



**COMPLETION
& PRODUCTION
SERVICES CO.**

**COMPENSATED
DENSITY/NEUTRON
LOG**

Company	IA OPERATING, INC.	Company	IA OPERATING, INC.
Well	ARCHER #21-2	Well	ARCHER #21-2
Field	STUDLEY WEST	Field	STUDLEY WEST
County	SHERIDAN	County	SHERIDAN
State	KANSAS	State	KANSAS
Location:	API # : 15-179-21407-00-00 NW - NW - SE - NE 1518' FNL & 1076' FEL SEC 21 TWP 8S RGE 26W	Other Services DILMEL SON	
Permanent Datum	GROUND LEVEL Elevation	Elevation	
Log Measured From	KELLY BUSHING 8' A.G.L	K.B. 2421 D.F. 2419 G.L. 2413	
Drilling Measured From	KELLY BUSHING		
Date	7-24-15		
Run Number	ONE		
Depth Driller	3880		
Depth Logger	3880		
Bottom Logged Interval	3856		
Top Log Interval	3250		
Casing Driller	8 5/8 @ 241'		
Casing Logger	240'		
Bit Size	7 7/8		
Type Fluid in Hole	CHEMICAL MUD	CHLORIDES 500 PPM	
Density / Viscosity	9.0/53		
pH / Fluid Loss	11.0/7.2		
Source of Sample	FLOWLINE		
Rm @ Meas. Temp	0.95 @ 94F		
Rmf @ Meas. Temp	0.71 @ 94F		
Rmc @ Meas. Temp	1.14 @ 94F		
Source of Rmf / Rmc	MEASUREMENT		
Rm @ BHT	0.78 @ 115F		
Time Circulation Stopped	2 HOURS		
Time Logger on Bottom			
Maximum Recorded Temperature	115F		
Equipment Number	3802		
Location	HAYS, KANSAS		
Recorded By	IAN MABB		
Witnessed By	JEFF LAWLER		

