

**COMPENSATED
DENSITY / NEUTRON
LOG**

Company RAYMOND OIL COMPANY, INC.
Well #1 HAACK - SOWERS UNIT
Field WILDCAT
County CHEYENNE
State KANSAS

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Location: API # : 15-023-21464-0000
2299' FNL & 2633' FEL
NW - SW - SW - NE
SEC 20 TWP 4S RGE 30W
Permanent Datum GROUND LEVEL Elevation 3441
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services DIL/MEL
Elevation
K.B. 3446
D.F. 3444
G.L. 3441

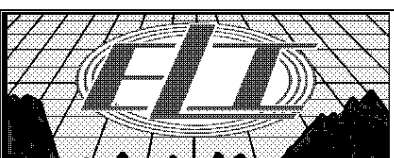
Date	5/15/17
Run Number	ONE
Depth Driller	5115
Depth Logger	5114
Bottom Logged Interval	5090
Top Log Interval	3700
Casing Driller	8 5/8" @ 380'
Casing Logger	380
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.2/63
pH / Fluid Loss	10.5/8.0
Source of Sample	FLOWLINE
Rin @ Meas. Temp	.950 @ 100F
Rmf @ Meas. Temp	.713 @ 100F
Rmc @ Meas. Temp	1.14 @ 100F
Source of Rmf / Rmc	MEASUREMENT
Rin @ BHT	.754 @ 126F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	12:00 P.M.
Maximum Recorded Temperature	126F
Equipment Number	922339
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	KIM SHOEMAKER

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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

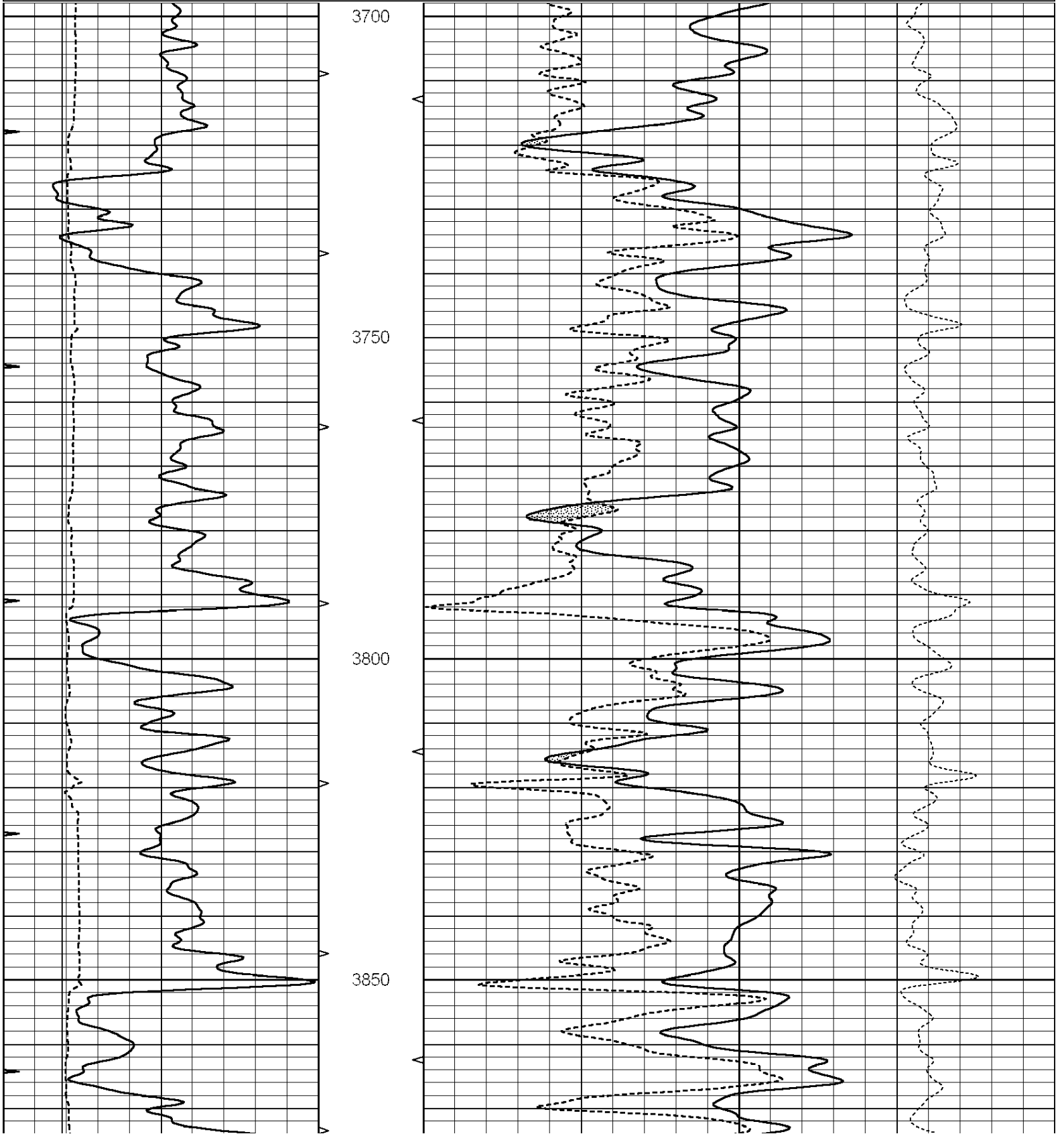
THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395
DIRECTIONS
BIRD CITY, KS., 3E. ON HWY 36 TO " RD. 31", 4S., W. INTO AT GRAIN BIN

