COMPENSATED DENSITY / NEUTRON LOG

Company H & D EXPLORATION, LLC.
Well FARRIS #1
Field WILDCAT
County STAFFORD State KANSAS
Location: API # : 15-185-24045-0000
938' FSL & 1743' FEL
SW - NE - SW - SE
SEC 5 TWP 25S RGE 12W
Permanent Datum GROUND LEVEL Elevation 1892
Log Measured From KELLY BUSHING 9' A.G.L.
Drilling Measured From KELLY BUSHING

Other Services
DIL/MEL
SONIC

Elevation
K.B. 1901
D.F. 1899
G.L. 1892

Date	11/21/19		
Run Number	ONE		
Depth Driller	4230		
Depth Logger	4231		
Bottom Logged Interval	4207		
Top Log Interval	3300		
Casing Driller	8 5/8"@348'		
Casing Logger	348		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 10,200 PPM	
Density / Viscosity	9.9/41		
pH / Fluid Loss	8.0/16.4		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	.415@60F		
Rmf @ Meas. Temp	.311@60F		
Rmc @ Meas. Temp	.498@60F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	.211@118F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom	10:00 A.M.		
Maximum Recorded Temperature	118F		
Equipment Number	922339		
Location	HAYS, KANSAS		
Recorded By	JEFF LUEBBERS		
Witnessed By	JIM MUSGROVE		

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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.

