



**COMPLETION
& PRODUCTION
SERVICES CO.**

**COMPENSATED
DENSITY / NEUTRON
LOG**

Company BLACK DIAMOND OIL, INC.
Well LOGAN NW #1
Field WILDCAT
County NORTON State KANSAS

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Location: API #: 15-137-20725-00-00
2310' FSL & 1600' FEL
E2 - NE - NW - SE
SEC 24 TWP 3S RGE 21W
Permanent Datum GROUND LEVEL Elevation 2196
Log Measured From KELLY BUSHING 5' A.G.L.
Drilling Measured From KELLY BUSHING
Other Services
DILMEL
Elevation
K.B. 2201
D.F. 2199
G.L. 2196

Date	12/8/14		
Run Number	ONE		
Depth Driller	3770		
Depth Logger	3769		
Bottom Logged Interval	3745		
Top Log Interval	3000		
Casing Driller	8 5/8 @ 220'		
Casing Logger	218'		
Bit Size	7.875		
Type Fluid in Hole	CHEMICAL MUD		
Density / Viscosity	9.3/5.1	CHLORIDES 500 PPM	
pH / Fluid Loss	10.0/7.6		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	1.80 @ 41F		
Rmf @ Meas. Temp	1.35 @ 41F		
Rmc @ Meas. Temp	2.16 @ 41F		
Source of Rmf / Rmc	MEASURED		
Rm @ BHT	0.66 @ 114F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	114F		
Equipment Number	3802		
Location	HAYS, KS.		
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

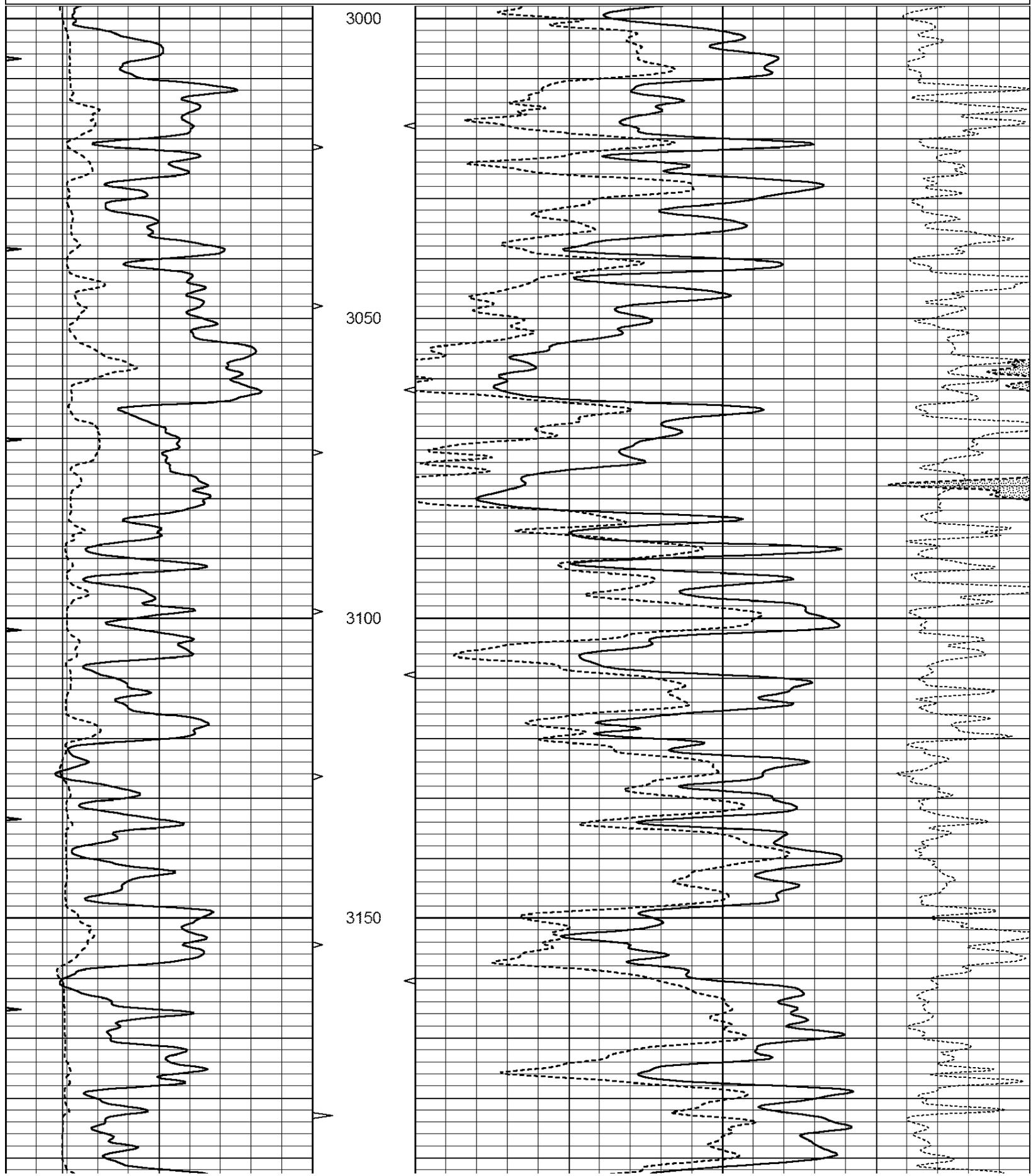
NABORS COMPLETION & PRODUCTION SERVICES CO.

