



PIONEER
Pioneer Energy Services

DUAL INDUCTION LOG

Company COBALT ENERGY, LLC		Company COBALT ENERGY, LLC	
Well HOYT 'A' NO. 1-36		Well HOYT 'A' NO. 1-36	
Field N/A		Field N/A	
County CHEYENNE		County CHEYENNE	
State KANSAS		State KANSAS	
Location: API #: 15-023-21490-00-00		Other Services	
454' FSL & 348' FWL		CNL/CDL MEL/BHCS	
SEC 36 TWP 5S RGE 37W		Elevation	
Permanent Datum GROUND LEVEL		K.B. 3423'	
Log Measured From KELLY BUSHING		D.F. N/A	
Drilling Measured From KELLY BUSHING		G.L. 3418'	
Date	8/1/2018		
Run Number	ONE		
Depth Driller	5060'		
Depth Logger	5059'		
Bottom Logged Interval	5058'		
Top Log Interval	350'		
Casing Driller	8.625" @ 386'		
Casing Logger	387'		
Bit Size	7.875"		
Type Fluid in Hole	CHEMICAL		
Salinity, ppm CL	3500		
Density / Viscosity	9.1 56		
pH / Fluid Loss	11.0 6.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.70 @ 86		
Rmt @ Meas. Temp	.53 @ 86		
Rmc @ Meas. Temp	.95 @ 86		
Source of Rmt / Rmc	CHARTS		
Rm @ BHT	.48 @ 127		
Operating Rig Time	4 HOURS		
Max Rec. Temp. F	127 DEGF		
Equipment Number	108		
Location	HAYS		
Recorded By	J. HENRICKSON		
Witnessed By	TIM LAUER		

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All interpretations are opinions based on inferences from electrical or other measurements and Pioneer Wireline Services, LLC cannot and does not guarantee the accuracy or correctness of any interpretation, and Pioneer Wireline Services, LLC will not 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.

Comments

N/A DENOTES NOT AVAILABLE OR NON-APPLICABLE.
BREWSTER KANSAS
NORTH TO 80 ROAD, WEST TO ROAD 34, NORTH INTO

Log Measured From: KELLY BUSHING 5 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES
www.pioneerenergy.com 785-625-3858

Your Pioneer Energy Services Crew		This Log Record Was Witnessed By	
Engineer: J. HENRICKSON		Primary Witness: TIM LAUER	
Operator:		Secondary Witness:	
Operator:		Secondary Witness:	
Operator:		Secondary Witness:	

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 127	in 5.5	in 0	g/cc 1	2	g/cc 2.71
NPORSEL	PERFS	SNDERR	SNDERRM	SPSHIFT	SRFTEMP	SZCOR	TDEPTH
Limestone	0	mmho/m 0	mmho/m -5	mV -250	degF 98	Off	ft 5059

Sensor	Offset (ft)	Schematic		Description	Length (ft)	O.D. (in)	Weight (lb)
GR	33.00			GR-M&W (89-M&W)	3.00	3.50	50.00
CNLSC CNSSC	29.90			CNT-M&W (tk10-MW)	5.50	3.50	100.00
	29.15						
LSD DCAL SSD	20.85 20.83 20.35			CDL-M&W (168-130)	8.50	4.00	250.00
RLL3 RLL3F	15.80			DIL-M&W (1987)	18.50	3.50	220.00
	15.79						
CILD	8.00						

CILM 4.70

SP 0.20

Dataset: cobalt_hoyt_a_1_36.db: field/well/stack/pass3.1
Total length: 35.50 ft
Total weight: 620.00 lb
O.D.: 4.00 in



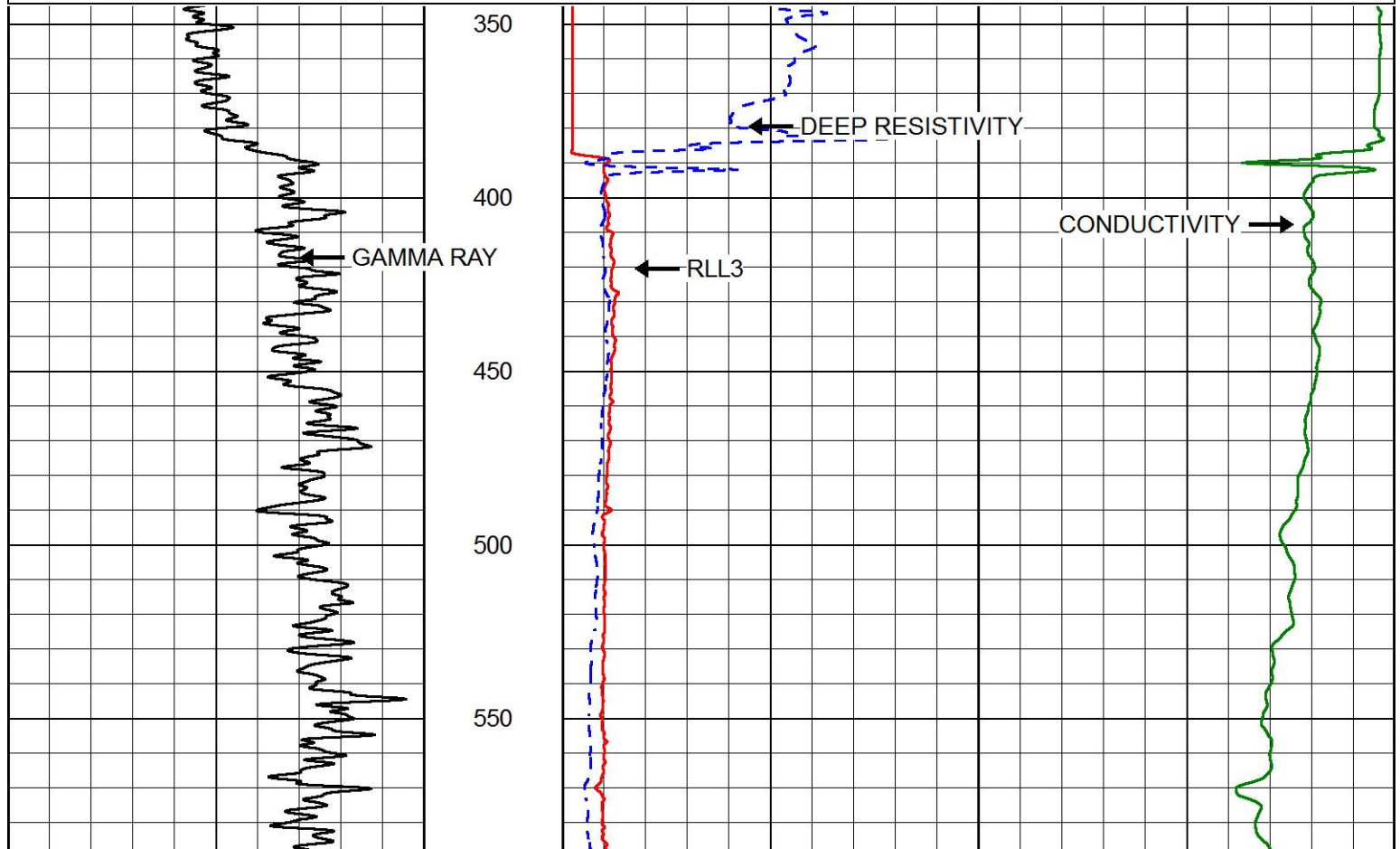
MAIN PASS

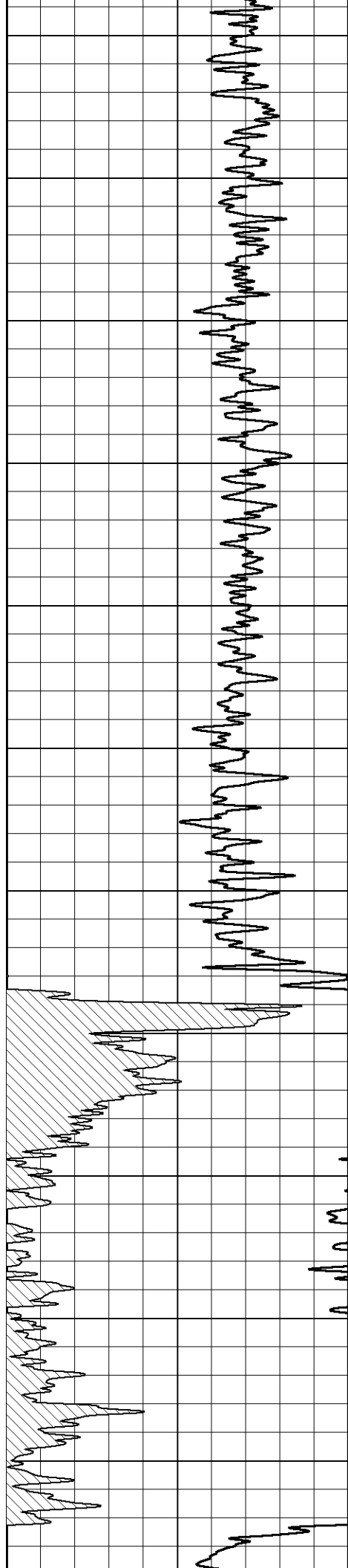
Database File cobalt_hoyt_a_1_36.db
Dataset Pathname stack/pass3.1
Presentation Format dil2in
Dataset Creation Wed Aug 01 15:46:19 2018
Charted by Depth in Feet scaled 1:600

0 GAMMA RAY (GAPI) 150

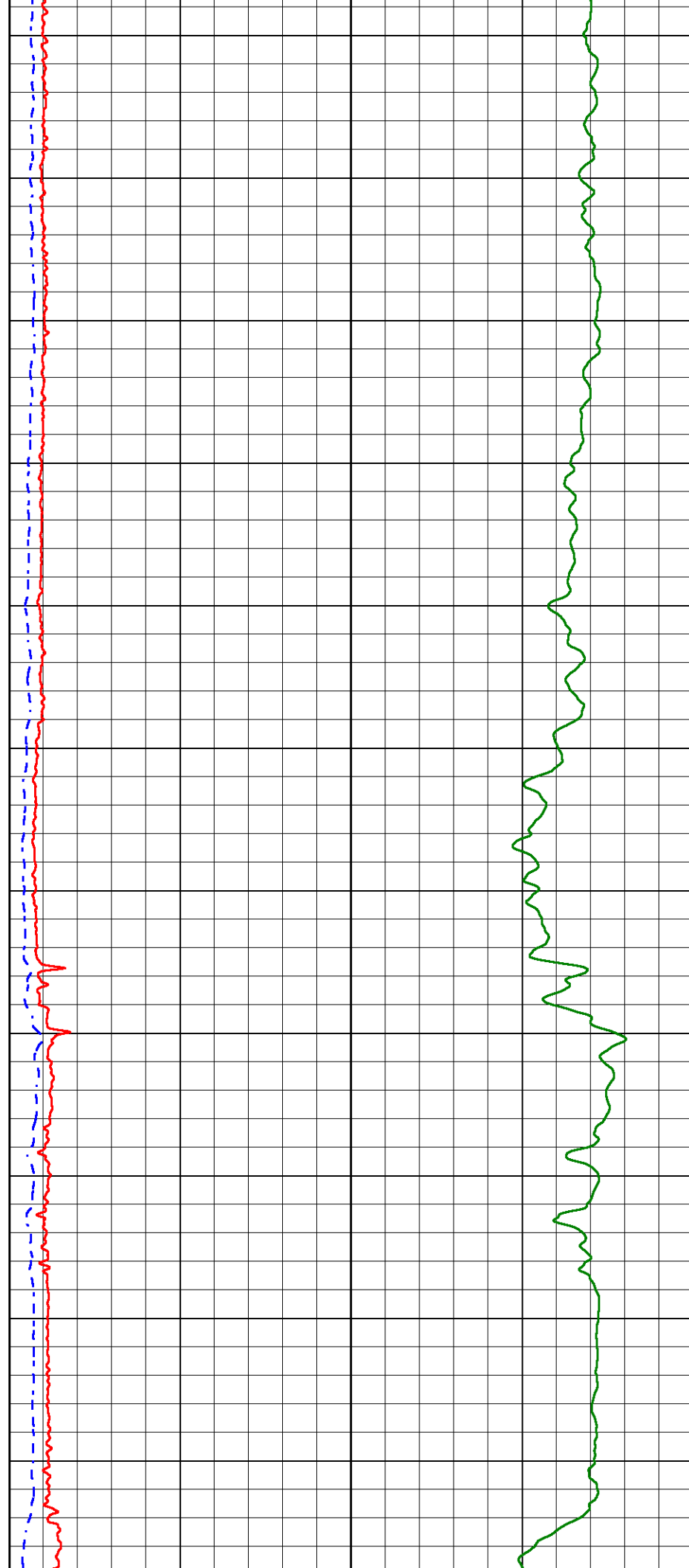
2000 CONDUCTIVITY (mmho/m) 0

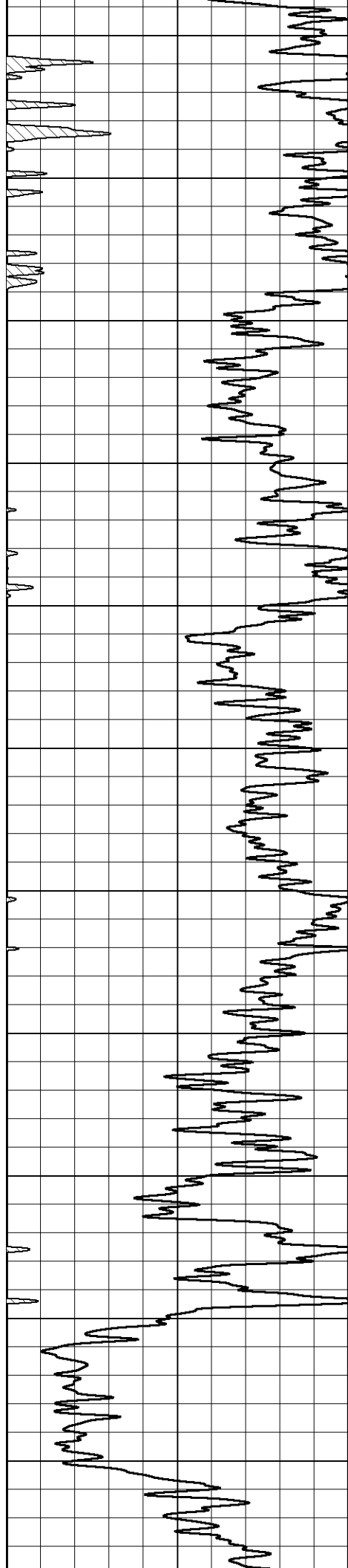
0	RLL3 (Ohm-m)	50
0	DEEP RESISTIVITY (Ohm-m)	50
50	RLL3 (Ohm-m)	500
DEEP RESISTIVITY		
50	(Ohm-m)	500