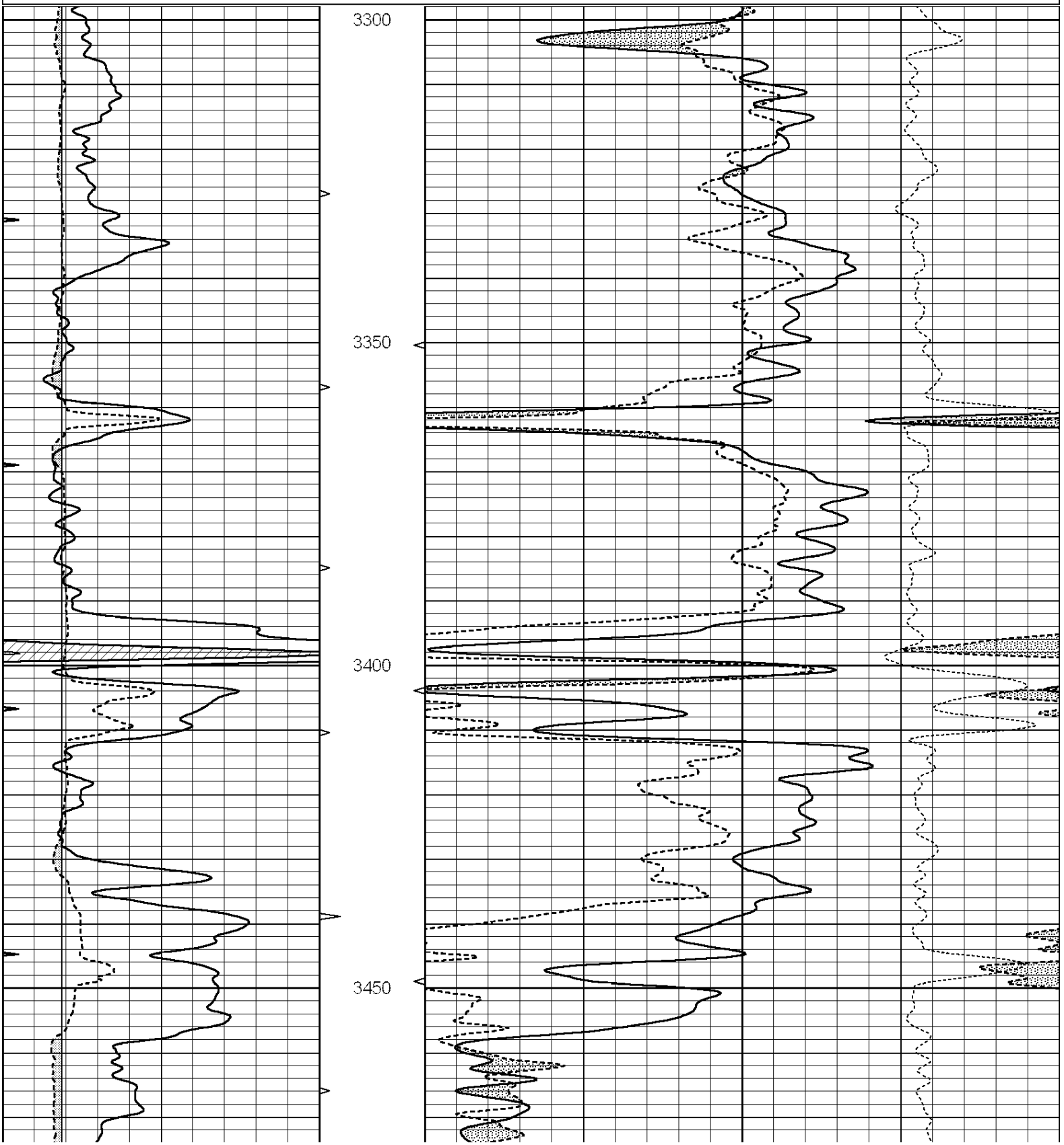
Comments

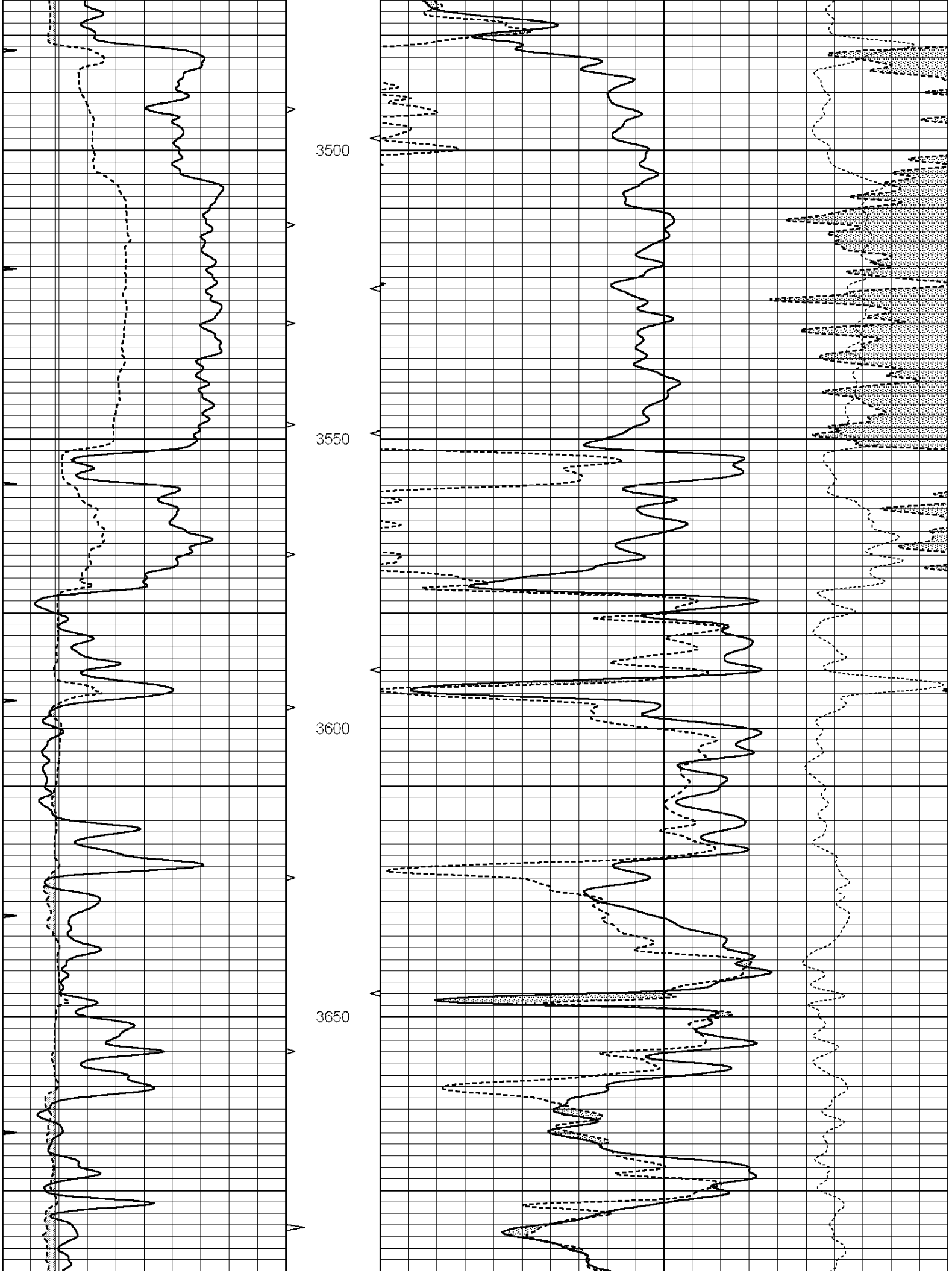
THANK YOU FOR USING ELI WIRELINE HAYS, KANSAS (785) 628-6395
DIRECTIONS
STAFFORD, KS., 4S., 3W., 1/2N., W. INTO

