



DUAL INDUCTION LOG

Company BRUNGARDT OIL & LEASING CO.
 Well REICH B #2
 Field DREHER
 County RUSSELL
 State KANSAS

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 Well REICH B #2
 Field DREHER
 County RUSSELL State KANSAS

Location: 1775' FNL & 2295' FWL
 API # : 15-167-24082-0000
 Other Services CDL/CNL/MEL
 Permanent Datum GROUND LEVEL Elevation 1808
 Log Measured From KELLY BUSHING 8' A.G.L.
 Drilling Measured From KELLY BUSHING
 SEC 22 TWP 11S RGE 15W
 Elevation K.B. 1816
 D.F. 1814
 G.L. 1808

Date	11/21/18		
Run Number	ONE		
Depth Driller	3335		
Depth Logger	3337		
Bottom Logged Interval	3336		
Top Log Interval	50		
Casing Driller	8 5/8" @ 224		
Casing Logger	224		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 5500 PPM	
Density / Viscosity	8.9/50		
pH / Fluid Loss	10.5/8.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.60@60		
Rmt @ Meas. Temp	.45@60		
Rmc @ Meas. Temp	.72@60		
Source of Rmt / Rmc	MEASURED		
Rm @ BHT	.36 @ 110F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	///		
Maximum Recorded Temperature	110F		
Equipment Number	1523		
Location	HAYS, KANSAS		
Recorded By	GUS PFANENSTIEL		
Witnessed By	ROGER FISHER		

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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
 GORHAM BLACK TOP NORTH TO SALINE LN.(RD. BEFORE CURVE)
 EAST 1, BACK NORTH TO PARADISE RD., EAST 3/4,
 SOUTH INTO.



MAIN PASS

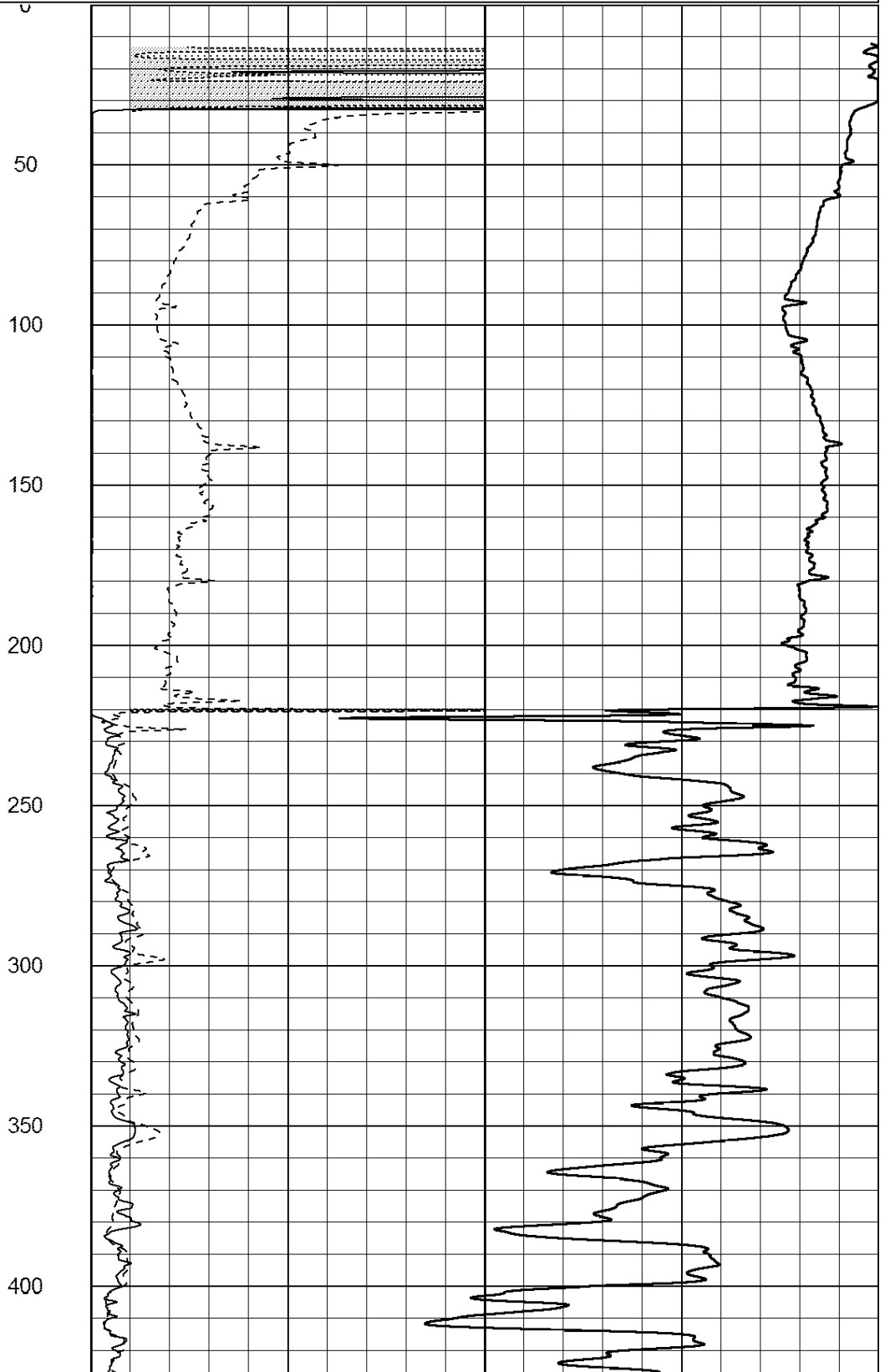
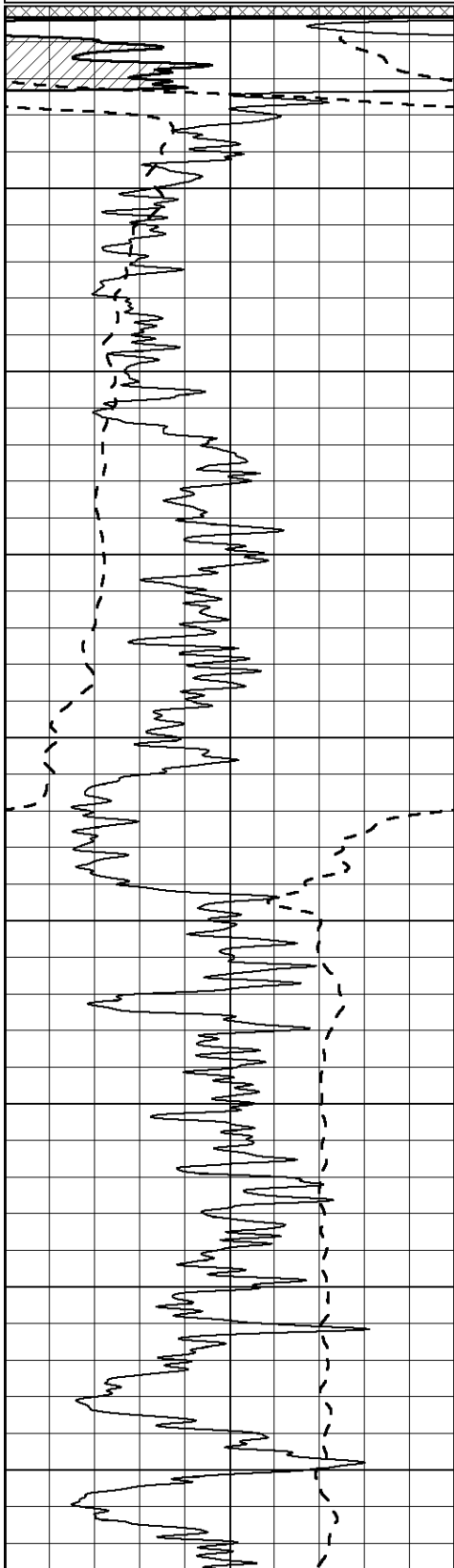
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 Dataset Pathname: pass3MAIN
 Presentation Format: _dil2
 Dataset Creation: Wed Nov 21 10:41:51 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:600

