



**COMPENSATED  
DENSITY/NEUTRON  
LOG**

Company BLACK STONE PETROLEUM, LLC  
Well SWOB #2  
Field OTIS-ALBERT  
County RUSH  
State KANSAS

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Well SWOB #2  
Field OTIS-ALBERT  
County RUSH State KANSAS

Location: API # : 15-165-22145-00-00  
1095' FSL & 970' FWL  
SEC 26 TWP 18S RGE 16W  
Permanent Datum GROUND LEVEL Elevation 1974'  
Log Measured From KELLY BUSHING 9' A.G.L.  
Drilling Measured From KELLY BUSHING  
Other Services  
DIL/MEL  
SONIC  
Elevation  
K.B. 1983  
D.F. 1981  
G.L. 1974

Date	06/25/17
Run Number	ONE
Depth Driller	3674
Depth Logger	3736
Bottom Logged Interval	3712
Top Log Interval	1500
Casing Driller	10 3/4" @ 1080
Casing Logger	1080
Bit Size	8 3/4"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	8.6/48
pH / Fluid Loss	11.4/8.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.50@72
Rmt @ Meas. Temp	.38@72
Rmc @ Meas. Temp	.60@72
Source of Rmf / Rmc	MEASURED
Rm @ BHT	.32@112
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	///
Maximum Recorded Temperature	112F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	GUS PFANENSTIEL
Witnessed By	CHRIS LEIKER

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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

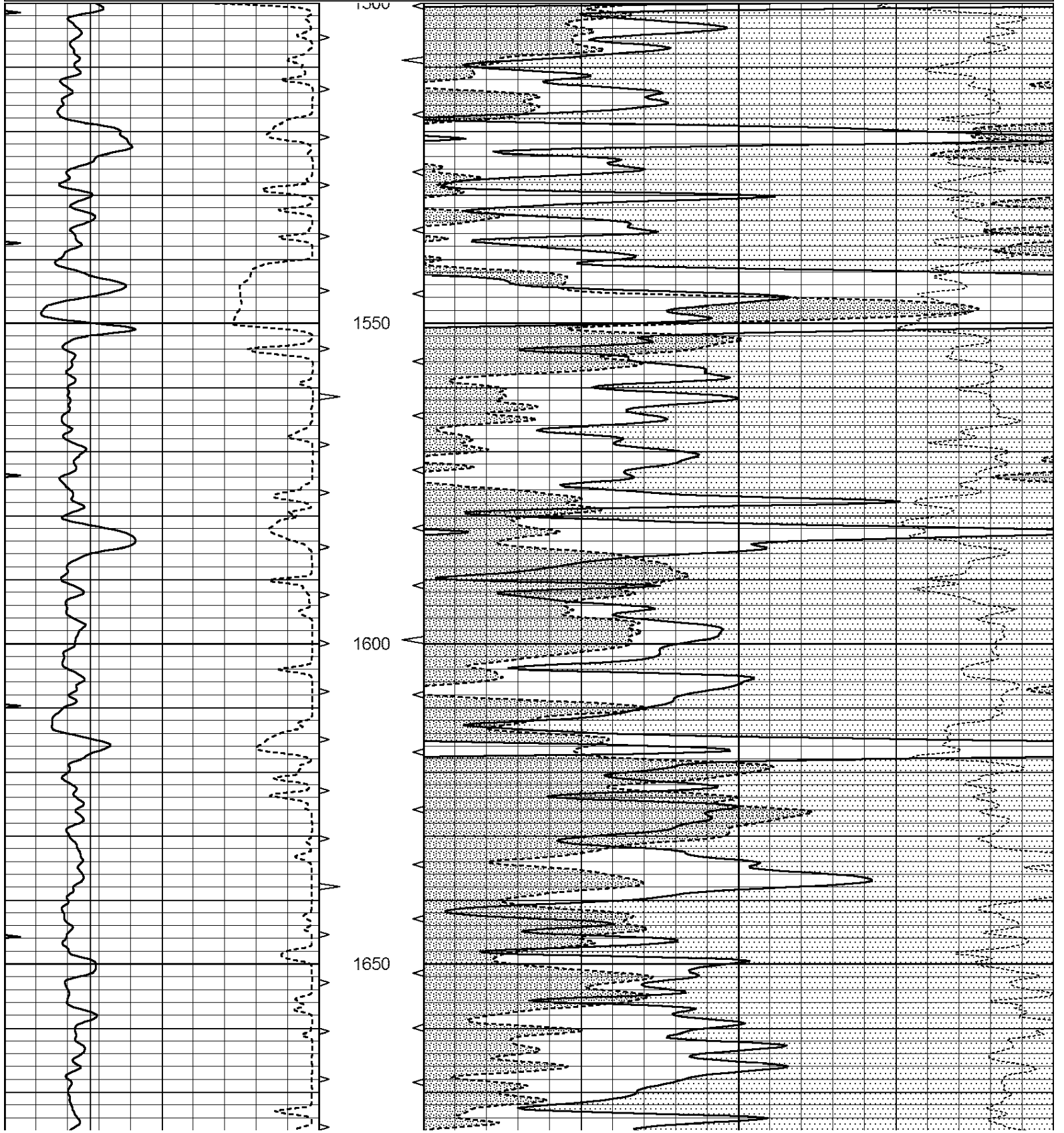
DIRECTIONS  
96 HIGHWAY OUT OF RUSH CENTER EAST TO 380 RD.  
SOUTH 3/4 MILE  
EAST INTO.

