NABORS COMPLETION & PRODUCTION SERVICES CO.

COMPENSATED DENSITY/NEUTRON LOG

Company	DEUTSCH OIL COMPANY
Well	BATMAN-MORRISON #1
Field	HAZEL
County	STAFFORD
State	KANSAS

Company DEUTSCH OIL COMPANY
Well BATMAN-MORRISON #1
Field HAZEL
County STAFFORD State KANSAS
Location: API # : 15-185-23855-0000
1430' FNL & 1197' FEL
SEC 28 TWP 21S RGE 13W
Permanent Datum GROUND LEVEL Elevation 1885
Log Measured From KELLY BUSHING 8' A.G.L.
Drilling Measured From KELLY BUSHING

Other Services: DIL/MEL

Elevation: K.B. 1893, D.F. 1891, G.L. 1885

Date	2/8/14		
Run Number	ONE		
Depth Driller	3800		
Depth Logger	3800		
Bottom Logged Interval	3776		
Top Log Interval	3200		
Casing Driller	8 5/8" @ 348'		
Casing Logger	346'		
Bit Size	7 7/8"		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 10,200 PPM	
Density / Viscosity	9.1 / 47		
pH / Fluid Loss	10.0 / 10.8		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.70 @ 42F		
Rmf @ Meas. Temp	0.53 @ 42F		
Rmc @ Meas. Temp	0.84 @ 42F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	0.28 @ 114F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	114F		
Equipment Number	4010		
Location	HAYS, KANSAS		
Recorded By	JEFF GRONEWEG		
Witnessed By	ELDON SCHIERLING		

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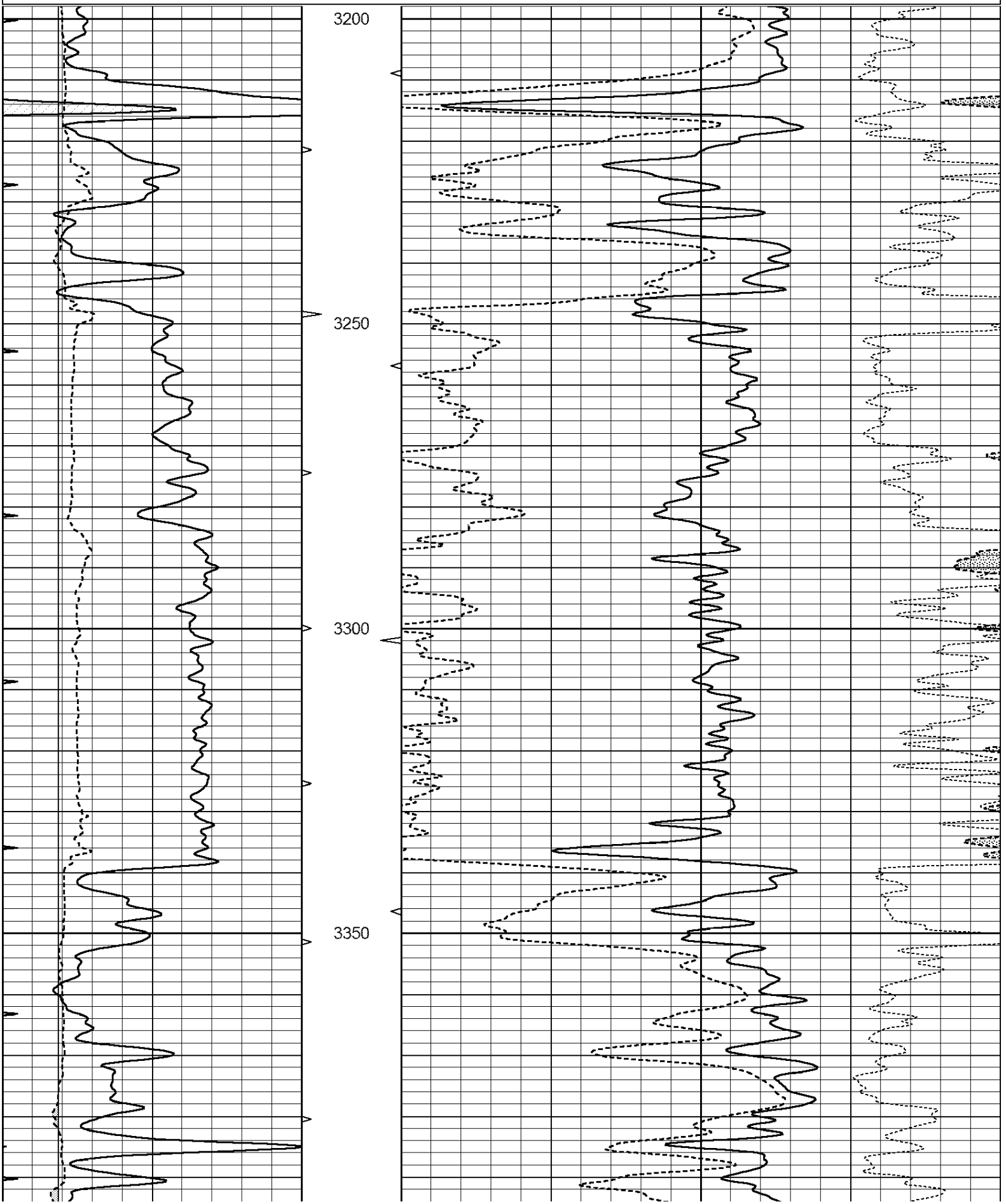
Comments

