



PIONEER

Pioneer Energy Services

Sonic Cement Bond Log

15-065-23970-00-00

API No.

Company Spiral Energy Corp LLC.

Well Kuehl No. 2

Field Cooper

County Graham

State Kansas

Location

1320' FSL & 1980' FWL

Other Services

Sec: 34 Twp: 9 S Rge: 21 W

Elevation

Permanent Datum Ground Level Elevation 2323

Log Measured From Kelly Bushing 7 Ft. Above Perm. Datum

Drilling Measured From Kelly Bushing K.B. 2330
D.F. 2323
G.L. 2323

Run Number One

Date Survey 9-10-13

Date Cementing 8-30-13

Type Cementing Operation Primary

Depth Driller 3955

Depth Logger 3909

Logged Interval 3908 to 2600

Casing Driller 5.5 @ TD

Float Collar -- D.V. Tool 1777

Squeeze Depth 1777

Amount & Type Cement 1777

Amount & Type Admix 1777

Type Fluid In Hole Water

Fluid Level 434

Salinity PPM CL 1777

Weight lb/gal -- Vis. 1777

Approx. Logged Cement Top 2730

Calculated Cement Top 116

Max. Hole Temperature 116

Tool No. D2

Spacing Recorded 3-5

Equipment -- Location 71 Hays

Recorded By Scott Clermont

Witnessed By Tom Berens

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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.

