



PIONEER

Pioneer Energy Services

DUAL INDUCTION LOG

Company	BEREXCO, LLC	Location:	API #: 15-065-24134-00-00	Other Services
Well	HINKHOUSE NO.8			
Field	MOREL			
County	GRAHAM			
State	KANSAS			
Permanent Datum	GROUND LEVEL	Elevation	2205'	Elevation
Log Measured From	KELLY BUSHING			K.B. 2213'
Drilling Measured From	KELLY BUSHING			D.F. N/A
				G.L. 2205'
Date	6/26/17			
Run Number	ONE			
Depth Driller	3782'			
Depth Logger	3785'			
Bottom Logged Interval	3784'			
Top Log Interval	250'			
Casing Driller	8.625" @ 250'			
Casing Logger	263'			
Bit Size	7.875"			
Type Fluid in Hole	CHEMICAL			
Salinity, ppm CL	2,000			
Density / Viscosity	9.6 60			
pH / Fluid Loss	8.5 8.8			
Source of Sample	FLOWLINE			
Rm @ Meas. Temp	.78 @ 72			
Rmt @ Meas. Temp	.59 @ 72			
Rmc @ Meas. Temp	1.05 @ 72			
Source of Rmt / Rmc	CHARTS			
Rm @ BHT	.49 @ 114			
Operating Rig Time	4 HOURS			
Max Rec. Temp. F	114 DEGF			
Equipment Number	108			
Location	HAYS			
Recorded By	J. HENRICKSON			
Witnessed By	BRYAN BYNOG			

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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.

PALCO KANSAS

1/2 NORTH OF TOWN TO V ROAD, 3 1/2 WEST, NORTH INTO THROUGH CATTLE GUARD
(LEFT AT T IN ROAD, THEN LEFT AT Y IN ROAD, FOLLOW TO WELL)

Log Measured From: KELLY BUSHING 8 Ft. Above Permanent Datum

THANK YOU FOR USING PIONEER ENERGY SERVICES

www.pioneerenergy.com

785-625-3858

Your Pioneer Energy Services Crew

Engineer: J. HENRICKSON

Operator:

Operator:

Operator:

This Log Record Was Witnessed By

Primary Witness: BRYAN BYNOG

Secondary Witness:

Secondary Witness:

Secondary Witness:

Top - Bottom

A	BOREID	BOTTEMP	CASEOD	CASETHCK	FLUIDDEN	M	MATRXDEN
1	in 7.875	degF 110	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 0	mV -460	degF 68	Off	ft 3785

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 (168-986)	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						

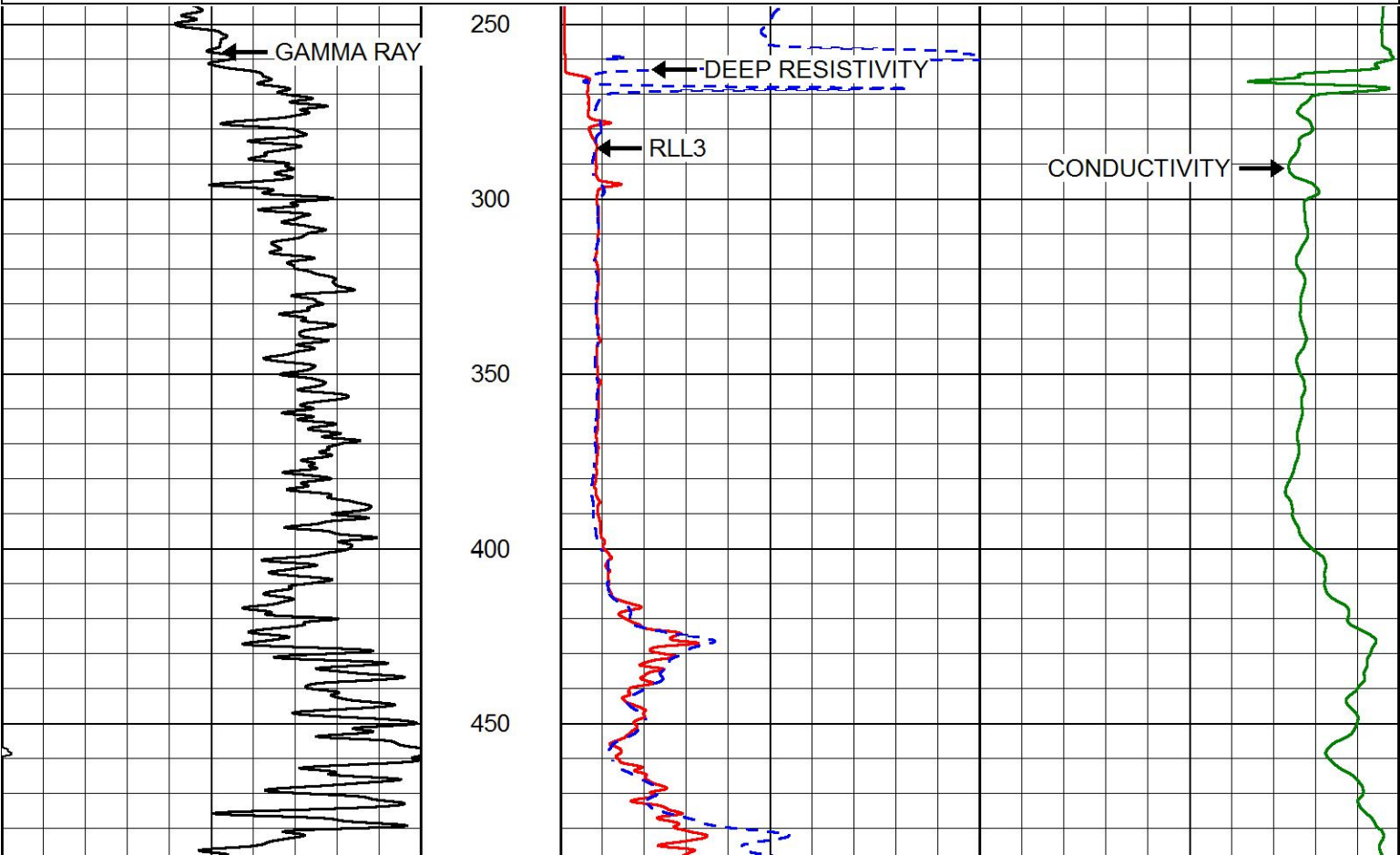
CILM	4.70								
SP	0.20								
Dataset: berexco_hinkhouse_8.db: field/well/stack/pass3.1 Total length: 35.50 ft Total weight: 620.00 lb O.D.: 4.00 in									

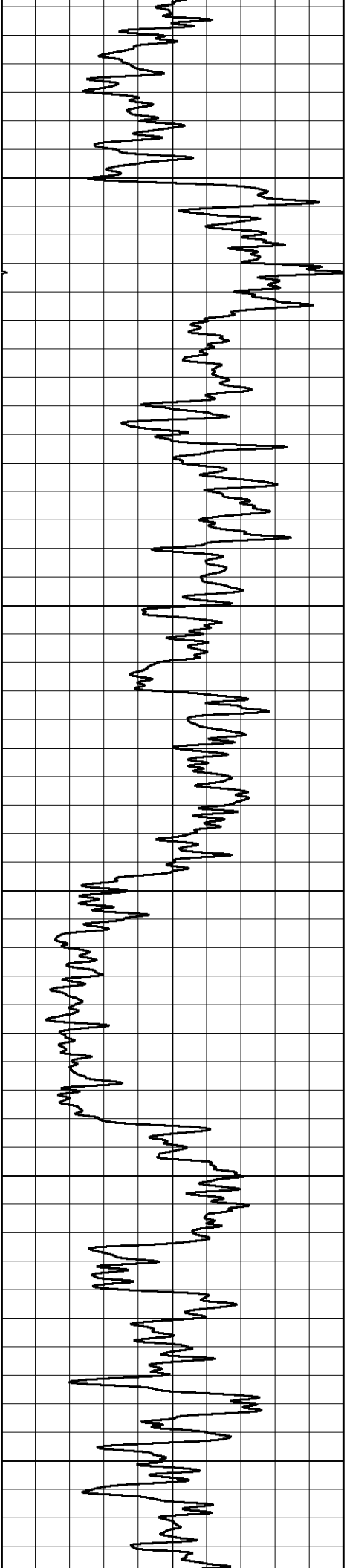
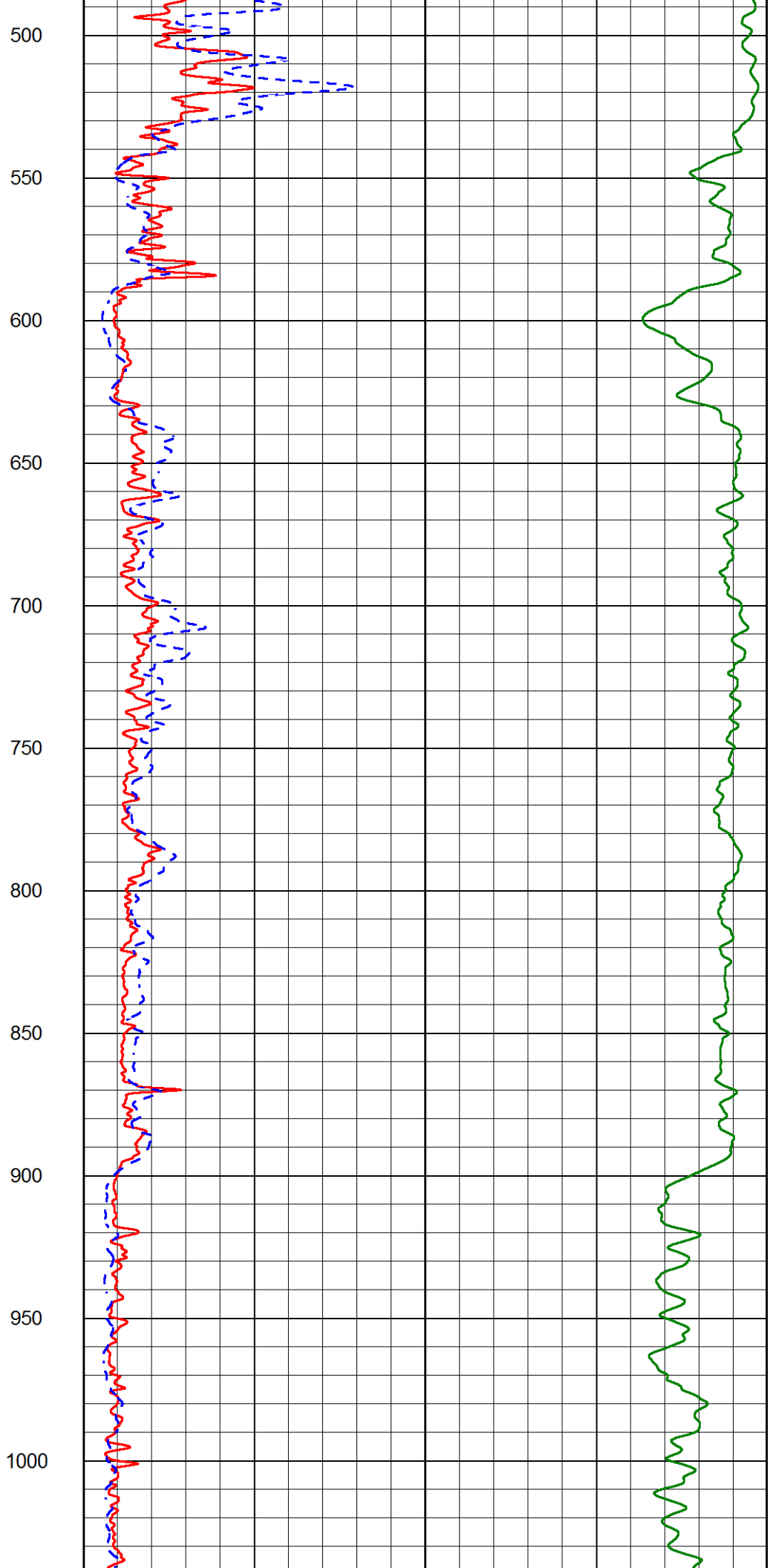


