



DUAL INDUCTION LOG

Company RED OAK ENERGY, INC.

Well HILT - CUMMINS #1-11

Field

County CHEYENNE State KANSAS

Location: API #: 15-023-21555-0000

2125' FSL & 584' FWL
SE-NW-NW-SW

SEC 11 TWP 2S RGE 42W

Permanent Datum GROUND LEVEL Elevation 3717
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING

Other Services
CDL/CNL/PE
MEL

Elevation

K.B. 3722
D.F. 3720
G.L. 3717

Date 9/17/21

Run Number ONE

Depth Driller 5210

Depth Logger 5206

Bottom Logged Interval 5204 1750-1550

Top Log Interval 00

Casing Driller 8 5/8" @ 321

Casing Logger 321

Bit Size 7 7/8

Type Fluid in Hole CHEMICAL MUD CHLORIDES 800 PPM

Density / Viscosity 9.1/54

pH / Fluid Loss 11.0/8.0

Source of Sample FLOWLINE

Rm @ Meas. Temp 1.25 @ 65F

Rmf @ Meas. Temp .93 @ 65F

Rmc @ Meas. Temp 1.5 @ 65F

Source of Rmf / Rmc MEASUREMENT

Rm @ BHT .63 @ 127F

Time Circulation Stopped 2 HOURS

Time Logger on Bottom 1111

Maximum Recorded Temperature 127F

Equipment Number 3802

Location HAYS, KANSAS

Recorded By JASON CAPPELLUCCI

Witnessed By RYAN DAVIS

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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

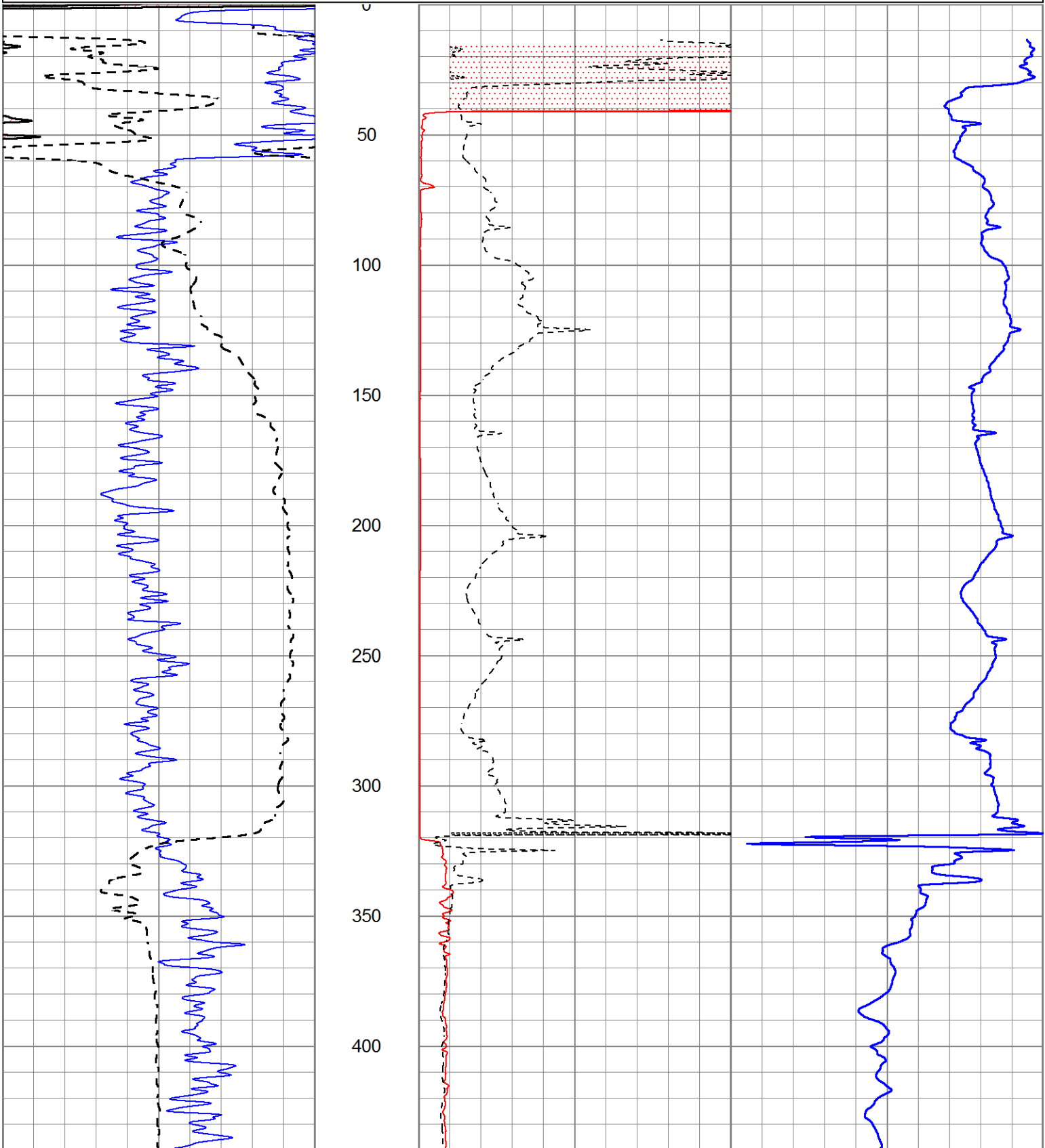
THANK YOU FOR USING ELI WIRELINE SERVICES, HAYS, KS. (785) 628-6395
DIRECTIONS

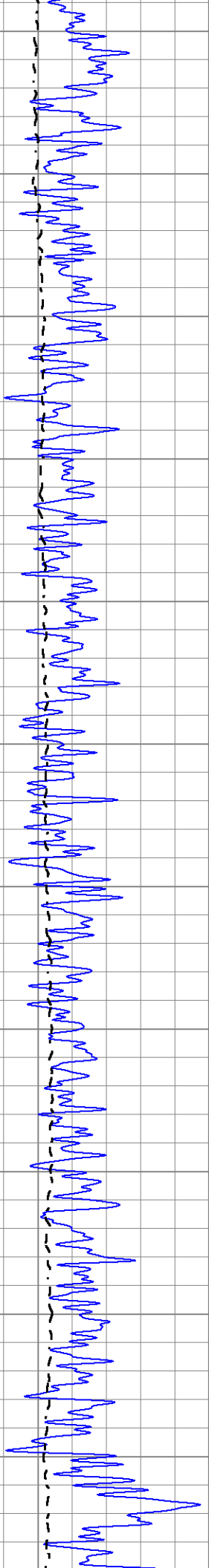
ST. FRANCIS, KS. - 13 NORTH ON HWY 27 TO W RD. - 4 WEST - 1/2 NORTH - EAST INTO



MAIN SECTION

0	Gamma Ray (GAPI)	150	1000	CILD (mmho/m)	0
-100	SP (mV)	100	0	RLL3 (Ohm-m)	50
-----			0	Deep Induction (Ohm-m)	50
			50	RILD X10 (Ohm-m)	500
			50	RLL3 X10 (Ohm-m)	500





450

500

550

600

650

700

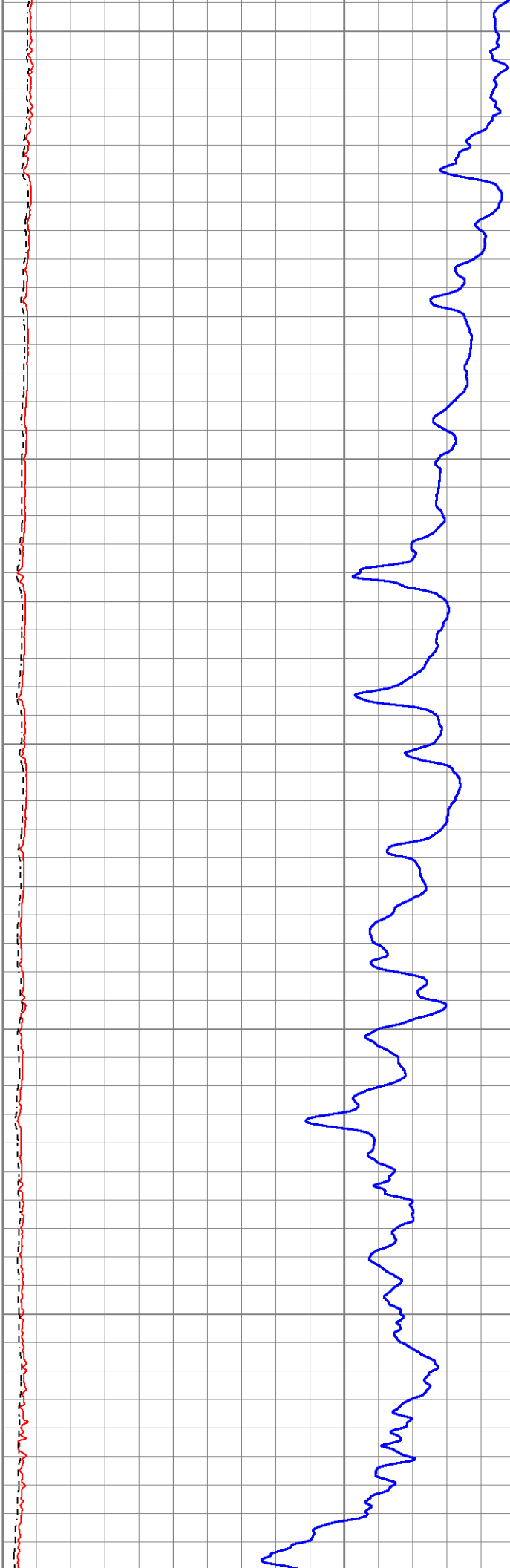
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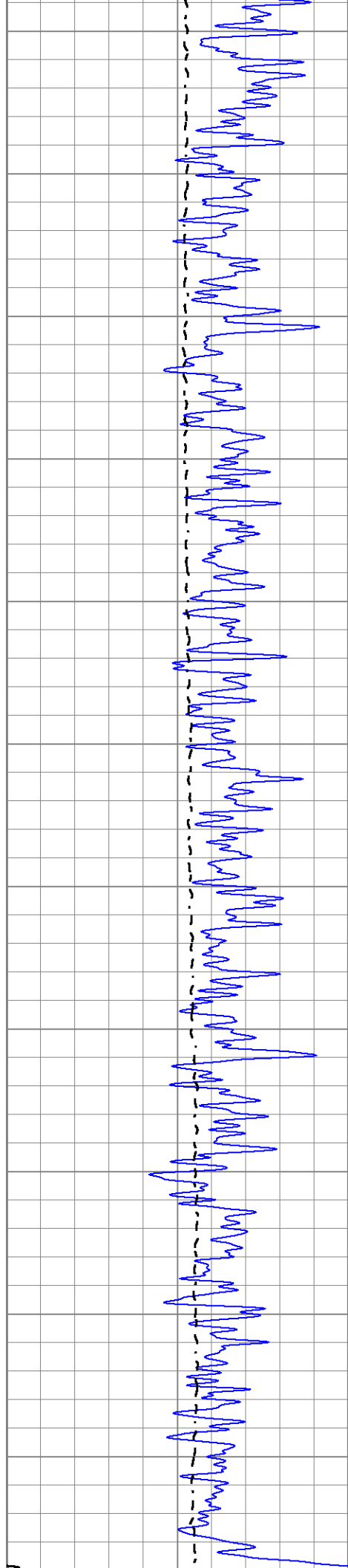
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850