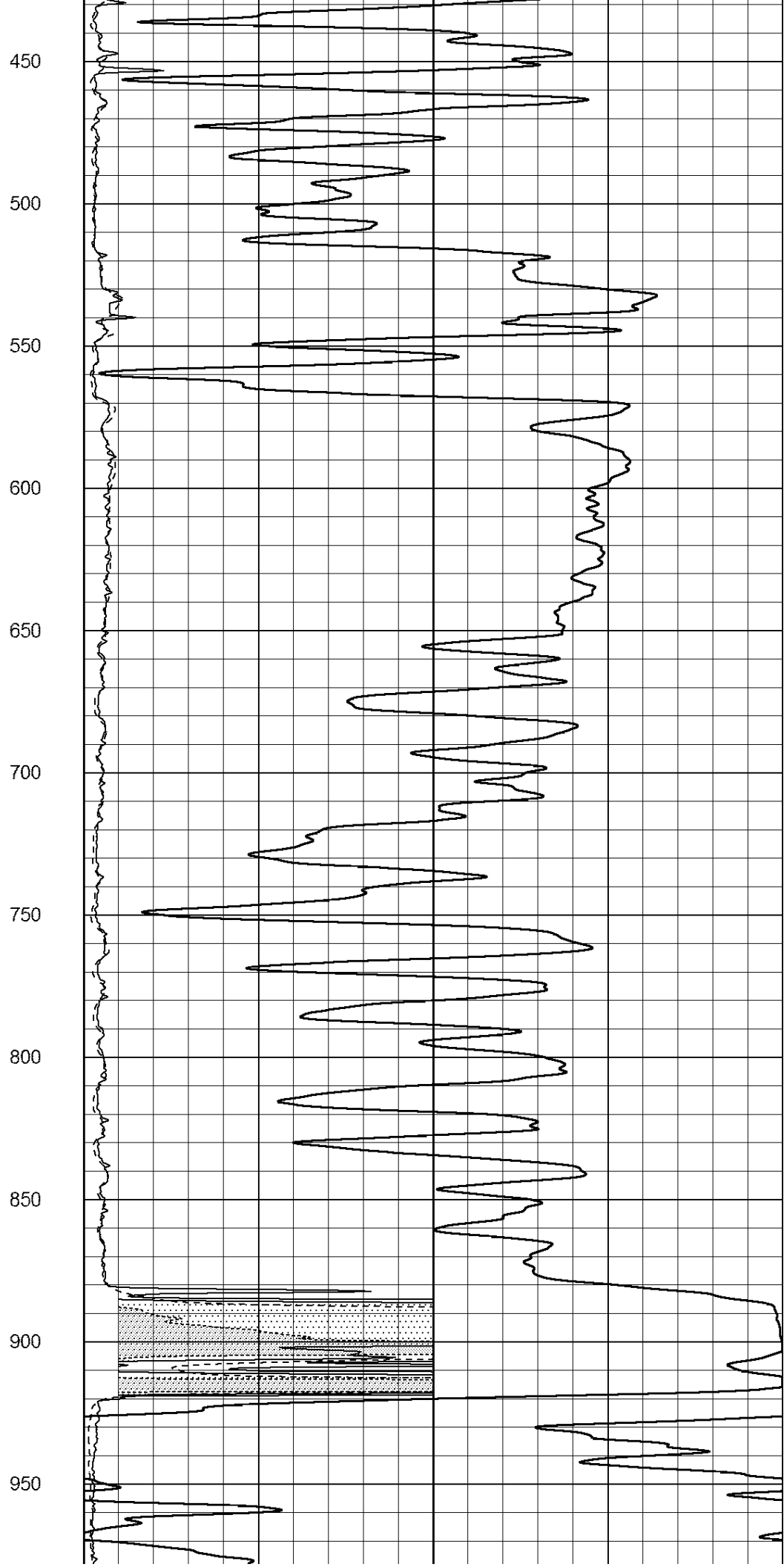
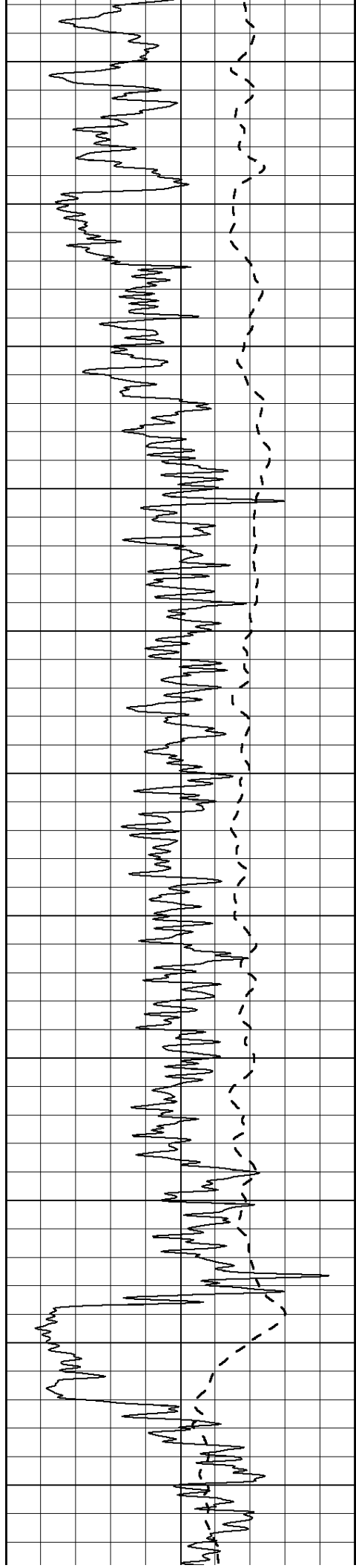
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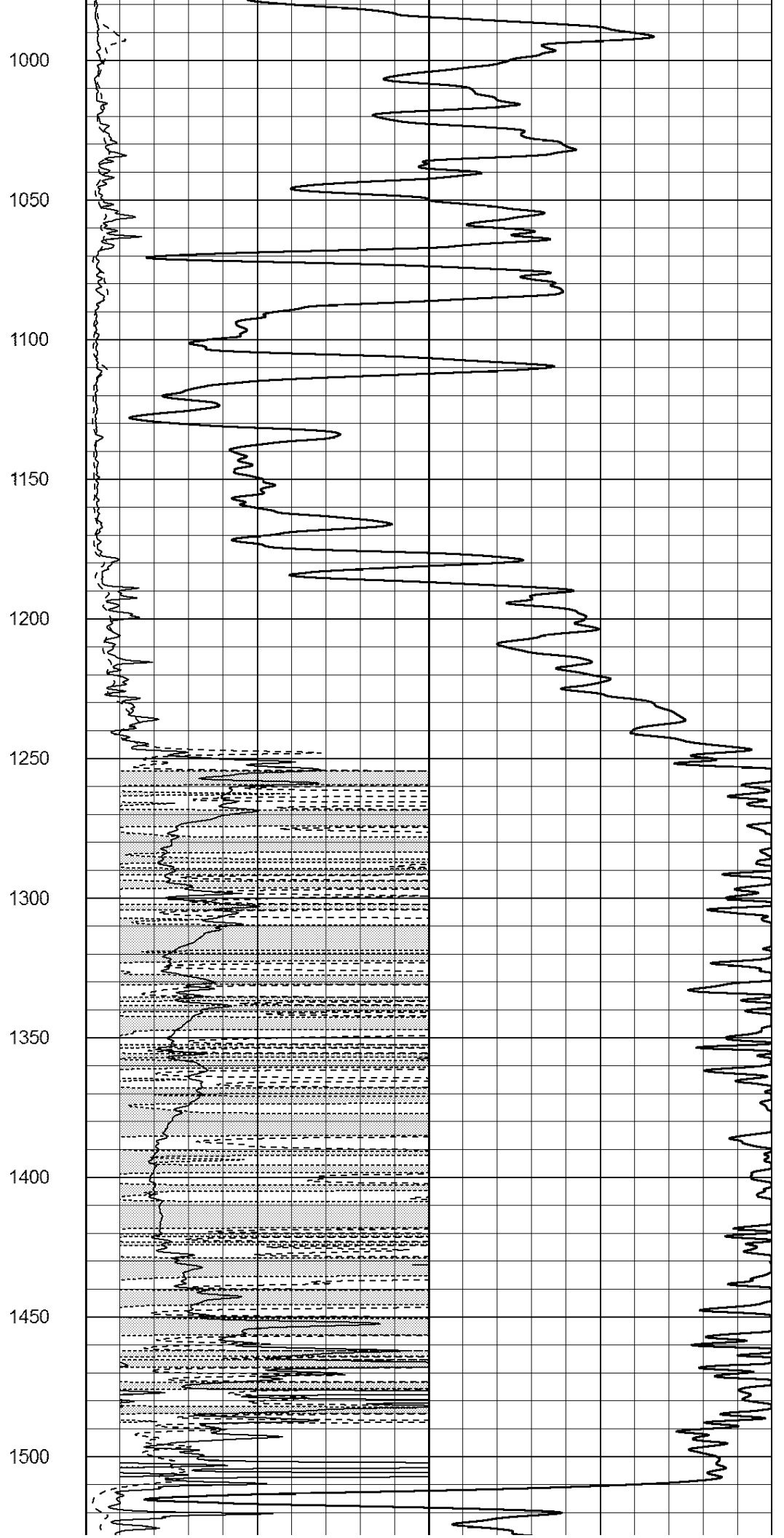
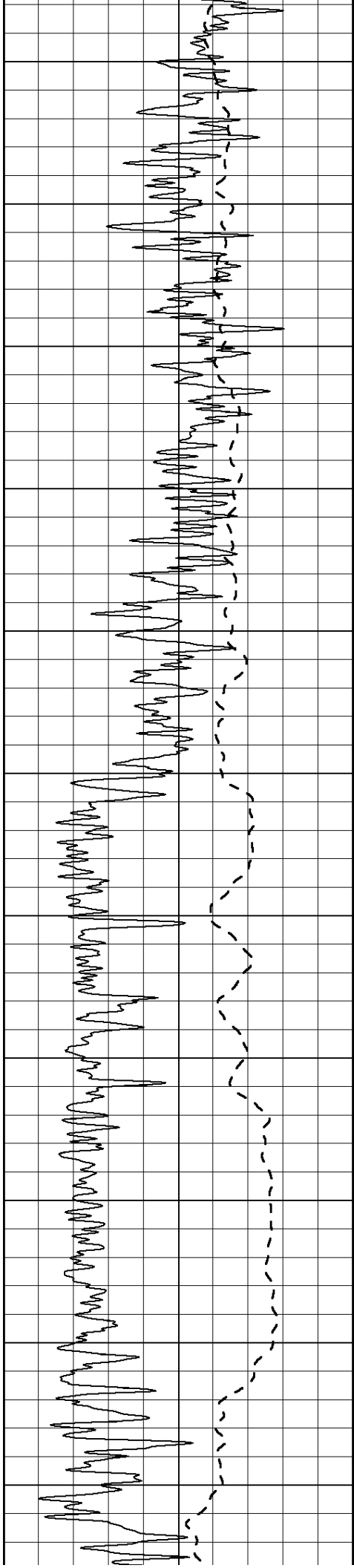
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0	RILD (Ohm-m)	50