600
650
700
750
800
850
900
950
1000
1050
1100





1150

1200

1250

1300

1350

1400

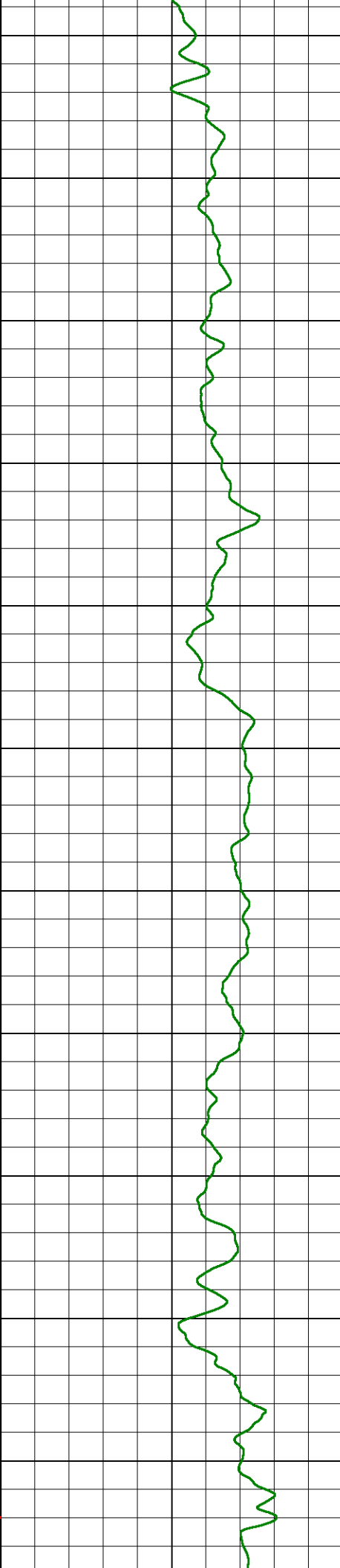
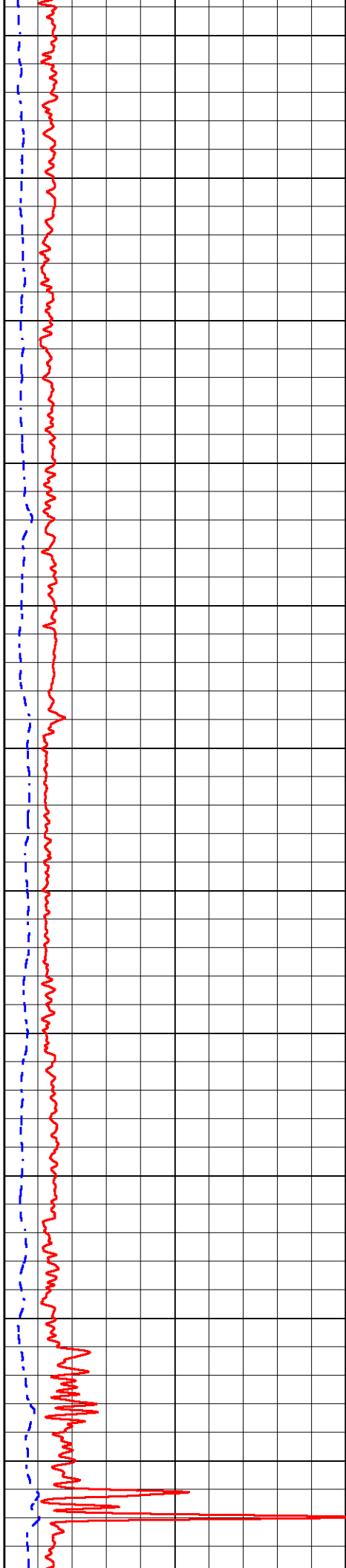
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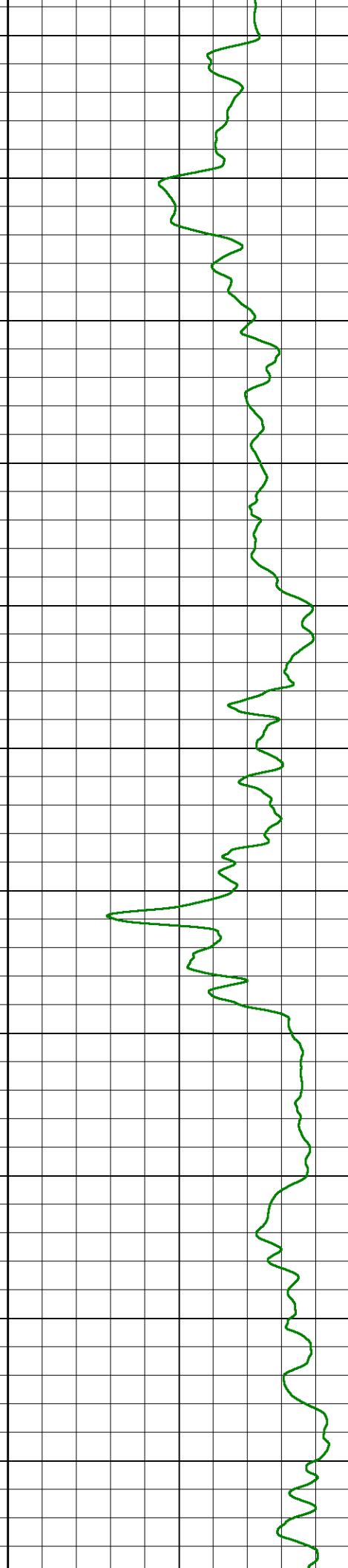
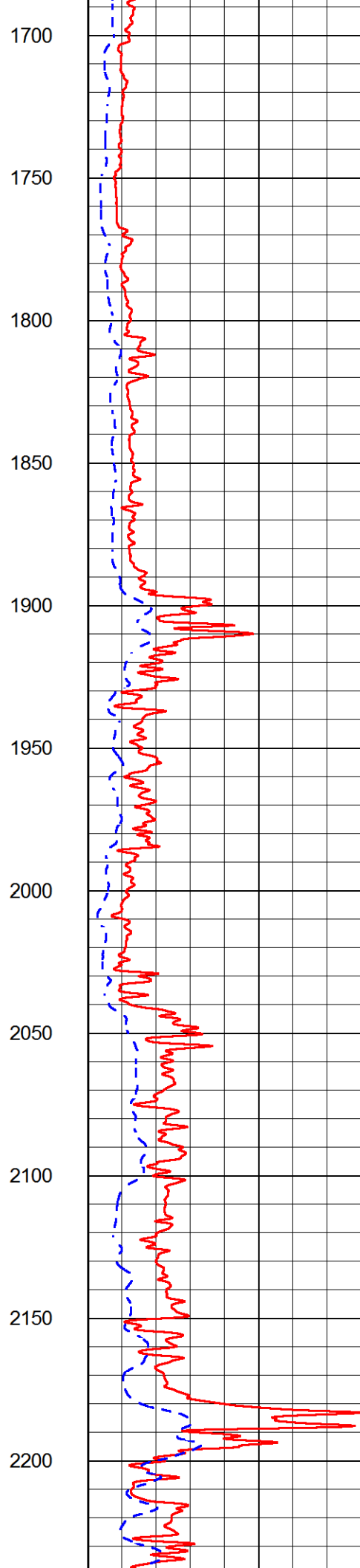
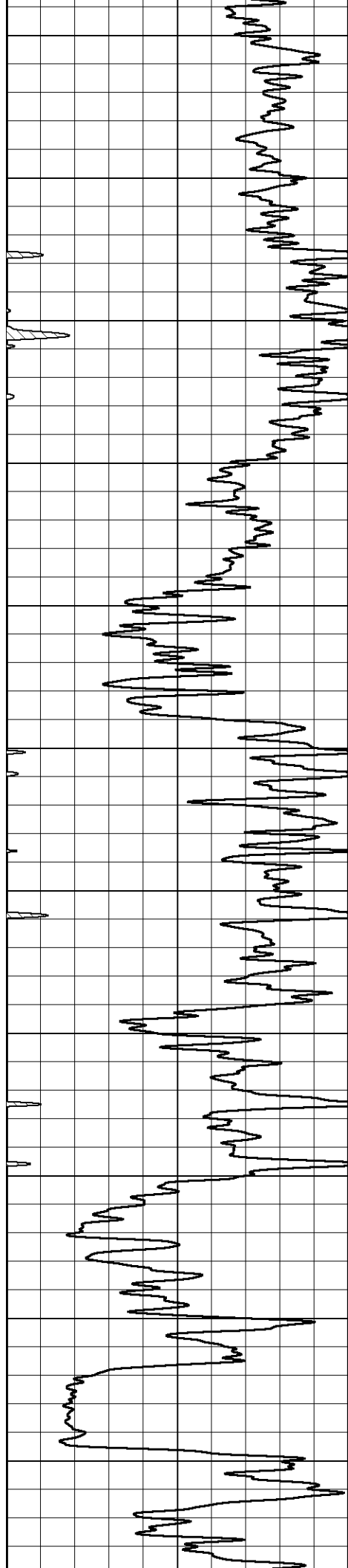
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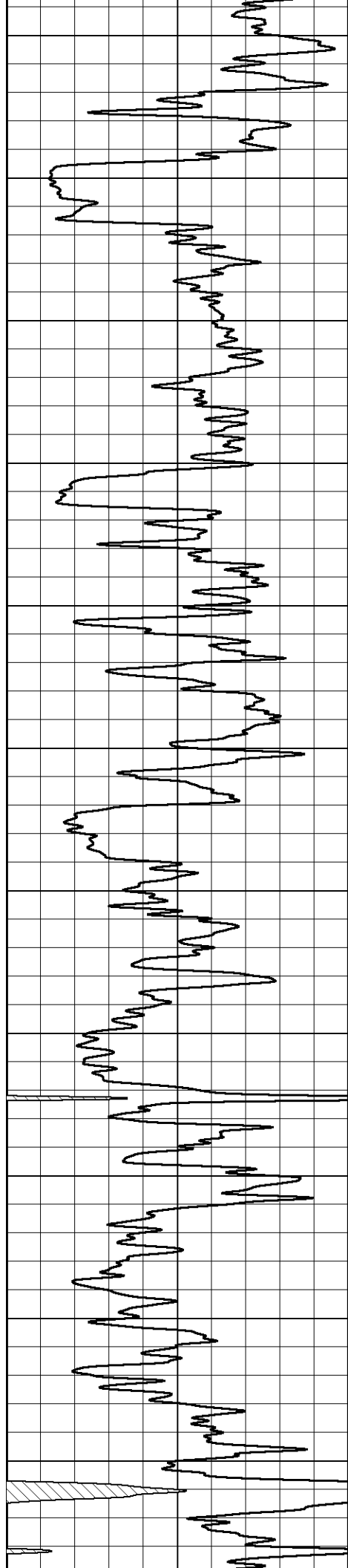
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1600

