DUAL INDUCTION LOG

Company BLACKHAWK PRODUCTION, CO.
Well SANDERS #11
Field TOULON
County ELLIS State KANSAS

Company BLACKHAWK PRODUCTION, CO.
Well SANDERS #11
Field TOULON
County ELLIS
State KANSAS

Location: API # : 15-051-27011-0000

1170' FNL & 330' FWL

SEC 10 TWP 14S RGE 17W

Other Services
CDL/CNL
ML

Elevation
K.B. 2018
D.F. 2016
G.L. 2010

Permanent Datum GROUND LEVEL Elevation 2010
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING

Date	8/26/21		
Run Number	ONE		
Depth Driller	3630		
Depth Logger	3631		
Bottom Logged Interval	3629		
Top Log Interval	00		
Casing Driller	8 5/8" @ 1225		
Casing Logger	1225		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.0/56		
pH / Fluid Loss	10.4/8.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.5@ 70F		
Rmf @ Meas. Temp	.38@ 70F		
Rmc @ Meas. Temp	.60 @ 70F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	.30@ 113F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	////		
Maximum Recorded Temperature	113F		
Equipment Number	1523		
Location	HAYS, KANSAS		
Recorded By	GUS PFANENSTIEL		
Witnessed By	JASON T ALM		

<<< Fold Here >>>

Comments

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

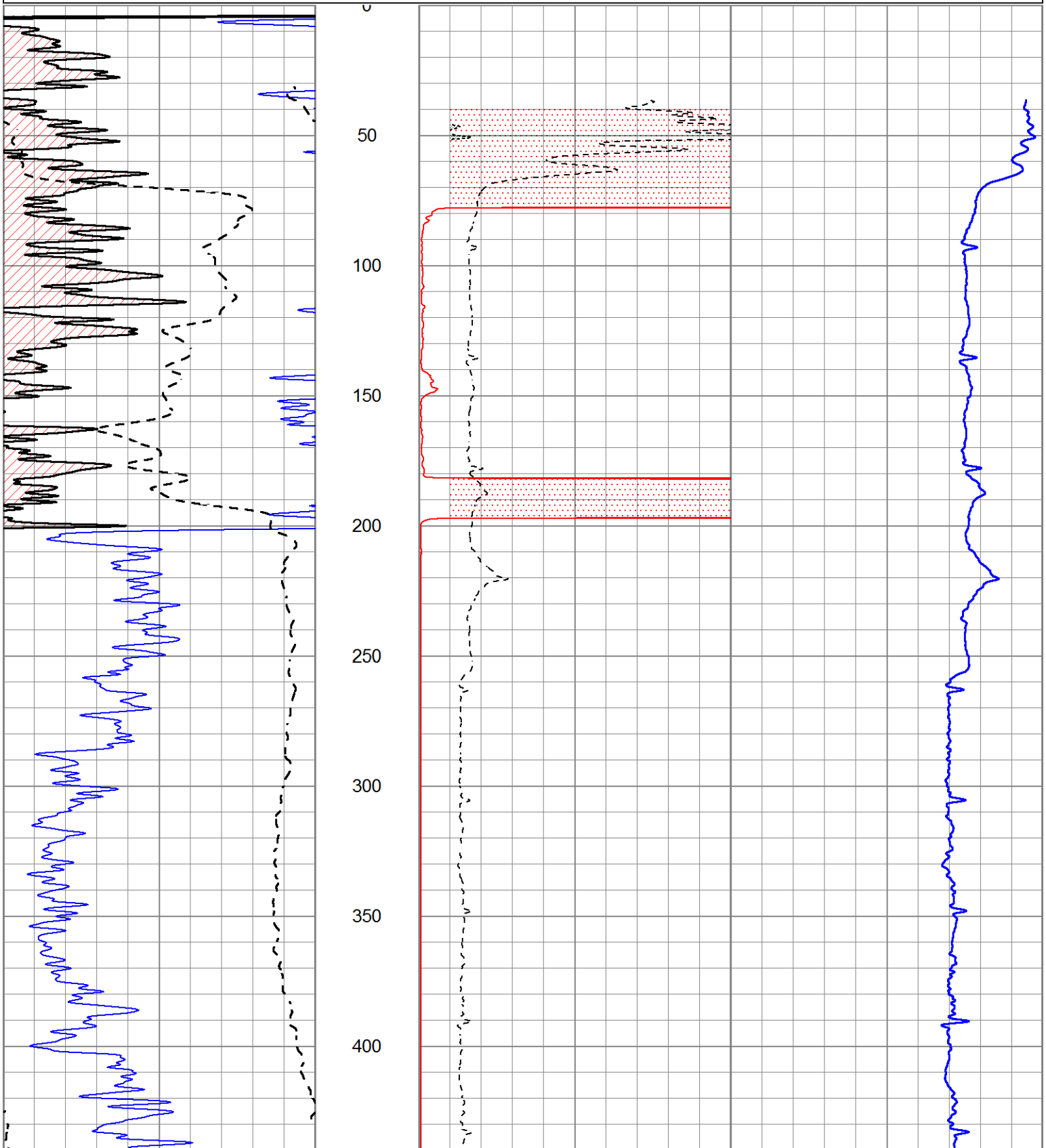
DIRECTIONS: TOULON EAST 2 MILES, NORTH 3/4 MILE, EAST INTO.