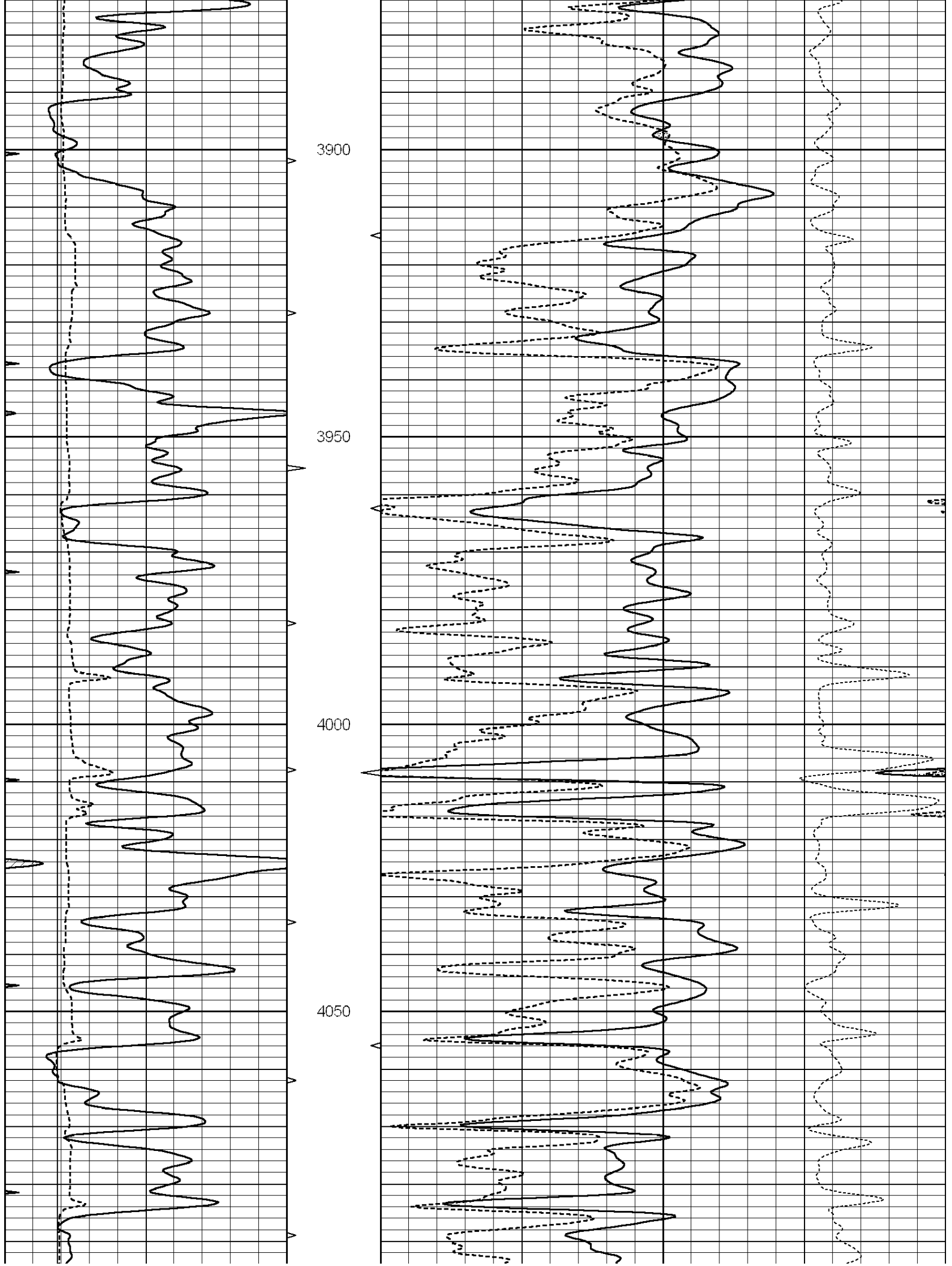


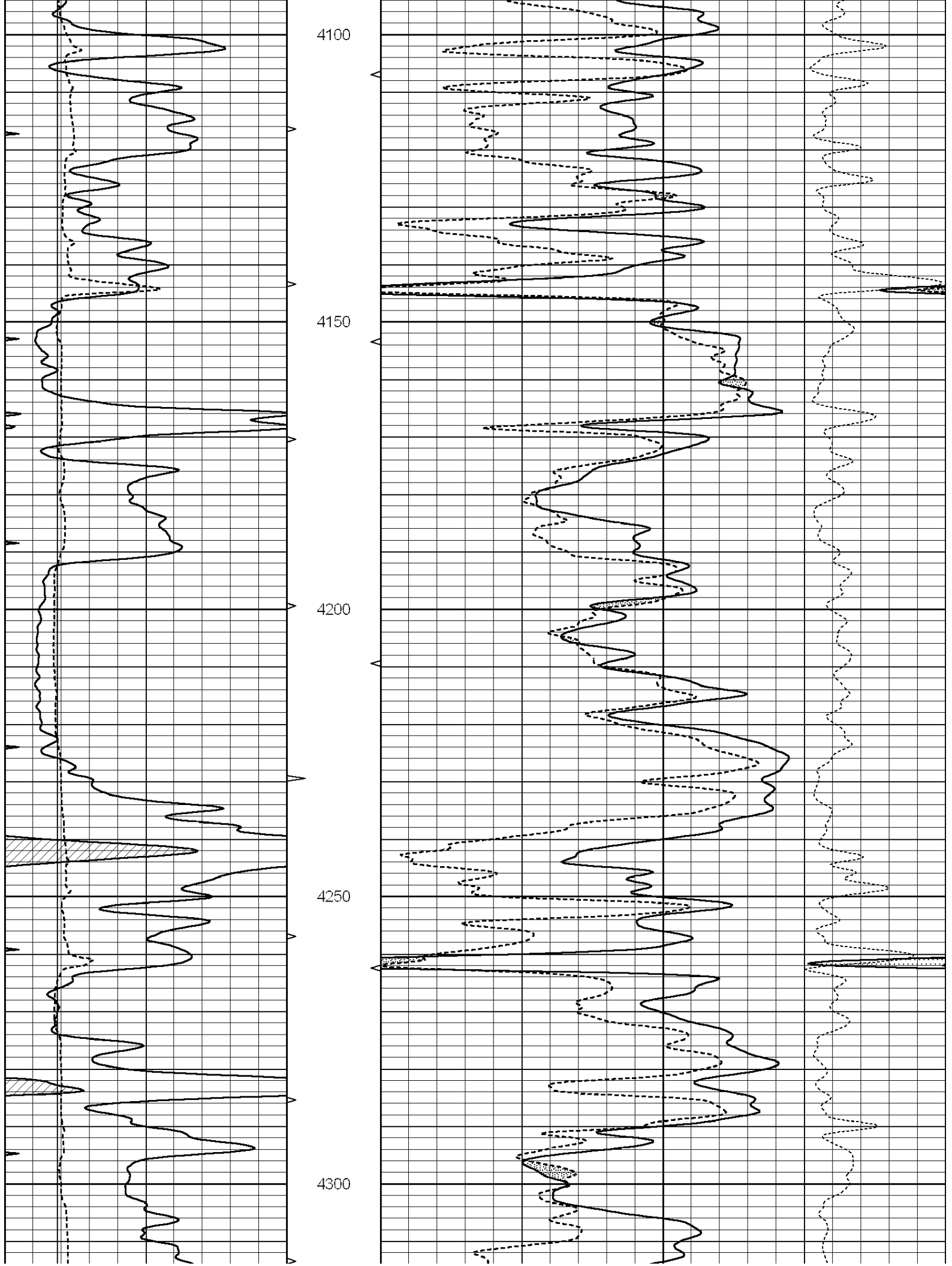
MAIN SECTION

