

# DUAL INDUCTION LOG

Company CHARTER ENERGY, INC.  
 Well MORRISON TRUST #1  
 Field TAYLOR NORTHEAST  
 County STAFFORD  
 State KANSAS

Company CHARTER ENERGY, INC.  
 Well MORRISON TRUST #1  
 Field TAYLOR NORTHEAST  
 County STAFFORD State KANSAS

Location: API # : 15-185-24052-0000  
 2105' FNL & 865' FWL  
 SEC 1 TWP 21S RGE 14W  
 Permanent Datum GROUND LEVEL Elevation 1912  
 Log Measured From KELLY BUSHING 10' A.G.L.  
 Drilling Measured From KELLY BUSHING  
 Other Services CDL/CNL/MEL  
 Elevation K.B. 1922  
 D.F. 1920  
 G.L. 1912

Date	4/20/19
Run Number	ONE
Depth Driller	3660
Depth Logger	3656
Bottom Logged Interval	3655
Top Log Interval	00
Casing Driller	8 5/8" @ 296
Casing Logger	296
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.15/47
pH / Fluid Loss	9.5/12.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.3 @ 60F
Rmt @ Meas. Temp	.23 @ 60F
Rmc @ Meas. Temp	.36 @ 60F
Source of Rmt / Rmc	MEASURED
Rm @ BHT	.16 @ 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	WYATT URBAN

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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 ELI WIRELINE, HAYS, KS. (785) 628-6395  
  
 DIRECTIONS  
 SOUTH OF GREATBEND TO COUNTY LINE 4 WEST,  
 1/2 SOUTH, EAST INTO.



# MAIN PASS

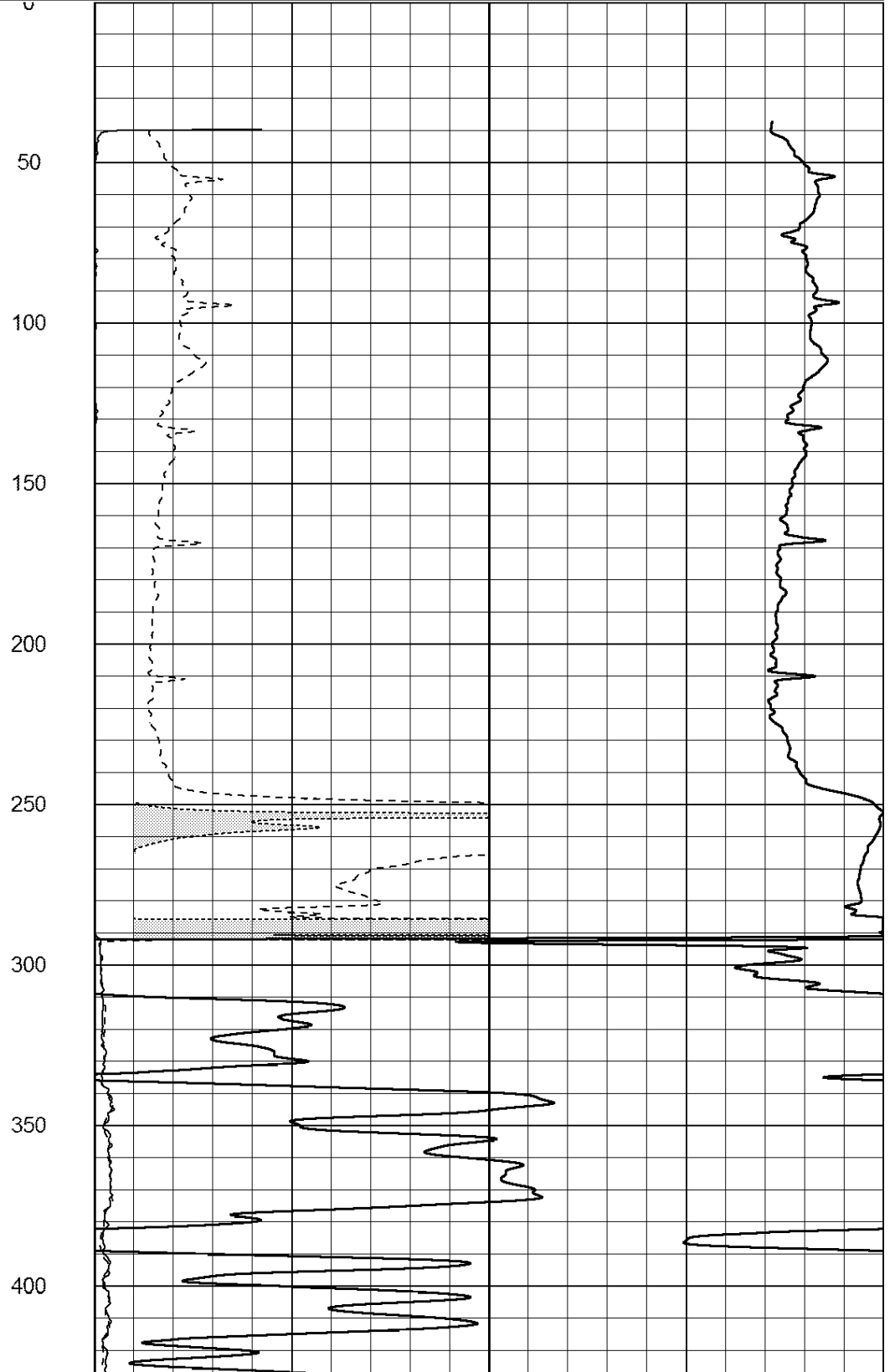
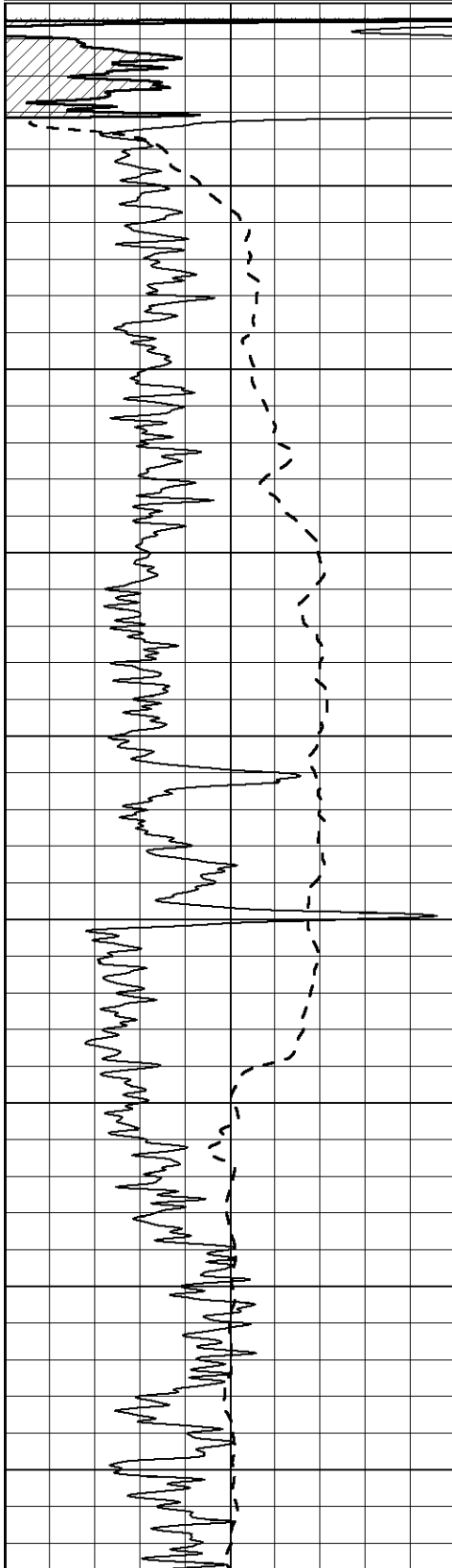
Database File: 3498ddn.db  
 Dataset Pathname: pass3.1  
 Presentation Format: \_dil2  
 Dataset Creation: Sat Apr 20 14:06:41 2019 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:600