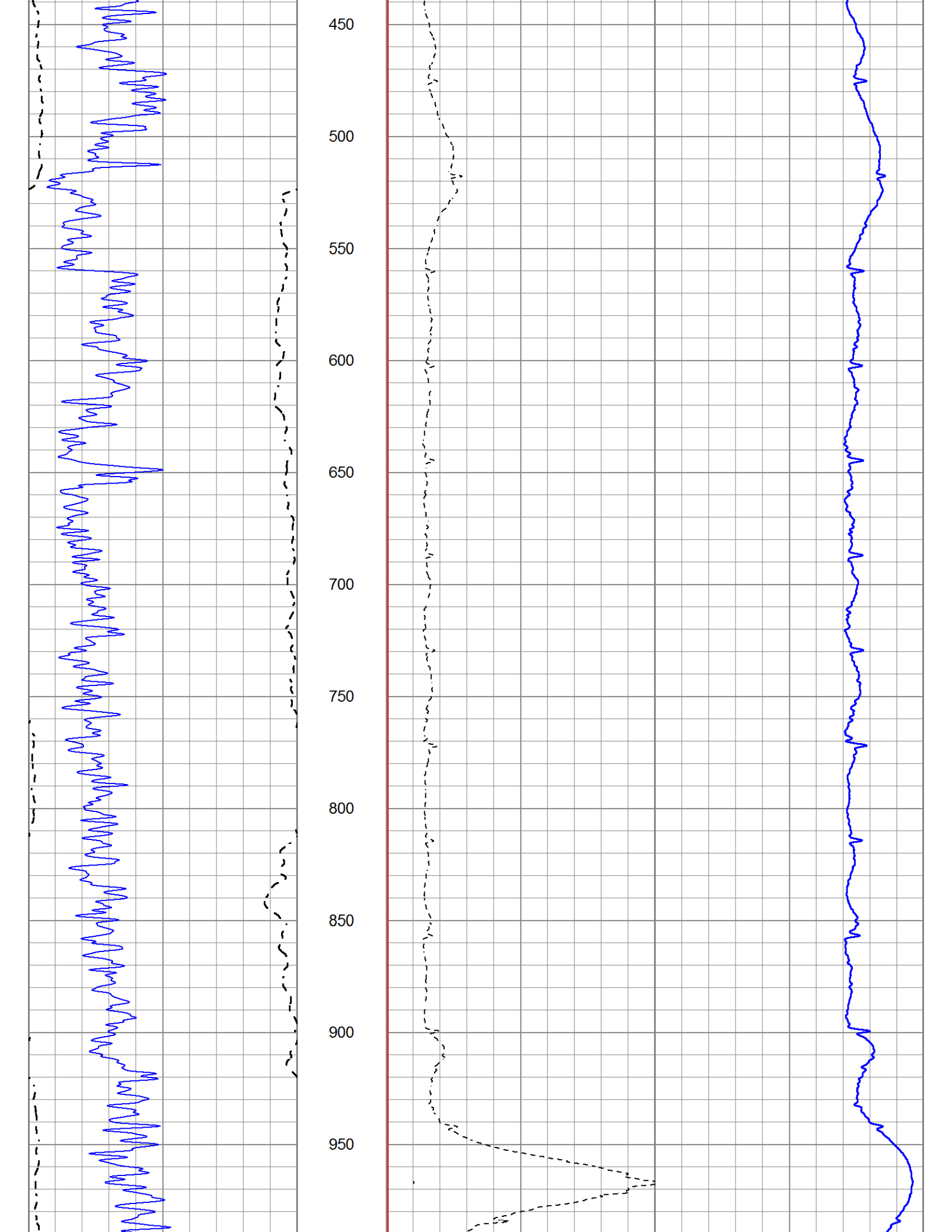
MAIN PASS

Database File	5618ddn.db
Dataset Pathname	pass3.1
Presentation Format	_dil2
Dataset Creation	Thu Aug 26 13:42:19 2021
Charted by	Depth in Feet scaled 1:600