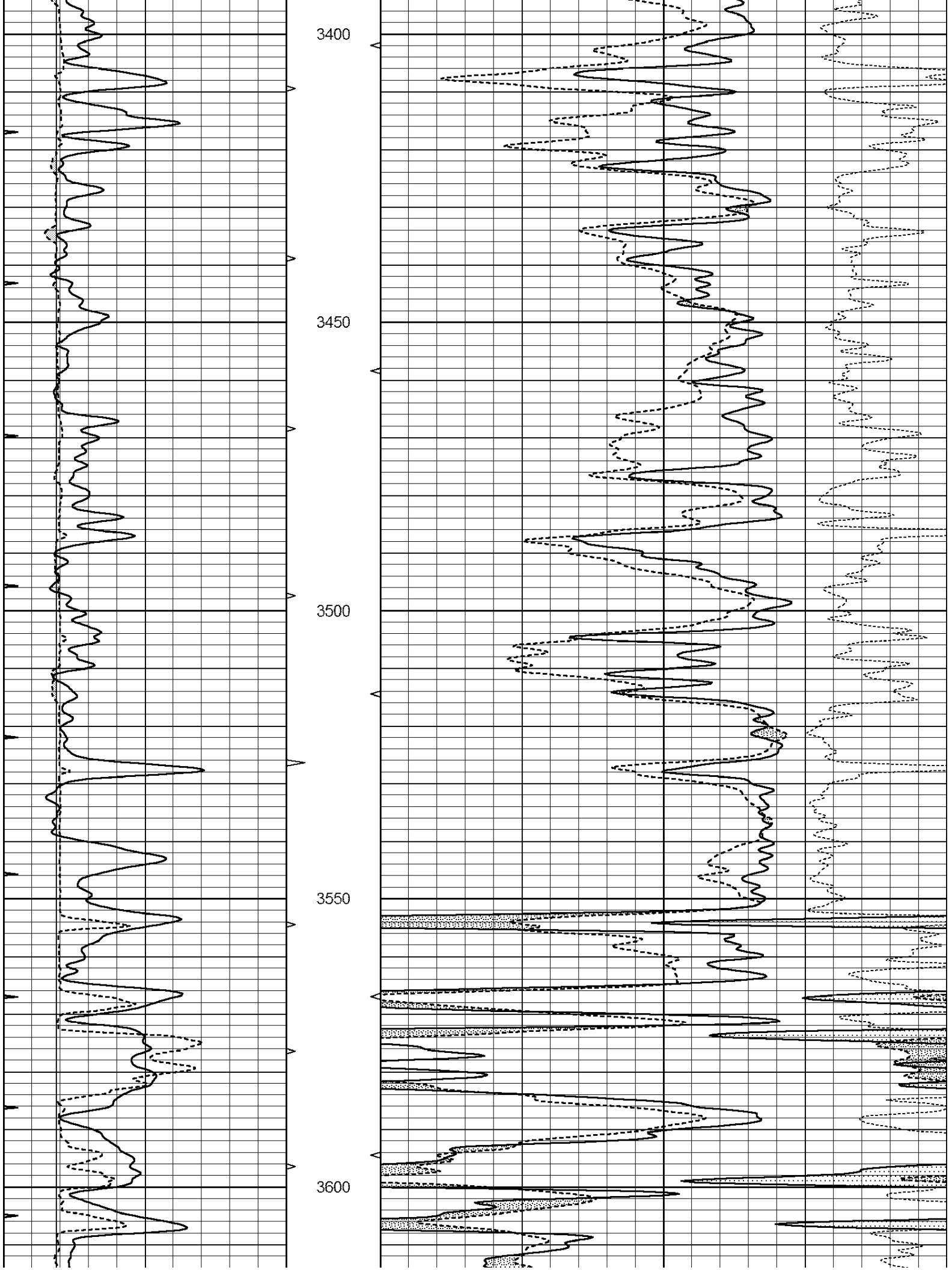
THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
DIRECTIONS:
GREAT BEND, KS - 11 MILES SOUTH TO NE 170TH RD - 1/4 MILE WEST
SOUTH INTO