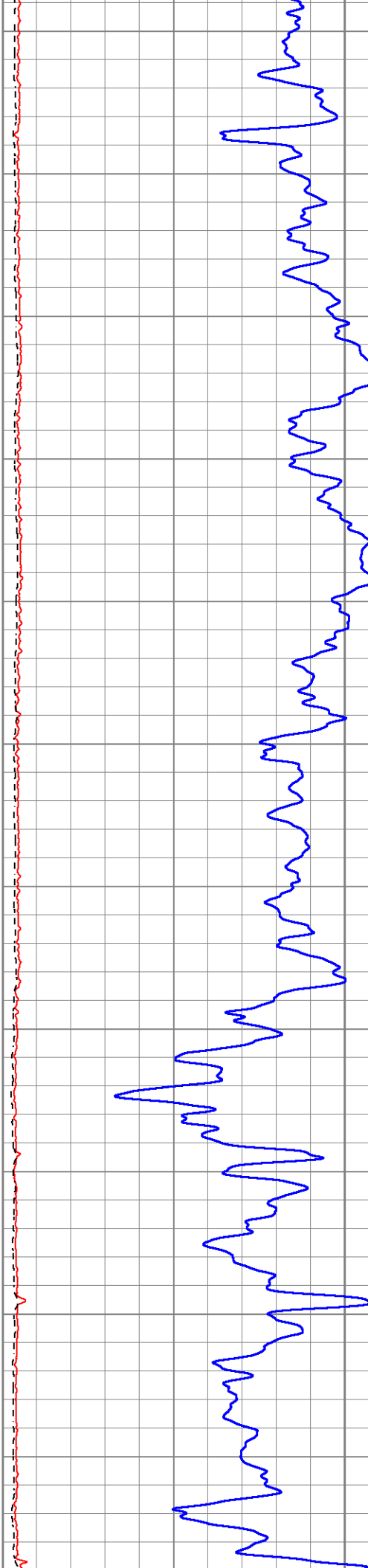
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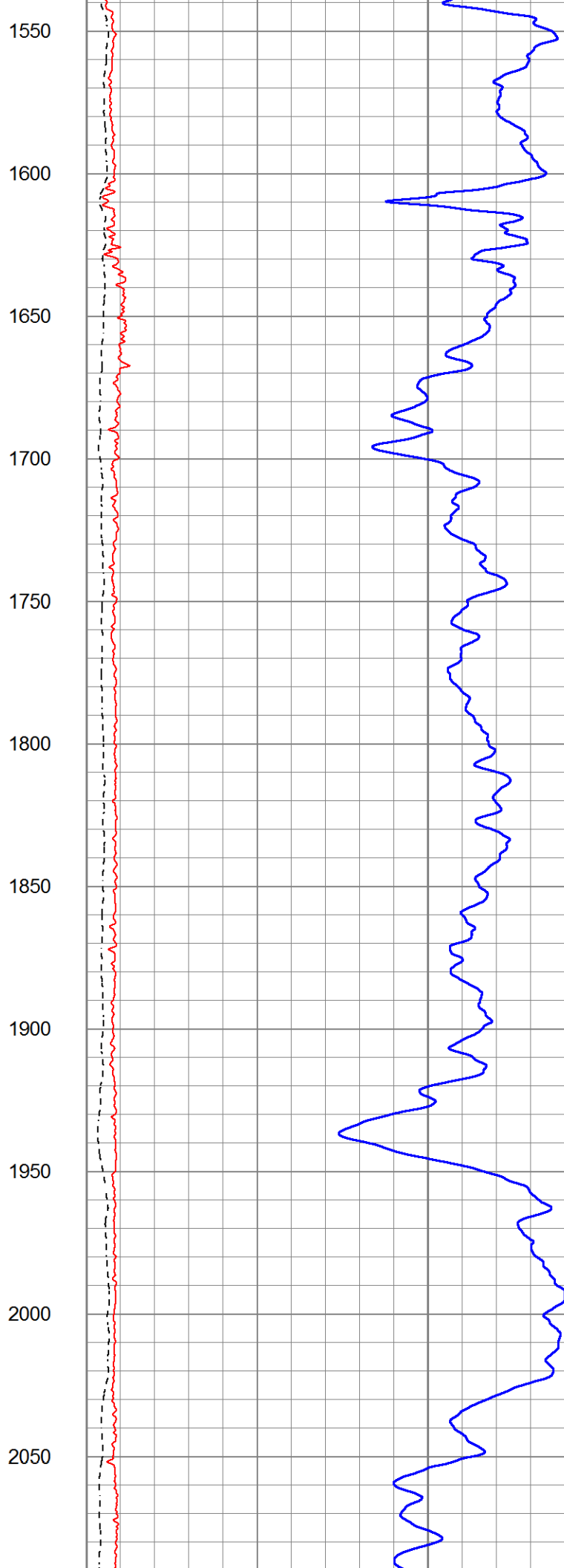
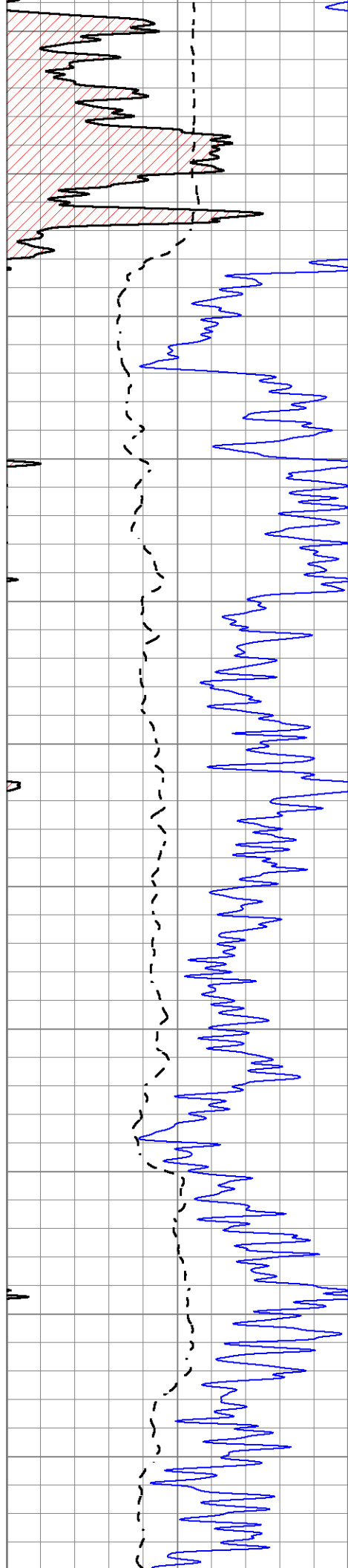
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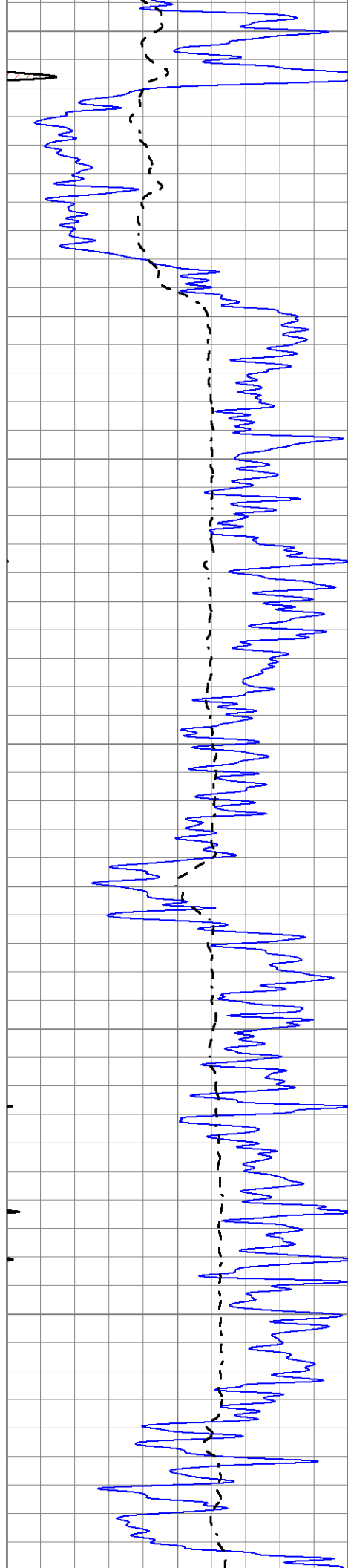




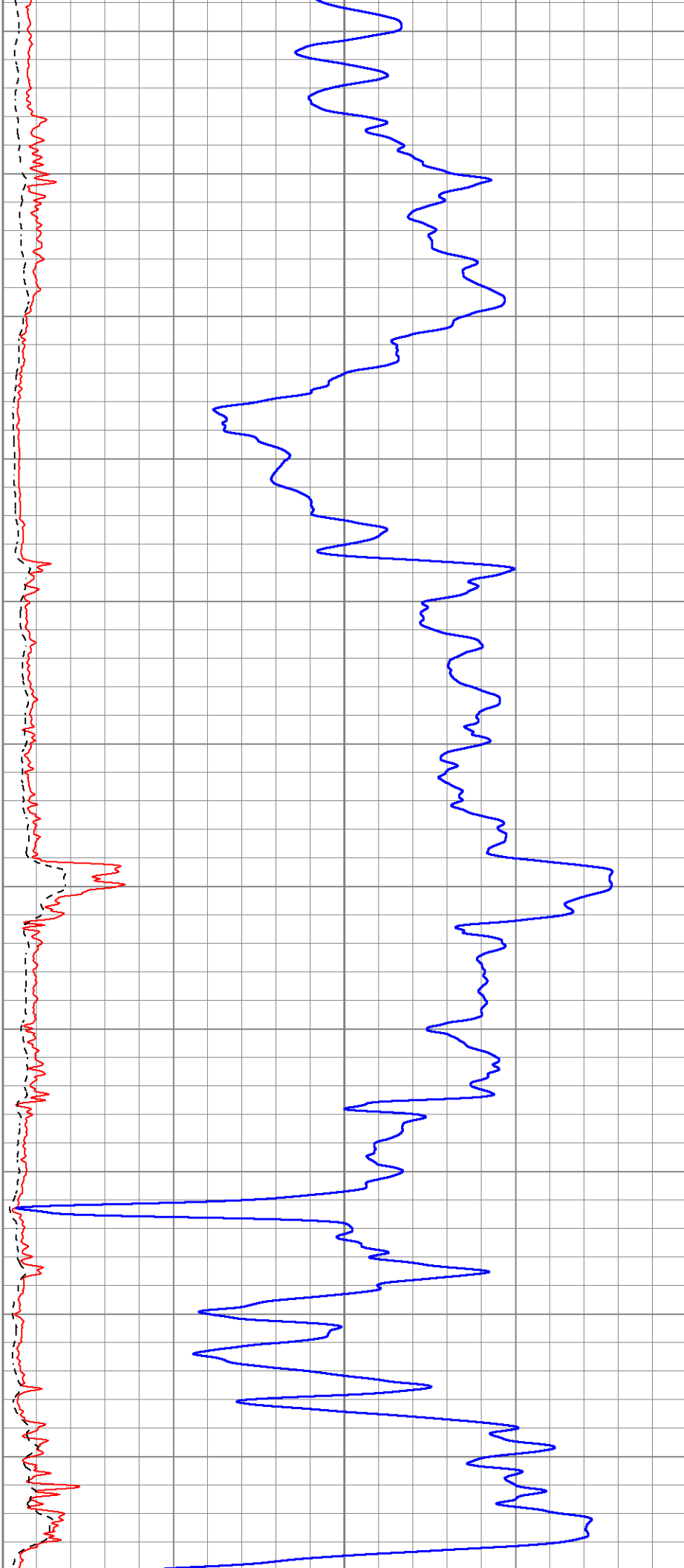
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1050
1100
1150
1200
1250
1300
1350
1400
1450
1500