0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

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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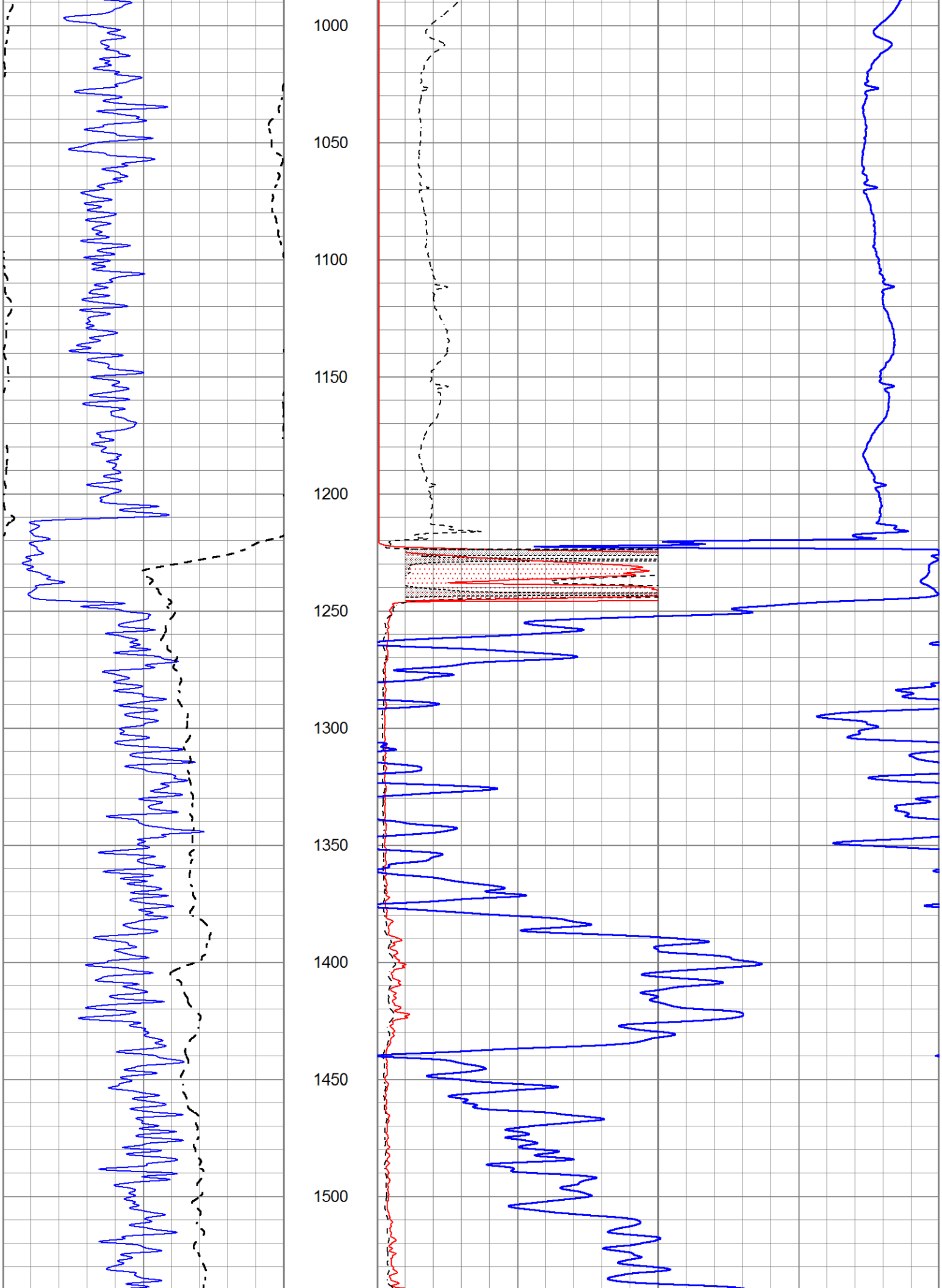
900
950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