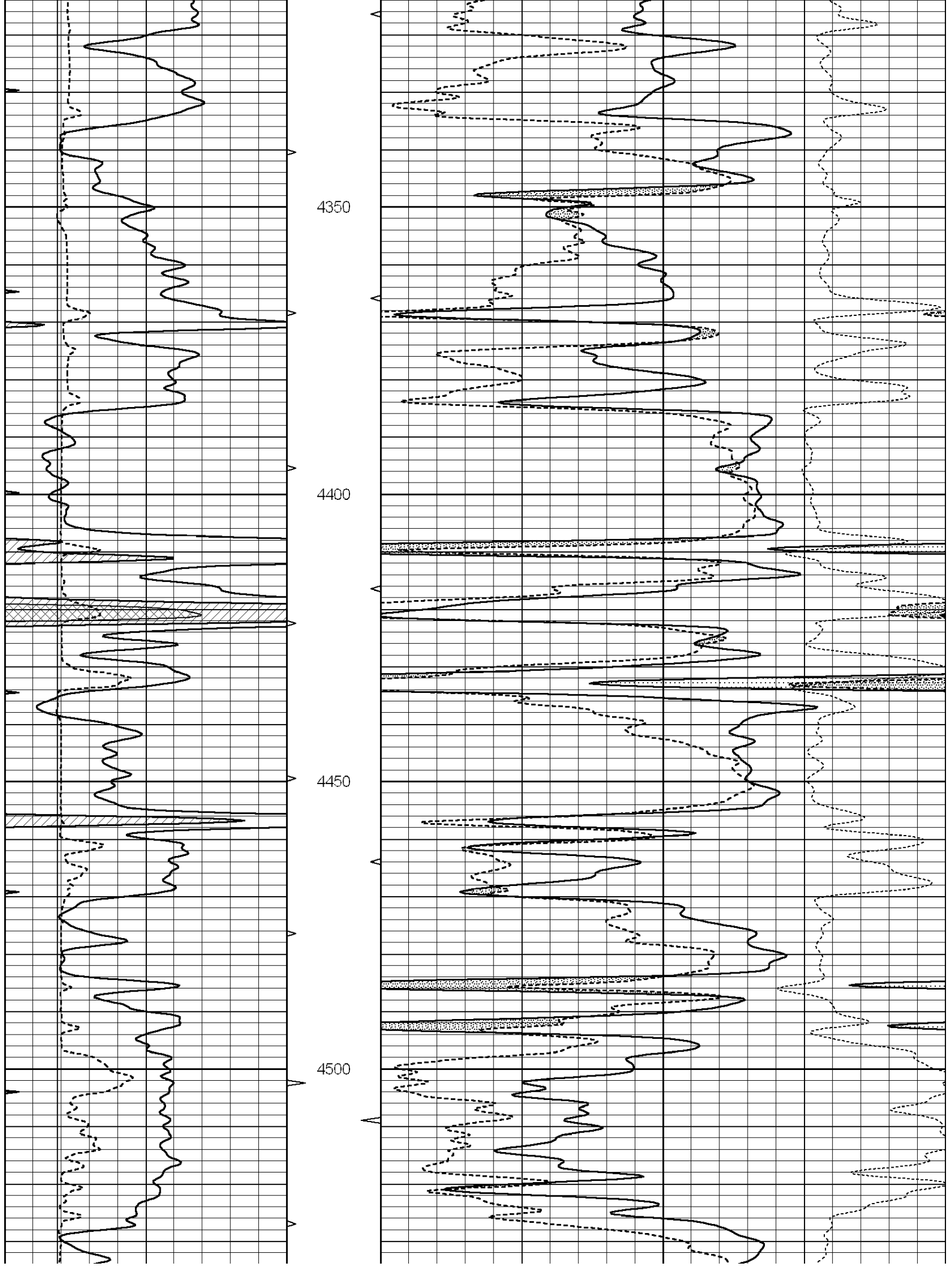
Database File: 1421ddn.db
 Dataset Pathname: pass3.6
 Presentation Format: den_neu
 Dataset Creation: Mon May 15 13:39:22 2017 by Calc SOC 120430
 Charted by: Depth in Feet scaled 1:240

