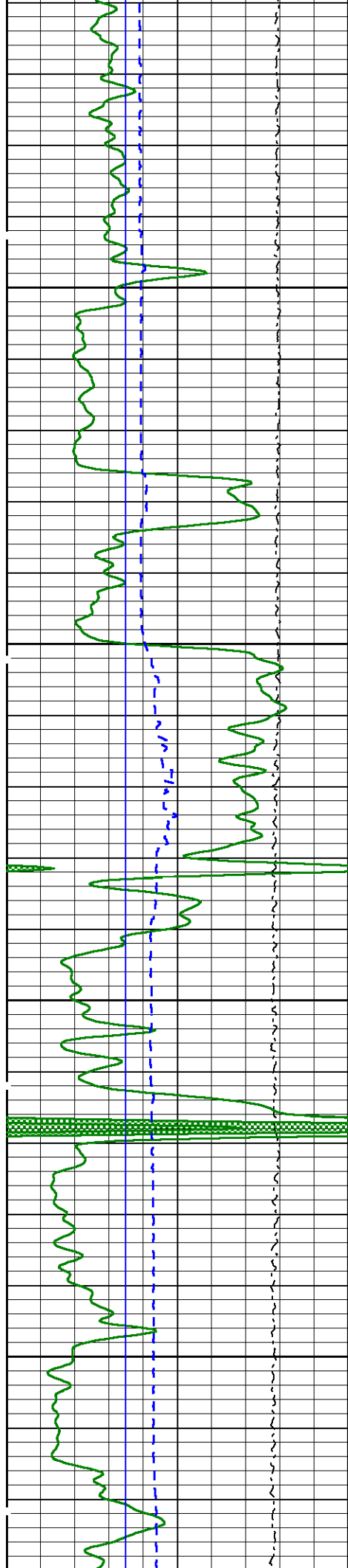




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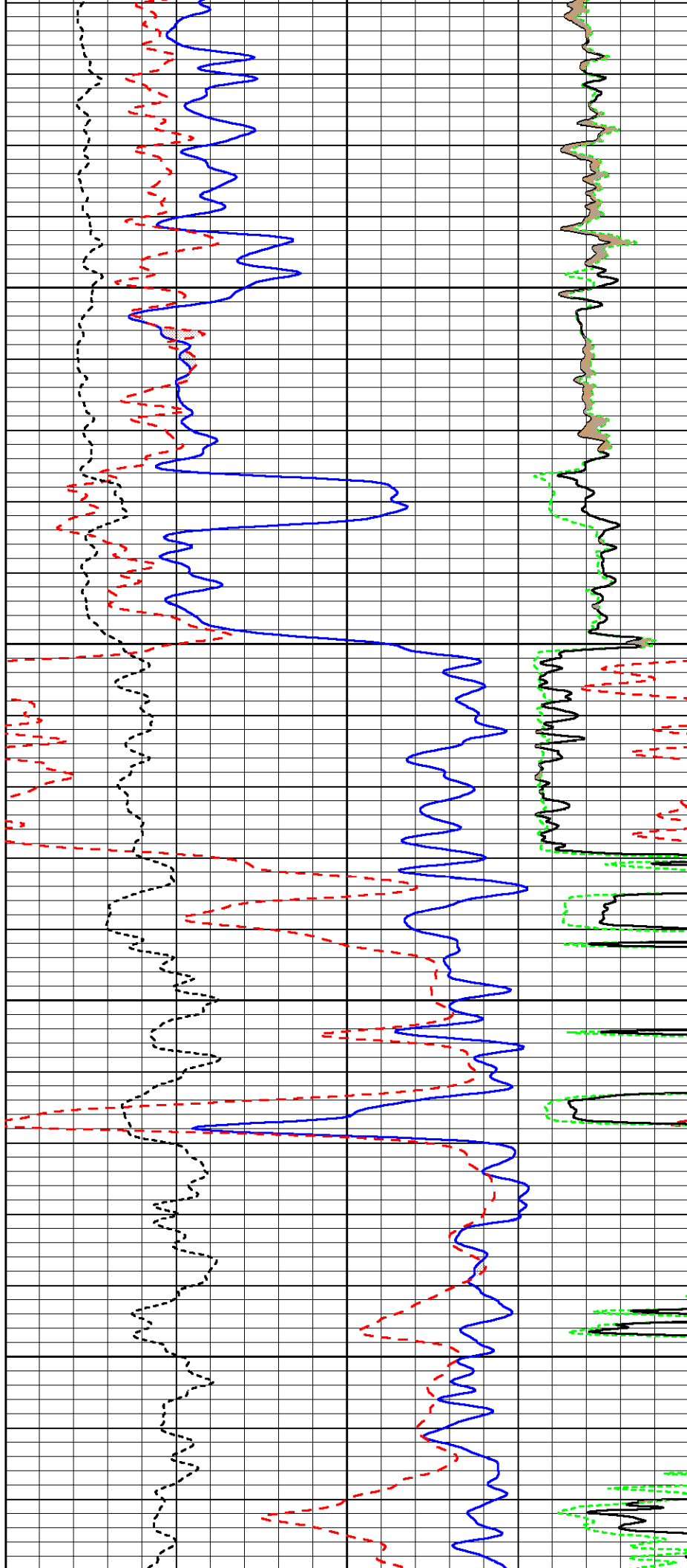
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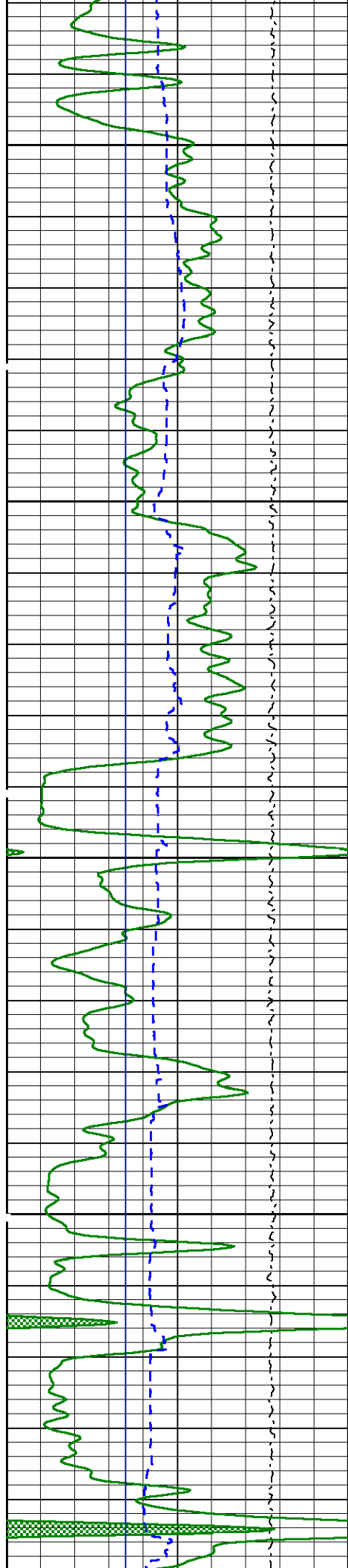




2700

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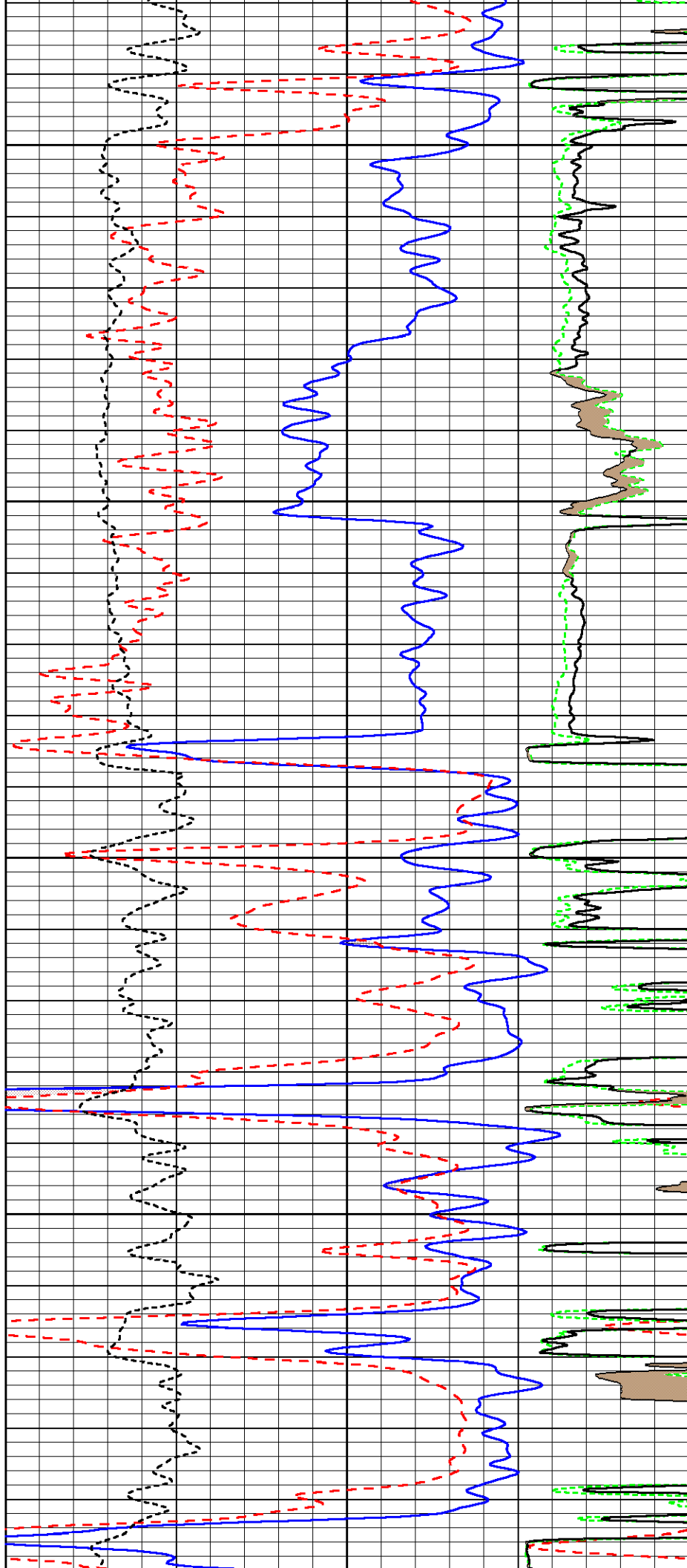




2900

3000

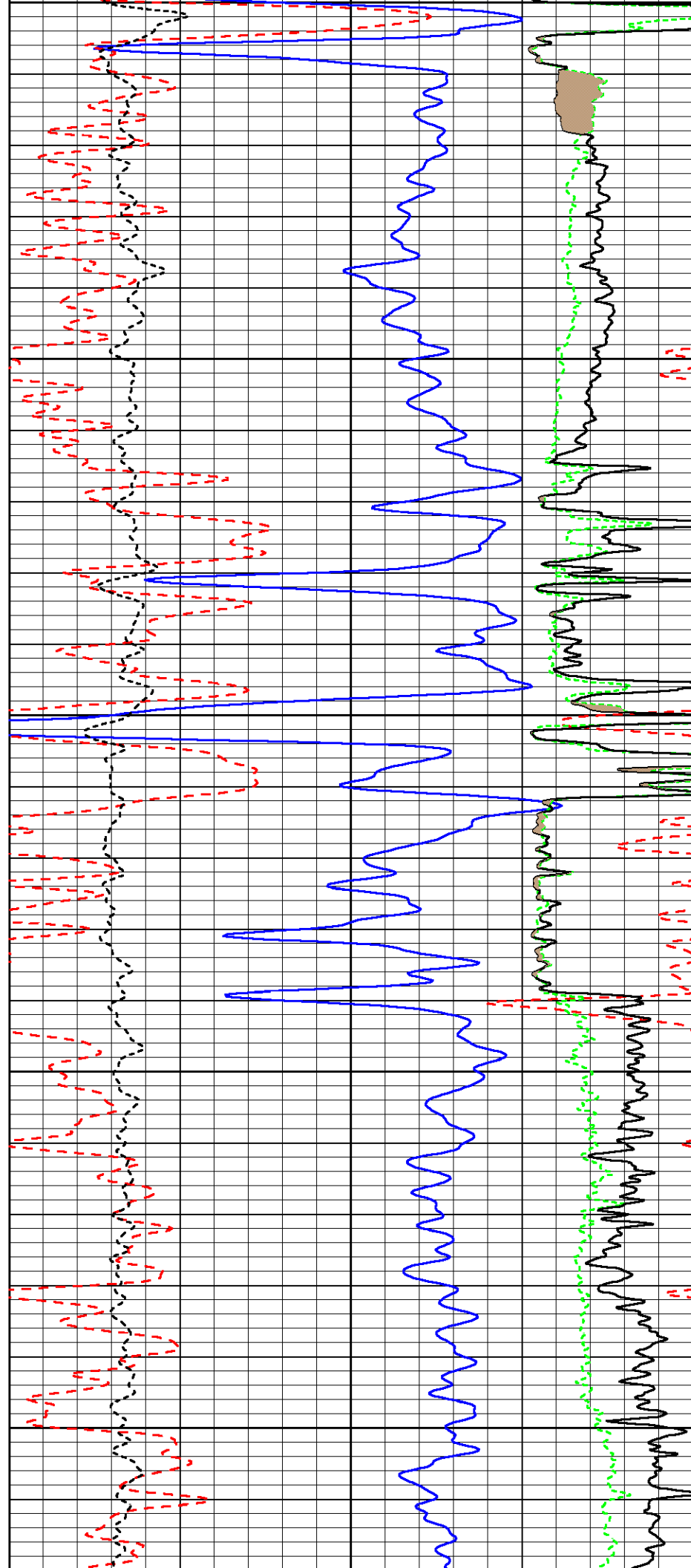
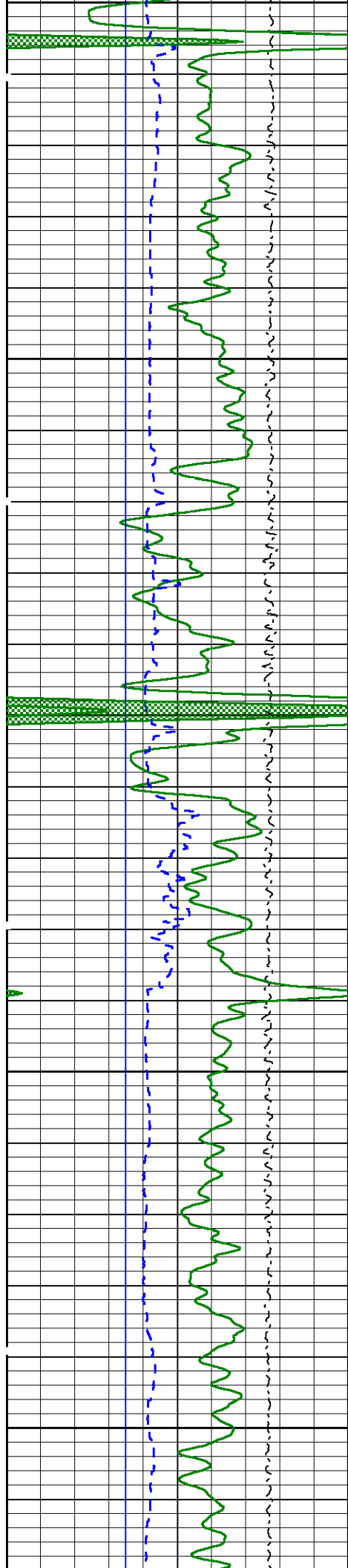
3100