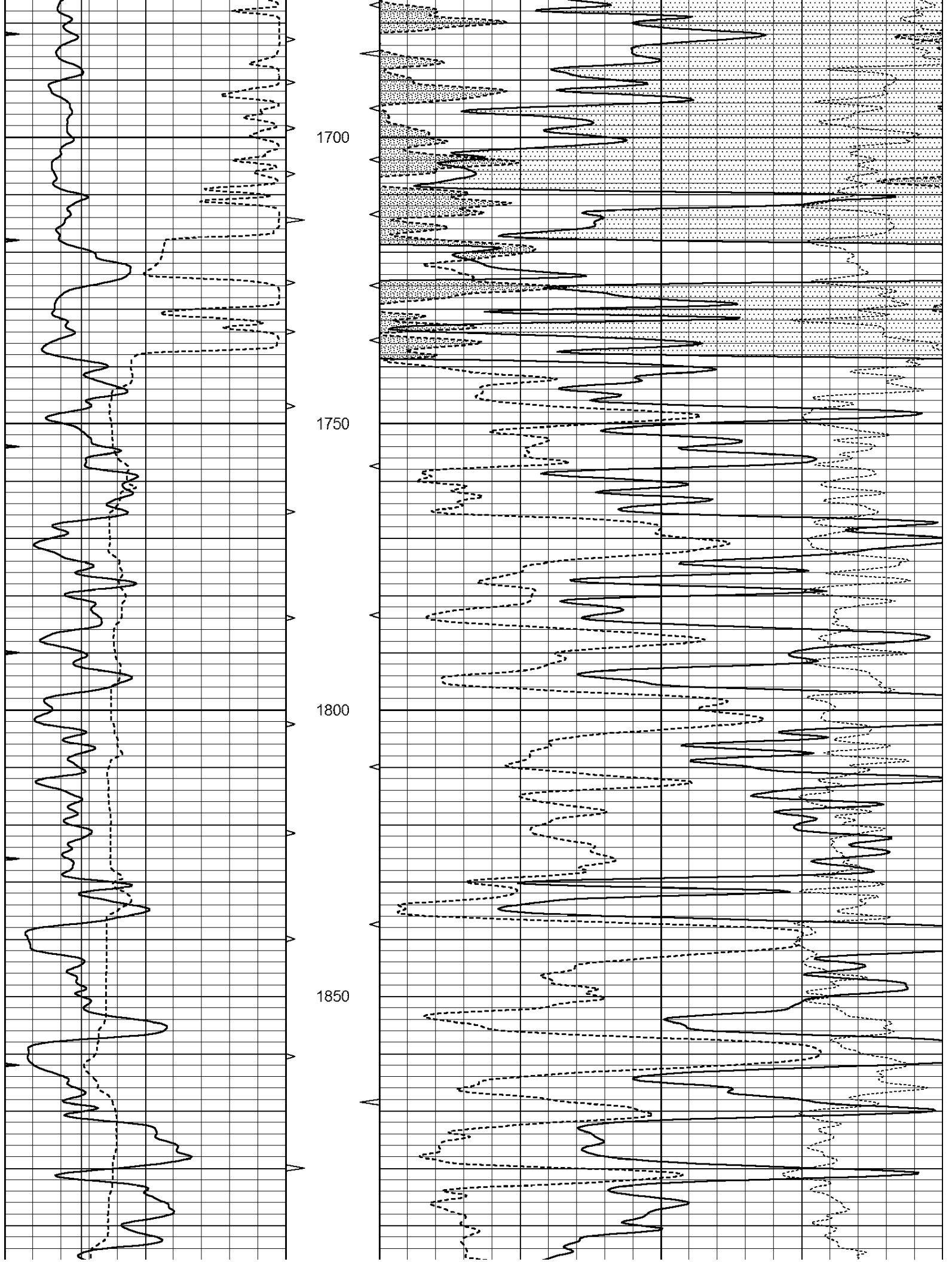


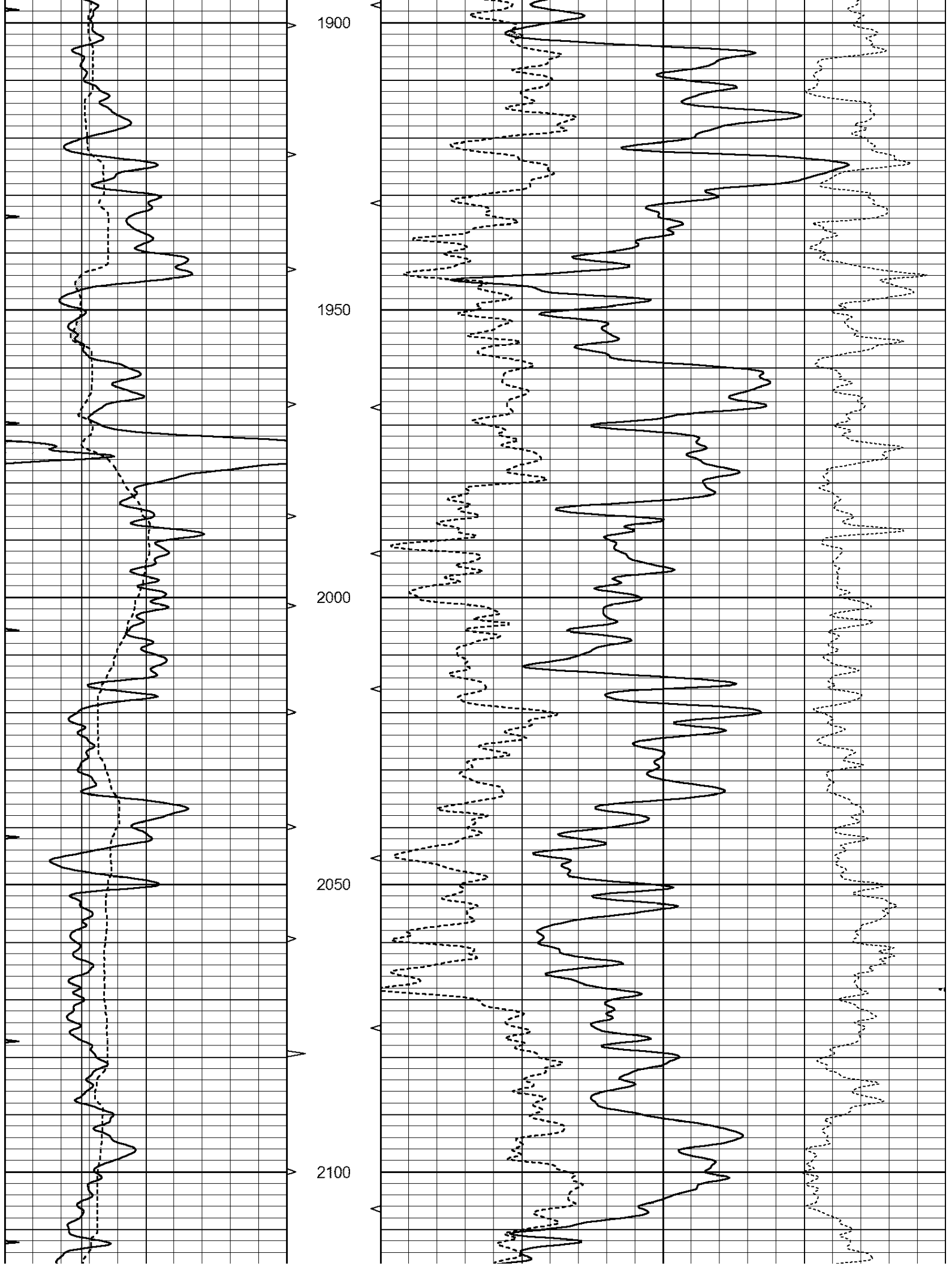
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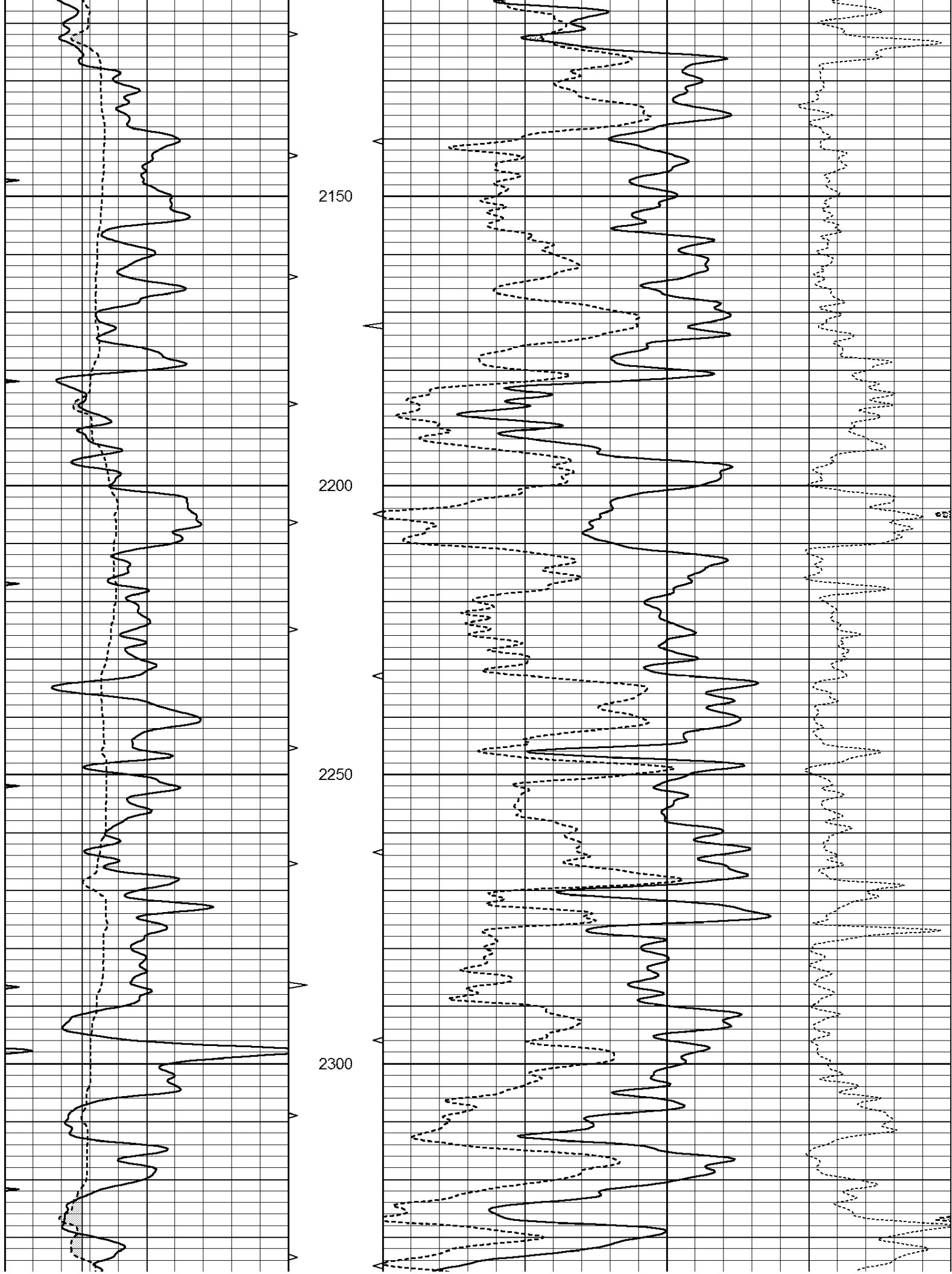
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 Charted by: Depth in Feet scaled 1:240

