



**COMPLETION
& PRODUCTION
SERVICES CO.**

**COMPENSATED
DENSITY/NEUTRON
LOG**

Company DOWNING NELSON OIL CO., INC.
Well CMKL #18
Field ERNST NORTHWEST
County GRAHAM
State KANSAS

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Location: API # : 15-065-24000-00-00
560' FSL & 2100' FEL
NE - SW - SW - SE
SEC 18 TWP 9S RGE 23W
Permanent Datum GROUND LEVEL Elevation 2414
Log Measured From KELLY BUSHING & A.G.L.
Drilling Measured From KELLY BUSHING
Other Services DIL/MEL
Elevation K.B. 2422
D.F. 2420
G.L. 2414

Date	1-16-14
Run Number	ONE
Depth Driller	4025
Depth Logger	4024
Bottom Logged Interval	4000
Top Log Interval	3400
Casing Driller	8 5/8" @ 219
Casing Logger	218
Bit Size	7 7/8"
Type Fluid in Hole	CHEMICAL MUD
Density / Viscosity	9.2/55
pH / Fluid Loss	10.0/8.0
Source of Sample	FLOWLINE
Rm @ Meas. Temp	1.50 @ 71F
Rmt @ Meas. Temp	1.12 @ 71F
Rmc @ Meas. Temp	1.80 @ 71F
Source of Rmf / Rmc	MEASUREMENT
Rm @ BHT	0.92 @ 116F
Time Circulation Stopped	2 HOURS
Time Logger on Bottom	
Maximum Recorded Temperature	116F
Equipment Number	4010
Location	HAYS, KANSAS
Recorded By	IAN MAAB
Witnessed By	RON NELSON

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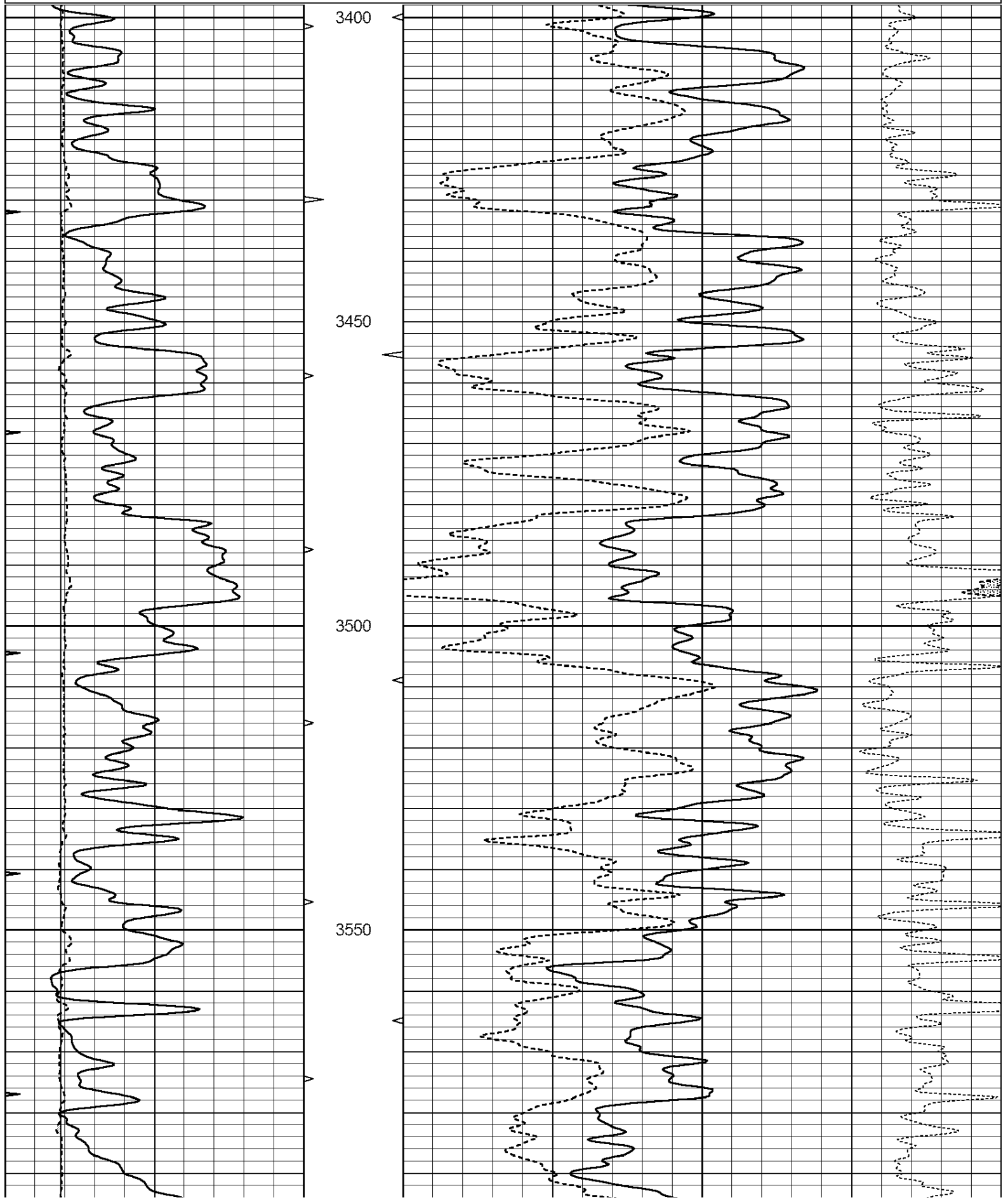
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs,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