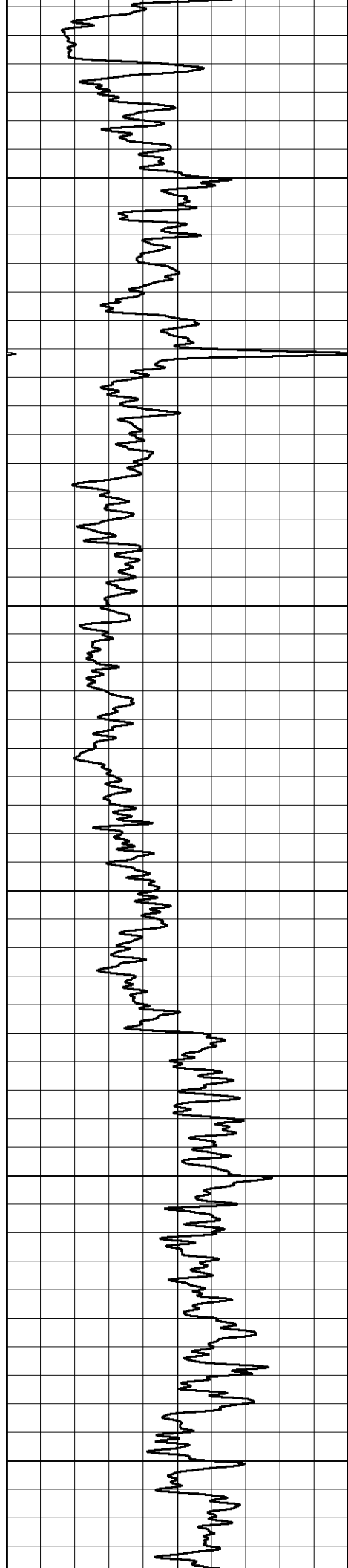
MAIN PASS

Database File	berexco_hinkhouse_8.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil2in
Dataset Creation	Mon Jun 26 01:46:12 2017
Charted by	Depth in Feet scaled 1:600

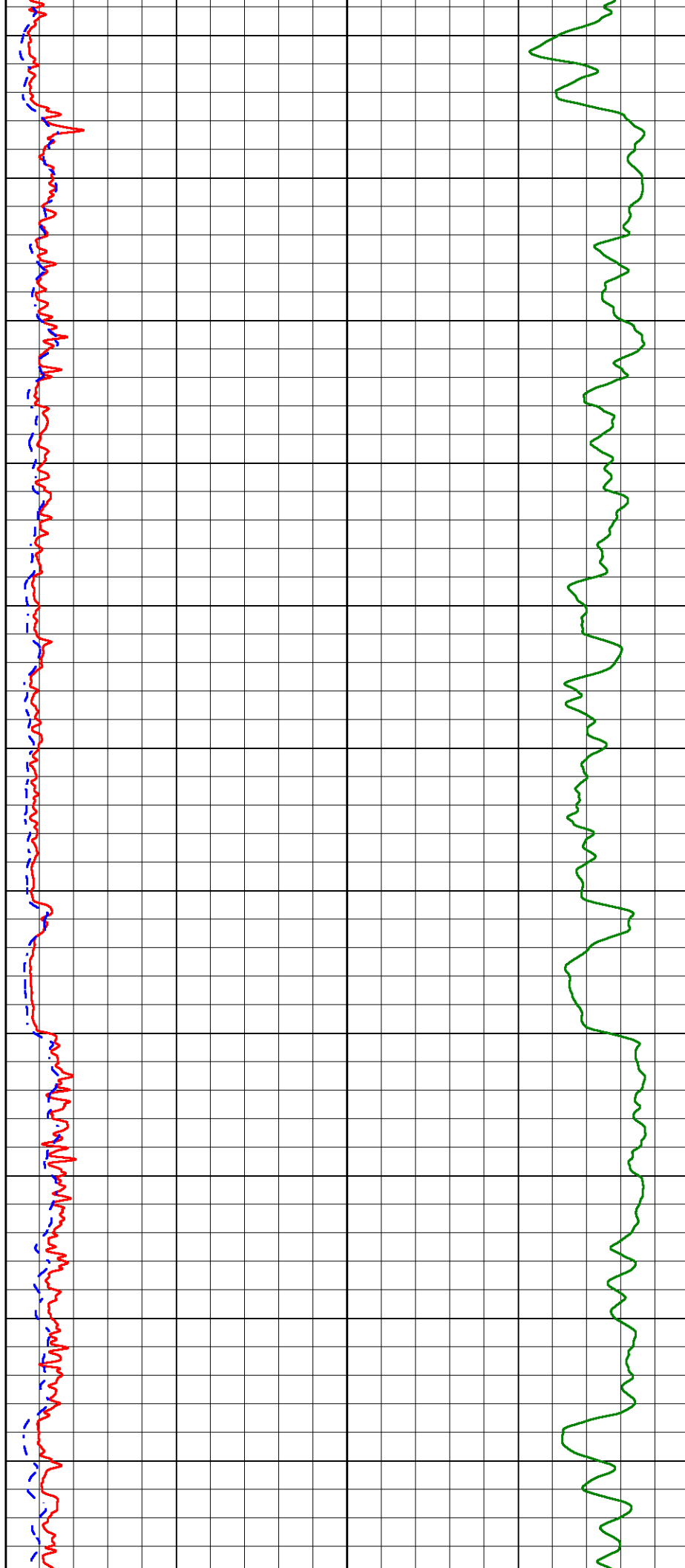
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			0	RLL3 (Ohm-m)	50
			0	DEEP RESISTIVITY (Ohm-m)	50
			50	RLL3 (Ohm-m)	500
				DEEP RESISTIVITY	
			50	(Ohm-m)	500