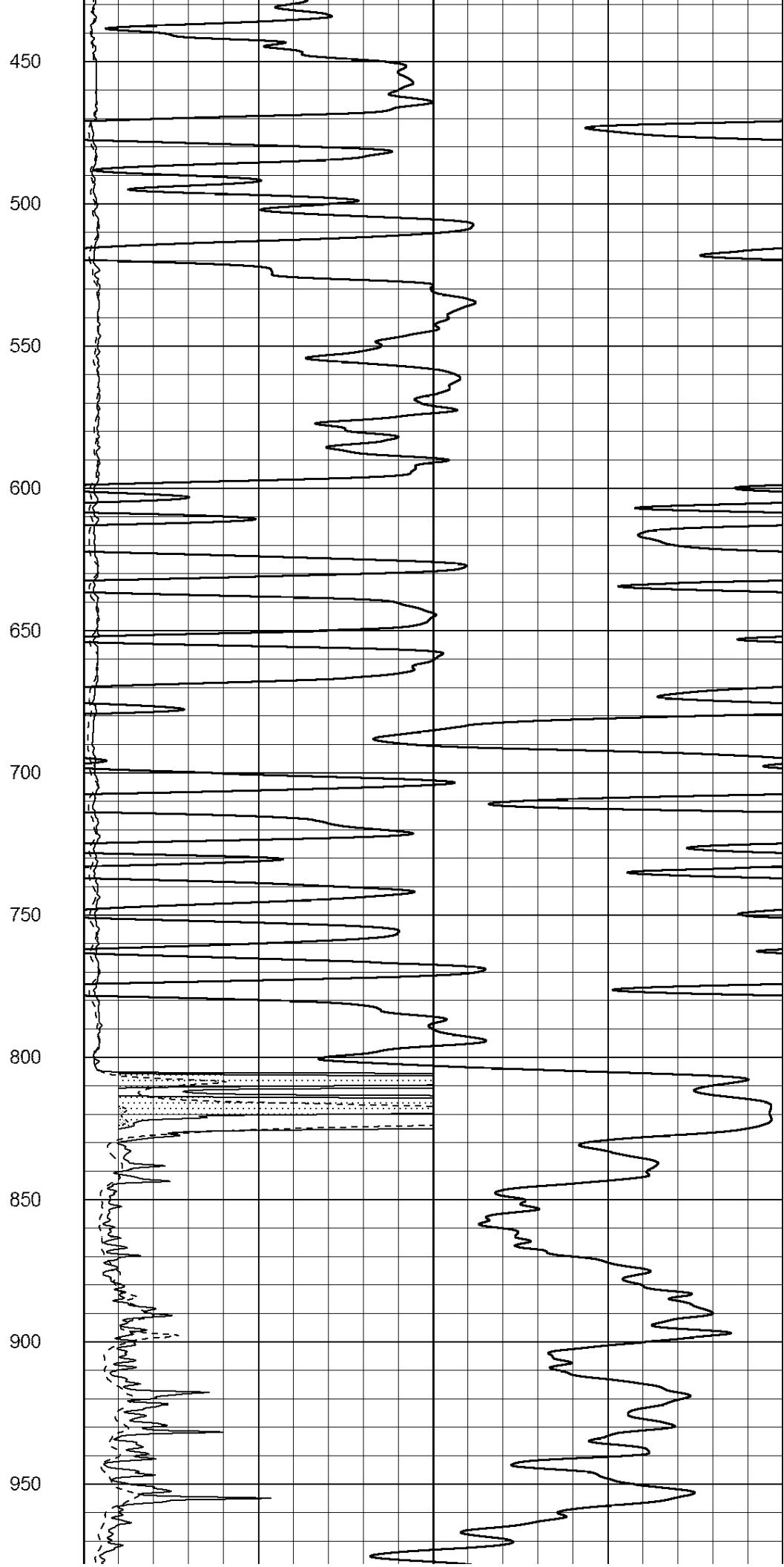
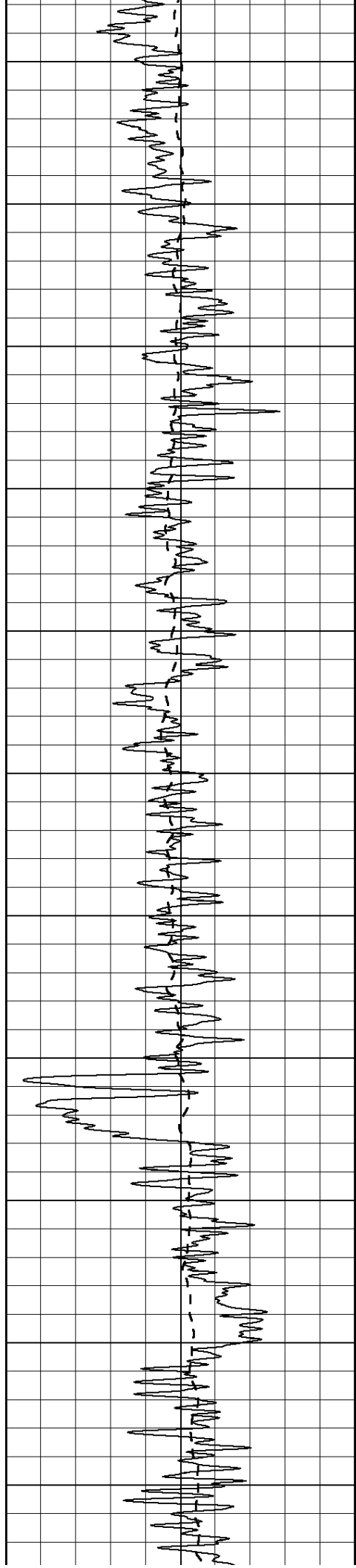
0	Gamma Ray (GAPI)	150
-100	SP (mV)	100

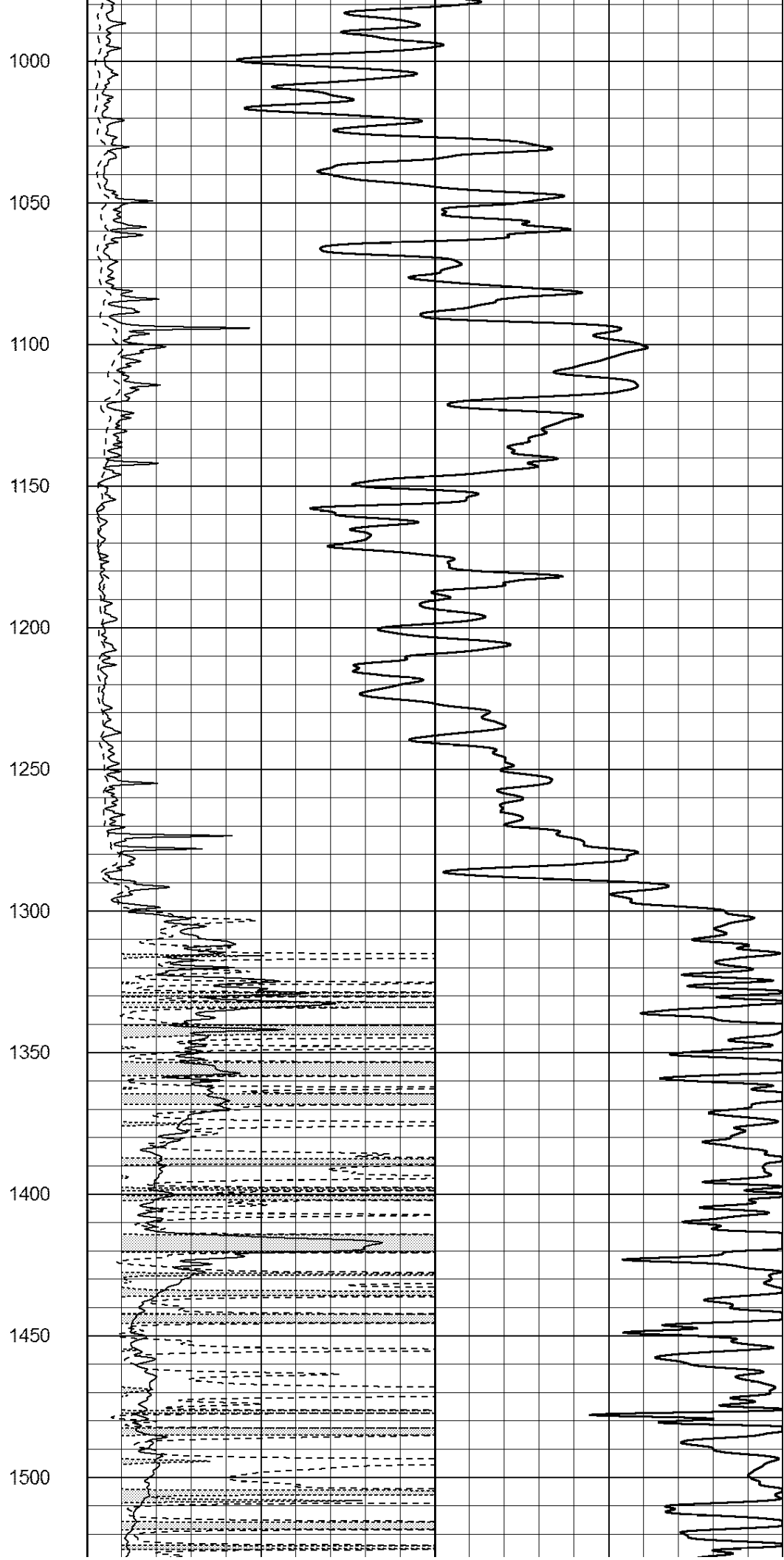
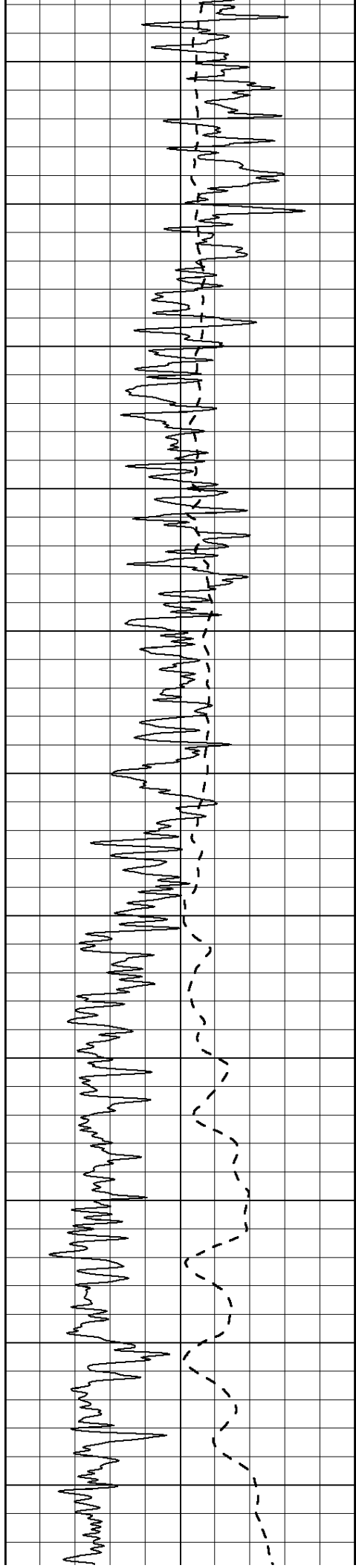
0	RLL3 (Ohm-m)	50
0	RILD (Ohm-m)	50