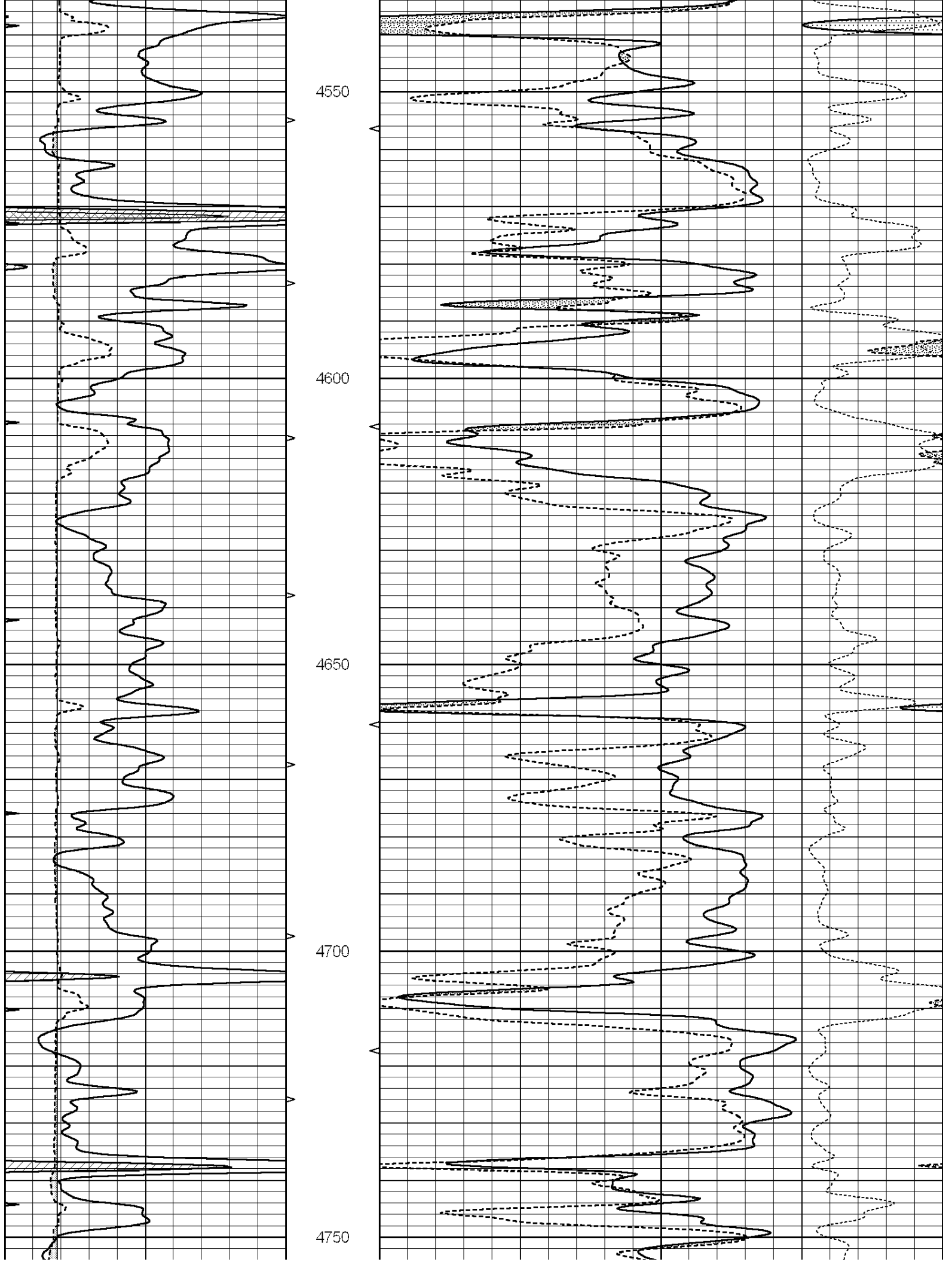
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0 30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		