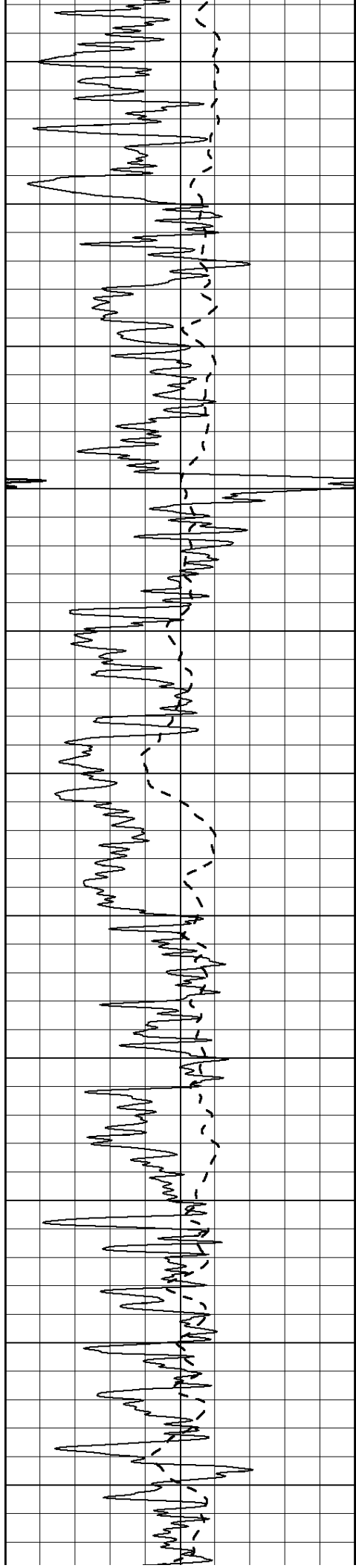
1000	CILD (mmho/m)	0
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50	RILD X10 (Ohm-m)	500
50	RLL3 X10 (Ohm-m)	500









1550

1600

1650

1700

1750

1800

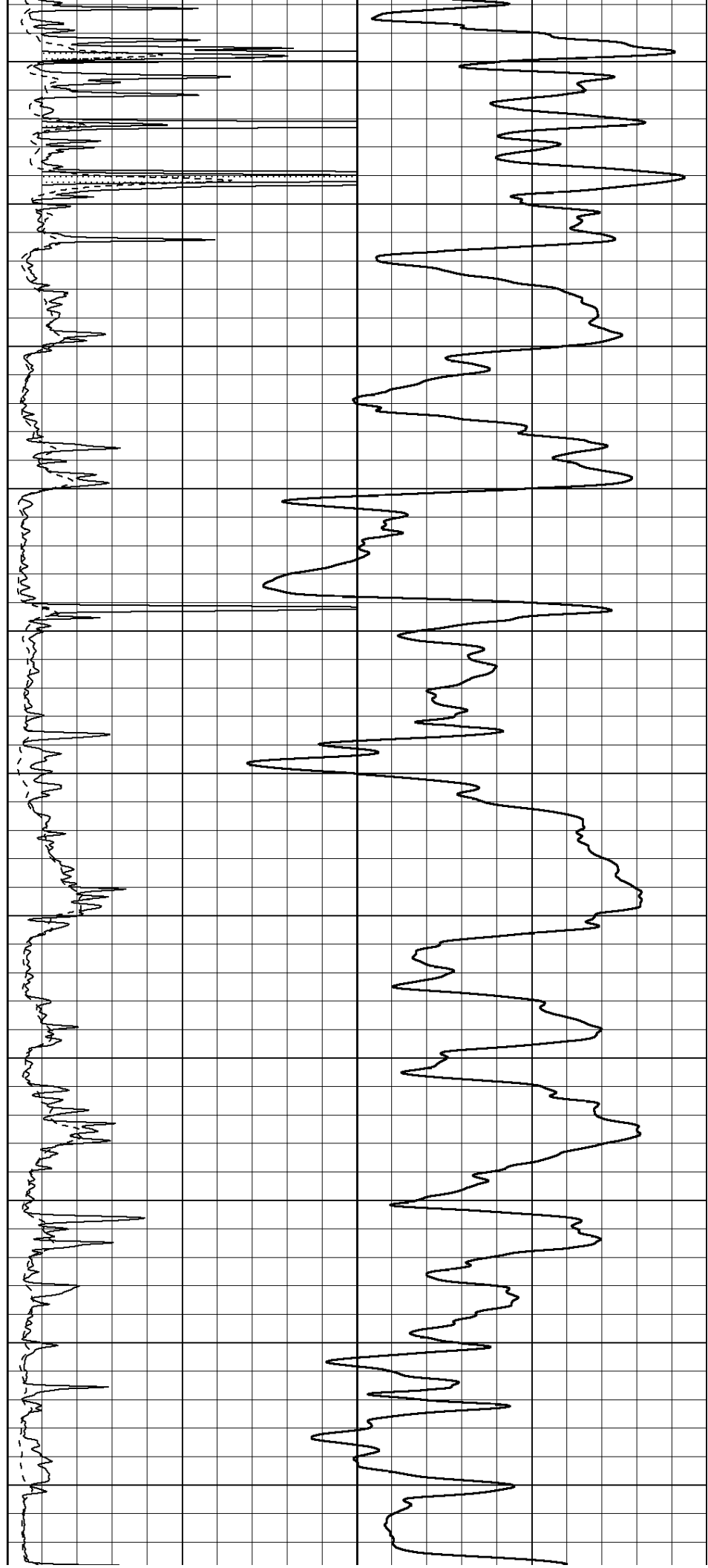
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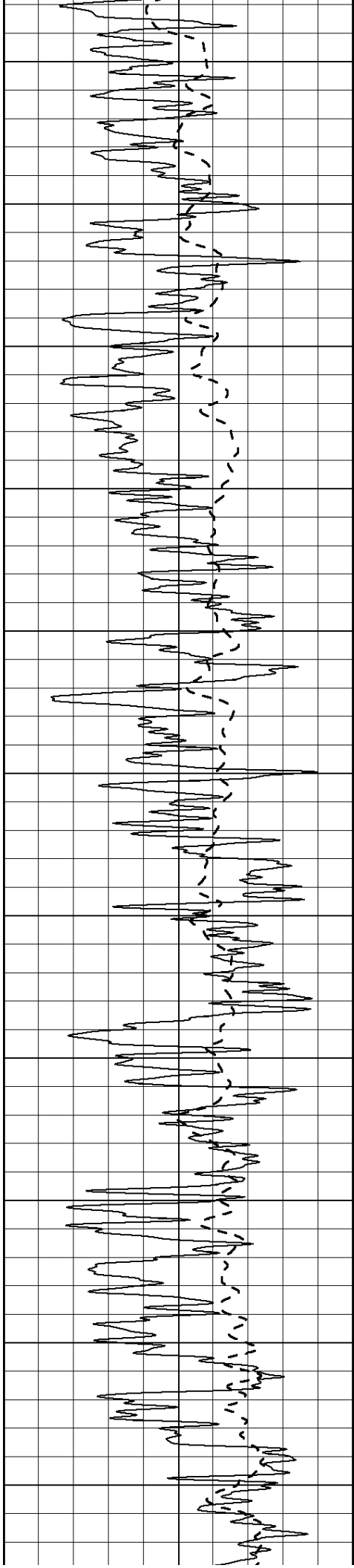
1900