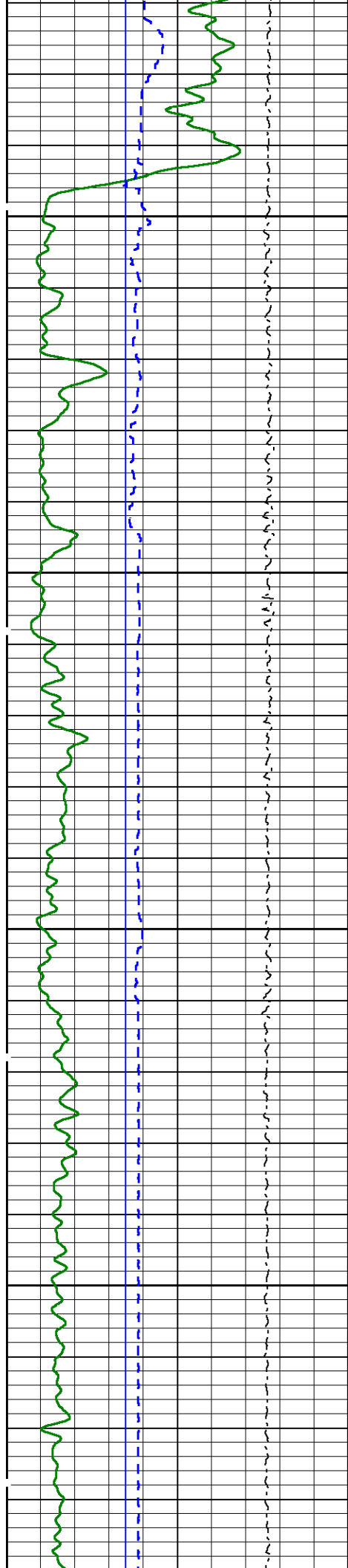


3100

3200

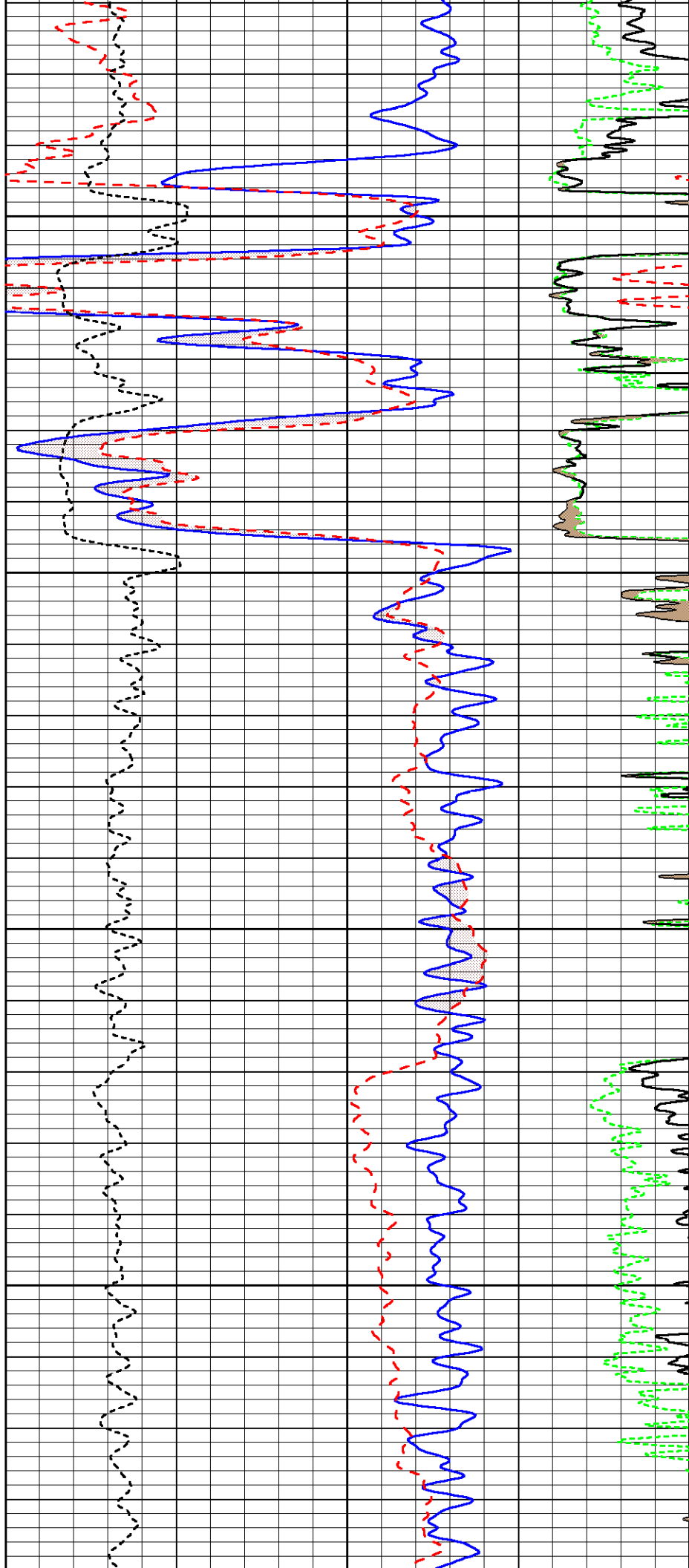
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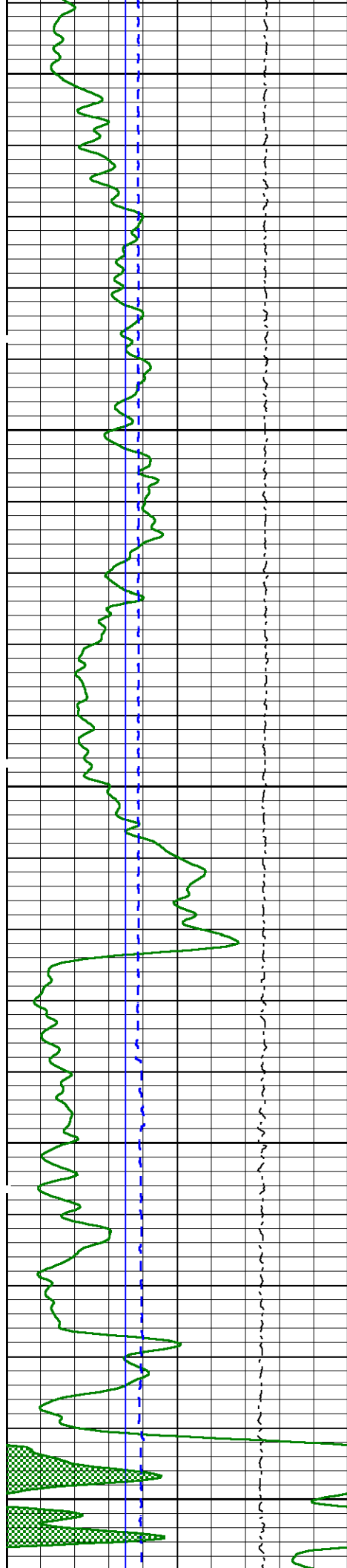




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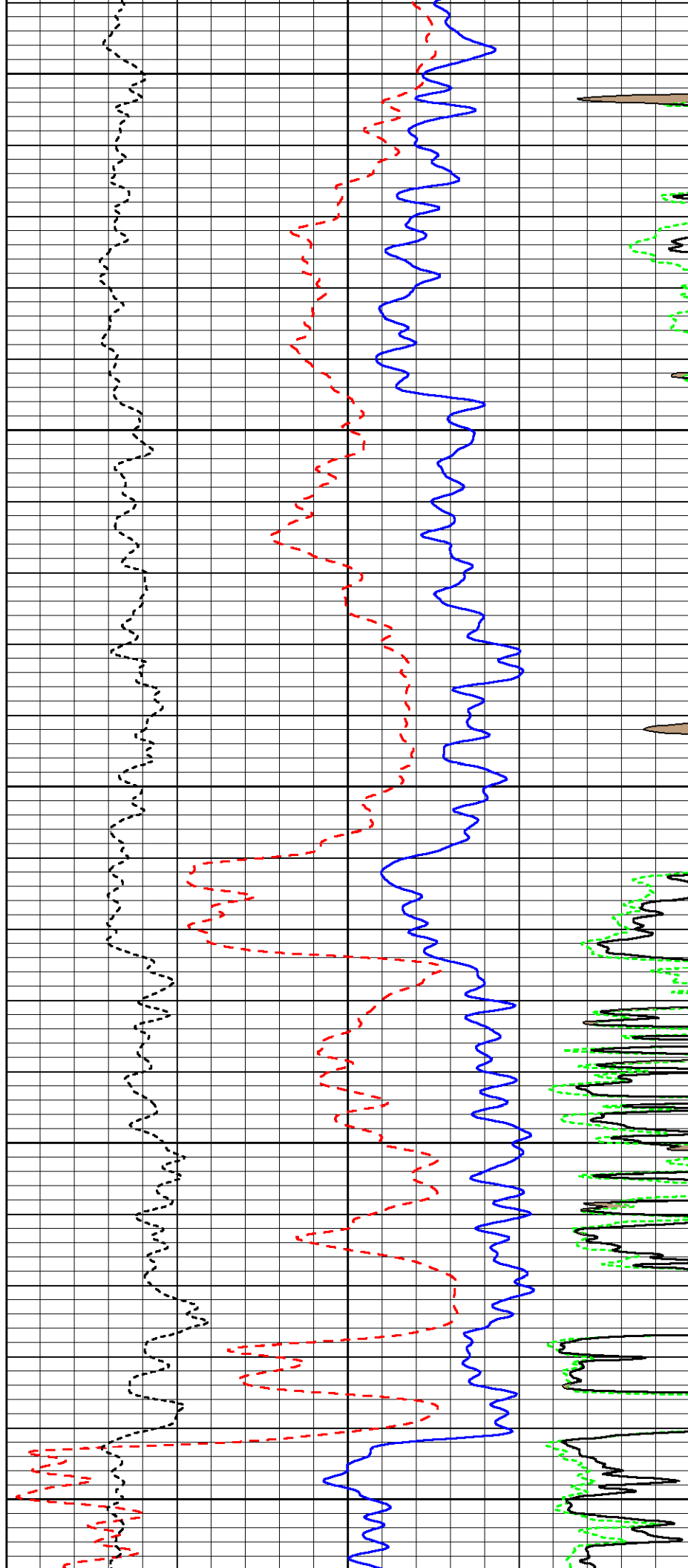
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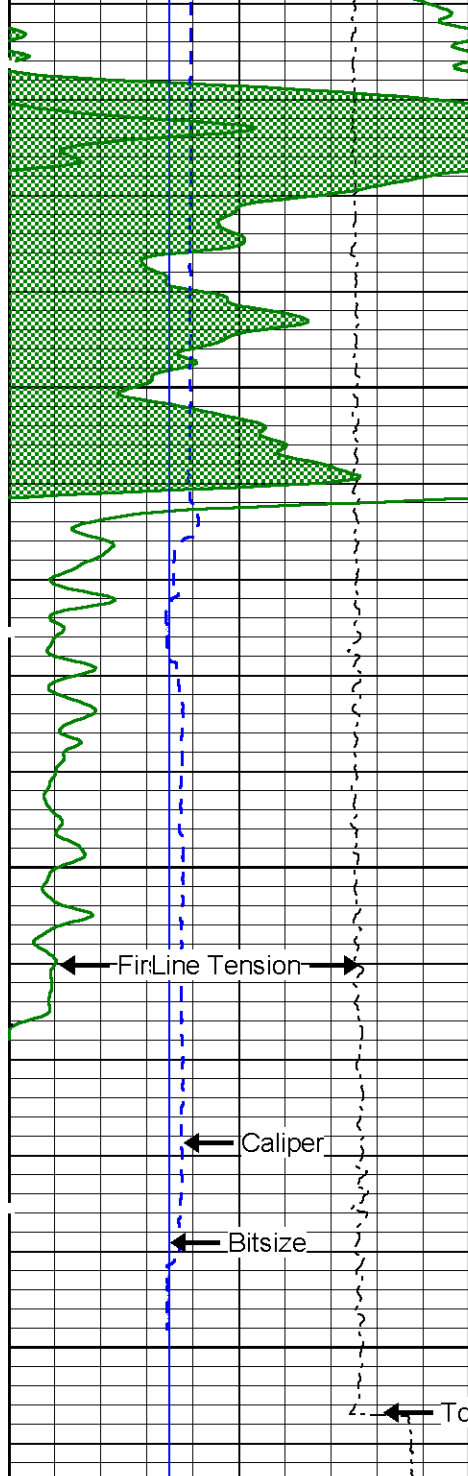