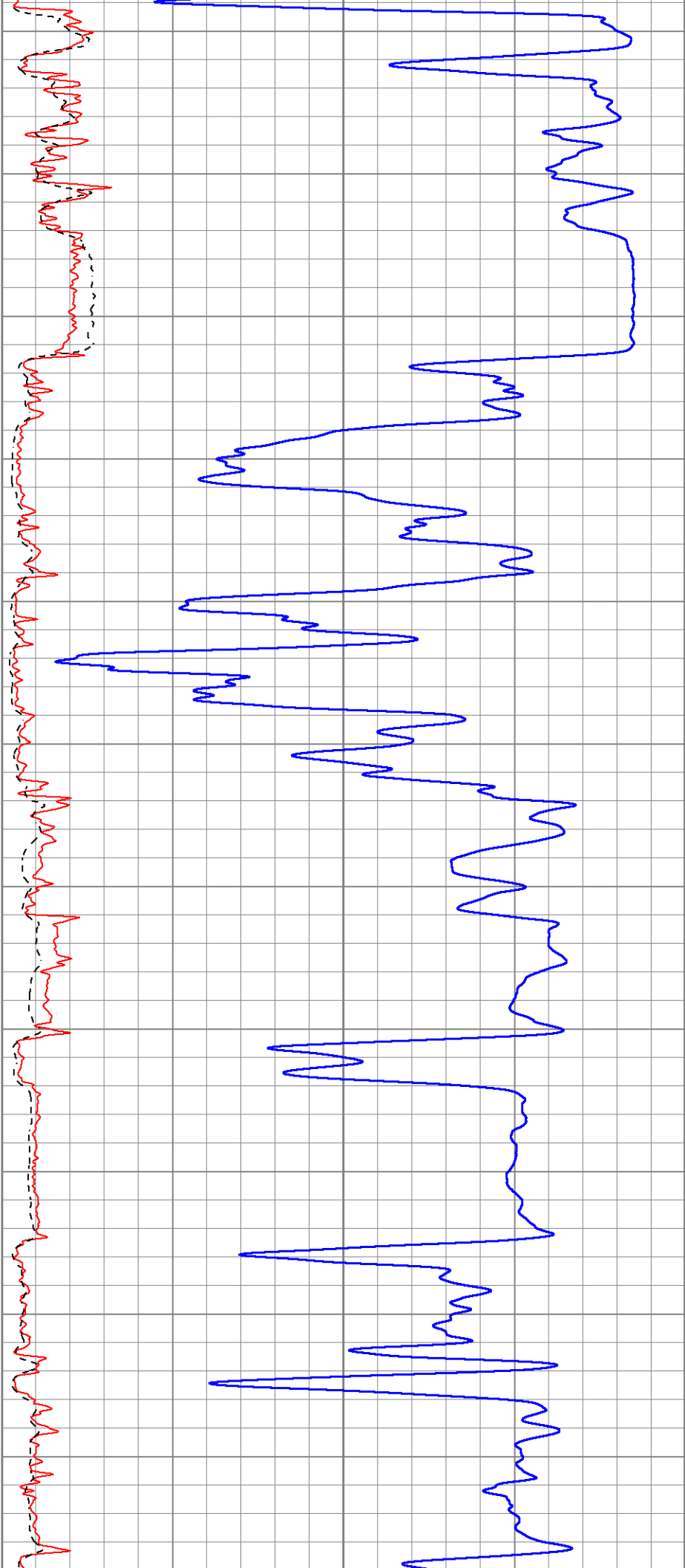
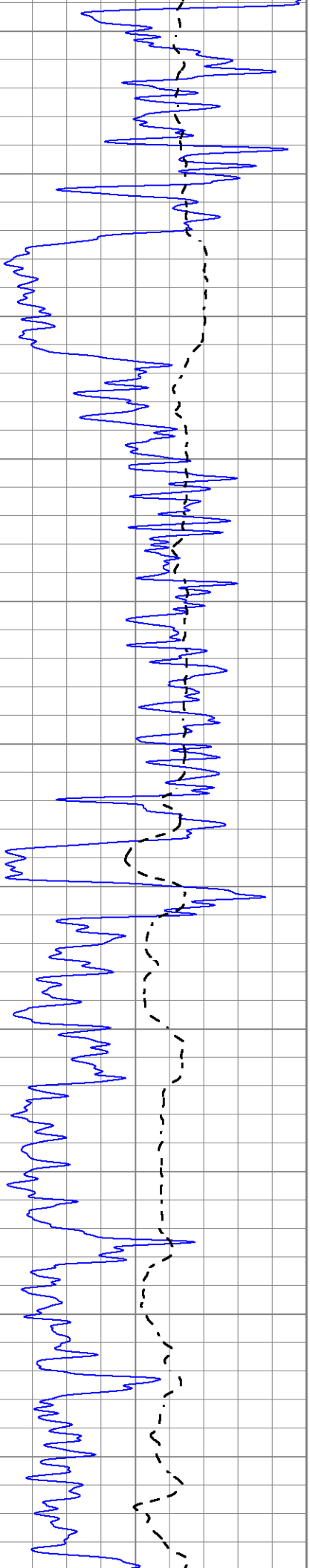


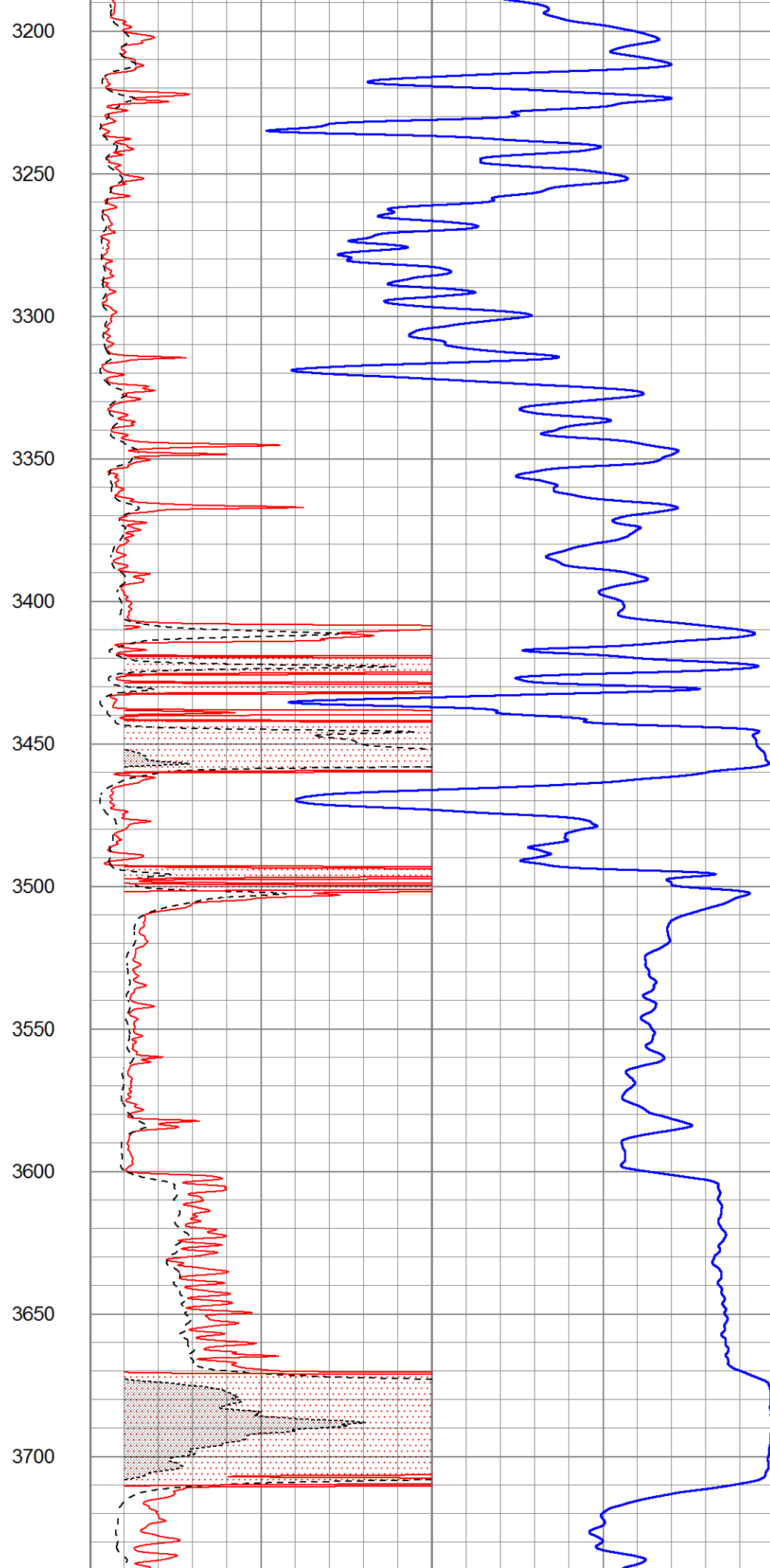
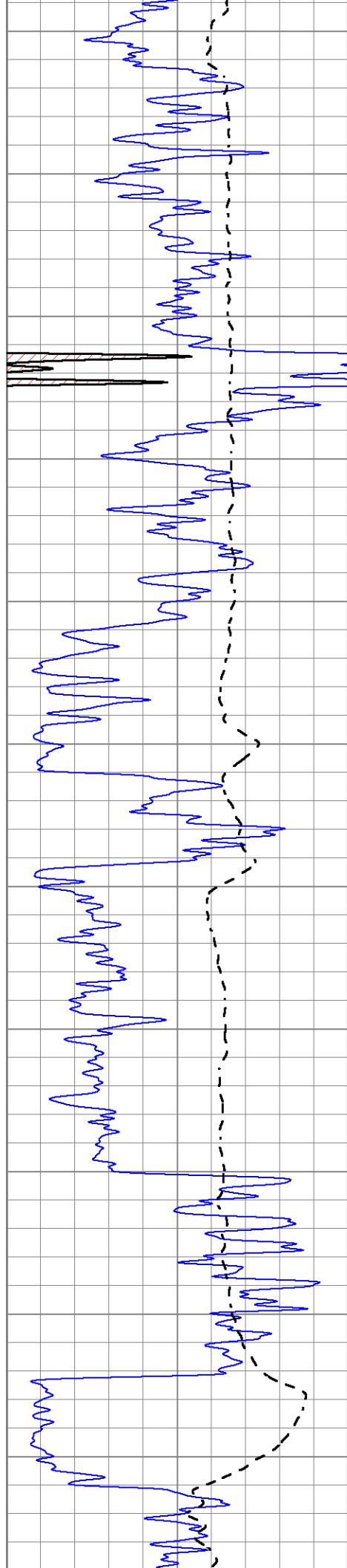