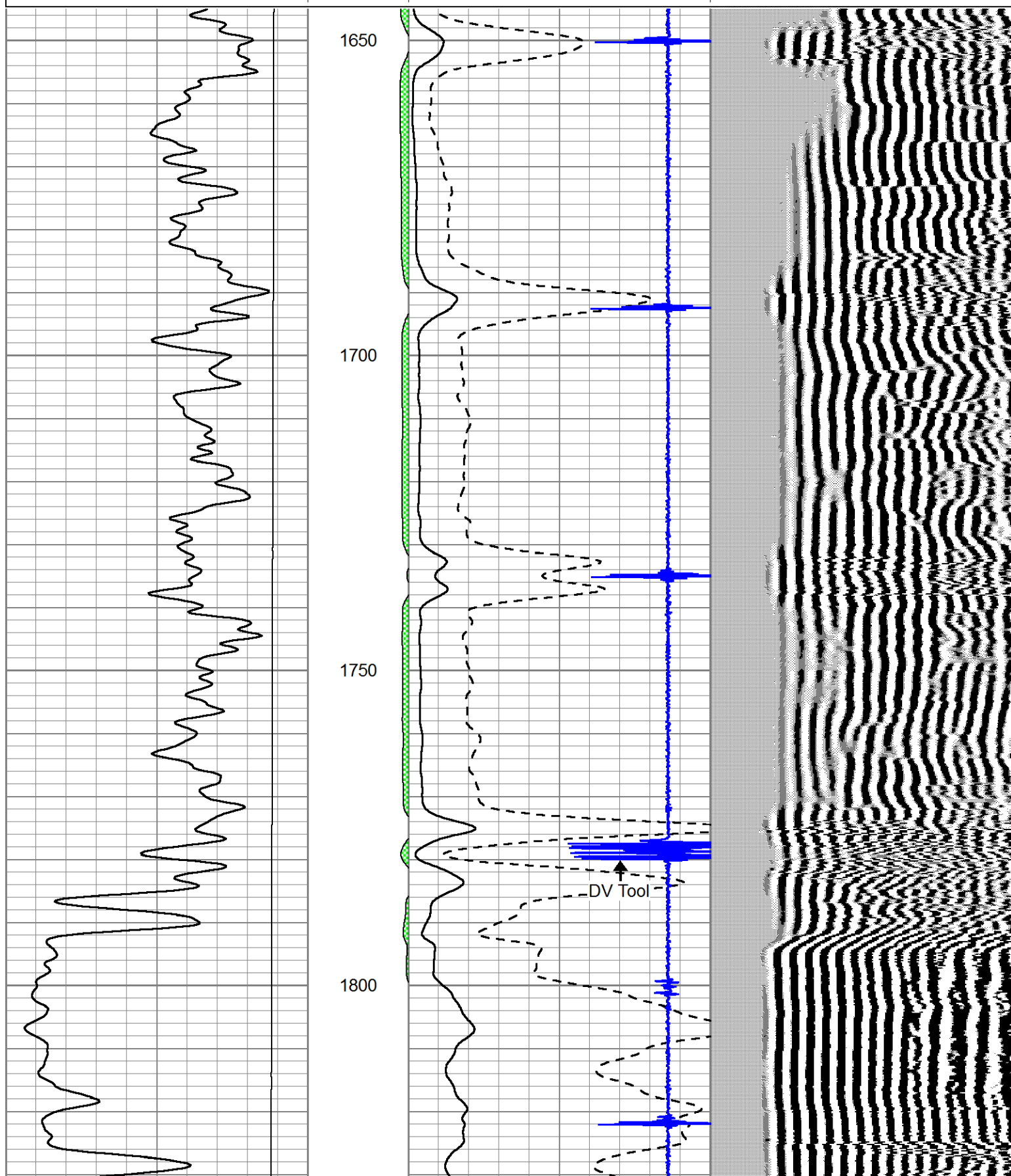
Comments

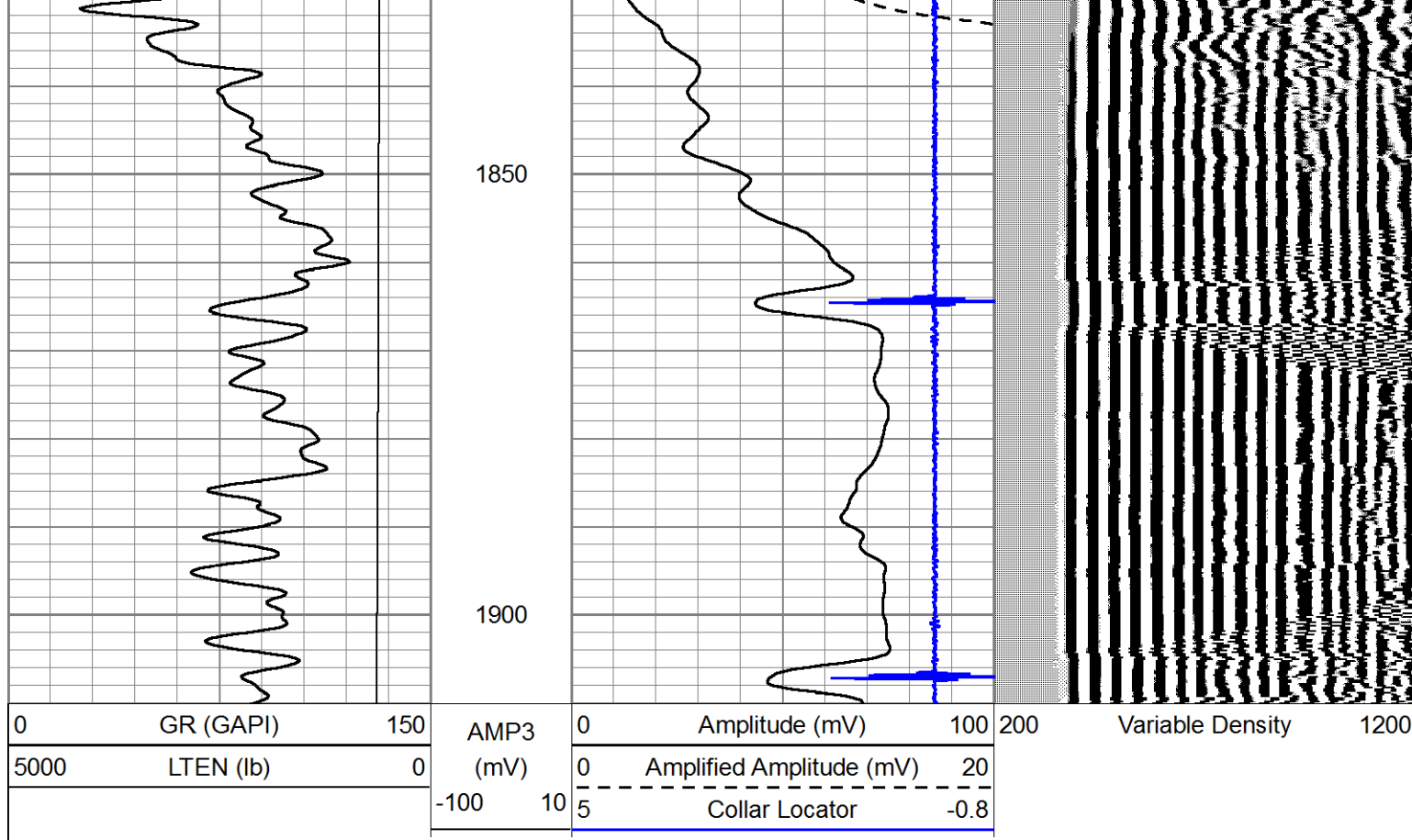
Thank you for using Pioneer Energy Services
(785) 625-3858

Palco Ks., South to X Rd.(Redline)
4 West to Church of God
1 South, 1/2 West, North Into

Database File: spiral_9-10-13.db
Dataset Pathname: grcbl/pass4
Presentation Format: cbldig
Dataset Creation: Tue Sep 10 15:46:41 2013 by Log SCH 111116
Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	150	AMP3	0	Amplitude (mV)	100	200	Variable Density	1200
5000	LTEN (lb)	0	(mV)	0	Amplified Amplitude (mV)	20			
			-100 10	5	Collar Locator	-0.8			