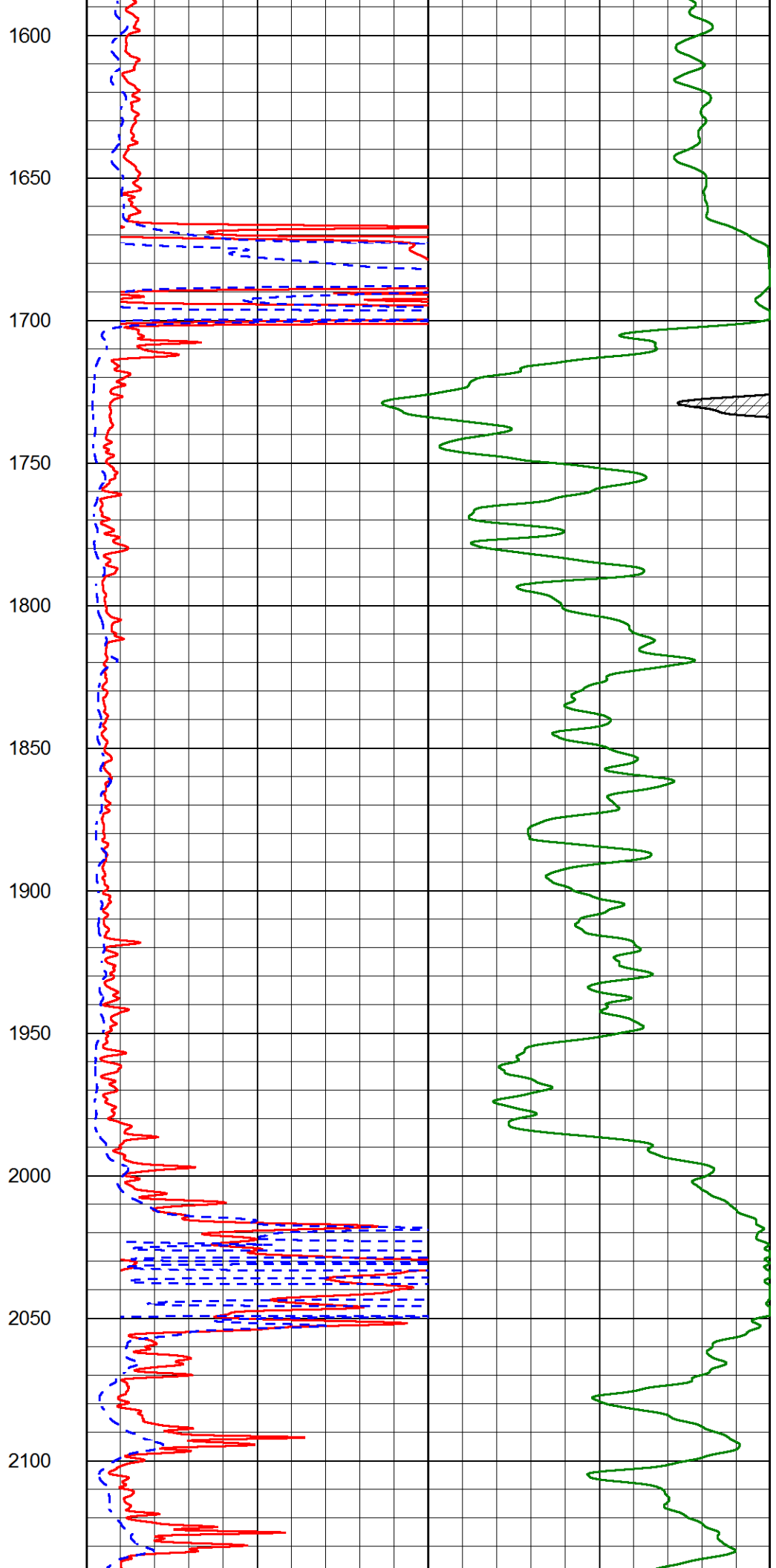
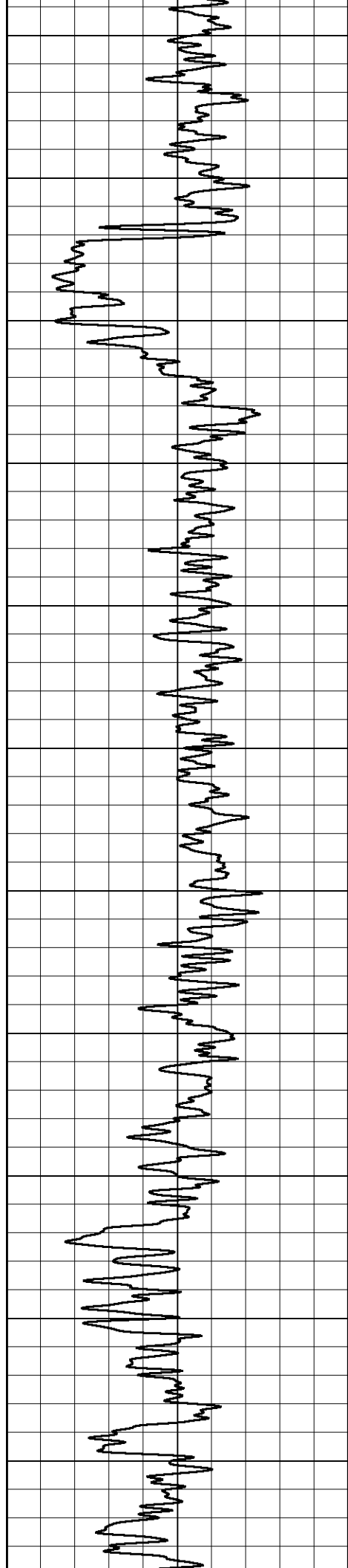


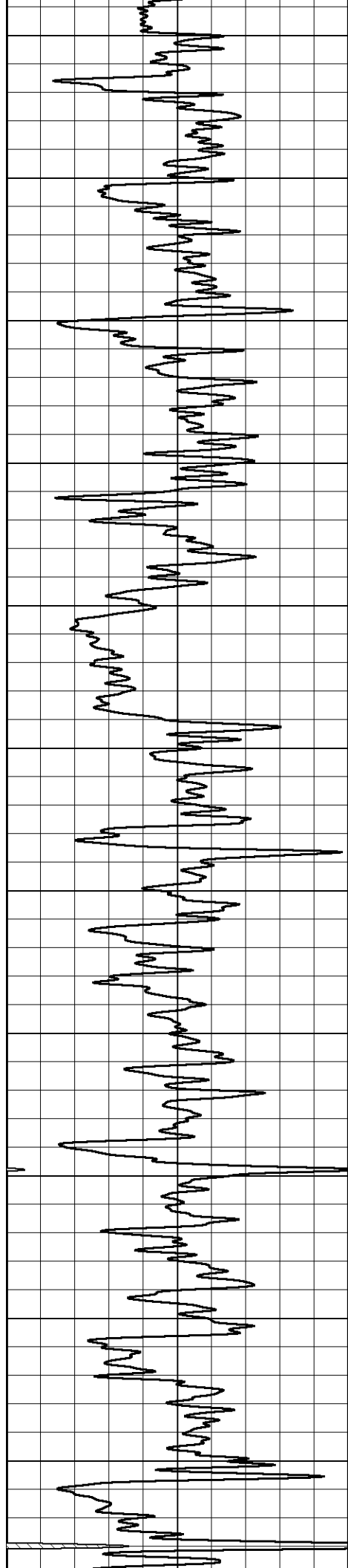




1050
1100
1150
1200
1250
1300
1350
1400
1450
1500
1550







2150

2200

2250

2300

2350

2400

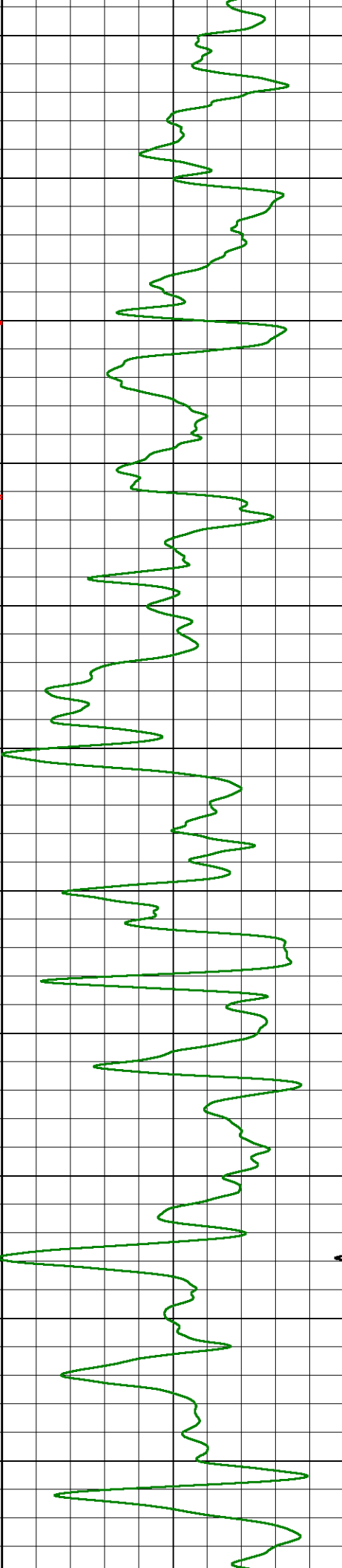
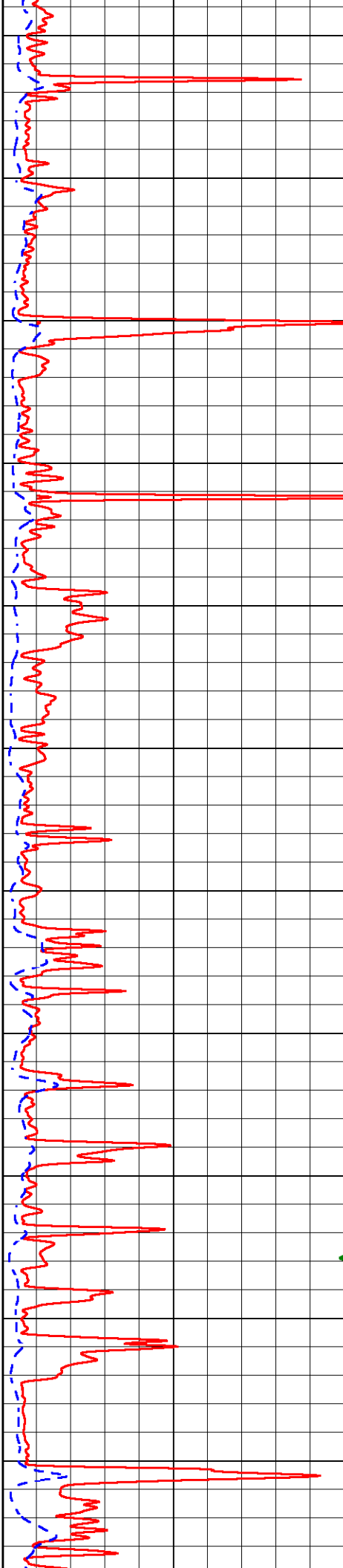
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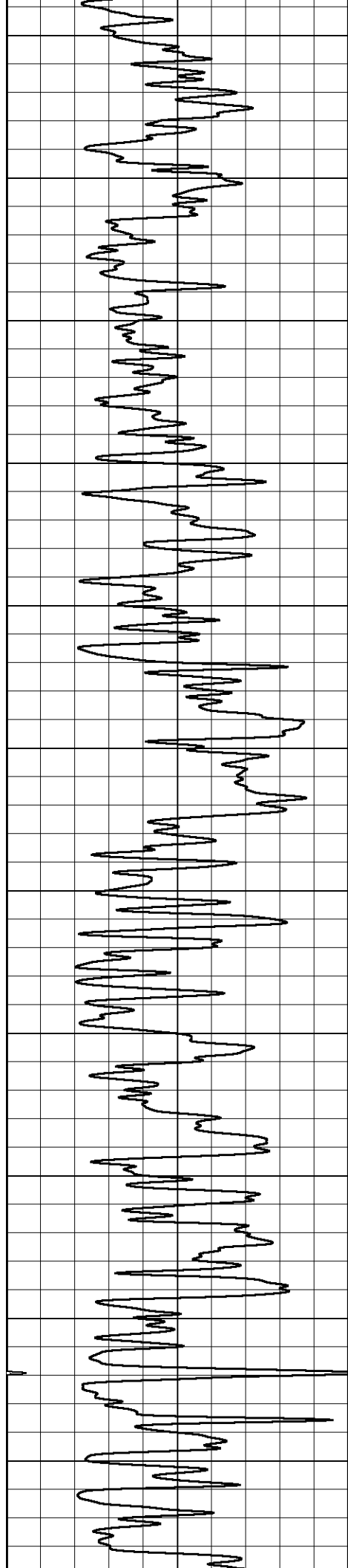
2500

