



COMPENSATED
DENSITY/NEUTRON
PE/LOG

Company	MULL DRILLING CO., INC.
Well	JOHNSON FARMS #1-18
Field	SPIVEY-GRABS-BASIL
County	KINGMAN
State	KANSAS
Location:	API # : 15-095-22323-00-00 1650' FNL & 990' FEL
SEC 18 TWP 30S RGE 7W	Other Services DIL/MEL SONIC
Permanent Datum Log Measured From Drilling Measured From	GROUND LEVEL Elevation 1471 KELLY BUSHING 7' A.G.L. KELLY BUSHING
Elevation	KB. 1478 D.F. 1476 G.L. 1471
Date	06/26/18
Run Number	ONE
Depth Driller	4300
Depth Logger	4302
Bottom Logged Interval	4278
Top Log Interval	2900
Casing Driller	8 5/8" @ 215
Casing Logger	215
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.6/55
pH / Fluid Loss	9.5/10.4
Source of Sample	FLOWLINE
Rm @ Meas. Temp	.80@74
Rmt @ Meas. Temp	.60@74
Rmc @ Meas. Temp	.96@74
Source of Rmt / Rmc	MEASURED
Rm @ BHT	.49@119
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	///
Maximum Recorded Temperature	119F
Equipment Number	1523
Location	HAYS, KANSAS
Recorded By	GUS PFANENSTIEL
Witnessed By	LOGAN WALKER

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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

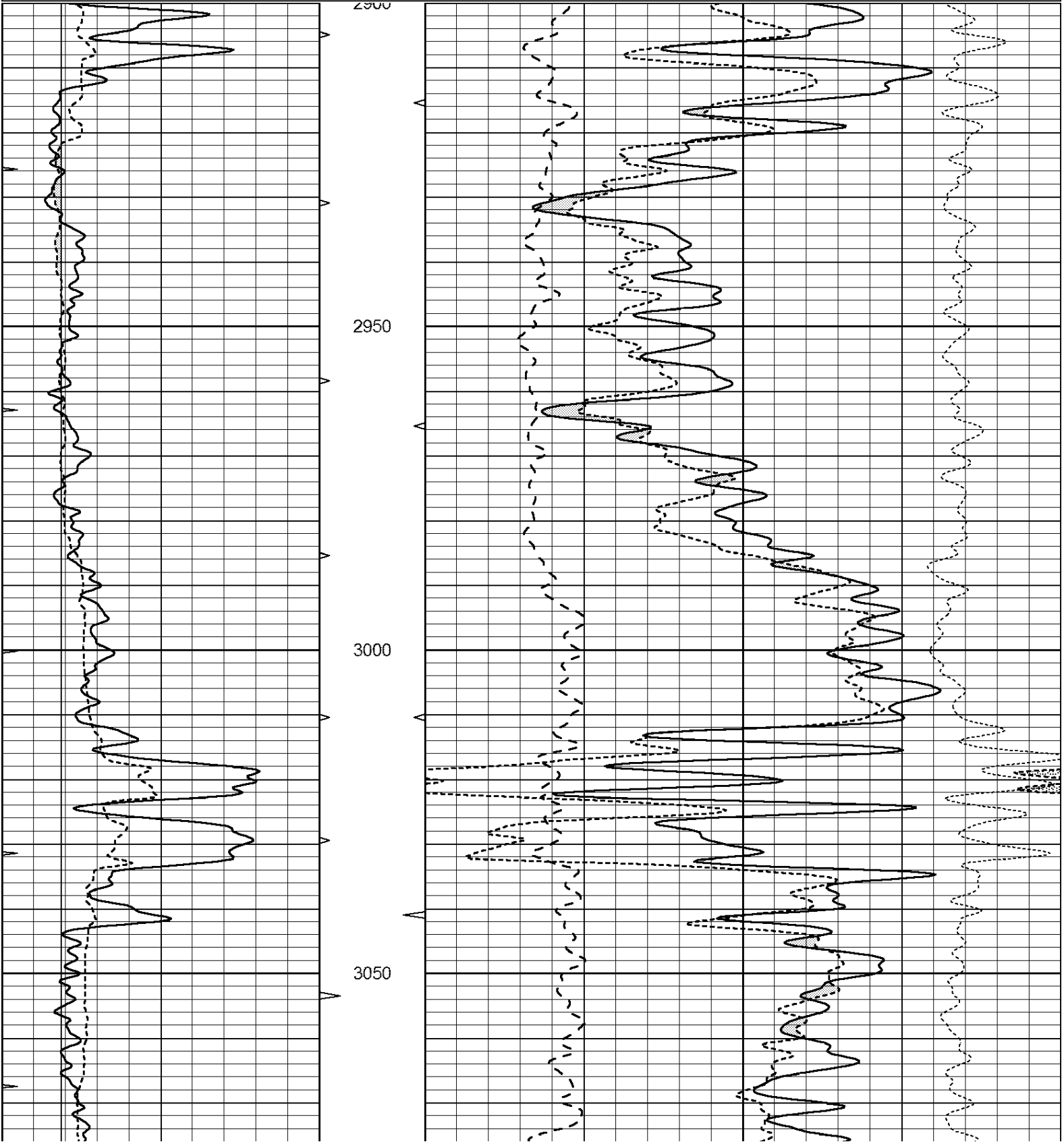
DIRECTIONS
SPIVEY KS SOUTH TO 150 TH EAST 2 1/4 MILES,
NORTH INTO.

