



**COMPLETION  
& PRODUCTION  
SERVICES CO.**

**COMPENSATED  
DENSITY / NEUTRON  
LOG**

Company DEUTSCHER OIL OPERATIONS  
Well ARMBRISTER #1-27  
Field WILD CAT  
County ELLIS  
State KANSAS

Company DEUTSCHER OIL OPERATIONS  
Well ARMBRISTER #1-27  
Field WILD CAT  
County ELLIS State KANSAS

Location: API # : 15-051-26527-0000  
815' FNL & 390' FEL  
SEC 27 TWP 12S RGE 20W  
Permanent Datum GROUND LEVEL Elevation 2205  
Log Measured From KELLY BUSHING 5' A.G.L.  
Drilling Measured From KELLY BUSHING  
Other Services DIL  
Elevation K.B. 2210  
D.F. 2208  
G.L. 2205

Date	5/22/13
Run Number	ONE
Depth Driller	3968
Depth Logger	3963
Bottom Logged Interval	3939
Top Log Interval	3100
Casing Driller	8 5/8"@200'
Casing Logger	210
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.3/51
pH / Fluid Loss	10.0/8.8
Source of Sample	FLOWLINE
Rim @ Meas. Temp	.600@82F
Rmf @ Meas. Temp	.450@82F
Rmc @ Meas. Temp	.720@82F
Source of Rmf / Rmc	MEASUREMENT
Rim @ BHT	.424@116F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	7:00 A.M.
Maximum Recorded Temperature	116F
Equipment Number	4854
Location	HAYS, KANSAS
Recorded By	JEFF LUEBBERS
Witnessed By	RICHARD BELL

<<< Fold Here >>>

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**

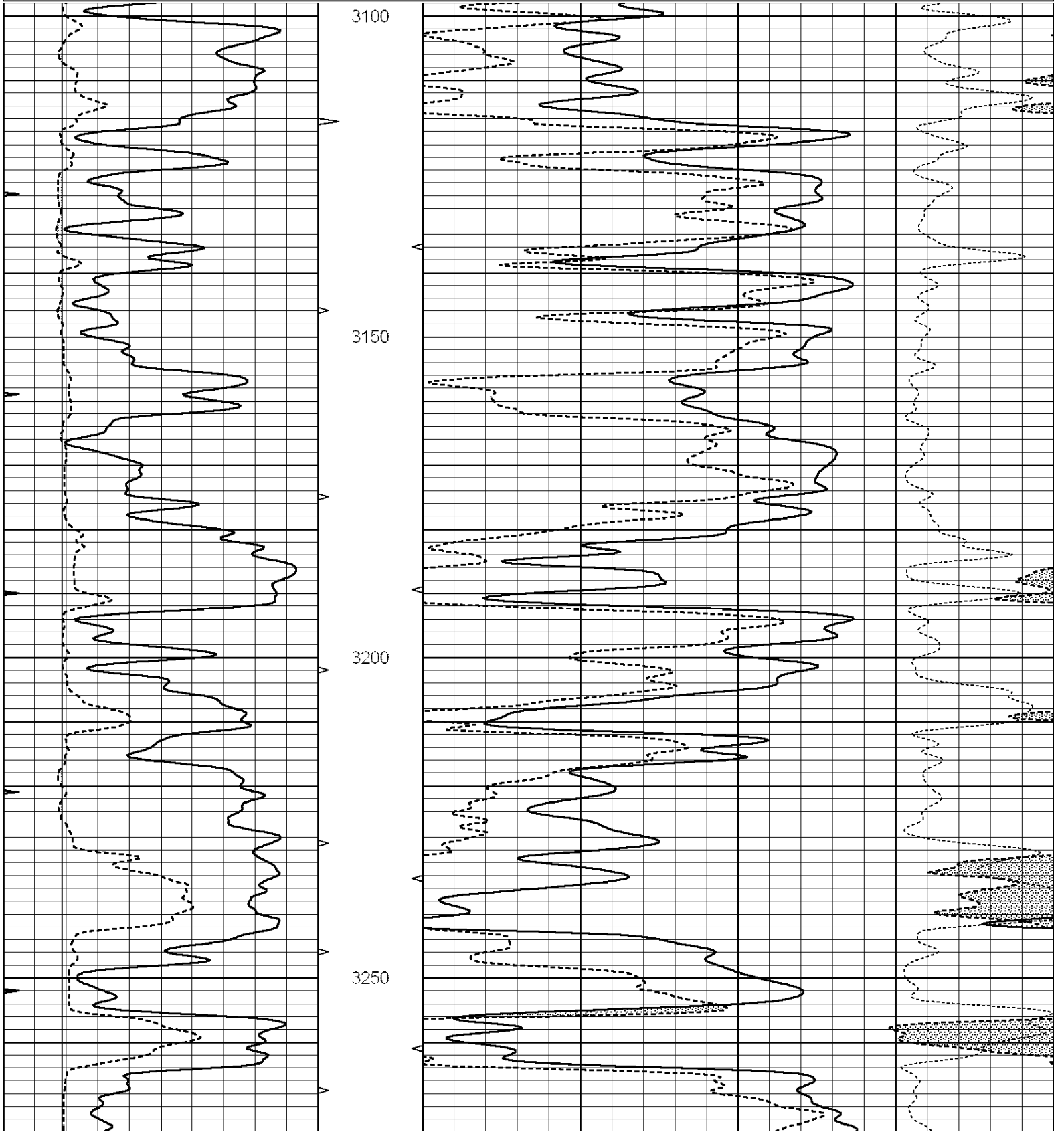
THANK YOU FOR USING "NABORS" HAYS, KANSAS (785) 628-6395  
DIRECTIONS  
E. OF ELLIS, KS. ON OLD 40 TO (OLD RENDERING PLANT), N. TO BLKTOP, 1E. ON "LOCUST GROVE RD.", 1/4S., W. INTO

