



**COMPLETION
& PRODUCTION
SERVICES CO.**

**DUAL
INDUCTION
LOG**

Company	BLACK DIAMOND OIL, INC.	Company	BLACK DIAMOND OIL, INC.
Well	KS BRAND #1	Well	KS BRAND #1
Field	RAY WEST	Field	RAY WEST
County	NORTON	County	NORTON
State	KANSAS	State	KANSAS
Location:	API # : 15-137-20731-00-00 SW - NW - SE - NW 1700' FNL & 1340' FWL	Other Services CNL/CDL MEL	
Permanent Datum	SEC 22 TWP 5S RGE 21W	Elevation	
Log Measured From	GROUND LEVEL Elevation 2144 KELLY BUSHING 5' A.G.L	K.B. 2149 D.F. 2147 G.L. 2144	
Drilling Measured From	KELLY BUSHING		
Date	5-16-15		
Run Number	ONE		
Depth Driller	3583		
Depth Logger	3583		
Bottom Logged Interval	3581		
Top Log Interval	00		
Casing Driller	8 5/8 @ 217		
Casing Logger	217		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 750 PPM	
Density / Viscosity	9.4/57		
pH / Fluid Loss	10.0/7.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	2.00 @ 74F		
Rmf @ Meas. Temp	1.50 @ 74F		
Rmc @ Meas. Temp	2.40 @ 74F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	0.01 @ 113F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	113F		
Equipment Number	3802		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	JEFF LAWLER		

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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.

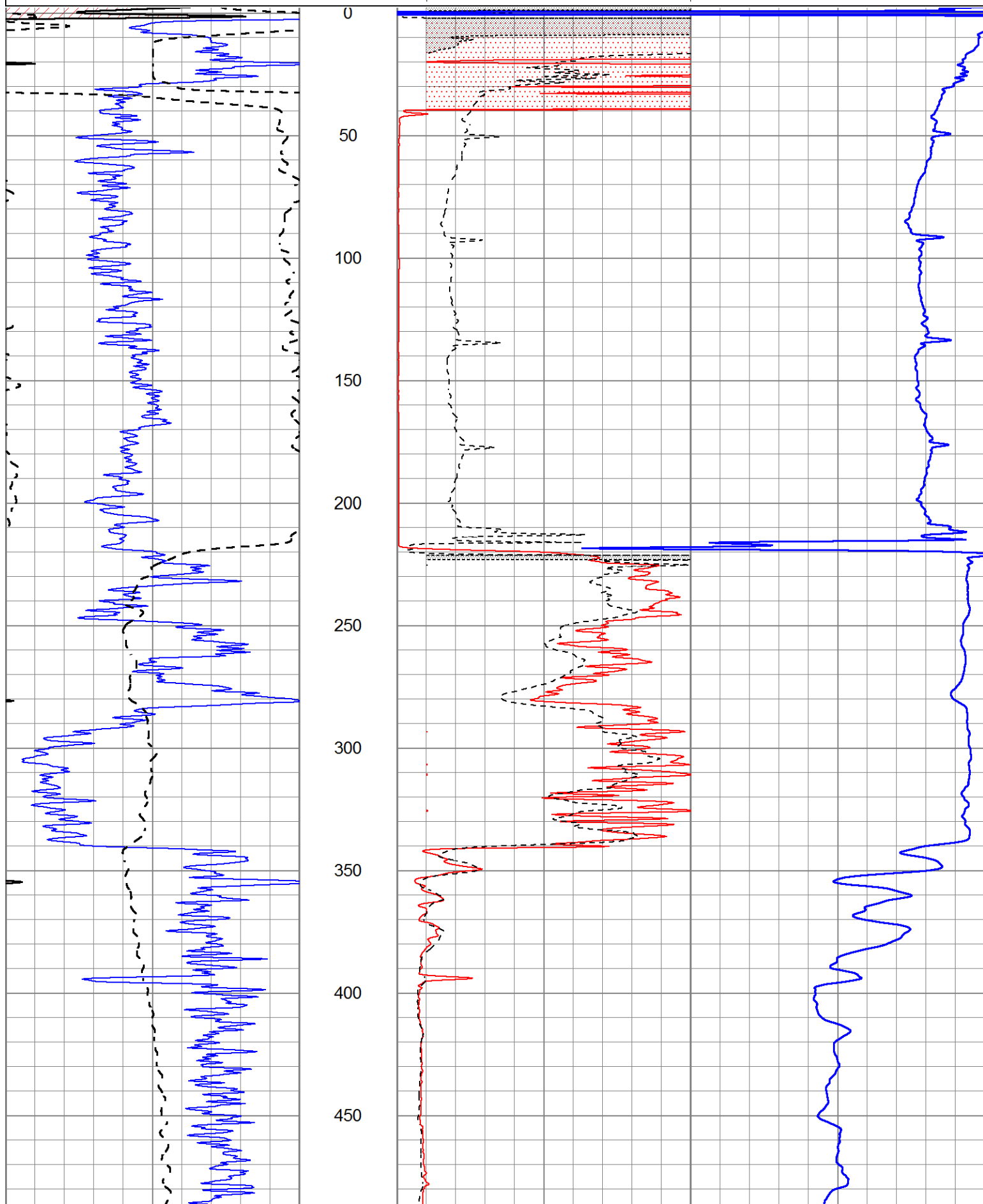
Comments

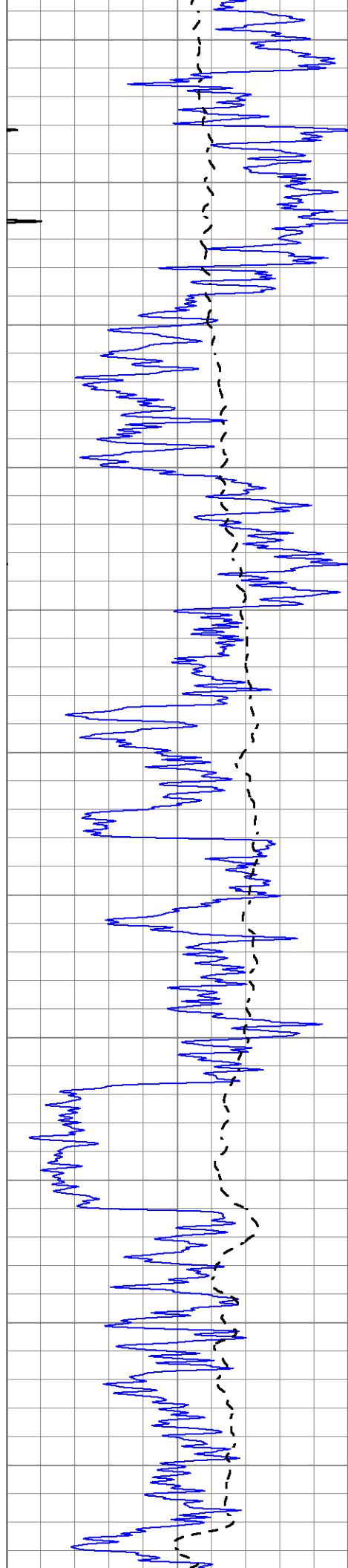
THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
DIRECTIONS : LOGAN, KS. - 5 MILES WEST TO RD 12 - 1.5 MILES SOUTH TO RD Z - 1 MILE WEST
TO RD 11 - 3 MIILES SOUTH EAST INTO AT THE CATTLE GUARD.

Database File 26441ddn8.db
Dataset Pathname pass3.3
Presentation Format _dil2
Dataset Creation Sat May 16 11:34:34 2015
Charted by Depth in Feet scaled 1:600