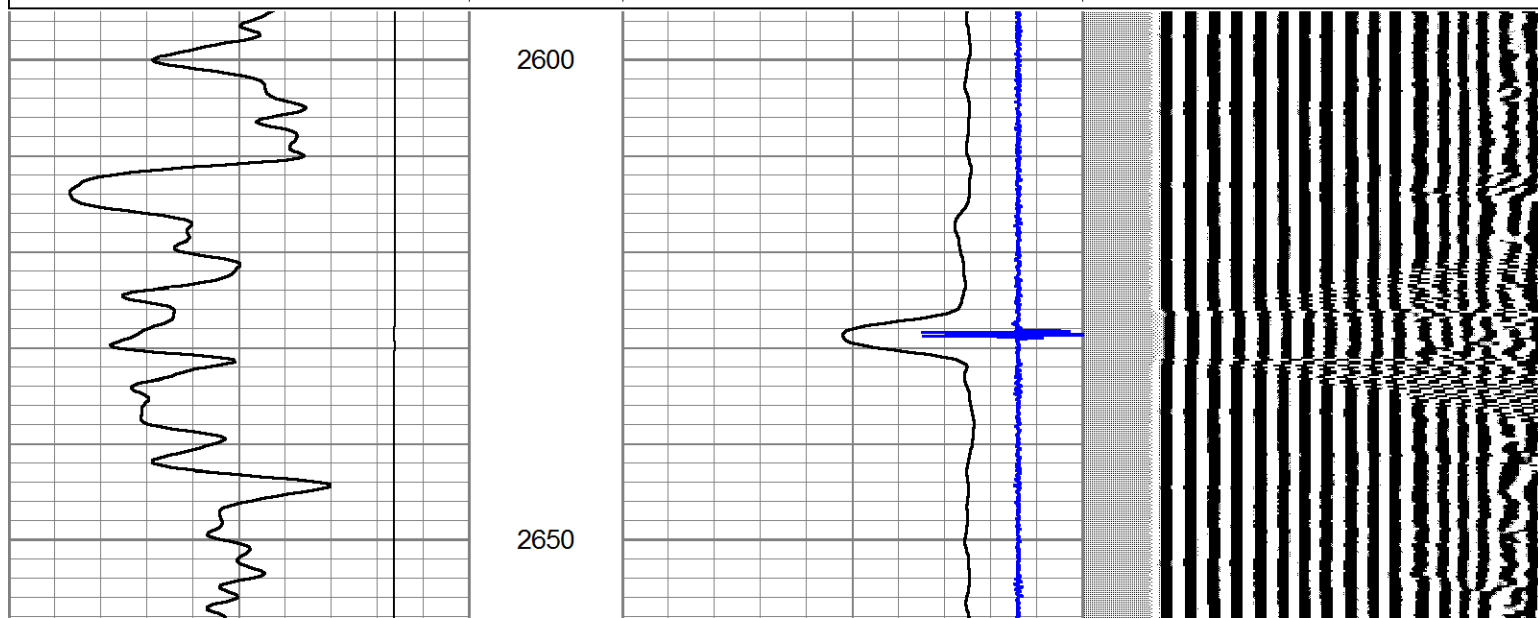
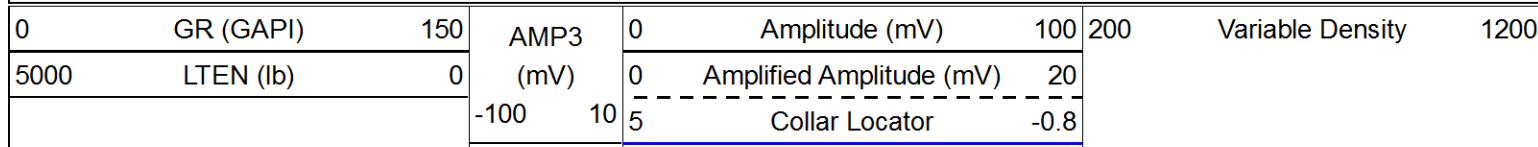


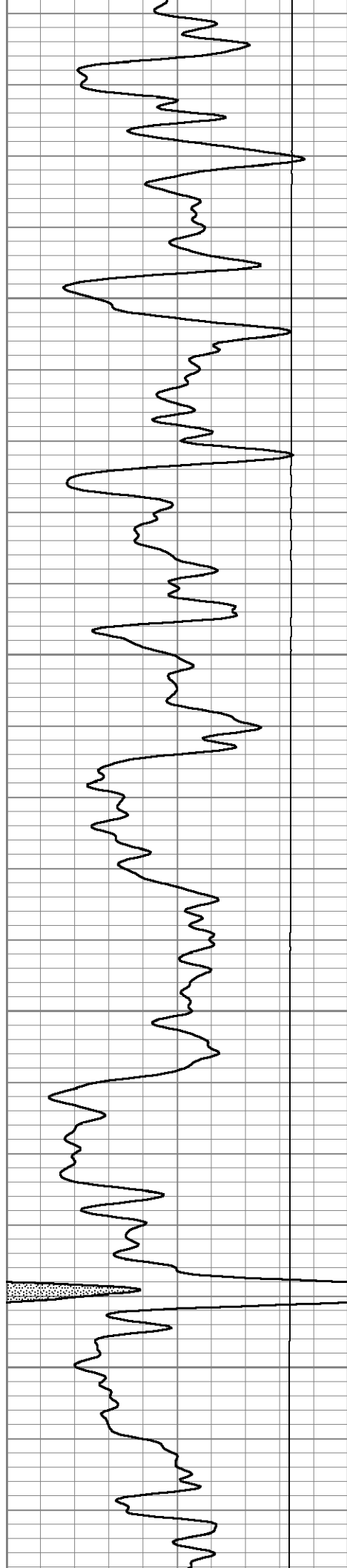
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Main Pass

Database File: spiral_9-10-13.db
Dataset Pathname: grcbl/pass3
Presentation Format: cbldig
Dataset Creation: Tue Sep 10 15:21:49 2013 by Log SCH 111116
Charted by: Depth in Feet scaled 1:240