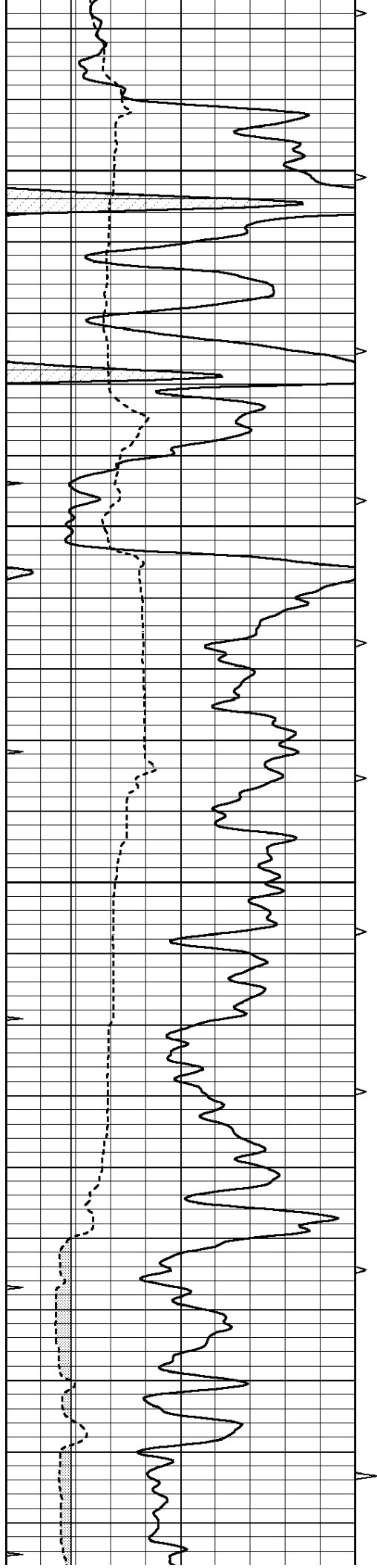


MAIN PASS

Database File: 2687pe.db
Dataset Pathname: pass3POR
Presentation Format: _ldt_neu
Dataset Creation: Tue Jun 26 16:23:31 2018
Charted by: Depth in Feet scaled 1:240