2550

2600

2650





2700

2750

2800

2850

2900

2950

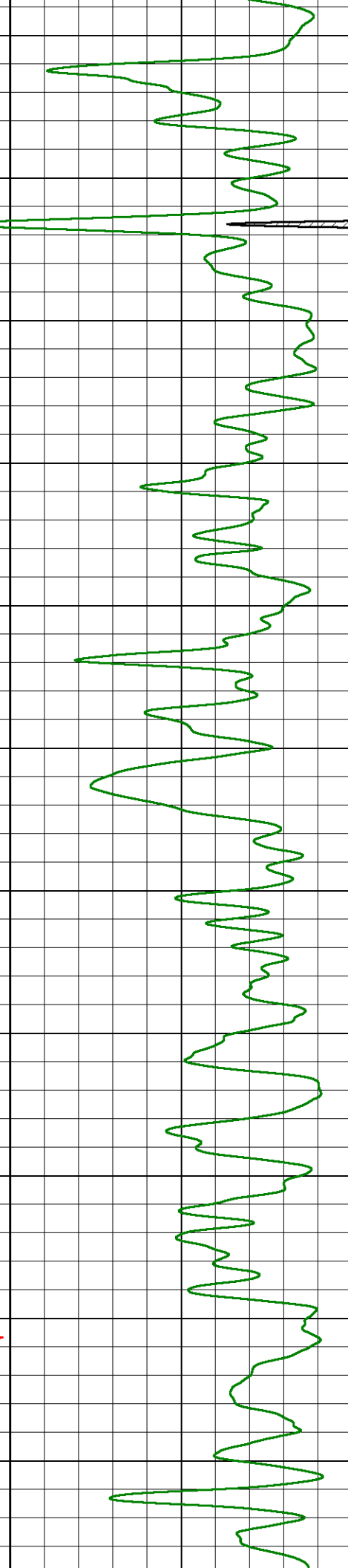
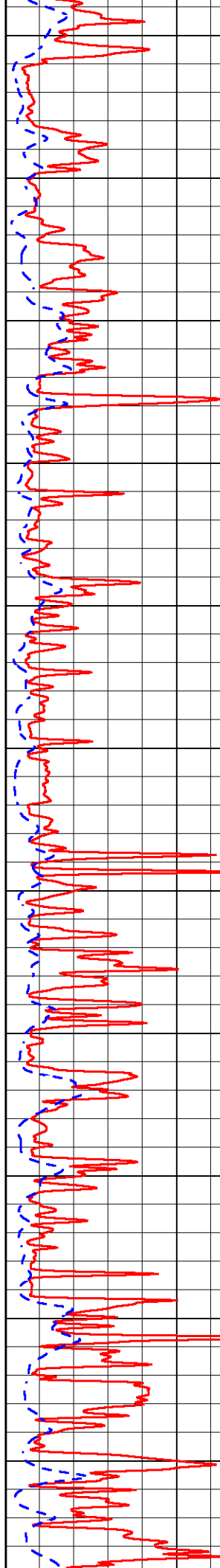
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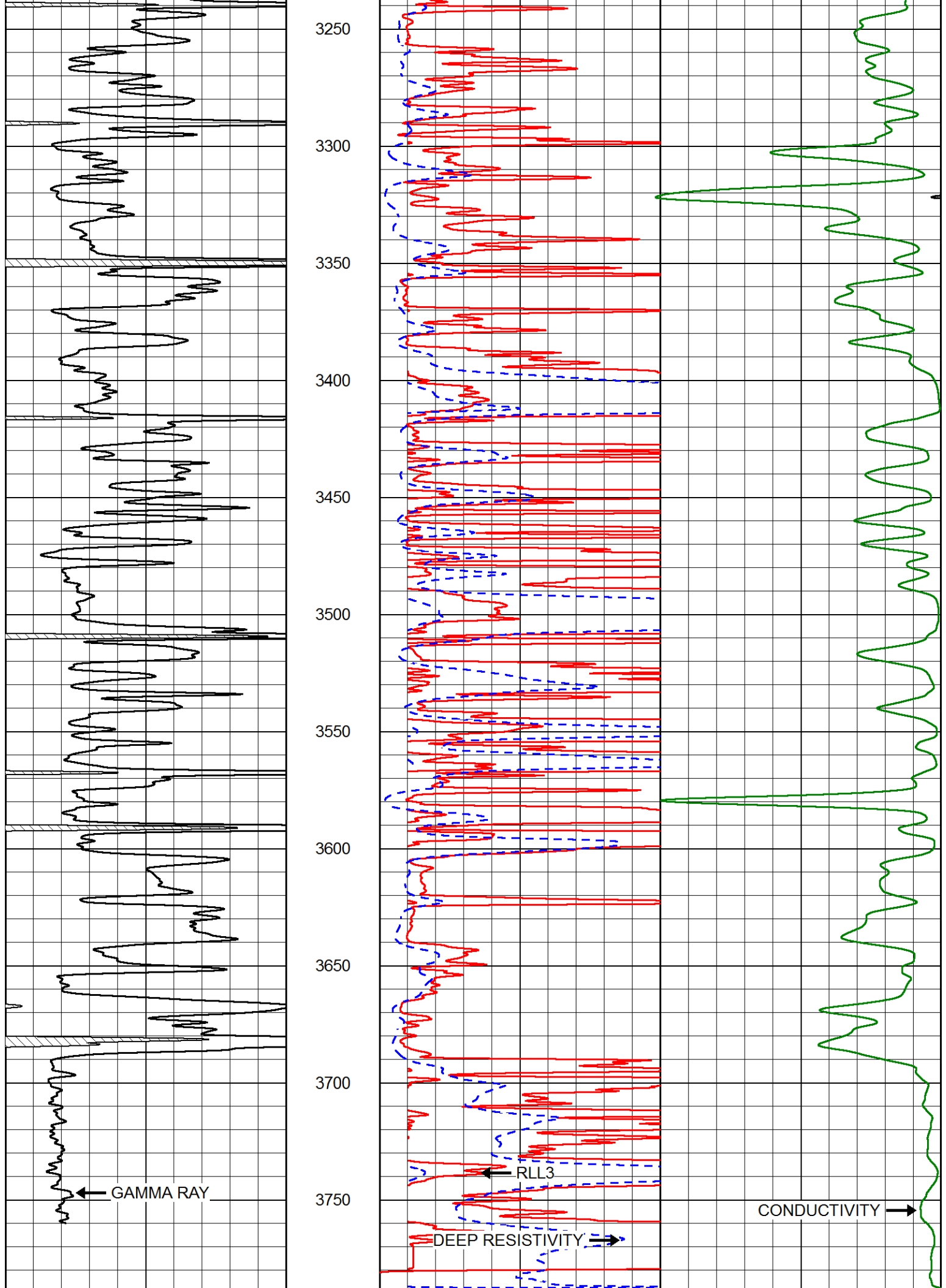
3050

3100

3150

3200





0	GAMMA RAY (GAPI)	150
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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