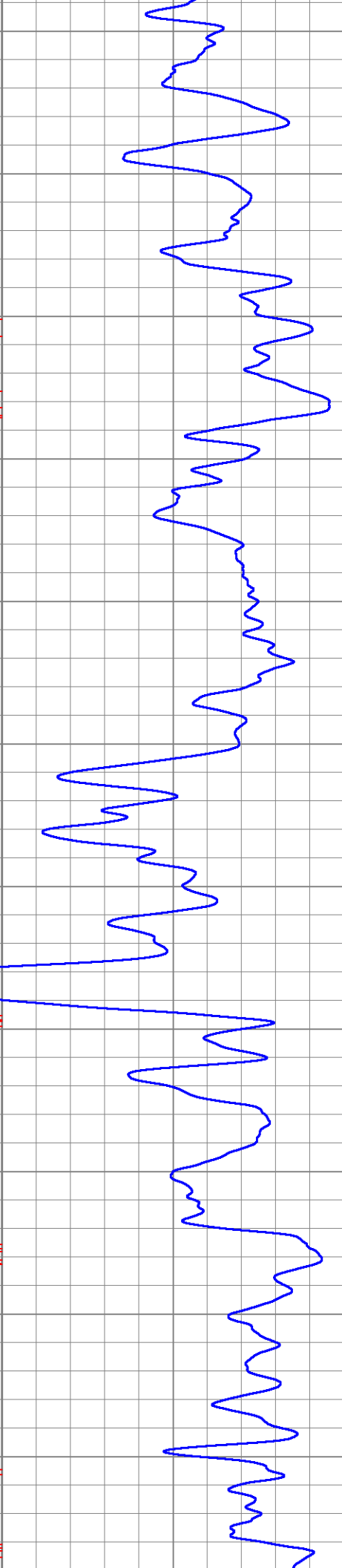
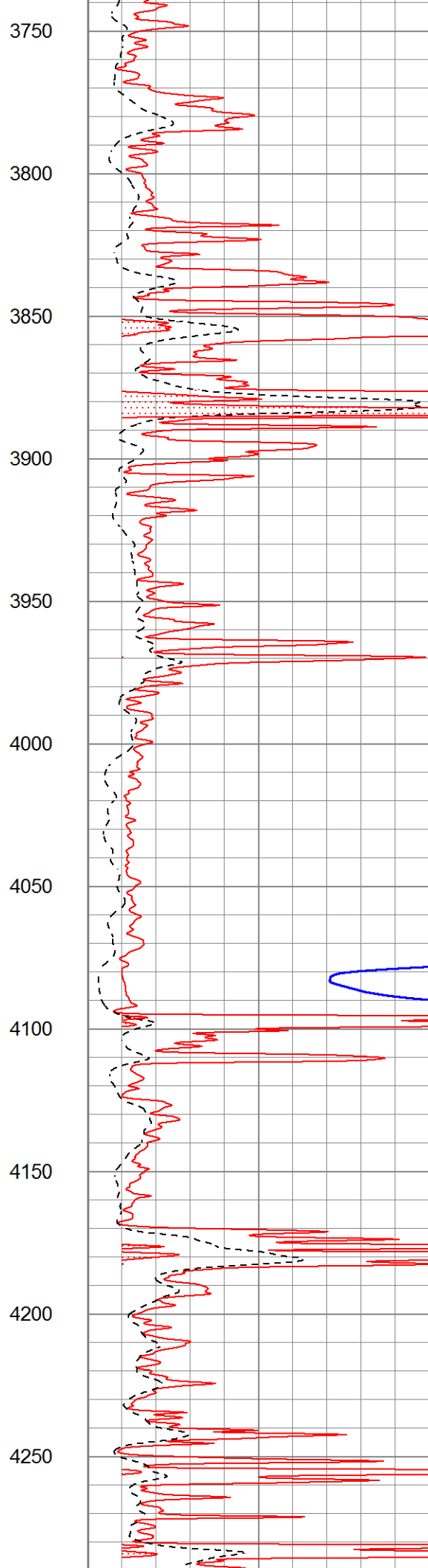
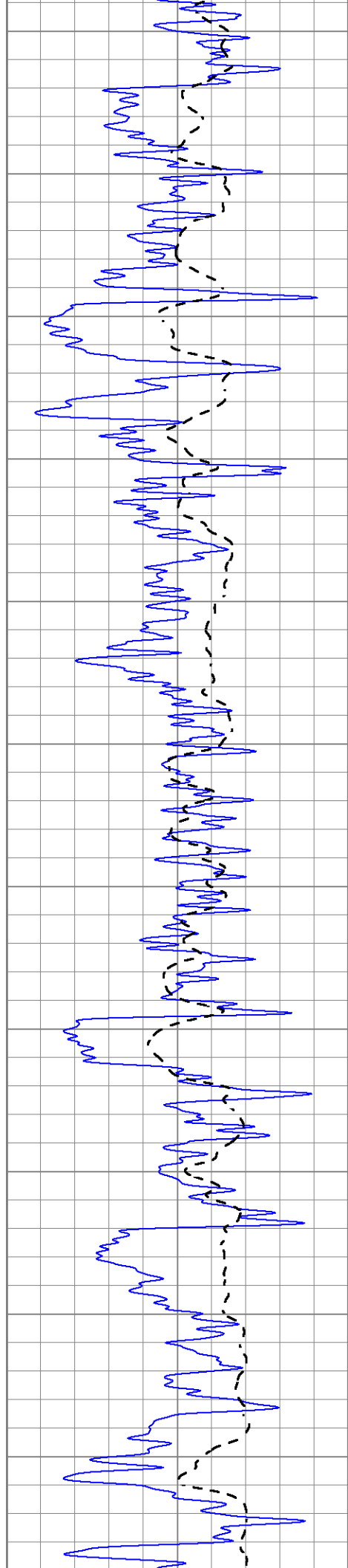
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2150
2200
2250
2300
2350
2400
2450
2500
2550
2600

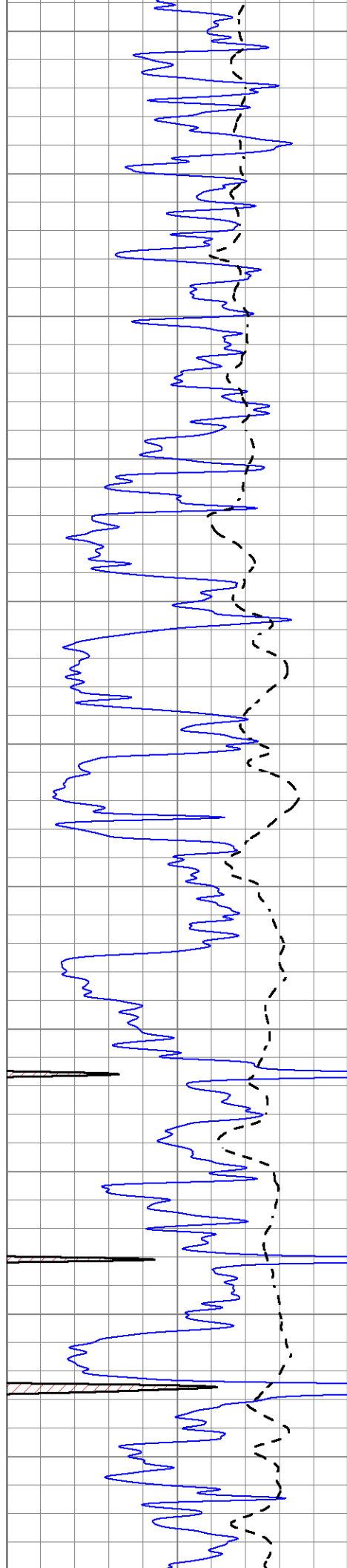


2650
2700
2750
2800
2850
2900
2950
3000
3050
3100
3150









4300

4350

4400

4450

4500

4550

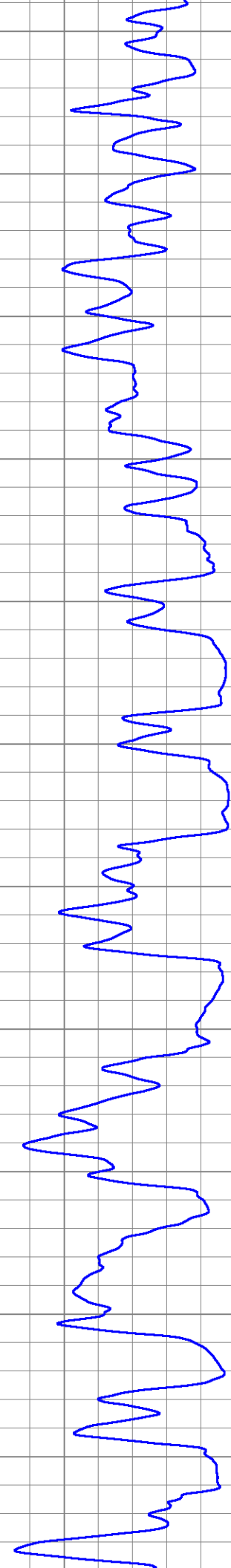
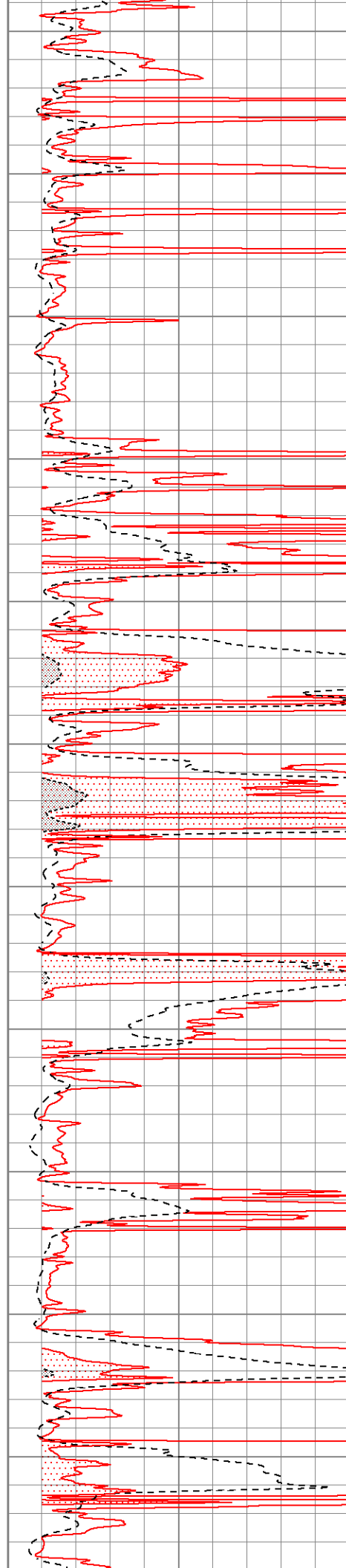
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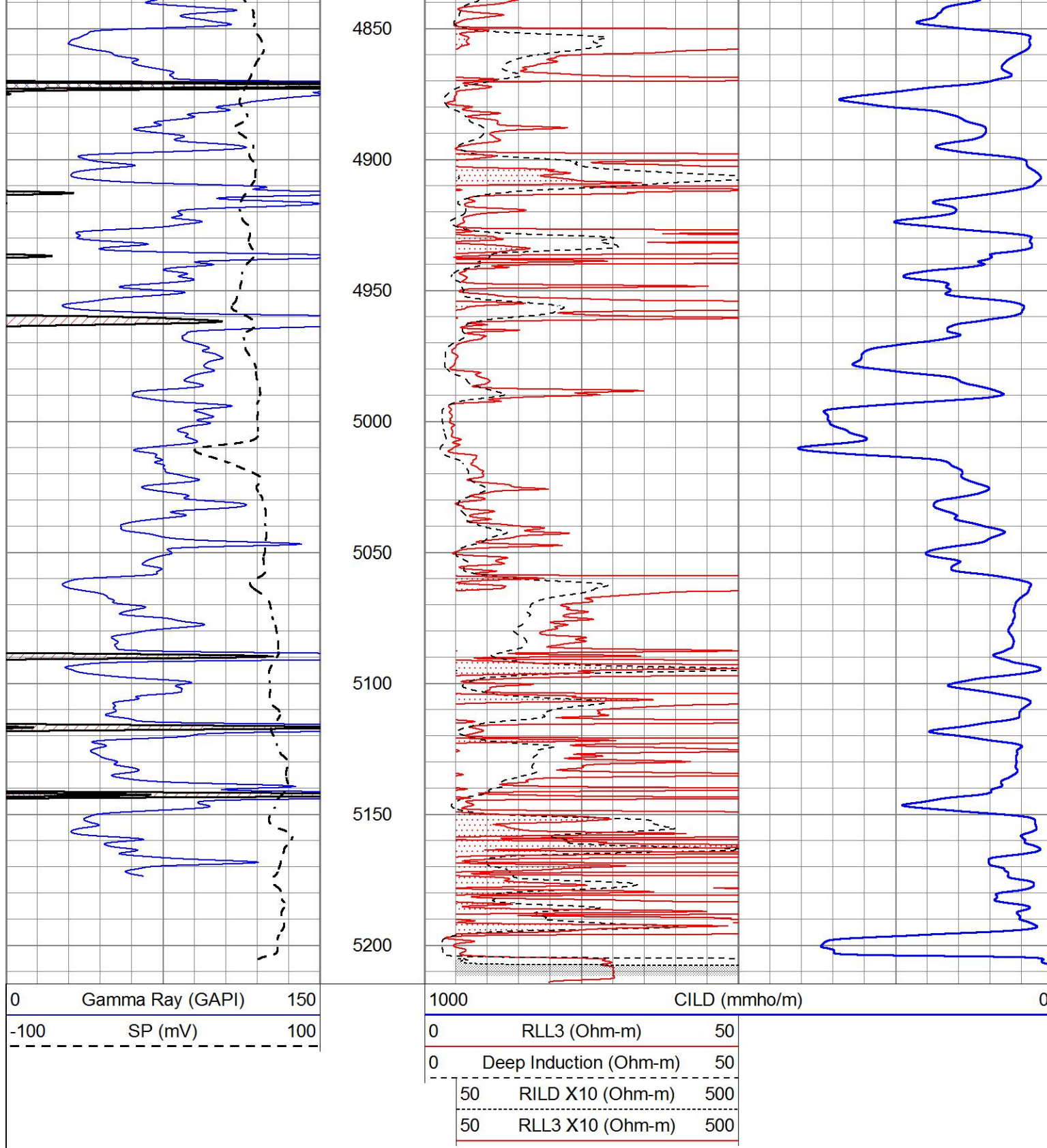
4650