1650







2250

2300

2350

2400

2450

2500

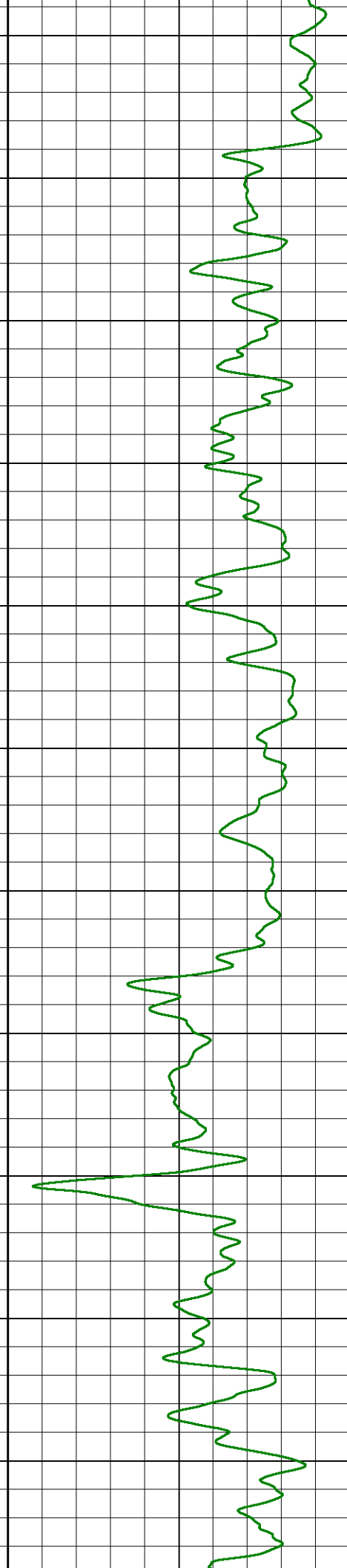
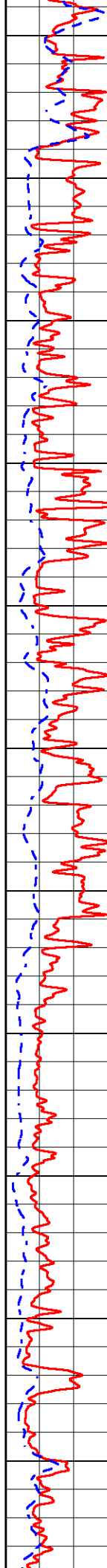
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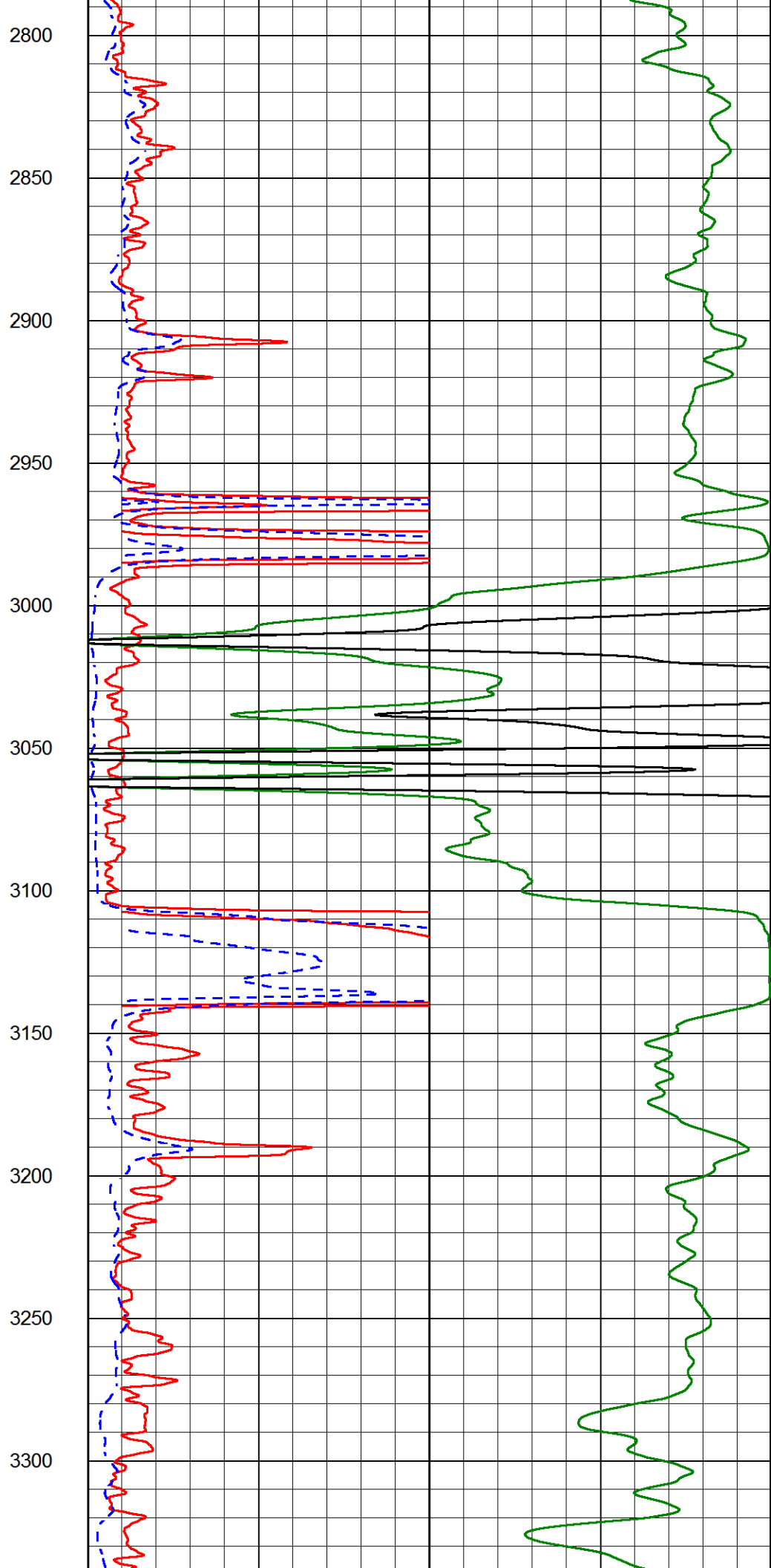
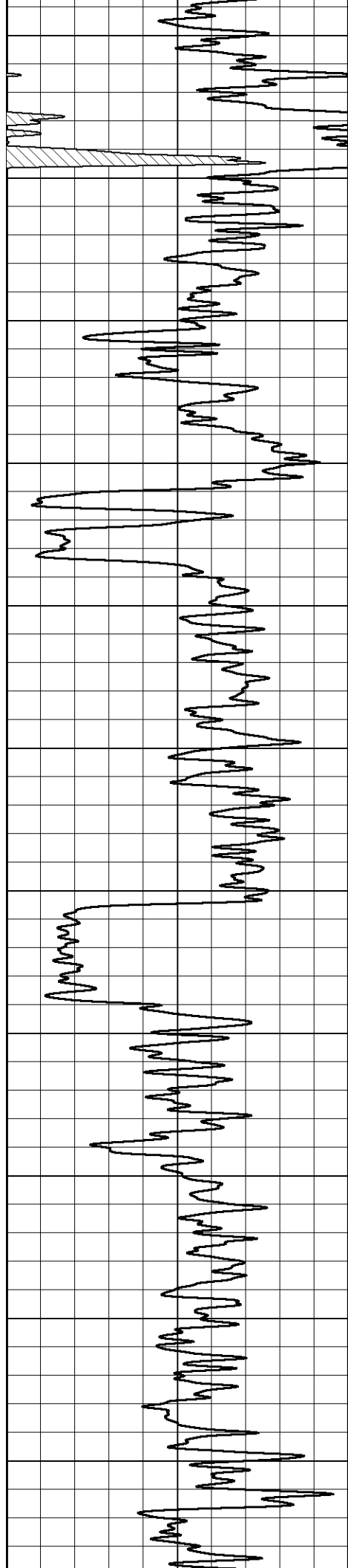
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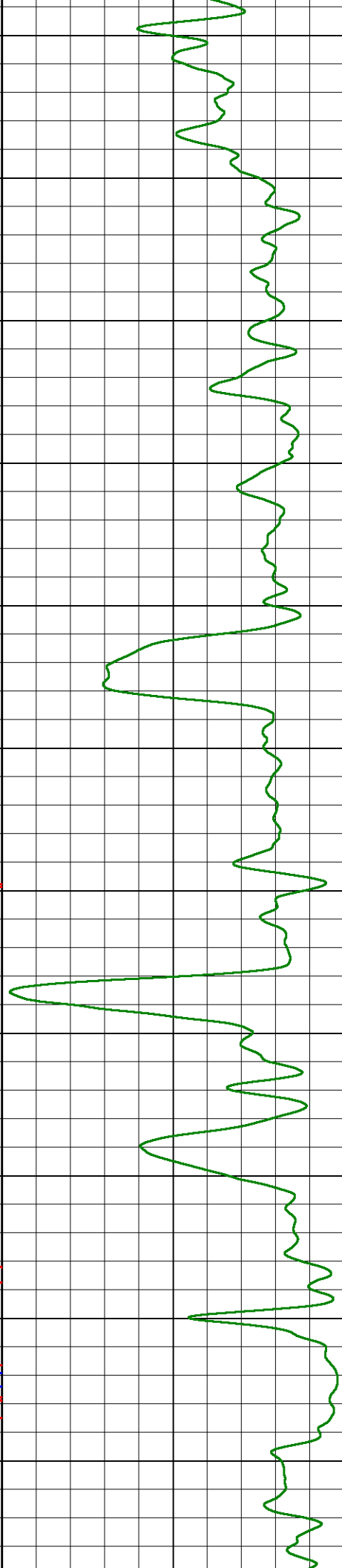
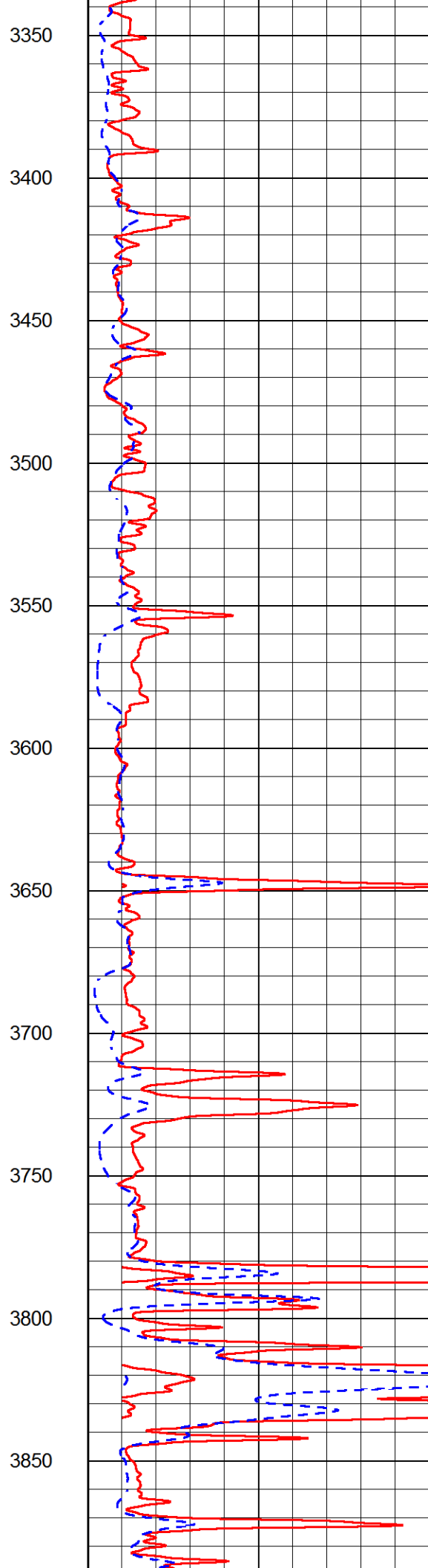
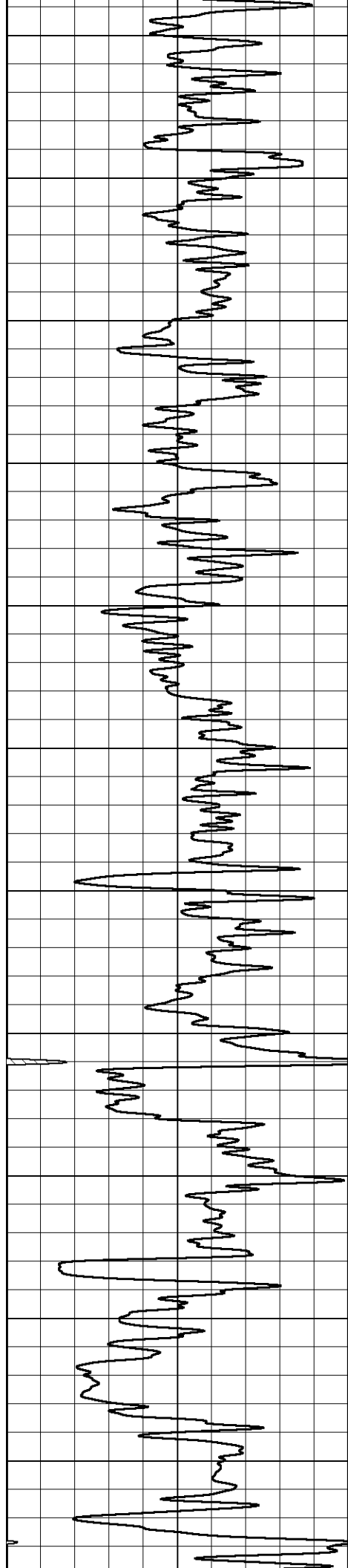
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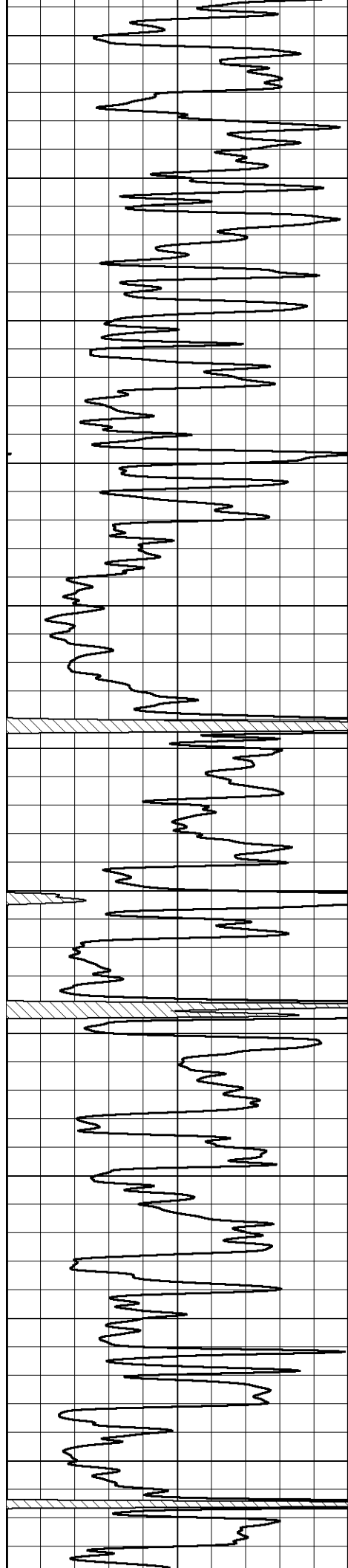
2700

