



# DUAL INDUCTION LOG

Company K & N PETROLEUM, INC.  
 Well BIG HOUSE #8-1  
 Field BOYD  
 County BARTON State KANSAS

Location: API #: 15-009-26378-0000  
 1165' FSL & 1118' FEL  
 NW - NW - SE - SE  
 SEC 8 TWP 18S RGE 13W  
 Permanent Datum GROUND LEVEL Elevation 1811  
 Log Measured From KELLY BUSHING 10' A.G.L.  
 Drilling Measured From KELLY BUSHING  
 Other Services  
 CDL/CNL  
 MEL/SONIC  
 Elevation  
 K.B. 1821  
 D.F. 1819  
 G.L. 1811

Date	1/19/23
Run Number	ONE
Depth Driller	3370
Depth Logger	3372
Bottom Logged Interval	3370
Top Log Interval	00
Casing Driller	8 5/8"@736'
Casing Logger	736
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.0/59
pH / Fluid Loss	10.0/6.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.600@54F
Rmf @ Meas. Temp	.450@54F
Rmc @ Meas. Temp	.720@54F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	.295@110F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	7:15 A.M.
Maximum Recorded Temperature	110F
Equipment Number	8916
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	JIM MUSGROVE
	ED NEMNICH

<<< Fold Here >>>

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, HAYS, KS. (785) 628-6395  
 DIRECTIONS:  
 HOISINGTON, KS., 1/2S. ON HWY 281, W. INTO

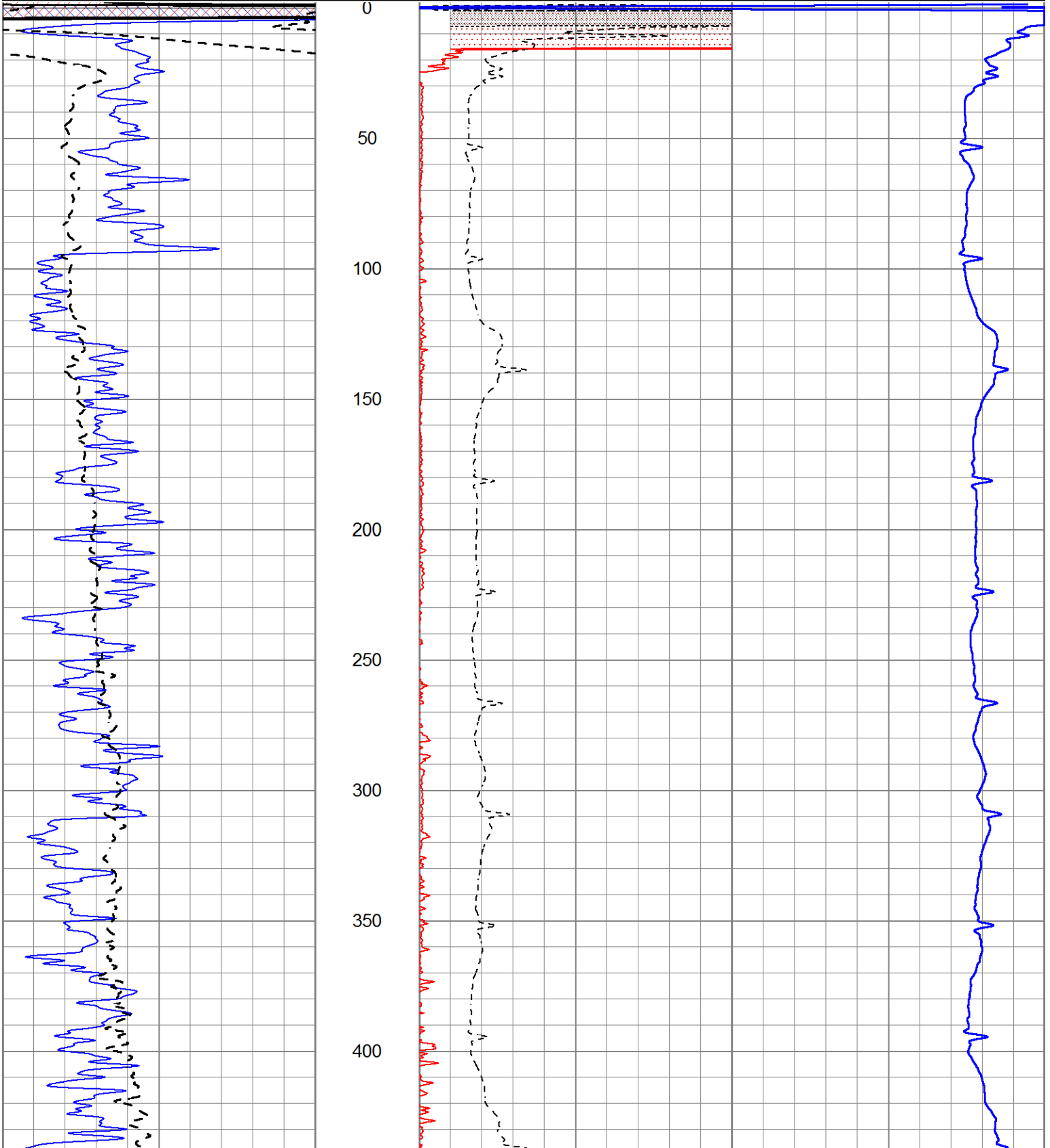


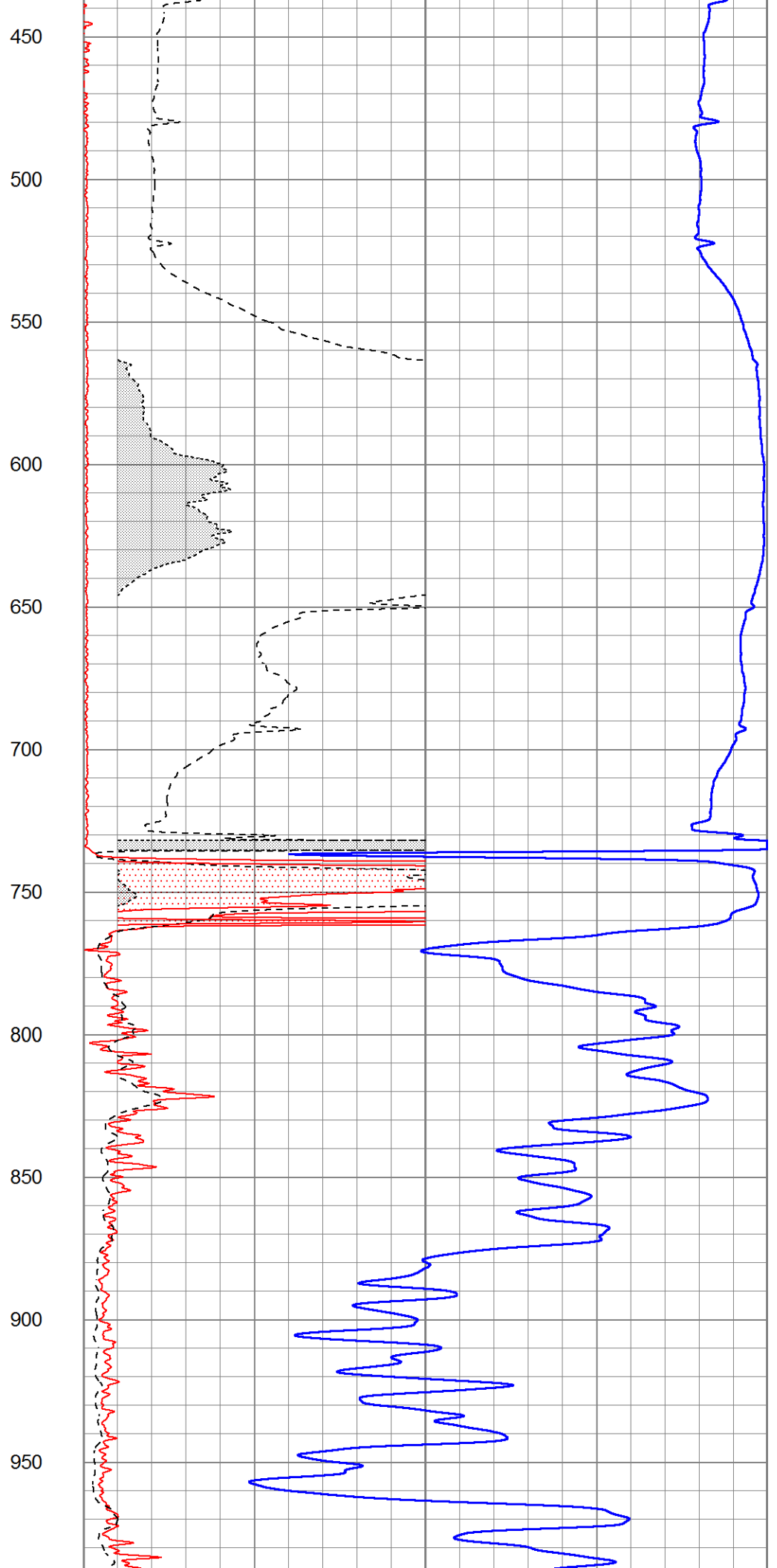
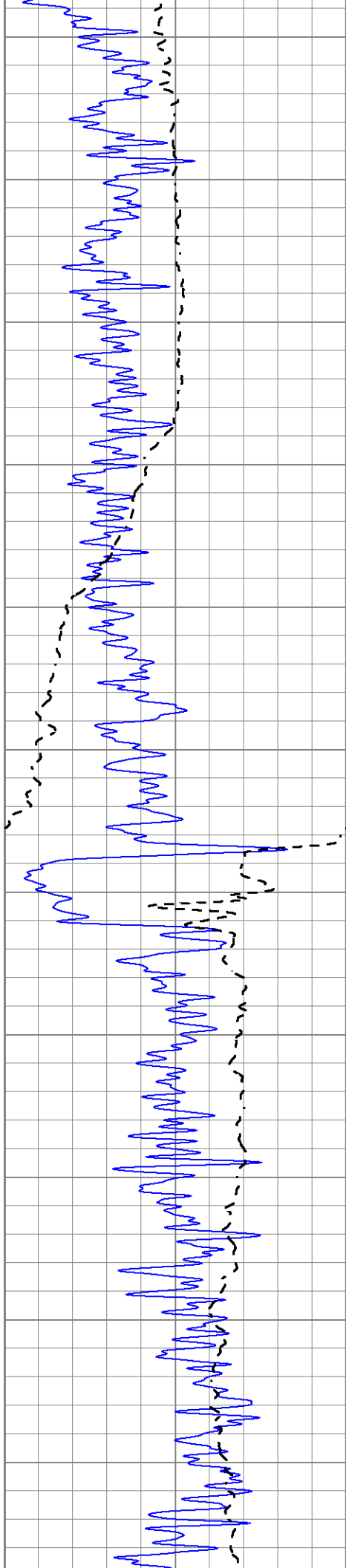
# MAIN SECTION