4700

4750

4800

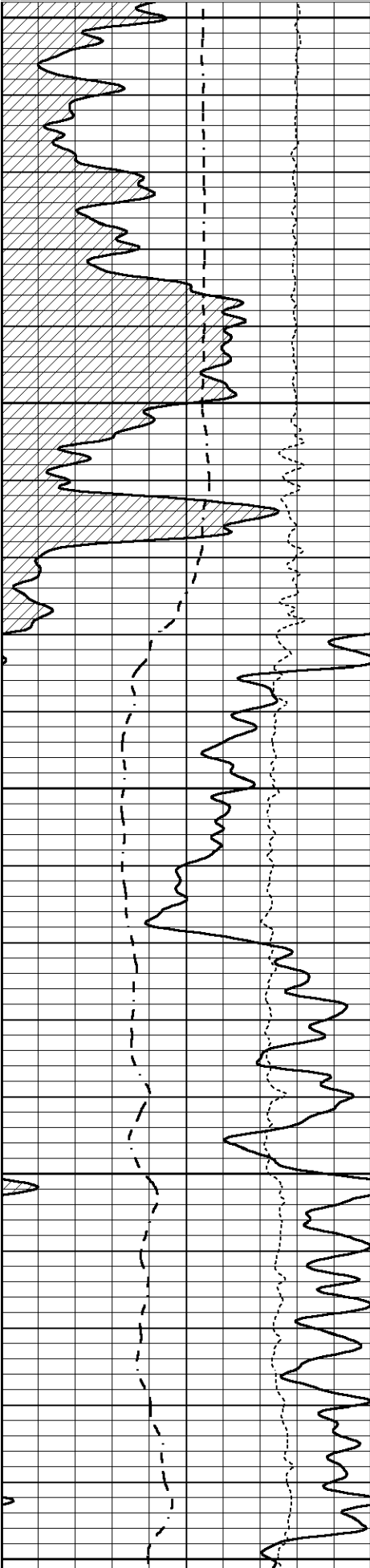




UPPER SECTION

Database File 5854pe.db
 Dataset Pathname pass4.1.1
 Presentation Format _dil
 Dataset Creation Fri Sep 17 11:29:34 2021
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50



1550

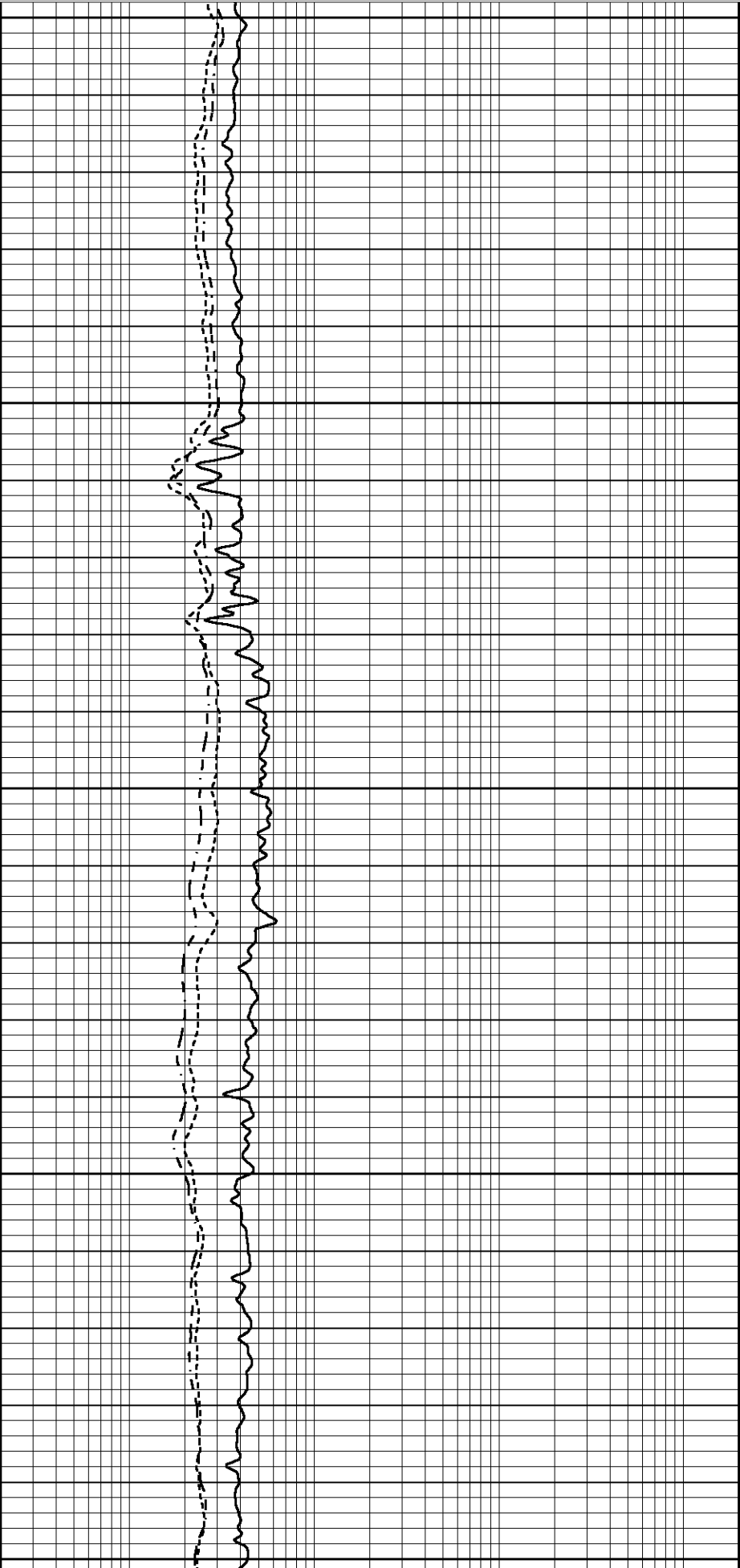
1600

1650

1700

1750

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

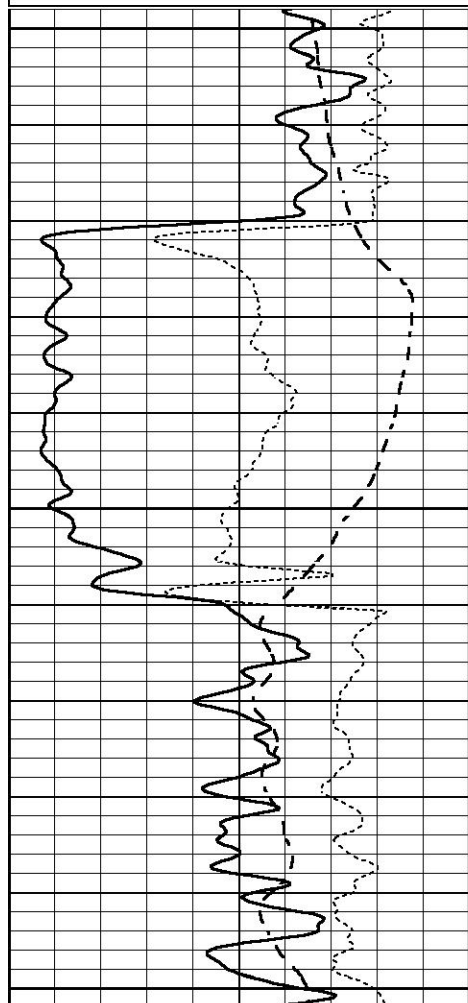


ANHYDRITE

Database File 5854pe.db
 Dataset Pathname pass4.2
 Presentation Format _dil
 Dataset Creation Fri Sep 17 11:03:51 2021
 Charted by Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

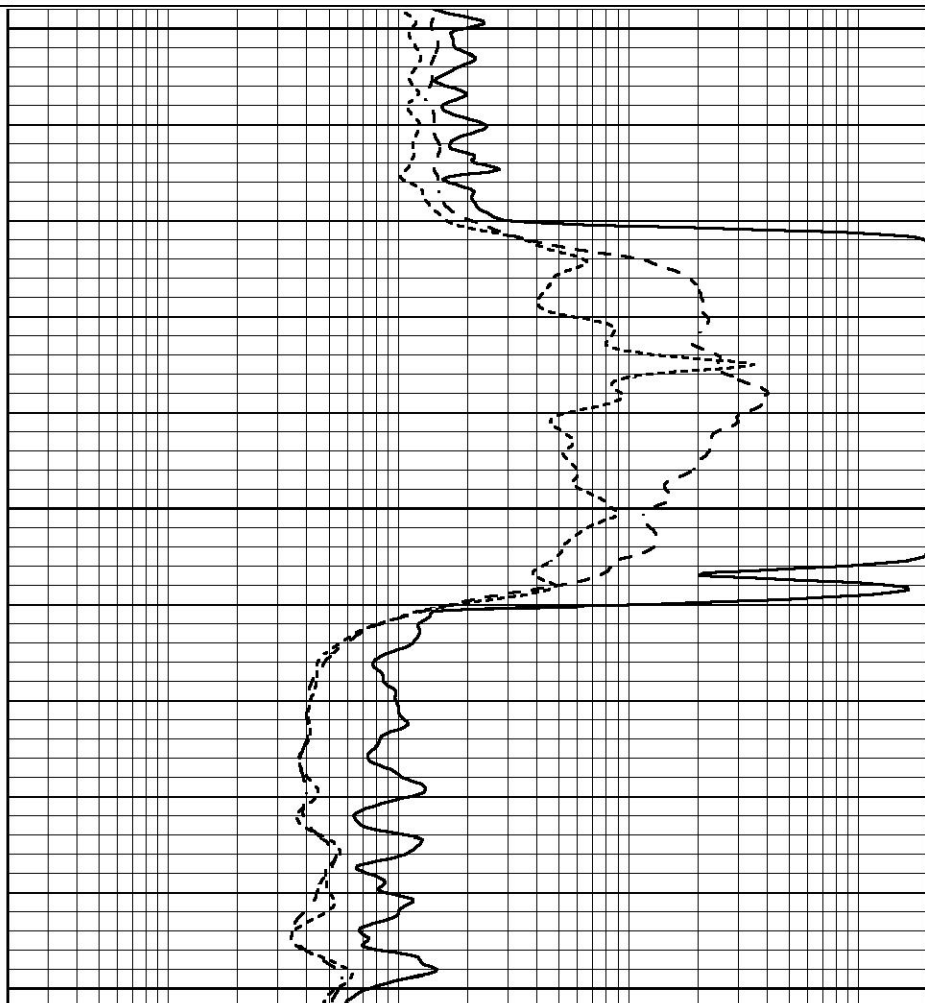
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