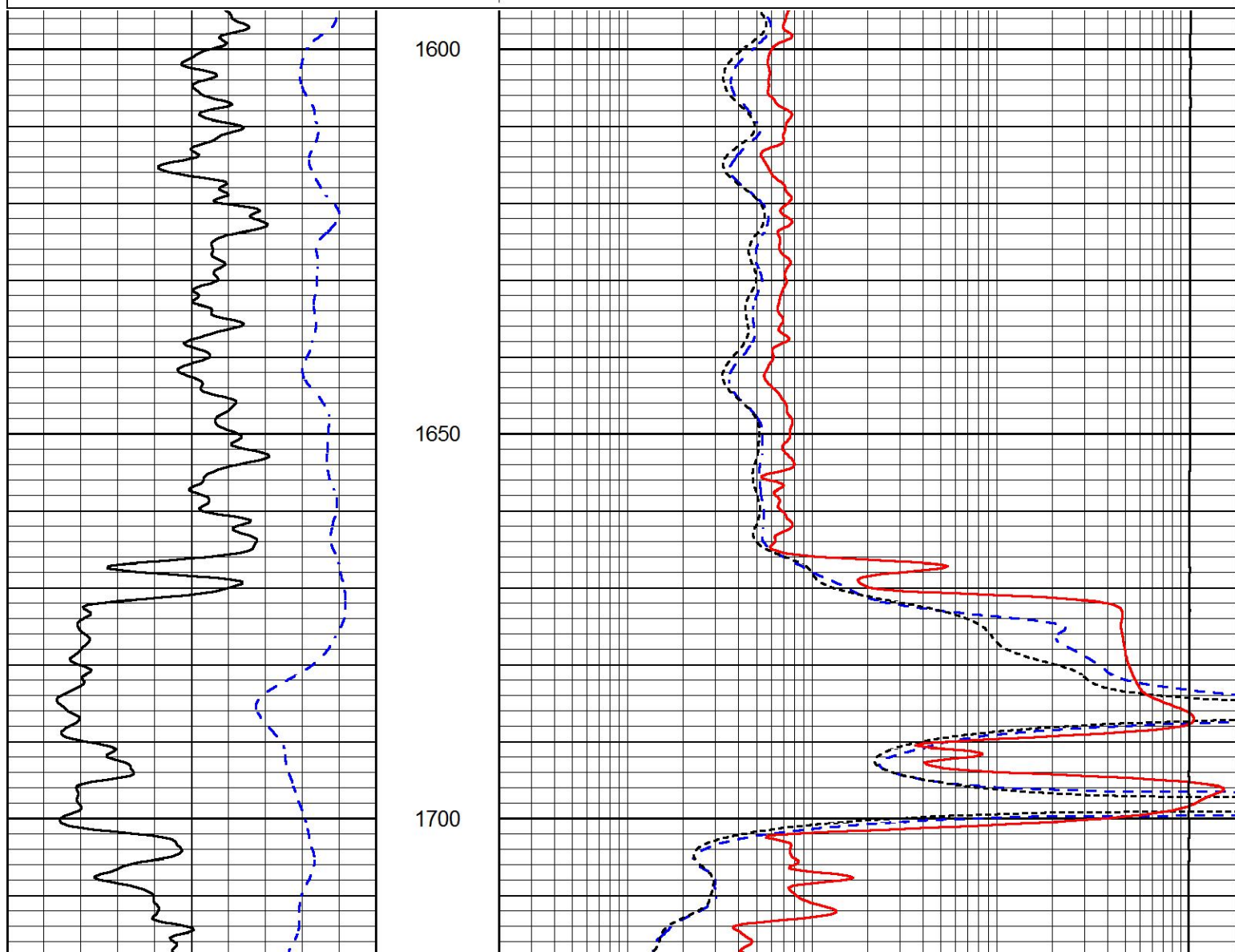


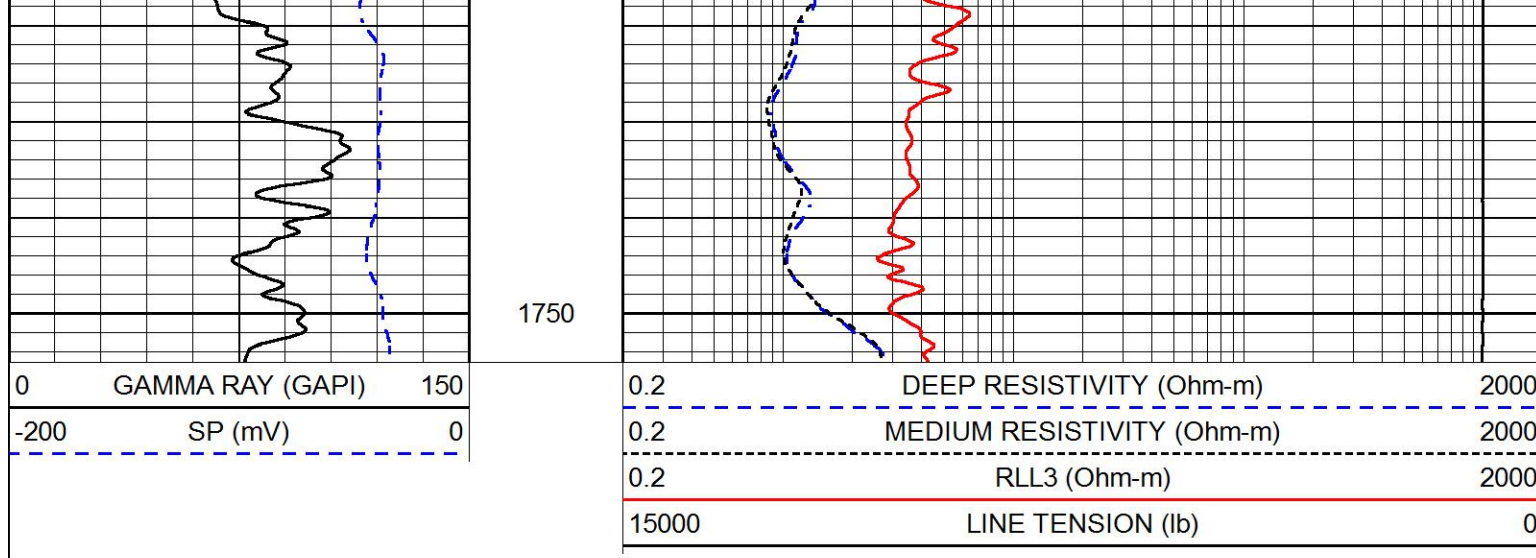
MAIN PASS

Database File	berexco_hinkhouse_8.db
Dataset Pathname	stack/pass3.1
Presentation Format	dil
Dataset Creation	Mon Jun 26 01:46:12 2017
Charted by	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-200	SP (mV)	0

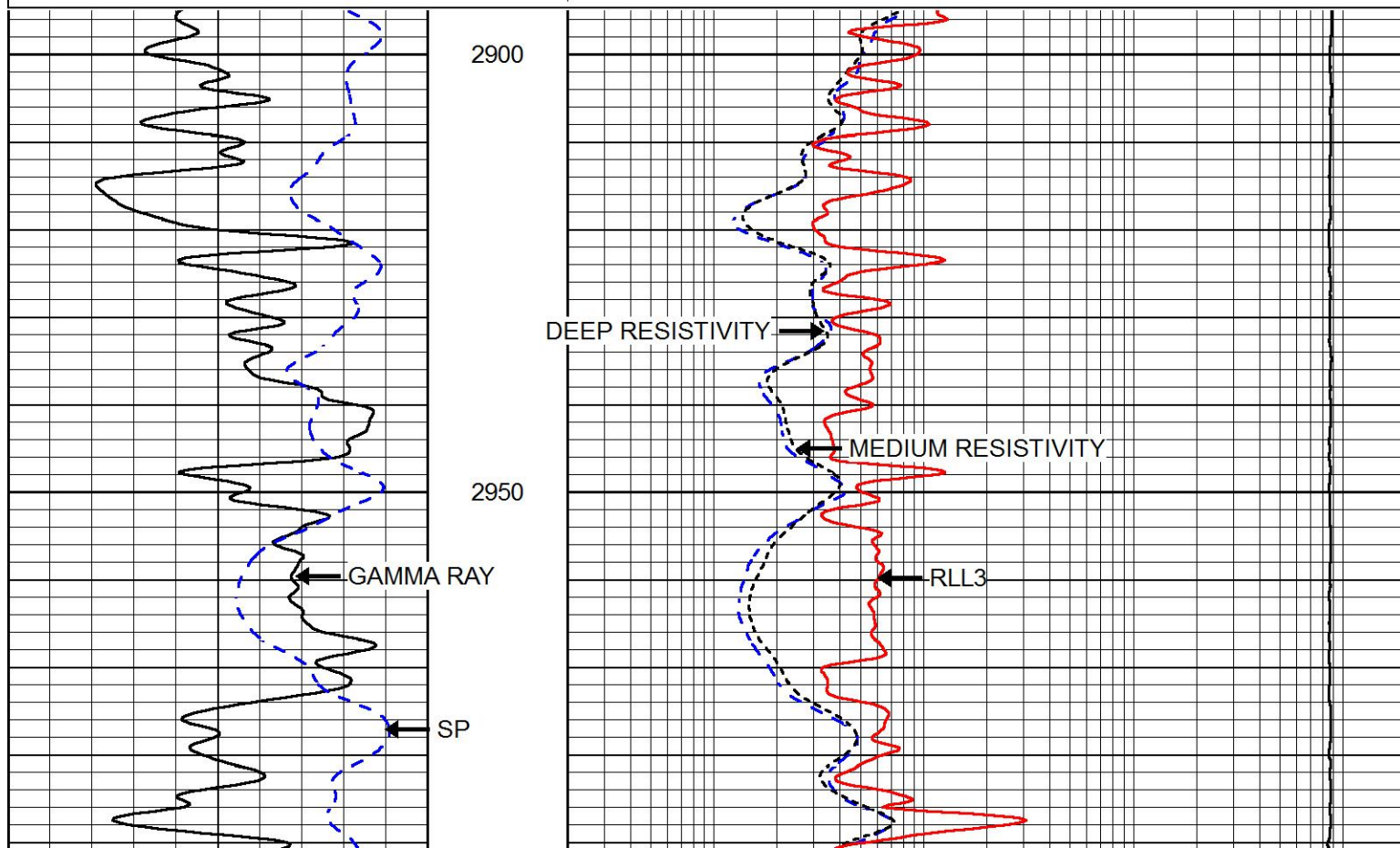
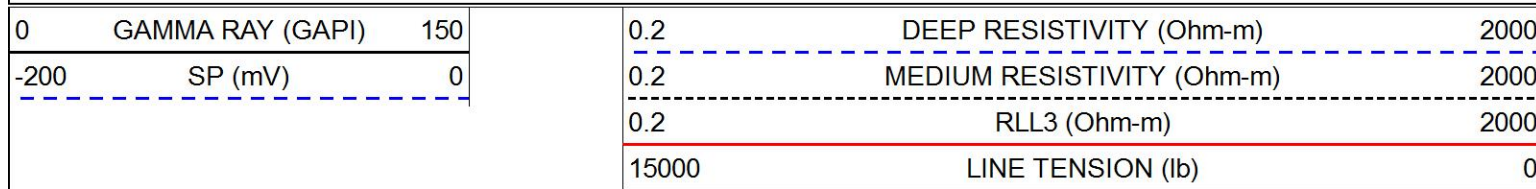
0.2	DEEP RESISTIVITY (Ohm-m)	2000
0.2	MEDIUM RESISTIVITY (Ohm-m)	2000
0.2	RLL3 (Ohm-m)	2000
15000	LINE TENSION (lb)	0

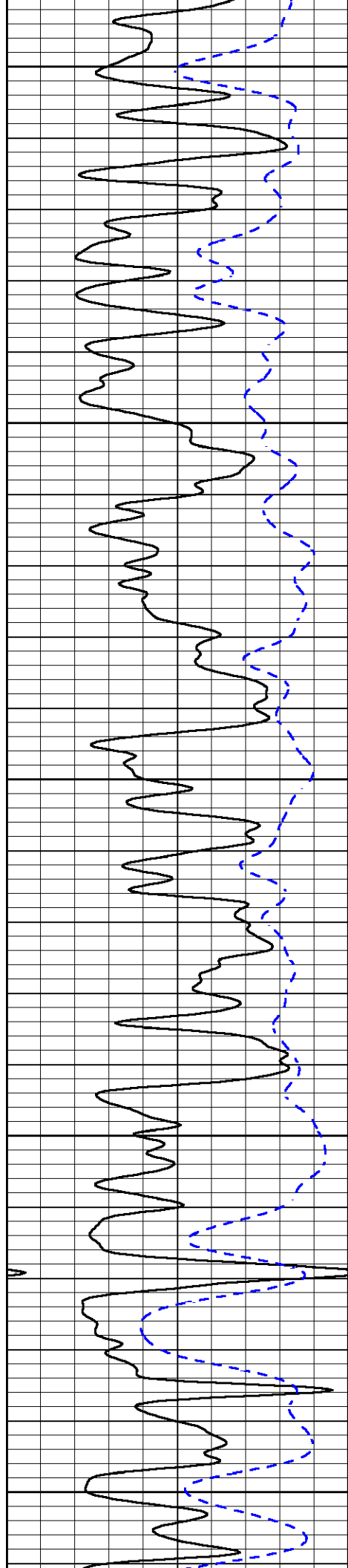




MAIN PASS

Database File berexco_hinkhouse_8.db
 Dataset Pathname stack/pass3.1
 Presentation Format dil
 Dataset Creation Mon Jun 26 01:46:12 2017
 Charted by Depth in Feet scaled 1:240