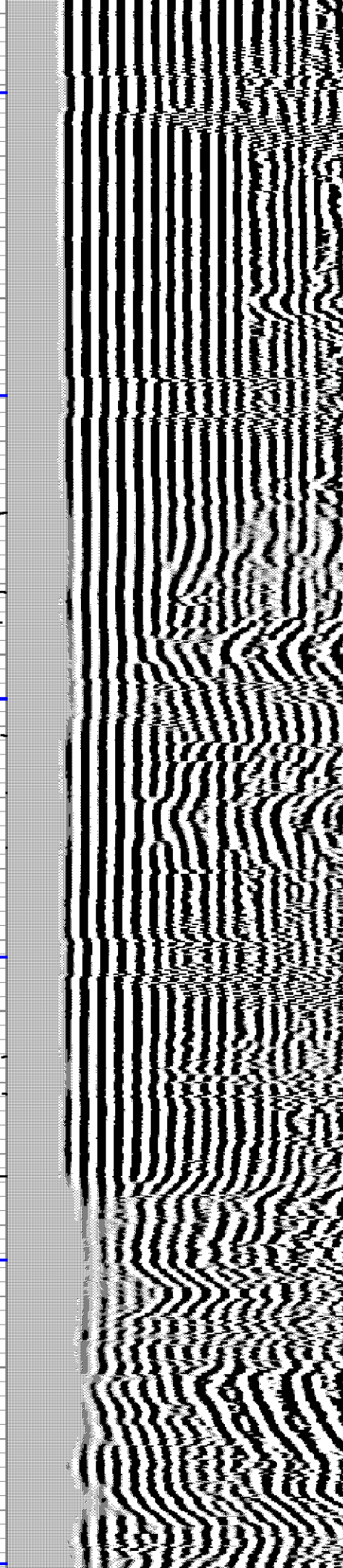
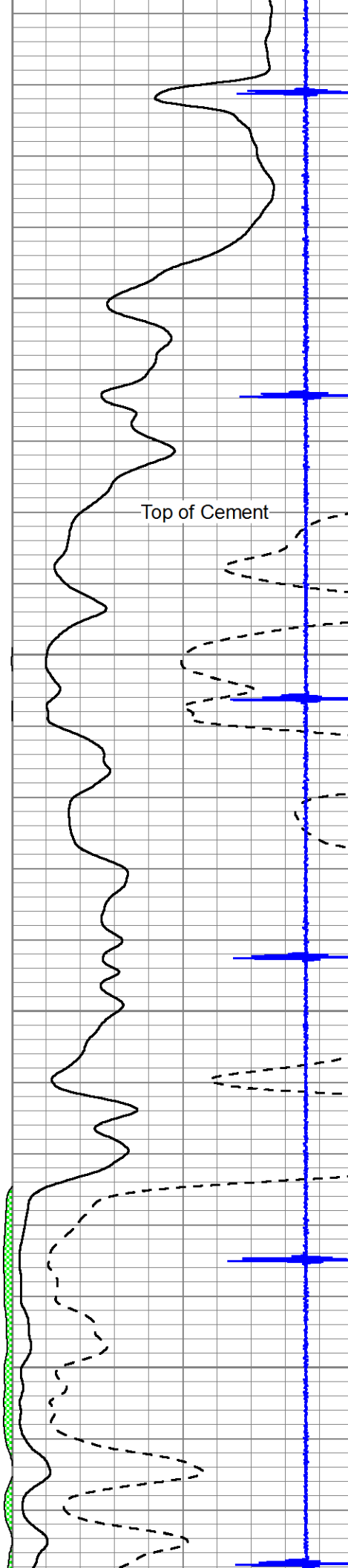
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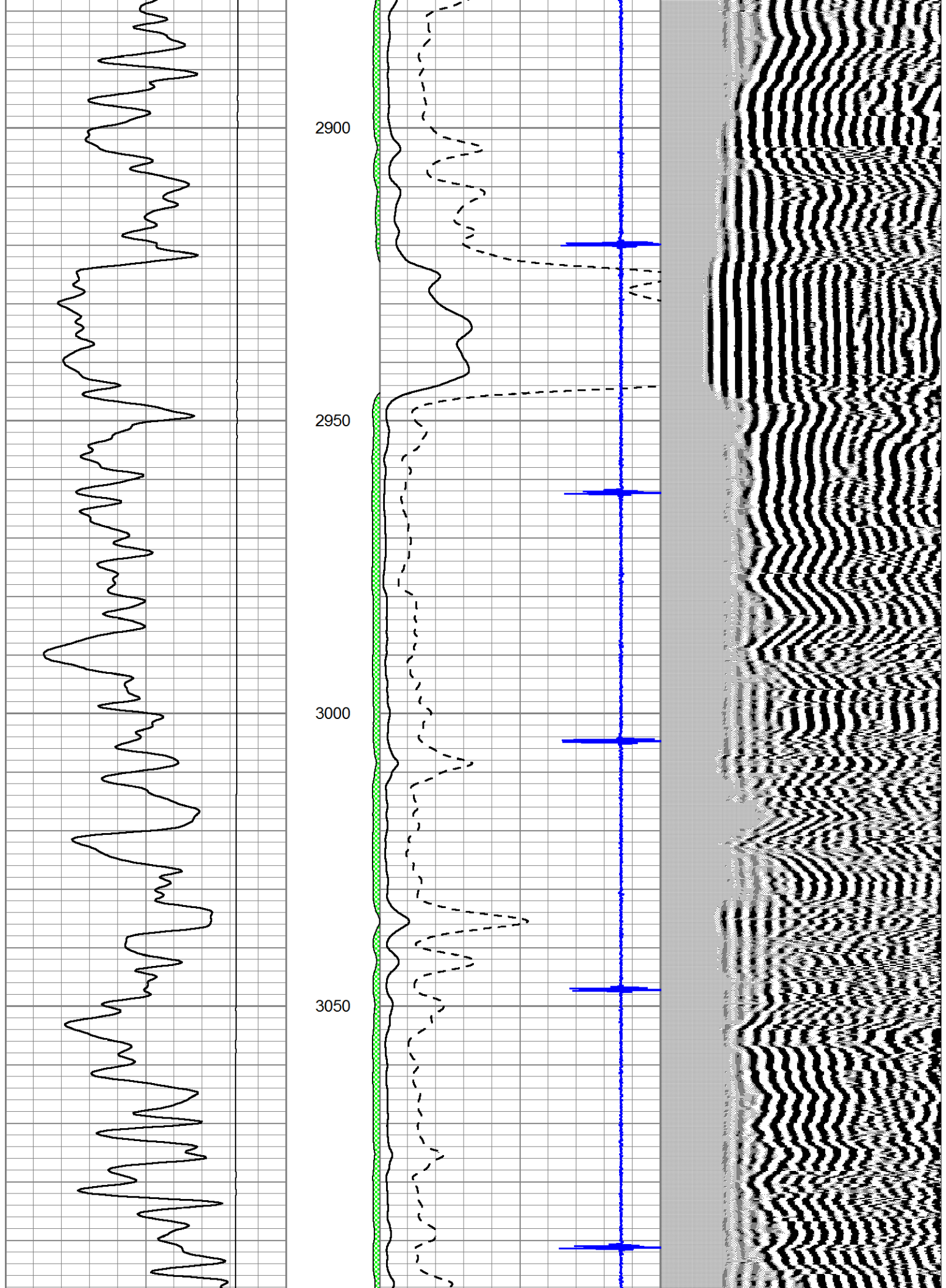
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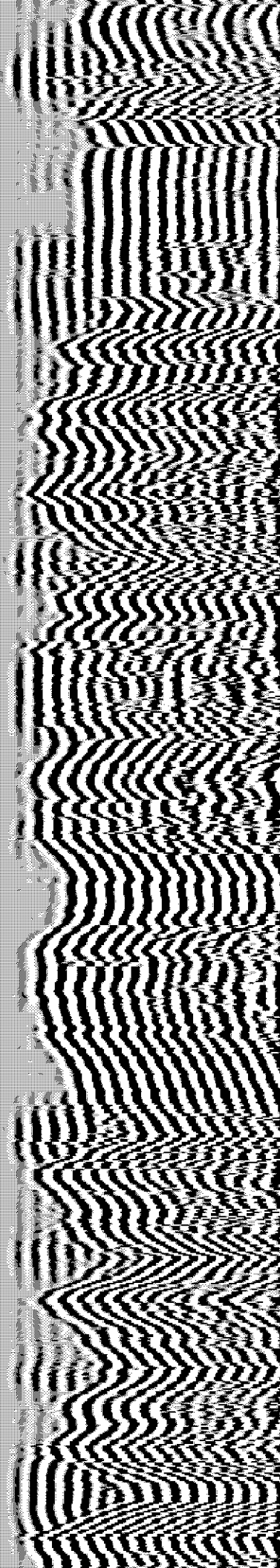
