



**COMPLETION
& PRODUCTION
SERVICES CO.**

**COMPENSATED
DENSITY / NEUTRON
LOG**

Company LIBERTY OPERATIONS & COMPLETION, INC
Well RANDY #1
Field WILDCAT
County ROOKS
State KANSAS

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Well RANDY #1
Field WILDCAT
County ROOKS State KANSAS

Location: API # : 15-163-24101-00-00
1365' FSL & 1670' FEL
SW - SE - NW - SE
SEC 29 TWP 10S RGE 17W
Permanent Datum GROUND LEVEL Elevation 2041
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
DIL
MEL/SON
Elevation
K.B. 2046
D.F. 2044
G.L. 2041

Date	03/04/13		
Run Number	ONE		
Depth Driller	3690		
Depth Logger	3691		
Bottom Logged Interval	3667		
Top Log Interval	2900		
Casing Driller	8 5/8" @ 221		
Casing Logger	213		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 10,000 PPM	
Density / Viscosity	9.462		
pH / Fluid Loss	9.0/12		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.40 @ 68F		
Rmt @ Meas. Temp	0.30 @ 68F		
Rmc @ Meas. Temp	0.48 @ 68F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	0.24 @ 113F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	113F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	JEFF LAWLER		

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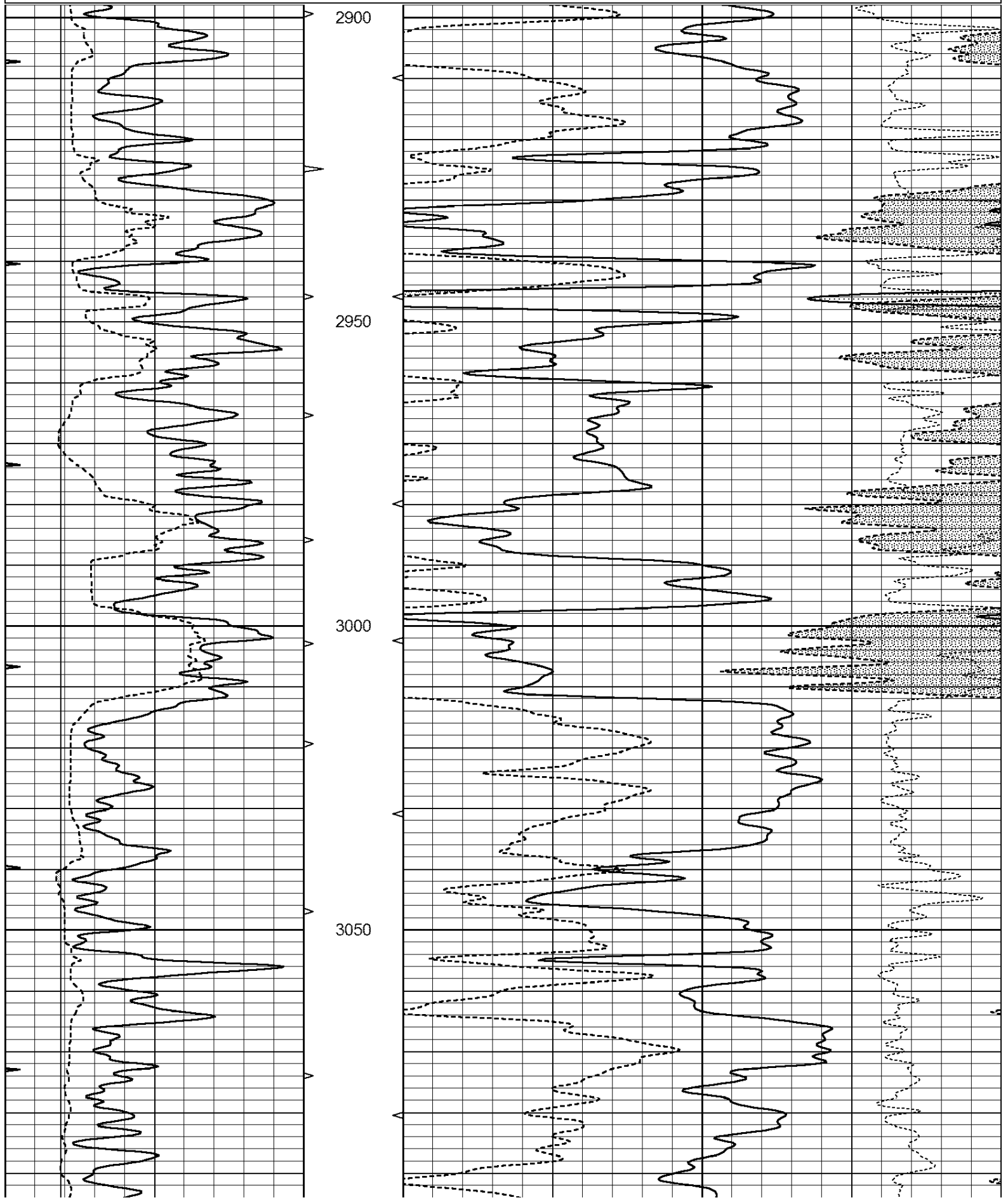
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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.