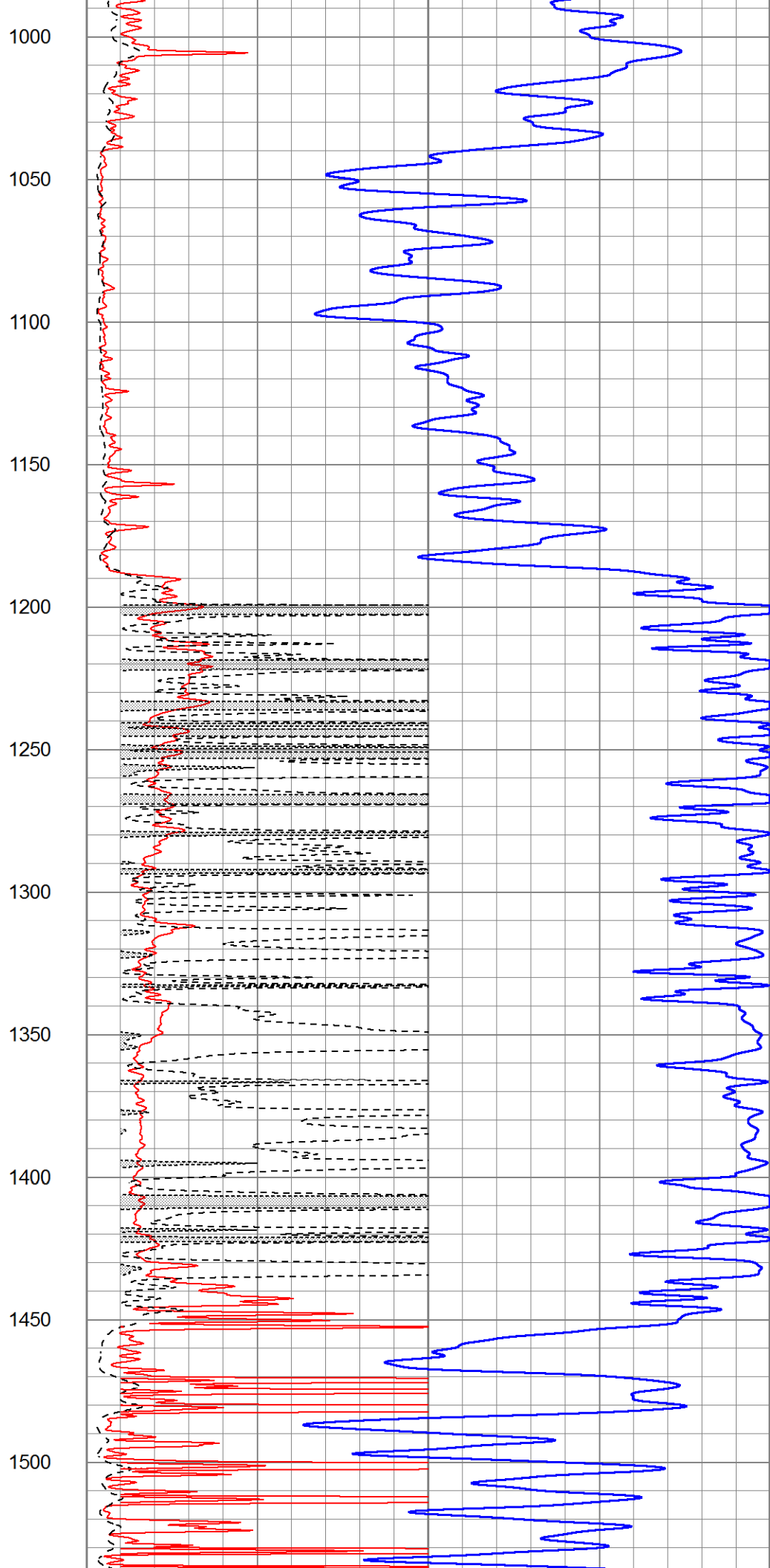
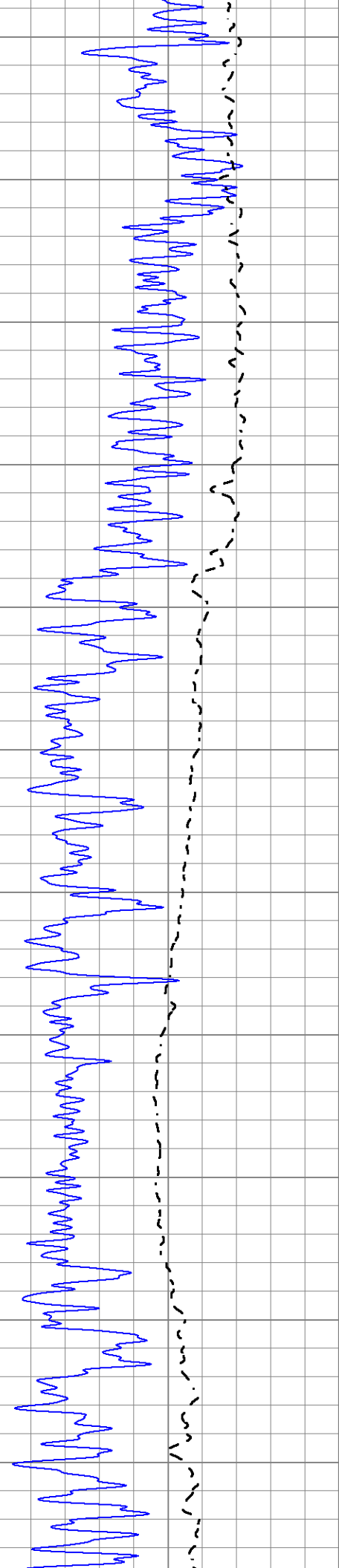
Database File 7443ddn.db  
 Dataset Pathname pass3.1D  
 Presentation Format \_dil2  
 Dataset Creation Thu Jan 19 09:04:13 2023  
 Charted by Depth in Feet scaled 1:600

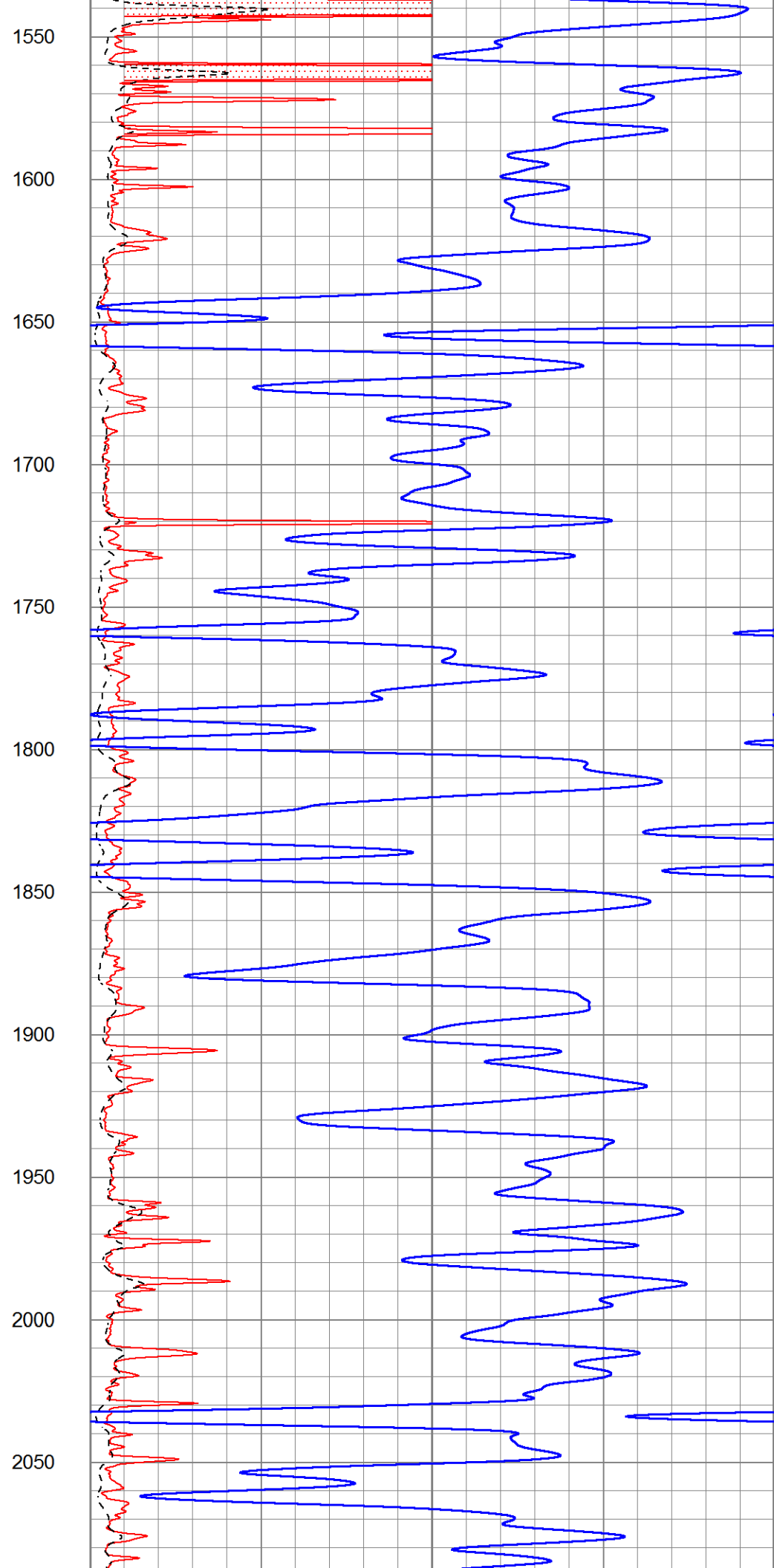
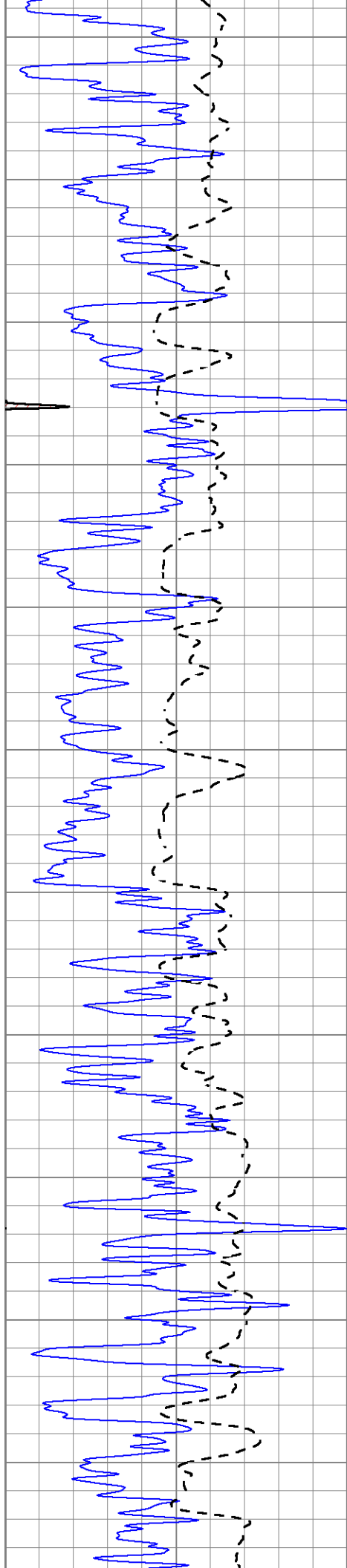
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