1950

2000

2050





2100

2150

2200

2250

2300

2350

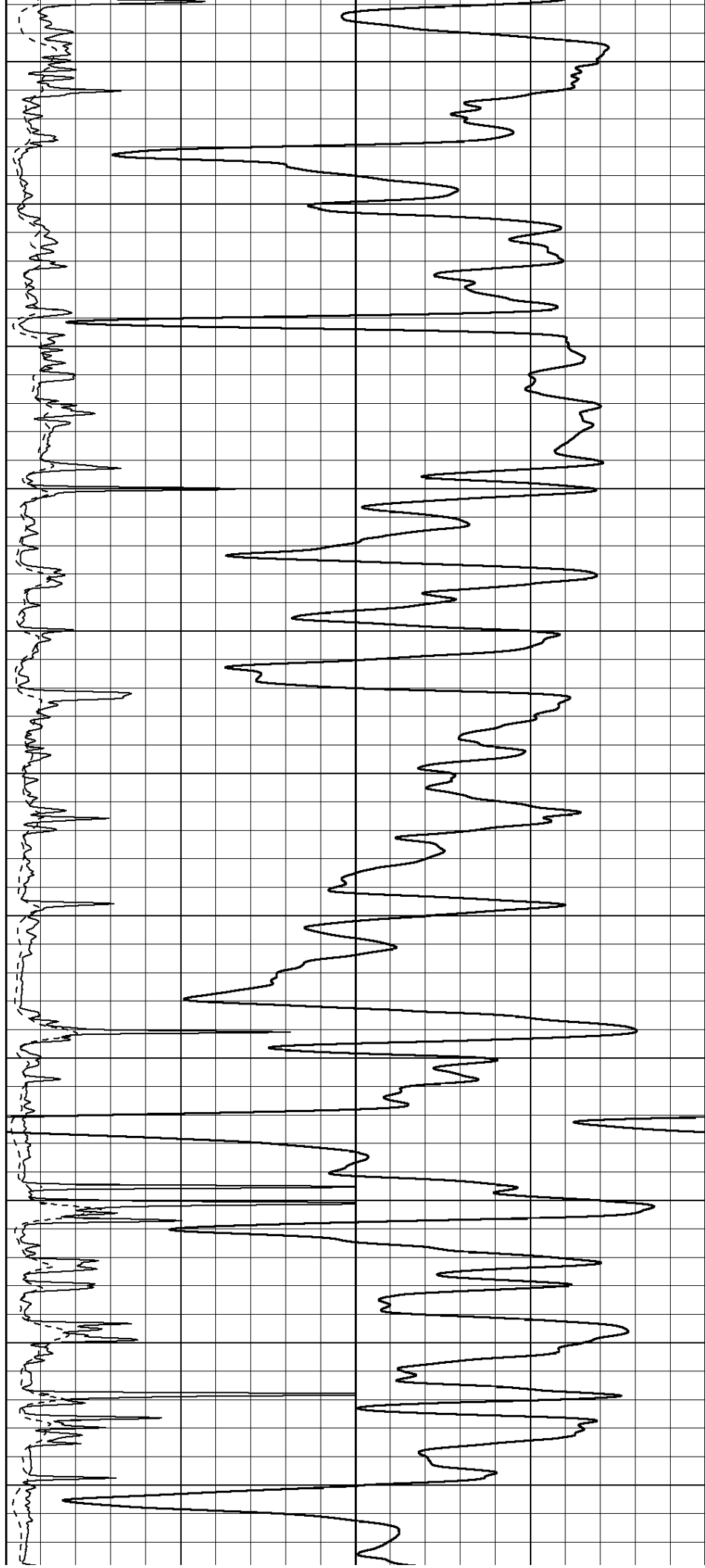
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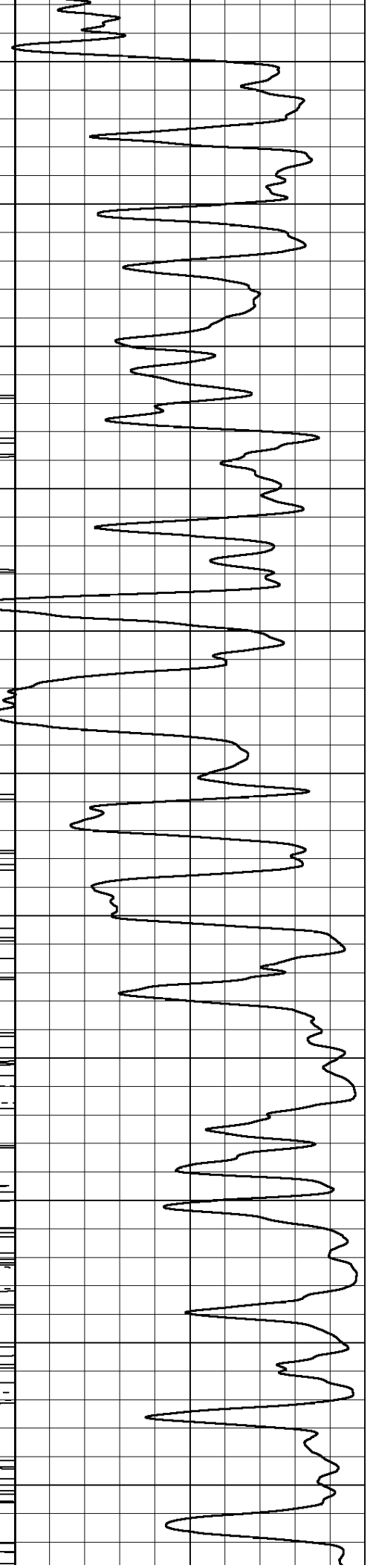
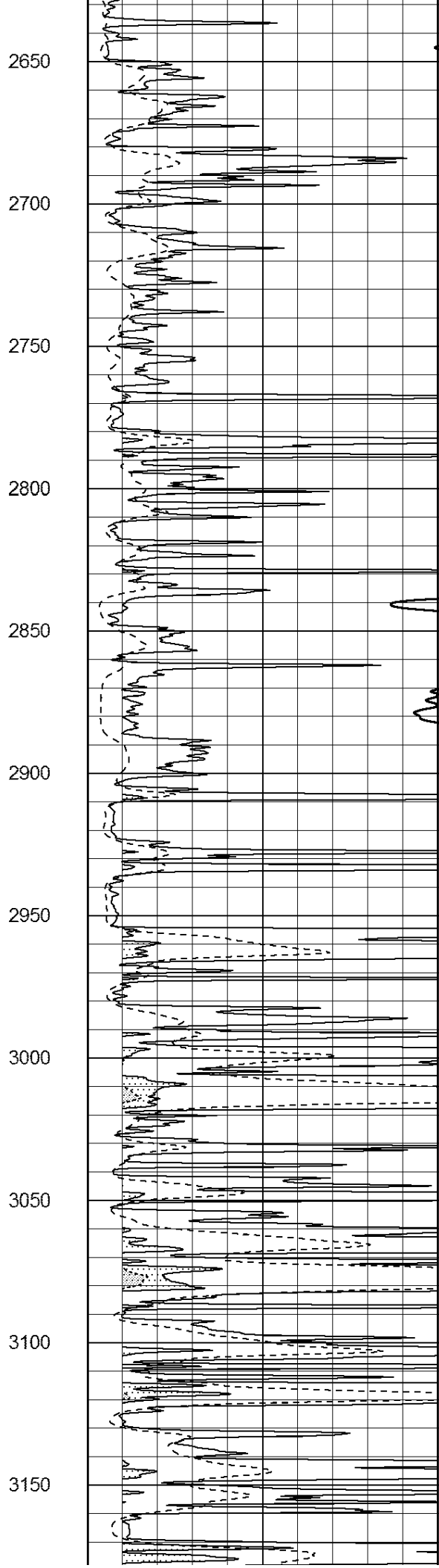
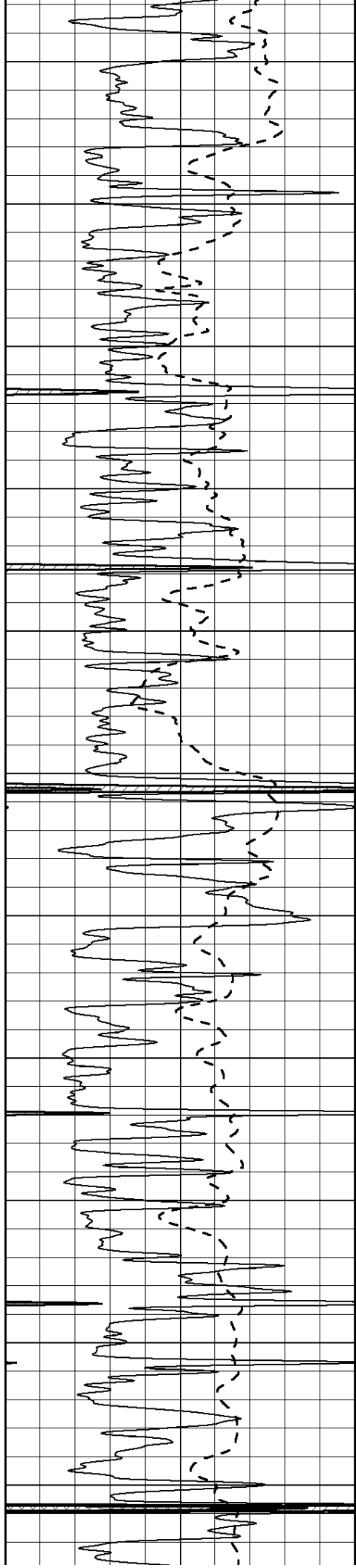
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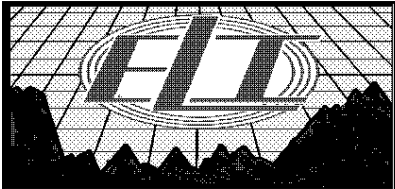
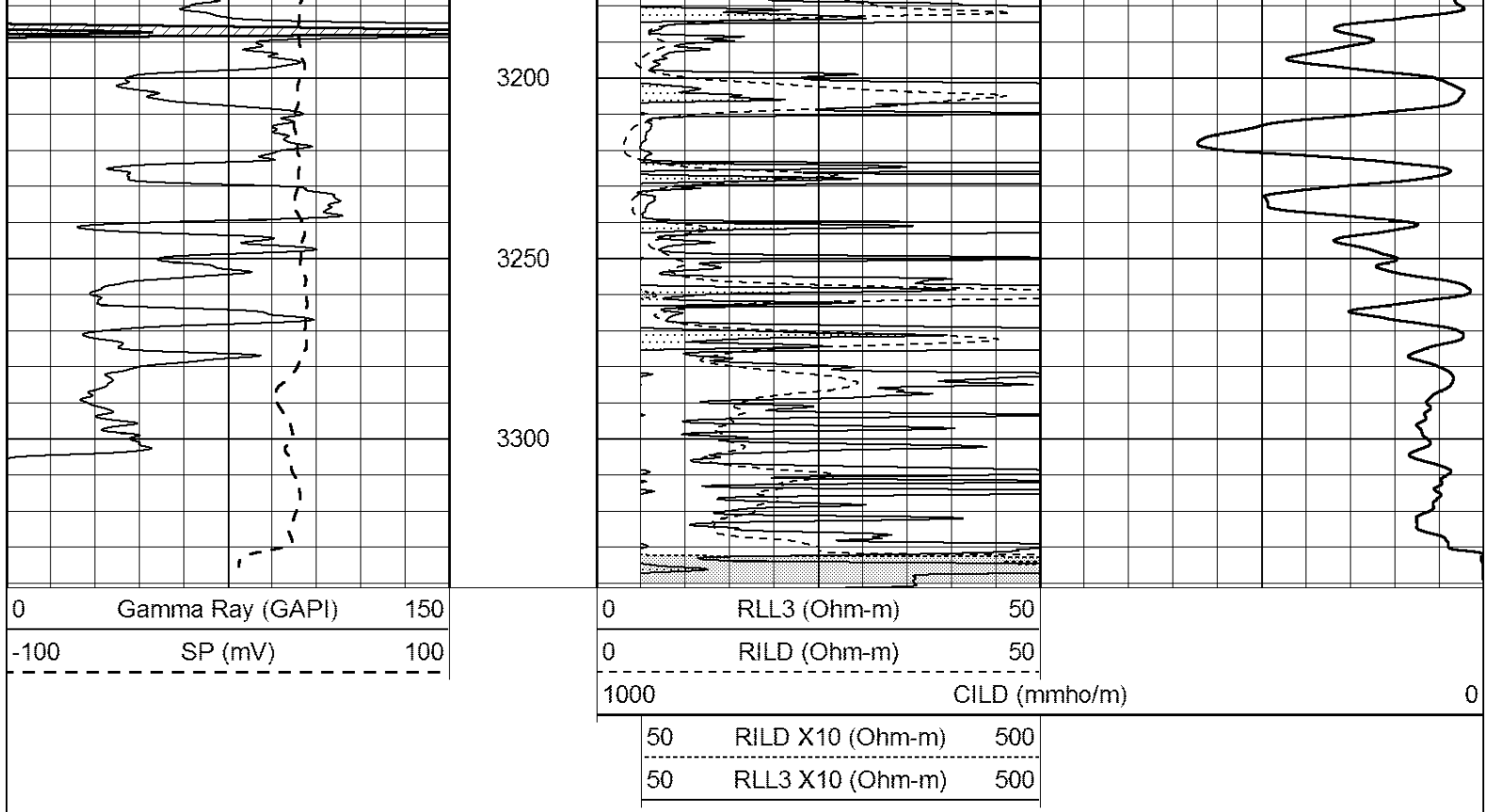
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2550