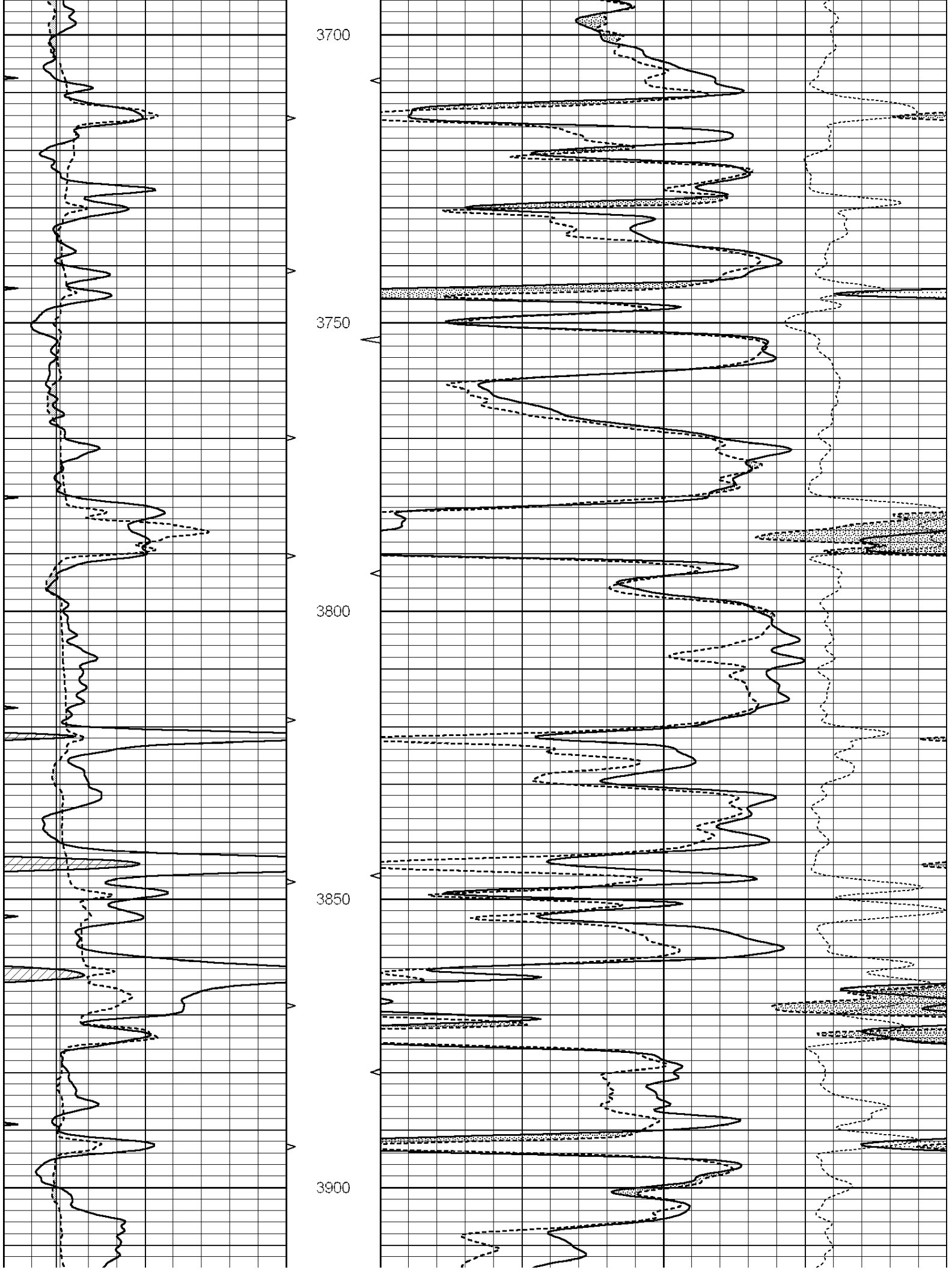
MAIN SECTION

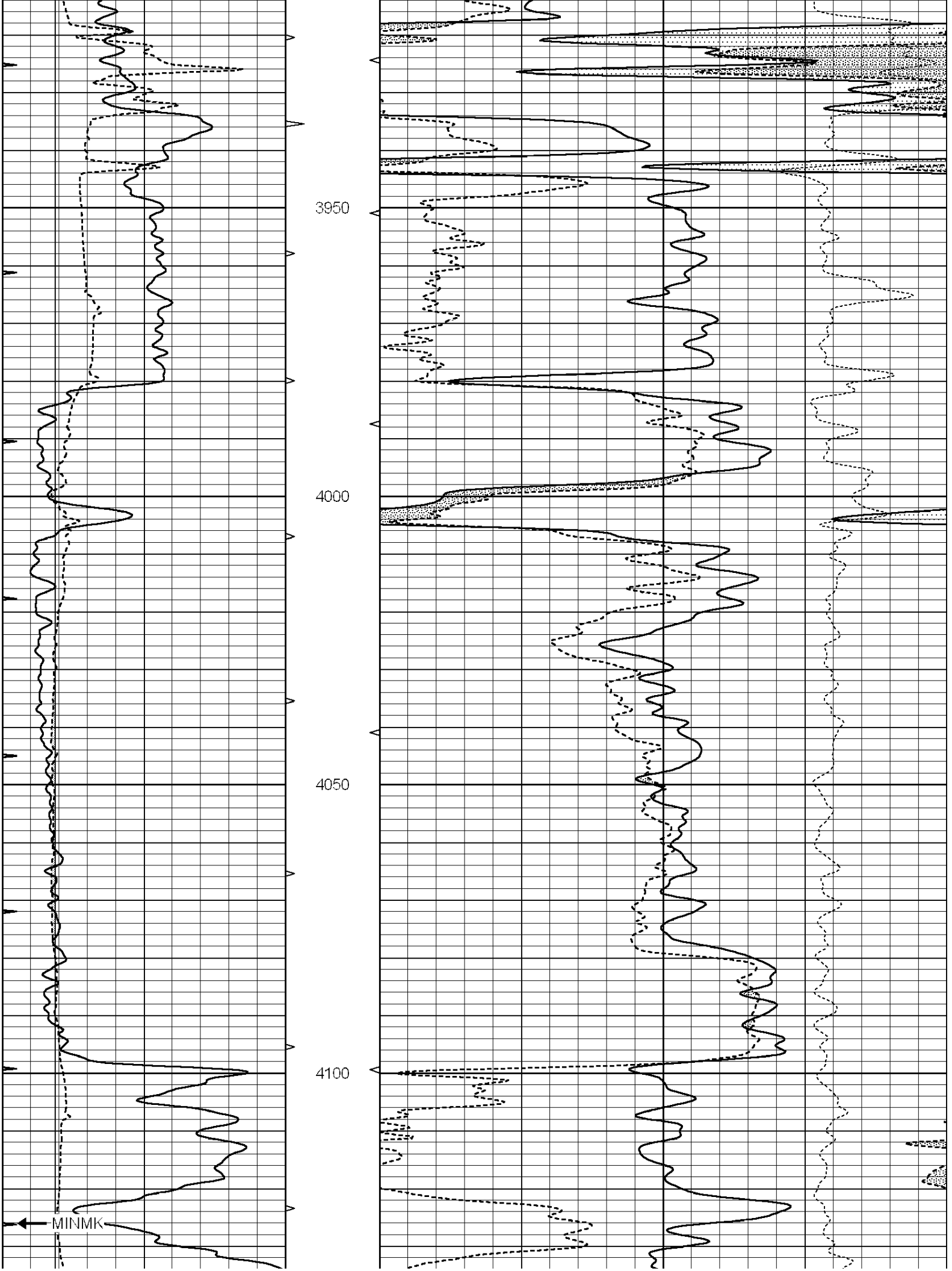
Database File:	4384ddn.db
Dataset Pathname:	pass4.4
Presentation Format:	den_neu
Dataset Creation:	Thu Nov 21 11:22:24 2019 by Calc SOC 120430
Charted by:	Depth in Feet scaled 1:240