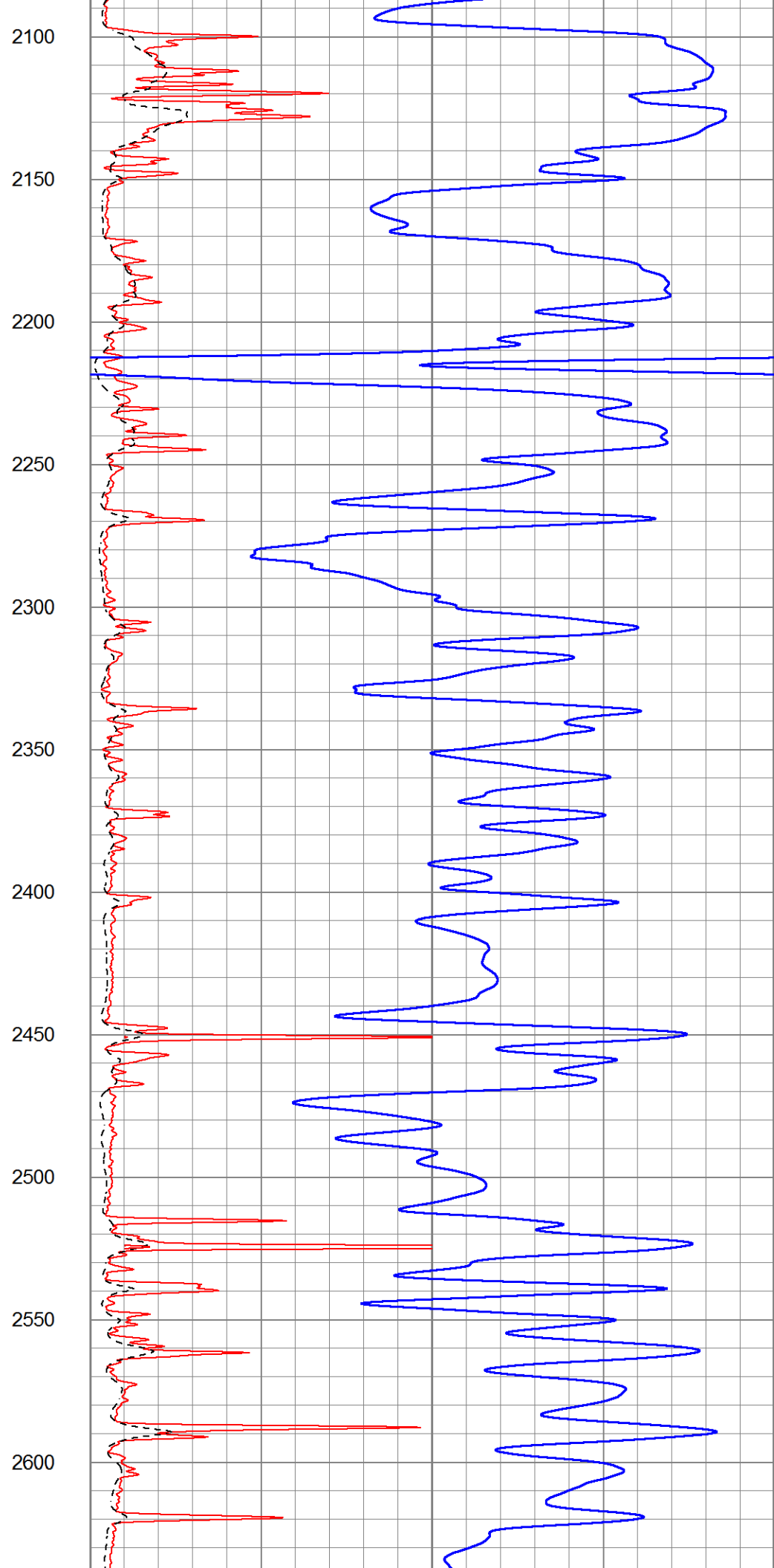
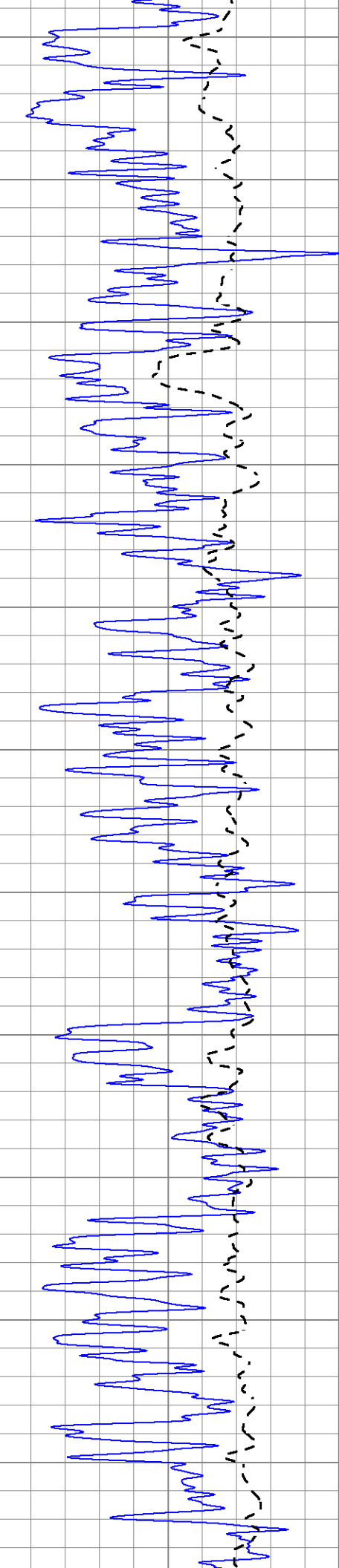
1000	CILD (mmho/m)	0
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50
50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500