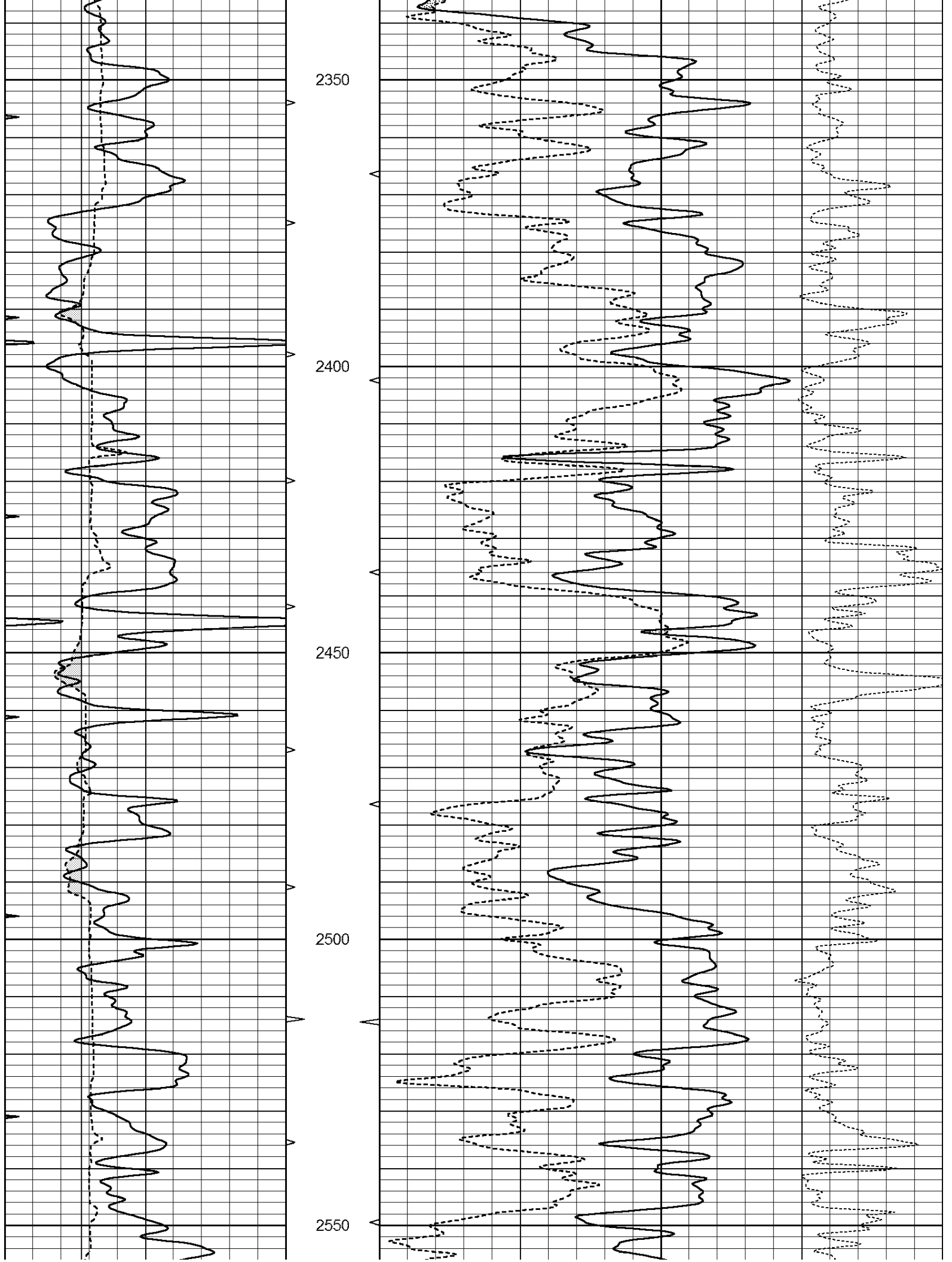
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0 30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		