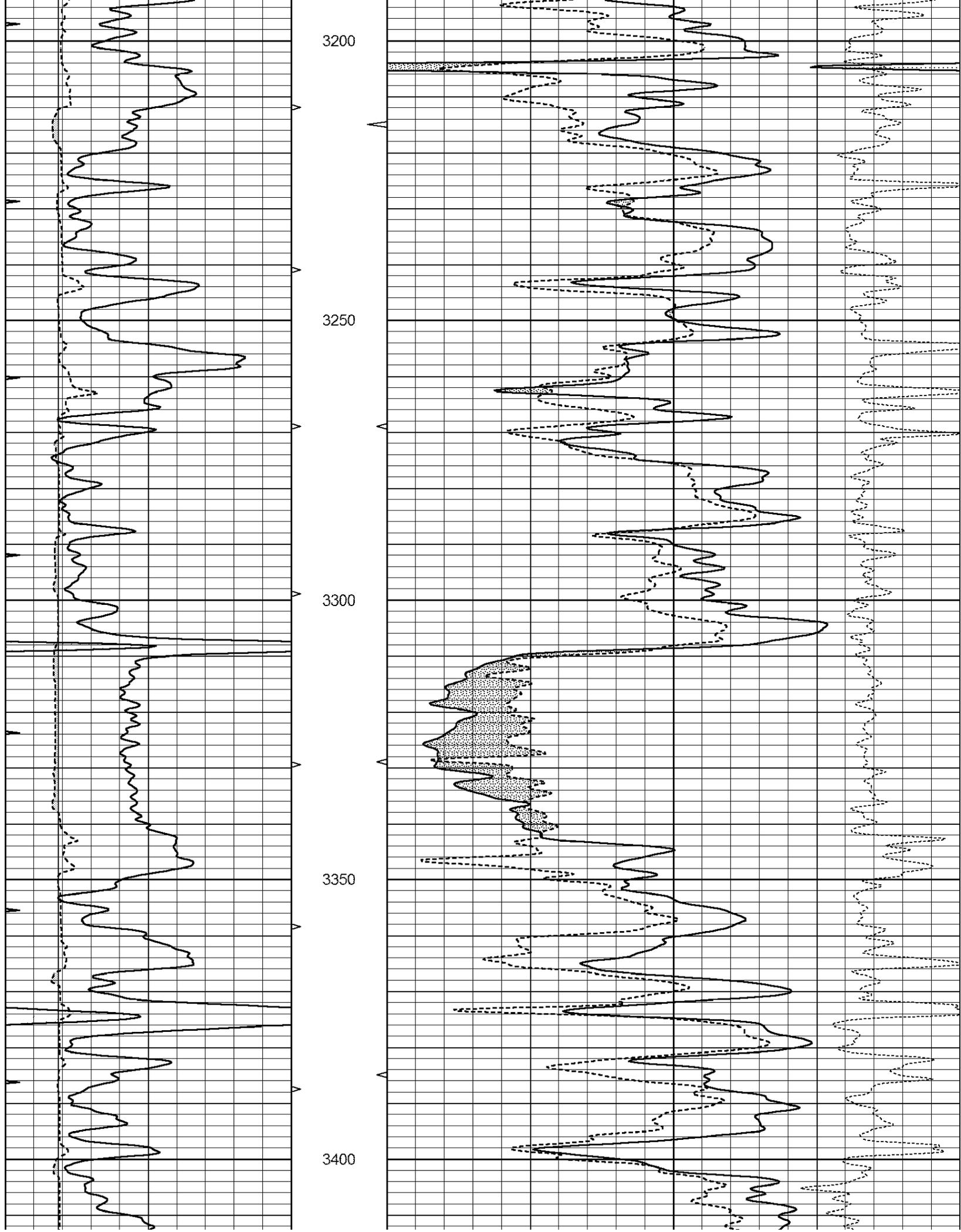
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