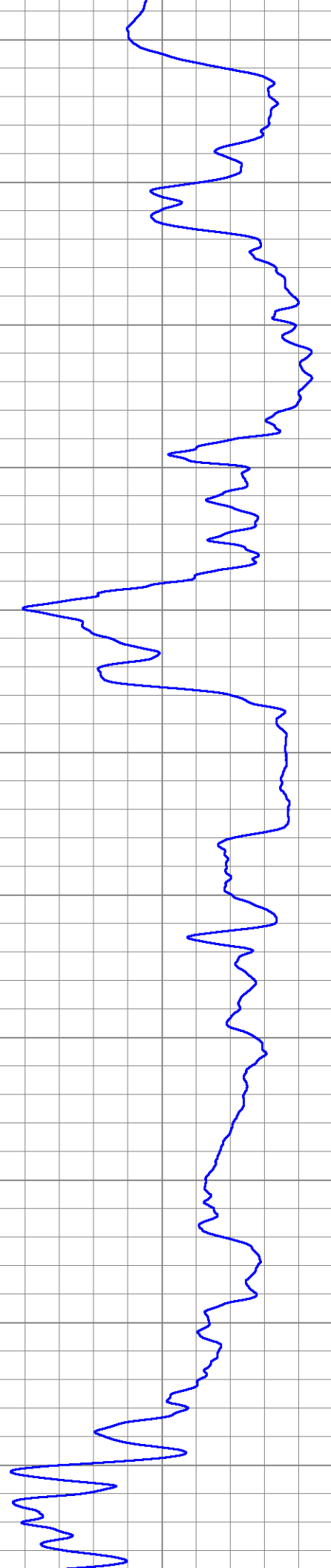
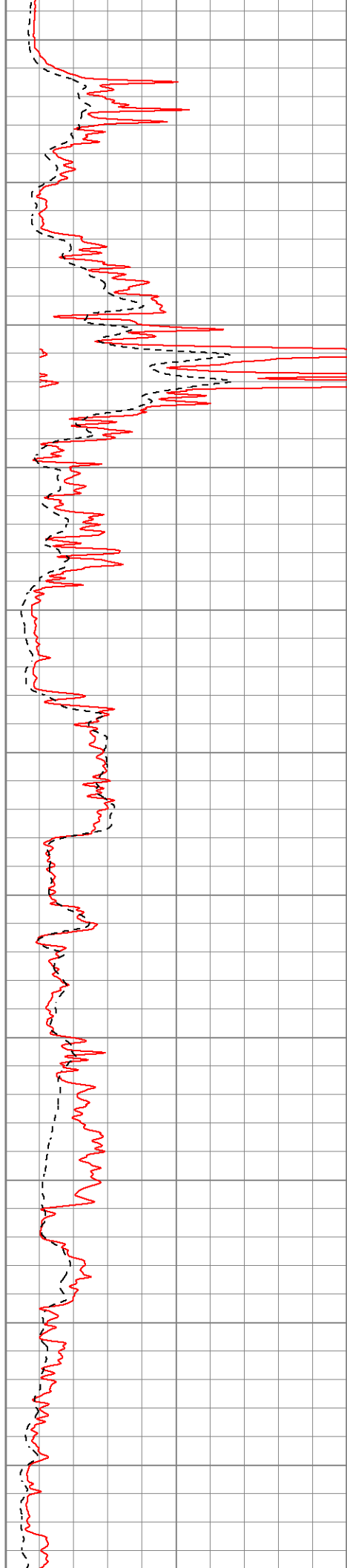
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

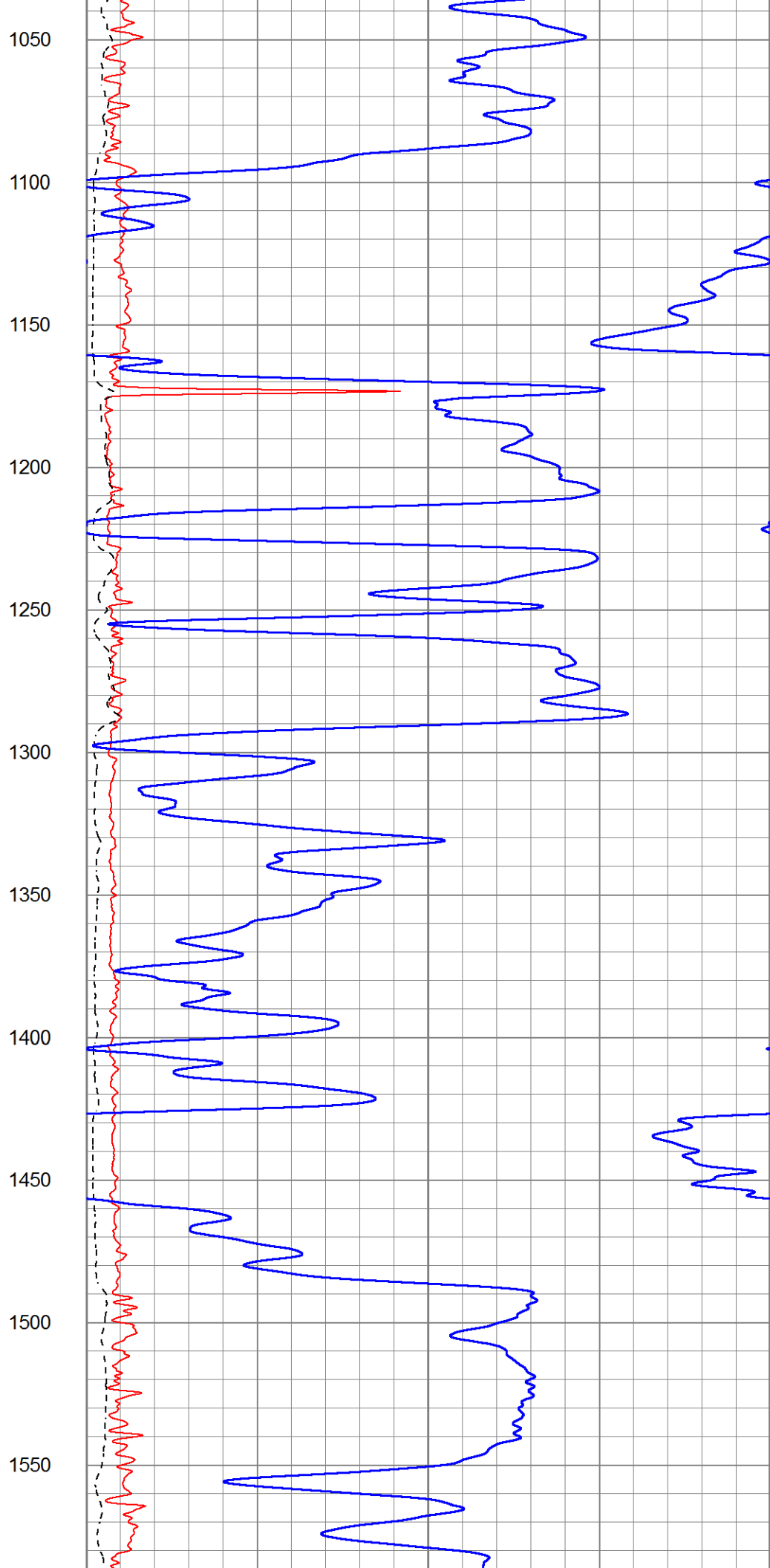
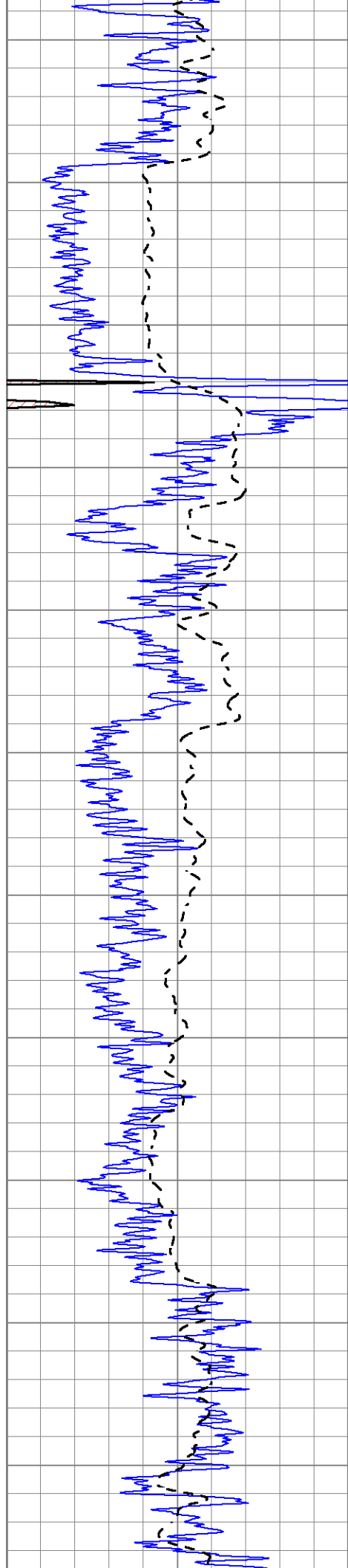
1000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50
0	Deep Induction (Ohm-m)	50
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