3650

3700

3750



0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000

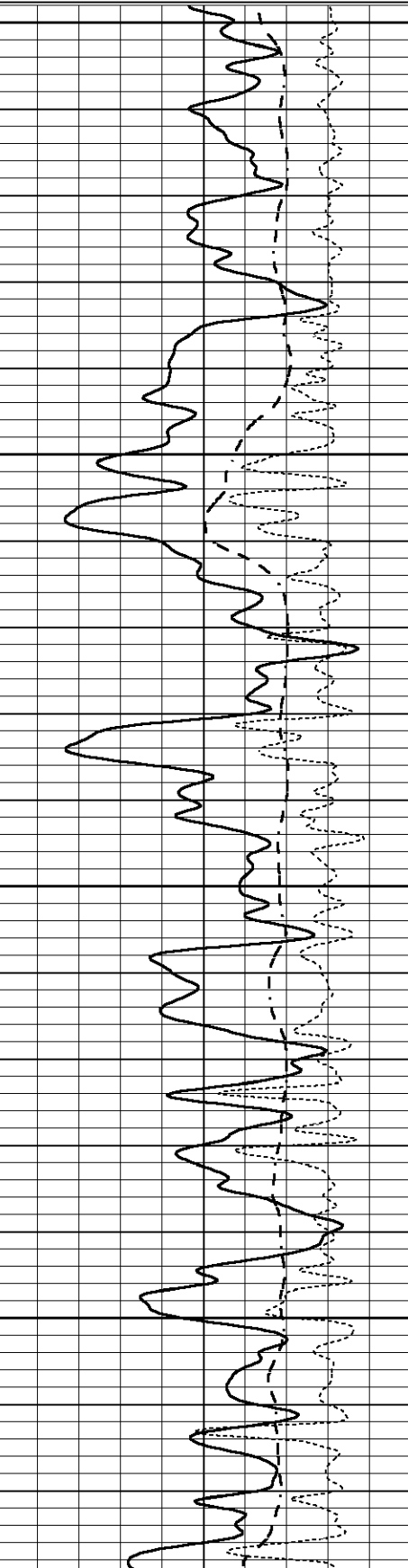


MAIN SECTION

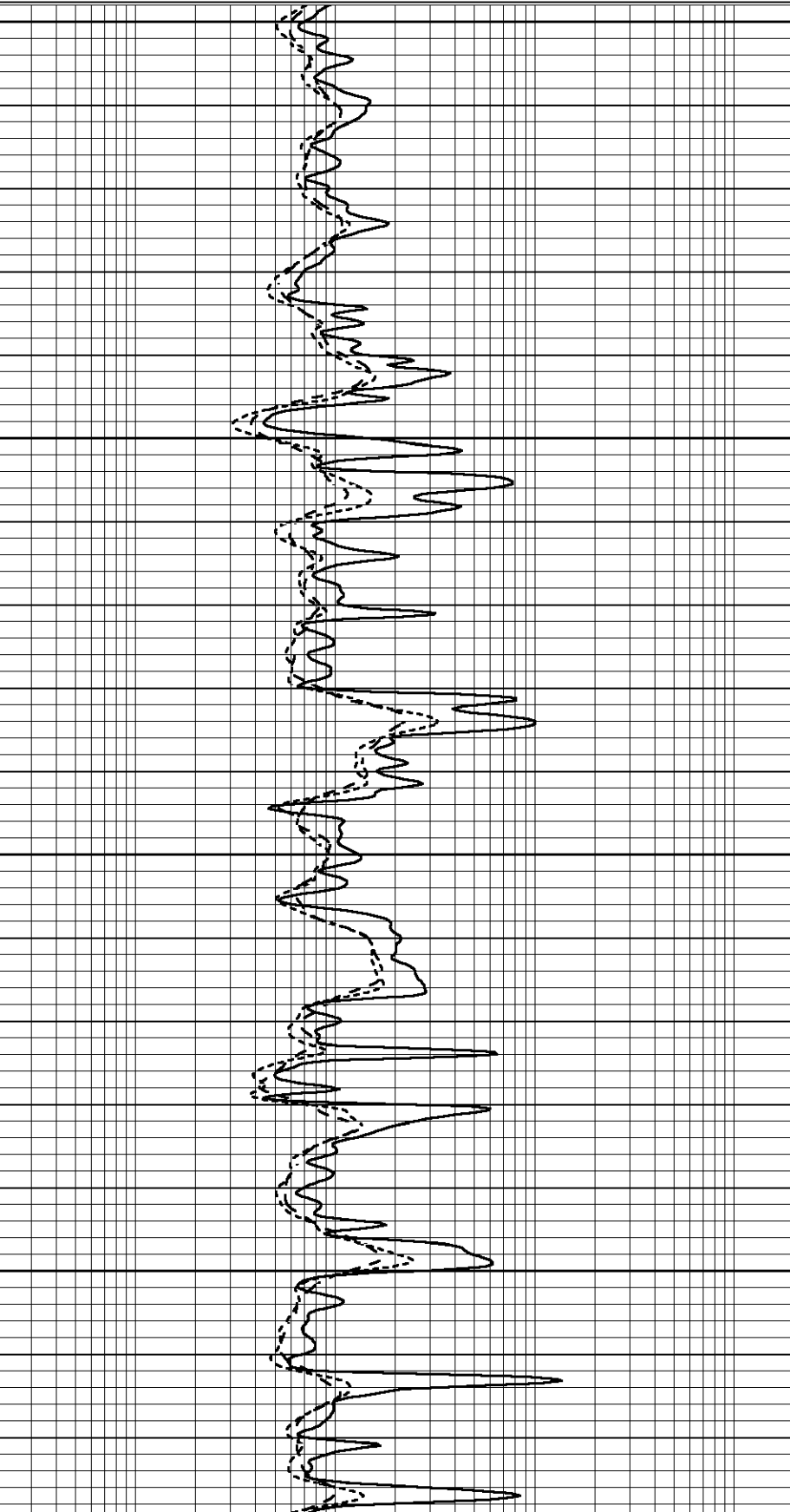
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Dataset Pathname pass4.1
Presentation Format _dil
Dataset Creation Fri Sep 17 11:00:10 2021
Charted by Depth in Feet scaled 1:240

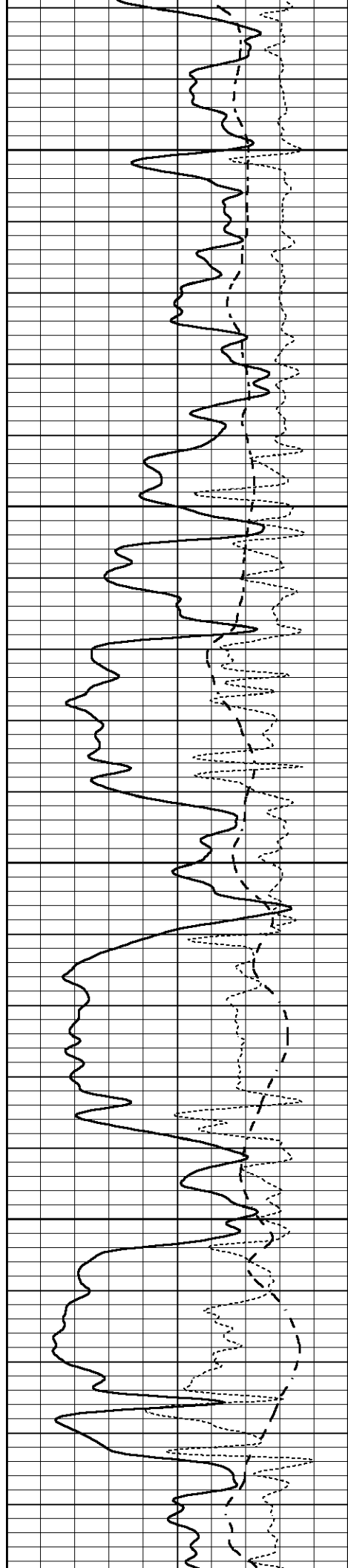
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50