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



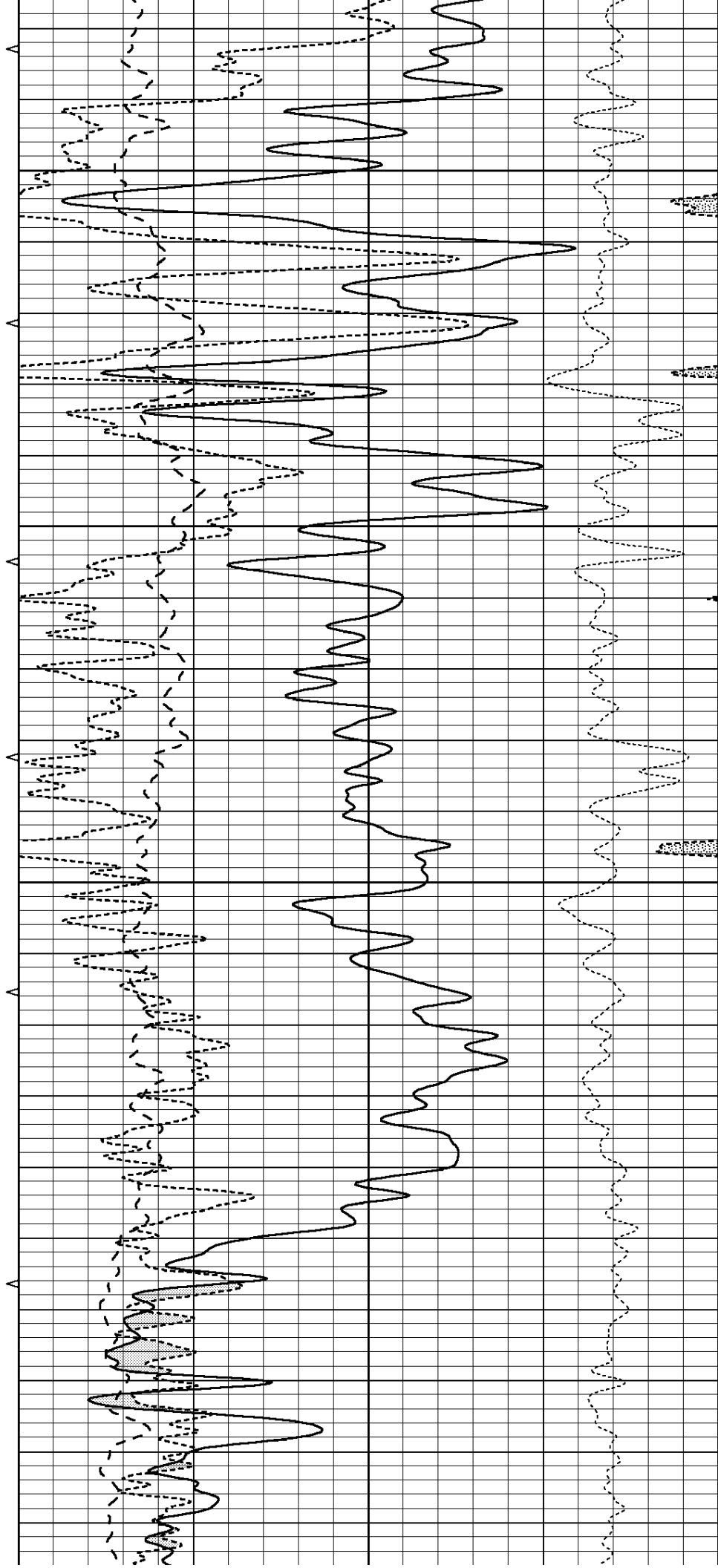


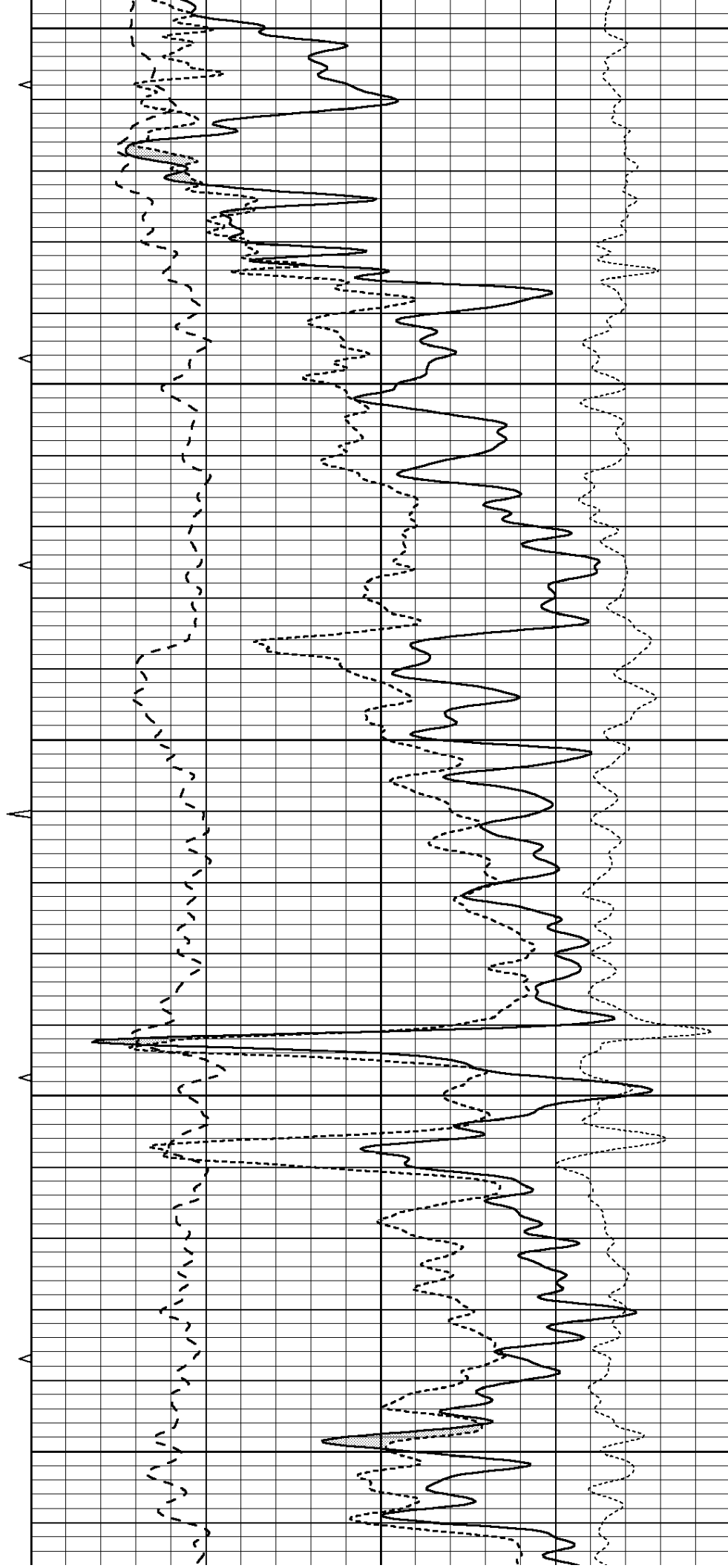