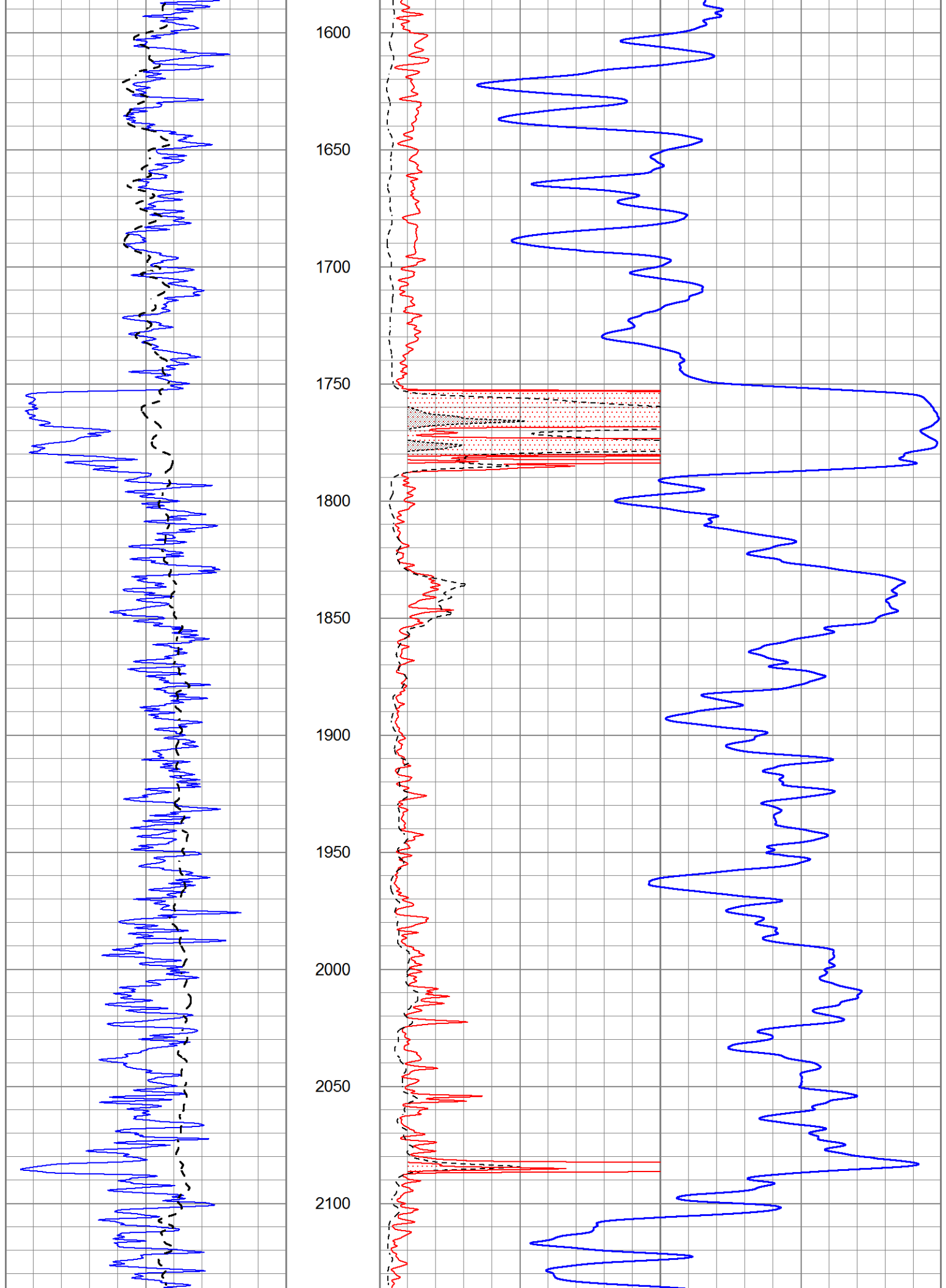


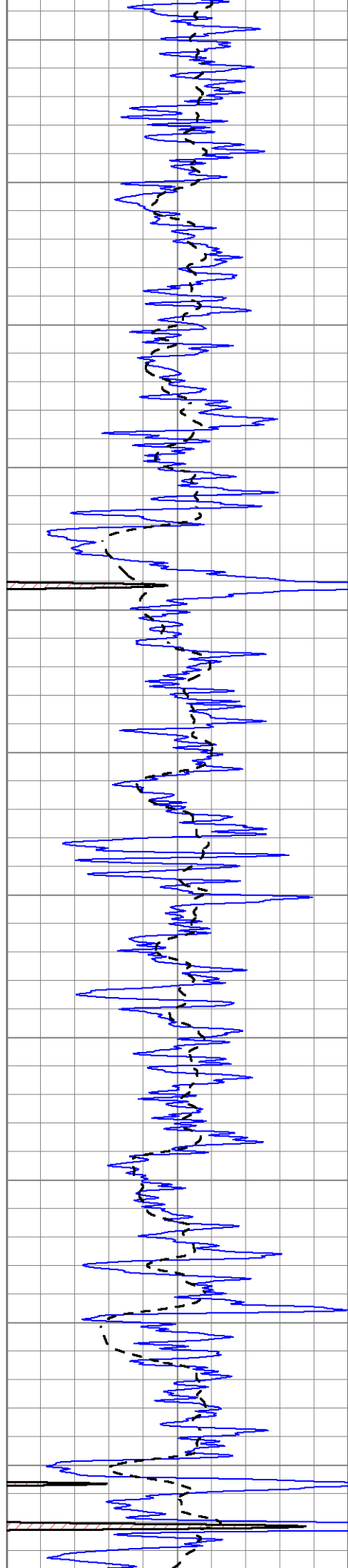


500
550
600
650
700
750
800
850
900
950
1000









2150

2200

2250

2300

2350

2400

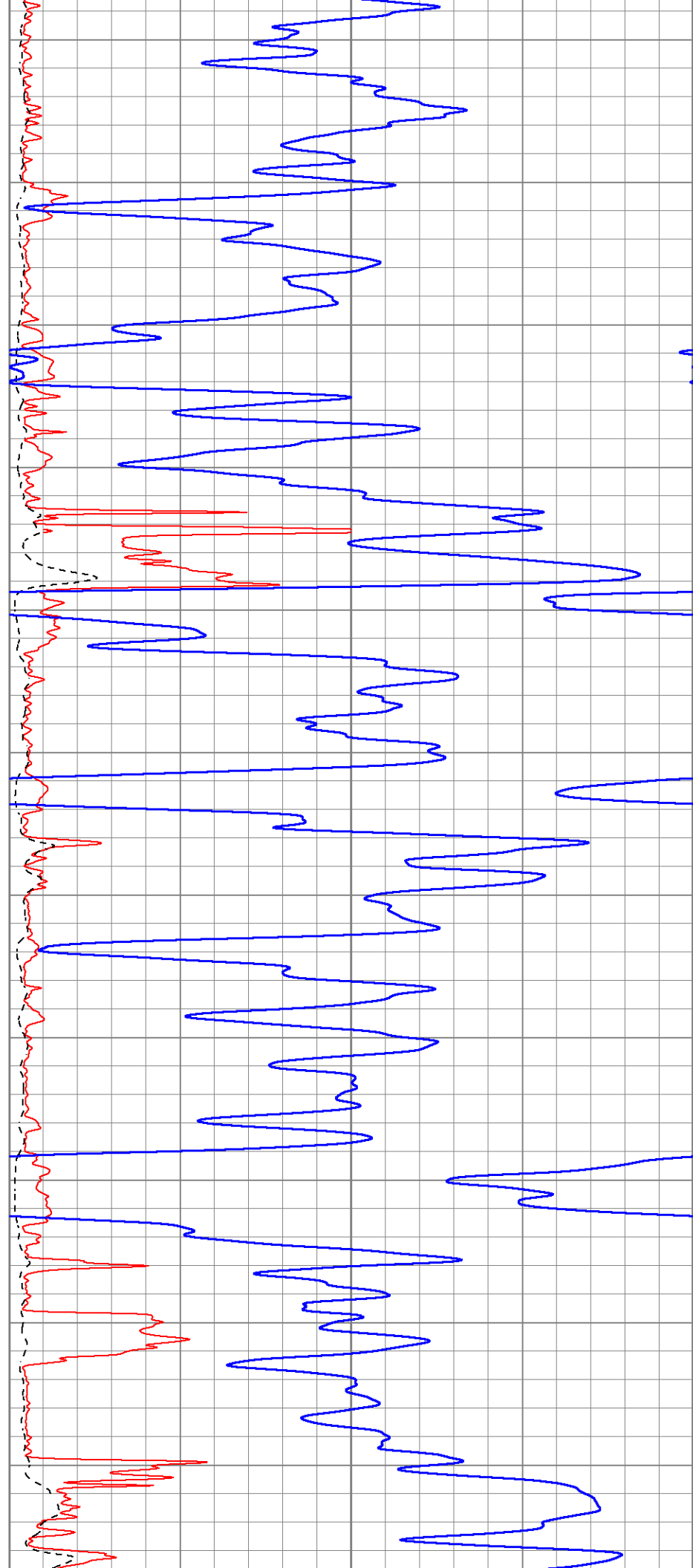