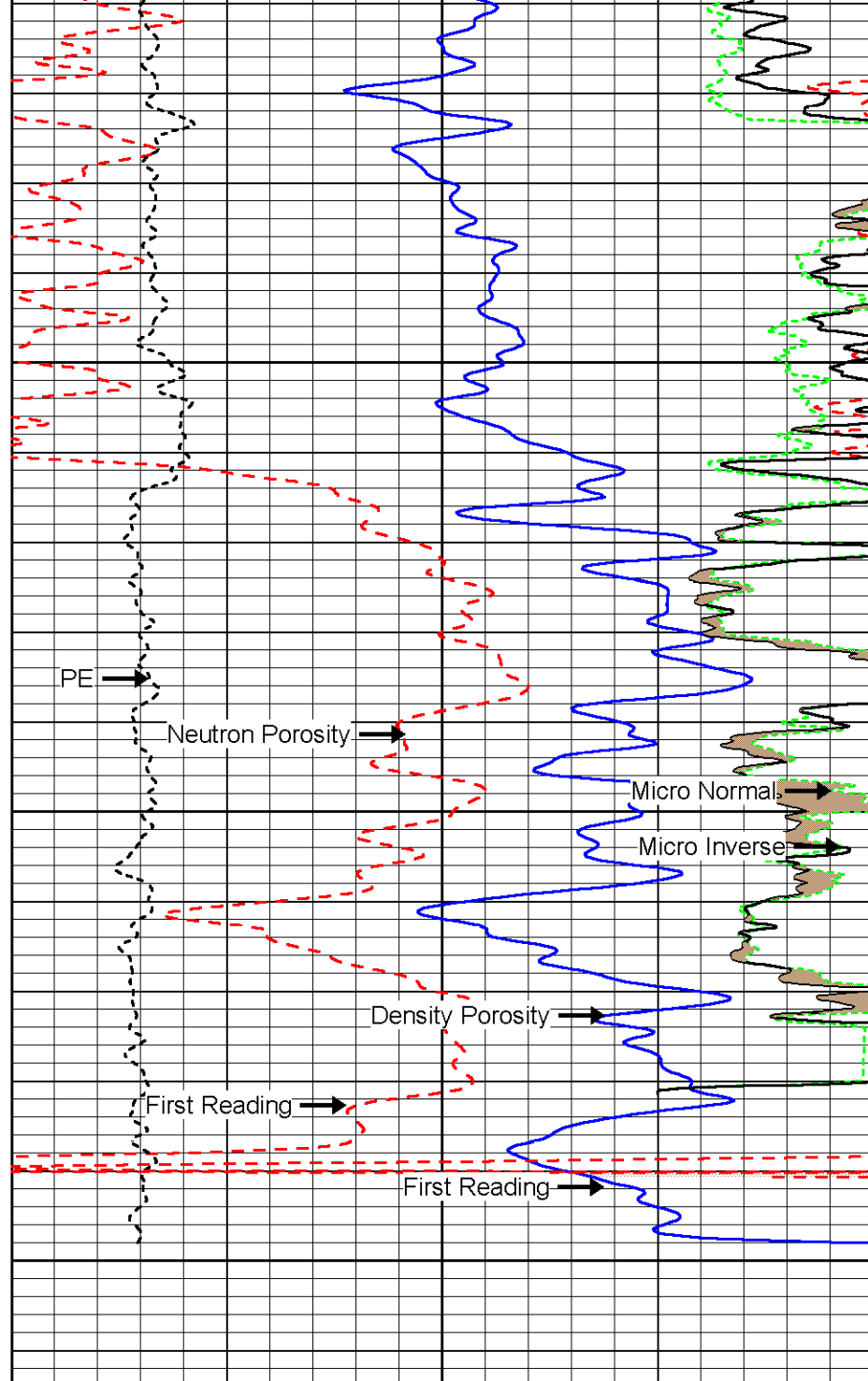
3600

3700





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

ALLIED
WIRELINE

Main Pass

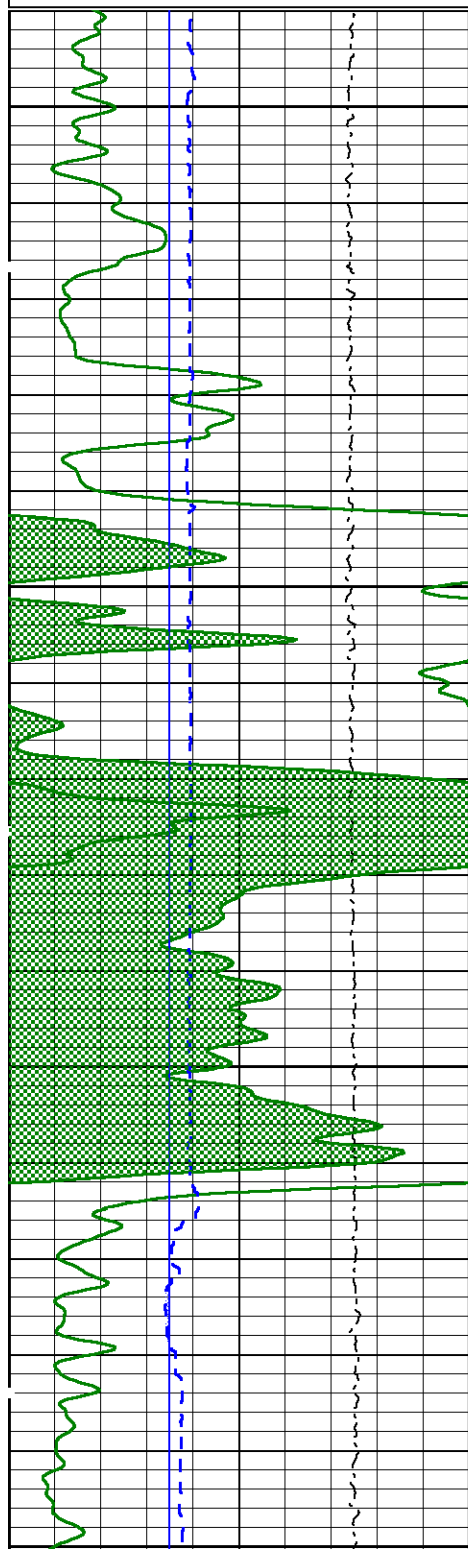
ALLIED

Repeat Pass

Database File: holy_cow_1.db
Dataset Pathname: repeat2
Presentation Format: alimed
Dataset Creation: Thu Sep 15 20:50:11 2011 by Calc Sondex V7.03
Charted by: Depth in Feet scaled 1:240

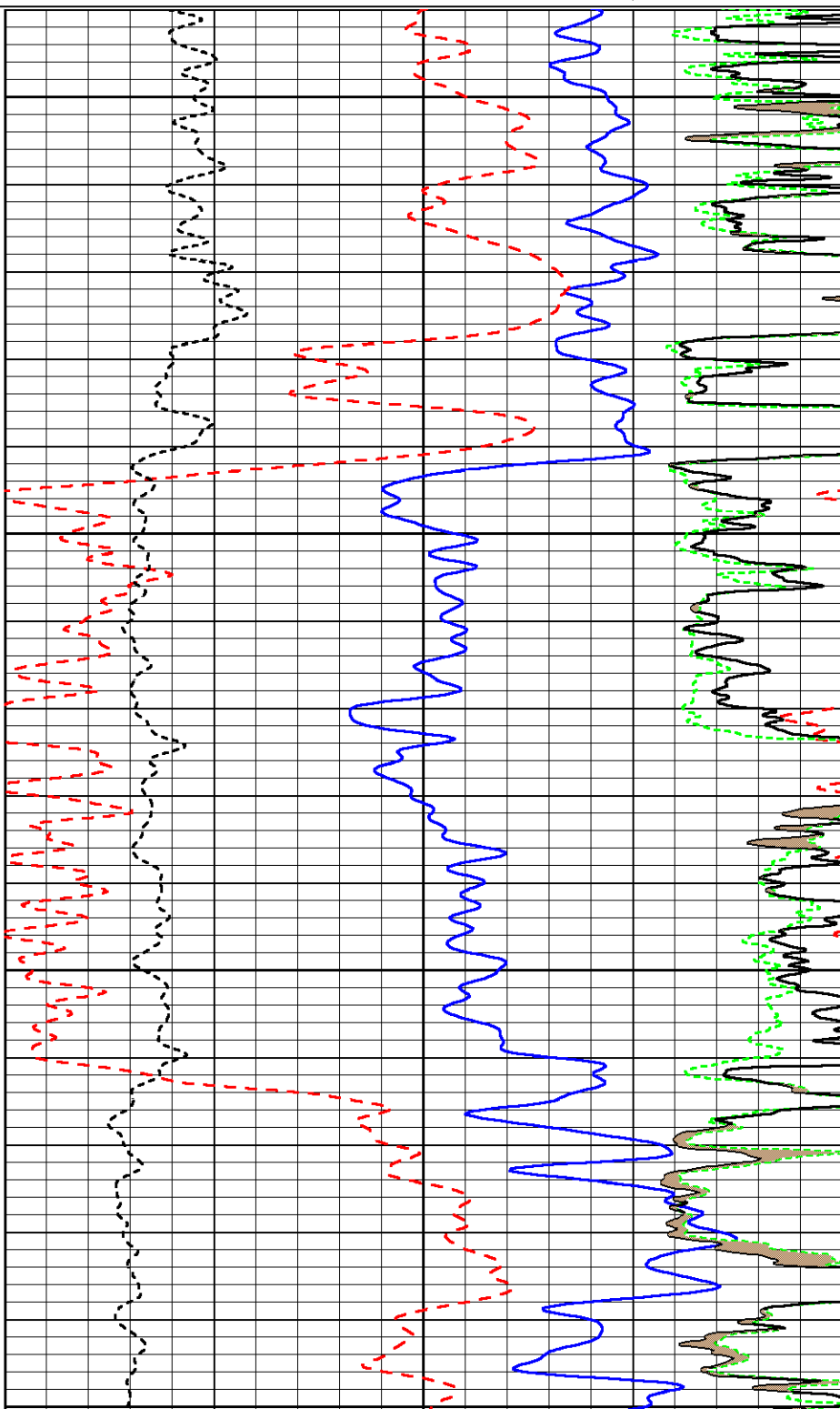
10000	Line Tension (lb)	0
0	Gamma Ray (GAPI)	150
6	Caliper (in)	16
6	Bitsize (in)	16

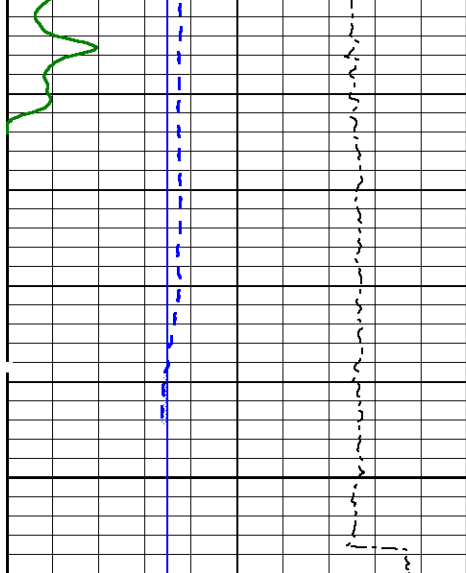
30	Density Porosity (pu)	-10
30	Neutron Porosity (pu)	-10
0	PE	10
	Micro Normal	
0	(Ohm-m)	20
	Micro Inverse	
0	(Ohm-m)	20