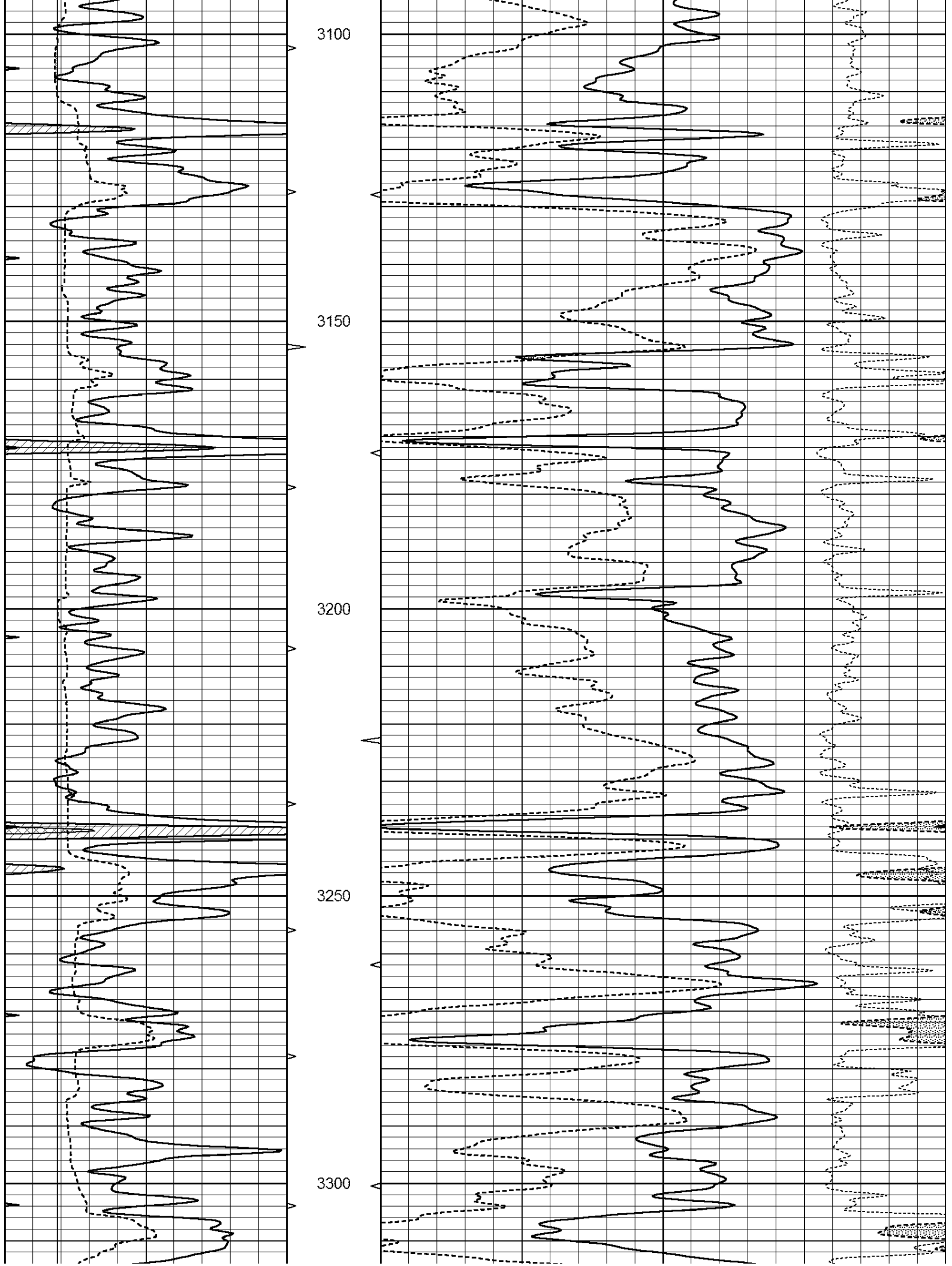
Comments

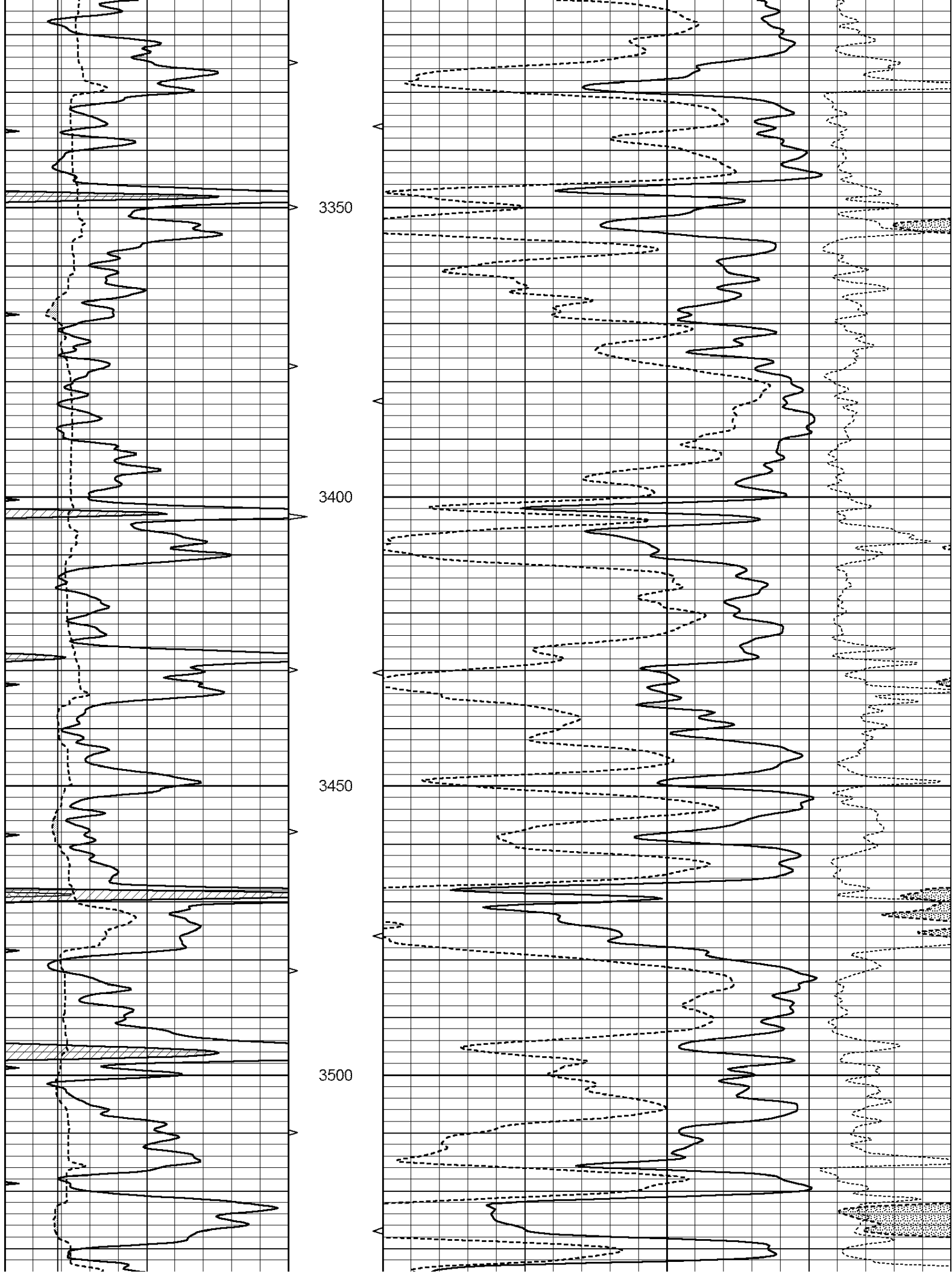
THANK YOU FOR USING NABORS HAYS, KANSAS (785) 628-6395
DIRECTIONS
HAYS, KS - NORTH TO SALINE RIVER RD. - EAST TO TURKVILLE - NORTH 3 MILES TO THE CURVE
HEADING WEST - NORTH INTO AT THE LIMESTONE SIGN