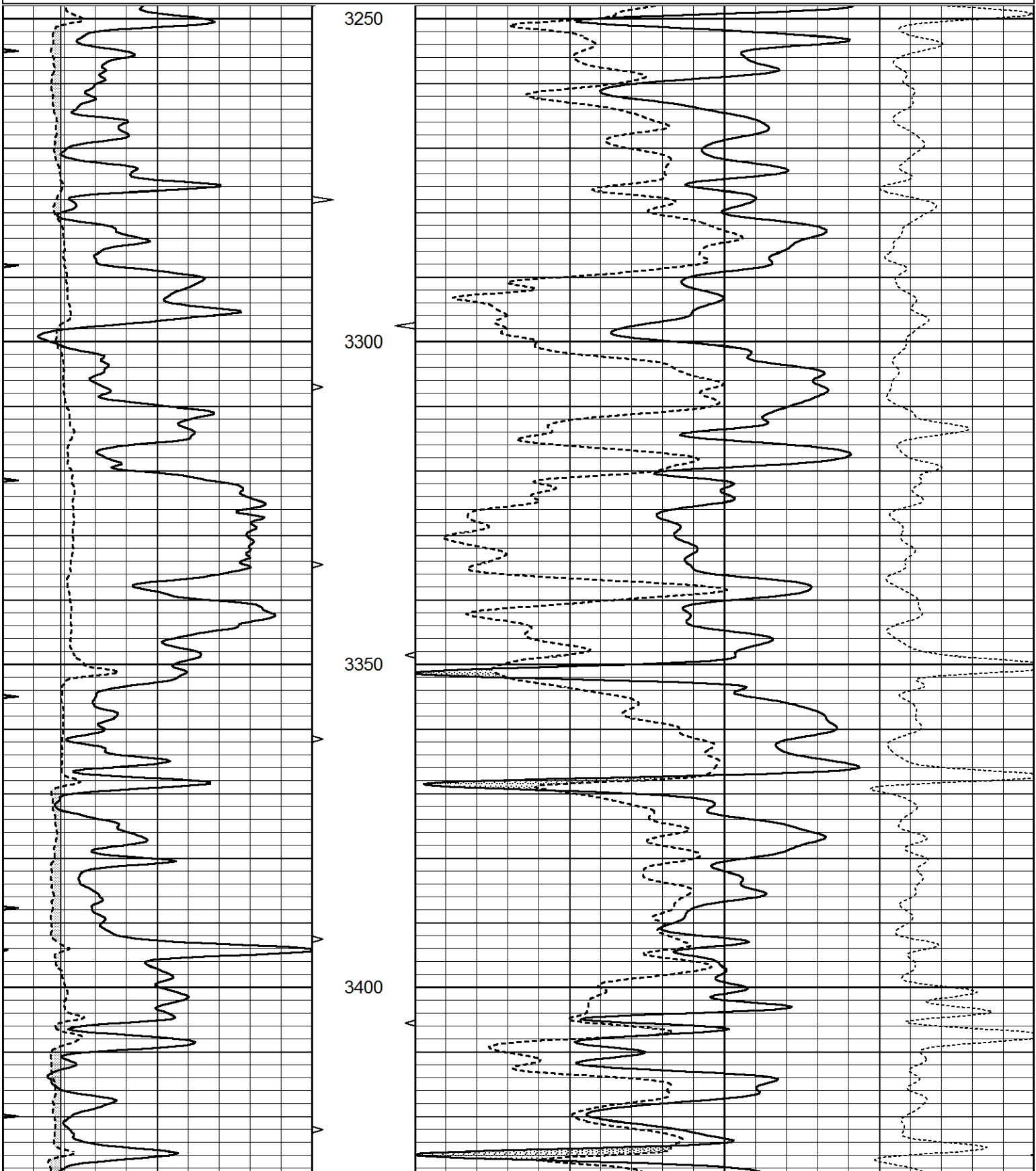
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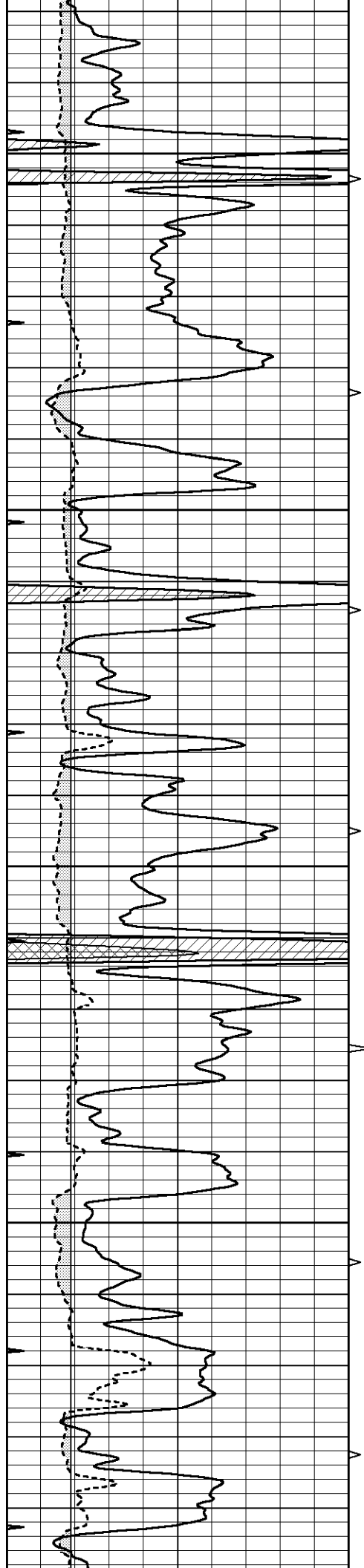
All interpretations are opinions based on inferences from electrical or other measurements and we cannot and do not guarantee the accuracy or correctness of any interpretation, and we shall not, except in the case of gross or willful negligence on our part, be liable or responsible for any loss, costs, 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, KS. (785) 628-6395
DIRECTIONS : STUDLEY, KS. - WEST TO 90 E - SOUTH 1/4 MILE FOLLOW EAST - AT THE FORK
VEER LEFT AND FOLLOW THROUGH THE CATTLE GUARD - KEEP VEERING LEFT FOR ABOUT 2
MILES TO THE RIG