3700

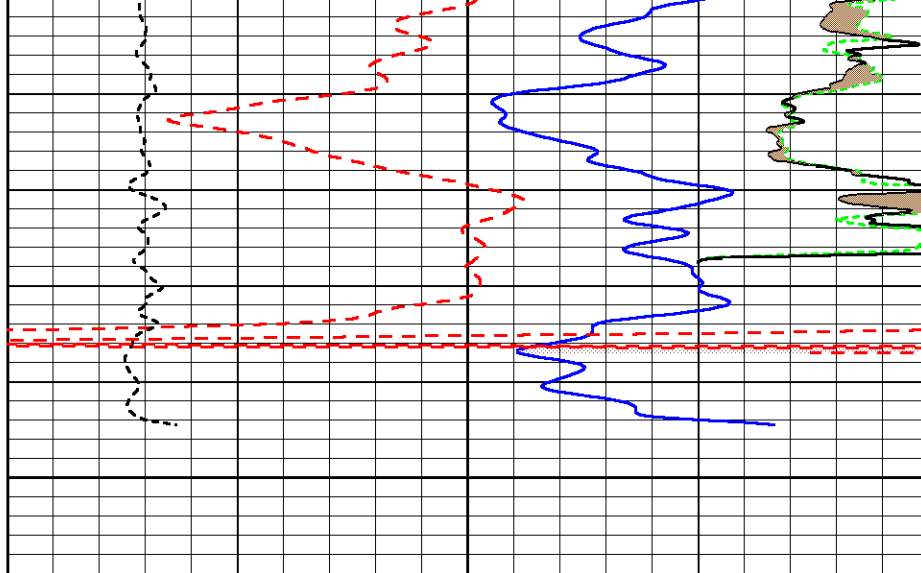
3800





3900

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



Repeat Pass

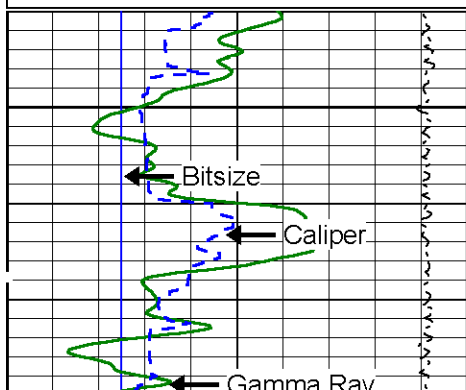


Main Pass

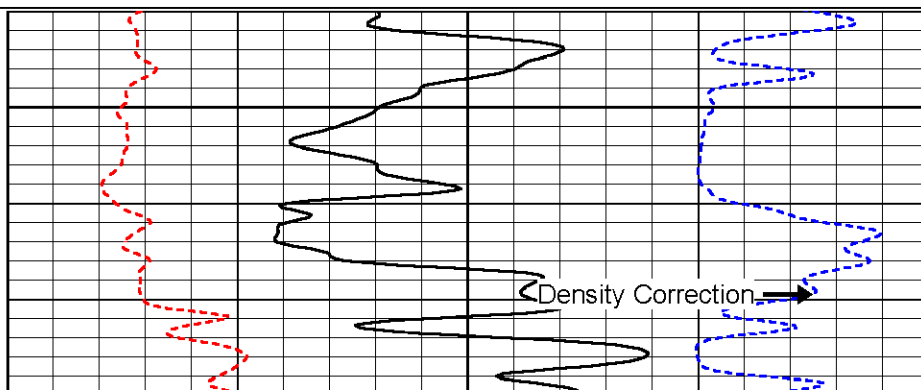
Database File: holy_cow_1.db
 Dataset Pathname: Main
 Presentation Format: abulk
 Dataset Creation: Thu Sep 15 21:00:44 2011 by Calc Sondex V7.03
 Charted by: Depth in Feet scaled 1:240

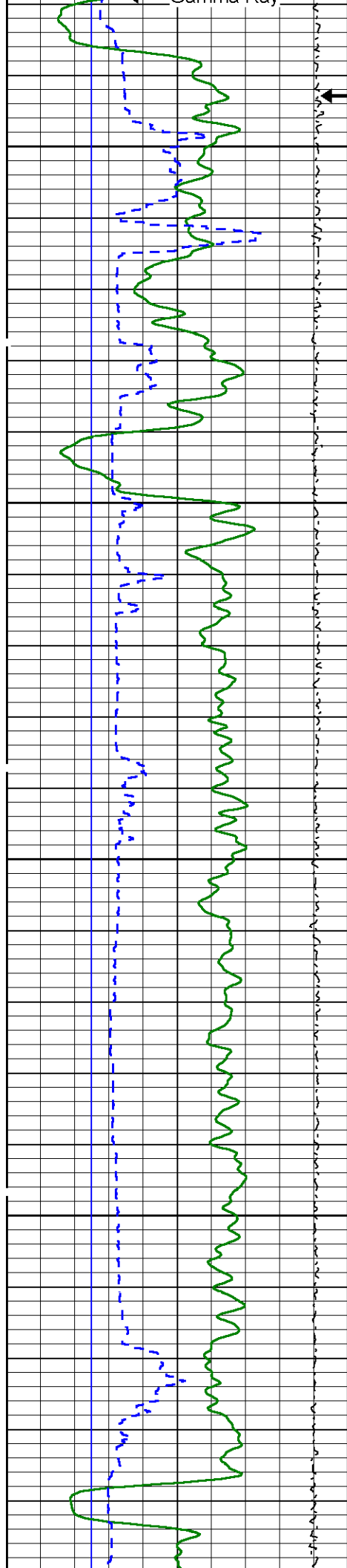
7	Bitsize (in)	17
0	Gamma Ray (GAPI)	150
7	Caliper (in)	17
11000	Line Tension (lb)	1000

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



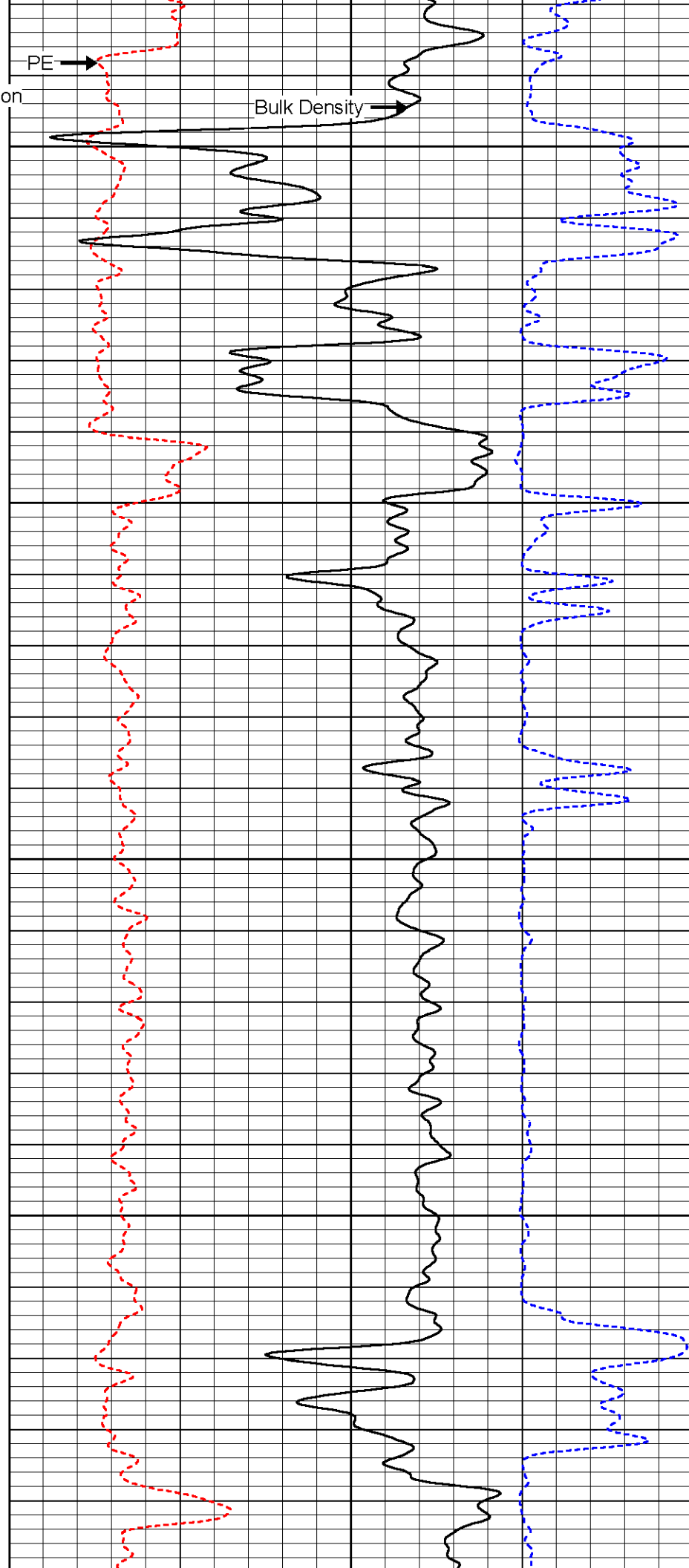
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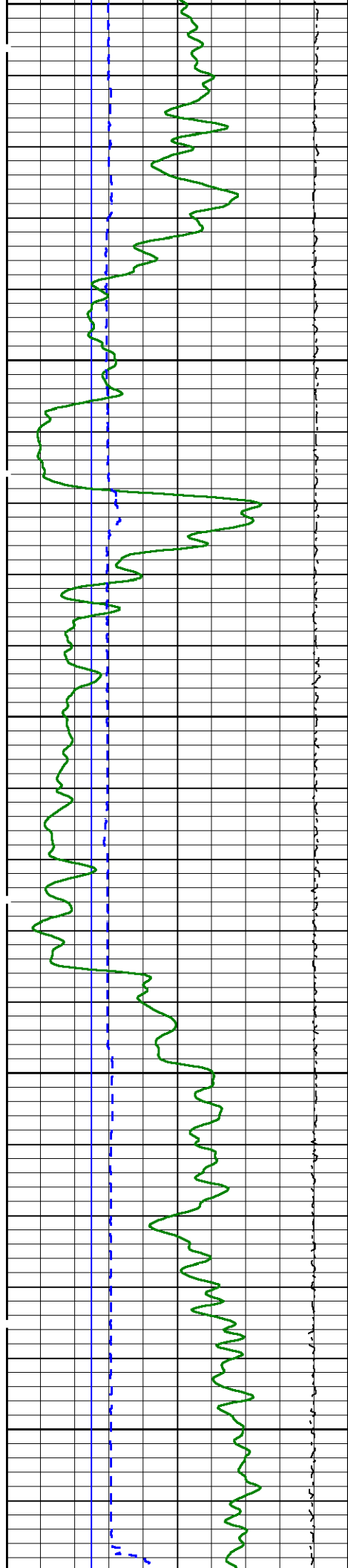




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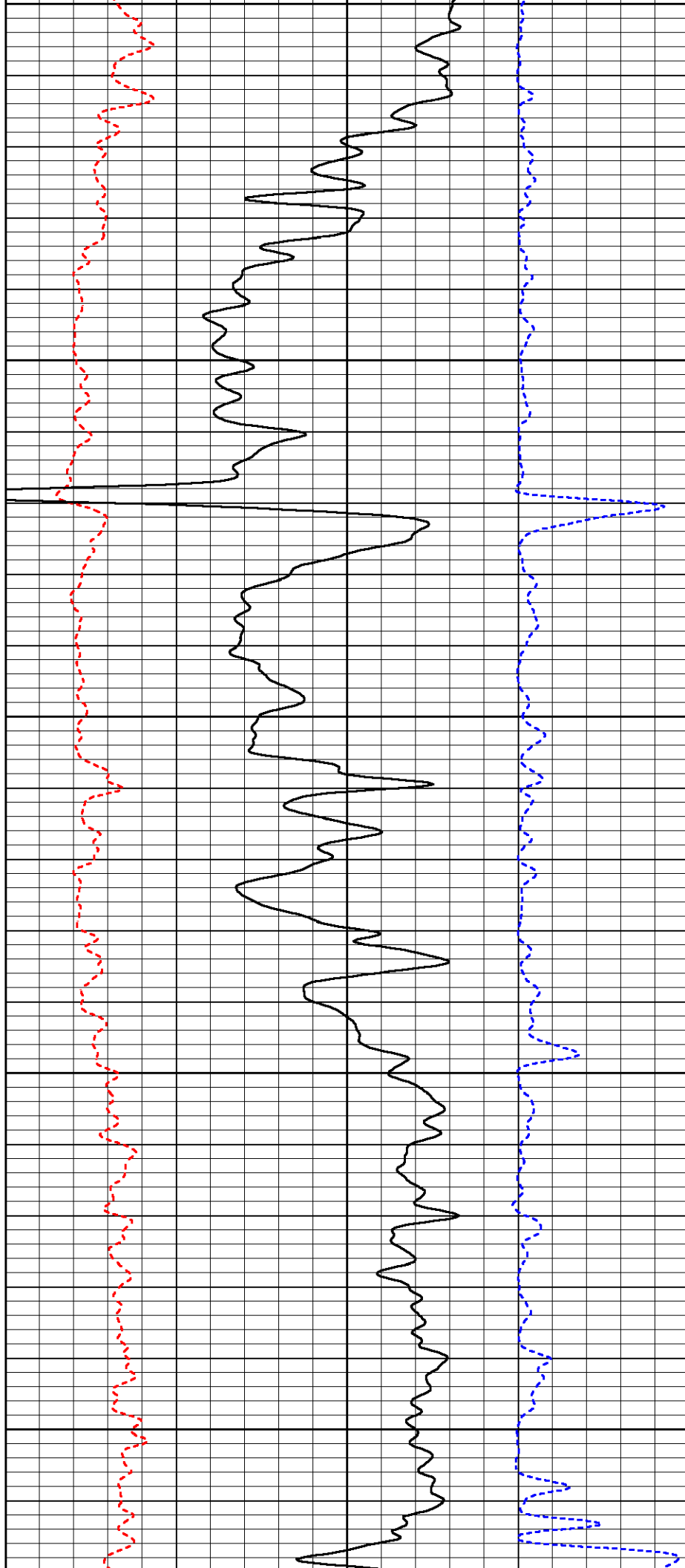
2100