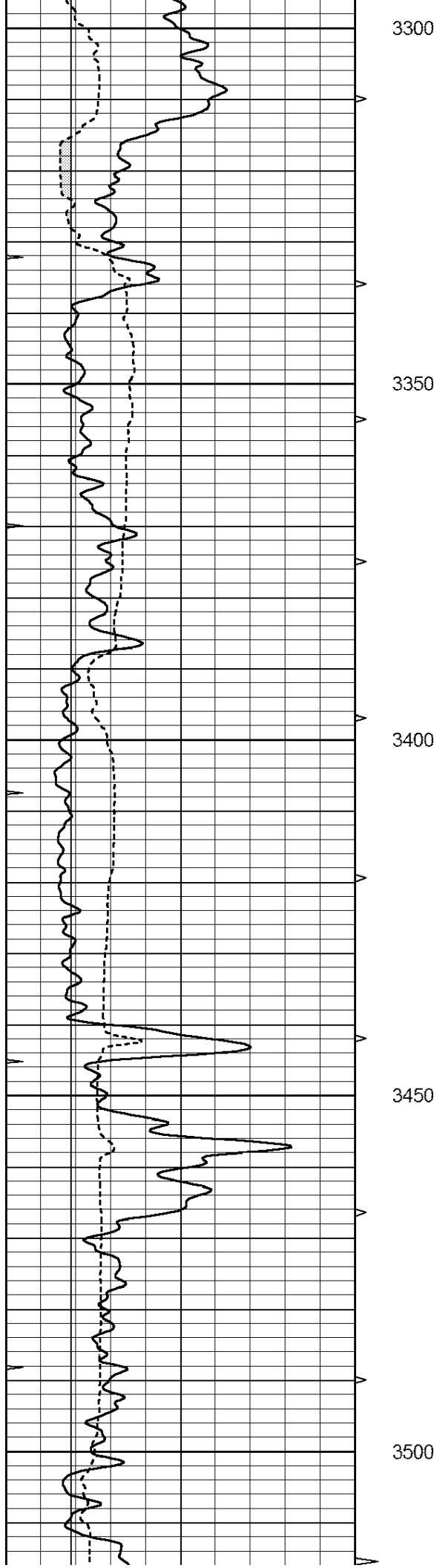
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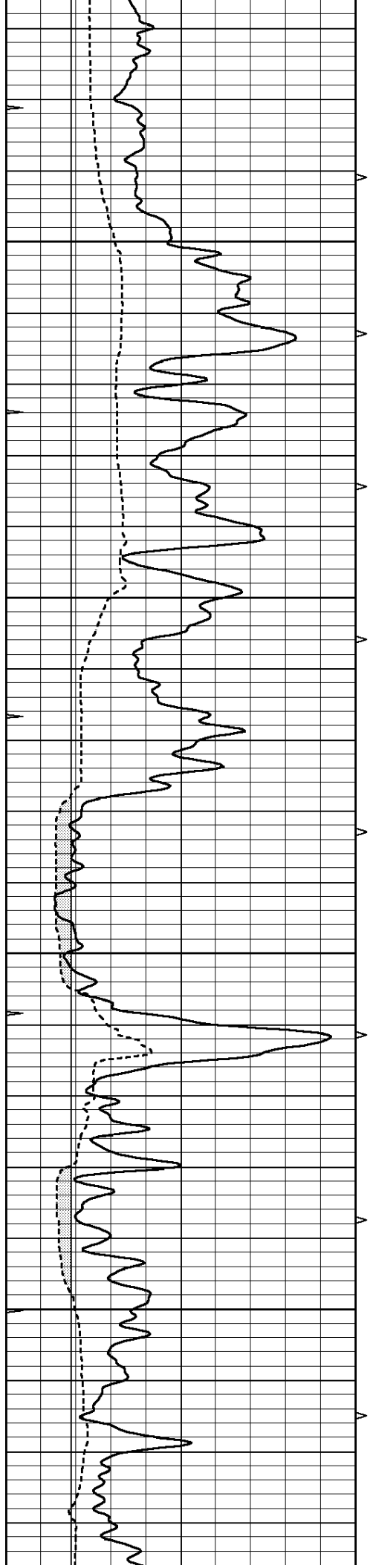
3150