0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000



4200
4250
4300
4350



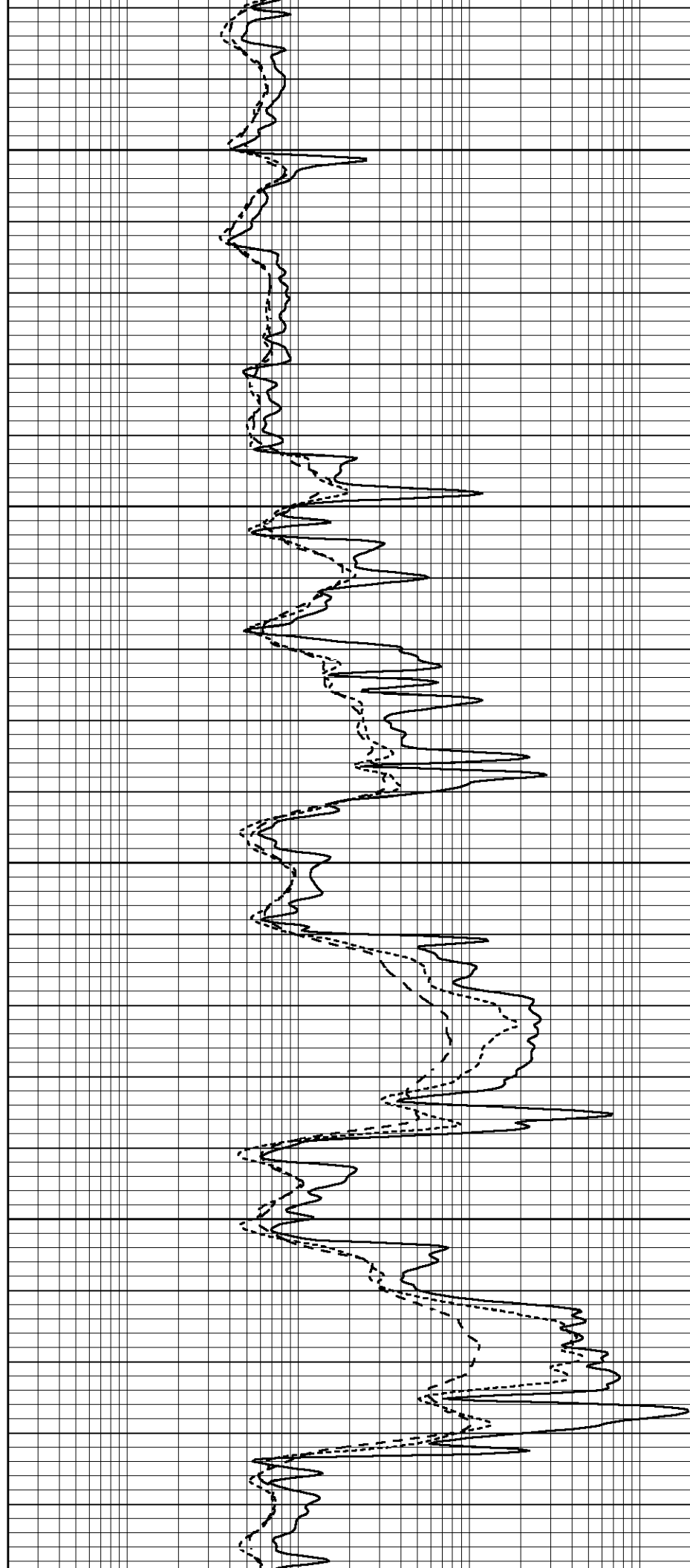


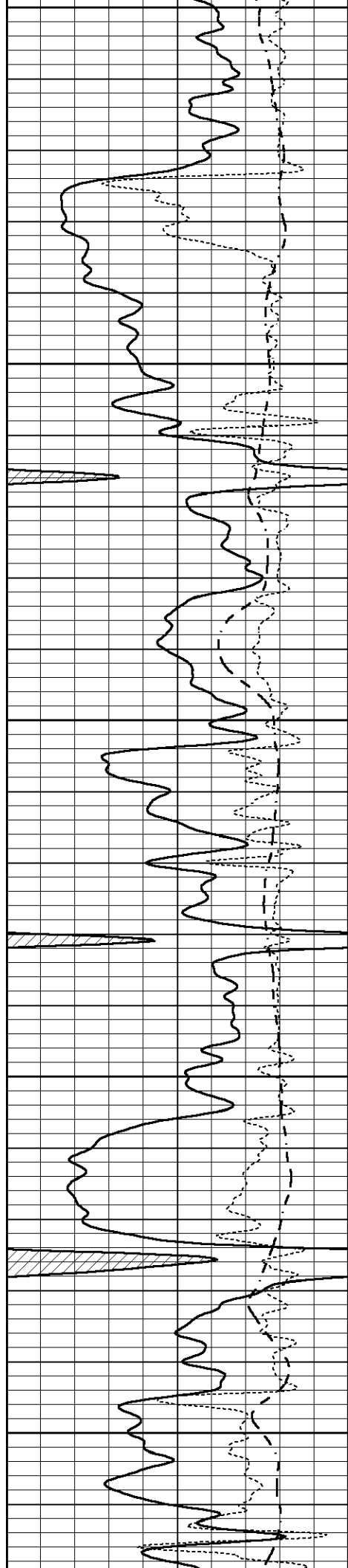
4400

4450

4500

4550





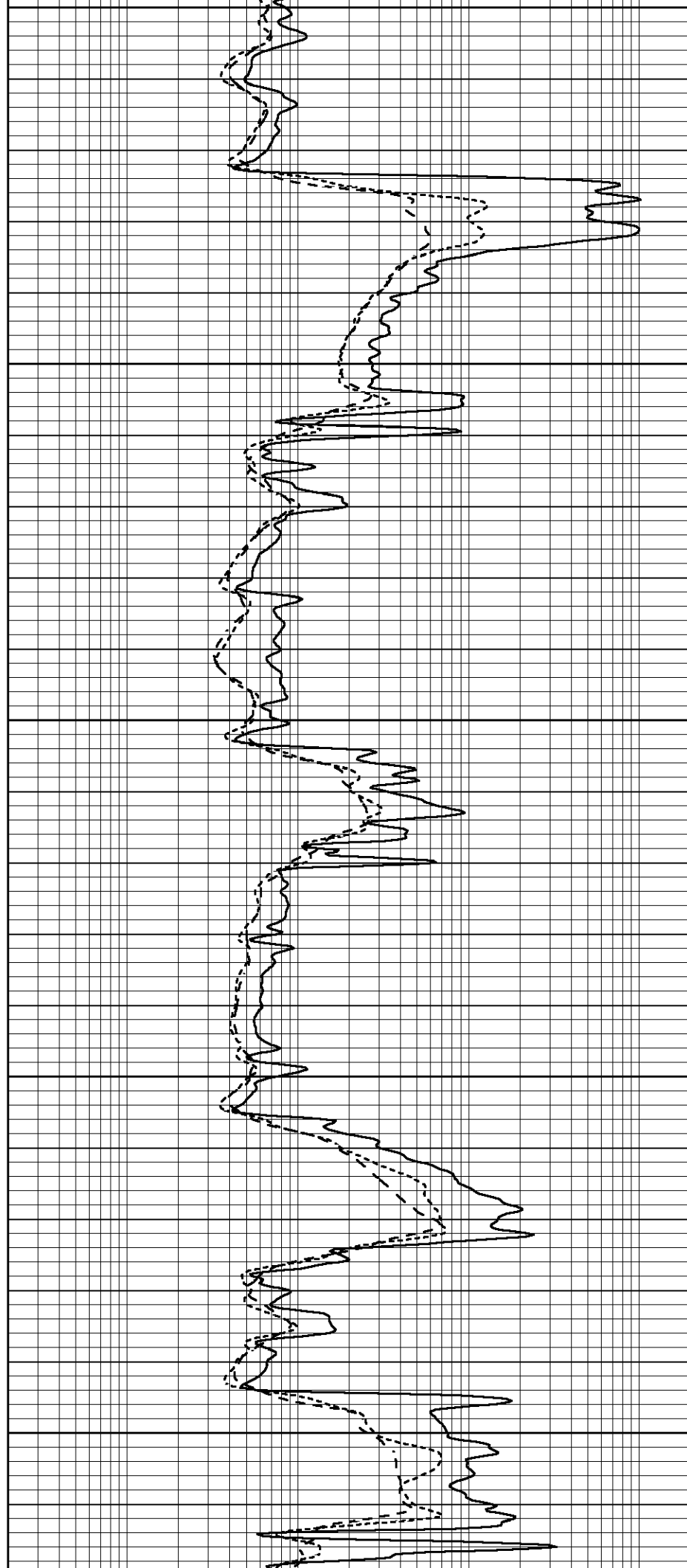
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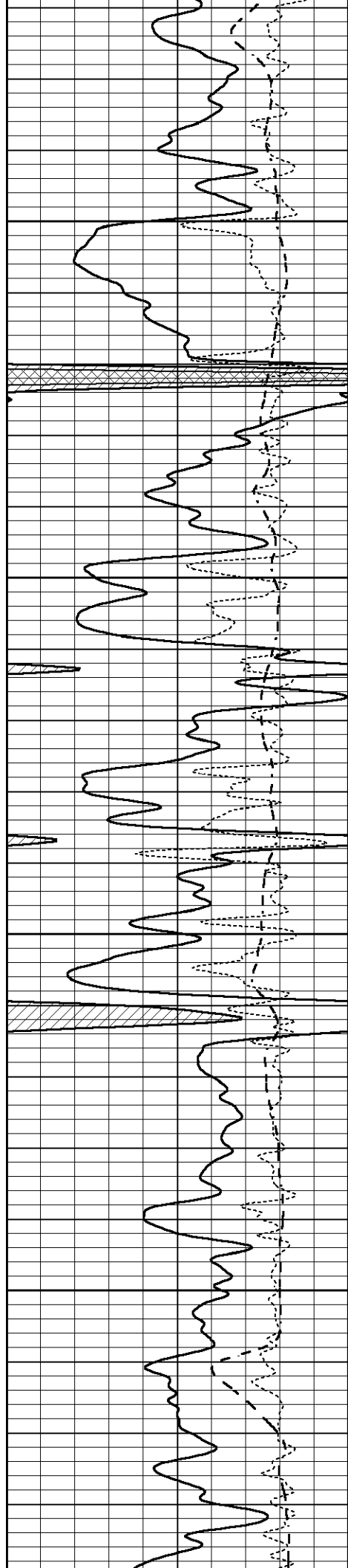
4650

4700

4750

4800



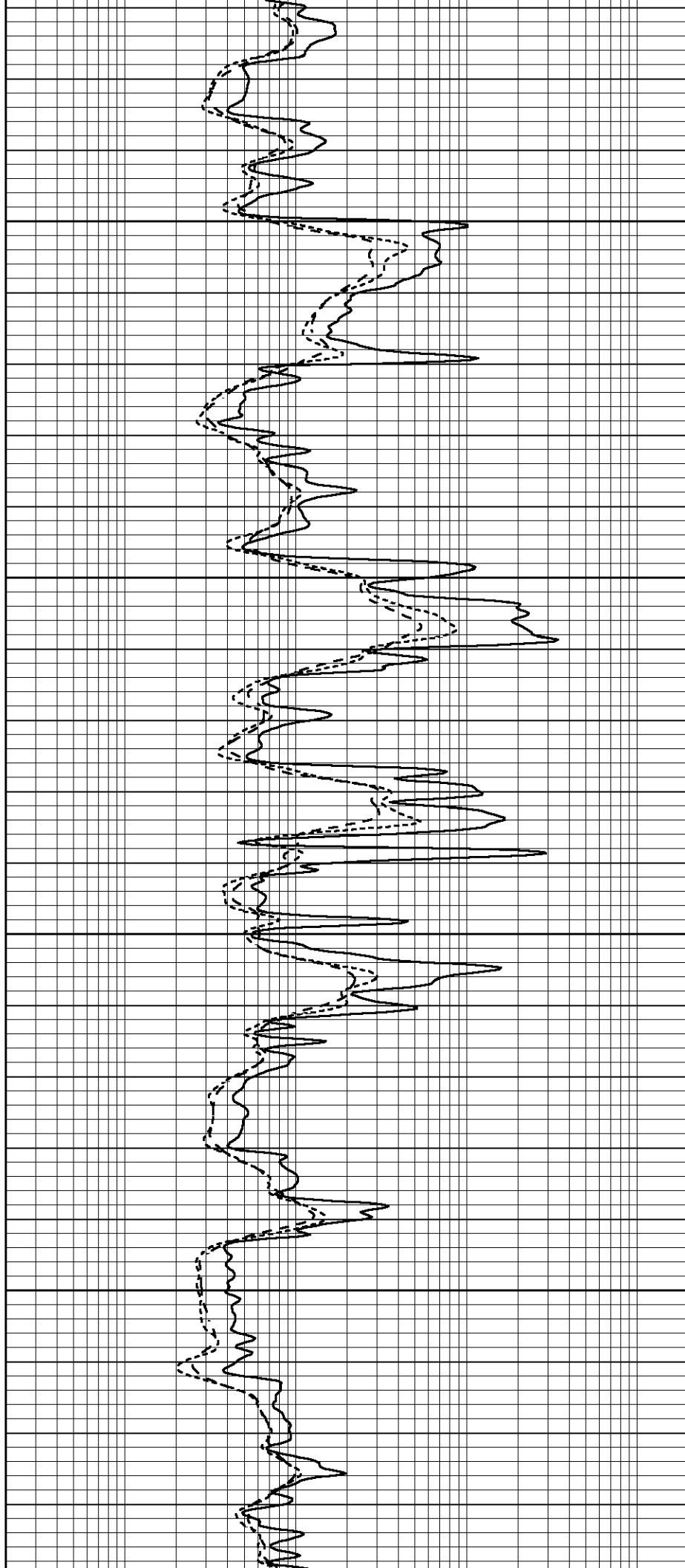


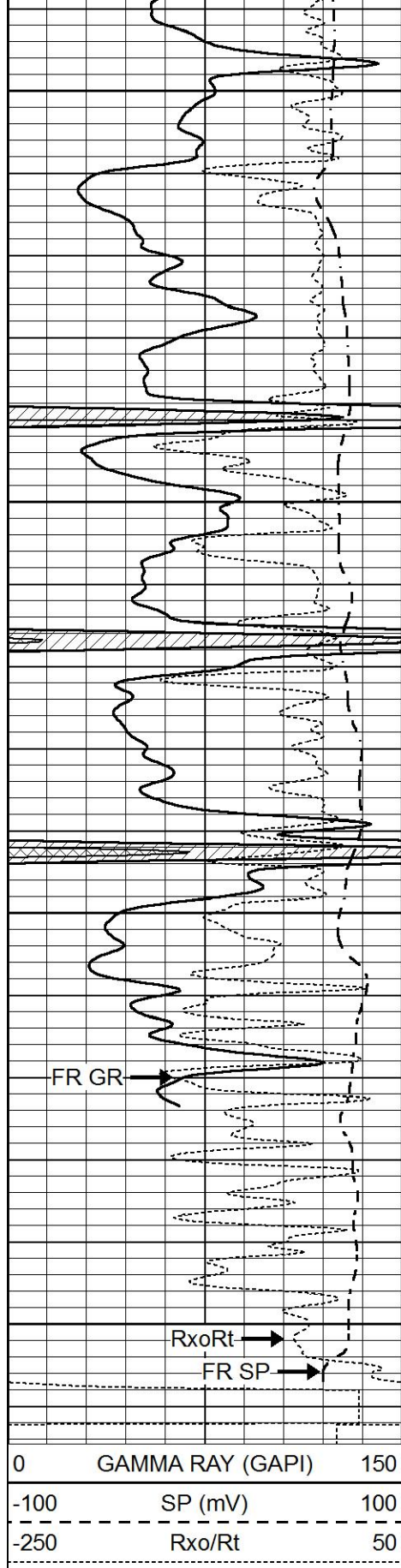
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4900

