DUAL INDUCTION LOG

Company PHILLIPS EXPLORATION COMPANY, L.C.

Well VREELAND #5-13

Field W - L SOUTH

County TREGO State KANSAS

Location: API # : 15-195-23162-0000

330' FSL & 1500' FEL
E/2 - SE - SW - SE
SEC 13 TWP 11S RGE 24W

Other Services
CDL/CNL

Elevation
K.B. 2432
D.F. 2430
G.L. 2427

Permanent Datum GROUND LEVEL Elevation 2427
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING

Company PHILLIPS EXPLORATION CO.
Well VREELAND #5-13
Field W - L SOUTH
County TREGO
State KANSAS

Date	8/3/23		
Run Number	ONE		
Depth Driller	4070		
Depth Logger	4069		
Bottom Logged Interval	4067		
Top Log Interval	00		
Casing Driller	8 5/8"@220'		
Casing Logger	220		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 1,700 PPM	
Density / Viscosity	9.1/68		
pH / Fluid Loss	9.5/8.0		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.10@96F		
Rmf @ Meas. Temp	.825@96F		
Rmc @ Meas. Temp	1.32@96F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.903@117F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	3:30 P.M.		
Maximum Recorded Temperature	117F		
Equipment Number	922339		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	PAT DEENIHAN		

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Comments

15-195-23162-0000

THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395

DIRECTIONS

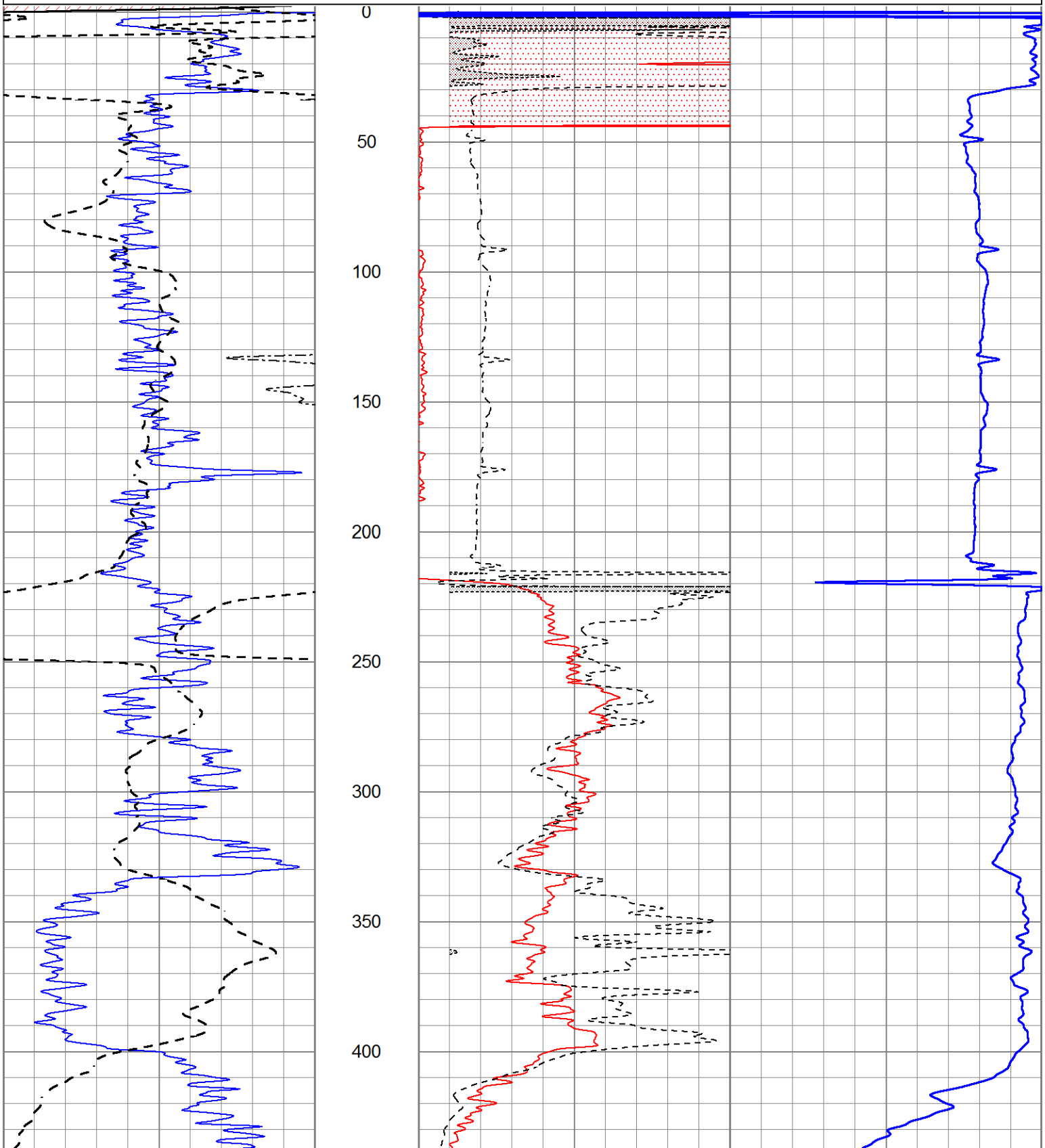
WAKEENEY, KS., 5N. ON HWY 283 TO "RD. B", 4W. TO "RD. 220", 1/2S. TO TANK BATTERY, E. & N. ON TRAIL 1 1/2 MILES

