



DUAL INDUCTION LOG

Company CHARTER ENERGY, INC.

Well KLUG #1

Field SUNFLOWER

County BARTON State KANSAS

Location: API #: 15-009-26291-0000

2025' FSL & 1890' FWL
SE - NW - NE - SW

SEC 8 TWP 17S RGE 12W

Permanent Datum GROUND LEVEL Elevation 1904
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING

Other Services
CDL/CNL
MEL
Elevation
K.B. 1912
D.F. 1910
G.L. 1904

Date	10/12/20
Run Number	ONE
Depth Driller	3490
Depth Logger	3490
Bottom Logged Interval	3488
Top Log Interval	00
Casing Driller	8 5/8"@400'
Casing Logger	400
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.1/54
pH / Fluid Loss	9.5/9.2
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.570@84F
Rmf @ Meas. Temp	.428@84F
Rmc @ Meas. Temp	.684@84F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.431@111F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	1:30 P.M.
Maximum Recorded Temperature	111F
Equipment Number	922339
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	JIM MUSGROVE

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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.

15-009-26291-0000

Comments

THANK YOU FOR USING E.L.I. WIRELINE SERVICES HAYS, KANSAS (785)628-6395
DIRECTIONS
BEAVER, KS., 4S., 1/2W., N. INTO

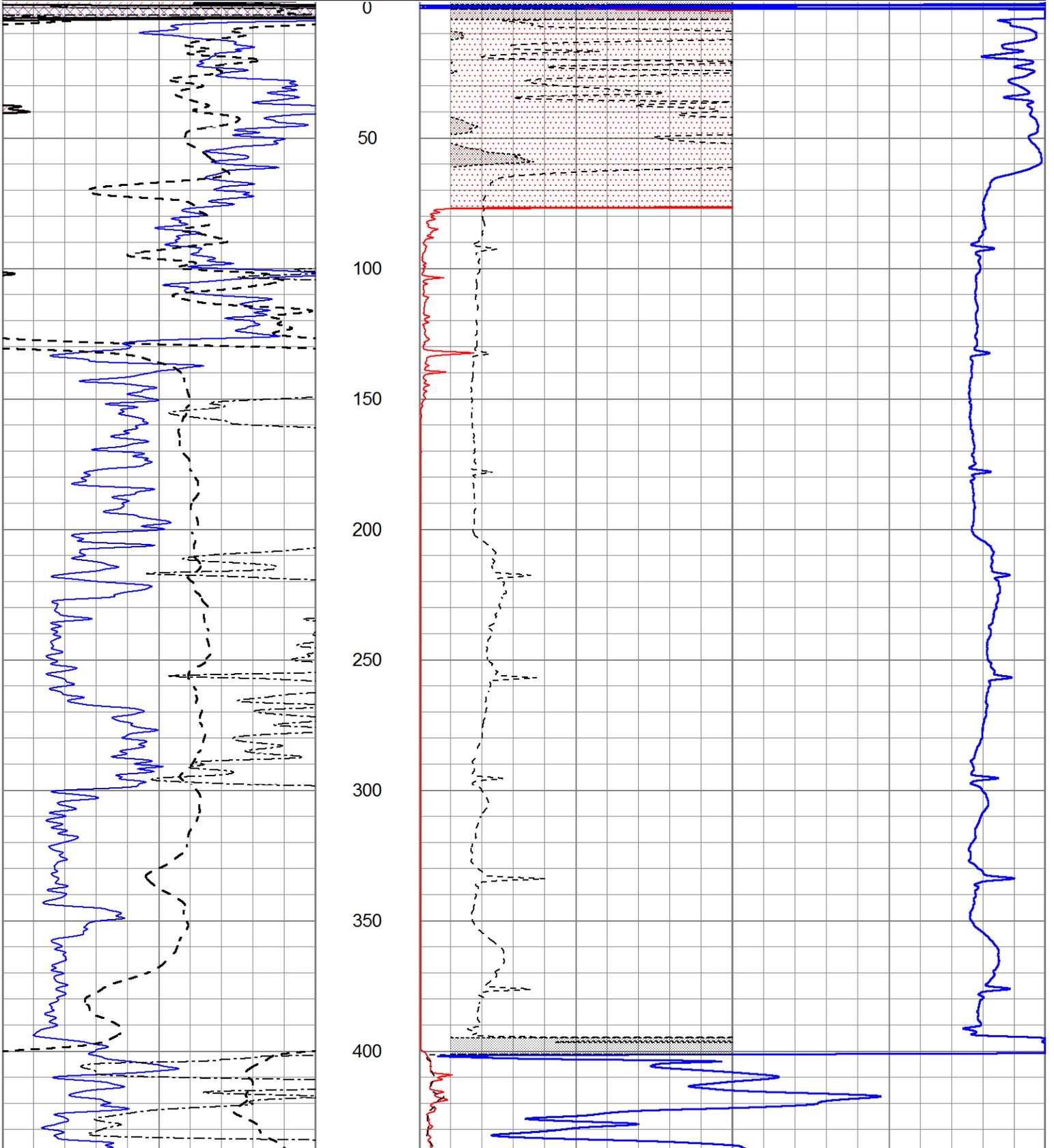


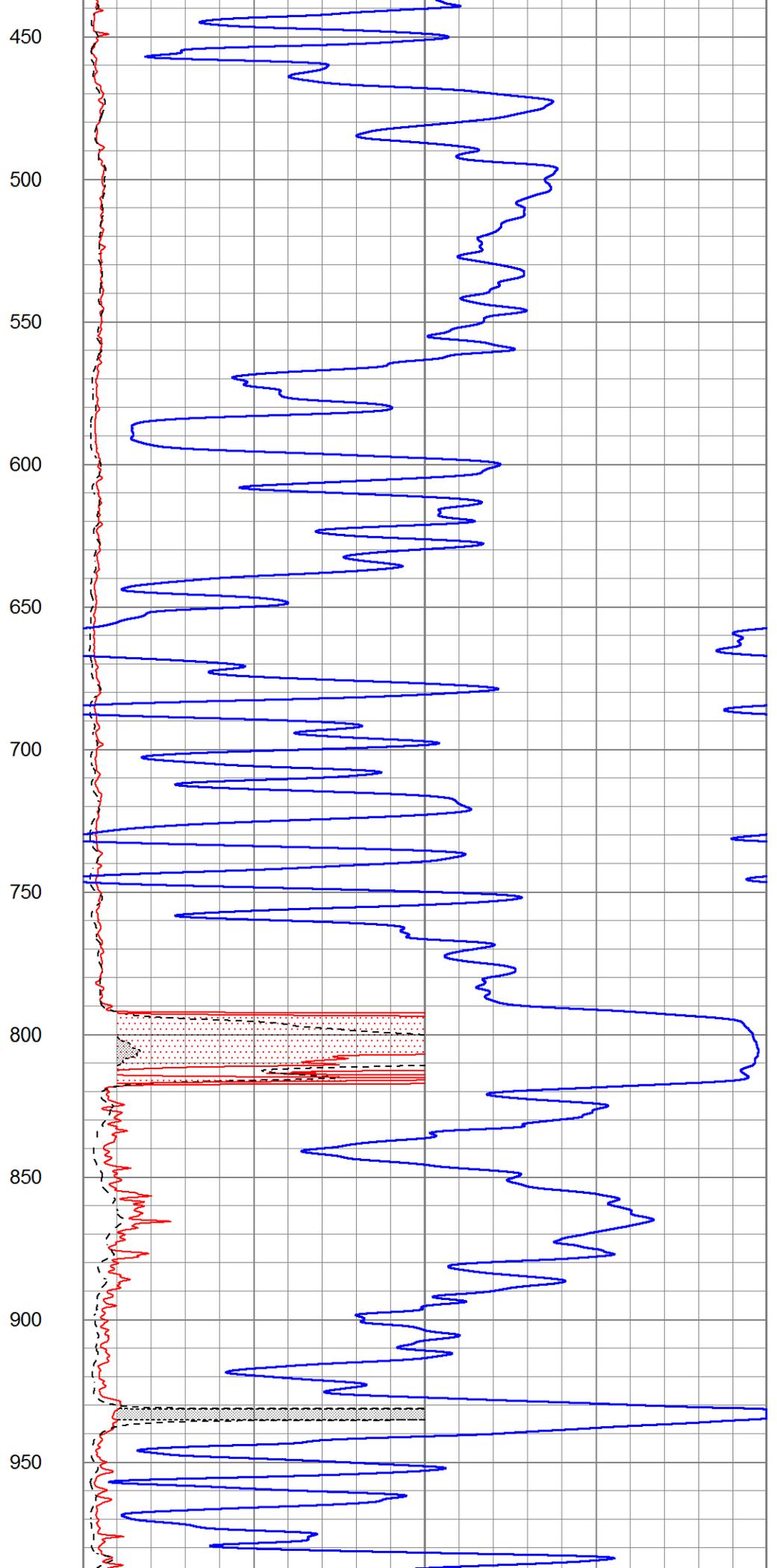
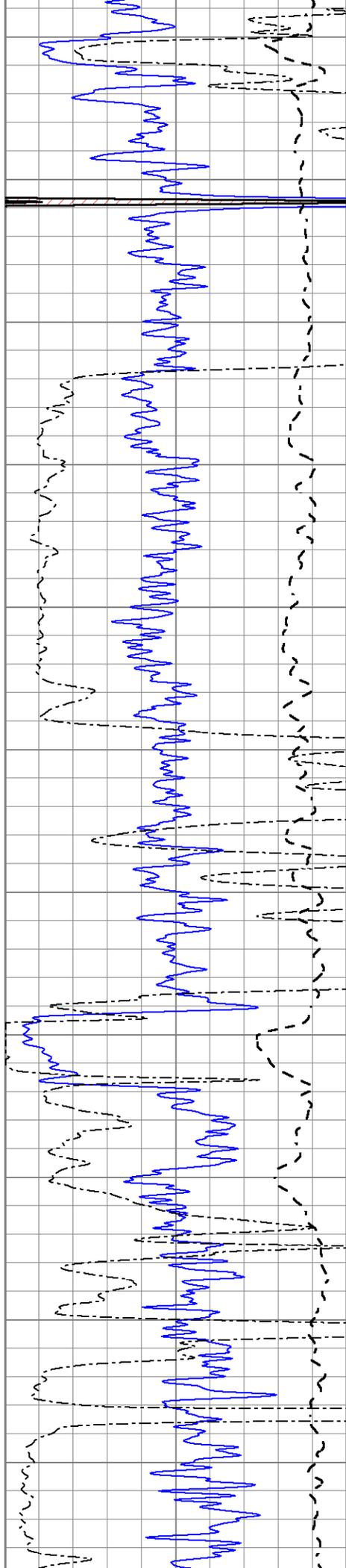
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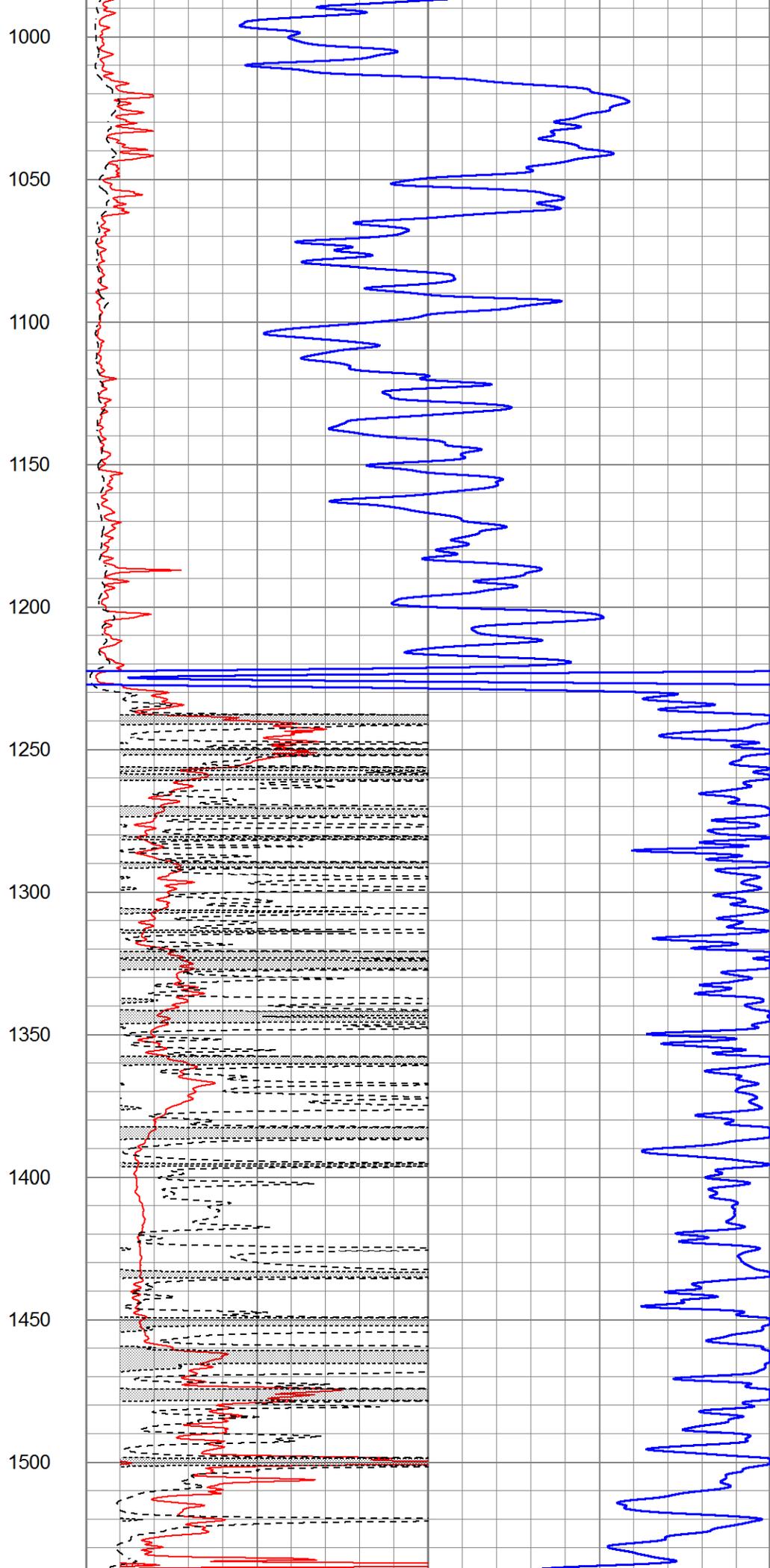
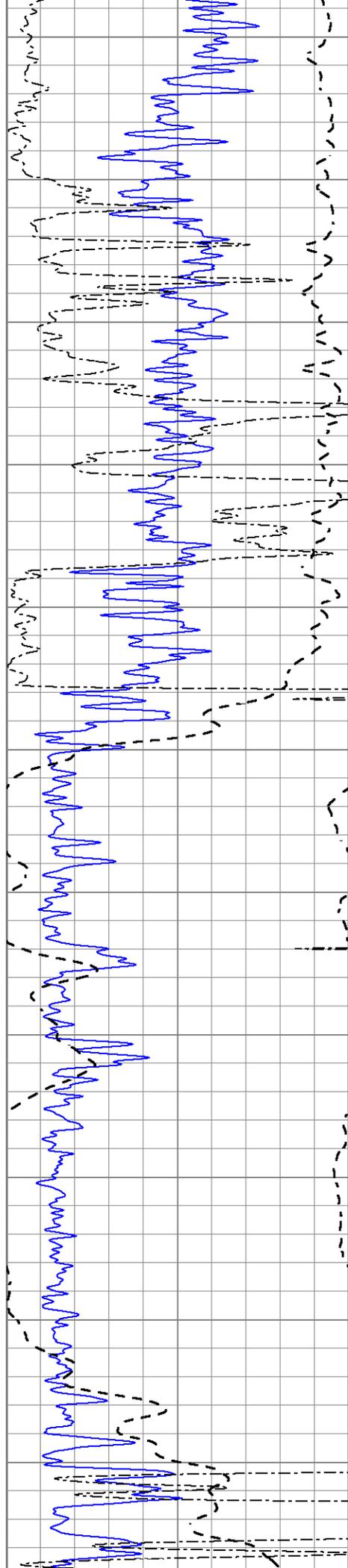
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 Charted by Depth in Feet scaled 1:600