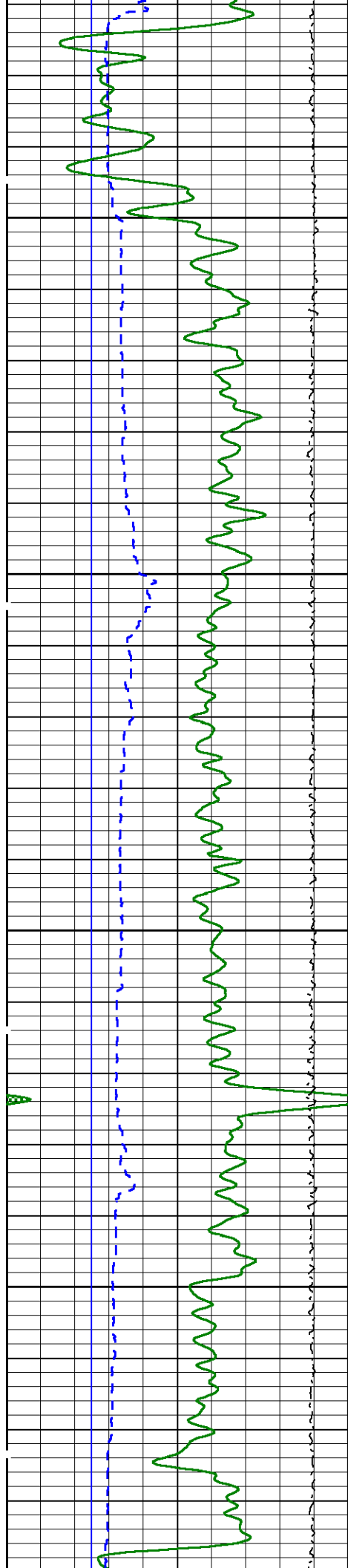




2200

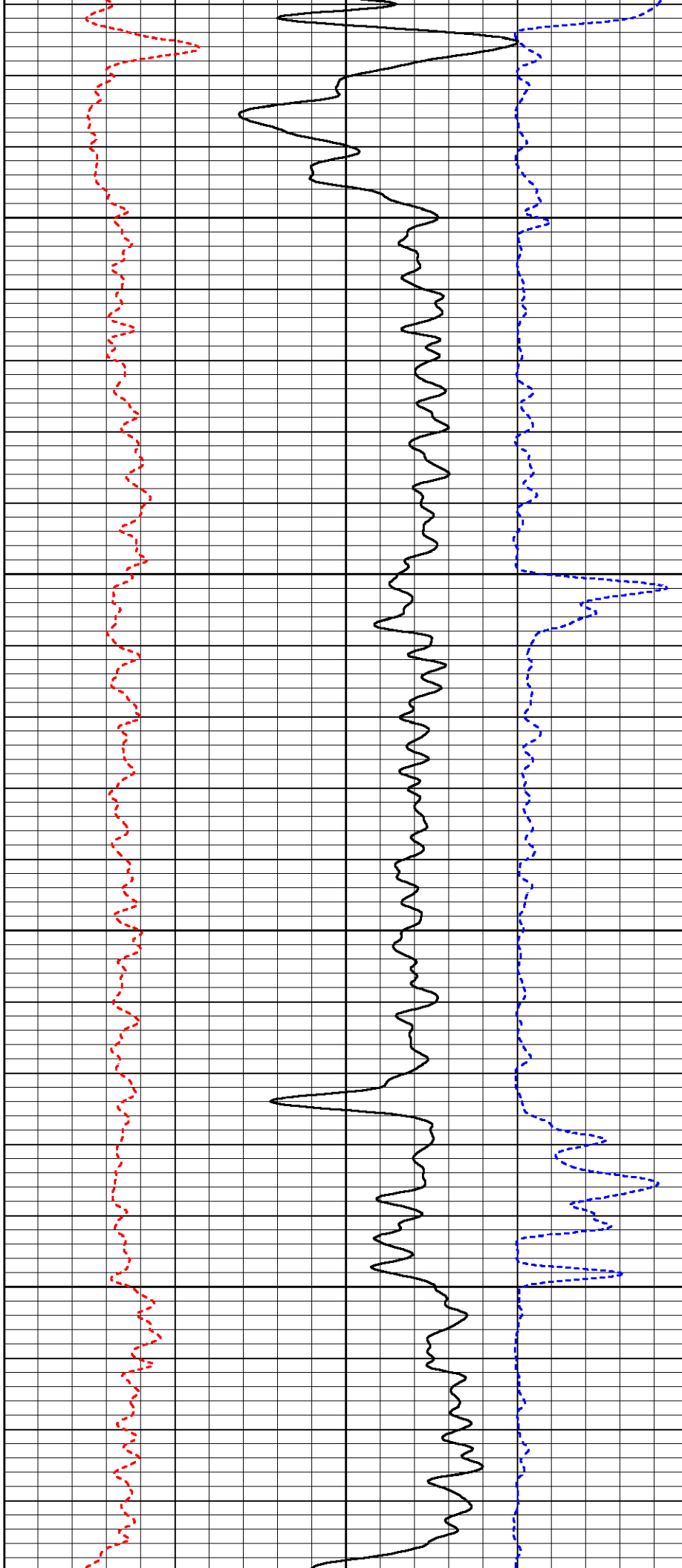
2300

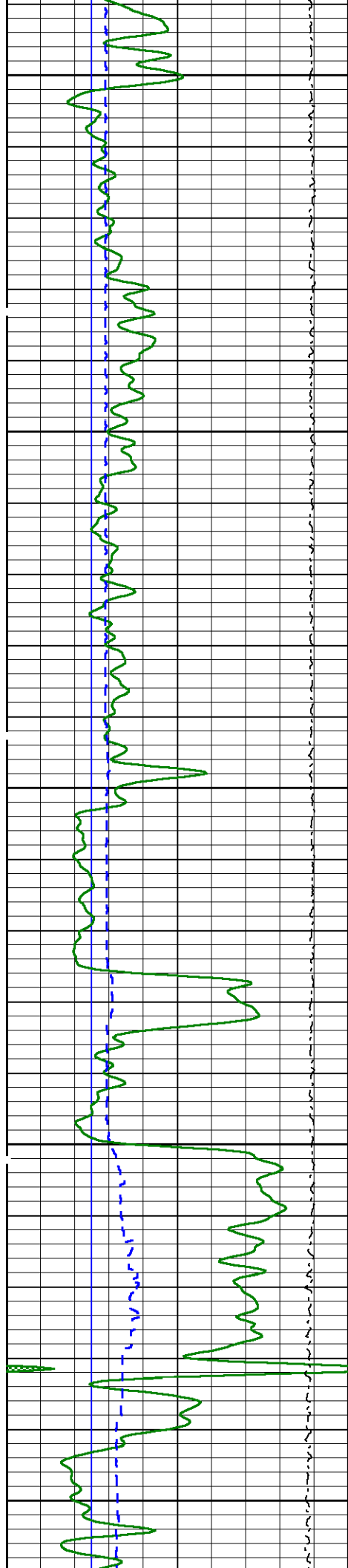




2400

2500

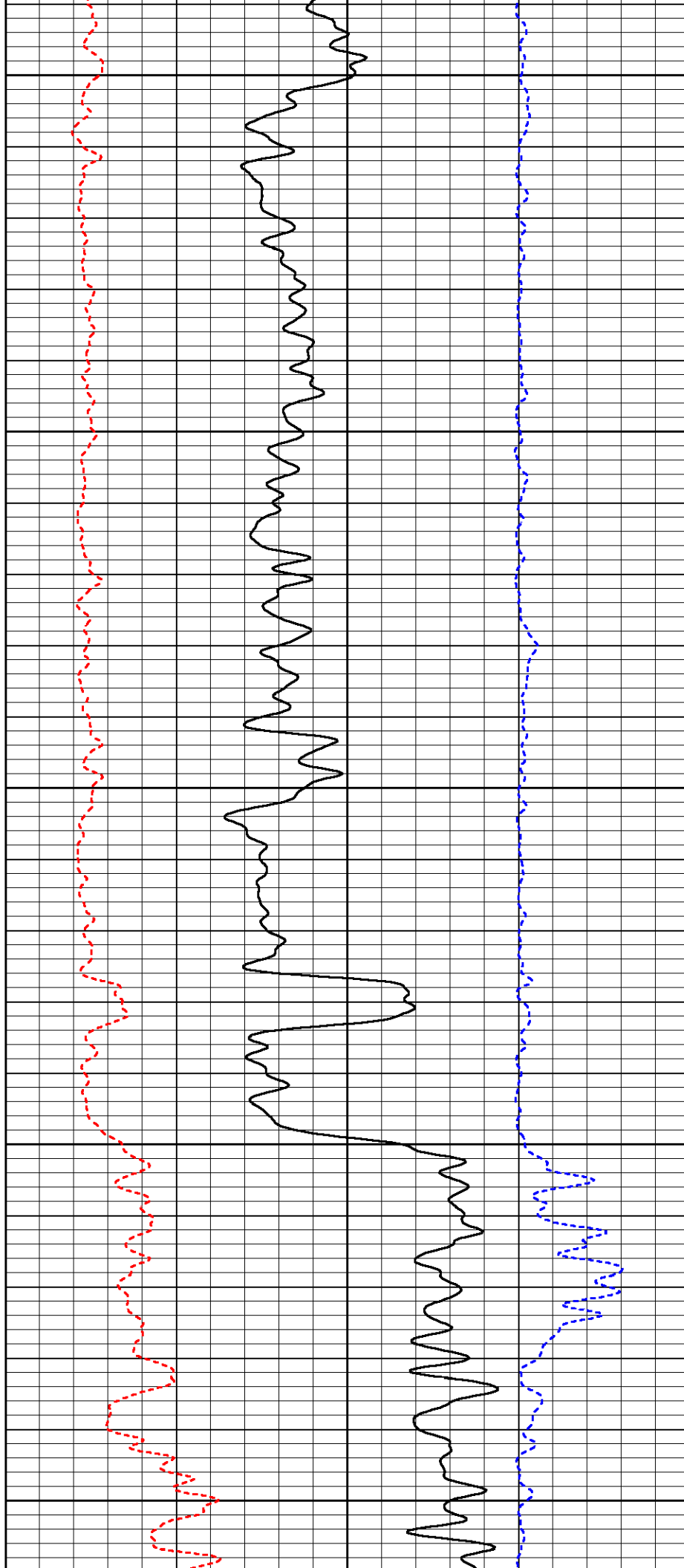


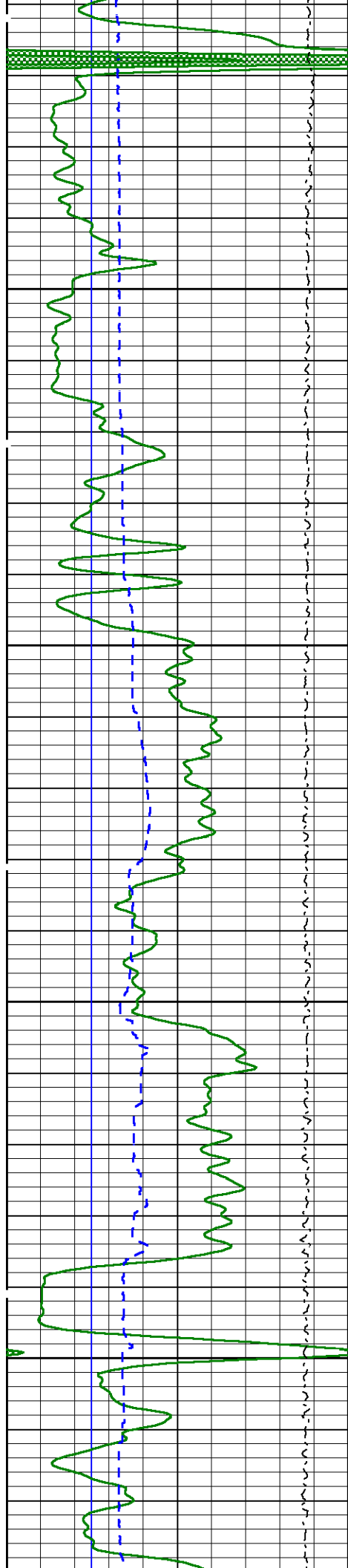


2600

2700

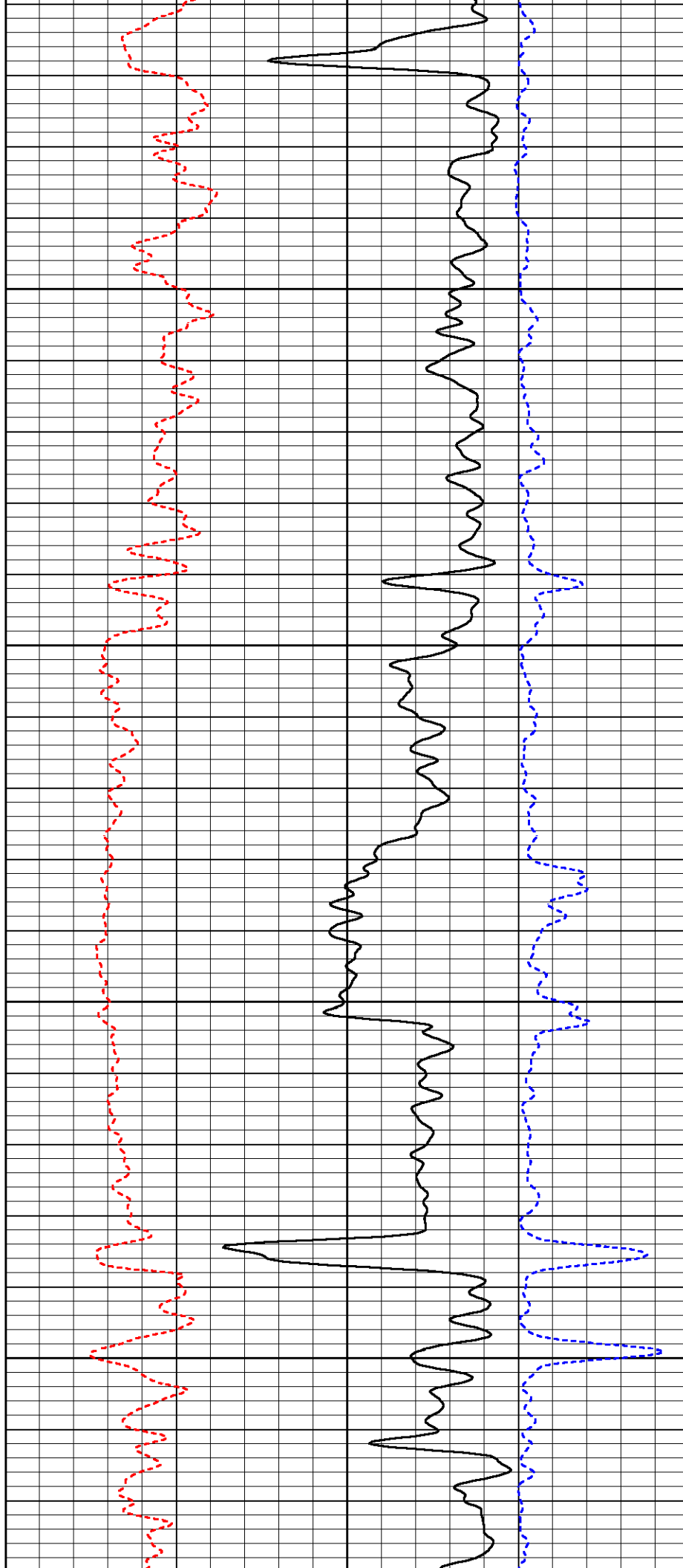
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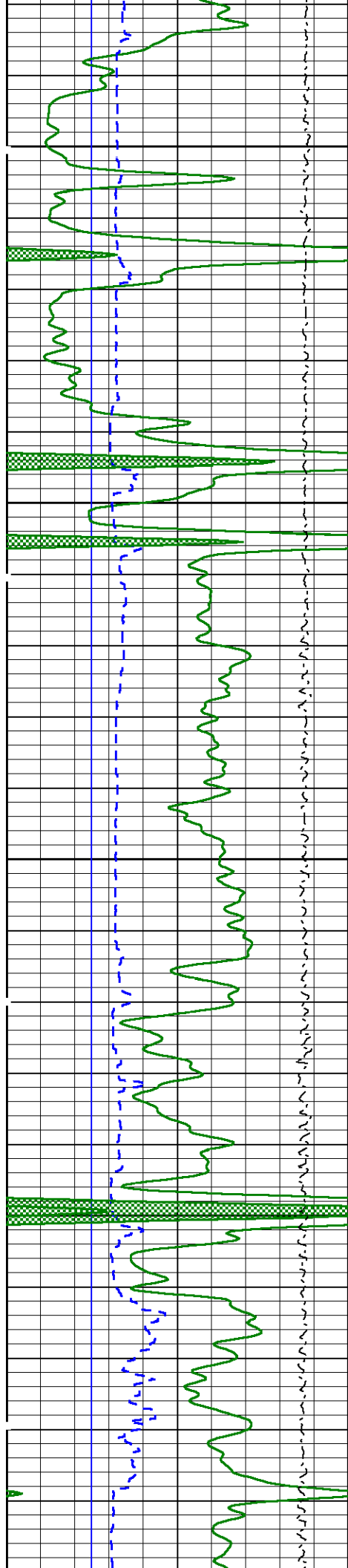