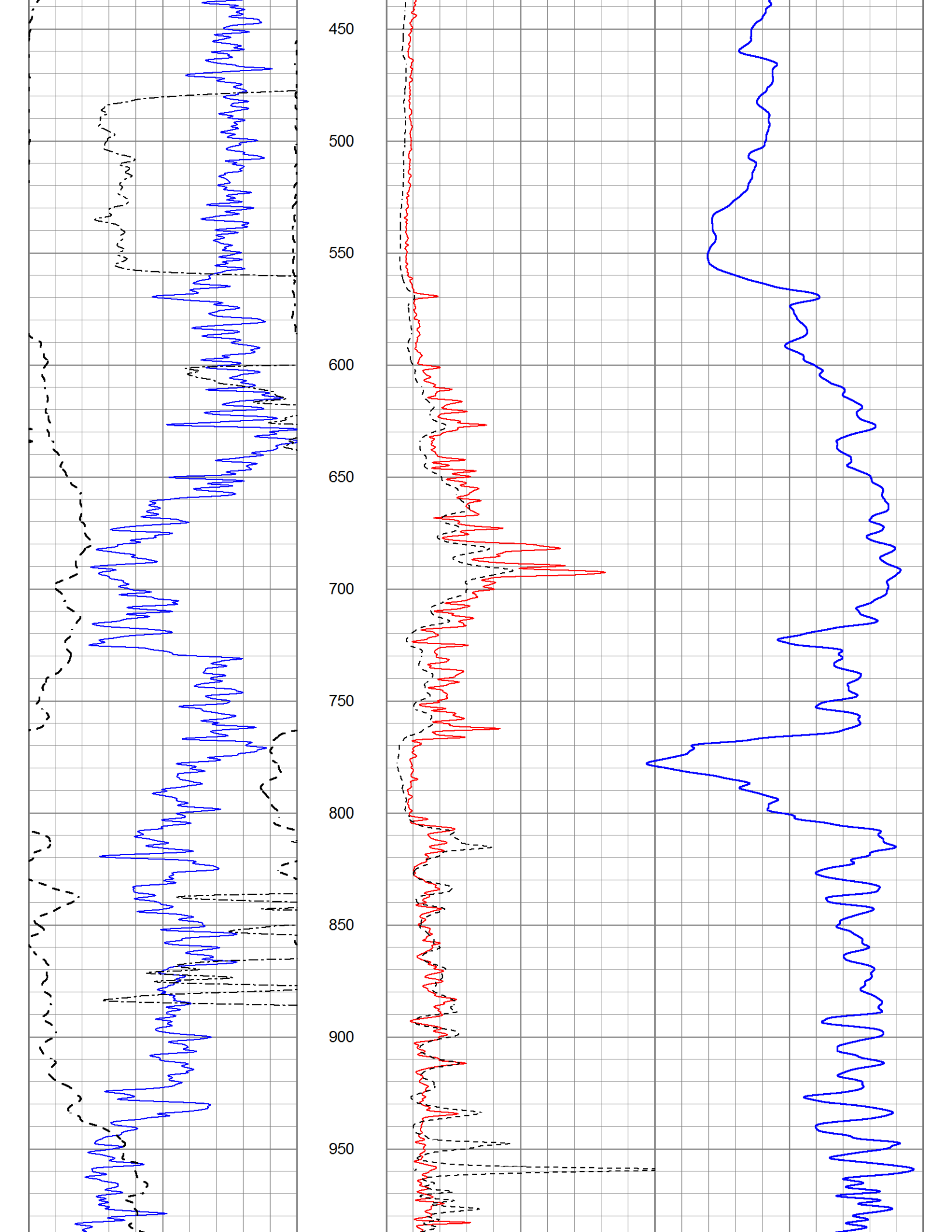
MAIN SECTION

Database File	7312ddn.db
Dataset Pathname	pass3.1M
Presentation Format	_dil2
Dataset Creation	Thu Aug 03 16:56:46 2023
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