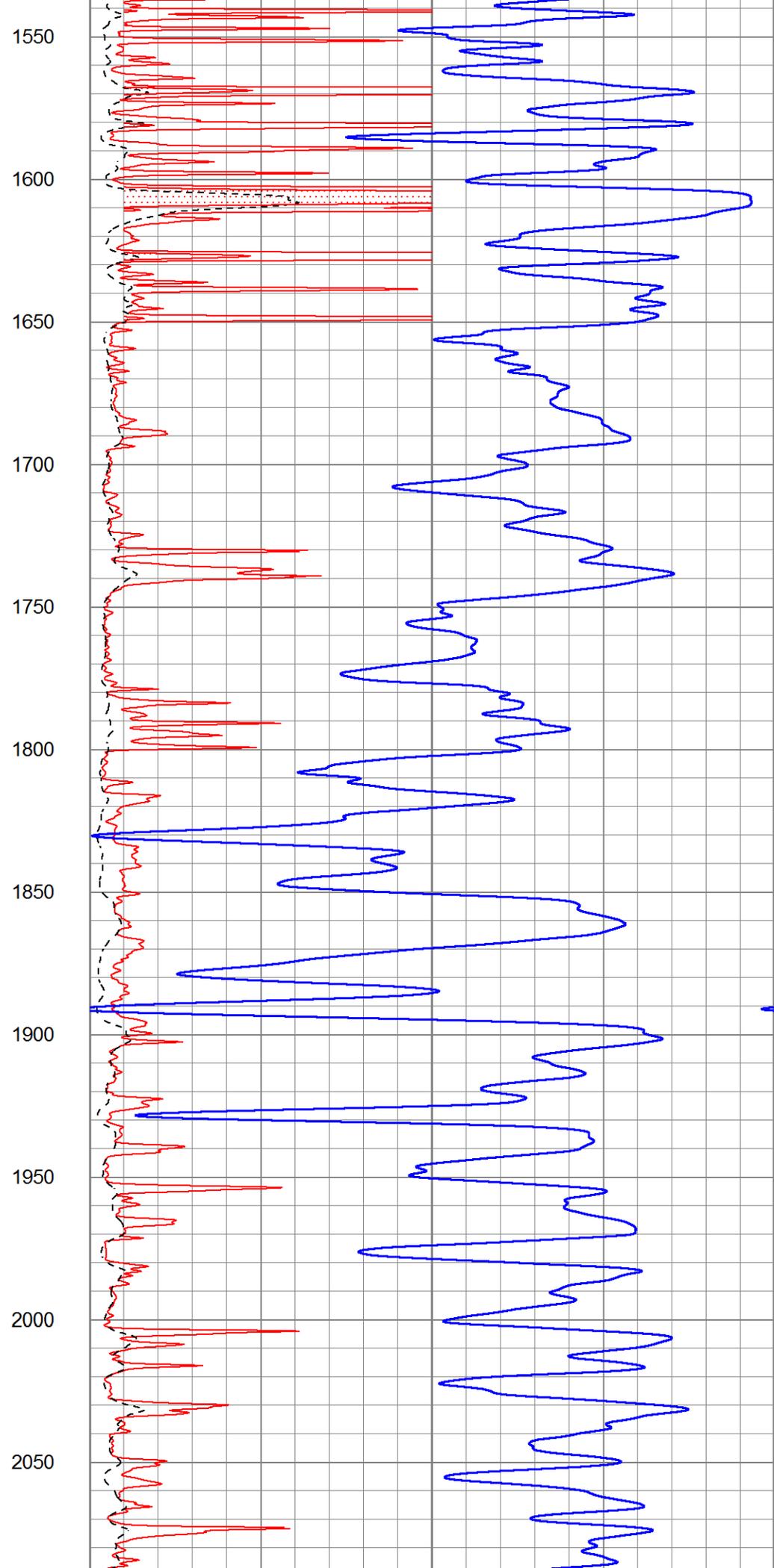
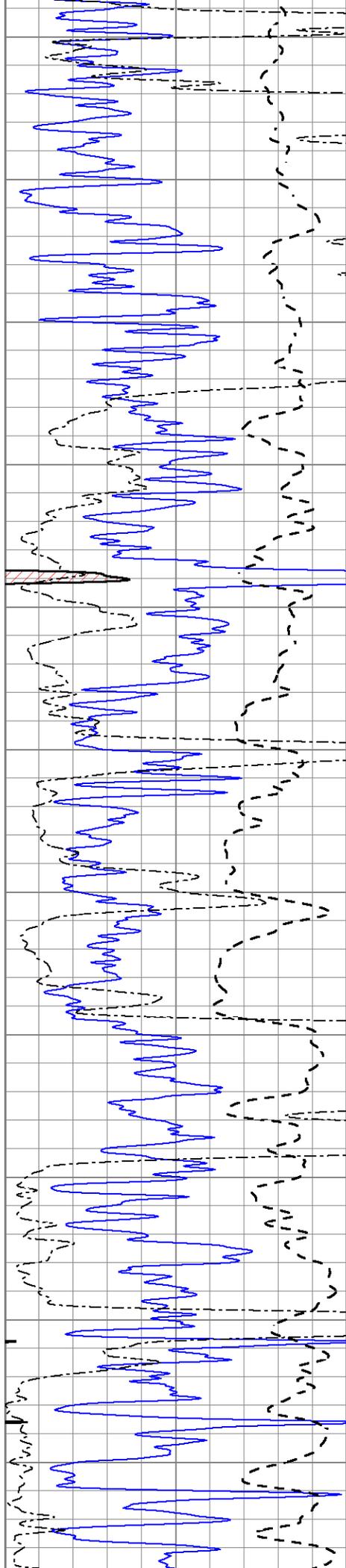
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100
0	RWA (Ohm-m)	1

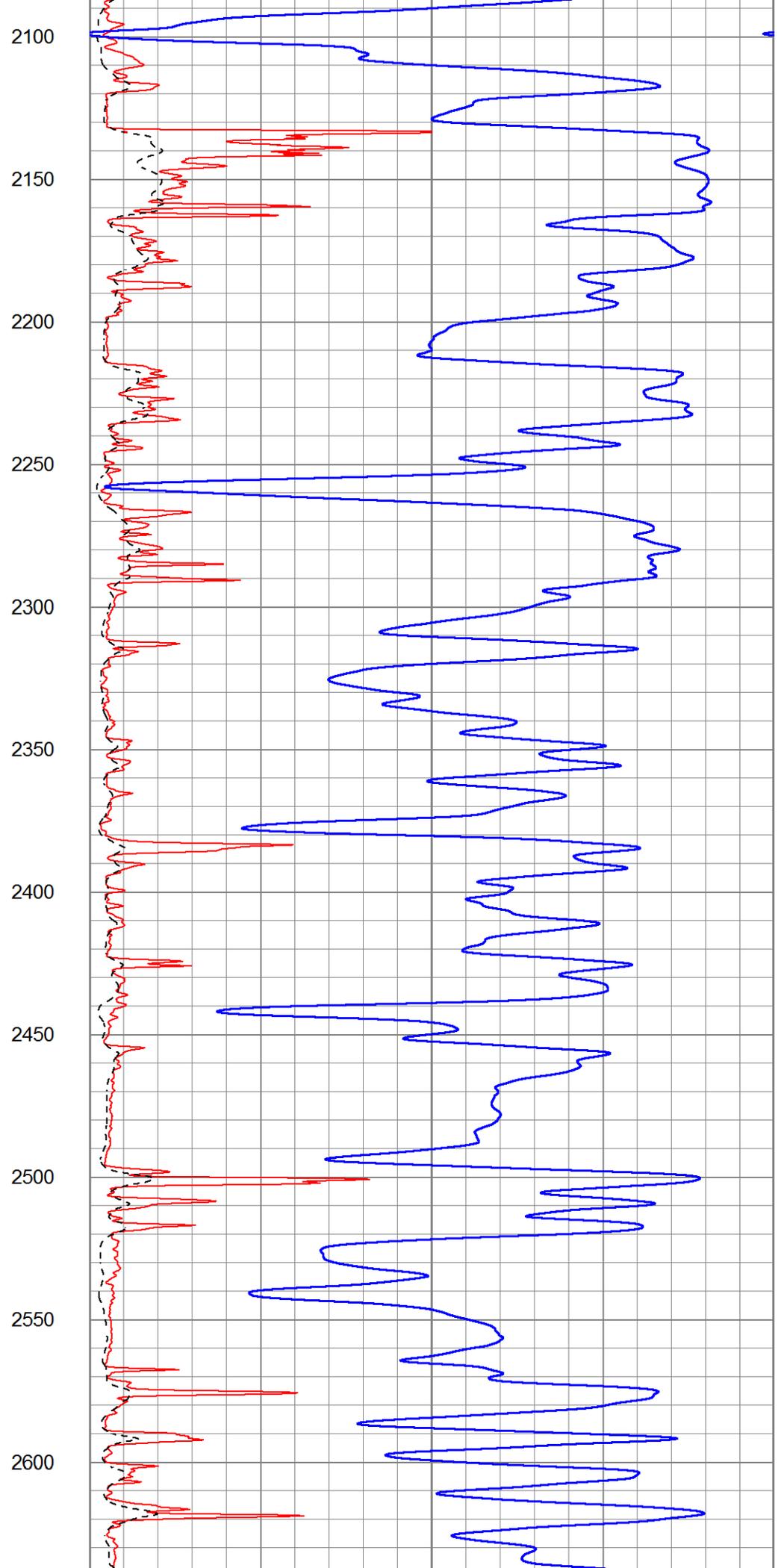
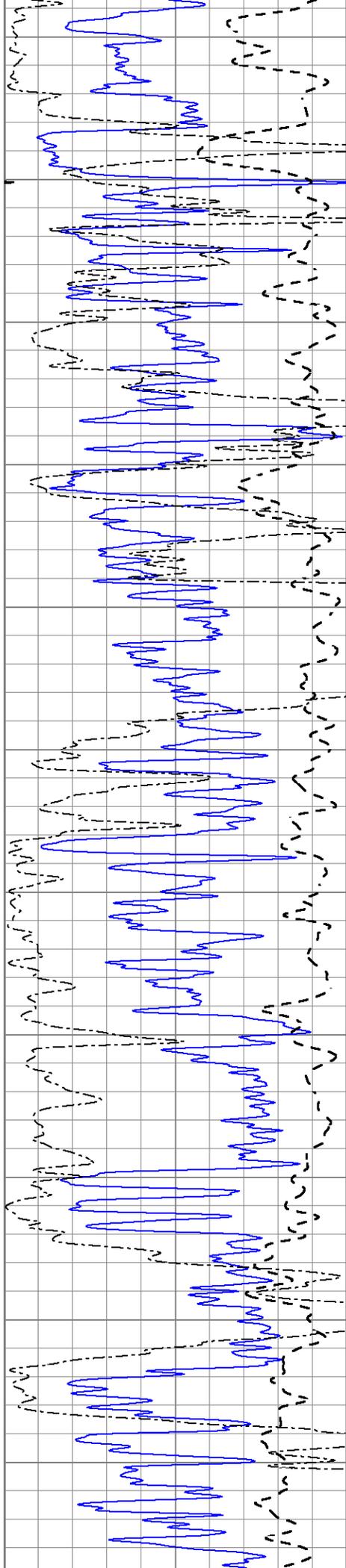
1000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