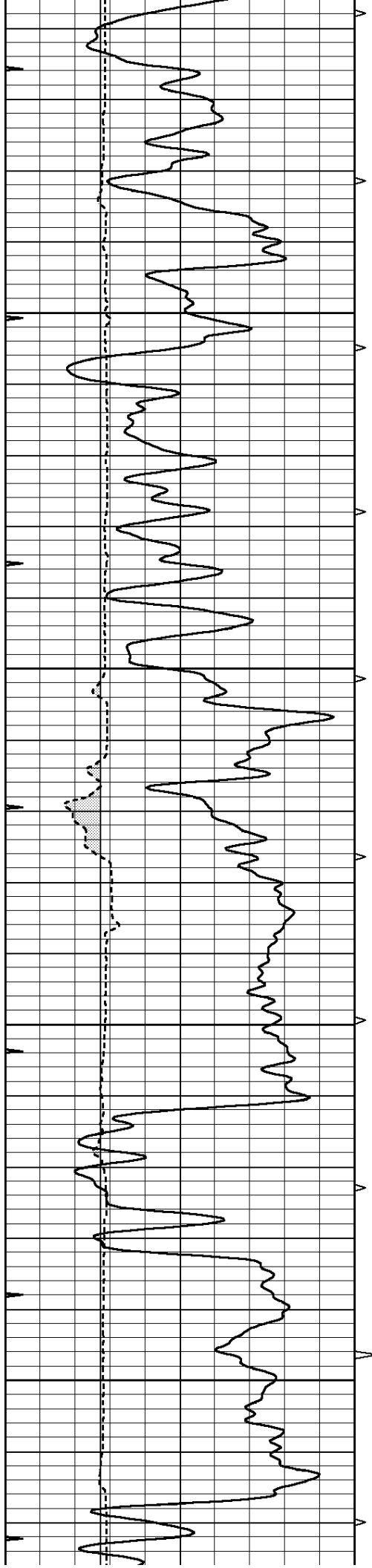










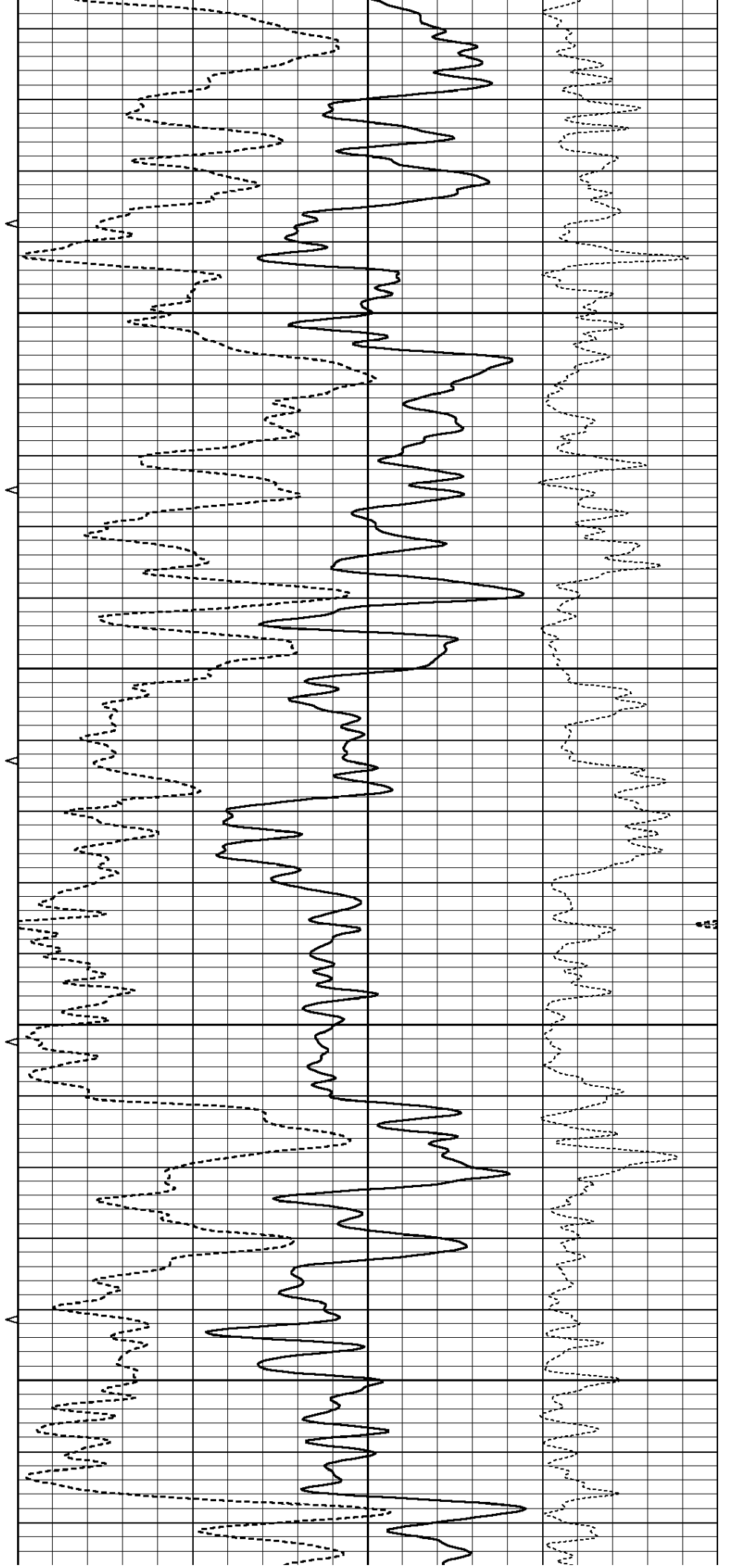


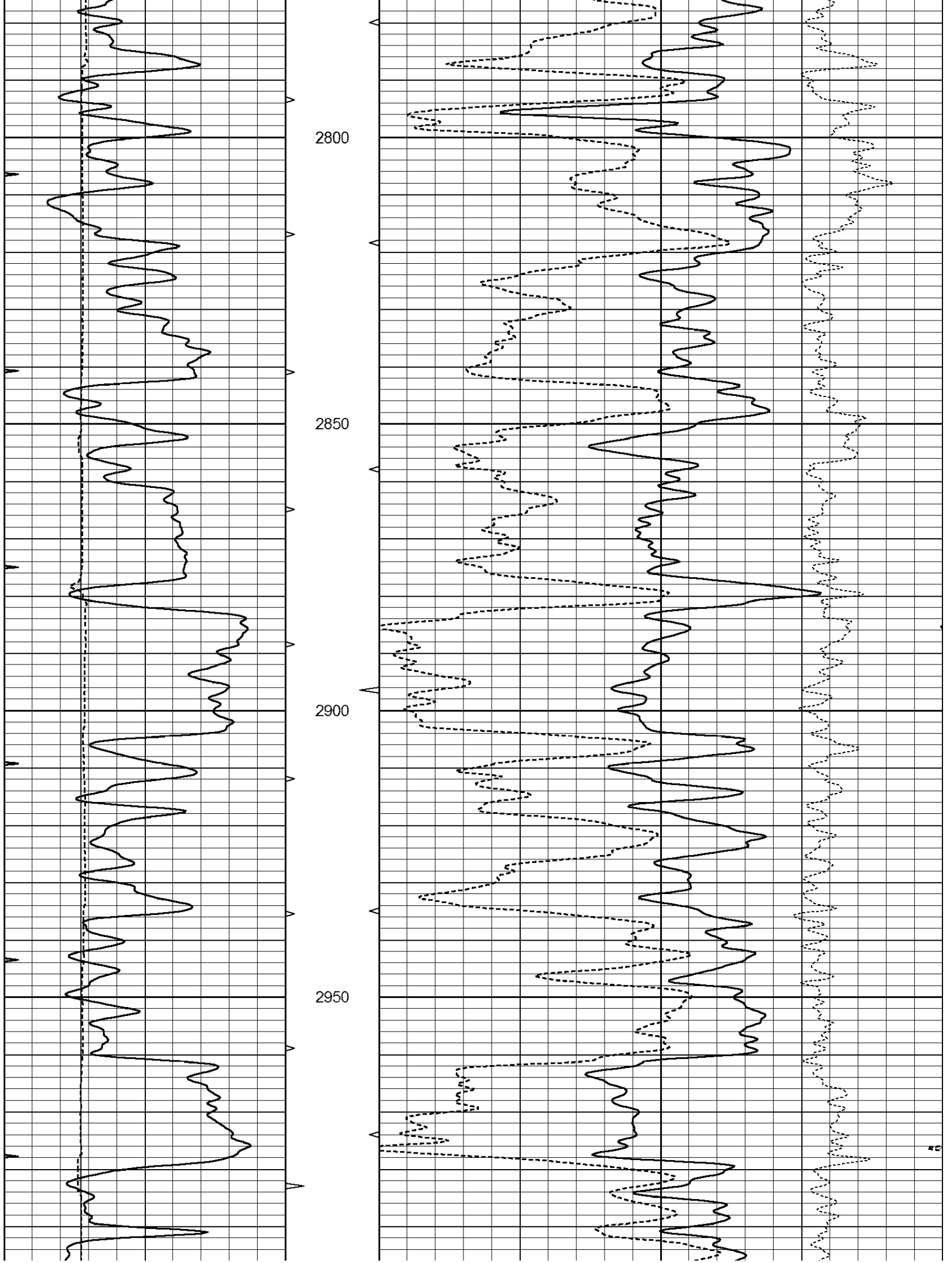