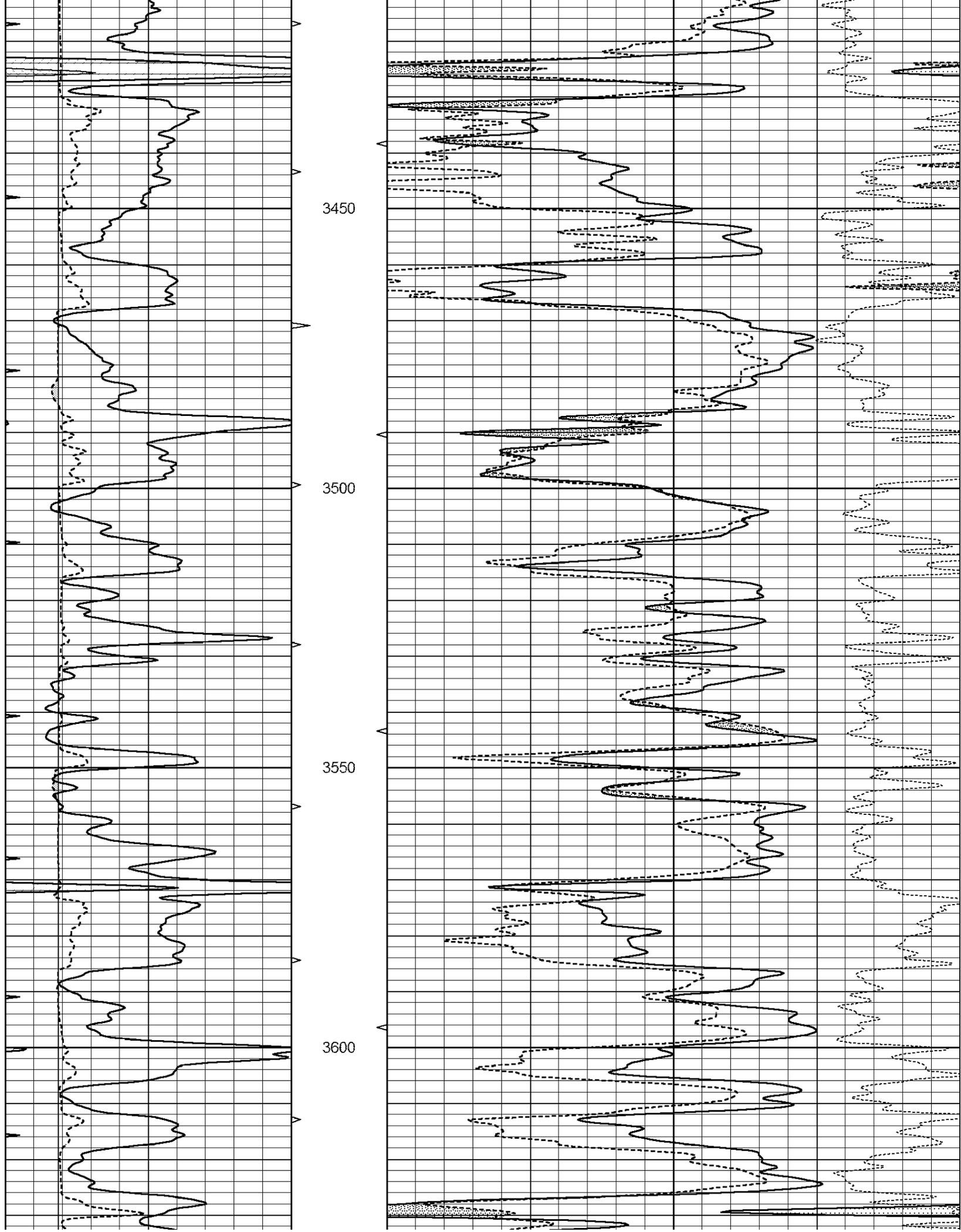
THANK YOU FOR YOUR BUSINESS