2750









3900

3950

4000

4050

4100

4150

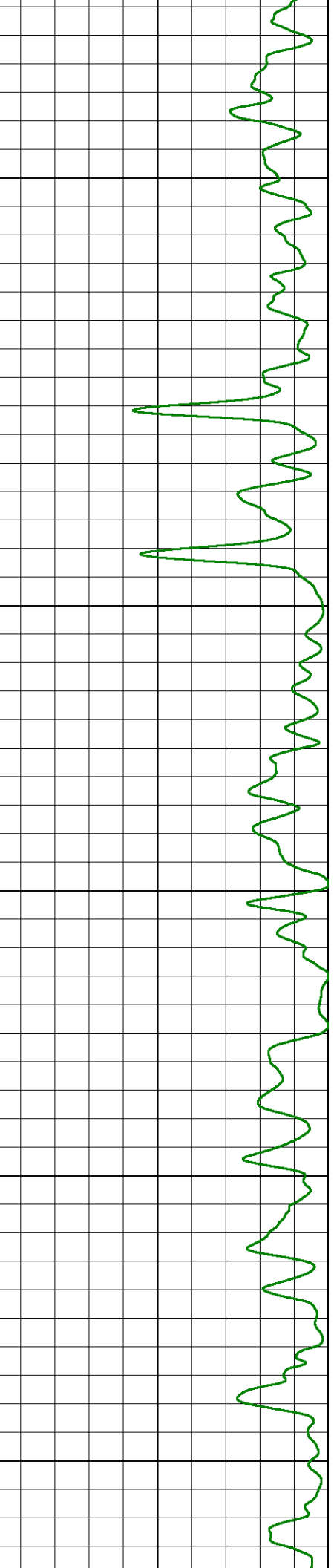
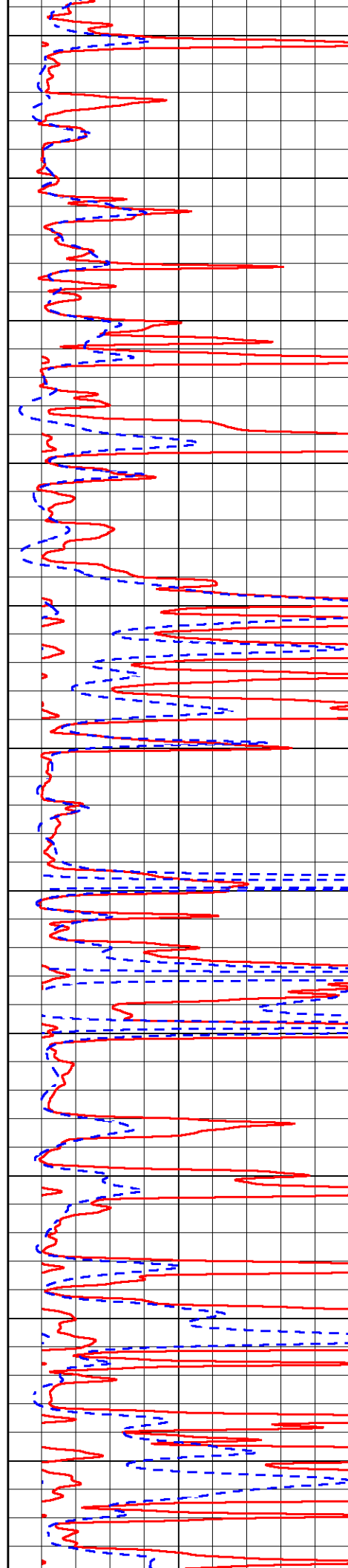
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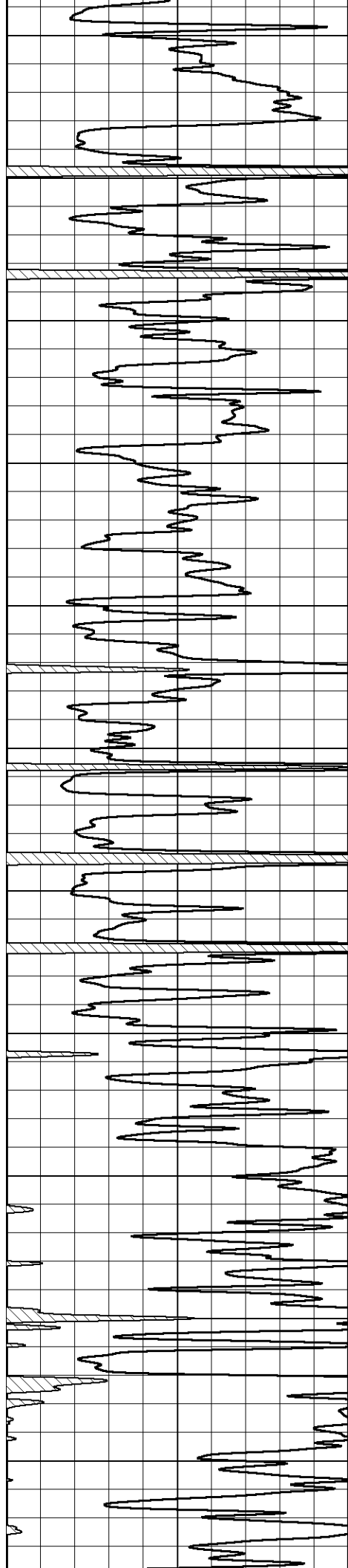
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4300

4350

4400





4450

4500

4550

4600

4650

4700

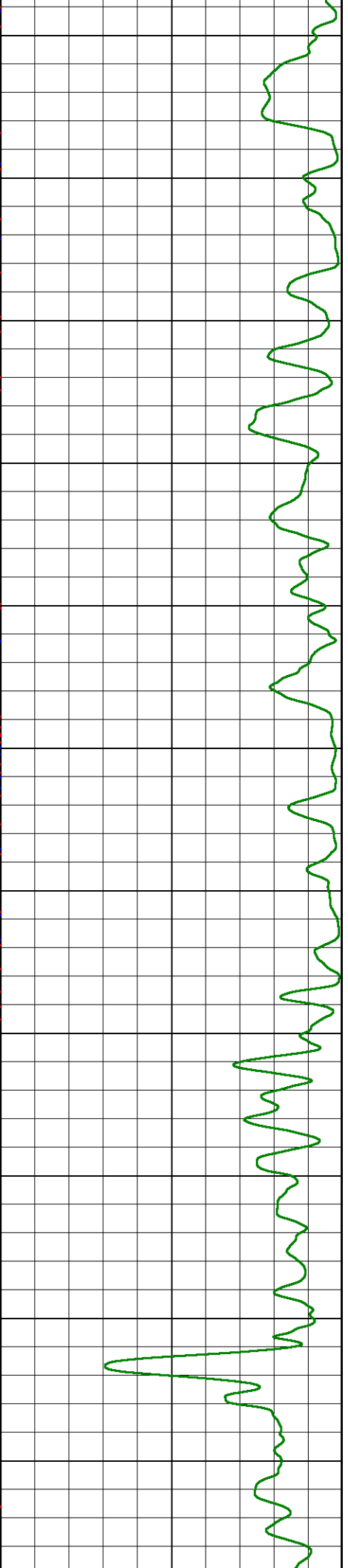
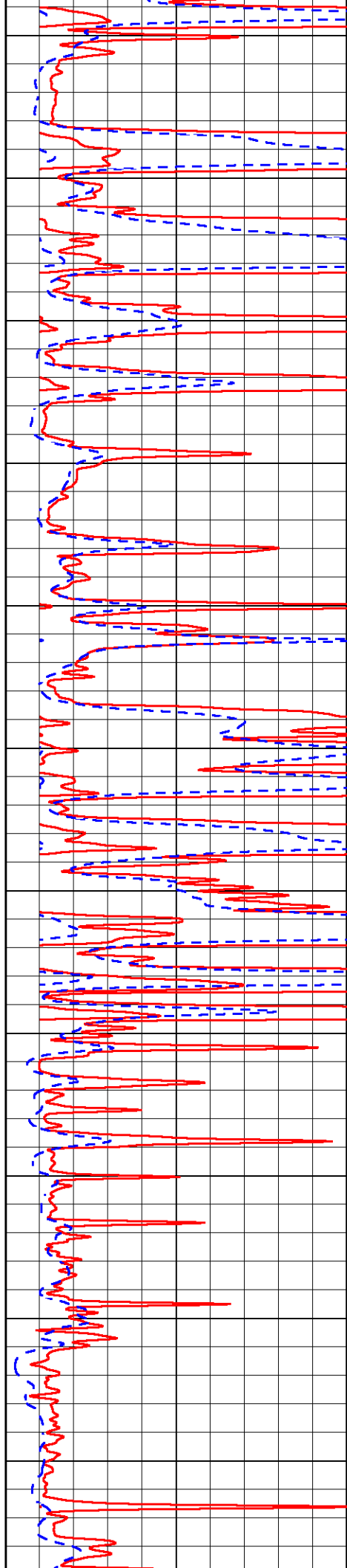
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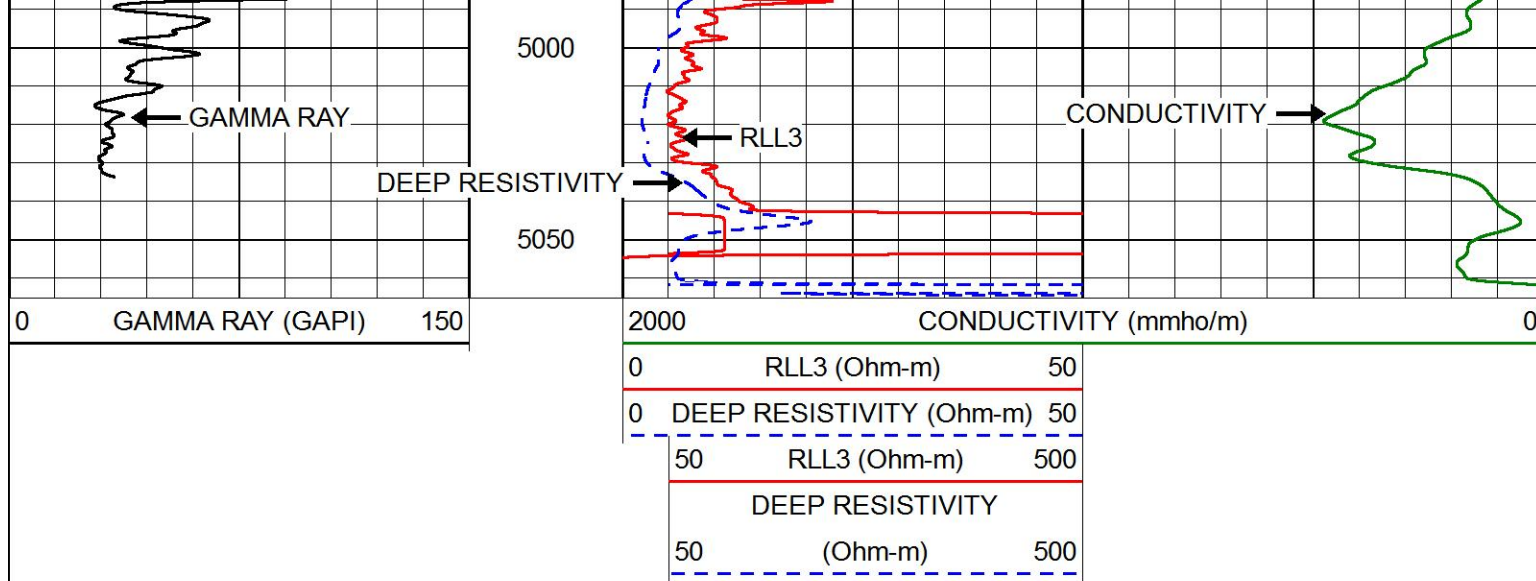
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4850