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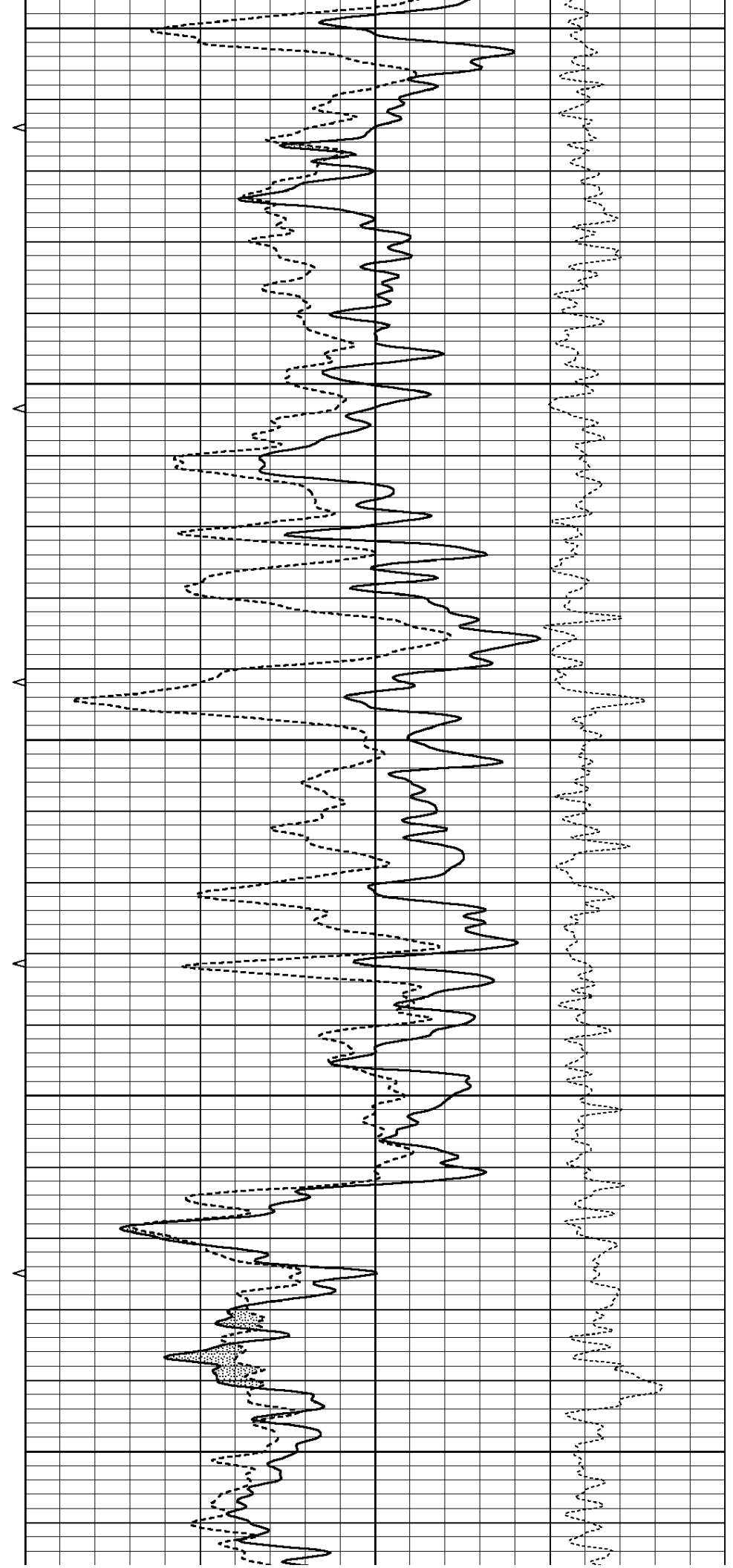
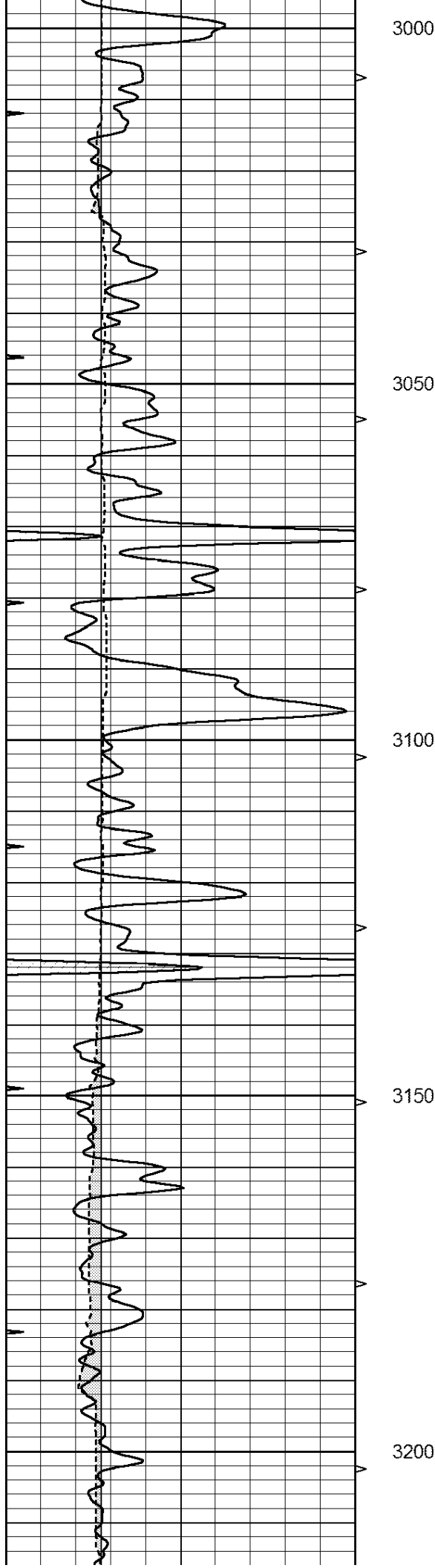
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