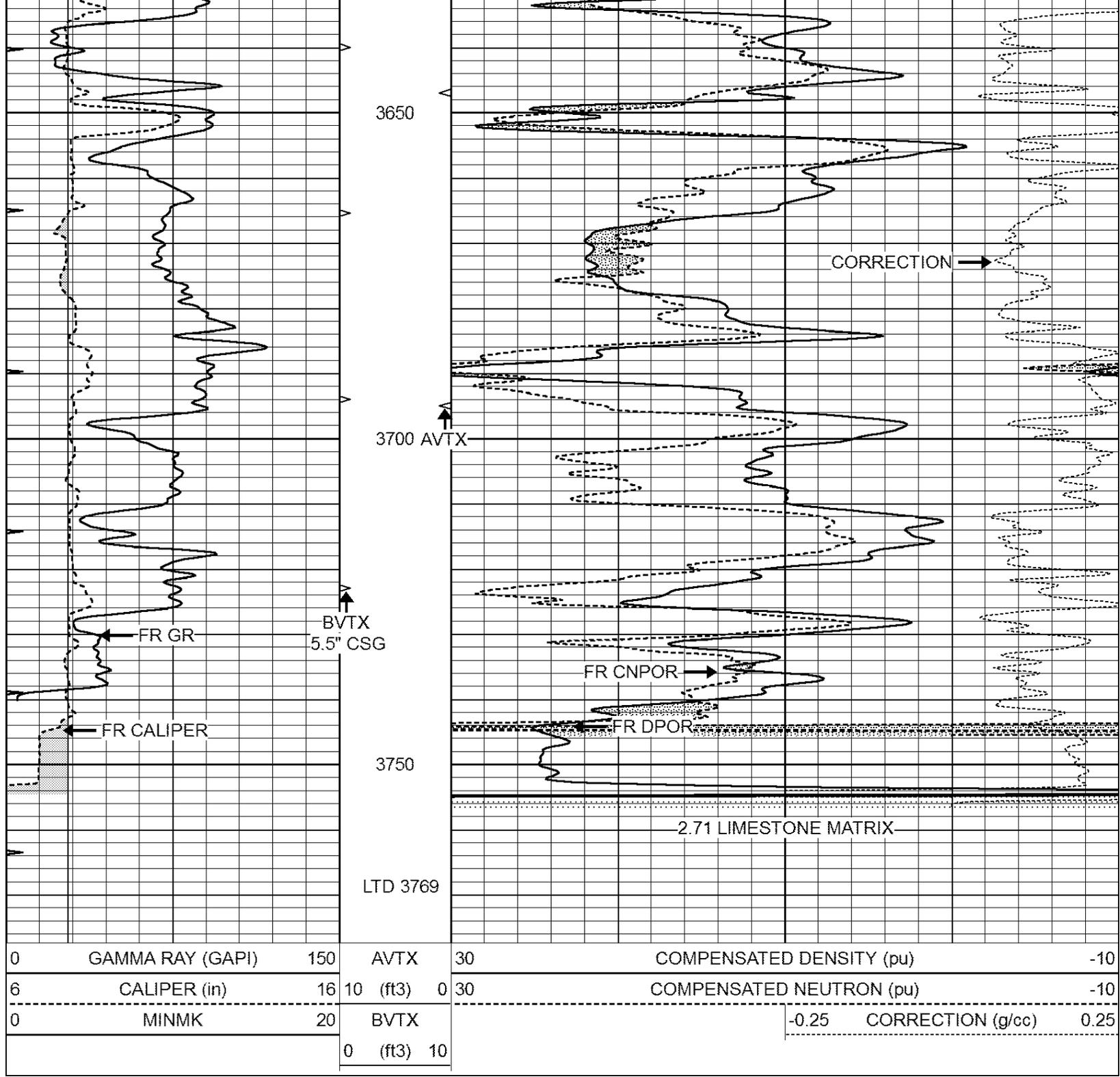
DIRECTIONS : PHILLIPSBURG, KS. - WEST TO THE NORTON CO. LINE - SOUTH 3 1/2 MILES - WEST INTO