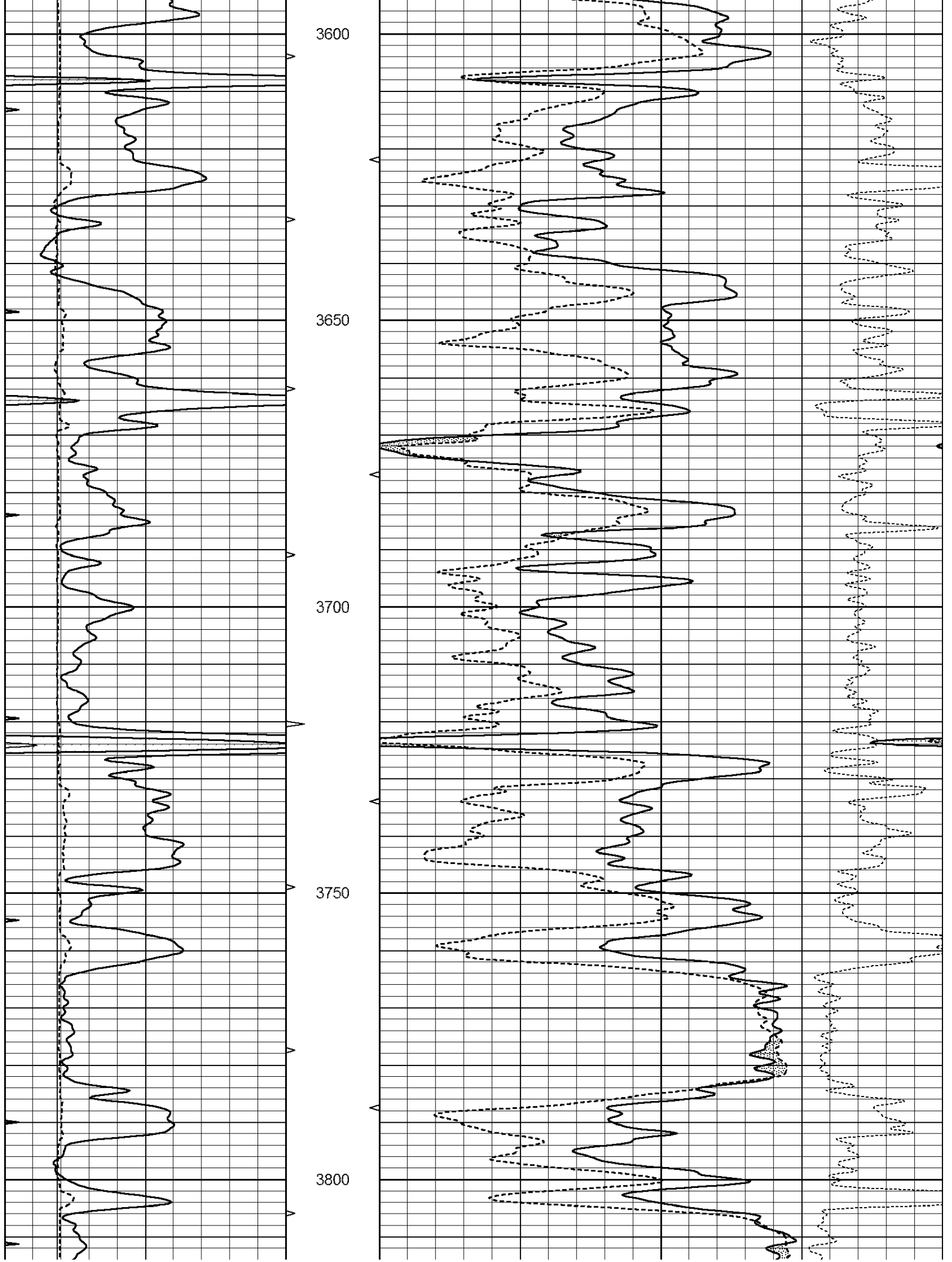
Comments

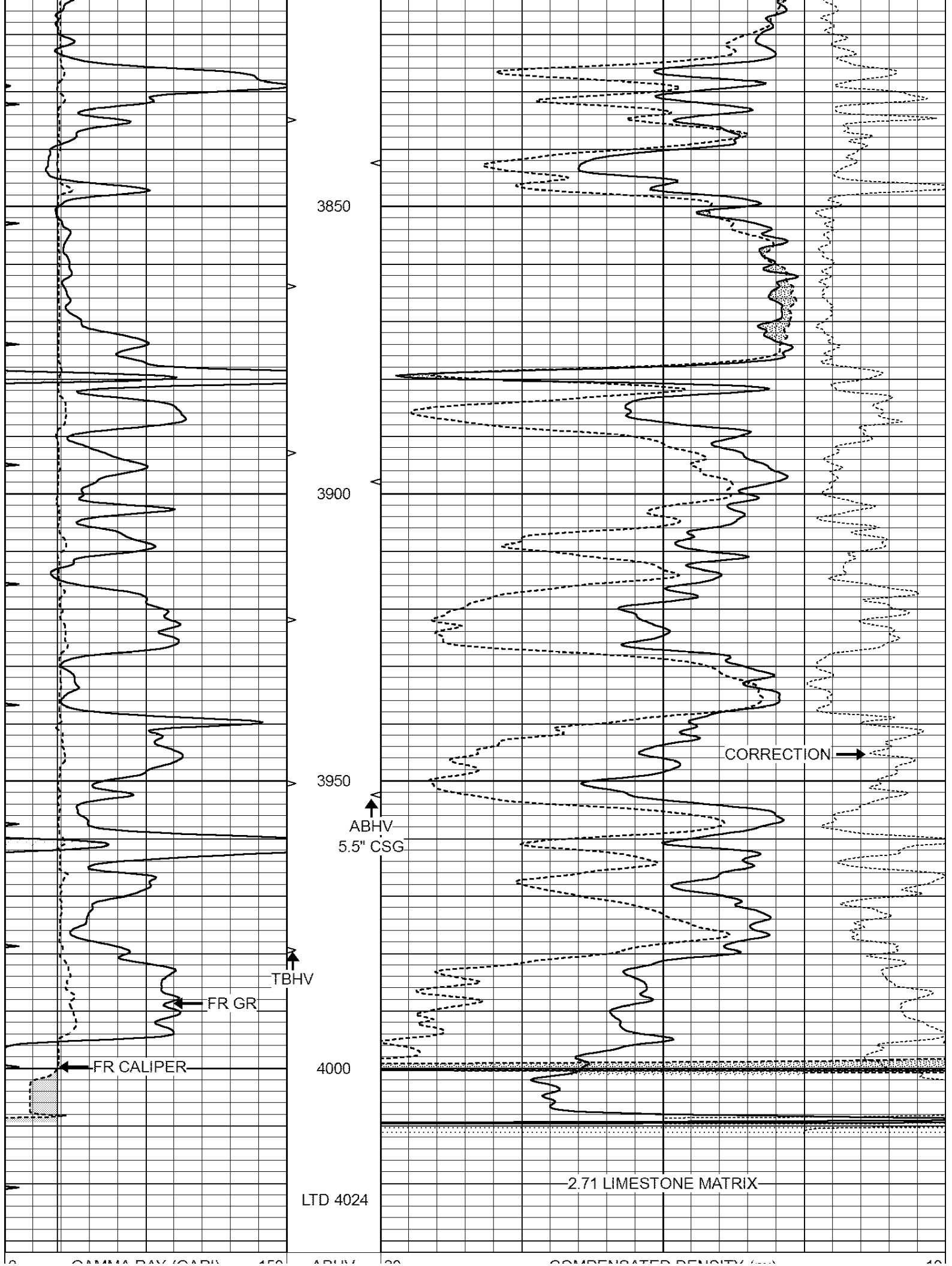
THANK YOU FOR USING NABORS, HAYS, KS. (785) 628-6395
DIRECTIONS:
WAKEENEY, KS. - NORTH TO RD H (RED LINE RD.) - WEST 4 MILES TO RD 220 - NORTH 2 1/4 MILES TO A LEASE RD FOLLOW THE LEASE RD NORTH AND BACK EAST THEN SOUTH