4900

4950

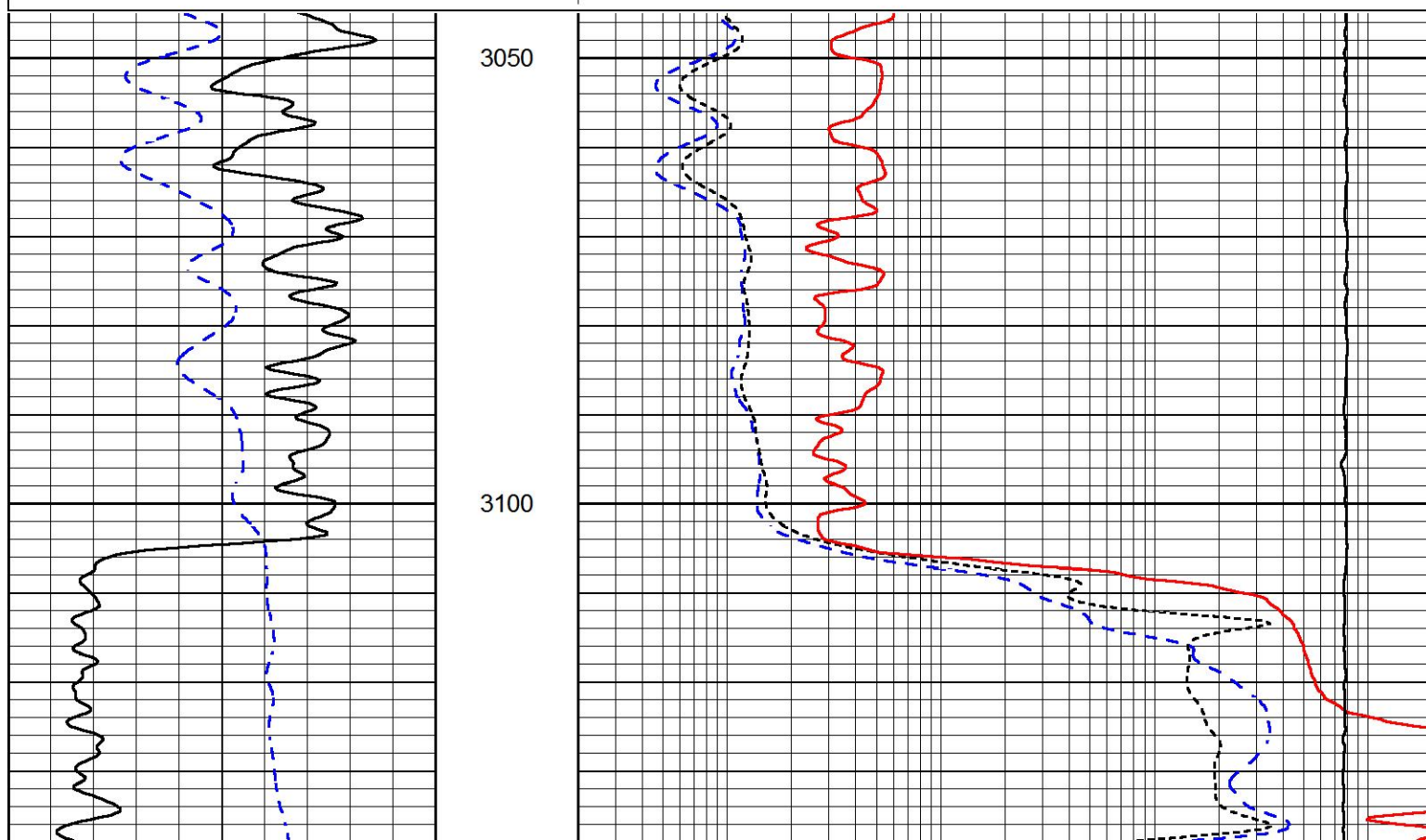


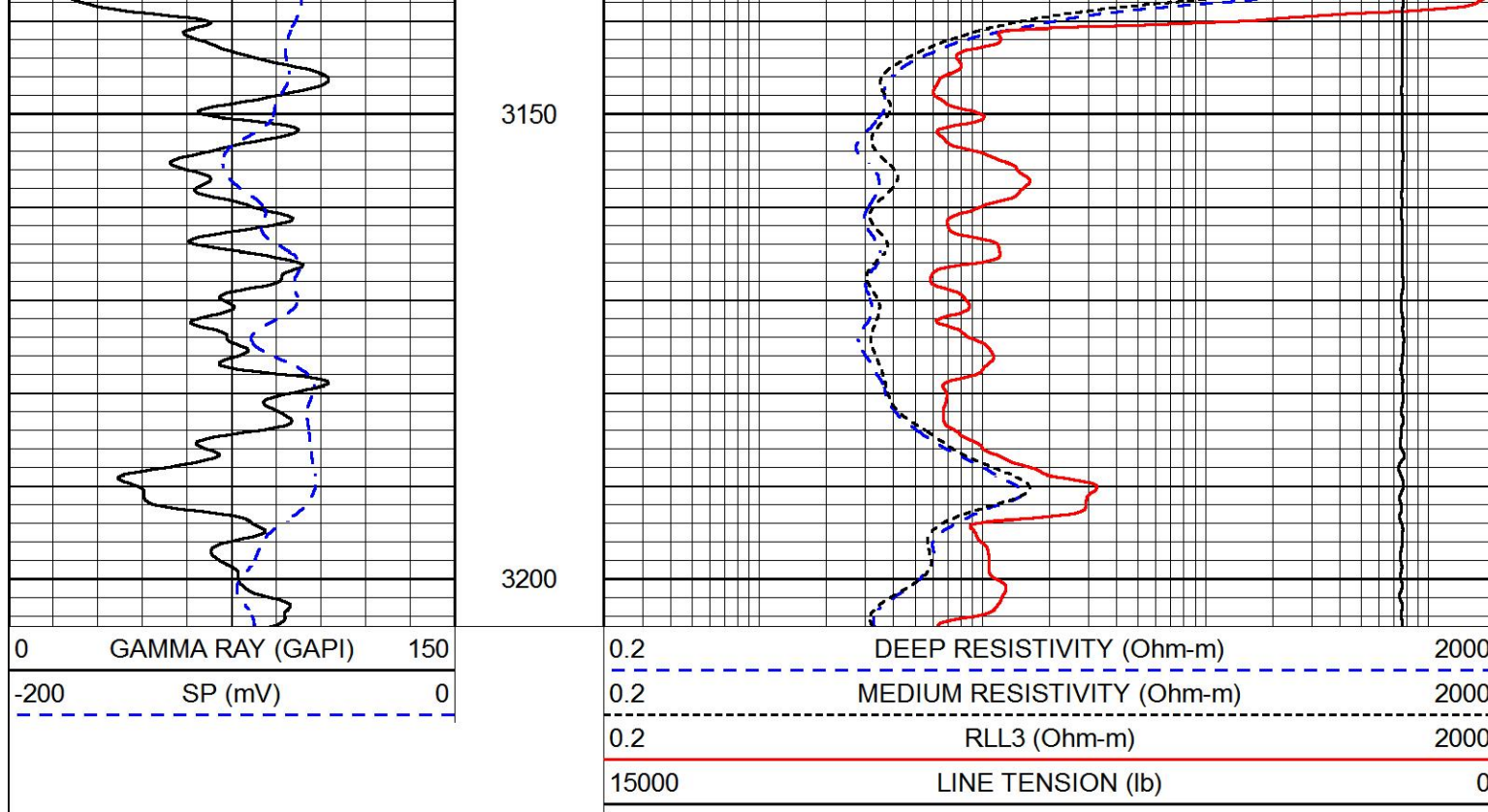


MAIN PASS

Database File cobalt_hoyt_a_1_36.db
 Dataset Pathname stack/pass3.1
 Presentation Format dil
 Dataset Creation Wed Aug 01 15:46:19 2018
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			15000	LINE TENSION (lb)	0



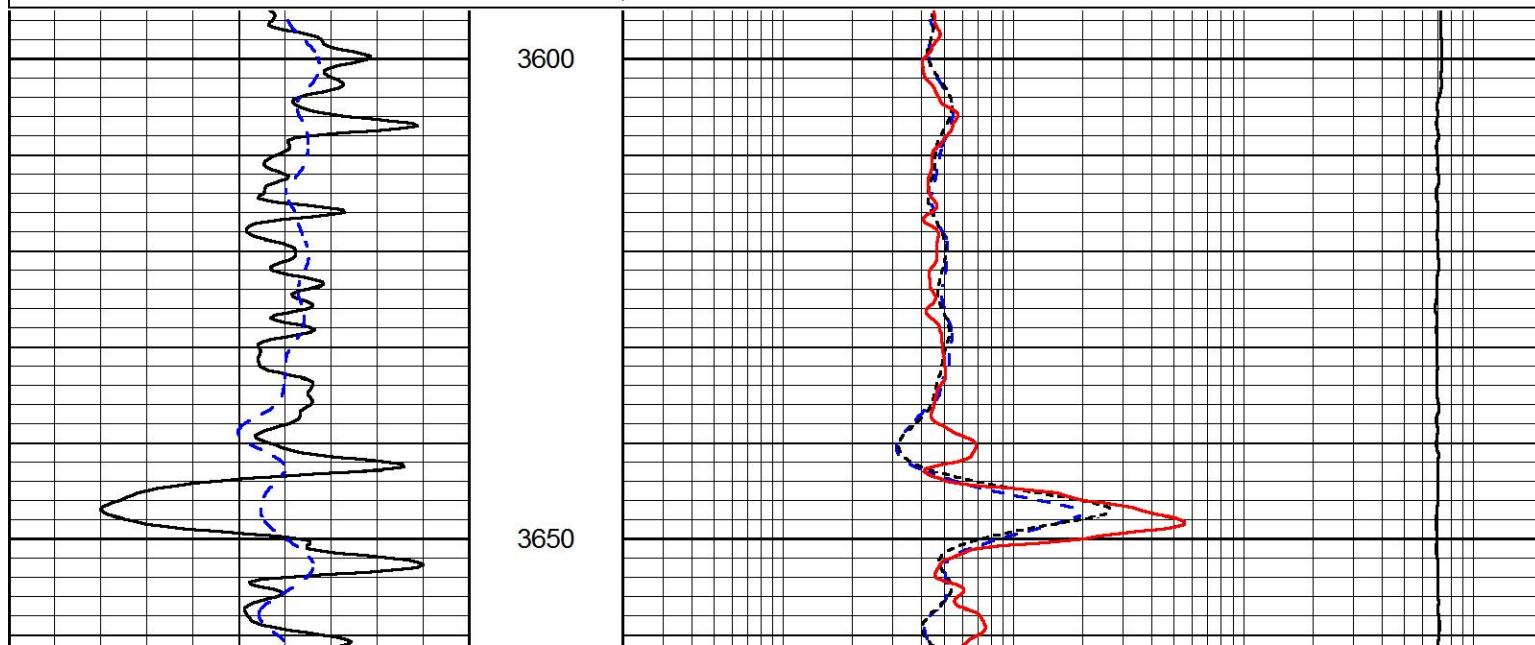
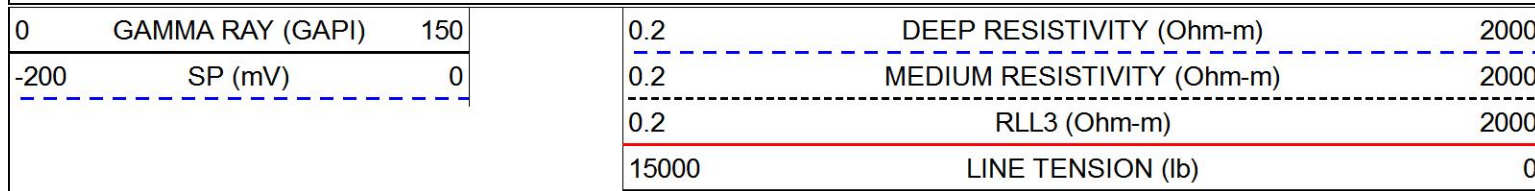


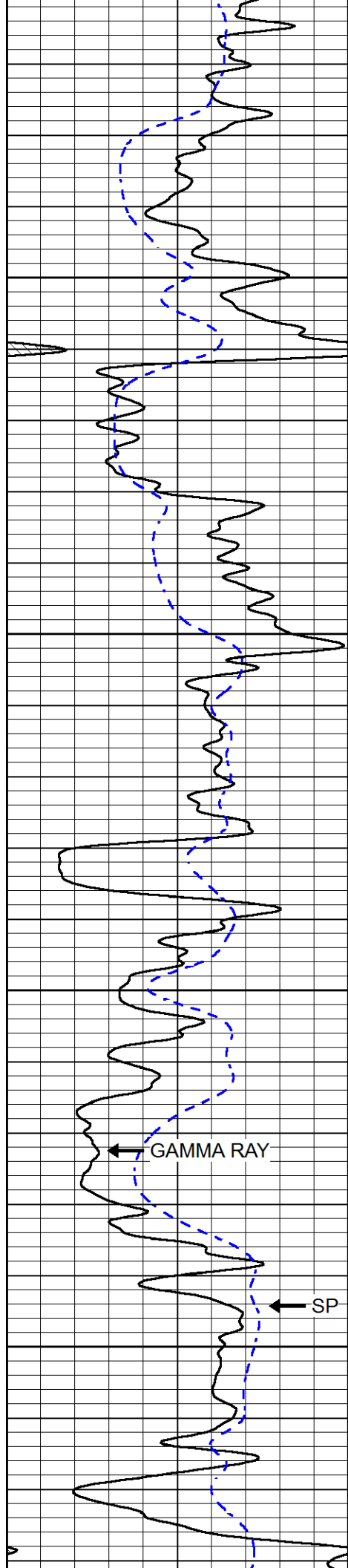


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MAIN PASS

Database File cobalt_hoyt_a_1_36.db
 Dataset Pathname stack/pass3.1
 Presentation Format dil
 Dataset Creation Wed Aug 01 15:46:19 2018
 Charted by Depth in Feet scaled 1:240