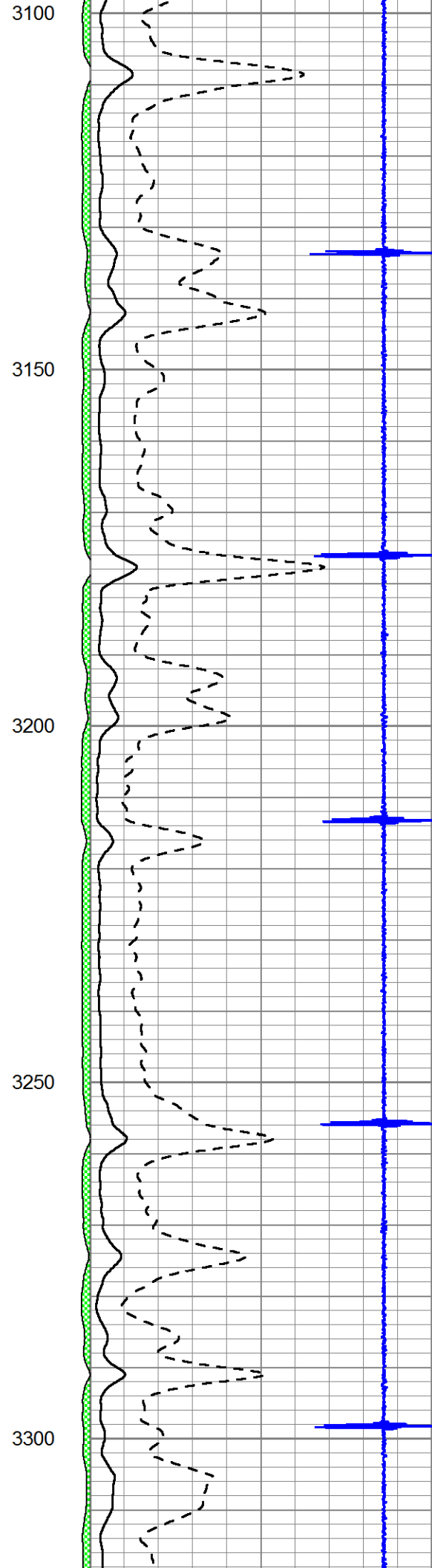
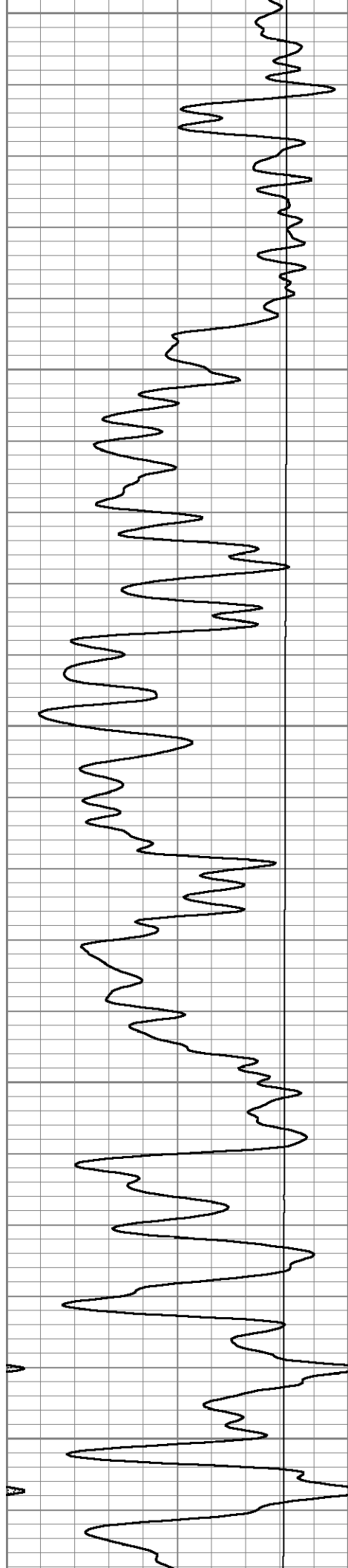
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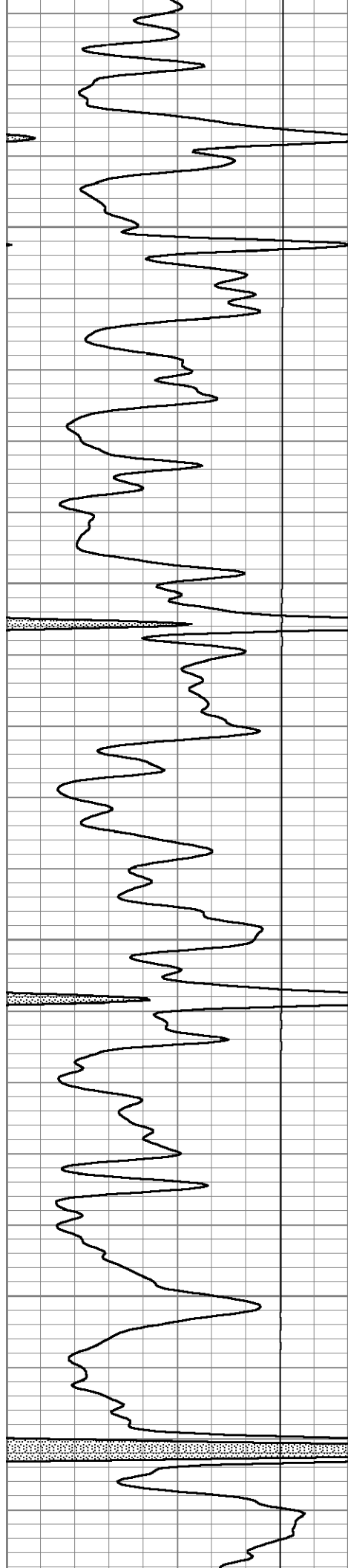
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Top of Cement