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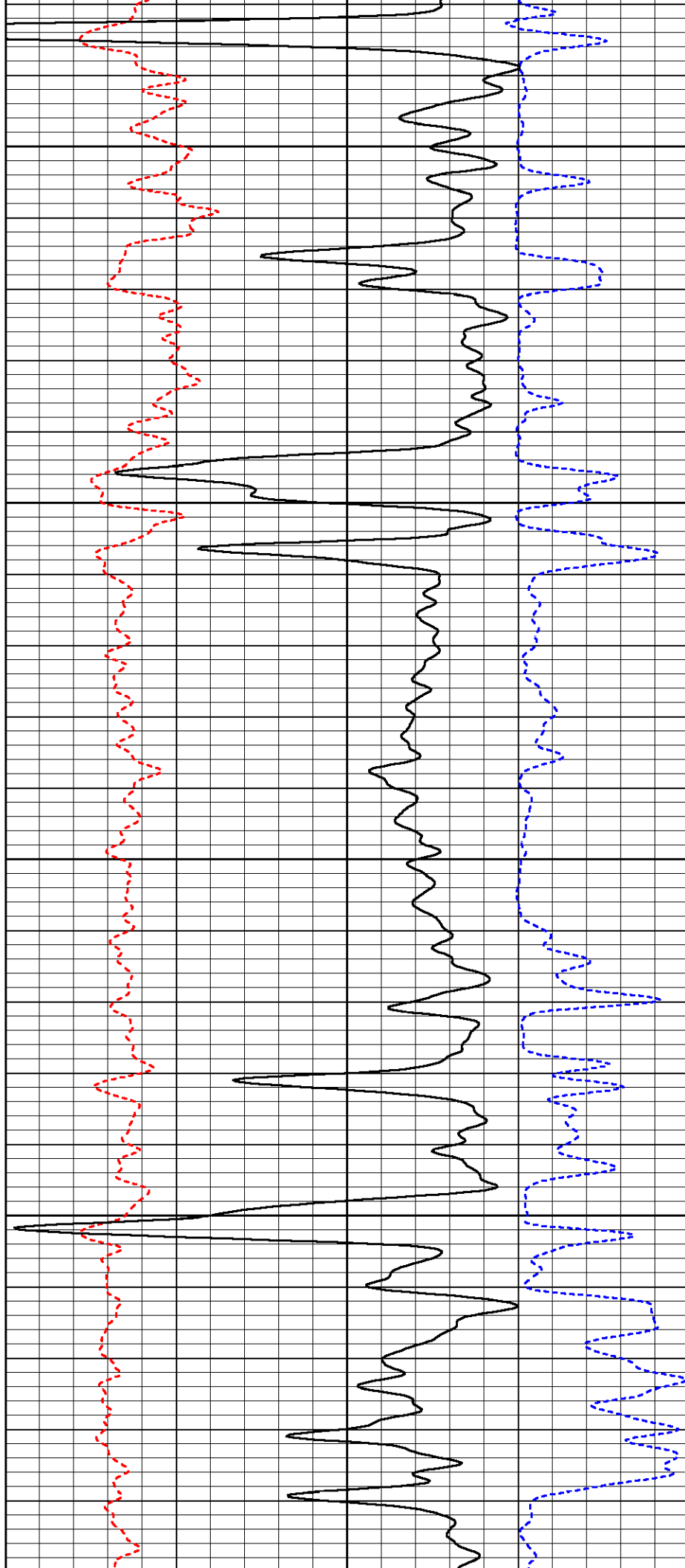
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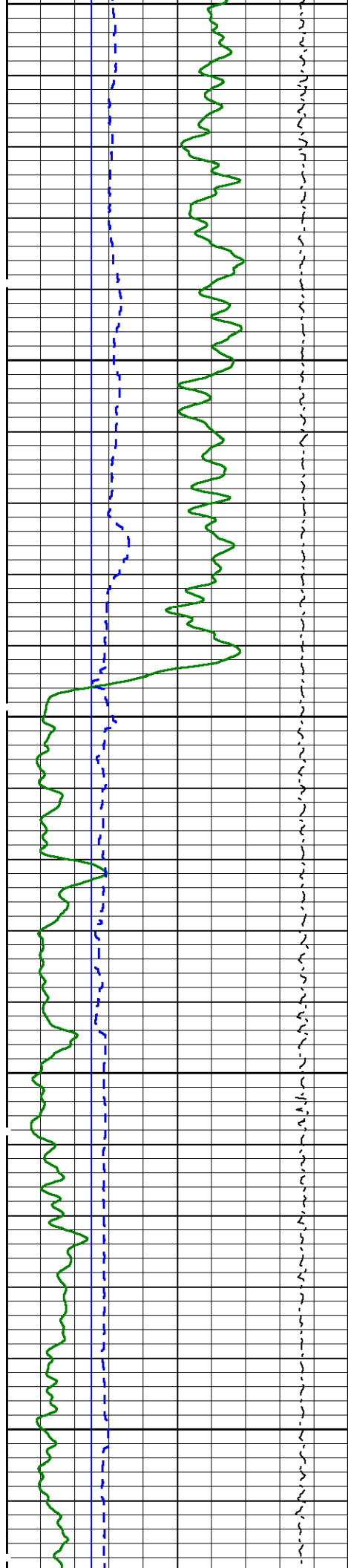




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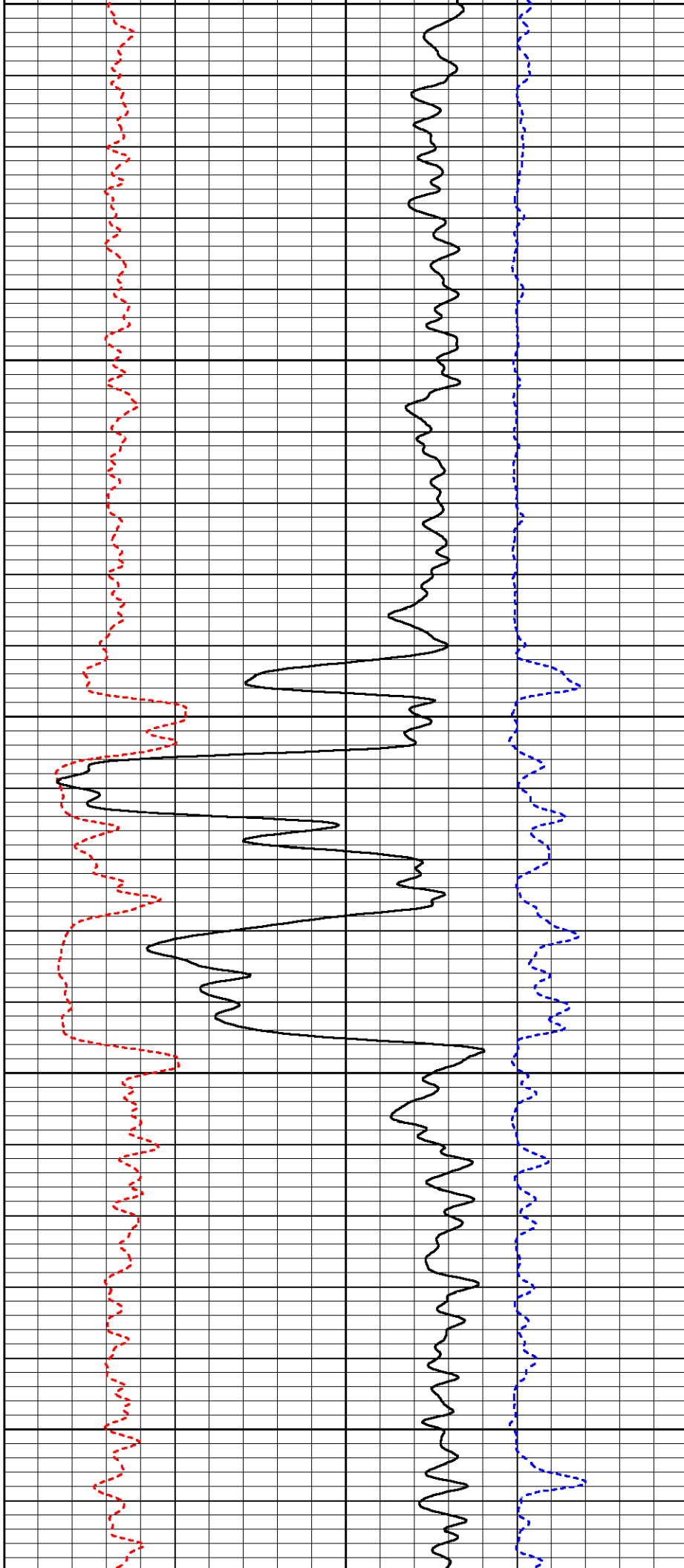
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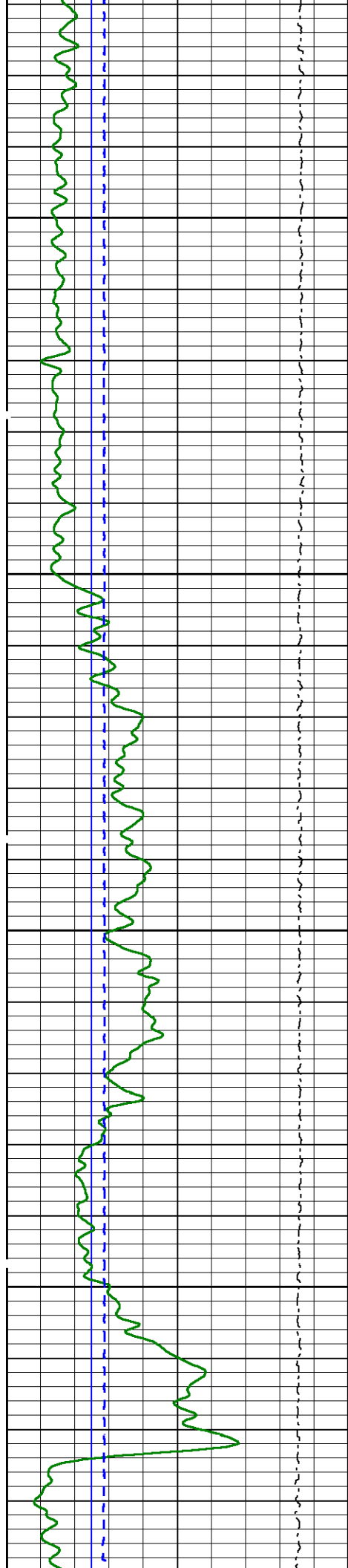