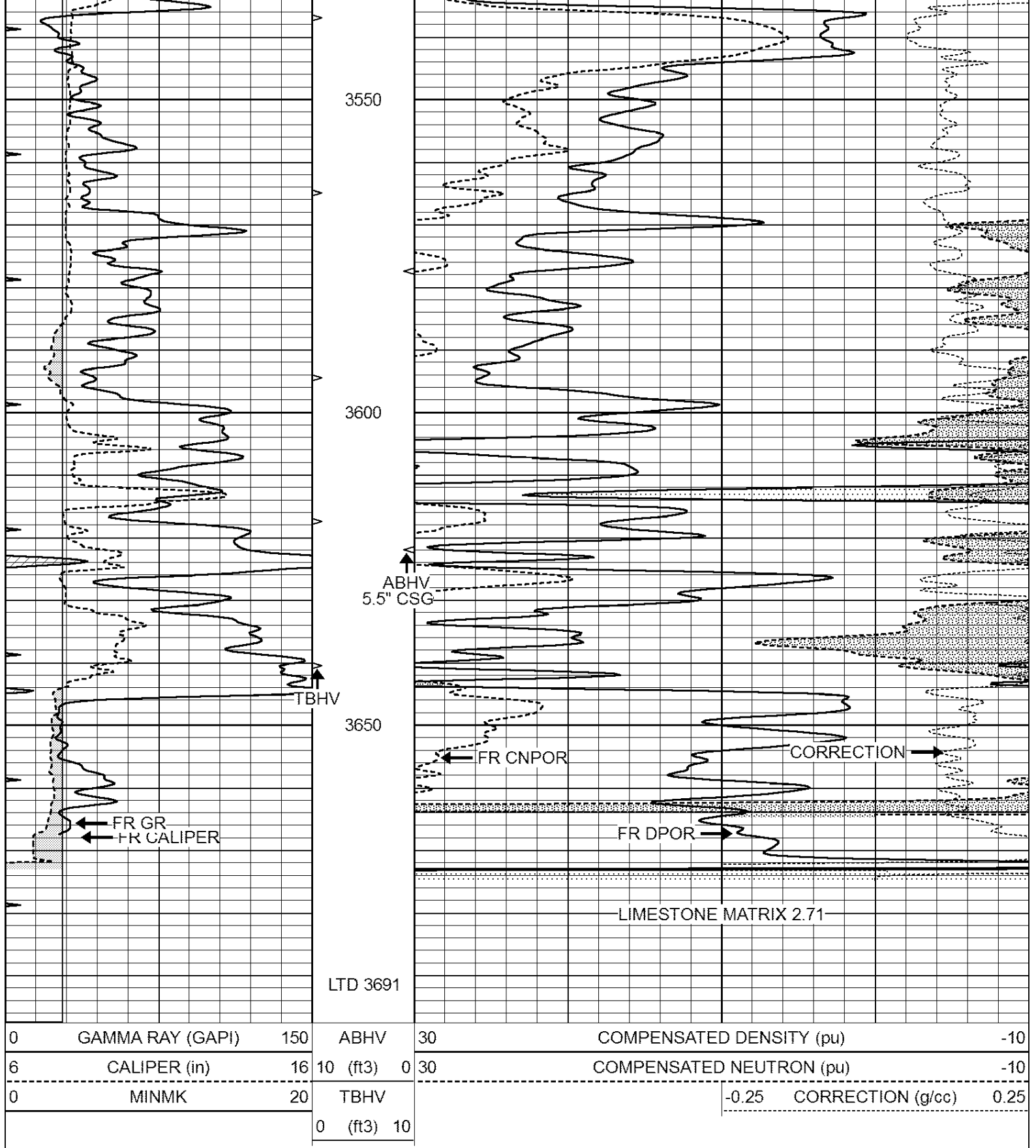
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Dataset Pathname: pass5.5
Presentation Format: den_neu
Dataset Creation: Tue Mar 05 03:20:47 2013
Charted by: Depth in Feet scaled 1:240