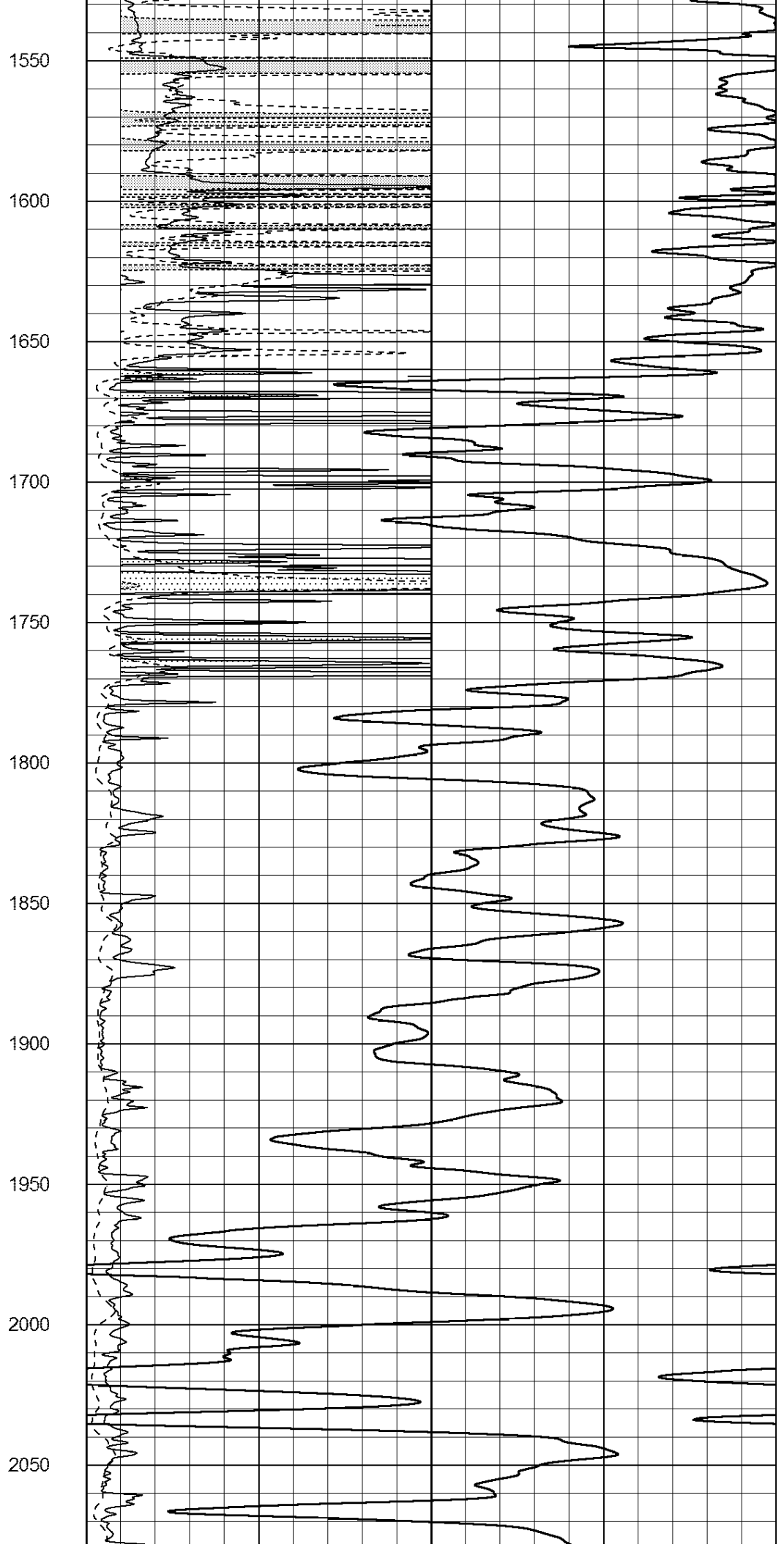
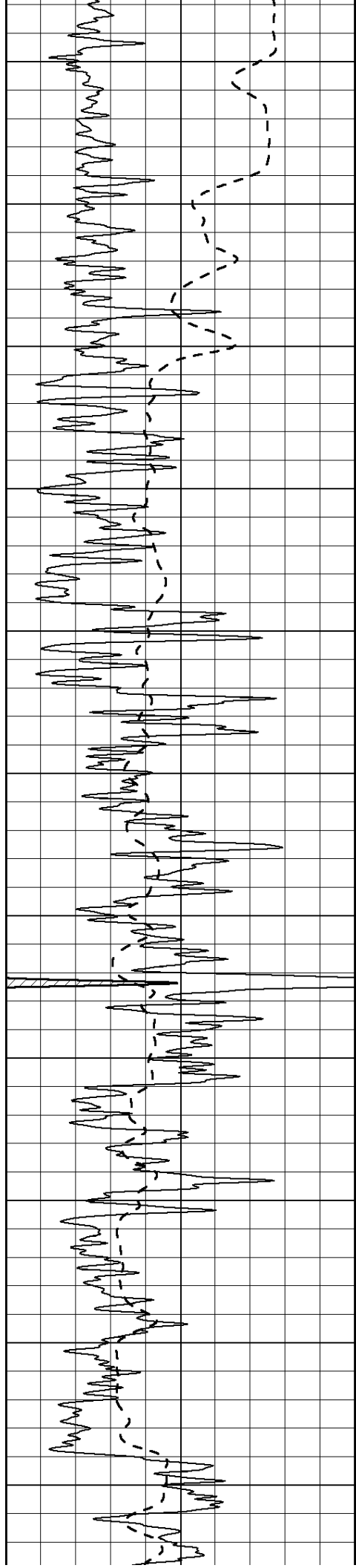
1000	CILD (mmho/m)	0
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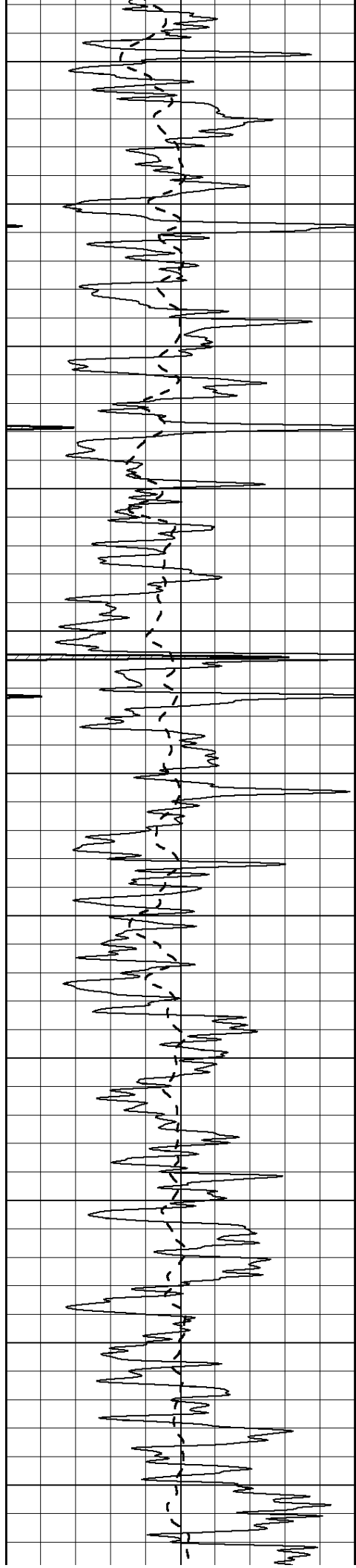
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50	RLL3 X10 (Ohm-m)	500