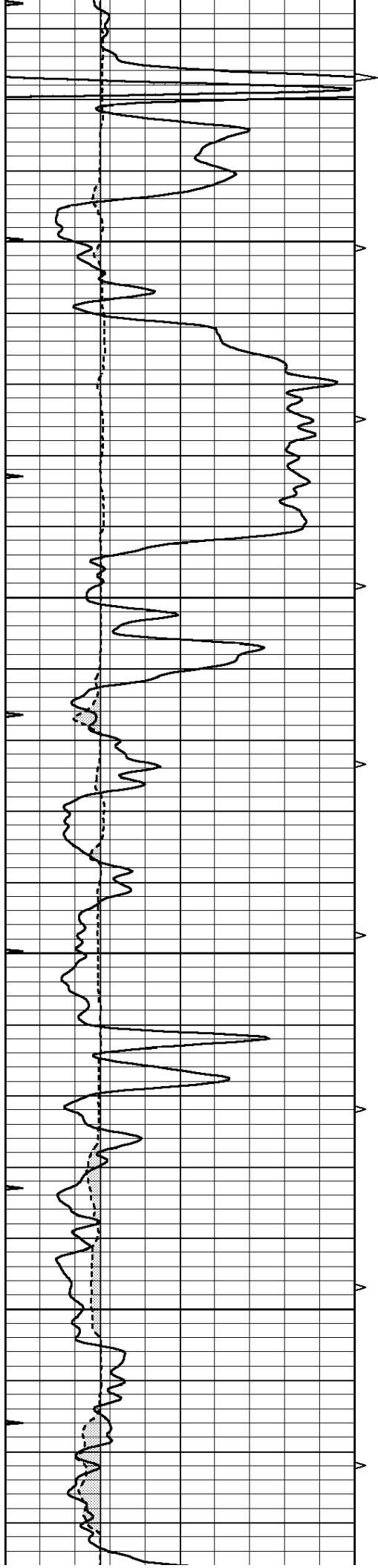
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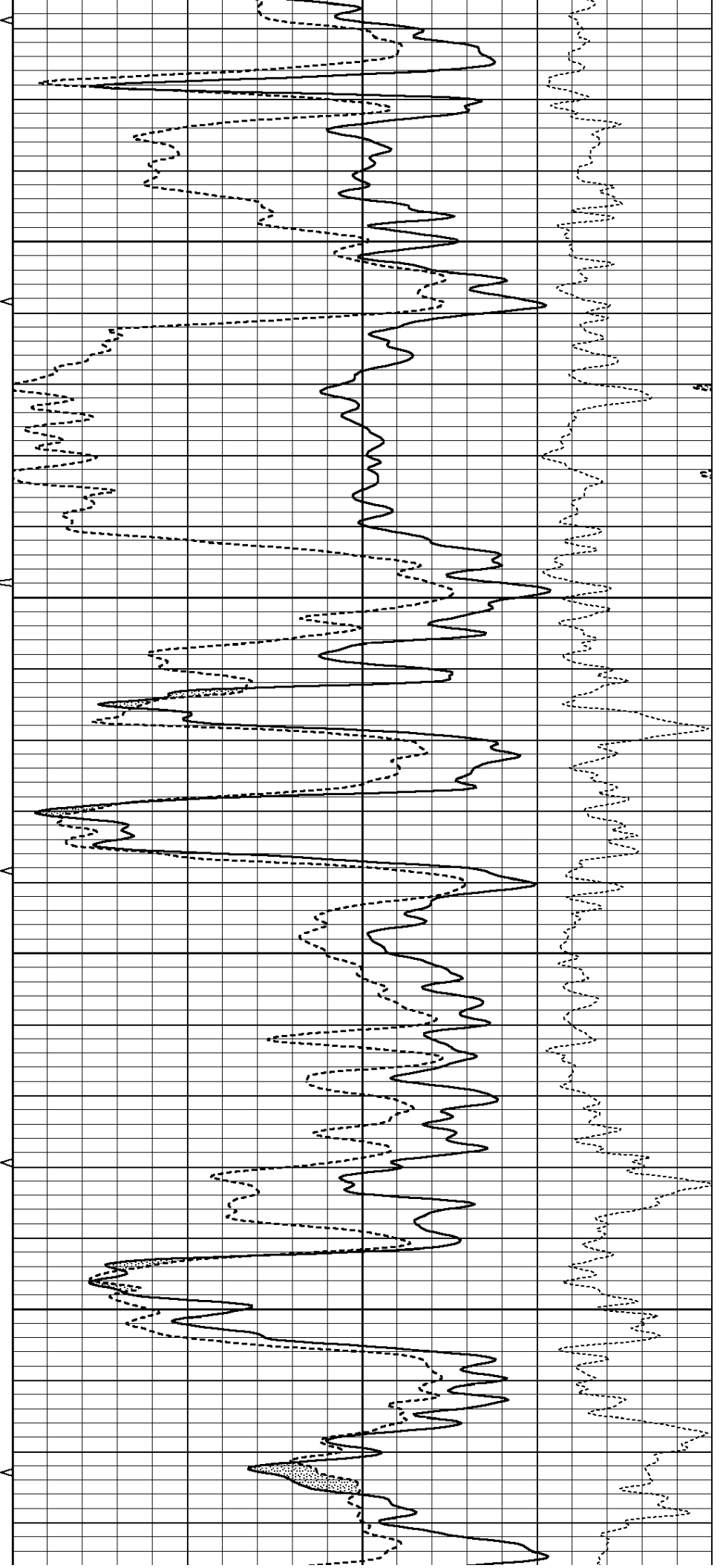