3200

3250





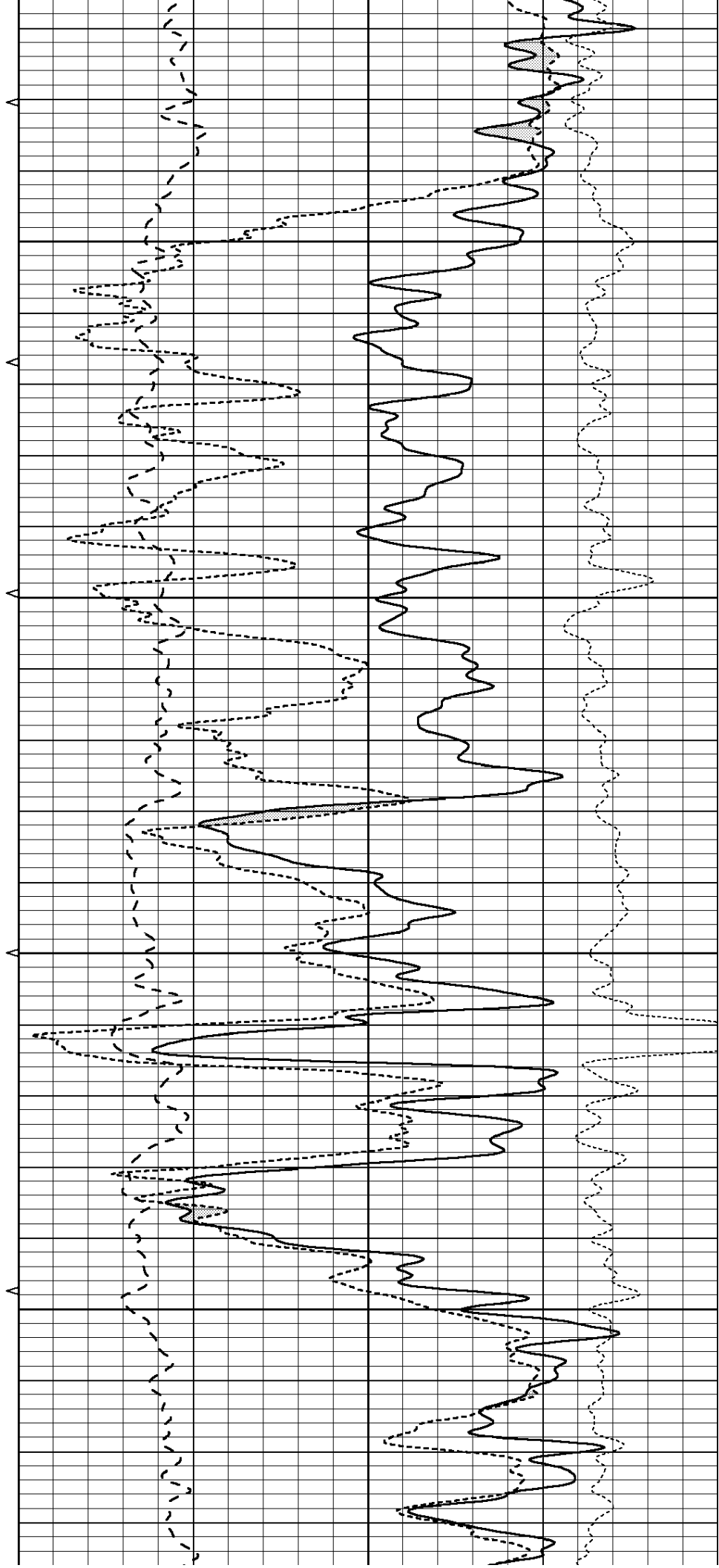


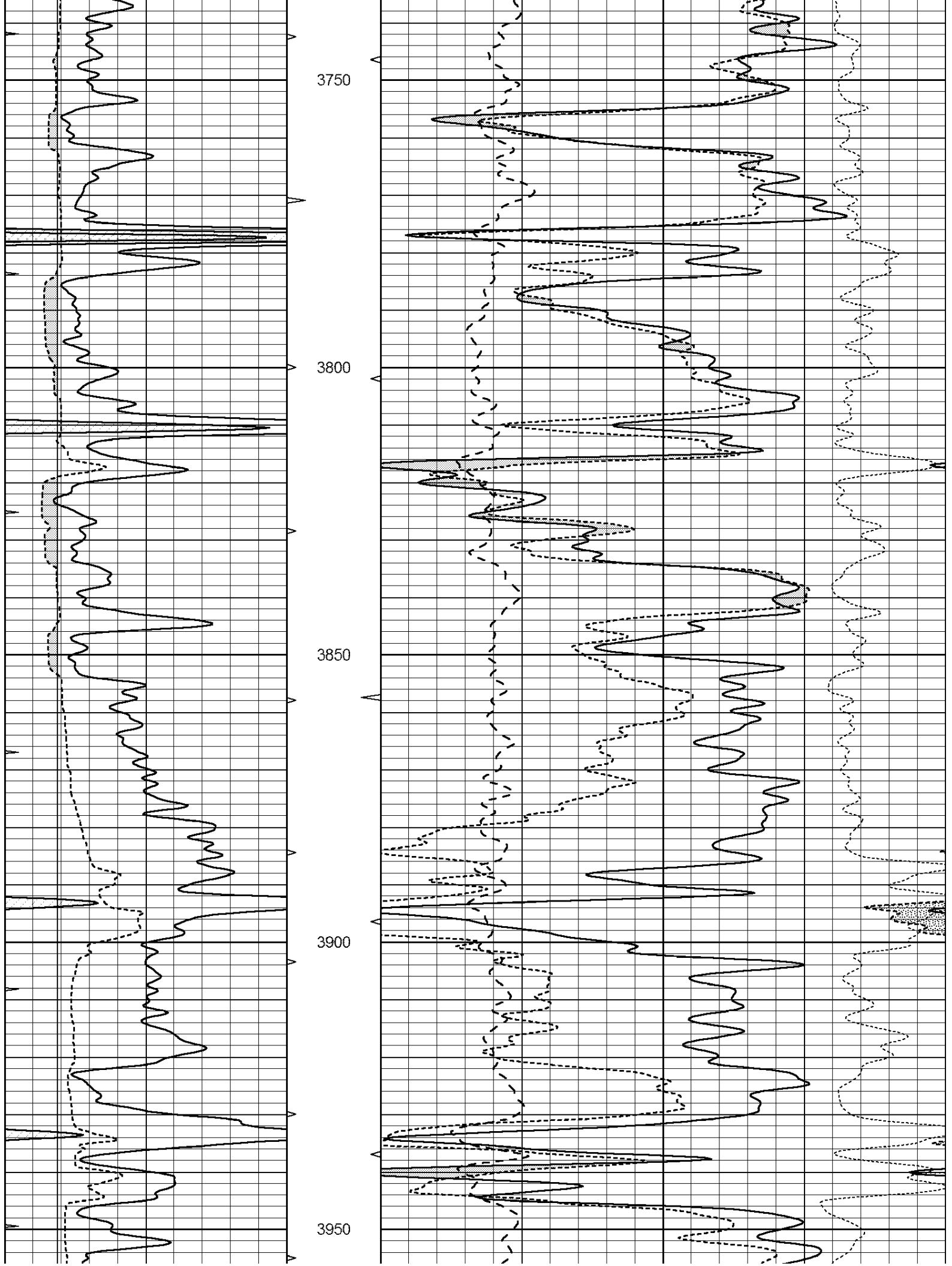