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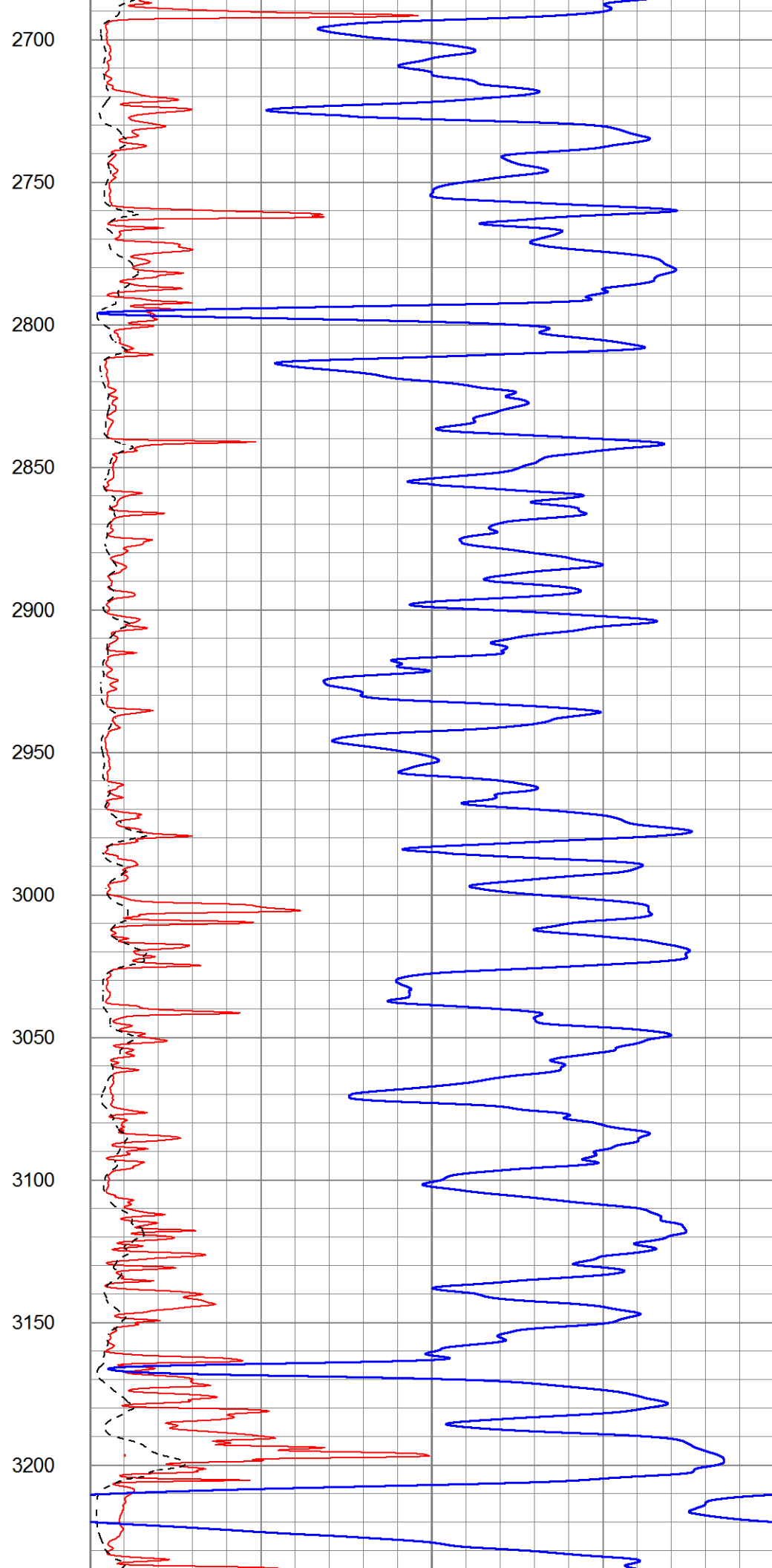
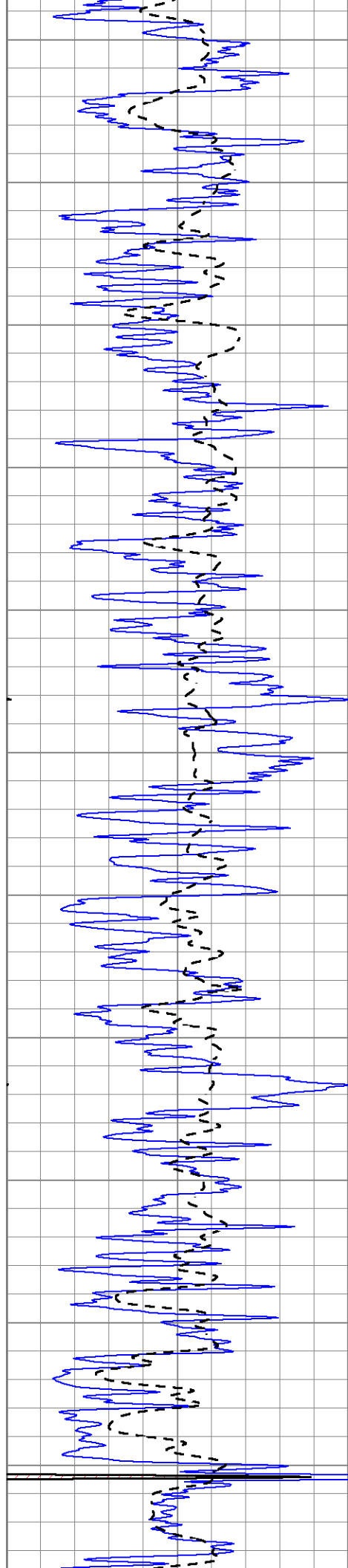
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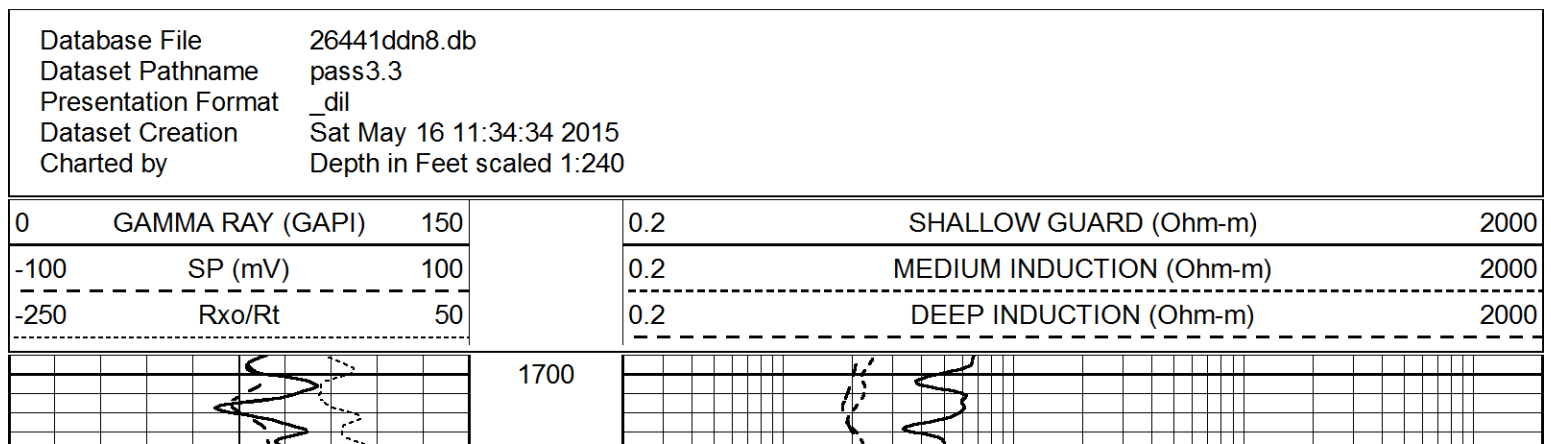