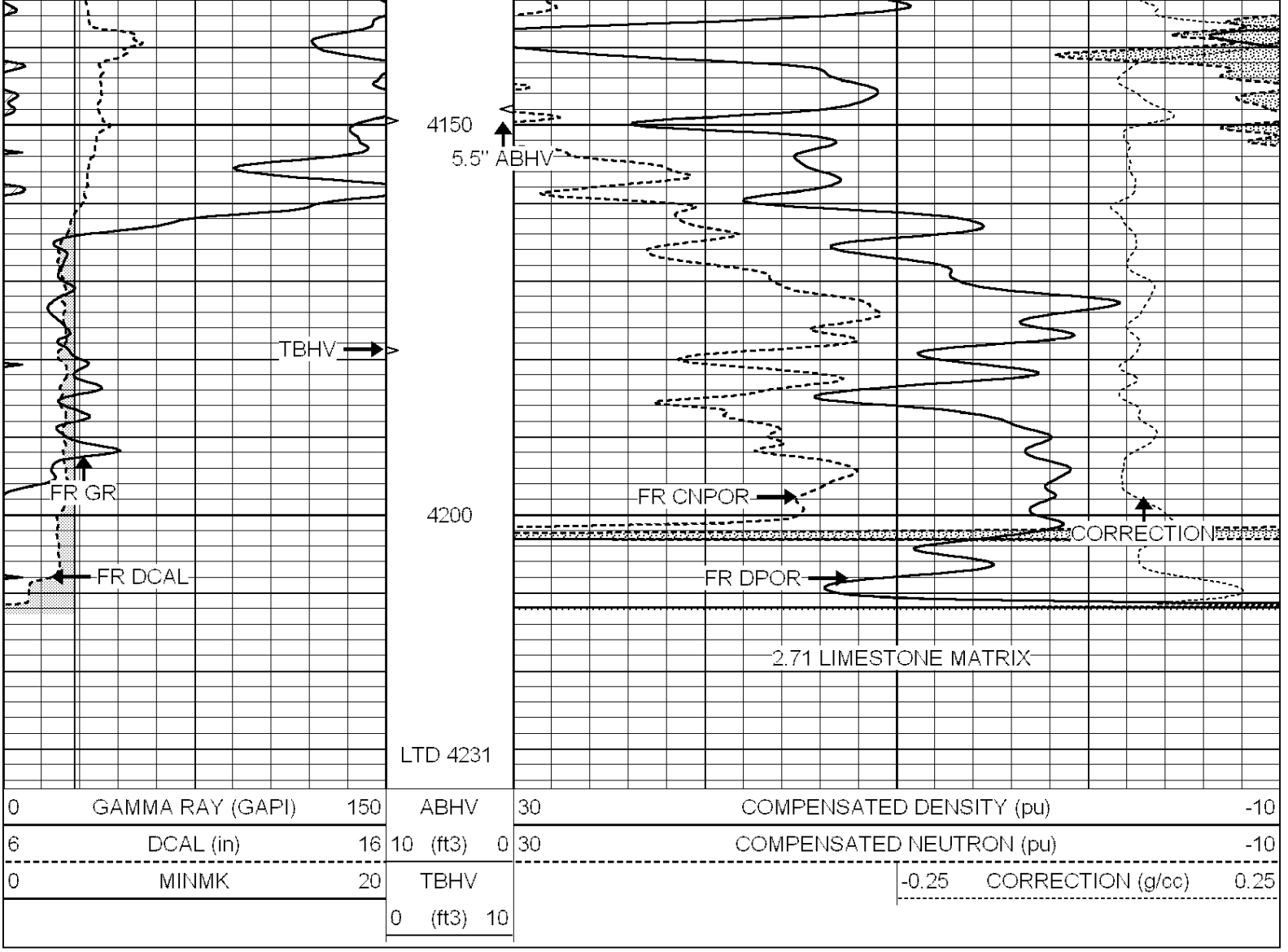
0	GAMMA RAY (GAPI)	150	ABHV	30	COMPENSATED DENSITY (pu) -10
6	DCAL (in)	16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu) -10
0	MINMK	20	TBHV	-0.25	CORRECTION (g/cc) 0.25
			0 (ft3) 10		