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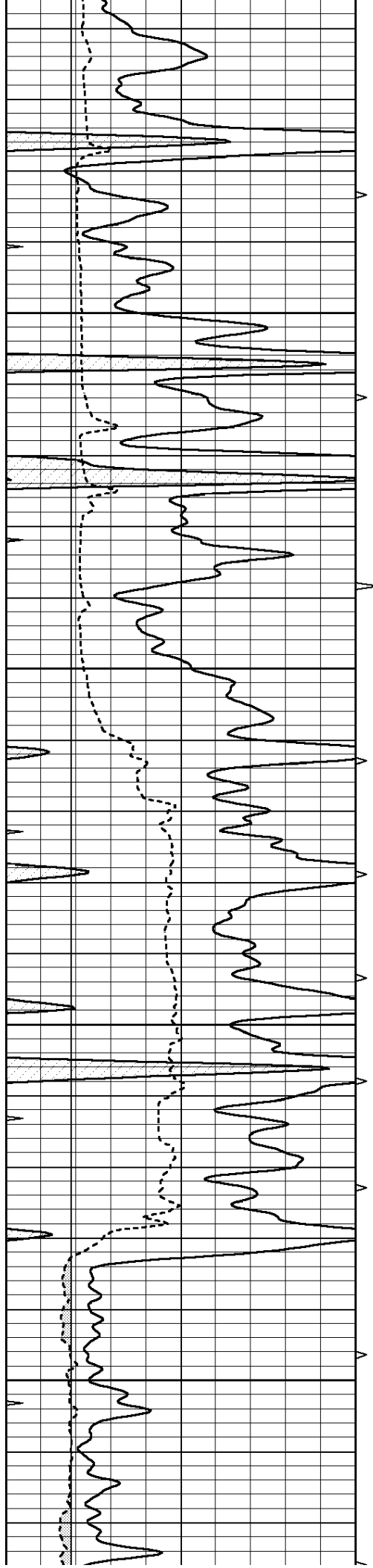
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3650