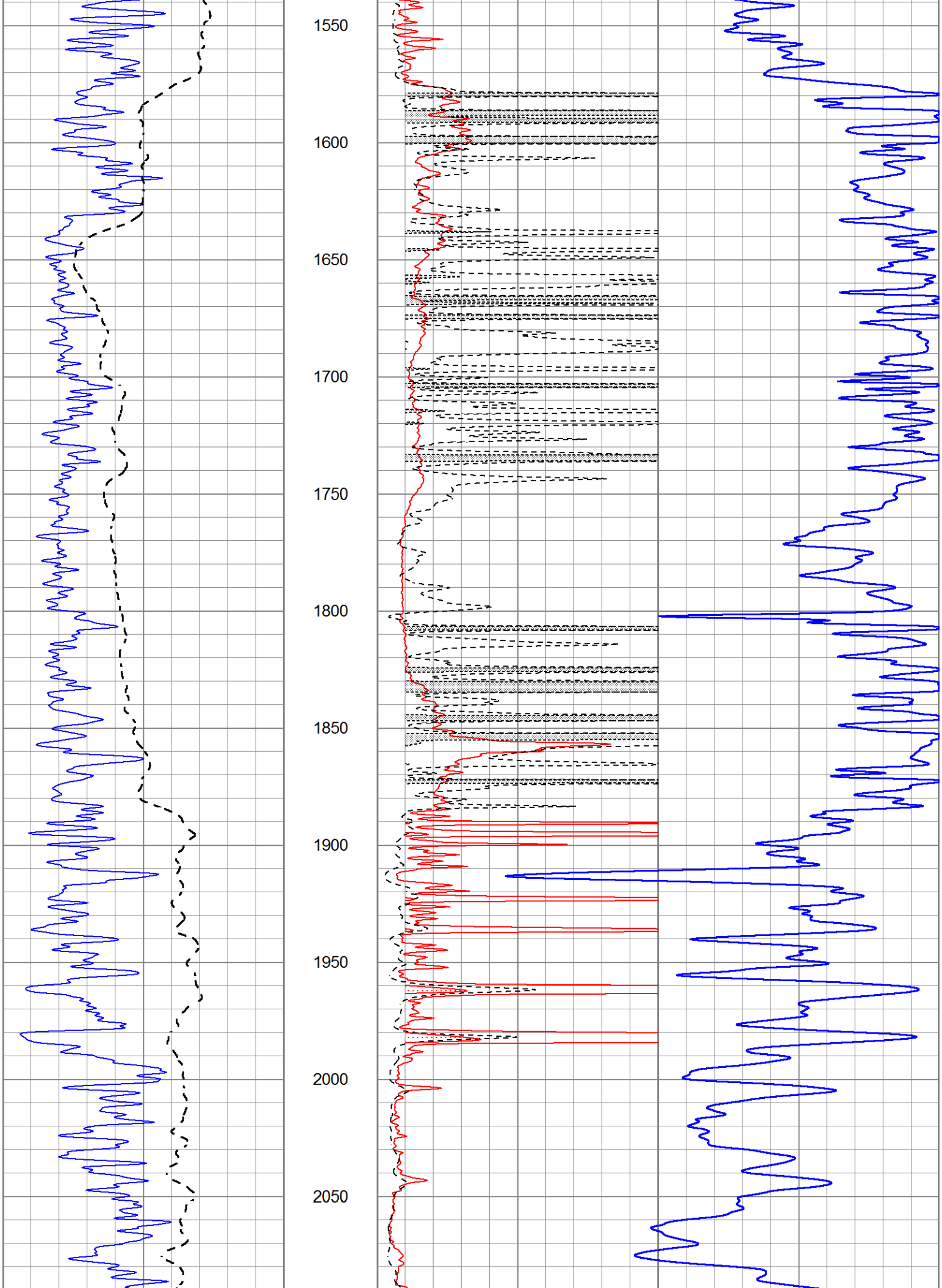
1100
1150
1200
1250
1300
1350
1400
1450
1500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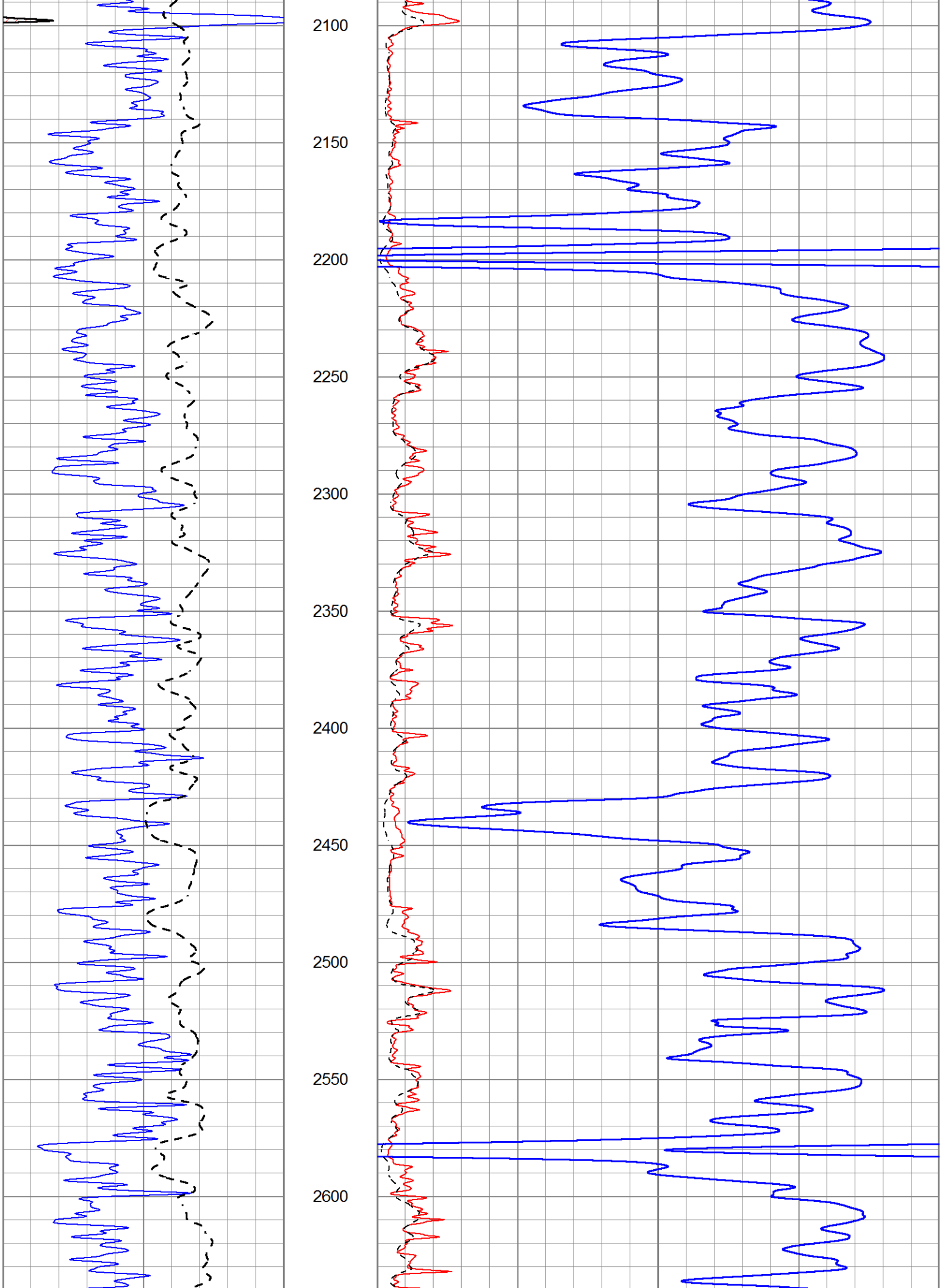
1600
1650
1700
1750
1800
1850
1900
1950
2000