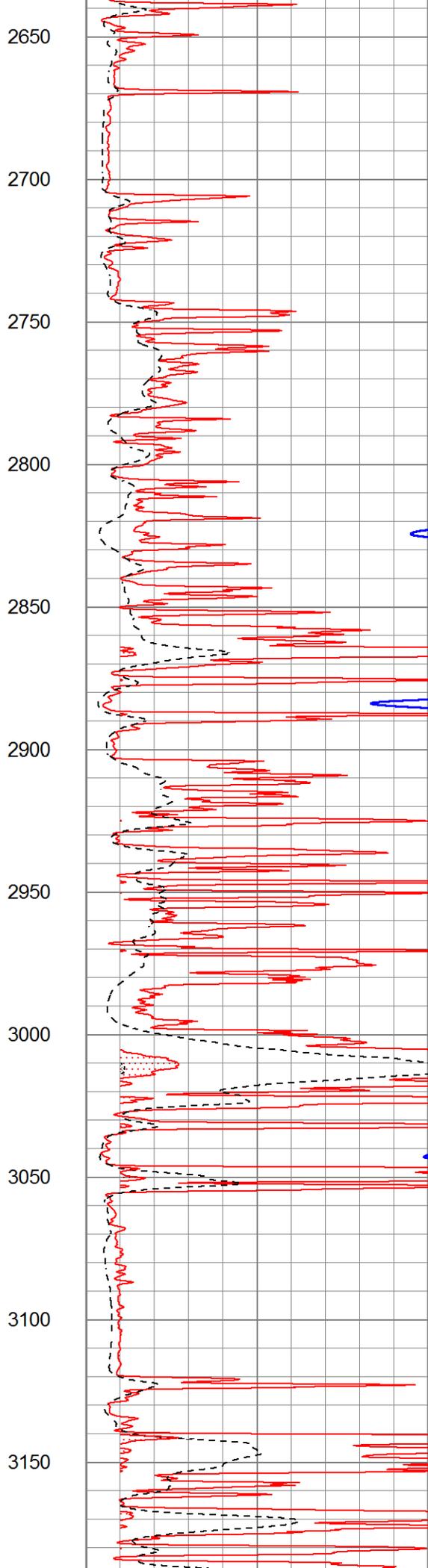
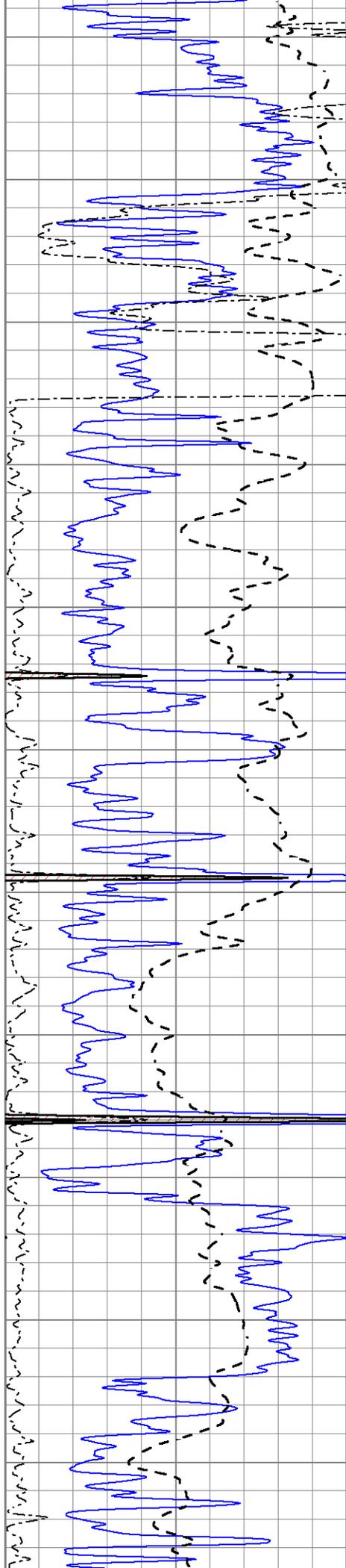