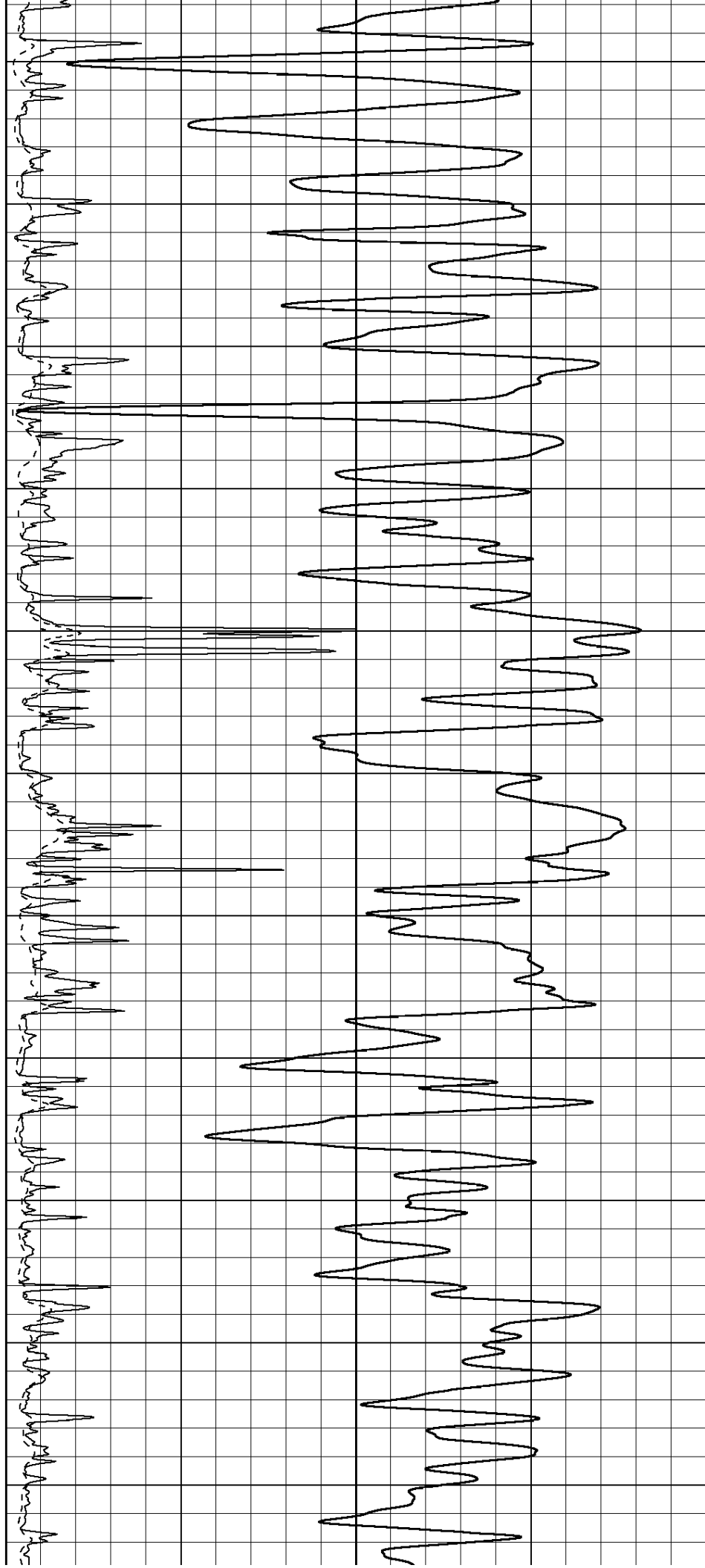


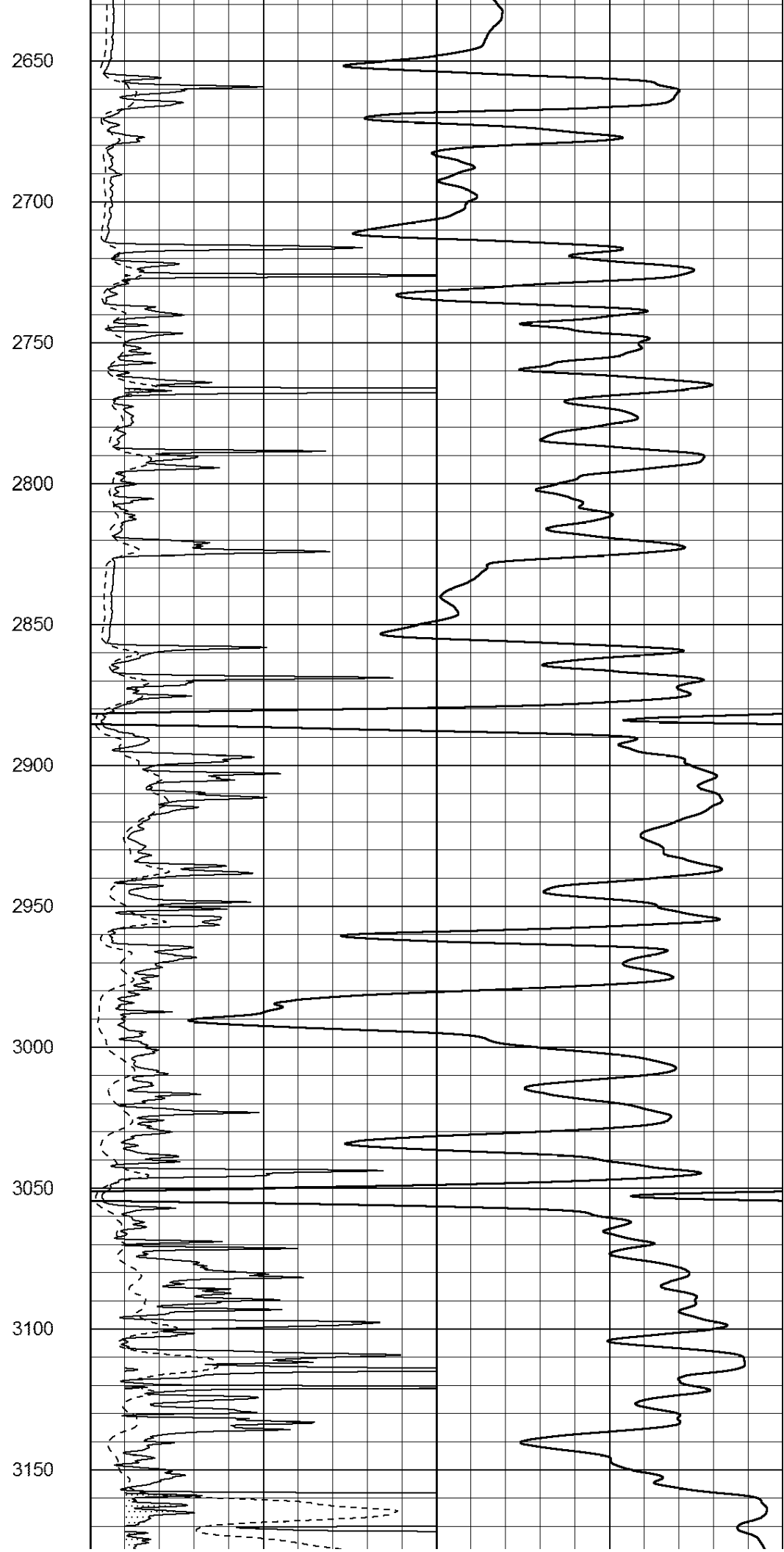
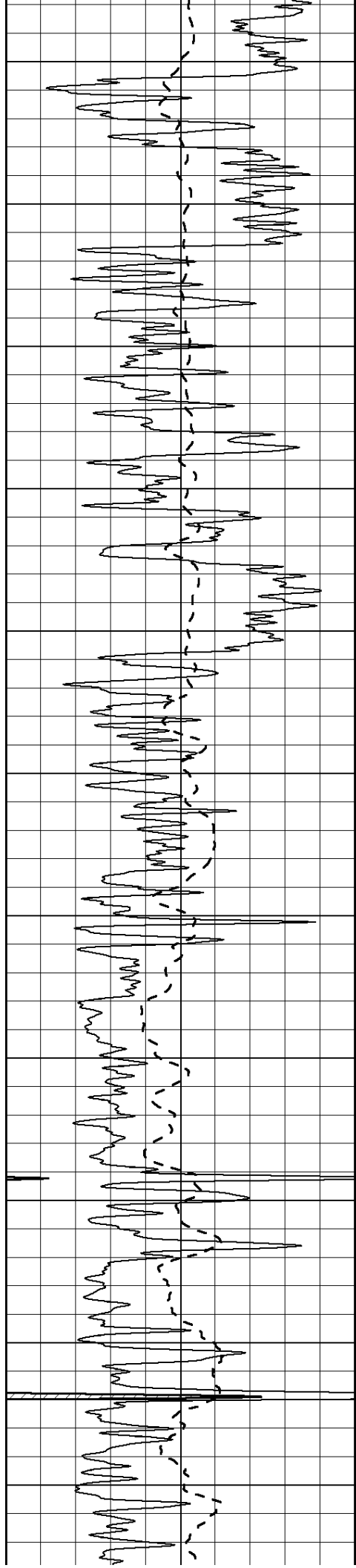