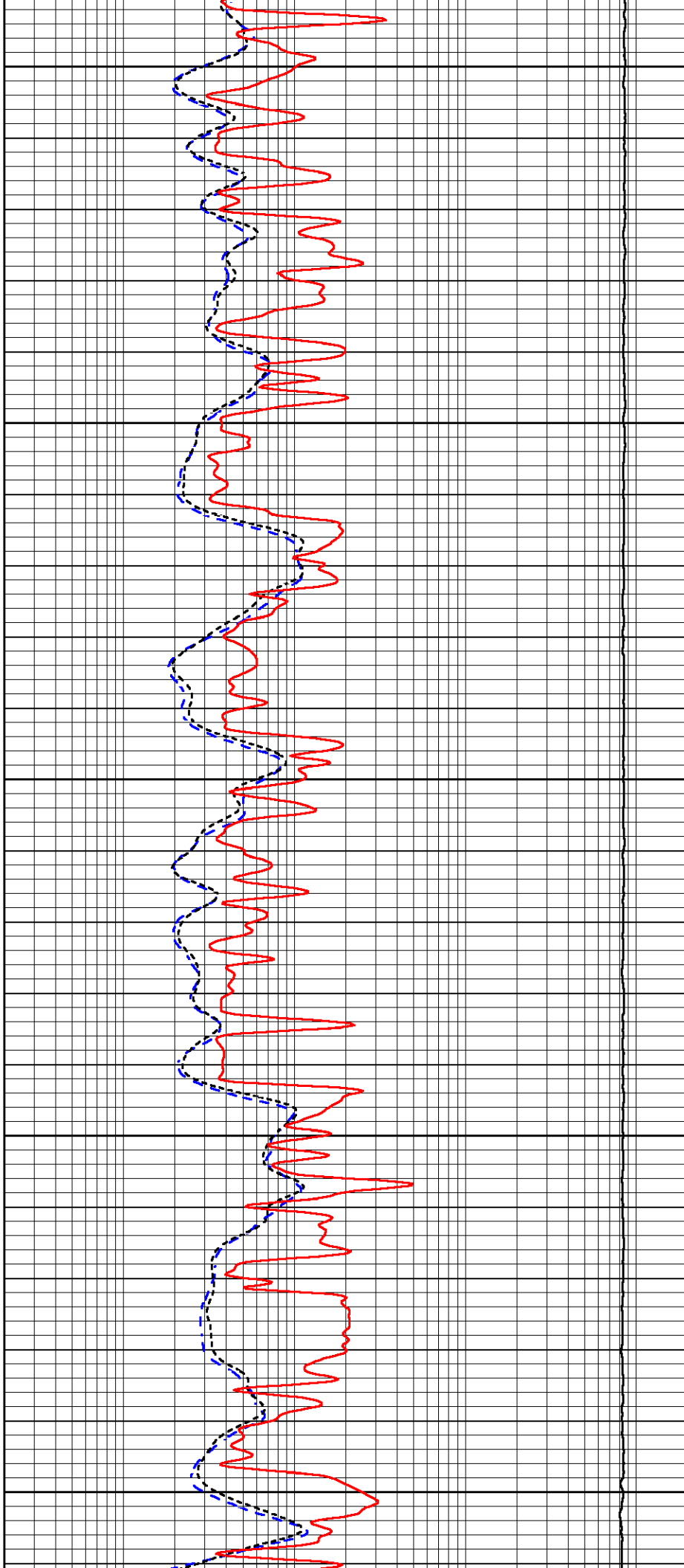
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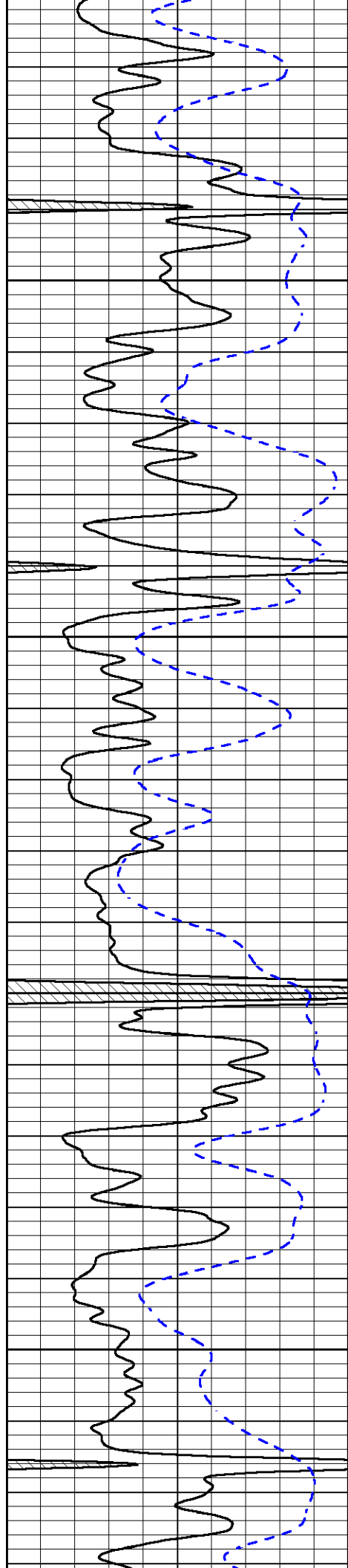
3050

3100

3150

3200



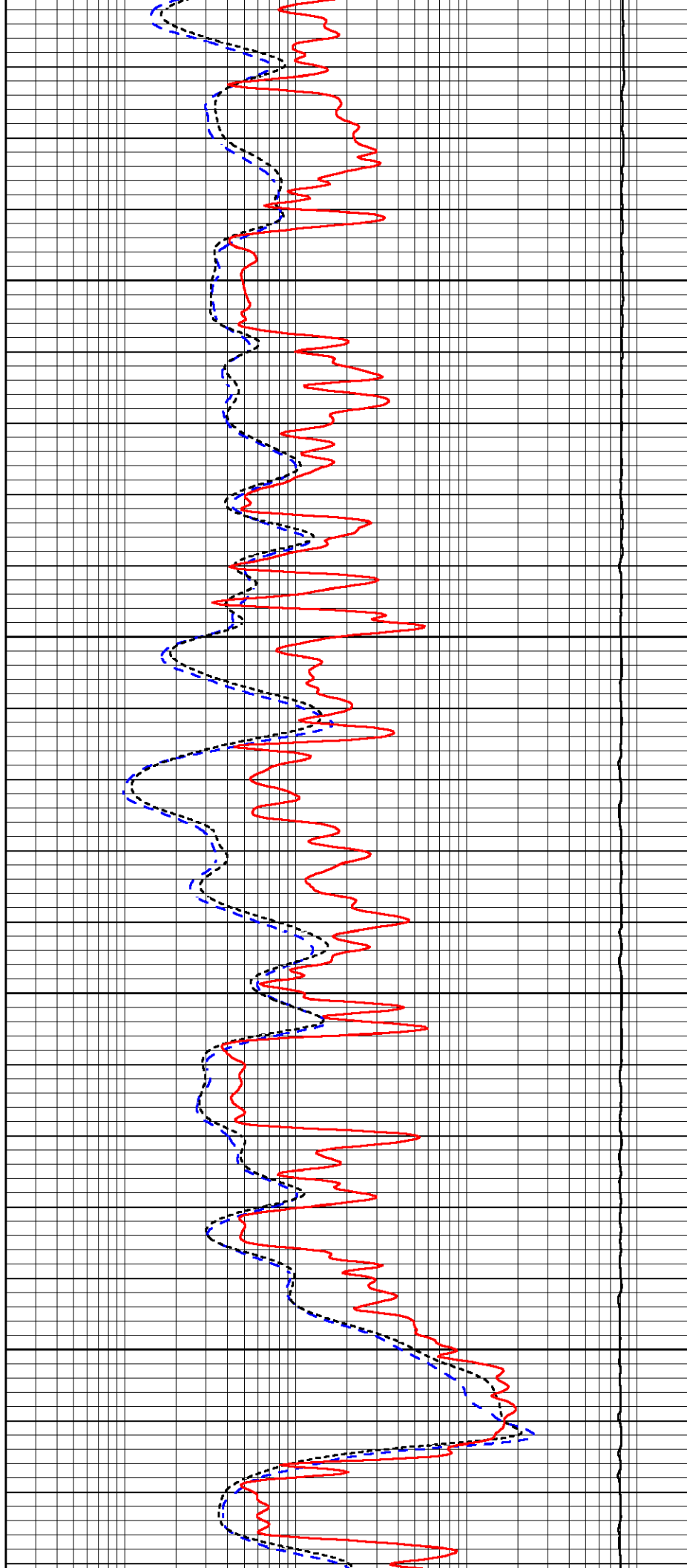


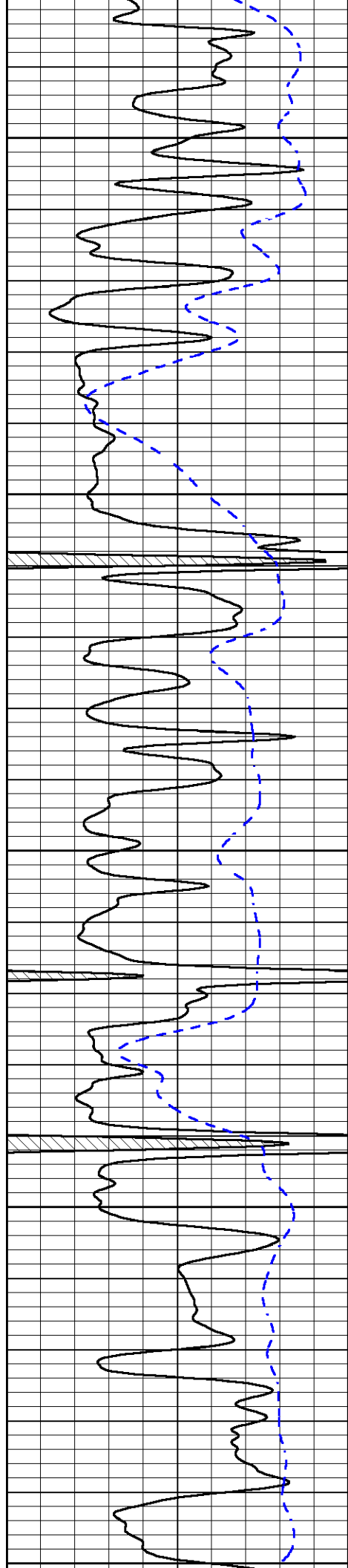
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3300