2600



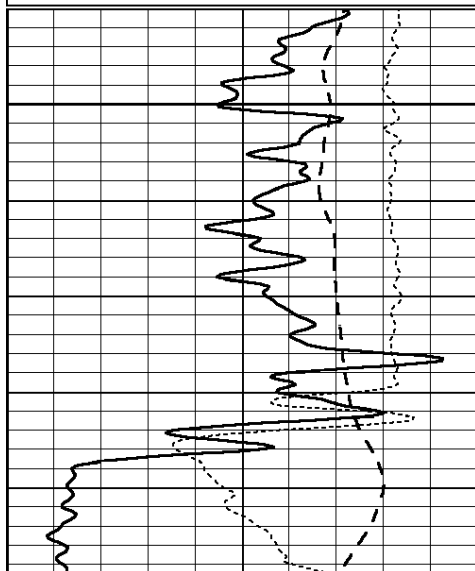




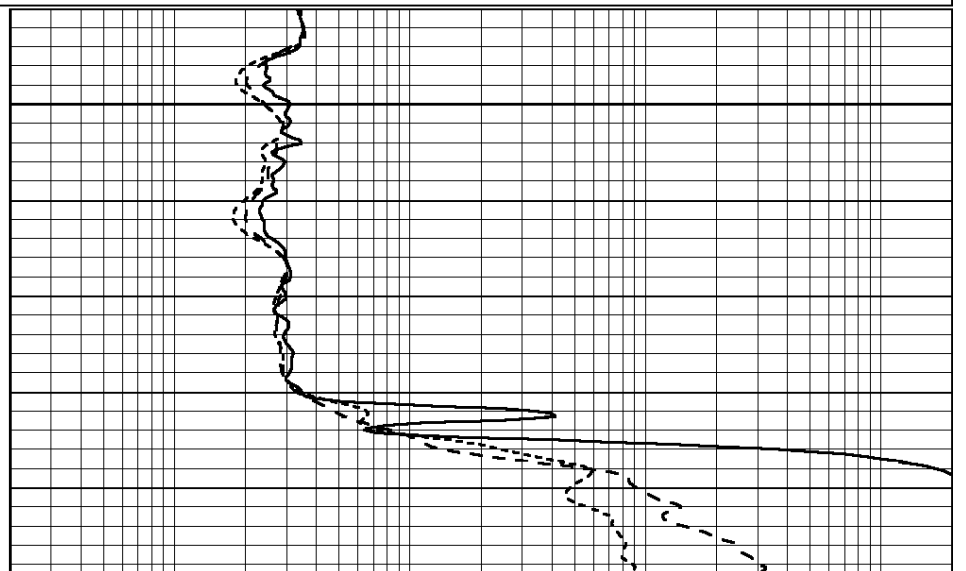
MAIN PASS

Database File: 3161ddn.db
 Dataset Pathname: pass3MAIN
 Presentation Format: _dil
 Dataset Creation: Wed Nov 21 10:41:51 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

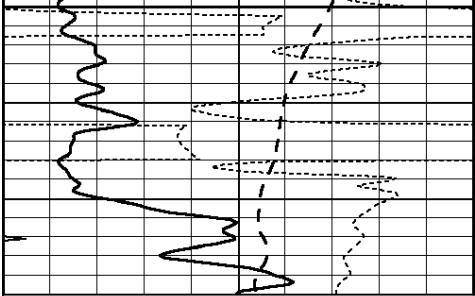
0	GAMMA RAY (GAPI)	150	0.2	SHALLOW GUARD (Ohm-m)	2000
-100	SP (mV)	100	0.2	DEEP INDUCTION (Ohm-m)	2000
-250	Rxo/Rt	50	0.2	MEDIUM INDUCTION (Ohm-m)	2000
0	MINMK	20			



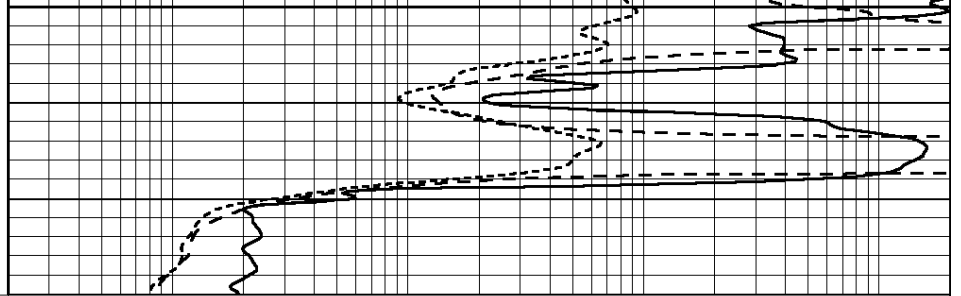
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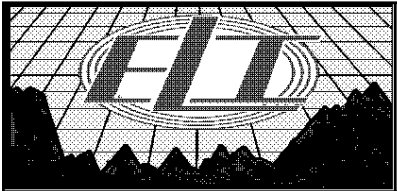
900



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



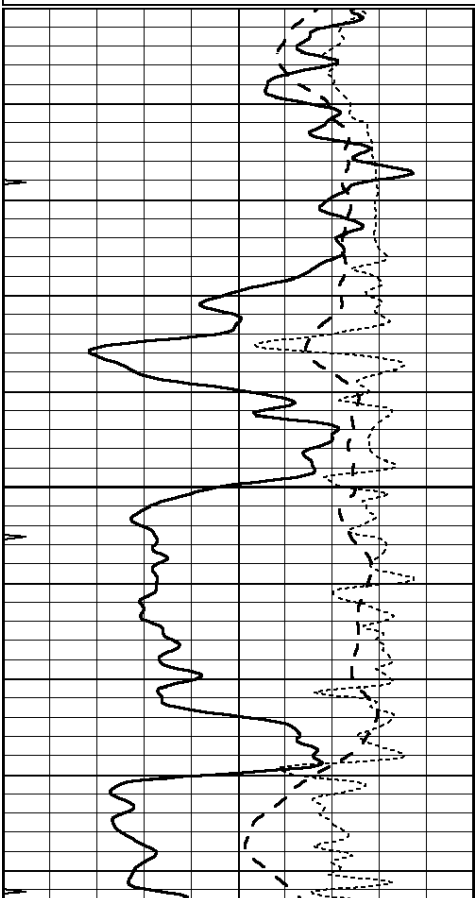
MAIN PASS

Database File: 3161ddn.db
 Dataset Pathname: pass3MAIN
 Presentation Format: _dil
 Dataset Creation: Wed Nov 21 10:41:51 2018 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