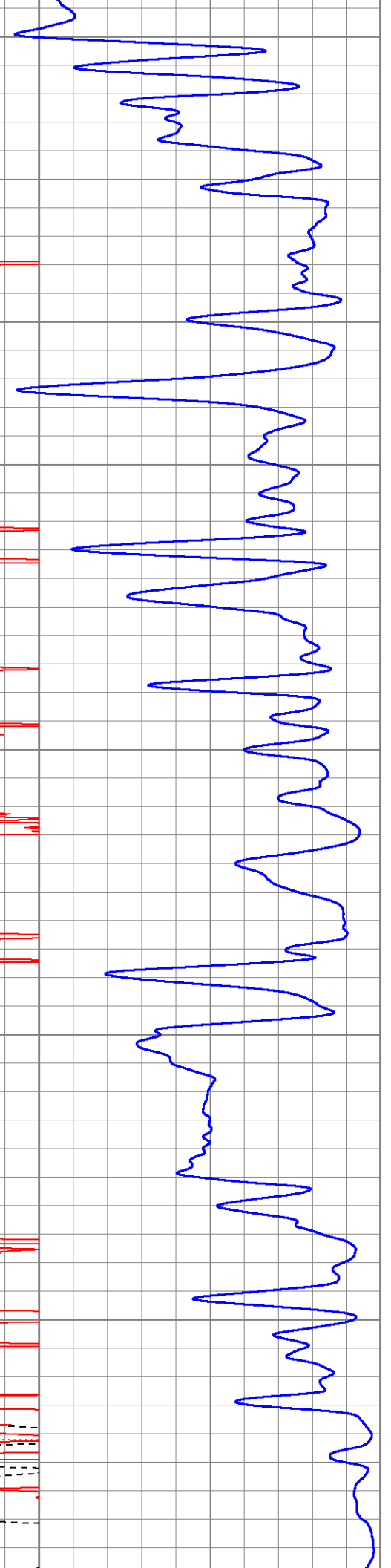
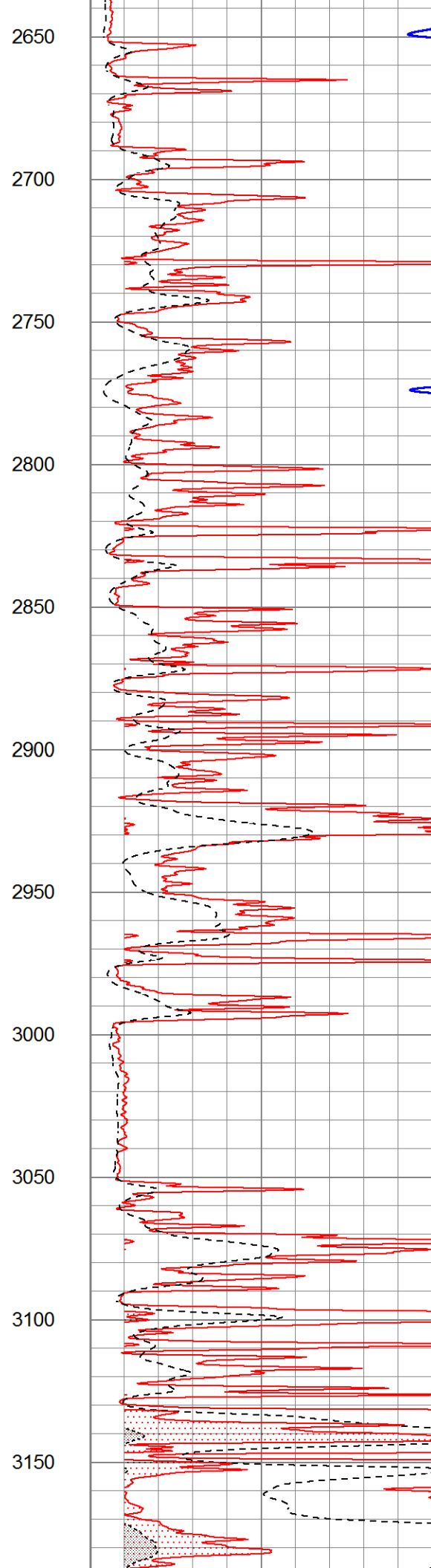
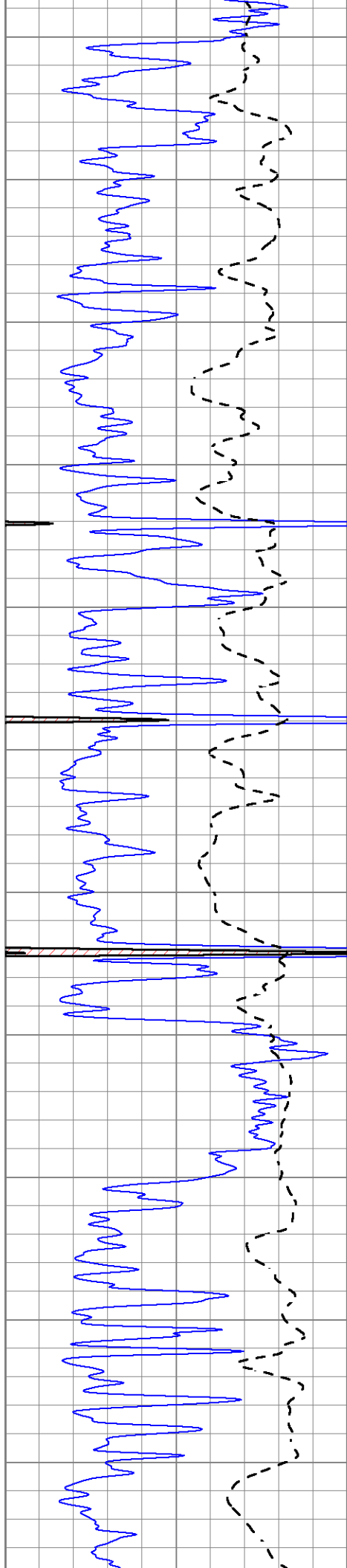


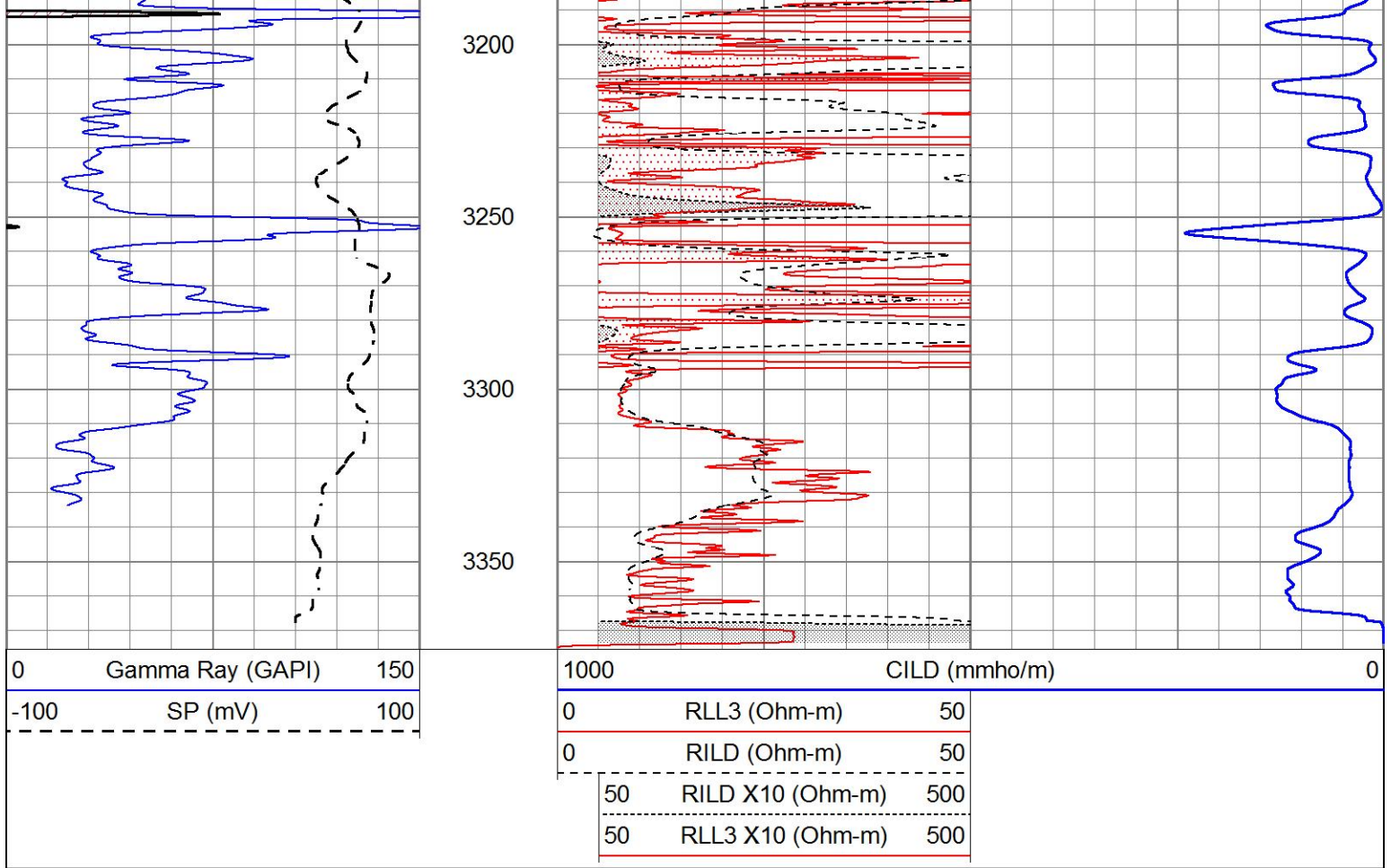








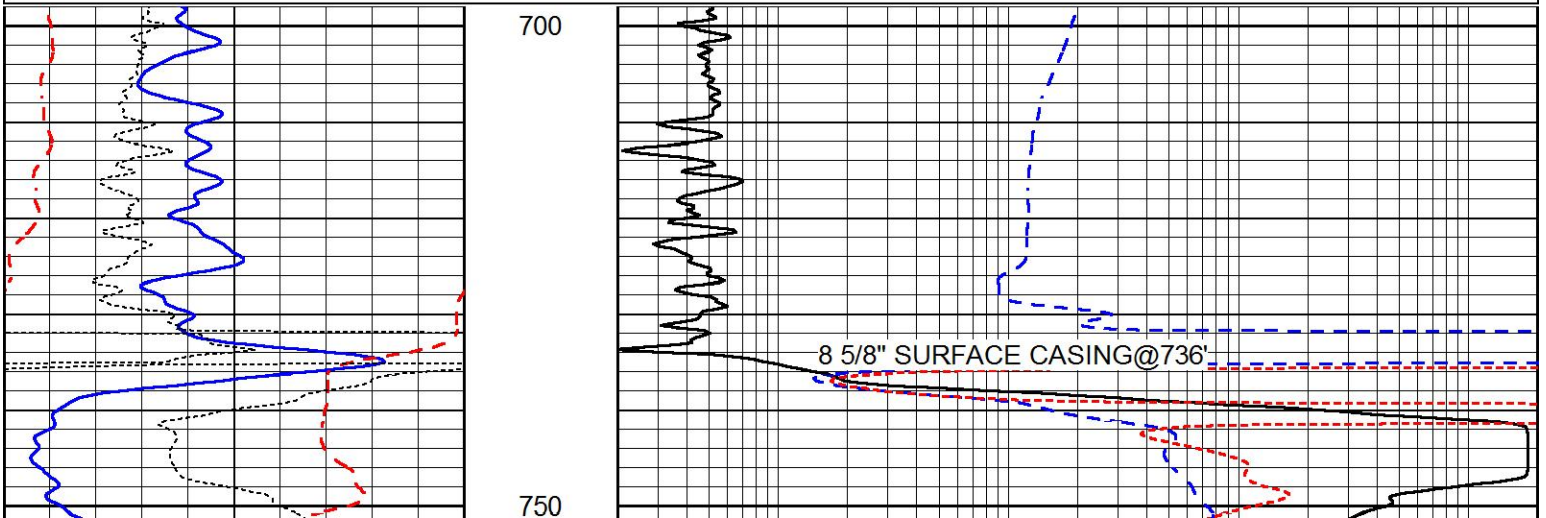


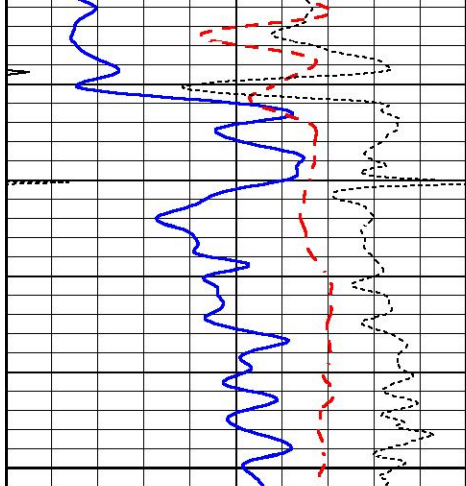


# ANHYDRITE

Database File 7443ddn.db  
 Dataset Pathname pass3.1A  
 Presentation Format \_dil  
 Dataset Creation Thu Jan 19 09:04:50 2023  
 Charted by Depth in Feet scaled 1:240