3700

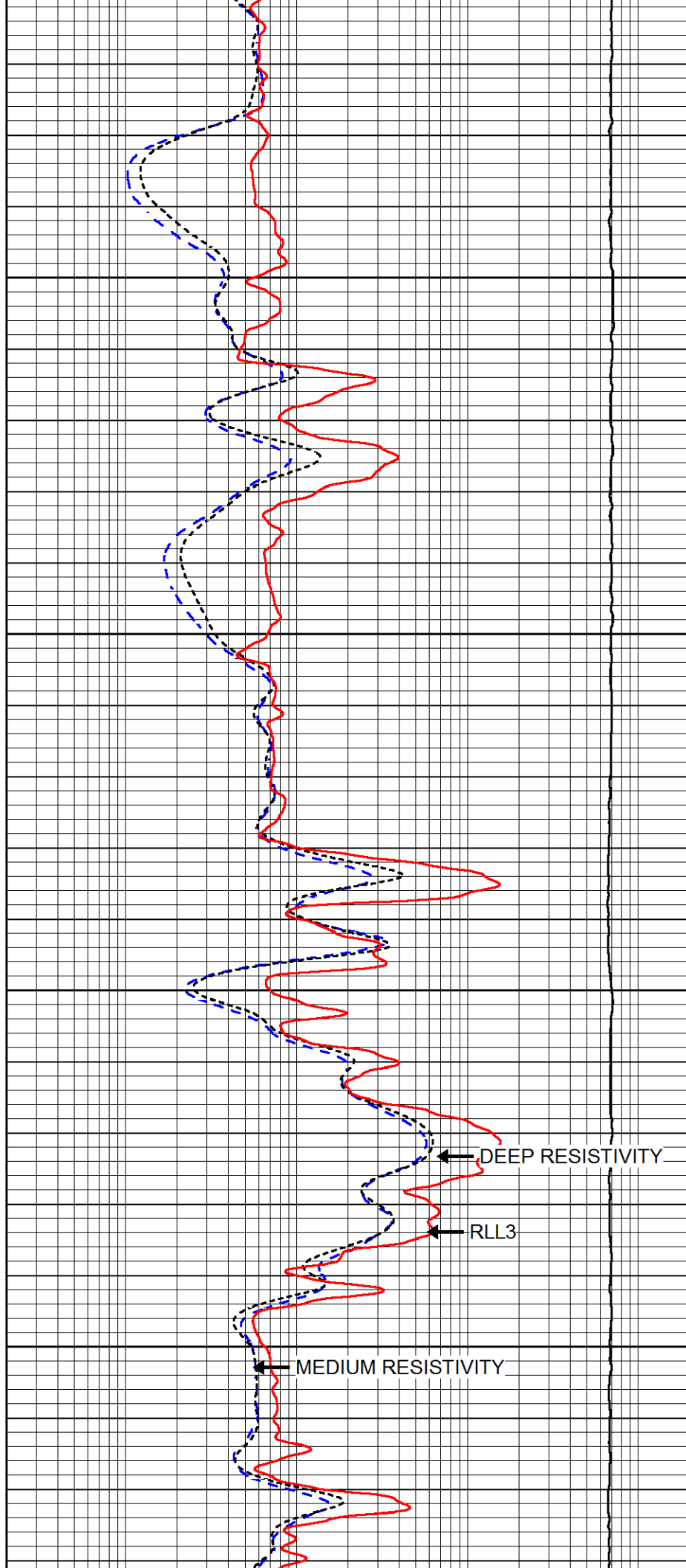
3750

3800

GAMMA RAY

SP

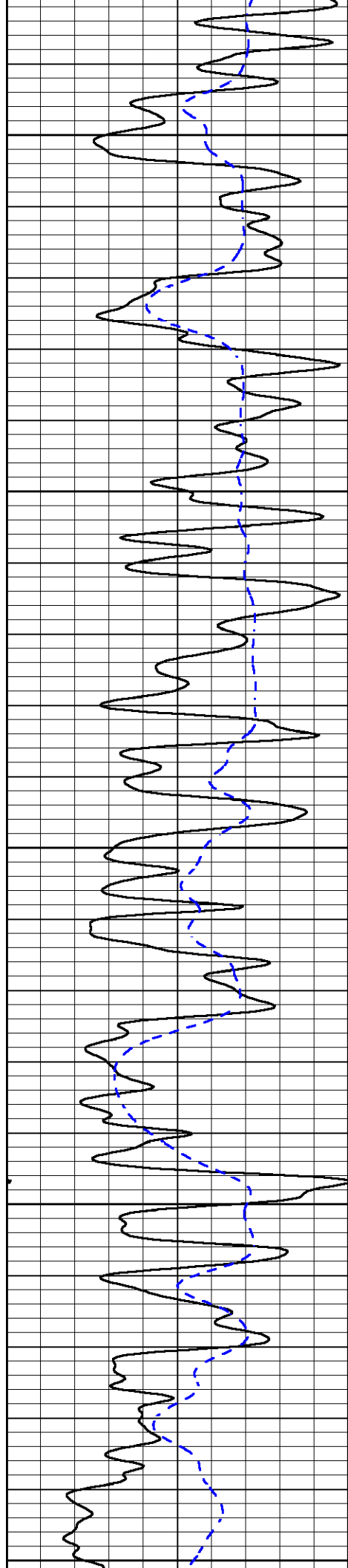
3850



DEEP RESISTIVITY

RLL3

MEDIUM RESISTIVITY



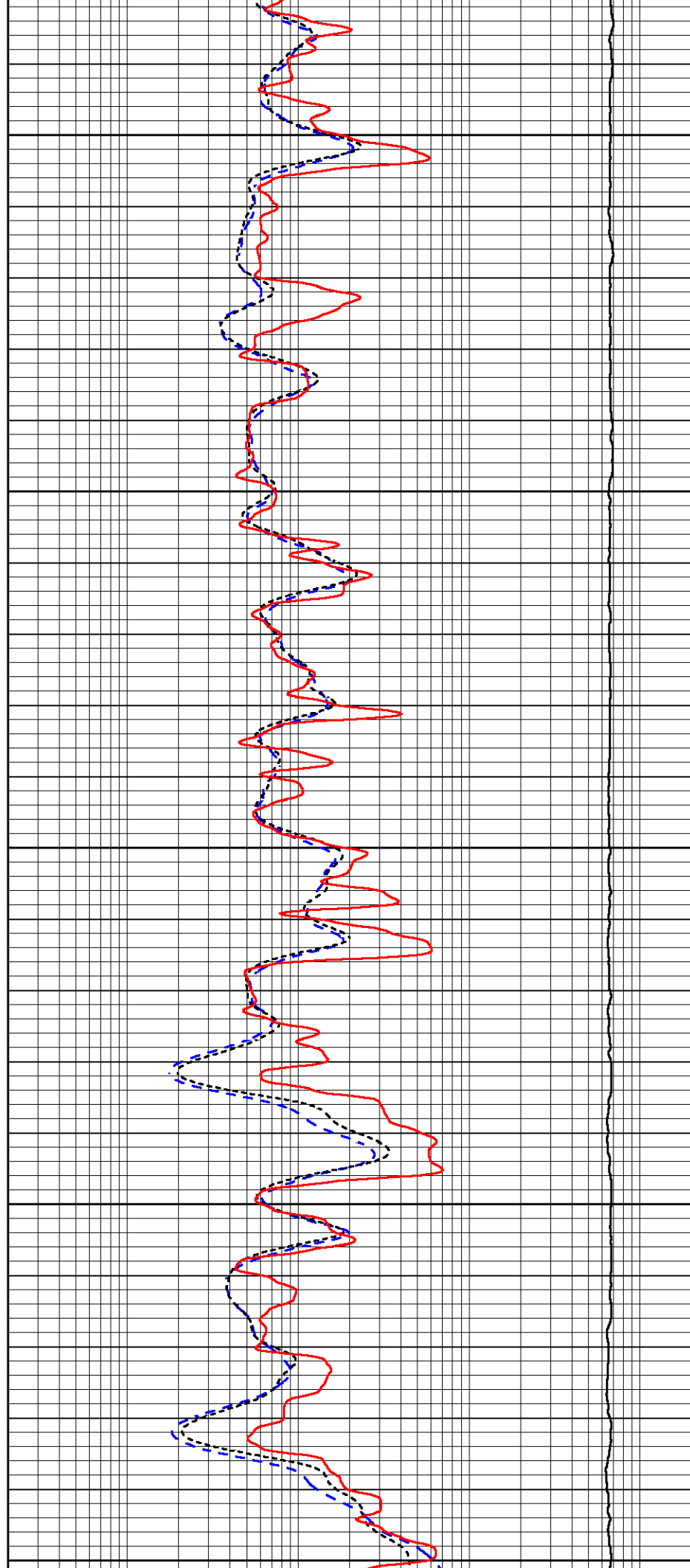
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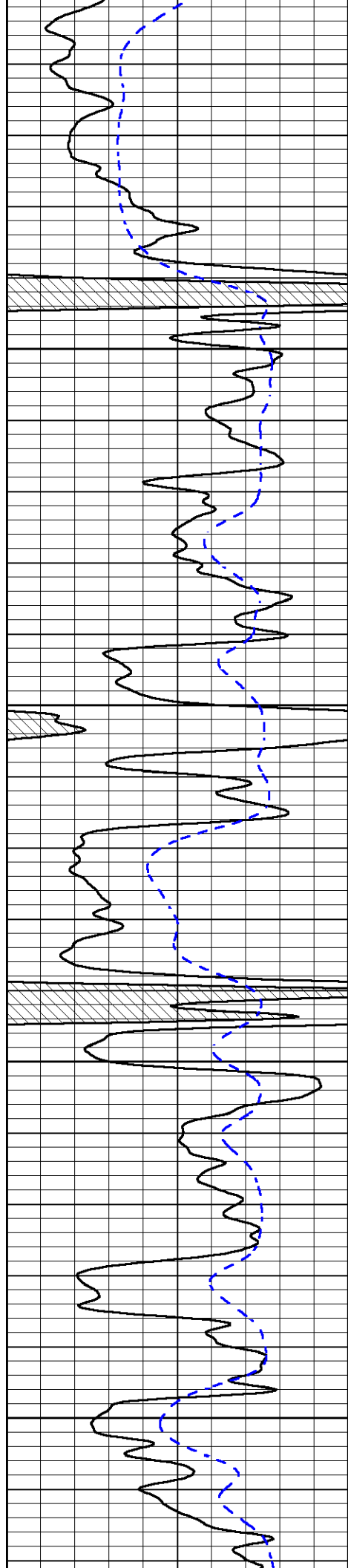
3950