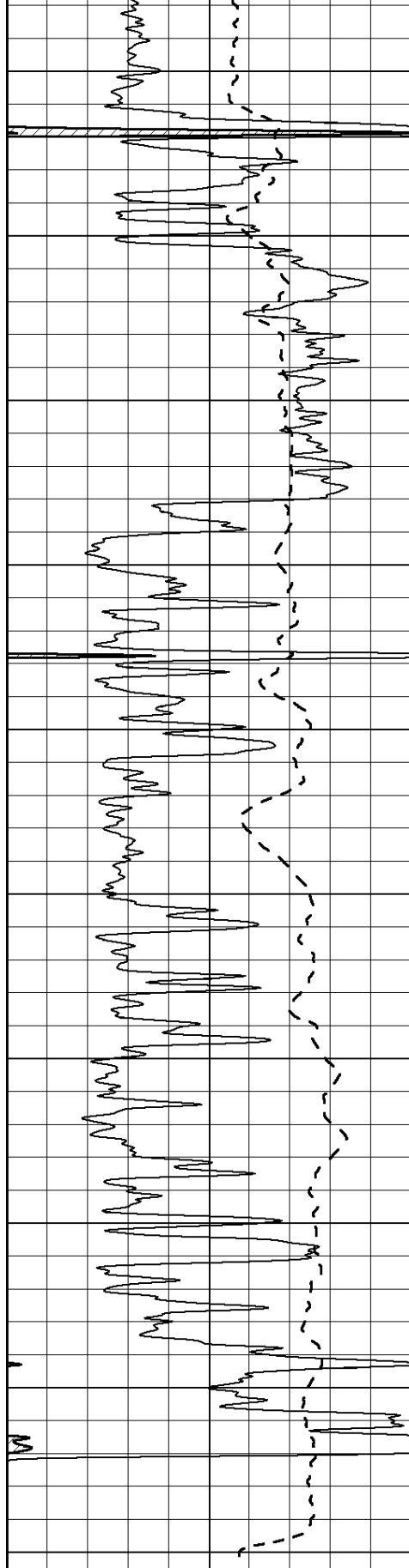




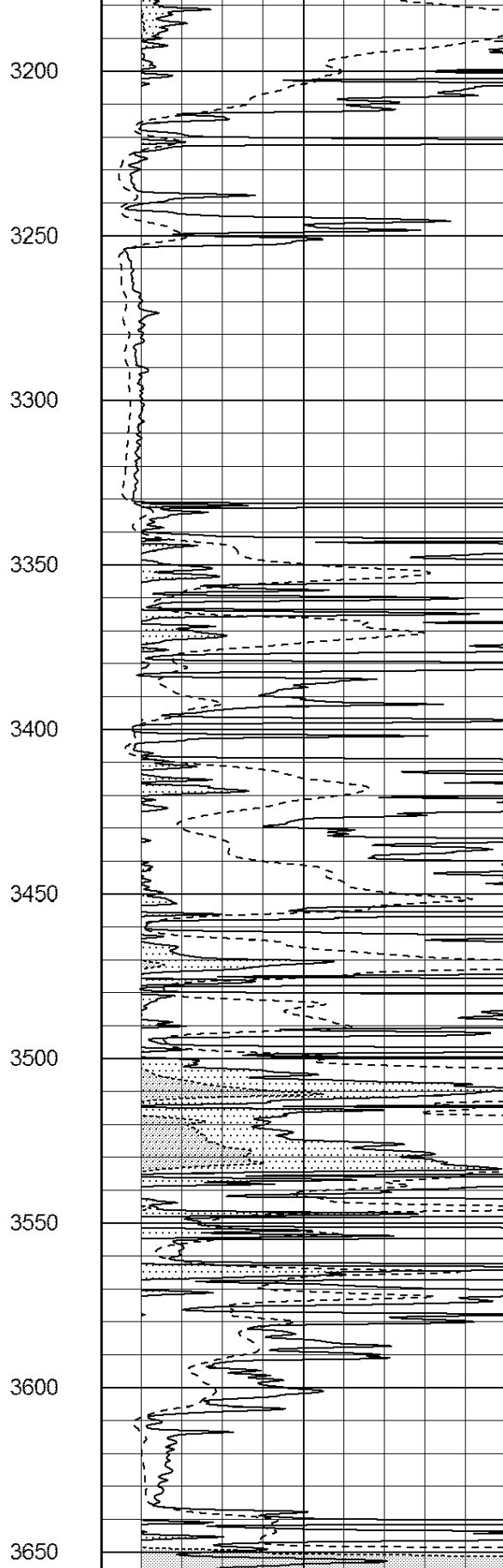
2100  
2150  
2200  
2250  
2300  
2350  
2400  
2450  
2500  
2550  
2600



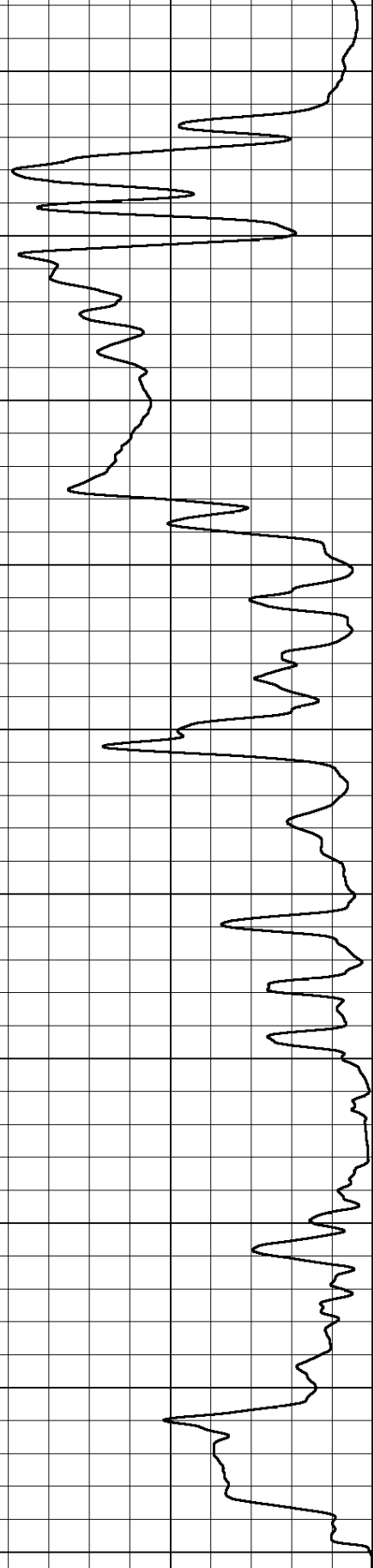




0      Gamma Ray (GAPI)      150  
 -100      SP (mV)      100



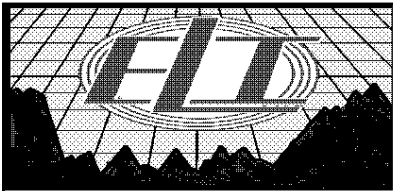
0      RLL3 (Ohm-m)      50  
 0      RILD (Ohm-m)      50



1000      CILD (mmho/m)      0

50      RILD X10 (Ohm-m)      500  
 50      RLL3 X10 (Ohm-m)      500



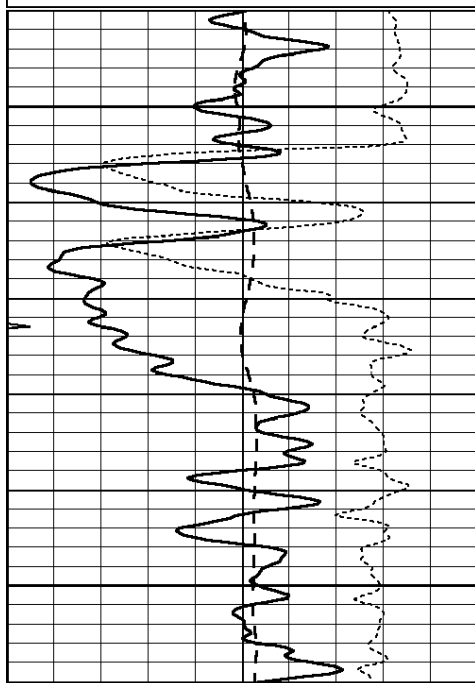


# MAIN PASS

Database File: 3498ddn.db  
 Dataset Pathname: pass3.1  
 Presentation Format: \_dil  
 Dataset Creation: Sat Apr 20 14:06:41 2019 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240

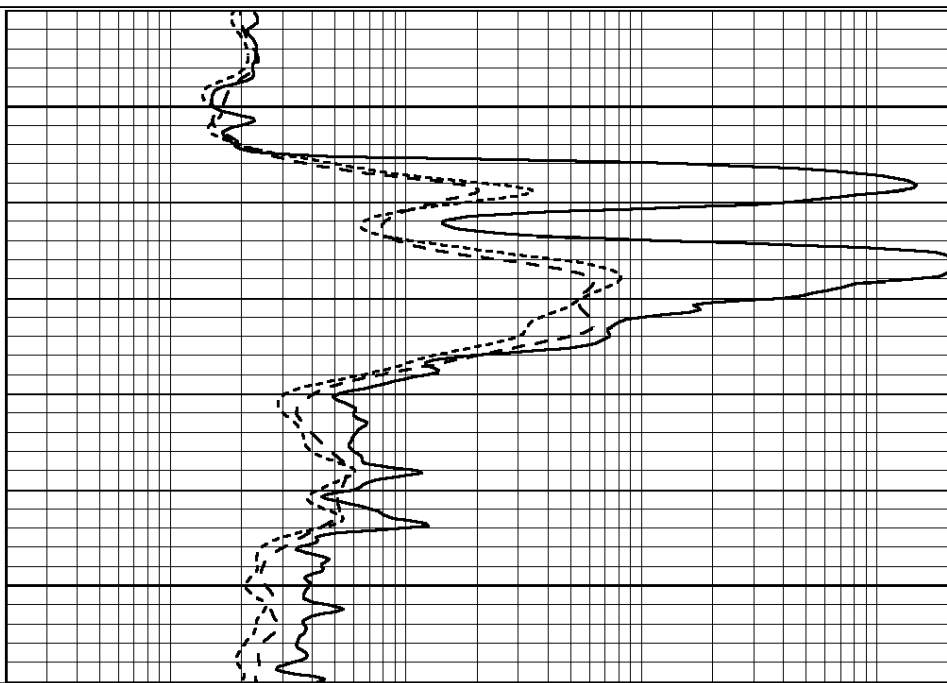
0	GAMMA RAY (GAPI)	150
-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