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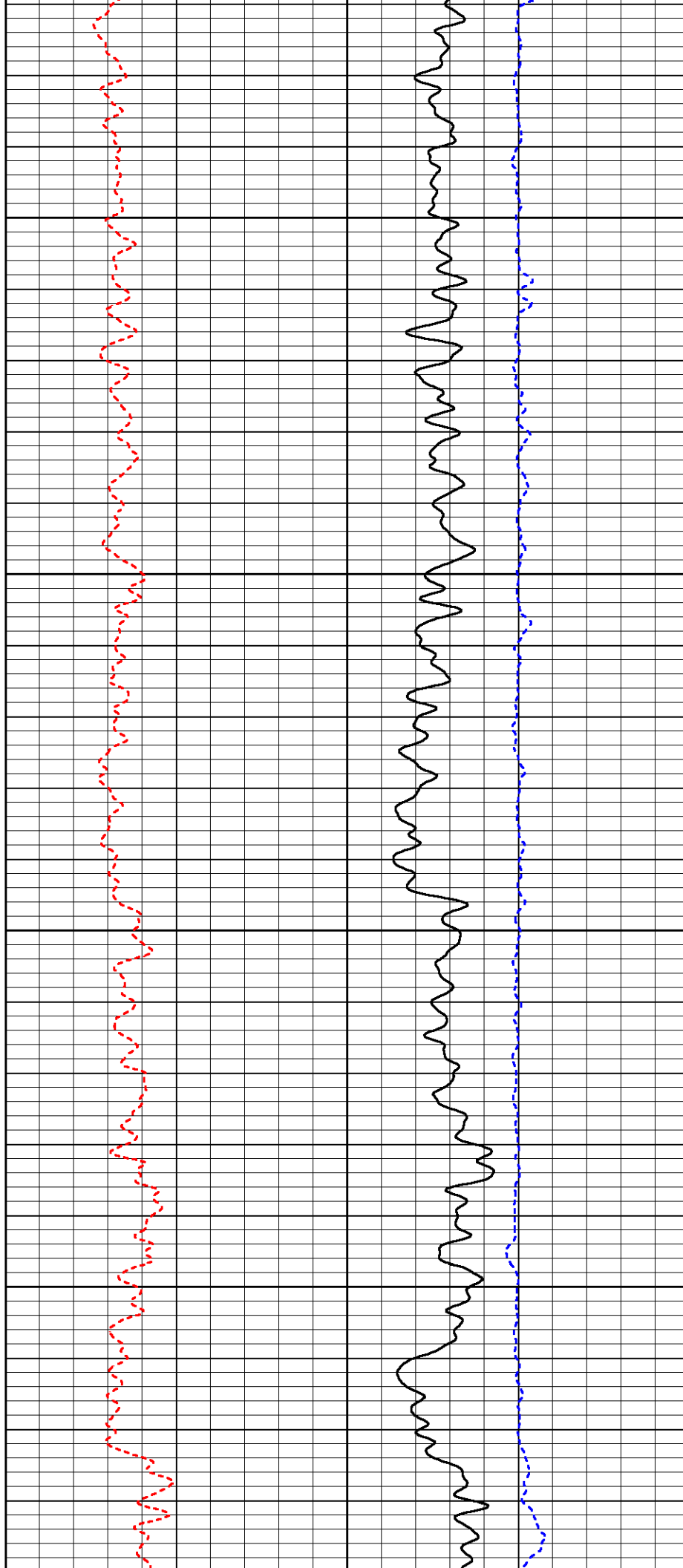
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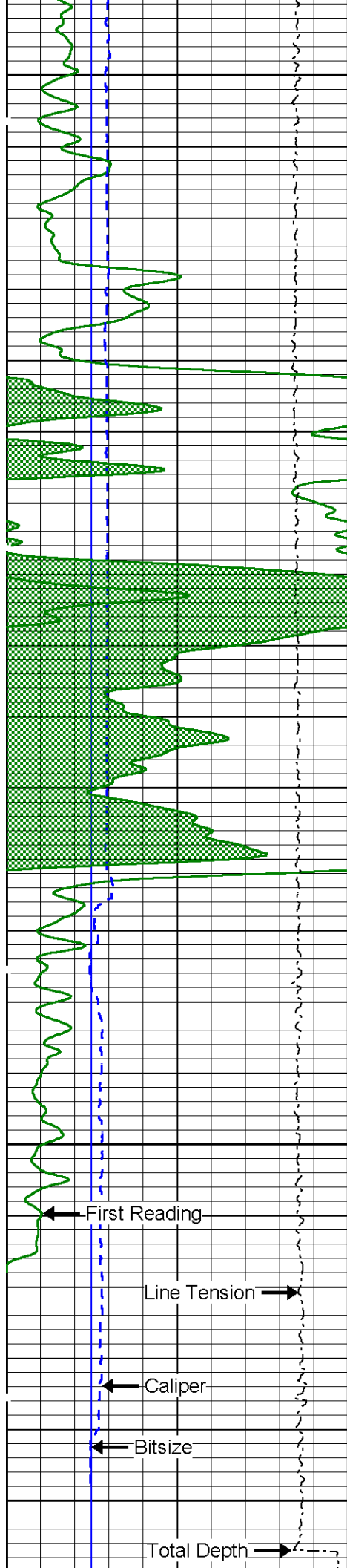




3500

3600

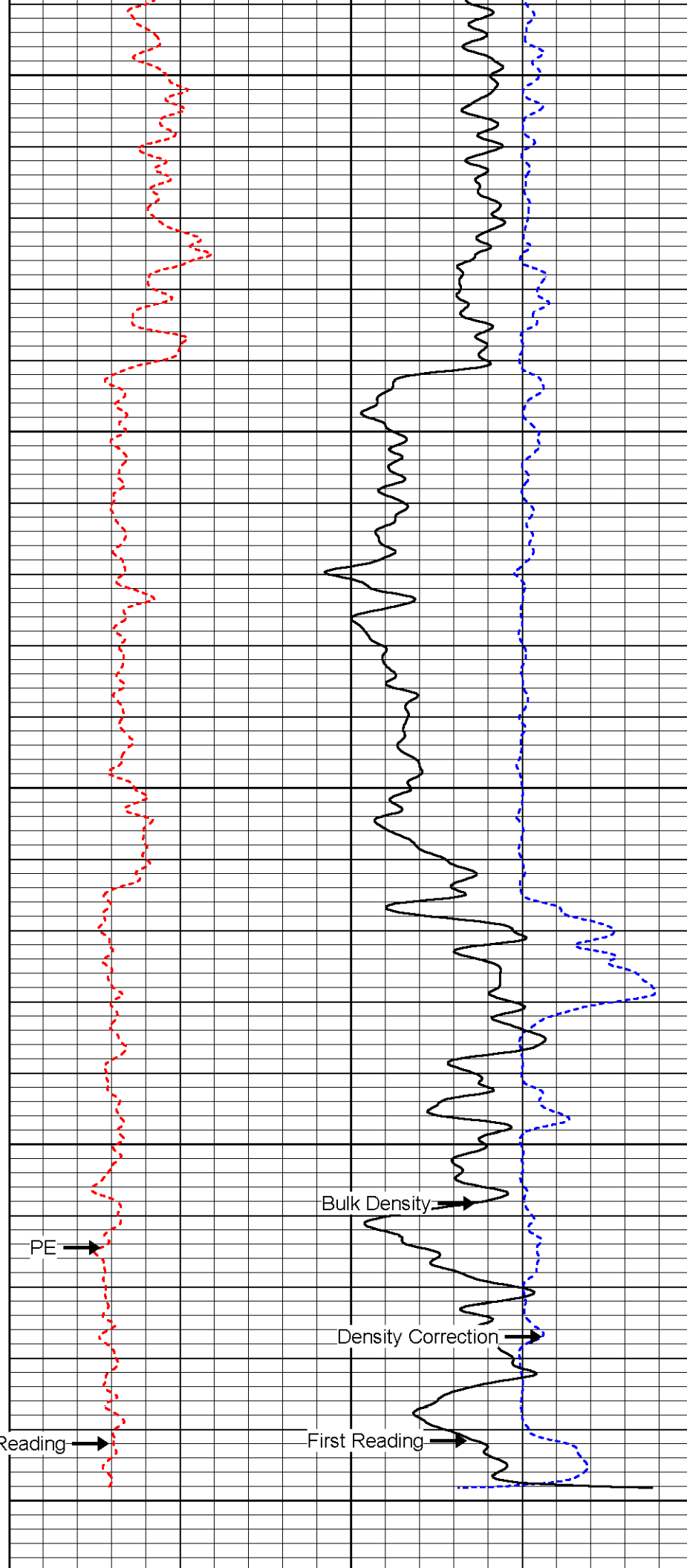




3700

3800

3900



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

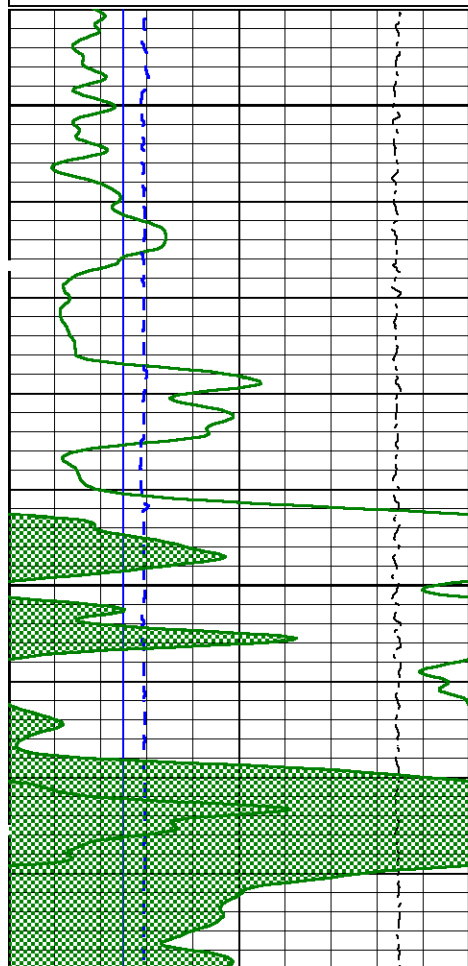


Repeat Pass

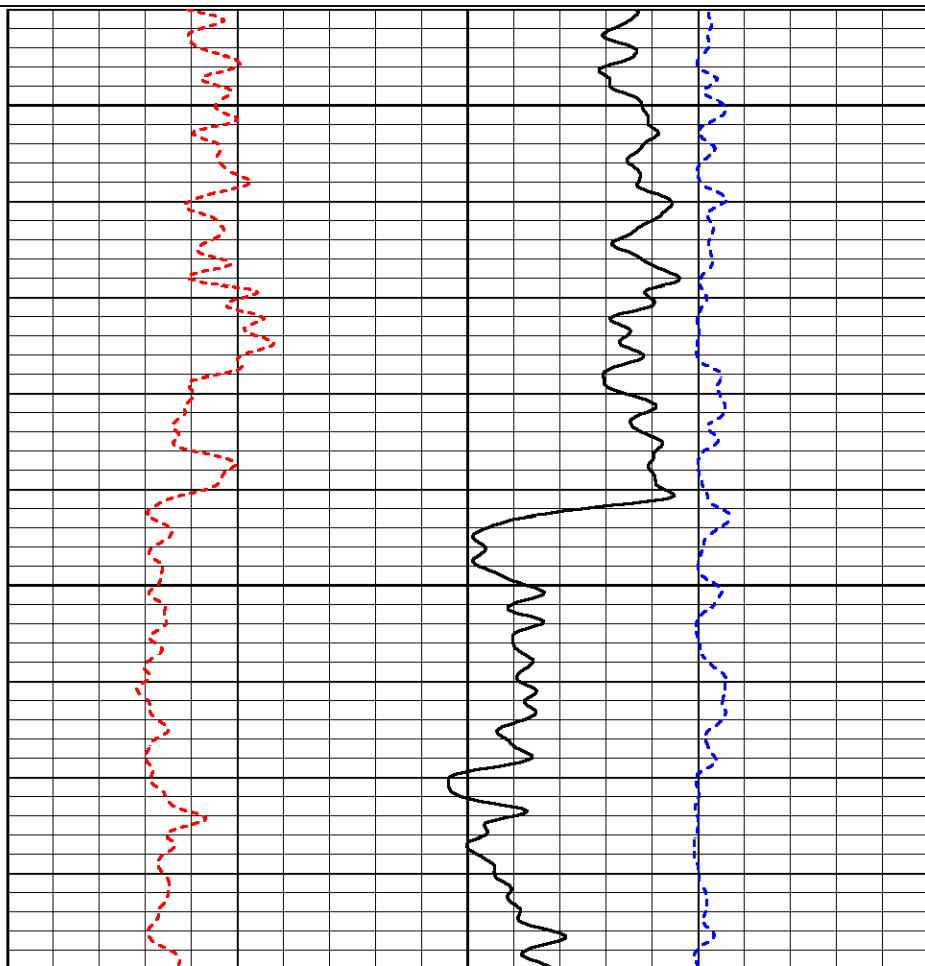
Database File: holy_cow_1.db
Dataset Pathname: repeat2
Presentation Format: abulk
Dataset Creation: Thu Sep 15 20:50:11 2011 by Calc Sondex V7.03
Charted by: Depth in Feet scaled 1:240