4000

4050

4100



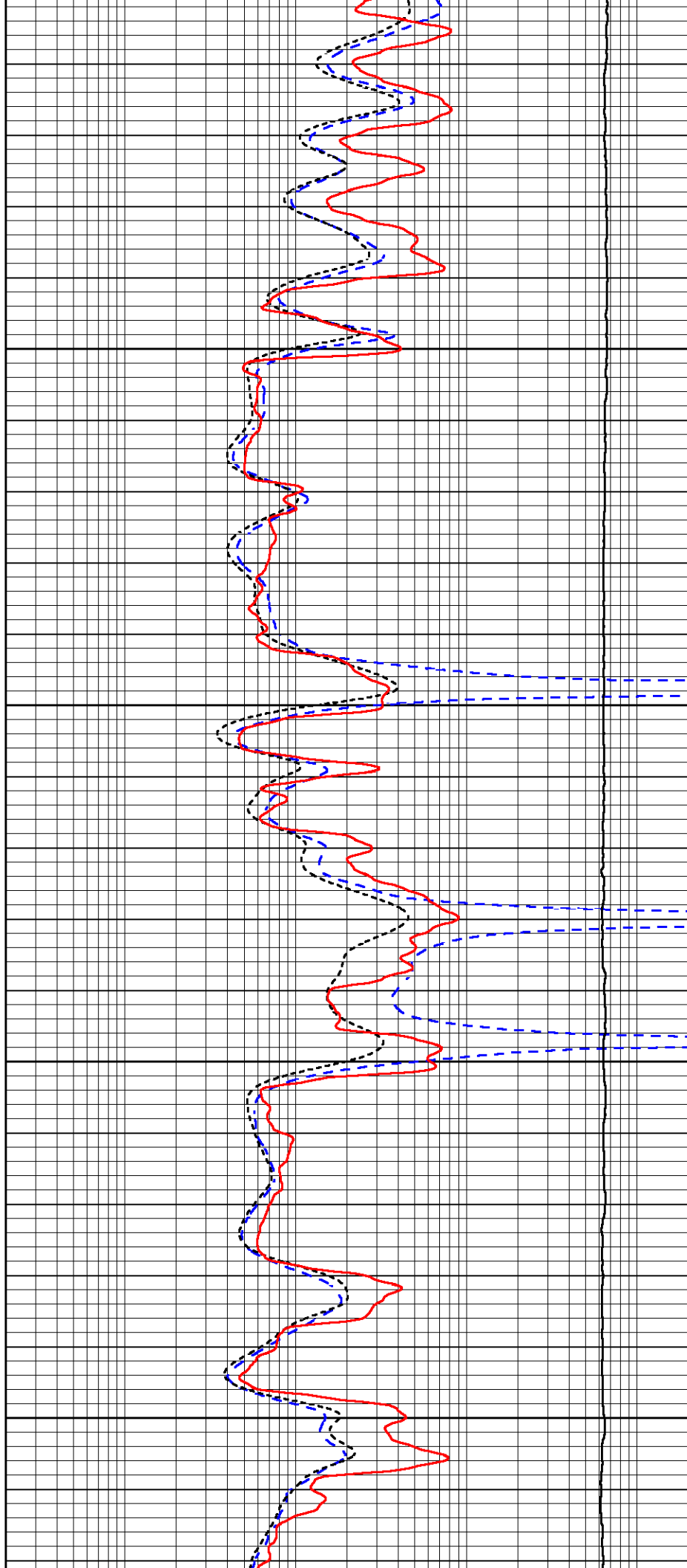


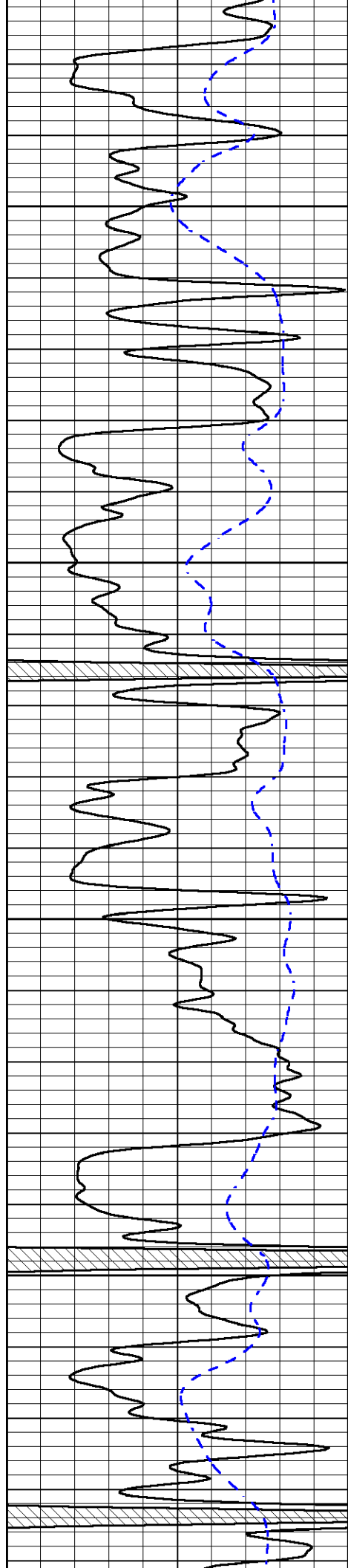
4150

4200

4250

4300



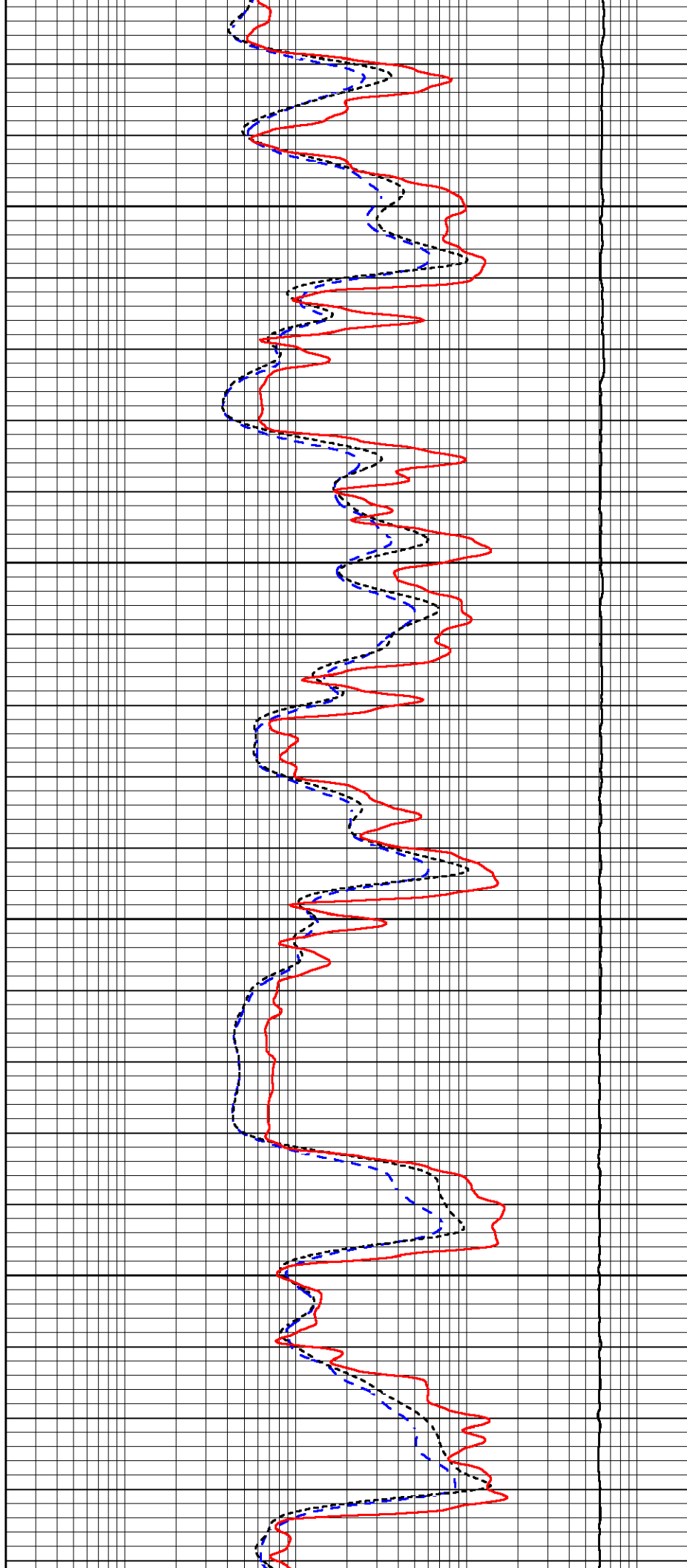


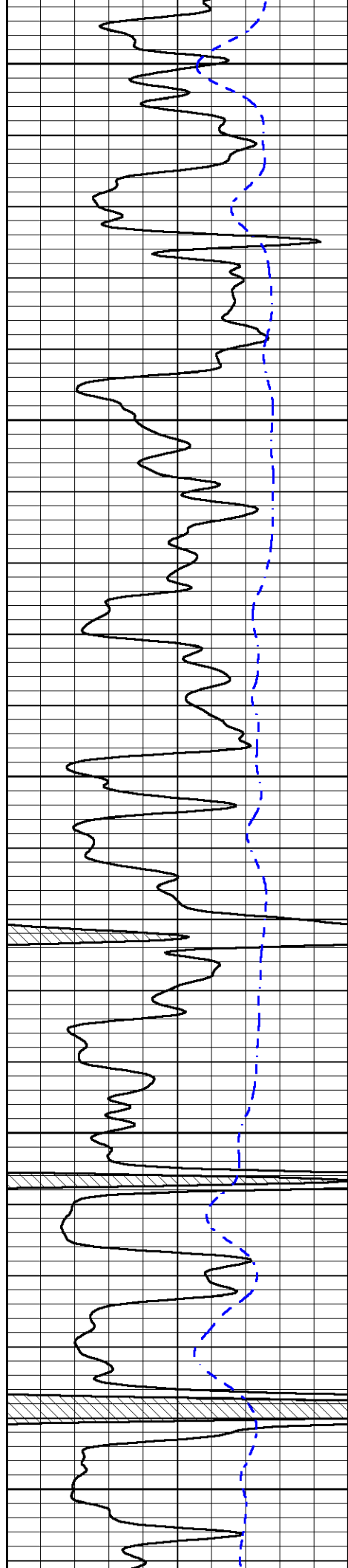
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4400

4450

4500





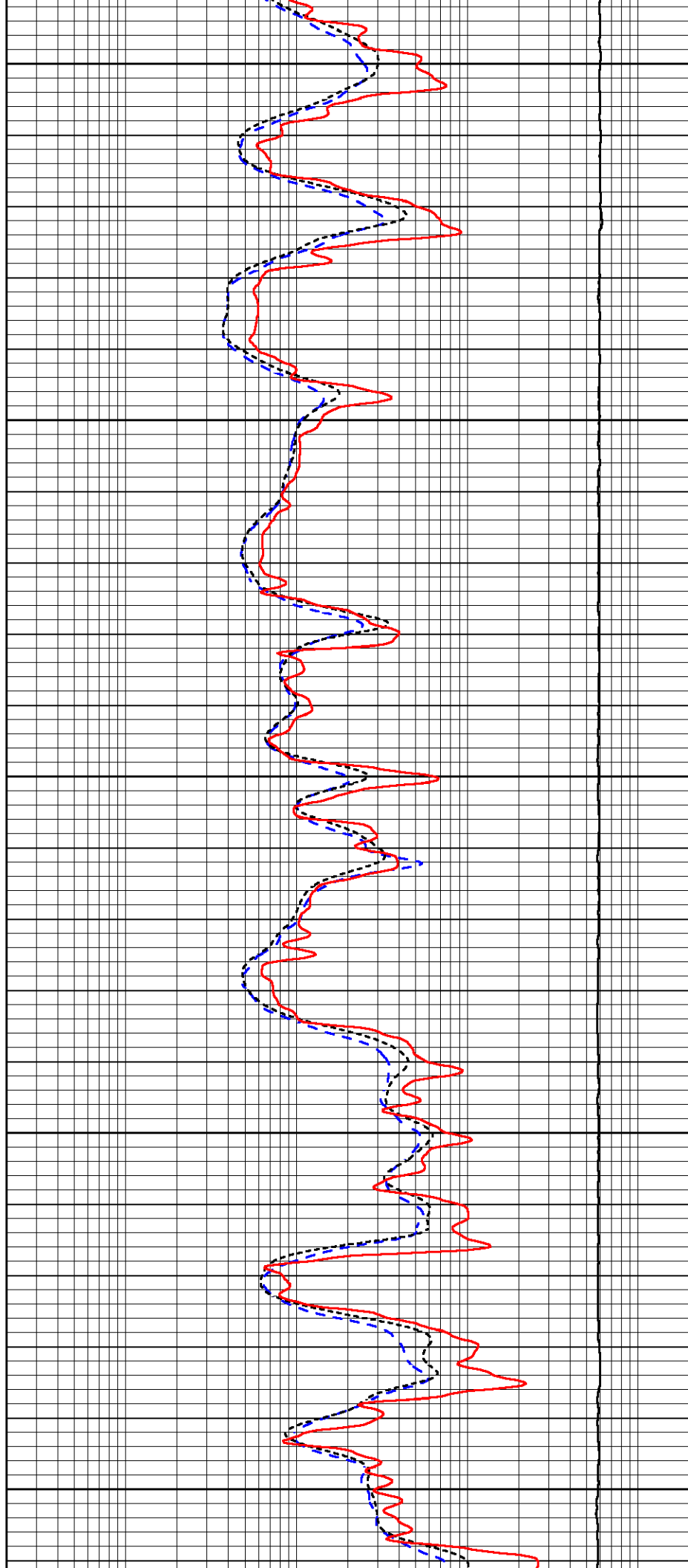
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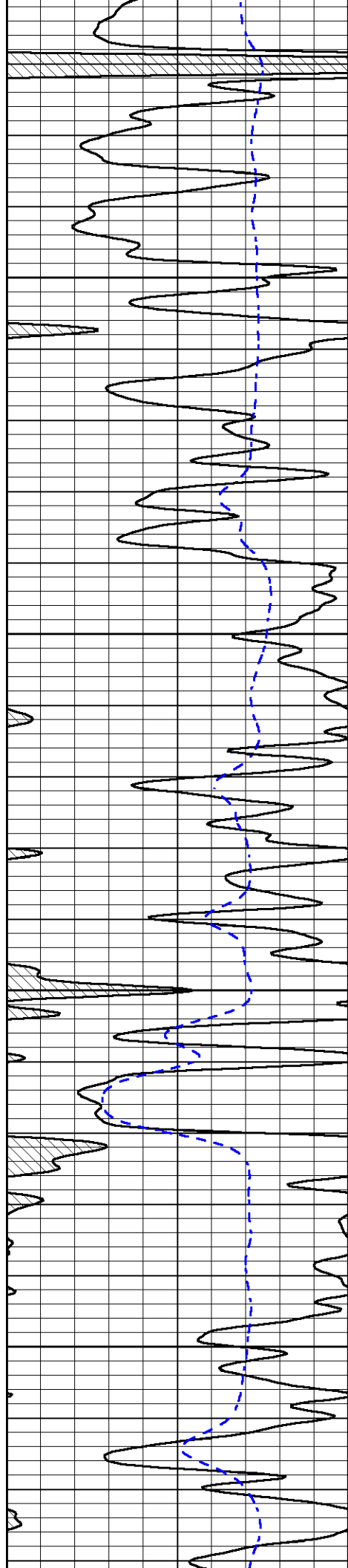
4600