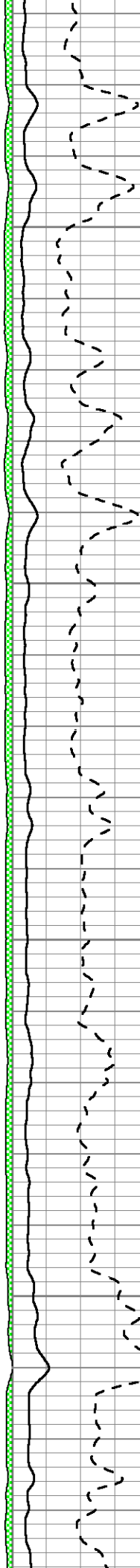


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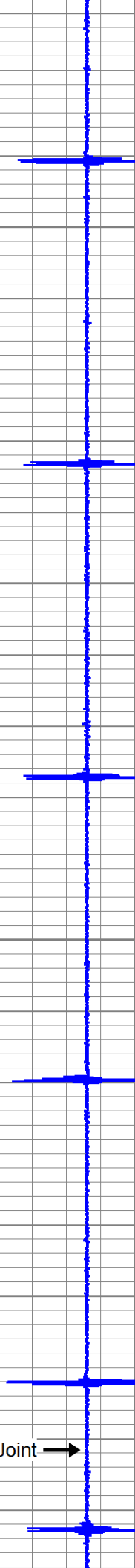
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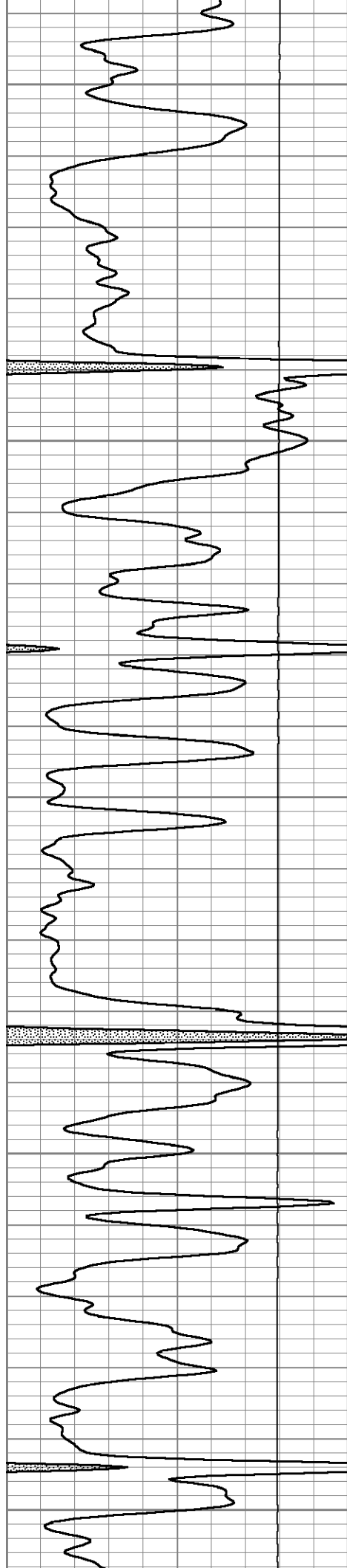
3450