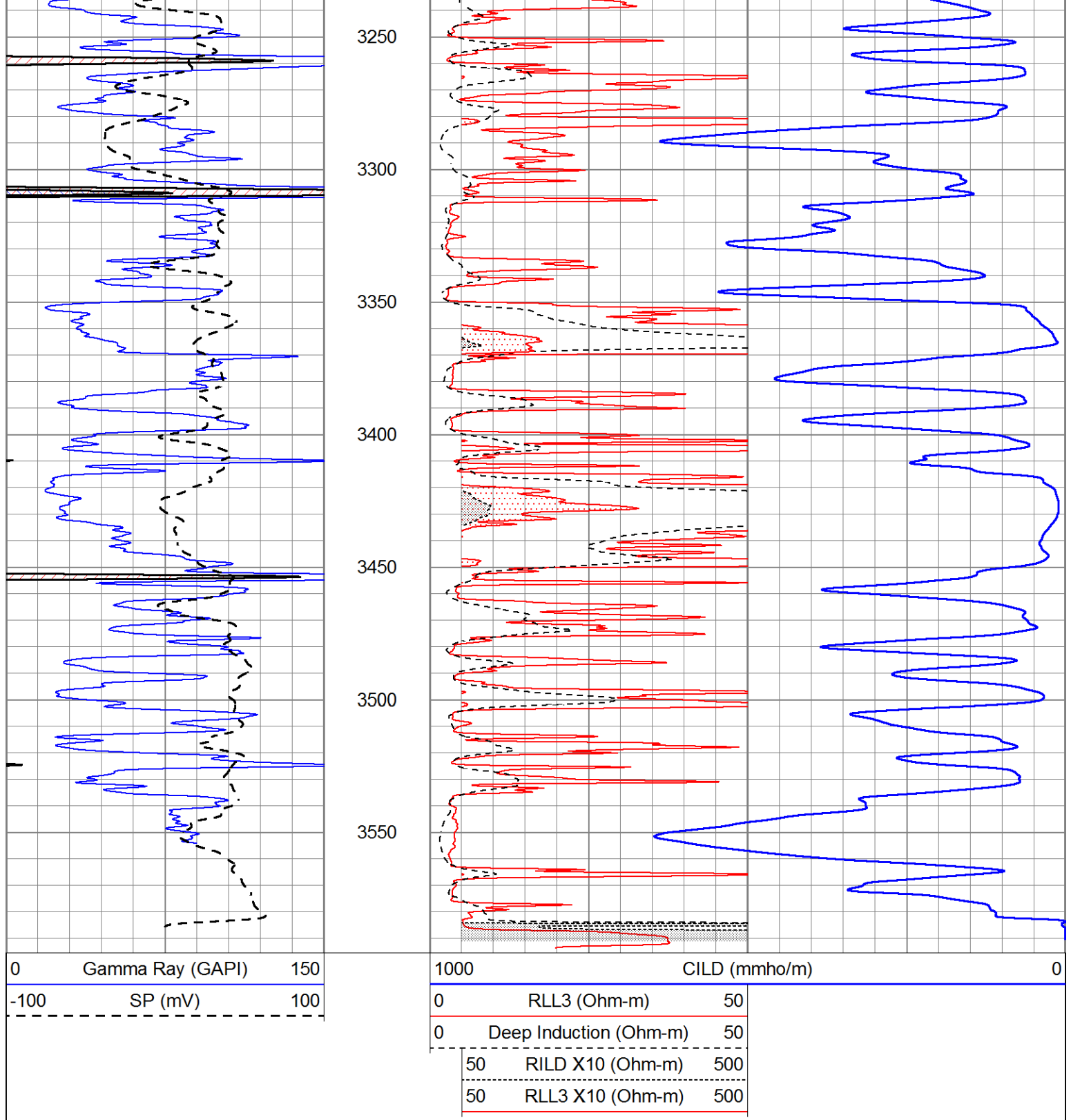
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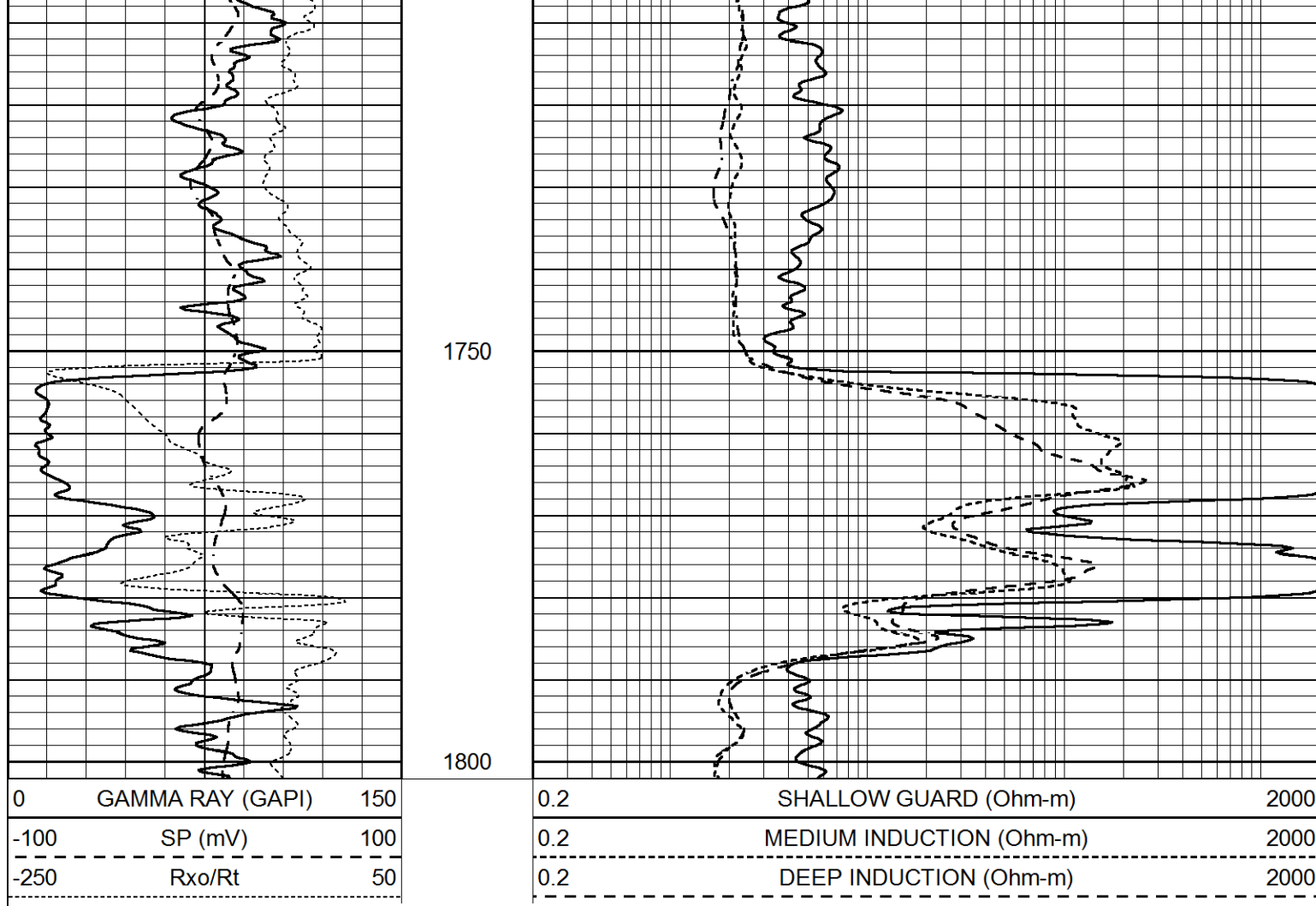
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2650