2050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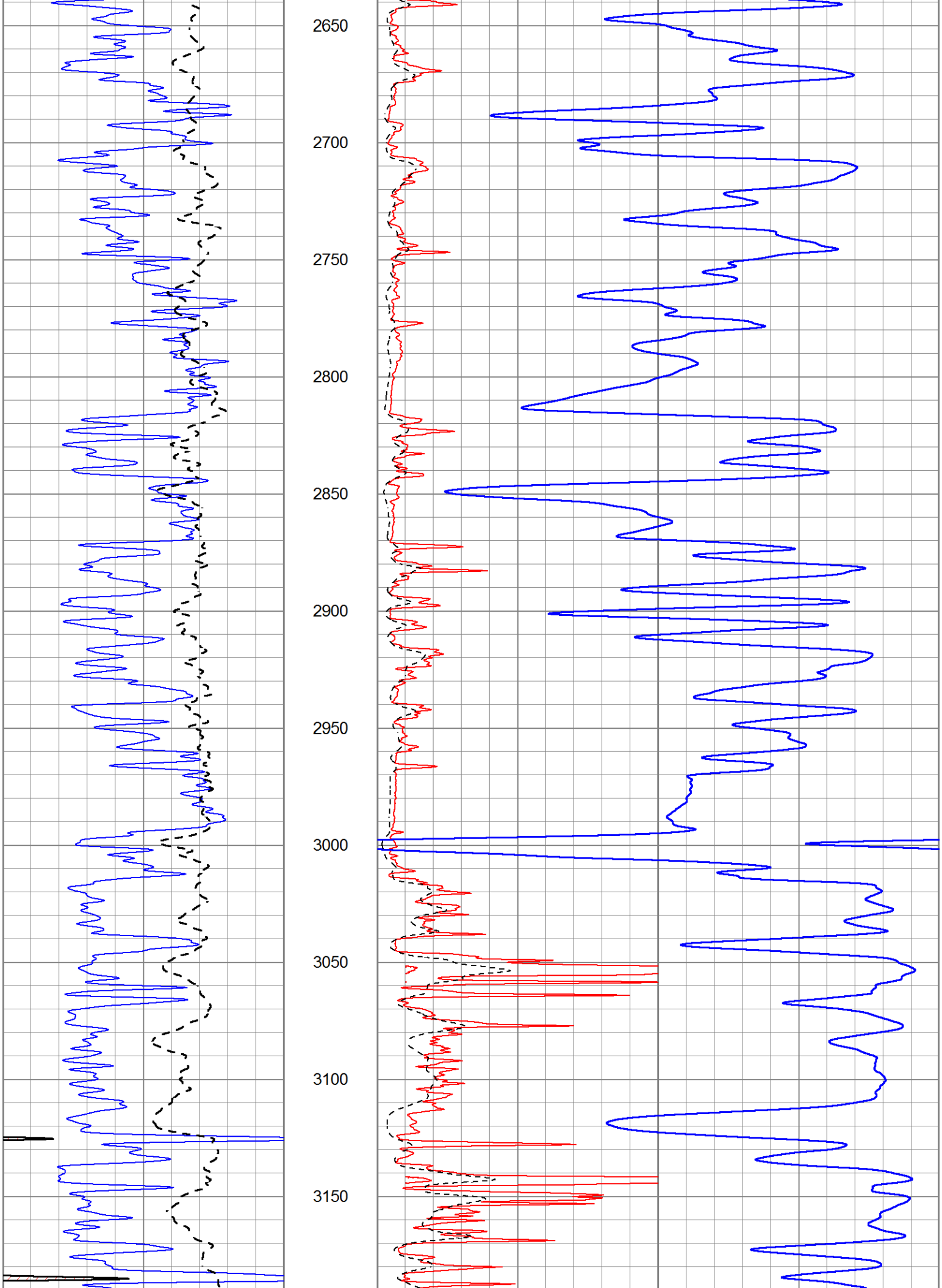
2200
2250
2300
2350
2400
2450
2500
2550
2600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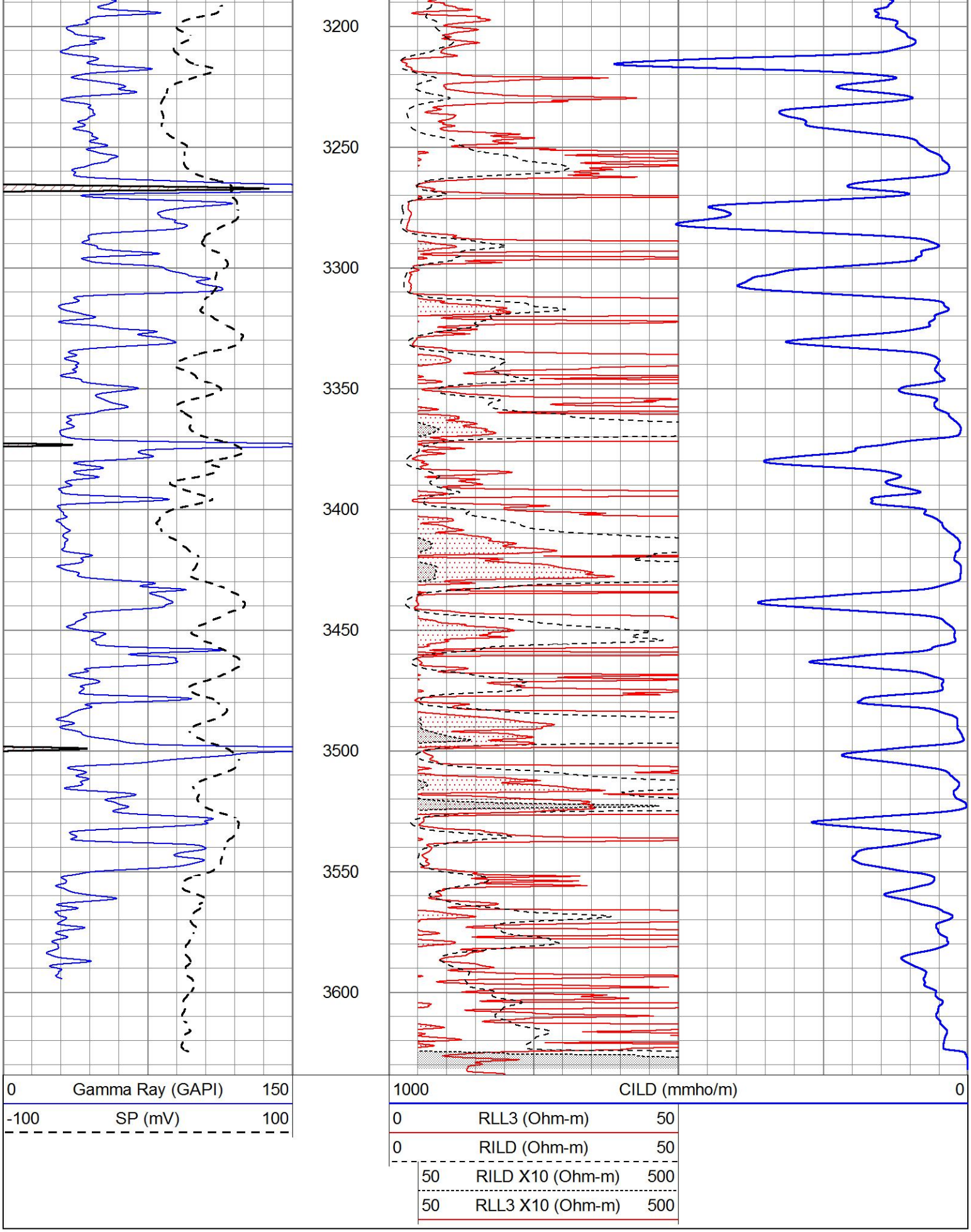
2700
2750
2800
2850
2900
2950
3000
3050
3100
3150