3500
3550
3600
3650


3700
3750
3800
3850
3900


3950
4000
4050
4100
MINMK

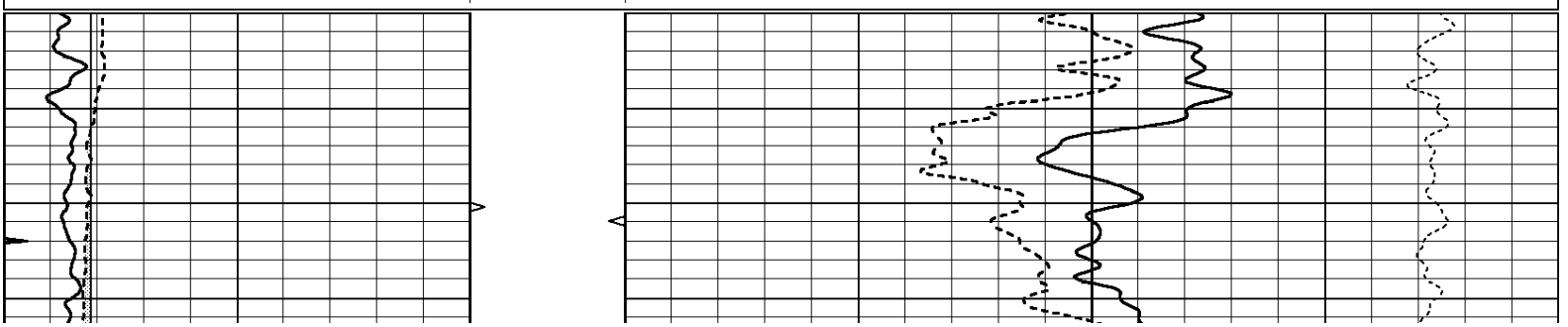


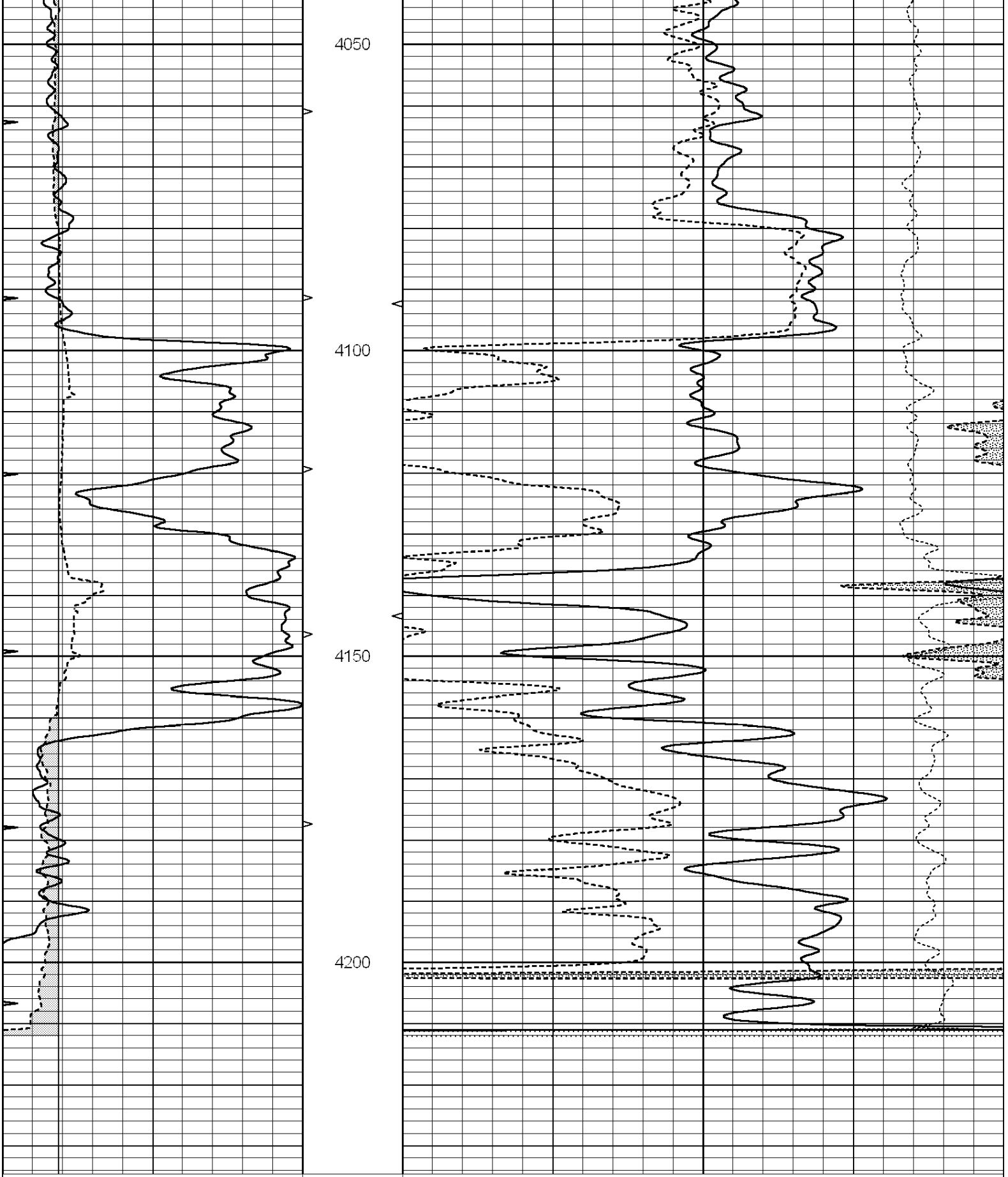
0	GAMMA RAY (GAPI) 150	ABHV	30	COMPENSATED DENSITY (pu)	-10
6	DCAL (in) 16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu)	-10
0	MINMK 20	TBHV		-0.25 CORRECTION (g/cc)	0.25
		0 (ft3) 10			