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		





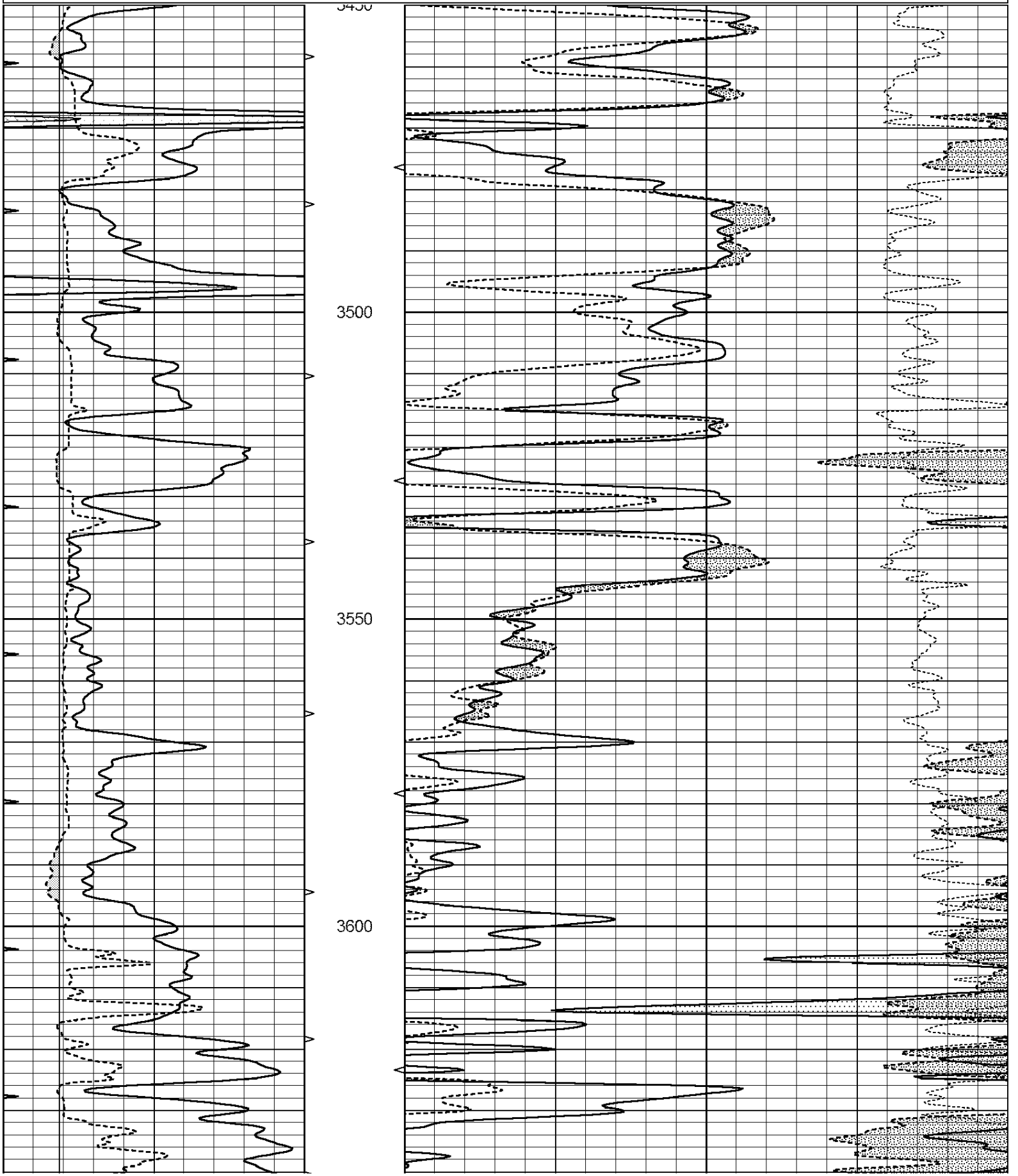