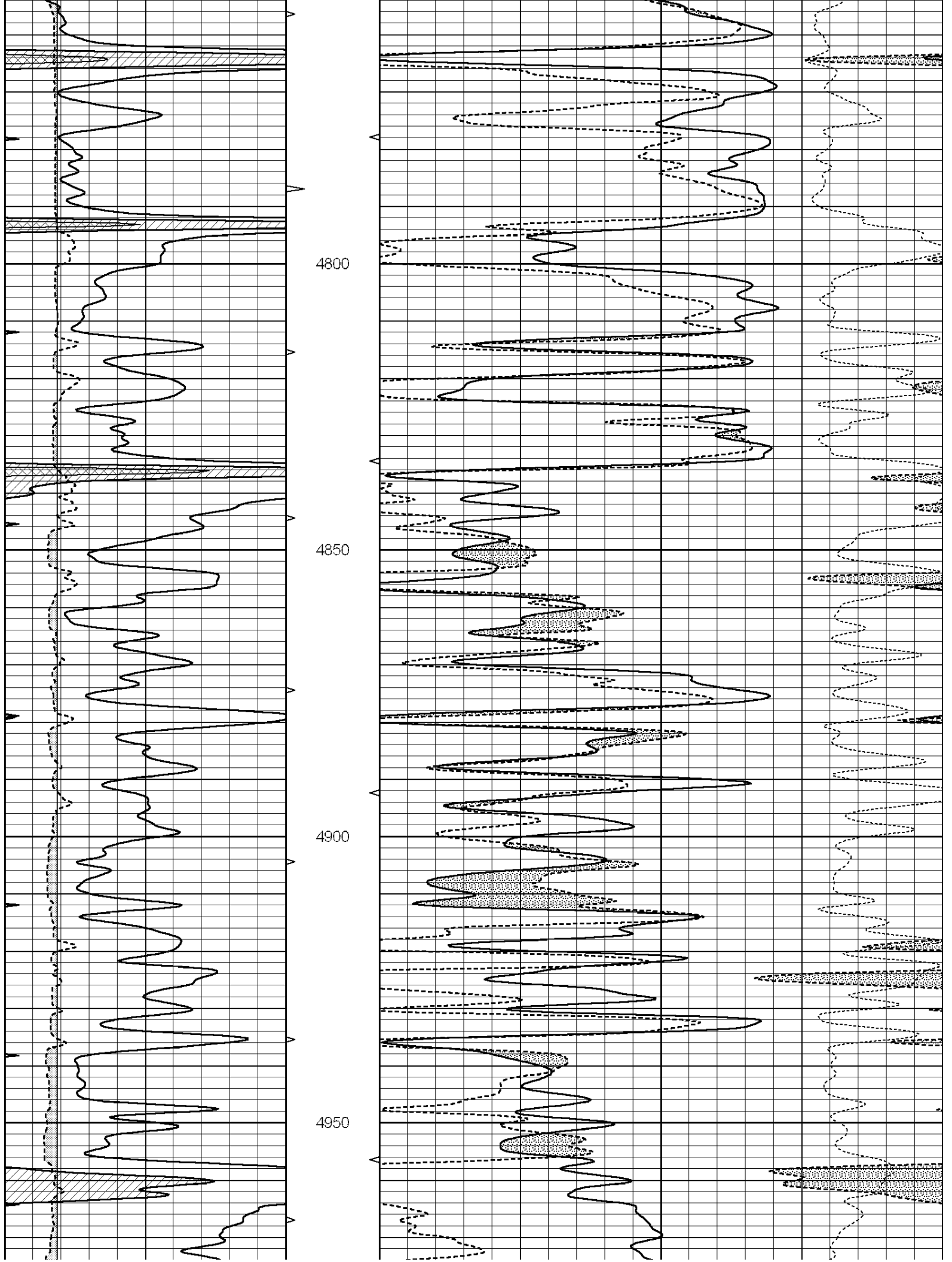


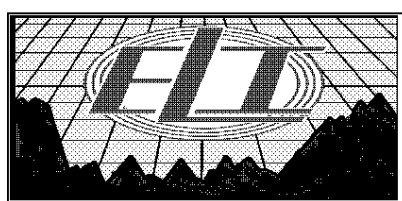