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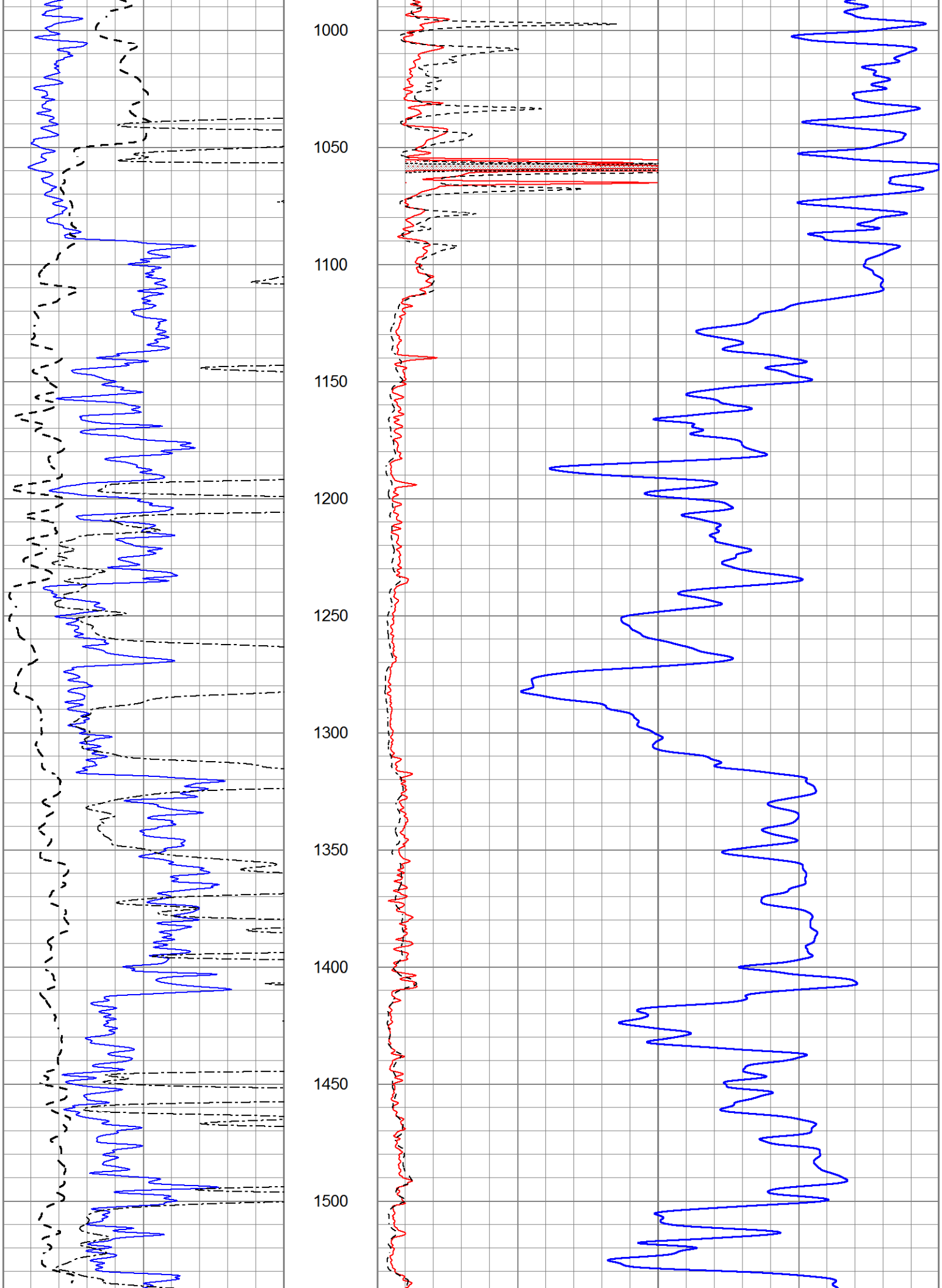
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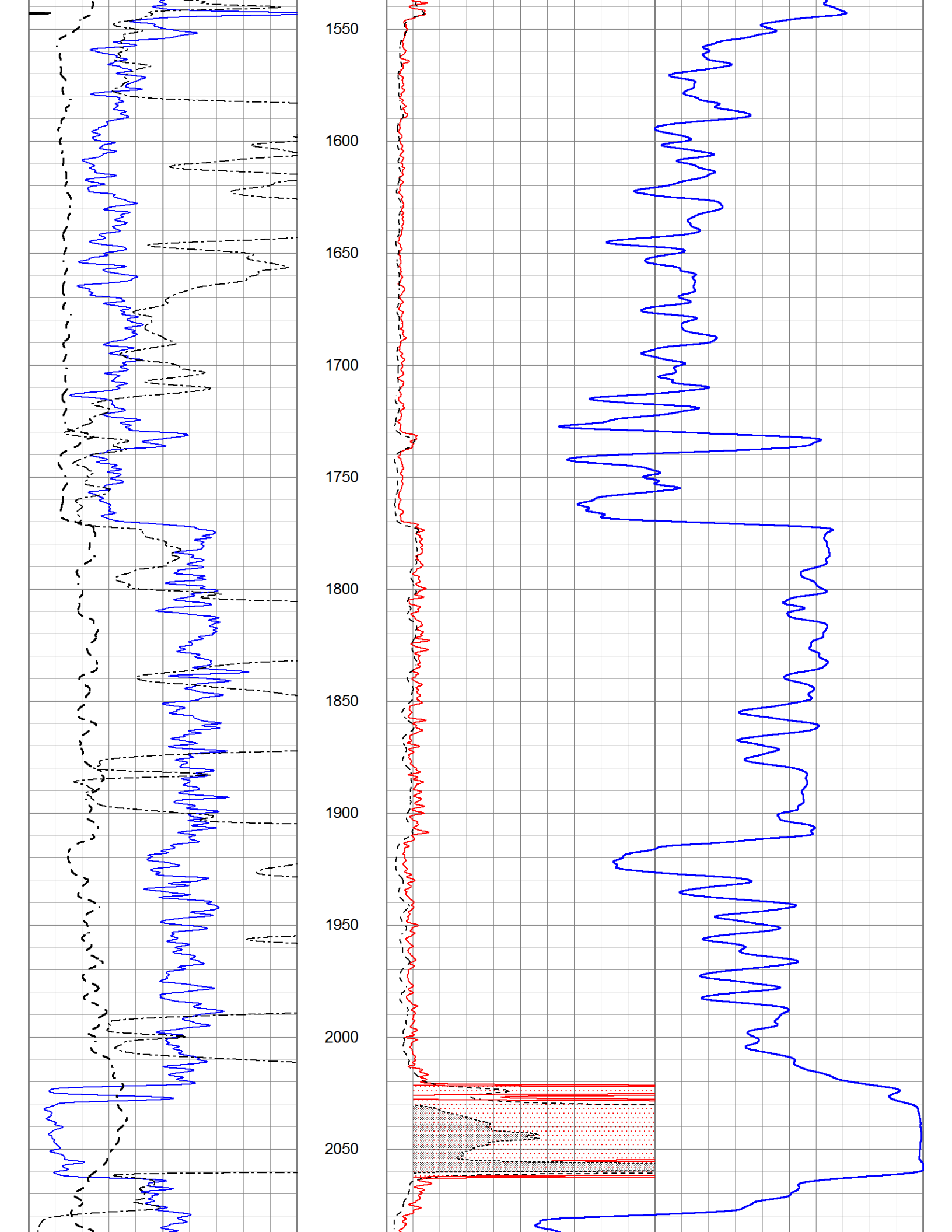
1100
1150
1200
1250
1300
1350
1400
1450
1500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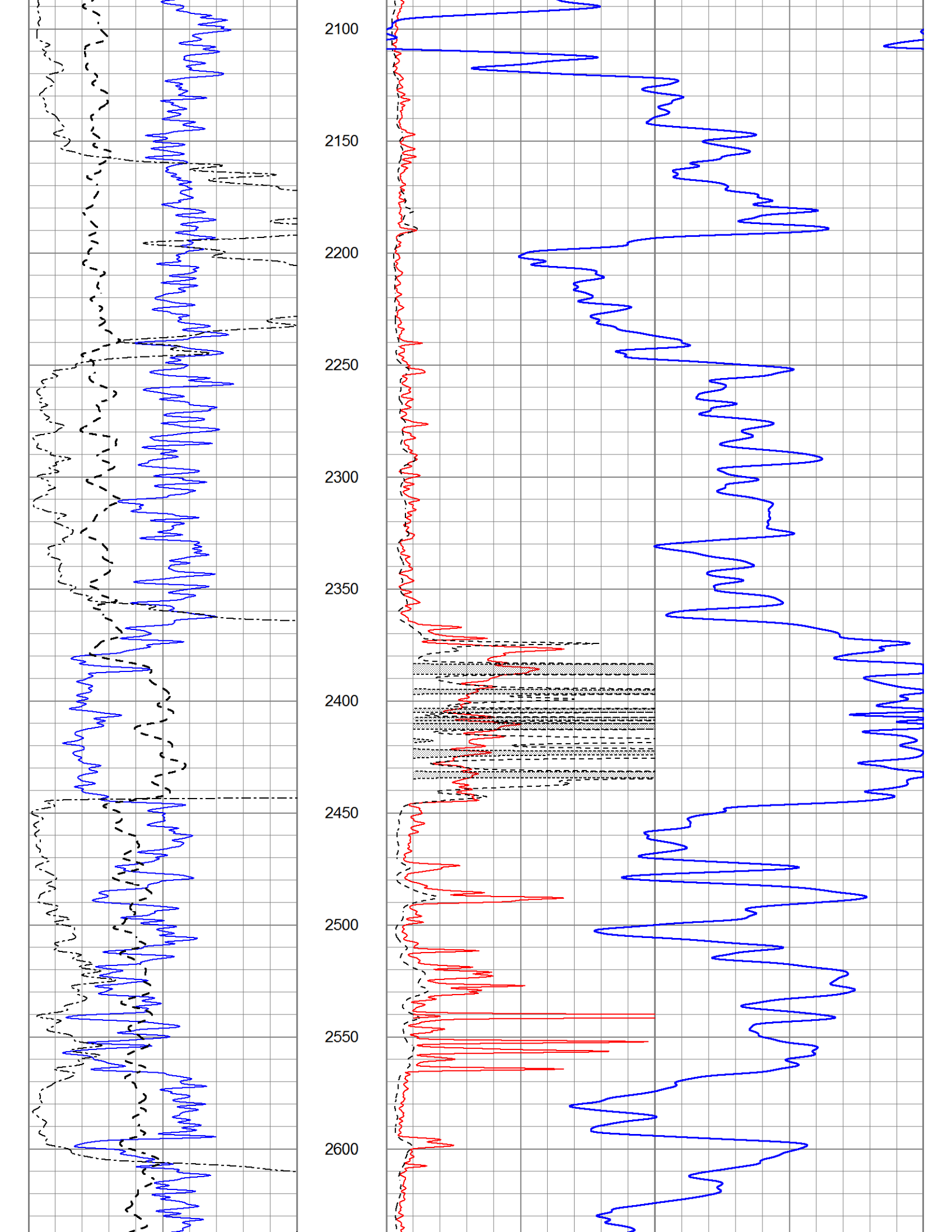
1700
1750
1800
1850
1900
1950
2000
2050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2250