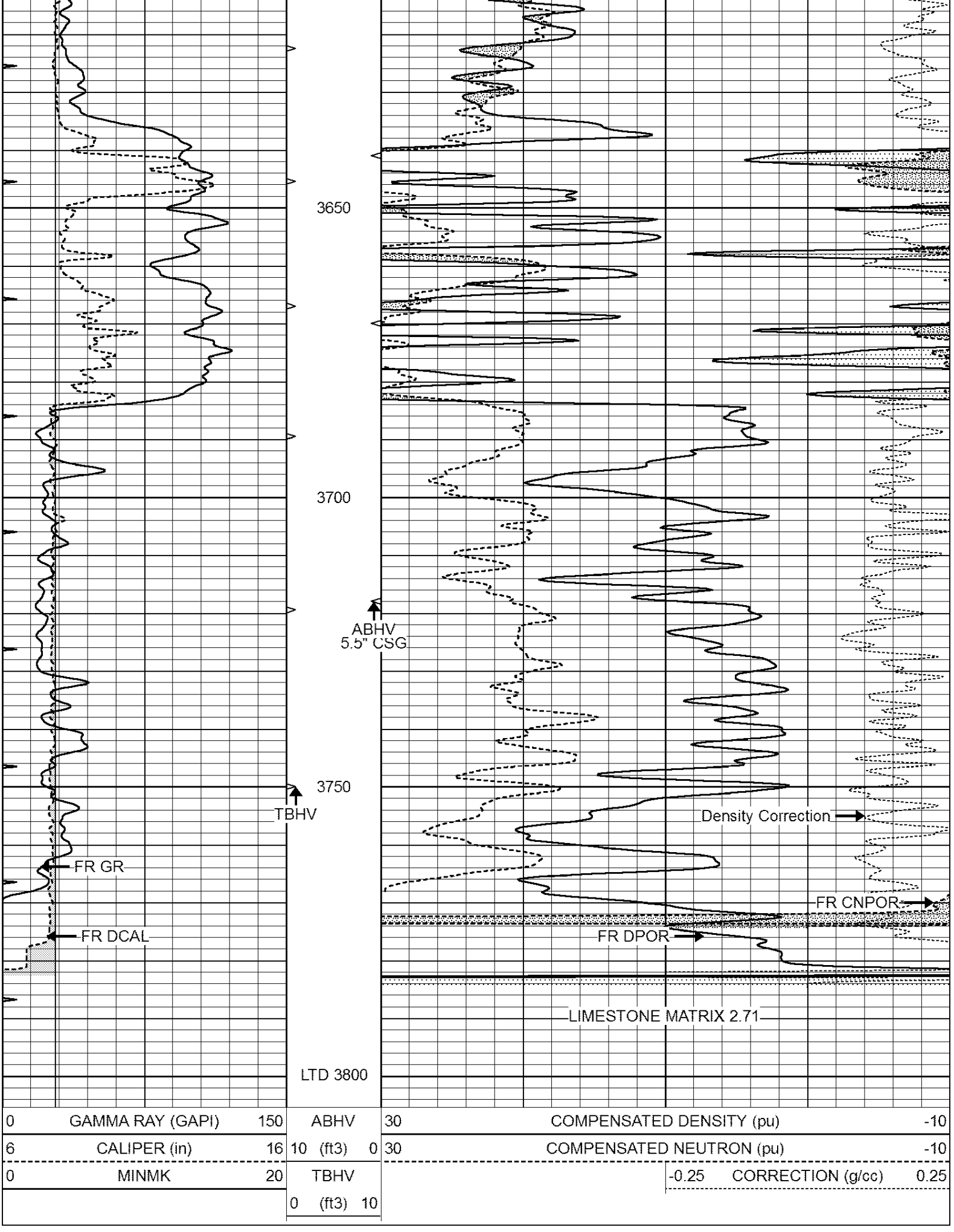
Database File:	23889ddn.db
Dataset Pathname:	pass3.2
Presentation Format:	den_neu
Dataset Creation:	Sat Feb 08 11:36:02 2014 by Calc Open-Cased 090629
Charted by:	Depth in Feet scaled 1:240