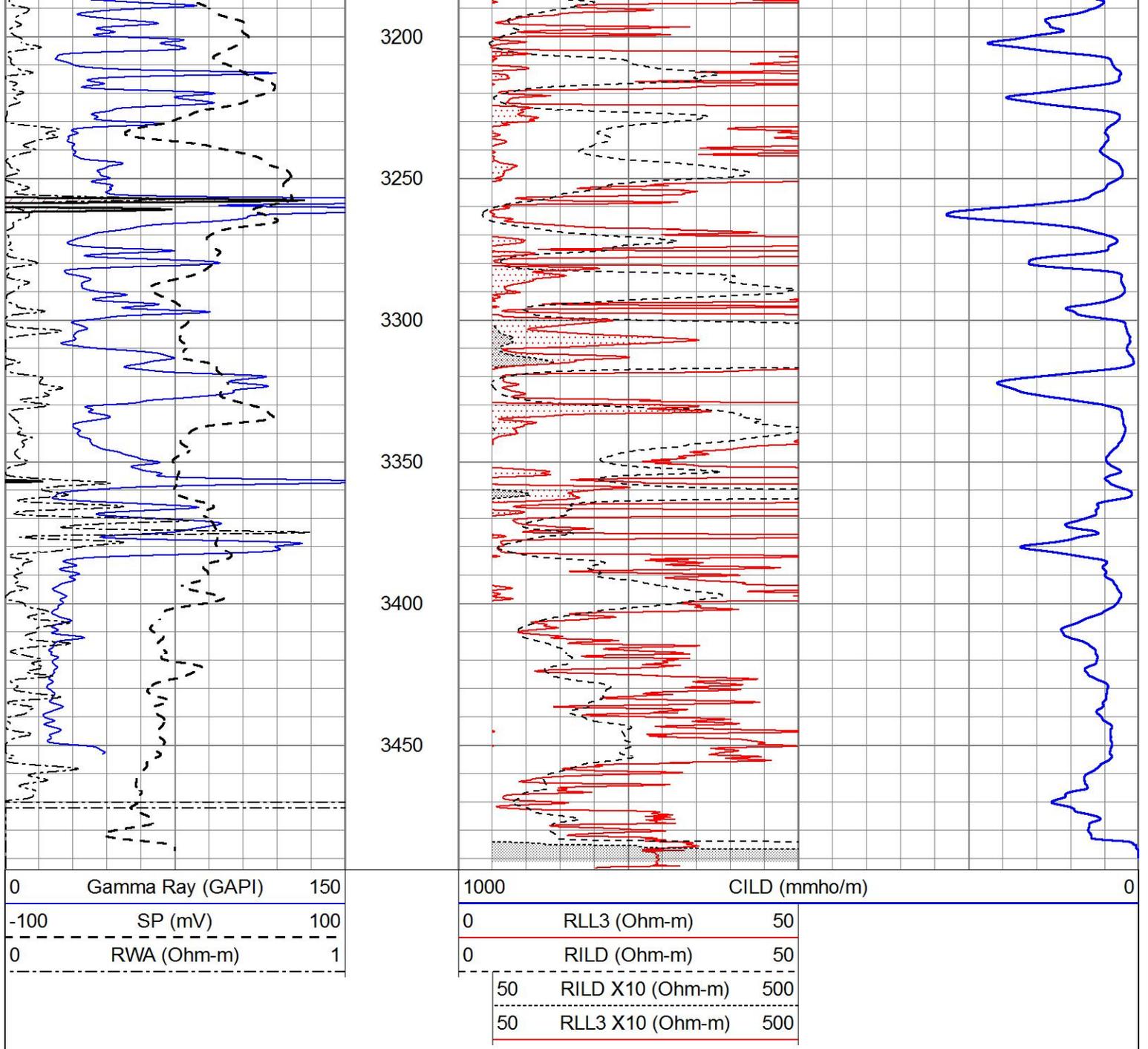








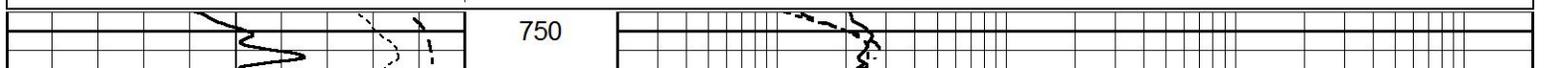


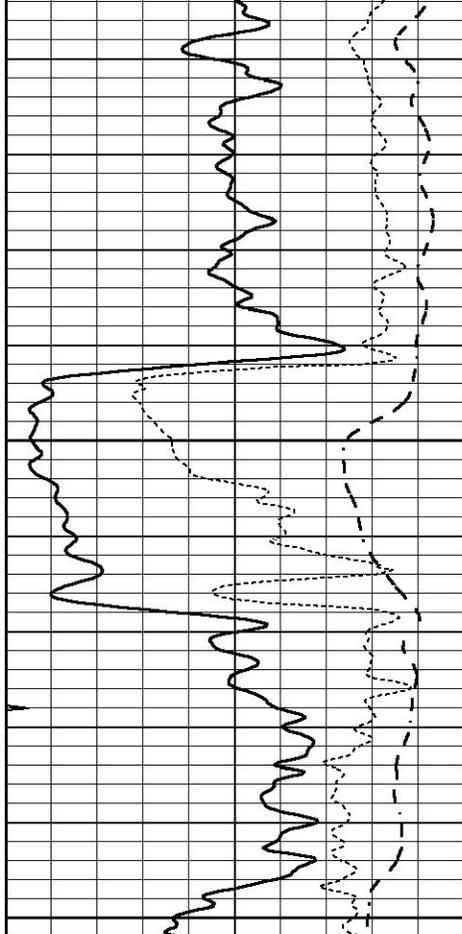


ANHYDRITE

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0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			

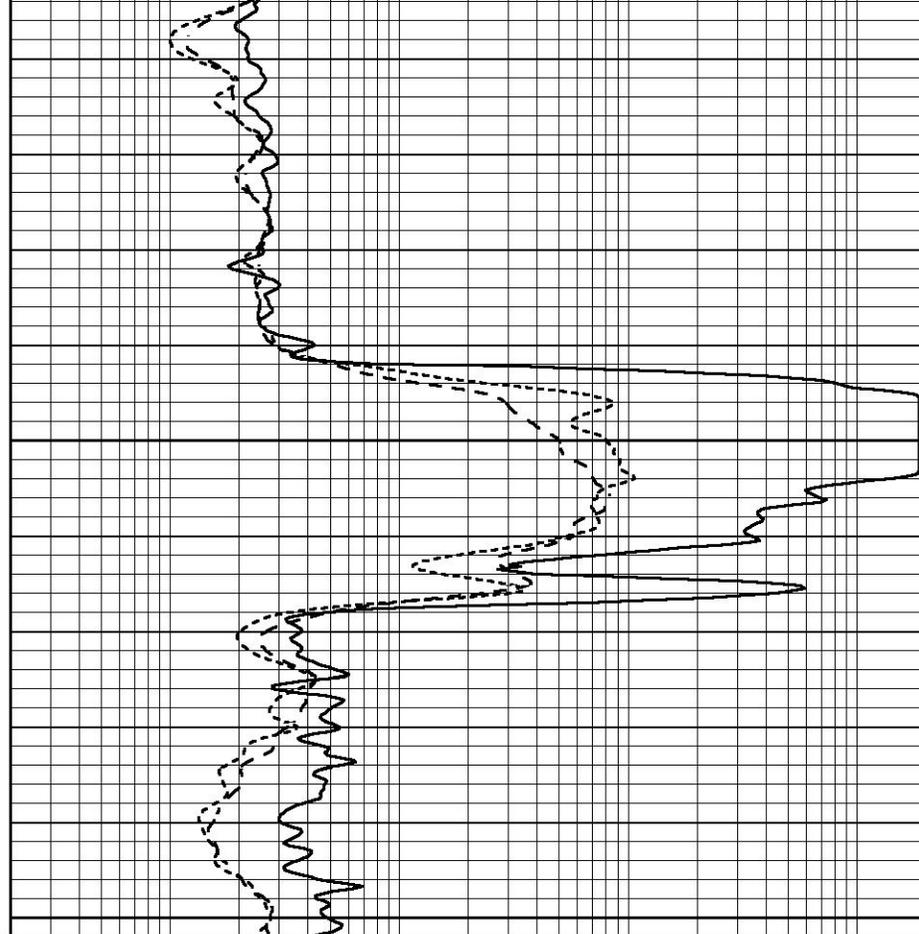




800

850

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20



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

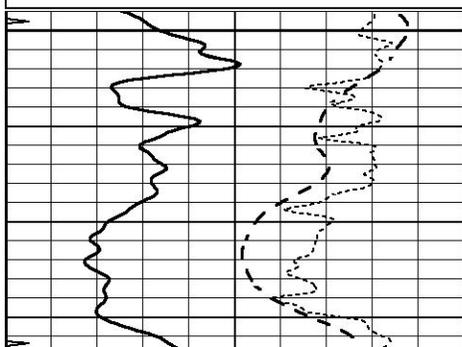


MAIN SECTION

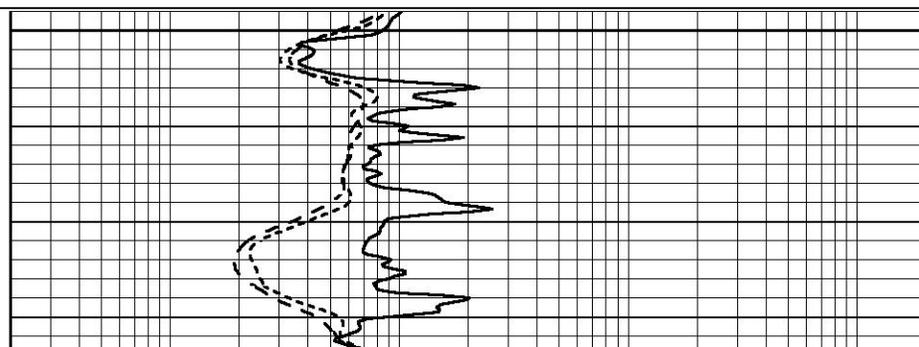
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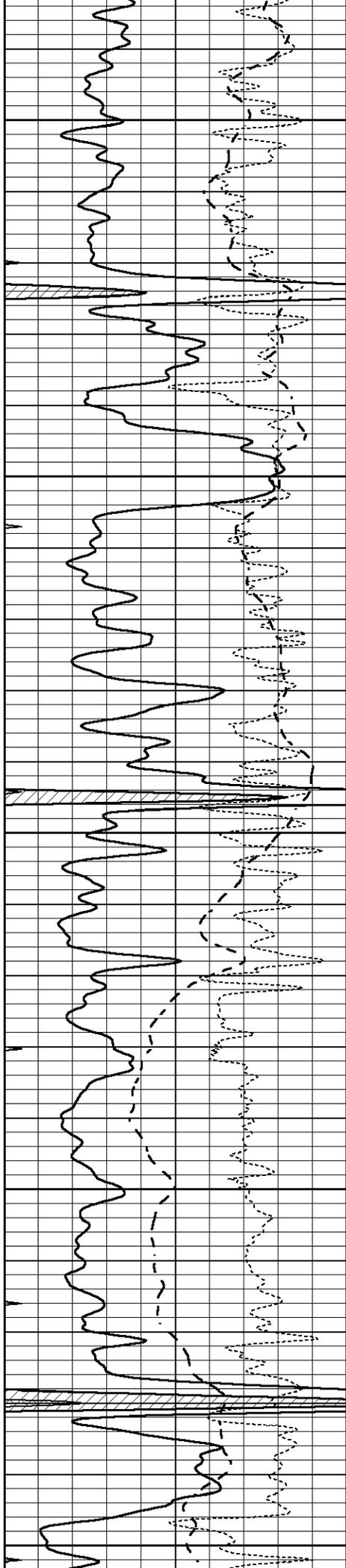
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