Database File: 23875ddn.db
Dataset Pathname: pass3.2
Presentation Format: den_neu
Dataset Creation: Thu Jan 16 06:32:35 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		







6	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		

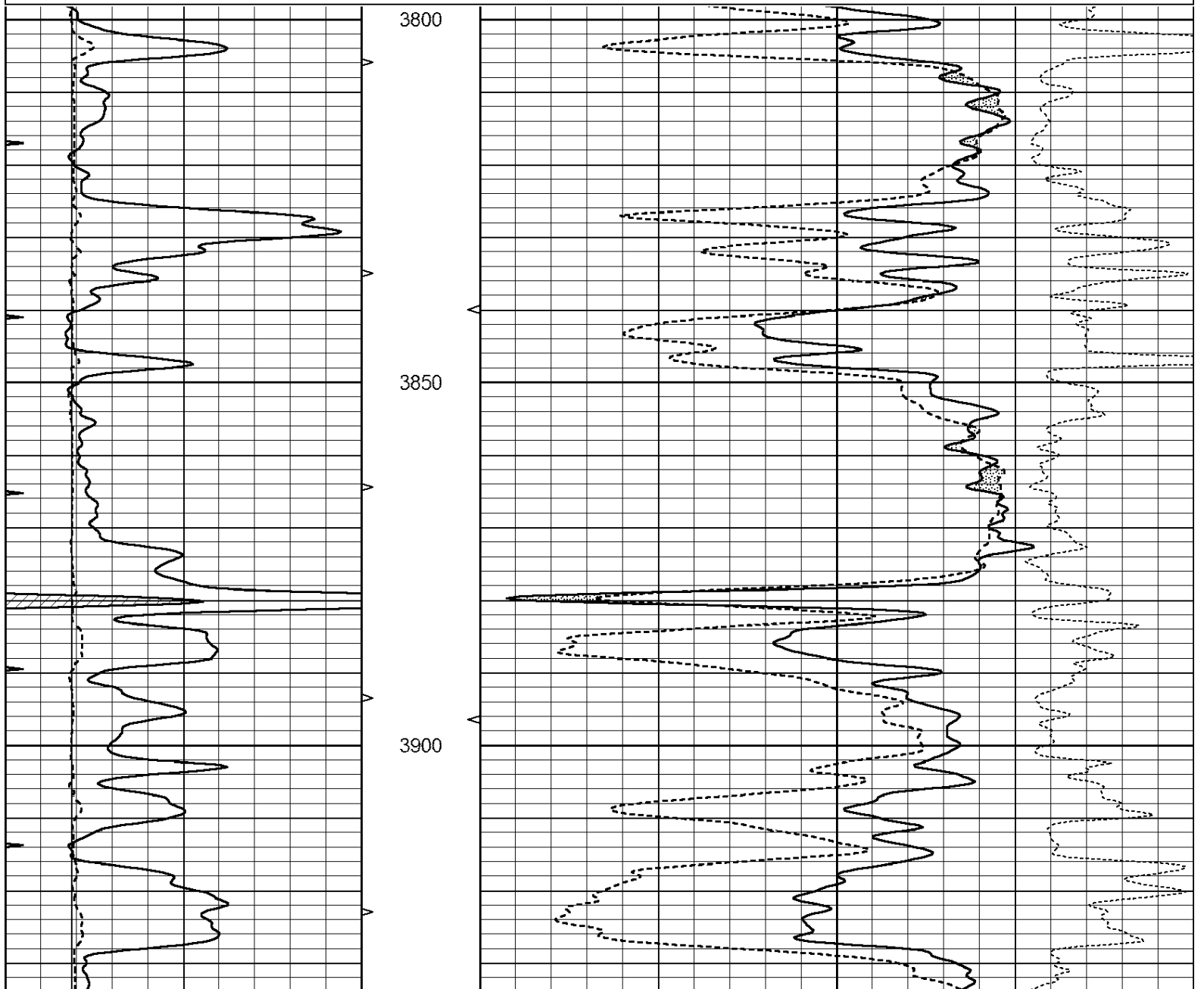


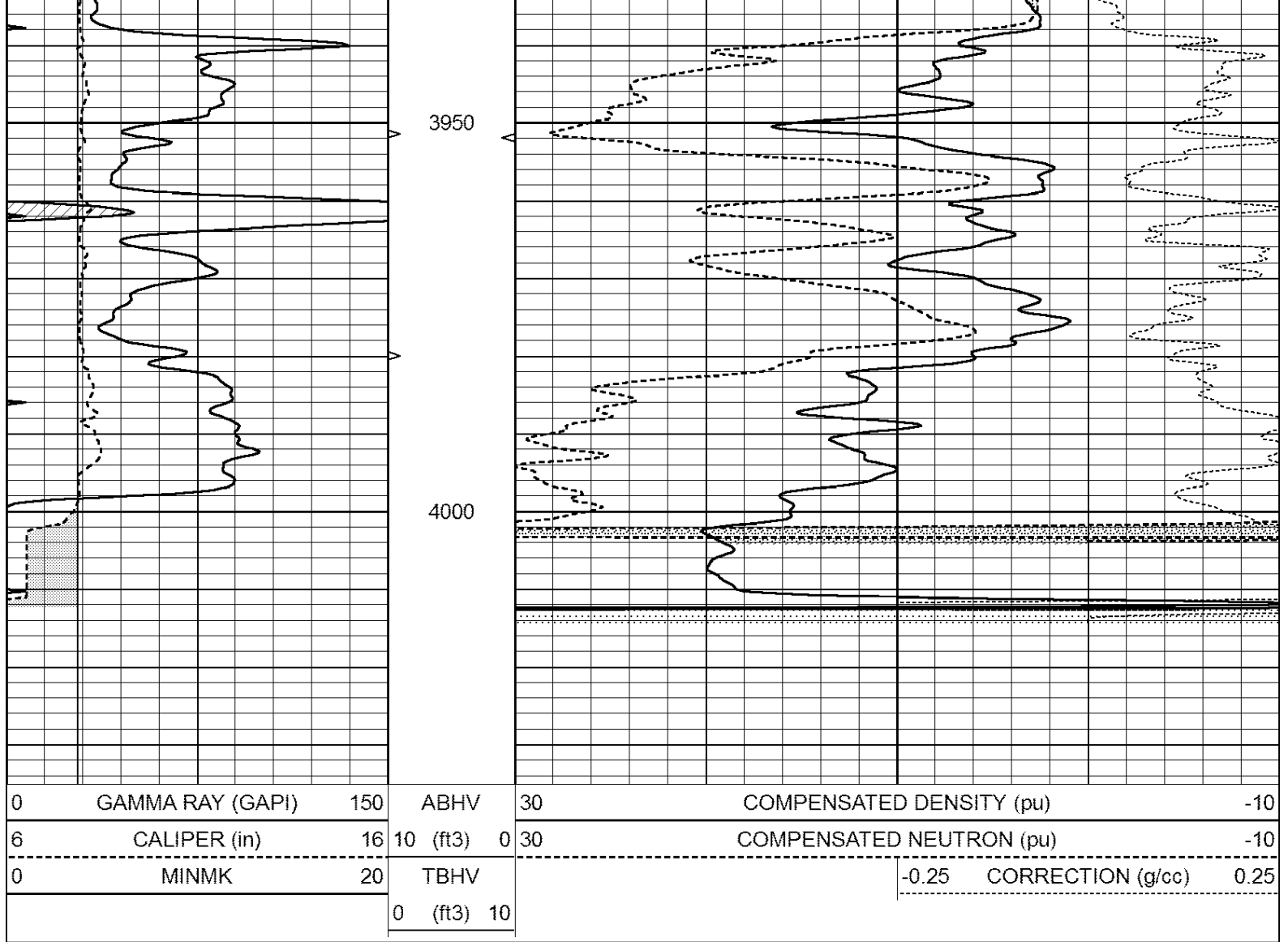
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REPEAT SECTION

Database File: 23875ddn.db
 Dataset Pathname: pass2.5
 Presentation Format: den_neu
 Dataset Creation: Thu Jan 16 05:45:44 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		





Calibration Report

Database File: 23875ddn.db
 Dataset Pathname: pass3.2
 Dataset Creation: Thu Jan 16 06:32:35 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

Loop:	Readings			V	References			Results	
	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			V	Zero			m	
Deep	0.017	0.657			V	0.000	400.000	mmho/m	625.153
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 Long Space	cps cps	pu	pu
2)	Short Space Long Space	cps cps	pu	
3)	Short Space Long Space	cps cps	pu	

POST-SURVEY VERIFICATION

	Detector	Readings	Measured	Target
1)	Short Space Long Space	cps cps	pu	pu
2)	Short Space Long Space	cps cps	pu	pu
3)	Short Space Long Space	cps 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	