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			



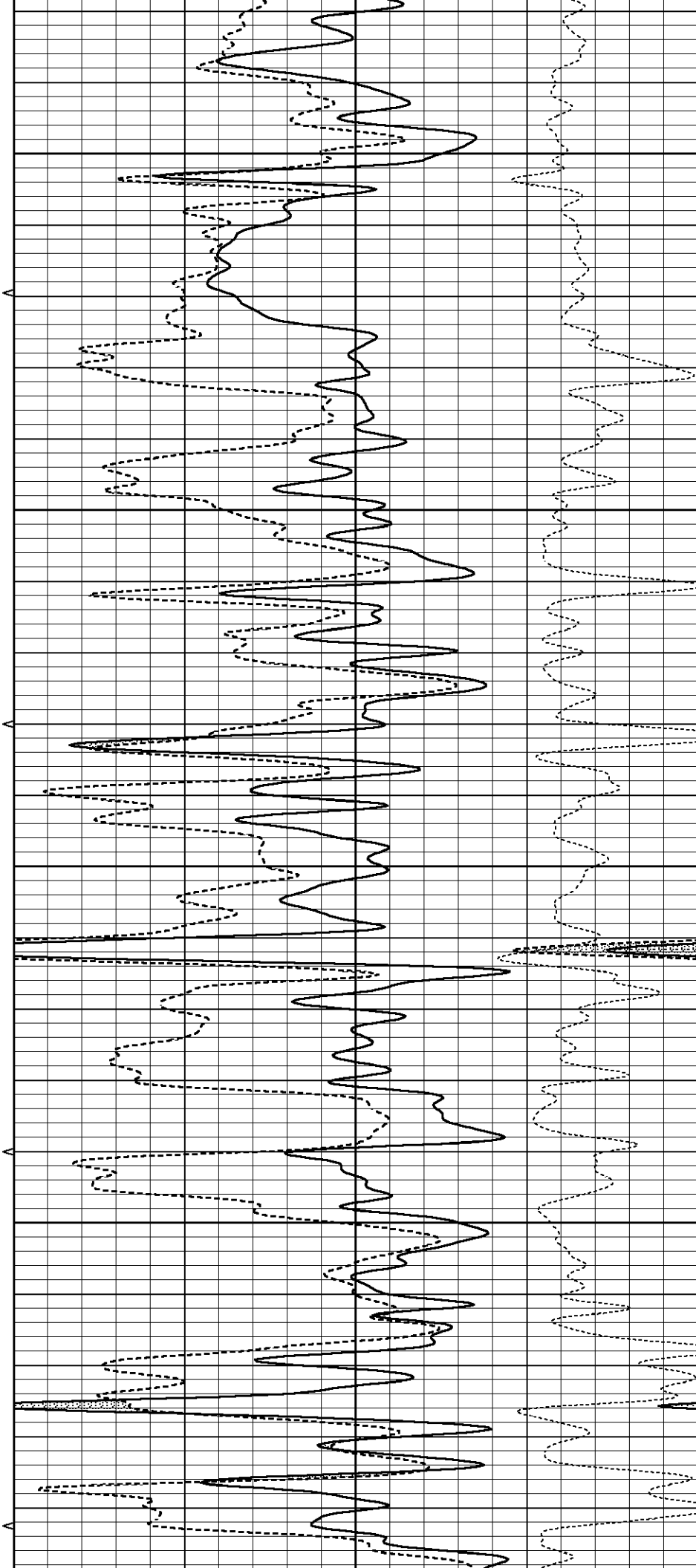