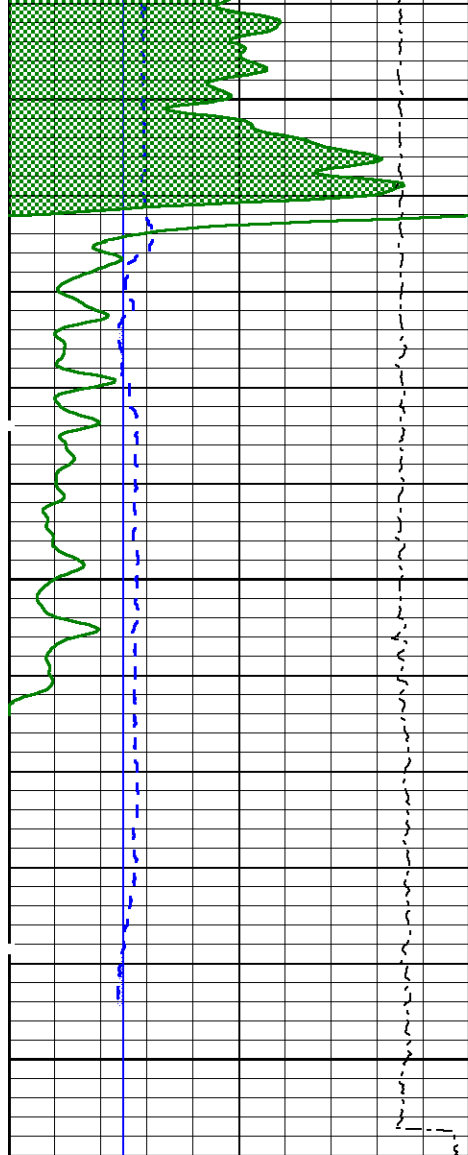
7	Bitsize (in)	17
0	Gamma Ray (GAPI)	150
7	Caliper (in)	17
11000	Line Tension (lb)	1000

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



3700

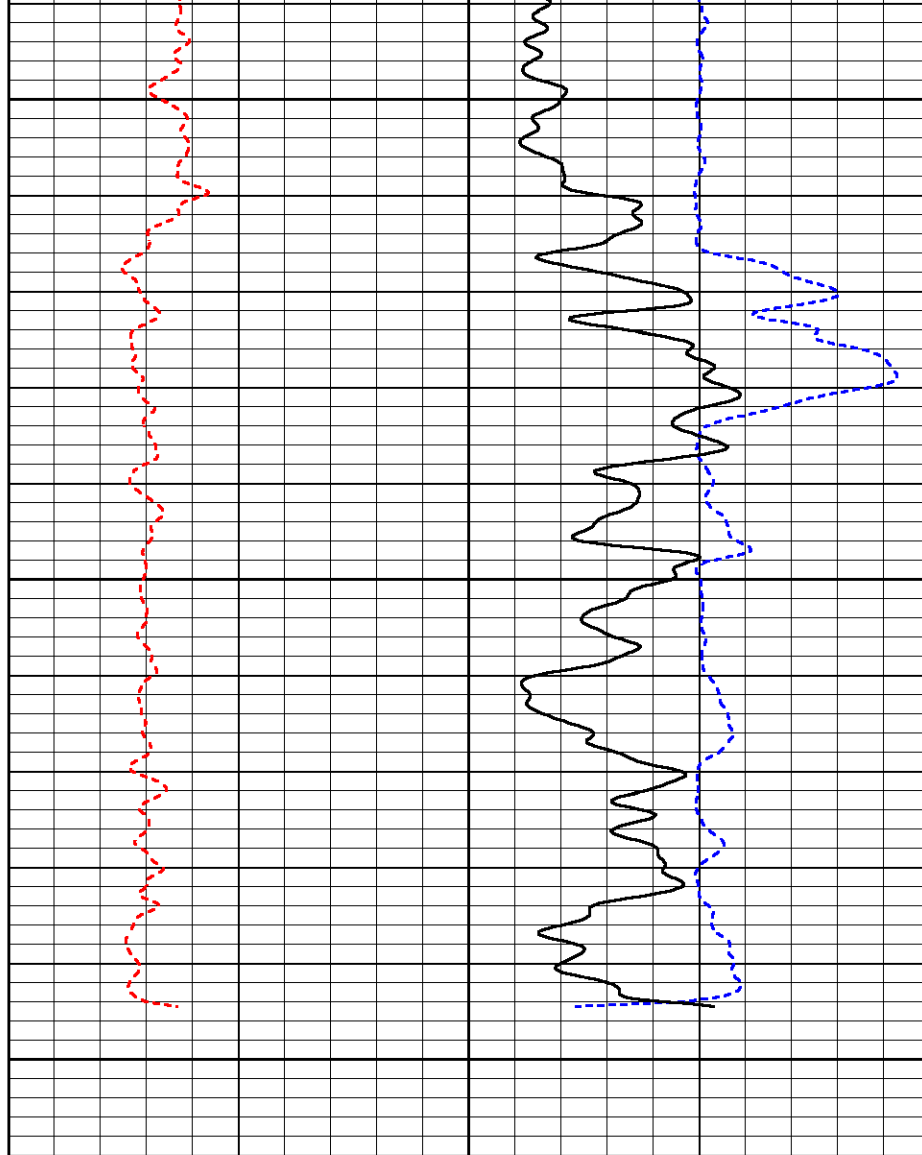




3800

3900

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

Log Variables

Database: C:\Warrior\Data\holy_cow_1.db
Dataset: field/well/run1/Main

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 11.5
AIR_HOLE? No	MudWgt lb/gal 8.7	FLUIDDEN g/cc 1	MATRXDEN g/cc 2.71	SPSHIFT mV 0	CASEOD in 7	PERFS 0	TDEPTH ft 3915
BOTTEMP degF	BOREID in						

degF

107

in

9.5

Calibration Report

Database File: holy_cow_1.db

Dataset Pathname: Main

Dataset Creation: Thu Sep 15 21:00:44 2011 by Calc Sondex V7.03

Induction Array Tool Calibration Report

Serial Number:

B10106

Tool Model:

002

Master Calibration Performed:

Fri May 07 06:45:53 2010

Temperature:

56.1 degF

Sonde Error:

Array	1	2	3	4	5	6	7	
Real	187.7	-10.3	-38.9	-15.6	-1.0	1.1	5.4	mmho/m
Imaginary	-89.4	-24.3	-9.6	-15.1	-15.1	-21.1	1.4	mmho/m

Loop Gain:

Array	1	2	3	4	5	6	7	
Loop (real)	537.7	678.5	1295.3	1394.1	1144.8	712.8	404.8	mmho/m
Loop (imaginary)	73.3	92.5	389.8	419.5	344.5	214.5	121.8	mmho/m
Real	744.1	712.7	1267.6	1384.0	1172.3	744.6	427.9	mmho/m
Imaginary	-22.2	63.4	371.4	398.1	331.9	199.8	127.9	mmho/m
Gain (real)	0.966	0.938	0.991	0.996	0.976	0.959	0.958	
Gain (imaginary)	1.090	1.055	1.023	1.015	0.993	0.971	0.963	

Before Survey Verification Performed:

Thu Sep 15 18:12:45 2011

Sonde 1 Temperature:

78.8 degF

Sonde 2 Temperature:

79.9 degF

Array 1 Temperature:

83.4 degF

Array	1	2	3	4	5	6	7	
TxIR	0.0	0.0	-0.1	-0.1	-0.1	-0.1	-0.1	
TxIX	0.0	0.0	0.2	0.2	0.2	0.2	0.2	
Tx Magnitude	0.0	0.0	0.2	0.2	0.2	0.2	0.2	
Gain	111.1	147.4	143.2	148.6	150.8	166.6	181.0	
RxCR	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	-0.0	
RxCX	0.1	0.0	0.0	0.1	0.1	0.1	0.2	
RxC Magnitude	0.7	2.7	2.3	2.8	3.0	5.4	8.7	

Tool Module Parameters

Software Version:	1.8.7.0
Borehole Size Source:	CALI
Mud Resistivity Source:	Hilchie
Mud Resistivity At Surface:	1.0000Ohm-m
Mud Resistivity Surface Temperature:	65.0000degF
Borehole Corrections:	Automatic
Minimum Standoff:	1.4in

Litho Density Tool Calibration Report

Serial Number:

B10110S50129B

Tool Model:

002

Caliper Calibration Performed:

Wed Sep 14 13:58:59 2011

	Diameter		Reading	
Small Ring:	6.000	in	1369.400	cps
Large Ring:	13.000	in	2055.500	cps

Gain: 0.0102
Offset: -7.9714

Master Calibration Performed: Tue Sep 13 11:13:22 2011

Source Number: 50129B
Medium: Water
Al Block Density: 2.5992 g/cc

	Background	Al Block	Al Block + Fe	
SS1	842.6	5688.1	4624.1	cps
SS2	2328.8	35081.8	29273.8	cps
SSTOTAL	5492.7	56815.5	46945.6	cps
LITH	109.4	639.6	365.9	cps
LL	221.3	996.7	851.0	cps
LU	628.9	1283.2	1169.7	cps
LS	850.2	2280.0	2020.7	cps
LSTOTAL	1595.8	5657.6	4484.3	cps
SSHV	1540.6	1544.1	1544.7	V
LSHV	1493.6	1493.9	1494.3	V
SSFF	0.01	0.01	0.01	
LSFF	-0.01	0.01	0.01	

Before Survey Verification Performed: Wed Sep 14 13:52:31 2011
After Survey Verification Performed:

	Master Background	Before Survey Background	After Survey Background	
SS1	842.6	836.2		cps
SS2	2328.8	2325.8		cps
SSTOTAL	5492.7	5488.2		cps
LITH	109.4	114.6		cps
LL	221.3	215.2		cps
LU	628.9	627.1		cps
LS	850.2	842.3		cps
LSTOTAL	1595.8	1588.8		cps
SSHV	1540.6	1537.7		V
LSHV	1493.6	1491.1		V
SSFF	0.01	0.01		
LSFF	-0.01	-0.02		

Tool Module Parameters

Software Version: 2.4.3.0
Borehole Size Source: CALI
Pad Type: 2

Compensated Neutron Tool Calibration Report

Serial Number: C10071
Tool Model: 009

Master Calibration Performed: Tue Sep 13 09:17:15 2011

Source Number: 66005

Short Spacing Counts: 5341.60 cps
Long Spacing Counts: 200.79 cps
High Voltage: 1364.02 V

Target Ratio: 27.2000
Ratio: 26.6031

K-Factor: 1.0224

Before Survey Verification Performed: Wed Sep 14 13:49:54 2011

After Survey Verification Performed:

Verifier Number: 6489

Verifier Values	Master Cal	Before Survey	After Survey
Short Spacing Counts:	251.43	249.72	cps
Long Spacing Counts:	274.54	278.92	cps
High Voltage:	1364.00	1364.02	V
Ratio:	0.9158	0.8953	

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: Sun Mar 13 21:55:53 2011

	Diameter		Reading 1	Reading 2
Small Ring:	1.850	in	1308.900	1305.700
Large Ring:	4.450	in	1342.100	1391.700
Gain:			0.0783	0.0302
Offset:			-100.6540	-37.6247

Pad Calibration

	Inverse	Normal
Gain:	1.0000	1.0000
Offset:	0.0000	0.0000

Borehole Fluid Resistivity Calibration Report

Serial Number: P004
Tool Model: 002

Master Calibration Performed: Tue Sep 13 17:43:23 2011

Resistivity Polynomial Equation:

$$0.0244x^3 - 0.0654x^2 + 0.5797x - 0.0237$$

Temperature Calibration:

Reference		Reading	
71.60	degF	559.80	bits
167.00	degF	659.50	bits

Tool Module Parameters

Software Version: 1.2.2.0

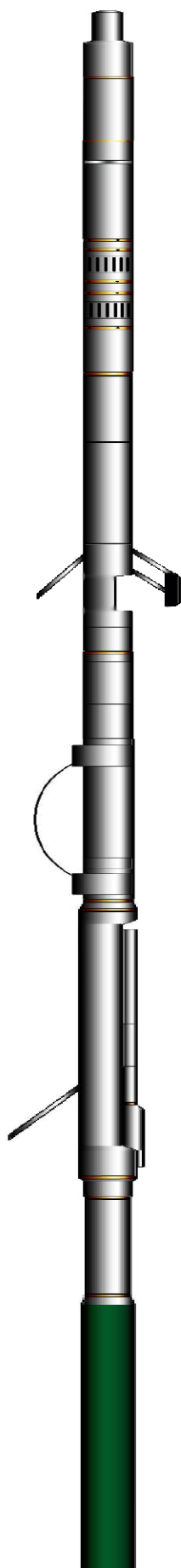
Gamma Ray Calibration Report

Serial Number: C10047
Tool Model: 001

Performed: Thu Sep 15 18:45:38 2011

Calibrator Value: 147.0 CALI

Calibrator Value:	147.0	GAPI
Background Reading:	28.8	cps
Calibrator Reading:	519.6	cps
Sensitivity:	0.2995	GAPI/cps

Sensor	Offset (ft)	Schematic	Description	Len (ft)	OD (in)	Wt (lb)	
GR	47.81		CHD-001 (000004) Cable Head	2.19	3.38	35.00	
			XTU-008 (C10067) Crossover Ultrawire Toolbus to Ultralink	2.08	3.38	47.00	
			GRT-001 (C10047) Gamma Ray Tool	3.22	3.38	69.00	
BFR	42.97		BFR-002 (P004)	4.39	3.38	94.00	
MEL	33.43		MEL-001 (000001) Micro Electric Log	9.17	3.38	190.00	
			KJT-001 (000001) Knuckle Joint	2.86	3.38	72.00	
CNLSC CNSSC	25.75 25.25		CNL-009 (C10071) Compensated Neutron Logging Tool	5.27	3.38	125.00	
LDT	15.59		LDT-002 (B10110S50129B) Litho Density Tool	9.75	4.50	310.00	
			IAT-002 (B10106) Induction Array Tool	13.42	3.88	200.00	