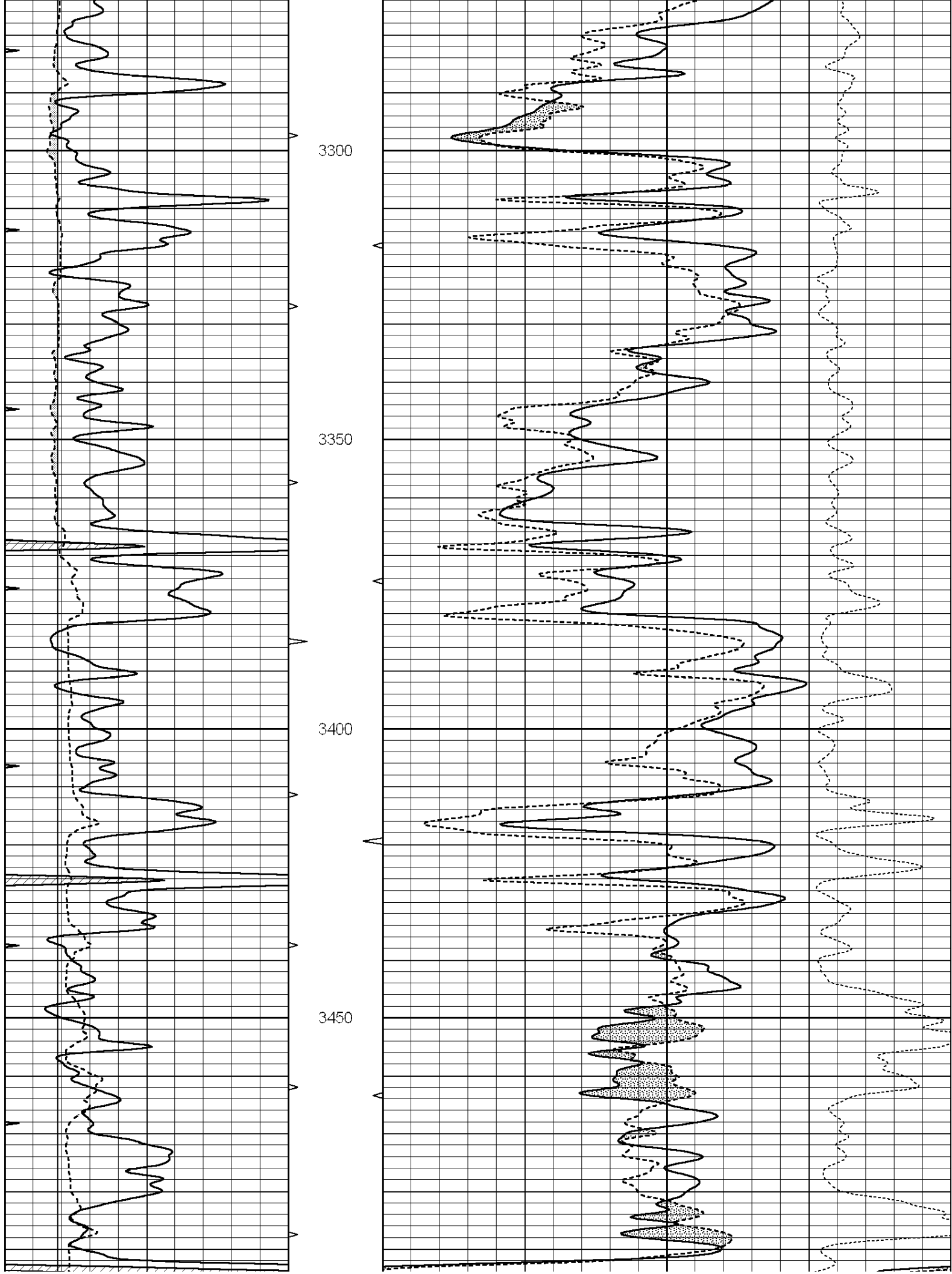


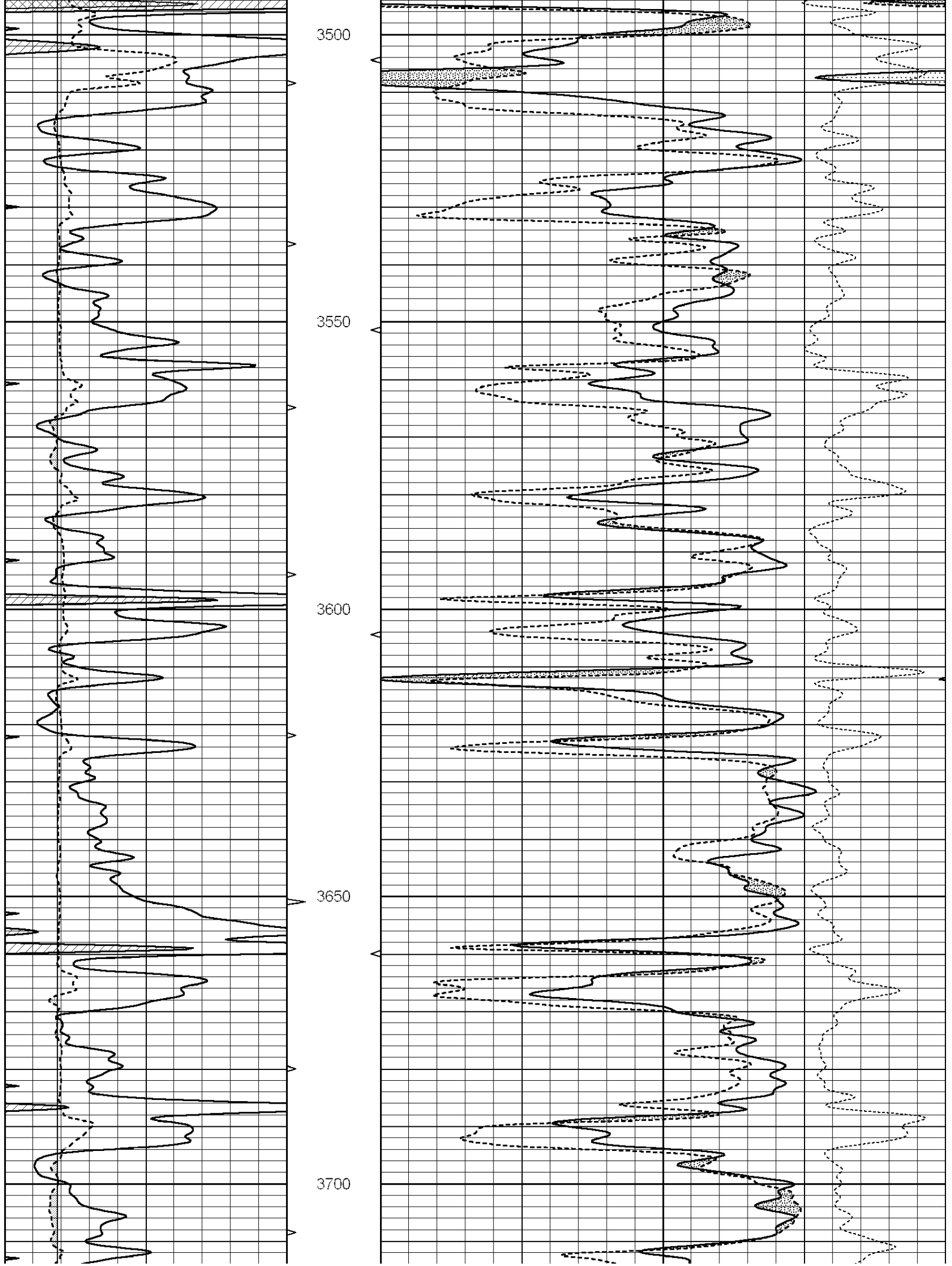
**MAIN SECTION**