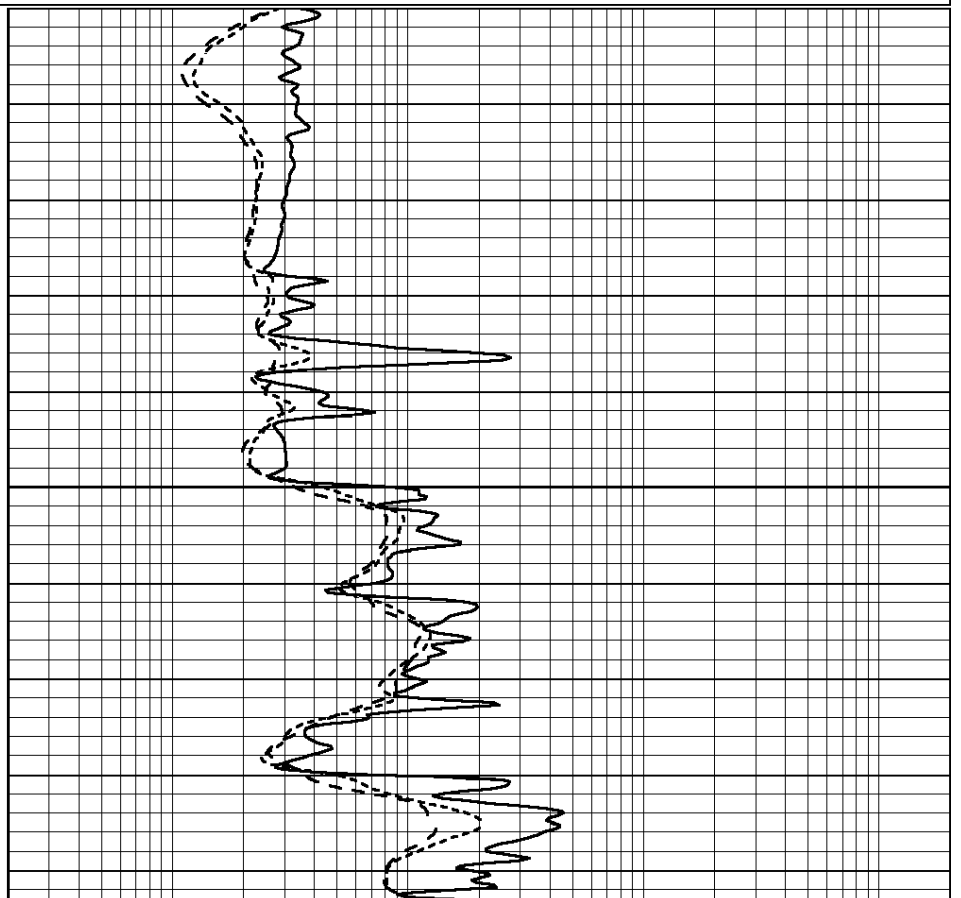
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-100	SP (mV)	100
-250	Rxo/Rt	50
0	MINMK	20

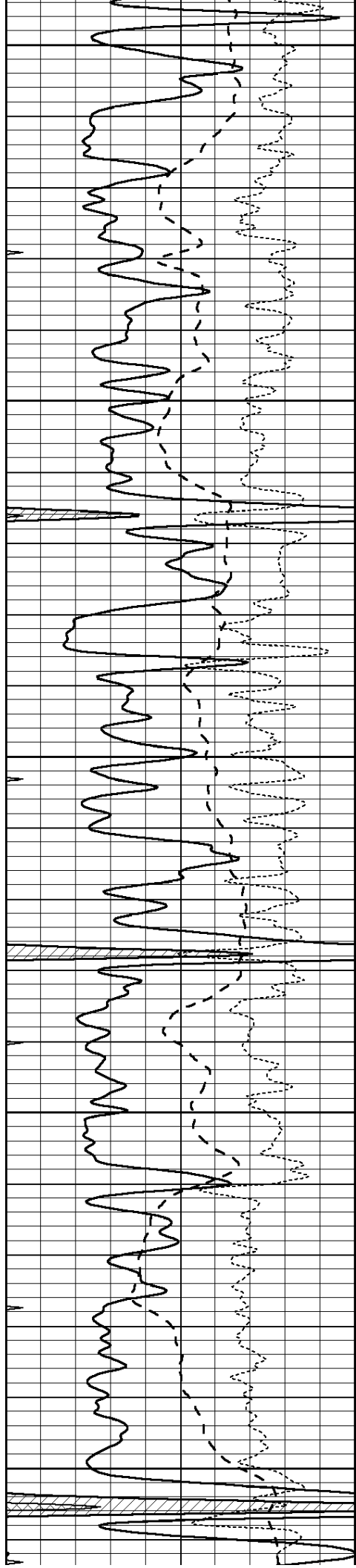
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000

2000



2650





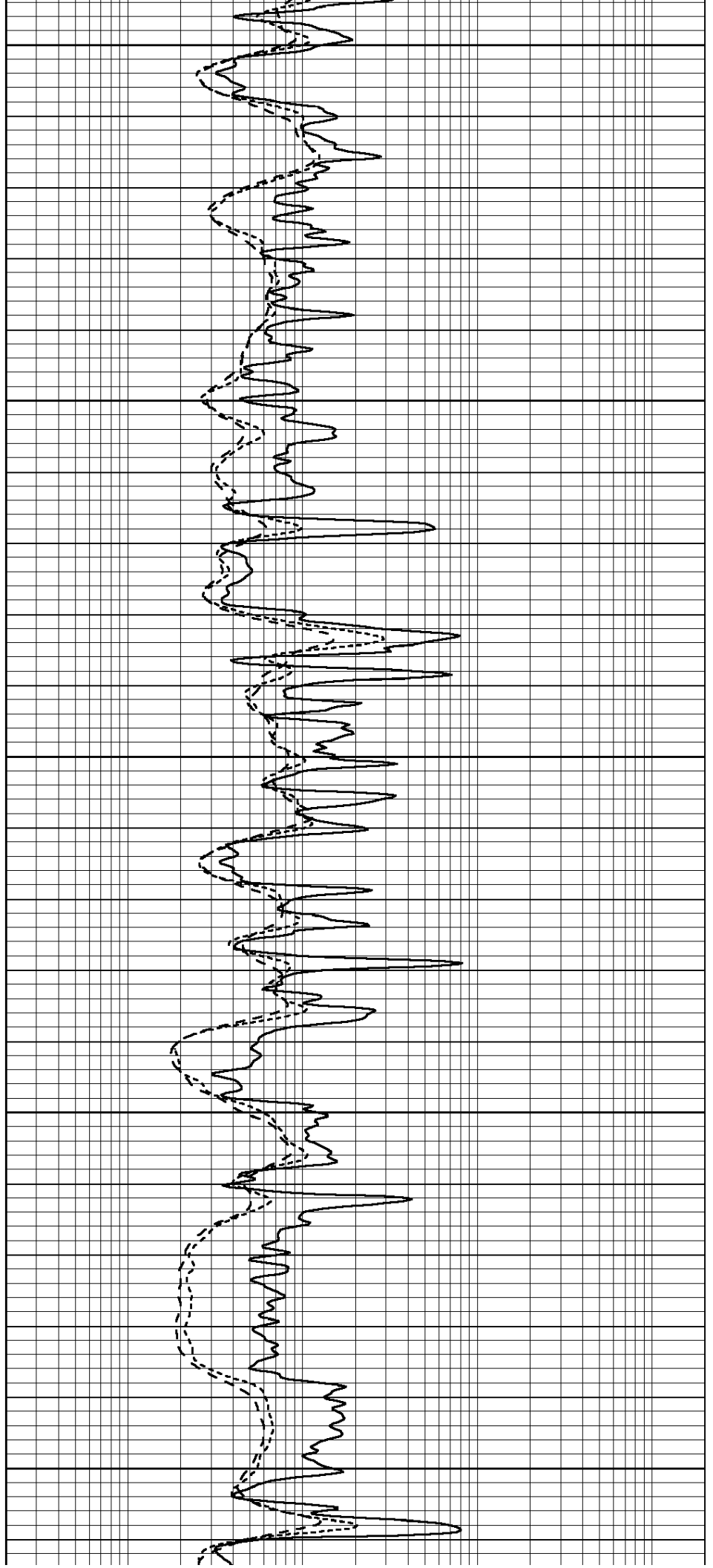
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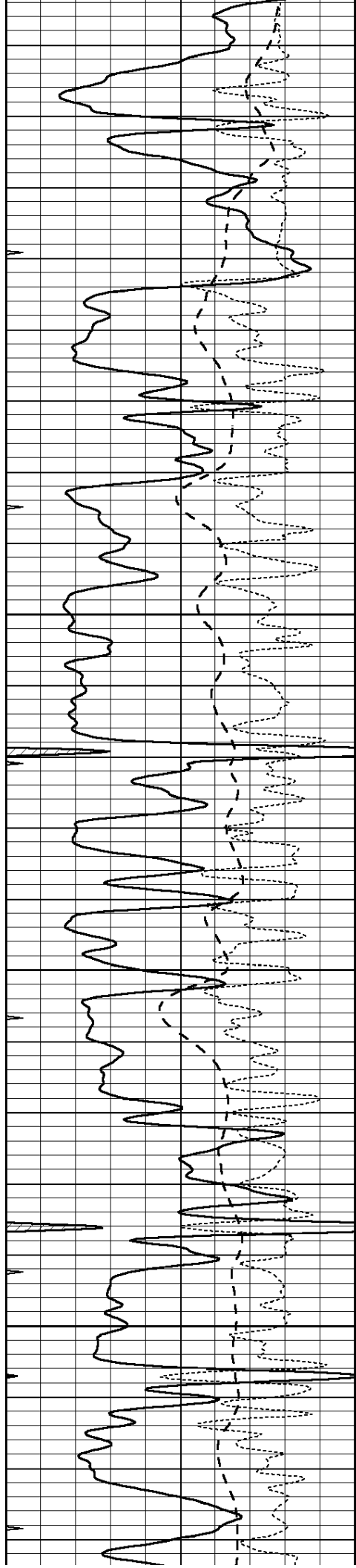
2750