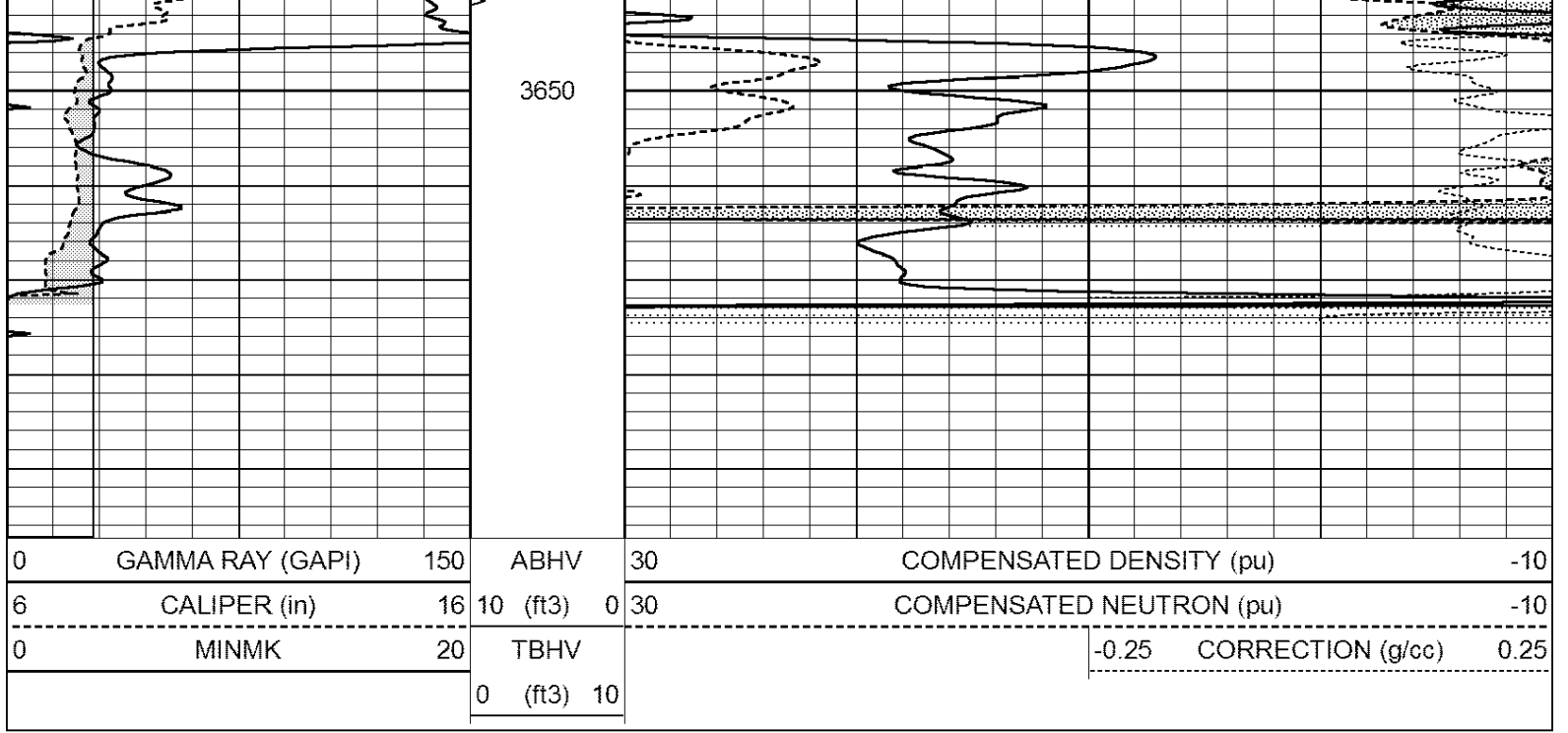


REPEAT SECTION

Database File: 010853ddn.db
 Dataset Pathname: pass4.2
 Presentation Format: den neu