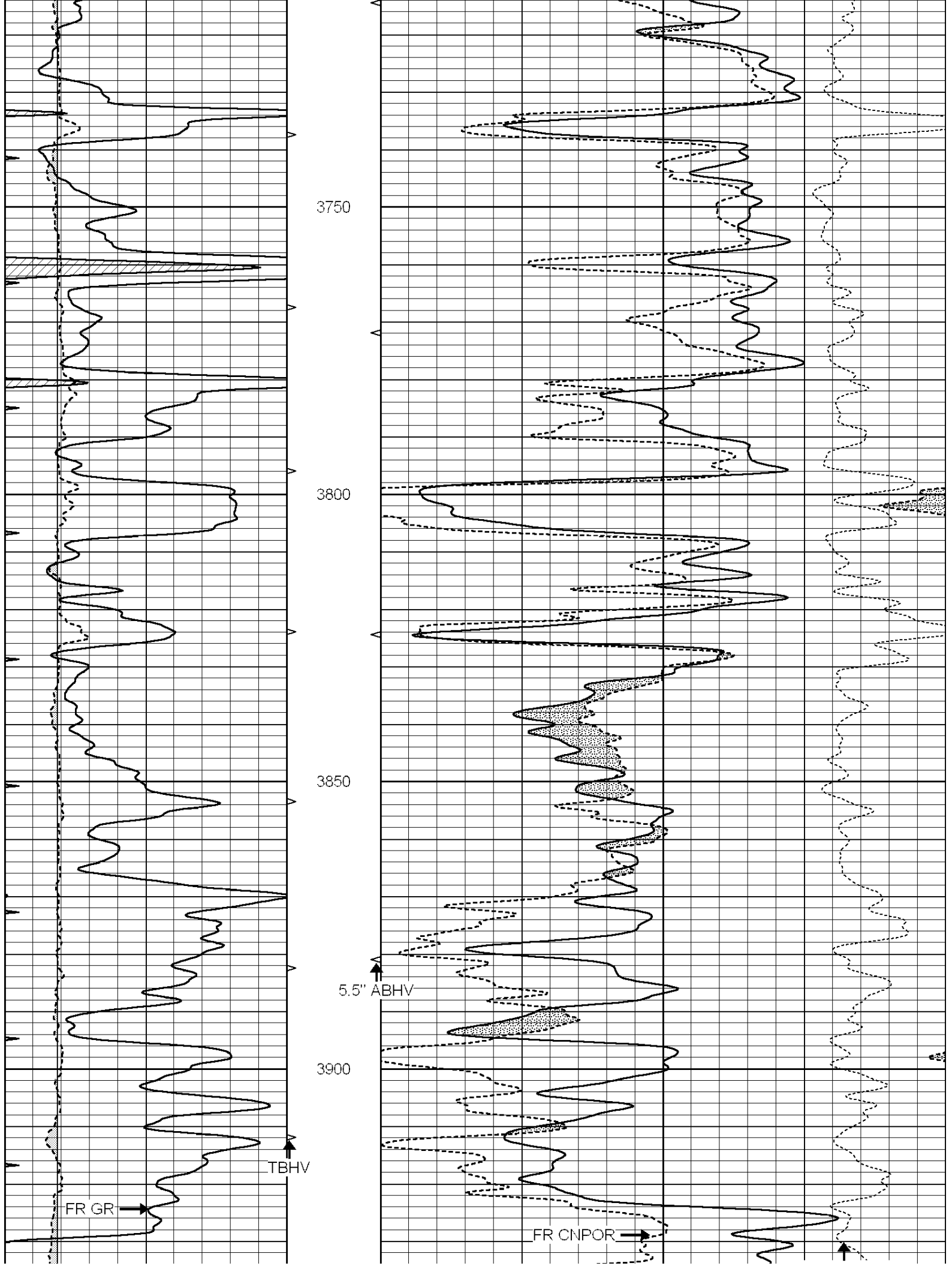
Database File: 010911ddn.db  
 Dataset Pathname: pass3.6  
 Presentation Format: den\_neu  
 Dataset Creation: Wed May 22 08:17:20 2013 by Calc SOC 120430  
 Charted by: Depth in Feet scaled 1:240