2300
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2400
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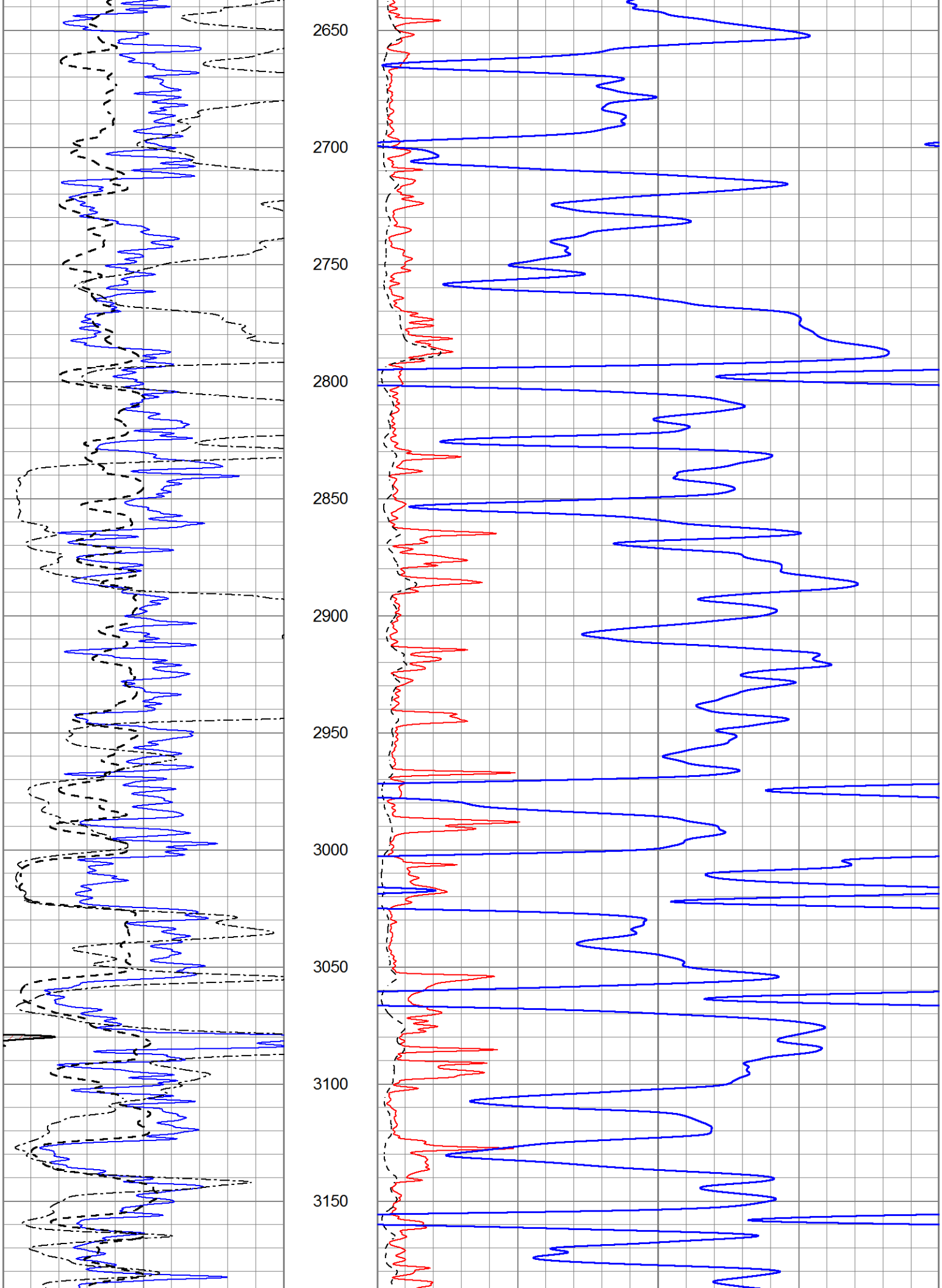
2500
2550
2600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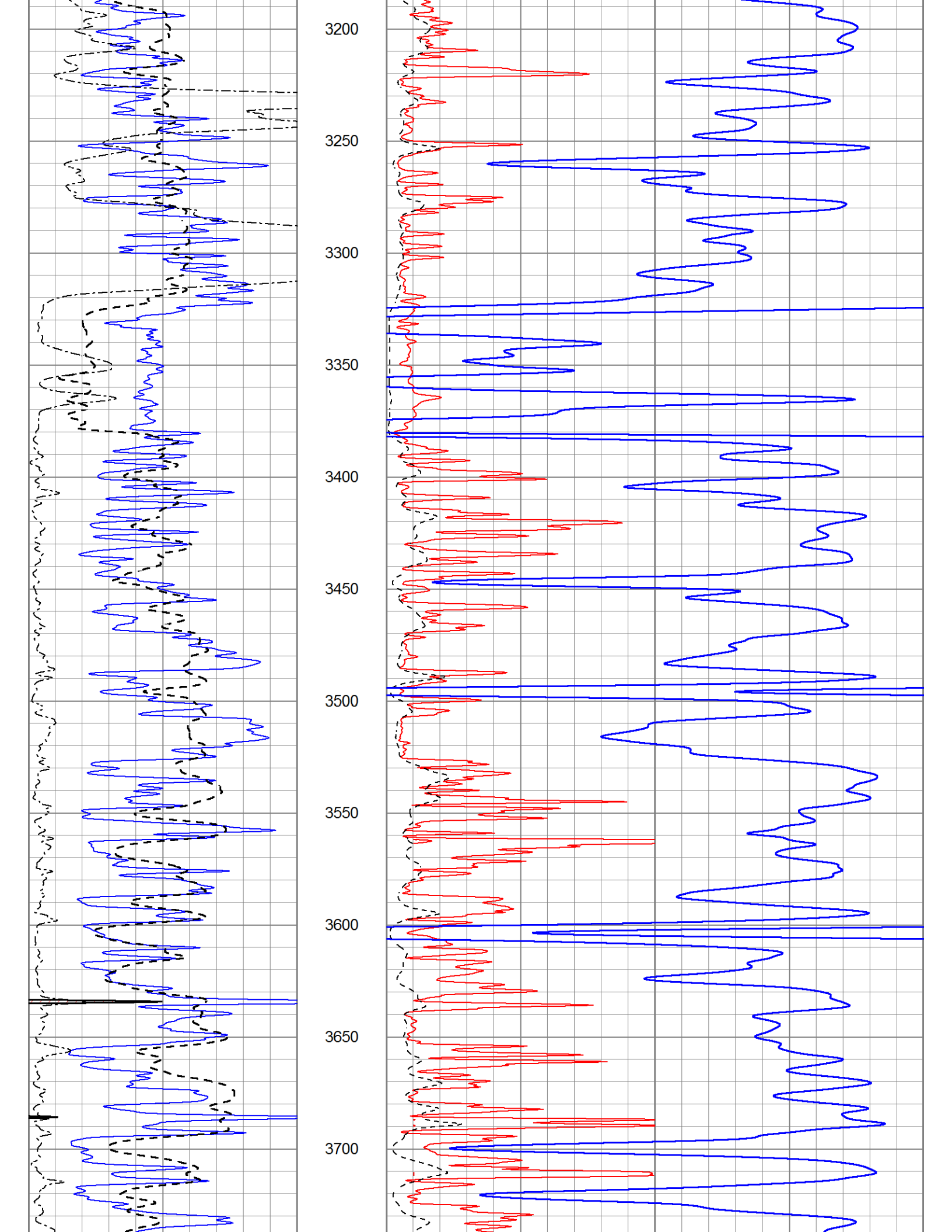
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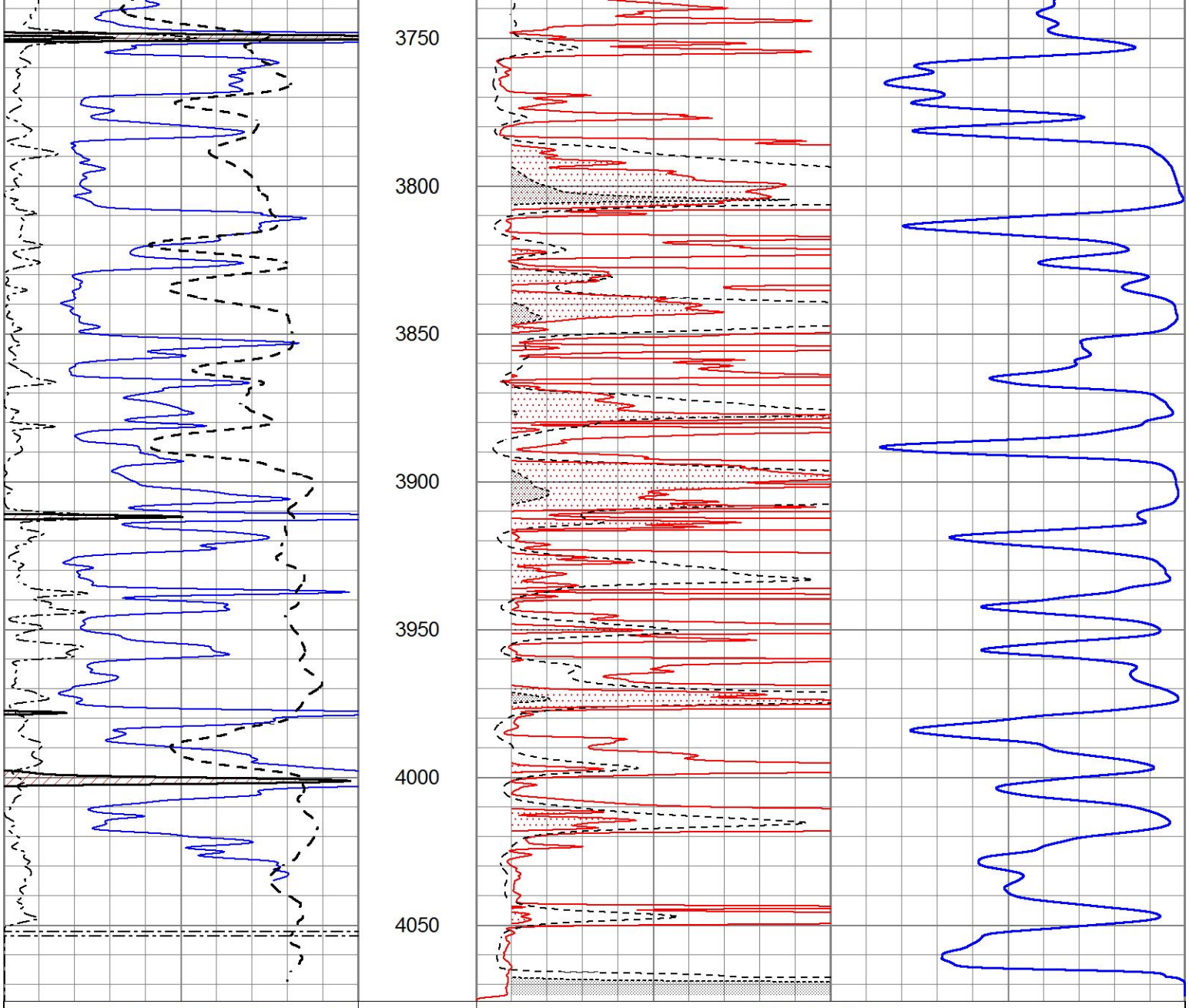
3300
3350
3400
3450
3500
3550
3600
3650
3700