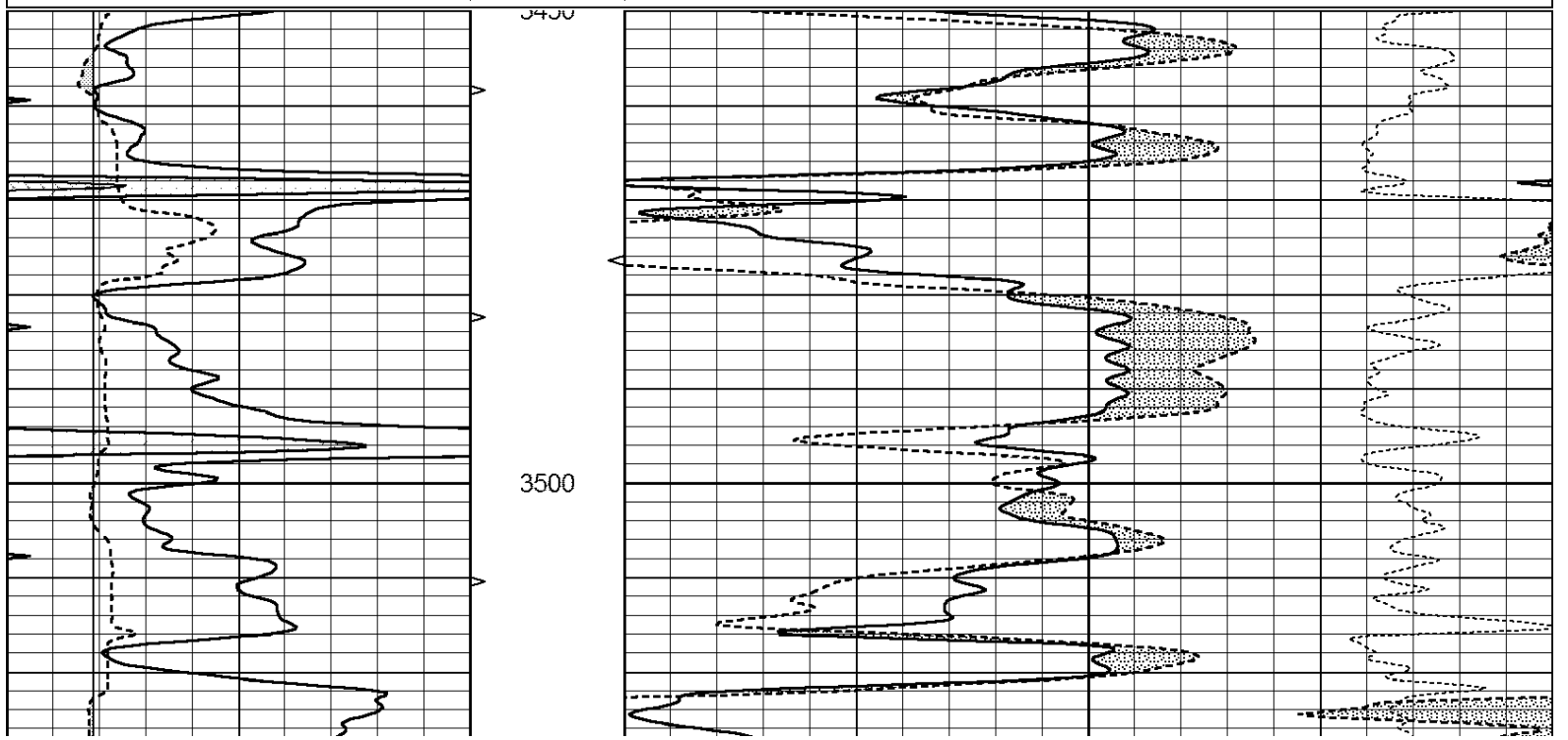
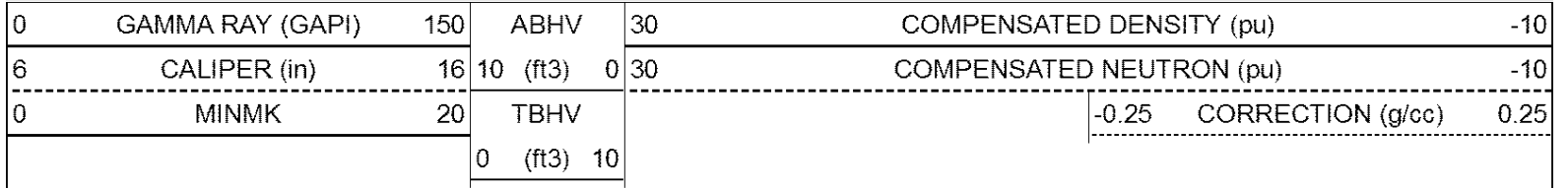
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0	COMPENSATED NEUTRON (pu)	-10
0	MINMK	20	TBHV		-0.25 CORRECTION (g/cc)	0.25
			0 (ft3)	10		