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



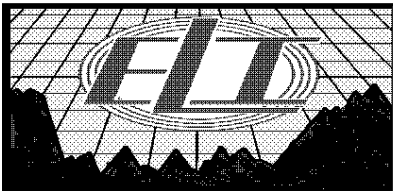
800

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

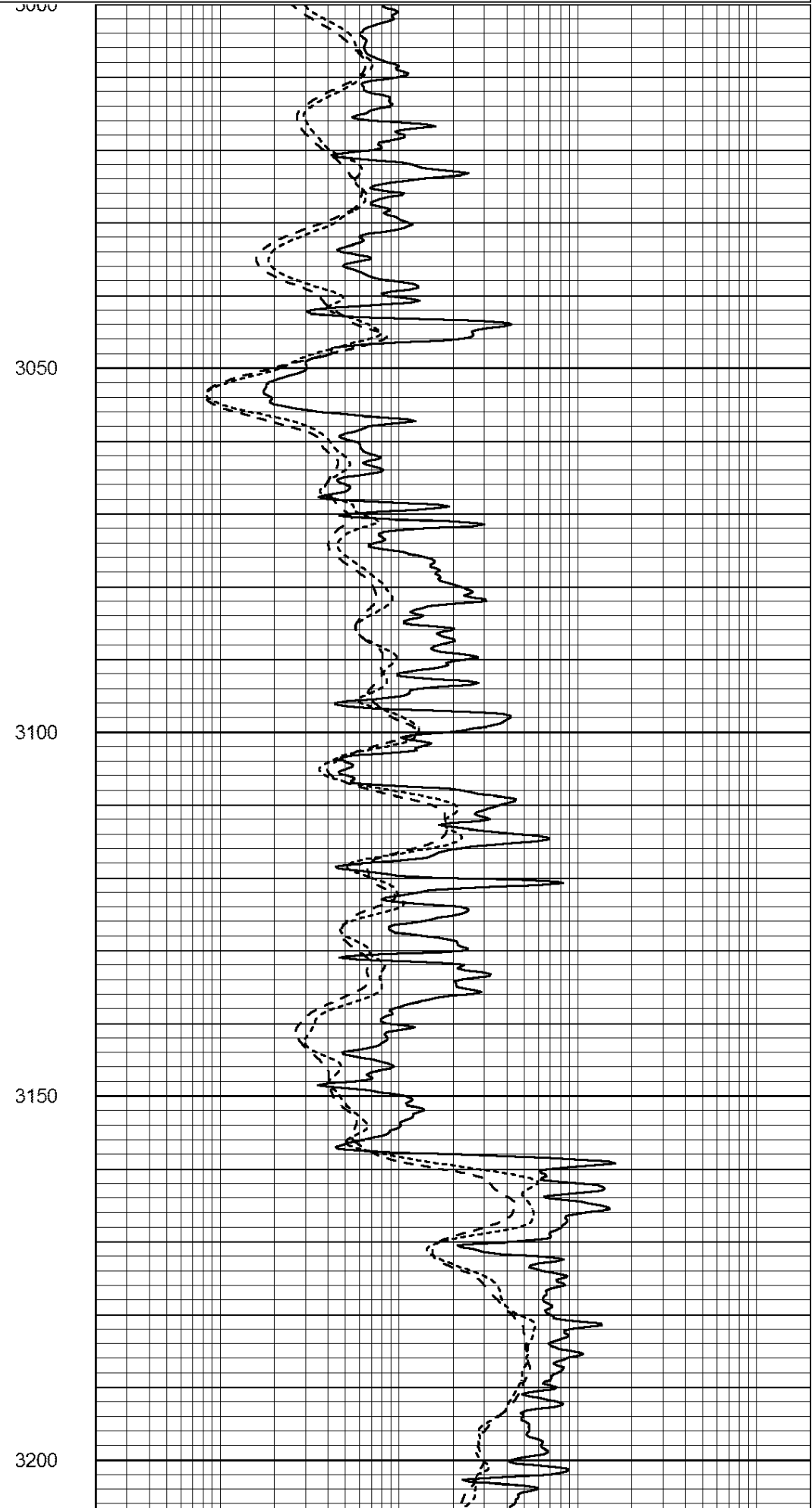
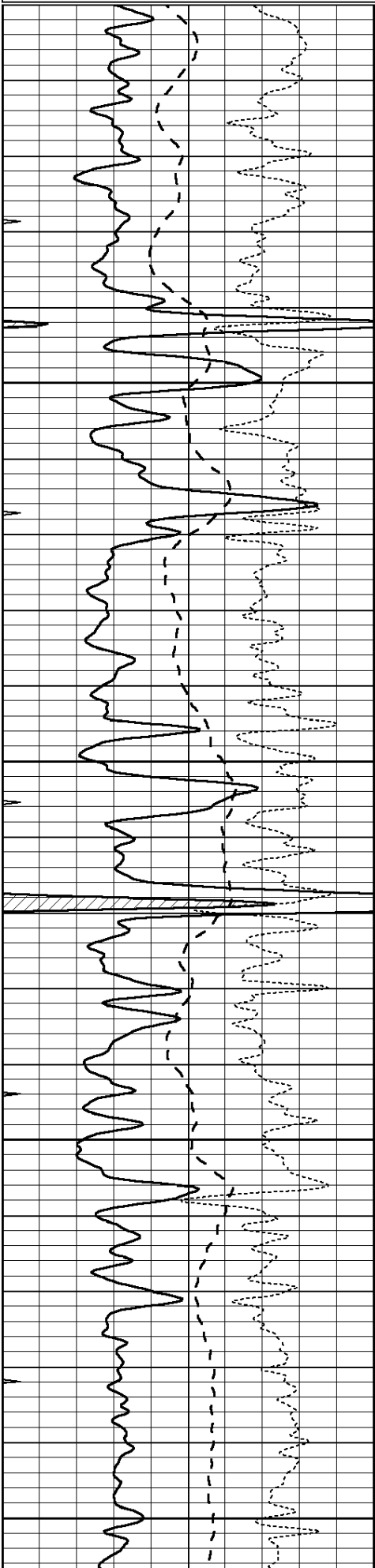


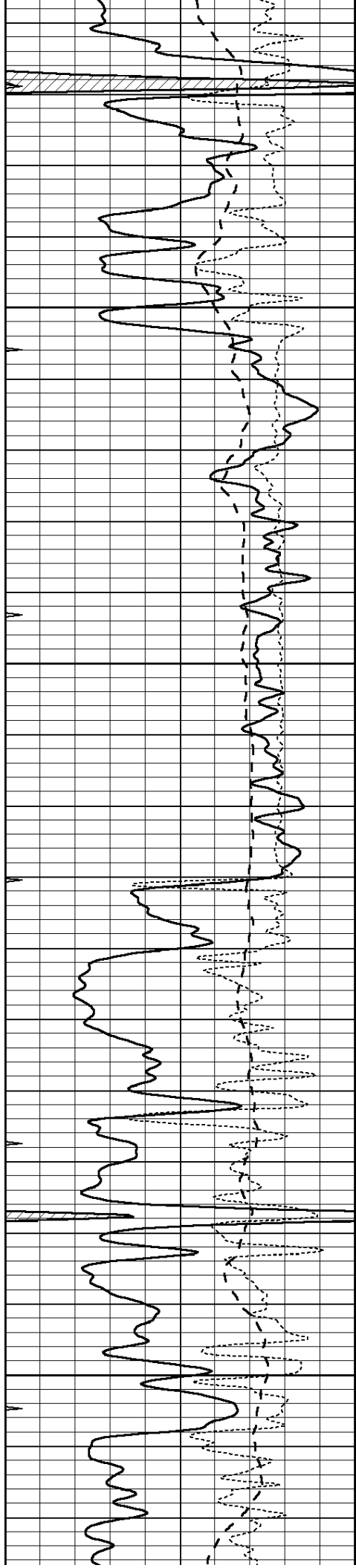
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 Charted by: Depth in Feet scaled 1:240