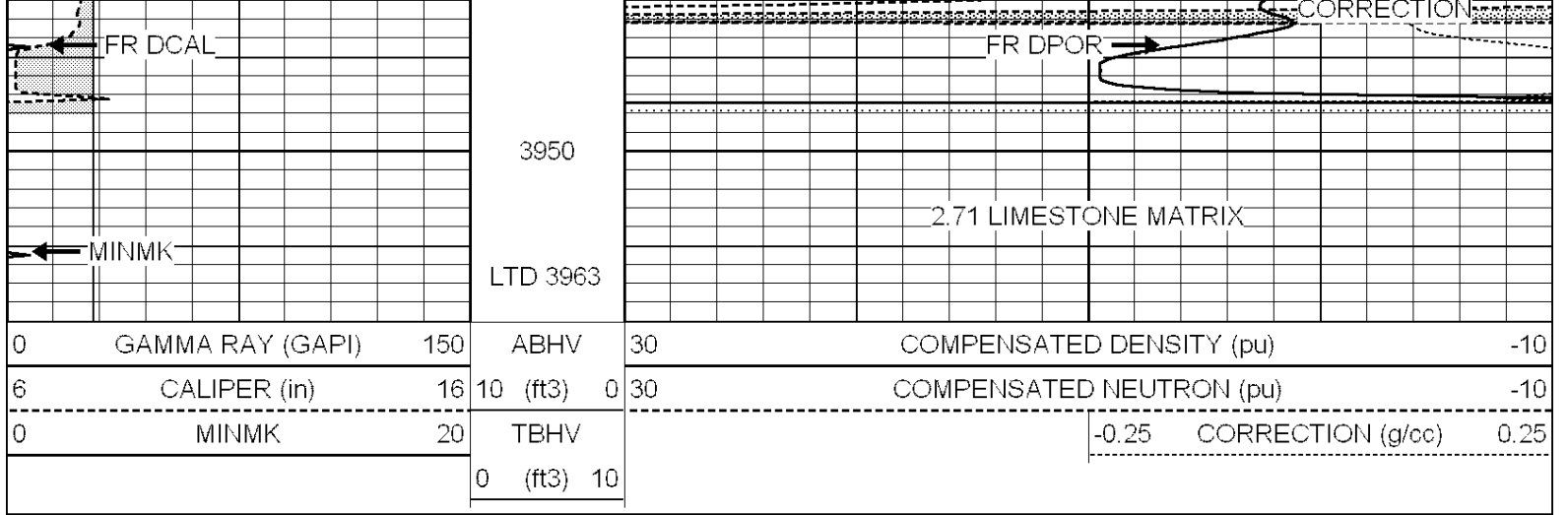
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0 30	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		