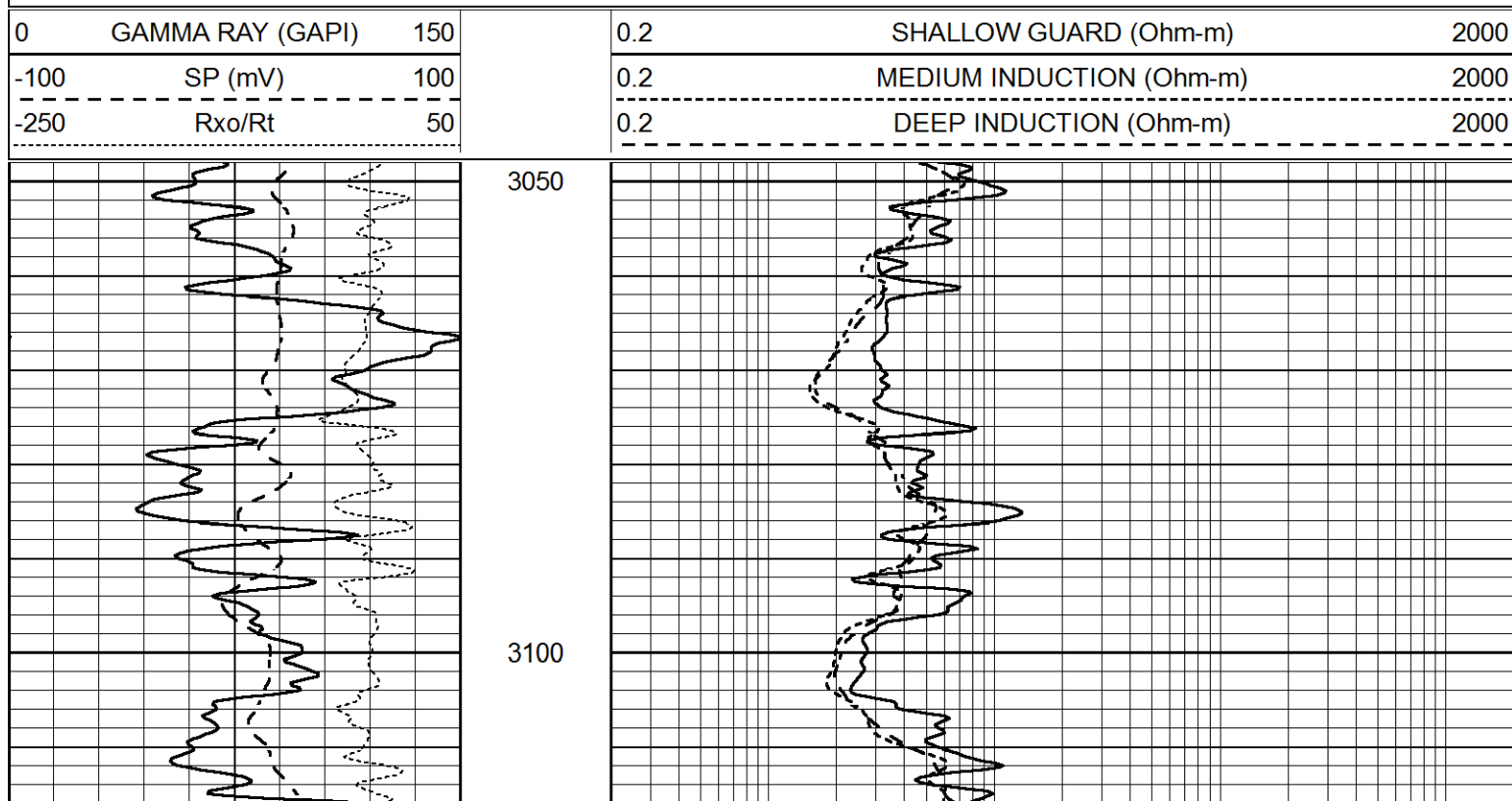


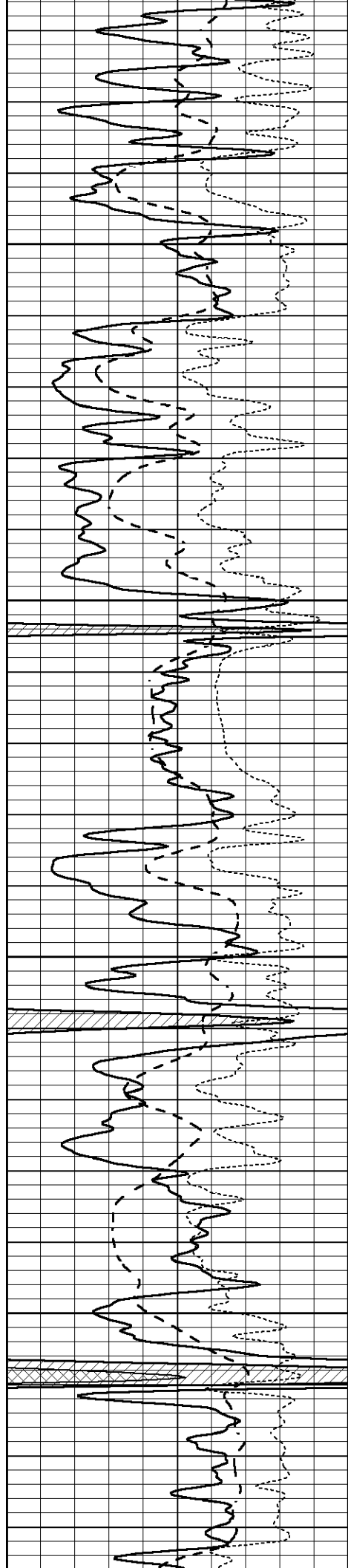






Database File 26441ddn8.db
 Dataset Pathname pass3.3
 Presentation Format _dil
 Dataset Creation Sat May 16 11:34:34 2015
 Charted by Depth in Feet scaled 1:240