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		




3400
3450
3500
3550
3600

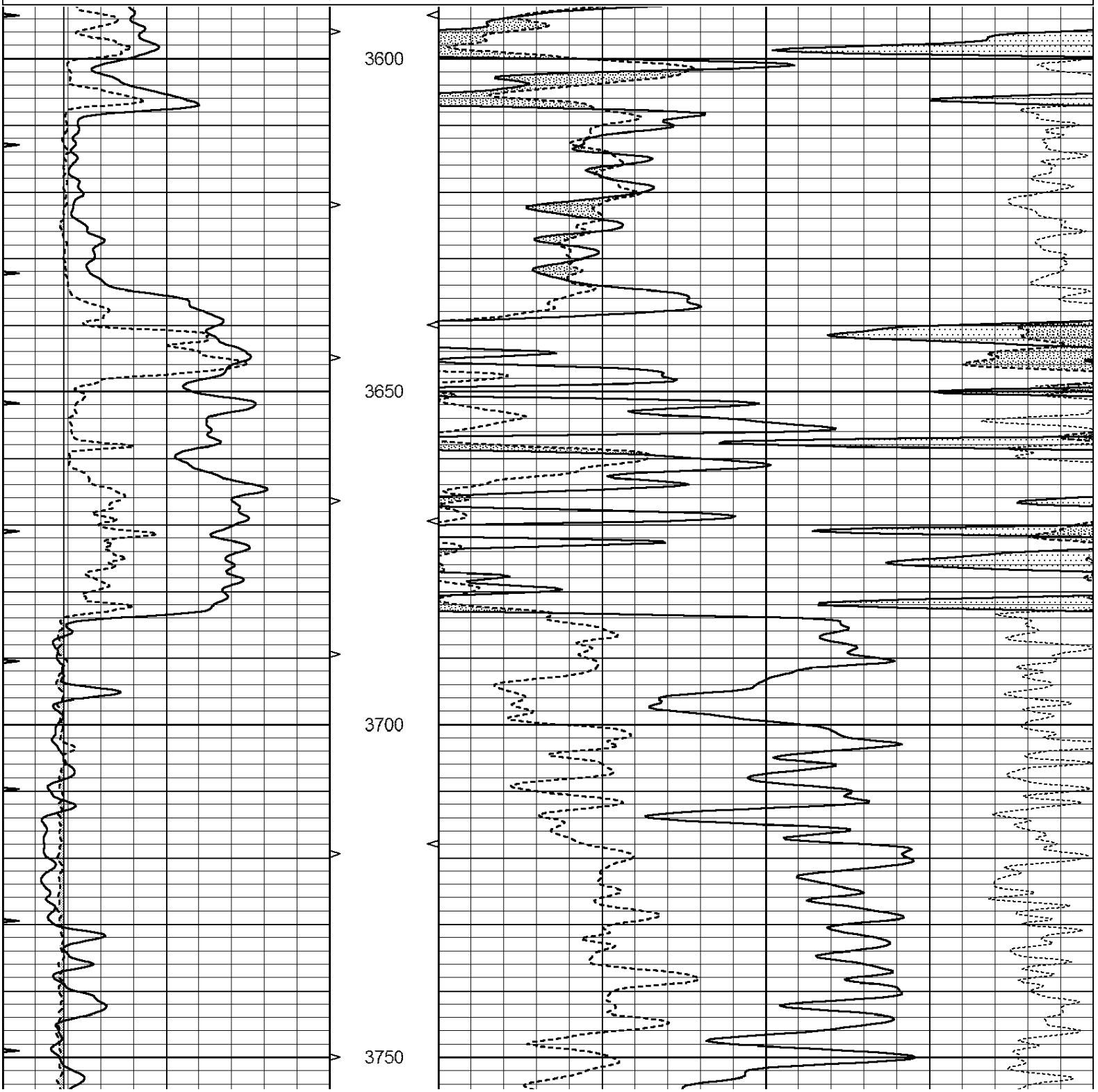

3650
3700
3750
ABHV
5.5" CSG
TBHV
FR GR
FR DCAL
Density Correction
FR CNPOR
FR DPOR
LIMESTONE MATRIX 2.71
LTD 3800
0 GAMMA RAY (GAPI) 150
6 CALIPER (in) 16
0 MINMK 20
ABHV
10 (ft3) 0
TBHV
0 (ft3) 10
30 COMPENSATED DENSITY (pu) -10
30 COMPENSATED NEUTRON (pu) -10
-0.25 CORRECTION (g/cc) 0.25