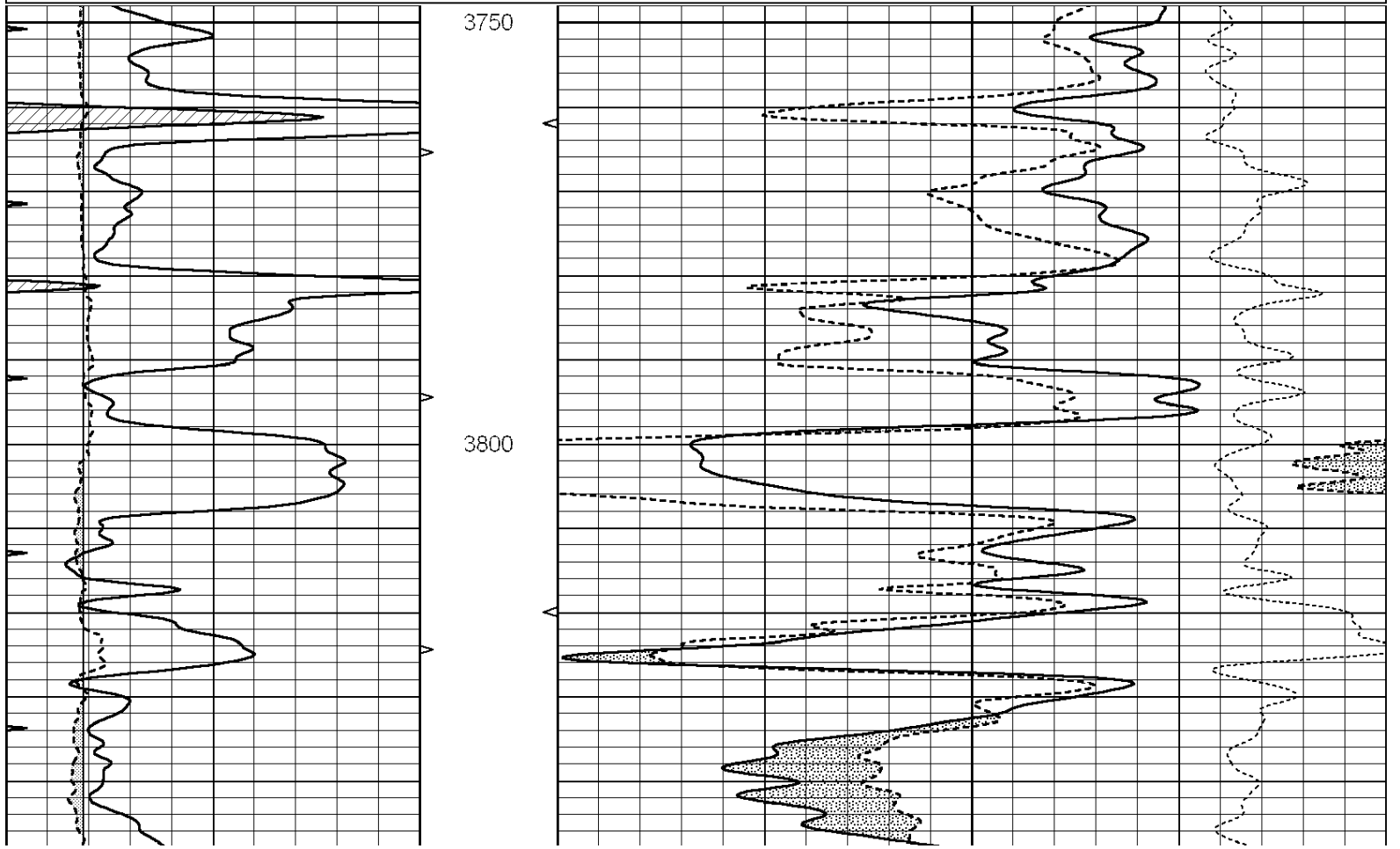


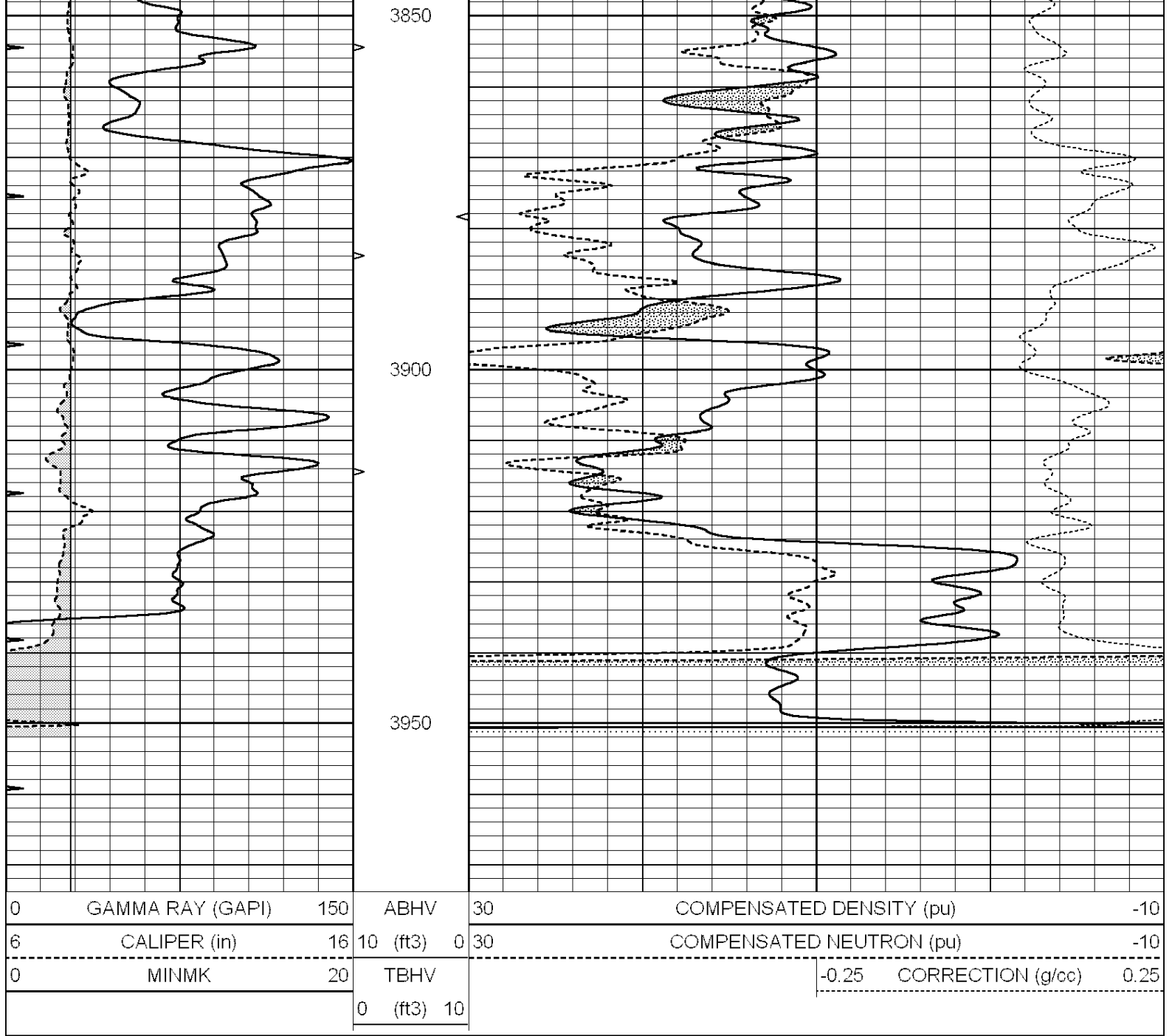


# REPEAT SECTION

Database File: 010911ddn.db  
 Dataset Pathname: pass2.4  
 Presentation Format: den\_neu  
 Dataset Creation: Wed May 22 07:21:12 2013 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		





Calibration Report

Database File: 010911ddn.db  
 Dataset Pathname: pass3.6  
 Dataset Creation: Wed May 22 08:17:20 2013 by Calc SOC 120430

Dual Induction Calibration Report

Serial-Model: PROBE9-DILG  
 Surface Cal Performed: Mon May 20 12:15:25 2013  
 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	V	Air	Loop	mmho/m	m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	621.923	-15.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	640.000	-18.000
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: 006      Model: PRB

Master Calibration					Performed Sun Aug 15 09:48:41 2010			
	Background	Magnesium	Aluminum	Sandstone				
Window 1	1686.6	11612.8	3932.0	12718.8				cps
Window 2	1531.4	9204.7	3267.8	9851.9				cps
Window 3	1198.3	4733.6	1952.5	4920.6				cps
Window 4	317.3	321.2	325.9	303.6				cps
Long Space	0.0	7673.3	1736.4	8320.4				cps
Short Space	1.7	2548.5	1657.2	2628.8				cps
Rho		1.7100	2.5900	1.3800				g/cc
Pe		0.0000	2.5700	1.5500				
Rib Angle	: 43.8	Rib Slope	: 0.961	Density/Spine Ratio				: 0.569
Spine Angle	: 73.8	Spine Slope	: 3.453	Spine Intercept				: -18.1

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: 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: 070559  
Tool Model: OPEN\_GR  
Performed: Mon Apr 15 10:30:52 2013

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps  
Calibrator Reading: 1.0 cps

Sensitivity: 0.3500 GAPI/cps