3350

3400





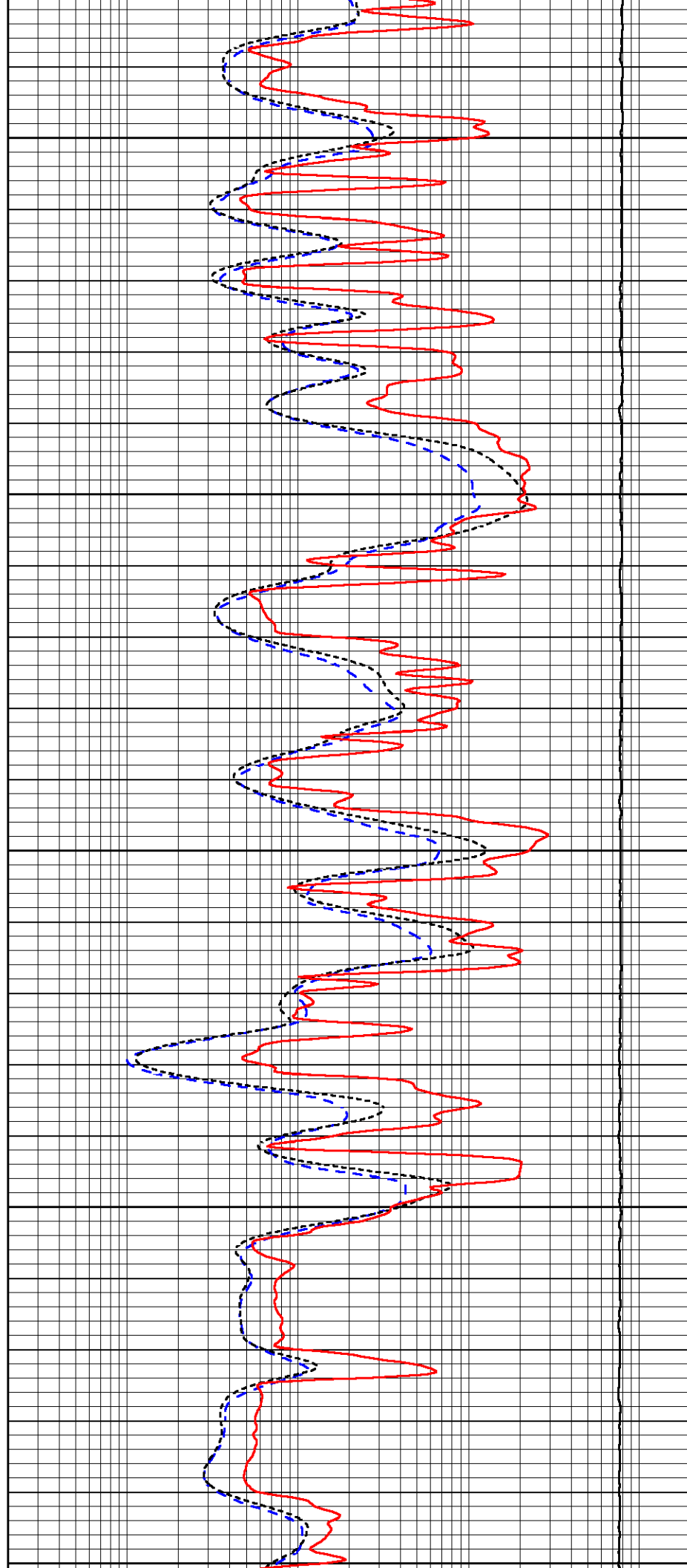
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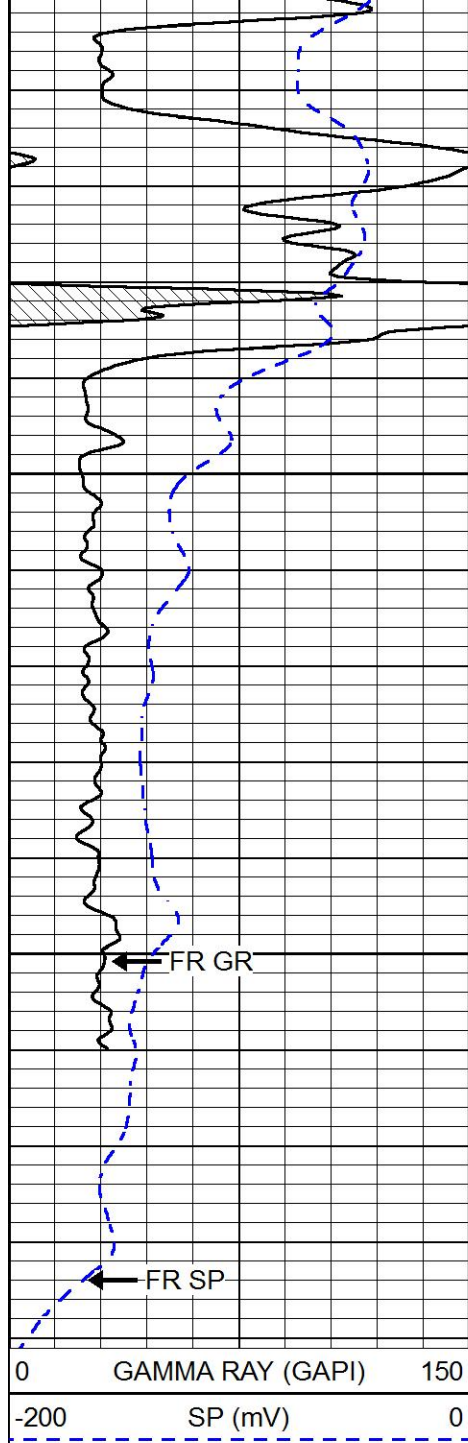
3500

3550

3600

3650

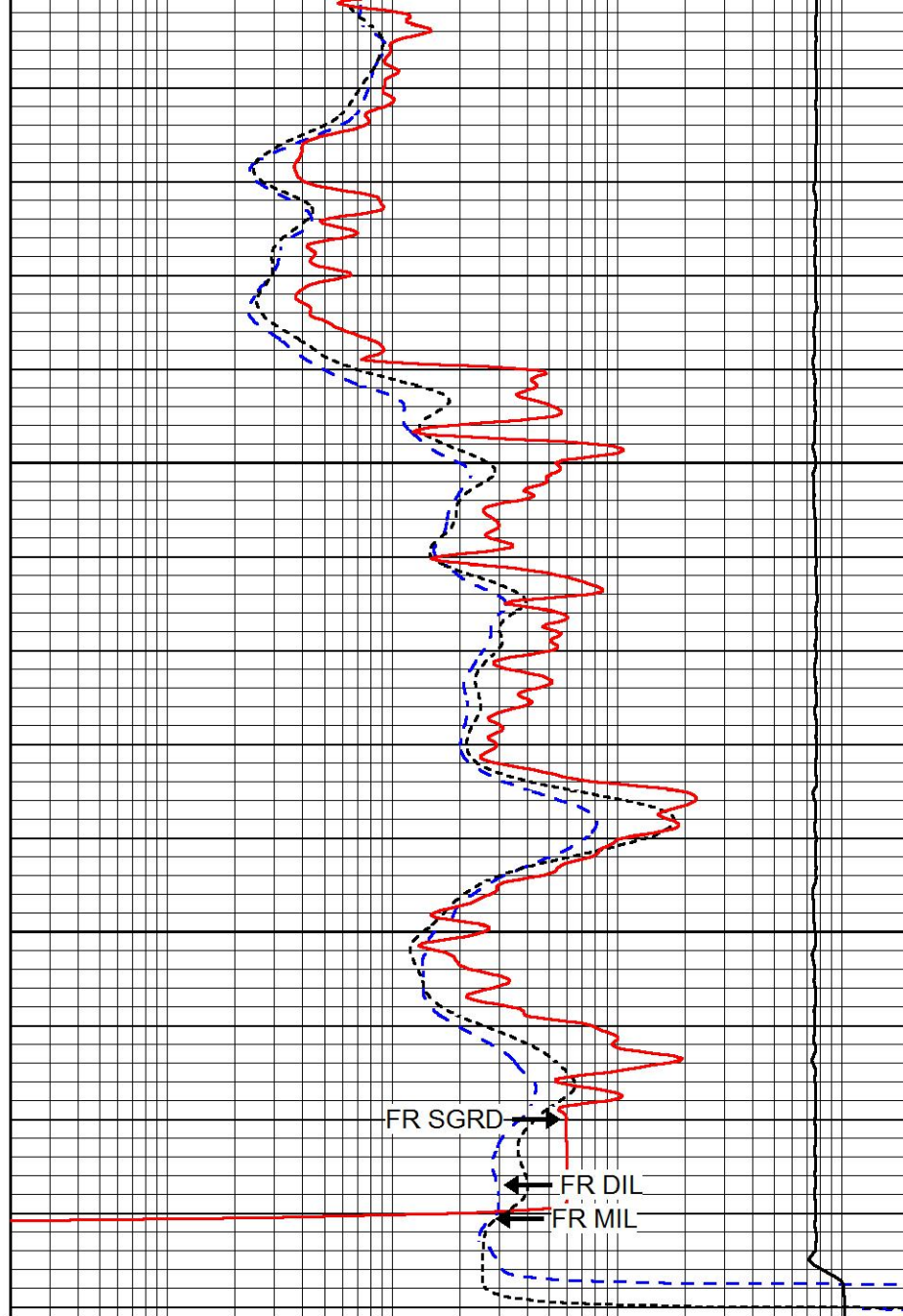




3700

3750

0 GAMMA RAY (GAPI) 150
 -200 SP (mV) 0



0.2 DEEP RESISTIVITY (Ohm-m) 2000
 0.2 MEDIUM RESISTIVITY (Ohm-m) 2000
 0.2 RLL3 (Ohm-m) 2000
 15000 LINE TENSION (lb) 0



REPEAT SECTION

Database File berexco_hinkhouse_8.db
 Dataset Pathname stack/pass2.1
 Presentation Format dil
 Dataset Creation Mon Jun 26 00:54:46 2017
 Charted by Depth in Feet scaled 1:240