3200
3250
3300
3350
3400
3450
3500
3550
3600
0 Gamma Ray (GAPI) 150
-100 SP (mV) 100
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

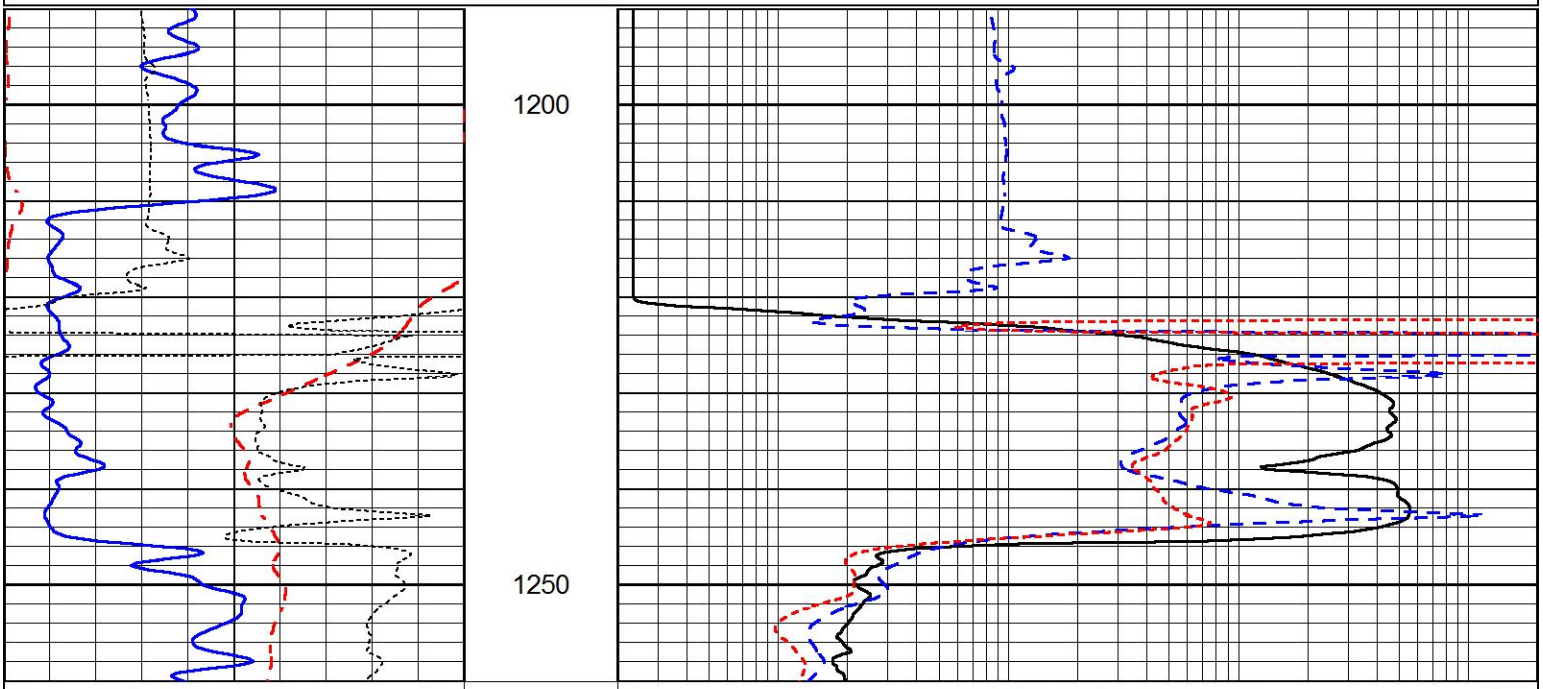
MAIN PASS

MAIN PASS

Database File	5618ddn.db
Dataset Pathname	pass3.1
Presentation Format	_dil
Dataset Creation	Thu Aug 26 13:42:19 2021
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



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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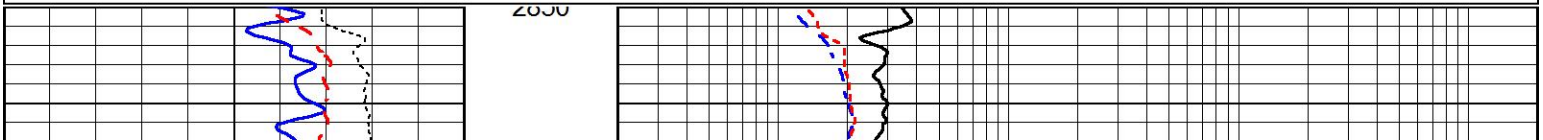
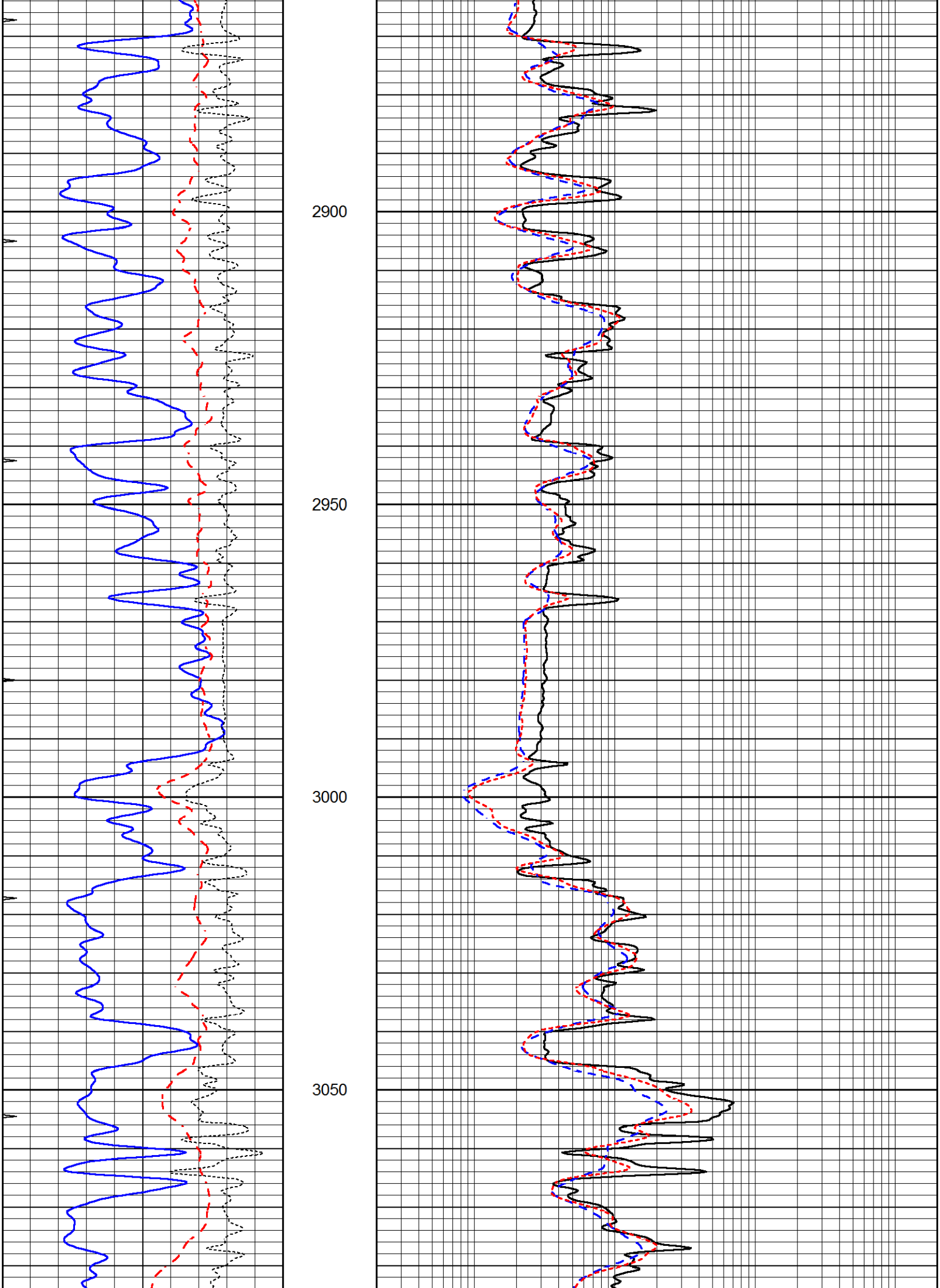
Presentation Format	_dil
Dataset Creation	Thu Aug 26 13:42:19 2021
Charted by	Depth in Feet scaled 1:240