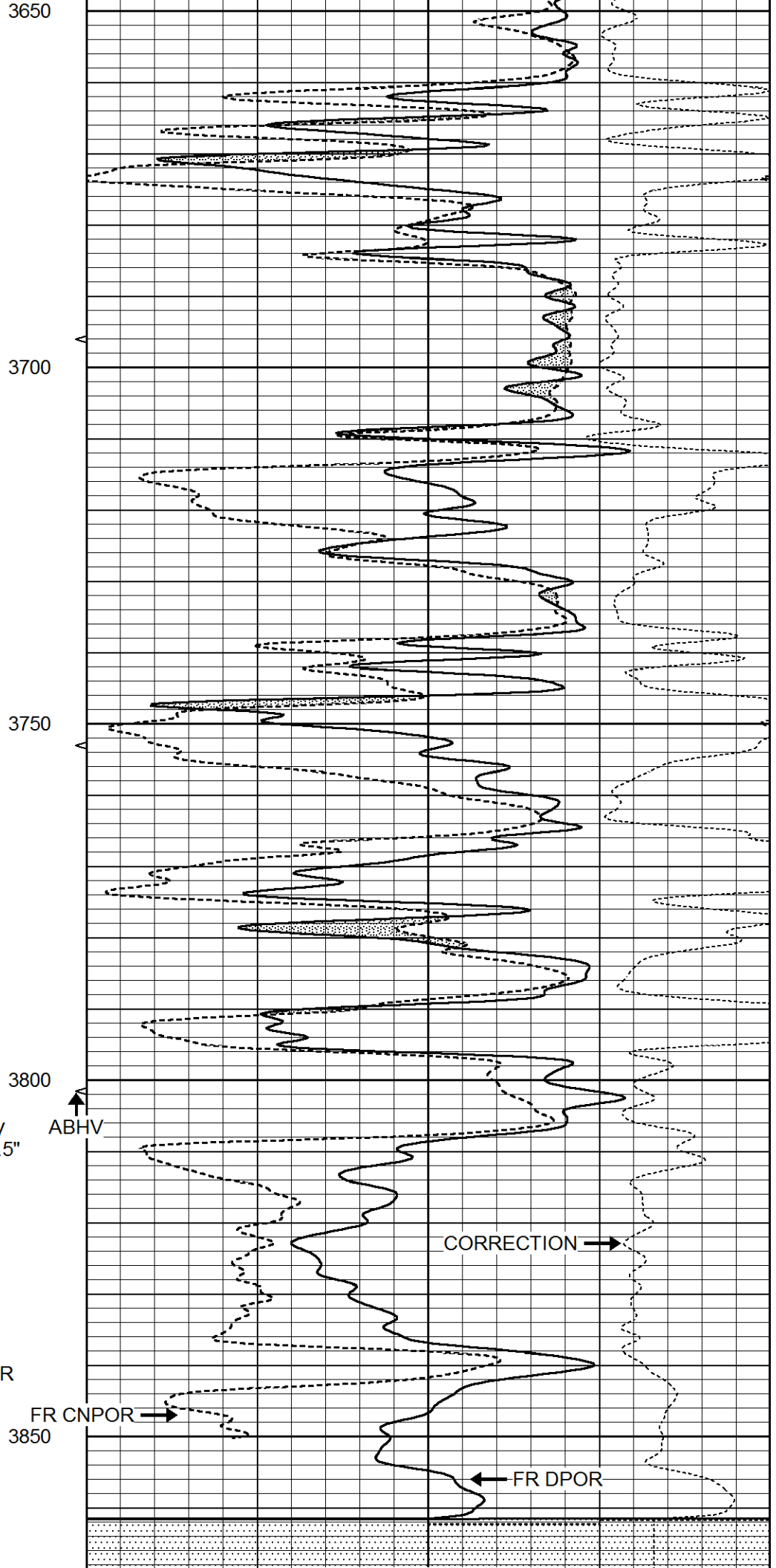
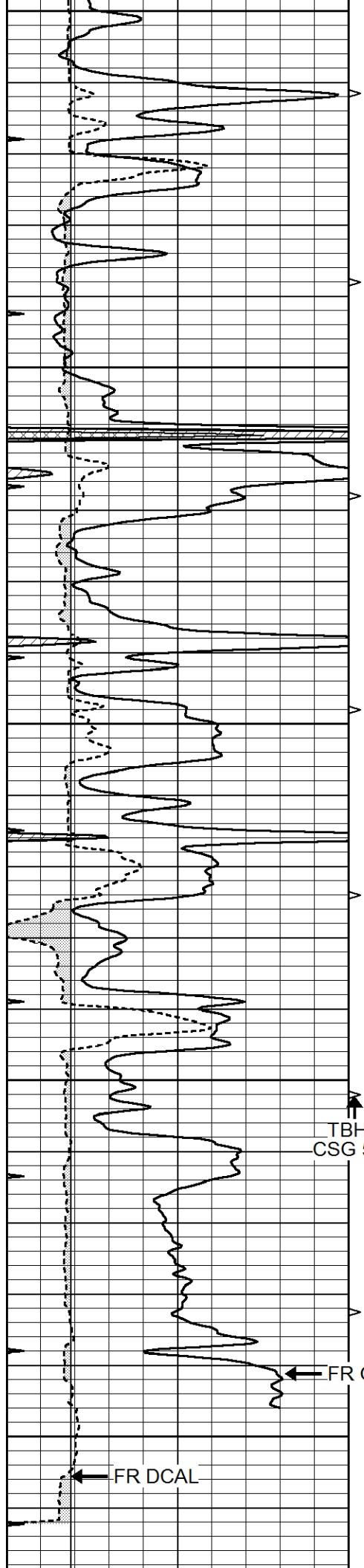
3450