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

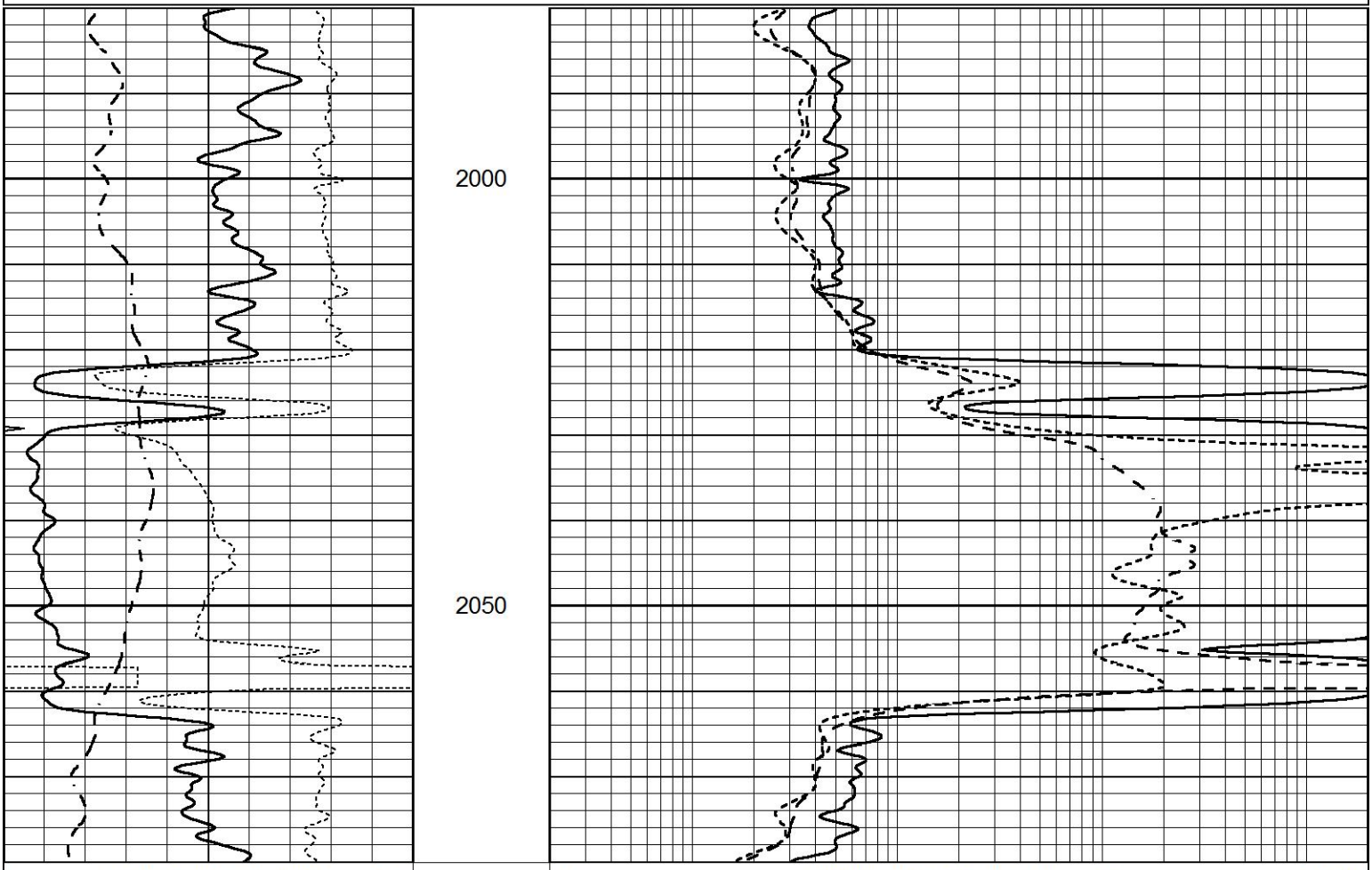
ANHYDRITE

Database File	7312ddn.db
Dataset Pathname	pass3.1A
Presentation Format	_dil
Dataset Creation	Thu Aug 03 16:57:13 2023
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	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

0	MINMK	20



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

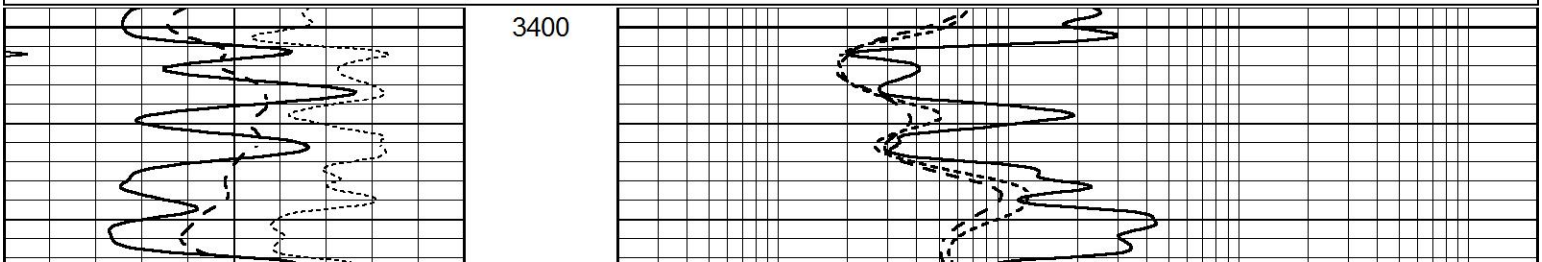
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