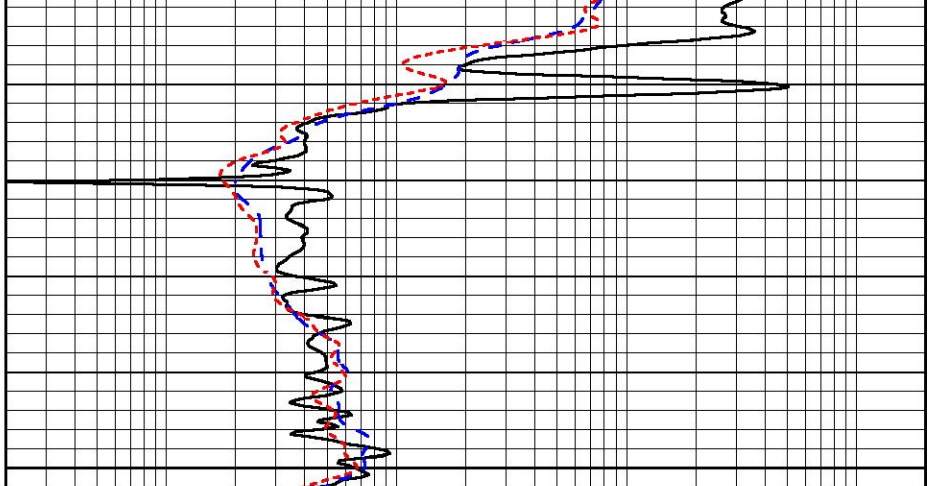
0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			





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

800



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

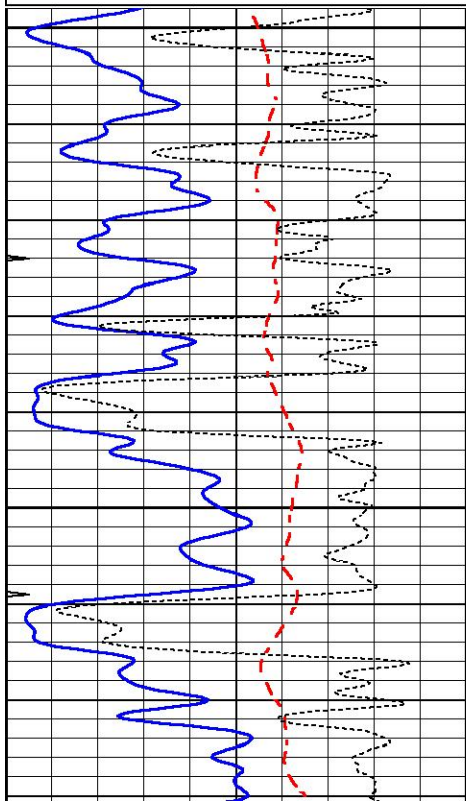


# CHASE SECTION

Database File 7443ddn.db  
 Dataset Pathname pass3.1U  
 Presentation Format \_dil  
 Dataset Creation Thu Jan 19 08:58:17 2023  
 Charted by Depth in Feet scaled 1:240

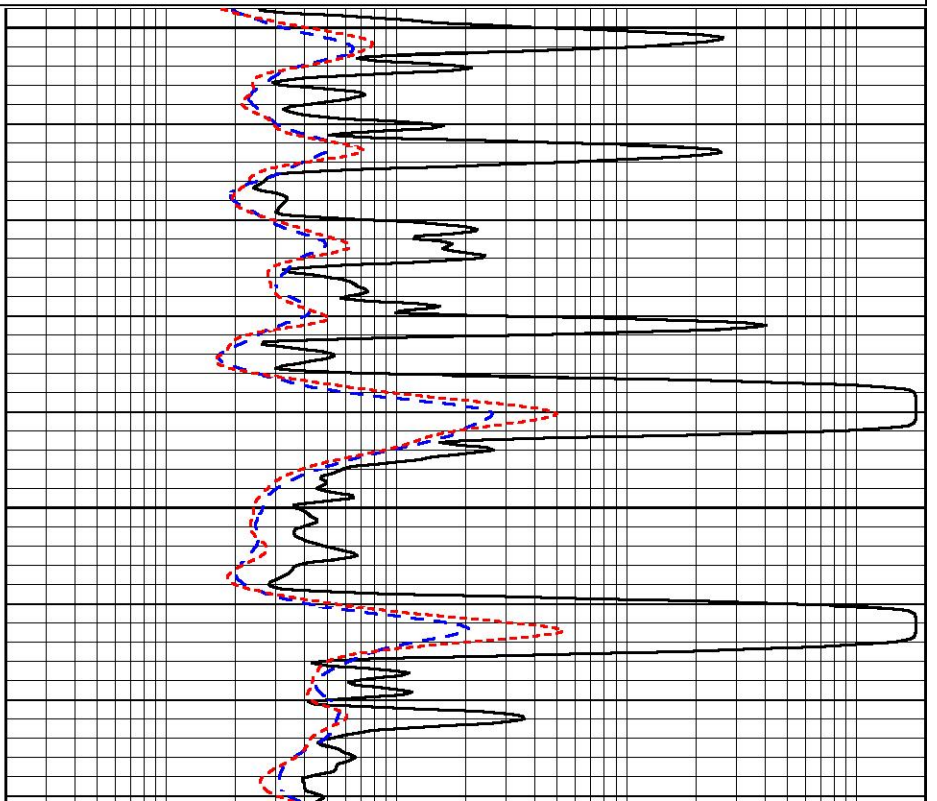
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

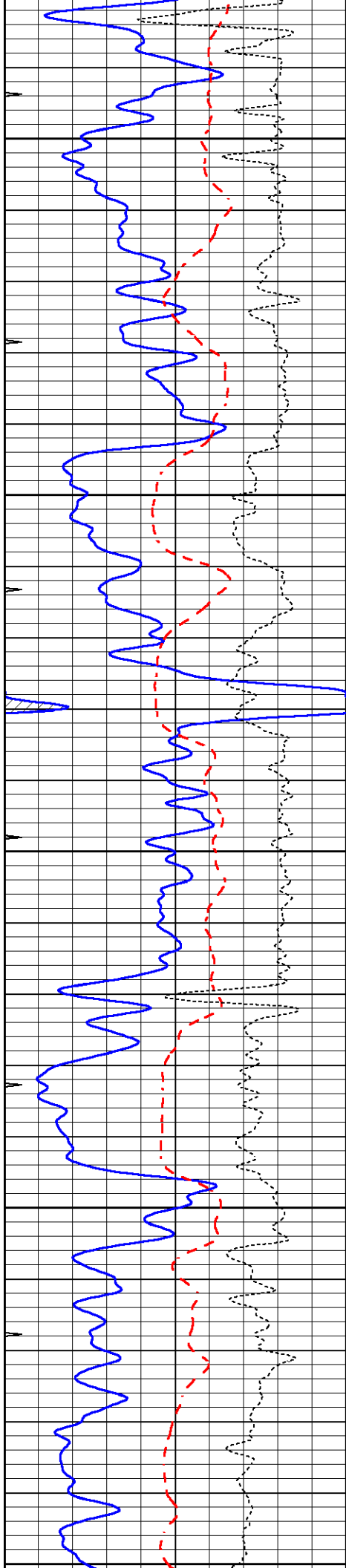
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