2800





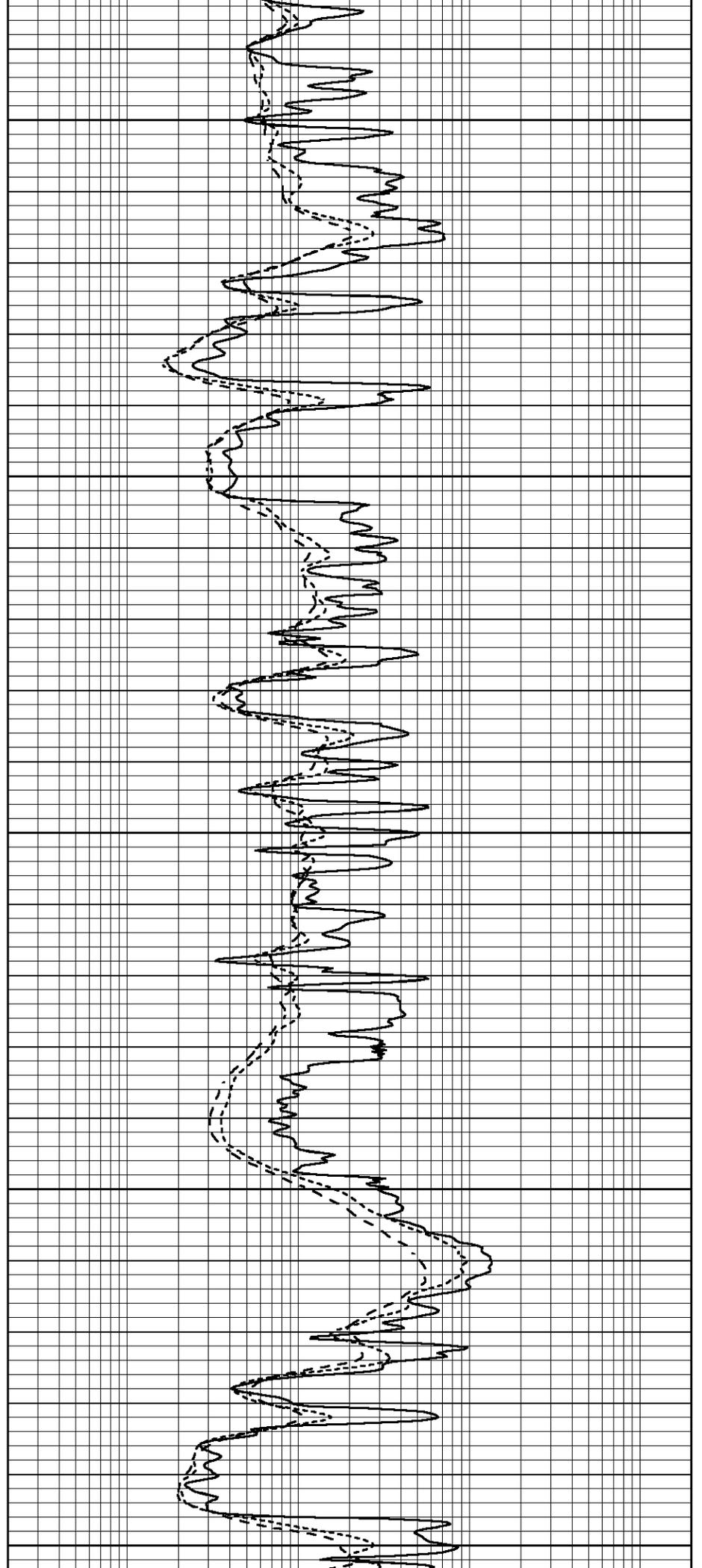
2850

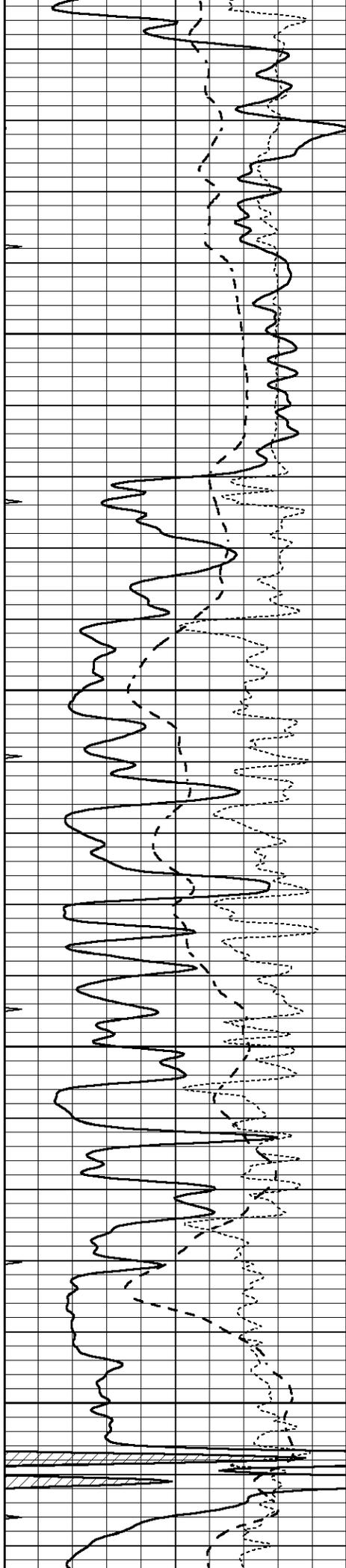
2900

2950

3000

3050



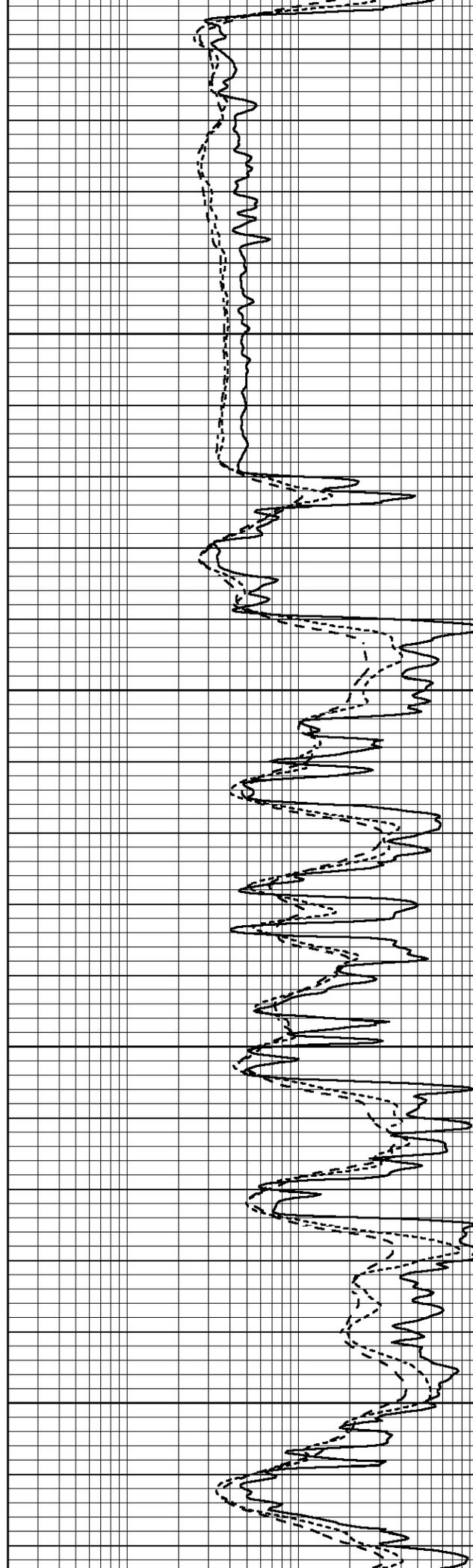


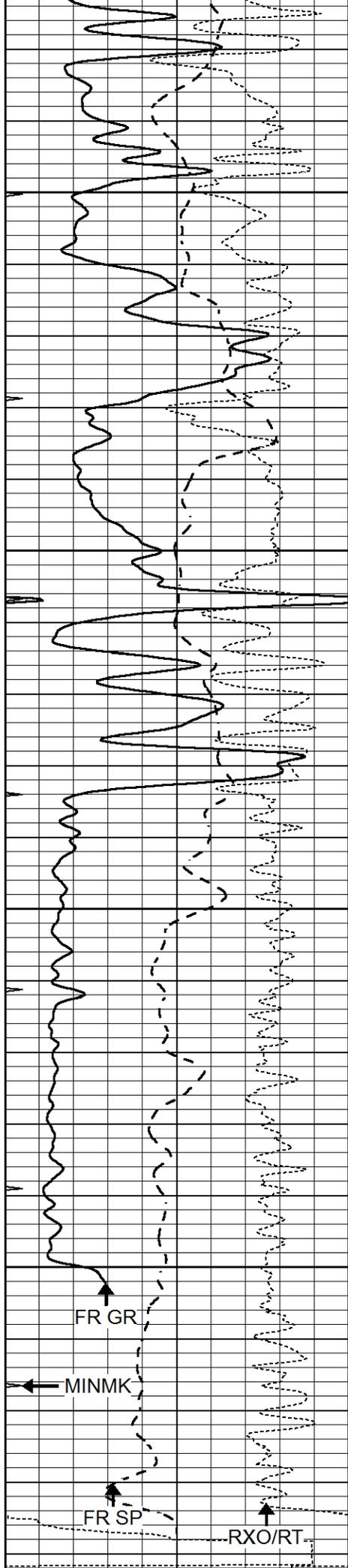
3100

3150

3200

3250





3300

3350

3400

3450

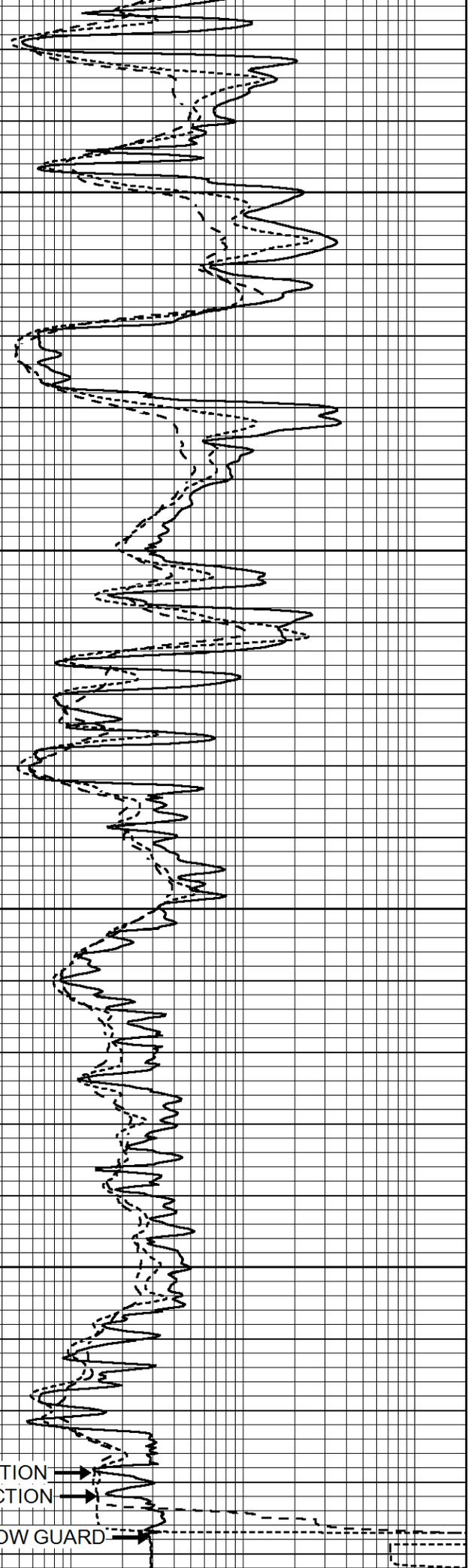
FR GR

MINMK

FR SP

RXO/RT

LTD 3490