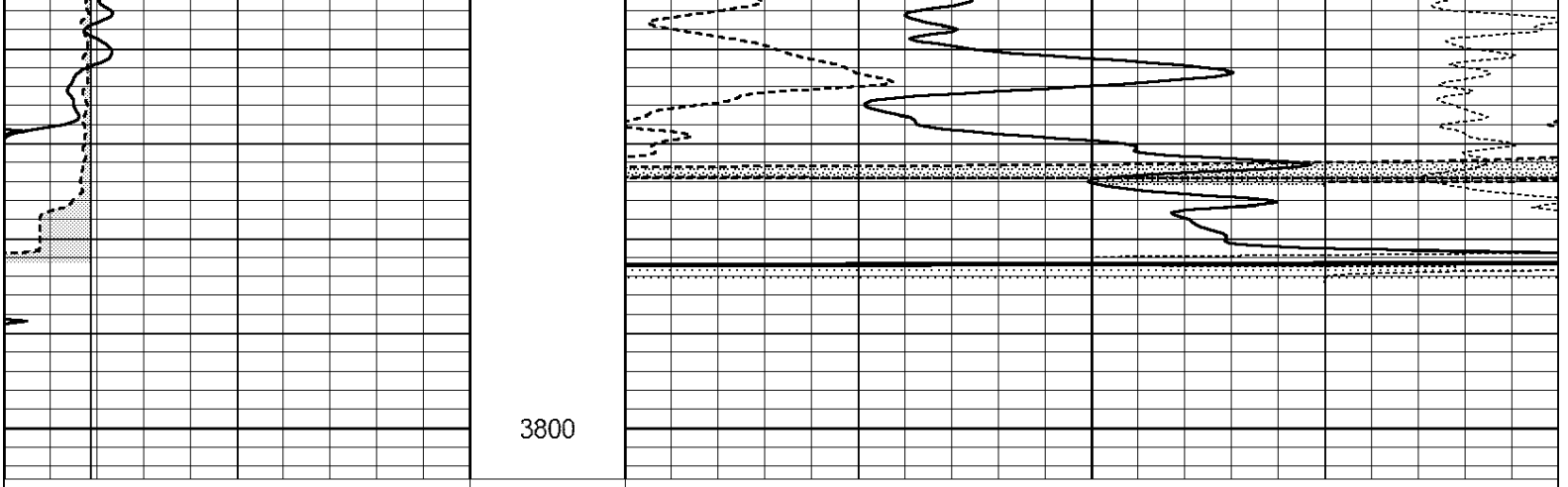
NABORS
COMPLETION & PRODUCTION SERVICES CO.

REPEAT SECTION

Database File: 23889ddn.db
Dataset Pathname: pass2.2
Presentation Format: den_neu
Dataset Creation: Sat Feb 08 11:40:45 2014 by Calc Open-Cased 090629
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	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: 23889ddn.db
Dataset Pathname: pass3.2
Dataset Creation: Sat Feb 08 11:36:02 2014 by Calc Open-Cased 090629

Dual Induction Calibration Report

Serial-Model:	PROBE8-DILG
Surface Cal Performed:	Fri Aug 01 06:33:19 2008
Downhole Cal Performed:	Mon Jul 28 11:08:27 2008
After Survey Verification Performed:	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:	GEAR4-GEARHART
Source / Verifier:	143 / 143
Master Calibration Performed:	Wed Sep 18 03:03:09 2013
Before Survey Verification Performed:	
After Survey Verification Performed:	

Master Calibration

	Density		Far Detector	Near Detector	
Magnesium	1.710	g/cc	1075.98	532.39	cps
Aluminum	2.560	g/cc	286.51	422.88	cps

Spine Angle = 80.13 Density/Spine Ratio = 0.633

	Size		Reading	
Small Ring	8.00	in	3.21	V
Large Ring	14.00	in	5.46	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:	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		

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:	GR6	
Tool Model:	OPEN	
Performed:	Fri Nov 29 08:34:37 2013	
Calibrator Value:	150.0	GAPI
Background Reading:	0.0	cps
Calibrator Reading:	276.0	cps
Sensitivity:	0.6035	GAPI/cps