1500

1550





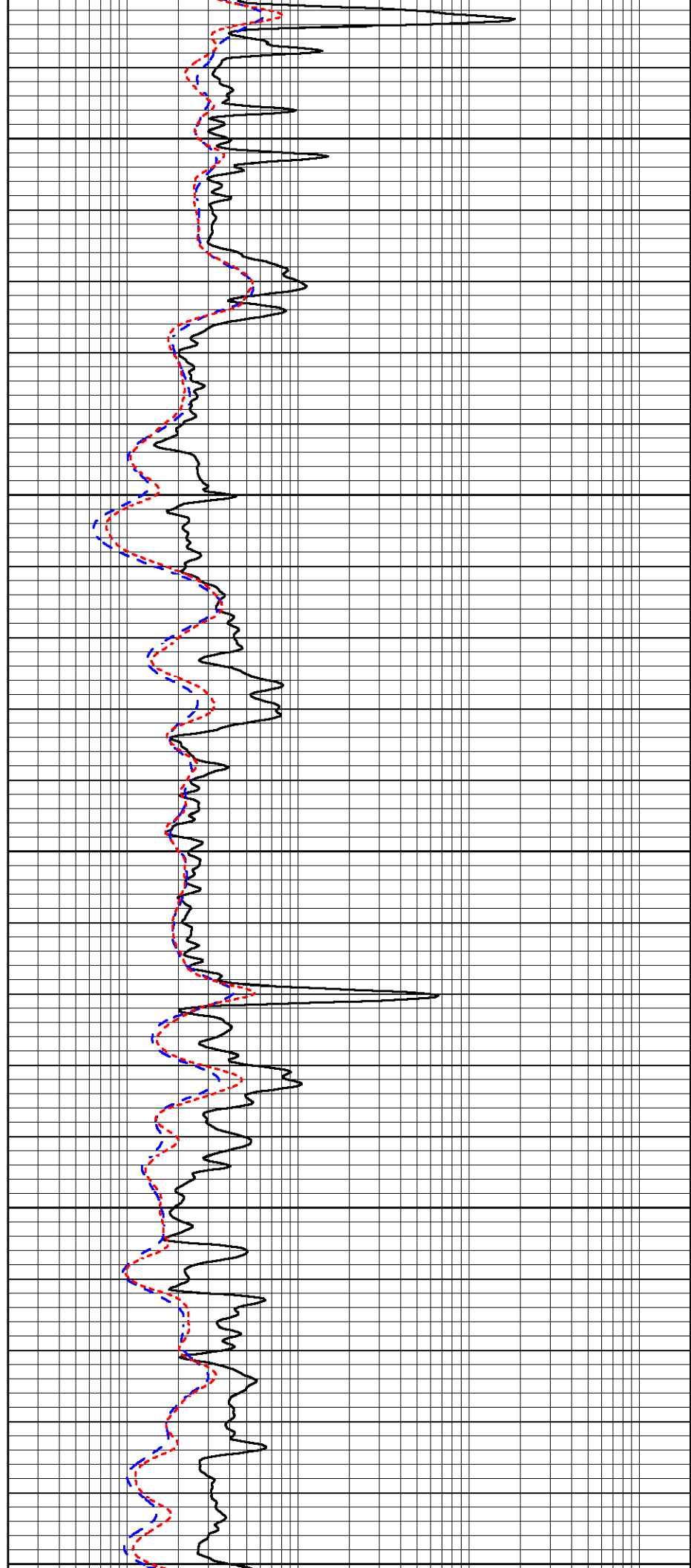
1600

1650

1700

1750

1800



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

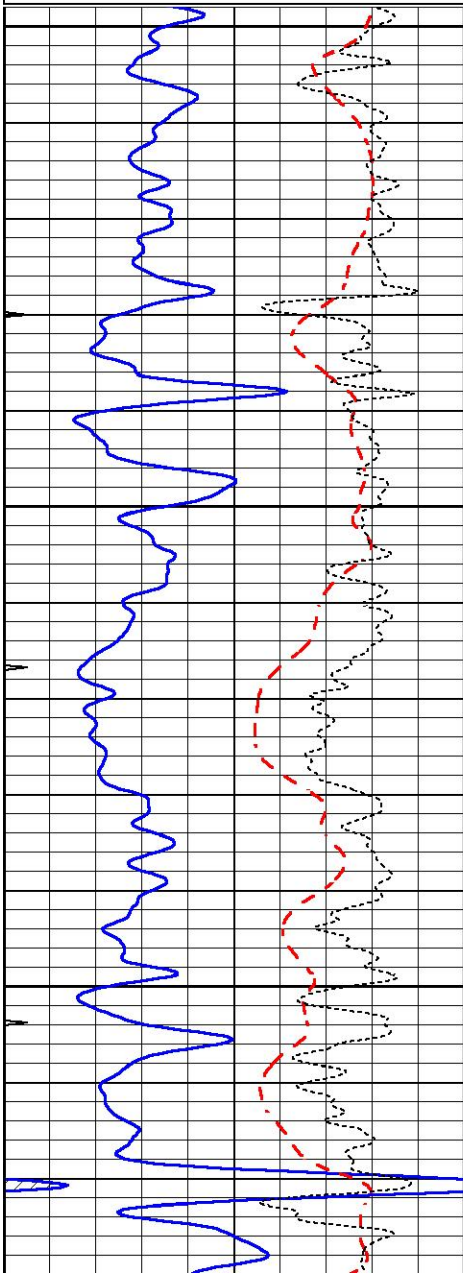


# MAIN SECTION

Database File 7443ddn.db  
 Dataset Pathname pass3.1M  
 Presentation Format \_dil  
 Dataset Creation Thu Jan 19 08:31:44 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

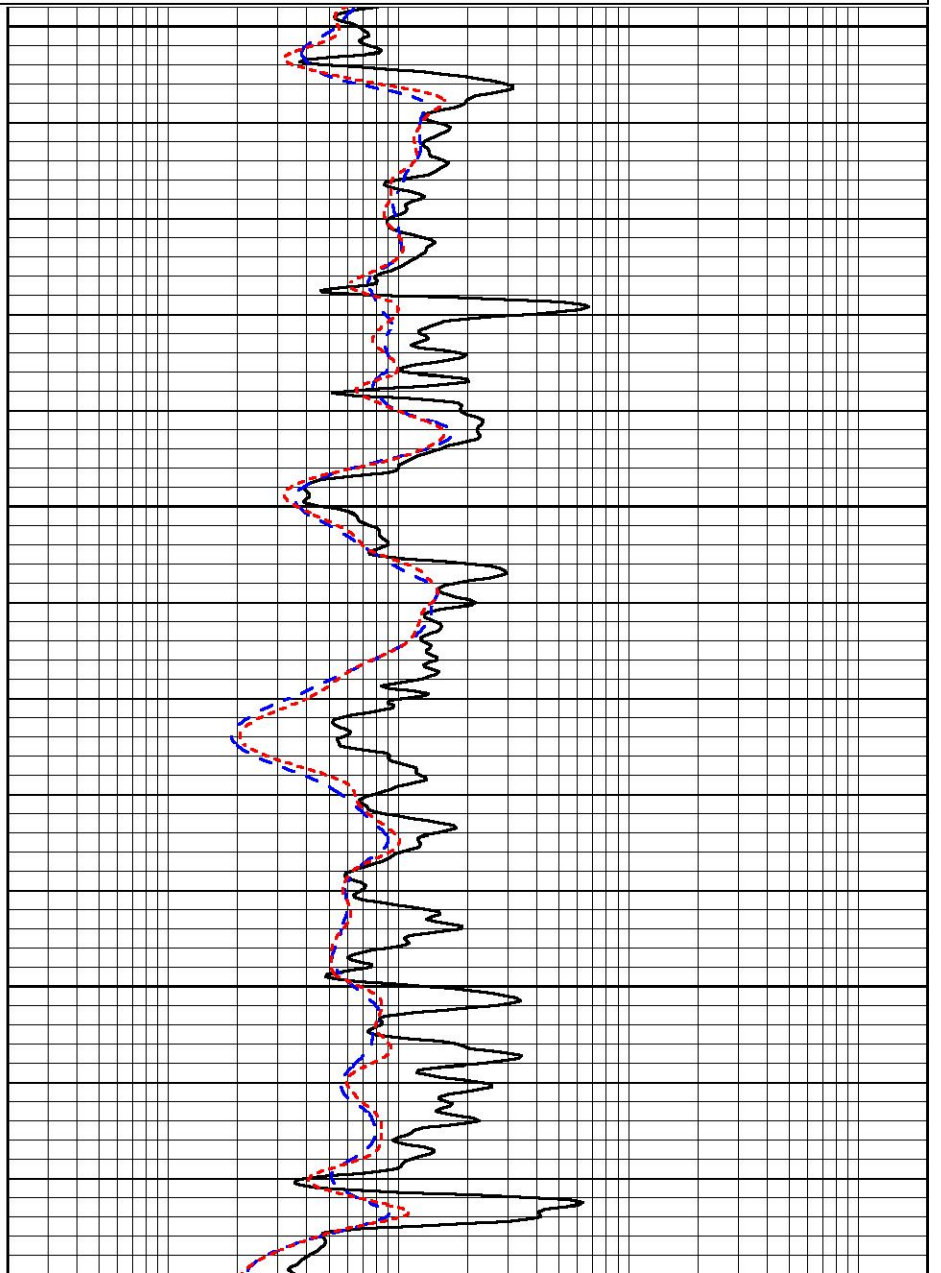
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