FR DEEP INDUCTION

FR MEDIUM INDUCTION

FR SHALLOW GUARD

0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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

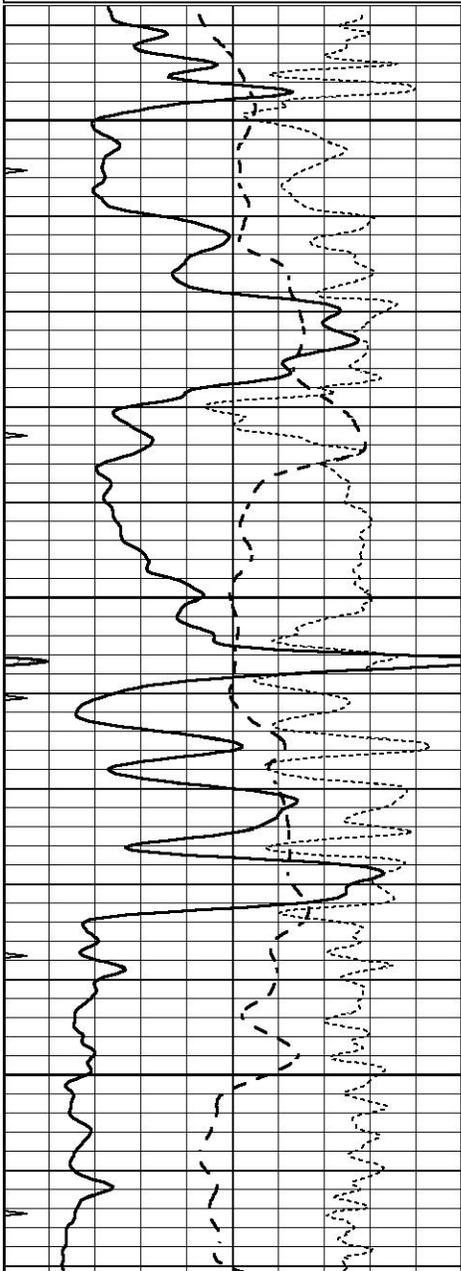


REPEAT SECTION

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0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