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









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



REPEAT SECTION

Database File: 26270ddn.db
 Dataset Pathname: pass3.1
 Presentation Format: _den_neu
 Dataset Creation: Mon Dec 08 04:02:32 2014 by Calc Open-Cased 090629
 Charted by: Depth in Feet scaled 1:240

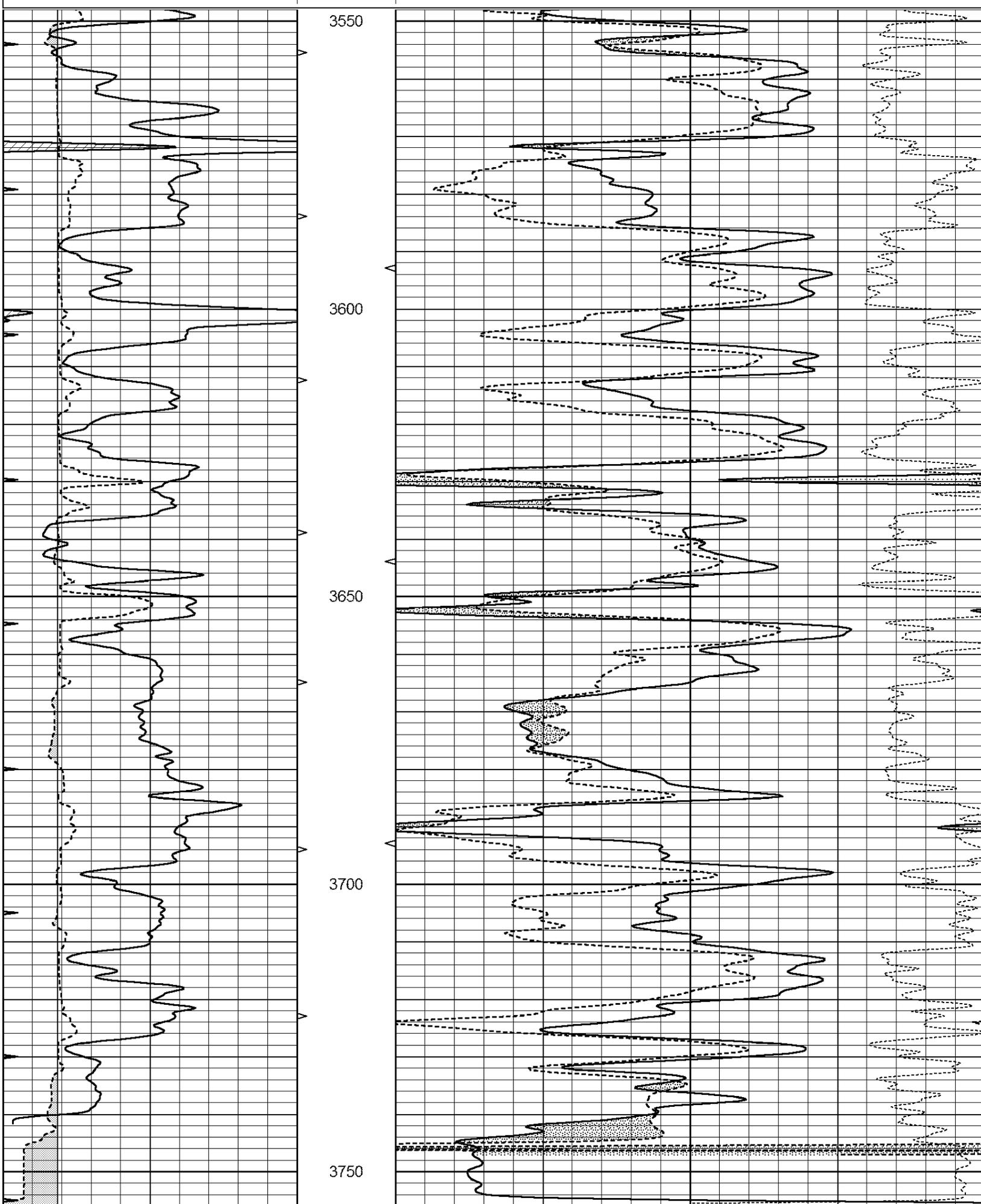
0	GAMMA RAY (GAPI)	150	AVTX	30	COMPENSATED DENSITY (pu)	-10
6	CALIPER (in)	16	10 (ft3)	0 30	COMPENSATED NEUTRON (pu)	-10