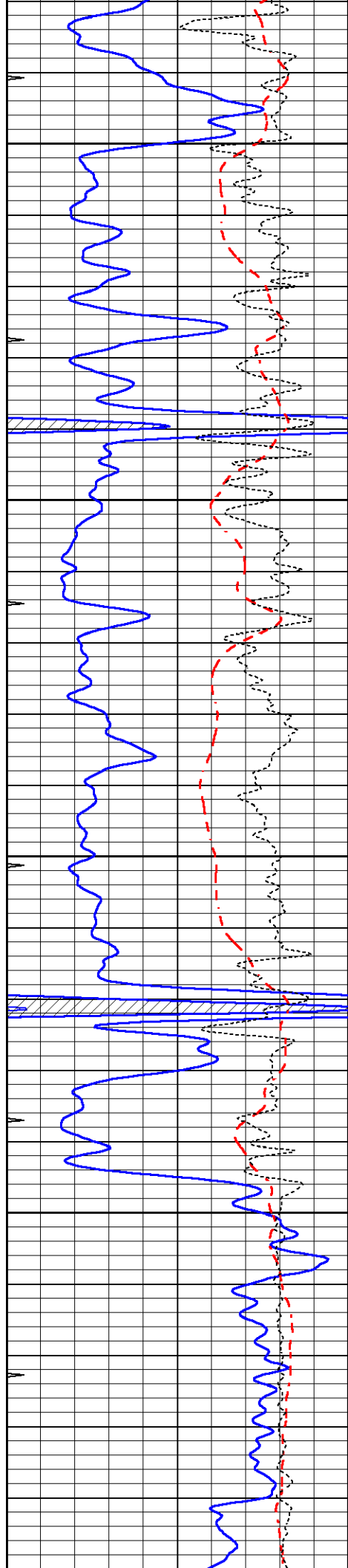


2700

2750

2800





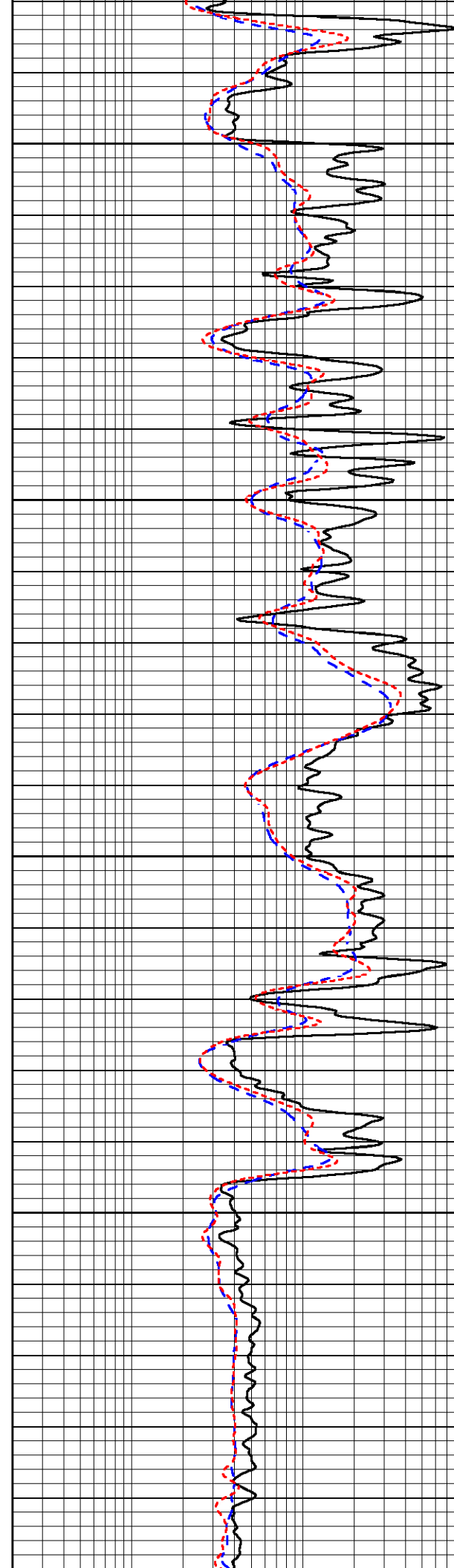
2850

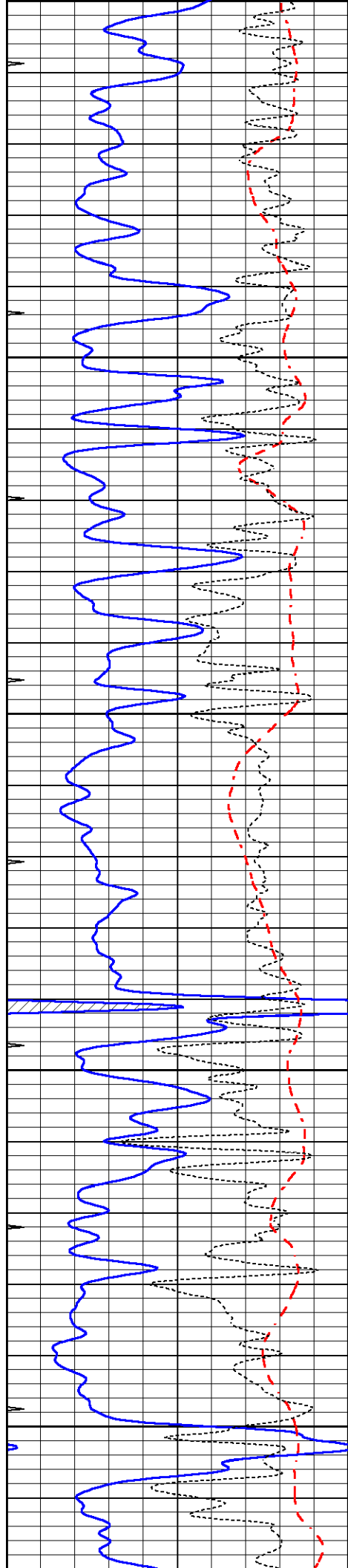
2900

2950

3000

3050





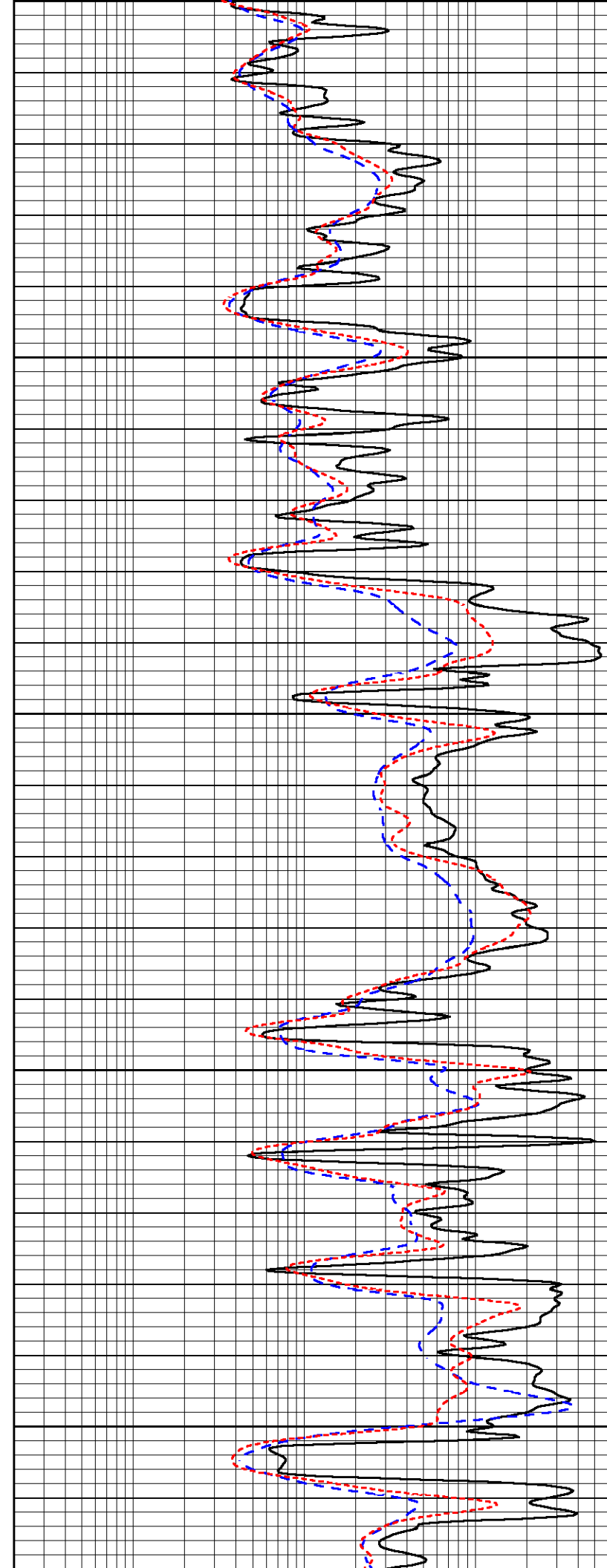
3050

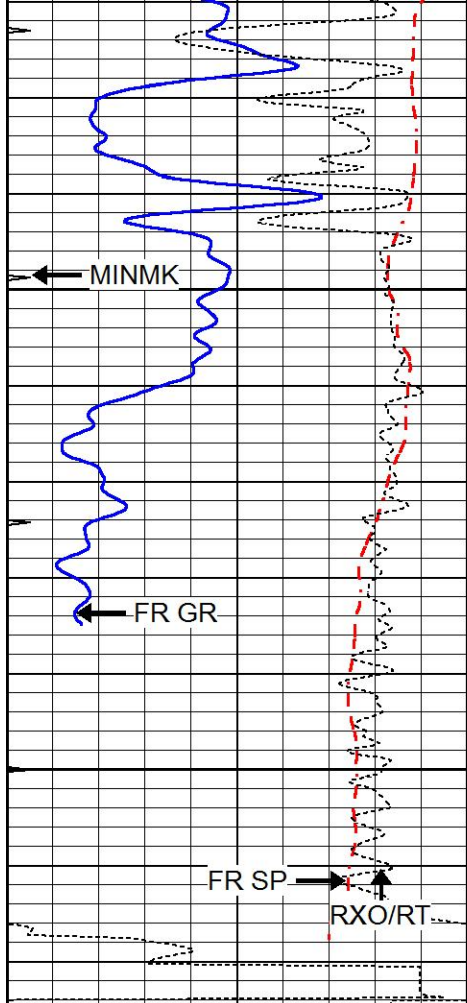
3100

3150

3200

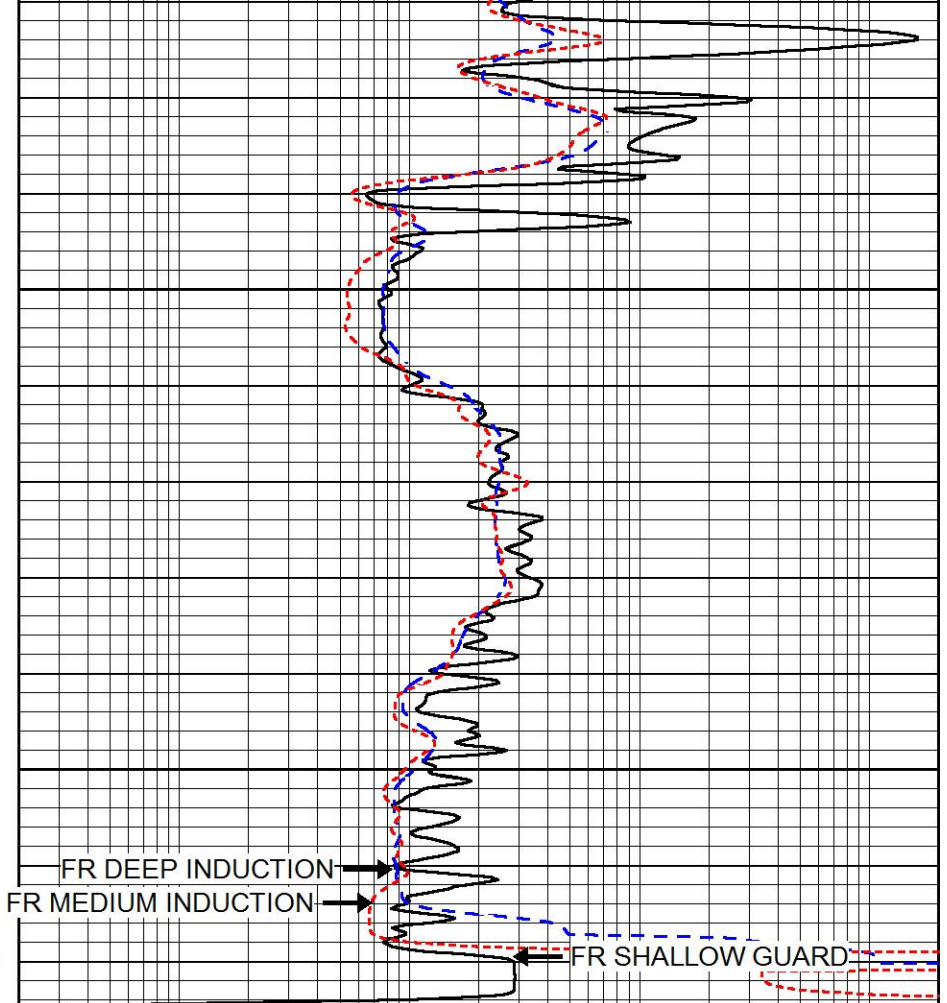
3250





3300  
3350  
LTD 3372

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

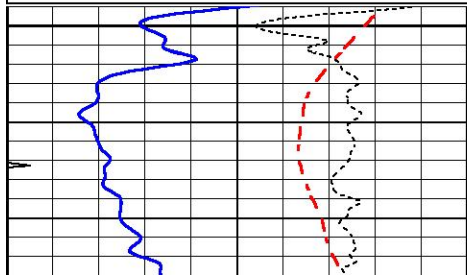


# REPEAT SECTION

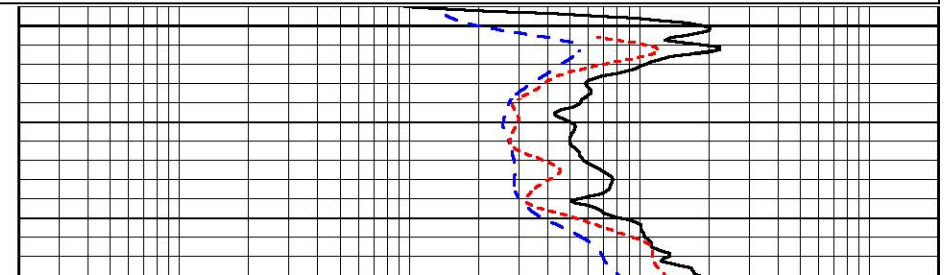
Database File 7443ddn.db  
 Dataset Pathname pass2.1R  
 Presentation Format \_dil  
 Dataset Creation Thu Jan 19 08:38:02 2023  
 Charted by Depth in Feet scaled 1:240

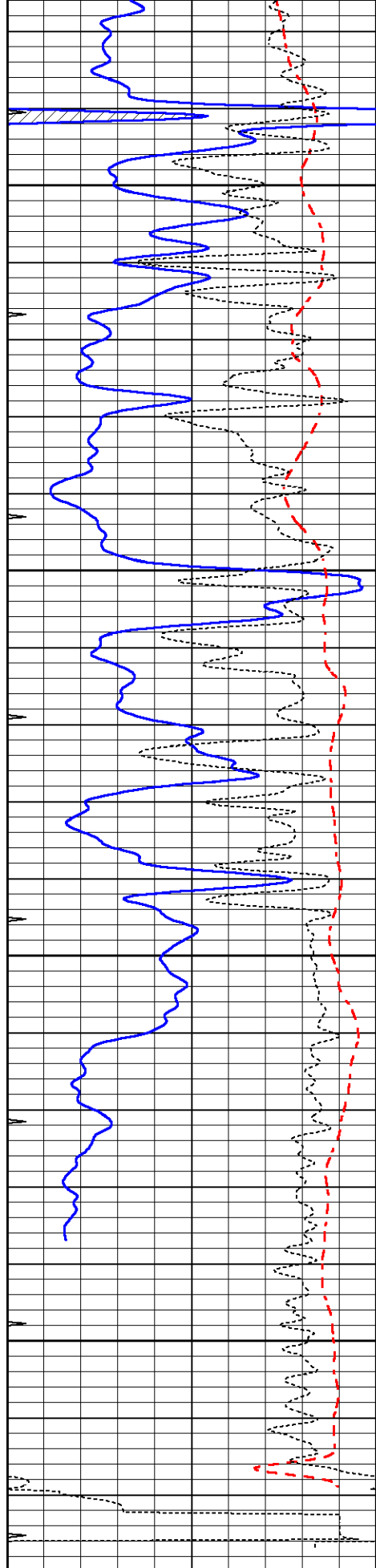
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



3150





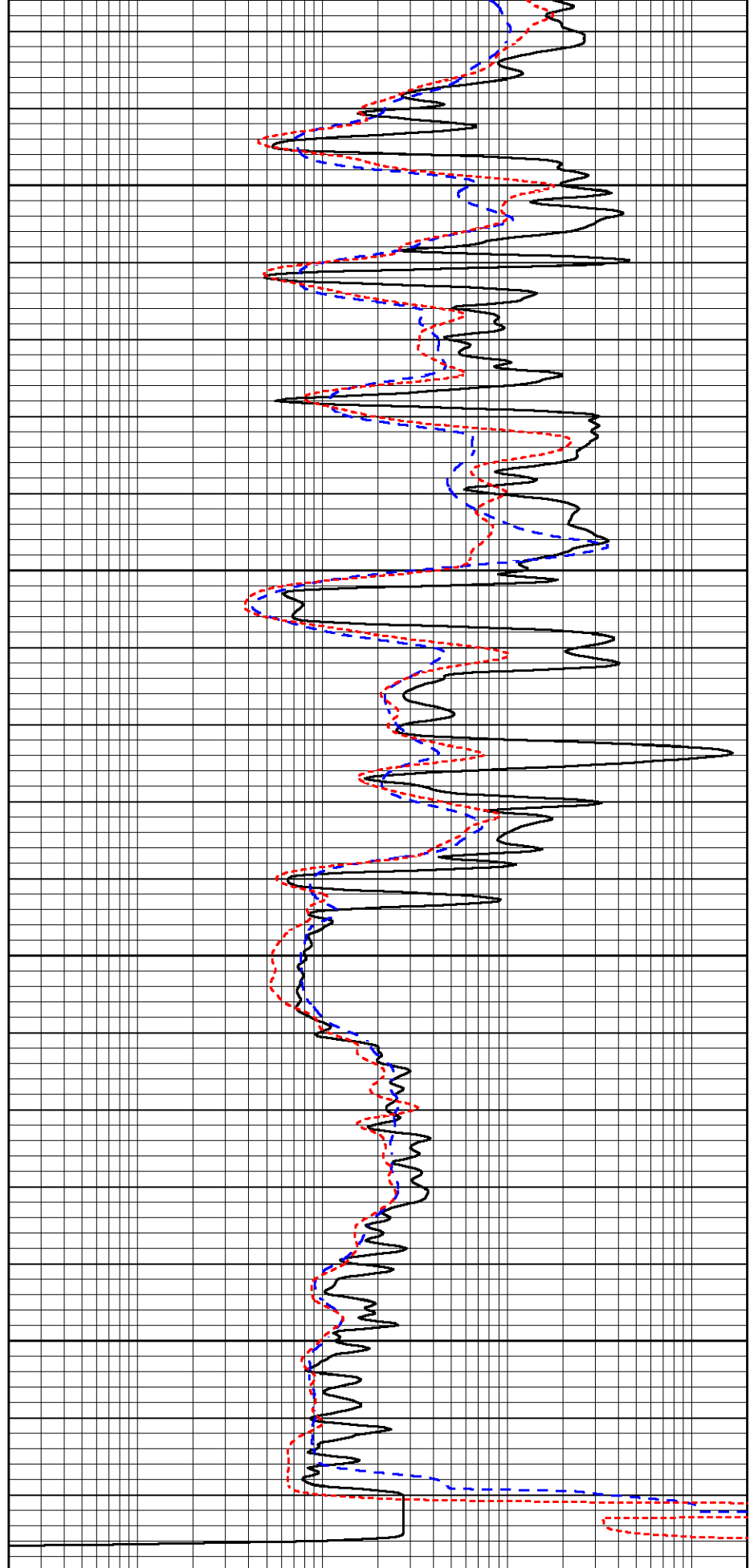
3200

3250

3300

3350

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

## Calibration Report

Database File 7443ddn.db  
 Dataset Pathname pass3.1M  
 Dataset Creation Thu Jan 19 08:31:44 2023

## Dual Induction Calibration Report

Serial-Model: DIL7-GEAR  
 Surface Cal Performed: Thu Jan 19 07:53:50 2023  
 Downhole Cal Performed: Tue Jul 22 10:15:08 2008  
 After Survey Verification Performed: Wed Jan 18 02:07:20 2023

## Surface Calibration

Loop:	Readings			References			Results	