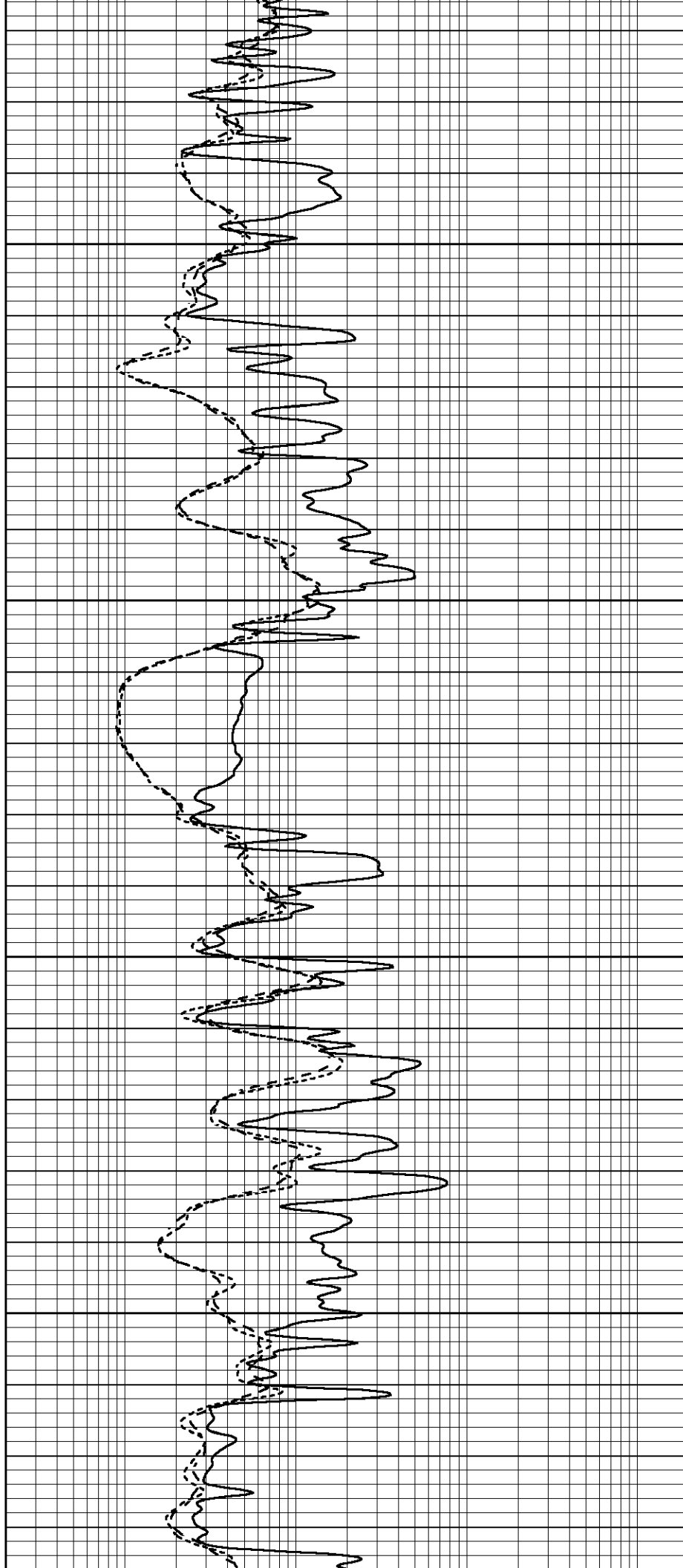


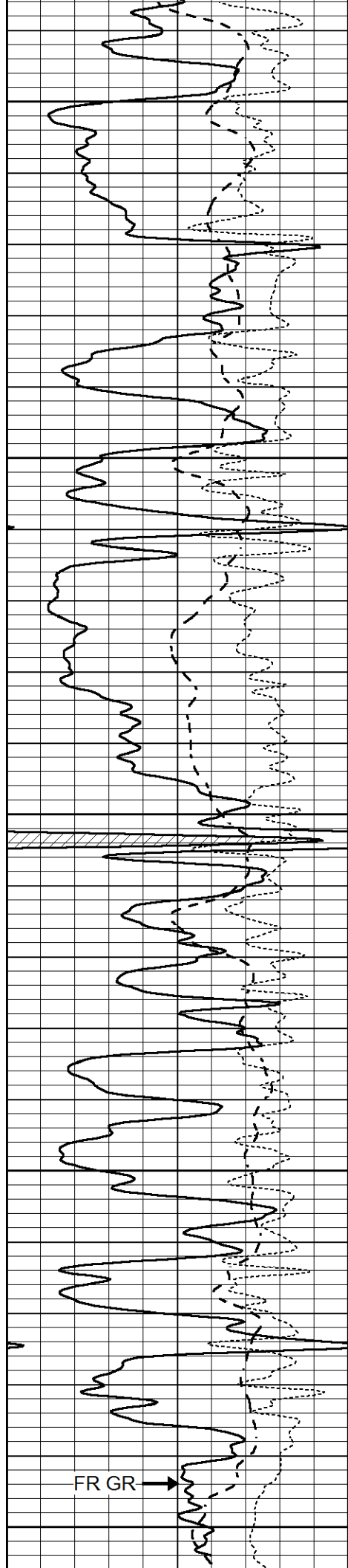
3150

3200

3250

3300





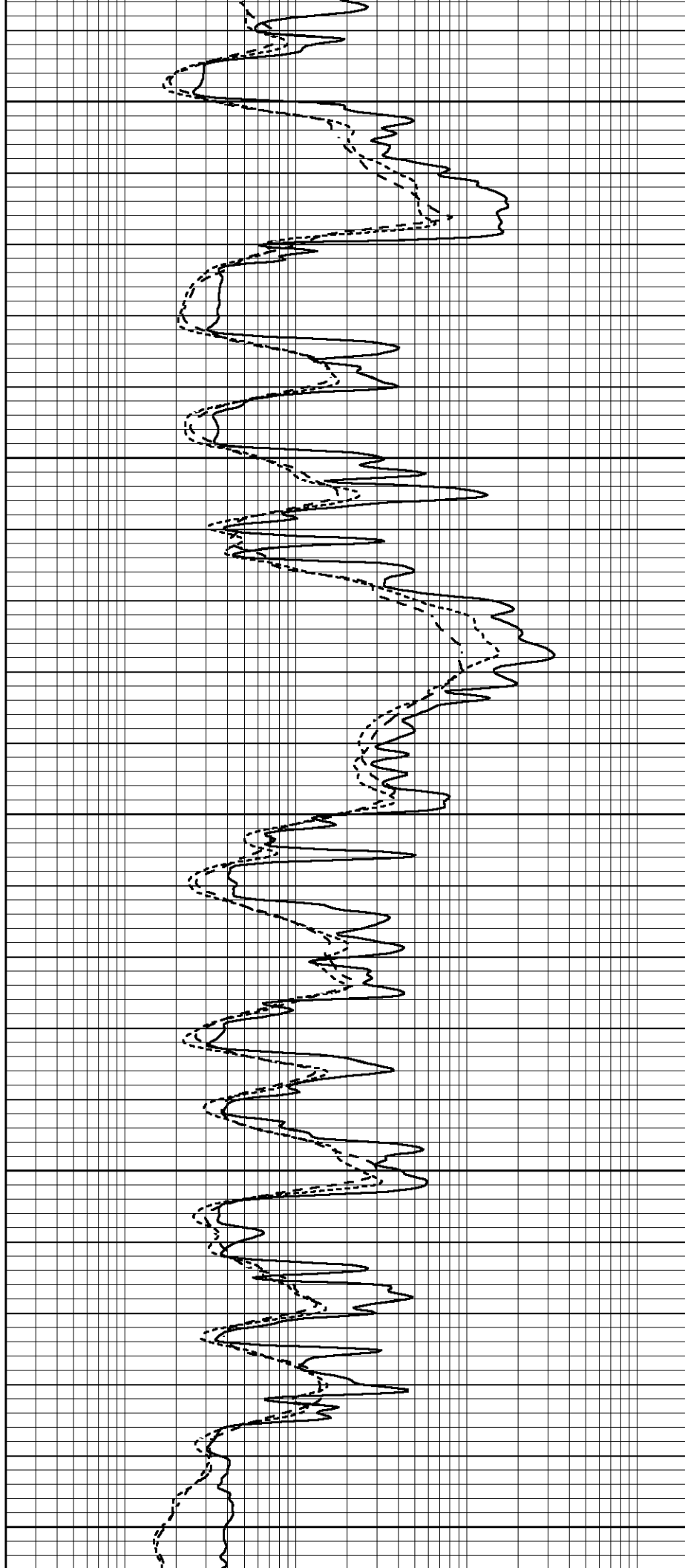
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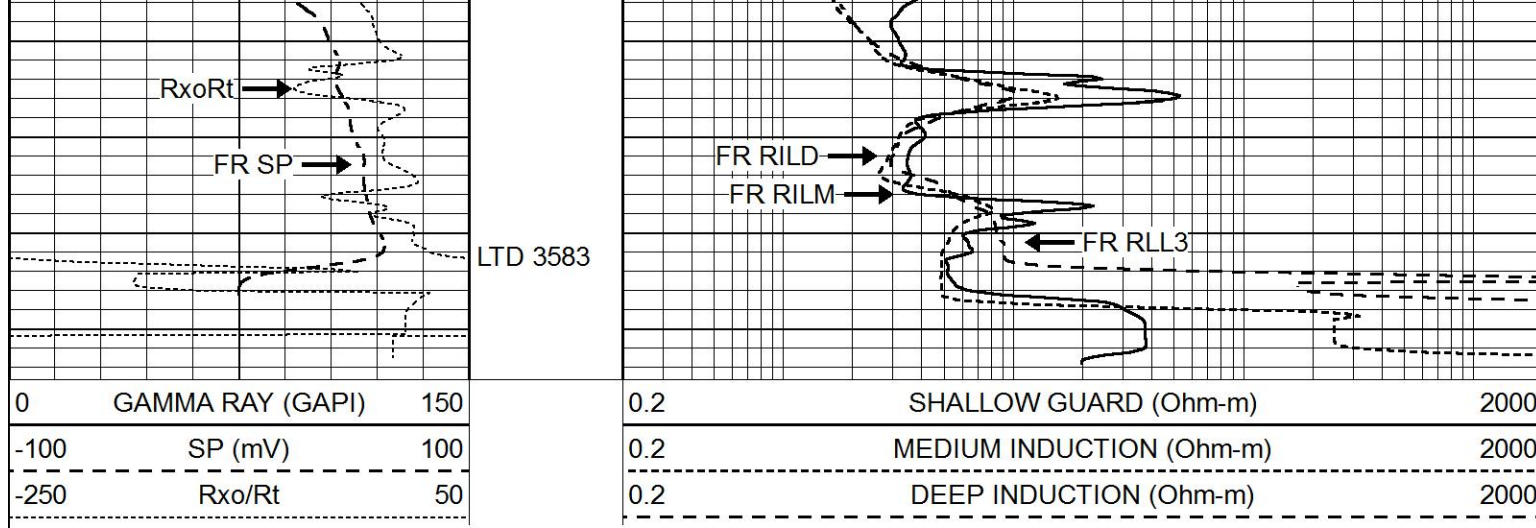
3400