3700





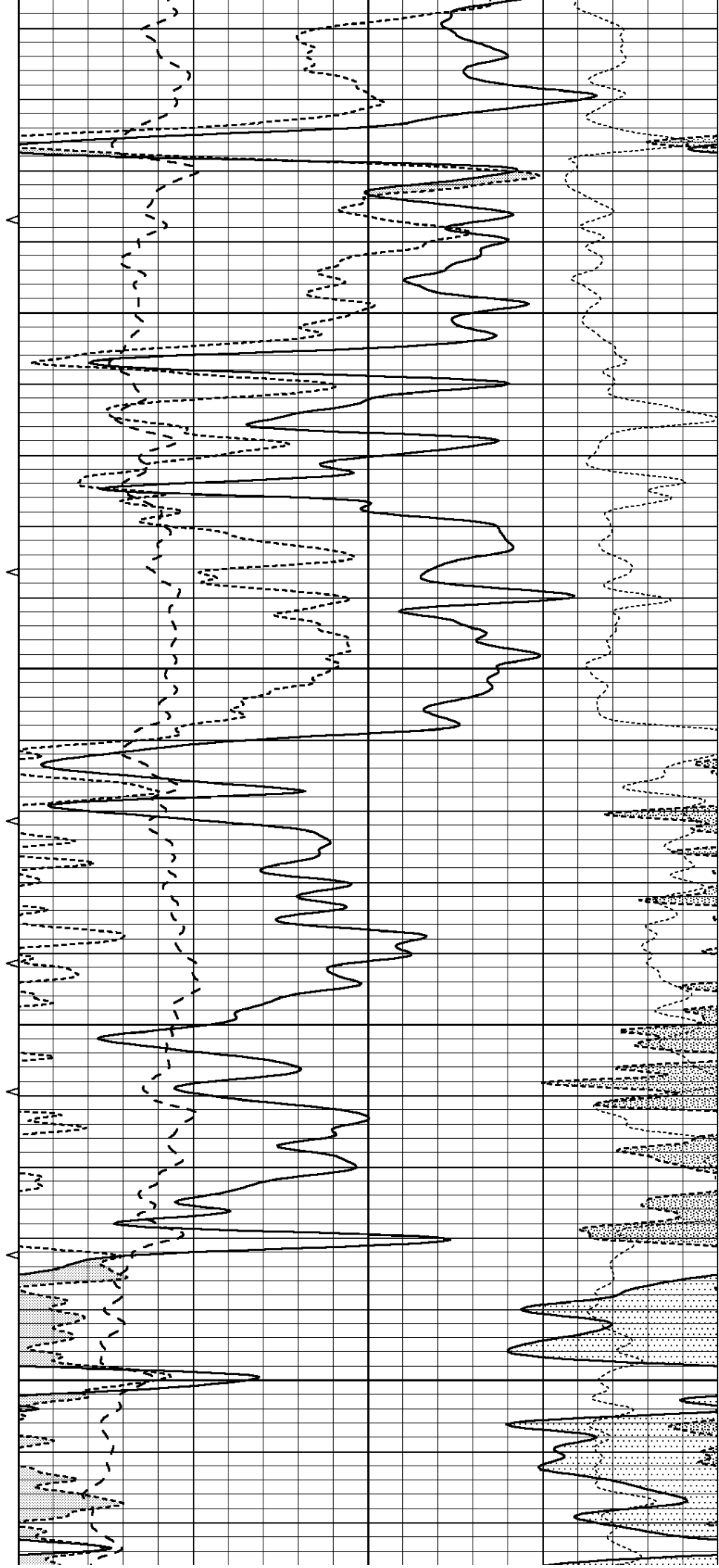


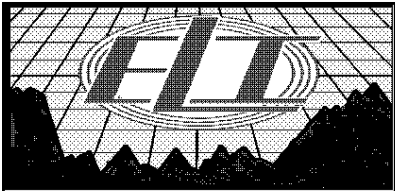
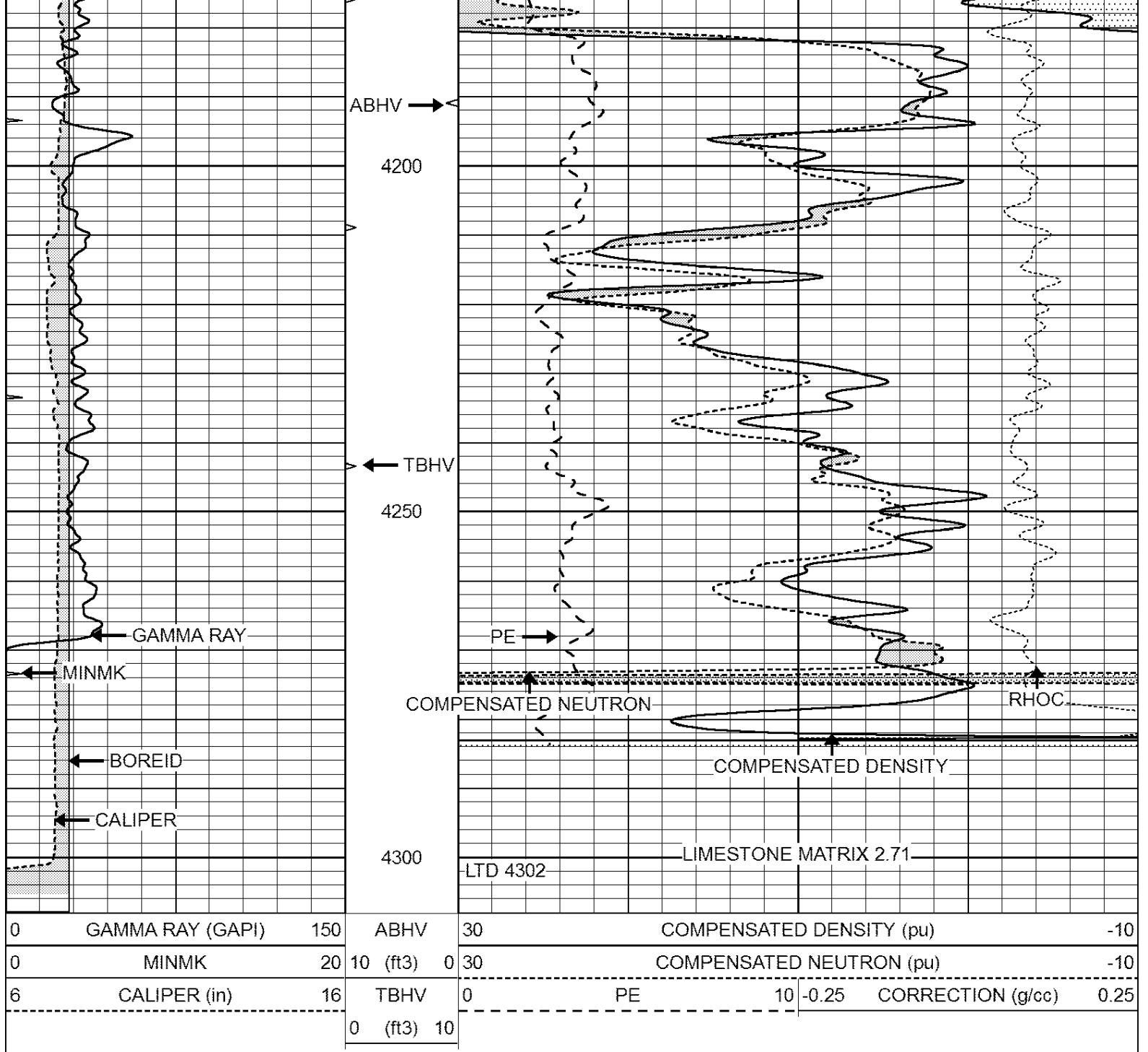
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4050