0 MINMK 20

BVTX

-0.25 CORRECTION (g/cc) 0.25

0 (ft3) 10



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

Calibration Report

Database File: 26270ddn.db
 Dataset Pathname: pass4.2
 Dataset Creation: Mon Dec 08 04:34:42 2014 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model: PROBE7-DILG
 Surface Cal Performed: Fri Dec 05 11:16:41 2014
 Downhole Cal Performed: Sat Jan 19 19:51:38 2013
 After Survey Verification Performed: Sat Jan 19 19:51:38 2013

Surface Calibration

Loop:	Readings			V	References			Results	
	Air	Loop			Air	Loop		m	b
Deep	0.793	0.790			0.000	400.000	mmho/m	520.000	12.000
Medium	0.992	1.002			0.000	464.000	mmho/m	570.000	-32.000
Internal:	Zero	Cal			Zero	Cal		m	b
Deep	0.041	0.642			0.000	400.000	mmho/m	664.874	-27.011
Medium	0.035	0.802			0.000	464.000	mmho/m	604.936	-21.367

Downhole Calibration

	Readings			mmho/m	References			Results	
	Zero	Cal			Zero	Cal		m'	b'
Deep	135384.000	27094.500			135400.000	27082.400	mmho/m	1.000	-19.259
Medium	-47330.100	-9381.740			-47327.100	-9389.280	mmho/m	1.000	-10.154
LL3		7.322				1400.000	Ohm-m		
		0.038				20.000	Ohm-m		
		-7.273				4000.000	mmho-m		

After Survey Verification

	Readings			mmho/m	Targets			Results	
	Zero	Cal			Zero	Cal		m'	b'
Deep	0.000	0.000			135384.000	27094.500	mmho/m	1.000	0.000
Medium	0.000	0.000			-47330.100	-9381.740	mmho/m	1.000	0.000
LL3		0.000				1400.000	Ohm-m		
		0.000				20.000	Ohm-m		
		0.000				4000.000	mmho-m		

Compensated Density Calibration Report

Serial-Model: GEAR5-GEARHART
 Source / Verifier: 147 / 147
 Master Calibration Performed: Sat Nov 29 00:24:07 2014
 Before Survey Verification Performed:
 After Survey Verification Performed:

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	848.07	511.00	cps
Aluminum	2.610	g/cc	183.22	341.84	cps
Spine Angle = 75.30			Density/Spine Ratio = 0.568		
	Size		Reading		
Small Ring	8.20	in	1.64	V	
Large Ring	14.00	in	2.93	V	

Before Survey Verification

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

After Survey Verification

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

Compensated Neutron Calibration Report

Serial Number: 080620
 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: 46001
 Tool Model: Probe1
 Performed: Mon Nov 24 09:45:18 2014

Calibrator Value: 1.0 GAPI

Background Reading: 0.0 cps
 Calibrator Reading: 1.0 cps

Sensitivity: 0.2600 GAPI/cps