3500

3550

3600





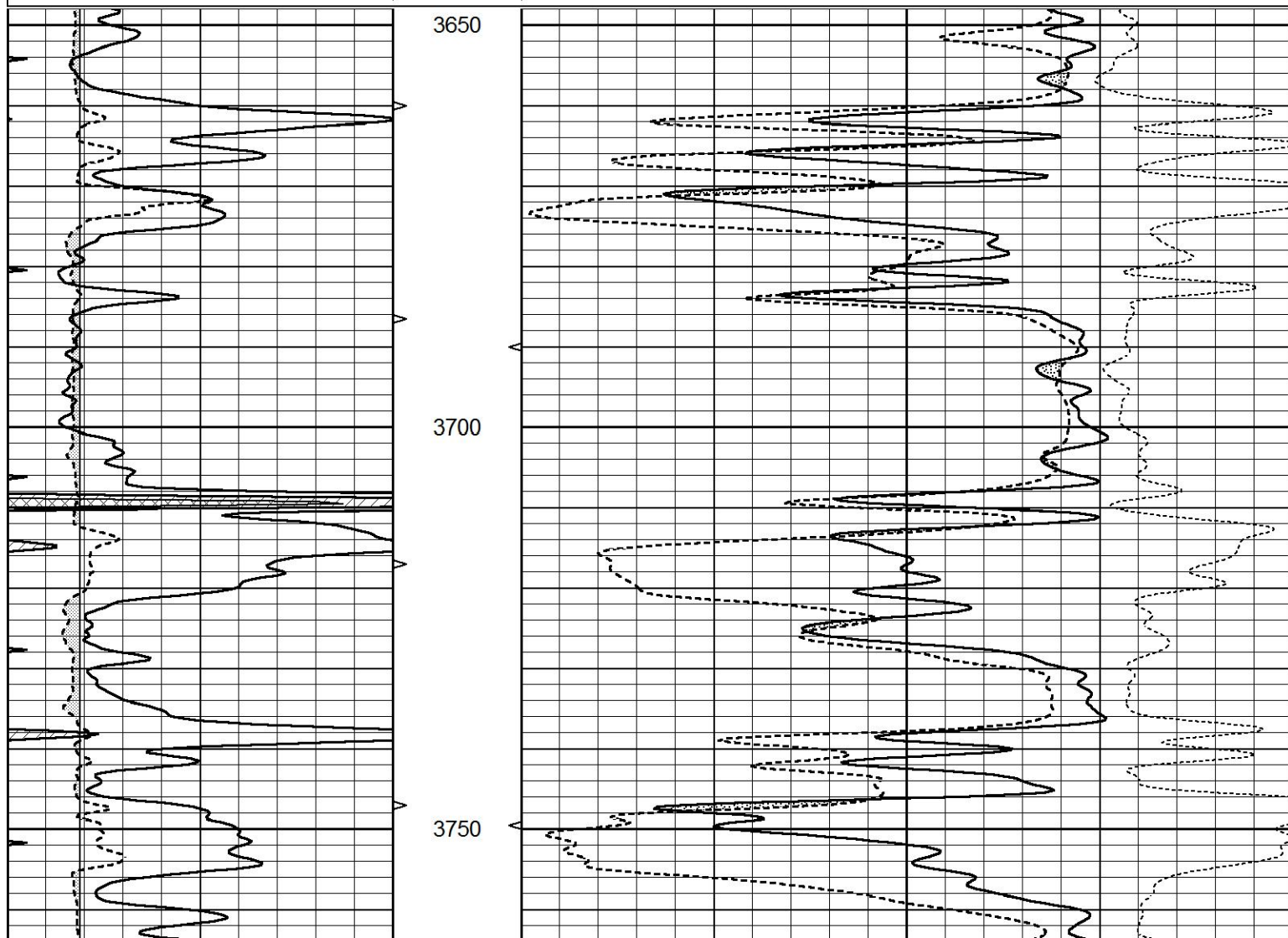
						2.71 LIMESTONE MATRIX		
			LTD 3880					
0	GAMMA RAY (GAPI)	150	AVTX	30	COMPENSATED DENSITY (pu)			-10
6	CALIPER (in)	16	10 (ft3) 0	30	COMPENSATED NEUTRON (pu)			-10
0	MINMK	20	BVTX				-0.25 CORRECTION (g/cc)	0.25
			0 (ft3) 10					