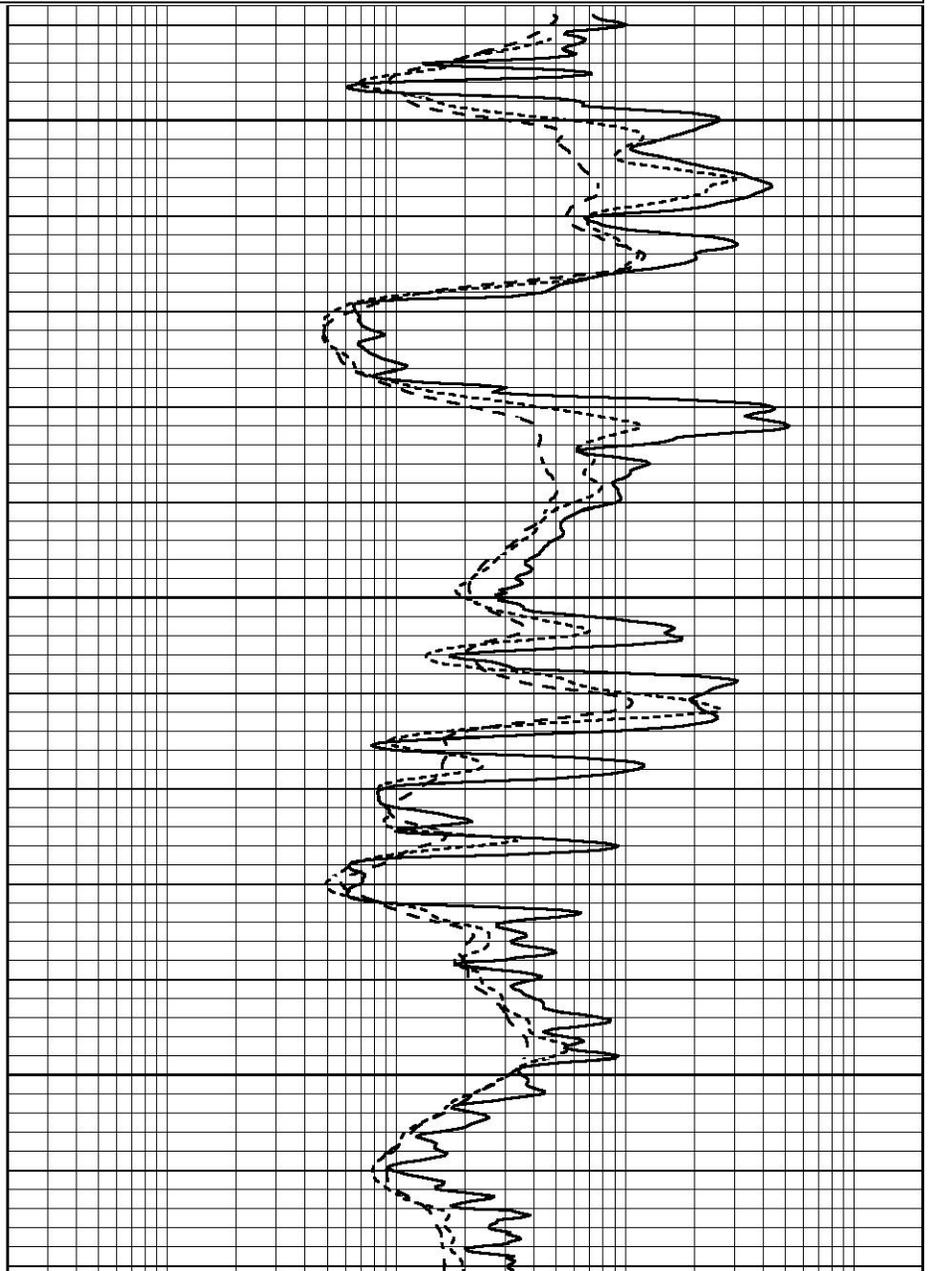
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

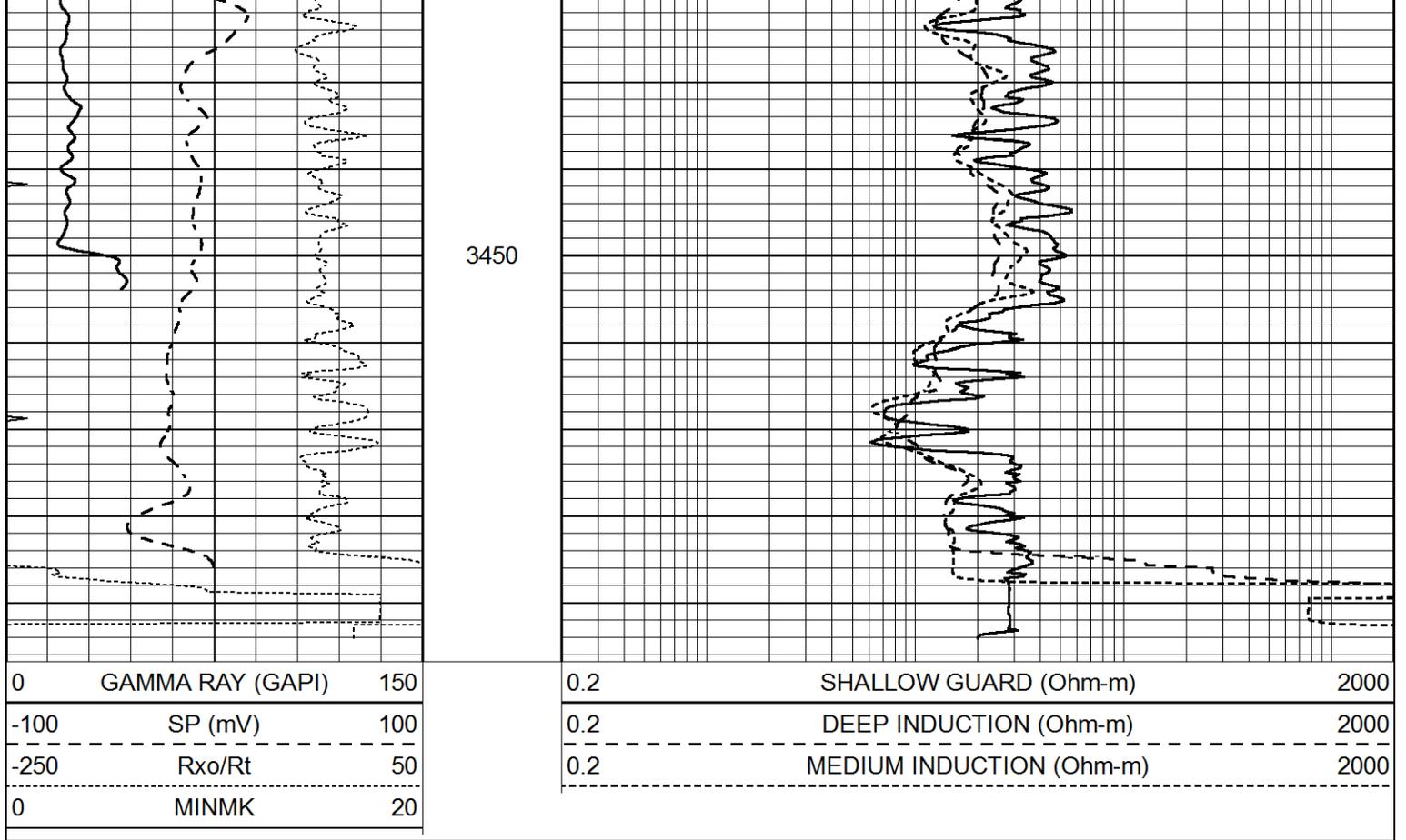


3300

3350

3400





Calibration Report

Database File 4812ddn.db
 Dataset Pathname pass3.8
 Dataset Creation Mon Oct 12 14:36:11 2020

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Mon Oct 12 13:20:50 2020
 Downhole Cal Performed: Thu Mar 12 11:45:10 2020
 After Survey Verification Performed: Thu Mar 12 11:45:00 2020

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop	V	Air	Loop	mmho/m	m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	620.000	4.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-54.000
Internal:	Zero	Cal	V	Zero	Cal	mmho/m	m	b
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102

Downhole Calibration

	Readings			References			Results	
	Zero	Cal	V	Zero	Cal	mmho/m	m'	b'
Deep	0.000	0.000	V	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	V	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		4000.000	mmho-m		

After Survey Verification

Readings

Targets

Results

	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
Medium	0.000	0.000	mmho/m	0.000	0.000	mmho/m	0.000	0.000
LL3		1.000	Ohm-m		1.000	Ohm-m		
		0.000	Ohm-m		0.000	Ohm-m		
		0.000	mmho-m		4000.000	mmho-m		

Litho Density Calibration Report
Serial: 003 Model: PRB

Master Calibration

Performed Mon May 11 11:11:10 2020

	Background	Magnesium	Aluminum	Aluminum+Fe	
Window 1	6088.4	14971.1	8028.3	7691.8	cps
Window 2	5948.0	13017.2	7488.0	7264.1	cps
Window 3	1282.1	5830.7	2242.8	2125.4	cps
Window 4	365.4	367.2	362.0	364.6	cps
Long Space	0.0	7069.2	1540.0	1316.1	cps
Short Space	1.8	2869.4	1829.2	1548.1	cps
Rho		1.7100	2.5900	0.0000	g/cc
Pe		2.0000	2.7500	5.7900	
Rib Angle	: 43.5	Rib Slope	: 0.950	Density/Spine Ratio	: 0.554
Spine Angle	: 73.5	Spine Slope	: 3.385	Spine Intercept	: -18.1

Before Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

After Survey Verification

Performed Wed Dec 31 18:00:00 1969

Window 1	0.0	0.0	0.0	0.0	cps
Window 2	0.0	0.0	0.0	0.0	cps
Window 3	0.0	0.0	0.0	0.0	cps
Window 4	0.0	0.0	0.0	0.0	cps
Long Space	0.0	0.0	0.0	0.0	cps
Short Space	0.0	0.0	0.0	0.0	cps
Measured Rho		0.0000	0.0000	0.0000	g/cc
Measured Correction		0.0000	0.0000	0.0000	g/cc
Measured Pe			0.0000	0.0000	

Compensated Neutron Calibration Report

Serial Number: 070808PMC
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:	070558		
Tool Model:	OPEN_GR		
Performed:	Wed Jul 03 10:25:53 2019		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.3000	GAPI/cps	