2800

2850

2900



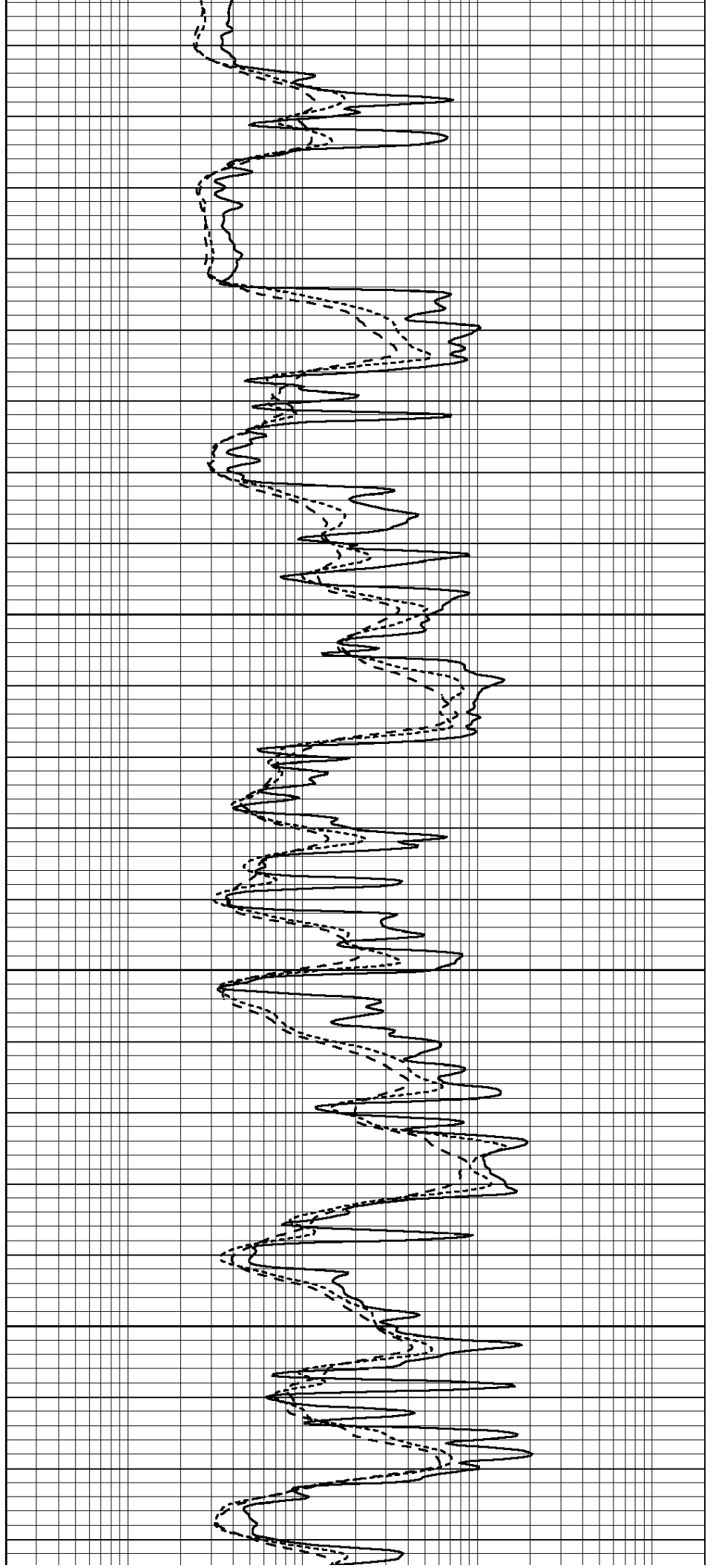


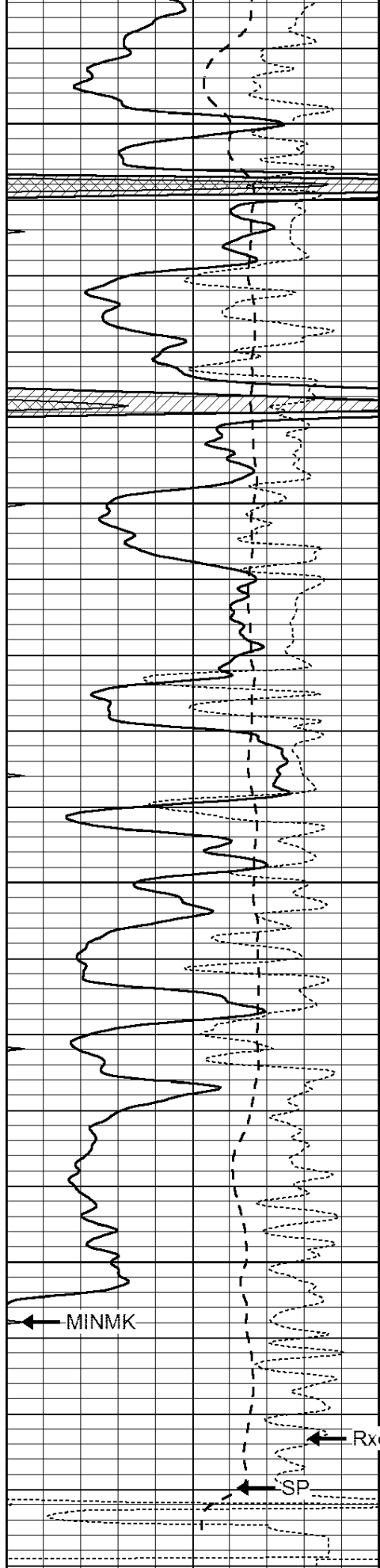
2950

3000

3050

3100





3150

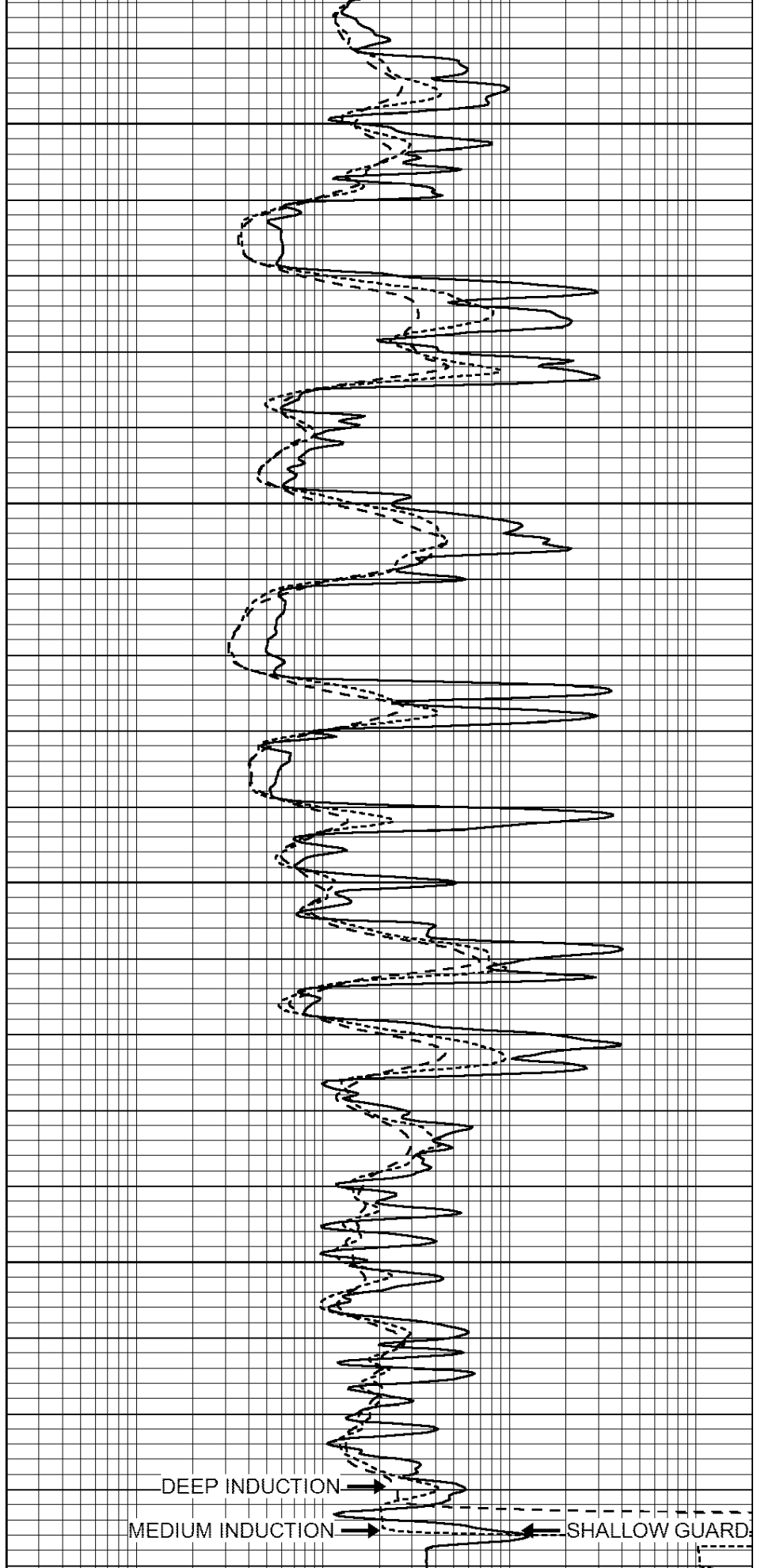
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3250