4100

4150

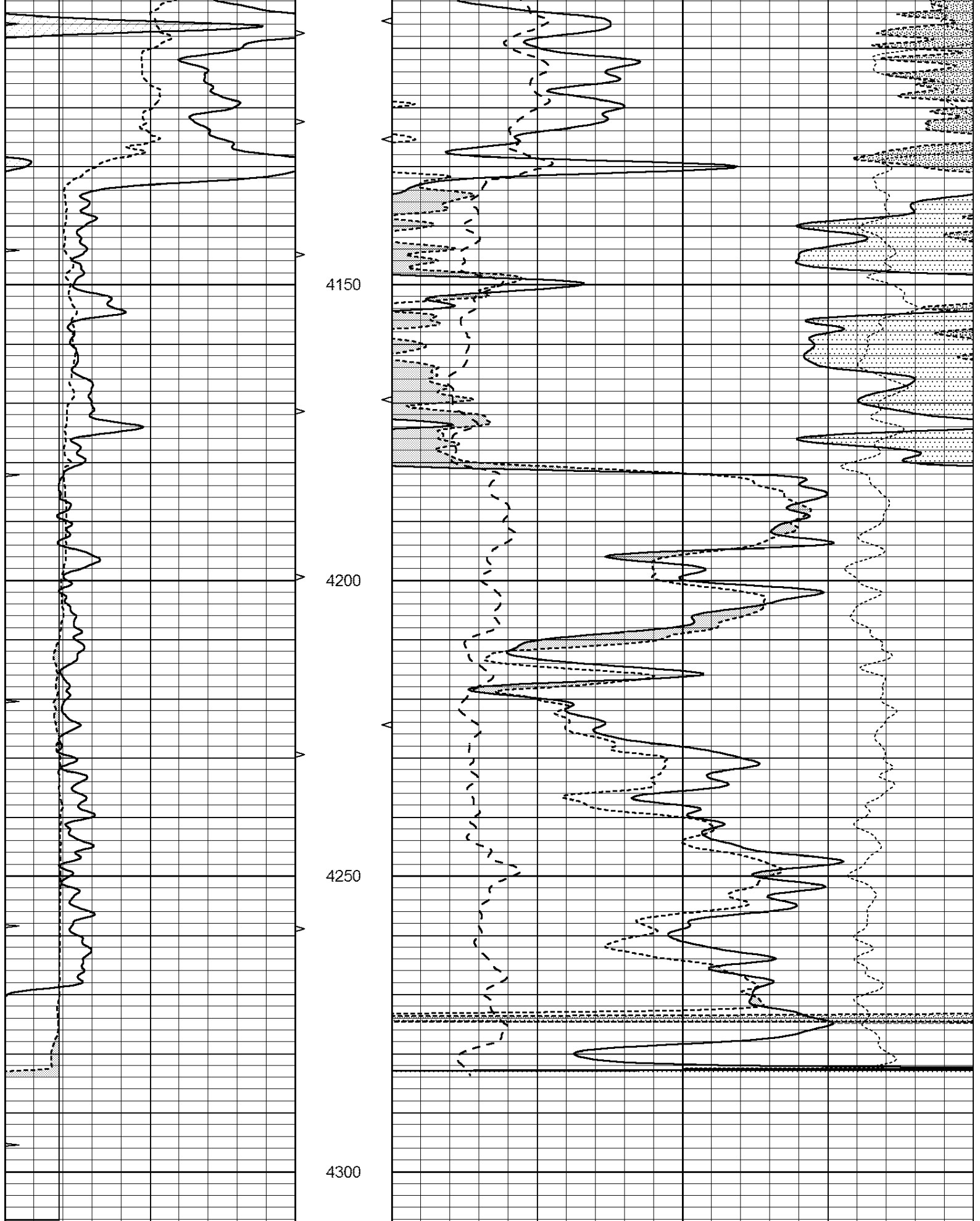




REPEAT SECTION

Database File: 2687pe.db
 Dataset Pathname: pass2RP
 Presentation Format: _ldt_neu
 Dataset Creation: Tue Jun 26 14:39:06 2018
 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	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV	0	PE	10 -0.25 CORRECTION (g/cc) 0.25
			0 (ft3)	10		



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	PE	10 -0.25
					CORRECTION (g/cc)	0.25

Calibration Report

Database File: pe2.db
 Dataset Pathname: pass2
 Dataset Creation: Mon Aug 21 11:58:02 2017 by Log Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE8-DILG
 Surface Cal Performed: Mon Aug 21 11:58:18 2017
 Downhole Cal Performed: Mon Aug 21 11:58:21 2017
 After Survey Verification Performed: Mon Aug 21 11:58:23 2017

Surface Calibration

Readings				References			Results	
Loop:	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		

 Litho Density Calibration Report
 Serial: 002 Model: PRB

Master Calibration

Performed Mon Aug 21 11:56:41 2017

	Background	Magnesium	Aluminum	Sandstone	
Window 1	833.6	7394.2	2287.3	8111.8	cps
Window 2	768.9	6322.3	1995.6	6800.0	cps
Window 3	621.5	3261.9	1186.4	3380.9	cps
Window 4	184.2	185.7	184.9	184.8	cps
Long Space	0.0	5553.4	1226.6	6031.1	cps
Short Space	1.2	1307.5	903.9	1387.7	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	
Rib Angle	: 46.3	Rib Slope	: 1.045	Density/Spine Ratio	: 0.566
Spine Angle	: 76.3	Spine Slope	: 4.090	Spine Intercept	: -20.7

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	

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Compensated Neutron Calibration Report

Serial Number:	6l
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 Aug 21 11:59:01 2017	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.5500	GAPI/cps