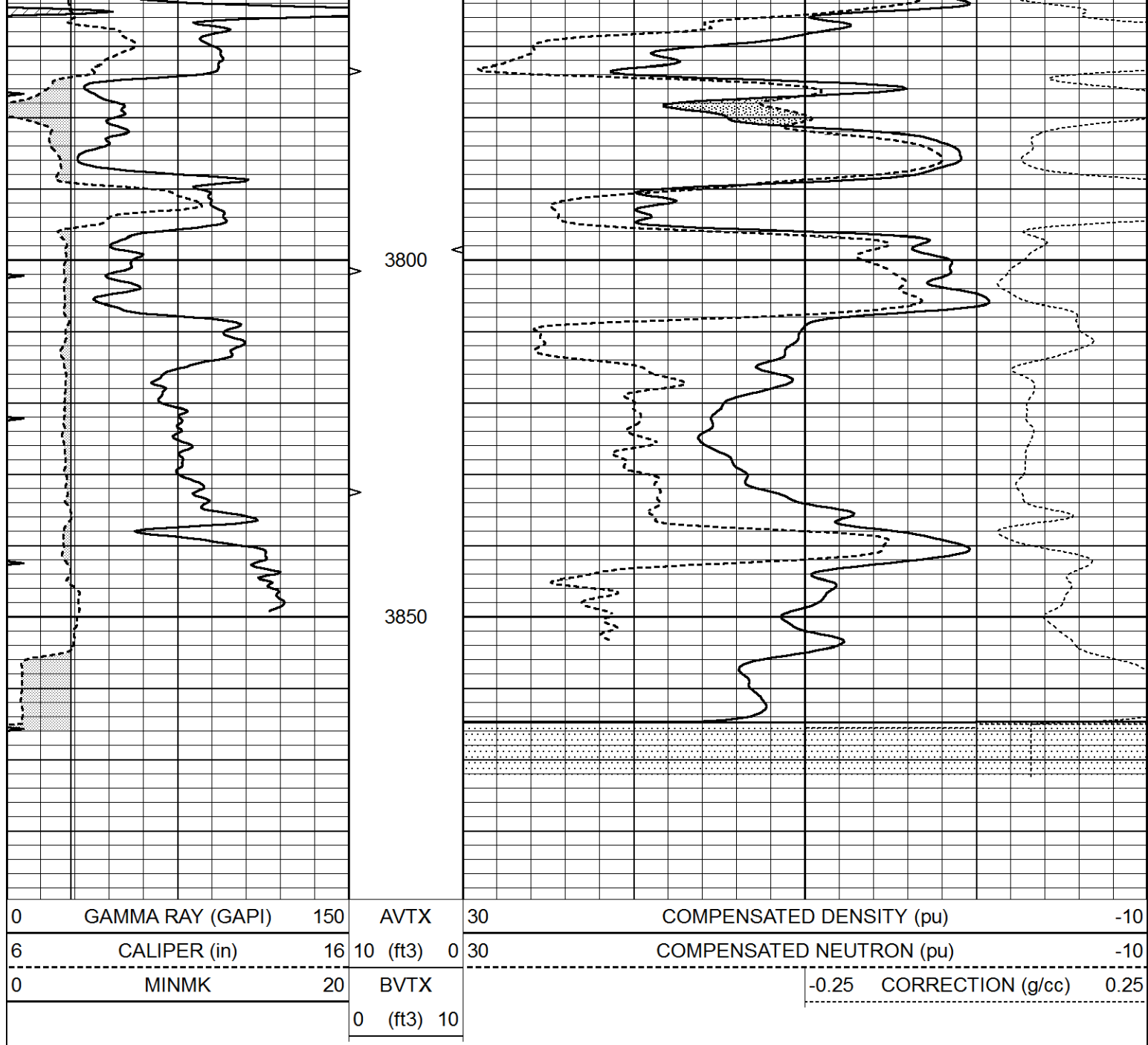


REPEAT SECTION

Database File 26601ddn8.db
Dataset Pathname pass2.1
Presentation Format _den_neu
Dataset Creation Fri Jul 24 19:59:10 2015
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					