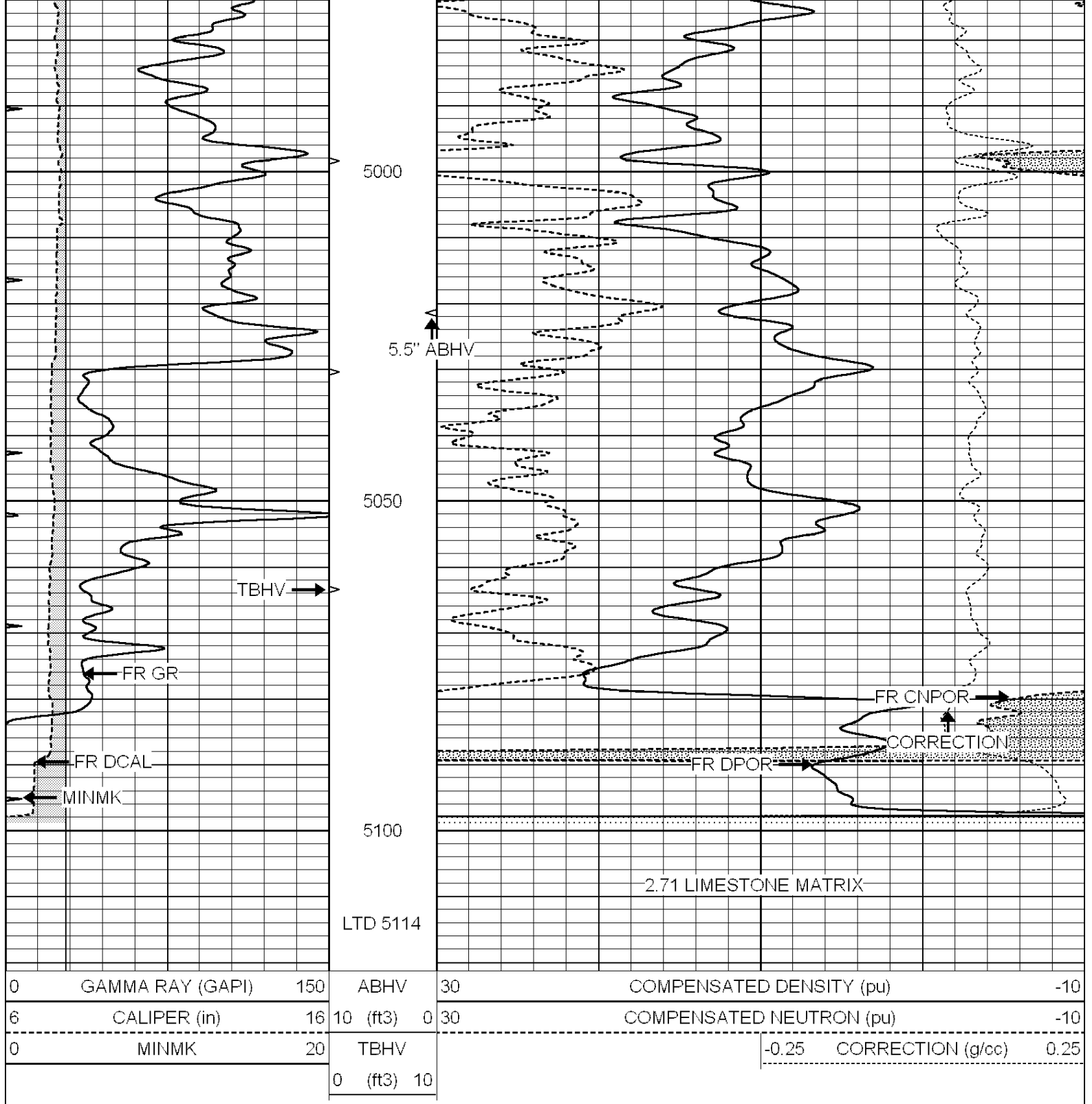