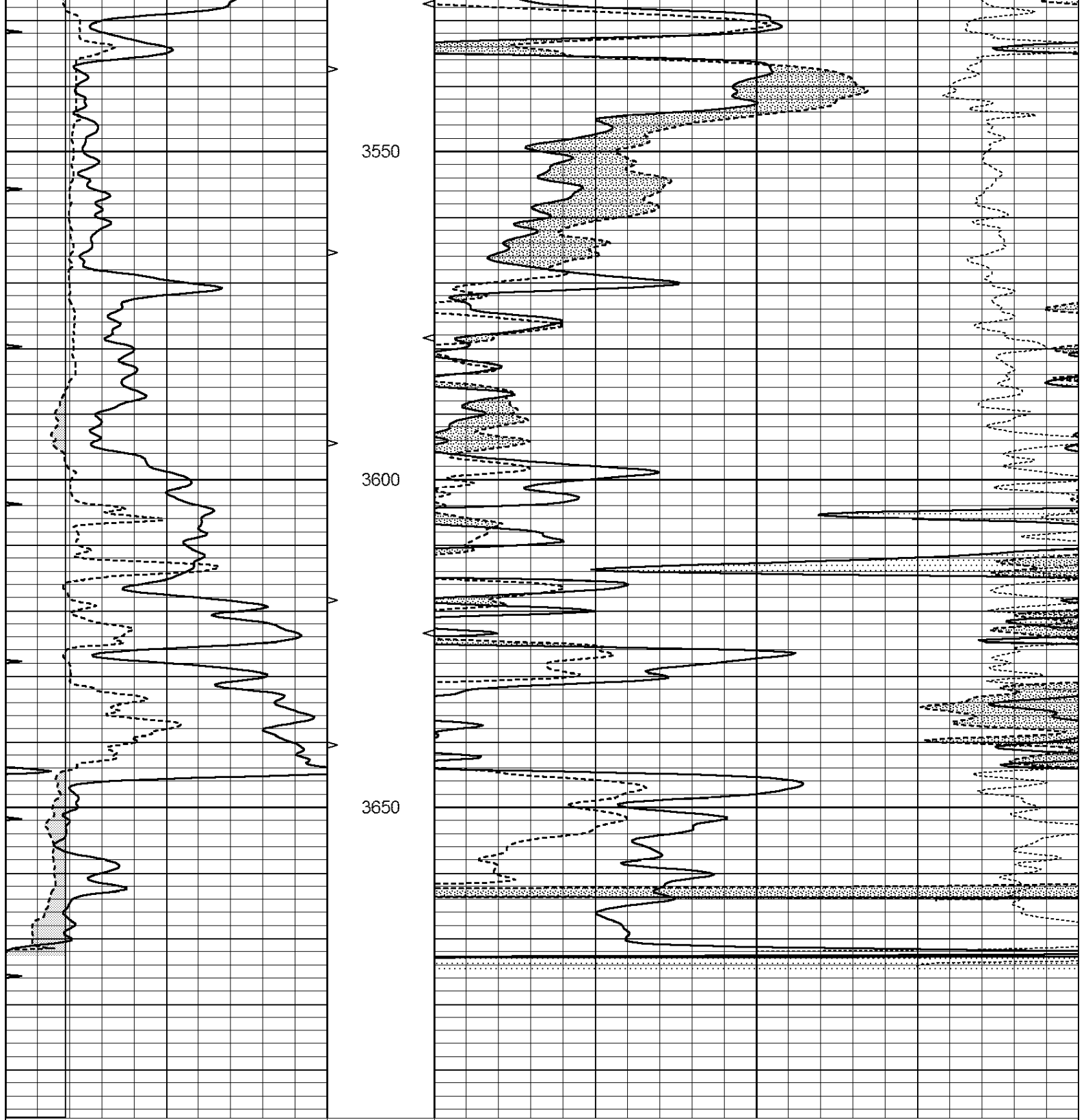




DOLOMITE 2.85

Database File: 010853ddn.db
 Dataset Pathname: passDD
 Presentation Format: den_neu
 Dataset Creation: Tue Mar 05 02:47:24 2013
 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: 010853ddn.db
 Dataset Pathname: pass5.1
 Dataset Creation: Tue Mar 05 00:47:35 2013 by Calc Open-Cased 090629

Serial-Model:
 Surface Cal Performed:
 Downhole Cal Performed:
 After Survey Verification Performed:

PROBE8-DILG
 Fri Aug 01 06:33:19 2008
 Mon Jul 28 11:08:27 2008
 Mon Jul 28 11:08:27 2008

Surface Calibration

Readings				References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	0.015	0.648	V	0.000	400.000	mmho/m	632.616	-9.730
Medium	0.029	0.796	V	0.000	464.000	mmho/m	605.049	-17.680
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: GEAR3-GEARHART
 Source / Verifier: 143 / 143
 Master Calibration Performed: Fri Jan 04 15:48:16 2013
 Before Survey Verification Performed:
 After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	935.36	501.55	cps
Aluminum	2.580	g/cc	209.32	357.01	cps
Spine Angle = 77.21			Density/Spine Ratio = 0.567		
	Size		Reading		
Small Ring	8.00	in	4.29	V	
Large Ring	14.00	in	6.24	V	

Before Survey Verification

Target	Measured
g/cc	g/cc
g/cc	g/cc
g/cc	g/cc

Target		Measured	
	g/cc		g/cc
	g/cc		g/cc
	g/cc		g/cc
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:	#8		
Tool Model:	OPEN		
Performed:	Mon Jun 13 16:56:43 2011		
Calibrator Value:	150.0	GAPI	
Background Reading:	0.0	cps	
Calibrator Reading:	175.0	cps	
Sensitivity:	0.8371	GAPI/cps	