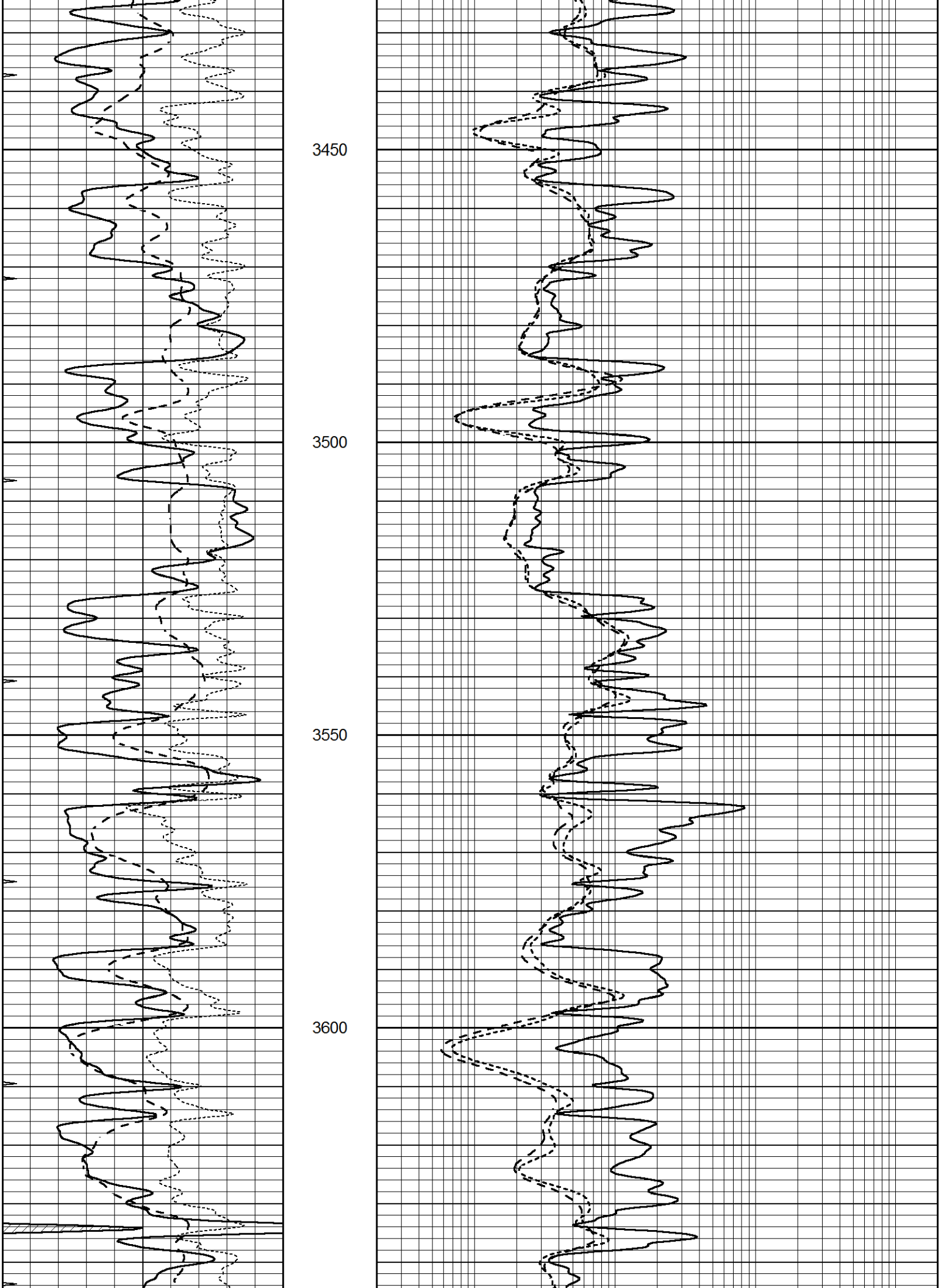
MAIN SECTION

Database File	7312ddn.db
Dataset Pathname	pass3.1M
Presentation Format	_dil
Dataset Creation	Thu Aug 03 16:56:46 2023
Charted by	Depth in Feet scaled 1:240