	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	-28.000
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

Internal:	Readings			References			Results	
	Zero	Cal		Zero	Cal		m	b
Deep	0.000	0.000	mmho/m	-6.200	401.333	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	-1.141	472.660	mmho/m	1.000	0.000
Shallow	2.521	0.019	V	500.000	2.000	Ohm-m	180.000	0.000

## After Survey Verification

Internal:	Readings			Targets			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	1.000	mmho/m	0.000	1.000	mmho/m	1.000	0.000
Medium	0.000	1.000	mmho/m	0.000	1.000	mmho/m	1.000	0.000
Shallow	2.500	0.010	Ohm-m	500.000	2.000	Ohm-m	200.000	0.000

## Litho Density Calibration Report

Serial: 001N Model: PRB

## Master Calibration

Performed Fri Nov 04 14:46:13 2022

	Background	Magnesium	Aluminum	Aluminum+Fe	
Window 1	1529.6	7016.8	2681.0	2484.1	cps
Window 2	1421.5	6063.6	2400.4	2252.2	cps
Window 3	1152.8	3328.5	1606.5	1555.3	cps
Window 4	345.3	342.4	342.4	342.0	cps
Long Space	0.0	4642.1	978.8	830.7	cps
Short Space	3.7	1653.2	1079.2	905.4	cps
Rho		1.7100	2.5900	0.0000	g/cc
Pe		2.0000	2.7500	5.7900	
Rib Angle	: 44.7	Rib Slope	: 0.989	Density/Spine Ratio	: 0.545
Spine Angle	: 74.7	Spine Slope	: 3.650	Spine Intercept	: -18.6

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 Jan 12 05:07:40 2023	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.8500	GAPI/cps