3500



Marker Joint →





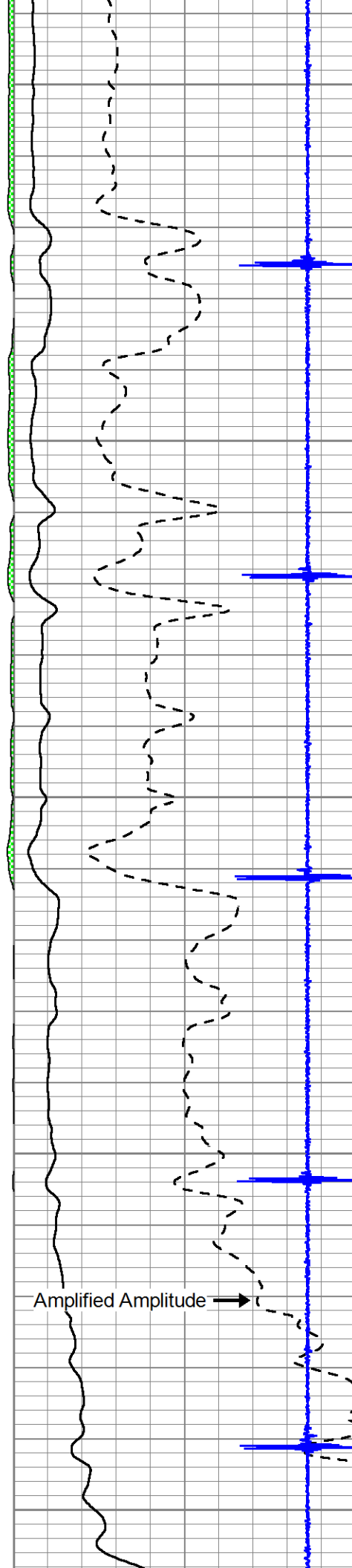
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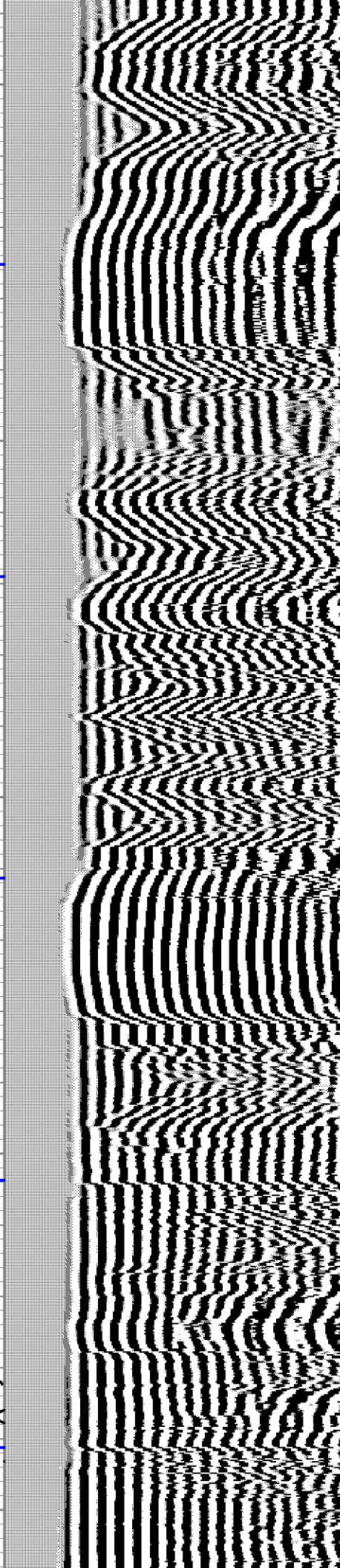
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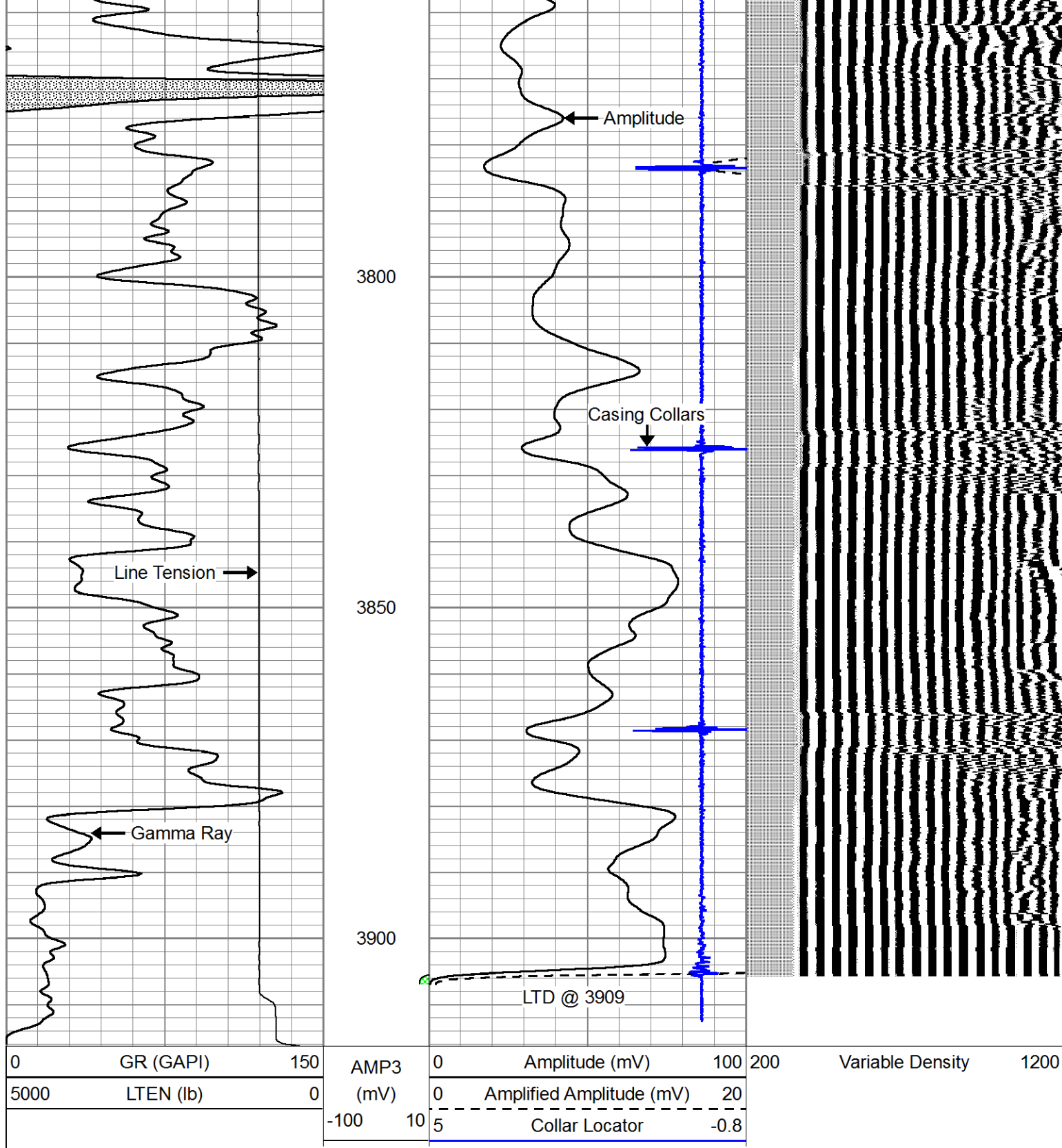
3700