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

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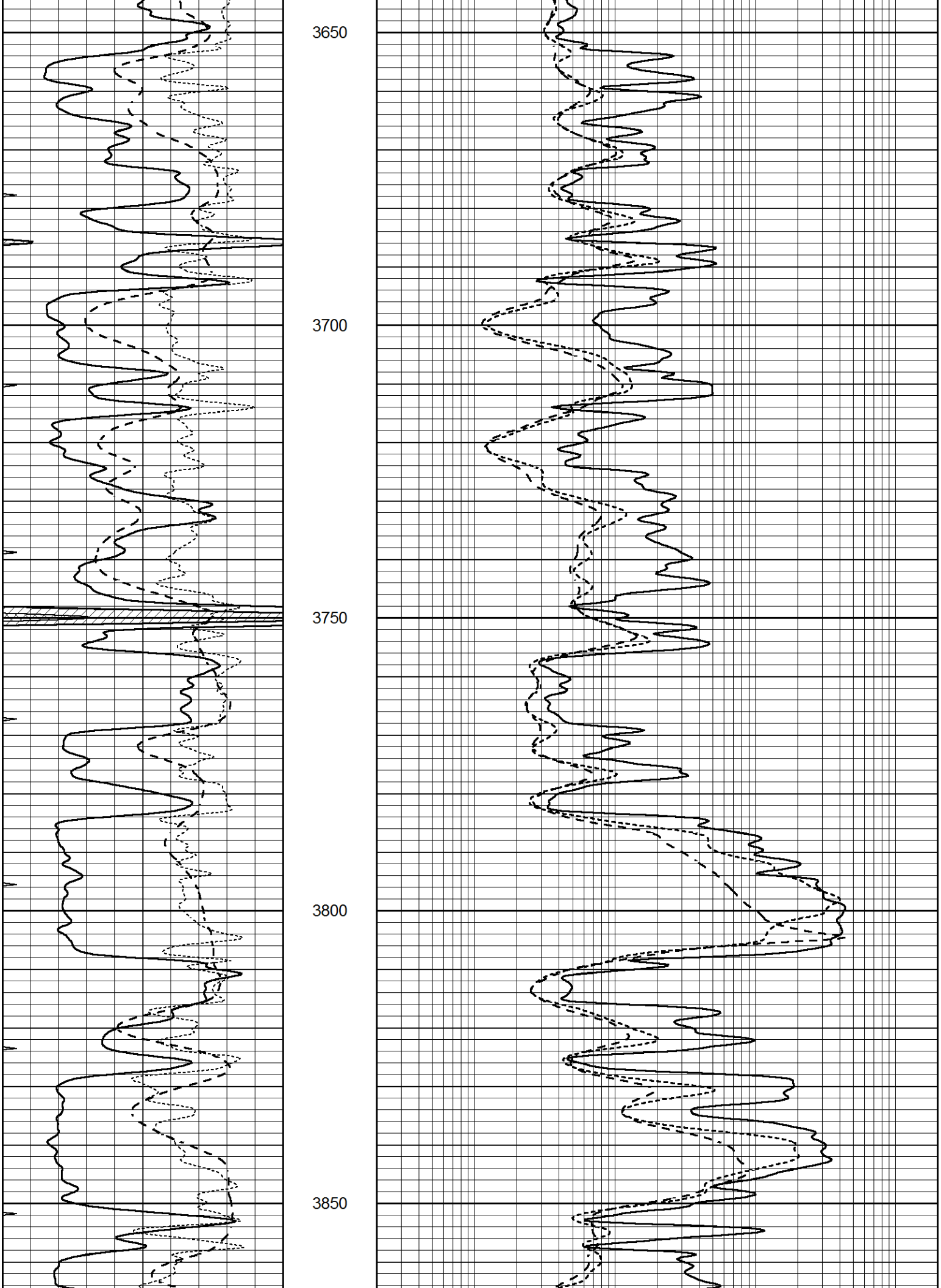
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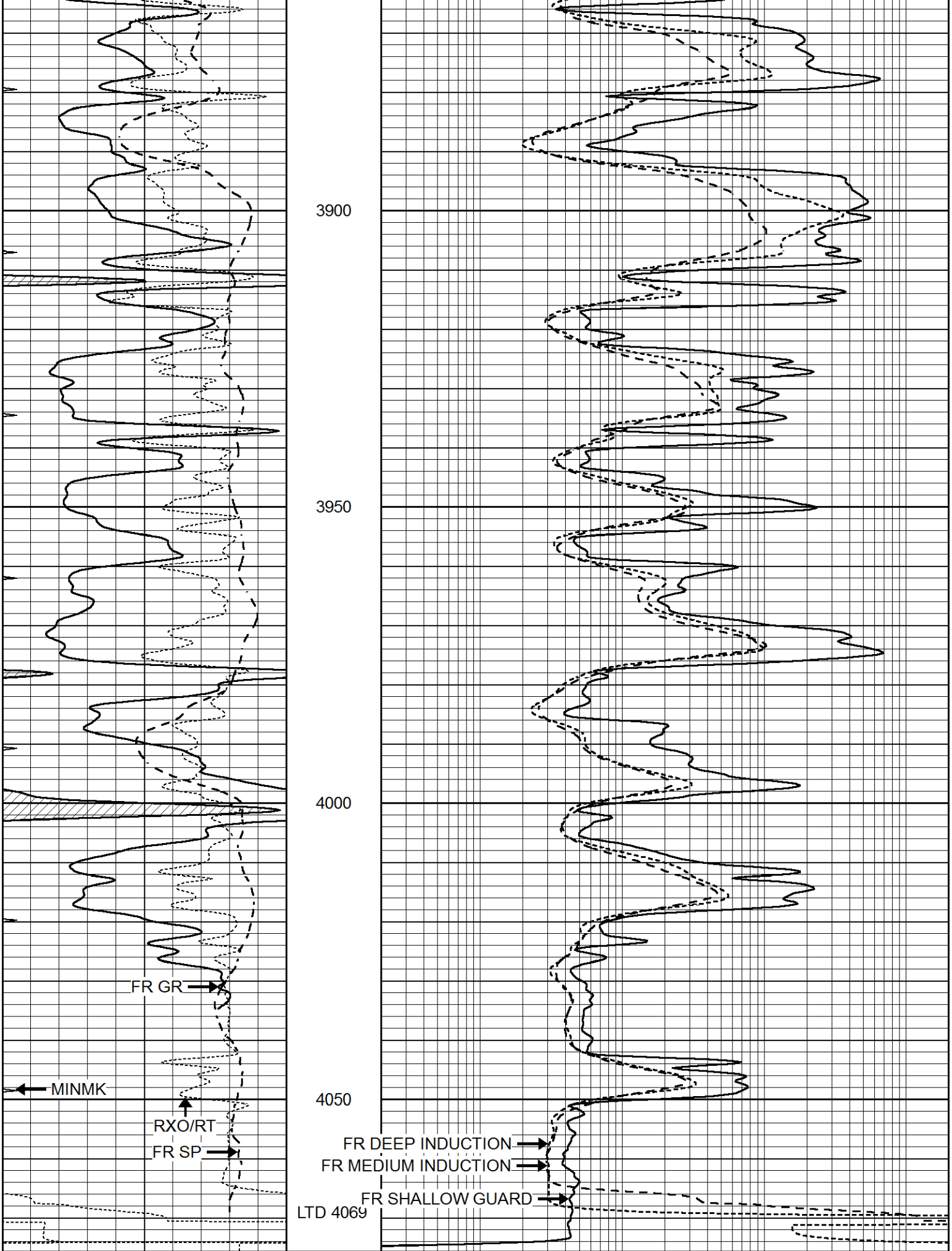

3900
3950
4000
4050
FR GR
MINMK
RXO/RT
FR SP
FR DEEP INDUCTION
FR MEDIUM INDUCTION
FR SHALLOW GUARD
LTD 4069
0
GAMMA RAY (GAPI)
150
-100
SP (mV)
100
0.2
SHALLOW GUARD (Ohm-m)
2000
0.2
DEEP INDUCTION (Ohm-m)
2000