4950

5000





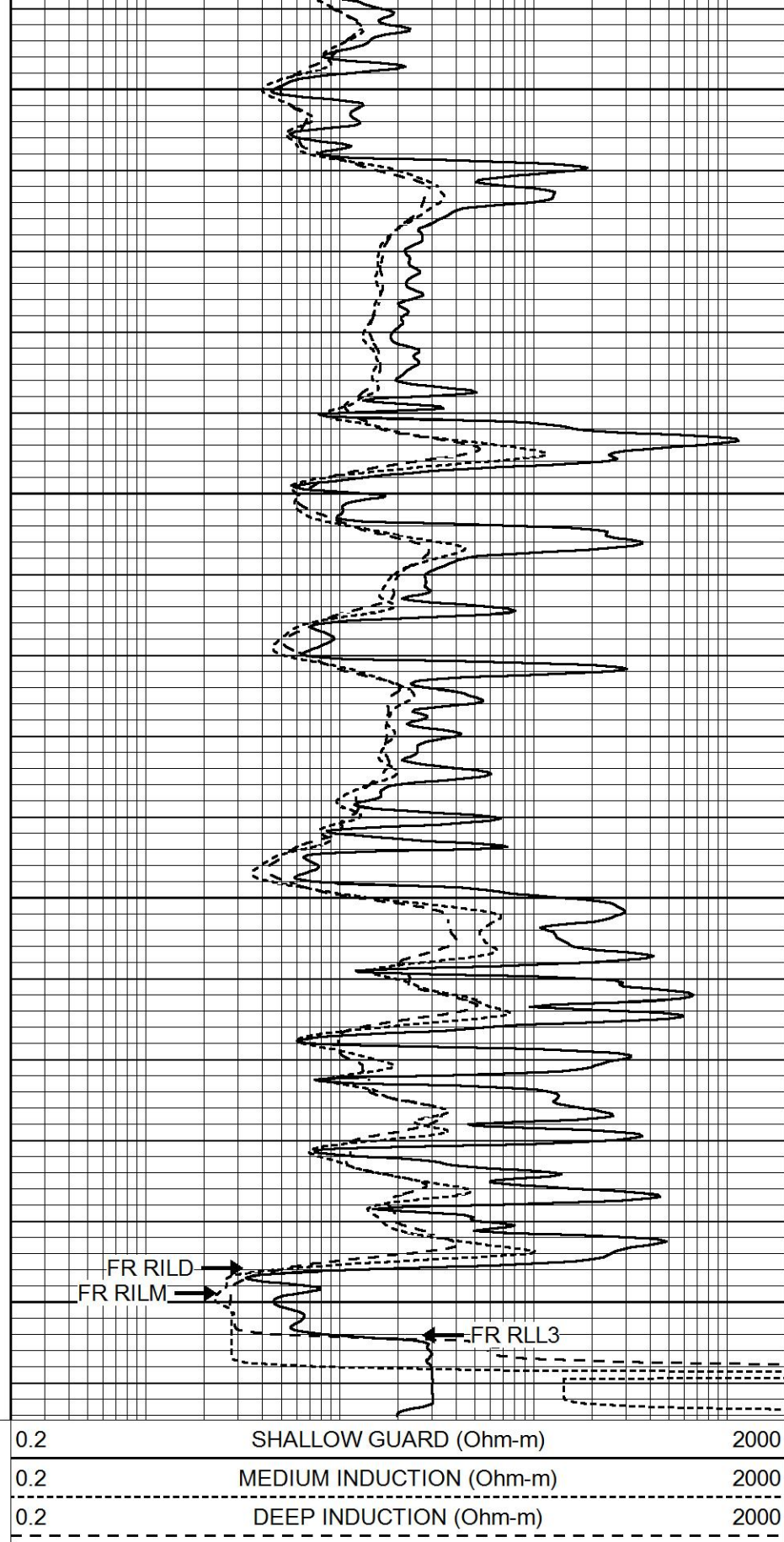
5050

5100

5150

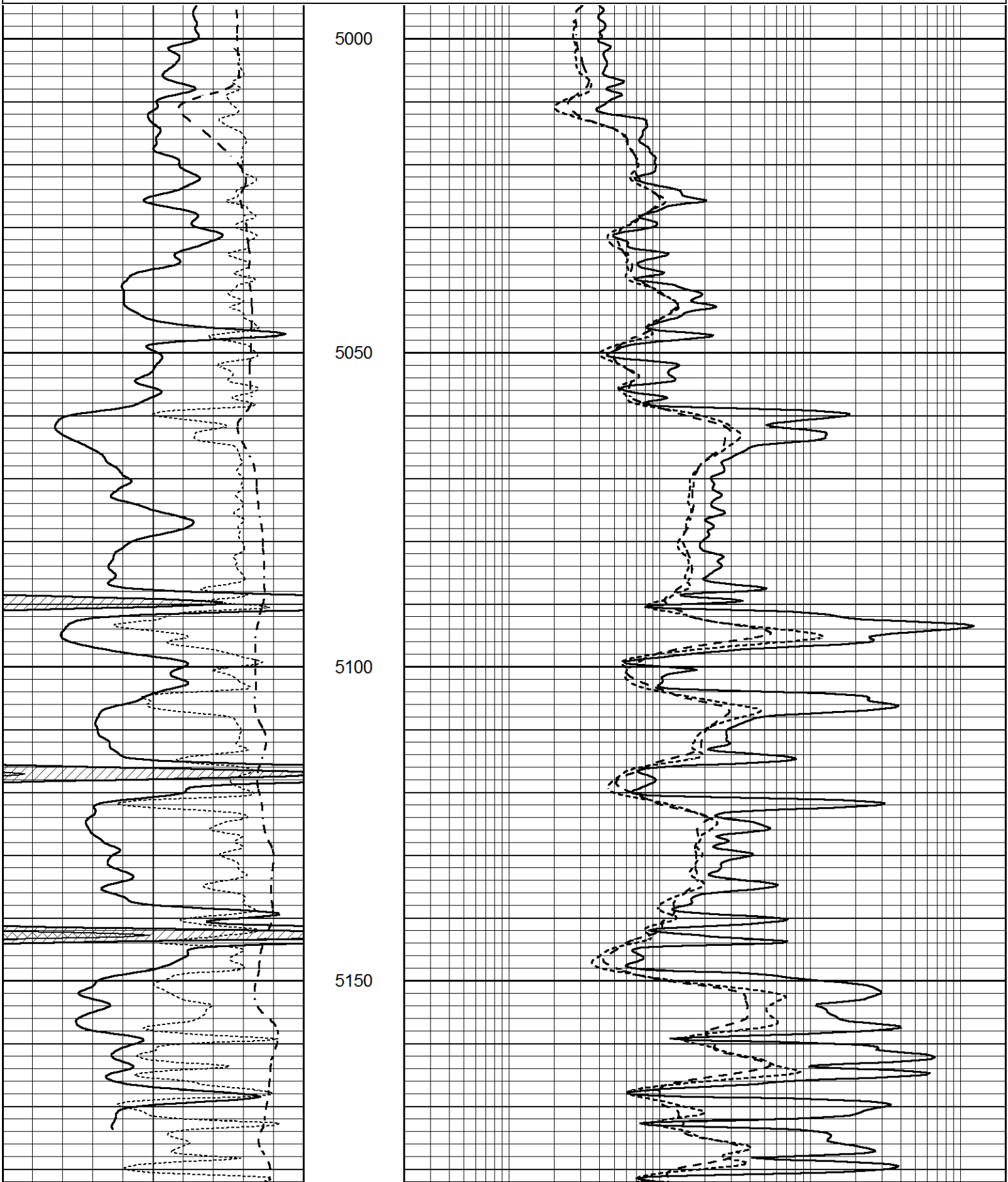
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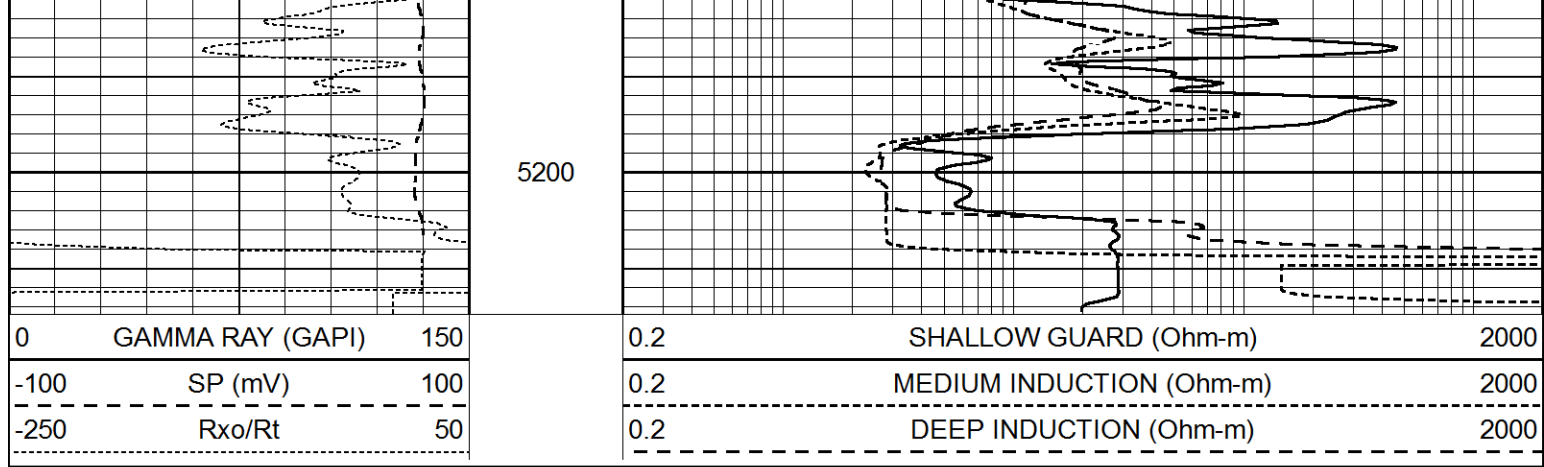
LTD 5206



REPEAT SECTION

0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	MEDIUM INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	DEEP INDUCTION (Ohm-m)	2000





Calibration Report

Database File	5854pe.db
Dataset Pathname	pass3.1
Dataset Creation	Fri Sep 17 10:59:00 2021

Dual Induction Calibration Report

Serial-Model:	FW1410-55-Probe
Surface Cal Performed:	Tue Feb 19 11:44:18 2019
Downhole Cal Performed:	Tue Feb 19 11:44:24 2019
After Survey Verification Performed:	Tue Feb 19 11:44:27 2019

Surface Calibration

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.011	0.656	V	1.000	400.000	mmho/m	618.595	-5.524
Medium	-0.000	0.731	V	1.000	464.000	mmho/m	632.856	1.197
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.007	0.649	V	0.000	400.000	mmho/m	623.784	-4.595
Medium	0.004	0.743	V	0.000	464.000	mmho/m	627.284	-2.251

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	-0.824	395.917	mmho/m	-0.976	397.550	mmho/m	1.004	-0.149
Medium	3.565	471.327	mmho/m	3.468	471.590	mmho/m	1.001	-0.099
LL3		7.503	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.481	V		3745.000	mmho-m		

After Survey Verification

	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.824	395.917	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	3.565	471.327	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1500.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		3745.000	mmho-m		

Litho Density Calibration Report

Serial: 140703
Model: V4_10P
Source Number: 74GBq-19

Master Calibration			Performed: Wed Dec 02 12:04:44 2020	
	Background	Aluminum	Magnesium	
Window 1	595.38	5386.50	23898.92	cps
Window 2	52.78	1248.21	5993.75	cps
Window 4	251.36	1200.30	5155.55	cps
Window 5	545.15	9066.30	17240.12	cps
Window 6	43.35	1491.73	2929.24	cps
Window 8	258.76	2917.82	5450.26	cps
Bulk Density	-	2.6020	1.6830	g/cc
Pe	-	3.0000	2.5070	b/e
LS Alpha:	: -1.8726	SS Alpha:	: -0.7656	LS CPE: : 1.0742
LS Beta:	: 127345.0723	SS Beta:	: 20293.3834	SS CPE: : 1.5427

Before Survey Background Counts Verification			Performed: Wed Dec 31 18:00:00 1969	
Window 1	0.00	cps		
Window 2	0.00	cps		
Window 4	0.00	cps		
Window 5	0.00	cps		
Window 6	0.00	cps		
Window 8	0.00	cps		

After Survey Background Counts Verification			Performed: Wed Dec 31 18:00:00 1969	
Window 1	0.00	cps		
Window 2	0.00	cps		
Window 4	0.00	cps		
Window 5	0.00	cps		
Window 6	0.00	cps		
Window 8	0.00	cps		

Lithodensity Caliper Calibration				Performed: Wed Dec 02 12:04:44 2020	
Results	Readings	References (in)			
Low	High	Low	High	Gain	Offset
8005.3	11087.2	8.0	14.0	0.0	-8.5

Before Survey Caliper Verification			Performed:	
	Reference	Reading		
	_____	_____		
Caliper (in)				

After Survey Caliper Verification			Performed:	
	Reference	Reading		
	_____	_____		
Caliper (in)				

Compensated Neutron Calibration Report				
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Serial Number:		080621PMC		
Tool Model:		NABORS		

PRE-SURVEY VERIFICATION			
Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu
POST-SURVEY VERIFICATION			
Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu
Gamma Ray Calibration Report			
Serial Number:	7		
Tool Model:	Probe1		
Performed:	Tue Jan 19 17:50:08 2021		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.5300	GAPI/cps	