3750



Amplified Amplitude →

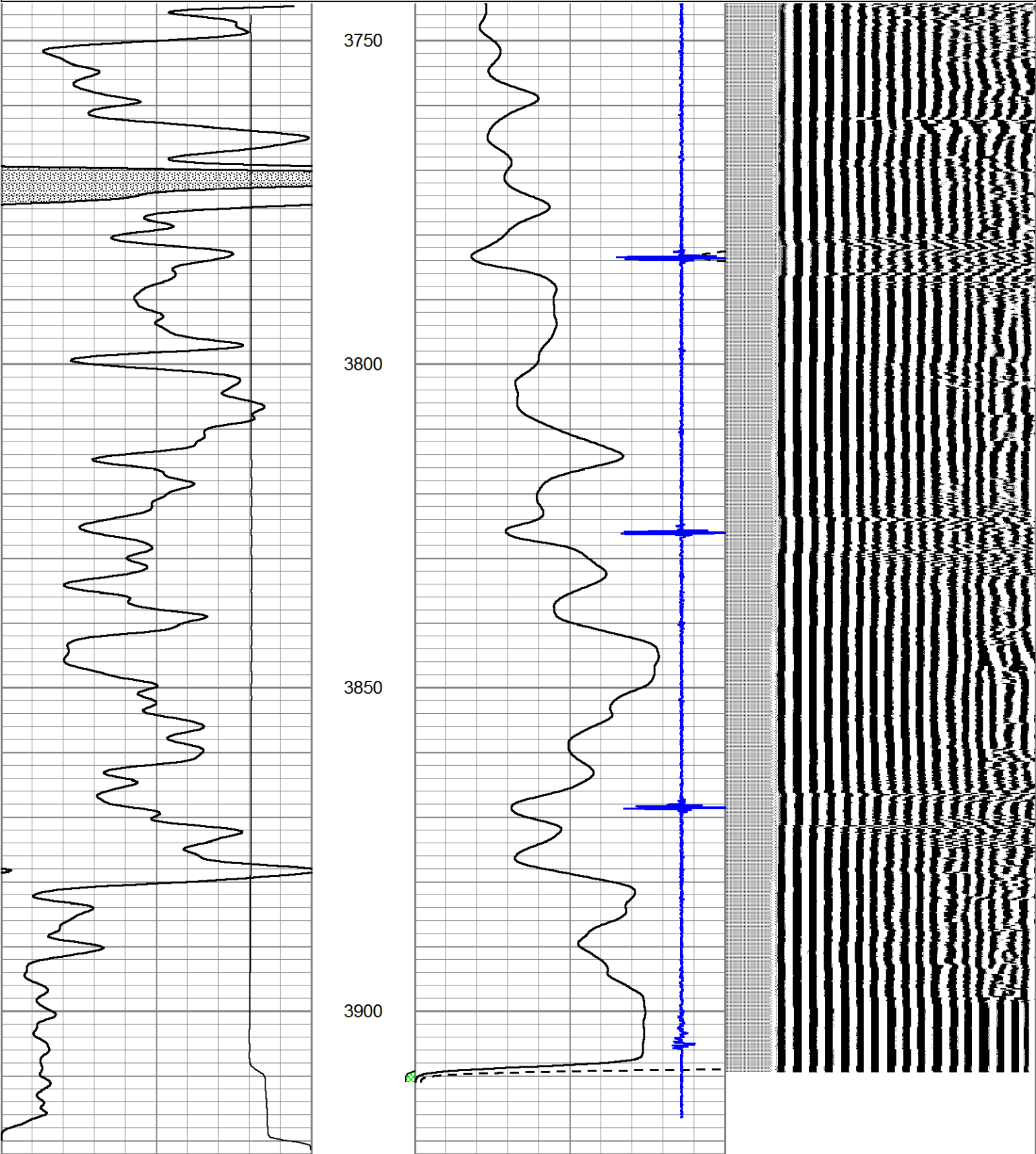




Repeat Section

Database File: spiral_9-10-13.db
 Dataset Pathname: grcbl/pass2
 Presentation Format: cbldig
 Dataset Creation: Tue Sep 10 15:16:03 2013 by Log SCH 111116
 Charted by: Depth in Feet scaled 1:240

0	GR (GAPI)	150	AMP3	0	Amplitude (mV)	100	200	Variable Density	1200
5000	LTEN (lb)	0	(mV)	0	Amplified Amplitude (mV)	20			
			-100	10	5	Collar Locator	-0.8		



0	GR (GAPI)	150	AMP3	0	Amplitude (mV)	100	200	Variable Density	1200
5000	LTEN (lb)	0	(mV)	0	Amplified Amplitude (mV)	20			
			-100	10	5	Collar Locator	-0.8		