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



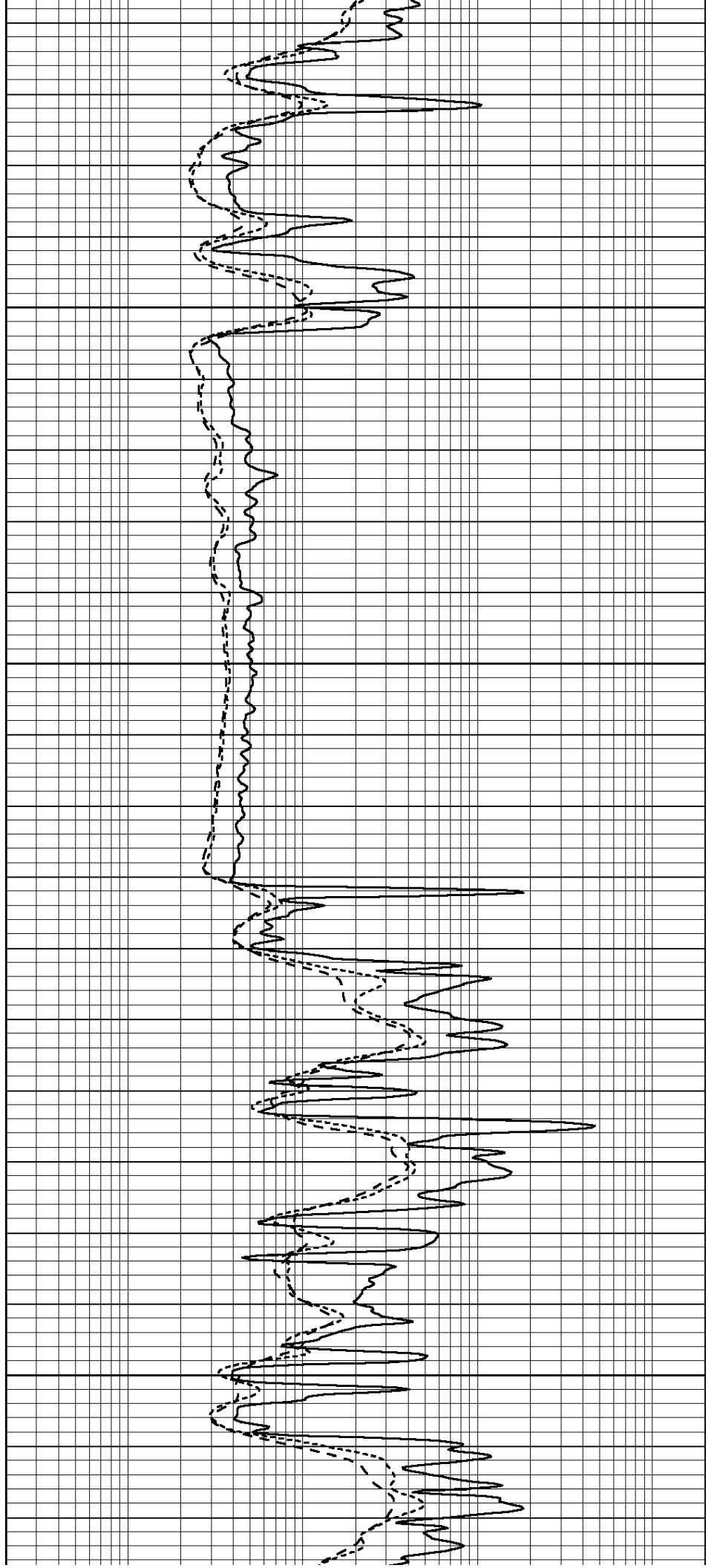


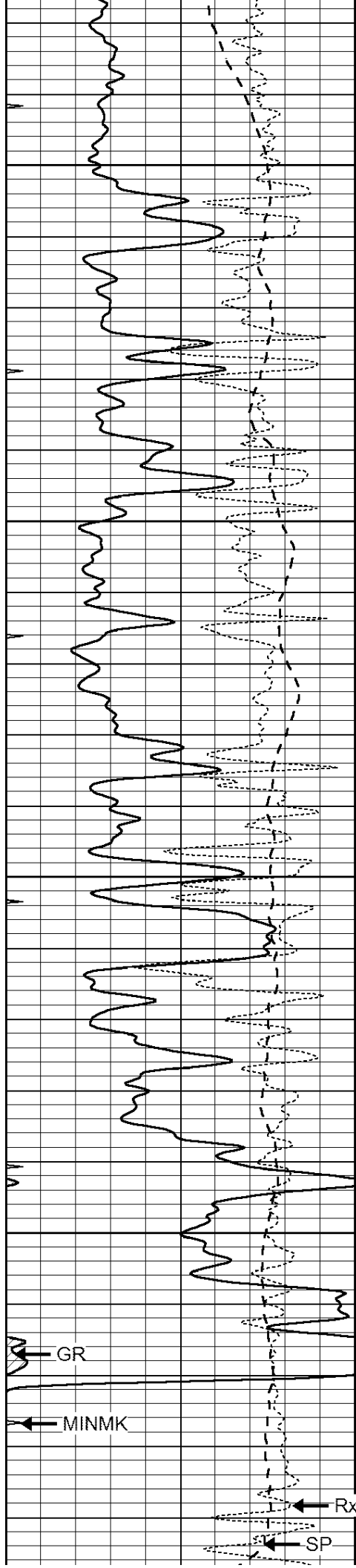
3250

3300

3350

3400





3450

3500

3550

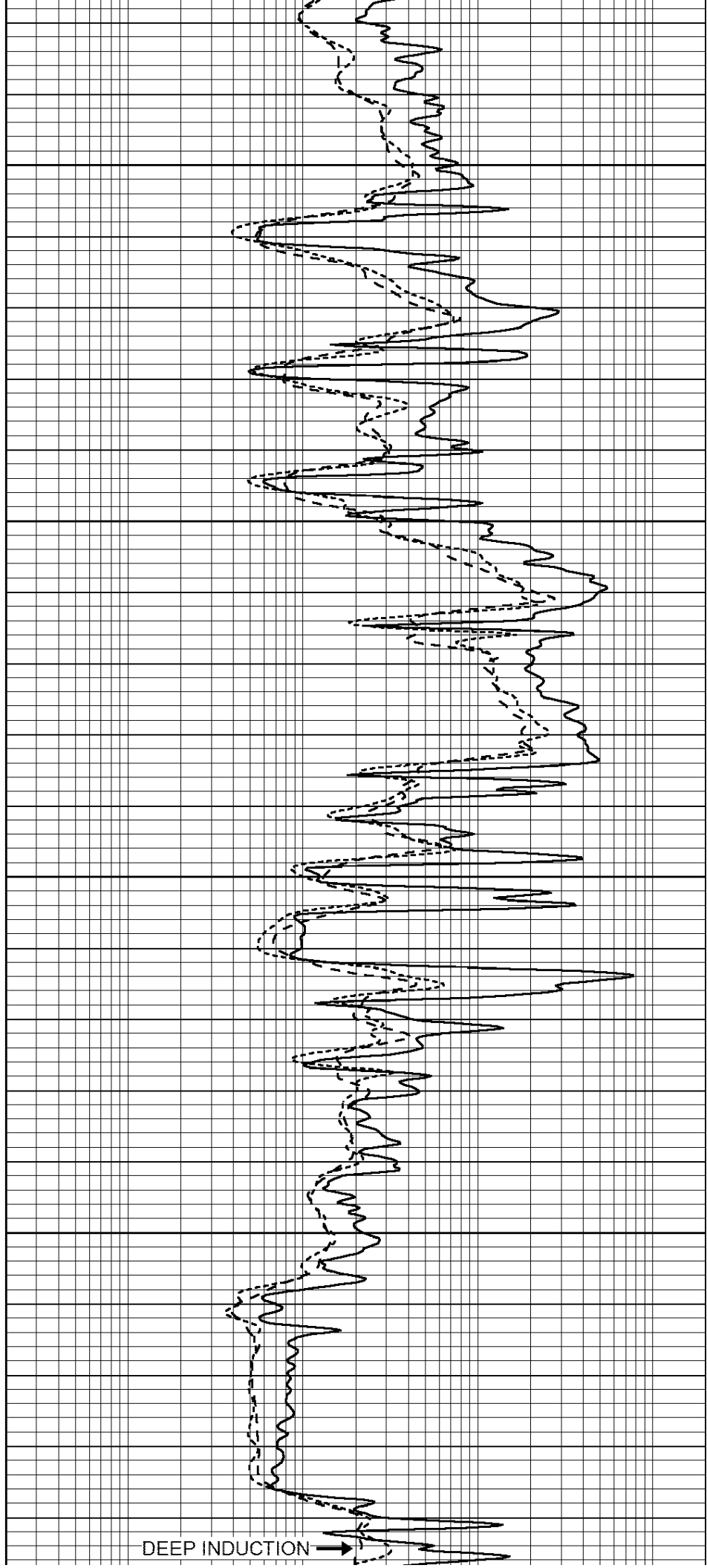
3600

GR

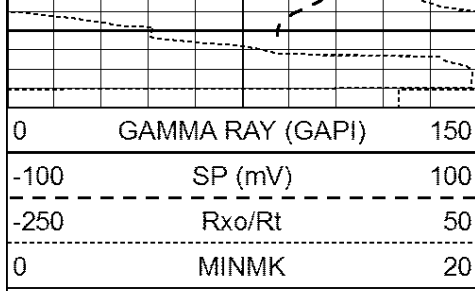
MINMK

Rxo/Rt

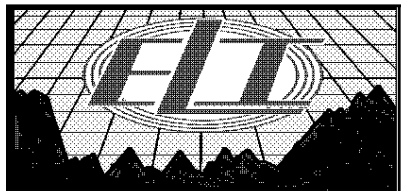
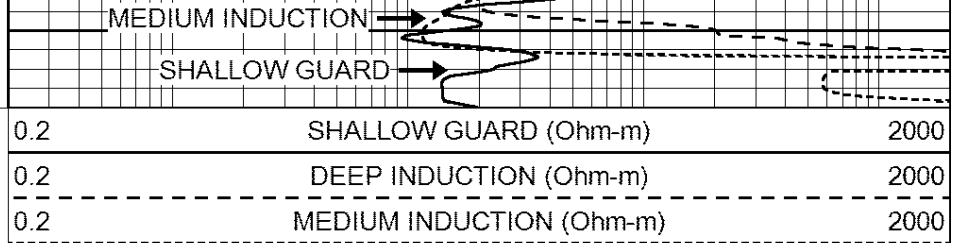
SP



DEEP INDUCTION

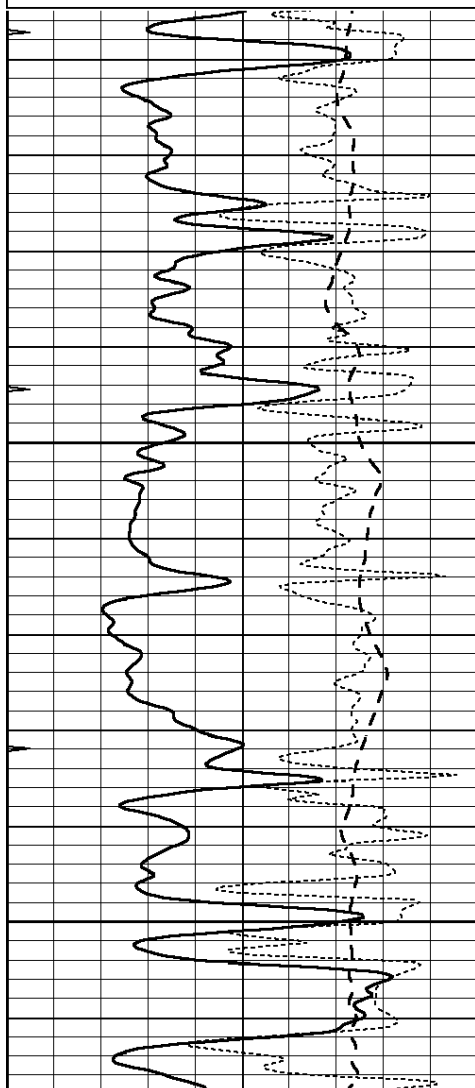
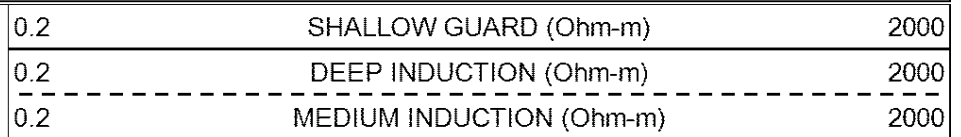
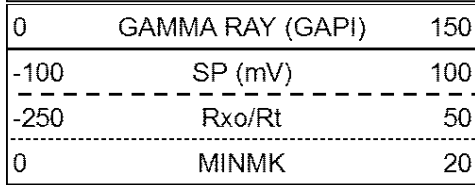