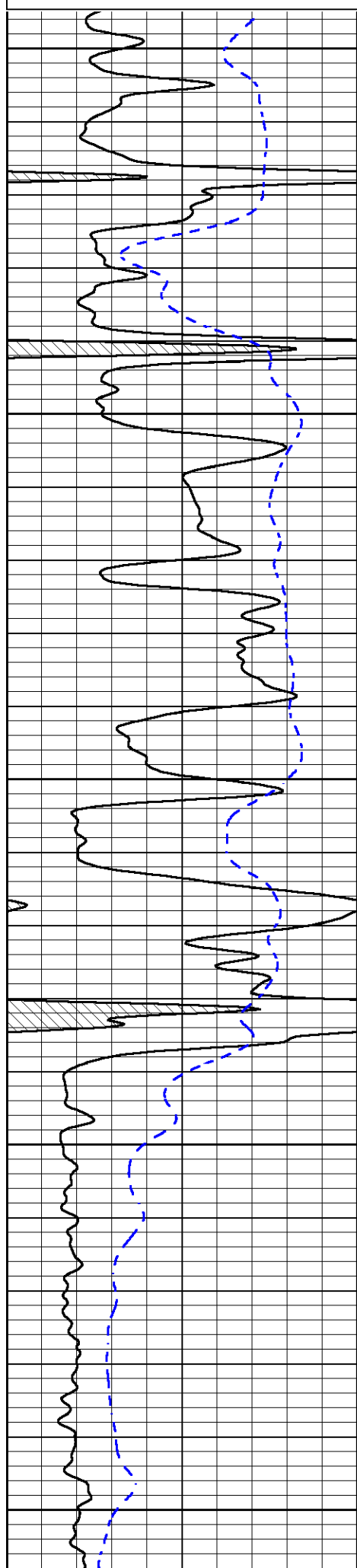
0 GAMMA RAY (GAPI) 150
 -200 SP (mV) 0

0.2 DEEP RESISTIVITY (Ohm-m) 2000
 0.2 MEDIUM RESISTIVITY (Ohm-m) 2000
 0.2 RLL3 (Ohm-m) 2000

15000

LINE TENSION (lb)

0



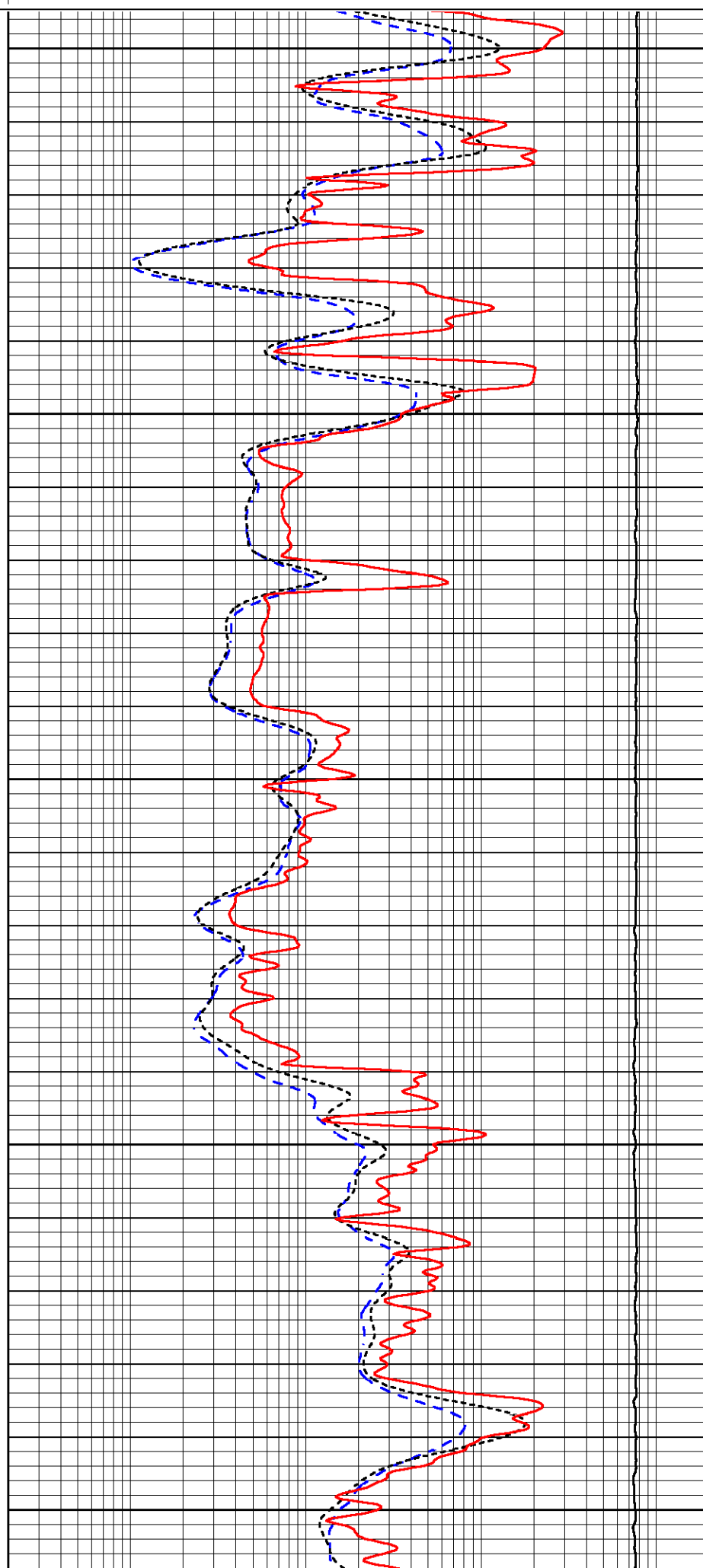
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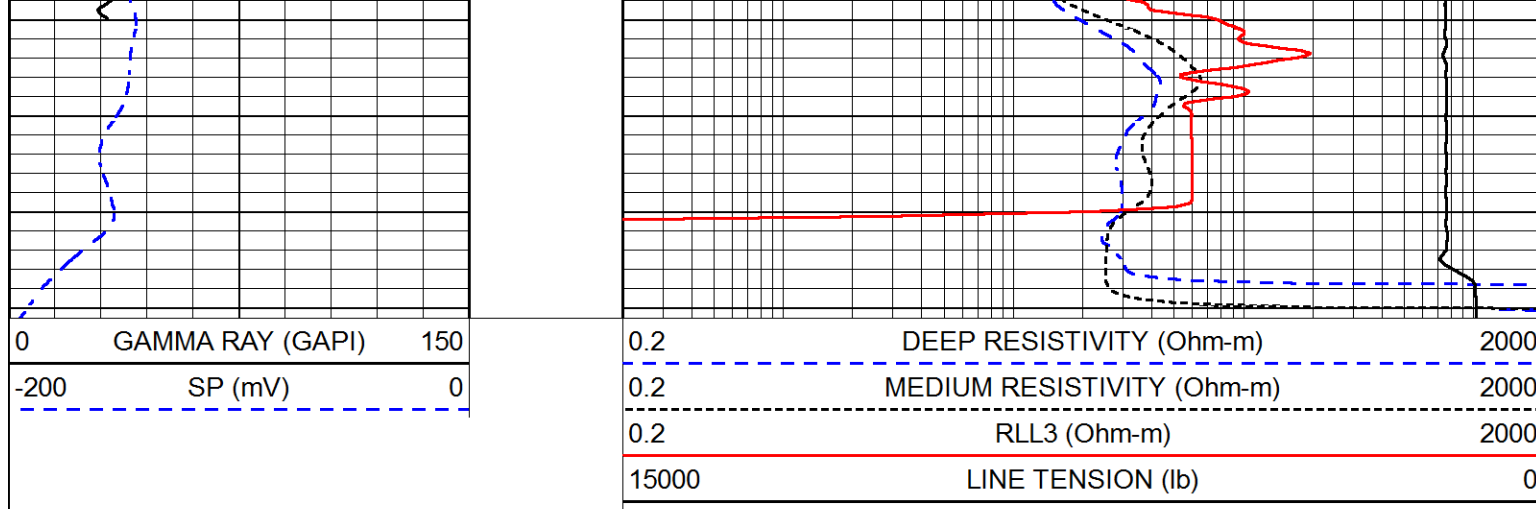
3600

3650

3700

3750





Calibration Report	
Database File	berexco_hinkhouse_8.db
Dataset Pathname	stack/pass3.1
Dataset Creation	Mon Jun 26 01:46:12 2017

Dual Induction Calibration Report

Serial-Model:	1987-M&W
Calibration Performed:	Tue Apr 11 16:07:38 2017

Readings			References			Results	
Loop:	Air	Loop	Air	Loop		Gain	Offset
Deep	178.615	710.235	0.000	255.800	mmho/m	0.530	-36.500
Medium	161.982	1441.110	0.000	255.800	mmho/m	0.440	-110.500

Compensated Density Calibration Report
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Serial-Model:	168-986-M&W
Source / Verifier:	/
Master Calibration Performed:	Tue Apr 11 16:07:47 2017

Master Calibration					
Density			Far Detector	Near Detector	
Magnesium	1.755	g/cc	4691.86	4818.19	cps
Aluminum	2.675	g/cc	859.57	3020.22	cps
Spine Angle = 74.61			Density/Spine Ratio = 0.523		
Size			Reading		
Small Ring	4.00	in	1.03		
Large Ring	14.00	in	1.23		

Compensated Neutron Calibration Report
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Serial Number:	tk10-MW
Tool Model:	M&W
Calibration Performed:	Wed Nov 16 11:21:36 2016

Detector	Readings	Target	Normalization
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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 16:08:01 2017	
Calibrator Value:	1000.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	6.2	cps
Sensitivity:	0.5200	GAPI/cps

 PIONEER Pioneer Energy Services	Company	BEREXCO, LLC
	Well	HINKHOUSE NO.8
	Field	MOREL
	County	GRAHAM
	State	KANSAS