-250	Rxo/Rt	50
0	MINMK	20

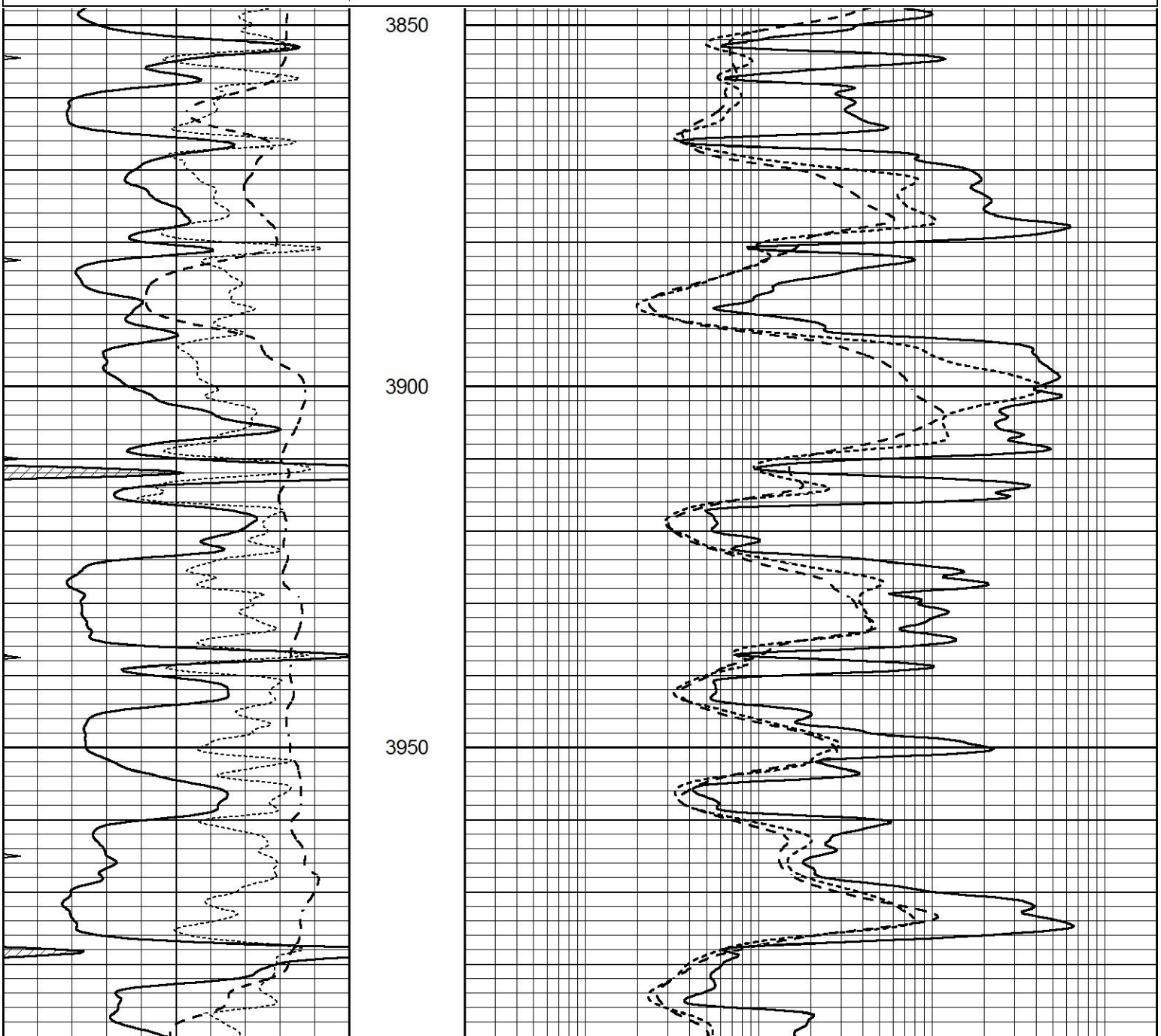
0.2	MEDIUM INDUCTION (Ohm-m)	2000

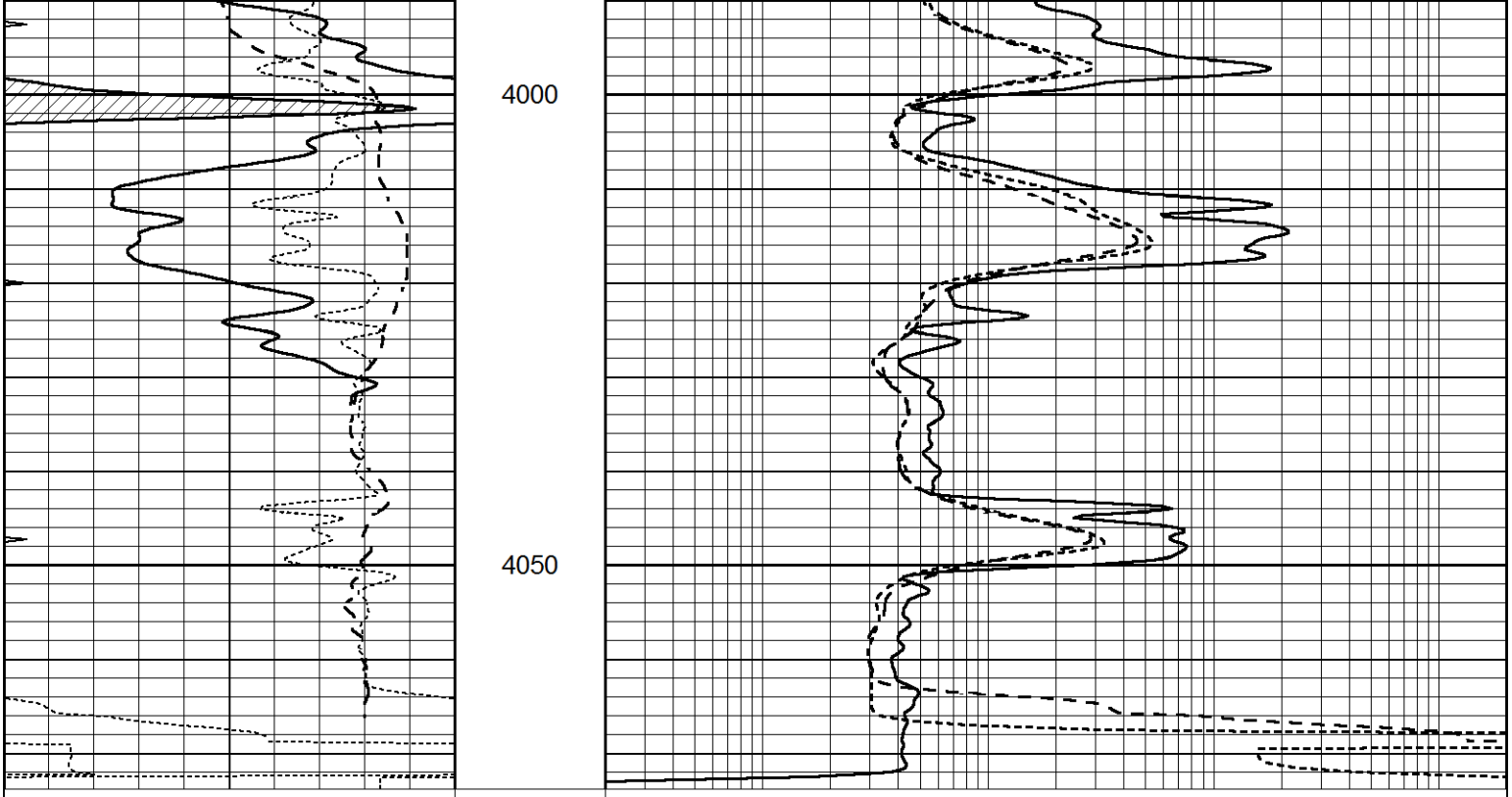
REPEAT SECTION

Database File	7312ddn.db
Dataset Pathname	pass2.1R
Presentation Format	_dil
Dataset Creation	Thu Aug 03 16:07:12 2023
Charted by	Depth in Feet scaled 1:240

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





Calibration Report

Database File	7312ddn.db
Dataset Pathname	pass3.1M
Dataset Creation	Thu Aug 03 16:56:46 2023

Dual Induction Calibration Report

Serial-Model:	DIL7-GEAR
Surface Cal Performed:	Mon Jul 24 17:23:53 2023
Downhole Cal Performed:	Tue Apr 17 15:38:44 2007
After Survey Verification Performed:	Tue Apr 17 15:38:40 2007

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.019	0.660	V	0.000	400.000	mmho/m	660.000	15.000
Medium	-0.006	0.655	V	0.000	462.500	mmho/m	720.000	-25.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.010	0.665	V	0.000	400.000	mmho/m	610.018	-5.925
Medium	0.009	0.655	V	0.000	400.000	mmho/m	618.983	-5.564

Downhole Calibration

	Readings			References			Results	
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	3.372	400.834	mmho/m	0.556	401.206	mmho/m	1.008	-2.843
Medium	13.557	467.446	mmho/m	9.465	462.114	mmho/m	0.997	-4.055

Shallow	2.521	0.019	V	500.000	2.000	Ohm-m	225.000	0.000

After Survey Verification

	Readings			Targets			Results	
Internal:	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	3.372	400.834	mmho/m	1.008	-2.843
Medium	0.000	0.000	mmho/m	13.557	467.446	mmho/m	0.997	-4.055
Shallow	2.500	0.000	Ohm-m	500.000	2.000	Ohm-m	225.000	0.000

Litho Density Calibration Report

Serial: 001 Model: PRB

Master Calibration — Performed Tue Aug 02 14:54:49 2022

	Background	Magnesium	Aluminum	Aluminum+Fe	
Window 1	1540.1	9840.1	3279.8	3001.8	cps
Window 2	1435.6	8495.4	2920.3	2720.3	cps
Window 3	1167.4	4527.9	1868.6	1810.1	cps
Window 4	344.6	343.5	346.7	342.3	cps
Long Space	0.0	7059.8	1484.8	1284.7	cps
Short Space	3.3	2502.7	1618.3	1368.5	cps
Rho		1.7100	2.5900	0.0000	g/cc
Pe		2.0000	2.7500	5.7900	

Rib Angle	: 44.4	Rib Slope	: 0.979	Density/Spine Ratio	: 0.544
Spine Angle	: 74.4	Spine Slope	: 3.576	Spine Intercept	: -19.1

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

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:	Tue Aug 01 12:36:48 2023	
Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.3000	GAPI/cps