REPEAT SECTION

Database File: 4384ddn.db
Dataset Pathname: pass3.4
Presentation Format: den_neu
Dataset Creation: Thu Nov 21 10:14:50 2019 by Calc SOC 120430
Charted by: Depth in Feet scaled 1:240

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

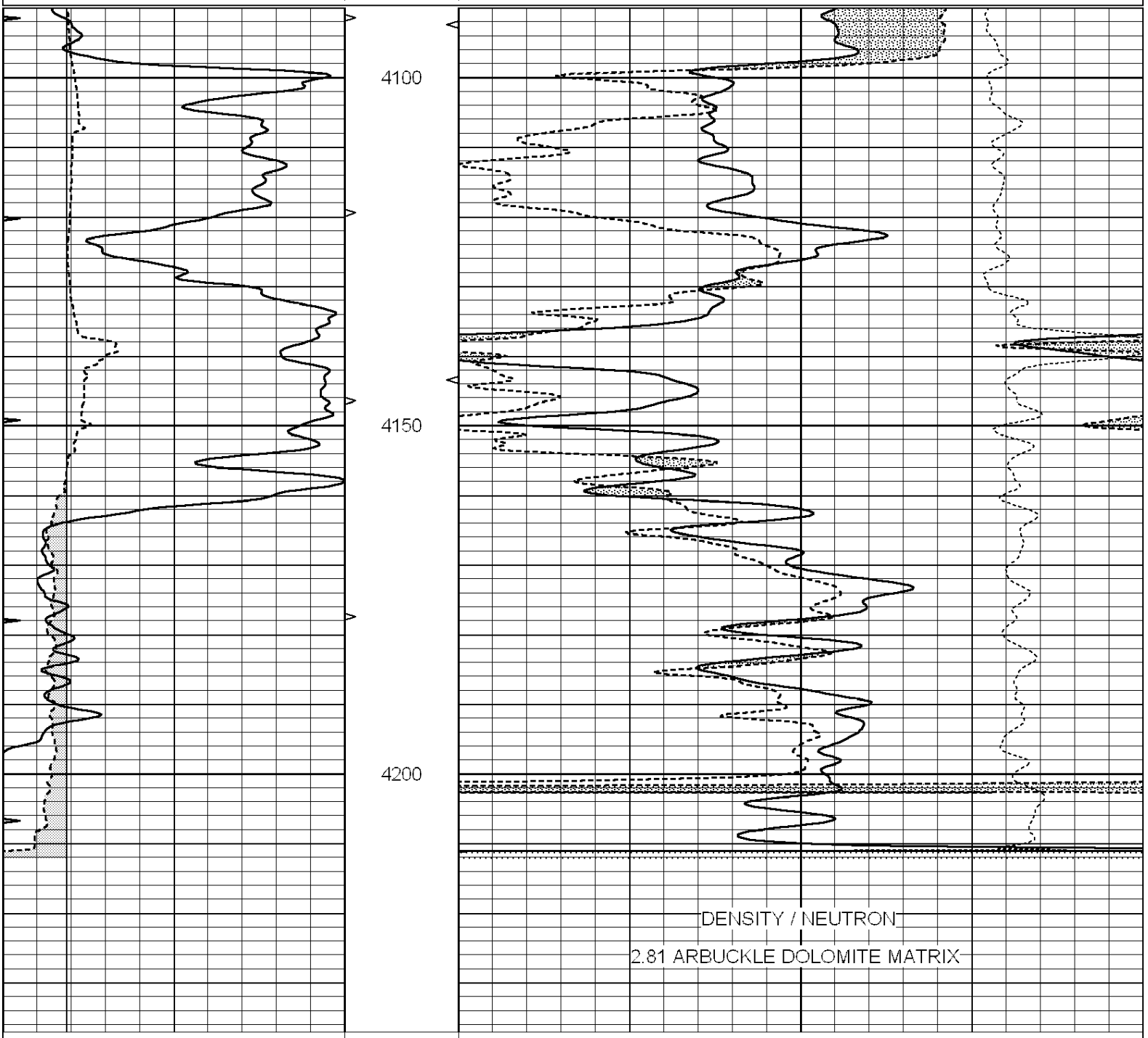



4050
4100
4150
4200
0 GAMMA RAY (GAPI) 150
6 DCAL (in) 16
0 MINMK 20
ABHV
10 (ft3) 0
TBHV
0 (ft3) 10
30 COMPENSATED DENSITY (pu) -10
30 COMPENSATED NEUTRON (pu) -10
-0.25 CORRECTION (g/cc) 0.25

DOLOMITE MATRIX

Database File:	4384ddn.db
Dataset Pathname:	pass3.4D
Presentation Format:	den_neu
Dataset Creation:	Thu Nov 21 10:23:34 2019
Charted by:	Depth in Feet scaled 1:240

0	GAMMA RAY (GAPI) 150	ABHV		30	COMPENSATED DENSITY (pu) -10
6	DCAL (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	GAMMA RAY (GAPI) 150	ABHV		30	COMPENSATED DENSITY (pu) -10
6	DCAL (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: 1598ddn.db
Dataset Pathname: pass4
Dataset Creation: Wed Aug 30 02:13:00 2017 by Log SOC 120430

Dual Induction Calibration Report

Serial-Model:	PROBE7-DILG
Surface Cal Performed:	Wed Aug 30 00:06:33 2017
Downhole Cal Performed:	Mon Jul 28 12:02:56 2008
After Survey Verification Performed:	Mon Jul 28 12:02:56 2008

Surface Calibration

	Readings			References			Results	
Loop:	Air	Loop		Air	Loop		m	b
Deep	-0.014	0.629	V	0.000	400.000	mmho/m	620.000	0.000
Medium	0.039	0.728	V	0.000	464.000	mmho/m	675.000	-44.000
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: 002 Model: PRB

Master Calibration

Performed Mon Aug 21 11:27:42 2017

	Background	Magnesium	Aluminum	Sandstone	
Window 1	837.1	10632.5	2945.1	12110.1	cps
Window 2	772.0	9117.4	2570.1	10197.3	cps
Window 3	631.7	4669.0	1481.9	5042.9	cps
Window 4	187.0	187.5	185.9	189.9	cps
Long Space	0.0	8345.4	1798.1	9425.3	cps
Short Space	1.1	1927.9	1285.9	2050.2	cps
Rho		1.7100	2.5960	1.3800	g/cc
Pe		0.0000	2.5700	1.5500	

Rib Angle	: 45.2	Rib Slope	: 1.008	Density/Spine Ratio	: 0.558
Spine Angle	: 75.2	Spine Slope	: 3.790	Spine Intercept	: -19.6

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: Wed May 31 00:09:32 2017

Calibrator Value:	1.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	1.0	cps
Sensitivity:	0.2800	GAPI/cps