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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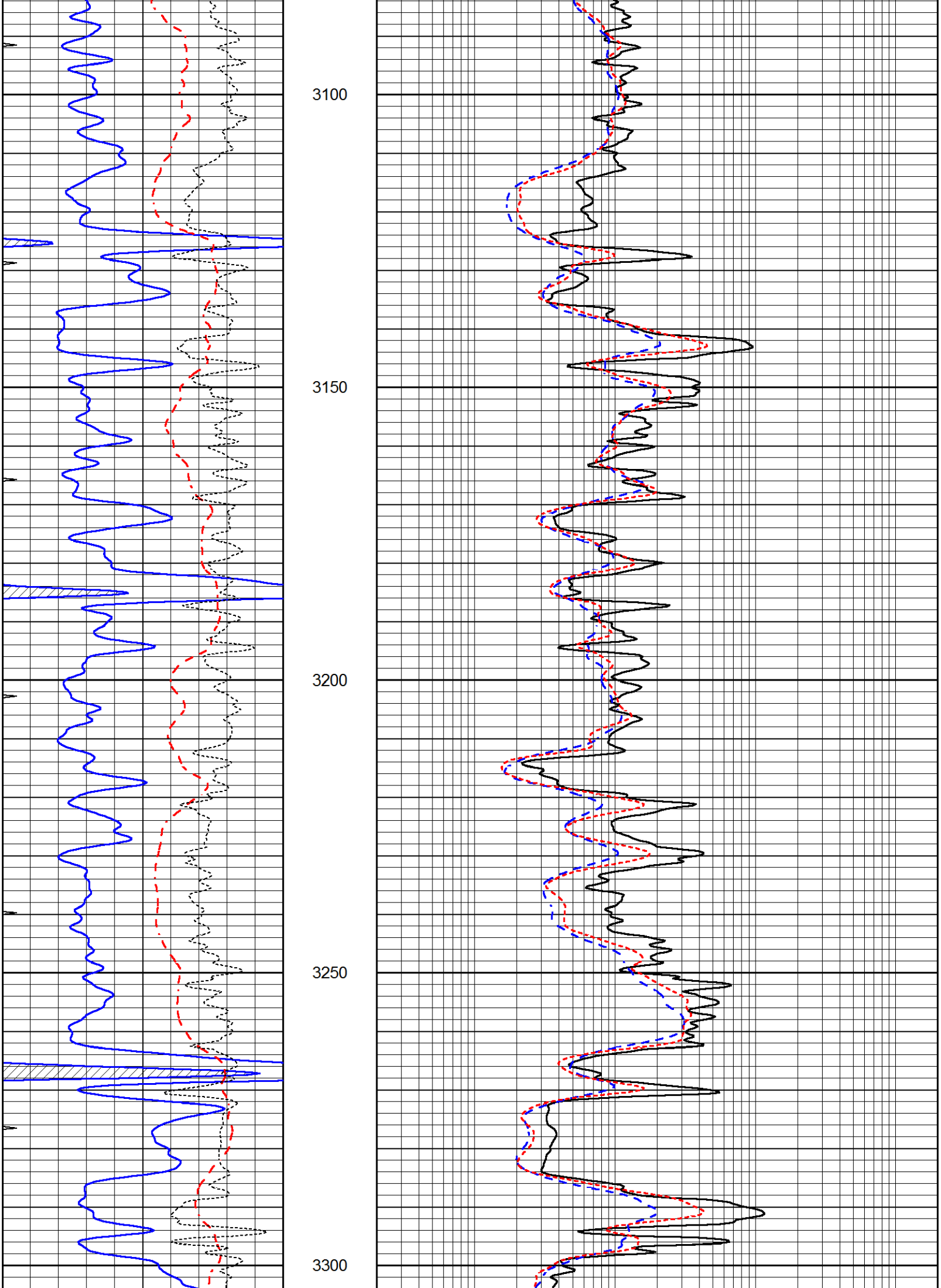
2950
3000
3050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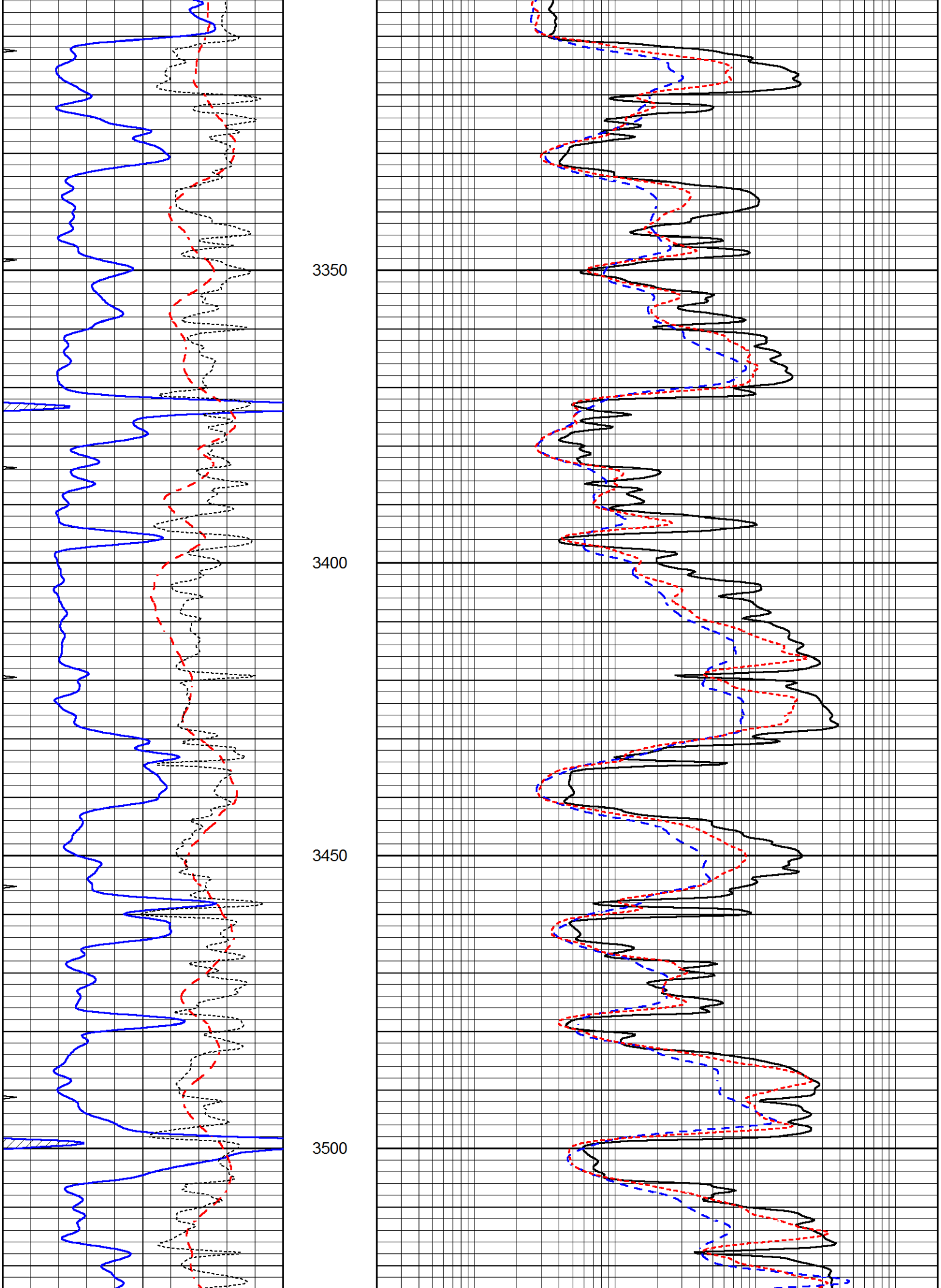
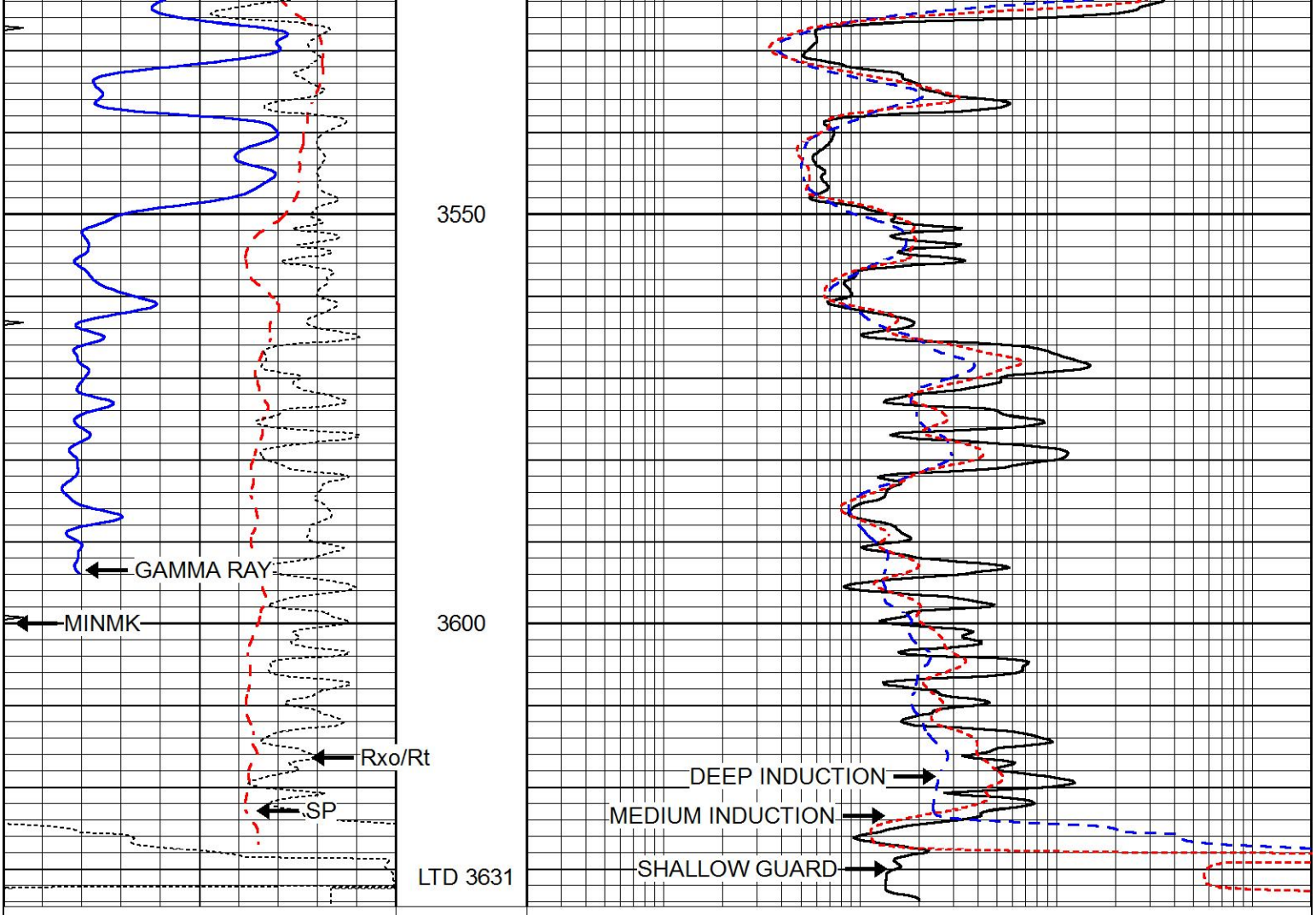
3150
3200
3250
3300