3300

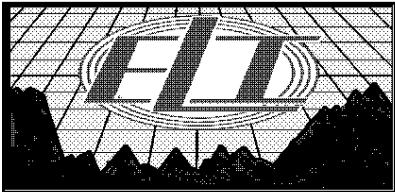
LTD 3337

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



DEEP INDUCTION →
 MEDIUM INDUCTION → SHALLOW GUARD ←

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

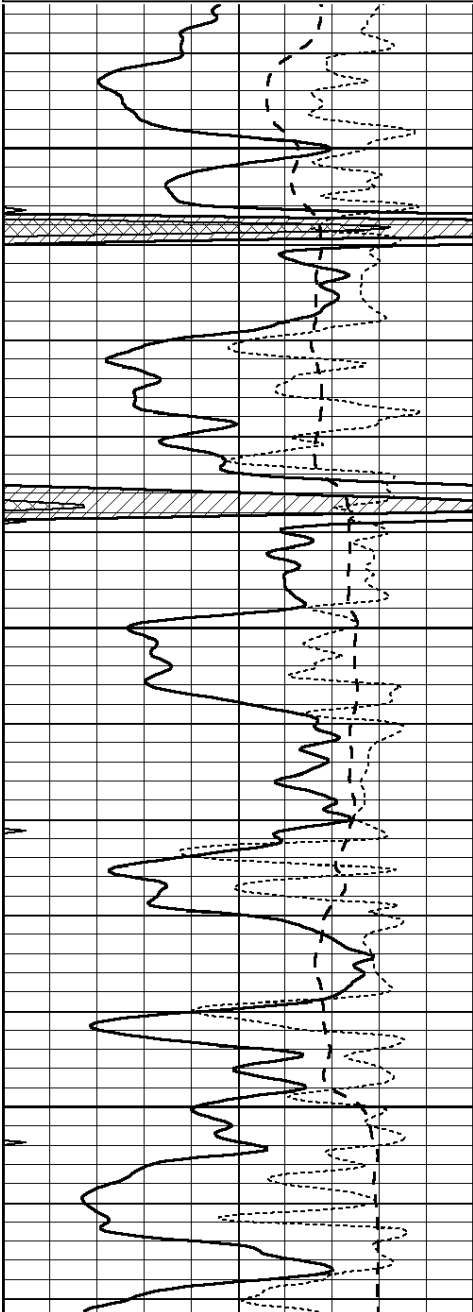


REPEAT SECTION

Database File: 3161ddn.db
 Dataset Pathname: pass2.1
 Presentation Format: _dil
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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	MINMK	20

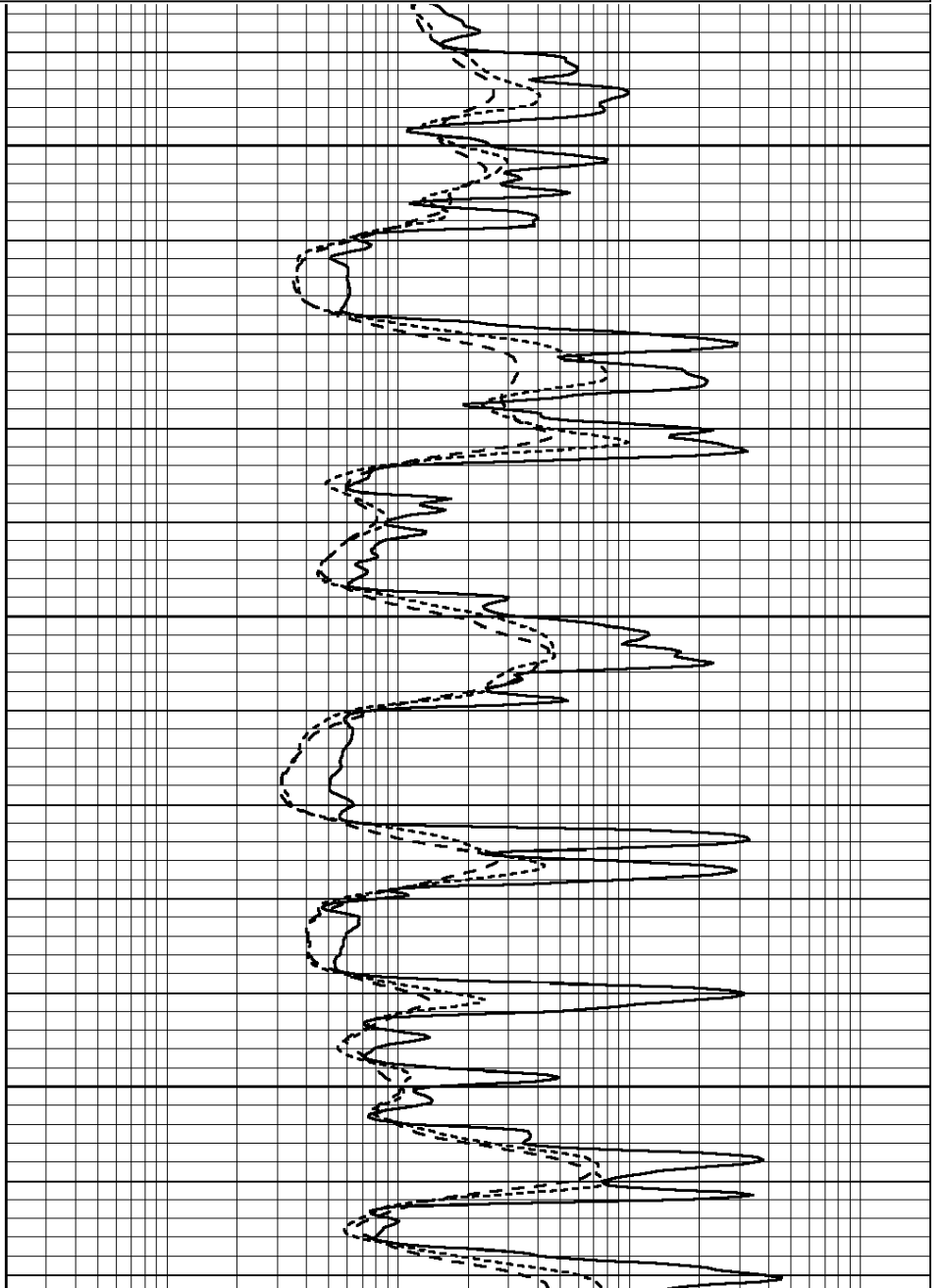
0.2	SHALLOW GUARD (Ohm-m)	2000
0.2	DEEP INDUCTION (Ohm-m)	2000
0.2	MEDIUM INDUCTION (Ohm-m)	2000



3150

3200

3250



	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: 006 Model: PRB

Master Calibration

Performed Thu Sep 27 12:07:11 2018

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1185.6	7077.4	2520.9	8182.4	cps
Window 2	1116.8	5910.1	2163.2	6739.4	cps
Window 3	880.1	3145.8	1325.0	3461.2	cps
Window 4	289.5	295.8	290.8	295.3	cps
Long Space	0.0	4793.3	1046.5	5622.7	cps
Short Space	2.9	1608.0	1038.9	1622.7	cps
Rho		1.7100	2.5960	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 44.0	Rib Slope	: 0.965	Density/Spine Ratio	: 0.560
Spine Angle	: 74.0	Spine Slope	: 3.484	Spine Intercept	: -17.2

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:	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