3650  
LTD 3656



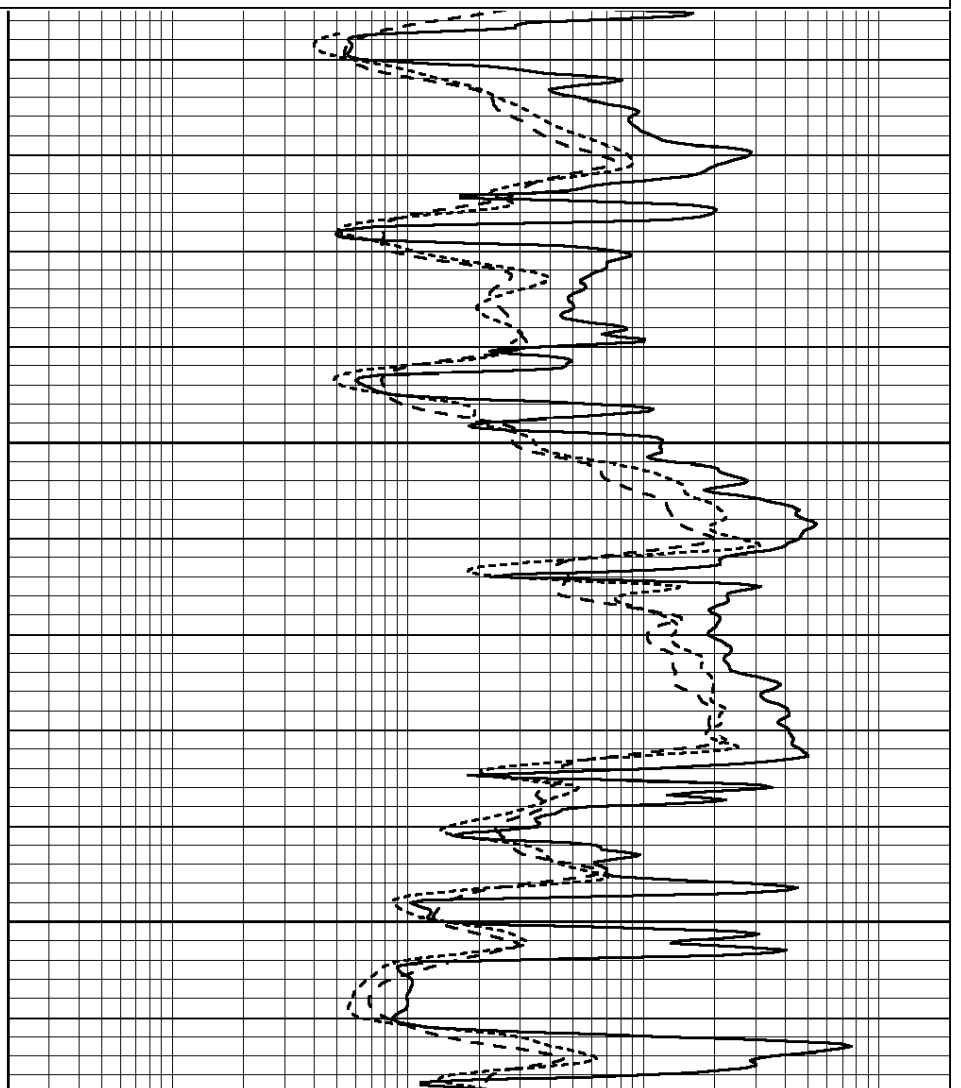
# REPEAT SECTION

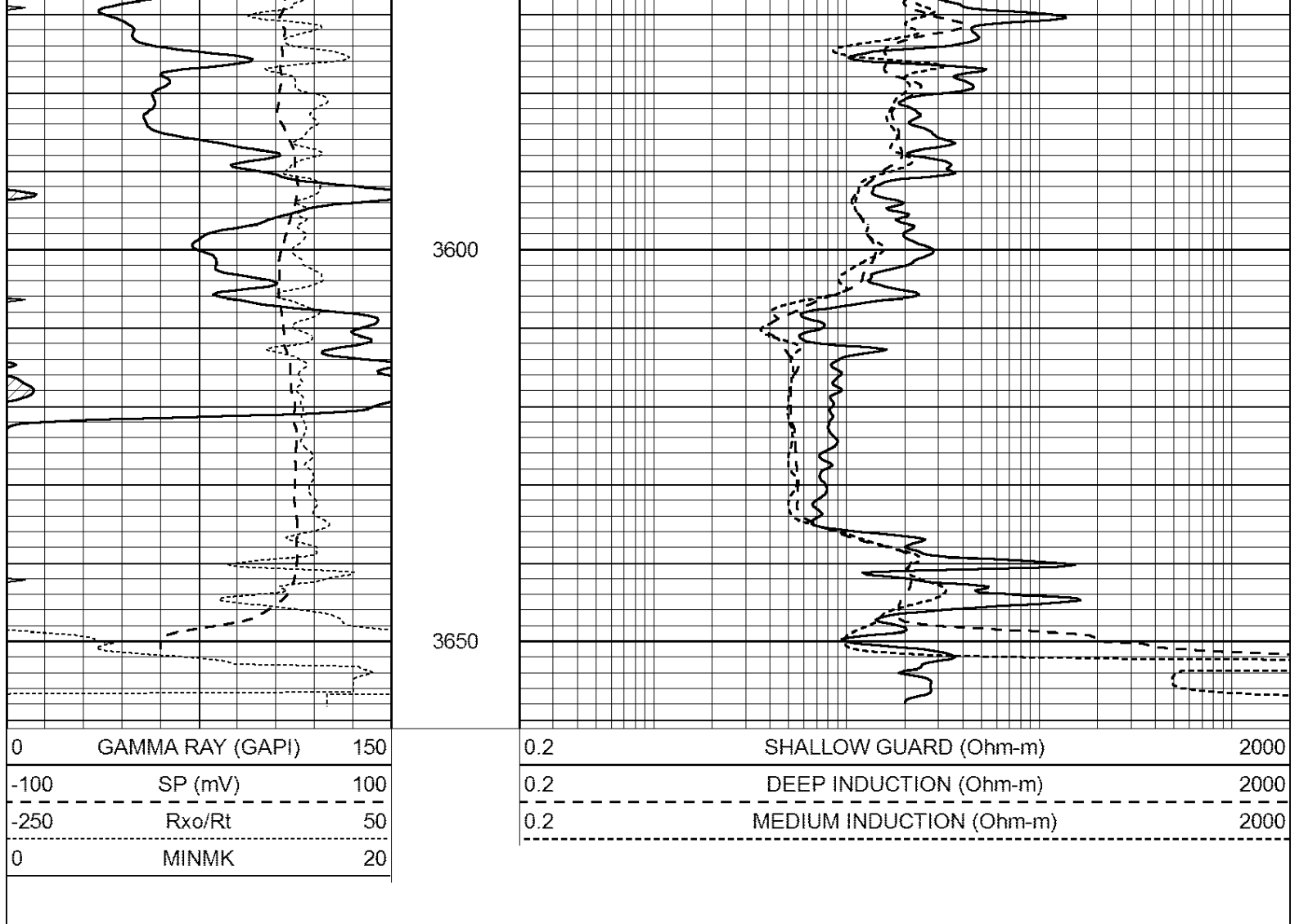
Database File: 3498ddn.db  
 Dataset Pathname: pass2.1  
 Presentation Format: \_dil  
 Dataset Creation: Sat Apr 20 13:41:54 2019  
 Charted by: Depth in Feet scaled 1:240



3500

3550





Calibration Report

Database File: 3498ddn.db  
 Dataset Pathname: pass2.1  
 Dataset Creation: Sat Apr 20 13:41:54 2019

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

Loop:	Readings			V	References		mmho/m	Results	
	Air	Loop			Air	Loop		m	b
Deep	0.015	0.648		0.000	400.000	620.000	0.000		
Medium	0.029	0.796		0.000	464.000	590.000	-12.000		
Internal:	Zero	Cal		Zero	Cal	m	b		
Deep	0.017	0.657	V	0.000	400.000	625.153	-10.619		
Medium	0.016	0.757	V	0.000	464.000	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 Fri Feb 22 10:21:38 2019						
	Background	Magnesium	Aluminum	Sandstone				
Window 1	1650.2	7609.7	2906.5	8386.5			cps	
Window 2	1538.2	6635.9	2614.4	7212.4			cps	
Window 3	1257.0	3718.7	1765.8	3927.1			cps	
Window 4	376.8	375.6	373.4	374.5			cps	
Long Space	0.0	5097.7	1076.2	5674.2			cps	
Short Space	2.8	1704.3	1106.3	1723.6			cps	
Rho		1.7100	2.5900	1.3800			g/cc	
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 44.5	Rib Slope	: 0.982	Density/Spine Ratio			: 0.545	
Spine Angle	: 74.5	Spine Slope	: 3.599	Spine Intercept			: -18.2	

Before Survey Verification		Performed Wed Dec 31 18:00:00 1969						
	Background	Magnesium	Aluminum	Sandstone				
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						
	Background	Magnesium	Aluminum	Sandstone				
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:  
Tool Model:

6I  
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: Mon Sep 10 14:29:23 2018

Calibrator Value: 150.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 276.0 cps

Sensitivity: 0.5500 GAPI/cps