3350
3400
3450
3500



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

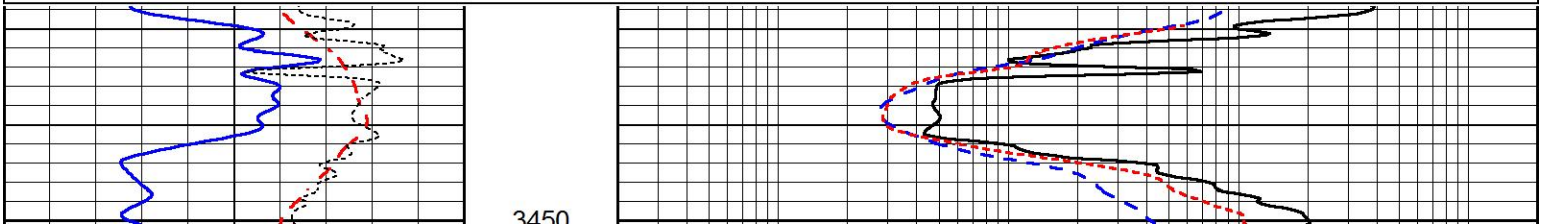
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

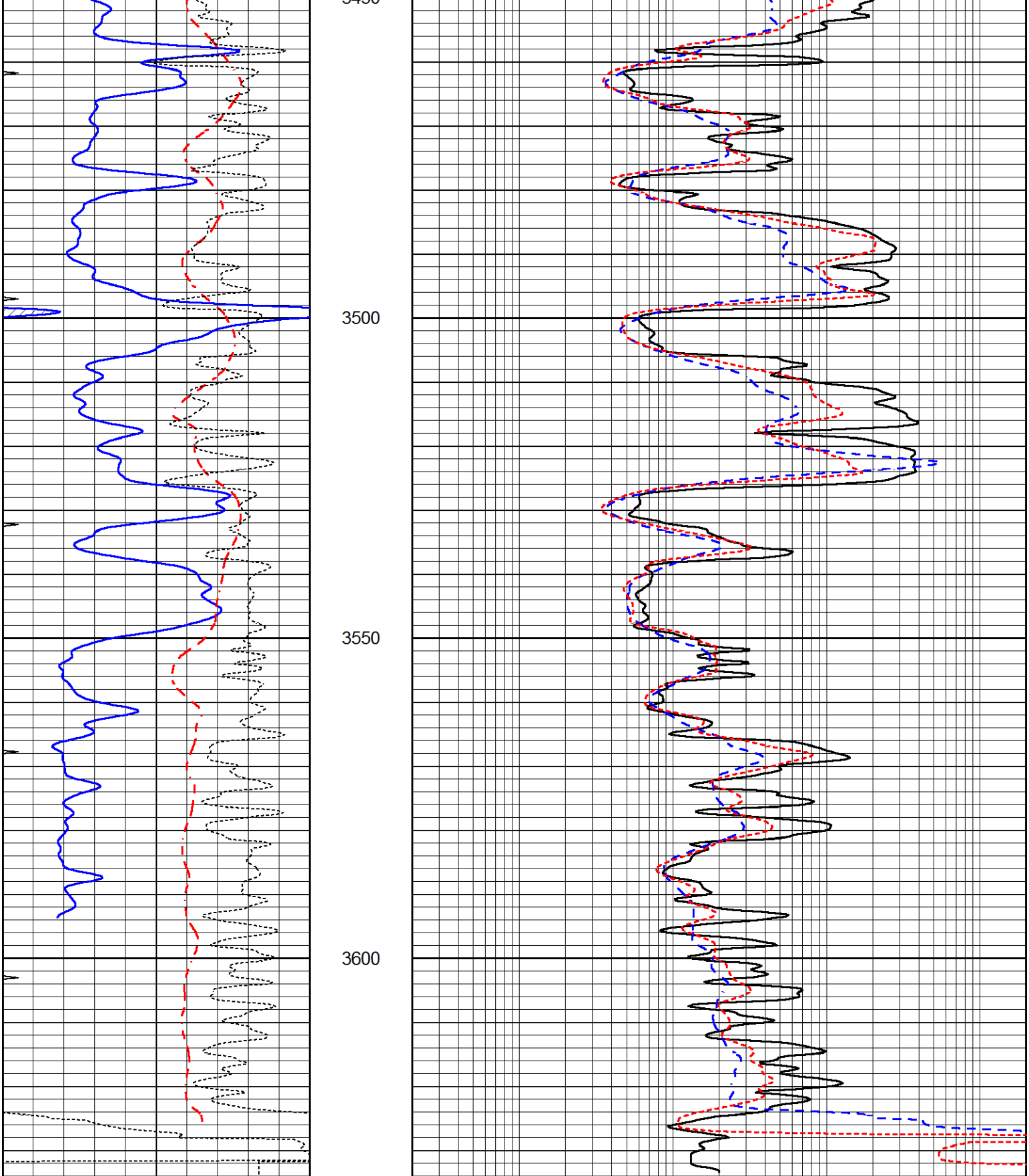
REPEAT SECTION

Database File	5618ddn.db
Dataset Pathname	pass2RP
Presentation Format	_dil
Dataset Creation	Thu Aug 26 13:13:53 2021
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	5618ddn.db
Dataset Pathname	pass2RP

Dataset Pathname pass2RI
Dataset Creation Thu Aug 26 13:13:53 2021

Dual Induction Calibration Report

Serial-Model:	PROBE8-DILG
Surface Cal Performed:	Mon Sep 10 14:28:35 2018
Downhole Cal Performed:	Mon Sep 10 14:28:38 2018
After Survey Verification Performed:	Mon Sep 10 14:28:40 2018

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.029	0.796	V	0.000	464.000	mmho/m	590.000	-12.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.017	0.657	V	0.000	400.000	mmho/m	625.153	-10.619
Medium	0.016	0.757	V	0.000	464.000	mmho/m	625.992	-9.739

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	2.011	405.777	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	7.590	503.393	mmho/m	1.000	0.000
LL3		7.500	V		1500.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		3800.000	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		
		1.000	mmho-m		1.000	mmho-m		

Litho Density Calibration Report

Serial: 001N Model: PRB

Master Calibration

Performed Thu Mar 19 11:30:16 2020

	Background	Magnesium	Aluminum	Aluminum+Fe	
Window 1	1572.2	7510.8	2837.3	2643.1	cps
Window 2	1446.2	6523.9	2552.8	2409.9	cps
Window 3	1060.9	3611.4	1731.5	1684.8	cps
Window 4	145.5	363.4	363.2	368.1	cps
Long Space	0.0	5077.7	1106.6	963.7	cps
Short Space	3.1	1709.3	1103.4	916.9	cps
Rho		1.7100	2.5900	0.0000	g/cc
Pe		2.0000	2.7500	5.7900	

Rib Angle	: 44.0	Rib Slope	: 0.965	Density/Spine Ratio	: 0.555
Spine Angle	: 74.0	Spine Slope	: 3.481	Spine Intercept	: -17.4

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: 6I
Tool Model: G

CALIBRATION

Detector	Readings		Target		Normalization
Short Space	1.00	cps	1.00	cps	1.0000
Long Space	1.00	cps	1.00	cps	1.0000

PRE-SURVEY VERIFICATION

	Detector	Readings		Measured		Target
1)	Short Space		cps			
	Long Space		cps		pu	pu
2)	Short Space		cps			
	Long Space		cps		pu	
3)	Short Space		cps			
	Long Space		cps		pu	

POST-SURVEY VERIFICATION

	Detector	Readings		Measured		Target
1)	Short Space		cps			
	Long Space		cps		pu	pu
2)	Short Space		cps			
	Long Space		cps		pu	pu
3)	Short Space		cps			
	Long Space		cps		pu	pu

Gamma Ray Calibration Report

Serial Number: GR6
Tool Model: OPEN

Performed:	Thu Jul 30 20:04:35 2020	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.7500	GAPI/cps