3450

3500

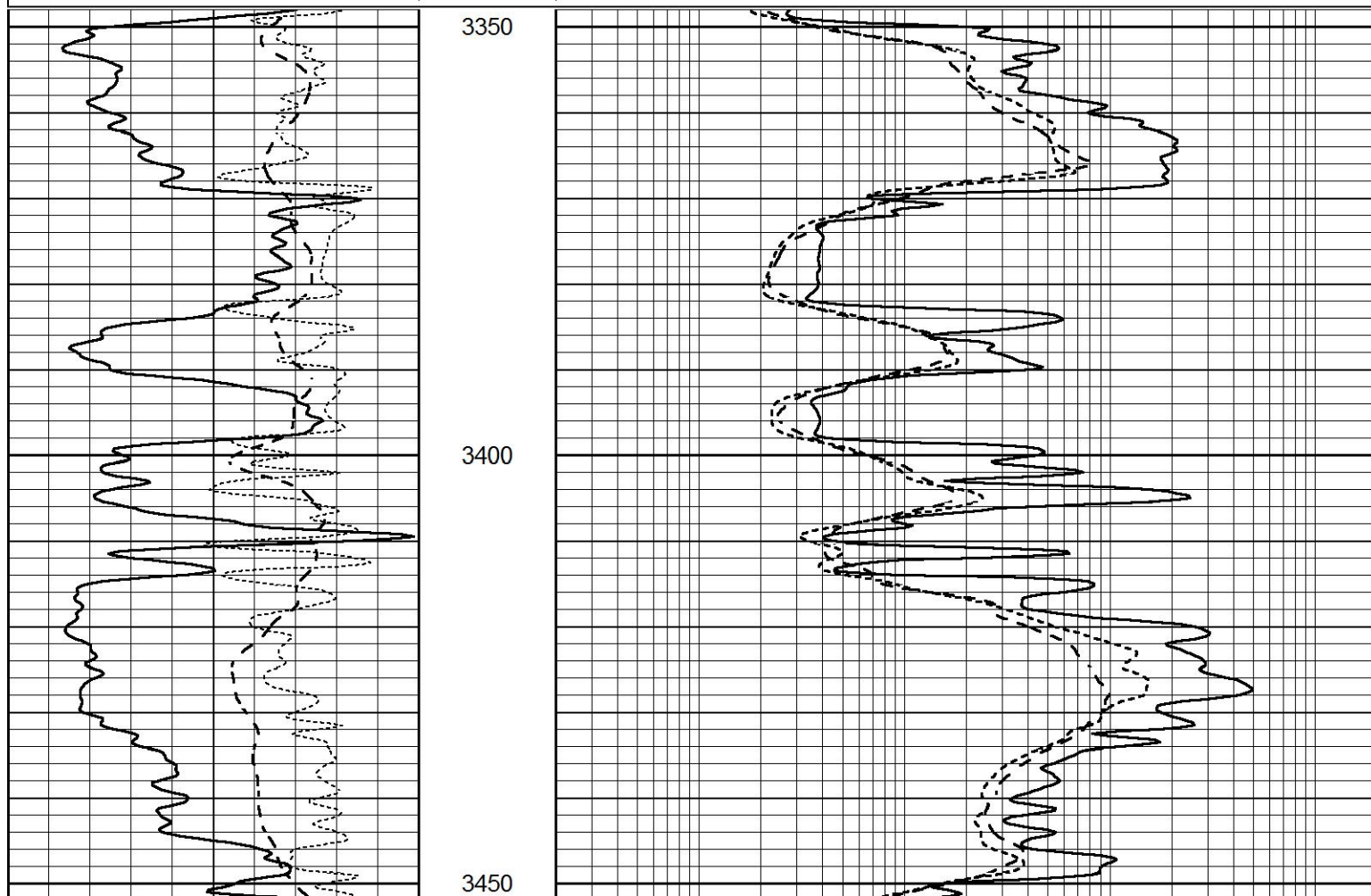
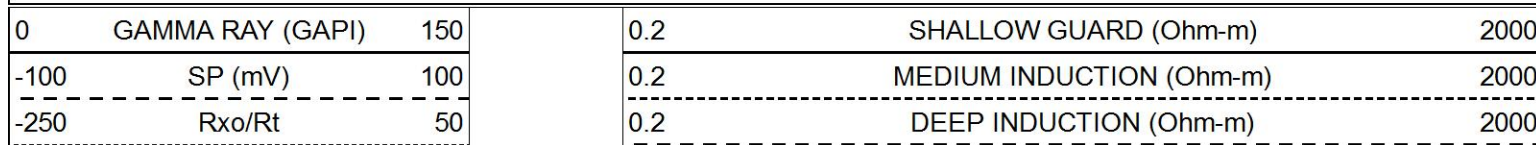
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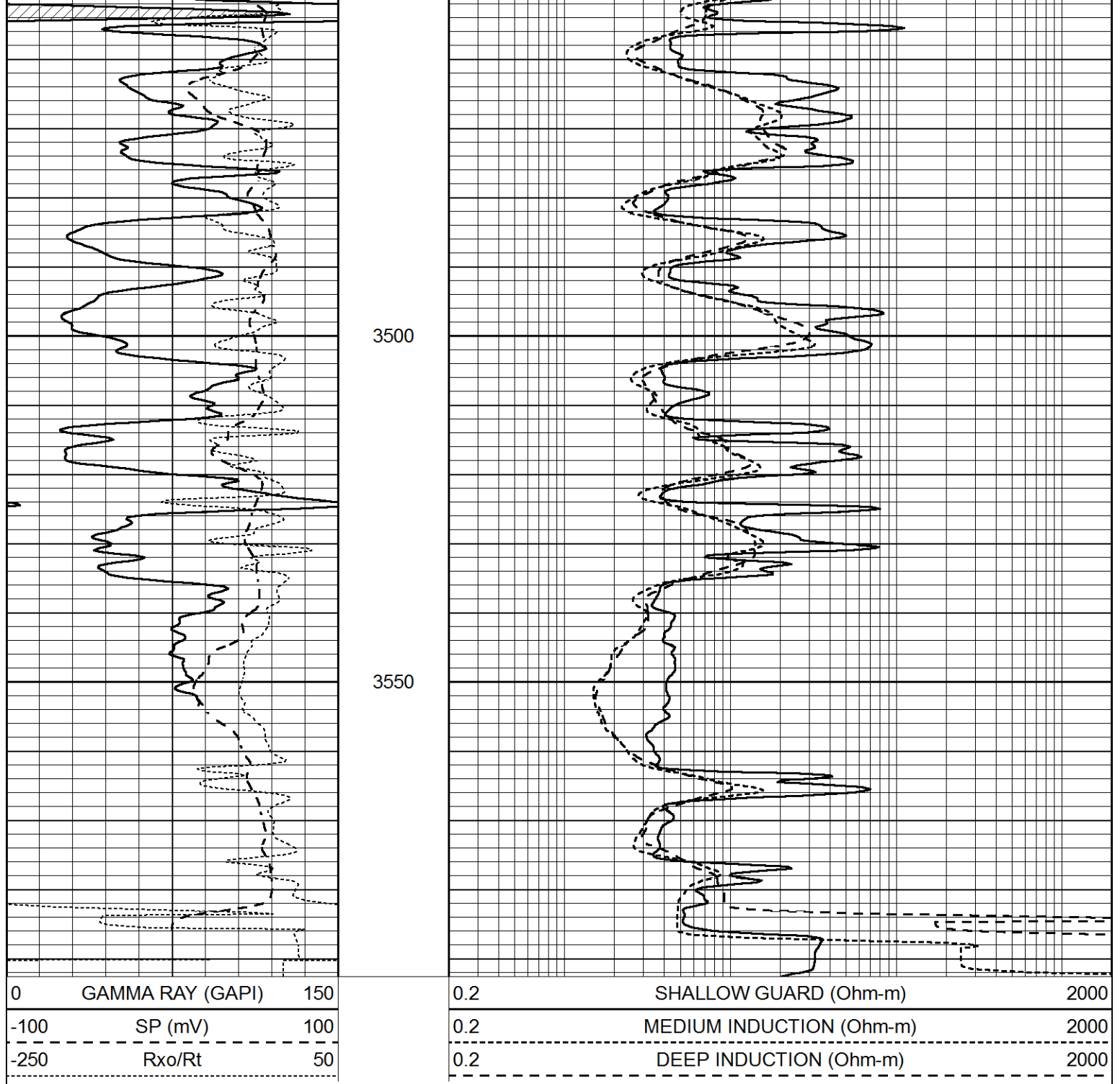




REPEAT SECTION

Database File 26441ddn8.db
Dataset Pathname pass2.2
Presentation Format _dil
Dataset Creation Sat May 16 11:19:17 2015
Charted by Depth in Feet scaled 1:240





Calibration Report

Database File 26441ddn8.db
 Dataset Pathname pass3.3
 Dataset Creation Sat May 16 11:34:34 2015

Dual Induction Calibration Report

Serial-Model: FW1410-55-Probe
 Surface Cal Performed: Thu Mar 12 09:27:11 2015
 Downhole Cal Performed: Thu Mar 12 09:29:20 2015
 After Survey Verification Performed: Thu Mar 12 09:29:20 2015

Surface Calibration

Readings			References			Results	
Loop:	Air	Loop	Air	Loop		m	b
Deep	0.011	0.050	1.000	100.000	mmho/cm	010.505	5.524

Deep	0.011	0.656	V	1.000	464.000	mmho/m	618.595	-5.524
Medium	-0.000	0.731	V				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 Feb 11 16:57:09 2015			
	Background	Aluminum	Magnesium					
Window 1	594.39	6349.98	29204.00	cps				
Window 2	47.14	1460.46	7334.94	cps				
Window 4	261.52	1478.45	6338.23	cps				
Window 5	633.19	10381.10	19565.80	cps				
Window 6	49.78	1758.01	3436.39	cps				
Window 8	302.39	3297.16	6093.06	cps				
Bulk Density	-	2.6020	1.6830	g/cc				
Pe	-	3.0000	2.5070	b/e				
LS Alpha:	: -1.8570	SS Alpha:	: -0.7600	LS CPE:		: 1.1652		
LS Beta:	: 157430.0395	SS Beta:	: 22665.8398	SS CPE:		: 1.4739		
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 Feb 11 16:57:09 2015	
Results	Readings		References (in)		
Low	High	Low	High	Gain	Offset
5280.9	9455.1	8.6	14.0	0.0	1.2

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

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

Compensated Neutron Calibration Report			
		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:	070558		
Tool Model:	Probe1		
Performed:	Tue Jun 10 17:54:10 2014		
Calibrator Value:	1.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	1.0	cps	
Sensitivity:	0.3000	GAPI/cps	