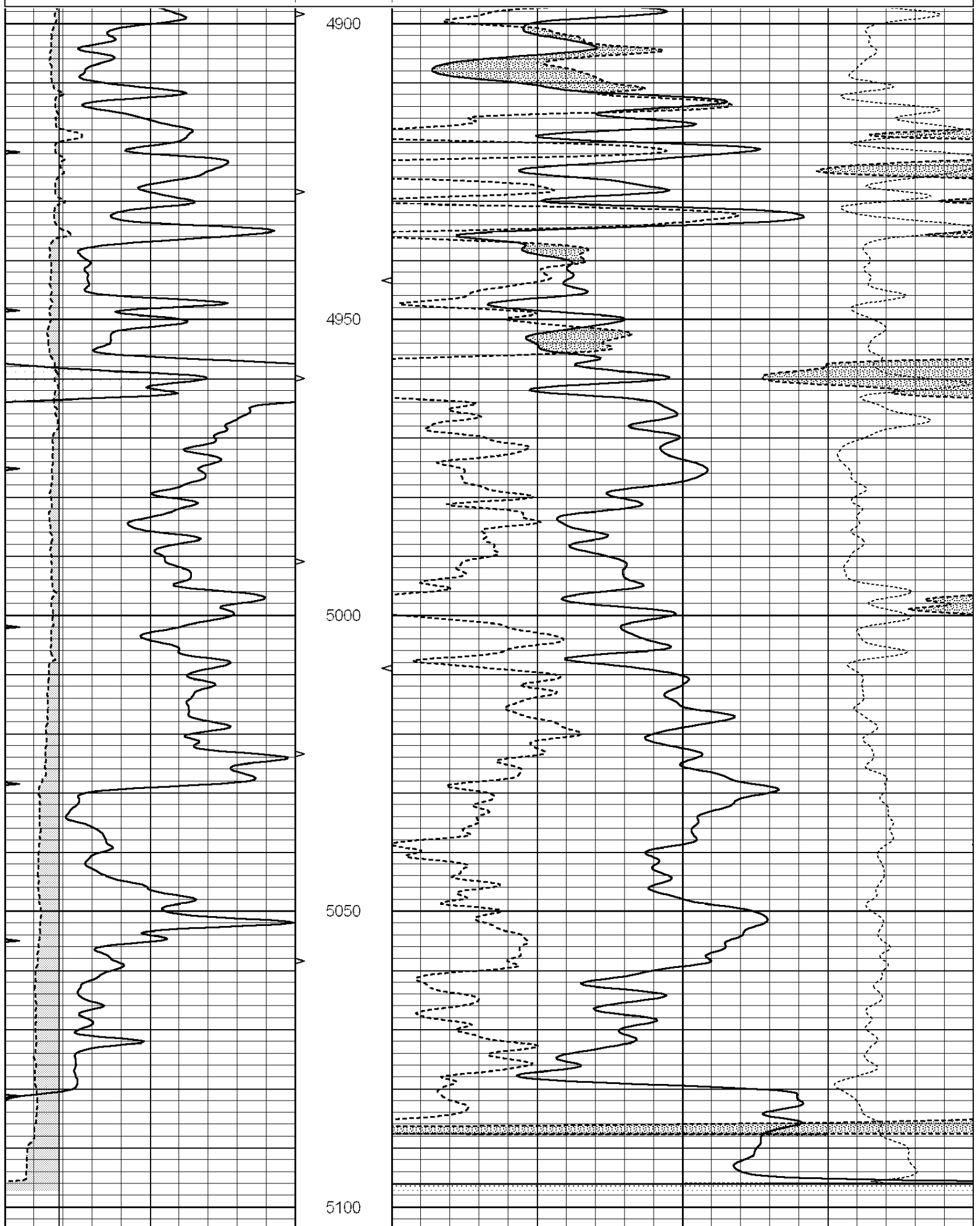


REPEAT SECTION

Database File: 1421ddn.db
 Dataset Pathname: pass2.7
 Presentation Format: den_neu
 Dataset Creation: Mon May 15 12:52:12 2017 by Calc SOC 120430
 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		

0	CALIPER (in)	10	TBHV	COMPENSATED NEUTRON (pp)	-0.25	CORRECTION (g/cc)	0.25
	MINMK	20	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			-0.25	CORRECTION (g/cc)	0.25	
			0 (ft3)	10					

Calibration Report

Database File: 1421ddn.db
 Dataset Pathname: pass3.6
 Dataset Creation: Mon May 15 13:39:22 2017 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Mon May 15 11:30:04 2017
 Downhole Cal Performed: Mon Jul 28 12:02:56 2008
 After Survey Verification Performed: Mon Jul 28 12:02:56 2008

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	620.000	2.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-42.000
Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.011	0.610	V	0.000	400.000	mmho/m	667.135	-7.256
Medium	0.005	0.712	V	0.000	464.000	mmho/m	655.677	-3.102

Downhole Calibration

	Readings			References			Results	
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	14.508	388.384	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	166.367	504.400	mmho/m	1.000	0.000
LL3		7.500	V		1400.000	Ohm-m		
		0.000	V		20.000	Ohm-m		
		-7.200	V		4000.000	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: 003N Model: PRB

Master Calibration

Performed Mon Mar 14 08:48:13 2016

	Background	Magnesium	Aluminum	Sandstone	
Window 1	1751.3	11741.0	3857.3	12907.8	cps
Window 2	1589.4	9536.2	3267.6	10282.0	cps

Window 3	1413.4	6466.1	2463.2	6828.7	cps
Window 4	399.5	407.1	405.1	406.5	cps
Long Space	0.0	7946.7	1678.1	8692.6	cps
Short Space	2.2	3366.2	2134.1	3410.2	cps
Rho		1.7100	2.5900	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	

Rib Angle	: 43.7	Rib Slope	: 0.954	Density/Spine Ratio	: 0.543
Spine Angle	: 73.7	Spine Slope	: 3.412	Spine Intercept	: -18.7

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	

Compensated Neutron Calibration Report

Serial Number: 070808
Tool Model: Probe

PRE-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

POST-SURVEY VERIFICATION

Detector	Readings	Measured	Target
Short Space	cps		
Long Space	cps	pu	pu

Gamma Ray Calibration Report

Serial Number: 070558
Tool Model: OPEN_GR
Performed: Fri May 05 12:55:28 2017

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps

Background Reading:

0.0

cps

Calibrator Reading:

1.0

cps

Sensitivity:

0.2800

GAPI/cps