Calibration Report

Database File 26601ddn8.db
Dataset Pathname pass3.1
Dataset Creation Fri Jul 24 20:00:02 2015

Dual Induction Calibration Report

Serial-Model: FW1410-56-Probe
Surface Cal Performed: Fri Mar 13 14:03:50 2015
Downhole Cal Performed: Fri Mar 13 15:37:29 2015
After Survey Verification Performed: Fri Mar 13 15:37:29 2015

Surface Calibration

Loop:	Readings			References			Results	
	Air	Loop		Air	Loop		m	b
Deep	0.008	0.765	V	1.000	400.000	mmho/m	527.061	-3.201
Medium	-0.056	0.761	V	1.000	464.000	mmho/m	567.187	32.510
Internal:	Zero	Cal		Zero	Cal		m	b

Internal:	Zero	Cal		Zero	Cal		m	b
Deep	0.005	0.624	V	0.000	400.000	mmho/m	645.611	-3.034
Medium	0.012	0.721	V	0.000	464.000	mmho/m	653.591	-7.532

Downhole Calibration								
Readings			References			Results		
	Zero	Cal		Zero	Cal		m'	b'
Deep	-0.647	301.329	mmho/m	-0.780	336.378	mmho/m	1.117	-0.058
Medium	38.256	411.013	mmho/m	39.046	441.706	mmho/m	1.080	-2.280
LL3		7.471	V		1500.000	Ohm-m		
		0.001	V		20.000	Ohm-m		
		-7.085	V		6000.000	mmho-m		

After Survey Verification								
Readings			Targets			Results		
	Zero	Cal		Zero	Cal		m'	b'
Deep	0.000	0.000	mmho/m	-0.647	301.329	mmho/m	1.000	0.000
Medium	0.000	0.000	mmho/m	38.256	411.013	mmho/m	1.000	0.000
LL3		0.000	Ohm-m		1500.000	Ohm-m		
		0.000	Ohm-m		20.000	Ohm-m		
		0.000	mmho-m		3745.000	mmho-m		

Litho Density Calibration Report								
Serial: 140704								
Model: V4_10P								
Source Number: 74GBq-19								

Master Calibration					Performed: Wed Feb 11 18:53:41 2015			
	Background	Aluminum	Magnesium					
Window 1	613.01	6027.40	27508.60	cps				
Window 2	48.21	1424.77	7132.66	cps				
Window 4	266.48	1373.19	5767.15	cps				
Window 5	622.07	10090.30	18937.90	cps				
Window 6	49.07	1682.84	3271.18	cps				
Window 8	298.04	3248.38	5980.58	cps				
Bulk Density	-	2.6020	1.6830	g/cc				
Pe	-	3.0000	2.5070	b/e				
LS Alpha:	: -1.8451	SS Alpha:	: -0.7542	LS CPE:	: 1.0882			
LS Beta:	: 138648.8473	SS Beta:	: 21960.9250	SS CPE:	: 1.5181			

Before Survey Background Counts Verification			Performed: Wed Dec 31 18:00:00 1969
Window 1	0.00	cps	
Window 2	0.00	cps	
Window 4	0.00	cps	
Window 5	0.00	cps	
Window 6	0.00	cps	
Window 8	0.00	cps	

After Survey Background Counts Verification			Performed: Wed Dec 31 18:00:00 1969
Window 1	0.00	cps	
Window 2	0.00	cps	
Window 4	0.00	cps	
Window 5	0.00	cps	
Window 6	0.00	cps	
Window 8	0.00	cps	

Window 6	0.00	cps
Window 8	0.00	cps
Lithodensity Caliper Calibration		Performed: Wed Feb 11 18:53:41 2015
Results	Readings	References (in)
Low	High	Low High Gain Offset
5123.0	9461.6	8.5 14.0 0.0 1.4
Before Survey Caliper Verification		Performed:
	Reference	Reading
Caliper (in)		
After Survey Caliper Verification		Performed:
	Reference	Reading
Caliper (in)		
Compensated Neutron Calibration Report		
	Serial Number:	080620PMC
	Tool Model:	NABORS
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