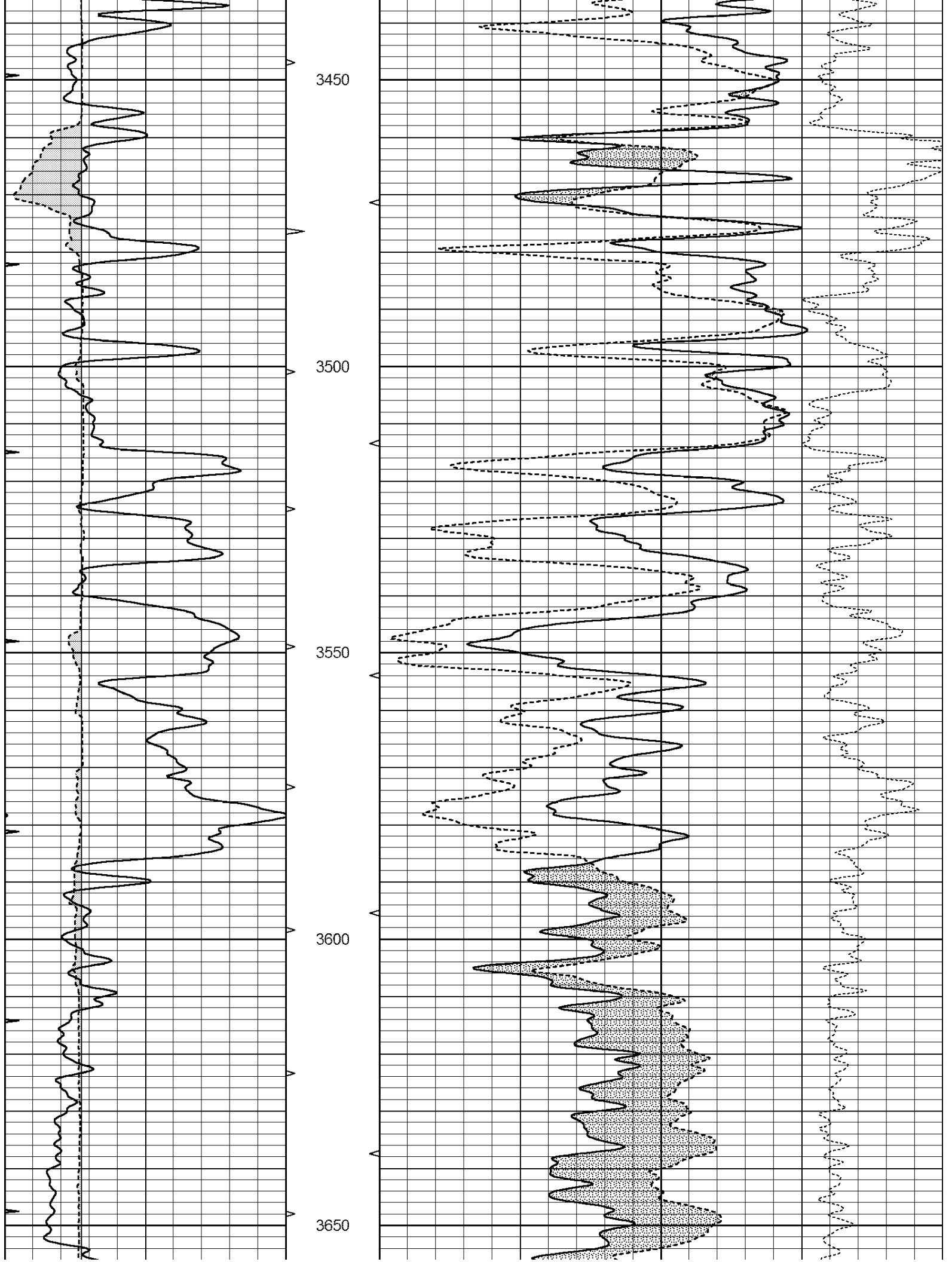
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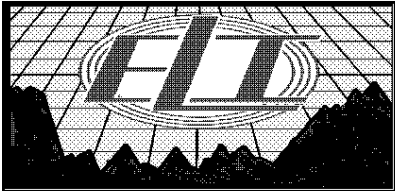
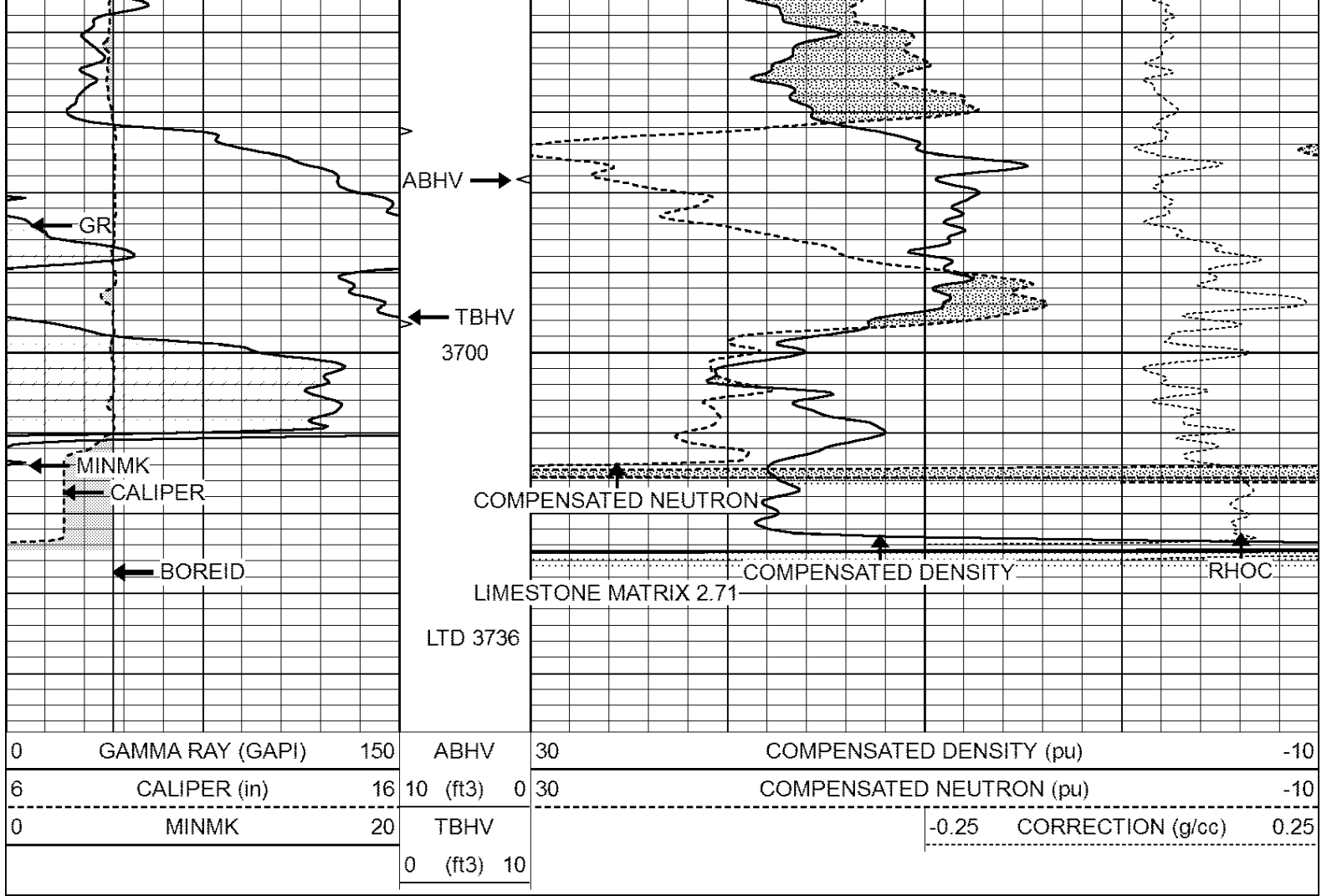
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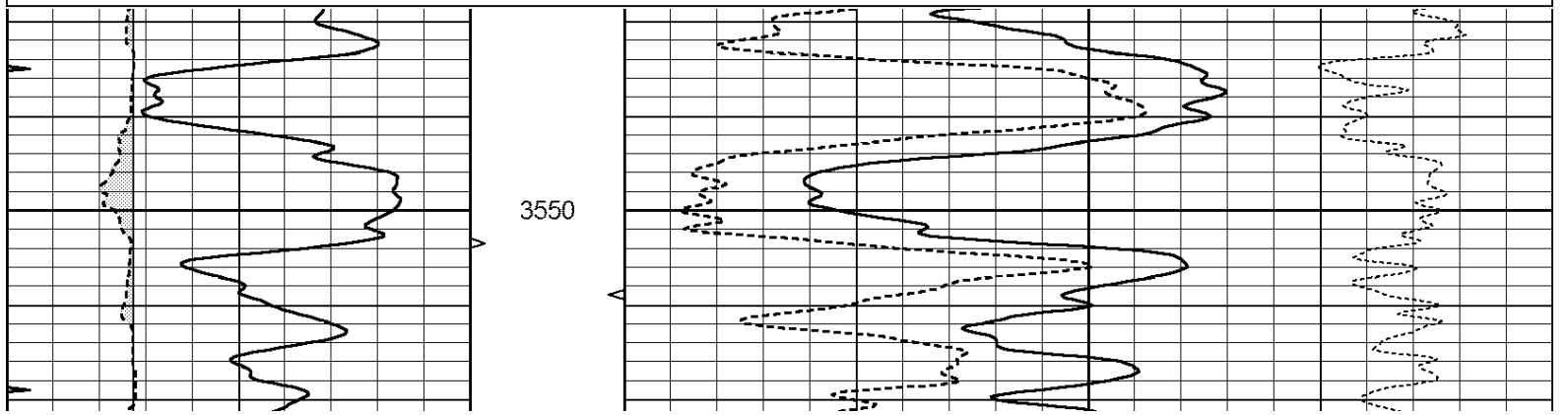