4650

4700

4750



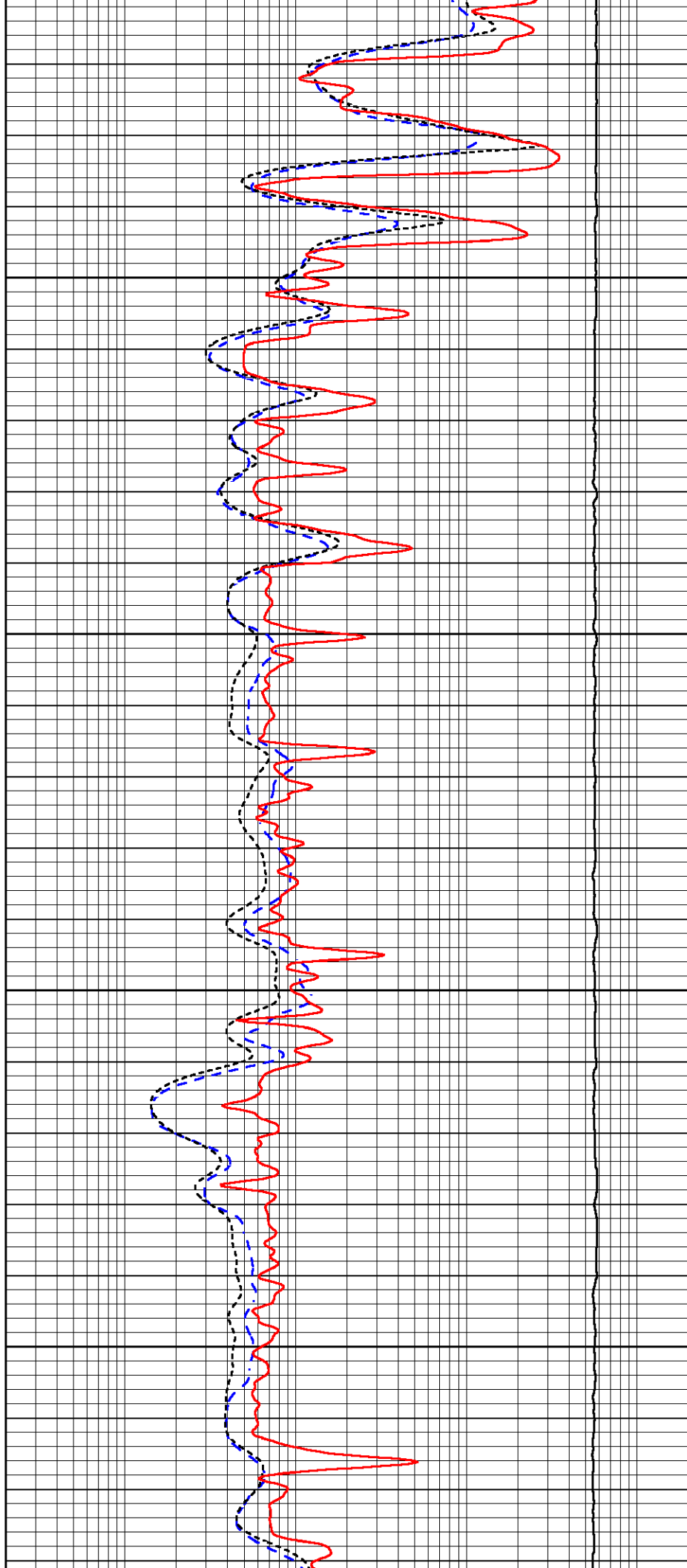


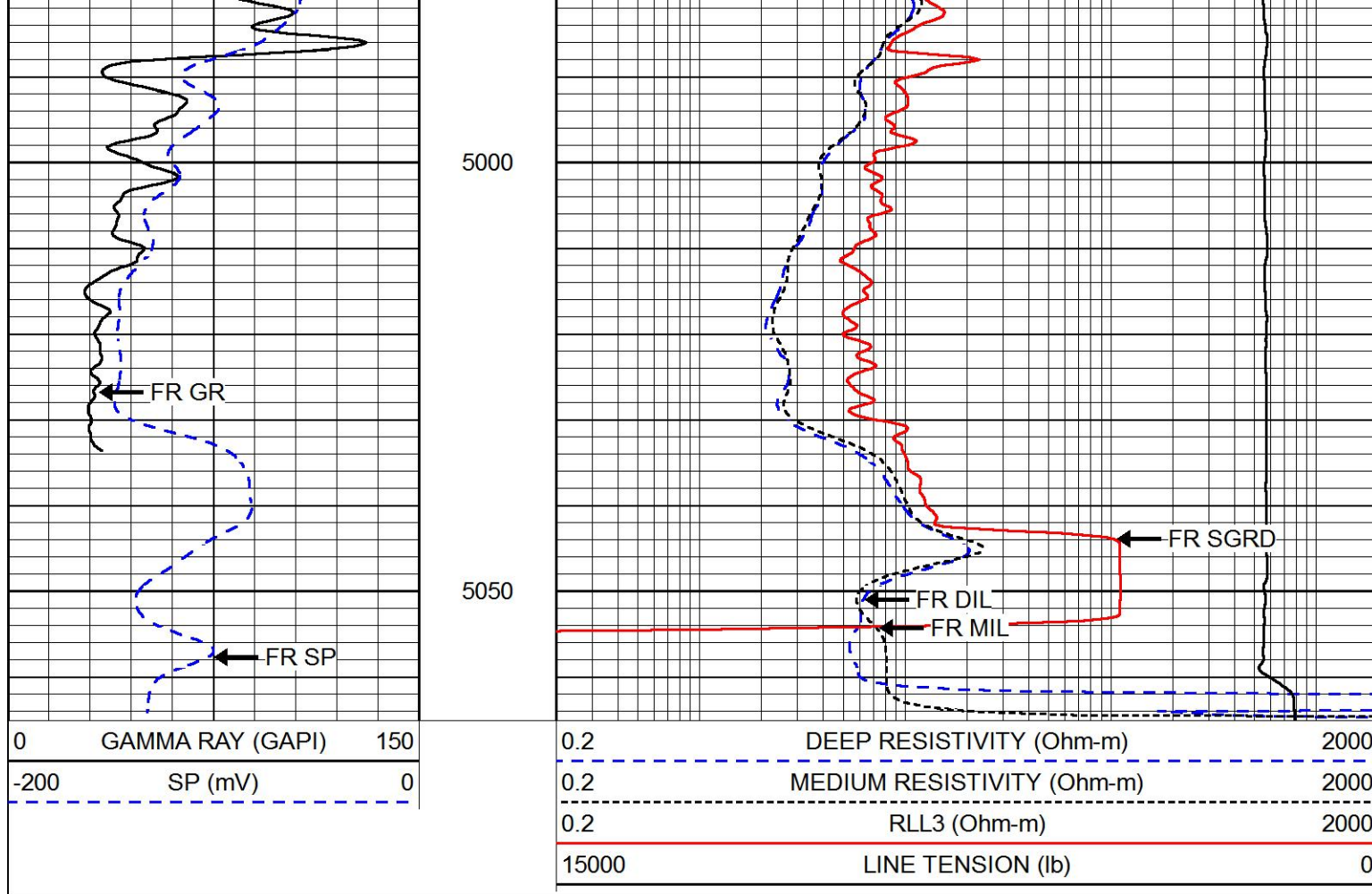
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4850

4900

4950



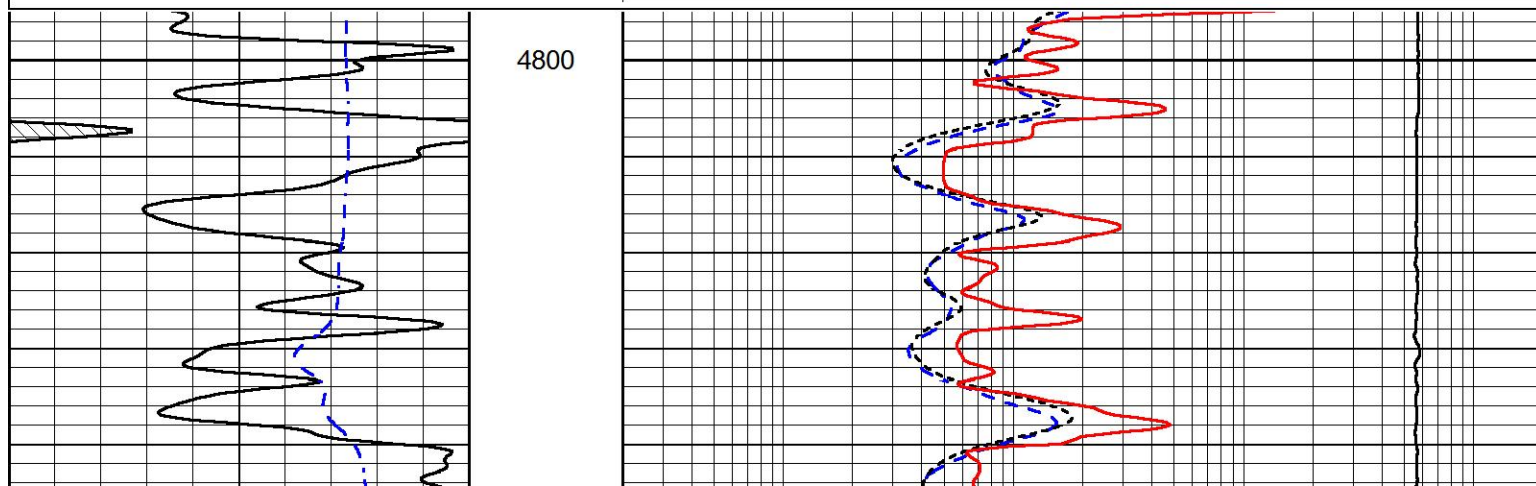


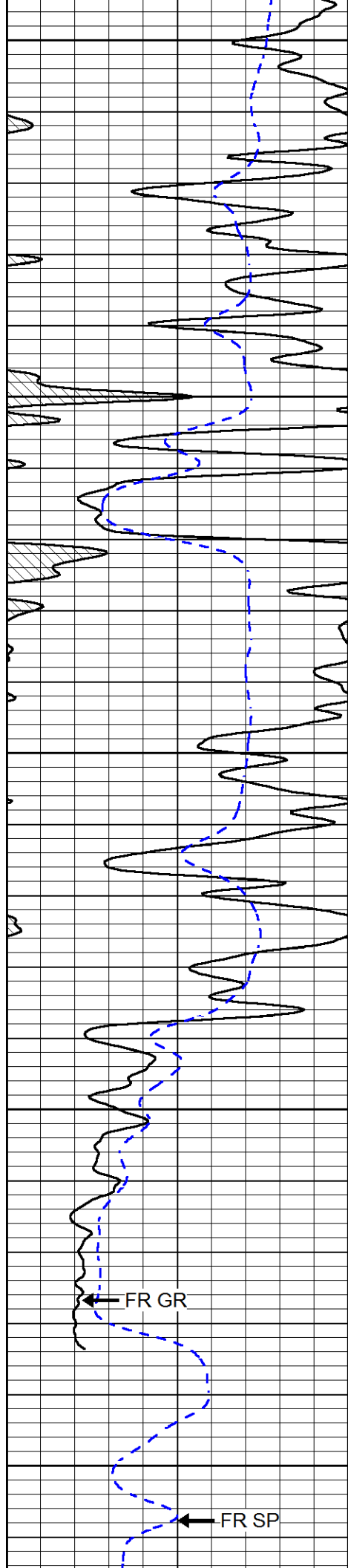


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MAIN PASS

Database File cobalt_hoyt_a_1_36.db
 Dataset Pathname stack/pass2.1
 Presentation Format dil
 Dataset Creation Wed Aug 01 15:44:55 2018
 Charted by Depth in Feet scaled 1:240





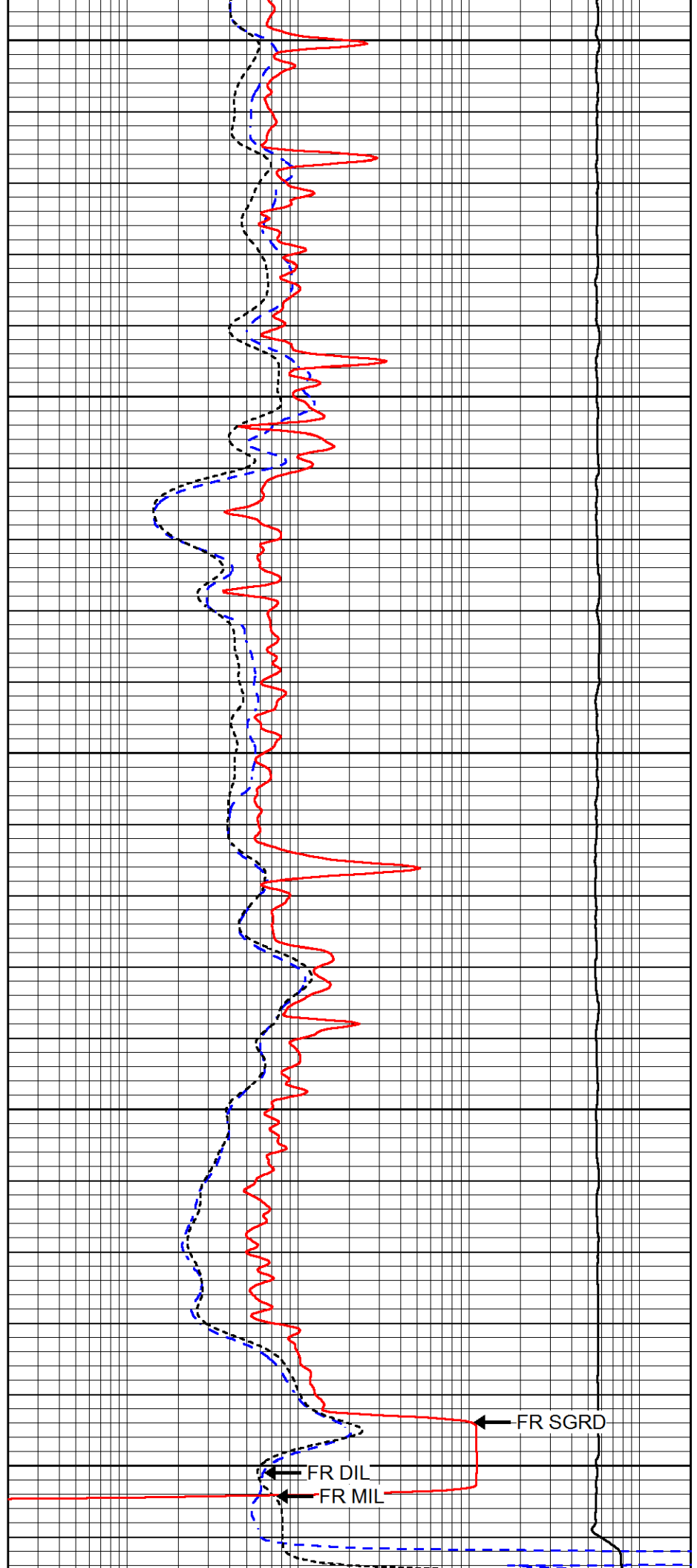
4850

4900

4950

5000

5050



FR SGRD

FR DIL

FR MIL

0	GAMMA RAY (GAPI)	150	0.2	DEEP RESISTIVITY (Ohm-m)	2000
-200	SP (mV)	0	0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
			0.2	RLL3 (Ohm-m)	2000
			15000	LINE TENSION (lb)	0

Calibration Report							
Database File	cobalt_hoyt_a_1_36.db						
Dataset Pathname	stack/pass3.1						
Dataset Creation	Wed Aug 01 15:46:19 2018						
Dual Induction Calibration Report							
Serial-Model:				1987-M&W			
Calibration Performed:				Tue Apr 11 17:07:38 2017			
		Readings		References		Results	
Loop:	Air	Loop		Air	Loop	Gain	Offset
Deep	178.615	710.235		0.000	255.800	mmho/m	0.530
Medium	161.982	1441.110		0.000	255.800	mmho/m	-36.500
							-110.500
Compensated Density Calibration Report							
Serial-Model:				168-130-M&W			
Source / Verifier:				/			
Master Calibration Performed:				Sun Nov 17 12:46:06 2013			
Master Calibration							
		Density		Far Detector		Near Detector	
Magnesium		1.755	g/cc	4659.47		5064.14	cps
Aluminum		2.680	g/cc	853.93		3180.74	cps
Spine Angle = 74.67				Density/Spine Ratio = 0.526			
		Size		Reading			
Small Ring		4.00	in	0.87			
Large Ring		16.00	in	0.22			
Compensated Neutron Calibration Report							
Serial Number:				tk10-MW			
Tool Model:				M&W			
Calibration Performed:				Wed Nov 16 11:21:36 2016			
Detector		Readings		Target		Normalization	
Short Space		6240.00 cps		1000.00 cps		1.6025	
Long Space		460.00 cps		1000.00 cps		1.9500	
Gamma Ray Calibration Report							
Serial Number:				89-M&W			
Tool Model:				M&W			
Calibration Performed:				Tue Apr 11 17:08:01 2017			

Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps



Company	COBALT ENERGY, LLC
Well	HOYT 'A' NO. 1-36
Field	N/A
County	CHEYENNE
State	KANSAS