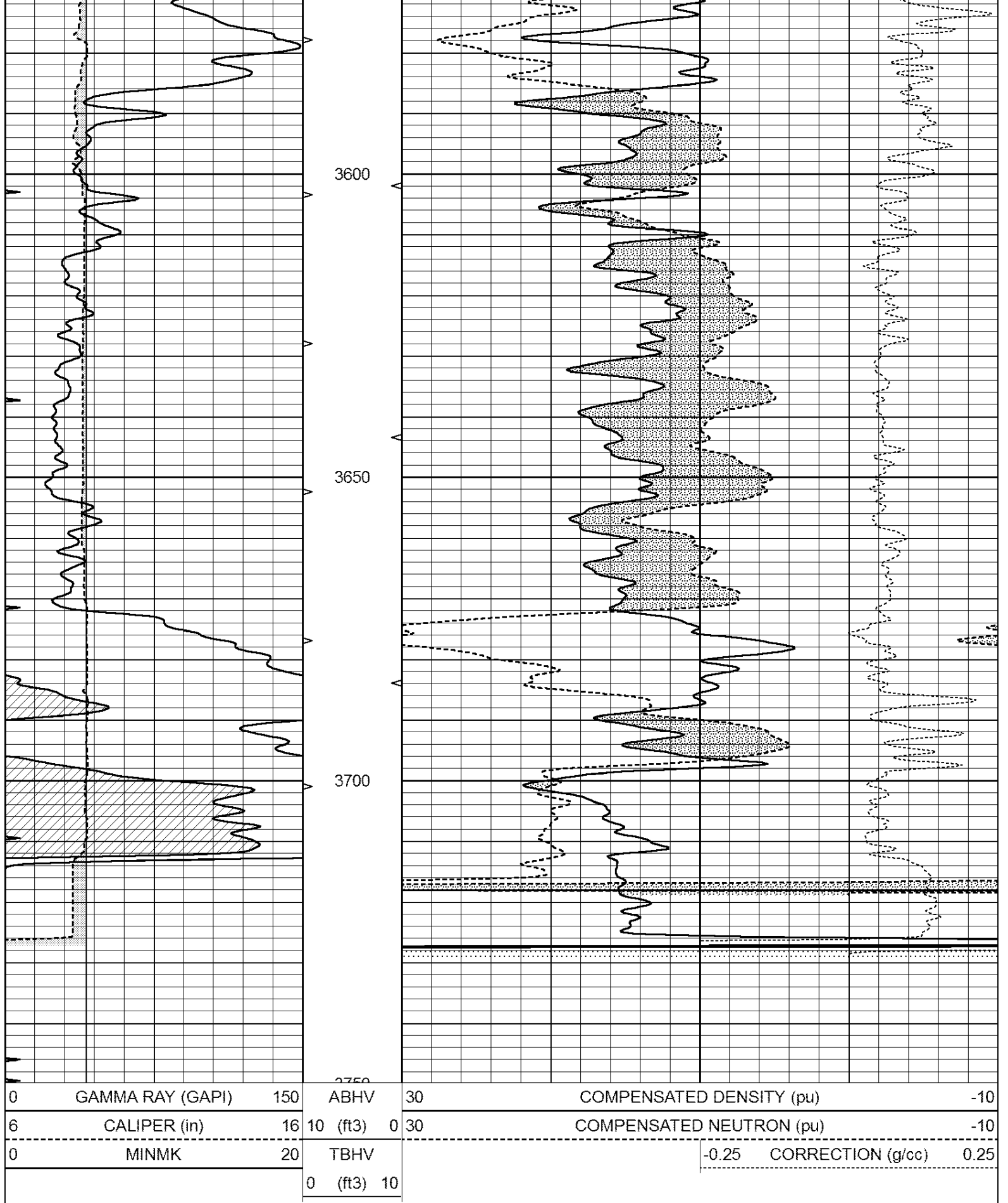


# REPEAT SECTION

Database File: 1473ddn.db  
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 Dataset Creation: Sun Jun 25 11:43:56 2017 by Calc Open-Cased 090629  
 Charted by: Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0 30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		





Calibration Report

Database File: 1473ddn.db  
 Dataset Pathname: pass2.1  
 Dataset Creation: Sun Jun 25 11:43:56 2017 by Calc Open-Cased 090629

**Dual Induction Calibration Report**

Serial-Model:	PROBE8-DILG
Surface Cal Performed:	Tue Mar 21 18:55:38 2017
Downhole Cal Performed:	Tue Mar 21 18:55:43 2017
After Survey Verification Performed:	Tue Mar 21 18:55:45 2017

**Surface Calibration**

Loop:	Readings			References			Results	
	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		

**Compensated Density Calibration Report**

Serial-Model:	GEAR5-GEARHART
Source / Verifier:	/
Master Calibration Performed:	Tue Mar 21 18:56:14 2017
Before Survey Verification Performed:	
After Survey Verification Performed:	

**Master Calibration**

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	798.83	490.02	cps
Aluminum	2.570	g/cc	178.16	329.19	cps
Spine Angle = 75.15			Density/Spine Ratio = 0.554		
	Size		Reading		
Small Ring	7.15	in	1.47	V	
Large Ring	14.00	in	3.01	V	

**Before Survey Verification**

Target	Measured
g/cc	g/cc

g/cc  
g/cc

g/cc  
g/cc

After Survey Verification

Target

Measured

g/cc  
g/cc  
g/cc

g/cc  
g/cc  
g/cc

Compensated Neutron Calibration Report

Serial Number: 61  
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: Tue Mar 21 18:56:51 2017

Calibrator Value: 150.0 GAPI

Background Reading: 0.0 cps  
 Calibrator Reading: 276.0 cps

Sensitivity: 0.5500 GAPI/cps